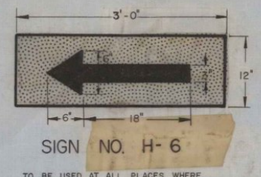
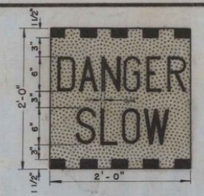
SIGN NO. H-7

SIGN NO. H-7 TO BE USED FOR SECONDARY STATE AID PROJECTS ONLY. *NOT TO BE USED ON STATE HIGHWAY SYSTEM PROJECTS.*

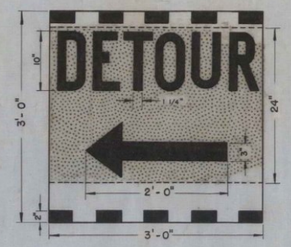


SIGN NO. H-6

TO BE USED AT ALL PLACES WHERE THERE COULD BE ANY QUESTION AS TO WHICH WAY TRAFFIC SHOULD GO, OR WHERE THERE IS ANY APPARENT CHOICE OF ROUTING, AND AS DIRECTED BY THE ENGINEER.



SIGN NO. H-5

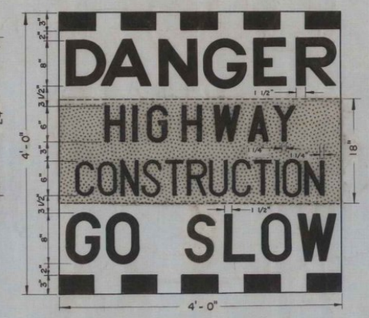


SIGN NO. H-4

SIGN NO. H-3

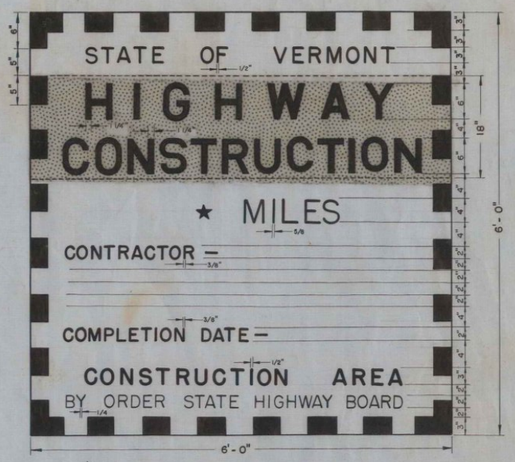
SIGNS, NUMBERS H-3, H-4, H-5 AND H-9 TO BE USED AS REQUIRED IN THE PROPER PROTECTION OF THE TRAVELLING PUBLIC, AND TO BE ERECTED SO THAT THE BOTTOM IS AT LEAST 3 FEET ABOVE THE GROUND.

SIGN NO. H-9



SIGN NO. H-2

SIGN NO. H-2, SHALL BE USED ON AN INTERSECTING HIGHWAY



★ MILEAGE TO BE EXPRESSED IN MILES AND FRACTIONS OF MILES, TO THE NEAREST 1/4 MILE

SIGN NO. H-1

ON SIGNS H-1 AND H-2 THE WORDS "HIGHWAY CONSTRUCTION" SHALL BE REFLECTORIZED; ON SIGN H-3 THE WORDS "ONE WAY TRAFFIC" SHALL BE REFLECTORIZED; ON SIGN H-4 THE WORD "DETOUR" AND ARROW SHALL BE REFLECTORIZED; AND SIGNS H-5, H-6, AND H-9 SHALL BE COMPLETELY REFLECTORIZED.

REFLECTORIZATION SHALL BE DONE AS FOLLOWS: (1) BACKGROUND REFLECTORIZATION BY AN APPROVED WHITE OR SILVER COLORED REFLECTING MATERIAL THE FULL WIDTH OF THE SIGN WITH LETTERS PAINTED IN BLACK; OR (2) REFLECTORIZED LETTERS OF AN APPROVED WHITE OR SILVER COLORED REFLECTING MATERIAL APPLIED TO A BLACK PAINTED PANEL.

THE PANEL FOR EITHER TYPE OF REFLECTORIZATION SHALL BE 18 INCHES HIGH FOR SIGNS H-1 AND H-2; 24 INCHES HIGH FOR SIGNS H-3 AND H-4. BACKGROUND REFLECTORIZATION (TYPE 1) FOR SIGNS H-5, H-6, AND H-9 SHALL COVER THE ENTIRE SIGN.

ON INTERSTATE CONTRACTS THE REFLECTORIZED PANELS ON SIGNS H-1 AND H-2 SHALL BE WORDED "INTERSTATE CONSTRUCTION" IN THE SAME SIZE AND TYPE OF LETTERS AS REQUIRED FOR "HIGHWAY CONSTRUCTION".

ON MAINTENANCE PAVING CONTRACTS THE REFLECTORIZED PANELS ON SIGNS H-1 AND H-2 SHALL BE WORDED "HIGHWAY PAVING" IN THE SAME SIZE AND TYPE OF LETTERS AS REQUIRED FOR "HIGHWAY CONSTRUCTION"

SIGN NO. H-8

BARRICADES.— SUITABLE BARRICADES APPROVED BY THE ENGINEER, SHALL BE ERECTED WHENEVER NECESSARY ON THE PROJECT TO PROTECT TRAFFIC. BARRICADES SHALL BE PAINTED YELLOW.

SIGNS.— SIGNS SHALL BE CONSTRUCTED OF WOOD OR METAL AND THE LETTERS SHALL BE PAINTED DIRECTLY THEREON. LETTERS SHALL BE BLACK ON A YELLOW BACKGROUND AND THE BORDER SHALL BE DARK BLUE, UNLESS REFLECTORIZATION IS REQUIRED.
THE NUMERALS INDICATING THE LENGTH OF THE PROJECT IN MILES, MAY BE PAINTED ON A SMALL SIGN, WHICH SHALL BE SECURELY ATTACHED TO THE LARGER SIGN.
THESE SIGNS SHALL BE REPAINTED WHEN NOT CLEARLY LEGIBLE AND WHENEVER SO ORDERED BY THE ENGINEER.
ALL SIGNS SHALL BE SECURELY ATTACHED TO POSTS SET FIRMLY IN THE GROUND AND THEY SHALL BE SECURELY BRACED.
THE SIGNS SHALL BE SO LOCATED AND MAINTAINED THAT THEY BE CLEARLY VISIBLE FOR AT LEAST 300 FEET FROM AN APPROACHING VEHICLE AND MAINTAINED AT ALL TIMES FREE FROM OBSTRUCTIONS. THE BOTTOM OF A SIGN SHALL BE AT LEAST 3 FEET ABOVE THE ROAD.

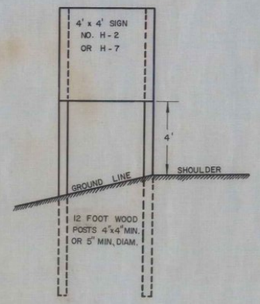
LIGHTS.— ALL LIGHTS REQUIRED BY THE ENGINEER, SHALL BE KEPT BURNING FROM SUNSET TO SUNRISE. THE NUMBER OF LIGHTS AT EACH SIGN SHALL BE AS ORDERED BY THE ENGINEER. ALL LIGHTS SHALL BE SO PLACED, THAT THEY WILL BE CLEARLY VISIBLE FOR AT LEAST 300 FEET FROM AN APPROACHING VEHICLE, AND SHALL NOT BE PLACED SO THAT THEY BURN OR SMOKE A SIGN.
THE USE OF LANTERNS FOR LIGHTING SIGNS IS NOT APPROVED

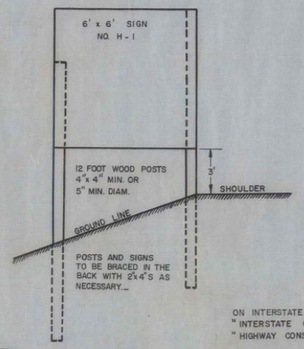
ALL BARRICADES, SIGNS AND LIGHTS SHALL BE FURNISHED, ERECTED AND MAINTAINED DURING THE ENTIRE PERIOD OF CONSTRUCTION, BY THE CONTRACTOR AT HIS OWN EXPENSE. SIGNS AND LIGHTS, SHALL BE PLACED AS SHOWN ON THIS SHEET OR AS DIRECTED BY THE ENGINEER. SHOULD THE CONTRACTOR FAIL TO COMPLY WITH THE REQUIREMENTS ON THIS SHEET, OR THE REQUIREMENTS OF PARAGRAPH 7.08, SECTION 7, DIVISION 1, OF THE STANDARD ROAD AND BRIDGE SPECIFICATIONS, THE ENGINEER SHALL HAVE THE AUTHORITY TO DO THIS WORK AT THE CONTRACTOR'S EXPENSE, AS SPECIFIED IN PARAGRAPH 5.01 OF SECTION 5, DIVISION 1.

APPROPRIATE BARRICADES, SIGNS AND LIGHTS APPROVED BY THE ENGINEER, SHALL BE PLACED AT ALL HAZARDS, SUCH AS OPEN TRENCHES OR PITS, DROP-OFFS, EXCEPTIONALLY ROUGH SECTIONS OF THE TRAVELLED WAY, AND AT ALL OBSTRUCTIONS OF ANY KIND, INCLUDING MACHINERY PARKED IN THE ROADWAY. THESE SIGNS SHALL BE SIMILAR IN GENERAL DESIGN TO THOSE SHOWN ON THIS SHEET AND THE DIMENSIONS SHALL NOT BE LESS THAN 2'x2'.

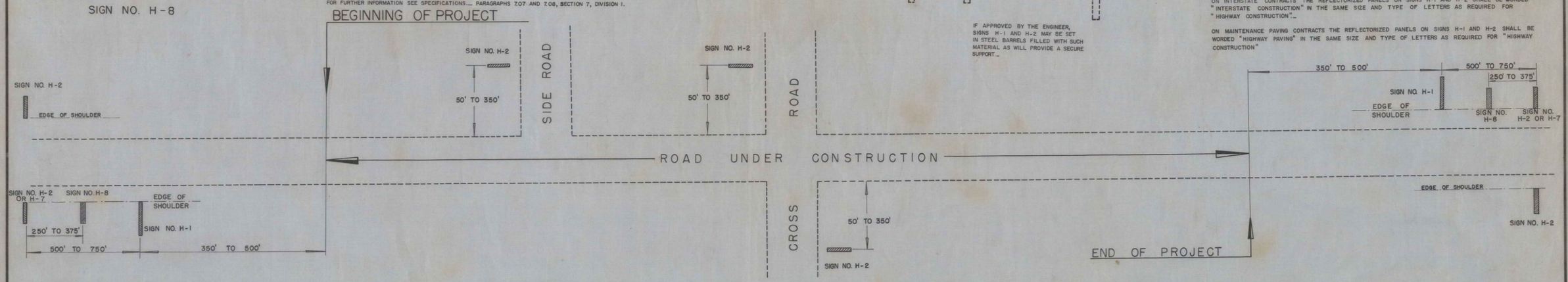
FOR FURTHER INFORMATION SEE SPECIFICATIONS.— PARAGRAPHS 7.07 AND 7.08, SECTION 7, DIVISION 1.

REQUIRED METHODS OF ERECTING STANDARD CONSTRUCTION SIGNS NOS. H-1 AND H-2





IF APPROVED BY THE ENGINEER, SIGNS H-1 AND H-2 MAY BE SET IN STEEL BARRELS FILLED WITH SUCH MATERIAL AS WILL PROVIDE A SECURE SUPPORT.



REVISIONS & CORRECTIONS	APPROVED	DATE: MARCH 10, 1965	BARRICADES, SIGNS AND LIGHTS (FOR ROADWAYS)	VERMONT DEPARTMENT OF HIGHWAYS STANDARD	E-1
	A. W. Coleman TRAFFIC ENGINEER	A D Bishop CHIEF ENGINEER G. M. Lane HIGHWAY ENGINEER E. W. Stickney CONSTRUCTION ENGINEER			
	DRAWN: AJA TRACED: AJA				

MATERIALS

Construction Identification Signs shall be of wood, metal, hardboard or any other durable material satisfactory to the engineer, with the background and legend painted thereon. Neither background nor legend shall be reflectorized. No materials shall be used that will deteriorate by exposure to the weather during the required life of the sign.

DESIGN

The content of a sign shall be in accordance with the appropriate design shown on this sheet. The legend shall be in black on a white background, except for an interstate route marker which shall be standard 24 inch three color interstate shield. A U.S. route marker shall be the standard 16 1/2 x 16 inch shield; a state route marker shall be the standard 15 x 13 inch rectangle, with inscribed circle; See Standard Sheet E-13.

LOCATION

For primary, secondary and urban federal-aid construction, a sign generally shall be located at each end of a project and on all intersecting numbered routes.

For interstate construction, a sign generally shall be located on an existing highway at each end of a section under construction, and on numbered route crossings where the work is visible to the public.

Specifically, signs shall be located where indicated on the plans or designated by the engineer. They shall be placed so as to be competely visible to approaching traffic. A sign shall not be erected so as to obscure or detract from the effectiveness of any other official sign

ERECTION

The signs shall be in position at the time major physical construction work, readily visible, starts on the project or section to be signed.

Each sign shall be erected in a neat and workmanlike manner on wood, steel or aluminum posts set securely in the ground, with the bottom of the sign at least 5 feet above road level. The nearest edge of a sign shall be at least 4 feet outside the shoulder point, or 2 feet outside the guard rail, curb or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. Signs shall be erected to the satisfaction of the engineer.

MAINTENANCE

Signs shall be maintained in a legible condition satisfactory to the engineer. They shall be completely visible to approaching traffic at all times. They shall be kept plumb and level, and always present a neat appearance. Signs shall not be lighted at night.

GENERAL

The cost of furnishing, erecting, maintaining and removing the Construction and identification signs shall be considered as subsidiary work pertaining to the project as a whole and shall be included in the contract unit price bid for the various items involved in the contract. The number of signs required will be as shown on the title sheet of the plans and Special Provisions.

On Interstate construction, the section to be signed and the amounts of Federal and State funds will be indicated in the Special Provisions.

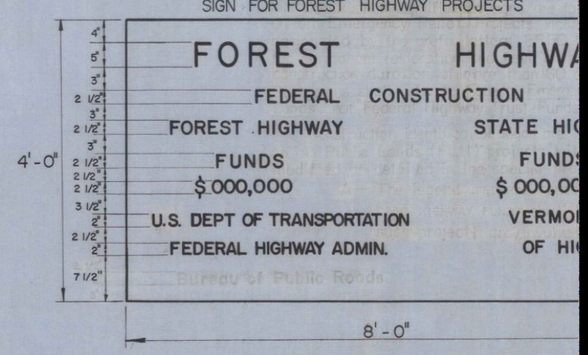
The amount of funds may be painted on a small sign compatible with the design and coloring of the construction identification sign, which shall be securely attached to the larger sign.

Construction identification signs are to be placed on all landscape and scenic enhancement projects costing over $10,000, financed wholly or in part with federal funds, and located on the highway right-of-way. Such signs shall refer to Federal Funds, not "Federal Highway Trust Funds"

Construction Identification Signs are to be placed on all Emergency Relief Projects, including those designated by the prefix letters ERFO that provide for permanent restoration and have an estimated construction duration of more than 60 calendar days. Such signs shall refer to Federal Emergency Relief Funds, not "Federal Highway Trust Funds"

Construction Identification Signs are to be placed on all Public Lands (FLH) projects, with the legend modified as detailed in the special provisions.

SIGN FOR FOREST HIGHWAY PROJECTS



6'-0"

REVISIONS AND CORRECTIONS

APPROVED Dec 14, 1971
DATE

R H Crowell
CHIEF ENGINEER

E H Stickney
ASST. CHIEF ENGINEER

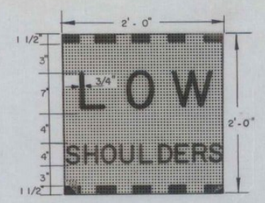
G. M. Lane
HIGHWAY ENGINEER

E. H. Stickney
CONSTRUCTION ENGINEER

TRAFFIC SIGNS

FEDERAL AID CONST
IDENTIFICATION SI

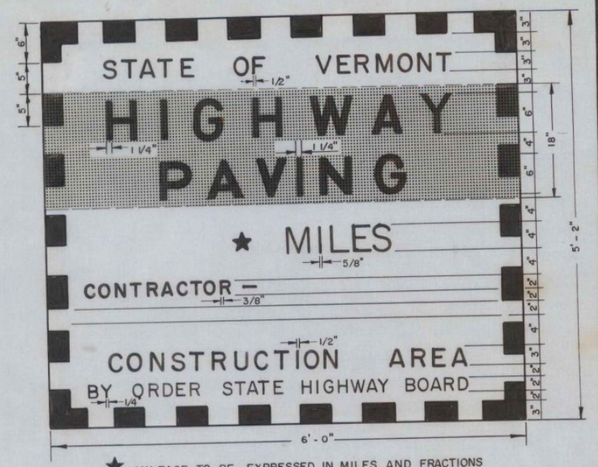
SHEET NO. 1



SIGN NO. H-9

SIGN NO. H-2a

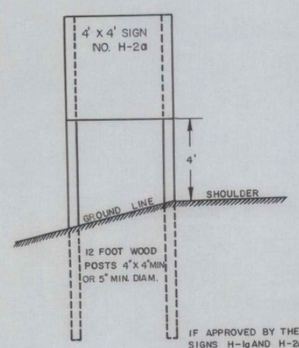
SIGN. NO. H-2, SHALL BE USED ON AN INTERSECTING HIGHWAY

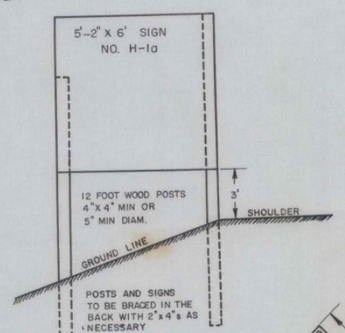


★ MILEAGE TO BE EXPRESSED IN MILES AND FRACTIONS OF MILES, TO THE NEAREST 1/4 MILE

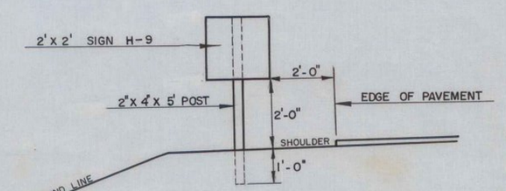
SIGN NO. H-1a

REQUIRED METHODS OF ERECTING STANDARD CONSTRUCTION SIGNS NOS. H-1a AND H-2a





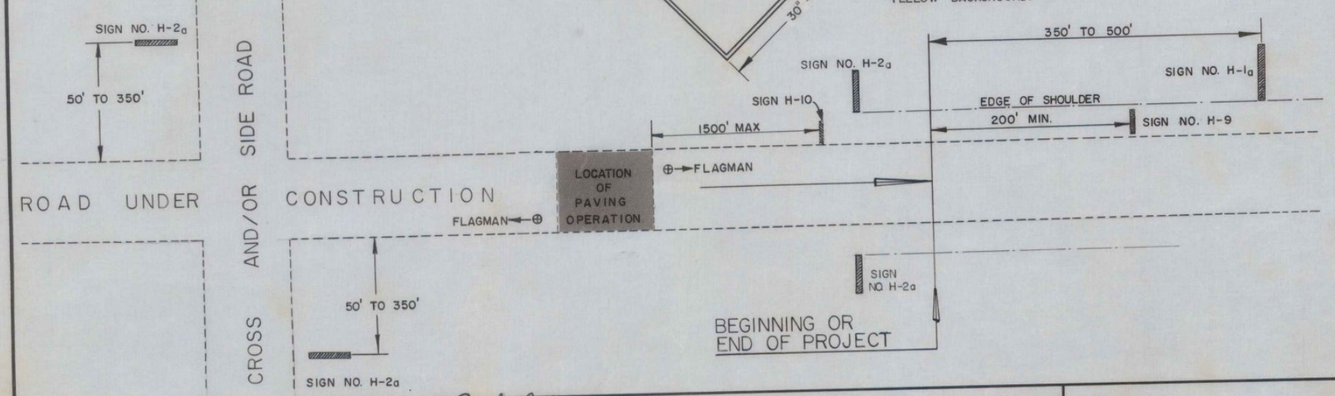
IF APPROVED BY THE ENGINEER, SIGNS H-1a AND H-2a MAY BE SET IN STEEL BARRELS FILLED WITH MATERIAL AS WILL PROVIDE A SECURE SUPPORT



REQUIRED METHOD OF ERECTING STANDARD CONSTRUCTION SIGN H-9

SIGN H-10

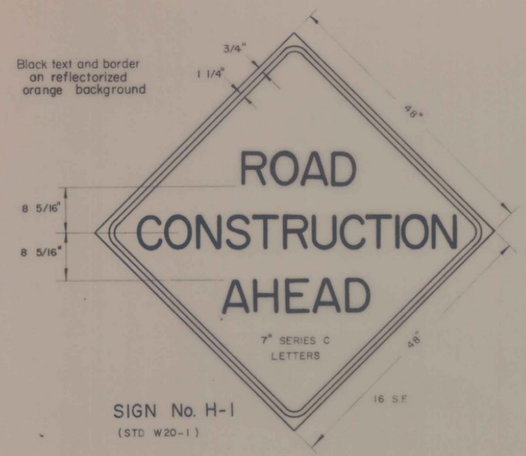
BLACK LETTERS ON A REFLECTORIZED YELLOW BACKGROUND.



REVISIONS AND CORRECTIONS	APPROVED		SIGNS (PAVING)	VERMONT DEPARTMENT OF HIGHWAY STANDARD
SIGN H-10 AND FLAGMEN ADDED_JUNE 30,'64	6/24/64 DATE	A. D. Bishop CHIEF ENGINEER; R. J. Arnold ASST. CHIEF ENGINEER; G. M. Lane HIGHWAY ENGINEER; E. B. Stickney CONSTRUCTION ENGINEER; E. Bench Bly CHIEF OF OPERATIONS	SHEET 1 OF 2	E-1a

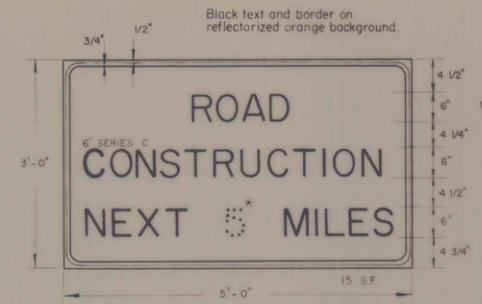
SIGN H-3 IS TO BE USED WHEN PROJECT LENGTH EXCEEDS 2 MILES, OR AS REQUESTED BY THE RESIDENT ENGINEER. THE TEXT MAY BE AS SHOWN OR MAY READ AS FOLLOWS "CONSTRUCTION AREA NEXT ___ MILES"

* Show mileage to nearest 1/4 mile

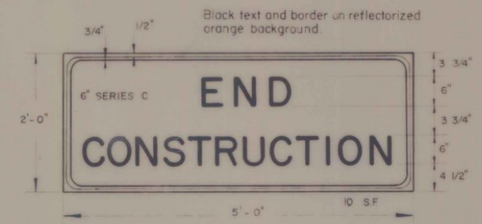


SIGN No. H-1 (STD. W20-1)

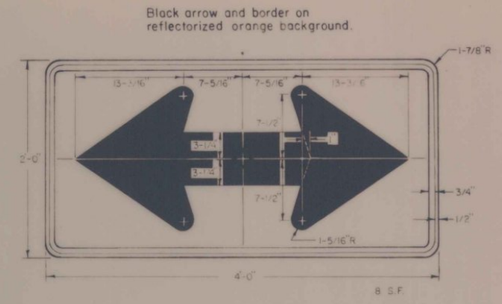
SIGN No. H-2 (STD. W20-1)



SIGN No. H-3 (STD. G20-1)

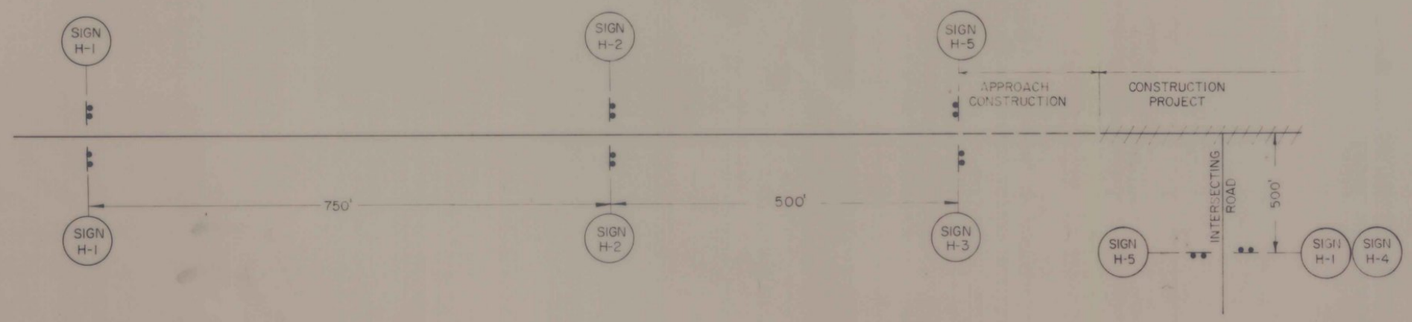


SIGN No. H-5 (STD. G20-2)



SIGN No. H-4 (STD. W1-7)

The road construction approach signs shown on this sheet are intended for use in providing advance warning and information on construction projects over which traffic will be maintained. When additional approach signs or other types of advance signing or control are necessary, the Plans and/or the Specifications for that project will give the details of the signs and devices required.



NOTES

LOCATION

Construction approach signs shall be located as detailed on this sheet or otherwise shown on the Plans. They shall appear at each end of the highway under construction, and on all intersecting public highways. The exact placement of any sign will depend upon the alignment of the highway and the character of the roadsides. The location measurements on this sheet are intended to indicate the sequence to be followed, and the minimum spacing to be observed by the Engineer in determining exact locations.

DESIGN

The designs of the signs shall conform with the details shown on this sheet and with the standards prescribed in the Manual on Uniform Traffic Control Devices prepared by National Joint Committee on Uniform Traffic Control Devices.

MATERIALS

The signs shall be of metal, wood, plywood, hardboard or any other material satisfactory to the Engineer. No material will be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION

All reflectorized material shall consist of encapsulated lens reflective sheeting.

INSTALLATION

The signs shall be in place at the time the project officially commences. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground. The bottom of a sign shall be at least 5 feet above road level, and the nearest edge of a sign shall be at least 6 feet outside the shoulder point or 2 feet outside guard rail, curbing or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. The installation of signs shall be subject to approval of the Engineer. In urban areas, the bottom of the sign shall be at least 7' above the sidewalk.

MAINTENANCE

Signs shall be maintained in a clean and legible condition satisfactory to the Engineer. They shall be completely visible to approaching traffic at all times. They shall be kept plumb and level, and always present a neat appearance. Damaged, defaced or dirty signs shall be repaired, cleaned or replaced as ordered by the Engineer.

GENERAL

The cost of furnishing, erecting, maintaining and removing all construction approach signs will be considered subsidiary work pertaining to the project as a whole and shall be included in the contract unit price bid for various items involved in the contract. In all phases of construction of approach signing, the requirements set forth in the Manual on Uniform Traffic Control Devices shall be met (See Standard Specifications, Section 107, Article 107.08 Traffic Control Devices.

When project is closed down for temporary periods the signs shall be covered in a workmanlike manner.

REVISIONS AND CORRECTIONS

SEPT. 11, 1973 – REVISED PER ORDER OF FHWA, SEPT. 11, 1973
OCT. 19, 1973 – SIGN H-4 REMOVED.
MAY 14, 1974 – REFLECTIVE MATERIAL CHANGE
JUNE 7, 1977 – REFLECTIVE MATERIAL NOTE CHANGED.
DEC. 15, 1978 – ILLUMINATION DELETED.
DEC. 17, 1979 – SIGN H-3 REVISED, SIGN H-4 ADDED.
MAR. 4, 1981 – SIGN H-3 TEXT CHANGED, NOTE ADDED.

FEB. 3, 1986– UPDATED TO 1986 SPECIFICATIONS

APPROVED
Dec. 14, 1971 — R. H. Arnold, CHIEF ENGINEER
DATE
E. H. Stickney, ASST. CHIEF ENGINEER
G. M. Lane, HIGHWAY ENGINEER

TRAFFIC SIGNS

ROAD CONSTRUCTION APPROACH SIGNS

VERMONT AGENCY OF TRANSPORTATION

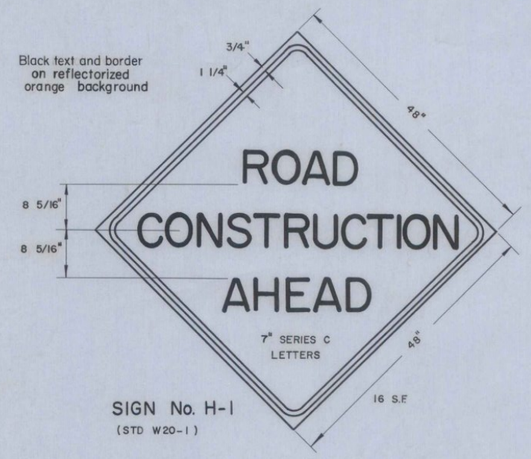
STANDARD

E-2

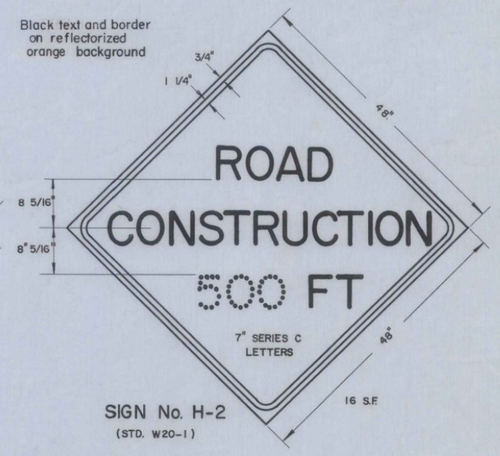
D-8

SIGN H-3 IS TO BE USED WHEN PROJECT LENGTH EXCEEDS 2 MILES, OR AS REQUESTED BY THE RESIDENT ENGINEER. THE TEXT MAY BE AS SHOWN OR MAY READ AS FOLLOWS "CONSTRUCTION AREA NEXT __ MILES"

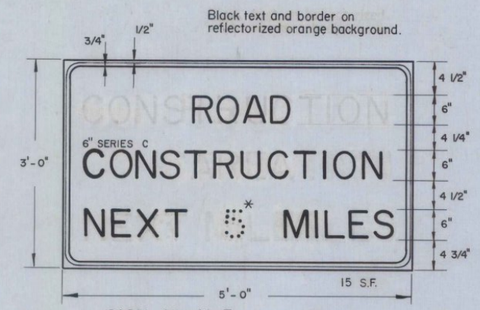
* Show mileage to nearest 1/4 mile



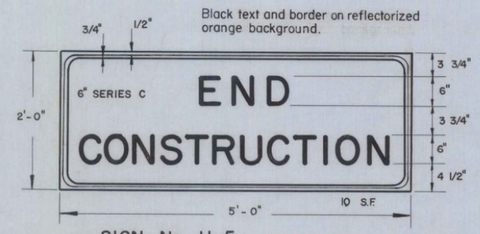
SIGN No. H-1
(STD W20-1)



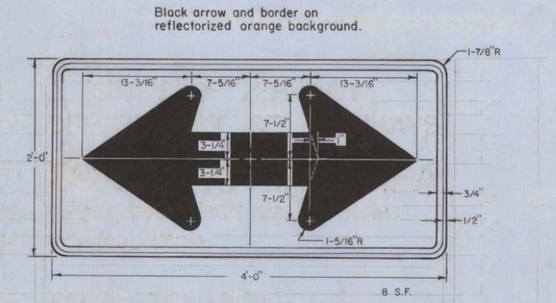
SIGN No. H-2
(STD. W20-1)



SIGN No. H-3
(STD. G20-1)

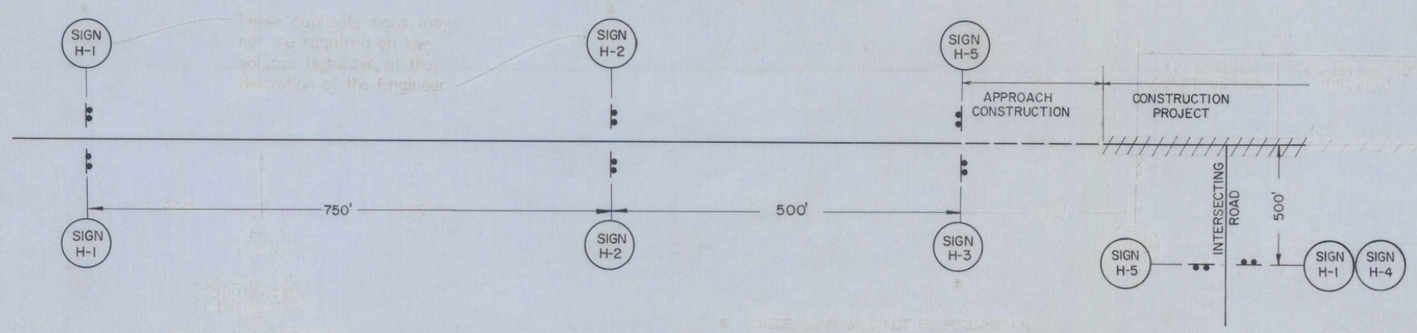


SIGN No. H-5
(STD. G20-2)



SIGN No. H-4
(STD. W1-7)

The road construction approach signs shown on this sheet are intended for use in providing advance warning and information on construction projects over which traffic will be maintained. When additional approach signs or other types of advance signing or control are necessary, the Plans and/or the Specifications for that project will give the details of the signs and devices required.



NOTES

LOCATION

Construction approach signs shall be located as detailed on this sheet or otherwise shown on the Plans. They shall appear at each end of the highway under construction, and on all intersecting public highways. The exact placement of any sign will depend upon the alignment of the highway and the character of the roadsides. The location measurements on this sheet are intended to indicate the sequence to be followed, and the minimum spacing to be observed by the Engineer in determining exact locations.

DESIGN

The designs of the signs shall conform with the details shown on this sheet and with the standards prescribed in the Manual on Uniform Traffic Control Devices prepared by National Joint Committee on Uniform Traffic Control Devices.

MATERIALS

The signs shall be of metal, wood, plywood, hardboard or any other material satisfactory to the Engineer. No material will be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION

All reflectorized material shall consist of encapsulated lens reflective sheeting.

INSTALLATION

The signs shall be in place at the time the project officially commences. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground. The bottom of a sign shall be at least 5 feet above road level, and the nearest edge of a sign shall be at least 6 feet outside the shoulder point or 2 feet outside guard rail, curbing or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. The installation of signs shall be subject to approval of the Engineer. In urban areas, the bottom of the sign shall be at least 7' above the sidewalk.

MAINTENANCE

Signs shall be maintained in a clean and legible condition satisfactory to the Engineer. They shall be completely visible to approaching traffic at all times. They shall be kept plumb and level, and always present a neat appearance. Damaged, defaced or dirty signs shall be repaired, cleaned or replaced as ordered by the Engineer.

GENERAL

The cost of furnishing, erecting, maintaining and removing all construction approach signs will be considered subsidiary work pertaining to the project as a whole and shall be included in the contract unit price bid for various items involved in the contract. In all phases of construction of approach signing, the requirements set forth in the Manual on Uniform Traffic Control Devices shall be met (See Standard Specifications, Section 107, Article 107.09 Barricades, Warning and Detour Signs).

When project is closed down for temporary periods the signs shall be covered in a workmanlike manner.

REVISIONS AND CORRECTIONS

SEPT. 11, 1973 – REVISED PER ORDER OF FHWA, SEPT. 11, 1973
OCT. 19, 1973 – SIGN H-4 REMOVED.
MAY 14, 1974 – REFLECTIVE MATERIAL CHANGE
JUNE 7, 1977 – REFLECTIVE MATERIAL NOTE CHANGED.
DEC. 15, 1978 – ILLUMINATION DELETED.
DEC. 17, 1979 – SIGN H-3 REVISED, SIGN H-4 ADDED.
MAR. 4, 1981 – SIGN H-3 TEXT CHANGED, NOTE ADDED.

APPROVED
Dec. 14, 1971 — R. H. Arnold, CHIEF ENGINEER
DATE
E. H. Stickney, ASST. CHIEF ENGINEER
G. M. Lane, HIGHWAY ENGINEER

TRAFFIC SIGNS

ROAD CONSTRUCTION APPROACH SIGNS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-2

ALL BARRICADES, SIGNS AND LIGHTS SHALL BE FURNISHED, ERECTED AND MAINTAINED DURING THE ENTIRE PERIOD OF CONSTRUCTION, BY THE CONTRACTOR AT HIS OWN EXPENSE. SIGNS AND LIGHTS SHALL BE PLACED AS SHOWN ON THIS SHEET OR AS DIRECTED BY THE ENGINEER. SHOULD THE CONTRACTOR FAIL TO COMPLY WITH THE REQUIRMENTS ON THIS SHEET OR THE REQUIREMENTS OF PARAGRAPH 7.08, SECTION 7, DIVISION I, OF THE STANDARD ROAD AND BRIDGE SPECIFICATIONS, THE ENGINEER SHALL HAVE THE AUTHORITY TO DO THIS WORK AT THE CONTRACTOR'S EXPENSE, AS SPECIFIED IN PARAGRAPH 5.01 OF SECTION 5, DIVISION I.

APPROPRIATE BARRICADES, SIGNS AND LIGHTS APPROVED BY THE ENGINEER, SHALL BE PLACED AT ALL HAZARDS, SUCH AS OPEN TRENCHES OR PITS, DROP-OFFS, EXCEPTIONALLY ROUGH SECTIONS OF THE TRAVELLED WAY AND AT ALL OBSTRUCTIONS OF ANY KIND, INCLUDING MACHINERY PARKED IN THE ROADWAY.

BARRICADES. — BARRICADES OF WOOD GUARD RAIL, EXTENDING FROM SHOULDER TO TO SHOULDER, SHALL BE ERECTED AT EACH END OF THE WORK AS DETAILED BELOW. BARRICADES SHALL BE PAINTED YELLOW.

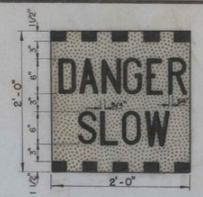
SIGNS. — SIGNS SHALL BE CONSTRUCTED OF WOOD OR METAL AND THE LETTERS SHALL BE PAINTED DIRECTLY THEREON. LETTERS SHALL BLACK ON A YELLOW BACKGROUND AND THE BORDER SHALL BE DARK BLUE, UNLESS REFLECTORIZATION IS REQUIRED THE NUMERALS INDICATING THE LENGTH OF THE PROJECT IN MILES, MAY BE PAINTED ON A SMALL SIGN WHICH SHALL BE SECURELY ATTACHED TO THE LARGER SIGN. THE LENGTH OF PROJECT IS TO BE SHOWN TO THE NEAREST 1/4 MILE.
THESE SIGNS SHALL BE REPAINTED WHEN NOT CLEARLY LEGIBLE AND WHENEVER SO ORDERED BY THE ENGINEER.
ALL SIGNS SHALL BE SECURELY ATTACHED TO POSTS SET FIRMLY IN THE GROUND AND THEY SHALL BE SECURELY BRACED.
THE SIGNS SHALL BE SO LOCATED AND MAINTAINED THAT THEY WILL BE CLEARLY VISIBLE FOR AT LEAST 300 FEET, FROM AN APPROACHING VEHICLE AND MAINTAINED AT ALL TIMES FREE FROM OBSTRUCTIONS.
THE BOTTOM OF A SIGN SHALL BE AT LEAST 3 FEET ABOVE THE GROUND.

LIGHTS. — ALL LIGHTS REQUIRED BY THE ENGINEER SHALL BE KEPT BURNING FROM SUNSET TO SUNRISE. THE NUMBER OF LIGHTS AT EACH SIGN SHALL BE AS ORDERED BY THE ENGINEER. ALL LIGHTS SHALL BE SO PLACED THAT THEY WILL BE CLEARLY VISIBLE FROM APPROACHING VEHICLES, AND SHALL NOT BE PLACED SO THAT THEY BURN OR SMOKE A SIGN.
THE USE OF LANTERNS FOR LIGHTING SIGNS IS NOT APPROVED.

FOR FURTHER INFORMATION, SEE SPECIFICATIONS. PARAGRAPHS 7.07 AND 7.08, SECTION 7, DIVISION I.

ON SIGNS B-1 AND B-2 THE WORDS "BRIDGE CONSTRUCTION" SHALL BE REFLECTORIZED.
ON SIGN B-3, THE ENTIRE SIGN SHALL BE REFLECTORIZED; ON SIGN B-4 THE WORDS "ONE WAY TRAFFIC" SHALL BE REFLECTORIZED. — SIGN B-5 SHALL BE COMPLETELY REFLECTORIZED. REFLECTORIZATION SHALL BE AS FOLLOWS: (1) BACKGROUND REFLECTORIZATION BY AN APPROVED WHITE OR SILVER COLORED REFLECTING MATERIAL, THE FULL WIDTH OF THE SIGN WITH LETTERS PAINTED IN BLACK, OR (2) REFLECTORIZED LETTERS OF AN APPROVED WHITE OR SILVER REFLECTING MATERIAL. ON A PAINTED BLACK — THE PANEL FOR EITHER TYPE OF REFLECTORIZATION SHALL BE 18 INCHES HIGH FOR SIGNS B-1 AND B-2, 24" HIGH FOR SIGN B-4 — BACKGROUND REFLECTORIZATION (TYPE 1) FOR SIGNS B-3 AND B-5 SHALL COVER THE ENTIRE SIGN.

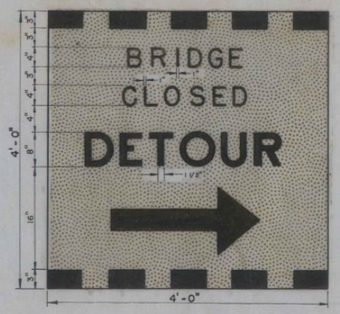
ON INTERSTATE CONTRACTS THE REFLECTORIZED PANELS ON SIGNS B-1 AND B-2 SHALL BE WORDED "INTERSTATE CONSTRUCTION" IN THE SAME SIZE AND TYPE OF LETTERS AS REQUIRED FOR "BRIDGE CONSTRUCTION".



SIGN B-5

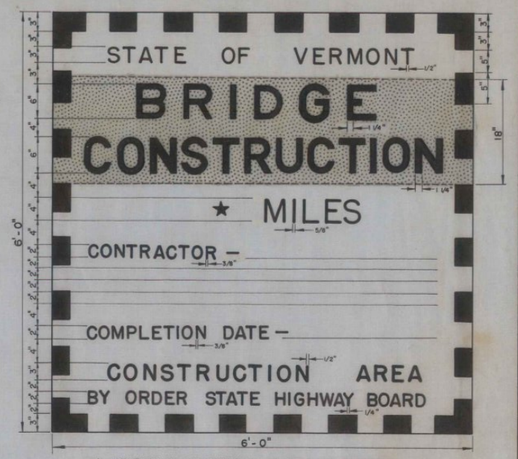
SIGN B-4

SIGNS B-3, B-4 AND B-5 TO BE USED AS REQUIRED IN THE PROTECTION OF THE TRAVELLING PUBLIC AND TO BE ERECTED SO THAT THE BOTTOM IS AT LEAST 3 FEET ABOVE THE GROUND.



SIGN B-3

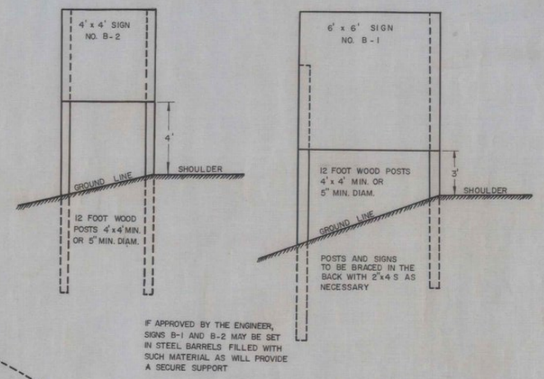
SIGN B-2



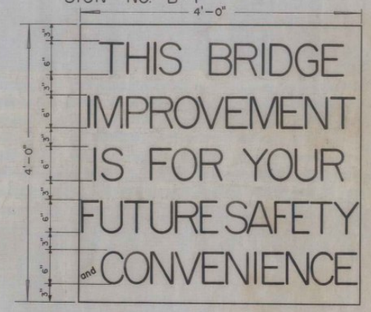
★ MILEAGE TO BE EXPRESSED IN MILES AND FRACTIONS OF MILES, TO THE NEAREST 1/4 MILE

SIGN NO. B-1

REQUIRED METHODS OF ERECTING STANDARD CONSTRUCTION SIGNS NOS. B-1 AND B-2

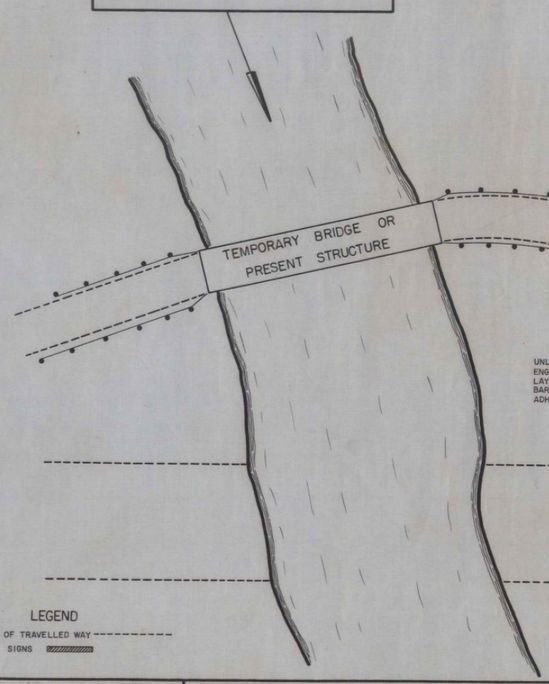


IF APPROVED BY THE ENGINEER, SIGNS B-1 AND B-2 MAY BE SET IN STEEL BARRELS FILLED WITH SUCH MATERIAL AS WILL PROVIDE A SECURE SUPPORT

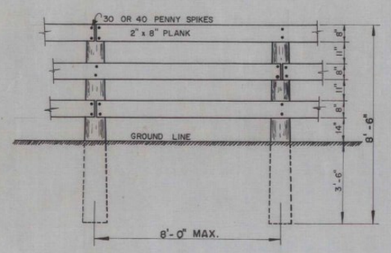


SIGN NO. B-6

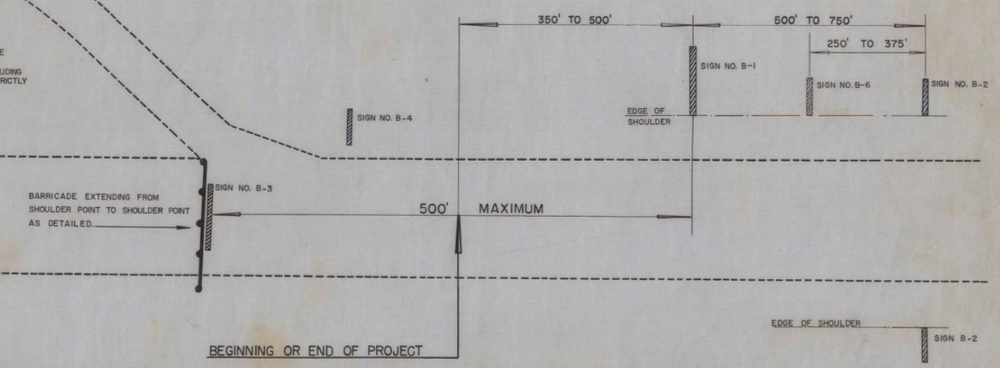
THE TEMPORARY BRIDGE AND ITS APPROACHES SHALL BE ADEQUATELY AND SECURELY RAILED. ON AN APPROACH, THE RAIL SHALL EXTEND FROM THE END OF THE TEMPORARY BRIDGE AS FAR AS THE ENGINEER SHALL DIRECT. IT SHALL CONSIST OF WOOD POSTS 7 FEET LONG WITH A MINIMUM DIAMETER OF 6", SET 3 FEET IN THE GROUND AND TWO PLANKS 2" x 6" (OR EQUAL), MOUNTED 16" ABOVE THE GROUND AND SPACED 16"



UNLESS OTHERWISE DIRECTED BY THE ENGINEER IN A WRITTEN ORDER, THIS LAYOUT FOR TEMPORARY BRIDGE, INCLUDING BARRICADES AND SIGNS, SHALL BE STRICTLY ADHERED TO.



BARRICADE



LEGEND
EDGE OF TRAVELLED WAY
SIGNS

REVISIONS & CORRECTIONS

APPROVED DATE MARCH 10, 1965

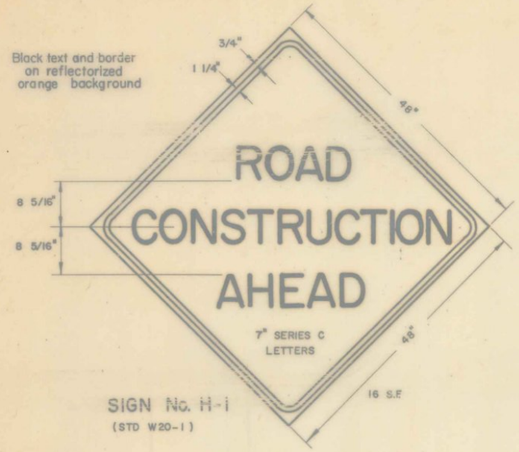
BRIDGE ENGINEER — CHIEF ENGINEER
TRAFFIC ENGINEER — HIGHWAY ENGINEER
CONSTRUCTION ENGINEER

DRAWN: AJA
TRACED: AJA

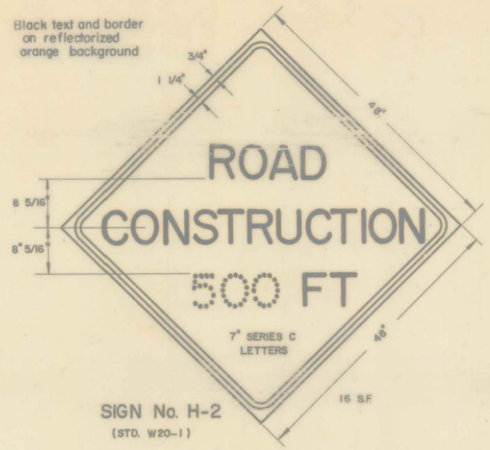
BARRICADES, SIGNS AND LIGHTS (FOR BRIDGES)

VERMONT
DEPARTMENT OF HIGHWAYS
STANDARD

E-2



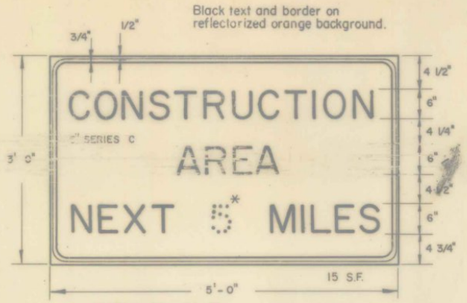
SIGN No. H-1
(STD W20-1)



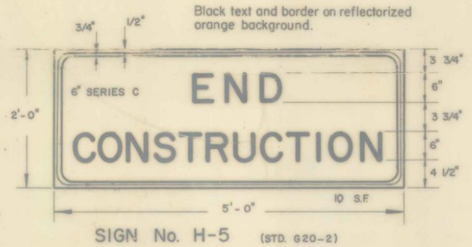
SIGN No. H-2
(STD. W20-1)

The road construction approach signs shown on this sheet are intended for use in providing advance warning and information on construction projects over which traffic will be maintained. When additional approach signs or other types of advance signing or control are necessary, the Plans and/or the Specifications for that project will give the details of the signs and devices required.

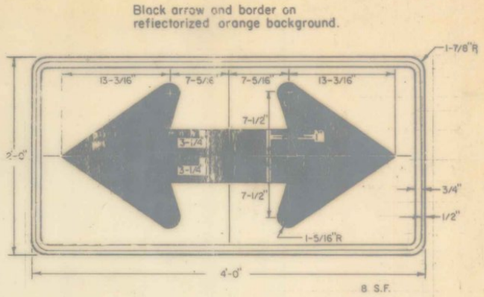
* Show mileage to nearest 1/4 mile



SIGN No. H-3 (STD. G20-1)



SIGN No. H-5 (STD. G20-2)



SIGN No. H-4 (STD. W1-7)

NOTES

LOCATION

Construction approach signs shall be located as detailed on this sheet or otherwise shown on the Plans. They shall appear at each end of the highway under construction, and on all intersecting public highways. The exact placement of any sign will depend upon the alignment of the highway and the character of the roadsides. The location measurements on this sheet are intended to indicate the sequence to be followed, and the minimum spacing to be observed by the Engineer in determining exact locations.

DESIGN

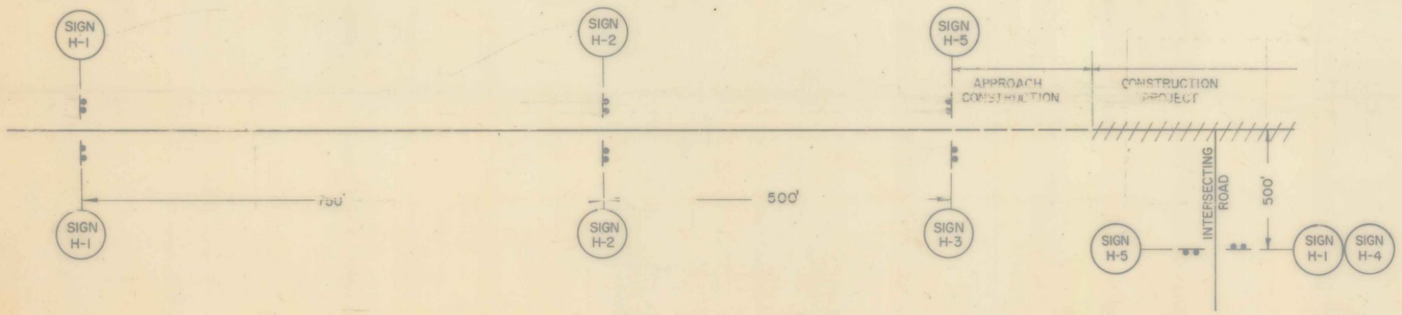
The designs of the signs shall conform with the details shown on this sheet and with the standards prescribed in the Manual on Uniform Traffic Control Devices prepared by National Joint Committee on Uniform Traffic Control Devices.

MATERIALS

The signs shall be of metal, wood, plywood, hardboard or any other material satisfactory to the Engineer. No material will be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION

All reflectorized material shall consist of encapsulated lens reflective sheeting.



INSTALLATION

The signs shall be in place at the time the project officially commences. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground. The bottom of a sign shall be at least 5 feet above road level, and the nearest edge of a sign shall be at least 6 feet outside the shoulder point or 2 feet outside guard rail, curbing or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. The installation of signs shall be subject to approval of the Engineer. In urban areas, the bottom of the sign shall be at least 7' above the sidewalk.

MAINTENANCE

Signs shall be maintained in a clean and legible condition satisfactory to the Engineer. They shall be completely visible to approaching traffic at all times. They shall be kept plumb and level, and always present a neat appearance. Damaged, defaced or dirty signs shall be repaired, cleaned or replaced as ordered by the Engineer.

GENERAL

The cost of furnishing, erecting, maintaining and removing all construction approach signs will be considered subsidiary work pertaining to the project as a whole and shall be included in the contract unit price bid for various items involved in the contract. In all phases of construction of approach signing, the requirements set forth in the Manual on Uniform Traffic Control Devices shall be met (See Standard Specifications, Section 107, Article 107.09 Barricades, Warning and Detour Signs).

When project is closed down for temporary periods the signs shall be covered in a workmanlike manner.

REVISIONS AND CORRECTIONS

SEPT. 11, 1973 – REVISED PER ORDER OF FHWA, SEPT. 11, 1973
OCT. 19, 1973 – SIGN H-4 REMOVED
MAY 14, 1974 – REFLECTIVE MATERIAL CHANGE
JUNE 7, 1977 – REFLECTIVE MATERIAL NOTE CHANGED.
DEC. 15, 1978 – ILLUMINATION DELETED.
DEC. 17, 1979 – SIGN H-3 REVISED, SIGN H-4 ADDED.

APPROVED Dec. 14, 1971 DATE

R. H. Arnold — CHIEF ENGINEER
E. H. Dickney — ASST. CHIEF ENGINEER
G. M. Lane — HIGHWAY ENGINEER

TRAFFIC SIGNS

ROAD CONSTRUCTION APPROACH SIGNS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-2

ALL BARRICADES, SIGNS AND LIGHTS SHALL BE FURNISHED, ERECTED AND MAINTAINED DURING THE ENTIRE PERIOD OF CONSTRUCTION, BY THE CONTRACTOR AT HIS OWN EXPENSE. SIGNS AND LIGHTS SHALL BE PLACED AS SHOWN ON THIS SHEET OR AS DIRECTED BY THE ENGINEER. SHOULD THE CONTRACTOR FAIL TO COMPLY WITH THE REQUIREMENTS ON THIS SHEET OR THE REQUIREMENTS OF PARAGRAPH 7.08, SECTION 7, DIVISION I, OF THE STANDARD ROAD AND BRIDGE SPECIFICATIONS, THE ENGINEER SHALL HAVE THE AUTHORITY TO DO THIS WORK AT THE CONTRACTOR'S EXPENSE, AS SPECIFIED IN PARAGRAPH 5.01 OF SECTION 5, DIVISION I.

APPROPRIATE BARRICADES, SIGNS AND LIGHTS APPROVED BY THE ENGINEER, SHALL BE PLACED AT ALL HAZARDS, SUCH AS OPEN TRENCHES OR PITS, DROP-OFFS, EXCEPTIONALLY ROUGH SECTIONS OF THE TRAVELLED WAY AND AT ALL OBSTRUCTIONS OF ANY KIND, INCLUDING MACHINERY PARKED IN THE ROADWAY.

BARRICADES. — BARRICADES OF WOOD GUARD RAIL, EXTENDING FROM SHOULDER TO TO SHOULDER, SHALL BE ERECTED AT EACH END OF THE WORK AS DETAILED BELOW. BARRICADES SHALL BE PAINTED YELLOW.

SIGNS. — SIGNS SHALL BE CONSTRUCTED OF WOOD OR METAL AND THE LETTERS SHALL BE PAINTED DIRECTLY THEREON. LETTERS SHALL BLACK ON A YELLOW BACKGROUND AND THE BORDER SHALL BE DARK BLUE, UNLESS REFLECTORIZATION IS REQUIRED THE NUMERALS INDICATING THE LENGTH OF THE PROJECT IN MILES, MAY BE PAINTED ON A SMALL SIGN WHICH SHALL BE SECURELY ATTACHED TO THE LARGER SIGN. THE LENGTH OF PROJECT IS TO BE SHOWN TO THE NEAREST 1/4 MILE.
THESE SIGNS SHALL BE REPAINTED WHEN NOT CLEARLY LEGIBLE AND WHENEVER SO ORDERED BY THE ENGINEER.
ALL SIGNS SHALL BE SECURELY ATTACHED TO POSTS SET FIRMLY IN THE GROUND AND THEY SHALL BE SECURELY BRACED.
THE SIGNS SHALL BE SO LOCATED AND MAINTAINED THAT THEY WILL BE CLEARLY VISIBLE FOR AT LEAST 300 FEET, FROM AN APPROACHING VEHICLE AND MAINTAINED AT ALL TIMES FREE FROM OBSTRUCTIONS.
THE BOTTOM OF A SIGN SHALL BE AT LEAST 3 FEET ABOVE THE GROUND.

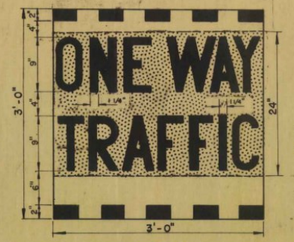
LIGHTS. — ALL LIGHTS REQUIRED BY THE ENGINEER SHALL BE KEPT BURNING FROM SUNSET TO SUNRISE. THE NUMBER OF LIGHTS AT EACH SIGN SHALL BE AS ORDERED BY THE ENGINEER. ALL LIGHTS SHALL BE SO PLACED THAT THEY WILL BE CLEARLY VISIBLE FROM APPROACHING VEHICLES, AND SHALL NOT BE PLACED SO THAT THEY BURN OR SMOKE A SIGN.
THE USE OF LANTERNS FOR LIGHTING SIGNS IS NOT APPROVED.

FOR FURTHER INFORMATION, SEE SPECIFICATIONS. SECTIONS 707 AND 708

ON SIGNS B-1 AND B-2 THE WORDS "BRIDGE CONSTRUCTION" SHALL BE REFLECTORIZED. ON SIGN B-3, THE ENTIRE SIGN SHALL BE REFLECTORIZED; ON SIGN B-4 THE WORDS "ONE WAY TRAFFIC" SHALL BE REFLECTORIZED. SIGN B-5 SHALL BE COMPLETELY REFLECTORIZED. REFLECTORIZATION SHALL BE AS FOLLOWS: (1) BACKGROUND REFLECTORIZATION BY AN APPROVED WHITE OR SILVER COLORED REFLECTING MATERIAL, THE FULL WIDTH OF THE SIGN WITH LETTERS PAINTED IN BLACK; OR (2) REFLECTORIZED LETTERS OF AN APPROVED WHITE OR SILVER REFLECTING MATERIAL ON A PAINTED BLACK. THE PANEL FOR EITHER TYPE OF REFLECTORIZATION SHALL BE 18 INCHES HIGH FOR SIGNS B-1 AND B-2; 24" HIGH FOR SIGN B-4. BACKGROUND REFLECTORIZATION (TYPE 1) FOR SIGNS B-3 AND B-5 SHALL COVER THE ENTIRE SIGN.

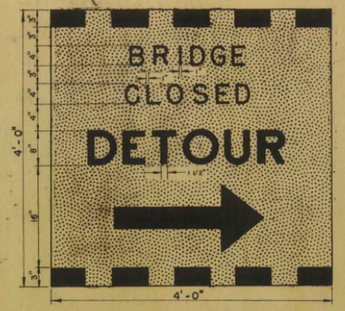
ON INTERSTATE CONTRACTS THE REFLECTORIZED PANELS ON SIGNS B-1 AND B-2 SHALL BE WORDED "INTERSTATE CONSTRUCTION" IN THE SAME SIZE AND TYPE OF LETTERS AS REQUIRED FOR "BRIDGE CONSTRUCTION".

SIGN B-5



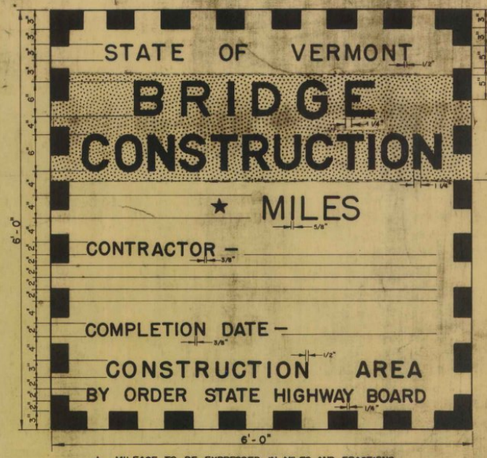
SIGN B-4

SIGNS B-3, B-4 AND B-5 TO BE USED AS REQUIRED IN THE PROTECTION OF THE TRAVELLING PUBLIC AND TO BE ERECTED SO THAT THE BOTTOM IS AT LEAST 3 FEET ABOVE THE GROUND.



SIGN B-3

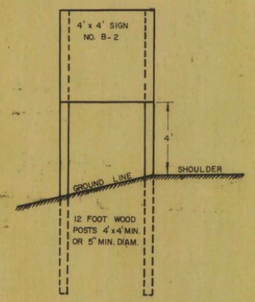
SIGN B-2

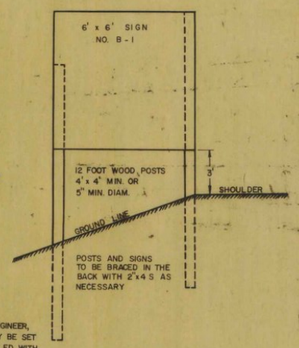


★ MILEAGE TO BE EXPRESSED IN MILES AND FRACTIONS OF MILES, TO THE NEAREST 1/4 MILE

SIGN NO. B-1

REQUIRED METHODS OF ERECTING STANDARD CONSTRUCTION SIGNS NOS. B-1 AND B-2

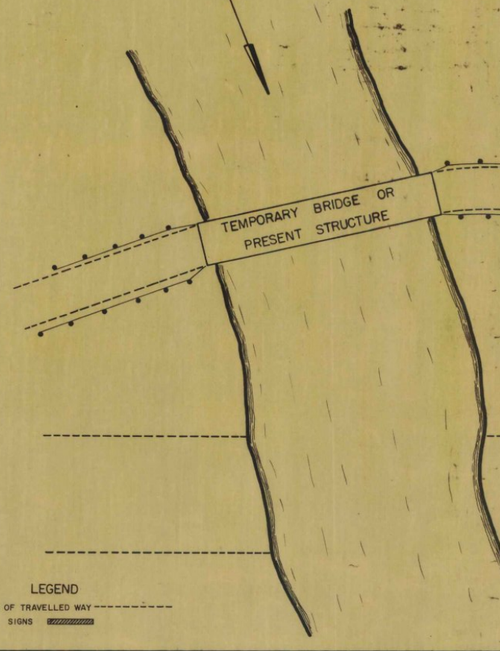




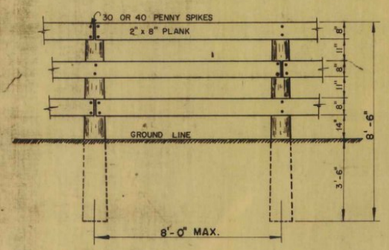
IF APPROVED BY THE ENGINEER, SIGNS B-1 AND B-2 MAY BE SET IN STEEL BARRELS FILLED WITH SUCH MATERIAL AS WILL PROVIDE A SECURE SUPPORT

SIGN NO. B-6

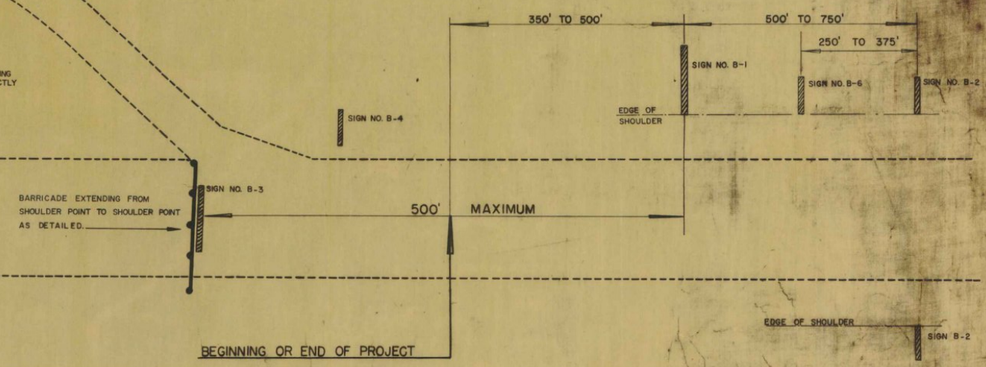
THE TEMPORARY BRIDGE AND ITS APPROACHES SHALL BE ADEQUATELY AND SECURELY RAILED. ON AN APPROACH, THE RAIL SHALL EXTEND FROM THE END OF THE TEMPORARY BRIDGE AS FAR AS THE ENGINEER SHALL DIRECT. IT SHALL CONSIST OF WOOD POSTS 7 FEET LONG WITH A MINIMUM DIAMETER OF 6", SET 3 FEET IN THE GROUND AND TWO PLANKS 2" x 6" (OR EQUAL), MOUNTED 16" ABOVE THE GROUND AND SPACED 16"



UNLESS OTHERWISE DIRECTED BY THE ENGINEER IN A WRITTEN ORDER, THIS LAYOUT FOR TEMPORARY BRIDGE, INCLUDING BARRICADES AND SIGNS, SHALL BE STRICTLY ADHERED TO.



BARRICADE



LEGEND
EDGE OF TRAVELLED WAY
SIGNS

REVISIONS & CORRECTIONS

APPROVED — DATE Dec. 16, 1958

A. D. Bishop — BRIDGE ENGINEER
H. E. Laugust — CHIEF ENGINEER
A. W. Coleman — TRAFFIC ENGINEER
G. M. Lane — HIGHWAY ENGINEER
L. C. Coates — CONSTRUCTION ENGINEER

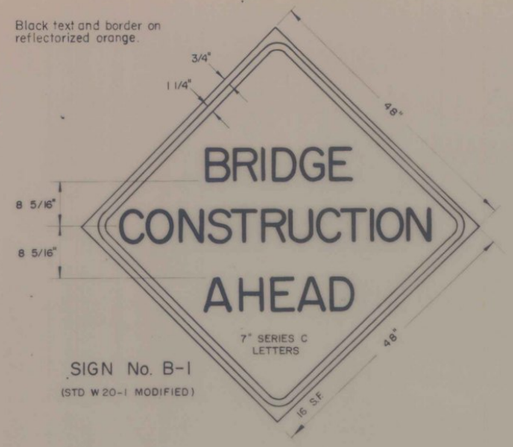
DRAWN: AJA
TRACED: AJA

BARRICADES, SIGNS AND LIGHTS (FOR BRIDGES)

VERMONT
DEPARTMENT
OF HIGHWAYS
STANDARD

E-2

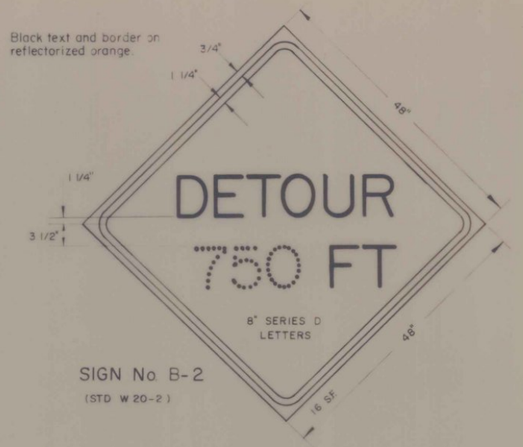
Black text and border on reflectorized orange.



SIGN No. B-1

(STD W20-1 MODIFIED)

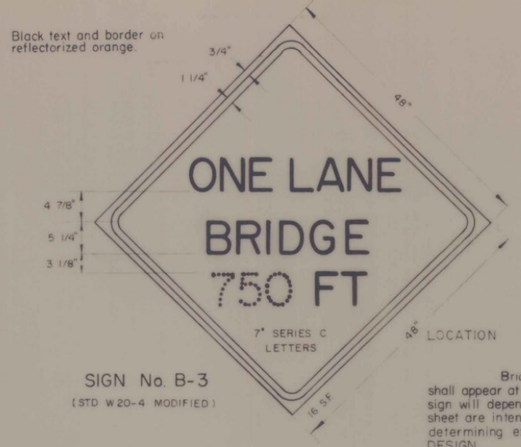
Black text and border on reflectorized orange.



SIGN No. B-2

(STD W 20-2)

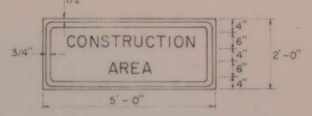
Black text and border on reflectorized orange.



SIGN No. B-3

(STD W20-4 MODIFIED)

SIGN B-4

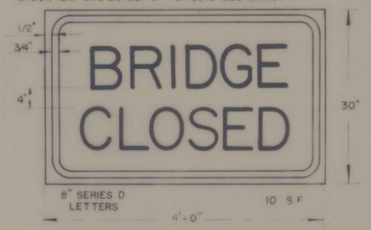


Black text and border on reflectorized orange background.

SIGN No. B-6

(STD. M 4-10)

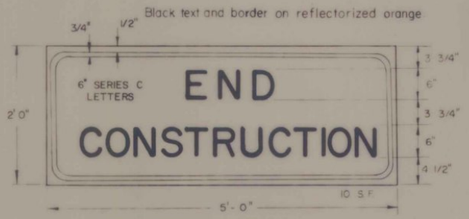
Black text and border on reflectorized white.



SIGN B-5

(STD. R 11-2 MODIFIED)

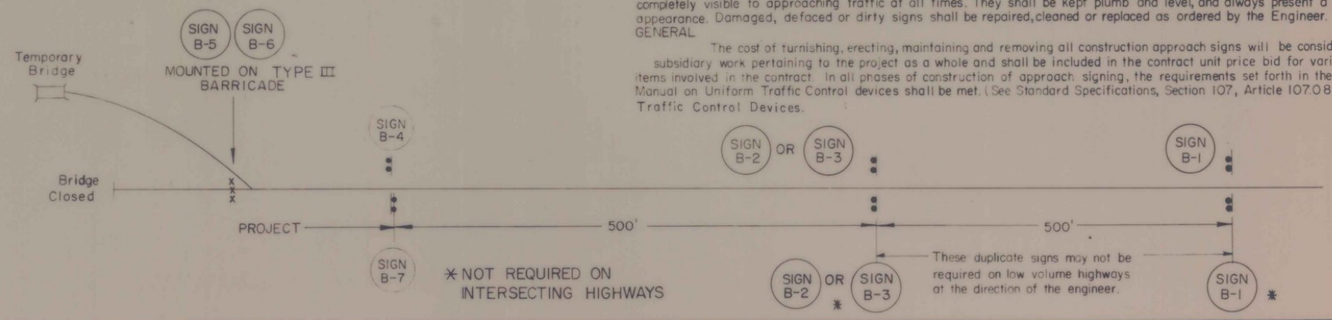
Black text and border on reflectorized orange



SIGN B-7

(STD. G 20-2)

The bridge construction approach signs shown on this sheet are intended for use in providing warning and information at isolated bridge projects, although they may be ordered by the Engineer at bridge work on a road construction project. When additional approach signs or other types of signing or control are necessary, the plans and/or the Special Provisions for that project will give the details of the signs and controls required.



LOCATION

Bridge construction approach signs shall be located as detailed on this sheet or otherwise shown on the plans. They shall appear at each end of the project under construction, and on intersecting public highways. The exact placement of any sign will depend upon the alignment of the highway and the character of the roadsides. The location measurements on this sheet are intended to indicate the sequence to be followed, and the minimum spacing to be observed by the Engineer in determining exact locations.

DESIGN

The designs of the signs shall conform with the details shown on this sheet and with the standards prescribed in the Manual on Uniform Traffic Control Devices prepared by National Joint Committee on Uniform Traffic Control Devices.

MATERIALS

The signs shall be of metal, wood, plywood, hardboard or any other material satisfactory to the Engineer. No material will be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION

All reflectorized material shall consist of encapsolated lens reflective sheeting.

INSTALLATION

The signs shall be in place at the time the project officially commences. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground. The bottom of a sign shall be at least 5 feet above road level, and the nearest edge of a sign shall be at least 6 feet outside the shoulder point or 2 feet outside the guard rail, curbing or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. The installation of signs and barricades shall be subject to the approval of the Engineer.

When project is closed down for temporary periods the signs shall be covered in a workmanlike manner.

MAINTENANCE

Signs shall be maintained in a clean and legible condition satisfactory to the Engineer. They shall be completely visible to approaching traffic at all times. They shall be kept plumb and level, and always present a neat appearance. Damaged, defaced or dirty signs shall be repaired, cleaned or replaced as ordered by the Engineer.

GENERAL

The cost of furnishing, erecting, maintaining and removing all construction approach signs will be considered subsidiary work pertaining to the project as a whole and shall be included in the contract unit price bid for various items involved in the contract. In all phases of construction of approach signing, the requirements set forth in the Manual on Uniform Traffic Control devices shall be met. (See Standard Specifications, Section 107, Article 107.08 Traffic Control Devices.

REVISIONS AND CORRECTIONS

SEPT. 11, 1973 — REVISED PER ORDER OF F.H.W.A., SEPT. 11, 1973.
NOV. 7, 1973 — REVISED PER ORDER OF F.H.W.A.
MAY 14, 1974 — REFLECTIVE MATERIAL CHANGE.
DEC. 12, 1975 — REVISED TO CONFORM TO STANDARD E-2.
JULY 20, 1976 — REVISED PER ORDER OF F.H.W.A.
JUNE 7, 1977 — REFLECTIVE MATERIAL NOTE CHANGED.
DEC. 15, 1978 — ILLUMINATION DELETED.

FEB. 3, 1986 — UPDATED TO 1986 SPECIFICATIONS

APPROVED Dec. 14, 1971
DATE

R. H. Arnold
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

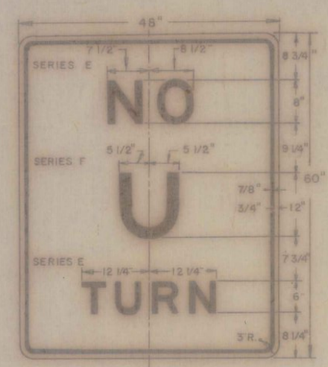
TRAFFIC SIGNS

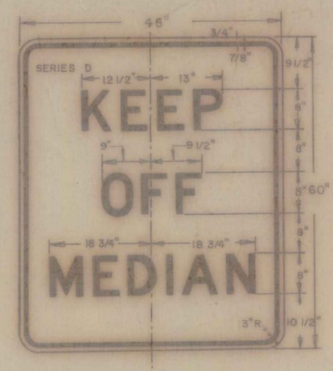
BRIDGE CONSTRUCTION APPROACH SIGNS

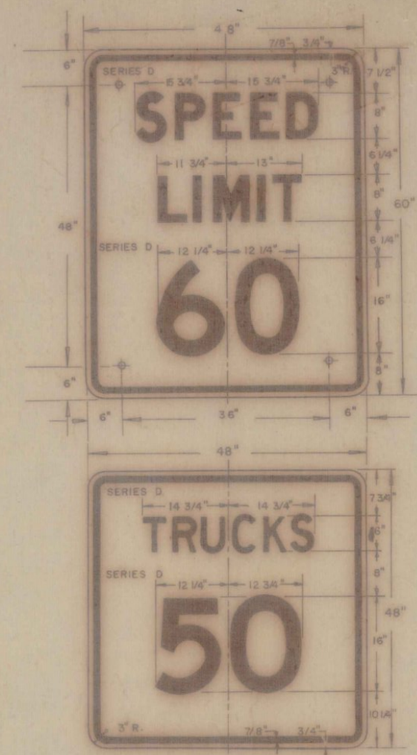
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-3

D-8





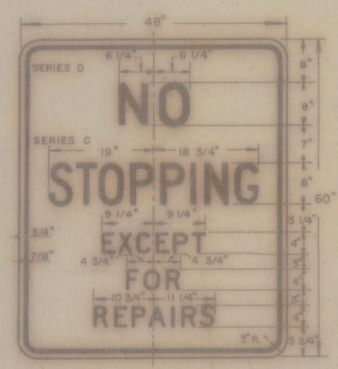


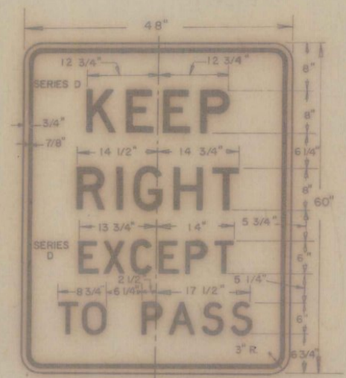
REGULATORY INTERSTATE SIGNS SHALL HAVE BLACK PAINTED LETTERS, SYMBOLS, AND BORDERS ON A SILVER REFLECTORIZED BACKGROUND.

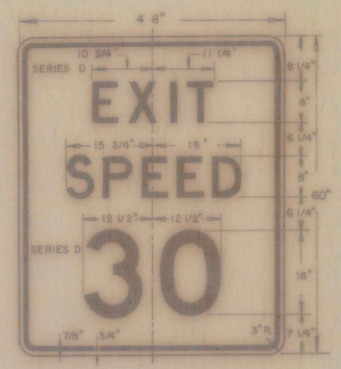
SIGN BLANKS:
5/8" HIGHDENSITY OVERLAID PLYWOOD.

THICKNESS OF FLAT SHEET ALUMINUM MARKERS.

MAX. DIMENSION	MIN. PANEL THICKNESS
UP TO 24"	0.080"
24" TO 42"	0.100"
OVER 42"	0.125"







Superseded through
Revision of June 3. 1959

REVISIONS AND CORRECTIONS

Superseded by E-3
bearing revision date
of June 3. 1959

APPROVED DATE NOV. 24, 1958

H. E. Sargent
CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

A. W. Coleman
TRAFFIC ENGINEER

F. H. Slater
CONSTRUCTION ENGINEER

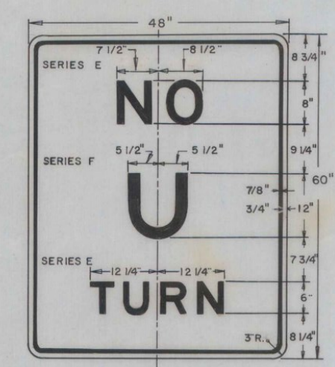
TRACED: W.U.

TRAFFIC SIGNS

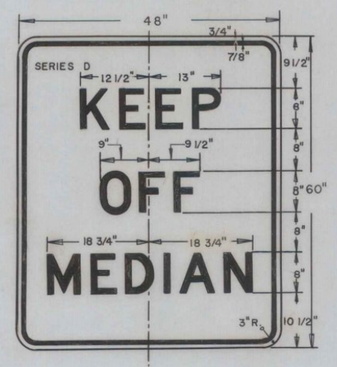
REGULATORY SIGNS

VERMONT
DEPARTMENT
OF HIGHWAYS
STANDARD

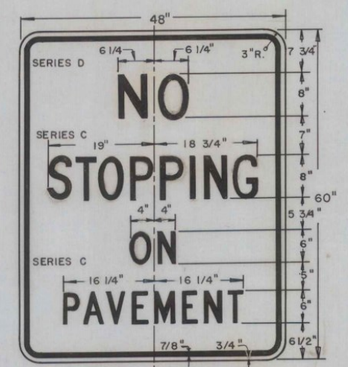
E-3



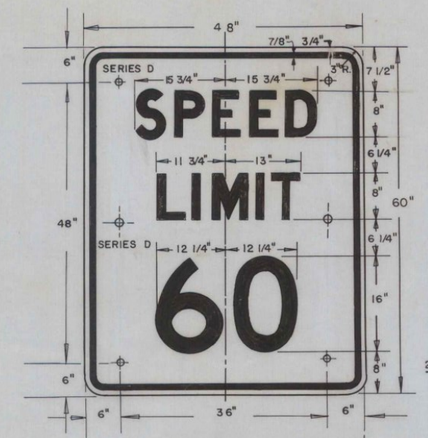
20.0 SQ. FT.



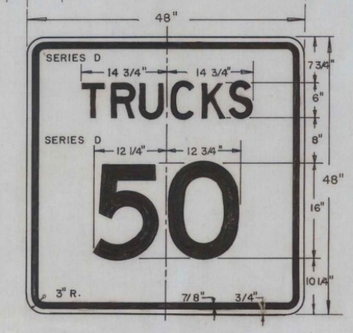
20.0 SQ. FT.



20.0 SQ. FT.



20.0 SQ. FT.



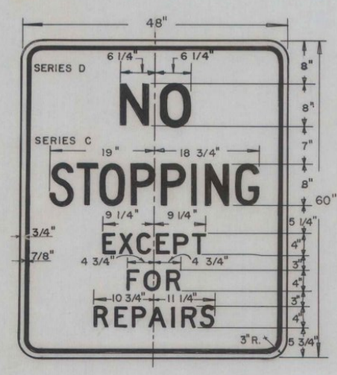
16.0 SQ. FT.

LETTERS AND NUMERALS SHALL CONFORM WI
STANDARD ALPHABETS

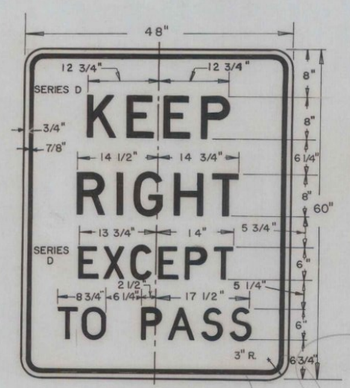
REGULATORY INTERSTATE SIGNS SHALL HAVE BL
SYMBOLS, AND BORDERS ON A SILVER REFLECTOR

SIGN BLANKS:
5/8" HIGHDENSITY OVERLAID PLYWOOD

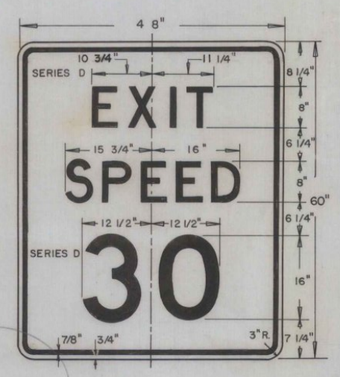
THICKNESS OF FLAT SHEET ALUMINUM	
MAX. DIMENSION	MIN. PANEL
UP TO 24"	0.080"
24" TO 42"	0.100"
OVER 42"	0.125"



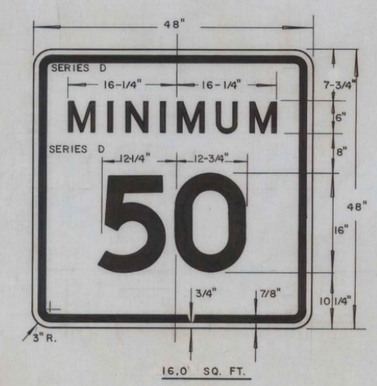
20.0 SQ. FT.



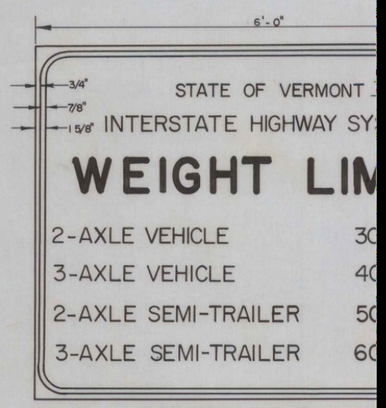
20.0 SQ. FT.



20.0 SQ. FT.



16.0 SQ. FT.



R-15 NONREFLECTORIZED BLACK TEXT ON WHITE

REVISIONS AND CORRECTIONS
MAR. 25, 1959 — ADDITION OF SIGN AREAS.
ADDITION OF "MINIMUM 50" SIGN.
JUNE 3, 1959 — NOTE ON LETTERS AND NUMERALS ADDED.
JULY 24, 1962 — WEIGHT LIMIT SIGN ADDED

APPROVED DATE NOV. 24, 1958

H. E. Laugust
CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

A. W. Coleman
TRAFFIC ENGINEER

O. H. Closter
CONSTRUCTION ENGINEER

TRACED: WU

TRAFFIC SIGNS

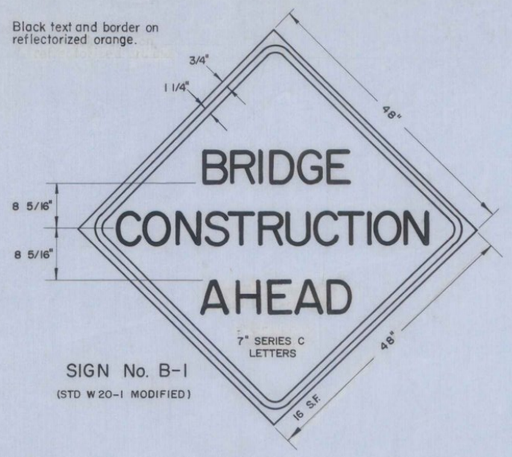
REGULATORY SIGNS

INTERSTATE PROJECTS

VERMONT
DEPARTMENT
OF HIGHWAYS
STANDARD

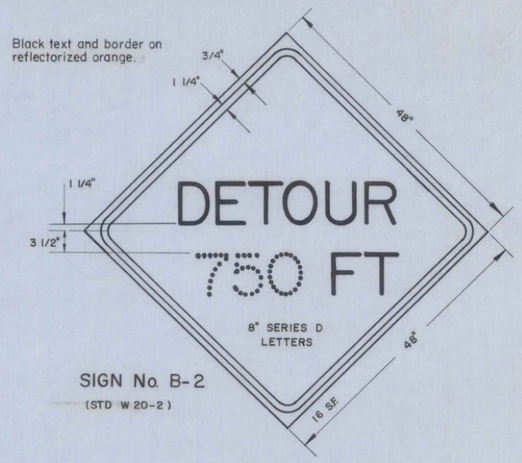
B

Black text and border on reflectorized orange.



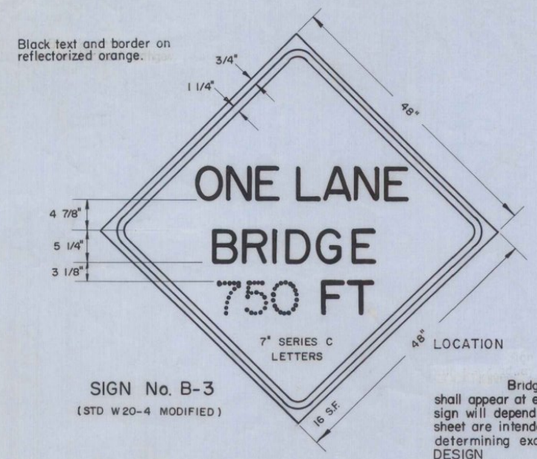
SIGN No. B-1
(STD W 20-1 MODIFIED)

Black text and border on reflectorized orange.



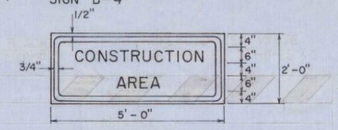
SIGN No. B-2
(STD W 20-2)

Black text and border on reflectorized orange.



SIGN No. B-3
(STD W 20-4 MODIFIED)

SIGN B-4

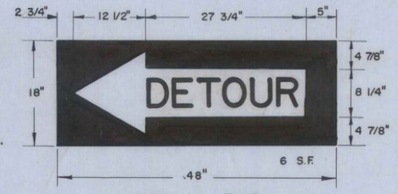


Black text and border on reflectorized orange background.

6" SERIES D LETTERS

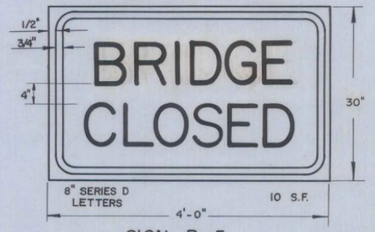
Black text and border with reflectorized orange arrow

Arrow left or right as required



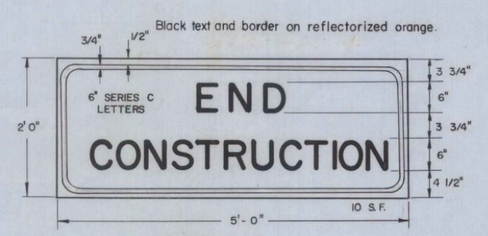
SIGN No. B-6
(STD. M 4-10)

Black text and border on reflectorized white.



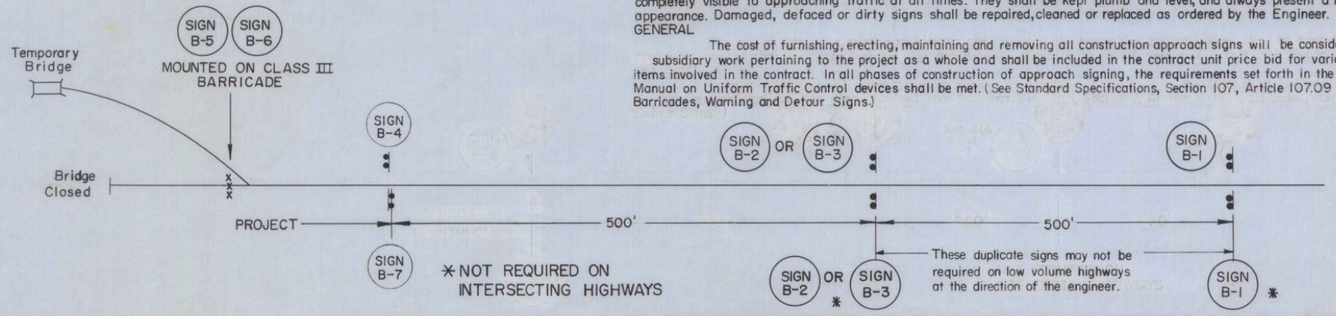
SIGN B-5
(STD. R 11-2 MODIFIED)

Black text and border on reflectorized orange.



SIGN B-7
(STD. G 20-2)

The bridge construction approach signs shown on this sheet are intended for use in providing warning and information at isolated bridge projects, although they may be ordered by the Engineer at bridge work on a road construction project. When additional approach signs or other types of signing or control are necessary, the plans and/or the Special Provisions for that project will give the details of the signs and controls required.



LOCATION

Bridge construction approach signs shall be located as detailed on this sheet or otherwise shown on the plans. They shall appear at each end of the project under construction, and on intersecting public highways. The exact placement of any sign will depend upon the alignment of the highway and the character of the roadsides. The location measurements on this sheet are intended to indicate the sequence to be followed, and the minimum spacing to be observed by the Engineer in determining exact locations.

DESIGN

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MATERIALS

The signs shall be of metal, wood, plywood, hardboard or any other material satisfactory to the Engineer. No material will be approved that will deteriorate by exposure to the weather during the required life of the sign.

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INSTALLATION

The signs shall be in place at the time the project officially commences. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground. The bottom of a sign shall be at least 5 feet above road level, and the nearest edge of a sign shall be at least 6 feet outside the shoulder point or 2 feet outside the guard rail, curbing or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. The installation of signs and barricades shall be subject to the approval of the Engineer.

When project is closed down for temporary periods the signs shall be covered in a workmanlike manner.

MAINTENANCE

Signs shall be maintained in a clean and legible condition satisfactory to the Engineer. They shall be completely visible to approaching traffic at all times. They shall be kept plumb and level, and always present a neat appearance. Damaged, defaced or dirty signs shall be repaired, cleaned or replaced as ordered by the Engineer.

GENERAL

The cost of furnishing, erecting, maintaining and removing all construction approach signs will be considered subsidiary work pertaining to the project as a whole and shall be included in the contract unit price bid for various items involved in the contract. In all phases of construction of approach signing, the requirements set forth in the Manual on Uniform Traffic Control devices shall be met. (See Standard Specifications, Section 107, Article 107.09 Barricades, Warning and Detour Signs.)

REVISIONS AND CORRECTIONS

SEPT. 11, 1973 — REVISED PER ORDER OF F.H.W.A., SEPT. 11, 1973.
NOV. 7, 1973 — REVISED PER ORDER OF F.H.W.A.
MAY 14, 1974 — REFLECTIVE MATERIAL CHANGE.
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JUNE 7, 1977 — REFLECTIVE MATERIAL NOTE CHANGED.
DEC. 15, 1978 — ILLUMINATION DELETED.

APPROVED
Dec. 14, 1971
DATE

R. H. Arnold
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

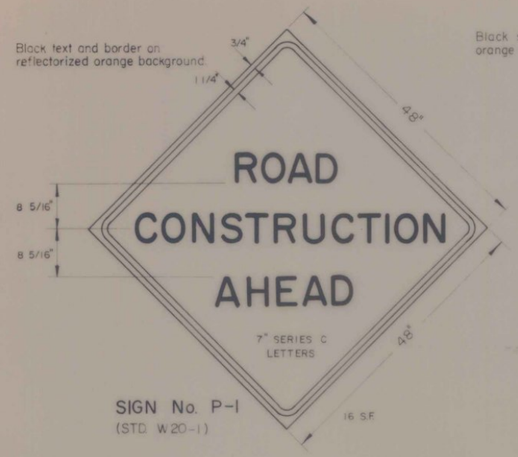
TRAFFIC SIGNS

BRIDGE CONSTRUCTION APPROACH SIGNS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

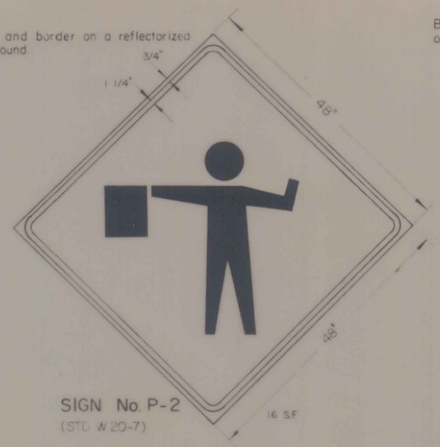
E-3

Black text and border on reflectorized orange background.



SIGN No. P-1
(STD. W20-1)

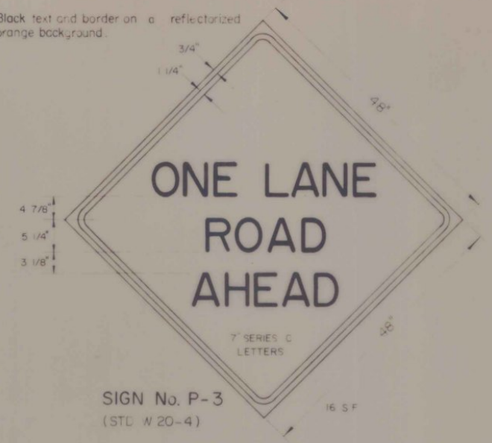
Black symbol and border on a reflectorized orange background.



SIGN No. P-2
(STD. W20-7)

TO BE MOUNTED ON A PORTABLE SUPPORT AND DISPLAYED IN ADVANCE OF A FLAGPERSON WHEN ON DUTY.

Black text and border on a reflectorized orange background.



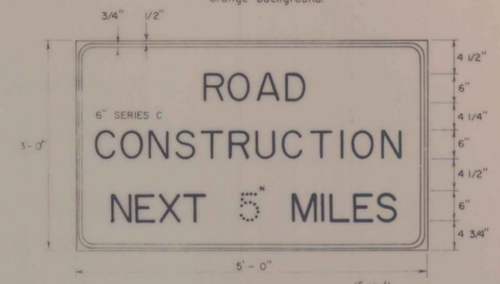
SIGN No. P-3
(STD. W20-4)

TO BE MOUNTED ON A PORTABLE SUPPORT AND DISPLAYED IN ADVANCE OF THE WORK AREA WHEN REQUIRED.

SIGN P-4 IS TO BE USED WHEN PROJECT LENGTH EXCEEDS 2 MILES, OR AS REQUESTED BY THE RESIDENT ENGINEER. THE TEXT MAY BE AS SHOWN OR MAY READ AS FOLLOWS "CONSTRUCTION AREA NEXT __ MILES."

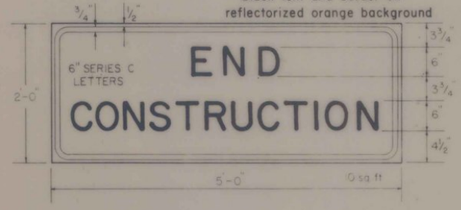
*Show mileage to nearest 1/4 mile.

Black text and border on reflectorized orange background.



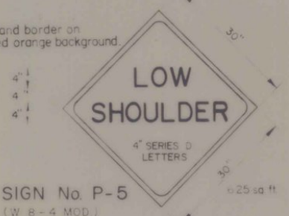
SIGN P-4
(G 20-1)

Black text and border on reflectorized orange background



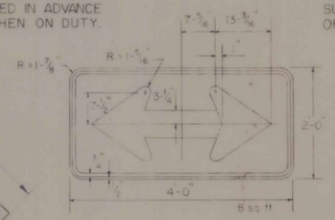
SIGN No. P-7 (STD. G20-2)

Black text and border on reflectorized orange background.



SIGN No. P-5
(W 8-4 MOD.)

TO BE LOCATED AS ORDERED BY THE ENGINEER ON POSTS SET SECURELY IN THE GROUND NEAR EDGE OF SIGN TO BE AT LEAST 2 FT FROM EDGE OF PAVEMENT, WITH BOTTOM AT LEAST 3 FT ABOVE ROAD LEVEL.



SIGN No. P-6
(STD. W1-7)

Black arrow and border on reflectorized orange background

The signs shown on this sheet are intended for use in connection with contract paving projects on two-lane highways over which traffic will be maintained. When additional signs or other types of signing or control are necessary, the plans and / or special provisions for that project will give the details of the signs and devices required.

LOCATION

Construction paving signs shall be located as detailed on this sheet or ordered by the Engineer. They shall appear at each end of the highway under construction, and on all intersecting public highways.

The exact placement of any sign will depend upon the alignment of the highway and the character of the roadsides. The location measurements on this sheet are intended to indicate the sequence to be followed, and the minimum spacing to be observed by the Engineer in determining exact locations.

DESIGN

The designs of the signs shall conform with the details shown on this sheet and with the standards prescribed in the Manual on Uniformed Traffic Control Devices prepared by National Joint Committee on Uniform Traffic Control Devices.

MATERIALS

The signs shall be of metal, wood, plywood, hardboard or any other material satisfactory to the Engineer. No material will be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION

All reflectorized material shall consist of encapsolated lens reflective sheeting.

INSTALLATION

The signs shall be in place at the time the project commences. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground, unless otherwise noted on this sheet. The bottom of a sign, unless otherwise noted shall be at least 5 feet above road level, and the nearest edge of a sign shall be at least 6 feet outside the shoulder point or 2 feet outside guard rail, curbing or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. The installation of all signs shall be subject to the approval of the Engineer. **In urban areas, the bottom of a sign shall be at least 7' above the sidewalk.**

MAINTENANCE

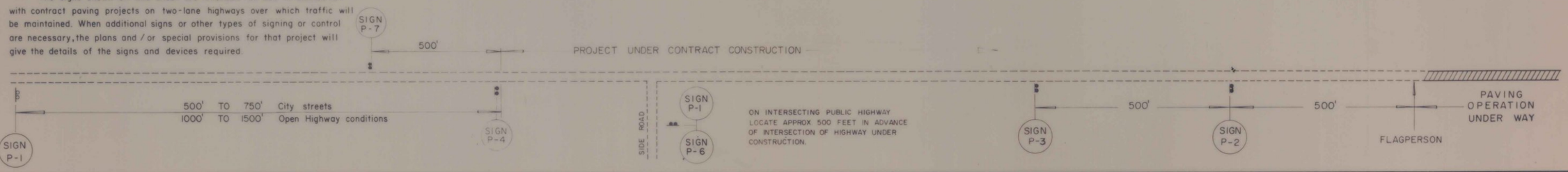
Signs shall be maintained in a clean and legible condition satisfactory to the Engineer. They shall be completely visible to approaching traffic at all times. They shall be kept plumb and level, and always present a neat appearance. Damaged, defaced or dirty signs shall be repaired, cleaned or replaced as ordered by the Engineer.

GENERAL

The cost of furnishing, erecting, maintaining and removing all construction approach signs shall be considered subsidiary work pertaining to the project as a whole and will be included in the contract unit price bid for various items involved in the contract. In all phases of construction of approach signing, the requirements set forth in the Manual on Uniform Traffic Control Devices shall be met (see Standard Specifications, Section 107, Article 107.08 Traffic Control Devices.

When project is closed down for temporary periods the signs shall be covered in a workmanlike manner.

Signs mounted on barricades or temporary supports shall be positioned such that the bottom of the sign is not less than one foot above the pavement elevation.



REVISIONS AND CORRECTIONS

SEPT. 11, 1973 – REVISED PER ORDER OF FHWA, SEPT. 11, 1973
NOV. 6, 1973 – REVISED PER ORDER OF FHWA.
MAY 14, 1974 – **REFLECTIVE MATERIAL CHANGE**
JUNE 7, 1977 – REFLECTIVE MATERIAL NOTE CHANGED.
JUNE 7, 1977 – SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D.
MAR. 22, 1978 – SIGNS REVISED PER DIRECTION FROM F.H.W.A.
APR. 20, 1978 – FLAGPERSON SIGN CHANGED TO SYMBOL.
DEC. 18, 1979 – SIGN P-4 REVISED, SIGN P-6 AND P-7 ADDED.
MAR. 4, 1981 – SIGN P-4 TEXT CHANGED, NOTE ADDED.
FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED Dec 14 1971 DATE

R. H. Arnold, CHIEF ENGINEER
E. W. Stickney, ASST. CHIEF ENGINEER
G. M. Lane, HIGHWAY ENGINEER

TRAFFIC SIGNS

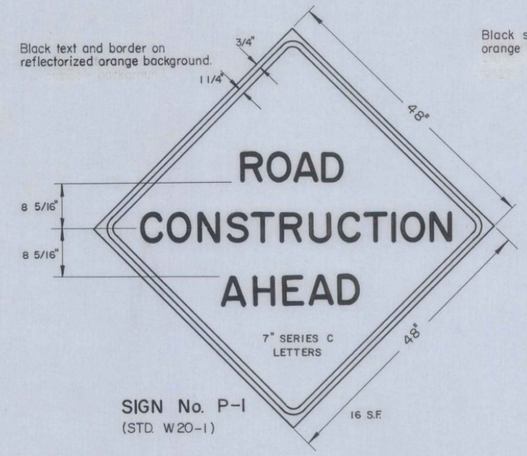
ROAD CONSTRUCTION SIGNS

—PAVING—

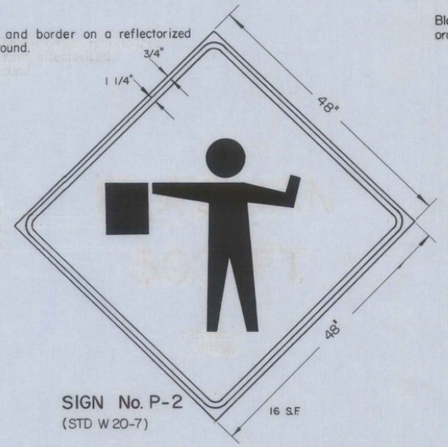
VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-4

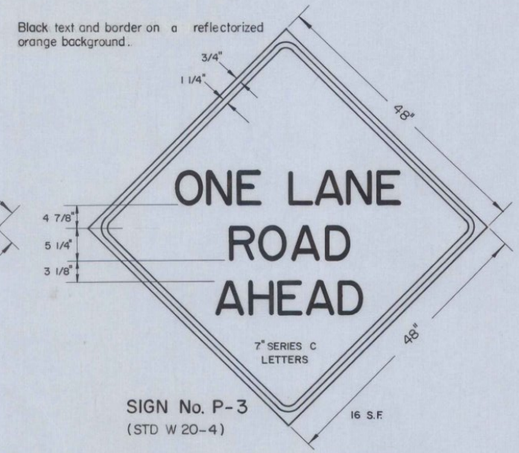


SIGN No. P-1
(STD. W20-1)



SIGN No. P-2
(STD W 20-7)

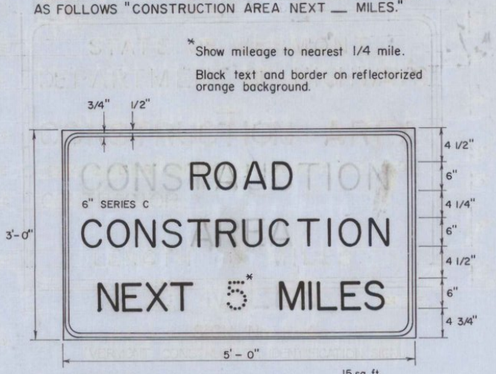
TO BE MOUNTED ON A PORTABLE SUPPORT AND DISPLAYED IN ADVANCE OF A FLAGPERSON WHEN ON DUTY.



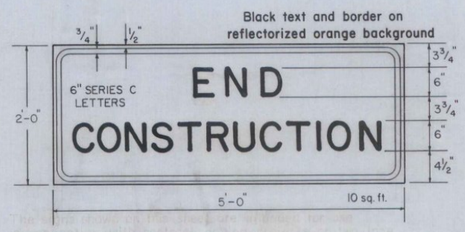
SIGN No. P-3
(STD W 20-4)

TO BE MOUNTED ON A PORTABLE SUPPORT AND DISPLAYED IN ADVANCE OF THE WORK AREA WHEN REQUIRED

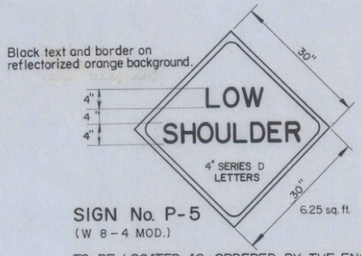
SIGN P-4 IS TO BE USED WHEN PROJECT LENGTH EXCEEDS 2 MILES, OR AS REQUESTED BY THE RESIDENT ENGINEER. THE TEXT MAY BE AS SHOWN OR MAY READ AS FOLLOWS "CONSTRUCTION AREA NEXT __ MILES."



SIGN P-4
(G 20-1)

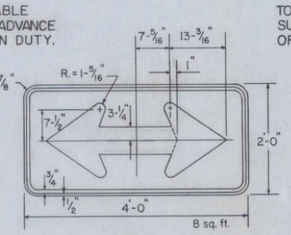


SIGN No. P-7 (STD. G20-2)



SIGN No. P-5
(W 8-4 MOD.)

TO BE LOCATED AS ORDERED BY THE ENGINEER ON POSTS SET SECURELY IN THE GROUND. NEAR EDGE OF SIGN TO BE AT LEAST 2 FT FROM EDGE OF PAVEMENT, WITH BOTTOM AT LEAST 3 FT ABOVE ROAD LEVEL



SIGN No. P-6
(STD. W1-7)

Black arrow and border on reflectorized orange background

LOCATION

Construction paving signs shall be located as detailed on this sheet or ordered by the Engineer. They shall appear at each end of the highway under construction, and on all intersecting public highways.

The exact placement of any sign will depend upon the alignment of the highway and the character of the roadsides. The location measurements on this sheet are intended to indicate the sequence to be followed, and the minimum spacing to be observed by the Engineer in determining exact locations.

DESIGN

The designs of the signs shall conform with the details shown on this sheet and with the standards prescribed in the Manual on Uniformed Traffic Control Devices prepared by National Joint Committee on Uniform Traffic Control Devices.

NOTES

MATERIALS

The signs shall be of metal, wood, plywood, hardboard or any other material satisfactory to the Engineer. No material will be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION

All reflectorized material shall consist of encapsolated lens reflective sheeting.

INSTALLATION

The signs shall be in place at the time the project commences. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground, unless otherwise noted on this sheet. The bottom of a sign, unless otherwise noted shall be at least 5 feet above road level, and the nearest edge of a sign shall be at least 6 feet outside the shoulder point or 2 feet outside guard rail, curbing or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. The installation of all signs shall be subject to the approval of the Engineer. **In urban areas, the bottom of a sign shall be at least 7' above the sidewalk.**

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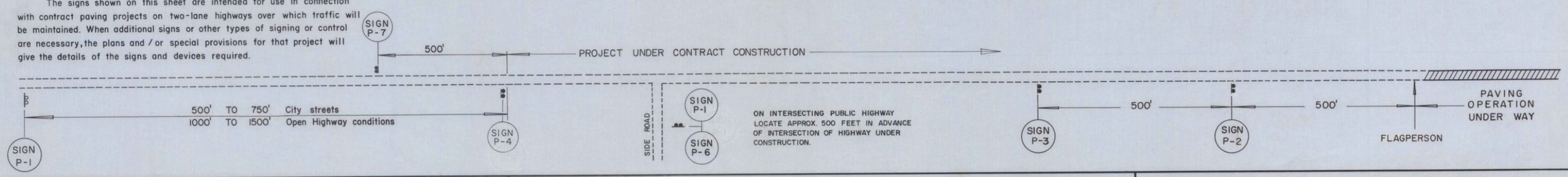
GENERAL

The cost of furnishing, erecting, maintaining and removing all construction approach signs shall be considered subsidiary work pertaining to the project as a whole and will be included in the contract unit price bid for various items involved in the contract. In all phases of construction of approach signing, the requirements set forth in the Manual on Uniform Traffic Control Devices shall be met (see Standard Specifications, Section 107, Article 107.09 Barricades, Warning and Detour Signs).

When project is closed down for temporary periods the signs shall be covered in a workmanlike manner.

Signs mounted on barricades or temporary supports shall be positioned such that the bottom of the sign is not less than one foot above the pavement elevation.

The signs shown on this sheet are intended for use in connection with contract paving projects on two-lane highways over which traffic will be maintained. When additional signs or other types of signing or control are necessary, the plans and / or special provisions for that project will give the details of the signs and devices required.



REVISIONS AND CORRECTIONS

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APPROVED Dec. 14, 1971
DATE

R. H. Arnold
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

TRAFFIC SIGNS

ROAD CONSTRUCTION SIGNS

—PAVING—

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-45

INTERSTATE ROUTE MARKER

"INTERSTATE" LEGEND SHALL BE IN B.P.R. SERIES "C" LETTERS
STATE NAME LEGEND SHALL BE IN B.P.R. SERIES "D" LETTERS
ROUTE NUMBER SHALL BE IN B.P.R. SERIES "D" NUMERALS

SHIELD SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
18"	18	9	11 1/4	9/16	25/32	1-7/8	3/4	1-1/8	1-1/32	6	4-5/16	9-1/4	10 1/16	2-1/4	5-9/16	1
24	24	12	15	3/4	2-3/8	2-1/2	1	1-1/2	1-3/8	8	5-3/4	11 1/4	14-5/8	3	8 3/4	2
36	36	18	22 1/2	1-1/8	3-5/16	3-3/4	1-1/2	2-1/4	2-1/16	12	8-5/8	22-1/2	21-9/16	4-1/2	13-1/8	3
48	48	24	30	1-1/2	4 3/4	5	2	3	2-3/4	16	11-1/2	16-1/2	29-1/8	6	17-1/2	4

REFLECTORIZED SILVER TEXT ON REFLECTORIZED RED AND BLUE BACKGROUNDS TRANSPARENT BACKGROUND COLORS CONFORMING WITH A.A.S.H.O. STANDARDS TO BE REVERSE SCREENED ON SILVER REFLECTIVE SHEETING COVERING ENTIRE SIGN FACE.

U. S. ROUTE MARKER

"VERMONT" LEGEND SHALL BE IN B.P.R. SERIES "D" LETTERS
"U.S." LEGEND SHALL BE IN B.P.R. SERIES "D" LETTERS
ROUTE NUMBER SHALL BE IN B.P.R. SERIES "D" NUMERALS

SHIELD SIZE	A	B	C	D	E RADIUS	F RADIUS	G RADIUS	G	H	I	J	K	L	M	N	O
18	18	9	4	4-1/8	12-1/2	3	1-7/8	3/4	1/2	1-1/8	6	4	2	14	1/4	
24	24	12	5-5/16	5-1/2	20 9/16	4	2-1/2	1	5/8	1-1/2	8	5-1/4	2	20	3/8	
36	36	18	8	8-1/4	25	6	3-3/4	1-1/2	1	2-1/4	12	8	3	30	3/8	

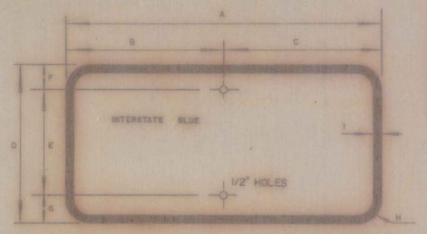
BLACK PAINTED OR SCREENED TEXT ON REFLECTORIZED SILVER BACKGROUND.

STATE ROUTE MARKER

"VERMONT" LEGEND SHALL BE IN B.P.R. SERIES "D" LETTERS
ROUTE NUMBER SHALL BE IN B.P.R. SERIES "D" NUMERALS

SHIELD SIZE	A	B	C	D	E	F	G	H RADIUS	I	J	K	L	M	N
15 X 13-1/2	15	7-1/2	13-1/2	1-3/8	1-1/2	6	2-1/4	1-1/8	1-3/4	10	1-3/4	3/4	1/2	1/4
20 X 18	20	10	18	2-1/2	2	8	3	1-1/2	2	14	2	1-1/2	5/8	3/8
30 X 27	30	15	27	3-3/4	3	12	4-1/2	2-1/4	2-1/2	22	1-1/2	1-1/2	1/4	5/8

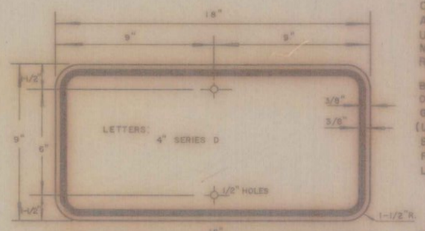
BLACK PAINTED OR SCREENED TEXT ON REFLECTORIZED SILVER BACKGROUND.



SIZE	A	B	C	D	E	F	G	H	J	LETTERS
18 X 6	18	9	9	6	6	1-1/2	1-1/2	1-1/2	3/8"	4" SERIES D
24 X 12	24	12	12	12	8	2	2	1-1/2	1/2	6" SERIES C

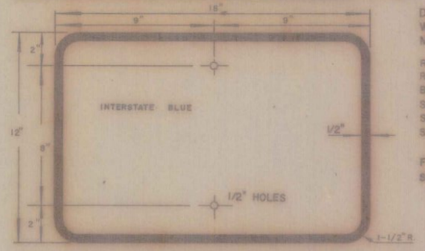
CARDINAL DIRECTION MARKER AND JUNCTION MARKER TO BE USED WITH 24" AND 36" INTERSTATE ROUTE MARKERS.

REFLECTORIZED SILVER TEXT ON REFLECTORIZED BLUE BACKGROUND. BACKGROUND COLOR TO BE REVERSE SCREENED ON SILVER REFLECTIVE SHEETING THAT COVERS THE ENTIRE SIGN FACE.



CARDINAL DIRECTION MARKER AND JUNCTION MARKER TO BE USED WITH 24" U.S. ROUTE MARKERS AND 20" X 18" STATE ROUTE MARKERS.

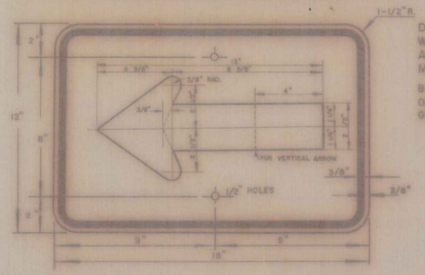
BLACK PAINTED OR SCREENED TEXT ON REFLECTORIZED SILVER BACKGROUND.
(USE ALSO FOR WORD "TO" IN A TRAIL BLAZER ASSEMBLY WITH AN INTERSTATE ROUTE MARKER.
LETTERS: 6" SERIES D.)



DIRECTION MARKER TO BE USED WITH 24" INTERSTATE ROUTE MARKERS.

REFLECTORIZED SILVER TEXT ON REFLECTORIZED BLUE BACKGROUND. BACKGROUND COLOR TO BE REVERSE SCREENED ON SILVER REFLECTIVE SHEETING THAT COVERS THE ENTIRE SIGN FACE.

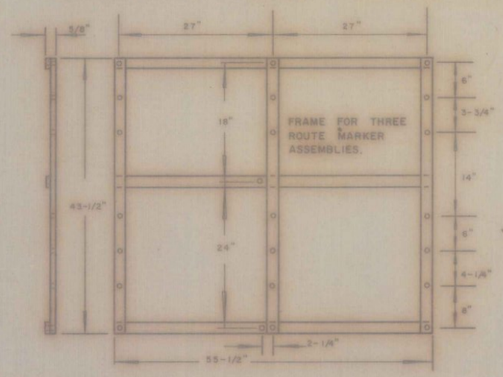
FOR DESIGN OF DIRECTIONAL ARROW, SEE BELOW



DIRECTION MARKER TO BE USED WITH 24" U.S. ROUTE MARKERS AND 20" X 18" STATE ROUTE MARKERS.

BLACK PAINTED OR SCREENED TEXT ON REFLECTORIZED SILVER BACKGROUND.

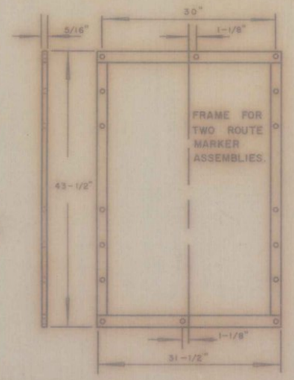
DETAILS OF WELDED WROUGHT IRON FRAMES FOR ROUTE MARKER ASSEMBLIES

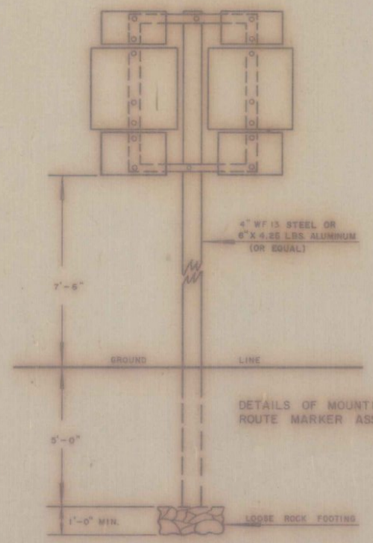


5/16" X 1-1/2" WROUGHT IRON

ALL HOLES 7/16" DIA.

ALL BOLTS 3/8" DIAM. ALUMINUM (2024-T4)





DETAILS OF MOUNTING ROUTE MARKER ASSEMBLIES

REVISIONS AND CORRECTIONS

Superseded by Revision of June 3, 1959

APPROVED DATE NOV. 24, 1958

H. E. Sargent
CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

A. W. Coleman
TRAFFIC ENGINEER

F. H. Corey
CONSTRUCTION ENGINEER

DRAWN: F.P.
TRACED: RUS AJA

TRAFFIC SIGNS
ROUTE MARKERS AND AUXILIARY MARKERS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

Superseded by revision of June 3, 1959

E-4

INTERSTATE ROUTE MARKER

"INTERSTATE" LEGEND SHALL BE IN B.P.R. SERIES "C" LETTERS
STATE NAME LEGEND SHALL BE IN B.P.R. SERIES "D" LETTERS
ROUTE NUMBER SHALL BE IN B.P.R. SERIES "D" NUMERALS

SHIELD SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	SQ. FT
18"	18	9	11 1/4	9/16	25/32	1-7/8	3/4	1-1/8	1-1/32	6	4-5/16	6-1/4	10 31/32	2-1/4	6-9/16	1	2.3
24	24	12	15	3/4	2-3/8	2-1/2	1	1-1/2	1-3/8	8	5-3/4	8 1/4	14-5/8	3	8 3/4	2	4.0
36	36	18	22 1/2	1-1/8	3-9/16	3-3/4	1-1/2	2-1/4	2-1/16	12	8-5/8	12-1/2	21 15/16	4-1/2	13-1/8	3	9.0
48	48	24	30	1-1/2	4 3/4	5	2	3	2-3/4	16	11-1/2	16-1/2	29-1/4	6	17-1/2	4	16.0

REFLECTORIZED SILVER TEXT ON REFLECTORIZED RED AND BLUE BACKGROUNDS
TRANSPARENT BACKGROUND COLORS
CONFORMING WITH A.A.S.H.O. STANDARDS TO BE REVERSE SCREENED ON SILVER REFLECTIVE SHEETING COVERING ENTIRE SIGN FACE.

U. S. ROUTE MARKER

"VERMONT" LEGEND SHALL BE IN B.P.R. SERIES "D" LETTERS
"U.S." LEGEND SHALL BE IN B.P.R. SERIES "D" LETTERS
ROUTE NUMBER SHALL BE IN B.P.R. SERIES "D" NUMERALS

SHIELD SIZE	A	B	C RADIUS	D RADIUS	E RADIUS	F RADIUS	G	H	I	J	K	L	M	N	O	SQ. FT
18	18	9	4	4-1/8	12-1/2	3	1-7/8	3/4	1/2	1-1/8	6	4	2	14	1/4	2.3
24	24	12	5-5/16	5-1/2	16 9/16	4	2-1/2	1	5/8	1-1/2	8	5-1/4	2	20	3/8	4.0
36	36	18	8	8-1/4	25	6	3-3/4	1-1/2	1	2-1/4	12	8	3	30	5/8	9.0

BLACK PAINTED OR SCREENED TEXT ON REFLECTORIZED SILVER BACKGROUND.

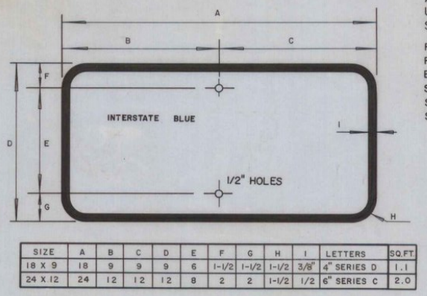
STATE ROUTE MARKER

"VERMONT" LEGEND SHALL BE IN B.P.R. SERIES "D" LETTERS
ROUTE NUMBER SHALL BE IN B.P.R. SERIES "D" NUMERALS

SHIELD SIZE	A	B	C	D	E	F	G	H RADIUS	I	J	K	L	M	N	SQ. FT
15 X 13-1/2	15	7-1/2	13-1/2	1-7/8	1-1/2	6	2-1/4	1-1/8	1-3/4	10	1-3/4	1/2" HOLES	1/2	1/4	1.4
20 X 18	20	10	18	2-1/2	2	8	3	1-1/2	2	14	2	1/2" HOLES	5/8	3/8	2.5
30 X 27	30	15	27	3-3/4	3	12	4-1/2	2-1/4	2-1/2	22	1-1/2	1/2" HOLES	3/4	5/8	5.6

BLACK PAINTED OR SCREENED TEXT ON REFLECTORIZED SILVER BACKGROUND.

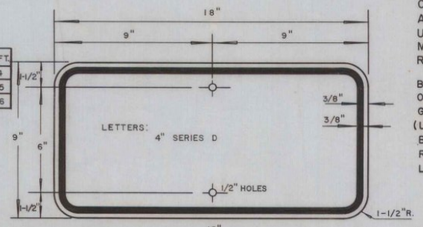
LETTERS AND NUMERALS SHALL CONFORM WITH BUREAU OF PUBLIC ROADS STANDARD ALPHABETS.



SIZE	A	B	C	D	E	F	G	H	I	LETTERS	SQ.FT
18 X 9	18	9	9	9	6	1-1/2	1-1/2	1-1/2	3/8"	4" SERIES D	1.1
24 X 12	24	12	12	12	8	2	2	1-1/2	1/2	6" SERIES C	2.0

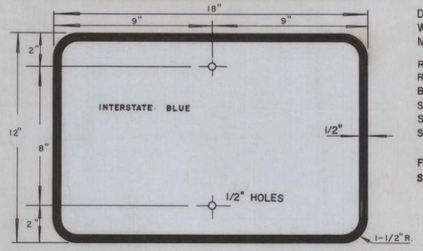
CARDINAL DIRECTION MARKER AND JUNCTION MARKER TO BE USED WITH 24" AND 36" INTERSTATE ROUTE MARKERS.

REFLECTORIZED SILVER TEXT ON REFLECTORIZED BLUE BACKGROUND. BACKGROUND COLOR TO BE REVERSE SCREENED ON SILVER REFLECTIVE SHEETING THAT COVERS THE ENTIRE SIGN FACE.



CARDINAL DIRECTION MARKER AND JUNCTION MARKER TO BE USED WITH 24" U.S. ROUTE MARKERS AND 20" X 18" STATE ROUTE MARKERS.

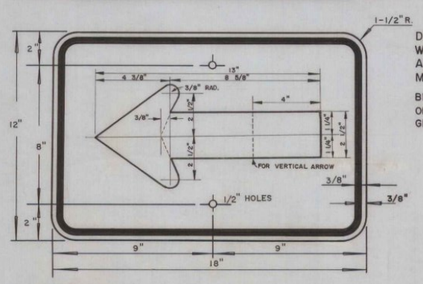
BLACK PAINTED OR SCREENED TEXT ON REFLECTORIZED SILVER BACKGROUND.
(USE ALSO FOR WORD "TO" IN A TRAIL BLAZER ASSEMBLY WITH AN INTERSTATE ROUTE MARKER.
LETTERS: 6" SERIES D.)



DIRECTION MARKER TO BE USED WITH 24" INTERSTATE ROUTE MARKERS.

REFLECTORIZED SILVER TEXT ON REFLECTORIZED BLUE BACKGROUND. BACKGROUND COLOR TO BE REVERSE SCREENED ON SILVER REFLECTIVE SHEETING THAT COVERS THE ENTIRE SIGN FACE.

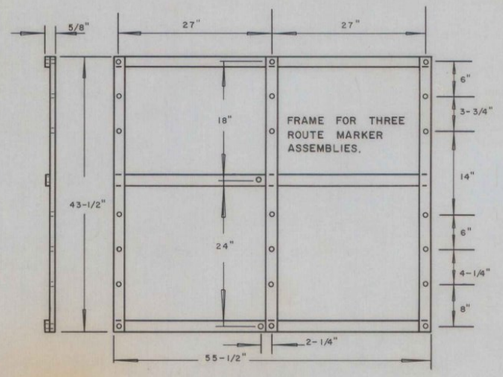
FOR DESIGN OF DIRECTIONAL ARROW, SEE BELOW



DIRECTION MARKER TO BE USED WITH 24" U.S. ROUTE MARKERS AND 20" X 18" STATE ROUTE MARKERS.

BLACK PAINTED OR SCREENED TEXT ON REFLECTORIZED SILVER BACKGROUND.

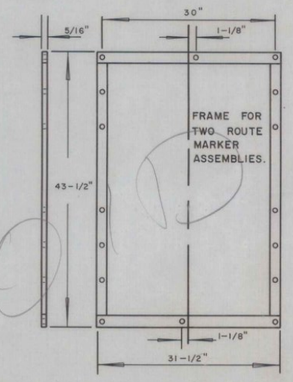
DETAILS OF WELDED WROUGHT IRON FRAMES FOR ROUTE MARKER ASSEMBLIES

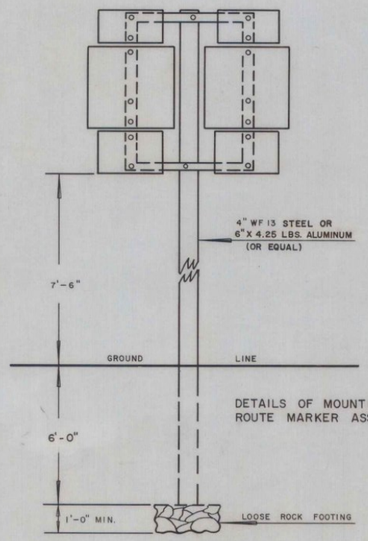


5/16" X 1-1/2" WROUGHT IRON

ALL HOLES 7/16" DIA.

ALL BOLTS 3/8" DIAM. ALUMINUM (2024 - T4)





DETAILS OF MOUNTING ROUTE MARKER ASSEMBLIES

REVISIONS AND CORRECTIONS

MAR. 25, 1959 ADDITION OF SIGN AREAS.
JUNE 3, 1959 NOTE ON LETTERS AND NUMERALS ADDED
AUG. 29, 1961 SQ. FT. OF SHIELD SIZE 20 X 18 CHANGED.

APPROVED DATE NOV. 24, 1958

H. E. Sargent
CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

A. W. Coleman
TRAFFIC ENGINEER

F. P. Coates
CONSTRUCTION ENGINEER

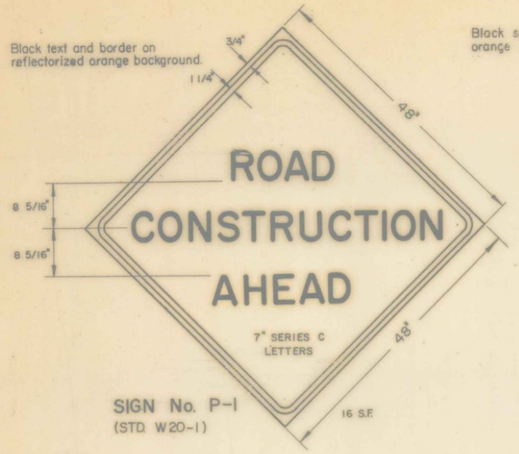
DRAWN: F.P.
TRACED: GUS AJA

TRAFFIC SIGNS
ROUTE MARKERS AND AUXILIARY MARKERS

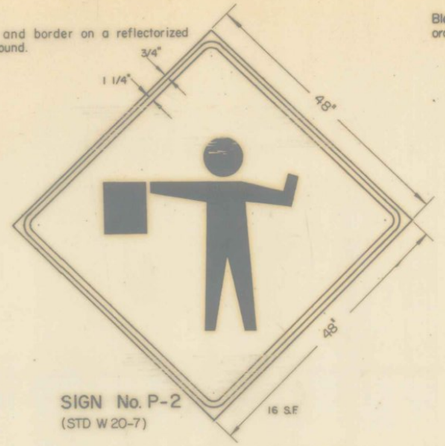
INTERSTATE PROJECTS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-4

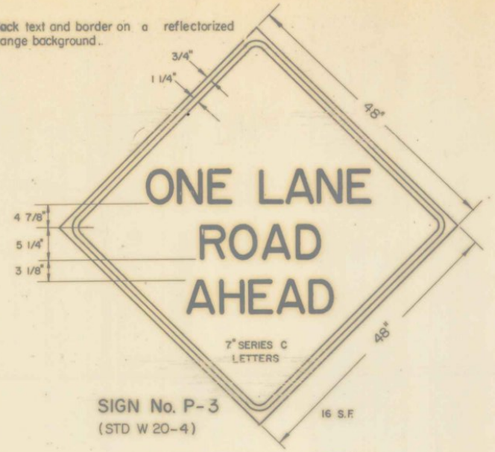


SIGN No. P-1
(STD W20-1)



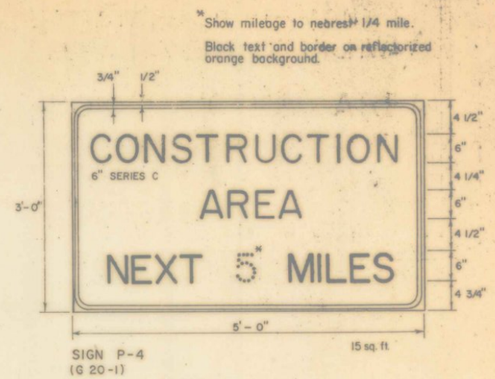
SIGN No. P-2
(STD W 20-7)

TO BE MOUNTED ON A PORTABLE SUPPORT AND DISPLAYED IN ADVANCE OF A FLAGPERSON WHEN ON DUTY.

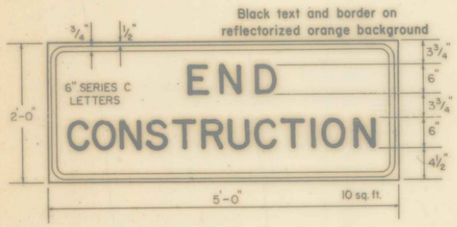


SIGN No. P-3
(STD W 20-4)

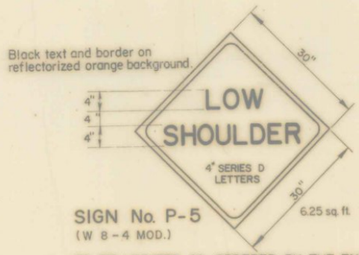
TO BE MOUNTED ON A PORTABLE SUPPORT AND DISPLAYED IN ADVANCE OF THE WORK AREA WHEN REQUIRED



SIGN P-4
(G 20-1)

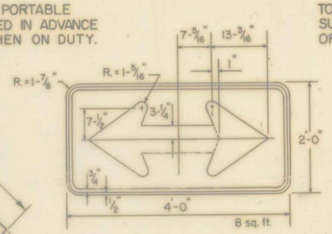


SIGN No. P-7 (STD. G20-2)



SIGN No. P-5
(W 8-4 MOD.)

TO BE LOCATED AS ORDERED BY THE ENGINEER ON POSTS SET SECURELY IN THE GROUND. NEAR EDGE OF SIGN TO BE AT LEAST 2 FT FROM EDGE OF PAVEMENT, WITH BOTTOM AT LEAST 3 FT ABOVE ROAD LEVEL



SIGN No. P-6
(STD. W1-7)

Black arrow and border on reflectorized orange background

LOCATION

Construction paving signs shall be located as detailed on this sheet or ordered by the Engineer. They shall appear at each end of the highway under construction, and on all intersecting public highways.

The exact placement of any sign will depend upon the alignment of the highway and the character of the roadsides. The location measurements on this sheet are intended to indicate the sequence to be followed, and the minimum spacing to be observed by the Engineer in determining exact locations.

DESIGN

The designs of the signs shall conform with the details shown on this sheet and with the standards prescribed in the Manual on Uniformed Traffic Control Devices prepared by National Joint Committee on Uniform Traffic Control Devices.

MATERIALS

The signs shall be of metal, wood, plywood, hardboard or any other material satisfactory to the Engineer. No material will be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION

All reflectorized material shall consist of encapsolated lens reflective sheeting.

INSTALLATION

The signs shall be in place at the time the project commences. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground, unless otherwise noted on this sheet. The bottom of a sign, unless otherwise noted shall be at least 5 feet above road level, and the nearest edge of a sign shall be at least 6 feet outside the shoulder point or 2 feet outside guard rail, curbing or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. The installation of all signs shall be subject to the approval of the Engineer. In urban areas, the bottom of a sign shall be at least 7' above the sidewalk.

MAINTENANCE

Signs shall be maintained in a clean and legible condition satisfactory to the Engineer. They shall be completely visible to approaching traffic at all times. They shall be kept plumb and level, and always present a neat appearance. Damaged, defaced or dirty signs shall be repaired, cleaned or replaced as ordered by the Engineer.

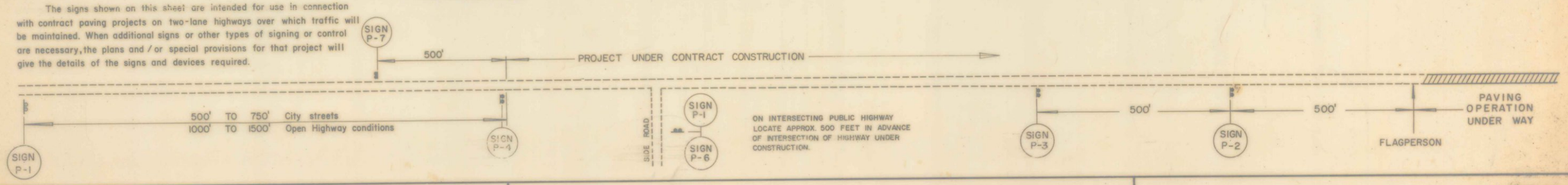
GENERAL

The cost of furnishing, erecting, maintaining and removing all construction approach signs shall be considered subsidiary work pertaining to the project as a whole and will be included in the contract unit price bid for various items involved in the contract. In all phases of construction of approach signing, the requirements set forth in the Manual on Uniform Traffic Control Devices shall be met (see Standard Specifications, Section 107, Article 107.09 Barricades, Warning and Detour Signs).

When project is closed down for temporary periods the signs shall be covered in a workmanlike manner.

Signs mounted on barricades or temporary supports shall be positioned such that the bottom of the sign is not less than one foot above the pavement elevation.

The signs shown on this sheet are intended for use in connection with contract paving projects on two-lane highways over which traffic will be maintained. When additional signs or other types of signing or control are necessary, the plans and / or special provisions for that project will give the details of the signs and devices required.



REVISIONS AND CORRECTIONS

SEPT. 11, 1973 — REVISED PER ORDER OF FH.W.A., SEPT. 11, 1973
NOV. 6, 1973 — REVISED PER ORDER OF FH.W.A.
MAY 14, 1974 — REFLECTIVE MATERIAL CHANGE
JUNE 7, 1977 — REFLECTIVE MATERIAL NOTE CHANGED.
JUNE 7, 1977 - SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D.
MAR. 22, 1978 - SIGNS REVISED PER DIRECTION FROM F.H.W.A.
APR. 20, 1978 - FLAGPERSON SIGN CHANGED TO SYMBOL.
DEC. 18, 1979 - SIGN P-4 REVISED, SIGN P-6 AND P-7 ADDED.

APPROVED
Dec. 14, 1971
DATE

R. H. Arnold
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

TRAFFIC SIGNS

ROAD CONSTRUCTION SIGNS

—PAVING—

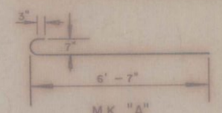
VERMONT AGENCY OF TRANSPORTATION

STAND

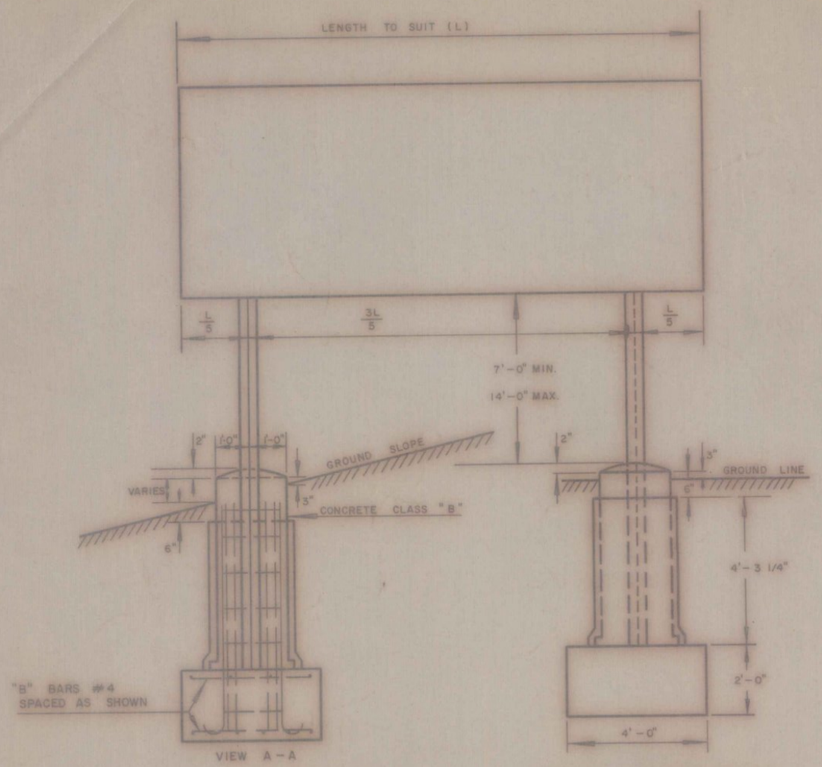
E-4

REINFORCING STEEL EACH LEG (EST 275 LBS)

MARK	SIZE	TOTAL NO.	TOTAL LENGTH	TYPE	LOCATION
A	7	12	7'-5"	C	STEM
B	4	8	3'-6"	STR.	FOOTING
C	4	4	7'-6"	STR.	FOOTING
D	5	6	7'-6"	STR.	FOOTING
E	2	6	6'-6"	STR.	STEM

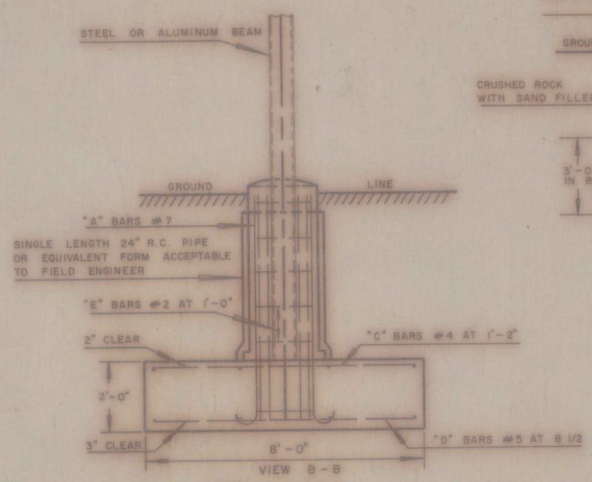


MK "A"

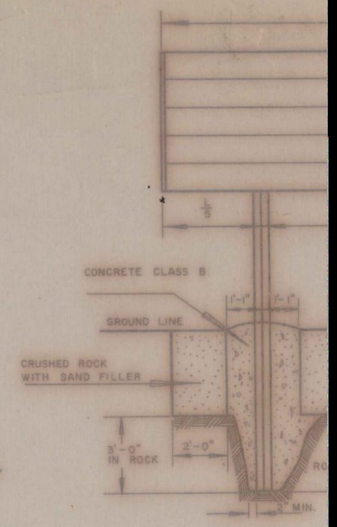


POST FOUNDATION
SLOPING GROUND

POST FOUNDATION
LEVEL GROUND



SIDE VIEW



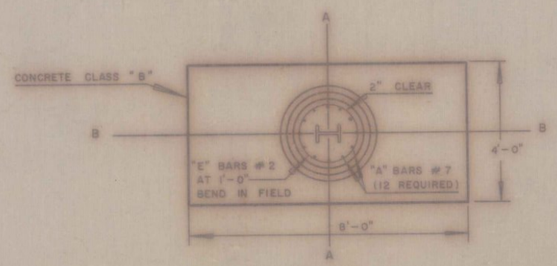
NOTE: IN ER
POUR
POUR
PROPE
DETER

TY

NOTES:

IN ERECTING POST, FIRST EXCAVATE AND POUR FOOTING. THEN PLACE POST, PLUMB, ALIGN, AND POUR STEM. THE TIME BETWEEN POURS FOR PROPER CURING OF CONCRETE SHALL BE DETERMINED BY ENGINEER IN FIELD.

ALUMINUM BEAMS IN CONTACT WITH CONCRETE SHALL BE TREATED WITH ZINC CHROMATE PAINT AS SPECIFIED UNDER SECTION D, ITEM 572 BRIDGE RAILING.



PLAN

TYPE "B" FOOTINGS

REVISIONS AND CORRECTIONS

Superseded by E 5 showing revision of Mar 31, 1953

APPROVED DATE NOV. 24, 1958

H. E. Sargent
CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

A. W. Johnson
TRAFFIC ENGINEER

F. H. Oates
CONSTRUCTION ENGINEER

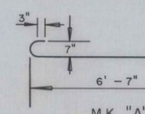
DRAWN: SMITH
TRACED: GUS AJA

TRAFFIC SIGNS

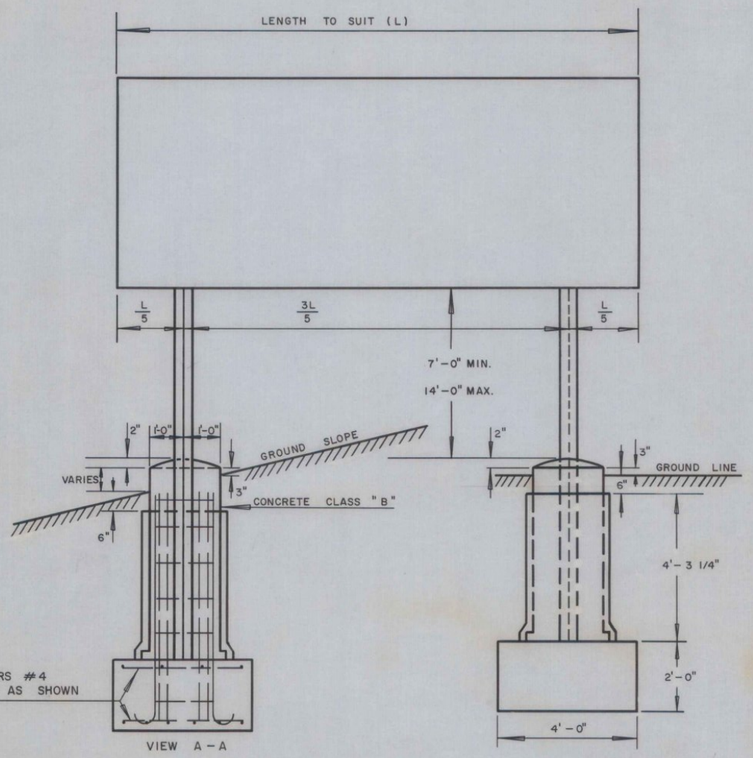
SIGN POST FOOTINGS

REINFORCING STEEL EACH LEG (EST. 275 LBS.)

MARK	SIZE	TOTAL NO.	TOTAL LENGTH	TYPE	LOCATION
A	7	12	7' – 5"	C___	STEM
B	4	8	3' – 6"	STR.	FOOTING
C	4	4	7' – 6"	STR.	FOOTING
D	5	6	7' – 6"	STR.	FOOTING
E	2	6	6' – 6"	STR.	STEM

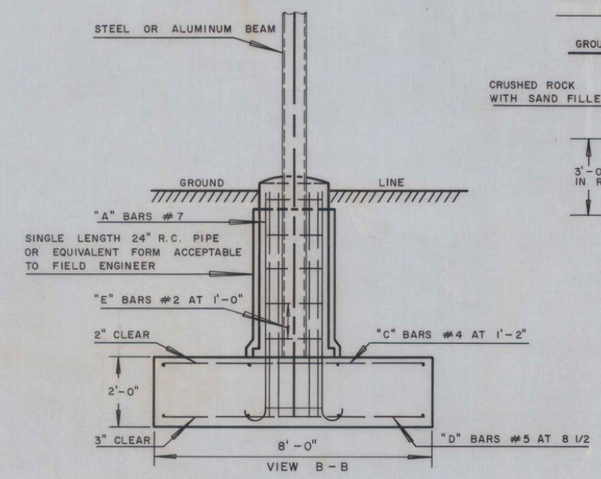


MK "A"

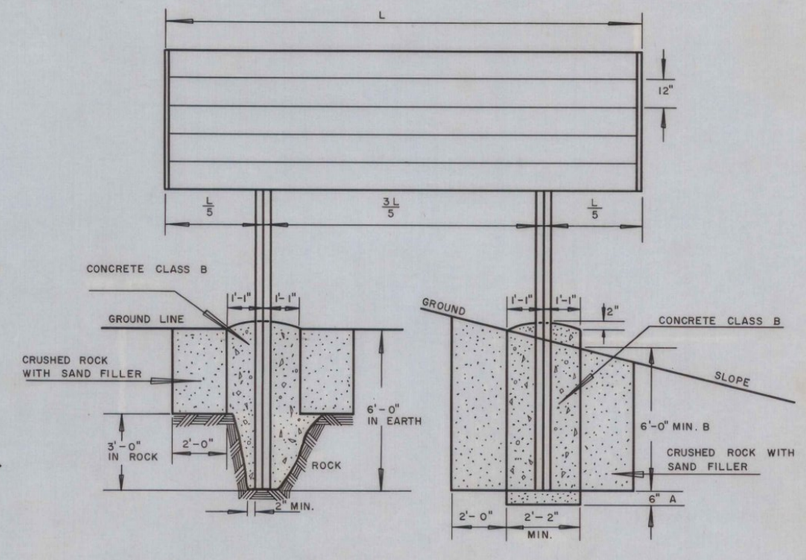


POST FOUNDATION
SLOPING GROUND

POST FOUNDATION
LEVEL GROUND



SIDE VIEW



NOTE: IN ERECTING POST, FIRST EXCAVATE AND POUR A. THEN PLACE POST, PLUMB AND POUR B. THE TIME BETWEEN POURS FOR PROPER CURING OF CONCRETE SHALL BE DETERMINED BY THE ENGINEER IN FIELD.

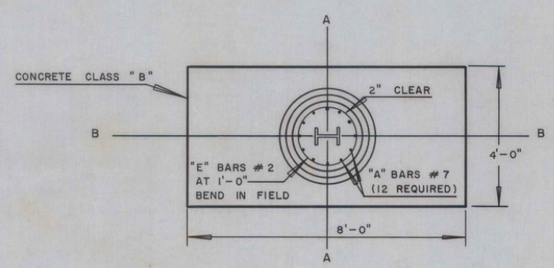
TYPE "A" FOOTINGS

NOTES:

IN ERECTING POST, FIRST EXCAVATE AND POUR FOOTING. THEN PLACE POST, PLUMB, ALIGN, AND POUR STEM. THE TIME BETWEEN POURS FOR PROPER CURING OF CONCRETE SHALL BE DETERMINED BY ENGINEER IN FIELD.

ALUMINUM BEAMS IN CONTACT WITH CONCRETE SHALL BE TREATED WITH ZINC CHROMATE PAINT AS SPECIFIED UNDER SECTION D, ITEM 572 BRIDGE RAILING.

TYPE "B" FOOTINGS



PLAN

GENERAL NOTE

WHEN CONCRETE FOOTINGS ARE NOT REQUIRED, SIGN POSTS SHALL BE SET IN THE GROUND TO THE FOLLOWING MINIMUM DEPTHS UNLESS OTHERWISE SHOWN ON THE PLANS:

POST SIZE	MIN. DEPTH
4 WF 13	6 FT.
6 BJ 8.5	5 1/2 FT.
4 I 7.7	5 FT.
4 U 5.4 X 18'	5 FT.
4 U 5.4 X 16'	4 1/2 FT.
4 U 5.4 X 14'	4 1/2 FT.
4 U 5.4 X 12'	4 FT.
4 U 5.4 X 10'	3 1/2 FT.

REVISIONS AND CORRECTIONS
MAR. 31, 1959 – ADDITION OF GENERAL NOTE.

APPROVED DATE NOV. 24, 1958

H. E. Sargent
CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

A. W. Johnson
TRAFFIC ENGINEER

F. H. Coates
CONSTRUCTION ENGINEER

DRAWN: SMITH
TRACED: GUS AJA

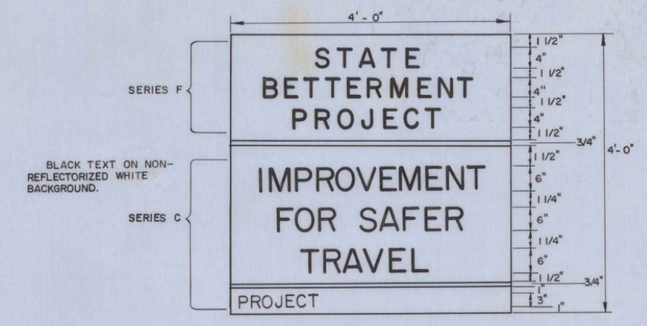
TRAFFIC SIGNS

SIGN POST FOOTINGS

INTERSTATE PROJECTS

VERMONT
DEPARTMENT
OF HIGHWAYS
STANDARD

E – 5



LOCATION:

THIS SIGN H-4 IS TO BE LOCATED BY THE ENGINEER OUTSIDE THE TRAVELED WAY ADJACENT TO THE CONSTRUCTION SITE PARALLEL WITH THE ROADWAY.

MATERIALS:

THE SIGNS SHALL BE OF METAL WOOD, PLYWOOD, HARDBOARD OR ANY OTHER MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL SHALL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE REQUIRED LIFE OF THE SIGN.

INSTALLATION:

THE SIGNS SHALL BE IN PLACE AT THE TIME THE PROJECT OFFICIALLY COMMENCES. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON WOOD OR METAL POSTS SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST 5 FEET ABOVE ROAD LEVEL AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT OR 2 FEET OUTSIDE THE GUARD RAIL, CURBING OR SIDEWORK. POSTS AND SIGNS SHALL BE BRACED OR REINFORCED IN BACK AS NECESSARY. THE INSTALLATION OF SIGNS AND BARRICADES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

MAINTENANCE:

SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. THEY SHALL BE KEPT PLUMB AND LEVEL AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

GENERAL:

THE COST OF FURNISHING, ERECTING, MAINTAINING AND REMOVING ALL CONSTRUCTION APPROACH SIGNS SHALL BE CONSIDERED AS SUBSIDIARY WORK PERTAINING TO THE PROJECT AS A WHOLE AND SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR VARIOUS ITEMS INVOLVED IN THE CONTRACT. IN ALL PHASES OF CONSTRUCTION OF APPROACH SIGNING, THE REQUIREMENTS SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES SHALL BE MET (SEE STANDARD SPECIFICATIONS, SECTION 107, ARTICLE 107.09 BARRICADES, WARNING AND DETOUR SIGNS).

REVISIONS AND CORRECTIONS

SEPT. 11, 1973 – REVISED PER ORDER OF FHWA, SEPT. 11, 1973

APPROVED:

Dec. 14, 1971
DATE

R. H. Arnold
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

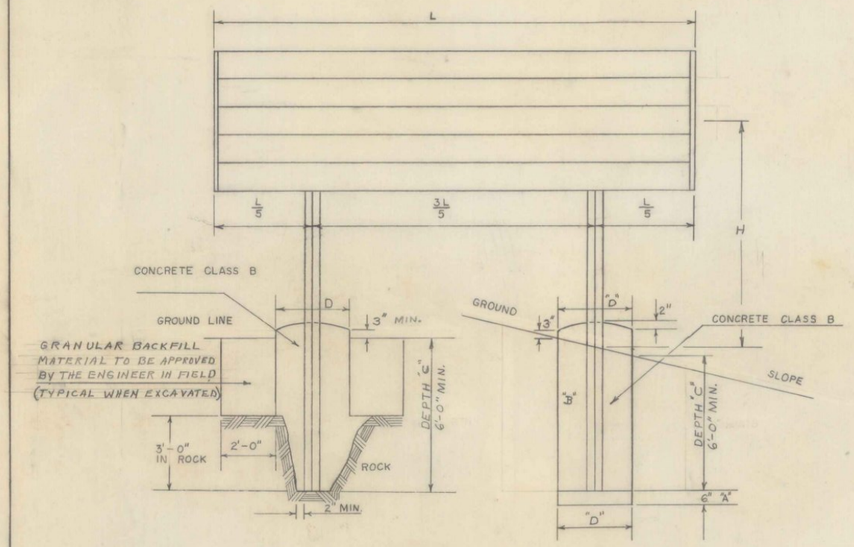
G. M. Lane
HIGHWAY ENGINEER

TRAFFIC SIGNS

ROAD CONSTRUCTION SIGNS BETTERMENT PROJECTS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-56



NOTE: IN ERECTING POST, FIRST EXCAVATE AND POUR "A" THEN PLACE POST, PLUMB AND POUR "B". THE TIME BETWEEN POURS FOR PROPER CURING OF CONCRETE SHALL BE DETERMINED BY THE ENGINEER IN FIELD. SOLID CONCRETE BLOCK PROPERLY EMBEDED IN WET CONCRETE MAY BE SUBSTITUTED FOR "A".

TYPE "A" FOOTINGS

STEEL POSTS AND FOOTINGS FOR SIGNS

IF "S" IS EQUAL TO OR LESS THAN	USE POST	USE FOOTING DEPTH "C"	FOOTING DIAMETER "D"
650	4 WF 13	* 6'-0"	18"
1210	6 WF 15.5	* 6'-0"	18"
1690	8 WF 17	* 6'-0"	18"
2580	10 WF 21	6'-6" 6'-0"	18" 24"
3170	10 WF 25	7'-3" 6'-0"	18" 24"
4090	12 WF 27	6'-9" 6'-0"	24" 30"
4730	12 WF 31	7'-3" 6'-6" 6'-0"	24" 30" 36"
6230	12 WF 40	8'-3" 7'-3" 6'-6"	24" 30" 36"

* MINIMUM FOR FROST

NOTES:

TWO POSTS PER SIGN

S = A H

A = SIGN AREA IN SQUARE FEET

H = GROUND ELEVATION OF LONGEST LEG TO CENTER HEIGHT OF SIGN.

WIND LOAD = 25 POUNDS PER SQUARE FOOT AS RECOMMENDED BY HIGHWAY RESEARCH COMMITTEE ON TRAFFIC CONTROL DEVICES, MEMORANDUM 2, FEBRUARY 1958, CIRCULAR 355.

DESIGN STEEL STRESS = 18,000 POUNDS PER SQUARE INCH.

MAXIMUM EARTH PRESSURE = ONE TON PER SQUARE FOOT

TABLE BASED ON RUTLEDGE "CHART FOR EMBEDMENT OF POSTS WITH OVERTURNING LOADS."

ALL MATERIALS AND WORKMANSHIP TO BE AS SPECIFIED UNDER "STATE OF VERMONT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION" LATEST EDITION

ALL CONCRETE TO BE AS SPECIFIED UNDER ITEM 401-B CONCRETE CLASS B, MODIFIED.

ALL STEEL POSTS TO BE A.S.T.M. DESIGNATION A7.

POSTS TO BE PAINTED AS SPECIFIED UNDER ITEM 404-A STRUCTURAL STEEL.

HOLE FOR SIGN FOOTING MAY BE AUGERED OR DUG WITH EARTH SIDES IF MATERIAL IS FIRM OR LINED WITH A SUITABLE FORM PROPERLY BACKFILLED AND LEFT IN PLACE AS APPROVED BY THE ENGINEER IN THE FIELD. CORRUGATED METAL CULVERT PIPE OR PAPER FORMS MANUFACTURED FOR USE AS CONCRETE COLUMN FORMS WILL BE CONSIDERED ACCEPTABLE. NO PART OF THE FORM USED IS TO SHOW ABOVE GROUND LINE WHEN WORK IS COMPLETED.

ALL BACKFILL MATERIAL SHALL MEET MINIMUM SPECIFICATIONS AS DESCRIBED UNDER ITEM 102-A GRANULAR BORROW AND SHALL BE APPROVED BY THE ENGINEER IN THE FIELD.

FOOTING DIAMETER "D" AND ITS REQUIRED DEPTH "C" AS SHOWN IN THE ABOVE TABLE IS AN OPTIONAL SELECTION OF THE CONTRACTOR.

GENERAL NOTE

WHEN CONCRETE FOOTINGS ARE NOT REQUIRED, SIGN POSTS SHALL BE SET IN THE GROUND TO THE FOLLOWING MINIMUM DEPTHS UNLESS OTHERWISE SHOWN ON THE PLANS:

POST SIZE	MIN. DEPTH
4 WF 13	6 FT.
6 BJ 8.5	5 1/2 FT.
4 I 7.7	5 FT.
4 U 5.4 X 18'	5 FT.
4 U 5.4 X 16'	4 1/2 FT.
4 U 5.4 X 14'	4 1/2 FT.
4 U 5.4 X 12'	4 FT.
4 U 5.4 X 10'	3 1/2 FT.

REVISIONS AND CORRECTIONS

APPROVED

DATE July 19, 1961

A. D. Barlow
CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

A. W. Coleman
TRAFFIC ENGINEER

E. W. Stickney
CONSTRUCTION ENGINEER

DESIGNED BY W. SMITH
CHECKED BY A. COUCH

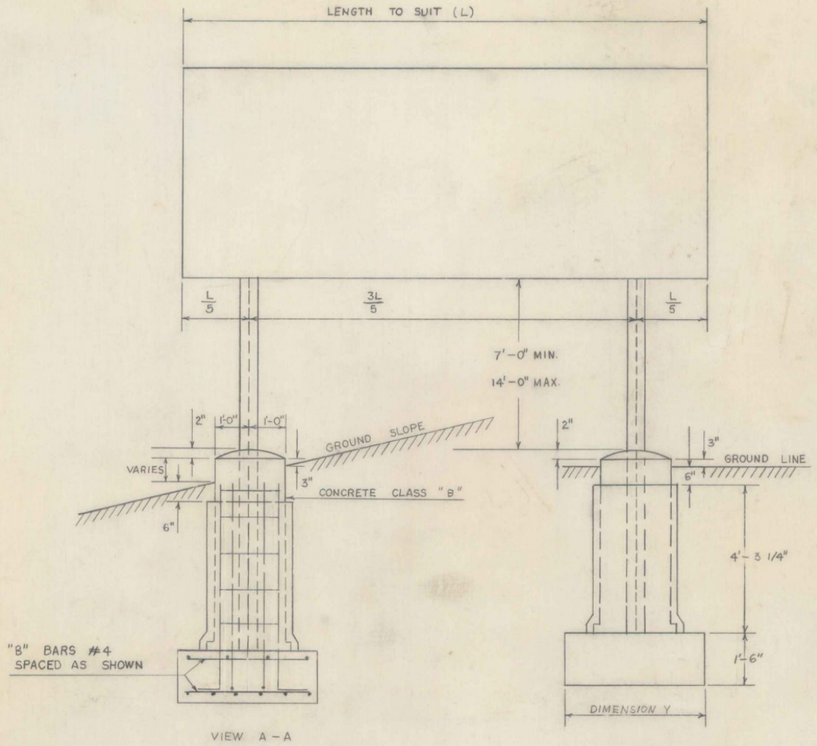
TRAFFIC SIGNS

SIGN POST FOOTINGS

INTERSTATE PROJECTS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-5A

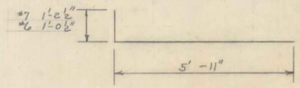


POST FOUNDATION
SLOPING GROUND

POST FOUNDATION
LEVEL GROUND

REINFORCING STEEL EACH LEG

	IF "S" IS LESS THAN OR EQUAL TO 4.730 X=6'-0" Y=3'-0"			IF "S" IS MORE THAN 4.730 BUT LESS THAN OR EQUAL TO 6.630 X=8'-0" Y=4'-0"				
MARK	SIZE	TOTAL NO.	TOTAL LENGTH	SIZE	TOTAL NO.	TOTAL LENGTH	TYPE	LOCATION
A	6	8	6'-9½"	7	8	6'-11½"	L	STEM
B	4	4	2'-6"	4	4	3'-6	STR	FOOTING
C	4	3	5'-6"	4	4	7'-6"	STR	FOOTING
D	5	4	5'-6"	6	6	7'-6"	STR	FOOTING
E	3	6	6'-6"	3	6	6'-6"	STR.	STEM

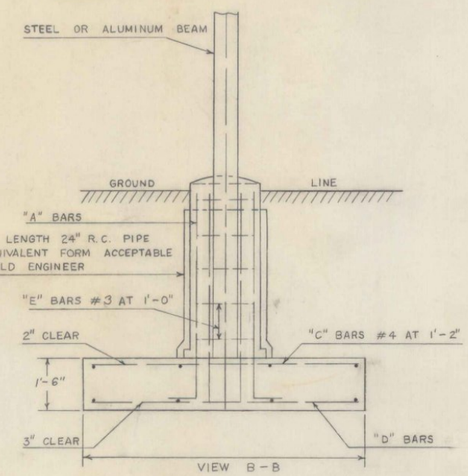


MK "A"

	REINFORCING STEEL	CONCRETE
3 X 6 FOOTING	137 LBS.	1.6 c.y
4 X 8 FOOTING	226 LBS.	2.4 c.y.

NOTES:

FOR GENERAL INFORMATION, SEE NOTES ON STANDARD SHEET E-5A.
THIS FOOTING TO BE USED WHEN SPECIFIED ON PLANS.
THIS FOOTING UTILIZES PASSIVE EARTH RESISTANCE AGAINST STEM OF FOOTING BASED ON RUTLEDGE "CHART FOR EMBEDMENT OF POSTS WITH OVERTURNING LOADS." PASSIVE EARTH RESISTANCE = ONE TON PER SQUARE FOOT.
MAXIMUM EARTH PRESSURE UNDER FOOTING = ONE TON PER SQUARE FOOT
FOR EQUIVALENT ALUMINUM POSTS, SEE SIGN SUMMARY SHEET.

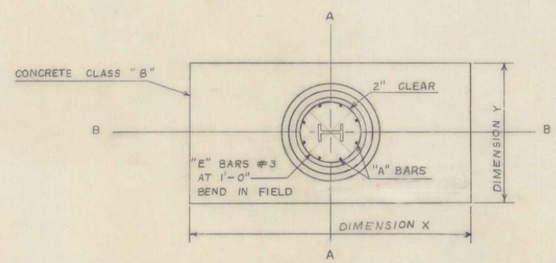


SIDE VIEW

NOTES:

IN ERECTING POST, FIRST EXCAVATE AND POUR FOOTING. THEN PLACE POST, PLUMB, ALIGN, AND POUR STEM. THE TIME BETWEEN POURS FOR PROPER CURING OF CONCRETE SHALL BE DETERMINED BY ENGINEER IN FIELD

ALUMINUM BEAMS IN CONTACT WITH CONCRETE SHALL BE TREATED WITH ZINC CHROMATE PAINT AS SPECIFIED UNDER SECTION D, ITEM 572 BRIDGE RAILING.



PLAN

TYPE "B" FOOTINGS

REVISIONS AND CORRECTIONS

APPROVED DATE July 18, 1961

A. D. Bishop
CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

E. W. Coleman
TRAFFIC ENGINEER

E. H. Stickney
CONSTRUCTION ENGINEER

DESIGNED BY W. SMITH
CHECKED BY A. Couch

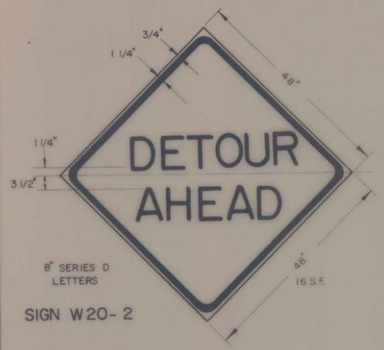
TRAFFIC SIGNS

SIGN POST FOOTINGS

INTERSTATE PROJECTS

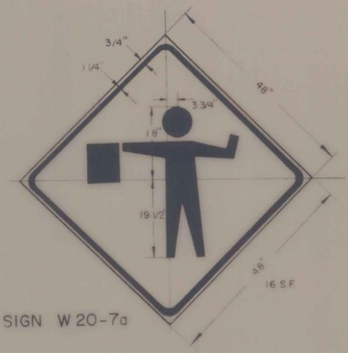
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-5B

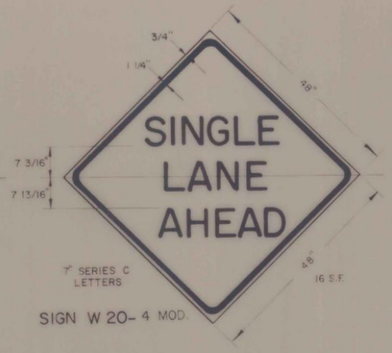


SIGN W20-2

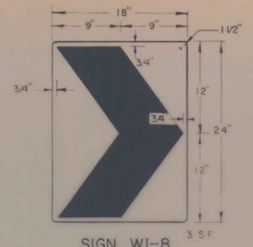
SIGN W 20-3



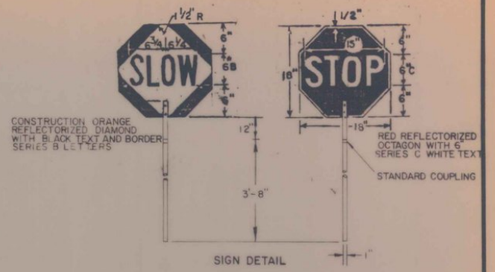
SIGN W 20-7a



SIGN W 20-4 MOD.



SIGN W1-8



MATERIALS

The sign materials shall be 0.063 aluminum with colors as indicated on details.

The staff shall be 1" ridged aluminum conduit or tubing with a wall thickness of 1/8 inch.

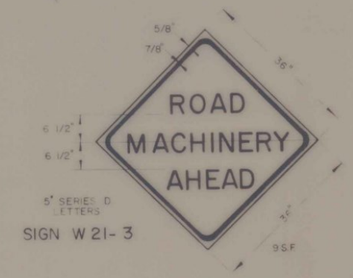
COLORS

The colors shall conform with the standard colors adopted by the American Association Of State Highway and Transportation Officials and approved by the U.S. Department Of Transportation, Federal Highway Administration.

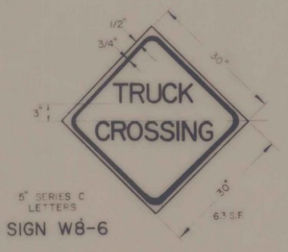
MOUNTING

The staff shall be mounted with either 2-1/4" aluminum bolts or 2-1/4" aluminum rivets.

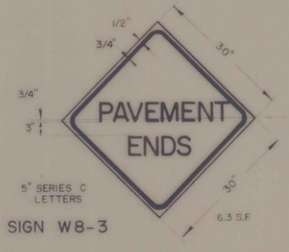
SIGN PADDLE FOR FLAGPERSON



SIGN W21-3



SIGN W8-6



SIGN W8-3

NOTES

APPLICATION OF STANDARDS

Since it is not possible to prescribe detailed standards of application for all of the situations that may conceivably arise on a construction project, reference must be made to the Manual on Uniform Traffic Control Devices for the principles, procedures and and standards that will be required in connection with on-project construction signs and barricades. The signs here shown represent a sample of those that probably will be most used.

DESIGN

The designs of the signs and barricades shall conform with the details shown on this sheet and with the standards prescribed in the Manual. Deviations will not be permitted.

MATERIALS

The signs shall be of metal, wood, plywood, hardwood or any other material satisfactory to the Engineer. No material will be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION AND COLORS

All signs except sign R11-2 and the sign paddle shall have black texts and borders on an encapsolated lens reflective orange background. Sign R11-2 shall have black text and border on an encapsolated lens reflective white background.

INSTALLATION

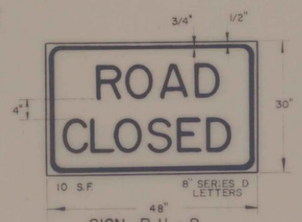
Signs and barricades shall be in place prior to the start of the construction operation to which they apply, and shall be removed promptly when the need no longer exists. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground, or on portable supports for temporary use, or on barricades when appropriate. As a general rule, roadside signs shall be 5 feet above road level with the nearest edge at least 6 feet outside the shoulder point. The installation of all signs and barricades shall be subject to the approval of the Engineer.

MAINTENANCE

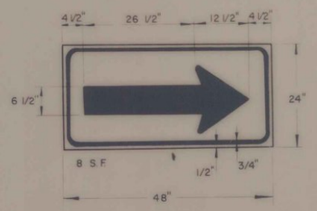
Signs shall be kept in a clean and legible condition at all times with the reflective quality completely unimpaired. Sinns, sign supports, and barricades shall be repaired, cleaned, repainted or replaced whenever necessary.

Weeds, shrubbery, construction materials, equipment, and snow shall not be allowed to obscure any sign or barricade.

The maintenance of all traffic control devices shall be subject to the orders of the Engineer.



SIGN R11-2



SIGN W1-6

ARROW RIGHT OR LEFT AS REQUIRED

SIGN M 4-10

ARROW LEFT OR RIGHT AS REQUIRED.

The on-project construction signs covered by this sheet are intended to be used as the situations apply within normal two-lane highway construction areas, for the protection of the public and workmen and for the guidance of traffic through or around construction operations. When messages other than those shown here are needed, the signs and their applications shall conform with the standards set forth in the Manual on Uniform Traffic Control Devices.

The cost of furnishing, erecting, maintaining and removing all construction approach signs shall be considered as subsidiary work pertaining to the project as a whole and shall be included in the contract unit price bid for various items involved in the contract.

REVISIONS AND CORRECTIONS

DEC. 14, 1973 – BEADS ON PAINT FOR BACKGROUND MATERIAL REMOVED.
MAY 14, 1974 – REFLECTIVE MATERIAL CHANGE.
JUNE 7, 1977 – REFLECTIVE MATERIAL NOTE CHANGED.
JUNE 7, 1977 – SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D.
APR. 20, 1978 – FLAGPERSON SIGN CHANGED TO SYMBOL.
DEC. 15, 1978 – ILLUMINATION DELETED.
FEB. 27, 1980 – SIGN W1-8 AND SIGN PADDLE ADDED. SIGN DETAILS REVISED.
APR. 1, 1980 – SIGN PADDLE SIGN REVISED.
FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED

Dec 14, 1971
DATE

R. H. Arnold
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

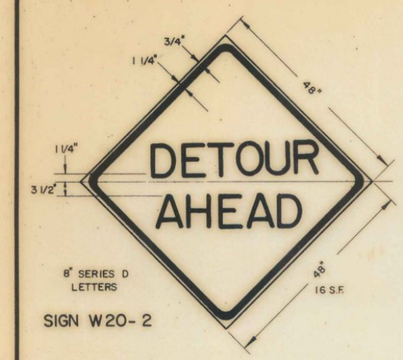
TRAFFIC SIGNS

ON-PROJECT CONSTRUCTION SIGNS

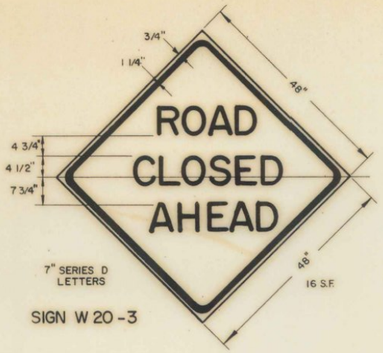
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-6

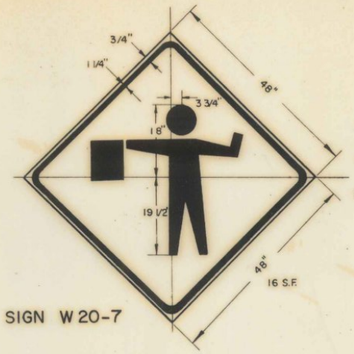
D-8



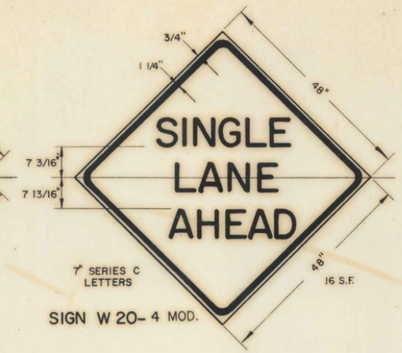
SIGN W20-2



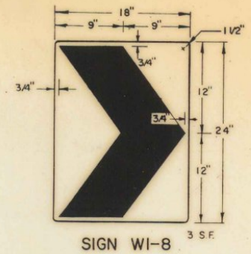
SIGN W20-3



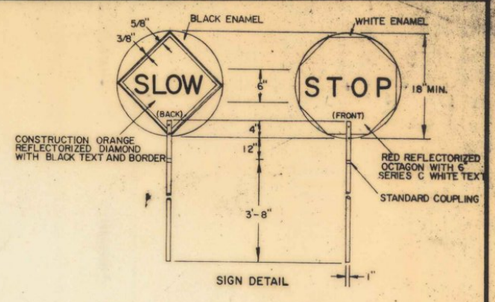
SIGN W20-7



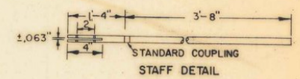
SIGN W20-4 MOD.



SIGN W1-8



SIGN DETAIL



STAFF DETAIL

MATERIALS

The sign materials shall be 0.063 aluminum with colors as indicated on details.

The staff shall be 1" ridged aluminum conduit or tubing with a wall thickness of 1/8 inch.

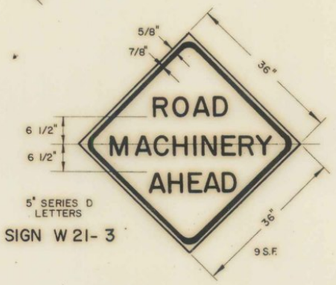
COLORS

The colors shall conform with the standard colors adopted by the American Association Of State Highway and Transportation Officials and approved by the U.S. Department Of Transportation, Federal Highway Administration.

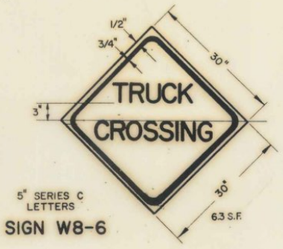
MOUNTING

The staff shall be mounted with either 2-1/4" aluminum bolts or 2-1/4" aluminum rivets.

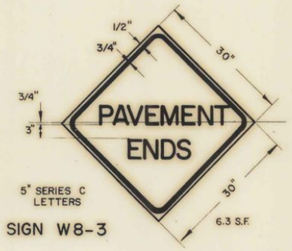
SIGN PADDLE FOR FLAGPERSON



SIGN W21-3



SIGN W8-6



SIGN W8-3

NOTES

APPLICATION OF STANDARDS

Since it is not possible to prescribe detailed standards of application for all of the situations that may conceivably arise on a construction project, reference must be made to the Manual on Uniform Traffic Control Devices for the principles, procedures and and standards that will be required in connection with on-project construction signs and barricades. The signs here shown represent a sample of those that probably will be most used.

DESIGN

The designs of the signs and barricades shall conform with the details shown on this sheet and with the standards prescribed in the Manual. Deviations will not be permitted.

MATERIALS

The signs shall be of metal, wood, plywood, hardwood or any other material satisfactory to the Engineer. No material will be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION AND COLORS

All signs except sign R11-2 and the sign paddle shall have black texts and borders on an encapsolated lens reflective orange background. Sign R11-2 shall have black text and border on an encapsolated lens reflective white or silver background.

INSTALLATION

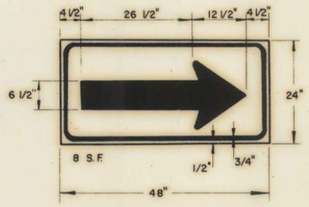
Signs and barricades shall be in place prior to the start of the construction operation to which they apply, and shall be removed promptly when the need no longer exists. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground, or on portable supports for temporary use, or on barricades when appropriate. As a general rule, roadside signs shall be 5 feet above road level with the nearest edge at least 6 feet outside the shoulder point. The installation of all signs and barricades shall be subject to the approval of the Engineer.

MAINTENANCE

Signs shall be kept in a clean and legible condition at all times with the reflective quality completely unimpaired. Sinns, sign supports, and barricades shall be repaired, cleaned, repainted or replaced whenever necessary.

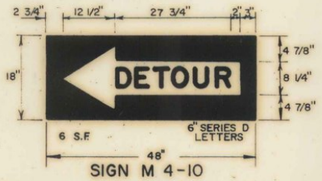
Weeds, shrubbery, construction materials, equipment, and snow shall not be allowed to obscure any sign or barricade. The maintenance of all traffic control devices shall be subject to the orders of the Engineer.

SIGN R11-2



SIGN W1-6

ARROW RIGHT OR LEFT AS REQUIRED



SIGN M4-10

ARROW LEFT OR RIGHT AS REQUIRED.

The on-project construction signs covered by this sheet are intended to be used as the situations apply within normal two-lane highway construction areas, for the protection of the public and workmen and for the guidance of traffic through or around construction operations. When messages other than those shown here are needed, the signs and their applications shall conform with the standards set forth in the Manual on Uniform Traffic Control Devices.

The cost of furnishing, erecting, maintaining and removing all construction approach signs shall be considered as subsidiary work pertaining to the project as a whole and shall be included in the contract unit price bid for various items involved in the contract.

REVISIONS AND CORRECTIONS

DEC. 14, 1973 – BEADS ON PAINT FOR BACKGROUND MATERIAL REMOVED.
MAY 14, 1974 – REFLECTIVE MATERIAL CHANGE.
JUNE 7, 1977 – REFLECTIVE MATERIAL NOTE CHANGED.
JUNE 7, 1977 – SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D.
APR. 20, 1978 – FLAGPERSON SIGN CHANGED TO SYMBOL.
DEC. 15, 1978 – ILLUMINATION DELETED.
FEB. 27, 1980 – SIGN W1-8 AND SIGN PADDLE ADDED. SIGN DETAILS REVISED.

APPROVED

Dec. 14, 1971
DATE

R. H. Conold
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

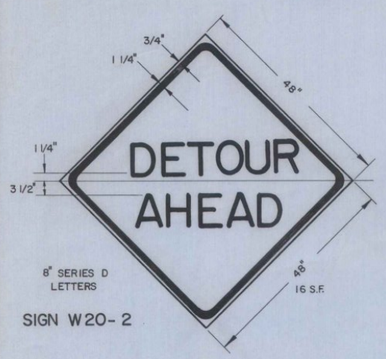
TRAFFIC SIGNS

ON-PROJECT CONSTRUCTION SIGNS

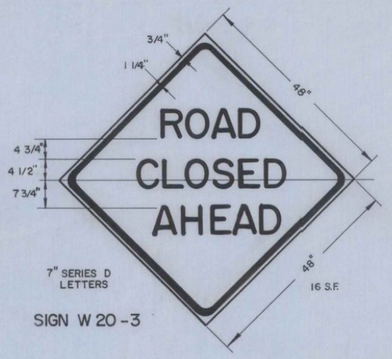
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-6

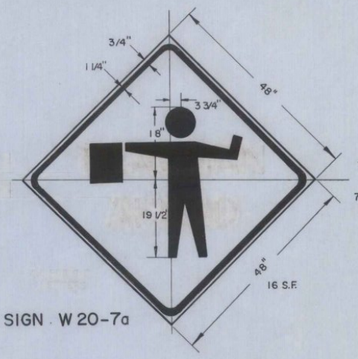
0-9



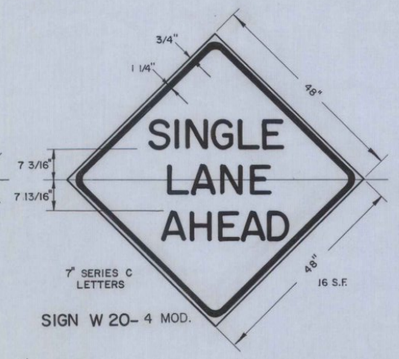
SIGN W20-2



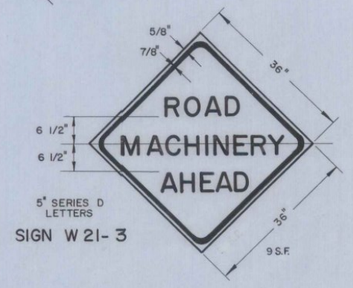
SIGN W 20-3



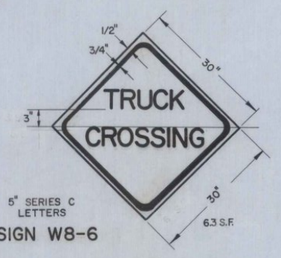
SIGN W 20-7a



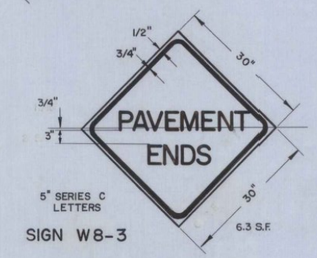
SIGN W 20-4 MOD.



SIGN W21-3



SIGN W8-6



SIGN W8-3

NOTES

APPLICATION OF STANDARDS

Since it is not possible to prescribe detailed standards of application for all of the situations that may conceivably arise on a construction project, reference must be made to the Manual on Uniform Traffic Control Devices for the principles, procedures and and standards that will be required in connection with on-project construction signs and barricades. The signs here shown represent a sample of those that probably will be most used.

DESIGN

The designs of the signs and barricades shall conform with the details shown on this sheet and with the standards prescribed in the Manual. Deviations will not be permitted.

MATERIALS

The signs shall be of metal, wood, plywood, hardwood or any other material satisfactory to the Engineer. No material will be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION AND COLORS

All signs except sign R11-2 and the sign paddle shall have black texts and borders on an encapsolated lens reflective orange background. Sign R11-2 shall have black text and border on an encapsolated lens reflective white background.

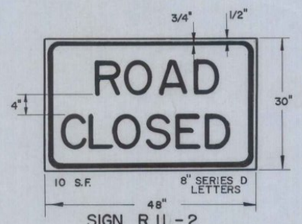
INSTALLATION

Signs and barricades shall be in place prior to the start of the construction operation to which they apply, and shall be removed promptly when the need no longer exists. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground, or on portable supports for temporary use, or on barricades when appropriate. As a general rule, roadside signs shall be 5 feet above road level with the nearest edge at least 6 feet outside the shoulder point. The installation of all signs and barricades shall be subject to the approval of the Engineer.

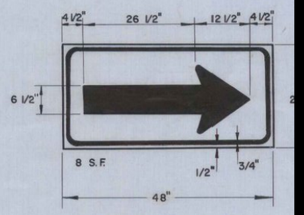
MAINTENANCE

Signs shall be kept in a clean and legible condition at all times with the reflective quality completely unimpaired. Signs, sign supports, and barricades shall be repaired, cleaned, repainted or replaced whenever necessary.

Weeds, shrubbery, construction materials, equipment, and snow shall not be allowed to obscure any sign or barricade. The maintenance of all traffic control devices shall be subject to the orders of the Engineer.



SIGN R 11-2



SIGN W1-6

ARROW RIGHT OR LEFT AS REQUIRED

SIGN M 4-10

ARROW LEFT OR RIGHT AS REQUIRED.

The cost of fur
subsidiary work pertaining
involved in the contract.

REVISIONS AND CORRECTIONS

DEC. 14, 1973 — BEADS ON PAINT FOR BACKGROUND MATERIAL REMOVED.
MAY 14, 1974 — REFLECTIVE MATERIAL CHANGE.
JUNE 7, 1977 - REFLECTIVE MATERIAL NOTE CHANGED.
JUNE 7, 1977 - SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D.
APR. 20, 1978 - FLAGPERSON SIGN CHANGED TO SYMBOL.
DEC. 15, 1978 - ILLUMINATION DELETED.
FEB. 27, 1980 - SIGN W1-8 AND SIGN PADDLE ADDED. SIGN DETAILS REVISED.
APR. 1, 1980 - SIGN PADDLE SIGN REVISED.

APPROVED

Dec. 14, 1971
DATE

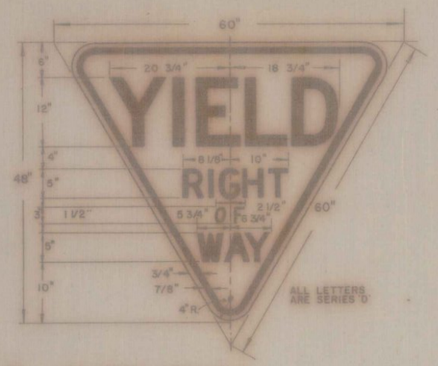
R. H. Arnold
CHIEF ENGINEER

E. V. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

TRAFFIC SIGNS

ON-PROJECT CONSTRUCTION SIGNS



(A) BLACK PAINTED OR SCREENED TEXT ON REFLECTORIZED YELLOW BACKGROUND.

(A)

THICKNESS OF SIGN BLANKS

PLYWOOD. (ITEM 575)	MAX. DIMENSION.	MIN. THICKNESS.
	24" TO 30"	1/2"
	OVER 30"	5/8"

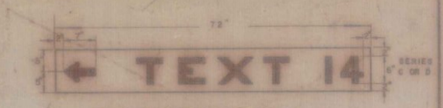
SHEET ALUMINUM (ITEM 577)	MAX. DIMENSION	MIN. THICKNESS.
	24"	.080"
	24" TO 42"	.100"
	OVER 42"	.125"

TREATMENT OF SIGN FACE.

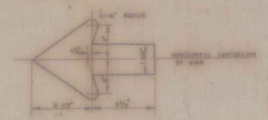
(A) BLACK PAINTED OR SCREENED TEXT ON REFLECTORIZED YELLOW BACKGROUND.

(B) BLACK PAINTED OR SCREENED TEXT ON REFLECTORIZED SILVER BACKGROUND.

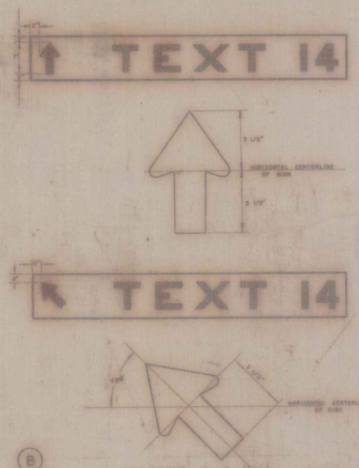
(C) REFLECTORIZED SILVER TEXT ON A REFLECTORIZED RED BACKGROUND.



72" X 10" DESTINATION SIGN



DETAILS OF ARROW FOR DESTINATION SIGN



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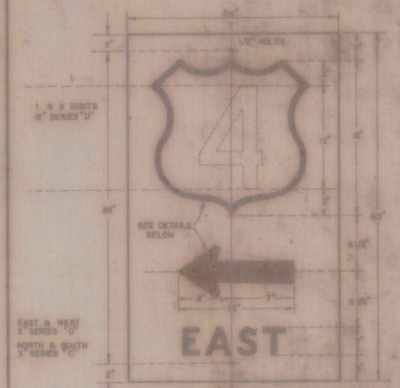
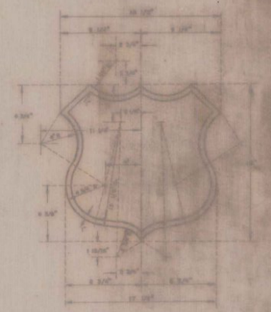
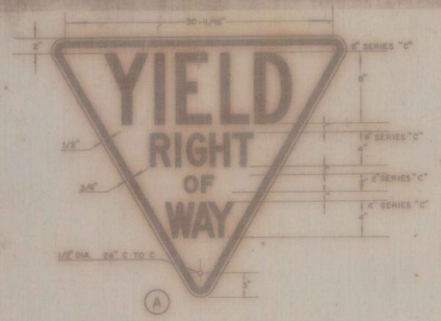


20" X 40" ROUTE MARKER.



DETAILS OF U.S. SHIELD SYMBOL FOR 24" X 40" ROUTE MARKER.



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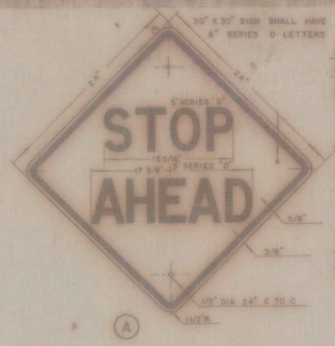

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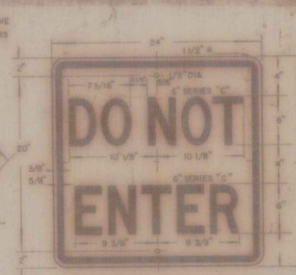
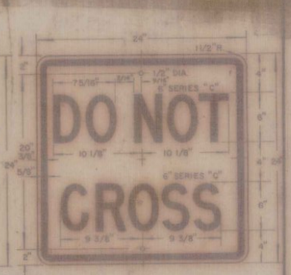


(B) BLACK PAINTED OR SCREENED TEXT ON REFLECTORIZED SILVER BACKGROUND.



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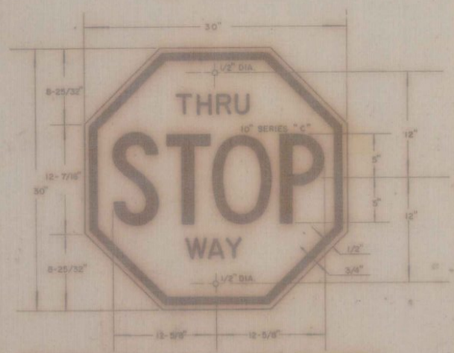
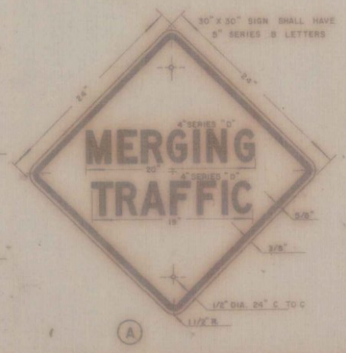
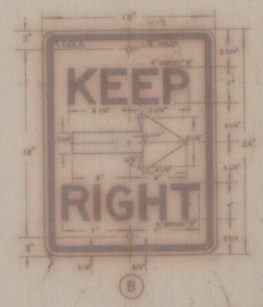


(C) REFLECTORIZED SILVER TEXT ON A REFLECTORIZED RED BACKGROUND.



(A)



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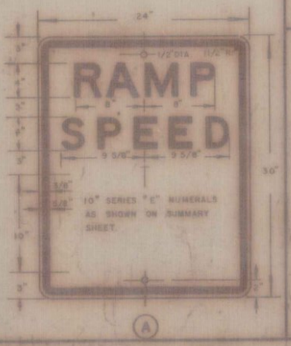

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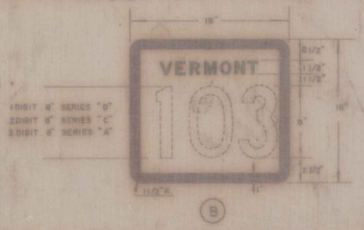
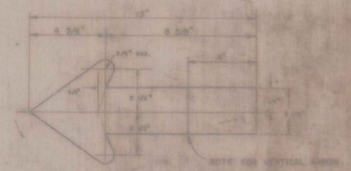


(B)

DETAILS OF STATE ROUTE SYMBOL FOR 24" X 40" ROUTE MARKER.



DETAILS OF ARROW FOR USE WITH 24" X 40" ROUTE MARKER.

REVISIONS AND CORRECTIONS

Superseded by E6 revised as of June 3 1959

APPROVED DATE NOV. 24, 1958

H. E. Sargent
CHIEF ENGINEER

HIGHWAY ENGINEER

TRAFFIC ENGINEER

CONSTRUCTION ENGINEER

DRAWN P.R.
TRACED A.J.A.-W.U.

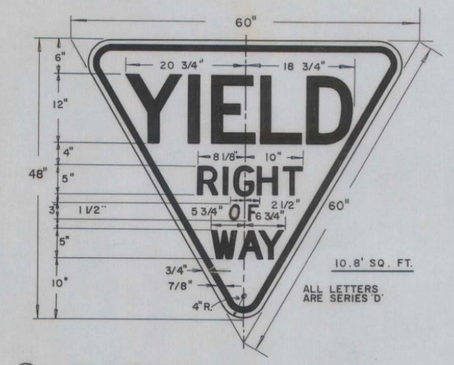
TRAFFIC SIGNS

REGULATORY, WARNING AND GUIDE SIGNS

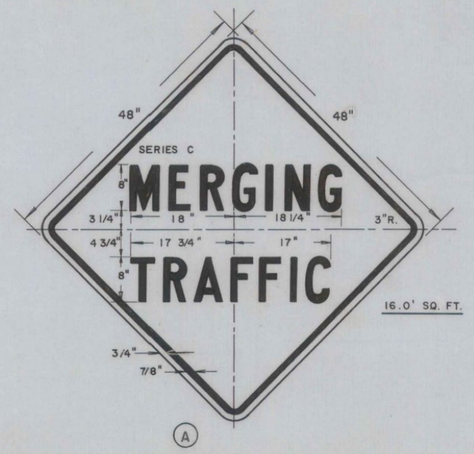
VERMONT DEPARTMENT OF HIGHWAY STANDARD

Superseded by E6 revised as of June 3, 1959

E-6



(A) BLACK PAINTED OR SCREENED TEXT ON REFLECTORIZED YELLOW BACKGROUND.



(A)

THICKNESS OF SIGN BLANKS

PLYWOOD. (ITEM 575)	MAX. DIMENSION.	MIN. THICKNESS.
	24" TO 30"	1/2"
	OVER 30"	5/8"

SHEET ALUMINUM (ITEM 577)	MAX. DIMENSION	MIN. THICKNESS.
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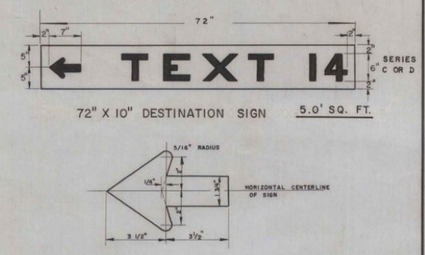
TREATMENT OF SIGN FACE.

(A) BLACK PAINTED OR SCREENED TEXT ON REFLECTORIZED YELLOW BACKGROUND.

(B) BLACK PAINTED OR SCREENED TEXT ON REFLECTORIZED SILVER BACKGROUND.

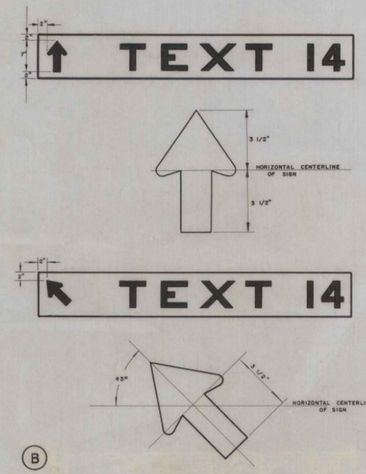
(C) REFLECTORIZED SILVER TEXT ON A REFLECTORIZED RED BACKGROUND.

LETTERS AND NUMERALS SHALL CONFORM WITH BUREAU OF PUBLIC ROADS STANDARD ALPHABETS.



72" X 10" DESTINATION SIGN 5.0' SQ. FT.

DETAILS OF ARROW FOR DESTINATION SIGN



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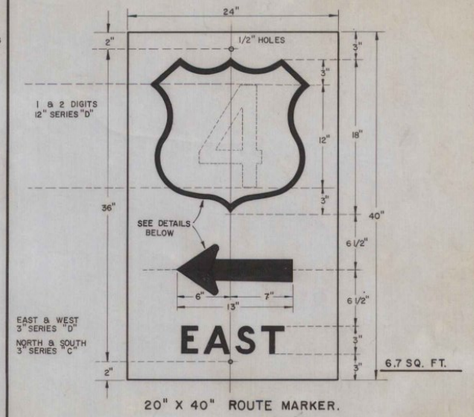
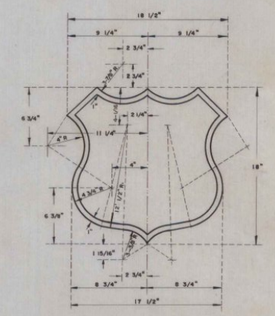
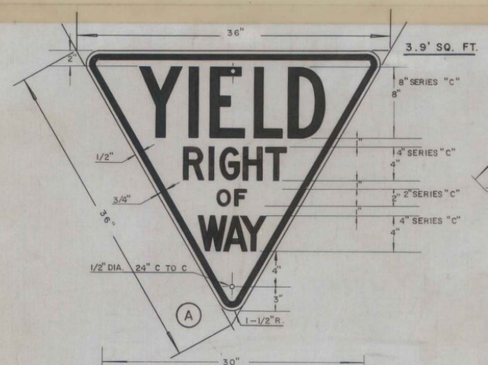


20" X 40" ROUTE MARKER.



DETAILS OF U.S. SHIELD SYMBOL FOR 24" X 40" ROUTE MARKER.



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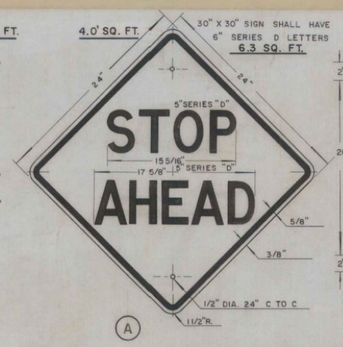
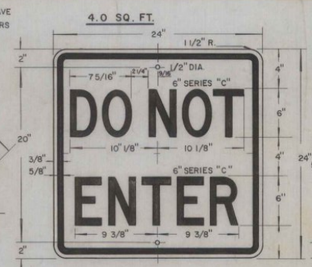
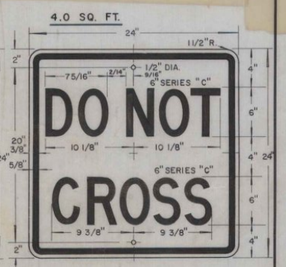


(A)

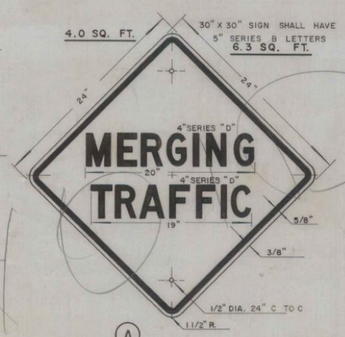


(B) BLACK PAINTED OR SCREENED TEXT ON REFLECTORIZED SILVER BACKGROUND.



(B)

(C) REFLECTORIZED SILVER TEXT ON A REFLECTORIZED RED BACKGROUND.



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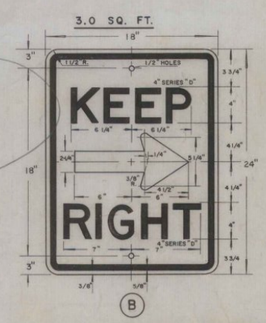

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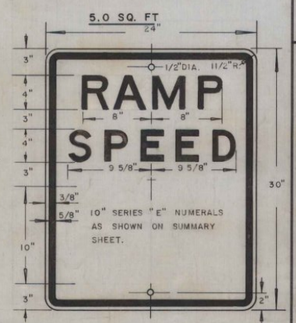
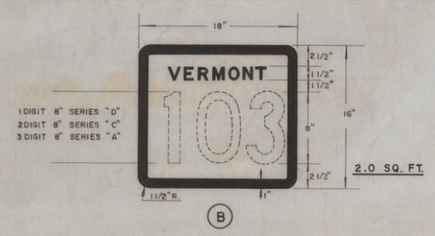
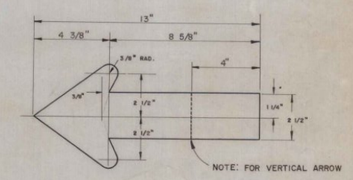


(A)



(B)

DETAILS OF STATE ROUTE SYMBOL FOR 24" X 40" ROUTE MARKER.



DETAILS OF ARROW FOR USE WITH 24" X 40" ROUTE MARKER.

REVISIONS AND CORRECTIONS

MAR. 25, 1959 – ADDITION OF SIGN AREAS

JUNE 3, 1959 – NOTE ON LETTERS AND NUMERALS ADDED

APPROVED DATE NOV. 24, 1958

H. E. Sargent
CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

A. W. Coleman
TRAFFIC ENGINEER

F. Clarke
CONSTRUCTION ENGINEER

DRAWN F.P.
TRACED AJA–WU

TRAFFIC SIGNS

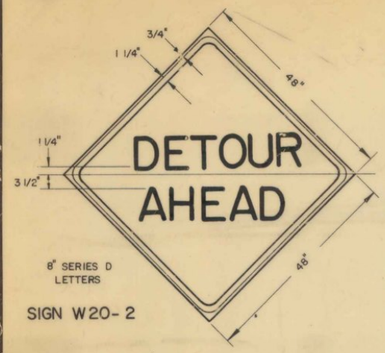
REGULATORY, WARNING AND GUIDE SIGNS

INTERSTATE PROJECTS

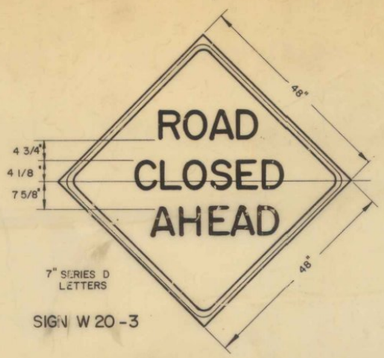
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-6

ALL DIAMOND SHAPED SIGNS SHALL HAVE BLACK TEXTS AND BORDERS ON A REFLECTORIZED ORANGE BACKGROUND.

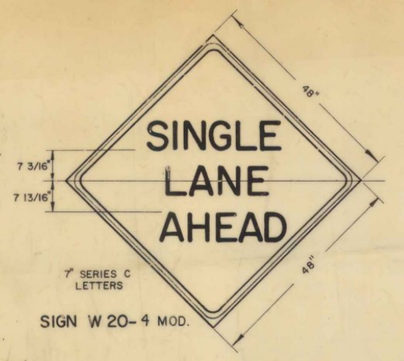


SIGN W20-2



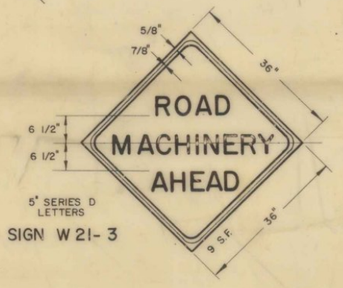
SIGN W20-3

SIGN W20-7

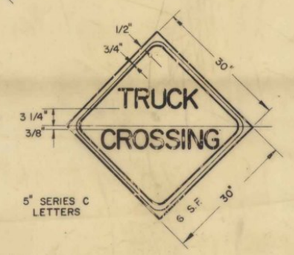


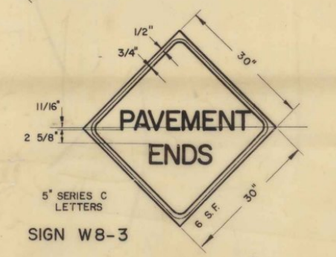
SIGN W20-4 MOD.

SEE NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR ADDITIONAL SIGNS RELATED TO SPECIFIC CONSTRUCTION SITUATIONS.



SIGN W21-3





SIGN W8-3

NOTES

APPLICATION OF STANDARDS

Since it is not possible to prescribe detailed standards of application for all of the situations that may conceivably arise on a construction project, reference must be made to the National Manual on Uniform Traffic Control Devices for the principles, procedures and and standards that will be required in connection with on-project construction signs and barricades. The signs here shown represent a sample of those that probably will be most used.

DESIGN

The designs of the signs and barricades shall conform with the details shown on this sheet and with the standards prescribed in the Manual. Deviations will not be permitted. Signs and barricades that are to convey their messages during the hours of darkness shall be reflectorized or illuminated.

MATERIALS

The signs shall be of metal, wood, plywood, hardwood or any other material satisfactory to the Engineer. No material be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION

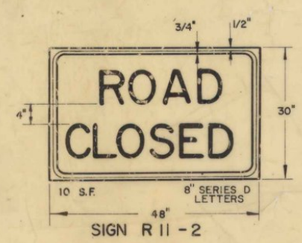
All reflectorized material shall consist of encapsolated lens reflective sheeting.

INSTALLATION

Signs and barricades shall be in place prior to the start of the construction operation to which they apply, and shall be removed promptly when the need no longer exists. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground, or on portable supports for temporary use, or on barricades when appropriate. As a general rule, roadside signs shall be 5 feet above road level with the nearest edge at least 6 feet outside the shoulder point. The installation of all signs and barricades shall be subject to the approval of the Engineer.

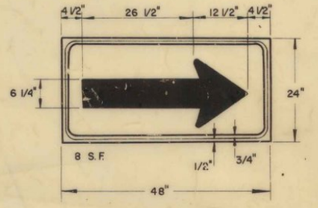
MAINTENANCE

Signs shall be kept in a clean and legible condition at all times with the reflective quality completely unimpaired. Signs, sign supports, and barricades shall be repaired, cleaned, repainted or replaced whenever necessary. Torches, lanterns and fires shall not be placed so close to signs and barricades as scorch them or deposit soot on them. Weeds, shrubbery, construction materials, equipment, and snow shall not be allowed to obscure any sign or barricade. The maintenance of all traffic control devices shall be subject to the orders of the Engineer.



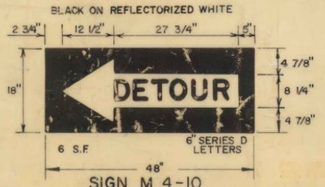
SIGN R11-2

BLACK ON REFLECTORIZED WHITE



SIGN W1-6

BLACK ON REFLECTORIZED ORANGE
ARROW RIGHT OR LEFT AS REQUIRED



SIGN M4-10

BLACK TEXT AND BORDER WITH
REFLECTORIZED ORANGE ARROW
ARROW LEFT OR RIGHT AS REQUIRED.

The on-project construction signs covered by this sheet are intended to be used as the situations apply within normal two-lane highway construction areas, for the protection of the public and workmen and for the guidance of traffic through or around construction operations. When messages other than those shown here are needed, the signs and their applications shall conform with the standards set forth in the Manual on Uniform Traffic Control Devices, prepared by the National Joint Committee on Traffic Control Devices. Special signing or control devices required within a construction area will be included in the Plans and/or the Special Provisions.

GENERAL

The cost of furnishing, erecting, maintaining and removing all construction approach signs shall be considered as subsidiary work pertaining to the project as a whole and shall be included in the contract unit price bid for various items involved in the contract. In all phases of construction of approach signing, the requirements set forth in the Manual on Uniform Traffic Control devices shall be met (see Standard Specifications, Section 107, Article 107.09 Barricades, Warning and Detour Signs).

REVISIONS AND CORRECTIONS

DEC 14, 1973 – BEADS ON PAINT FOR BACKGROUND MATERIAL REMOVED.
MAY 14, 1974 – REFLECTIVE MATERIAL CHANGE
JUNE 7, 1977 – REFLECTIVE MATERIAL NOTE CHANGED.
JUNE 7, 1977 – SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D.
APR. 20, 1978 – FLAGPERSON SIGN CHANGED TO SYMBOL.
DEC. 15, 1978 – ILLUMINATION DELETED.

APPROVED

Dec. 14, 1971 — R. H. Arnold, CHIEF ENGINEER
DATE

E. H. Stickney, ASST. CHIEF ENGINEER

G. M. Lane, HIGHWAY ENGINEER

TRAFFIC SIGNS

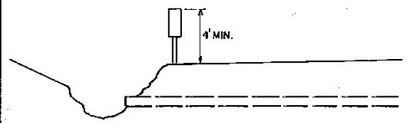
ON-PROJECT CONSTRUCTION SIGNS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-6

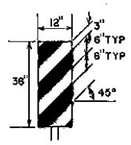
D-8

DELINEATOR AND HAZARD MARKER DETAILS FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED



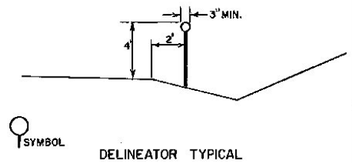
HAZARD MARKER TYPICAL

OBJECTS ADJACENT TO THE ROADWAY SHALL REQUIRE A HAZARD MARKER TO MARK THE OBSTRUCTION. IN SOME CASES THERE MAY NOT BE A PHYSICAL OBJECT INVOLVED BUT OTHER ROADSIDE CONDITONS SUCH AS NARROW SHOULDER DROP-OFFS, CORES, D.I. EXCAVATIONS OR ABRUPT CHANGE IN THE ROADWAY ALIGNMENT MAY MAKE IT UNDESIRABLE FOR A DRIVER TO LEAVE THE ROADWAY. THE INSIDE EDGE OF THE HAZARD MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION, WHENEVER POSSIBLE.



VERTICAL PANEL

VERTICAL PANELS SHALL HAVE ALTERNATING ORANGE AND WHITE REFLECTORIZED STRIPS (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS). THESE DEVICES MAY BE USED FOR TRAFFIC SEPARATION OR SHOULDER BARRICADING WHERE SPACE IS AT A MINIMUM.

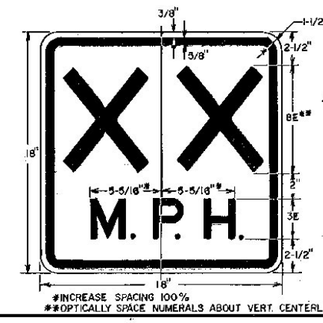


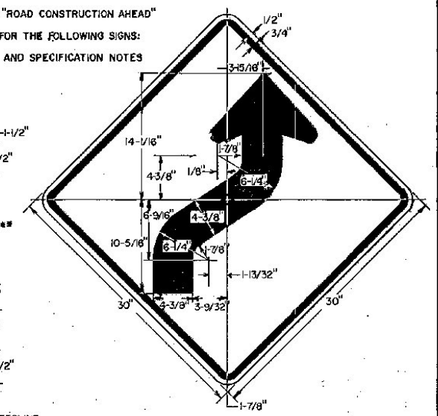
DELINEATOR TYPICAL

DELINEATORS SHALL BE OF A REFLECTORIZED WHITE COLOR. THEY SHALL HAVE A MINIMUM OF 7 SQUARE INCHES. THEY MAY BE ROUND, SQUARE, OR OBLONG. THEY SHALL BE OF THE FOLLOWING:

1- REFLECTORIZED TAPE WITH METAL BACKING.
2- REFLECTORIZED TAPE APPLIED DIRECTLY TO POSTS.
3- REFLECTORIZED PAINT APPLIED DIRECTLY TO POSTS WHEN PAINT OR TAPE IS APPLIED DIRECTLY TO POST, A SURFACE OF 3" MINIMUM WIDTH FACING TRAFFIC IS REQUIRED.

SEE STANDARD SHEET E-2 FOR SIGN DETAILS FOR "ROAD CONSTRUCTION AHEAD" AND "END CONSTRUCTION" SIGNS.
SEE STANDARD SHEET E-6 FOR SIGN DETAILS FOR THE FOLLOWING SIGNS: "DETOUR AHEAD", "ROAD CLOSED", "DETOUR" ARROW.
SEE STANDARD SHEET E-6 FOR SIGN MATERIAL AND SPECIFICATION NOTES FOR ALL SIGNS DETAILED ON THIS SHEET.





BARRICADES

APPLICATION NOTES

TYPE I BARRICADES ARE TO BE USED ON CONVENTIONAL ROADS OR URBAN STREET AND ARTERIALS TO MARK A SPECIFIC HAZARD TO CHANNELIZE TRAFFIC.

TYPE II BARRICADES ARE TO BE USED ON EXPRESSWAYS AND FREEWAYS, SERVING THE SAME FUNCTIONS AS THE TYPE I BARRICADES.

TYPE III (SEE STANDARD E-7A) SHALL ONLY BE USED WHEN A ROAD SECTION IS CLOSED TO TRAFFIC TO BE ERECTED AT THE POINT OF CLOSURE.

MATERIALS

THE BARRICADES SHOWN ON THIS SHEET NORMALLY WILL BE OF LIGHTWEIGHT MATERIAL. IF WOOD IS USED THE FOLLOWING CONDITIONS SHALL APPLY.

1. WOODEN BARRICADES (TYPES I AND II)
   A. SHALL NOT BE USED TO CHANNELIZE OR DELINEATE WORK AREAS WITHIN THE CLEAR ZONE OF ANY HIGHWAY WHERE OPERATING SPEEDS IN EXCESS OF 20 MILES PER HOUR ARE EXPECTED UNLESS INSTALLED FOR PEDESTRIAN CONTROL BEHIND APPROVED POSITIVE BARRIERS.
   B. MAY BE USED IF OPERATING SPEEDS OF 20 M.P.H. OR LESS ARE EXPECTED.
2. TYPE III WOODEN BARRICADES SHALL NOT BE USED WITHIN THE CLEAR ZONE OF ANY HIGHWAY REGARDLESS OF THE TRAFFIC OPERATING SPEED.

DESIGN

THE DESIGN OF THE BARRICADES SHALL CONFORM WITH THE DETAILS SHOWN ON THIS SHEET AND THE MARKINGS ON THE BARRICADES SHALL BE ALTERNATE ORANGE AND WHITE STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45° IN THE DIRECTION TRAFFIC IS TO PASS.

COLORS

THE BARRICADES PANELS SHOWN ON THIS SHEET SHALL HAVE ALTERNATING REFLECTORIZED WHITE AND ORANGE STRIPES. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION. THE BARRICADE COMPONENTS SHALL BE WHITE EXCEPT THAT UNPAINTED METAL OR ALUMINUM MAY BE USED.

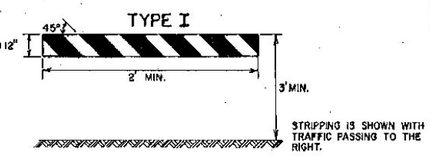
REFLECTORIZATION

THE BARRICADES SHALL BE REFLECTORIZED WITH REFLECTIVE SHEETING.

LOCATION

THE BARRICADES SHOWN ON THIS SHEET WILL BE LOCATED BY THE ENGINEER IN THE FIELD OR AS SHOWN ON THE PLANS. THE LOCATION OF THE BARRICADES SHALL FOLLOW THE PROCEDURES SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, OR AS OTHERWISE NOTED.

TYPE I



TYPE II

TYPE III

BARRICADE	CHARACTERISTICS	
	I	II
WIDTH OF RAIL	8" MIN. 12" MAX.	8" MIN. 12" MAX.
LENGTH OF RAIL	2' MIN.	3' MIN.
WIDTH OF STRIPS*	6"	6"
HEIGHT	3' MIN.	3' MIN.
TYPE OF FRAME	DEMOUNTABLE OR "A" FRAME	LIGHT "A" FRAME NO STAY BRACE
FLEXIBILITY	ESSENTIALLY MOVEABLE	PORTABLE
ANGLE OF STRIPE	45°	45°
COLOR OF STRIPS	ORANGE AND WHITE	ORANGE AND WHITE

* FOR RAILS LESS THAN 3 FEET LONG, 4" WIDE STRIPS SHALL BE USED.

MAINTENANCE

BARRICADES SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED, OR REPLACED AS ORDERED BY THE ENGINEER.

LIGHTING

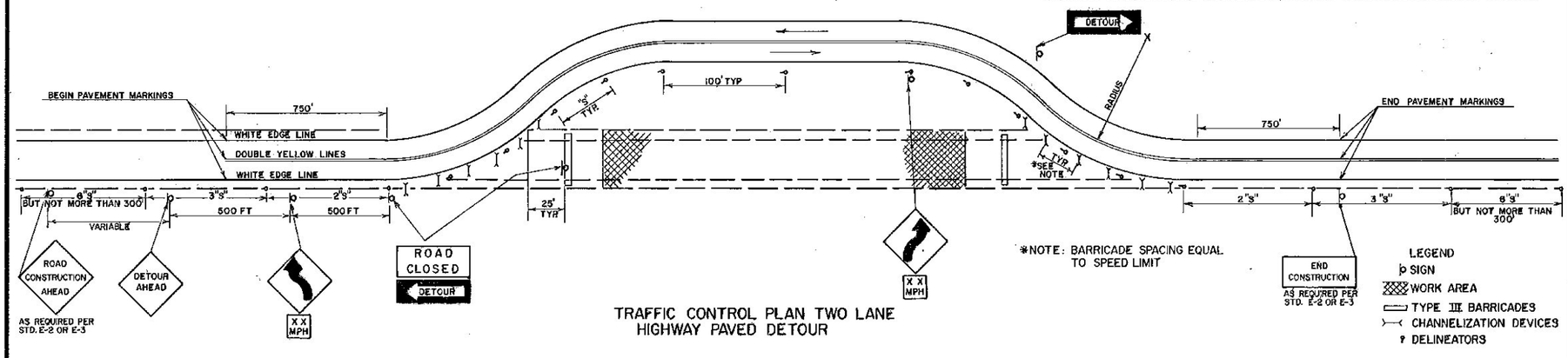
FOR NIGHTTIME USE ADD FLASHING WARNING LIGHTS WHEN BARRICADES ARE USED SINGLY AND STEADY BURN LIGHTS WHEN BARRICADES ARE USED IN A SERIES FOR CHANNELIZATION. THE LIGHTING DEVICES SHALL CONFORM TO THOSE SPECIFIED IN THE MUTCD.

DELINEATOR SPACING

DESIGN SPEED MPH	REQUIRED RADIUS FT	SPACING - "S" FT
25	150	30
30	250	40
40	460	60
50	760	75

NOTES

1. SIGNS & DELINEATION SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. CHANNELIZING DEVICES SHALL CONSIST OF TYPE II BARRICADES WITH STEADY BURN LIGHTS EXCEPT ON THE FIRST AND LAST BARRICADES WHICH SHALL HAVE A FLASHING LIGHT.
3. FLASHING WARNING LIGHTS MAY BE USED TO CALL ATTENTION TO THE EARLY WARNING SIGNS.
4. CONTRACTOR IS RESPONSIBLE FOR PAVEMENT MARKING AND SHALL REMOVE ANY CONFLICTING OR CONFUSING EXISTING MARKINGS.
5. ADDITIONAL SIGNING MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER.
6. UNPAVED DETOURS REQUIRE PAVEMENT MARKINGS FOR TRANSITIONS ON EXISTING PAVEMENT.



*NOTE: BARRICADE SPACING EQUAL TO SPEED LIMIT

TRAFFIC CONTROL PLAN TWO LANE HIGHWAY PAVED DETOUR

LEGEND
- SIGN
- WORK AREA
- TYPE III BARRICADES
- CHANNELIZATION DEVICES
- DELINEATORS

REVISIONS AND CORRECTIONS

FEB. 12, 1982 MATERIALS NOTE CLARIFIED, SIGN ADDITIONS.
FEB. 2, 1983 NOTE # 6 RE: UNPAVED DETOURS ADDED.

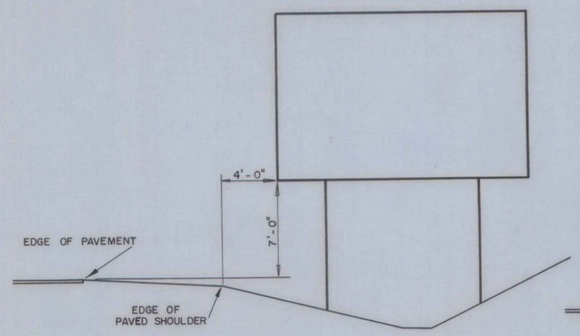
APPROVED:
SEPT. 22, 1981
DATE
DIRECTOR OF ENGINEERING AND CONSTRUCTION
CHIEF OF DESIGN
TRANSPORTATION DESIGN ENGINEER

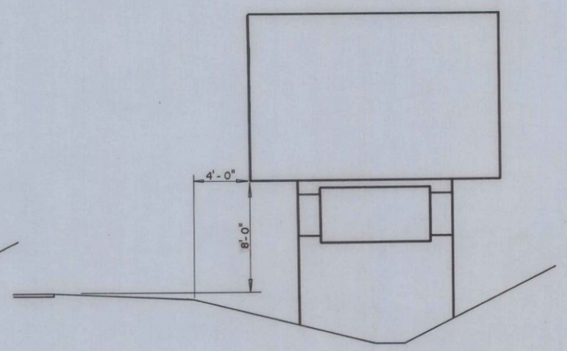
DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS

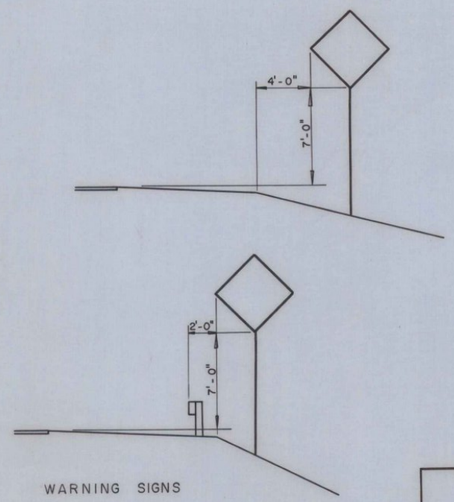
VERMONT AGENCY OF TRANSPORTATION

STANDARD

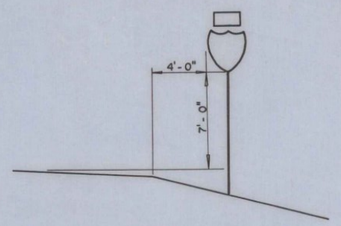
E-7



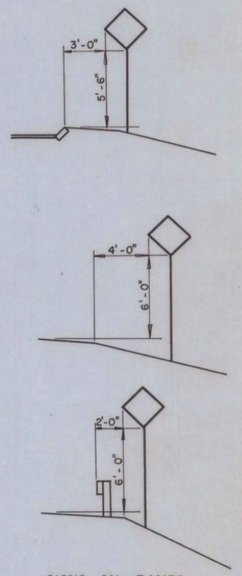




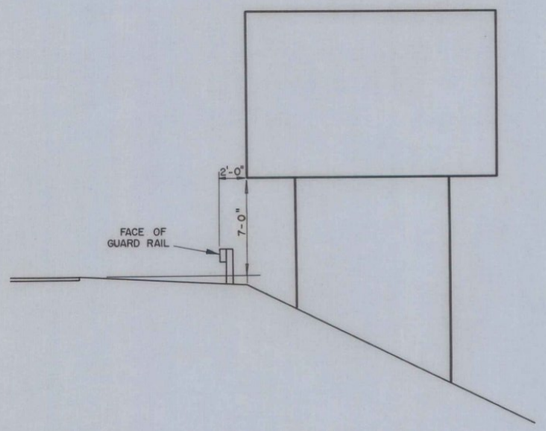
WARNING SIGNS

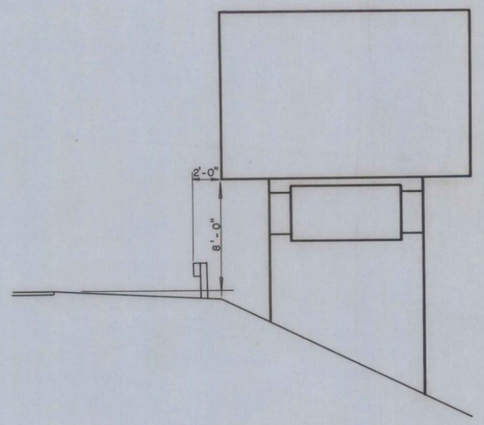


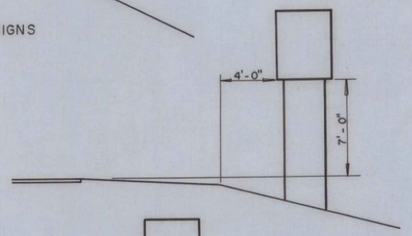
INTERSTATE ROUTE MARKER

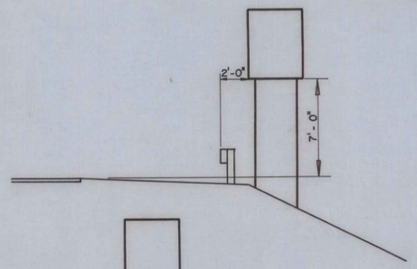


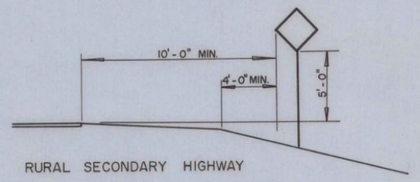
SIGNS ON RAMPS



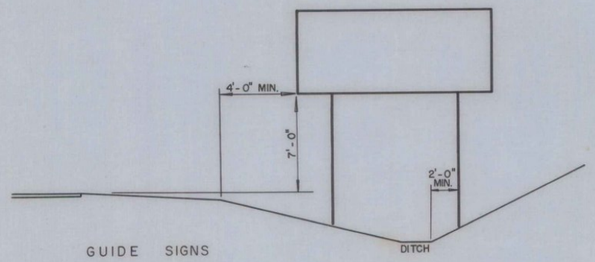




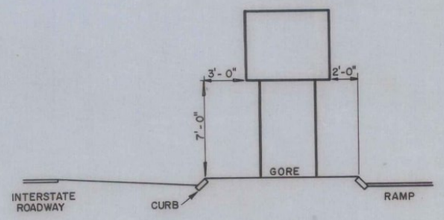




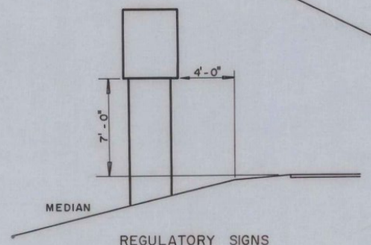
RURAL SECONDARY HIGHWAY



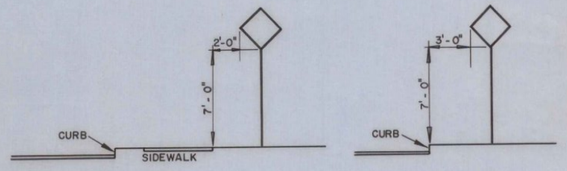
GUIDE SIGNS



GUIDE SIGNS



REGULATORY SIGNS



URBAN SECONDARY HIGHWAY

REVISIONS AND CORRECTIONS

APPROVED:

DATE June 1, 1959

H. E. Sargent
CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

A. W. Colburn
TRAFFIC ENGINEER

E. H. Stickney
CONSTRUCTION ENGINEER

DRAWN: A.W.C.
TRACED: A.J.A.

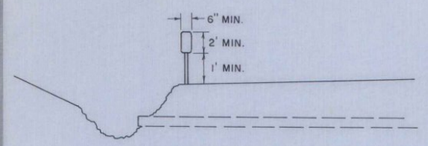
TRAFFIC SIGNS
STANDARD SIGN PLACEMENT

INTERSTATE PROJECTS

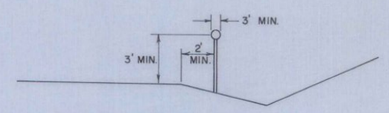
VERMONT
DEPARTMENT OF HIGHWAYS STANDARD

E-7

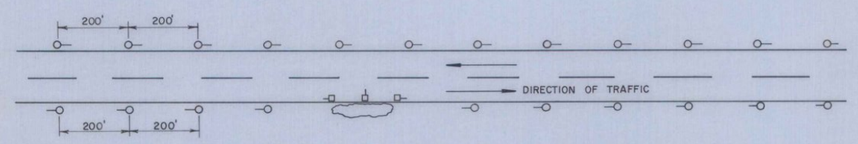
DELINEATOR AND HAZARD MARKER DETAILS FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED



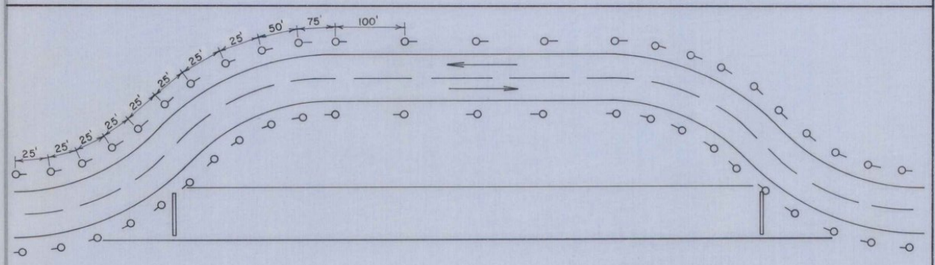
HAZARD MARKER TYPICAL



DELINEATOR TYPICAL

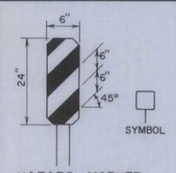


DELINEATOR AND HAZARD MARKER LOCATION DETAIL FOR TWO WAY TRAFFIC
(FOR INTERSTATE TYPE HIGHWAYS
200' SPACING ON RT.
AND 400' SPACING ON MEDIAN EDGE)



DELINEATOR LOCATION DETAIL FOR CONSTRUCTION DETOUR

HAZARD MARKER
TO BE USED AROUND EXCAVATION DURING NON-WORKING HOURS OR WHEN AN OPERATION IS NOT BEING CARRIED ON



HAZARD MARKER

HAZARD MARKERS SHALL HAVE ALTERNATING ORANGE AND WHITE REFLECTORIZED STRIPES (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS).

POSTS

POSTS SHALL BE OF SUITABLE MATERIAL TO SUPPORT DELINEATORS OR HAZARD MARKERS, SHARPENED TO DRIVE.

SYMBOL

DELINEATORS SHALL BE OF A REFLECTORIZED SILVER OR WHITE COLOR. THEY SHALL HAVE A MINIMUM OF 7 SQUARE INCHES. THEY MAY BE ROUND, SQUARE, OR OBLONG. THEY SHALL BE OF THE FOLLOWING:

1 - REFLECTORIZED TAPE WITH METAL BACKING.
2 - REFLECTIVE TAPE APPLIED DIRECTLY TO POSTS.
3 - REFLECTORIZED PAINT APPLIED DIRECTLY TO POSTS. WHEN PAINT OR TAPE IS APPLIED DIRECTLY TO POST, A SURFACE OF 3' MINIMUM WIDTH FACING TRAFFIC IS REQUIRED.

MATERIALS

The barricades shown on this sheet normally will be of wood or wood and metal construction and Type II barricades may be of metal construction.

DESIGN

The design of the barricades shall conform with the details shown on this sheet and the markings on the barricades shall be alternate orange and white stripes (sloping downward at an angle of 45 degrees in the direction traffic is to pass).

COLORS

The barricades shown on this sheet shall have alternating reflectorized white and orange stripes. The orange shall conform with the standard color adopted by the American Association of State Highway Officials and approved by the U.S. Department of Transportation Federal Highway Administration.

REFLECTORIZATION

The barricades shall be reflectorized with reflective sheeting.

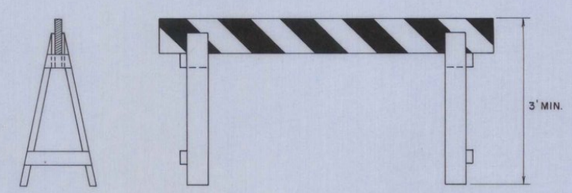
LOCATION

The barricades shown on this sheet will be located by the Engineer in the field or as shown on the plans. The locations of the barricades shall follow the procedures set forth in the Manual on Uniform Traffic Control Devices.

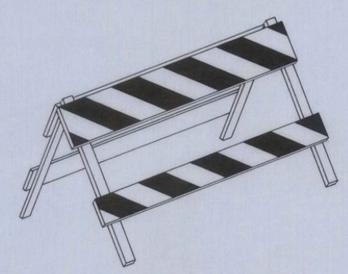
MAINTENANCE

Barricades shall be maintained in a clean and legible condition satisfactory to the Engineer. They shall be completely visible to approaching traffic at all times. Damaged, defaced, or dirty barricades shall be repaired, cleaned, or replaced as ordered by the Engineer.

TYPE I



TYPE II



	I	II
WIDTH OF RAIL	8" min. 12" max.	8" min. 12" max.
LENGTH OF RAIL	6' - 8'	3' min. 4' max.
WIDTH OF STRIPES	6"	6"
HEIGHT	3' min.	3' min.
TYPE OF FRAME	Demountable or Heavy 'A' Frame	Light 'A' Frame
FLEXIBILITY	Essentially Moveable	Portable
ANGLE OF STRIPE	45°	45°
COLOR OF STRIPES	Orange and White	Orange and White

REVISIONS AND CORRECTIONS

MAR. 12, 1973 — DELINEATOR SPACING REVISED.
SEPT. 19, 1973 — DELINEATOR SPACING REVISED.
SEPT. 5, 1978 — TYPE III BARRICADE REMOVED

APPROVED

Feb. 15, 1973
DATE

for R O Mann
CHIEF ENGINEER

E H Stickney by L
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

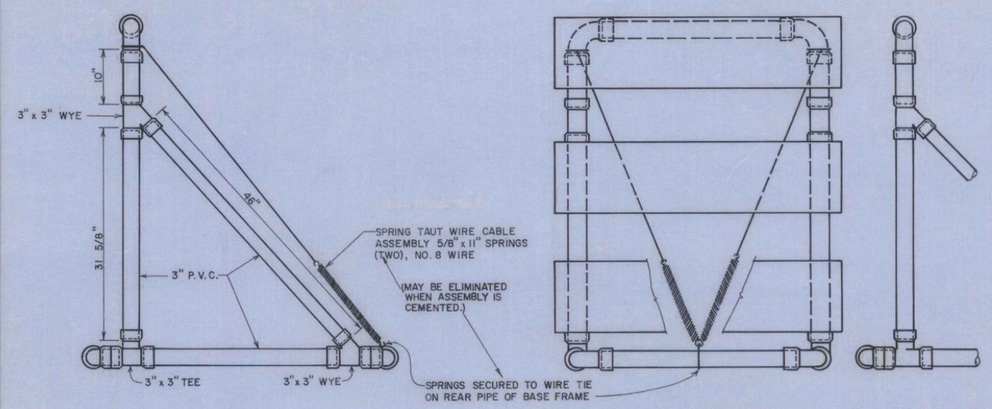
TRAFFIC SIGNS

DELINEATION AND BARRICADES FOR CONSTRUCTION AREAS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-7

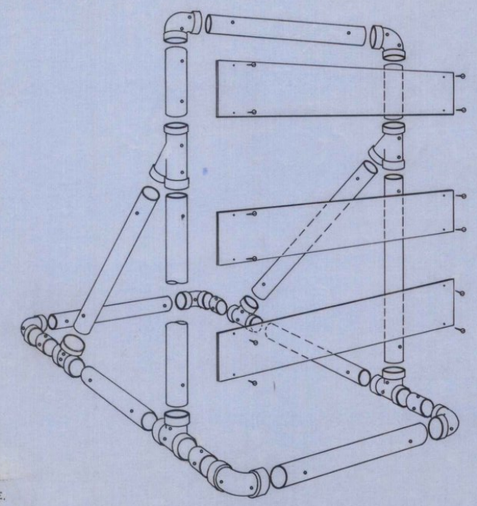
D-7



SIDE VIEW

BARRICADES SHALL BE STABILIZED WITH SAND BAGS OF MINIMUM WEIGHT WHICH WILL NOT CONSTITUTE A HAZARD WHEN BARRICADE IS HIT. THEY SHALL BE PLACED ONLY ON THE BASE FRAME OF THE BARRICADE. STABILIZERS SHALL BE SO PLACED AS NOT TO BE A HAZARD TO VEHICLES PASSING ON EITHER SIDE.

IF BARRICADE REPLACEMENT COSTS CAN BE CONSIDERED NEGLIGIBLE, GLUED JOINTS MAY PROVIDE ADDITIONAL STABILITY TO THE INSTALLATION.



BARRICADE ASSEMBLY

MATERIALS LIST
FOR ONE BARRICADE

3" Diameter Pipe	30 LF
3" 1/4 Bend Elbow	6 EA
3" Tees	2 EA
3" Wyes	4 EA
8" x 48" x.0 25 Barricade Panels	3 EA
5/8" x 11" No. 8 Spring	2 EA
1" No. 14 Pan Head Metal Screws	12 EA
No. 14 Black Annealed Tie Wire	15 LF

MATERIALS

The pipe, wyes, tees and elbows used to construct Barricades shall conform to the requirements of ASTM designation D 2241 for P.V.C. 1120 or 1220 SDR-21, pressure rating 200 p.s.i. The Wyes, tees and elbows shall conform to the requirements of ASTM Designation D 2466, Type II, Grade 1. All joints shall be slip-fit and may be lightly cemented.

The 8" x 48" barricade rails shall be fabricated from 0.025" anodized aluminum and shall have reflectorized alternating, orange and white stripes (sloping downward at an angle of 45 degrees in the direction traffic is to pass).

COLORS

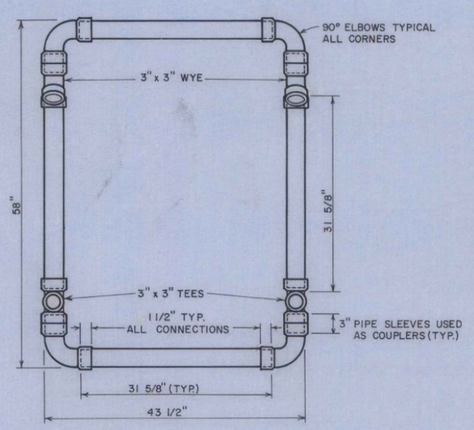
The barricades shown on the sheet shall have reflectorized orange and white stripes.
The orange shall conform with the standard color adopted by by the American Association of State Highway And Transportation Officials and approved by the U.S. Department of Transportation, Federal Highway Administration.

LOCATION

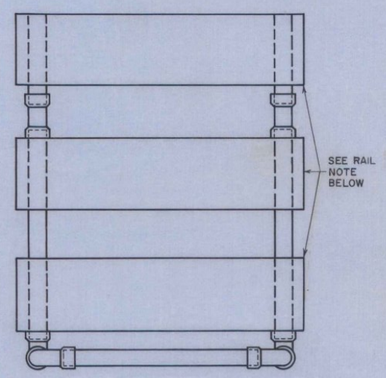
The barricades shown on this sheet will be located by the Engineer in the field or as shown on the plans. The locations of the barricades shall follow the procedures set forth in the Manual on Uniform Traffic Control Devices.

MAINTENANCE

Barricades shall be maintained in clean and legible conditions satisfactory to the Engineer.
They shall be completely visible to approaching traffic at all times. Damages, defaced, or dirty barricades shall be repaired cleaned or replaced as ordered by the Engineer.
The P.V.C.Pipe and fittings shall be white in color If the fittings are not available, other colors may be substituded.
At least two (2) holes shall be drilled (3/16" to 1/4") in each section of pipe and fittings if the assembly is not cemented.



TOP VIEW OF BASE



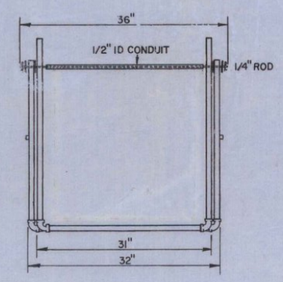
SEE STANDARD E-7 FOR RAIL DETAILS.

RAILS ATTACHED WITH 1" NO. 14 PAN HEAD METAL SCREW.

FRONT VIEW

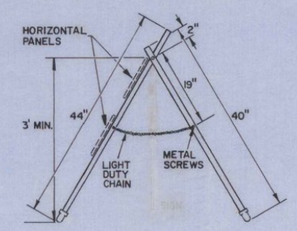
WARNING LIGHTS

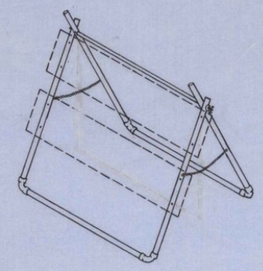
WARNING LIGHTS, IF REQUIRED BY THE PLANS OR RESIDENT ENGINEER, SHALL BE AFFIXED TO THE TOP OF THESE BREAKAWAY BARRICADES WITH A MINIMUM MOUNTING HEIGHT OF 36 INCHES TO THE BOTTOM OF THE LENS. A FLASHING WARNING LIGHT SHOULD BE PLACED ON BARRICADES USED SINGLY AND STEADY BURN WARNING LIGHTS SHOULD BE PLACED ON BARRICADES USED IN A SERIES FOR TRAFFIC CHANNELIZATION. THE WARNING LIGHTS SHALL CONFORM TO THE REQUIREMENTS FOUND IN THE M.U.T.C.D. WHEN THE INTEGRAL WARNING LIGHT UNIT IS USED, THE BATTERY PACK SHALL CONTAIN A LIGHT WEIGHT DRY CELL BATTERY AND THE UNIT SHALL BE RESTRAINED WITH A TETHER CABLE OR WIRE (12" LENGTH) SECURELY FASTENED TO THE BARRICADES SO AS TO AVOID HAVING THE UNIT BECOME A DANGEROUS FLYING OBJECT IF THE BARRICADE IS HIT.



MATERIALS FOR TYPE I & II BARRICADES

20'-1" PVC
4-1" PVC 90° ELBOWS
30"-1/2" ID THINWALL CONDUIT
36"-1/4" STEEL ROD
4-1" WASHERS
24"- LIGHT DUTY CHAIN
4-METAL SCREWS
2-3/4" COTTER PINS





TYPE I & II BARRICADE DETAILS

TYPE I BARRICADES SHALL CONSIST OF ONE HORIZONTAL PANEL.

TYPE II BARRICADES SHALL CONSIST OF AN ADDITIONAL HORIZONTAL PANEL MOUNTED BELOW THE OTHER.

SEE STD E-7 FOR USE REQUIREMENTS.

REVISIONS & CORRECTIONS

JAN. 11, 1977 - REVISED ACCORDING TO FHWA REQUIREMENTS.
JUNE 8, 1977 - MATERIALS LIST ADDED.
APR. 8, 1982 - CEMENTING NOTE AND BARRICADES TYPE I & II ADDED.
JUNE 13, 1984 - RAILS CHANGED FROM 9" TO 8".
JAN. 3, 1985 - SAND AND WARNING LIGHT NOTE ADDED.

APPROVED

Dec 30, 1976
DATE

E. W. Blickney
CHIEF ENGINEER

R O Munn
ASST. CHIEF ENGINEER

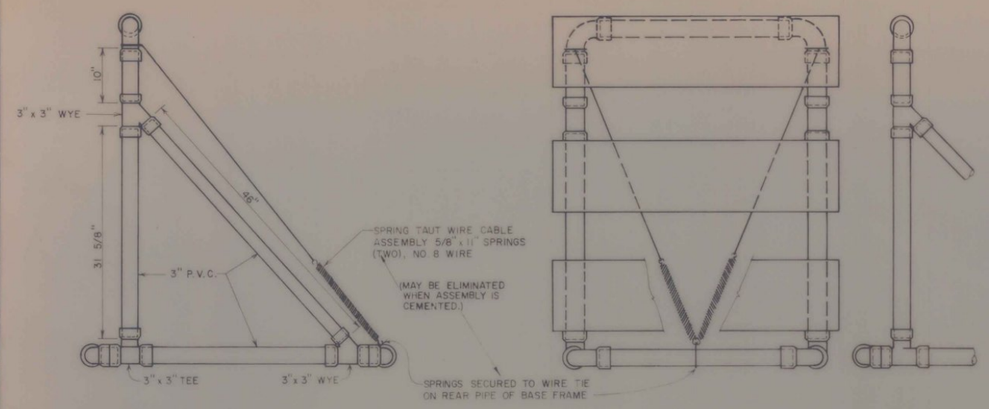
Loren C Jones
HIGHWAY ENGINEER

TRAFFIC SIGNS

BREAKAWAY BARRICADE DETAILS

VERMONT AGENCY OF TRANSPORTATION

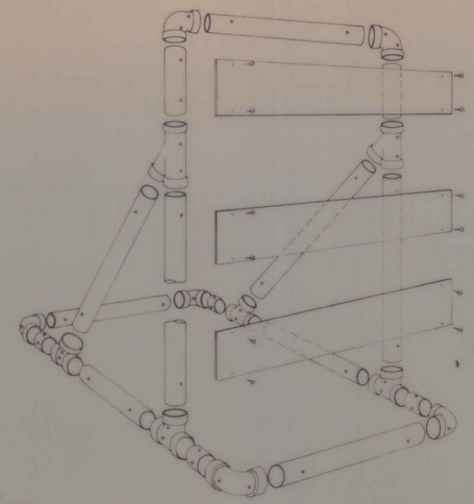
STANDARD
E-7A



SIDE VIEW

BARRICADES SHALL BE STABILIZED WITH SAND BAGS OF MINIMUM WEIGHT WHICH WILL NOT CONSTITUTE A HAZARD WHEN BARRICADE IS HIT. THE STABILIZERS PLACED ON THE BASE FRAME OF THE BARRICADE STABILIZERS SHALL BE SO PLACED AS NOT TO BE A HAZARD TO VEHICLES PASSING ON EITHER SIDE.

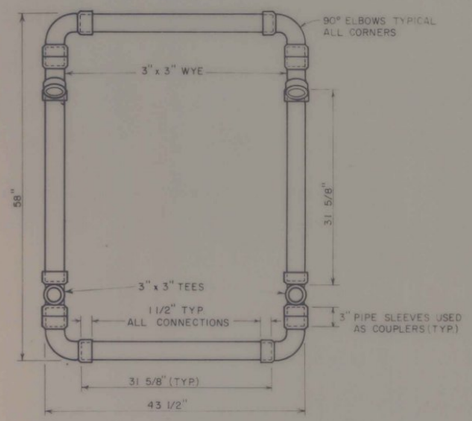
IF BARRICADE REPLACEMENT COSTS CAN BE CONSIDERED NEGLIGIBLE, GLUED JOINTS MAY PROVIDE ADDITIONAL STABILITY TO THE INSTALLATION.



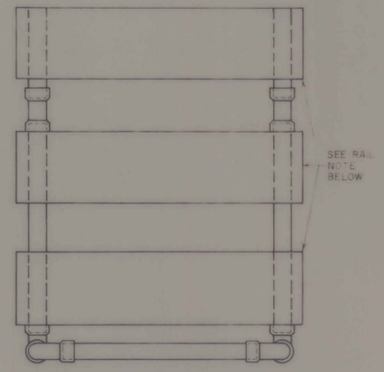
BARRICADE ASSEMBLY

MATERIALS LIST
FOR ONE BARRICADE

3" Diameter Pipe	30 LF
3" 1/4 Bend Elbow	6 EA
3" Tees	2 EA
3" Wyes	4 EA
8" x 48" x 0.25 Barricade Panels	2 EA
5/8" x 11" No. 8 Spring	2 EA
1" No. 14 Pan Head Metal Screws	12 EA
No. 14 Bla. - Annealed Tie Wire	15 LF



TOP VIEW OF BASE



SEE STANDARD E-7 FOR RAIL DETAILS.

RAILS ATTACHED WITH 1" NO. 14 PAN HEAD METAL SCREW.

FRONT VIEW

WARNING LIGHTS

WARNING LIGHTS, IF REQUIRED BY THE CHIEF OF RESIDENT ENGINEER, SHALL BE AFFIXED TO THE TOP OF THESE BREAKAWAY BARRICADES WITH A MINIMUM MOUNTING HEIGHT OF 36 INCHES TO THE BOTTOM OF THE LENS. A FLASHING WARNING LIGHT SHOULD BE PLACED ON BARRICADES USED SINGLY AND STEADY BURN WARNING LIGHTS SHOULD BE PLACED ON BARRICADES USED IN A SERIES FOR TRAFFIC CHANNELIZATION. THE WARNING LIGHTS SHALL CONFORM TO THE REQUIREMENTS FOUND IN THE M.U.T.C.D. WHEN THE INTEGRAL WARNING LIGHT UNIT IS USED, THE BATTERY PACK SHALL CONTAIN A LIGHT WEIGHT DRY CELL BATTERY AND THE UNIT SHALL BE RESTRAINED WITH A TETHER CABLE OR WIRE (12" LENGTH) SECURELY FASTENED TO THE BARRICADES SO AS TO AVOID HAVING THE UNIT BECOME A DANGEROUS FLYING OBJECT IF THE BARRICADE IS HIT.

MATERIALS

The pipe, wyes, tees and elbows used to construct Barricades shall conform to the requirements of ASTM designation D 2241 for P.V.C. 1120 or 1220 SDR-21, pressure rating 200 p.s.i. The Wyes, tees and elbows shall conform to the requirements of ASTM Designation D 2466, Type II, Grade 1. All joints shall be slip-fit and may be lightly cemented.

The 8" x 48" barricade rails shall be fabricated from 0.025" anodized aluminum and shall have reflectorized alternating, orange and white stripes (sloping downward at an angle of 45 degrees in the direction traffic is to pass).

COLORS

The barricades shown on the sheet shall have reflectorized orange and white stripes.

The orange shall conform with the standard color adopted by by the American Association of State Highway And Transportation Officials and approved by the U.S. Department of Transportation, Federal Highway Administration.

LOCATION

The barricades shown on this sheet will be located by the Engineer in the field or as shown on the plans. The locations of the barricades shall follow the procedures set forth in the Manual on Uniform Traffic Control Devices.

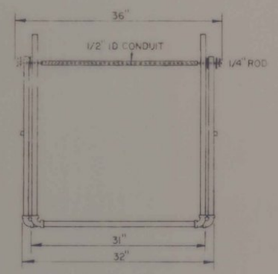
MAINTENANCE

Barricades shall be maintained in clean and legible conditions satisfactory to the Engineer.

They shall be completely visible to approaching traffic at all times. Damaged, defaced, or dirty barricades shall be repaired cleaned or replaced as ordered by the Engineer.

The P.V.C. Pipe and fittings shall be white in color. If the fittings are not available, other colors may be substituted.

A. Least two (2) holes shall be drilled (3/16" to 1/4") in each section of pipe and fittings if the assembly is not cemented.



MATERIALS FOR TYPE I & II BARRICADES

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36" - 1/4" STEEL ROD
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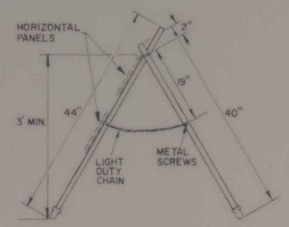
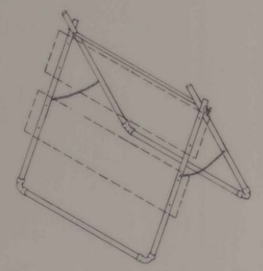
4 - METAL SCREWS
2 - 3/4" COTTER PINS





TYPE I & II BARRICADE DETAILS

TYPE I BARRICADES SHALL CONSIST OF ONE HORIZONTAL PANEL.

TYPE II BARRICADES SHALL CONSIST OF AN ADDITIONAL HORIZONTAL PANEL MOUNTED BELOW THE OTHER.

SEE STD E-7 FOR USE REQUIREMENTS.

REVISIONS & CORRECTIONS

JAN. 11, 1977 - REVISED ACCORDING TO FHWA REQUIREMENTS.
JUNE 8, 1977 - MATERIALS LIST ADDED
APR. 8, 1982 - CEMENTING NOTE AND BARRICADES TYPE I & II ADDED.
JUNE 13, 1984 - RAILS CHANGED FROM 9" TO 8".
JAN. 3, 1985 - SAND AND WARNING LIGHT NOTE ADDED.
FEB. 3, 1986 - UPDATED TO 1986 SPECIFICATIONS

APPROVED

Dec 30, 1976
DATE

E. H. Blickney
CHIEF ENGINEER

R O Munn
ASST. CHIEF ENGINEER

Loren L Jones
HIGHWAY ENGINEER

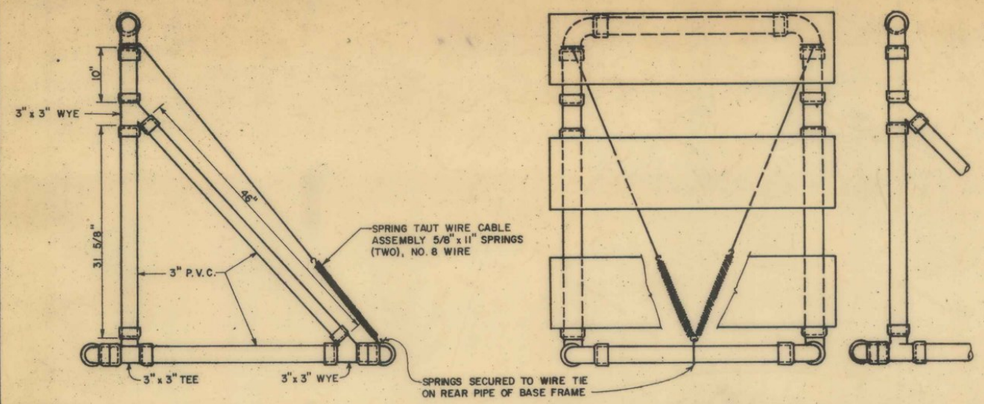
TRAFFIC SIGNS

BREAKAWAY BARRICADE DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-7A

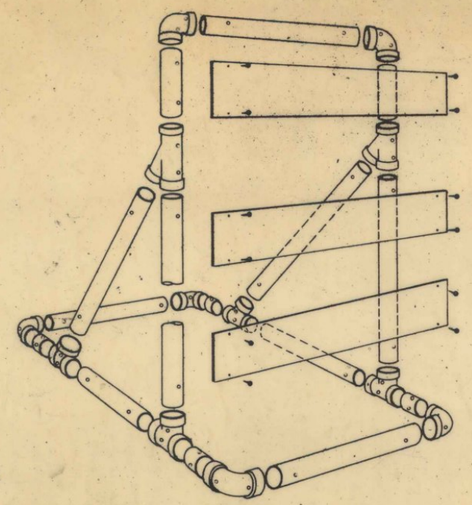
D-7



SIDE VIEW

BARRICADES SHALL BE STABILIZED WITH SAND BAGS OR FLEXIBLE CONTAINERS OF SAND WHICH WILL NOT CONSTITUTE A HAZARD WHEN BARRICADE IS HIT.

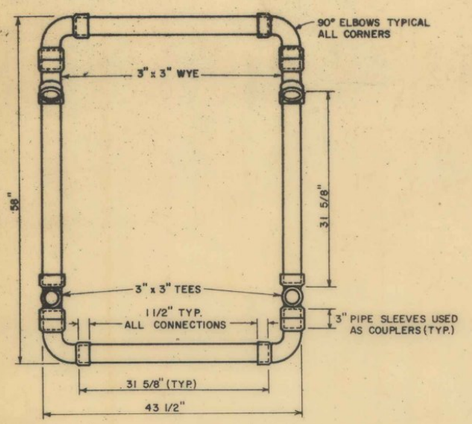
STABILIZERS SHALL BE SO PLACED AS NOT TO BE A HAZARD TO VEHICLES PASSING ON EITHER SIDE.



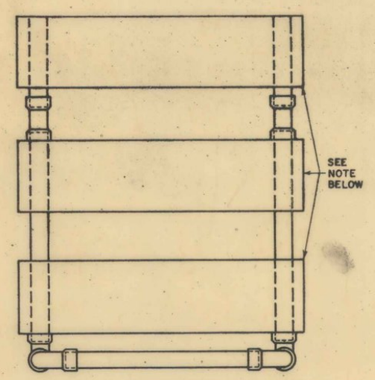
BARRICADE ASSEMBLY

MATERIALS LIST
FOR ONE BARRICADE

3" Diameter Pipe	30 LF
3" 1/4 Bend Elbow	6 EA
3" Tees	2 EA
3" Wyes	4 EA
8" x 48" x.025 Barricade Panels	3 EA
5/8" x 11" No. 8 Spring	2 EA
1" No. 14 Pan Head Metal Screws	12 EA
No. 14 Black Annealed Tie Wire	15 LF



TOP VIEW OF BASE



NOTE - 9" x 48" BARRICADE HAZARD PANELS ORANGE AND WHITE RIGHT OR LEFT. (.025 ANODIZED ALUMINUM).

PANELS ATTACHED WITH 1" NO. 14 PAN HEAD METAL SCREW.

FRONT VIEW

MATERIALS

The pipe, wyes, tees and elbows used to construct Type III Barricades shall conform to the requirements of ASTM designation D 2241 for P.V.C. 1120 or 1220 SDR-21, pressure rating 200 p.s.i. The Wyes, tees and elbows shall conform to the requirements of ASTM Designation D 2466, Type II, Grade 1. All joints shall be slip-fit and shall not be threaded or cemented.

The 9" x 48" barricade rails shall be fabricated from 0.025" anodized aluminum and shall have reflectorized alternating, orange and white stripes (sloping downward at an angle of 45 degrees in the direction traffic is to pass).

COLORS

The barricades shown on the sheet shall have reflectorized orange and white stripes.

The orange shall conform with the standard color adopted by by the American Association of State Highway Officials and approved by the U.S. Department of Transportation, Federal Highway Administration.

LOCATION

The barricades shown on this sheet will be located by the Engineer in the field or as shown on the plans. The locations of the barricades shall follow the procedures set forth in the Manual on Uniform Traffic Control Devices.

MAINTENANCE

Barricades shall be maintained in clean and legible conditions satisfactory to the Engineer.

They shall be completely visible to approaching traffic at all times. Damages, defaced, or dirty barricades shall be repaired cleaned or replaced as ordered by the Engineer.

The 3" P.V.C. Pipe and fittings shall be white in color If the fittings are not available, other colors may be substituted.

At least two (2) holes shall be drilled (3/16" to 1/4") in each section of pipe and fittings.

REVISIONS & CORRECTIONS

JAN. 11, 1977 - REVISED ACCORDING TO FHWA REQUIREMENTS.
JUNE 8, 1977 - MATERIALS LIST ADDED.

APPROVED

Dec 30, 1976
DATE

E. H. Stickney
CHIEF ENGINEER

R O Munn
ASST. CHIEF ENGINEER

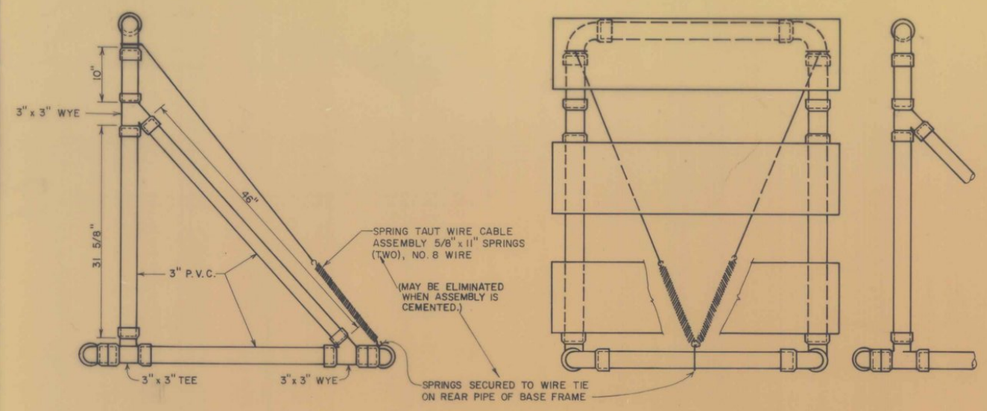
Loren C Jones
HIGHWAY ENGINEER

TRAFFIC SIGNS

TYPE III BARRICADE BREAKAWAY

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-7A

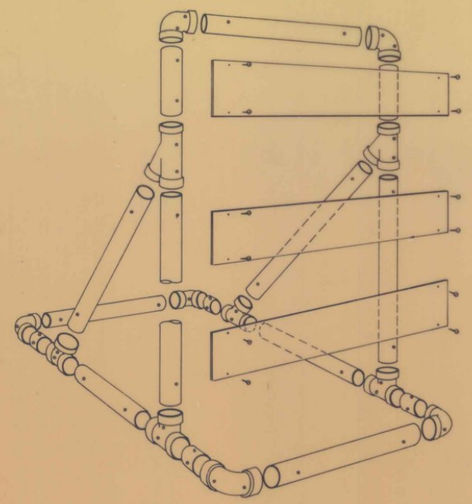


SIDE VIEW

BARRICADES SHALL BE STABILIZED WITH SAND BAGS OR FLEXIBLE CONTAINERS OF SAND WHICH WILL NOT CONSTITUTE A HAZARD WHEN BARRICADE IS HIT.

STABILIZERS SHALL BE SO PLACED AS NOT TO BE A HAZARD TO VEHICLES PASSING ON EITHER SIDE.

IF BARRICADE REPLACEMENT COSTS CAN BE CONSIDERED NEGLIGIBLE, GLUED JOINTS MAY PROVIDE ADDITIONAL STABILITY TO THE INSTALLATION.



BARRICADE ASSEMBLY

MATERIALS LIST
FOR ONE BARRICADE

3" Diameter Pipe	30 LF
3" 1/4 Bend Elbow	6 EA
3" Tees	2 EA
3" Wyes	4 EA
8" x 48" x.0.25 Barricade Panels	3 EA
5/8" x 11" No. 8 Spring	2 EA
1" No. 14 Pan Head Metal Screws	12 EA
No. 14 Black Annealed Tie Wire	15 LF

MATERIALS

The pipe, wyes, tees and elbows used to construct Barricades shall conform to the requirements of ASTM designation D 2241 for P.V.C. 1120 or 1220 SDR-21, pressure rating 200 p.s.i. The Wyes, tees and elbows shall conform to the requirements of ASTM Designation D 2466, Type II, Grade 1. All joints shall be slip-fit and may be lightly cemented.

The 8" x 48" barricade rails shall be fabricated from 0.025" anodized aluminum and shall have reflectorized alternating, orange and white stripes (sloping downward at an angle of 45 degrees in the direction traffic is to pass).

COLORS

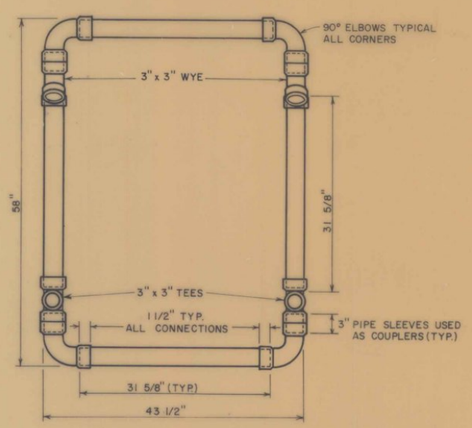
The barricades shown on the sheet shall have reflectorized orange and white stripes.
The orange shall conform with the standard color adopted by by the American Association of State Highway And Transportation Officials and approved by the U.S. Department of Transportation, Federal Highway Administration.

LOCATION

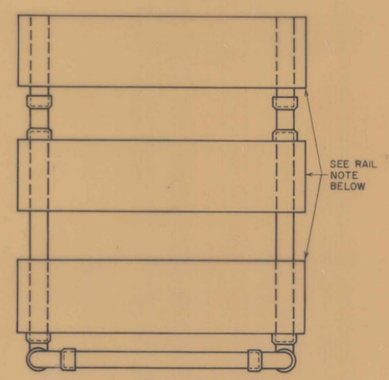
The barricades shown on this sheet will be located by the Engineer in the field or as shown on the plans. The locations of the barricades shall follow the procedures set forth in the Manual on Uniform Traffic Control Devices.

MAINTENANCE

Barricades shall be maintained in clean and legible conditions satisfactory to the Engineer.
They shall be completely visible to approaching traffic at all times. Damages, defaced, or dirty barricades shall be repaired cleaned or replaced as ordered by the Engineer.
The P.V.C. Pipe and fittings shall be white in color. If the fittings are not available, other colors may be substituded.
At least two (2) holes shall be drilled (3/16" to 1/4") in each section of pipe and fittings if the assembly is not cemented.



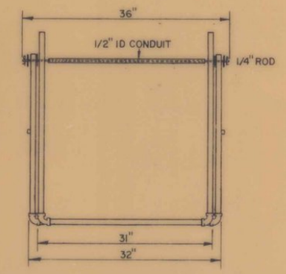
TOP VIEW OF BASE



SEE STANDARD E-7 FOR RAIL DETAILS.

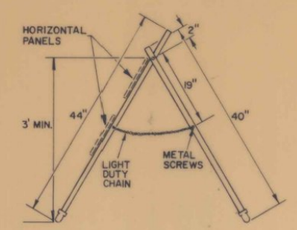
RAILS ATTACHED WITH 1" NO. 14 PAN HEAD METAL SCREW.

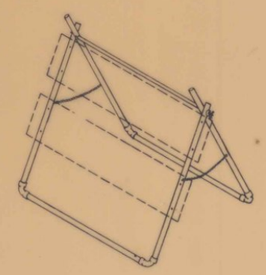
FRONT VIEW



MATERIALS FOR TYPE I & II BARRICADES

20'-1" PVC
4-1" PVC 90° ELBOWS
30"-1/2" ID THINWALL CONDUIT
36"-1/4" STEEL ROD
4-1" WASHERS
24"-LIGHT DUTY CHAIN
4-METAL SCREWS
2-3/4" COTTER PINS





TYPE I & II BARRICADE DETAILS

TYPE I BARRICADES SHALL CONSIST OF ONE HORIZONTAL PANEL.

TYPE II BARRICADES SHALL CONSIST OF AN ADDITIONAL HORIZONTAL PANEL MOUNTED BELOW THE OTHER.

SEE STD E-7 FOR USE REQUIREMENTS.

REVISIONS & CORRECTIONS

JAN. 11, 1977 - REVISED ACCORDING TO FHWA REQUIREMENTS.
JUNE 8, 1977 - MATERIALS LIST ADDED.
APR. 8, 1982 - CEMENTING NOTE AND BARRICADES TYPE I & II ADDED.
JUNE 13, 1984 - RAILS CHANGED FROM 9" TO 8".

APPROVED

Dec 30, 1976
DATE

E. H. Stickney
CHIEF ENGINEER

R O Munn
ASST. CHIEF ENGINEER

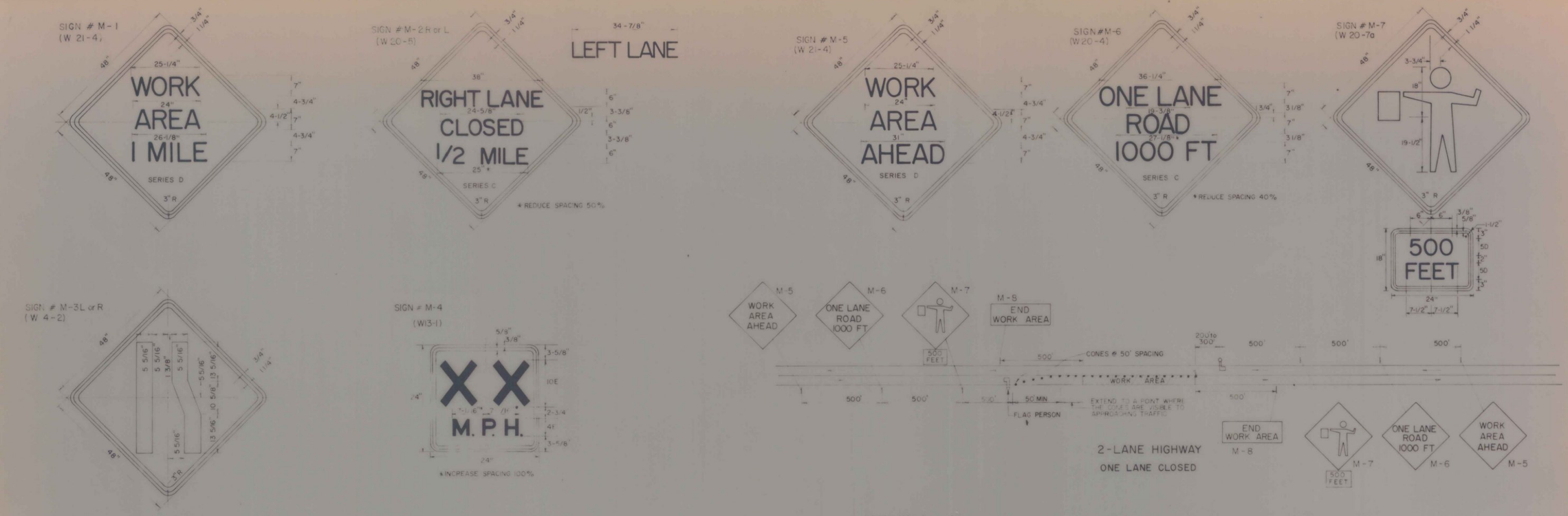
Loren C. Jones
HIGHWAY ENGINEER

TRAFFIC SIGNS

BREAKAWAY BARRICADE DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-7A



NOTES

1. All signs shall be covered or removed at the end of the working day unless required for the protection and safety of the traveling public.
2. Installation: Signs and barricades shall be in place prior to the start of the maintenance operation to which they apply and shall be removed promptly when the need no longer exists. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground, or on portable supports for temporary use, or on barricades when appropriate. As a general rule, roadside signs shall be 5 feet above road level with the nearest edge at least 6 feet outside the shoulder point. The installation of all signs and barricades shall be subject to the approval of the Engineer.
3. Numbers in parenthesis indicate M.U.T.C.D. sign designations.
4. "ROAD WORK" or "BRIDGE WORK" may be substituded as the appropiate legend for signs # M-1 or M-5.

Reflectorization
All reflectorized material shall consist of encapsolated lens reflective sheeting.
The text and borders may be screened, lettering film, or hand painted.
Cones used for traffic control at night shall have a minimum 6" wide reflectorized material.

Colors
The warning signs shown on this sheet shall have black text, border, and symbols on a reflectorized orange background. The orange shall conform with the standard colors adopted by the American Association of State Highway and Transportation Officials and approved by the U.S. Department of Transportation, Federal Highway Administration.

Text Design
Letters, digits, spacing, and text dimensions shall conform with the standard alphabets and design prescribed in the manual on Uniform Traffic Control Devices.

Specifications
Warning signs shall meet the standard state specifications for traffic signs.

Sign Base Material
The sign base material used for the warning signs on this sheet may be of any of the following, with minimum thickness as noted:

Flat sheet aluminum	0.125	Inches
High density overlayed plywood	3/4	Inches
Galvanized sheet steel	12	Gage

5. ON TOWN, CITY AND INCORPORATED VILLAGE HIGHWAY SYSTEMS THE MINIMUM NUMBER OF SIGNS IS AS FOLLOWS:
MINIMUM NUMBER OF SIGNS REQUIRED ARE M-6 AND M-7.
MINIMUM SIZE OF THE SIGNS SHALL BE 36"x36".
THIS SIGN SIZE REDUCTION IS FOR DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION.

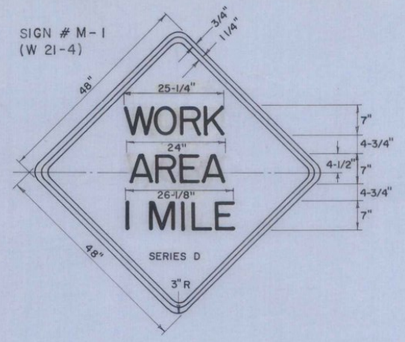
REVISIONS & CORRECTIONS
FEB. 29, 1972 - SIGN ADDED UNDER DIRECTION OF FEDERAL HIGHWAY ADMINISTRATION.
MAY 14, 1974 REFLECTIVE MATERIAL CHANGE.
JUNE 8, 1977 - REFLECTIVE MATERIAL NOTE CHANGED. SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D. SIGNS NUMBERED.
AUG. 4, 1977 FLAGPERSON SIGN CHANGED TO SYMBOL.
SEPT. 12, 1977 NOTE ADDED FOR REDUCED NUMBER AND SIZE OF SIGNS.
JUNE 8, 1978 REVISED REDUCED SPEED SIGN PER FHWA
NOV. 23, 1981 "WORK AREA" LEGEND AND NOTES ADDED, GENERAL SIGN REVISIONS.
JUNE 15, 1983 TRUCK/TRAILER W/ FLASHER NOTE CLARIFIED
FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

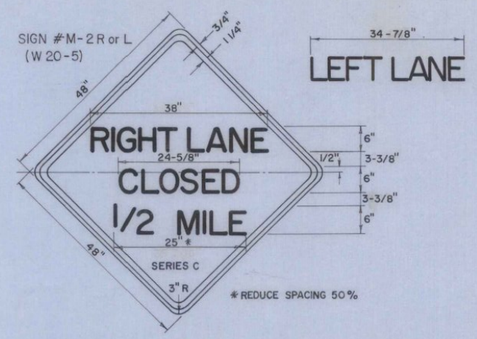
APPROVED:
DATE Jan 26, 1972
R. W. Arnold
CHIEF ENGINEER
E. B. Ottkney
ASST. CHIEF ENGINEER
G. M. Lane
HIGHWAY ENGINEER

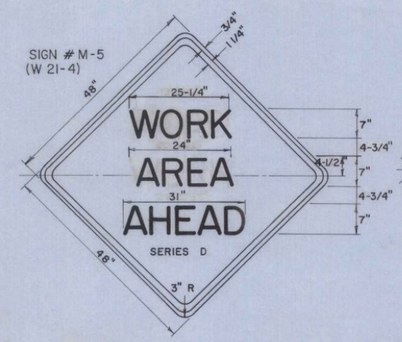
TYPICAL MAJOR MAINTENANCE OPERATION (BRIDGE AND ROADWAY) APPROACH SIGNS

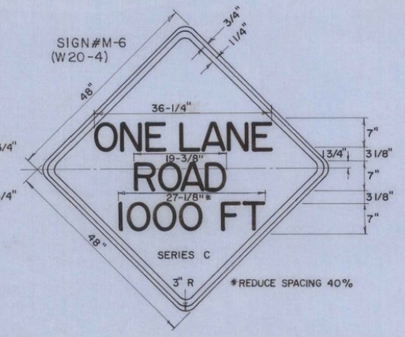
VERMONT AGENCY OF TRANSPORTATION

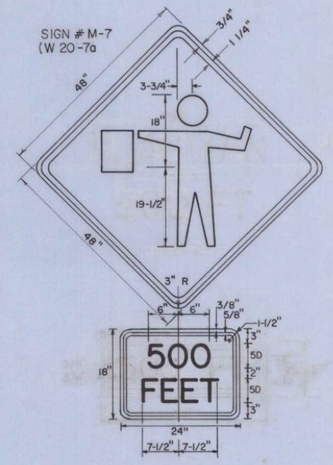
STANDARD
E-8

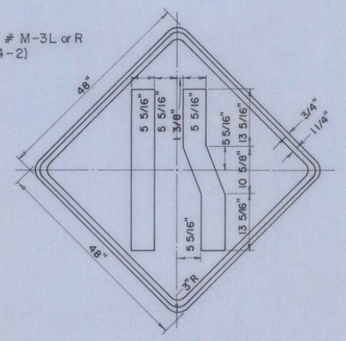


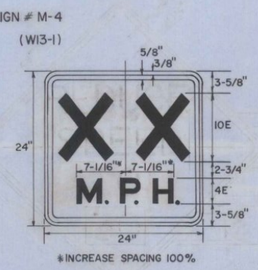


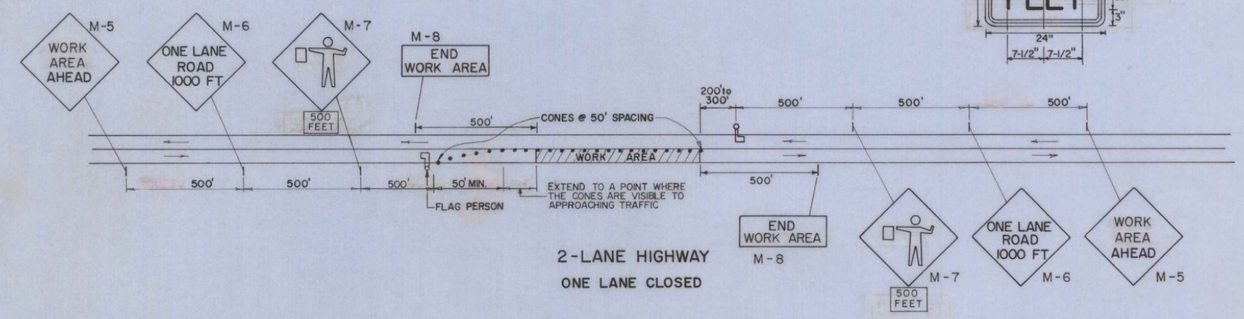


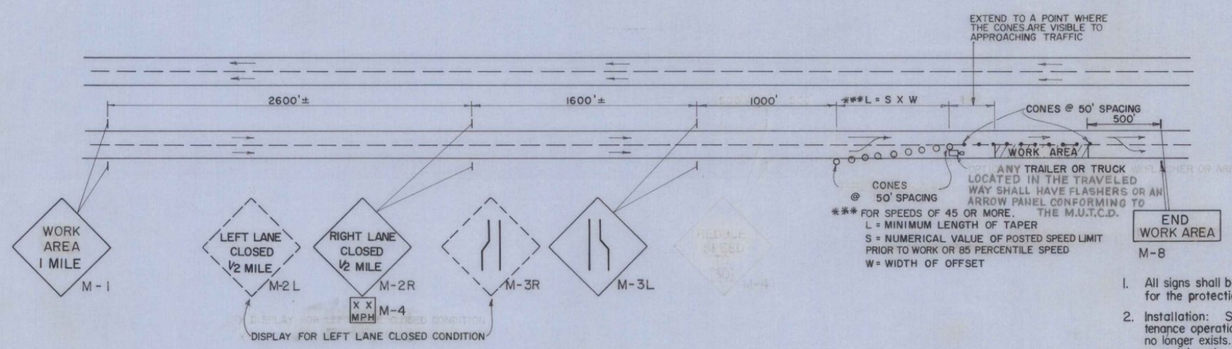


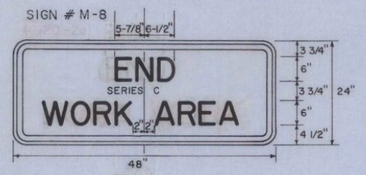












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REVISIONS & CORRECTIONS

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JUNE 15, 1983	TRUCK/TRAILER W/ FLASHER NOTE CLARIFIED

APPROVED:

Jan. 26, 1972
DATE

R. D. Gould
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

TYPICAL MAJOR MAINTENANCE OPERATION
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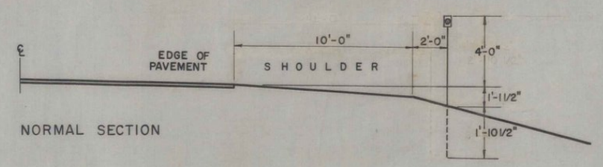
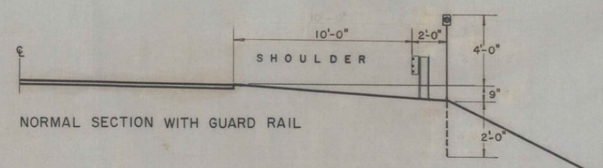
VERMONT AGENCY OF TRANSPORTATION

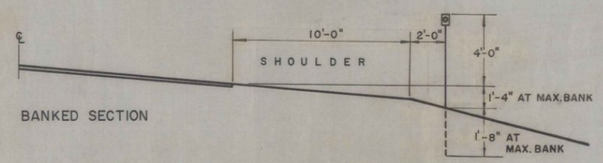
STANDARD
E-8



NORMAL SECTION



NORMAL SECTION WITH GUARD RAIL



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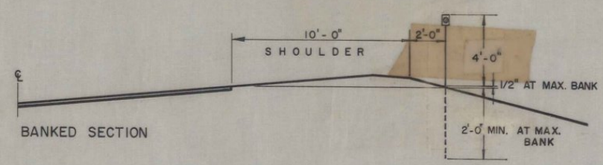

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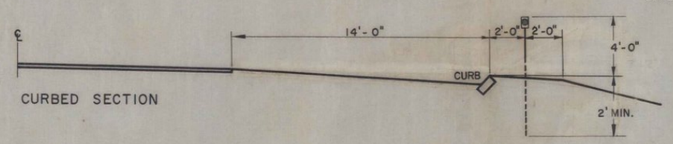
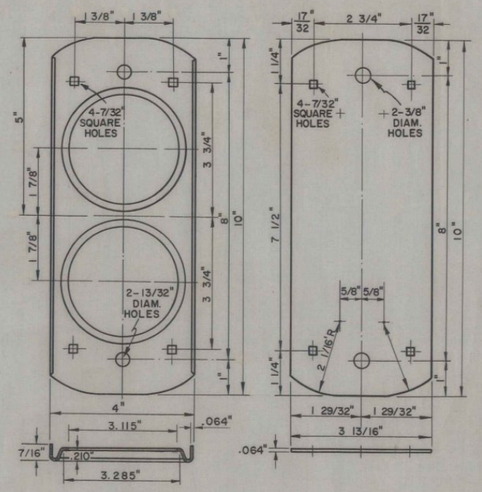


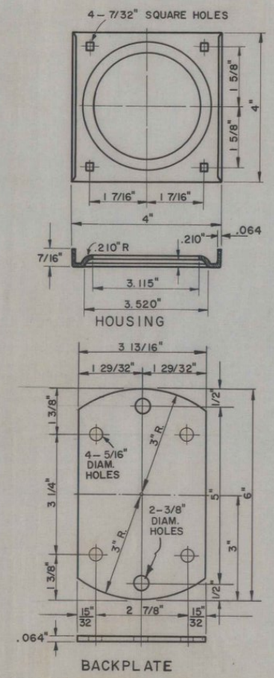
CURBED SECTION

TYPICAL PLACEMENT ON INTERSTATE ROADWAYS

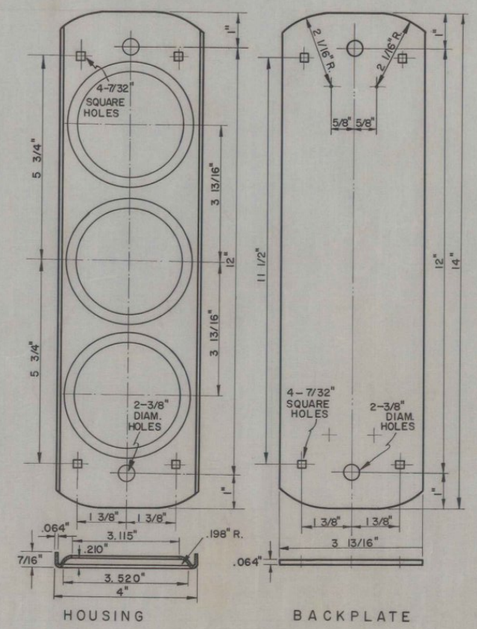


HOUSING BACKPLATE

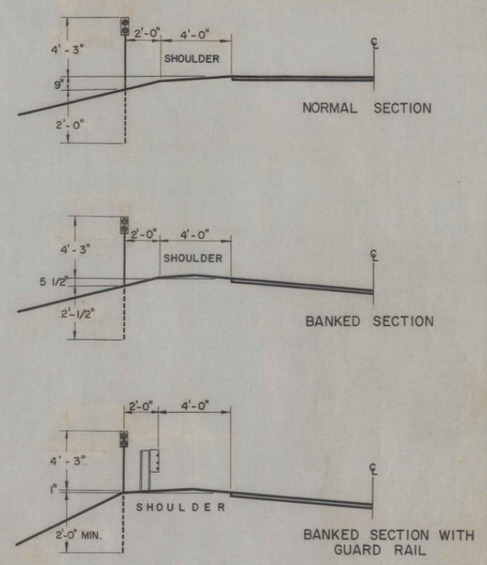
TYPE "B" DELINEATOR ASSEMBLY
TO BE USED WITH TWO YELLOW REFLECTORS



TYPE "A" DELINEATOR ASSEMBLY
TO BE USED WITH SINGLE COLORLESS REFLECTOR



TYPE "C" DELINEATOR ASSEMBLY
TO BE USED WITH THREE YELLOW REFLECTORS



PLACEMENT ON RAMPS AND DECELERATION OR ACCELERATION LANES

GENERAL NOTES

REFLECTORS, HOUSINGS, BACKPLATES, POSTS, AND ASSEMBLY AND MOUNTING HARDWARE SHALL CONFORM WITH THE REQUIREMENTS OF ITEM 580, "DELINEATORS"

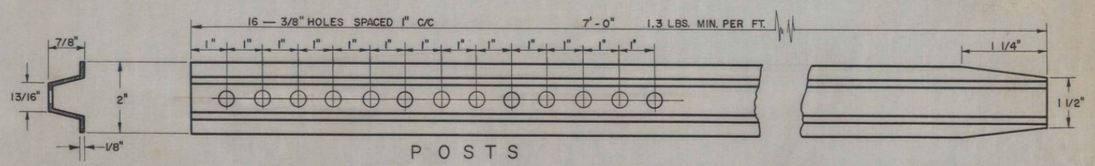
HOUSINGS AND BACKPLATES, HOLDING THE REFLECTORS, SHALL BE FASTENED TOGETHER WITH FOUR 10-24 X 3/8" LONG CARRIAGE BOLTS WITH VANDAL-RESISTANT NUTS, MEETING THE APPROVAL OF THE ENGINEER.

ASSEMBLED DELINEATOR UNITS SHALL BE MOUNTED ON THE POSTS WITH TWO 1/4-20 X 1 1/4" LONG CARRIAGE BOLTS WITH 1/2" DIAMETER VANDAL-RESISTANT NUTS, MEETING THE APPROVAL OF THE ENGINEER.

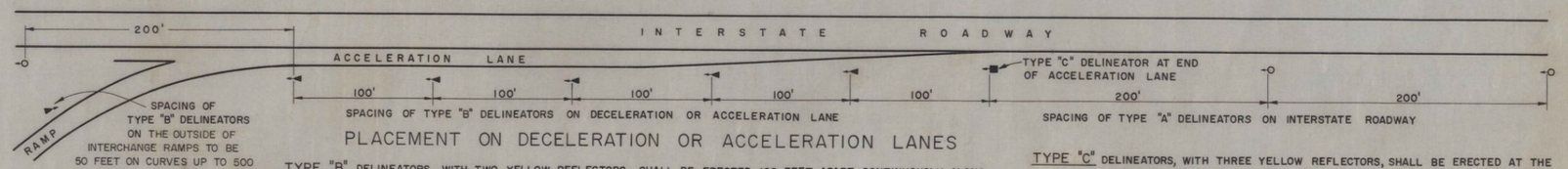
LOCATION AND PLACEMENT OF DELINEATORS AT INTERCHANGES SHALL BE SHOWN ON THE PLANS OR ORDERED BY THE ENGINEER.

ON DECELERATION LANES, ACCELERATION LANES AND DIVISIONED ISLANDS AT WEIGHING STATIONS, TYPE "A" DELINEATORS SHALL BE ERECTED 200 FEET APART AS FOR INTERSTATE ROADWAY. (TYPE B AND TYPE C DELINEATORS SHALL NOT BE USED.)

AT LOCATIONS OUTSIDE CURBING AND ON THE OUTSIDE OF A BANKED CURB CURB DELINEATOR POSTS MAY BE SHORTENED IN THE FIELD TO A LENGTH THAT WILL PROVIDE FOR A MINIMUM DEPTH IN THE GROUND OF TWO FEET



POSTS



PLACEMENT ON DECELERATION OR ACCELERATION LANES

TYPE "A". DELINEATORS, WITH A SINGLE COLORLESS REFLECTOR, SHALL BE ERECTED 200 FEET APART CONTINUOUSLY ALONG THE RIGHT SIDE OF INTERSTATE ROADWAYS, EXCEPT ON DECELERATION AND ACCELERATION LANES. THEY SHALL BE SET TWO FEET OUTSIDE THE POINT OF SHOULDER OR TWO FEET OUTSIDE THE FACE OF CURB AND GUARD RAIL; THE TOPS OF THE POSTS NOT LESS THAN FOUR FEET ABOVE THE GRADE OF PAVEMENT EDGE.

TYPE "B" DELINEATORS, WITH TWO YELLOW REFLECTORS, SHALL BE ERECTED 100 FEET APART CONTINUOUSLY ALONG THE RIGHT SIDE OF DECELERATION AND ACCELERATION LANES, OR AS SHOWN ON THE PLANS. THEY SHALL BE SET TWO FEET OUTSIDE THE POINT OF SHOULDER, OR TWO FEET OUTSIDE THE FACE OF CURB AND GUARD RAIL; THE TOPS OF THE POSTS AT LEAST FOUR FEET AND THREE INCHES ABOVE THE GRADE OF THE PAVEMENT EDGE. (SEE GENERAL NOTE ABOVE FOR REST AREAS AND WEIGHING STATIONS.)

TYPE "C" DELINEATORS, WITH THREE YELLOW REFLECTORS, SHALL BE ERECTED AT THE ENDS OF ACCELERATION LANES AS SHOWN ON THE PLANS. THEY SHALL BE SET TWO FEET OUTSIDE THE POINT OF SHOULDER WITH THE TOP OF THE POST AT LEAST FOUR FEET AND THREE INCHES ABOVE THE GRADE OF THE PAVEMENT EDGE.

REVISIONS AND CORRECTIONS

JULY 16, 1959 — LATERAL PLACEMENT MOVED TO EDGE OF SHOULDER FROM TWO FEET OUT.
MARCH 13, 1961 1. — LENGTH OF POSTS REDUCED FROM 8' TO 7'
2. — TYPE B AND C DELINEATORS REQUIRED AT REST AREAS
3. — REVISION OF JULY 16, 1959 IS HEREBY DELETED EXCEPT IN AREAS WHERE GUARD RAIL OR CURB IS ENCOUNTERED.
4. MINIMUM POST WEIGHT OF 1.12 LBS. PER FOOT ADDED
WEIGHT AND HOLES ON POSTS CHANGED JULY 26, 1962

APPROVED: DATE June 1, 1959

H. E. Sargent — CHIEF ENGINEER
G. M. Lane — HIGHWAY ENGINEER
A. W. Coburn — TRAFFIC ENGINEER
E. H. Blickney — CONSTRUCTION ENGINEER

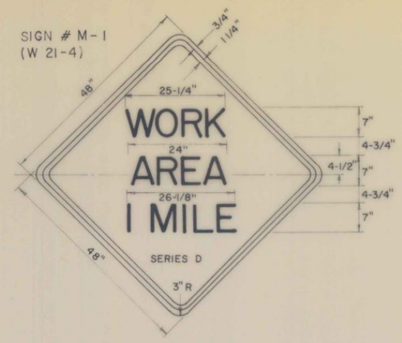
DRAWN A.W.C.
TRACED T. AJA

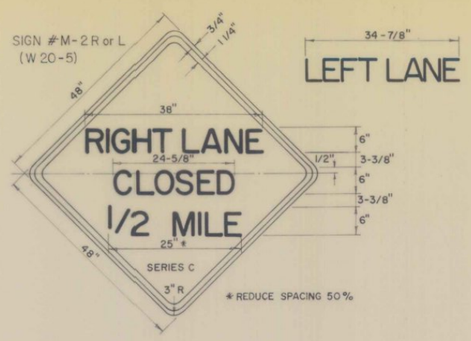
DELINEATORS
DESIGN AND INSTALLATION DETAILS

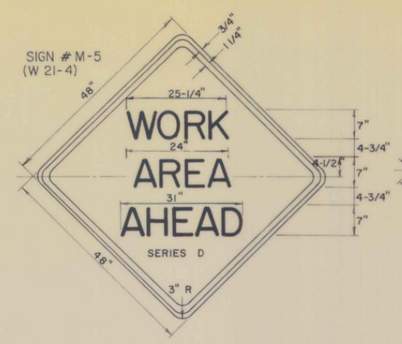
INTERSTATE PROJECTS

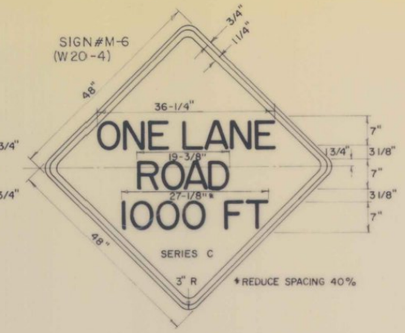
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

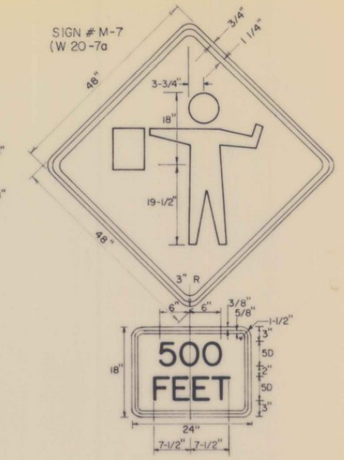
E-8

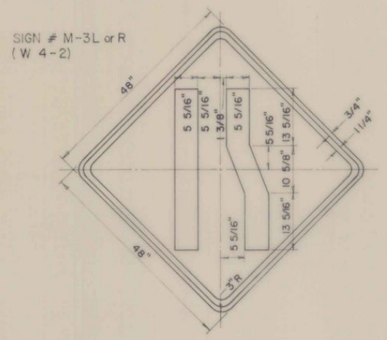


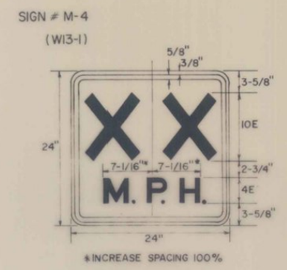


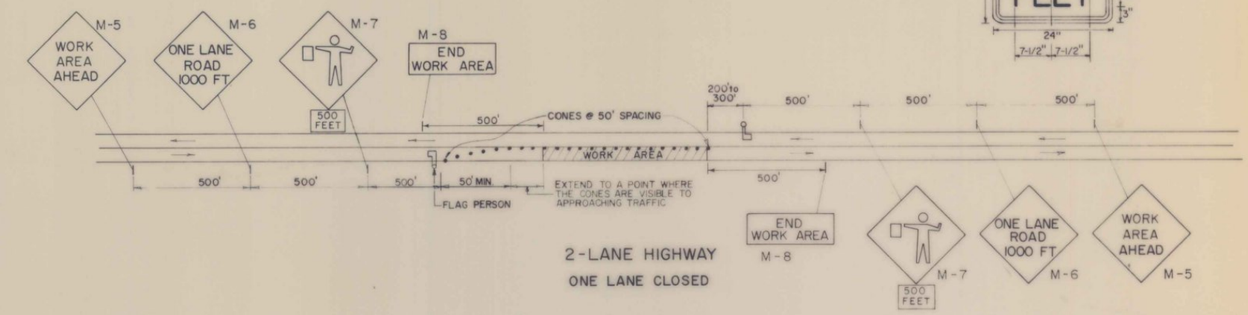




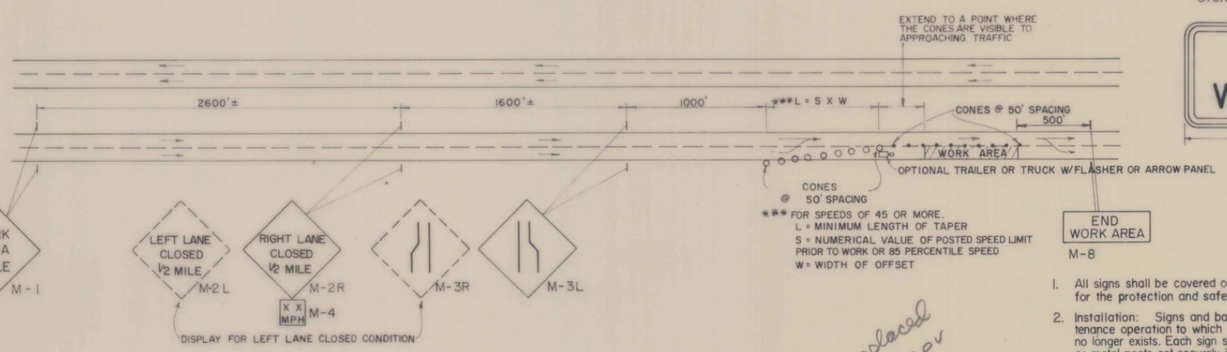








2-LANE HIGHWAY
ONE LANE CLOSED



4-LANE DIVIDED HIGHWAY
ONE LANE CLOSED

this sheet replaced Jan 6, 1984 DAR

NOTES

1. All signs shall be covered or removed at the end of the working day unless required for the protection and safety of the traveling public.
2. Installation: Signs and barricades shall be in place prior to the start of the maintenance operation to which they apply and shall be removed promptly when the need no longer exists. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground, or on portable supports for temporary use, or on barricades when appropriate. As a general rule, roadside signs shall be 5 feet above road level with the nearest edge at least 6 feet outside the shoulder point. The installation of all signs and barricades shall be subject to the approval of the Engineer.
3. Numbers in parenthesis indicate M.U.T.C.D. sign designations.
4. "ROAD WORK" or "BRIDGE WORK" may be substituded as the appropiate legend for signs # M-1 or M-5.

Reflectorization
All reflectorized material shall consist of encapsolated lens reflective sheeting.
The text and borders may be screened, lettering film, or hand painted.
Cones used for traffic control at night shall have a minimum 6" wide reflectorized material.

Colors
The warning signs shown on this sheet shall have black text, border, and symbols on a reflectorized orange background. The orange shall conform with the standard colors adopted by the American Association of State Highway and Transportation Officials and approved by the U.S. Department of Transportation, Federal Highway Administration.

Text Design
Letters, digits, spacing, and text dimensions shall conform with the standard alphabets and design prescribed in the manual on Uniform Traffic Control Devices.

Specifications
Warning signs shall meet the standard state specifications for traffic signs.

Sign Base Material
The sign base material used for the warning signs on this sheet may be of any of the following, with minimum thickness as noted:

Flat sheet aluminum	0.125	Inches
High density overlayed plywood	3/4	Inches
Galvanized sheet steel	12	Gage

5. ON TOWN, CITY AND INCORPORATED VILLAGE HIGHWAY SYSTEMS THE MINIMUM NUMBER OF SIGNS IS AS FOLLOWS:
MINIMUM NUMBER OF SIGNS REQUIRED ARE M-6 AND M-7.
MINIMUM SIZE OF THE SIGNS SHALL BE 36" x 36".
THIS SIGN SIZE REDUCTION IS FOR DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION.

REVISIONS & CORRECTIONS

FEB. 29, 1972:	SIGN ADDED UNDER DIRECTION OF FEDERAL HIGHWAY ADMINISTRATION
MAY 14, 1974	**REFLECTIVE MATERIAL CHANGE.**
JUNE 8, 1977 -	REFLECTIVE MATERIAL NOTE CHANGED. SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D. SIGNS NUMBERED.
AUG. 4, 1977	FLAGPERSON SIGN CHANGED TO SYMBOL.
SEPT. 12, 1977	NOTE ADDED FOR REDUCED NUMBER AND SIZE OF SIGNS.
JUNE 8, 1978	REVISED REDUCED SPEED SIGN PER FHWA
NOV. 23, 1981	"WORK AREA" LEGEND AND NOTES ADDED, GENERAL SIGN REVISIONS.

APPROVED:

Jan. 26, 1972
DATE

R. A. Arnold
CHIEF ENGINEER

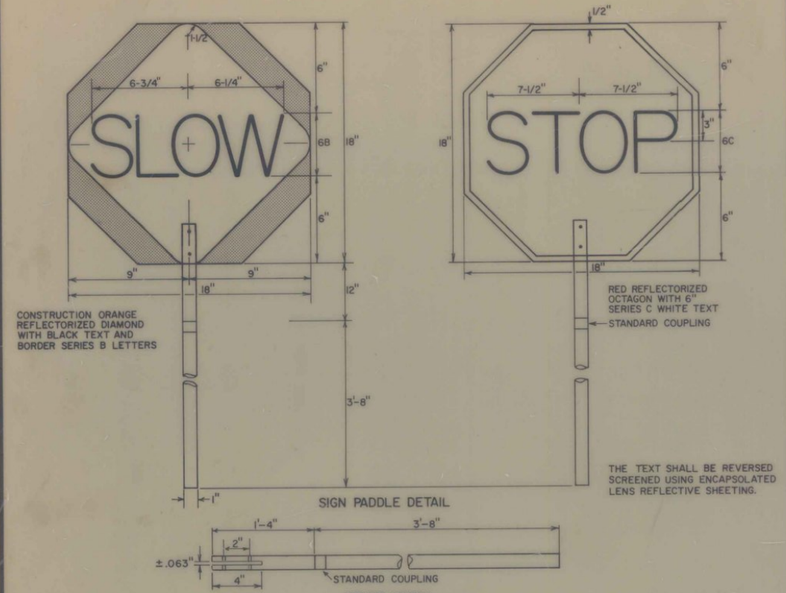
E. H. Otchkey
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

TYPICAL MAJOR MAINTENANCE OPERATION
(BRIDGE AND ROADWAY) APPROACH SIGNS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-8



SIGN PADDLE DETAIL

STAFF DETAIL

MATERIALS

THE SIGN MATERIALS SHALL BE 0.063 ALUMINUM WITH COLORS AS INDICATED ON DETAILS. THE STAFF SHALL BE 1" RIDGED ALUMINUM CONDUIT OR TUBING WITH A WALL THICKNESS OF 1/8 INCH.

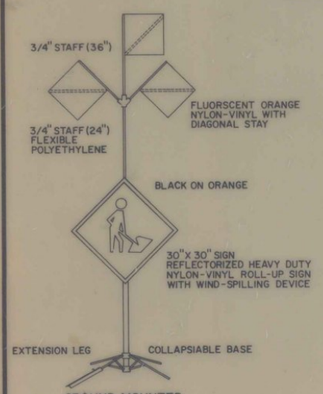
COLORS

THE COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MOUNTING

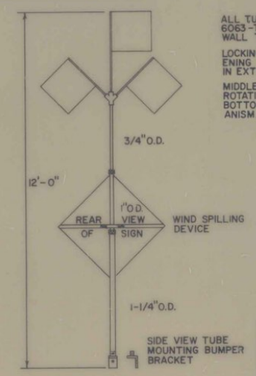
THE STAFF SHALL BE MOUNTED WITH EITHER 2-1/4" ALUMINUM BOLTS OR 2-1/4" ALUMINUM RIVETS.

SIGN PADDLE FOR FLAGPERSON



GROUND MOUNTED

GROUND MOUNTED BASE MAY BE WEIGHTED TO PREVENT TIPPING



VEHICLE MOUNTED

VEHICLE MOUNTED STORAGE BRACKET MAY BE SUBSTITUTED FOR BUMPER BRACKET

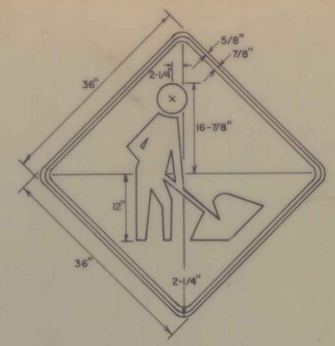
ALL TUBES SHALL BE ALUMINUM ALLOY 6063-T832 OR 6061-T6 WITH A NOMINAL WALL THICKNESS OF 0.065"

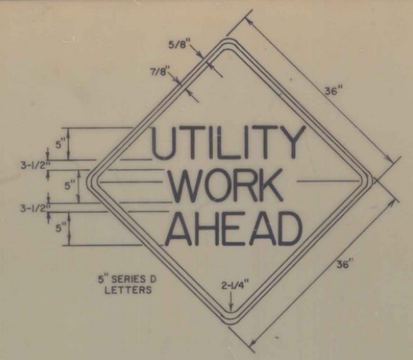
LOCKING FINGERS COMPRESSED BY TIGHTENING KNURLED NUTS HOLD THE TUBES IN EXTENDED POSITION.

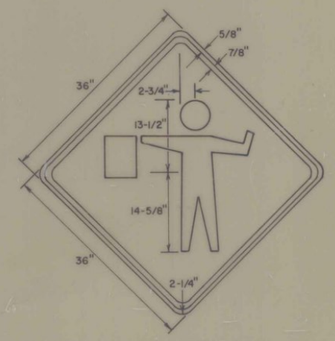
MIDDLE TUBE TO INCORPORATE AN ANTI-ROTATING DEVICE WHICH ENGAGES THE BOTTOM OF THE LOCKING FINGER MECHANISM.

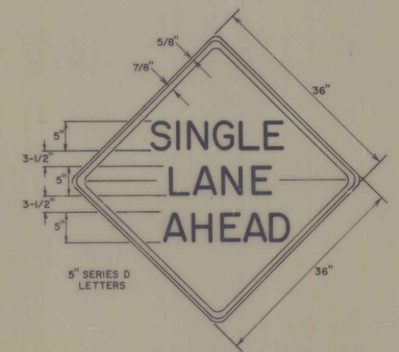
HIGH LEVEL WARNING DEVICES ARE MOST COMMONLY USED IN URBAN HIGH DENSITY SITUATIONS TO WARN MOTORISTS OF OPERATIONS SUCH AS PAVEMENT PATCHING, MANHOLE WORK, SURVEYING, UTILITY WORK, ETC OR IN RURAL AREAS REQUIRING ADDITIONAL VISIBILITY.

HIGH LEVEL WARNING DEVICE









INSTALLATION

THE SIGNS SHALL BE IN PLACE AT THE TIME THE PROJECT COMMENCES. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON WOOD OR METAL POSTS SET SECURELY IN THE GROUND, UNLESS OTHERWISE NOTED ON THIS SHEET. THE BOTTOM OF A SIGN, UNLESS OTHERWISE NOTED SHALL BE AT LEAST 5 FEET ABOVE ROAD LEVEL, AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT OR 2 FEET OUTSIDE GUARD RAIL, CURBING OR SIDEWALK. SIGNS MOUNTED ON BARRICADES OR TEMPORARY SUPPORTS SHALL BE POSITIONED SUCH THAT THE BOTTOM OF THE SIGN IS NOT LESS THAN ONE FOOT ABOVE THE PAVEMENT ELEVATION.

REFLECTORIZATION

ALL REFLECTORIZED MATERIAL SHALL CONSIST OF ENCAPSOLATED LENS REFLECTIVE SHEETING. THE TEXT AND BORDERS MAY BE SCREENED, LETTERING FILM, OR HAND PAINTED. CONES USED FOR TRAFFIC CONTROL AT NIGHT SHALL HAVE A MINIMUM 6" WIDE REFLECTORIZED MATERIAL.

COLORS

THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT, BORDER, AND SYMBOLS ON A REFLECTORIZED ORANGE BACKGROUND. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

TEXT DESIGN

LETTERS, DIGITS, SPACING, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGN PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

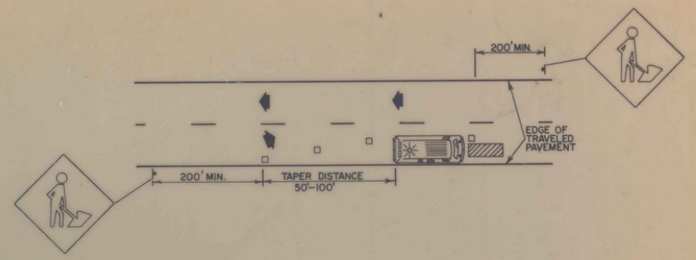
SPECIFICATIONS

WARNING SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

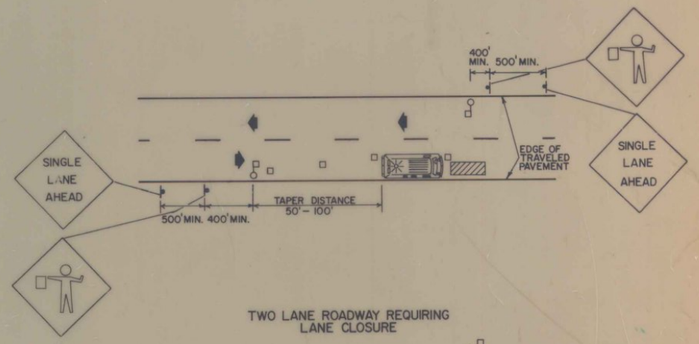
SIGN BASE MATERIAL

THE SIGN BASE MATERIAL USED FOR THE WARNING SIGNS ON THIS SHEET MAY BE OF ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED.

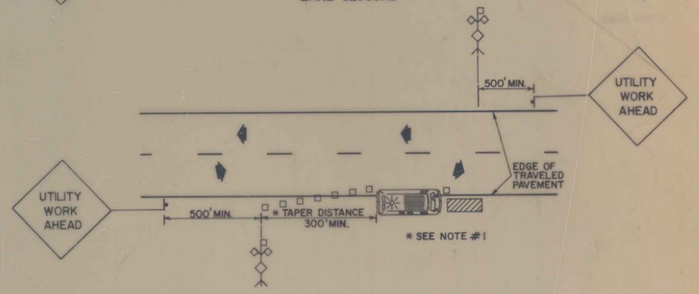
FLAT SHEET ALUMINUM	0.125 INCHES
HIGH DENSITY OVERLAYED PLYWOOD	3/4 INCHES
GALVANIZED SHEET STEEL	12 GAGE



TWO-LANE RESIDENTAL STREET
(LOW TRAFFIC VOLUME)



TWO LANE ROADWAY REQUIRING
LANE CLOSURE



TWO LANE HIGHWAY SHOULDER
WORK AREA

GENERAL NOTES

1. THE MINIMUM TAPER DISTANCE IS BASED ON AND ASSUMED 6' FOOT SHOULDER. WIDER SHOULDERS REQUIRE A LONGER TAPER BASED ON THE FORMULA TAPER = SHOULDER WIDTH X SPEED LIMIT.
2. CONES SHALL BE ORANGE IN COLOR AND KEPT CLEAN AND BRIGHT. ALTHOUGH 18" HIGH CONES ARE ACCEPTABLE LARGER CONES SHOULD BE USED WHENEVER MORE CONSPICUOUS GUIDANCE IS NEEDED.

LEGEND

- HIGH LEVEL WARNING DEVICE
- WORK AREA
- CHANNELIZING DEVICE (50' MAX. SPACING)
- FLASHING VEHICLE LIGHT
- FLAGGER

REVISIONS AND CORRECTIONS

FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED:

JUNE 2, 1982
DATE

DIRECTOR OF ENGINEERING AND CONSTRUCTION

CHIEF OF DESIGN

SURVEY AND PLANS ENGINEER

UTILITY WORK ZONE

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-9

MATERIALS.— CONSTRUCTION IDENTIFICATION SIGNS, SHALL BE BUILT OF WOOD OR METAL WITH THE BACKGROUND AND LEGEND PAINTED THEREON. NO MATERIALS SHALL BE USED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE LIFE OF THE PROJECT. NEITHER THE BACKGROUNDS NOR THE LEGENDS OF THE SIGNS SHALL BE REFLECTORIZED.—

DESIGN.— THE CONTENT OF EACH SIGN SHALL BE IN ACCORDANCE WITH THE DESIGNS SHOWN ON THIS SHEET. THE LEGEND SHALL BE IN BLACK ON A WHITE BACKGROUND.

THE MILEAGE FIGURE SHALL BE THE OVERALL LENGTH OF THE CONTRACT TO WHICH THE SIGN REFERS, TO THE NEAREST TENTH OF A MILE. IF THE SIGN IS FOR A SINGLE STRUCTURE, A RECOGNIZABLE NAME, MAY BE SUBSTITUTED FOR THE LENGTH AS DETERMINED BY THE ENGINEER.

THE PROJECT COST SHALL BE THE COST OF THE CONTRACT ROUNDED TO THE NEAREST $ 10,000. THE PERCENTAGES OF COSTS SHOWN SHALL BE THOSE ACTUALLY BORNE BY THE STATE, LOCAL, AND FEDERAL GOVERNMENTS RESPECTIVELY.

THE PROJECT NUMBER SHALL BE THAT FOR THE FEDERAL-AID CONTRACT ACTUALLY UNDER WAY.

ON INTERSTATE PROJECTS, THE 24"-INCH STANDARD THREE COLOR INTERSTATE SHIELD WITH APPROPRIATE ROUTE NUMBER SHALL BE PAINTED ON THE SIGNS AS SHOWN IN THE DRAWING.

LOCATION.— ON PRIMARY, SECONDARY AND URBAN PROJECTS THE SIGNS SHALL BE LOCATED AT EACH END OF THE PROJECT, AND ON NUMBERED ROUTES INTERSECTING OR CROSSING THE PROJECT, AS DETAILED ON THIS STANDARD SHEET.

ON INTERSTATE PROJECTS THE SIGNS SHALL BE LOCATED WHERE INDICATED ON THE PLANS.

CONSTRUCTION IDENTIFICATION SIGNS SHALL BE LOCATED SO AS TO BE COMPLETELY VISIBLE TO TRAFFIC, AND SO AS NOT TO OBSCURE OR DETRACT FROM THE EFFECTIVENESS OF OTHER OFFICIAL SIGNS.

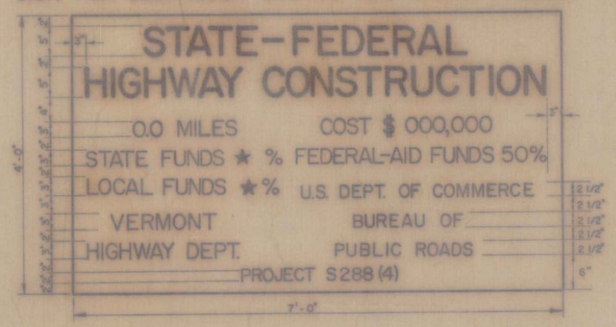
ERECTION.— CONSTRUCTION IDENTIFICATION SIGNS SHALL BE ERECTED AT THE TIME THE PHYSICAL CONSTRUCTION WORK STARTS ON ANY FEDERAL-AID PROJECT.

EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON WOOD OR STEEL POSTS SET FIRMLY IN THE GROUND, WITH THE BOTTOM OF THE SIGN AT LEAST 4 FEET ABOVE THE THE ROAD LEVEL. THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 4 FEET OUTSIDE THE SHOULDER POINT OR 2 FEET OUTSIDE A CURB OR SIDEWALK. POSTS AND SIGNS SHALL BE BRACED IN BACK IF NECESSARY. SIGNS SHALL BE ERECTED TO THE SATISFACTION OF THE ENGINEER.

MAINTENANCE.— SIGNS SHALL BE MAINTAINED TO THE SATISFACTION OF THE ENGINEER SO AS TO BE VISIBLE TO TRAFFIC AT ALL TIMES AND SO AS TO PRESENT A NEAT APPEARANCE AT ALL TIMES. THEY SHALL NOT BE LIGHTED AT NIGHT.

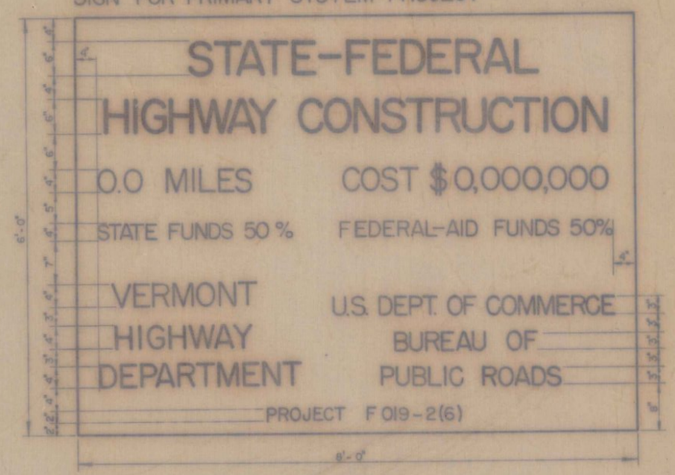
GENERAL.— THE COST OF FURNISHING, ERECTING, MAINTAINING, AND REMOVING CONSTRUCTION IDENTIFICATION SIGNS SHALL BE BORNE BY THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION (SEE STANDARD SPECIFICATIONS, DIVISION I, SECTION 7, PARAGRAPH 7.07).

SIGN FOR SECONDARY SYSTEM AND URBAN PROJECT

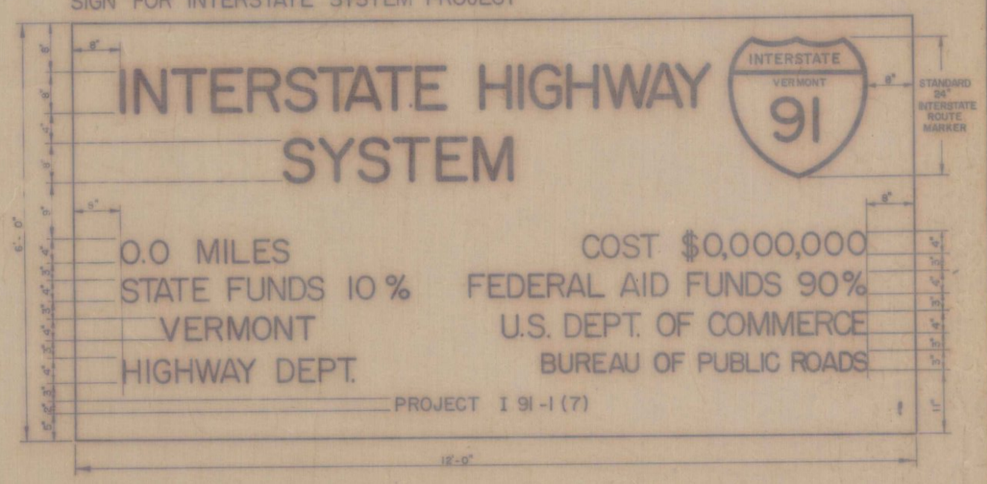


★ SHOW ACTUAL PERCENT OF STATE AND LOCAL FUNDS. IF NO LOCAL FUNDS ARE USED, SHOW 50% STATE FUNDS

SIGN FOR PRIMARY SYSTEM PROJECT



SIGN FOR INTERSTATE SYSTEM PROJECT

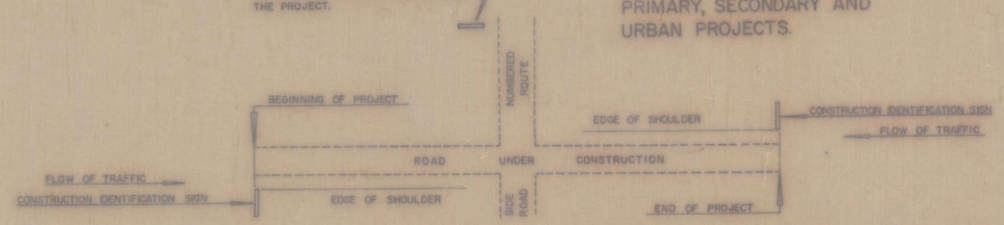


1018

CONSTRUCTION IDENTIFICATION SIGN

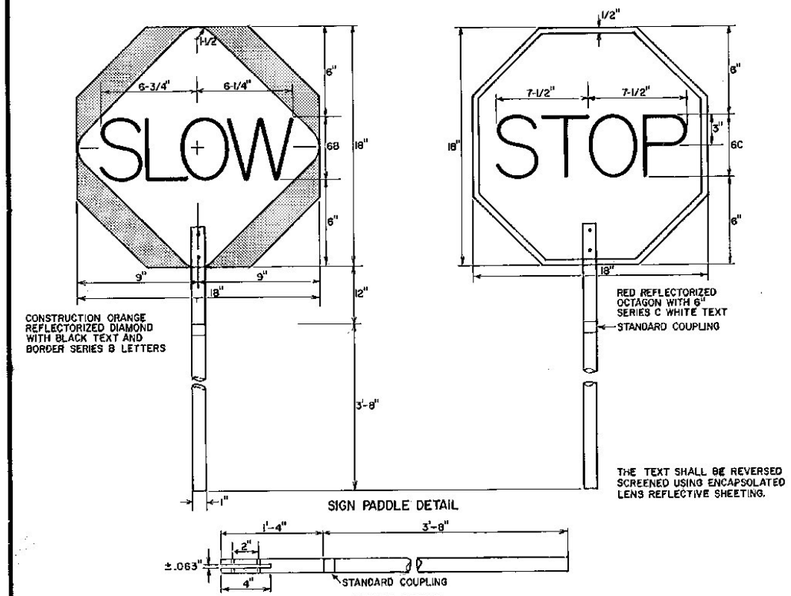
TO BE ERECTED 100' IN ADVANCE OF THE STANDARD CONSTRUCTION SIGN NO. H-2 ON NUMBERED ROUTES INTERSECTING THE PROJECT.

LOCATION OF SIGNS ON PRIMARY, SECONDARY AND URBAN PROJECTS.



REVISIONS & CORRECTIONS	APPROVED	DATE NOV. 25, 1960	FEDERAL-AID CONSTRUCTION IDENTIFICATION SIGNS	VERMONT DEPARTMENT OF HIGHWAYS STANDARD
APR. 20, 1961 — ASTERISKS AND NOTE ADDED	A.W. Colburn, TRAFFIC ENGINEER	A.D. Bailey, CHIEF ENGINEER; Gordon M. Lane, HIGHWAY ENGINEER; E.H. Kiesbury, CONSTRUCTION ENGINEER		E-9

DRAWN: A.J.A.
TRACED: A.J.A.



MATERIALS

THE SIGN MATERIALS SHALL BE 0.063 ALUMINUM WITH COLORS AS INDICATED ON DETAILS. THE STAFF SHALL BE 1" RIDGED ALUMINUM CONDUIT OR TUBING WITH A WALL THICKNESS OF 1/8 INCH.

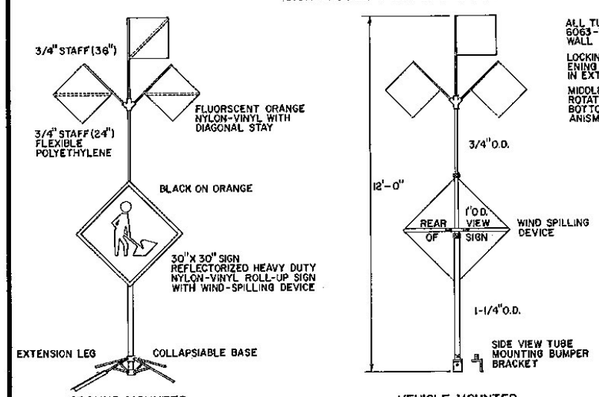
COLORS

THE COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MOUNTING

THE STAFF SHALL BE MOUNTED WITH EITHER 2-1/4" ALUMINUM BOLTS OR 2-1/4" ALUMINUM RIVETS.

SIGN PADDLE FOR FLAGPERSON



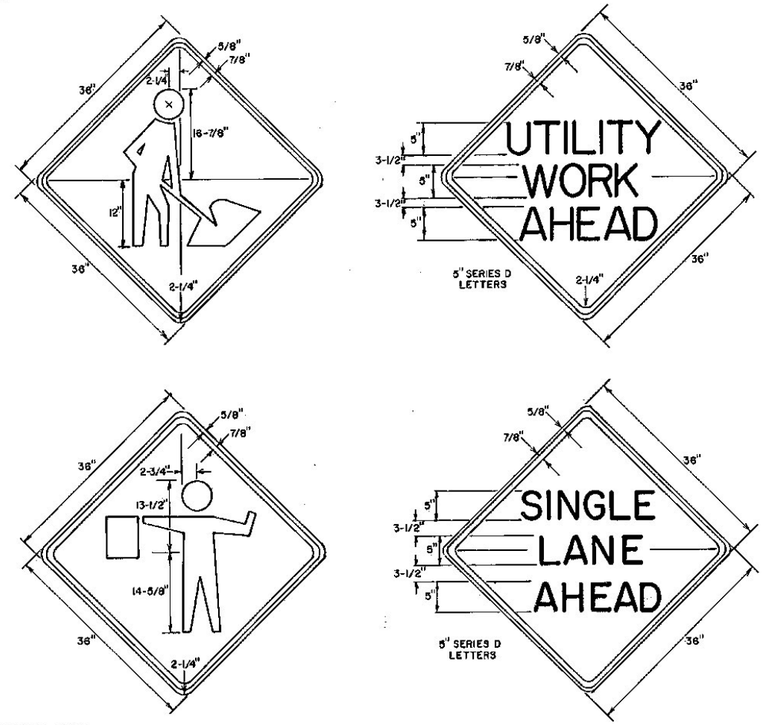
ALL TUBES SHALL BE ALUMINUM ALLOY 6063-T832 OR 6061-T6 WITH A NOMINAL WALL THICKNESS OF 0.065"

LOCKING FINGERS COMPRESSED BY TIGHTENING KNURLED NUTS HOLD THE TUBES IN EXTENDED POSITION.

MIDDLE TUBE TO INCORPORATE AN ANTI-ROTATING DEVICE WHICH ENGAGES THE BOTTOM OF THE LOCKING FINGER MECHANISM.

HIGH LEVEL WARNING DEVICES ARE MOST COMMONLY USED IN URBAN HIGH DENSITY SITUATIONS TO WARN MOTORISTS OF OPERATIONS SUCH AS PAVEMENT PATCHING, MANHOLE WORK, SURVEYING, UTILITY WORK, ETC. OR IN RURAL AREAS REQUIRING ADDITIONAL VISIBILITY.

HIGH LEVEL WARNING DEVICE



INSTALLATION

THE SIGNS SHALL BE IN PLACE AT THE TIME THE PROJECT COMMENCES. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON WOOD OR METAL POSTS SET SECURELY IN THE GROUND, UNLESS OTHERWISE NOTED ON THIS SHEET. THE BOTTOM OF A SIGN, UNLESS OTHERWISE NOTED SHALL BE AT LEAST 5 FEET ABOVE ROAD LEVEL, AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT OR 2 FEET OUTSIDE GUARD RAIL, CURBING OR SIDEWALK. SIGNS MOUNTED ON BARRICADES OR TEMPORARY SUPPORTS SHALL BE POSITIONED SUCH THAT THE BOTTOM OF THE SIGN IS NOT LESS THAN ONE FOOT ABOVE THE PAVEMENT ELEVATION.

REFLECTORIZATION

ALL REFLECTORIZED MATERIAL SHALL CONSIST OF ENCAPSOLATED LENS REFLECTIVE SHEETING. THE TEXT AND BORDERS MAY BE SCREENED, LETTERING FILM, OR HAND PAINTED. CONES USED FOR TRAFFIC CONTROL AT NIGHT SHALL HAVE A MINIMUM 6" WIDE REFLECTORIZED MATERIAL.

COLORS

THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT, BORDER, AND SYMBOLS ON A REFLECTORIZED ORANGE BACKGROUND. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

TEXT DESIGN

LETTERS, DIGITS, SPACING, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGN PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

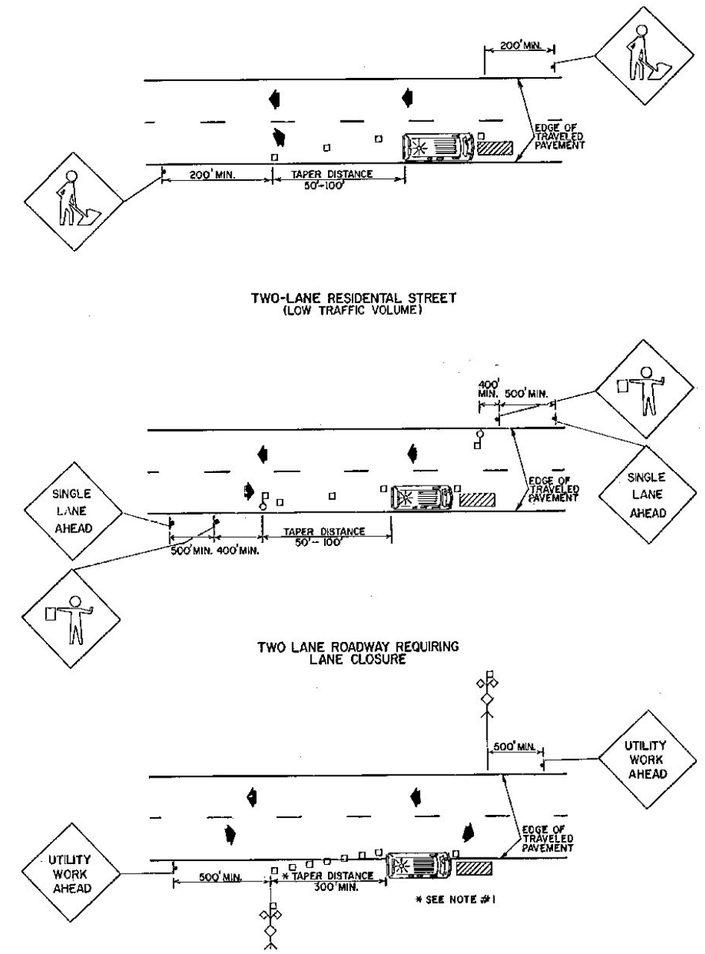
SPECIFICATIONS

WARNING SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

SIGN BASE MATERIAL

THE SIGN BASE MATERIAL USED FOR THE WARNING SIGNS ON THIS SHEET MAY BE OF ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED.

FLAT SHEET ALUMINUM	0.125 INCHES
HIGH DENSITY OVERLAYED PLYWOOD	3/4 INCHES
GALVANIZED SHEET STEEL	12 GAGE



GENERAL NOTES

1. THE MINIMUM TAPER DISTANCE IS BASED ON AND ASSUMED 6' FOOT SHOULDER. WIDER SHOULDERS REQUIRE A LONGER TAPER BASED ON THE FORMULA TAPER = SHOULDER WIDTH X SPEED LIMIT.
2. CONES SHALL BE ORANGE IN COLOR AND KEPT CLEAN AND BRIGHT. ALTHOUGH 18" HIGH CONES ARE ACCEPTABLE LARGER CONES SHOULD BE USED WHENEVER MORE CONSPICUOUS GUIDANCE IS NEEDED.

LEGEND

- HIGH LEVEL WARNING DEVICE
- WORK AREA
- CHANNELIZING DEVICE (50' MAX. SPACING)
- FLASHING VEHICLE LIGHT
- FLAGGER

REVISIONS AND CORRECTIONS

APPROVED: JUNE 2, 1982
DATE

DIRECTOR OF ENGINEERING AND CONSTRUCTION

CHIEF OF DESIGN

SURVEY AND PLANS ENGINEER

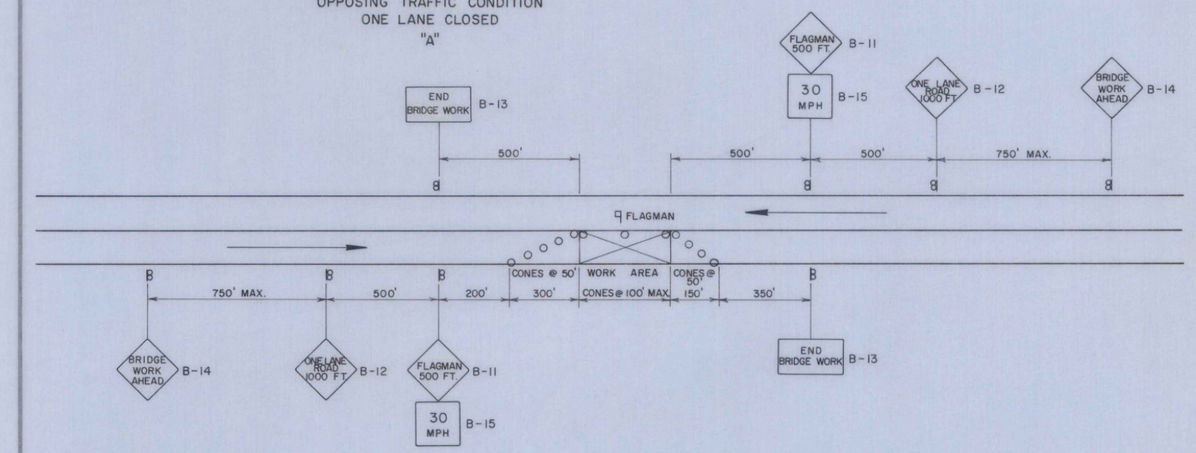
UTILITY WORK ZONE

VERMONT AGENCY OF TRANSPORTATION

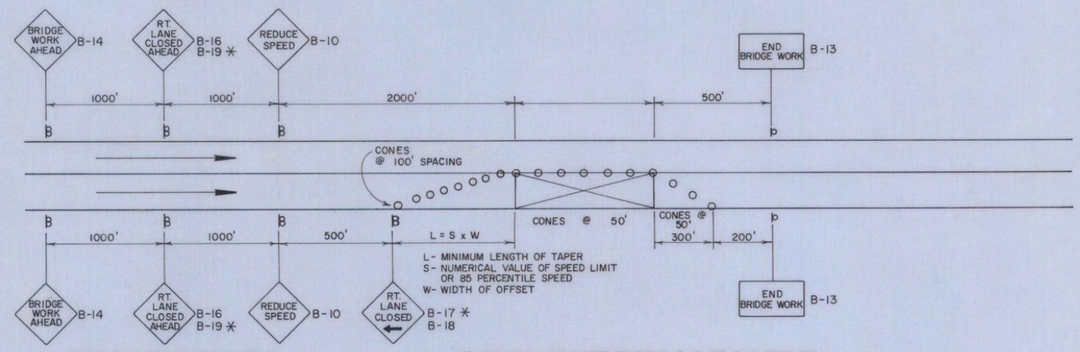
STANDARD

E-9

OPPOSING TRAFFIC CONDITION
ONE LANE CLOSED
"A"



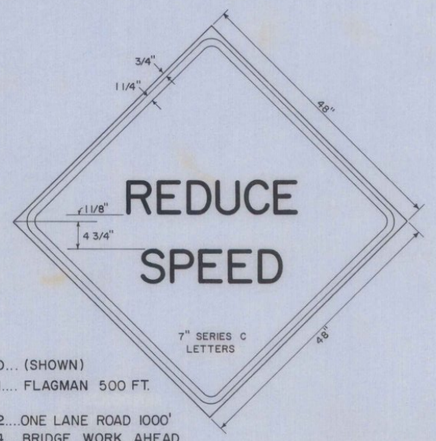
DIVIDED HIGHWAY CONDITION
ONE LANE CLOSED
"B"



THESE DUPLICATE SIGNS MAY NOT BE REQUIRED ON LOW VOLUME HIGHWAYS AT THE DISCRETION OF THE ENGINEER.

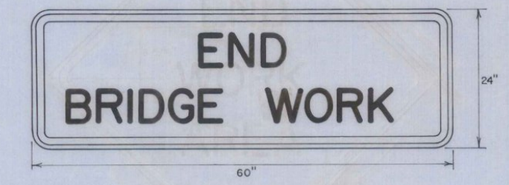
✳ FOR LEFT LANE CLOSED CONDITION B-17 AND B-19 SIGNS SHALL BE USED IN LIEU OF THE B-16 AND B-18 SIGNS, AND THE B-17 SIGN SHALL BE PLACED ON THE OPPOSITE SHOULDER.

SIGNS B-10, B-11, B-12, B-14

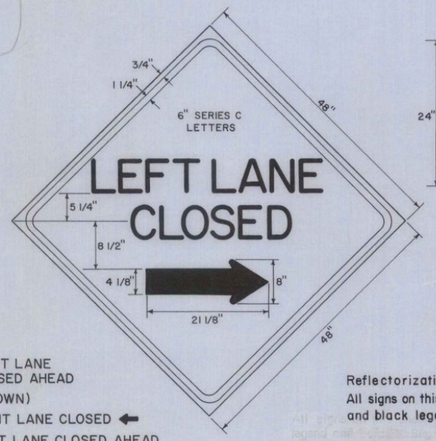


B-10... (SHOWN)
(W20-7) B-11.... FLAGMAN 500 FT.
(W20-4) B-12....ONE LANE ROAD 1000'
(W20-1 MOD) B-14.... BRIDGE WORK AHEAD

SIGN B-13
(G 20-2 MOD)

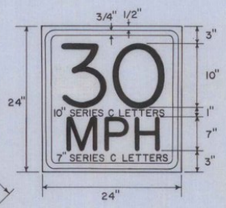


SIGNS B-16, B-17, B-18, B-19



(W20-5) B-16.... RIGHT LANE CLOSED AHEAD
(W20-5) B-17....(SHOWN)
(W20-5) B-18.... RIGHT LANE CLOSED ←
(W20-5) B-19.... LEFT LANE CLOSED AHEAD

SIGN B-15
(W 13-1)



Reflectorization
All signs on this sheet shall have an orange background and black legend and borders.
These signs shall have encapsulated lens reflective sheeting material.

NOTES:

1. Signing to remain the same for "all lanes open condition," except signs B-11, B-15, B-16, B-17, B-18, & B-19 are to be covered or removed.
2. All signs shall be covered or removed at the end of the working day unless required for the protection and safety of the traveling public.
3. If vertical clearance has been reduced below 14 ft. and lane is open to traffic, a vertical clearance sign is required with clearance shown. If clearance is reduced below 12 ft. the lane must be closed. The signs shall be located next to the restriction. Existing clearance warning signs shall be covered when not applicable.
4. When any personnel or equipment is temporarily working, or physically placed within the work zone shoulder limits, a flagman shall be placed on duty to direct traffic for condition "A" only. Flagmen use shall be as directed by the Engineer.
5. Signs on all intersecting public highways shall be as shown on the plans or as directed by the Engineer.
6. The design of the signs shall conform with the details shown on this sheet and with the standards in the Manual on Uniform Traffic Control Devices prepared by the National Joint Committee on Uniform Traffic Control Devices.
7. Installation. Signs and barricades shall be in place prior to the start of the maintenance operation to which they apply, and shall be removed promptly when the need no longer exists. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground, or on portable supports for temporary use, or on barricades when appropriate. As a general rule, roadside signs shall be 5 feet above road level with the nearest edge at least 6 feet outside the shoulder point. The installation of all signs and barricades shall be subject to the approval of the Eng'r.
8. The cost of furnishing, erecting, maintaining, and removing all signs shall be borne by the Contractor without additional compensation.

REVISIONS AND CORRECTIONS

FEB. 29, 1972 : REVISED PER DIRECTION OF FEDERAL HIGHWAY ADMINISTRATION.
DEC. 19, 1972 : REVISED PER DIRECTION OF FEDERAL HIGHWAY ADMINISTRATION.
MAY 14, 1974: REFLECTIVE MATERIAL CHANGE.
DEC. 12, 1975: REVISED TO CONFORM WITH STANDARD E-2.
JUNE 8, 1977: REFLECTIVE MATERIAL NOTE CHANGED. SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D.

APPROVED

Dec. 29, 1971
DATE
R. P. Carroll
CHIEF ENGINEER
E. W. Cheloney
ASST. CHIEF ENGINEER
G. M. Lane
HIGHWAY ENGINEER

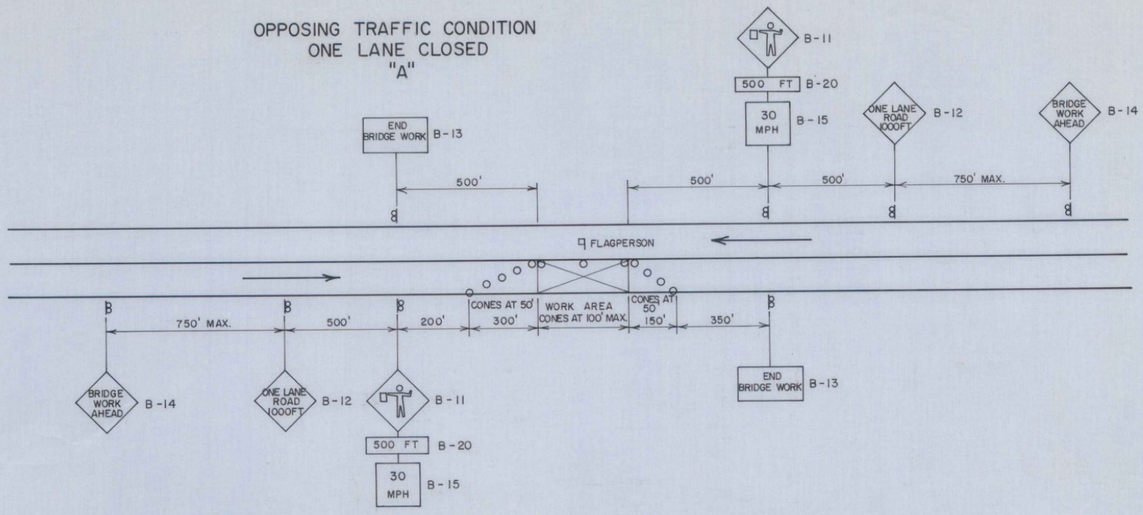
TRAFFIC SIGNS

BRIDGE MAINTENANCE APPROACH SIGNS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-39

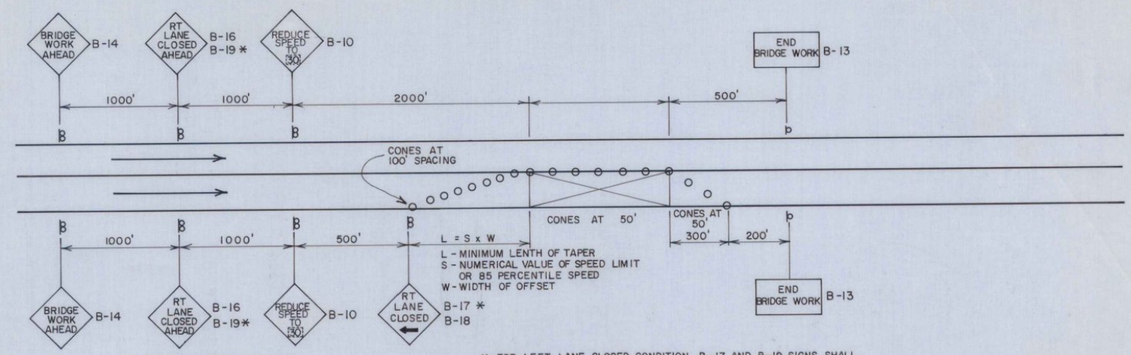
OPPOSING TRAFFIC CONDITION
ONE LANE CLOSED
"A"



ON TOWN, CITY AND INCORPORATED VILLAGE SYSTEMS THE MINIMUM SIZE AND NUMBER OF SIGNS IS AS FOLLOWS:

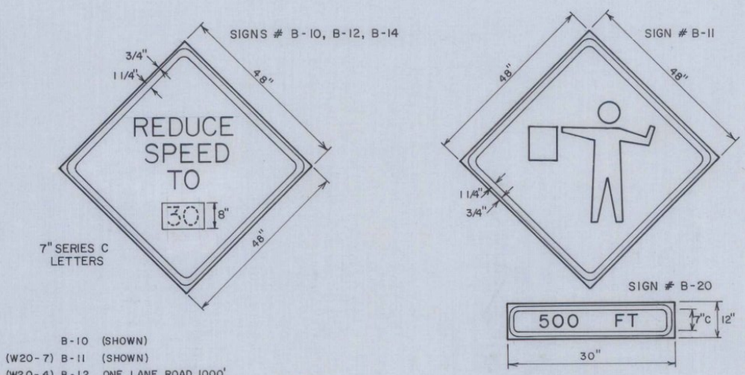
MINIMUM NUMBER OF SIGNS SHALL BE B-12 AND B-14.
MINIMUM SIZE SHALL BE 36" x 36".

DIVIDED HIGHWAY CONDITION
ONE LANE CLOSED
"B"

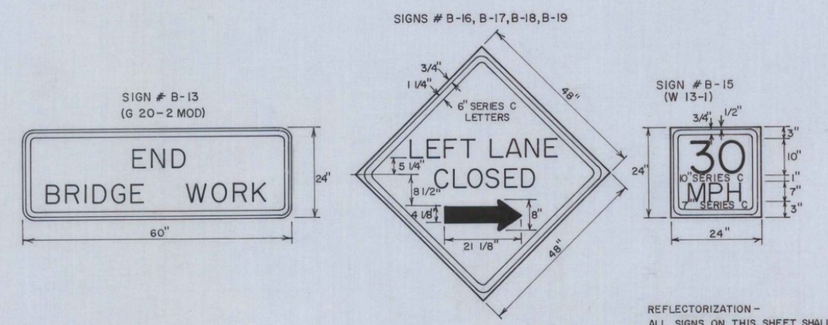


THESE DUPLICATE SIGNS MAY NOT BE REQUIRED ON LOW VOLUME HIGHWAYS AT THE DISCRETION OF THE ENGINEER.

* FOR LEFT LANE CLOSED CONDITION B-17 AND B-19 SIGNS SHALL BE USED IN LIEU OF THE B-16 AND B-18 SIGNS, AND THE B-17 SIGN SHALL BE PLACED ON THE OPPOSITE SHOULDER.



B-10 (SHOWN)
(W20-7) B-11 (SHOWN)
(W20-4) B-12 ONE LANE ROAD 1000'
(W20-1, MOD.) B-14 BRIDGE WORK AHEAD



(W 20-5) B-16 RIGHT LANE CLOSED AHEAD
(W 20-5) B-17 (SHOWN)
(W 20-5) B-18 RIGHT LANE CLOSED ←
(W 20-5) B-19 LEFT LANE CLOSED AHEAD
B-20 (SHOWN)

REFLECTORIZATION -

ALL SIGNS ON THIS SHEET SHALL HAVE AN ORANGE BACKGROUND AND BLACK LEGEND AND BORDERS.

THESE SIGNS SHALL HAVE ENCAPSOLATED LENS REFLECTIVE SHEETING MATERIAL.

NOTES -

1. Signing to remain the same for "all lanes open condition," except signs B-11, B-15, B-16, B-17, B-18, & B-19 are to be covered or removed.
2. All signs shall be covered or removed at the end of the working day unless required for the protection and safety of the traveling public.
3. If vertical clearance has been reduced below 14 ft. and lane is open to traffic, a vertical clearance sign is required with clearance shown. If clearance is reduced below 12 ft. the lane must be closed. The signs shall be located next to the restriction. Existing clearance warning signs shall be covered when not applicable.
4. When any personnel or equipment is temporarily working, or physically placed within the work zone shoulder limits, a flagperson shall be placed on duty to direct traffic for condition "A" only. Flagperson use shall be as directed by the Engineer.
5. Signs on all intersecting public highways shall be as shown on the plans or as directed by the Engineer.
6. The design of the signs shall conform to the details shown on this sheet and with the standards in the Manual on Uniform Traffic Control Devices prepared by the National Joint Commitee on Uniform Traffic Control Devices.
7. Installation: Signs and barricades shall be in place prior to the start of the maintenance operation to which they apply, and shall be removed promptly when the need no longer exists. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground, or on portable supports for temporary use, or on barricades when appropriate. As a general rule, roadside signs shall be 5 feet above road level with the nearest edge at least 6 feet outside the shoulder point. The installation of all signs and barricades shall be subject to the approval of the Engineer.
8. The cost of furnishing, erecting, maintaining and removing all signs shall be borne by the Contractor without additional compensation.

FEB. 29, 1972	REVISED PER DIRECTION OF FEDERAL HIGHWAY ADMINISTRATION
DEC. 19, 1972	REVISED PER DIRECTION OF FEDERAL HIGHWAY ADMINISTRATION
MAY 14, 1974	REFLECTIVE MATERIAL CHANGE
DEC. 12, 1975	REVISED TO CONFORM WITH STANDARD E-2
JUNE 8, 1977	REFLECTIVE MATERIAL NOTE CHANGED SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D.
AUG. 8, 1977	FLAG PERSON SIGN CHANGED TO SYMBOL
SEPT. 12, 1977	NOTE ADDED FOR REDUCED NUMBER AND SIZE OF SIGN.
JUNE 8, 1978	REVISED REDUCE SPEED SIGN PER F.H.W.A.

APPROVED

Dec. 29, 1971
DATE

R. W. Arnold
CHIEF ENGINEER

E. H. Hickney
ASST. CHIEF ENGINEER

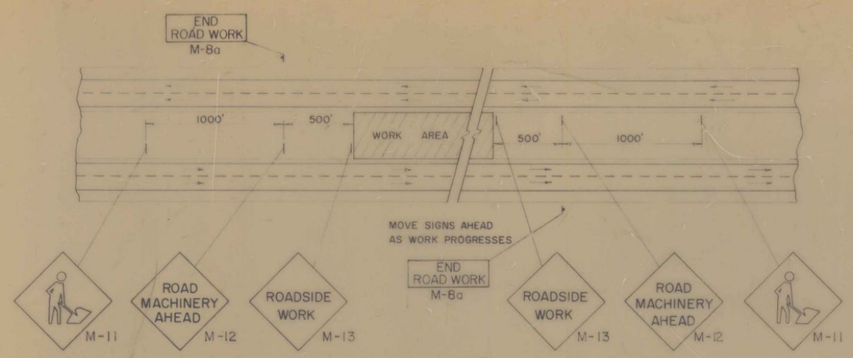
G. M. Lane
HIGHWAY ENGINEER

TRAFFIC SIGNS

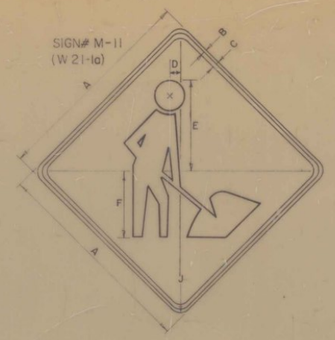
BRIDGE MAINTENANCE APPROACH SIGNS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

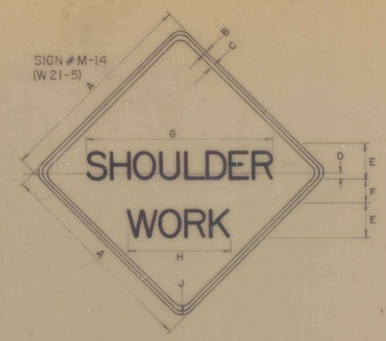
E- 9



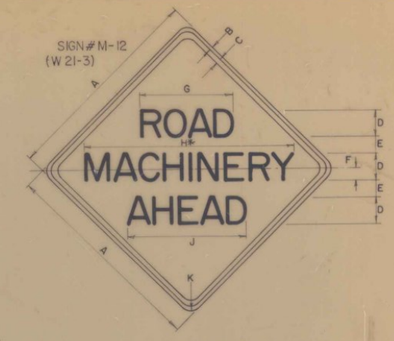
4-LANE DIVIDED HIGHWAY
MEDIAN MAINTENANCE



SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F			J
2 LANE	36	5/8	7/8	2-1/4	16-7/8	12			2 1/4
4 LANE	48	3/4	1 1/4	3	22 3/8	16			3

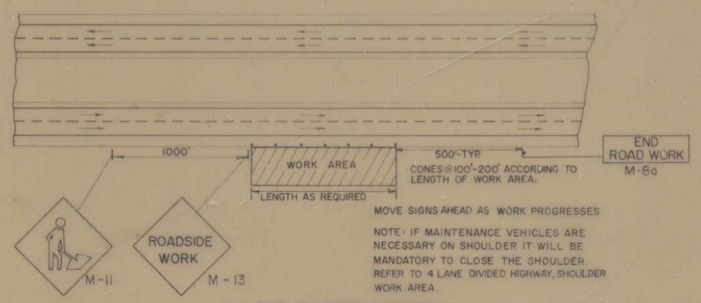


SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
2 LANE	36	5/8	7/8	1	5-D	3 1/2	34 15/16	17 23/32	2 1/4
4 LANE	48	3/4	1 1/4	1	7-C	4	38 23/32	20 1/8	3

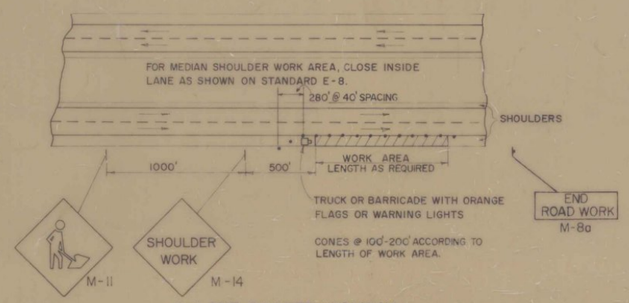


*REDUCE SPACING BY 40%

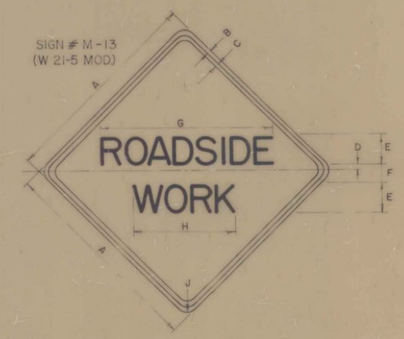
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
2 LANE	36	5/8	7/8	5-D	4	2-1/2	17-1/4	34 3/8	21 3/4	2 1/4
4 LANE	48	3/4	1 1/4	7-D	5	3-1/2	24 1/8	48 1/4	31	3



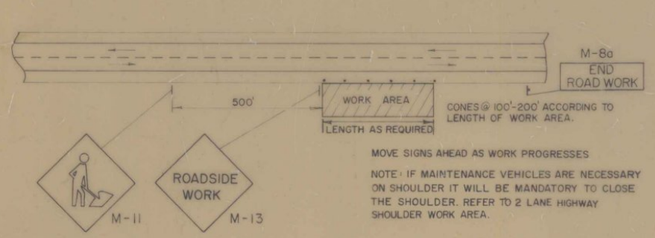
4-LANE DIVIDED HIGHWAY
MAINTENANCE OUTSIDE RIGHT SHOULDER



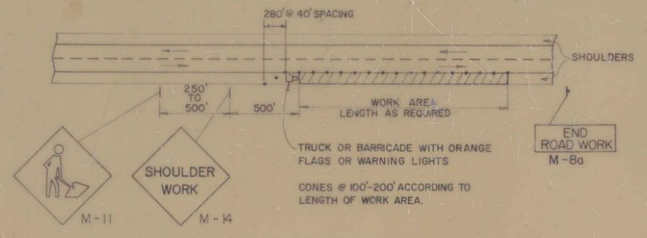
4-LANE DIVIDED HIGHWAY
SHOULDER WORK AREA



SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
2 LANE	36	5/8	7/8	1/2	5-D	3 1/2	31 29/32	17 23/32	2 1/4
4 LANE	48	3/4	1 1/4	1	7-C	4	35 27/32	20 1/8	3

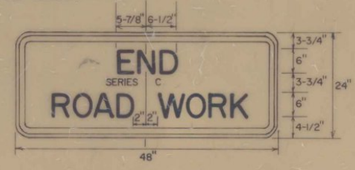


2-LANE HIGHWAY
MAINTENANCE OUTSIDE SHOULDER



2-LANE HIGHWAY
SHOULDER WORK AREA

SIGN # M-8a
(G20-2 MOD.)



Reflectorization
All reflective material shall consist of encapsolated lens reflective sheeting. The text and borders may be screened, lettering film, or hand painted.

Colors
The warning signs shown on this sheet shall have a black text and border on a reflectorized orange background. The orange shall conform with the standard colors adopted by the American Association of State Highway and Transportation Officials and approved by the U.S. Dept. of Transportation, Federal Highway Administration.

Text Design
Letters, spacing, and text dimensions shall conform with the standard alphabets and design prescribed in the Manual on Uniform Traffic Control Devices.

Specifications
Warning signs shall meet the standard state specifications for traffic signs.

Sign Base Material
The sign base material used for the warning signs shown on this sheet may be of any of the following, with minimum thickness as noted:

	36x36	48x48	Inches
(1) Flat Sheet Aluminum	0.100	0.125	inches
(2) High Density Overlayed Plywood	5/8	3/4	inches
(3) Galvanized Sheet Steel	14	12	gage

REVISIONS & CORRECTIONS
FEB. 29, 1972: REVISED PER DIRECTION OF THE FEDERAL HIGHWAY ADMINISTRATION.
MAY 14, 1974 - REFLECTIVE MATERIAL CHANGE.
JUNE 8, 1977 - REFLECTIVE MATERIAL NOTE CHANGED. SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D.
AUG. 10, 1977 - PERSON WORKING SIGN CHANGED TO SYMBOL.
DEC. 9, 1981 - MINOR SIGN DIMENSION CHANGES.
FEB. 3, 1986 - UPDATED TO 1966 SPECIFICATIONS

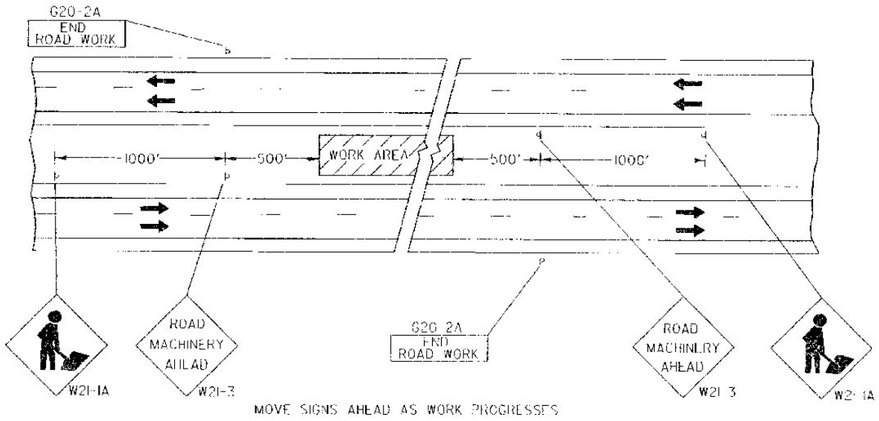
APPROVED
DATE Jan 26, 1972
R. H. Arnold
CHIEF ENGINEER
E. H. Ohlney
ASST. CHIEF ENGINEER
G. M. Lane
HIGHWAY ENGINEER

TRAFFIC SIGNS
TYPICAL MINOR MAINTENANCE OPERATION
APPROACH SIGNS

VERMONT AGENCY OF TRANSPORTATION

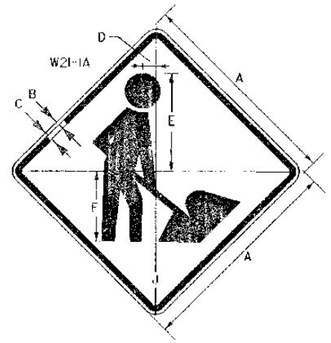
STANDARD
E-10

D-7

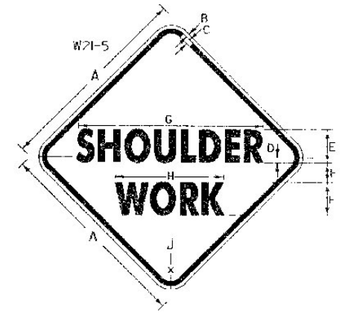


MOVE SIGNS AHEAD AS WORK PROGRESSES

4 – LANE HIGHWAY
MEDIAN MAITENANCE



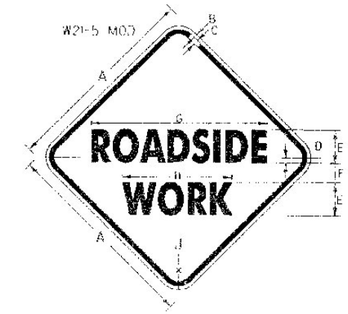
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F			J
2 LANE	36	5/8	7/8	5 3/4	15 3/4	4 1/4			2 1/4
4 LANE	48	3/4	1 1/4	7 1/2	20	5			3



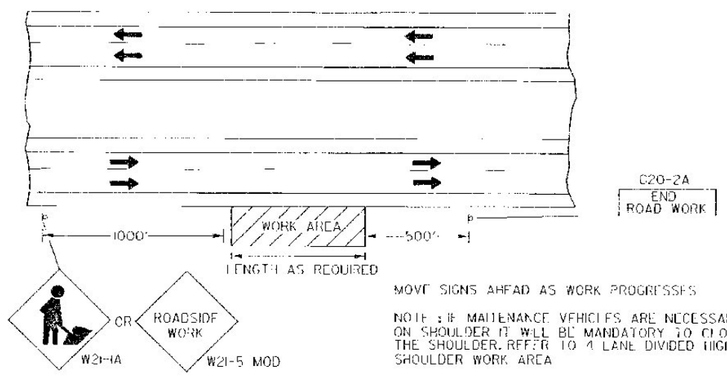
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
2 LANE	36	5/8	7/8	1	5-D	3 1/2	34 5/16	17 7/16	2 1/4
4 LANE	48	3/4	1 1/4	1	7-D	4	38 7/8	20 7/8	3

• REDUCE SPACING BY 40%

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
2 LANE	36	5/8	7/8	5-D	1	2 1/2	17 1/4	34 3/4	2 1/4	2 1/4
4 LANE	48	3/4	1 1/4	7-D	5	3 1/2	24 1/8	48 1/4	3	3



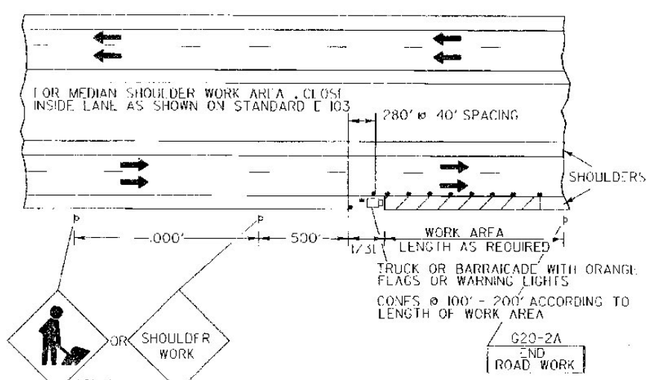
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
2 LANE	36	5/8	7/8	1/2	5-D	3 1/2	31 5/64	17 29/32	2 1/4
4 LANE	48	3/4	1 1/4	1	7-D	4	35 29/32	20 1/8	3



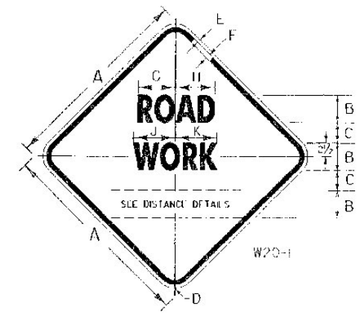
MOVE SIGNS AHEAD AS WORK PROGRESSES

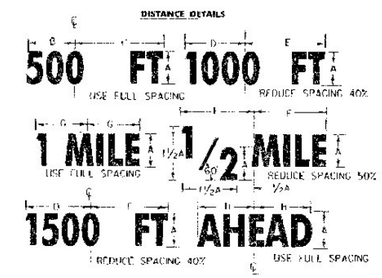
NOTE : IF MAITENANCE VEHICLES ARE NECESSARY ON SHOULDER IT WILL BE MANDATORY TO CLOSE THE SHOULDER. REFER TO 4 LANE DIVIDED HIGHWAY SHOULDER WORK AREA

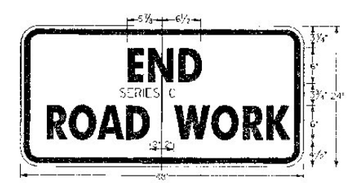
4 – LANE HIGHWAY
MAITENANCE OUTSIDE SHOULDER



4 – LANE DIVIDED HIGHWAY
SHOULDER WORK AREA







NOTES:

REFLECTORIZATION:
ALL REFLECTIVE MATERIAL SHALL CONSIST OF ENCAPSULATED LENS REFLECTIVE SHEETING.THE TEXT AND BORDERS MAY BE SCREENED , LETTERING FILM , OR HAND PAINTED.

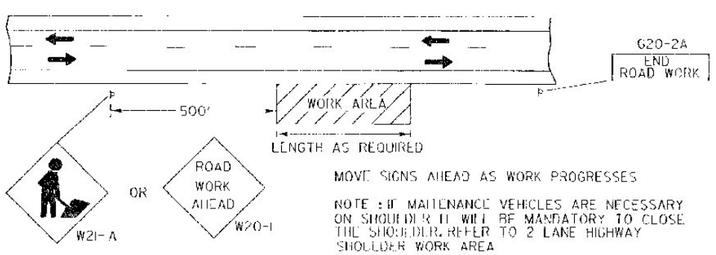
COLORS:
THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE A BLACK TEXT AND BORDER ON A REFLECTORIZED ORANGE BACKROUND. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPT. OF TRANSPORTATION , FEDERAL HIGHWAY ADMINITRATION.

TEXT DESIGN:
LETTERS , SPACING , AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGN PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS:
WARNING SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR SIGNS.

SIGN BASE MATERIAL:
THE SIGN BASE MATERIAL USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE OF ANY OF THE FOLLOWING , WITH MINIMUM THICKNESS AS NOTED:

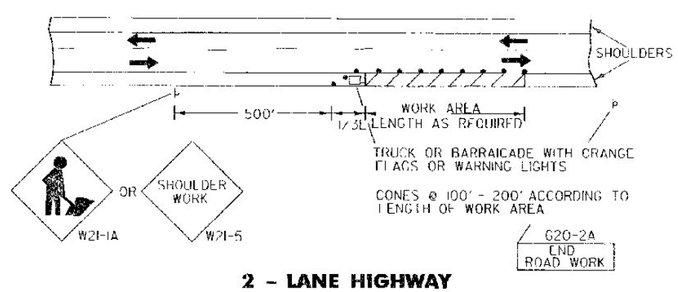
	36X36	48X48	
(1) FLAT SHEET ALUMINUM	0.100	0.125	INCHES
(2) HIGH DENSITY OVERLAYED PLYWOOD	5/8	3/4	INCHES
(3) GALVANIZED SHEET STEEL	14	12	GAGE



MOVE SIGNS AHEAD AS WORK PROGRESSES

NOTE : IF MAITENANCE VEHICLES ARE NECESSARY ON SHOULDER IT WILL BE MANDATORY TO CLOSE THE SHOULDER. REFER TO 2 LANE HIGHWAY SHOULDER WORK AREA

2 – LANE HIGHWAY
MAITENANCE OUTSIDE SHOULDER



2 – LANE HIGHWAY
SHOULDER WORK AREA

OTHER STDS. REQUIRED: E-103

REVISIONS AND CORRECTIONS
JAN. 26, 1972 - DATE OF ORIGINAL ISSUE
FEB. 29, 1972 - REVISED PER DIRECTION OF THE FEDERAL HIGHWAY ADMINISTRATION
MAY 14, 1974 - REFLECTIVE MATERIAL CHANGE
JUN. 8, 1977 - REFLECTIVE MATERIAL NOTE CHANGE SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D.
AUG. 10, 1977 - PERSON WORKING SIGN CHANGED TO SYMBOL
DEC. 9, 1981 - MINOR SIGN DIMENSION CHANGES
FEB. 3, 1986 - UPDATED TO 1986 SPECIFICATIONS
AUG. 08, 1995 - UPDATED TO 1993 CHAPTER 6 - M.U.T.C.D.

APPROVED

Gordon D. MacCallin
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

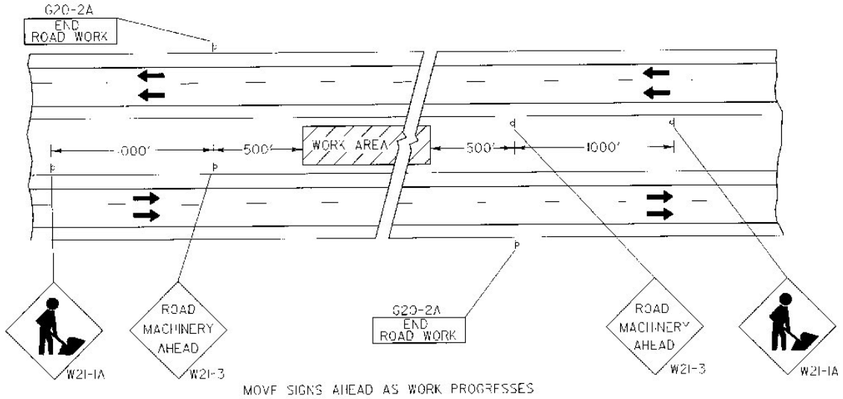
TRAFFIC SIGNS TYPICAL MINOR MAINTENANCE OPERATION APPROACH SIGNS

/traf/std/stde10.dgn : stde10.1

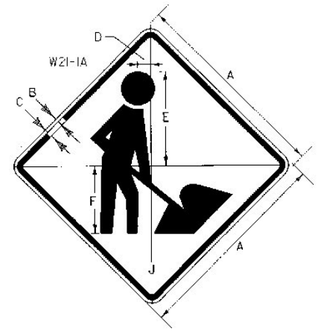
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-10

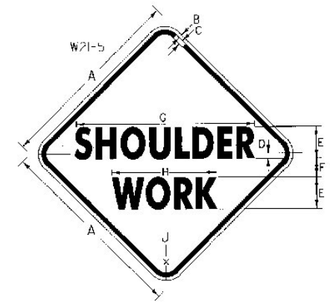
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION, FHWA FINAL APPROVAL PENDING.



4 - LANE HIGHWAY
MEDIAN MAITENANCE



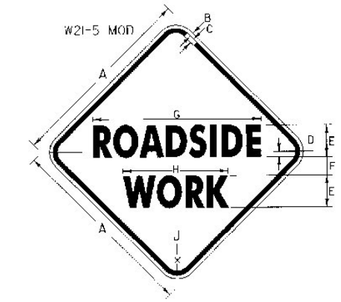
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F			J
2 LANE	36	5/8	7/8	5 3/4	15 3/4	4 1/4			2 1/4
4 LANE	48	3/4	1 1/4	1 1/2	20	5			3



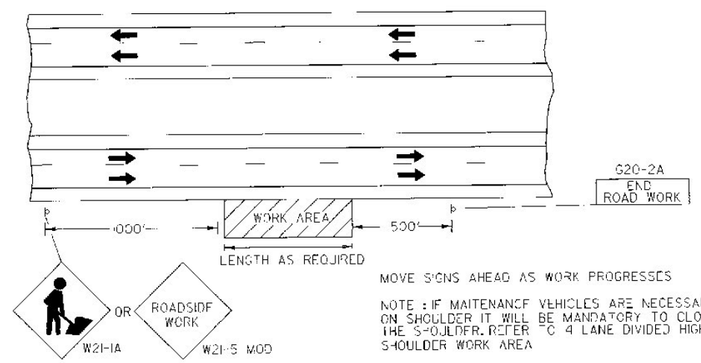
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
2 LANE	36	5/8	7/8	1	5-D	3 1/2	34 1/16	17 29/32	2 1/4
4 LANE	48	3/4	1 1/4		7-C	4	38 15/32	20 1/8	3

* REDUCE SPACING BY 40 %

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
2 LANE	36	5/8	7/8	5-D	4	2 1/2	1 1/4	34 3/8	21 3/4	2 1/4
4 LANE	48	3/4	1 1/4	7-D	5	3 1/2	24 1/8	18 1/4	31	3



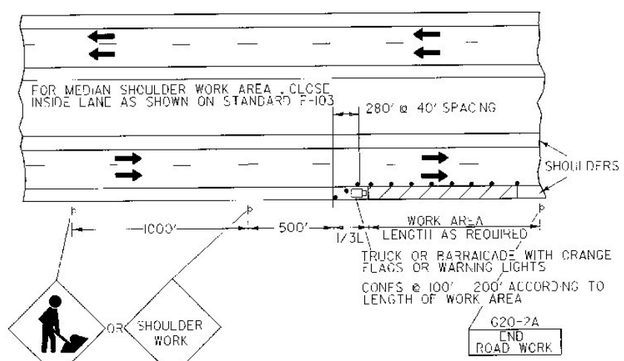
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
2 LANE	36	5/8	7/8	1/2	6-D	3 1/2	25 3/4	17 29/32	2 1/4
4 LANE	48	3/4	1 1/4	1	7-C	4	35 15/32	20 1/8	3



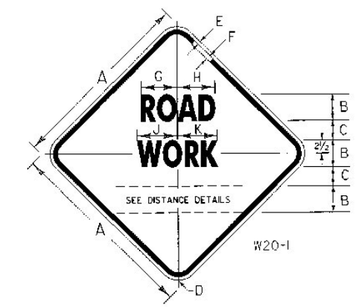
MOVE SIGNS AHEAD AS WORK PROGRESSES

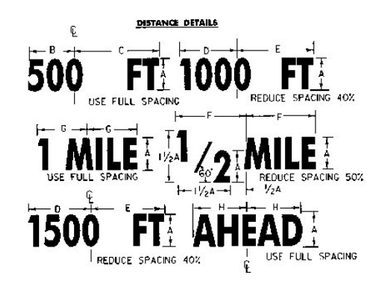
NOTE : IF MAITENANCE VEHICLES ARE NECESSARY ON SHOULDER IT WILL BE MANDATORY TO CLOSE THE SHOULDER. REFER TO 4 LANE DIVIDED HIGHWAY SHOULDER WORK AREA

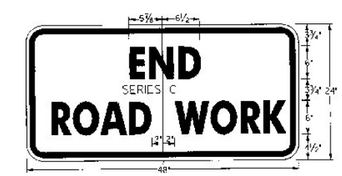
4 - LANE HIGHWAY
MAITENANCE OUTSIDE SHOULDER



4 - LANE DIVIDED HIGHWAY
SHOULDER WORK AREA







NOTES:

REFLECTORIZATION:
ALL REFLECTIVE MATERIAL SHALL CONSIST OF ENCAPSOLATED LENS REFLECTIVE SHEETING.THE TEXT AND BORDERS MAY BE SCREENED , LETTERING FILM , OR HAND PAINTED.

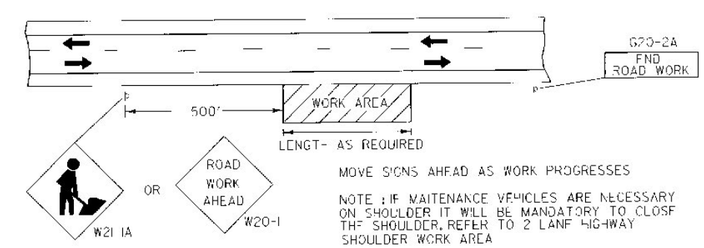
COLORS:
THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE A BLACK TEXT AND BORDER ON A REFLECTORIZED ORANGE BACKROUND. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPT. OF TRANSPORTATION , FEDERAL HIGHWAY ADMINITRATION.

TEXT DESIGN:
LETTERS , SPACING , AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGN PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS:
WARNING SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR SIGNS.

SIGN BASE MATERIAL:
THE SIGN BASE MATERIAL USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE OF ANY OF THE FOLLOWING , WITH MINIMUM THICKNESS AS NOTED:

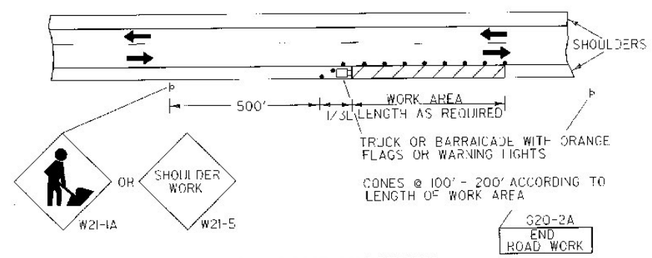
	36X36	48X48	INCHES
(1) FLAT SHEET ALUMINUM	0.100	0.125	INCHES
(2) HIGH DENSITY OVERLAYED PLYWOOD	5/8	3/4	INCHES
(3) GALVANIZED SHEET STEEL	14	12	GAGE



MOVE SIGNS AHEAD AS WORK PROGRESSES

NOTE : IF MAITENANCE VEHICLES ARE NECESSARY ON SHOULDER IT WILL BE MANDATORY TO CLOSE THE SHOULDER. REFER TO 2 LANE HIGHWAY SHOULDER WORK AREA

2 - LANE HIGHWAY
MAITENANCE OUTSIDE SHOULDER



2 - LANE HIGHWAY
SHOULDER WORK AREA

OTHER STDS. REQUIRED: E-103

REVISIONS AND CORRECTIONS
JAN. 26, 1972 - DATE OF ORIGINAL ISSUE
FEB. 29, 1972 - REVISED PER DIRECTION OF THE FEDERAL HIGHWAY ADMINISTRATION
MAY 14, 1974 - REFLECTIVE MATERIAL CHANGE
JUN. 9, 1977 - REFLECTIVE MATERIAL NOTE CHANGE SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D.
AUG. 10, 1977 - PERSON WORKING SIGN CHANGED TO SYMBOL
DEC. 9, 198- - MINOR SIGN DIMENTION CHANGES
FEB. 3, 1986 - UPDATED TO 1986 SPECIFICATIONS
AUG. 08, 1995 - UPDATED TO 1993 CHAPTER 6 M.U.T.C.D.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

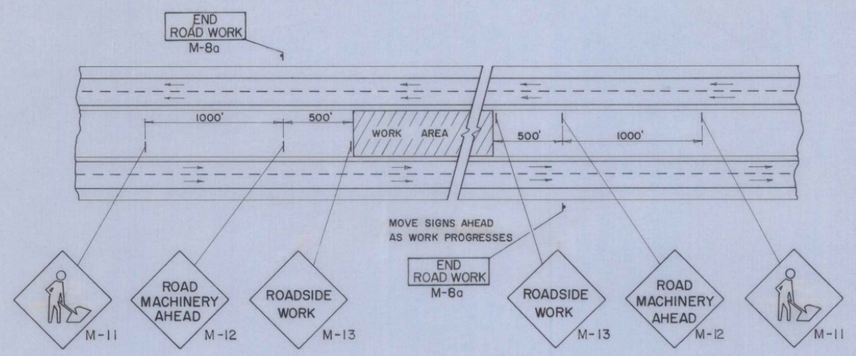
TRAFFIC SIGNS TYPICAL MINOR MAINTENANCE OPERATION APPROACH SIGNS

/traf/sig/std10.dgn : std10.i

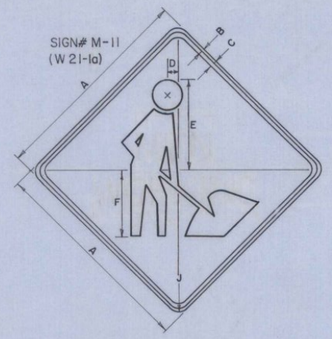
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-10

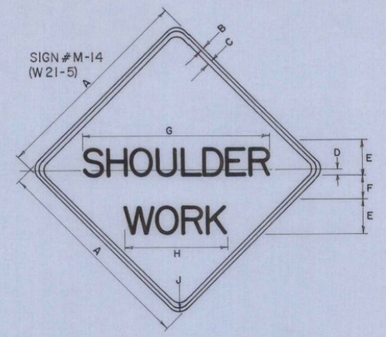
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.



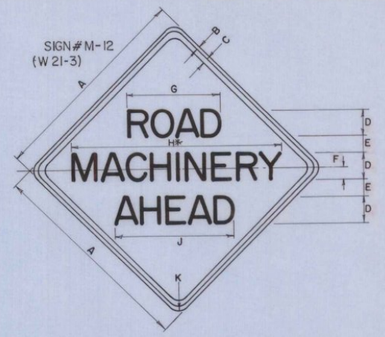
4-LANE DIVIDED HIGHWAY
MEDIAN MAINTENANCE



SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F			J
2 LANE	36	5/8	7/8	2-1/4	16-7/8	12			2 1/4
4 LANE	48	3/4	1 1/4	3	22 3/8	16			3

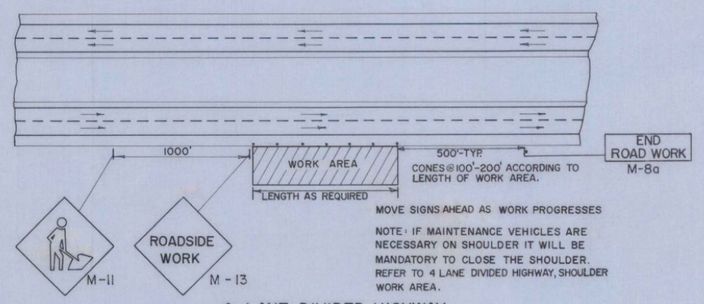


SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
2 LANE	36	5/8	7/8	1	5-D	3 1/2	34 15/16	17 23/32	2 1/4
4 LANE	48	3/4	1 1/4	1	7-C	4	38 23/32	20 1/8	3

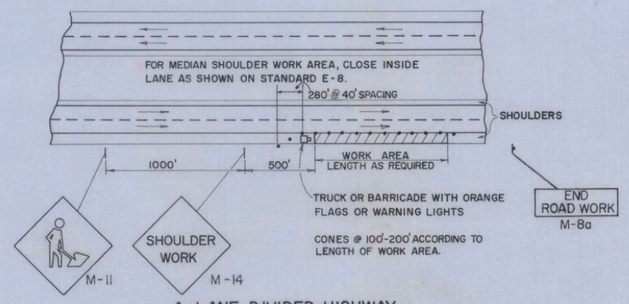


*REDUCE SPACING BY 40%

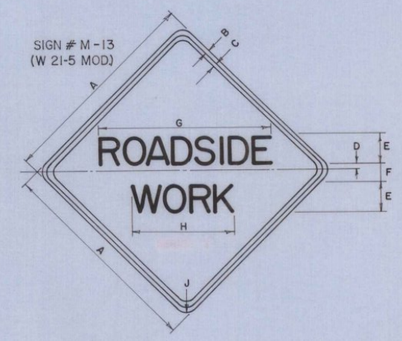
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
2 LANE	36	5/8	7/8	5-D	4	2-1/2	17-1/4	34 3/8	21 3/4	2 1/4
4 LANE	48	3/4	1 1/4	7-D	5	3-1/2	24 1/8	48 1/4	31	3



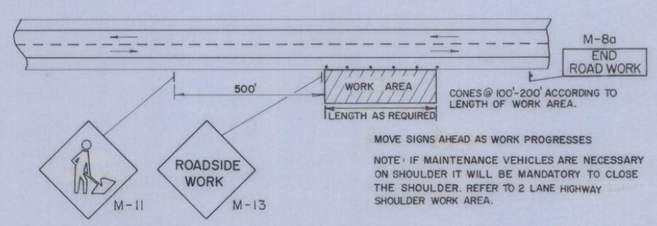
4-LANE DIVIDED HIGHWAY
MAINTENANCE OUTSIDE RIGHT SHOULDER



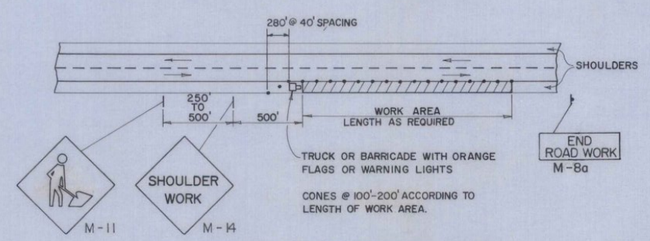
4-LANE DIVIDED HIGHWAY
SHOULDER WORK AREA



SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
2 LANE	36	5/8	7/8	1/2	5-D	3 1/2	31 29/64	17 23/32	2 1/4
4 LANE	48	3/4	1 1/4	1	7-C	4	35 27/32	20 1/8	3

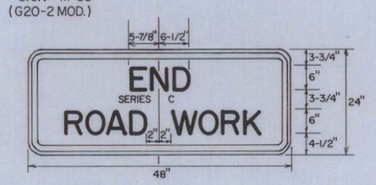


2-LANE HIGHWAY
MAINTENANCE OUTSIDE SHOULDER



2-LANE HIGHWAY
SHOULDER WORK AREA

SIGN# M-8a
(G20-2 MOD.)



Reflectorization
All reflective material shall consist of encapsolated lens reflective sheeting. The text and borders may be screened, lettering film, or hand painted.

Colors
The warning signs shown on this sheet shall have a black text and border on a reflectorized orange background. The orange shall conform with the standard colors adopted by the American Association of State Highway and Transportation Officials and approved by the U.S. Dept. of Transportation, Federal Highway Administration.

Text Design
Letters, spacing, and text dimensions shall conform with the standard alphabets and design prescribed in the Manual on Uniform Traffic Control Devices.

Specifications
Warning signs shall meet the standard state specifications for traffic signs.

Sign Base Material
The sign base material used for the warning signs shown on this sheet may be of any of the following, with minimum thickness as noted:

	36 x 36	48 x 48	Inches
(1) Flat Sheet Aluminum	0.100	0.125	inches
(2) High Density Overlayed Plywood	5/8	3/4	inches
(3) Galvanized Sheet Steel	14	12	gage

REVISIONS & CORRECTIONS
FEB. 29, 1972: REVISED PER DIRECTION OF THE FEDERAL HIGHWAY ADMINISTRATION.
MAY 14, 1974 - REFLECTIVE MATERIAL CHANGE.
JUNE 8, 1977 - REFLECTIVE MATERIAL NOTE CHANGED. SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D.
AUG. 10, 1977 - PERSON WORKING SIGN CHANGED TO SYMBOL.
DEC. 9, 1981 - MINOR SIGN DIMENSION CHANGES.

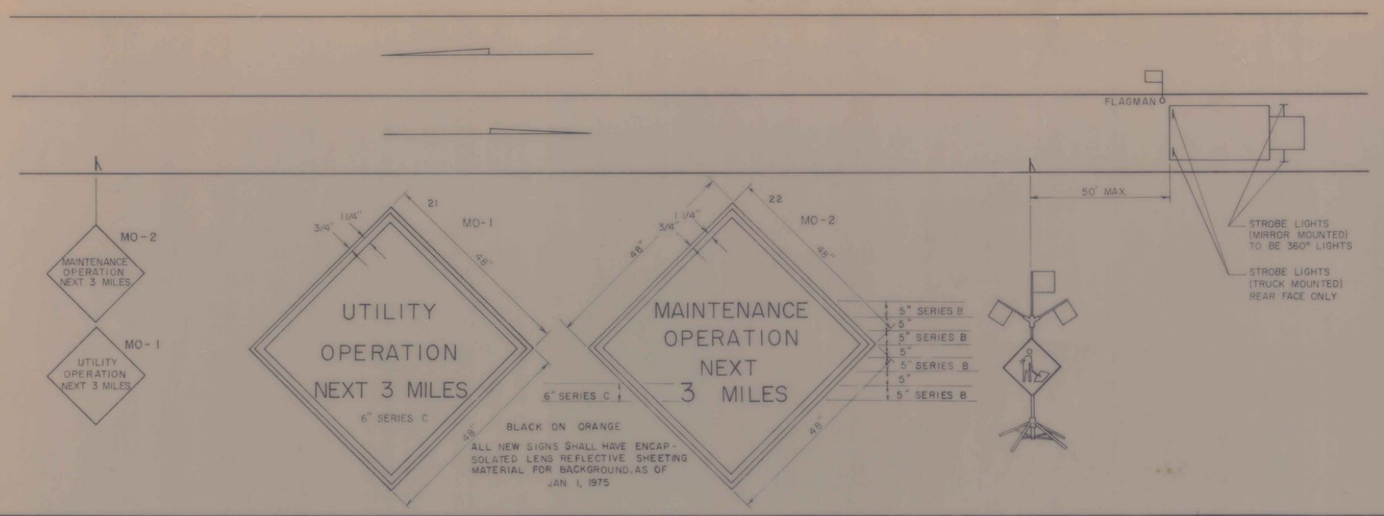
APPROVED
Jan. 26, 1972
DATE
R. D. Arnold
CHIEF ENGINEER
E. B. Stickney
ASST. CHIEF ENGINEER
G. M. Lane
HIGHWAY ENGINEER

TRAFFIC SIGNS
TYPICAL MINOR MAINTENANCE OPERATION
APPROACH SIGNS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-10

D-7



LOCATION

THE APPROACH SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET. THE ERECTION PLACEMENT OF ANY OF THESE SIGNS SHALL DEPEND UPON THE ALIGNMENT OF THE HIGHWAY AND CHARACTER OF THE ROADSIDE. THE LOCATION MEASUREMENTS ON THIS SHEET ARE TO INDICATE THE SEQUENCE TO BE FOLLOWED AND NOT EXCEEDED.

DESIGN

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MATERIALS

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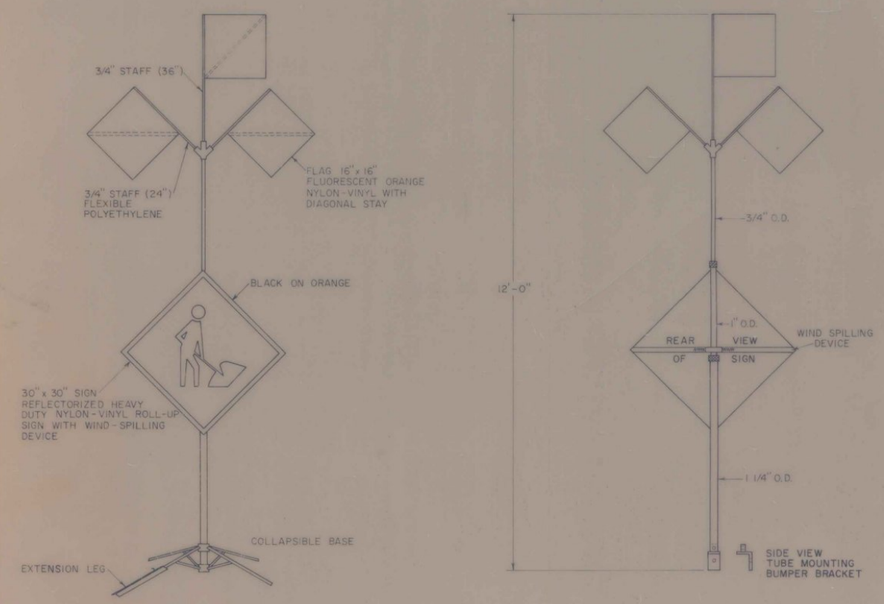
THE STROBE LIGHTS TO BE USED WITH THIS STANDARD SHALL BE AS INDICATED BELOW OR AS RECOMMENDED BY THE VERMONT HIGHWAY DEPARTMENT'S HIGHWAY SAFETY ENGINEER

	REAR FACE (TRUCK MOUNTED)	360° (MIRROR MOUNTED)
BRILLIANCE –	5,000,000 CANDLE POWER	1,000,000 CANDLE POWER
COLOR –	AMBER	AMBER
FLASH RATE –	80 FLASHES PER MINUTE PER SIDE, TOTAL 160 FLASHES PER MINUTE	80 FLASHES PER MINUTE PER SIDE, TOTAL 160 FLASHES PER MINUTE

COLORS

THE SIGNS AND FLAGS SHALL BE AN ORANGE WHICH CONFORMS WITH THE STANDARD COLOR ADOPTED BY THE ASSOCIATION OF STATE HIGHWAY OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

ON TOWN, CITY AND INCORPORATED VILLAGE SYSTEMS THE MINIMUM SIZE AND NUMBER OF SIGNS IS AS FOLLOWS:
MINIMUM NUMBER OF SIGNS SHALL BE MO-1 OR MO-2. MINIMUM SIZE SHALL BE 36"x36"



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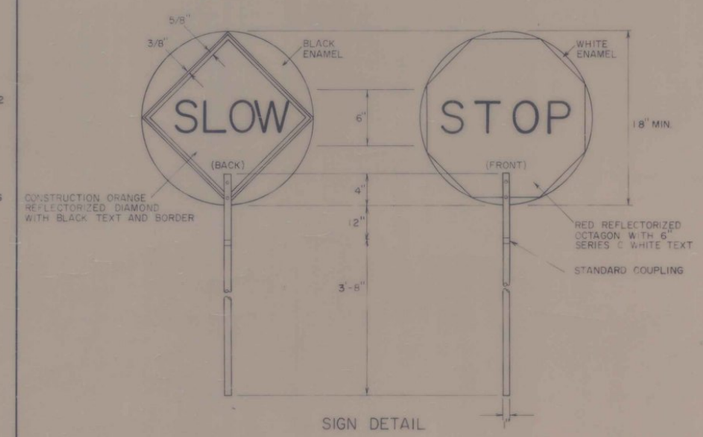
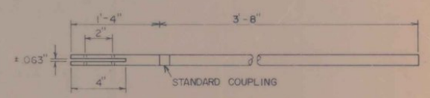


SIGN DETAIL



STAFF DETAIL

MATERIALS

THE SIGN MATERIALS SHALL BE 0.063 ALUMINUM WITH COLORS AS INDICATED ON DETAILS.
THE STAFF SHALL BE 1" RIDGED ALUMINUM CONDUIT OR TUBING, WITH A WALL THICKNESS OF 1/8 INCH.

COLORS

THE COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MOUNTING

THE STAFF SHALL BE MOUNTED WITH EITHER 2-1/4" ALUMINUM BOLTS OR 2-1/4" ALUMINUM RIVETS.

SIGN PADDLE FOR FLAGPERSON

REVISIONS AND CORRECTIONS

AUG. 3, 1973	STROBE LIGHT SPECIFICATIONS ADDED.
NOV. 19, 1973	SAFETY SCOPE ADDED.
MAY 14, 1974	MAINTENANCE SIGN TEXT REVAMPED, AND REFLECTIVE MATERIAL CHANGED ON SIGNS 21 AND 22.
DEC. 12, 1975	SIGN PADDLE CHANGE PER FHWA ALTERNATE.
AUG. 11, 1977	FLAGPERSON SIGN CHANGED TO SYMBOL.
SEPT. 12, 1977	NOTE ADDED FOR REDUCED NUMBER AND SIZE OF SIGNS.
NOV. 18, 1977	MINIMUM NUMBER OF SIGNS NOTE REVISED.
FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS	

APPROVED

DATE Nov. 19, 1973

E. H. Stickney
CHIEF ENGINEER

R. O. Mann
ASST. CHIEF ENGINEER

G. W. Lane
HIGHWAY ENGINEER

TRAFFIC SIGNS

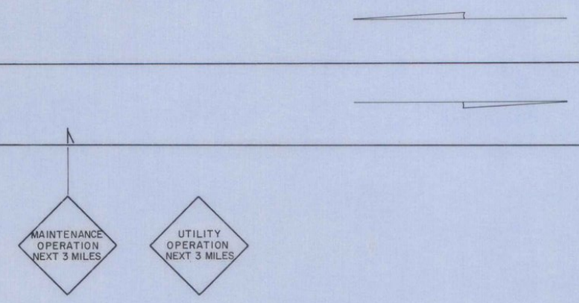
TYPICAL MOVING MAINTENANCE OPERATION

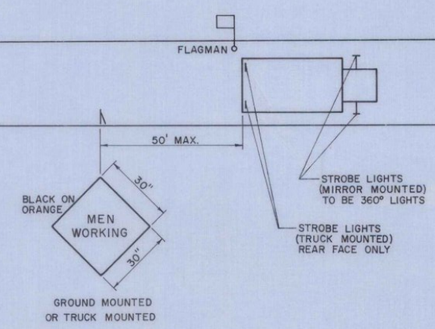
APPROACH SIGNS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

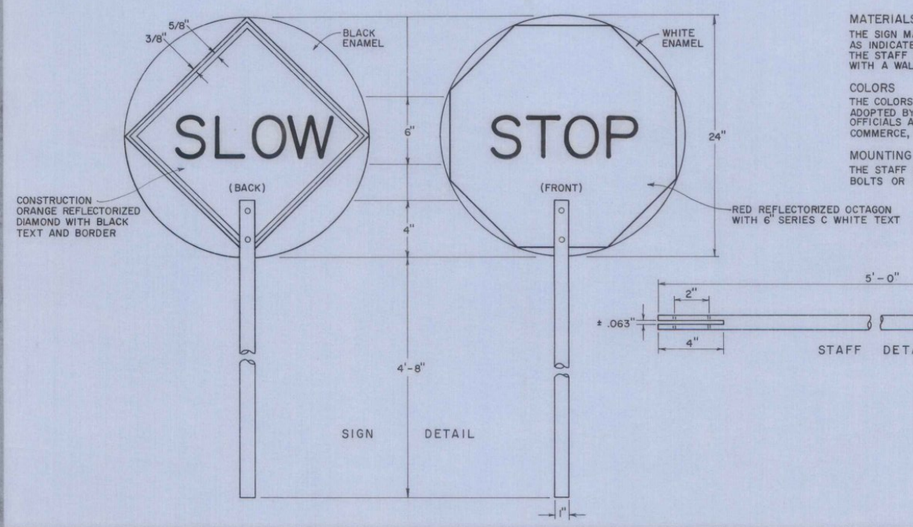
E-10A

D-8





SIGN PADDLE FOR FLAGMAN



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THE COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF COMMERCE, FEDERAL HIGHWAY ADMINISTRATION.

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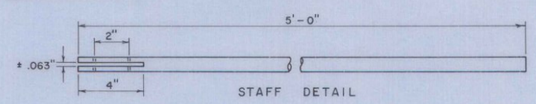


REVISIONS AND CORRECTIONS

AUG. 3, 1973 STROBE LIGHT SPECIFICATIONS ADDED.

APPROVED

DATE July 16, 1973

E. H. Stickney
CHIEF ENGINEER

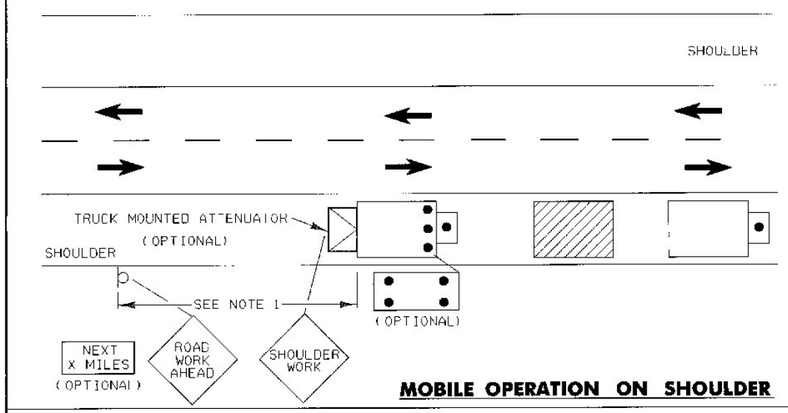
G. M. Lane
ASST. CHIEF ENGINEER

L. L. Jones for
HIGHWAY ENGINEER

TRAFFIC SIGNS

TYPICAL MOVING MAINTENANCE OPERAT

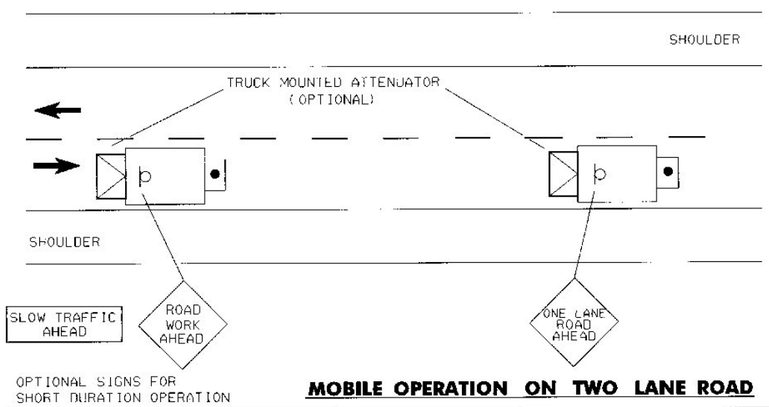
APPROACH S



MOBILE OPERATION ON SHOULDER

NOTES:

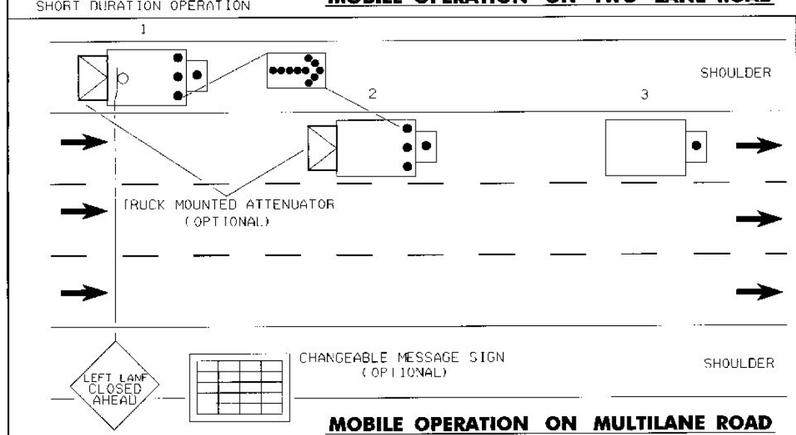
1. IN SITUATIONS WHERE MULTIPLE WORK LOCATIONS IN A LIMITED DISTANCE MAKE IT PRACTICABLE TO PLACE STATIONARY SIGNS, THE MAXIMUM SPACING FOR THE ADVANCE OF THE WORK.
2. THE LENGTH OF ACTIVITY AREA SIGN MAY BE USED AS THE STATIONARY ADVANCE WARNING SIGN IF THE WORK LOCATIONS OCCUR OVER A DISTANCE OF MORE THAN 2 MILES.
3. WARNING SIGNS ARE NOT REQUIRED IF THE WORK VEHICLE DISPLAYS A FLASHING OR REVOLVING YELLOW LIGHT, IF THE DISTANCE BETWEEN WORK LOCATIONS IS 1 MILE OR MORE, AND IF THE WORK VEHICLE TRAVELS AT TRAFFIC SPEEDS BETWEEN LOCATIONS.



MOBILE OPERATION ON TWO LANE ROAD

NOTES:

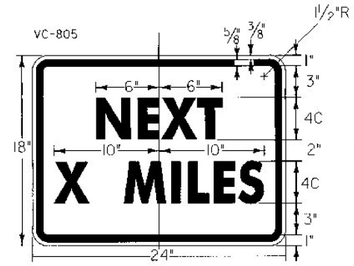
1. WHERE PRACTICABLE AND WHEN NEEDED, THE WORK AND PROTECTION VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS. IF THIS CAN NOT BE DONE FREQUENTLY, AS AN ALTERNATIVE, A DO NOT PASS SIGN MAY BE PLACED ON THE REAR OF THE VEHICLE BLOCKING THE LANE.
2. THE DISTANCE BETWEEN THE WORK AND PROTECTION VEHICLES MAY VARY ACCORDING TO TERRAIN, PAINT DRYING TIME , AND OTHER FACTORS. PROTECTION VEHICLES ARE USED TO WARN TRAFFIC OF THE OPERATION AHEAD. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, THE PROTECTION VEHICLE SHOULD MAINTAIN THE MINIMUM DISTANCE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. THE PROTECTION VEHICLE SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.
3. ADDITIONAL PROTECTION VEHICLES TO WARN AND REDUCE THE SPEED OF ONCOMING OR OPPOSING TRAFFIC MAY BE USED. POLICE PATROL CARS MAY BE USED FOR THIS PURPOSE.
4. A TRUCK - MOUNTED ATTENUATOR (TMA) SHALL BE USED ON THE PROTECTION VEHICLE AND SHOULD BE CONSIDERED ON THE WORK VEHICLE.
5. THE WORK VEHICLE SHALL BE EQUIPPED WITH BEACONS, AND THE PROTECTION VEHICLES SHALL BE EQUIPPED WITH A TMA AND TWO HIGH - INTENSITY FLASHING LIGHTS MOUNTED ON THE REAR, ADJACENT TO THE SIGN. PROTECTION AND WORK VEHICLES SHOULD DISPLAY FLASHING OR ROTATING BEACONS BOTH FORWARD AND TO THE REAR.
6. VEHICLE - MOUNTED SIGNS SHALL BE MOUNTED WITH THE BOTTOM OF THE SIGN, AT A MINIMUM HEIGHT OF 4 FEET ABOVE THE PAVEMENT. SIGN LEGENDS SHALL BE COVERED OR TURNED FROM VIEW WHEN WORK IS NOT IN PROGRESS.
7. ARROW DISPLAYS ARE OPTIONAL AND SHOULD BE TYPE B, 60 INCHES BY 30 INCHES.

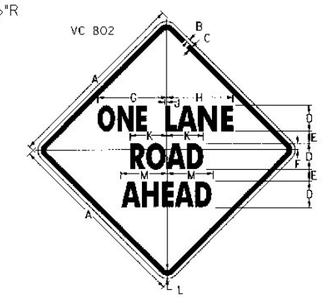


MOBILE OPERATION ON MULTILANE ROAD

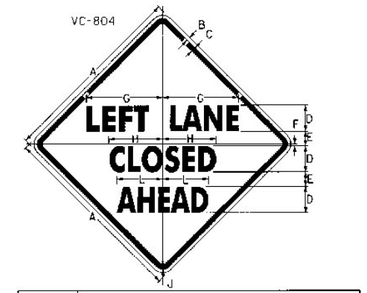
NOTES:

1. VEHICLES USED FOR THESE OPERATIONS SHOULD BE MADE HIGHLY VISIBLE WITH APPROPRIATE EQUIPMENT, SUCH AS FLASHING LIGHTS, ROTATING BEACONS, FLAGS, SIGN, OR ARROW DISPLAYS.
2. PROTECTION VEHICLE #1 SHOULD BE EQUIPPED WITH AN ARROW DISPLAY. AN APPROPRIATE LANE CLOSURE SIGN SHOULD BE PLACED ON PROTECTION VEHICLE #1 SO AS NOT TO OBSCURE THE ARROW DISPLAY.
3. PROTECTION VEHICLE #2 SHOULD BE EQUIPPED WITH AN ARROW DISPLAY AND TRUCK - MOUNTED ATTENUATOR.
4. PROECTION VEHICLE #1 SHOULD TRAVEL AT A VARYING DISTANCE FROM THE WORK OPERATION SO AS TO PROVIDE ADEQUATE SIGHT DISTANCE FOR TRAFFIC APPROACHING FROM THE REAR.
5. WHEN ADEQUATE SHOULDER WIDTH IS NOT AVAILABLE, PROTECTION VEHICLE #1 SHOULD BE ELIMINATED.
6. ON HIGH - SPEED ROADWAYS, A THIRD PROTECTION VEHICLE SHOULD BE USED - VEHICLE #1 ON THE SHOULDER (IF POSSIBLE), VEHICLE #2 IN THE CLOSED LANE, AND VEHICLE #3 IN THE CLOSED LANE.
7. ARROW DISPLAYS SHALL BE AS A MINIMUM TYPE B, 60 INCHES BY 30 INCHES (FIGURE VI - 9, SECTION 6F - 3).
8. WORK SHOULD NORMALLY BE DONE DURING OFF - PEAK HOURS.

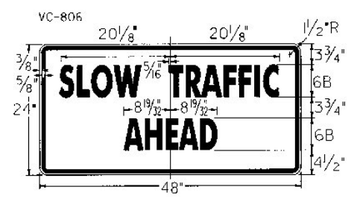


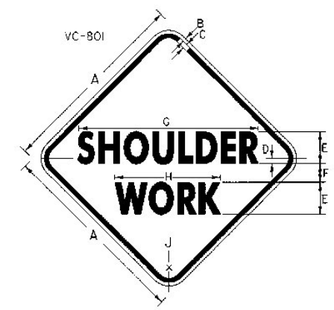


SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MIN.	36	5/8	7/8	5C	2¼	1¼	13⅛	12⅝	3/8	7	2¼	8¾
STD.	48	¾	1¼	7C	3⅛	1¾	18½	17¾	½	9 11/16	3	13⅞

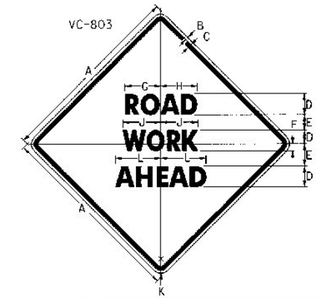


SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN.	36	5/8	7/8	5C	2¾	3/8	15¾	10¼	2¼	14½	8 11/16
STD.	48	¾	1¼	6C	3⅜	½	19	12⅝	3	17 7/16	10⅞





SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
2 LANE	36	5/8	7/8	1	15-D	3½	34 15/16	17 23/32	2¼
4 LANE	48	¾	1¼	1	17-C	4	38 7/32	20⅛	3



SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN.	30	½	¾	4D	2⅞	2⅝	6¾	7	7 3/16	1⅞	8 11/16
STD.	36	⅝	⅞	5D	3½	3¼	8⅜	8⅞	9	2¼	10⅞
SPECIAL	48	¾	1¼	7D	4¾	4½	11 11/16	12 1/16	12⅝	3	15½

NOTES:

1. OPTICALLY CENTER SYMBOLS WITHIN SECTIONS UNLESS OTHERWISE NOTED.
2. "VC-9XX" IS THE SIGN CODE NUMBER.
3. MIRROR IMAGES ARE NOT SHOWN BUT CARRY THE SAME CODE NUMBER.
4. THESE SIGN ARE INTENTED FOR GROUND MOUNTING ONLY.
5. OTHER VARIATIONS OF THESE STANDARD DESIGNS ARE DEPICTED IN THE VT SIGN IDENTIFICATION MANUAL. WHEN THEY ARE USED THEY SHOULD BE DESIGNED USING THE DIMENSIONS AND DETAILS SHOWN HERE.

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

JAN. 26, 1972 - DATE OF ORIGINAL ISSUE
FEB. 29, 1972 - REVISED PER DIRECTION OF THE FEDERAL HIGHWAY ADMINISTRATION
MAY 14, 1974 - REFLECTIVE MATERIAL CHANGE
JUN. 8, 1977 - REFLECTIVE MATERIAL NOTE CHANGE SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D.
AUG. 10, 1977 - PERSON WORKING SIGN CHANGED TO SYMBOL
DEC. 9, 1981 - MINOR SIGN DIMENTION CHANGES.
FEB. 3, 1986 - UPDATED TO 1986 SPECIFICATIONS
AUG. 8, 1995 - UPDATED TO 1993 MUTCD - CHAPTER 6

APPROVED

Gordon R. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

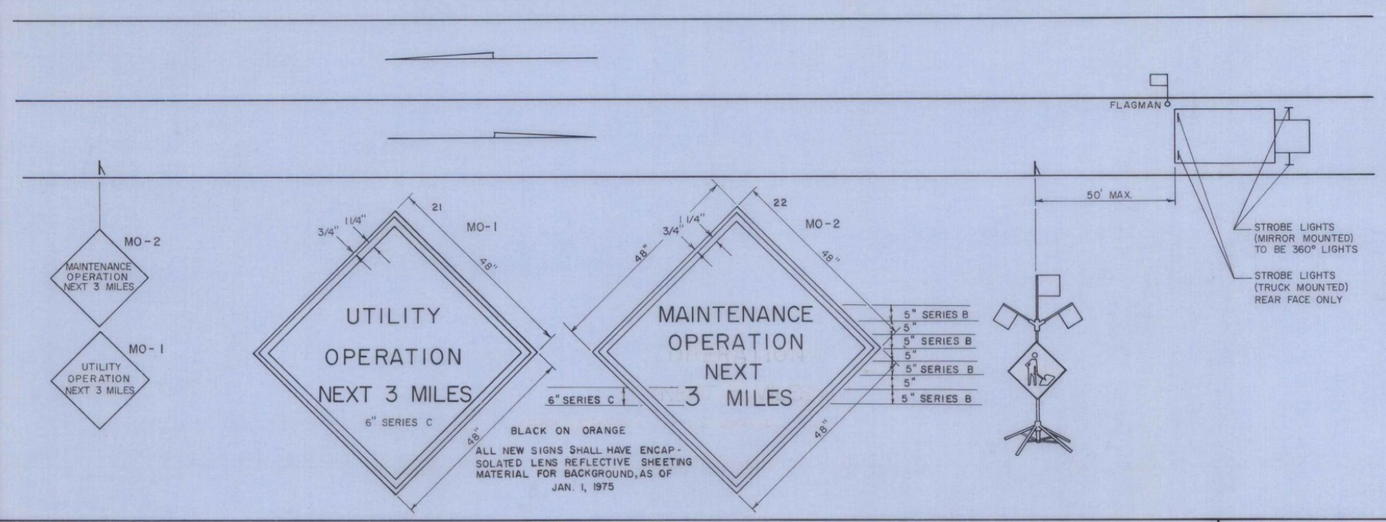
TRAFFIC CONTROL FOR TYPICAL MOVING MAINTENANCE OPERATIONS

/trat/std/std10a.dgn : std10a.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-10A

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.



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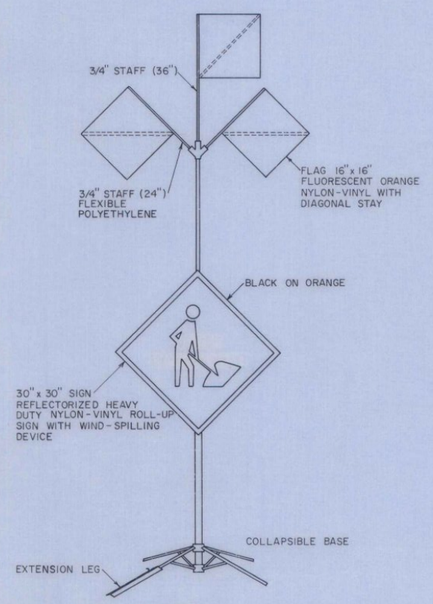

GROUND MOUNTED

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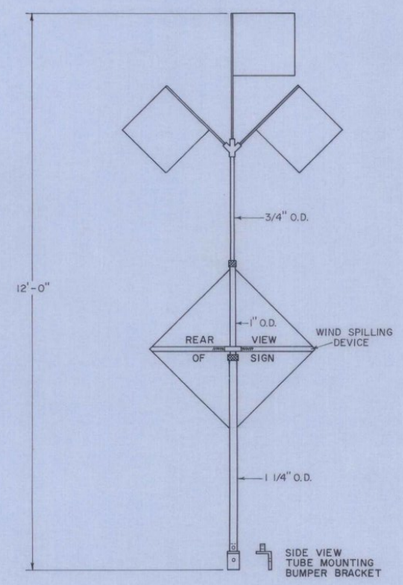

VEHICLE MOUNTED

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SAFETY SCOPE

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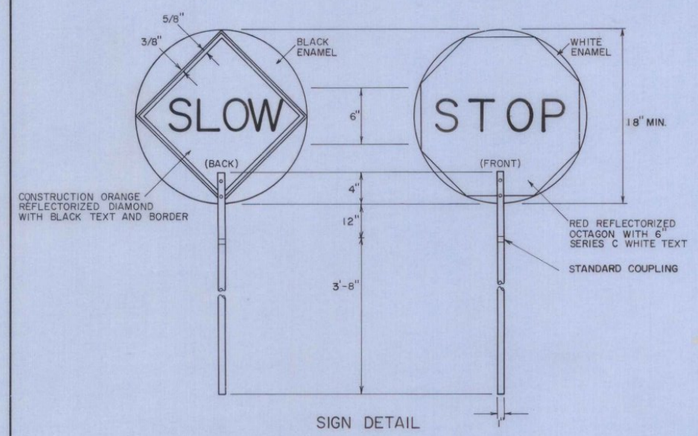
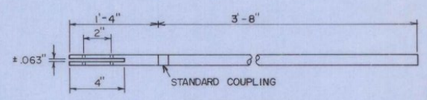
LOCKING FINGERS COMPRESSED BY TIGHTENING KNURLED NUTS HOLD THE TUBES IN EXTENDED POSITION.

MIDDLE TUBE TO INCORPORATE AN ANTI-ROTATING DEVICE WHICH ENGAGES THE BOTTOM OF THE LOCKING FINGER MECHANISM.



SIGN DETAIL



STAFF DETAIL

MATERIALS

THE SIGN MATERIALS SHALL BE 0.063 ALUMINUM WITH COLORS AS INDICATED ON DETAILS.
THE STAFF SHALL BE 1" RIDGED ALUMINUM CONDUIT OR TUBING, WITH A WALL THICKNESS OF 1/8 INCH.

COLORS

THE COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MOUNTING

THE STAFF SHALL BE MOUNTED WITH EITHER 2-1/4" ALUMINUM BOLTS OR 2-1/4" ALUMINUM RIVETS.

SIGN PADDLE FOR FLAGPERSON

REVISIONS AND CORRECTIONS

AUG. 3, 1973	STROBE LIGHT SPECIFICATIONS ADDED.
NOV. 19, 1973	SAFETY SCOPE ADDED.
MAY 14, 1974	MAINTENANCE SIGN TEXT REVAMPED, AND REFLECTIVE MATERIAL CHANGED ON SIGNS 21 AND 22.
DEC. 12, 1975	SIGN PADDLE CHANGE PER FHWA ALTERNATE.
AUG. 11, 1977	FLAGPERSON SIGN CHANGED TO SYMBOL.
SEPT. 12, 1977	NOTE ADDED FOR REDUCED NUMBER AND SIZE OF SIGNS
NOV. 18, 1977	MINIMUM NUMBER OF SIGNS NOTE REVISED.

APPROVED

Nov. 19, 1973
DATE

E H Stickney
CHIEF ENGINEER

R O Mann
ASST. CHIEF ENGINEER

G. W. Lane
HIGHWAY ENGINEER

TRAFFIC SIGNS

TYPICAL MOVING MAINTENANCE OPERATION

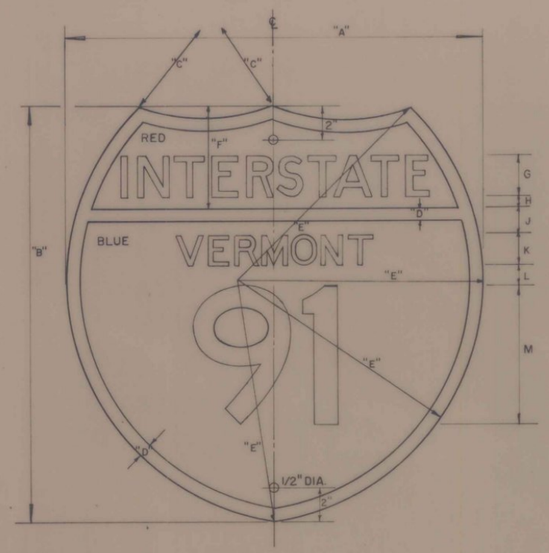
APPROACH SIGNS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-10A

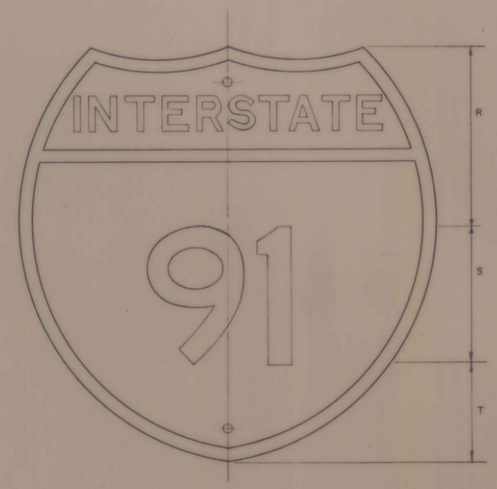
D-8

INTERSTATE ROUTE MARKER
FOR INDEPENDENT USE



SHIELD SIZE	A	B	C	D	E	F	G	H	J	K	L	M	SQ. FT.
24"x 24"	24"	24"	15"	1/2"	15"	5"	2 1/2"	1/2"	1"	1 1/2"	1/2"	10"	4.0
30"x 24"	30"	24"	24"	1/2"	17"	5"	2 1/2"	1/2"	1"	1 1/2"	1/2"	10"	5.0
36"x 36"	36"	36"	22 1/2"	3/4"	22 1/2"	7 1/2"	3 3/4"	3/4"	1 1/2"	2 1/4"	3/4"	15"	9.0
45"x36"	45"	36"	36"	3/4"	25 1/2"	7 1/2"	3 3/4"	3/4"	1 1/2"	2 1/4"	3/4"	15"	11.25

INTERSTATE ROUTE MARKER
FOR USE ON GUIDE SIGNS



SHIELD SIZE	R	S	T	SQ. FT.
24"x24"	6 1/2"	12"	5 1/2"	4.0
30"x24"	6 1/2"	12"	5 1/2"	5.0
36"x36"	9 3/4"	18"	8 1/4"	9.0
45"x36"	9 3/4"	18"	8 1/4"	11.25
48"x48"	13"	24"	11"	16.0

MATERIALS

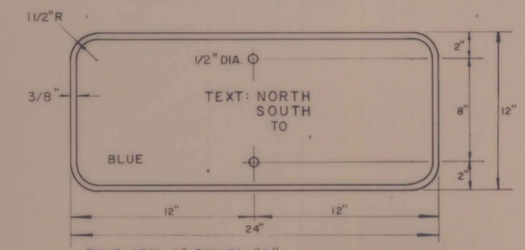
The Sign Base Material May Be Any Of The Following, Of The Minimum Thickness Noted:

FLAT SHEET ALUMINUM	
Less Than 24"x24"	0.060"
24"x 24"	0.080"
36"x 36"	0.100"
When used on guide signs	0.060"
HIGH DENSITY OVERLAID PLYWOOD	
Less Than 24"x24"	3/8"
24"x 24"	1/2"
36"x 36"	5/8"
	3/8"
GALVANIZED FLAT SHEET STEEL	
Less Than 24"x24"	18 Gage
24"x 24"	16 Gage
36"x 36"	14 Gage

The Reflective Material Shall Be Encapsulated Lens Silver Reflective Sheeting Applied To The Entire Background Of The Marker.

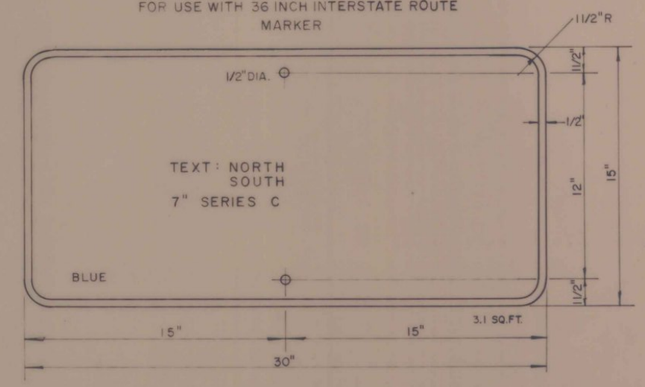
The Texts Of The Interstate Route Markers, And Of The Auxiliary Markers Except Trailblazer Auxiliaries, Shall Be Reverse Screened.

CARDINAL DIRECTION MARKERS
FOR USE WITH 24 INCH
INTERSTATE ROUTE MARKERS

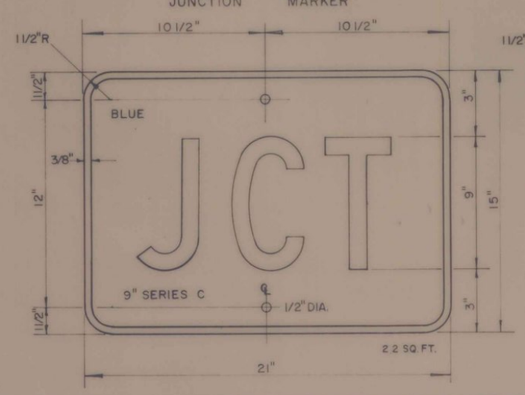


TEXT (TO) 6" SERIES "E"
TEXT (NORTH, SOUTH) 6" SERIES "C"

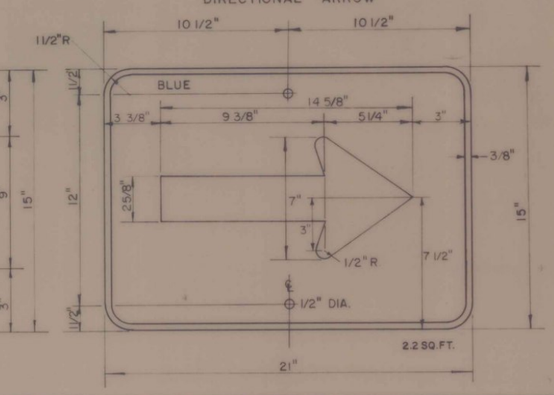
FOR USE WITH 36 INCH INTERSTATE ROUTE MARKER



JUNCTION MARKER



DIRECTIONAL ARROW



LETTERING

Letters And Digits Shall Conform With The Standard Alphabets For Highway Signs Approved By The National Joint Committee On Uniform Traffic Control Devices.

SPECIFICATIONS

Interstate Route Markers And Auxiliary Route Markers Shall Meet The Standard State Specifications For "Traffic Signs".

DESIGNS

The Designs of Interstate Route Markers and Auxiliary Markers Shall Conform With the Requirements Set Forth in The Manual on Uniform Traffic Control Devices Adopted by the American Association of State Highway Officials.

COLORS

The Official Interstate Route Marker Shall Have A Reflectorized White Or Silver Text On A Reflectorized Red And Blue Background.

Auxiliary Markers Used With Interstate Route Markers Shall Have A Reflectorized White Or Silver Text On A Reflectorized Blue Background, Except When Used As Part Of A Trailblazer Assembly.

The Red And Blue Shall Conform With The Standard Colors Adopted By The American Association Of State Highway Officials And Approved By The U.S. Department Of Transportation, Federal Highway Administration.

REVISIONS AND CORRECTIONS
APR. 11, 1973 – REVISED ACCORDING TO FEDERAL HIGHWAY ADMINISTRATION INSTRUCTIONS
MAY 9 - 1974 - ADDITION OF AUXILIARY MARKER (TO)
FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED
Dec. 17 1971

R. H. Arnold
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

DRAWN A.W.C.
TRACED R.L.E.

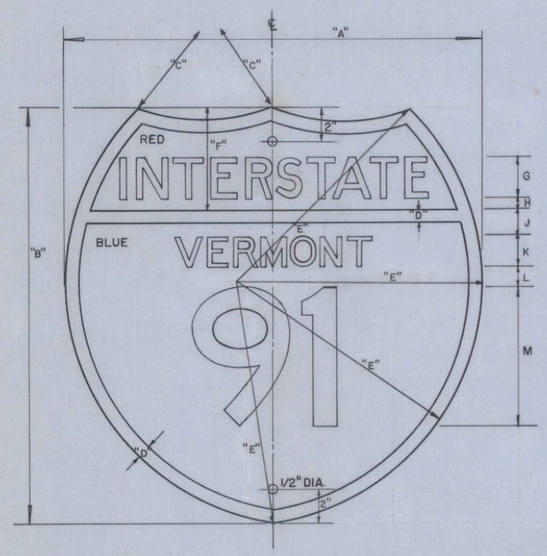
TRAFFIC SIGNS (GUIDE SIGNS)

INTERSTATE ROUTE MARKERS AND AUXILIARY MARKERS

VERMONT
DEPARTMENT
OF HIGHWAYS
STANDARD

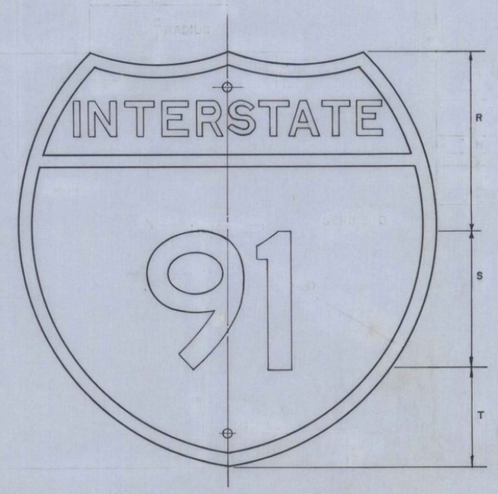
E-11

INTERSTATE ROUTE MARKER
FOR INDEPENDENT USE



SHIELD SIZE	A	B	C	D	E	F	G	H	J	K	L	M	SQ. FT.
24" x 24"	24"	24"	15"	1/2"	15"	5"	2 1/2"	1/2"	1"	1 1/2"	1/2"	10"	4.0
30" x 24"	30"	24"	24"	1/2"	17"	5"	2 1/2"	1/2"	1"	1 1/2"	1/2"	10"	5.0
36" x 36"	36"	36"	22 1/2"	3/4"	22 1/2"	7 1/2"	3 3/4"	3/4"	1 1/2"	2 1/4"	3/4"	15"	9.0
45" x 36"	45"	36"	36"	3/4"	25 1/2"	7 1/2"	3 3/4"	3/4"	1 1/2"	2 1/4"	3/4"	15"	11.25

INTERSTATE ROUTE MARKER
FOR USE ON GUIDE SIGNS



SHIELD SIZE	R	S	T	SQ. FT.
24" x 24"	6 1/2"	12"	5 1/2"	4.0
30" x 24"	6 1/2"	12"	5 1/2"	5.0
36" x 36"	9 3/4"	18"	8 1/4"	9.0
45" x 36"	9 3/4"	18"	8 1/4"	11.25
48" x 48"	13"	24"	11"	16.0

MATERIALS

The Sign Base Material May Be Any Of The Following, Of The Minimum Thickness Noted:

FLAT SHEET ALUMINUM

Less Than 24" x 24"	0.060"
24" x 24"	0.080"
36" x 36"	0.100"
When used on guide signs	0.060"

HIGH DENSITY OVERLAID PLYWOOD

Less Than 24" x 24"	3/8"
24" x 24"	1/2"
36" x 36"	5/8"
	3/8"

GALVANIZED FLAT SHEET STEEL

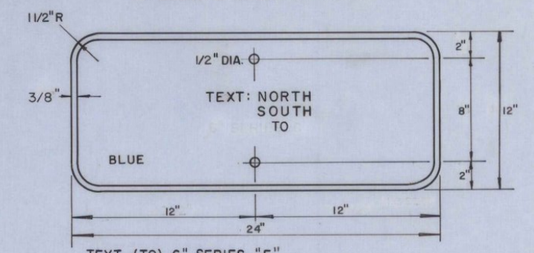
Less Than 24" x 24"	18 Gage
24" x 24"	16 Gage
36" x 36"	14 Gage

The Reflective Material Shall Be Encapsulated Lens Silver Reflective Sheeting Applied To The Entire Background Of The Marker.

The Texts Of The Interstate Route Markers, And Of The Auxiliary Markers Except Trailblazer Auxiliaries, Shall Be Reverse Screened.

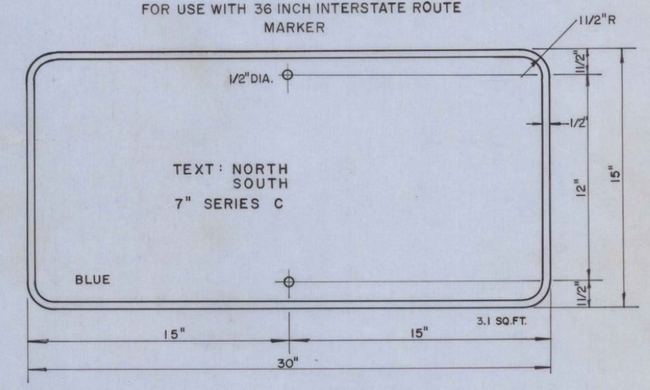
CARDINAL DIRECTION MARKERS

FOR USE WITH 24 INCH INTERSTATE ROUTE MARKERS

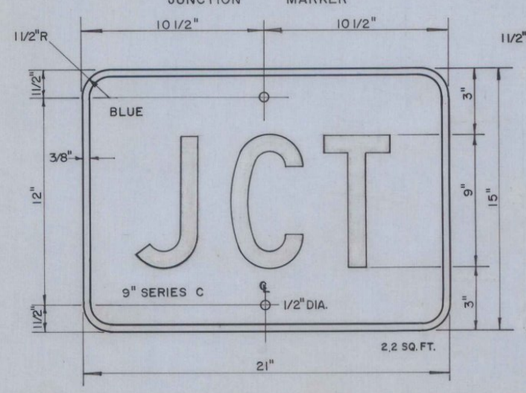


TEXT (TO) 6" SERIES "E"
TEXT (NORTH, SOUTH) 6" SERIES "C"

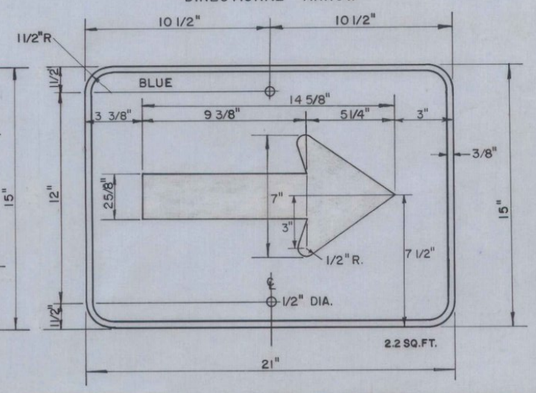
FOR USE WITH 36 INCH INTERSTATE ROUTE MARKER



JUNCTION MARKER



DIRECTIONAL ARROW



LETTERING

Letters And Digits Shall Conform With The Standard Alphabets For Highway Signs Approved By The National Joint Committee On Uniform Traffic Control Devices.

SPECIFICATIONS

Interstate Route Markers And Auxiliary Route Markers Shall Meet The Standard State Specifications For "Traffic Signs".

DESIGNS

The Designs of Interstate Route Markers and Auxiliary Markers Shall Conform With the Requirements Set Forth in The Manual on Uniform Traffic Control Devices Adopted by the American Association of State Highway Officials.

COLORS

The Official Interstate Route Marker Shall Have A Reflectorized White Or Silver Text On A Reflectorized Red And Blue Background.

Auxiliary Markers Used With Interstate Route Markers Shall Have A Reflectorized White Or Silver Text On A Reflectorized Blue Background, Except When Used As Part Of A Trailblazer Assembly.

The Red And Blue Shall Conform With The Standard Colors Adopted By The American Association Of State Highway Officials And Approved By The U.S. Department Of Transportation, Federal Highway Administration.

REVISIONS AND CORRECTIONS
APR. 11, 1973 – REVISED ACCORDING TO FEDERAL HIGHWAY ADMINISTRATION INSTRUCTIONS.
MAY 9 - 1974 - ADDITION OF AUXILIARY MARKER (TO)

APPROVED
Dec. 17, 1971

R. H. Arnold
CHIEF ENGINEER

E. B. Stickney
ASST. CHIEF ENGINEER

J. M. Lane
HIGHWAY ENGINEER

DRAWN A.W.C.
TRACED R.L.E.

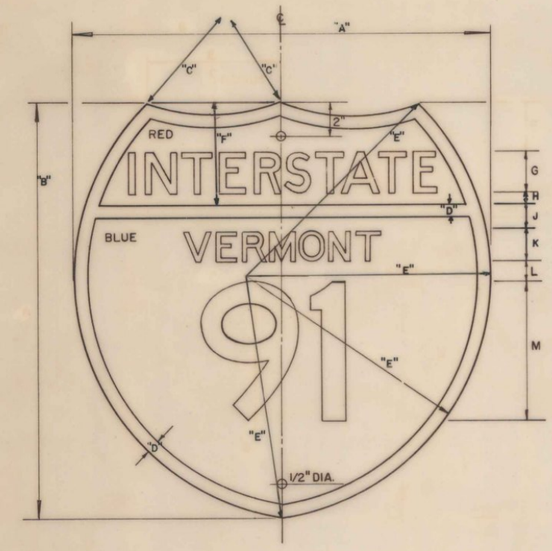
TRAFFIC SIGNS (GUIDE SIGNS)

INTERSTATE ROUTE MARKERS AND AUXILIARY MARKERS

VERMONT
DEPARTMENT
OF HIGHWAYS
STANDARD

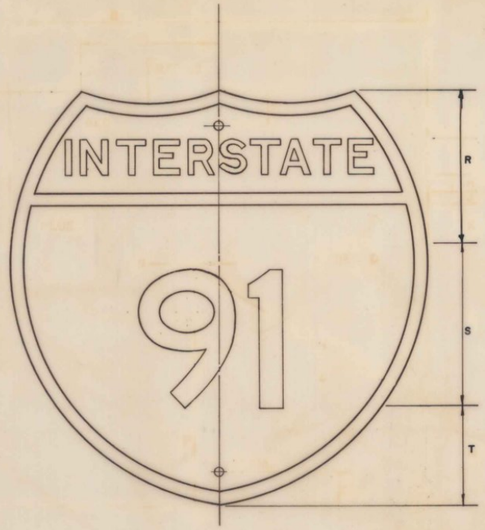
E-11

INTERSTATE ROUTE MARKER
FOR INDEPENDENT USE



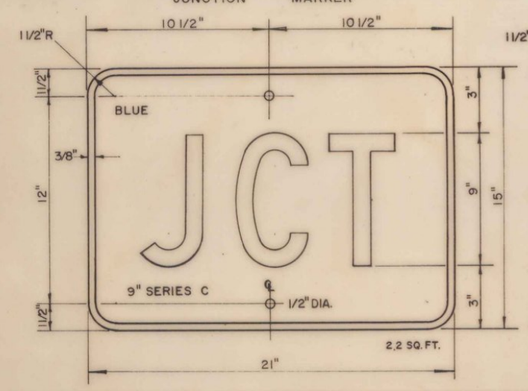
SHIELD SIZE	A	B	C	D	E	F	G	H	J	K	L	M	SQ.FT.
24"x24"	24"	24"	15"	1/2"	15"	5"	2 1/2"	1/2"	1"	1 1/2"	1/2"	10"	4.0
30"x24"	30"	24"	24"	1/2"	17"	5"	2 1/2"	1/2"	1"	1 1/2"	1/2"	10"	5.0
36"x36"	36"	36"	22 1/2"	3/4"	22 1/2"	7 1/2"	3 3/4"	3/4"	1 1/2"	2 1/4"	3/4"	15"	9.0
45"x36"	45"	36"	36"	3/4"	25 1/2"	7 1/2"	3 3/4"	3/4"	1 1/2"	2 1/4"	3/4"	15"	11.25
48"x48"	48"	48"	30"	1"	30"	10"	5"	1"	2"	3"	1"	20"	16.0

INTERSTATE ROUTE MARKER
FOR USE ON GUIDE SIGNS

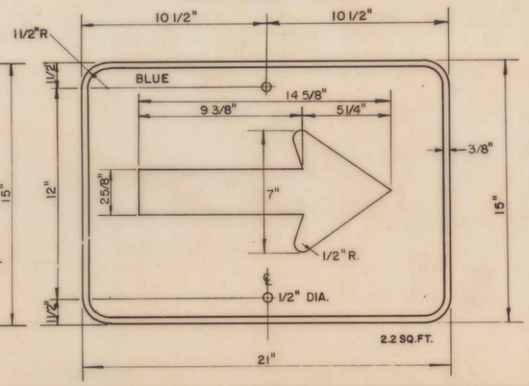


SHIELD SIZE	R	S	T	SQ.FT.
24"x24"	6 1/2"	12"	5 1/2"	4.0
30"x24"	6 1/2"	12"	5 1/2"	5.0
36"x36"	9 3/4"	18"	8 1/4"	9.0
45"x36"	9 3/4"	18"	8 1/4"	11.25
48"x48"	13"	24"	11"	16.0

JUNCTION MARKER



DIRECTIONAL ARROW



MATERIALS

The Sign Base Material May Be Any Of The Following, Of The Minimum Thickness Noted:

FLAT SHEET ALUMINUM	
Less Than 24"x24"	0.060"
24"x24"	0.080"
36"x36"	0.100"
48"x48" (on guide signs)	0.060"
HIGH DENSITY OVERLAID PLYWOOD	
Less Than 24"x24"	3/8"
24"x24"	1/2"
36"x36"	5/8"
48"x48" (on guide signs)	3/8"
GALVANIZED FLAT SHEET STEEL	
Less Than 24"x24"	18 Gage
24"x24"	16 Gage
36"x36"	14 Gage
48"x48" (on guide signs)	18 Gage

The Reflective Material Shall Be White Or Silver Reflective Sheeting Applied To The Entire Background Of The Marker.

The Texts Of The Interstate Route Markers, And Of The Auxiliary Markers Except Trailblazer Auxiliaries, Shall Be Reverse Screened.

The Text Of Trailblazer Auxiliary Markers May Be Lettering Film, Silk Screened, Or Hand Painted.

LETTERING

Letters And Digits Shall Conform With The Standard Alphabets For Highway Signs Approved By The National Joint Committee On Uniform Traffic Control Devices.

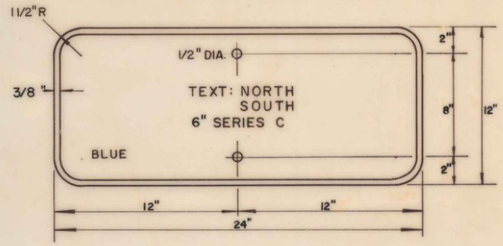
SPECIFICATIONS

Interstate Route Markers And Auxiliary Route Markers Shall Meet The Standard State Specifications For "Traffic Signs", Item 701.

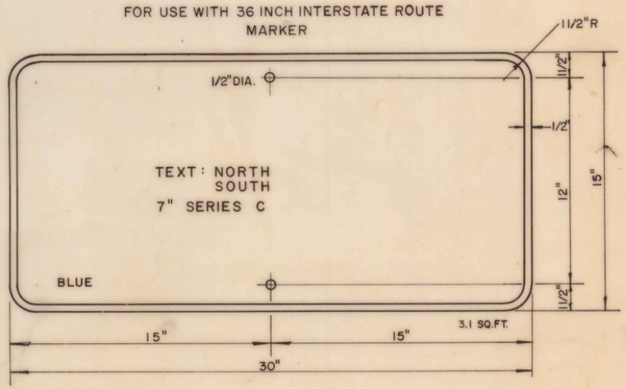
DESIGNS

The Designs of Interstate Route Markers and Auxiliary Markers Shall Conform With the Requirements Set Forth in The Manual for Signing and Pavement Marking of the National System of Interstate and Defense Highways Adopted by the American Association of State Highway Officials.

CARDINAL DIRECTION MARKERS
FOR USE WITH 24 INCH
INTERSTATE ROUTE MARKERS



FOR USE WITH 36 INCH INTERSTATE ROUTE
MARKER



COLORS

The Official Interstate Route Marker Shall Have A Reflectorized White Or Silver Text On A Reflectorized Red And Blue Background.

Auxiliary Markers Used With Interstate Route Markers Shall Have A Reflectorized White Or Silver Text On A Reflectorized Blue Background, Except When Used As Part Of A Trailblazer Assembly.

Trailblazer Auxiliary Markers Used With Interstate Route Markers Shall Have Black Texts On A Reflectorized White Or Silver Background, And Shall Conform With The Designs Of Auxiliary Markers Used With U.S. And State Route Markers.

The Red And Blue Shall Conform With The Standard Colors Adopted By The American Association Of State Highway Officials And Approved By The U.S. Department Of Transportion, Federal Highway Administration.

REVISIONS AND CORRECTIONS

AUG. 28, 1964 – "(GUIDE SIGNS)" ADDED TO TITLE
OCT. 6, 1970 – REVISED TO BE IN CONFORMANCE WITH THE "MANUAL FOR SIGNING AND PAVEMENT MARKING OF THE NATIONAL SYSTEM OF INTERSTATE AND DEFENCE HIGHWAYS", 1970 ADDITION.
NOV 6, 1970 – WIDTH OF BORDER CHANGED ON CARDINAL DIRECTION MARKERS.

APPROVED
OCT. 15, 1970

R. H. Arnold — CHIEF ENGINEER
E. H. Stickney — ASST. CHIEF ENGINEER
G. M. Lane — HIGHWAY ENGINEER
C. H. Krafts — TRAFFIC ENGINEER
[illegible] — CONSTRUCTION ENGINEER

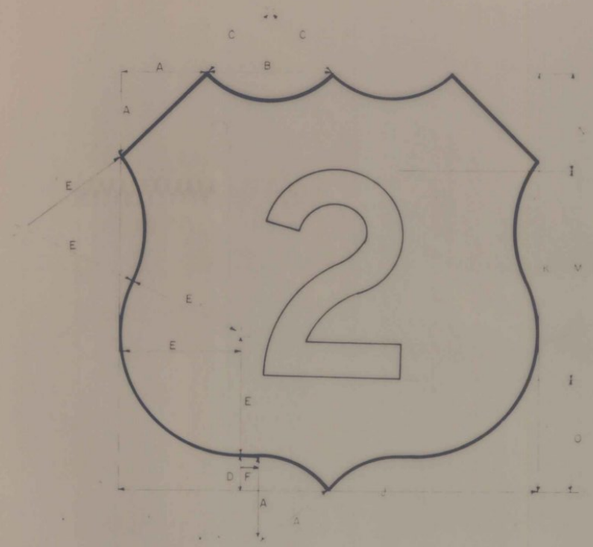
DRAWN A.W.C.
TRACED R.L.E.

TRAFFIC SIGNS (GUIDE SIGNS)
INTERSTATE ROUTE MARKERS AND AUXILIARY MARKERS

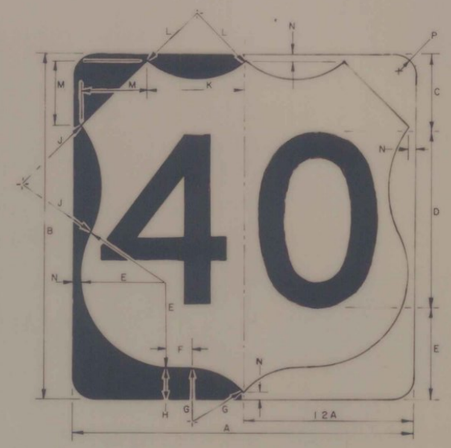
VERMONT
DEPARTMENT
OF HIGHWAYS
STANDARD

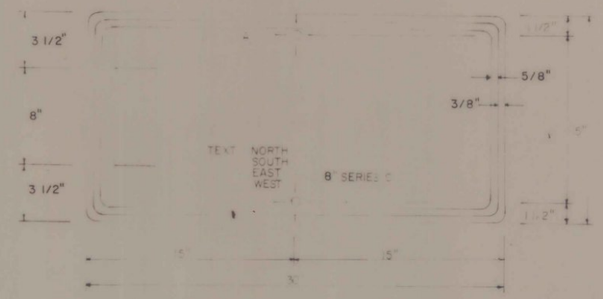
E-11

U.S. ROUTE MARKER
FOR USE ON INTERSTATE GUIDE SIGNS



U.S. ROUTE MARKER
FOR INDEPENDENT USE WITH MARKER ASSEMBLIES





MATERIALS

The sign base material may be any of the following, of the minimum thickness noted:

FLAT SHEET ALUMINUM
- Less than 24" x 24" - 0.060"
- 24" x 24", 30" x 24" - 0.080"

HIGH DENSITY OVERLAID PLYWOOD
- Less than 24" x 24" - 3/8"
- 24" x 24", 30" x 24" - 1/2"

GALVANIZED FLAT SHEET STEEL
- Less than 24" x 24" - 18 gage
- 24" x 24", 30" x 24" - 16 gage

Route markers to be mounted on large guide signs, shall be of a thickness as for signs less than 24" x 24".

The reflective material shall be white or silver reflective sheeting, applied to the entire background. The texts may be lettering film, silk screened, or hand painted.

COLORS

State route markers and auxiliary markers shall have black texts on reflectorized white or silver backgrounds.

LETTERING

Letters and digits shall conform with the standard alphabets for highway signs approved by the National Advisory Committee on Uniform Traffic Control Devices.

SPECIFICATIONS

State route markers and auxiliary route markers shall meet the standard state specifications for "Traffic Signs".

SHIELD SIZE NO. DIGITS	A	B	C	D	E	F	J	K	M	N	O
24 × 24 1, 2	5	7	5	2	7	[illegible]	24	24	12D	3 1/2	[illegible]
30 × 24 3	5	10	9	2	7	4	30	24	12D	5 1/2	
36 × 36 1, 2	7 1/2	10 1/2	7 1/2	3	10 1/2	[illegible]/2	36	36	18D	8 1/4	9 3/4
45 × 36 3	7 1/2	15	13 1/2	3	10 1/2	5 1/2	45	36	18D	8 1/4	9 3/4
48 × 48 1, 2	10	14	10	4	14	2	48	48	24D	11	13
60 × 48 3	10	20	18	4	14	8	60	48	24D	11	13

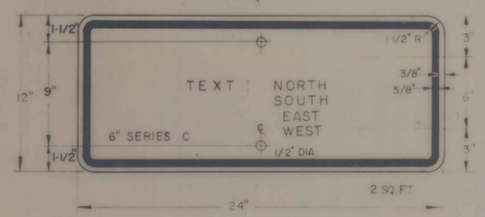
DIGITS	SHIELD SZ. A	SHIELD SZ. B	C	D	E	F	G	H	J	K	L	M	N	P
1, 2	24	24	5-1/2	12D	6-1/2	1	5-1/2	2-1/2	7-1/2	7	5-1/2	4-1/2	1/2	1-1/2
3	30	24	5-1/2	12D	6-1/2	4	5-1/2	2-1/2	7-1/2	10	9-1/2	4-1/2	1/2	1-1/2

NOTE: DIMENSIONS IN INCHES

DESIGNS

The designs of U.S. Route Markers and auxiliary markers conform with the requirements set forth in the Manual on Uniform Traffic Control Devices prepared by the National Advisory Committee on Uniform Traffic Control Devices.

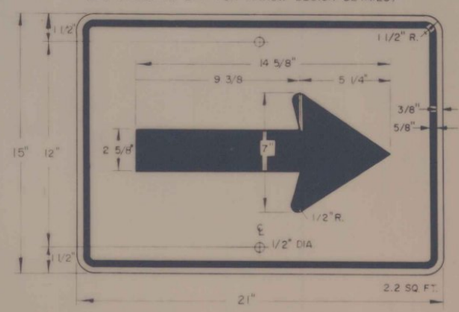
CARDINAL DIRECTION MARKER



TRAILBLAZER

JUNCTION MARKER

DIRECTIONAL ARROW OR
ADVANCE TURN ARROW
(SEE STANDARD E-11 FOR ARROW DESIGN DETAILS)



NOTE:
FOR ADDITIONAL ADVANCE TURN ARROWS SEE STANDARD SHEET E-13

REVISIONS AND CORRECTIONS

MAY 3, 1982 - ADDED NOTE, CHANGED BORDER DIMENSION ON GUIDE SIGNS.
DEC. 3, 1982 - REVISED DIMENSIONING BOTH U.S. RTE. MARKERS
FEB. 3, 1986 - UPDATED TO 1986 SPECIFICATIONS

APPROVED: Dec 17 1971

R H Arnold
CHIEF ENGINEER

E W Stickney
ASST. CHIEF ENGINEER

T M Lane
HIGHWAY ENGINEER

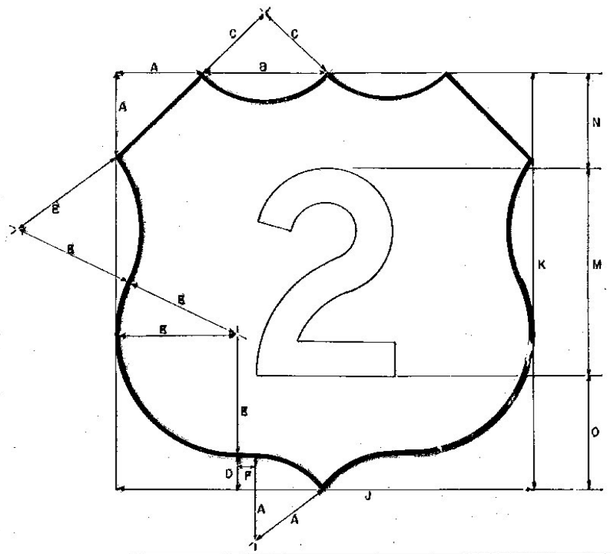
DRAWN A.W.C.
TRACED A.J.R.

TRAFFIC SIGNS (GUIDE SIGNS)
U.S. ROUTE MARKERS AND AUXILIARY MARKERS

VERMONT AGENCY OF TRANSPORTATION

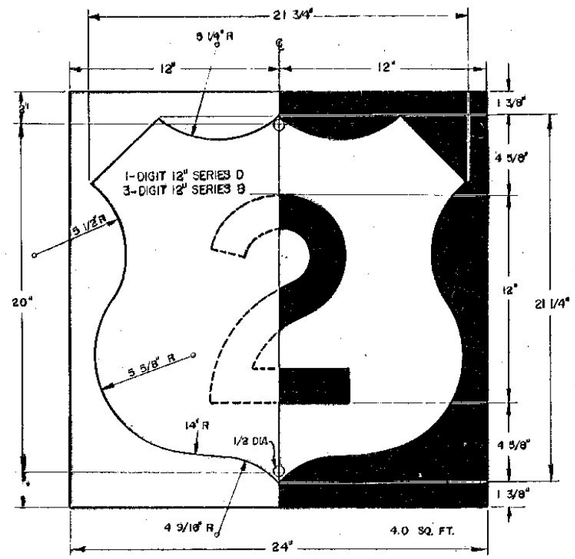
STANDARD
E-12

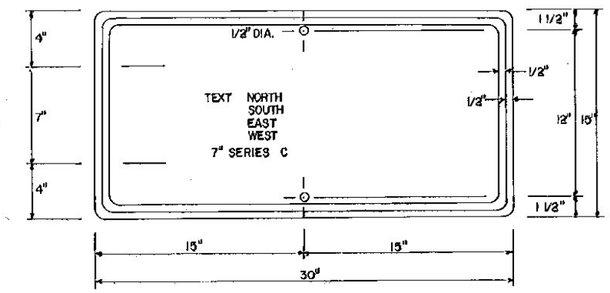
U.S. ROUTE MARKER
FOR USE ON INTERSTATE GUIDE SIGNS



SHIELD SIZE	A	B	C	D	E	F	J	K	M	N	O
24"x 24"	5	7	5	2	7	1	24	24	12	5 1/2	6 1/2
30"x 24"	5	10	9	2	7	4	30	24	12	5 1/2	6 1/2
36"x36"	7 1/2	10 1/2	7 1/2	3	10 1/2	1 1/2	36	36	18	8 1/4	9 3/4
48"x36"	7 1/2	15	13 1/2	3	10 1/2	5 1/2	45	36	18	8 1/4	9 3/4
48"x48"	10	14	10	4	[illegible]	2	48	48	24	11	13

U. S. ROUTE MARKER
FOR INDEPENDENT USE WITH MARKER ASSEMBLIES





MATERIALS

The sign base material may be any of the following, of the minimum thickness noted:

FLAT SHEET ALUMINUM
- Less than 24" x 24" - 0.060"
- 24" x 24" - 0.080"

HIGH DENSITY OVERLAID PLYWOOD
- Less than 24" x 24" - 3/8"
- 24" x 24" - 1/2"

GALVANIZED FLAT SHEET STEEL
- Less than 24" x 24" - 18 gage
- 24" x 24" - 16 gage

Route markers to be mounted on interstate guide signs, shall be of a thickness as for signs less than 24" x 24"

The reflective material shall be white or silver reflective sheeting, applied to the entire background. The texts may be lettering film, silk screened, or hand painted.

COLORS

State route markers and auxiliary markers shall have black texts on reflectorized white or silver backgrounds.

LETTERING

Letters and digits shall conform with the standard alphabets for highway signs approved by the National Joint Committee on Uniform Traffic Control Devices.

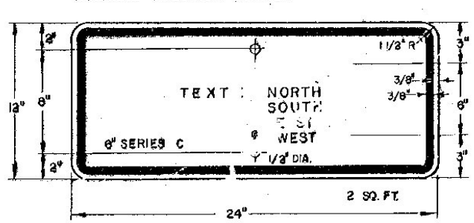
SPECIFICATIONS

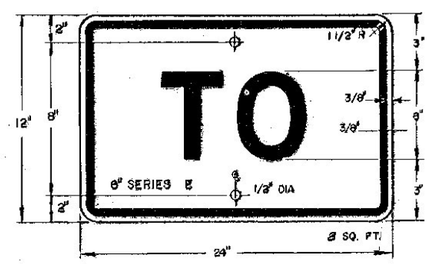
State route markers and auxiliary route markers shall meet the standard state specifications for "Traffic Signs", Item 701

DESIGNS.

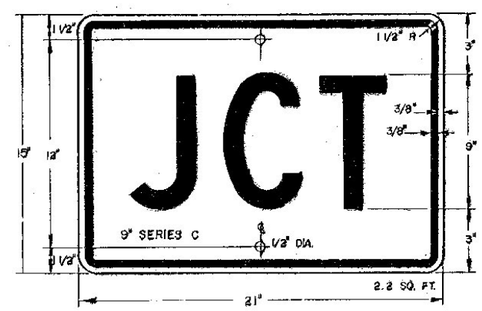
The designs of U.S. Route Markers and auxiliary markers conform with the requirements set forth in the Manual on Uniform Traffic Control Devices prepared by the National Joint Committee on Uniform Traffic Control Devices.

CARDINAL DIRECTION MARKER

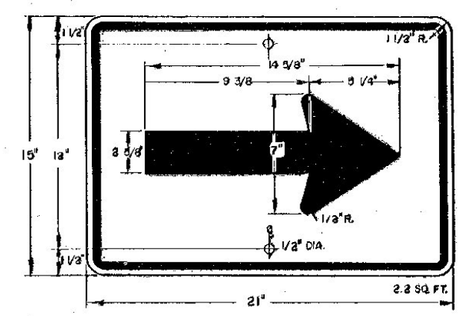




JUNCTION MARKER



DIRECTION ARROW OR
ADVANCE TURN ARROW



REVISIONS AND CORRECTIONS

AUG 12, 1963 - DIMENSIONS FOR 3 DIGIT SHIELD ADDED
AUG 28, 1964 - "(GUIDE SIGNS") ADDED TO TITLE
OCT 8, 1970 - REVISED TO BE IN CONFORMANCE WITH THE MANUAL ON SIGNING AND PAVEMENT MARKING OF THE NATIONAL SYSTEM OF INTERSTATE AND DEFENCE HIGHWAYS 1970 ADDITION.
FEB. 4, 1971 - REVISED TO BE IN CONFORMANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES 1971 ADDITION.
MAR. 10, 1971 - DIMENSIONS CHANGED.

APPROVED:
OCT. 21, 1970
R. W. Arnold — CHIEF ENGINEER
E. K. Stickney — ASST. CHIEF ENGINEER
G. M. Lane — HIGHWAY ENGINEER
C. F. Knapp — TRAFFIC ENGINEER

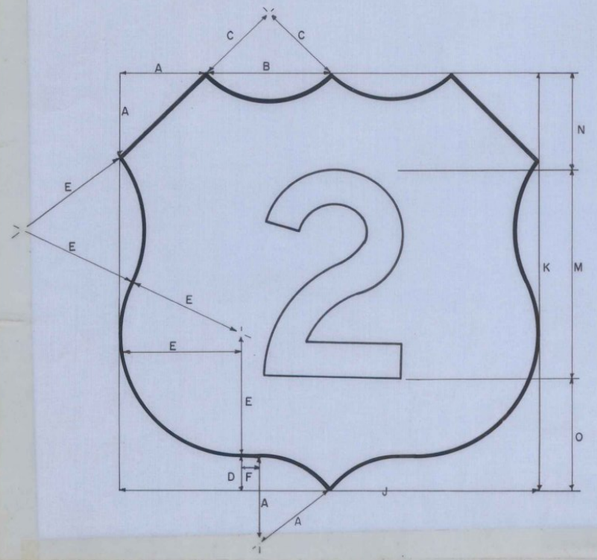
DRAWN A.W.O.
TRACED A.J.A.

TRAFFIC SIGNS (GUIDE SIGNS)
U.S. ROUTE MARKERS AND AUXILIARY MARKERS

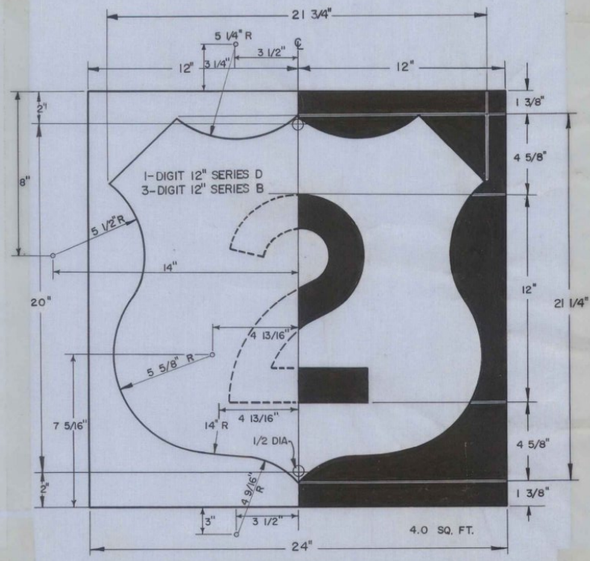
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

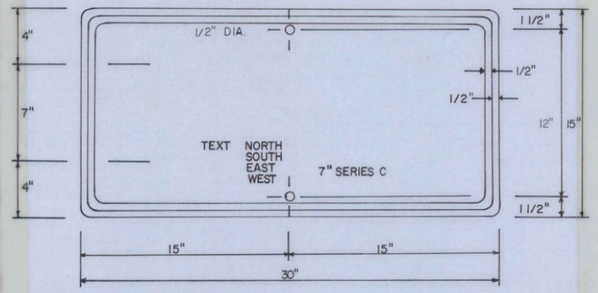
E-12

U.S. ROUTE MARKER
FOR USE ON INTERSTATE GUIDE SIGNS



U. S. ROUTE MARKER
FOR INDEPENDENT USE WITH MARKER ASSEMBLIES





SHIELD SIZE	A	B	C	D	E	F	J	K	M	N	O
24"x 24"	5	7	5	2	7	1	24	24	12	5 1/2	6 1/2
30"x 24"	5	10	9	2	7	4	30	24	12	5 1/2	6 1/2
36"x 36"	7 1/2	10 1/2	7 1/2	3	10 1/2	1 1/2	36	36	18	8 1/4	9 3/4
45"x 36"	7 1/2	15	13 1/2	3	10 1/2	6	45	36	18	8 1/4	9 3/4
48"x 48"	10	14	10	4	14	2	48	48	24	11	13

MATERIALS

The sign base material may be any of the following, of the minimum thickness noted:

FLAT SHEET ALUMINUM
- Less than 24" x 24" - 0.060"
- 24" x 24" - 0.080"

HIGH DENSITY OVERLAID PLYWOOD
- Less than 24" x 24" - 3/8"
- 24" x 24" - 1/2"

GALVANIZED FLAT SHEET STEEL
- Less than 24" x 24" - 18 gage
- 24" x 24" - 16 gage

Route markers to be mounted on large guide signs, shall be of a thickness as for signs less than 24" x 24"

The reflective material shall be white or silver reflective sheeting, applied to the entire background. The texts may be lettering film, silk screened, or hand painted.

COLORS

State route markers and auxiliary markers shall have black texts on reflectorized white or silver backgrounds.

LETTERING

Letters and digits shall conform with the standard alphabets for highway signs approved by the National Joint Committee on Uniform Traffic Control Devices.

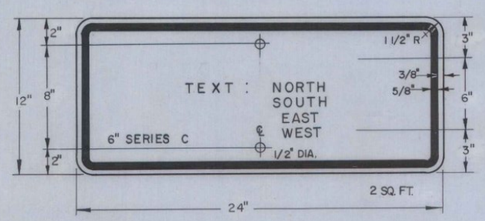
SPECIFICATIONS

State route markers and auxiliary route markers shall meet the standard state specifications for "Traffic Signs",

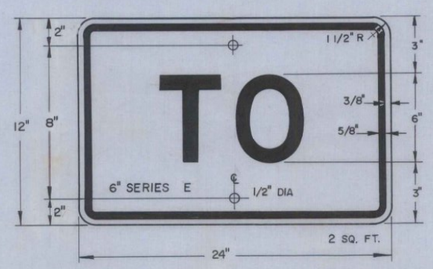
DESIGNS.

The designs of U.S. Route Markers and auxiliary markers conform with the requirements set forth in the Manual on Uniform Traffic Control Devices prepared by the National Joint Committee on Uniform Traffic Control Devices.

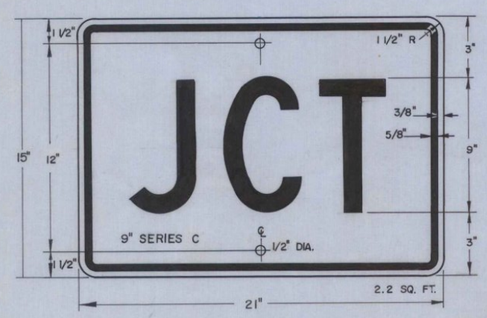
CARDINAL DIRECTION MARKER



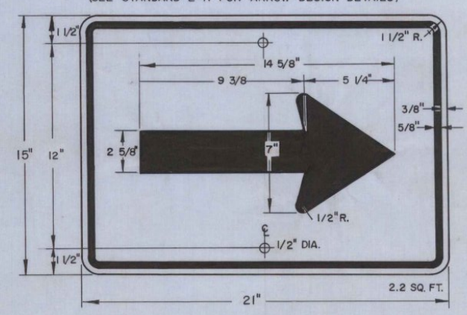
TRAILBLAZER



JUNCTION MARKER



DIRECTION ARROW OR
ADVANCE TURN ARROW
(SEE STANDARD E-11 FOR ARROW DESIGN DETAILS)



NOTE.
FOR ADDITIONAL ADVANCE TURN ARROWS SEE STANDARD SHEET E-13

REVISIONS AND CORRECTIONS
MAY 3, 1982 - ADDED NOTE, CHANGED BORDER DIMENSION ON GUIDE SIGNS.

APPROVED:
Dec. 17, 1971

R. H. Arnold
CHIEF ENGINEER
E. W. Hickney
ASST. CHIEF ENGINEER
J. M. Lane
HIGHWAY ENGINEER

DRAWN A.W.C.
TRACED A.J.A.

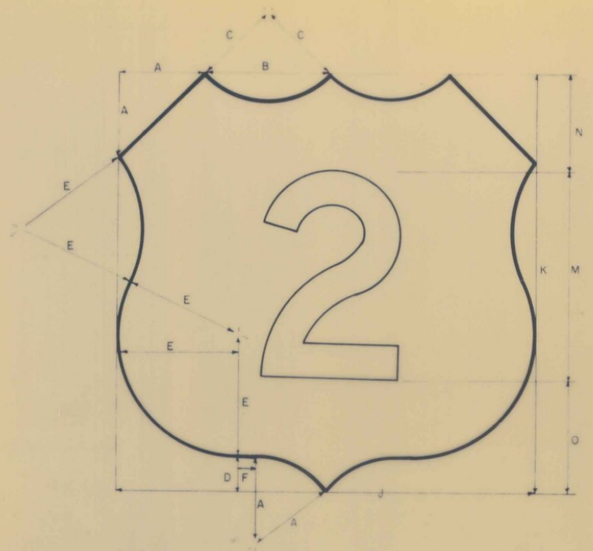
TRAFFIC SIGNS (GUIDE SIGNS)

U.S. ROUTE MARKERS AND AUXILIARY MARKERS

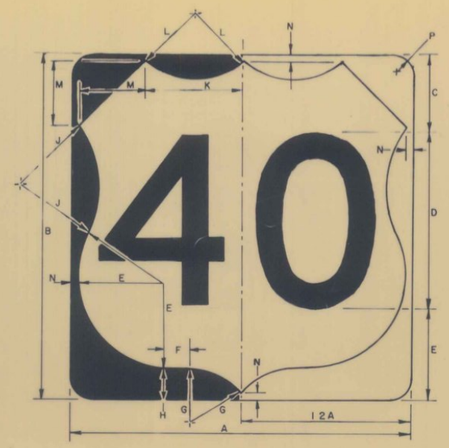
VERMONT AGENCY OF TRANSPORTATION

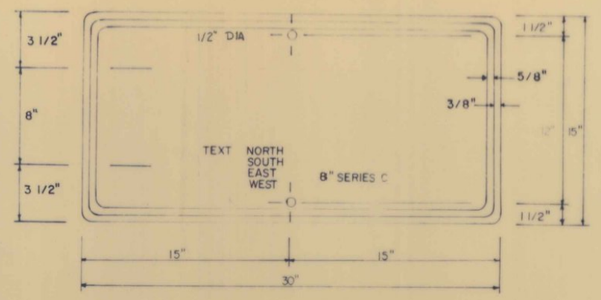
STANDARD
E-12

U.S. ROUTE MARKER
FOR USE ON INTERSTATE GUIDE SIGNS



U.S. ROUTE MARKER
FOR INDEPENDENT USE WITH MARKER ASSEMBLIES





MATERIALS

The sign base material may be any of the following, of the minimum thickness noted:

FLAT SHEET ALUMINUM
- Less than 24" x 24" - 0.060"
- 24" x 24", 30" x 24" - 0.080"

HIGH DENSITY OVERLAID PLYWOOD
- Less than 24" x 24" - 3/8"
- 24" x 24", 30" x 24" - 1/2"

GALVANIZED FLAT SHEET STEEL
- Less than 24" x 24" - 18 gage
- 24" x 24", 30" x 24" - 16 gage

Route markers to be mounted on large guide signs, shall be of a thickness as for signs less than 24" x 24"

The reflective material shall be white or silver reflective sheeting, applied to the entire background. The texts may be lettering film, silk screened, or hand painted.

COLORS

State route markers and auxiliary markers shall have black texts on reflectorized white or silver backgrounds.

LETTERING

Letters and digits shall conform with the standard alphabets for highway signs approved by the National Advisory Committee on Uniform Traffic Control Devices.

SPECIFICATIONS

State route markers and auxiliary route markers shall meet the standard state specifications for "Traffic Signs",

SHIELD SIZE NO. DIGITS	A	B	C	D	E	F	J	K	M	N	O
24 x 24 1,2	5	7	5	2	7	1	24	24	12D	5 1/2	6 1/2
30 x 24 3	5	10	9	2	7	4	30	24	12D	5 1/2	6 1/2
36 x 36 1,2	7 1/2	10 1/2	7 1/2	3	10 1/2	1 1/2	36	36	18D	8 1/4	9 3/4
45 x 36 3	7 1/2	15	13 1/2	3	10 1/2	5 1/2	45	36	18D	8 1/4	9 3/4
48 x 48 1,2	10	14	10	4	14	2	48	48	24D	11	13
60 x 48 3	10	20	18	4	14	8	60	48	24D	11	13

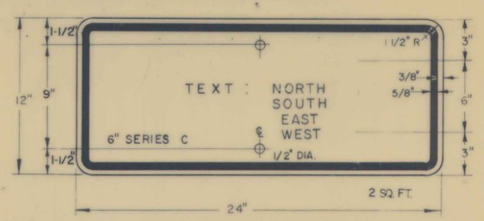
DIGITS	SHIELD SZ. A	SHIELD SZ. B	C	D	E	F	G	H	J	K	L	M	N	P
1,2	24	24	5-1/2	12D	6-1/2	1	5-1/2	2-1/2	7-1/2	7	5-1/2	4-1/2	1/2	1-1/2
3	30	24	5-1/2	12D	6-1/2	4	5-1/2	2-1/2	7-1/2	10	9-1/2	4-1/2	1/2	1-1/2

NOTE: DIMENSIONS IN INCHES

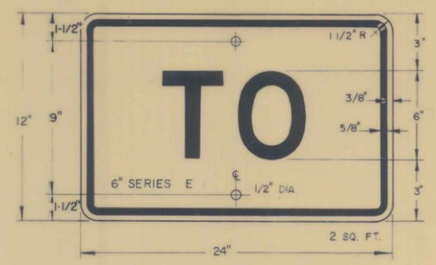
DESIGNS.

The designs of U.S. Route Markers and auxiliary markers conform with the requirements set forth in the Manual on Uniform Traffic Control Devices prepared by the National Advisory Committee on Uniform Traffic Control Devices.

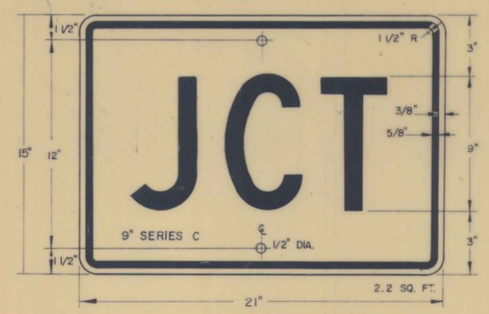
CARDINAL DIRECTION MARKER



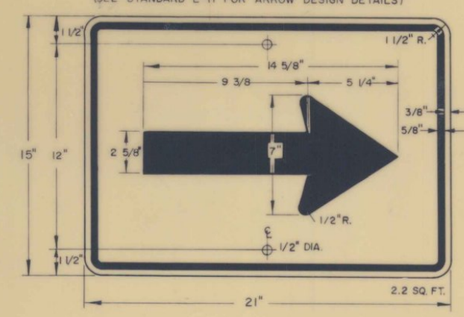
TRAILBLAZER



JUNCTION MARKER



DIRECTION ARROW OR
ADVANCE TURN ARROW
(SEE STANDARD E-11 FOR ARROW DESIGN DETAILS)



NOTE.
FOR ADDITIONAL ADVANCE TURN ARROWS SEE STANDARD SHEET E-13

REVISIONS AND CORRECTIONS

MAY 3, 1982 - ADDED NOTE, CHANGED BORDER DIMENSION ON GUIDE SIGNS.
DEC. 3, 1982 - REVISED DIMENSIONING BOTH U.S. RTE. MARKERS

APPROVED: Dec. 17, 1971

R. H. Arnold
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

DRAWN A.W.C.
TRACED A.J.A.

TRAFFIC SIGNS (GUIDE SIGNS)

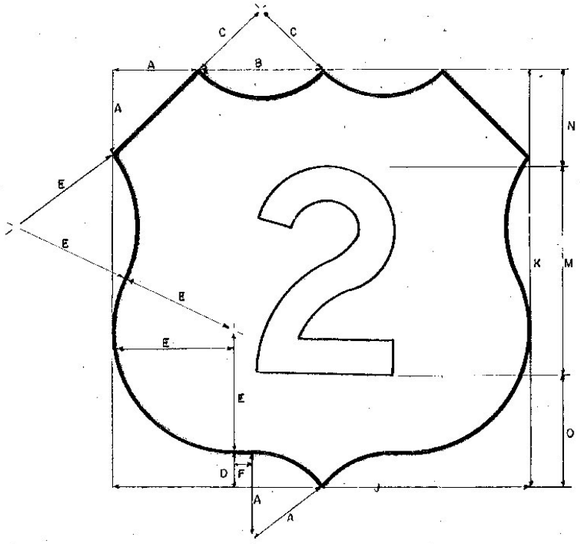
U.S. ROUTE MARKERS AND AUXILIARY MARKERS

VERMONT AGENCY OF TRANSPORTATION

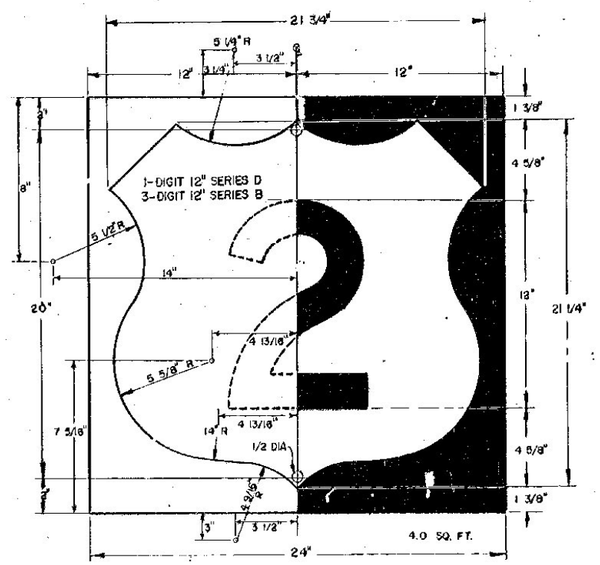
STANDARD

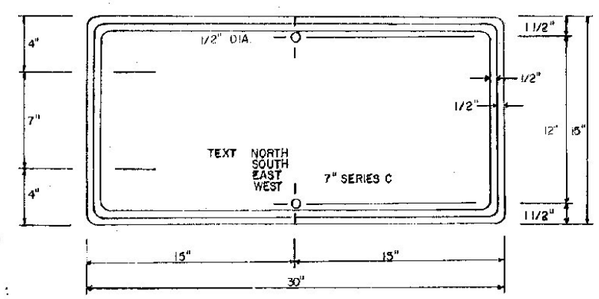
E-12

U.S. ROUTE MARKER
FOR USE ON INTERSTATE GUIDE SIGNS



U. S. ROUTE MARKER
FOR INDEPENDENT USE WITH MARKER ASSEMBLIES





SHIELD SIZE	A	B	C	D	E	F	J	K	M	N	O
24"x 24"	5	7	5	2	7	1	24	24	12	5 1/2	6 1/2
30"x 24"	5	10	9	2	7	4	30	24	12	5 1/2	6 1/2
36"x 36"	7 1/2	10 1/2	7 1/2	3	10 1/2	1/2	36	36	18	8 1/4	9 3/4
45"x 36"	7 1/2	15	13 1/2	3	10 1/2	6	45	36	18	8 1/4	9 3/4
48"x 48"	10	14	10	4	14	2	48	48	24	11	13

MATERIALS

The sign base material may be any of the following, of the minimum thickness noted:

FLAT SHEET ALUMINUM
- Less than 24" x 24" - 0.060"
- 24" x 24" - 0.080"

HIGH DENSITY OVERLAID PLYWOOD
- Less than 24" x 24" - 3/8"
- 24" x 24" - 1/2"

GALVANIZED FLAT SHEET STEEL
- Less than 24" x 24" - 18 gage
- 24" x 24" - 16 gage

Route markers to be mounted on large guide signs, shall be of a thickness as for signs less than 24" x 24"

The reflective material shall be white or silver reflective sheeting, applied to the entire background. The texts may be lettering film, silk screened, or hand painted.

COLORS

State route markers and auxiliary markers shall have black texts on reflectorized white or silver backgrounds.

LETTERING

Letters and digits shall conform with the standard alphabets for highway signs approved by the National Joint Committee on Uniform Traffic Control Devices.

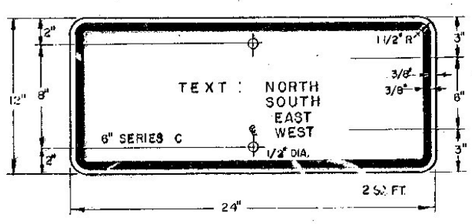
SPECIFICATIONS

State route markers and auxiliary route markers shall meet the standard state specifications for "Traffic Signs".

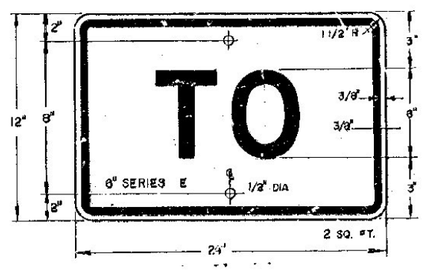
DESIGNS.

The designs of U.S. Route Markers and auxiliary markers conform with the requirements set forth in the Manual on Uniform Traffic Control Devices prepared by the National Joint Committee on Uniform Traffic Control Devices.

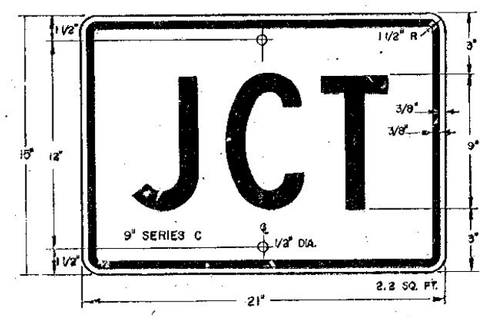
CARDINAL DIRECTION MARKER



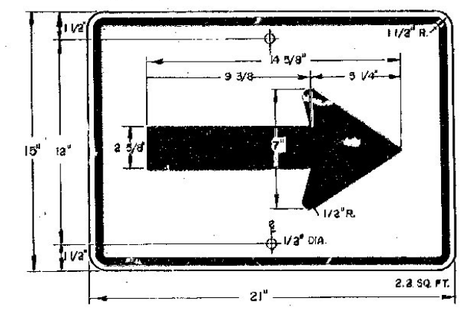
TRAILBLAZER



JUNCTION MARKER



DIRECTION ARROW OR
ADVANCE TURN ARROW
(SEE STANDARD E-11 FOR ARROW DESIGN DETAILS)



REVISIONS AND CORRECTIONS

APPROVED:
Dec. 17 1971

R H Arnold
CHIEF ENGINEER

E H Gluckney
ASST. CHIEF ENGINEER

J. M. Lane
HIGHWAY ENGINEER

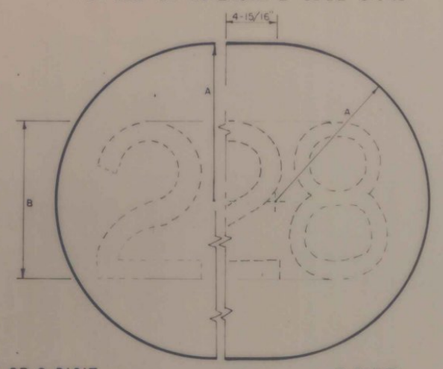
DRAWN A.W.O.
TRACED A.J.A.

TRAFFIC SIGNS (GUIDE SIGNS)
U.S. ROUTE MARKERS AND AUXILIARY MARKERS

VERMONT
DEPARTMENT
OF HIGHWAYS
STANDARD

E-12

STATE ROUTE MARKER
FOR USE ON INTERSTATE GUIDE SIGNS

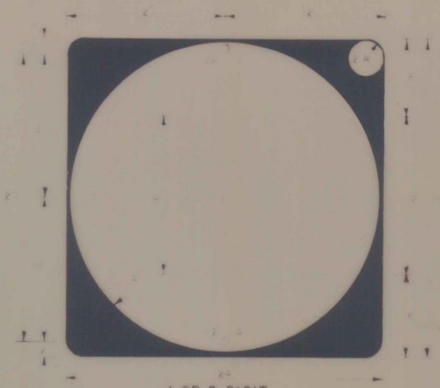


1 OR 2 DIGIT
(HALF SIGN)

3 DIGIT
(HALF SIGN)

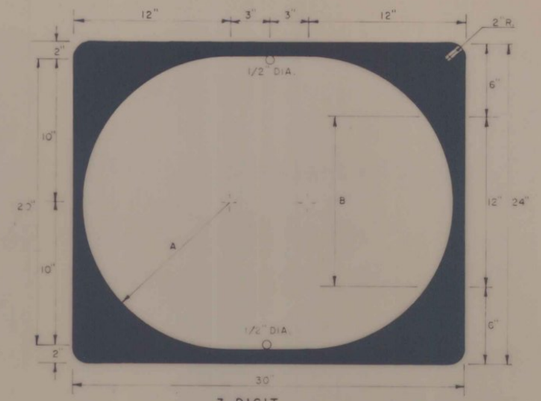
ROUTE NUMBER	A	B	SERIES
1 DIGIT	18"	18"	D
2 DIGITS	18"	18"	D
3 DIGITS	18"	18"	B

STATE ROUTE MARKER
FOR INDEPENDANT USE WITH MARKER ASSEMBLIES



1 OR 2 DIGIT

ROUTE NUMBER	A	B	SERIES
1 DIGIT	11"	2"	D
2 DIGITS	11"	2"	D
3 DIGITS	11"	2"	D



3 DIGIT
SEE CHART AT LEFT

MATERIALS

The sign base material may be any of the following, of the minimum thickness noted:

FLAT SHEET ALUMINUM
Less than 24" x 24" – 0.060"
24" x 24", 24" x 30" – 0.080"

HIGH DENSITY OVERLAID PLYWOOD
Less than 24" x 24" – 3/8"
24" x 24", 24" x 30" – 1/2"

GALVANIZED FLAT SHEET STEEL
Less than 24" x 24" – 18 gage
24" x 24", 24" x 30" – 16 gage

Route markers to be mounted on interstate guide signs, shall be of a thickness as for signs less than 24" x 24".

The reflective material shall be white or silver reflective sheeting, applied to the entire background. The texts may be lettering film, silk screened, or hand painted.

COLORS

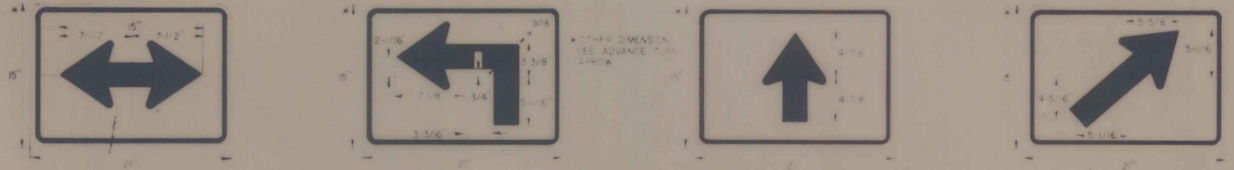
State route markers and auxiliary markers shall have black texts on reflectorized white or silver backgrounds.

LETTERING

Letters and digits shall conform with the standard alphabets for highway signs approved by the National Joint Committee on Uniform Traffic Control Devices.

SPECIFICATIONS

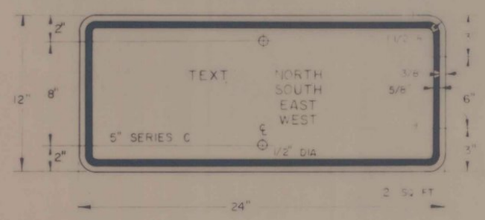
State route markers and auxiliary route markers shall meet the standard state specifications for "Traffic Signs".



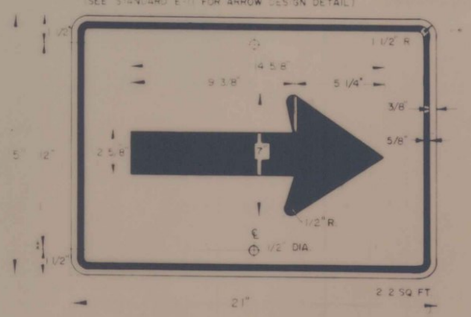
REVISIONS

The designs of state route markers and auxiliary markers shall conform with the requirements set forth in the Manual on Uniform Traffic Control Devices prepared by the National Joint Committee on Traffic Control Devices.

CARDINAL DIRECTION MARKER



DIRECTION ARROW OR
ADVANCE TURN ARROW
(SEE STANDARD E-11 FOR ARROW DESIGN DETAIL)



REVISIONS AND CORRECTIONS

MAY 3, 1982 – ADDITIONAL ADVANCE TURN ARROWS ADDED, BORDER DIMENSION CHANGED ON GUIDE SIGNS.

12/2/82 – ADDED THREE DIGIT DETAILS

FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED DATE Dec 29 19

CHIEF ENGINEER

ASST. CHIEF ENGINEER

HIGHWAY ENGINEER

DRAWN A.W.C.
TRACED A.V.A.

TRAFFIC SIGNS (GUIDE SIGNS)

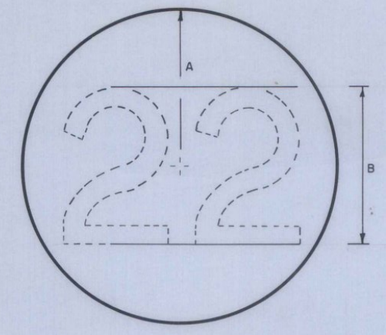
STATE ROUTE MARKERS AND AUXILIARY MARKERS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

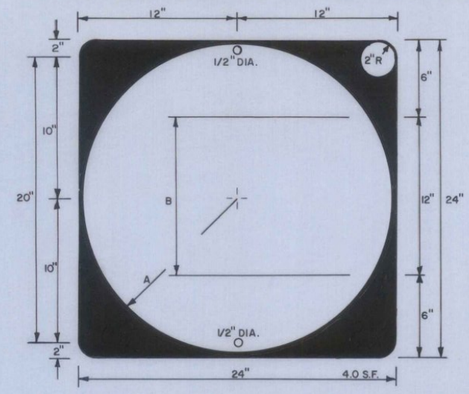
E-13

STATE ROUTE MARKER
FOR USE ON INTERSTATE GUIDE SIGNS

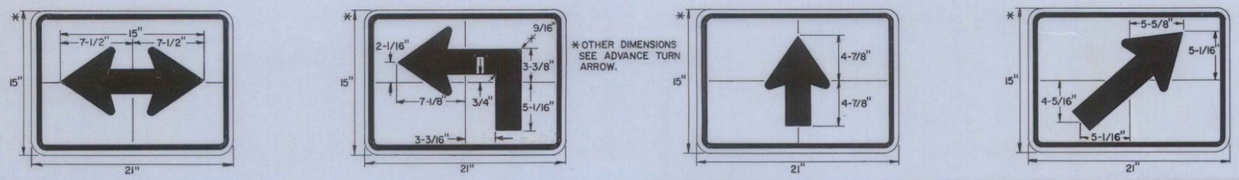


ROUTE NUMBER	A	B	SERIES
1 DIGIT	18"	18"	E
2 DIGITS	18"	18"	D
3 DIGITS	18"	18"	B

STATE ROUTE MARKER
FOR INDEPENDANT USE WITH MARKER ASSEMBLIES



ROUTE NUMBER	A	B	SERIES
1 DIGIT	12"	12"	E
2 DIGITS	12"	12"	D
3 DIGITS	12"	12"	B



MATERIALS

The sign base material may be any of the following, of the minimum thickness noted:

FLAT SHEET ALUMINUM
Less than 24" x 24" – 0.060"
24" x 24" – 0.080"

HIGH DENSITY OVERLAID PLYWOOD
Less than 24" x 24" – 3/8"
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Less than 24" x 24" – 18 gage
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Route markers to be mounted on interstate guide signs, shall be of a thickness as for signs less than 24" x 24"

The reflective material shall be white or silver reflective sheeting, applied to the entire background. The texts may be lettering film, silk screened, or hand painted.

COLORS

State route markers and auxiliary markers shall have black texts on reflectorized white or silver backgrounds.

LETTERING

Letters and digits shall conform with the standard alphabets for highway signs approved by the National Joint Committee on Uniform Traffic Control Devices.

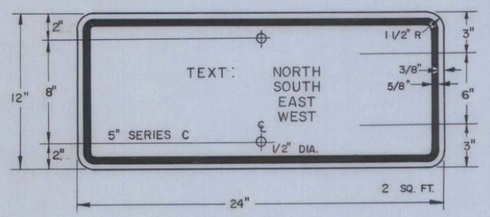
SPECIFICATIONS

State route markers and auxiliary route markers shall meet the standard state specifications for "Traffic Signs".

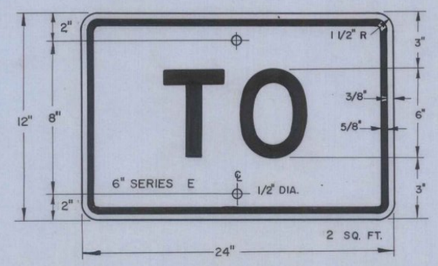
DESIGNS

The designs of state route markers and auxiliary markers shall conform with the requirements set forth in the Manual on Uniform Traffic Control Devices prepared by the National Joint Committee on Traffic Control Devices

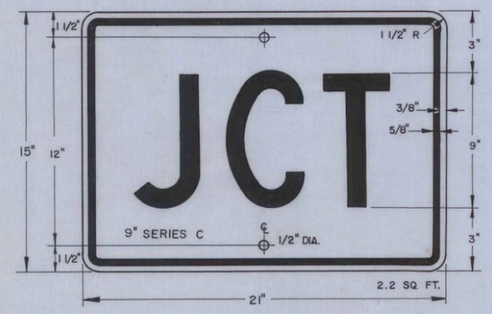
CARDINAL DIRECTION MARKER



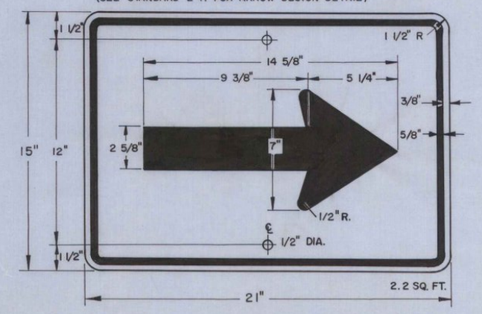
TRAILBLAZER



JUNCTION MARKER



DIRECTION ARROW OR
ADVANCE TURN ARROW
(SEE STANDARD E-11 FOR ARROW DESIGN DETAIL)



REVISIONS AND CORRECTIONS

MAY 3, 1982 – ADDITIONAL ADVANCE TURN ARROWS ADDED, BORDER DIMENSION CHANGED ON GUIDE SIGNS.

APPROVED: DATE Dec. 29, 1971

R. H. Arnold
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

DRAWN A.W.C.
TRACED A.J.A.

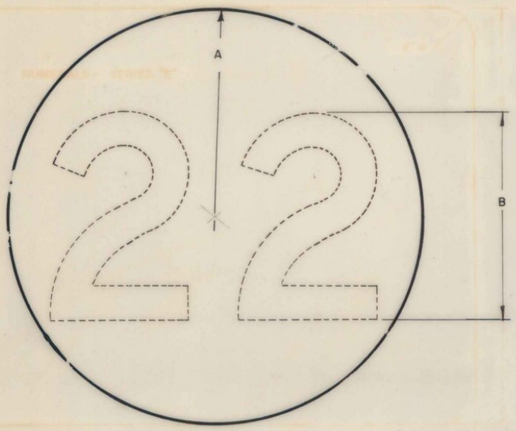
TRAFFIC SIGNS (GUIDE SIGNS)

STATE ROUTE MARKERS AND AUXILIARY MARKERS

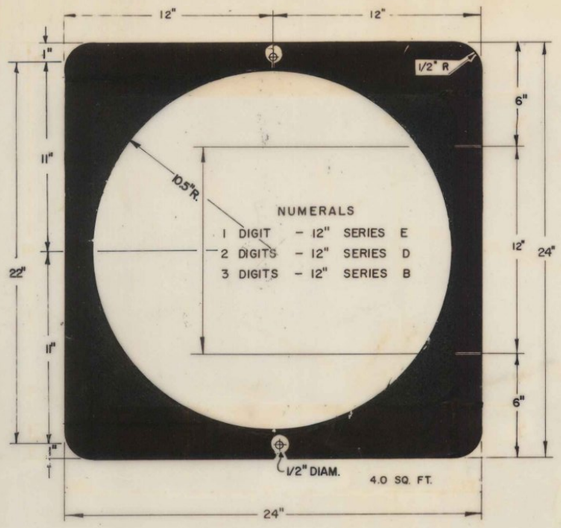
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-13

STATE ROUTE MARKER
FOR USE ON INTERSTATE GUIDE SIGNS



STATE ROUTE MARKER
FOR INDEPENDENT USE WITH MARKER ASSEMBLIES



ROUTE NUMBER	A	B	SERIES
1 DIGITS	18"	18"	E
2 DIGITS	18"	18"	D
3 DIGITS	18"	18"	B

DESIGNS

The designs of state route markers and auxiliary markers shall conform with the requirements set forth in the Manual on Uniform Traffic Control Devices prepared by the National Joint Committee on Traffic Control Devices

MATERIALS

The sign base material may be any of the following, of the minimum thickness noted:

FLAT SHEET ALUMINUM
- Less than 24" x 24" – 0.060"
- 24" x 24" – 0.080"

HIGH DENSITY OVERLAID PLYWOOD
- Less than 24" x 24" – 3/8"
- 24" x 24" – 1/2"

GALVANIZED FLAT SHEET STEEL
- Less than 24" x 24" – 18 gage
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Route markers to be mounted on interstate guide signs, shall be of a thickness as for signs less than 24" x 24"

The reflective material shall be white or silver reflective sheeting, applied to the entire background. The texts may be lettering film, silk screened, or hand painted.

COLORS

State route markers and auxiliary markers shall have black texts on reflectorized white or silver backgrounds.

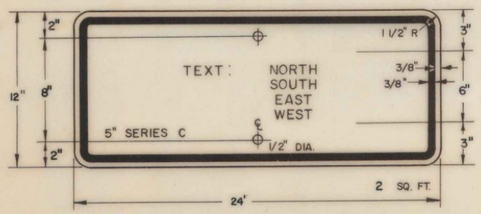
LETTERING

Letters and digits shall conform with the standard alphabets for highway signs approved by the National Joint Committee on Uniform Traffic Control Devices.

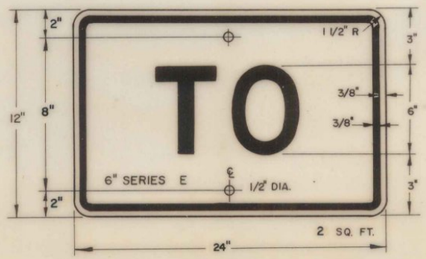
SPECIFICATIONS

State route markers and auxiliary route markers shall meet the standard state specifications for "Traffic Signs", Item 701

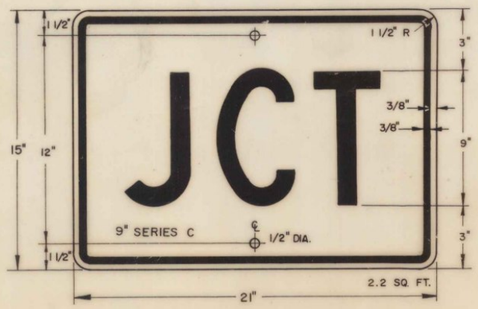
CARDINAL DIRECTION MARKER



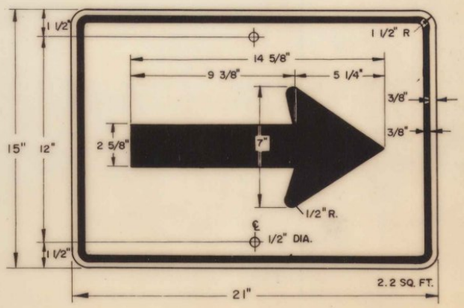
TRAILBLAZER



JUNCTION MARKER



DIRECTION ARROW OR
ADVANCE TURN ARROW



REVISIONS AND CORRECTIONS

AUG. 28, 1964 — "(GUIDE SIGNS)" ADDED TO TITLE
FEB. 4, 1971 — REVISED TO BE IN CONFORMANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES 1971 ADDITION.
MAR. 10, 1971 — DIMENSIONS CHANGED.
SEPT. 1, 1971 — ROUTE MARKER FOR USE ON INTERSTATE GUIDE SIGNS CHANGED FROM RECTANGLE TO A CIRCLE.

APPROVED: Feb 17, 1971

R. H. Arnold — CHIEF ENGINEER
E. H. Stickney Jr. — ASST. CHIEF ENGINEER
G. M. Lane — HIGHWAY ENGINEER
C. F. Knapp — TRAFFIC ENGINEER

DRAWN A.W.C.
TRACED A.J.A.

TRAFFIC SIGNS (GUIDE SIGNS)

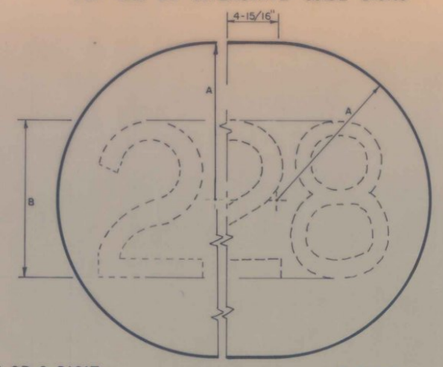
STATE ROUTE MARKERS AND AUXILIARY MARKERS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-13

K+E IMPERIAL™ TRACING CLOTH E. L. M., INC. 70444

STATE ROUTE MARKER
FOR USE ON INTERSTATE GUIDE SIGNS

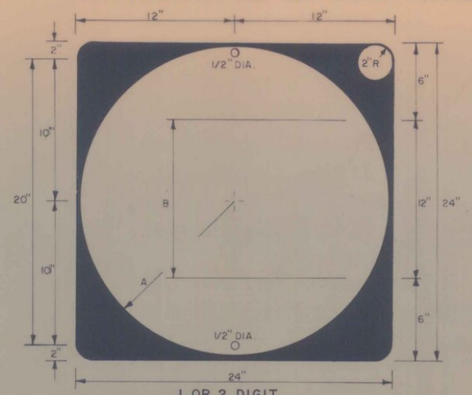


1 OR 2 DIGIT
(HALF SIGN)

3 DIGIT
(HALF SIGN)

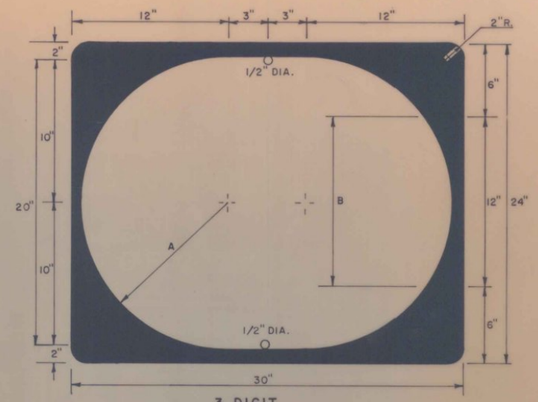
ROUTE NUMBER	A	B	SERIES
1 DIGIT	18"	18"	D
2 DIGITS	18"	18"	D
3 DIGITS	18"	18"	B

STATE ROUTE MARKER
FOR INDEPENDANT USE WITH MARKER ASSEMBLIES



1 OR 2 DIGIT

ROUTE NUMBER	A	B	SERIES
1 DIGIT	11"	12"	D
2 DIGITS	11"	12"	D
3 DIGITS	11"	12"	D



3 DIGIT
SEE CHART AT LEFT

MATERIALS

The sign base material may be any of the following, of the minimum thickness noted:

FLAT SHEET ALUMINUM
Less than 24" x 24" – 0.060"
24" x 24", 24" x 30" – 0.080"

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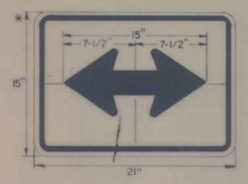
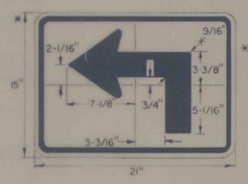
Letters and digits shall conform with the standard alphabets for highway signs approved by the National Joint Committee on Uniform Traffic Control Devices.

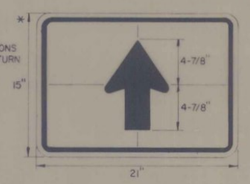
SPECIFICATIONS

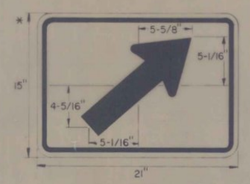
State route markers and auxiliary route markers shall meet the standard state specifications for "Traffic Signs".





* OTHER DIMENSIONS SEE ADVANCE TURN ARROW.

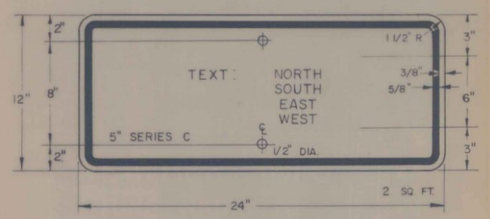




DESIGNS

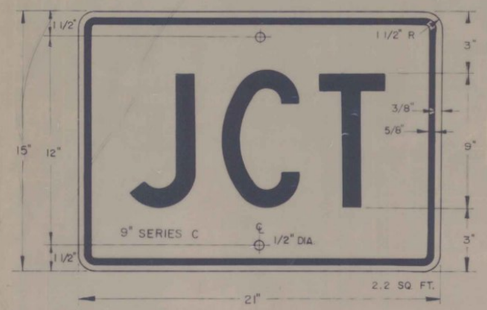
The designs of state route markers and auxiliary markers shall conform with the requirements set forth in the Manual on Uniform Traffic Control Devices prepared by the National Joint Committee on Traffic Control Devices

CARDINAL DIRECTION MARKER

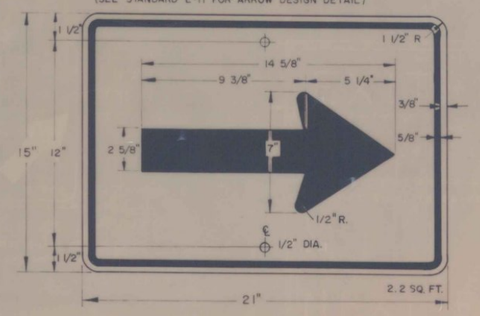


TRAILBLAZER

JUNCTION MARKER



DIRECTION ARROW OR
ADVANCE TURN ARROW
(SEE STANDARD E-11 FOR ARROW DESIGN DETAIL)



REVISIONS AND CORRECTIONS

MAY 3, 1982 – ADDITIONAL ADVANCE TURN ARROWS ADDED, BORDER DIMENSION CHANGED ON GUIDE SIGNS.

12/2/82 – ADDED THREE DIGIT DETAILS

APPROVED: DATE Dec. 29, 1971

R. T. Crandell
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

DRAWN A.W.C.
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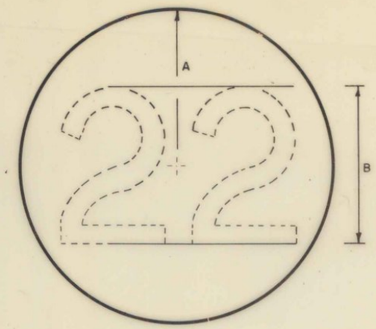
TRAFFIC SIGNS (GUIDE SIGNS)

STATE ROUTE MARKERS AND AUXILIARY MARKERS

VERMONT AGENCY OF TRANSPORTATION

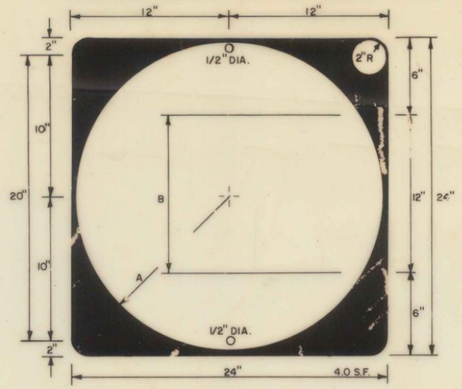
STANDARD
E-13

STATE ROUTE MARKER
FOR USE ON INTERSTATE GUIDE SIGNS



ROUTE NUMBER	A	B	SERIES
1 DIGIT	18"	18"	E
2 DIGITS	18"	18"	D
3 DIGITS	18"	18"	B

STATE ROUTE MARKER
FOR INDEPENDANT USE WITH MARKER ASSEMBLIES



ROUTE NUMBER	A	B	SERIES
1 DIGIT	12"	12"	E
2 DIGITS	12"	12"	D
3 DIGITS	12"	12"	B

DESIGNS

The designs of state route markers and auxiliary markers shall conform with the requirements set forth in the Manual on Uniform Traffic Control Devices prepared by the National Joint Committee on Traffic Control Devices

MATERIALS

The sign base material may be any of the following, of the minimum thickness noted:

FLAT SHEET ALUMINUM
- Less than 24" x 24" – 0.060"
- 24" x 24" – 0.080"

HIGH DENSITY OVERLAID PLYWOOD
- Less than 24" x 24" – 3/8"
- 24" x 24" – 1/2"

GALVANIZED FLAT SHEET STEEL
- Less than 24" x 24" – 18 gage
- 24" x 24" – 16 gage

Route markers to be mounted on interstate guide signs, shall be of a thickness as for signs less than 24" x 24"

The reflective material shall be white or silver reflective sheeting, applied to the entire background. The texts may be lettering film, silk screened, or hand painted.

COLORS

State route markers and auxiliary markers shall have black texts on reflectorized white or silver backgrounds.

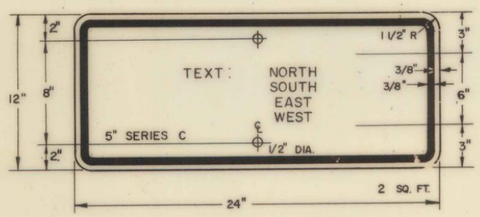
LETTERING

Letters and digits shall conform with the standard alphabets for highway signs approved by the National Joint Committee on Uniform Traffic Control Devices.

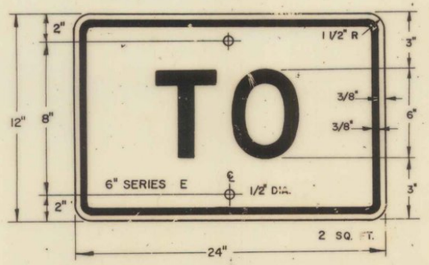
SPECIFICATIONS

State route markers and auxiliary route markers shall meet the standard state specifications for "Traffic Signs".

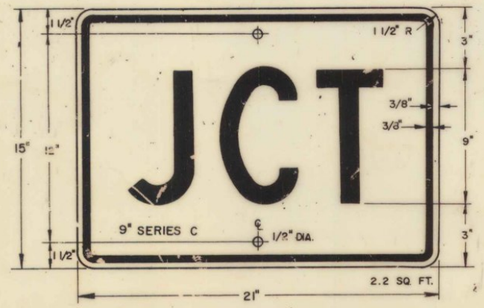
CARDINAL DIRECTION MARKER



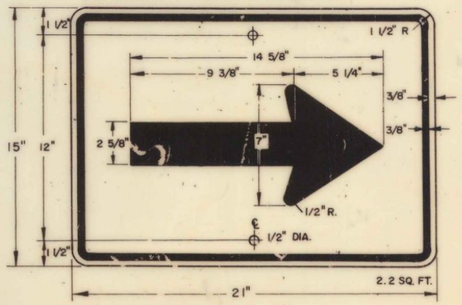
TRAILBLAZER



JUNCTION MARKER



DIRECTION ARROW OR
ADVANCE TURN ARROW
(SEE STANDARD E-11 FOR ARROW DESIGN DETAIL.)



REVISIONS AND CORRECTIONS

APPROVED: DATE Dec. 29, 1971

R. H. Arnold
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

DRAWN A.W.C.
TRACED A.J.A.

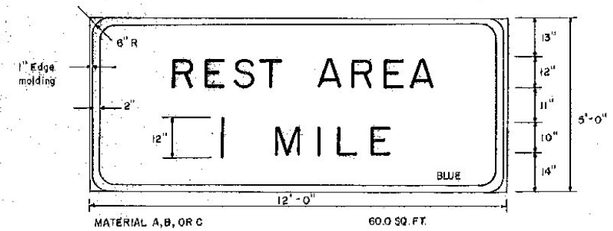
TRAFFIC SIGNS (GUIDE SIGNS)

STATE ROUTE MARKERS AND AUXILIARY MARKERS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

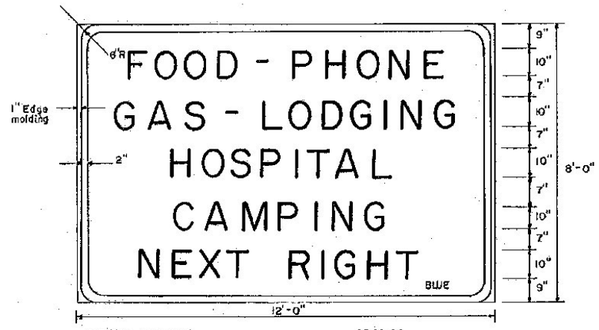
E-13

REST AREA SIGN:



MATERIAL A, B, OR C 60.0 SQ. FT.

SERVICES SIGN:



MATERIAL A, B, OR C 96 SQ. FT.

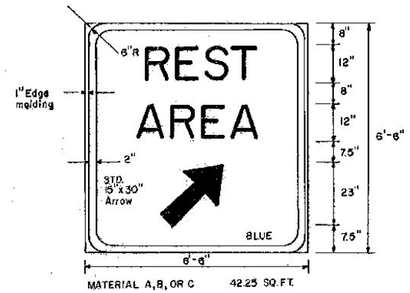
REST AREA SIGN:

MATERIAL A, B, OR C 65.0 SQ. FT.

TOWN LINE SIGN:

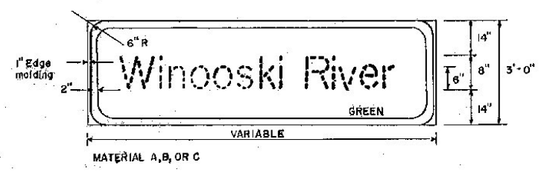
MATERIAL A, B, OR C 32 SQ. FT.

REST AREA SIGN:



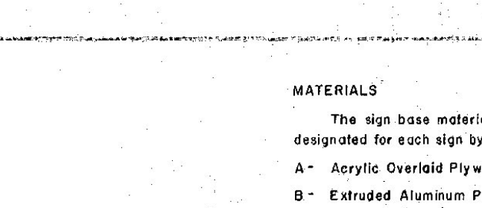
MATERIAL A, B, OR C 42.25 SQ. FT.

RIVER NAME SIGN:



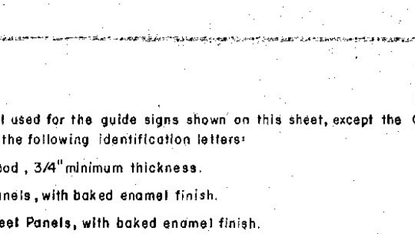
MATERIAL A, B, OR C

NEXT EXIT SIGN:



MATERIAL A, B, OR C 32 SQ. FT.

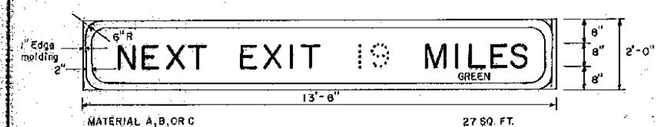
CORE SIGN:



30 SQ. FT.

This sign base material shall be A, B, or C, with reflective sheeting.

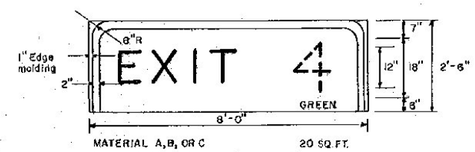
NEXT EXIT SIGN:



MATERIAL A, B, OR C 27 SQ. FT.

Use this sign when the parent sign is longer than 14 ft, otherwise use the 8 ft by 4 ft Next Exit Sign

EXIT NUMBER PANEL:



MATERIAL A, B, OR C 20 SQ. FT.

When a double number is needed, use a 10 ft sign 26 sq ft. Material for this sign the same as parent sign.

MATERIALS

The sign base material used for the guide signs shown on this sheet, except the Gore sign, shall be designated for each sign by the following identification letters:

A - Acrylic Overlaid Plywood, 3/4" minimum thickness.

B - Extruded Aluminum Panels, with baked enamel finish.

C - Formed Galvanized Steel Panels, with baked enamel finish.

The reflective material used for the texts shall be acrylic plastic reflectors in embossed letter frames.

COLORS

The signs shall have a reflectorized white text on a non-reflectorized green or blue background as indicated for each sign. The green and blue shall conform with the standard colors adopted by the American Association of State Highway Officials, and approved by the U.S. Dept. of Transportation, Federal Highway Administration.

LETTERING

Letters and digits shall conform with series E of the standard alphabet for highway signs approved by the National Joint Committee on Uniform Traffic Control Devices, with the stroke widths modified to one fifth the height.

DESIGNS

The designs of these signs shall conform with the requirements set forth in the Manual for Signing and Pavement Marking of the National System of Interstate and Defense Highways adopted by the American Association of State Highway Officials.

SPECIFICATIONS

The signs shall meet the standard state specifications for "Traffic Signs,"

REVISIONS AND CORRECTIONS

Jan. 4, 1972
APPROVED

R. H. Arnold
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

C. L. Kirby
TRAFFIC ENGINEER

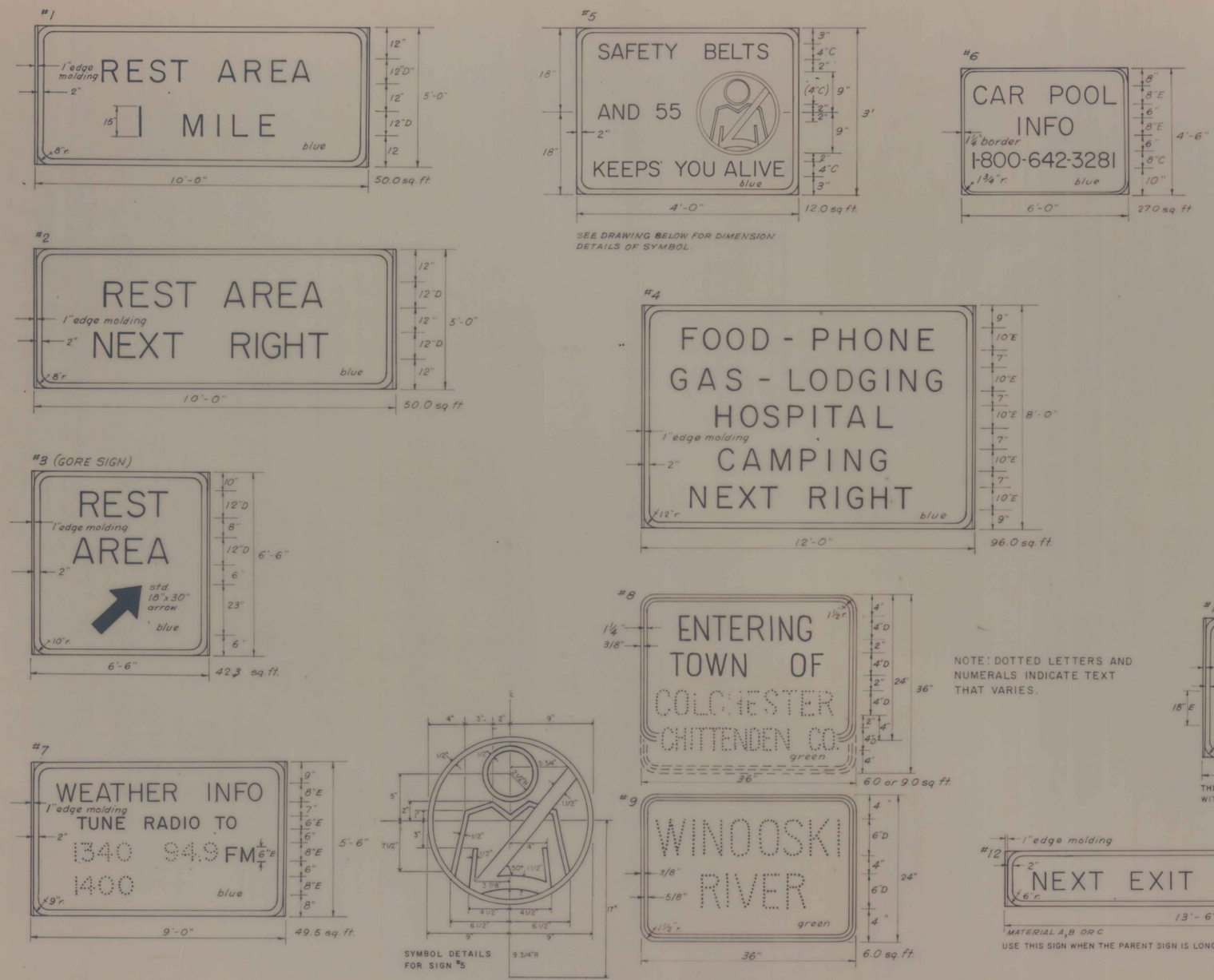
Drawn by: SRS
Traced by: SRS

TRAFFIC SIGNS

GUIDE SIGNS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-14



NOTE: DOTTED LETTERS AND NUMERALS INDICATE TEXT THAT VARIES.

MATERIALS

The sign base material used for the guide signs shown on this sheet may be any of the following:

A- HIGH DENSITY Overlaid Plywood, 3/4" minimum thickness with reflective sheeting. (TYPE A SIGNS ONLY)

B - Extruded Aluminum Panels, with reflective sheeting.

C - Formed Galvanized Steel Panels, with reflective sheeting.

See note below for details of text, border and symbols

Signs #11 and #12 or #12A, when used, shall be of the same sign base material as the parent sign.

COLORS

The signs shall have a reflectorized white text on a reflectorized green or blue background as indicated for each sign. The green and blue shall conform with those found in Standard Color Tolerance Charts as approved by the U.S. Dept. of Transportation, Federal Highway Administration.

LETTERING

Letters and digits shall conform with the requirements found in the publication "Standard Alphabets for Highway Signs and Pavement Markings" printed by the Federal Highway Administration.

DESIGNS

The design of these signs shall conform with the details set forth in the manual "Standard Highway Signs" as specified in "The Manual on Uniform Traffic Control Devices."

SPECIFICATIONS

The signs shall meet the standard state specifications for "Traffic Signs,"

TEXT, BORDER AND SYMBOLS

THE MATERIAL FOR THE TEXT, BORDER AND SYMBOL OF SIGNS 1-12A SHALL BE OF FLAT SHEET ALUMINUM 0.040 THICKNESS WITH WHITE OR SILVER ENSCAPULATED SHEETING.

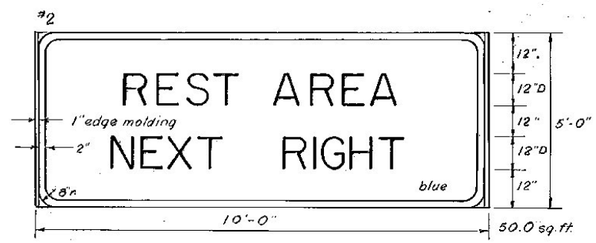
REVISIONS AND CORRECTIONS
FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

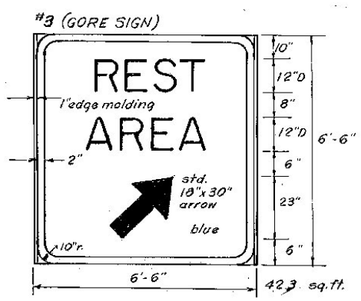
APPROVED:
3/3/83
DATE
DIRECTOR OF ENGINEERING AND CONSTRUCTION
CHIEF OF DESIGN
SURVEY AND PLANS ENGINEER

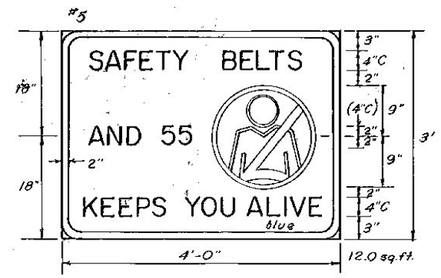
TRAFFIC SIGNS
GUIDE SIGNS

VERMONT AGENCY OF TRANSPORTATION

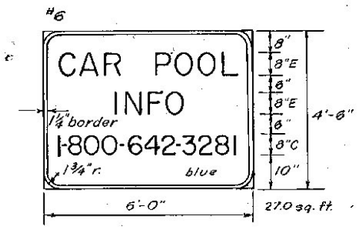
STANDARD
E-14







SEE DRAWING BELOW FOR DIMENSION DETAILS OF SYMBOL.



MATERIALS

The sign base material used for the guide signs shown on this sheet may be any of the following:

A - Acrylic Overlaid Plywood, 3/4" minimum thickness with reflective sheeting.

B - Extruded Aluminum Panels, with reflective sheeting.

C - Formed Galvanized Steel Panels, with reflective sheeting.

See note below for details of text, border and symbols

Signs #11 and #12 or #12A, when used, shall be of the same sign base material as the parent sign.

COLORS

The signs shall have a reflectorized white text on a reflectorized green or blue background as indicated for each sign. The green and blue shall conform with those found in Standard Color Tolerance Charts as approved by the U.S. Dept. of Transportation, Federal Highway Administration.

LETTERING

Letters and digits shall conform with the requirements found in the publication "Standard Alphabets for Highway Signs and Pavement Markings" printed by the Federal Highway Administration.

DESIGNS

The design of these signs shall conform with the details set forth in the manual "Standard Highway Signs" as specified in "The Manual on Uniform Traffic Control Devices."

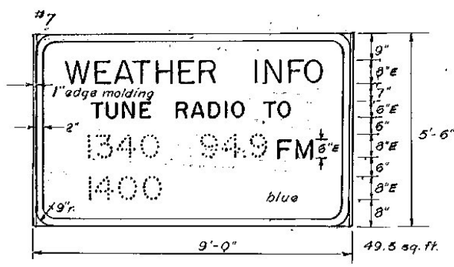
SPECIFICATIONS

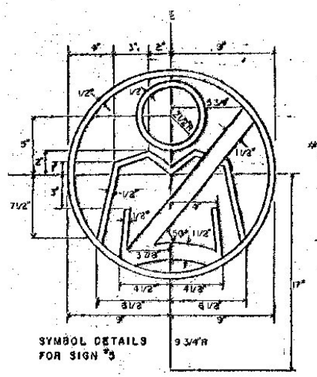
The signs shall meet the standard state specifications for "Traffic Signs."

TEXT, BORDER AND SYMBOLS

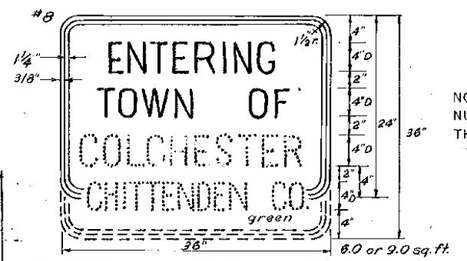
The material for the text and border of signs 1 - 4 shall be acrylic plastic reflectors in an embossed letter frame with a white baked enamel finish.

The material for the text, border and symbol of signs 5 - 13 shall be of flat sheet aluminum, 0.040 thickness with white or silver encapsulated sheeting.

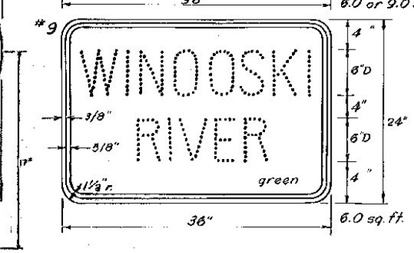


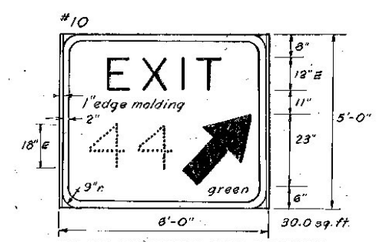


SYMBOL DETAILS FOR SIGN #5

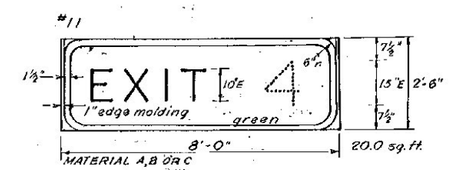


NOTE: DOTTED LETTERS AND NUMERALS INDICATE TEXT THAT VARIES.





THIS SIGN BASE MATERIAL SHALL BE A, B OR C WITH ENCAPSULATED LENS SHEETING

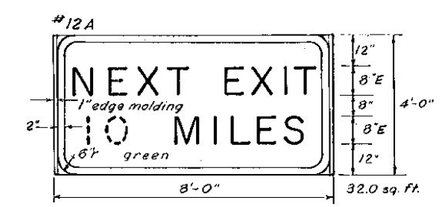


MATERIAL A, B OR C

WHEN A DOUBLE DIGIT EXIT NUMBER IS NEEDED USE A 10 FT. SIGN. (AREA-25 SQ. FT.)

MATERIAL A, B OR C

USE THIS SIGN WHEN THE PARENT SIGN IS LONGER THAN 14', OTHERWISE USE SIGN #12A



SEE NOTE FOR SIGN #12 CONCERNING SIGN SIZE REQUIREMENT

REVISIONS AND CORRECTIONS

APPROVED:

3/3/83
DATE

DIRECTOR OF ENGINEERING AND CONSTRUCTION

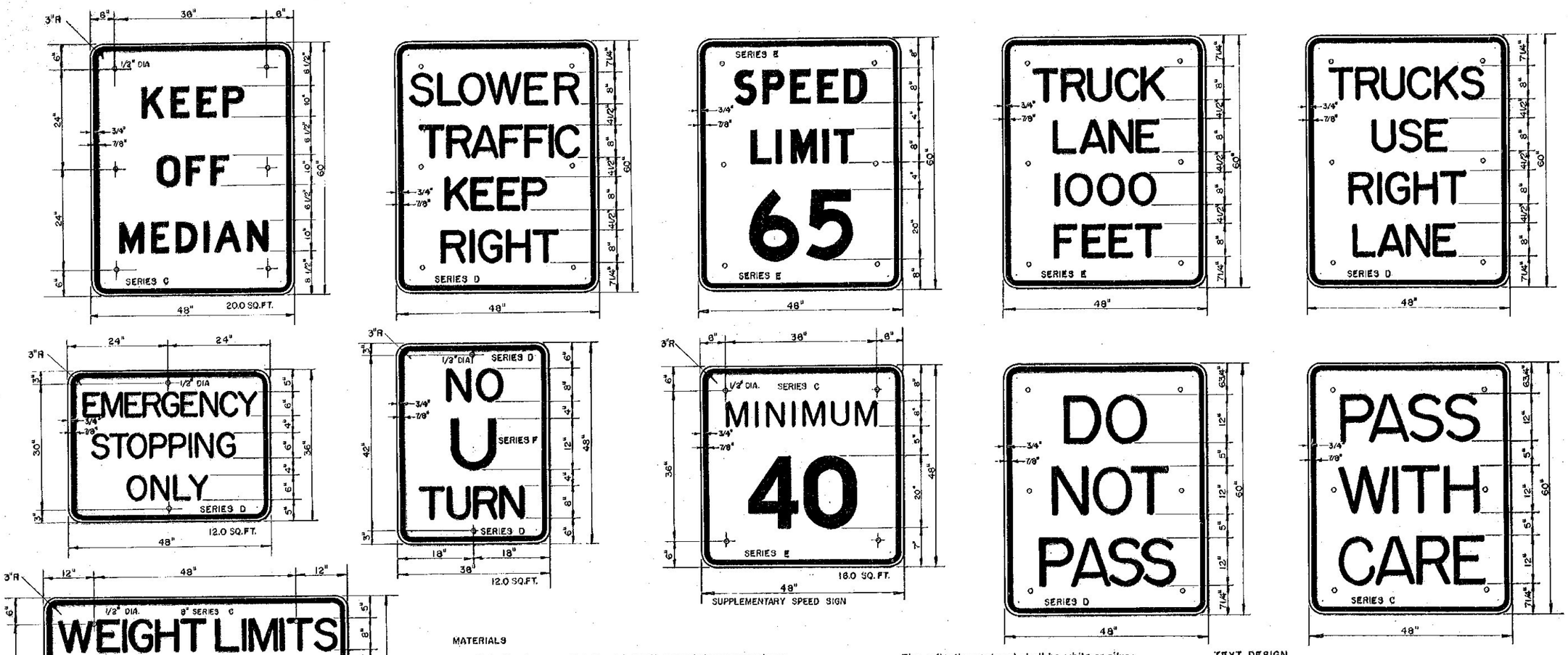
CHIEF OF DESIGN

SURVEY AND PLANS ENGINEER

TRAFFIC SIGNS
GUIDE SIGNS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-14



MATERIALS

The sign base material used for the regulatory signs shown on this sheet may be any of the following, of the minimum thickness noted:

	ONE POST		TWO POSTS	
	3'x4'	4'x3'	4'x5'	6'x4'
FLAT SHEET ALUMINUM	0.100"	0.125"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	5/8"	5/8"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	14 Gage	12 Gage	16 Gage	14 Gage

The reflective material shall be white or silver reflective sheeting applied to the backgrounds. The texts may be lettering film, silk screened or hand lettered.

COLORS

The regulatory signs shown on this sheet shall have black texts on a reflectorized white or silver background.

TEXT DESIGN

Letters, digits, spacings and text dimensions shall conform with the standard alphabets and designs prescribed in the Manual on Uniform Traffic Control Devices prepared by the National Joint Committee on uniform traffic control devices.

SPECIFICATIONS

The signs shall meet the standard State specifications for "Traffic Signs", Item 701.

REVISIONS AND CORRECTIONS

AUG. 12, 1963 – DIMENSIONS REVISED ON KEEP OFF MEDIAN, SPEED LIMIT 65 AND MINIMUM 40 SIGNS.

APPROVED

MAY 6, 1963

A. D. Sickles — CHIEF ENGINEER

R. H. Arnold — ASST. CHIEF ENGINEER

G. M. Lane — HIGHWAY ENGINEER

A. W. Coleman — TRAFFIC ENGINEER

E. H. Stickney — CONSTRUCTION ENGINEER

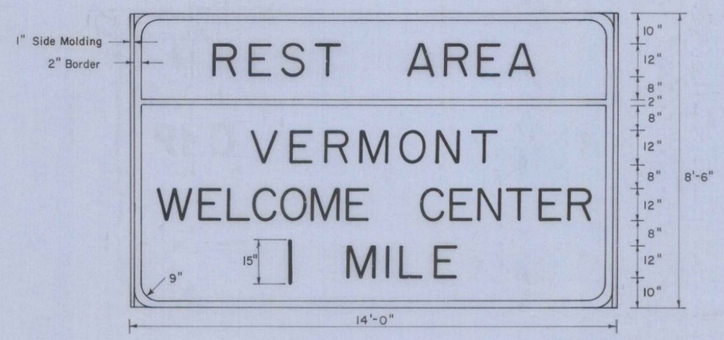
DRAWN A.W.C.
TRACED R.L.B.

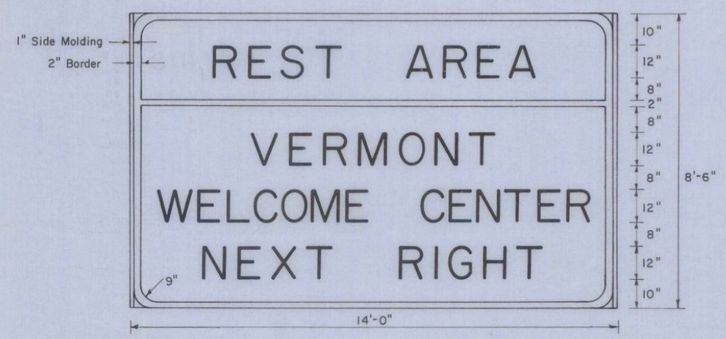
TRAFFIC SIGNS

REGULATORY SIGNS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-14





MATERIALS

The sign base material used for the guide signs shown on this sheet shall be designated by the following identification letters.

A - Acrylic Overlaid Plywood, 3/4" minimum thickness.

B - Extruded Aluminum Panels, with baked enamel finish.

The reflective material used for the text shall be acrylic plastic reflectors in embossed letter frames.

COLORS

The signs shall have a reflectorized white text on a non-reflectorized blue backround as indicated for each sign. The blue shall conform with the standard colors adopted by the American Association of State Highway and Transportation Officials and approved by the U.S. Department of Transportation, Federal Highway Administration.

LETTERING

Letters and digits shall conform with series D of the standard alphabet for highway signs approved by the National Joint Committee on Uniform Traffic Control Devices, with a stroke width modified to one fifth the height.

The design of these signs shall conform with the requirements set forth in the manual for Signing and Pavement Marking of the National Systems of Interstate and Defense Highways adopted by the American Association of State Highway and Transportation Officials.

SPECIFICATION

The signs shall meet standard state specifications for "Traffic Signs."

REVISIONS AND CORRECTIONS

JUNE 30, 1976 — SIZE OF "1" INCREASED TO 15".

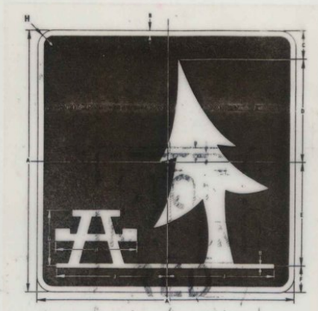
APPROVED May 6, 1976
DATE
E. V. Hickey
CHIEF ENGINEER
R O Munn
ASST. CHIEF ENGINEER
Leon C Jones
HIGHWAY ENGINEER

TRAFFIC SIGNS

GUIDE SIGNS

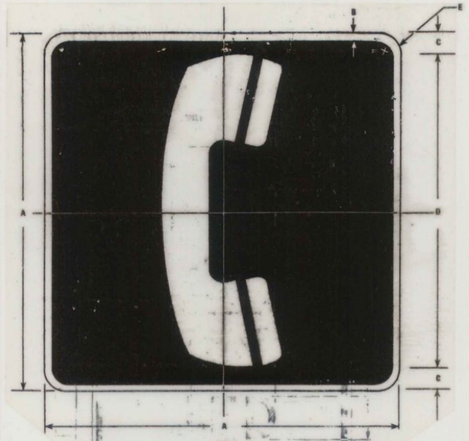
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-14 A



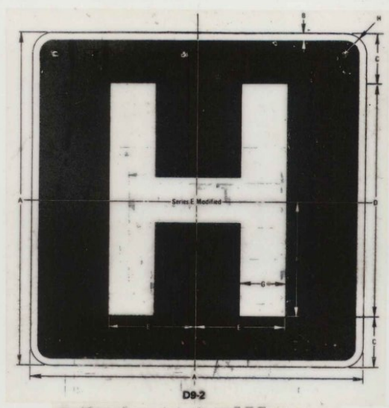
D5-5

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
STD. & MIN.	24	1/2	1-1/2	10-1/2	9-1/2	2-1/2	5-1/4	8	10	1-1/2
SPECIAL	30	3/4	1-7/8	13-1/8	11-7/8	3-1/8	6-9/16	10	12-1/2	1-7/8



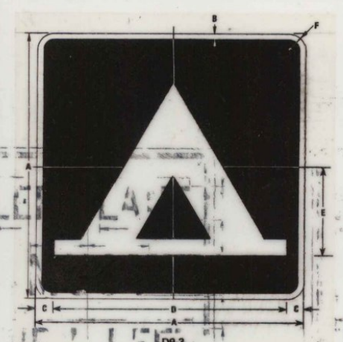
D9-1

SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
STD.	24	1/2	1-1/2	21	1-1/2
SPECIAL	30	3/4	2	26	1-7/8



D9-2

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
STD. & MIN.	24	1/2	4	16	6-3/8	9-3/8	3-1/8	1-1/2
SPECIAL	30	3/4	5	20	8	10-3/8	4	1-7/8

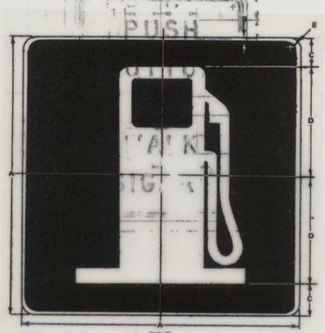


D9-3

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD. & MIN.	24	1/2	1-1/2	21	8	1-1/2
SPECIAL	30	3/4	2	26	10	1-7/8

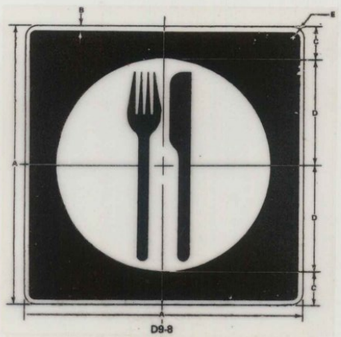
D9 — 6

SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN & STD*	24	1/2	3	18	1 1/2
SPECIAL	30	3/4	3 3/4	22 1/2	1 7/8



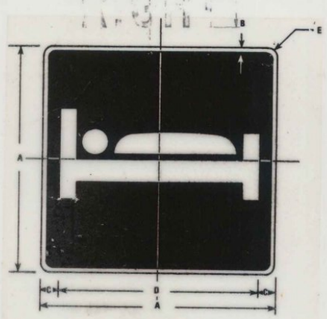
D9-7

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD	24	1/2	3	9	1-1/2	24
SPECIAL	30	3/4	3-3/4	11-1/4	1-7/8	24



D9-8

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD	24	1/2	3	9	1-1/2	24
SPECIAL	30	3/4	3-3/4	11-1/4	1-7/8	24

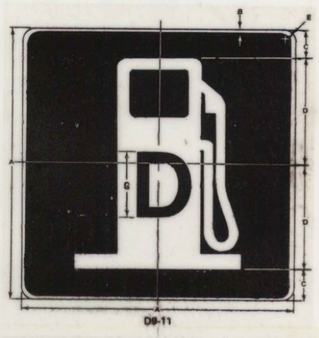


D9-9

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD.	24	1/2	1-1/2	21	1-1/2	24
SPECIAL	30	3/4	2	26	1-7/8	24

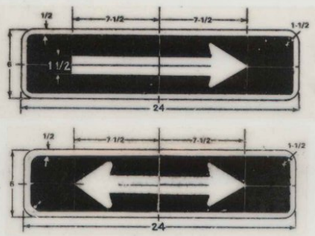
D9-10

SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
STD	24	1/2	18-1/2	3-3/4	1-1/2
SPECIAL	30	3/4	23-1/4	4-3/4	1-7/8



D9-11

SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	F	G
STD	24	1/2	3	9	1-1/2	24	8E(M)
SPECIAL	30	3/4	3-3/4	11-1/4	1-7/8	24	7½E(M)



MATERIALS

The sign base material used for the guide signs shown on this sheet may be any of the following minimum thicknesses noted.

A-FLAT SHEET ALUMINUM - 0.060
B-HIGH DENSITY OVERLAID PLYWOOD - 1/2"
C-GALVANIZED FLAT SHEET STEEL- 16 GA.

COLORS

The signs shall be white or silver reflectorized sheeting with a reverse screened blue background. The blue shall conform with the standard colors adopted by the American Association of State Highway Officials and approved by the U.S. Dept. of Transportation, Federal Highway Administration.

LETTERING

Letters shall conform with the requirements found in the publication Standard Alphabets for Highway Signs and Pavement Markings printed by the Federal Highway Administration.

DESIGN

The design of these signs shall conform with the details set forth in the manual "Standard Highway Signs" as specified in "The Manual on Uniform Traffic Control Devices." Letter-numeral designation under each symbol is identification in manual.

SPECIFICATIONS

These signs shall meet the standard state specifications for "Traffic Signs."

REVISIONS AND CORRECTIONS

APPROVED:

3/3/83
DATE

S. N. Gage
DIRECTOR OF ENGINEERING AND CONSTRUCTION

Arthur Foss
CHIEF OF DESIGN

Frank C. Salmon
SURVEY AND PLANS ENGINEER

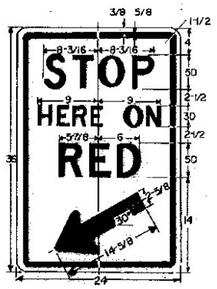
GENERAL SERVICES SIGNS

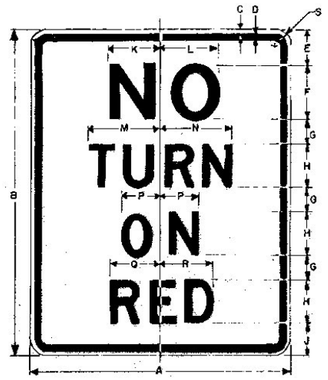
(GUIDE SIGNS)

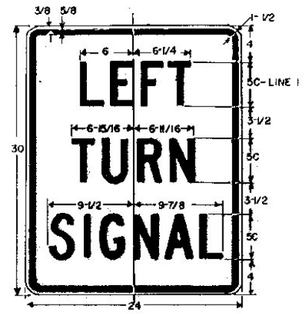
VERMONT AGENCY OF TRANSPORTATION

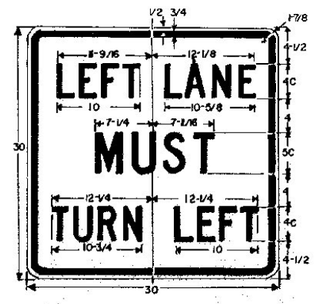
STANDARD

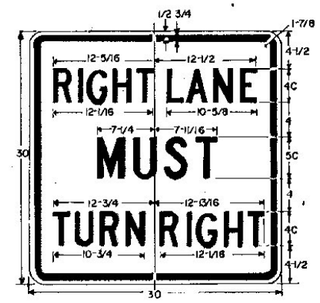
E-14B

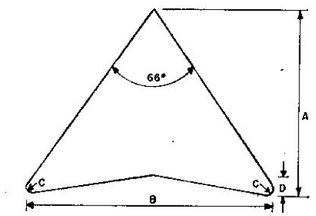




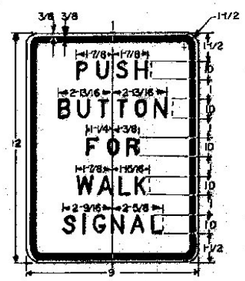




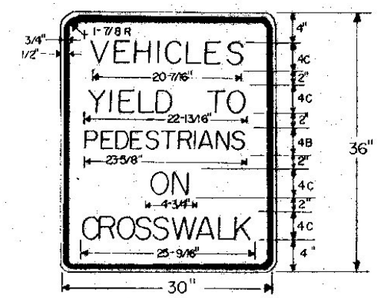


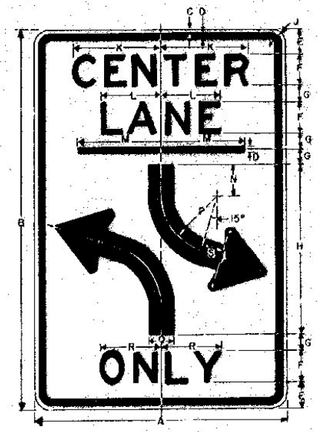


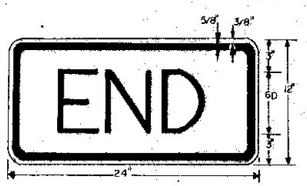
ARROW HEAD	DIMENSIONS (INCHES)				
	SIZE	A	B	C	D
MINIMUM & STD.	24 X 36	4-3/4	5-5/8	1/2	3/4
SPECIAL	36X 48	7-1/8	8-1/2	5/8	1 1/8



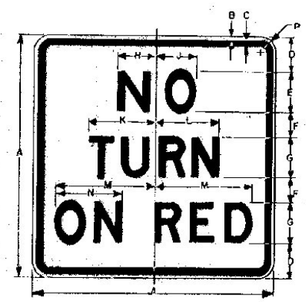
SIGN	DIMENSIONS (INCHES)																
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
MIN.	18	24	3/8	5/8	3	4E	1-3/4	3D	2-3/4	3-7/8	4-1/8	5	4-7/8	2-5/8	3-7/16	3-11/16	1-1/2
STD.	24	30	3/8	5/8	3-1/4	5E	2-1/4	4D	3	4-13/16	5-3/16	6-5/8	6-1/2	3-1/2	4-5/8	4-7/8	1-1/2
SPECIAL	36	48	5/8	7/8	6	8E	3-1/2	6D	5-1/2	7-3/4	8-1/4	10	9-3/4	5-1/4	6-7/8	7-3/8	2-1/4



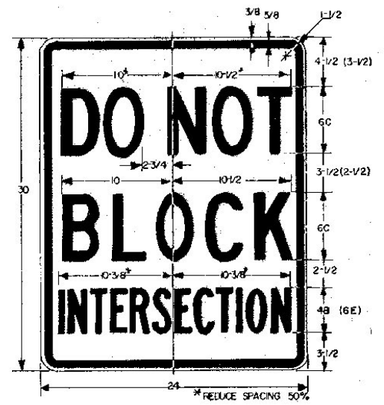




SIGN	DIMENSION (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
STD. & MIN.	24	36	3/8	5/8	2-1/2	3E	1-1/2	16	1-1/2	8-7/16	5-3/4	8	2-1/2	6	2	5-5/16	1-1/2
SPECIAL	36	48	5/8	7/8	3-1/2	5E	1-1/2	20	2-1/4	11-1/16	9-1/2	12	3	8	3	9-7/8	2



SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	18	3/8	5/8	2-3/4	3E	1-3/4	3D	2-5/16	3-1/16	5	4-7/8	7-1/8	5-1/4	1-1/2
STD.	24	3/8	5/8	3-1/2	4E	2-1/2	4D	3-7/8	4-1/8	6-5/8	6-1/2	9-1/2	6-1/2	1-1/2
SPECIAL	30	1/2	3/4	4-1/2	5E	3D	5D	4-15/16	5-3/16	8-1/4	8-1/8	11-7/8	7-3/4	1-7/8



( ) INDICATES DIMENSIONS FOR "DO NOT BLOCK DRIVE" SIGN

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	9"X12" 18"X18" 24"X12"	24"X24" 24"X30" 30"X30" 30"X36"	36"X36" 36"X48"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2	1/2"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. WHEN MOUNTED OVERHEAD, ALL SIGNS SHALL HAVE HIGH INTENSITY ENCAPSULATED LENS REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES PREPARED BY THE NATIONAL JOINT COMMITTE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

REGULATORY SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

REVISIONS AND CORRECTIONS

JULY 2, 1984 - ADDITIONAL SIGNS ADDED

FEB. 3, 1986 - UPDATED TO 1986 SPECIFICATIONS

APPROVED: JULY 29, 1981
DATE

S. J. Gage P.E.
DIRECTOR OF ENGINEERING AND CONSTRUCTION

Arthur J. Goss
CHIEF OF DESIGN

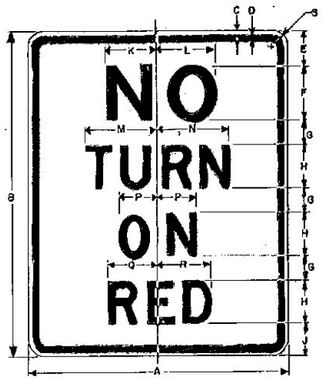
Leon E. Jones
TRANSPORTATION DESIGN ENGINEER

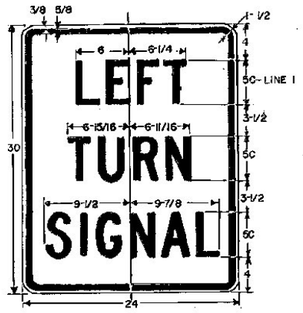
REGULATORY SIGNS

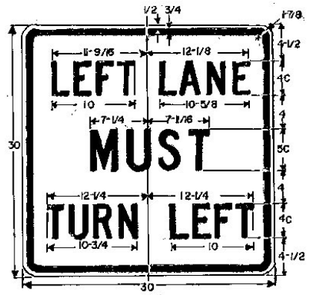
VERMONT AGENCY OF TRANSPORTATION

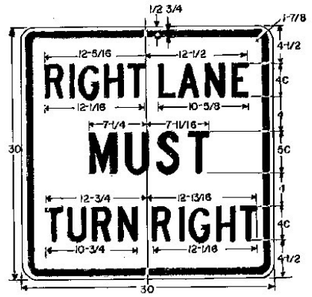
STANDARD

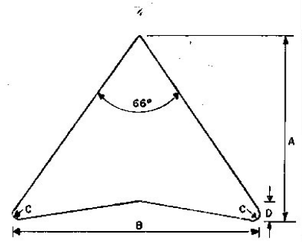
E-15



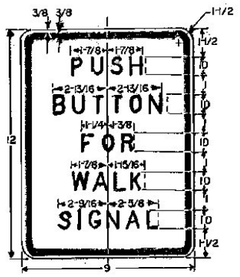




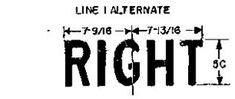


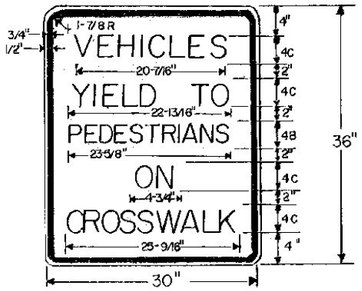


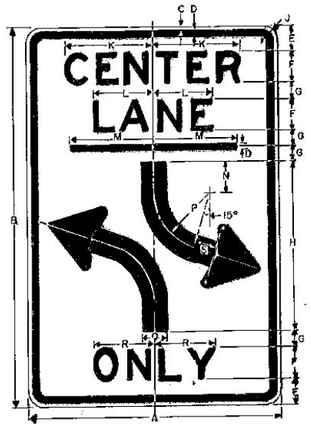
ARROW HEAD	DIMENSIONS (INCHES)				
	SIZE	A	B	C	D
MINIMUM & STD.	24 X 36	4-3/4	5-5/8	1/2	3/4
SPECIAL	36X 48	7-1/8	8-1/2	5/8	1-1/8

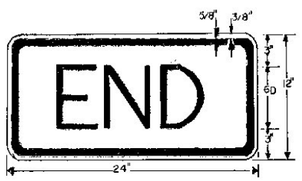


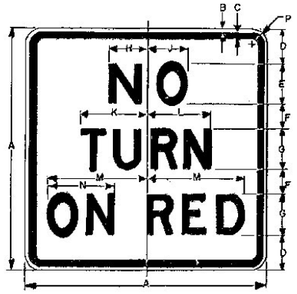
SIGN	DIMENSIONS (INCHES)																
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
MIN.	18	24	3/8	5/8	3	4E	1-3/4	3D	2-3/4	3-7/8	4-1/8	5	4-7/8	2-5/8	3-7/16	3-11/16	1-1/2
STD.	24	30	3/8	5/8	3-1/4	5E	2-1/4	4D	3	4-13/16	5-3/16	6-5/8	6-1/2	3-1/2	4-5/8	4-7/8	1-1/2
SPECIAL	36	48	5/8	7/8	6	8E	3-1/2	6D	5-1/2	7-3/4	8-1/4	10	9-3/4	5-1/4	6-7/8	7-3/8	2-1/4



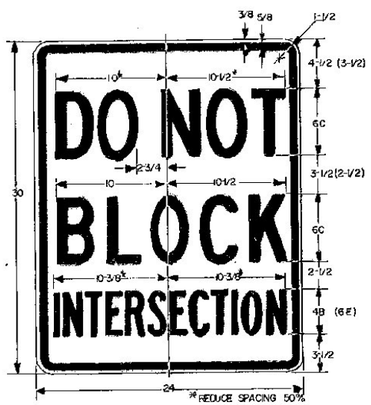








SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	18	3/8	5/8	2-3/4	3E	1-3/4	3D	2-5/16	3-1/16	5	4-7/8	7-1/8	5-1/4	1-1/2
STD.	24	3/8	5/8	3-1/2	4E	2-1/2	4D	3-7/8	4-1/8	6-5/8	6-1/2	9-1/2	6-1/2	1-1/2
SPECIAL	30	1/2	3/4	4-1/2	5E	3D	5D	4-13/16	5-3/16	8-1/4	8-1/8	11-7/8	7-3/4	1-7/8



* REDUCE SPACING 50%

( ) INDICATES DIMENSIONS FOR "DO NOT BLOCK DRIVE" SIGN

SIGN	DIMENSION (INCHES)																
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
STD. & MIN.	24	36	3/8	5/8	2-1/2	3E	1-1/2	16	1-1/2	8-7/16	5-3/4	8	2-1/2	6	2	5-5/16	1-1/2
SPECIAL	36	48	5/8	7/8	3-1/2	5E	1-1/2	20	2-1/4	14-1/16	9-1/2	12	3	8	3	9-7/8	2

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	9"X12" 18"X18" 24"X12"	24"X24" 24"X30" 30"X30" 30"X36"	36"X36" 36"X48"
FLAT SHEET ALUMINUM	0.080"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2	1/2"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. WHEN MOUNTED OVERHEAD, ALL SIGNS SHALL HAVE HIGH INTENSITY ENCAPSULATED LENS REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES PREPARED BY THE NATIONAL JOINT COMMITTE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

REGULATORY SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

REVISIONS AND CORRECTIONS

JULY 2, 1984 - ADDITIONAL SIGNS ADDED

APPROVED: JULY 29, 1981
DATE

S. J. Gage P.E.
DIRECTOR OF ENGINEERING AND CONSTRUCTION

Arthur J. Gross
CHIEF OF DESIGN

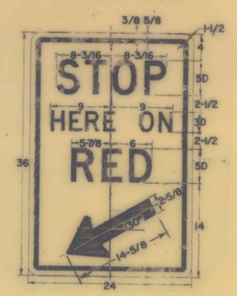
Leon D. Jones
TRANSPORTATION DESIGN ENGINEER

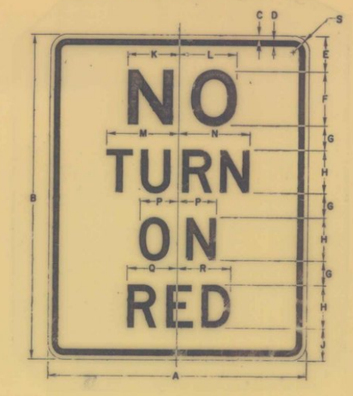
REGULATORY SIGNS

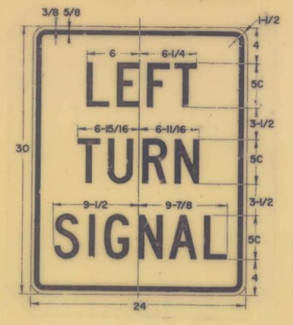
VERMONT AGENCY OF TRANSPORTATION

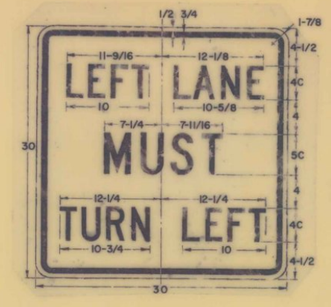
STANDARD

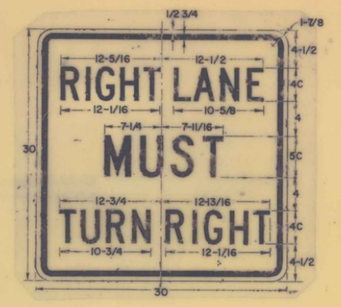
E-15

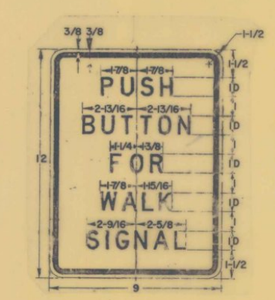






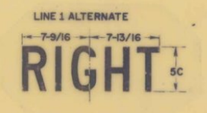






SIGN	DIMENSIONS (INCHES)																
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
STD.	24	30	3/8	5/8	3-1/4	5E	2-1/4	4D	3	4-13/16	5-3/16	6-5/8	6-1/2	3-1/2	4-5/8	4-7/8	1-1/2
SPECIAL	36	48	5/8	7/8	6	8E	3-1/2	6D	5-1/2	7-3/4	8-1/4	10	9-3/4	5-1/4	6-7/8	7-3/8	2-1/4

LINE 1 ALTERNATE



COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	9"X12"	24"X24" 24"X30" 30"X30"	36"X36"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	—	1/2"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. WHEN MOUNTED OVERHEAD, ALL SIGNS SHALL HAVE HIGH INTENSITY ENCAPSULATED LENS REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES PREPARED BY THE NATIONAL JOINT COMMITTE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

REGULATORY SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

REVISIONS AND CORRECTIONS

APPROVED:

JULY 29, 1981
DATE

DIRECTOR OF ENGINEERING AND CONSTRUCTION

CHIEF OF DESIGN

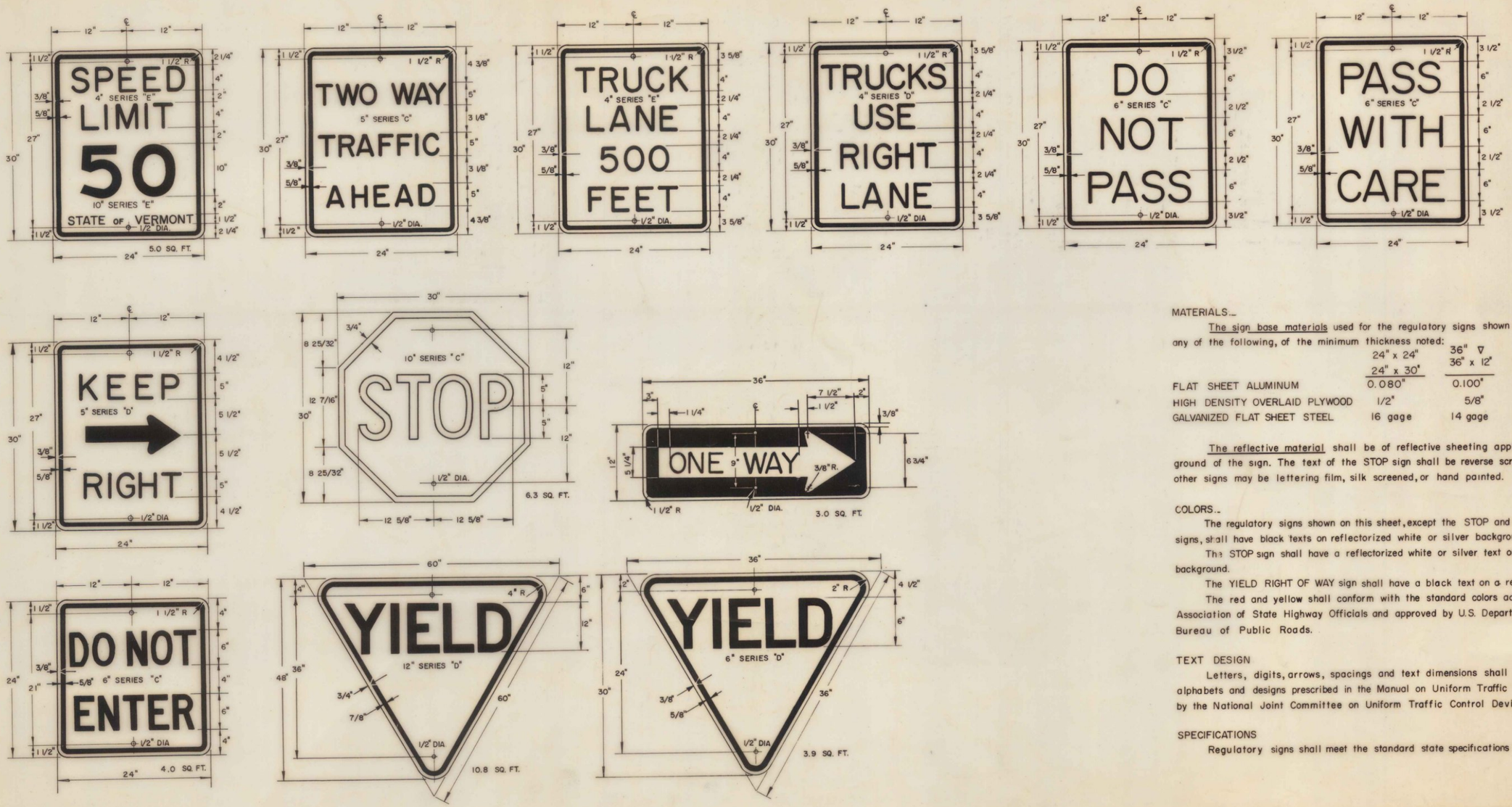
TRANSPORTATION DESIGN ENGINEER

REGULATORY SIGNS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-15



MATERIALS:-

The sign base materials used for the regulatory signs shown on this sheet may be any of the following, of the minimum thickness noted:

	24" x 24" / 24" x 30"	36" ∇ / 36" x 12"	60" ∇
FLAT SHEET ALUMINUM	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	16 gage	14 gage	12 gage

The reflective material shall be of reflective sheeting applied to the entire background of the sign. The text of the STOP sign shall be reverse screened; the text of the other signs may be lettering film, silk screened, or hand painted.

COLORS:-

The regulatory signs shown on this sheet, except the STOP and YIELD RIGHT OF WAY signs, shall have black texts on reflectorized white or silver backgrounds.

The STOP sign shall have a reflectorized white or silver text on a reflectorized red background.

The YIELD RIGHT OF WAY sign shall have a black text on a reflectorized yellow background.

The red and yellow shall conform with the standard colors adopted by the American Association of State Highway Officials and approved by U.S. Department of Commerce, Bureau of Public Roads.

TEXT DESIGN

Letters, digits, arrows, spacings and text dimensions shall conform with the standard alphabets and designs prescribed in the Manual on Uniform Traffic Control Devices prepared by the National Joint Committee on Uniform Traffic Control Devices.

SPECIFICATIONS

Regulatory signs shall meet the standard state specifications for "Traffic Signs", Item 701

REVISIONS AND CORRECTIONS

AUG. 12, 1963 – REVISED DESIGN OF STOP SIGN TO CONFORM WITH UNIFORM MANUAL

APPROVED: MAY 6, 1963

G. D. Bishop — CHIEF ENGINEER
R. A. Arnold — ASST. CHIEF ENGINEER
G. M. Lane — HIGHWAY ENGINEER
A. W. Clemons — TRAFFIC ENGINEER
E. W. Stickney — CONSTRUCTION ENGINEER

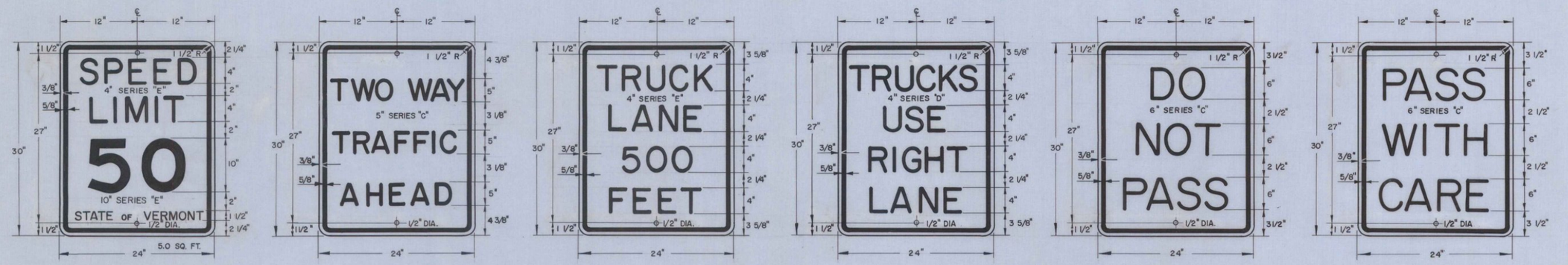
DRAWN A.W.C.
TRACED: A.J.A.

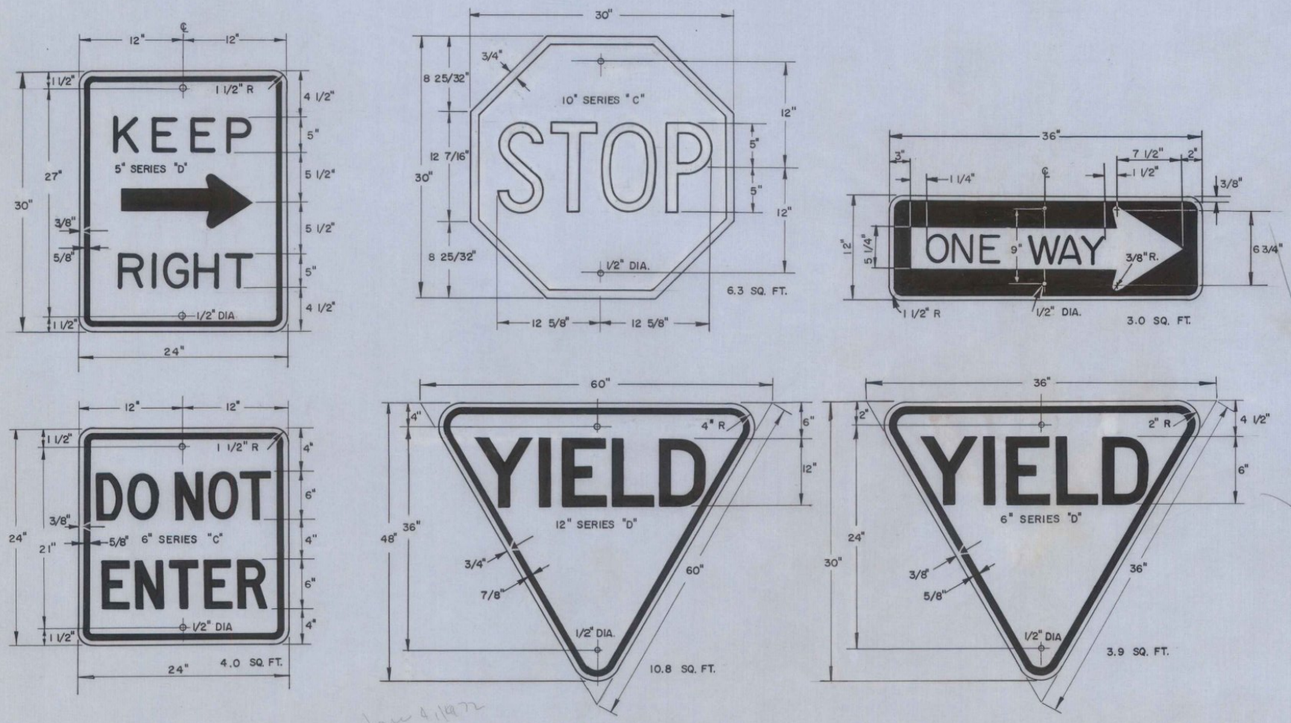
TRAFFIC SIGNS

REGULATORY SIGNS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-15





MATERIALS:-

The sign base materials used for the regulatory signs shown on this sheet may be any of the following, of the minimum thickness noted:

	24" x 24" / 24" x 30"	36" ∇ / 36" x 12"	60" ∇
FLAT SHEET ALUMINUM	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	16 gage	14 gage	12 gage

The reflective material shall be of reflective sheeting applied to the entire background of the sign. The text of the STOP sign shall be reverse screened; the text of the other signs may be lettering film, silk screened, or hand painted.

COLORS..

The regulatory signs shown on this sheet, except the STOP and YIELD RIGHT OF WAY signs, shall have black texts on reflectorized white or silver backgrounds.

The STOP sign shall have a reflectorized white or silver text on a reflectorized red background.

The YIELD RIGHT OF WAY sign shall have a black text on a reflectorized yellow background.

The red and yellow shall conform with the standard colors adopted by the American Association of State Highway Officials and approved by U.S. Department of Commerce, Bureau of Public Roads.

TEXT DESIGN

Letters, digits, arrows, spacings and text dimensions shall conform with the standard alphabets and designs prescribed in the Manual on Uniform Traffic Control Devices prepared by the National Joint Committee on Uniform Traffic Control Devices.

SPECIFICATIONS

Regulatory signs shall meet the standard state specifications for "Traffic Signs", Item 701

REVISIONS AND CORRECTIONS

AUG. 12, 1963 – REVISED DESIGN OF STOP SIGN TO CONFORM WITH UNIFORM MANUAL

APPROVED: Jan 4, 1972

R. H. Arnold
CHIEF ENGINEER

E. J. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

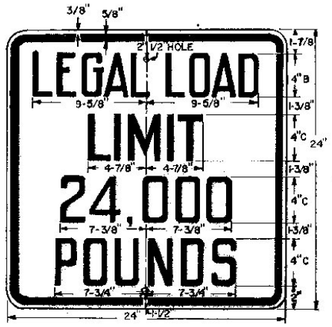
DRAWN A.W.C.
TRACED: A.J.A.

TRAFFIC SIGNS

REGULATORY SIGNS

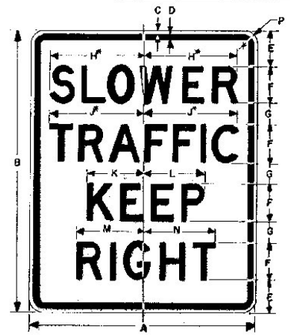
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-15



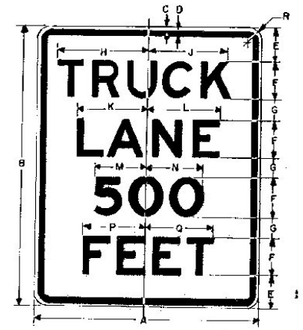
LINE 3 ALTERNATE - 16,000

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N
STD & MIN	24	30	3/8	5/8	3-5/8	40	2-1/4	9-1/4	9-5/8	6-9/16	3-1/2	10	1-1/2
SPECIAL	36	48	5/8	7/8	6	60	4	14	14-7/16	9-3/4	5-1/4	15	2-1/4
SPECIAL	48	60	3/4	1-1/4	7-1/4	80	4-1/2	18-1/2	19-1/4	13-1/8	7	20	3

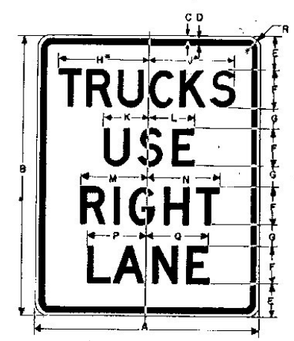


*REDUCE SPACING 25%

SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN & STD.	24	30	3/8	5/8	3-5/8	40	2-1/4	9-3/4	10	6	6-9/16	7-1/8	7-5/8	1-1/2
EXPWY.	36	48	5/8	7/8	6	60	4	14-5/8	15	9	9-13/16	10-11/16	11-3/8	2-1/4
FWY.	48	60	3/4	1-1/4	7-1/4	80	4-1/2	19-1/2	20	12	13-1/8	14-1/4	15-1/4	3

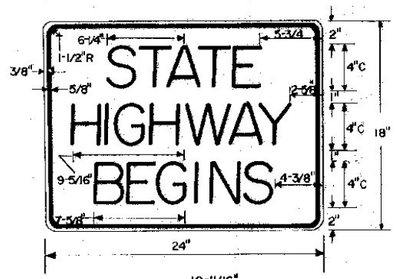


SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
MIN. & STD.	24	30	3/8	5/8	3-5/8	40	2-1/4	9-13/16	9-11/16	7-9/16	7-11/16	5-1/16	5-13/16	6-7/8	7-1/16	1-1/2
EXPWY.	36	48	5/8	7/8	6	60	4	14-3/4	14-1/2	11-5/16	11-1/2	8-1/2	8-3/4	10-5/16	10-5/8	2-1/4
FWY.	48	60	3/4	1-1/4	7-1/4	80	4-1/2	19-5/8	19-3/8	15-1/8	15-3/8	11-3/8	11-5/8	13-3/4	14-1/8	3



*REDUCE SPACING 32%

SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
MIN. & STD.	24	30	3/8	5/8	3-5/8	40	2-1/4	9-3/16	9-3/16	4-3/4	5	7-1/8	7-5/8	8-1/4	6-5/8	1-1/2
EXPWY.	36	48	5/8	7/8	6	60	4	14-5/16	13-13/16	7-1/8	7-1/2	10-11/16	11-3/8	9-3/8	9-15/16	2-1/4
FWY.	48	60	3/4	1-1/4	7-1/4	80	4-1/2	19-1/8	18-3/8	9-1/2	10	14-1/4	15-1/4	12-1/2	13-1/4	3



OR ENDS

OR ENDS

COLORS:
THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

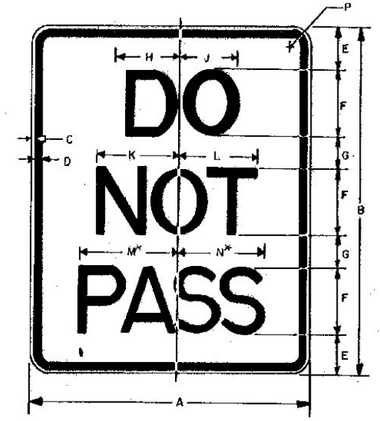
MATERIALS:
THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	18"X24"	24"X18" 24"X24" 24"X30"	36"X48" 48"X60"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.
THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

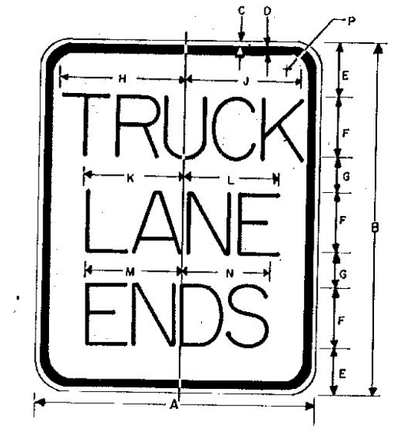
SPECIFICATIONS:
REGULATORY SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:
LETTERS, DIGITS, ARROWS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES PREPARED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.



*REDUCE SPACING 40%

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	18	24	3/8	5/8	3-1/2	40	2-1/2	3-1/8	3-5/16	4-3/4	4-7/8	6-1/4	6-1/2	1-1/2
STD.	24	30	3/8	5/8	3-1/2	60	2-1/2	4-11/16	5	7-1/8	7-3/8	9-3/8	9-3/4	1-1/2
EXPWY.	36	48	5/8	7/8	7	80	5	6-1/4	6-5/8	9-1/2	9-3/4	12-1/2	13	2-1/4
FWY.	48	60	3/4	1-1/4	8	100	7	7-3/4	8-5/16	11-7/8	12-1/4	15-5/8	16-1/4	3



SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN. & STD.	24	30	3/8	5/8	3-1/2	60	2-1/2	10-1/4	10-3/16	7-3/4	7-3/4	7-15/16	8	1-1/2
EXPWY.	36	48	5/8	7/8	7	80	5	13-11/16	13-5/8	10-3/8	10-5/16	10-11/16	11-3/8	2-1/4
FWY.	48	60	3/4	1-1/4	8	100	7	20-5/8	20-5/8	15-7/8	15-15/16	16-1/16	16-1/16	3

REVISIONS AND CORRECTIONS
FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED
DATE JULY 18, 1984
DIRECTOR OF ENGINEERING AND CONSTRUCTION
Arthur J. Goss
CHIEF OF DESIGN
SURVEY AND PLANS ENGINEER

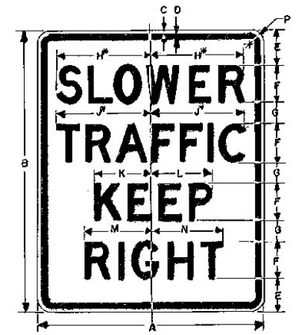
REGULATORY SIGNS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-15 A

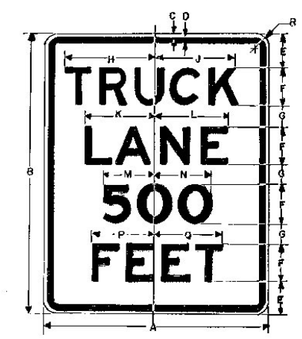
LINE 3 ALTERNATE - 16,000

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N
STD&MIN	24	30	3/8	5/8	3-5/8	4D	2-1/4	9-1/4	9-3/8	6-9/16	3-1/2	10	1-1/2
SPECIAL	36	48	5/8	7/8	6	6D	4	14	14-7/16	9-3/4	5-1/4	15	2-1/4
SPECIAL	48	60	3/4	1-1/4	7-1/4	8D	4-1/2	18-1/2	19-1/4	13-1/8	7	20	3

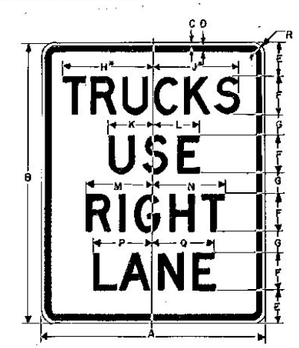


*REDUCE SPACING 25%

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN. & STD.	24	30	3/8	5/8	3-5/8	4D	2-1/4	9-3/4	10	6	6-9/16	7-1/8	7-5/8	1-1/2
EXPWY.	36	48	5/8	7/8	6	6D	4	14-5/8	15	9	9-13/16	10-11/16	11-3/8	2-1/4
FWY.	48	60	3/4	1-1/4	7-1/4	8D	4-1/2	19-1/2	20	12	13-1/8	14-1/4	15-1/4	3

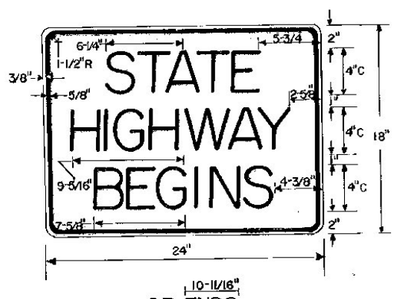


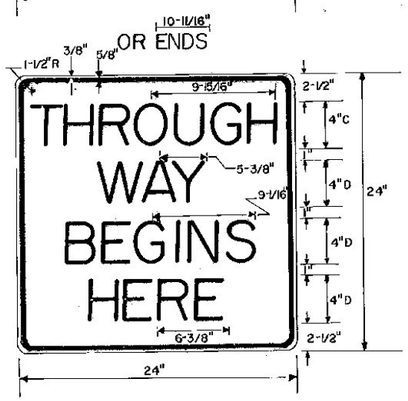
SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
MIN. & STD.	24	30	3/8	5/8	3-5/8	4D	2-1/4	9-13/16	9-11/16	7-9/16	7-11/16	5-11/16	5-13/16	6-7/8	7-1/16	1-1/2
EXPWY.	36	48	5/8	7/8	6	6E	4	14-3/4	14-1/2	11-5/16	11-1/2	8-1/2	8-3/4	10-5/16	10-5/8	2-1/4
FWY.	48	60	3/4	1-1/4	7-1/4	8E	4-1/2	19-5/8	19-3/8	15-1/8	15-3/8	11-3/8	11-5/8	13-3/4	14-1/8	3

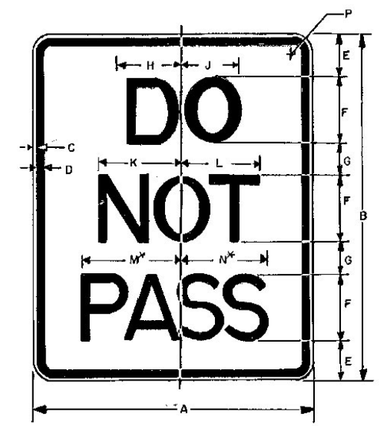


*REDUCE SPACING 32%

SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
MIN. & STD.	24	30	3/8	5/8	3-5/8	4D	2-1/4	9-3/16	9-3/16	4-3/4	5	7-1/8	7-5/8	8-1/4	6-5/8	1-1/2
EXPWY.	36	48	5/8	7/8	6	6D	4	14-5/16	13-15/16	7-1/8	7-1/2	10-11/16	11-3/8	9-3/8	9-15/16	2-1/4
FWY.	48	60	3/4	1-1/4	7-1/4	8D	4-1/2	19-1/8	18-3/8	9-1/2	10	14-1/4	15-1/4	12-1/2	13-1/4	3

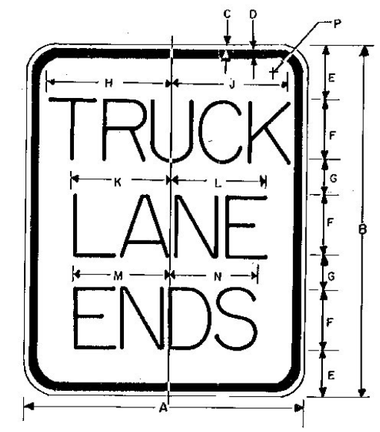






*REDUCE SPACING 40%

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	18	24	3/8	5/8	3-1/2	4D	2-1/2	3-1/8	3-5/16	4-3/4	4-7/8	6-1/4	6-1/2	1-1/2
STD.	24	30	3/8	5/8	3-1/2	6D	2-1/2	4-11/16	5	7-1/8	7-3/8	9-3/8	9-3/4	1-1/2
EXPWY.	36	48	5/8	7/8	7	8D	5	6-1/4	6-5/8	9-1/2	9-3/4	12-1/2	13	2-1/4
FWY.	48	60	3/4	1-1/4	8	10D	7	7-3/4	8-5/16	11-7/8	12-1/4	15-5/8	16-1/4	3



SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN. & STD.	24	30	3/8	5/8	3-1/2	6C	2-1/2	10-1/4	10-3/16	7-3/4	7-3/4	7-15/16	8	1-1/2
EXPWY.	36	48	5/8	7/8	7	8C	5	13-11/16	13-5/8	10-3/8	10-5/16	10-11/16	10-11/16	2-1/4
FWY.	48	60	3/4	1-1/4	8	10D	7	20-5/8	20-5/8	15-7/8	15-15/16	16-1/16	16-1/16	3

COLORS:
THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:
THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	18"X24"	24"X18" 24"X24" 24"X30"	36"X48" 48"X60"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.
THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

SPECIFICATIONS:
REGULATORY SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:
LETTERS, DIGITS, ARROWS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES PREPARED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

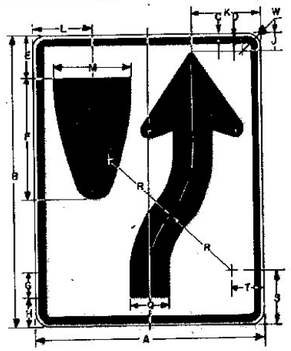
REVISIONS AND CORRECTIONS

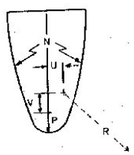
APPROVED
DATE JULY 18, 1984
S. J. Gage
DIRECTOR OF ENGINEERING AND CONSTRUCTION
Arthur I. Goss
CHIEF OF DESIGN
SURVEY AND PLANS ENGINEER

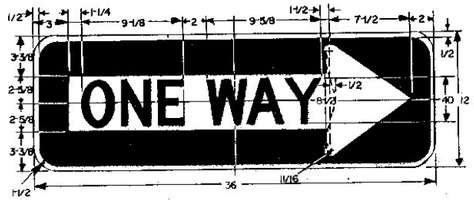
REGULATORY SIGNS

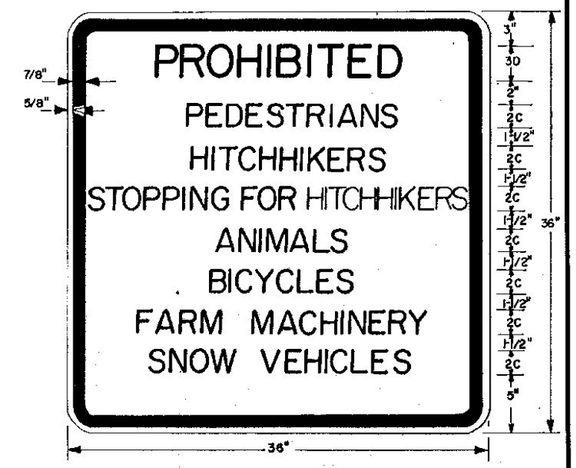
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-15 A



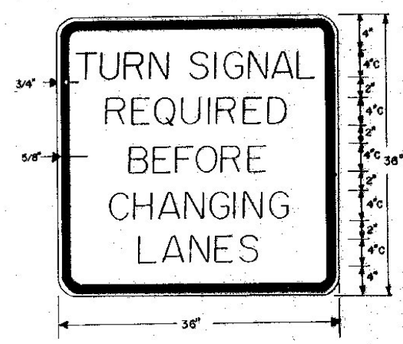






SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN.	18	24	3/8	5/8	3-3/8	9-3/8	1-7/8	2-1/4	1-3/8	5-1/2
STD.	24	30	3/8	5/8	4-1/2	12-1/2	2-1/2	3	1-7/8	7-3/8
EXPWY.	36	48	5/8	7/8	6-3/4	18-3/4	3-3/4	4-1/2	2-13/16	11-1/8
FWY.	48	60	3/4	1-1/4	9	25	5	6	3-3/4	14-13/16

SIGN	DIMENSIONS (INCHES)										
	L	M	N	P	Q	R	S	T	U	V	W
MIN.	4-11/16	6	22-1/2	1-1/2	3	6-3/4	4-1/8	2-1/4	1-1/16	7/16	1-1/2
STD.	6-1/4	8	30	2	4	9	5-1/2	3	1-3/8	2-13/16	1-1/2
EXPWY.	9-3/8	12	45	3	6	13-1/2	8-1/4	4-1/2	2	2-3/4	2-1/4
FWY.	12-1/2	16	60	4	8	18	11	6	2-11/16	5	3

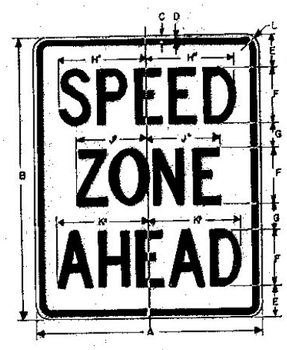


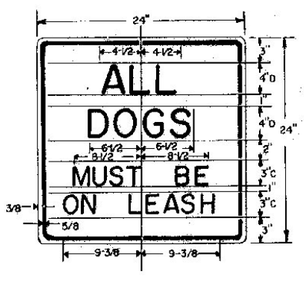
SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN	18	24	3/8	5/8	3	3E	2	8E	1-1/2	7-3/16	5-1/2
STD	24	30	3/8	5/8	4	4E	2	10E	1-1/2	9-9/16	7-5/16
EXPWY	36	48	5/8	7/8	6	6E	5	14E	2-1/4	14-3/8	11
FWY.	48	60	3/4	1-1/4	8	8E	4	20E	3	19-1/8	14-5/8

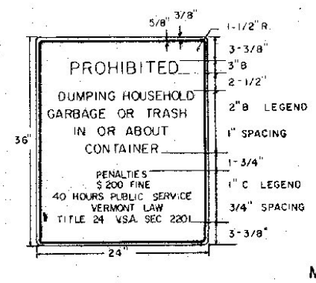
* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE.

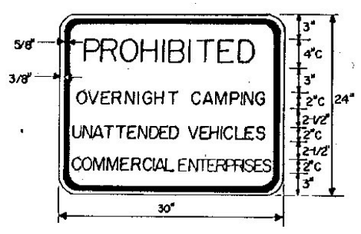
SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
STD & MIN.	24	30	3/8	5/8	4	4C	2	10D	1-1/2	9-3/16	6-13/16
EXPWY	36	48	5/8	7/8	6	6C	5	14D	2-1/4	13-3/4	10-3/16
FWY.	48	60	3/4	1-1/4	8	8C	6	16D	3	18-3/8	13-5/8

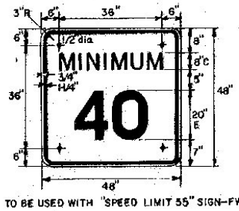
* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE.











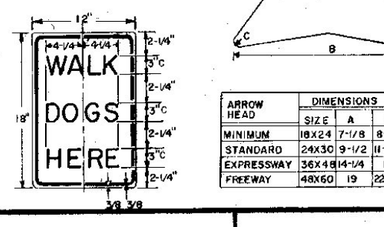
TO BE USED WITH "SPEED LIMIT 55" SIGN–FWY ONLY.

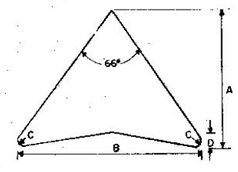
SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
EXPWY	30	24	3/8	5/8	3-1/2	4C	2-1/2	4D	12-1/2	13	12-3/4	6-7/16	7	1-1/2
FWY.	48	36	5/8	7/8	5	6D	4	6D	20-7/16	21-1/8	19-1/8	10-1/16	10-9/16	2-1/4

* FOR FWY SIZE, REDUCE SPACING 50%

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN.	18	24	3/8	5/8	3-1/2	4C	2-1/2	6-13/16	5-1/2	7	1-1/2
STD.	24	30	3/8	5/8	3-1/2	6C	2-1/2	9-3/16	7-9/16	9-3/4	1-1/2
EXPWY.	36	48	5/8	7/8	7	8C	5	13-5/8	11-1/16	14	2-1/4
FWY.	48	60	3/4	1-1/4	9	10C	6	17	13-13/16	17-1/2	3

* FOR STD SIZE, REDUCE SPACING 40%.





ARROW HEAD	DIMENSIONS (INCHES)				
	SIZE	A	B	C	D
MINIMUM	18X24	7-1/8	8-1/2	5/8	1-1/8
STANDARD	24X30	9-1/2	11-3/8	1	1-1/2
EXPRESSWAY	36X48	14-1/4	17	1-3/8	2-1/4
FREEWAY	48X60	19	22-5/8	1-7/8	3

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	12"X18" 18"X24"	24"X24" 24"X30" 30"X24" 30"X30"	36"X12" 36"X36" 36"X48" 48"X36" 48"X60"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES PREPARED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

REVISIONS AND CORRECTIONS

SEPT. 28, 1984 – ADDED "MINIMUM 40" SIGN – CHANGED "SPEED LIMIT 50" (FWY. – G & H)

– CHANGED "PROHIBITED DUMPING HOUSEHOLD GARBAGE" SIGN

DEC. 27, 1984 – CLARIFIED KEEP RIGHT SYMBOL

FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED

DATE JULY 18, 1984

DIRECTOR OF ENGINEERING AND CONSTRUCTION

Arthur J. Foss

CHIEF OF DESIGN

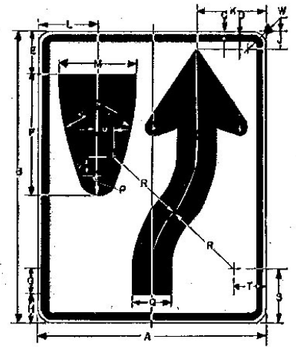
SURVEY AND PLANS ENGINEER

REGULATORY SIGNS

VERMONT AGENCY OF TRANSPORTATION

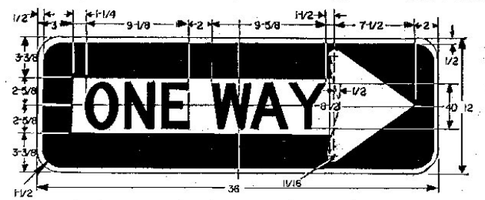
STANDARD

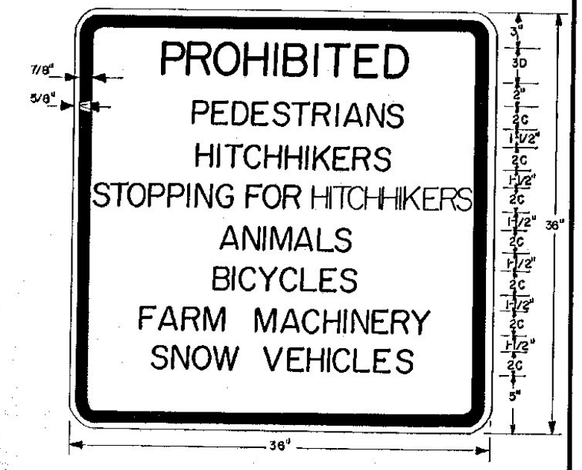
E-15B

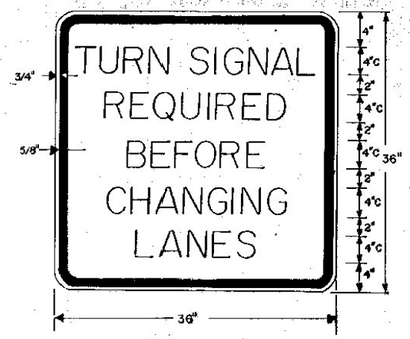


SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN.	18	24	3/8	5/8	3-3/8	9-3/8	1-7/8	2-1/4	1-3/8	5-1/2
STD.	24	30	3/8	5/8	4-1/2	12-1/2	2-1/2	3	1-7/8	7-3/8
EXPWY.	36	48	5/8	7/8	6-3/4	18-3/4	3-3/4	4-1/2	2-13/16	11-1/8
FWY.	48	60	3/4	1-1/4	9	25	5	6	3-3/4	14-13/16

SIGN	DIMENSIONS (INCHES)										
	L	M	N	P	Q	R	S	T	U	V	W
MIN.	4-11/16	6	22-1/2	1-1/2	3	6-3/4	4-1/8	2-1/4	1-1/16	7/16	1-1/2
STD.	6-1/4	8	30	2	4	9	5-1/2	3	1-3/8	2-13/16	1-1/2
EXPWY.	9-3/8	12	45	3	6	13-1/2	8-1/4	4-1/2	2	2-3/4	2-1/4
FWY.	12-1/2	16	60	4	8	18	11	6	2-11/16	5	3





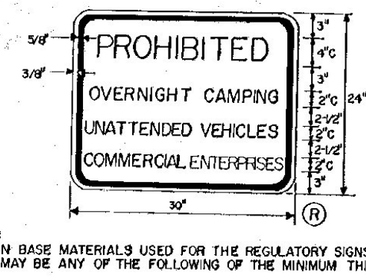


SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN	18	24	3/8	5/8	3	3E	2	8E	1-1/2	7-3/16	5-1/2
STD	24	30	3/8	5/8	4	4E	2	10E	1-1/2	9-9/16	7-5/16
EXPWY	36	48	5/8	7/8	6	6E	5	14E	2-1/4	14-3/8	11
FWY.	48	60	3/4	1-1/4	8	8E	6	16E	3	19-1/8	14-5/8

* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE.

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
STD.& MIN.	24	30	3/8	5/8	4	4C	2	10D	1-1/2	9-3/16	6-13/16
EXPWY.	36	48	5/8	7/8	6	6C	3	14D	2-1/4	13-3/4	10-3/16
FWY.	48	60	3/4	1-1/4	8	8C	6	16D	3	18-3/8	13-5/8

* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE.

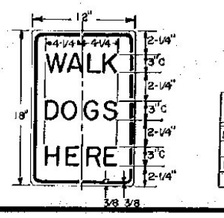


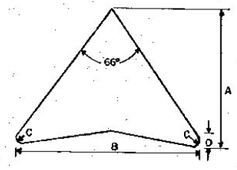
SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
EXPWY	30	24	3/8	5/8	3-1/2	4C	2-1/2	4D	12-1/2	13	2-3/4	6-7/16	7	1-1/2
FWY.	48	36	3/8	7/8	5	6D	4	6D	20-7/16	21-1/8	19-1/8	10-1/16	10-9/16	2-1/4

* FOR FWY SIZE, REDUCE SPACING 50%

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MIN.	18	24	3/8	5/8	3-1/2	4C	2-1/2	6-13/16	5-1/2	7	1-1/2	
STD.	24	30	3/8	5/8	3-1/2	6C	2-1/2	9-3/16	7-9/16	9-3/4	1-1/2	
EXPWY.	36	48	5/8	7/8	7	8C	5	13-5/8	11-1/16	14	2-1/4	
FWY.	48	60	3/4	1-1/4	9	10C	6	17	13-13/16	17-1/2	3	

* FOR STD SIZE, REDUCE SPACING 40%.





ARROW HEAD	DIMENSIONS (INCHES)				
	SIZE	A	B	C	D
MINIMUM	18X24	7-1/8	8-1/2	5/8	1-1/8
STANDARD	24X30	9-1/2	11-3/8	1	1-1/2
EXPRESSWAY	36X48	14-1/4	17	1-3/8	2-1/4
FREEWAY	48X60	19	22-5/8	1-7/8	3

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

		24"X24"	36"X12"
		24"X30"	36"X36"
	12"X18"	30"X24"	36"X48"
	18"X24"	30"X30"	48"X36"
			48"X60"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES PREPARED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

REVISIONS AND CORRECTIONS

APPROVED

DATE JULY 18, 1984

S. J. Gage
DIRECTOR OF ENGINEERING AND CONSTRUCTION

Arthur J. Goss
CHIEF OF DESIGN

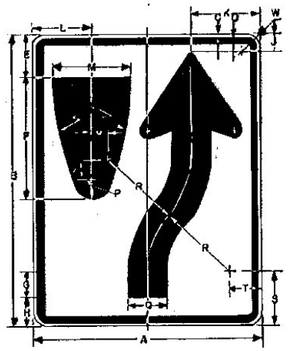
Jack C. Eaton
SURVEY AND PLANS ENGINEER

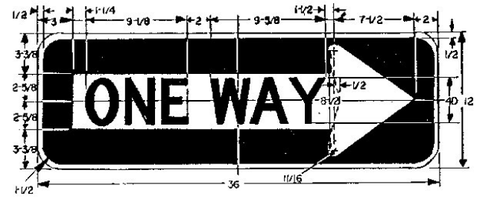
REGULATORY SIGNS

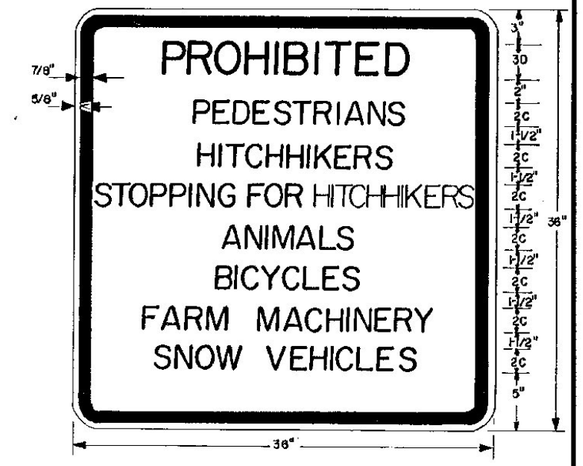
VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-15B

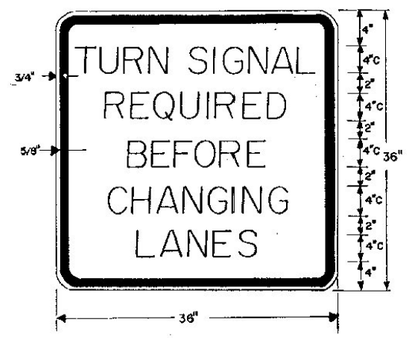






SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K
MIN.	18	24	3/8	5/8	3-3/8	9-3/8	1-7/8	2-1/4	1-3/8	5-1/2
STD.	24	30	3/8	5/8	4-1/2	12-1/2	2-1/2	3	1-7/8	7-3/8
EXPWY.	36	48	5/8	7/8	6-3/4	18-3/4	3-3/4	4-1/2	2-13/16	11-1/8
FWY.	48	60	3/4	1-1/4	9	25	5	6	3-3/4	14-13/16

SIGN	DIMENSIONS (INCHES)										
	L	M	N	P	Q	R	S	T	U	V	W
MIN.	4-11/16	6	22-1/2	1-1/2	3	6-3/4	4-1/8	2-1/4	1-1/16	7/16	1-1/2
STD.	6-1/4	8	30	2	4	9	5-1/2	3	1-3/8	2-13/16	1-1/2
EXPWY.	9-3/8	12	45	3	6	13-1/2	8-1/4	4-1/2	2	2-3/4	2-1/4
FWY.	12-1/2	16	60	4	8	18	11	6	2-11/16	5	3

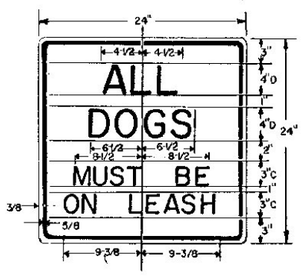


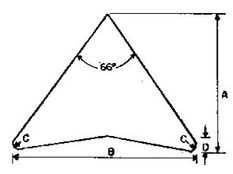
SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L
MIN	18	24	3/8	5/8	3	3E	2	8E	1-1/2	7-3/16	5-1/2
STD	24	30	3/8	5/8	4	4E	2	10E	1-1/2	9-9/16	7-5/16
EXPWY	36	48	5/8	7/8	6	6E	5	14E	2-1/4	14-3/8	11
FWY.	48	60	3/4	1-1/4	8	8E	4	20E	3	19-1/8	14-5/8

* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE.

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L
STD.& MIN.	24	30	3/8	5/8	4	4C	2	10D	1-1/2	9-3/16	6-13/16
EXPWY.	36	48	5/8	7/8	6	6C	5	14D	2-1/4	13-3/4	10-3/16
FWY.	48	60	3/4	1-1/4	8	8C	6	16D	3	18-3/8	13-5/8

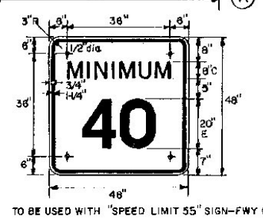
* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE.





SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
EXPWY	30	24	3/8	5/8	3-1/2	4C	2-1/2	4D	12-1/2	13	12-3/4	6-7/16	7	1-1/2
FWY.	48	36	5/8	7/8	5	6D	4	6D	20-7/16	21-1/8	19-1/8	10-1/16	10-9/16	2-1/4

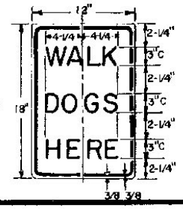
* FOR FWY SIZE, REDUCE SPACING 50 %



TO BE USED WITH "SPEED LIMIT 55" SIGN—FWY ONLY.

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN.	18	24	3/8	5/8	3-1/2	4C	2-1/2	6-13/16	5-1/2	7	1-1/2
STD.	24	30	3/8	5/8	3-1/2	6C	2-1/2	9-3/16	7-9/16	9-3/4	1-1/2
EXPWY.	36	48	5/8	7/8	7	8C	5	13-5/8	11-1/16	14	2-1/4
FWY.	48	60	3/4	1-1/4	9	10C	6	17	13-13/16	17-1/2	3

* FOR STD SIZE, REDUCE SPACING 40%.



ARROW HEAD	DIMENSIONS (INCHES)				
	SIZE	A	B	C	D
MINIMUM	18X24	7-1/8	8-1/2	5/8	1-1/8
STANDARD	24X30	9-1/2	11-3/8	1	1-1/2
EXPRESSWAY	36X48	14-1/4	17	1-3/8	2-1/4
FREEWAY	48X60	19	22-5/8	1-7/8	3

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	12"X18" 18"X24"	24"X24" 24"X30" 30"X24" 30"X30"	36"X12" 36"X36" 36"X48" 48"X36" 48"X60"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

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SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

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REVISIONS AND CORRECTIONS

SEPT. 28, 1984 - ADDED "MINIMUM 40" SIGN - CHANGED "SPEED LIMIT 50" (FWY. - G & H)

APPROVED

DATE JULY 18, 1984

DIRECTOR OF ENGINEERING AND CONSTRUCTION

Arthur J. Gross

CHIEF OF DESIGN

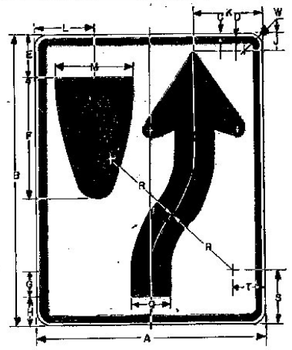
SURVEY AND PLANS ENGINEER

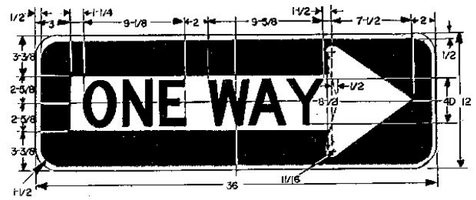
REGULATORY SIGNS

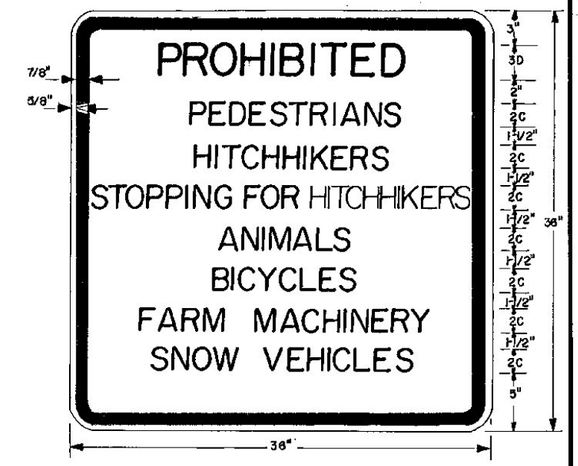
VERMONT AGENCY OF TRANSPORTATION

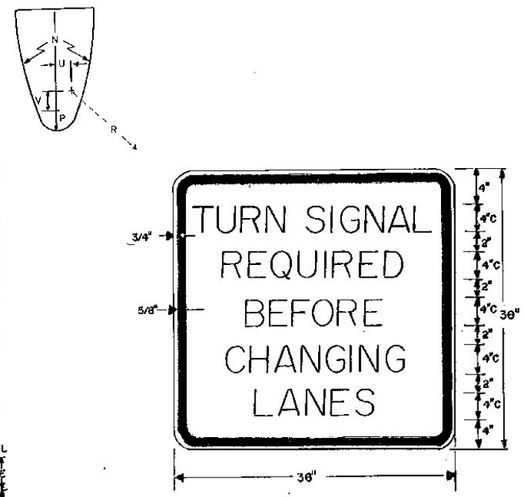
STANDARD

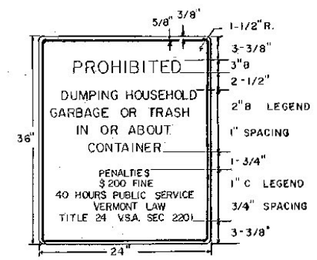
E-15B

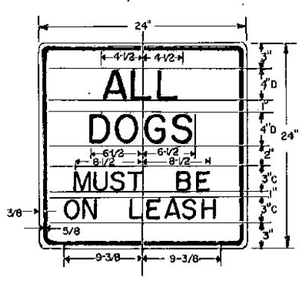


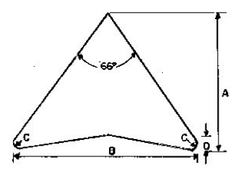


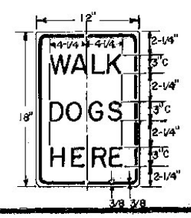


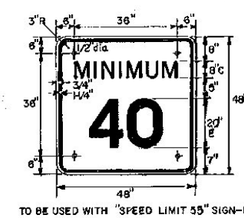












SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	
MIN.	18	24	3/8	5/8	3-3/8	9-3/8	1-7/8	2-1/4	1-3/8	5-1/2	
STD.	24	30	3/8	5/8	4-1/2	12-1/2	2-1/2	3	1-7/8	7-3/8	
EXPWY.	36	48	5/8	7/8	6-3/4	18-3/4	3-3/4	4-1/2	2-13/16	11-1/8	
FWY.	48	60	3/4	1-1/4	9	25	5	6	3-3/4	14-13/16	

SIGN.	DIMENSIONS (INCHES)										
	L	M	N	P	Q	R	S	T	U	V	W
MIN.	4-11/16	6	22-1/2	1-1/2	3	6-3/4	4-1/8	2-1/4	1-7/16	7/16	1-1/2
STD.	6-1/4	8	30	2	4	9	5-1/2	3	1-3/8	2-13/16	1-1/2
EXPWY.	9-3/8	12	45	3	6	13-1/2	8-1/4	4-1/2	2	2-3/4	2-1/4
FWY.	12-1/2	16	60	4	8	18	11	6	2-11/16	5	3

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	
MIN	18	24	3/8	5/8	3	3E	2	8E	1-1/2	7-3/16	5-1/2	
STD	24	30	3/8	5/8	4	4E	2	10E	1-1/2	9-9/16	7-5/16	
EXPWY	36	48	5/8	7/8	6	6E	5	14E	2-1/4	14-3/8	11	
FWY.	48	60	3/4	1-1/4	8	8E	4	20E	3	19-1/8	14-5/8	

* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE.

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	
STD. & MIN.	24	30	3/8	5/8	4	4C	2	10D	1-1/2	9-3/16	6-13/16	
EXPWY.	36	48	5/8	7/8	6	6C	5	14D	2-1/4	13-3/4	10-3/16	
FWY.	48	60	3/4	1-1/4	8	8C	6	16D	3	18-3/8	13-5/8	

* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE.

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
EXPWY	30	24	3/8	5/8	3-1/2	4C	2-1/2	4D	12-1/2	13	12-3/4	6-7/16	7	1-1/2
FWY.	48	36	5/8	7/8	5	6D	4	6D	20-7/16	21-1/8	19-1/8	10-1/16	10-9/16	2-1/4

* FOR FWY SIZE, REDUCE SPACING 50%

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN.	18	24	3/8	5/8	3-1/2	4C	2-1/2	6-13/16	5-1/2	7	1-1/2
STD.	24	30	3/8	5/8	3-1/2	6C	2-1/2	9-3/16	7-9/16	9-3/4	1-1/2
EXPWY.	36	48	5/8	7/8	7	8C	5	13-5/8	11-1/16	14	2-1/4
FWY.	48	60	3/4	1-1/4	9	10C	6	17	13-13/16	17-1/2	3

* FOR STD SIZE, REDUCE SPACING 40%.

ARROW HEAD	DIMENSIONS (INCHES)				
	SIZE	A	B	C	D
MINIMUM	18X24	7-1/8	8-1/2	5/8	1-1/8
STANDARD	24X30	9-1/2	11-3/8	1	1-1/2
EXPRESSWAY	36X48	14-1/4	17	1-3/8	2-1/4
FREEWAY	48X60	19	22-5/8	1-7/8	3

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

TO BE USED WITH "SPEED LIMIT 55" SIGN-FWY ONLY.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	12"X18" 18"X24"	24"X24" 24"X30" 30"X24" 30"X30"	36"X12" 36"X36" 36"X48" 48"X36" 48"X60"
FLAT SHEET ALUMINUM	0.080"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

SPECIFICATIONS:

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LETTERS, DIGITS, ARROWS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES PREPARED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

REVISIONS AND CORRECTIONS

SEPT. 28, 1984 - ADDED "MINIMUM 40" SIGN - CHANGED "SPEED LIMIT 50" (FWY. - G & H)

- CHANGED "PROHIBITED DUMPING HOUSEHOLD GARBAGE" SIGN

DEC. 27, 1984 - CLARIFIED KEEP RIGHT SYMBOL

APPROVED

DATE JULY 18, 1984

S. J. Page
DIRECTOR OF ENGINEERING AND CONSTRUCTION

Arthur J. Goss
CHIEF OF DESIGN

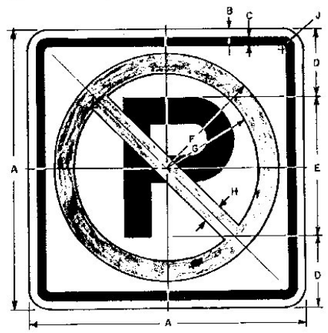
Jack C. Evans
SURVEY AND PLANS ENGINEER

REGULATORY SIGNS

VERMONT AGENCY OF TRANSPORTATION

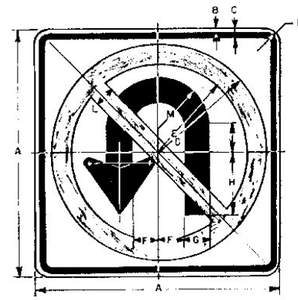
STANDARD

E-15B



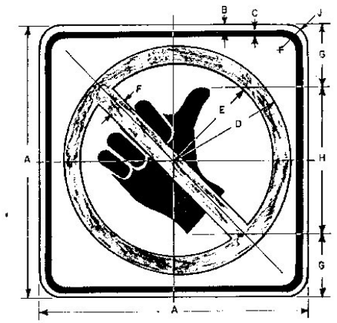
COLORS
CIRCLE AND DIAGONAL – RED (REFL-RURAL)
SYMBOL AND BORDER – BLACK (NON-REFL)
BACKGROUND – WHITE (REFL-RURAL)

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
URBAN MIN.& STD.	12	3/8	3/8	3	6E(M)	4-7/8	3-7/8	1	1-1/2
RURAL MIN.& STD.	24	3/8	5/8	6	12E(M)	10-1/2	8-1/2	2	1-1/2
EXPWY.	36	5/8	7/8	9	18E(M)	15-3/4	12-3/4	3	2-1/4
FWY.	48	3/4	1-1/4	12	24E(M)	21	17	4	3



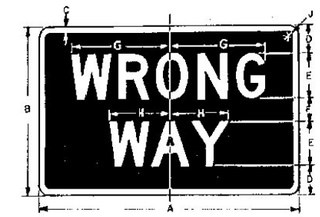
COLORS
CIRCLE AND DIAGONAL – RED (REFL)
ARROW AND BORDER – BLACK (NON-REFL)
BACKGROUND – WHITE (REFL)

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
STD. & MIN.	24	3/8	5/8	10-1/2	8-1/2	2-1/2	2-1/2	6	2-1/4	1-1/2	2	5
SPECIAL	30	1/2	3/4	13-1/8	10-5/8	3-1/8	3-1/8	7-1/2	2-13/16	1-7/8	2-1/2	6-1/4
EXPWY.	36	5/8	7/8	15-3/4	12-3/4	3-3/4	3-3/4	9	3-3/8	2-1/4	3	7-1/2
SPECIAL	48	3/4	1-1/4	21	17	5	5	12	4-1/2	3	4	10



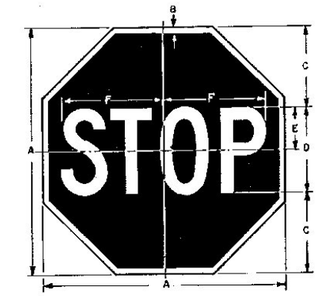
COLORS
CIRCLE AND DIAGONAL – RED (REFL)
SYMBOL AND BORDER – BLACK (NON-REFL)
BACKGROUND – WHITE (REFL)

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN.	18	3/8	5/8	7-7/8	6-3/8	1-1/2	3-3/4	10-1/2	1-1/2
STD.	24	3/8	5/8	10-1/2	8-1/2	2	5	14	1-1/2



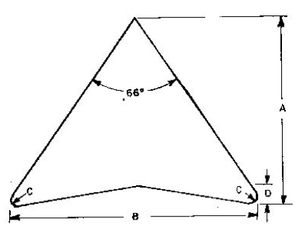
COLORS
LEGEND – WHITE (REFL)
BACKGROUND – RED (REFL)

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN.	30	18	5/8	3	5D	2	11-1/16	6-11/16	1-1/2
STD.	36	24	3/4	4-1/2	6D	3	13-5/16	8-1/16	1-1/2
SPECIAL	42	30	7/8	5	8D	4	17-3/4	10-3/4	1-7/8

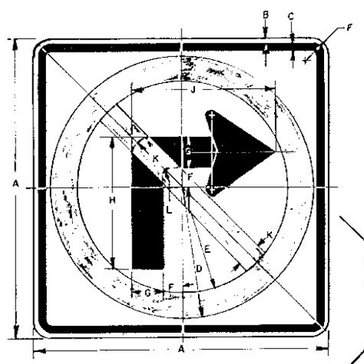


COLORS
LEGEND – WHITE (REFL)
BACKGROUND – RED (REFL)

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
BIKE	18	3/8	6	6C	3	7-3/4
MIN.	24	5/8	8	8C	4	10
STD.	30	3/4	10	10C	5	12-1/2
EXPWY.	36	7/8	12	12C	8	15
SPECIAL	48	1-1/4	16	16C	8	20

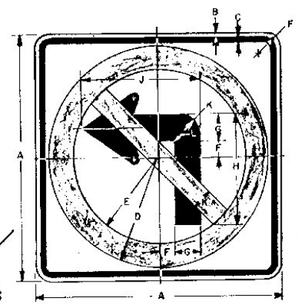


ARROW HEAD	DIMENSIONS (INCHES)				
	SIZE	A	B	C	D
MIN.& STD.	24"X24"	8	7-1/8	5/8	1
SPECIAL	30"X30"	7-1/2	8-7/8	3/4	1-1/8
EXPWY.	36"X36"	8-7/8	10-5/8	7/8	1-3/8
SPECIAL	48"X48"	11-7/8	14-1/8	1-1/8	1-7/8

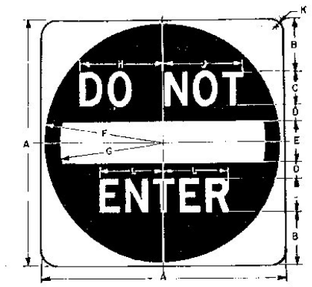


COLORS
CIRCLE & DIAGONAL – RED (REFL)
ARROW & BORDER – BLACK (NON-REFL)
BACKGROUND – WHITE (REFL)

COLORS & DIMENSIONS APPLY TO BOTH SIGNS

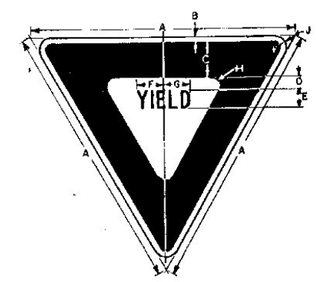


SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
STD. & MIN.	24	3/8	5/8	10-1/2	8-1/2	1-1/2	2-1/2	10-1/2	11-1/2	2	1/2
SPECIAL	30	1/2	3/4	13-1/8	10-5/8	1-7/8	3-1/8	13-1/8	14-1/2	2-1/2	5/8
EXPWY.	36	5/8	7/8	15-3/4	12-3/4	2-1/4	3-3/4	15-3/4	17-1/4	3	3/4
SPECIAL	48	3/4	1-1/4	21	17	3	5	21	23	4	1



COLORS
SYMBOL – RED (REFL)
LEGEND & BACKGROUND – WHITE (REFL)

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
STD. & MIN.	30	6-1/2	4D	2	5	14-1/2	12-1/2	9-3/4	10	1-7/8	7-7/8
EXPWY.	36	7-1/2	5D	2-1/2	6	17-1/2	15	12	12 3/8	2-1/4	9-13/16
SPECIAL	48	11	6D	3	8	23-1/2	20	14-1/2	15	3	11-3/4



COLORS
LEGEND & BORDER – RED (REFL)
BACKGROUND – WHITE (REFL)

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
BIKE	24	3/8	3	1-3/8	2C	3-1/4	3	7/8	1-1/2
MIN.	30	5/8	4	1-3/4	2-1/2C	3-15/16	3-5/8	7/8	1-1/2
STD.	36	3/4	5	2	3C	4-11/16	4-3/8	1-1/4	2
EXPWY.	48	1	6	2-3/4	4C	6-1/4	5-7/8	2	3
FWY.	60	1-1/2	8	3-1/2	5C	7-7/8	7-1/4	2-1/2	4

MATERIALS:

THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	12" X 12" 18" X 18"	24" ▽ 24" X 24" 30" X 18" 30" X 30"	36" ▽ 36" X 24" 36" X 36"	48" ▽ 48" X 48" 60" ▽
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"	3/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

THE REFLECTIVE MATERIAL SHALL BE ENCAPSULATED LENS WHITE OR SILVER REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

THE BLACK PORTIONS OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL BE AS DETAILED FOR EACH SIGN. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROW, SPACINGS AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES PREPARED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

REVISIONS AND CORRECTIONS

FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED

DATE JULY 18, 1984

DIRECTOR OF ENGINEERING AND CONSTRUCTION

Arthur J. Goss

CHIEF OF DESIGN

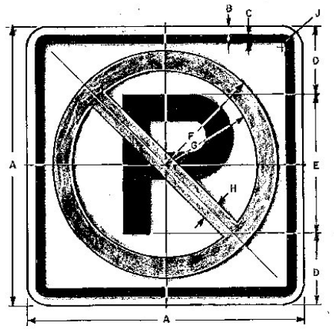
SURVEY AND PLANS ENGINEER

REGULATORY SIGNS

VERMONT AGENCY OF TRANSPORTATION

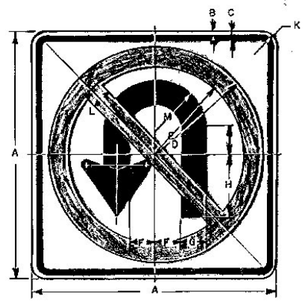
STANDARD

E-15C



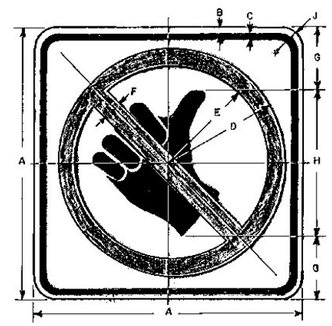
COLORS
CIRCLE AND DIAGONAL – RED (REFL-RURAL)
SYMBOL AND BORDER – BLACK (NON-REFL)
BACKGROUND – WHITE (REFL-RURAL)

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
URBAN MIN.&STD.	12	3/8	3/8	3	6E(M)	4-7/8	3-7/8	1	1-1/2
RURAL MIN.&STD.	24	3/8	5/8	6	12E(M)	10-1/2	8-1/2	2	1-1/2
EXPWY.	36	5/8	7/8	9	18E(M)	15-3/4	12-3/4	3	2-1/4
FWY.	48	3/4	1-1/4	12	24E(M)	21	17	4	3



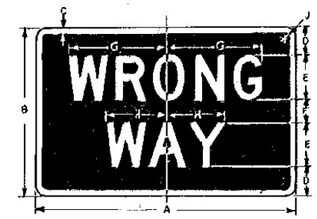
COLORS
CIRCLE AND DIAGONAL – RED (REFL)
ARROW AND BORDER – BLACK (NON-REFL)
BACKGROUND – WHITE (REFL)

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
STD. & MIN.	24	3/8	5/8	10-1/2	8-1/2	2-1/2	2-1/2	6	2-1/4	1-1/2	2	5
SPECIAL	30	1/2	3/4	13-1/8	10-5/8	3-1/8	3-1/8	7-1/2	2-13/16	1-7/8	2-1/2	6-1/4
EXPWY.	36	5/8	7/8	15-3/4	12-3/4	3-3/4	3-3/4	9	3-3/8	2-1/4	3	7-1/2
SPECIAL	48	3/4	1-1/4	21	17	5	5	12	4-1/2	3	4	10



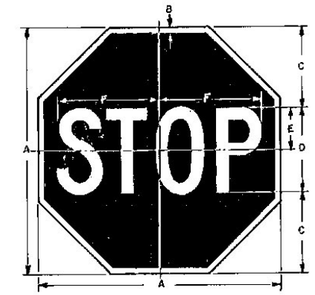
COLORS
CIRCLE AND DIAGONAL – RED (REFL)
SYMBOL AND BORDER – BLACK (NON-REFL)
BACKGROUND – WHITE (REFL)

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN.	18	3/8	5/8	7-7/8	6-3/8	1-1/2	3-3/4	10-1/2	1-1/2
STD.	24	3/8	5/8	10-1/2	8-1/2	2	5	14	1-1/2



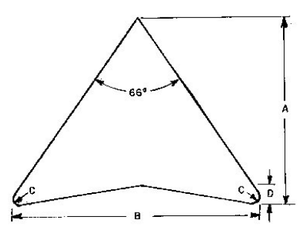
COLORS
LEGEND – WHITE (REFL)
BACKGROUND – RED (REFL)

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN.	30	18	5/8	3	5D	2	11-1/16	6-11/16	1-1/2
STD.	36	24	3/4	4-1/2	6D	3	13-5/16	8-1/16	1-1/2
SPECIAL	42	30	7/8	5	8D	4	17-3/4	10-3/4	1-7/8

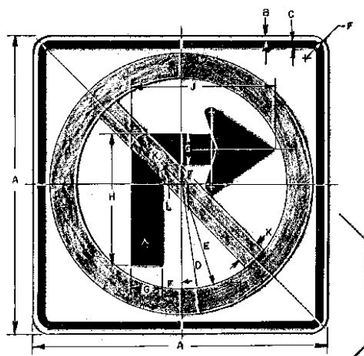


COLORS
LEGEND – WHITE (REFL)
BACKGROUND – RED (REFL)

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
BIKE	18	3/8	6	6C	3	7-3/4
MIN.	24	5/8	8	8C	4	10
STD.	30	3/4	10	10C	5	12-1/2
EXPWY.	36	7/8	12	12C	6	15
SPECIAL	48	1-1/4	16	16C	8	20

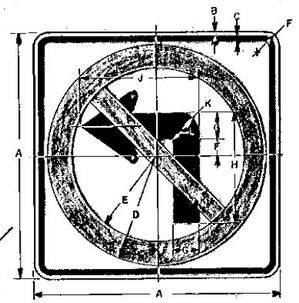


ARROW HEAD	DIMENSIONS (INCHES)				
	SIZE	A	B	C	D
MIN.&STD.	24"X24"	6	7-1/8	5/8	1
SPECIAL	30"X30"	7-1/2	8-7/8	3/4	1-1/8
EXPWY.	36"X36"	8-7/8	10-5/8	7/8	1-3/8
SPECIAL	48"X48"	11-7/8	14-1/8	1-1/8	1-7/8

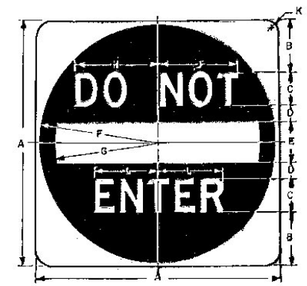


COLORS
CIRCLE & DIAGONAL – RED (REFL)
ARROW & BORDER – BLACK (NON-REFL)
BACKGROUND – WHITE (REFL)

COLORS & DIMENSIONS APPLY TO BOTH SIGNS

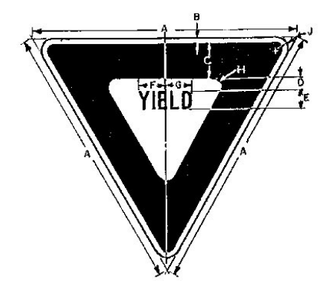


SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
STD. & MIN.	24	3/8	5/8	10-1/2	8-1/2	1-1/2	2-1/2	10-1/2	11-1/2	2	1/2
SPECIAL	30	1/2	3/4	13-1/8	10-5/8	1-7/8	3-1/8	13-1/8	14-1/2	2-1/2	5/8
EXPWY.	36	5/8	7/8	15-3/4	12-3/4	2-1/4	3-3/4	15-3/4	17-1/4	3	3/4
SPECIAL	48	3/4	1-1/4	21	17	3	5	21	23	4	1



COLORS
SYMBOL – RED (REFL)
LEGEND & BACKGROUND – WHITE (REFL)

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
STD. & MIN.	30	6-1/2	4D	2	5	14-1/2	12-1/2	9-3/4	10	1-7/8	7-7/8
EXPWY.	36	7-1/2	5D	2-1/2	6	17-1/2	15	12	12 3/8	2-1/4	9-13/16
SPECIAL	48	11	6D	3	8	23-1/2	20	14-1/2	15	3	11-3/4



COLORS
LEGEND & BORDER – RED (REFL)
BACKGROUND – WHITE (REFL)

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
BIKE	24	3/8	3	1-3/8	2C	3-1/4	3	7/8	1-1/2
MIN.	30	5/8	4	1-3/4	2-1/2C	3-15/16	3-5/8	7/8	1-1/2
STD.	36	3/4	5	2	3C	4-11/16	4-3/8	1-1/4	2
EXPWY.	48	1	6	2-3/4	4C	6-1/4	5-7/8	2	3
FWY.	60	1-1/2	8	3-1/2	5C	7-7/8	7-1/4	2-1/2	4

MATERIALS:

THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	12" X 12" 18" X 18"	24" ∇ 24" X 24" 30" X 18" 30" X 30"	36" ∇ 36" X 24" 36" X 36"	48" ∇ 48" X 48" 60" ∇
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

THE REFLECTIVE MATERIAL SHALL BE ENCAPSULATED LENS WHITE OR SILVER REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

THE BLACK PORTIONS OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL BE AS DETAILED FOR EACH SIGN. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROW, SPACINGS AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES PREPARED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

REVISIONS AND CORRECTIONS

APPROVED

DATE JULY 18, 1984

S. J. Gage
DIRECTOR OF ENGINEERING AND CONSTRUCTION

Arthur J. Goss
CHIEF OF DESIGN

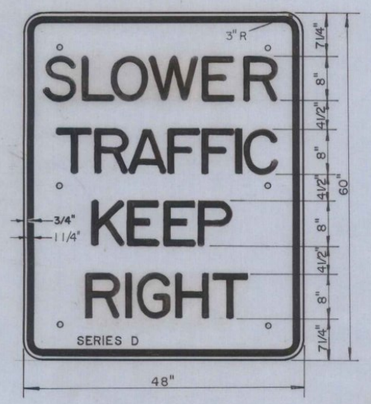
Ted Gunn
SURVEY AND PLANS ENGINEER

REGULATORY SIGNS

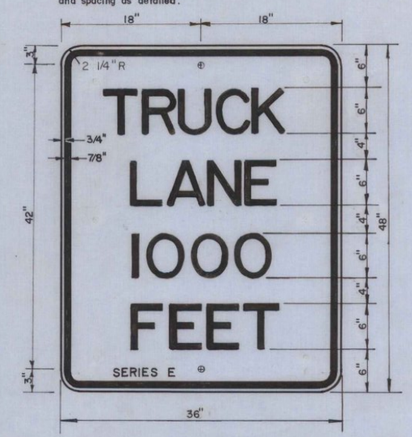
VERMONT AGENCY OF TRANSPORTATION

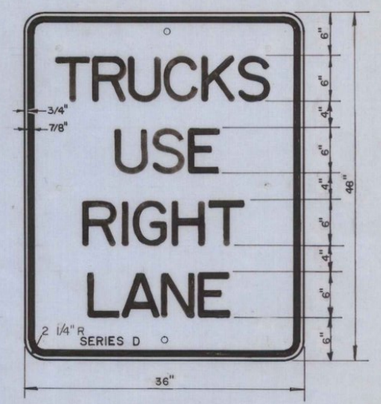
STANDARD

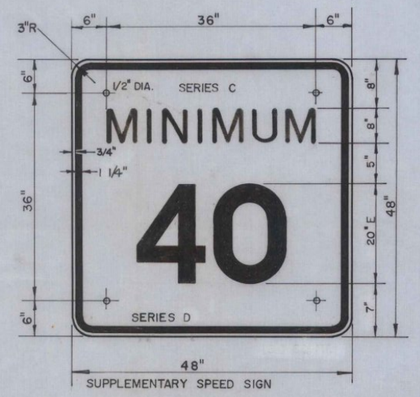
E-15C



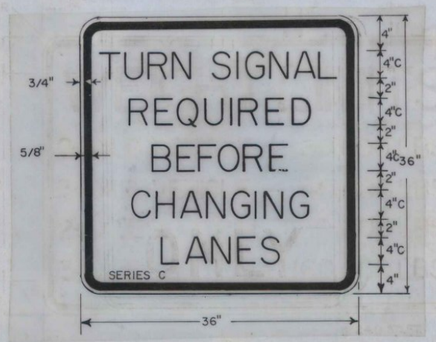
All signs of this size (shown below) have typical mounting holes, size and spacing as detailed.







SUPPLEMENTARY SPEED SIGN



MATERIALS

The sign base material used for the regulatory signs shown on this sheet may be any of the following, of the minimum thickness noted:

	ONE POST		TWO POSTS
	3'x 4' 3'x 3'	4'x 3'	4'x 5'
FLAT SHEET ALUMINUM	0.100"	0.125"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	5/8"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	14 Gage	12 Gage	16 Gage

The reflective material shall be white or silver reflective sheeting applied to the backgrounds. The texts may be lettering film, silk screened or hand lettered.

COLORS

The regulatory signs shown on this sheet shall have black texts on a reflectorized white or silver background.

TEXT DESIGN

Letters, digits, spacings and text dimensions shall conform with the standard alphabets and designs prescribed in the Manual on Uniform Traffic Control Devices prepared by the National Joint Committee on uniform traffic control devices.

SPECIFICATIONS

The signs shall meet the standard State specifications for "Traffic Signs".

REVISIONS AND CORRECTIONS

JAN. 6, 1975 – SPEED LIMIT CHANGED AS PER CONGRESSIONAL RECORD S-3934.
JUNE 13, 1984 – REMOVED MEDIAN, ADDED TURN SIGNAL & PROHIBITED

APPROVED DATE Jan. 4. 1972

R. H. Arnold
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

DRAWN A.W.C.
TRACED R.L.E.

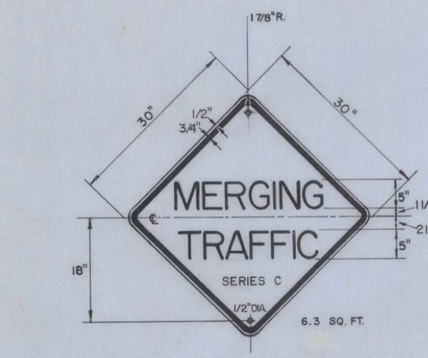
TRAFFIC SIGNS

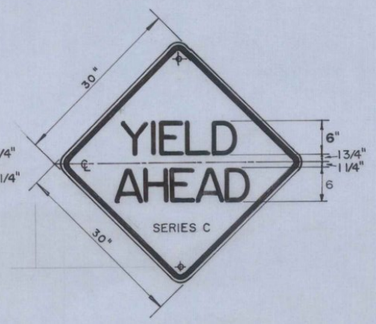
REGULATORY SIGNS

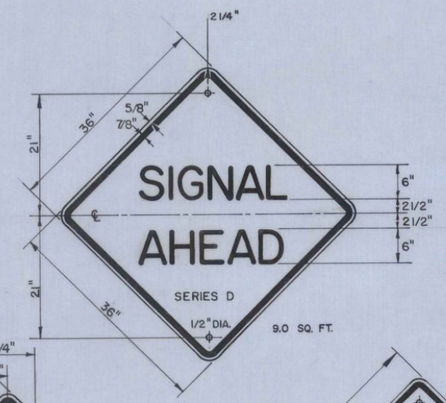
VERMONT AGENCY OF TRANSPORTATION

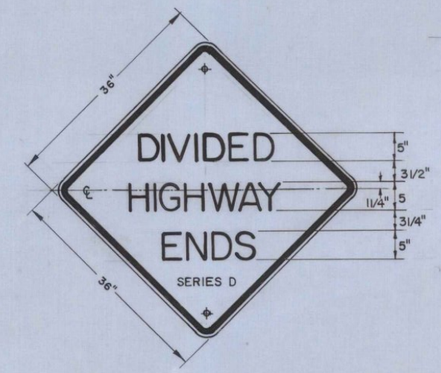
STANDARD

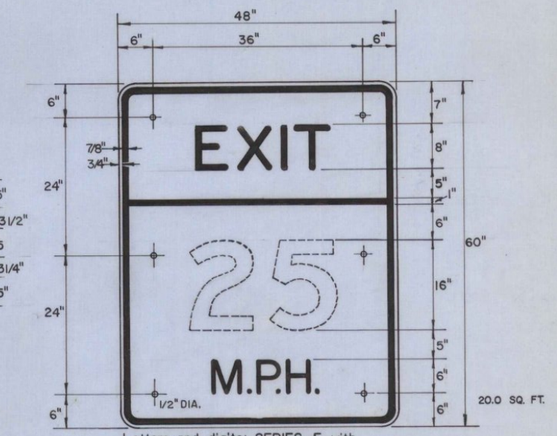
E-16



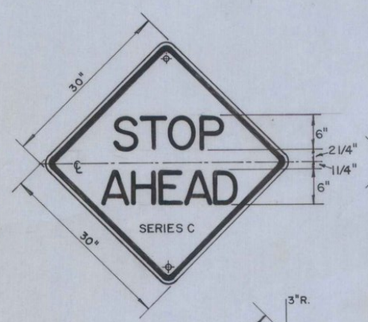


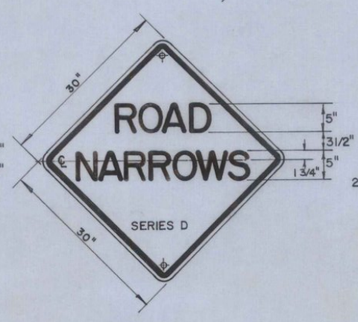


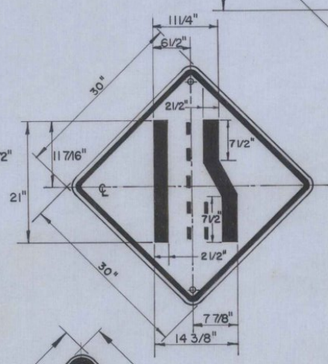


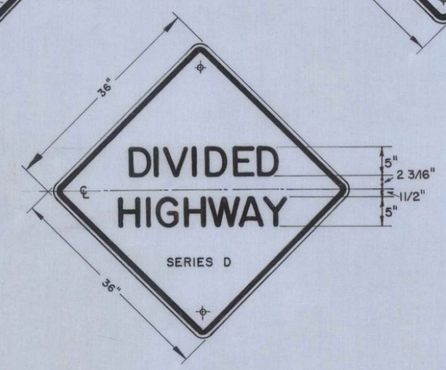


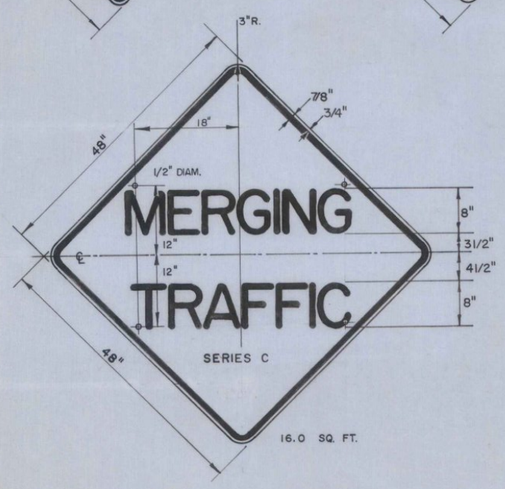
Letters and digits: SERIES E with stroke width 0.2" per inch of height.

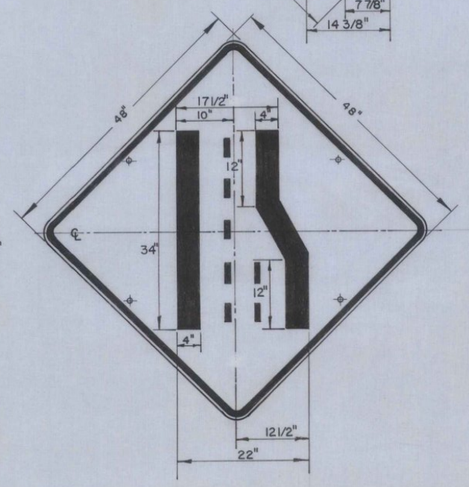












MATERIALS

The sign base materials used for the warning signs shown on this sheet may be any of the following, of the thickness noted:

	30"x 30"	36"x36"	48"x 48"	48"x60"
FLAT SHEET ALUMINUM	0.080"	0.100"	0.125"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	5/8	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	16 Gage	14 Gage	12 Gage	16 Gage

TEXT DESIGN

Letters, digits, spacings and text dimensions shall conform with the standard alphabets and designs prescribed in the Manual on Uniform Traffic Control Devices proposed by the National Joint Committee on Uniform Traffic Control Devices.

SPECIFICATIONS

Warning signs shall meet the standard state specifications for "Traffic Signs", Item 701.

The reflective material shall be yellow reflective sheeting applied to the entire background of the sign. The text may be lettering film, silk screened or hand lettered.

COLORS

The warning signs shown on this sheet shall have black texts on reflectorized yellow background. The yellow shall confirm with the standard color adopted by the American Association of State Highway Officials and approved by the U.S. Department of Commerce, Bureau of Public Roads.

REVISIONS AND CORRECTIONS

DEC. 18, 1964 — BOLT HOLE PLACEMENT ON 4'x 4' SIGNS, CHANGED TO 2-POST MOUNTING.

APPROVED
MAY 6, 1963

A. D. Bishop — CHIEF ENGINEER
R. H. Arnold — ASST. CHIEF ENGINEER
G. M. Lane — HIGHWAY ENGINEER
A. W. Coleman — TRAFFIC ENGINEER
E. H. Blickwy — CONSTRUCTION ENGINEER

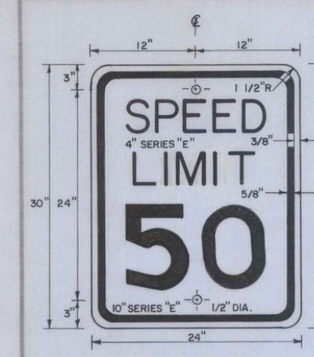
DRAWN A.W.C.
TRACED R.L.E.

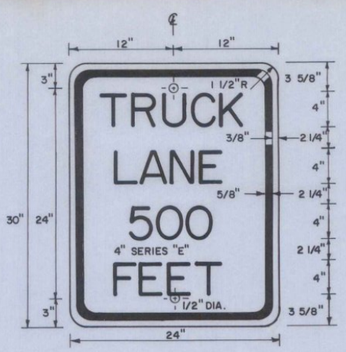
TRAFFIC SIGNS

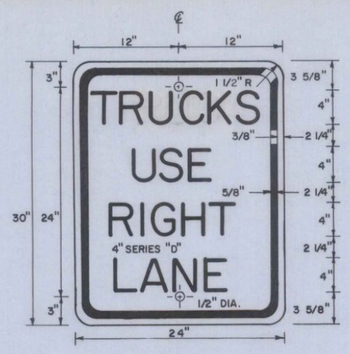
WARNING SIGNS

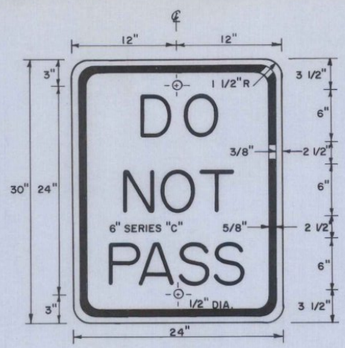
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

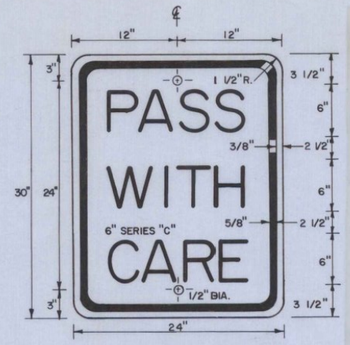
E-16

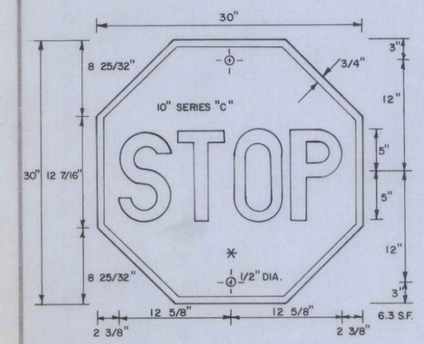


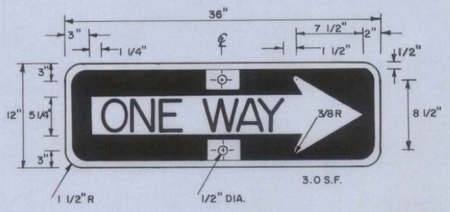


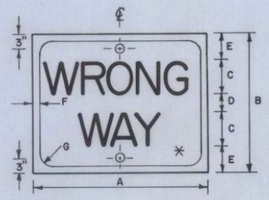




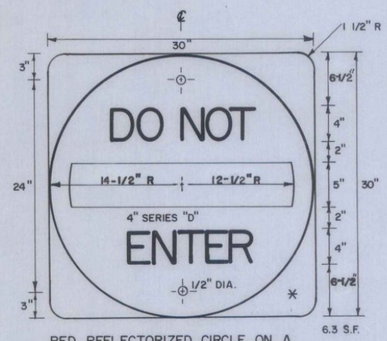




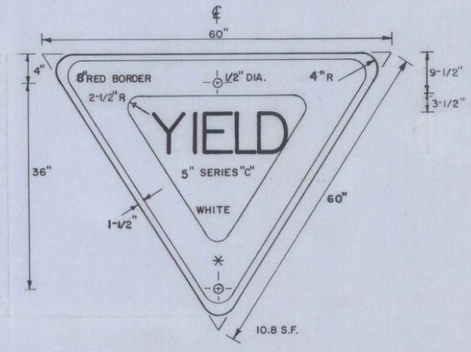




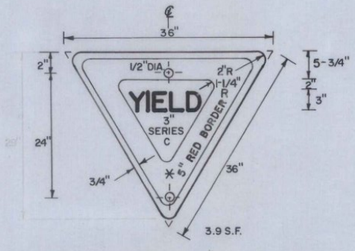
DIMENSIONS						
A	B	C	D	E	F	G
30"	24"	6"C	3"	4 1/2"	5/8"	5/8"
36"	24"	6"D	3 1/2"	4 1/2"	3/4"	3/4"
48"	30"	8"D	4 1/2"	4 3/4"	1"	1"



RED REFLECTORIZED CIRCLE ON A REFLECTORIZED WHITE BACKROUND WITH WHITE STRIPE AND TEXT, REVERSE SCREENED.



RED REFLECTORIZED BORDER ON A REFLECTORIZED WHITE BACKROUND WITH RED PAINTED TEXT, REVERSE SCREENED METHOD.



RED REFLECTORIZED BORDER ON A REFLECTORIZED WHITE BACKROUND WITH RED PAINTED TEXT, REVERSE SCREENED METHOD.

MATERIALS:

The sign base materials
following, of the minimum t

FLAT SHEET ALUMINUM
HIGH DENSITY OVERLAID F
GALVANIZED FLAT SHEET

The reflective material
sheeting applied to the enti
* The reflective material
lens reflective sheeting appl

The text of the STOP
reversed screened; the tex
painted.

COLORS:

The regulatory signs s
and YIELD signs, shall ha

The STOP, DO NOT EN
silver text on a reflectori

The YIELD sign shall
reversed screened.

The red, white, and bl
Association of State High
Federal Highway Administrat

TEXT DESIGN:

Letters, digits, arrows,
alphabets and designs pres
by the National Joint Con

SPECIFICATIONS:

Regulatory signs shall

REVISIONS AND CORRECTIONS

Jan. 8, 1974	Revised to include encapsulated lens reflective sheeting.
Jan. 31, 1984	Added SLOWER TRAFFIC sign and deleted KEEP RIGHT sign.
FEB 23, 1984	Revised yield signs

APPROVED: DATE: Jan. 4, 1972

R. H. Arnold
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

REGULATORY SIGNS

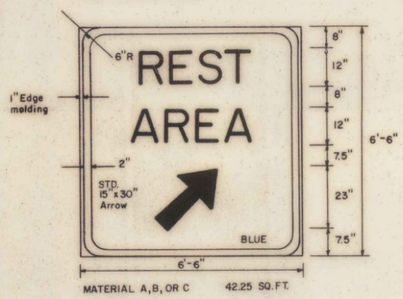
REST AREA SIGN:

MATERIAL A, B, OR C 60.0 SQ. FT.

REST AREA SIGN:

MATERIAL A, B, OR C 65.0 SQ. FT.

REST AREA SIGN:



MATERIAL A, B, OR C 42.25 SQ. FT.

NEXT EXIT SIGN:

MATERIAL A, B, OR C 27 SQ. FT.

Use this sign when the parent sign is longer than 14 ft., otherwise use the 8 ft. by 4 ft. Next Exit Sign

SERVICES SIGN:

MATERIAL A, B, OR C 96 SQ. FT.

TOWN LINE SIGN:

MATERIAL A, B, OR C 32 SQ. FT.

RIVER NAME SIGN:

MATERIAL A, B, OR C

EXIT NUMBER PANEL:

MATERIAL A, B, OR C 20 SQ. FT.

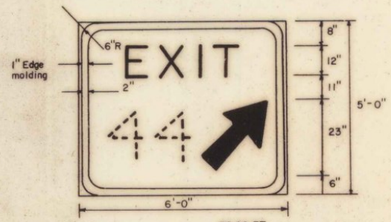
When a double number is needed, use a 10 ft. sign 26 sq. ft.

Material for this sign the same as parent sign.

NEXT EXIT SIGN:

MATERIAL A, B, OR C 32 SQ. FT.

GORE SIGN:



30 SQ. FT.

This sign base material shall be A, B, or C, with reflective sheeting.

MATERIALS

The sign base material used for the guide signs shown on this sheet, except the Gore sign, shall be designated for each sign by the following identification letters:

A - Acrylic Overlaid Plywood, 3/4" minimum thickness.

B - Extruded Aluminum Panels, with baked enamel finish.

C - Formed Galvanized Steel Panels, with baked enamel finish.

The reflective material used for the texts shall be acrylic plastic reflectors in embossed letter frames.

COLORS

The signs shall have a reflectorized white text on a non-reflectorized green or blue background as indicated for each sign. The green and blue shall conform with the standard colors adopted by the American Association of State Highway Officials, and approved by the U.S. Dept. of Transportation, Federal Highway Administration.

LETTERING

Letters and digits shall conform with series E of the standard alphabet for highway signs approved by the National Joint Committee on Uniform Traffic Control Devices, with the stroke widths modified to one fifth the height.

DESIGNS

The designs of these signs shall conform with the requirements set forth in the Manual for Signing and Pavement Marking of the National System of Interstate and Defense Highways adopted by the American Association of State Highway Officials.

SPECIFICATIONS

The signs shall meet the standard state specifications for "Traffic Signs," Item 701.

REVISIONS AND CORRECTIONS

JULY 29, 1964	Gore sign and next exit sign added.
AUG. 28, 1964	Material note added to next exit sign and material note of gore sign changed.
DEC. 18, 1964	Dimension changed to conform with manual.
JAN. 4, 1966	Rest area sign dimension changed to conform with the manual.
OCT. 20, 1970	Changed to conform with the latest revision of the "Manual For Signing and Pavement Marking Of The National System Of Interstate And Defense Highways".

11/4/70
APPROVED

R. H. Arnold
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

C. F. Forsha
TRAFFIC ENGINEER

Drawn by: SRS
Traced by: SRS

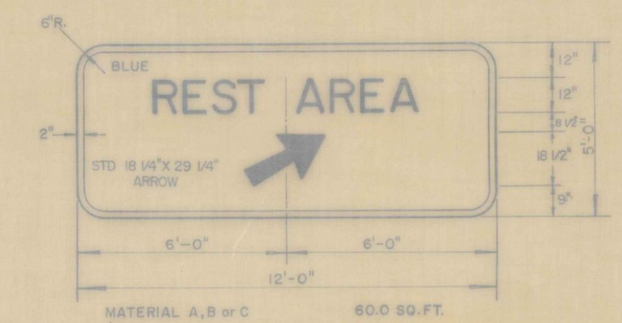
TRAFFIC SIGNS

GUIDE SIGNS

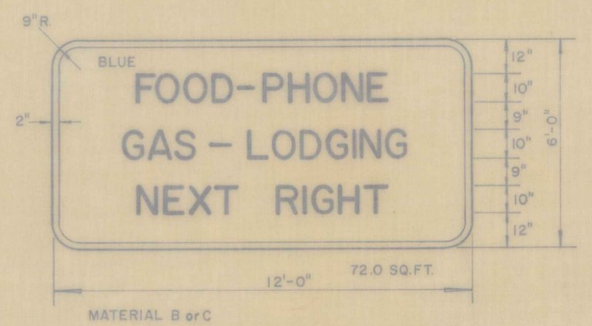
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-17

REST AREA SIGNS

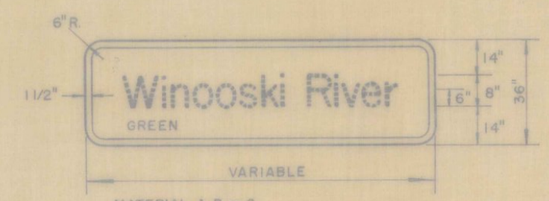


SERVICES SIGN



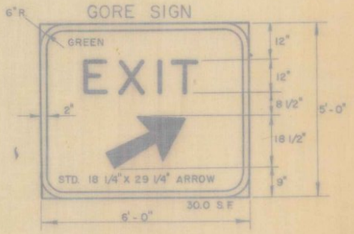
TOWN LINE SIGN

RIVER NAME SIGN



NEXT EXIT SIGN

GORE SIGN



The sign base material used for this sign shall be A, B or C with reflective sheeting.

MATERIALS

The sign base material used for the guide signs shown on this sheet, except the Gore sign, shall be designated for each sign by the following identification letters:

A - Acrylic Overlaid Plywood, 3/4" minimum thickness.

B - Extruded Aluminum Panels, with baked enamel finish.

C - Formed Galvanized Steel Panels, with baked enamel finish.

The reflective material used for the texts shall be acrylic plastic reflectors in embossed letter frames.

COLORS

The signs shall have a reflectorized white text on a non-reflectorized green or blue background as indicated for each sign. The green and blue shall conform with the standard colors adopted by the American Association of State Highway Officials, and approved by the U.S. Department of Commerce, Bureau of Public Roads.

LETTERING

Letters and digits shall conform with series E of the standard alphabet for highway signs approved by the National Joint Committee on Uniform Traffic Control Devices, with the stroke widths modified to one fifth the height.

DESIGNS

The designs of these signs shall conform with the requirements set forth in the Manual for Signing and Pavement Marking of the National System of Interstate and Defense Highways adopted by the American Association of State Highway Officials.

SPECIFICATIONS

The signs shall meet the standard state specifications for "Traffic Signs," Item 701.

REVISIONS AND CORRECTIONS

JULY 29, 1964 — GORE SIGN AND NEXT EXIT SIGN ADDED
AUG. 28, 1964 — MATERIAL NOTE ADDED TO "NEXT EXIT SIGN" AND MATERIAL NOTE OF "GORE SIGN" CHANGED.
DEC. 18, 1964 — DIMENSION CHANGES TO CONFORM WITH MANUAL

APPROVED: G. D. T. Bishop, CHIEF ENGINEER
DATE JUNE 4, 1963
R. H. Arnold, ASST. CHIEF ENGINEER
A. W. Coleman, TRAFFIC ENGINEER
G. M. Lane, HIGHWAY ENGINEER
E. H. Stickney, CONSTRUCTION ENGINEER

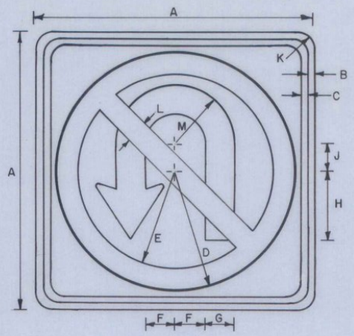
DRAWN A.C.
TRACED N.L.E.

TRAFFIC SIGNS

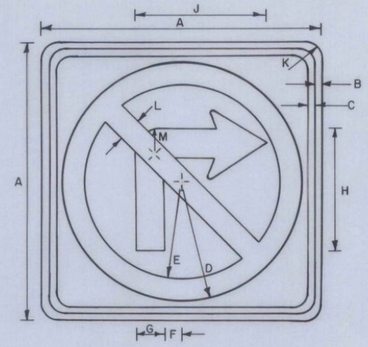
GUIDE SIGNS

VERMONT DEPARTMENT OF HIGHWAYS STANDARDS

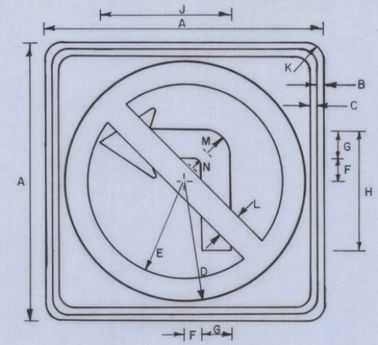
E-17



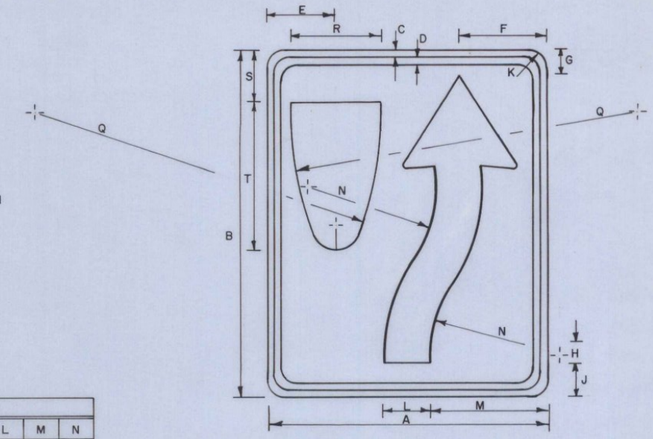
SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	
MINIMUM & STD.	24	3/8	5/8	10 1/2	8 1/2	2 1/2	2 1/2	6	2 1/4	1 1/2	2	5	
SPECIAL	30	1/2	3/4	13 1/8	10 5/8	3 1/8	3 1/8	7 1/2	2 3/4	1 7/8	2 1/2	6 1/4	
EXPRESSWAY	36	5/8	7/8	15 3/4	12 3/4	3 3/4	3 3/4	9	3 3/8	2 1/4	3	7 1/2	
FREEWAY	48	3/4	1 1/4	21	17	5	5	12	4 1/2	3	4	10	



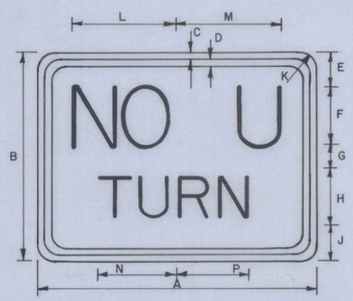
SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MINIMUM & STD.	24	3/8	5/8	10 1/2	8 1/2	1 1/2	2 1/2	10 1/2	11 1/2	1 1/2	2	2
SPECIAL	30	1/2	3/4	13 1/8	10 5/8	1 7/8	3 1/8	13	14 1/2	1 7/8	2 1/2	2 1/2
EXPRESSWAY	36	5/8	7/8	15 3/4	12 3/4	2 1/4	3 3/4	18	17	2 1/4	3	3
FREEWAY	48	3/4	1 1/4	21	17	3	5	21	23	3	4	4



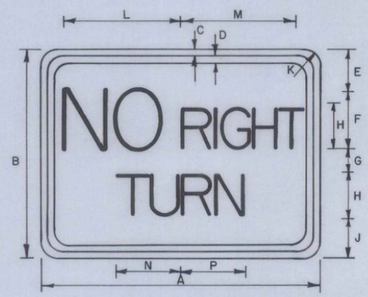
SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	
MINIMUM & STD.	24	3/8	5/8	10 1/2	8 1/2	1 1/2	2 1/2	10 1/2	11 1/2	1 1/2	2	2	1/2	
SPECIAL	30	1/2	3/4	13 1/8	10 5/8	1 7/8	3 1/8	13	14 1/2	1 7/8	2 1/2	2 1/2	5/8	
EXPRESSWAY	36	5/8	7/8	15 3/4	12 3/4	2 1/4	3 3/4	18	17	2 1/4	3	3	3/4	
FREEWAY	48	3/4	1 1/4	21	17	3	5	21	23	3	4	4	1	



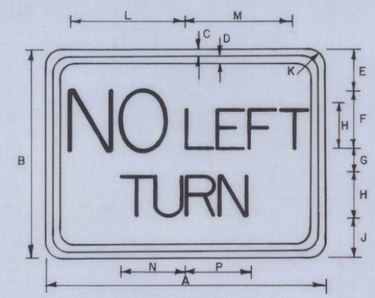
SIGN	DIMENSIONS (INCHES)																
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
MINIMUM	18	24	3/8	5/8	4 1/2	5 5/8	11/16	1 7/8	2 1/4	1 1/2	3	7 1/2	8 1/4	1 1/2	22 1/2	6	3 3/8	9 3/8
STANDARD	24	30	3/8	5/8	6	7 1/2	2 1/4	2 1/2	3	1 1/2	4	10	11	2	30	8	4 1/2	12 1/2
EXPRESSWAY	36	48	5/8	7/8	9	11 1/4	3 3/8	3 3/4	4 1/2	2 1/4	6	15	16 1/2	3	45	12	6 3/4	18 3/4
FREEWAY	48	60	3/4	1 1/4	12	15	4 1/2	5	6	3	8	20	22	4	60	16	9	25



SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MINIMUM & STD.	24	18	3/8	5/8	3	6 D	2	4 D	3	1 1/2	9	9	6 5/8	6 5/8

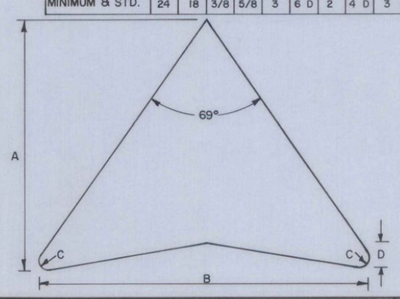


SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MINIMUM & STD.	24	18	3/8	5/8	3 1/2	5 C	2	4 C	3 1/2	1 1/2	10	10	5 1/2	5 1/2



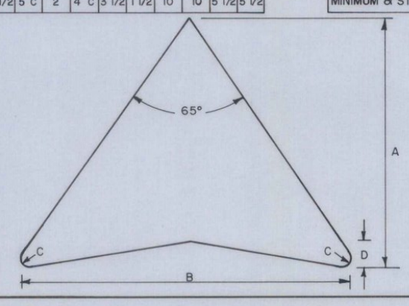
SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MINIMUM & STD.	24	18	3/8	5/8	3 1/2	5 C	2	4 C	3 1/2	1 1/2	9 1/4	9 3/4	5 1/2	5 1/2

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MINIMUM & STD.	24	18	3/8	5/8	3	5 D	2	8 1/16	8 3/4	1 1/2	9 1/2	9 11/16



ARROW HEAD	DIMENSIONS (INCHES)				
	SIGN	A	B	C	D
MINIMUM & STD.	24	4 11/16	5 1/4	1/2	5/8
SPECIAL	30	5 7/8	6 9/16	5/8	25/32
EXPRESSWAY	36	7 1/32	7 7/8	3/4	15/16
FREEWAY	48	9 3/8	10 1/2	1	1 1/4

THESE ARROW HEAD DIMENSIONS APPLY TO THE NO U TURN, NO RIGHT TURN, AND NO LEFT TURN SIGNS.



ARROW HEAD	DIMENSIONS (INCHES)				
	SIGN	A	B	C	D
MINIMUM	18	6 3/32	8 7/64	9/32	15/64
STANDARD	24	8 1/8	10 13/16	3/8	5/16
EXPRESSWAY	36	12 3/16	16 7/32	9/16	15/32
FREEWAY	48	16 1/4	21 1/2	3/4	5/8

THESE ARROW HEAD DIMENSIONS APPLY TO THE KEEP RIGHT SIGN ONLY.

MATERIALS: THE SIGN BASE MATERIAL USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING MINIMUM THICKNESSES NOTED: (ONE POST)

	24 x 18	24 x 24	24 x 30	36 x 36
(1) FLAT SHEET ALUMINUM	0.080	0.080	0.100	0.100
(2) HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"	5/8"
(3) GALVANIZED SHEET STEEL	16 GA.	16 GA.	14 GA.	14 GA.

THE REFLECTIVE MATERIAL SHALL BE OF REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKROUND OF THE SIGN.

COLORS: THE CIRCLE AND DIAGONAL OF THE NO U TURN, NO LEFT TURN, AND NO RIGHT TURN SYMBOL SIGNS SHALL BE REVERSE SCREENED. THE ARROWS, TEXTS, AND BORDERS FOR ALL SIGNS MAY BE SCREENED, LETTERING FILM, OR HAND PAINTED.

THE REGULATORY SIGNS SHOWN ON THIS SHEET, EXCEPT THE NO U TURN, NO RIGHT TURN, NO LEFT TURN SYMBOL SIGNS, SHALL HAVE A BLACK TEXT, ARROW, AND BORDER ON A REFLECTORIZED WHITE OR SILVER BACKROUND.

THE NO U TURN, NO RIGHT TURN, AND NO LEFT TURN SYMBOL SIGNS SHALL HAVE BLACK ARROW AND BORDER WITH A RED CIRCLE AND DIAGONAL ON A REFLECTORIZED WHITE OR SILVER BACKROUND.

THE RED SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS AND APPROVED BY THE UNITED STATES DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

TEXT DESIGN: LETTERS, DIGITS, ARROWS, SPACING, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, PREPARED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS: REGULATORY SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

REVISIONS AND CORRECTIONS

APPROVED: DATE: Jan. 31, 1972

R. H. Arnold
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

REGULATORY SIGNS

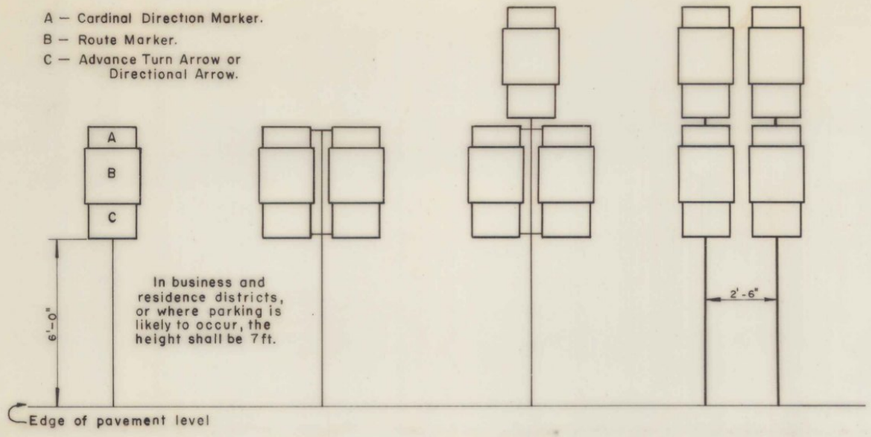
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-18

D-8

STANDARD ARRANGEMENT OF ROUTE TURN AND DIRECTIONAL ASSEMBLIES

A — Cardinal Direction Marker.
B — Route Marker.
C — Advance Turn Arrow or Directional Arrow.



STANDARD DESTINATION SIGNS

MATERIALS

The sign base material for standard destination signs shall be high density overlaid plywood 5/8" inch thick or flat sheet aluminum 0.125 inch thick.

The reflective material shall be white or silver reflective sheeting applied to the entire background of the sign. The text may be lettering film, silk screened, or hand lettered.

COLORS

Destination signs shall have black texts on reflectorized white or silver backgrounds.

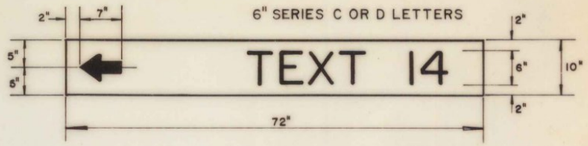
LETTERING

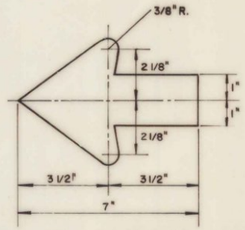
Letters and digits shall conform with the standard alphabets for highway signs approved by the National Joint Committee on Uniform Traffic Control Devices.

SPECIFICATIONS

Destination signs shall meet the state specifications for "Traffic Signs", Item 701.

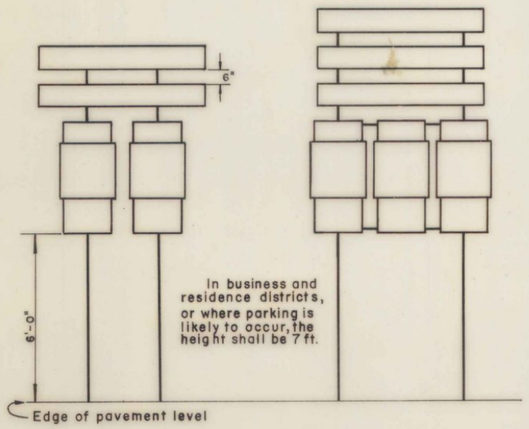
For designs of Route Markers and auxiliary markers, see Standard Sheets E-11, E-12 and E-13.



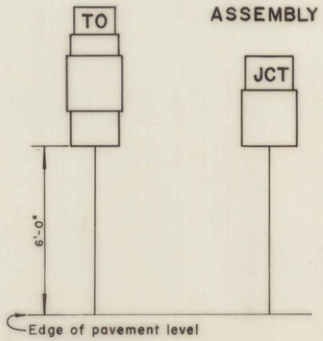


DETAIL OF ARROW

COMBINATION DIRECTIONAL AND DESTINATION ASSEMBLIES

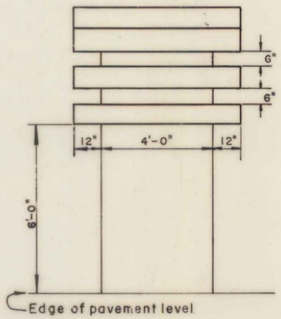


TRAILBLAZER ASSEMBLY

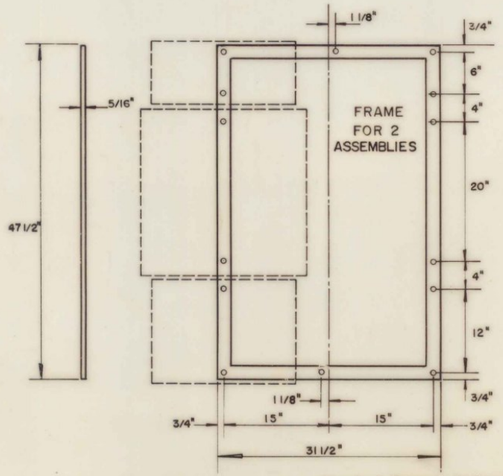


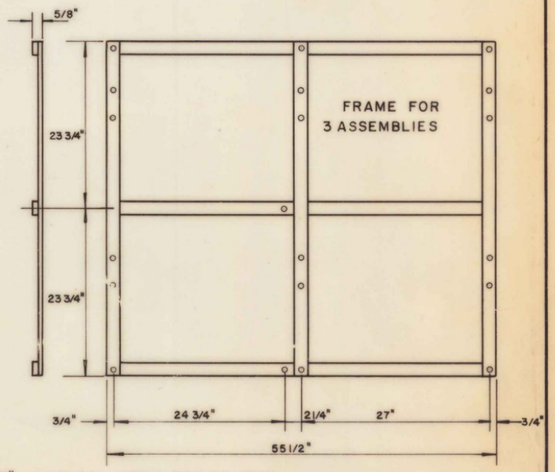
JUNCTION ASSEMBLY

DESTINATION ASSEMBLY



STANDARD FRAMES FOR ROUTE MARKER ASSEMBLIES





Standard frames shall be 5/16" X 1 1/2" wrought iron welded. All holes shall be 7/16" diameter. For other sign combinations than that shown above, the frame dimensions and hole spacings shall be modified as necessary.

REVISIONS AND CORRECTIONS

DEC 18, 1964 - 1 - TWO POST MOUNTING ADDED FOR 4-ROUTE MARKER AND COMBINATION ASSEMBLIES.
2 - FLAT SHEET ALUMINUM ADDED AS ON OPTIONAL BASE MATERIAL FOR DESTINATION SIGNS.

APPROVED AUGUST 12, 1963

A. D. Bishop — CHIEF ENGINEER
R. H. Arnold — ASST. CHIEF ENGINEER
G. M. Lane — HIGHWAY ENGINEER
A. W. Colburn — TRAFFIC ENGINEER
E. H. Stickney — CONSTRUCTION ENGINEER

DRAWN A.W.C.
TRACED R.L.E.

TRAFFIC SIGNS

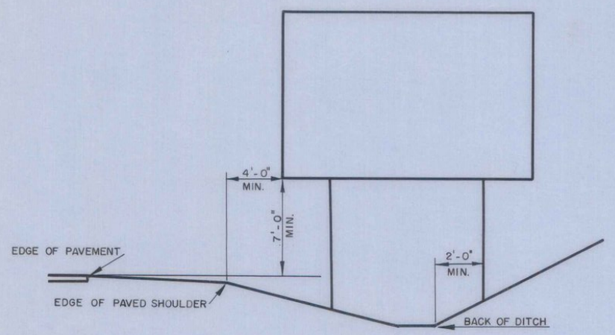
GUIDE SIGNS

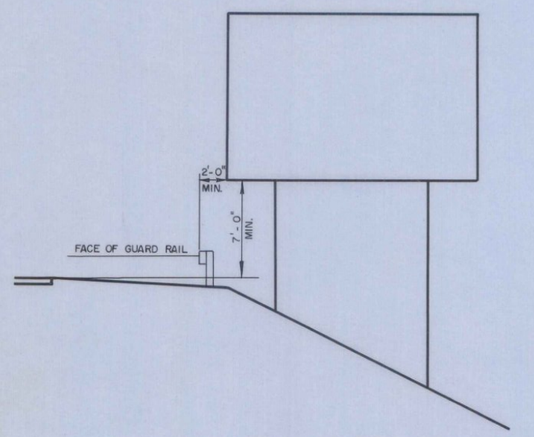
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

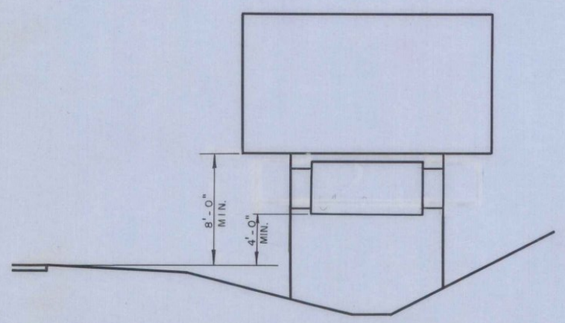
E-18

K+E IMPERIAL™ PROFILOGRAPH K. + E. N. INC. PARIS

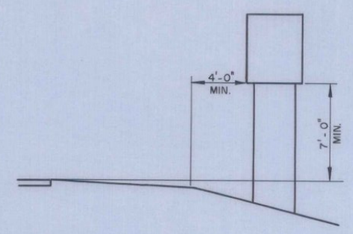
INTERSTATE TYPE GUIDE SIGNS

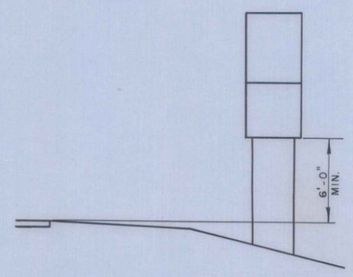


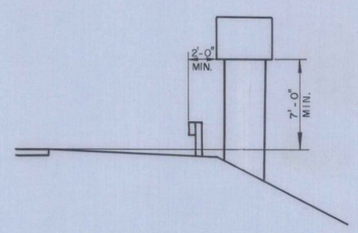


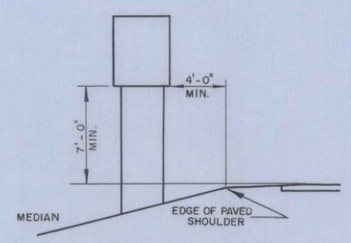


INTERSTATE TYPE REGULATORY SIGNS

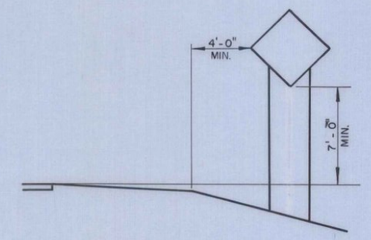


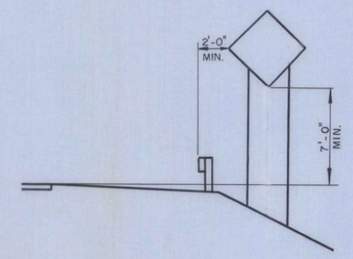




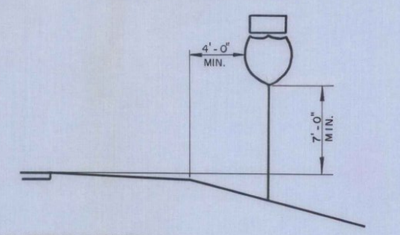


INTERSTATE TYPE WARNING SIGNS

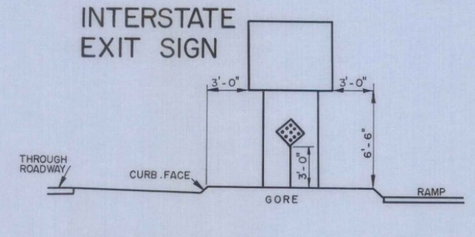




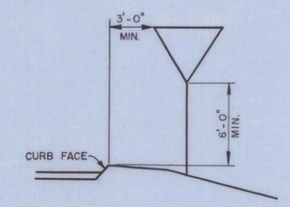
INTERSTATE ROUTE MARKER

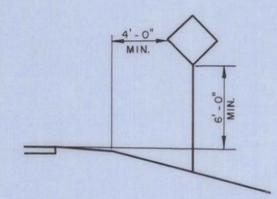


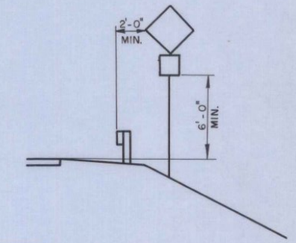
INTERSTATE EXIT SIGN



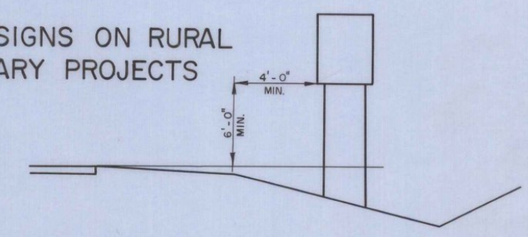
SIGNS ON RAMPS

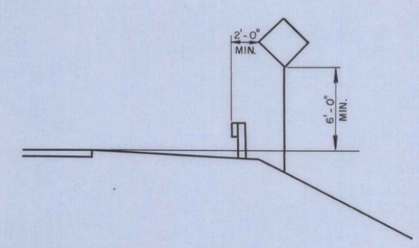




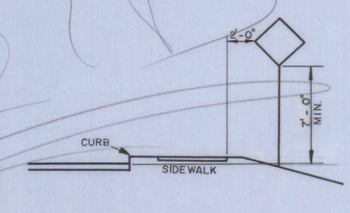


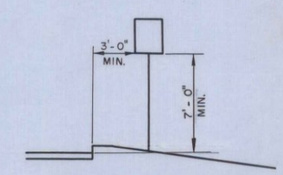
SIGNS ON RURAL PRIMARY PROJECTS





SIGNS AT URBAN LOCATIONS





REVISIONS AND CORRECTIONS

DEC 18, 1964 — 1. TWO POST MOUNTING ADDED FOR SIGNS OF 4 FT WIDTH OR OVER.
2. NEXT EXIT SIGN CHANGED TO 8 FT X 4 FT. SIZE ACCORDING TO MANUAL.

JAN. 4, 1966 — URBAN SIGN LOCATIONS REVISED

APPROVED: SEPT. 9, 1963

A. D. Bishop — CHIEF ENGINEER
R. H. Arnold — ASST. CHIEF ENGINEER
G. M. Lane — HIGHWAY ENGINEER
A. W. Colburn — TRAFFIC ENGINEER
E. H. Stickney — CONSTRUCTION ENGINEER

DRAWN A.W.C.
TRACED A.J.A.

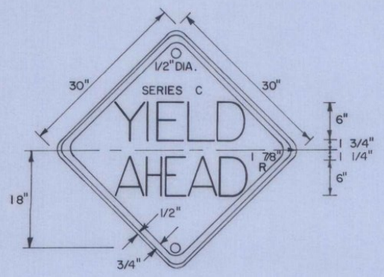
TRAFFIC SIGNS

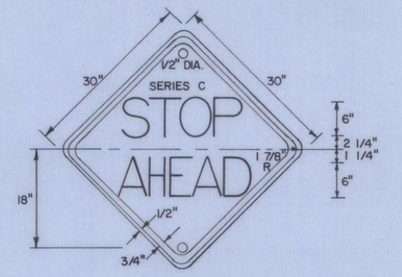
STANDARD SIGN PLACEMENT

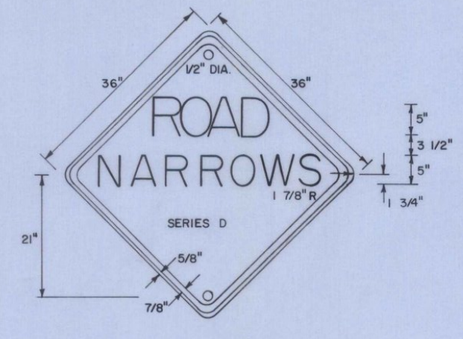
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

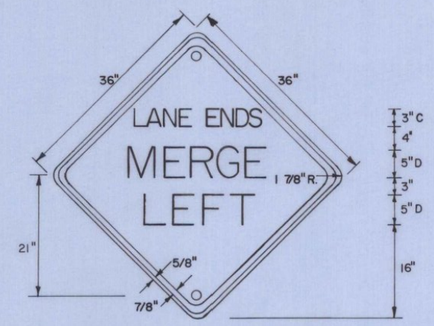
E-19

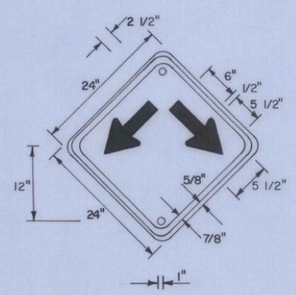
K+E IMPERIAL™ TRACING CLOTH D. L. M. INC. 71413

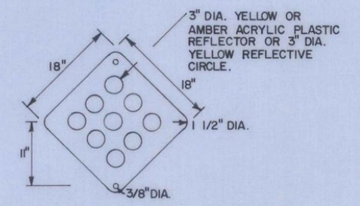




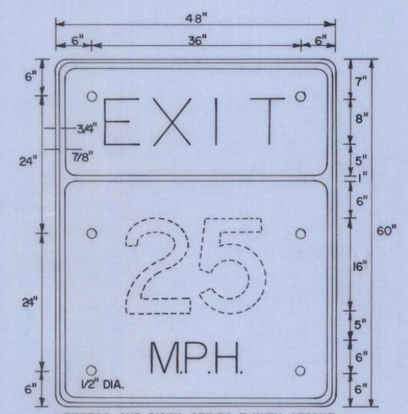








HAZARD MARKER:
HAZARD MARKERS SHALL BE OF 0.060 FLAT SHEET ALUMINUM OR 18 GAGE GALVANIZED FLAT SHEET STEEL, WITH A YELLOW BAKED ENAMEL FINISH & NINE 3" DIA. CIRCLES EVENLY SPACED WITH MATERIALS AS NOTED ABOVE.



LETTERS AND DIGITS SERIES E WITH STROKE WIDTH 0.2" PER INCH OF HEIGHT.

MATERIALS:

The sign base materials used for the warning signs on this sheet may be any of the following, of the thickness noted. (in inches)

	18x18	30x30	36x36	48x60
Flat sheet aluminum	0.060	0.080	0.100	0.100
High density overlaid plywood	1/2	1/2	5/8	5/8
Galvanized flat sheet steel	18 Ga.	16 Ga.	14 Ga.	16 Ga.

The reflective material shall be of reflective sheeting applied to the entire backround of these signs, except the hazard marker which shall have a baked enamel backround. The text and borders may be screaned, lettering film, or hand painted.

COLORS:
The warning signs shown on this sheet, exept the hazard marker, shall have a black text and border on a reflectorized yellow backround. The hazard marker shall have a non-reflective yellow backround with yellow acrylic or plastic reflector or reflective sheeting circles. The reflective sheeting for these circles shall have a minimum brightness value of 95 at -4° angle of incidence and 0.2° divergence angle; and 7.5 at 40° angle of incidence and 0.5° divergence angle, expressed as average candle power per foot-candle, per square foot of material. The yellow shall conform with the standard colors adopted by the American Association of State Highway Officials and approved by the United States Department of Transportation, Federal Highway Administration.

TEXT DESIGN:
Letters, digits, spacing, and text dimensions shall conform with the standard alphabets and designs prescribed in the manual on Uniform Traffic Control Devices.

SPECIFICATIONS:
Warning signs shall meet standard specifications for traffic signs.

REVISIONS AND CORRECTIONS

APPROVED:

DATE: Feb. 4, 1972

R. H. Arnold
CHIEF ENGINEER

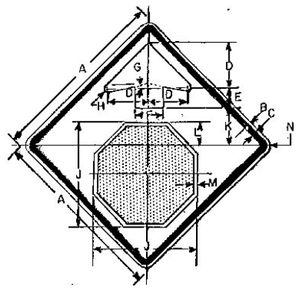
E. B. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

WARNING SIGNS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

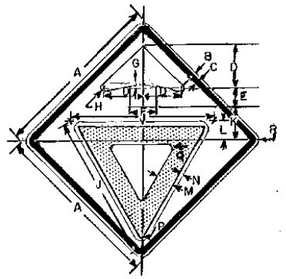
E-19



COLORS

BORDER AND ARROW - BLACK (NON-REFL)
SYMBOL- WHITE BORDER ON RED BACKGROUND (REFL)
BACKGROUND - YELLOW (REFL)

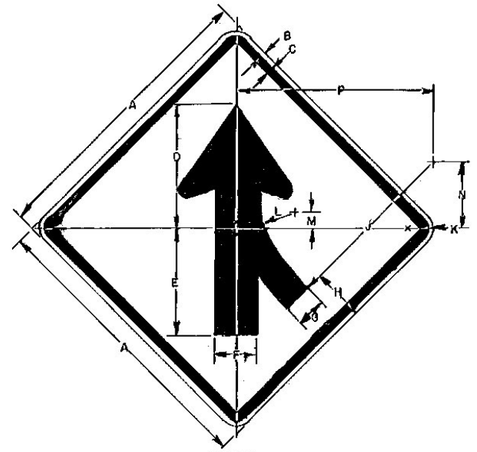
SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	30	1/2	3/4	7-1/2	3-3/4	5	5/8	5/16	6-3/4	6-1/4	2-7/8	1/2	1-7/8
STD.	36	5/8	7/8	9	4-1/2	6	3/4	3/8	19	7-1/2	3-1/2	5/8	2-1/4
SPECIAL	48	3/4	1-1/4	12	6	8	1	1/2	25-1/8	10	4-1/2	3/4	3



COLORS

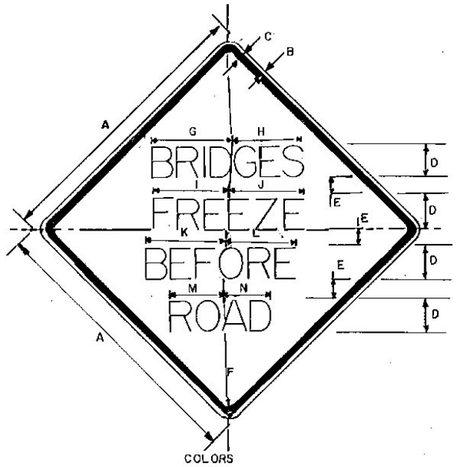
BORDER AND ARROW - BLACK (NON-REFL)
SYMBOL- RED BORDER ON WHITE BACKGROUND (REFL)
BACKGROUND - YELLOW (REFL)

SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
MIN.	30	1/2	3/4	7-1/2	3-3/4	5	5/8	5/16	28	6-1/4	3	3-3/8	1/2	1-1/4	5/8	1-7/8
STD.	36	5/8	7/8	9	4-1/2	6	3/4	3/8	28	7-1/2	3-3/8	3-3/4	5/8	1-3/8	3/4	2-1/4
SPECIAL	48	3/4	1-1/4	12	6	8	1	1/2	38	10	4-1/2	5	3/4	1-7/8	1	3



COLORS
LEGEND - BLACK (NON-REFL)
BACKGROUND - YELLOW (REFL)

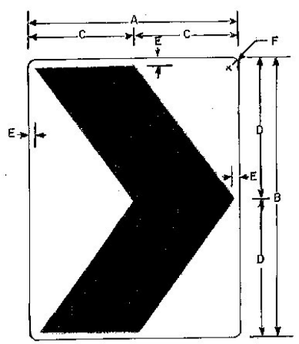
SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	24	3/8	5/8	10-1/4	8-3/4	3-1/2	23/8	4-3/16	22-1/4	1-1/2	6-3/8	2-5/8	10-3/8	22-3/16
STD.	30	1/2	3/4	13	11	4-3/8	3	5-1/4	28	1-7/8	8	3	13	27-3/4
EXPWY.	36	5/8	7/8	15-3/4	13-1/4	5-1/4	3-5/8	6-5/16	33-5/8	2-1/4	9-5/8	4	15-5/8	33-5/16
FWY.	48	3/4	1-1/4	20-1/2	17-1/2	7	4-3/4	8-3/8	45	3	12-13/16	5-1/4	20-3/4	44-3/8



COLORS

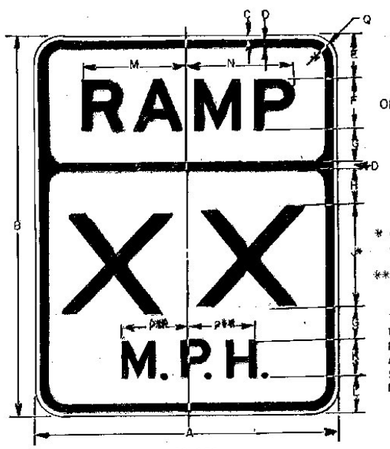
LEGEND - BLACK (NON-REFL)
BACKGROUND - YELLOW (REFL)

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
STD.	36	3/8	5/8	50	2	2	11-1/2	11-1/2	9-13/16	9-7/8	0-1/4	10-1/4	6-7/8	6-7/8
FWY/EXP.	48	3/4	1-1/4	60	3	3	13-1/2	13-1/2	11-13/16	11-13/16	2-1/4	2-3/16	8-5/16	8-5/16



COLORS
CHEVRON - BLACK (NON-REFL)
BACKGROUND - YELLOW (REFL)

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MIN.	12	18	6	9	1/2	1-1/2
STD.	18	24	9	12	3/4	1-1/2
SPECIAL	24	30	12	15	7/8	1-1/2
EXPWY.	30	36	15	18	1	1-7/8
FRWY.	36	48	18	24	1-1/8	2-1/4



OR "EXIT"

* OPTICALLY SPACE NUMBERS ABOUT VERTICAL CENTERLINE

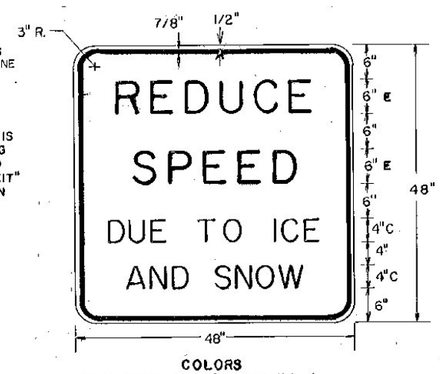
**INCREASE SPACING 100%

THE "RAMP" SPEED SIGN IS USED ON RAMPS LEADING FROM ONE FREEWAY TO ANOTHER AND THE "EXIT" SPEED SIGN IS USED ON NORMAL EXITS.

COLORS

LEGEND - BLACK (NON-REFL)
BACKGROUND - YELLOW (REFL)

SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
MIN. & STD.	24	30	3/8	5/8	3-1/2	4E	2-1/2	2-7/8	8E	3E	3	8-1/4	8-1/2	5-5/16	1-1/2
EXPWY.	36	48	5/8	7/8	6	6E	4	5-1/8	12E	4E	6	12-3/8	12-3/4	7-1/16	2-1/4
FWY.	48	60	3/4	1-1/4	7	8E	5	5-3/4	16E	6E	6	16-1/2	17	10-5/8	3



COLORS
LEGEND- BLACK (NON-REFL.)
BACKGROUND- YELLOW (REFL.)

COLORS

THE WARNING SIGNS SHOWN ON THIS SHEET SHALL BE AS DETAILED FOR EACH SIGN. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTION OFFICIALS APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	12" X 18" 18" X 24"	24" X 24" 24" X 30" 30" X 30" 30" X 36"	36" X 36" 36" X 48"	48" X 48" 48" X 60"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

THE BLACK PORTIONS OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN

LETTERS, DIGITS, ARROW, SPACINGS AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES PREPARED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

REVISIONS AND CORRECTIONS

APRIL 18, 1985 - RAMP AND EXIT SIGN USE NOTE ADDED. "REDUCE SPEED DUE TO ICE AND SNOW" SIGN ADDED.

APPROVED

DATE OCT. 3, 1984

DIRECTOR OF ENGINEERING AND CONSTRUCTION

CHIEF OF DESIGN

SURVEY AND PLANS ENGINEER

WARNING SIGNS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

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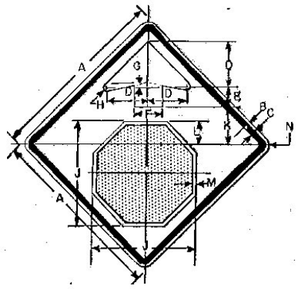
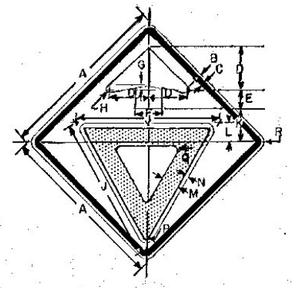


COLORS

BORDER AND ARROW - BLACK (NON-REFL)
SYMBOL- WHITE BORDER ON RED BACKGROUND (REFL)
BACKGROUND - YELLOW (REFL)

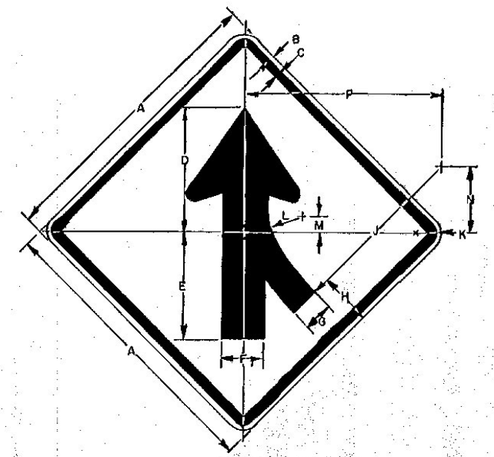
SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	30	1/2	3/4	7-1/2	3-3/4	5	3/8	5/16	15-3/4	6-1/4	2-7/8	1/2	1-7/8
STD.	36	5/8	7/8	9	4-1/2	6	3/4	3/8	19	7-1/2	3-1/2	5/8	2-1/4
SPECIAL	48	3/4	1-1/4	12	6	8	1	1/2	25-1/8	10	4-1/2	3/4	3



COLORS

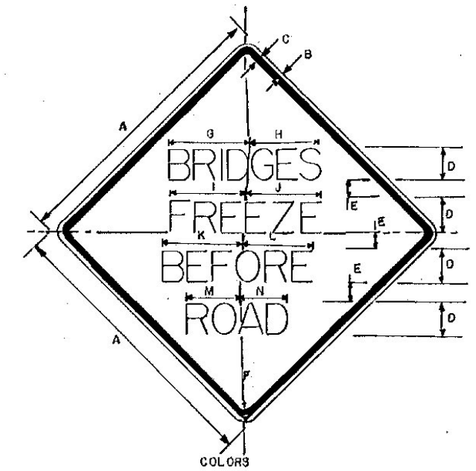
BORDER AND ARROW - BLACK (NON-REFL)
SYMBOL- RED BORDER ON WHITE BACKGROUND (REFL)
BACKGROUND - YELLOW (REFL)

SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
MIN.	30	1/2	3/4	7-1/2	3-3/4	5	3/8	5/16	25	6-1/4	3	3-3/8	1/2	1-1/4	5/8	1-7/8
STD.	36	5/8	7/8	9	4-1/2	6	3/4	3/8	28	7-1/2	3-3/8	3-3/4	5/8	1-3/8	3/4	2-1/4
SPECIAL	48	3/4	1-1/4	12	6	8	1	1/2	38	10	4-1/2	5	3/4	1-7/8	1	3



COLORS
LEGEND - BLACK (NON-REFL)
BACKGROUND - YELLOW (REFL)

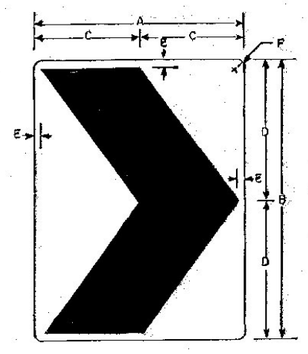
SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	24	3/8	5/8	10-1/4	8-3/4	3-1/2	2-3/8	4-3/16	22-1/4	1-1/2	6-3/8	2-5/8	10-3/8	22-3/16
STD.	30	1/2	3/4	13	11	4-3/8	3	5-1/4	28	1-7/8	8	3	13	27-3/4
EXPWY.	36	5/8	7/8	15-3/4	13-1/4	5-1/4	3-5/8	6-5/16	33-5/8	2-1/4	9-5/8	4	15-5/8	33-5/16
FWY.	48	3/4	1-1/4	20-1/2	17-1/2	7	4-3/4	8-3/8	45	3	12-13/16	5-1/4	20-3/4	44-3/8



COLORS

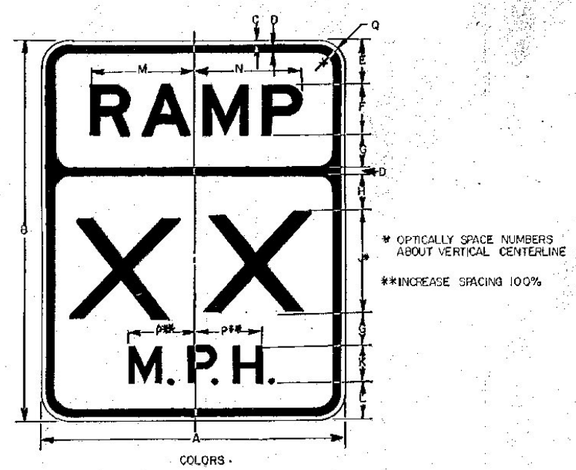
LEGEND - BLACK (NON-REFL)
BACKGROUND - YELLOW (REFL)

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
STD.	36	5/8	5/8	5C	2	2	11-1/2	1-1/2	9-13/16	9-7/8	10-1/4	10-1/4	6-7/8	6-7/8
FWY/EXP.	48	3/4	1-1/4	6C	3	3	13-1/2	3-1/2	11-13/16	11-13/16	12-1/4	12-5/16	8-5/16	8-5/16



COLORS
CHEVRON - BLACK (NON-REFL)
BACKGROUND - YELLOW (REFL)

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MIN.	12	18	6	9	1/2	1-1/2
STD.	18	24	9	12	3/4	1-1/2
SPECIAL	24	30	12	15	7/8	1-1/2
EXPWY.	30	36	15	18	1	1-7/8
FRWY.	36	48	18	24	1-1/8	2-1/4



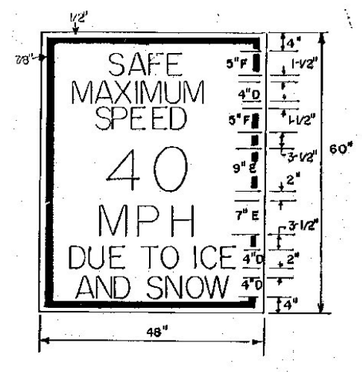
* OPTICALLY SPACE NUMBERS ABOUT VERTICAL CENTERLINE

**INCREASE SPACING 100%

COLORS.

LEGEND - BLACK (NON-REFL)
BACKGROUND - YELLOW (REFL)

SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
MIN. & STD.	24	30	3/8	5/8	3-1/2	4E	2-1/2	2-7/8	8E	3E	3	8-1/4	8-1/2	5-5/16	1-1/2
EXPWY.	36	48	5/8	7/8	6	6E	4	5-1/8	12E	4E	6	12-3/8	12-3/4	7-1/16	2-1/4
FWY.	48	60	3/4	1-1/4	7	8E	5	5-3/4	16E	6E	6	16-1/2	17	10-5/8	3



COLORS

THE WARNING SIGNS SHOWN ON THIS SHEET SHALL BE AS DETAILED FOR EACH SIGN. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTION OFFICIALS APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	12" X 18" 18" X 24"	24" X 30" 30" X 36"	36" X 48" 36" X 36"	48" X 48" 48" X 60"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

THE BLACK PORTIONS OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN

LETTERS, DIGITS, ARROW, SPACINGS AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES PREPARED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

REVISIONS AND CORRECTIONS

APPROVED

DATE OCT. 3, 1984

DIRECTOR OF ENGINEERING AND CONSTRUCTION

CHIEF OF DESIGN

SURVEY AND PLANS ENGINEER

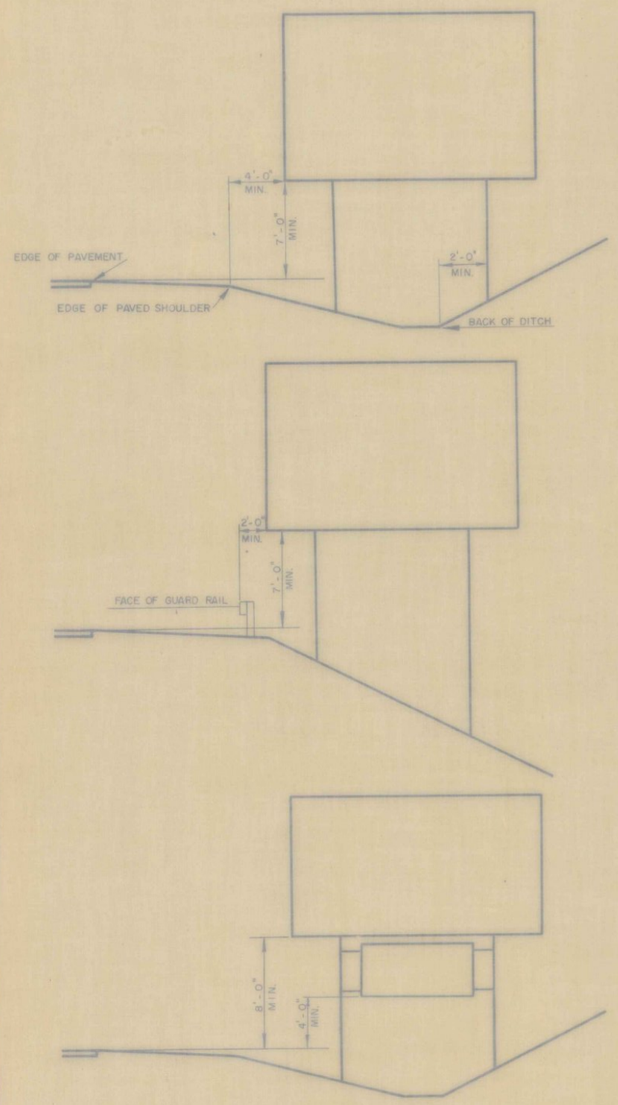
WARNING SIGNS

VERMONT AGENCY OF TRANSPORTATION

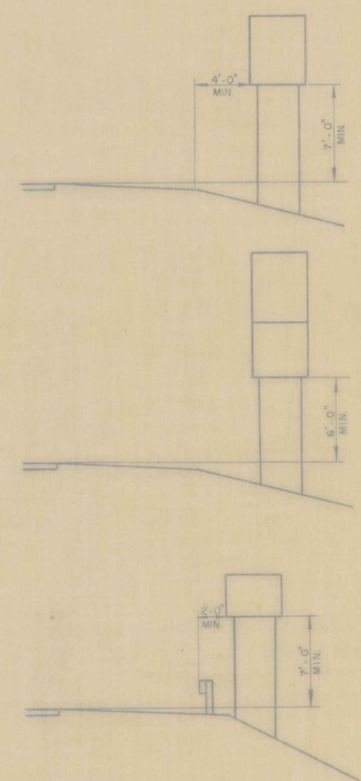
STANDARD

E-19

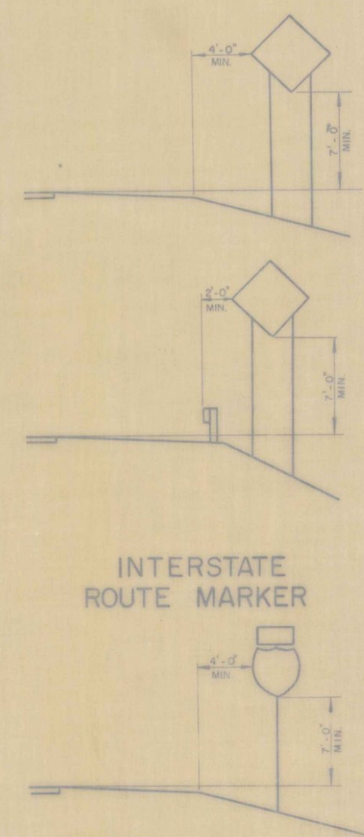
INTERSTATE TYPE GUIDE SIGNS



INTERSTATE TYPE REGULATORY SIGNS

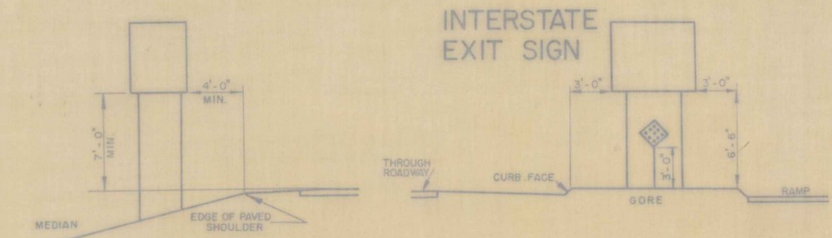


INTERSTATE TYPE WARNING SIGNS

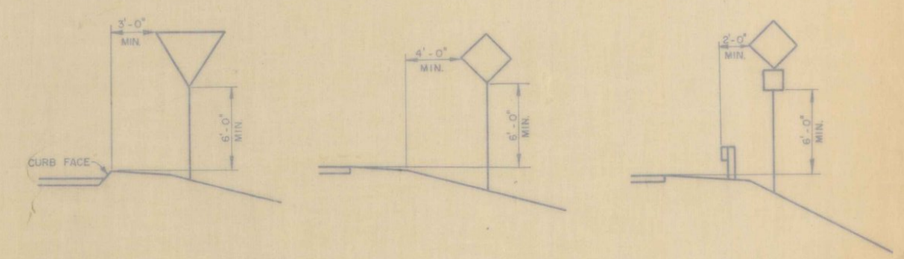


INTERSTATE ROUTE MARKER

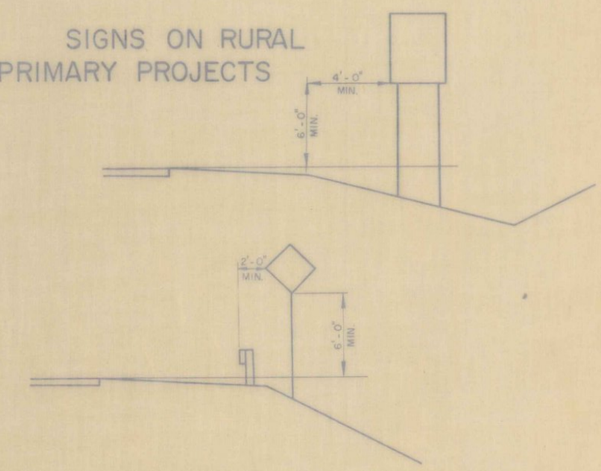
INTERSTATE EXIT SIGN



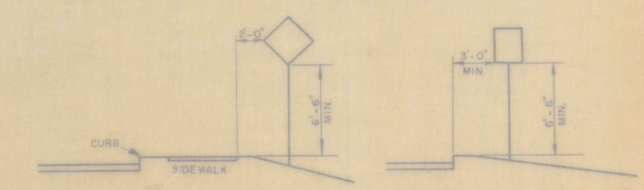
SIGNS ON RAMPS



SIGNS ON RURAL PRIMARY PROJECTS



SIGNS AT URBAN LOCATIONS



REVISIONS AND CORRECTIONS

DEC 18, 1964 — 1. TWO POST MOUNTING ADDED FOR SIGNS OF 4 FT WIDTH OR OVER.
2. NEXT EXIT SIGN CHANGED TO 8 FT x 4 FT. SIZE ACCORDING TO MANUAL.

APPROVED: SEPT. 9, 1963

G. D. Bishop — CHIEF ENGINEER
R. H. Arnold — ASST. CHIEF ENGINEER
G. M. Lane — HIGHWAY ENGINEER
A. W. Colburn — TRAFFIC ENGINEER
E. H. Stickney — CONSTRUCTION ENGINEER

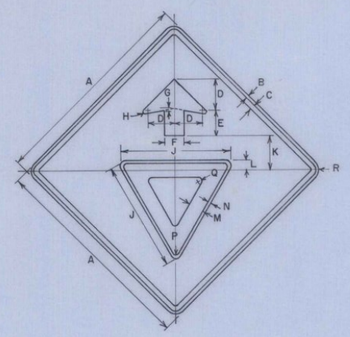
DRAWN A.W.C.
TRACED A.J.A.

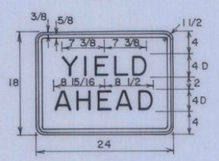
TRAFFIC SIGNS

STANDARD SIGN PLACEMENT

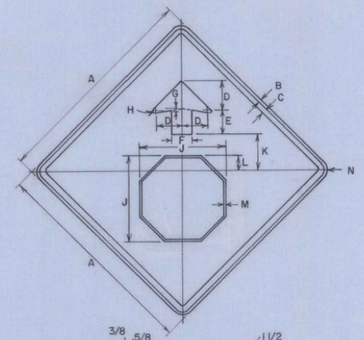
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

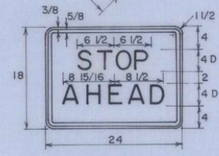
E-19



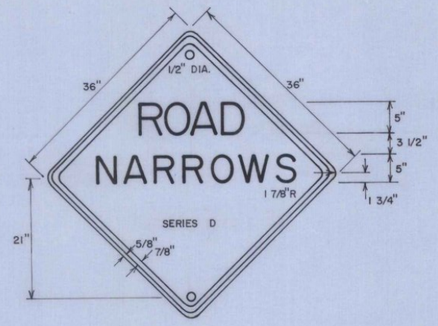


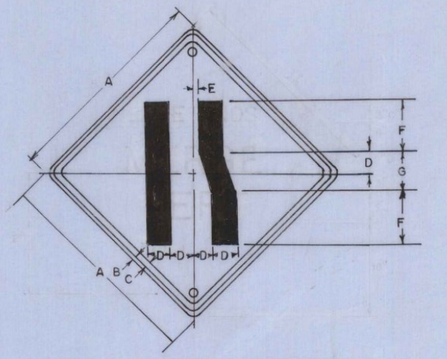
SIGN	DIMENSIONS														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
MIN.	30	1/2	3/4	5	3 3/4	3 1/4	5/8	5/16	18 3/4	6 1/4	1 1/4	2 1/2	3/8	15/16	1/2	1 7/8
STD.	36	5/8	7/8	6	4 1/2	3 3/4	3/4	3/8	22 1/2	7 1/2	1 1/2	3	1/2	1 1/8	5/8	2 1/4
SPECIAL	48	3/4	1 1/4	8	6	5	1	1/2	30	10	2	4	5/8	1 1/2	7/8	3



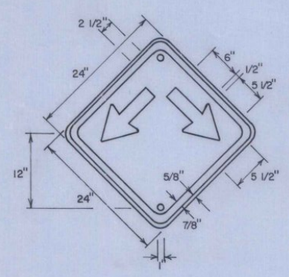


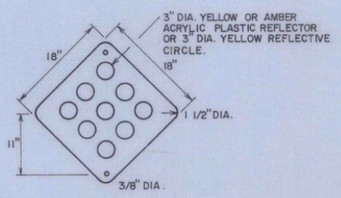
SIGN	DIMENSIONS												
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	30	1/2	3/4	5	3 3/4	3 1/4	5/8	5/16	12 1/2	6 1/4	1 1/4	3/8	1 7/8
STD.	36	5/8	7/8	6	4 1/2	3 3/4	3/4	3/8	15	7 1/2	1 1/2	1/2	2 1/4
SPECIAL	48	3/4	1 1/4	8	6	5	1	1/2	20	10	2	5/8	3



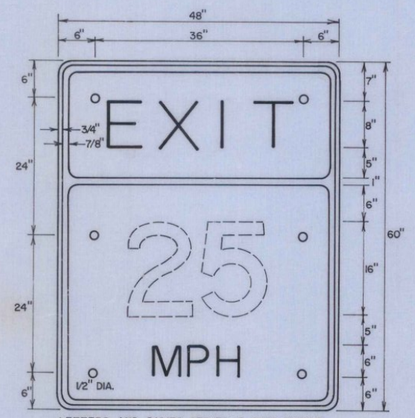


SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MIN.	30	1/2	3/4	3-3/8	13/16	8-7/16	6-3/4	1-7/8
STD & EXPWY.	36	5/8	7/8	4	1	10	8	2-1/4
FWY.	48	3/4	1-1/4	5-5/16	1-3/8	13-15/16	10-5/8	3





HAZARD MARKER:
HAZARD MARKERS SHALL BE OF 0.060 FLAT SHEET ALUMINUM OR 18 GAGE GALVANIZED FLAT SHEET STEEL, WITH A YELLOW BAKED ENAMEL FINISH AND NINE 3" DIA. CIRCLES EVENLY SPACED WITH MATERIALS AS NOTED ABOVE.



LETTERS AND DIGITS SERIES E WITH STROKE WIDTH 0.2" PER INCH OF HEIGHT.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE THICKNESS NOTED (IN INCHES).

	18 x 18	30 x 30	36 x 36	48 x 60
FLAT SHEET ALUMINUM	0.060	0.080	0.100	0.100
HIGH DENSITY OVERLAID PLYWOOD	1/2	1/2	5/8	5/8
GALVANIZED FLAT SHEET STEEL	18 GA.	16 GA.	14 GA.	16 GA.

THE REFLECTIVE MATERIAL SHALL BE OF REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THESE SIGNS, EXCEPT THE HAZARD MARKER WHICH SHALL HAVE A BAKED ENAMEL BACKGROUND. THE TEXT AND BORDERS MAY BE SCREENED, LETTERING FILM, OR HAND PAINTED.

COLORS

THE WARNING SIGNS SHOWN ON THIS SHEET, EXCEPT THE HAZARD MARKER, YIELD AHEAD AND STOP AHEAD SHALL HAVE A BLACK TEXT AND BORDER OR A REFLECTORIZED YELLOW BACKGROUND. THE HAZARD MARKER SHALL HAVE A NON-REFLECTORIZED YELLOW BACKGROUND WITH YELLOW ACRYLIC PLASTIC REFLECTOR OR REFLECTIVE SHEETING CIRCLES. THE REFLECTIVE SHEETING FOR THESE CIRCLES SHALL HAVE A MINIMUM BRIGHTNESS VALUE OF 95 AT -4° ANGLE OF INCIDENCE AND 0.2° DIVERGENCE ANGLE ; AND 7.5 AT 40° ANGLE OF INCIDENCE AND 0.5° DIVERGENCE ANGLE, EXPRESSED AS AVERAGE CANDLE POWER PER FOOT-CANDLE, PER SQUARE FOOT OF MATERIAL. THE YIELD AHEAD AND STOP AHEAD SIGNS SHALL HAVE A BLACK BORDER AND ARROW WITH A RED REVERSED SCREENED SYMBOL ON A WHITE BACKGROUND. THE MAIN BACKGROUND IS REFLECTORIZED YELLOW. THE YELLOW SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE UNITED STATES DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

TEXT DESIGN

LETTERS, DIGITS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

WARNING SIGNS SHALL MEET STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

THE YIELD AHEAD AND STOP AHEAD SIGNS SHALL HAVE AN ENCAPSULATED LENS REFLECTIVE MATERIAL BACKGROUND. ALL OTHERS ON THIS SHEET SHALL BE ENGINEER GRADE.

REVISIONS AND CORRECTIONS
SEPT. 29, 1977 - REVISION DUE TO SYMBOL SIGNS.
MAY 18, 1978 - ENCAPSULATED LENS NOTE ADDED.
DEC 20, 1982 LANE MERGE SIGN REMOVED SYMBOL SIGN ADDED

APPROVED

Feb. 4, 1972
DATE

R. H. Arnold
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

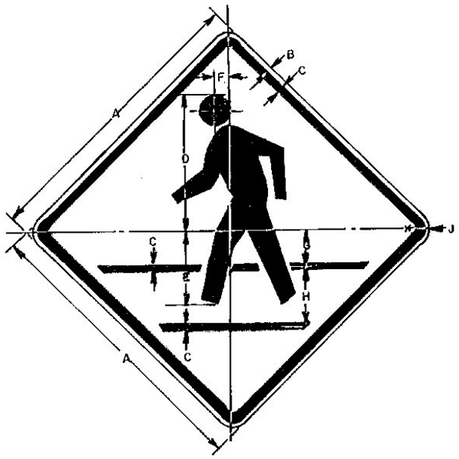
G. M. Lane
HIGHWAY ENGINEER

WARNING SIGNS

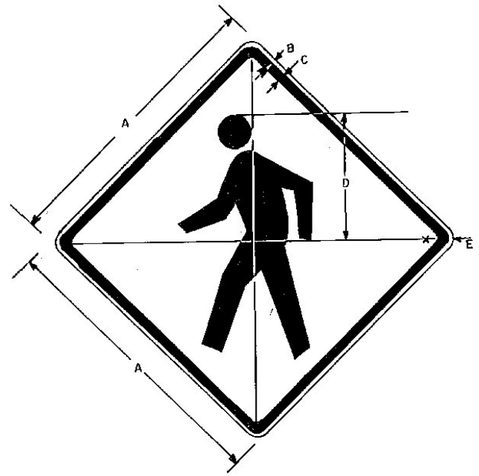
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-19

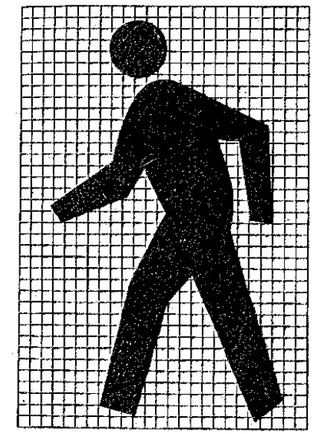
D-8

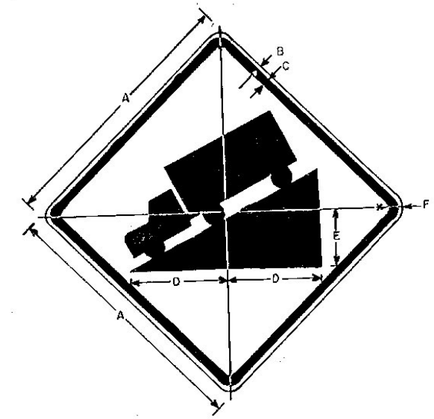


SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
BIKE	18	3/8	5/8	8-3/8	4-3/4	3/4	2-3/8	3-5/8	1-1/2
MIN.	24	3/8	5/8	11	6-3/8	1-3/16	3-1/8	4-3/4	1-1/2
STD.	30	1/2	3/4	14	8	1-1/2	4	6	1-7/8
EXPWY.	36	5/8	7/8	16-3/4	9-5/8	1-13/16	4-3/4	7-1/4	2-1/4
SPECIAL	48	3/4	1-1/4	22	12-3/4	2-3/8	6-1/4	9-1/2	3

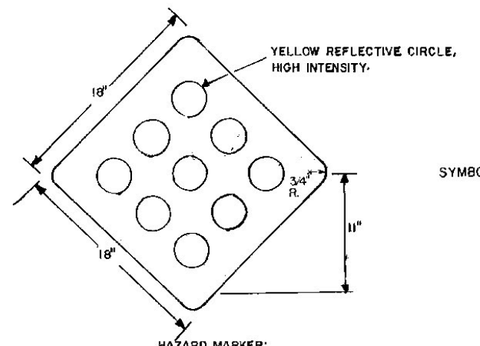


SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN.	24	3/8	5/8	11	1-1/2
STD.	30	1/2	3/4	13-1/2	1-7/8
EXPWY.	36	5/8	7/8	16	2-1/4
SPECIAL	48	3/4	1-1/4	22	3





SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MIN.	24	3/8	5/8	8-3/4	6	1-1/2
STD.	30	1/2	3/4	11	7-1/2	1-7/8
EXPWY.	36	5/8	7/8	13-1/4	9	2-1/4
FWY.	48	3/4	1-1/4	17-1/2	12	3

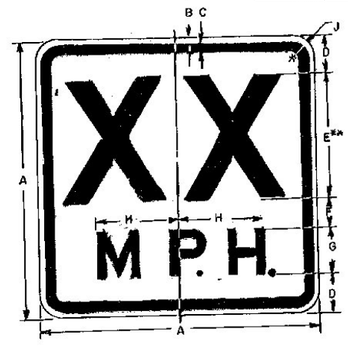


HAZARD MARKER:
HAZARD MARKERS SHALL BE OF 0.060 FLAT SHEET ALUMINUM OR 18 GAGE GALVANIZED FLAT SHEET STEEL, WITH A NON-REFLECTIVE YELLOW BACKGROUND AND NINE 3" DIA. CIRCLES EVENLY SPACED WITH MATERIALS AS NOTED ABOVE.

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	40	30	1/2	3/4	7-1/4	4D	4C	1-3/4	2-1/2	1-7/8	6-1/2	22-9/16	11-1/16
STD.	48	36	5/8	7/8	8-1/2	5D	5C	2	3	2-1/4	8	26-13/16	12-3/4
SPECIAL	64	48	3/4	1-1/4	12	6D	6C	3	4	3	10-3/4	33-11/16	16-9/16

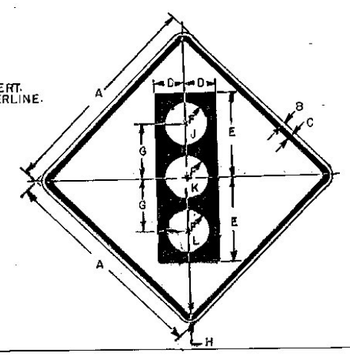
* FOR STD. SIZE REDUCE SPACING 20%

** FOR STD. SIZE REDUCE SPACING 35%



** OPTICALLY SPACE NUMERALS ABOUT VERT. CENTERLINE.

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
STD.	18	3/8	5/8	2-1/2	8E	2	3E	5-5/16	1-1/2
SPECIAL	24	3/8	3/8	3-5/8	10E	2-3/4	4E	7-1/16	1-1/2



SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
BIKE	18	3/8	5/8	3	8	2-1/4	5	1-1/2
MIN.	30	1/2	3/4	5	13-3/4	3-3/4	8-3/4	1-7/8
STD. & MIN.	36	5/8	7/8	5-3/4	15-3/4	4-1/4	10	2-1/4
SPECIAL	48	3/4	1-1/4	7-1/2	20	5	12-1/2	3

ADDITIONAL COLORS: J - REFL. RED
K - REFL. YELLOW
L - REFL. GREEN

COLORS

THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	18"X18"	24"X24" 30"X30"	36"X36"	48"X 48"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES PREPARED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

REVISIONS AND CORRECTIONS

FEB. 19, 1985 - COLORS ADDED TO "SIGNAL AHEAD" SYMBOL
- OTHER MINOR REVISIONS

APPROVED

DATE OCT. 3, 1984

S. J. Gage P.E.
DIRECTOR OF ENGINEERING AND CONSTRUCTION

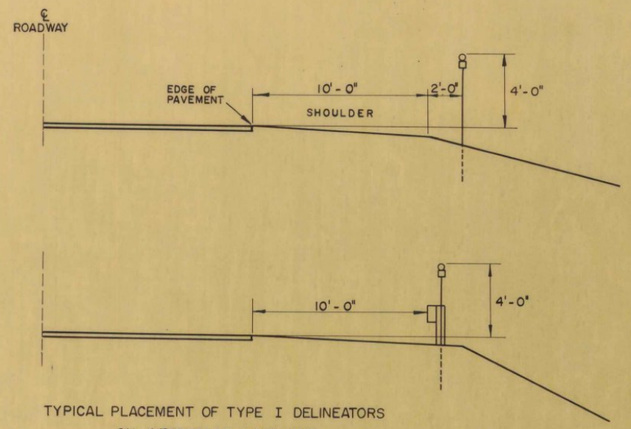
CHIEF OF DESIGN

SURVEY AND PLANS ENGINEER

WARNING SIGNS

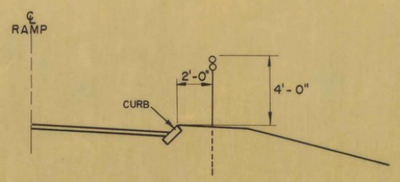
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-19B



TYPICAL PLACEMENT OF TYPE I DELINEATORS ON INTERSTATE ROADWAYS

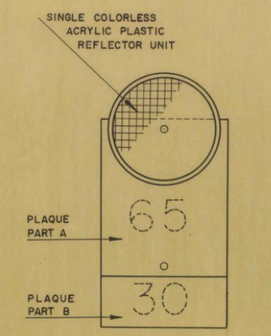
Type I Delineators, with the appropriate delineator plaques, shall be erected continuosly along the right side of interstate roadways, spaced exactly 264 feet (0.05 mile) apart between mileposts. The Type I Delineators shall be omitted on deceleration and acceleration lanes, and on bridges, but the succeeding spacing shall be as if the delineators had been erected continuosly and shall so indicate.



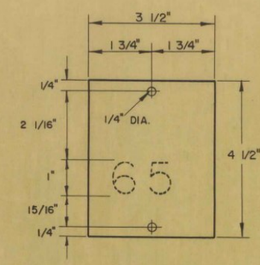
TYPICAL PLACEMENT OF TYPE II DELINEATORS ON RAMPS

Type II Delineators shall be erected continuosly along the right side of deceleration and acceleration lanes, spaced 100 feet apart or as shown on the plans. They shall be erected on ramps at the locations shown on the plans.

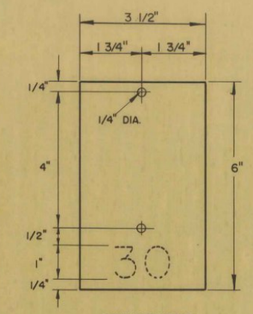
A Type III Delineator, consisting of three yellow or amber reflector units mounted vertically, shall be erected at the end of an acceleration lane as show on the plans.



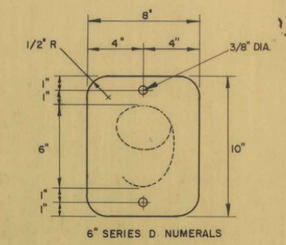
TYPE I DELINEATOR ASSEMBLY WITH DELINEATOR PLAQUES



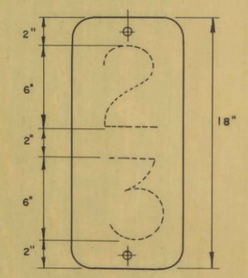
DELINEATOR PLAQUE PART A

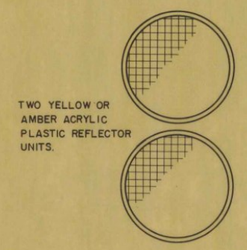


DELINEATOR PLAQUE PART B

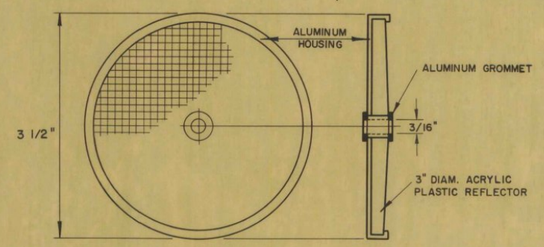


6" SERIES D NUMERALS





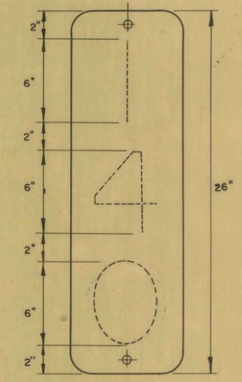
TYPE II DELINEATOR ASSEMBLY



DELINEATOR REFLECTOR UNIT

A delineator reflector unit with its delineator plaques shall be mounted on the post with two 3/16" dia. by 1 1/2" long aluminum bolts with 1/2" dia. aluminum vandal-resistant nuts.

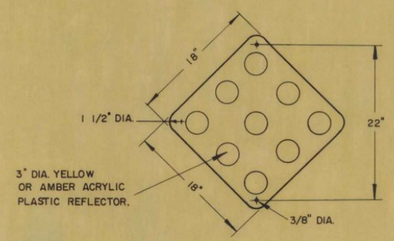
A mile sign shall be mounted on the post with two 5/16" dia. by 1 1/2" long stainless steel bolts with stainless steel nuts and washers.



MILEPOSTS

Mile signs shall be of 0.060" flat sheet aluminum or 18 gage galvanized flat sheet steel, with a green baked enamel finish, and numerals of white or silver reflective sheeting.

The mile shall be mounted on standard delineator posts, placed as for Type I delineators except that the bottom of a milepost shall be a minimum of 3 inches above the top of a guard rail post. Mileposts shall be located by the Engineer.



HAZARD MARKER

Hazard markers shall be of 0.060" flat sheet aluminum or 18 gage galvanized flat sheet steel, with a yellow baked enamel finish, and nine 3" dia. yellow or amber acrylic plastic reflector units.

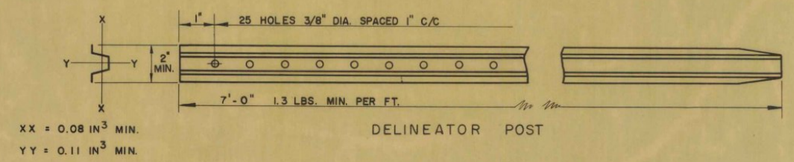
COLORS

The yellow and green shall conform with the standard colors adopted by the American Association of State Highway Officials and approved by the U.S. Department of Commerce, Bureau of Public Roads.

SPECIFICATIONS

Delineator reflector units, delineator plaques, and delineator posts shall meet the standard state specifications for DELINEATORS, ITEM 702

Mileposts and Hazard Markers shall meet the standard state specifications for TRAFFIC SIGNS, ITEM 701



XX = 0.08 IN^3 MIN.
YY = 0.11 IN^3 MIN.

DELINEATOR POST

REVISIONS AND CORRECTIONS

APPROVED:
APRIL 17, 1964

A. D. Bishop
CHIEF ENGINEER

ASST. CHIEF ENGINEER

G. W. Lane
HIGHWAY ENGINEER

A. W. Coleman
TRAFFIC ENGINEER

E. H. Stickney
CONSTRUCTION ENGINEER

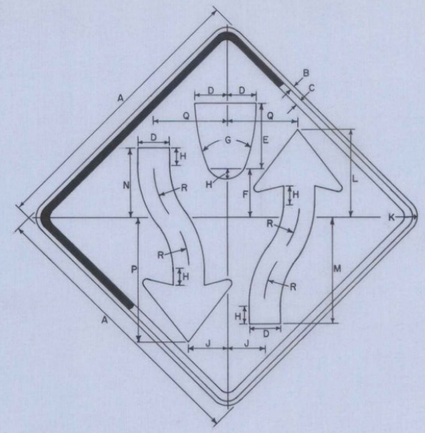
DRAWN A.W.C.
TRACED A.J.A.

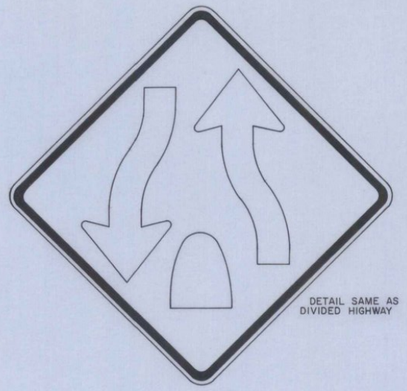
TRAFFIC SIGNS

DELINEATORS, HAZARD MARKERS AND MILEPOSTS

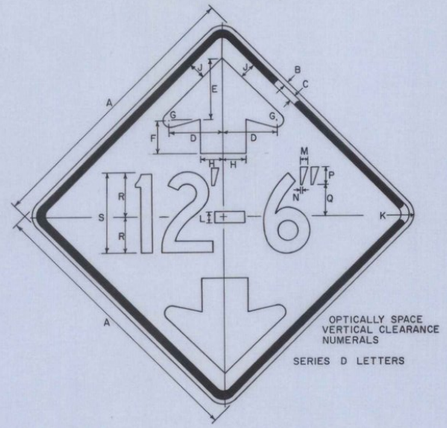
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-20



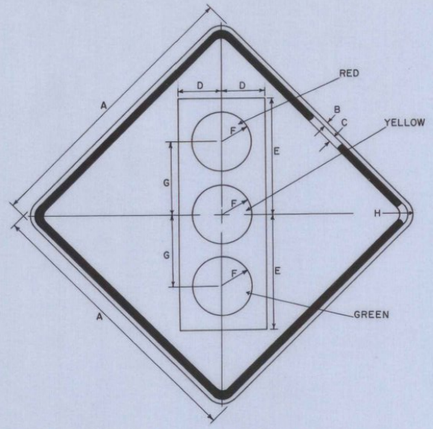


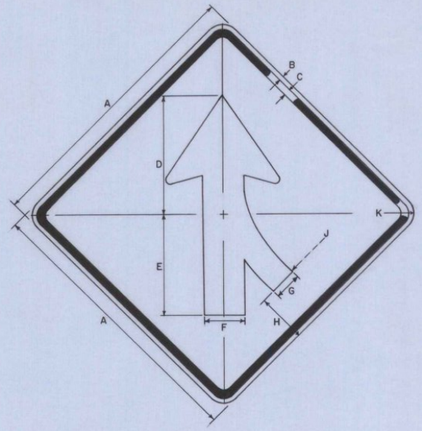
DETAIL SAME AS DIVIDED HIGHWAY



OPTICALLY SPACE VERTICAL CLEARANCE NUMERALS

SERIES D LETTERS





SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
MINIMUM	30	1/2	3/4	3 5/16	8 5/16	4 1/8	25	1 11/16	4 1/8	1 7/8	9 9/16	11 5/8	7 1/2	13 11/16	7 7/8	8 5/16
STANDARD & EXPRESSWAY	36	5/8	7/8	4	10	5	30	2	5	2 1/4	11 1/2	14	9	16 1/2	9 1/2	10
SPECIAL	48	3/4	1 1/4	5 1/4	13 1/8	6 9/16	39 5/16	2 5/8	6 9/16	3	15 1/16	18 3/8	11 13/16	21 5/8	12 7/16	13 1/8

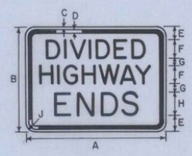
SIGN	DIMENSIONS (INCHES)																
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
MINIMUM	30	1/2	3/4	5 3/4	6 5/8	3 3/4	3/4	2 1/2	1 11/16	1 7/8	1 9/16	1	7/16	2 1/4	3 5/16	5	10
STANDARD & EXPRESSWAY	36	5/8	7/8	7	8	4 1/2	1	3	2	2 1/4	1 7/8	1 1/4	1/2	2 3/4	4	6	12
FREEWAY	48	3/4	1 1/4	9 3/16		5 7/8	1 5/16	4	2 5/8	3	2 7/16	1 5/8	5/8	3 5/8	5 1/2	8	18

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MINIMUM	30	1/2	3/4	5	13 3/4	3 3/4	8 3/4	1 7/8
STANDARD & EXPRESSWAY	36	5/8	7/8	5 3/4	15 3/4	4 1/4	10	2 1/4
FREEWAY	48	3/4	1 1/4	7 1/2	20	5	12 1/2	3

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MINIMUM	24	3/8	5/8	10 1/4	8 3/4	3 1/2	2 3/8	4 3/16	9	1 1/2	1 1/4
STANDARD	30	1/2	3/4	13	11	4 3/8	3	5 1/4	11 1/4	1 7/8	1 9/16
EXPRESSWAY	36	5/8	7/8	15 3/4	13 1/4	5 1/4	3 5/8	6 5/16	13 1/2	2 1/4	1 7/8
FREEWAY	48	3/4	1 1/4	20 1/2	17 1/2	7	4 3/4	8 3/8	18	3	2 1/2

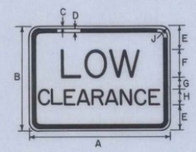
SERIES C LETTERS

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	J
STANDARD & MINIMUM	24	18	3/8	5/8	4	4	2	1 1/2



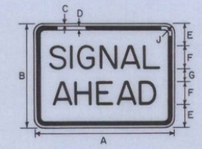
SERIES D LETTERS

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
STANDARD & MINIMUM	24	18	3/8	5/8	2 1/2	3	1 1/2	4	1 1/2



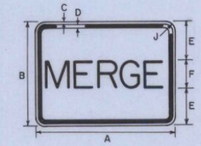
SERIES D LETTERS

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
STANDARD & MINIMUM	24	18	3/8	5/8	4	5	2	3	1 1/2



SERIES D LETTERS

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	J
STANDARD & MINIMUM	24	18	3/8	5/8	4	4	2	1 1/2



SERIES D LETTERS

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	J
STANDARD & MINIMUM	24	18	3/8	5/8	6 1/2	5		1 1/2

The sign base material used for the warning signs shown on this sheet may be any of the following of the minimum thickness noted:

	24" x 18"	24" x 24"	24" x 30"	36" x 36"	48" x 48"
FLAT SHEET ALUMINUM	0.080"	0.080"	0.100"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"	5/8"	3/4"
GALVANIZED SHEET STEEL	16 Ga.	16 Ga.	14 Ga.	14 Ga.	12 Ga.

NOTES:

The reflective material shall be of reflective sheeting applied to the entire background of the sign. The arrows, text, symbols, and borders except for the top and bottom circles of the stop ahead sign may be screened lettering film or hand painted. The top red circle and bottom green circle of the stop ahead sign shall be reverse screened.

Colors

The warning signs shown on this sheet shall have a black text, border, arrows, and symbols, except the circles on stop ahead sign, on a yellow reflectorized background. The circles on the stop ahead sign shall be red, yellow, and green in that order. The red, yellow, and green shall conform with the standard colors adopted by the American Association of State Highway Officials and approved by the U.S. Department of Transportation, Federal Highway Administration.

The low clearance sign shall have engineer grade reflective sheeting and all other signs on this sheet shall be encapsulated lens reflective sheeting.

Text Design

Letters, digits, arrows, spacing, and text dimensions shall conform with the standard alphabets and design prescribed in the manual on Uniform Traffic Control Devices.

Specifications

Warning signs meet the Standard State Specifications for Traffic signs.

OK 1-26-72

REVISIONS AND CORRECTIONS

MAY 18, 1978 – ENCAPSULATED LENS NOTE ADDED.

APPROVED

Jan. 10, 1972
DATE

R. H. Arnold
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

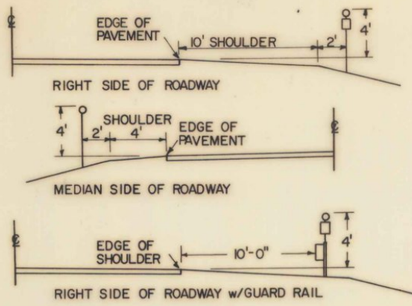
TRAFFIC SIGNS

WARNING SIGNS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-20

D-8



TYPICAL PLACEMENT OF TYPE I DELINEATORS ON INTERSTATE ROUTES

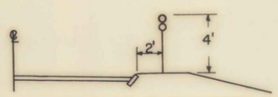
TYPE I DELINEATORS, WITH THE APPROPRIATE DELINEATOR PLAQUES SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF INTERSTATE ROADWAYS BETWEEN MILE POSTS.

THE TYPE I DELINEATORS SHALL BE OMITTED ALONG DECELERATION AND ACCELERATION LANES, BUT THE SUCCEEDING SPACING SHALL BE AS IF THE DELINEATORS HAD BEEN ERECTED CONTINUOUSLY, AND SHALL SO INDICATE.

TYPE I DELINEATORS AND MILE POSTS ARE TO BE COMPUTED AND MARKED IN THE FIELD, (LOCATION OF), BY THE ENGINEER IN ACCORDANCE WITH THE LATEST REVISION OF THE DEPARTMENTS "POLICY ON LOCATION MARKING FOR VERMONT INTERSTATE HIGHWAYS."

TYPE I DELINEATORS WITHOUT PLAQUES SHALL BE ERECTED CONTINUOUSLY ALONG THE LEFT OR MEDIAN SIDE OF INTERSTATE HIGHWAYS, SPACED OPPOSITE EVERY SECOND TYPE I DELINEATOR ON THE RIGHT SIDE, AND CONTINUED AT APPROXIMATLY THE SAME SPACING THROUGH INTERCHANGES AND REST AREAS WHERE THERE MAY NOT BE ANY TYPE I DELINEATORS ON THE RIGHT SIDE. THE SAME LATERAL PLACEMENT SHALL BE FOLLOWED ON THE LEFT AS ON THE RIGHT.

FOR MOUNTING DELINEATORS ON BRIDGES, SEE STANDARD E-20A.



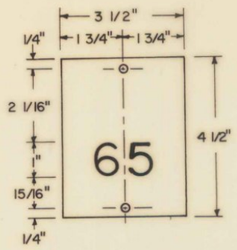
TYPICAL PLACEMENT OF TYPE II DELINEATORS ON RAMPS AND SPEED CHANGE LANES

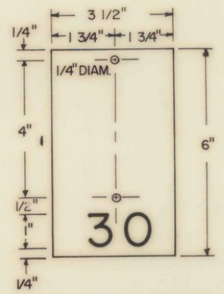
TYPE II DELINEATORS SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF THE DECELERATION AND ACCELERATION LANES, SPACED AS SHOWN ON THE PLANS. THEY SHALL BE ERECTED ON THE RIGHT OR LEFT SIDE OF THE RAMPS AS INDICATED ON THE PLANS.

COLORS:
THE GREEN SHALL CONFORM WITH THE STANDARD GREEN COLOR ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

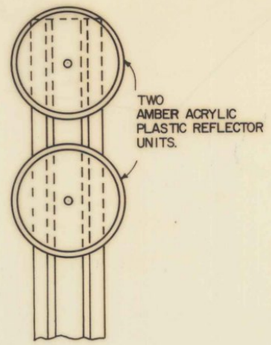
SPECIFICATIONS:
DELINEATORS REFLECTOR UNITS, DELINEATOR PLAQUES, AND DELINEATOR POSTS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR DELINEATORS.

DELINEATOR PLAQUE PART "A"
(THE NUMERALS ON PART "A" INDICATE THE MILE.)

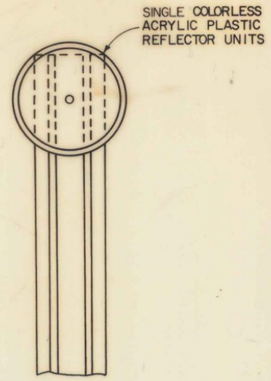




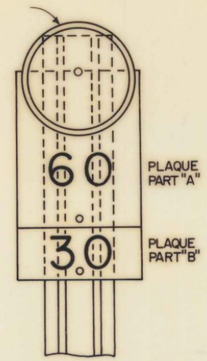
DELINEATOR PLAQUE PART "B"
(THE NUMERAL ON PART "B" INDICATES UNITS OF FIVE ONE-HUNDRETHS OF A MILE BETWEEN MILE POSTS.)



TYPE II

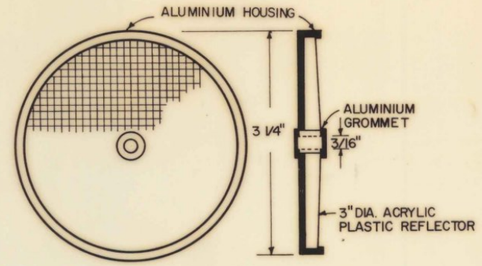


TYPE I
WITHOUT PLAQUE

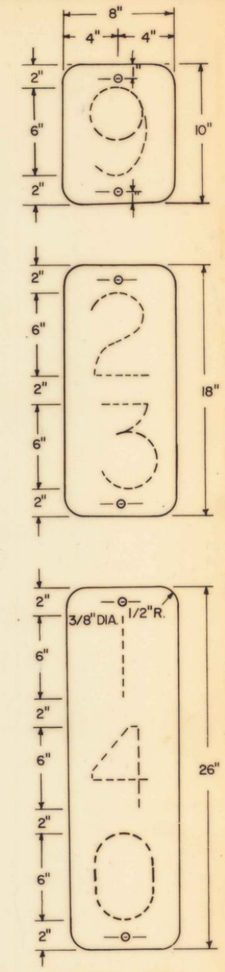


TYPE I
WITH PLAQUE

DELINEATORS WITH ACRYLIC PLASTIC REFLECTORS



DELINEATOR PLASTIC REFLECTOR UNIT

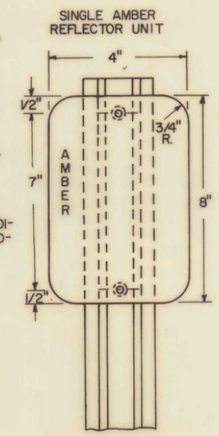


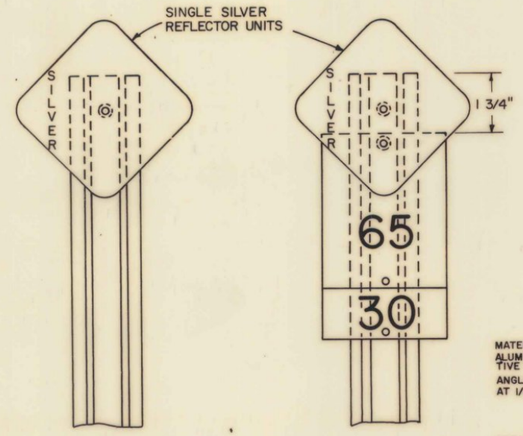
MILE-POST SIGNS

MILE-POST SIGNS SHALL BE OF 0.060" FLAT SHEET ALUMINIUM OR 18 GAGE GALVANIZED FLAT SHEET STEEL, WITH A GREEN BAKED ENAMEL FINISH, AND NUMERALS OF WHITE OR SILVER REFLECTIVE SHEETING.

MILE-POST SIGNS SHALL BE MOUNTED ON STANDARD DELINEATOR POSTS, PLACED AS FOR TYPE I DELINEATORS EXCEPT THAT THE BOTTOM OF A MILE-POST SIGN SHALL BE A MINIMUM OF 3 INCHES ABOVE THE TOP OF A GROUND RAIL POST. MILE-POSTS SHALL BE LOCATED BY THE ENGINEER.

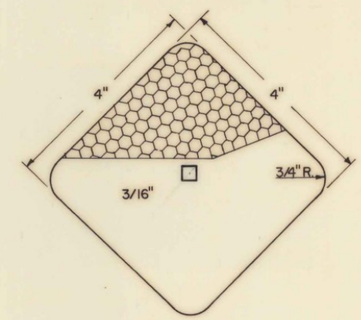
MILE-POST SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.





DELINEATORS WITH REFLECTIVE SHEETING

A DELINEATOR REFLECTOR UNIT WITH ITS DELINEATOR PLAQUES SHALL BE MOUNTED ON THE POST WITH TWO OR THREE 3/16" DIAM. BY 1 1/2" LONG ALUMINIUM BOLTS WITH 1/2" DIAM. ALUMINIUM VANDLE RESISTANT NUTS, OR A 3/16" DIAM. BY 1 1/2" LONG VANDLE RESISTANT FASTENERS.



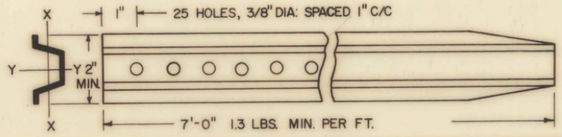
DELINEATOR REFLECTIVE SHEETING UNIT

MATERIAL FOR REFLECTIVE SHEETING DELINEATORS SHALL BE A 0.063" ALUMINIUM BACKING WITH A SILVER OR AMBER HIGH INTENSITY REFLECTIVE SHEETING MEETING REFLECTIVE PROPERTIES AS FOLLOWS:

ANGLE OF INCIDENCE AT 1/3° DIVERGENCE	REFLECTIVE BRILLIANCE SILVER	AMBER
0°	450	175
15°	420	165
45°	100	90

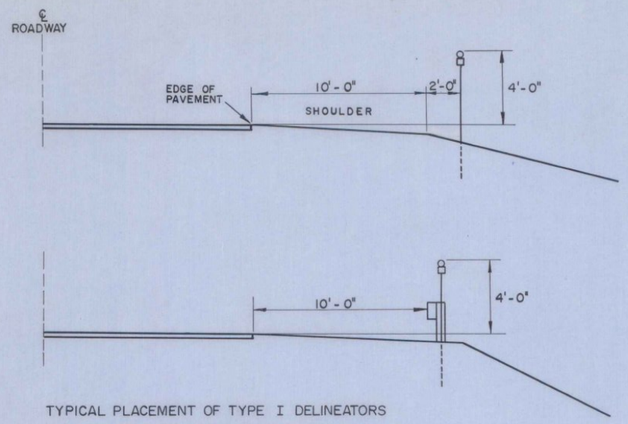
THE BRILLIANCE WHEN TOTALL WET WILL BE AT LEAST 90% OF THE ABOVE VALUES.

YY = 0.11 IN.^{3} MIN.
XX = 0.08 IN.^{3} MIN.



REVISIONS AND CORRECTIONS	APPROVED: DATE: July 1, 1971 R. H. Crook CHIEF ENGINEER; R. O. Munn ASST. CHIEF ENGINEER; C. H. Knapp TRAFFIC ENGINEER	DELINEATORS AND MILEPOSTS	VERMONT DEPARTMENT OF HIGHWAYS STANDARD	E-20

D-8



TYPICAL PLACEMENT OF TYPE I DELINEATORS ON INTERSTATE ROADWAYS

Type I Delineators, with the appropriate delineator plaques, shall be erected continuously along the right side of interstate roadways between mileposts.

The Type I Delineators shall be omitted on deceleration and acceleration lanes, and on bridges, but the succeeding spacing shall be as if the delineators had been erected continuously and shall so indicate. Type I Delineators shall be located by the Engineer.

Type I Delineators without plaques shall be erected continuously along the left or median side of interstate highways, spaced opposite every second Type I delineator on the right side, and continued at approximately the same spacing through interchanges and rest areas where there may not be any Type I delineators on the right side. The same lateral placement shall be followed on the left as on the right.

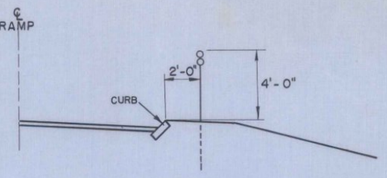
COLORS

The yellow and green shall conform with the standard colors adopted by the American Association of State Highway Officials and approved by the U.S. Department of Commerce, Bureau of Public Roads.

SPECIFICATIONS

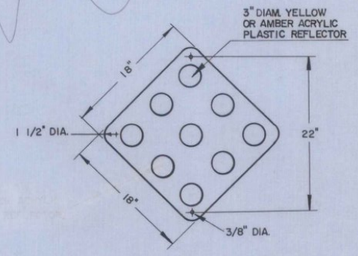
Delineator reflector units, delineator plaques, and delineator posts shall meet the standard state specifications for DELINEATORS, ITEM 702

Mileposts and Hazard Markers shall meet the standard state specifications for TRAFFIC SIGNS, ITEM 701



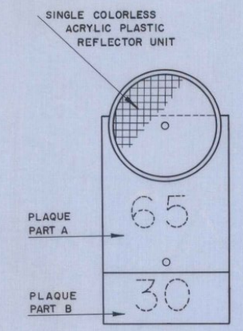
TYPICAL PLACEMENT OF TYPE II DELINEATORS ON RAMPS

Type II Delineators shall be erected continuosly along the right side of deceleration and acceleration lanes, spaced 100 feet apart or as shown on the plans. They shall be erected on ramps at the locations shown on the plans.

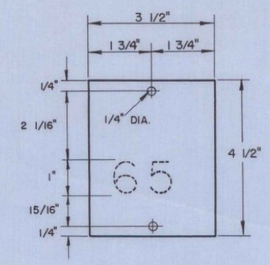


HAZARD MARKER

Hazard markers shall be of 0.060" flat sheet aluminum or 18 gage galvanized flat sheet steel, with a yellow baked enamel finish, and nine 3" dia. yellow or amber acrylic plastic reflector units.

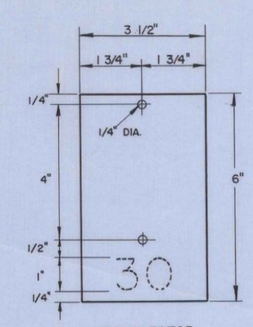


TYPE I DELINEATOR ASSEMBLY WITH DELINEATOR PLAQUES



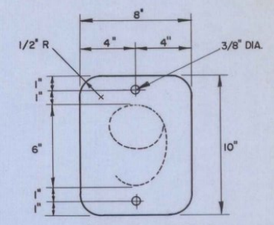
DELINEATOR PLAQUE PART A

(The numeral on Part A indicates the mile.)

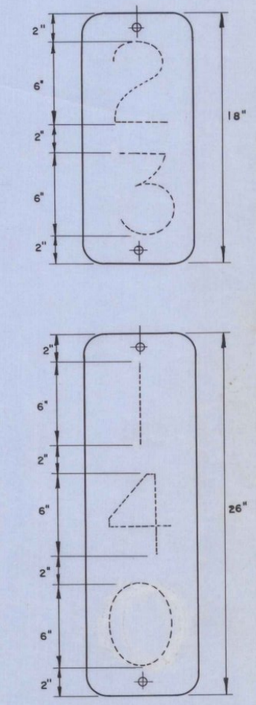


DELINEATOR PLAQUE PART B

(The numeral on Part B indicates units of five one-hundreths of a mile between mileposts.)



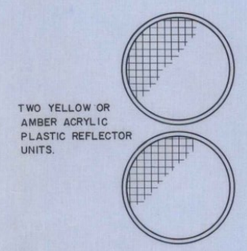
6" SERIES D NUMERALS



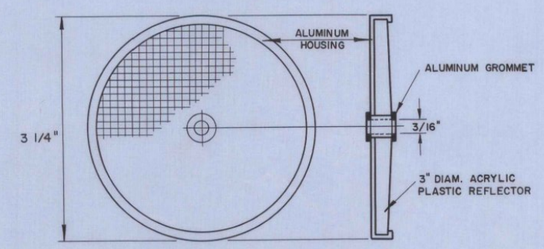
MILEPOSTS

Mile signs shall be of 0.060" flat sheet aluminum or 18 gage galvanized flat sheet steel, with a green baked enamel finish, and numerals of white or silver reflective sheeting.

Mile signs shall be mounted on standard delineator posts, placed as for Type I delineators except that the bottom of a milepost shall be a minimum of 3 inches above the top of a guard rail post. Mileposts shall be located by the Engineer.



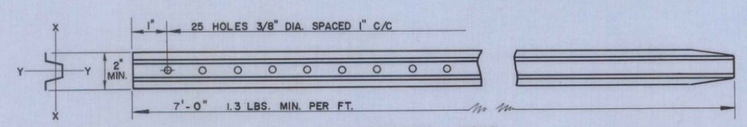
TYPE II DELINEATOR ASSEMBLY



DELINEATOR REFLECTOR UNIT

A delineator reflector unit with its delineator plaques shall be mounted on the post with two 3/16" dia. by 1 1/2" long aluminum bolts with 1/2" dia. aluminum vandal-resistant nuts.

A mile sign shall be mounted on the post with two 5/16" dia. by 1 1/2" long stainless steel bolts with stainless steel nuts and washers.



XX = 0.08 IN^3 MIN.
YY = 0.11 IN^3 MIN.

DELINEATOR POST

VOID

REVISIONS AND CORRECTIONS

MAR. 6, 1965 .. NOTE OF LOCATING TYPE I DELINEATORS BY ENGINEER AND EXPLANATION OF NUMERALS ON DELINEATOR PLAQUES ADDED....

MARCH 23, 1967 .. TYPE I DELINEATORS WITHOUT PLAQUES ADDED ON LEFT SIDE

NOV. 7 1967 .. TYPE III DELINEATORS REMOVED PER FEDERAL STANDARDS.

APPROVED: APRIL 17, 1964

A. D. Bishop — CHIEF ENGINEER
R. H. Arnold — ASST. CHIEF ENGINEER
G. M. Lane — HIGHWAY ENGINEER
S. W. Colburn — TRAFFIC ENGINEER
E. H. Stickney — CONSTRUCTION ENGINEER

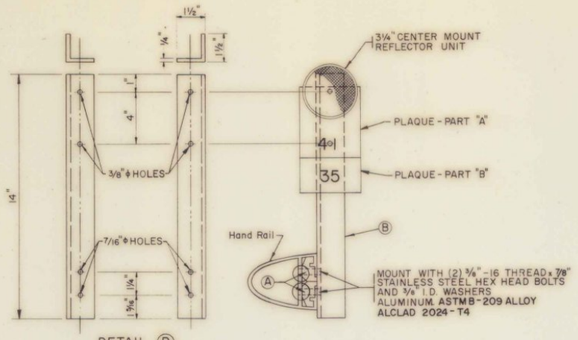
DRAWN A.W.C.
TRACED A.J.A.

TRAFFIC SIGNS

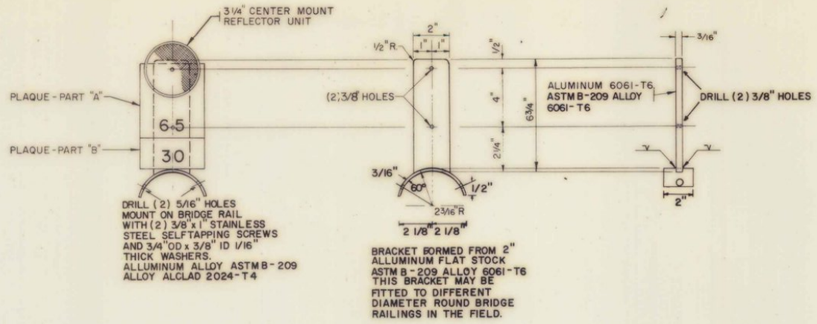
DELINEATORS, HAZARD MARKERS AND MILEPOSTS

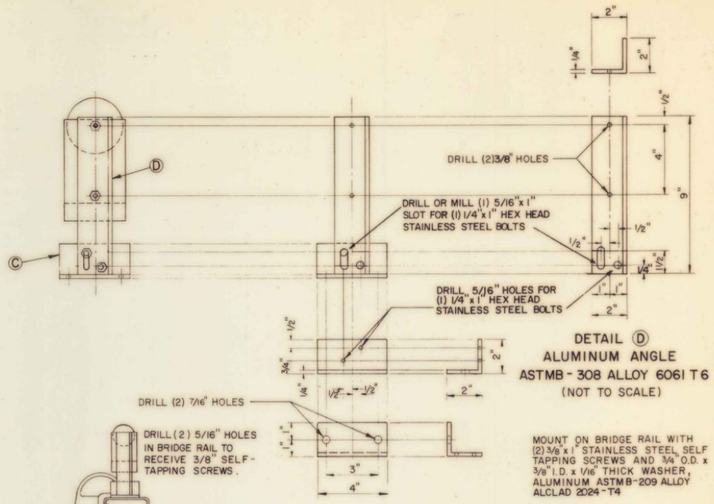
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-20



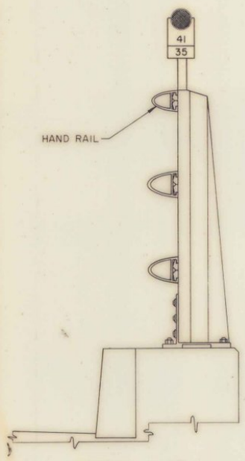
DETAIL (B)
ALUMINUM ANGLE
ASTMB - 308 ALLOY 6061 T6
(NOT TO SCALE)



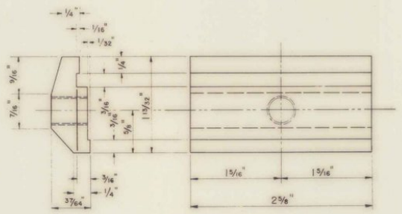


DETAIL (D)
ALUMINUM ANGLE
ASTMB - 308 ALLOY 6061 T6
(NOT TO SCALE)

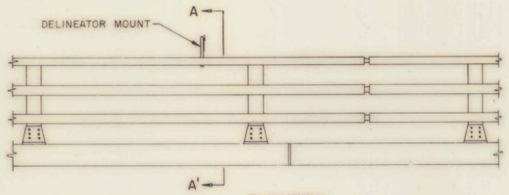
DETAIL (C)
ALUMINUM ANGLE
ASTMB - 308 ALLOY 6061 T6
(NOT TO SCALE)



SECTION A-A'

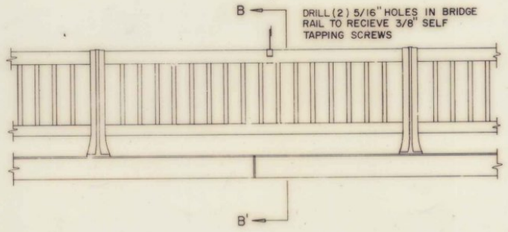


DETAIL (A)
ASTMB - 221 ALLOY 6061 T6 or 6061 T5
(NOT TO SCALE)

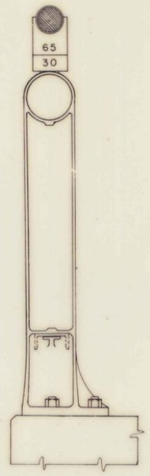


ELEVATION

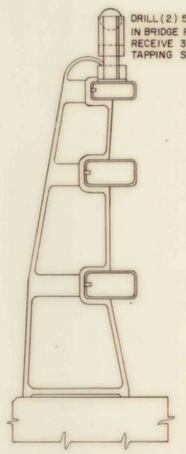
DELINEATOR DETAIL FOR MOUNTING ON ALUMINUM BRIDGE RAIL
MODIFY ALUMINUM RAIL WITH SPINDLES TO ACCOMMADATE DELINEATOR BRACKET



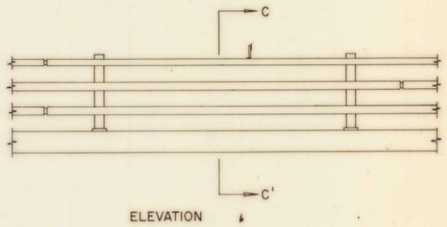
ELEVATION



SECTION B-B'



SECTION C-C'



ELEVATION

DELINEATOR DETAIL FOR MOUNTING ON ROUND ALUMINUM BRIDGE RAIL

DELINEATOR DETAIL FOR MOUNTING ON GALVANIZED BOX TYPE BRIDGE RAIL

GENERAL NOTES

1. Design specifications are in accordance with the current A.S.T.M. specifications.
2. Open holes as indicated.
3. Nuts and bolts shall be stainless steel A.S.T.M. A-276.
4. When units are to be mounted on existing bridges. Each structure shall be field checked to determine type of rail.
5. Weld filler wire shall be A.S.T.M. B-285 alloy ER-5356. All welding shall be metal inert gas process.
6. All sections are to be sawed or milled. Cut ends are to be true, smooth, and free from burrs or ragged edges.
7. Height of brackets shall be extended to accommodate the mile marker plate when required.

REVISIONS AND CORRECTIONS

APPROVED: DEC. 16, 1970

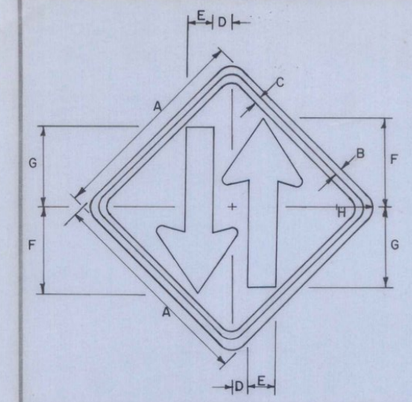
E. H. Blakeney — ASST. CHIEF ENG.
R. H. Arnold — CHIEF ENGINEER
L. M. Gross 12/16/70 — BRIDGE ENGINEER
G. M. Lane — HIGHWAY ENGINEER
C. H. Knapp — TRAFFIC ENGINEER
J. C. Rubin — CONSTRUCTION ENGINEER

DRAWN BY: W.H.G 6/70
TRACED BY: C.E.H. 7/70

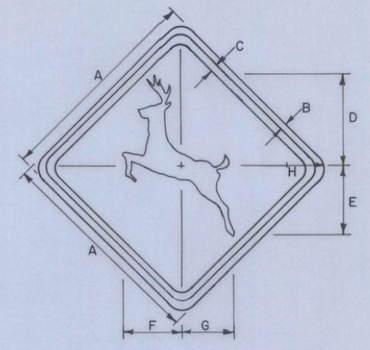
MILEAGE MARKER AND DELINEATOR BRIDGE MOUNTS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

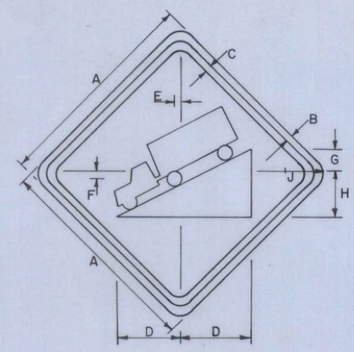
E-20A



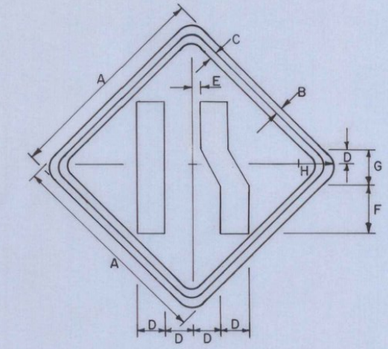
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MINIMUM	24	3/8	5/8	2	3	9	8 1/2	1 1/2
STANDARD	30	1/2	3/4	2 1/2	4	12 1/2	11 1/2	1 7/8
EXPRESSWAY	36	5/8	7/8	3	5	14	13	2 1/4
FREEWAY	48	3/4	1 1/4	4	6	18	17	3



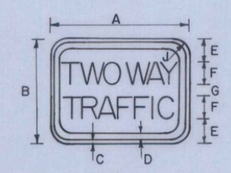
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MINIMUM	24	3/8	5/8	10 5/8	7 7/8	6 1/2	5 7/8	1 1/2
STANDARD	30	1/2	3/4	13 1/2	10	8 1/4	7 1/2	1 7/8
EXPRESSWAY	36	5/8	7/8	16 1/4	12	9 7/8	9	2 1/4
FREEWAY	48	3/4	1 1/4	21 1/4	15 3/4	13	11 3/4	3



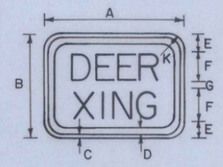
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MINIMUM	24	3/8	5/8	7 1/2	7/8	7/8	2 3/8	5 1/8	1 1/2
STANDARD	30	1/2	3/4	9 1/2	1 1/8	1 1/8	3	6 1/2	1 7/8
EXPRESSWAY	36	5/8	7/8	11 1/4	1 5/16	1 5/16	3 9/16	7 11/16	2 1/4
FREEWAY	48	3/4	1 1/4	15	1 3/4	1 3/4	4 3/4	10 1/4	3



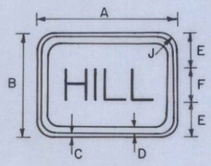
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MINIMUM	30	1/2	3/4	3 3/8	13/16	8 7/16	6 3/4	1 7/8
STD. & EXPWY.	36	5/8	7/8	4	1	10	8	2 1/4
FREEWAY	48	3/4	1 1/4	5 5/16	1 3/8	13 5/16	10 5/8	3



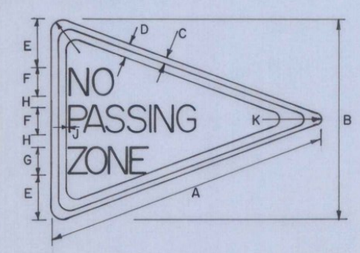
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	J
STD. & MIN.	24	18	3/8	5/8	4	4 C	2	1 1/2



SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	K
STD. & MIN.	24	18	3/8	5/8	3	5 D	2	1 1/2



SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	J	
STD. & MIN.	24	18	3/8	5/8	6	6 D	1 1/2	



SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MINIMUM	40	30	3/8	5/8	7 1/4	4 D	4 C	1 3/4	2 1/2	1 1/2
STANDARD	48	36	1/2	3/4	8 1/2	5 D	5 C	2	3	1 7/8
SPECIAL	64	48	5/8	7/8	12	6 D	6 C	3	4	2 1/4

The sign material used for the warning signs shown on this sheet may be any of the following minimum thicknesses noted:

	24 x 18	24 x 24	24 x 30	36 x 36	48 x 48	
(1) Flat sheet aluminum	0.080	0.080	0.100	0.100	0.125	(inches)
(2) High density overlayed plywood	1/2	1/2	5/8	5/8	3/4	(inches)
(3) Galvanized sheet steel	16	16	14	14	12	(gages)

The reflective material shall be of reflective sheeting applied to the entire backround of the sign. The arrows, text, symbols, and borders may be screened, lettering film, or hand painted.

COLORS:

The warning signs shown on this sheet shall have a black text, border, arrows, and symbols on a reflectorized yellow backround. The yellow shall conform with the standard colors adopted by the American Association of State Officials and approved by the U.S. Department of Transportation, Federal Highway Administration.

TEXT DESIGN:

Letters, digits, arrows, spacing, and text dimensions shall conform with the standard alphabets and design prescribed in the manual on Uniform Traffic Control Devices.

SPECIFICATIONS:

Warning signs shall meet the standard state specifications for traffic signs.

The hill sign and plaque shall have an encapsulated lens reflective sheeting background. All others on this sheet shall be engineer grade.

REVISIONS AND CORRECTIONS

MAY 18, 1978 - ENCAPSULATED LENS NOTE ADDED.

APPROVED:

DATE: Jan. 31, 1972

R. H. Arnold
CHIEF ENGINEER

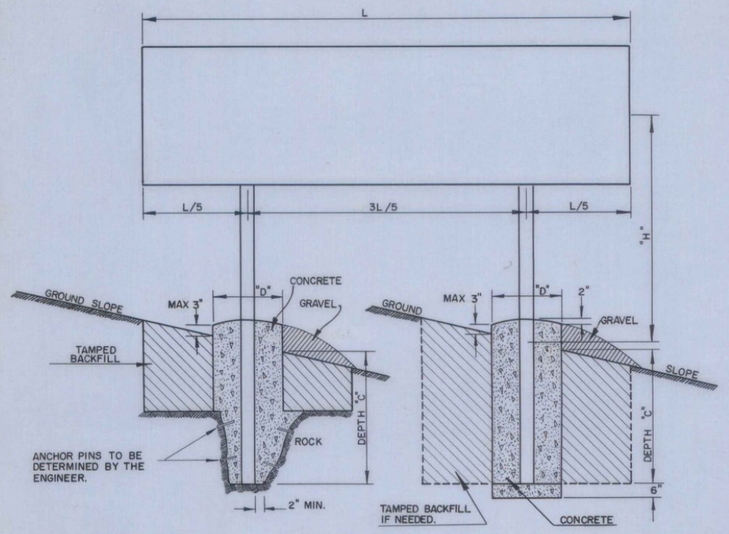
E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

WARNING SIGNS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-21

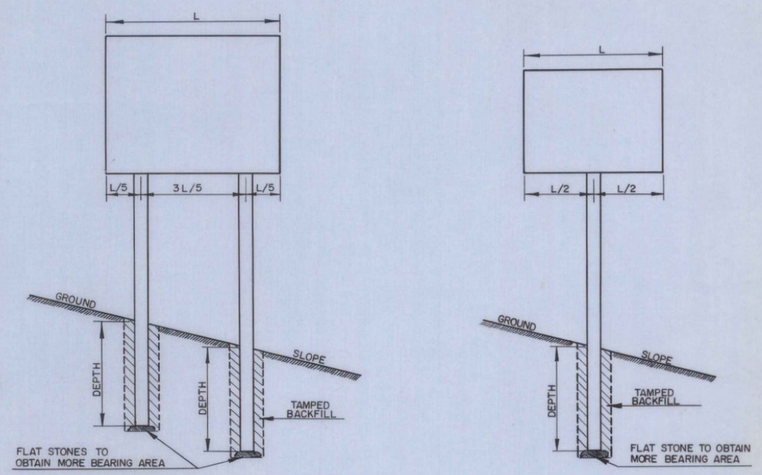


TYPE "A" FOOTINGS

POSTS AND TYPE "A" FOOTINGS FOR TWO-POST MOUNTING

* IF "S" IS EQUAL TO OR LESS THAN	STEEL POST SIZE	ALUMINUM POST SIZE	DEPTH "C"	DIAMETER "D"
380	4 I 7.7	4" X 3.3 LBS	5'-0"	12"
420	4 I 9.5	5" X 3.4 LBS.	5'-0"	12"
585	5 I 10.	6" X 4.3 LBS.	5'-0"	12"
820	4 WF 13	6" X 5.1 LBS.	5'-0"	12"
930	6 BL 12	7" X 5.3 LBS.	5'-0"	12"
1480	6 WF 15.5	9" X 7.5 LBS.	5'-0"	18"
1770	8 WF 17	9" X 7.5 LBS.	5'-6"	18"
2550	10 WF 21	12" X 10.9 LBS.	6'-3"	18"
			5'-6"	24"
3190	10 WF 25	12" X 12.1 LBS.	7'-3"	18"
			6'-0"	24"
3950	12 WF 27	12" X 14.1 LBS.	6'-9"	24"
			5'-9"	30"
4620	12 WF 31	12" X 17.3 LBS. (LIMIT S=4430)	7'-0"	24"
			6'-3"	30"
5420	12 WF 36	NONE	7'-9"	24"
			6'-9"	30"
			6'-0"	36"
6820	12 WF 40	NONE	8'-6"	24"
			7'-6"	30"
			6'-9"	36"

* FOR THREE-POST MOUNTING INCREASE ALLOWABLE "S" BY 50% AND USE SAME SIZE POSTS AND FOOTINGS



TYPE "B" FOOTINGS

GENERAL NOTES

DESIGN CRITERIA:

S = AH
A = SIGN AREA IN SQUARE FEET.
H = GROUND ELEVATION OF LONGEST LEG TO CENTER HEIGHT OF SIGN.

WIND LOAD = 25 POUNDS PER SQUARE FOOT AS RECOMMENDED BY THE A.S.S.H.O. SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS ADOPTED JUNE 12, 1961

BASIC POST DESIGN STRESS = 17,000 POUNDS PER SQUARE INCH, FOR ALUMINUM
20,000 POUNDS PER SQUARE INCH, FOR STEEL.

MAXIMUM EARTH PRESSURE = ONE TON PER SQUARE FOOT.
TABLES BASED ON RUTLEDGE "CHART FOR EMBEDMENT OF POSTS WITH OVERTURNING LOADS."

SPECIFICATIONS:

ALL MATERIALS AND WORKMANSHIP SHALL BE AS SPECIFIED UNDER "TRAFFIC SIGNS", ITEM 701.
THE CONCRETE USED FOR TYPE "A" FOOTINGS SHALL CONFORM TO THE REQUIREMENTS OF "CONCRETE CLASS B", ITEM 401-B
THE BACKFILL MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF "GRANULAR BORROW", ITEM 105, OR AS APPROVED BY THE ENGINEER.
ALL STRUCTURAL STEEL TO BE A.S.T.M. A 36, UNLESS OTHERWISE NOTED.
WHEN RAIL STEEL IS SPECIFIED, THE MINIMUM YIELD SHALL BE 50,000 P.S.I.
ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT, DEPARTMENT OF HIGHWAYS, STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION DATED APRIL 1964.

SIGN SUPPORTS DESIGNED ACCORDING TO A.A.S.H.O. PUBLICATION "A SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS".
ALL ROLLED OR EXTRUDED ALUMINUM SHAPES SHALL BE ALUMINUM ALLOY 6061-T6
THE BASIC POST DESIGN STRESS SHALL BE INCREASED BY 45% FOR COMBINATION DEAD LOAD AND WIND LOAD.

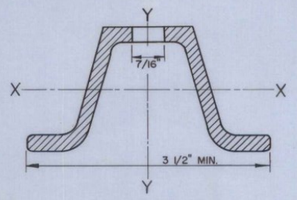
CONSTRUCTION METHODS:

HOLES FOR POST FOOTINGS MAY BE AUGERED OR DUG.
IF THE MATERIAL IS FIRM, THE HOLE MAY BE LEFT WITH EARTH SIDES; IF NOT, A SUITABLE FORM APPROVED BY THE ENGINEER SHALL BE USED. CORRUGATED METAL CULVERT PIPE, OR PAPER FORMS MANUFACTURED FOR USE AS CONCRETE COLUMN FORMS, WILL BE ACCEPTABLE.
FIRST EXCAVATE HOLE AND POUR CONCRETE BASE. A SOLID CONCRETE BLOCK PROPERLY EMBEDDED IN WET CONCRETE MAY BE SUBSTITUTED AS A BASE. THEN SECURE THE POST IN POSITION, PLUMBED AND PROPERLY BRACED, BEFORE POURING THE FOOTING. THE TIME BETWEEN POURS FOR THE CURING OF THE CONCRETE SHALL BE AS DETERMINED BY THE ENGINEER. THE FORM SHALL BE LEFT IN PLACE AND THE HOLE PROPERLY BACKFILLED. NO PART OF THE FORM SHALL SHOW ABOVE THE GROUND LINE WHEN THE WORK IS COMPLETED.
IF A THREE POST MOUNTING IS USED, THE SPACING SHALL BE L/6, 2L/6, 2L/6 AND L/6.

AROUND THE FOOTING SHALL BE BUILT UP WITH GRAVEL AND ROUNDED OFF SO THAT NONE OF THE CONCRETE IS ABOVE THE GROUND MORE THAN 3"

POSTS AND TYPE "B" FOOTINGS FOR ONE AND TWO-POST MOUNTING

IF "S" IS EQUAL TO OR LESS THAN ONE POST	TWO POST	STEEL POST SIZE	ALUMINUM POST SIZE	MIN. DEPTH IN GROUND
290	600	4 WF 13	6"X4"X4.2 LBS.	6.5
240	490	4 WF 13	6"X4"X4.2 LBS.	6.0
230	460	6 BJ 8.5	6"X4"X4.2 LBS.	6.0
210	420	6 BJ 8.5	6"X4"X4.2 LBS.	5.5
190	390	5 I 10	5" X 4.2 LBS.	6.0
165	340	5 I 10	5" X 4.2 LBS.	5.5
155	330	4 I 7.7	4" X 3.3 LBS.	6.0
135	280	4 I 7.7	4" X 3.3 LBS.	5.5
110	230	4 I 7.7	4" X 3.3 LBS.	5.0
90	210	* 4"X3 1/2"X 5/16" L	* 5"X3 1/2"X 5/16"	4.0
55	140	* FLANGED CHANNEL	* 4" U 3.32 LBS.	3.5
45	115	* FLANGED CHANNEL	* 4" U 3.32 LBS.	3.0



FLANGED CHANNEL
MATERIALS — RAIL STEEL OR A.S.T.M. A242 STEEL
WEIGHT — 4.0 LBS. PER FOOT
Sxx = 0.58 IN^3 MINIMUM
Syy = 0.61 IN^3 MINIMUM

* THE FLANGED CHANNELS, U CHANNELS, AND ANGLES, SHALL HAVE 36 HOLES 7/16 DIAM., 2" CENTER TO CENTER ON THE FACE, STARTING ONE INCH FROM THE TOP FOR MOUNTING THE SIGNS.

REVISIONS AND CORRECTIONS

MAR. 7, 1966 — BASIC POST DESIGN STRESS INCREASED BY 45% AND TABLES REVISED.

OCT 19, 1967 — ROUNDING OF GRAVEL AROUND FOOTING ADDED.

APPROVED DEC 18, 1964 DATE — A P Bishop CHIEF ENGINEER R.H.A.
G. M. Lane HIGHWAY ENGINEER — R H Arnold ASST. CHIEF ENGINEER
D. W. Coleman TRAFFIC ENGINEER — E. H. Stickney CONSTRUCTION ENGINEER

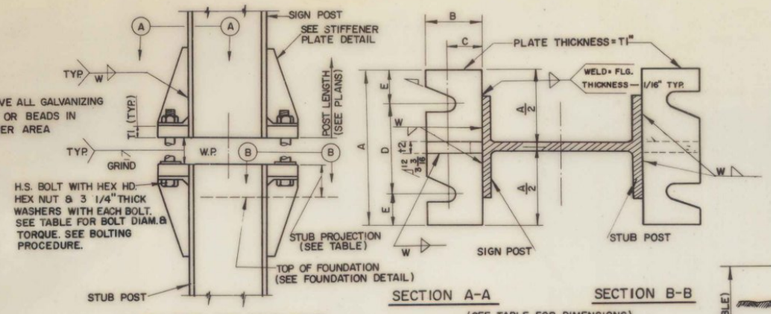
DESIGNED: SMITH-PIRIE
DRAWN: J.H.W.
TRACED: AJA

TRAFFIC SIGNS

GROUND MOUNTED SIGN SUPPORTS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-21



SIGN POST AND STUB POST

ELEVATION

(FOR WF AND B SHAPES)

SECTION A-A

SECTION B-B

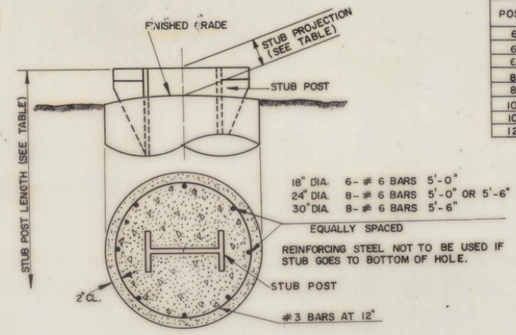
(SEE TABLE FOR DIMENSIONS)

SECTIONS SHOWN ARE FOR INSTALLATIONS ON RIGHT SHOULDER AND IN GORE. PLATE SLOT BEVELS ARE OPPOSITE HAND FOR INSTALLATIONS ON LEFT SHOULDER.

POST SIZE	BOLT SIZE BOLT FORCE LB	A	B	C	D	E	T1	T2	W	R
6 BL 8.5	5/8" Ø X 3 1/2" 2660 *	5"	2"	1 1/4"	2 3/4"	1 1/8"	3/4"	1/2"	1/4"	11/32"
6 BL 12										
6 WF 15.5										
8 WF 17										
8 WF 20	3/4" Ø X 4 1/2" 3600 **	6"	2 1/4"	1 3/8"	3 1/2"	1 1/4"	1"	3/4"	5/16"	13/32"
10 WF 21										
12 WF 27		7"			4"	1 1/2"				

POST SIZE	FUSE PLATE DATA TABLE F	G	H	J	K	L	N		DI.	T3	BOLT DIA.	WT OF EA. FUSE PL
6 BL 8.5	3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"		9/16"	1/4"	1/2	0.94 #
6 BL 12	3 5/8	2"	1 1/8	4"	2 1/4"	7/8"	1/2"		9/16	1/4"	1/2"	0.94 #
6 WF 15.5	4 3/8	2 1/2"	1 1/4	6"	3 1/2	1 1/4	5/16		11/16"	3/8	5/8"	2.58 #
8 WF 17	4 3/8"	2 1/2"	1 1/4"	5 1/4"	2 3/4"	1 1/4"	5/16"		11/16"	3/8"	5/8"	2.24 #
8 WF 20	4 3/4"	2 1/2"	1 1/2"	5 1/4"	2 3/4"	1 1/4"	3/4"		13/16"	1/2"	3/4"	2.95 #
IC WF 21	5 1/4"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	3/4"		13/16"	1/2"	3/4"	3.88 #
10 WF 25	5 1/4"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	3/4"		13/16"	1/2"	3/4"	3.88 #
12 WF 27	5 1/4"	3"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	3/4"		13/16"	1/2"	3/4"	4.44 #

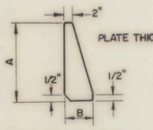
* 5/8" BOLTS SHALL HAVE AT LEAST A THREAD LENGTH OF (2) INCHES.
** 3/4" BOLTS SHALL HAVE AT LEAST A THREAD LENGTH OF 2 1/4 INCHES.
THESE BOLTS SHALL BE FURNISHED WITH 2 NUTS FOR EACH BOLT.



FOUNDATION DETAIL

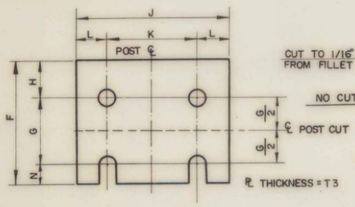
POST SIZE	FOUNDATION DATA BASE DIA.	BASE DEPTH	MIN. STUB LENGTH	STUB PROJ.
6 BL 8.5	18"	5'-0"	2'-0"	3"
6 BL 12	18"	5'-0"	2'-0"	3"
6 WF 15.5	18"	5'-0"	2'-6"	3"
8 WF 17	18"	5'-6"	2'-6"	3"
8 WF 20	18"	5'-6"	3'-0"	2 1/2"
10 WF 21	24"	5'-6"	3'-0"	2 1/2"
10 WF 25	24"	6'-0"	3'-0"	2 1/2"
12 WF 27	30"	6'-0"	3'-0"	2 1/2"

TYPE "A" FOOTINGS



STIFFENER PLATE

(SEE TABLE FOR DIMENSIONS)

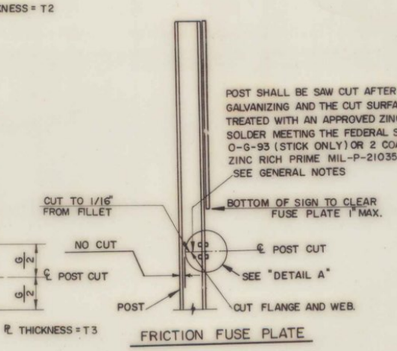


HOLE DIAMETER = DI.

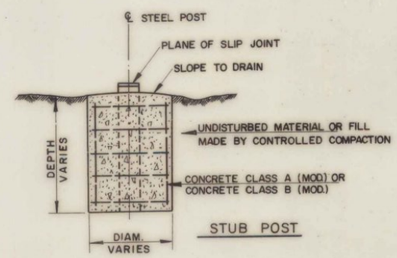
USE H.S. BOLTS WITH HEX. HD. AND HEX. NUTS. ONE 1/4" THICK FLAT WASHER UNDER EA. BOLT HEAD AND ONE 1/4" THICK FLAT WASHER (WHERE REQUIRED) UNDER NUT.

FUSE PLATE

(SEE TABLE FOR DIMENSIONS AND WEIGHT)



FRICTION FUSE PLATE



STUB POST

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION

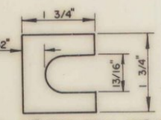
1. Make sure all bolts are from the same stock.
2. Try nuts on bolt threads, making sure they turn easily.
3. Place (3) bolts in Skidmore - Wilhelm device. Torque to proper tension in device. Calibrate torque wrench by checking torque on these three bolts when under proper tension in device.
4. The testing and calibration shall be done at the Vermont Highway Department's Materials Laboratory or at such place designated by them.
5. Use the average of the three torques on similar bolts in the real support.
6. Assemble posts to stub with bolts and with three 1/4" flat washers, one each, under head of bolt, between plates, and under nut.
7. Shim as required to plumb post.
8. Tighten all bolts the maximum possible with a 12" to 15" wrench to bed washers and shims and to clean bolt threads. Then loosen each bolt in turn and retighten in a systematic order to the prescribed tension.
9. Then base plate bolts will be torqued to prescribed bolt tension on the plans. After the initial torquing use a second nut to insure that the first nut will not back off. The contractor with the Department inspector will return to the sign two more times at intervals of 30 days ± for the purpose of checking and reestablishing the prescribed torque. The second nut shall remain as a lock nut.

FABRICATION NOTE

(Important)

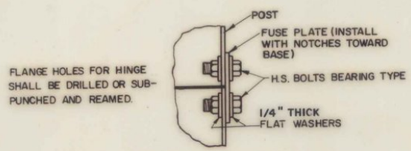
All friction fuse bolts shall be tightened by the fabricator to the prescribed bolt tension mentioned below. The contractor will be held responsible to check and certify that the below residual tensions are obtained.

BOLT SIZE	MIN. RESIDUAL BOLT TENSION
1/2" Ø	12050 LBS
5/8" Ø	19200 LBS
3/4" Ø	28400 LBS
7/8" Ø	36050 LBS



FURNISH 2 - .012" ± THICK AND 2 - .032" ± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M. B 36

SHIM DETAIL



"DETAIL A" HINGE

(SEE FABRICATOR NOTE)

NOTE: CUT SURFACES WILL NOT BE TREATED UNTIL PLATE IS INSTALLED AND ALL BOLTS FULLY TIGHTENED.

FOUNDATION DETAILS

GENERAL NOTES

DESIGN CONFORMS WITH A.A.S.H.O. SPECIFICATIONS FOR DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGN.

MATERIAL AND FABRICATION SHALL CONFORM TO THE REQUIREMENTS OF STATE OF VERMONT DEPARTMENT OF HIGHWAYS, STANDARD SHEETS AND SPECIFICATIONS.

ALL STRUCTURAL STEEL SHALL CONFORM TO AST.M. A 36

ALL STRUCTURAL STEEL, BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AS PER A.S.T.M. A-123 EXCEPT AS NOTED.

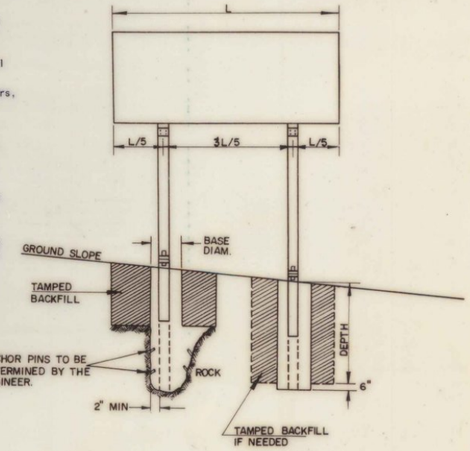
ALL HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AS PER A.S.T.M. A-165
HOLES SHALL BE DRILLED.
THE POST CUT SHALL BE A SAW CUT ONLY. ALL OTHER CUTS EXCLUDING POST CUTS MAY BE FLAME CUT PROVIDED ALL EDGES ARE GROUND. METAL PROJECTING BEYOND THE PLATE FACE WILL NOT BE PERMITTED.

ALL HIGH STRENGTH BOLTS, NUTS, AND WASHERS SHALL CONFORM TO A.S.T.M. A-325
PAINT FOR SAW CUT SHALL BE A SINGLE COMPONANT ZINC-RICH COMPOUND YIELDING A DRIED FILM OF AT LEAST 85 % PURE ZINC. IT SHALL MEET OR EXCEED THE REQUIREMENT OF MIL-P-21035

SEE SIGN STANDARD SHEET E-21 FOR POST SPACING

ALL SIGNS MOUNTED ON STEEL POSTS SHALL BE ERECTED A MINIMUM OF 7' ABOVE EDGE OF PAVEMENT TO BOTTOM OF SIGN AND THE INSIDE EDGE OF THE SIGN POSITIONED A MINIMUM OF 30' FROM EDGE OF PAVEMENT UNLESS OTHERWISE INDICATED ON THE PLANS.

EXTREME CARE SHOULD BE TAKEN TO KEEP THE SLIP JOINT FREE OF ANY FOREIGN MATERIAL, EITHER BY WRAPPING THE JOINT OR THOROUGH CLEANING IMMEDIATELY AFTER POURING OF CONCRETE.
ALL POSTS SHALL BE PAINTED 2 COATS OF PAINT AFTER THE POST IS ERECTED.
THE FIRST COAT SHALL BE A ZINC RICH PAINT APPLIED EVENLY AND SMOOTHLY.
THE SECOND COAT SHALL BE A GOOD GRADE OF ALUMINUM PAINT APPLIED EVENLY AND SMOOTHLY.



CONSTRUCTION METHOD.

HOLES FOR POST FOOTINGS MAY BE AUGERED OR DUG. IF THE MATERIAL IS FIRM, THE HOLES MAY BE LEFT WITH EARTH SIDES, IF NOT, A SUITABLE FORM APPROVED BY THE ENGINEER SHALL BE USED. CORRUGATED METAL CULVERT PIPE OR PAPER FORMS MANUFACTURED FOR USE AS CONCRETE COLUMN FORMS WILL BE ACCEPTABLE FIRST EXCAVATE HOLE AND POUR CONCRETE BASE, A SOLID CONCRETE BLOCK PROPERLY EMBEDDED IN WET CONCRETE MAY BE SUBSTITUTED AS A BASE. THEN SECURE THE POST IN POSITION, PLUMBED AND PROPERLY BRACED BEFORE POURING THE FOOTING. THE TIME BETWEEN POURS FOR THE CURING OF THE CONCRETE SHALL BE AS DETERMINED BY THE ENGINEER. THE FORM SHALL BE LEFT IN PLACE AND THE HOLE PROPERLY BACKFILLED. NO PART OF THE FORM SHALL SHOW ABOVE THE GROUND LINE WHEN THE WORK IS COMPLETED.

IF A THREE POST MOUNTING IS USED, THE SPACING SHALL BE L/6, 2L/6, 2L/6, AND L/6

REVISIONS AND CORRECTIONS

SEPT. 16, 1968 DELETED 12" DIA. FOOTING ADDED NOTE ON FLAME CUTTING OF POST. — ADDITION OF NOTES ON FIELD PAINTING AND PROTECTION OF SLIP JOINT, AND POST SPACING
SEPT. 16, 1970 R ADDED 1/4" THICK WASHERS.
FEB. 4, 1971 REVISED BOLTS AND ASSEMBLY PROCEDURE PER REQUEST OF THE FEDERAL HIGHWAY ADMINISTRATION

APPROVED DATE Feb 16/68

R H Arnold
CHIEF ENGINEER

E H Stickney
ASST. CHIEF ENGINEER

L. M. Lane
HIGHWAY ENGINEER

C. F. Knapp
TRAFFIC ENGINEER

TRAFFIC SIGNS

BREAKAWAY TYPE GALVANIZED STRUCTURAL STEEL SIGN SUPPORTS

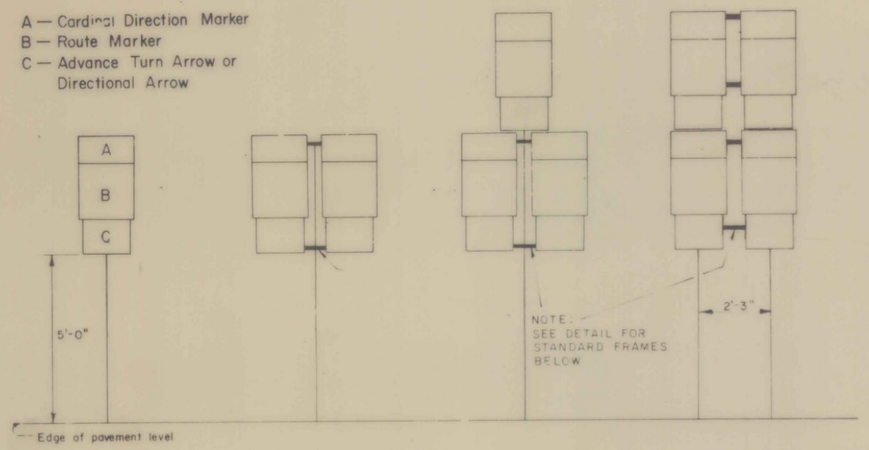
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-22

D-8

STANDARD ARRANGEMENT OF ROUTE TURN AND DIRECTIONAL ASSEMBLIES

A — Cardinal Direction Marker
B — Route Marker
C — Advance Turn Arrow or Directional Arrow



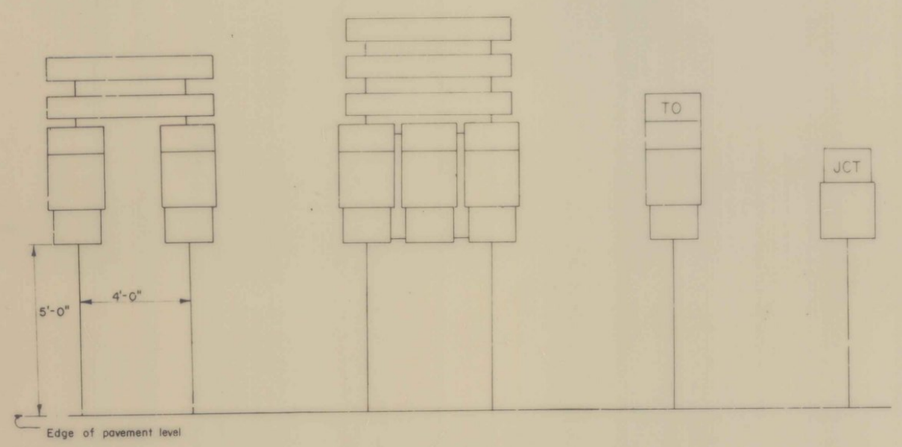
In business and residential districts, or where parking is likely to accur, the height shall be 7 ft.

COMBINATION DIRECTIONAL AND DESTINATION ASSEMBLIES

TRAILBLAZER ASSEMBLY

JUNCTION ASSEMBLY

DESTINATION ASSEMBLY



In business and residential districts, or where parking is likely to occur, the height shall be 7 ft.

GENERAL NOTES:

MATERIALS;

The sign base material for standard destination signs shall be high density overlaid plywood 5/8 inch thick or flat sheet aluminum 0.125 inch thick.

The reflective material shall be green reflective sheeting applied to the entire backround of the sign. The text shall be cut-out reflectorized white or silver letters.

COLORS;

Destination signs shall have a reflectorized white or silver text on a reflectorized green backround.

LETTERING;

Letters and digits shall conform with the standard alphabets for highway signs approved by the National Joint Committee on Uniform Traffic Control Devices.

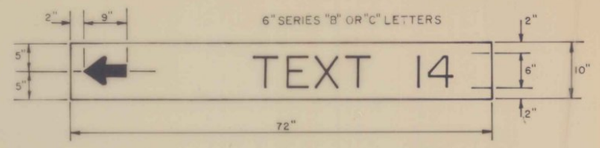
SPECIFICATIONS;

Destination signs shall meet the state specifications for "Traffic Signs".

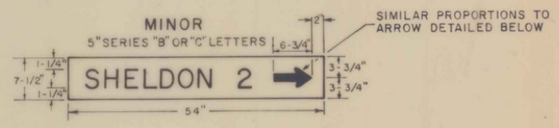
For designs of Route Markers and auxiliary markers, see Standard Sheets E-11, E-12, and E-13.

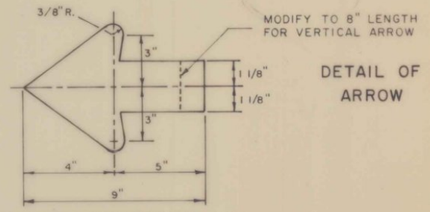
STANDARD DESTINATION SIGNS

MAJOR



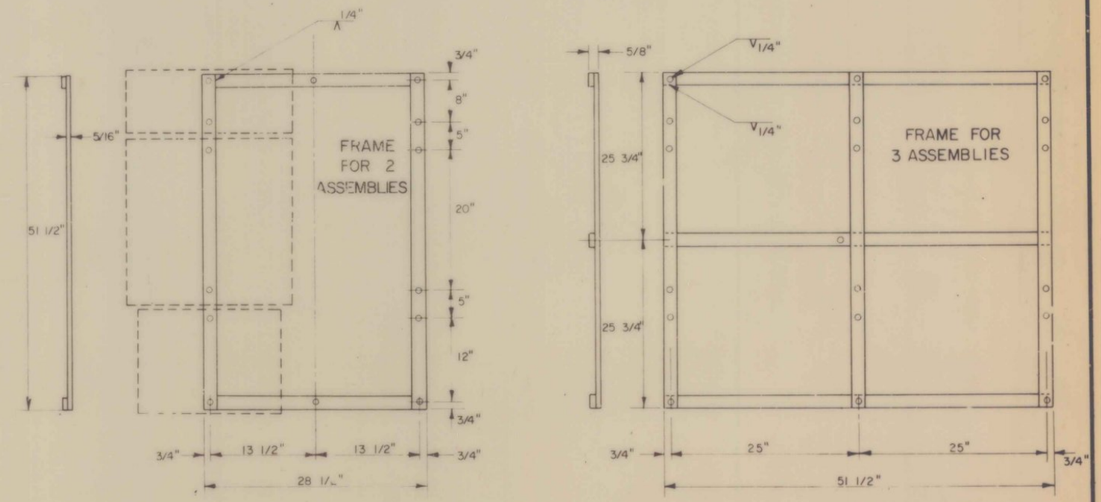
MINOR





DETAIL OF ARROW

STANDARD FRAMES FOR ROUTE MARKER ASSEMBLIES



Standard frames shall be 5/16" x 1 1/2" wrought iron welded. All holes shall be 7/16" diameter. For other sign combinations than above, the frame dimensions and hole spacing shall be modified as necessary. The frame shall be painted with one coat of primer and a second coat of good grade black paint.

REVISIONS AND CORRECTIONS

12/1/82
ADDED 2 FRAME ASSEMBLY TO 2 POST ASSEMBLY
ADDED MINOR DESTINATION SIGN, MOUNTING HEIGHT REVISED
2/10/83
SIGN HEIGHT CHANGED TO 7 FT.

FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED: DATE Dec 29, 1971

R. H. Crosby
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

GUIDE SIGNS

VERMONT AGENCY OF TRANSPORTATION

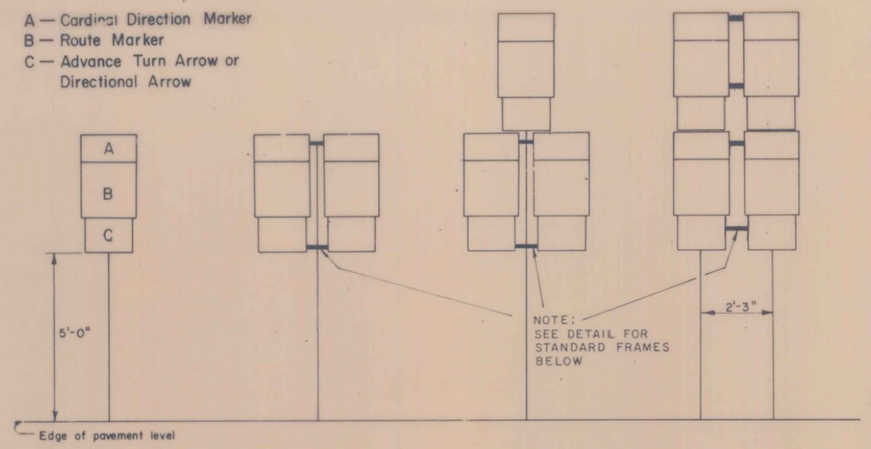
STANDARD

E-23

D-8

STANDARD ARRANGEMENT OF ROUTE TURN AND DIRECTIONAL ASSEMBLIES

A — Cardinal Direction Marker
B — Route Marker
C — Advance Turn Arrow or Directional Arrow



In business and residential districts, or where parking is likely to accur, the height shall be 7 ft.

GENERAL NOTES:

MATERIALS;

The sign base material for standard destination signs shall be density overlaid plywood 5/8 inch thick or flat sheet aluminum 0.125 inch thick.

The reflective material shall be green reflective sheeting c to the entire backround of the sign. The text shall be cut-out reflectorized white or silver letters.

COLORS;

Destination signs shall have a reflectorized white or silver on a reflectorized green backround.

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TRAILBLAZER ASSEMBLY

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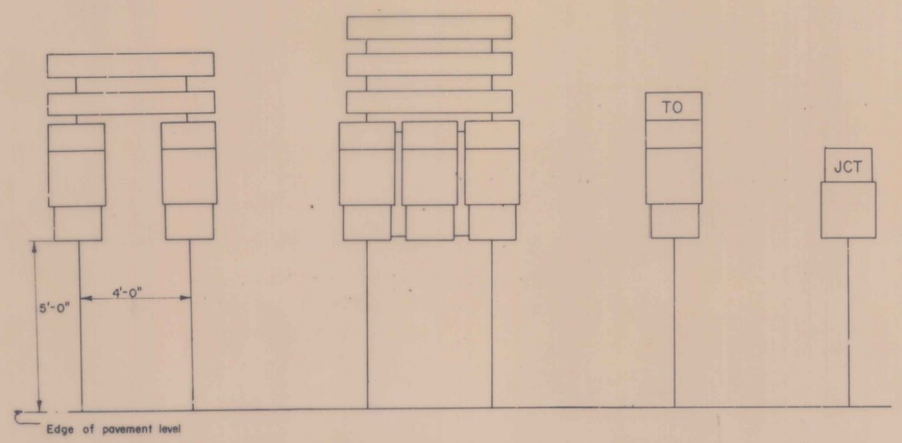
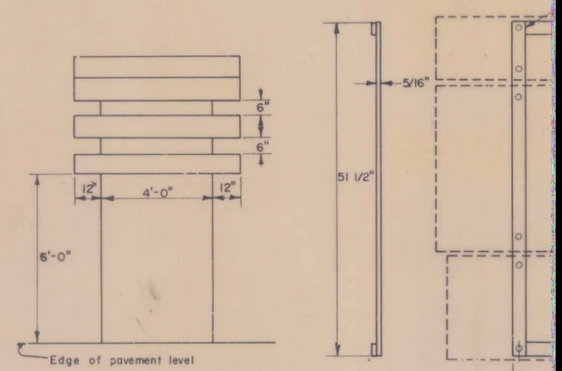
DESTINATION ASSEMBLY





In business and residential districts, or where parking is likely to occur, the height shall be 7 ft.

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REVISIONS AND CORRECTIONS

12/1/82
ADDED 2 FRAME ASSEMBLY TO 2 POST ASSEMBLY
ADDED MINOR DESTINATION SIGN, MOUNTING HEIGHT REVISED
2/10/83
SIGN HEIGHT CHANGED TO 7 FT.

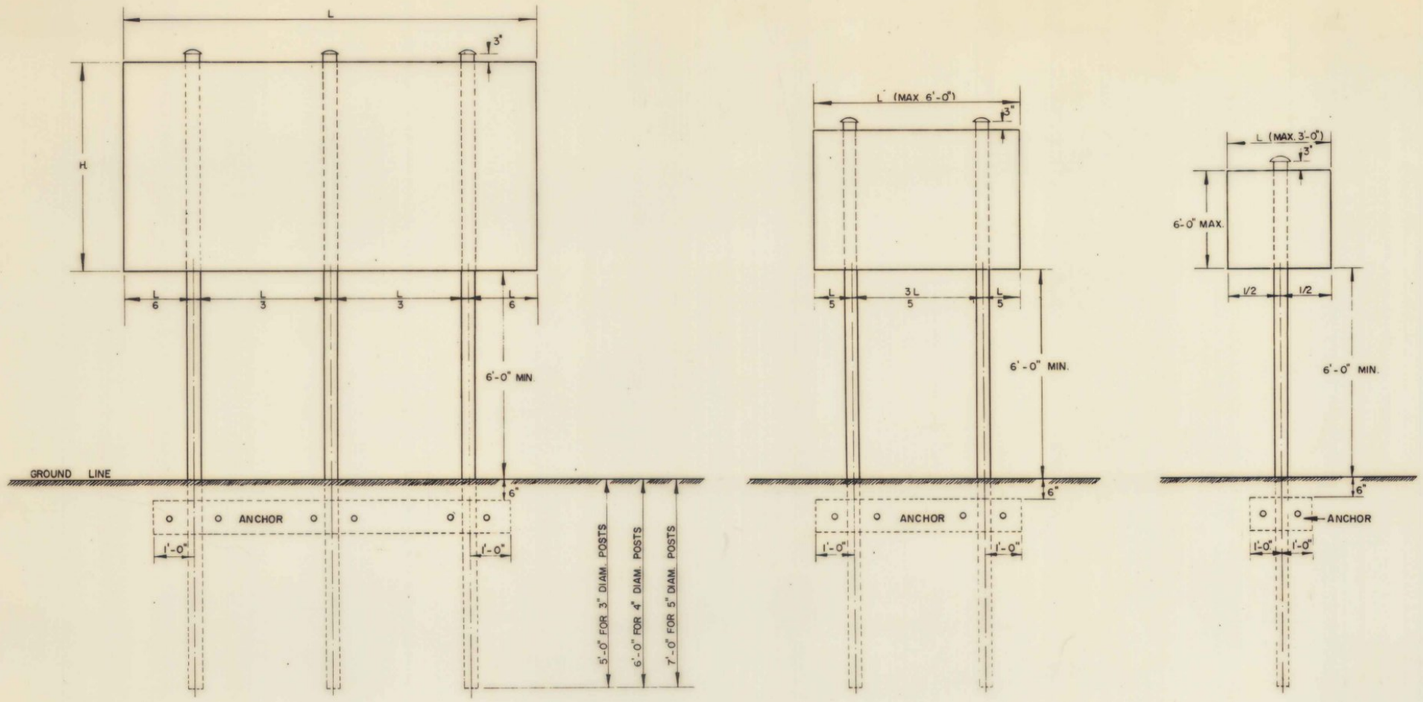
APPROVED: DATE Dec. 29, 1971

R. H. Crawford
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

GUIDE SIGNS



DIMENSIONS SHOWN ARE FOR 3" O.D., 2 3/4" I.D ± COMMERCIAL TOLERANCES. CAPS DESIGNED FOR DRIVE FIT

DIMENSIONS ARE PROPORTIONAL FOR LARGER DIAMETER TUBING

POSTS.. THE POSTS FOR THESE INSTALLATIONS SHALL BE EXTRUDED TUBULAR POSTS OF ALUMINUM ALLOY 6061-T6

HARDWARE.. THE ASSEMBLY HARDWARE USED TO FASTEN A SIGN TO THE POSTS SHALL BE ALUMINUM OR STAINLESS STEEL OF A STANDARD COMMERCIAL DESIGN APPROVED BY THE DEPARTMENT.
THE FABRICATOR SHALL SUBMIT SHOP DRAWINGS TO BE APPROVED BY THE DEPARTMENT.

ANCHORS.. USE TWO (2) PIECES OF 2" X 12" ROUGH PLANK WELL SEASONED, STRAIGHT AND SOUND SPRUCE OR OTHER APPROVED SPECIES, CUT FROM LIVE GROWING TIMBER; FREE FROM LOOSE KNOTS OR OTHER DEFECTS AND SHALL HAVE A PRESSURE PRESERVATIVE TREATMENT COVERED BY SUB-ARTICLE 541.02 B OF THE SPECIFICATION FOR TWO CABLE GUARD RAIL, ITEM 541.
THESE PLANKS SHALL BE CLAMPED POST TO POST WITH A MINIMUM OF ONE (1) FOOT OVERHANG; TO BE PARALLEL TO THE SIGN FACE.
THE TOP EDGE OF THE PLANKS SHALL BE APPROXIMATELY PARALLEL TO THE GROUND.
BOLTS FOR THE ANCHORS SHALL BE 3/8" CARRIAGE BOLTS WITH NUTS AND WASHERS AND SHALL BE GALVANIZED BY THE HOT-DIPPED PROCESS IN CONFORMANCE WITH ASTM SPECIFICATION A-153 AFTER FABRICATION, AND SHALL DEVELOP THE REQUIRED JOINT STRENGTH.

ERECTION.. ALL POSTS SHALL BE PLUMB AND LOCATED AS SPECIFIED BY DRAWINGS OR BY THE ENGINEER IN THE FIELD.
LOCK NUTS ON 3/8"-16 ALUMINUM POST BOLT CLIPS SHALL BE TORQUED TO 225 INCH POUNDS WHEN USING DRY, CLEAN, UNLUBRICATED THREADS.
WHEN ALUMINUM SURFACES ARE TO BE PLACED IN CONTACT WITH EARTH, THEY SHALL BE GIVEN A THICK COAT OF HEAVY-BODIED BITUMINOUS OR ASPHALT PAINT, OR TREATED WITH ZINC CHROMATE PAINT CONFORMING WITH THE REQUIREMENTS OF MILITARY SPECIFICATIONS JAN.-P-735, WHICH SHALL BE DRY BEFORE INSTALLATION.
SURFACES TO BE PAINTED SHALL BE SOLVENT CLEANED. ALUMINUM ALLOYS SHALL NOT BE PLACED IN CONTACT WITH COPPER, COPPER BASE ALLOYS, LEAD OR NICKLE.

TYPE "C" FOOTING

REVISIONS AND CORRECTIONS

APPROVED DATE Feb 23, 1968

R. H. Crowell
CHIEF ENGINEER

E.H. Stickney 1/23/68
ASST. CHIEF ENGINEER

G. W. Coleman
TRAFFIC ENGINEER

G. M. Lane
HIGHWAY ENGINEER

R. A. Frank
CONSTRUCTION ENGINEER

TRAFFIC SIGNS

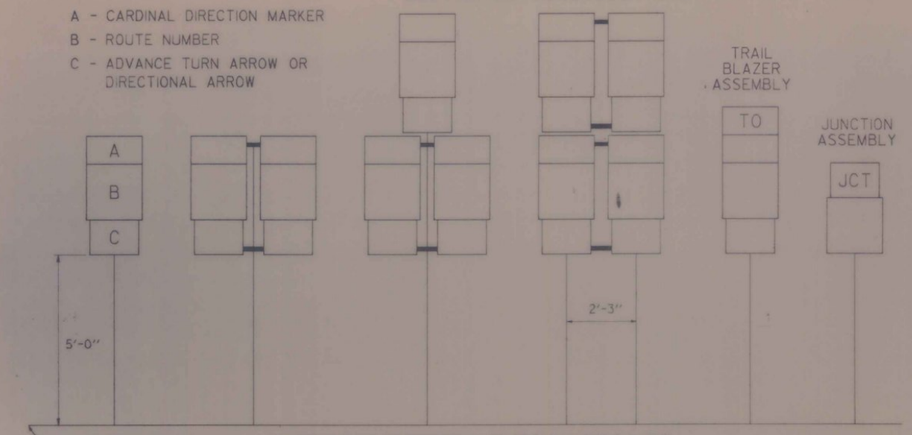
YIELDING TYPE TUBULAR ALUMINUM SIGN SUPPORTS

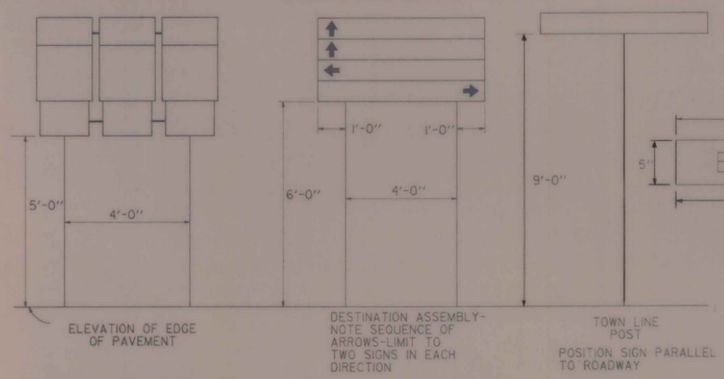
VERMONT

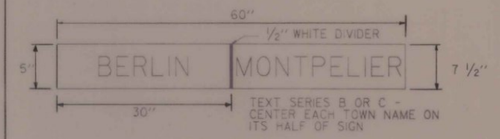
DEPARTM
OF HIGH
STANDAR

STANDARD MOUNTING OF ROUTE MARKER ASSEMBLIES, DESTINATION ASSEMBLIES AND TOWN LINE POSTS

A - CARDINAL DIRECTION MARKER
B - ROUTE NUMBER
C - ADVANCE TURN ARROW OR DIRECTIONAL ARROW

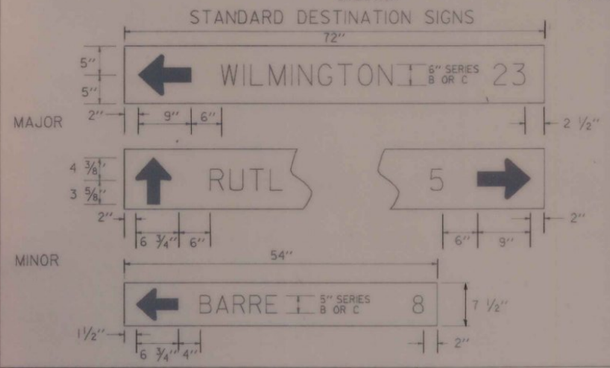


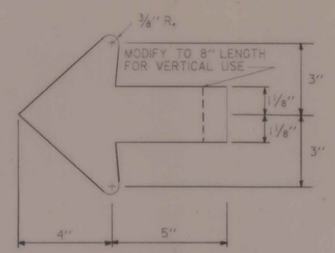




TOWN LINE SIGN

STANDARD DESTINATION SIGNS





ARROW DETAIL
REDUCE PROPORTIONALLY TO 6 3/4" LENGTH FOR USE ON MINOR SIGN

STREET SIGNS:

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE STREET SIGNS MAY BE EITHER OF THE FOLLOWING:
A - EXTRUDED ALUMINUM BLADES WITH REFLECTIVE SHEETING
B - FLAT ALUMINUM BLADES WITH REFLECTIVE SHEETING

COLORS

THE SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT (STICK ON REFLECTIVE LETTERS) ON A REFLECTORIZED GREEN BACKGROUND. THE COLORS SHALL CONFORM WITH THOSE FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

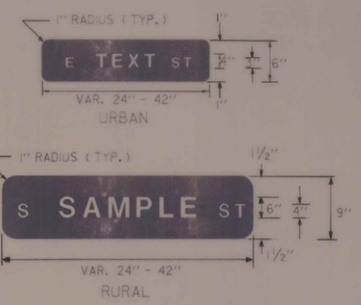
SPECIFICATIONS

THE SIGN SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR "TRAFFIC SIGNS". THE MATERIAL FOR THE BLADES SHALL BE EITHER EXTRUDED ALUMINUM WITH A 0.25 INCH FLANGE THICKNESS AND A 0.090 INCH WEBB (MIN.) OR FLAT SHEET ALUMINUM WITH A MINIMUM THICKNESS OF 0.125 INCH. THE PREFERRED MOUNTING METHOD FOR STREET SIGNS IS THE POST TOP MOUNTING BRACKETS. HARDWARE FOR MOUNTING SIGNS TO POST SHALL BE SUBSIDIARY TO OTHER ITEMS. MOUNTING METHOD WILL BE AS SHOWN ON THE PLANS AND SHOULD HAVE A VERTICAL CLEARANCE OF 8 FEET TO THE BOTTOM OF THE SIGN. FOR POST TOP MOUNTINGS, SIGNS SHALL HAVE TEXT ON BOTH SIDES.

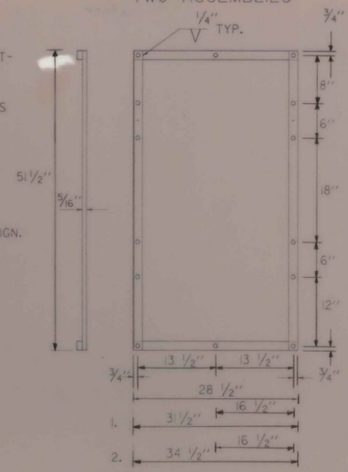
SIZES ARE AS FOLLOWS

RURAL AREAS - USE A 9 INCH HIGH BLADE IN LENGTHS OF 24", 30", 36" OR 42". USE SERIES "B" LETTERING (MINIMUM) WITH 6 INCH HIGH LETTERS FOR STREET NAME, 4 INCH OTHER.
URBAN AREAS - USE A 6 INCH HIGH BLADE IN LENGTHS OF 24", 30", 36" OR 42". USE SERIES "B" LETTERING (MINIMUM) WITH 4 INCH HIGH LETTERS FOR STREET NAME, 3 INCH OTHER.

DESIGN SAMPLE



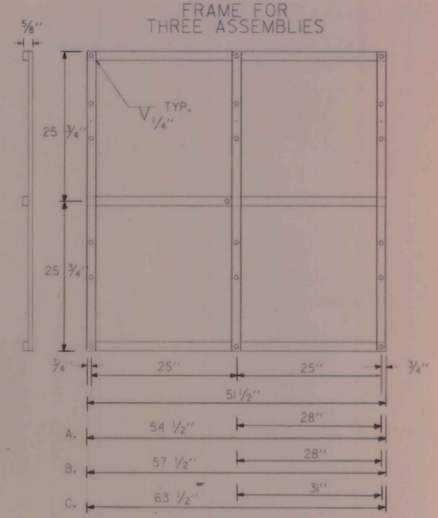
FRAME FOR TWO ASSEMBLIES



NOTE:
1. WITH ONE 30" THREE DIGIT SIGNS
2. WITH TWO 30" THREE DIGIT SIGNS

ROUTE MARKER ASSEMBLY FRAMES

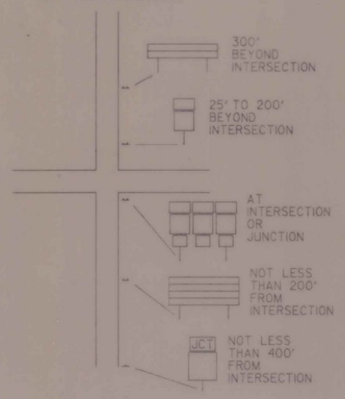
FRAME FOR THREE ASSEMBLIES



NOTE:
A. WITH ONE 30" THREE DIGIT SIGN IN AN OUTSIDE POSITION
B. WITH ONE 30" THREE DIGIT SIGN IN THE CENTER POSITION OR TWO SUCH SIGNS IN THE OUTSIDE POSTIONS
C. WITH THREE 30" THREE DIGIT SIGNS

STANDARD FRAMES SHALL BE 5/16" x 1 1/2" WROUGHT IRON WELDED. ALL HOLES SHALL BE 7/16" DIAMETER. FOR OTHER SIGN COMBINATIONS THAN ABOVE, THE FRAME DIMENSIONS AND HOLE SPACING SHALL BE MODIFIED AS NECESSARY. THE FRAME SHALL BE PAINTED WITH ONE COAT OF PRIMER AND A SECOND COAT OF GOOD GRADE BLACK PAINT.

TYPICAL LOCATION OF ASSEMBLIES



ROUTE AND DESTINATION SIGNS:

MATERIALS

THE SIGN BASE MATERIAL FOR STANDARD DESTINATION SIGNS SHALL BE HIGH DENSITY OVERLAID PLYWOOD 5/8 INCH THICK OR FLAT SHEET ALUMINUM 0.125 INCH THICK. THE REFLECTIVE MATERIAL SHALL BE GREEN REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT SHALL BE CUT-OUT REFLECTORIZED WHITE OR SILVER LETTERS.

COLORS

DESTINATION SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT ON A REFLECTORIZED GREEN BACKGROUND.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS APPROVED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

DESTINATION SIGNS SHALL MEET THE STATE SPECIFICATIONS FOR "TRAFFIC SIGNS". FOR DESIGNS, COLORS OR MATERIALS OF ROUTE MARKERS AND AUXILIARY MARKERS, SEE STANDARD SHEETS E-11, E-12, AND E-13.

REVISIONS AND CORRECTIONS

REVISIONS AND CORRECTIONS

12/1/82
ADDED 2 FRAME ASSEMBLY TO 2 POST ASSEMBLY
ADDED MINOR DESTINATION SIGN, MOUNTING HEIGHT REVISED
2/10/83
SIGN HEIGHT CHANGED TO 7 FT.
FEB. 3, 1986 - UPDATED TO 1986 SPECIFICATIONS
DEC. 3, 1986 MAJOR REVISIONS

APPROVED: DATE Dec 29, 1971

R H Crudd
CHIEF ENGINEER

E H Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

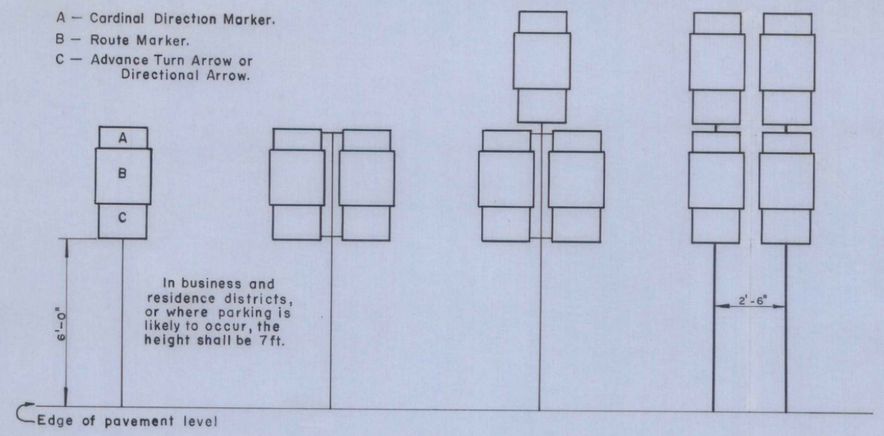
GUIDE SIGNS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E - 23

STANDARD ARRANGEMENT OF ROUTE TURN AND DIRECTIONAL ASSEMBLIES

A — Cardinal Direction Marker.
B — Route Marker.
C — Advance Turn Arrow or Directional Arrow.



STANDARD DESTINATION SIGNS

MATERIALS

The sign base material for standard destination signs shall be high density overlaid plywood 5/8" inch thick or flat sheet aluminum 0.125 inch thick.

The reflective material shall be white or silver reflective sheeting applied to the entire background of the sign. The text may be lettering film, silk screened, or hand lettered.

COLORS

Destination signs shall have black texts on reflectorized white or silver backgrounds.

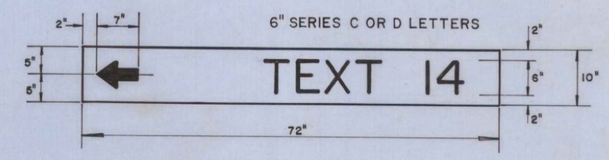
LETTERING

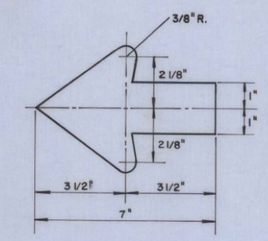
Letters and digits shall conform with the standard alphabets for highway signs approved by the National Joint Committee on Uniform Traffic Control Devices.

SPECIFICATIONS

Destination signs shall meet the state specifications for "Traffic Signs"

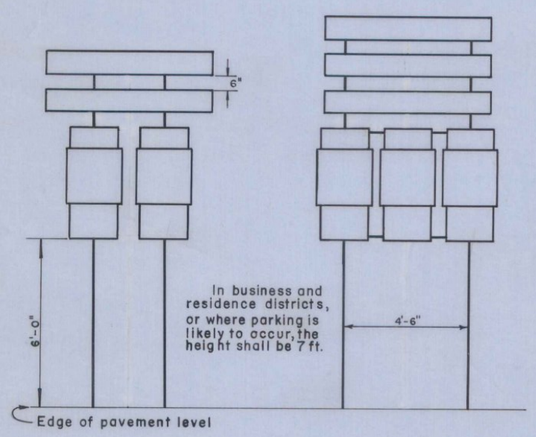
For designs of Route Markers and auxiliary markers, see Standard Sheets E-11, E-12 and E-13.



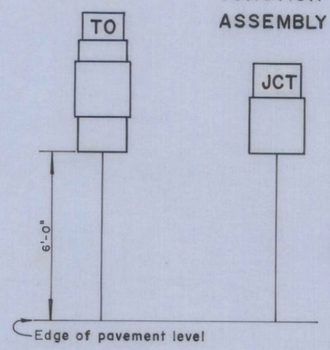


DETAIL OF ARROW

COMBINATION DIRECTIONAL AND DESTINATION ASSEMBLIES

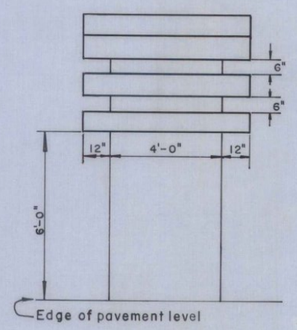


TRAILBLAZER ASSEMBLY

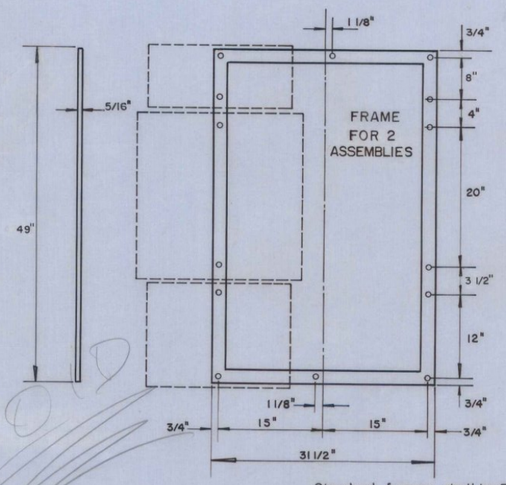


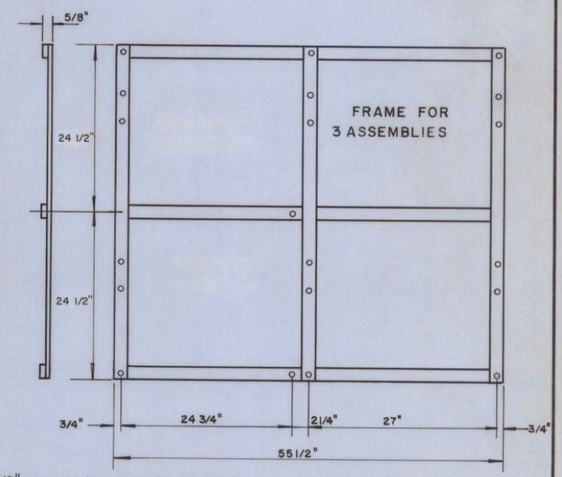
JUNCTION ASSEMBLY

DESTINATION ASSEMBLY



STANDARD FRAMES FOR ROUTE MARKER ASSEMBLIES





Standard frames shall be 5/16" X 1 1/2" wrought iron welded. All holes shall be 7/16" diameter. For other sign combinations than that shown above, the frame dimensions and hole spacings shall be modified as necessary.

REVISIONS AND CORRECTIONS

APPROVED Dec. 21, 1971

R.H. Arnold
CHIEF ENGINEER

E.H. Stickney
ASST. CHIEF ENGINEER

G.M. Lane
HIGHWAY ENGINEER

DRAWN A.W.C.
TRACED R.L.E.

TRAFFIC SIGNS

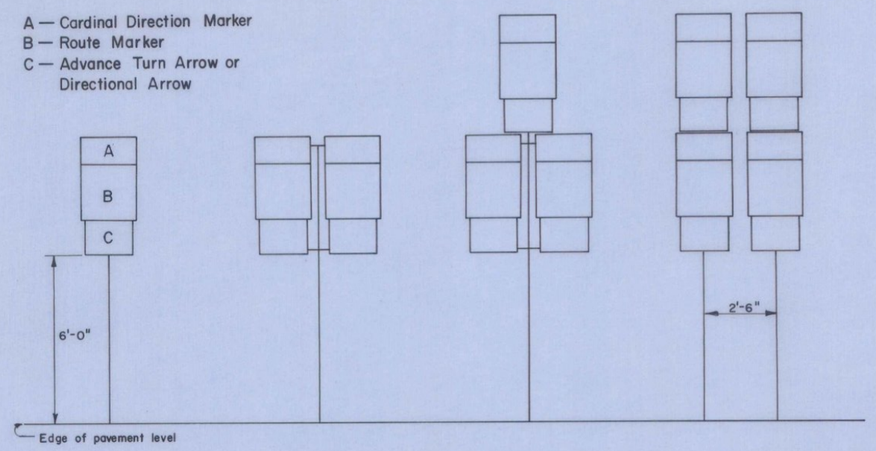
GUIDE SIGNS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-23

STANDARD ARRANGEMENT OF ROUTE TURN AND DIRECTIONAL ASSEMBLIES

A — Cardinal Direction Marker
B — Route Marker
C — Advance Turn Arrow or Directional Arrow



In business and residential districts, or where parking is likely to accur, the height shall be 7 ft.

GENERAL NOTES:

MATERIALS;

The sign base material for
density overlaid plywood 5/8 in
0.125 inch thick.

The reflective material sh
to the entire backround of the
reflectorized white or silver lett

COLORS;

Destination signs shall ha
on a reflectorized green backrou

LETTERING;

Letters and digits shall co
highway signs approved by the N
Traffic Control Devices.

SPECIFICATIONS;

Destination signs shall mee
Signs."

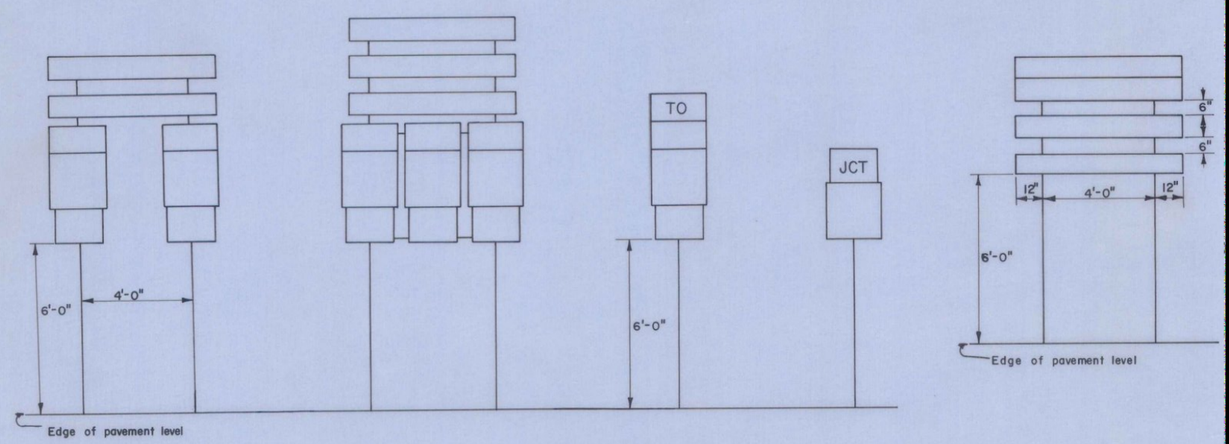
For designs of Route Mar
Standard Sheets E-11, E-12, an

COMBINATION DIRECTIONAL AND DESTINATION ASSEMBLIES

TRAILBLAZER ASSEMBLY

JUNCTION ASSEMBLY

DESTINATION ASSEMBLY



In business and residential districts, or where parking is likely to occur, the height shall be 7 ft.

REVISIONS AND CORRECTIONS

APPROVED: DATE: Dec. 29, 1971

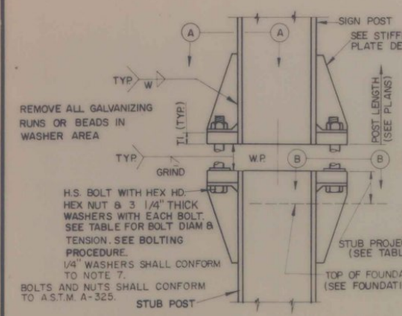
R. H. Arnold
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

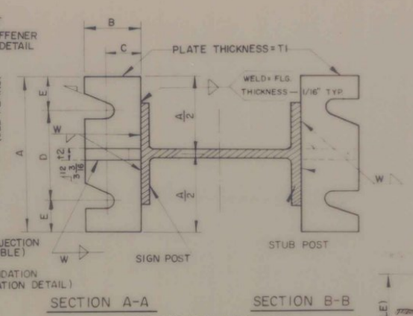
GUIDE SIG

Checked 9/71 WHG



SIGN POST AND STUB POST

ELEVATION



SECTION A-A SECTION B-B

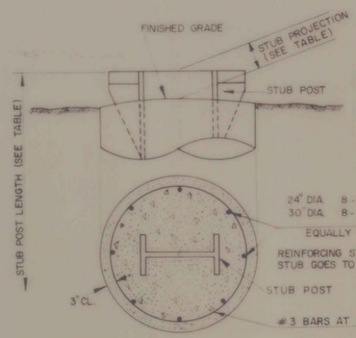
(SEE TABLE FOR DIMENSIONS)

SECTIONS SHOWN ARE FOR INSTALLATIONS ON RIGHT SHOULDER AND IN GORE. PLATE SLOT BEVELS ARE OPPOSITE HAND FOR INSTALLATIONS ON LEFT SHOULDER OF A ONE WAY HIGHWAY

POST SIZE	BASE CONNECTION DATA TABLE										FUSE PLATE DATA TABLE									
	BOLT SIZE BOLT FORCE LB	A	B	C	D	E	T1	T2	W	R	F	G	H	J	K	L	N	D1	T3	BOLT DIA.
W6x9	5/8"Ø X 3 1/2" 2660 *	5"	2"	1 1/4"	2 3/4"	1 1/8"	3/4"	1/2"	1/4"	11/32	3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"	9/16"	1/4"	1/2"
W6x12											3 5/8	2"	1 1/8	4"	2 1/4	7/8	1/2	9/16	1/4"	1/2"
W6x15											4 3/8	2 1/2	1 1/4	6"	3 1/2	1 1/4	5/8	11/16	3/8	5/8
W8x18											4 3/8	2 1/2	1 1/4	5 1/4	2 3/4	1 1/4	5/8	11/16	3/8	5/8
W8x21	3/4"Ø X 4 1/2" 3600 **	6"	2 1/4"	1 3/8"	3 1/2"	1 1/4"	1"	3/4"	5/16"	13/32	4 3/4	2 1/2	1 1/2	5 1/4	2 3/4	1 1/4	3/4	13/16	1/2	3/4
W10x22											5 1/4"	3"	1 1/2	5 3/4	2 3/4	1 1/2	3/4	13/16	1/2	3/4
W10x26											5 1/4	3"	1 1/2	5 3/4	2 3/4	1 1/2	3/4	13/16	1/2	3/4
W12x30		7"			4"	1 1/2"					5 1/4	3"	1 1/2	6 1/2	3 1/2	1 1/2	3/4	13/16	1/2	3/4

* 5/8" BOLTS SHALL HAVE AT LEAST A THREAD LENGTH OF 2 INCHES
** 3/4" BOLTS SHALL HAVE AT LEAST A THREAD LENGTH OF 2 1/4 INCHES
NOTE: BOLTS SHALL BE FURNISHED WITH 2 NUTS & 1 WASHER EACH BOLT.

FOUNDATION DATA					
POST SIZE	BASE DIA.	BASE DEPTH (SEE NOTE 11)	MIN. STUB LENGTH	STUB PROJ.	VOLUME OF SINGLE BASE
W6x9	24"	5'-0"	2'-0"	3"	0.60 C.Y.
W6x12	24"	5'-0"	2'-0"	3"	0.60 C.Y.
W6x15	24"	5'-0"	2'-6"	3"	0.60 C.Y.
W8x18	24"	5'-6"	2'-6"	3"	0.65 C.Y.
W8x21	24"	5'-6"	3'-0"	2 1/2"	0.65 C.Y.
W10x22	24"	5'-6"	3'-0"	2 1/2"	0.65 C.Y.
W10x26	24"	6'-0"	3'-0"	2 1/2"	0.70 C.Y.
W12x30	30"	6'-0"	3'-0"	2 1/2"	1.1 C.Y.



FOUNDATION DETAIL

FOUNDATION FOR W-SHAPED POSTS

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION

1. Make sure all bolts are from the same stock.
2. Try nuts on bolt threads, making sure they turn easily.
3. Place (3) bolts in Skidmore - Wilbert device. Torque to proper tension in device. Calibrate torque wrench by checking torque on these three bolts when under proper tension in device.
4. The testing and calibration shall be done at the Vermont Highway Department's Material Laboratory or at such place designated by them.
5. Use the average of the three torques on similar bolts in the real support.
6. Assemble posts to stub with bolts and with three 1/8" flat washers, one each, under head of bolt, between plates, and under nut.
7. Shim as required to plumb post.
8. Tighten all bolts the maximum possible with a 12" to 15" wrench to bed washers and shims and to clean bolt threads. Then loosen each bolt in turn and retighten in a systematic order to the prescribed tension.
9. Then base plate bolts will be torqued to prescribed bolt tension on the plans. After the initial torquing use a second nut to insure that the first nut will not [illegible] with the Department inspector will return to the sign two more times at intervals of 30 days ± for the purpose of checking and reestablishing the prescribed torque. The second nut shall remain as a lock nut.

FABRICATION NOTE

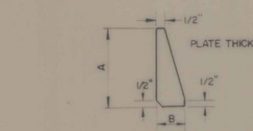
(Important)

All friction fuse bolts shall be tightened by the fabricator to the prescribed bolt tension mentioned below. The contractor will be held responsible to check and certify that the below residual tensions are obtained.

BOLT SIZE	MIN. RESIDUAL BOLT TENSION
1/2" Ø	12050 LBS
5/8" Ø	19200 LBS
3/4" Ø	28400 LBS
7/8" Ø	36050 LBS

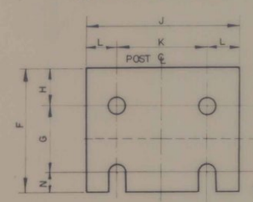
GENERAL NOTES

1. DESIGN CONFORMS WITH AASHTO SPECIFICATIONS FOR DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGN.
2. MATERIAL AND FABRICATION SHALL CONFORM TO THE REQUIREMENTS OF STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SHEETS AND SPECIFICATIONS.
3. ALL STRUCTURAL STEEL SHALL CONFORM TO A.S.T.M. A 36
4. ALL STRUCTURAL STEEL, BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AS PER A.S.T.M. A-153 EXCEPT AS NOTED.
5. ALL HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AS PER A.S.T.M. A-123
   HOLES SHALL BE DRILLED.
   THE POST CUT SHALL BE A SAW CUT ONLY. ALL OTHER CUTS EXCLUDING POST CUTS MAY BE FLAME CUT PROVIDED ALL EDGES ARE GROUND. METAL PROJECTING BEYOND THE PLATE FACE WILL NOT BE PERMITTED.
6. ALL HIGH STRENGTH BOLTS AND NUTS SHALL CONFORM TO A.S.T.M. A-325.
7. ALL 1/4" FLAT WASHERS SHALL CONFORM TO THE HARDNESS REQUIREMENTS FOR A.S.T.M. A-325 WASHERS.
8. PAINT FOR SAW CUT SHALL BE A SINGLE COMPONENT ZINC-RICH COMPOUND YIELDING A DRIED FILM OF AT LEAST 85% PURE ZINC. IT SHALL MEET OR EXCEED THE REQUIREMENT OF MIL-P-21035.
9. ALL SIGNS MOUNTED ON STEEL POSTS SHALL BE ERECTED A MINIMUM OF 7' ABOVE EDGE OF PAVEMENT TO BOTTOM OF SIGN AND THE INSIDE EDGE OF THE SIGN POSITIONED A MINIMUM OF 30' FROM EDGE OF PAVEMENT UNLESS OTHERWISE INDICATED ON THE PLANS.
10. EXTREME CARE SHOULD BE TAKEN TO KEEP THE SLIP JOINT FREE OF ANY FOREIGN MATERIAL, EITHER BY WRAPPING THE JOINT OR THOROUGH CLEANING IMMEDIATELY AFTER POURING OF CONCRETE.
11. IF BASE DEPTH CANNOT BE OBTAINED OR WET AND/OR UNUSUAL SOIL CONDITIONS ARE ENCOUNTERED, THE RESIDENT SHOULD CONTACT THE TRAFFIC DESIGN SECTION, AGENCY OF TRANSPORTATION.



STIFFENER PLATE

(SEE TABLE FOR DIMENSIONS)

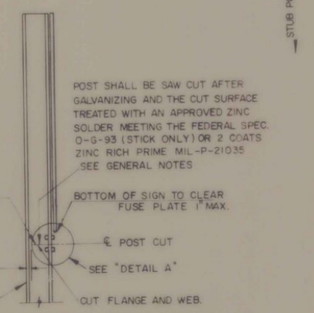


HOLE DIAMETER = D1.

USE H.S. BOLTS WITH HEX. HD. AND HEX. NUTS, ONE 1/4" THICK FLAT WASHER UNDER EA. BOLT HEAD, AND ONE 1/4" THICK FLAT WASHER UNDER NUT.
1/4" WASHERS SHALL CONFORM TO NOTE 7.

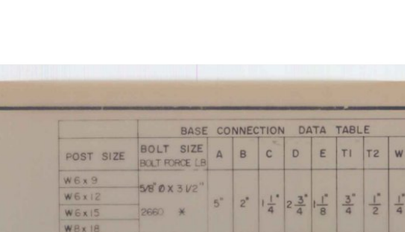
FUSE PLATE

(SEE TABLE FOR DIMENSIONS AND WEIGHT)

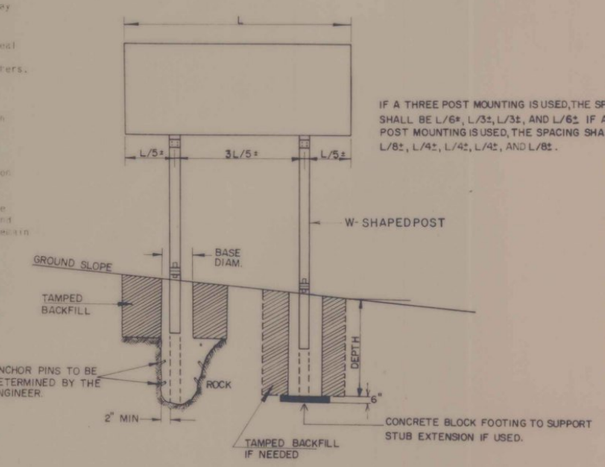


FRICTION FUSE PLATE

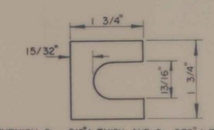
W-SHAPED POSTS



STUB POST

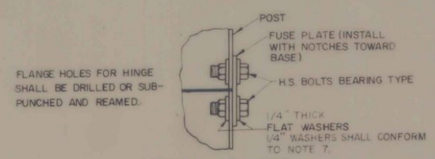


IF A THREE POST MOUNTING IS USED, THE SPACING SHALL BE L/6±, L/3±, L/3±, AND L/6±. IF A FOUR POST MOUNTING IS USED, THE SPACING SHALL BE L/8±, L/4±, L/4±, L/4±, AND L/8±.



FURNISH 2 - .012"± THICK AND 2 - .032"± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M. B 36

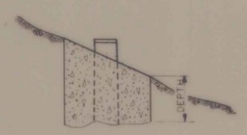
SHIM DETAIL



"DETAIL A" HINGE

(SEE FABRICATOR NOTE)

NOTE: CUT SURFACES WILL NOT BE TREATED UNTIL PLATE IS INSTALLED AND ALL BOLTS FULLY TIGHTENED.



FOUNDATION DETAILS

CONSTRUCTION METHOD.

HOLES FOR POST FOOTINGS MAY BE AUGERED OR DUG. IF THE MATERIAL IS FIRM, OR ALL DISTURBED SOIL AROUND THE CIRCUMFERENCE OF THE AUGERED HOLE IS REMOVED, THE HOLES MAY BE LEFT WITH EARTH SIDES. IF NOT, A SUITABLE FORM APPROVED BY THE ENGINEER SHALL BE USED. CORRUGATED METAL CULVERT PIPE OR PAPER FORMS MANUFACTURED FOR USE AS CONCRETE COLUMN FORMS WILL BE ACCEPTABLE. IF THE STUB IS EXTENDED TO THE BOTTOM OF THE HOLE, A CONCRETE BLOCK FOOTING SHALL BE UTILIZED TO SUPPORT THE POST AND THE POST SHALL BE HELD SECURELY IN PLACE AT THE BOTTOM. THIS MAY BE DONE BY EMBEDDING THE POST AND CONCRETE BLOCK FOOTING IN WET CONCRETE AND ALLOWING TO SET WITH THE POST SECURED IN POSITION, PLUMBED AND PROPERLY BRACED, THE REMAINING FOOTING MAY BE POURED. THE TIME BETWEEN POURS FOR THE CURING OF THE CONCRETE SHALL BE AS DETERMINED BY THE ENGINEER. THE FORM SHALL BE LEFT IN PLACE AND THE HOLE PROPERLY BACKFILLED. NO PART OF THE FORM SHALL SHOW ABOVE THE GROUND LINE WHEN THE WORK IS COMPLETED.

REVISIONS AND CORRECTIONS

DEC. 12, 1975 REVISED TO CONFORM WITH SPECIFICATION.
DEC. 15, 1978 REVISED TO CHANGE FOOTING SIZES, AND 1/4" WASHERS.
MAY 29, 1979 MISCELLANEOUS REVISIONS TO TABLES, NOTES AND DETAILS, INCLUDING NEW POST SIZE DESIGNATIONS.
FEB. 3, 1986 - UPDATED TO 1986 SPECIFICATIONS

APPROVED DATE Dec 21, 1971

R H Arnold
CHIEF ENGINEER

E H Stickney
ASST. CHIEF ENGINEER

G M Lane
HIGHWAY ENGINEER

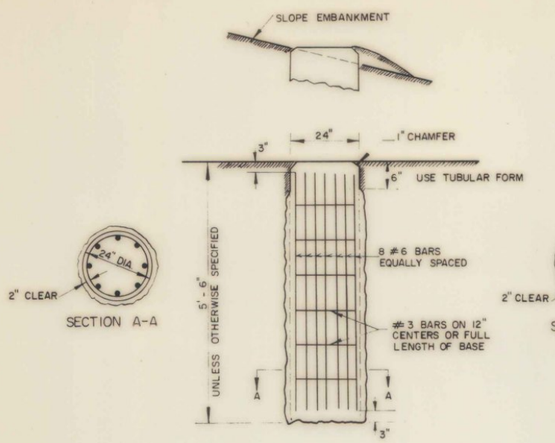
W- SHAPED STEEL
SIGN SUPPORTS & FOUNDATIONS

VERMONT AGENCY OF TRANSPORTATION

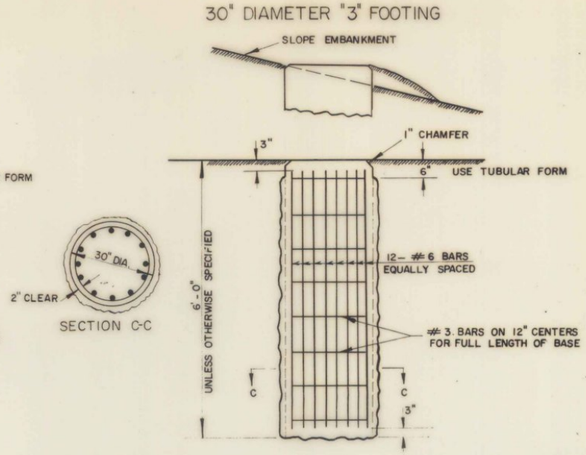
STANDARD

E-24

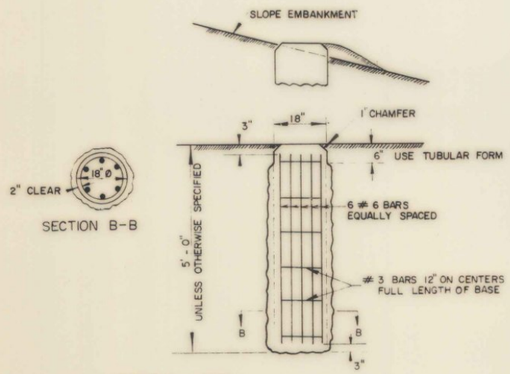
24" DIAMETER "1" FOOTING



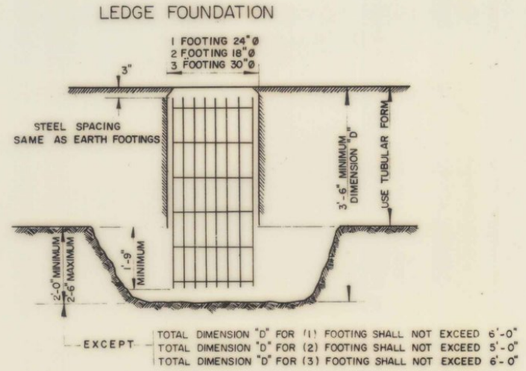
30" DIAMETER "3" FOOTING



18" DIAMETER "2" FOOTING



LEDGE FOUNDATION



A	B	C	D	E	F	T	H
4"	7"-8"	5"-5 5/8"	8"	1 5/8"	4 7/8"	3/4"	48"
5"	8"-9"	5 5/8"-6 3/8"	9 9/16"	1 3/4"	3 1/4"	3/4"	48"
6"	9"-10"	6 3/8"-7 1/16"	10 1/4"	2 1/4"	3 1/2"	1"	48"
7"	10"-11"	7 1/16"-7 3/4"	11"	2 3/4"	3 1/2"	1"	48"
8"	11"-12"	7 3/4"-8 1/2"	12"	2 3/4"	3 1/2"	1"	48"
10"	15"-16"	10 19/32"-11 5/16"	16"	3 1/4"	5"	1 1/4"	48"
12"	18"	12 3/4"	18"	3 1/2"	6"	1 1/4"	48"
12" H.D.	18"	12 3/4"	18"	4"	6 1/2"	1 1/4"	48"

POSTS

THE POSTS FOR THESE INSTALLATIONS SHALL BE EXTRUDED TUBULAR POSTS OF ALUMINUM ALLOY 6061-T6.

HARDWARE

THE ASSEMBLY HARDWARE USED TO FASTEN A SIGN TO THE POSTS SHALL BE ALUMINUM OR STAINLESS STEEL OF A STANDARD COMMERCIAL DESIGN APPROVED BY THE DEPARTMENT.

THE FABRICATOR SHALL SUBMIT SHOP DRAWINGS TO BE APPROVED BY THE DEPARTMENT.

ERECTION

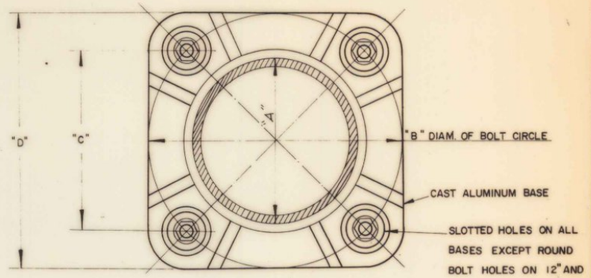
ALL POSTS SHALL BE PLUMB AND LOCATED AS SPECIFIED BY DRAWINGS OR BY ENGINEER IN THE FIELD.

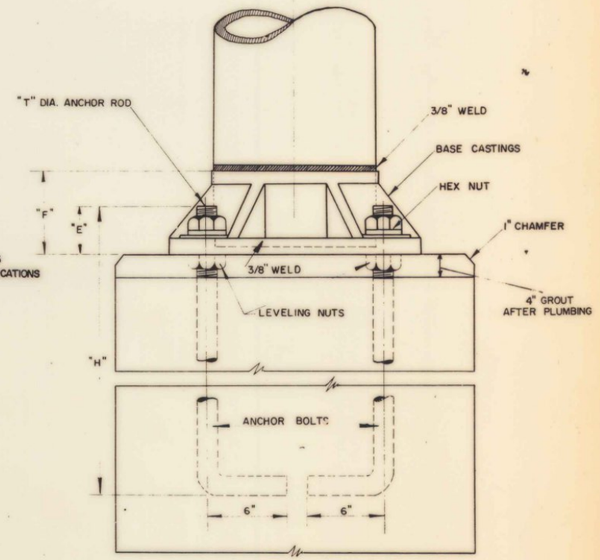
LOCK NUTS ON 3/8"-16 ALUMINUM POST BOLT CLIPS SHALL BE TORQUED TO 225 INCH POUNDS WHEN USING DRY CLEAN UNLUBRICATED THREADS.

WELDING WIRE

ALL ALUMINUM WELD WIRE SHALL BE 4043 ALUMINUM ALLOY A.S.T.M. NO. R-S5 OR E-S5 B) AND SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT SPECIFICATIONS FOR ALUMINUM AND ALUMINUM ALLOY WELDING WIRE AND BASE ELECTRODES A.S.T.M. DESIGNATION R-285.

CAST ALUMINUM BASE DETAIL





SHOE BASE

(SUPPLIED WITH FOUR CAST ALUMINUM ALLOY BOLT COVERS)

THE SHOE BASE (ANCHOR BASE) CASTINGS SHALL BE EITHER PERMANENT MOLD CASTINGS OF 356-F ALUMINUM ALLOY CONFORMING TO THE REQUIREMENTS OF THE CURRENT SPECIFICATIONS FOR ALUMINUM ALLOY PERMANENT MOLD CASTINGS A.S.T.M. DESIGNATION B-108 OR SHALL BE SAND CASTINGS OF 356-F ALUMINUM ALLOY CONFORMING TO THE REQUIREMENTS OF THE CURRENT SPECIFICATIONS FOR ALUMINUM ALLOY SAND CASTINGS A.S.T.M. DESIGNATION B-26

TYPE "D" FOOTING

THE CONTRACTOR SHALL SUBMIT THE SIZES OF BREAKAWAY ALUMINUM TUBES WITH CAST BASES WHICH HE PROPOSES TO USE AT THE SPECIFIED LOCATIONS TO THE DEPARTMENT FOR APPROVAL.

GENERAL NOTES

1.- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION DATED APRIL 1964 WITH CURRENT MODIFICATIONS.

2.- FOUR HIGH STRENGTH STEEL ANCHOR BOLTS HAVING A TYPICAL TENSILE YIELD STRENGTH OF 55,000 P.S.I. AND AN ULTIMATE OF 85,000 P.S.I. AND EACH FITTED WITH 2 HEX NUTS SHALL BE FURNISHED WITH EACH POLE. EACH ANCHOR BOLT SHALL HAVE AN "L" BEND AT THE BOTTOM AND BE THREADED AT THE TOP END. THREADED ENDS, AND ALL NUTS SHALL BE GALVANIZED. THE ANCHOR BOLTS SHALL BE CAPABLE OF RESISTING AT YIELD STRENGTH STRESS THE FULL BENDING MOMENT OF THE SHAFT AT ITS YIELD STRENGTH STRESS.

3.- DESIGN STRESS: CONCRETE Fc EQUALS 1,200 P.S.I. REINFORCING STEEL, EQUALS 20,000 P.S.I.
CONCRETE Fc EQUALS 3,000 P.S.I.

4.- WIND ON EXPOSED TRUSS AND SIGNS EQUALS 25 # PER SQ. FT.

5.- MAXIMUM FOUNDATION PRESSURE EQUALS ONE AND ONE HALF (1 1/2) TONS PER SQUARE FT.

6.- CHANGES IN THE DESIGN DETAILS SHOWN HERE OR THE USE OF OTHER MATERIALS OR DESIGNS MEETING REQUIREMENTS STATED ABOVE, MAY BE PERMITTED WITH THE WRITTEN APPROVAL OF THE ENGINEER.

7.- FOR ALL OTHER DESIGN AND CONSTRUCTION CRITERIA REFER TO STANDARD SHEET E-21

REVISIONS AND CORRECTIONS

APPROVED DATE MARCH 6, 1968

R. H. Arnold — CHIEF ENGINEER

E. W. Stickney — ASST. CHIEF ENGINEER

A. W. Coleman — TRAFFIC ENGINEER

G. M. Lane — HIGHWAY ENGINEER

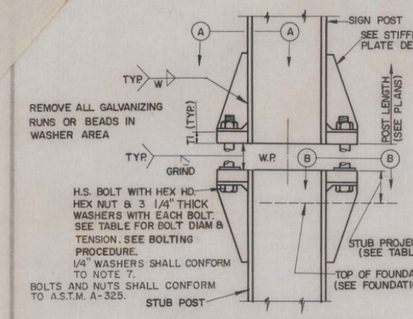
CONSTRUCTION ENGINEER

TRAFFIC SIGNS

BREAKAWAY TYPE TUBULAR ALUMINUM SIGN SUPPORTS WITH CAST BASES

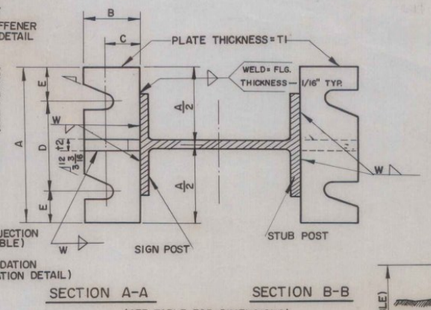
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-24



SIGN POST AND STUB POST

ELEVATION



SECTION A-A SECTION B-B

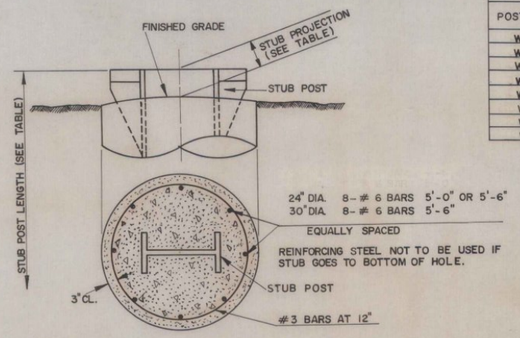
(SEE TABLE FOR DIMENSIONS)

SECTIONS SHOWN ARE FOR INSTALLATIONS ON RIGHT SHOULDER AND IN GORE. PLATE SLOT BEVELS ARE OPPOSITE HAND FOR INSTALLATIONS ON LEFT SHOULDER OF A ONE WAY HIGHWAY

POST SIZE	BOLT SIZE / BOLT FORCE LB	A	B	C	D	E	T1	T2	W	R
W6x9	5/8" Ø x 3 1/2" 2660 *	5"	2"	1 1/4	2 3/4	1 1/8	3/4	1/2	1/4	11/32
W6x12										
W6x15										
W8x18										
W8x21	3/4"Ø x 4 1/2" 3600 **	6"	2 1/4	1 3/8	3 1/2	1 1/4	1"	3/4	5/16	13/32
W10x22										
W10x26										
W12x30		7"			4"	1 1/2				

POST SIZE	F	G	H	J	K	L	N		DI.	T3	BOLT DIA.
W6x9	3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"		9/16"	1/4"	1/2
W6x12	3 5/8	2"	1 1/8	4"	2 1/4"	7/8"	1/2"		9/16"	1/4"	1/2"
W6x15	4 3/8	2 1/2	1 1/4	6"	3 1/2	1 1/4	5/8		11/16"	3/8	5/8
W8x18	4 3/8"	2 1/2"	1 1/4"	5 1/4"	2 3/4"	1 1/4"	5/8"		11/16"	3/8"	5/8"
W8x21	4 3/4"	2 1/2"	1 1/2"	5 1/4"	2 3/4"	1 1/4"	3/4"		13/16"	1/2"	3/4"
W10x22	5 1/4"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	3/4"		13/16"	1/2"	3/4"
W10x26	5 1/4"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	3/4"		13/16"	1/2"	3/4"
W12x30	5 1/4"	3"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	3/4"		13/16"	1/2"	3/4"

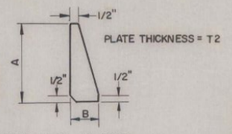
* 5/8" BOLTS SHALL HAVE AT LEAST A THREAD LENGTH OF 2 INCHES
** 3/4" BOLTS SHALL HAVE AT LEAST A THREAD LENGTH OF 2 1/4 INCHES
THESE BOLTS SHALL BE FURNISHED WITH 2 NUTS F, R EACH BOLT.



FOUNDATION DETAIL

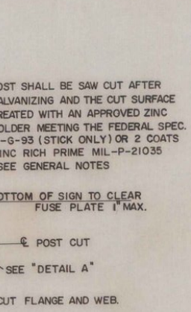
FOUNDATION DATA				
POST SIZE	BASE DIA.	BASE DEPTH SEE NOTE II	MIN. STUB LENGTH	STUB PROJ.	VOLUME OF SINGLE BASE
W6x9	24"	5'-0"	2'-0"	3"	0.60 C.Y.
W6x12	24"	5'-0"	2'-0"	3"	0.60 C.Y.
W6x15	24"	5'-0"	2'-6"	3"	0.60 C.Y.
W8x18	24"	5'-6"	2'-6"	3"	0.65 C.Y.
W8x21	24"	5'-6"	3'-0"	2 1/2"	0.65 C.Y.
W10x22	24"	5'-6"	3'-0"	2 1/2"	0.65 C.Y.
W10x26	24"	6'-0"	3'-0"	2 1/2"	0.70 C.Y.
W12x30	30"	6'-0"	3'-0"	2 1/2"	1.1 C.Y.

TYPE "B" FOOTINGS



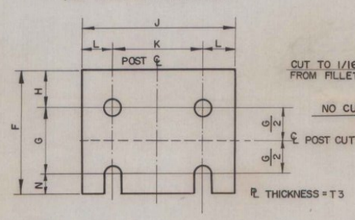
STIFFENER PLATE

(SEE TABLE FOR DIMENSIONS)



FRICTION FUSE PLATE

TYPE B POSTS

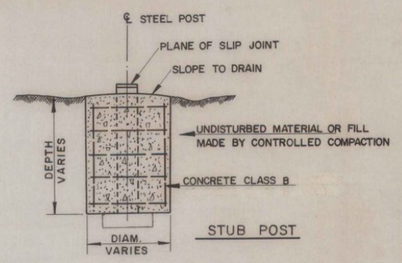


HOLE DIAMETER = DI.

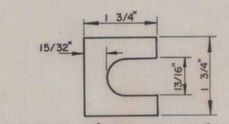
USE H.S. BOLTS WITH HEX. HD. AND HEX. NUTS, ONE 1/4" THICK FLAT WASHER UNDER EA. BOLT HEAD; AND ONE 1/4" THICK FLAT WASHER UNDER NUT.
1/4" WASHERS SHALL CONFORM TO NOTE 7.

FUSE PLATE

(SEE TABLE FOR DIMENSIONS AND WEIGHT)

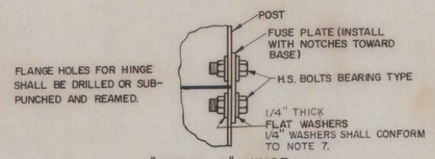


STUB POST



FURNISH 2- .012"± THICK AND 2- .032"± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M. B 36

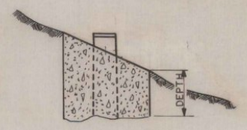
SHIM DETAIL



"DETAIL A" HINGE

(SEE FABRICATOR NOTE)

NOTE: CUT SURFACES WILL NOT BE TREATED UNTIL PLATE IS INSTALLED AND ALL BOLTS FULLY TIGHTENED.



FOUNDATION DETAILS

FABRICATION NOTE

(Important)

All friction fuse bolts shall be tightened by the fabricator to the prescribed bolt tension mentioned below. The contractor will be held responsible to check and certify that the below residual tensions are obtained.

BOLT SIZE	MIN. RESIDUAL BOLT TENSION
1/2" Ø	12050 LBS
5/8" Ø	19200 LBS
3/4" Ø	28400 LBS
7/8" Ø	36050 LBS

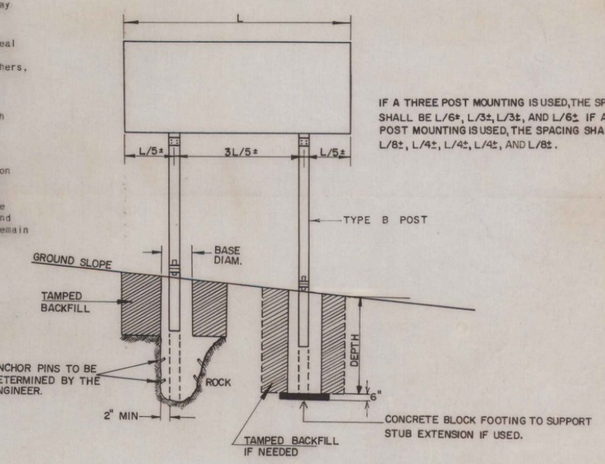
TYPE "B" FOOTINGS

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION

1. Make sure all bolts are from the same stock.
2. Try nuts on bolt threads, making sure they turn easily.
3. Place (3) bolts in Skidmore - Wilhelm device. Torque to proper tension in device. Calibrate torque wrench by checking torque on these three bolts when under proper tension in device.
4. The testing and calibration shall be done at the Vermont Highway Department's Material Laboratory or at such place designated by them.
5. Use the average of the three torques on similar bolts in the real support.
6. Assemble posts to stub with bolts and with three 1/4" flat washers, one each, under head of bolt, between plates, and under nut.
7. Shim as required to plumb post.
8. Tighten all bolts the maximum possible with a 12" to 15" wrench to bed washers and shims and to clean bolt threads. Then loosen each bolt in turn and retighten in a systematic order to the prescribed tension.
9. Then base plate bolts will be torqued to prescribed bolt tension on the plans. After the initial torquing use a second nut to insure that the first nut will not back off. The contractor, with the Department inspector will return to the sign two more times at intervals of 30 days ± for the purpose of checking and reestablishing the prescribed torque. The second nut shall remain as a lock nut.

GENERAL NOTES

1. DESIGN CONFORMS WITH AASHTO. SPECIFICATIONS FOR DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGN.
2. MATERIAL AND FABRICATION SHALL CONFORM TO THE REQUIREMENTS OF STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SHEETS AND SPECIFICATIONS.
3. ALL STRUCTURAL STEEL SHALL CONFORM TO A.S.T.M. A 36
4. ALL STRUCTURAL STEEL, BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AS PER A.S.T.M. A-153 EXCEPT AS NOTED.
5. ALL HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AS PER A.S.T.M. A-123
   HOLES SHALL BE DRILLED.
   THE POST CUT SHALL BE A SAW CUT ONLY. ALL OTHER CUTS EXCLUDING POST CUTS MAY BE FLAME CUT PROVIDED ALL EDGES ARE GROUND. METAL PROJECTING BEYOND THE PLATE FACE WILL NOT BE PERMITTED.
6. ALL HIGH STRENGTH BOLTS AND NUTS SHALL CONFORM TO A.S.T.M. A-325.
7. ALL 1/4" FLAT WASHERS SHALL CONFORM TO THE HARDNESS REQUIREMENTS FOR A.S.T.M. A-325 WASHERS.
8. PAINT FOR SAW CUT SHALL BE A SINGLE COMPONENT ZINC-RICH COMPOUND YIELDING A DRIED FILM OF AT LEAST 85% PURE ZINC. IT SHALL MEET OR EXCEED THE REQUIREMENT OF MIL-P-21035.
9. ALL SIGNS MOUNTED ON STEEL POSTS SHALL BE ERECTED A MINIMUM OF 7' ABOVE EDGE OF PAVEMENT TO BOTTOM OF SIGN AND THE INSIDE EDGE OF THE SIGN POSITIONED A MINIMUM OF 30' FROM EDGE OF PAVEMENT UNLESS OTHERWISE INDICATED ON THE PLANS.
10. EXTREME CARE SHOULD BE TAKEN TO KEEP THE SLIP JOINT FREE OF ANY FOREIGN MATERIAL, EITHER BY WRAPPING THE JOINT OR THOROUGH CLEANING IMMEDIATELY AFTER POURING OF CONCRETE.
11. IF BASE DEPTH CANNOT BE OBTAINED OR WET AND/OR UNUSUAL SOIL CONDITIONS ARE ENCOUNTERED, THE RESIDENT SHOULD CONTACT THE TRAFFIC DESIGN SECTION, AGENCY OF TRANSPORTATION.



IF A THREE POST MOUNTING IS USED, THE SPACING SHALL BE L/6±, L/3±, L/3±, AND L/6±. IF A FOUR POST MOUNTING IS USED, THE SPACING SHALL BE L/8±, L/4±, L/4±, L/4±, AND L/8±.

CONSTRUCTION METHOD.

HOLES FOR POST FOOTINGS MAY BE AUGERED OR DUG. IF THE MATERIAL IS FIRM, OR ALL DISTURBED SOIL AROUND THE CIRCUMFERENCE OF THE AUGERED HOLE IS REMOVED, THE HOLES MAY BE LEFT WITH EARTH SIDES. IF NOT, A SUITABLE FORM APPROVED BY THE ENGINEER SHALL BE USED. CORRUGATED METAL CULVERT PIPE OR PAPER FORMS MANUFACTURED FOR USE AS CONCRETE COLUMN FORMS WILL BE ACCEPTABLE. IF THE STUB IS EXTENDED TO THE BOTTOM OF THE HOLE, A CONCRETE BLOCK FOOTING SHALL BE UTILIZED TO SUPPORT THE POST AND THE POST SHALL BE HELD SECURELY IN PLACE AT THE BOTTOM. THIS MAY BE DONE BY EMBEDDING THE POST AND CONCRETE BLOCK FOOTING IN WET CONCRETE AND ALLOWING TO SET WITH THE POST SECURED IN POSITION, PLUMBED AND PROPERLY BRACED, THE REMAINING FOOTING MAY BE POURED. THE TIME BETWEEN POURS FOR THE CURING OF THE CONCRETE SHALL BE AS DETERMINED BY THE ENGINEER. THE FORM SHALL BE LEFT IN PLACE AND THE HOLE PROPERLY BACKFILLED. NO PART OF THE FORM SHALL SHOW ABOVE THE GROUND LINE WHEN THE WORK IS COMPLETED.

REVISIONS AND CORRECTIONS

DEC. 12, 1975	REVISED TO CONFORM WITH SPECIFICATION.
DEC. 15, 1978	REVISED TO CHANGE FOOTING SIZES, AND 1/4" WASHERS.
MAY 29, 1979	MISCELLANEOUS REVISIONS TO TABLES, NOTES AND DETAILS, INCLUDING NEW POST SIZE DESIGNATIONS.

APPROVED DATE Dec. 21, 1971

R. H. Arnold
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

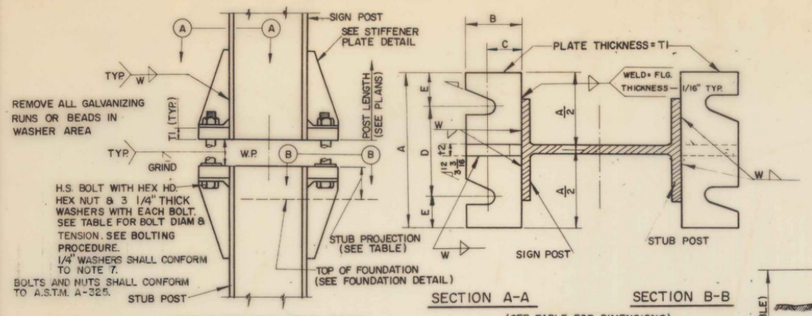
TRAFFIC SIGNS

BREAKAWAY TYPE GALVANIZED STRUCTURAL STEEL SIGN SUPPORTS FOR TYPE "B" SIGNS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-24



SIGN POST AND STUB POST

ELEVATION

(FOR WF AND B SHAPES)

SECTION A-A

SECTION B-B

(SEE TABLE FOR DIMENSIONS)

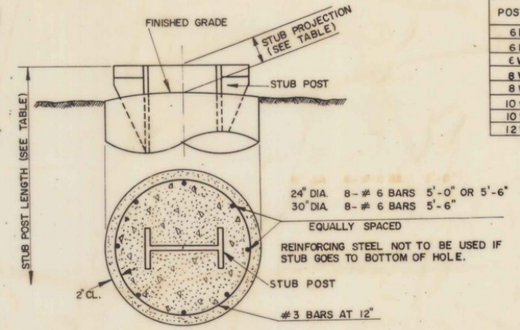
SECTIONS SHOWN ARE FOR INSTALLATIONS ON RIGHT SHOULDER AND IN GORE. PLATE SLOT BEVELS ARE OPPOSITE HAND FOR INSTALLATIONS ON LEFT SHOULDER.

POST SIZE	BOLT SIZE / BOLT FORCE LB	A	B	C	D	E	T1	T2	W	R
6 BL 8.5	5/8" Ø X 3 1/2"	5"	2"	1 1/4"	2 3/4"	1 1/8"	3/4"	1/2"	1/4"	11/32"
6 BL 12										
6 WF 15.5	2660 *									
8 WF 17										
8 WF 20	3/4" Ø X 4 1/2"	6"	2 1/4"	1 3/8"	3 1/2"	1 1/4"	1"	3/4"	5/16"	13/32"
10 WF 21										
10 WF 25	3600 **									
12 WF 27		7"			4"	1 1/2"				

* 5/8" BOLTS SHALL HAVE AT LEAST A THREAD LENGTH OF 2 INCHES
** 3/4" BOLTS SHALL HAVE AT LEAST A THREAD LENGTH OF 2 1/4 INCHES
THESE BOLTS SHALL BE FURNISHED WITH 2 NUTS F, R EACH BOLT.

FUSE PLATE DATA TABLE											
F	G	H	J	K	L	N	DI.	T3	BOLT DIA.	WT OF EA. FUSE PL
3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"	9/16"	1/4"	1/2	0.94 #
3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"	9/16"	1/4"	1/2"	0.94 #
4 3/8"	2 1/2"	1 1/4"	6"	3 1/2"	1 1/4"	5/8"	11/16"	3/8"	5/8"	2.58 #
4 3/8"	2 1/2"	1 1/4"	5 1/4"	2 3/4"	1 1/4"	5/8"	11/16"	3/8"	5/8"	2.24 #
4 3/4"	2 1/2"	1 1/2"	5 1/4"	2 3/4"	1 1/4"	3/4"	13/16"	1/2"	3/4"	2.95 #
5 1/4"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	3/4"	13/16"	1/2"	3/4"	3.88 #
5 1/4"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	3/4"	13/16"	1/2"	3/4"	3.88 #
5 1/4"	3"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	3/4"	13/16"	1/2"	3/4"	4.44 #

FOUNDATION DATA					
POST SIZE	BASE DIA.	BASE DEPTH	MIN. STUB LENGTH	STUB PROJ	VOLUME OF BASE
6 BL 8.5	24"	5'-0"	2'-0"	3"	1.0 C.Y.
6 BL 12	24"	5'-0"	2'-0"	3"	1.0 C.Y.
6 WF 15.5	24"	5'-0"	2'-6"	3"	1.0 C.Y.
8 WF 17	24"	5'-6"	2'-6"	3"	1.1 C.Y.
8 WF 20	24"	5'-6"	3'-0"	2 1/2"	1.1 C.Y.
10 WF 21	24"	5'-6"	3'-0"	2 1/2"	2.0 C.Y.
10 WF 25	24"	6'-0"	3'-0"	2 1/2"	2.1 C.Y.
12 WF 27	30"	6'-0"	3'-0"	2 1/2"	3.3 C.Y.



FOUNDATION DETAIL

TYPE "B" FOOTINGS

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION

1. Make sure all bolts are from the same stock.
2. Try nuts on bolt threads, making sure they turn easily.
3. Place (3) bolts in Skidmore - Wilhelm device. Torque to proper tension in device. Calibrate torque wrench by checking torque on these three bolts when under proper tension in device.
4. The testing and calibration shall be done at the Vermont Highway Department's Material Laboratory or at such place designated by them.
5. Use the average of the three torques on similar bolts in the real support.
6. Assemble posts to stub with bolts and with three 1/4" flat washers, one each, under head of bolt, between plates, and under nut.
7. Shim as required to plumb post.
8. Tighten all bolts the maximum possible with a 12" to 15" wrench to bed washers and shims and to clean bolt threads. Then loosen each bolt in turn and retighten in a systematic order to the prescribed tension.
9. Then base plate bolts will be torqued to prescribed bolt tension on the plans. After the initial torquing use a second nut to insure that the first nut will not back off. The contractor, with the Department inspector will return to the sign two more times at intervals of 30 days ± for the purpose of checking and reestablishing the prescribed torque. The second nut shall remain as a lock nut.

FABRICATION NOTE

(Important)

All friction fuse bolts shall be tightened by the fabricator to the prescribed bolt tension mentioned below. The contractor will be held responsible to check and certify that the below residual tensions are obtained.

BOLT SIZE	MIN. RESIDUAL BOLT TENSION
1/2" Ø	12050 LBS
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7/8" Ø	36050 LBS

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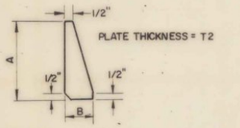
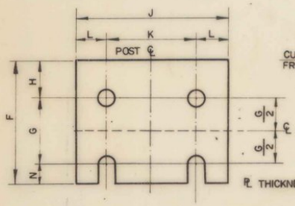
1. DESIGN CONFORMS WITH A.A.S.H.O. SPECIFICATIONS FOR DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGN.
2. MATERIAL AND FABRICATION SHALL CONFORM TO THE REQUIREMENTS OF STATE OF VERMONT DEPARTMENT OF HIGHWAYS, STANDARD SHEETS AND SPECIFICATIONS.
3. ALL STRUCTURAL STEEL SHALL CONFORM TO A.S.T.M. A 36
4. ALL STRUCTURAL STEEL, BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AS PER A.S.T.M. A-153 EXCEPT AS NOTED.
5. ALL HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AS PER A.S.T.M. A-123
   HOLES SHALL BE DRILLED.
   THE POST CUT SHALL BE A SAW CUT ONLY. ALL OTHER CUTS EXCLUDING POST CUTS MAY BE FLAME CUT PROVIDED ALL EDGES ARE GROUND. METAL PROJECTING BEYOND THE PLATE FACE WILL NOT BE PERMITTED.
6. ALL HIGH STRENGTH BOLTS AND NUTS SHALL CONFORM TO A.S.T.M. A-325.
7. ALL 1/4" FLAT WASHERS SHALL CONFORM TO THE HARDNESS REQUIREMENTS FOR A.S.T.M. A-325 WASHERS.
8. PAINT FOR SAW CUT SHALL BE A SINGLE COMPONENT ZINC-RICH COMPOUND YIELDING A DRIED FILM OF AT LEAST 85% PURE ZINC. IT SHALL MEET OR EXCEED THE REQUIREMENT OF MIL-P-21035.
9. ALL SIGNS MOUNTED ON STEEL POSTS SHALL BE ERECTED A MINIMUM OF 7' ABOVE EDGE OF PAVEMENT TO BOTTOM OF SIGN AND THE INSIDE EDGE OF THE SIGN POSITIONED A MINIMUM OF 30' FROM EDGE OF PAVEMENT UNLESS OTHERWISE INDICATED ON THE PLANS.
10. EXTREME CARE SHOULD BE TAKEN TO KEEP THE SLIP JOINT FREE OF ANY FOREIGN MATERIAL, EITHER BY WRAPPING THE JOINT OR THOROUGH CLEANING IMMEDIATELY AFTER POURING OF CONCRETE.
11. FIELD COAT AS DIRECTED BY THE RESIDENT ENGINEER.



STIFFENER PLATE

(SEE TABLE FOR DIMENSIONS)

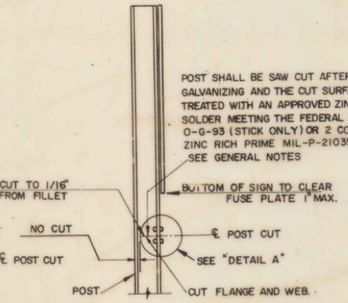


HOLE DIAMETER = DI.

USE H.S. BOLTS WITH HEX. HD. AND HEX. NUTS, ONE 1/4" THICK FLAT WASHER UNDER EA. BOLT HEAD, AND ONE 1/4" THICK FLAT WASHER UNDER NUT.
1/4" WASHERS SHALL CONFORM TO NOTE 7.

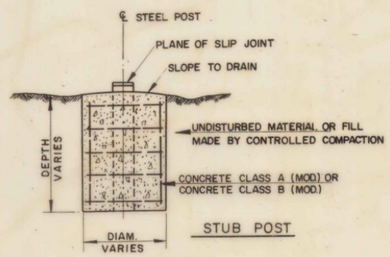
FUSE PLATE

(SEE TABLE FOR DIMENSIONS AND WEIGHT)

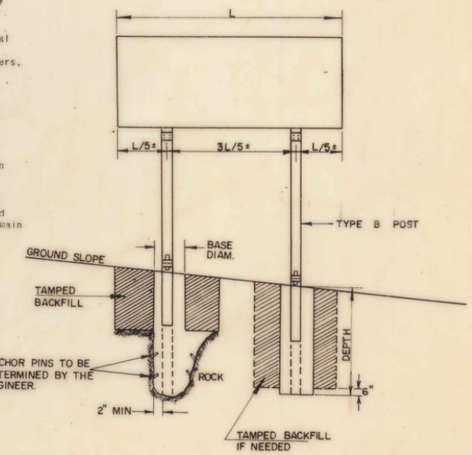


FRICTION FUSE PLATE

TYPE B POSTS



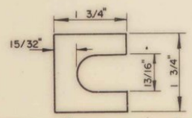
STUB POST



CONSTRUCTION METHOD.

HOLES FOR POST FOOTINGS MAY BE AUGERED OR DUG. IF THE MATERIAL IS FIRM, THE HOLES MAY BE LEFT WITH EARTH SIDES. IF NOT, A SUITABLE FORM APPROVED BY THE ENGINEER SHALL BE USED. CORRUGATED METAL CULVERT PIPE OR PAPER FORMS MANUFACTURED FOR USE AS CONCRETE COLUMN FORMS WILL BE ACCEPTABLE. FIRST EXCAVATE HOLE AND POUR CONCRETE BASE, A SOLID CONCRETE BLOCK PROPERLY EMBEDDED IN WET CONCRETE MAY BE SUBSTITUTED AS A BASE. THEN SECURE THE POST IN POSITION, PLUMBED AND PROPERLY BRACED BEFORE POURING THE FOOTING. THE TIME BETWEEN POURS FOR THE CURING OF THE CONCRETE SHALL BE AS DETERMINED BY THE ENGINEER. THE FORM SHALL BE LEFT IN PLACE AND THE HOLE PROPERLY BACKFILLED. NO PART OF THE FORM SHALL SHOW ABOVE THE GROUND LINE WHEN THE WORK IS COMPLETED.

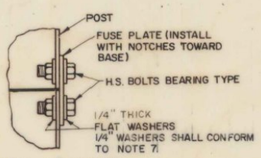
IF A THREE POST MOUNTING IS USED, THE SPACING SHALL BE L/6±, 2 L/6±, 2 L/6±, AND L/6±.



FURNISH 2- .012"± THICK AND 2- .032"± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M. B 36

SHIM DETAIL

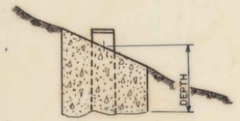
FLANGE HOLES FOR HINGE SHALL BE DRILLED OR SUB-PUNCHED AND REAMED.



"DETAIL A" HINGE

(SEE FABRICATOR NOTE)

NOTE: CUT SURFACES WILL NOT BE TREATED UNTIL PLATE IS INSTALLED AND ALL BOLTS FULLY TIGHTENED.



FOUNDATION DETAILS

REVISIONS AND CORRECTIONS

DEC. 12, 1975 REVISED TO CONFORM WITH SPECIFICATION.
DEC. 15, 1978 REVISED TO CHANGE FOOTING SIZES, AND 1/4" WASHERS.

APPROVED DATE Dec. 21, 1971

R H Arnold
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

TRAFFIC SIGNS

BREAKAWAY TYPE GALVANIZED STRUCTURAL STEEL SIGN SUPPORTS FOR TYPE "B" SIGNS

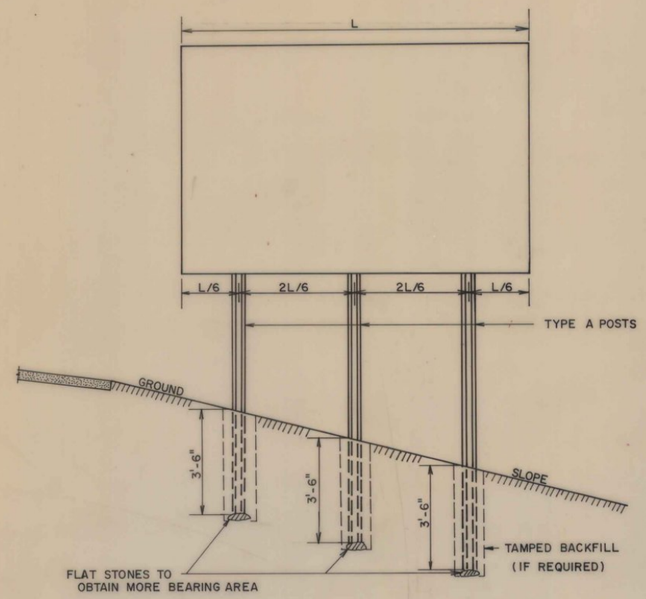
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

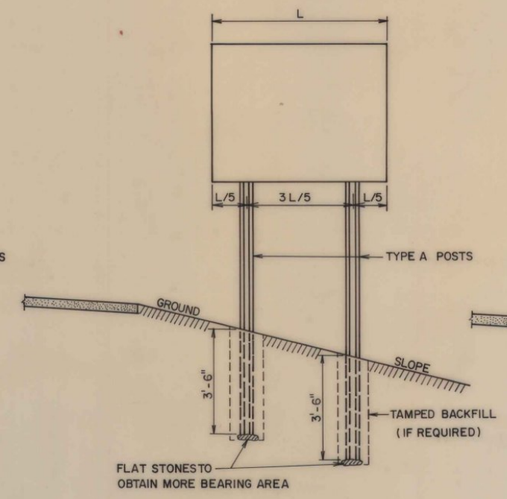
E-24

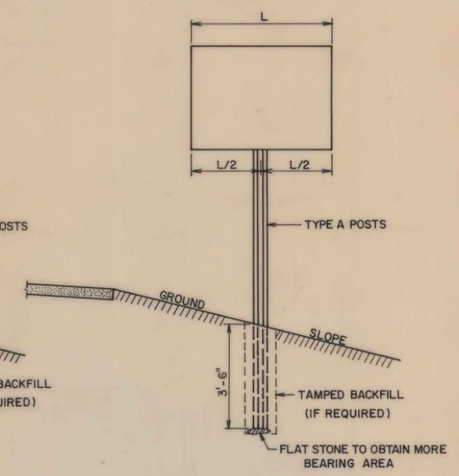
GENERAL NOTES

ALL MATERIAL SHALL BE AS SPECIFIED UNDER SECTION 675 - 675 - TRAFFIC SIGNS

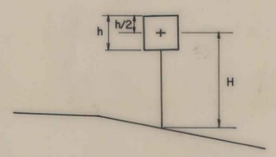
CONSTRUCTION METHODS - POSTS MAY BE DRIVEN OR SET IN A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. IF SET IN A DUG HOLE, THE EXCAVATION AND BACKFILL WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED AS BEING INCLUDED IN UNIT PRICES FOR OTHER ITEMS IN THE CONTRACT. THE DUG HOLE INSTALLATION SHALL BE USED IN AREAS OF POOR SOIL CONDITIONS OR AS DIRECTED BY THE ENGINEER.







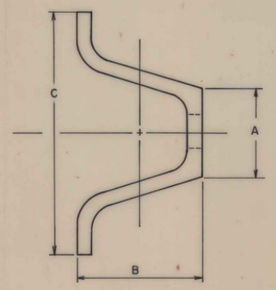
IN AREAS WHERE LEDGE ROCK IS ENCOUNTERED STEEL POSTS WILL BE SET AND GROUTED 12" DEEP IN THE LEDGE.

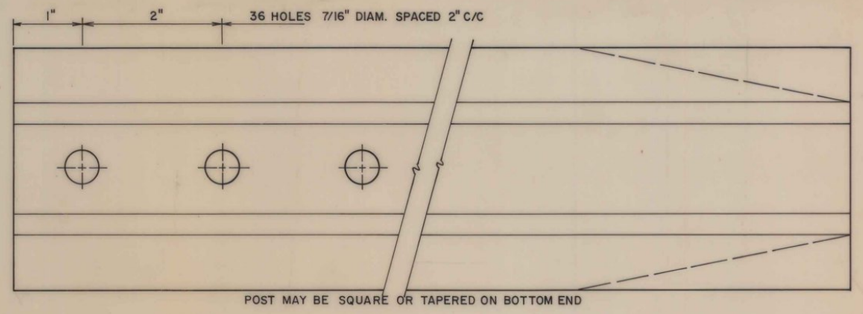


POST SELECTION CHART		
SIGN AREA $(FT^2) \times H(FT) \leq Sv$ (SELECTION VALUE)		
POST SIZE	Sv	DESIGN CRITERIA
2 LB/FT.	62	WIND SPEED = 60 MPH (10-YEAR MEAN RECURRENCE INTERVAL)
2 1/2 LB/FT.	77	WIND PRESSURE = 12 PSF
3 LB/FT.	107	STEEL MIN YIELD Fy=50,000 PSI
		ALLOWABLE STRESS=(1.4)0.55Fy

POST SIZE POUNDS PER LINEAR FOOT	DIMENSIONS A	B	C	PLASTIC SECTION MODULUS, Z
2	1 9/32"	1 31/64"	3 1/16"	0.26 $IN.^3$
2 1/2	1 9/32"	1 35/64"	3 1/16"	0.40 $IN.^3$
3	1 5/16"	1 7/8"	3 1/2"	0.53 $IN.^3$

SIMILAR DIMENSIONS ARE ACCEPTABLE, HOWEVER PLASTIC SECTION MODULUS VALUES MUST NOT BE EXCEEDED.





REVISIONS AND CORRECTIONS
FEB. 8, 1978 – HEIGHT OF SIGNS ADDED.
DEC. 15, 1978 – RAIL STEEL DELETED
JAN. 8, 1981 – ADDED POST SIZE & SELECTION CHARTS; REVISED NOTES & DIMENSIONS

APPROVED
Nov 24. 1976
DATE
E. W. Stickney
CHIEF ENGINEER
R O Munn
ASST. CHIEF ENGINEER
Loren C. Jones
HIGHWAY ENGINEER

YIELDING TYPE FLANGED CHANNEL STEEL SIGN SUPPORTS

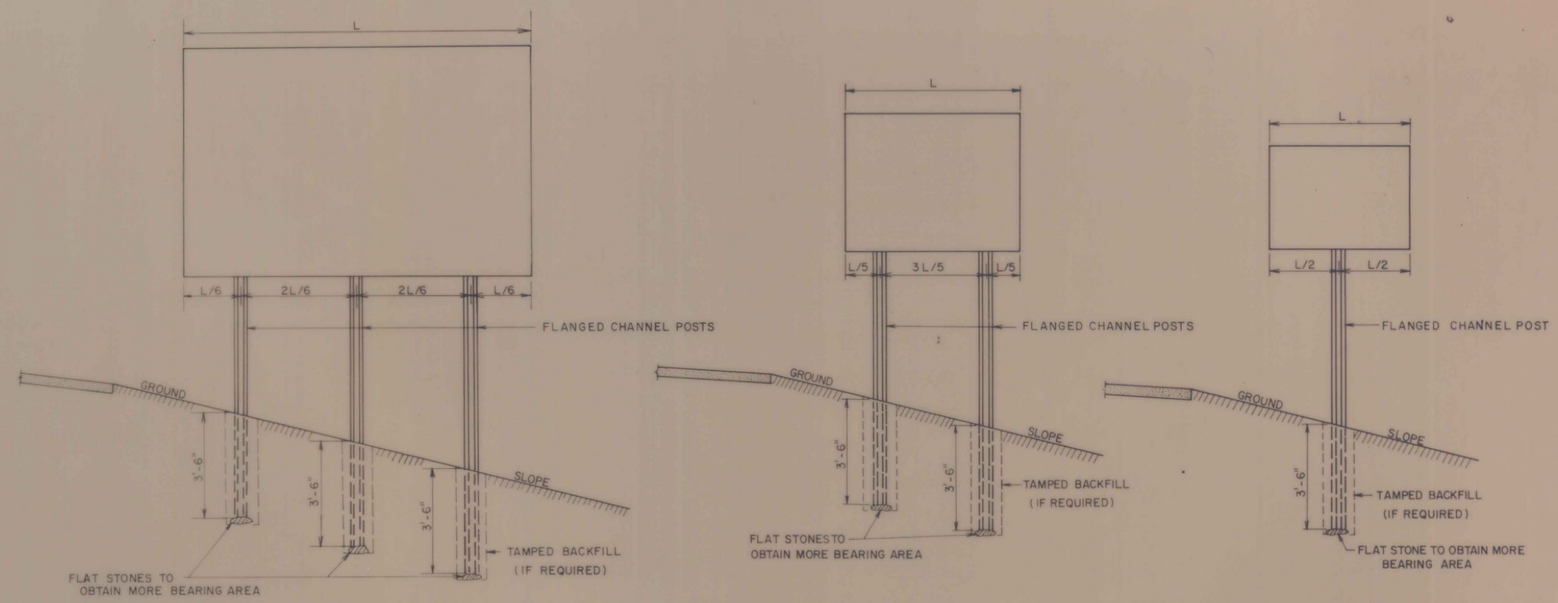
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E 24 - A

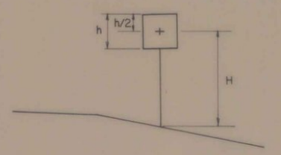
GENERAL NOTES

ALL MATERIAL SHALL BE AS SPECIFIED UNDER SECTION 675 - 675 - TRAFFIC SIGNS

CONSTRUCTION METHODS - POSTS MAY BE DRIVEN OR SET IN A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. IF SET IN A DUG HOLE, THE EXCAVATION AND BACKFILL WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED AS BEING INCLUDED IN UNIT PRICES FOR OTHER ITEMS IN THE CONTRACT. THE DUG HOLE INSTALLATION SHALL BE USED IN AREAS OF POOR SOIL CONDITIONS OR AS DIRECTED BY THE ENGINEER.



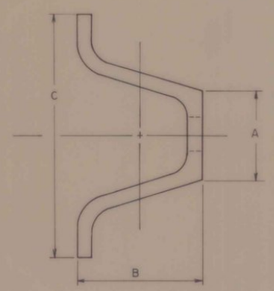
IN AREAS WHERE LEDGE ROCK IS ENCOUNTERED STEEL POSTS WILL BE SET AND GROUTED 12" DEEP IN THE LEDGE.

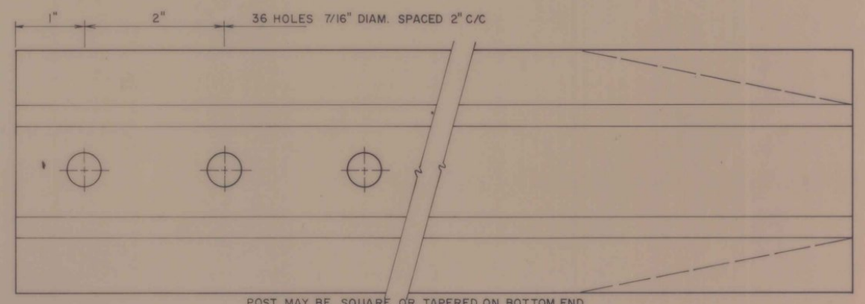


POST SELECTION CHART		
SIGN AREA $(FT^2) \times H(FT) \leq Sv$ (SELECTION VALUE)		
POST SIZE	Sv	DESIGN CRITERIA
2 LB/FT. 2 1/2 LB/FT. 3 LB/FT.	62 77 107	WIND SPEED = 60 MPH (10-YEAR MEAN RECURRENCE INTERVAL) WIND PRESSURE = 12 PSF STEEL MIN YIELD Fy = 50,000 PSI ALLOWABLE STRESS = (1.4) 0.55Fy

POST SIZE POUNDS PER LINEAR FOOT	DIMENSIONS			PLASTIC SECTION MODULUS, Z
	A	B	C	
2	1 9/32"	1 31/64"	3 1/16"	0.26 IN^3
2 1/2	1 9/32"	1 35/64"	3 1/16"	0.40 IN^3
3	1 5/16"	1 7/8"	3 1/2"	0.53 IN^3

SIMILAR DIMENSIONS ARE ACCEPTABLE, HOWEVER PLASTIC SECTION MODULUS VALUES MUST NOT BE EXCEEDED.





POST MAY BE SQUARE OR TAPERED ON BOTTOM END

REVISIONS AND CORRECTIONS

FEB. 8, 1978 — HEIGHT OF SIGNS ADDED.
DEC. 15, 1978 — RAIL STEEL DELETED
JAN. 8, 1981 — ADDED POST SIZE & SELECTION CHARTS; REVISED NOTES & DIMENSIONS
FEB. 3, 1986 — UPDATED TO 1986 SPECIFICATIONS

APPROVED

Nov 24. 1976
DATE

E. R. Stickney
CHIEF ENGINEER

R O Munn
ASST. CHIEF ENGINEER

Leon C. Jones
HIGHWAY ENGINEER

FLANGED CHANNEL STEEL SIGN SUPPORTS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E 24 - A

GENERAL NOTES

THIS POST SHALL HAVE A MINIMUM YIELD 50,000 PSI.

ALL MATERIALS AND WORKMANSHIP SHALL BE AS SPECIFIED UNDER "TRAFFIC SIGNS", SECTION 675.

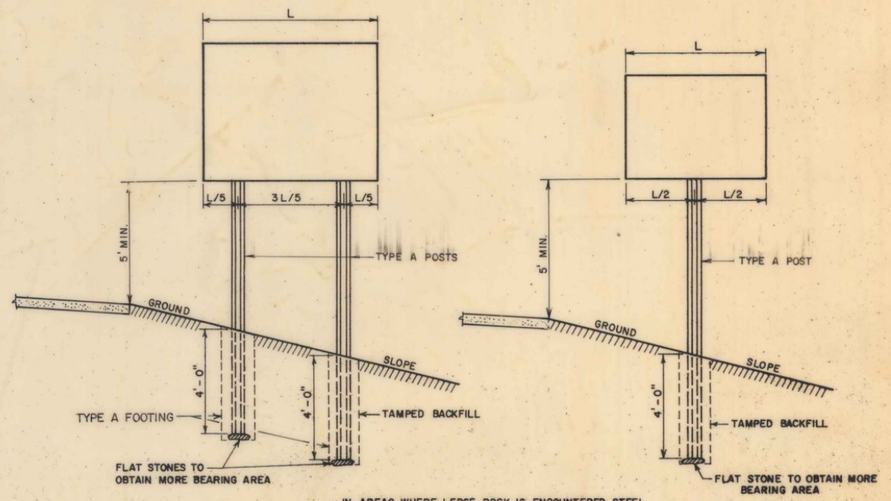
THE BACKFILL MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF GRANULAR BACKFILL FOR STRUCTURES, ITEM 204.30, OR SHALL BE A MATERIAL APPROVED BY THE ENGINEER.

ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, DATED MARCH 1976.

CONSTRUCTION METHODS -
THE HOLE SHALL BE CAREFULLY DUG TO A DEPTH OF FOUR FEET AND THE POST INSERTED THEREIN. POST SHALL NOT BE DRIVEN. AFTER A POST IS PLUMBED AND SET SO THE SIGN WILL FACE IN THE PROPER DIRECTION, THE HOLE SHALL BE BACKFILLED. WHEN TWO OR MORE POSTS ARE USED TO SUPPORT A SINGLE SIGN, THE FLANGES TO WHICH THE SIGN WILL BE FASTENED SHALL LIE IN THE SAME PLANE.

GALVANIZING -
THIS POST SHALL HAVE A GALVANIZED COATING CONFORMING TO ASTM A-123.

FOOTINGS-
TYPE A FOOTINGS WILL BE UTILIZED FOR TYPE A SIGNS (20 SF OR LESS) WITH YIELDING TYPE FLANGED CHANNEL STEEL SIGN SUPPORT UNLESS OTHERWISE SPECIFIED.

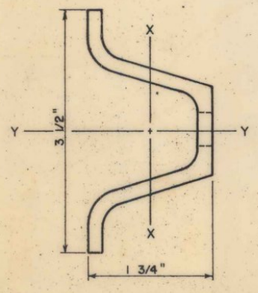


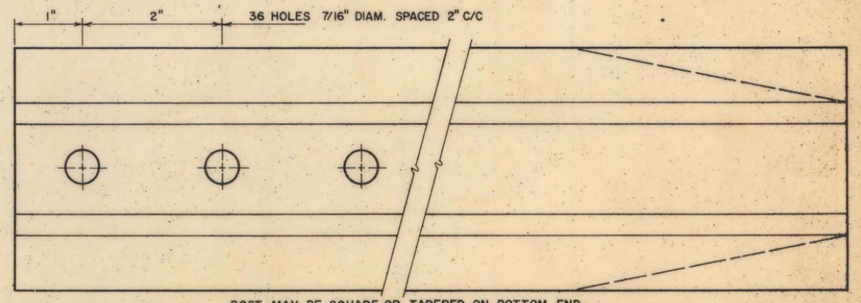
IN AREAS WHERE LEDGE ROCK IS ENCOUNTERED STEEL POSTS WILL BE SET AND GROUTED 12" DEEP IN THE LEDGE, UNLESS THE POSTS PENETRATE THE GROUND 3'.

MATERIALS -
ASTM A-242 STEEL

16' OR LONGER POSTS - WEIGHT 4.0 LBS PER FOOT
SXX - 0.51 IN^3 MINIMUM
SYY - 0.61 IN^3 MINIMUM

10' TO 14' POSTS - WEIGHT 3.0 LBS PER FOOT
SXX - 0.40 IN^3 MINIMUM
SYY - 0.50 IN^3 MINIMUM





POST MAY BE SQUARE OR TAPERED ON BOTTOM END

REVISIONS AND CORRECTIONS
FEB. 8, 1978 - HEIGHT OF SIGNS ADDED.
DEC. 15, 1978 - RAIL STEEL DELETED.

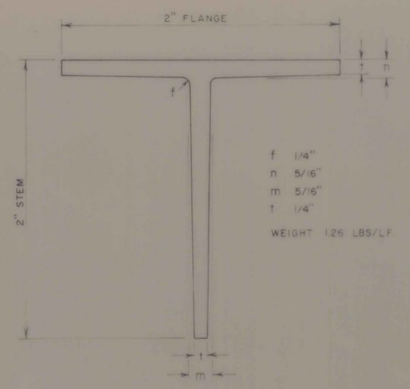
APPROVED
Nov 24, 1976
DATE
E. W. Stickney
CHIEF ENGINEER
R O Munn
ASST. CHIEF ENGINEER
Lucy L. Jones
HIGHWAY ENGINEER

TRAFFIC SIGNS
YIELDING TYPE FLANGED CHANNEL STEEL SIGN SUPPORTS FOR TYPE A SIGNS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-24A

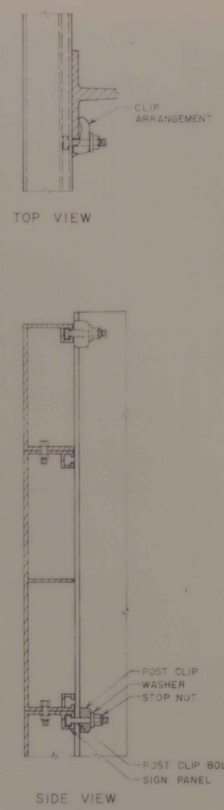
D-7



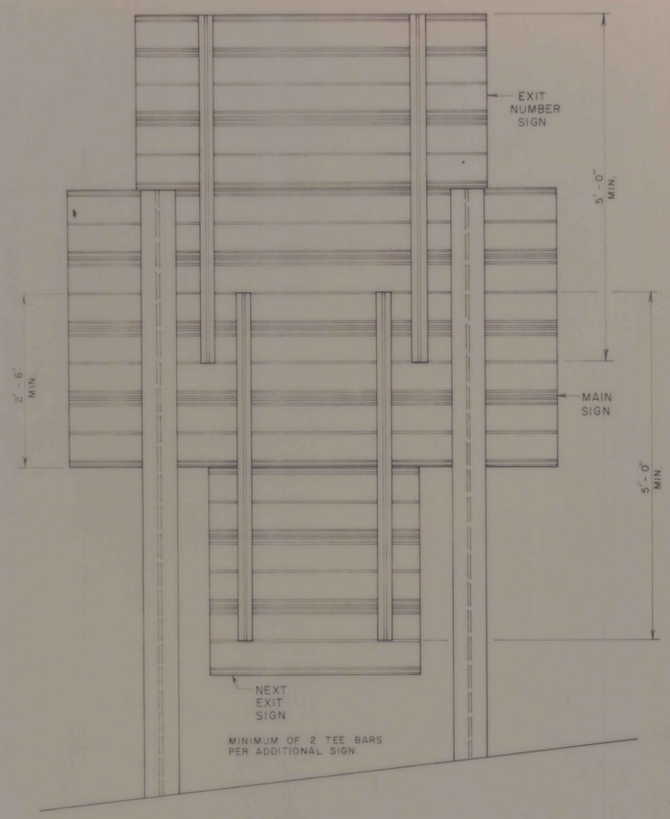
TEE BAR

NOTES

1. THE ALUMINUM TEE BAR SHALL BE OF 6063T6 ALLOY MINIMUM OF 5 FEET IN LENGTH.
2. EXTRUDED ALUMINUM PANEL SIGN CLIP SHALL BE OF 356 T6 ALLOY FABRICATED TO GIVE PROPER CLAMPING ON ALL FLANGES (TAPERED OR PARALLEL) FROM 1/8" TO 19/32" IN THICKNESS. A FLAT WASHER SHALL BE USED UNDER THE NUT.
3. FLAT PLYWOOD PANEL SIGN CLIPS SHALL BE OF 6063T6 ALLOY MACHINE FINISHED AND FABRICATED TO GIVE PROPER CLAMPING ON ALL FLANGES (TAPERED OR PARALLEL) FROM 1/8" TO 19/32" IN THICKNESS. A FLAT WASHER SHALL BE USED UNDER THE NUT.
4. BOLTS, NUTS AND WASHERS SHALL BE OF STAINLESS STEEL. BOLTS SHALL BE 3/8" DIAMETER, 2 INCHES IN LENGTH WITH A HEAD CAPABLE OF BEING INSERTED INTO EXTRUDED ALUMINUM SIGN PANEL SLOTS. NUTS SHALL BE OF A LOCK NUT DESIGN, THREADS MATCHING BOLT. THE WASHER SHALL HAVE A 25/64" I.D. x 3/4" O.D. x .091 THICKNESS.



SIGN MOUNTING DETAIL



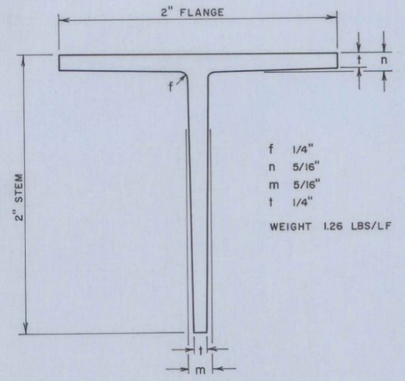
TEE BAR MOUNTING DETAIL

FLAT PLYWOOD PANEL SIGN CLIP

EXTRUDED ALUMINUM PANEL SIGN CLIP

REVISIONS AND CORRECTIONS			
FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS	APPROVED	DATE 4-28-78	TRAFFIC SIGNS
		S. J. Gage, CHIEF ENGINEER	TEE BAR AUXILIARY SIGN MOUNTING
		Arthur J. Gosz, CHIEF OF DESIGN	VERMONT DEPARTMENT OF HIGHWAYS STANDARD
		Irwin L. Jones, TRANSPORTATION DESIGN ENGINEER	E-24B

D-8



TEE BAR

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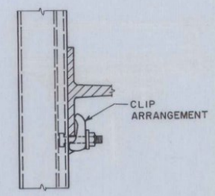
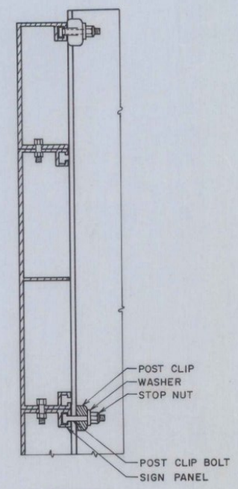
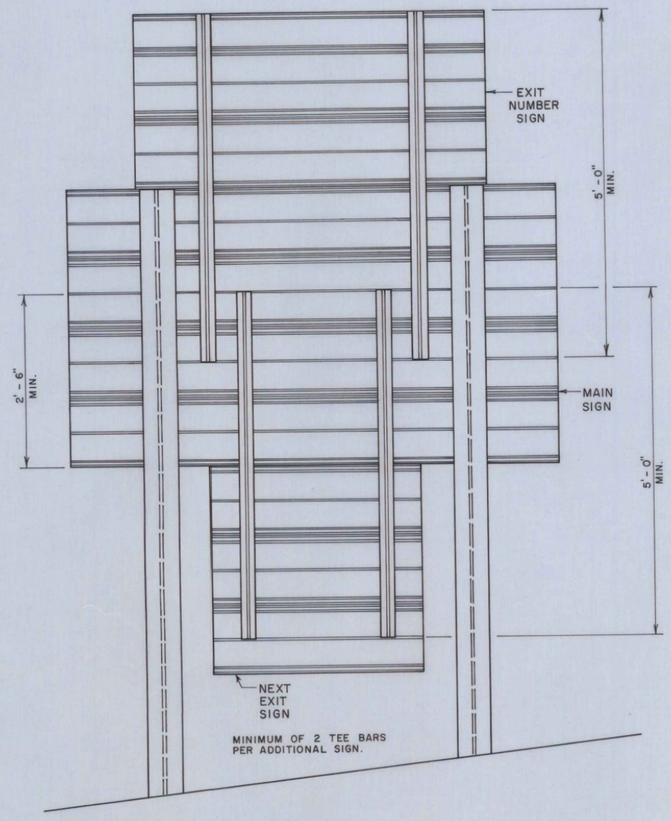


TOP VIEW



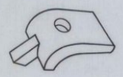
SIDE VIEW

SIGN MOUNTING DETAIL



TEE BAR MOUNTING DETAIL

FLAT PLYWOOD PANEL
SIGN CLIP

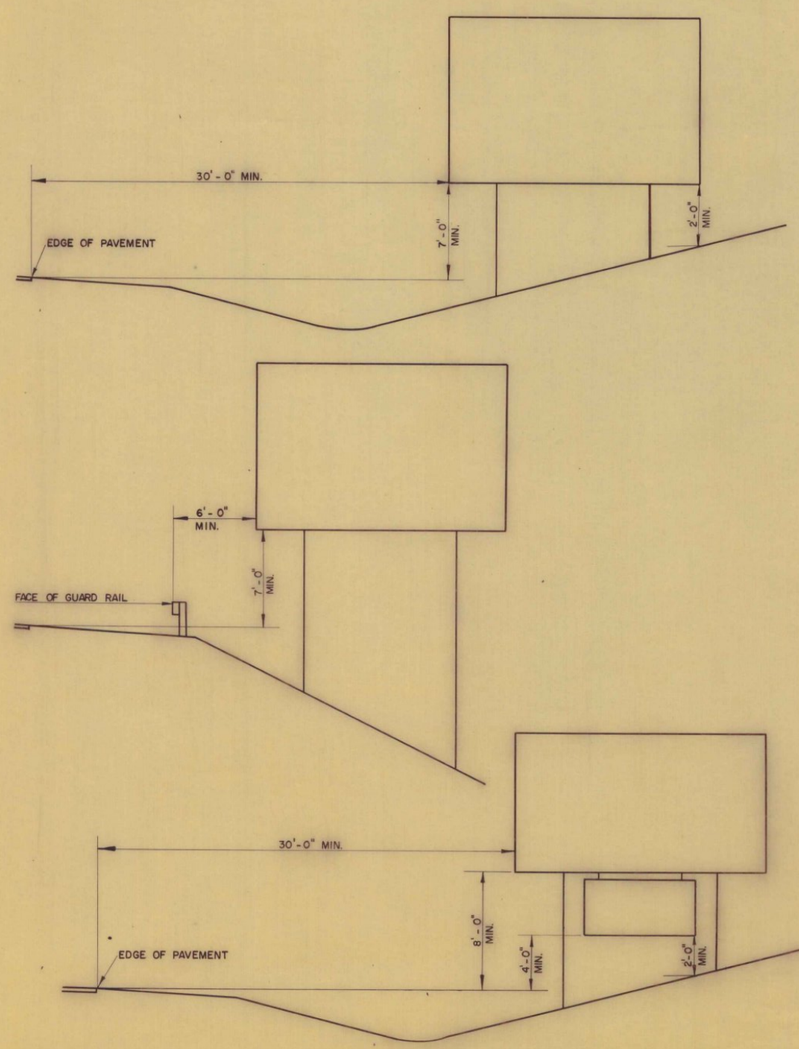


EXTRUDED ALUMINUM PANEL
SIGN CLIP

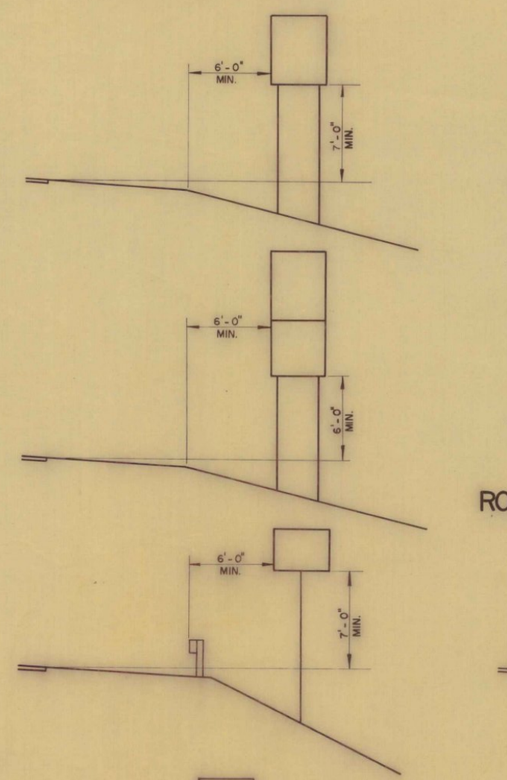
REVISIONS AND CORRECTIONS	APPROVED: DATE 4-28-78	TRAFFIC SIGNS	VERMONT DEPARTMENT OF HIGHWAYS STANDARD
	S.J. Gage, CHIEF ENGINEER Arthur J. Stoney, CHIEF OF DESIGN Irwin L. Jones, TRANSPORTATION DESIGN ENGINEER	TEE BAR AUXILIARY SIGN MOUNTING	E-24B

D-8

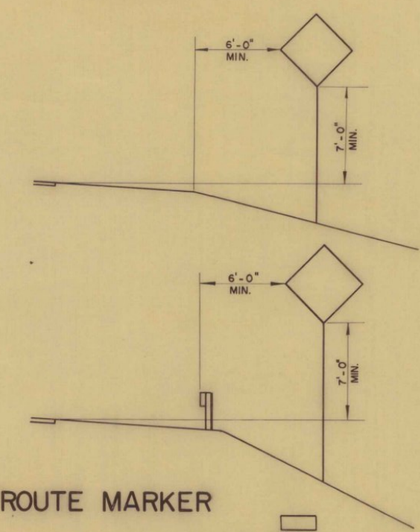
GUIDE SIGNS



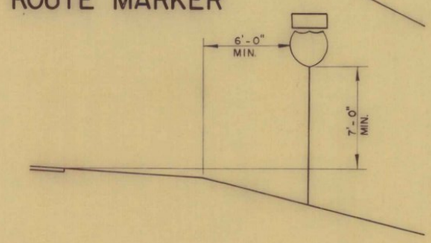
REGULATORY SIGNS



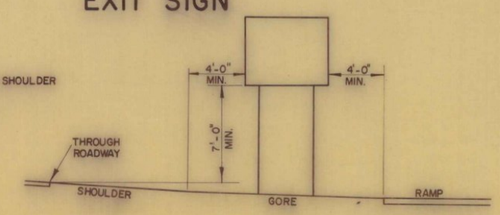
WARNING SIGNS



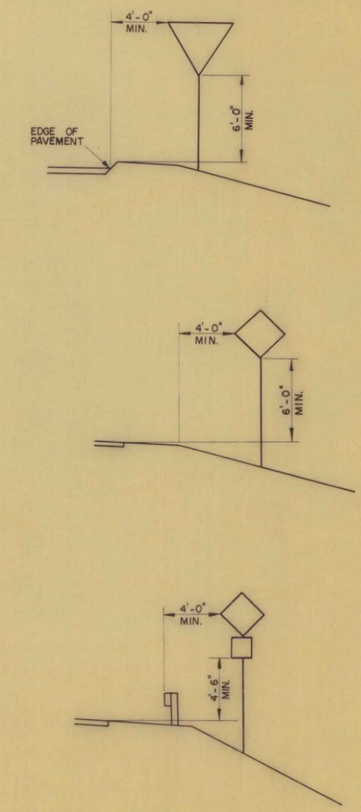
ROUTE MARKER



EXIT SIGN



SIGNS ON RAMPS



REVISIONS AND CORRECTIONS
FEB. 2, 1968 — THIS SHEET AND E-26 REPLACE E-19

APPROVED:
2/6/68
DATE

R. H. Conrad — CHIEF ENGINEER
E. H. Hickney — ASST. CHIEF ENGINEER
G. M. Lane — HIGHWAY ENGINEER
A. W. Coleman — TRAFFIC ENGINEER
R. J. Funk — CONSTRUCTION ENGINEER

TRAFFIC SIGNS

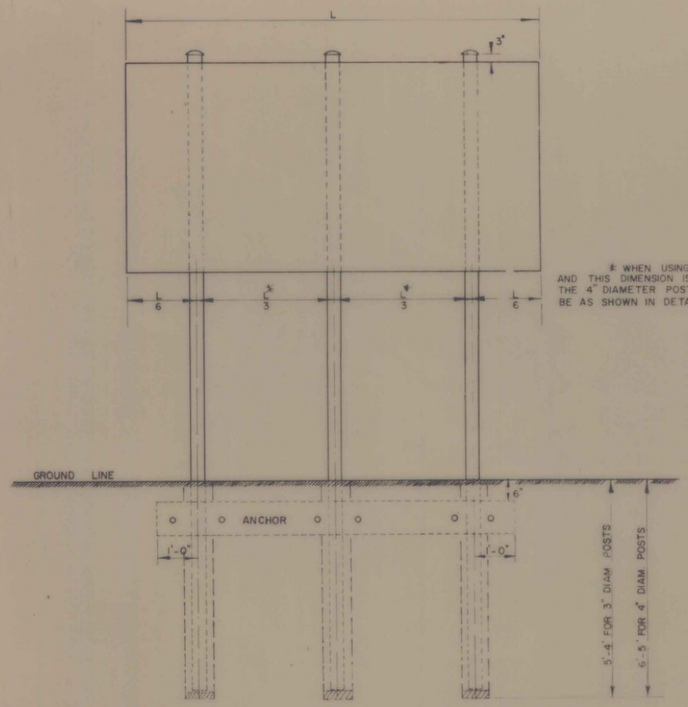
STANDARD SIGN PLACEMENT

EXPRESSWAY TYPE

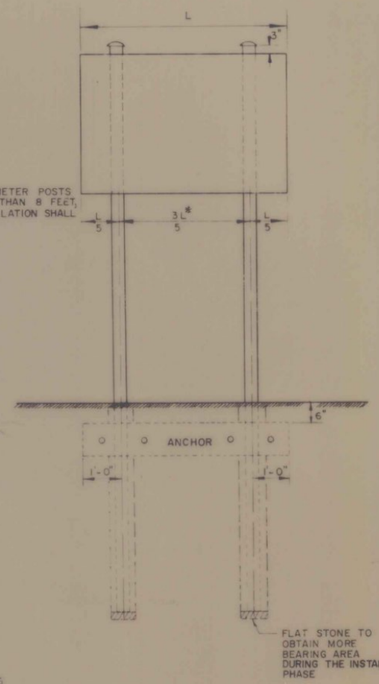
VERMONT
DEPARTMENT OF HIGHWAYS STANDARD

E-25

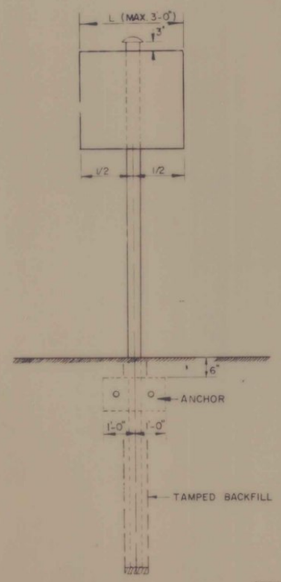
D-8

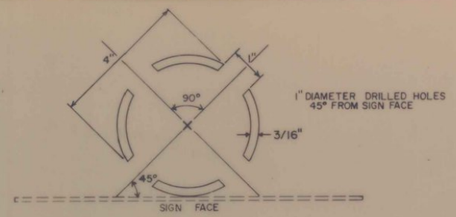


* WHEN USING 4" DIAMETER POSTS AND THIS DIMENSION IS LESS THAN 8 FEET, THE 4" DIAMETER POST INSTALLATION SHALL BE AS SHOWN IN DETAIL "A"

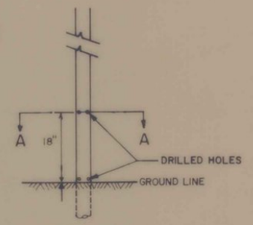


IN AREAS WHERE LEDGE ROCK IS ENCOUNTERED POSTS WILL BE SET AND GROUTED 24" DEEP IN THE LEDGE UNLESS THE POSTS PENETRATE THE GROUND 4'.



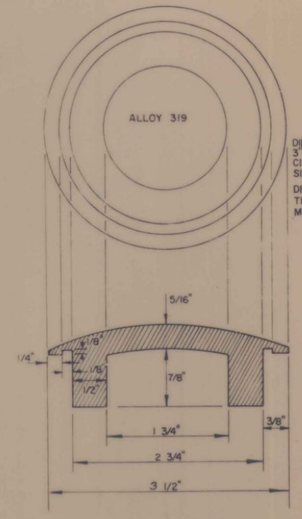


SECTION A-A



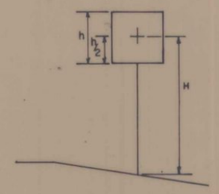
DETAIL A
4" DIAMETER POST
(MODIFIED)

CAST ALUMINUM CAP FOR SIGN POSTS



DIMENSIONS SHOWN ARE FOR 3" O.D., 2 3/4" I.D. FOR COMMERCIAL TOLERACES. CAPS DESIGNED FOR DRIVE FIT

DIMENSIONS ARE PROPORTIONAL FOR LARGER DIAMETER TUBING



POST DIAMETER	WALL THICKNESS	WEIGHT PER FT
3" Round	3/16"	1.9 lbs
4" Round	3/16"	2.6 lbs
3" Square	3/16"	2.5 lbs

TUBULAR ALUMINUM POST

POST SELECTION CHART		
SIGN AREA (FT.²) X H (FT.) ≤ Sv (SELECTION VALUE)		
POST SIZE	Sv (FT.³)	DESIGN CRITERIA
3" DIA.	225	WIND VELOCITY = 60 MPH (10 YEAR
4" DIA. (MODIFIED)	276	MEAN RECURRANCE INTERVAL) WIND
		PRESSURE = 12 PSF, ALUMINUM Fy =
3" SQUARE TUBE*	307	21,000 PSI, ALLOWABLE STRESS
4" DIA.	418	= 1.4 (21,000) PSI

*USE ON SINGLE POST INSTALLATIONS ONLY

POSTS.. THE POSTS FOR THESE INSTALLATIONS SHALL BE EXTRUDED TUBULAR POSTS OF ALUMINUM ALLOY 6061-T6

HARDWARE.. THE ASSEMBLY HARDWARE USED TO FASTEN A SIGN TO THE POSTS SHALL BE ALUMINUM OR STAINLESS STEEL OF A STANDARD COMMERCIAL DESIGN APPROVED BY THE DEPARTMENT

ANCHORS.. USE TWO (2) PIECES OF 2" X 12" ROUGH PLANK WELL SEASONED, STRAIGHT AND SOUND SPRUCE OR OTHER APPROVED SPECIES, CUT FROM LIVE GROWING TIMBER; FREE FROM LOOSE KNOTS OR OTHER DEFECTS. PLANKS SHALL HAVE A PRESSURE PRESERVATIVE TREATMENT COVERED BY SECTION 728.01 OF THE SPECIFICATION FOR PLANK GUARD RAIL, SECTION 728.
THESE PLANKS SHALL BE CLAMPED POST TO POST WITH A MINIMUM OF ONE (1) FOOT OVERHANG, TO BE PARALLEL TO THE SIGN FACE.
THE TOP EDGE OF THE PLANKS SHALL BE APPROXIMATELY PARALLEL TO THE GROUND
BOLTS FOR THE ANCHORS SHALL BE 3/8" CARRIAGE BOLTS WITH NUTS AND WASHERS AND SHALL BE GALVANIZED BY THE HOT-DIPPED PROCESS IN CONFORMANCE WITH ASTM SPECIFICATION A-153 AFTER FABRICATION, AND SHALL DEVELOP THE REQUIRED JOINT STRENGTH

ERECTION.. ALL POSTS SHALL BE PLUMB AND LOCATED AS SPECIFIED BY DRAWINGS OR BY THE ENGINEER IN THE FIELD. LOCK NUTS ON 3/8"-16 ALUMINUM POST BOLT CLIPS SHALL BE TORQUED TO 225 INCH POUNDS USING DRY, CLEAN, UNLUBRICATED THREADS.
WHERE ALUMINUM SURFACES ARE TO BE PLACED IN CONTACT WITH WOOD, THEY SHALL BE GIVEN A THICK COAT OF AN ALKALI-RESISTANT BITUMINOUS PAINT MEETING THE REQUIREMENTS OF MILITARY SPECIFICATION MIL-P-6883, WHICH SHALL BE DRY BEFORE INSTALLATION.

THE HOLE SHALL BE CAREFULLY DUG AND THE POST SET TO THE DEPTH SPECIFIED ABOVE. POSTS SHALL NOT BE DRIVEN. THE BACKFILL MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF GRANULAR BACKFILL FOR STRUCTURES OR SHALL BE MATERIAL APPROVED BY THE ENGINEER.

REVISIONS AND CORRECTIONS

JAN. 6, 1973 - REVISED TO INCLUDE CHART FOR WEIGHT OF POST.
AUG. 21, 1975 - REMOVE 5" ALUMINUM TUBES PER FHWA REQUEST.
DEC. 15, 1978 - TAMPED BACKFILL NOTES ADDED.
JUNE 17, 1981 - ADDED 4" PIPE MOD. AND Sv CHART.
FEB. 3, 1986 - UPDATED TO 1986 SPECIFICATIONS

APPROVED DATE Dec. 29, 1971

R. W. Carroll
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

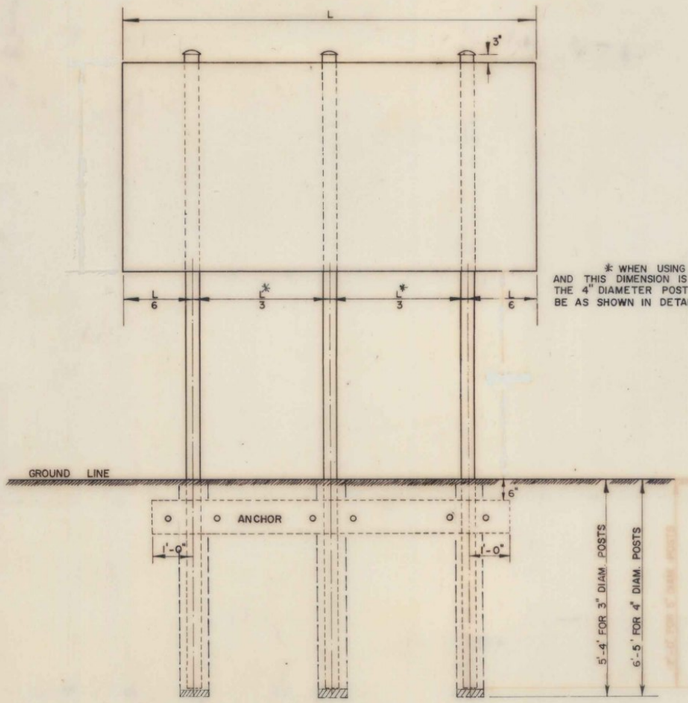
G. M. Lane
HIGHWAY ENGINEER

TUBULAR ALUMINUM SIGN SUPPORTS

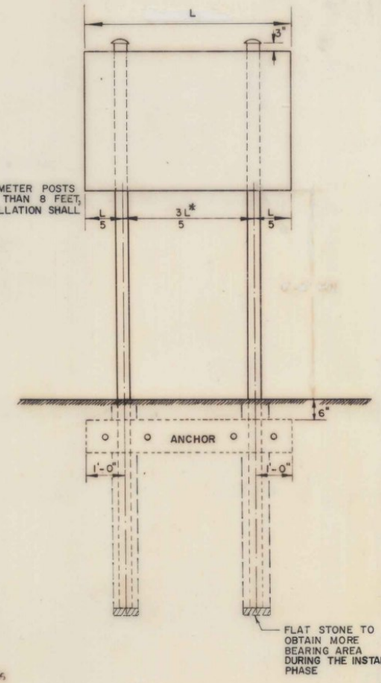
VERMONT AGENCY OF TRANSPORTATION

STANDARD

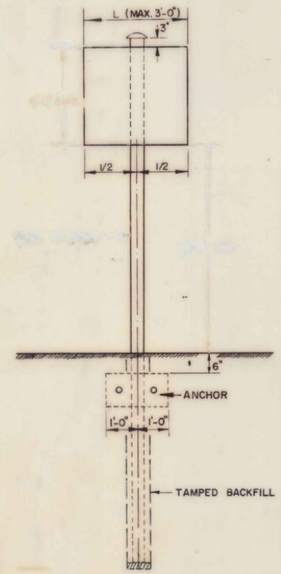
E-25

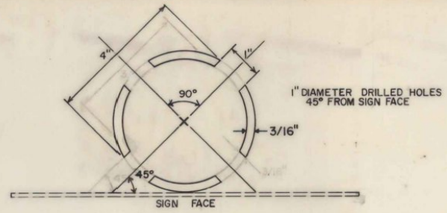


* WHEN USING 4" DIAMETER POSTS AND THIS DIMENSION IS LESS THAN 8 FEET, THE 4" DIAMETER POST INSTALLATION SHALL BE AS SHOWN IN DETAIL "A".

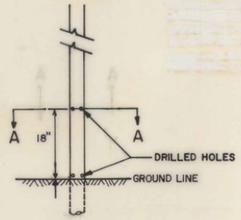


IN AREAS WHERE LEDGE ROCK IS ENCOUNTERED POSTS WILL BE SET AND GROUTED 24" DEEP IN THE LEDGE UNLESS THE POSTS PENETRATE THE GROUND 4'.



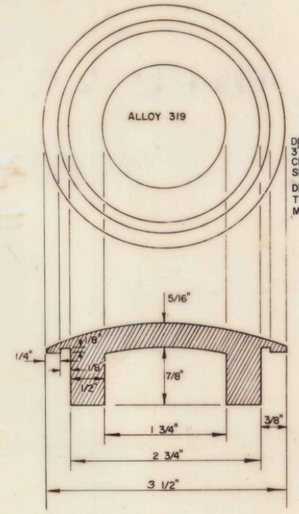


SECTION A-A



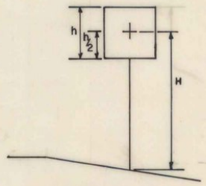
DETAIL A
4" DIAMETER POST
(MODIFIED)

CAST ALUMINUM CAP FOR SIGN POSTS



DIMENSIONS SHOWN ARE FOR 3" O.D., 2 3/4" I.D.± COMMERCIAL TOLERACES. CAPS DESIGNED FOR DRIVE FIT

DIMENSIONS ARE PROPORTIONAL FOR LARGER DIAMETER TUBING



POST DIAMETER	WALL THICKNESS	WEIGHT PER FT
3" Round	3/16"	1.9 lbs
4" Round	3/16"	2.6 lbs
3" Square	3/16"	2.5 lbs

TYPE C POST

POST SELECTION CHART		
SIGN AREA (FT.^{2})XH(FT.)≤ Sv (SELECTION VALUE)		
POST SIZE	Sv (FT.^{3})	DESIGN CRITERIA
3" DIA.	225	WIND VELOCITY=60 MPH (10 YEAR
4" DIA. (MODIFIED)	276	MEAN RECURRANCE INTERVAL)WIND
4" DIA. MODIFIED	276	PRESSURE=12 PSF, ALUMINUM Fy=
3" SQUARE TUBE*	307	21,000 PSI, ALLOWABLE STRESS
4" DIA.	418	=1.4 (21,000) PSI

*USE ON SINGLE POST INSTALLATIONS ONLY

POSTS.— THE POSTS FOR THESE INSTALLATIONS SHALL BE EXTRUDED TUBULAR POSTS OF ALUMINUM ALLOY 6061-T6

HARDWARE.— THE ASSEMBLY HARDWARE USED TO FASTEN A SIGN TO THE POSTS SHALL BE ALUMINUM OR STAINLESS STEEL OF A STANDARD COMMERCIAL DESIGN APPROVED BY THE DEPARTMENT.

ANCHORS.— USE TWO (2) PIECES OF 2"X 12" ROUGH PLANK WELL SEASONED, STRAIGHT AND SOUND SPRUCE OR OTHER APPROVED SPECIES, CUT FROM LIVE GROWING TIMBER; FREE FROM LOOSE KNOTS OR OTHER DEFECTS, PLANKS SHALL HAVE A PRESSURE PRESERVATIVE TREATMENT COVERED BY SECTION 728.01 OF THE SPECIFICATION FOR PLANK GUARD RAIL, SECTION 728.
THESE PLANKS SHALL BE CLAMPED POST TO POST WITH A MINIMUM OF ONE (1) FOOT OVERHANG; TO BE PARALLEL TO THE SIGN FACE.
THE TOP EDGE OF THE PLANKS SHALL BE APPROXIMATELY PARALLEL TO THE GROUND.
BOLTS FOR THE ANCHORS SHALL BE 3/8" CARRIAGE BOLTS WITH NUTS AND WASHERS AND SHALL BE GALVANIZED BY THE HOT-DIPPED PROCESS IN CONFORMANCE WITH ASTM SPECIFICATION A-153 AFTER FABRICATION, AND SHALL DEVELOP THE REQUIRED JOINT STRENGTH.

ERECTION.— ALL POSTS SHALL BE PLUMB AND LOCATED AS SPECIFIED BY DRAWINGS OR BY THE ENGINEER IN THE FIELD. LOCK NUTS ON 3/8"-16 ALUMINUM POST BOLT CLIPS SHALL BE TORQUED TO 225 INCH POUNDS USING DRY, CLEAN, UNLUBRICATED THREADS.
WHERE ALUMINUM SURFACES ARE TO BE PLACED IN CONTACT WITH WOOD, THEY SHALL BE GIVEN A THICK COAT OF AN ALKALI-RESISTANT BITUMINOUS PAINT MEETING THE REQUIREMENTS OF MILITARY SPECIFICATION MIL-P-6883, WHICH SHALL BE DRY BEFORE INSTALLATION.

THE HOLE SHALL BE CAREFULLY DUG AND THE POST SET TO THE DEPTH SPECIFIED ABOVE. POSTS SHALL NOT BE DRIVEN. THE BACKFILL MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF GRANULAR BACKFILL FOR STRUCTURES OR SHALL BE MATERIAL APPROVED BY THE ENGINEER.

REVISIONS AND CORRECTIONS

JAN. 8, 1973 REVISED TO INCLUDE CHART FOR WEIGHT OF POST.
AUG. 21, 1975 - REMOVE 5" ALUMINUM TUBES PER FHWA REQUEST.
DEC. 15, 1978 - TAMPED BACKFILL NOTES ADDED.
JUNE 17, 1981 - ADDED 4" PIPE MOD. AND Sv CHART.

APPROVED DATE Dec. 29. 1971

R.N. Arnold
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

YIELDING TYPE TUBULAR ALUMINUM SIGN SUPPORTS TYPE "C"

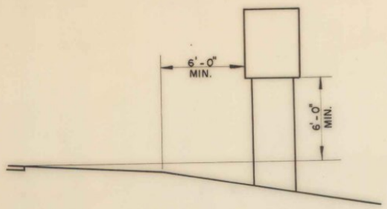
VERMONT AGENCY OF TRANSPORTATION

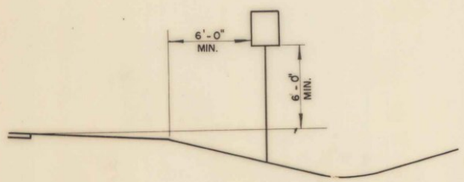
STANDARD

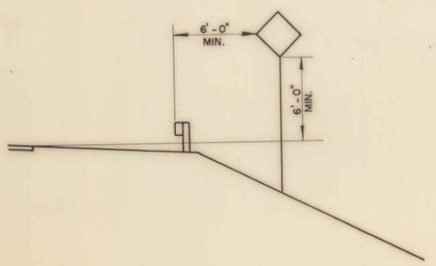
E-25

DESIGN FILE

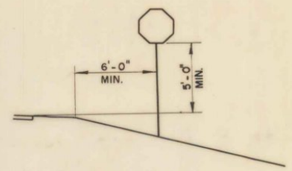
PRIMARY

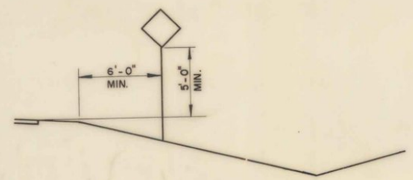


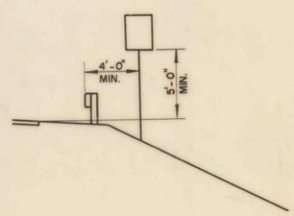




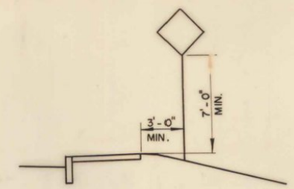
SECONDARY

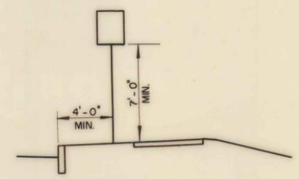


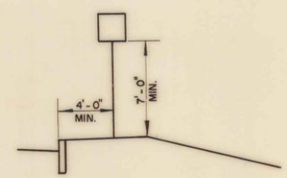




URBAN







REVISIONS AND CORRECTIONS
FEB 5, 1968 .. THIS SHEET AND E-25 REPLACE E-19

APPROVED
2/6/68

D. W. Coleman
TRAFFIC ENGINEER

R. H. Crooks
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

R. J. Funk
CONSTRUCTION ENGINEER

TRAFFIC SIGNS

STANDARD SIGN PLACEMENT

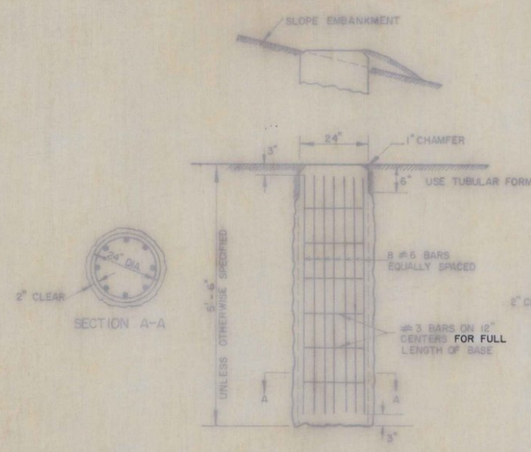
NON-EXPRESSWAY TYPE

VERMONT
DEPARTMENT
OF HIGHWAYS
STANDARD

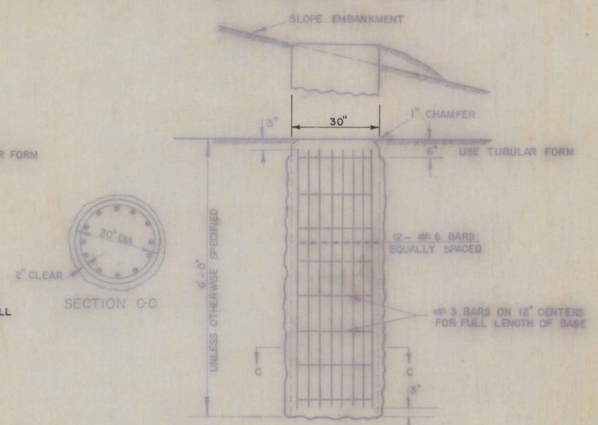
E-26

D-9

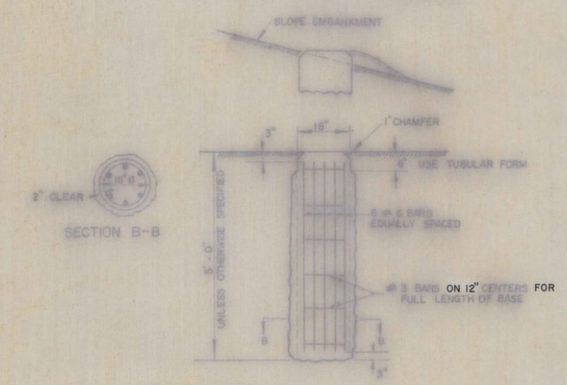
24" DIAMETER #1 FOOTING



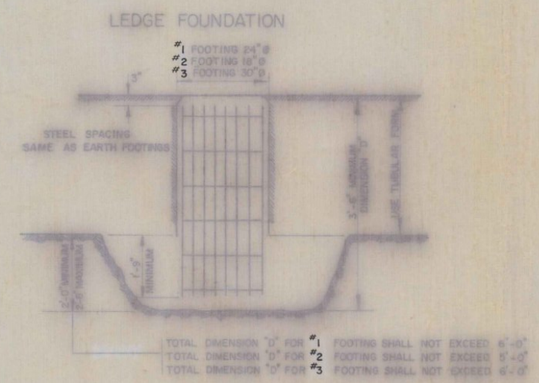
30" DIAMETER #3 FOOTING



18" DIAMETER #2 FOOTING



LEDGE FOUNDATION



GENERAL NOTES

1.– ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION DATED JAN. 1972 WITH CURRENT MODIFICATIONS.

2.– FOUR HIGH STRENGTH STEEL ANCHOR BOLTS HAVING A TYPICAL TENSILE YIELD STRENGTH OF 55,000 P.S.I. AND AN ULTIMATE OF 85,000 P.S.I. AND EACH FITTED WITH 2 HEX. NUTS SHALL BE FURNISHED WITH EACH POLE. EACH ANCHOR BOLT SHALL HAVE AN "L" BEND AT THE BOTTOM AND BE THREADED AT THE TOP END. THREADED ENDS, AND ALL NUTS SHALL BE GALVANIZED. THE ANCHOR BOLTS SHALL BE CAPABLE OF RESISTING AT YIELD STRENGTH STRESS THE FULL BENDING MOMENT OF THE SHAFT AT ITS YIELD STRENGTH STRESS.

3.– DESIGN STRESS: CONCRETE Fc EQUALS 1,400 P.S.I. REINFORCING STEEL, EQUALS 20,000 P.S.I.
CONCRETE Fc EQUALS 3,500 P.S.I.

4.– WIND ON EXPOSED TRUSS AND SIGNS EQUALS 25 # PER SQ. FT.

5.– MAXIMUM FOUNDATION PRESSURE EQUALS ONE AND ONE HALF (1 1/2) TONS PER SQUARE FT.

6.– CHANGES IN THE DESIGN DETAILS SHOWN HERE OR THE USE OF OTHER MATERIALS OR DESIGNS MEETING REQUIREMENTS STATED ABOVE, MAY BE PERMITTED WITH THE WRITTEN APPROVAL OF THE ENGINEER.

A	B	C	D	E	F	T	H
4"	7"-8"	5'-5 5/8"	8"	1 5/8"	2 7/8"	3/4"	48"
5"	8"-9"	5 5/8"-6 3/8"	9 9/16"	1 3/4"	3 1/4"	3/4"	48"
6"	9"-10"	6 3/8"-7 1/16"	10 1/4"	2 1/4"	3 1/2"	1"	48"
7"	10"-11"	7 1/16"-7 3/4"	11"	2 3/4"	3 1/2"	1"	48"
8"	11"-12"	7 3/4"-8 1/2"	12"	2 3/4"	3 1/2"	1"	48"
10"	15"-16"	10 19/32"-11 5/16"	16"	3 1/4"	5"	1 1/4"	48"
12"	18"	12 3/4"	18"	3 1/2"	6"	1 1/4"	48"
12" H.D.	18"	12 3/4"	18"	4"	6 1/2"	1 1/4"	48"

POSTS

THE POSTS FOR THESE INSTALLATIONS SHALL BE EXTRUDED TUBULAR POSTS OF ALUMINUM ALLOY 6061-T6.

HARDWARE

THE ASSEMBLY HARDWARE USED TO FASTEN A SIGN TO THE POSTS SHALL BE ALUMINUM OR STAINLESS STEEL OF A STANDARD COMMERCIAL DESIGN APPROVED BY THE DEPARTMENT.

THE FABRICATOR SHALL SUBMIT SHOP DRAWINGS TO BE APPROVED BY THE DEPARTMENT.

ERECTION

ALL POSTS SHALL BE PLUMB AND LOCATED AS SPECIFIED BY DRAWINGS OR BY ENGINEER IN THE FIELD.

LOCK NUTS ON 3/8"-16 ALUMINUM POST BOLT CLIPS SHALL BE TORQUED TO 225 INCH POUNDS WHEN USING DRY CLEAN UNLUBRICATED THREADS.

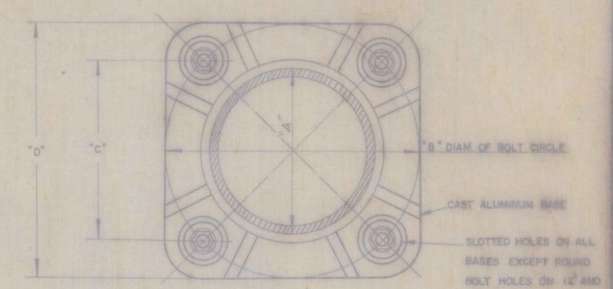
WELDING WIRE

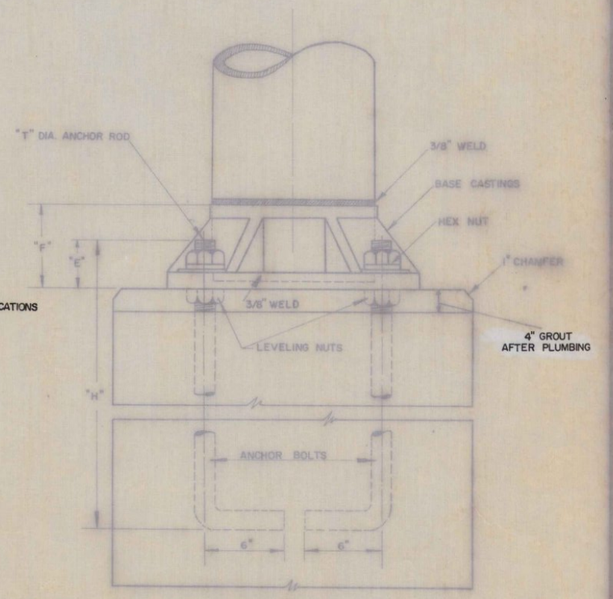
ALL ALUMINUM WELD WIRE SHALL BE 4043 ALUMINUM ALLOY A.S.T.M. NO. R-S5 OR E-S5 B AND SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT SPECIFICATIONS FOR ALUMINUM AND ALUMINUM ALLOY WELDING WIRE AND BASE ELECTRODES A.S.T.M. DESIGNATION R-285.

TYPE "D" FOOTING

THE CONTRACTOR SHALL SUBMIT THE SIZES OF BREAKAWAY ALUMINUM TUBES WITH CAST BASES WHICH HE PROPOSES TO USE AT THE SPECIFIED LOCATIONS TO THE DEPARTMENT FOR APPROVAL.

CAST ALUMINUM BASE DETAIL





SHOE BASE

(SUPPLIED WITH FOUR CAST ALUMINUM ALLOY BOLT COVERS)

THE SHOE BASE (ANCHOR BASE) CASTINGS SHALL BE EITHER PERMANENT MOLD CASTINGS OF 356-F ALUMINUM ALLOY CONFORMING TO THE REQUIREMENTS OF THE CURRENT SPECIFICATIONS FOR ALUMINUM ALLOY PERMANENT MOLD CASTINGS A.S.T.M. DESIGNATION B-108 OR SHALL BE SAND CASTINGS OF 356-F ALUMINUM ALLOY CONFORMING TO THE REQUIREMENTS OF THE CURRENT SPECIFICATIONS FOR ALUMINUM ALLOY SAND CASTINGS A.S.T.M. DESIGNATION B-26.

REVISIONS AND CORRECTIONS

JUNE 8, 1977 - DESIGN STRESS CHANGED.

APPROVED DATE Dec. 29, 1971

R. H. Arnold
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

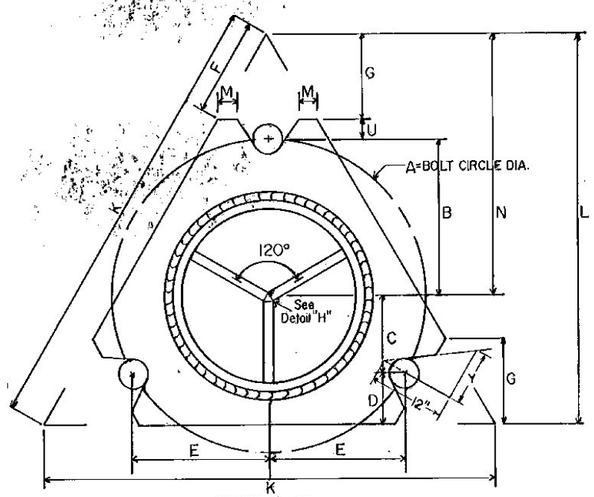
G. M. Lane
HIGHWAY ENGINEER

TRAFFIC SIGNS

BREAKAWAY TYPE TUBULAR ALUMINUM SIGN SUPPORTS WITH CAST BASES

VERMONT
DEPARTMENT OF HIGHWAYS STANDARD

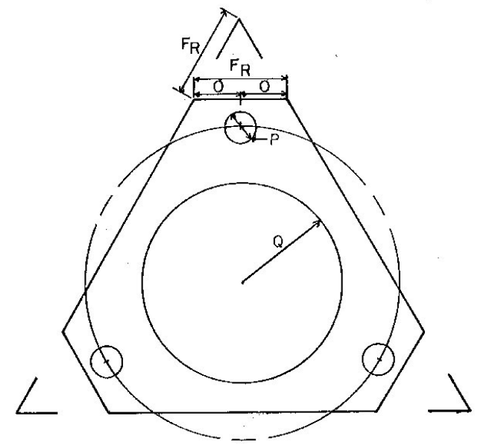
E-26



DETAILS OF MULTI-DIRECTIONAL SLIP BASE

TABLE A

DIMENSIONS NOMINAL PIPE SIZES	BOLT SIZE & TORQUE	WELD SIZE	t	Y	A	B	C	D	E	F	G	K	L	M	U	N
3" DIA. 3 1/2" DIA.	5/8"Φ X 3 1/4" T = 450" lbs.	3/8"	5/8"	7"	7"	3 1/2"	1 3/4"	1 1/4"	3"	2 5/16"	2"	10 3/8"	9"	1/2"	1/2"	8"
4" DIA. 5" DIA.	3/4"Φ X 3 3/4" T = 750" lbs	7/16"	7/8"	8 9/16"	9"	4 1/2"	2 1/4"	1 1/2"	3 7/8"	2 7/8"	2 1/2"	13"	11 1/4"	5/8"	1/2"	7 1/2"

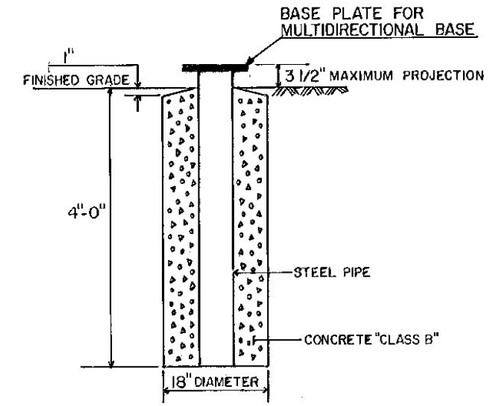


BOLT RETAINER PLATE
11 GAGE (0.1225") GALVANIZED STEEL

BOLT RETAINER PLATE SIMILAR IN DETAIL TO THE BASE PLATES WITH THE FOLLOWING EXCEPTIONS

DIMENSIONS NOMINAL PIPE SIZES	F_R	O	P	Q
3" DIA. 3-1/2" DIA.	2 1/8"	1 1/16"	1 1/16"	2 1/2"
4" DIA. 5" DIA.	2 5/8"	1 5/16"	13/16"	2 7/8"

TABLE B



FOUNDATION DETAIL

GENERAL NOTES

1. The steel pipe shall be manufactured to ASTM A501 or ASTM A53, Types E or S, Grade B and shall be galvanized as per ASTM A-153.

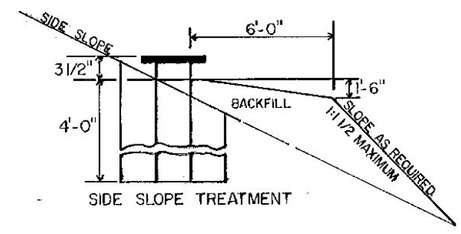
2. The material for the multidirectional slip base assembly shall conform to ASTM A-36 steel, and shall be galvanized as per ASTM A-153.

3. The bolts, nuts and circular washers shall conform to requirements of the current edition of the specification of the ASTM for High-Strength Carbon Steel Bolts for Structural Steel Joints, ASTM A325. All bolts, nuts and washers shall be galvanized as per ASTM A-123.

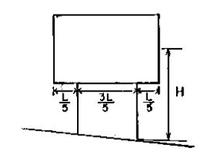
4. The installation and inspection of the bolted connection shall conform to Section 506.2[Connections using High-Strength Bolts of the Standard Specifications for Highway and Bridge Construction.

CONSTRUCTION METHOD

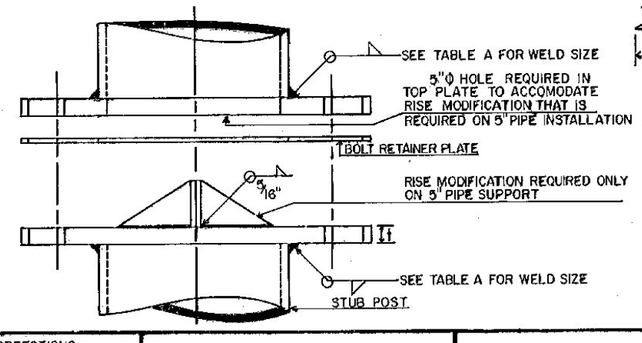
Holes for post footings may be augered or dug. If the material is firm and if all disturbed soil around the circumference of the augered hole is removed, the holes may be left with earth sides. If not, a suitable form approved by the Engineer shall be used. Corrugated metal culvert pipe or paper forms, manufactured for use as concrete column forms, will be acceptable. The stub shall be extended to the bottom of the hole and set on a concrete pad footing to support the post so the post shall be held securely in place at the bottom. This may be done by embedding the post and concrete block footing in wet concrete, and allowing to set with the post secured in position, plumbed and properly braced. The remainder of the footing may then be poured. The time between pours for the curing of the concrete shall be as determined by the Engineer. The form shall be left in place and the hole properly backfilled. No part of the form shall show above the ground line when the work is completed.

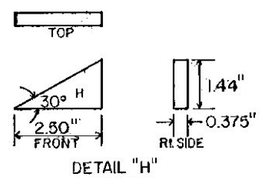


SIDE SLOPE TREATMENT

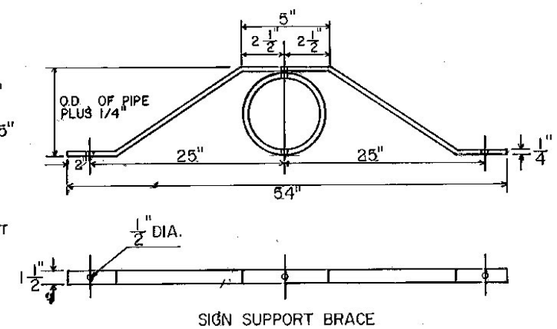


SIDE VIEW OF PIPE SUPPORT INSTALLATION



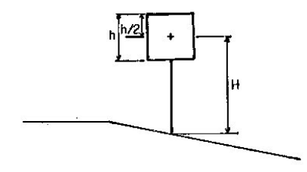


DETAIL "H"
3 REQUIRED
MOUNTED 120° APART
RISE MODIFICATION REQUIRED ONLY FOR 5" PIPE SUPPORT



SIGN SUPPORT BRACE

(REQUIRED WHEN INSTALLING 3 ASSEMBLY FRAME AS SHOWN ON STANDARD E-23)



POST SELECTION CHART

SIGN AREA (FT^2) X H(FT) ≤ Sv (SELECTION VALUE)

POST DIA. INCHES	WEIGHT LB/FT	Sv	DESIGN CRITERIA
3	7.6	265	WIND SPEED = 60 MPH (10-YEAR MEAN RECURRENCE INTERVAL)
3 1/2	9.0	368	WIND PRESSURE = 15 PSF
4	10.8	494	STEEL MIN YIELD Fy = 36,000 PSI
5	14.6	839	ALLOWABLE STRESS = (1.4) 0.55 Fy

REVISIONS AND CORRECTIONS

APPROVED DATE JULY 28, 1981

DIRECTOR OF ENGINEERING AND CONSTRUCTION

CHIEF OF DESIGN

TRANSPORTATION DESIGN ENGINEER

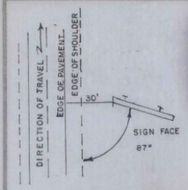
MULTI DIRECTIONAL SLIP BASE SIGN SUPPORT TYPE F

VERMONT AGENCY OF TRANSPORTATION

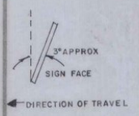
STANDARD

E-26

BRUNING 44-131 40802

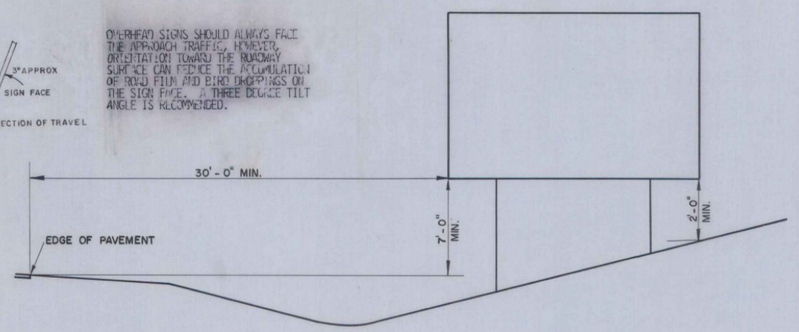


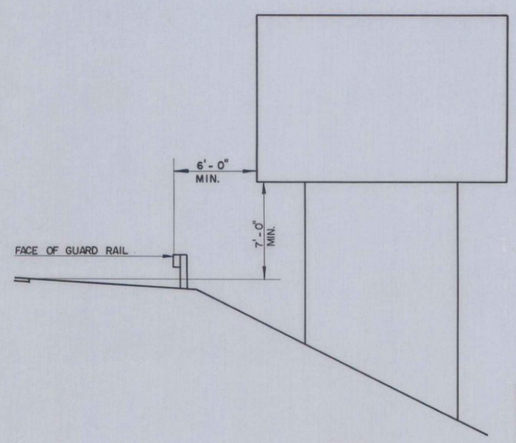
NORMALLY SIGNS SHOULD BE MOUNTED AT RIGHT ANGLES TO DIRECTION OF TRAFFIC. AT CURVED ALIGNMENTS THE ANGLE OF PLACEMENT SHOULD BE DETERMINED BY THE COURSE OF APPROACHING TRAFFIC RATHER THAN BY THE ROADSIDE EDGE AT THE POINT WHERE THE SIGN IS LOCATED.

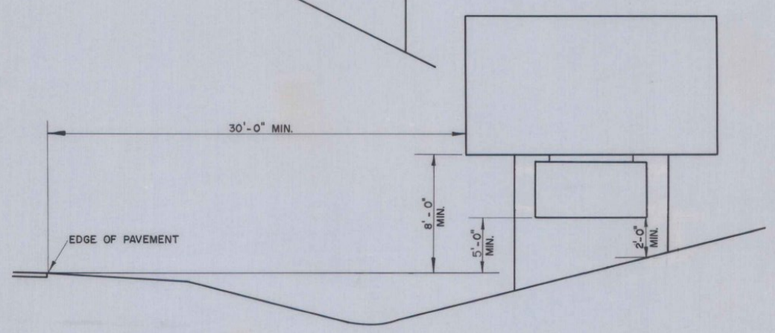


OVERHEAD SIGNS SHOULD ALWAYS FACE THE APPROACH TRAFFIC, HOWEVER, ORIENTATION TOWARD THE ROADWAY SURFACE CAN REDUCE THE ACCUMULATION OF ROAD FILM AND BIRD DROPPINGS ON THE SIGN FACE. A THREE DEGREE TILT ANGLE IS RECOMMENDED.

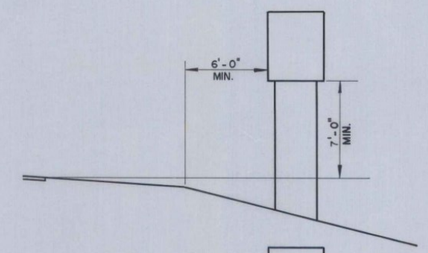
GUIDE SIGNS

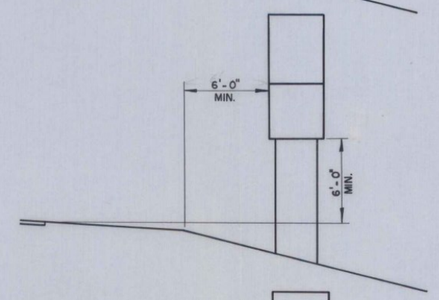


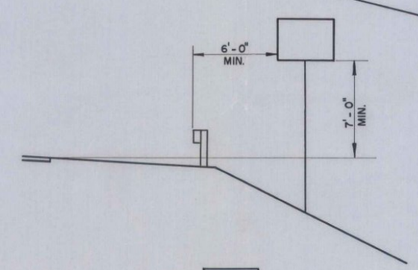


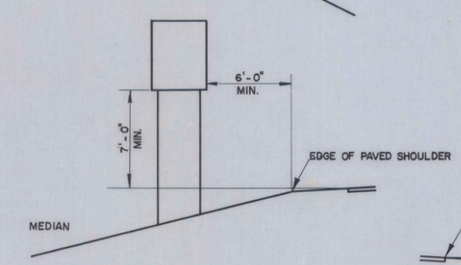


REGULATORY SIGNS

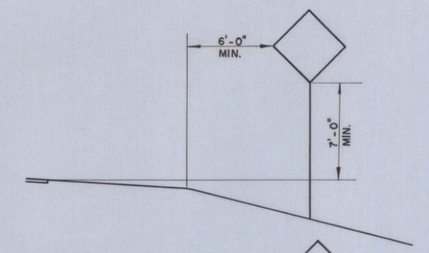


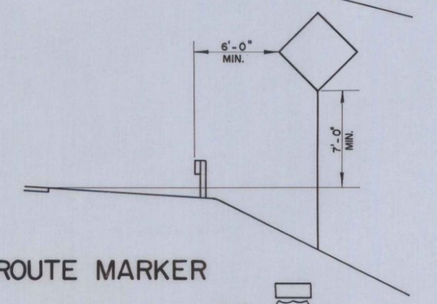




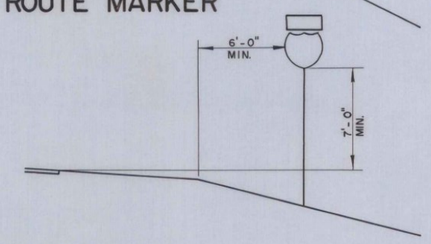


WARNING SIGNS

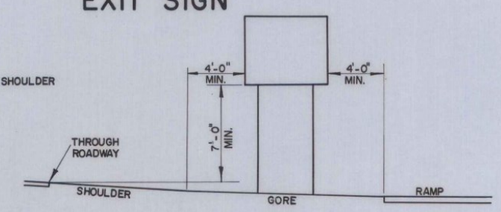




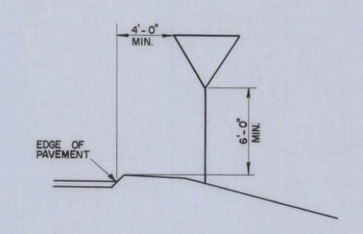
ROUTE MARKER

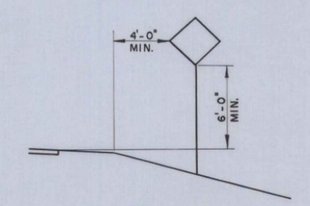


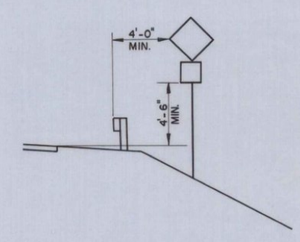
EXIT SIGN



SIGNS ON RAMPS







REVISIONS AND CORRECTIONS

DEC. 19, 1972 DIMENSION CHANGE
JAN 24 1983 SIGN INSTALLATION DETAILS ADDED

APPROVED:
Dec. 29, 1971
DATE

R H Crugold
CHIEF ENGINEER
E. B. Stickney
ASST. CHIEF ENGINEER
G. M. Lane
HIGHWAY ENGINEER

TRAFFIC SIGNS

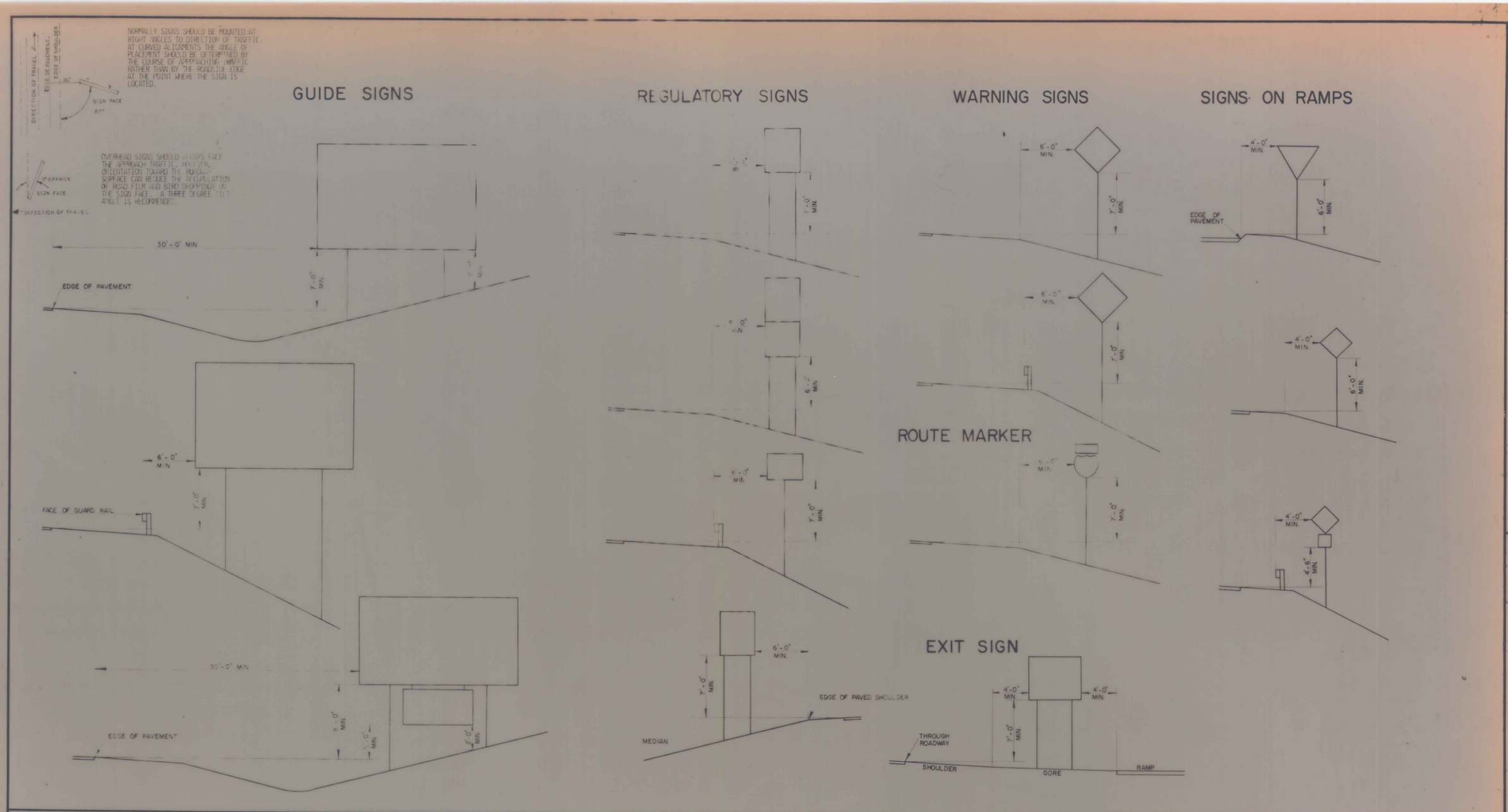
STANDARD SIGN PLACEMENT

EXPRESSWAY TYPE

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-27



REVISIONS AND CORRECTIONS

DEC 19, 1972 DIMENSION CHANGE
JAN 24 1983 SIGN INSTALLATION DETAILS ADDED
FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED:
Dec 29, 1971
DATE

R H Crockett
CHIEF ENGINEER
E H Stickney
ASST. CHIEF ENGINEER
G. M. Lane
HIGHWAY ENGINEER

TRAFFIC SIGNS

STANDARD SIGN PLACEMENT

EXPRESSWAY TYPE

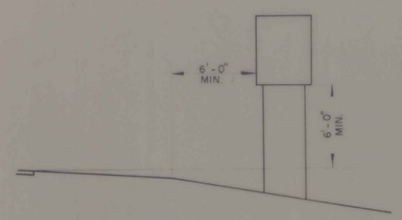
VERMONT AGENCY OF TRANSPORTATION

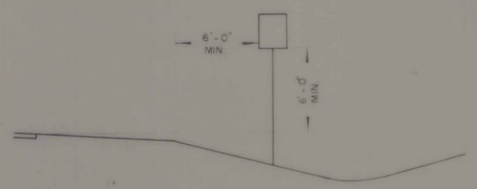
STANDARD

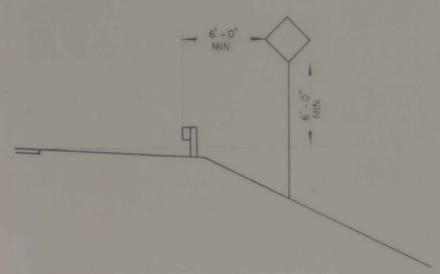
E-27

D-8

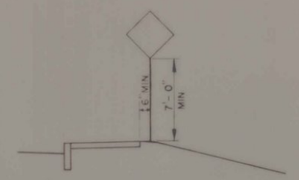
RURAL

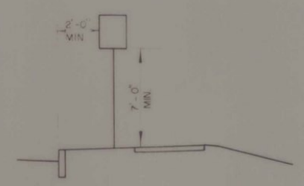


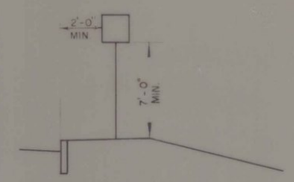




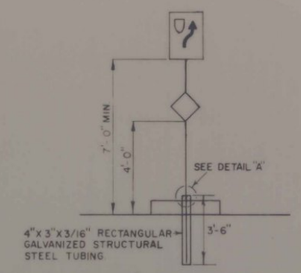
URBAN

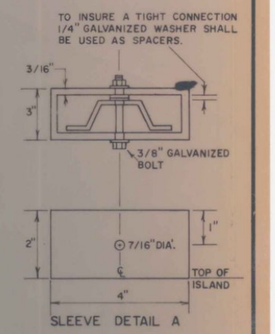






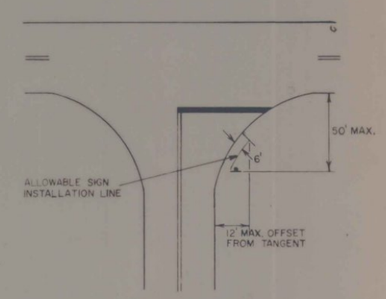
WARNING SIGNS
ON ISLAND IN THE LINE OF TRAFFIC





SLEEVE DETAIL A

STOP OR YIELD SIGNS
AT WIDE THROAT INTERSECTIONS



NOTES 1) IN BOTH RURAL AND URBAN LOCATIONS, IF A SECONDARY SIGN IS MOUNTED BELOW ANOTHER SIGN, THE MINIMUM CLEARANCE MAY BE REDUCED BY ONE FOOT.

2) IN RURAL AREAS WITH NO SHOULDER, THE MINIMUM LATERAL CLEARANCE SHOULD BE 12' FROM EDGE OF THE TRAVELED WAY.

REVISIONS AND CORRECTIONS

JAN. 23, 1978 - DIMENSION FROM SHOULDER TO SIGN CHANGED PER FHWA

AUG. 25, 1981 - ADDED STOP AND ISLAND DETAILS, REVISED CURB OFFSET

FEB. 3, 1986 - UPDATED TO 1986 SPECIFICATIONS

APPROVED Dec. 29, 1971

R. H. Crooker — CHIEF ENGINEER

E. H. Pickney — ASST. CHIEF ENGINEER

G. M. Lane — HIGHWAY ENGINEER

STANDARD SIGN PLACEMENT
CONVENTIONAL ROAD

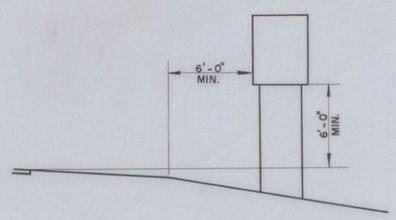
VERMONT AGENCY OF TRANSPORTATION

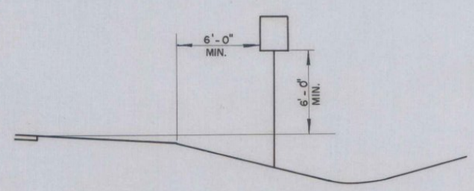
STANDARD

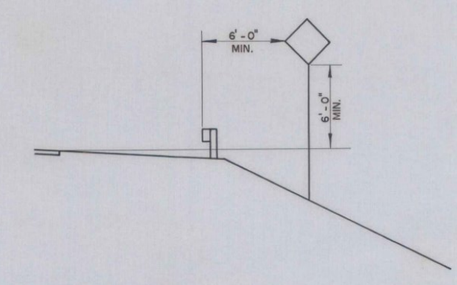
E-29

D-8

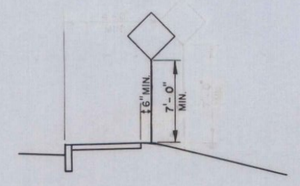
RURAL

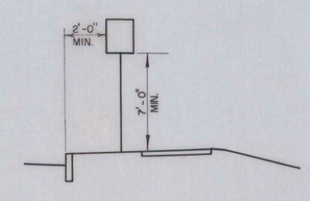


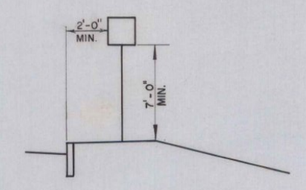




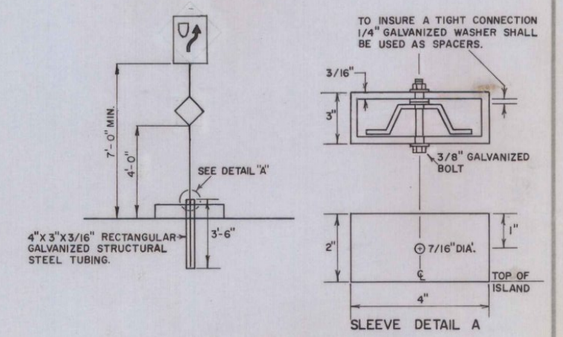
URBAN



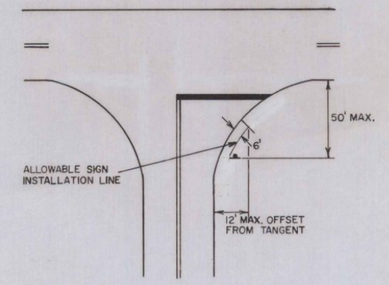




WARNING SIGNS
ON ISLAND IN THE LINE OF TRAFFIC



STOP OR YIELD SIGNS
AT WIDE THROAT INTERSECTIONS



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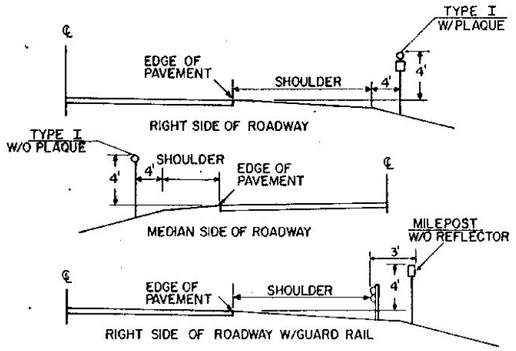
STANDARD SIGN PLACEMENT
CONVENTIONAL ROAD

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-29



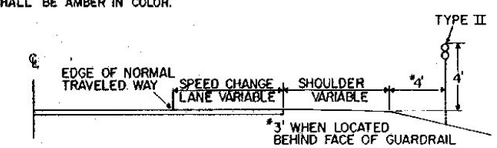
TYPICAL PLACEMENT OF TYPE I DELINEATORS AND MILEPOSTS ON INTERSTATE ROUTES

TYPE I DELINEATORS WITH WHITE REFLECTOR UNITS AND THE APPROPRIATE MILEPOST PLAQUES SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF THE INTERSTATE ROADWAYS BETWEEN MILEMARKERS, EXCEPT THAT BEHIND GUARD RAIL MILEPOSTS WITHOUT REFLECTORS SHALL BE ERECTED.

THE TYPE I DELINEATORS AND MILEPOSTS SHALL BE OMITTED ALONG DECELERATION AND ACCELERATION LANES, BUT THE SUCCEEDING SPACING SHALL BE AS IF THE DELINEATORS HAD BEEN ERECTED CONTINUOUSLY AND SHALL BE SO INDICATED.

THE LOCATION OF TYPE I DELINEATORS AND MILEPOSTS ARE TO BE COMPUTED AND MARKED IN THE FIELD BY THE ENGINEER IN ACCORDANCE WITH THE LATEST REVISION OF THE AGENCY'S "POLICY ON LOCATION MARKING FOR VERMONT INTERSTATE HIGHWAYS."

TYPE I DELINEATORS WITHOUT MILEPOST PLAQUES SHALL BE ERECTED CONTINUOUSLY ALONG THE LEFT OR MEDIAN SIDE OF THE INTERSTATE HIGHWAYS EXCEPT BEHIND GUARD RAIL, SPACED OPPOSITE EVERY SECOND TYPE I DELINEATOR ON THE RIGHT SIDE, AND CONTINUED AT APPROXIMATELY THE SAME SPACING THROUGH INTERCHANGES AND REST AREAS WHERE THERE MAY NOT BE ANY TYPE I DELINEATORS ON THE RIGHT SIDE. THE SAME LATERAL PLACEMENT SHALL BE FOLLOWED ON THE LEFT AS ON THE RIGHT. THE REFLECTIVE UNITS SHALL BE AMBER IN COLOR.



TYPICAL PLACEMENT OF TYPE II DELINEATORS ON SPEED CHANGE LANES

TYPE II DELINEATORS SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF THE DECELERATION AND ACCELERATION LANES AT 100' INTERVALS AND SHALL NOT BE OMITTED BEHIND GUARDRAIL SECTIONS AS IS THE CASE FOR TYPE I DELINEATORS. THE DELINEATORS SHALL START AT THE BEGINING OF THE TAPER AND END AT THE NOSE OF THE EXIT OR ENTRANCE GORE. THEY SHALL HAVE WHITE REFLECTOR UNITS.

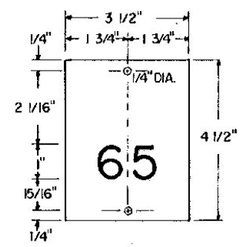
TYPE III DELINEATORS
SEE NOTE #1

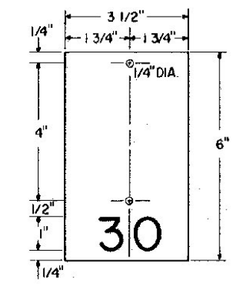
TYPE III DELINEATORS SHALL BEGIN 50' FROM WRONG WAY SIGNS AND EXTEND EVERY 50' TO A POINT NOT LESS THAN 25' FROM THE INTERSECTING ROADWAY AND BE MOUNTED ON BOTH SIDES OF THE ROAD.

DELINEATORS WITH ACRYLIC PLASTIC REFLECTORS

MILEPOST PLAQUE PART "A"

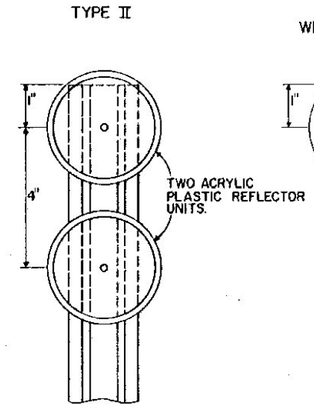
(THE NUMERALS ON PART "A" INDICATE THE MILE.)

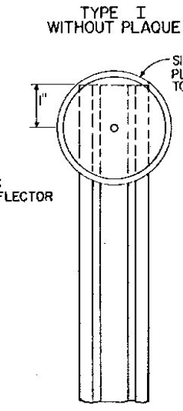


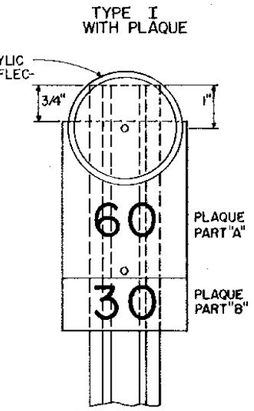


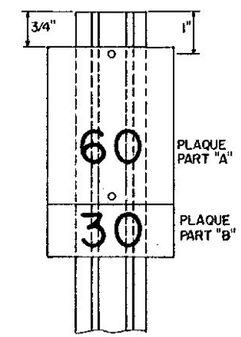
MILEPOST PLAQUE PART "B"

(THE NUMERAL ON PART "B" INDICATES UNITS OF FIVE ONE-HUNDRETHS OF A MILE BETWEEN MILE POSTS.)

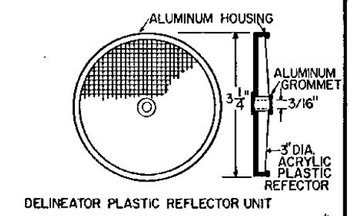




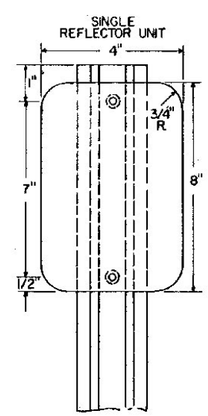




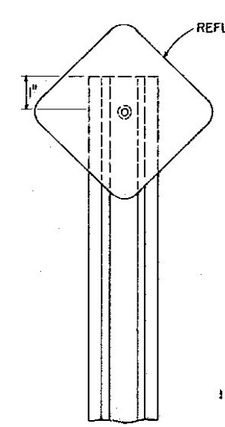
MILE POST
WITHOUT REFLECTOR



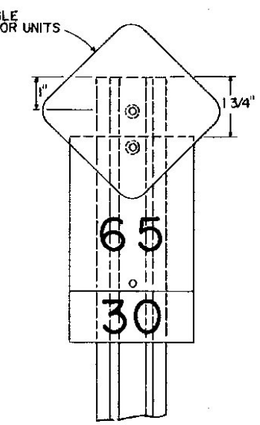
DELINEATOR PLASTIC REFLECTOR UNIT



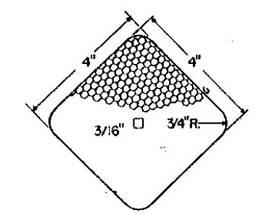
TYPE II



TYPE I
WITHOUT PLAQUE



TYPE I
WITH PLAQUE



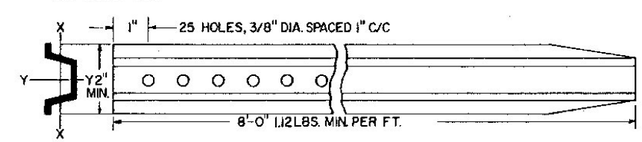
DELINEATOR REFLECTIVE SHEETING, UNIT

MATERIAL FOR REFLECTIVE SHEETING DELINEATORS SHALL BE A 0.063" ALUMINUM BACKING WITH A SILVER, AMBER OR RED HIGH INTENSITY REFLECTIVE SHEETING.

DELINEATORS WITH REFLECTIVE SHEETING

A DELINEATOR REFLECTOR UNIT WITH ITS MILEPOST PLAQUE SHALL BE MOUNTED ON THE POST WITH TWO OR THREE 3/16" DIA. BY 1 1/2" LONG ALUMINUM BOLTS WITH 1/2" DIA. ALUMINUM VANDAL RESISTANT NUTS, OR A 3/16" DIA. BY 1 1/2" LONG VANDAL RESISTANT FASTENERS.

YY = 0.11 IN³ MIN.
XX = 0.08 IN³ MIN.



NOTES

1. TYPE III DELINEATORS WILL BE TYPE I DELINEATORS WITH AN ADDITIONAL RED REFLECTIVE UNIT MOUNTED ON THE REVERSE SIDE. THEY SHALL BE ERECTED ON THE RIGHT AND LEFT SIDE OF THE RAMPS AS INDICATED ON THE PLANS.

2. EACH UNIT COMPLETE IN PLACE OF DELINEATOR TYPE I WITH OR WITHOUT PLAQUE, DELINEATOR TYPE II, DELINEATOR TYPE III OR MILEPOST WITHOUT REFLECTOR SHALL BE PAID FOR AS DELINEATOR, PAY ITEM 676.10.

3. FOR MOUNTING DELINEATORS AND MILEPOSTS ON BRIDGES, SEE STANDARD E-32.

4. DELINEATOR POSTS SHALL HAVE A MINIMUM EMBEDMENT OF 2'-3' IN THE GROUND.

REVISIONS AND CORRECTIONS

DEC. 12, 1973 - REFERENCE TO E-20A CHANGED TO E-32.
SEPT. 7, 1979 - TYPE III DELINEATOR ADDED, REFLECTOR UNIT COLORS CHANGED TO CONFORM TO MUTCD
DEC. 13, 1979 - REFLECTIVE CRITERIA DELETED.
JULY 17, 1981 - POST WEIGHT CHANGE, DELINEATOR OFFSET REVISED.
AUG. 25, 1981 - CORRECTIONS MADE, POST LENGTH CHANGED.
FEB 23, 1984 - ADDED SECOND TYPE III DELINEATOR NOTE.

FEB. 3, 1986 - UPDATED TO 1986 SPECIFICATIONS

APPROVED: Dec 29, 1971
DATE

R. N. Arnold
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

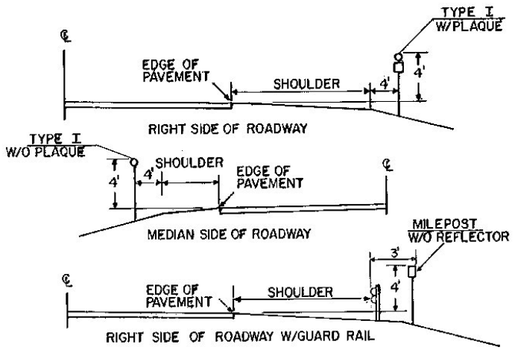
DELINEATORS AND MILEPOSTS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-30

DRAWING 44 151 40252



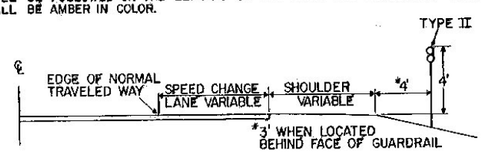
TYPICAL PLACEMENT OF TYPE I DELINEATORS AND MILEPOSTS ON INTERSTATE ROUTES

TYPE I DELINEATORS WITH WHITE REFLECTOR UNITS AND THE APPROPRIATE MILEPOST PLAQUES SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF THE INTERSTATE ROADWAYS BETWEEN MILEMARKERS, EXCEPT THAT BEHIND GUARD RAIL MILEPOSTS WITHOUT REFLECTORS SHALL BE ERECTED.

THE TYPE I DELINEATORS AND MILEPOSTS, SHALL BE OMITTED ALONG DECELERATION AND ACCELERATION LANES, BUT THE SUCCEEDING SPACING SHALL BE AS IF THE DELINEATORS HAD BEEN ERECTED CONTINUOUSLY AND SHALL BE SO INDICATED.

THE LOCATION OF TYPE I DELINEATORS AND MILEPOSTS ARE TO BE COMPUTED AND MARKED IN THE FIELD BY THE ENGINEER IN ACCORDANCE WITH THE LATEST REVISION OF THE AGENCY'S "POLICY ON LOCATION MARKING FOR VERMONT INTERSTATE HIGHWAYS."

TYPE I DELINEATORS WITHOUT MILEPOST PLAQUES SHALL BE ERECTED CONTINUOUSLY ALONG THE LEFT OR MEDIAN SIDE OF THE INTERSTATE HIGHWAYS EXCEPT BEHIND GUARD RAIL, SPACED OPPOSITE EVERY SECOND TYPE I DELINEATOR ON THE RIGHT SIDE, AND CONTINUED AT APPROXIMATELY THE SAME SPACING THROUGH INTERCHANGES AND REST AREAS WHERE THERE MAY NOT BE ANY TYPE I DELINEATORS ON THE RIGHT SIDE. THE SAME LATERAL PLACEMENT SHALL BE FOLLOWED ON THE LEFT AS ON THE RIGHT. THE REFLECTIVE UNITS SHALL BE AMBER IN COLOR.



TYPICAL PLACEMENT OF TYPE II DELINEATORS ON SPEED CHANGE LANES

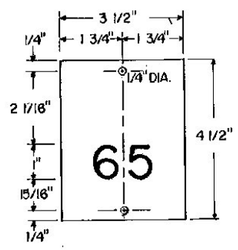
TYPE II DELINEATORS SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF THE DECELERATION AND ACCELERATION LANES AT 100' INTERVALS AND SHALL NOT BE OMITTED BEHIND GUARDRAIL SECTIONS AS IS THE CASE FOR TYPE I DELINEATORS. THE DELINEATORS SHALL START AT THE BEGINING OF THE TAPER AND END AT THE NOSE OF THE EXIT OR ENTRANCE GORE. THEY SHALL HAVE WHITE REFLECTOR UNITS.

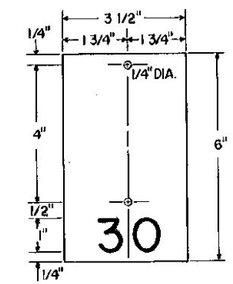
TYPE III DELINEATORS
SEE NOTE #1

TYPE III DELINEATORS SHALL BEGIN 50' FROM WRONG WAY SIGNS AND EXTEND EVERY 50' TO A POINT NOT LESS THAN 25' FROM THE INTERSECTING ROADWAY AND BE MOUNTED ON BOTH SIDES OF THE ROAD.

DELINEATORS WITH ACRYLIC PLASTIC REFLECTORS

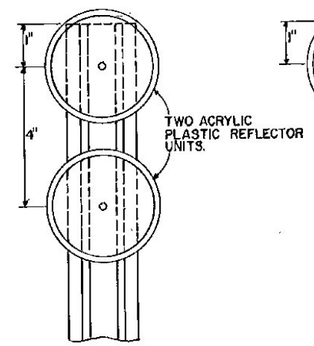
MILEPOST PLAQUE PART "A"
(THE NUMERALS ON PART "A" INDICATE THE MILE.)



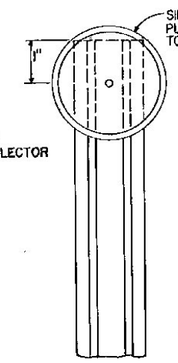


MILEPOST PLAQUE PART "B"
(THE NUMERAL ON PART "B" INDICATES UNITS OF FIVE ONE-HUNDRETHS OF A MILE BETWEEN MILE POSTS.)

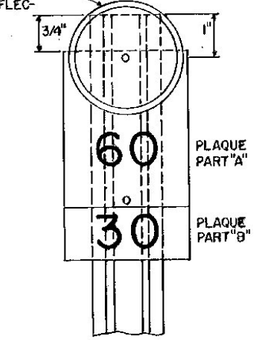
TYPE II

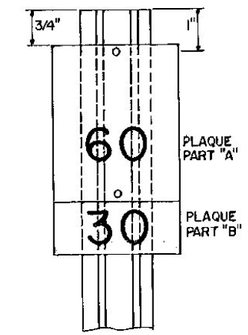


TYPE I
WITHOUT PLAQUE

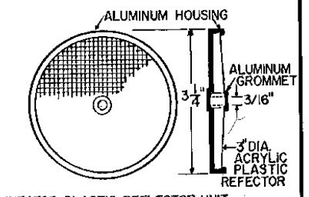


TYPE I
WITH PLAQUE

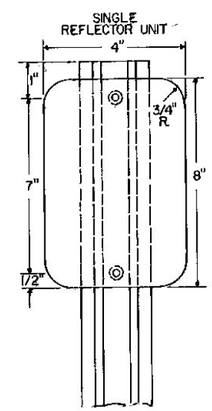




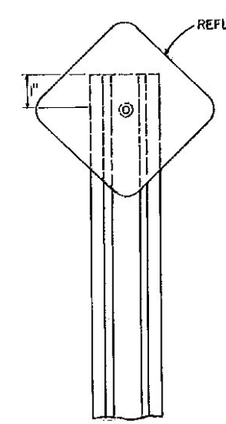
MILE POST
WITHOUT REFLECTOR



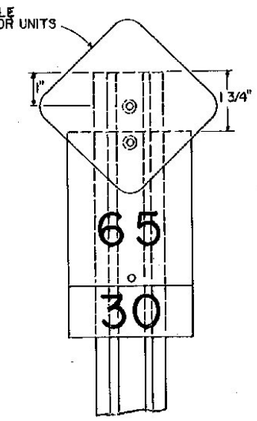
DELINEATOR PLASTIC REFLECTOR UNIT



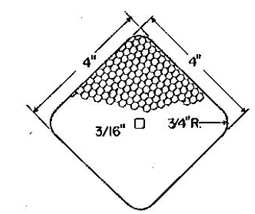
TYPE II



TYPE I
WITHOUT PLAQUE



TYPE I
WITH PLAQUE



DELINEATOR REFLECTIVE
SHEETING UNIT

MATERIAL FOR REFLECTIVE SHEETING DELINEATORS SHALL BE A 0.063" ALUMINUM BACKING WITH A SILVER, AMBER OR RED HIGH INTENSITY REFLECTIVE SHEETING.

NOTES

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3. FOR MOUNTING DELINEATORS AND MILEPOSTS ON BRIDGES, SEE STANDARD E-32,

4. DELINEATOR POSTS SHALL HAVE A MINIMUM EMBEDMENT OF 2'-3' IN THE GROUND.

DELINEATORS WITH REFLECTIVE SHEETING

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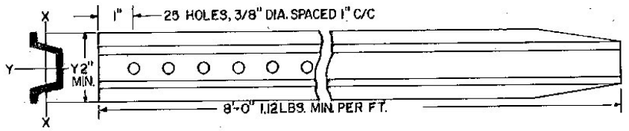

REVISIONS AND CORRECTIONS

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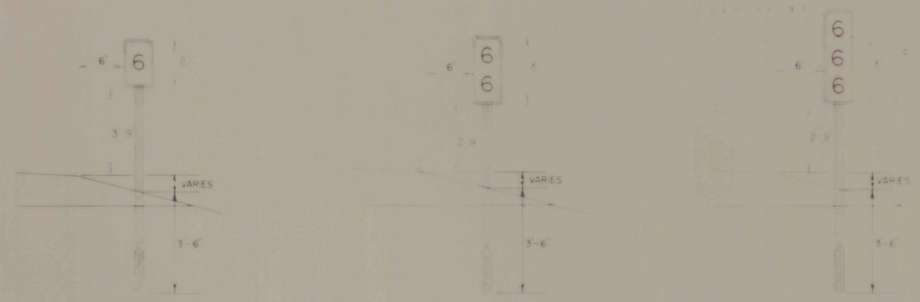
APPROVED: Dec. 29, 1971
DATE
R. N. Gould
CHIEF ENGINEER
E. H. Stickney
ASST. CHIEF ENGINEER
G. M. Lane
HIGHWAY ENGINEER

DELINEATORS AND MILEPOSTS

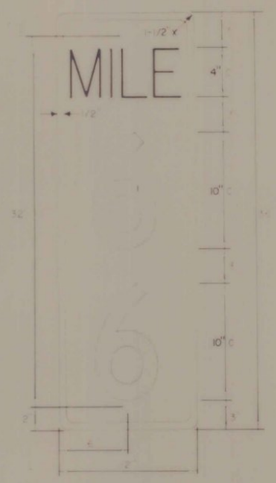
VERMONT AGENCY OF TRANSPORTATION

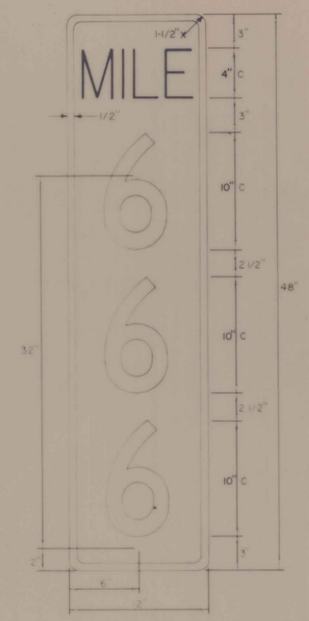
STANDARD
E-30

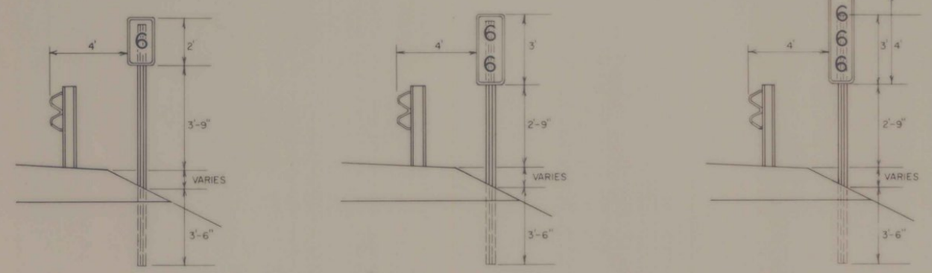
BRUNING 44-131 40002

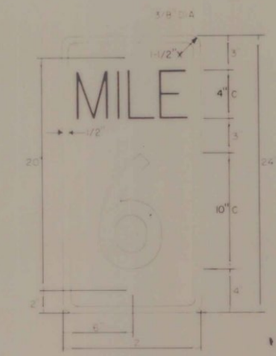


MOUNTING HEIGHTS WITHOUT GUARD RAIL









COLORS

THE COLORS SHALL CONFORM WITH THE STANDARD COLOR TOLERANCE CHARTS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

TEXT

LETTERS AND NUMBERS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGN AS PRESCRIBED IN THE PUBLICATION "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING", AVAILABLE FROM THE FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

MILE MARKER SIGNS SHALL BE .080 FLAT SHEET ALUMINUM WITH WHITE REFLECTIVE NUMERIALS, BORDER AND LEGEND ON A GREEN REFLECTORIZED BACKGROUND. THE GREEN REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. SIGNS SHALL BE MOUNTED ON FLANGED CHANNEL STEEL SIGN SUPPORTS WEIGHING 2 LB PER LINEAR FOOT.

PAYMENT

THE GUIDE SIGNS SHALL BE PAID AS TRAFFIC SIGNS TYPE A. THE POSTS SHALL BE PAID AS FLANGED CHANNEL SIGN POSTS.

REVISIONS & CORRECTIONS

AUG. 12, 1981 REVISED NOTES, OFFSET, SPECIFIED EMBEDMENT DEPTH.

FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED

Dec 29 1971
DATE

R. W. Arnold
CHIEF ENGINEER

E. R. Pinkney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

MILE MARKERS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-31

MATERIALS

Construction Identification Signs shall be of wood, metal, hardboard or any other durable material satisfactory to the engineer, with the background and legend painted thereon. Neither background nor legend shall be reflectorized. No materials shall be used that will deteriorate by exposure to the weather during the required life of the sign.

DESIGN

The content of a sign shall be in accordance with the appropriate design shown on this sheet. The legend shall be in black on a white background, except for an interstate route marker which shall be standard 24 inch three color interstate shield. A U.S. route marker shall be the standard 16 1/2 x 16 inch shield; a state route marker shall be the standard 15 x 13 inch rectangle.

LOCATION

For primary, secondary and urban federal-aid construction, a sign generally shall be located at each end of a project and on all intersecting numbered routes.

For interstate construction, a sign generally shall be located on an existing highway at each end of a section under construction, and on numbered route crossings where the work is visible to the public.

Specifically, signs shall be located where indicated on the plans or designated by the engineer. They shall be placed so as to be competely visible to approaching traffic. A sign shall not be erected so as to obscure or detract from the effectiveness of any other official sign

ERECTION

The signs shall be in position at the time major physical construction work, readily visible, starts on the project or section to be signed.

Each sign shall be erected in a neat and workmanlike manner on wood, steel or aluminum posts set securely in the ground, with the bottom of the sign at least 5 feet above road level. The nearest edge of a sign shall be at least 4 feet outside the shoulder point, or 2 feet outside the guard rail, curb or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. Signs shall be erected to the satisfaction of the engineer.

MAINTENANCE

Signs shall be maintained in a legible condition satisfactory to the engineer. They shall be completely visible to approaching traffic at all times. They shall be kept plumb and level, and always present a neat appearance. Signs shall not be lighted at night.

GENERAL

The cost of furnishing, erecting, maintaining and removing Construction Identification Signs shall be borne by the contractor without additional compensation. (See Standard Specifications, Div. I, Section 7, Article 7.07, "Public Convenience and Safety.")

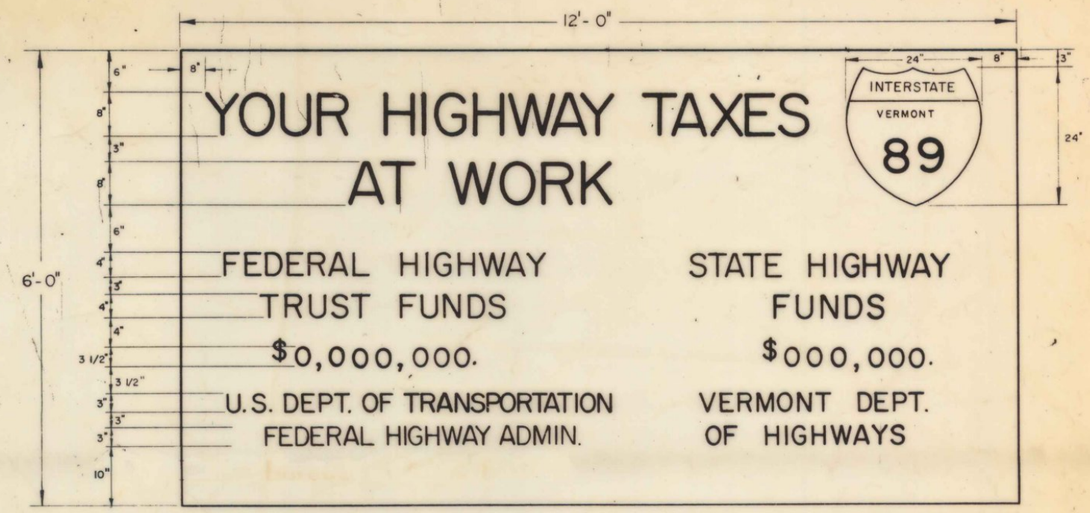
On interstate construction, the section to be signed and the amounts of federal and state funds to be shown will be indicated on the plans

Construction identification signs are to be placed on all landscape and scenic enhancement projects costing over $10,000, financed wholly or in part with federal funds, and located on the highway right-of-way. Such signs shall refer to Federal Funds, not "Federal Highway Trust Funds"

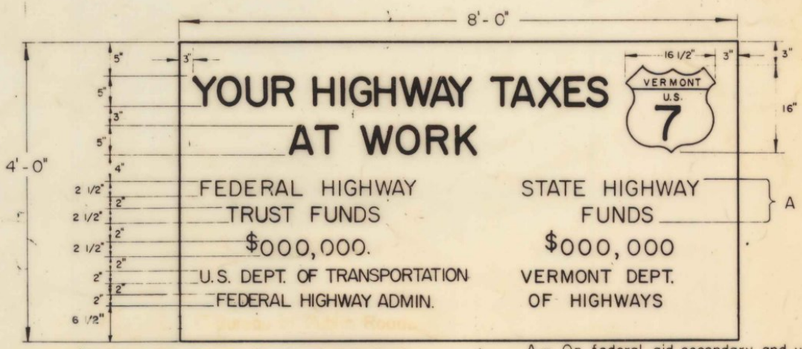
Construction Identification Signs are to be placed on all Emergency Relief Projects, including those designated by the prefix letters ERFO that provide for permanent restoration and have an estimated construction duration of more than 60 calendar days. Such signs shall refer to Federal Emergency Relief Funds, not "Federal Highway Trust Funds".

Construction Identification Signs are to be placed on all Public Lands (FLH) projects, with the legend modified as detailed in the special provisions.

SIGN FOR INTERSTATE SYSTEM PROJECTS



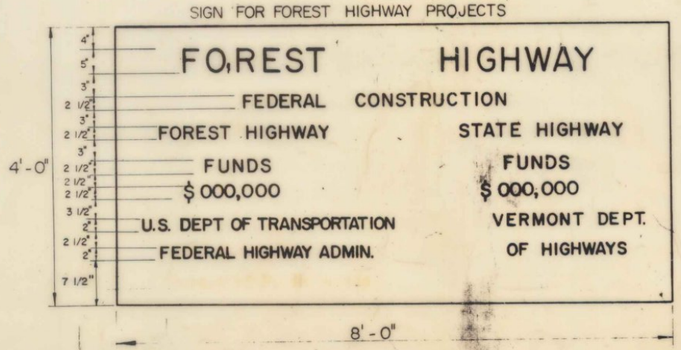
SIGN FOR PRIMARY, SECONDARY AND URBAN PROJECTS



The amounts of federal aid and state funds shall be rounded to the nearest $ 1,000 for the project being signed.

A – On federal aid secondary and urban projects when a town or city provides a portion of the matching funds exceeding 1% of the total cost, the legend STATE AND LOCAL FUNDS shall be used.

SIGN FOR FOREST HIGHWAY PROJECTS



REVISIONS AND CORRECTIONS

5 REVISED TO CONFORM WITH THE INSTRUCTIONAL MEMORANDUM 20-4/67 ISSUED BY THE FEDERAL HIGHWAY ADMINISTRATION - AUG 21, 1967

6 BUREAU OF PUBLIC ROADS REMOVED FEB. 17, 1971.

1. REVISED TO CONFORM WITH INSTRUCTIONAL MEMORANDUM 20-1-64 ISSUED BY FEDERAL HIGHWAY ADMINISTRATOR. (FEB. 3, 1964)
2. REFERENCE TO FOREST HIGHWAY AND LAND HIGHWAY PROJECTS DELETED IN CONFORMENCE WITH BUREAU OF PUBLIC ROADS CIRCULAR MEMORANDUM DATE MARCH 19, 1964 (APRIL 14, 1964)
3. REFERENCE BY NOTE TO LANDSCAPE AND SCENIC ENHANCEMENT PROJECTS ADDED IN CONFORMANCE WITH BUREAU OF PUBLIC ROADS INSTRUCTIONAL MEMORANDUM 20-1-64 (1) DATED APRIL 11, 1966. APRIL 21, 1966.
4. REFERENCE BY NOTE TO EMERGENCY RELIEF OR PUBLIC LANDS PROJECTS IN CONFORMANCE WITH BUREAU OF PUBLIC ROADS INSTRUCTIONAL MEMORANDUM 20-1-64 (2) DATED JAN. 12, 1967 (MAR. 8, 1967) U.S. DEPT OF COMMERCE CHANGED TO U.S. DEPT OF TRANSPORTATION 4/21/67

APPROVED Feb. 17, 1971 DATE

R. H. Arnold — CHIEF ENGINEER

E. H. Stickney Jr. — ASST. CHIEF ENGINEER

C. L. Knapp — TRAFFIC ENGINEER

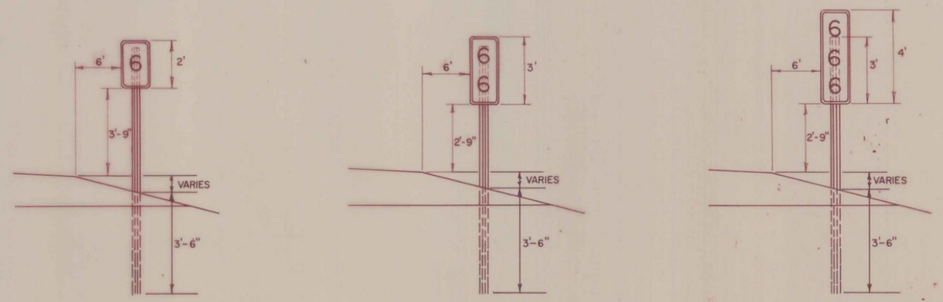
Gordon M. Lane — HIGHWAY ENGINEER

TRAFFIC SIGNS

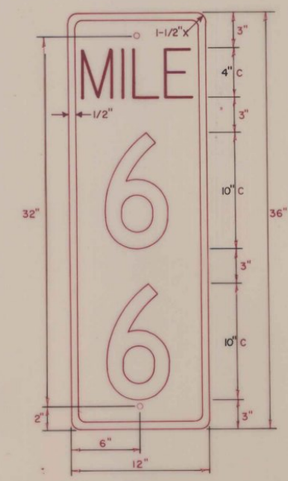
FEDERAL AID CONSTRUCTION IDENTIFICATION SIGNS

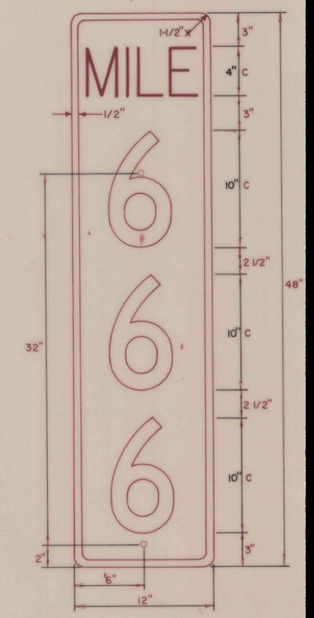
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

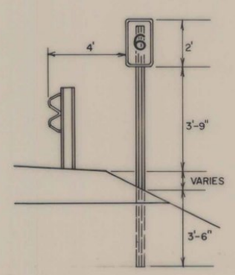
E-31

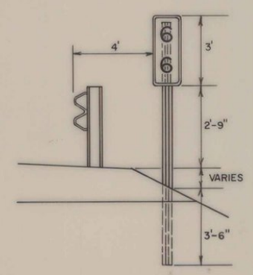


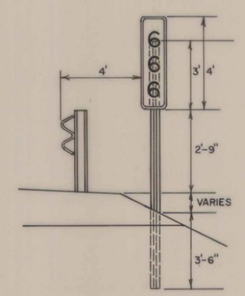
MOUNTING HEIGHTS WITHOUT GUARD RAIL

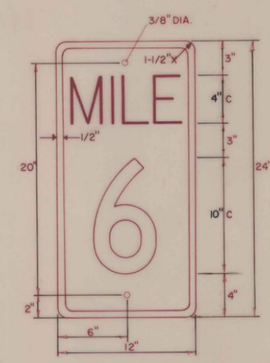












COLORS

THE COLORS SHALL CONFORM WITH THE STANDARD COLOR TOLERANCE
U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRAT

TEXT

LETTERS AND NUMBERS SHALL CONFORM WITH THE STANDARD ALPHABE
IN THE PUBLICATION " STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PA
FROM THE FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

MILE MARKER SIGNS SHALL BE .080 FLAT SHEET ALUMINUM WITH WHITI
BORDER AND LEGEND ON A GREEN REFLECTORIZED BACKGROUND. THE GRI
SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND
BE MOUNTED ON YIELDING TYPE FLANGED CHANNEL STEEL SIGN SUPPOR
FOOT.

PAYMENT

THE GUIDE SIGNS SHALL BE PAID AS TRAFFIC SIGNS TYPE A. THE POS
TRAFFIC SIGN POSTS, TYPE A.

REVISIONS & CORRECTIONS

AUG. 12, 1981 REVISED NOTES, OFFSET, SPECIFIED EMBEDMENT DEPTH.

APPROVED

Dec. 29, 1971
DATE

R. A. Arnold
CHIEF ENGINEER

E. B. Dickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

MILE MARKERS

VERMONT AGENCY OF TRANSPORTATION

STAN

E

MATERIALS.— Construction Identification Signs shall be of wood, metal, hardboard or other durable material satisfactory to the engineer, with the background and legend painted thereon. No materials shall be used that will deteriorate by exposure to the weather during the life of the project. Neither the backgrounds nor the legends of the signs shall be reflectorized.

DESIGN.— The content of each sign shall be in accordance with the designs shown on this sheet. The legend shall be in black on a white background, except for an Interstate Route Marker which shall be the 24 inch standard three-color interstate shield.
The mileage figure shall be the overall length of the contract to which the sign refers, to the nearest tenth of a mile. If the sign is for a single structure, a recognizable name may be substituted for the length as determined by the engineer.
The project cost shall be the cost of the contract rounded to the nearest $ 10,000. The percentages of costs shown shall be those actually borne by the State, Local and Federal Goverments respectively.
The project number shall be that for the federal-aid contract actually under way.

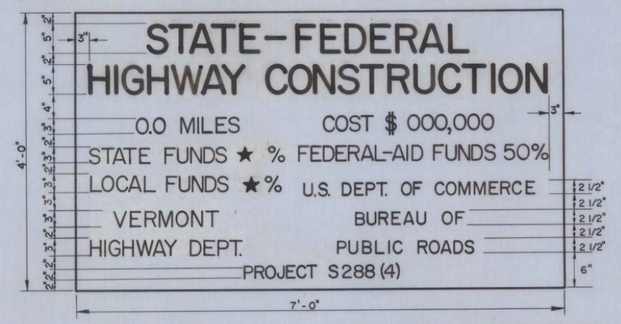
LOCATION.— Construction Identification Signs generally shall be located at each end of the project and on major side roads and numbered routes intersecting or crossing the project.
In detail the signs shall be located where indicated on the plans or designated by the engineer.
The signs shall be placed so as to be completely visible to traffic, and so as not to obscure or detract from the effectiveness of other official signs.

ERECTION.— Construction Identification Signs shall be in position at the time the physical construction work starts on any federal-aid project.
Each sign shall be erected in a neat and workmanlike manner on wood or or steel posts set firmly in the ground, with the bottom of the sign at least 4 feet above the road level. The nearest edge of a sign shall be at least 4 feet outside the shoulder point or 2 feet outside a curb or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. Signs shall be erected to the satisfaction of the engineer.

MAINTENANCE.— Signs shall be in a legible condition satisfactory to the engineer. They shall be completely visible to traffic at all times and present a neat appearance. They shall not be lighted at night.

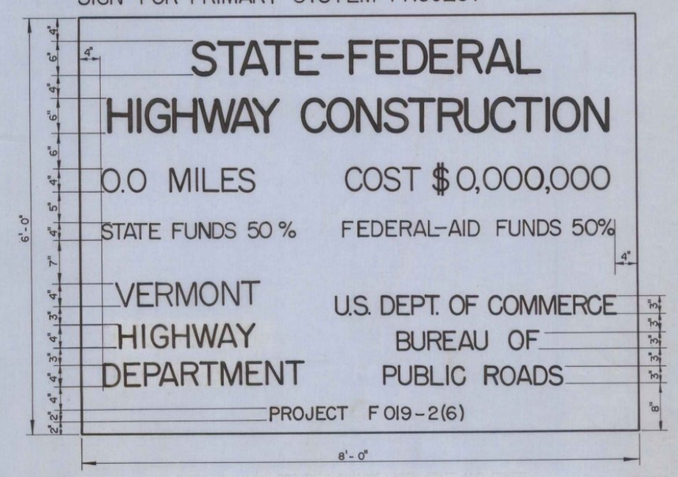
GENERAL.— The cost of furnishing, erecting, maintaining and removing Construction Identification Signs shall be borne by the contractor without additional compensation (See Standard Specifications, Div. I, Section 7, Article 7.07, "Public Convenience and Safety.")

SIGN FOR SECONDARY SYSTEM AND URBAN PROJECT

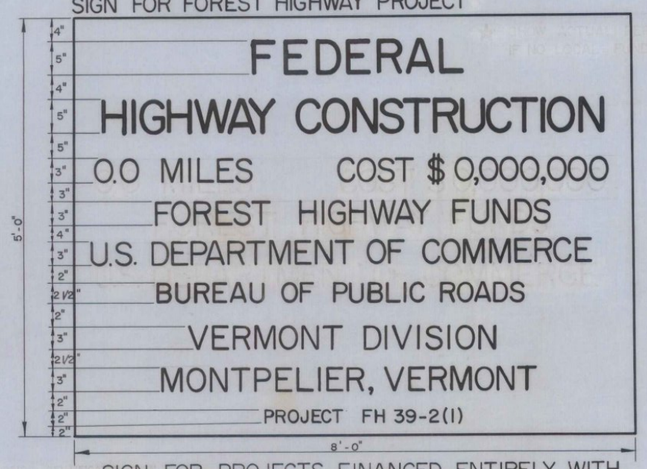


★ SHOW ACTUAL PERCENT OF STATE AND LOCAL FUNDS.
IF NO LOCAL FUNDS ARE USED, SHOW 50% STATE FUNDS

SIGN FOR PRIMARY SYSTEM PROJECT

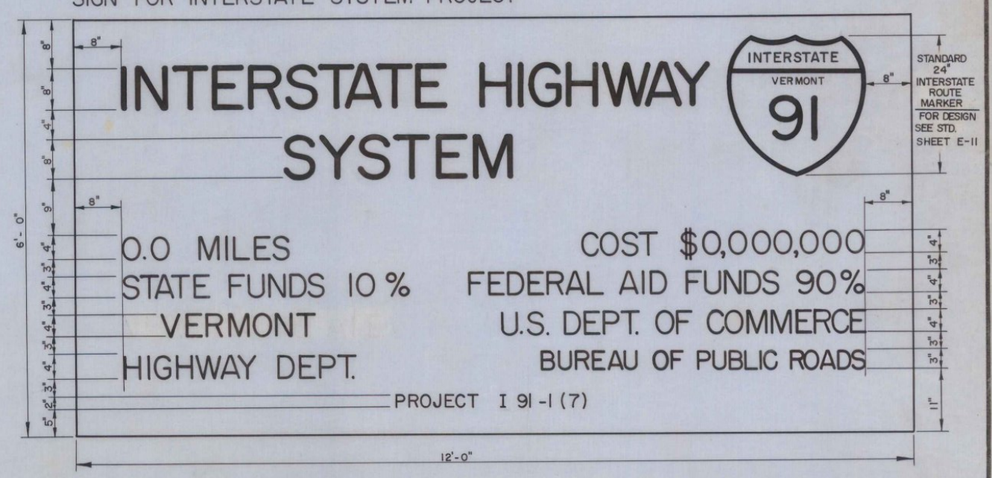


SIGN FOR FOREST HIGHWAY PROJECT



SIGN FOR PROJECTS FINANCED ENTIRELY WITH FOREST HIGHWAY FUNDS.

SIGN FOR INTERSTATE SYSTEM PROJECT



REVISIONS & CORRECTIONS

APPROVED
SEPT 9, 1963

A. D. Bishop — CHIEF ENGINEER
R. H. Arnold — ASST. CHIEF ENGINEER
A. W. Coleman — TRAFFIC ENGINEER
Gordon M. Lane — HIGHWAY ENGINEER
E. H. Hickney — CONSTRUCTION ENGINEER

DRAWN: A J A
TRACED: A J A

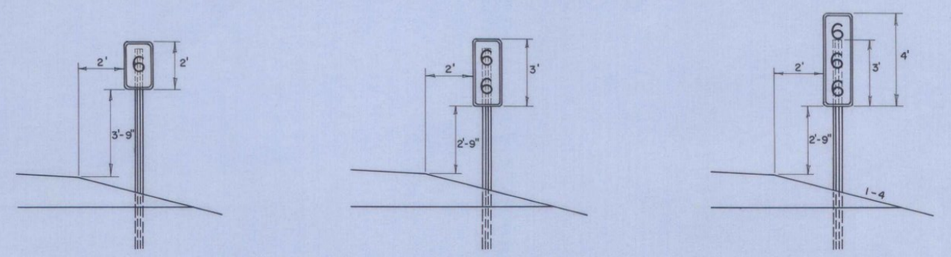
TRAFFIC SIGNS

FEDERAL-AID CONSTRUCTION IDENTIFICATION SIGNS

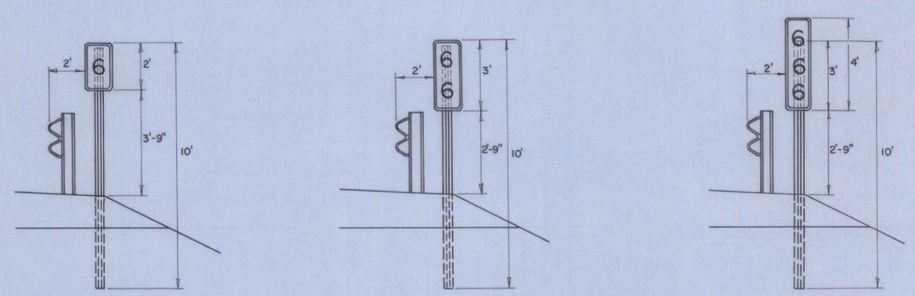
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

Superceded

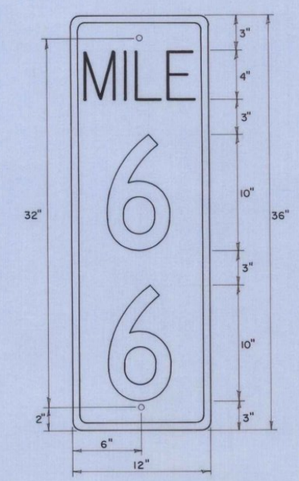
E-31

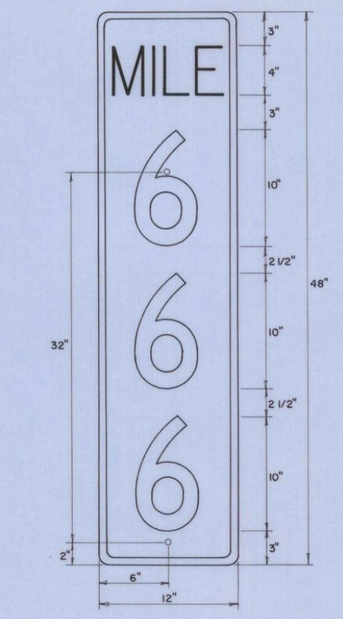


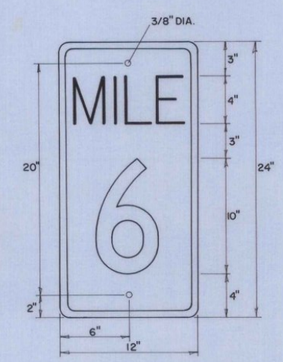
MOUNTING HEIGHTS WITHOUT GUARD RAIL



MOUNTING HEIGHTS WITH GUARD RAIL







Mile post signs shall be of 0.80 flat sheet aluminum with a green baked enamel finish, and numerals and text of white or silver reflective sheeting.
Mile post signs shall be mounted on standard flange channel post.

Colors —
The mile post signs shown on this sheet shall have a green non-reflectorized baked enamel finish background. Numerals and text shall be of reflective white or silver sheeting. The green, white or silver shall conform with the standard colors adopted by the American Association of State Highway Officials and approved by the U.S. Department of Transportation, Federal Highway Administration.

Text Design —
Letters, digits, spacing, and text dimensions shall conform with the standard alphabets and design prescribed in the Manual on Uniform Traffic Control Devices.

Specifications —
Warning signs shall meet the standard state specifications for traffic signs.

VOID

REVISIONS & CORRECTIONS

APPROVED:

Dec. 29, 1971
DATE

R. H. Arnold
CHIEF ENGINEER

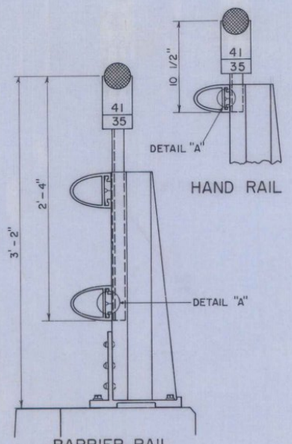
E. B. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

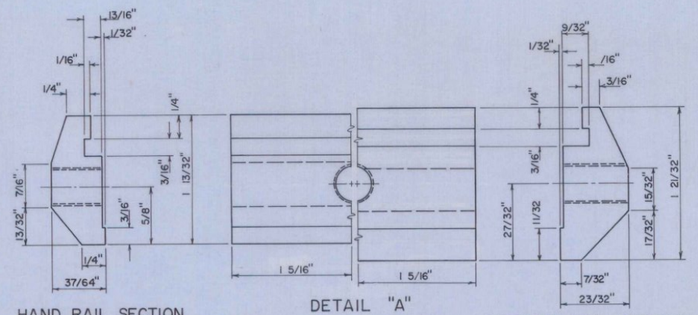
MILE MARKERS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-31



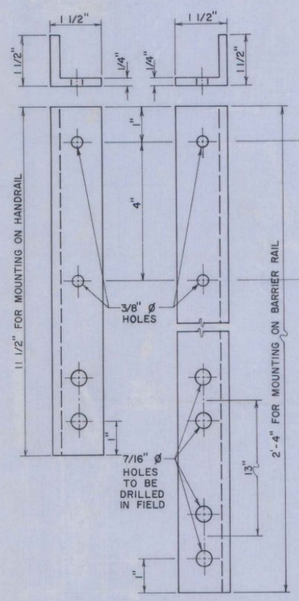
BARRIER RAIL
SECTION A-A
SCALE 1" = 8"



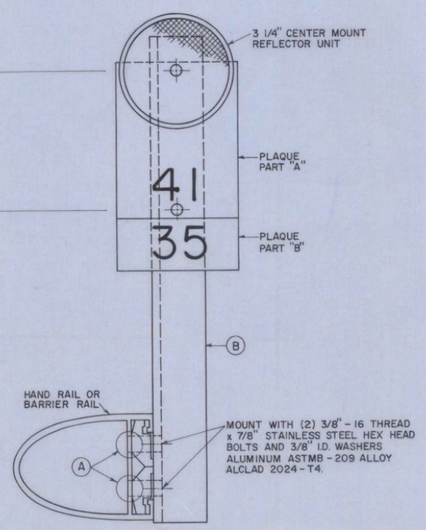
HAND RAIL SECTION

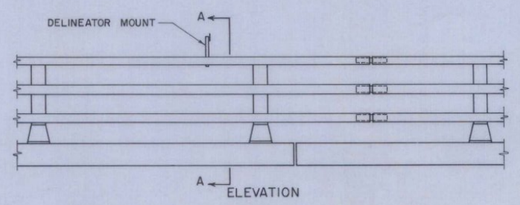
DETAIL "A"
TOTAL LENGTH 2 5/8"
ASTMB - 221 ALLOY 6061 T6 OR 6061 T5
SCALE 1" = 3/4"

BARRIER RAIL SECTION

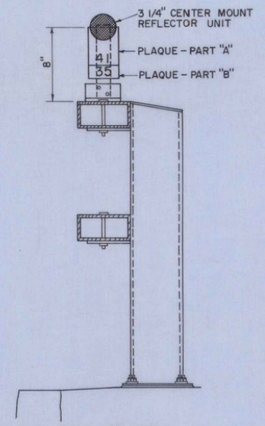


DETAIL "B"
ALUMINUM ANGLE
ASTMB - 308 ALLOY 6061 T6
SCALE 1" = 2"

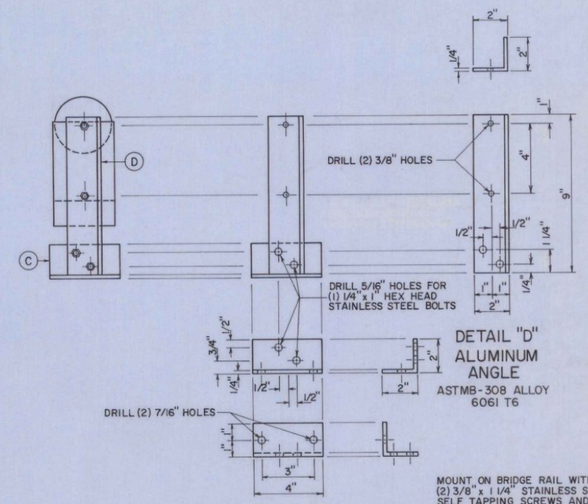




DELINEATOR DETAIL FOR MOUNTING ON ALUMINUM BRIDGE RAIL
MODIFY ALUMINUM RAIL WITH SPINDLES TO ACCOMMODATE
DELINEATOR BRACKET



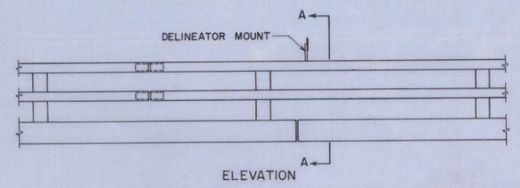
BARRIER RAIL
SECTION A-A
SCALE 1" = 8"



DETAIL "D"
ALUMINUM
ANGLE
ASTMB-308 ALLOY
6061 T6

MOUNT ON BRIDGE RAIL WITH
(2) 3/8" x 1 1/4" STAINLESS STEEL
SELF TAPPING SCREWS AND
3/4" O.D. x 3/8" I.D. x 1/16" THICK
WASHER, ALUMINUM ASTMB-209
ALLOY ALCLAD 2024-T4.

DETAIL "C"
ALUMINUM ANGLE
ASTMB - 308 ALLOY 6061 T6
SCALE 1" = 4"



DELINEATOR DETAIL FOR MOUNTING ON BOX BEAM BRIDGE RAIL

REVISIONS AND CORRECTIONS

APPROVED

DATE 1-10-74

E. H. Stickney
CHIEF ENGINEER

R O Munn
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

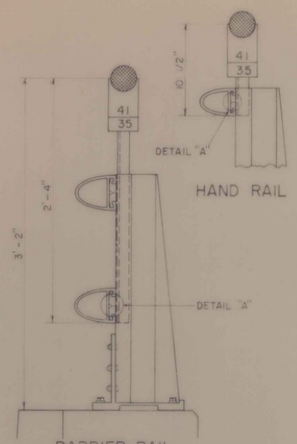
TRAFFIC SIGNS

DELINEATOR MOUNTING ON BRIDGE RAIL

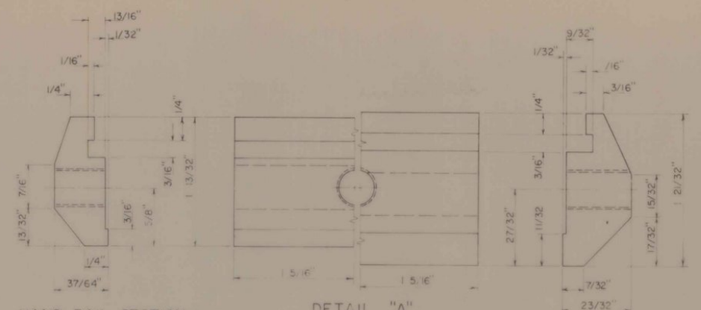
VERMONT
DEPARTMENT
OF HIGHWAYS
STANDARD

E - 32

D-8



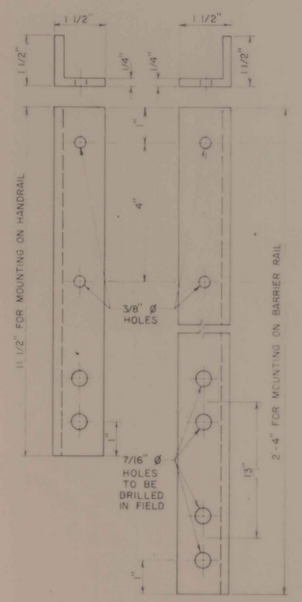
BARRIER RAIL
SECTION A-A
SCALE 1" = 8"



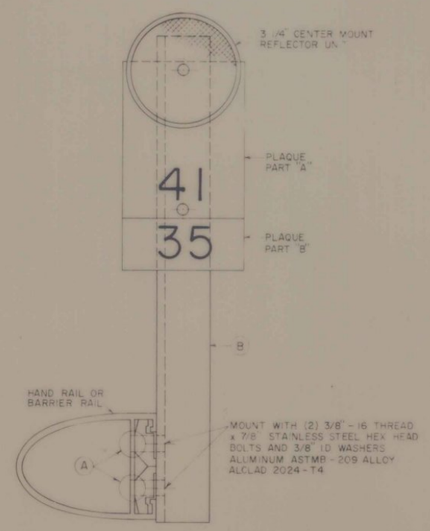
HAND RAIL SECTION

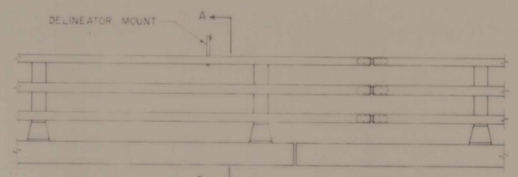
DETAIL "A"
TOTAL LENGTH 2 5/8"
ASTMB - 221 ALLOY 6061 T6 OR 6061 T5
SCALE 1" = 3/4"

BARRIER RAIL SECTION



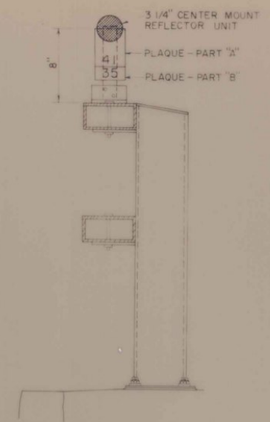
DETAIL "B"
ALUMINUM ANGLE
ASTMB - 308 ALLOY 6061 T6
SCALE 1" = 2"



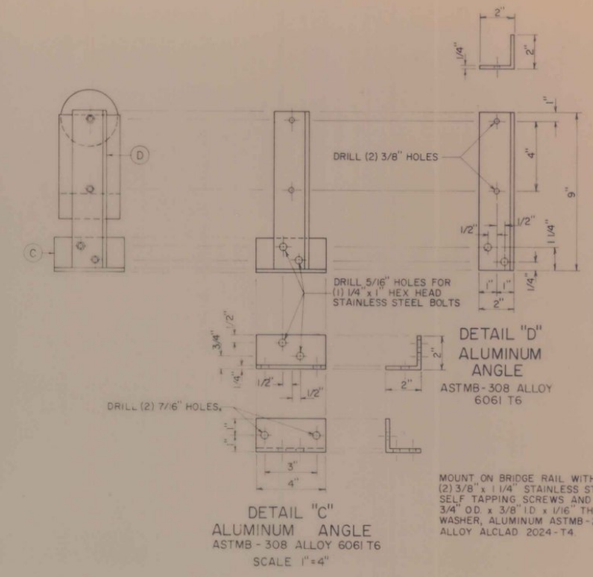


ELEVATION

DELINEATOR DETAIL FOR MOUNTING ON ALUMINUM BRIDGE RAIL
MODIFY ALUMINUM RAIL WITH SPINDLES TO ACCOMMODATE
DELINEATOR BRACKET



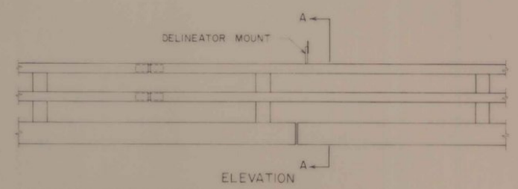
BARRIER RAIL
SECTION A-A
SCALE 1" = 8"



DETAIL "D"
ALUMINUM
ANGLE
ASTMB - 308 ALLOY
6061 T6

DETAIL "C"
ALUMINUM ANGLE
ASTMB - 308 ALLOY 6061 T6
SCALE 1" = 4"

MOUNT ON BRIDGE RAIL WITH
(2) 3/8" x 1 1/4" STAINLESS STEEL
SELF TAPPING SCREWS AND
3/4" OD x 3/8" ID x 1/16" THICK
WASHER, ALUMINUM ASTMB - 209
ALLOY ALCLAD 2024 - T4



ELEVATION

DELINEATOR DETAIL FOR MOUNTING ON BOX BEAM BRIDGE RAIL

REVISIONS AND CORRECTIONS

FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED

DATE 1-10-74

E. H. Stickney
CHIEF ENGINEER

R O Mann
ASST CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

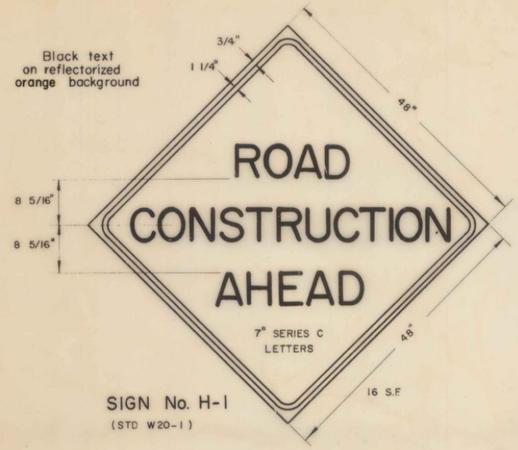
TRAFFIC SIGNS

DELINEATOR MOUNTING ON BRIDGE RAIL

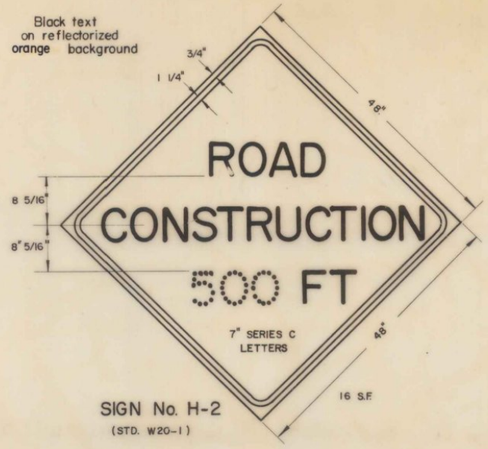
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-32

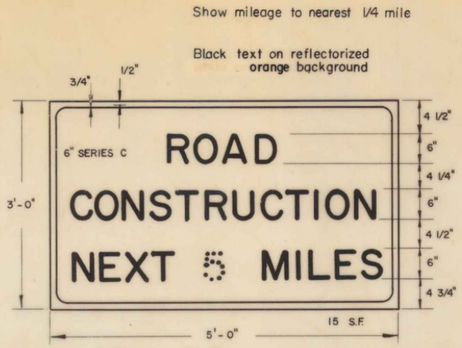
D-8



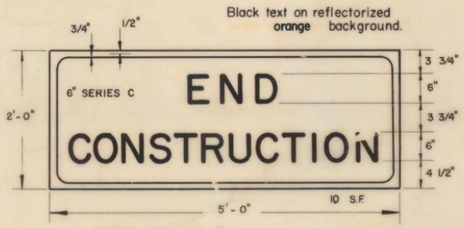
SIGN No. H-1
(STD W20-1)



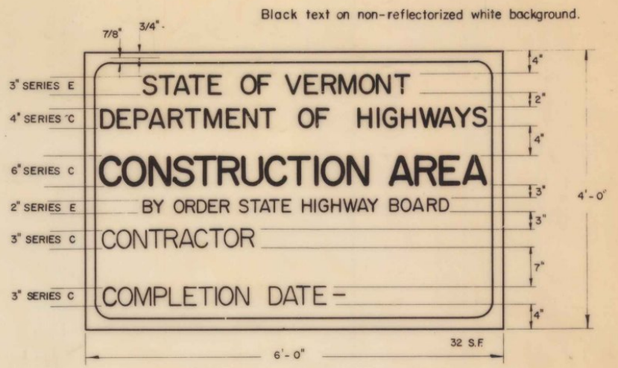
SIGN No. H-2
(STD. W20-1)



SIGN No. H-3 (STD. G20-1)

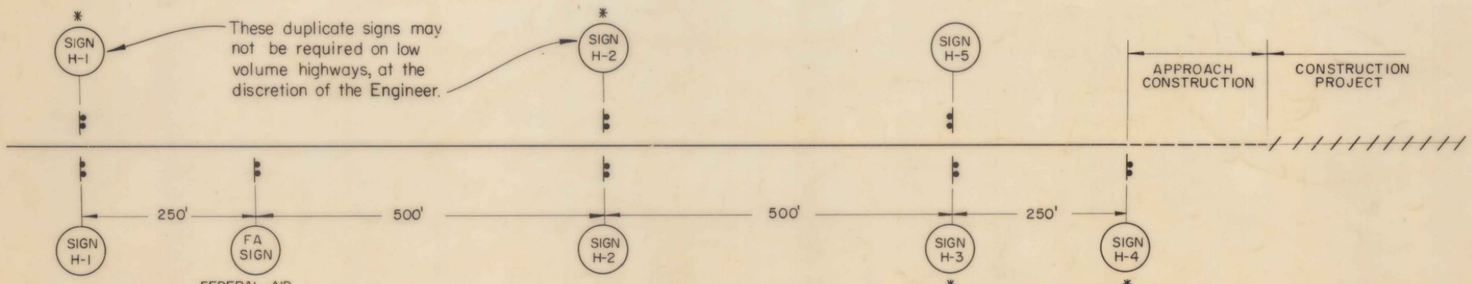


SIGN No. H-5 (STD. G20-2)



SIGN No. H-4
(VERMONT CONSTRUCTION IDENTIFICATION SIGN)

The road construction approach signs shown on this sheet are intended for use in providing advance warning and information on construction projects over which traffic will be maintained. When additional approach signs or other types of advance signing or control are necessary, the Plans and/or the Specifications for that project will give the details of the signs and devices required.



FEDERAL AID CONSTRUCTION IDENTIFICATION SIGN
See Standard Sheet E-31

* THESE SIGNS WILL NOT BE REQUIRED ON ON INTERSECTING HIGHWAYS.

NOTES

LOCATION

Construction approach signs shall be located as detailed on this sheet or otherwise shown on the Plans. They shall appear at each end of the highway under construction, and on all intersecting public highways. The exact placement of any sign will depend on upon the alignment of the highway and the character of the roadsides. The location measurements on this sheet are intended to indicate the sequence to be followed, and the minimum spacing to be observed by the Engineer in determining exact locations.

DESIGN

The designs of the signs shall conform with the details shown on this sheet and with the standards prescribed in the Manual on Uniform Traffic Control Devices prepared by National Joint Committee on Uniform Traffic Control Devices.

MATERIALS

The signs shall be of metal, wood, plywood, hardboard or any other material satisfactory to the Engineer. No material shall be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION

For reflectorizing sign backgrounds, either reflective sheeting or the direct process of glass beads on paint will be acceptable.

ILLUMINATION

If desired by the contractor, and approved by the Engineer, a sign may be illuminated instead of reflectorized. The illumination may be provided by incandescent or flourescent lamps, or by spotlights. Lamps shall be properly shielded to protect drivers from glare. Torches, lanterns or existing street lighting are not acceptable for sign illumination. If the Engineer considers that a reflectorized sign is not adequate, he may order that it be illuminated.

INSTALLATION

The signs shall be in place at the time the project officially commences. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground. The bottom of a sign shall be at least 5 feet above road level, and the nearest edge of a sign shall be at least 6 feet outside the shoulder point or 2 feet outside guard rail, curbing or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. The installation of signs shall be subject to approval of the Engineer.

MAINTENANCE

Signs shall be maintained in a clean and legible condition satisfactory to the Engineer. They shall be completely visible to approaching traffic at all times. They shall be kept plumb and level, and always present a neat appearance. Damaged, defaced or dirty signs shall be repaired, cleaned or replaced as ordered by the Engineer.

GENERAL

The cost of furnishing, erecting, maintaining, and removing all construction approach signs shall be born by the contractor without additional compensation. (See Standard Specifications, Division 1, Article 7.07, "Public Convenience and Safety.")

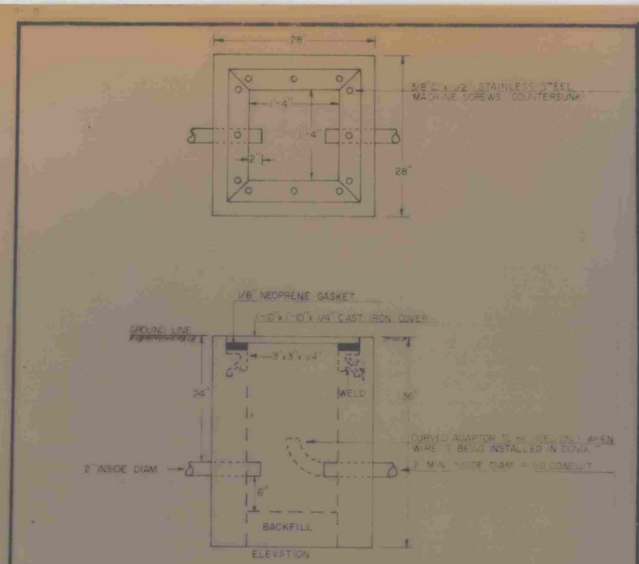
In all phases of construction approach signing, the requirements set forth in the Manual on Uniform Traffic Control Devices shall be met. (See Standard Specifications, Division 1, Section 7, Article 7.08, "Barricades, Warning and Detour Signs.")

REVISIONS AND CORRECTIONS May 6, 1971 Colors revised to conform with the Manual on Uniform Traffic Control Devices, 1971 edition.	APPROVED: JAN 6, 1967 DATE	R H Crowell CHIEF ENGINEER E Brach Bly ASST. CHIEF ENGINEER A L Funk CONSTRUCTION ENGINEER S W Coleman TRAFFIC ENGINEER	TRAFFIC SIGNS ROAD CONSTRUCTION APPROACH SIGNS

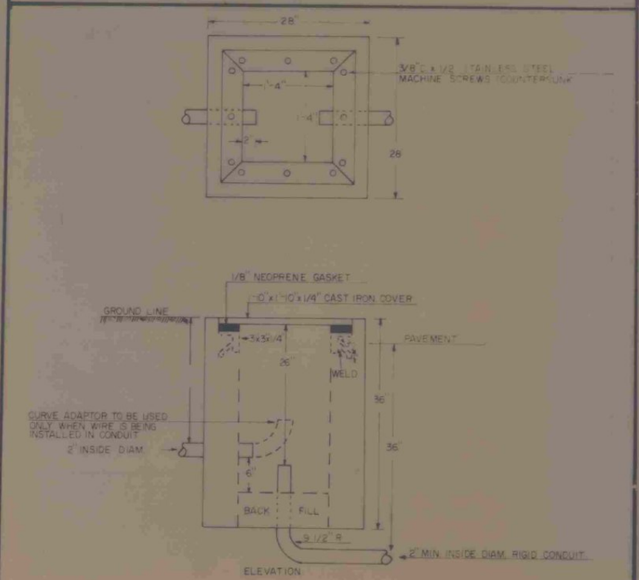
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-32

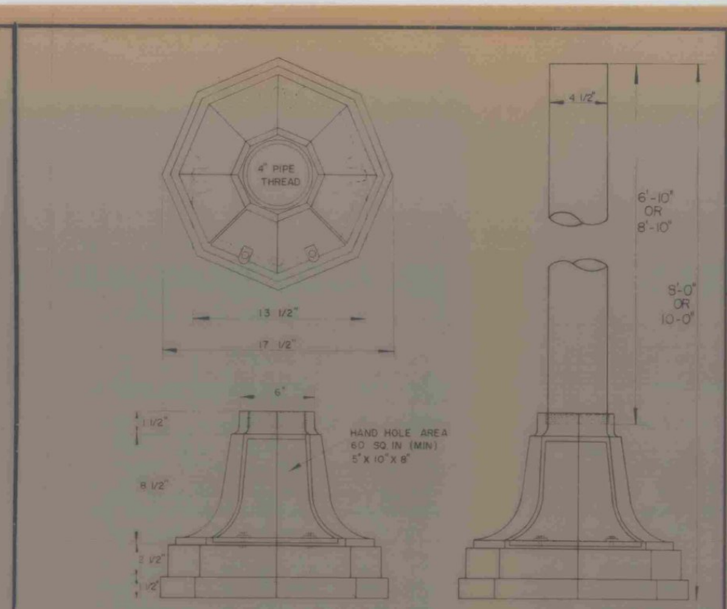
D-8



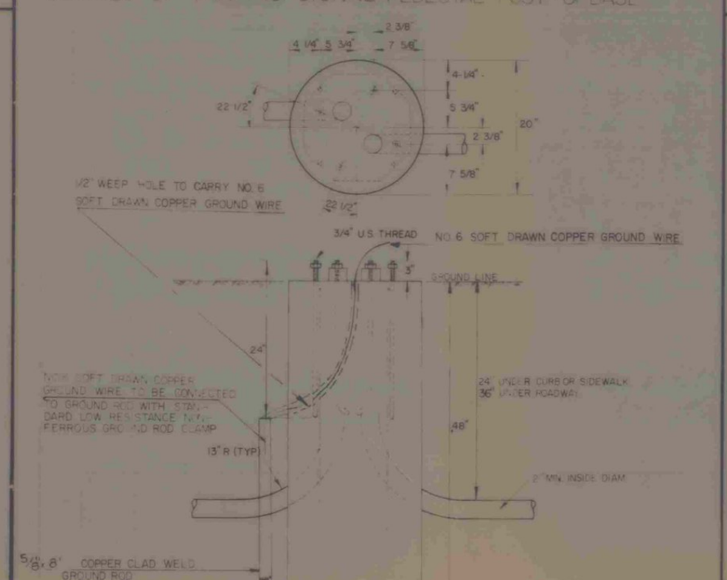
DETAILS OF PULL BOX TYPE -"A"



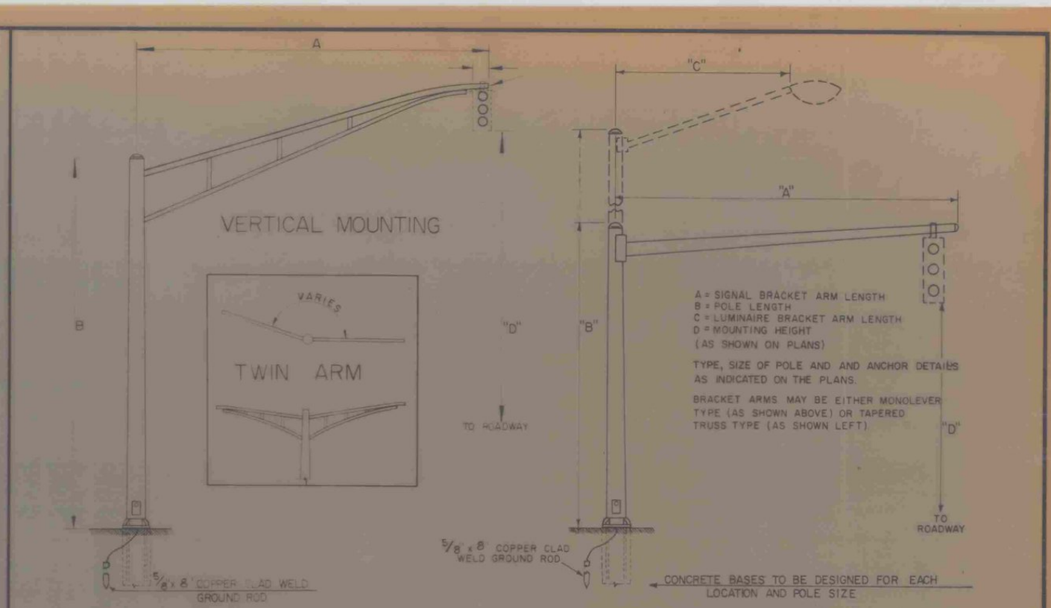
DETAILS OF PULL BOX TYPE-"B"



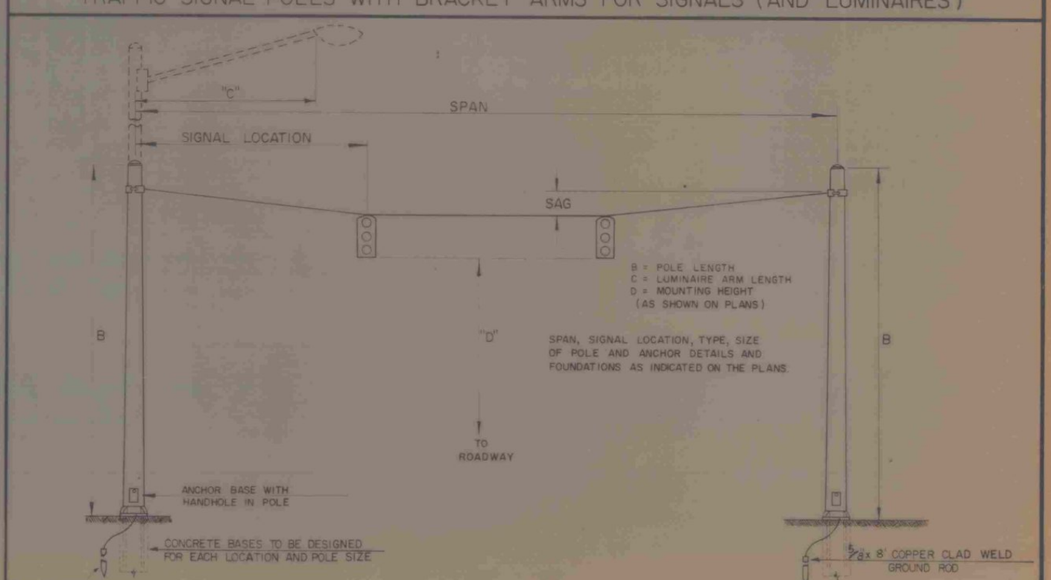
DETAILS OF TRAFFIC SIGNAL PEDESTAL POST & BASE



DETAILS OF CONCRETE BASE FOR ABOVE PEDESTAL POST



TRAFFIC SIGNAL POLES WITH BRACKET ARMS FOR SIGNALS (AND LUMINAIRES)



STRAIN POLES FOR SUSPENDED SIGNALS (AND LUMINAIRES)

REVISIONS AND CORRECTIONS

APRIL 29, 1980 CHANGED MATERIAL SPECIFIED FOR SCREWS ATTACHING COVER TO PULL BOXES.

AUG. 6, 1981 CHANGED GROUND ROD FROM 1" x 10' TO 5/8" x 8'

FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED Dec. 17, 1971
DATE

R H Arnold
CHIEF ENGINEER

E H Stickney
ASST. CHIEF ENGINEER

G M Lane
HIGHWAY ENGINEER

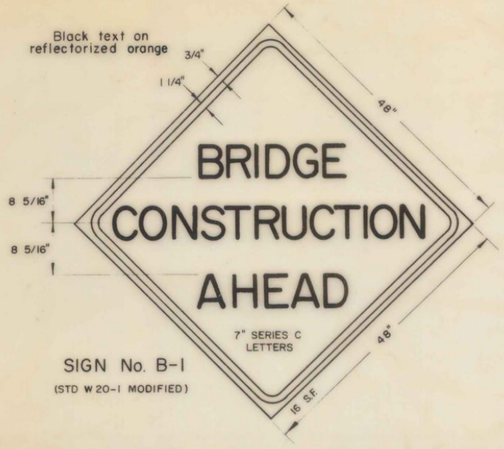
TRAFFIC CONTROL SIGNALS

VERMONT AGENCY OF TRANSPORTATION

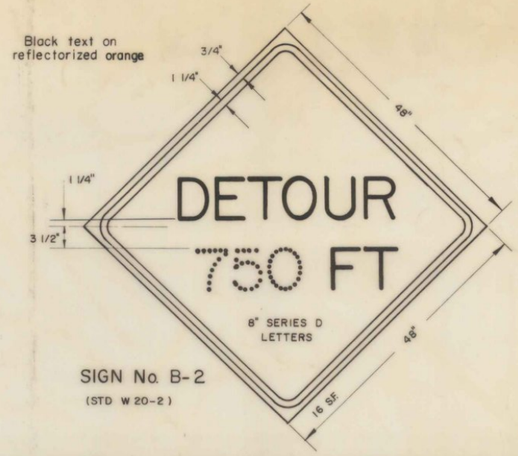
STANDARD

E-33

D-8



SIGN No. B-1
(STD W 20-1 MODIFIED)



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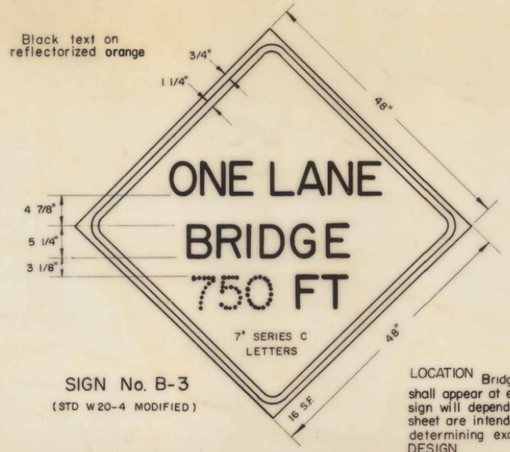
(STD W 20-2)



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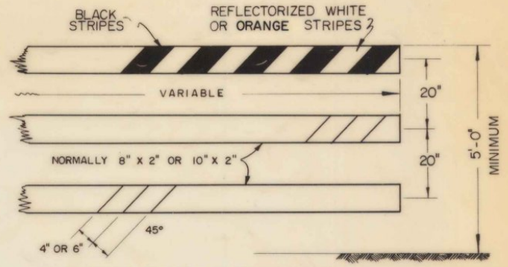
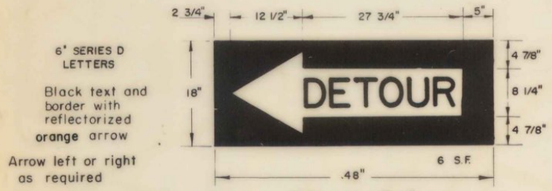
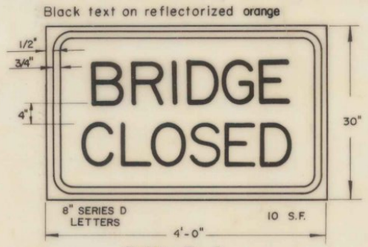
(STD W 20-4 MODIFIED)



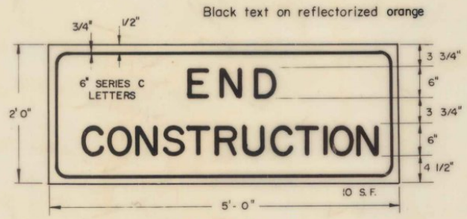
STANDARD CLASS I BARRICADE



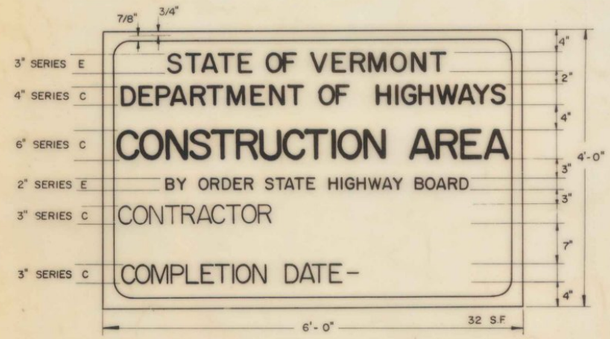
SIGN No. B-6
(STD. M 5-7)



SIGN B-5
(STD. R 10-2 MODIFIED)



SIGN B-7
(STD. G 20-2)

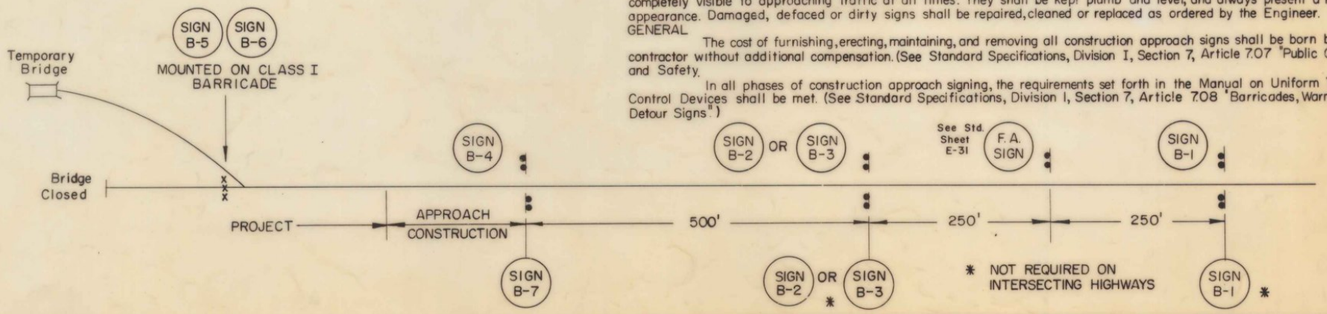


Black text on non-reflectorized white

SIGN No. B-4

VERMONT CONSTRUCTION IDENTIFICATION SIGN

The bridge construction approach signs show on this sheet are intended for use in providing warning and information at isolated bridge projects, although they may be ordered by the Engineer at bridge work on a road construction project. When additional approach signs or other types of signing or control are necessary, the plans and/or the Special Provisions for that project will give the details of the signs and controls required.



NOTES

LOCATION
Bridge construction approach signs shall be located as detailed on this sheet or otherwise shown on the plans. They shall appear at each end of the project under construction, and on intersecting public highways. The exact placement of any sign will depend upon the alignment of the highway and the character of the roadsides. The location measurements on this sheet are intended to indicate the sequence to be followed, and the minimum spacing to be observed by the Engineer in determining exact locations.

DESIGN
The designs of the signs and barricades shall conform with the details shown on this sheet and with the standards prescribed in the Manual on Uniform Traffic Control Devices prepared by National Joint Committee on Uniform Traffic Control Devices.

MATERIALS
The signs shall be of metal, wood, plywood, hardboard or any other material satisfactory to the Engineer. No material shall be approved that will deteriorate by exposure to the weather during the required life of the sign. Barricades normally will be of wood or wood and metal construction.

REFLECTORIZATION
For reflectorizing sign backgrounds, either reflective sheeting or the direct process of glass beads on paint will be acceptable. So-called reflective paint may be used to stripe the barricades, but not for signs.

ILLUMINATION
If desired by the contractor, and approved by the Engineer, a sign may be illuminated instead of reflectorized. The illumination may be provided by incandescent or flourescent lamps, or by spotlights. Lamps shall be properly shielded to protect drivers from glare. Torches, lanterns, or existing street lighting are not acceptable for sign illumination. If the Engineer considers that a reflectorized sign is not adequate, he may order that it be illuminated.

INSTALLATION
The signs and barricades shall be in place at the time the project officially commences. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground. The bottom of a sign shall be at least 5 feet above road level, and the nearest edge of a sign shall be at least 6 feet outside the shoulder point or 2 feet outside the guard rail, curbing or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. The installation of signs and barricades shall be subject to the approval of the Engineer.

BARRICADES
Depending on the nature of the requirements, barricades may be fixed or moveable. For fixed barricades, the horizontal rails shall be mounted on posts set firmly in the ground. Moveable barricades will be appropriate where the movement of equipment must be provided for. In any case, the Road Closed and Detour arrow signs, when used, must be effectively presented to traffic at all times.

MAINTENANCE
Signs shall be maintained in a clean and legible condition satisfactory to the Engineer. They shall be completely visible to approaching traffic at all times. They shall be kept plumb and level, and always present a neat appearance. Damaged, defaced or dirty signs shall be repaired, cleaned or replaced as ordered by the Engineer.

GENERAL
The cost of furnishing, erecting, maintaining, and removing all construction approach signs shall be born by the contractor without additional compensation. (See Standard Specifications, Division I, Section 7, Article 7.07 "Public Convenience and Safety.

In all phases of construction approach signing, the requirements set forth in the Manual on Uniform Traffic Control Devices shall be met. (See Standard Specifications, Division I, Section 7, Article 7.08 "Barricades, Warning and Detour Signs.")

REVISIONS AND CORRECTIONS

May 6, '97 Colors revised to conform with the Manual on Uniform Traffic Control Devices '97' edition

APPROVED
JAN 6, 1967
DATE

R. H. Crandel
CHIEF ENGINEER

E. Beach Bly
ASST. CHIEF ENGINEER

R. J. Funk
CONSTRUCTION ENGINEER

A. W. Coleman
TRAFFIC ENGINEER

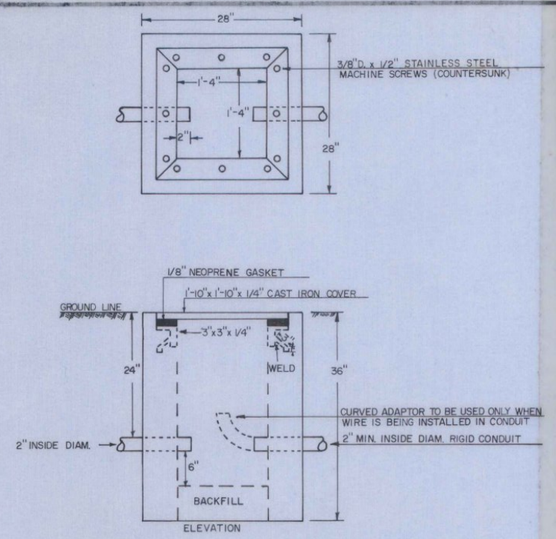
TRAFFIC SIGNS

BRIDGE CONSTRUCTION APPROACH SIGNS

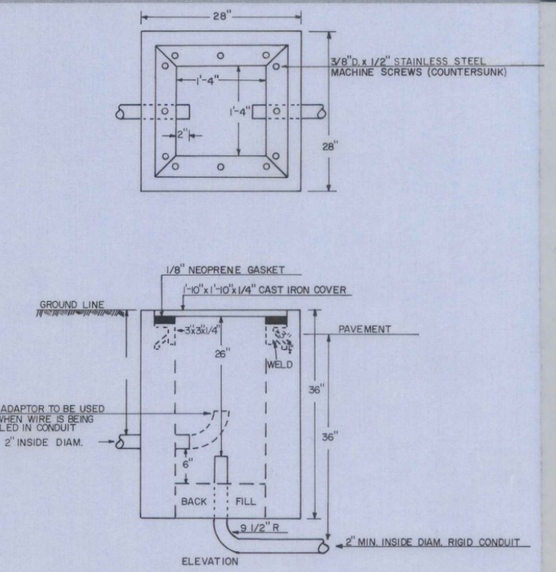
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-33

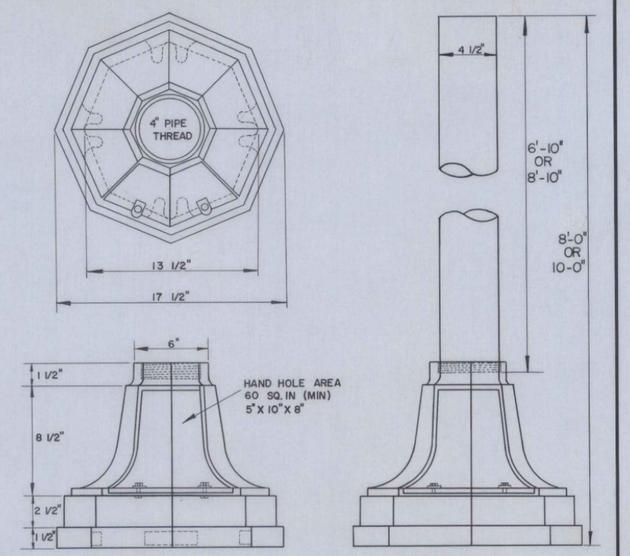
D-9



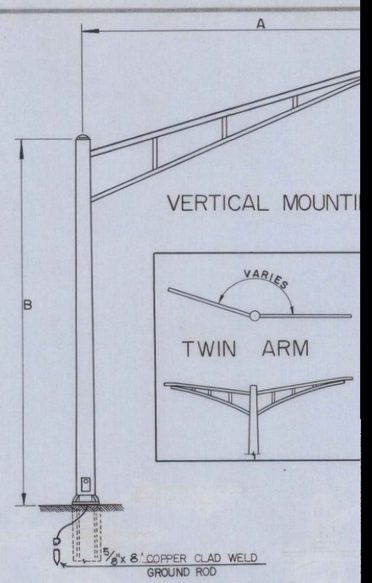
DETAILS OF PULL BOX TYPE -"A"



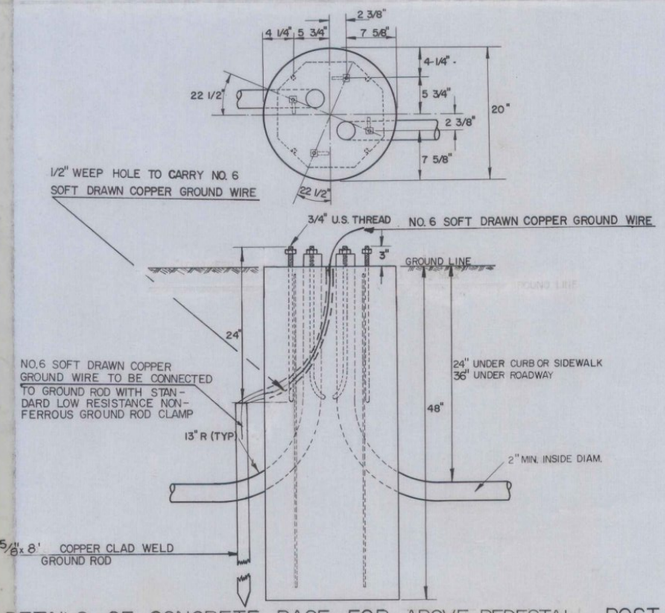
DETAILS OF PULL BOX TYPE-"B"



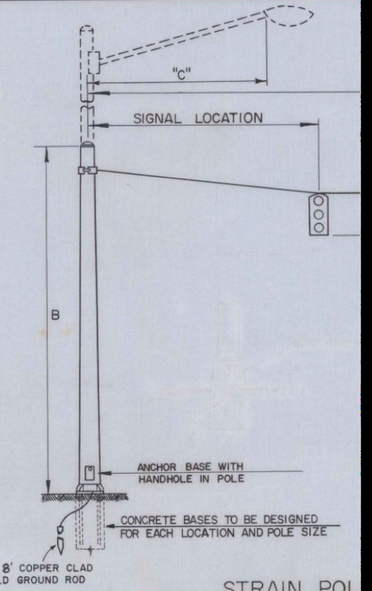
DETAILS OF TRAFFIC SIGNAL PEDESTAL POST & BASE



TRAFFIC SIGNAL POLES WITH



DETAILS OF CONCRETE BASE FOR ABOVE PEDESTAL POST



STRAIN POL
(AND LUMIN

REVISIONS AND CORRECTIONS

APRIL 29, 1980 CHANGED MATERIAL SPECIFIED FOR SCREWS ATTACHING COVER TO PULL BOXES.

AUG. 6, 1981 CHANGED GROUND ROD FROM 1"X 10' TO 5/8"X 8'

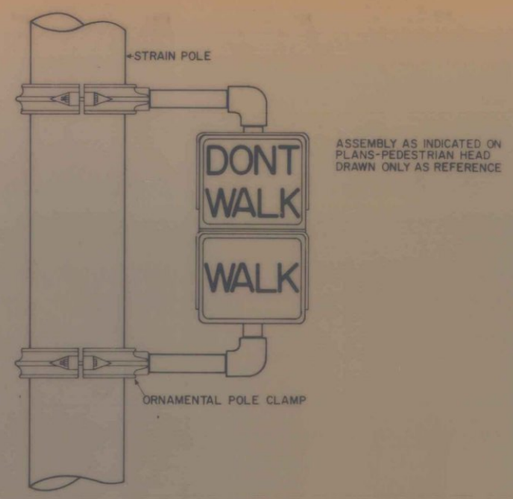
APPROVED Dec. 17, 1971
DATE

R H Arnold
CHIEF ENGINEER

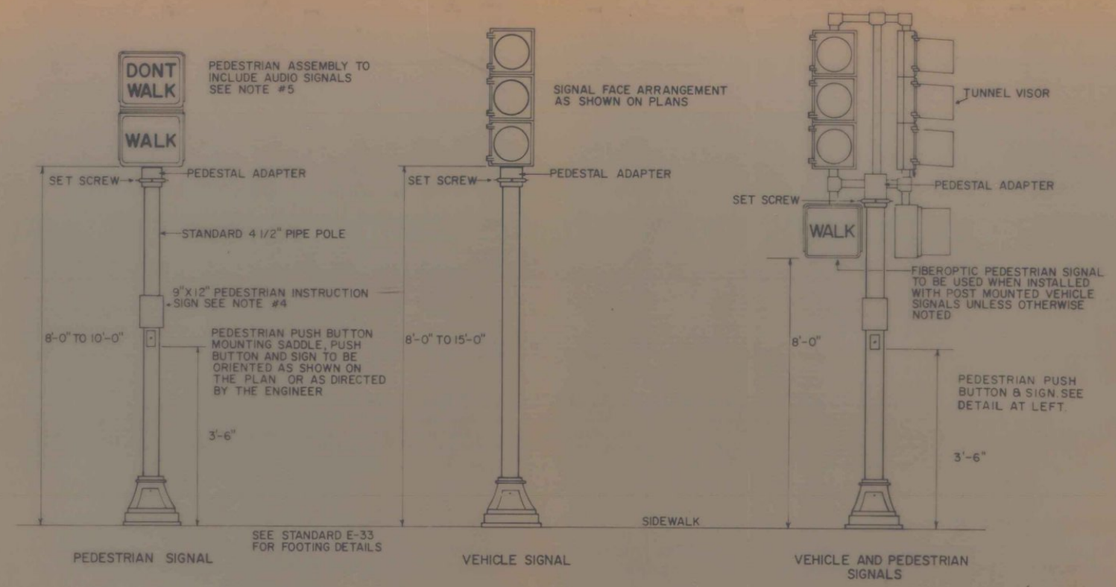
E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Law
HIGHWAY ENGINEER

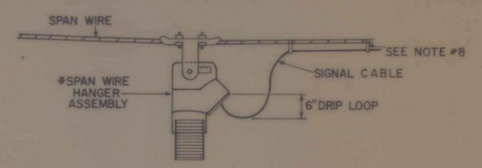
TRAFFIC CONTROL SIGNALS



POLE MOUNTING DETAIL



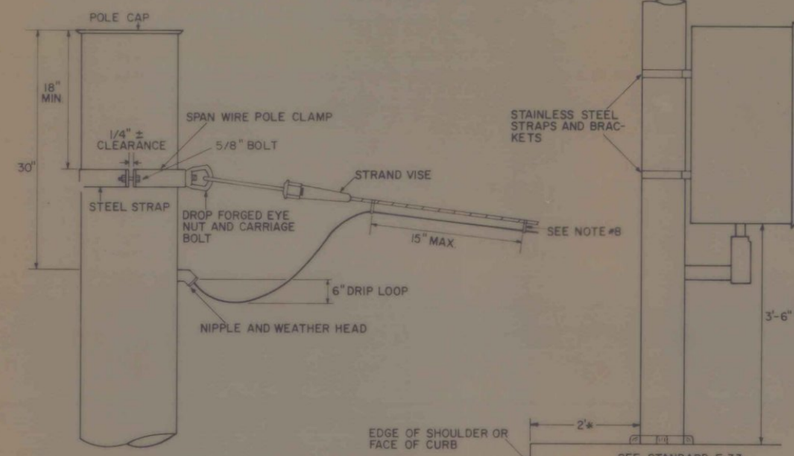
PEDESTAL POLE INSTALLATION



WHERE BACKPLATES ARE REQUIRED, THE SIGNAL IS TO BE LOWER SO THAT THE BACKPLATE IS BELOW MESSENGER CABLE.

*A SWIVEL BALANCE ADJUSTER MAY BE REQUIRED WHEN MULTIFACE SIGNAL HEADS WILL NOT HANG PLUMB.

SPAN WIRE MOUNTING TYPICAL



CABLE INSTALLATION TYPICAL WITH SPAN WIRE POLE CLAMP

*WHEN LOCATED IN AREAS 25 MPH OR LESS, 2', GREATER THAN 25 MPH, 6', IN SIDEWALK AREAS, 1' BEHIND SIDEWALK.

POLE MOUNTED CONTROL CABINET TYPICAL

NOTES

1) Dimension "D" as shown on Standard E-33 shall not be less than 16'-6", unless otherwise stated.

2) For solid state equipment, the traffic signal equipment design and performance shall meet or exceed all requirements of the NEMA Standards for traffic control systems.

3) All electrical wire and cable shall be copper. Electrical signal cable from traffic signal controller to signal heads shall be composed of A.W.G. #12 stranded conductors.

4) Pedestrian push buttons should be mounted 3.5 feet above the sidewalk or ground with the "PUSH BUTTON FOR WALK SIGNAL" sign mounted immediately above or incorporated in the Push Button Unit. The unit shall include a pilot light which upon actuation, shall be illuminated until the "WALK" **indication, steady or flashing, is displayed.**

5) The pedestrian signal heads shall have audio signals to indicate allowable pedestrian movement for the visually impaired during the pedestrian phase. They shall be of the type normally used for such an installation and be wired in such a way as to be easily disconnected. The audio signal shall be a steady tone during the walk interval. The contractor shall submit the proposed system for review prior to installation.

6) Signal timing is approximate and is not to be considered final. All necessary hardware to change the timing shall be on hand when the lights are installed. The Resident Engineer shall perform checks during the AM and PM peak periods to insure optimum settings. If required, appropriate timing changes shall be made to "tune" the controller to its best efficiency prior to final inspection. Timing changes will be established by a representative of the VAOT Traffic Design Section. Timing adjustments shall be subsidiary to Item 678.15 Traffic Control Signals.

7) The traffic signal strain poles shall be back raked before the wires and signals are installed so that the poles will have a pleasing appearance when dead load deflection due to span wire and signal heads occurs. The amount of set back shall be as shown on the plans.

8) The stranded conductor signal cable shall be attached to the span wire by galvanized steel cable rings every 15 inches or attached to the span wire with stainless alloy, 430 lashing (spinning) wire.

9) When street lights are installed on a traffic signal strain pole, the luminaires and mast arms are included under the Item 678.15 Traffic Control Signals. Particular attention should be given to Section 679 Street Lighting to ensure compliance with all the requirements of that section.

10) When pavement markings are included as contract items, the contractor shall be responsible for the maintenance of the pavement markings until the project is accepted. If the markings become discolored, faded or worn, they shall be replaced at no additional cost. Pavement markings shall be applied as soon as the roadway surface is completed. The signal system shall not operate without the appropriate pavement markings.

11) The signal heads shall be covered with an opaque covering until such time as the signal system is functional. At no time should the heads be viewed without having some form of signal indication i.e. flashing operation or sequencing as per plan.

12.) THE CONFLICT MONITOR SHALL BE CAPABLE OF DETECTING A LACK OF RED SIGNAL AS WELL AS THE GREEN, YELLOW & WALK SIGNALS.

13.) THE CABINET AMPLIFIERS & PHASE MODULES INSIDE THE CONTROLLER CABINET SHALL HAVE LABELS TO INDICATE WHICH MOVEMENT GOES WITH EACH. THE LABELS SHALL BE 1/2" WIDE PLASTIC SELF STICKING TAPE WITH RAISED LETTERS.

14.) PEDESTRIAN PUSH BUTTONS SHALL BE INSTALLED AT EACH END OF EACH CROSSWALK WHERE ACTUATED PEDESTRIAN SIGNALS ARE INSTALLED OR AS SHOWN ON THE PLANS.

15.) THE CONTRACTOR SHALL PROVIDE TWO COPIES OF THE INSTRUCTION MANUALS FOR THE CONTROLLER, LOOP DETECTORS, CONFLICT MONITORS AND ANY OTHER EQUIPMENT INCLUDED IN THE CABINET, ONE COPY IS TO BE KEPT IN THE CABINET AND THE OTHER GIVEN TO THE PARTY RESPONSIBLE FOR MAINTENANCE OF THE SIGNAL SYSTEM.

16.) FOR PROGRAMABLE SOLID STATE CONTROLLERS TWO COPIES OF THE FINAL PROGRAM LISTING SHALL BE PROVIDED AND DISTRIBUTED AS DETAILED IN NOTE 15.

17.) PHASING CHANGES, IF REQUESTED AND FEASIBLE, SHALL BE CONSIDERED AS PART OF THE CONTRACT. EXTRA COMPENSATION FOR THE CHANGES, WILL BE AUTHORIZED FOLLOWING APPROVAL OF THE ESTIMATE.

DSP
Have Dale put these old standards in the drawer. I'll show him where it no one knows the location
ASR

REVISIONS AND CORRECTIONS

DATE: 8/23/82 NOTES 12, 13 & 14 ADDED TO PLANS
3/22/83 Notes 15, 16, 17 added to sheet
FEB. 3, 1986 — UPDATED TO 1986 SPECIFICATIONS

APPROVED: JULY 31, 1981
DATE

DIRECTOR OF ENGINEERING AND CONSTRUCTION

CHIEF OF DESIGN

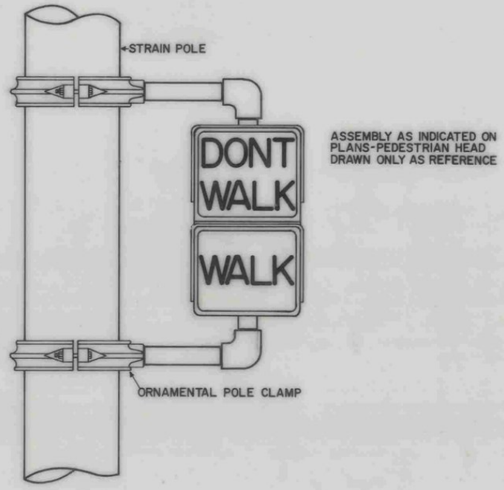
TRANSPORTATION DESIGN ENGINEER

TRAFFIC SIGNAL ITEM DETAILS

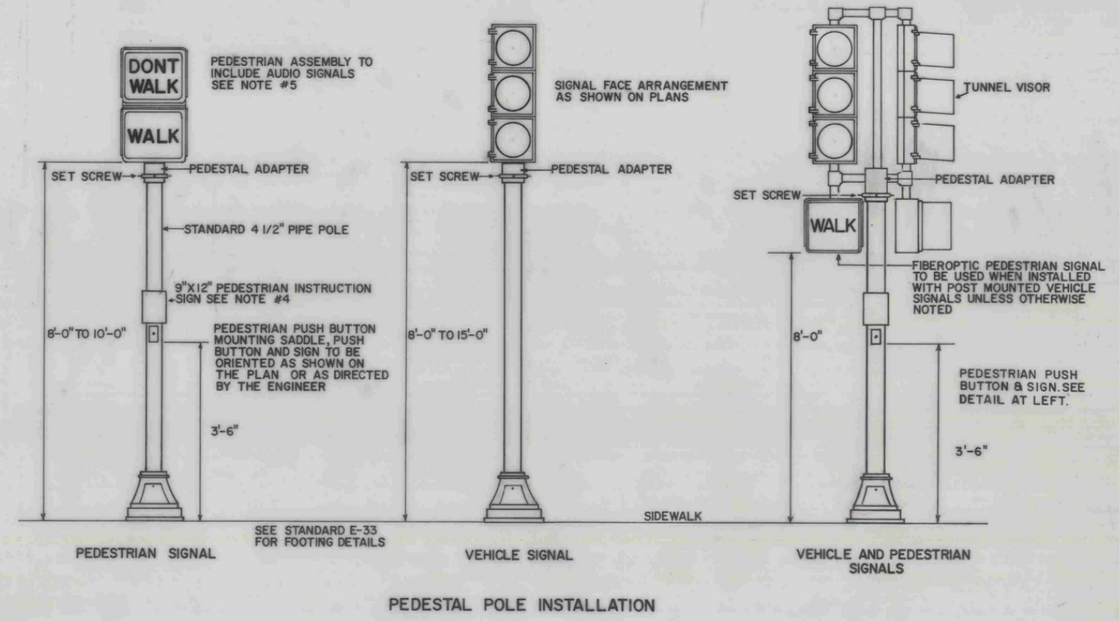
VERMONT AGENCY OF TRANSPORTATION

STANDARD

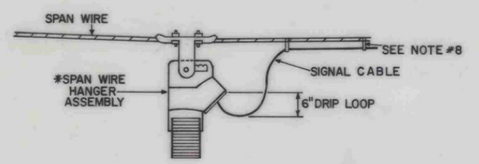
E-34



POLE MOUNTING DETAIL



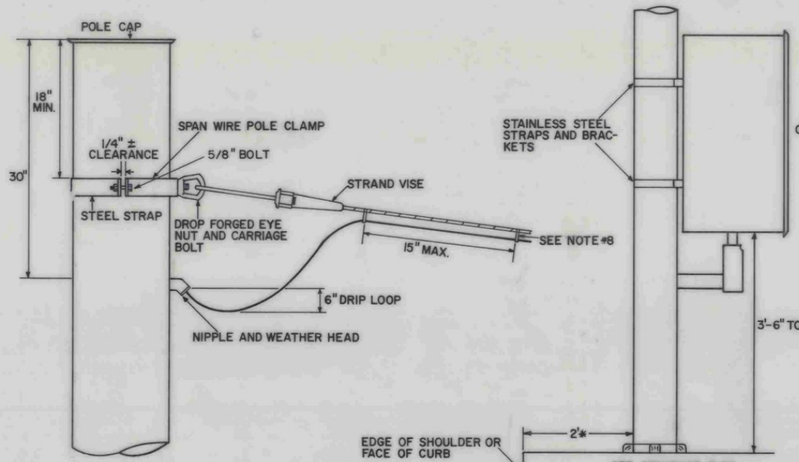
PEDESTAL POLE INSTALLATION



WHERE BACKPLATES ARE REQUIRED, THE SIGNAL IS TO BE LOWER SO THAT THE BACKPLATE IS BELOW MESSENGER CABLE.

*A SWIVEL BALANCE ADJUSTER MAY BE REQUIRED WHEN MULTIFACE SIGNAL HEADS WILL NOT HANG PLUMB.

SPAN WIRE MOUNTING TYPICAL



CABLE INSTALLATION TYPICAL WITH SPAN WIRE POLE CLAMP

POLE MOUNTED CONTROL CABINET TYPICAL

NOTES

1) Dimension "D" as shown on Standard E-33 shall not be less than 16'-6", unless otherwise stated.

2) For solid state equipment, the traffic signal equipment design and performance shall meet or exceed all requirements of the NEMA Standards for traffic control systems.

3) All electrical wire and cable shall be copper. Electrical signal cable from traffic signal controller to signal heads shall be composed of A.W.G. #12 stranded conductors.

4) Pedestrian push buttons should be mounted 3.5 feet above the sidewalk or ground with the "PUSH BUTTON FOR WALK SIGNAL" sign mounted immediately above or incorporated in the Push Button Unit. The unit shall include a pilot light which upon actuation, shall be illuminated until the "WALK" indication, steady or flashing, is displayed.

5) The pedestrian signal heads shall have audio signals to indicate allowable pedestrian movement for the visually impaired during the pedestrian phase. They shall be of the type normally used for such an installation and be wired in such a way as to be easily disconnected. The audio signal shall be a steady tone during the walk interval The contractor shall submit the proposed system for review prior to installation.

6) Signal timing is approximate and is not to be considered final. All necessary hardware to change the timing shall be on hand when the lights are installed. The Resident Engineer shall perform checks during the AM and PM peak periods to insure optimum settings. If required, appropriate timing changes shall be made to "tune" the controller to its best efficiency prior to final inspection. Timing changes will be established by a representative of the VAOT Traffic Design Section. Timing adjustments shall be subsidiary to Item 678.15, Traffic Control Signals.

7) The traffic signal strain poles shall be back raked before the wires and signals are installed so that the poles will have a pleasing appearance when dead load deflection due to span wire and signal heads occurs. The amount of set back shall be as shown on the plans.

8) The stranded conductor signal cable shall be attached to the span wire by galvanized steel cable rings every 15 inches or attached to the span wire with stainless alloy .430 lashing (spinning) wire.

9) When street lights are installed on a traffic signal strain pole, the luminaires and mast arms are included under the Item 678.15, Traffic Control Signals. Particular attention should be given to Section 679 Street Lighting to ensure compliance with all the requirements of that section.

10) When pavement markings are included as contract items, the contractor shall be responsible for the maintenance of the pavement markings until the project is accepted. If the markings become discolored, faded or worn, they shall be replaced at no additional cost. Pavement markings shall be applied as soon as the roadway surface is completed. The signal system shall not operate without the appropriate pavement markings.

11) The signal heads shall be covered with an opaque covering until such time as the signal system is functional. At no time should the heads be viewed without having some form of signal indication i.e., flashing operation or sequencing as per plan.

12.) THE CONFLICT MONITOR SHALL BE CAPABLE OF DETECTING A LACK OF RED SIGNAL AS WELL AS THE GREEN, YELLOW & WALK SIGNALS.

13.) THE CABINET AMPLIFIERS & PHASE MODULES INSIDE THE CONTROLLER CABINET SHALL HAVE LABELS TO INDICATE WHICH MOVEMENT GOES WITH EACH. THE LABELS SHALL BE 1/2" WIDE PLASTIC SELF STICKING TAPE WITH RAISED LETTERS.

14.) PEDESTRIAN PUSH BUTTONS SHALL BE INSTALLED AT EACH END OF EACH CROSSWALK WHERE ACTUATED PEDESTRIAN SIGNALS ARE INSTALLED OR AS SHOWN ON THE PLANS.

15.) THE CONTRACTOR SHALL PROVIDE TWO COPIES OF THE INSTRUCTION MANUALS FOR THE CONTROLLER, LOOP DETECTORS, CONFLICT MONITORS AND ANY OTHER EQUIPMENT INCLUDED IN THE CABINET. ONE COPY IS TO BE KEPT IN THE CABINET AND THE OTHER GIVEN TO THE PARTY RESPONSIBLE FOR MAINTENANCE OF THE SIGNAL SYSTEM.

16.) FOR PROGRAMABLE SOLID STATE CONTROLLERS TWO COPIES OF THE FINAL PROGRAM LISTING SHALL BE PROVIDED AND DISTRIBUTED AS DETAILED IN NOTE 15.

17.) PHASING CHANGES, IF REQUESTED AND FEASIBLE, SHALL BE CONSIDERED AS PART OF THE CONTRACT. EXTRA COMPENSATION FOR THE CHANGES WILL BE AUTHORIZED FOLLOWING APPROVAL OF THE ESTIMATE.

REVISIONS AND CORRECTIONS

DATE: 8/23/82 NOTES 12,13 & 14 ADDED TO PLANS
3/22/83 Notes 15, 16, 17 added to sheet

APPROVED: JULY 31, 1981
DATE

S. J. Gage
DIRECTOR OF ENGINEERING AND CONSTRUCTION

Arthur J. Gross
CHIEF OF DESIGN

Leon E. Jones
TRANSPORTATION DESIGN ENGINEER

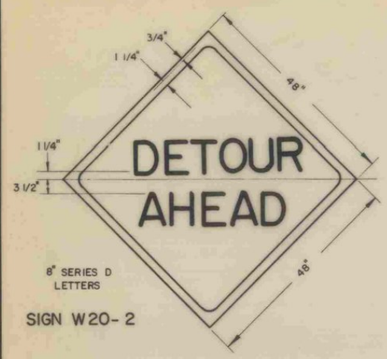
TRAFFIC SIGNAL ITEM DETAILS

VERMONT AGENCY OF TRANSPORTATION

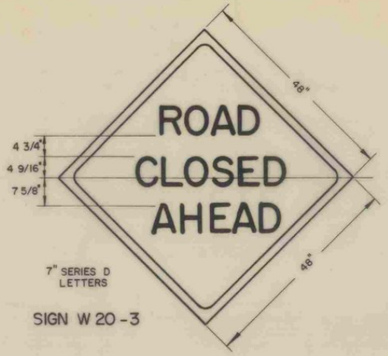
STANDARD

E-34

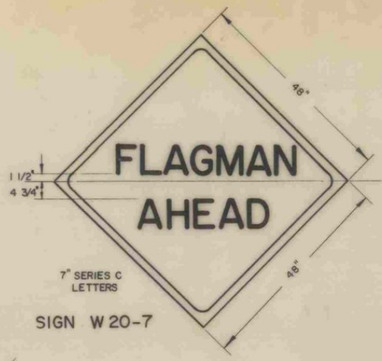
ALL DIAMOND SHAPED SIGNS SHALL HAVE BLACK TEXTS ON A ORANGE BACKGROUND. IF A MESSAGE IS TO BE CONVEYED DURING THE HOURS OF DARKNESS, THE BACKGROUND SHALL BE REFLECTORIZED OR THE ENTIRE SIGN SHALL BE ILLUMINATED.



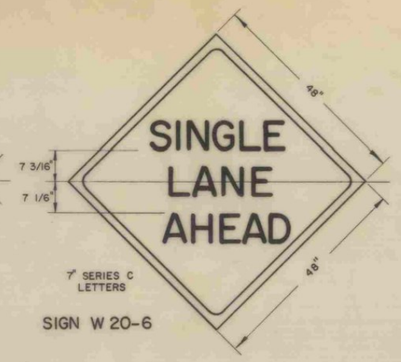
SIGN W20-2



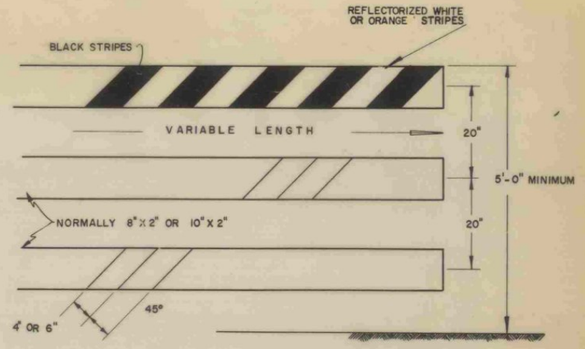
SIGN W20-3



SIGN W20-7

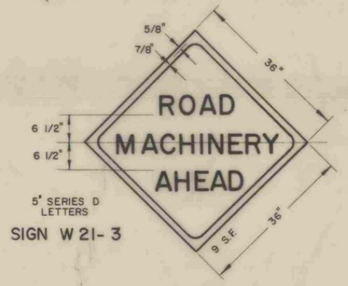


SIGN W20-6

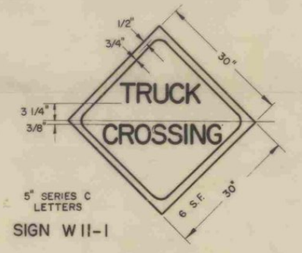


STANDARD CLASS I BARRICADE

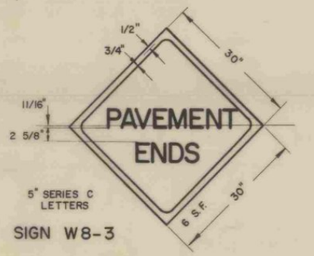
SEE NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR ADDITIONAL SIGNS RELATED TO SPECIFIC CONSTRUCTION SITUATIONS.



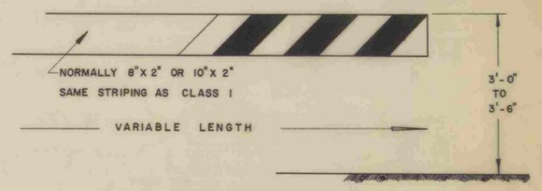
SIGN W21-3



SIGN W11-1



SIGN W8-3



STANDARD CLASS II BARRICADE

NOTES

APPLICATION OF STANDARDS

Since it is not possible to prescribe detailed standards of application for all of the situations that may conceivably arise on a construction project, reference must be made to the National Manual on Uniform Traffic Control Devices for the principles, procedures and and standards that will be required in connection with on-project construction signs and barricades. The signs here shown represent a sample of those that probably will be most used.

DESIGN

The designs of the signs and barricades shall conform with the details shown on this sheet and with the standards prescribed in the Manual. Deviations will not be permitted. Signs and barricades that are to convey their messages during the hours of darkness shall be reflectorized or illuminated.

MATERIALS

The signs shall be of metal, wood, plywood, hardwood or any other material satisfactory to the Engineer. No material shall be approved that will deteriorate by exposure to the weather during the required life of the sign. Barricades normally will be of wood or wood and metal construction.

REFLECTORIZATION

For reflectorization sign backgrounds, either reflective sheeting or the direct process of glass beads on paint will be acceptable. So-called reflective paint may be used to stripe the barricades, but not for signs.

ILLUMINATION

If desired by the contractor and approved by the Engineer, a sign or barricade may be illuminated instead of reflectorized. The illumination may be provided by incandescent or flourescent lamps, or by spotlights. Lamps shall be properly shielded to protect drivers from glare. Torches, lanterns, or existing street lighting are not acceptable for illumination.

INSTALLATION

Signs and barricades shall be in place prior to the start of the construction operation to which they apply, and shall be removed promptly when the need no longer exists. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground, or on portable supports for temporary use, or on barricades when appropriate. As a general rule, roadside signs shall be 5 feet above road level with the nearest edge at least 6 feet outside the shoulder point. The installation of all signs and barricades shall be subject to the approval of the Engineer.

BARRICADES

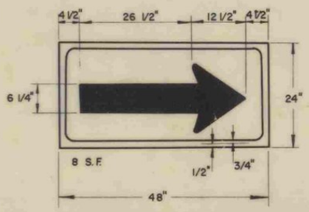
Class I barricades shall be used for major operations where the barricade must be in place for extended periods. Class II barricades are for minor hazards, or for the more or less continuous delimiting of a restricted roadway, or for temporary daytime use.

MAINTENANCE

Signs shall be kept in a clean and legible condition at all times with the reflective quality completely unimpaired. Signs, sign supports, and barricades shall be repaired, cleaned, repainted or replaced whenever necessary. Torches, lanterns and fires shall not be placed so close to signs and barricades as scorch them or deposit soot on them. Weeds, shrubbery, construction materials, equipment, and snow shall not be allowed to obscure any sign or barricade. The maintenance of all traffic control devices shall be subject to the orders of the Engineer.

SIGN R10-2

BLACK ON REFLECTORIZED ORANGE



SIGN W1-6

BLACK ON REFLECTORIZED ORANGE
ARROW RIGHT OR LEFT AS REQUIRED

SIGN M5-7

BLACK TEXT AND BORDER WITH REFLECTORIZED ORANGE ARROW

The on-project construction signs and barricades covered by this sheet are intended to be used as the situations apply within normal two-lane highway construction areas, for the protection of the public and workmen and for the guidance of traffic through or around construction operations. When messages other than those shown here are needed, the signs and their applications shall conform with the standards set forth in the Manual on Uniform Traffic Control Devices, prepared by the National Joint Committee on Traffic Control Devices. Special signing or control devices required within a construction area will be included in the Plans and/or the Special Provisions.

GENERAL

The cost of furnishing, erecting, maintaining, and removing all on-project construction signs shall be borne by the contractor without additional compensation, unless otherwise provided in the Special Provisions. (See Standard Specifications, Division I, Section 7, Article 7.07, "Public Safety and Convenience.")

In all phases of on-project construction signing, the requirements set forth in the Manual on Uniform Traffic Control Devices shall be met. (See Standard Specifications, Division I, Section 7, Article 7.08, "Barricades, Warning and Detour Signs.")

REVISIONS AND CORRECTIONS

NOTE RELATING TO COLORS AND REFLECTORIZATION OF DIAMOND-SHAPED SIGNS REVISED TO CONFORM MORE CLOSELY WITH MANUAL. MAY 3, 1967

MAY 6, 1971 COLORS REVISED TO CONFORM WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 1971 EDITION.

APPROVED 1/13/67 DATE

R H Crowell — CHIEF ENGINEER

E. H. Dickney — ASST CHIEF ENGINEER

R J Funk — CONSTRUCTION ENGINEER

A. W. Coleman — TRAFFIC ENGINEER

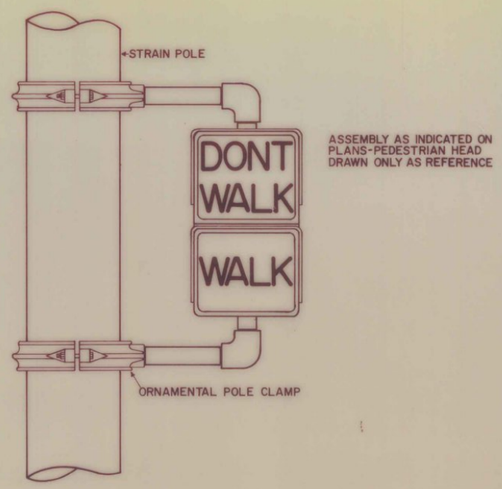
TRAFFIC SIGNS

ON-PROJECT CONSTRUCTION SIGNS

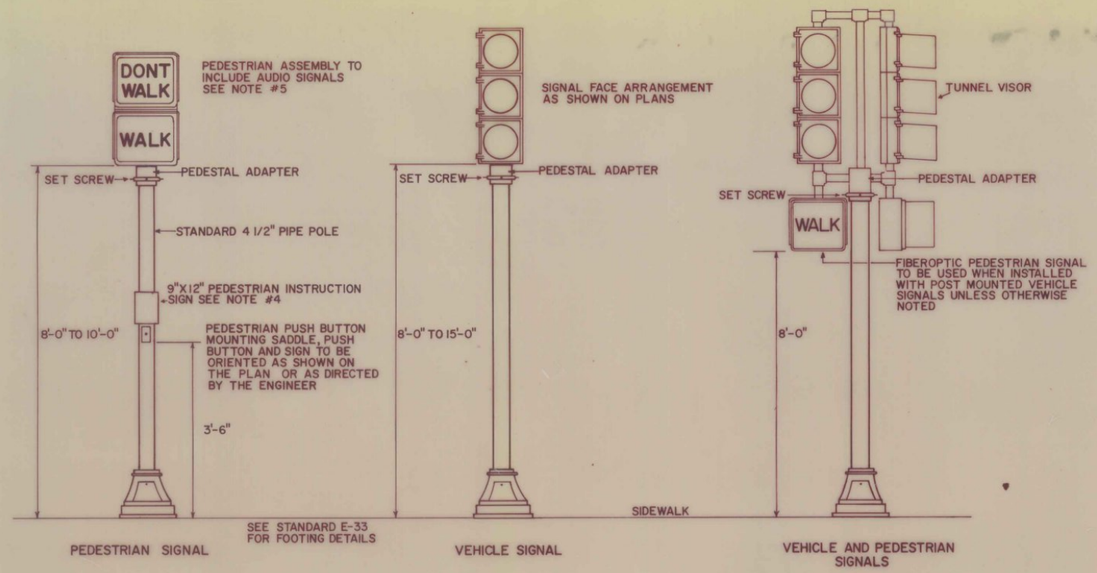
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-34

D-9



POLE MOUNTING DETAIL



PEDESTAL POLE INSTALLATION

1) Dimension "D" as shown on Sta
otherwise stated.

2) For solid state equipment, th
shall meet or exceed all requ
systems.

3) All electrical wire and cable
traffic signal controller to
stranded conductors.

4) Pedestrian push buttons shoul
with the "PUSH BUTTON FOR WAL
corporated in the Push Button
upon actuation, shall be ill
is displayed.

5) The pedestrian signal heads s
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shall be of the type normally
such a way as to be easily di
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hardware to change the timing
Resident Engineer shall perfo
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will be established by a repr
adjustments shall be subsidia

7) The traffic signal strain pol
are installed so that the pol
deflection due to span wire a
shall be as shown on the plar

8) The stranded conductor signal
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stainless alloy .430 lashing

9) When street lights are instal
and mast arms are included un
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with all the requirements of

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sponsible for the maintenance
If the markings become discol
additional cost. Pavement ma
is completed. The signal sys
ment markings.

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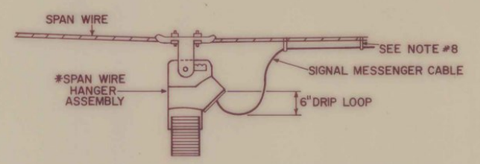
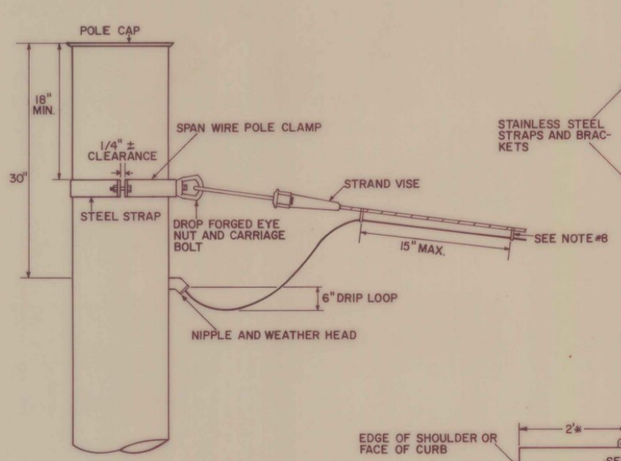
some form of signal indicatio



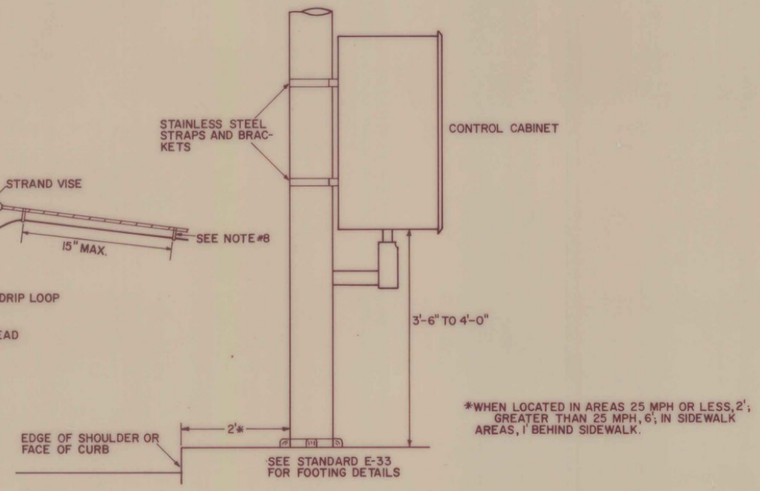
WHERE BACKPLATES ARE REQUIRED, THE SIGNAL IS TO BE LOWER SO THAT THE BACKPLATE IS BELOW MESSENGER CABLE.

*A SWIVEL BALANCE ADJUSTER MAY BE REQUIRED WHEN MULTIFACE SIGNAL HEADS WILL NOT HANG PLUMB.

SPAN WIRE MOUNTING TYPICAL



CABLE INSTALLATION TYPICAL WITH SPAN WIRE POLE CLAMP



*WHEN LOCATED IN AREAS 25 MPH OR LESS, 2'; GREATER THAN 25 MPH, 6'; IN SIDEWALK AREAS, 1' BEHIND SIDEWALK.

POLE MOUNTED CONTROL CABINET TYPICAL

REVISIONS AND CORRECTIONS

APPROVED: JULY 31, 1981
DATE

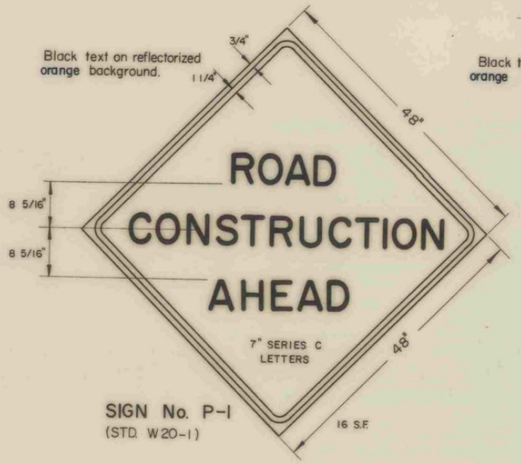
DIRECTOR OF ENGINEERING AND CONSTRUCTION

CHIEF OF DESIGN

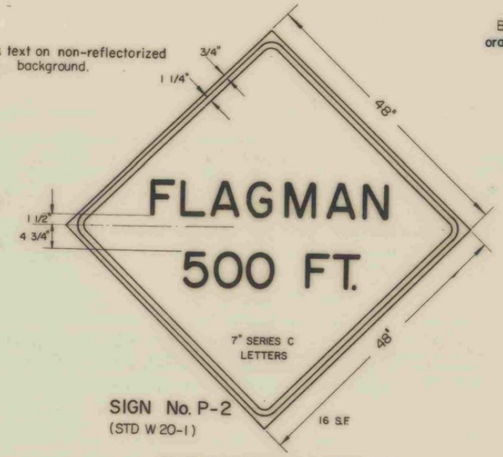
TRANSPORTATION DESIGN ENGINEER

TRAFFIC SIGNAL ITEM DETAILS

VERMONT AGENCY OF TRANSPORTATION

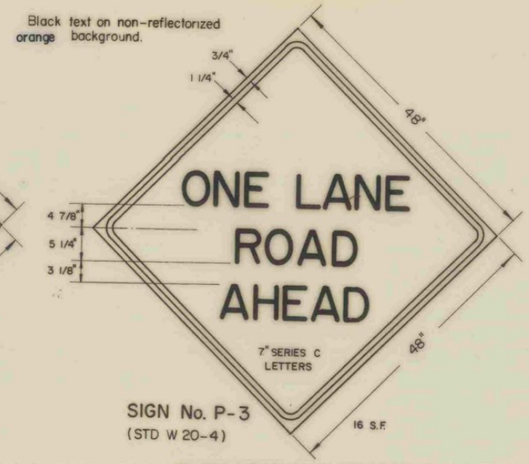


SIGN No. P-1
(STD. W20-1)



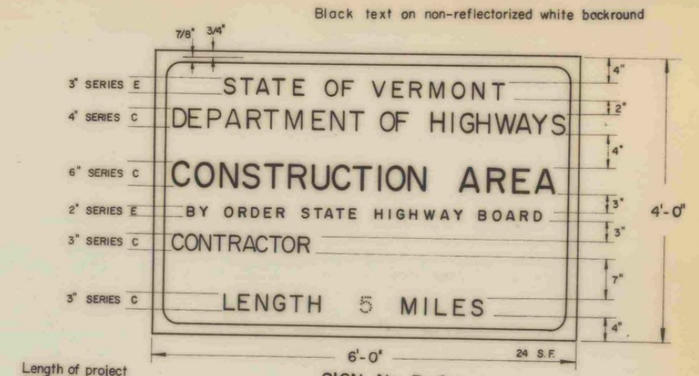
SIGN No. P-2
(STD W 20-1)

TO BE MOUNTED ON A PORTABLE SUPPORT AND DISPLAYED IN ADVANCE OF A FLAGMAN WHEN ON DUTY.



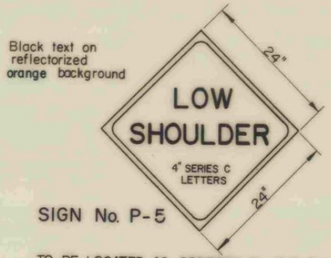
SIGN No. P-3
(STD W 20-4)

TO BE MOUNTED ON A PORTABLE SUPPORT AND DISPLAYED IN ADVANCE OF THE WORK AREA WHEN REQUIRED



Length of project to be shown to the nearest 1/4 mile.

SIGN No. P-4
(VERMONT CONSTRUCTION IDENTIFICATION SIGN)



SIGN No. P-5

TO BE LOCATED AS ORDERED BY THE ENGINEER ON POSTS SET SECURELY IN THE GROUND. NEAR EDGE OF SIGN TO BE AT LEAST 2 FT FROM EDGE OF PAVEMENT, WITH BOTTOM AT LEAST 3 FT ABOVE ROAD LEVEL

The signs shown on this sheet are intended for use in connection with contract paving projects on two-lane highways over which traffic will be maintained. When additional signs or other types of signing or control are necessary, the plans and/or special provisions for that project will give the details of the signs and devices required.

NOTES

LOCATION

Construction paving signs shall be located as detailed on this sheet or ordered by the Engineer. They shall appear at each end of the highway under construction, and on all intersecting public highways.

The exact placement of any sign will depend upon the alignment of the highway and the character of the roadsides. The location measurements on this sheet are intended to indicate the sequence to be followed, and the minimum spacing to be observed by the Engineer in determining exact locations.

DESIGN

The designs of the signs shall conform with the details shown on this sheet and with the standards prescribed in the Manual on Uniformed Traffic Control Devices prepared by National Joint Committee on Uniform Traffic Control Devices.

MATERIALS

The signs shall be of metal, wood, plywood, hardboard or any other material satisfactory to the Engineer. No material shall be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION

For reflectorizing sign backgrounds, either reflective sheeting or the direct process of glass beads on paint will be acceptable.

INSTALLATION

The signs shall be in place at the time the project commences. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground, unless otherwise noted on this sheet. The bottom of a sign, unless otherwise noted shall be at least 5 feet above road level, and the nearest edge of a sign shall be at least 6 feet outside the shoulder point or 2 feet outside guard rail, curbing or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. The installation of all signs shall be subject to the approval of the Engineer.

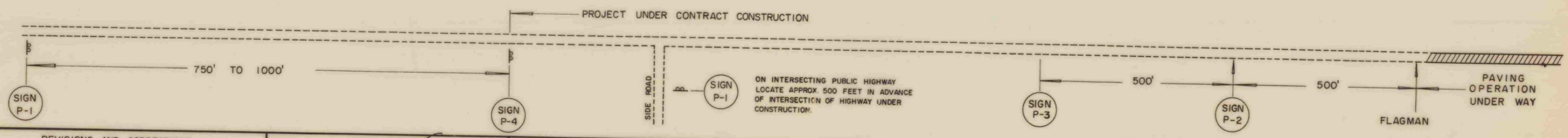
MAINTENANCE

Signs shall be maintained in a clean and legible condition satisfactory to the Engineer. They shall be completely visible to approaching traffic at all times. They shall be kept plumb and level, and always present a neat appearance. Damaged, defaced or dirty signs shall be repaired, cleaned or replaced as ordered by the Engineer.

GENERAL

The cost of furnishing, erecting, maintaining, and removing all construction signs shall be born by the contractor without additional compensation. (See Standard Specifications, Division 1, Section 7, Article 7.07 "Public Convenience and Safety".)

In all phases of construction signing, the requirements set forth in the Manual on Uniform Traffic Devices shall be met. (See Standard Specifications, Division 1, Section 7, Article 7.08, "Barricades, Warning and Detour Signs".)



REVISIONS AND CORRECTIONS

JUNE 12, 1967 — SIGN LOCATIONS CHANGED.

MAY 6, 1971 — COLORS REVISED TO CONFORM WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVISES, 1971 EDITION.

APPROVED 3/16/67

R. H. Crandel — CHIEF ENGINEER

E. Beach Bly for — ASST. CHIEF ENGINEER CONSTRUCTION & MAINTENANCE

G. A. Pierce — MAINTENANCE ENGINEER

S. W. Coleman — TRAFFIC ENGINEER

TRAFFIC SIGNS

ROAD CONSTRUCTION SIGNS

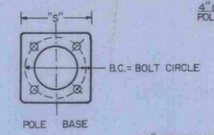
--PAVING—

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-35

D-8

POLE NUMBER	POLE LENGTH, GAGE, & DIAMETER	B.C.	S	BASE DEPTH	BASE DIAMETER	ANCHOR BOLT SIZE



4" GROUT PLACED
POLE IS PLUMBED

1/2" GROUND CONDUIT

GROUND WIRE NO.6 AWG SOFT DRAWN
COPPER GROUND WIRE. CONNECT ONE
WIRE TO EACH GROUND ROD WITH STAN
DARD LOW RESISTANCE NON-FERROUS
GROUND ROD CLAMP.

1"x 10' COPPER CLAD STEE
GROUND ROD

4" GROUT PLACED
POLE IS PLUMBED

1/2" GROUND CONDUIT

GROUND WIRE NO.6 AWG SOFT DRAWN
COPPER GROUND WIRE. CONNECT ONE
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GROUND ROD CLAMP.

1"x 10' COPPER CLAD STE
GROUND ROD

Updated 12/91 LCJ

REVISIONS AND CORRECTIONS

JUNE 8, 1977 - CHANGED DIMENSIONS OF FOOTINGS.
CORRECTED DESIGN CRITERIA.

APPROVED

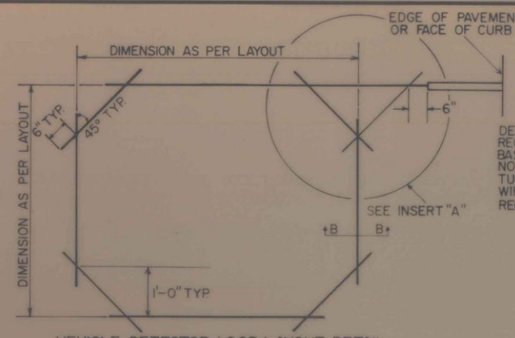
DATE Dec. 29, 1971

R. H. Arnold
CHIEF ENGINEER

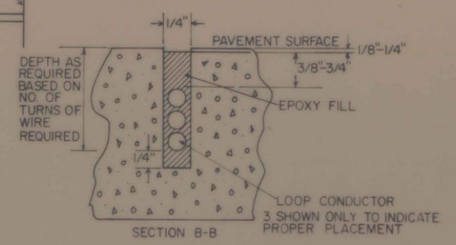
E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

STANDA
A
FOR TRAF



VEHICLE DETECTOR LOOP LAYOUT DETAIL



LOOP SLOT DETAIL

RECTANGULAR LOOPS
VEHICLE DETECTOR LOOP INDUCTANCE DESIGN TABLE

SHORTER DIMENSION OF LOOP								LOOP PERIMETER	LOOP INDUCTANCE (MICROHENRIES)			
6 FEET		8 FEET		10 FEET		12 FEET			1	2	3	4
LARGER LOOP DIM. (FT.)	LARGER LOOP AREA (SQ.FT.)	LARGER LOOP DIM. (FT.)	LARGER LOOP AREA (SQ.FT.)	LARGER LOOP DIM. (FT.)	LARGER LOOP AREA (SQ.FT.)	LARGER LOOP DIM. (FT.)	LARGER LOOP AREA (SQ.FT.)	(FT.)	TURNS K=.45	TURNS K=.42	TURNS K=.38	TURNS K=.36
6	36	—	—	—	—	—	—	24	11	40	82	138
8	48	—	—	—	—	—	—	28	13	47	96	161
10	60	8	64	—	—	—	—	32	14	54	109	184
12	72	10	80	—	—	—	—	36	16	60	123	207
14	84	12	96	10	100	—	—	40	18	67	137	230
16	96	14	112	12	120	—	—	44	20	74	151	254
18	108	16	128	14	140	12	144	48	22	81	164	277
20	120	18	144	16	160	14	168	52	23	87	178	300
22	132	20	160	18	180	16	192	56	25	94	192	323
24	144	22	176	20	200	18	216	60	27	101	205	346
26	156	24	192	22	220	20	240	64	29	108	219	369
28	168	26	208	24	240	22	264	68	31	114	232	392
30	180	28	224	26	260	24	288	72	32	121	246	415
32	192	30	240	28	280	26	312	76	34	128	260	438
35	210	33	264	31	310	29	348	82	37	138	280	472
40	240	38	304	36	360	34	408	92	41	155	315	530
45	270	43	344	41	410	39	468	102	46	172	349	588
50	300	48	384	46	460	44	528	112	50	188	383	—
55	330	53	424	51	510	49	588	122	55	205	417	—
60	360	58	464	56	560	—	—	132	59	222	451	—
70	420	68	544	—	—	—	—	152	68	256	520	—
80	480	—	—	—	—	—	—	172	77	289	588	—
90	540	—	—	—	—	—	—	192	86	323	—	—
100	600	—	—	—	—	—	—	212	95	356	—	—

NOTE 1. TO THE ABOVE LOOP INDUCTANCES, ADD 25 MICROHENRIES FOR EACH 100 FEET OF LEAD-IN CABLE FROM THE PAVEMENT LOOP TO THE DETECTOR CABINET. LOOP FEEDER LENGTH SHALL NOT EXCEED 750 FEET FOR A SINGLE OR MULTIPLE LOOP SYSTEM.

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VEHICLE DETECTOR LOOP NOTES

1.) THE TERM "VEHICLE DETECTOR LOOP" SHALL REFER TO THE SENSOR ELEMENT IMBEDDED IN THE PAVEMENT WHICH SENSES VEHICLE PASSAGE OR PRESENCE. THE TERM "CABINET AMPLIFIER" SHALL REFER TO THE ELECTRICAL OR ELECTRONIC DEVICE LOCATED IN THE CONTROL CABINET WHICH RESPONDS DIRECTLY TO A VEHICLE ACTUATION AND INTERFACES WITH THE CONTROLLER.

2.) WHEN THE DISTANCE FROM THE VEHICLE DETECTOR LOOP TO THE CONTROLLER EXCEEDS 250 FEET, 12 AWG WIRE SHALL BE USED FOR THE FEEDER WIRE. BELDEN SHIELDED CABLE SHALL BE USED TO EXTEND LOOP LEAD-INS TO THE CONTROLLER CABINET.

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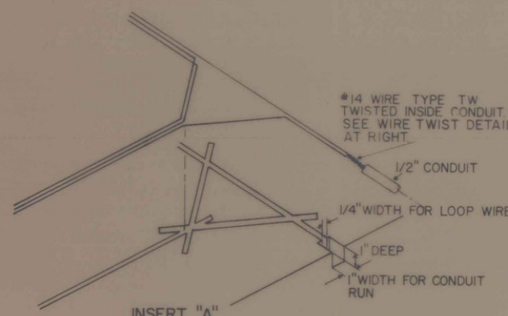
4.) THE LOOPS ARE CENTERED IN THEIR RESPECTIVE LANE, UNLESS OTHERWISE NOTED.



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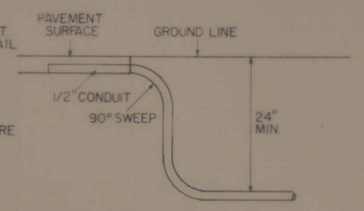


CONDUIT DETAIL FOR LOOP
LEAD-IN TO CONTROLLER/PULL BOX

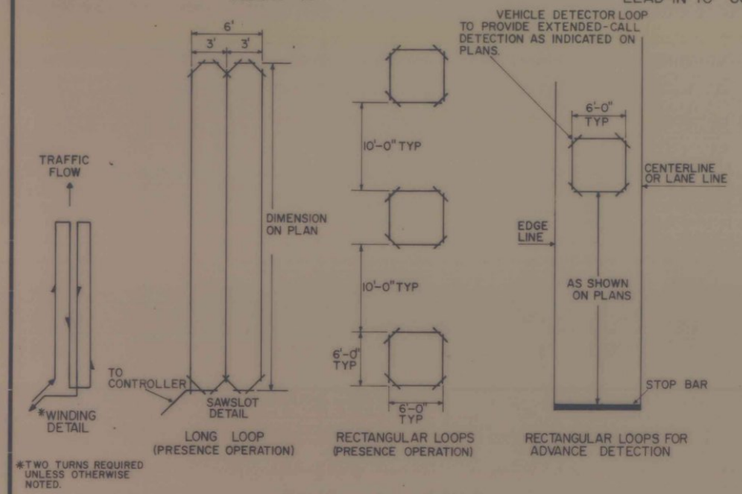
WIRE TWIST DETAIL
MINIMUM 2 TO 5 TWISTS PER FOOT
CLOCKWISE & COUNTERCLOCKWISE
TWISTS ALTERNATING ARE ACCEPTABLE.

DESIGN VALUES

AVAILABLE CONDUIT AREA	
SIZE	* 26% FILL (IN²)
1"	0.23
1 1/4"	0.39
1 1/2"	0.53
2"	0.87
2 1/2"	1.24
3"	1.92
3 1/2"	2.57

CONDUCTOR SIZE TABLE	
TYPE	X-SECTION AREA (IN²)
#14	0.020
#12	0.025
#10	0.031
#8	0.060
#6	0.082

*1978 NATIONAL ELECTRICAL CODES INDICATES 40 % FILL



*TWO TURNS REQUIRED
UNLESS OTHERWISE
NOTED.

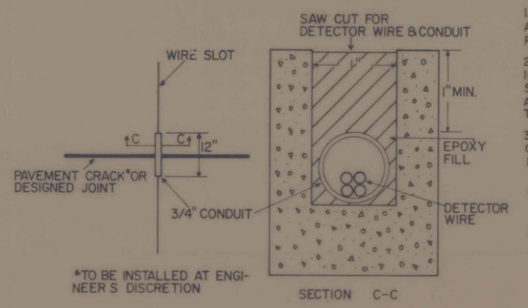
TYPICAL LOOP DESIGNS

LONG LOOPS
VEHICLE DETECTOR LOOP INDUCTANCE DESIGN TABLE

LOOP INDUCTANCE (MICROHENRIES)

LARGER LOOP DIMENSION	SHORTER LOOP DIMENSION 4 FEET 1 TURN	4 FEET 2 TURNS	6 FEET 1 TURN	6 FEET 2 TURNS	8 FEET 1 TURN	8 FEET 2 TURNS
10	29	92	31	98	33	104
15	41	132	43	138	45	144
20	54	172	56	178	58	184
22	59	188	61	194	63	200
24	64	204	66	210	68	216
26	69	220	71	226	73	232
28	74	236	76	242	78	248
30	79	252	81	258	83	264
32	84	268	86	274	88	280
35	91	292	93	298	95	304
40	104	332	106	338	108	344
45	116	372	118	378	120	384
50	129	412	131	418	133	424
55	141	452	143	458	145	464
60	154	492	156	498	158	504
65	166	532	168	538	170	544
70	179	572	181	578	183	584
80	204	–	206	–	208	–
90	229	–	231	–	233	–
100	254	–	256	–	258	–

NOTE: 1. SAME AS #1 FOR RECTANGULAR LOOPS.
2. THE ABOVE INDUCTANCES ARE ESTIMATED QUANTITIES USING THE FOLLOWING EQUATIONS.
1 TURN = (PERIMETER X 0.5) + (LARGER DIMENSION X 1.5)
2 TURN = (PERIMETER X 1.5) + (LARGER DIMENSION X 5.0)
3. SAME AS # 3 FOR RECTANGULAR LOOPS.



DETECTOR WIRE ACROSS JOINTS OR CRACKS

INSTALLATION NOTES

1.) NO WIRE SPLICING EXCEPT IN PULL BOXES. SPLICES SHALL BE SOLDERED (ROSIN CORE) AND WRAPPED WITH PLASTIC TAPE AND COATED WITH A SEALANT USED FOR SUCH PURPOSES.

2.) BEFORE LAYING IN THE LOOP WIRE, A ONE-QUARTER INCH OF SEALANT SHALL BE PLACED IN THE SAW SLOT AND ALLOWED TO SET UP SUFFICIENTLY TO GIVE THE WIRE SOME SUPPORT. EACH WIRE SHALL BE PLACED IN THE SAW SLOT WITH A BLUNT WOODEN STICK AND SEALED BEFORE PLACING THE NEXT WIRE ON TOP UNTIL THE REQUIRED NUMBER OF TURNS IS COMPLETE.

3.) VEHICLE DETECTOR LOOPS SHALL NOT BE PLACED ON THE BASE COURSE AND PAVED OVER. SAW-CUTS SHALL BE MADE IN THE FINAL PAVEMENT COURSE AND THE LOOPS INSTALLED IN THEM.

4.) LOOP LEAD-INS FROM ADJACENT LOOPS SHALL BE IN SEPARATE SAWSLOTS TO THE CURB PULL BOX.

5.) LOOP FEEDERS SHALL BE AT LEAST ONE FOOT AWAY FROM POWER WIRING.

REVISIONS AND CORRECTIONS

DATE: 10/21/81 LONG LOOP INDUCTANCE TABLE ADDED
8/23/82 NOTES 4 & 5 ADDED

FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED:

JULY 28, 1981
DATE

DIRECTOR OF ENGINEERING AND CONSTRUCTION

CHIEF OF DESIGN

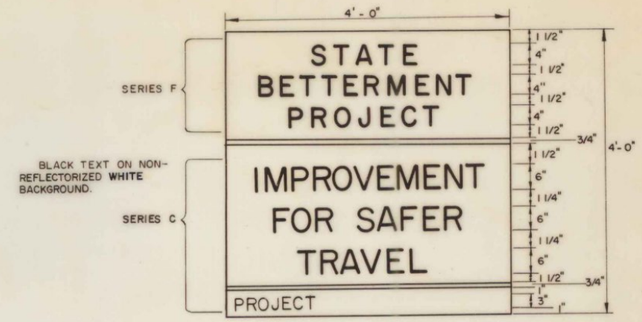
TRANSPORTATION DESIGN ENGINEER

VEHICLE DETECTOR LOOP DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-36



LOCATION:

THIS SIGN SHALL BE LOCATED IN PLACE OF THE FEDERAL AID CONSTRUCTION IDENTIFICATION SIGN ON ROAD AND BRIDGE PROJECTS AS SHOWN ON STANDARD SHEETS E-32 OR E-33

MATERIALS:

THE SIGNS SHALL BE OF METAL WOOD, PLYWOOD, HARDBOARD OR ANY OTHER MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL SHALL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE REQUIRED LIFE OF THE SIGN. BARRICADES NORMALLY WILL BE OF WOOD OR WOOD AND METAL CONSTRUCTION.

INSTALLATION:

THE SIGNS SHALL BE IN PLACE AT THE TIME THE PROJECT OFFICIALLY COMMENCES. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON WOOD OR METAL POSTS SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST 5 FEET ABOVE ROAD LEVEL AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT OR 2 FEET OUTSIDE THE GUARD RAIL, CURBING OR SIDEWORK. POSTS AND SIGNS SHALL BE BRACED OR REINFORCED IN BACK AS NECESSARY. THE INSTALLATION OF SIGNS AND BARRICADES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

MAINTENANCE:

SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. THEY SHALL BE KEPT PLUMB AND LEVEL, ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

GENERAL:

THE COST OF FURNISHING, ERECTING, MAINTAINING AND REMOVING ALL CONSTRUCTION APPROACH SHALL BE BORN BY THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION. (SEE STANDARD SPECIFICATIONS, DIVISION I, SECTION 7, ARTICLE 7.07 " PUBLIC CONVENIENCE AND SAFETY.)

IN ALL PHASES OF CONSTRUCTION APPROACH SIGNING, THE REQUIREMENTS SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES SHALL BE MET. (SEE STANDARD SPECIFICATIONS, DIVISION I, SECTION 7, ARTICLE 7.06 "BARRICADES, WARNING AND DETOUR SIGNS.

REVISIONS AND CORRECTIONS

MAY 6, 1971 COLORS REVISED TO CONFORM WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 1971 EDITION.

APPROVED: 1/24/68
DATE

R H Crowell
CHIEF ENGINEER

E B Stickney
ASST. CHIEF ENGINEER

R J Funk
CONSTRUCTION ENGINEER

L W. Coleman
TRAFFIC ENGINEER

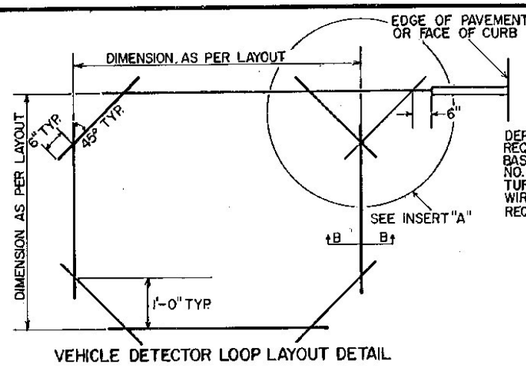
TRAFFIC SIGNS

ROAD CONSTRUCTION SIGNS BETTERMENT PROJECTS

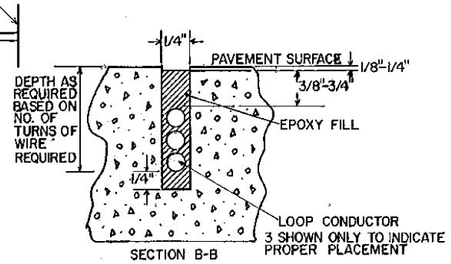
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-36

D-8

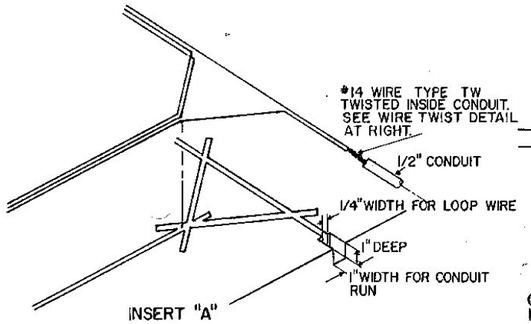


VEHICLE DETECTOR LOOP LAYOUT DETAIL



SECTION B-B

LOOP SLOT DETAIL



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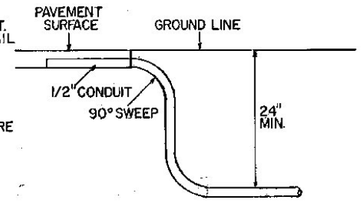

CONDUIT DETAIL FOR LOOP
LEAD-IN TO CONTROLLER/PULL BOX

RECTANGULAR LOOPS
VEHICLE DETECTOR LOOP INDUCTANCE DESIGN TABLE

SHORTER DIMENSION OF LOOP: 6 FEET LARGER LOOP DIM. (FT.)	6 FEET LARGER LOOP AREA (SQ.FT.)	8 FEET LARGER LOOP DIM. (FT.)	8 FEET LARGER LOOP AREA (SQ.FT.)	10 FEET LARGER LOOP DIM. (FT.)	10 FEET LARGER LOOP AREA (SQ.FT.)	12 FEET LARGER LOOP DIM. (FT.)	12 FEET LARGER LOOP AREA (SQ.FT.)	LOOP PERIMETER (FT.)	LOOP INDUCTANCE (MICROHENRIES) 1 TURNS K=.46	2 TURNS K=.42	3 TURNS K=.38	4 TURNS K=.36
6	36	—	—	—	—	—	—	24	11	40	82	138
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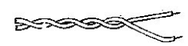

WIRE TWIST DETAIL.
MINIMUM 2 TO 5 TWISTS PER FOOT.
CLOCKWISE & COUNTERCLOCKWISE
TWISTS ALTERNATING ARE ACCEPTABLE.

DESIGN VALUES

AVAILABLE CONDUIT AREA SIZE	*26% FILL (IN²)
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CONDUCTOR SIZE TABLE TYPE	X-SECTION AREA (IN²)
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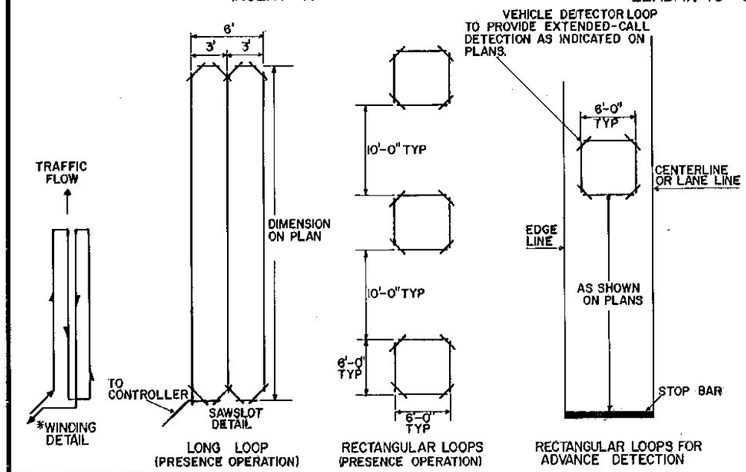
#10	0.031
#3	0.060
#6	0.082

*1978 NATIONAL ELECTRICAL CODES INDICATES 40 % FILL



LONG LOOP (PRESENCE OPERATION)

RECTANGULAR LOOPS (PRESENCE OPERATION)

RECTANGULAR LOOPS FOR ADVANCE DETECTION

*TWO TURNS REQUIRED UNLESS OTHERWISE NOTED.

TYPICAL LOOP DESIGNS

LONG LOOPS
VEHICLE DETECTOR LOOP INDUCTANCE DESIGN TABLE

LOOP INDUCTANCE (MICROHENRIES)

LARGER LOOP DIMENSION	SHORTER LOOP DIMENSION 4 FEET 1 TURN	4 FEET 2 TURNS	6 FEET 1 TURN	6 FEET 2 TURNS	8 FEET 1 TURN	8 FEET 2 TURNS
10	29	92	31	98	33	104
15	41	132	43	138	45	144
20	54	172	56	178	58	184
22	59	188	61	194	63	200
24	64	204	66	210	68	216
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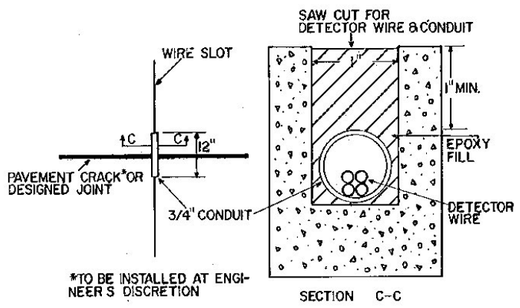
80	204	–	206	–	209	–
90	229	–	231	–	233	–
100	254	–	256	–	258	–

NOTE: 1. SAME AS #1 FOR RECTANGULAR LOOPS.
2. THE ABOVE INDUCTANCES ARE ESTIMATED QUANTITIES USING THE FOLLOWING EQUATIONS.
1 TURN = (PERIMETER X 0.5) + (LARGER DIMENSION X 1.5)
2 TURN = (PERIMETER X 1.5) + (LARGER DIMENSION X 5.0)
3. SAME AS # 3 FOR RECTANGULAR LOOPS.



DETECTOR WIRE ACROSS JOINTS OR CRACKS

INSTALLATION NOTES

1.) NO WIRE SPLICING EXCEPT IN PULL BOXES. SPLICES SHALL BE SOLDERED (ROSIN CORE) AND WRAPPED WITH PLASTIC TAPE AND COATED WITH A SEALANT USED FOR SUCH PURPOSES.

2.) BEFORE LAYING IN THE LOOP WIRE, A ONE-QUARTER INCH OF SEALANT SHALL BE PLACED IN THE SAW SLOT AND ALLOWED TO SET UP SUFFICIENTLY TO GIVE THE WIRE SOME SUPPORT. EACH WIRE SHALL BE PLACED IN THE SAW SLOT WITH A BLUNT WOODEN STICK AND SEALED BEFORE PLACING THE NEXT WIRE ON TOP UNTIL THE REQUIRED NUMBER OF TURNS IS COMPLETE.

3.) VEHICLE DETECTOR LOOPS SHALL NOT BE PLACED ON THE BASE COURSE AND PAVED OVER. SAW-CUTS SHALL BE MADE IN THE FINAL PAVEMENT COURSE AND THE LOOPS INSTALLED IN THEM.

4.) LOOP LEAD-INS FROM ADJACENT LOOPS SHALL BE IN SEPARATE SAWSLOTS TO THE CURB PULL BOX.

5.) LOOP FEEDERS SHALL BE AT LEAST ONE FOOT AWAY FROM POWER WIRING.

REVISIONS AND CORRECTIONS.
DATE: 10/21/81 LONG LOOP INDUCTANCE TABLE ADDED.
8/23/82 NOTES 4 & 5 ADDED

APPROVED: JULY 28, 1981
DATE

S. J. Gage, P.E.
DIRECTOR OF ENGINEERING AND CONSTRUCTION

CHIEF OF DESIGN

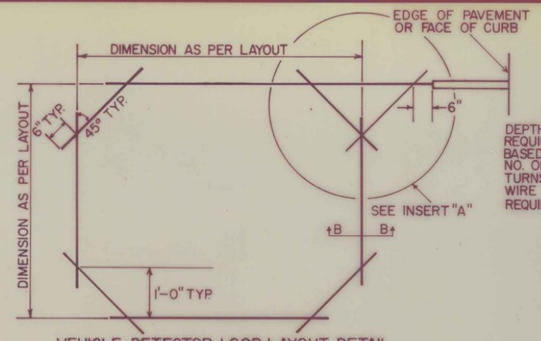
TRANSPORTATION DESIGN ENGINEER

VEHICLE DETECTOR LOOP DETAILS

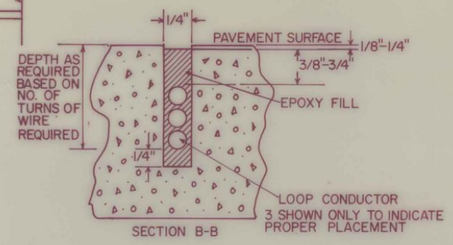
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-36

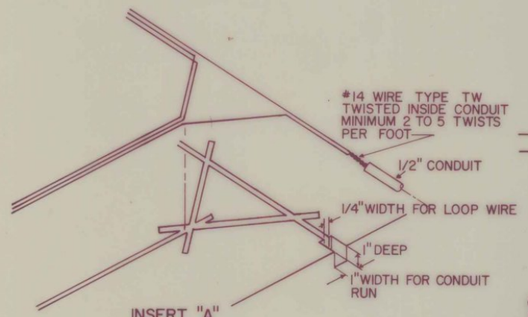
BRUNING 44-131 42552



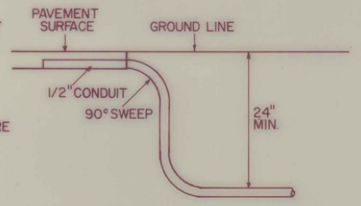
VEHICLE DETECTOR LOOP LAYOUT DETAIL



LOOP SLOT DETAIL



INSERT "A"



CONDUIT DETAIL FOR LOOP
LEAD-IN TO CONTROLLER/PULL BOX

WIRE TWIST DETAIL

RECTANGULAR LOOPS
VEHICLE DETECTOR LOOP INDUCTANCE DESIGN TABLE

SHORTER DIMENSION OF LOOP: 6 FEET LARGER LOOP DIM. (FT.)	6 FEET LARGER LOOP AREA (SQ.FT.)	8 FEET LARGER LOOP DIM. (FT.)	8 FEET LARGER LOOP AREA (SQ.FT.)	10 FEET LARGER LOOP DIM. (FT.)	10 FEET LARGER LOOP AREA (SQ.FT.)	12 FEET LARGER LOOP DIM. (FT.)	12 FEET LARGER LOOP AREA (SQ.FT.)	LOOP PERIMETER (FT.)	LOOP INDUCTANCE (MICROHENRIES) 1 TURNS K=.45	2 TURNS K=.42	3 TURNS K=.38	4 TURNS K=.36
6	36	—	—	—	—	—	—	24	11	40	82	138
8	48	—	—	—	—	—	—	28	13	47	96	161
10	60	8	64	—	—	—	—	32	14	54	109	184
12	72	10	80	—	—	—	—	36	16	60	123	207
14	84	12	96	10	100	—	—	40	18	67	137	230
16	96	14	112	12	120	—	—	44	20	74	151	254
18	108	16	128	14	140	12	144	48	22	81	164	277
20	120	18	144	16	160	14	168	52	23	87	178	300
22	132	20	160	18	180	16	192	56	25	94	192	323
24	144	22	176	20	200	18	216	60	27	101	205	346
26	156	24	192	22	220	20	240	64	29	108	219	369
28	168	26	208	24	240	22	264	68	31	114	232	392
30	180	28	224	26	260	24	288	72	32	121	246	415
32	192	30	240	28	280	26	312	76	34	128	260	438
35	210	33	264	31	310	29	348	82	37	138	280	472
40	240	38	304	36	360	34	408	92	41	155	315	530
45	270	43	344	41	410	39	468	102	46	172	349	588
50	300	48	384	46	460	44	528	112	50	188	383	—
55	330	53	424	51	510	49	588	122	55	205	417	—
60	360	58	464	56	560	—	—	132	59	222	451	—
70	420	68	544	—	—	—	—	152	68	256	520	—
80	480	—	—	—	—	—	—	172	77	289	588	—
90	540	—	—	—	—	—	—	192	86	323	—	—
100	600	—	—	—	—	—	—	212	95	356	—	—

NOTE 1: TO THE ABOVE LOOP INDUCTANCES, ADD 25 MICROHENRIES FOR EACH 100 FEET OF LEAD-IN CABLE FROM THE PAVEMENT LOOP TO THE DETECTOR CABINET. LOOP FEEDER LENGTH SHALL NOT EXCEED 750 FEET FOR A SINGLE OR MULTIPLE LOOP SYSTEM.

2: THE INDUCTANCE FORMULA USED FOR THE TABLE ABOVE IS $L = KPN^2$, WHERE $K = \frac{5}{10+N}$. THIS IS THE MARYLAND-ILLINOIS FORMULA FROM A REPORT ON VEHICLE DETECTORS, BY KLATT (1973)

3: WHEN LOOPS ARE CONNECTED IN SERIES, THE TOTAL INDUCTANCE BECOMES THE SUM OF ALL INDUCTANCES. WHEN LOOPS ARE CONNECTED IN PARALLEL (PREFERRED DESIGN) THE COMBINED INDUCTANCE WILL EQUAL THE PRODUCT OF THE INDUCTANCES DIVIDED BY THE SUM, PLUS THE LOOP FEEDER INDUCTANCES.

DESIGN VALUES

AVAILABLE CONDUIT AREA: SIZE	* 26% FILL (IN^2)
1"	0.23
1 1/4"	0.39
1 1/2"	0.53
2"	0.87
2 1/2"	1.24
3"	1.92
3 1/2"	2.57

CONDUCTOR SIZE TABLE: TYPE	X-SECTION AREA (IN^2)
#14	0.020
#12	0.025
#10	0.031
#8	0.060
#6	0.082

*1978 NATIONAL ELECTRICAL CODES INDICATES 40 % FILL

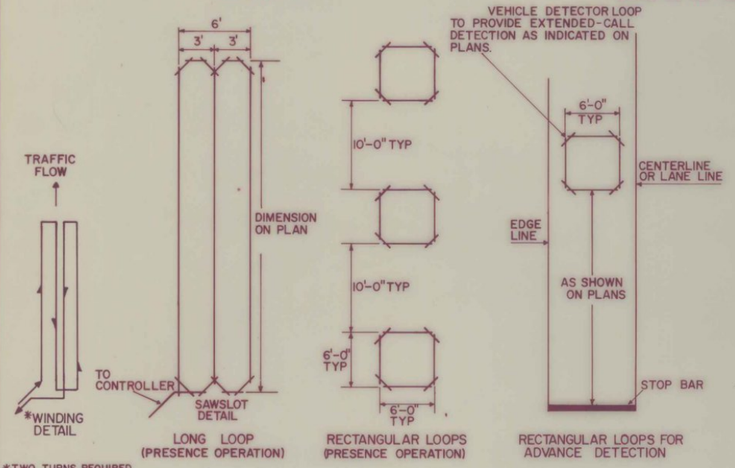
VEHICLE DETECTOR LOOP NOTES

1.) THE TERM "VEHICLE DETECTOR LOOP" SHALL REFER TO THE SENSOR ELEMENT IMBEDDED IN THE PAVEMENT WHICH SENSES VEHICLE PASSAGE OR PRESENCE. THE TERM "CABINET AMPLIFIER" SHALL REFER TO THE ELECTRICAL OR ELECTRONIC DEVICE LOCATED IN THE CONTROL CABINET WHICH RESPONDS DIRECTLY TO A VEHICLE ACTUATION AND INTERFACES WITH THE CONTROLLER.

2.) WHEN THE DISTANCE FROM THE VEHICLE DETECTOR LOOP TO THE CONTROLLER EXCEEDS 250 FEET, 12 AWG WIRE SHALL BE USED FOR THE FEEDER WIRE. BELDEN SHIELDED CABLE SHALL BE USED TO EXTEND LOOP LEAD-INS TO THE CONTROLLER CABINET.

3.) THE VEHICLE DETECTOR LOOPS SHALL BE INSTALLED IN SUCH A WAY AS TO MAXIMIZE SENSITIVITY AND SHALL BE CAPABLE OF DETECTING MOTORCYCLES AND BICYCLES. WHILE ELIMANATING, FALSE CALLS FROM VEHICLES IN ADJACENT LANES. LOOPS ARE DESIGNED SO THAT THE LOOPS AND FEEDER LINES TOTAL INDUCTANCE THAT EXISTS AT THE AMPLIFIER IS AT THE CENTER OF RANGE WITH REGARD TO INDUCTANCE (DESIGN VALUE OF 350 MICROHENRIES, ASSUMED). INDUCTANCE AND CAPACITANCE MEASUREMENTS SHALL BE TAKEN AND RECORDED PRIOR TO AND AFTER THE SAW SLOTS ARE SEALED.

4.) THE LOOPS ARE CENTERED IN THEIR RESPECTIVE LANE, UNLESS OTHERWISE NOTED.



LONG LOOP (PRESENCE OPERATION)

RECTANGULAR LOOPS (PRESENCE OPERATION)

RECTANGULAR LOOPS FOR ADVANCE DETECTION

*TWO TURNS REQUIRED UNLESS OTHERWISE NOTED.

TYPICAL LOOP DESIGNS

LONG LOOPS
VEHICLE DETECTOR LOOP INDUCTANCE DESIGN TABLE

LOOP INDUCTANCE (MICROHENRIES)

LARGER LOOP DIMENSION	SHORTER LOOP DIMENSION 4 FEET 1 TURN	4 FEET 2 TURNS	6 FEET 1 TURN	6 FEET 2 TURNS	8 FEET 1 TURN	8 FEET 2 TURNS
10	29	92	31	98	33	104
15	41	132	43	138	45	144
20	54	172	56	178	58	184
22	59	188	61	194	63	200
24	64	204	66	210	68	216
26	69	220	71	226	73	232
28	74	236	76	242	78	248
30	79	252	81	258	83	264
32	84	268	86	274	88	280
35	91	292	93	298	95	304
40	104	332	106	338	108	344
45	116	372	118	378	120	384
50	129	412	131	418	133	424
55	141	452	143	458	145	464
60	154	492	156	498	158	504
65	166	532	168	538	170	544
70	179	572	181	578	183	584
80	204	—	206	—	208	—
90	229	—	231	—	233	—
100	254	—	256	—	258	—

NOTE: 1. SAME AS #1 FOR RECTANGULAR LOOPS.
2. THE ABOVE INDUCTANCES ARE ESTIMATED QUANTITIES USING THE FOLLOWING EQUATIONS.
1 TURN = (PERIMETER X 0.5) + (LARGER DIMENSION X 1.5)
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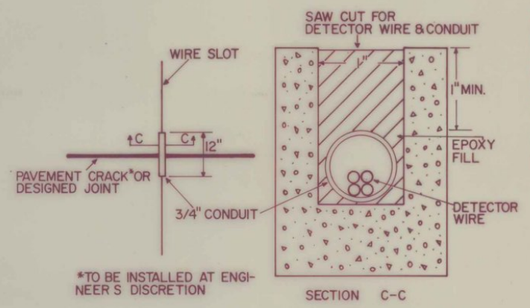
3. SAME AS # 3 FOR RECTANGULAR LOOPS.



DETECTOR WIRE ACROSS JOINTS OR CRACKS

INSTALLATION NOTES

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2.) BEFORE LAYING IN THE LOOP WIRE, A ONE-QUARTER INCH OF SEALANT SHALL BE PLACED IN THE SAW SLOT AND ALLOWED TO SET UP SUFFICIENTLY TO GIVE THE WIRE SOME SUPPORT. EACH WIRE SHALL BE PLACED IN THE SAW SLOT WITH A BLUNT WOODEN STICK AND SEALED BEFORE PLACING THE NEXT WIRE ON TOP UNTIL THE REQUIRED NUMBER OF TURNS IS COMPLETE.

3.) VEHICLE DETECTOR LOOPS SHALL NOT BE PLACED ON THE BASE COURSE AND PAVED OVER. SAW-CUTS SHALL BE MADE IN THE FINAL PAVEMENT COURSE AND THE LOOPS INSTALLED IN THEM.

REVISIONS AND CORRECTIONS

DATE: 10/21/81 LONG LOOP INDUCTANCE TABLE ADDED.

APPROVED:

JULY 28, 1981
DATE

DIRECTOR OF ENGINEERING AND CONSTRUCTION

CHIEF OF DESIGN

TRANSPORTATION DESIGN ENGINEER

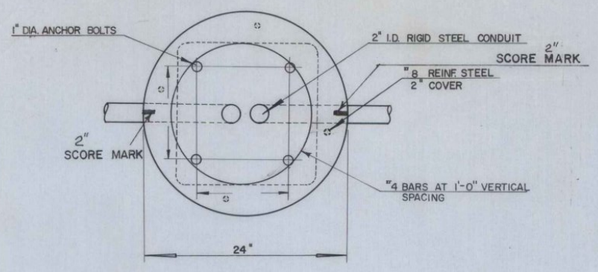
VEHICLE DETECTOR LOOP DETAILS

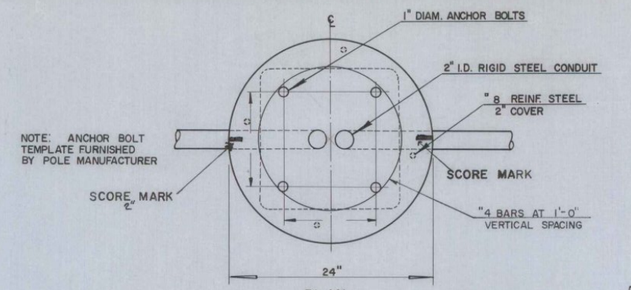
VERMONT AGENCY OF TRANSPORTATION

STANDARD

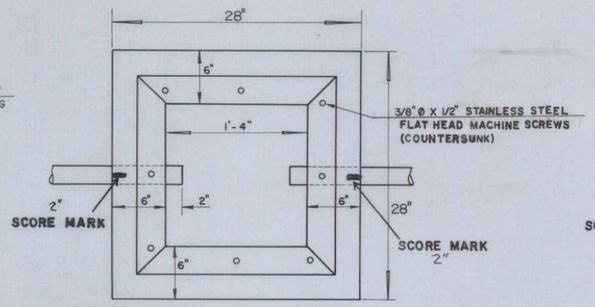
E-36

BRUNING 44-131 42592





PLAN



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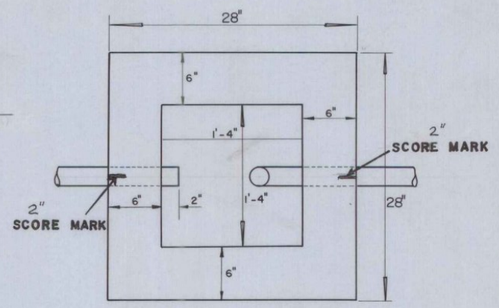

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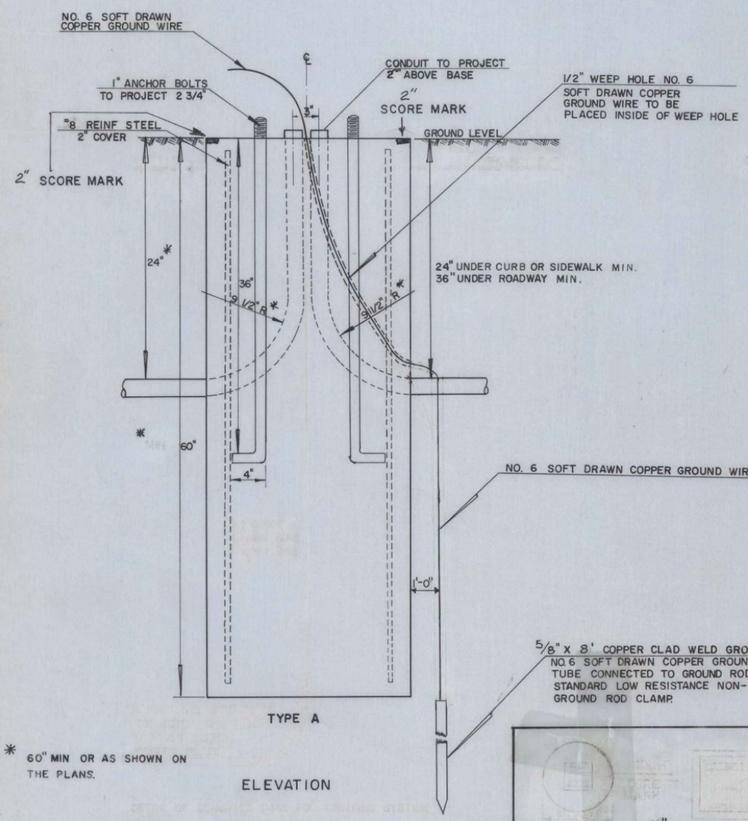
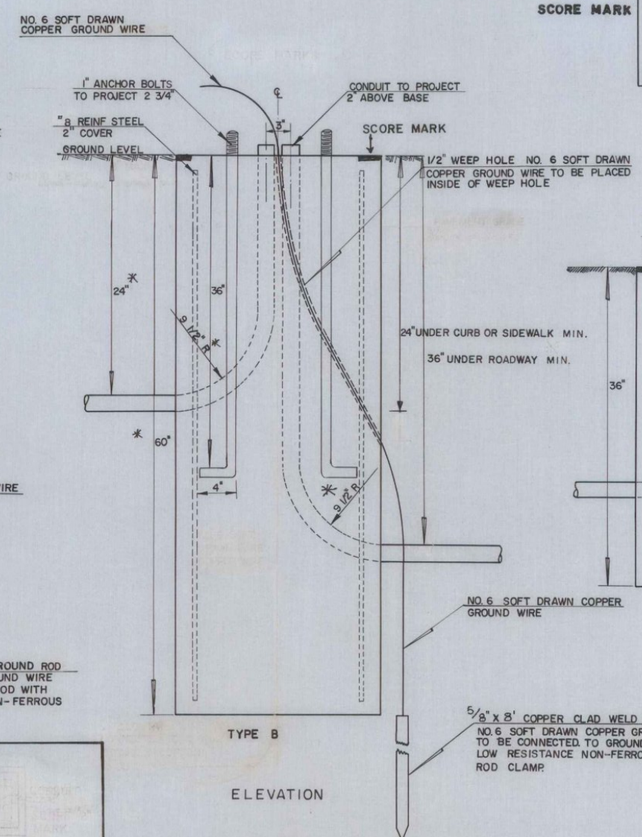


TYPE A

* 60" MIN OR AS SHOWN ON THE PLANS.

ELEVATION

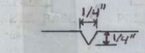
AUGERED BASE



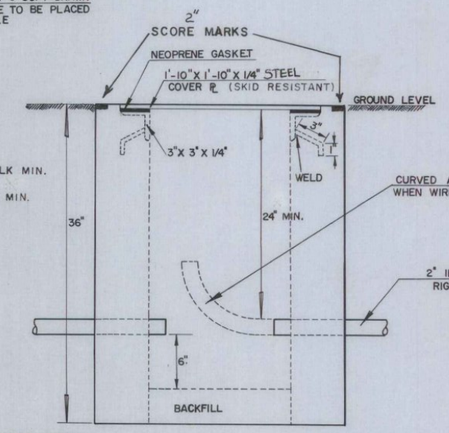
TYPE B

ELEVATION

EXCAVATION AND FORMED BASE

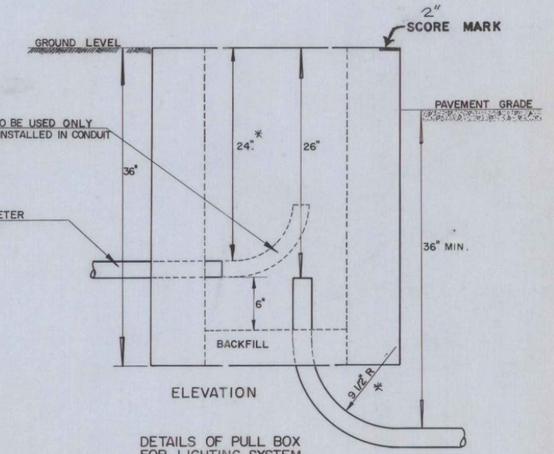


SCORE MARK DETAIL



ELEVATION

DETAILS OF PULL BOX FOR LIGHTING SYSTEM TYPE "A"



ELEVATION

DETAILS OF PULL BOX FOR LIGHTING SYSTEM TYPE "B"

NOTES

ALL BASES AND PULL BOXES TO BE CONCRETE MEETING THE REQUIREMENTS FOR CONCRETE CLASS B

ALL REINFORCING STEEL TO CONFORM TO THE REQUIREMENTS FOR "REINFORCING STEEL",

TEMPLATE FOR ANCHOR BOLTS, ANCHOR BOLTS, NUTS AND WASHERS TO BE OBTAINED BY CONTRACTOR FROM POLE MANUFACTURER PRIOR TO CONSTRUCTION OF BASES.

SCORE TOP OF BASE OR PULLBOXES TO SHOW LOCATION OF CONDUIT(S)

FOR PULLBOXES- PROVIDE SOFT PLUGS IN CONCRETE BELOW THREADED HOLES IN THE COVER FRAME TO PERMIT RETHREADING AT A FUTURE DATE.

CONDUIT SIZE - AS SHOWN ON THE PLANS

REVISIONS AND CORRECTIONS

AUG. 6, 1981 CHANGED GROUND ROD FROM 1" X 10' TO 5/8" X 8'

JUNE 13, 1984 ADDED SCORE MARK DETAIL, CHANGED BRONZE TO STAINLESS STEEL, ADDED PULLBOX NOTE, ADDED MIN. DEPTH AND RADIUS.

APPROVED

DATE Dec. 29, 1971

R. H. Arnold
CHIEF ENGINEER

E. V. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

TRACED: AJA

STREET LIGHTING

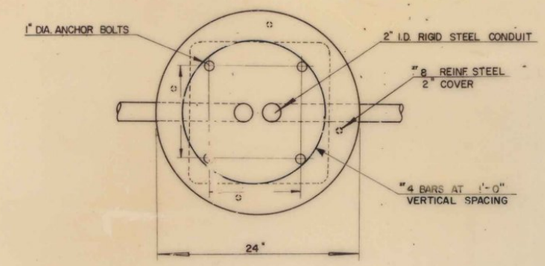
CONCRETE BASES AND PULL BOXES

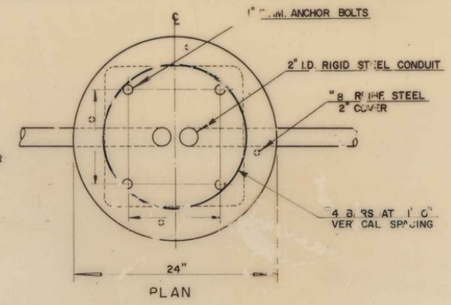
VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-37

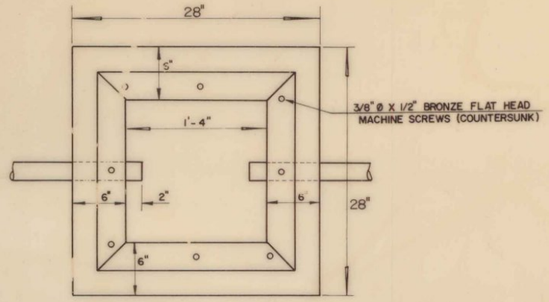
D-8



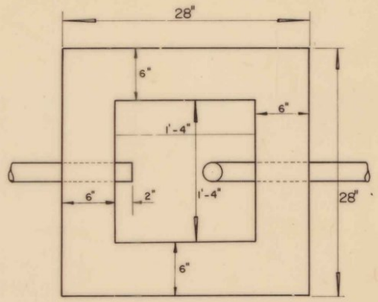


NOTE: ANCHOR BOLT TEMPLATE FURNISHED BY POLE MANUFACTURER

PLAN



PLAN



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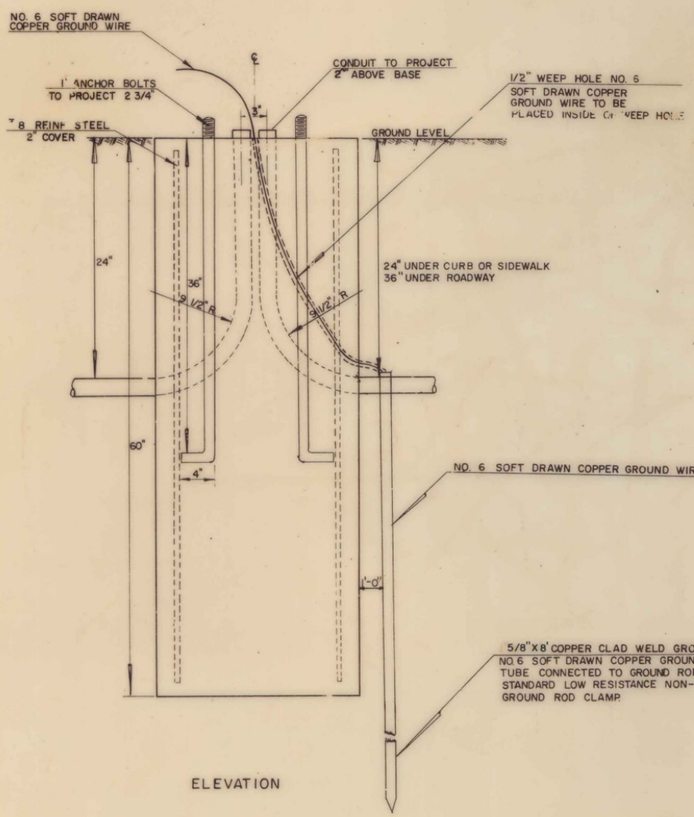
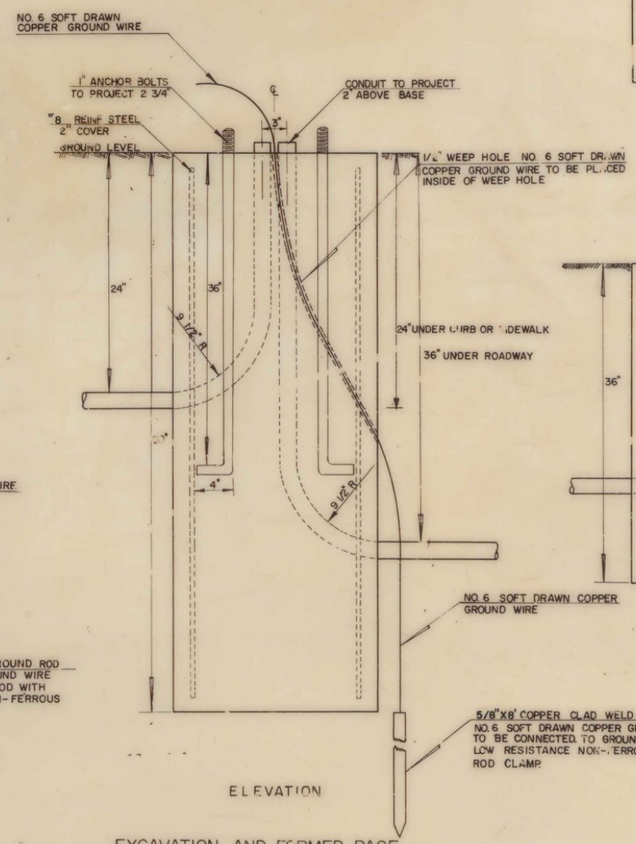


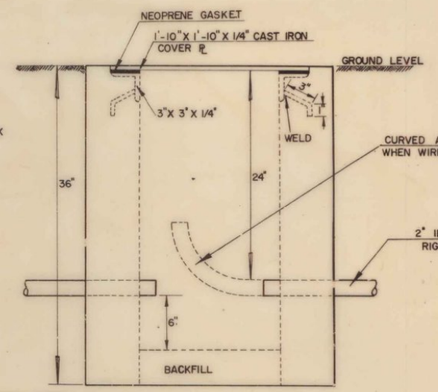
ELEVATION

AUGERED BASE



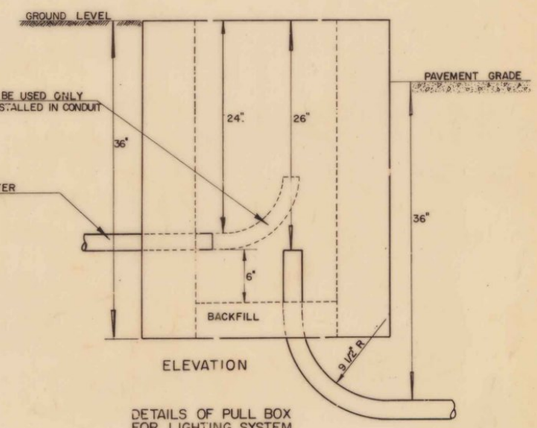
ELEVATION

EXCAVATION AND FORMED BASE



ELEVATION

DETAILS OF PULL BOX
FOR LIGHTING SYSTEM
TYPE "A"



ELEVATION

DETAILS OF PULL BOX
FOR LIGHTING SYSTEM
TYPE "B"

NOTES

ALL BASES AND PULL BOXES TO BE CONCRETE MEETING THE REQUIREMENTS FOR CONCRETE CLASS B

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TEMPLATE FOR ANCHOR BOLTS, ANCHOR BOLTS, NUTS AND WASHERS TO BE OBTAINED BY CONTRACTOR FROM POLE MANUFACTURER PRIOR TO CONSTRUCTION OF BASES.

REVISIONS AND CORRECTIONS

AUG. 7, 1981 CHANGED GROUND ROD FROM 1" X 10' TO 5/8" X 8'

APPROVED

DATE Dec. 29, 1971

R. H. Crandell
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

TRACED: AJA

STREET LIGHTING

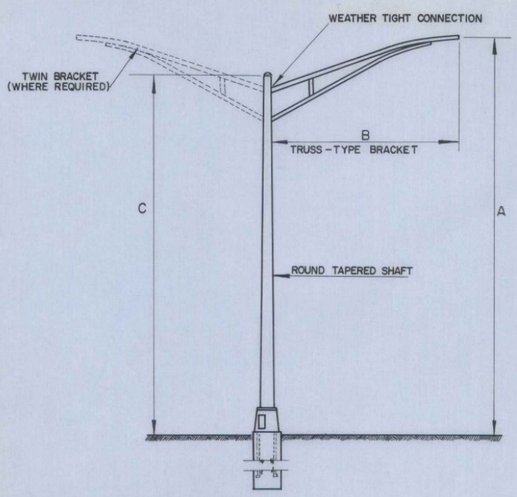
CONCRETE BASES AND PULL BOXES

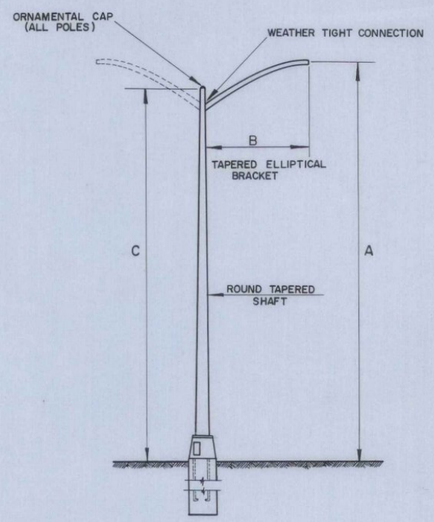
VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-37

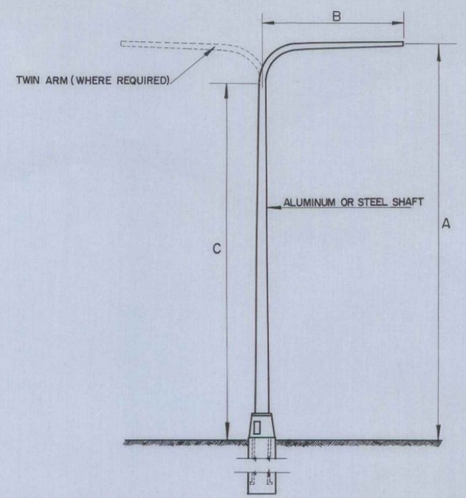
D-8

ROUND ALUMINUM AND STEEL POSTS

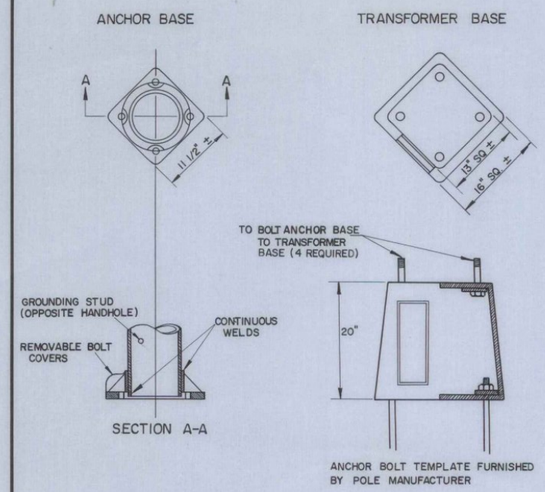




DAVIT-TYPE POLES



BASES



NOTES:

ALL POLES TO BE EQUIPPED WITH ANCHOR BASES UNLESS OTHERWISE INDICATED.

FOR DETAILS OF POLE BASES, SEE SHEET E-37

ALL BRACKETS TO BE EQUIPPED WITH 2" SLIPFITTER FOR MOUNTING LUMINAIRE UNLESS OTHERWISE INDICATED.

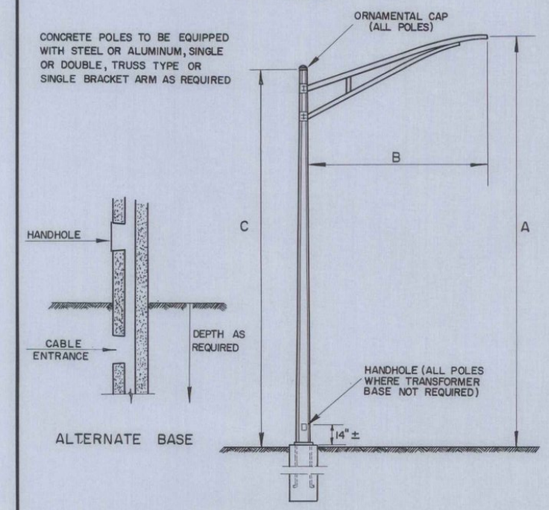
DIMENSIONS:

A = MOUNTING HEIGHT
B = BRACKET ARM LENGTH
C = SHAFT HEIGHT

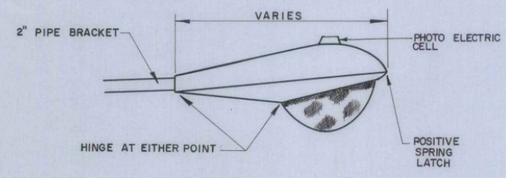
DIMENSIONS SHOWN FOR ANCHOR BASES AND TRANSFORMER BASES MAY VARY SLIGHTLY WITH DIFFERENT MANUFACTURERS.

PRESTRESSED CONCRETE POLES (OCTAGONAL)

CONCRETE POLES TO BE EQUIPPED WITH STEEL OR ALUMINUM, SINGLE OR DOUBLE, TRUSS TYPE OR SINGLE BRACKET ARM AS REQUIRED



LUMINAIRE (MERCURY-TYPE LAMP)



BALLASTS TO BE INTERNALLY HOUSED UNLESS OTHERWISE INDICATED.

REVISIONS AND CORRECTIONS

APPROVED

DATE Dec. 29, 1971

R. H. Crandell
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

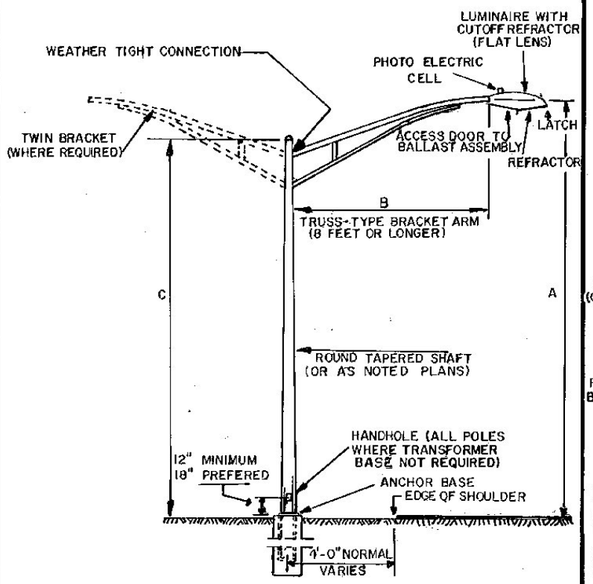
STREET LIGHTING

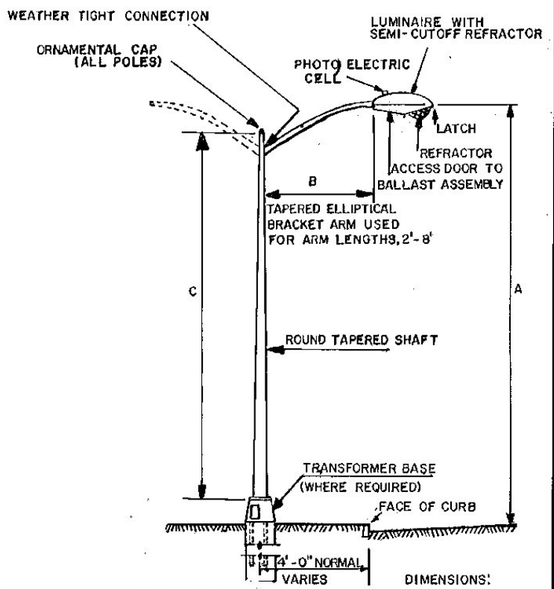
POLES, BASES, BRACKETS AND LUMINAIRES

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-38

ROUND ALUMINUM AND STEEL POLES





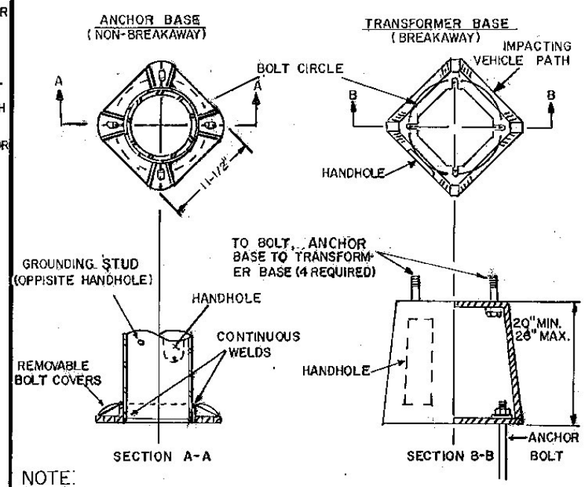
ALL POLES TO BE EQUIPPED WITH ANCHOR BASES UNLESS OTHERWISE INDICATED.

ALL BRACKETS TO BE EQUIPPED WITH 2" SLIPFITTER FOR MOUNTING LUMINAIRE UNLESS OTHERWISE INDICATED.

DIMENSIONS:
A=MOUNTING HEIGHT
B=BRACKET ARM LENGTH
C=POLE HEIGHT

BASES

DIMENSIONS SHOWN FOR ANCHOR BASES AND TRANSFORMER BASES MAY VARY SLIGHTLY WITH DIFFERENT MANUFACTURERS.

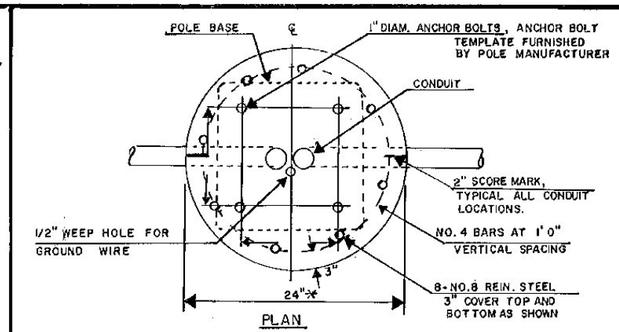


NOTE:
FOR BREAKAWAY DESIGN A TRANSFORMER BASE, BREAKAWAY COUPLINGS, OR OTHER APPROVED METHOD SHALL BE PLACED BETWEEN THE ANCHOR BASE AND THE CONCRETE BASE.

ANCHOR BOLT TEMPLATE FURNISHED BY POLE MANUFACTURER

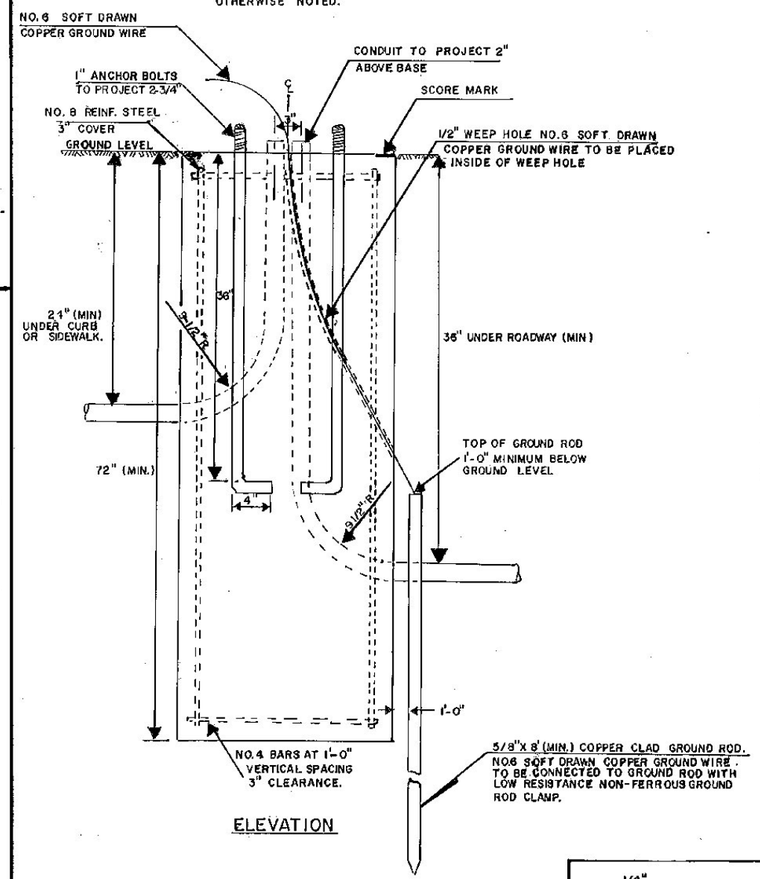
POLES, ANCHOR BASES, ARMS, AND LUMINAIRES. GENERAL NOTES

1. NO POLE SHALL BE INSTALLED WITHOUT A LUMINAIRE.
2. ANCHOR BASE AND ANCHOR BOLT DIMENSIONS SHOWN ARE FOR A SINGLE ARM POLE OF HEIGHT 35 FEET OR LESS. SEE PLANS FOR OTHER CONDITIONS.
3. ALL POLES OF THE BREAKAWAY DESIGN SHALL YIELD OR BREAKAWAY WITH A CHANGE IN VEHICLE MOMENTUM OF LESS THAN 1100 POUND-SECONDS WHEN STRUCK BY 2250 POUNDS AT 20 M.P.H. TO 60 M.P.H.
4. A 12 FOOT OR LONGER ARM REQUIRES A 6 INCH OUTSIDE DIAMETER POLE TOP.
5. LUMINAIRES SHALL MEET SPECIFICATIONS AS SHOWN ON THE PLANS.
6. ALL ELECTRICAL MATERIAL AND ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE AREA ELECTRICAL INSPECTOR AND/OR THE POWER COMPANY WITH JURISDICTION IN THE PROJECT AREA.
7. ALL WORK MUST MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, AS WELL AS LOCAL AND STATE CODES.
8. ALL STREET LIGHT POLES SHALL HAVE A METAL TAG ATTACHED TO THE HANDHOLE WITH THE POLE NUMBER, WATTAGE AND TYPE OF LAMP. EXAMPLE, NO. 2-150W.-H.P.S., (H.P.S.=HIGH PRESSURE SODIUM). MINIMUM LETTER SIZE 1/2 INCH HIGH. PAYMENT FOR TAGS WILL BE SUBSIDIARY TO ITEM 679.15, STREET LIGHTING.
9. POLES, BASE PLATES, ANCHOR BOLTS AND ARMS SHALL MEET THE SPECIFICATION OF THE LATEST EDITION OF AASHTO-AGC-ARTBA'S GUIDE TO STANDARDIZED HIGHWAY LIGHTING POLE HARDWARE.



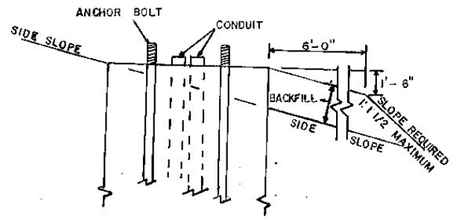
PLAN

* USE 30" WITH TRANSFORMER BASES, ARM OVER 8' LONG OR WHEN OTHERWISE NOTED.



ELEVATION

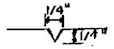
CONCRETE BASE



SIDE SLOPE TREATMENT FOR CONCRETE BASE

CONCRETE BASE NOTES

1. ALL CONCRETE BASES TO BE CONCRETE, CLASS B
2. ALL REINFORCING STEEL TO CONFORM TO THE REQUIREMENTS FOR "REINFORCING STEEL".
3. TEMPLATE FOR ANCHOR BOLTS, ANCHOR BOLTS, NUTS AND WASHERS TO BE OBTAINED BY CONTRACTOR FROM MANUFACTURER PRIOR TO CONSTRUCTION OF BASES.
4. SCORE TOP OF CONCRETE BASE TO SHOW LOCATION OF CONDUIT (S).
5. CONDUIT SIZE - AS SHOWN ON THE PLANS.
6. ALL EXPOSED METAL HARDWARE SHALL BE GALVANIZED OR STAINLESS STEEL.



SCORE MARK DETAILS

REVISIONS AND CORRECTIONS

JUNE 17, 1985 TRANSFORMER BASE STD. VEHICLE PATH CHANGED. SLOPE TREATMENT FOR CONCRETE BASE CHANGED.

APPROVED

DATE JULY 20, 1984

S. J. Pane
DIRECTOR OF ENGINEERING AND CONSTRUCTION

Arthur Ross
CHIEF OF DESIGN

H. C. Emmons
SURVEY AND PLANS ENGINEER

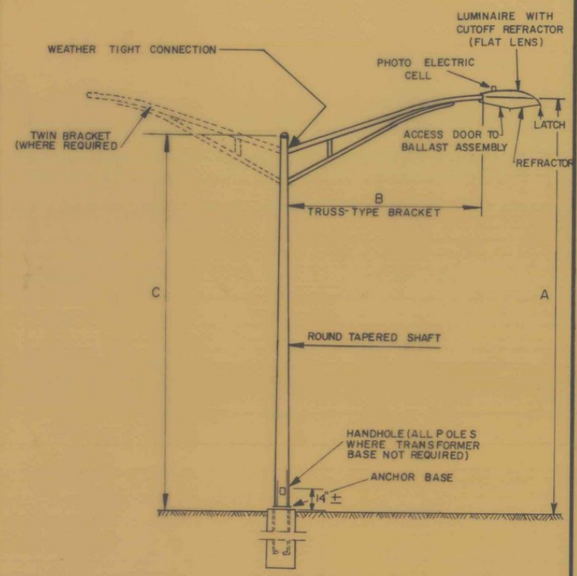
STREET LIGHTING ITEM DETAILS

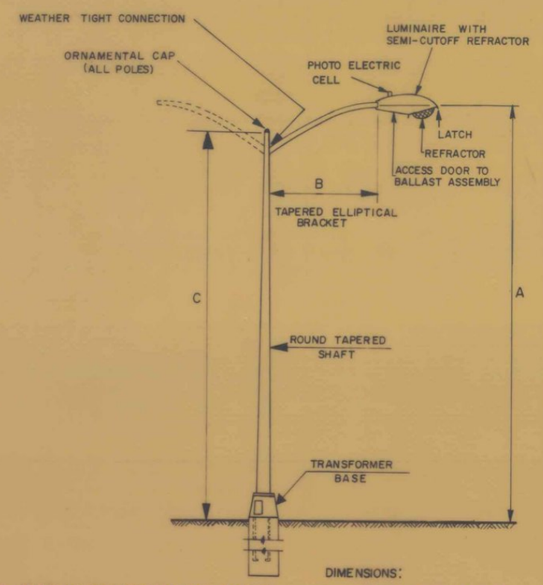
VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-39

ROUND ALUMINUM AND STEEL POSTS





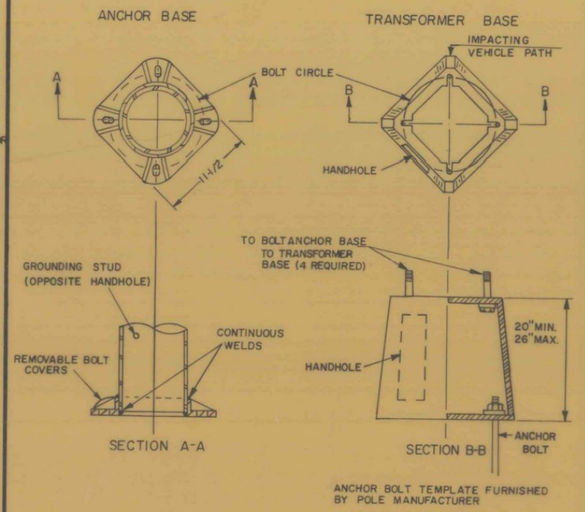
ALL POLES TO BE EQUIPPED WITH ANCHOR BASES UNLESS OTHERWISE INDICATED.

ALL BRACKETS TO BE EQUIPPED WITH 2" SLIPFITTER FOR MOUNTING LUMINAIRE UNLESS OTHERWISE INDICATED.

DIMENSIONS:
A=MOUNTING HEIGHT
B=BRACKET ARM LENGTH
C=SHAFT HEIGHT

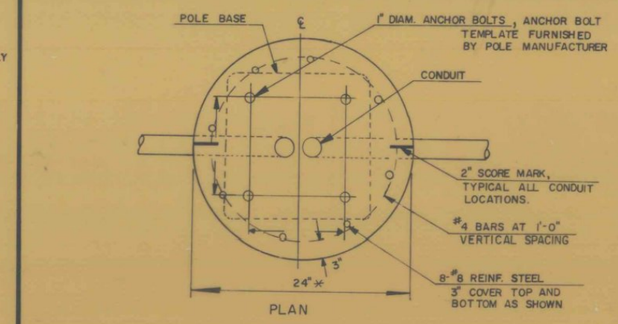
BASES

DIMENSIONS SHOWN FOR ANCHOR BASES AND TRANSFORMER BASES MAY VARY SLIGHTLY WITH DIFFERENT MANUFACTURERS.

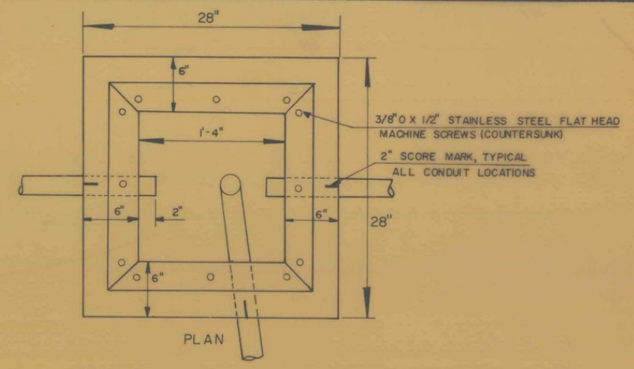


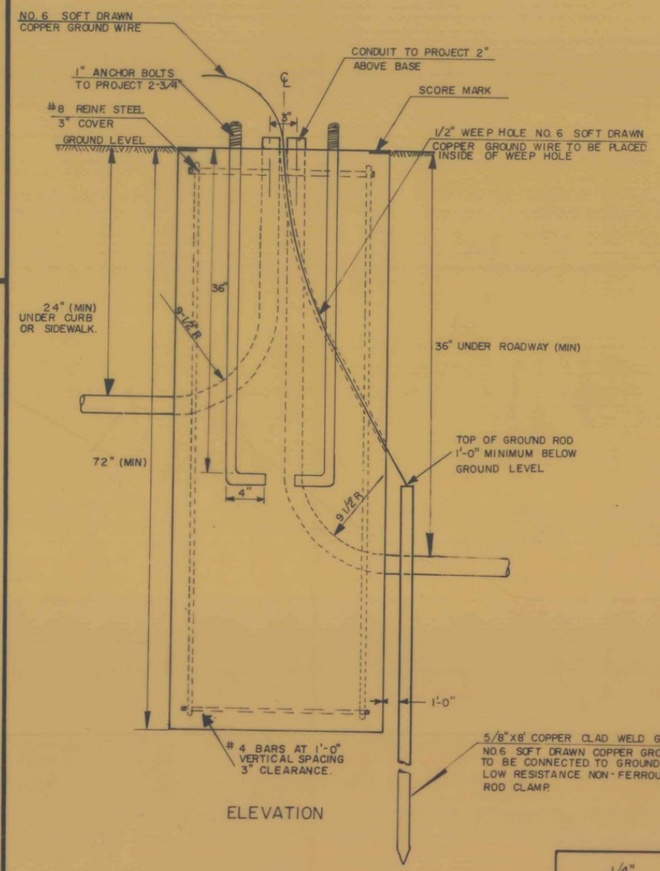
POLES, ANCHOR BASES, ARMS, LUMINAIRES AND GENERAL NOTES

1. NO POLE SHALL BE INSTALLED WITHOUT A LUMINAIRE.
2. ANCHOR BASE AND ANCHOR BOLT DIMENSIONS SHOWN ARE FOR A SINGLE ARM POLE OF HEIGHT 35 FEET OR LESS. SEE PLANS FOR OTHER CONDITIONS.
3. ALL POLES OF THE BREAKAWAY DESIGN SHALL YIELD OR BREAKAWAY WITH A CHANGE IN VEHICLE MOMENTUM OF LESS THAN 1100 POUND-SECONDS WHEN STRUCK BY 2250 POUNDS AT 20 M.P.H. TO 60 M.P.H.
4. A 12 FOOT OR LONGER ARM REQUIRES A 6 INCH OUTSIDE DIAMETER POLE TOP.
5. LUMINAIRES SHALL MEET SPECIFICATIONS AS SHOWN ON THE PLANS.
6. ALL ELECTRICAL MATERIAL AND ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE AREA ELECTRICAL INSPECTOR AND/OR THE POWER COMPANY WITH JURISDICTION IN THE PROJECT AREA.
7. ALL WORK MUST MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, AS WELL AS LOCAL AND STATE CODES.

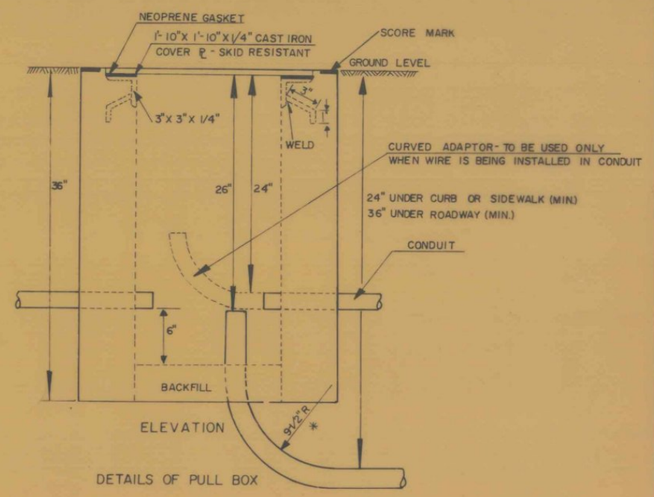


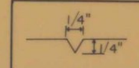
* USE 30" WITH TRANSFORMER BASES





BASE





SCORE MARK DETAILS

BASE AND PULLBOX NOTES

1. ALL BASES AND PULL BOXES TO BE CONCRETE, CLASS B.
2. ALL REINFORCING STEEL TO CONFORM TO THE REQUIREMENTS FOR "REINFORCING STEEL."
3. TEMPLATE FOR ANCHOR BOLTS, ANCHOR BOLTS, NUTS AND WASHERS TO BE OBTAINED BY CONTRACTOR FROM MANUFACTURER PRIOR TO CONSTRUCTION OF BASES.
4. SCORE TOP OF BASE OR PULLBOXES TO SHOW LOCATION OF CONDUIT (S).
5. FOR PULLBOXES - PROVIDE SOFT PLUGS IN CONCRETE BELOW THREADED HOLES IN THE COVER FRAME TO PERMIT RETHREADING AT A FUTURE DATE.
6. CONDUIT SIZE - AS SHOWN ON THE PLANS.
7. EXCAVATION FOR PULLBOXES SHALL INCLUDE EXCAVATION OF AN AREA ONE FOOT OUTSIDE THE PULLBOXES ON ALL SIDES AND EXTENDING ONE FOOT BELOW THE FINISH GRADE OF THE BOTTOM OF THE PULLBOX. ONE FOOT OF GRANULAR MATERIAL SHALL BE PLACED IN THE EXCAVATED AREA PRIOR TO INSTALLATION. WHERE NECESSARY AND AT THE DISCRETION OF THE ENGINEER, A DRAINAGE CHANNEL SHALL BE PROVIDED FROM THE PULLBOX TO THE DITCH. PAYMENT SHALL BE SUBSIDARY TO PULLBOXES.
8. ALL EXPOSED METAL HARDWARE SHALL BE GALVANIZED OR STAINLESS STEEL.

REVISIONS AND CORRECTIONS

APPROVED

DATE JULY 20, 1984

S. J. Gage
DIRECTOR OF ENGINEERING AND CONSTRUCTION

CHIEF OF DESIGN

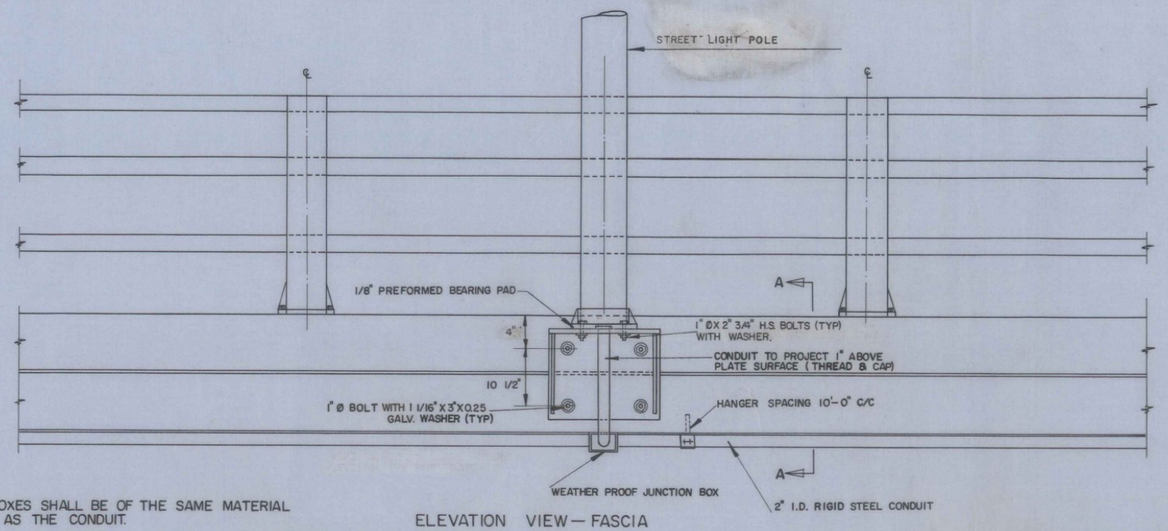
J. C. Evans
SURVEY AND PLANS ENGINEER

STREET LIGHTING ITEM DETAILS

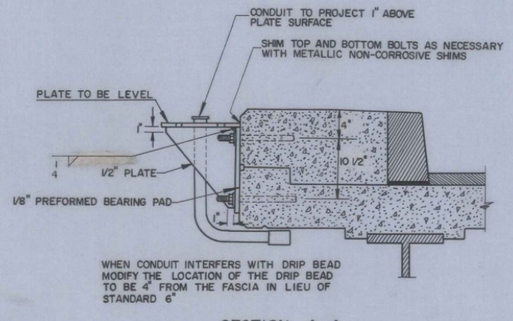
VERMONT AGENCY OF TRANSPORTATION

STANDARD

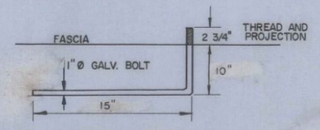
E-39



ELEVATION VIEW — FASCIA



SECTION A–A



BOLT AS FURNISHED BY POLE MANUFACTURER SHALL BE BENT TO THIS SHAPE.

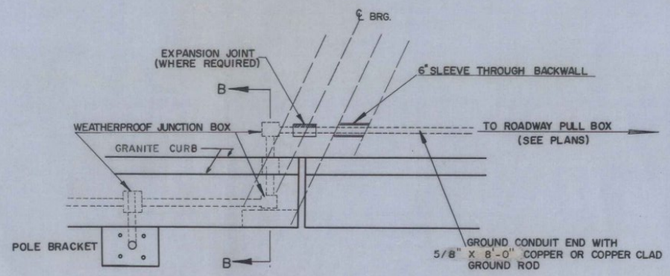
NOTES: JUNCTION BOXES SHALL BE OF THE SAME MATERIAL AND FINISH AS THE CONDUIT.

SIZE OF JUNCTION BOXES TO CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.

CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS OF HANGERS, JUNCTION BOXES, AND CONDUIT EXPANSION JOINTS TO ENGINEER FOR APPROVAL.

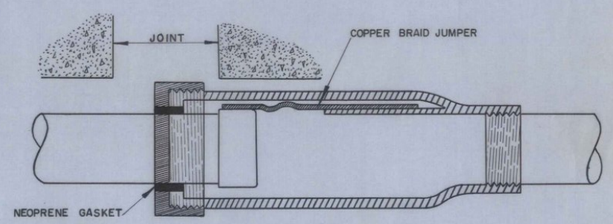
ANCHOR BOLTS, NUTS AND WASHERS AND TEMPLATE FOR ANCHOR BOLTS TO BE OBTAINED BY CONTRACTOR FROM POLE MANUFACTURER. THESE SHALL MEET THE REQUIREMENTS OF ITEM 714.16 FOR HIGHWAY LIGHTING POLES.

BRACKET ASSEMBLY AND ANCHOR BOLTS SHALL BE GALVANIZED AFTER FABRICATION PER ASTM A-153. STEEL IN BRACKET SHALL MEET THE REQUIREMENTS OF ITEM 714.01.



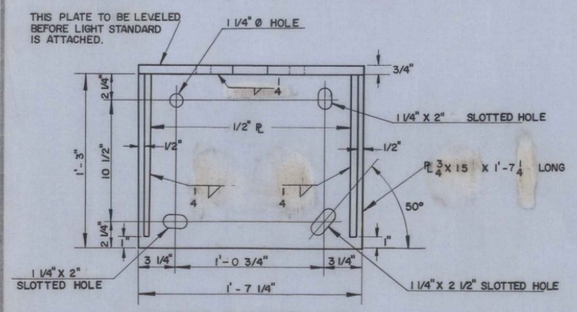
DETAIL AT ABUTMENT

(ON EACH SIDE OF BOTH ABUTMENTS)

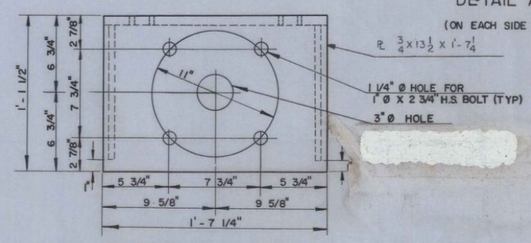


CONDUIT EXPANSION JOINT

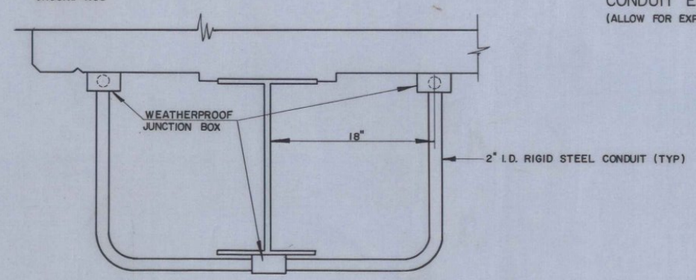
(ALLOW FOR EXPANSION AS INDICATED ON THE PLANS)



BRACKET ELEVATION VIEW



BRACKET PLAN VIEW FOR 11" BOLT CIRCLE



SECTION B–B

REVISIONS AND CORRECTIONS

JAN. 2, 1985 - VARIOUS MINOR REVISIONS AND DIMENSION CHANGES

APPROVED: DATE Dec. 29, 1971

R. H. Arnold
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

TYPICAL BRIDGE LIGHTING DETAILS

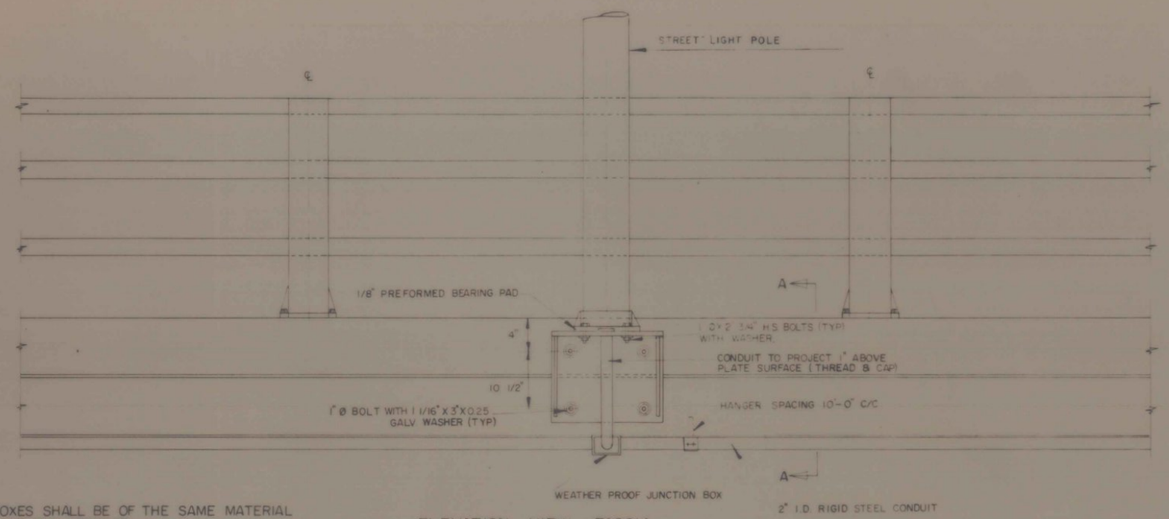
(FOR LUMINAIRE MOUNTING HEIGHTS ≤ 35 FEET)

VERMONT AGENCY OF TRANSPORTATION

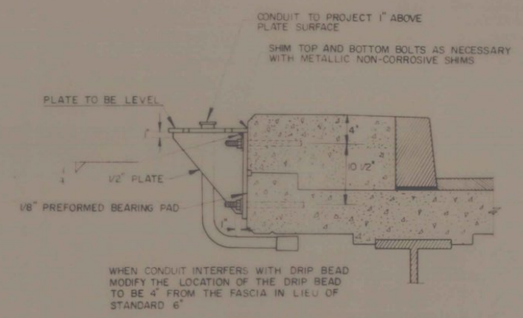
STANDARD

E-40

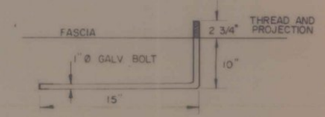
D-8



ELEVATION VIEW — FASCIA



SECTION A–A



BOLT AS FURNISHED BY POLE MANUFACTURER SHALL BE BENT TO THIS SHAPE.

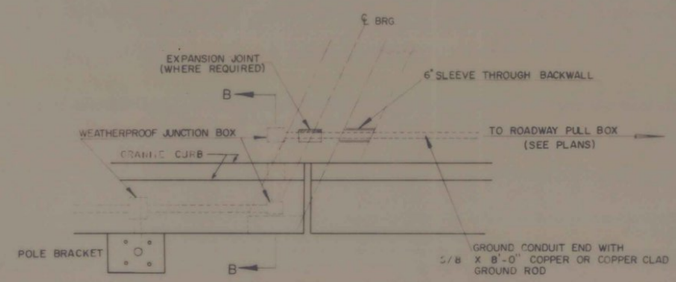
NOTES: JUNCTION BOXES SHALL BE OF THE SAME MATERIAL AND FINISH AS THE CONDUIT.

SIZE OF JUNCTION BOXES TO CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.

CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS OF HANGERS, JUNCTION BOXES, AND CONDUIT EXPANSION JOINTS TO ENGINEER FOR APPROVAL.

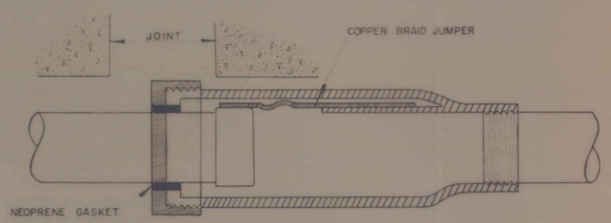
ANCHOR BOLTS, NUTS AND WASHERS AND TEMPLATE FOR ANCHOR BOLTS TO BE OBTAINED BY CONTRACTOR FROM POLE MANUFACTURER. THESE SHALL MEET THE REQUIREMENTS OF ITEM 714.09 FOR HIGHWAY LIGHTING POLES.

BRACKET ASSEMBLY AND ANCHOR BOLTS SHALL BE GALVANIZED AFTER FABRICATION PER ASTM A-153. STEEL IN BRACKET SHALL MEET THE REQUIREMENTS OF ITEM 714.02.



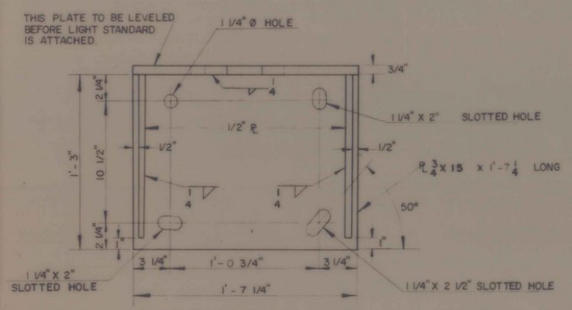
DETAIL AT ABUTMENT

(ON EACH SIDE OF BOTH ABUTMENTS)

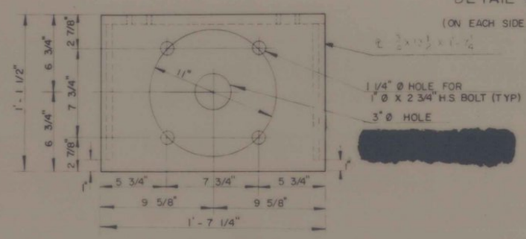


CONDUIT EXPANSION JOINT

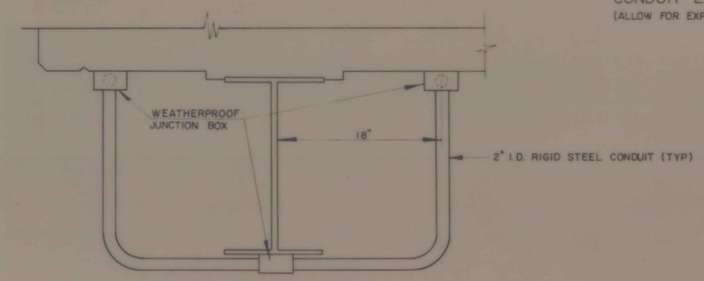
(ALLOW FOR EXPANSION AS INDICATED ON THE PLANS)



BRACKET ELEVATION VIEW



BRACKET PLAN VIEW FOR 11" BOLT CIRCLE



SECTION B–B

REVISIONS AND CORRECTIONS

JAN. 2, 1985 - VARIOUS MINOR REVISIONS AND DIMENSION CHANGES

FEB. 3, 1986 — UPDATED TO 1986 SPECIFICATIONS

APPROVED: DATE Dec 29, 1971

R. H. Arnold
CHIEF ENGINEER

E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

TYPICAL BRIDGE LIGHTING DETAILS

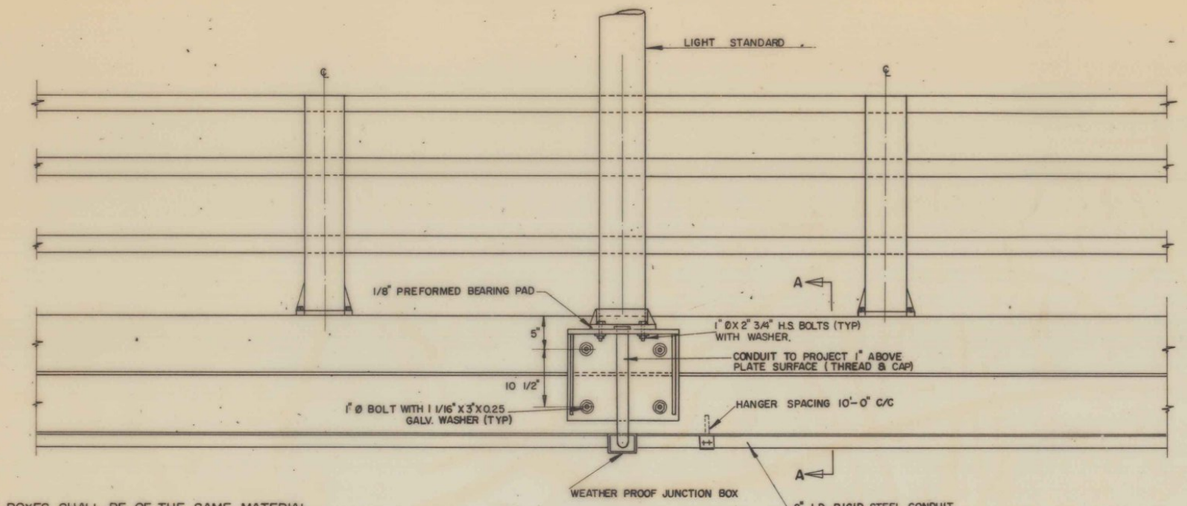
(FOR LUMINAIRE MOUNTING HEIGHTS ≤ 35 FEET)

VERMONT AGENCY OF TRANSPORTATION

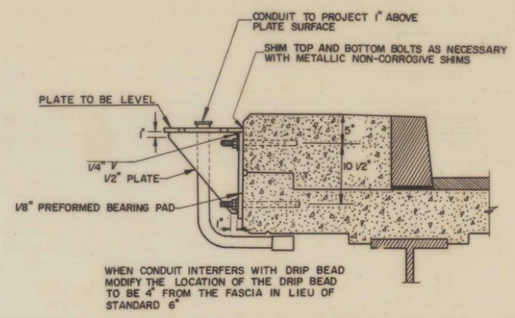
STANDARD

E-40

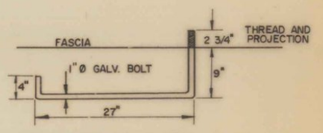
D-8



ELEVATION VIEW — FASCIA



SECTION A–A



BOLT AS FURNISHED BY POLE MANUFACTURER SHALL BE BENT TO THIS SHAPE.

NOTES: JUNCTION BOXES SHALL BE OF THE SAME MATERIAL AND FINISH AS THE CONDUIT.

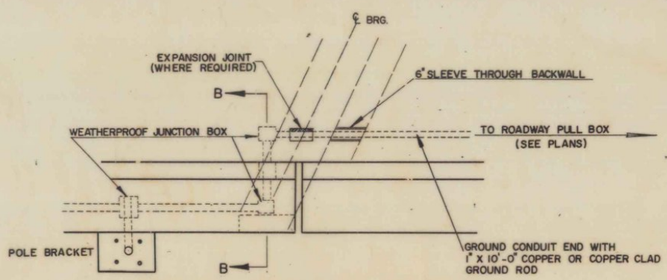
SIZE OF JUNCTION BOXES TO CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.

CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS OF HANGERS, JUNCTION BOXES, AND CONDUIT EXPANSION JOINTS TO ENGINEER FOR APPROVAL.

ANCHOR BOLTS, NUTS AND WASHERS AND TEMPLATE FOR ANCHOR BOLTS TO BE OBTAINED BY CONTRACTOR FROM POLE MANUFACTURER

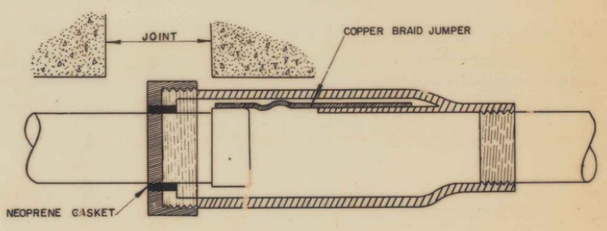
POLES ON BRIDGES NOT EQUIPPED WITH TRANSFORMER BASES

BRACKET ASSEMBLY AND ANCHOR BOLTS SHALL BE GALVANIZED AFTER FABRICATION



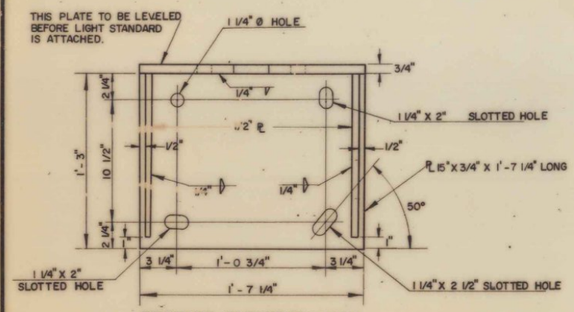
DETAIL AT ABUTMENT

(ON EACH SIDE OF BOTH ABUTMENTS)

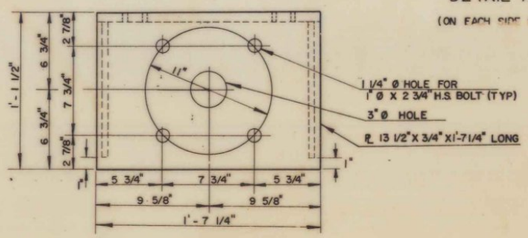


CONDUIT EXPANSION JOINT

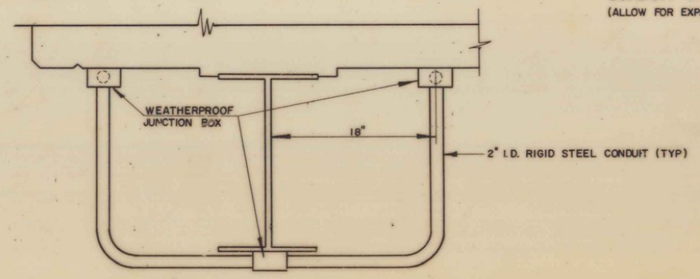
(ALLOW FOR EXPANSION AS INDICATED ON THE PLANS)



BRACKET ELEVATION VIEW



BRACKET PLAN VIEW



SECTION B–B

REVISIONS AND CORRECTIONS

APPROVED: DATE Dec. 29. 1971

R. H. Arnold
CHIEF ENGINEER

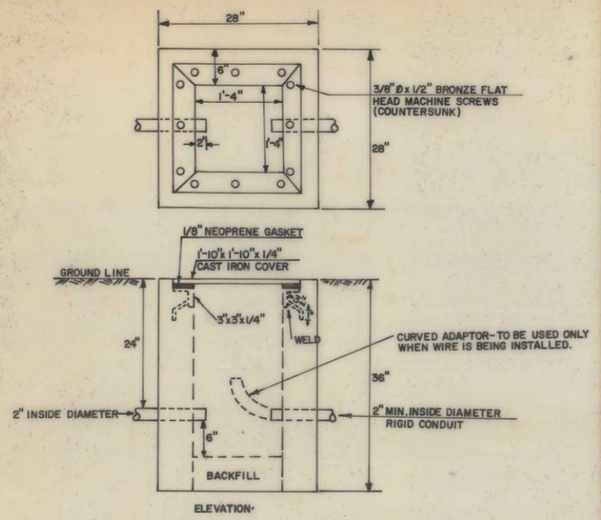
E. W. Stickney
ASST. CHIEF ENGINEER

G. M. Lane
HIGHWAY ENGINEER

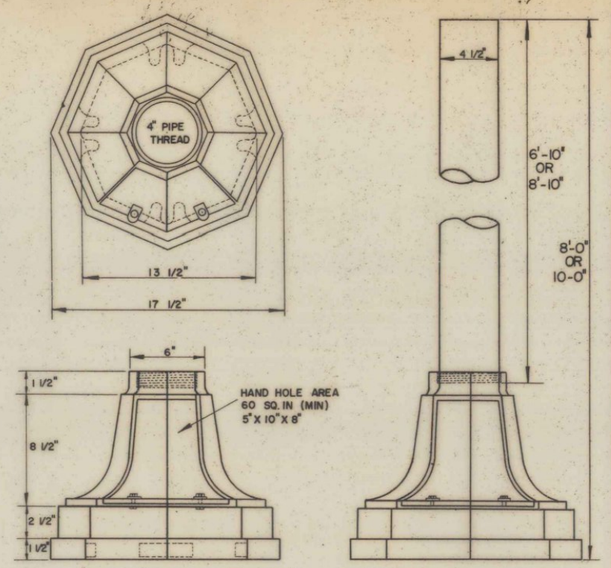
TYPICAL BRIDGE LIGHTING DETAILS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

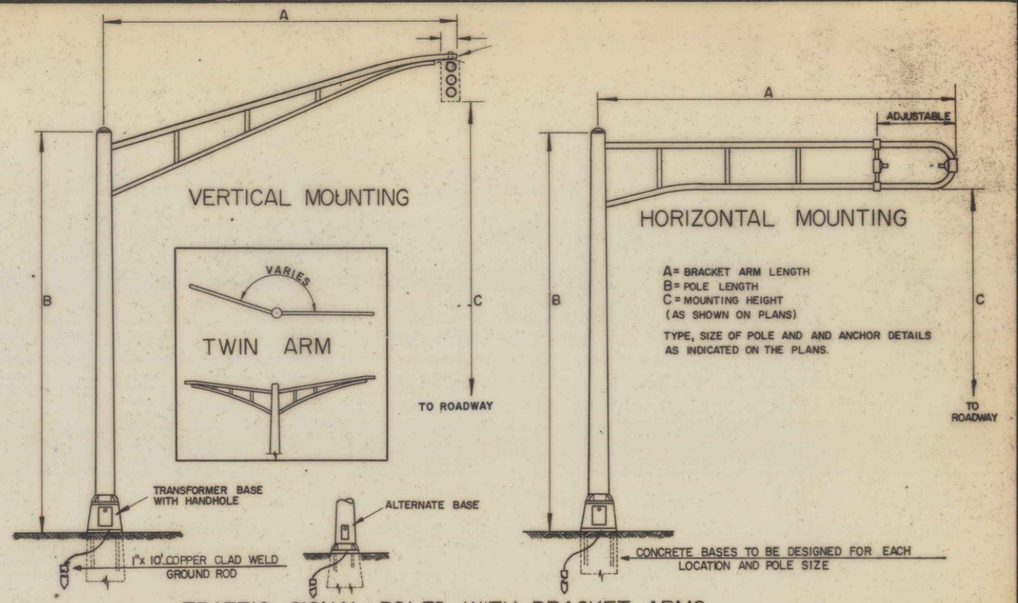
E-40



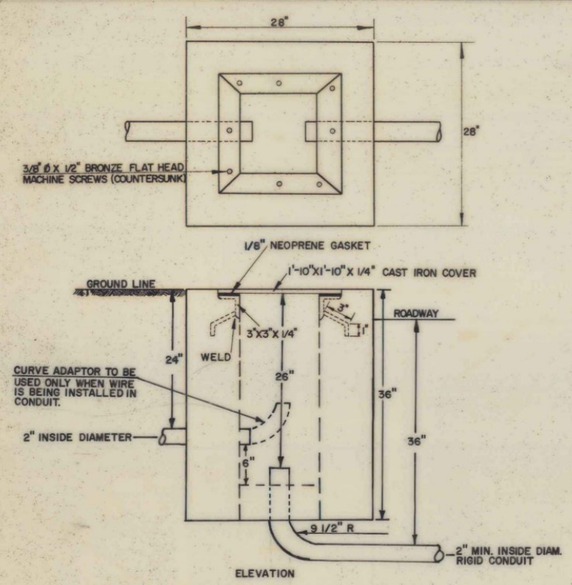
DETAILS OF PULL BOX TYPE "A"



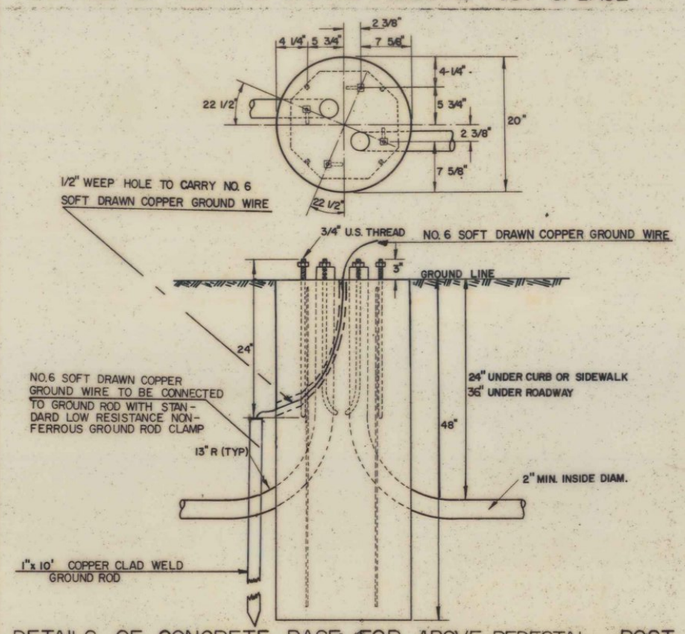
DETAILS OF TRAFFIC SIGNAL PEDESTAL POST & BASE



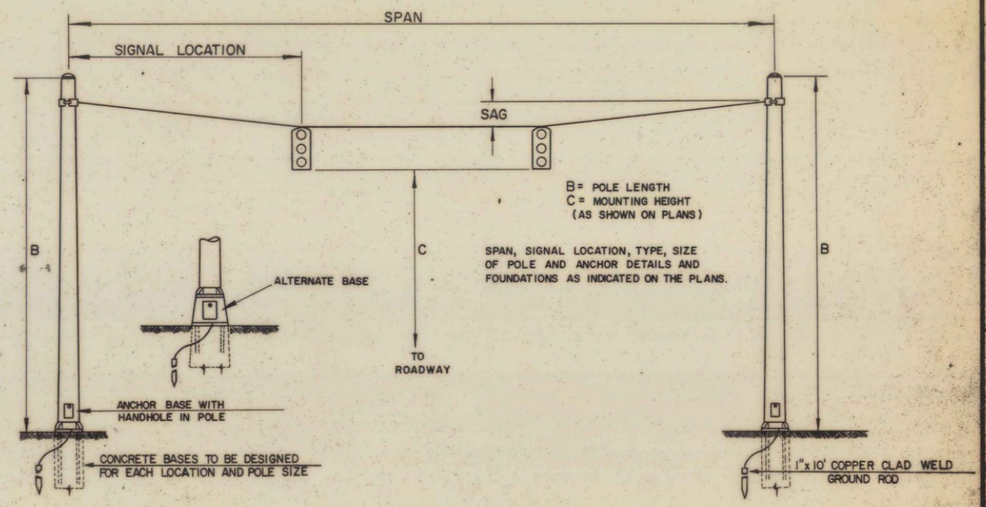
TRAFFIC SIGNAL POLES WITH BRACKET ARMS



DETAILS OF PULL BOX TYPE "B"



DETAILS OF CONCRETE BASE FOR ABOVE PEDESTAL POST



STRAIN POLES WITH SUSPENDED SIGNALS

REVISIONS AND CORRECTIONS

DEC. 14, 1970 DETAIL OF CONCRETE BASE FOR TRAFFIC SIGNAL POST CHANGED TO READ " DETAIL OF CONCRETE BASE FOR ABOVE PEDESTAL POST" TO AVOID CONFUSION WITH CONCRETE BASE FOR STRAIN POLES.
GROUND WIRE AND GROUND ROD ADDED TO CONCRETE BASES.

JAN. 21, 1971 REDESIGN OF PULL BOXES AND GROUNDING.

APPROVED 2/28/67
DATE

R. N. Crutchfield
CHIEF ENGINEER

E. H. Stickney
ASST. CHIEF ENGINEER

A. Frank
CONSTRUCTION ENGINEER

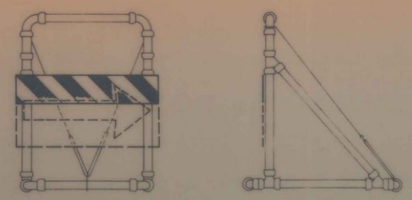
E. W. Coleman
TRAFFIC ENGINEER

TRAFFIC CONTROL SIGNALS

VERMONT
DEPARTMENT OF HIGHWAYS STANDARD

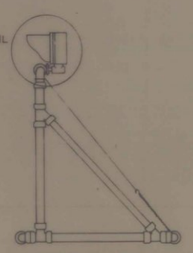
E-41

D-8

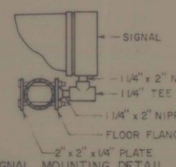


TYPE III (Breakaway) BARRICADE MODIFIED

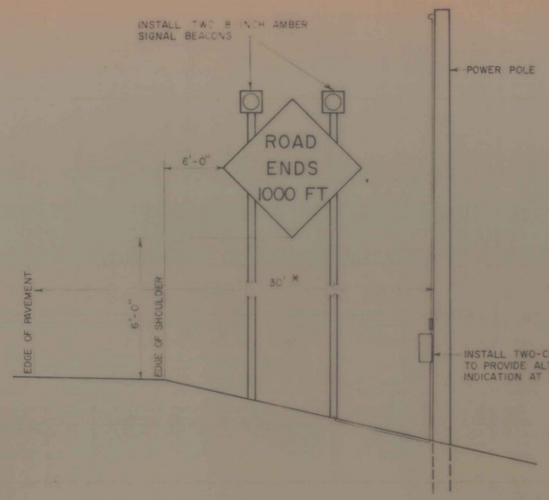
SEE STANDARD E-7A FOR DETAILS.
4' x 2' ARROW TO BE MOUNTED ON BARRICADE NEAREST TRAFFIC.
21 TYPE III (BREAKAWAY) BARRICADES NEEDED FOR TRANSITION OF TRAFFIC.

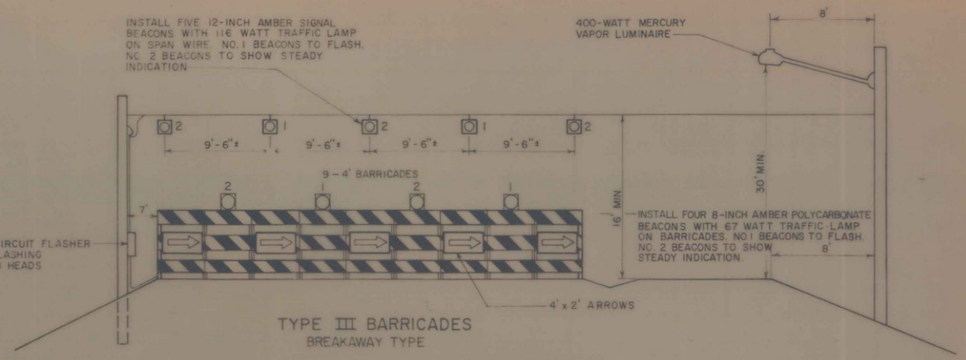


TYPE III BARRICADE
BREAKAWAY
SIDE VIEW



SIGNAL MOUNTING DETAIL
8" DIAM. AMBER POLYCARBONATE BEACON



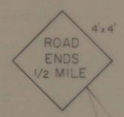


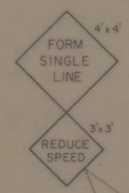
TYPE III BARRICADES
BREAKAWAY TYPE

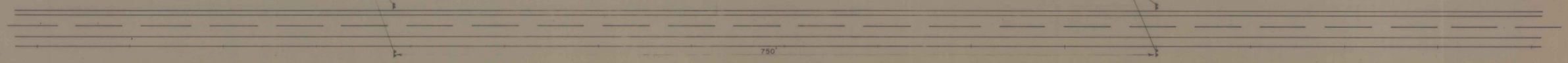
BARRICADE MATERIALS —
TYPE III BARRICADES ON THIS SHEET SHALL COMPLY WITH STANDARD SHEET E-7A.

ALL BARRICADES SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. THEY SHALL ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

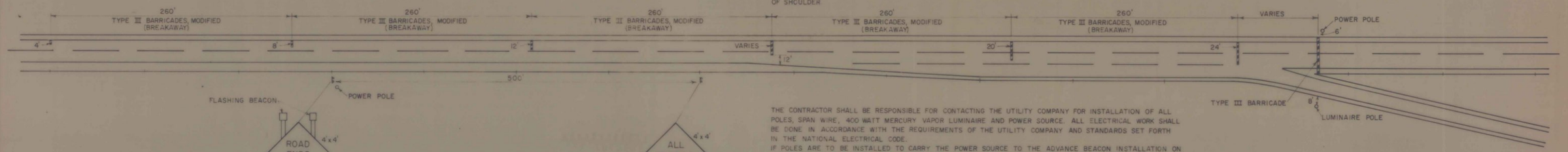
SIGNS —
THE SIZES OF SIGNS SHALL BE AS INDICATED. THEY SHALL HAVE REFLECTORIZED ORANGE BACKGROUND WITH BLACK TEXT AND BORDER. SEE STANDARD SHEET E-10 FOR MATERIALS.

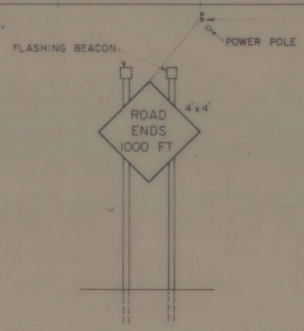






THE DIMENSION SHOWN WITH EACH TYPE III BARRICADE (MOD.) IS THE DISTANCE THE BARRICADE(S) EXTENDS TO THE RIGHT FROM THE LEFT EDGE OF PAVEMENT EXCLUSIVE OF SHOULDER.





THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE UTILITY COMPANY FOR INSTALLATION OF ALL POLES, SPAN WIRE, 400 WATT MERCURY VAPOR LUMINAIRE AND POWER SOURCE. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY COMPANY AND STANDARDS SET FORTH IN THE NATIONAL ELECTRICAL CODE.
IF POLES ARE TO BE INSTALLED TO CARRY THE POWER SOURCE TO THE ADVANCE BEACON INSTALLATION ON THE "ROAD ENDS 1000 FT" SIGN, THE POLES SHALL BE LOCATED A MINIMUM OF 30' FROM THE EDGE OF PAVEMENT; OR A SEPARATE POWER SOURCE SHALL BE PROVIDED AT THIS LOCATION. THE MAINTENANCE AND OPERATION OF THE BARRICADES, BEACONS, SIGNS, STREET LIGHT AND POWER SOURCE AND THE REMOVAL OF THE SAME SHALL BE THE RESPONSIBILITY OF THE STATE AFTER ACCEPTANCE OF THE PROJECT.
ALL MATERIALS WITH THE EXCEPTION OF THE POLES AND STREET LIGHT SHALL BECOME THE PROPERTY OF THE STATE OF VERMONT UPON ACCEPTANCE OF THE PROJECT.
THE BEACONS SHALL BE MOUNTED ON THE BARRICADES WITH A BRACKET OF A DESIGN APPROVED BY THE ENGINEER.
THE BEACONS TO BE USED OVERHEAD SHALL BE FURNISHED WITH HARDWARE FOR SPAN-WIRE MOUNTING. ALL FLASHING BEACONS, FLASHING MECHANISMS AND BEACON ACCESSORIES SHALL BE IN CONFORMANCE WITH STANDARD SPECIFICATION 752.07.
ALL ELECTRICAL FITTINGS SHALL BE OF ELECTRICAL CONDUIT AND BE ADEQUATELY GROUNDED.
A PERMIT AND INSPECTION ARE REQUIRED BY THE STATE ELECTRICAL INSPECTORS.

* IN LEDGE CUT SECTION DISTANCE FROM PAVEMENT TO POLE MAY BE MODIFIED TO NOT LESS THAN 25' FROM PAVEMENT TO POLE.

REVISIONS AND CORRECTIONS

MAY 23, 1975 – REVISIONS PER FHWA COMMENTS.
JUNE 8, 1977 – TYPE I BARRICADE REMOVED. AMBER POLYCARBONATE BEACON ADDED.
JUNE 27, 1977 – REVISED TO INCLUDE ADDITIONAL ELECTRICAL REQUIREMENTS.
FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED

DATE April 4, 1975

E. H. Stickney
CHIEF ENGINEER

R. O. Munn
ASST. CHIEF ENGINEER

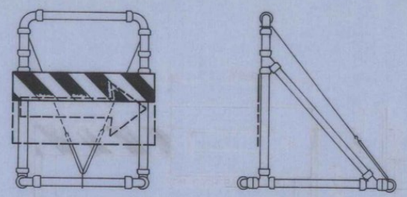
Leon C. Jones
HIGHWAY ENGINEER

TRAFFIC CONTROL DEVICES FOR TEMPORARY TERMINATION OF FREEWAY FACILITIES

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-41

D-8



TYPE III (Breakaway) BARRICADE MODIFIED

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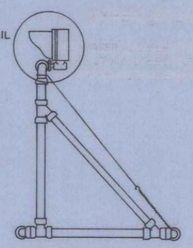
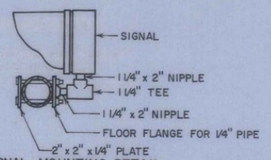
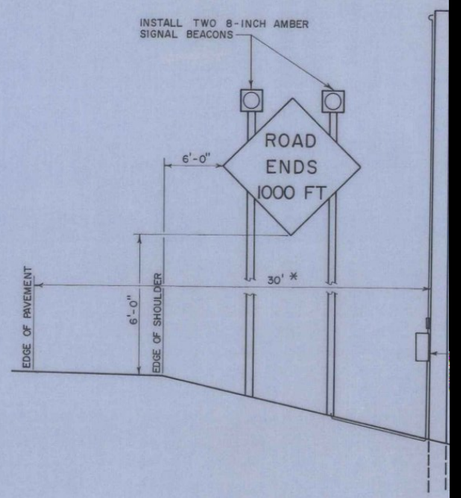
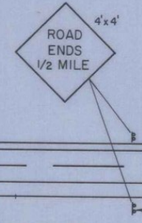


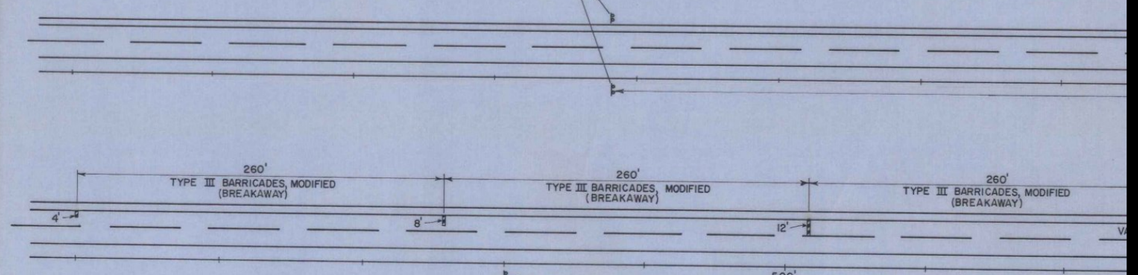
TYPE III BARRICADE
BREAKAWAY
SIDE VIEW

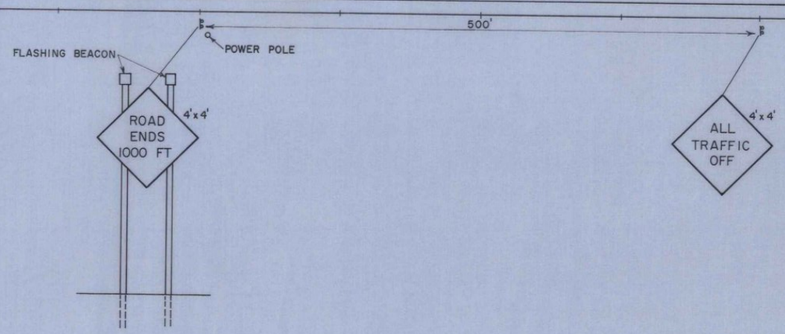


SIGNAL MOUNTING DETAIL
8" DIAM. AMBER POLYCARBONATE
BEACON









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APPROVED

April 4, 1975
DATE

E. H. Dickney
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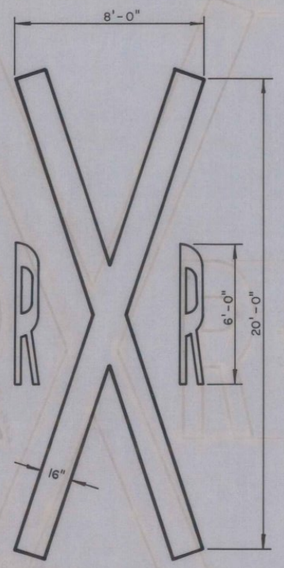
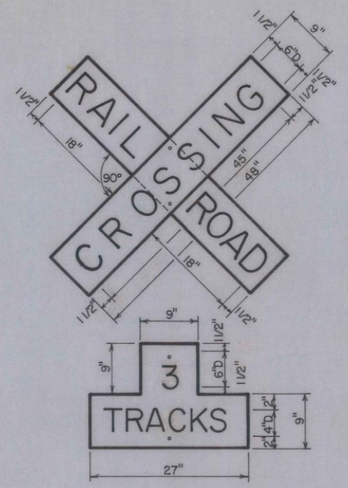
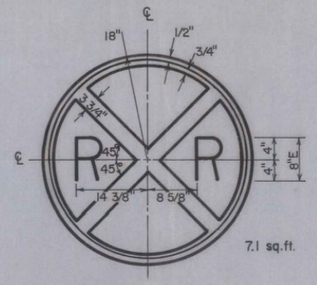


PAVEMENT MARKINGS

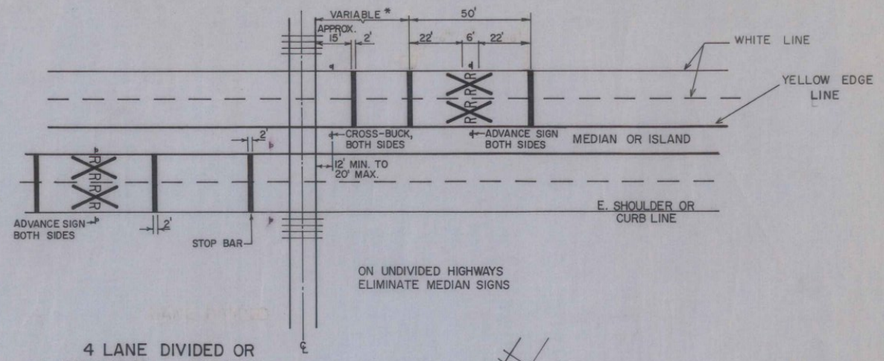


RAILROAD CROSSING SIGN (CROSSBUCK)

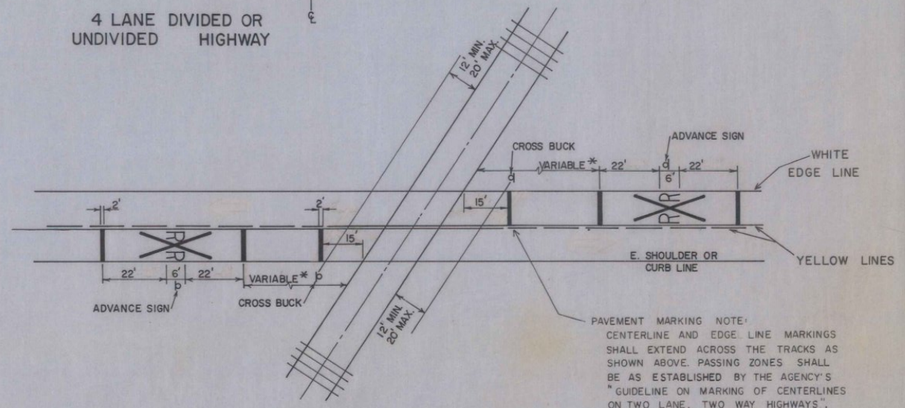


ADVANCE SIGN

SIGN MATERIAL –
CROSS-BUCKS SHALL BE EITHER 5/8" HIGH-DENSITY OVERLAY PLYWOOD OR 0.100 ALUMINUM W/SILVER OR WHITE ENCAPSULATED REFLECTIVE SHEETING. ADVANCE SIGN SHALL BE 0.125 ALUMINUM W/YELLOW REFLECTIVE SHEETING. MULTI-TRACK SIGN SHALL BE 0.06 ALUMINUM W/SILVER OR WHITE REFLECTIVE SHEETING. TEXT, STRIPES AND BORDERS SHALL BE EITHER BLACK PAINTED OR LETTERING FILM.

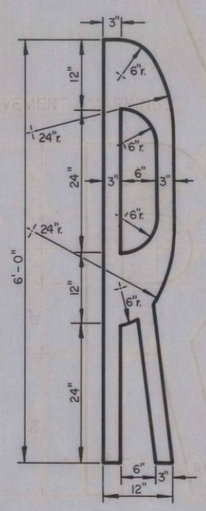


4 LANE DIVIDED OR UNDIVIDED HIGHWAY

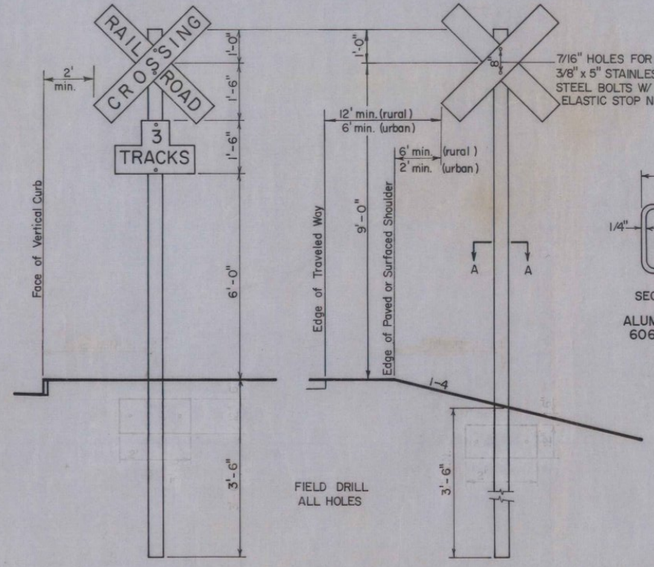


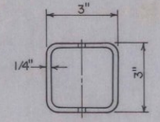
2 WAY TRAFFIC PAVED

ALSO APPLICABLE TO UNPAVED ROADS FOR PLACEMENT OF CROSSBUCKS AND ADVANCE SIGNS



MATERIALS:
REFER TO SPECIAL SPECIFICATION FOR REFLECTORIZED PAVEMENT MARKINGS





SECTION A-A

ALUMINUM TUBE 6061T6 ALLOY

GENERAL NOTES

1. Pavement Markings
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3. Auxiliary Signs
   A number of tracks signs shall be used where there are two or more tracks at the crossing.

* 4. Advance Warning Sign
   Railroad Advance Warning signs will be provided and located in accordance with Section 8B-3 of the MUTCD.

For post-hardware, anchors and erection information, refer to standard sheet E-24A.

REVISIONS & CORRECTIONS

MARCH 26, 1979 PAVEMENT MARKINGS REVISED
SEPT. 4, 1979 - NOTE 4 MODIFIED
APRIL 28, 1980 - NOTE 4 MODIFIED. EMBEDMENT DETAILS FOR CROSS-BUCK SUPPORT REVISED.
JAN. 10, 1985 - CENTERLINE MARKING NOTE ADDED

APPROVED

DATE 8/17/77

CHIEF ENGINEER S.V. Gage

CHIEF OF DESIGN R.O. Munn

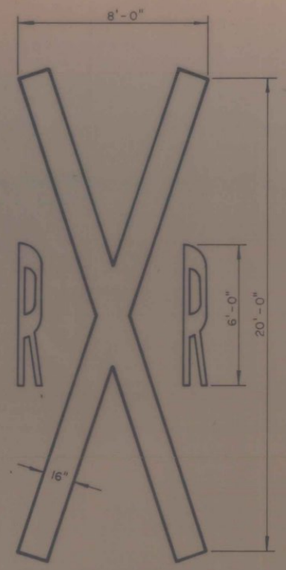
HIGHWAY ENGINEER Loren L. Jones

RAILROAD CROSSING SIGNS AND PAVEMENT MARKINGS

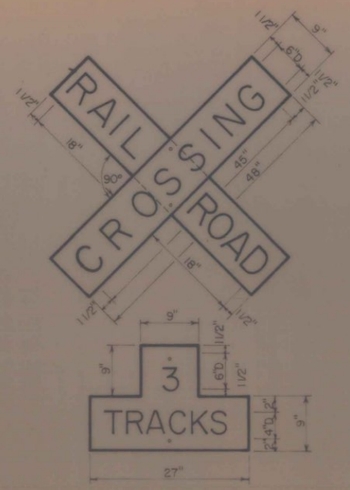
VERMONT AGENCY OF TRANSPORTATION

STANDARD

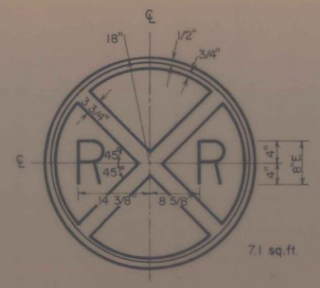
E-45



PAVEMENT MARKINGS

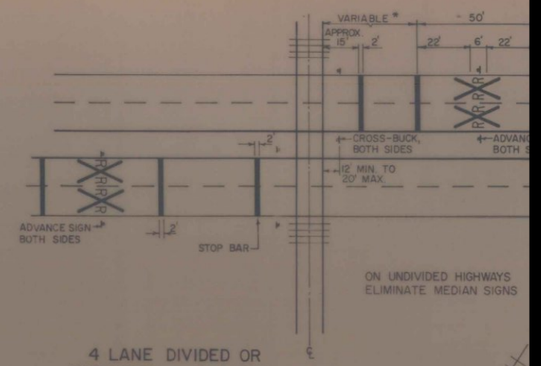


RAILROAD CROSSING SIGN (CROSSBUCK)

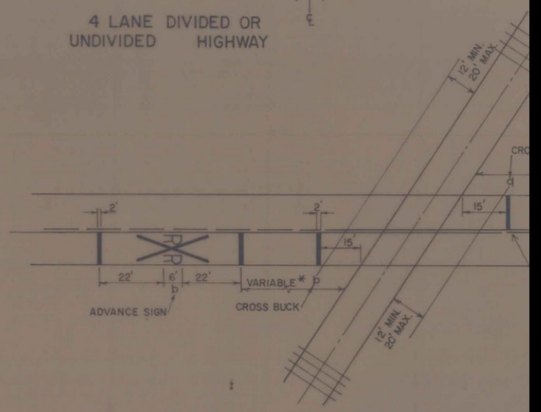


ADVANCE SIGN

SIGN MATERIAL –
CROSS-BUCKS SHALL BE EITHER 5/8" HIGH-DENSITY OVERLAY PLYWOOD OR 0.100 ALUMINUM W/SILVER OR WHITE ENCAPSULATED REFLECTIVE SHEETING. ADVANCE SIGN SHALL BE 0.125 ALUMINUM W/YELLOW REFLECTIVE SHEETING. MULTI-TRACK SIGN SHALL BE 0.06 ALUMINUM W/SILVER OR WHITE REFLECTIVE SHEETING. TEXT, STRIPES AND BORDERS SHALL BE EITHER BLACK PAINTED OR LETTERING FILM.

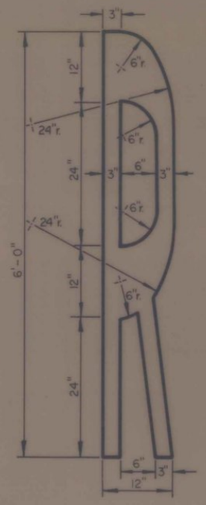


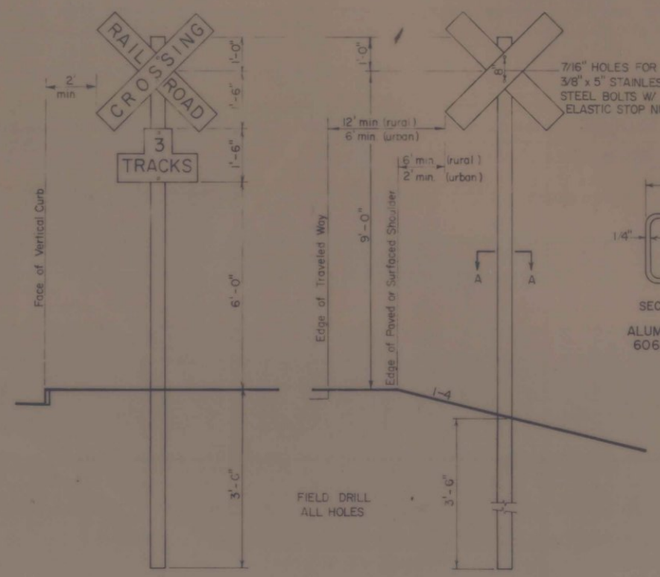
4 LANE DIVIDED OR UNDIVIDED HIGHWAY

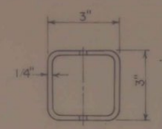


2 WAY TRAFFIC PAVED

ALSO APPLICABLE TO UNPAVED ROADS FOR PLACEMENT OF CROSSBUCKS AND ADVANCE SIGNS







SECTION A-A

ALUMINUM TUBE 6061T6 ALLOY

GENERAL NOTES

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3. Auxili
   A
   or m

*4. Advan
   Rai
   locate

For p
stand

MATERIALS:
REFER TO SPECIAL SPECIFICATION FOR REFLECTORIZED PAVEMENT MARKINGS

REVISIONS & CORRECTIONS

MARCH 26, 1979 PAVEMENT MARKINGS REVISED
SEPT. 4, 1979 - NOTE 4 MODIFIED
APRIL 28, 1980 - NOTE 4 MODIFIED. EMBEDMENT DETAILS FOR CROSS-BUCK SUPPORT REVISED.
JAN. 10, 1985 - CENTERLINE MARKING NOTE ADDED
FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS.

APPROVED

DATE 8/17/77

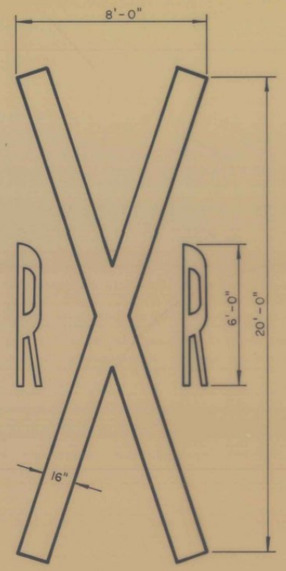
CHIEF ENGINEER S. J. Gage

CHIEF OF DESIGN R O Munn

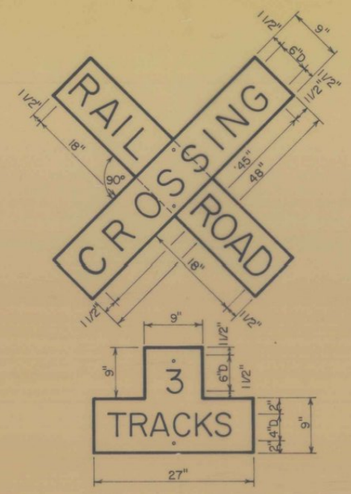
HIGHWAY ENGINEER Loren L Jones

RAILROAD CROSSING SIGNS AND PAVEMENT MARKINGS

VERMONT AGENCY OF TRANSPORTATION



PAVEMENT MARKINGS



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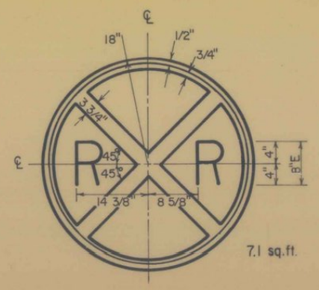

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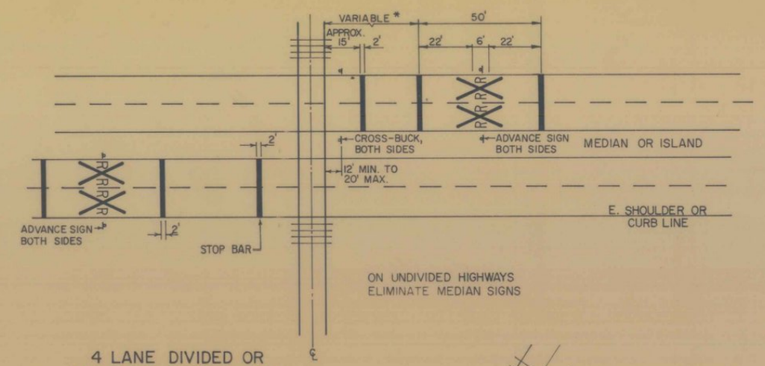

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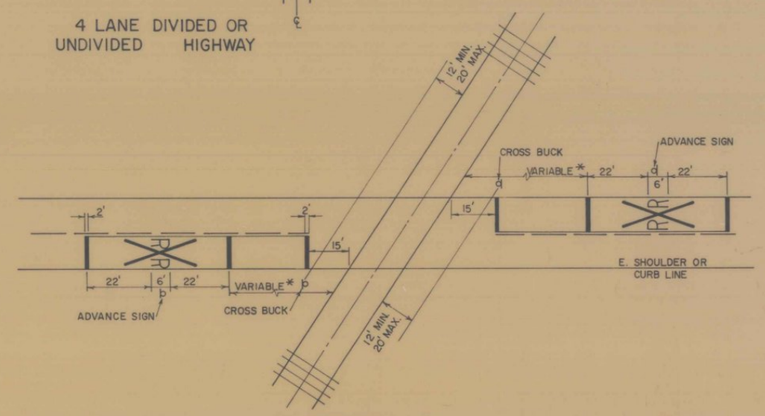

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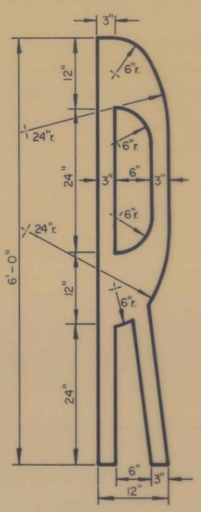

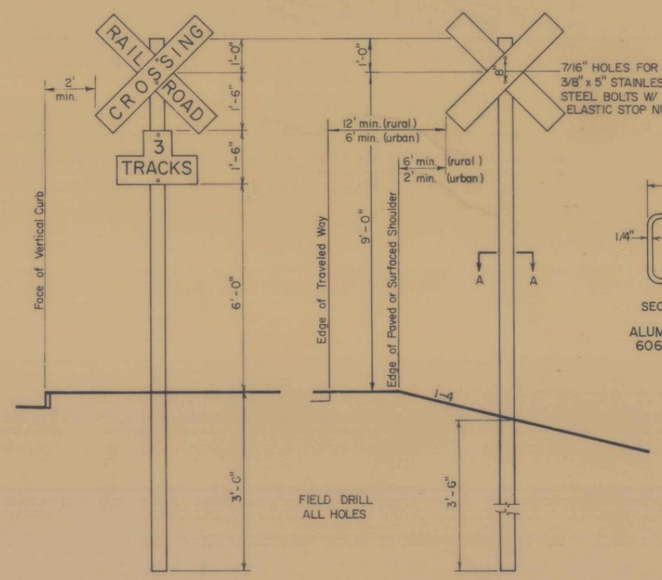

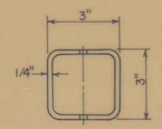

SECTION A-A

ALUMINUM TUBE 6061T6 ALLOY

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MATERIALS:
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REVISIONS & CORRECTIONS

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APPROVED

DATE 8/17/77

CHIEF ENGINEER

CHIEF OF DESIGN

HIGHWAY ENGINEER

RAILROAD CROSSING SIGNS AND PAVEMENT MARKINGS

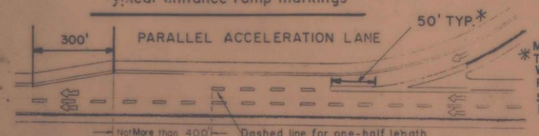
VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-45

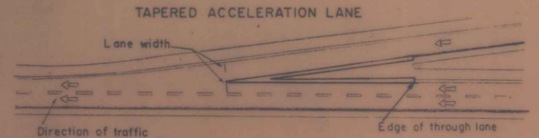
D-8

Typical entrance ramp markings



*MAY BE MADE LONGER TO EMPHASIZE SITUATIONS WHERE THE CROSSING REQUIRES UNUSAL CARE SUCH AS HIGH VOLUME MERGE AREAS.

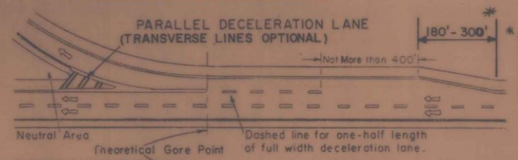
TAPERED ACCELERATION LANE



4" White Lines
4" Yellow Lines
8" Channelization White Lines

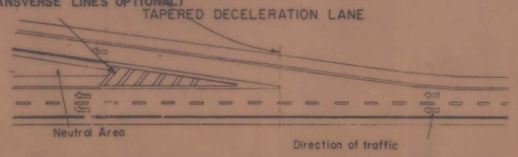
Typical exit ramp markings

PARALLEL DECELERATION LANE (TRANSVERSE LINES OPTIONAL)



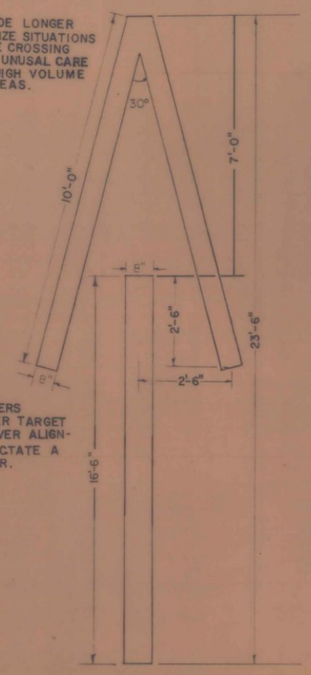
*SHORTER TAPERS GIVE A BETTER TARGET VALUE, HOWEVER ALIGNMENT MAY DICTATE A LONGER TAPER.

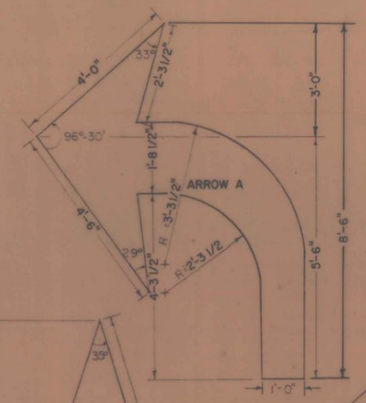
(TRANSVERSE LINES OPTIONAL)
TAPERED DECELERATION LANE

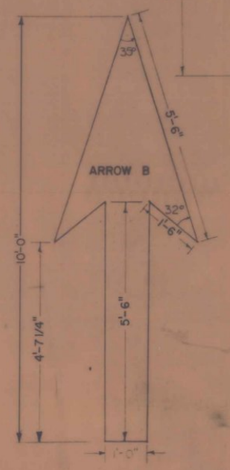


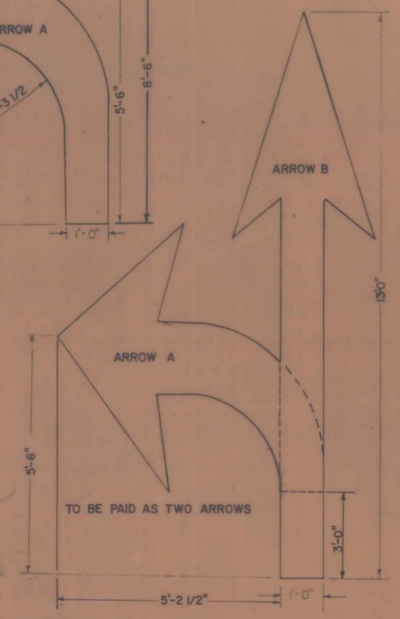
TRANSVERSE LINES SHALL CONSIST OF 8" WHITE LINES SPACED 5'-0" C-C AND SET AT 45° TO MAIN LINE EDGE LINES. THESE MARKINGS SHALL BE USED TO INCREASE VISIBILITY DUE TO DIFFICULT VERTICAL OR HORIZONTAL ALIGNMENT.

RAMP PAVEMENT ARROW DETAIL



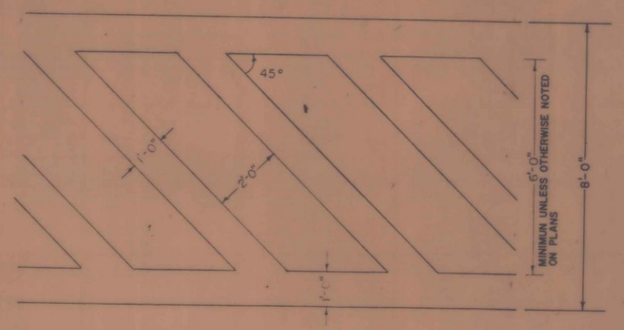




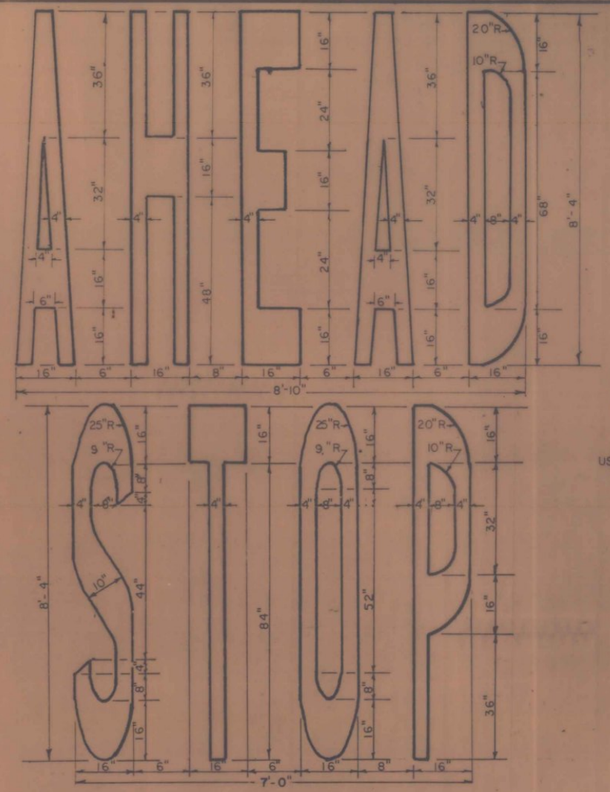


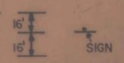
TO BE PAID AS TWO ARROWS

CROSSWALK DETAIL

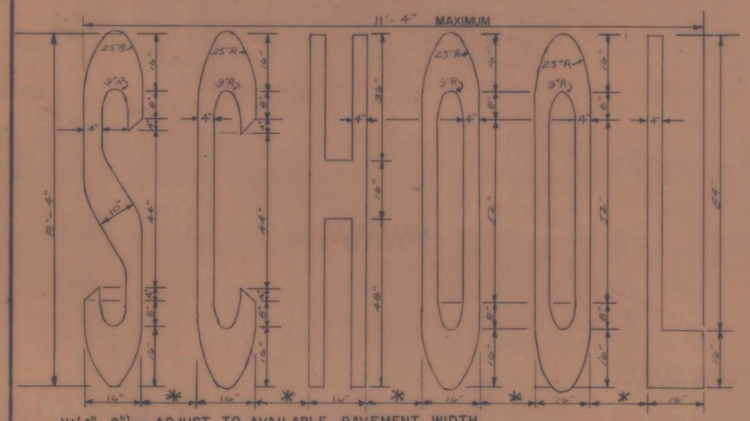


ARROWS AND WORD MARKINGS THAT CONFORM TO THE DIMENSIONS SHOWN ON THIS SHEET OR AS DETAILED IN THE BOOKLET ENTITLED "THE STANDARD PAVEMENT MARKING ALPHABET AND SYMBOLS, 1977" PREPARED BY THE FEDERAL HIGHWAY ADMINISTRATION WILL BE ACCEPTABLE.

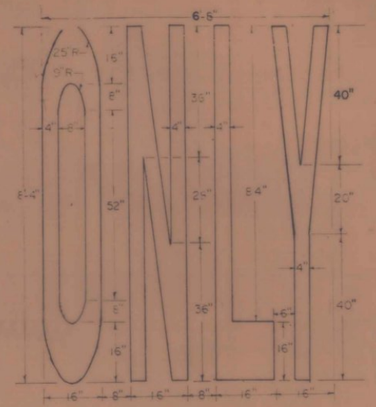


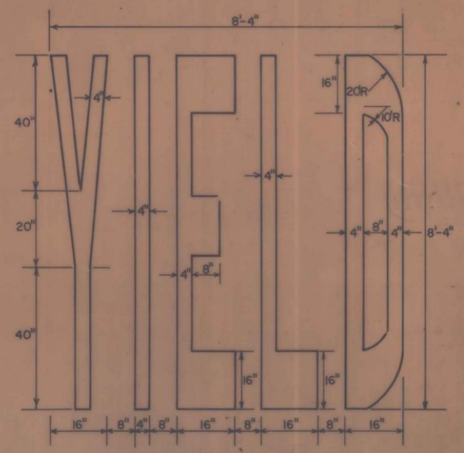


32' SPACING BETWEEN WORDS
USE FOR "STOP AHEAD"
"SIGNAL AHEAD"
"YIELD AHEAD"



*(4"-8")— ADJUST TO AVAILABLE PAVEMENT WIDTH





REVISIONS AND CORRECTIONS

MAR. 16, 1982 YIELD ADDED.
SEPT. 20, 1985 REVISED GORE MARKINGS & "SCHOOL" SPACING
FEB. 3, 1986 UPDATED TO 1986 SPECIFICATIONS

APPROVED: AUGUST 4, 1981
DATE

S. J. Page
DIRECTOR OF ENGINEERING AND CONSTRUCTION

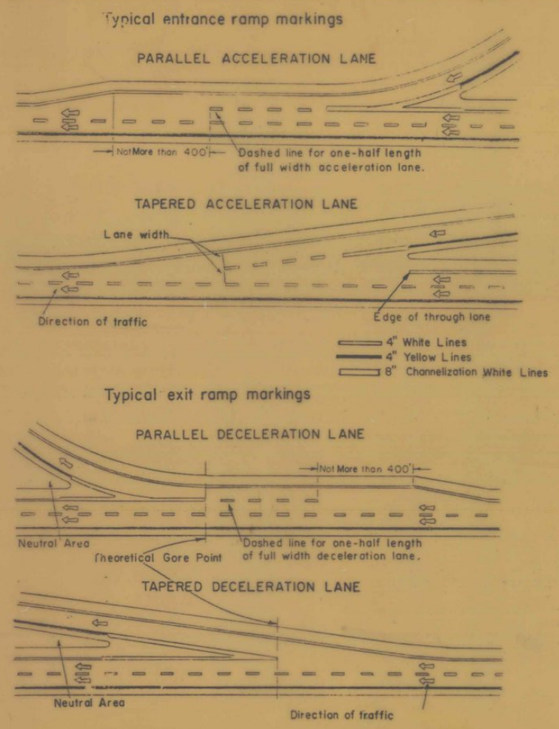
C. J. Gross
CHIEF OF DESIGN

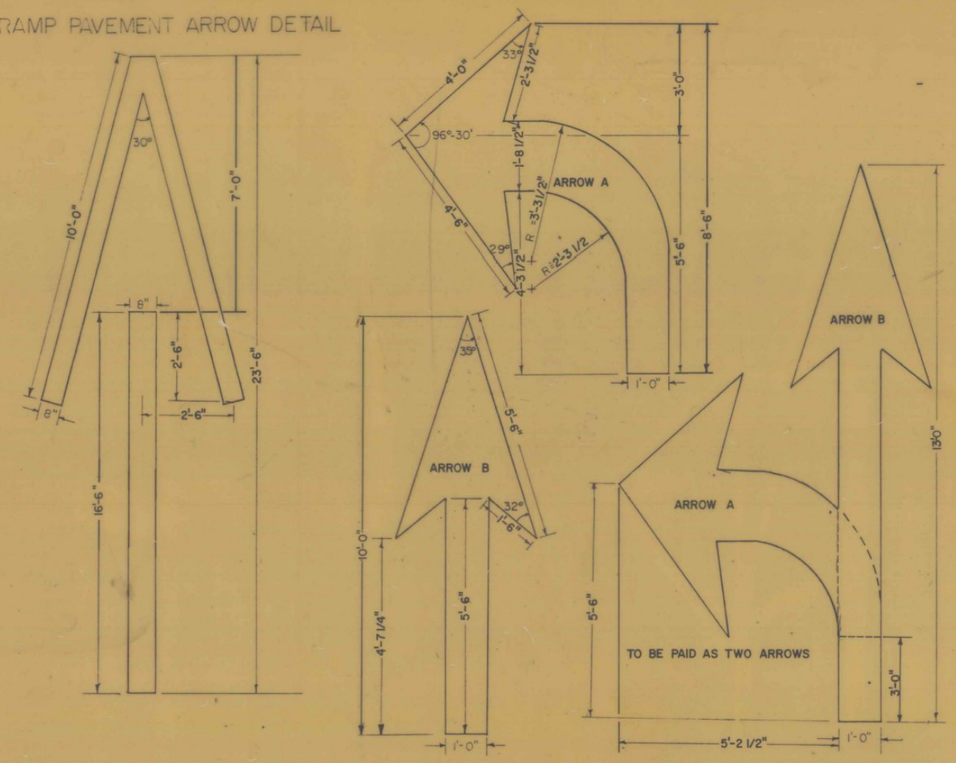
Leon C. Gross
TRANSPORTATION DESIGN ENGINEER

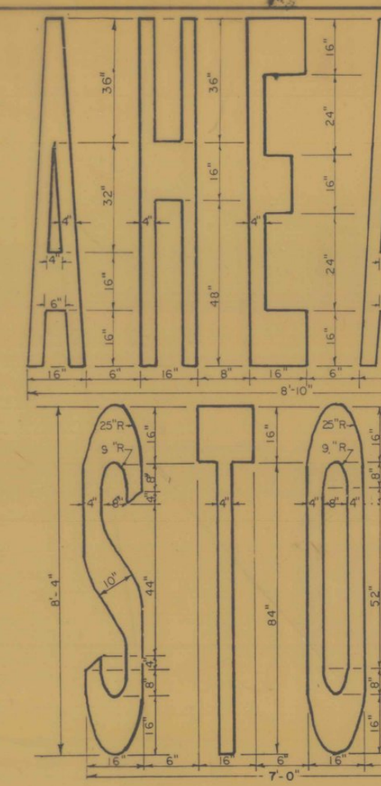
PAVEMENT MARKING DETAILS

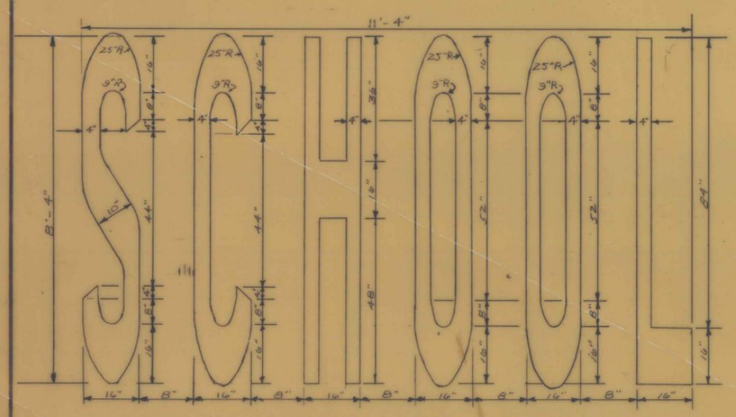
VERMONT AGENCY OF TRANSPORTATION

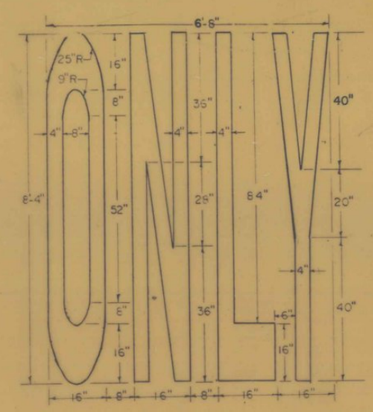
STANDARD
E-50

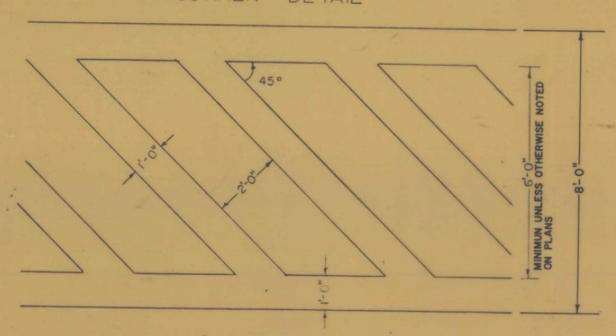


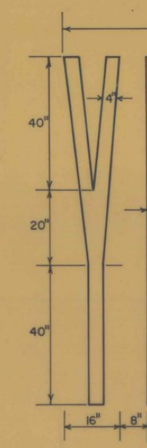












ARROWS AND WORD MARKINGS THAT CONFORM TO THE DIMENSIONS SHOWN ON THIS SHEET OR AS DETAILED IN THE BOOKLET ENTITLED "THE STANDARD PAVEMENT MARKING ALPHABET AND SYMBOLS, 1977" PREPARED BY THE FEDERAL HIGHWAY ADMINISTRATION WILL BE ACCEPTABLE.

REVISIONS AND CORRECTIONS

MAR. 16, 1982 YIELD ADDED.

APPROVED: AUGUST 4, 1981
DATE

DIRECTOR OF ENGINEERING AND CONSTRUCTION

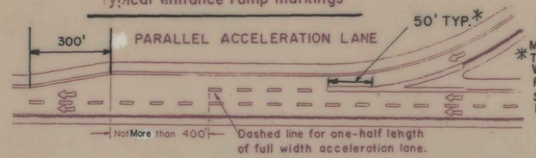
CHIEF OF DESIGN

TRANSPORTATION DESIGN ENGINEER

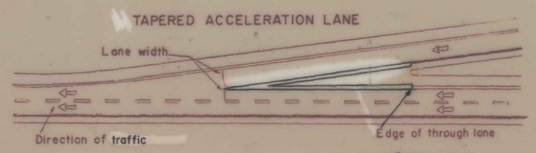
PAVEMENT MARKING DETAILS

VERMONT AGENCY OF TRANSPORTATION

Typical entrance ramp markings

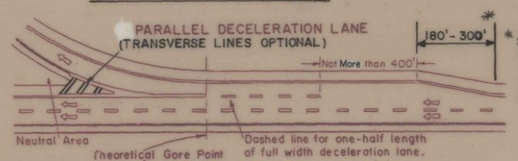


*MAY BE MADE LONGER TO EMPHASIZE SITUATIONS WHERE THE CROSSING REQUIRES UNUSAL CARE SUCH AS HIGH VOLUME MERGE AREAS.

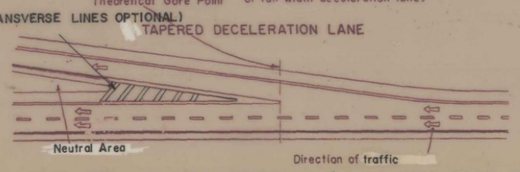


4" White Lines
4" Yellow Lines
8" Channelization White Lines

Typical exit ramp markings

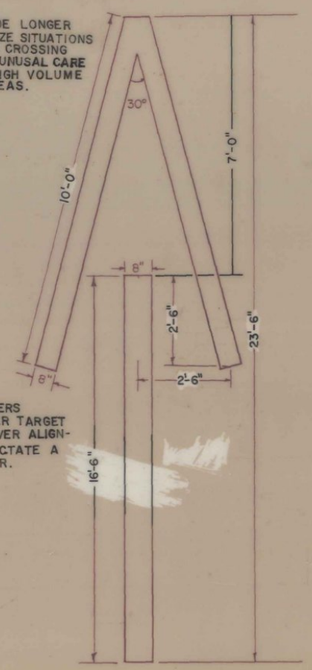


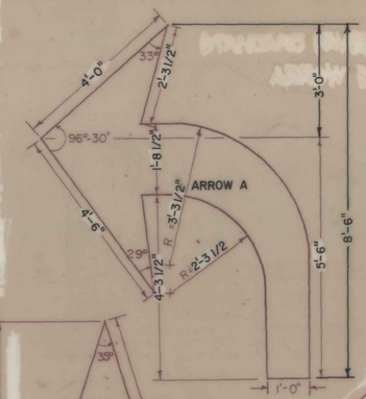
*SHORTER TAPERS GIVE A BETTER TARGET VALUE, HOWEVER ALIGNMENT MAY DICTATE A LONGER TAPER.

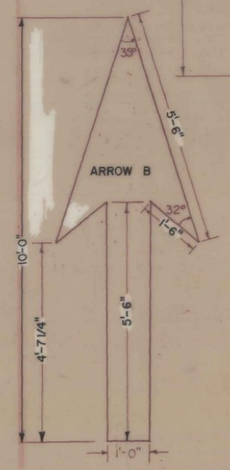


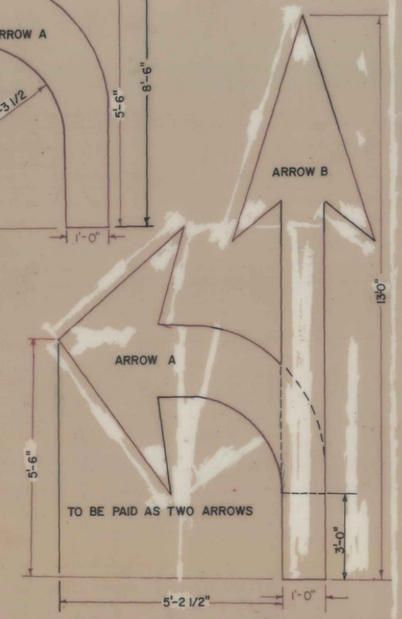
TRANSVERSE LINES SHALL CONSIST OF 8" WHITE LINES SPACED 5'-0" C-C AND SET AT 45° TO MAIN LINE EDGE LINES. THESE MARKINGS SHALL BE USED TO INCREASE VISIBILITY DUE TO DIFFICULT VERTICAL OR HORIZONTAL ALIGNMENT.

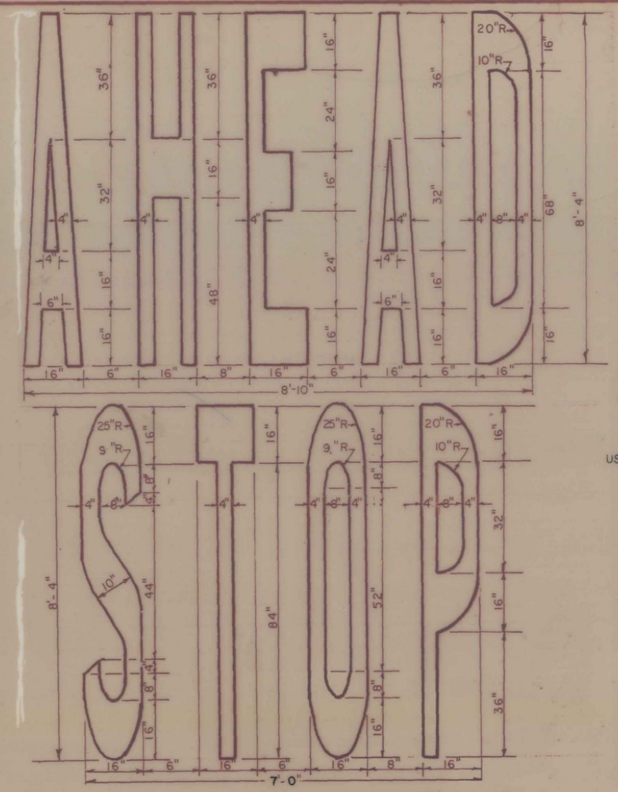
RAMP PAVEMENT ARROW DETAIL





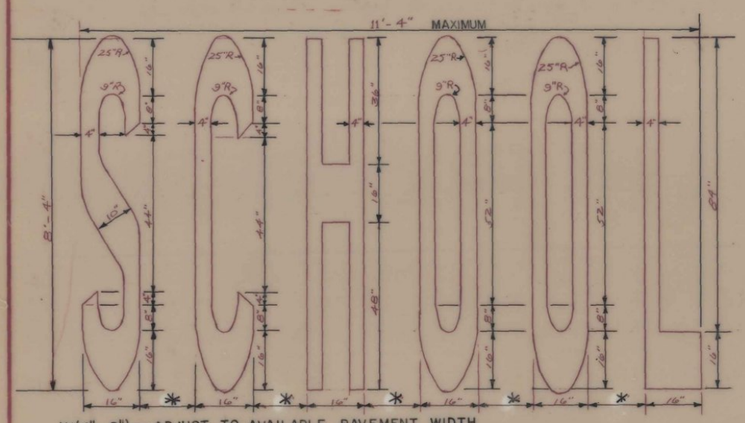




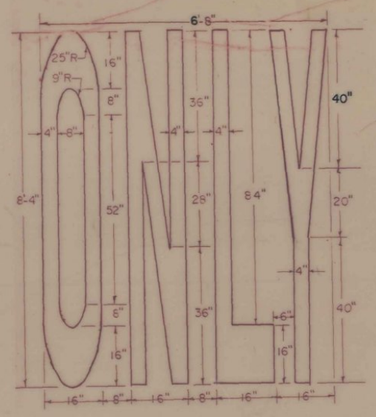


16" 16" SIGN

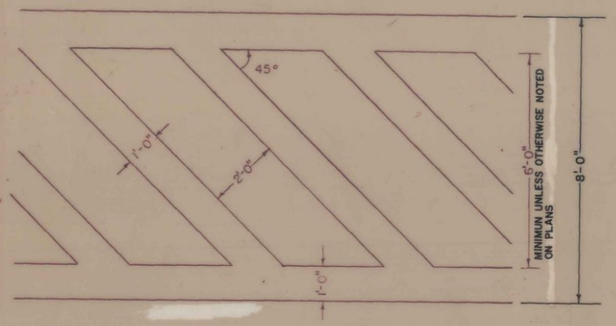
32" SPACING BETWEEN WORDS USE FOR "STOP AHEAD" "SIGNAL AHEAD" "YIELD AHEAD"



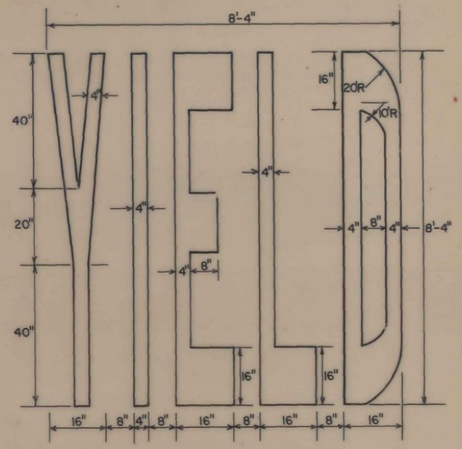
*(4"-8")— ADJUST TO AVAILABLE PAVEMENT WIDTH



CROSSWALK DETAIL



ARROWS AND WORD MARKINGS THAT CONFORM TO THE DIMENSIONS SHOWN ON THIS SHEET OR AS DETAILED IN THE BOOKLET ENTITLED "THE STANDARD PAVEMENT MARKING ALPHABET AND SYMBOLS, 1977" PREPARED BY THE FEDERAL HIGHWAY ADMINISTRATION WILL BE ACCEPTABLE.



REVISIONS AND CORRECTIONS

MAR. 16, 1982 YIELD ADDED.
SEPT. 20, 1985 REVISED GORE MARKINGS & "SCHOOL" SPACING

APPROVED: AUGUST 4, 1981
DATE

S. J. Page
DIRECTOR OF ENGINEERING AND CONSTRUCTION

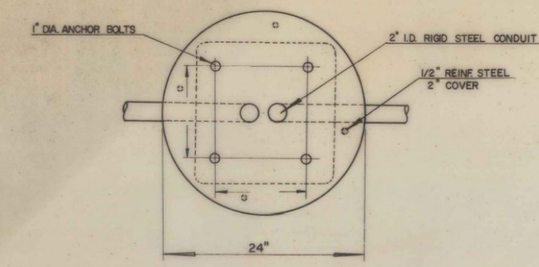
A. J. Hoss
CHIEF OF DESIGN

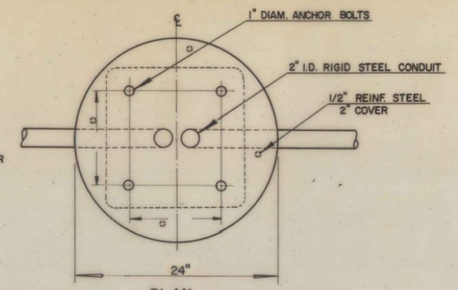
Leon C. Jones
TRANSPORTATION DESIGN ENGINEER

PAVEMENT MARKING DETAILS

VERMONT AGENCY OF TRANSPORTATION

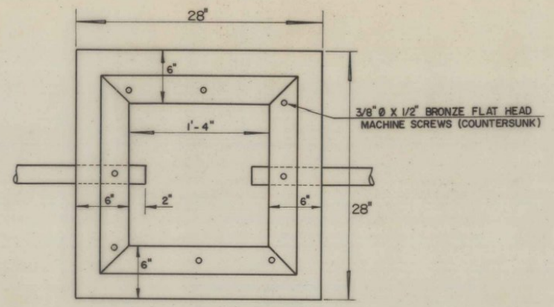
STANDARD
E-50



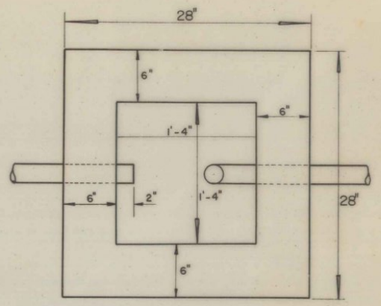


NOTE: ANCHOR BOLT TEMPLATE FURNISHED BY POLE MANUFACTURER

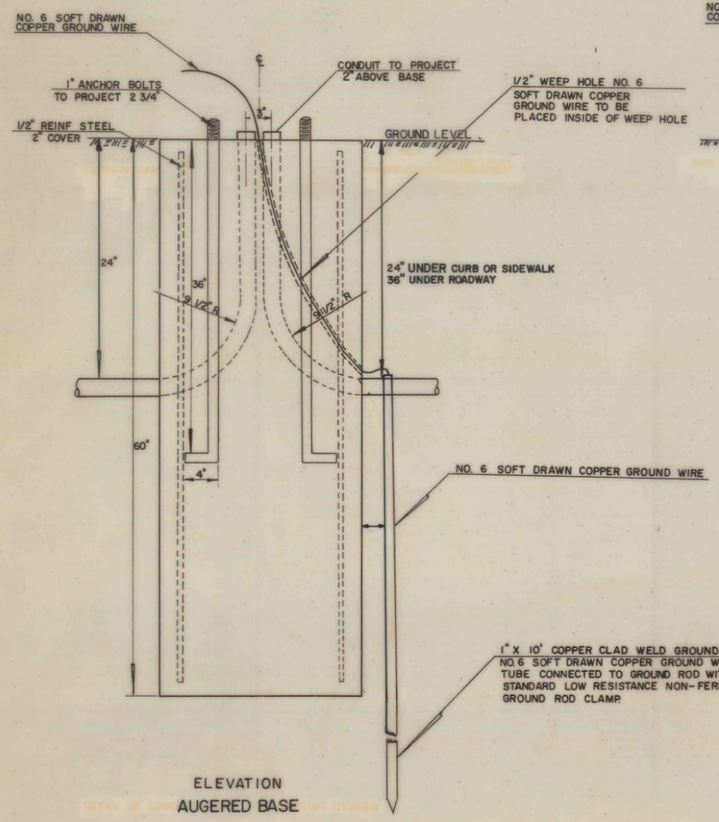
PLAN



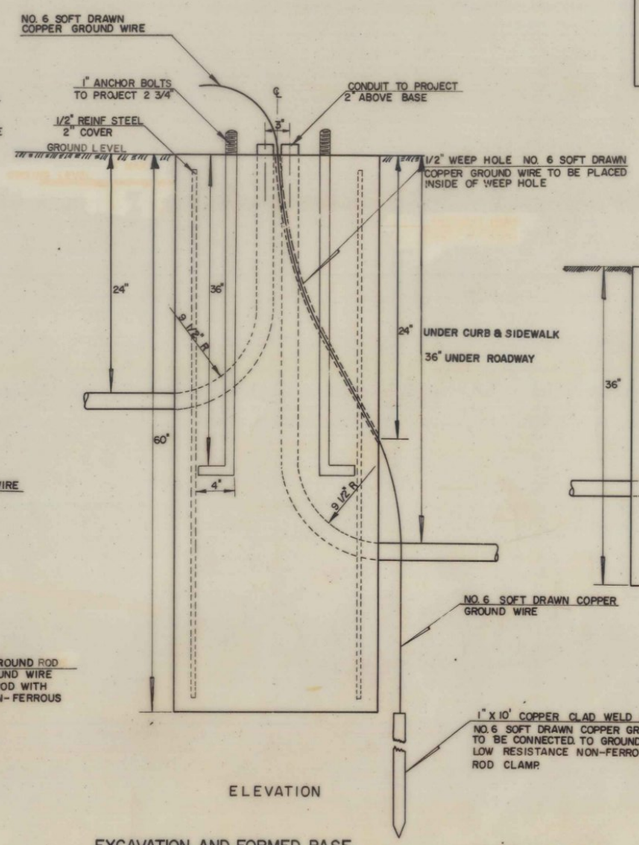
PLAN



PLAN

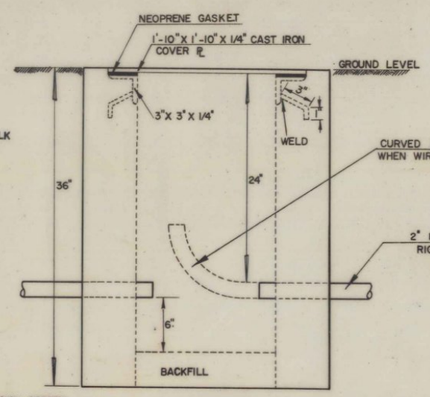


ELEVATION
AUGERED BASE



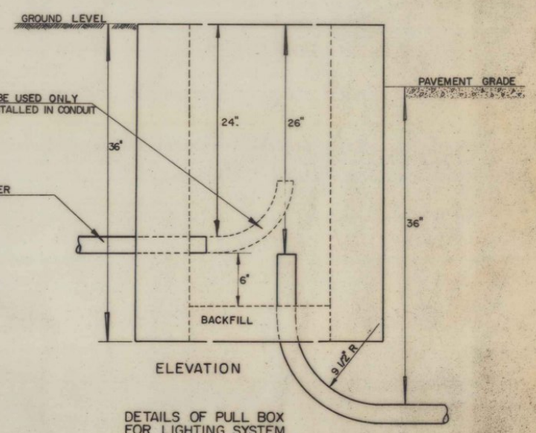
ELEVATION

EXCAVATION AND FORMED BASE



ELEVATION

DETAILS OF PULL BOX FOR LIGHTING SYSTEM TYPE "A"



ELEVATION

DETAILS OF PULL BOX FOR LIGHTING SYSTEM TYPE "B"

NOTES

ALL BASES AND PULL BOXES TO BE CONCRETE MEETING THE REQUIREMENTS FOR CONCRETE CLASS B ITEM 401-B.

ALL REINFORCING STEEL TO CONFORM TO THE REQUIREMENTS FOR "REINFORCING STEEL", ITEM 402.

TEMPLATE FOR ANCHOR BOLTS, ANCHOR BOLTS, NUTS AND WASHERS TO BE OBTAINED BY CONTRACTOR FROM POLE MANUFACTURER PRIOR TO CONSTRUCTION OF BASES.

REVISIONS AND CORRECTIONS

FEB. 20, 1968 — GROUNDING ADDED
JAN. 21, 1971 — REDESIGN OF CONCRETE BASES FOR STREET LIGHTING AND GROUNDING.

APPROVED 2/28/67
DATE

R. H. Crowdel — CHIEF ENGINEER
E. H. Stickney — ASST. CHIEF ENGINEER
R. J. Finch — CONSTRUCTION ENGINEER
L. W. Coleman — TRAFFIC ENGINEER

TRACED: AJA

STREET LIGHTING

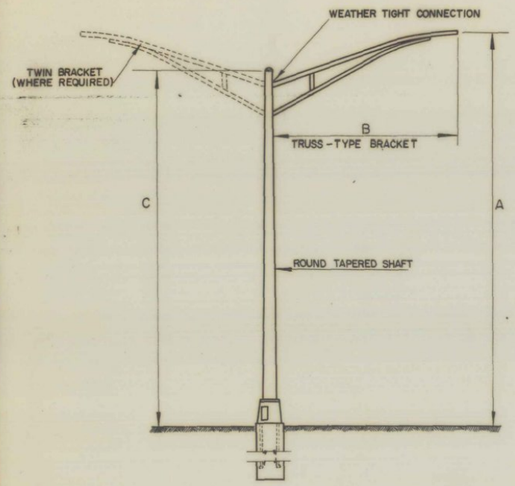
CONCRETE BASES AND PULL BOXES

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

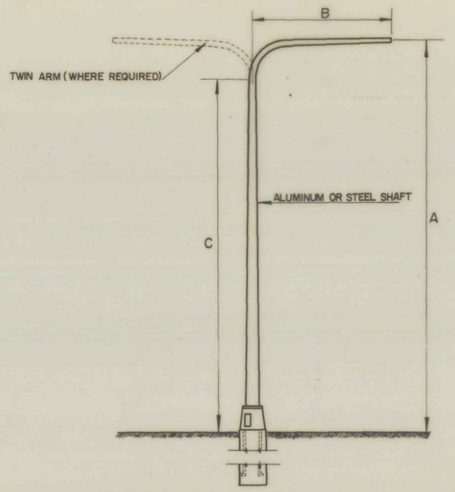
E-51

D-8

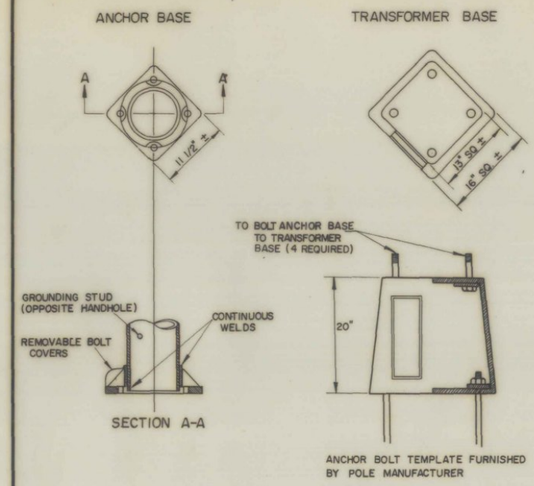
ROUND ALUMINUM AND STEEL POSTS



DAVIT-TYPE POLES



BASES



NOTES:

ALL POLES TO BE EQUIPPED WITH TRANSFORMER BASES UNLESS OTHERWISE INDICATED.

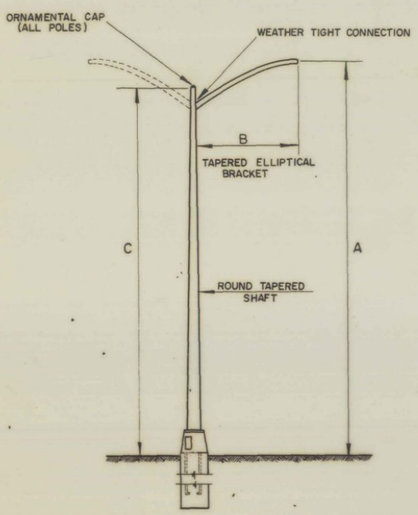
FOR DETAILS OF POLE BASES, SEE SHEET E-51

ALL BRACKETS TO BE EQUIPPED WITH 2" SLIPFITTER FOR MOUNTING LUMINAIRE UNLESS OTHERWISE INDICATED.

DIMENSIONS:

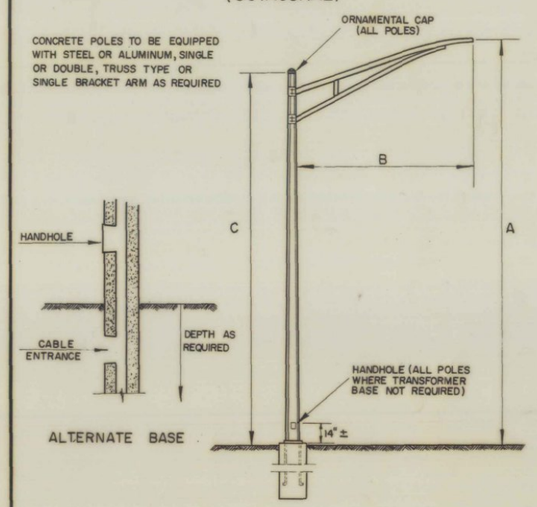
A = MOUNTING HEIGHT
B = BRACKET ARM LENGTH
C = SHAFT HEIGHT

DIMENSIONS SHOWN FOR ANCHOR BASES AND TRANSFORMER BASES MAY VARY SLIGHTLY WITH DIFFERENT MANUFACTURERS.

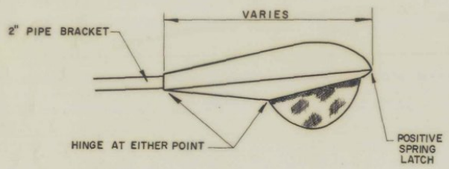


PRESTRESSED CONCRETE POLES (OCTAGONAL)

CONCRETE POLES TO BE EQUIPPED WITH STEEL OR ALUMINUM, SINGLE OR DOUBLE, TRUSS TYPE OR SINGLE BRACKET ARM AS REQUIRED



LUMINAIRE (MERCURY-TYPE LAMP)



BALLASTS TO BE INTERNALLY HOUSED UNLESS OTHERWISE INDICATED.

REVISIONS AND CORRECTIONS

APPROVED 2/28/67
DATE

R H Crowell
CHIEF ENGINEER

E. H. Dickney
ASST. CHIEF ENGINEER

R Funk
CONSTRUCTION ENGINEER

L W Coleman
TRAFFIC ENGINEER

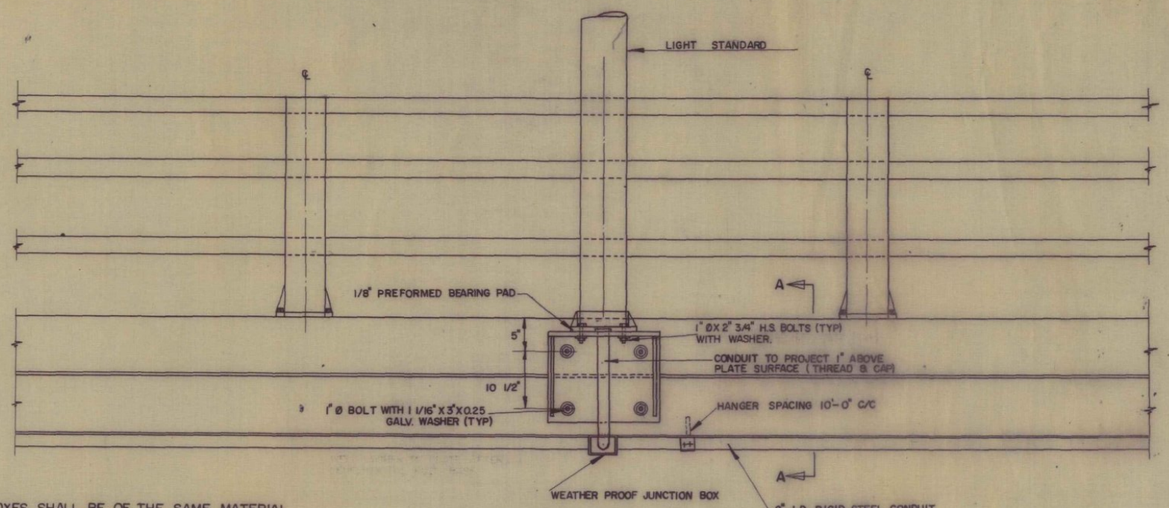
STREET LIGHTING

POLES, BASES, BRACKETS AND LUMINAIRES

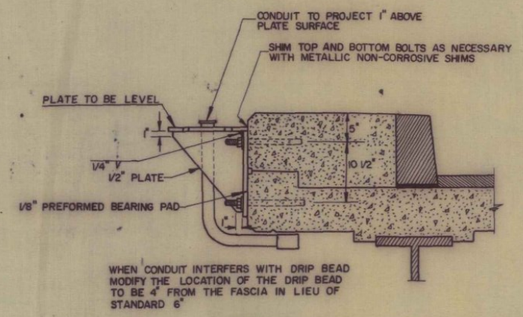
VERMONT
DEPARTMENT OF HIGHWAYS STANDARD

E-52

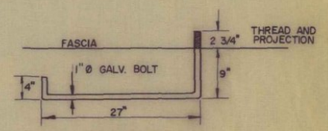
D-8



ELEVATION VIEW — FASCIA



SECTION A-A



BOLT AS FURNISHED BY POLE MANUFACTURER SHALL BE BENT TO THIS SHAPE.

NOTES: JUNCTION BOXES SHALL BE OF THE SAME MATERIAL AND FINISH AS THE CONDUIT.

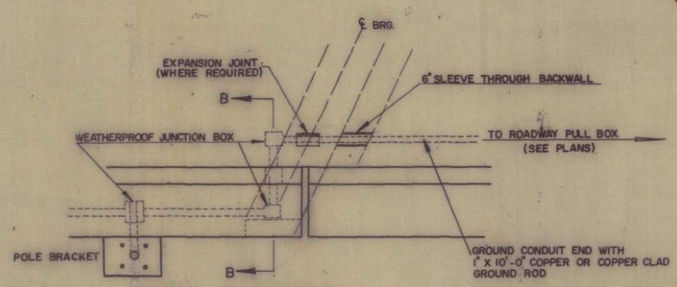
SIZE OF JUNCTION BOXES TO CONFORM TO THE REQUIREMENTS, OF THE NATIONAL ELECTRICAL CODE.

CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS OF HANGERS, JUNCTION BOXES, AND CONDUIT EXPANSION JOINTS TO ENGINEER FOR APPROVAL.

ANCHOR BOLTS, NUTS AND WASHERS AND TEMPLATE FOR ANCHOR BOLTS TO BE OBTAINED BY CONTRACTOR FROM POLE MANUFACTURER

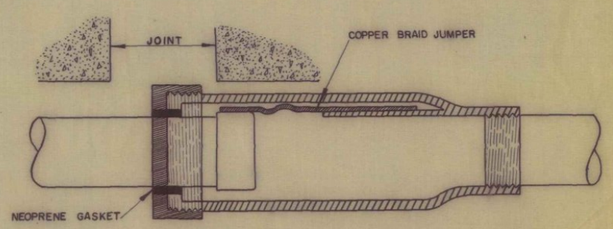
POLES ON BRIDGES NOT EQUIPPED WITH TRANSFORMER BASES

BRACKET ASSEMBLY AND ANCHOR BOLTS SHALL BE GALVANIZED AFTER FABRICATION ACCORDING TO A.S.T.M. A-123 OR A-153



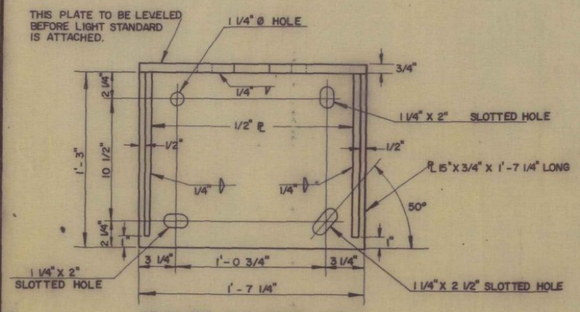
DETAIL AT ABUTMENT

(ON EACH SIDE OF BOTH ABUTMENTS)

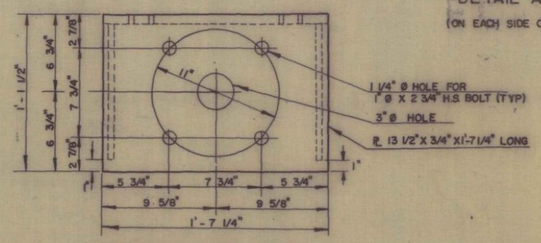


CONDUIT EXPANSION JOINT

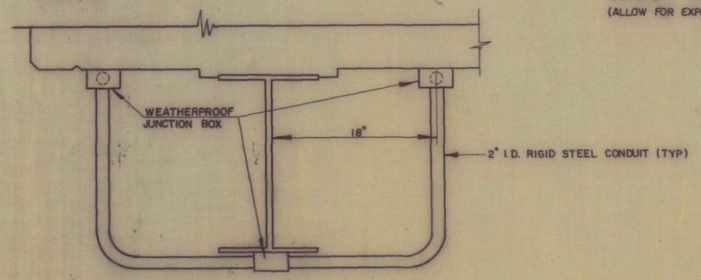
(ALLOW FOR EXPANSION AS INDICATED ON THE PLANS)



BRACKET ELEVATION VIEW



BRACKET PLAN VIEW



SECTION B-B

REVISIONS AND CORRECTIONS

APPROVED: Nov 6 1967 DATE

R. H. Crowell — CHIEF ENGINEER

E. H. Pickney — ASST. CHIEF ENGINEER

A. W. Coleman — TRAFFIC ENGINEER

G. M. Lane — HIGHWAY ENGINEER

R. R. Brink 11/1/67 — CONSTRUCTION ENGINEER

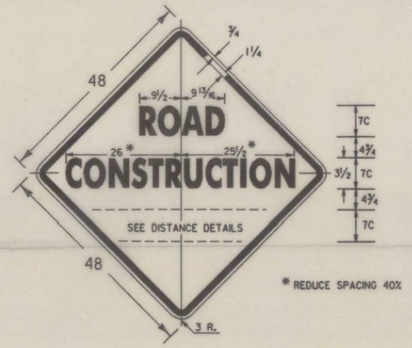
L. L. Bivin 10/31/67 — BRIDGE ENGINEER

TYPICAL BRIDGE LIGHTING DETAILS

VERMONT DEPARTMENT OF HIGHWAYS STANDARD

E-53

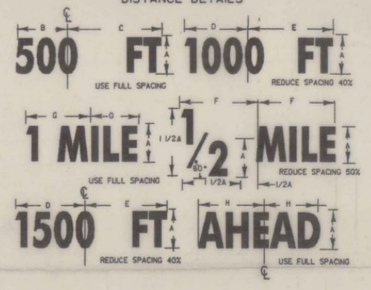
D-8



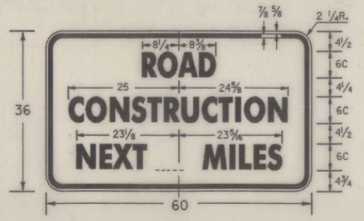
* REDUCE SPACING 40%

WHEN APPROPRIATE, EXISTING "BRIDGE CONSTRUCTION___" SIGNS MAY BE USED UNTIL THE EXISTING SIGNS NEED REPLACEMENT. NEW SIGNS SHALL SHOW REFERENCE TO "ROAD CONSTRUCTION". SIGN TEXT SHALL BE CONSISTENT THROUGHOUT THE PROJECT.

DISTANCE DETAILS

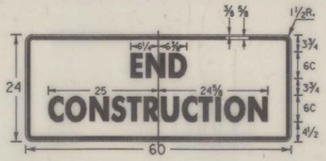


DIMENSIONS (INCHES)							
A	B	C	D	E	F	G	H
5D	10 3/16	10 3/16	11 5/8	11 1/4	11 1/4	9 1/2	10 7/8
6C	10 3/8	10 1/2	11 1/4	12	12 1/2	9 1/8	10 1/2
7C	12	12 3/16	13 1/8	14	14 9/16	10 5/8	12 1/4
8D	16 1/4	17 1/4	17	18	18	14 3/8	17 7/16



THIS SIGN TO BE USED WHEN PROJECT LENGTH EXCEEDS 2 MILES OR AS REQUESTED BY THE RESIDENT ENGINEER. SHOW MILEAGE TO NEAREST 1/4 MILE USING FRACTIONS, NOT DECIMALS. HAND LETTERING OF MILEAGE WILL NOT BE ALLOWED.

ALL DIMENSIONS SHOWN IN INCHES



NOTES

THE APPROACH CONSTRUCTION SIGNS SHOWN ON THIS SHEET ARE INTENDED FOR USE IN PROVIDING ADVANCE WARNING AND INFORMATION ON CONSTRUCTION PROJECTS OVER WHICH TRAFFIC WILL BE MAINTAINED. WHEN ADDITIONAL APPROACH SIGNS OR OTHER TYPES OF ADVANCE SIGNING OR CONTROL ARE NECESSARY, THE PLANS AND\OR THE SPECIFICATIONS FOR THAT PROJECT WILL GIVE THE DETAILS OF THE SIGNS AND DEVICES REQUIRED. FOR ON-PROJECT CONSTRUCTION SIGNS, REFER TO APPROPRIATE STANDARD SHEETS.

APPLICATION OF STANDARDS
SINCE IT IS NOT POSSIBLE TO PRESCRIBE DETAILED STANDARDS OF APPLICATION FOR ALL OF THE SITUATIONS THAT MAY CONCEIVABLY ARISE ON A CONSTRUCTION PROJECT, REFERENCE SHALL BE MADE TO THE ''MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'' FOR THE PRINCIPLES, PROCEDURES, AND STANDARDS THAT WILL BE REQUIRED IN CONNECTION WITH ADVANCED WARNING AND ON-PROJECT CONSTRUCTION SIGNS AND BARRICADES. THE SIGNS SHOWN IN E-101 AND E-102 REPRESENT A SAMPLE OF THOSE MORE COMMONLY USED.

LOCATION
CONSTRUCTION APPROACH SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET OR AS OTHERWISE SHOWN ON THE PLANS. THEY SHALL APPEAR AT EACH END OF THE HIGHWAY UNDER CONSTRUCTION AND ON ALL INTERSECTING PUBLIC HIGHWAYS. THE EXACT PLACEMENT OF ANY SIGN WILL DEPEND UPON THE ALIGNMENT INTENDED TO INDICATE THE SEQUENCE TO BE FOLLOWED, AND THE APPROXIMATE SPACING TO BE OBSERVED. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

DESIGN
THE DESIGN OF THE SIGNS SHALL CONFORM WITH THE DETAILS SHOWN ON THIS SHEET AND WITH THE STANDARDS PRESCRIBED IN THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'.

MATERIALS
THE SIGN BASE MATERIAL USED FOR THE WARNING SIGNS ON THIS SHEET MAY BE ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED.

FLAT SHEET ALUMINUM	0.125 INCHES
HIGH DENSITY OVERLAYED PLYWOOD	3/4 INCHES
GALVANIZED SHEET STEEL	12 GAGE

REFLECTORIZATION
ALL REFLECTORIZED MATERIAL SHALL CONSIST OF ENCAPSULATED LENS REFLECTIVE SHEETING.

COLORS
THE COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICALS AND APPROVED BY THE U.S. DEEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION. COLORS SHOWN ON THIS SHEET CONSIST OF BLACK TEXT AND BORDER ON A REFLECTORIZED ORANGE BACKGROUND.

INSTALLATION
THE SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY, OR UPON COMPLETION OF THE WORK. SIGNS MAY BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON POSTS SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST 6 FEET ABOVE ROAD LEVEL, AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT OR 2 FEET OUTSIDE GUARD RAIL, CURBING, OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST 7 FEET ABOVE THE SIDEWALK.

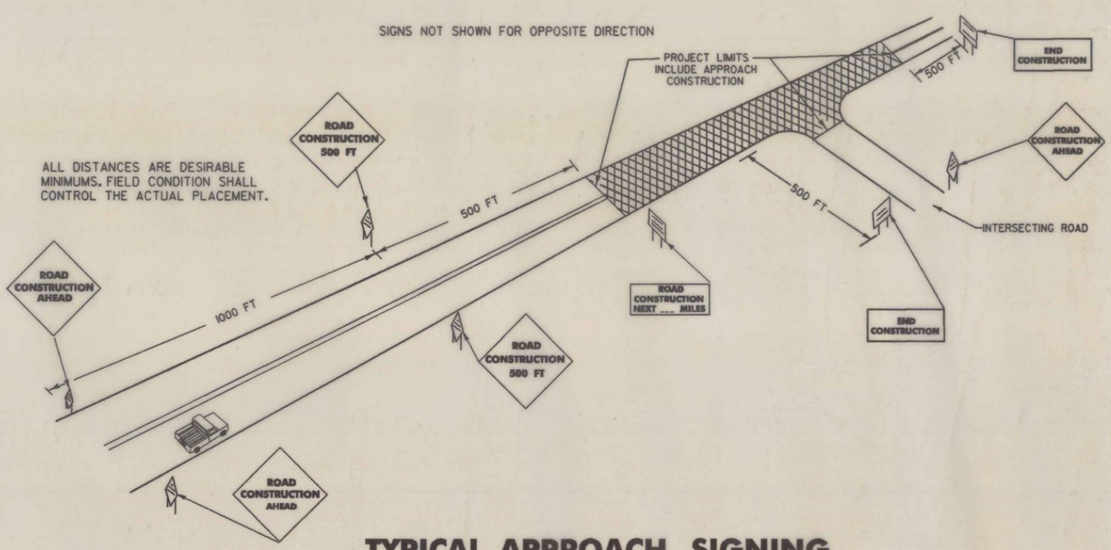
MAINTENANCE
SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED, OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

GENERAL
THE COST OF FURNISHING, ERECTING, MAINTAINING AND REMOVING ALL CONSTRUCTION APPROACH SIGNS WILL BE CONSIDERED SUBSIDIARY WORK PERTAINING TO THE PROJECT AS A WHOLE AND SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR VARIOUS ITEMS INVOLVED IN THE CONTRACT. DURING ALL PHASES OF CONSTRUCTION THE REQUIREMENTS SET FORTH IN THE ''MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'' SHALL BE MET. WHEN THE PROJECT IS CLOSED DOWN FOR TEMPORARY PERIODS THE SIGNS SHALL BE COVERED IN A WORKMANLIKE MANNER.

SIGN COVERS
SIGN COVERS SHALL CONSIST OF A PANEL PAINTED FLAT BLACK, THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.

CONTRACTORS SHALL COORDINATE THEIR SIGNING ACTIVITIES WITH OTHER CONTRACTORS WITHIN THE PROJECT LIMITS, AS DIRECTED BY THE REGIONAL CONSTRUCTION ENGINEER.

SIGNS NOT SHOWN FOR OPPOSITE DIRECTION



ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.

TYPICAL APPROACH SIGNING

SIGN POSTS

WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARD RAIL OR OTHER APPROVED TRAFFIC BARRIERS, THE POSTS ON WHICH THE SIGNS ARE MOUNTED SHALL BE YIELDING METAL POSTS AS DESIGNATED IN THE E SERIES OF STANDARD DRAWINGS OR YIELDING WOODEN POSTS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

WOODEN POSTS ARE ACCEPTABLE FOR USE WITH CONSTRUCTION SIGNS PROVIDED THE POSTS HAVE A UNIFORM CROSS-SECTION AND IF, IN AN 8 FOOT WIDE VEHICULAR PATH, THERE IS OR ARE:

1. A SINGLE POST WITH AN ELASTIC SECTION MODULUS NO GREATER THAN 24 IN.^{3} (A FULL DIMENSION 4'' X 6'' POST).
2. TWO POSTS, EACH WITH AN ELASTIC SECTION MODULUS NO GREATER THAN 18 IN.^{3} (FULL DIMENSION 3'' X 6'' OR 4'' X 5'' POSTS).
3. THREE POSTS, EACH WITH AN ELASTIC SECTION MODULUS NO GREATER THAN 14 IN.^{3} (FULL DIMENSION 3'' X 5'' OR 4'' X 4'') POSTS.

THE FORMULA FOR DETERMINING THE ELASTIC SECTION MODULUS (S) IS:

$$S = \frac{B\,(D)^2}{6}$$

WHERE B = THE SMALLER DIMENSION IN INCHES IF THE TIMBER IS RECTANGULAR IN CROSS-SECTION

D = THE LARGER DIMENSION IN INCHES IF THE TIMBER IS RECTANGULAR IN CROSS-SECTION

OR B = D IN INCHES IF THE TIMBER IS SQUARE IN CROSS-SECTION AND THE RESULT IS EXPRESSED IN INCHES CUBED.

WOODEN POSTS MAY BE CONSTRUCTED UP TO THE MAXIMUM SIZES LISTED BY LAMINATING SMALLER SECTIONS. WEAKENED TIMBER POSTS WILL NOT BE PERMITTED. NO CROSS-BRACING OR BRACING TO KEEP THE POSTS PLUMB WILL BE PERMITTED. CONCRETE FOUNDATION COLLARS OR SOIL BEARING PLATES ARE NOT ACCEPTABLE FOR USE. POST EMBEDMENT DEPTH SHALL BE 3' - 6''.

REVISIONS AND CORRECTIONS

MAY 26, 1989 - SIGN POST NOTES ADDED

APPROVED

SEPT. 10, 1987
DATE

David O Kelley
CHIEF ENGINEER

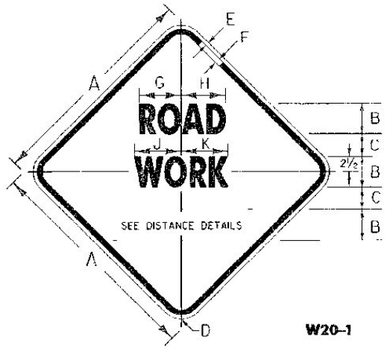
Arthur J Gosz
DIRECTOR OF PLANNING AND PRECONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

CONSTRUCTION APPROACH SIGNS

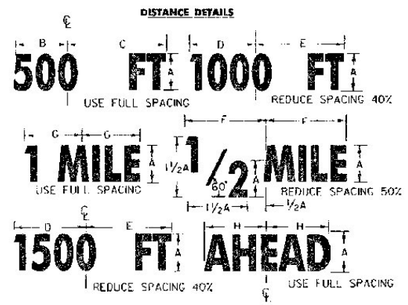
VERMONT AGENCY OF TRANSPORTATION

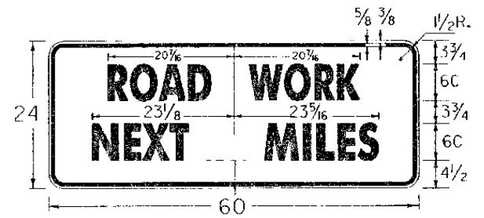
STANDARD
E-100



W20-1

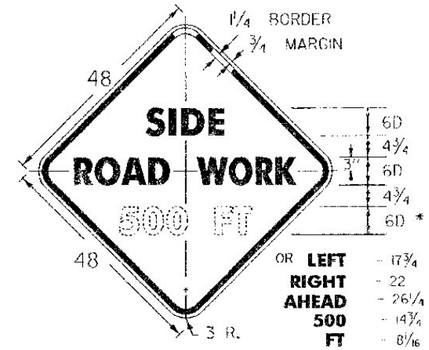
DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K
STD.	48	7C	4¾	3" R.	¾	1¼	9½	9 11/16	10½	10 9/16
URBAN	36	5C	3⅝	2¼R.	⅝	⅞	6⅞	7⅛	7½	7 9/16





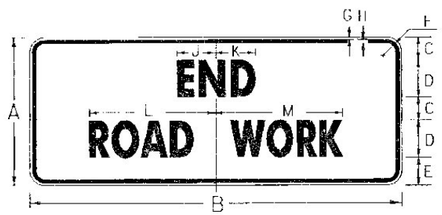
G20-1

THIS SIGN TO BE USED WHEN PROJECT LENGTH EXCEEDS 2 MILES OR AS REQUESTED BY THE RESIDENT ENGINEER. SHOW MILEAGE TO NEAREST ¼ MILE USING FRACTIONS, NOT DECIMALS. HAND LETTERING OF MILEAGE WILL NOT BE ALLOWED. (ALL DIMENSIONS SHOWN IN INCHES)



W20-1 * REDUCE SPACING 50%

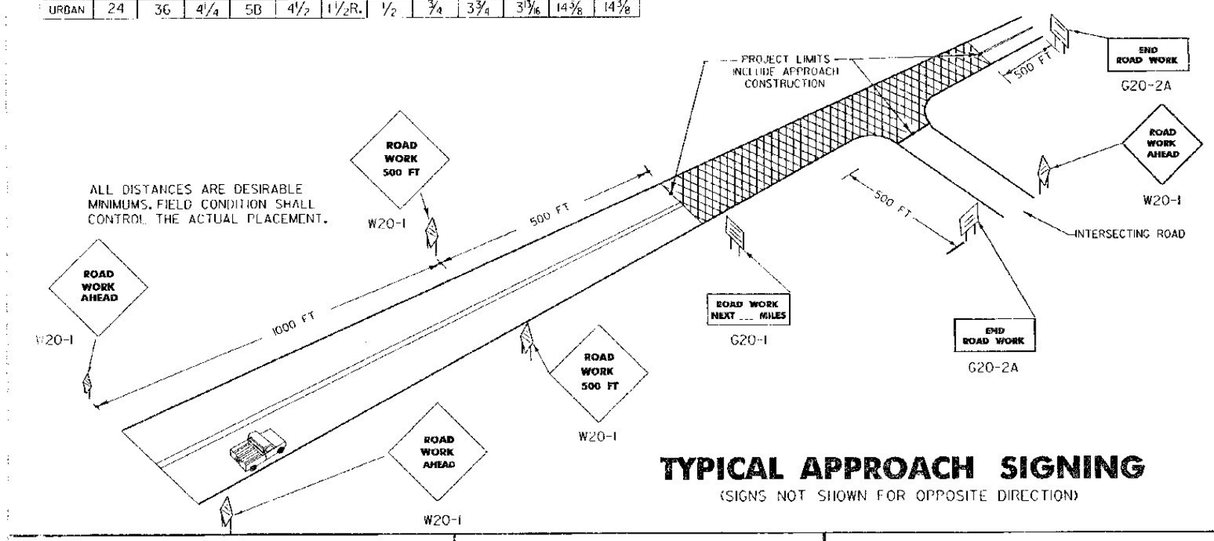
DIMENSIONS (INCHES)							
A	B	C	D	E	F	G	H
5D	10 9/16	10 9/16	11⅝	11¼	11¼	9½	10⅞
6C	10⅝	10½	11¼	12	12½	9 7/16	10½
7C	12	12 3/16	13⅛	14	14 3/16	10⅝	12¼
8D	16¼	17¼	17	18	18	14⅜	17 7/16



G20-2A

(ALL DIMENSIONS SHOWN IN INCHES UNLESS OTHERWISE NOTED)

DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M
STD.	24	60	5¾	6C	4½	1½R.	⅜	⅝	6¼	6⅝	20 7/16	20 7/16
URBAN	24	36	4¼	5B	4½	1½R.	½	¾	3¾	3 15/16	14⅜	14⅜



TYPICAL APPROACH SIGNING

(SIGNS NOT SHOWN FOR OPPOSITE DIRECTION)

NOTES

THE SIGNS SHOWN ON THIS SHEET ARE INTENDED FOR USE IN PROVIDING ADVANCE WARNING AND INFORMATION ON CONSTRUCTION PROJECTS OVER WHICH TRAFFIC WILL BE MAINTAINED. WHEN ADDITIONAL APPROACH SIGNS OR OTHER TYPES OF ADVANCE SIGNING OR CONTROL ARE NECESSARY, THE PLANS AND/OR THE SPECIFICATIONS FOR THAT PROJECT WILL GIVE THE DETAILS OF THE SIGNS AND DEVICES REQUIRED. FOR ON-PROJECT CONSTRUCTION SIGNS, REFER TO APPROPRIATE STANDARD SHEETS.

APPLICATION OF STANDARDS

SINCE IT IS NOT POSSIBLE TO PRESCRIBE DETAILED STANDARDS OF APPLICATION FOR ALL OF THE SITUATIONS THAT MAY CONCEIVABLY ARISE ON A CONSTRUCTION PROJECT, REFERENCE SHALL BE MADE TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" FOR THE PRINCIPLES, PROCEDURES, AND STANDARDS THAT WILL BE REQUIRED IN CONNECTION WITH ADVANCED WARNING AND ON-PROJECT CONSTRUCTION SIGNS AND BARRICADES. THE SIGNS SHOWN IN E-101 AND E-102 REPRESENT A SAMPLE OF THOSE MORE COMMONLY USED.

LOCATION

THE SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET OR AS OTHERWISE SHOWN ON THE PLANS. THEY SHALL APPEAR AT EACH END OF THE HIGHWAY UNDER CONSTRUCTION AND ON ALL INTERSECTING PUBLIC HIGHWAYS. THE EXACT PLACEMENT OF ANY SIGN WILL DEPEND UPON THE ALIGNMENT INTENDED TO INDICATE THE SEQUENCE TO BE FOLLOWED, AND THE APPROXIMATE SPACING TO BE OBSERVED. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

DESIGN

THE DESIGN OF THE SIGNS SHALL CONFORM WITH THE DETAILS SHOWN ON THIS SHEET AND WITH THE STANDARDS PRESCRIBED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

MATERIALS

THE SIGN BASE MATERIAL USED FOR THE SIGNS ON THIS SHEET MAY BE ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED.

FLAT SHEET ALUMINUM	0.125 INCHES
HIGH DENSITY OVERLAYED PLYWOOD	1/2, 5/8, OR 3/4 INCHES
GALVANIZED SHEET STEEL	12 GAGE

REFLECTORIZATION

ALL REFLECTORIZED MATERIAL SHALL CONSIST OF TYPE IIB OR TYPE III SHEETING.

COLORS

THE COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION. COLORS SHOWN ON THIS SHEET CONSIST OF BLACK TEXT AND BORDER ON A REFLECTORIZED ORANGE BACKGROUND.

INSTALLATION

THE SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY, OR UPON COMPLETION OF THE WORK. SIGNS MAY BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON POSTS SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST 7 FEET ABOVE THE EDGE OF PAVEMENT, AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT, 4 FEET OUTSIDE GUARD RAIL, OR 2 FEET OUTSIDE CURBING, OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST 7 FEET ABOVE THE SIDEWALK.

MAINTENANCE

SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED, OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

NOTES CONT.

GENERAL

THE COST OF FURNISHING, INSTALLING, MAINTAINING AND REMOVING ALL CONSTRUCTION APPROACH SIGNS WILL BE CONSIDERED SUBSIDIARY WORK PERTAINING TO THE PROJECT AS A WHOLE AND SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR VARIOUS ITEMS INVOLVED IN THE CONTRACT. DURING ALL PHASES OF CONSTRUCTION THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE MET. WHEN THE PROJECT IS CLOSED DOWN FOR TEMPORARY PERIODS THE SIGNS SHALL BE COVERED IN A WORKMANLIKE MANNER.

SIGN COVERS

SIGN COVERS SHALL CONSIST OF A PANEL PAINTED FLAT BLACK. THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DILITERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.

CONTRACTORS SHALL COORDINATE THEIR SIGNING ACTIVITIES WITH OTHER CONTRACTORS WITHIN THE PROJECT LIMITS, AS DIRECTED BY THE REGIONAL CONSTRUCTION ENGINEER.

SIGN POSTS

WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARD RAIL OR OTHER APPROVED TRAFFIC BARRIERS, THE POSTS ON WHICH THE SIGNS ARE MOUNTED SHALL BE YIELDING METAL POSTS AS DESIGNATED IN THE F SERIES OF STANDARD DRAWINGS OR YIELDING WOODEN POSTS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

WOODEN POSTS ARE ACCEPTABLE FOR USE WITH CONSTRUCTION SIGNS. THESE POSTS SHALL HAVE A UNIFORM CROSS SECTION AND SHALL BE MADE FROM GRADE 2 AIR-DRIED SOUTHERN YELLOW PINE OR ANOTHER EQUIVALENT SOFTWOOD. AN ACCEPTABLE EQUIVALENT SOFTWOOD SHALL HAVE AN EXTREME FIBER IN BENDING "FB" DESIGN VALUE NOT TO EXCEED 1400 psi AND HORIZONTAL SHEAR "Fv" DESIGN VALUE NOT TO EXCEED 90 psi SPECIFICATION; "DESIGN VALUES FOR WOOD CONSTRUCTION" AND RELATED SUPPLEMENT, DATED 1986.

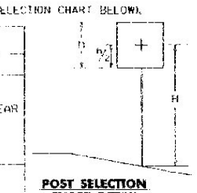
AS ESTABLISHED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION IN THEIR NATIONAL DESIGN THE FOLLOWING ARE CONSIDERED TO BE ACCEPTABLE WOODEN POSTS:

1. 4" X 4" (ACTUAL DIMENSIONS ARE 3.5" X 3.5")
   A) ACCEPTABLE FOR SINGLE OR DUAL POSTS INSTALLATION WITH NO MODIFICATIONS.
   B) ACCEPTABLE FOR THREE POSTS (OR MORE) INSTALLATION ONLY WHEN THERE ARE NO MORE THAN TWO POSTS IN A 7 FOOT PATH.
2. 4" X 6" (ACTUAL DIMENSIONS ARE 3.5" X 5.5")
   A) ACCEPTABLE FOR SINGLE POST INSTALLATIONS ONLY WHEN MODIFIED BY DRILLING TWO 1 1/2" DIAMETER HOLES, ONE AT 4" AND THE OTHER 18" ABOVE THE GROUND LINE AND PERPINDICULAR TO THE ROADWAY CENTERLINE.
   B) ACCEPTABLE FOR MULTIPLE POSTS (TWO OR MORE) INSTALLATIONS ONLY WHEN MODIFIED AS ABOVE AND THE MINIMUM SPACING BETWEEN POSTS IS 7 FEET.
3. 6" X 6" (ACTUAL DIMENSIONS ARE 5.5" X 5.5")
   A) ACCEPTABLE FOR SINGLE POST INSTALLATIONS ONLY WHEN MODIFIED BY DRILLING TWO 2" DIAMETER HOLES, ONE AT 4" AND THE OTHER AT 18" ABOVE THE GROUND LINE AND PERPINDICULAR TO ROADWAY CENTERLINE.
   B) ACCEPTABLE FOR MULTIPLE POST INSTALLATION ONLY WHEN MODIFIED AS ABOVE AND THE MINIMUM SPACING BETWEEN POSTS IS 7 FEET.
4. 6" X 8" (ACTUAL DIMENSIONS ARE 5.5" X 7.5")
   A) ACCEPTABLE FOR SINGLE POST INSTALLATIONS ONLY WHEN MODIFIED BY DRILLING TWO 3" DIAMETER HOLES, ONE AT 4" AND THE OTHER AT 18" ABOVE THE GROUND LINE AND PERPINDICULAR TO THE ROADWAY CENTERLINE.
   B) ACCEPTABLE FOR MULTIPLE POST INSTALLATIONS ONLY WHEN MODIFIED AS ABOVE AND THE MINIMUM SPACING BETWEEN POSTS IS 7 FEET.

ADDITIONAL DESIGN CRITERIA:

THE LONGER DIMENSION OF THE POST(S), SUCH AS THE 6" DIMENSION OF THE 4" X 6" POST, SHALL BE PLACED PARALLEL TO THE ROADWAY CENTERLINE.
ALL WOODEN POSTS SHALL HAVE AN EMBEDMENT DEPTH OF 4 FEET.
NO CROSS-BRACING OR BACK-BRACING TO KEEP THE POSTS PLUMB WILL BE ALLOWED.
CONCRETE FOUNDATIONS COLLARS OR SOIL BEARING PLATES ARE NOT PERMITTED.
CONSTRUCTIONS SIGNS SHALL BE PLACED ON TWO OR MORE POSTS WHEN ANY OF THE FOLLOWING CONDITIONS GOVERN:
A) THE SIGN WIDTH (HORIZONTAL DIMENSIONS FOR DIAMOND SHAPED SIGNS) EXCEEDS 3 1/2 FEET.
B) THE EXPOSED SIGN AREA OF ANY SINGLE SIGN OR ASSEMBLY EXCEEDS 12 ½ SQ. FEET.
C) THE Sv OF A SINGLE POST IS EXCEEDED. (SEE THE POST SELECTION CHART BELOW).

WOOD POST SELECTION CHART		
SIGN AREA (FT²) X HEIGHT (FT) X Sv (SELECTION VALUE)		
POST SIZE	Sv	DESIGN CRITERIA:
4" X 4"	64	WIND SPEED = 80 MPH (10-YEAR
4" X 6"	147	MEAN OCCURENCE INTERVAL)
6" X 6"	216	WIND PRESSURE - 13 psf
6" X 8"	389	ALLOWABLE BENDING STRESS



POST SELECTION CHART DETAIL

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

MAY 26, 1989 - DATE OF ORIGINAL ISSUE

OCT 21, 1992 - REVISED WOOD POST REQUIREMENTS, ADDED SIGN DETAILS, & REVISED TITLE BLOCK

AUG 08, 1995 - MINOR NOTE REVISIONS

APPROVED

Gordon R. MacCallum
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

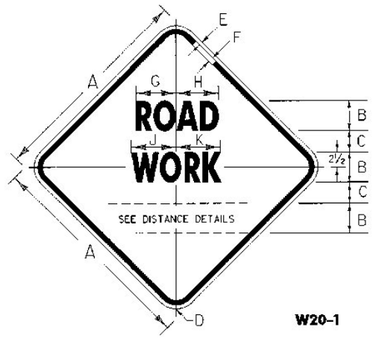
CONSTRUCTION APPROACH SIGNS

/traf/std/stde100.dgn : stde100.i

VERMONT AGENCY OF TRANSPORTATION

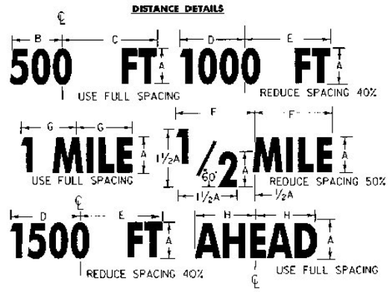
STANDARD E-100

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

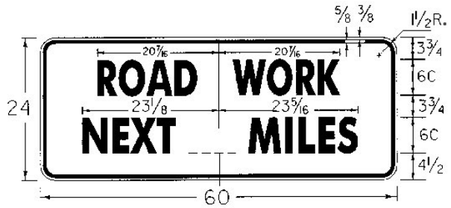


W20-1

DISTANCE DETAILS

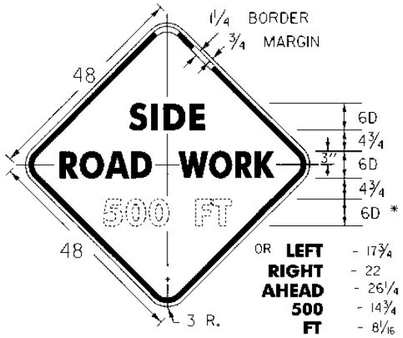


DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K
STD.	48	7C	4 3/4	3'' R.	3/4	1 1/4	9 1/2	9 15/16	10 1/2	10 9/16
URBAN	36	5C	3 5/8	2 1/4 R.	5/8	7/8	6 7/8	7 1/8	7 1/2	7 9/16



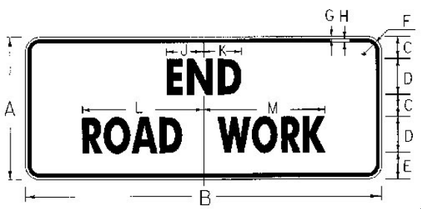
G20-1

THIS SIGN TO BE USED WHEN PROJECT LENGTH EXCEEDS 2 MILES OR AS REQUESTED BY THE RESIDENT ENGINEER. SHOW MILEAGE TO NEAREST 1/4 MILE USING FRACTIONS, NOT DECIMALS. HAND LETTERING OF MILEAGE WILL NOT BE ALLOWED. (ALL DIMENSIONS SHOWN IN INCHES)



W20-1 * REDUCE SPACING 50%

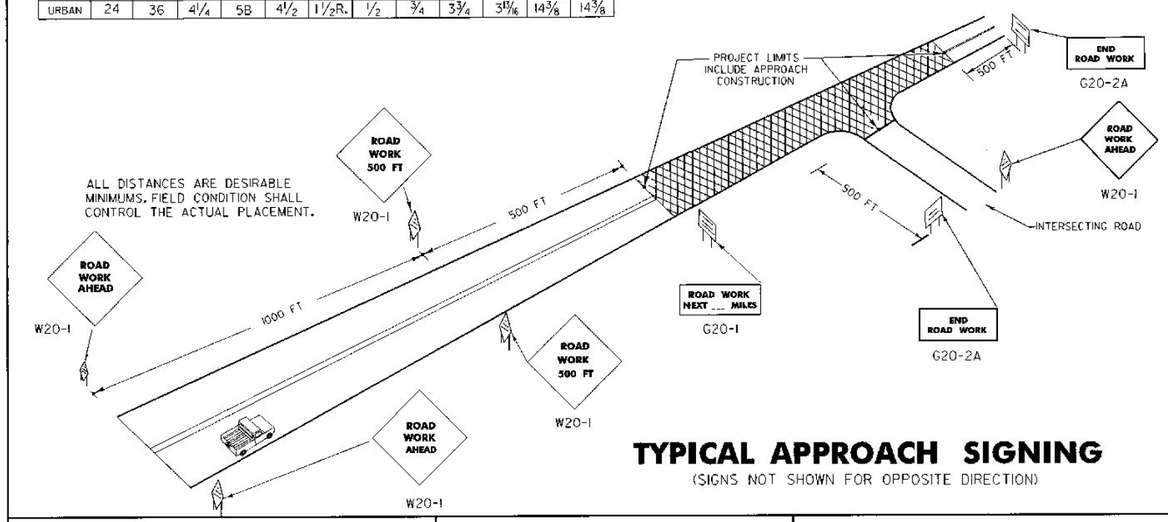
DIMENSIONS (INCHES)							
A	B	C	D	E	F	G	H
5D	10 7/16	10 7/16	11 5/8	11 1/4	11 1/4	9 1/2	10 7/8
6C	10 5/8	10 1/2	11 1/4	12	12 1/2	9 1/8	10 1/2
7C	12	12 5/16	13 1/8	14	14 3/16	10 5/8	12 1/4
8D	16 1/4	17 1/4	17	18	18	14 3/8	17 7/16



G20-2A

(ALL DIMENSIONS SHOWN IN INCHES UNLESS OTHERWISE NOTED)

DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M
STD.	24	60	3 3/4	6C	4 1/2	1 1/2 R.	3/8	5/8	6 1/4	6 3/8	20 7/16	20 7/16
URBAN	24	36	4 1/4	5B	4 1/2	1 1/2 R.	1/2	3/4	3 3/4	3 11/16	14 3/8	14 3/8



TYPICAL APPROACH SIGNING

(SIGNS NOT SHOWN FOR OPPOSITE DIRECTION)

NOTES

THE SIGNS SHOWN ON THIS SHEET ARE INTENDED FOR USE IN PROVIDING ADVANCE WARNING AND INFORMATION ON CONSTRUCTION PROJECTS OVER WHICH TRAFFIC WILL BE MAINTAINED. WHEN ADDITIONAL APPROACH SIGNS OR OTHER TYPES OF ADVANCE SIGNING OR CONTROL ARE NECESSARY, THE PLANS AND\OR THE SPECIFICATIONS FOR THAT PROJECT WILL GIVE THE DETAILS OF THE SIGNS AND DEVICES REQUIRED. FOR ON-PROJECT CONSTRUCTION SIGNS, REFER TO APPROPRIATE STANDARD SHEETS.

APPLICATION OF STANDARDS

SINCE IT IS NOT POSSIBLE TO PRESCRIBE DETAILED STANDARDS OF APPLICATION FOR ALL OF THE SITUATIONS THAT MAY CONCEIVABLY ARISE ON A CONSTRUCTION PROJECT, REFERENCE SHALL BE MADE TO THE ''MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'' FOR THE PRINCIPLES, PROCEDURES, AND STANDARDS THAT WILL BE REQUIRED IN CONNECTION WITH ADVANCED WARNING AND ON-PROJECT CONSTRUCTION SIGNS AND BARRICADES. THE SIGNS SHOWN IN E-101 AND E-102 REPRESENT A SAMPLE OF THOSE MORE COMMONLY USED.

LOCATION

THE SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET OR AS OTHERWISE SHOWN ON THE PLANS. THEY SHALL APPEAR AT EACH END OF THE HIGHWAY UNDER CONSTRUCTION AND ON ALL INTERSECTING PUBLIC HIGHWAYS. THE EXACT PLACEMENT OF ANY SIGN WILL DEPEND UPON THE ALIGNMENT INTENDED TO INDICATE THE SEQUENCE TO BE FOLLOWED, AND THE APPROXIMATE SPACING TO BE OBSERVED. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

DESIGN

THE DESIGN OF THE SIGNS SHALL CONFORM WITH THE DETAILS SHOWN ON THIS SHEET AND WITH THE STANDARDS PRESCRIBED IN THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'.

MATERIALS

THE SIGN BASE MATERIAL USED FOR THE SIGNS ON THIS SHEET MAY BE ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED.

FLAT SHEET ALUMINUM	0.125 INCHES
HIGH DENSITY OVERLAYED PLYWOOD	1/2, 5/8, OR 3/4 INCHES
GALVANIZED SHEET STEEL	12 GAGE

REFLECTORIZATION

ALL REFLECTORIZED MATERIAL SHALL CONSIST OF TYPE IIB OR TYPE III SHEETING.

COLORS

THE COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICALS AND APPROVED BY THE U.S. DEEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION. COLORS SHOWN ON THIS SHEET CONSIST OF BLACK TEXT AND BORDER ON A REFLECTORIZED ORANGE BACKGROUND.

INSTALLATION

THE SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES. DURING PERIODS OF INACTIVITY, OR UPON COMPLETION OF THE WORK, SIGNS MAY BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON POSTS SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST 7 FEET ABOVE THE EDGE OF PAVEMENT, AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT, 4 FEET OUTSIDE GUARD RAIL, OR 2 FEET OUTSIDE CURBING, OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST 7 FEET ABOVE THE SIDEWALK.

MAINTENANCE

SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED, OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

NOTES CONT.

GENERAL

THE COST OF FURNISHING, INSTALLING, MAINTAINING AND REMOVING ALL CONSTRUCTION APPROACH SIGNS WILL BE CONSIDERED SUBSIDIARY WORK PERTAINING TO THE PROJECT AS A WHOLE AND SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR VARIOUS ITEMS INVOLVED IN THE CONTRACT. DURING ALL PHASES OF CONSTRUCTION THE REQUIREMENTS SET FORTH IN THE ''MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'' SHALL BE MET. WHEN THE PROJECT IS CLOSED DOWN FOR TEMPORARY PERIODS THE SIGNS SHALL BE COVERED IN A WORKMANLIKE MANNER.

SIGN COVERS

SIGN COVERS SHALL CONSIST OF A PANEL PAINTED FLAT BLACK. THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.

CONTRACTORS SHALL COORDINATE THEIR SIGNING ACTIVITIES WITH OTHER CONTRACTORS WITHIN THE PROJECT LIMITS, AS DIRECTED BY THE REGIONAL CONSTRUCTION ENGINEER.

SIGN POSTS

WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARD RAIL OR OTHER APPROVED TRAFFIC BARRIERS, THE POSTS ON WHICH THE SIGNS ARE MOUNTED SHALL BE YIELDING METAL POSTS AS DESIGNATED IN THE E SERIES OF STANDARD DRAWINGS OR YIELDING WOODEN POSTS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

WOODEN POSTS ARE ACCEPTABLE FOR USE WITH CONSTRUCTION SIGNS. THESE POSTS SHALL HAVE A UNIFORM CROSS-SECTION AND SHALL BE MADE FROM GRADE 2, AIR-DRIED SOUTHERN YELLOW PINE OR ANOTHER EQUIVELANT SOFTWOOD. AN ACCEPTABLE EQUIVELANT SOFTWOOD SHALL HAVE AN EXTREME FIBER IN BENDING "Fb" DESIGN VALUE NOT TO EXCEED 1400 psi AND HORIZONTAL SHEAR "Fv" DESIGN VALUE NOT TO EXCEED 90 psi SPECIFICATION; "DESIGN VALUES FOR WOOD CONSTRUCTION" AND RELATED SUPPLEMENT, DATED 1986.

AS ESTABLISHED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION IN THEIR NATIONAL DESIGN

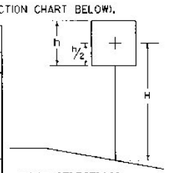
THE FOLLOWING ARE CONSIDERED TO BE ACCEPTABLE WOODEN POSTS:

1. 4'' X 4'' (ACTUAL DIMENSIONS ARE 3.5'' X 3.5'')
   A) ACCEPTABLE FOR SINGLE OR DUAL POSTS INSTALLATION WITH NO MODIFICATIONS.
   B) ACCEPTABLE FOR THREE POSTS (OR MORE) INSTALLATION ONLY WHEN THERE ARE NO MORE THAN TWO POSTS IN A 7 FOOT PATH.
2. 4'' X 6'' (ACTUAL DIMENSIONS ARE 3.5'' X 5.5'')
   A) ACCEPTABLE FOR SINGLE POST INSTALLATIONS ONLY WHEN MODIFIED BY DRILLING TWO 1 1/2'' DIAMETER HOLES, ONE AT 4'' AND THE OTHER 18'' ABOVE THE GROUND LINE AND PERPINDICULAR TO THE ROADWAY CENTERLINE.
   B) ACCEPTABLE FOR MULTIPLE POSTS (TWO OR MORE) INSTALLATIONS ONLY WHEN MODIFIED AS ABOVE AND THE MINIMUM SPACING BETWEEN POSTS IS 7 FEET.
3. 6'' X 6'' (ACTUAL DIMENSIONS ARE 5.5'' X 5.5'')
   A) ACCEPTABLE FOR SINGLE POST INSTALLATIONS ONLY WHEN MODIFIED BY DRILLING TWO 2'' DIAMETER HOLES, ONE AT 4'' AND THE OTHER AT 18'' ABOVE THE GROUND LINE AND PERPINDICULAR TO ROADWAY CENTERLINE.
   B) ACCEPTABLE FOR MULTIPLE POST INSTALLATION ONLY WHEN MODIFIED AS ABOVE AND THE MINIMUM SPACING BETWEEN POSTS IS 7 FEET.
4. 6'' X 8'' (ACTUAL DIMENSIONS ARE 5.5'' X 7.5'')
   A) ACCEPTABLE FOR SINGLE POST INSTALLATIONS ONLY WHEN MODIFIED BY DRILLING TWO 3'' DIAMETER HOLES, ONE AT 4'' AND THE OTHER AT 18'' ABOVE THE GROUND LINE AND PERPINDICULAR TO THE ROADWAY CENTERLINE.
   B) ACCEPTABLE FOR MULTIPLE POST INSTALLATIONS ONLY WHEN MODIFIED AS ABOVE AND THE MINIMUM SPACING BETWEEN POSTS IS 7 FEET.

ADDITIONAL DESIGN CRITERIA:

THE LONGER DIMENSION OF THE POST(S), SUCH AS THE 6'' DIMENSION OF THE 4'' X 6'' POST, SHALL BE PLACED PARALLEL TO THE ROADWAY CENTERLINE.
ALL WOODEN POSTS SHALL HAVE AN EMBEDMENT DEPTH OF 4 FEET.
NO CROSS-BRACING OR BACK-BRACING TO KEEP THE POSTS PLUMB WILL BE ALLOWED.
CONCRETE FOUNDATIONS COLLARS OR SOIL BEARING PLATES ARE NOT PERMITTED.
CONSTRUCTIONS SIGNS SHALL BE PLACED ON TWO OR MORE POSTS WHEN ANY OF THE FOLLOWING CONDITIONS GOVERN:
A) THE SIGN WIDTH (HORIZONTAL DIMENSIONS FOR DIAMOND SHAPED SIGNS) EXCEEDS 3 1/2 FEET.
B) THE EXPOSED SIGN AREA OF ANY SINGLE SIGN OR ASSEMBLY EXCEEDS 12 1/2 SQ. FEET.
C) THE Sv OF A SINGLE POST IS EXCEEDED. (SEE THE POST SELECTION CHART BELOW).

WOOD POST SELECTION CHART		
SIGN AREA (FT^2) X HEIGHT (FT) $\leq$ Sv (SELECTION VALUE)		
POST SIZE	Sv	DESIGN CRITERIA:
4'' X 4''	64	WIND SPEED = 60 MPH (10-YEAR
4'' X 6''	147	MEAN OCCURENCE INTERVAL)
6'' X 6''	216	WIND PRESSURE = 13 psf
6'' X 8''	389	ALLOWABLE BENDING STRESS



POST SELECTION CHART DETAIL

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

MAY 26, 1989 - DATE OF ORIGINAL ISSUE

OCT 21, 1992 - REVISED WOOD POST REQUIREMENTS, ADDED SIGN DETAILS, & REVISED TITLE BLOCK

AUG 08, 1995 - MINOR NOTE REVISIONS

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

CONSTRUCTION APPROACH SIGNS

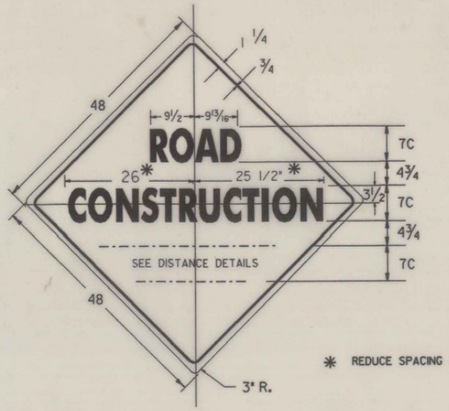
/traf/std/stdel00.dgn : stdel00.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-100

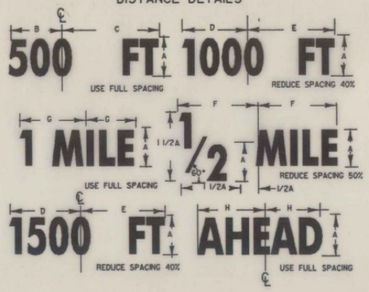
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.



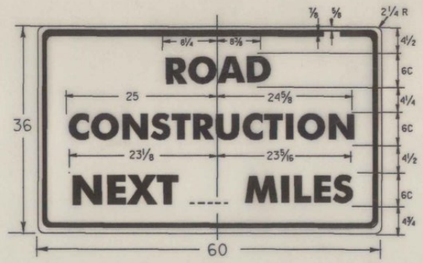
* REDUCE SPACING 40%

WHEN APPROPRIATE, EXISTING "BRIDGE CONSTRUCTION___" SIGNS MAY BE USED UNTIL THE EXISTING SIGNS NEED REPLACEMENT. NEW SIGNS SHALL SHOW REFERENCE TO ROAD CONSTRUCTION. SIGN TEXT SHALL BE CONSISTENT THROUGHOUT THE PROJECT.

DISTANCE DETAILS

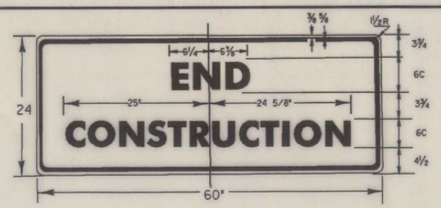


DIMENSIONS(INCHES)							
A	B	C	D	E	F	G	H
7C	12	12 3/16	13 1/8	14	14 9/16	10 5/8	12 1/4
5D	10 3/16	10 3/16	11 5/8	11 1/4	11 1/4	9 1/2	10 7/8
8D	16 1/4	17 1/4	17	18	18	14 3/8	17 7/16



THIS SIGN TO BE USED WHEN PROJECT LENGTH EXCEEDS 2 MILES OR AS REQUESTED BY THE RESIDENT ENGINEER. SHOW MILEAGE TO NEAREST 1/4 MILE. HAND LETTERING OF MILEAGE WILL NOT BE ALLOWED.

(ALL DIMENSIONS SHOWN IN INCHES)



NOTES

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APPLICATION OF STANDARDS
SINCE IT IS NOT POSSIBLE TO PRESCRIBE DETAILED STANDARDS OF APPLICATION FOR ALL OF THE SITUATIONS THAT MAY CONCEIVABLY ARISE ON A CONSTRUCTION PROJECT, REFERENCE SHALL BE MADE TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" FOR THE PRINCIPLES, PROCEDURES, AND STANDARDS THAT WILL BE REQUIRED IN CONNECTION WITH ADVANCED WARNING AND ON-PROJECT CONSTRUCTION SIGNS AND BARRICADES. THE SIGNS SHOWN IN E-101 AND E-102 REPRESENT A SAMPLE OF THOSE MORE COMMONLY USED.

LOCATION
CONSTRUCTION APPROACH SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET OR AS OTHERWISE SHOWN ON THE PLANS. THEY SHALL APPEAR AT EACH END OF THE HIGHWAY UNDER CONSTRUCTION AND ON ALL INTERSECTING PUBLIC HIGHWAYS. THE EXACT PLACEMENT OF ANY SIGN WILL DEPEND UPON THE ALIGNMENT OF THE HIGHWAY AND THE CHARACTER OF THE ROADSIDES. THE LOCATION MEASUREMENTS ON THIS SHEET ARE INTENDED TO INDICATE THE SEQUENCE TO BE FOLLOWED, AND THE SPACING TO BE OBSERVED. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

DESIGN
THE DESIGN OF THE SIGNS SHALL CONFORM WITH THE DETAILS SHOWN ON THIS SHEET AND WITH THE STANDARDS PRESCRIBED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

MATERIALS
THE SIGN BASE MATERIAL USED FOR THE WARNING SIGNS ON THIS SHEET MAY BE ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED.

FLAT SHEET ALUMINUM	0.125	INCHES
HIGH DENSITY OVERLAYED PLYWOOD	3/4	INCHES
GALVANIZED SHEET STEEL	12	GAGE

REFLECTORIZATION
ALL REFLECTORIZED MATERIAL SHALL CONSIST OF ENCAPSULATED LENS REFLECTIVE SHEETING .

COLORS
THE COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION. COLORS SHOWN ON THIS SHEET CONSIST OF BLACK TEXT, BORDER AND ARROWS ON A REFLECTORIZED ORANGE BACKGROUND.

INSTALLATION
THE SIGNS SHALL BE IN PLACE AT THE TIME THE PROJECT OFFICIALLY COMMENCES , HOWEVER THE SIGNS SHALL BE COVERED UNTIL SUCH TIME AS THEY ARE ACTUALLY NEEDED. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON METAL POSTS SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST 5 FEET ABOVE ROAD LEVEL, AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT OR 2 FEET OUTSIDE GUARD RAIL, CURBING OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST 7 FEET ABOVE THE SIDEWALK.

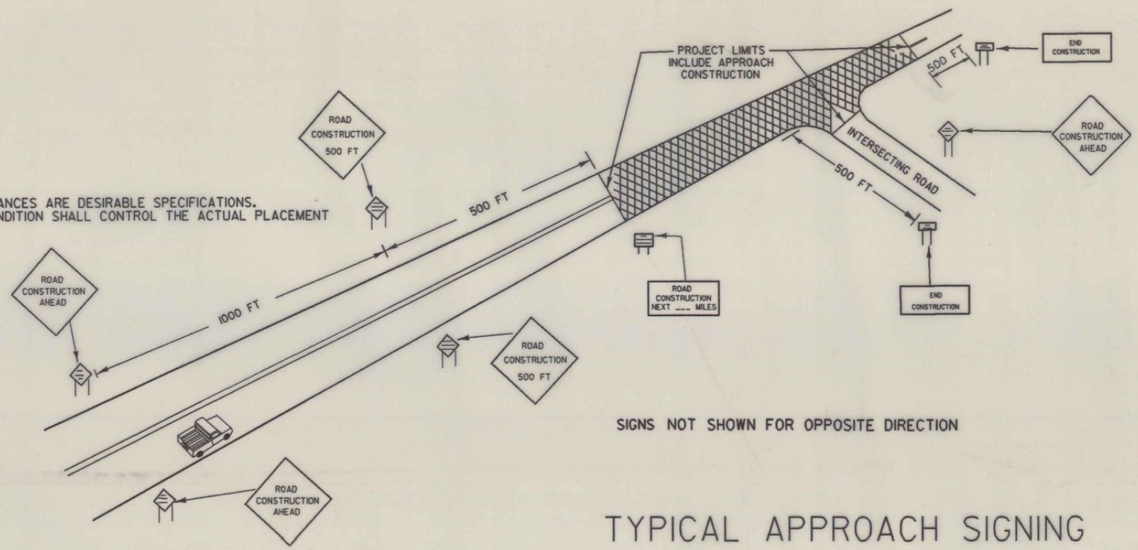
MAINTENANCE
SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

GENERAL
THE COST OF FURNISHING, ERECTING, MAINTAINING AND REMOVING ALL CONSTRUCTION APPROACH SIGNS WILL BE CONSIDERED SUBSIDIARY WORK PERTAINING TO THE PROJECT AS A WHOLE AND SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR VARIOUS ITEMS INVOLVED IN THE CONTRACT. DURING ALL PHASES OF CONSTRUCTION THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE MET (SEE STANDARD SPECIFICATIONS, SECTION 107.08). WHEN THE PROJECT IS CLOSED DOWN FOR TEMPORARY PERIODS THE SIGNS SHALL BE COVERED IN A WORKMANLIKE MANNER.

SIGN COVERS
SIGNS MAY BE ERECTED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, BUT SHALL BE COVERED UNTIL SUCH A TIME AS CONSTRUCTION ACTIVITIES BEGIN. SIGN COVERS SHALL CONSIST OF A PANEL PAINTED FLAT BLACK, THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.

CONTRACTORS SHALL COORDINATE THEIR SIGNING ACTIVITIES WITH OTHER CONTRACTORS WITHIN THE PROJECT LIMITS AS DIRECTED BY THE REGIONAL CONSTRUCTION ENGINEER.

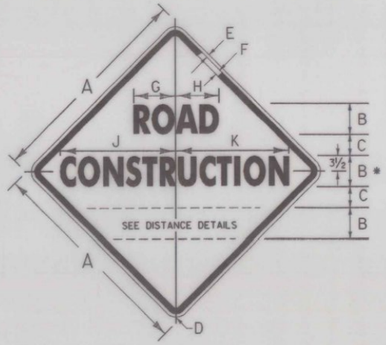
ALL DISTANCES ARE DESIRABLE SPECIFICATIONS.
FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT



SIGNS NOT SHOWN FOR OPPOSITE DIRECTION

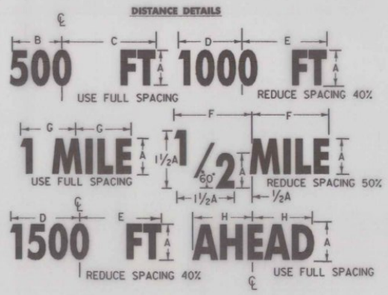
TYPICAL APPROACH SIGNING

REVISIONS AND CORRECTIONS	APPROVED	SEPT. 10, 1987 DATE David B Kelley CHIEF ENGINEER Arthur Gross DIRECTOR OF PLANNING AND PRE-CONSTRUCTION Gordon B. MacArthur TRAFFIC AND SAFETY ENGINEER	CONSTRUCTION APPROACH SIGNS	VERMONT AGENCY OF TRANSPORTATION	STANDARD E-100

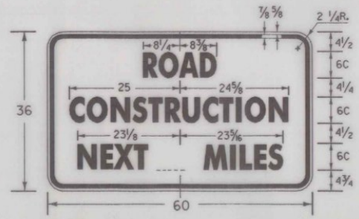


DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K
STD.	48	7C *	4¾	3" R.	¾	1¼	9½	9 15/16	26	25½
URBAN	36	5C	3⅝	2¼R.	⅝	⅞	6⅞	7⅛	20⅝	20¼

* FOR THE STD. SIGN REDUCE SPACING 40%



DIMENSIONS (INCHES)							
A	B	C	D	E	F	G	H
5D	10 3/16	10 3/16	11⅝	11¼	11¼	9½	10⅞
6C	10⅜	10½	11¼	12	12½	9⅛	10½
7C	12	12 3/16	13⅛	14	14 3/16	10⅝	12¼
8D	16¼	17¼	17	18	18	14⅜	17⅞



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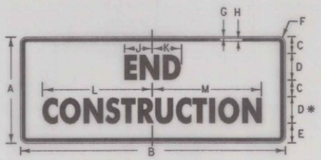
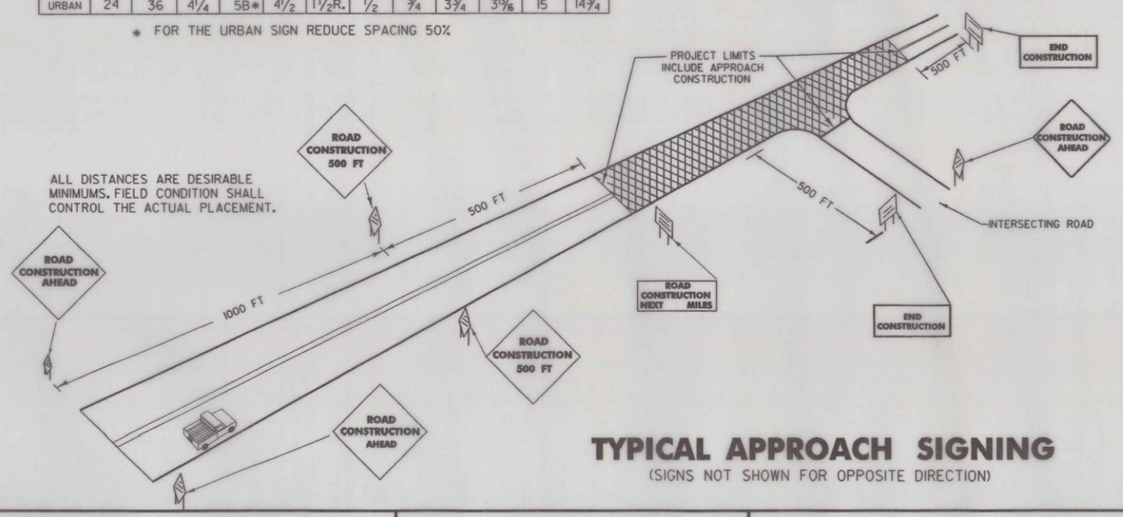


DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M
STD.	24	60	3¾	6C	4½	1½R.	⅜	⅝	6¼	6⅜	25	24⅝
URBAN	24	36	4¼	5B*	4½	1½R.	½	¾	3¾	3 11/16	15	14¾

* FOR THE URBAN SIGN REDUCE SPACING 50%



ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.

TYPICAL APPROACH SIGNING

(SIGNS NOT SHOWN FOR OPPOSITE DIRECTION)

NOT

THE APPROACH CONSTRUCTION SIGNS SHOWN O
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UNDER CONSTRUCTION AND ON ALL INTERSECT
OF ANY SIGN WILL DEPEND UPON THE ALIGNM
TO BE FOLLOWED, AND THE APPROXIMATE SPA
DETERMINE THE EXACT LOCATIONS.

DESIGN

THE DESIGN OF THE SIGNS SHALL CONFORM W
WITH THE STANDARDS PRESCRIBED IN THE 'M

MATERIALS

THE SIGN BASE MATERIAL USED FOR THE WAR
OF THE FOLLOWING, WITH MINIMUM THICKNES
FLAT SHEET ALUMINUM
HIGH DENSITY OVERLAYE
GALVANIZED SHEET STEE

REFLECTORIZATION

ALL REFLECTORIZED MATERIAL SHALL CONSIS
SHEETING.

COLORS

THE COLORS SHALL CONFORM WITH THE STAND
ASSOCIATION OF STATE HIGHWAY AND TRANSP
THE U.S. DEEPARTMENT OF TRANSPORTATION,
SHOWN ON THIS SHEET CONSIST OF BLACK TE
ORANGE BACKGROUND.

INSTALLATION

THE SIGNS SHALL BE ERECTED BEFORE THE S
UNTIL WORK COMMENCES, DURING PERIODS OF
THE WORK. SIGNS MAY BE REMOVED UPON COM
OF THE ENGINEER. EACH SIGN SHALL BE EREC
POSTS SET SECURELY IN THE GROUND. THE B
ABOVE ROAD LEVEL, AND THE NEAREST EDGE
OUTSIDE THE SHOULDER POINT OR 2 FEET OU
THE INSTALLATION OF SIGNS SHALL BE SUBJ
URBAN AREAS, THE BOTTOM OF THE SIGN SHA

MAINTENANCE

SIGNS SHALL BE MAINTAINED IN A CLEAN AN
THE ENGINEER. THEY SHALL BE COMPLETELY
TIMES. THEY SHALL BE KEPT PLUMB AND LE
APPEARANCE. DAMAGED, DEFACED, OR DIRTY
REPLACED AS ORDERED BY THE ENGINEER.

REVISIONS AND CORRECTIONS

MAY 26, 1989 - SIGN POST NOTES ADDED

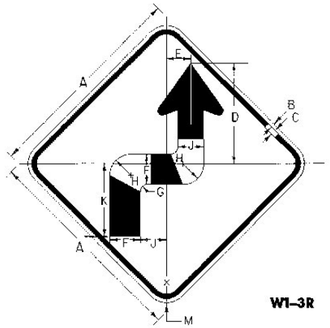
OCT 21, 1992 - REVISED WOOD POST REQUIREMENTS, ADDED SIGN DETAILS, & REVISED TITLE BLOCK

APPROVED SEPT. 10, 1987
DATE

Gordon O. MacArthur
DIRECTOR OF ENGINEERING

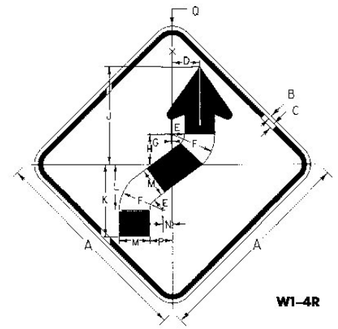
David A. Roar
TRAFFIC AND SAFETY ENGINEER

CONSTRUCTION APPROA



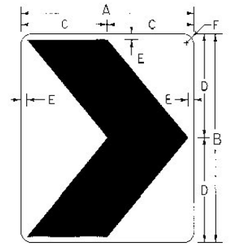
W1-3R

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
STD. & MIN.	36	5/8	7/8	17 7/16	4 7/32	5 1/4	1 1/4	3 5/8	4 1/2	12 15/32	1 9/32	2 1/4
SPECIAL	48	3/4	1 1/4	23 3/16	5 5/8	7	1 5/8	4 7/8	6	16 5/8	2 3/16	3



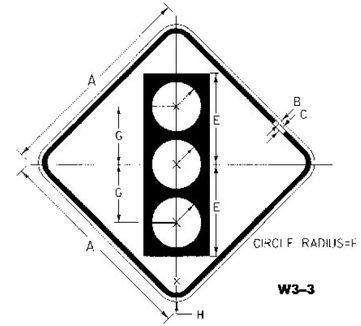
W1-4R

SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
STD. & MIN.	36	5/8	7/8	4 23/32	2 1/4	7 1/2	5/32	5 1/4	16 7/8	12 3/8	7 7/8	5 1/4	1 11/16	3 15/16	2 1/4
SPECIAL	48	3/4	1 1/4	6 5/16	3	10	3/16	7	22 1/2	16 1/2	10 1/2	7	2 1/4	5 1/4	3



W1-8

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD.	18	24	9	12	3/4	1 1/2
SPECIAL	24	30	12	15	7/8	1 1/2
EXPWY.	30	36	15	18	1	1 7/8
FRWY.	36	48	18	24	1 1/8	2 1/4



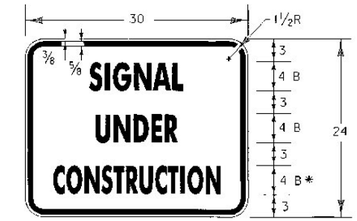
W3-3

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
STD. & MIN.	36	5/8	7/8	5 3/4	15 3/4	4 1/4	10	2 1/4
SPECIAL	48	3/4	1 1/4	7 1/2	20	5	12 1/2	3

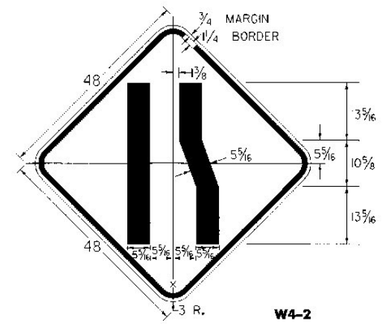
COLORS

SYMBOL & LEGEND - BLACK (NON-REFL)
BACKGROUND - ORANGE (REFL)

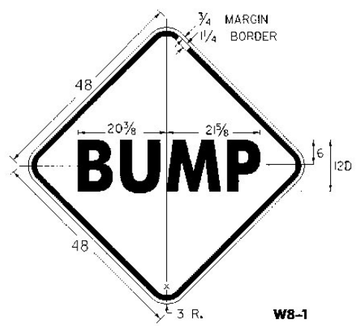
TOP CIRCLE RED (REFL)
MIDDLE CIRCLE YELLOW (REFL)
BOTTOM CIRCLE GREEN (REFL)



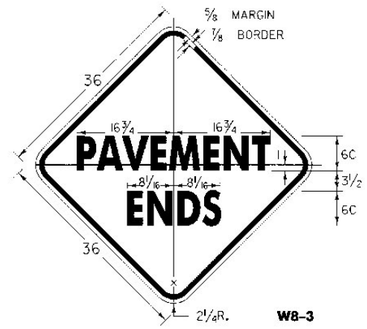
* REDUCE SPACING 50%



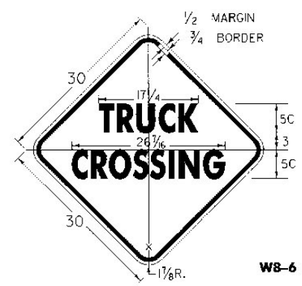
W4-2



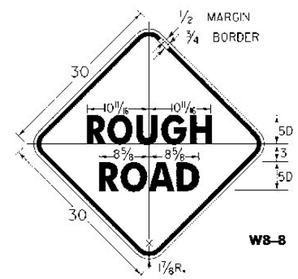
W8-1



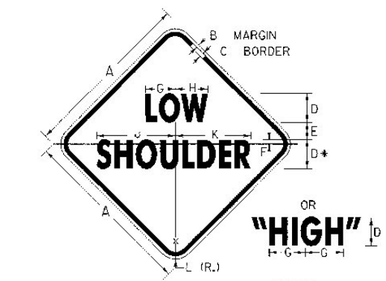
W8-3



W8-6



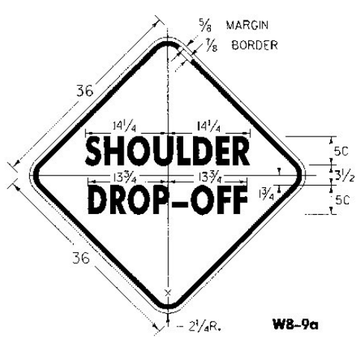
W8-8



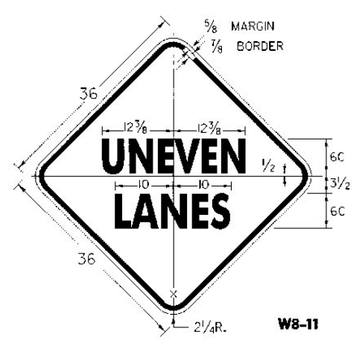
W8-9

* REDUCE SPACING 25%

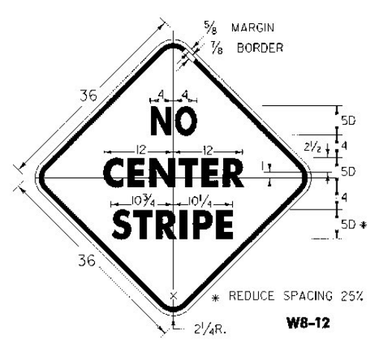
SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
STD.	30	1/2	3/4	5C	3	3/4	5 5/16	5 5/8	13 1/16	13 1/16	1 7/8
FWY.	48	3/4	1 1/4	8C	5	1 1/4	8 1/4	9	21 7/8	20 7/8	3



W8-9a

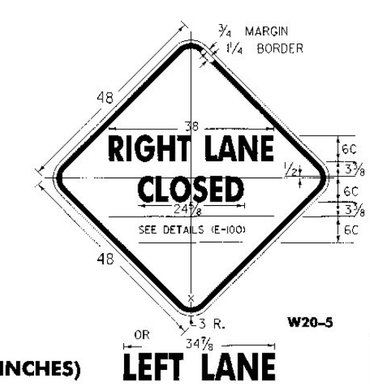


W8-11



* REDUCE SPACING 25%

W8-12



W20-5

NOTES

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS

COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS ON A REFLECTORIZED TYPE IIB OR TYPE III ORANGE BACKGROUND, UNLESS OTHERWISE NOTED.

SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED. HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.

(ALL DIMENSIONS SHOWN IN INCHES)

OTHER STDS. REQUIRED: E-100

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
OCT. 21, 1992 - ADDED ADDITIONAL SIGN DIMENSIONS. REVISED CHEVRON BACKROUND TO ORANGE, & REVISED TITLE BLOCK
AUG. 08, 1995 - ADDED AND DELETED VARIOUS SIGN DETAILS
MAR. 10 1997 - REVISED SIGN DETAILS
May 30, 2003 – Superceded

APPROVED

DIRECTOR OF ENGINEERING

DIRECTOR OF CONSTRUCTION & MAINTENANCE

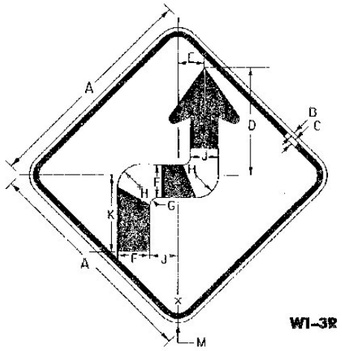
CONSTRUCTION SIGN DETAILS

/trcf/std/stde0.dgn : stdelCl.i

VERMONT AGENCY OF TRANSPORTATION

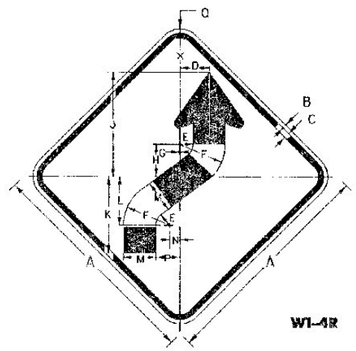
STANDARD

E-101



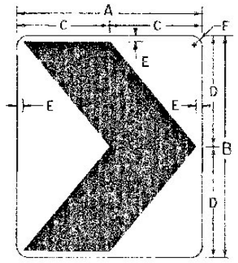
W1-3R

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
STD. & MIN.	36	5/8	7/8	17 7/16	17 7/32	5 1/4	1 1/4	3 5/8	4 1/2	12 15/32	1 3/32	2 1/4
SPECIAL	48	3/4	1 1/4	23 3/16	5 5/8	7	1 5/8	4 7/8	6	16 5/8	2 3/16	3



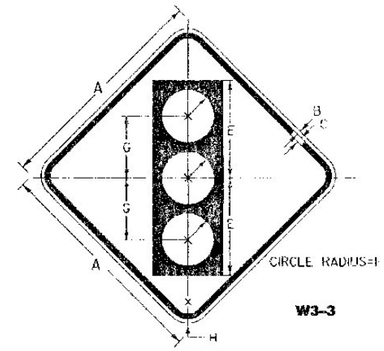
W1-4R

SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
STD. & MIN.	36	5/8	7/8	4 23/32	2 1/4	7 1/2	5/32	5 1/4	16 7/8	12 3/8	7 7/8	5 1/4	11/16	3 15/16	2 1/4
SPECIAL	48	3/4	1 1/4	6 5/16	3	10	3/16	7	22 1/2	16 1/2	10 1/2	7	2 1/4	5 1/4	3



W1-8

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD.	18	24	9	12	3/4	1 1/2
SPECIAL	24	30	12	15	7/8	1 1/2
EXPWY.	30	36	15	18	1	1 7/8
FRWY.	36	48	18	24	1 1/8	2 1/4



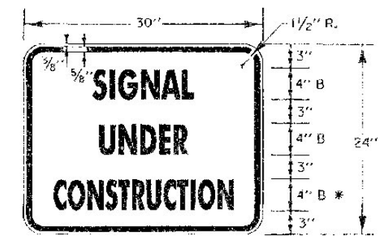
W3-3

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
STD. & MIN.	36	5/8	7/8	5 3/4	15 3/4	4 1/4	10	2 1/4
SPECIAL	48	3/4	1 1/4	7 1/2	20	5	12 1/2	3

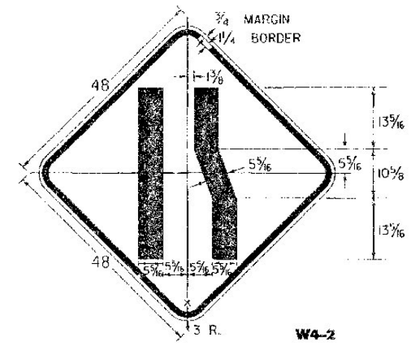
COLORS

SYMBOL & LEGEND - BLACK (NON-REFL)
BACKGROUND - ORANGE (REFL)

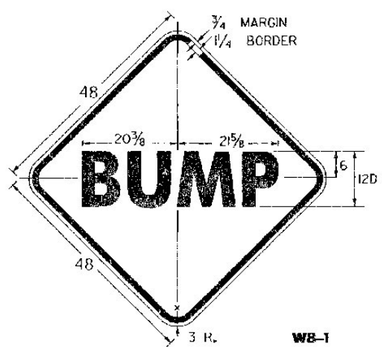
TOP CIRCLE RED (REFL)
MIDDLE CIRCLE YELLOW (REFL)
BOTTOM CIRCLE GREEN (REFL)



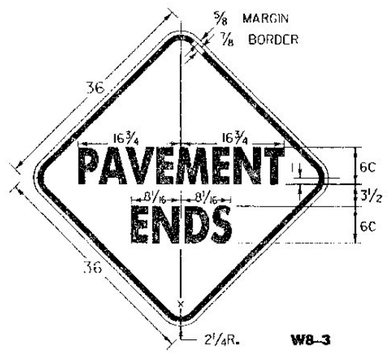
* REDUCE SPACING 50%



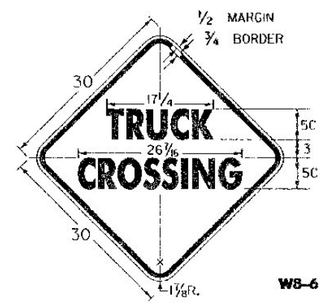
W4-2



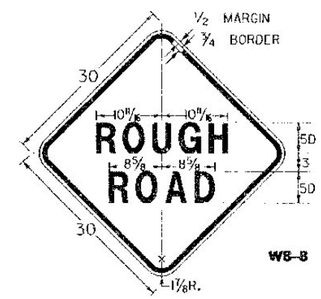
W8-1



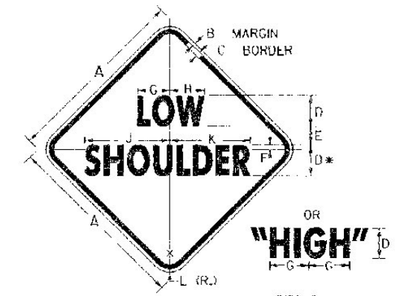
W8-3



W8-6



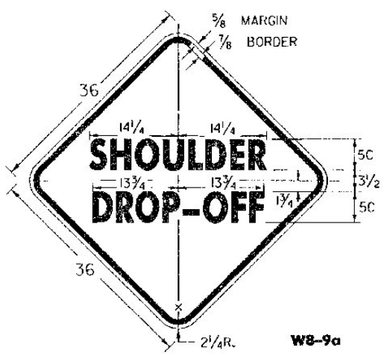
W8-8



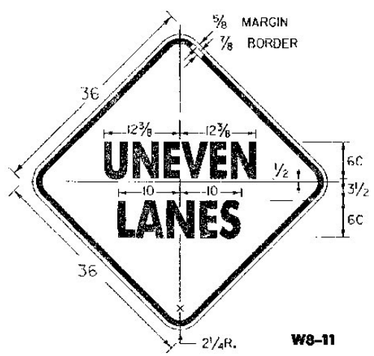
W8-9

* REDUCE SPACING 25%

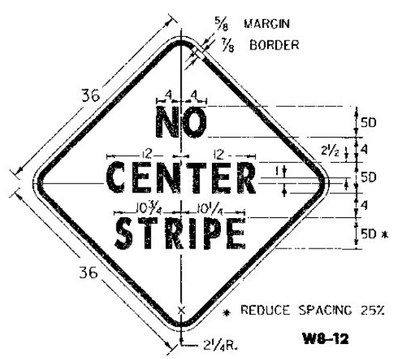
SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L
STD.	30	1/2	3/4	5C	3	3/4	5 3/16	5 5/8	13 11/16	13 7/16	1 7/8
FWY.	48	3/4	1 1/4	8C	5	1 1/4	8 1/4	9	21 7/8	20 7/8	3



W8-9a

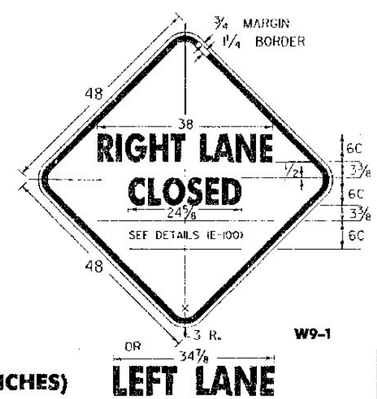


W8-11



* REDUCE SPACING 25%

W8-12



W9-1

(ALL DIMENSIONS SHOWN IN INCHES)

NOTES

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OTHER STDS. REQUIRED: E-100

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
OCT. 21, 1992 - ADDED ADDITIONAL SIGN DIMENSIONS, REVISED CHEVRON BACKGROUND TO ORANGE, & REVISED TITLE BLOCK
AUG. 08, 1995 - ADDED AND DELETED VARIOUS SIGN DETAILS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon D. MacArthur
DIRECTOR OF ENGINEERING

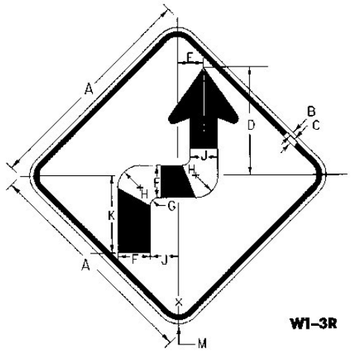
David A. Ross
TRAFFIC AND SAFETY ENGINEER

CONSTRUCTION SIGN DETAILS

/traf/std/stdel01.dgn : stdel01.i

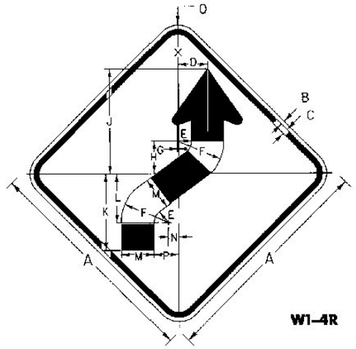
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-101



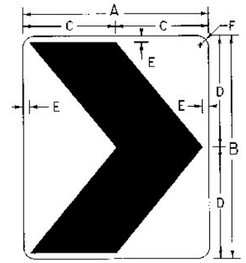
W1-3R

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
STD. & MIN.	36	5/8	7/8	17 7/16	4 7/32	5 1/4	1 1/4	3 5/8	4 1/2	12 15/32	1 27/32	2 1/4
SPECIAL	48	3/4	1 1/4	23 3/16	5 5/8	7	1 5/8	4 7/8	6	16 5/8	2 3/16	3



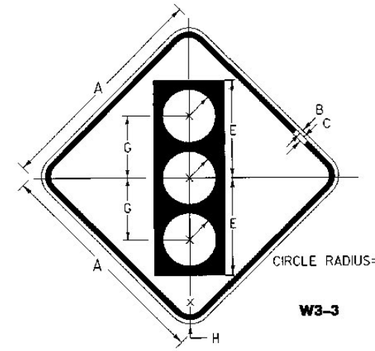
W1-4R

SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
STD. & MIN.	36	5/8	7/8	4 23/32	2 1/4	7 1/2	5/32	5 1/4	16 7/8	12 3/8	7 7/8	5 1/4	1 11/16	3 15/16	2 1/4
SPECIAL	48	3/4	1 1/4	6 5/16	3	10	3/16	7	22 1/2	16 1/2	10 1/2	7	2 1/4	5 1/4	3



W1-8

SIGN	DIMENSIONS(INCHES)					
	A	B	C	D	E	F
STD.	18	24	9	12	3/4	1 1/2
SPECIAL	24	30	12	15	7/8	1 1/2
EXPWY.	30	36	15	18	1	1 7/8
FRWY.	36	48	18	24	1 7/8	2 1/4



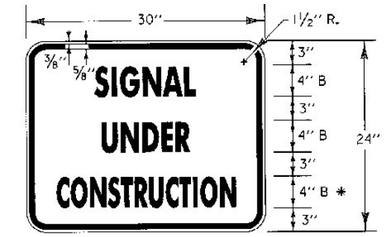
W3-3

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
STD. & MIN.	36	5/8	7/8	5 3/4	15 3/4	4 1/4	10	2 1/4
SPECIAL	48	3/4	1 1/4	7 1/2	20	5	12 1/2	3

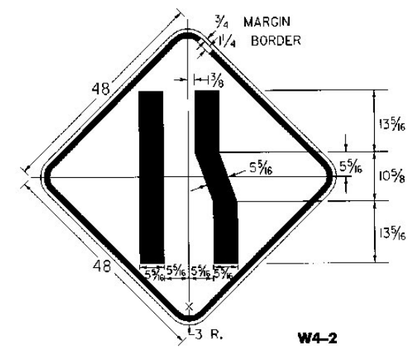
COLORS

SYMBOL & LEGEND - BLACK (NON-REFL)
BACKGROUND - ORANGE (REFL)

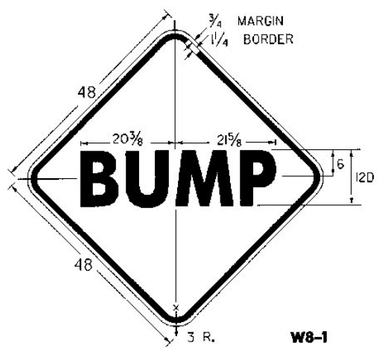
TOP CIRCLE RED (REFL)
MIDDLE CIRCLE YELLOW (REFL)
BOTTOM CIRCLE GREEN (REFL)



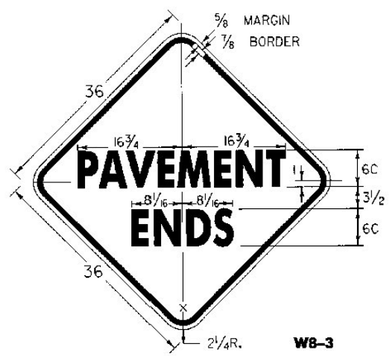
* REDUCE SPACING 50%



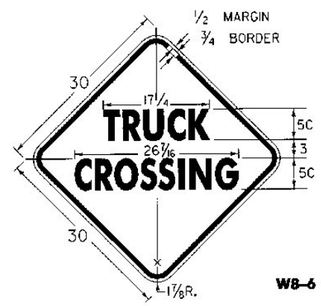
W4-2



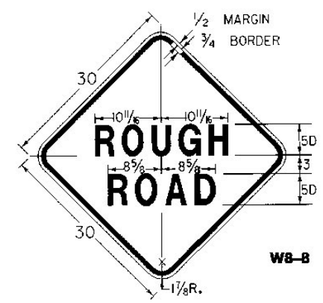
W8-1



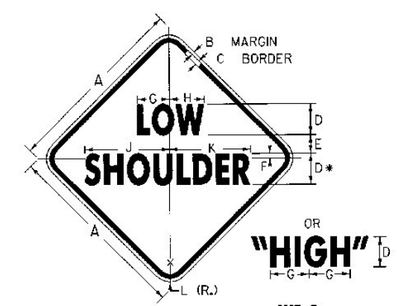
W8-3



W8-6



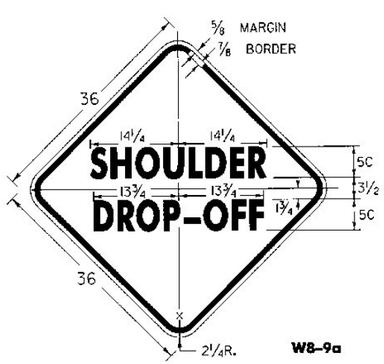
W8-8



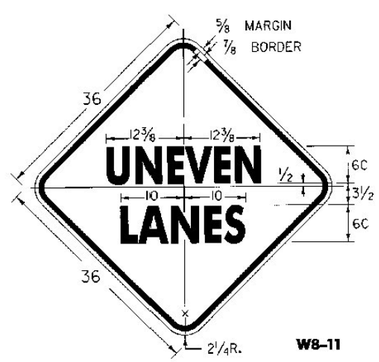
* REDUCE SPACING 25%

W8-9

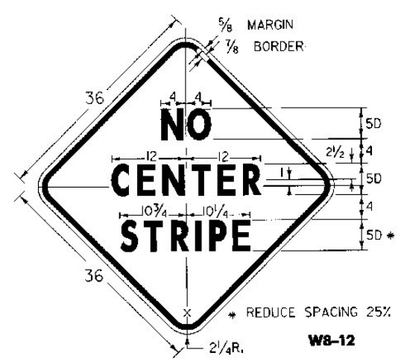
SIGN	DIMENSIONS(INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
STD.	30	1/2	3/4	5C	3	3/4	5 5/16	5 5/8	13 11/16	13 1/16	1 7/8
FWY.	48	3/4	1 1/4	8C	5	1 1/4	8 1/4	9	21 7/8	20 7/8	3



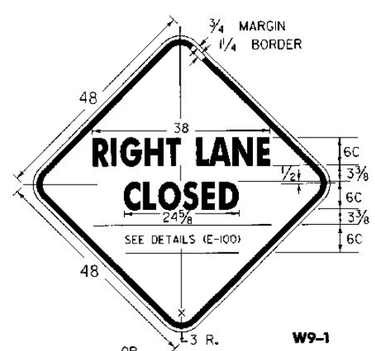
W8-9a



W8-11



W8-12



W9-1

OR

34 7/8

LEFT LANE

(ALL DIMENSIONS SHOWN IN INCHES)

NOTES

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS

COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS ON A REFLECTORIZED TYPE IIB OR TYPE III ORANGE BACKGROUND, UNLESS OTHERWISE NOTED.

SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED. HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.

OTHER STDS. REQUIRED: E-100

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
OCT. 21, 1992 - ADDED ADDITIONAL SIGN DIMENSIONS. REVISED CHEVRON BACKGROUND TO ORANGE, & REVISED TITLE BLOCK
AUG. 08, 1995 - ADDED AND DELETED VARIOUS SIGN DETAILS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon H. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

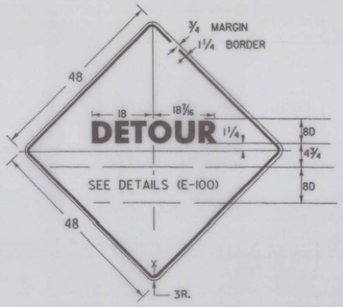
CONSTRUCTION SIGN DETAILS

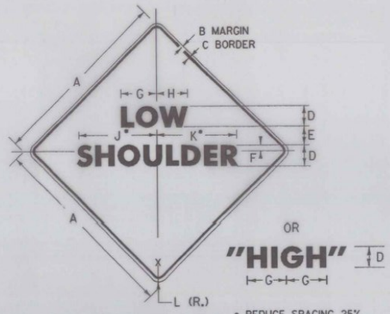
/traf/std/std101.dgn : std101.i

VERMONT AGENCY OF TRANSPORTATION

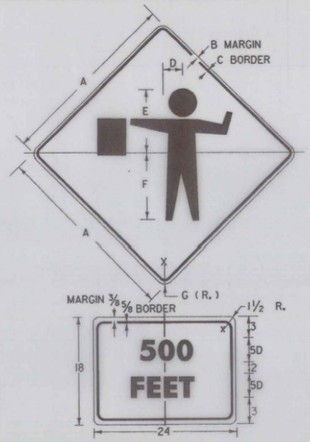
STANDARD

E-101

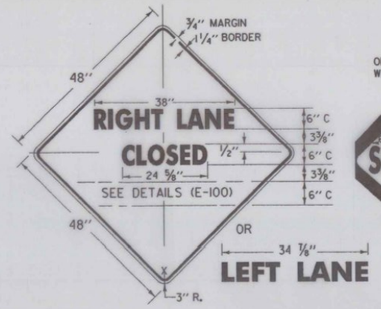


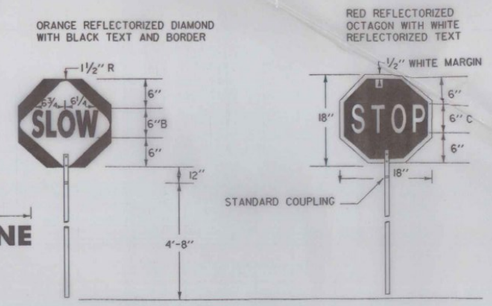


	DIMENSIONS(INCHES)									
SIGN	A	B	C	D	E	F	G	H	J	K	L
STD.	30	1/2	3/4	5C	3	3/4	5 5/8	5 5/8	13 9/16	13 1/16	1 7/8
FWY.	48	3/4	1 1/4	8C	5	1 1/4	8 1/4	9	21 1/8	20 7/8	3

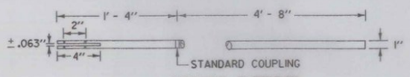


	DIMENSIONS(INCHES)						
SIGN	A	B	C	D	E	F	G
STD.	36	5/8	7/8	2 3/4	13 1/2	14 5/8	2 1/4
FWY.	48	3/4	1 1/4	3 3/4	18	19 1/2	3





SIGN DETAIL

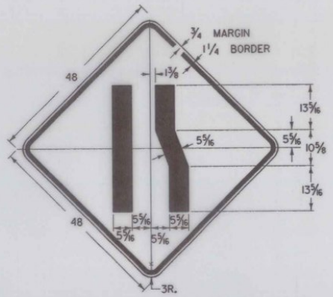


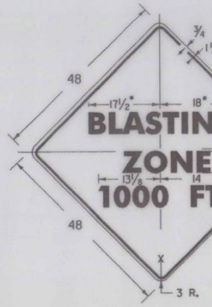
STAFF DETAIL

MATERIALS
THE SIGN MATERIALS SHALL BE 0.063" ALUMINUM WITH COLORS AS INDICATED ON DETAILS.
THE STAFF SHALL BE 1" RIGID ALUMINUM CONDUIT OR TUBING WITH A WALL THICKNESS OF 0.125".

MOUNTING
THE STAFF SHALL BE MOUNTED WITH EITHER TWO 1/4" DIAMETER ALUMINUM BOLTS OR TWO 1/4" DIAMETER ALUMINUM RIVETS.

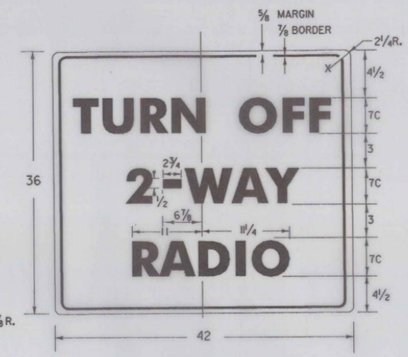
SIGN PADDLE FOR FLAGPERSON

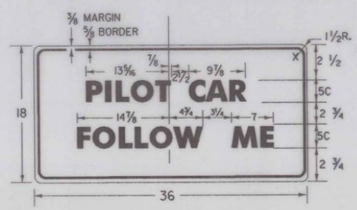


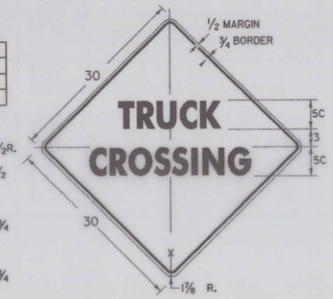


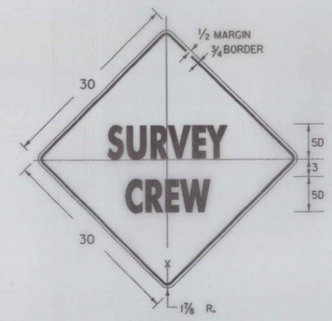
* REDUCE SPACING 40%

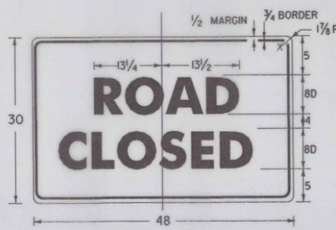
1000 FT. IS MINIMUM DISTANCE. CONSULT M.U.T.C.D. FOR INFORMATION CONCERNING BLASTING SIGNS.



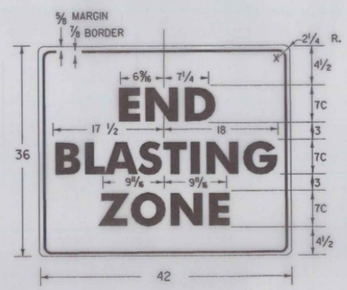


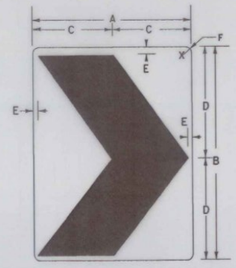




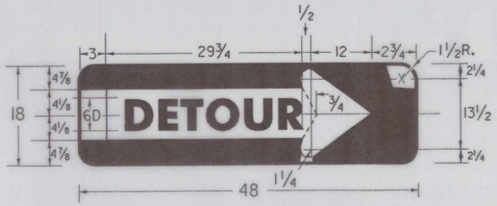


COLORS:
BLACK TEXT AND BORDER
WHITE REFLECTORIZED BACKGROUND





	DIMENSIONS(INCHES)					
SIGN	A	B	C	D	E	F
STD.	18	24	9	12	3/4	1 1/2
SPECIAL	24	30	12	15	7/8	1 1/2
EXPWY.	30	36	15	18	1	1 7/8
FRWY.	36	48	18	24	1 1/8	2 1/4



(ALL DIMENSIONS ARE IN INCHES)

NOTES

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS

COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS ON A REFLECTORIZED (ENCAPSULATED LENS) ORANGE BACKGROUND, UNLESS OTHERWISE NOTED. THE EXCEPTIONS ARE THE ROAD CLOSED AND PADDLE SIGNS.

SIGN DETAILS INDICATE THE APPROPRIATE COLOR.

EXISTING "BRIDGE" SIGNS MAY BE USED UNTIL THE SIGN NEEDS REPLACEMENT. NEW SIGNS SHALL SHOW REFERENCE TO "ROAD" CONSTRUCTION. HOWEVER, SIGN TEXT SHALL BE CONSISTENT THROUGHOUT THE PROJECT.

SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED. HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.

REVISIONS AND CORRECTIONS

OCT 21, 1992 - ADDED ADDITIONAL SIGN DIMENSIONS, REVISED CHEVRON BACKGOUND TO ORANGE, & REVISED TITLE BLOCK

APPROVED OCT. 30, 1987
DATE

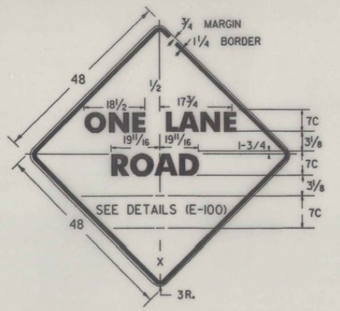
Gordon S. MacArthur
DIRECTOR OF ENGINEERING

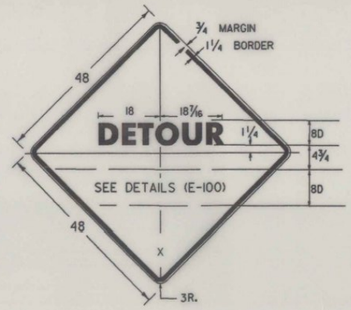
David A. Roser
TRAFFIC AND SAFETY ENGINEER

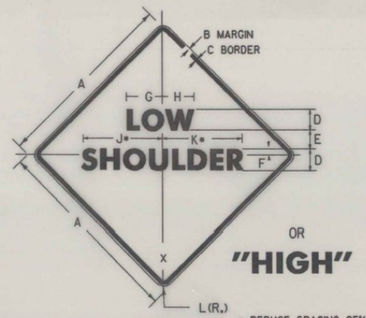
CONSTRUCTION SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-101

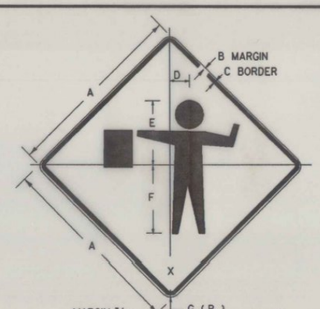


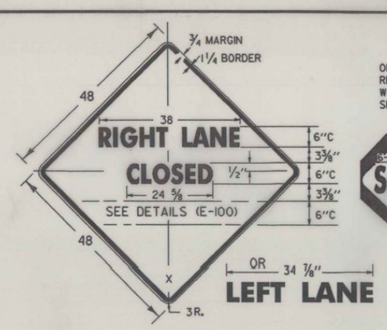


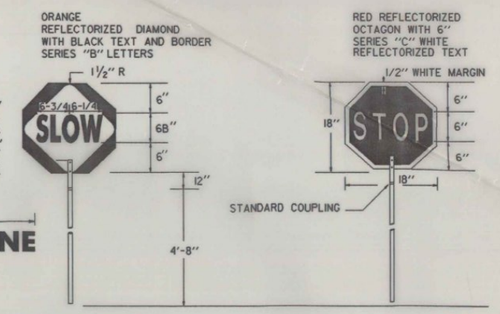


* REDUCE SPACING 25%

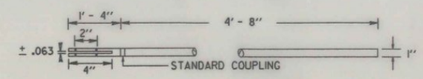
SIGN	A	B	C	D	E	F	G	H	J	K	L
	DIMENSIONS(INCHES)										
STD.	30	1/2	3/4	5C	3	3/4	5-3/16	5-5/8	13-11/16	13-1/16	1-7/8
FWY.	48	3/4	1-1/4	8C	5	1-1/4	8-1/4	9	21-7/8	20-7/8	3







SIGN DETAIL

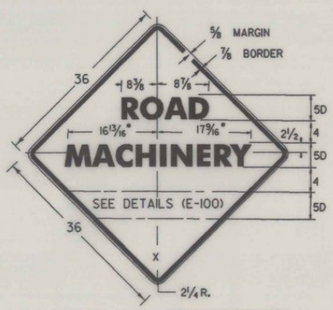


STAFF DETAIL

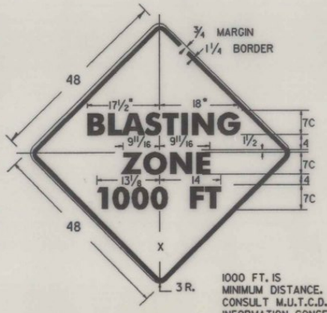
MATERIALS
THE SIGN MATERIALS SHALL BE 0.063" ALUMINUM WITH COLORS AS INDICATED ON DETAILS.
THE STAFF SHALL BE 1" RIGID ALUMINUM CONDUIT OR TUBING WITH A WALL THICKNESS OF 0.125".

MOUNTING
THE STAFF SHALL BE MOUNTED WITH EITHER TWO 1/4" DIAMETER ALUMINUM BOLTS OR TWO 1/4" DIAMETER ALUMINUM RIVETS.

SIGN PADDLE FOR FLAGPERSON

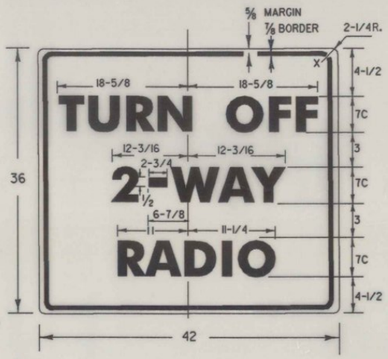


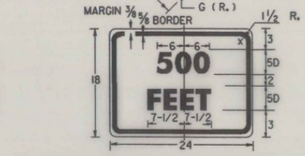
* REDUCE SPACING 40%



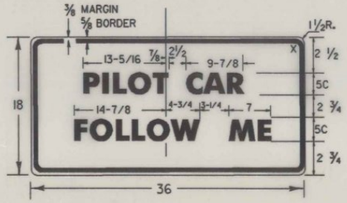
* REDUCE SPACING 40%

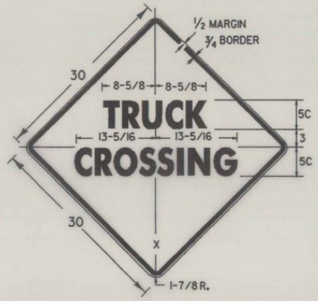
1000 FT. IS MINIMUM DISTANCE. CONSULT M.U.T.C.D. FOR INFORMATION CONCERNING BLASTING SIGNS.

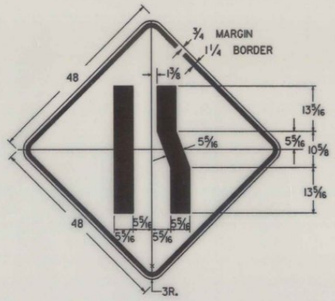


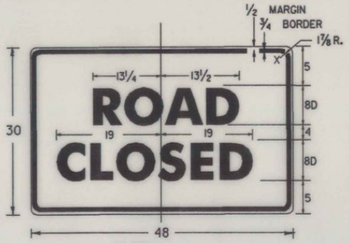


SIGN	A	B	C	D	E	F	G
	DIMENSIONS(INCHES)						
STD.	36	5/8	7/8	2-3/4	13-1/2	14-5/8	2-1/4
FWY.	48	3/4	1-1/4	3-3/4	18	19-1/2	3

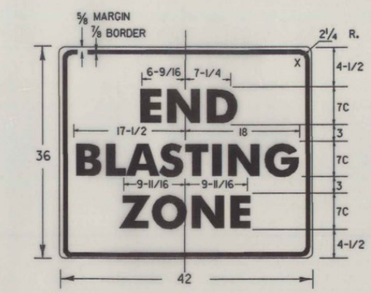


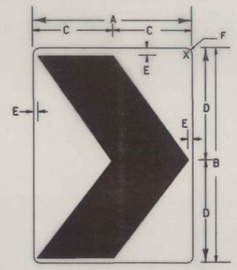






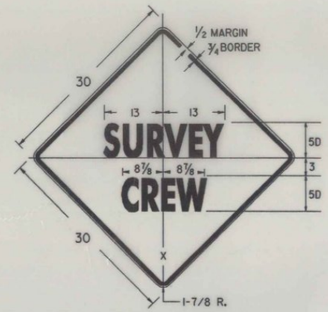
COLORS:
BLACK TEXT AND BORDER
WHITE REFLECTORIZED BACKGROUND

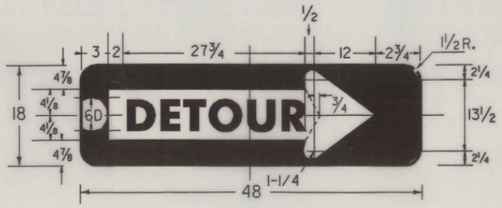




SIGN	A	B	C	D	E	F
	DIMENSIONS(INCHES)					
STD.	18	24	9	12	3/4	1-1/2
SPECIAL	24	30	12	15	7/8	1-1/2
EXPWY.	30	36	15	18	1	1-7/8
FRWY.	36	48	18	24	1-1/8	2-1/4

COLORS
CHEVRON -BLACK
BACKGROUND-YELLOW(REFL.)





COLORS:
ORANGE ARROW

(ALL DIMENSIONS ARE IN INCHES)

NOTES

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS

COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS ON A REFLECTORIZED (ENCAPSULATED LENS) ORANGE BACKGROUND, UNLESS OTHERWISE NOTED. THE EXCEPTIONS ARE THE CHEVRON, ROAD CLOSED, AND PADDLE SIGNS. SIGN DETAILS INDICATE THE APPROPRIATE COLOR.

EXISTING "BRIDGE" SIGNS MAY BE USED UNTIL THE SIGN NEEDS REPLACEMENT. NEW SIGNS SHALL SHOW REFERENCE TO "ROAD" CONSTRUCTION. HOWEVER, SIGN TEXT SHALL BE CONSISTENT THROUGHOUT THE PROJECT.

SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED. HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.

REVISIONS AND CORRECTIONS

APPROVED

OCT. 30, 1987
DATE

David B. Kelley
CHIEF ENGINEER

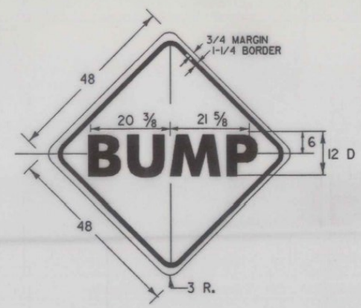
Arthur J. Gosse
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

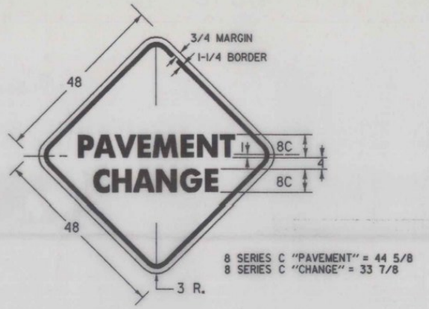
Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

CONSTRUCTION SIGN DETAILS

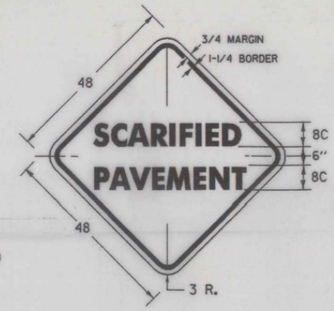
VERMONT AGENCY OF TRANSPORTATION

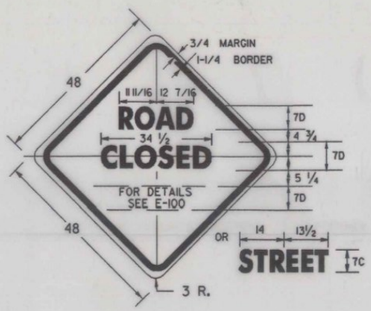
STANDARD
E-101





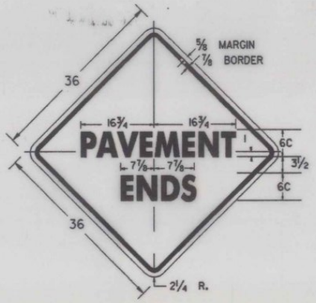
8 SERIES C "PAVEMENT" = 44 5/8
8 SERIES C "CHANGE" = 33 7/8

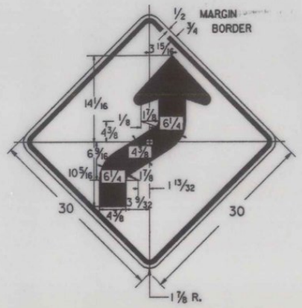


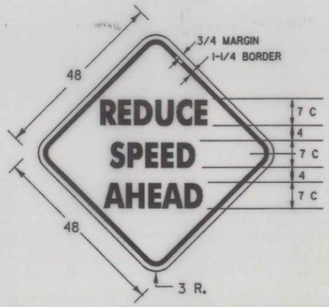


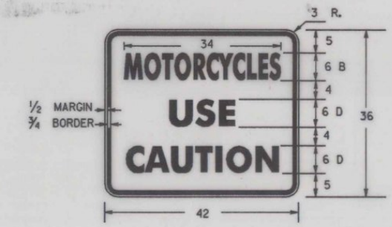
* EXIT NUMBER AS PER PLANS
OPTICALLY SPACED

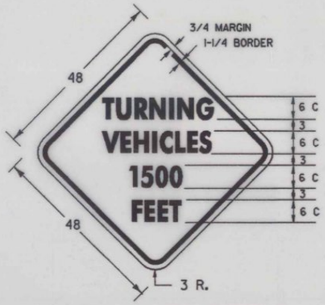
COLORS:
BACKGROUND - GREEN (REFL.)
BORDER, ARROW AND LEGEND - WHITE (REFL.)

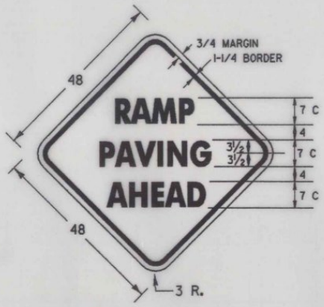


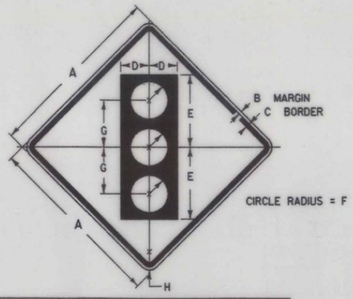








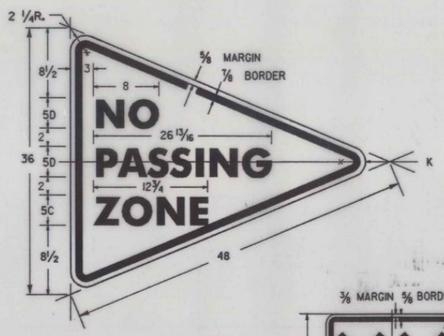


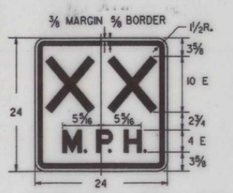


SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
STD. & MIN.	36	5/8	7/8	5 3/4	15 3/4	4 1/4	10	2 1/4
SPECIAL	48	3/4	1 1/4	7 1/2	20	5	12 1/2	3

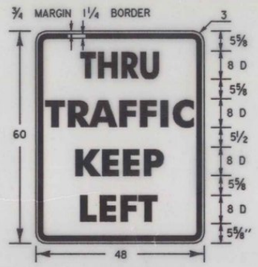
COLORS

SYMBOL & LEGEND - BLACK (NON-REFL)
TOP CIRCLE RED (REFL)
BOTTOM CIRCLE GREEN (REFL)
BACKGROUND - ORANGE (REFL)





"X X" DENOTES ADVISORY SPEED AS SHOWN ON THE PLANS



COLORS : BLACK BORDER & TEXT
WHITE (REFL.) BACKGROUND
MATERIALS : PER STANDARD E-192

NOTES

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS

COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS ON A REFLECTORIZED (ENCAPSULATED LENS) ORANGE BACKGROUND, UNLESS OTHERWISE NOTED.

SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED, HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.

REVISIONS AND CORRECTIONS
JAN. 23, - 1989 DEL. MOTORCYCLE SYMBOL SIGN AND SPEED SIGN, ADDED TWO SIGNS

APPROVED

OCT. 30, 1987
DATE

David O'Kelley
CHIEF ENGINEER

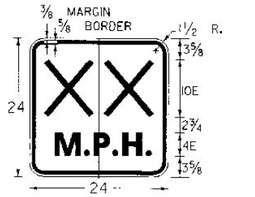
Arthur Gore
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

CONSTRUCTION SIGN DETAILS

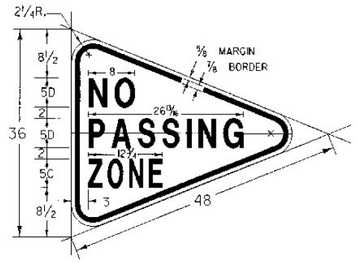
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-102

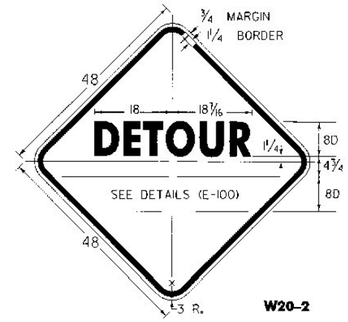


'XX' DENOTES ADVISORY SPEED AS SHOWN ON THE PLANS

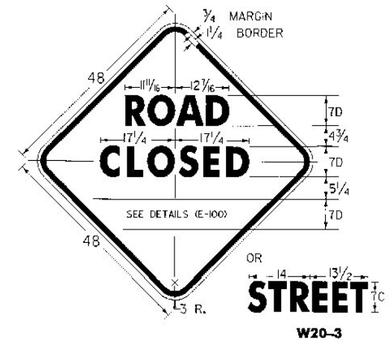
W13-1



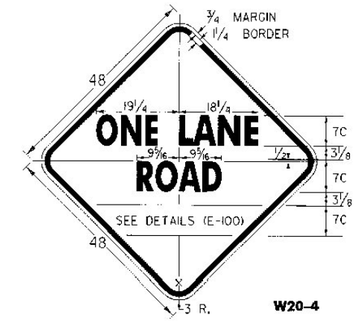
W14-3



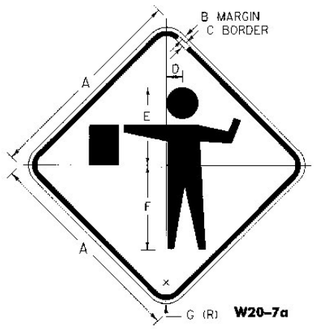
W20-2



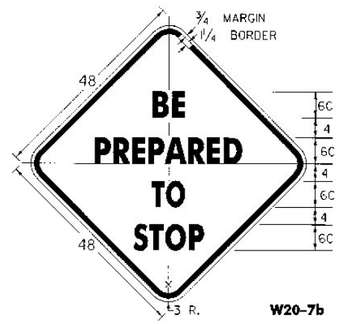
W20-3



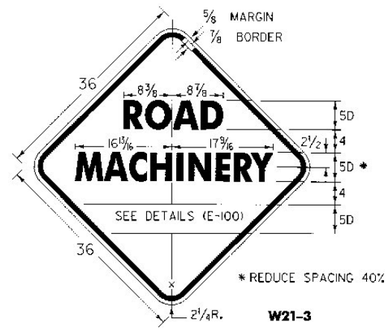
W20-4



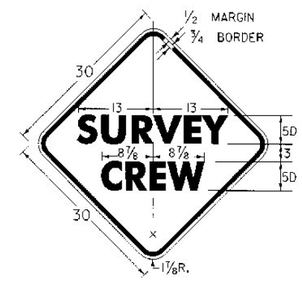
W20-7a



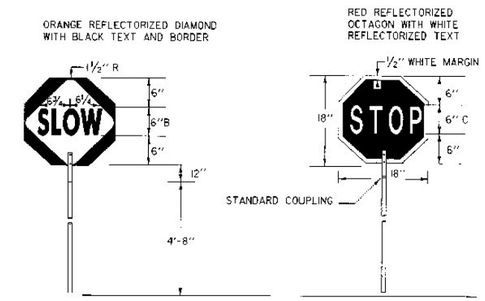
W20-7b



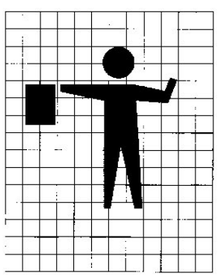
W21-3

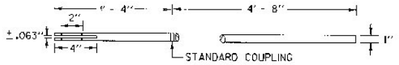


W21-6



SIGN DETAIL





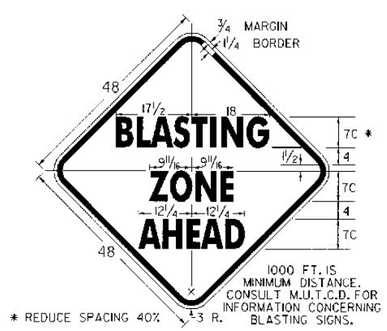
STAFF DETAIL

MATERIALS
THE SIGN MATERIALS SHALL BE 0.063" ALUMINUM WITH COLORS AS INDICATED ON DETAILS.
THE STAFF SHALL BE 3/4" TO 1 1/4" DIAMETER RIGID ALUMINUM CONDUIT/TUBING WITH A WALL THICKNESS OF 0.125", OR 1" TO 1 1/2" DIAMETER RIGID PVC CONDUIT/TUBING WITH 0.125" WALL THICKNESS

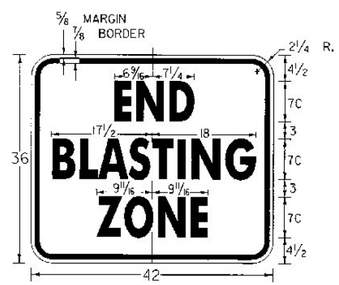
MOUNTING
THE STAFF SHALL BE MOUNTED WITH EITHER TWO 1/4" DIAMETER ALUMINUM BOLTS OR TWO 1/4" DIAMETER ALUMINUM RIVETS.

SIGN PADDLE FOR FLAGPERSON

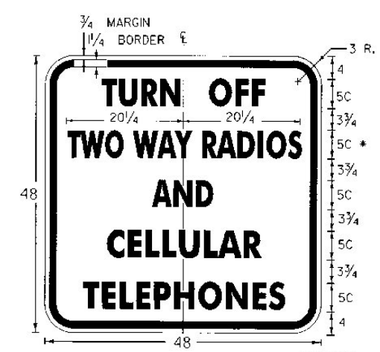
SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	F	G
STD.	36	5/8	7/8	2 3/4	13 1/2	14 5/8	2 1/4
FWY.	48	3/4	1 1/4	3 3/4	18	19 1/2	3



W22-1



W22-3



VW22-1

NOTES

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS

COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT. BORDER AND SYMBOLS SHALL BE ON A REFLECTORIZED ORANGE BACKGROUND OF TYPE IIB OR TYPE III REFLECTIVE SHEETING, UNLESS OTHERWISE NOTED. THE EXCEPTION IS THE PADDLE SIGN.

SIGN DETAILS INDICATE THE APPROPRIATE COLOR.

SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED. HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.

(ALL DIMENSIONS SHOWN IN INCHES)

OTHER STDS. REQUIRED: E-100

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - DELETE MOTORCYCLE SYMBOL SIGN AND SPEED SIGN. ADDED TWO SIGNS
OCT. 21, 1992 - ADDED A SIGN. REVISED A SIGN DIMENSION & TYPE ERROR & REVISED TITLE BLOCK
AUG. 08, 1995 - ADDED FLAGGER GRID
June 30, 2003 — Superseded

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon H. MacArthur
DIRECTOR OF ENGINEERING

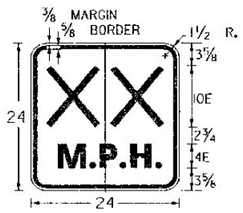
David A. Ross
TRAFFIC AND SAFETY ENGINEER

CONSTRUCTION SIGN DETAILS

/~raf/sld/stdel02.cgn : stdel02.i

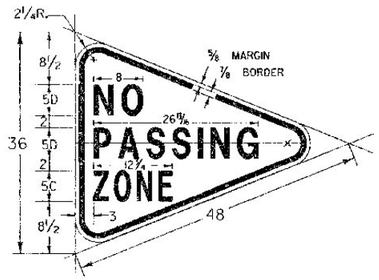
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-102

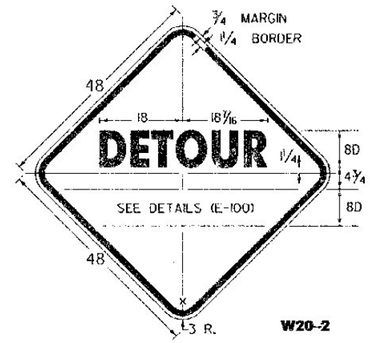


"XX" DENOTES ADVISORY SPEED AS SHOWN ON THE PLANS

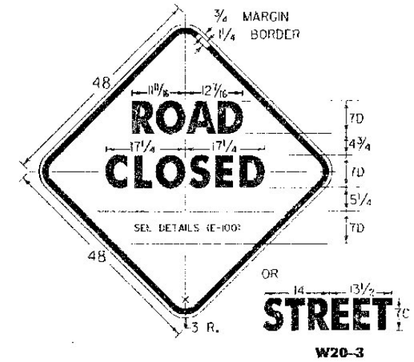
W13-1



W14-3

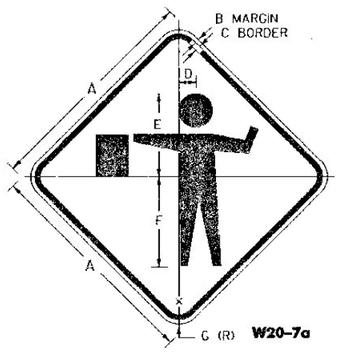


W20-2

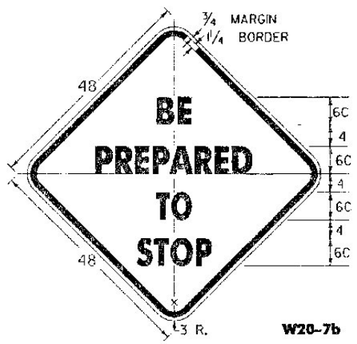


W20-3

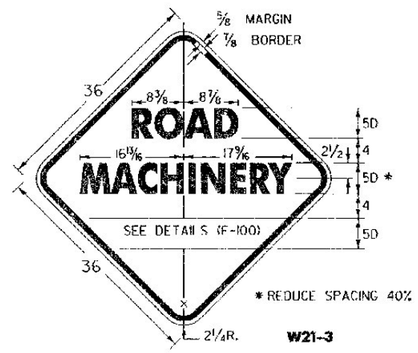
W20-4



W20-7a

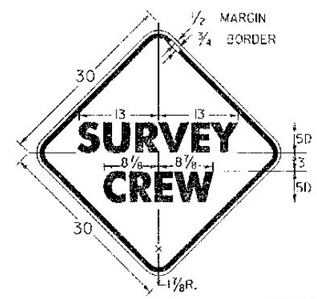


W20-7b

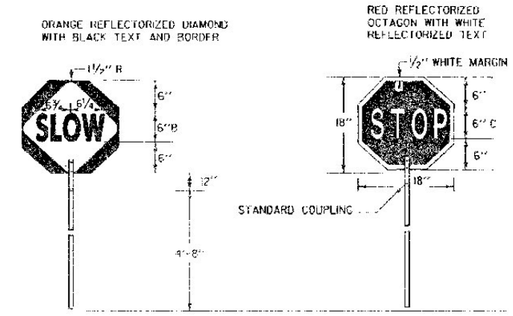


* REDUCE SPACING 40%

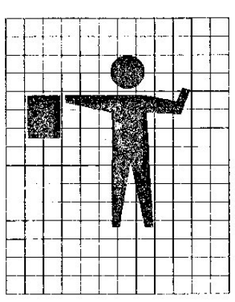
W21-3

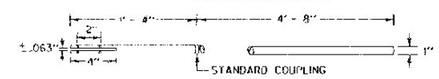


W21-6



SIGN DETAIL



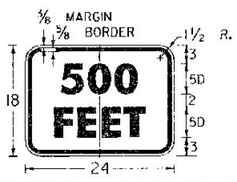


STAFF DETAIL

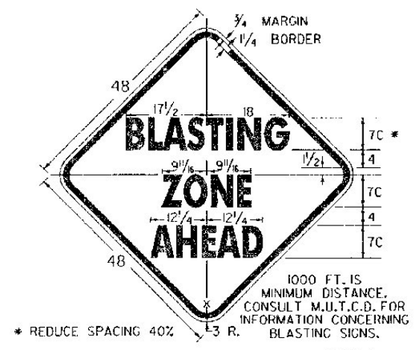
MATERIALS
THE SIGN MATERIALS SHALL BE 0.063" ALUMINUM WITH COLORS AS INDICATED ON DETAILS.
THE STAFF SHALL BE 3/4" TO 1 1/4" DIAMETER RIGID ALUMINUM CONDUIT/TUBING WITH A WALL THICKNESS OF 0.125", OR 1" TO 1 1/2" DIAMETER RIGID PVC CONDUIT/TUBING WITH 0.125" WALL THICKNESS

MOUNTING
THE STAFF SHALL BE MOUNTED WITH EITHER TWO 1/4" DIAMETER ALUMINUM BOLTS OR TWO 1/4" DIAMETER ALUMINUM RIVETS.

SIGN PADDLE FOR FLAGPERSON



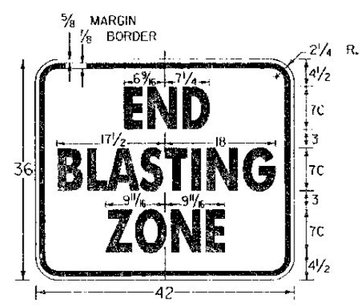
SIGN	DIMENSIONS(INCHES)						
	A	B	C	D	E	F	G
STD.	36	5/8	7/8	2 3/4	13 1/2	14 5/8	2 1/4
FWY.	48	3/4	1 1/4	3 3/4	18	19 1/2	3



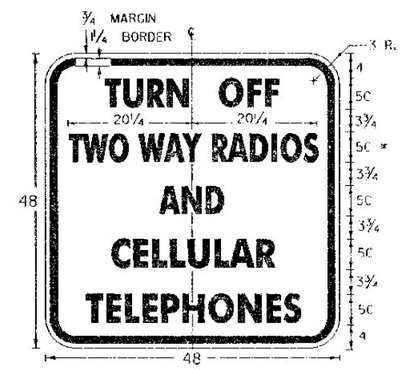
1000 FT. IS MINIMUM DISTANCE. CONSULT M.U.T.C.D. FOR INFORMATION CONCERNING BLASTING SIGNS.

* REDUCE SPACING 40%

W22-1



W22-3



* REDUCE SPACING 50%

VW22-1

NOTES

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS

COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS SHALL BE ON A REFLECTORIZED ORANGE BACKGROUND OF TYPE IIB OR TYPE III REFLECTIVE SHEETING, UNLESS OTHERWISE NOTED. THE EXCEPTION IS THE PADDLE SIGN.

SIGN DETAILS INDICATE THE APPROPRIATE COLOR.

SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED. HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.

(ALL DIMENSIONS SHOWN IN INCHES)

OTHER STDS. REQUIRED: E-100

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - DELETE MOTORCYCLE SYMBOL SIGN AND SPEED SIGN, ADDED TWO SIGNS
OCT. 21, 1992 - ADDED A SIGN, REVISED A SIGN DIMENSION & TYPE ERROR & REVISED TITLE BLOCK
AUG. 08, 1995 - ADDED FLAGGER GRID

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon H. MacCallum
DIRECTOR OF ENGINEERING

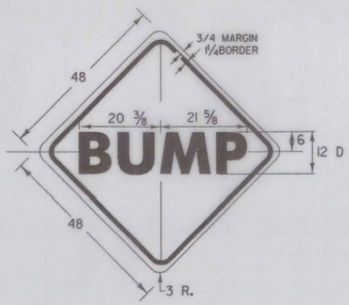
David A. Ross
TRAFFIC AND SAFETY ENGINEER

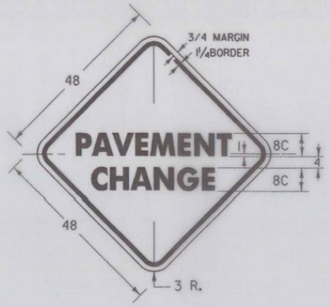
CONSTRUCTION SIGN DETAILS

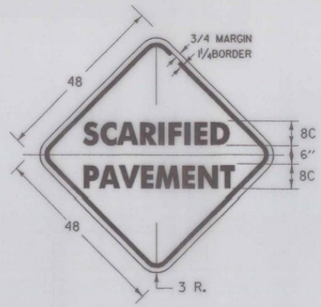
/trat/std/stdel02.dgn : stdel02.i

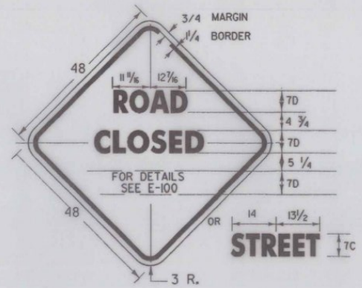
VERMONT AGENCY OF TRANSPORTATION

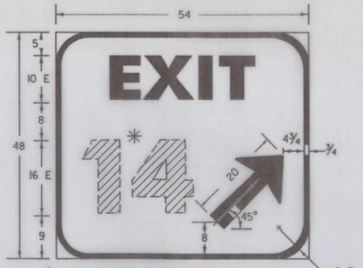
STANDARD
E-102





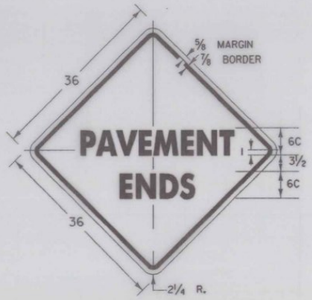


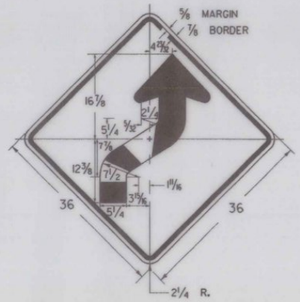


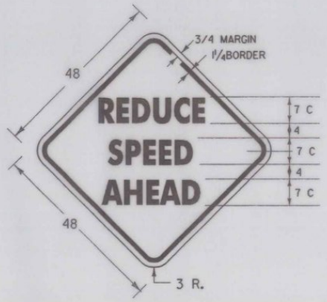


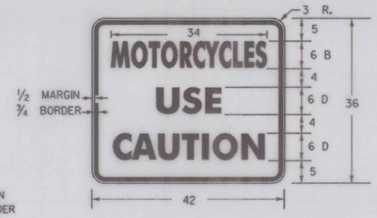
* EXIT NUMBER AS PER PLANS
OPTICALLY SPACED

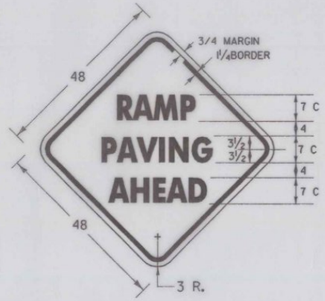
COLORS:
BACKGROUND - GREEN (REFL.)
BORDER, ARROW AND LEGEND - WHITE (REFL.)

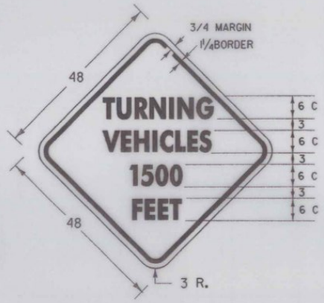


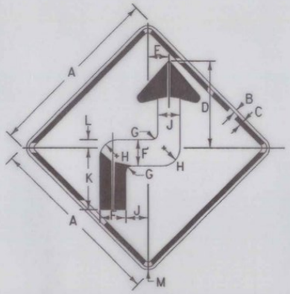


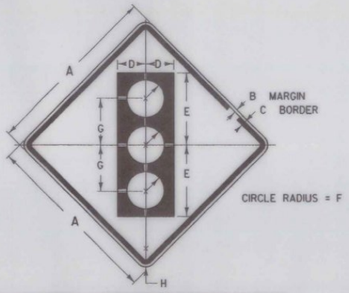


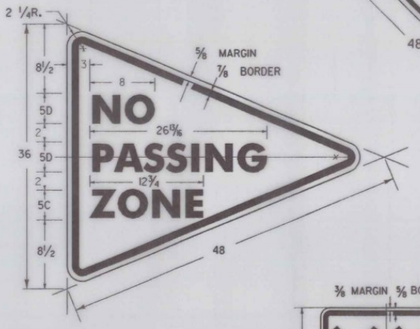


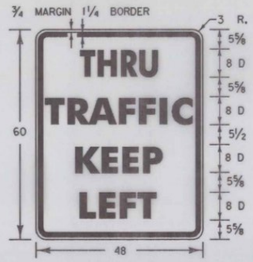












COLORS : BLACK BORDER & TEXT
WHITE (REFL.) BACKGROUND
MATERIALS : PER STANDARD E-142

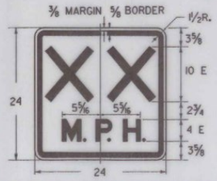
SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
STD. & MIN.	36	5/8	7/8	17 7/16	4 1/32	5 1/4	1 1/4	3 5/8	4 1/2	12 5/32	1 3/32	2 1/4
SPECIAL	48	3/4	1 1/4	23 3/16	5 5/8	7	1 5/8	4 7/8	6	16 5/8	2 3/16	3

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
STD. & MIN.	36	5/8	7/8	5 3/4	15 3/4	4 1/4	10	2 1/4
SPECIAL	48	3/4	1 1/4	7 1/2	20	5	12 1/2	3

COLORS

SYMBOL & LEGEND - BLACK (NON-REFL)
BACKGROUND - ORANGE (REFL)

TOP CIRCLE RED (REFL)
MIDDLE CIRCLE YELLOW (REFL)
BOTTOM CIRCLE GREEN (REFL)



" XX " DENOTES ADVISORY SPEED AS SHOWN ON THE PLANS

NOTES

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS

COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS ON A REFLECTORIZED (ENCAPSULATED LENS) ORANGE BACKGROUND, UNLESS OTHERWISE NOTED.

SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED. HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.

(ALL DIMENSIONS SHOWN IN INCHES)

REVISIONS AND CORRECTIONS
JAN. 23, - 1989 - DEL. MOTORCYCLE SYMBOL SIGN AND SPEED SIGN, ADDED TWO SIGNS
OCT 21, 1992 - ADDED A SIGN, REVISED A SIGN DIMENSION & TYPE ERROR & REVISED TITLE BLOCK

APPROVED: OCT. 30, 1987
DATE

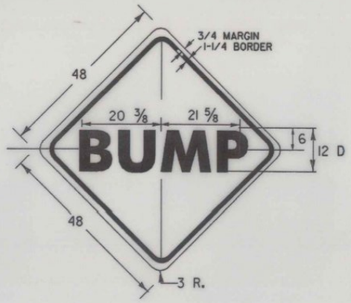
Gordon B. MacArthur
DIRECTOR OF ENGINEERING

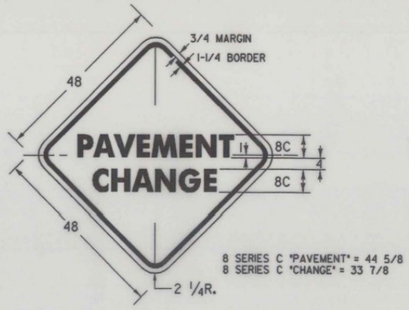
David A. Ross
TRAFFIC AND SAFETY ENGINEER

CONSTRUCTION SIGN DETAILS

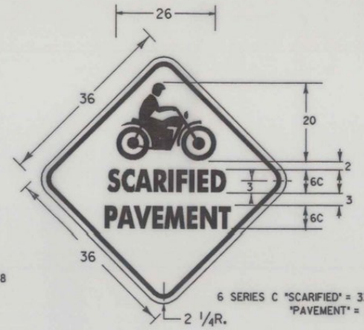
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-102

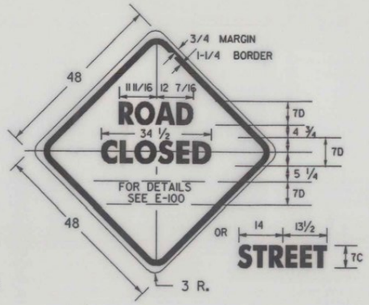


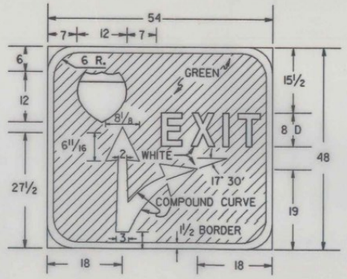


8 SERIES C "PAVEMENT" = 44 5/8
8 SERIES C "CHANGE" = 33 7/8



6 SERIES C "SCARIFIED" = 33 1/16
"PAVEMENT" = 33 1/2

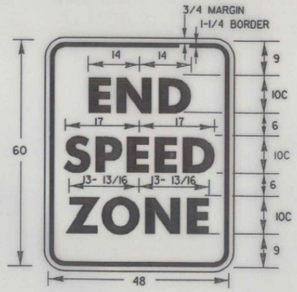




COLORS:

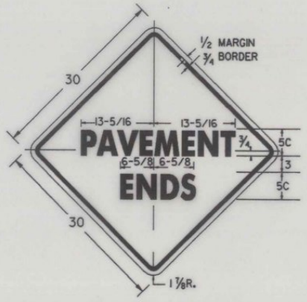
BACKGROUND - GREEN (REFL.)
BORDER, ARROW AND LEGEND - WHITE (REFL.)
SHIELD - BORDER - WHITE (REFL.)

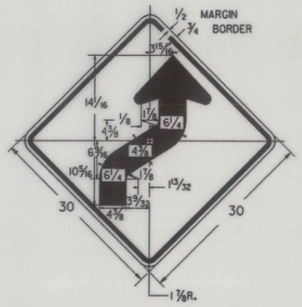
TOP PORTION - RED (REFL.)
BOTTOM PORTION - BLUE (REFL.)
SHIELD DIMENSION REDUCED FROM DETAILS SHOWN ON STD. SHEET E-135.

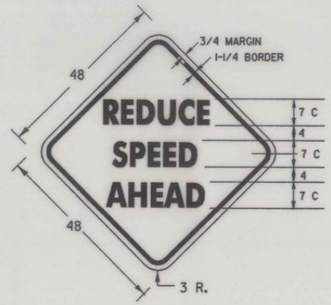


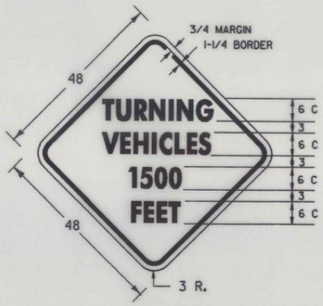
COLORS:

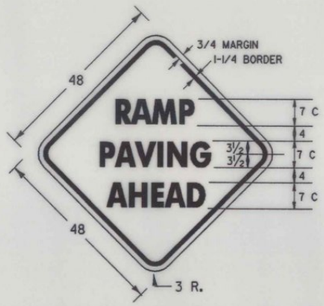
TEXT AND BORDER - BLACK
BACKGROUND - WHITE (REFL.)

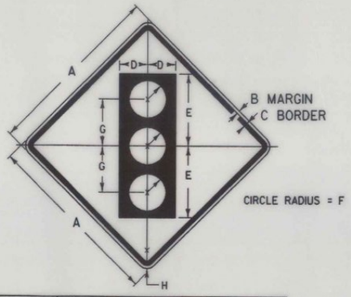








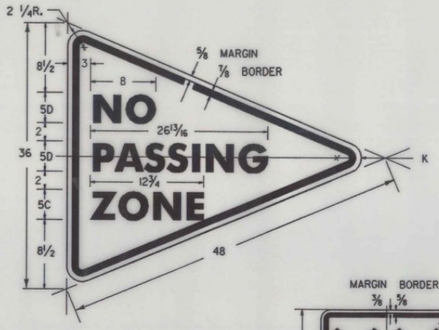


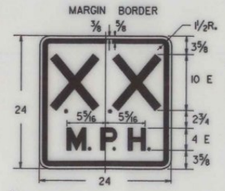


SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
STD. & MIN.	36	5/8	7/8	5 3/4	15 3/4	4 1/4	10	2 1/4
SPECIAL	48	3/4	1 1/4	7 1/2	20	5	12 1/2	3

COLORS

SYMBOL & LEGEND - BLACK (NON-REFL)
TOP CIRCLE RED (REFL)
BOTTOM CIRCLE GREEN (REFL)
BACKGROUND - ORANGE (REFL)





*INCREASE SPACING 100 %

NOTES

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS

COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS ON A REFLECTORIZED (ENCAPSULATED LENS) ORANGE BACKGROUND, UNLESS OTHERWISE NOTED.

SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED, HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.

REVISIONS AND CORRECTIONS

APPROVED

OCT. 30, 1987
DATE

David B. Kelley
CHIEF ENGINEER

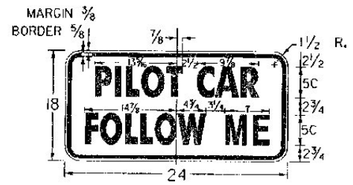
Arthur Gosse
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

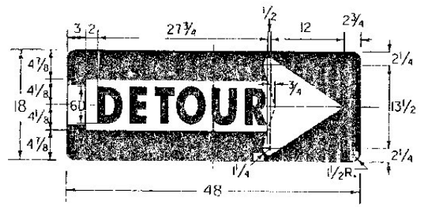
CONSTRUCTION SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

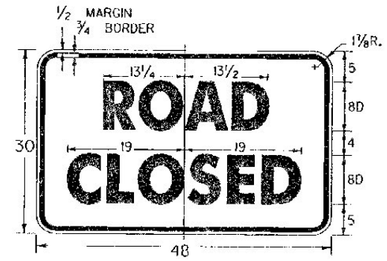
STANDARD
E-102



G20-4

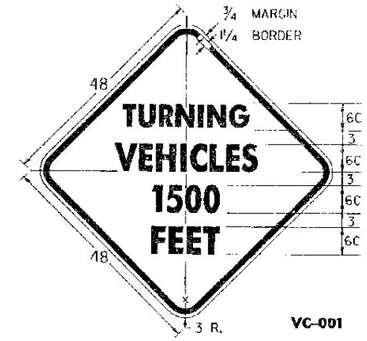


M4-10(R)

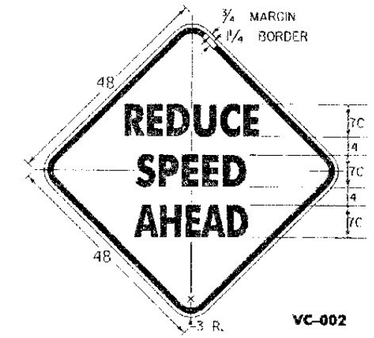


COLORS:
BLACK TEXT AND BORDER
WHITE REFLECTORIZED BACKGROUND

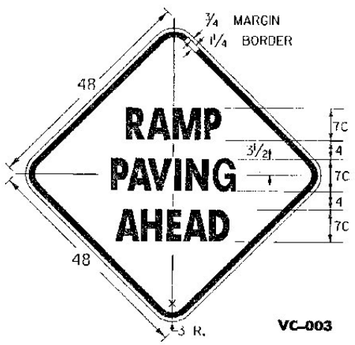
R11-2



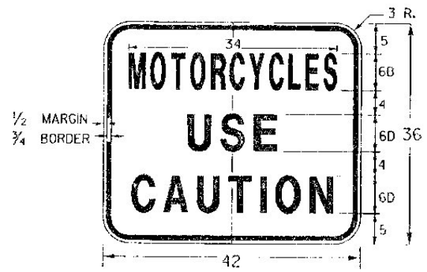
VC-001



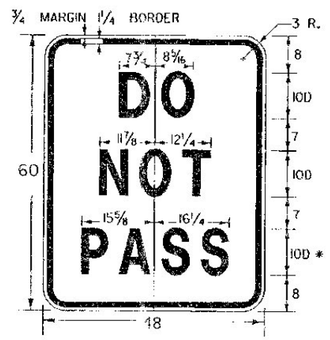
VC-002



VC-003

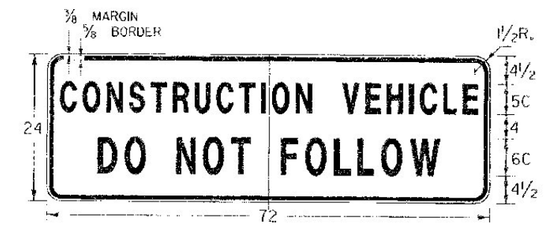


VC-004



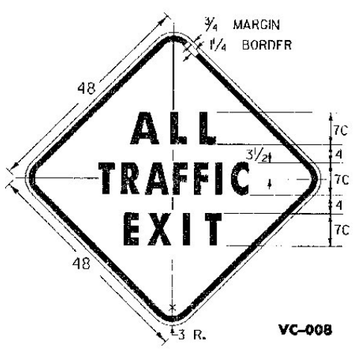
VC-005

* REDUCE SPACING BY 40%

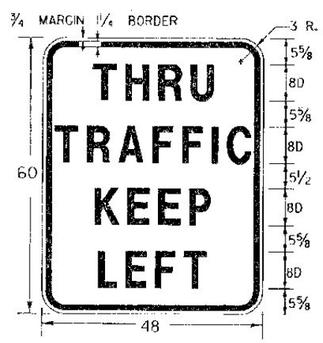


IT IS SUGGESTED THAT THIS SIGN BE DESIGNED TO FOLD, (DOWN OR ACROSS), OR BE COVERED, OR BE REMOVED WHEN NOT IN USE. THE SIGN SHOULD ALSO BE MOUNTED AS TO NOT INTERFERE WITH THE VISIBILITY OF DIRECTIONAL OR TAIL LIGHTS AS REQUIRED BY LAW.

VC-007

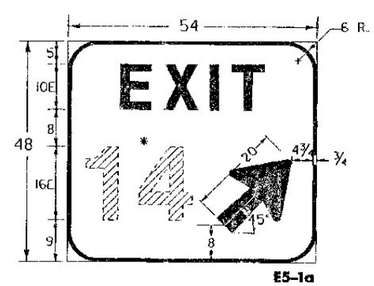


VC-008



VR-118

COLORS: BLACK BORDER & TEXT
WHITE (REFL.) BACKGROUND



E5-1a

* EXIT NUMBER AS PER PLANS
OPTICALLY SPACED

COLORS:
BACKGROUND - GREEN (REFL.)
BORDER, ARROW AND LEGEND - WHITE (REFL.)

NOTES

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS

COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS SHALL BE ON A REFLECTORIZED ORANGE BACKGROUND OF TYPE IIB OR TYPE III REFLECTIVE SHEETING, UNLESS OTHERWISE NOTED.

SIGN DETAILS INDICATE THE APPROPRIATE COLOR.

SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED. HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.

(ALL DIMENSIONS SHOWN IN INCHES)

OTHER STDS. REQUIRED: E-100

REVISIONS AND CORRECTIONS

AUG 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacCallum
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

CONSTRUCTION SIGN DETAILS

/traf/std/std102.dgn : std102A.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-102A

TRAVEL LANE REQUIREMENTS

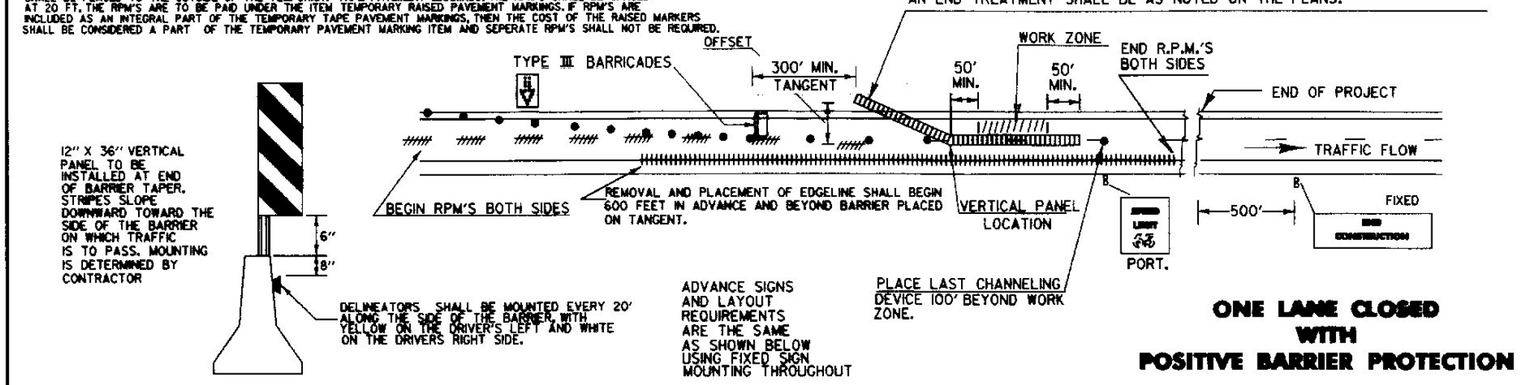
BARRIER SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE CENTERLINE TO ALLOW THE TRAFFIC TO USE THE NORMAL LANE WIDTH.

EDGELINES SHALL BE REMOVED AND NEW TEMPORARY TAPE EDGELINES APPLIED. THE DRIVER'S LEFT EDGELINE SHALL BE A MINIMUM OF TWO FEET, IF POSSIBLE, FROM BARRIER. TRAVEL LANES SHALL BE 12 FEET WIDE.

THE TEMPORARY TAPE PAVEMENT MARKINGS SHALL BE OF A TYPE WHICH CAN BE COMPLETELY REMOVED AFTER THE PROJECT IS COMPLETED WITHOUT SCARRING OR MARKING THE PAVEMENT SURFACE. PAYMENT FOR THE TAPE MARKINGS SHALL BE UNDER THE APPROPRIATE ITEM NUMBERS.

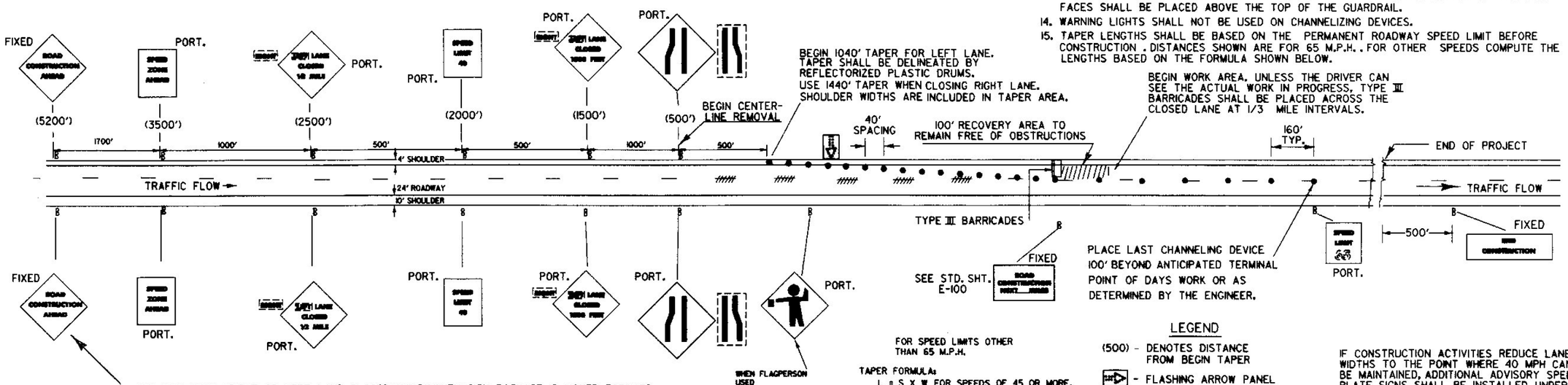
PAVEMENT MARKING REMOVALS SHALL BE PAID UNDER THE APPROPRIATE ITEM NUMBER. TEMPORARY TAPE REMOVAL IS NOT PAID UNDER THE REMOVAL ITEM,IT IS SUBSIDIARY TO THE TAPE ITEM.

THE RAISED PAVEMENT MARKINGS (RPM'S) SHALL BE OF A TYPE WHICH CAN BE EASILY REMOVED AND THEY SHALL BE PLACED TO THE OUTSIDE OF THE TEMPORARY TAPE PAVEMENT MARKINGS. THE RPM'S SHALL BE SPACED AT 20 FT. THE RPM'S ARE TO BE PAID UNDER THE ITEM TEMPORARY RAISED PAVEMENT MARKINGS. IF RPM'S ARE INCLUDED AS AN INTEGRAL PART OF THE TEMPORARY TAPE PAVEMENT MARKINGS, THEN THE COST OF THE RAISED MARKERS SHALL BE CONSIDERED A PART OF THE TEMPORARY PAVEMENT MARKING ITEM AND SEPERATE RPM'S SHALL NOT BE REQUIRED.



ONE LANE CLOSED WITH POSITIVE BARRIER PROTECTION

1. WHEN CONSTRUCTION EQUIPMENT IS WORKING AT OR NEAR THE EXIT OR ENTRANCE RAMPS, FLAGPERSONS OR UNIFORMED TRAFFIC CONTROL OFFICERS (UTO'S) SHALL BE USED TO ASSIST IN CONTROLLING TRAFFIC. LANE CLOSURE ADVANCE WARNING SIGNS SHALL BE INSTALLED ON ENTRANCE RAMPS.
2. ALL SIGNS SHALL BE PLACED BEFORE ANY WORK BEGINS OR EQUIPMENT IS PUT ON THE ROADWAY. SIGNS SHALL BE COVERED OR REMOVED WHEN NOT APPLICABLE, SEE STANDARD SHEET E-100 FOR REQUIREMENTS.
3. CONTRACTOR SHALL HAVE CHANNELIZING DEVICES AND SIGNS FOR LEFT SIDE CLOSURE AND RIGHT SIDE CLOSURE ON PROJECT BEFORE STARTING PROJECT.
4. PRIVATE VEHICLES SHALL NOT BE PARKED IN OR AROUND WORKING AREA, OR ON THE RIGHT OF WAY. CONTRACTOR WILL PROVIDE PARKING FOR WORK CREW VEHICLES OFF PROJECT.
5. EXISTING SPEED LIMIT SIGNS SHALL BE COVERED WHEN REDUCED SPEED SIGNS ARE POSTED.
6. CHANNELIZING DEVICES OTHER THAN REFLECTORIZED PLASTIC DRUMS WILL BE ALLOWED ALONG TANGENT SECTIONS AS LONG AS THEY CONFORM TO THE M.U.T.C.D. AND ARE APPROVED BY THE RESIDENT ENGINEER. THE TYPE OF DEVICE SHALL BE CONSISTENT THROUGHOUT THE TANGENT SECTION.
7. REFER TO PROJECT "SPECIAL PROVISIONS" FOR SPEED ZONE ENACTMENT.
8. THE "SPEED LIMIT 40" AND OTHER RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN WORK IS NOT IN PROGRESS AND ROADWAY IS NOT RESTRICTED.
9. THE FLASHING ARROW SHALL BE MOUNTED ON A BREAKAWAY OR YIELDING SYSTEM. PLACEMENT AT THE START OF THE TAPER IS PREFERRED TO PLACEMENT IN THE MIDDLE OF THE TAPER. THE FLASHING ARROW BOARD SHALL BE EQUIPPED WITH AN AUTOMATIC DIMMER FOR NIGHTTIME USE, AND SHALL BE DIMMED AT NIGHT. CONTROL BOX SHALL BE KEPT LOCKED.
10. "REDUCED SPEED AHEAD" SIGNS MAY BE USED IN LIEU OF "SPEED ZONE AHEAD".
11. THE SIGNS "LOW SHOULDER", "BUMP", "MOTORCYCLE", "PAVEMENT CHANGE" AND OTHER RELATED SIGNS ARE TO BE USED AND PLACED AS DIRECTED BY THE RESIDENT ENGINEER.
12. ALL FIXED SIGNS SHALL BE MOUNTED ON YIELDING STEEL OR ALUMINUM SUPPORT AS SHOWN ON STANDARD SHEETS E-160 AND E-162.
13. PORTABLE SIGNS SHALL BE KEPT LEVEL WHEN PLACED ON THE EDGE OF ROADWAY AND ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED, PAYMENT SUBSIDIARY TO OTHER ITEMS. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACES SHALL BE PLACED ABOVE THE TOP OF THE GUARDRAIL.
14. WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES.
15. TAPER LENGTHS SHALL BE BASED ON THE PERMANENT ROADWAY SPEED LIMIT BEFORE CONSTRUCTION. DISTANCES SHOWN ARE FOR 65 M.P.H.. FOR OTHER SPEEDS COMPUTE THE LENGTHS BASED ON THE FORMULA SHOWN BELOW.



USE PORTABLE "RIGHT OR LEFT LANE CLOSED 1 MILE" WHEN SIGN PACKAGE IS MOVED FORWARD.
SIGNS NOTED AS FIXED SHALL REMAIN IN PLACE THROUGH THE ENTIRE PROJECT.
SIGNS NOTED AS PORTABLE SHALL MOVE AS THE WORK AREA CHANGES.
ALL SIGNS SHALL BE REMOVED OR COVERED WHEN NOT NEEDED.

FOR SPEED LIMITS OTHER THAN 65 M.P.H.

TAPER FORMULAS:

$L = S \times W$ FOR SPEEDS OF 45 OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 OR LESS.

WHERE:

L = MINIMUM LENGTH OF TAPER.

S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.

W = WIDTH OF OFFSET.

LEGEND

(500) - DENOTES DISTANCE FROM BEGIN TAPER

- FLASHING ARROW PANEL
- REFLECTORIZED PLASTIC DRUM
- PAVEMENT MARKING REMOVAL
- CONCRETE MEDIAN BARRIER
- TYPE III BARRICADE

IF CONSTRUCTION ACTIVITIES REDUCE LANE WIDTHS TO THE POINT WHERE 40 MPH CANNOT BE MAINTAINED, ADDITIONAL ADVISORY SPEED PLATE SIGNS SHALL BE INSTALLED UNDER THE LANE REDUCTION TRANSITION SIGN. FLAGPERSON AND U.T.O'S SHALL NOT BE ALLOWED TO INTERFERE WITH TRAFFIC BY STEPPING INTO THE LANE TO REDUCE DRIVER'S SPEED.

REVISIONS AND CORRECTIONS

JAN. 23, 1989 - FHWA COMMENTS - CHANGE TO 65 M.P.H. TAPER RATES

APPROVED

OCT. 30, 1987
DATE

David B Kelley
CHIEF ENGINEER

Arthur Jones
DIRECTOR OF PLANNING AND PRECONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY ONE LANE CLOSED

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-103

TRAVEL LANE REQUIREMENTS

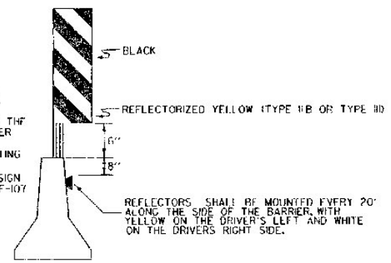
BARRIER SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE CENTERLINE TO ALLOW THE TRAFFIC TO USE THE NORMAL LANE WIDTH.

EDGELINES SHALL BE REMOVED AND NEW TEMPORARY TAPE EDGELINES APPLIED. THE DRIVER'S LEFT EDGELINE SHALL BE A MINIMUM OF ONE FOOT. (TWO FEET IS DESIRABLE) FROM BARRIER. TRAVEL LANE SHALL BE 12 FEET WIDE.

THE TEMPORARY TAPE PAVEMENT MARKINGS SHALL BE OF A TYPE WHICH CAN BE COMPLETELY REMOVED AFTER THE PROJECT IS COMPLETED WITHOUT SCARRING OR MARKING THE PAVEMENT SURFACE. PAYMENT FOR THE TAPE MARKINGS SHALL BE UNDER THE APPROPRIATE ITEM NUMBERS.

PAVEMENT MARKING REMOVALS SHALL BE PAID UNDER THE APPROPRIATE ITEM NUMBER. TEMPORARY TAPE REMOVAL IS NOT PAID UNDER THE REMOVAL ITEM. IT IS SUBSIDIARY TO THE TAPE ITEM.

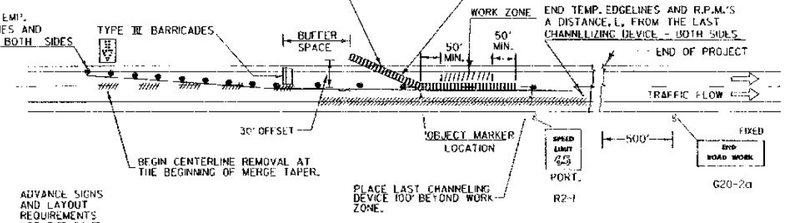
THE RAISED PAVEMENT MARKERS (RPM'S) SHALL BE OF A TYPE WHICH CAN BE EASILY REMOVED AND THEY SHALL BE PLACED TO THE OUTSIDE OF THE TEMPORARY TAPE PAVEMENT MARKINGS. THE RPM'S SHALL BE SPACED AT 20 FT. THE RPM'S ARE TO BE PAID UNDER THE ITEM TEMPORARY RAISED PAVEMENT MARKINGS. IF RPM'S ARE INCLUDED AS AN INTEGRAL PART OF THE TEMPORARY TAPE PAVEMENT MARKINGS, THEN THE COST OF THE RAISED MARKERS SHALL BE CONSIDERED A PART OF THE TEMPORARY PAVEMENT MARKING ITEM AND SEPERATE RPM'S SHALL NOT BE REQUIRED.



"CONCRETE MEDIAN BARRIER", PROVIDE A MINIMUM TAPER RATE AS SHOWN IN THE TABLE BELOW, WITH A MINIMUM OF 50 FT. OF TANGENT SECTION ON EACH END OF THE WORK ZONE. THE END OF THE BARRIER FACING APPROACHING TRAFFIC SHALL MEET THE FOLLOWING REQUIREMENT: WHEN NO GUARDRAIL IS PRESENT, USE 30' OFFSET FROM EDGE OF TRAVELLED WAY. IF GUARDRAIL IS PRESENT, THEN CONCRETE BARRIER CAN BE TAPERED TO A DISTANCE BEYOND THE DEFLECTION DISTANCE OF THE GUARDRAIL. IF A 30' OFFSET IS NOT ATTAINABLE OR TO A DISTANCE BEYOND THE DEFLECTION DISTANCE OF THE GUARDRAIL, THEN A CRASH ATTENUATOR DESIGNED FOR THE REGULAR SPEED LIMIT OF THE ROADWAY SHALL BE PROVIDED.

IF THE BARRIER IS PLACED SUCH THAT THE TEMPORARY TAPE CAN BE PLACED OVER THE EXISTING DASHED LINE, THEN THE EDGELINES DO NOT NEED TO BE TAPERED BEFORE THE BARRIER AND THE DASHED MARKINGS DO NOT NEED TO BE REMOVED IN THE TANGENT SECTION.

IF THE BARRIER IS PLACED SUCH THAT COVERING THE DASHED LINES WITH THE TEMPORARY TAPE EDGELINE IS NOT POSSIBLE THEN THE EDGELINES SHALL BE TAPERED A LENGTH, L, BOTH IN ADVANCE AND BEYOND THE BARRIER PLACED ON TANGENT.

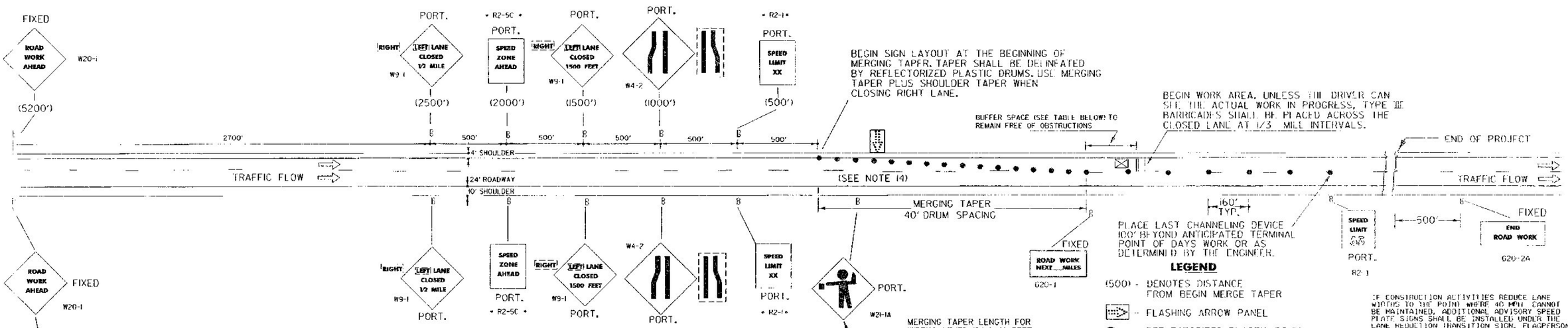


ADVANCE SIGNS AND LAYOUT REQUIREMENTS ARE THE SAME AS SHOWN BELOW USING FIXED SIGN MOUNTING THROUGHOUT

ONE LANE CLOSED WITH POSITIVE BARRIER PROTECTION

NOTES

1. WHEN CONSTRUCTION EQUIPMENT IS WORKING AT OR NEAR THE EXIT OR ENTRANCE RAMPS, FLAGPERSONS OR UNIFORMED TRAFFIC CONTROL OFFICERS (U.T.O.'S) SHOULD BE USED TO ASSIST IN CONTROLLING TRAFFIC. SEE STD. E-106 FOR TRAFFIC CONTROL DETAILS.
2. ALL SIGNS SHALL BE PLACED BEFORE ANY WORK BEGINS OR EQUIPMENT IS PUT ON THE ROADWAY. SIGNS SHALL BE COVERED OR REMOVED WHEN NOT APPLICABLE. SEE STANDARD SHEET E-106 FOR REQUIREMENTS.
3. CONTRACTOR SHALL HAVE CHANNELIZING DEVICES AND SIGNS FOR LEFT SIDE CLOSURE AND RIGHT SIDE CLOSURE ON PROJECT BEFORE STARTING PROJECT.
4. EXISTING SPEED LIMIT SIGNS SHALL BE COVERED WHEN REDUCED SPEED SIGNS ARE POSTED.
5. CHANNELIZING DEVICES OTHER THAN REFLECTORIZED PLASTIC DRUMS WILL BE ALLOWED ALONG TANGENT SECTIONS AS LONG AS THEY CONFORM TO THE M.U.T.C.D. AND ARE APPROVED BY THE RESIDENT ENGINEER. THE TYPE OF DEVICE SHALL BE CONSISTENT THROUGHOUT THE TANGENT SECTION.
6. THE "SPEED LIMIT XX" AND OTHER RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN WORK IS NOT IN PROGRESS AND ROADWAY IS NOT RESTRICTED.
7. "REDUCED SPEED AHEAD" SIGNS MAY BE USED IN LIEU OF "SPEED ZONE AHEAD".
8. FOR RELATIVELY SHORT TERM PROJECTS WITH NO OFFICIAL SPEED ZONE ENACTMENT, THE SPEED LIMIT AND REDUCED SPEED LIMIT SIGNS CAN BE SUBSTITUTED WITH ADVISORY SPEED PLAQUES MOUNTED AS SUPPLEMENTAL SIGNS ON OTHER WARNING SIGNS.
9. ALL FIXED SIGNS SHALL BE MOUNTED ON YIELDING STEEL, ALUMINUM OR WOOD SUPPORTS AS SHOWN ON APPROPRIATE STANDARD SHEETS.
10. PORTABLE SIGNS SHALL BE KEPT LEVEL WHEN PLACED ON THE EDGE OF ROADWAY AND ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. PAYMENT SUBSIDIARY TO OTHER ITEMS. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACES SHALL BE PLACED ABOVE THE TOP OF THE GUARDRAIL.
11. WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES.
12. THE NUMBER OF CHANNELIZING DEVICES, TYPE III BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.)
13. FOR ANY LONG TERM CLOSURE (GREATER THAN 3 DAYS) EXISTING CENTERLINE SHALL BE REMOVED AND TEMPORARY EDGELINES PLACED AS SHOWN WITH POSITIVE BARRIER.



USE PORTABLE "RIGHT OR LEFT LANE CLOSED 1 MILE" WHEN SIGN PACKAGE IS MOVED FORWARD. SIGNS NOTED AS FIXED SHALL REMAIN IN PLACE THROUGH THE ENTIRE PROJECT. SIGNS NOTED AS PORTABLE SHALL MOVE AS THE WORK AREA CHANGES. ALL SIGNS SHALL BE REMOVED OR COVERED WHEN NOT NEEDED.

* R2-5C AND R2-1 TO BE USED ONLY WITH REGULATORY, TEMPORARY SPEED LIMITS. OTHERWISE USE W13-1 ADVISORY SPEED PLATES.

POSTED SPEED OR 85TH PERCENTILE M.P.H.	MERGING TAPER 12' LANE	SHOULDER TAPER W=10'	BARRIER TAPER RATE	BUFFER SPACE (MINIMUMS)
40	320'	90'	9 TO 1	160'
45	540'	150'	-	270'
50	600'	170'	11 TO 1	300'
55	660'	190'	-	330'
60	720'	200'	13 TO 1	360'
65	780'	220'	-	390'

MERGING TAPER LENGTH FOR WIDTHS OTHER THAN 12 FEET

TAPER FORMULA:

$L = S \times W$ FOR SPEEDS OF 45 OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 OR LESS.

WHERE:

L = MINIMUM LENGTH OF TAPER.
S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.
W = WIDTH OF OFFSET.

LEGEND

(500) - DENOTES DISTANCE FROM BEGIN MERGE TAPER
- FLASHING ARROW PANEL
- REFLECTORIZED PLASTIC DRUM
- PAVEMENT MARKING REMOVAL
- CONCRETE MEDIAN BARRIER
- TYPE III BARRICADE
- TRUCK/TRAILER MOUNTED ATTENUATOR (OPTIONAL)

IF CONSTRUCTION ACTIVITIES REDUCE LANE WIDTHS TO THE POINT WHERE 40 MPH CANNOT BE MAINTAINED, ADDITIONAL ADVISORY SPEED PLATE SIGNS SHALL BE INSTALLED UNDER THE LANE REDUCTION TRANSITION SIGN. FLAGPERSONS AND U.T.O.'S SHALL NOT BE ALLOWED TO INTERFERE WITH TRAFFIC BY STEPPING INTO THE LANE TO REDUCE THE DRIVER'S SPEED.

OTHER STDS. REQUIRED: E-100, E-101, E-102, E-102A, E-107A

REVISIONS AND CORRECTIONS

OCT. 30, 1987 DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - FHWA COMMENTS - CHANGE TO 65 M.P.H. TAPER RATES
OCT. 21, 1992 - ADDED TAPER RATE TABLE & REVISED TITLE BLOCK
AUG. 08, 1995 DELETED AN INVALID NOTE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon D. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY ONE LANE CLOSED

/traf/std/std103.dgn : std103.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-103

TRAVEL LANE REQUIREMENTS

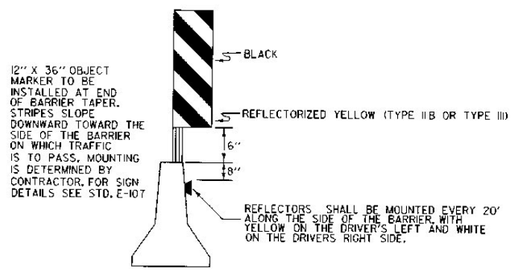
BARRIER SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE CENTERLINE TO ALLOW THE TRAFFIC TO USE THE NORMAL LANE WIDTH.

EDGELINES SHALL BE REMOVED AND NEW TEMPORARY TAPE EDGELINES APPLIED. THE DRIVER'S LEFT EDGELINE SHALL BE A MINIMUM OF ONE FOOT.(TWO FEET IS DESIRABLE) FROM BARRIER. TRAVEL LANE SHALL BE 12 FEET WIDE.

THE TEMPORARY TAPE PAVEMENT MARKINGS SHALL BE OF A TYPE WHICH CAN BE COMPLETELY REMOVED AFTER THE PROJECT IS COMPLETED WITHOUT SCARRING OR MARKING THE PAVEMENT SURFACE. PAYMENT FOR THE TAPE MARKINGS SHALL BE UNDER THE APPROPRIATE ITEM NUMBERS.

PAVEMENT MARKING REMOVALS SHALL BE PAID UNDER THE APPROPRIATE ITEM NUMBER. TEMPORARY TAPE REMOVAL IS NOT PAID UNDER THE REMOVAL ITEM. IT IS SUBSIDIARY TO THE TAPE ITEM.

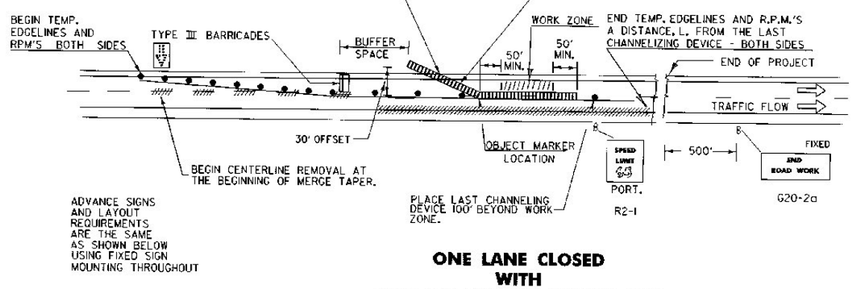
THE RAISED PAVEMENT MARKERS (RPM'S) SHALL BE OF A TYPE WHICH CAN BE EASILY REMOVED AND THEY SHALL BE PLACED TO THE OUTSIDE OF THE TEMPORARY TAPE PAVEMENT MARKINGS. THE RPM'S SHALL BE SPACED AT 20 FT. THE RPM'S ARE TO BE PAID UNDER THE ITEM TEMPORARY RAISED PAVEMENT MARKINGS. IF RPM'S ARE INCLUDED AS AN INTEGRAL PART OF THE TEMPORARY TAPE PAVEMENT MARKINGS. THEN THE COST OF THE RAISED MARKERS SHALL BE CONSIDERED A PART OF THE TEMPORARY PAVEMENT MARKING ITEM AND SEPERATE RPM'S SHALL NOT BE REQUIRED.



''CONCRETE MEDIAN BARRIER''. PROVIDE A MINIMUM TAPER RATE AS SHOWN IN THE TABLE BELOW, WITH A MINIMUM OF 50 FT. OF TANGENT SECTION ON EACH END OF THE WORK ZONE. THE END OF THE BARRIER FACING APPROACHING TRAFFIC SHALL MEET THE FOLLOWING REQUIREMENT: WHEN NO GUARDRAIL IS PRESENT. USE 30' OFFSET FROM EDGE OF TRAVELLED WAY. IF GUARDRAIL IS PRESENT, THEN CONCRETE BARRIER CAN BE TAPERED TO A DISTANCE BEYOND THE DEFLECTION DISTANCE OF THE GUARDRAIL. IF A 30' OFFSET IS NOT ATTAINABLE OR TO A DISTANCE BEYOND THE DEFLECTION DISTANCE OF THE GUARDRAIL, THEN A CRASH ATTENUATOR DESIGNED FOR THE REGULAR SPEED LIMIT OF THE ROADWAY SHALL BE PROVIDED.

IF THE BARRIER IS PLACED SUCH THAT THE TEMPORARY TAPE CAN BE PLACED OVER THE EXISTING DASHED LINE, THEN THE EDGELINES DO NOT NEED TO BE TAPERED BEFORE THE BARRIER AND THE DASHED MARKINGS DO NOT NEED TO BE REMOVED IN THE TANGENT SECTION.

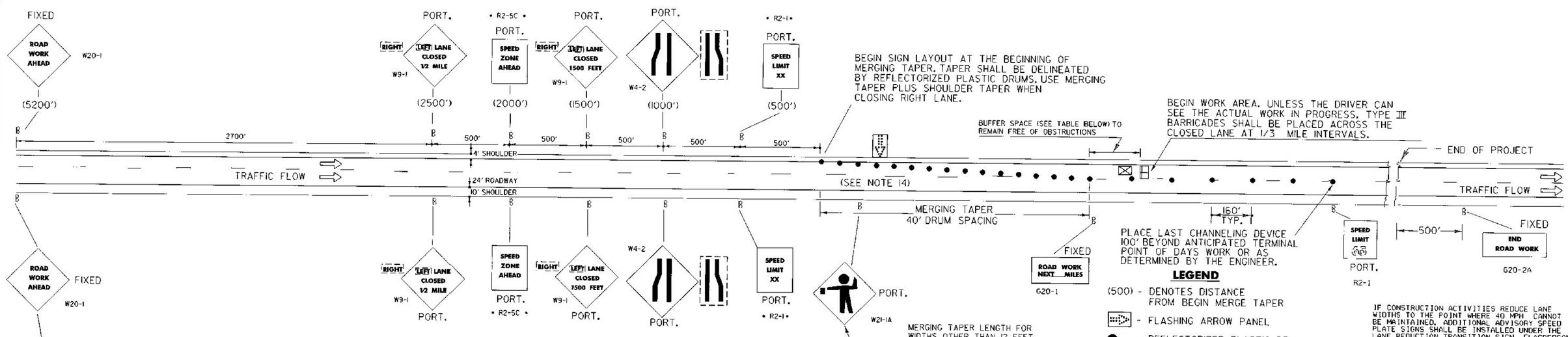
IF THE BARRIER IS PLACED SUCH THAT COVERING THE DASHED LINES WITH THE TEMPORARY TAPE EDGELINE IS NOT POSSIBLE THEN THE EDGELINES SHALL BE TAPERED A LENGTH, L, BOTH IN ADVANCE AND BEYOND THE BARRIER PLACED ON TANGENT.



ONE LANE CLOSED WITH POSITIVE BARRIER PROTECTION

NOTES

1. WHEN CONSTRUCTION EQUIPMENT IS WORKING AT OR NEAR THE EXIT OR ENTRANCE RAMPS, FLAGPERSONS OR UNIFORMED TRAFFIC CONTROL OFFICERS (UTO'S) SHOULD BE USED TO ASSIST IN CONTROLLING TRAFFIC. SEE STD. E-106 FOR TRAFFIC CONTROL DETAILS.
2. ALL SIGNS SHALL BE PLACED BEFORE ANY WORK BEGINS OR EQUIPMENT IS PUT ON THE ROADWAY. SIGNS SHALL BE COVERED OR REMOVED WHEN NOT APPLICABLE. SEE STANDARD SHEET E-100 FOR REQUIREMENTS.
3. CONTRACTOR SHALL HAVE CHANNELIZING DEVICES AND SIGNS FOR LEFT SIDE CLOSURE AND RIGHT SIDE CLOSURE ON PROJECT BEFORE STARTING PROJECT.
4. EXISTING SPEED LIMIT SIGNS SHALL BE COVERED WHEN REDUCED SPEED SIGNS ARE POSTED.
5. CHANNELIZING DEVICES OTHER THAN REFLECTORIZED PLASTIC DRUMS WILL BE ALLOWED ALONG TANGENT SECTIONS AS LONG AS THEY CONFORM TO THE M.U.T.C.D. AND ARE APPROVED BY THE RESIDENT ENGINEER. THE TYPE OF DEVICE SHALL BE CONSISTENT THROUGHOUT THE TANGENT SECTION.
6. THE ''SPEED LIMIT XX'' AND OTHER RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN WORK IS NOT IN PROGRESS AND ROADWAY IS NOT RESTRICTED.
7. ''REDUCED SPEED AHEAD'' SIGNS MAY BE USED IN LIEU OF ''SPEED ZONE AHEAD''.
8. FOR RELATIVELY SHORT TERM PROJECTS WITH NO OFFICIAL SPEED ZONE ENACTMENT, THE SPEED LIMIT AND REDUCED SPEED LIMIT SIGNS CAN BE SUBSTITUTED WITH ADVISORY SPEED PLAQUES MOUNTED AS SUPPLEMENTAL SIGNS ON OTHER WARNING SIGNS.
9. ALL FIXED SIGNS SHALL BE MOUNTED ON YIELDING STEEL, ALUMINUM OR WOOD SUPPORTS AS SHOWN ON APPROPRIATE STANDARD SHEETS.
10. PORTABLE SIGNS SHALL BE KEPT LEVEL WHEN PLACED ON THE EDGE OF ROADWAY AND ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. PAYMENT SUBSIDIARY TO OTHER ITEMS. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACES SHALL BE PLACED ABOVE THE TOP OF THE GUARDRAIL.
11. WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES.
12. THE NUMBER OF CHANNELIZING DEVICES, TYPE III BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.)
13. FOR ANY LONG TERM CLOSURE (GREATER THAN 3 DAYS) EXISTING CENTERLINE SHALL BE REMOVED AND TEMPORARY EDGELINES PLACED AS SHOWN WITH POSITIVE BARRIER.



USE PORTABLE ''RIGHT OR LEFT LANE CLOSED 1 MILE'' WHEN SIGN PACKAGE IS MOVED FORWARD. SIGNS NOTED AS FIXED SHALL REMAIN IN PLACE THROUGH THE ENTIRE PROJECT. SIGNS NOTED AS PORTABLE SHALL MOVE AS THE WORK AREA CHANGES. ALL SIGNS SHALL BE REMOVED OR COVERED WHEN NOT NEEDED.

• R2-5C AND R2-1 TO BE USED ONLY WITH REGULATORY, TEMPORARY SPEED LIMITS. OTHERWISE USE W13-1 ADVISORY SPEED PLATES.

POSTED SPEED OR 85TH PERCENTILE M.P.H.	MERGING TAPER 12' LANE	SHOULDER TAPER W=10'	BARRIER TAPER RATE	BUFFER SPACE (MINIMUMS)
40	320'	90'	9 TO 1	160'
45	540'	150'	-	270'
50	600'	170'	11 TO 1	300'
55	660'	190'	-	330'
60	720'	200'	13 TO 1	360'
65	780'	220'	-	390'

MERGING TAPER LENGTH FOR WIDTHS OTHER THAN 12 FEET

TAPER FORMULA:

$L = S \times W$ FOR SPEEDS OF 45 OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 OR LESS.

WHERE:

L = MINIMUM LENGTH OF TAPER.

S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.

W = WIDTH OF OFFSET.

LEGEND

(500) - DENOTES DISTANCE FROM BEGIN MERGE TAPER

- FLASHING ARROW PANEL
- REFLECTORIZED PLASTIC DRUM
- PAVEMENT MARKING REMOVAL
- CONCRETE MEDIAN BARRIER
- TYPE III BARRICADE
- TRUCK/TRAILER MOUNTED ATTENUATOR (OPTIONAL)

IF CONSTRUCTION ACTIVITIES REDUCE LANE WIDTHS TO THE POINT WHERE 40 MPH CANNOT BE MAINTAINED, ADDITIONAL ADVISORY SPEED PLATE SIGNS SHALL BE INSTALLED UNDER THE LANE REDUCTION TRANSITION SIGN. FLAGPERSONS AND U.T.O.'S SHALL NOT BE ALLOWED TO INTERFERE WITH TRAFFIC BY STEPPING INTO THE LANE TO REDUCE THE DRIVER'S SPEED.

OTHER STDS. REQUIRED: E-100 E-101 E-102 E-102A E-107A

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - FHWA COMMENTS - CHANGE TO 65 M.P.H. TAPER RATES
OCT. 21, 992 - ADDED TAPER RATE TABLE & REVISED TITLE BLOCK
AUG. 08, 1995 - DELETED AN INVALID NOTE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. McCallum
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY ONE LANE CLOSED

/traf/std/stdel03.dgn : stdel03.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-103

TRAVEL LANE REQUIREMENTS

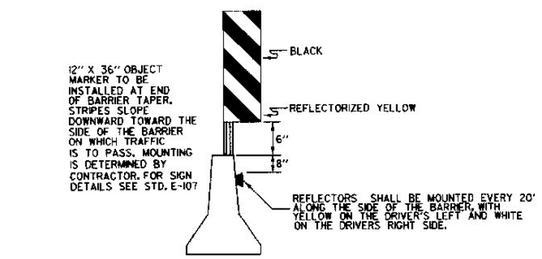
BARRIER SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE CENTERLINE TO ALLOW THE TRAFFIC TO USE THE NORMAL LANE WIDTH.

EDGELINES SHALL BE REMOVED AND NEW TEMPORARY TAPE EDGELINES APPLIED. THE DRIVER'S LEFT EDGELINE SHALL BE A MINIMUM OF ONE FOOT,(TWO FEET IS DESIRABLE) FROM BARRIER. TRAVEL LANE SHALL BE 12 FEET WIDE.

THE TEMPORARY TAPE PAVEMENT MARKINGS SHALL BE OF A TYPE WHICH CAN BE COMPLETELY REMOVED AFTER THE PROJECT IS COMPLETED WITHOUT SCARRING OR MARKING THE PAVEMENT SURFACE. PAYMENT FOR THE TAPE MARKINGS SHALL BE UNDER THE APPROPRIATE ITEM NUMBERS.

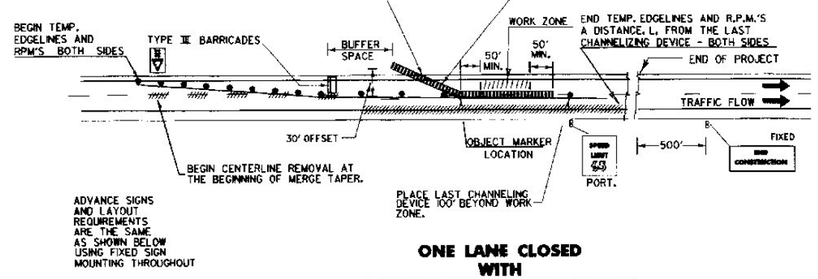
PAVEMENT MARKING REMOVALS SHALL BE PAID UNDER THE APPROPRIATE ITEM NUMBER. TEMPORARY TAPE REMOVAL IS NOT PAID UNDER THE REMOVAL ITEM. IT IS SUBSIDIARY TO THE TAPE ITEM.

THE RAISED PAVEMENT MARKERS (RPM'S) SHALL BE OF A TYPE WHICH CAN BE EASILY REMOVED AND THEY SHALL BE PLACED TO THE OUTSIDE OF THE TEMPORARY TAPE PAVEMENT MARKINGS. THE RPM'S SHALL BE SPACED AT 20 FT. THE RPM'S ARE TO BE PAID UNDER THE ITEM TEMPORARY RAISED PAVEMENT MARKINGS. IF RPM'S ARE INCLUDED AS AN INTEGRAL PART OF THE TEMPORARY TAPE PAVEMENT MARKINGS. THEN THE COST OF THE RAISED MARKERS SHALL BE CONSIDERED A PART OF THE TEMPORARY PAVEMENT MARKING ITEM AND SEPERATE RPM'S SHALL NOT BE REQUIRED.



''CONCRETE MEDIAN BARRIER'', PROVIDE A MINIMUM TAPER RATE AS SHOWN IN THE TABLE BELOW. WITH A MINIMUM OF 50 FT. OF TANGENT SECTION ON EACH END OF THE WORK ZONE. THE END OF THE BARRIER FACING APPROACHING TRAFFIC SHALL MEET THE FOLLOWING REQUIREMENT: WHEN NO GUARDRAIL IS PRESENT, USE 30' OFFSET FROM EDGE OF TRAVELLED WAY. IF GUARDRAIL IS PRESENT, THEN CONCRETE BARRIER CAN BE TAPERED TO A DISTANCE BEYOND THE DEFLECTION DISTANCE OF THE GUARDRAIL. IF A 30' OFFSET IS NOT ATTAINABLE OR TO A DISTANCE BEYOND THE DEFLECTION DISTANCE OF THE GUARDRAIL. THEN A CRASH ATTENUATOR DESIGNED FOR THE REGULAR SPEED LIMIT OF THE ROADWAY SHALL BE PROVIDED.

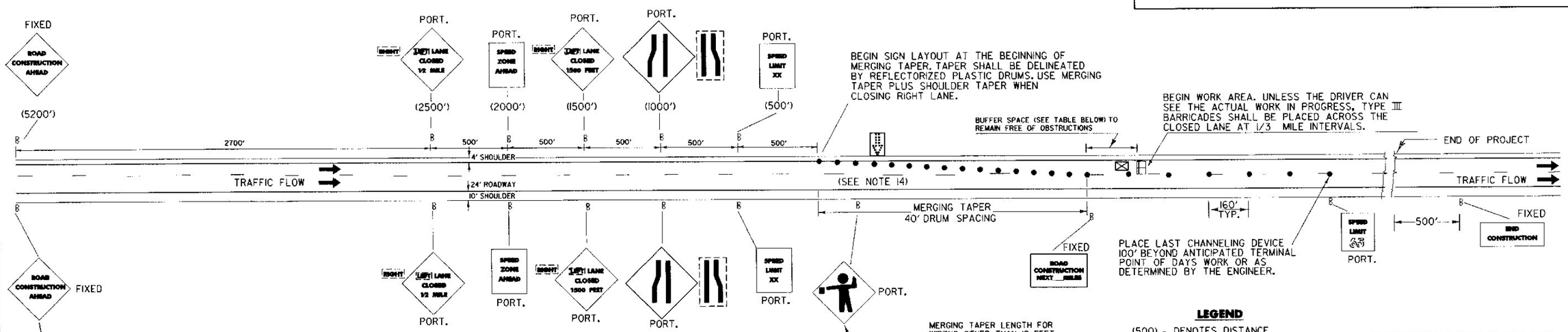
IF THE BARRIER IS PLACED SUCH THAT THE TEMPORARY TAPE CAN BE PLACED OVER THE EXISTING DASHED LINE, THEN THE EDGELINES DO NOT NEED TO BE TAPERED BEFORE THE BARRIER AND THE DASHED MARKINGS DO NOT NEED TO BE REMOVED IN THE TANGENT SECTION.
IF THE BARRIER IS PLACED SUCH THAT COVERING THE DASHED LINES WITH THE TEMPORARY TAPE EDGELINE IS NOT POSSIBLE THEN THE EDGELINES SHALL BE TAPERED A LENGTH, L , BOTH IN ADVANCE AND BEYOND THE BARRIER PLACED ON TANGENT.



ONE LANE CLOSED WITH POSITIVE BARRIER PROTECTION

NOTES

1. WHEN CONSTRUCTION EQUIPMENT IS WORKING AT OR NEAR THE EXIT OR ENTRANCE RAMPS, FLAGPERSONS OR UNIFORMED TRAFFIC CONTROL OFFICERS (UTO'S) SHOULD BE USED TO ASSIST IN CONTROLLING TRAFFIC. SEE STD. E-106 FOR TRAFFIC CONTROL DETAILS.
2. ALL SIGNS SHALL BE PLACED BEFORE ANY WORK BEGINS OR EQUIPMENT IS PUT ON THE ROADWAY. SIGNS SHALL BE COVERED OR REMOVED WHEN NOT APPLICABLE. SEE STANDARD SHEET E-100 FOR REQUIREMENTS.
3. CONTRACTOR SHALL HAVE CHANNELIZING DEVICES AND SIGNS FOR LEFT SIDE CLOSURE AND RIGHT SIDE CLOSURE ON PROJECT BEFORE STARTING PROJECT.
4. EXISTING SPEED LIMIT SIGNS SHALL BE COVERED WHEN REDUCED SPEED SIGNS ARE POSTED.
5. CHANNELIZING DEVICES OTHER THAN REFLECTORIZED PLASTIC DRUMS WILL BE ALLOWED ALONG TANGENT SECTIONS AS LONG AS THEY CONFORM TO THE M.U.T.C.D. AND ARE APPROVED BY THE RESIDENT ENGINEER. THE TYPE OF DEVICE SHALL BE CONSISTENT THROUGHOUT THE TANGENT SECTION.
6. THE ''SPEED LIMIT XX'' AND OTHER RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN WORK IS NOT IN PROGRESS AND ROADWAY IS NOT RESTRICTED.
7. ''REDUCED SPEED AHEAD'' SIGNS MAY BE USED IN LIEU OF ''SPEED ZONE AHEAD''.
8. FOR RELATIVELY SHORT TERM PROJECTS WITH NO OFFICIAL SPEED ZONE ENACTMENT, THE SPEED LIMIT AND REDUCED SPEED LIMIT SIGNS CAN BE SUBSTITUTED WITH ADVISORY SPEED PLAQUES MOUNTED AS SUPPLEMENTAL SIGNS ON OTHER WARNING SIGNS.
9. THE SIGNS ''LOW SHOULDER'', ''BUMP'', ''MOTORCYCLE'', ''PAVEMENT CHANGE'', AND OTHER RELATED SIGNS ARE TO BE USED AND PLACED AS DIRECTED BY THE RESIDENT ENGINEER.
10. ALL FIXED SIGNS SHALL BE MOUNTED ON YIELDING STEEL, ALUMINUM OR WOOD SUPPORTS AS SHOWN ON APPROPRIATE STANDARD SHEETS.
11. PORTABLE SIGNS SHALL BE KEPT LEVEL WHEN PLACED ON THE EDGE OF ROADWAY AND ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. PAYMENT SUBSIDIARY TO OTHER ITEMS. WHEN PLACED BEHIND GUARDRAIL. THE BOTTOM OF THE SIGN FACES SHALL BE PLACED ABOVE THE TOP OF THE GUARDRAIL.
12. WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES.
13. THE NUMBER OF CHANNELIZING DEVICES, TYPE III BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.)
14. FOR ANY LONG TERM CLOSURE (GREATER THAN 3 DAYS) EXISTING CENTERLINE SHALL BE REMOVED AND TEMPORARY EDGELINES PLACED AS SHOWN WITH POSITIVE BARRIER.



USE PORTABLE ''RIGHT OR LEFT LANE CLOSED 1 MILE'' WHEN SIGN PACKAGE IS MOVED FORWARD. SIGNS NOTED AS FIXED SHALL REMAIN IN PLACE THROUGH THE ENTIRE PROJECT. SIGNS NOTED AS PORTABLE SHALL MOVE AS THE WORK AREA CHANGES. ALL SIGNS SHALL BE REMOVED OR COVERED WHEN NOT NEEDED.

POSTED SPEED OR 85TH PERCENTILE M.P.H.	MERGING TAPER 12' LANE	SHOULDER TAPER W=10'	BARRIER TAPER RATE	BUFFER SPACE (MINIMUMS)
40	320'	90'	9 TO 1	160'
45	540'	150'	-	270'
50	600'	170'	11 TO 1	300'
55	660'	190'	-	330'
60	720'	200'	13 TO 1	360'
65	780'	220'	-	390'

MERGING TAPER LENGTH FOR WIDTHS OTHER THAN 12 FEET

TAPER FORMULA:

$L = S \times W$ FOR SPEEDS OF 45 OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 OR LESS.

WHERE:

L = MINIMUM LENGTH OF TAPER.
S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.
W = WIDTH OF OFFSET.

LEGEND

(500) - DENOTES DISTANCE FROM BEGIN MERGE TAPER
- FLASHING ARROW PANEL
- REFLECTORIZED PLASTIC DRUM
- PAVEMENT MARKING REMOVAL
- CONCRETE MEDIAN BARRIER
- TYPE III BARRICADE
- TRUCK/TRAILER MOUNTED ATTENUATOR (OPTIONAL)

IF CONSTRUCTION ACTIVITIES REDUCE LANE WIDTHS TO THE POINT WHERE 40 MPH CANNOT BE MAINTAINED, ADDITIONAL ADVISORY SPEED PLATE SIGNS SHALL BE INSTALLED UNDER THE LANE REDUCTION TRANSITION SIGN. FLAGPERSONS AND U.T.O.'S SHALL NOT BE ALLOWED TO INTERFERE WITH TEAFFIC BY STEPPING INTO THE LANE TO REDUCE THE DRIVER'S SPEED.

REVISIONS AND CORRECTIONS

JAN. 23, 1989 - FHWA COMMENTS - CHANGE TO 65 M.P.H. TAPER RATES
OCT21, 1992 - ADDED TAPER RATE TABLE & REVISED TITLE BLOCK

APPROVED: OCT. 30 , 1987
DATE

Gordon R. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY ONE LANE CLOSED

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-103

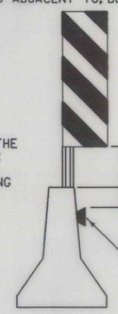
TRAVEL LANE REQUIREMENTS

BARRIER SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE CENTERLINE TO ALLOW THE TRAFFIC TO USE THE NORMAL LANE WIDTH.

EDGELINES WILL HAVE TO BE REMOVED AND NEW EDGELINES APPLIED WHEN A 14' WIDTH CANNOT BE MAINTAINED BETWEEN POSITIVE BARRIER AND EXISTING EDGELINE.

REMOVAL AND PLACEMENT OF EDGELINE SHALL BEGIN 600 FEET IN ADVANCE AND BEYOND BARRIER PLACED ON TANGENT. NEW EDGELINES SHALL BE A MINIMUM OF TWO FEET FROM BARRIER. TRAVEL LANES SHALL BE 12 FEET WIDE.

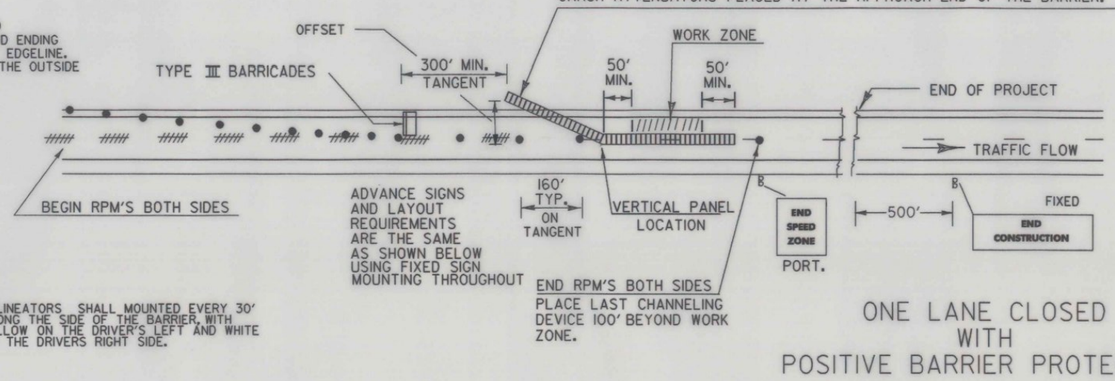
RAISED REFLECTORIZED PAVEMENT MARKERS (RPM'S) SHALL BE PLACED, AT 20 FT SPACING BEGINNING AND ENDING AS SHOWN BELOW. COLORS SHALL MATCH ADJACENT EDGELINE. THEY SHALL BE POSITIONED ADJACENT TO, BUT ON THE OUTSIDE EDGE OF THE EDGELINE.



12" X 36" VERTICAL PANEL TO BE INSTALLED AT END OF BARRIER TAPER. STRIPES SLOPE DOWNWARD TOWARD THE SIDE OF THE BARRIER ON WHICH TRAFFIC IS TO PASS. MOUNTING IS DETERMINED BY CONTRACTOR

DELINEATORS SHALL MOUNTED EVERY 30' ALONG THE SIDE OF THE BARRIER, WITH YELLOW ON THE DRIVER'S LEFT AND WHITE ON THE DRIVERS RIGHT SIDE.

'CONCRETE MEDIAN BARRIER'. PROVIDE A MINIMUM TAPER RATE OF 1:11, WITH A MINIMUM OF 50 FT. OF TANGENT SECTION ON EACH END OF THE WORK ZONE. THE END OF THE BARRIER FACING APPROACHING TRAFFIC SHALL MEET THE FOLLOWING REQUIREMENTS: WHEN NO GUARDRAIL IS PRESENT, USE 30' OFFSET FROM EDGE OF TRAVELLED WAY. WHEN STEEL BEAM RAIL IS PRESENT, THE APPROACH END OF BARRIER SHALL BE PLACED 4 FEET BEHIND STEEL BEAM RAIL USING A POSITIVE CONNECTION AS DETAILED IN PROJECT PLANS. ALL OTHER CONDITIONS REQUIRE CRASH ATTENUATORS PLACED AT THE APPROACH END OF THE BARRIER.

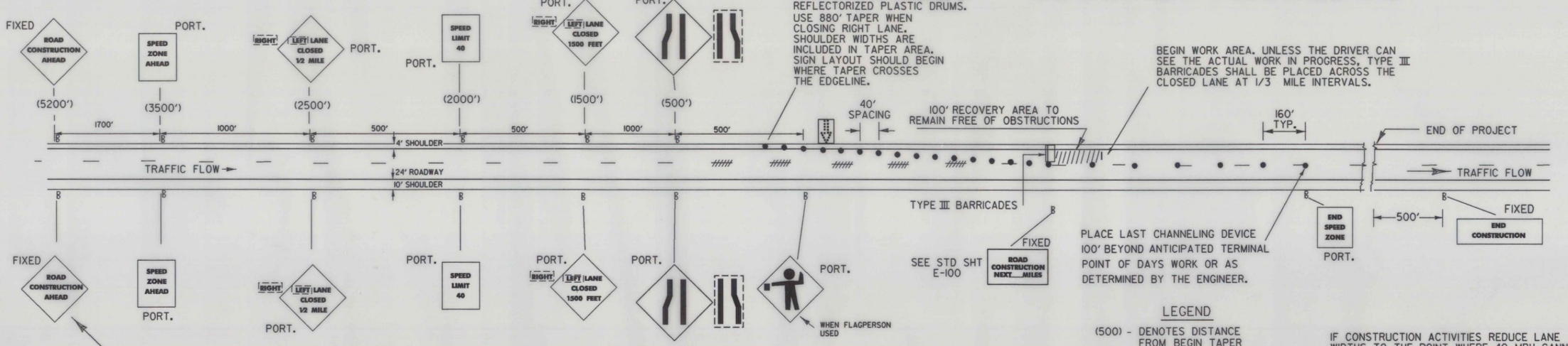


ONE LANE CLOSED WITH POSITIVE BARRIER PROTECTION

1. WHEN CONSTRUCTION EQUIPMENT IS WORKING AT OR NEAR THE EXIT OR ENTRANCE RAMPS, FLAGPERSONS OR UNIFORMED TRAFFIC CONTROL OFFICERS (UTO'S) SHALL BE USED TO ASSIST IN CONTROLLING TRAFFIC. LANE CLOSURE ADVANCE WARNING SIGNS SHALL BE INSTALLED ON ENTRANCE RAMPS.
2. ALL SIGNS SHALL BE PLACED BEFORE ANY WORK BEGINS OR EQUIPMENT IS PUT ON THE ROADWAY. SIGNS SHALL BE COVERED OR REMOVED WHEN NOT APPLICABLE, SEE STANDARD SHEET E-100 FOR REQUIREMENTS.
3. CONTRACTOR SHALL HAVE CHANNELIZING DEVICES AND SIGNS FOR LEFT SIDE CLOSURE AND RIGHT SIDE CLOSURE ON PROJECT BEFORE STARTING PROJECT.
4. PRIVATE VEHICLES SHALL NOT BE PARKED IN OR AROUND WORKING AREA. CONTRACTOR WILL PROVIDE PARKING FOR WORK CREW VEHICLES OFF PROJECT.
5. EXISTING SPEED LIMIT SIGNS SHALL BE COVERED WHEN REDUCED SPEED SIGNS ARE POSTED.
6. CHANNELIZING DEVICES OTHER THAN REFLECTORIZED PLASTIC DRUMS WILL BE ALLOWED ALONG TANGENT SECTIONS AS LONG AS THEY CONFORM TO THE M.U.T.C.D. AND ARE APPROVED BY THE RESIDENT ENGINEER.
7. REFER TO PROJECT "SPECIAL PROVISIONS" FOR SPEED ZONE ENACTMENT.
8. THE "SPEED LIMIT 40" AND OTHER RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN WORK IS NOT IN PROGRESS AND ROADWAY IS NOT RESTRICTED.
9. THE FLASHING ARROW SHALL BE MOUNTED ON A BREAKAWAY OR YIELDING SYSTEM. PLACEMENT AT THE START OF THE TAPER IS PREFERRED TO PLACEMENT IN THE MIDDLE OF THE TAPER. THE FLASHING ARROW BOARD SHALL BE EQUIPPED WITH AN AUTOMATIC DIMMER FOR NIGHTIME USE, AND SHALL BE DIMMED AT NIGHT. CONTROL BOX SHALL BE KEPT LOCKED.
10. "REDUCED SPEED AHEAD" SIGNS MAY BE USED IN LIEU OF "SPEED ZONE AHEAD".
11. THE SIGNS "LOW SHOULDER", "BUMP", "MOTORCYCLE" SYMBOL, "PAVEMENT CHANGE" AND OTHER RELATED SIGNS ARE TO BE USED AND PLACED AS DIRECTED BY THE RESIDENT ENGINEER.
12. ALL FIXED SIGNS SHALL BE MOUNTED ON YIELDING STEEL OR ALUMINUM SUPPORT AS SHOWN ON STANDARD SHEETS E-160 AND E-162.
13. PORTABLE SIGNS SHALL BE KEPT LEVEL WHEN PLACED ON THE EDGE OF ROADWAY AND ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED, PAYMENT SUBSIDIARY TO OTHER ITEMS. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACES SHALL BE PLACED ABOVE THE TOP OF THE GUARDRAIL.
14. WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES

BEGIN 640' TAPER FOR LEFT LANE. TAPER SHALL BE DELINEATED BY REFLECTORIZED PLASTIC DRUMS. USE 880' TAPER WHEN CLOSING RIGHT LANE. SHOULDER WIDTHS ARE INCLUDED IN TAPER AREA. SIGN LAYOUT SHOULD BEGIN WHERE TAPER CROSSES THE EDGELINE.

BEGIN WORK AREA. UNLESS THE DRIVER CAN SEE THE ACTUAL WORK IN PROGRESS, TYPE III BARRICADES SHALL BE PLACED ACROSS THE CLOSED LANE AT 1/3 MILE INTERVALS.



USE PORTABLE 'RIGHT OR LEFT LANE CLOSED 1 MILE' WHEN SIGN PACKAGE IS MOVED FORWARD.
SIGNS NOTED AS FIXED SHALL REMAIN IN PLACE THROUGH THE ENTIRE PROJECT.
SIGNS NOTED AS PORTABLE SHALL MOVE AS THE WORK AREA CHANGES.
ALL SIGNS SHALL BE REMOVED OR COVERED WHEN NOT NEEDED.

LEGEND

(500) - DENOTES DISTANCE FROM BEGIN TAPER
- FLASHING ARROW PANEL
- REFLECTORIZED PLASTIC DRUM
- PAVEMENT MARKING REMOVAL
- CONCRETE MEDIAN BARRIER
- TYPE III BARRICADE

IF CONSTRUCTION ACTIVITIES REDUCE LANE WIDTHS TO THE POINT WHERE 40 MPH CANNOT BE MAINTAINED, ADDITIONAL ADVISORY SPEED PLATE SIGNS SHALL BE INSTALLED UNDER THE LANE REDUCTION TRANSITION SIGN. FLAGPERSON AND U.T.O'S SHALL NOT BE ALLOWED TO INTERFERE WITH TRAFFIC BY STEPPING INTO THE LANE TO REDUCE DRIVER'S SPEED.

REVISIONS AND CORRECTIONS

APPROVED

OCT. 30, 1987
DATE

David B Kelley
CHIEF ENGINEER

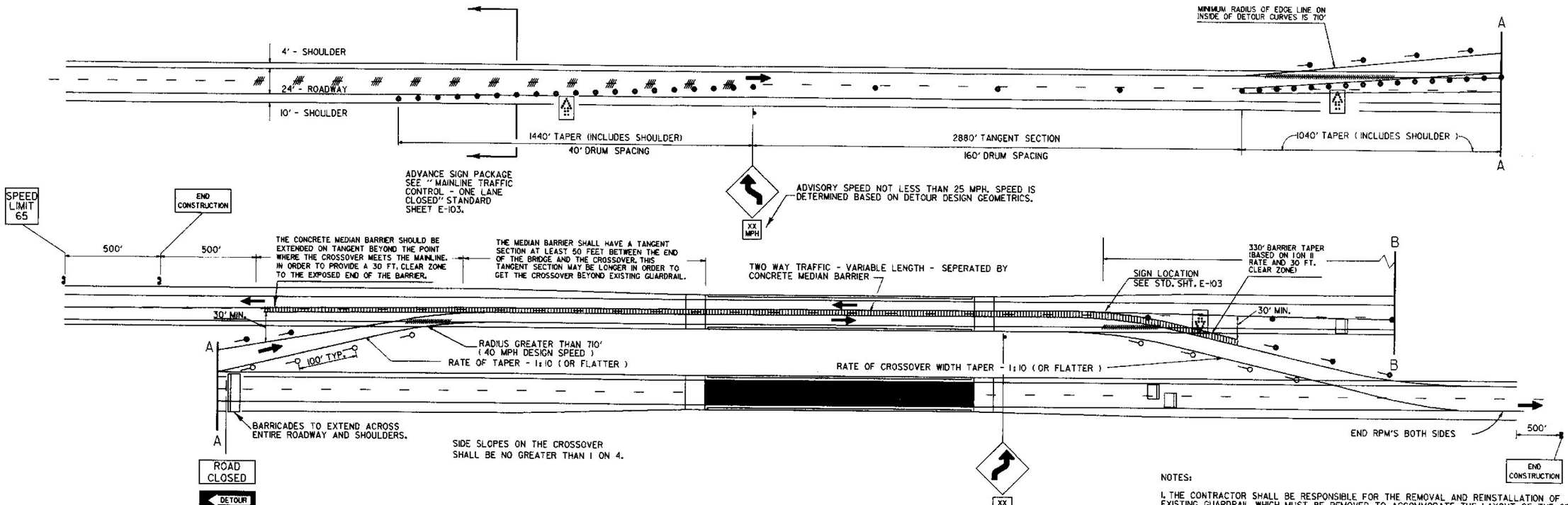
Arthur J GosS
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Lyndon R. MacArthur
TRAFFIC AND SAFETY ENGINEER

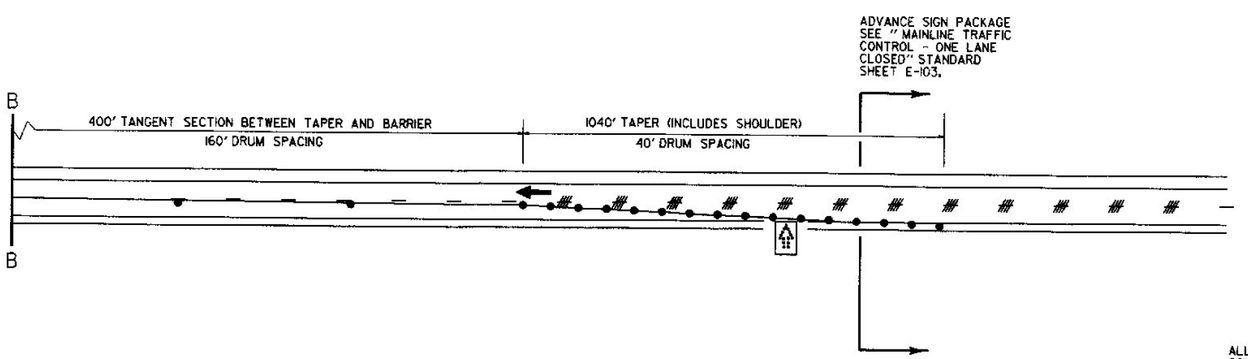
MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY
ONE LANE CLOSED

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-103



REFER TO STANDARD E-104A FOR DETAILS ON THE REMOVAL AND PLACEMENT OF PAVEMENT MARKINGS AND RPM'S AND THE METHODS OF PAYMENT FOR THESE ITEMS.



LEGEND

- TYPE III BARRICADES.
- FLASHING ARROW PANEL
- CONCRETE MEDIAN BARRIER
- PAVEMENT MARKING REMOVAL
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- FLOW OF TRAFFIC

ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REINSTALLATION OF EXISTING GUARDRAIL WHICH MUST BE REMOVED TO ACCOMMODATE THE LAYOUT OF THE CROSSOVER. WHEN TRAFFIC IS REQUIRED TO TRAVEL "AGAINST" THE OVERLAP OF THE EXISTING GUARDRAIL, THE RAIL SHALL BE REMOVED AND REASSEMBLED WITH THE LAP CHANGE TO GO "WITH" THE FLOW OF TRAFFIC. IT SHALL BE RETURNED TO ITS ORIGINAL LAP WHEN THE LANE IS AGAIN OPENED TO THE ORIGINAL DIRECTION OF TRAVEL. COST TO DO THIS WORK SHALL BE CONSIDERED A PART OF ITEM 641.10 - TRAFFIC CONTROL, UNLESS OTHERWISE NOTED ON THE PLANS.

2. THE DETOUR SHALL BE PAVED TO A DEPTH OF 2" AND A WIDTH OF 16'. THE PAVEMENT SHALL BE PAID UNDER ITEM 406.25 - BIT CONCRETE PAVEMENT. ALL OTHER COSTS ASSOCIATED WITH THE CONSTRUCTION OF THE CROSSOVER, INCLUDING FILL MATERIAL AND RESTORING THE AREA TO ITS ORIGINAL CONDITION, SHALL BE CONSIDERED A PART OF "TRAFFIC CONTROL." THE MATERIAL USED FOR FILL SHALL BE SUITABLE FOR THE ADEQUATE SUPPORT OF TRAFFIC AND SHALL BE APPROVED BY THE RESIDENT ENGINEER PRIOR TO PLACEMENT. THE CONTRACTOR SHALL BE RESPONSIBLE TO PATCH, FILL AND REPAIR ANY POTHOLES, RUTS, CRACKS, ETC. WHICH OCCUR IN THE CROSSOVER SURFACE DURING ITS USE.

3. SIGNING, FLASHING ARROW BOARDS, DRUMS, DELINEATORS, TYPE III BARRICADES AND CROSSOVER CONSTRUCTION AS OUTLINED ON THIS SHEET AND STD. E-103 SHALL BE CONSIDERED A PART OF "TRAFFIC CONTROL".

4. THE CONCRETE MEDIAN BARRIER SHALL BE PAID PER LINEAR FOOT UNDER ITEM 621.90 - TEMPORARY TRAFFIC BARRIER.

5. ADDITIONAL CONCRETE MEDIAN BARRIER MAY BE REQUIRED FOR THE DETOUR CROSSOVER ON THE DRIVER'S RIGHT SIDE BASED ON FIELD CONDITIONS.

6. ALL SIGNS SHALL BE IN LIKE NEW CONDITION, AS DETERMINED BY THE RESIDENT ENGINEER, AND GROUND MOUNTED ON YIELDING METAL SUPPORTS PER APPROPRIATE STANDARDS. SIGNS SHALL BE INSTALLED PLUMB AND AT RIGHT ANGLES TO THE HIGHWAY.

NOTE : STANDARD E-104A IS TO BE USED WITH THIS SHEET.

REVISIONS AND CORRECTIONS

JAN. 23, 1989 - CREATED STD. E - 104A FOR PM AND RPM'S, CHANGE TO 65 M.P.H. TAPER RATES.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

OCT. 30, 1987
DATE

David B Kelley
CHIEF ENGINEER

Arthur Ross
DIRECTOR OF PLANNING AND PRECONSTRUCTION

Gordon S. MacArthur
TRAFFIC AND SAFETY ENGINEER

MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY ONE ROADWAY CLOSED

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-104

POSTED SPEED OR 85TH PERCENTILE MPH	MERGING TAPER 12' LANE (L)	TANGENT SECTION (1/2 L)	SHIFTING TAPER W = 16' (1/2 L)	SHOULDER TAPER W = 10' (1/3 L)	RADIUS (NO SUPERELEVATION) (PER AASHTO STD.)	BARRIER TAPER RATE
40	320'	160'	215'	90'	710'	9 TO 1
45	540'	270'	360'	150'	930'	-
50	600'	300'	400'	170'	1200'	11 TO 1
55	660'	330'	440'	190'	1500'	-
60	720'	360'	480'	200'	1900'	13 TO 1
65	780'	390'	520'	220'	2300'	-

MERGING AND SHIFTING TAPER LENGTHS FOR WIDTHS OTHER THAN SHOWN IN THE TABLE

TAPER FORMULA :

$L = S \times W$ FOR SPEEDS OF 45 OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS AT 40 OR LESS.

WHERE :

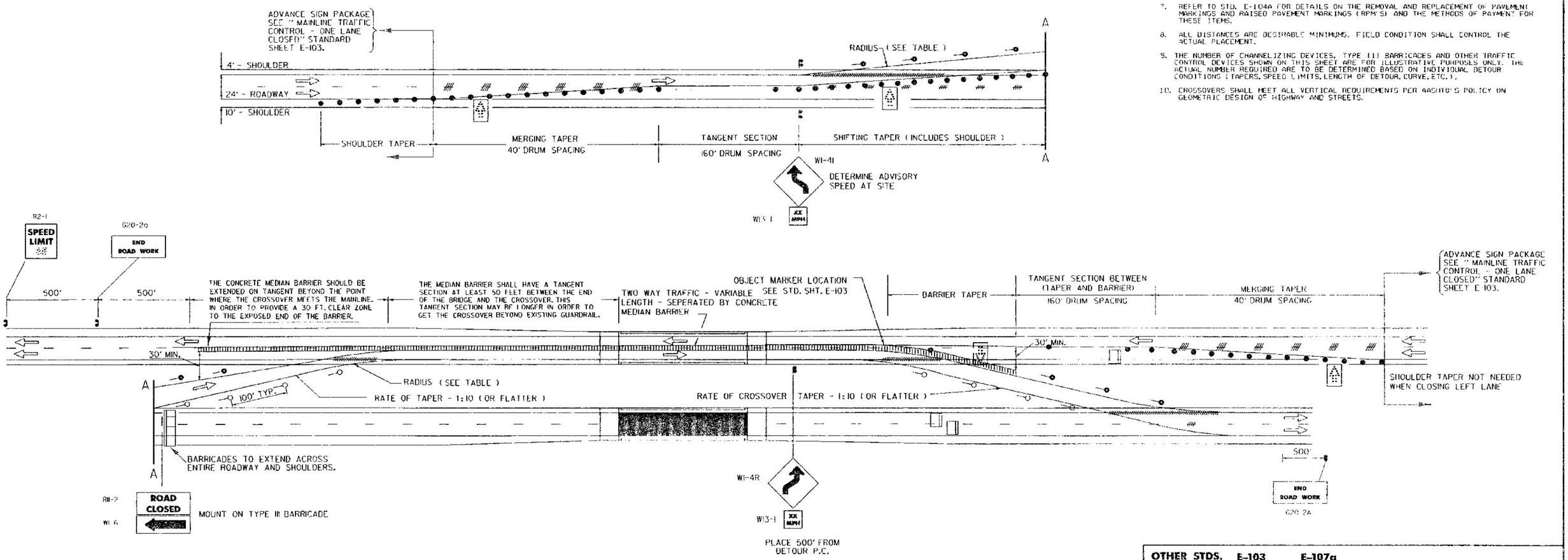
L = MINIMUM LENGTH OF TAPER
S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W = WIDTH OF OFFSET.

LEGEND

- TYPE III BARRICADES.
- FLASHING ARROW PANEL
- CONCRETE MEDIAN BARRIER
- PAVEMENT MARKING REMOVAL
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- FLOW OF TRAFFIC

NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REINSTALLATION OF EXISTING GUARDRAIL WHICH MUST BE REMOVED TO ACCOMMODATE THE LAYOUT OF THE CROSSOVER. WHEN TRAFFIC IS REQUIRED TO TRAVEL "AGAINST" THE OVERLAP OF THE EXISTING GUARDRAIL, THE RAIL SHALL BE REMOVED AND REASSEMBLED WITH THE LAP CHANGE TO GO "WITH" THE FLOW OF TRAFFIC. IT SHALL BE RETURNED TO ITS ORIGINAL LAP WHEN THE LANE IS AGAIN OPENED TO THE ORIGINAL DIRECTION OF TRAVEL. COST TO DO THIS WORK SHALL BE CONSIDERED A PART OF "TRAFFIC CONTROL", UNLESS OTHERWISE NOTED ON THE PLANS.
2. THE DETOUR SHALL BE PAVED TO A DEPTH OF 2" AND A WIDTH OF 16'. PAVEMENT SHALL BE PAID UNDER "BITUMINOUS CONCRETE PAVEMENT". ALL OTHER COSTS ASSOCIATED WITH THE CONSTRUCTION AND MAINTENANCE OF THE CROSSOVER, INCLUDING FILL MATERIAL AND RESTORING THE AREA TO ITS ORIGINAL CONDITION, SHALL BE CONSIDERED A PART OF "TRAFFIC CONTROL". THE MATERIAL USED FOR FILL SHALL BE SUITABLE FOR THE ADEQUATE SUPPORT OF TRAFFIC AND SHALL BE APPROVED BY THE RESIDENT ENGINEER PRIOR TO PLACEMENT. THE CONTRACTOR SHALL BE RESPONSIBLE TO PATCH, FILL AND REPAIR ANY POT HOLES, RUTS, CRACKS, ETC. WHICH MAY OCCUR IN THE CROSSOVER SURFACE DURING ITS USE.
3. SIGNING, FLASHING ARROW PANELS, DRUMS, DELINEATORS, TYPE III BARRICADES AND CROSSOVER CONSTRUCTION AS OUTLINED ON THIS SHEET AND STD. E-103 SHALL BE CONSIDERED A PART OF "TRAFFIC CONTROL".
4. ADDITIONAL CONCRETE MEDIAN BARRIER WILL BE REQUIRED FOR THE DETOUR CROSSOVER BASED ON FIELD CONDITIONS TO PROTECT MOTORISTS FROM FIXED OBJECTS, SUCH AS LEDGE OUTCROPPINGS, WITHIN A 30 FOOT CLEAR ZONE.
5. ALL SIGNS SHALL BE IN LIKE NEW CONDITION, AS DETERMINED BY THE RESIDENT ENGINEER, AND GROUND MOUNTED ON YIELDING SUPPORTS PER APPROPRIATE STANDARDS.
6. SIDE SLOPES ON THE CROSSOVER SHALL BE NO GREATER THAN 1 ON 4.
7. REFER TO STD. E-104A FOR DETAILS ON THE REMOVAL AND REPLACEMENT OF PAVEMENT MARKINGS AND RAISED PAVEMENT MARKINGS (RPM'S) AND THE METHODS OF PAYMENT FOR THESE ITEMS.
8. ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.
9. THE NUMBER OF CHANNELIZING DEVICES, TYPE III BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR, CURVE, ETC.).
10. CROSSOVERS SHALL MEET ALL VERTICAL REQUIREMENTS PER AASHTO'S POLICY ON GEOMETRIC DESIGN OF HIGHWAY AND STREETS.



OTHER STDS. REQUIRED: E-103 E-107a E-104a

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - CREATED STD. E-104A FOR PM AND RPM'S. CHANGE TO 65 M.P.H. TAPER RATES.
OCT. 21, 1992 - ADDED TAPER RATE TABLE & REVISED TITLE BLOCK
AUG. 08, 1995 - REVISED SHIFTING TAPER PER M.U.T.C.D. - REV. 3 1993

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY ONE ROADWAY CLOSED

/traf/std/stde104.dgn : stde104.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-104

POSTED SPEED OR 85TH PERCENTILE MPH	MERGING TAPER 12' LANE (L)	TANGENT SECTION (1/2 L)	SHIFTING TAPER W = 16' (1/2 L)	SHOULDER TAPER W = 10' (1/3 L)	RADIUS (NO SUPERELEVATION) (PER AASHTO STD.)	BARRIER TAPER RATE
40	320'	160'	215'	90'	710'	9 TO 1
45	540'	270'	360'	150'	930'	-
50	600'	300'	400'	170'	1200'	11 TO 1
55	660'	330'	440'	190'	1500'	-
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65	780'	390'	520'	220'	2300'	-

MERGING AND SHIFTING TAPER LENGTHS FOR WIDTHS OTHER THAN SHOWN IN THE TABLE

TAPER FORMULA :

$L = S \times W$ FOR SPEEDS OF 45 OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS AT 40 OR LESS.

WHERE :

L = MINIMUM LENGTH OF TAPER
S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W = WIDTH OF OFFSET.

LEGEND

- TYPE III BARRICADES.
- FLASHING ARROW PANEL
- CONCRETE MEDIAN BARRIER
- PAVEMENT MARKING REMOVAL
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- FLOW OF TRAFFIC

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1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REINSTALLATION OF EXISTING GUARDRAIL WHICH MUST BE REMOVED TO ACCOMMODATE THE LAYOUT OF THE CROSSOVER. WHEN TRAFFIC IS REQUIRED TO TRAVEL ''AGAINST'' THE OVERLAP OF THE EXISTING GUARDRAIL, THE RAIL SHALL BE REMOVED AND REASSEMBLED WITH THE LAP CHANGE TO GO ''WITH'' THE FLOW OF TRAFFIC. IT SHALL BE RETURNED TO ITS ORIGINAL LAP WHEN THE LANE IS AGAIN OPENED TO THE ORIGINAL DIRECTION OF TRAVEL. COST TO DO THIS WORK SHALL BE CONSIDERED A PART OF ''TRAFFIC CONTROL'', UNLESS OTHERWISE NOTED ON THE PLANS.
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3. SIGNING, FLASHING ARROW PANELS, DRUMS, DELINEATORS, TYPE III BARRICADES AND CROSSOVER CONSTRUCTION AS OUTLINED ON THIS SHEET AND STD. E-103 SHALL BE CONSIDERED A PART OF ''TRAFFIC CONTROL''.
4. ADDITIONAL CONCRETE MEDIAN BARRIER WILL BE REQUIRED FOR THE DETOUR CROSSOVER BASED ON FIELD CONDITIONS TO PROTECT MOTORISTS FROM FIXED OBJECTS, SUCH AS LEDGE OUTCROPPINGS, WITHIN A 30 FOOT CLEAR ZONE.
5. ALL SIGNS SHALL BE IN LIKE NEW CONDITION, AS DETERMINED BY THE RESIDENT ENGINEER, AND GROUND MOUNTED ON YIELDING SUPPORTS PER APPROPRIATE STANDARDS.
6. SIDE SLOPES ON THE CROSSOVER SHALL BE NO GREATER THAN 1 ON 4.
7. REFER TO STD. E-104A FOR DETAILS ON THE REMOVAL AND REPLACEMENT OF PAVEMENT MARKINGS AND RAISED PAVEMENT MARKINGS (RPM'S) AND THE METHODS OF PAYMENT FOR THESE ITEMS.
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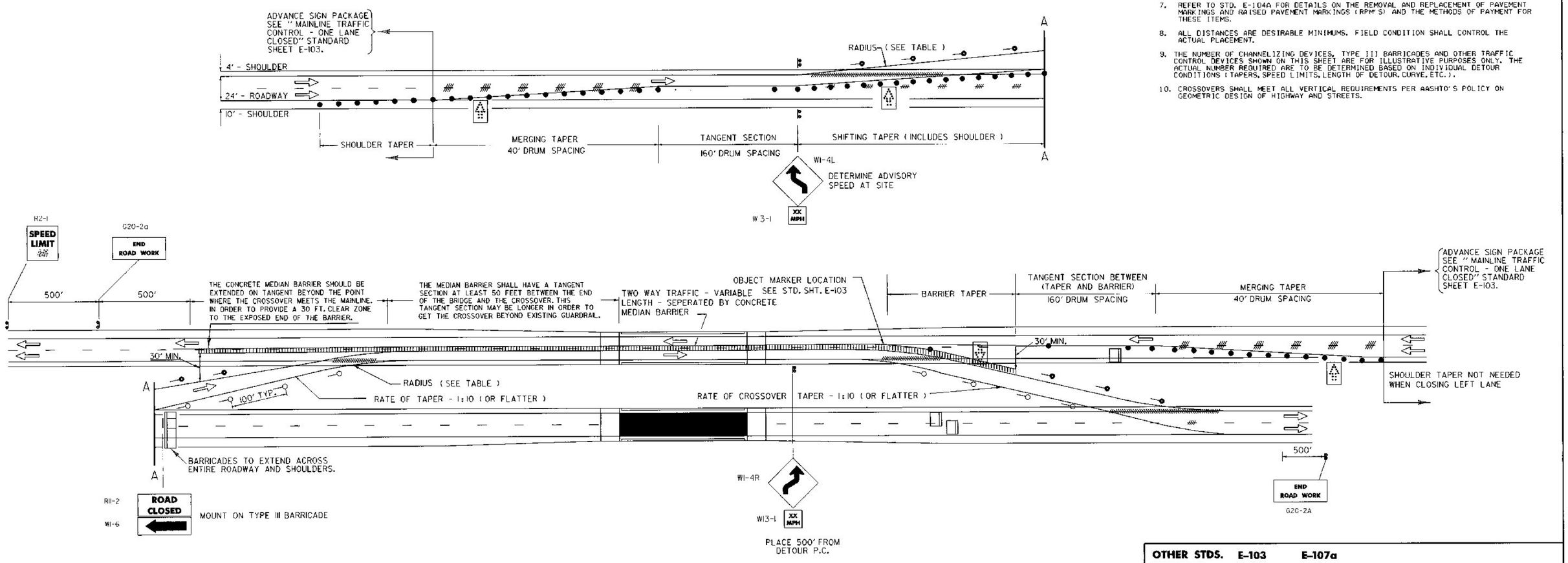
10. CROSSOVERS SHALL MEET ALL VERTICAL REQUIREMENTS PER AASHTO'S POLICY ON GEOMETRIC DESIGN OF HIGHWAY AND STREETS.



OTHER STDS. REQUIRED: E-103 E-104a E-107a

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - CREATED STD. E-104A FOR PM AND RPM'S, CHANGE TO 65 M.P.H. TAPER RATES.
OCT. 21, 1992 - ADDED TAPER RATE TABLE & REVISED TITLE BLOCK
AUG. 08, 1995 REVISED SHIFTING TAPER PER M.U.T.C.D. - REV. 3 1993

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY ONE ROADWAY CLOSED

/trof/std/std104.dgn : std104.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-104

POSTED SPEED OR 85TH PERCENTILE MPH	MERGING TAPER 12' LANE	TANGENT SECTION	SHIFTING TAPER W = 16'	SHOULDER TAPER W = 10'	RADIUS (NO SUPERELEVATION) (PER AASHTO STD.)	BARRIER TAPER RATE
40	320'	160'	430'	90'	710'	9 TO 1
45	540'	270'	720'	150'	930'	-
50	600'	300'	800'	170'	1200'	11 TO 1
55	660'	330'	880'	190'	1500'	-
60	720'	360'	960'	200'	1900'	13 TO 1
65	780'	390'	1040'	220'	2300'	-

MERGING AND SHIFTING TAPER LENGTHS FOR WIDTHS OTHER THAN SHOWN IN THE TABLE

TAPER FORMULA :

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$L = \frac{WS^2}{60}$ FOR SPEEDS AT 40 OR LESS.

WHERE :

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W = WIDTH OF OFFSET.

LEGEND

- TYPE III BARRICADES.
- FLASHING ARROW PANEL
- CONCRETE MEDIAN BARRIER
- PAVEMENT MARKING REMOVAL
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- FLOW OF TRAFFIC

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1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REINSTALLATION OF EXISTING GUARDRAIL WHICH MUST BE REMOVED TO ACCOMMODATE THE LAYOUT OF THE CROSSOVER. WHEN TRAFFIC IS REQUIRED TO TRAVEL ''AGAINST'' THE OVERLAP OF THE EXISTING GUARDRAIL, THE RAIL SHALL BE REMOVED AND REASSEMBLED WITH THE LAP CHANGE TO GO ''WITH'' THE FLOW OF TRAFFIC. IT SHALL BE RETURNED TO ITS ORIGINAL LAP WHEN THE LANE IS AGAIN OPENED TO THE ORIGINAL DIRECTION OF TRAVEL. COST TO DO THIS WORK SHALL BE CONSIDERED A PART OF ''TRAFFIC CONTROL''. UNLESS OTHERWISE NOTED ON THE PLANS.
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4. ADDITIONAL CONCRETE MEDIAN BARRIER WILL BE REQUIRED FOR THE DETOUR CROSSOVER BASED ON FIELD CONDITIONS TO PROTECT MOTORISTS FROM FIXED OBJECTS, SUCH AS LEDGE OUTCROPPINGS, WITHIN A 30 FOOT CLEAR ZONE.
5. ALL SIGNS SHALL IN LIKE NEW CONDITION, AS DETERMINED BY THE RESIDENT ENGINEER, AND GROUND MOUNTED ON YIELDING SUPPORTS PER APPROPRIATE STANDARDS.
6. SIDE SLOPES ON THE CROSSOVER SHALL BE NO GREATER THAN 1 ON 4.
7. REFER TO STD. E-104A FOR DETAILS ON THE REMOVAL AND REPLACEMENT OF PAVEMENT MARKINGS AND RAISED PAVEMENT MARKINGS (RPM'S) AND THE METHODS OF PAYMENT FOR THESE ITEMS.
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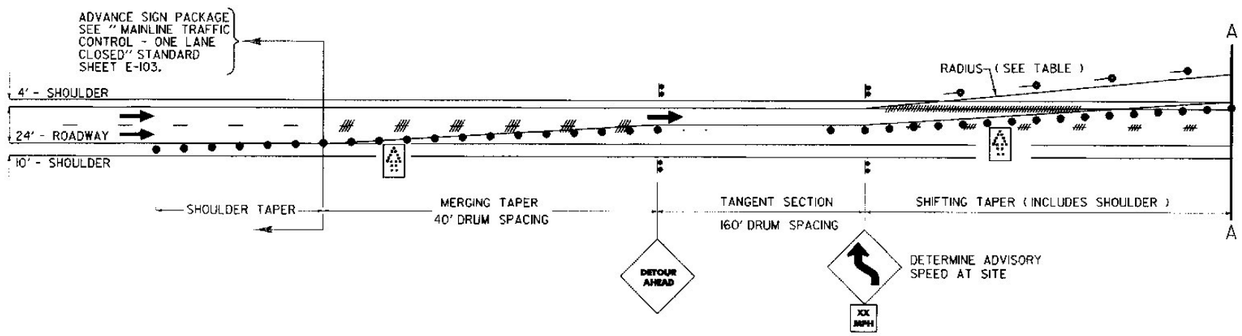
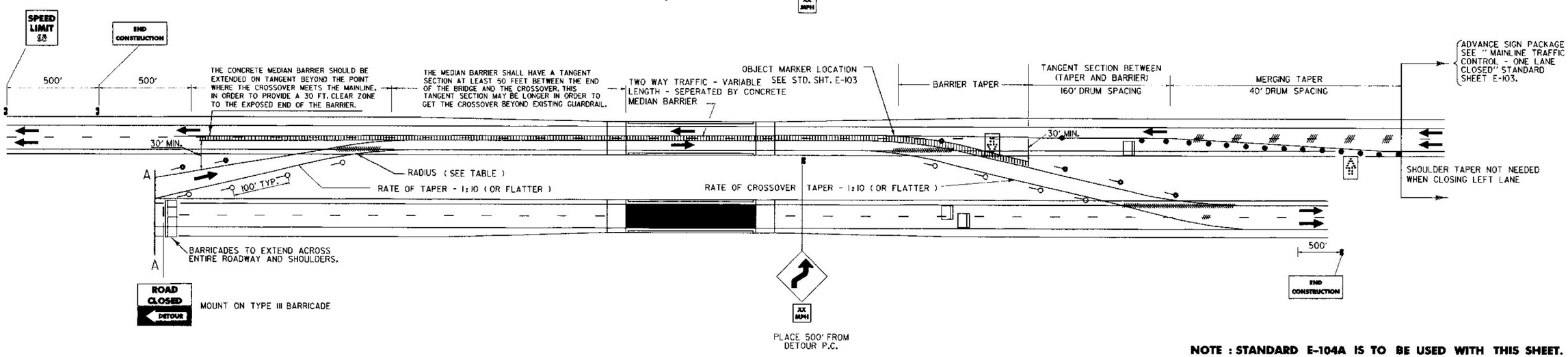
10. CROSSOVERS SHALL MEET ALL VERTICAL REQUIREMENTS PER AASHTO'S POLICY ON GEOMETRIC DESIGN OF HIGHWAY AND STREETS.





NOTE : STANDARD E-104A IS TO BE USED WITH THIS SHEET.

REVISIONS AND CORRECTIONS

JAN. 23, 1989 - CREATED STD. E - 104A FOR PM AND RPM'S, CHANGE TO 65 M.P.H. TAPER RATES.

OCT 21, 1992 - ADDED TAPER RATE TABLE & REVISED TITLE BLOCK

APPROVED OCT. 30 , 1987
DATE

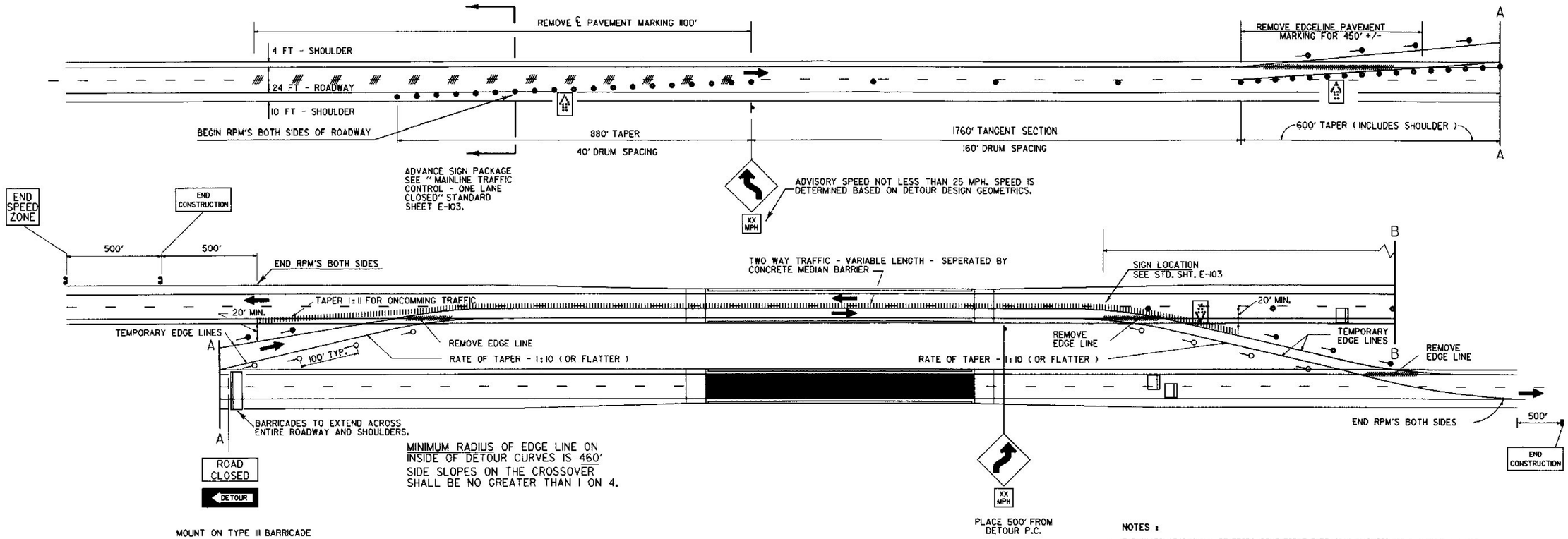
Gordon H. MacArthur
DIRECTOR OF ENGINEERING

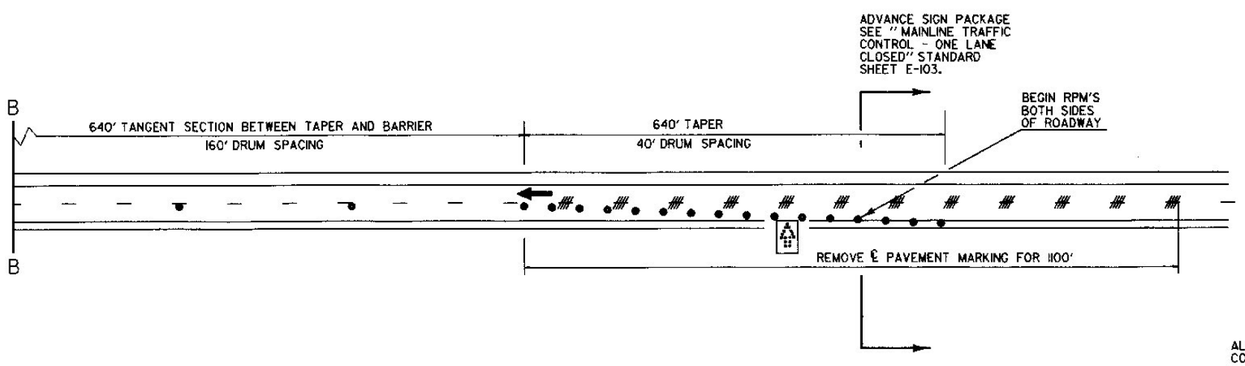
David A. Ross
TRAFFIC AND SAFETY ENGINEER

MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY ONE ROADWAY CLOSED

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-104





LEGEND

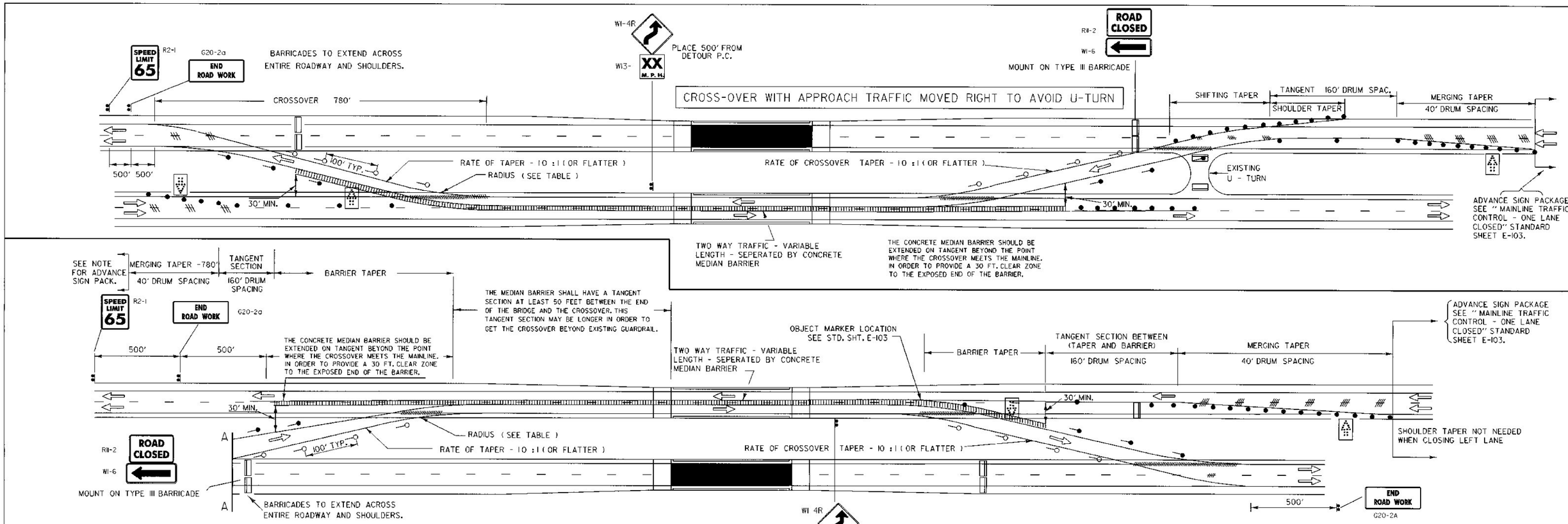
- TYPE III BARRICADES.
- FLASHING ARROW PANEL
- CONCRETE MEDIAN BARRIER
- PAVEMENT MARKING REMOVAL
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)

ALL DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.

NOTES :

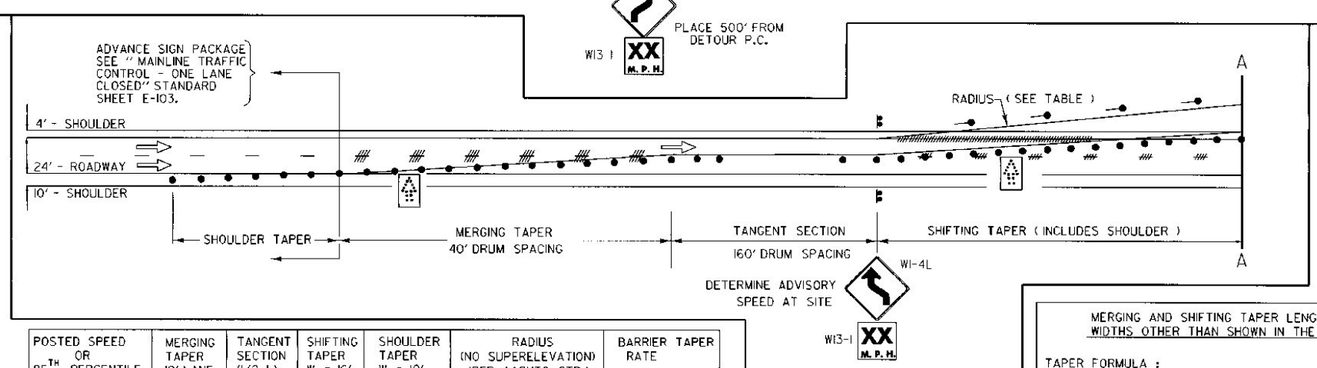
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF EXISTING GUARDRAIL AND/OR NEW GUARDRAIL INSTALLED AS DIRECTED BY THE ENGINEER AND THE REPAIR OR REQUIRED CLEANING OF ANY MEDIAN DRAINAGE SYSTEM DAMAGED AS A RESULT OF THE DETOUR PLACEMENT.
2. THE DETOUR SHALL BE PAVED TO A DEPTH OF 2" AND A WIDTH OF 16'. PAVEMENT SHALL BE PAID UNDER ITEM 406.25-BIT. CONCRETE PAVEMENT.
3. SIGNS, MARKINGS, MARKING REMOVALS, STREET LIGHTING (IF UTILIZED) AND DETOUR CONSTRUCTION SHALL BE SUBSIDIARY TO ITEM 641.10-TRAFFIC CONTROL,UNLESS OTHERWISE SPECIFIED.
4. BARRIER PLACEMENT TO BE PAID PER LINEAR FOOT UNDER ITEM 621.90-TEMPORARY TRAFFIC BARRIER.
5. THE RATE OF CROSSOVER TAPER SHALL BE NO GREATER THAN 1' IN 10', UNLESS OTHERWISE SPECIFIED.
6. NO PAINT WILL BE ALLOWED FOR TEMPORARY DETOUR MARKINGS. PAVEMENT MARKING MATERIAL SHALL BE PRESSURE SENSITIVE TAPE. PAVEMENT MARKING EDGE LINE TRANSITIONS SHALL BE SMOOTH AND CONTINUOUS WITH THE EXISTING EDGE LINES. REMOVAL OF PORTIONS OF EXISTING CENTER AND EDGE LINES IS REQUIRED.
7. ALL SIGNS SHALL BE NEW AND ALL GROUND MOUNTED SIGNS SHALL BE MOUNTED ON YIELDING METAL SUPPORTS PER STANDARDS E-160 AND E-162. SIGN INSTALLATIONS MUST BE PLUMB AND AT RIGHT ANGLES TO THE HIGHWAY.
8. CHANNELIZING DEVICES SHALL CONSIST OF REFLECTORIZED PLASTIC DRUMS WITH ENCAPSULATED LENS REFLECTIVE SHEETING.
9. RAISED REFLECTORIZED PAVEMENT MARKERS (RPM'S) SHALL BE PLACED, AT 20 FT SPACING, AS INDICATED. COLORS SHALL MATCH ADJACENT EDGELINE. THEY SHALL BE POSITIONED ADJACENT TO, BUT ON THE OUTSIDE EDGE OF THE EDGELINE.
10. ADDITIONAL CONCRETE MEDIAN BARRIER MAY BE REQUIRED ON THE DETOUR CROSSOVER ON THE DRIVERS RIGHT SIDE, BASED ON FIELD CONDITIONS.

REVISIONS AND CORRECTIONS	APPROVED	OCT. 30, 1987 DATE David B. Kelley CHIEF ENGINEER Arthur Gore DIRECTOR OF PLANNING AND PRE-CONSTRUCTION Gordon L. MacArthur TRAFFIC AND SAFETY ENGINEER	MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY ONE ROADWAY CLOSED	VERMONT AGENCY OF TRANSPORTATION	STANDARD E-104



NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REINSTALLATION OF EXISTING GUARDRAIL WHICH MUST BE REMOVED TO ACCOMODATE THE LAYOUT OF THE CROSSOVER. WHEN TRAFFIC IS REQUIRED TO TRAVEL AGAINST THE OVERLAP OF THE EXISTING GUARDRAIL, THE RAIL SHALL BE REMOVED AND REASSEMBLED WITH THE LAP CHANGE TO GO WITH THE FLOW OF TRAFFIC. IT SHALL BE RETURNED TO ITS ORIGINAL LAP WHEN THE LANE IS AGAIN OPENED TO THE ORIGINAL DIRECTION OF TRAVEL. COST TO DO THIS WORK SHALL BE CONSIDERED A PART OF TRAFFIC CONTROL, UNLESS OTHERWISE NOTED ON THE PLANS.
2. THE DETOUR SHALL BE PAVED TO A DEPTH OF 2" AND A WIDTH OF 16'. PAVEMENT SHALL BE PAID UNDER BITUMINOUS CONCRETE PAVEMENT. ALL OTHER COSTS ASSOCIATED WITH THE CONSTRUCTION AND MAINTENANCE OF THE CROSSOVER, INCLUDING FILL MATERIAL AND RESTORING THE AREA TO ITS ORIGINAL CONDITION, SHALL BE CONSIDERED A PART OF TRAFFIC CONTROL. THE MATERIAL USED FOR FILL SHALL BE SUITABLE FOR THE ADEQUATE SUPPORT OF TRAFFIC AND SHALL BE APPROVED BY THE RESIDENT ENGINEER PRIOR TO PLACEMENT. THE CONTRACTOR SHALL BE RESPONSIBLE TO PATCH, FILL AND REPAIR ANY POT HOLES, RUTS, CRACKS, ETC., WHICH MAY OCCUR IN THE CROSSOVER SURFACE DURING ITS USE.
3. SIGNS, FLASHING ARROW PANELS, DRUMS, DELINEATORS, TYPE III BARRICADES, AND CROSSOVER CONSTRUCTION AS OUTLINED ON THIS SHEET AND STANDARD E-103 SHALL BE CONSIDERED A PART OF TRAFFIC CONTROL.
4. ADDITIONAL CONCRETE MEDIAN BARRIER WILL BE REQUIRED FOR THE DETOUR CROSSOVER BASED ON FIELD CONDITIONS TO PROTECT MOTORISTS FROM FIXED OBJECTS, SUCH AS LEDGE OUTCROPPINGS, WITHIN A 30 FOOT CLEAR ZONE.
5. ALL SIGNS SHALL BE IN LIKE NEW CONDITION, AS DETERMINED BY THE RESIDENT ENGINEER, AND GROUND MOUNTED ON YIELDING SUPPORTS AS PER APPROPRIATE STANDARDS.
6. SIDE SLOPES ON THE CROSSOVER SHALL BE NO GREATER THAN 1 ON 4.
7. REFER TO STANDARD E-104A FOR DETAILS ON THE REMOVAL AND REPLACEMENT OF PAVEMENT MARKINGS AND RAISED PAVEMENT MARKINGS (RPM'S) AND THE METHODS OF PAYMENT FOR THESE ITEMS.
8. ALL DISTANCES ARE DESIREABLE MINIMUMS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
9. THE NUMBER OF CHANNELIZING DEVICES, TYPE III BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED IS TO BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR, CURVE, ETC.).
10. CROSSOVERS SHALL MEET ALL VERTICAL REQUIREMENTS PER AASHTO'S POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS.



POSTED SPEED OR 85TH PERCENTILE MPH	MERGING TAPER 12' LANE (L)	TANGENT SECTION (1/2 L)	SHIFTING TAPER W = 16' (1/2 L)	SHOULDER TAPER W = 10' (1/3 L)	RADIUS (NO SUPERELEVATION) (PER AASHTO STD.)	BARRIER TAPER RATE
40	320'	160'	215'	90'	710'	9 TO 1
45	540'	270'	360'	150'	930'	-
50	600'	300'	400'	170'	1200'	11 TO 1
55	660'	330'	440'	190'	1500'	-
60	720'	360'	480'	200'	1900'	13 TO 1
65	780'	390'	520'	220'	2300'	-

THE CONCRETE MEDIAN BARRIER SHOULD BE EXTENDED ON TANGENT BEYOND THE POINT WHERE THE CROSSOVER MEETS THE MAINLINE. IN ORDER TO PROVIDE A 30 FT. CLEAR ZONE TO THE EXPOSED END OF THE BARRIER.

LEGEND

- TYPE III BARRICADES.
- FLASHING ARROW PANEL
- CONCRETE MEDIAN BARRIER
- PAVEMENT MARKING REMOVAL
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- FLOW OF TRAFFIC

MERGING AND SHIFTING TAPER LENGTHS FOR WIDTHS OTHER THAN SHOWN IN THE TABLE

TAPER FORMULA :

$L = S \times W$ FOR SPEEDS OF 45 MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS AT 40 MPH OR LESS.

WHERE :

L = MINIMUM LENGTH OF TAPER
S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W = WIDTH OF OFFSET.

OTHER STDS. REQUIRED: E-103 E-104a E-107a

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - CREATED STD. E-104A FOR PM AND RPM'S. CHANGE TO 65 M.P.H. TAPER RATES.
OCT. 21, 1992 - ADDED TAPER RATE TABLE & REVISED TITLE BLOCK
AUG. 08, 1995 - REVISED SHIFTING TAPER PER M.U.T.C.D. - REV. 3 1993
DEC. 31, 1996 - ADDED X-OVER WHICH MOVES TRAFFIC RIGHT TO AVOID U-TURN.

APPROVED

DIRECTOR OF ENGINEERING

DIRECTOR OF CONSTRUCTION & MAINTENANCE

MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY ONE ROADWAY CLOSED

/traf/std/stdel04.dgn : stdel04.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-104

NOTES

1) THIS SHEET IS INTENDED TO BE USED WITH STD. E-104 AND REQUIRES STD. E-103 FOR ADVANCE SIGNING.

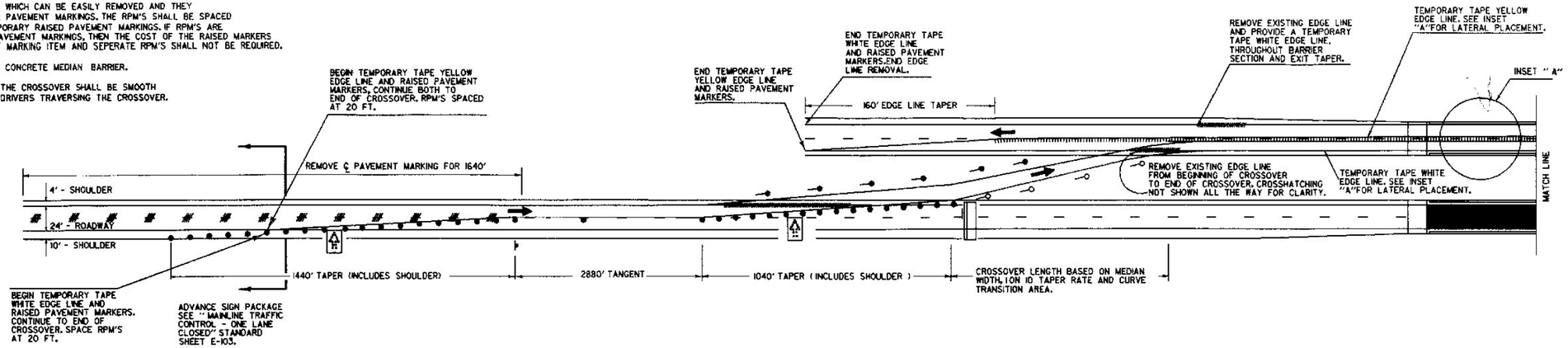
2) THE TEMPORARY TAPE PAVEMENT MARKINGS SHALL BE OF A TYPE WHICH CAN BE COMPLETELY REMOVED AFTER THE PROJECT IS COMPLETED, WITHOUT SCARRING OR MARKING THE PAVEMENT SURFACE. PAYMENT FOR THE TAPE MARKINGS SHALL BE UNDER THE APPROPRIATE ITEM NUMBERS.

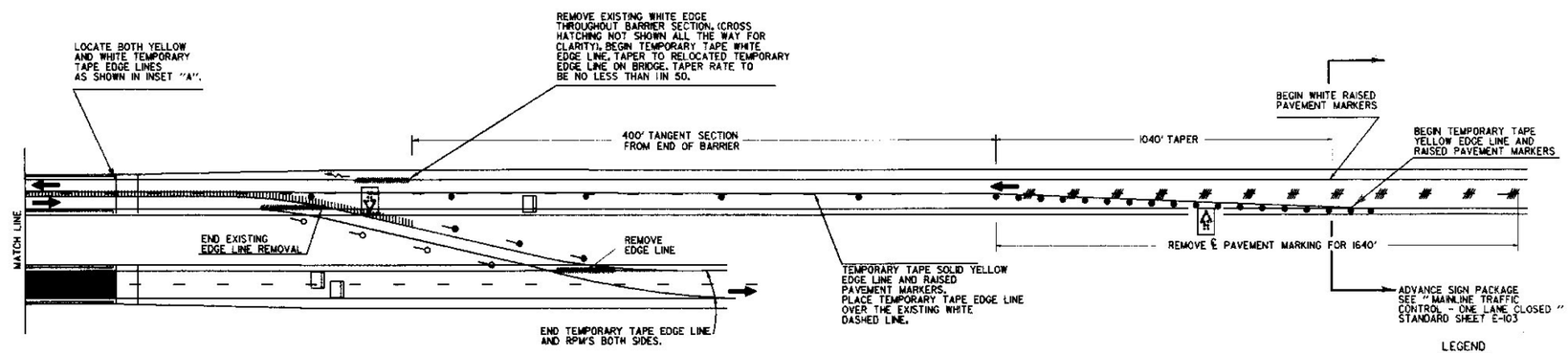
3) PAVEMENT MARKING REMOVALS SHALL BE PAID UNDER THE APPROPRIATE ITEM NUMBER. TEMPORARY TAPE REMOVAL IS NOT PAID UNDER THE REMOVAL ITEM, IT IS SUBSIDIARY TO THE TAPE ITEM.

4) THE RAISED PAVEMENT MARKINGS (RPMS) SHALL BE OF A TYPE WHICH CAN BE EASILY REMOVED AND THEY SHALL BE PLACED TO THE OUTSIDE OF THE TEMPORARY TAPE PAVEMENT MARKINGS. THE RPM'S SHALL BE SPACED AT 20 FT. THE RPM'S ARE TO BE PAID UNDER THE ITEM TEMPORARY RAISED PAVEMENT MARKINGS. IF RPM'S ARE INCLUDED AS AN INTEGRAL PART OF THE TEMPORARY TAPE PAVEMENT MARKINGS, THEN THE COST OF THE RAISED MARKERS SHALL BE CONSIDERED A PART OF THE TEMPORARY PAVEMENT MARKING ITEM AND SEPERATE RPM'S SHALL NOT BE REQUIRED.

5) TAPE OR PAINT SHALL NOT BE ALLOWED ON THE SIDE OF THE CONCRETE MEDIAN BARRIER.

6) PAVEMENT MARKING EDGELINE TRANSITIONS INTO AND OUT OF THE CROSSOVER SHALL BE SMOOTH AND CONTINUOUS, SO AS TO PROVIDE POSITIVE GUIDANCE FOR DRIVERS TRAVERSING THE CROSSOVER.





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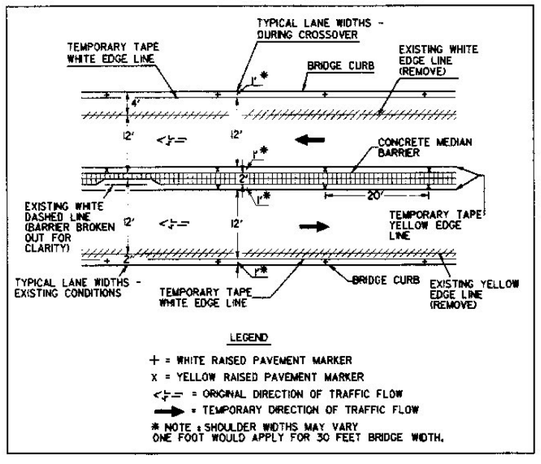


LEGEND

- PAVEMENT MARKING REMOVAL
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- CONCRETE MEDIAN BARRIER
- TYPE III BARRICADE
- FLASHING ARROW PANEL

NOT TO SCALE

REVISIONS AND CORRECTIONS

APPROVED

JAN. 23, 1989
DATE

David W. Kelley
CHIEF ENGINEER

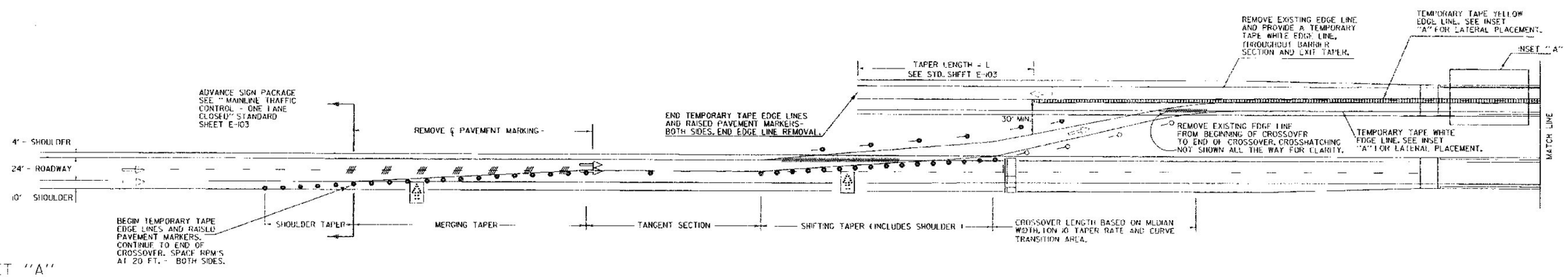
Arthur J. Gross
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon J. MacArthur
TRAFFIC AND SAFETY ENGINEER

PAVEMENT MARKING DETAILS - DIVIDED HIGHWAY
ONE ROADWAY CLOSED

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-104A



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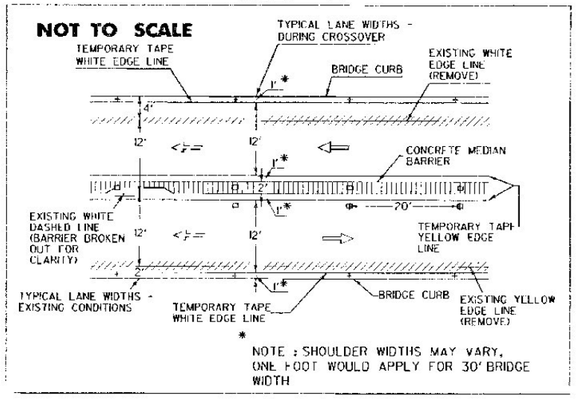

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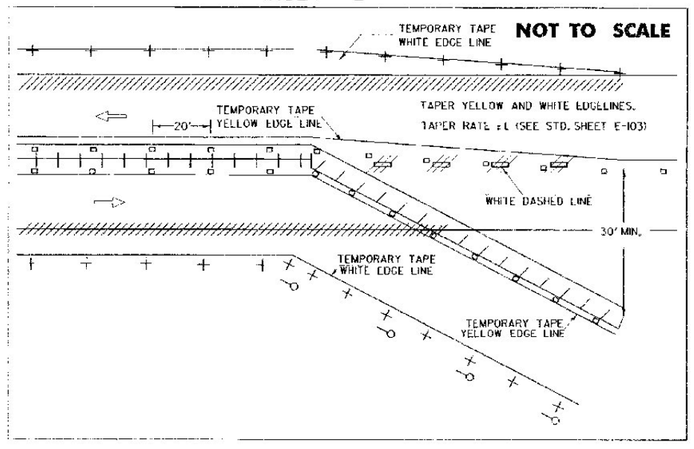

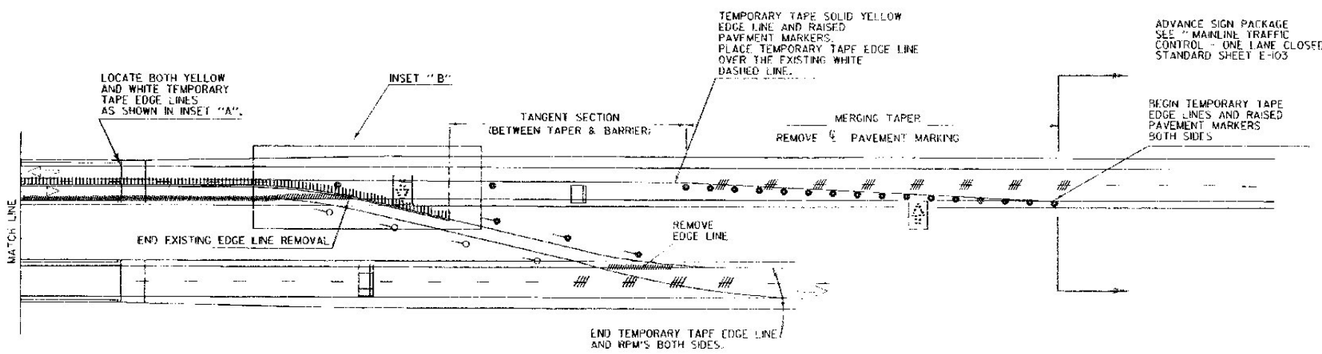

LEGEND

- - PAVEMENT MARKING REMOVAL
- - REFLECTORIZED PLASTIC DRUM
- - TYPE I DELINEATOR (YELLOW)
- - TYPE I DELINEATOR (WHITE)
- - CONCRETE MEDIAN BARRIER
- - TYPE III BARRICADE
- - FLASHING ARROW PANEL
- - WHITE RAISED PAVEMENT MARKER
- - YELLOW RAISED PAVEMENT MARKER
- - ORIGINAL DIRECTION OF TRAFFIC FLOW
- - TEMPORARY DIRECTION OF TRAFFIC FLOW

NOTES

1) THE TEMPORARY TAPE PAVEMENT MARKINGS SHALL BE OF A TYPE WHICH CAN BE COMPLETELY REMOVED AFTER THE PROJECT WITHOUT SCARRING OR MARKING THE PAVEMENT SURFACE. PAYMENT FOR THE TAPE MARKINGS SHALL BE PAID FOR UNDER THE APPROPRIATE ITEM NUMBERS.

2) PAVEMENT MARKING REMOVALS SHALL BE PAID FOR UNDER THE APPROPRIATE ITEM NUMBER. TEMPORARY TAPE REMOVAL IS NOT PAID FOR UNDER THE REMOVAL ITEM, IT IS SUBSIDIARY TO THE TAPE ITEM.

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4) TAPE OR PAINT SHALL NOT BE ALLOWED ON THE SIDE OF THE CONCRETE MEDIAN BARRIER.

NOT TO SCALE

OTHER STDS. REQUIRED: E-103, E-104, E-107A

REVISIONS AND CORRECTIONS

JAN 23, 1989 - DATE OF ORIGINAL ISSUE

OCT 21, 1992 - CHANGED TAPER LAYOUTS PER STD. 104 MINOR REVISIONS

AUG 08, 1995 - MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon D. MacArthur
DIRECTOR OF ENGINEERING

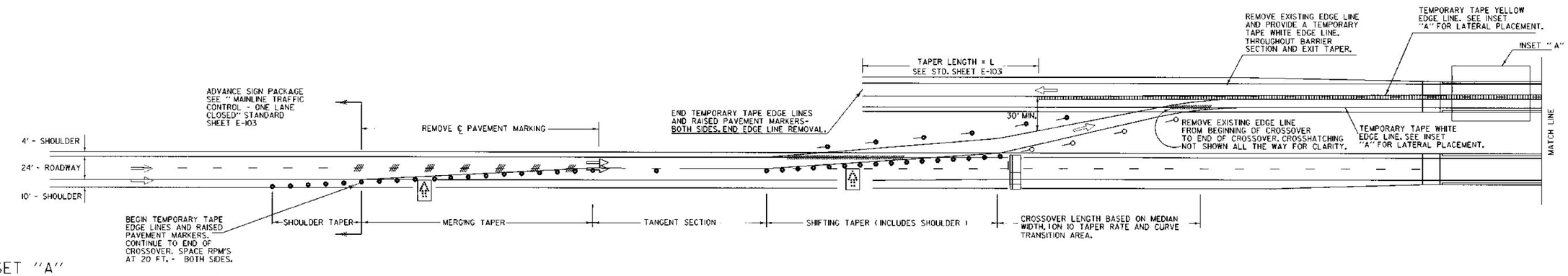
David A. Rose
TRAFFIC AND SAFETY ENGINEER

PAVEMENT MARKING DETAILS DIVIDED HIGHWAY ONE ROADWAY CLOSED

/1:pdf/std/std104A.dgn : std104A1

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-104A



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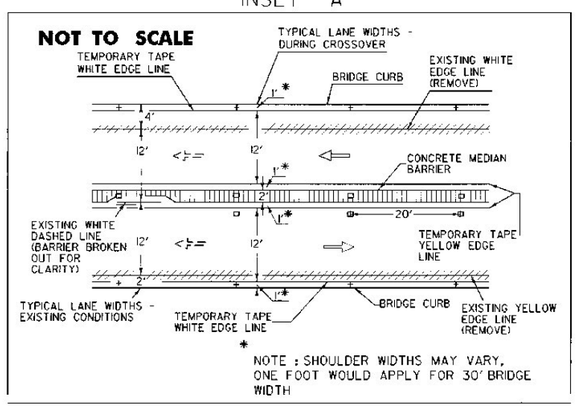

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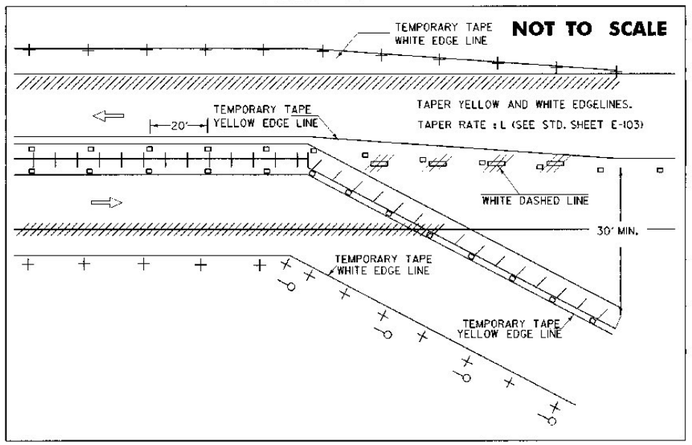

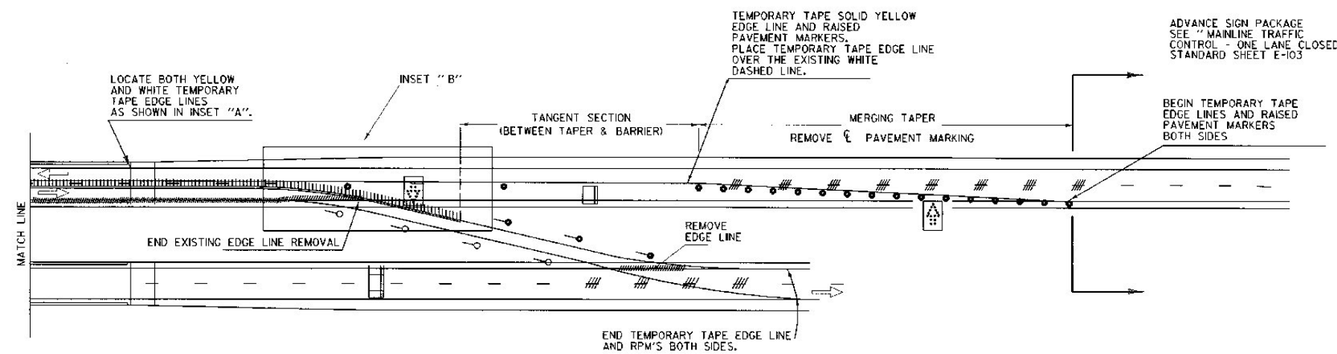

LEGEND

- PAVEMENT MARKING REMOVAL
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- CONCRETE MEDIAN BARRIER
- TYPE III BARRICADE
- FLASHING ARROW PANEL
- WHITE RAISED PAVEMENT MARKER
- YELLOW RAISED PAVEMENT MARKER
- ORIGINAL DIRECTION OF TRAFFIC FLOW
- TEMPORARY DIRECTION OF TRAFFIC FLOW

NOTES

1) THE TEMPORARY TAPE PAVEMENT MARKINGS SHALL BE OF A TYPE WHICH CAN BE COMPLETELY REMOVED AFTER THE PROJECT WITHOUT SCARRING OR MARKING THE PAVEMENT SURFACE. PAYMENT FOR THE TAPE MARKINGS SHALL BE PAID FOR UNDER THE APPROPRIATE ITEM NUMBERS.

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4) TAPE OR PAINT SHALL NOT BE ALLOWED ON THE SIDE OF THE CONCRETE MEDIAN BARRIER.

NOT TO SCALE

OTHER STDS. REQUIRED: E-103 E-104 E-107A

REVISIONS AND CORRECTIONS

JAN 23, 1989 - DATE OF ORIGINAL ISSUE
OCT 21, 1992 CHANGED TAPER LAYOUTS PER STDS 104 MINOR REVISIONS
AUG 08, 1995 - MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon H. MacAllister
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

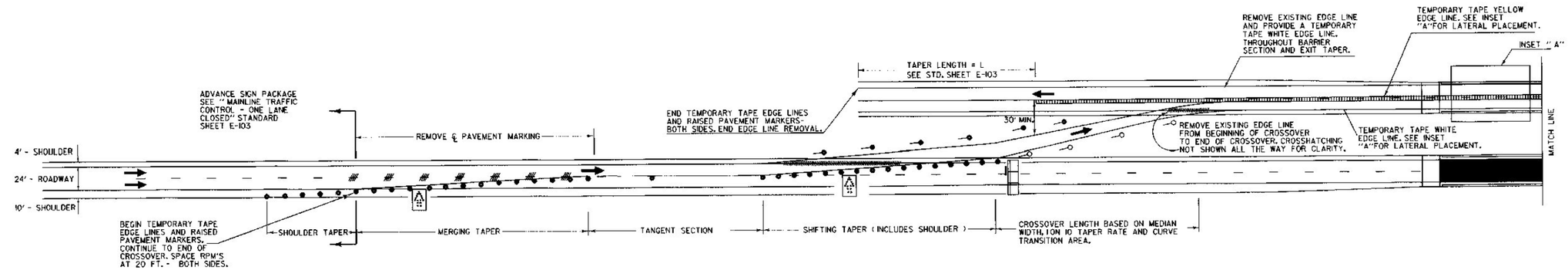
PAVEMENT MARKING DETAILS DIVIDED HIGHWAY ONE ROADWAY CLOSED

/traf/stc/sldel04A.dgn : s:cel04A.l

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-104A



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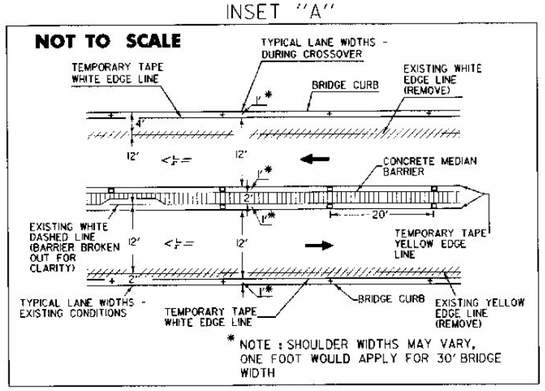

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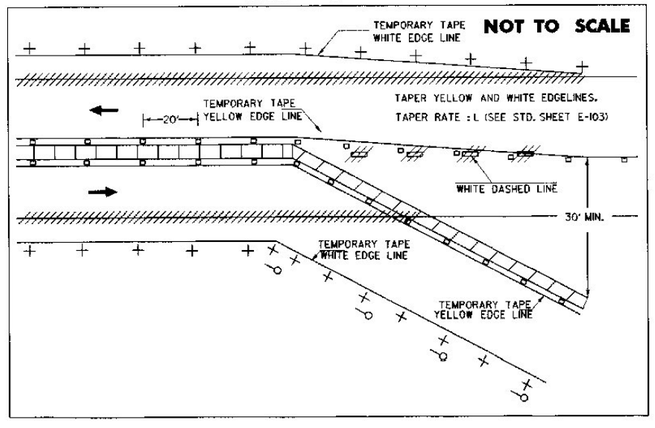

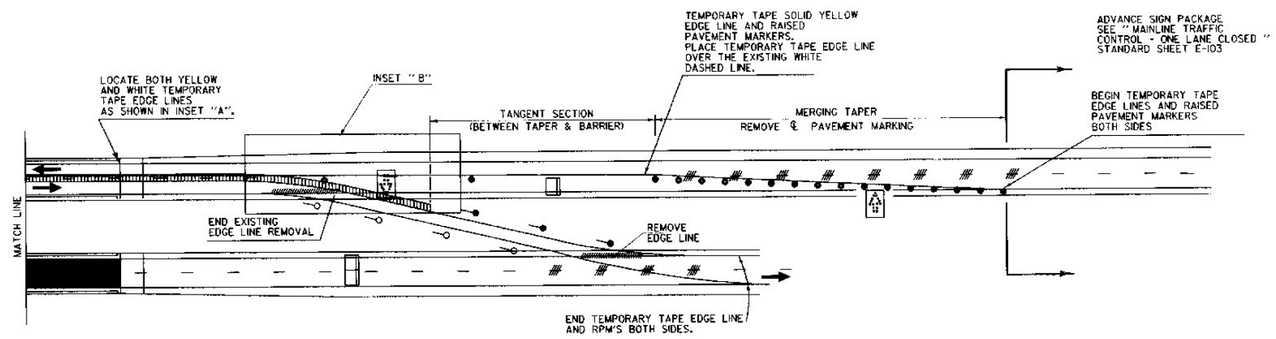

LEGEND

- PAVEMENT MARKING REMOVAL
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- CONCRETE MEDIAN BARRIER
- TYPE III BARRICADE
- FLASHING ARROW PANEL
- WHITE RAISED PAVEMENT MARKER
- YELLOW RAISED PAVEMENT MARKER
- ORIGINAL DIRECTION OF TRAFFIC FLOW
- TEMPORARY DIRECTION OF TRAFFIC FLOW

NOT TO SCALE

NOTES

1) THIS SHEET IS INTENDED TO BE USED WITH STD. E-104 AND REQUIRES STD. E-103 FOR ADVANCE SIGNING.

2) THE TEMPORARY TAPE PAVEMENT MARKINGS SHALL BE OF A TYPE WHICH CAN BE COMPLETELY REMOVED AFTER THE PROJECT WITHOUT SCARRING OR MARKING THE PAVEMENT SURFACE. PAYMENT FOR THE TAPE MARKINGS SHALL BE UNDER THE APPROPRIATE ITEM NUMBERS.

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5) TAPE OR PAINT SHALL NOT BE ALLOWED ON THE SIDE OF THE CONCRETE MEDIAN BARRIER.

REVISIONS AND CORRECTIONS

OCT 21, 1992 - CHANGED TAPER LAYOUTS PER STD. E-104
- MINOR REVISIONS

APPROVED JAN. 23, 1989
DATE

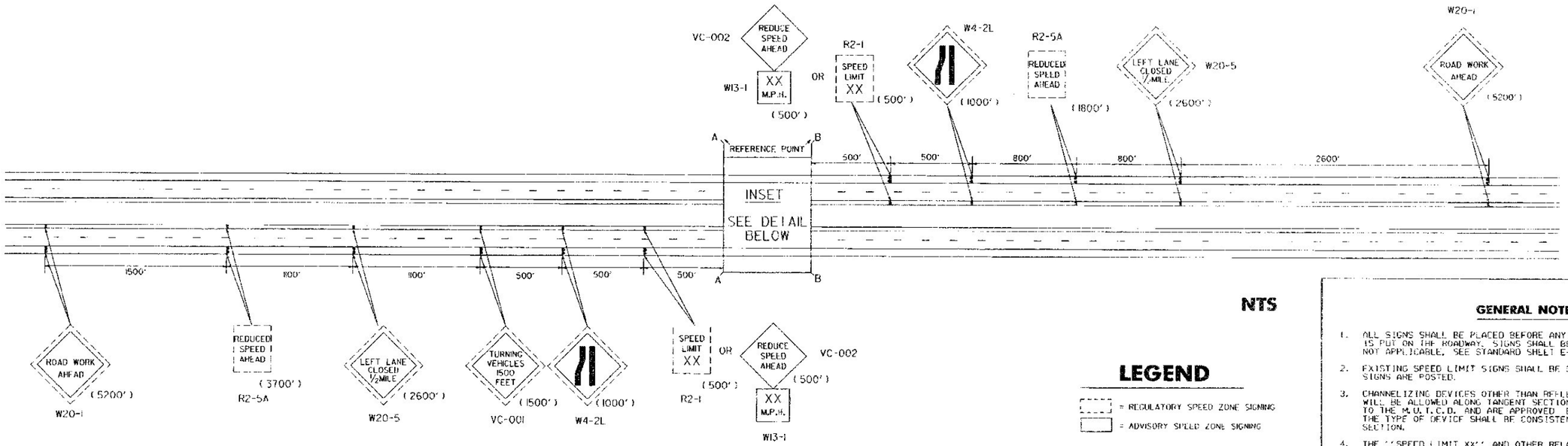
Gordon S. MacCallum
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

PAVEMENT MARKING DETAILS - DIVIDED HIGHWAY
ONE ROADWAY CLOSED

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-104A



NTS

LEGEND

= REGULATORY SPEED ZONE SIGNING

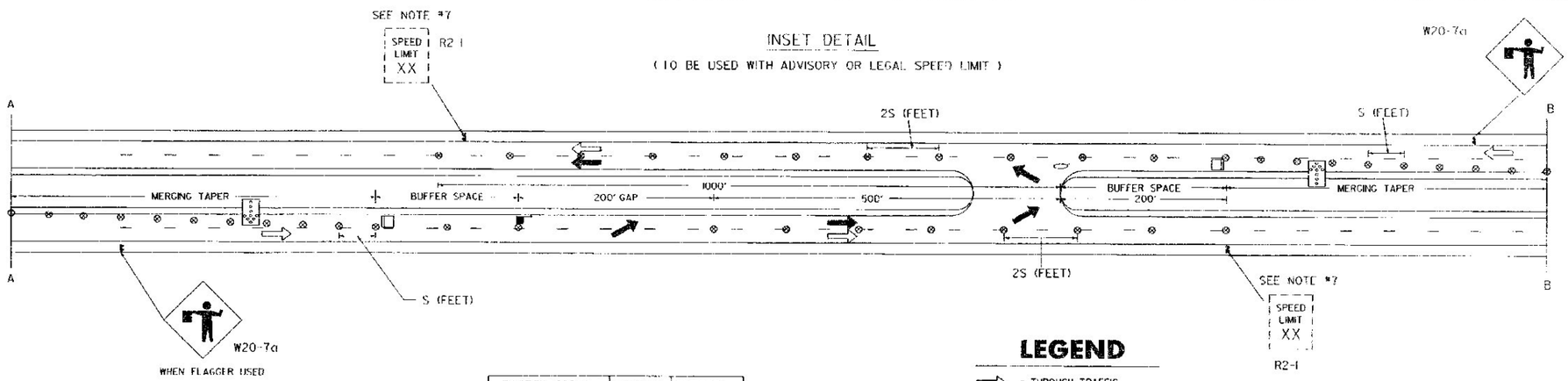
= ADVISORY SPEED ZONE SIGNING

GENERAL NOTES

1. ALL SIGNS SHALL BE PLACED BEFORE ANY WORK BEGINS OR EQUIPMENT IS PUT ON THE ROADWAY. SIGNS SHALL BE COVERED OR REMOVED WHEN NOT APPLICABLE. SEE STANDARD SHEET E-100 FOR REQUIREMENTS.
2. EXISTING SPEED LIMIT SIGNS SHALL BE COVERED WHEN REDUCED SPEED SIGNS ARE POSTED.
3. CHANNELIZING DEVICES OTHER THAN REFLECTORIZED PLASTIC DRUMS WILL BE ALLOWED ALONG TANGENT SECTIONS AS LONG AS THEY CONFORM TO THE M.U.T.C.D. AND ARE APPROVED BY THE RESIDENT ENGINEER. THE TYPE OF DEVICE SHALL BE CONSISTENT THROUGHOUT THE TANGENT SECTION.
4. THE "SPEED LIMIT XX" AND OTHER RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN WORK IS NOT IN PROGRESS AND ROADWAY IS NOT RESTRICTED.
5. "SPEED ZONE AHEAD" SIGNS MAY BE USED IN LIEU OF "REDUCED SPEED AHEAD".
6. FOR RELATIVELY SHORT TERM PROJECTS WITH NO OFFICIAL REGULATORY SPEED ZONE ENACTMENT, ADVISORY SPEED PLAQUES MOUNTED AS SUPPLEMENTAL SIGNS ON OTHER WARNING SIGNS MAY BE USED.
7. WHEN REDUCED REGULATORY SPEED LIMITS ARE USED THEN A SIGN, INFORMING MOTORIST THAT THE TEMPORARY SPEED ZONE HAS ENDED, SHALL BE INSTALLED AT THE END OF THE WORK AREA.
8. ALL FIXED SIGNS SHALL BE MOUNTED ON YIELDING STEEL, ALUMINUM OR WOOD SUPPORTS AS SHOWN ON STANDARD SHEETS E-100 AND E-121.
9. PORTABLE SIGNS SHALL BE KEPT LEVEL WHEN PLACED ON THE EDGE OF ROADWAY AND ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACES SHALL BE PLACED ABOVE THE TOP OF THE GUARDRAIL.
10. WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES.
11. WHEN SIGNING FOR THIS OPERATION INTERFERES WITH THAT FOR WORK ON THE MAINLINE, THE RESIDENT ENGINEER SHALL ESTABLISH THE APPROPRIATE SIGN REQUIREMENTS.
12. THE CHOICE OF USING FLAGGERS OR UNIFORMED OFFICERS IS AT THE DISCRETION OF THE ENGINEER.
13. CHANNELIZING DEVICES SHALL BE PLACED AS FOLLOWS:
    TAPERS - DEVICES SHALL BE SPACED A MAXIMUM OF "S" (THE SPEED LIMIT IN FEET) APART.
    TANGENT - DEVICES SHALL BE SPACED 2 X "S" (THE SPEED LIMIT IN FEET) APART.
14. THE FLASHING ARROW PANELS SHALL BE LOCATED AS NEAR TO THE FRONT OF THE TAPER AS POSSIBLE WHILE STILL REMAINING INSIDE THE CHANNELIZING DEVICES.
15. MERGING TAPERS SHOULD BE DESIGNED FOR THE SPEED LIMIT OF THE ROADWAY PRIOR TO CONSTRUCTION.
16. CONSTRUCTION VEHICLES USED FOR HAULING MATERIAL AT THE WORK SITE AND TRAVELLING ON PUBLIC HIGHWAYS SHOULD HAVE A "CONSTRUCTION VEHICLE DO NOT FOLLOW" SIGN MOUNTED ON THE REAR OF THE VEHICLE.

INSET DETAIL

(TO BE USED WITH ADVISORY OR LEGAL SPEED LIMIT)



POSTED SPEED OR 85TH PERCENTILE M.P.H.	MERGING TAPER 12' LANE	BUFFER SPACE (MINIMUM)
40	320'	160'
45	540'	270'
50	600'	300'
55	660'	330'
60	720'	360'
65	780'	390'

LEGEND

= THROUGH TRAFFIC

= CONSTRUCTION VEHICLES

= CHANNELIZING DEVICE

= FLASHING ARROW PANEL

= FLAGGER

= UNIFORMED TRAFFIC OFFICER

= TYPE III BARRICADE

NTS

OTHER STDS. REQUIRED: E-100, E-101, E-102, E-102A, E-107A, E-121, E-142

TD#5

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

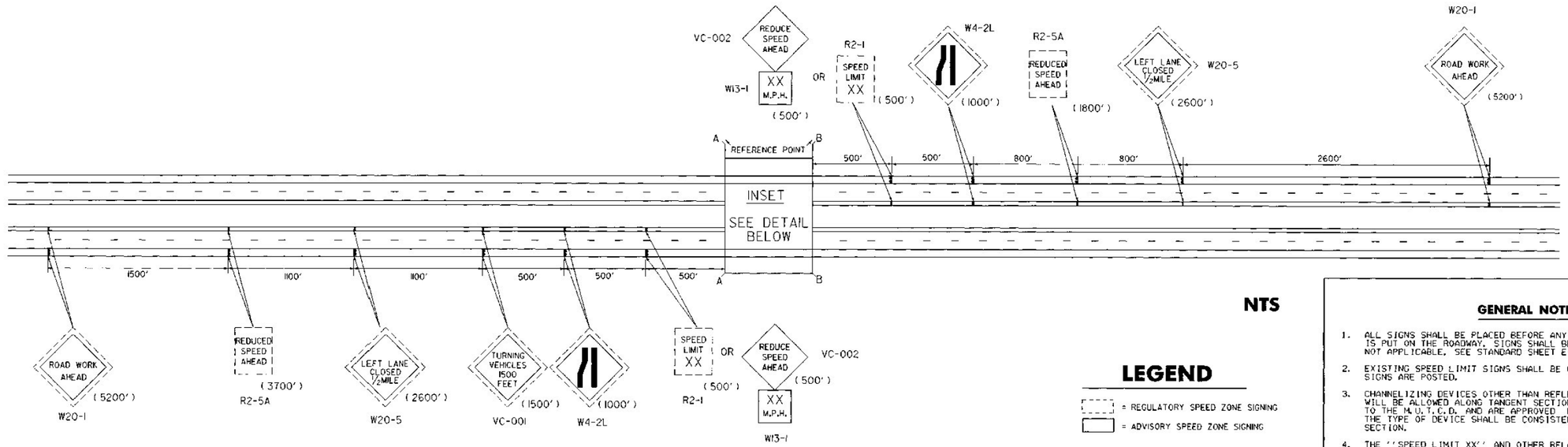
TRAFFIC CONTROL FOR CONSTRUCTION VEHICLE U-TURNS ON DIVIDED HIGHWAY

/tref/std/std105.dgn : std105.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-105

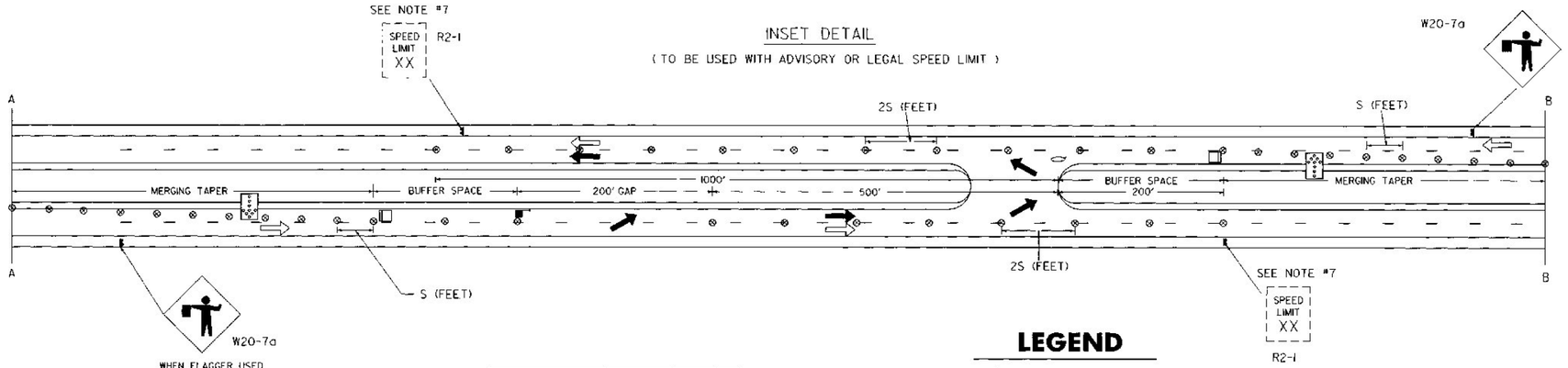


NTS

LEGEND

= REGULATORY SPEED ZONE SIGNING

= ADVISORY SPEED ZONE SIGNING



POSTED SPEED OR 85TH PERCENTILE M.P.H.	MERGING TAPER 12' LANE	BUFFER SPACE (MINIMUM)
40	320'	160'
45	540'	270'
50	600'	300'
55	660'	330'
60	720'	360'
65	780'	390'

LEGEND

= THROUGH TRAFFIC

= CONSTRUCTION VEHICLES

= CHANNELIZING DEVICE

= FLASHING ARROW PANEL

= FLAGGER

= UNIFORMED TRAFFIC OFFICER

= TYPE III BARRICADE

NTS

GENERAL NOTES

1. ALL SIGNS SHALL BE PLACED BEFORE ANY WORK BEGINS OR EQUIPMENT IS PUT ON THE ROADWAY. SIGNS SHALL BE COVERED OR REMOVED WHEN NOT APPLICABLE. SEE STANDARD SHEET E-100 FOR REQUIREMENTS.
2. EXISTING SPEED LIMIT SIGNS SHALL BE COVERED WHEN REDUCED SPEED SIGNS ARE POSTED.
3. CHANNELIZING DEVICES OTHER THAN REFLECTORIZED PLASTIC DRUMS WILL BE ALLOWED ALONG TANGENT SECTIONS AS LONG AS THEY CONFORM TO THE M.U.T.C.D. AND ARE APPROVED BY THE RESIDENT ENGINEER. THE TYPE OF DEVICE SHALL BE CONSISTENT THROUGHOUT THE TANGENT SECTION.
4. THE ''SPEED LIMIT XX'' AND OTHER RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN WORK IS NOT IN PROGRESS AND ROADWAY IS NOT RESTRICTED.
5. ''SPEED ZONE AHEAD'' SIGNS MAY BE USED IN LIEU OF ''REDUCED SPEED AHEAD''.
6. FOR RELATIVELY SHORT TERM PROJECTS WITH NO OFFICIAL REGULATORY SPEED ZONE ENACTMENT, ADVISORY SPEED PLAQUES MOUNTED AS SUPPLEMENTAL SIGNS ON OTHER WARNING SIGNS MAY BE USED.
7. WHEN REDUCED REGULATORY SPEED LIMITS ARE USED THEN A SIGN, INFORMING MOTORIST THAT THE TEMPORARY SPEED ZONE HAS ENDED, SHALL BE INSTALLED AT THE END OF THE WORK AREA.
8. ALL FIXED SIGNS SHALL BE MOUNTED ON YIELDING STEEL, ALUMINUM OR WOOD SUPPORTS AS SHOWN ON STANDARD SHEETS E-100 AND E-121.
9. PORTABLE SIGNS SHALL BE KEPT LEVEL WHEN PLACED ON THE EDGE OF ROADWAY AND ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACES SHALL BE PLACED ABOVE THE TOP OF THE GUARDRAIL.
10. WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES.
11. WHEN SIGNING FOR THIS OPERATION INTERFERES WITH THAT FOR WORK ON THE MAINLINE, THE RESIDENT ENGINEER SHALL ESTABLISH THE APPROPRIATE SIGN REQUIREMENTS.
12. THE CHOICE OF USING FLAGGERS OR UNIFORMED OFFICERS IS AT THE DISCRETION OF THE ENGINEER.
13. CHANNELIZING DEVICES SHALL BE PLACED AS FOLLOWS:
    TAPERS - DEVICES SHALL BE SPACED A MAXIMUM OF ''S'' (THE SPEED LIMIT IN FEET) APART.
    TANGENT - DEVICES SHALL BE SPACED 2 X ''S'' (THE SPEED LIMIT IN FEET) APART.
14. THE FLASHING ARROW PANELS SHALL BE LOCATED AS NEAR TO THE FRONT OF THE TAPER AS POSSIBLE WHILE STILL REMAINING INSIDE THE CHANNELIZING DEVICES.
15. MERGING TAPERS SHOULD BE DESIGNED FOR THE SPEED LIMIT OF THE ROADWAY PRIOR TO CONSTRUCTION.
16. CONSTRUCTION VEHICLES USED FOR HAULING MATERIAL AT THE WORK SITE AND TRAVELLING ON PUBLIC HIGHWAYS SHOULD HAVE A ''CONSTRUCTION VEHICLE DO NOT FOLLOW'' SIGN MOUNTED ON THE REAR OF THE VEHICLE.

TD105

OTHER STDS. REQUIRED: E-100 E-101 E-102 E-102A E-107A E-121 E-142

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

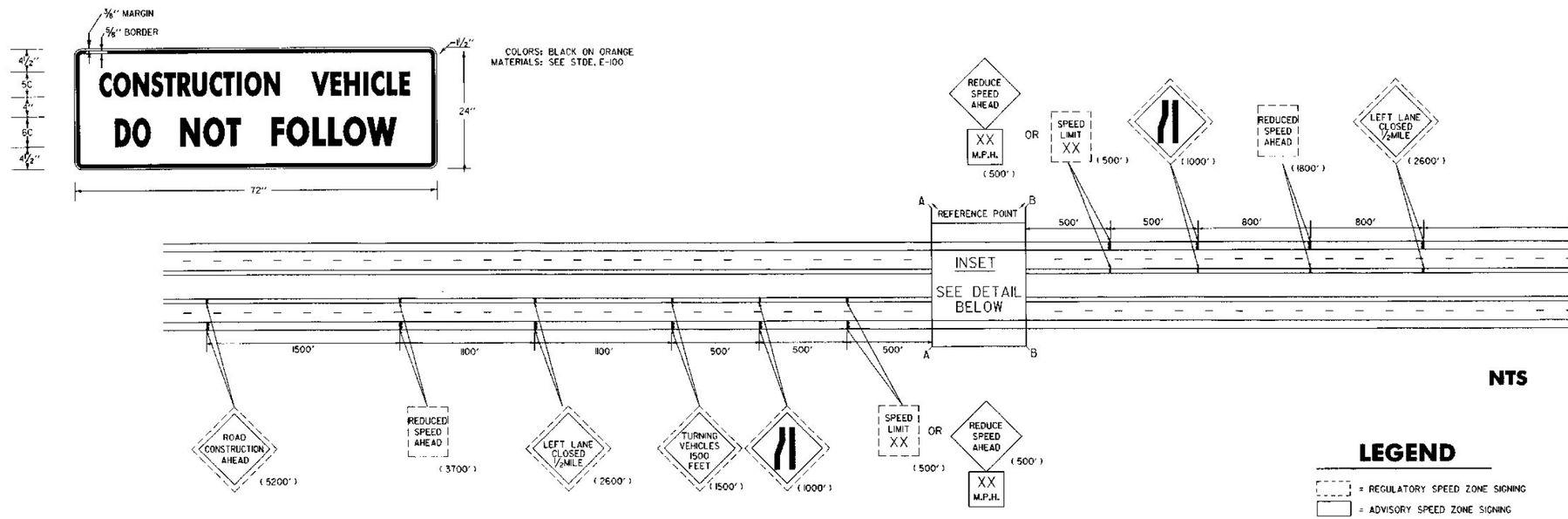
TRAFFIC CONTROL FOR CONSTRUCTION VEHICLE U-TURNS ON DIVIDED HIGHWAY

/traf/std/stdel05.dgn : stdel05.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-105

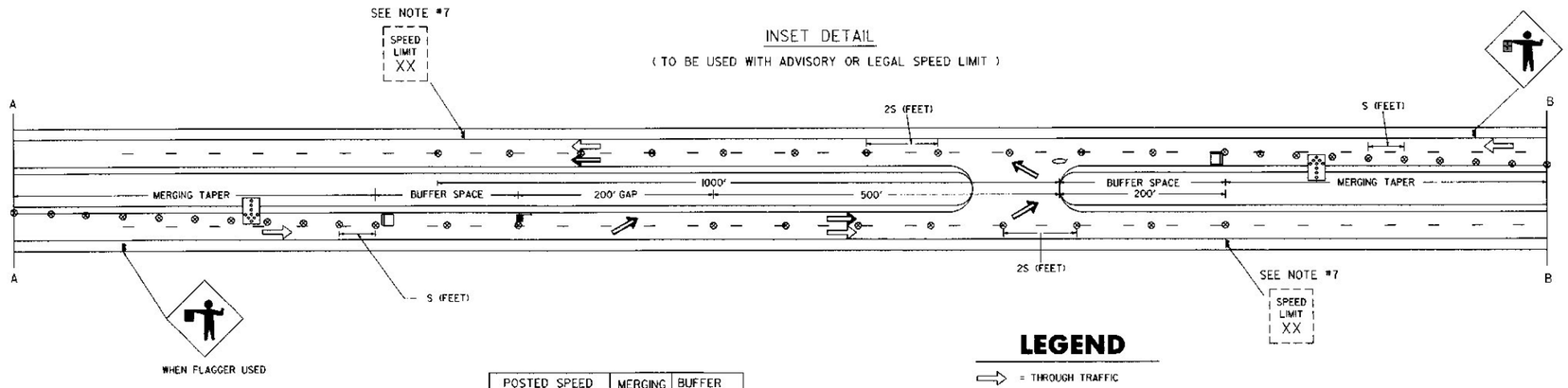


NTS

LEGEND

= REGULATORY SPEED ZONE SIGNING

= ADVISORY SPEED ZONE SIGNING



POSTED SPEED OR 85TH PERCENTILE M.P.H.	MERGING TAPER 12' LANE	BUFFER SPACE (MINIMUM)
40	320'	160'
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LEGEND

= THROUGH TRAFFIC

= CONSTRUCTION VEHICLES

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= TYPE III BARRICADE

NTS

GENERAL NOTES

1. ALL SIGNS SHALL BE PLACED BEFORE ANY WORK BEGINS OR EQUIPMENT IS PUT ON THE ROADWAY. SIGNS SHALL BE COVERED OR REMOVED WHEN NOT APPLICABLE. SEE STANDARD SHEET E-100 FOR REQUIREMENTS.
2. EXISTING SPEED LIMIT SIGNS SHALL BE COVERED WHEN REDUCED SPEED SIGNS ARE POSTED.
3. CHANNELIZING DEVICES OTHER THAN REFLECTORIZED PLASTIC DRUMS WILL BE ALLOWED ALONG TANGENT SECTIONS AS LONG AS THEY CONFORM TO THE M.U.T.C.D. AND ARE APPROVED BY THE RESIDENT ENGINEER. THE TYPE OF DEVICE SHALL BE CONSISTENT THROUGHOUT THE TANGENT SECTION.
4. THE ''SPEED LIMIT XX'' AND OTHER RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN WORK IS NOT IN PROGRESS AND ROADWAY IS NOT RESTRICTED.
5. ''SPEED ZONE AHEAD'' SIGNS MAY BE USED IN LIEU OF ''REDUCED SPEED AHEAD''.
6. FOR RELATIVELY SHORT TERM PROJECTS WITH NO OFFICIAL REGULATORY SPEED ZONE ENACTMENT, ADVISORY SPEED PLAQUES MOUNTED AS SUPPLEMENTAL SIGNS ON OTHER WARNING SIGNS MAY BE USED.
7. WHEN REDUCED REGULATORY SPEED LIMITS ARE USED THEN A SIGN, INFORMING MOTORIST THAT THE TEMPORARY SPEED ZONE HAS ENDED, SHALL BE INSTALLED AT THE END OF THE WORK AREA.
8. ALL FIXED SIGNS SHALL BE MOUNTED ON YIELDING STEEL, ALUMINUM OR WOOD SUPPORTS AS SHOWN ON STANDARD SHEETS E-100 AND E-121.
9. PORTABLE SIGNS SHALL BE KEPT LEVEL WHEN PLACED ON THE EDGE OF ROADWAY AND ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACES SHALL BE PLACED ABOVE THE TOP OF THE GUARDRAIL.
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11. WHEN SIGNING FOR THIS OPERATION INTERFERES WITH THAT FOR WORK ON THE MAINLINE, THE RESIDENT ENGINEER SHALL ESTABLISH THE APPROPRIATE SIGN REQUIREMENTS.
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    TANGENT - DEVICES SHALL BE SPACED 2 X ''S'' (THE SPEED LIMIT IN FEET) APART.
14. THE FLASHING ARROW PANELS SHALL BE LOCATED AS NEAR TO THE FRONT OF THE TAPER AS POSSIBLE WHILE STILL REMAINING INSIDE THE CHANNELIZING DEVICES.
15. MERGING TAPERS SHOULD BE DESIGNED FOR THE SPEED LIMIT OF THE ROADWAY PRIOR TO CONSTRUCTION.
16. CONSTRUCTION VEHICLES USED FOR HAULING MATERIAL AT THE WORK SITE AND TRAVELLING ON PUBLIC HIGHWAYS SHOULD HAVE A ''CONSTRUCTION VEHICLE DO NOT FOLLOW'' SIGN MOUNTED ON THE REAR OF THE VEHICLE. (SEE SIGN DETAIL ON THIS SHEET)

TD105

OTHER STDS. : REQUIRED E-100, E-101, E-102, E-142

REVISIONS AND CORRECTIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED Sept. 20, 1993
DATE

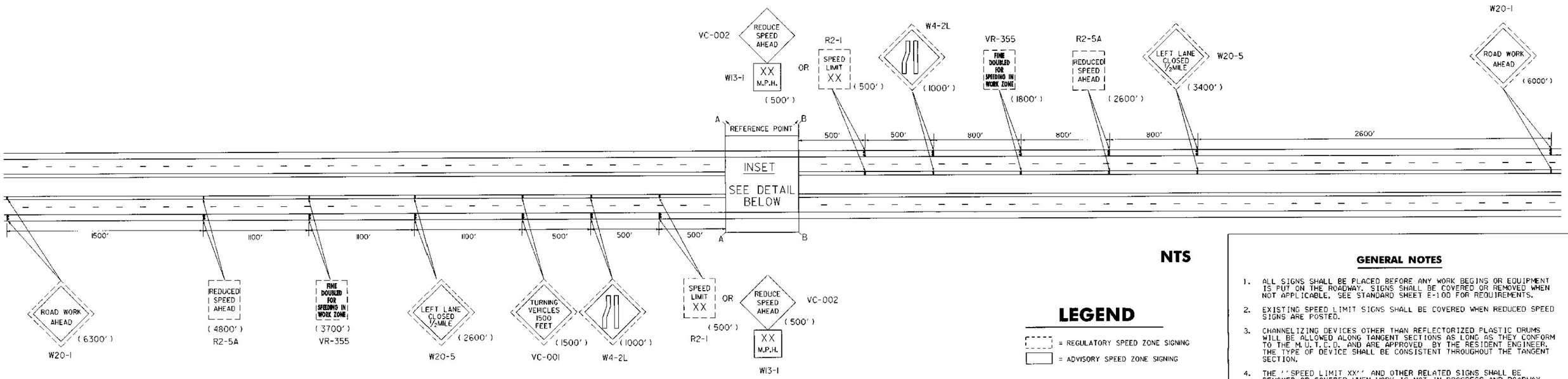
Gordon H. MacArthur
DIRECTOR OF ENGINEERING

Acting Dale L. Peron
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL FOR CONSTRUCTION VEHICLE U-TURNS ON DIVIDED HIGHWAY

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-105



NTS

LEGEND

- = REGULATORY SPEED ZONE SIGNING
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GENERAL NOTES

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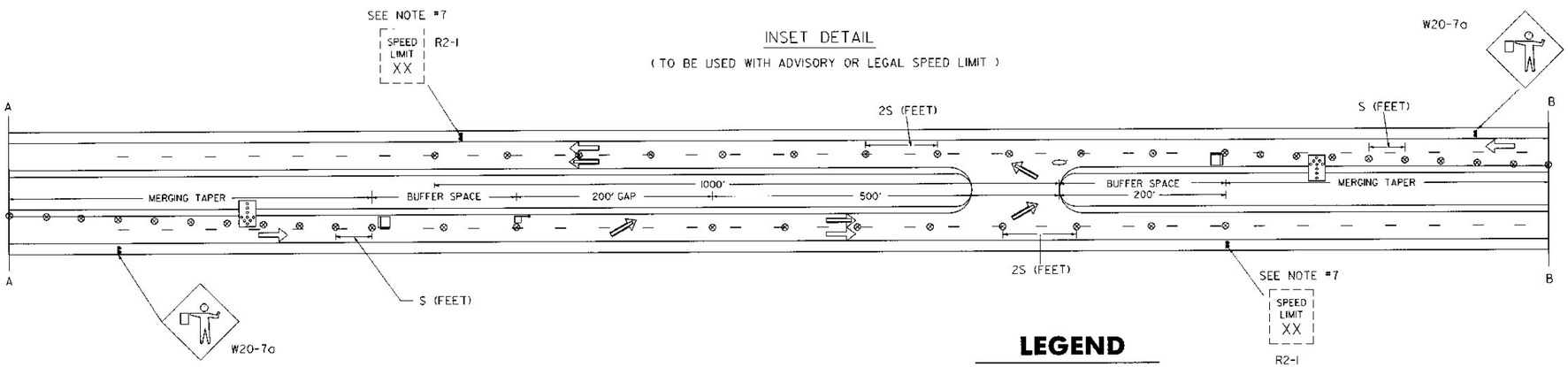
INSET DETAIL

(TO BE USED WITH ADVISORY OR LEGAL SPEED LIMIT)



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- = FLAGGER
- = UNIFORMED TRAFFIC OFFICER
- = TYPE III BARRICADE

NTS

TD105

OTHER STDS. REQUIRED: E-100 E-101 E-102 E-102A E-107A E-121 E-142

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE
SEPT. 24, 1998 - ADDED FINE SIGN VR-355

APPROVED

DIRECTOR OF PROJECT DEVELOPMENT

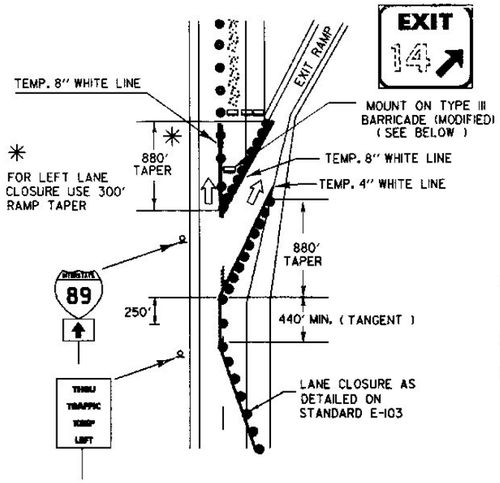
TRAFFIC CONTROL FOR CONSTRUCTION VEHICLE U-TURNS ON DIVIDED HIGHWAY

/~raf/std/std105.dgn : std105.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-105



NOTES :

1) REFLECTORIZED DRUMS SHALL BE SPACED AT 40' C-C IN TAPERS AND 160' C-C WHEN PLACED ON TANGENT
2) ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.
3) TAPER RATES ARE BASED ON A 40 M.P.H. ASSUMED EXIT SPEED.
4) TEMPORARY PAVEMENT MARKINGS ARE REQUIRED WHEN THE LAYOUT IS TO BE IN EFFECT FOR THREE DAYS OR MORE.

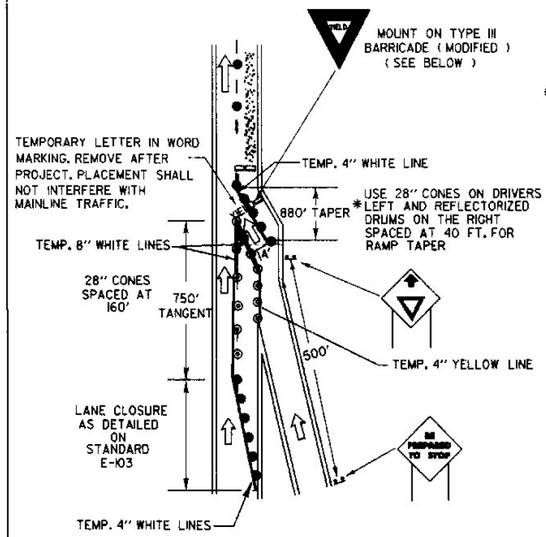
THIS DETAIL TO BE USED WHEN THE WORK ZONE BEGINS AT THE GORE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE EXIT RAMP.

MAINLINE LANE CLOSURE AT AN EXIT RAMP

NOT TO SCALE

LEGEND

- ● REFL. PLASTIC DRUMS
- ▭ TYPE III BARRICADE
- PAVEMENT MARKING REMOVAL
- ⇧ INDICATE TRAFFIC FLOW
- WORK AREA



* FOR LEFT LANE CLOSURE USE 300' RAMP TAPER.

NOTES :

1) ALL SIGNS MOUNTED ON FIXED POSTS (YIELDING TYPE) UNLESS NOTED OTHERWISE.
2) ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.
3) TAPER RATES ARE BASED ON A 40 M.P.H. ASSUMED ENTRANCE SPEED.
4) TEMPORARY PAVEMENT MARKINGS ARE REQUIRED WHEN THE LAYOUT IS TO BE IN EFFECT FOR THREE DAYS OR MORE.

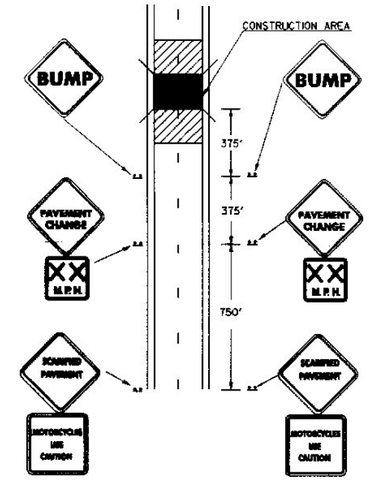
MAINLINE LANE CLOSURE AT AN ENTRANCE RAMP

THIS DETAIL TO BE USED WHEN THE WORK ZONE BEGINS AT AT THE END OF THE ACCELERATION LANE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE ON-RAMP TRAFFIC.

NOT TO SCALE

LEGEND

- ◎ 28"CONES (REFLECTORIZED)
- ● REFL. PLASTIC DRUMS
- ▭ TYPE III BARRICADE
- PAVEMENT MARKING REMOVAL
- ⇧ INDICATE TRAFFIC FLOW
- WORK AREA



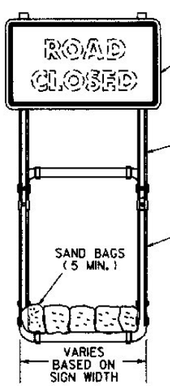
1) ADVISORY SPEED AS DETERMINED BY RESIDENT ENGINEER (40 M.P.H. MINIMUM RECOMMENDED)
2) SIGNS MOUNTED ON FIXED POSTS.(YIELDING TYPE)
3) ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.
4) THE BUMP SIGN MAY BE ELIMINATED WHEN THERE IS NO BUMP. WHEN THE CONTRACTOR IS WORKING IN THE CONSTRUCTION AREA THE APPROPRIATE ADVANCED WARNING SIGN PACKAGE SHALL BE USED, SEE STD.E-103.

ADVANCED WARNING SIGN PACKAGE FOR COLD PLANED (SCARIFIED) SURFACES.

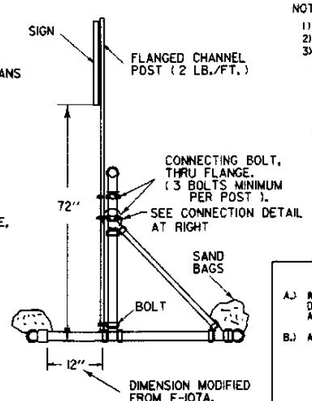
NOT TO SCALE

LEGEND

- PAVEMENT TRANSITION



FRONT VIEW

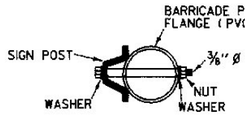


SIDE VIEW

SIGN MOUNTING ON TYPE III BARRICADE (MODIFIED)

NOTES.

1) REFER TO STANDARD E-107A FOR BARRICADE DETAIL.
2) ALL BARRICADE JOINTS SHALL BE GLUED.
3) FIVE SAND BAGS ARE REQUIRED BOTH FRONT AND BACK, 50 LB. MINIMUM EACH.



CONNECTION DETAIL

FLASHING BEACON NOTES

A.) WIRE CONNECTIONS AT THE BASE OF THE POST SHALL BE FUSED WITH A WATER-TIGHT DISCONNECT PLUG-IN TYPE CONNECTOR WHICH WILL DISCONNECT WITHOUT DAMAGE DURING A KNOCKDOWN. EACH INSTALLATION SHALL BE GROUNDED.

B.) AT THE CONTRACTOR'S OPTION:

A. THE POWER SUPPLY MAY BE AERIAL OR UNDERGROUND

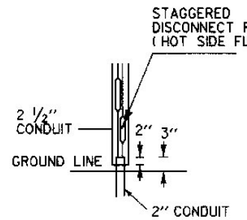
B. POWER MAY BE COMBINED WITH THE TRAFFIC SIGNAL OR SEPARATE.

C. THE FLASHER MAY BE INSTALLED ON A STUB POLE NEAR THE SIGN, ON A UTILITY POLE (WITH UTILITY COMPANY APPROVAL) OR AT THE SAME LOCATION AS THE TRAFFIC SIGNAL CONTROLLER.

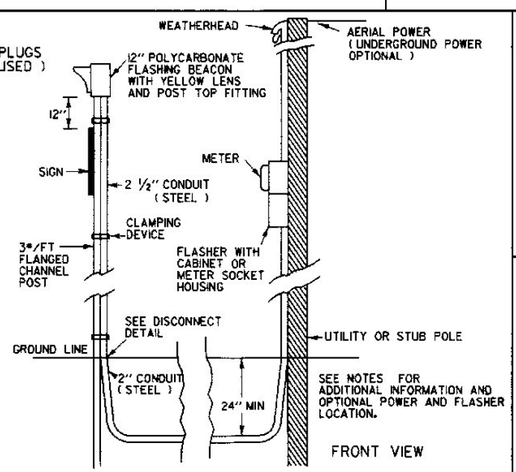
C.) THE FLASHER UNIT SHALL BE ONE CIRCUIT AND INCLUDE A RADIO INTERFERENCE FILTER.

D.) THE FLASHING BEACON INSTALLATION SHALL BE PAID AS NOTED ON THE PLANS.

E.) BATTERY OPERATED FLASHERS SHALL NOT BE ALLOWED.



DISCONNECT DETAIL

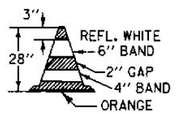


FRONT VIEW

FLASHING BEACON DETAIL

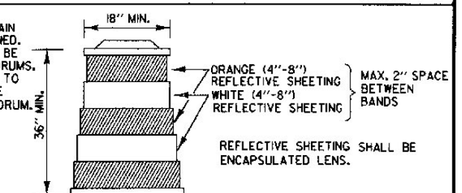
NOTES:

1.) 28" CONES SHALL BE USED ON ROADWAYS WITH SPEED LIMITS OF 35 MPH OR MORE AND ON ALL ROADWAYS DURING HOURS OF DARKNESS.
2.) CONES MAY BE WEIGHTED TO PREVENT OVER-TURNING, HOWEVER THE WEIGHTS SHALL NOT PRESENT A HAZARD IF THE CONE IS STRUCK.



28" REFLECTORIZED CONE

DRUMS SHALL REMAIN UPRIGHT AS DESIGNED. SAND BAGS SHALL BE USED TO WEIGHT DRUMS. ALL WEIGHTS ARE TO BE PLACED IN THE BOTTOM OF THE DRUM.



REFLECTIVE SHEETING SHALL BE ENCAPSULATED LENS.

REFLECTORIZED PLASTIC DRUM

REVISIONS AND CORRECTIONS

JAN. 23, 1989 REVISED EXIT SIGN - CLARIFIED EXIT TAPER

APPROVED

APRIL 22, 1988
DATE

David B. Kelley
CHIEF ENGINEER

Arthur Gore
DIRECTOR OF PLANNING AND PRECONSTRUCTION

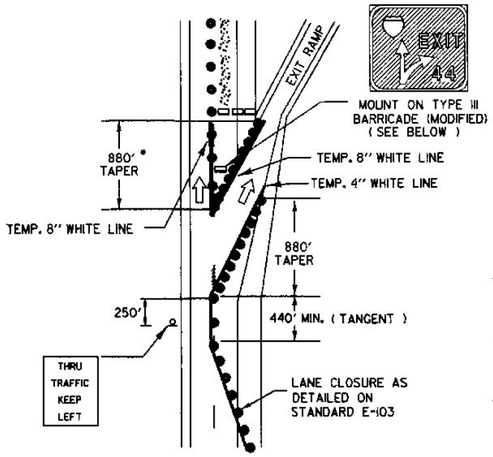
Gordon S. MacArthur
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL MISCELLANEOUS DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-106



* FOR LEFT LANE CLOSURE USE 300' RAMP TAPER

NOTES :

1) REFLECTORIZED DRUMS SHALL BE SPACED AT 40' C-C IN TAPERS AND 160' C-C WHEN PLACED ON TANGENT
2) ALL DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.
3) TAPER RATES ARE BASED ON A 40 M.P.H. POSTED SPEED.
4) TEMPORARY PAVEMENT MARKINGS ARE REQUIRED WHEN THE LAYOUT IS TO BE IN EFFECT FOR THREE DAYS OR MORE.

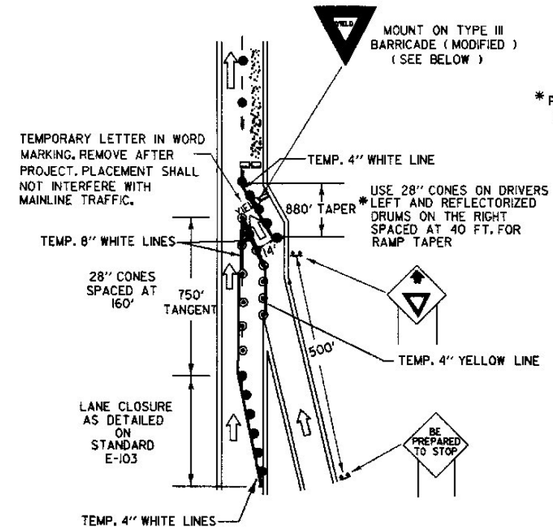
THIS DETAIL TO BE USED WHEN THE WORK ZONE BEGINS AT THE GORE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE EXIT RAMP.

MAINLINE LANE CLOSURE AT AN EXIT RAMP

NOT TO SCALE

LEGEND

- REFL. PLASTIC DRUMS
- TYPE III BARRICADE
- PAVEMENT MARKING REMOVAL
- INDICATE TRAFFIC FLOW
- WORK AREA



* FOR LEFT LANE CLOSURE USE 300' RAMP TAPER.

* USE 28" CONES ON DRIVERS LEFT AND REFLECTORIZED DRUMS ON THE RIGHT SPACED AT 40 FT. FOR RAMP TAPER

NOTES :

1) ALL SIGNS MOUNTED ON FIXED POSTS (YIELDING TYPE) UNLESS NOTED OTHERWISE.
2) ALL DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.
3) TAPER RATES ARE BASED ON A 40 M.P.H. POSTED SPEED.
4) TEMPORARY PAVEMENT MARKINGS ARE REQUIRED WHEN THE LAYOUT IS TO BE IN EFFECT FOR THREE DAYS OR MORE.

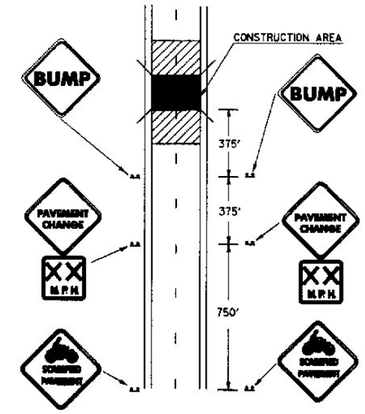
MAINLINE LANE CLOSURE AT AN ENTRANCE RAMP

THIS DETAIL TO BE USED WHEN THE WORK ZONE BEGINS AT AT THE END OF THE ACCELERATION LANE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE ON-RAMP TRAFFIC.

NOT TO SCALE

LEGEND

- 28"CONES (REFLECTORIZED)
- REFL. PLASTIC DRUMS
- TYPE III BARRICADE
- PAVEMENT MARKING REMOVAL
- INDICATE TRAFFIC FLOW
- WORK AREA



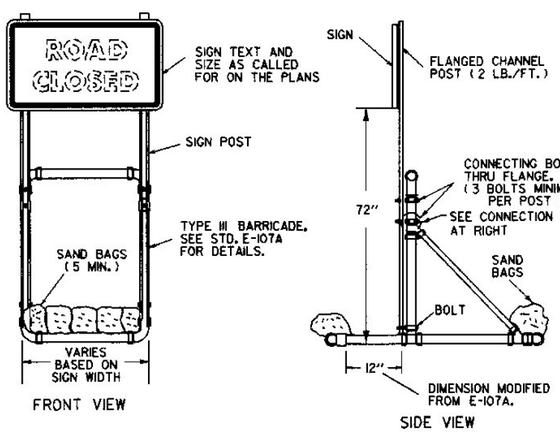
1) ADVISORY SPEED AS DETERMINED BY RESIDENT ENGINEER (40 M.P.H. MINIMUM RECOMMENDED)
2) SIGNS MOUNTED ON FIXED POSTS.(YIELDING TYPE)
3) ALL DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.
4) THE BUMP SIGN MAY BE ELIMINATED WHEN THERE IS NO BUMP. WHEN THE CONTRACTOR IS WORKING IN THE CONSTRUCTION AREA THE APPROPRIATE ADVANCED WARNING SIGN PACKAGE SHALL BE USED, SEE STD.E-103.

ADVANCED WARNING SIGN PACKAGE FOR COLD PLANED (SCARIFIED) SURFACES.

NOT TO SCALE

LEGEND

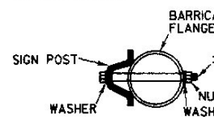
- PAVEMENT TRANSITION



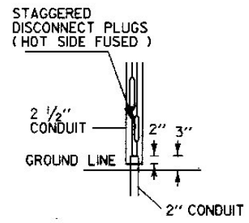
SIGN MOUNTING ON TYPE III BARRICADE (MODIFIED)

NOTES.

1) REFER TO STANDARD E-10TA FOR BARRICADE DETAIL.
2) ALL BARRICADE JOINTS SHALL BE GLUED.
3) FIVE SAND BAGS ARE REQUIRED BOTH FRONT AND BACK. 50 LB. MINIMUM EACH.



CONNECTION DETAIL



DISCONNECT DETAIL

FLASHING BEACON NOTES

A.) WIRE CONNECTIONS AT THE BASE OF THE POST SHALL BE FUSED WITH A WATER-TIGHT DISCONNECT PLUG-IN TYPE CONNECTOR WHICH WILL DISCONNECT WITHOUT DAMAGE DURING A KNOCKDOWN. EACH INSTALLATION SHALL BE GROUNDED.

B.) AT THE CONTRACTOR'S OPTION:

A. THE POWER SUPPLY MAY BE AERIAL OR UNDERGROUND

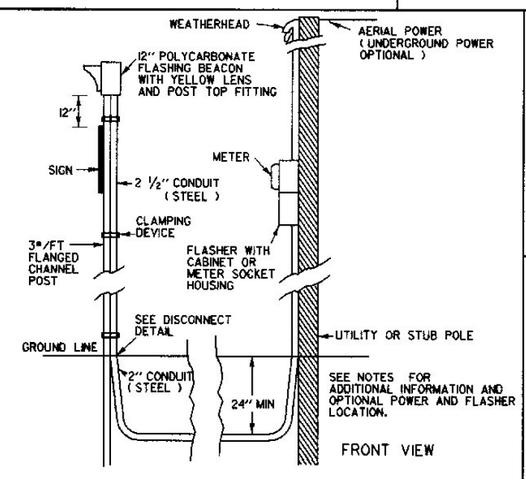
B. POWER MAY BE COMBINED WITH THE TRAFFIC SIGNAL OR SEPARATE.

C. THE FLASHER MAY BE INSTALLED ON A STUB POLE NEAR THE SIGN, ON A UTILITY POLE (WITH UTILITY COMPANY APPROVAL) OR AT THE SAME LOCATION AS THE TRAFFIC SIGNAL CONTROLLER.

C.) THE FLASHER UNIT SHALL BE ONE CIRCUIT AND INCLUDE A RADIO INTERFERENCE FILTER.

D.) THE FLASHING BEACON INSTALLATION SHALL BE PAID AS NOTED ON THE PLANS.

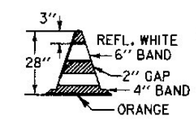
E.) BATTERY OPERATED FLASHERS SHALL NOT BE ALLOWED.



FLASHING BEACON DETAIL

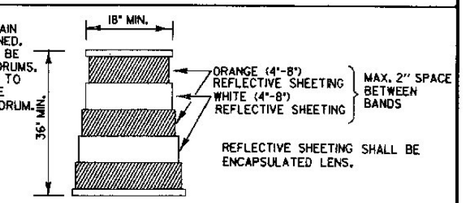
NOTES:

1.) 28" CONES SHALL BE USED ON ROADWAYS WITH SPEED LIMITS OF 35 MPH OR MORE AND ON ALL ROADWAYS DURING HOURS OF DARKNESS.
2.) CONES MAY BE WEIGHTED TO PREVENT OVER-TURNING, HOWEVER THE WEIGHTS SHALL NOT PRESENT A HAZARD IF THE CONE IS STRUCK.



28" REFLECTORIZED CONE

DRUMS SHALL REMAIN UPRIGHT AS DESIGNED. SAND BAGS SHALL BE USED TO WEIGHT DRUMS. ALL WEIGHTS ARE TO BE PLACED IN THE BOTTOM OF THE DRUM.



REFLECTIVE SHEETING SHALL BE ENCAPSULATED LENS.

REFLECTORIZED PLASTIC DRUM

REVISIONS AND CORRECTIONS

APPROVED

APRIL 22, 1988
DATE

David B Kelley
CHIEF ENGINEER

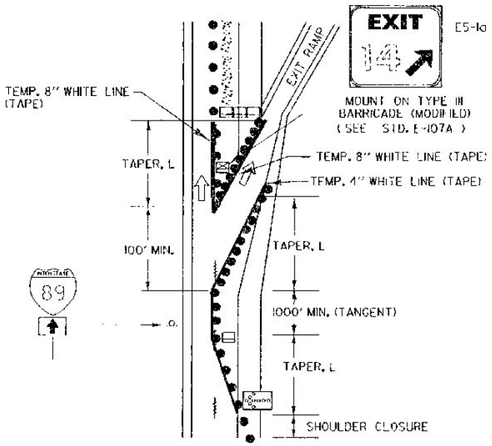
Arthur Gore
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon S. MacArthur
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL MISCELLANEOUS DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-106



NOT TO SCALE

MAINLINE LANE CLOSURE AT AN EXIT RAMP

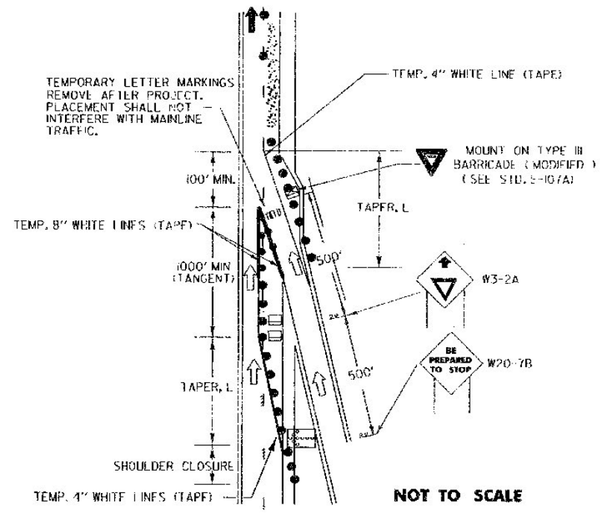
THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT THE GORE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE EXIT RAMP.

NOTES:

1) ALL SIGNS SHALL BE MOUNTED ON FIXED POSTS (YIELDING TYPE) UNLESS OTHERWISE NOTED.
2) CHANNELIZING DEVICES SHALL BE PLACED AS FOLLOWS:
   TAPERS - DEVICES SHALL BE SPACED A MAXIMUM OF "S" (THE SPEED LIMIT IN FEET) APART.
   TANGENT - DEVICES SHALL BE SPACED 2 X "S" (THE SPEED LIMIT IN FEET) APART.
3) ALL DISTANCES ARE DESIRABLE MINIMUMS FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
4) TAPER RATES ARE BASED ON THE POSTED MAILINE AND EXIT SPEEDS.
5) TEMPORARY PAVEMENT MARKINGS ARE REQUIRED WHEN THE LAYOUT IS TO BE IN EFFECT FOR THREE DAYS OR MORE.
6) LANE CLOSURES AND TAPER LENGTHS, L, AS DETAILED ON STANDARD E-103.
7) EXIT SIGN SHALL BE MOUNTED A MINIMUM OF 3' ABOVE THE GROUND AND HIGH ENOUGH TO BE SEEN ABOVE CHANNELIZING DEVICES.

LEGEND

- REFL. 28" CONES
- REFL. PLASTIC DRUMS
- PAVEMENT MARKING REMOVAL
- INDICATES TRAFFIC FLOW
- WORK AREA
- FLASHING ARROW PANEL
- TYPE III BARRICADES
- TYPE III BARRICADES (MOD.)

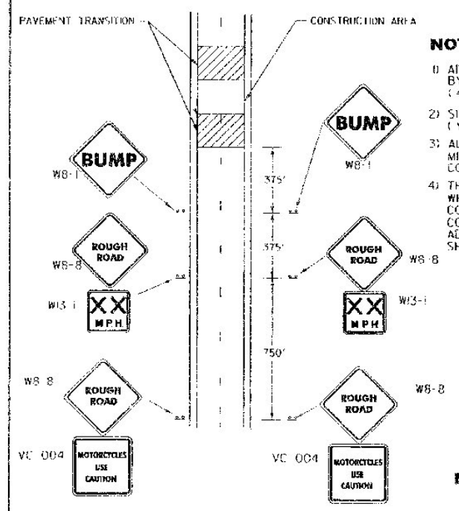


NOT TO SCALE

MAINLINE LANE CLOSURE AT AN ENTRANCE RAMP

THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT AT THE END OF THE ACCELERATION LANE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE ON-RAMP TRAFFIC.

IF THE LENGTH OF THE ACCELERATION LANE IS NOT ADEQUATE, THE YIELD SIGN SHALL BE REPLACED WITH A STOP SIGN. IF A STOP SIGN IS USED, IT SHOULD BE ACCOMPANIED BY A STOP BAR.



NOTES:

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2) SIGNS MOUNTED ON FIXED POSTS. (YIELDING TYPE)
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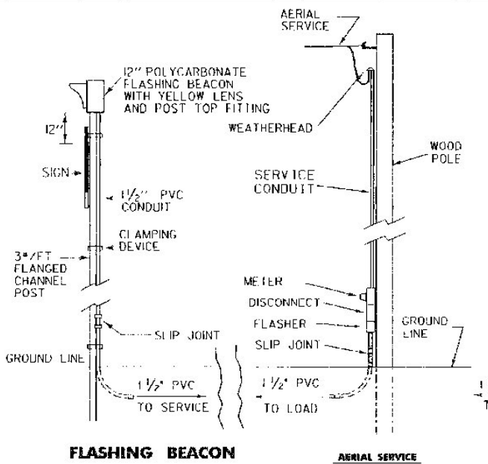
4) THE BUMP SIGN MAY BE ELIMINATED WHEN THERE IS NO BUMP. WHEN THE CONTRACTOR IS WORKING IN THE CONSTRUCTION AREA THE APPROPRIATE ADVANCED WARNING SIGN PACKAGE SHALL BE USED. SEE STD.E-103.

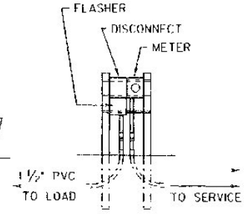
NOT TO SCALE

ADVANCED WARNING SIGN PACKAGE FOR COLD PLANED (SCARIFIED) SURFACES.



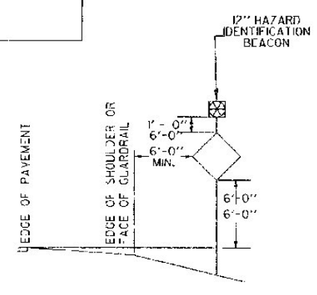
FLASHING BEACON DETAIL

SEE STANDARD E-175



AERIAL SERVICE WITHOUT LUMINAIRE

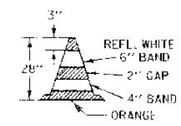
UNDERGROUND SERVICE DETAIL



SIGN PLACEMENT DETAIL

NOTES:

1.) AT THE CONTRACTOR'S OPTION:
   A. THE POWER SUPPLY MAY BE AERIAL OR UNDERGROUND (SEE DETAIL).
   B. POWER FOR A FLASHING BEACON MAY BE COMBINED WITH POWER FOR A TRAFFIC SIGNAL OR THEY MAY HAVE SEPARATE POWER SOURCES.
   C. THE FLASHER MAY BE INSTALLED ON A STANCHION NEAR THE SIGN, ON A UTILITY POLE (WITH UTILITY COMPANY APPROVAL) OR AT THE SAME LOCATION AS A TRAFFIC SIGNAL CONTROLLER.
2.) THE FLASHER UNIT SHALL BE ONE CIRCUIT AND INCLUDE A RADIO INTERFERENCE FILTER.
3.) BATTERY OPERATED FLASHERS WILL NOT BE ALLOWED.
4.) BOTTOM OF THE BEACON SHALL BE A MIN. OF 8'-0" AND A MAX. OF 12'-0" ABOVE THE EDGE OF THE PAVEMENT.
5.) FOR URBAN AREA PLACEMENT SEE STD. E-121.

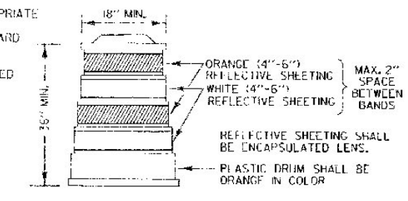


NOTES:

1.) 28" CONES SHALL BE USED ON ROADWAYS WITH SPEED LIMITS OF 35 MPH OR MORE AND ON ALL ROADWAYS DURING HOURS OF DARKNESS.
2.) CONES MAY BE WEIGHTED TO PREVENT OVER-TURNING, HOWEVER THE WEIGHTS SHALL NOT PRESENT A HAZARD IF THE CONE IS STRUCK.
3.) REFLECTIVE SHEETING SHALL BE ENCAPSULATED LENS.

28" REFLECTORIZED CONE

SAND BAGS OR AN APPROPRIATE BALLASTING DEVICE, WHICH DOES NOT PRESENT A HAZARD TO THE IMPACTING VEHICLE OR BECOME A PROJECTILE UPON IMPACT, SHALL BE USED TO WEIGHT DRUMS.



REFLECTORIZED PLASTIC DRUM

OTHER STDS. REQUIRED:				
	E-101	E-102A	E-107A	E-150
	E-102	E-103	E-136	E-175

REVISIONS AND CORRECTIONS

APR 12, 1988 - DATE OF ORIGINAL ISSUE
JAN 23, 1989 - REVISED EXIT SIGN - CLARIFIED EXIT TAPER
SEPT 20, 1993 REVISED RAMP CLOSURES, FLASHING BEACON DETAILS AND MOVED TYPE III BARRICADE (MOD) TO STDE-107A
AUG 08, 1995 - REVISED BEACON SIZE

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

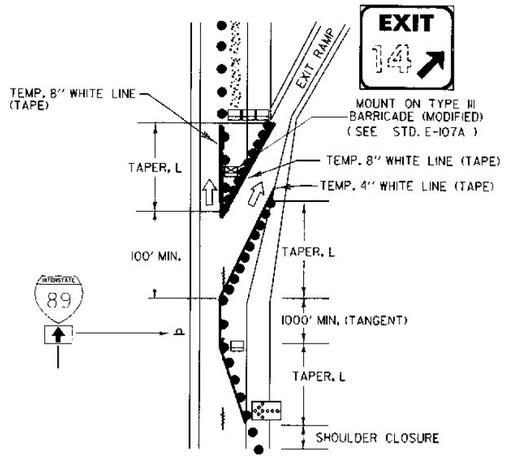
TRAFFIC CONTROL MISCELLANEOUS DETAILS

/trd/std/stde06.dgn : sde06.

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-106

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. HWA FINAL APPROVAL PENDING.



NOTES:

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2) CHANNELIZING DEVICES SHALL BE PLACED AS FOLLOWS:
   TAPERS - DEVICES SHALL BE SPACED A MAXIMUM OF "S" (THE SPEED LIMIT IN FEET) APART.
   TANGENT - DEVICES SHALL BE SPACED 2 X "S" (THE SPEED LIMIT IN FEET) APART.
3) ALL DISTANCES ARE DESIRABLE MINIMUMS FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
4) TAPER RATES ARE BASED ON THE POSTED MAILINE AND EXIT SPEEDS.
5) TEMPORARY PAVEMENT MARKINGS ARE REQUIRED WHEN THE LAYOUT IS TO BE IN EFFECT FOR THREE DAYS OR MORE.
6) LANE CLOSURES AND TAPER LENGTHS, L, AS DETAILED ON STANDARD E-103.

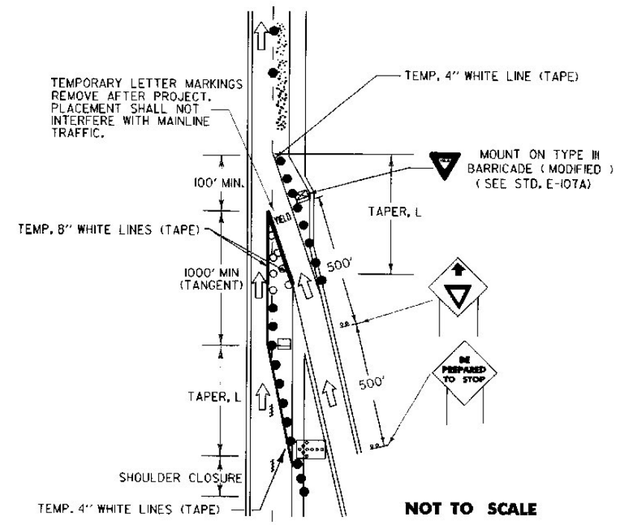
NOT TO SCALE

MAINLINE LANE CLOSURE AT AN EXIT RAMP

THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT THE GORE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE EXIT RAMP.

LEGEND

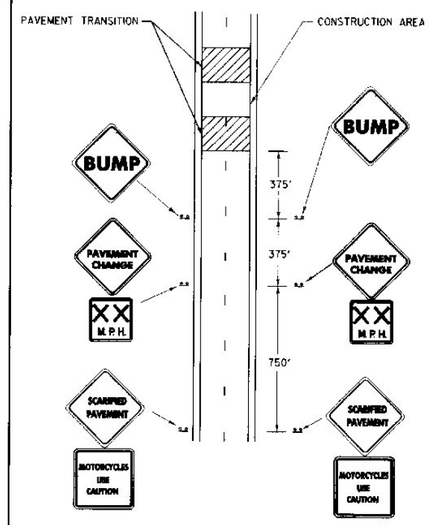
- O REFL. 28" CONES
- ● REFL. PLASTIC DRUMS
- PAVEMENT MARKING REMOVAL
- INDICATES TRAFFIC FLOW
- WORK AREA
- FLASHING ARROW PANEL
- TYPE III BARRICADES
- TYPE III BARRICADES (MOD.)



NOT TO SCALE

MAINLINE LANE CLOSURE AT AN ENTRANCE RAMP

THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT AT THE END OF THE ACCELERATION LANE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE ON-RAMP TRAFFIC.



NOTES:

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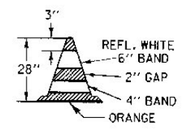
4) THE BUMP SIGN MAY BE ELIMINATED WHEN THERE IS NO BUMP. WHEN THE CONTRACTOR IS WORKING IN THE CONSTRUCTION AREA THE APPROPRIATE ADVANCED WARNING SIGN PACKAGE SHALL BE USED. SEE STD.E-103.

NOT TO SCALE

ADVANCED WARNING SIGN PACKAGE FOR COLD PLANED (SCARIFIED) SURFACES.

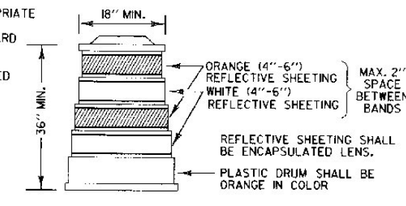


NOTES:

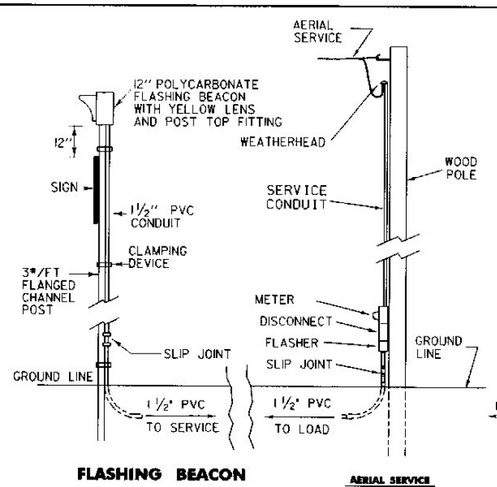
1.) 28" CONES SHALL BE USED ON ROADWAYS WITH SPEED LIMITS OF 35 MPH OR MORE AND ON ALL ROADWAYS DURING HOURS OF DARKNESS.
2.) CONES MAY BE WEIGHTED TO PREVENT OVER-TURNING, HOWEVER THE WEIGHTS SHALL NOT PRESENT A HAZARD IF THE CONE IS STRUCK.
3.) REFLECTIVE SHEETING SHALL BE ENCAPSULATED LENS.

28" REFLECTORIZED CONE

SAND BAGS OR AN APPROPRIATE BALLASTING DEVICE, WHICH DOES NOT PRESENT A HAZARD TO THE IMPACTING VEHICLE OR BECOME A PROJECTILE UPON IMPACT, SHALL BE USED TO WEIGHT DRUMS.



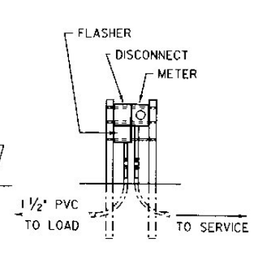
REFLECTORIZED PLASTIC DRUM



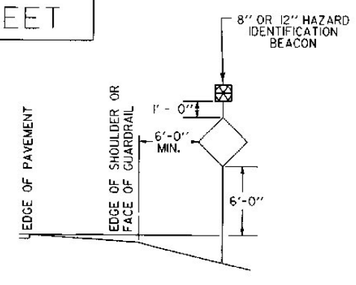
FLASHING BEACON DETAIL

AERIAL SERVICE WITHOUT LUMINAIRE

SEE STANCHION DETAIL SHEET



UNDERGROUND SERVICE DETAIL



SIGN PLACEMENT DETAIL

NOTES:

1.) AT THE CONTRACTOR'S OPTION:
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   C. THE FLASHER MAY BE INSTALLED ON A STANCHION NEAR THE SIGN, ON A UTILITY POLE (WITH UTILITY COMPANY APPROVAL) OR AT THE SAME LOCATION AS A TRAFFIC SIGNAL CONTROLLER.
2.) THE FLASHER UNIT SHALL BE ONE CIRCUIT AND INCLUDE A RADIO INTERFERENCE FILTER.
3.) BATTERY OPERATED FLASHERS WILL NOT BE ALLOWED.
4.) BOTTOM OF THE BEACON SHALL BE A MIN. OF 8'-0" AND A MAX. OF 12'-0" ABOVE THE EDGE OF THE PAVEMENT.
5.) FOR URBAN AREA PLACEMENT SEE STD. E-121.

OTHER STDS. REQUIRED : E-101, E-102, E-103, E-107A, E-136, E-150 STANCHION DETAIL SHEET

REVISIONS AND CORRECTIONS

JAN. 23, 1989 - REVISED EXIT SIGN - CLARIFIED EXIT TAPER

SEPT. 20, 1993 - REVISED RAMP CLOSURES, FLASHING BEACON DETAILS AND MOVED TYPE III BARRICADE (MOD.) TO STD. E-107A

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED APRIL 22, 1988 DATE

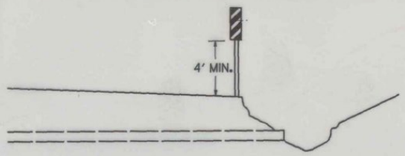
DIRECTOR OF ENGINEERING

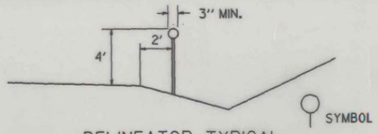
Acting TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL MISCELLANEOUS DETAILS

VERMONT AGENCY OF TRANSPORTATION

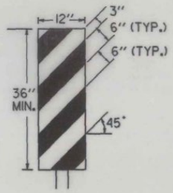
STANDARD E-106





DELINEATOR TYPICAL

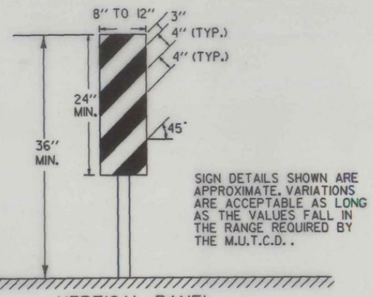
DELINEATORS SHALL BE REFLECTORIZED WHITE IN COLOR. THEY SHALL HAVE A MINIMUM OF 7 SQUARE INCHES. THEY MAY BE ROUND, SQUARE, OR OBLONG.



OBJECT MARKER TYPICAL

OBJECTS ADJACENT TO THE ROADWAY SHALL REQUIRE AN OBJECT MARKER TO MARK THE OBSTRUCTION. IN SOME CASES THERE MAY NOT BE A PHYSICAL OBJECT INVOLVED BUT OTHER ROADSIDE CONDITIONS SUCH AS NARROW SHOULDER DROP-OFFS. GORES, D.I. EXCAVATIONS, OR ABRUPT CHANGES IN THE ROADWAY ALIGNMENT MAY MAKE IT UNDESIRABLE FOR A DRIVER TO LEAVE THE ROADWAY. THE INSIDE EDGE OF THE OBJECT MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION, WHENEVER POSSIBLE.

OBJECT MARKERS SHALL HAVE ALTERNATING REFLECTORIZED BLACK STRIPES. (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS).

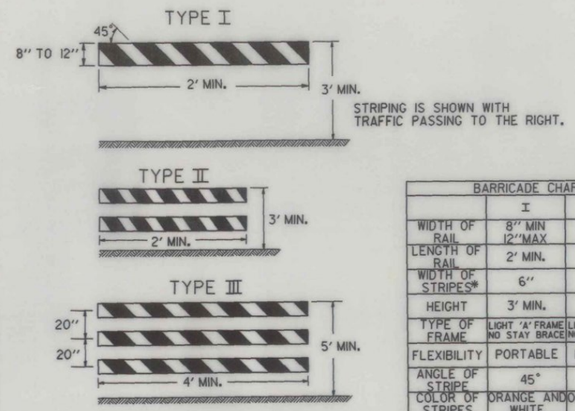


SIGN DETAILS SHOWN ARE APPROXIMATE. VARIATIONS ARE ACCEPTABLE AS LONG AS THE VALUES FALL IN THE RANGE REQUIRED BY THE M.U.T.C.D..

VERTICAL PANEL

VERTICAL PANELS SHALL HAVE ALTERNATING ORANGE AND WHITE REFLECTORIZED STRIPES (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS). THESE DEVICES MAY BE USED FOR TRAFFIC SEPARATION OR SHOULDER BARRICADING WHERE SPACE IS AT A MINIMUM.

DELINEATOR AND OBJECT MARKER DETAILS FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED



A TYPE III (MODIFIED) BARRICADE SHALL CONSIST OF TYPE II RAILS MOUNTED ON A BREAKAWAY BARRICADE AS SHOWN ON STANDARD SHEET E-107A.

BARRICADE CHARACTERISTICS	I	II	III
WIDTH OF RAIL	8" MIN 12" MAX	8" MIN 12" MAX	8" MIN 12" MAX
LENGTH OF RAIL	2' MIN.	2' MIN.	4' MIN.
WIDTH OF STRIPES*	6"	6"	6"
HEIGHT	3' MIN.	3' MIN.	5' MIN.
TYPE OF FRAME	LIGHT 'A' FRAME NO STAY BRACE	LIGHT 'A' FRAME NO STAY BRACE	SEE E-107A
FLEXIBILITY	PORTABLE	PORTABLE	PORTABLE
ANGLE OF STRIPE	45°	45°	45°
COLOR OF STRIPES	ORANGE AND WHITE	ORANGE AND WHITE	ORANGE AND WHITE

* FOR RAILS LESS THAN 3 FEET LONG 4" WIDE STRIPES SHALL BE USED.

BARRIER CHARACTERISTICS

1. SIGNS AND DELINEATION SHOWN FOR ONE DIRECTION OF TRAFFIC ONLY.
2. CONTRACTOR IS RESPONSIBLE FOR PAVEMENT MARKING AND SHALL REMOVE ANY CONFLICTING OR CONFUSING EXISTING MARKINGS.
3. ADDITIONAL SIGNING MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER.
4. UNPAVED DETOURS REQUIRE PAVEMENT MARKINGS FOR TRANSITIONS ON EXISTING PAVEMENT.

BARRICADES

APPLICATION NOTES

TYPE I BARRICADES ARE TO BE USED ON CONVENTIONAL ROADS OR URBAN STREETS AND ARTERIALS TO MARK A SPECIFIC HAZARD.

TYPE II BARRICADES ARE TO BE USED ON EXPRESSWAYS AND FREEWAYS, SERVING THE SAME FUNCTONS AS THE TYPE I BARRICADES.

TYPE III BARRICADES (SEE STANDARD E-107A) SHALL ONLY BE USED WHEN A ROAD SECTION IS CLOSED TO TRAFFIC AND ARE TO BE ERECTED AT THE POINT OF CLOSURE.

MATERIALS

THE BARRICADES SHOWN ON THIS SHEET NORMALLY WILL BE OF LIGHTWEIGHT MATERIAL. IF WOOD IS USED THE FOLLOWING CONDITIONS SHALL APPLY:

1. WOODEN BARRICADES (TYPES I AND II)

   A. SHALL NOT BE USED TO CHANNELIZE OR DELINEATE WORK AREAS WITHIN THE CLEAR ZONE OF ANY HIGHWAY WHERE OPERATING SPEEDS IN EXCESS OF 20 MILES PER HOUR ARE EXPECTED UNLESS INSTALLED FOR PEDESTRIAN CONTROL BEHIND APPROVED POSITIVE BARRIERS.

   B. MAY BE USED IF OPERATING SPEEDS OF 20 M.P.H. OR LESS ARE EXPECTED.

2. TYPE III WOODEN BARRICADES SHALL NOT BE USED.

DESIGN

THE DESIGN OF THE BARRICADES SHALL CONFORM WITH THE DETAILS SHOWN ON THIS SHEET AND THE MARKINGS ON THE BARRICADES SHALL BE ALTERNATE ORANGE AND WHITE STRIPES. (SLOPING DOWNWARD AT AN ANGLE OF 45° IN THE DIRECTION TRAFFIC IS TO PASS)

COLORS

THE BARRICADE PANELS SHOWN ON THIS SHEET SHALL HAVE ALTERNATING REFLECTORIZED WHITE AND ORANGE STRIPES. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION. THE BARRICADE COMPONENTS SHALL BE WHITE UNLESS UNPAINTED METAL OR ALUMINUM IS USED.

REFLECTORIZATION

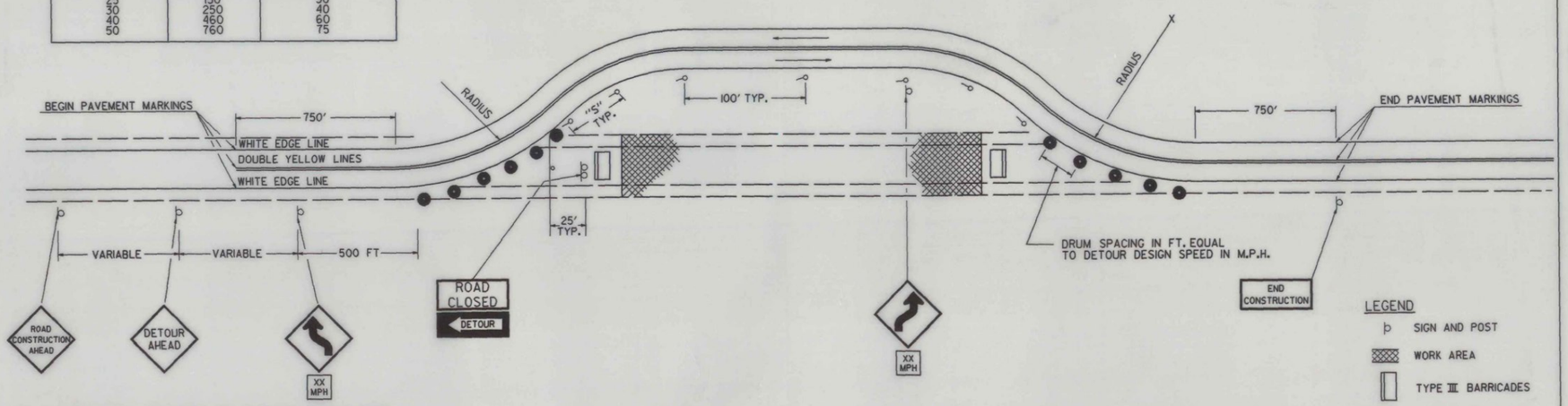
THE BARRICADE PANELS SHALL BE REFLECTORIZED WITH REFLECTIVE SHEETING.

LOCATION

THE BARRICADES SHOWN ON THIS SHEET WILL BE LOCATED BY THE ENGINEER IN THE FIELD OR AS SHOWN ON THE PLANS. THE LOCATION OF THE BARRICADES SHALL FOLLOW THE PROCEDURES SET FORTH IN "THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", OR AS OTHERWISE NOTED.

MAINTENANCE

BARRICADES SHALL BE MAINTAINED IN CLEAN CONDITION, SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED, OR REPLACED AS ORDERED BY THE ENGINEER.



ALL SIGN PLACEMENT DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT. PROJECT CONSTRUCTION APPROACH SIGNING PLACEMENT SHALL TAKE INTO CONSIDERATION SPACING FOR THE DETOUR SIGN LAYOUT REQUIREMENTS.

TRAFFIC CONTROL PLAN TWO LANE HIGHWAY PAVED DETOUR

SEE VARIOUS STANDARD SHEETS FOR SIGN DETAIL AND MATERIAL REQUIREMENTS

REVISIONS AND CORRECTIONS

APRIL 29, 1988 - FHWA REVIEW COMMENTS

APPROVED

SEPT. 10, 1987
DATE

David B. Kelley
CHIEF ENGINEER

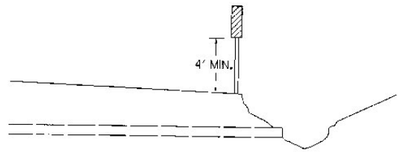
Arthur Goss
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

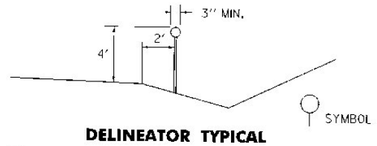
Gordon S. MacArthur
TRAFFIC AND SAFETY ENGINEER

DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS

VERMONT AGENCY OF TRANSPORTATION

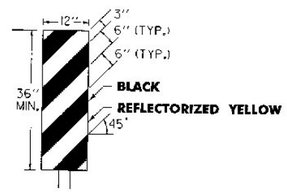
STANDARD E-107





DELINEATOR TYPICAL

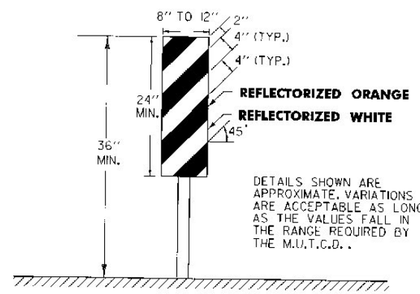
DELINEATORS SHALL BE REFLECTORIZED WHITE IN COLOR. THEY SHALL HAVE A MINIMUM OF 7 SQUARE INCHES. THEY MAY BE ROUND, SQUARE, OR OBLONG.



OBJECT MARKER TYPICAL

OBJECTS MARKERS ARE USED TO MARK OBSTRUCTIONS WITHIN OR ADJACENT TO THE ROADWAY, IN SOME CASES THERE MAY NOT BE A PHYSICAL OBJECT INVOLVED, BUT OTHER ROADSIDE CONDITIONS SUCH AS NARROW SHOULDER DROP-OFFS, GORES, D.I. EXCAVATIONS, AND ABRUPT CHANGES IN THE ROADWAY ALIGNMENT MAY MAKE IT UNDESIRABLE FOR A DRIVER TO LEAVE THE ROADWAY. THE INSIDE EDGE OF THE OBJECT MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION, WHENEVER POSSIBLE.

OBJECT MARKERS SHALL HAVE ALTERNATING BLACK AND REFLECTORIZED YELLOW STRIPES, (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS).

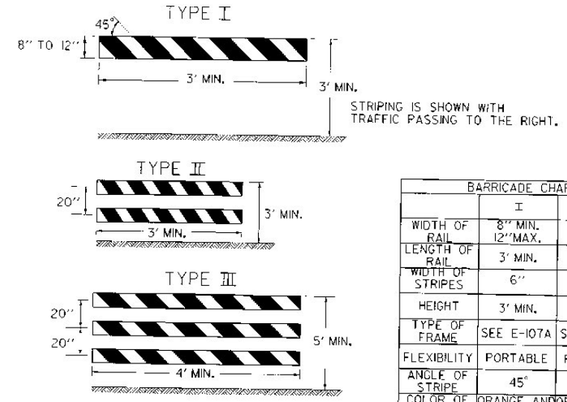


DETAILS SHOWN ARE APPROXIMATE. VARIATIONS ARE ACCEPTABLE AS LONG AS THE VALUES FALL IN THE RANGE REQUIRED BY THE M.U.T.C.D..

VERTICAL PANEL

VERTICAL PANELS SHALL HAVE ALTERNATING ORANGE AND WHITE REFLECTORIZED STRIPES (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS). THESE DEVICES MAY BE USED FOR TRAFFIC SEPARATION, CHANNELIZING OR BARRICADING WHERE SPACE IS AT A MINIMUM.

DELINEATOR, VERTICAL PANEL AND OBJECT MARKER DETAILS FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED



A TYPE III (MODIFIED) BARRICADE SHALL CONSIST OF TYPE II RAILS MOUNTED ON A BREAKAWAY BARRICADE AS SHOWN ON STANDARD SHEET E-107A.

BARRICADE CHARACTERISTICS			
	I	II	III
WIDTH OF RAIL	8" MIN. 12" MAX.	8" MIN. 12" MAX.	8" MIN. 12" MAX.
LENGTH OF RAIL	3' MIN.	3' MIN.	4' MIN.
WIDTH OF STRIPES	6"	6"	6"
HEIGHT	3' MIN.	3' MIN.	5' MIN.
TYPE OF FRAME	SEE E-107A	SEE E-107A	SEE E-107A
FLEXIBILITY	PORTABLE	PORTABLE	PORTABLE
ANGLE OF STRIPE	45°	45°	45°
COLOR OF STRIPES	ORANGE AND WHITE	ORANGE AND WHITE	ORANGE AND WHITE

BARRICADE CHARACTERISTICS

BARRICADES

APPLICATION NOTES

TYPE I BARRICADES SHALL BE USED ON CONVENTIONAL ROADS OR URBAN STREETS AND ARTERIALS TO MARK A SPECIFIC HAZARD.

TYPE II BARRICADES SHALL BE USED ON EXPRESSWAYS AND FREEWAYS, SERVING THE SAME FUNCTIONS AS TYPE I BARRICADES.

TYPE III BARRICADES (SEE STD. E-107A) SHALL ONLY BE USED WHEN A ROAD SECTION OR LANE IS CLOSED TO TRAFFIC AND ARE TO BE ERECTED AT THE POINT OF CLOSURE.

MATERIALS

THE BARRICADES SHOWN ON THIS SHEET SHOULD BE OF LIGHTWEIGHT MATERIAL. IF WOOD IS USED THE FOLLOWING CONDITIONS SHALL APPLY:

1. WOODEN BARRICADES (TYPE I AND II)
   A) SHALL NOT BE USED TO CHANNELIZE OR DELINEATE WORK AREAS WITHIN THE CLEAR ZONE OF ANY HIGHWAY WHERE OPERATING SPEEDS IN EXCESS OF 20 M.P.H. ARE EXPECTED UNLESS INSTALLED FOR PEDESTRIAN CONTROL BEHIND APPROVED POSITIVE BARRIERS.
   B) MAY BE USED WHERE OPERATING SPEEDS OF 20 M.P.H. OR LESS ARE EXPECTED.
2. TYPE III WOODEN BARRICADES SHALL NOT BE USED.

COLORS

THE BARRICADE PANELS SHOWN ON THIS SHEET SHALL HAVE AN ALTERNATING REFLECTORIZED WHITE AND ORANGE STRIPES. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION. THE BARRICADE COMPONENTS SHALL BE WHITE UNLESS UNPAINTED METAL OR ALUMINUM IS USED.

REFLECTORIZATION

THE REFLECTIVE SHEETING ON BARRICADE PANELS SHALL BE TYPE III.

LOCATION

THE BARRICADES SHOWN ON THIS SHEET WILL BE LOCATED BY THE RESIDENT ENGINEER IN THE FIELD OR AS SHOWN ON THE PLANS. THE LOCATION OF THE BARRICADES SHALL FOLLOW THE PROCEDURES SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", OR AS OTHERWISE NOTED.

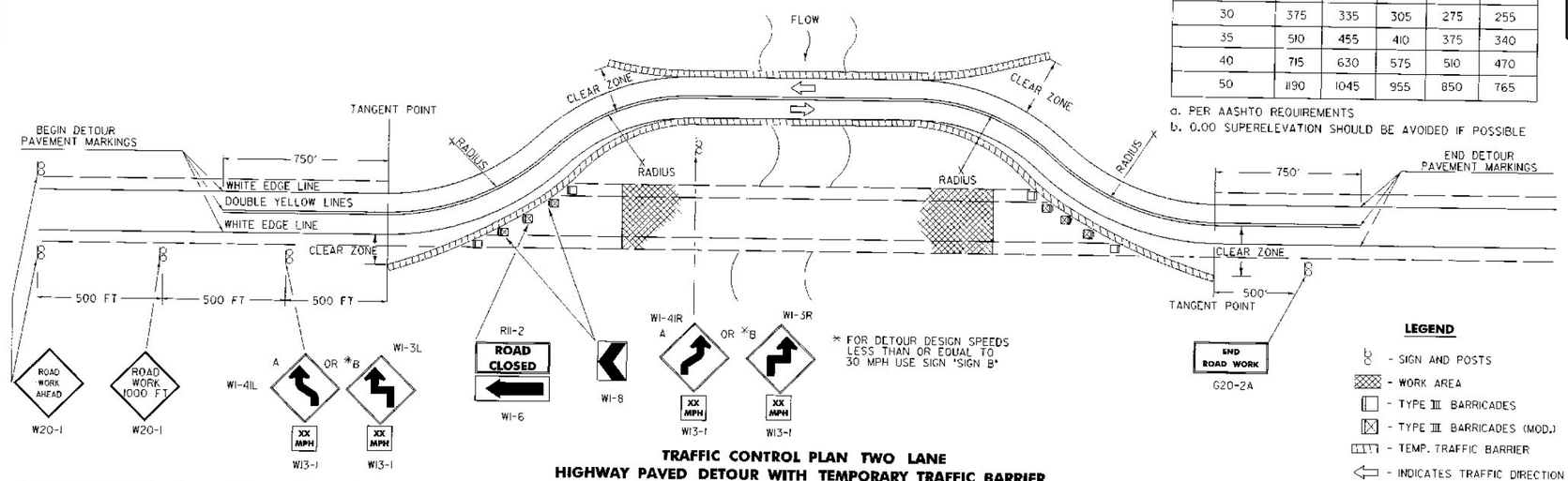
MAINTENANCE

BARRICADES SHALL BE MAINTAINED IN CLEAN CONDITION, SATISFACTORY TO THE RESIDENT ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO THE APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED, OR REPLACED AS ORDERED BY THE RESIDENT ENGINEER.

ALL SIGN PLACEMENT DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT. PROJECT CONSTRUCTION APPROACH SIGNING PLACEMENT SHALL TAKE INTO CONSIDERATION SPACING REQUIREMENTS FOR THE DETOUR SIGN LAYOUT REQUIREMENTS.

DETOUR DESIGN SPEED (M.P.H.)	MINIMUM RADIUS (FT.)[a] SUPERELEVATION (FT./FT.) 0.00[b]	0.02	0.04	0.06	0.08
20	160	140	130	120	110
25	245	220	200	185	170
30	375	335	305	275	255
35	510	455	410	375	340
40	715	630	575	510	470
50	1190	1045	955	850	765

a. PER AASHTO REQUIREMENTS
b. 0.00 SUPERELEVATION SHOULD BE AVOIDED IF POSSIBLE



TRAFFIC CONTROL PLAN TWO LANE HIGHWAY PAVED DETOUR WITH TEMPORARY TRAFFIC BARRIER

DETOUR NOTES

1.) SIGNS AND DELINEATION SHOWN FOR ONE DIRECTION OF TRAFFIC ONLY.

2.) THE CONTRACTOR IS RESPONSIBLE FOR PAVEMENT MARKING AND SHALL REMOVE ANY CONFLICTING OR CONFUSING EXISTING MARKINGS.

3.) ADDITIONAL SIGNING MAY BE REQUIRED AT THE DISCRETION OF THE RESIDENT ENGINEER.

4.) UNPAVED DETOURS REQUIRE PAVEMENT MARKINGS FOR TRANSITIONS FROM EXISTING PAVEMENT.

5.) THE NUMBER OF CHANNELIZING DEVICES, BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED SHALL BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.).

6.) AASHTO CLEAR ZONE REQUIREMENTS SHOULD BE MET. IF NOT THEN AN APPROVED ENERGY ABSORPTION ATTENUATOR SUITABLE FOR THE TEMPORARY TRAFFIC BARRIER USED AND FOR THE DESIGN SPEED SHALL BE INSTALLED PER THE CURRENT AASHTO ROADSIDE DESIGN GUIDE.

7.) THE DETOUR DESIGN SPEED SHOULD BE NO LESS THAN 10 M.P.H. BELOW THE POSTED SPEED LIMIT, UNLESS PHYSICAL RESTRICTIONS PREVENT THIS.

8.) SEE STANDARD SHEETS E-100, E-101 AND E-102 FOR SIGN DETAIL AND MATERIAL REQUIREMENTS.

9.) IF THE USE OF TEMPORARY TRAFFIC BARRIER IS NOT REQUIRED, THEN REFLECTORIZED PLASTIC DRUMS SHALL BE USED.

OTHER STDS. REQUIRED: E-100, E-101, E-102, E-102a, E-107a

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
APRIL 29, 1988 FHWA REVIEW COMMENTS
SEPT. 20, 1993 - NEW RADIUS CHART, BARRICADE ALIGNMENT AND USE OF TEMPORARY TRAFFIC BARRIER
AUG. 08, 1995 - REVISED SIGNING PER MUTCD

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

June 30, 2003 - Superceded

APPROVED

DIRECTOR OF ENGINEERING

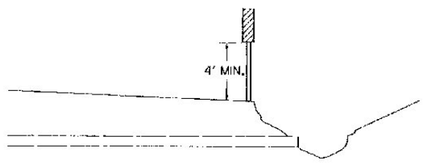
TRAFFIC AND SAFETY ENGINEER

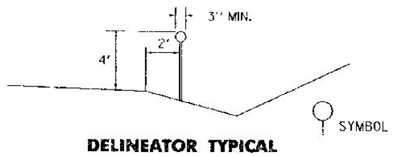
DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS

/traf/std/std107.dgn : std107.i

VERMONT AGENCY OF TRANSPORTATION

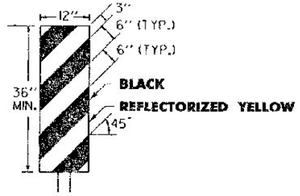
STANDARD E-107





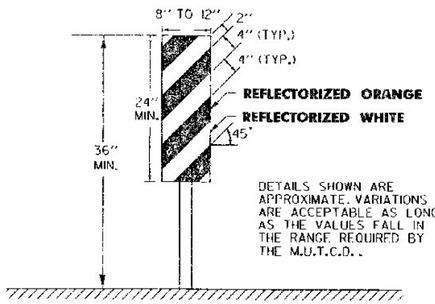
DELINEATOR TYPICAL

DELINEATORS SHALL BE REFLECTORIZED WHITE IN COLOR. THEY SHALL HAVE A MINIMUM OF 7 SQUARE INCHES. THEY MAY BE ROUND, SQUARE, OR OBLONG.



OBJECT MARKER TYPICAL

OBJECTS MARKERS ARE USED TO MARK OBSTRUCTIONS WITHIN OR ADJACENT TO THE ROADWAY. IN SOME CASES THERE MAY NOT BE A PHYSICAL OBJECT INVOLVED, BUT OTHER ROADSIDE CONDITIONS SUCH AS NARROW SHOULDER DROP-OFFS, GORES, D.I. EXCAVATIONS, AND ABRUPT CHANGES IN THE ROADWAY ALIGNMENT MAY MAKE IT UNDESIRABLE FOR A DRIVER TO LEAVE THE ROADWAY. THE INSIDE EDGE OF THE OBJECT MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION, WHENEVER POSSIBLE.
OBJECT MARKERS SHALL HAVE ALTERNATING BLACK AND REFLECTORIZED YELLOW STRIPES. (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS).

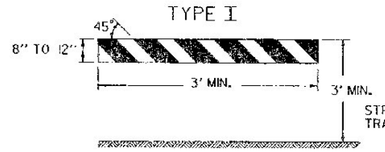


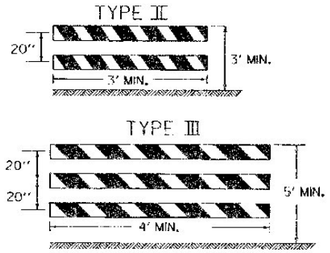
DETAILS SHOWN ARE APPROXIMATE. VARIATIONS ARE ACCEPTABLE AS LONG AS THE VALUES FALL IN THE RANGE REQUIRED BY THE M.U.T.C.D..

VERTICAL PANEL

VERTICAL PANELS SHALL HAVE ALTERNATING ORANGE AND WHITE REFLECTORIZED STRIPES (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS). THESE DEVICES MAY BE USED FOR TRAFFIC SEPARATION, CHANNELIZING OR BARRICADING WHERE SPACE IS AT A MINIMUM.

DELINEATOR, VERTICAL PANEL AND OBJECT MARKER DETAILS FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED





A TYPE III (MODIFIED) BARRICADE SHALL CONSIST OF TYPE II RAILS MOUNTED ON A BREAKAWAY BARRICADE AS SHOWN ON STANDARD SHEET E-107A.

BARRICADE CHARACTERISTICS			
	I	II	III
WIDTH OF RAIL	8" MIN. 12" MAX.	8" MIN. 12" MAX.	8" MIN. 12" MAX.
LENGTH OF RAIL	3' MIN.	3' MIN.	4' MIN.
WIDTH OF STRIPES	6"	6"	6"
HEIGHT	3' MIN.	3' MIN.	5' MIN.
TYPE OF FRAME	SEE E-107A	SEE E-107A	SEE E-107A
FLEXIBILITY	PORTABLE	PORTABLE	PORTABLE
ANGLE OF STRIPE	45°	45°	45°
COLOR OF STRIPES	ORANGE AND WHITE	ORANGE AND WHITE	ORANGE AND WHITE

BARRICADE CHARACTERISTICS

BARRICADES

APPLICATION NOTES

TYPE I BARRICADES SHALL BE USED ON CONVENTIONAL ROADS OR URBAN STREETS AND ARTERIALS TO MARK A SPECIFIC HAZARD.

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MATERIALS

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COLORS

THE BARRICADE PANELS SHOWN ON THIS SHEET SHALL HAVE AN ALTERNATING REFLECTORIZED WHITE AND ORANGE STRIPES. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION. THE BARRICADE COMPONENTS SHALL BE WHITE UNLESS UNPAINTED METAL OR ALUMINUM IS USED.

REFLECTORIZATION

THE REFLECTIVE SHEETING ON BARRICADE PANELS SHALL BE TYPE III.

LOCATION

THE BARRICADES SHOWN ON THIS SHEET WILL BE LOCATED BY THE RESIDENT ENGINEER IN THE FIELD OR AS SHOWN ON THE PLANS. THE LOCATION OF THE BARRICADES SHALL FOLLOW THE PROCEDURES SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", OR AS OTHERWISE NOTED.

MAINTENANCE

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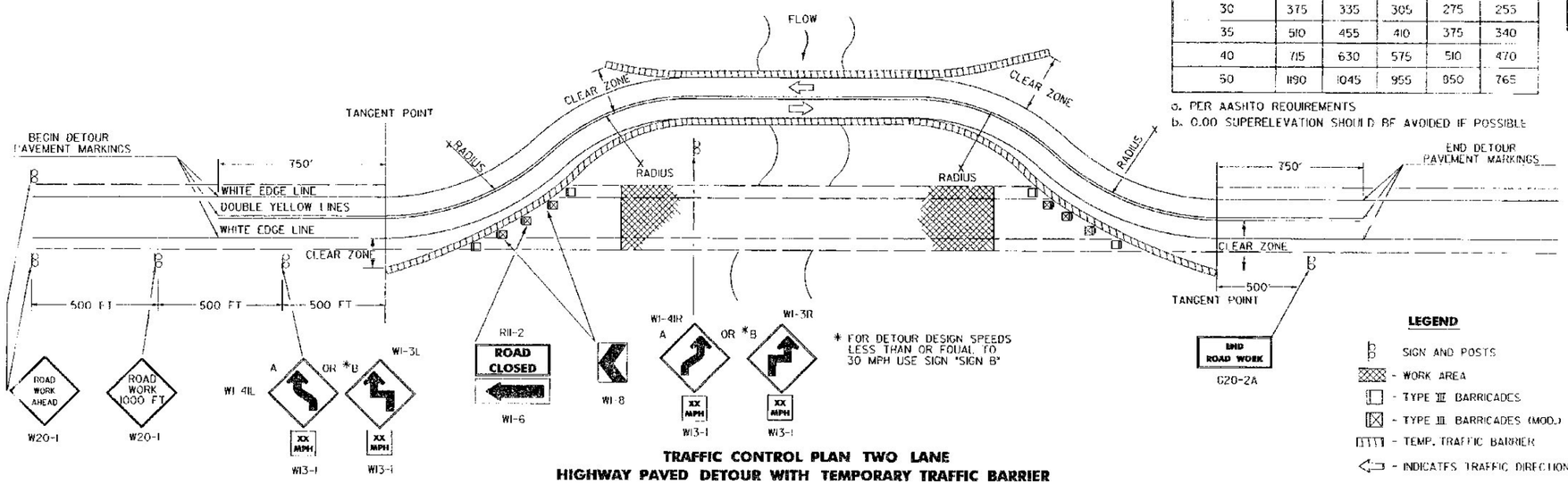
DETOUR DESIGN SPEED	MINIMUM RADIUS (FT.)[a] SUPERELEVATION (FT./FT.)				
(M.P.H.)	0.00[b]	0.02	0.04	0.06	0.08
20	160	140	130	120	110
25	245	220	200	185	170
30	375	335	305	275	255
35	510	455	410	375	340
40	715	630	575	510	470
50	1190	1045	955	850	765

a. PER AASHTO REQUIREMENTS
b. 0.00 SUPERELEVATION SHOULD BE AVOIDED IF POSSIBLE



* FOR DETOUR DESIGN SPEEDS LESS THAN OR EQUAL TO 30 MPH USE SIGN "SIGN B"

LEGEND

- SIGN AND POSTS
- WORK AREA
- TYPE III BARRICADES
- TYPE III BARRICADES (MOD.)
- TEMP. TRAFFIC BARRIER
- INDICATES TRAFFIC DIRECTION

TRAFFIC CONTROL PLAN TWO LANE HIGHWAY PAVED DETOUR WITH TEMPORARY TRAFFIC BARRIER

DETOUR NOTES

1.) SIGNS AND DELINEATION SHOWN FOR ONE DIRECTION OF TRAFFIC ONLY.

2.) THE CONTRACTOR IS RESPONSIBLE FOR PAVEMENT MARKING AND SHALL REMOVE ANY CONFLICTING OR CONFUSING EXISTING MARKINGS.

3.) ADDITIONAL SIGNING MAY BE REQUIRED AT THE DISCRETION OF THE RESIDENT ENGINEER.

4.) UNPAVED DETOURS REQUIRE PAVEMENT MARKINGS FOR TRANSITIONS FROM EXISTING PAVEMENT.

5.) THE NUMBER OF CHANNELIZING DEVICES, BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED SHALL BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.).

6.) AASHTO CLEAR ZONE REQUIREMENTS SHOULD BE MET. IF NOT THEN AN APPROVED ENERGY ABSORPTION ATTENUATOR SUITABLE FOR THE TEMPORARY TRAFFIC BARRIER USED AND FOR THE DESIGN SPEED SHALL BE INSTALLED PER THE CURRENT AASHTO ROADSIDE DESIGN GUIDE.

7.) THE DETOUR DESIGN SPEED SHOULD BE NO LESS THAN 10 M.P.H. BELOW THE POSTED SPEED LIMIT, UNLESS PHYSICAL RESTRICTIONS PREVENT THIS.

8.) SEE STANDARD SHEETS E-100, E-101 AND E-102 FOR SIGN DETAIL AND MATERIAL REQUIREMENTS.

9.) IF THE USE OF TEMPORARY TRAFFIC BARRIER IS NOT REQUIRED, THEN REFLECTORIZED PLASTIC DRUMS SHALL BE USED.

OTHER STDS. REQUIRED: E-100, E-101, E-102, E-102a, E-107a

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
APRIL 29, 1988 - FHWA REVIEW COMMENTS
SEPT. 20, 1993 - NEW RADIUS CHART, BARRICADE ALIGNMENT AND USE OF TEMPORARY TRAFFIC BARRIER
AUG. 08, 1995 - REVISED SIGNING PER MUTCD

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

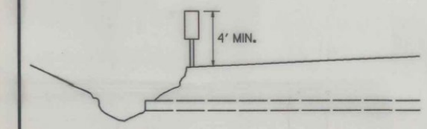
DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS

/traf/std/stde107.dgn : stde107.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-107

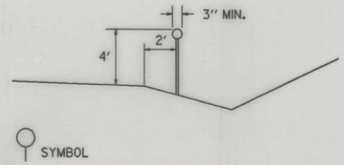
DELINEATOR AND OBJECT MARKER DETAILS FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED



OBJECT MARKER TYPICAL

OBJECTS ADJACENT TO THE ROADWAY SHALL REQUIRE A OBJECT MARKER TO MARK THE OBSTRUCTION. IN SOME CASES THERE MAY NOT BE A PHYSICAL OBJECT INVOLVED BUT OTHER ROADSIDE CONDITIONS SUCH AS NARROW SHOULDER DROP-OFFS. GORES, D.I. EXCAVATIONS OR ABRUPT CHANGE IN THE ROADWAY ALIGNMENT MAY MAKE IT UNDESIRABLE FOR A DRIVER TO LEAVE THE ROADWAY. THE INSIDE EDGE OF THE OBJECT MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION, WHENEVER POSSIBLE.

OBJECT MARKERS ARE 1' x 3' AND YELLOW WITH BLACK STRIPES WITH A DESIGN SIMILAR TO THE 12" x 36" VERTICAL PANEL.



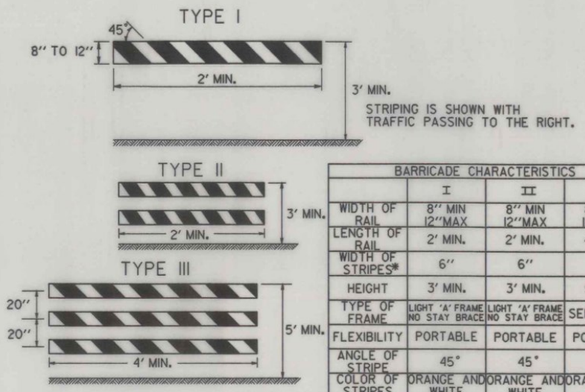
DELINEATOR TYPICAL

DELINEATORS SHALL BE REFLECTORIZED WHITE IN COLOR. THEY SHALL HAVE A MINIMUM OF 7 SQUARE INCHES. THEY MAY BE ROUND, SQUARE, OR OBLONG.

VERTICAL PANEL

VERTICAL PANELS SHALL HAVE ALTERNATING ORANGE AND WHITE REFLECTORIZED STRIPES (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS). THESE DEVICES MAY BE USED FOR TRAFFIC SEPARATION OR SHOULDER BARRICADING WHERE SPACE IS AT A MINIMUM.

BARRIER CHARACTERISTICS



BARRICADE CHARACTERISTICS	I	II	III
WIDTH OF RAIL	8" MIN 12"MAX	8" MIN 12"MAX	8" MIN 12"MAX
LENGTH OF RAIL	2' MIN.	2' MIN.	4' MIN.
WIDTH OF STRIPES*	6"	6"	6"
HEIGHT	3' MIN.	3' MIN.	5' MIN.
TYPE OF FRAME	LIGHT 'A' FRAME NO STAY BRACE	LIGHT 'A' FRAME NO STAY BRACE	SEE E-107A
FLEXIBILITY	PORTABLE	PORTABLE	PORTABLE
ANGLE OF STRIPE	45°	45°	45°
COLOR OF STRIPES	ORANGE AND WHITE	ORANGE AND WHITE	ORANGE AND WHITE

* FOR RAILS LESS THAN 3 FEET LONG 4" WIDE STRIPES SHALL BE USED.

BARRICADES

APPLICATION NOTES

TYPE I BARRICADES ARE TO BE USED ON CONVENTIONAL ROADS OR URBAN STREET AND ARTERIALS TO MARK A SPECIFIC HAZARD.

TYPE II BARRICADES ARE TO BE USED ON EXPRESSWAYS AND FREEWAYS, SERVING THE SAME FUNCTONS AS THE TYPE I BARRICADES.

TYPE III BARRICADES(SEE STANDARD E-107A) SHALL ONLY BE USED WHEN A ROAD SECTION IS CLOSED TO TRAFFIC AND ARE TO BE ERECTED AT THE POINT OF CLOSURE.

MATERIALS

THE BARRICADES SHOWN ON THIS SHEET NORMALLY WILL BE OF LIGHTWEIGHT MATERIAL. IF WOOD IS USED THE FOLLOWING CONDITIONS SHALL APPLY.

1. WOODEN BARRICADES (TYPES I AND II)
   A. SHALL NOT BE USED TO CHANNELIZE OR DELINEATE WORK AREAS WITHIN THE CLEAR ZONE OF ANY HIGHWAY WHERE OPERATING SPEEDS IN EXCESS OF 20 MILES PER HOUR ARE EXPECTED UNLESS INSTALLED FOR PEDESTRIAN CONTROL BEHIND APPROVED POSITIVE BARRIERS.
   B. MAY BE USED IF OPERATING SPEEDS OF 20 M.P.H. OR LESS ARE EXPECTED.
2. TYPE III WOODEN BARRICADES SHALL NOT BE USED WITHIN THE CLEAR ZONE OF ANY HIGHWAY REGARDLESS OF THE TRAFFIC OPERATING SPEED.

DESIGN

THE DESIGN OF THE BARRICADES SHALL CONFORM WITH THE DETAILS SHOWN ON THIS SHEET AND THE MARKINGS ON THE BARRICADES SHALL BE ALTERNATE ORANGE AND WHITE STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45° IN THE DIRECTION TRAFFIC IS TO PASS.

COLORS

THE BARRICADE PANELS SHOWN ON THIS SHEET SHALL HAVE ALTERNATING REFLECTORIZED WHITE AND ORANGE STRIPES. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION. THE BARRICADE COMPONENTS SHALL BE WHITE EXCEPT THAT UNPAINTED METAL OR ALUMINUM MAY BE USED.

REFLECTORIZATION

THE BARRICADES SHALL BE REFLECTORIZED WITH REFLECTIVE SHEETING.

LOCATION

THE BARRICADES SHOWN ON THIS SHEET WILL BE LOCATED BY THE ENGINEER IN THE FIELD OR AS SHOWN ON THE PLANS. THE LOCATION OF THE BARRRICADES SHALL FOLLOW THE PROCEDURES SET FORTH IN "THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", OR AS OTHERWISE NOTED.

MAINTENANCE

BARRICADES SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED, OR REPLACED AS ORDERED BY THE ENGINEER.

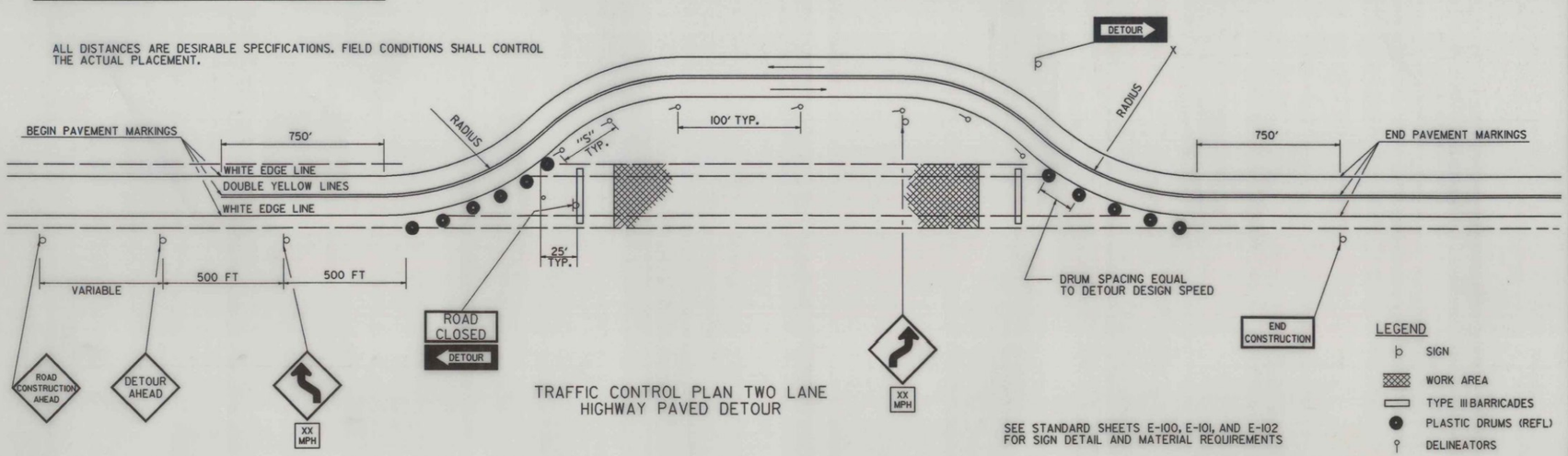
LIGHTING

FOR NIGHTTIME USE ADD FLASHING WARNING LIGHTS WHEN BARRICADES ARE USED SINGLY AND STEADY BURN LIGHTS WHEN BARRICADES ARE USED IN A SERIES FOR CHANNELIZATION. THE LIGHTING DEVICES SHALL CONFORM TO THOSE SPECIFIED IN THE M.U.T.C.D.

DETOUR DESIGN SPEED MPH	RADIUS FT	SPACING - "S" FT
25	150	30
30	250	40
40	460	60
50	760	75

1. SIGNS AND DELINEATION SHOWN FOR ONE DIRECTION OF TRAFFIC ONLY.
2. CHANNELIZING DEVICES SHALL CONSIST OF TYPE II BARRICADES WITH STEADY BURN LIGHTS EXCEPT ON THE FIRST AND LAST BARRICADES WHICH SHALL HAVE A FLASHING LIGHT.
3. FLASHING WARNING LIGHTS MAY BE USED TO CALL ATTENTION TO THE EARLY WARNING SIGNS.
4. CONTRACTOR IS RESPONSIBLE FOR PAVEMENT MARKING AND SHALL REMOVE ANY CONFLICTING OR CONFUSING EXISTING MARKINGS.
5. ADDITIONAL SIGNING MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER.
6. UNPAVED DETOURS REQUIRE PAVEMENT MARKINGS FOR TRANSITIONS ON EXISTING PAVEMENT.

ALL DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.



TRAFFIC CONTROL PLAN TWO LANE HIGHWAY PAVED DETOUR

SEE STANDARD SHEETS E-100, E-101, AND E-102 FOR SIGN DETAIL AND MATERIAL REQUIREMENTS

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David B. Kelley
CHIEF ENGINEER

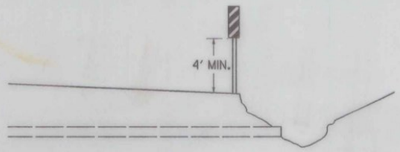
Arthur Gross
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

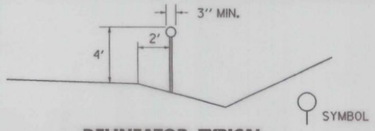
Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS

VERMONT AGENCY OF TRANSPORTATION

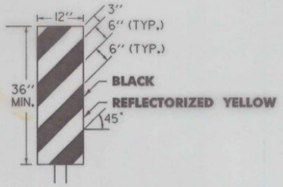
STANDARD
E-107





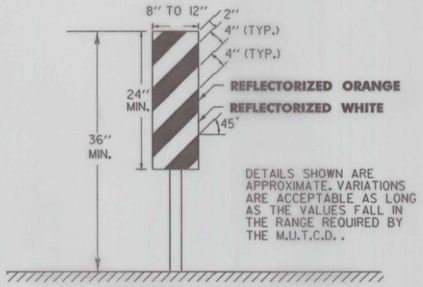
DELINEATOR TYPICAL

DELINEATORS SHALL BE REFLECTORIZED WHITE IN COLOR. THEY SHALL HAVE A MINIMUM OF 7 SQUARE INCHES. THEY MAY BE ROUND, SQUARE, OR OBLONG.



OBJECT MARKER TYPICAL

OBJECTS MARKERS ARE USED TO MARK OBSTRUCTIONS WITHIN OR ADJACENT TO THE ROADWAY. IN SOME CASES THERE MAY NOT BE A PHYSICAL OBJECT INVOLVED, BUT OTHER ROADSIDE CONDITIONS SUCH AS NARROW SHOULDER DROP-OFFS, GORES, D.I. EXCAVATIONS, AND ABRUPT CHANGES IN THE ROADWAY ALIGNMENT MAY MAKE IT UNDESIRABLE FOR A DRIVER TO LEAVE THE ROADWAY. THE INSIDE EDGE OF THE OBJECT MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION, WHENEVER POSSIBLE.
OBJECT MARKERS SHALL HAVE ALTERNATING BLACK AND REFLECTORIZED YELLOW STRIPES. (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS).

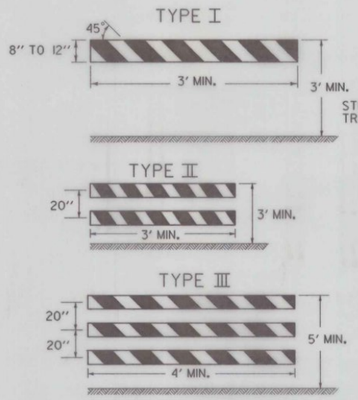


DETAILS SHOWN ARE APPROXIMATE. VARIATIONS ARE ACCEPTABLE AS LONG AS THE VALUES FALL IN THE RANGE REQUIRED BY THE M.U.T.C.D..

VERTICAL PANEL

VERTICAL PANELS SHALL HAVE ALTERNATING ORANGE AND WHITE REFLECTORIZED STRIPES (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS). THESE DEVICES MAY BE USED FOR TRAFFIC SEPARATION, CHANNELIZING OR BARRICADING WHERE SPACE IS AT A MINIMUM.

DELINEATOR, VERTICAL PANEL AND OBJECT MARKER DETAILS FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED



A TYPE III (MODIFIED) BARRICADE SHALL CONSIST OF TYPE II RAILS MOUNTED ON A BREAKAWAY BARRICADE AS SHOWN ON STANDARD SHEET E-107A.

BARRICADE CHARACTERISTICS			
	I	II	III
WIDTH OF RAIL	8'' MIN. 12''MAX.	8'' MIN. 12''MAX.	8'' MIN. 12''MAX.
LENGTH OF RAIL	3' MIN.	3' MIN.	4' MIN.
WIDTH OF STRIPES	6''	6''	6''
HEIGHT	3' MIN.	3' MIN.	5' MIN.
TYPE OF FRAME	SEE E-107A	SEE E-107A	SEE E-107A
FLEXIBILITY	PORTABLE	PORTABLE	PORTABLE
ANGLE OF STRIPE	45°	45°	45°
COLOR OF STRIPES	ORANGE AND WHITE	ORANGE AND WHITE	ORANGE AND WHITE

BARRICADE CHARACTERISTICS

DETOUR DESIGN SPEED (M.P.H.)	MINIMUM RADIUS (FT.)[a] SUPERELEVATION (FT./FT.) 0.00[b]	0.02	0.04	0.06	0.08
20	160	140	130	120	110
25	245	220	200	185	170
30	375	335	305	275	255
35	510	455	410	375	340
40	715	630	575	510	470
50	1190	1045	955	850	765

a. PER AASHTO REQUIREMENTS
b. 0.00 SUPERELEVATION SHOULD BE AVOIDED IF POSSIBLE

BARRICADES

APPLICATION NOTES

TYPE I BARRICADES SHALL BE USED ON CONVENTIONAL ROADS OR URBAN STREETS AND ARTERIALS TO MARK A SPECIFIC HAZARD.

TYPE II BARRICADES SHALL BE USED ON EXPRESSWAYS AND FREEWAYS, SERVING THE SAME FUNCTIONS AS TYPE I BARRICADES.

TYPE III BARRICADES (SEE STD. E-107A) SHALL ONLY BE USED WHEN A ROAD SECTION OR LANE IS CLOSED TO TRAFFIC AND ARE TO BE ERECTED AT THE POINT OF CLOSURE.

MATERIALS

THE BARRICADES SHOWN ON THIS SHEET SHOULD BE OF LIGHTWEIGHT MATERIAL. IF WOOD IS USED THE FOLLOWING CONDITIONS SHALL APPLY:

1. WOODEN BARRICADES (TYPE I AND II)
   A) SHALL NOT BE USED TO CHANNELIZE OR DELINEATE WORK AREAS WITHIN THE CLEAR ZONE OF ANY HIGHWAY WHERE OPERATING SPEEDS IN EXCESS OF 20 M.P.H. ARE EXPECTED UNLESS INSTALLED FOR PEDESTRIAN CONTROL BEHIND APPROVED POSITIVE BARRIERS.
   B) MAY BE USED WHERE OPERATING SPEEDS OF 20 M.P.H. OR LESS ARE EXPECTED.
2. TYPE III WOODEN BARRICADES SHALL NOT BE USED.

COLORS

THE BARRICADE PANELS SHOWN ON THIS SHEET SHALL HAVE AN ALTERNATING REFLECTORIZED WHITE AND ORANGE STRIPES. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION. THE BARRICADE COMPONENTS SHALL BE WHITE UNLESS UNPAINTED METAL OR ALUMINUM IS USED.

REFLECTORIZATION

THE REFLECTIVE SHEETING ON BARRICADE PANELS SHALL BE ENCAPSULATED LENS.

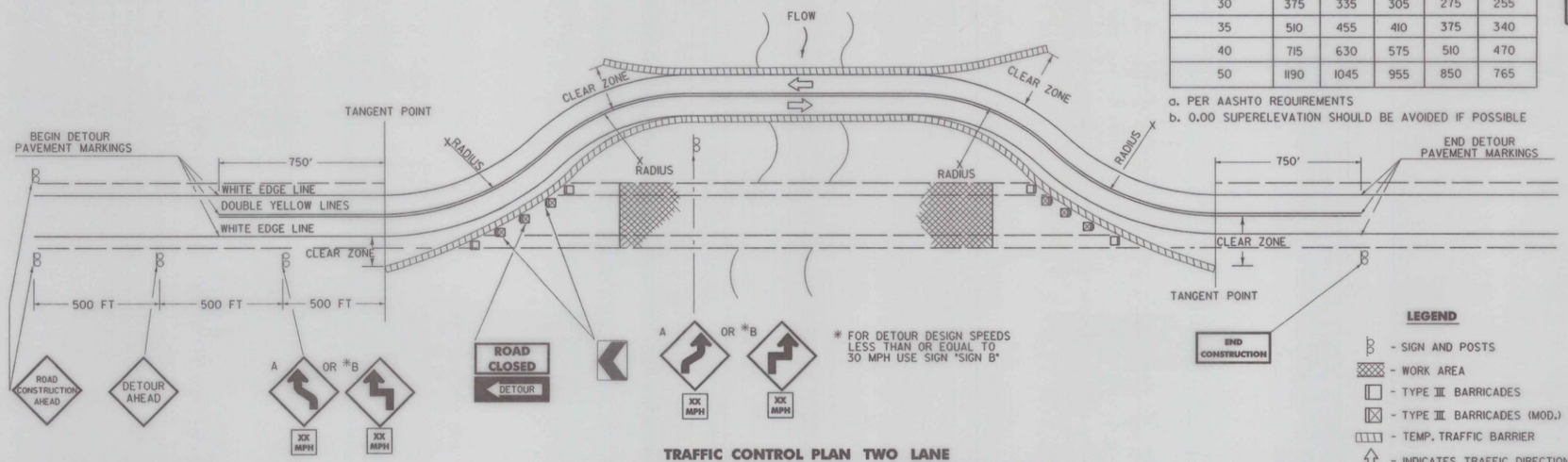
LOCATION

THE BARRICADES SHOWN ON THIS SHEET WILL BE LOCATED BY THE RESIDENT ENGINEER IN THE FIELD OR AS SHOWN ON THE PLANS. THE LOCATION OF THE BARRICADES SHALL FOLLOW THE PROCEDURES SET FORTH IN THE ''MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'', OR AS OTHERWISE NOTED.

MAINTENANCE

BARRICADES SHALL BE MAINTAINED IN CLEAN CONDITION, SATISFACTORY TO THE RESIDENT ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO THE APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED, OR REPLACED AS ORDERED BY THE RESIDENT ENGINEER.

ALL SIGN PLACEMENT DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT. PROJECT CONSTRUCTION APPROACH SIGNING PLACEMENT SHALL TAKE INTO CONSIDERATION SPACING REQUIREMENTS FOR THE DETOUR SIGN LAYOUT REQUIREMENTS.



* FOR DETOUR DESIGN SPEEDS LESS THAN OR EQUAL TO 30 MPH USE SIGN "SIGN B"

LEGEND

- SIGN AND POSTS
- WORK AREA
- TYPE III BARRICADES
- TYPE III BARRICADES (MOD.)
- TEMP. TRAFFIC BARRIER
- INDICATES TRAFFIC DIRECTION

TRAFFIC CONTROL PLAN TWO LANE HIGHWAY PAVED DETOUR WITH TEMPORARY TRAFFIC BARRIER

DETOUR NOTES

1.) SIGNS AND DELINEATION SHOWN FOR ONE DIRECTION OF TRAFFIC ONLY.

2.) THE CONTRACTOR IS RESPONSIBLE FOR PAVEMENT MARKING AND SHALL REMOVE ANY CONFLICTING OR CONFUSING EXISTING MARKINGS.

3.) ADDITIONAL SIGNING MAY BE REQUIRED AT THE DISCRETION OF THE RESIDENT ENGINEER.

4.) UNPAVED DETOURS REQUIRE PAVEMENT MARKINGS FOR TRANSITIONS FROM EXISTING PAVEMENT.

5.) THE NUMBER OF CHANNELIZING DEVICES, BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED SHALL BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.).

6.) AASHTO CLEAR ZONE REQUIREMENTS SHOULD BE MET. IF NOT THEN AN APPROVED ENERGY ABSORPTION ATTENUATOR SUITABLE FOR THE TEMPORARY TRAFFIC BARRIER USED AND FOR THE DESIGN SPEED SHALL BE INSTALLED PER THE CURRENT AASHTO ROADSIDE DESIGN GUIDE.

7.) THE DETOUR DESIGN SPEED SHOULD BE NO LESS THAN 10 M.P.H. BELOW THE POSTED SPEED LIMIT, UNLESS PHYSICAL RESTRICTIONS PREVENT THIS.

8.) SEE STANDARD SHEETS E-100, E-101 AND E-102 FOR SIGN DETAIL AND MATERIAL REQUIREMENTS.

9.) IF THE USE OF TEMPORARY TRAFFIC BARRIER IS NOT REQUIRED, THEN REFLECTORIZED PLASTIC DRUMS SHALL BE USED.

OTHER STDS. REQUIRED: E-100, E-101, E-102, E-107A

REVISIONS AND CORRECTIONS

APRIL 29, 1988 - FHWA REVIEW COMMENTS
SEPT. 20, 1993 - NEW RADIUS CHART, BARRICADE ALIGNMENT AND USE OF TEMPORARY TRAFFIC BARRIER

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED SEPT. 10, 1987
DATE

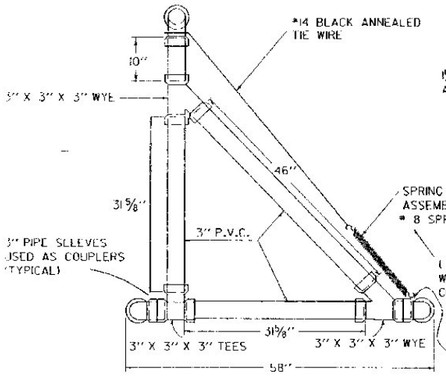
DIRECTOR OF ENGINEERING

Acting TRAFFIC AND SAFETY ENGINEER

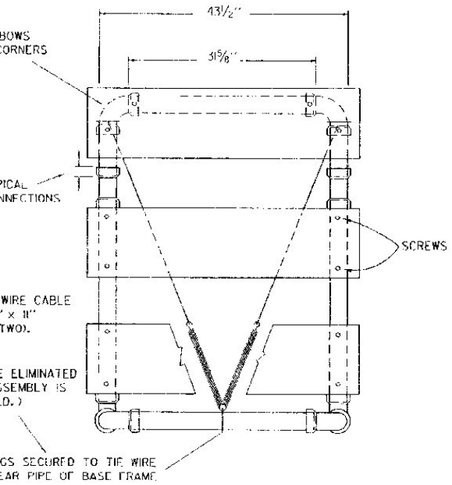
DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-107



SIDE VIEW
TYPE III BARRICADE



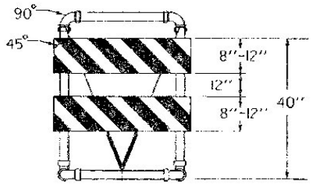
FRONT VIEW
TYPE III BARRICADE

MATERIALS FOR TYPE I AND II BARRICADES

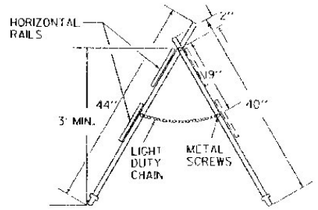
20' - 1" PVC
4 - 1" PVC 90° ELBOWS
30" -½" ID THINWALL PVC CONDUIT
36" -¼" STEEL ROD
4 - 1" WASHERS
24" - LIGHT DUTY CHAIN
½" - #14 PAN HEAD METAL SCREWS (AS REQUIRED)
2 -¾" COTTER PINS
2 OR 4 8" OR 12" X 36" X 0.025 " BARRICADE RAILS (AS REQUIRED)

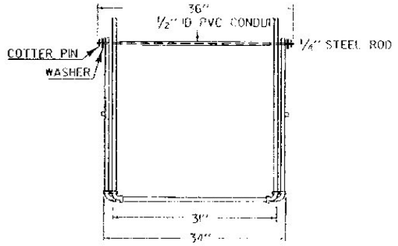
MATERIALS FOR TYPE III BARRICADES

30 LF - 3" I.D. PVC PIPE
6 - 3" 90 ELBOWS
2 - 3" TEES
4 - 3" WYES
3 - 8" OR 12" X 48" X 0.025" BARRICADE RAILS
2 - 5/8" X 11" #8 SPRING (IF ASSEMBLY IS NOT CEMENTED)
12 - 1" #14 PAN HEAD METAL SCREWS
15 LF #14 BALCK ANNEALED TIE WIRE (IF ASSEMBLY IS NOT CEMENTED)



TYPE III (MODIFIED) BARRICADE
(STRIPING IS SHOWN WITH TRAFFIC PASSING TO THE RIGHT).





TYPE I AND TYPE II BARRICADE

MATERIALS

THE PIPE, WYES, TEES AND ELBOWS USED TO CONSTRUCT BARRICADES SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 2241FOR P.V.C. 1120 OR 1220 SDR-21, PRESSURE RATING 200 PSI. THE WYES, TEES AND ELBOWS SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 2466, TYPE II, GRADE 1. ALL JOINTS SHALL BE SLIP-FIT AND MAY BE LIGHTLY CEMENTED. THE BARRICADE RAILS SHALL BE FABRICATED FROM 0.025" ANODIZED, ALUMINUM AND SHALL HAVE REFLECTORIZED ALTERNATING ORANGE AND WHITE STRIPES (SLOPING DOWNWARD) AT AN

MAINTENANCE

BARRICADES SHALL BE MAINTAINED IN CLEAN AND LEGIBLE CONDITIONS SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER. THE P.V.C. PIPE AND FITTINGS SHALL BE WHITE IN COLOR. AT LEAST TWO (2) HOLES SHALL BE DRILLED (⅜" DIAM.) IN EACH SECTION OF PIPE AND FITTINGS IF THE ASSEMBLY IS NOT CEMENTED.

WHICH WILL NOT CONSTITUTE A HAZARD IF THE BARRICADE IS HIT. THESE SHALL BE PLACED ONLY ON THE FRONT AND REAR PIPES OF THE BASE FRAME

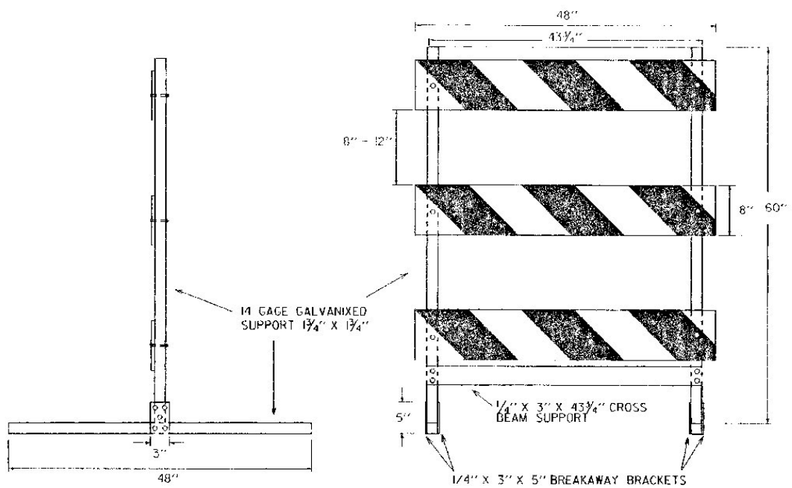
BE A HAZARD TO VEHICLES PASSING ON EITHER SIDE.
GLUED JOINTS MAY PROVIDE ADDITIONAL STABILITY TO THE INSTALLATION.

TYPE I BARRICADES SHALL UTILIZE ONE HORIZONTAL RAIL IN EACH DIRECTION.

TYPE II BARRICADES SHALL BE A TYPE I BARRICADE WITH AN ADDITIONAL HORIZONTAL RAIL MOUNTED BELOW THE OTHER IN EACH DIRECTION.

TYPE III BARRICADES (MODIFIED) SHALL CONSIST OF THE BREAKAWAY 3" PVC DESIGN SHOWN ON THIS SHEET WITH THE TWO RAIL LAYOUT DETAILED ABOVE LEFT.

SEE STD E-107 FOR ADDITIONAL INFORMATION.



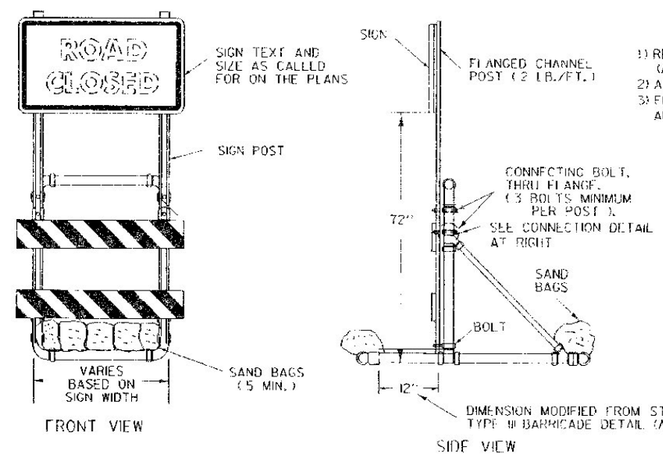
SIDE AND FRONT VIEW OF TYPE III METAL BARRICADE

MATERIALS FOR METAL TYPE III BARRICADES

PANELS (3):
8' X 48' GALVANIZED STEEL...COVERED 1 OR 2 SIDES WITH WHITE/ORANGE, DIAGONALLY STRIPED REFLECTIVE SHEETING

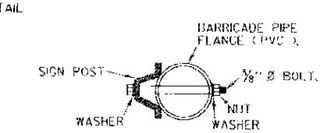
VERTICAL SUPPORTS (2): 14 GAGE GALVANIZED TUBING 1 3/4" X 1 3/4" X 60"
HORIZONTAL SUPPORTS (2): 14 GAGE GALVANIZED TUBING 1 3/4" X 1 3/4" X 48"
CROSS BEAM SUPPORT (1): COLD GALVANIZED STEEL 1/4" X 3" X 43 3/4"
BREAKAWAY BRACKETS (4): COLD GALVANIZED STEEL 1/4" X 3" X 5"

FASTENERS:
6 - SHEAR BOLTS WITH LOCK NUTS 1/4"D X 2 3/4"
4 - FULCRUM BOLTS WITH LOCK NUTS 3/8"D X 2 3/4"
4 - FASTENER BOLTS WITH LOCK NUTS 3/8"D X 2 3/4"
6 - PANEL BOLTS WITH LOCK NUTS AND WASHERS 1/4"D X 2"
ALL FASTENERS GALVANIZED STEEL.
ALL BOLTS HEX HEAD.



NOTES:

1) REFER TO STANDARD TYPE III BARRICADE (ABOVE LEFT)
2) ALL BARRICADE JOINTS SHALL BE GLUED.
3) FIVE SAND BAGS ARE REQUIRED BOTH FRONT AND BACK, 50 LB. MINIMUM EACH.



CONNECTION DETAIL

SIGN MOUNTING ON TYPE III BARRICADE (MODIFIED)

OTHER STDS. REQUIRED: E-107

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 ADDED METAL TYPE III BARRICADE
SEPT. 20, 1993 - REVISED NOTES AND TYPE III(MOD.) BARRICADE DETAIL
AUG. 08, 1995 - ADDED METAL TYPE III BARRICADE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

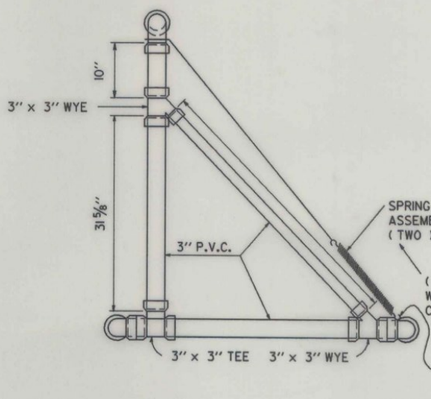
David A. Ross
TRAFFIC AND SAFETY ENGINEER

BREAKAWAY BARRICADE DETAILS

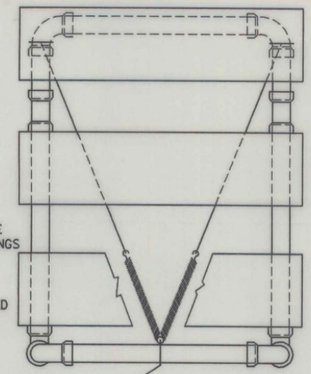
/traf/std/std107a.dgn : std107a.i

VERMONT AGENCY OF TRANSPORTATION

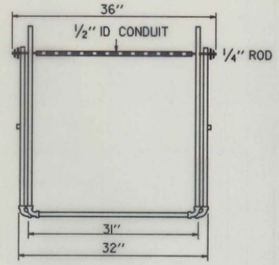
STANDARD
E-107 A

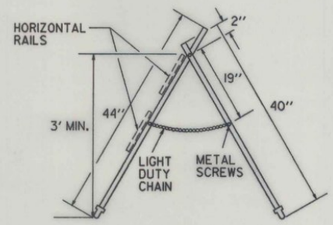


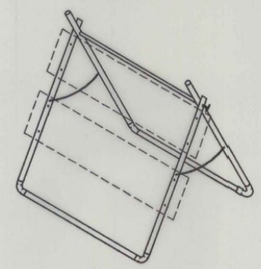
SIDE VIEW
TYPE III BARRICADE



FRONT VIEW
TYPE III BARRICADE







TYPE I AND II BARRICADE DETAILS

MATERIALS

THE PIPE, WYES, TEES AND ELBOWS USED TO CONSTRUCT BARRICADES SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 2241 FOR P.V.C. 1120 OR 1220 SDR-21, PRESSURE RATING 200 PSI. THE WYES, TEES AN ELBOWS SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 2466, TYPE II, GRADE I. ALL JOINTS SHALL BE SLIP-FIT AND MAY BE LIGHTLY CEMENTED. THE BARRICADE RAILS SHALL BE FABRICATED FROM 0.025" ANODIZED ALUMINUM AND SHALL HAVE REFLECTORIZED ALTERNATING ORANGE AND WHITE STRIPS (SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC IS TO PASS).

MAINTENANCE

BARRICADES SHALL BE MAINTAINED IN CLEAN AND LEGIBLE CONDITIONS SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER. THE P.V.C. PIPE AND FITTINGS SHALL BE WHITE IN COLOR. AT LEAST TWO (2) HOLES SHALL BE DRILLED (3/8") IN EACH SECTION OF PIPE AND FITTINGS IF THE ASSEMBLY IS NOT CEMENTED.

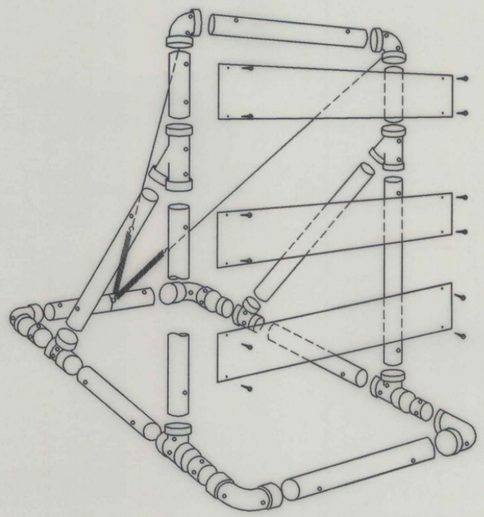
BARRICADES SHALL BE STABILIZED WITH SAND BAGS OF MINIMUM WEIGHT WHICH WILL NOT CONSTITUTE A HAZARD IF THE BARRICADE IS HIT. THESE SHALL BE PLACED ONLY IN THE BASE FRAME OF THE BARRICADE. STABILIZERS SHALL BE SO PLACED AS NOT TO BE A HAZARD TO VEHICLES PASSING ON EITHER SIDE. IF BARRICADE REPLACEMENT COSTS CAN BE CONSIDERED NEGLIGIBLE, GLUED JOINTS MAY PROVIDE ADDITIONAL STABILITY TO THE INSTALLATION.

TYPE I BARRICADES SHALL UTILIZE ONE HORIZONTAL RAIL.

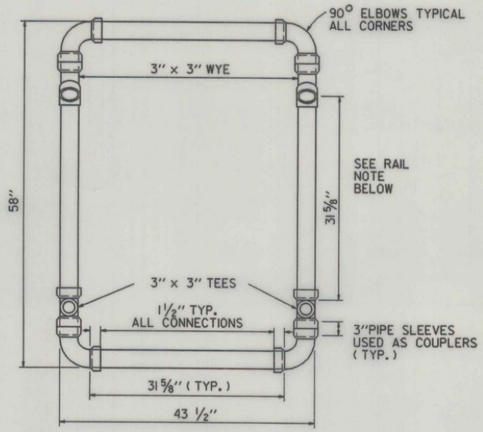
TYPE II BARRICADES SHALL CONSIST OF AN ADDITIONAL HORIZONTAL RAIL MOUNTED BELOW THE OTHER.

TYPE III BARRICADES (MODIFIED) SHALL CONSIST OF THE BREAKAWAY 3" PVC DESIGN SHOWN ON THIS SHEET WITH THE TWO RAIL LAYOUT DETAILED BELOW.

SEE STD E-107 FOR ADDITIONAL INFORMATION.



TYPE III BARRICADE ASSEMBLY
EXPLODED VIEW



TYPE III BARRICADE

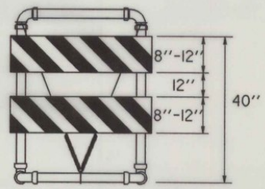
TOP VIEW OF BASE

MATERIALS FOR TYPE I AND II BARRICADES

20' - 1" PVC
4 - 1" PVC 90° ELBOWS
30" - 1/2" ID THINWALL CONDUIT
36" - 1/4" STEEL ROD
4 - 1" WASHERS
24" - LIGHT DUTY CHAIN
4 - METAL SCREWS
2 - 3/4" COTTER PINS

MATERIALS FOR TYPE III BARRICADE

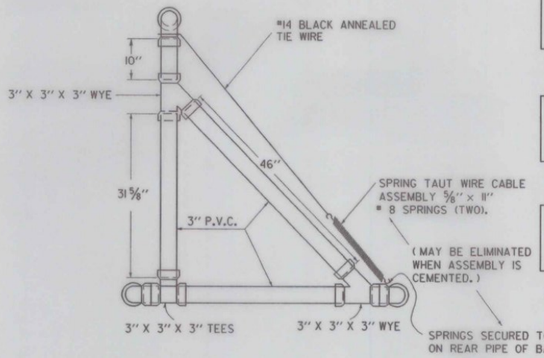
30' - 3" I.D. PVC PIPE
6 - 3 1/2" BENT ELBOWS
2 - 3" TEES
4 - 3" WYES
4 - 8" x 48" x 0.25" BARRICADE RAILS
2 - 5/8 " x 11" # 8 SPRING
12 - 1" # 14 PANHEAD METAL SCREWS
15 - # 14 BLACK ANNEALED TIE WIRE



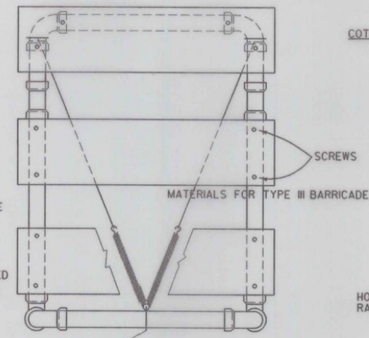
TYPE III (MODIFIED) BARRICADE
(STRIPING DOWN WHERE TRAFFIC PASSES ON RIGHT).

SEE STANDARD E-107 FOR RAIL DETAILS.
RAILS ATTACHED WITH 1" NO. 14 PAN HEAD METAL SCREW.

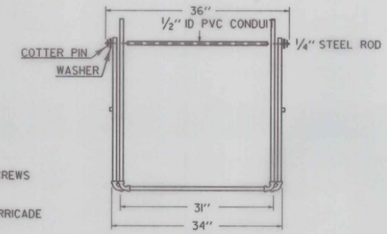
REVISIONS AND CORRECTIONS	APPROVED	SEPT. 10, 1987 DATE David B. Kelley CHIEF ENGINEER Arthur Gore DIRECTOR OF PLANNING AND PRE-CONSTRUCTION Gordon R. MacArthur TRAFFIC AND SAFETY ENGINEER	BREAKAWAY BARRICADE DETAILS	VERMONT AGENCY OF TRANSPORTATION	STANDARD E-107a

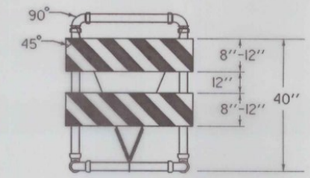


SIDE VIEW
TYPE III BARRICADE

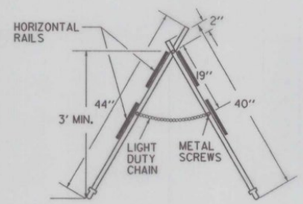


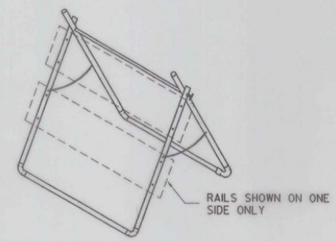
FRONT VIEW
TYPE III BARRICADE





TYPE III (MODIFIED) BARRICADE
(STRIPING IS SHOWN WITH TRAFFIC PASSING TO THE RIGHT).





TYPE I AND TYPE II BARRICADE

MATERIALS

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MAINTENANCE

BARRICADES SHALL BE MAINTAINED IN CLEAN AND LEGIBLE CONDITIONS SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER. THE P.V.C. PIPE AND FITTINGS SHALL BE WHITE IN COLOR. AT LEAST TWO (2) HOLES SHALL BE DRILLED (3/16" DIAM.) IN EACH SECTION OF PIPE AND FITTINGS IF THE ASSEMBLY IS NOT CEMENTED.

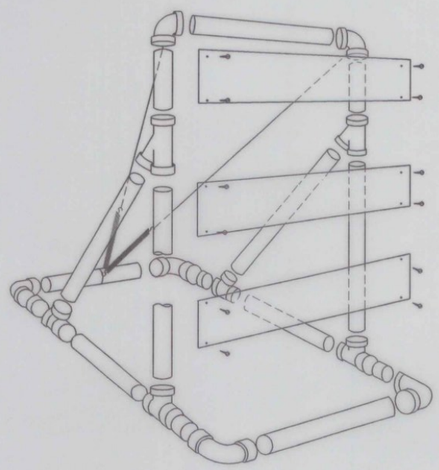
BARRICADES SHALL BE STABILIZED WITH SAND BAGS OF MINIMUM WEIGHT WHICH WILL NOT CONSTITUTE A HAZARD IF THE BARRICADE IS HIT. THESE SHALL BE PLACED ONLY ON THE FRONT AND REAR PIPES OF THE BASE FRAME OF THE BARRICADE. SAND BAG STABILIZERS SHALL BE SO PLACED AS NOT TO BE A HAZARD TO VEHICLES PASSING ON EITHER SIDE. GLUED JOINTS MAY PROVIDE ADDITIONAL STABILITY TO THE INSTALLATION.

TYPE I BARRICADES SHALL UTILIZE ONE HORIZONTAL RAIL IN EACH DIRECTION.

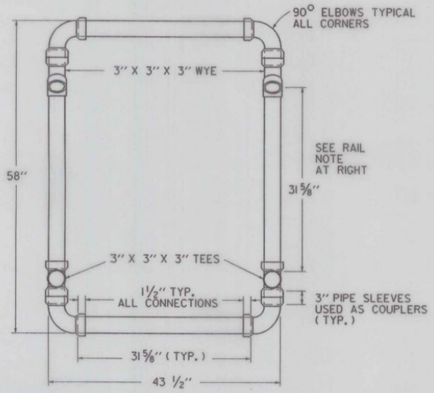
TYPE II BARRICADES SHALL BE A TYPE I BARRICADE WITH AN ADDITIONAL HORIZONTAL RAIL MOUNTED BELOW THE OTHER IN EACH DIRECTION.

TYPE III BARRICADES (MODIFIED) SHALL CONSIST OF THE BREAKAWAY 3" PVC DESIGN SHOWN ON THIS SHEET WITH THE TWO RAIL LAYOUT DETAILED ABOVE LEFT.

SEE STD E-107 FOR ADDITIONAL INFORMATION.



EXPLODED VIEW
TYPE III BARRICADE



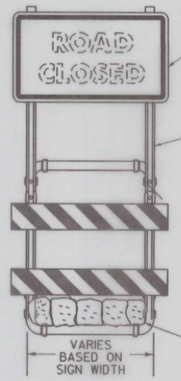
TOP VIEW OF BASE
TYPE III BARRICADE

MATERIALS FOR TYPE I AND II BARRICADES

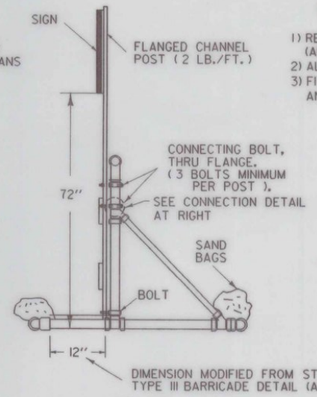
20' - 1" PVC
4 - 1" PVC 90° ELBOWS
30" - 1/2" ID THINWALL PVC CONDUIT
36" - 1/4" STEEL ROD
4 - 1" WASHERS
24" - LIGHT DUTY CHAIN
1/2" - #14 PAN HEAD METAL SCREWS (AS REQUIRED)
2 - 3/4" COTTER PINS
2 OR 4 - 8" OR 12" X 36" X 0.025 " BARRICADE RAILS (AS REQUIRED)

MATERIALS FOR TYPE III BARRICADES

30' - 3" I.D. PVC PIPE
6 - 3" 90° ELBOWS
2 - 3" TEES
4 - 3" WYES
4 - 8" X 48" X 0.025" BARRICADE RAILS
2 - 5/8" X 11" #8 SPRING (IF ASSEMBLY IS NOT CEMENTED)
12 - 1" # 14 PAN HEAD METAL SCREWS
15 LF - # 14 BLACK ANNEALED TIE WIRE (IF ASSEMBLY IS NOT CEMENTED)



FRONT VIEW

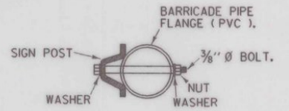


SIDE VIEW

SIGN MOUNTING ON
TYPE III BARRICADE (MODIFIED)

NOTES:

1) REFER TO STANDARD TYPE III BARRICADE (ABOVE LEFT) FOR DIMENSIONS
2) ALL BARRICADE JOINTS SHALL BE GLUED.
3) FIVE SAND BAGS ARE REQUIRED BOTH FRONT AND BACK, 50 LB. MINIMUM EACH.



CONNECTION DETAIL

OTHER STDS. : REQUIRED E-107

REVISIONS AND CORRECTIONS

SEPT. 20, 1993 - REVISED NOTES AND TYPE III (MOD.) BARRICADE DETAIL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED SEPT. 10, 1987
DATE

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

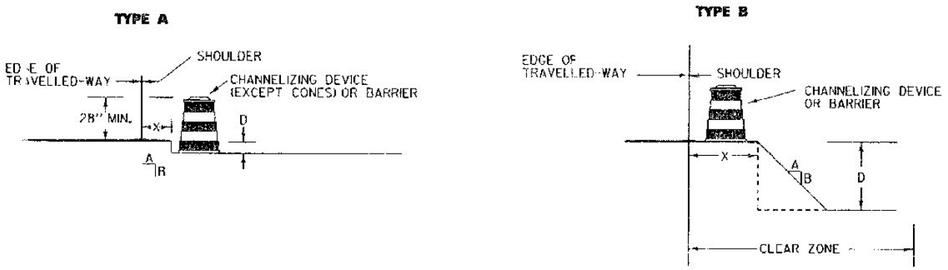
Dale L. Perron
Acting TRAFFIC AND SAFETY ENGINEER

BREAKAWAY BARRICADE DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-107a

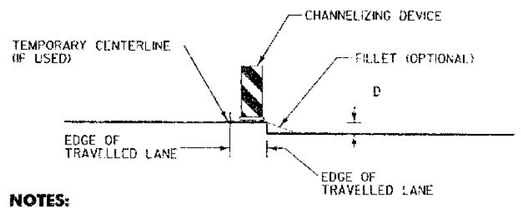
CONDITION 1
DROP-OFF ADJACENT TO TRAVELLED-WAY



NOTES:

1. CHANNELIZING DEVICES OR BARRIER SHOULD BE PLACED TO MAXIMIZE THE WIDTH OF THE TRAVELED-WAY.
2. FOR SPECIFIC REQUIREMENTS USE CHART "A".
3. IF THE DROP-OFF REQUIRES CHANNELIZING DEVICES TO REMAIN INPLACE OVERNIGHT THEN "LOW SHOULDER" OR "SHOULDER DROP OFF" SIGNS SHOULD BE INSTALLED.

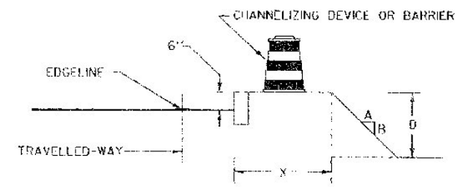
CONDITION 2
DROP-OFF BETWEEN ADJACENT TRAVELLED LANES



NOTES:

1. WHENEVER A LONGITUDINAL DROP-OFF BETWEEN ADJACENT TRAVELLED-LANES IS TO BE LEFT OVERNIGHT THEN "UNEVEN LANES" SIGNS AND CHANNELIZING DEVICES SHOULD BE INSTALLED.
2. IF REQUIRED, THE CHANNELIZING DEVICES USED SHOULD BE THOSE WHICH MAXIMIZE THE TRAVELLED LANE (IE. CONES, VERTICAL PANELS OR TUBULAR MARKERS).
3. A BITUMINOUS CONCRETE FILLET WITH A 3:1 SLOPE MAY BE USED IN LIEU OF CHANNELIZING DEVICES. HOWEVER THE "UNEVEN LANES" SIGNS SHOULD BE INSTALLED REGARDLESS.

CONDITION 3
DROP-OFF BEYOND SHOULDER OR CURB



NOTES:

1. CHANNELIZING DEVICES OR BARRIER SHOULD BE PLACED TO MAXIMIZE THE WIDTH OF THE TRAVELLED WAY.
2. FOR SPECIFIC REQUIREMENTS USE CHART "A" OR "B" AS APPLICABLE.

CHART A
ALL SPEEDS
NO CURB

X (FEET)	DROP (D) (INCHES)	A/B SLOPE	DEVICE REQUIRED
0 TO 4'	LESS THAN 2"	ANY	NONE
	2" TO 5"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	CHANNELIZING DEVICE
	GREATER THAN 5"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	BARRIER
4' TO 10'	LESS THAN 5"	ANY	NONE
	5" TO 12"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	BARRIER
	GREATER THAN 12"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	BARRIER
10' TO CZ	LESS THAN OR EQUAL TO 12"	ANY	NONE
	GREATER THAN 12"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	BARRIER

1. CLEAR ZONE (CZ) IS TO BE DETERMINED PER THE CURRENT AASHTO ROADSIDE DESIGN GUIDE.
2. CHANNELIZING DEVICES MAY BE USED INSTEAD OF BARRIER FOR SHORT TERM (ONE-DAY) OPERATIONS.
3. ON BORDERLINE CONDITIONS THE ENGINEER SHALL DETERMINE WHICH TREATMENT IS ADEQUATE FOR THE EXISTING CONDITIONS.

GENERAL NOTES

1. THESE CONDITIONS AND TREATMENTS ARE ONLY PART OF THE TRAFFIC CONTROL SYSTEM AND SHALL BE USED IN ADDITION TO THE PROPER WORK ZONE SIGNING.
2. THE FOLLOWING ARE ACCEPTABLE CHANNELIZING DEVICES: SEE STANDARD SHEETS E-106, E-107 AND E-107A FOR FURTHER DETAILS
   A. VERTICAL PANEL
   B. TYPE I OR TYPE II BARRICADE
   C. PLASTIC DRUM
   *D. CONE - WHERE APPLICABLE

   *CONES SHALL NOT BE USED WHEN THE CHANNELIZING DEVICE IS REQUIRED TO BE PLACED BELOW THE GRADE OF THE TRAVELLED-WAY. (SEE CONDITION 1, TYPE A)
3. WHERE BARRIER IS CALLED FOR, EITHER CONRETE BARRIER (JERSEY SHAPE), STEEL BEAM GUARDRAIL OR OTHER FHWA APPROVED BARRIER MAY BE USED.

   -BARRIER ENDS FACING ONCOMING TRAFFIC SHALL BE TAPERED BEYOND THE CLEAR ZONE OR PROTECTED WITH AN APPROVED END TREATMENT DESIGNED FOR THE 85TH PERCENTILE SPEED OR THE POSTED SPEED LIMIT OF THE ROADWAY.
4. CHANNELIZING DEVICE SPACING SHALL BE AS FOLLOWS:

   TAPERS - CHANNELIZING DEVICES SHALL BE SPACED A MAXIMUM OF 'S' (THE SPEED LIMIT IN FEET, 65 MPH = 65 FT) CENTER TO CENTER.

   TANGENT - CHANNELIZING DEVICES SHALL BE SPACED 'S' (THE SPEED LIMIT IN FEET, 65 MPH = 65 FT) TO A MAXIMUM OF '2S' CENTER TO CENTER.
5. "LOW SHOULDER" OR "UNEVEN LANES" SIGNS, WHEN USED, SHALL BEGIN PRIOR TO THE DROP-OFF CONDITION AND SHOULD BE REPEATED EVERY 1500 FEET.

CHART B
40 MPH OR LESS
WITH CURB

X (FEET)	DROP (D) (INCHES)	DEVICE REQUIRED
0-10'	LESS THAN OR EQUAL TO 12"	NONE
0-10'	GREATER THAN 12"	CHANNELIZING DEVICE
GREATER THAN 10	ANY	NONE

NOTES:

1. USE THIS CHART ONLY FOR CONDITION 3.
2. USE THIS CHART FOR VERTICAL CURBS OF 6" OR GREATER FOR LOWER CURBS OR MOUNTABLE USE CHART A.
3. FOR CURBED SECTIONS WITH POSTED SPEEDS ABOVE 40 MPH USE CHART A.

OTHER STDS. REQUIRED: E-101, E-106, E-107, E-107A

REVISIONS AND CORRECTIONS

SEPT. 20, 1993 - DATE OF ORIGINAL ISSUE
AUG. 18, 1995 - ADDED SHOULDER WARNING NOTE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon H. MacAdam
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

CONSTRUCTION ZONE LONGITUDINAL DROP OFFS

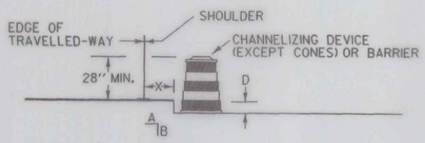
/traf/std/std108.dgn : std108.t

VERMONT AGENCY OF TRANSPORTATION

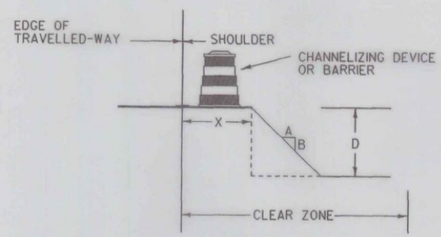
STANDARD
E-108

CONDITION 1
DROP-OFF ADJACENT TO TRAVELLED-WAY

TYPE A



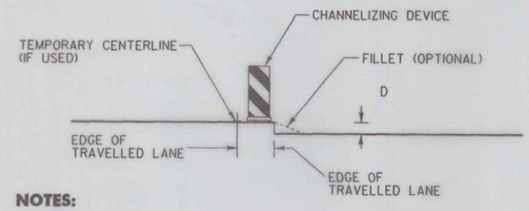
TYPE B



NOTES:

1. CHANNELIZING DEVICES OR BARRIER SHOULD BE PLACED TO MAXIMIZE THE WIDTH OF THE TRAVELED-WAY.
2. FOR SPECIFIC REQUIREMENTS USE CHART ''A''.
3. IF THE DROP-OFF REQUIRES CHANNELIZING DEVICES TO REMAIN INPLACE OVERNIGHT THEN ''LOW SHOULDER'' SIGNS SHOULD BE INSTALLED.

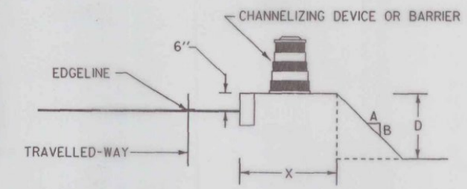
CONDITION 2
DROP-OFF BETWEEN ADJACENT TRAVELLED LANES



NOTES:

1. WHENEVER A LONGITUDINAL DROP-OFF BETWEEN ADJACENT TRAVELLED-LANES IS TO BE LEFT OVERNIGHT THEN ''UNEVEN LANES'' SIGNS AND CHANNELIZING DEVICES SHOULD BE INSTALLED.
2. IF REQUIRED, THE CHANNELIZING DEVICES USED SHOULD BE THOSE WHICH MAXIMIZE THE TRAVELLED LANE (IE. CONES, VERTICAL PANELS OR TUBULAR MARKERS).
3. A BITUMINOUS CONCRETE FILLET WITH A 3:1 SLOPE MAY BE USED IN LIEU OF CHANNELIZING DEVICES, HOWEVER THE ''UNEVEN LANES'' SIGNS SHOULD BE INSTALLED REGARDLESS.

CONDITION 3
DROP-OFF BEYOND SHOULDER OR CURB



NOTES:

1. CHANNELIZING DEVICES OR BARRIER SHOULD BE PLACED TO MAXIMIZE THE WIDTH OF THE TRAVELLED WAY.
2. FOR SPECIFIC REQUIREMENTS USE CHART "A" OR "B" AS APPLICABLE.

CHART A
ALL SPEEDS
NO CURB

X (FEET)	DROP (D) (INCHES)	A/B SLOPE	DEVICE REQUIRED
0 TO 4'	LESS THAN 2"	ANY	NONE
	2" TO 5"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	CHANNELIZING DEVICE
	GREATER THAN 5"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	BARRIER
4' TO 10'	LESS THAN 5"	ANY	NONE
	5" TO 12"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	BARRIER
	GREATER THAN 12"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	BARRIER
10' TO CZ	LESS THAN OR EQUAL TO 12"	ANY	NONE
	GREATER THAN 12"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	BARRIER

1. CLEAR ZONE (CZ) IS TO BE DETERMINED PER THE CURRENT AASHTO ROADSIDE DESIGN GUIDE.
2. CHANNELIZING DEVICES MAY BE USED INSTEAD OF BARRIER FOR SHORT TERM (ONE-DAY) OPERATIONS.
3. ON BORDERLINE CONDITIONS THE ENGINEER SHALL DETERMINE WHICH TREATMENT IS ADEQUATE FOR THE EXISTING CONDITIONS.

GENERAL NOTES

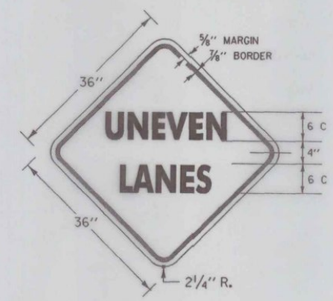
1. THESE CONDITIONS AND TREATMENTS ARE ONLY PART OF THE TRAFFIC CONTROL SYSTEM AND SHALL BE USED IN ADDITION TO THE PROPER WORK ZONE SIGNING.
2. THE FOLLOWING ARE ACCEPTABLE CHANNELIZING DEVICES: SEE STANDARD SHEETS E-106, E-107 AND E-107A FOR FURTHER DETAILS
   A. VERTICAL PANEL
   B. TYPE I OR TYPE II BARRICADE
   C. PLASTIC DRUM
   ✱D. CONE - WHERE APPLICABLE

   ✱CONES SHALL NOT BE USED WHEN THE CHANNELIZING DEVICE IS REQUIRED TO BE PLACED BELOW THE GRADE OF THE TRAVELLED-WAY. (SEE CONDITION 1, TYPE A)
3. WHERE BARRIER IS CALLED FOR, EITHER CONRETE BARRIER (JERSEY SHAPE), STEEL BEAM GUARDRAIL OR OTHER FHWA APPROVED BARRIER MAY BE USED.

   -BARRIER ENDS FACING ONCOMING TRAFFIC SHALL BE TAPERED BEYOND THE CLEAR ZONE OR PROTECTED WITH AN APPROVED END TREATMENT DESIGNED FOR THE 85TH PERCENTILE SPEED OR THE POSTED SPEED LIMIT OF THE ROADWAY.
4. CHANNELIZING DEVICE SPACING SHALL BE AS FOLLOWS:

   TAPERS - CHANNELIZING DEVICES SHALL BE SPACED A MAXIMUM OF 'S' (THE SPEED LIMIT IN FEET, 65 MPH = 65 FT) CENTER TO CENTER.

   TANGENT - CHANNELIZING DEVICES SHALL BE SPACED 'S' (THE SPEED LIMIT IN FEET, 65 MPH = 65 FT) TO A MAXIMUM OF '2S' CENTER TO CENTER.
5. ''LOW SHOULDER'' OR ''UNEVEN LANES'' SIGNS, WHEN USED, SHALL BEGIN PRIOR TO THE DROP-OFF CONDITION AND SHOULD BE REPEATED EVERY 1500 FEET.



SEE STD. E-100 FOR DETAILS ON MATERIALS

CHART B
40 MPH OR LESS
WITH CURB

X (FEET)	DROP (D) (INCHES)	DEVICE REQUIRED
0-10'	LESS THAN OR EQUAL TO 12"	NONE
0-10'	GREATER THAN 12"	CHANNELIZING DEVICE
GREATER THAN 10	ANY	NONE

NOTES:

1. USE THIS CHART ONLY FOR CONDITION 3.
2. USE THIS CHART FOR VERTICAL CURBS OF 6" OR GREATER FOR LOWER CURBS OR MOUNTABLE USE CHART A.
3. FOR CURBED SECTIONS WITH POSTED SPEEDS ABOVE 40 MPH USE CHART A.

OTHER STDS. REQUIRED: E-101, E-106, E-107, E-107A

REVISIONS AND CORRECTIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED SEPT. 20, 1993
DATE

Gordon A. MacCallum
DIRECTOR OF ENGINEERING

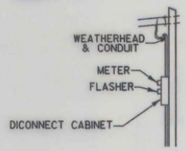
Dale L. Perron
Acting TRAFFIC AND SAFETY ENGINEER

CONSTRUCTION ZONE
LONGITUDINAL DROP OFFS

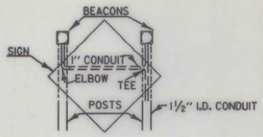
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-108

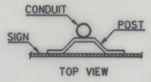
NOTE:
FLASHING BEACON POWER SOURCE CONSISTING OF FLASHER, RADIO INTERFERENCE FILTER, AND CIRCUIT BREAKERS IN RAINTIGHT CABINET. ALL SHALL CONFORM TO SUB-SECTION 752.07 .



POWER POLE DETAIL

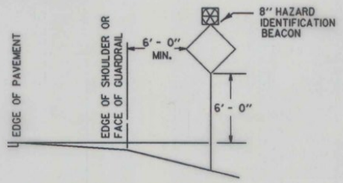


CONDUIT DETAILS BETWEEN BEACONS, BACK SIDE OF SIGN.



TOP VIEW
(TYPICAL)

DOUBLE BEACON INSTALLATION



SIGN PLACEMENT DETAIL

NOTE:
BOTTOM OF BEACON TO BE A MIN. 8' - 0" & 12' - 0" ABOVE EDGE OF PAVEMENT.

FOR URBAN AREA PLACEMENT SEE APPROPRIATE STANDARD SHEETS

NOTE:
THE CONTRACTOR SHALL SUPPLY AND INSTALL THE INDICATED EQUIPMENT AND ALL NECESSARY HARDWARE SUCH AS BEACONS, 3LB./FT. FLANGED CHANNEL POST, WIRE (#12 MIN.), METER SOCKET (AND OTHER EQUIPMENT AS MENTIONED IN POWER SOURCE NOTE), CONDUIT, POLE RISER WITH WEATHERHEAD, POWER DROP POLE (IF REQUIRED), JUNCTION BOX), (IF REQUIRED) AND OTHER MISC. MATERIALS AND HARDWARE TO MAKE THE BEACONS OPERATIONAL.

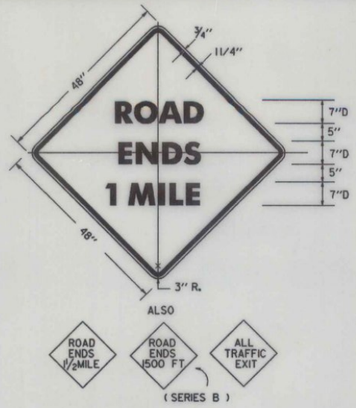
PAYMENT FOR THIS SYSTEM WILL BE SPECIFIED ON THE PLANS.

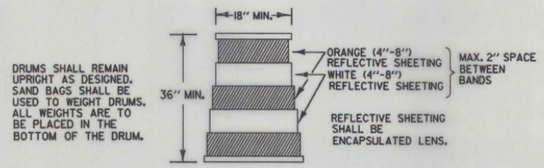
SOME TEMPORARY INSTALLATIONS MAY BE BETTER SERVED IF TWO POLES WITH A SPAN WIRE BETWEEN AND BEACONS ARE ATTACHED OVER THE ROADWAY. PAYMENT TO BE THE SAME AS FOR POST MOUNTED.

THE MAINTENANCE OF THE BARRICADES, BEACONS, SIGNS, STREET LIGHT, POWER SOURCE AND THE REMOVAL OF SAME SHALL BE THE RESPONSIBILITY OF THE STATE AFTER ACCEPTANCE OF THE PROJECT. THE POWER DROP POLE SHOULD BE 30' (25' IN LEDGE CUT) FROM EDGE OF TRAVELLED WAY. A PERMIT AND INSPECTION ARE REQUIRED BY THE STATE ELECTRICAL INSPECTOR.

HAZARD IDENTIFICATION BEACON INSTALLATION

FLANGED CHANNEL STEEL SIGN SUPPORT

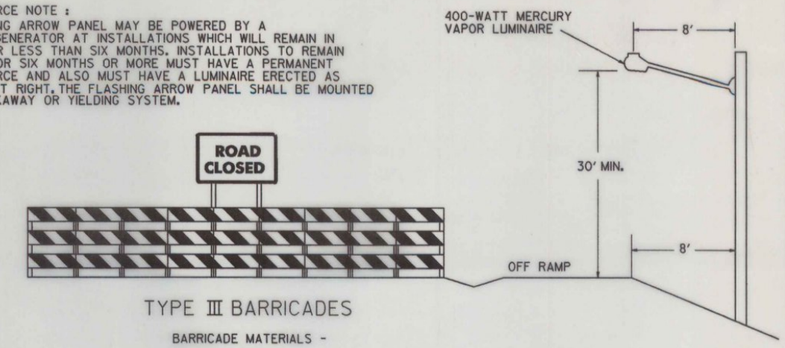




DRUMS SHALL REMAIN UPRIGHT AS DESIGNED. SAND BAGS SHALL BE USED TO WEIGHT DRUMS. ALL WEIGHTS ARE TO BE PLACED IN THE BOTTOM OF THE DRUM.

REFLECTORIZED PLASTIC DRUM

POWER SOURCE NOTE :
THE FLASHING ARROW PANEL MAY BE POWERED BY A PORTABLE GENERATOR AT INSTALLATIONS WHICH WILL REMAIN IN SERVICE FOR LESS THAN SIX MONTHS. INSTALLATIONS TO REMAIN IN PLACE FOR SIX MONTHS OR MORE MUST HAVE A PERMANENT POWER SOURCE AND ALSO MUST HAVE A LUMINAIRE ERECTED AS INDICATED AT RIGHT. THE FLASHING ARROW PANEL SHALL BE MOUNTED ON A BREAKAWAY OR YIELDING SYSTEM.



TYPE III BARRICADES

BARRICADE MATERIALS -

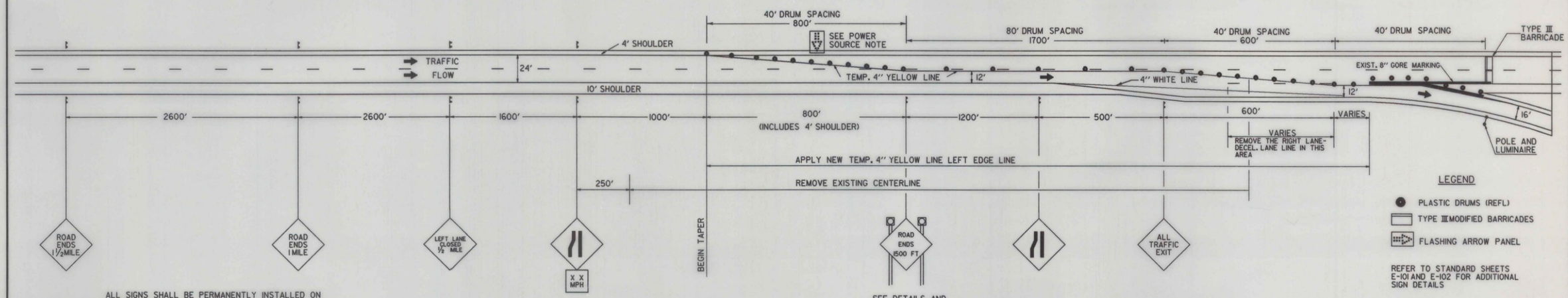
TYPE III BARRICADES ON THIS SHEET SHALL COMPLY WITH STANDARD SHEET E-107A. ALL BARRICADES SHALL BE MAINTAINED IN A CLEAN CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

SIGNS - COLORS AND MATERIALS

THE SIZES OF SIGNS SHALL BE AS INDICATED. THEY SHALL HAVE REFLECTORIZED ORANGE BACKGROUND WITH BLACK TEXT AND BORDER. SIGN BASE MATERIAL SHALL BE AS SHOWN ON STD E-100.
ALL REFLECTORIZED MATERIAL SHALL CONSIST OF ENCAPSULATED LENS REFLECTIVE SHEETING.

LUMINAIRE -

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING AND PAYMENT TO THE UTILITY COMPANY FOR PROVIDING A POWER SOURCE ETC. FOR THE ABOVE LUMINAIRE INSTALLATION. PAYMENT WILL BE AS SPECIFIED ON THE PLANS.



ALL SIGNS SHALL BE PERMANENTLY INSTALLED ON APPROPRIATE SIZE FLANGED CHANNEL OR ALUMINUM TUBE SIGN POSTS. NO WOOD POSTS OR TEMPORARY MOUNTINGS WILL BE PERMITTED.

SEE DETAILS AND NOTES ABOVE LEFT FOR INSTALLATION INFORMATION

ALL DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.

LEGEND

- PLASTIC DRUMS (REFL)
- TYPE III MODIFIED BARRICADES
- FLASHING ARROW PANEL

REFER TO STANDARD SHEETS E-101 AND E-102 FOR ADDITIONAL SIGN DETAILS

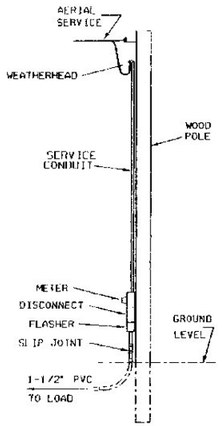
REVISIONS AND CORRECTIONS
APRIL 29, 1988 FHWA COMMENTS

APPROVED
SEPT. 10, 1987
DATE
David B Kelley
CHIEF ENGINEER
Arthur Gore
DIRECTOR OF PLANNING AND PRECONSTRUCTION
Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

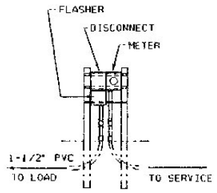
TRAFFIC CONTROL DEVICES FOR TEMPORARY TERMINATION OF FREEWAY FACILITIES

VERMONT AGENCY OF TRANSPORTATION

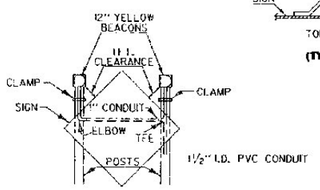
STANDARD
E-109

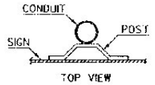


AERIAL SERVICE WITHOUT LUMINAIRE



UNDERGROUND SERVICE DETAIL, SEE STANCHION DETAIL SHEET





(TYPICAL)

CONDUIT DETAILS BETWEEN BEACONS, BACK SIDE OF SIGN.

DOUBLE BEACON INSTALLATION

NOTE:

THE CONTRACTOR SHALL SUPPLY AND INSTALL THE INDICATED EQUIPMENT AND ALL NECESSARY HARDWARE SUCH AS BEACONS, 3 LB./FT. FLANGED CHANNEL POST(S), WIRE (12 AWG. MIN.), METER SOCKET, OTHER EQUIPMENT AS MENTIONED IN POWER SOURCE NOTE (SEE RIGHT), CONDUIT, POLE RISER WITH WEATHERHEAD, POWER DROP STANCHION, JUNCTION BOX, AND OTHER MISC. MATERIALS AND HARDWARE TO MAKE THE BEACONS OPERATIONAL.

BOTTOM OF BEACON SHALL BE MIN. 8'-0" AND A MAX. OF 12'-0" ABOVE EDGE OF PAVEMENT.

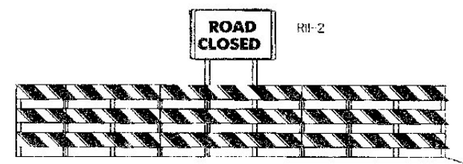
A CLAMPING DEVICE AS APPROVED BY THE ENGINEER SHALL BE USED TO ATTACH THE CONDUIT TO THE SIGN POSTS.

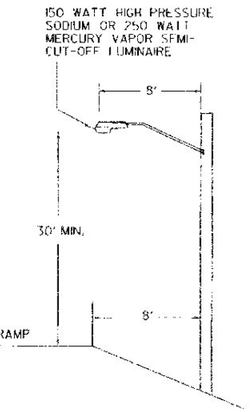
SEE STANDARD E-175

HAZARD IDENTIFICATION BEACON INSTALLATION FLANGED CHANNEL STEEL SIGN SUPPORT

POWER SOURCE NOTE:

THE FLASHING ARROW PANEL MAY BE POWERED BY A PORTABLE DIESEL GENERATOR AT INSTALLATIONS WHICH WILL REMAIN IN SERVICE FOR LESS THAN SIX MONTHS. INSTALLATIONS WHICH WILL REMAIN IN PLACE FOR SIX MONTHS OR MORE SHALL HAVE A PERMANENT POWER SOURCE AND ALSO SHALL HAVE A LUMINAIRE ERECTED AS INDICATED AT RIGHT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE UTILITY COMPANY TO PROVIDE A POWER SOURCE ETC. FOR THE LUMINAIRE AND FLASHING ARROW PANEL INSTALLATIONS.





TYPE III BARRICADES

BARRICADE MATERIALS –

TYPE III BARRICADES ON THIS SHEET SHALL COMPLY WITH STANDARD SHEET E-107A. THE ROAD CLOSED SIGN SHALL BE MOUNTED ON A TYPE III MODIFIED BARRICADE AND SHALL COMPLY WITH STANDARD SHEET E-107A.

SIGNS, COLORS AND MATERIALS –

THE SIZES OF SIGNS SHALL BE AS INDICATED ON THE PLANS. THEY SHALL HAVE REFLECTORIZED WHITE BACKGROUND WITH BLACK TEXT AND BORDER.

* ALL SIGN BASE AND REFLECTIVE MATERIALS SHALL BE AS SHOWN ON STD. E-100.

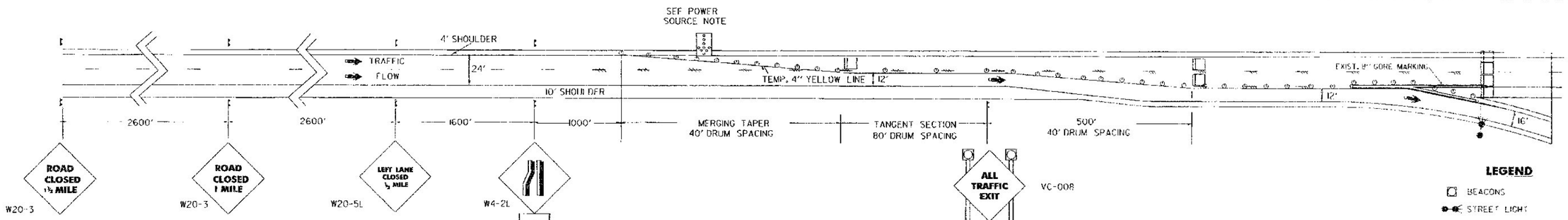
NOTES

1.) IF THE SIGNS WILL REMAIN IN PLACE FOR THREE DAYS OR MORE THEN ALL SIGNS SHALL BE PERMANENTLY INSTALLED ON APPROPRIATE SIZE YIELDING POSTS. IF THE SIGNS WILL BE IN PLACE FOR LESS THAN THREE DAYS THEN THE SIGNS MAY BE INSTALLED ON TEMPORARY SUPPORTS WITH THE BOTTOM EDGE OF THE SIGNS AT LEAST 1 FOOT ABOVE THE PAVEMENT.

2.) ALL DISTANCES ARE DESIREABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.

3.) WHEN THE FREEWAY FACILITY IS CLOSED TO THRU TRAFFIC AND IS NOT TERMINATED, A SIGN PACKAGE USING ROAD CLOSED SIGNS SHOULD BE USED.

4.) THE NUMBER OF CHANNELIZING DEVICES, TYPE III BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED SHALL BE DETERMINED BY DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOURS, ETC.).



POSTED SPEED (OR 85TH PERCENTILE MPH	MERGING TAPER 12' LANE (L)	TANGENT SECTION (1/2L)	SHIFTING TAPER W = 16' (1/2L)	SHOULDER TAPER W = 10' (1/3L)
40	320'	160'	215'	90'
45	540'	270'	360'	150'
50	600'	300'	400'	170'
55	660'	330'	440'	190'
60	720'	360'	480'	200'
65	780'	390'	520'	220'

LEGEND

- BEACONS
- STREET LIGHT
- PLASTIC DRUMS (RFFC)
- TYPE III BARRICADES
- FLASHING ARROW PANEL
- PAVEMENT MARKING REMOVAL

NTS

OTHER STDS. REQUIRED: E-100, E-101, E-102, E-102A, E-106, E-107A, E-175

REVISIONS AND CORRECTIONS

SEPT 10, 1987 – DATE OF ORIGINAL ISSUE

APR 29, 1994 – FHWA COMMENTS

DEC 23, 1994 – REVISED VARIOUS NOTES, BEACON DETAIL AND DELETED DRUM DETAIL

AUG 08, 1995 – REVISED LUMINAIRE WATTAGE, TAPER RATE TABLE AND DELETED SIGN DETAIL

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

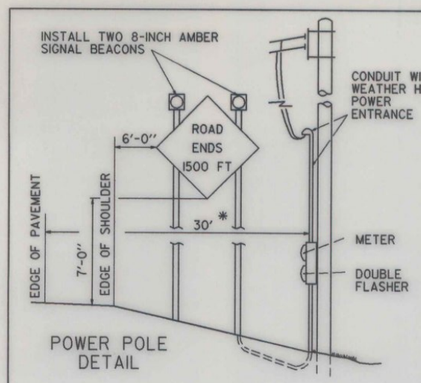
TRAFFIC CONTROL DEVICES FOR TEMPORARY TERMINATION OF FREEWAY FACILITIES

/ir gf/std/stde109.dgn : stde109.1

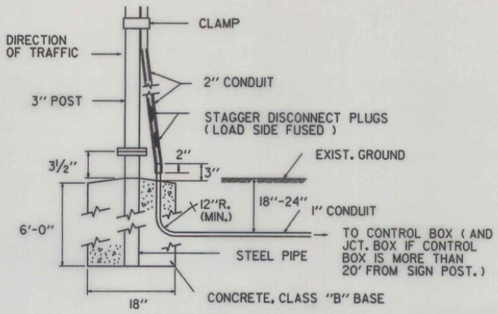
VERMONT AGENCY OF TRANSPORTATION

STANDARD E-109

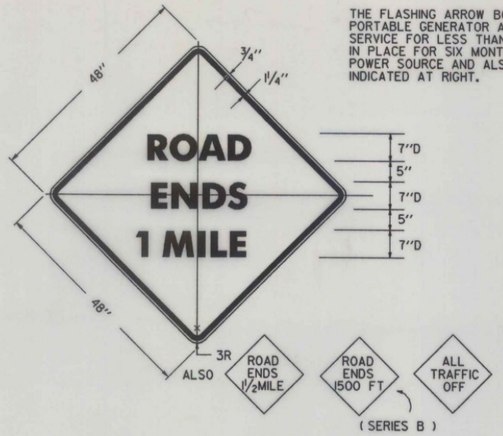
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION



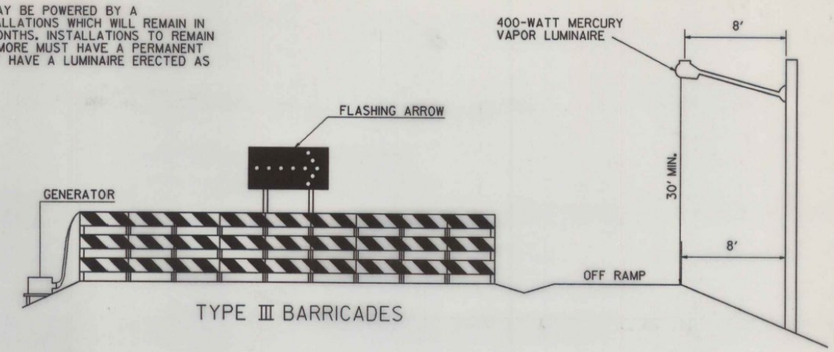
POWER POLE DETAIL



SIGN POST BASE DETAIL



THE FLASHING ARROW BOARD MAY BE POWERED BY A PORTABLE GENERATOR AT INSTALLATIONS WHICH WILL REMAIN IN SERVICE FOR LESS THAN SIX MONTHS. INSTALLATIONS TO REMAIN IN PLACE FOR SIX MONTHS OR MORE MUST HAVE A PERMANENT POWER SOURCE AND ALSO MUST HAVE A LUMINAIRE ERECTED AS INDICATED AT RIGHT.



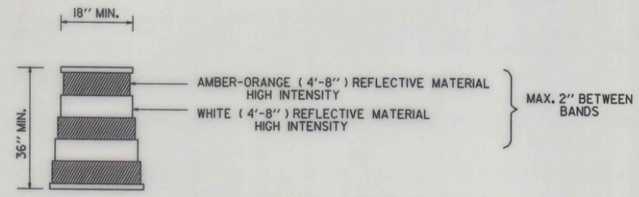
TYPE III BARRICADES

THE FLASHING ARROWBOARD SHALL BE MOUNTED ON A BREAKAWAY OR YIELDING SYSTEM

THE CONTRACTOR SHALL SUPPLY AND INSTALL THE INDICATED EQUIPMENT AND ALL NECESSARY HARDWARE SUCH AS BEACONS, WIRE (* 12 MIN.), CABLE, METER SOCKET, CONDUIT AND POLE RISER WITH WEATHER HEAD, POWER POLE JCT BOX, CONDUIT AND MISC. MATERIAL REQUIRED TO MAKE THE BEACONS OPERATE. PAYMENT FOR THIS SYSTEM WILL BE FOR FLASHING BEACON, 1 EACH. SIGNS AND POSTS WILL BE SEPARATE ITEMS. WIRE CONNECTIONS AT THE BASE OF THE SIGNPOST SHALL BE FUSED ON THE LOAD SIDE WITH A WATERTIGHT PLUG-IN TYPE CONNECTOR WHICH WILL DISCONNECT WITHOUT DAMAGE DURING A POST KNOCKDOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE UTILITY COMPANY FOR INSTALLATION OF ALL POLES, SPAN WIRE, 500 WATT MERCURY VAPOR LUMINAIRE AND POWER SOURCE. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY COMPANY AND STANDARDS SET FORTH IN THE NATIONAL ELECTRICAL CODE.
IF POLES ARE TO BE INSTALLED TO CARRY THE POWER SOURCE TO THE ADVANCE BEACON INSTALLATION ON THE "ROAD ENDS 1000 FT" SIGN, THE POLES SHALL BE PROVIDED AT THIS LOCATION. THE MAINTENANCE AND OPERATION OF THE BARRICADES, BEACONS, SIGNS, STREET LIGHT AND POWER SOURCE AND THE REMOVAL OF THE SAME SHALL BE THE RESPONSIBILITY OF THE STATE AFTER ACCEPTANCE OF THE PROJECT. ALL MATERIALS WITH THE EXCEPTION OF THE POLES AND STREET LIGHT SHALL BECOME THE PROPERTY OF THE STATE OF VERMONT UPON ACCEPTANCE OF THE PROJECT.

THE BEACONS TO BE USED OVERHEAD SHALL BE FURNISHED WITH HARDWARE FOR SPAN-WIRE MOUNTING. ALL FLASHING BEACONS, FLASHING MECHANISMS AND BEACON ACCESSORIES SHALL BE IN CONFORMANCE WITH STANDARD SPECIFICATION 752.07.
ALL ELECTRICAL WIRING SHALL BE IN ELECTRICAL CONDUIT AND BE ADEQUATELY GROUNDED
A PERMIT AND INSPECTION ARE REQUIRED BY THE STATE ELECTRICAL INSPECTORS.

* IN LEDGE CUT SECTION; DISTANCE FROM PAVEMENT TO POLE MAY BE MODIFIED TO NO LESS THAN 25' FROM PAVEMENT TO POLE.



CHANNELIZING DEVICE REFLECTORIZED PLASTIC DRUM

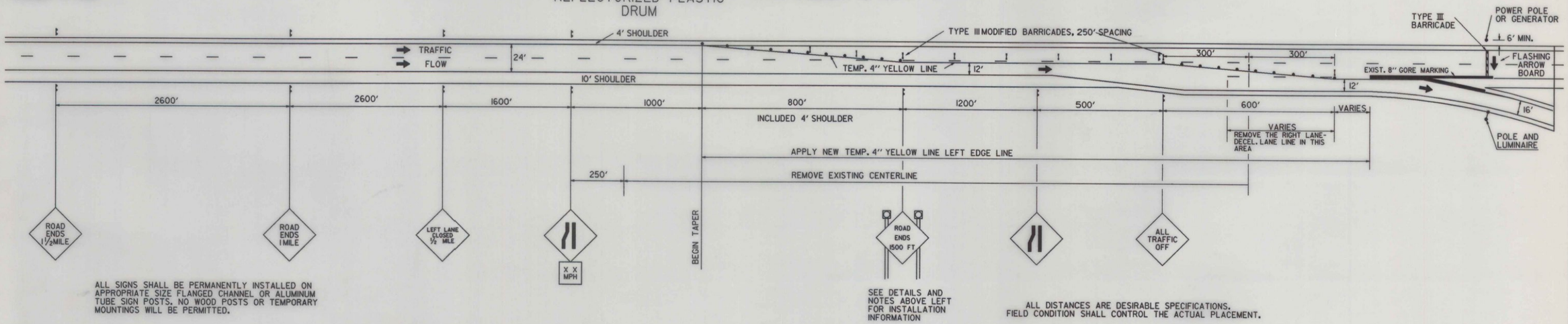
WEIGHTED REFLECTORIZED PLASTIC DRUMS SPACED FORTY FEET ON CENTERS WILL BE PLACED TO DELINEATE THE TAPERS.

BARRICADE MATERIALS -

TYPE III BARRICADES AND TYPE III MODIFIED BARRICADES ON THIS SHEET SHALL COMPLY WITH STANDARD SHEET E-107A.
ALL BARRICADES SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES.
DAMAGED, DEFACED OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

SIGNS - COLORS AND MATERIALS

THE SIZES OF SIGNS SHALL BE AS INDICATED. THEY SHALL HAVE REFLECTORIZED ORANGE BACKGROUND WITH BLACK TEXT AND BORDER, SIGN BASE MATERIAL SHALL BE AS SHOWN ON STD E-100.
ALL REFLECTORIZED MATERIAL SHALL CONSIST OF ENCAPSULATED LENS REFLECTIVE SHEETING.

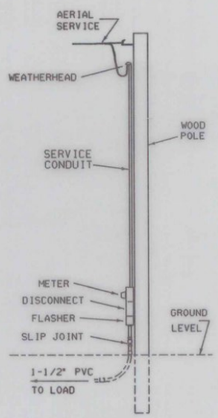


ALL SIGNS SHALL BE PERMANENTLY INSTALLED ON APPROPRIATE SIZE FLANGED CHANNEL OR ALUMINUM TUBE SIGN POSTS. NO WOOD POSTS OR TEMPORARY MOUNTINGS WILL BE PERMITTED.

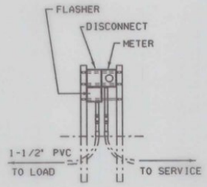
SEE DETAILS AND NOTES ABOVE LEFT FOR INSTALLATION INFORMATION

ALL DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.

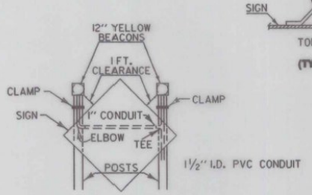
REVISIONS AND CORRECTIONS	APPROVED	SEPT. 10, 1987 DATE David B Kelley CHIEF ENGINEER Arthur J Goss DIRECTOR OF PLANNING AND PRE-CONSTRUCTION G. A. MacArthur TRAFFIC AND SAFETY ENGINEER	TRAFFIC CONTROL DEVICES FOR TEMPORARY TERMINATION OF FREEWAY FACILITIES	VERMONT AGENCY OF TRANSPORTATION	STANDARD E-109

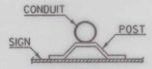


AERIAL SERVICE WITHOUT LUMINAIRE



UNDERGROUND SERVICE DETAIL, SEE STANCHION DETAIL SHEET





(TYPICAL)

CONDUIT DETAILS BETWEEN BEACONS, BACK SIDE OF SIGN.

DOUBLE BEACON INSTALLATION

SEE STANCHION DETAIL SHEET

NOTE:

THE CONTRACTOR SHALL SUPPLY AND INSTALL THE INDICATED EQUIPMENT AND ALL NECESSARY HARDWARE SUCH AS BEACONS, 3 LB./FT. FLANGED CHANNEL POST(S). WIRE (12 AWG. MIN.) METER SOCKET, OTHER EQUIPMENT AS MENTIONED IN POWER SOURCE NOTE (SEE RIGHT). CONDUIT, POLE RISER WITH WEATHERHEAD, POWER DROP STANCHION, JUNCTION BOX, AND OTHER MISC. MATERIALS AND HARDWARE TO MAKE THE BEACONS OPERATIONAL.

BOTTOM OF BEACON SHALL BE MIN. 8'-0" AND A MAX. OF 12'-0" ABOVE EDGE OF PAVEMENT.

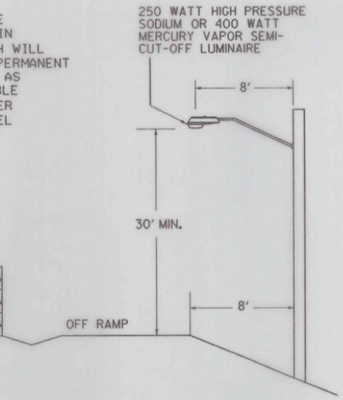
A CLAMPING DEVICE AS APPROVED BY THE ENGINEER SHALL BE USED TO ATTACH THE CONDUIT TO THE SIGN POSTS.

HAZARD IDENTIFICATION BEACON INSTALLATION FLANGED CHANNEL STEEL SIGN SUPPORT

POWER SOURCE NOTE:

THE FLASHING ARROW PANEL MAY BE POWERED BY A PORTABLE DIESEL GENERATOR AT INSTALLATIONS WHICH WILL REMAIN IN SERVICE FOR LESS THAN SIX MONTHS. INSTALLATIONS WHICH WILL REMAIN IN PLACE FOR SIX MONTHS OR MORE SHALL HAVE A PERMANENT POWER SOURCE AND ALSO SHALL HAVE A LUMINAIRE ERECTED AS INDICATED AT RIGHT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE UTILITY COMPANY TO PROVIDE A POWER SOURCE ETC. FOR THE LUMINAIRE AND FLASHING ARROW PANEL INSTALLATIONS.

TYPE III BARRICADES



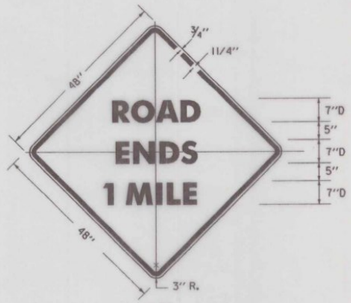
BARRICADE MATERIALS -

TYPE III BARRICADES ON THIS SHEET SHALL COMPLY WITH STANDARD SHEET E-107A. THE ROAD CLOSED SIGN SHALL BE MOUNTED ON A TYPE III MODIFIED BARRICADE AND SHALL COMPLY WITH STANDARD SHEET E-107A.

SIGNS, COLORS AND MATERIALS -

THE SIZES OF SIGNS SHALL BE AS INDICATED ON THE PLANS. THEY SHALL HAVE REFLECTORIZED ORANGE BACKGROUND WITH BLACK TEXT AND BORDER.

- ALL SIGN BASE AND REFLECTIVE MATERIALS SHALL BE AS SHOWN ON STD. E-100.



ALSO

(SERIES B)

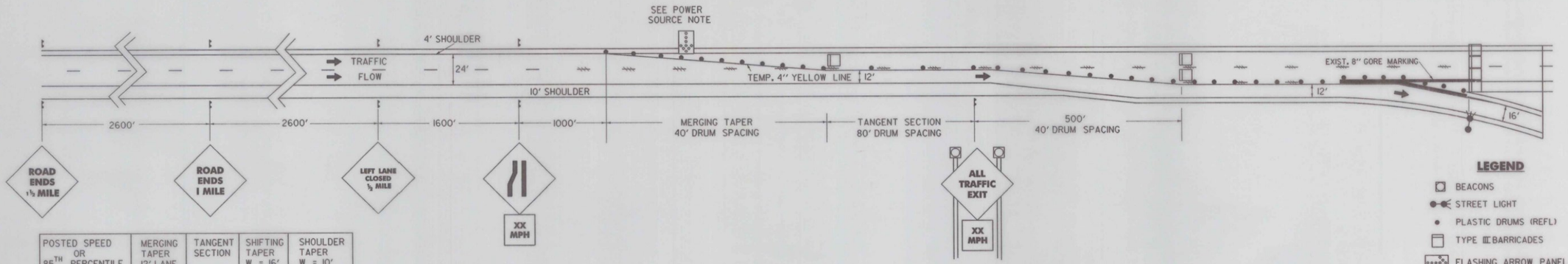
NOTES

1.) IF THE SIGNS WILL REMAIN IN PLACE FOR THREE DAYS OR MORE THEN ALL SIGNS SHALL BE PERMANENTLY INSTALLED ON APPROPRIATE SIZE YIELDING POSTS. IF THE SIGNS WILL BE IN PLACE FOR LESS THAN THREE DAYS THEN THE SIGNS MAY BE INSTALLED ON TEMPORARY SUPPORTS WITH THE BOTTOM EDGE OF THE SIGNS AT LEAST 1 FOOT ABOVE THE PAVEMENT.

2.) ALL DISTANCES ARE DESIREABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.

3.) WHEN THE FREEWAY FACILITY IS CLOSED TO THRU TRAFFIC AND IS NOT TERMINATED, A SIGN PACKAGE USING ROAD CLOSED SIGNS SHOULD BE USED.

4.) THE NUMBER OF CHANNELIZING DEVICES, TYPE III BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED SHALL BE DETERMINED BY DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOURS, ETC.).



POSTED SPEED OR 85TH PERCENTILE MPH	MERGING TAPER 12' LANE	TANGENT SECTION	SHIFTING TAPER W = 16'	SHOULDER TAPER W = 10'
40	320'	160'	430'	90'
45	540'	270'	720'	150'
50	600'	300'	800'	170'
55	660'	330'	880'	190'
60	720'	360'	960'	200'
65	780'	390'	1040'	220'

LEGEND

- BEACONS
- STREET LIGHT
- PLASTIC DRUMS (REFL)
- TYPE III BARRICADES
- FLASHING ARROW PANEL
- PAVEMENT MARKING REMOVAL

NTS

OTHER STDS. : REQUIRED E-100, E-101, E-102, E-106, E-107A, STANCHION DETAIL SHEET

REVISIONS AND CORRECTIONS

APRIL 29, 1988 - FHWA COMMENTS
SEPT. 20, 1993 - REVISED VARIOUS NOTES, BEACON DETAIL AND DELETED DRUM DETAIL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED SEPT. 10, 1987
DATE

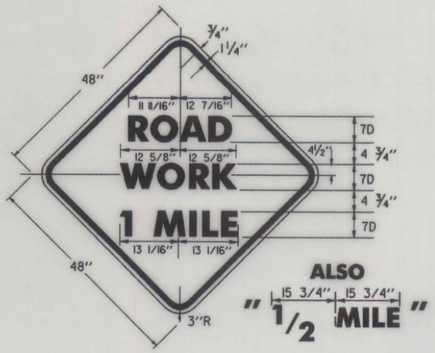
Gordon R. MacCallum
DIRECTOR OF ENGINEERING

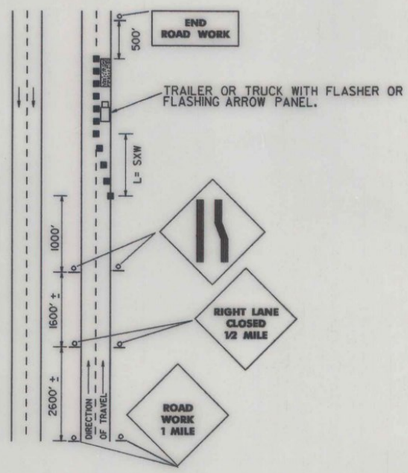
Acting Dale L. Lerron
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL DEVICES FOR TEMPORARY TERMINATION OF FREEWAY FACILITIES

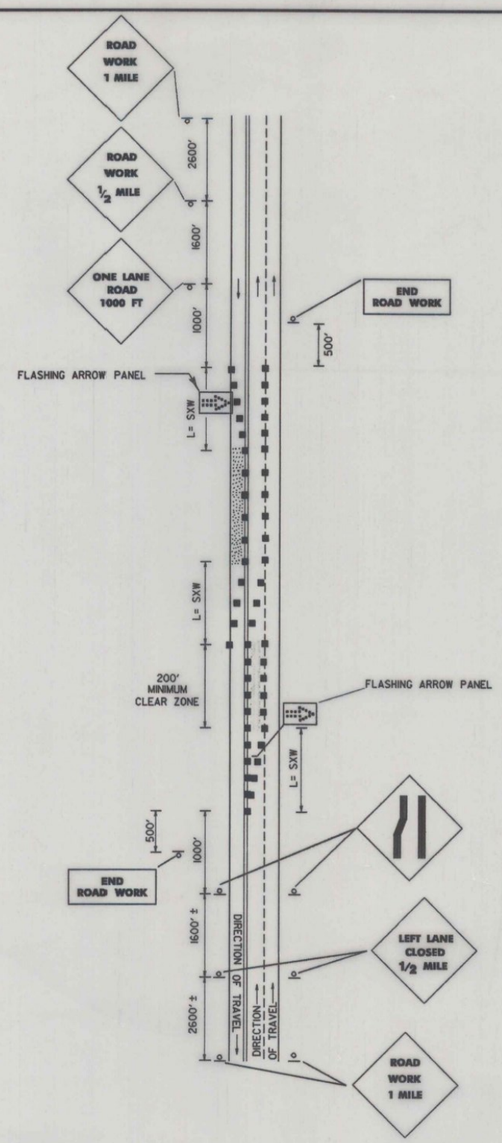
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-109

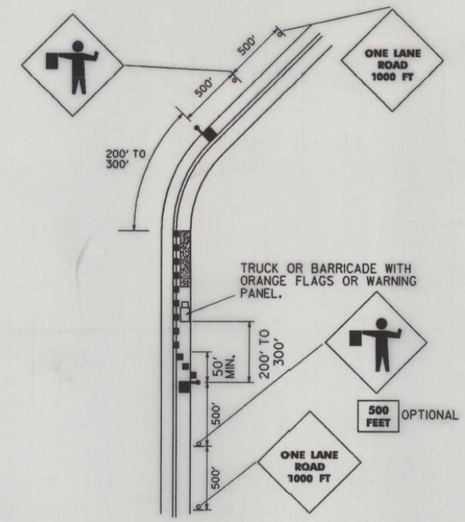




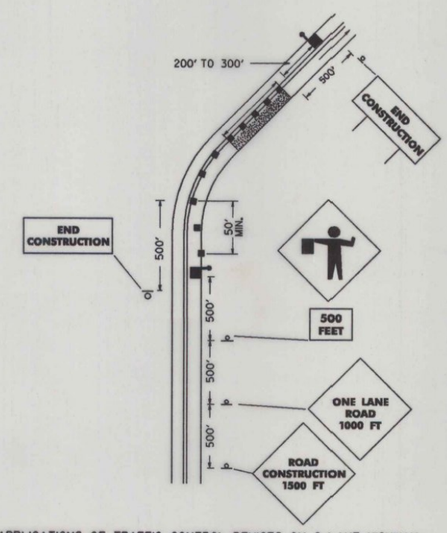
TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF ROADWAY IS CLOSED.



TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATION OF SHORT DURATION ON A 3 LANE ROADWAY WHERE CENTER LANE IS USED FOR OPPPOSING TRAFFIC



TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 2-LANE ROADWAY WHERE FLAGGING IS PROVIDED.



TYPICAL APPLICATIONS OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.

NOTES:

REFLECTORIZATION

ALL SIGNS USED DURING THE HOURS OF DARKNESS SHALL BE REFLECTORIZED. CONES USED FOR TRAFFIC CONTROL AT NIGHT SHALL HAVE A MINIMUM 6" WIDE WHITE REFLECTORIZED BAND PLACED A MAXIMUM OF 3" FROM THE TOP.

COLORS

THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT, BORDER, AND SYMBOLS ON AN ORANGE BACKGROUND. THE TEXT AND BORDERS MAY BE SCREENED, LETTERING FILM, OR HAND PAINTED. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

TEXT DESIGN

LETTERS, DIGITS, SPACING, AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABETS FOR HIGHWAY SIGNS" AS REFERENCED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

SIGN BASE MATERIAL

THE SIGN BASE MATERIAL USED FOR THE WARNING SIGNS ON THIS SHEET MAY BE OF ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED:

FLAT SHEET ALUMINUM	0.125	INCHES
HIGH DENSITY OVERLAYED PLYWOOD	3/4	INCHES
GALVANIZED SHEET STEEL	12	GAGE

1. SIGNS WITH "ROAD CONSTRUCTION 1500 FT" AND "END CONSTRUCTION" TEXT SHALL BE USED WHEN THE WORK IS NOT COMPLETE AND A HAZARD REMAINS OVERNIGHT.
2. FLAGPERSON SHALL USE THE SIGN PADDLE DETAIL ON STANDARD SHEET E-101.
3. ALL SIGNS SHALL BE COVERED OR REMOVED AT THE END OF THE WORKING DAY UNLESS REQUIRED FOR THE PROTECTION AND SAFETY OF THE TRAVELING PUBLIC.
4. INSTALLATION: SIGNS AND BARRICADES SHALL BE IN PLACE PRIOR TO THE START OF THE MAINTENANCE OPERATION TO WHICH THEY APPLY AND SHALL BE REMOVED PROMPTLY WHEN THE NEED NO LONGER EXISTS. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON WOOD OR METAL POSTS SET SECURELY IN THE GROUND, OR ON PORTABLE SUPPORTS FOR TEMPORARY USE, OR ON BARRICADES WHEN APPROPRIATE. AS A GENERAL RULE, ROADSIDE SIGNS SHALL BE 5 FEET ABOVE ROAD LEVEL WITH THE NEAREST EDGE AT LEAST 6 FEET OUTSIDE THE OUTER EDGE OF THE SHOULDER POINT. THE INSTALLATION OF SIGNS AND BARRICADES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
5. ALTHOUGH LISTED AS A MAINTENANCE OPERATION STANDARD SIGN SHEET, THE APPROACH SIGNS SHOWN SHALL BE USED BY CONTRACTORS WHEN WORKING WITHIN OR OUTSIDE PROJECT LIMITS.
6. ALL DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.
7. SIGN DETAILS NOT SHOWN ON THIS SHEET CAN BE FOUND ON STANDARD SHEETS E-100, E-101, AND E-102.
8. TAPER FORMULA
   L=SXW FOR SPEEDS OF 45 OR MORE.
   $L=\frac{WS^2}{60}$ FOR SPEEDS OF 40 OR LESS.
   WHERE
   L=MINIMUM LENGTH OF TAPER.
   S=NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.
   W=WIDTH OF OFFSET.
9. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT IN M.P.H..
10. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGPERSON MAY BE USED.
11. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.

KEY:

- FLAGPERSON
- CHANNELIZING DEVICES (CONES OR DRUMS)
- FLASHING ARROW PANEL
- WORK AREA

REVISIONS AND CORRECTIONS

MARCH 1, 1988 - FHWA REVIEW COMMENTS

APPROVED

SEPT. 10, 1987
DATE

David W. Kelley
CHIEF ENGINEER

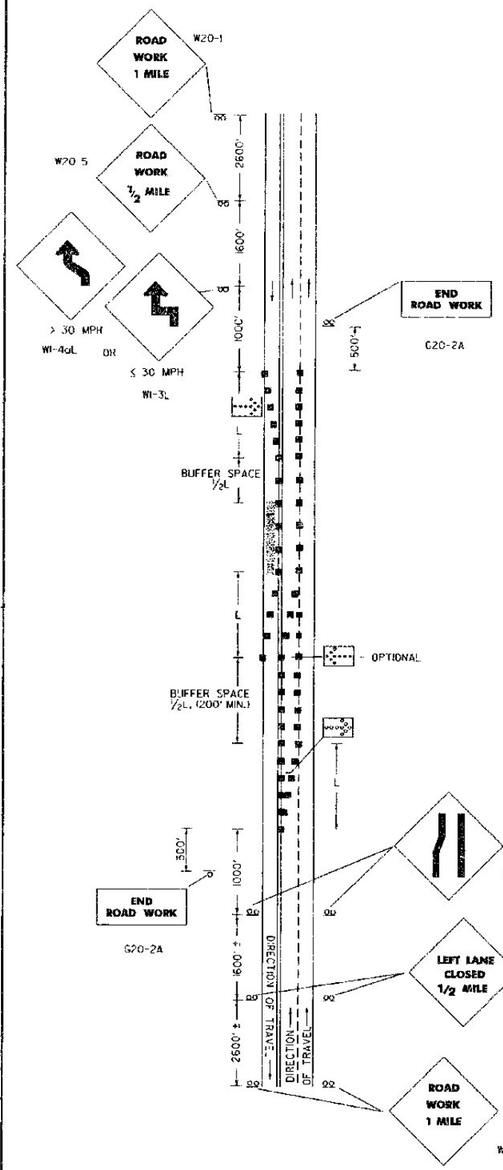
Arthur J. Gore
DIRECTOR OF PLANNING AND PRECONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

MAJOR MAINTENANCE OPERATION LANE CLOSURE

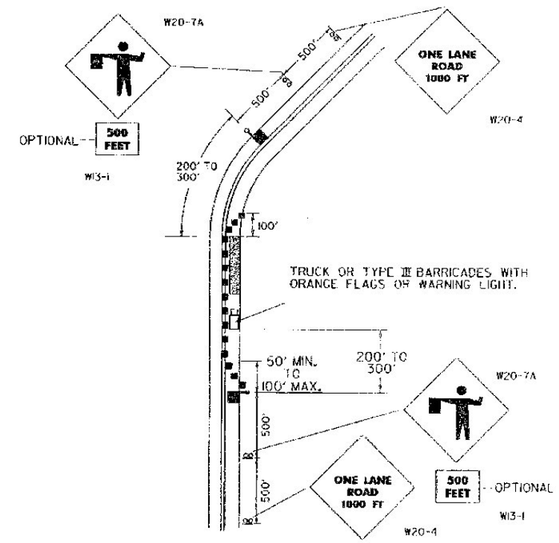
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-110



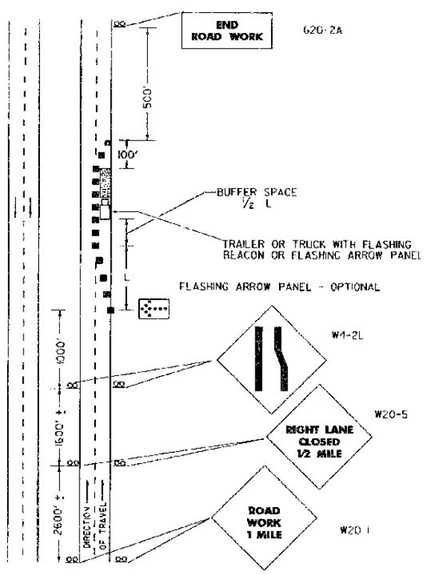
TYPICAL APPLICATION – DAYTIME MAINTENANCE OPERATION OF SHORT DURATION ON A 3 LANE ROADWAY WHERE CENTER LANE IS USED FOR OPPPOSING TRAFFIC

NTS



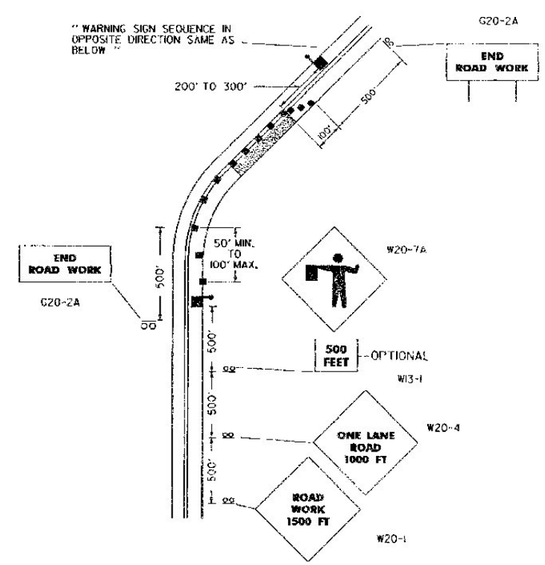
TYPICAL APPLICATIONS – DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 2-LANE ROADWAY WHERE FLAGGING IS PROVIDED

NTS



TYPICAL APPLICATION – DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF ROADWAY IS CLOSED.

NTS



TYPICAL APPLICATIONS – TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.

NTS

NOTES

REFLECTORIZATION

ALL SIGNS USED DURING THE HOURS OF DARKNESS SHALL BE REFLECTORIZED (TYPE II OR III). CONES USED FOR TRAFFIC CONTROL AT NIGHT SHALL COMPLY WITH STANDARD E-106.

COLORS

THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT, BORDER, AND SYMBOLS ON AN ORANGE BACKGROUND. THE TEXT AND BORDERS MAY BE SCREENED, LETTERING FILM, OR HAND PAINTED. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

TEXT DESIGN

LETTERS, DIGITS, SPACING, AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABETS FOR HIGHWAY SIGNS" AS REFERENCED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

SIGN BASE MATERIAL

THE SIGN BASE MATERIAL USED FOR THE WARNING SIGNS ON THIS SHEET MAY BE OF ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED:

FLAT STEEL OR ALUMINUM	0.125 INCHES
HIGH DENSITY OVERLAYED PLYWOOD	1/2, 5/8, OR 3/4 INCHES
GALVANIZED SHEET STEEL	12 GAGE

1. SIGNS WITH "ROAD WORK 1500 FT. AND "END ROAD WORK" TEXT SHALL BE USED WHEN THE WORK IS NOT COMPLETE AND A HAZARD REMAINS OVERNIGHT.
2. THE FLAGPERSON SHALL USE THE SIGN PADDLE DETAILED ON STANDARD SHEET E-102.
3. ALL SIGNS SHALL BE COVERED OR REMOVED AT THE END OF THE WORKING DAY UNLESS REQUIRED FOR THE PROTECTION AND SAFETY OF THE TRAVELING PUBLIC.
4. INSTALLATION, SIGNS AND BARRICADES SHALL BE IN PLACE PRIOR TO THE START OF THE MAINTENANCE OPERATION TO WHICH THEY APPLY AND SHALL BE REMOVED PROMPTLY WHEN THE NEED NO LONGER EXISTS. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON YIELDING WOOD OR METAL POSTS SET SECURELY IN THE GROUND (IN ACCORDANCE WITH STD. E-121), OR ON PORTABLE SUPPORTS WHEN APPROPRIATE. THE INSTALLATION OF SIGNS AND BARRICADES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
5. ALTHOUGH LISTED AS A MAINTENANCE OPERATION STANDARD SIGN SHEET, THE APPROACH SIGNS SHOWN SHALL BE USED BY CONTRACTORS WHEN WORKING WITHIN OR OUTSIDE PROJECT LIMITS.
6. ALL DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
7. SIGN DETAILS NOT SHOWN ON THIS SHEET CAN BE FOUND ON STANDARD SHEETS E-100, E-101, AND E-102.
8. TAPER FORMULA
   - $L = SXW$ FOR SPEEDS OF 45 OR MORE
   - $L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 OR LESS

   WHERE
   - L = MINIMUM LENGTH OF TAPER
   - S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.
   - W = WIDTH OF OFFSET.
9. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT IN M.P.H., ON TANGENT SECTIONS THE MAXIMUM SPACING SHOULD BE APPROXIMATELY EQUAL TO TWICE THE POSTED SPEED LIMIT.
10. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK THE FLAGPERSON STATIONS AT NIGHT AS NEEDED.
11. AT SHORT WORK ZONES WHERE ADEQUATE SIGHT DISTANCE IS AVAILABLE FOR THE SAFE HANDLING OF TRAFFIC ONE FLAGGER MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
12. CHANNELIZING DEVICES SHALL BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
13. THE NUMBER OF CHANNELIZING AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED SHALL BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.).

LEGEND:

- FLAGPERSON
- CHANNELIZING DEVICES (CONES OR DRUMS)
- FLASHING ARROW PANEL
- WORK AREA
- SIGN & POSTS
- TYPE III BARRICADES

OTHER STDS. REQUIRED:	**E-100**	**E-102**
	E-101	**E-106**

REVISIONS AND CORRECTIONS

SEPT 10, 1987 - DATE OF ORIGINAL ISSUE
MAR 01, 1988 - FHWA REVIEW COMMENTS

SEP 20, 1993 - REVISED NOTES & MISC. DETAILS

AUG 08, 1995 - DELETED SIGN DETAILS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon D. McCutcheon
DIRECTOR OF ENGINEERING

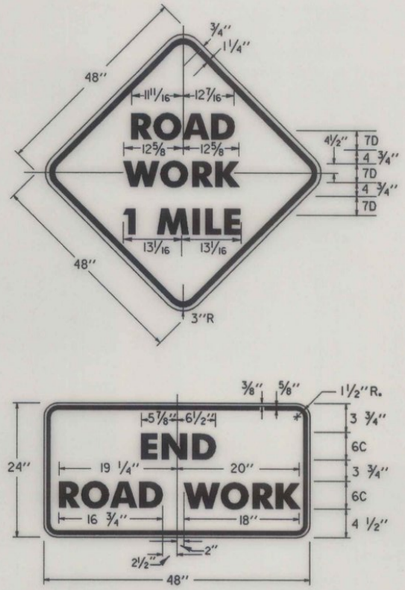
David A. Ross
TRAFFIC AND SAFETY ENGINEER

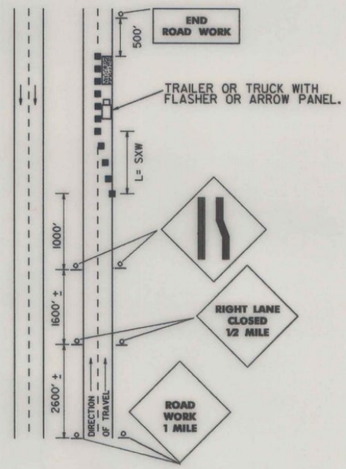
MAJOR MAINTENANCE OPERATION LANE CLOSURE

/traf/std/stdell0.dgn : stdell0.1

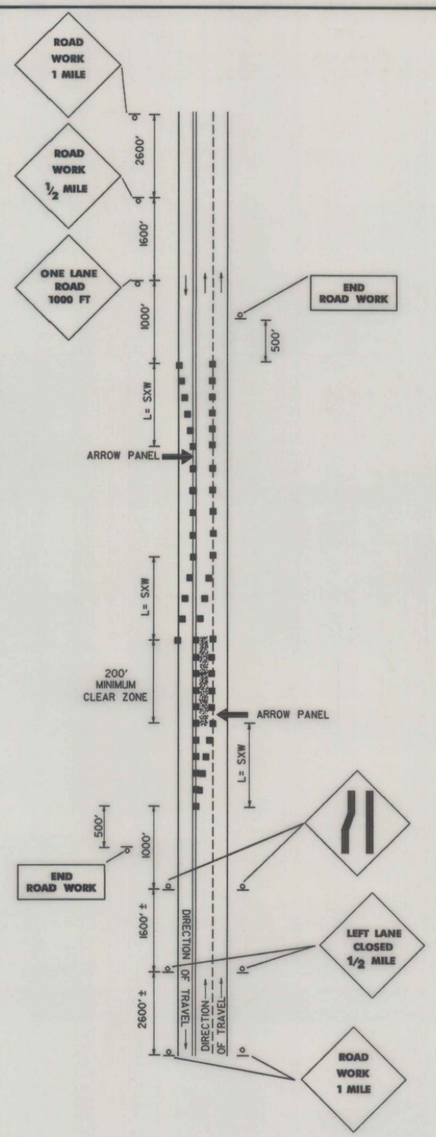
VERMONT AGENCY OF TRANSPORTATION

STANDARD E-110

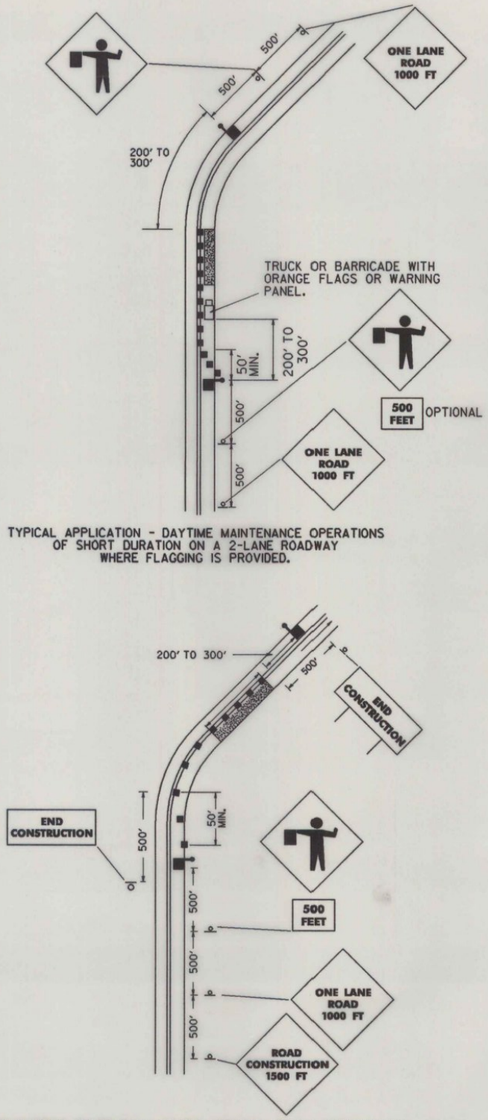




TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF ROADWAY IS CLOSED.



TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATION OF SHORT DURATION ON A 3 LANE ROADWAY WHERE CENTER LANE IS USED FOR OPPPOSING TRAFFIC



TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 2-LANE ROADWAY WHERE FLAGGING IS PROVIDED.

TYPICAL APPLICATIONS OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.

NOTES:

REFLECTORIZATION

ALL SIGNS INTENDED TO BE USED DURING THE HOURS OF DARKNESS SHALL BE EITHER REFLECTORIZED OR ILLUMINATED TO SHOW APPROXIMATELY THE SAME SHAPE AND COLOR DAY AND NIGHT. CONES USED FOR TRAFFIC CONTROL AT NIGHT SHALL HAVE A MINIMUM 6" WIDE WHITE REFLECTORIZED BAND PLACED A MAXIMUM OF 2" FROM THE TOP.

COLORS

THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT, BORDER, AND SYMBOLS ON AN ORANGE BACKGROUND. THE TEXT AND BORDERS MAY BE SCREENED, LETTERING FILM, OR HAND PAINTED. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

TEXT DESIGN

LETTERS, DIGITS, SPACING, AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABETS FOR HIGHWAY SIGNS" AS REFERENCED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

SIGN BASE MATERIAL

THE SIGN BASE MATERIAL USED FOR THE WARNING SIGNS ON THIS SHEET MAY BE OF ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED:

FLAT SHEET ALUMINUM	0.125	INCHES
HIGH DENSITY OVERLAYED PLYWOOD	3/4	INCHES
GALVANIZED SHEET STEEL	12	GAGE

1. SIGNS WITH "ROAD CONSTRUCTION 1500 FT" AND "END CONSTRUCTION" TEXT SHALL BE USED WHEN THE WORK IS NOT COMPLETE AND A HAZARD REMAINS OVERNIGHT.
2. FLAGPERSON SHALL USE THE SIGN PADDLE DETAIL ON STANDARD SHEET E-102.
3. ALL SIGNS SHALL BE COVERED OR REMOVED AT THE END OF THE WORKING DAY UNLESS REQUIRED FOR THE PROTECTION AND SAFETY OF THE TRAVELING PUBLIC.
4. INSTALLATION: SIGNS AND BARRICADES SHALL BE IN PLACE PRIOR TO THE START OF THE MAINTENANCE OPERATION TO WHICH THEY APPLY AND SHALL BE REMOVED PROMPTLY WHEN THE NEED NO LONGER EXISTS. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON WOOD OR METAL POSTS SET SECURELY IN THE GROUND, OR ON PORTABLE SUPPORTS FOR TEMPORARY USE, OR ON BARRICADES WHEN APPROPRIATE. AS A GENERAL RULE, ROADSIDE SIGNS SHALL BE 5 FEET ABOVE ROAD LEVEL WITH THE NEAREST EDGE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT. THE INSTALLATION OF SIGNS AND BARRICADES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
5. ALTHOUGH LISTED AS A MAINTENANCE OPERATION STANDARD SIGN SHEET, THE APPROACH SIGNS SHOWN SHALL BE USED BY CONTRACTORS WHEN WORKING WITHIN OR OUTSIDE PROJECT LIMITS.
6. ALL DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.
7. SIGN DETAILS NOT SHOWN ON THIS SHEET CAN BE FOUND ON STANDARD SHEETS E-100, E-101, AND E-102.
8. TAPER FORMULA
   L=SXW FOR SPEEDS OF 45 OR MORE.
   $L=\frac{WS^2}{60}$ FOR SPEEDS OF 40 OR LESS.
   WHERE
   L=MINIMUM LENGTH OF TAPER.
   S=NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.
   W=WIDTH OF OFFSET.
9. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT.
10. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGPERSON STATIONS AT NIGHT AS NEEDED.
11. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGPERSON MAY BE USED.
12. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.

KEY:
- FLAGPERSON
- CHANNELIZING DEVICES

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David B. Kelley
CHIEF ENGINEER

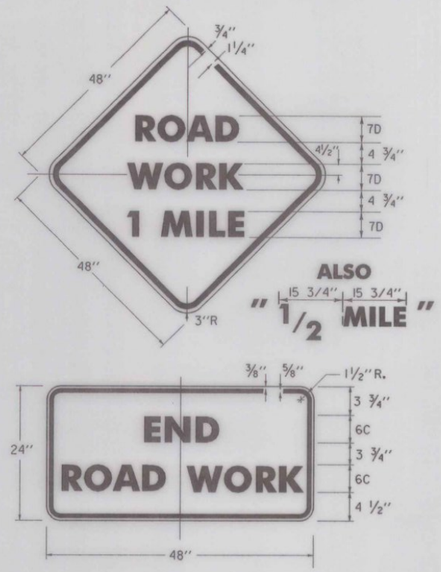
Arthur Gross
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

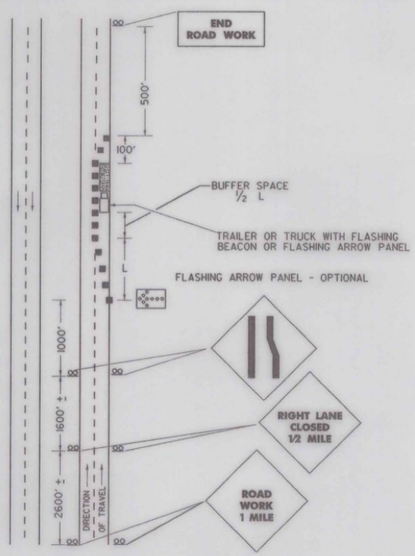
Gordon S. MacArthur
TRAFFIC AND SAFETY ENGINEER

MAJOR MAINTENANCE OPERATION
LANE CLOSURE

VERMONT AGENCY OF TRANSPORTATION

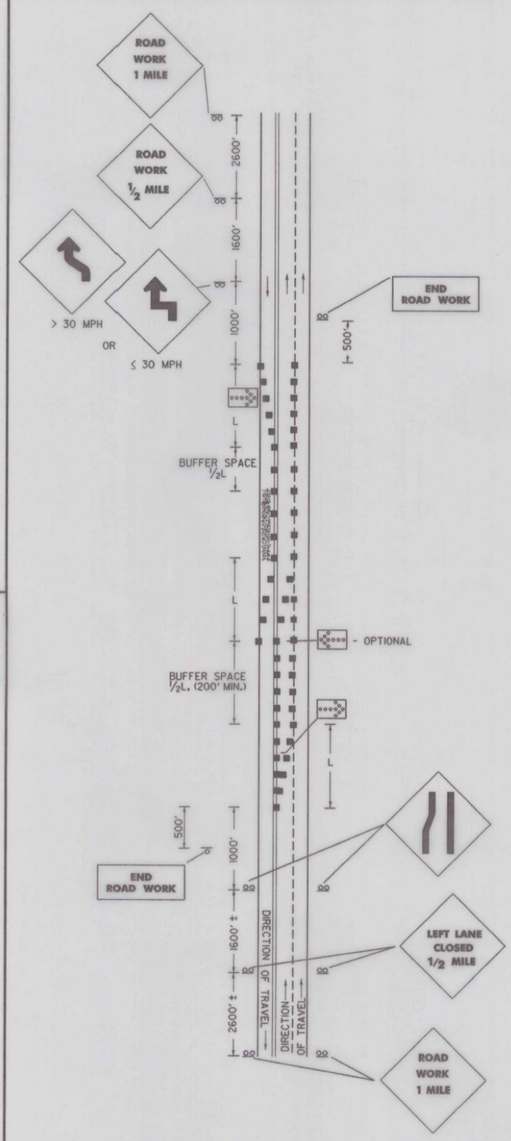
STANDARD
E-110





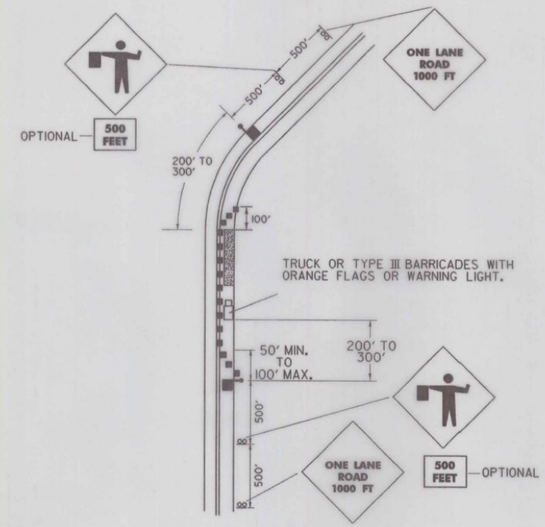
TYPICAL APPLICATION – DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF ROADWAY IS CLOSED.

NTS



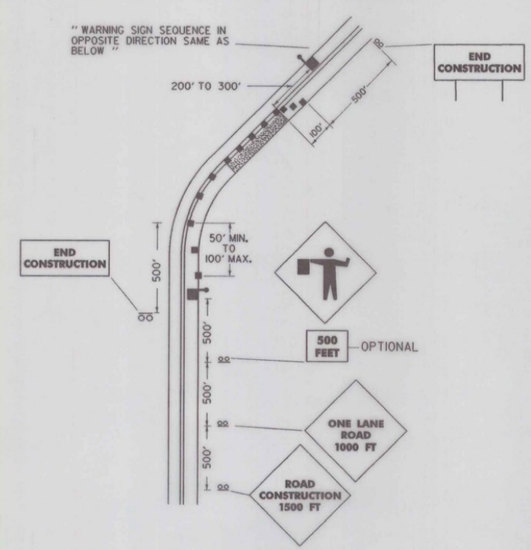
TYPICAL APPLICATION – DAYTIME MAINTENANCE OPERATION OF SHORT DURATION ON A 3 LANE ROADWAY WHERE CENTER LANE IS USED FOR OPPPOSING TRAFFIC

NTS



TYPICAL APPLICATIONS – DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 2-LANE ROADWAY WHERE FLAGGING IS PROVIDED

NTS



TYPICAL APPLICATIONS – TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.

NTS

NOTES

REFLECTORIZATION

ALL SIGNS USED DURING THE HOURS OF DARKNESS SHALL BE REFLECTORIZED (ENCAPSULATED LENS). CONES USED FOR TRAFFIC CONTROL AT NIGHT SHALL COMPLY WITH STANDARD E-106.

COLORS

THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT, BORDER, AND SYMBOLS ON AN ORANGE BACKGROUND. THE TEXT AND BORDERS MAY BE SCREENED, LETTERING FILM, OR HAND PAINTED. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

TEXT DESIGN

LETTERS, DIGITS, SPACING, AND TEXT DIMENSIONS SHALL CONFORM WITH THE ''STANDARD ALPHABETS FOR HIGHWAY SIGNS'' AS REFERENCED IN THE ''MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES''.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

SIGN BASE MATERIAL

THE SIGN BASE MATERIAL USED FOR THE WARNING SIGNS ON THIS SHEET MAY BE OF ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED:

FLAT STEEL OR ALUMINUM	0.125 INCHES
HIGH DENSITY OVERLAYED PLYWOOD	5/8 INCHES
GALVANIZED SHEET STEEL	12 GAGE

1. SIGNS WITH ''ROAD CONSTRUCTION 1500 FT. AND ''END CONSTRUCTION'' TEXT SHALL BE USED WHEN THE WORK IS NOT COMPLETE AND A HAZARD REMAINS OVERNIGHT.
2. THE FLAGPERSON SHALL USE THE SIGN PADDLE DETAILED ON STANDARD SHEET E-101.
3. ALL SIGNS SHALL BE COVERED OR REMOVED AT THE END OF THE WORKING DAY UNLESS REQUIRED FOR THE PROTECTION AND SAFETY OF THE TRAVELING PUBLIC.
4. INSTALLATION: SIGNS AND BARRICADES SHALL BE IN PLACE PRIOR TO THE START OF THE MAINTENANCE OPERATION TO WHICH THEY APPLY AND SHALL BE REMOVED PROMPTLY WHEN THE NEED NO LONGER EXISTS. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON YIELDING WOOD OR METAL POSTS SET SECURELY IN THE GROUND (IN ACCORDANCE WITH STD. E-121), OR ON PORTABLE SUPPORTS WHEN APPROPRIATE. THE INSTALLATION OF SIGNS AND BARRICADES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
5. ALTHOUGH LISTED AS A MAINTENANCE OPERATION STANDARD SIGN SHEET, THE APPROACH SIGNS SHOWN SHALL BE USED BY CONTRACTORS WHEN WORKING WITHIN OR OUTSIDE PROJECT LIMITS.
6. ALL DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
7. SIGN DETAILS NOT SHOWN ON THIS SHEET CAN BE FOUND ON STANDARD SHEETS E-100, E-101, AND E-102.
8. TAPER FORMULA
   $L = SXW$ FOR SPEEDS OF 45 OR MORE
   $L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 OR LESS
   WHERE
   L = MINIMUM LENGTH OF TAPER
   S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.
   W = WIDTH OF OFFSET.
9. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT IN M.P.H.. ON TANGENT SECTIONS THE MAXIMUM SPACING SHOULD BE APPROXIMATELY EQUAL TO TWICE THE POSTED SPEED LIMIT.
10. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK THE FLAGPERSON STATIONS AT NIGHT AS NEEDED.
11. AT SHORT WORK ZONES WHERE ADEQUATE SIGHT DISTANCE IS AVAILABLE FOR THE SAFE HANDLING OF TRAFFIC ONE FLAGGER MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
12. CHANNELIZING DEVICES SHALL BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
13. THE NUMBER OF CHANNELIZING AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED SHALL BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.).

LEGEND:

FLAGPERSON	WORK AREA
CHANNELIZING DEVICES (CONES OR DRUMS)	SIGN & POSTS
FLASHING ARROW PANEL	TYPE III BARRICADES

OTHER STDS. : REQUIRED E-100, E-101, E-102 AND E-106

REVISIONS AND CORRECTIONS

MARCH 1, 1988 - FHWA REVIEW COMMENTS
SEPT. 20, 1993 - REVISED NOTES & MISC. DETAILS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED SEPT. 10, 1987
DATE

Gordon R. MacArthur
DIRECTOR OF ENGINEERING

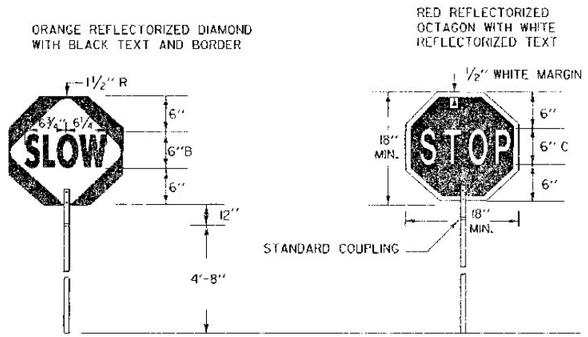
Acting Dale L. Perron
TRAFFIC AND SAFETY ENGINEER

MAJOR MAINTENANCE OPERATION LANE CLOSURE

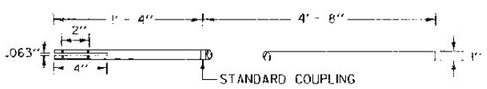
PLOTTED: 20-SEP-1993

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-110



SIGN DETAIL

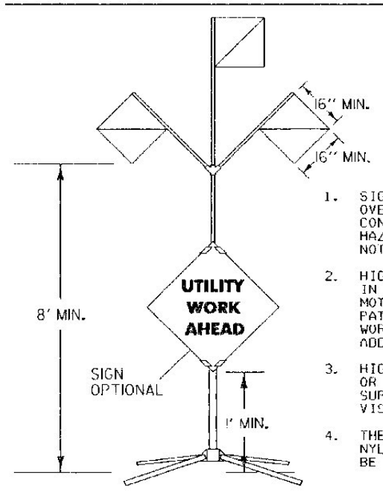


STAFF DETAIL

MATERIALS
THE SIGN MATERIALS SHALL BE 0.063" ALUMINUM WITH COLORS AS INDICATED ON DETAILS.
THE STAFF SHALL BE 1" RIGID ALUMINUM CONDUIT OR TUBING WITH A WALL THICKNESS OF 0.125".

MOUNTING
THE STAFF SHALL BE MOUNTED WITH EITHER TWO ¼" DIAMETER ALUMINUM BOLTS OR TWO ¼" DIAMETER ALUMINUM RIVETS.

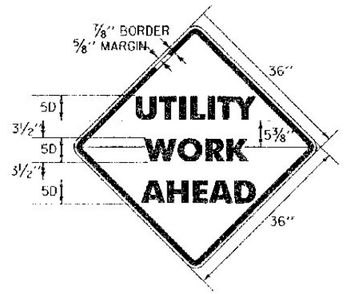
SIGN PADDLE FOR FLAGPERSON

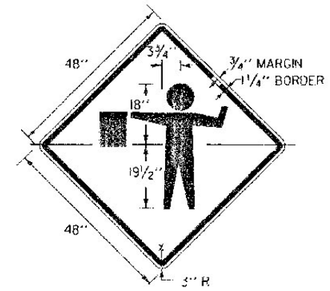


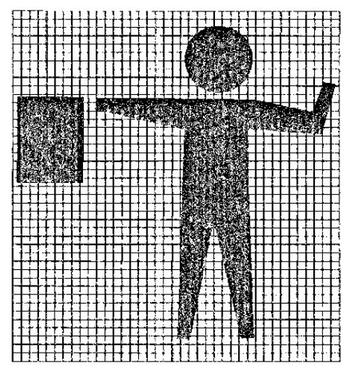
GENERAL NOTES

1. SIGN SUPPORTS MAY BE WEIGHTED TO PREVENT OVERTURNING. APPROPRIATE BALLAST SHALL BE CONSIDERED THAT WHICH DOES NOT CREATE A HAZARD TO THE IMPACTING VEHICLE AND DOES NOT BECOME A PROJECTILE UPON IMPACT.
2. HIGH LEVEL WARNING DEVICES ARE COMMONLY USED IN URBAN HIGH DENSITY SITUATIONS TO WARN MOTORISTS OF OPERATIONS SUCH AS PAVEMENT PATCHING, MANHOLE WORK, SURVEYING, UTILITY WORK, ETC., OR IN RURAL AREAS REQUIRING ADDITIONAL VISIBILITY.
3. HIGH LEVEL WARNING DEVICES MAY BE USED WITH OR WITHOUT SIGNS. THEY SHOULD BE USED ONLY TO SUPPLEMENT OTHER DEVICES WHERE ADDITIONAL VISIBILITY IS NEEDED.
4. THE THREE FLAGS SHALL BE FLUORESCENT ORANGE NYLON-VINYL WITH A DIAGONAL STAY. THEY SHALL BE A MINIMUM OF 16"X 16".

HIGH LEVEL WARNING DEVICE







INSTALLATION
THE SIGNS SHALL BE IN-PLACE AT THE TIME THE PROJECT COMMENCES. EACH SIGN SHALL BE ERECTED IN A NEAT AND PROFESSIONAL MANNER ON WOOD OR METAL POSTS SET SECURELY IN THE GROUND, UNLESS OTHERWISE NOTED ON THIS SHEET. THE BOTTOM OF A SIGN, UNLESS OTHERWISE NOTED SHALL BE AT LEAST 7 FEET ABOVE EDGE OF TRAVEL WAY, AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT OR 2 FEET OUTSIDE GUARD RAIL, CURBING OR SIDEWALK. SIGNS MOUNTED ON BARRICADES OR TEMPORARY SUPPORTS SHALL BE POSITIONED SUCH THAT THE BOTTOM OF THE SIGN IS NOT LESS THAN ONE FOOT ABOVE THE PAVEMENT ELEVATION.

REFLECTORIZATION
ALL REFLECTORIZED MATERIAL SHALL CONSIST OF AASHTO TYPE IIA, TYPE III(A & B), OR TYPE IIIC REFLECTIVE SHEETING. THE TEXT AND BORDERS MAY BE SCREENED, LETTERING FILM OR HAND PAINTED.

COLORS
THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT BORDER AND SYMBOLS ON A REFLECTORIZED ORANGE BACKGROUND THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION (FHWA).

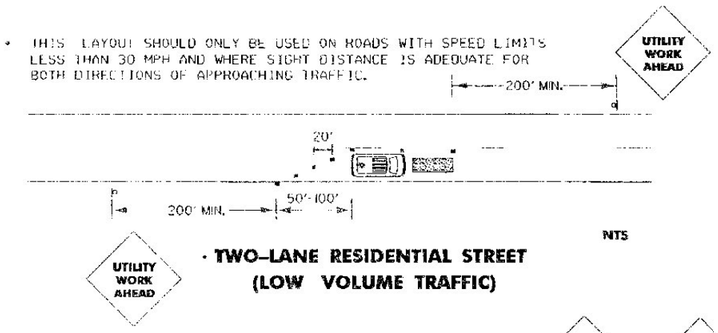
TEXT DESIGN
LETTERS, DIGITS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGN PRESCRIBED IN THE '' MANUAL ON UNIFORMED TRAFFIC CONTROL DEVICES'' (MUTCD).

SPECIFICATIONS
WARNING SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

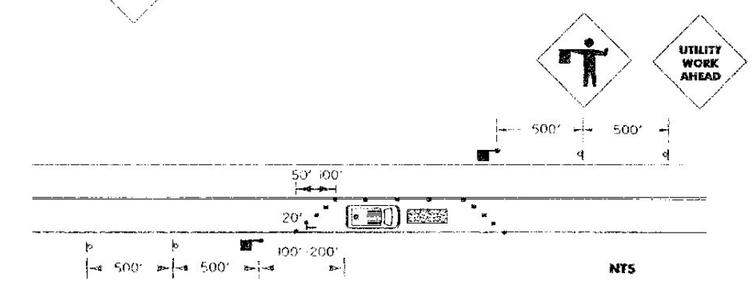
SIGN BASE MATERIAL
THE SIGN BASE MATERIAL USED FOR THE WARNING SIGNS ON THIS SHEET MAY BE OF ANY OF THE FOLLOWING WITH MINIMUM THICKNESS AS NOTED.

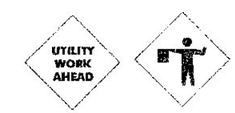
FLAT SHEET ALUMINUM - 0.125 INCHES
HIGH DENSITY OVERLAYED PLYWOOD - 5 /8 INCHES
GALVANIZED SHEET METAL 12 GAUGE

* THIS LAYOUT SHOULD ONLY BE USED ON ROADS WITH SPEED LIMITS LESS THAN 30 MPH AND WHERE SIGHT DISTANCE IS ADEQUATE FOR BOTH DIRECTIONS OF APPROACHING TRAFFIC.

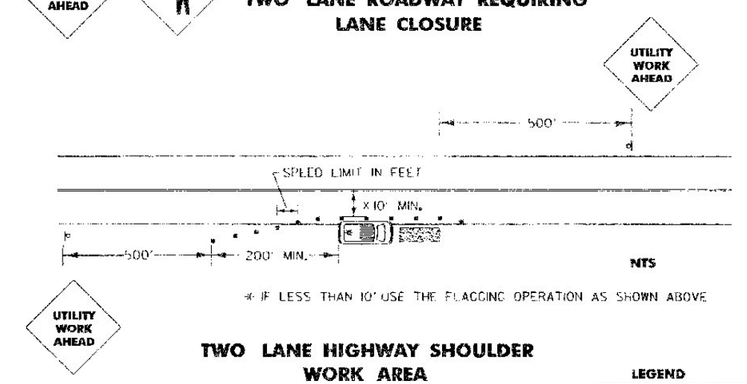


· TWO-LANE RESIDENTIAL STREET (LOW VOLUME TRAFFIC)





TWO LANE ROADWAY REQUIRING LANE CLOSURE



* IF LESS THAN 10' USE THE FLAGGING OPERATION AS SHOWN ABOVE

TWO LANE HIGHWAY SHOULDER WORK AREA

LEGEND
- WORK AREA
- SIGN & POSTS
- FLAGPERSON
- CHANNELIZING DEVICES (CONES OR DRUMS)

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

AUG 08, 1995 - SUPERSEDES STD E 9 AND UPDATED TO NEW CHAPTER VI OF MUTCD

--

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon H. MacAllister
DIRECTOR OF ENGINEERING

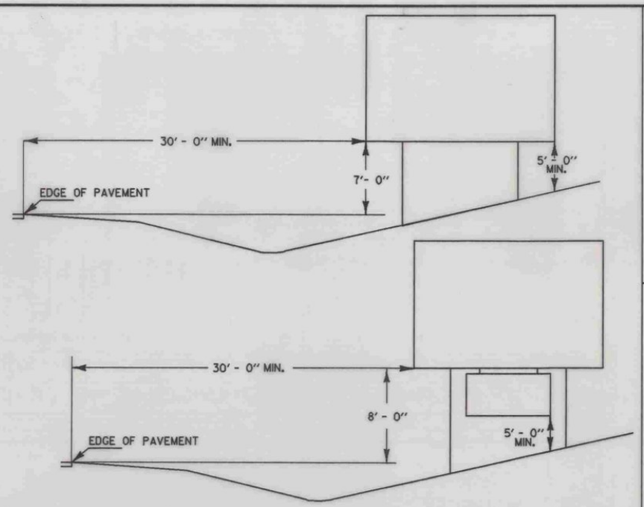
David A. Ross
TRAFFIC AND SAFETY ENGINEER

UTILITY WORK ZONE

/traf/std/std119.dgn : std119.i

VERMONT AGENCY OF TRANSPORTATION

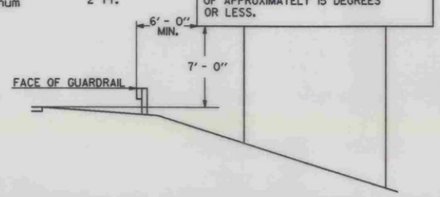
STANDARD
E-119



"GUARDRAIL DEFLECTION CHART"

TYPE	DEFLECTION
Three Cable w/Lt. Steel Posts	12 ft.
Three Cable w/Hvy. Steel Posts	12 ft.
W-Beam w/Lt. Steel Posts	8 ft.
Box Beam w/Steel Posts	5 ft.
W-Beam w/Wood Posts	4 ft.
W-Beam w/Hvy. Steel Posts	4 ft.
Two-Rail Elliptical Aluminum	2 ft.

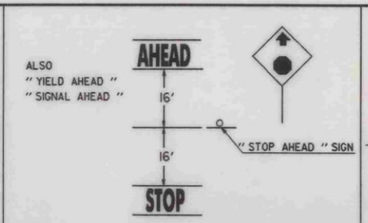
WHEN PLACED BEHIND GUARDRAIL AND BEYOND THE DEFLECTION DISTANCE FOR THAT PARTICULAR RAIL, SIGN POSTS DO NOT HAVE TO BE PLACED ON YIELDING SUPPORTS.
SIGN POSTS SHALL BE PLACED ON YIELDING SUPPORTS WHEN THEY CAN BE STRUCK BY AN ERRANT VEHICLE LEAVING THE ROADWAY AT AN ENCROACHMENT ANGLE OF APPROXIMATELY 15 DEGREES OR LESS.



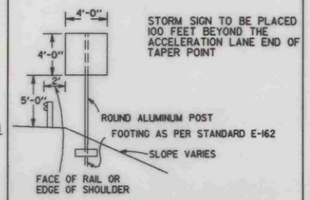
INSTALLATION DETAILS

NORMALLY SIGNS SHOULD BE MOUNTED AT 93° TO THE DIRECTION OF TRAFFIC, ON CURVED ALIGNMENT THE ANGLE OF PLACEMENT SHOULD BE DETERMINED BY THE PATH OF APPROACHING TRAFFIC RATHER THAN BY THE ROADSIDE EDGE AT THE POINT WHERE THE SIGN IS LOCATED.
WHEN INSTALLING OVERHEAD SIGNS, CANT THE SIGN FROM THE TOP TOWARD APPROACHING TRAFFIC AT A THREE DEGREE TILT ANGLE.

GUIDE SIGNS

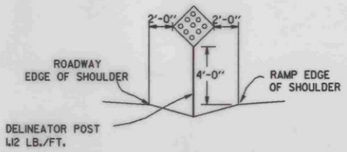


WORD MARKING LAYOUT DETAIL



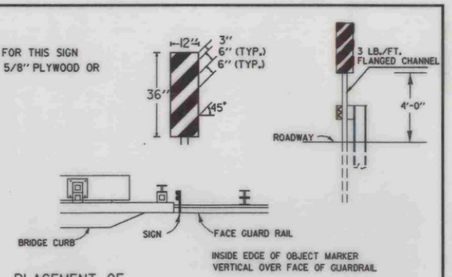
STORM SIGN TO BE PLACED 100 FEET BEYOND THE ACCELERATION LANE END OF TAPER POINT

TYPICAL PLACEMENT
STORM SIGN



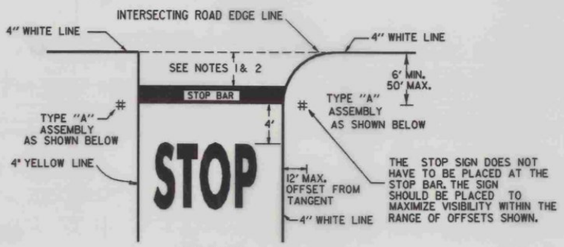
MATERIALS:
THE SIGN BASE MATERIAL USED FOR THIS SIGN MAY BE EITHER HIGH DENSITY 5/8" PLYWOOD OR 0.100" FLAT SHEET ALUMINUM.

COLORS:
THIS SIGN SHALL HAVE A REFLECTORIZED YELLOW BACKGROUND WITH BLACK PAINTED OR LETTERING FILM STRIPES.



PLACEMENT OF
OBJECT MARKERS
(TO BE USED WHEN FULL WIDTH SHOULDERS ARE NOT CARRIED ACROSS THE BRIDGE)

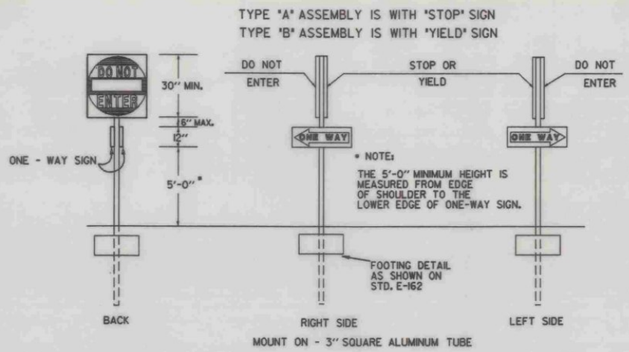
MARKERS MOUNTED ON THE LEFT SIDE SHALL HAVE THE DIAGONAL STRIPES SLOPING TOWARD CENTERLINE



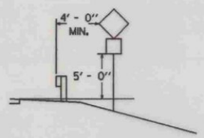
EXIT RAMP
SHOWN FOR ILLUSTRATION PURPOSES

1. THE STOP BAR SHOULD BE PLACED AT THE DESIRED STOPPING POINT. IN NO CASE MORE THAN 30' OR LESS THAN 4' FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY.
2. AT A SIGNALIZED INTERSECTION, DELETE WORDING " STOP " AND THE STOP SIGN AND PLACE STOP BAR A MINIMUM OF 40' FROM THE NEAREST SIGNAL HEAD FOR THE APPROACH.

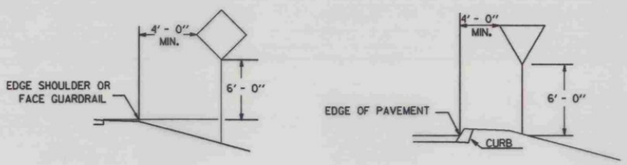
PAVEMENT MARKING & STOP SIGN LOCATION DETAILS
FOR OFF RAMP



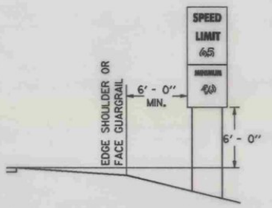
REGULATORY SIGN ASSEMBLY DETAIL
FOR OFF RAMP



SIGN WITH SUPPLEMENTAL PLAQUE

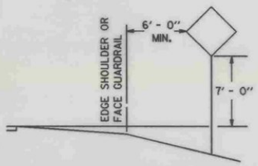


STANDARD SIGN PLACEMENT
RAMP

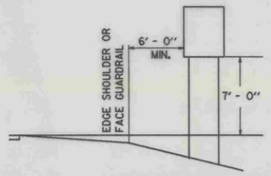


REGULATORY SIGN

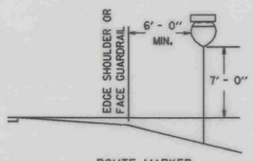
SPEED LIMIT SIGN TO BE PLACED 1600 FEET BEYOND ACCELERATION LANE END OF TAPER POINT.



WARNING SIGN

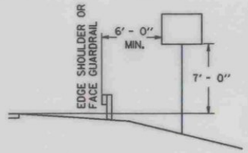


REGULATORY SIGN



ROUTE MARKER

ROUTE REASSURANCE MARKER TO BE PLACED 600' BEYOND ACCELERATION LANE END OF TAPER POINT



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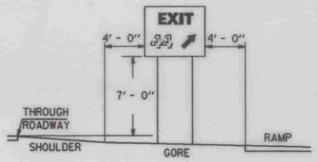
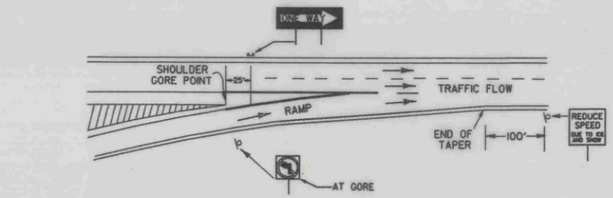


GORE SIGN

STANDARD SIGN PLACEMENT
MAINLINE



SIGN PLACEMENT AT END OF RAMP

REVISIONS AND CORRECTIONS

APPROVED

APRIL 1, 1988
DATE

David B. Kelley
CHIEF ENGINEER

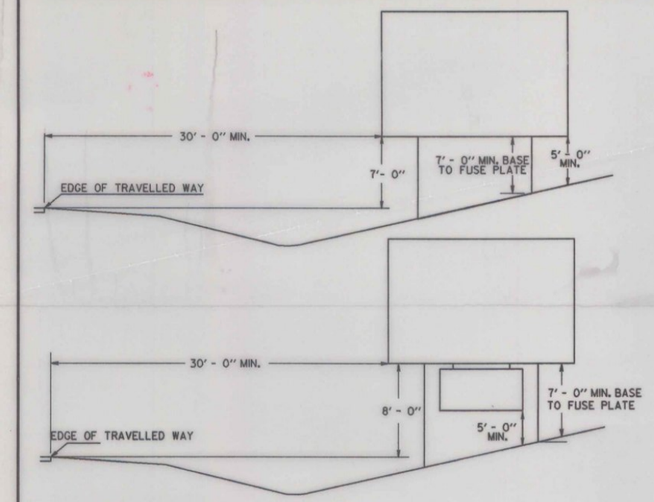
Arthur J. Gres
DIRECTOR OF PLANNING
AND PRE-CONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

STANDARD SIGN PLACEMENT EXPRESSWAY AND FREEWAY

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-120



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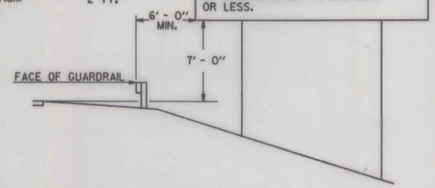

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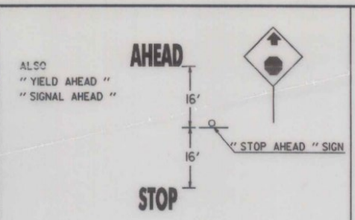
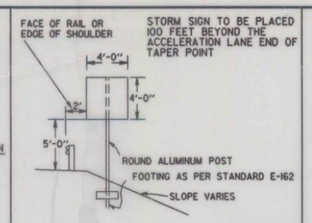
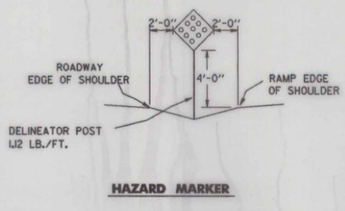
GUIDE SIGNS



WORD MARKING LAYOUT DETAIL



STORM SIGN



HAZARD MARKER

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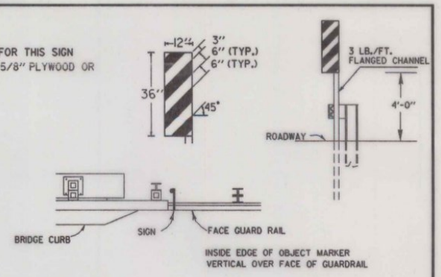

OBJECT MARKER

(TO BE USED WHEN FULL WIDTH SHOULDERS ARE NOT CARRIED ACROSS THE BRIDGE)

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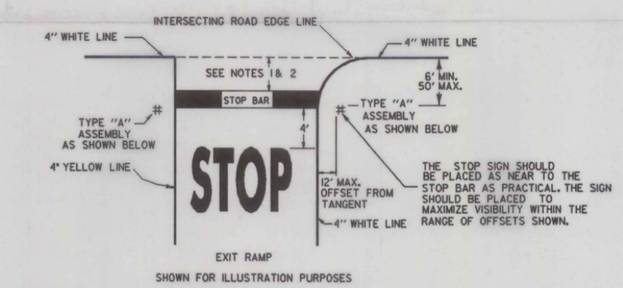

EXIT RAMP
SHOWN FOR ILLUSTRATION PURPOSES

NOTES:

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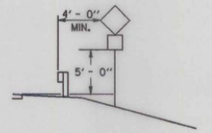
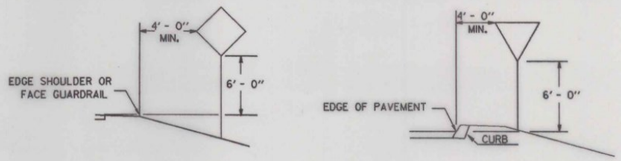
3. EXCLUDE STOP BAR WHEN ONLY YIELD SITUATION.

PAVEMENT MARKING & STOP SIGN LOCATION DETAILS

FOR OFF RAMP

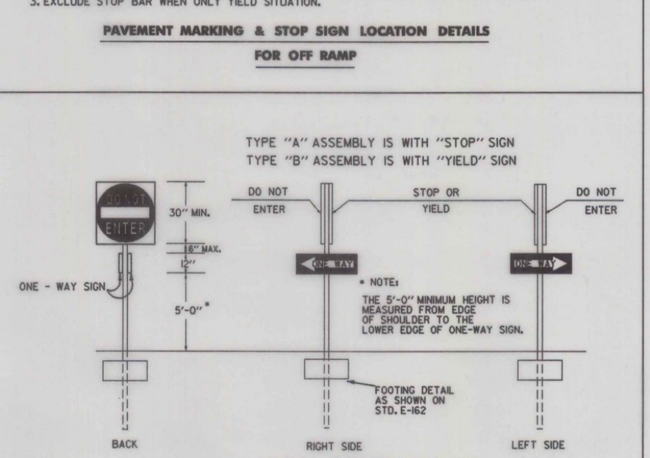


SIGN WITH SUPPLEMENTAL PLAQUE



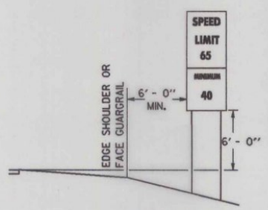
STANDARD SIGN PLACEMENT

RAMP



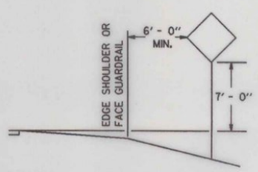
REGULATORY SIGN ASSEMBLY DETAIL

FOR OFF RAMP

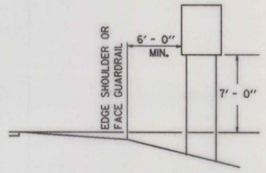


REGULATORY SIGN

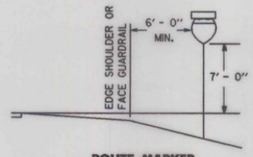
SPEED LIMIT SIGN TO BE PLACED 1600 FEET BEYOND ACCELERATION LANE END OF TAPER POINT.



WARNING SIGN

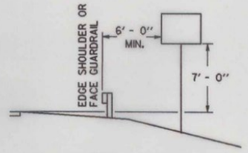


REGULATORY SIGN

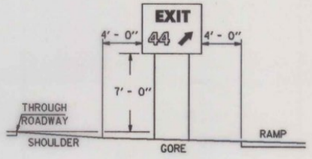


ROUTE MARKER

ROUTE REASSURANCE MARKER TO BE PLACED 600' BEYOND ACCELERATION LANE END OF TAPER POINT



GUIDE SIGN



GORE SIGN

STANDARD SIGN PLACEMENT

MAINLINE

SIGN PLACEMENT AT END OF RAMP

REVISIONS AND CORRECTIONS

JUNE 21, 1989 - FHWA - CHANGE TO 7' FUSE PLATE CLEARANCE

APPROVED

APRIL 1, 1988
DATE

David B. Kelley
CHIEF ENGINEER

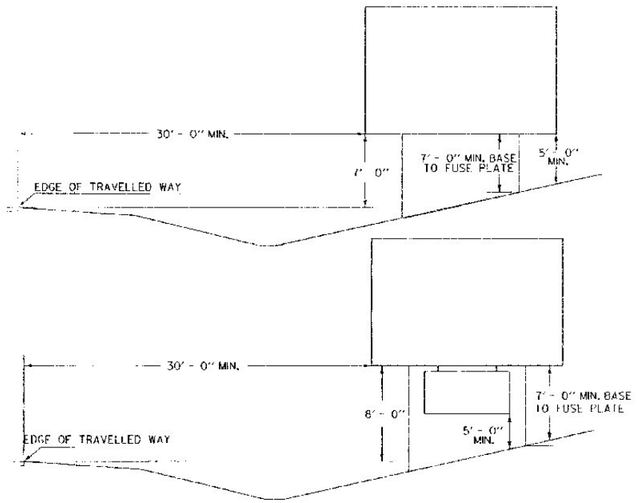
Arthur J. Gore
DIRECTOR OF PLANNING AND PRECONSTRUCTION

Gordon S. Mac Arthur
TRAFFIC AND SAFETY ENGINEER

STANDARD SIGN PLACEMENT EXPRESSWAY AND FREEWAY

VERMONT AGENCY OF TRANSPORTATION

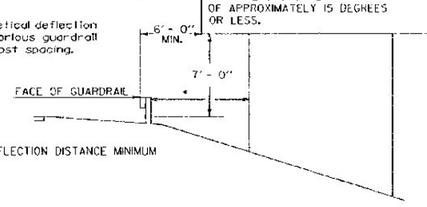
STANDARD
E-120



GUARDRAIL DEFLECTION CHART (PER AASHTO - ROADSIDE DESIGN GUIDE 1988)			
TYPE		SPACING	DEFLEC.
Three Cable	w/Steel Posts	16'-0"	12 ft.
	w/Wooden Posts	12'-6"	12 ft.
W-Beam	w/WEAK Posts	12'-6"	7 ft.
	w/Strong Posts	6'-3"	3 ft.
Box Beam		6'-0"	5 ft.
Thrie Beam	w/Weak Posts	12'-6"	4 ft.
	w/Strong Posts	6'-3"	2 ft.

This chart lists the theoretical deflection distance upon impact of various guardrail with different type and post spacing.

WHEN PLACED BEHIND GUARDRAIL AND BEYOND THE DEFLECTION DISTANCE FOR THAT PARTICULAR RAIL, SIGN POSTS DO NOT HAVE TO BE PLACED ON YIELDING SUPPORTS. SIGN POSTS SHALL BE PLACED ON YIELDING SUPPORTS WHEN THEY CAN BE STRUCK BY AN ERRANT VEHICLE LEAVING THE ROADWAY AT AN ENCROACHMENT ANGLE OF APPROXIMATELY 15 DEGREES OR LESS.



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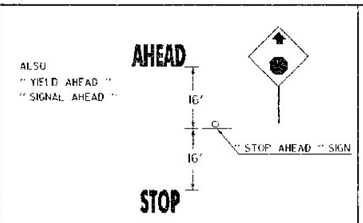
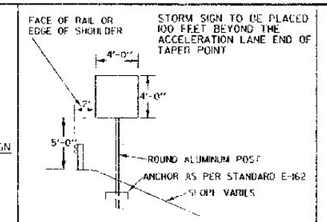
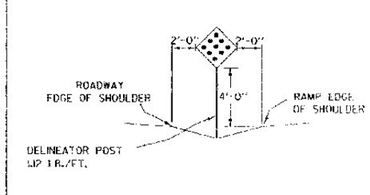
GUIDE SIGNS



WORD MARKING LAYOUT DETAIL



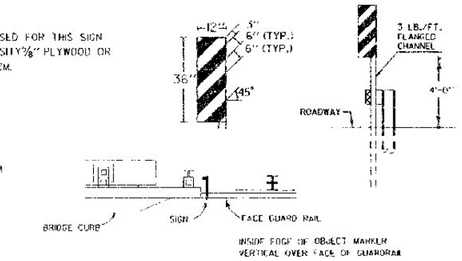
STORM SIGN



HAZARD MARKER

MATERIALS:
THE SIGN BASE MATERIAL USED FOR THIS SIGN MAY BE EITHER HIGH DENSITY ⅝" PLYWOOD OR 0.100" FLAT SHEET ALUMINUM.

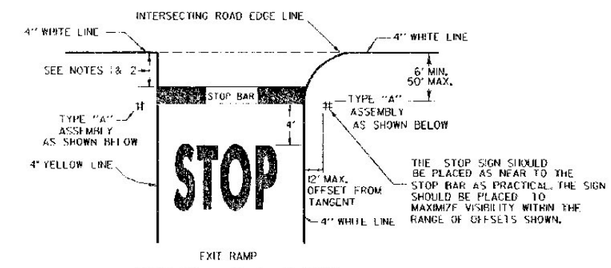
COLORS:
THIS SIGN SHALL HAVE A REFLECTORIZED YELLOW BACKGROUND WITH BLACK PAINTED OR LETTERING FILM STRIPES.



OBJECT MARKER

(TO BE USED WHEN FULL WIDTH SHOULDERS ARE NOT CARRIED ACROSS THE BRIDGE)

MARKERS MOUNTED ON THE LEFT SIDE SHALL HAVE THE DIAGONAL STRIPES SLOPING TOWARD CENTERLINE.



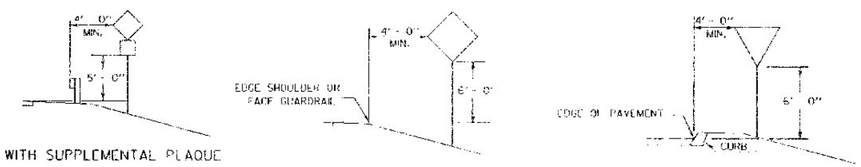
EXIT RAMP
SHOWN FOR ILLUSTRATION PURPOSES

NOTES:

1. THE STOP BAR SHOULD BE PLACED AT THE DESIRED STOPPING POINT, IN NO CASE MORE THAN 30' OR LESS THAN 4' FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY.
2. AT A SIGNALIZED INTERSECTION, DELETE WORDING " STOP " AND THE STOP SIGN AND PLACE STOP BAR A MINIMUM OF 40' FROM THE NEAREST SIGNAL HEAD FOR THE APPROACH.
3. EXCLUDE THE STOP BAR FOR A YIELD CONDITION.

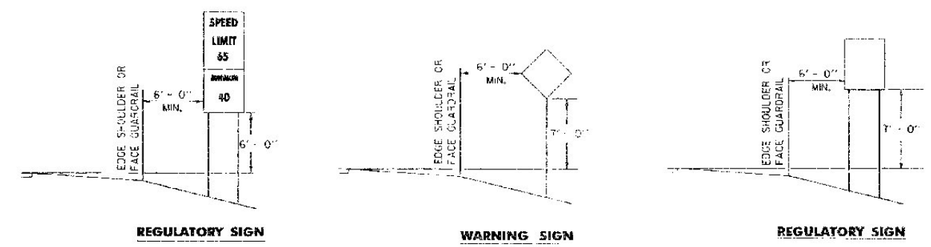
PAVEMENT MARKING & STOP SIGN LOCATION DETAILS

FOR OFF RAMP



STANDARD SIGN PLACEMENT

RAMP



REGULATORY SIGN

SPEED LIMIT SIGN TO BE PLACED 1600 FEET BEYOND THE END OF THE ACCELERATION LANE TAPER POINT.

WARNING SIGN

REGULATORY SIGN

ROUTE MARKER

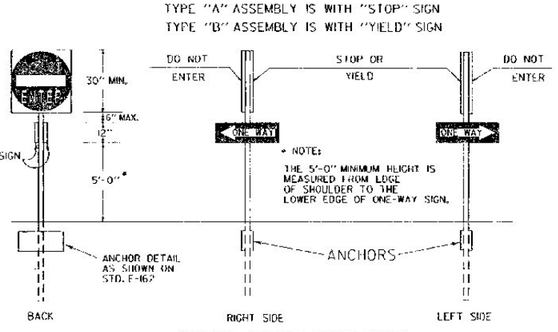
ROUTE REASSURANCE MARKER TO BE PLACED 600' BEYOND THE END OF THE ACCELERATION LANE TAPER POINT

GUIDE SIGN

GORE SIGN

STANDARD SIGN PLACEMENT

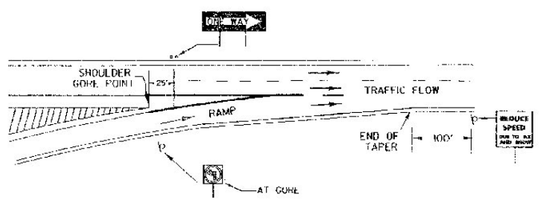
MAINLINE



MOUNT ON - 3 LBS/FT FLANGED CHANNEL
(SEE BRACKET DETAIL AS SHOWN ON STD. E-162)

REGULATORY SIGN ASSEMBLY DETAIL

FOR OFF RAMP



SIGN PLACEMENT AT END OF RAMP

OTHER STDS. REQUIRED: E-160 E-161 E-162 E-163

REVISIONS AND CORRECTIONS

APR. 01, 1988 - DATE OF ORIGINAL ISSUE
JUNE 21, 1989 - FHWA - CHANGE TO 7" FUSE PLATE CLEARANCE
AUG. 08, 1995 - DELETED TWO RAIL ALUMINUM FROM DEFLECTION CHART AND MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacCallum
DIRECTOR OF ENGINEERING

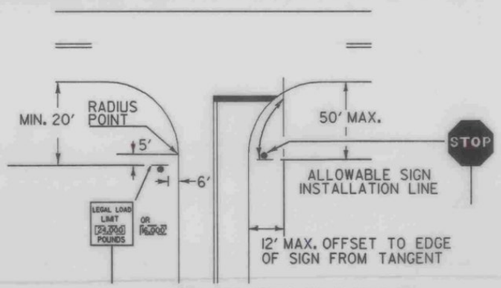
David A. Ross
TRAFFIC AND SAFETY ENGINEER

STANDARD SIGN PLACEMEMT EXPRESSWAY AND FREEWAY

/traf/std/std120.dgn : std120.i

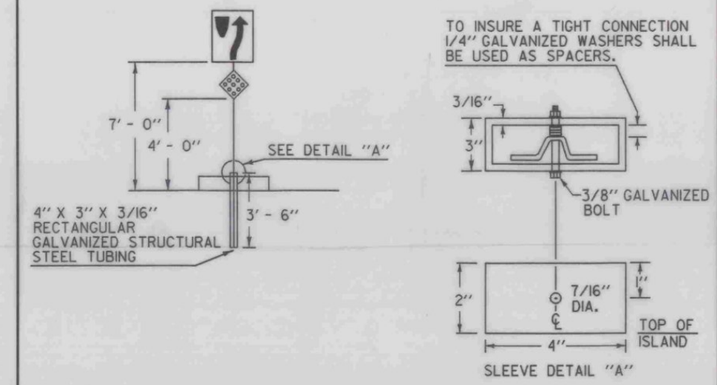
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-120

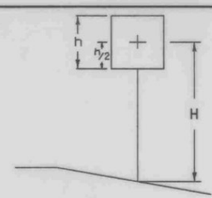


STOP SIGN SHALL BE PLACED ON DRIVERS RIGHT, MAINTAINING MAXIMUM VISIBLITY. CLEARANCE SHALL BE A MINIMUM OF 6' AND A MAXIMUM OF 50' FROM SHOULDER POINT OF INTERSECTING ROADWAY AND DOES NOT HAVE TO BE ADJACENT TO THE STOP BAR.

LEGAL LOAD LIMIT AND STOP SIGNS AT INTERSECTIONS



WARNING SIGNS ON ISLAND IN THE LINE OF TRAFFIC



SIGN AREA (FT^2) X H (FT) =<SV (SELECTION VALUE)

POST SELECTION CHART

POST REFERENCE:
PROPER MOUNTING OF SIGNS ON APPROPRIATE SIZE POSTS IS COVERED IN DETAIL ON STANDARD E - 160 FOR FLANGED CHANNEL POSTS AND STANDARD E - 162 FOR TUBULAR ALUMINUM POSTS. FOR CONVENIENCE POST SELECTION TABLES ARE ALSO SHOWN AT LEFT.

WHEN SV VALUES EXCEED THOSE SHOWN ON THE TABLES THE TOTAL SV MAY BE DIVIDED BY TWO AND THAT VALUE USED TO SELECT AN APPROPRIATE SIZE AND MATERIAL FOR A TWO POST INSTALLATION.

HOWEVER, TWO POST ASSEMBLIES WHICH REQUIRE UNUSUALLY LONG POSTS, EITHER BECAUSE OF STEEP SLOPES OR TOTAL HEIGHT OF THE SIGN OR SIGNS DISPLAYED, SHOULD ALWAYS BE MOUNTED ON ALUMINUM TUBES TO TAKE ADVANTAGE OF THE GREATER EMBEDMENT DEPTH.

POST SIZE	SV
2 LB./FT. (ONE POST INSTALLATION)	32
2 LB./FT. (TWO POST INSTALLATION)	62
2.5 LB./FT.	77
3 LB./FT.	107

SINGLE 2 LB. AND 2.5 LB. PER FOOT POSTS SHALL ONLY BE USED IN URBAN AREAS.

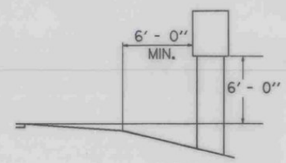
FLANGED CHANNEL STEEL SIGN POSTS

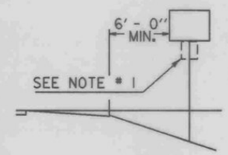
POST SIZE	SV (FT.)
3" DIA.	257
3" SQUARE TUBE *	350
4" DIA.	477

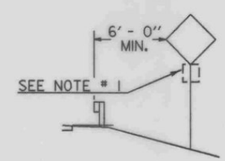
* USE ON SINGLE POST INSTALLATIONS ONLY

TUBULAR ALUMINUM SIGN POSTS

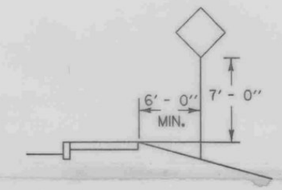
INCREASE VERTICAL CLEARANCE TO 7' IN AREAS OF FREQUENT ROADSIDE PARKING OR PEDESTRIAN ACTIVITY

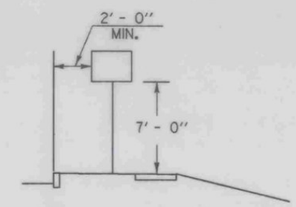




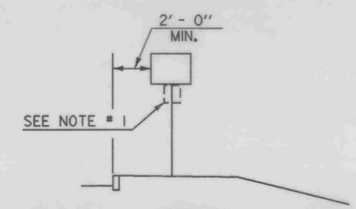


RURAL





IF SUFFICIENT CLEARANCE IS NOT AVAILABLE BETWEEN CURB AND SIDEWALK MOUNT SIGN BEHIND SIDEWALK AS SHOWN AT TOP. CHECK FOR ADEQUATE R.O.W..



URBAN

NOTES:

1. IN BOTH RURAL AND URBAN LOCATIONS, IF A SECONDARY SIGN IS MOUNTED BELOW ANOTHER SIGN, THE MINIMUM CLEARANCE MAY BE REDUCED BY ONE FOOT.
2. IN RURAL AREAS WITH NO OR MINIMAL SHOULDER, THE LATERAL CLEARANCE TO THE EDGE OF A SIGN SHOULD BE A MINIMUM OF 12' FROM THE EDGE OF THE TRAVELED WAY.
3. ALSO SEE OTHER STANDARD SHEETS FOR MOUNTING CLEARANCE AND SPACING OF DESTINATION AND ROUTE MARKER ASSEMBLIES AND TOWN LINE SIGNS.

REVISIONS AND CORRECTIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

JAN. 23, 1989
DATE

David B Kelley
CHIEF ENGINEER

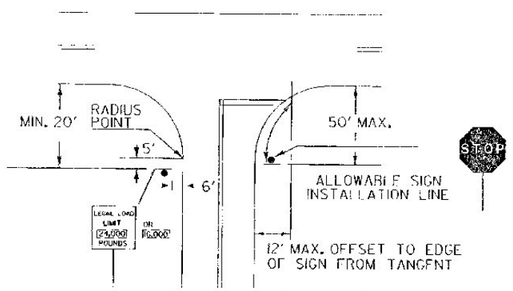
Arthur Gross
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

STANDARD SIGN PLACEMENT CONVENTIONAL ROAD

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-121



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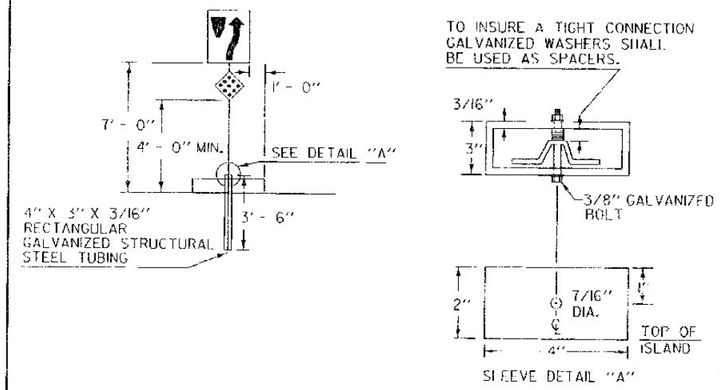
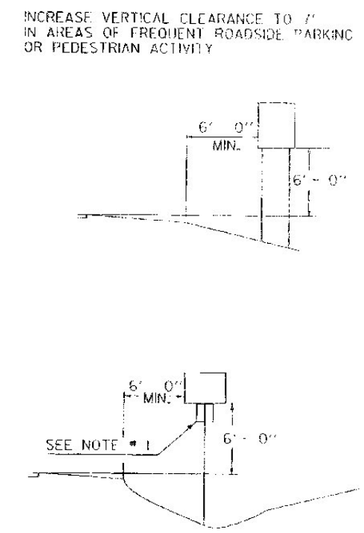
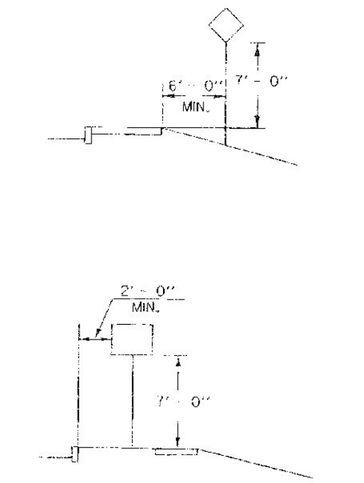
LEGAL LOAD LIMIT AND STOP SIGNS AT INTERSECTIONS WITH TOWN HIGHWAYS



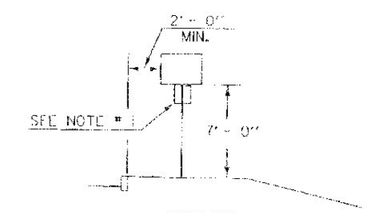
SIGNS ON MEDIAN ISLANDS IN THE LINE OF TRAFFIC



RURAL



IF SUFFICIENT CLEARANCE IS NOT AVAILABLE BETWEEN CURB AND SIDEWALK MOUNT SIGN BEHIND SIDEWALK AS SHOWN AT TOP. CHECK FOR ADEQUATE R.O.W..



URBAN

NOTES:

1. IN BOTH RURAL AND URBAN LOCATIONS, IF A SECONDARY SIGN IS MOUNTED BELOW ANOTHER SIGN, THE MINIMUM CLEARANCE MAY BE REDUCED BY ONE FOOT.
2. IN RURAL AREAS WITH NO OR MINIMAL SHOULDER, THE LATERAL CLEARANCE TO THE EDGE OF A SIGN SHOULD BE A MINIMUM OF 12' FROM THE EDGE OF THE TRAVELED WAY.
3. ALSO SEE OTHER STANDARD SHEETS FOR MOUNTING CLEARANCE AND SPACING OF DESTINATION AND ROUTE MARKER ASSEMBLIES AND TOWN LINE SIGNS.

POST REFERENCE:

REFER TO THE DETAILS ON THE APPROPRIATE STANDARD DRAWING FOR INFORMATION CONCERNING THE PROPER MOUNTING OF SIGNS ON APPROPRIATE POSTS.

OTHER STDS. REQUIRED: E-160 E-161 E-162 E-163 E-164

REVISIONS AND CORRECTIONS

JAN. 23, 1995 - DATE OF ORIGINAL ISSUE

AUG. 08, 1995 - VARIOUS MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

STANDARD SIGN PLACEMENT CONVENTIONAL ROAD

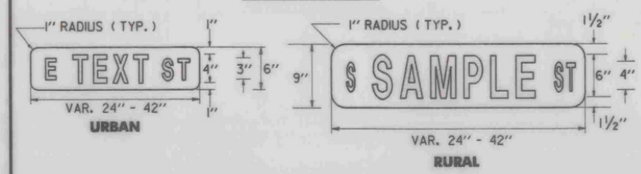
/traf/std/std2lidgn : std2Li

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-121

DESIGN SAMPLES



MATERIALS

THE SIGN BASE MATERIALS USED FOR THE STREET SIGNS MAY BE EITHER OF THE FOLLOWING:
A - EXTRUDED ALUMINUM BLADES WITH REFLECTIVE SHEETING
B - FLAT ALUMINUM BLADES WITH REFLECTIVE SHEETING

COLORS

THE SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT (STICK ON REFLECTIVE LETTERS) ON A REFLECTORIZED GREEN BACKGROUND. THE COLORS SHALL CONFORM WITH THOSE FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

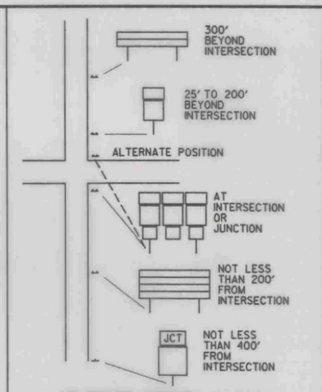
SPECIFICATIONS

THE SIGN SHALL MEET THE VERMONT STATE SPECIFICATIONS FOR "TRAFFIC SIGNS". THE MATERIAL FOR THE BLADES SHALL BE EITHER EXTRUDED ALUMINUM WITH A 0.25 INCH FLANGE THICKNESS AND A 0.090 INCH WEBB (MIN.) OR FLAT SHEET ALUMINUM WITH A MINIMUM THICKNESS OF 0.125 INCH. THE PREFERRED MOUNTING METHOD FOR STREET SIGNS IS POST TOP MOUNTING BRACKETS. HARDWARE FOR MOUNTING SIGNS TO POST SHALL BE SUBSIDIARY TO OTHER ITEMS. MOUNTING METHOD WILL BE AS SHOWN ON THE PLANS. MINIMUM VERTICAL CLEARANCE IS 8 FEET TO THE BOTTOM OF THE SIGN. FOR POST TOP MOUNTINGS, SIGNS SHALL HAVE TEXT ON BOTH SIDES.

SIZES ARE AS FOLLOWS

RURAL AREAS - USE A 9 INCH HIGH BLADE IN LENGTHS OF 24", 30", 36" OR 42". USE SERIES "B" LETTERING (MINIMUM) WITH 6 INCH HIGH LETTERS FOR STREET NAME, 4 INCH OTHER.
URBAN AREAS - USE A 6 INCH HIGH BLADE IN LENGTHS OF 24", 30", 36" OR 42". USE SERIES "B" LETTERING (MINIMUM) WITH 4 INCH HIGH LETTERS FOR STREET NAME, 3 INCH OTHER.

STREET SIGNS

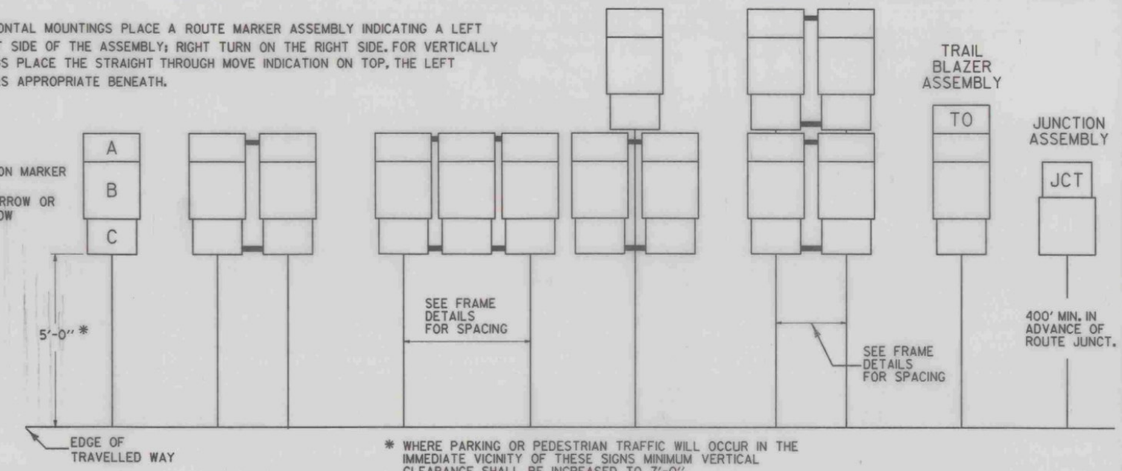


FOR REQUIRED HORIZONTAL CLEARANCE SEE APPROPRIATE STANDARD SHEET. IT IS ESSENTIAL THAT SIGHT LINES TO ROUTE MARKER AND DESTINATION ASSEMBLIES ARE UNOBSTRUCTED.

TYPICAL LOCATION OF ASSEMBLIES

INSTALLATION SEQUENCE:

IN MULTIPLE HORIZONTAL MOUNTINGS PLACE A ROUTE MARKER ASSEMBLY INDICATING A LEFT TURN ON THE LEFT SIDE OF THE ASSEMBLY; RIGHT TURN ON THE RIGHT SIDE. FOR VERTICALLY STACKED MOUNTINGS PLACE THE STRAIGHT THROUGH MOVE INDICATION ON TOP, THE LEFT OR RIGHT TURNS AS APPROPRIATE BENEATH.

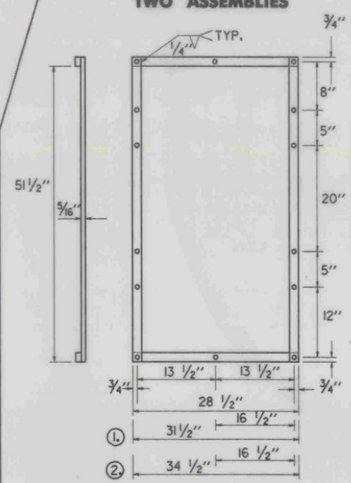


* WHERE PARKING OR PEDESTRIAN TRAFFIC WILL OCCUR IN THE IMMEDIATE VICINITY OF THESE SIGNS MINIMUM VERTICAL CLEARANCE SHALL BE INCREASED TO 7'-0"

STANDARD MOUNTING OF ROUTE MARKER ASSEMBLIES, AND DESTINATION ASSEMBLIES

ROUTE MARKER ASSEMBLY FRAMES

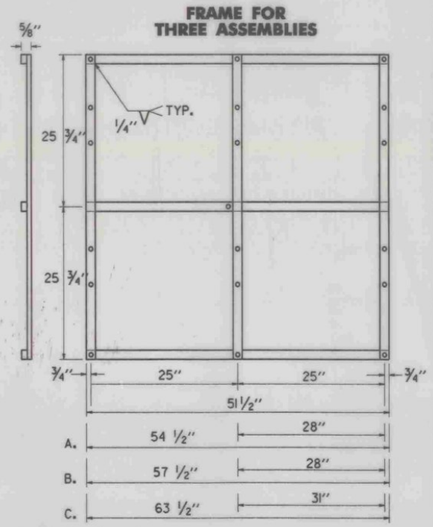
FRAME FOR TWO ASSEMBLIES



NOTE:

1. WITH ONE 30" THREE DIGIT SIGN
2. WITH TWO 30" THREE DIGIT SIGNS

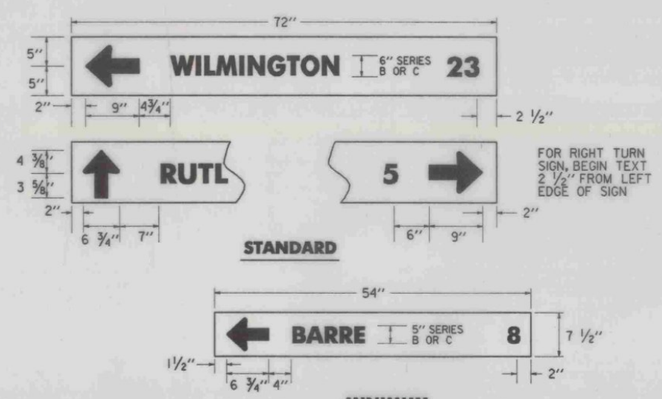
FRAME FOR THREE ASSEMBLIES

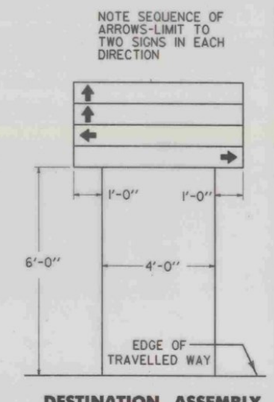


NOTE:

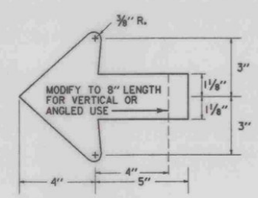
A. WITH ONE 30" THREE DIGIT SIGN IN AN OUTSIDE POSITION
B. WITH ONE 30" THREE DIGIT SIGN IN THE CENTER POSITION OR TWO SUCH SIGNS IN THE OUTSIDE POSTIONS
C. WITH THREE 30" THREE DIGIT SIGNS

STANDARD FRAMES SHALL BE 5/16" x 1 1/2" WROUGHT IRON WELDED. ALL HOLES SHALL BE 7/16" DIAMETER. FOR OTHER SIGN COMBINATIONS THAN ABOVE, THE FRAME DIMENSIONS AND HOLE SPACING SHALL BE MODIFIED AS NECESSARY. THE FRAME SHALL BE PAINTED WITH ONE COAT OF PRIMER AND A SECOND COAT OF BLACK PAINT. THE PAINT SHALL BE OF THE TYPE USED ON EXTERIOR METAL SURFACES TO PREVENT METAL CORROSION.





DESTINATION ASSEMBLY



REDUCE PROPORTIONALLY TO 6 3/4" LENGTH FOR USE ON MINOR SIGN

ARROW DETAIL

STANDARD DESTINATION SIGNS AND ASSEMBLIES:

MATERIALS

THE SIGN BASE MATERIAL FOR STANDARD DESTINATION SIGNS SHALL BE HIGH DENSITY OVERLAID PLYWOOD 5/8 INCH THICK OR FLAT SHEET ALUMINUM 0.125 INCH THICK. THE REFLECTIVE MATERIAL SHALL BE GREEN REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT SHALL BE CUT-OUT REFLECTORIZED WHITE OR SILVER LETTERS.

COLORS

DESTINATION SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT ON A REFLECTORIZED GREEN BACKGROUND.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS APPROVED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

DESTINATION SIGNS SHALL MEET THE STATE SPECIFICATIONS FOR "TRAFFIC SIGNS".

REVISIONS AND CORRECTIONS

JAN. 23, 1989 - DELETED TOWN LINE INFO

APPROVED

APRIL 1, 1988
DATE

David B Kelley
CHIEF ENGINEER

Arthur J Gosa
DIRECTOR OF PLANNING AND PRECONSTRUCTION

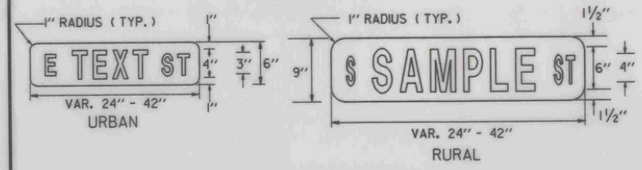
Gordon S. MacArthur
TRAFFIC AND SAFETY ENGINEER

GUIDE SIGN PLACEMENT MISCELLANEOUS DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-123

DESIGN SAMPLES



MATERIALS

THE SIGN BASE MATERIALS USED FOR THE STREET SIGNS MAY BE EITHER OF THE FOLLOWING:
A - EXTRUDED ALUMINUM BLADES WITH REFLECTIVE SHEETING
B - FLAT ALUMINUM BLADES WITH REFLECTIVE SHEETING

COLORS

THE SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT (STICK ON REFLECTIVE LETTERS) ON A REFLECTORIZED GREEN BACKGROUND. THE COLORS SHALL CONFORM WITH THOSE FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

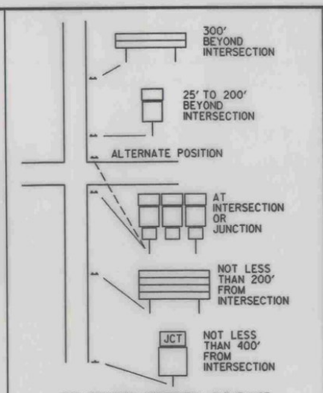
SPECIFICATIONS

THE SIGN SHALL MEET THE VERMONT STATE SPECIFICATIONS FOR "TRAFFIC SIGNS". THE MATERIAL FOR THE BLADES SHALL BE EITHER EXTRUDED ALUMINUM WITH A 0.25 INCH FLANGE THICKNESS AND A 0.090 INCH WEBB (MIN.) OR FLAT SHEET ALUMINUM WITH A MINIMUM THICKNESS OF 0.125 INCH. THE PREFERRED MOUNTING METHOD FOR STREET SIGNS IS POST TOP MOUNTING BRACKETS. HARDWARE FOR MOUNTING SIGNS TO POST SHALL BE SUBSIDIARY TO OTHER ITEMS. MOUNTING METHOD WILL BE AS SHOWN ON THE PLANS. MINIMUM VERTICAL CLEARANCE IS 8 FEET TO THE BOTTOM OF THE SIGN. FOR POST TOP MOUNTINGS, SIGNS SHALL HAVE TEXT ON BOTH SIDES.

SIZES ARE AS FOLLOWS

RURAL AREAS - USE A 9 INCH HIGH BLADE IN LENGTHS OF 24", 30", 36" OR 42". USE SERIES "B" LETTERING (MINIMUM) WITH 6 INCH HIGH LETTERS FOR STREET NAME. 4 INCH OTHER.
URBAN AREAS - USE A 6 INCH HIGH BLADE IN LENGTHS OF 24", 30", 36" OR 42". USE SERIES "B" LETTERING (MINIMUM) WITH 4 INCH HIGH LETTERS FOR STREET NAME. 3 INCH OTHER.

STREET SIGNS

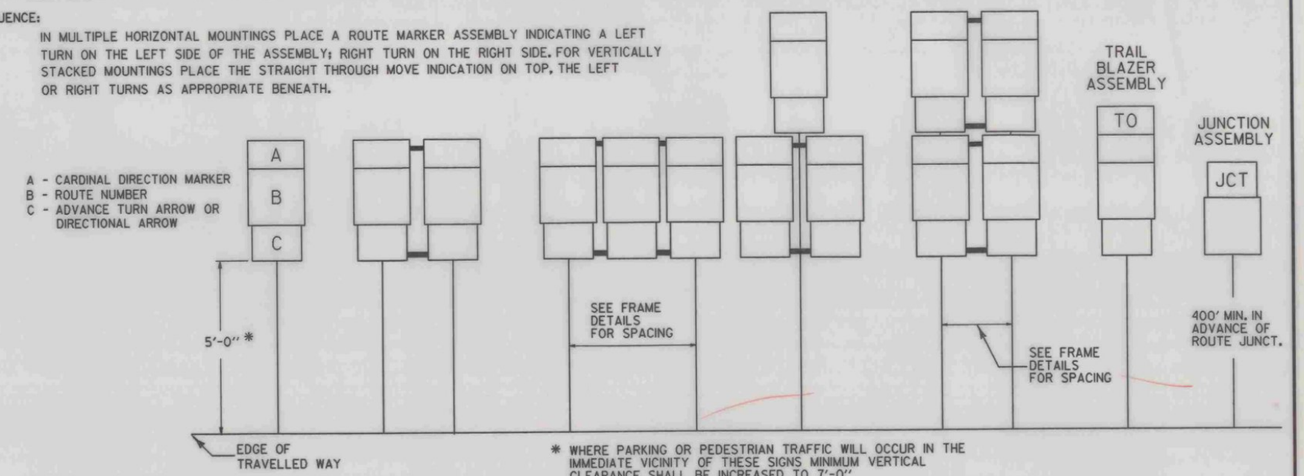


FOR REQUIRED HORIZONTAL CLEARANCE SEE APPROPRIATE STANDARD SHEET. IT IS ESSENTIAL THAT SIGHT LINES TO ROUTE MARKER AND DESTINATION ASSEMBLIES ARE UNOBSTRUCTED.

TYPICAL LOCATION OF ASSEMBLIES

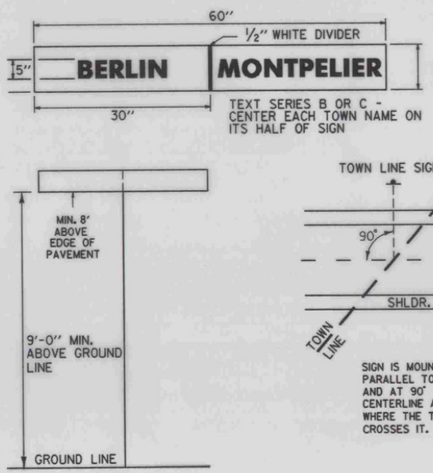
INSTALLATION SEQUENCE:

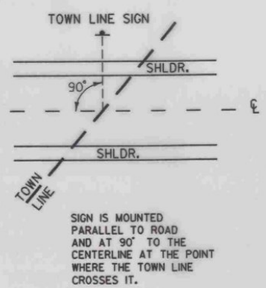
IN MULTIPLE HORIZONTAL MOUNTINGS PLACE A ROUTE MARKER ASSEMBLY INDICATING A LEFT TURN ON THE LEFT SIDE OF THE ASSEMBLY; RIGHT TURN ON THE RIGHT SIDE. FOR VERTICALLY STACKED MOUNTINGS PLACE THE STRAIGHT THROUGH MOVE INDICATION ON TOP, THE LEFT OR RIGHT TURNS AS APPROPRIATE BENEATH.



* WHERE PARKING OR PEDESTRIAN TRAFFIC WILL OCCUR IN THE IMMEDIATE VICINITY OF THESE SIGNS MINIMUM VERTICAL CLEARANCE SHALL BE INCREASED TO 7'-0"

STANDARD MOUNTING OF ROUTE MARKER ASSEMBLIES, AND DESTINATION ASSEMBLIES

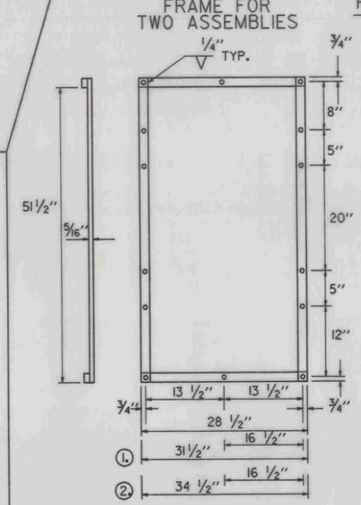




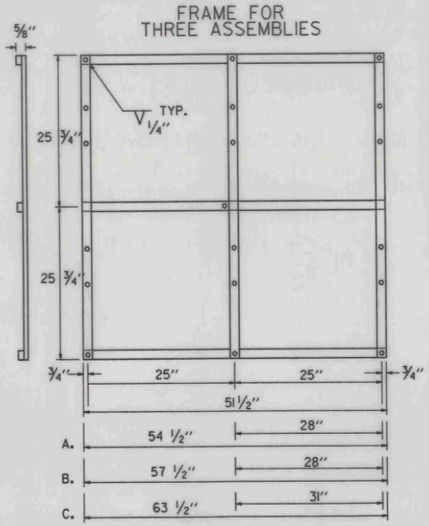
SIGN IS MOUNTED PARALLEL TO ROAD AND AT 90° TO THE CENTERLINE AT THE POINT WHERE THE TOWN LINE CROSSES IT.

TOWN LINE SIGN

ROUTE MARKER ASSEMBLY FRAMES

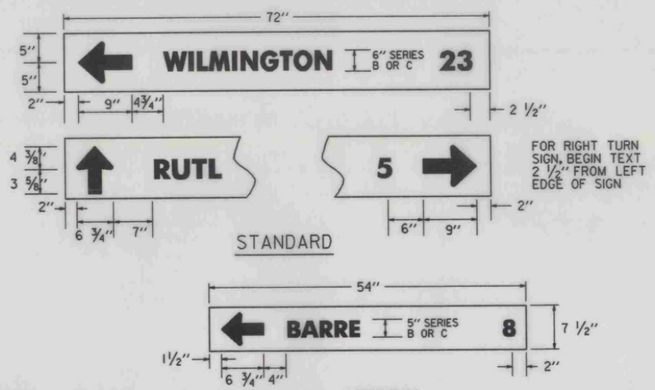


NOTE:
(1) WITH ONE 30" THREE DIGIT SIGN
(2) WITH TWO 30" THREE DIGIT SIGNS



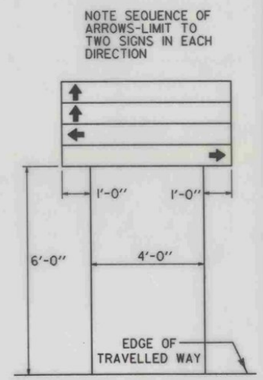
NOTE:
A. WITH ONE 30" THREE DIGIT SIGN IN AN OUTSIDE POSITION
B. WITH ONE 30" THREE DIGIT SIGN IN THE CENTER POSITION OR TWO SUCH SIGNS IN THE OUTSIDE POSTIONS
C. WITH THREE 30" THREE DIGIT SIGNS

STANDARD FRAMES SHALL BE 5/16" x 1 1/2" WROUGHT IRON WELDED. ALL HOLES SHALL BE 7/16" DIAMETER. FOR OTHER SIGN COMBINATIONS THAN ABOVE, THE FRAME DIMENSIONS AND HOLE SPACING SHALL BE MODIFIED AS NECESSARY. THE FRAME SHALL BE PAINTED WITH ONE COAT OF PRIMER AND A SECOND COAT OF BLACK PAINT. THE PAINT SHALL BE OF THE TYPE USED ON EXTERIOR METAL SURFACES TO PREVENT METAL CORROSION.

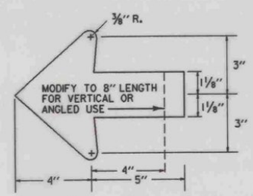


STANDARD

MINIMUM



DESTINATION ASSEMBLY



REDUCE PROPORTIONALLY TO 6 3/4" LENGTH FOR USE ON MINOR SIGN

ARROW DETAIL

STANDARD DESTINATION SIGNS AND ASSEMBLIES:

MATERIALS

THE SIGN BASE MATERIAL FOR STANDARD DESTINATION SIGNS SHALL BE HIGH DENSITY OVERLAID PLYWOOD 5/8 INCH THICK OR FLAT SHEET ALUMINUM 0.125 INCH THICK. THE REFLECTIVE MATERIAL SHALL BE GREEN REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT SHALL BE CUT-OUT REFLECTORIZED WHITE OR SILVER LETTERS.

COLORS

DESTINATION SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT ON A REFLECTORIZED GREEN BACKGROUND.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS APPROVED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

DESTINATION SIGNS SHALL MEET THE STATE SPECIFICATIONS FOR "TRAFFIC SIGNS".

REVISIONS AND CORRECTIONS

APPROVED

APRIL 1, 1988
DATE

David B Kelley
CHIEF ENGINEER

Arthur Gas
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

GUIDE SIGN PLACEMENT MISCELLANEOUS DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-123

STREET NAME SIGNS

*MATERIALS
THE SIGN BASE MATERIALS USED FOR THE STREET NAME SIGNS MAY BE EITHER OF THE FOLLOWING:
A - EXTRUDED ALUMINUM BLADES WITH REFLECTIVE SHEETING
B - FLAT ALUMINUM BLADES WITH REFLECTIVE SHEETING

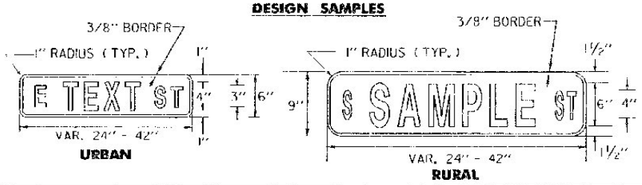
*COLORS
ALL SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT (STICK ON REFLECTIVE LETTERS) ON A REFLECTORIZED GREEN BACKGROUND. THE COLORS SHALL CONFORM WITH THOSE FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

*LETTERING
LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

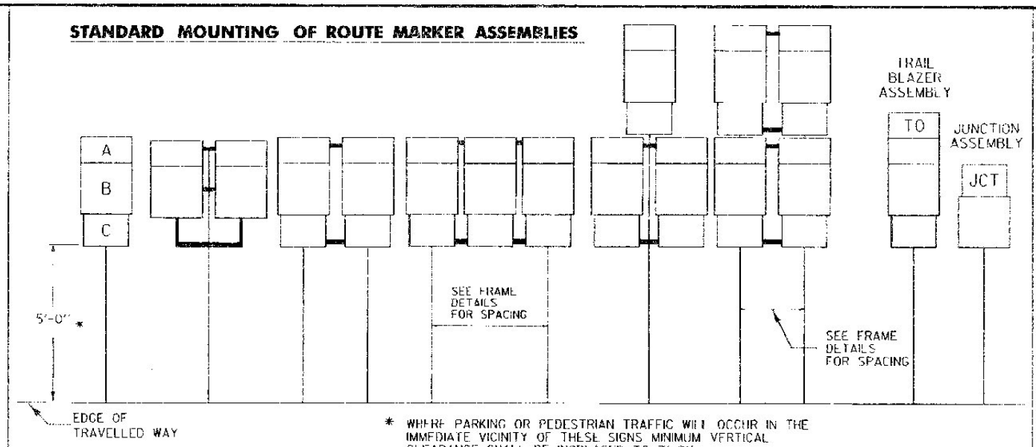
*SPECIFICATIONS
THE SIGN SHALL MEET THE VERMONT STATE SPECIFICATIONS FOR "TRAFFIC SIGNS". THE MATERIAL FOR THE BLADES SHALL BE EITHER EXTRUDED ALUMINUM WITH A 0.25 INCH FLANGE THICKNESS AND A 0.090 INCH WEBB (MIN.) OR FLAT SHEET ALUMINUM WITH A MINIMUM THICKNESS OF 0.125 INCH. THE PREFERRED MOUNTING METHOD FOR STREET SIGNS IS POST TOP MOUNTING BRACKETS. HARDWARE FOR MOUNTING SIGNS TO POST SHALL BE SUBSIDIARY TO OTHER ITEMS. MOUNTING METHOD WILL BE AS SHOWN ON THE PLANS. MINIMUM VERTICAL CLEARANCE IS 8 FEET TO THE BOTTOM OF THE SIGN. FOR POST TOP MOUNTINGS, SIGNS SHALL HAVE TEXT ON BOTH SIDES.

*SIZES
RURAL AREAS - USE A 9 INCH HIGH BLADE IN LENGTHS OF 24", 30", 36" OR 42". USE SERIES "B" LETTERING (MINIMUM) WITH 6 INCH HIGH LETTERS FOR THE STREET NAME, 4 INCH LETTERS FOR OTHER TEXT.
URBAN AREAS - USE A 6 INCH HIGH BLADE IN LENGTHS OF 24", 30", 36" OR 42". USE SERIES "B" LETTERING (MINIMUM) WITH 4 INCH HIGH LETTERS FOR THE STREET NAME, 3 INCH LETTERS FOR OTHER TEXT.

DESIGN SAMPLES



STANDARD MOUNTING OF ROUTE MARKER ASSEMBLIES



* WHERE PARKING OR PEDESTRIAN TRAFFIC WILL OCCUR IN THE IMMEDIATE VICINITY OF THESE SIGNS MINIMUM VERTICAL CLEARANCE SHALL BE INCREASED TO 7'-0"

INSTALLATION SEQUENCE:
IN MULTIPLE HORIZONTAL MOUNTINGS PLACE A ROUTE MARKER ASSEMBLY INDICATING A LEFT TURN ON THE LEFT SIDE OF THE ASSEMBLY; RIGHT TURN ON THE RIGHT SIDE. FOR VERTICALLY STACKED MOUNTINGS PLACE THE STRAIGHT THROUGH MOVE INDICATION ON TOP, THE LEFT OR RIGHT TURNS AS APPROPRIATE BENEATH.
A - CARDINAL DIRECTION MARKER
B ROUTE NUMBER
C - ADVANCE TURN ARROW OR DIRECTIONAL ARROW

APPLICATION
THE MINIMUM SIZE SHALL BE USED IN AREAS WHERE THE SPEED LIMIT IS 35 MPH OR LESS, UNLESS TEXT SIZE REQUIREMENTS DICTATE THE USE OD THE STANDARD SIZE. MULTIPLE ASSEMBLIES SHALL USE THE SAME SIZE THROUGHOUT.

MATERIALS
THE SIGN BASE MATERIAL FOR STANDARD DESTINATION SIGNS SHALL BE HIGH DENSITY OVERLAID PLYWOOD 5/8" THICK OR FLAT SHEET ALUMINUM 1/8" THICK. THE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT AND BORDER SHALL BE CUT OUT OF REFLECTORIZED WHITE OR SILVER LETTERS.

COLORS
DESTINATION SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT AND BORDER ON A REFLECTORIZED GREEN BACKGROUND.
THE COLORS SHALL CONFORM WITH THOSE FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.

LETTERING
LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS APPROVED BY THE NATIONAL JOINT COMMITEE ON UNIFORM TRAFFIC CONTROL DEVICES.

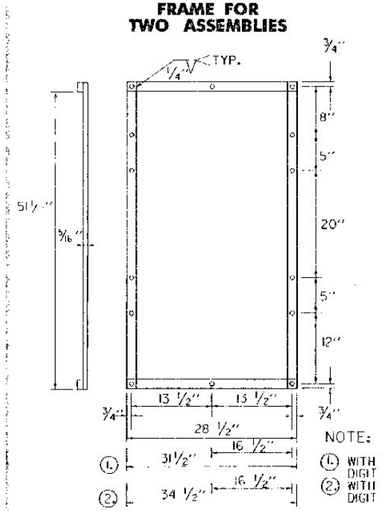
SPECIFICATIONS
DESTINATION SIGNS SHALL MEET THE STATE SPECIFICATIONS FOR "TRAFFIC SIGNS". ALL BORDERS ARE 3/8".

TEXT DESIGN
LETTERS, DIGITS, ARROW, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.

ROUTE MARKER ASSEMBLY FRAMES

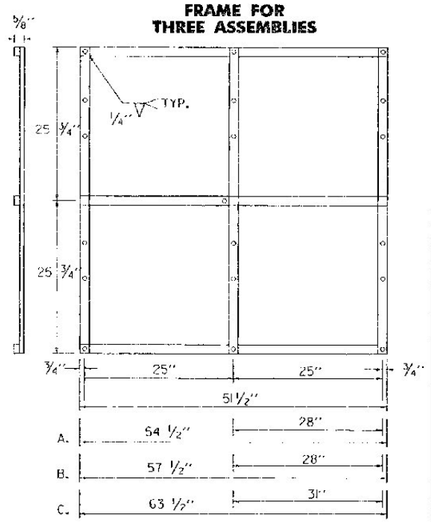
STANDARD FRAMES SHALL BE 5/16" x 1 1/2" WELDED WROUGHT IRON. ALL HOLES SHALL BE 7/16" DIAMETER. FOR OTHER SIGN COMBINATIONS THAN ABOVE, THE FRAME DIMENSIONS AND HOLE SPACING SHALL BE MODIFIED AS NECESSARY. THE FRAME SHALL BE PAINTED WITH ONE COAT OF PRIMER AND A SECOND COAT OF BLACK PAINT. THE PAINT SHALL BE OF THE TYPE USED ON EXTERIOR METAL SURFACES TO PREVENT METAL CORROSION.

FRAME FOR TWO ASSEMBLIES



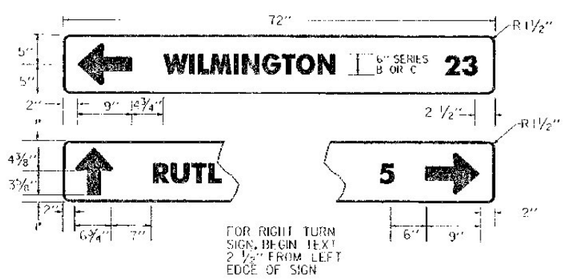
NOTE:
(1) WITH ONE 30" THREE DIGIT SIGN
(2) WITH TWO 30" THREE DIGIT SIGNS

FRAME FOR THREE ASSEMBLIES

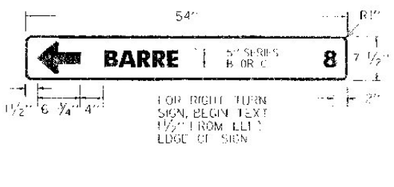


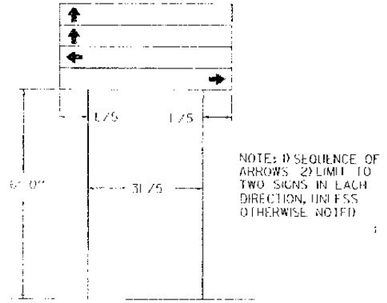
NOTE:
A. WITH ONE 30" THREE DIGIT SIGN IN AN OUTSIDE POSITION
B. WITH ONE 30" THREE DIGIT SIGN IN THE CENTER POSITION OR TWO SUCH SIGNS IN THE OUTSIDE POSTIONS.
C. WITH THREE 30" THREE DIGIT SIGNS

STANDARD MOUNTING OF DESTINATION ASSEMBLIES



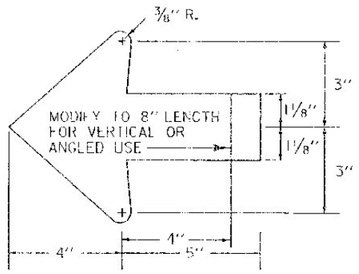
STANDARD



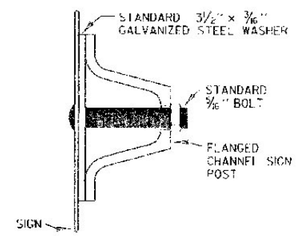


NOTE: 1) SEQUENCE OF ARROWS 2) LIMIT TO TWO SIGNS IN EACH DIRECTION, UNLESS OTHERWISE NOTED

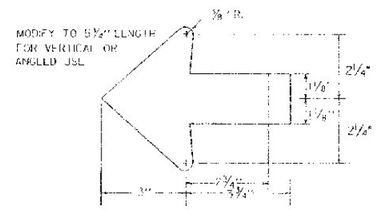
DESTINATION ASSEMBLY



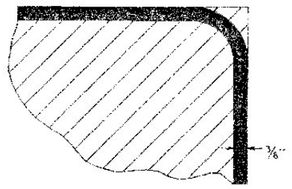
STANDARD



INSTALLATION DETAIL



MINIMUM



BORDER DETAIL

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

APR. 01, 1988 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - DELETED TOWN LINE INFO.
AUG. 08, 1995 - REVISED DESTINATION SIGN DETAILS DETAILED SIGN LOCATION TYPICAL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon H. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

GUIDE SIGN PLACEMENT MISCELLANEOUS DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-123

/traf/std/stdel23.dgn : stdel23.l

TEXT	SERIES	DIMENSIONS (*)
ADDISON	C	23.51
ALBANY	C	21.52
ALBURG	C	21.16
ANDOVER	C	25.00
ARLINGTON	B	24.51
ATHENS	C	20.37
AVERILL	C	22.00
BAKERSFIELD	B	28.00 (16)
BARNARD	C	25.35
BARNET	C	20.65
BARRE CITY	B	28.00 (2)
BARRE TOWN	B	28.00 (50)
BARTON	C	21.11
BELVIDERE	C	28.00 (14)
BENNINGTON	B	27.20
BENSON	C	21.14
BERKSHIRE	B	24.26
BERLIN	C	18.72
BETHEL	C	19.80
BLOOMFIELD	B	26.83
BOLTON	C	20.30
BRADFORD	C	28.00 (13)
BRAINTREE	C	28.00 (21)
BRANDON	C	25.33
BRATTLEBORO	B	28.00 (30)
BRIDGEWATER	B	28.00 (23)
BRIDPORT	C	28.00
BRIGHTON	C	26.67
BRISTOL	C	22.66
BROOKFIELD	B	26.64
BROWNINGTON	B	28.00 (38)
BRUNSWICK	B	25.54
BURKE	C	17.41
BUELS GORE	B	28.00 (8)
BURLINGTON	B	27.20
CABOT	C	17.05
CALAIS	C	18.47
CAMBRIDGE	B	24.83
CANAAN	C	20.91
CASTLETON	B	24.47
CAVENDISH	B	24.02
CHARLESTON	B	28.00 (4)
CHARLOTTE	B	24.47
CHELSEA	C	23.99
CHESTER	C	23.67
CHITTENDEN	B	25.51
CLARENDON	B	25.31
COLCHESTER	B	27.47
CONCORD	C	25.31
CORINTH	C	22.68
CORNWALL	C	28.00 (12)
COVENTRY	C	28.00 (2)
CRAFTSBURY	B	28.00 (11)
DANBY	C	18.00
DANVILLE	C	25.92
DERBY	C	17.59
DORSET	C	20.42
DOVER	C	17.26
DUMMERSTON	B	28.00 (14)
DUXBURY	C	25.57
EDEN	C	13.19
ENOSBURG	C	28.00 (7)
EAST HAVEN	B	28.00 (2)
E. MONTPELIER	B(4'')	28.00 (50)
ELMORE	C	21.18
ESSEX	C	16.95
FAIRFAX	C	22.49
FAIRFIELD	C	27.05
FAIR HAVEN	B	28.00
FAIRLEE	C	21.73
FAYSTON	C	24.00
FERDINAND	B	24.35
FERRISBURG	B	27.04
FLETCHER	C	26.50
FRANKLIN	C	26.04
GEORGIA	C	23.07
GLOVER	C	20.81
GOSHEN	C	20.93
GLASTENBURY	B	28.00 (44)
GRAFTON	C	24.38
GRAND ISLE	B	28.00 (5)
GRANVILLE	C	28.00 (24)
GREENSBORO	B	28.00 (9)
GROTON	C	21.09
GUILDHALL	C	28.00 (23)
GUILFORD	C	26.44
HALIFAX	C	22.56
HANCOCK	C	24.91
HARDWICK	C	27.52
HARTFORD	C	28.00 (4)
HARTLAND	C	27.69
HIGHGATE	C	25.90
HINESBURG	B	24.41
HOLLAND	C	24.31
HUBBARDTON	B	28.00 (17)
HYDE PARK	B	27.71
IRA	C	8.44
IRASBURG	C	26.92
ISLE LA MOTTE	B(4'')	28.00 (34)
JAMAICA	C	23.49
JAY	C	9.86
JERICHO	C	22.66
JOHNSON	C	25.29
KIRBY	C	15.79
LANDGROVE	B	25.31
LEICESTER	C	28.00 (5)
LEMINGTON	B	24.04
LONDONDERRY	B(4'')	25.78
LOWELL	C	20.84
LUDLOW	C	21.72
LUNENBERG	B	25.06
LYNDON	C	20.76
MAIDSTONE	B	24.63
MANCHESTER	B	28.00 (6)
MARLBORO	C	28.00 (18)
MARSHFIELD	B	27.10
MENDON	C	21.64
MIDDLEBURY	B	27.9
MIDDLESEX	B	24.26
MIDDLETOWN SPR	B(4'')	28.00 (50)
MILTON	C	18.82
MONTGOMERY	B	28.00 (21)
MONTPELIER	B	26.67
MORETOWN	C	28.00 (23)
MORGAN	C	22.05
MORRISTOWN	B	28.00 (9)
MOUNT HOLLY	B	28.00 (50)
MOUNT TABOR	B	28.00 (50)
NEWARK	C	21.34
NEWBURY	C	25.68
NEWFANE	C	24.73
NEW HAVEN	B	27.11
NEWPORT CITY	B(4'')	28.00
NEWPORT TOWN	B(4'')	28.00 (25)
NORTH HERO	B	28.00 (12)
NORTHFIELD	B	26.36
NORTON	C	21.30
NORWICH	C	23.93
ORANGE	C	21.53
ORWELL	C	21.28
PANTON	C	21.11
PAWLET	C	20.46
PEACHAM	C	25.13
PERU	C	13.63
PITTSFIELD	C	28.00 (23)
PITTSFORD	C	28.00 (14)
PLAINFIELD	B	24.74
PLYMOUTH	C	28.00 (7)
POMFRET	C	24.47
POULTNEY	C	27.37
POWNAL	C	21.92
PROCTOR	C	24.38
PUTNEY	C	20.65
RANDOLPH	C	28.00 (10)
READING	C	22.84
READSBORO	B	25.95
RICHFORD	C	26.67
RICHMOND	C	27.61
RIPTON	C	19.11
ROCHESTER	B	24.65
ROCKINGHAM	B	28.03
ROXBURY	C	25.31
ROYALTON	C	27.45
RUPERT	C	20.75
RUTLAND CITY	B(4'')	26.59
RUTLAND TOWN	B(4'')	28.00 (13)
RYEGATE	C	23.68
ST. ALBANS CITY	B(4'')	28.00 (50)
ST. ALBANS TOWN	B(4'')	28.00 (50)
ST. GEORGE	B	27.01
ST. JOHNSBURY	B(4'')	28.00 (30)
SALISBURY	B	25.13
SEARSBURG	B	25.82
SHAFTSBURY	B	28.00 (14)
SHARON	C	21.55
SHEFFIELD	C	28.00 (10)
SHELBURNE	B	25.44
SHELDON	C	24.48
SHERBURNE	B	25.86
SHOREHAM	C	28.00 (20)
SHREWSBURY	B	28.00 (28)
SO. BURLINGTON	B(4'')	28.00 (27)
SOUTH HERO	B	28.00 (9)
SPRINGFIELD	B	28.00 (4)
STAMFORD	C	28.00 (6)
STARKSBORO	B	28.64 (8)
STOCKBRIDGE	B	28.00 (21)
STOWE	C	17.73
STRAFFORD	B	25.39
STRATTON	C	26.67
SUDBURY	C	25.59
SUNDERLAND	B	28.00 (8)
SUTTON	C	20.14
SWANTON	C	25.14
THETFORD	C	27.31
TINMOUTH	C	26.73
TOPSHAM	C	25.39
TOWNSHEND	B	26.46
TROY	C	13.76
TUNBRIDGE	B	24.18
UNDERHILL	C	28.00 (23)
VERGENNES	B	25.06
VERNON	C	21.46
VERSHIRE	C	26.39
WAITSFIELD	B	25.39
WALDEN	C	21.18
WALLINGFORD	B	28.00 (34)
WALTHAM	C	24.87
WARDSBORO	B	26.94
WARREN	C	21.62
WARRENS GORE	B(4'')	28.00 (23)
WASHINGTON	B	28.00 (4)
WATERBURY	B	26.21
WATERFORD	B	25.59
WATERVILLE	B	26.15
WEATHERSFIELD	B(4'')	27.93
WELLS	C	17.34
WEST FAIRLEE	B(4'')	27.00
WESTFIELD	C	28.00 (19)
WEST HAVEN	B	28.00 (18)
WESTFORD	C	28.00 (10)
WESTMINISTER	B	28.00 (27)
WESTMORE	C	28.00 (21)
WESTON	C	21.51
WEST RUTLAND	B(4'')	28.00 (7)
WEST WINDSOR	B(4'')	28.00 (15)
WEYBRIDGE	B	25.11
WHEELOCK	C	28.00 (7)
WHITING	C	21.51
WHITINGHAM	B	27.27
WILLIAMSTOWN	B(4'')	26.65
WILLISTON	C	28.00 (5)
WILMINGTON	B	26.84
WINDHAM	C	24.66
WINDSOR	C	23.93
WINHALL	C	23.49
WINOOSKI	C	25.63
WOLCOTT	C	24.45
WOODBURY	B	24.77
WOODFORD	B	24.15
WOODSTOCK	B	26.52
WORCESTER	B	25.66

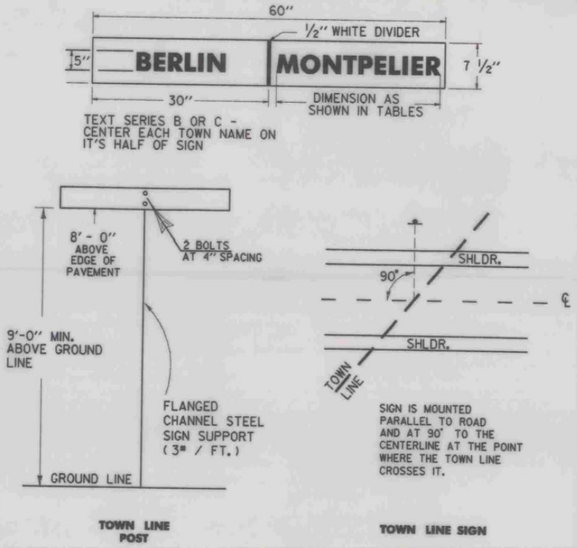
(*) REPRESENTS PERCENT OF REDUCTION IN LETTER TO LETTER SPACING.

WORD TO WORD SPACING FOR MULTIPLE TEXT TOWN NAMES IS ADJUSTABLE TO ACCOMMODATE DIMENSION REQUIREMENTS.

DIMENSIONS SHOWN ARE APPROXIMATE AND MAY BE ADJUSTED SLIGHTLY TO ACCOMMODATE VARIOUS MANUFACTURER'S LETTER WIDTHS.

THESE TOWNS ARE NOT INCLUDED IN THE ABOVE LIST BECAUSE THEY HAVE NO STATE HIGHWAYS, HOWEVER THE DETAILS ARE PROVIDED FOR INFORMATION PURPOSES:

AVERYS GORE	B (4'')	26.35
BALTIMORE	B	24.09
BROOKLINE	B	24.20
GRANBY	C	21.78
HUNTINGTON	B	25.42 (20)
LEWIS	C	15.47
LINCOLN	C	22.45
MONKTON	C	25.30
SANDGATE	C	26.59 (20)
SOMERSET	C	26.79 (20)
STANNARD	C	26.70 (25)
VICTORY	C	22.90
WARNERS GRANT	B (4'')	28.60 (50)



WHEN CROSSING COUNTY BOUNDRIES AN ADDITIONAL COUNTY LINE SIGN SHALL BE MOUNTED BELOW THE TOWN LINE SIGN.

COUNTY NAMES

TEXT	SERIES	DIMENSIONS
ADDISON CO.	C (4'')	28.00
BENNINGTON CO.	B (4'')	28.00 (30)
CALEDONIA CO.	B (4'')	27.62
CHITTENDEN CO.	B (4'')	28.00
ESSEX CO.	C	28.00
FRANKLIN CO.	B (4'')	25.04
GRAND ISLE CO.	B (4'')	28.00 (50)
LAMOILLE CO.	B (4'')	24.72
ORANGE CO.	B	27.59
ORLEANS CO.	B	28.00 (40)
RUTLAND CO.	B	28.00 (35)
WASHINGTON CO.	B (4'')	28.00 (50)
WINDHAM CO.	B	28.00 (40)
WINDSOR CO.	B	28.00 (40)

MATERIALS

THE SIGN BASE MATERIAL SHALL BE HIGH DENSITY OVERLAID PLYWOOD 5/8 INCH THICK
THE REFLECTIVE MATERIAL SHALL BE GREEN REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT SHALL BE CUT-OUT REFLECTORIZED WHITE OR SILVER LETTERS.

COLORS

SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT ON A REFLECTORIZED GREEN BACKGROUND.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS APPROVED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

SIGNS SHALL MEET THE STATE SPECIFICATIONS FOR "TRAFFIC SIGNS". SEE THE APPROPRIATE STANDARD SHEETS FOR SIGN OFFSET PLACEMENT AND SIGN POST INFORMATION.

REVISIONS AND CORRECTIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

JAN. 23, 1989
DATE

David B. Kelley
CHIEF ENGINEER

Arthur J. Gosa
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

TOWN LINE SIGNS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-124

TEXT	SERIES	DIMENSIONS (*)
ADDISON	C	23.51
ALBANY	C	21.52
ALBURG	C	21.16
ANDOVER	C	25.00
ARLINGTON	B	24.51
ATHENS	C	20.37
AVERILL	C	22.00
BAKERSFIELD	B	28.00 (16)
BARNARD	C	25.35
BARNET	C	20.65
BARRE CITY	B	28.00 (2)
BARRE TOWN	B	28.00 (50)
BARTON	C	21.11
BELVIDERE	C	28.00 (14)
BENNINGTON	B	27.20
BENSON	C	21.14
BERKSHIRE	B	24.26
BERLIN	C	18.72
BETHEL	C	19.80
BLOOMFIELD	B	26.83
BOLTON	C	20.30
BRADFORD	C	28.00 (13)
BRAINTREE	C	28.00 (21)
BRANDON	C	25.33
BRATTLEBORO	B	28.00 (30)
BRIDGEWATER	B	28.00 (23)
BRIDPORT	C	28.00
BRIGHTON	C	26.67
BRISTOL	C	22.66
BROOKFIELD	B	26.64
BROWNINGTON	B	28.00 (38)
BRUNSWICK	B	25.54
BURKE	C	17.41
BUELS GORE	B	28.00 (8)
BURLINGTON	B	27.20
CABOT	C	17.05
CALAIS	C	18.47
CAMBRIDGE	B	24.83
CANAAN	C	20.91
CASTLETON	B	24.47
CAVENDISH	B	24.02
CHARLESTON	B	28.00 (4)
CHARLOTTE	B	24.47
CHELSEA	C	23.99
CHESTER	C	23.67
CHITTENDEN	B	25.51
CLARENDON	B	25.31
COLCHESTER	B	27.47
CONCORD	C	25.31
CORINTH	C	22.68
CORNWALL	C	28.00 (12)
COVENTRY	C	28.00 (2)
CRAFTSBURY	B	28.00 (11)
DANBY	C	18.00
DANVILLE	C	25.92
DERBY	C	17.59
DORSET	C	20.42
DOVER	C	17.26
DUMMERSTON	B	28.00 (14)
DUXBURY	C	25.57
EDEN	C	13.19
ENOSBURG	C	28.00 (7)
EAST HAVEN	B	28.00 (2)
E. MONTPELIER	B(4")	28.00 (50)
ELMORE	C	21.18
ESSEX	C	16.95
FAIRFAX	C	22.49
FAIRFIELD	C	27.05
FAIR HAVEN	B	28.00
FAIRLEE	C	21.73
FAYSTON	C	24.00
FERDINAND	B	24.35
FERRISBURG	B	27.04
FLETCHER	C	26.50
FRANKLIN	C	26.04

TEXT	SERIES	DIMENSIONS (*)
GEORGIA	C	23.07
GLOVER	C	20.81
GOSHEN	C	20.93
GLASTENBURY	B	28.00 (44)
GRAFTON	C	24.38
GRAND ISLE	B	28.00 (5)
GRANVILLE	C	28.00 (24)
GREENSBORO	B	28.00 (9)
GROTON	C	21.09
GUILDHALL	C	28.00 (23)
GUILFORD	C	26.44
HALIFAX	C	22.56
HANCOCK	C	24.91
HARDWICK	C	27.52
HARTFORD	C	28.00 (4)
HARTLAND	C	27.69
HIGHGATE	C	25.50
HINESBURG	B	24.41
HOLLAND	C	24.31
HUBBARDTON	B	28.00 (17)
HYDE PARK	B	27.71
IRA	C	8.44
IRASBURG	C	26.92
ISLE LA MOTTE	B(4")	28.00 (34)
JAMAICA	C	23.49
JAY	C	9.86
JERICHO	C	22.66
JOHNSON	C	25.29
KIRBY	C	15.79
LANDGROVE	B	25.31
LEICESTER	C	28.00 (5)
LEMINGTON	B	24.04
LONDONDERRY	B(4")	25.78
LOWELL	C	20.84
LUDLOW	C	21.72
LUNENBERG	B	25.06
LYNDON	C	20.76
MAIDSTONE	B	24.63
MANCHESTER	B	28.00 (6)
MARLBORO	C	28.00 (18)
MARSHFIELD	B	27.10
MENDON	C	21.64
MIDDLEBURY	B	27.9
MIDDLESEX	B	24.26
MIDDLETOWN SPR	B(4")	28.00 (50)
MILTON	C	18.82
MONTGOMERY	B	28.00 (21)
MONTPELIER	B	26.67
MORETOWN	C	28.00 (23)
MORGAN	C	22.05
MORRISTOWN	B	28.00 (9)
MOUNT HOLLY	B	28.00 (50)
MOUNT TABOR	B	28.00 (50)
NEWARK	C	21.34
NEWBURY	C	25.68
NEWFANE	C	24.73
NEW HAVEN	B	27.11
NEWPORT CITY	B(4")	28.00
NEWPORT TOWN	B(4")	28.00 (25)
NORTH HERO	B	28.00 (12)
NORTHFIELD	B	26.36
NORTON	C	21.30
NORWICH	C	23.93
ORANGE	C	21.53
ORWELL	C	21.28
PANTON	C	21.11
PAWLET	C	20.46
PEACHAM	C	25.13
PERU	C	13.63
PITTSFIELD	C	28.00 (23)
PITTSFORD	C	28.00 (14)
PLAINFIELD	B	24.74
PLYMOUTH	C	28.00 (7)
POMFRET	C	24.47
POULTNEY	C	27.37

TEXT	SERIES	DIMENSIONS (*)
POWNAL	C	21.92
PROCTOR	C	24.38
PUTNEY	C	20.55
RANDOLPH	C	28.00 (10)
READING	C	22.84
READSBORO	B	25.95
RICHFORD	C	26.57
RICHMOND	C	27.01
RIPTON	C	19.11
ROCHESTER	B	24.65
ROCKINGHAM	B	28.03
ROXBURY	C	25.31
ROYALTON	C	27.45
RUPERT	C	20.75
RUTLAND CITY	B(4")	26.58
RUTLAND TOWN	B(4")	28.00 (13)
RYEGATE	C	23.68
ST. ALBANS CITY	B(4")	28.00 (50)
ST. ALBANS TOWN	B(4")	28.00 (50)
ST. GEORGE	B	27.01
ST. JOHNSBURY	B(4")	28.00 (30)
SALISBURY	B	25.13
SEARSBURG	B	25.82
SHAFTSBURY	B	28.00 (14)
SHARON	C	21.55
SHEFFIELD	C	28.00 (10)
SHELBURNE	B	25.44
SHELDON	C	24.48
SHERBURNE	B	25.86
SHOREHAM	C	28.00 (20)
SHREWSBURY	B	28.00 (28)
SO. BURLINGTON	B(4")	28.00 (27)
SOUTH HERO	B	28.00 (9)
SPRINGFIELD	B	28.00 (4)
STAMFORD	C	28.00 (6)
STARKSBORO	B	28.64 (8)
STOCKBRIDGE	B	28.00 (21)
STOWE	C	17.73
STRAFFORD	B	25.39
STRATTON	C	26.67
SUDBURY	C	25.59
SUNDERLAND	B	28.00 (8)
SUTTON	C	20.14
SWANTON	C	25.14
THETFORD	C	27.31
TINMOUTH	C	26.73
TOPSHAM	C	25.39
TOWNSHEND	B	26.46
TROY	C	13.76
TUNBRIDGE	B	24.18
UNDERHILL	C	28.00 (23)
VERGENNES	B	25.06
VERNON	C	21.46
VERSHIRE	C	26.39
WAITSFIELD	B	25.39
WALDEN	C	21.18
WALLINGFORD	B	28.00 (34)
WALTHAM	C	24.87
WARDSBORO	B	26.94
WARREN	C	21.62
WARRENS GORE	B(4")	28.00 (23)
WASHINGTON	B	28.00 (4)
WATERBURY	B	26.21
WATERFORD	B	25.59
WATERVILLE	B	26.15
WEATHERSFIELD	B(4")	27.93
WELLS	C	17.34
WEST FAIRLEE	B(4")	27.00
WESTFIELD	C	28.00 (19)
WEST HAVEN	B	28.00 (18)
WESTFORD	C	28.00 (10)
WESTMINISTER	B	28.00 (27)
WESTMORE	C	28.00 (21)
WESTON	C	21.51

TEXT	SERIES	DIMENSIONS (*)
WEST RUTLAND	B(4")	28.00 (7)
WEST WINDSOR	B(4")	28.00 (15)
WEYBRIDGE	B	25.11
WHITELOCK	C	28.00 (7)
WHITING	C	21.51
WHITINGHAM	B	27.27
WILLIAMSTOWN	B(4")	26.65
WILLISTON	C	28.00 (5)
WILMINGTON	B	26.84
WINDHAM	C	24.66
WINDSOR	C	23.93
WINHALL	C	23.49
WINOOSKI	C	25.63
WOLCOTT	C	24.45
WOODBURY	B	24.77
WOODFORD	B	24.15
WOODSTOCK	B	26.52
WORCESTER	B	25.66

THESE TOWNS ARE NOT INCLUDED IN THE ABOVE LIST BECAUSE THEY HAVE NO STATE HIGHWAYS, HOWEVER THE DETAILS ARE PROVIDED FOR INFORMATION PURPOSES:

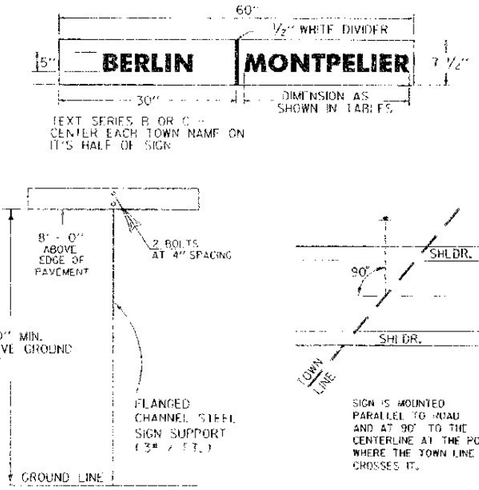
AVERYS GORE	B (4")	26.35
BALTIMORE	B	24.09
BROOKLINE	B	24.20
GRANBY	C	21.78
HUNTINGTON	B	25.42 (20)
LEWIS	C	15.47
LINCOLN	C	22.45
MONKTON	C	25.30
SANDGATE	C	26.59 (20)
SOMERSET	C	26.79 (20)
STANNARD	C	26.70 (25)
VICTORY	C	22.90
WARNERS GRANT	B (4")	28.60 (50)

NOTES:

1) (*) REPRESENTS PERCENT OF REDUCTION IN LETTER TO LETTER SPACING.

2) WORD TO WORD SPACING FOR MULTIPLE TEXT TOWN NAMES IS ADJUSTABLE TO ACCOMMODATE DIMENSION REQUIREMENTS.

3) DIMENSIONS SHOWN ARE APPROXIMATE AND MAY BE ADJUSTED SLIGHTLY TO ACCOMMODATE VARIOUS MANUFACTURER'S LETTER WIDTHS.



TOWN LINE POST

TOWN LINE SIGN

WHEN CROSSING COUNTY BOUNDRIES AN ADDITIONAL COUNTY LINE SIGN SHALL BE MOUNTED BELOW THE TOWN LINE SIGN.

COUNTY NAMES

TEXT	SERIES	DIMENSIONS
ADDISON CO.	C (4")	28.00
BENNINGTON CO.	B (4")	28.00 (30)
CALEDONIA CO.	B (4")	27.62
CHITTENDEN CO.	B (4")	28.00
ESSEX CO.	C	28.00
FRANKLIN CO.	B (4")	25.04
GRAND ISLE CO.	B (4")	28.00 (50)
LAMOILLE CO.	B (4")	24.72
ORANGE CO.	B	27.59
ORLEANS CO.	B	26.00 (40)
RUTLAND CO.	B	28.00 (35)
WASHINGTON CO.	B (4")	28.00 (50)
WINDHAM CO.	B	28.00 (40)
WINDSOR CO.	B	28.00 (40)

MATERIALS

THE SIGN BASE MATERIAL SHALL BE HIGH DENSITY OVERLAID PLYWOOD 5/8 INCH THICK
THE REFLECTIVE MATERIAL SHALL BE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT SHALL BE CUT-OUT REFLECTORIZED LETTERS.
ALL REFLECTIVE MATERIAL SHALL MEET THE MINIMUM REQUIREMENTS OF AASHTO TYPE A

COLORS

SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT ON A REFLECTORIZED GREEN BACKGROUND.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS APPROVED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

SIGNS SHALL MEET THE STATE SPECIFICATIONS FOR "TRAFFIC SIGNS". SEE THE APPROPRIATE STANDARD SHEETS FOR SIGN OFFSET PLACEMENT AND SIGN POST INFORMATION.

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

JAN. 23, 1989 DATE OF ORIGINAL ISSUE

AUG. 08, 1995 - REARRANGED SHEET

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

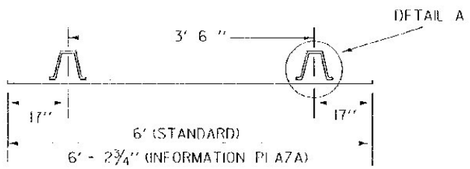
TOWN LINE SIGNS

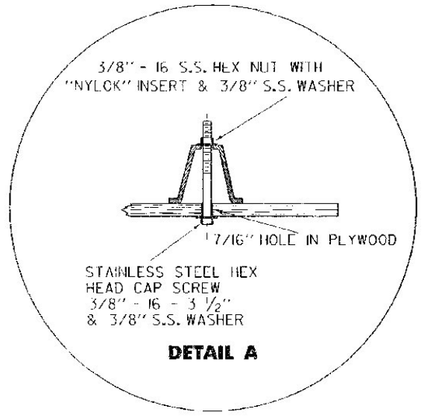
/iraf/std/stdel24.dgn : stdel24.l

VERMONT AGENCY OF TRANSPORTATION

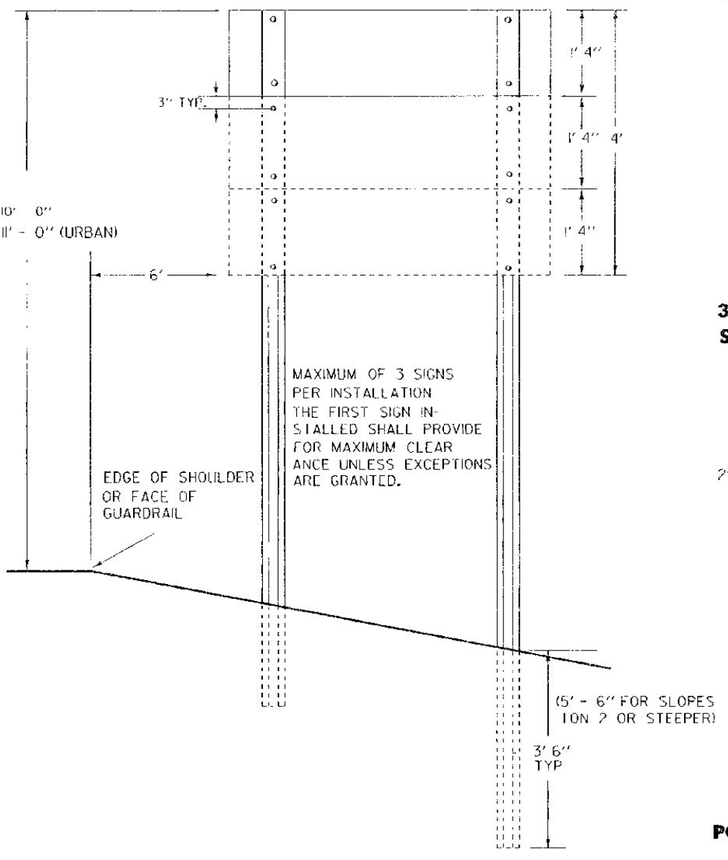
STANDARD

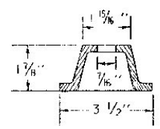
E-124



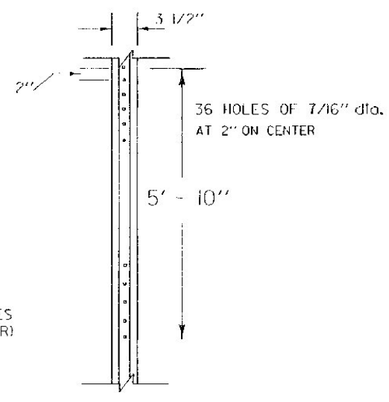


DETAIL A

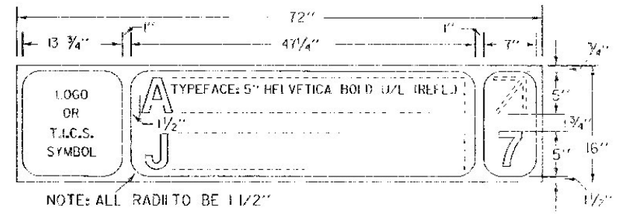




3#/LF FLANGED CHANNEL STEEL SIGN POST DETAIL



POST DRILLING DETAIL



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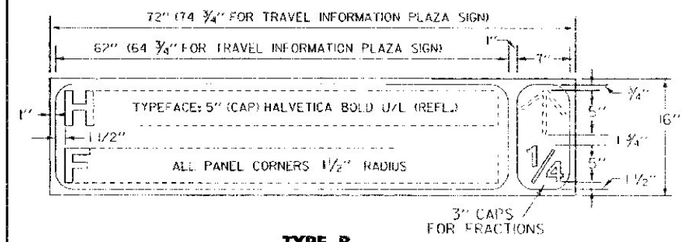
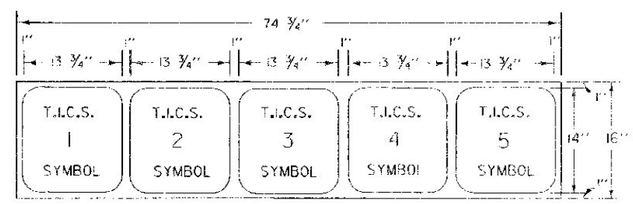
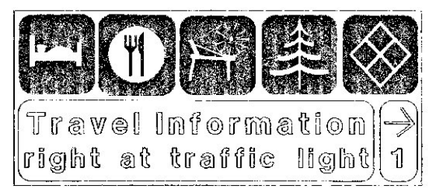


TYPE B



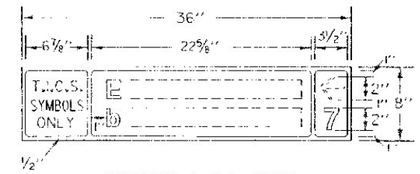
TYPE C

ONLY USED ON APPROACHES TO INFORMATION PLAZAS

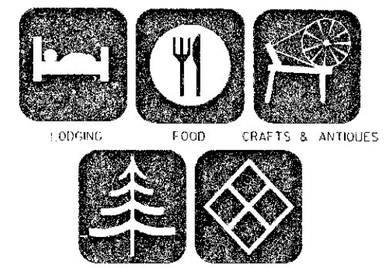


EXAMPLE OF PLAZA INFORMATION SIGN

FOR MORE DETAILS ON THE STATE'S INFORMATION SYSTEM, WRITE OR CALL: TRAVEL INFORMATION COUNCIL, C/O AGENCY OF TRANSPORTATION, MAINTENANCE DIVISION, NATIONAL LIFE BUILDING, MONTPELIER, VERMONT 05602 (802) 828-2651.



DIRECTIONAL SIGN DETAIL
FOR USE ON HIGHWAYS WITH SPEEDS OF 30 M.P.H. OR LESS



THE SYMBOLS ABOVE ARE FEATURED ON VERMONT'S TRAVEL INFORMATION PLAZAS, WHICH ARE FREE-STANDING OUTDOOR KIOSKS FOUND AT INTERSTATE REST AREAS, WELCOME CENTERS, AND NEAR KEY POINTS OF INTEREST. PLAZA LOCATIONS ARE INDICATED ON THE OFFICIAL STATE MAP BY THE SYMBOL 7.

MATERIALS:

SIGN BASE MATERIAL SHALL BE HIGH DENSITY OVERLAID PLYWOOD, ⅝" THICK, WHICH HAS BEEN SEALED ON THE EDGES AND PAINTED BLACK. THE BACK OF THE SIGNBOARD SHALL ALSO BE PAINTED BLACK. EACH SIGNBOARD IS TO BE DRILLED WITH FOUR ⅞" HOLES. THE INTERIOR OF THE HOLES SHALL BE PAINTED OR OTHERWISE SEALED AGAINST THE WEATHER.

DIRECTIONAL ARROWS AND MILEAGE NUMBERS WILL BE MADE OF REFLECTORIZED MATERIAL (ENGINEERING GRADE).

COLOR:

SIGNBOARD FACES WILL HAVE BLACK BACKGROUND WITH WHITE BORDER. T.I.C.S. SYMBOL BACKGROUNDS WILL BE COLORED AS FOLLOWS:

LODGING - MAGENTA (PINK)
FOOD - ORANGE
CRAFTS & ANTIQUES - AQUA
RECREATION - BROWN
GOODS AND OTHER SERVICES - BLACK

ALL SYMBOLS WILL BE REFLECTORIZED.

TEXT LAYOUT:

NAME OF BUSINESS ENTERPRISE WILL BE IN UPPER AND LOWER CASE LETTERS STARTING FLUSH LEFT ON THE TOP LINE, AND MAY, ONLY WHEN NECESSARY, EXTEND TO THE SECOND LINE, (FLUSH LEFT ALSO). DIRECTIONAL INFORMATION WILL BE ALL IN LOWER CASE (NO CAPS), AND WILL ALWAYS BE ON THE SECOND LINE, EITHER FLUSH LEFT OR FOLLOWING THE END OF THE ESTABLISHMENT'S NAME.

OTHER STDS. REQUIRED: E-160

REVISIONS AND CORRECTIONS

AUG. 22, 1988 DATE OF ORIGINAL ISSUE
AUG. 08, 1995 MINOR DETAIL AND NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacCallum
DIRECTOR OF ENGINEERING

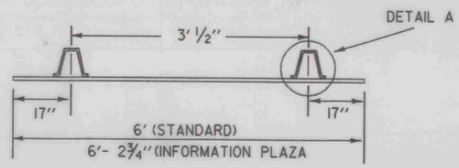
David A. Roan
TRAFFIC AND SAFETY ENGINEER

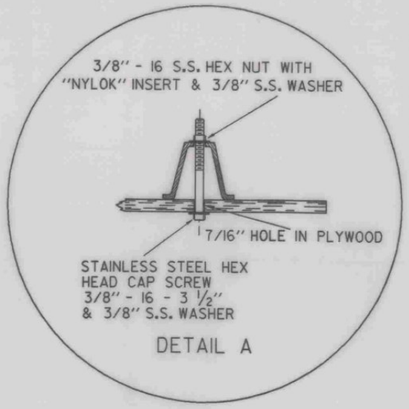
TRAVEL INFORMATION COUNCIL SIGNS

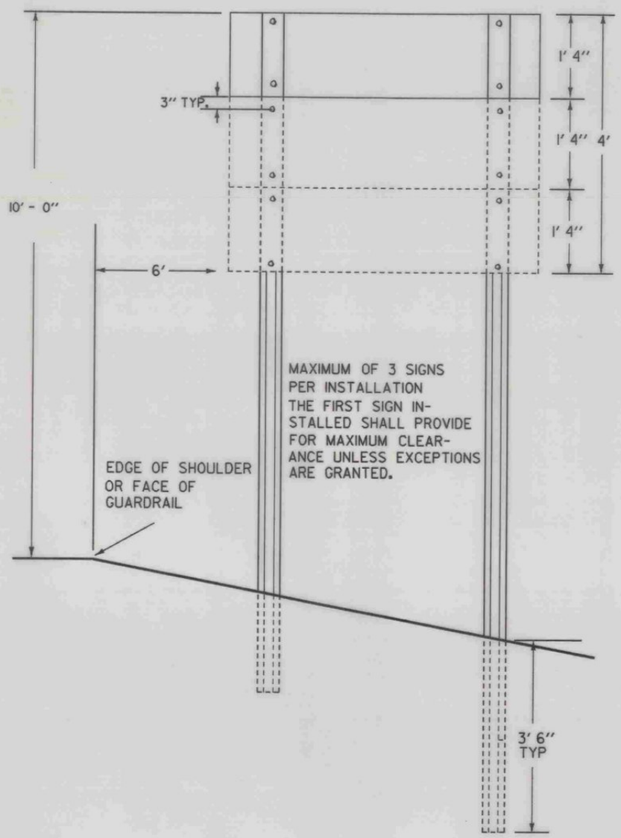
/traf/std/stdel25.dgn : stdel25.i

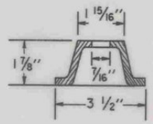
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-125

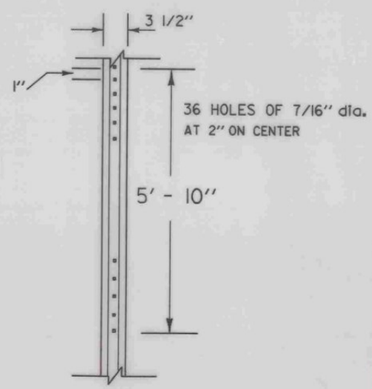




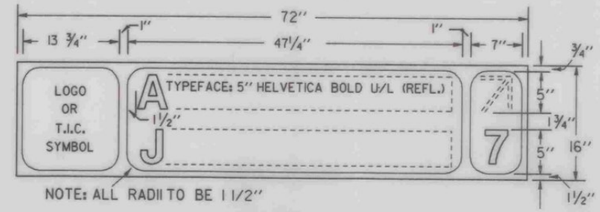




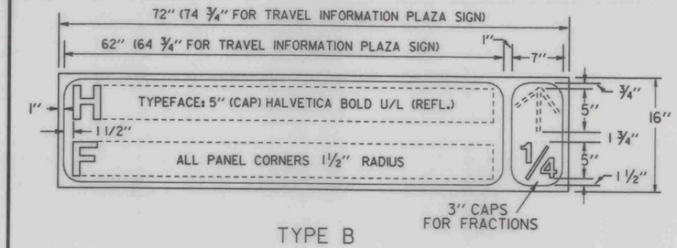
3#/LF FLANGED CHANNEL
STEEL SIGN POST DETAIL



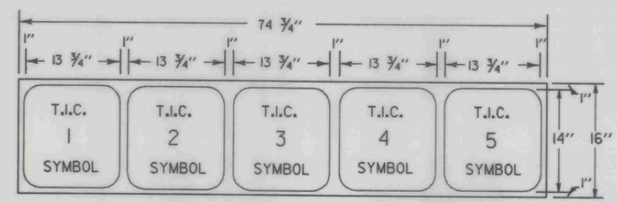
POST DRILLING DETAIL



TYPE A



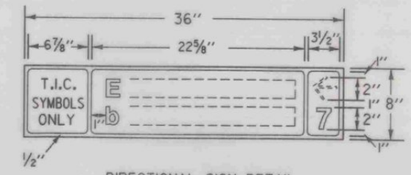
TYPE B



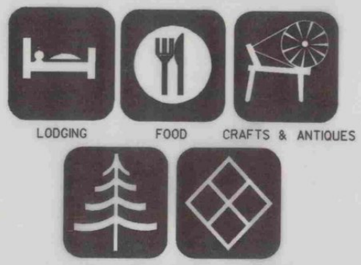
TYPE C
ONLY USED ON APPROACHES
TO INFORMATION PLAZAS

EXAMPLE OF PLAZA INFORMATION SIGN

FOR MORE DETAILS ON THE STATE'S INFORMATION SYSTEM, WRITE OR CALL: TRAVEL INFORMATION COUNCIL, C/O AGENCY OF TRANSPORTATION, MAINTENANCE DIVISION, 133 STATE ST., MONTPELIER, VERMONT 05602 (802) 828-2651.



DIRECTIONAL SIGN DETAIL
FOR USE ON HIGHWAYS WITH SPEEDS
OF 30 M.P.H. OR LESS



LODGING FOOD CRAFTS & ANTIQUES

RECREATION GOODS & SERVICES

THE SYMBOLS ABOVE ARE FEATURED ON VERMONT'S TRAVEL INFORMATION PLAZAS, WHICH ARE FREE-STANDING OUTDOOR KIOSKS FOUND AT INTERSTATE REST AREAS, WELCOME CENTERS, AND NEAR KEY POINTS OF INTEREST. PLAZA LOCATIONS ARE INDICATED ON THE OFFICIAL STATE MAP BY THE SYMBOL ?.

MATERIALS:

SIGN BASE MATERIAL SHALL BE HIGH DENSITY OVERLAID PLYWOOD, 5/8" THICK, WHICH HAS BEEN SEALED ON THE EDGES AND PAINTED BLACK. THE BACK OF THE SIGNBOARD SHALL ALSO BE PAINTED BLACK. EACH SIGNBOARD IS TO BE DRILLED WITH FOUR 7/16" HOLES. THE INTERIOR OF THE HOLES SHALL BE PAINTED OR OTHERWISE SEALED AGAINST THE WEATHER.

DIRECTIONAL ARROWS AND MILEAGE NUMBERS WILL BE MADE OF REFLECTORIZED MATERIAL. (ENGINEERING GRADE)

COLOR:

SIGNBOARD FACES WILL HAVE BLACK BACKGROUND WITH WHITE BORDER.
T.I.C. SYMBOL BACKGROUNDS WILL BE COLORED AS FOLLOWS:

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REVISIONS AND CORRECTIONS

APPROVED

8/22/88
DATE

David B Kelley
CHIEF ENGINEER

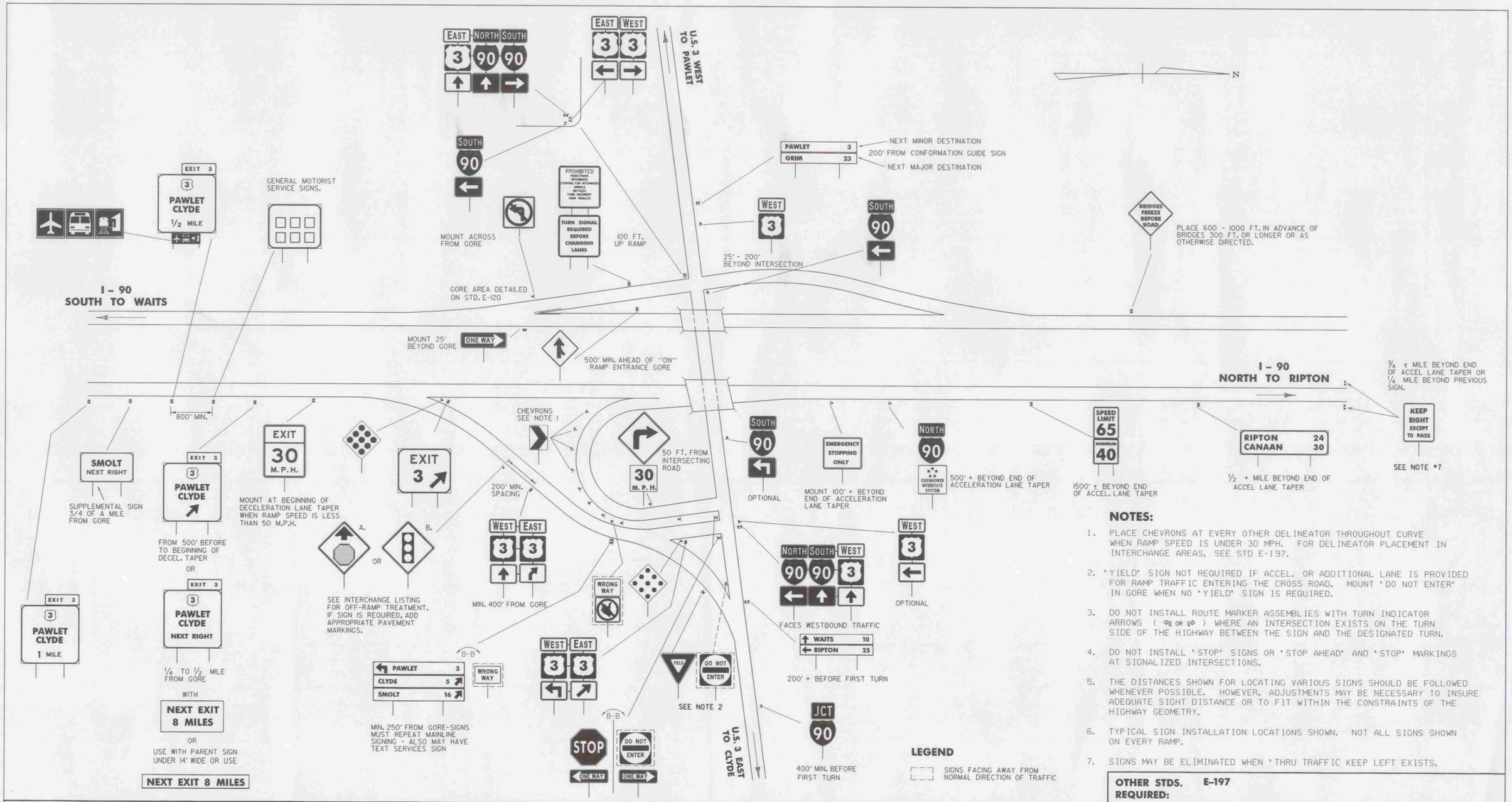
Arthur J Goss
DIRECTOR OF PLANNING
AND PRECONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

TRAVEL INFORMATION SIGNS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-125



NOTES:

1. PLACE CHEVRONS AT EVERY OTHER DELINEATOR THROUGHOUT CURVE WHEN RAMP SPEED IS UNDER 30 MPH. FOR DELINEATOR PLACEMENT IN INTERCHANGE AREAS, SEE STD E-197.
2. 'YIELD' SIGN NOT REQUIRED IF ACCEL. OR ADDITIONAL LANE IS PROVIDED FOR RAMP TRAFFIC ENTERING THE CROSS ROAD. MOUNT 'DO NOT ENTER' IN GORE WHEN NO 'YIELD' SIGN IS REQUIRED.
3. DO NOT INSTALL ROUTE MARKER ASSEMBLIES WITH TURN INDICATOR ARROWS (⇦ OR ⇨) WHERE AN INTERSECTION EXISTS ON THE TURN SIDE OF THE HIGHWAY BETWEEN THE SIGN AND THE DESIGNATED TURN.
4. DO NOT INSTALL 'STOP' SIGNS OR 'STOP AHEAD' AND 'STOP' MARKINGS AT SIGNALIZED INTERSECTIONS.
5. THE DISTANCES SHOWN FOR LOCATING VARIOUS SIGNS SHOULD BE FOLLOWED WHENEVER POSSIBLE. HOWEVER, ADJUSTMENTS MAY BE NECESSARY TO INSURE ADEQUATE SIGHT DISTANCE OR TO FIT WITHIN THE CONSTRAINTS OF THE HIGHWAY GEOMETRY.
6. TYPICAL SIGN INSTALLATION LOCATIONS SHOWN. NOT ALL SIGNS SHOWN ON EVERY RAMP.
7. SIGNS MAY BE ELIMINATED WHEN 'THRU TRAFFIC KEEP LEFT EXISTS.

OTHER STDS. REQUIRED: E-197

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE
JAN. 15, 1997 - REMOVED STORM SIGN AND REPLACED IT WITH EMERGENCY STOPPING ONLY AND ADDED "KEEP RIGHT EXCEPT TO PASS" SIGN
APRIL 21, 1997 - ADDED GENERAL MOTORIST SERVICE SIGNS. DELETED AND REARRANGED OTHER SIGNS. ADDED NOTE #7.

APPROVED

DIRECTOR OF ENGINEERING

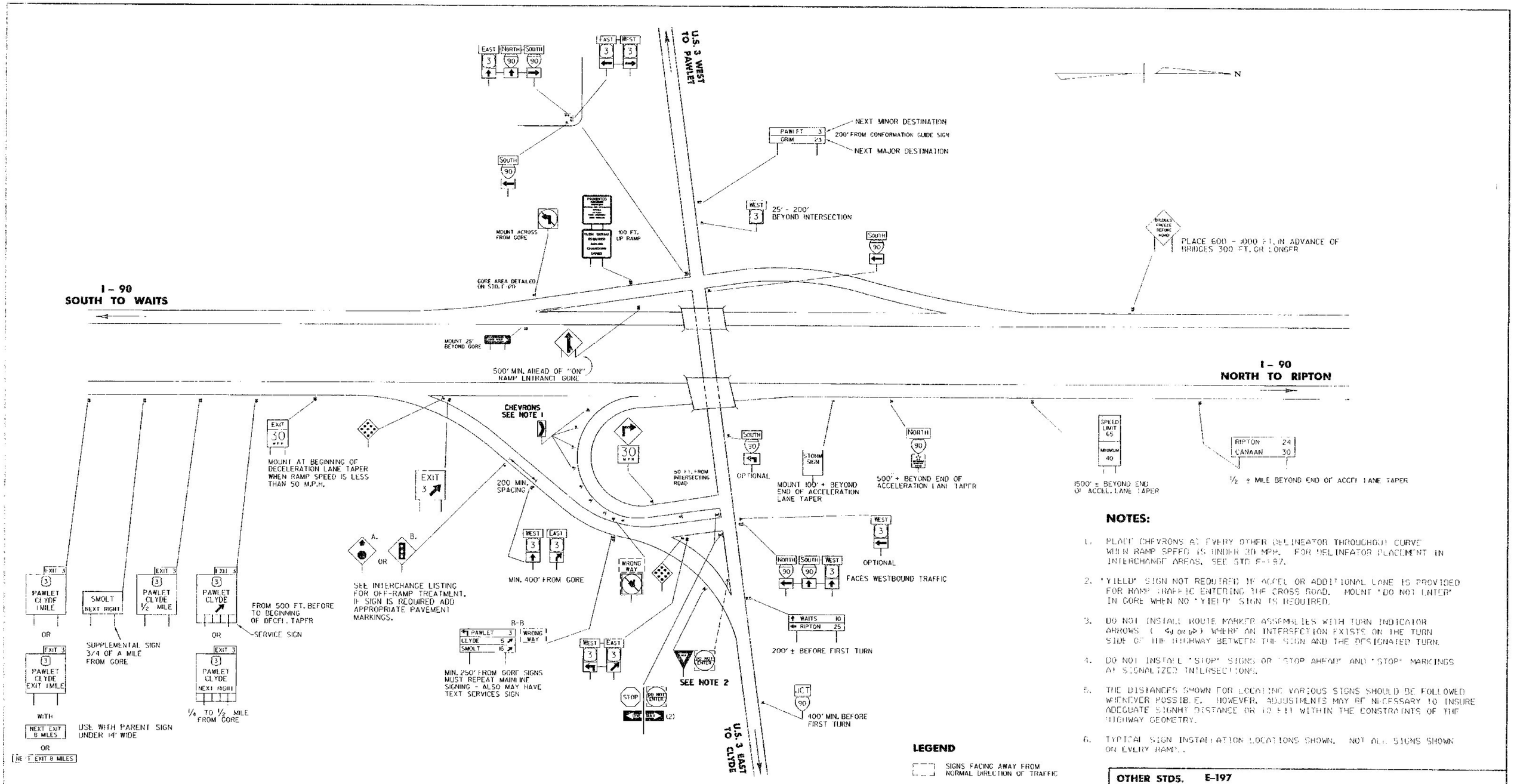
DIRECTOR OF CONSTRUCTION & MAINTENANCE

TYPICAL FREEWAY INTERCHANGE SIGNING

/traf/std/stdel26.dgn : stdel26.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-126



NOTES:

1. PLACE CHEVRONS AT EVERY OTHER DELINEATOR THROUGHOUT CURVE WHEN RAMP SPEED IS UNDER 30 MPH. FOR DELINEATOR PLACEMENT IN INTERCHANGE AREAS, SEE STD. E-197.
2. "YIELD" SIGN NOT REQUIRED IF ACCEL OR ADDITIONAL LANE IS PROVIDED FOR RAMP TRAFFIC ENTERING THE CROSS ROAD. MOUNT "DO NOT ENTER" IN GORE WHEN NO "YIELD" SIGN IS REQUIRED.
3. DO NOT INSTALL ROUTE MARKER ASSEMBLIES WITH TURN INDICATOR ARROWS (↰ or ↱) WHERE AN INTERSECTION EXISTS ON THE TURN SIDE OF THE HIGHWAY BETWEEN THE SIGN AND THE DESIGNATED TURN.
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6. TYPICAL SIGN INSTALLATION LOCATIONS SHOWN. NOT ALL SIGNS SHOWN ON EVERY RAMP.

OTHER STDS. REQUIRED: E-197

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

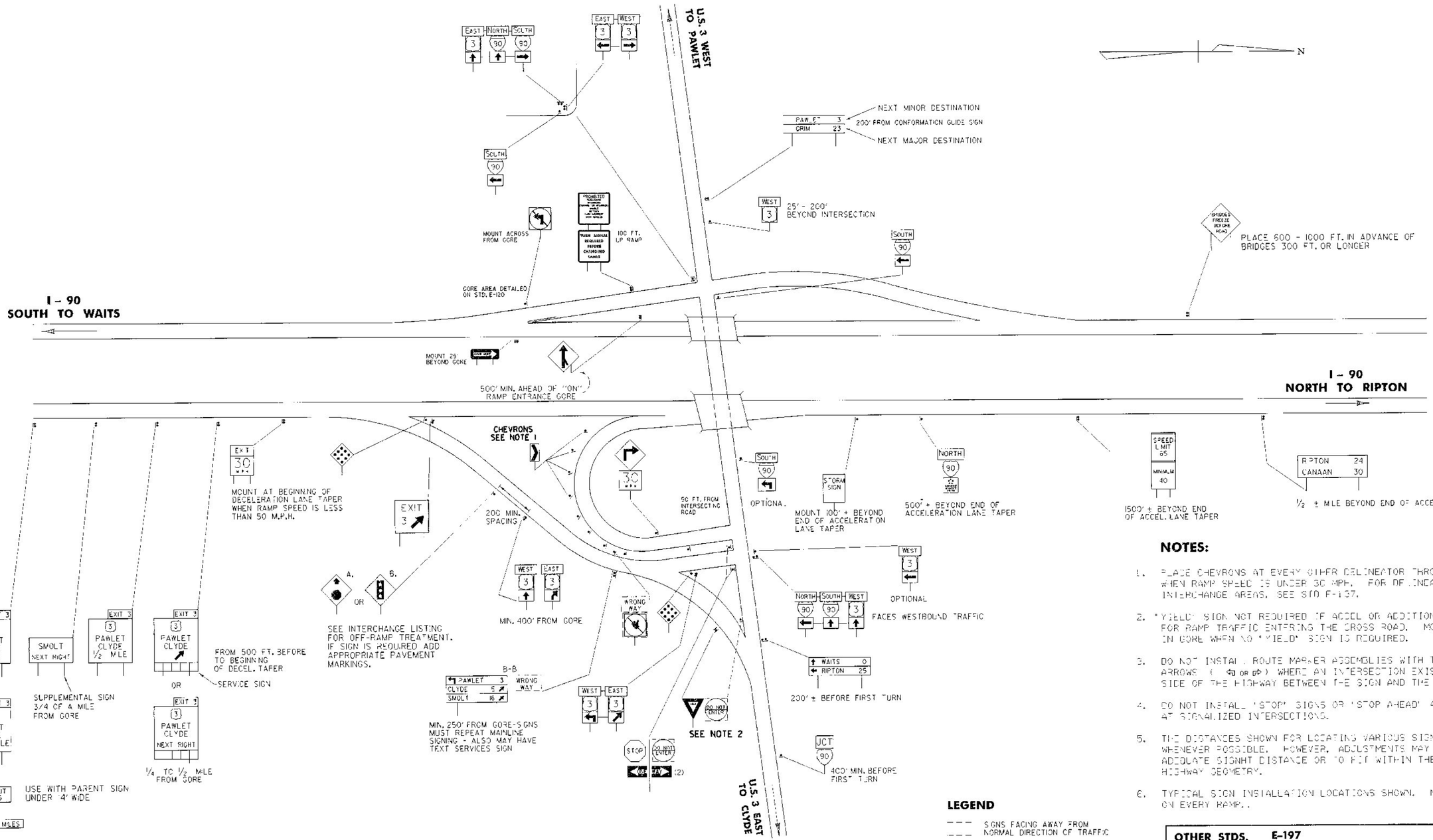
TYPICAL FREEWAY INTERCHANGE SIGNING

/traf/std/stdel26.dgn : stdel26.

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-126



NOTES:

1. PLACE CHEVRONS AT EVERY OTHER DELINEATOR THROUGHOUT CURVE WHEN RAMP SPEED IS UNDER 30 MPH. FOR DELINEATOR PLACEMENT IN INTERCHANGE AREAS, SEE STD E-137.
2. "YIELD" SIGN NOT REQUIRED IF ACCEL OR ADDITIONAL LANE IS PROVIDED FOR RAMP TRAFFIC ENTERING THE CROSS ROAD. MOUNT "DO NOT ENTER" IN GORE WHEN NO "YIELD" SIGN IS REQUIRED.
3. DO NOT INSTALL ROUTE MARKER ASSEMBLIES WITH TURN INDICATOR ARROWS (⇦ OR ⇨) WHERE AN INTERSECTION EXISTS ON THE TURN SIDE OF THE HIGHWAY BETWEEN THE SIGN AND THE DESIGNATED TURN.
4. DO NOT INSTALL "STOP" SIGNS OR "STOP AHEAD" AND "STOP" MARKINGS AT SIGNALIZED INTERSECTIONS.
5. THE DISTANCES SHOWN FOR LOCATING VARIOUS SIGNS SHOULD BE FOLLOWED WHENEVER POSSIBLE. HOWEVER, ADJUSTMENTS MAY BE NECESSARY TO INSURE ADEQUATE SIGNHT DISTANCE OR TO FIT WITHIN THE CONSTRAINTS OF THE HIGHWAY GEOMETRY.
6. TYPICAL SIGN INSTALLATION LOCATIONS SHOWN. NOT ALL SIGNS SHOWN ON EVERY RAMP.

LEGEND

--- SIGNS FACING AWAY FROM
--- NORMAL DIRECTION OF TRAFFIC

OTHER STDS. REQUIRED: E-197

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

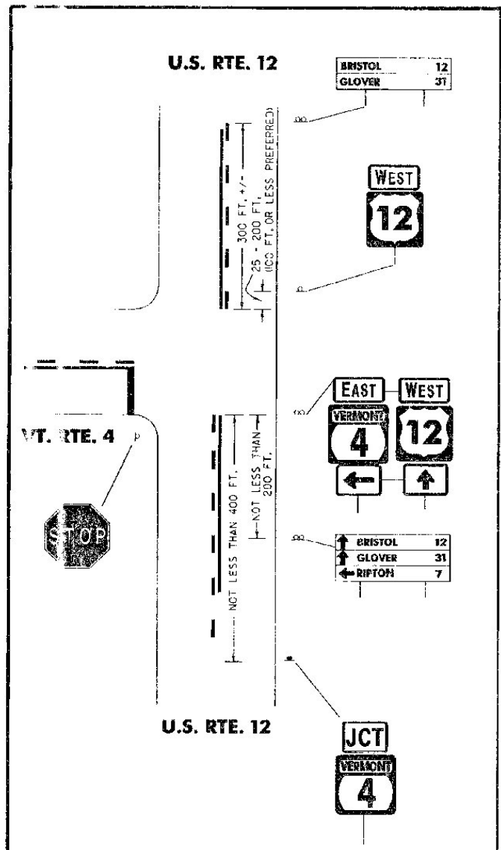
TYPICAL FREEWAY INTERCHANGE SIGNING

/tmpf/std/std126.dgn : stcel26.

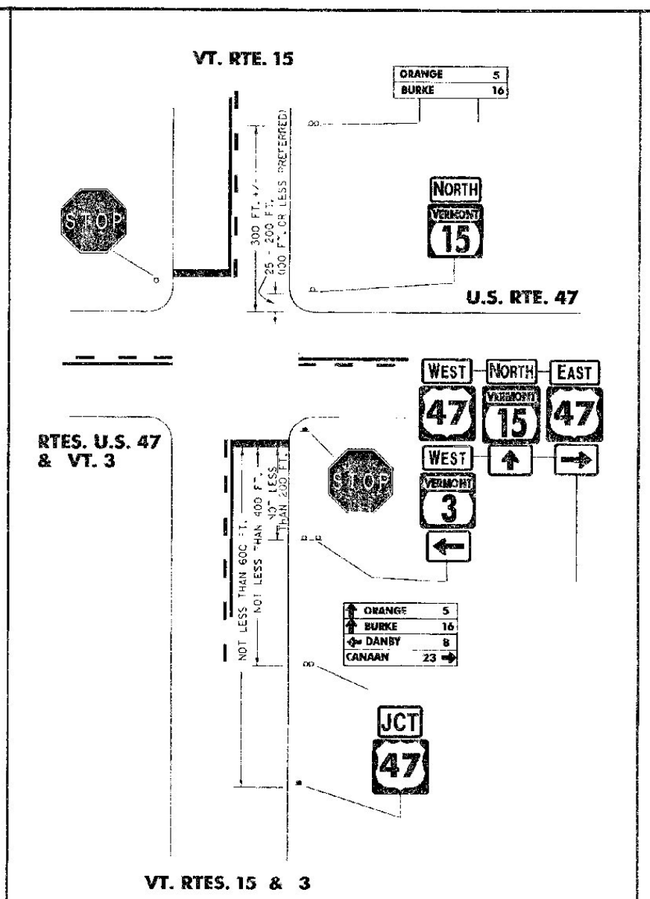
VERMONT AGENCY OF TRANSPORTATION

STANDARD

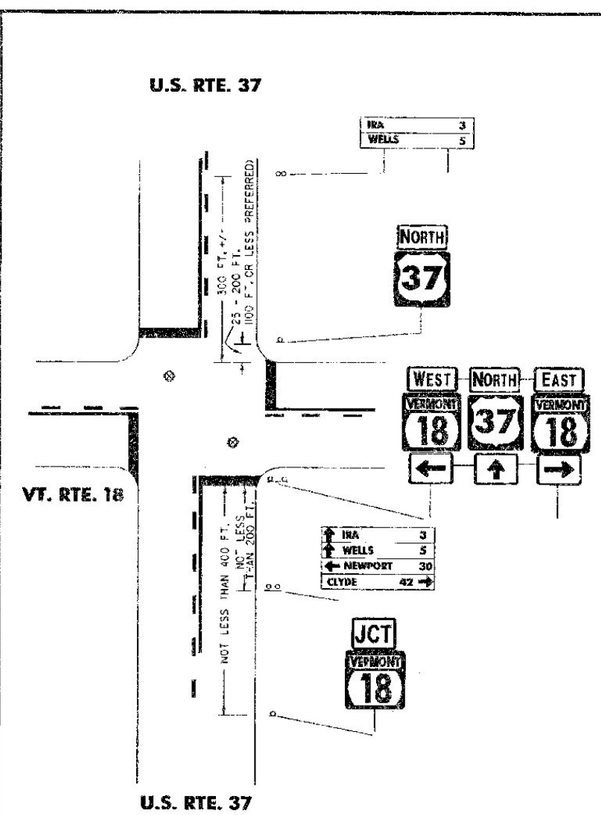
E-126



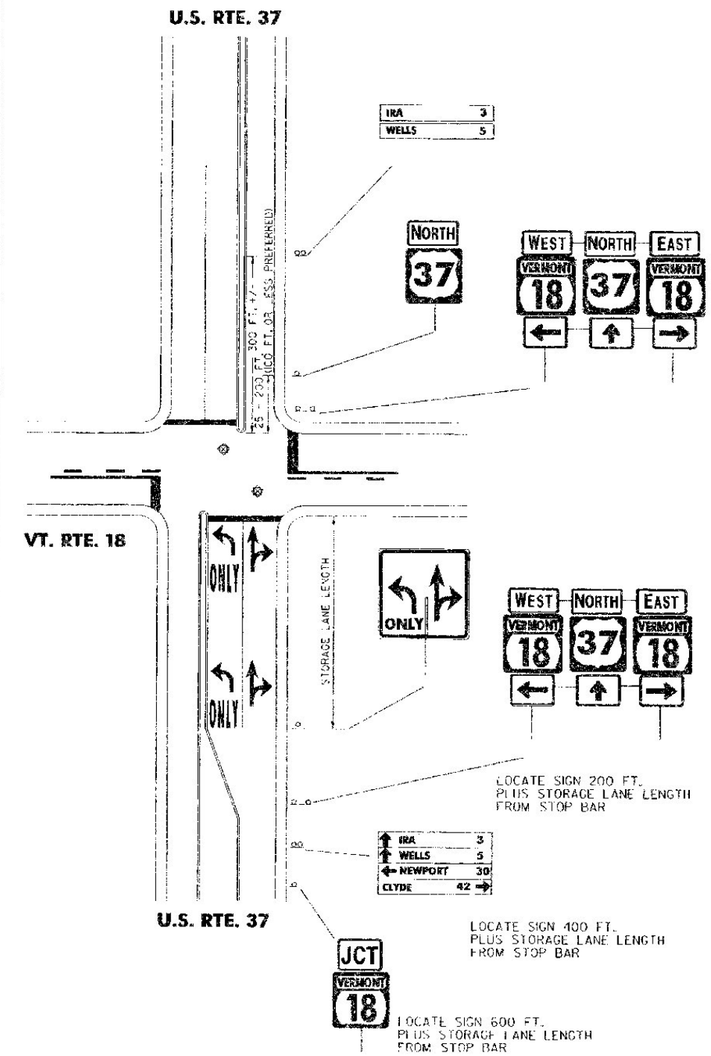
RURAL INTERSECTION – THROUGH MOVEMENT –



SINGLE LANE,STOP CONTROL



SINGLE LANE WITH SIGNAL



MULTI – LANE INTERSECTION – SIGNALIZED

GENERAL NOTES:

1. RECOMMENDED SIGN SPACING AS SHOWN IS SOMETIMES NOT OBTAINABLE DUE TO COMMERCIAL CONFLICTS ETC. AT BUSY INTERSECTIONS. JUDGEMENT MUST BE USED IN THESE CASES TO PLACE SIGNS AS TO GIVE ADEQUATE NOTICE. IT IS ESPECIALLY IMPORTANT TO PLACE SIGNS CLEAR OF OBSTRUCTION BY OTHER SIGNS, POLES, POSTS, FENCES, ETC. .
2. - BENT ARROWS ARE USED WHEN THE INTERSECTION CANNOT BE SEEN
   - STRAIGHT ARROWS ARE TO BE USED WHEN THE INTERSECTION CAN BE SEEN.
3. SIGNING SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
4. TWO DESTINATION BOARDS FOR EACH DIRECTION ARE PERMISSABLE.

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

DEC. 18, 1989 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - MINOR SIGN AND NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon R. MacArthur
DIRECTOR OF ENGINEERING

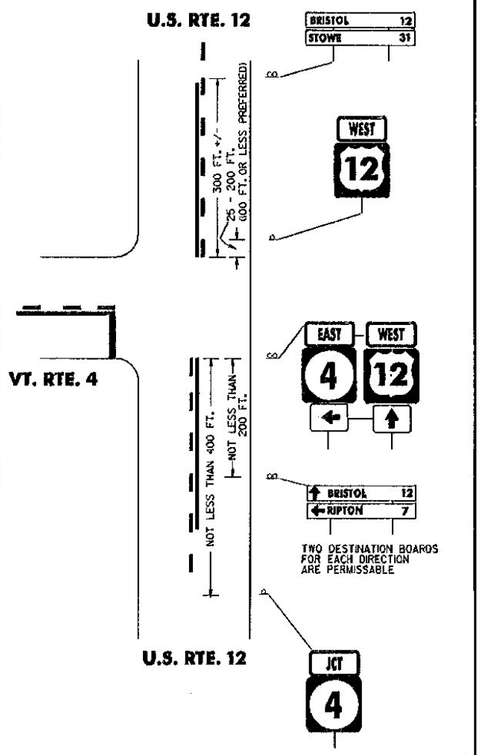
David A. Ross
TRAFFIC AND SAFETY ENGINEER

ROUTE MARKINGS AT RURAL INTERSECTIONS

/traf/std/stde127.dgn : stde127.i

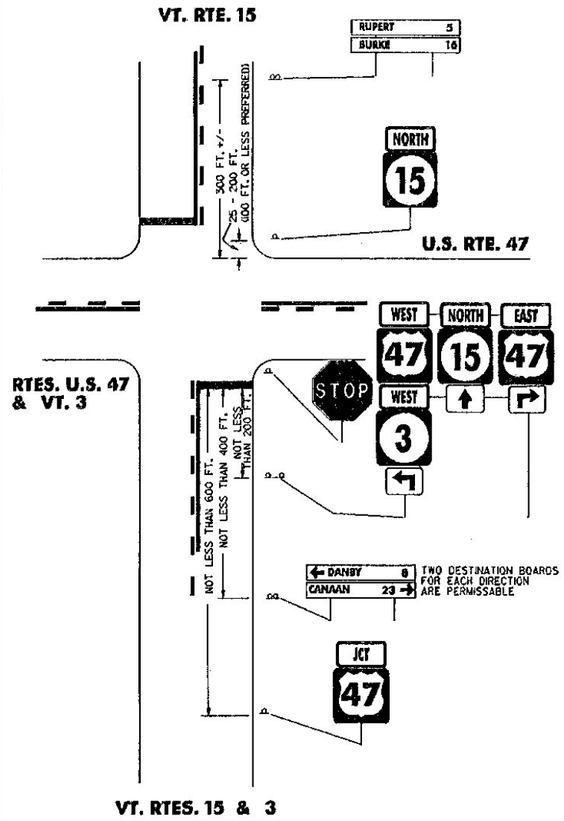
VERMONT AGENCY OF TRANSPORTATION

STANDARD E-127



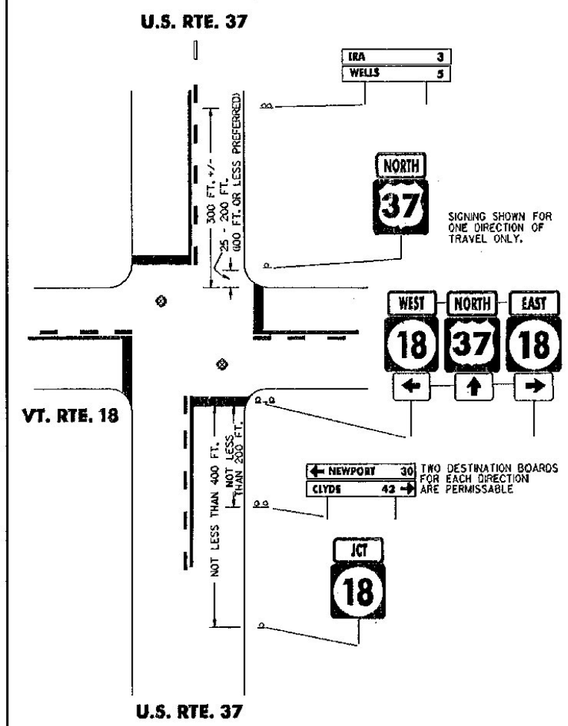
RURAL INTERSECTION - THROUGH MOVEMENT -

SIGNING SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.



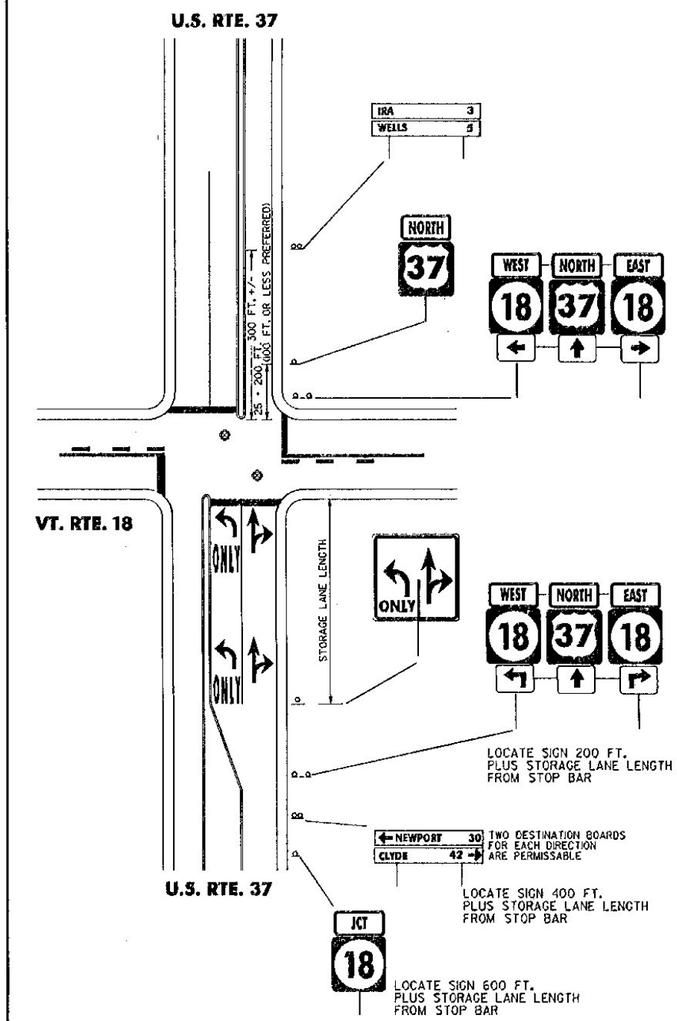
SINGLE LANE, STOP CONTROL

SIGNING SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.



SINGLE LANE WITH SIGNAL

SIGNING SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.



MULTI - LANE INTERSECTION - SIGNALIZED

SIGNING SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.

GENERAL NOTE

RECOMMENDED SIGN SPACING AS SHOWN IS SOMETIMES NOT OBTAINABLE DUE TO COMMERCIAL CONFLICTS ETC. AT BUSY INTERSECTIONS, JUDGEMENT MUST BE USED IN THESE CASES TO PLACE SIGNS AS TO GIVE ADEQUATE NOTICE. IT IS ESPECIALLY IMPORTANT TO PLACE SIGNS CLEAR OF OBSTRUCTION BY OTHER SIGNS, POLES, POSTS, FENCES, ETC..

REVISIONS AND CORRECTIONS

APPROVED 12/18/89
DATE

David B. Kelley
CHIEF ENGINEER

Arthur Gross
DIRECTOR OF PLANNING

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

ROUTE MARKINGS AT RURAL INTERSECTIONS

VERMONT AGENCY OF TRANSPORTATION

STANDARD E - 127

TOWN	SERIES/TEXT DIMENSIONS 3"	4"	6"
ADDISON	C 14.12	C 18.83	B 22.00
ALBANY	C 12.93	C 17.23	B 21.38
ALBURG	C 12.71	C 16.95	B 20.52
ALBURG CTR.	B 18.00		
AMSDEN	C 13.14	C 17.52	B 21.13
ARLINGTON	C 18.00	C 22.00	
ASCUTNEY	C 16.81	C 22.00	
ATHENS	C 12.24	C 16.31	B 19.64
AVERILL	C 13.21	C 17.60	B 21.25
BAKERSFIELD	B 17.57	B 22.00	
BARNARD	C 15.23	C 20.31	B 22.00
BARNET	C 12.41	C 16.54	B 19.94
BARRE	C 10.57	C 14.09	C 21.13
BARTON	C 12.66	C 16.90	B 20.48
BAY		C 8.080	
BEANVILLE	C 17.53	C 22.00	
BEECHER		C 19.12	
BEECHER FALLS	B 22.00*		
BELLOWS		C 19.88	
BELLOWS FALLS	B 22.00*		
BELVIDERE		C 22.00	
BELVIDERE CTR.	B 18.00		
BELVIDERE CORS.	B 22.00*		
BENNINGTON	C 18.00	B 21.75	
BERKSHIRE		C 22.00	
BERLIN		C 14.99	
BETHEL	C 11.89	C 15.85	C 22.00
BLOOMFIELD	C 18.00	B 21.44	
BOLTON	C 12.19	C 16.24	C 22.00
BOLTONVILLE	B 17.18	B 22.00	
BOMOSEEN	C 17.25	C 22.00	
BONDVILLE	C 17.82	C 22.00	
BOW		B 7.200	
BOWLSVILLE	C 18.00	B 21.58	
BRADFORD	C 17.35	C 22.00	
BRADFORD CTR.	B 22.00*		
BRAINTREE		C 22.00	
BRANDON	C 15.27	C 20.29	B 22.00
BRATTLEBORO	B 18.01	B 22.00	
BREAD		C 13.87	
BREAD LOAF	B 17.95		
BRIDGEWATER	B 17.76	B 22.00	
BRIDGEWATER CORS.	SEE NOTE A		
BRIDPORT	C 16.02	C 21.36	
BRIGHTON		C 21.36	
BRISTOL	C 13.61	C 18.14	B 21.88
BROOKFIELD	C 18.00	B 21.29	
BROWNSVILLE	B 18.00	B 22.00	
BRUNSWICK		C 22.00	
BRUNSWICK SPRS	B 22.00*		
BURKE		C 13.95	
BURLINGTON	C 18.00	B 21.75	
CALAIS		C 14.79	
CAMBRIDGE	C 18.00	C 22.00	
CAMBRIDGE JCT.	B 22.00*		
CAMBRIDGEPORT	B 22.00*	B 26.00*	
CANAAN	C 12.57	C 16.75	B 20.76
CASTLETON	B 14.67	C 22.00	
CASTLETON CORS.	B 22.00*		
CAVENDISH	C 17.87	C 22.00	
CENTER		C 15.92	
CTR. RUTLAND	B 18.00		
CHARLESTON		B 22.00	
CHARLOTTE	C 18.00	C 22.00	
CHECKERBERRY		B 26.00*	
CHECKERBERRY VIL.	SEE NOTE A		
CHELSEA	C 14.41	C 19.21	B 22.00
CHESTER	C 14.22	C 18.95	B 22.00
CHESTER DEPOT	B 22.00*		
CHIMNEY		C 18.70	
CHIMNEY COR.	B 18.00		
CHIMNEY POINT	B 18.00		
CLARENDON		B 20.23	
COLBYVILLE	C 18.00	B 20.95	
COLCHESTER	B 16.47	B 21.96	
CONCORD	C 15.20	C 20.27	B 22.00
CORNER		C 16.93	
CORNERS		C 19.79	
CORNWALL	C 17.23	C 22.00	
COVENTRY	C 16.90	C 22.51	
CUTTINGSVILLE	B 18.00	B 26.00*	
DALE		C 10.70	
DANVILLE	C 15.57	C 20.74	

TOWN	SERIES/TEXT DIMENSIONS 3"	4"	6"
DEPOT		C 13.54	
DERBY		C 14.09	
DERBY CENTER	B 18.00		
DERBY LINE	C 18.00		
DORSET	C 12.27	C 16.35	C 22.00
DOVER		C 13.81	
DOWNERS	C 15.20	C 20.26	
DUXBURY		C 20.49	
EAST (W/SERIES	B VILLAGE NAME)	B 8.410	
(W/SERIES	C VILLAGE NAME)	C 10.48	
EAST ALBURG	B 18.00		
EAST BARNET	B 18.00		
EAST BARRE	B 17.86		
E. BERKSHIRE	B 18.00		
E. BRAINTREE	B 18.00		
E. BRIGHTON	B 17.79		
E. BROOKFIELD	B 18.00		
EAST BURKE	B 17.69		
EAST CALAIS	B 18.00		
E. CHARLESTON	B 18.00		
E. CLARENDON	B 18.00		
EAST DORSET	B 18.00		
E. FAIRFIELD	B 18.00		
E. FRANKLIN	B 17.59		
E. GRANVILLE	B 18.00		
EAST HAVEN	B 17.45		
E. HIGHGATE	B 17.47		
E. JAMAICA	B 16.74		
E. JOHNSON	B 17.25		
E. MIDDLEBURY	B 18.00		
E. MONTPELIER	B 18.00		
E. RANDOLPH	B 18.00		
E. RICHFORD	B 17.79		
EAST RUPERT	B 18.00		
E. RYEGATE	B 16.38		
E. ST. JOHNSBURY	B 22.00*		
E. THETFORD	B 17.88		
E. WALLINGFORD	B 22.00*		
EDEN	C 7.920	C 10.56	
EDEN MILLS	B 16.63		
ELMORE		C 16.95	
ELY	C 5.550	C 7.390	C 11.10
ENOSBURG		C 22.00	
ENOSBURG FALLS	B 22.00*		
ESSEX		C 13.57	
ESSEX CENTER	B 18.00		
ESSEX JCT.	B 16.02		
EVANSVILLE	C 18.00	B 20.78	
FAIR		C 9.210	
FAIR HAVEN	B 16.82		
FAIRFAX	C 13.52	C 18.01	B 22.00
FAIRFIELD	C 16.25	C 21.65	
FAIRLEE	C 13.05	C 17.39	B 21.03
FALLS		C 13.15	
FELCHVILLE	C 18.00	B 20.27	
FERNVILLE	C 17.32	C 22.00	
FERRISBURGH	B 18.00	B 22.00	
FLAT		C 9.610	
FLATS		C 12.47	
FONDA	C 10.66	C 14.21	C 21.32
FOREST		C 16.38	
FOREST DALE	B 18.00		
FOUR CORNERS		B 26.00*	
FRANKLIN	C 15.64	C 20.85	B 22.00
GASSETTS	C 16.10	C 21.45	B 22.00
GAYSVILLE	C 17.61	C 22.00	
GEORGIA		C 18.47	
GEORGIA CTR.	B 18.00		
GLOVER	C 12.50	C 16.65	B 19.78
GORDEN		C 16.93	
GORDEN LANDING	B 22.00*		
GOULDS		C 16.76	
GOULDS MILLS	B 18.00		
GRAFTON	C 14.65	C 19.52	B 22.00
GRAND		C 14.28	
GRAND ISLE	B 17.16	B 22.00	
GRAND ISLE STA.	B 22.00*		
GRANVILLE	C 17.84	C 22.00	
GROTON	C 12.67	C 16.88	B 20.24
GUILDHALL	C 17.90	C 22.00	
GUILFORD	C 15.88	C 21.17	B 22.00
HANCOCK	C 14.97	C 19.95	B 22.00
HARDWICK	C 16.53	C 22.00	

TOWN	SERIES/TEXT DIMENSIONS 3"	4"	6"
HARMONYVILLE	B 18.00	B 26.00*	
HARTFORD	C 16.96	C 22.00	
HARTLAND	C 16.64	B 17.95	
HARTLAND FOUR CORS.	SEE NOTE A		
HARTWELLVILLE	B 22.00*	B 26.00*	
HAVEN		C 13.55	
HEARTWELLVILLE	B 22.00*	B 26.00*	
HERO		C 10.87	
HIGHGATE		C 20.74	
HIGHGATE CTR.	B 18.00		
HIGHGATE FALLS	B 18.00		
HIGHGATE SPRS.	B 18.00		
HILL		C 9.100	
HINESBURG	C 18.00	C 22.00	
HORTONIA	C 16.22	C 21.62	
HUBBARDTON	B 17.56	B 22.00	
HYDEVILLE	C 17.53	C 22.00	
HYDE PARK		B 22.00	
IRA	C 5.070	C 6.760	C 10.14
IRASBURG	C 16.17	C 21.57	
IRASVILLE	C 16.62	C 22.00	
ISLAND		C 15.04	
ISLAND POND	B 18.00		
ISLE		C 9.100	
JACKSONVILLE	B 18.00	B 22.00	
JAMAICA	C 14.12	C 18.81	B 22.00
JAY	C 5.930	C 7.890	C 11.85
JEFFERSONVILLE	B 22.00*	B 26.00*	
JERICHO	C 13.61	C 18.14	B 22.00
JOHNSON	C 15.19	C 20.25	B 22.00
JONESVILLE	C 18.00	B 21.28	
JUNCTION		C 20.95	
KEELER		C 15.73	
KEELER BAY	C 18.00		
KIRBY		C 12.65	
KIRBY CORS.	B 18.00		
LAKE		C 10.25	
LAKE ELMORE	B 18.00	B 22.00	
LARABEES		C 21.98	
LARABEES PT.	B 18.00		
LEICESTER	C 17.01	C 22.00	
LEMINGTON	C 18.00	C 22.00	
LOAF		C 10.82	
LINE		C 9.100	
LONDONDERRY	B 18.00	B 26.00*	
LOWER		C 14.18	
LOWER GRANVILLE	B 22.00*		
LOWER PLAIN	B 18.00		
LUDLOW	C 13.04	C 17.38	B 20.99
LUNENBURG	C 18.00	B 20.38	
LYNDON	C 12.47	C 16.62	B 20.11
LYNDON CTR.	B 18.00		
LYNDONVILLE	B 17.56	B 22.00	
MAIDSTONE	C 18.00	C 22.00	
MALLETTS		C 21.30	
MALLETTS BAY	B 18.00		
MANCHESTER	C 18.00	B 22.00	
MANCHESTER CTR.	B 22.00*		
MANCHESTER DEPOT	SEE NOTE A		
MANCHESTER VIL.	B 18.00		
MAQUAM	C 13.67	C 18.20	B 22.00
MARSHFIELD	C 18.00	B 21.67	
MCINDOE		C 18.73	
MCINDOE FALLS	B 22.00*		
MENDON	C 13.00	C 17.33	B 20.66
MIDDLEBURY	B 16.74	B 22.00	
MIDDLESEX	C 18.00	C 22.00	
MIDDLETOWN		B 22.00	
MIDDLETOWN SPRS.	B 22.00*		
MILL		C 9.500	
MILLS		C 12.36	
MILL VILLAGE	B 18.00		
MONTGOMERY	B 17.78	B 22.00	
MONTGOMERY CTR.	B 22.00*		
MONTPELIER	B 16.00	B 21.32	
MORETOWN	C 17.69	C 22.00	B 22.00
MORGAN	C 13.25	C 17.66	
MORGAN CTR.	B 18.00		
MORRISVILLE	B 17.31	B 22.00	
MORSES		C 17.33	
MORSES LINE	B 18.00		

*** ADJUST BORDER TO CENTER TEXT AND MILEAGE**

NOTE A

THESE TEXTS MUST BE REDUCED TO 2" SERIES B:

BRIDGEWATER CORS. 18.00
CHECKERBERRY VIL. 18.00
HARTLAND FOUR CORS. 18.00
MANCHESTER DEPOT 18.00

TEXT LAYOUT DIMENSIONS ARE BASED ON THE "LETTER & NUMERAL WIDTHS AND SPACE" TABLES FOUND IN THE "STANDARD HIGHWAY SIGNS" BOOKLET. MINOR VARIATIONS IN TEXT DIMENSIONS ARE ACCEPTABLE BASED ON INDIVIDUAL MANUFACTURER'S LETTER FABRICATION. SIGNIFICANT CHANGES WHICH AFFECT SIGN APPEARANCE SHALL BE BROUGHT TO THE ATTENTION OF THE VAOT'S TRAFFIC AND SAFETY DIVISION, BEFORE FABRICATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

FLAT SHEET ALUMINUM	0.080"
HIGH DENSITY OVERLAID PLYWOOD	1/2"
GALVANIZED FLAT SHEET STEEL	16 GAGE

THE REFLECTIVE MATERIAL SHALL BE A SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT AND BORDER SHALL BE CUT-OUT REFLECTORIZED LETTERS. ALL REFLECTIVE SHEETING SHALL MEET THE MINIMUM REQUIREMENTS OF AASHTO TYPE II.

COLORS

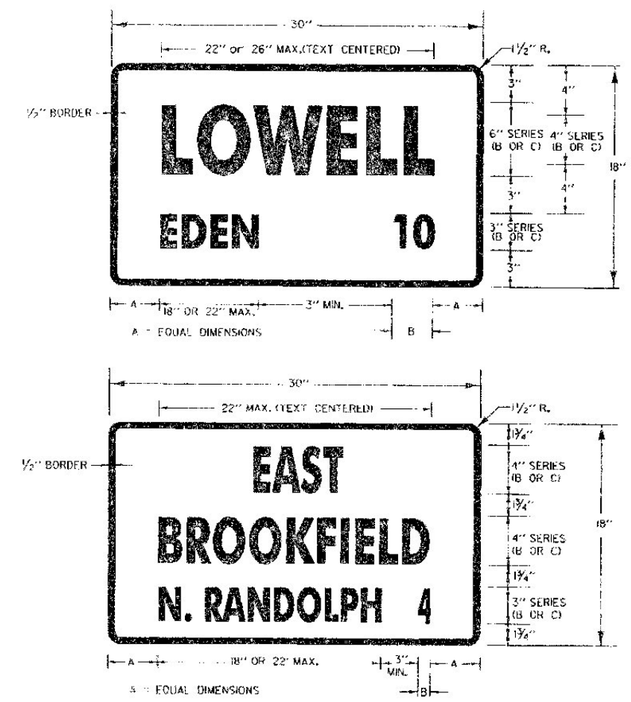
SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT AND BORDER ON A REFLECTORIZED GREEN BACKGROUND.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS APPROVED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

SIGNS SHALL MEET THE STATE SPECIFICATIONS FOR "TRAFFIC SIGNS". SEE THE APPROPRIATE STANDARD SHEETS FOR SIGN OFFSET PLACEMENT AND POST INFORMATION.



OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

OCT. 21, 1992 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

VILLAGE SIGNS
A - M

/traf/std/stdel28a.dgn : stdel28a.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-128 A

TOWN	SERIES/TEXT DIMENSIONS 3"	4"	6"
ADDISON	C 14.12	C 18.83	B 22.00
ALBANY	C 12.93	C 17.23	B 21.38
ALBURG	C 12.71	C 16.95	B 20.52
ALBURG CTR.	B 18.00		
AMSDEN	C 13.14	C 17.52	B 21.13
ARLINGTON	C 18.00	C 22.00	
ASCUTNEY	C 16.81	C 22.00	
ATHENS	C 12.24	C 16.31	B 19.64
AVERILL	C 13.21	C 17.60	B 21.25
BAKERSFIELD	B 17.57	B 22.00	
BARNARD	C 15.23	C 20.31	B 22.00
BARNET	C 12.41	C 16.54	B 19.94
BARRE	C 10.57	C 14.09	C 21.13
BARTON	C 12.68	C 16.90	B 20.48
BAY		C 8.080	
BEANVILLE	C 17.53	C 22.00	
BEECHER		C 19.12	
BEECHER FALLS	B 22.00•		
BELLOWS		C 19.88	
BELLOWS FALLS	B 22.00•		
BELVIDERE		C 22.00	
BELVIDERE CTR.	B 18.00		
BELVIDERE CORS.	B 22.00•		
BENNINGTON	C 18.00	B 21.75	
BERKSHIRE		C 22.00	
BERLIN		C 14.99	
BETHEL	C 11.89	C 15.85	C 22.00
BLOOMFIELD	C 18.00	B 21.44	
BOLTON	C 12.19	C 16.24	C 22.00
BOLTONVILLE	B 17.18	B 22.00	
BOMOSEEN	C 17.25	C 22.00	
BONDVILLE	C 17.82	C 22.00	
BOW		B 7.200	
BOWLSVILLE	C 18.00	B 21.58	
BRADFORD	C 17.35	C 22.00	
BRADFORD CTR.	B 22.00•		
BRAINTREE		C 22.00	
BRANDON	C 15.22	C 20.29	B 22.00
BRATTLEBORO	B 18.01	B 22.00	
BREAD		C 13.87	
BREAD LOAF	B 17.95		
BRIDGEWATER	B 17.76	B 22.00	
BRIDGEWATER CORS.	SEE NOTE A		
BRIDPORT	C 16.02	C 21.36	
BRIGHTON		C 21.36	
BRISTOL	C 13.61	C 18.14	B 21.88
BROOKFIELD	C 18.00	B 21.29	
BROWNSVILLE	B 18.00	B 22.00	
BRUNSWICK		C 22.00	
BRUNSWICK SPRS	B 22.00•		
BURKE		C 13.95	
BURLINGTON	C 18.00	B 21.75	
CALAIS		C 14.79	
CAMBRIDGE	C 18.00	C 22.00	
CAMBRIDGE JCT.	B 22.00•		
CAMBRIDGEPORT	B 22.00•	B 26.00•	
CANAAN	C 12.57	C 16.75	B 20.76
CASTLETON	B 14.67	C 22.00	
CASTLETON CORS.	B 22.00•		
CAVENDISH	C 17.87	C 22.00	
CENTER		C 15.92	
CTR. RUTLAND	B 18.00		
CHARLESTON		B 22.00	
CHARLOTTE	C 18.00	C 22.00	
CHECKERBERRY		B 26.00•	
CHECKERBERRY VIL.	SEE NOTE A		
CHELSEA	C 14.41	C 19.21	B 22.00
CHESTER	C 14.22	C 18.95	B 22.00
CHESTER DEPOT	B 22.00•		
CHIMNEY		C 18.70	
CHIMNEY COR.	B 18.00		
CHIMNEY POINT	B 18.00		
CLARENDON		B 20.23	
COLBYVILLE	C 18.00	B 20.95	
COLCHESTER	B 16.47	B 21.96	
CONCORD	C 15.20	C 20.27	B 22.00
CORNER		C 16.93	
CORNERS		C 19.79	
CORNWALL	C 17.23	C 22.00	
COVENTRY	C 16.90	C 22.51	
CUTTINGSVILLE	B 18.00	B 26.00•	
DALE		C 10.70	
DANVILLE	C 15.57	C 20.74	

TOWN	SERIES/TEXT DIMENSIONS 3"	4"	6"
DEPOT		C 13.54	
DERBY		C 14.09	
DERBY CENTER	B 18.00		
DERBY LINE	C 18.00		
DORSET	C 12.27	C 16.35	C 22.00
DOVER		C 13.81	
DOWNERS	C 15.20	C 20.26	
DUXBURY		C 20.49	
EAST (W/SERIES B VILLAGE NAME)		B 8.410	
(W/SERIES C VILLAGE NAME)		C 10.48	
EAST ALBURG	B 18.00		
EAST BARNET	B 18.00		
EAST BARRE	B 17.86		
E. BERKSHIRE	B 18.00		
E. BRAINTREE	B 18.00		
E. BRIGHTON	B 17.79		
E. BROOKFIELD	B 18.00		
EAST BURKE	B 17.69		
EAST CALAIS	B 18.00		
E. CHARLESTON	B 18.00		
E. CLARENDON	B 18.00		
EAST DORSET	B 18.00		
E. FAIRFIELD	B 18.00		
E. FRANKLIN	B 17.59		
E. GRANVILLE	B 18.00		
EAST HAVEN	B 17.45		
E. HIGHGATE	B 17.47		
E. JAMAICA	B 16.74		
E. JOHNSON	B 17.25		
E. MIDDLEBURY	B 18.00		
E. MONTPELIER	B 18.00		
E. RANDOLPH	B 18.00		
E. RICHFORD	B 17.79		
EAST RUPERT	B 18.00		
E. RYEGATE	B 16.38		
E. ST. JOHNSBURY	B 22.00•		
E. THETFORD	B 17.88		
E. WALLINGFORD	B 22.00•		
EDEN	C 7.920	C 10.56	
EDEN MILLS	B 16.63		
ELMORE		C 16.95	
ELY	C 5.550	C 7.390	C 11.10
ENOSBURG		C 22.00	
ENOSBURG FALLS	B 22.00•		
ESSEX		C 13.57	
ESSEX CENTER	B 18.00		
ESSEX JCT.	B 16.02		
EVANSVILLE	C 18.00	B 20.78	
FAIR		C 9.210	
FAIR HAVEN	B 16.82		
FAIRFAX	C 13.52	C 18.01	B 22.00
FAIRFIELD	C 16.25	C 21.65	
FAIRLEE	C 13.05	C 17.39	B 21.03
FALLS		C 13.15	
FELCHVILLE	C 18.00	B 20.27	
FERNVILLE	C 17.32	C 22.00	
FERRISBURGH	B 18.00	B 22.00	
FLAT		C 9.610	
FLATS		C 12.47	
FONDA	C 10.66	C 14.21	C 21.32
FOREST		C 16.38	
FOREST DALE	B 18.00		
FOUR CORNERS		B 26.00•	
FRANKLIN	C 15.64	C 20.85	B 22.00
GASSETTS	C 16.10	C 21.45	B 22.00
GAYSVILLE	C 17.61	C 22.00	
GEORGIA		C 18.47	
GEORGIA CTR.	B 18.00		
GLOVER	C 12.50	C 16.65	B 19.78
GORDEN		C 16.93	
GORDEN LANDING	B 22.00•		
GOULDS		C 16.76	
GOULDS MILLS	B 18.00		
GRAFTON	C 14.65	C 19.52	B 22.00
GRAND		C 14.28	
GRAND ISLE	B 17.16	B 22.00	
GRAND ISLE STA.	B 22.00•		
GRANVILLE	C 17.84	C 22.00	
GROTON	C 12.67	C 16.88	B 20.24
GUILDHALL	C 17.90	C 22.00	
GUILFORD	C 15.88	C 21.17	B 22.00
HANCOCK	C 14.97	C 19.95	B 22.00
HARDWICK	C 16.53	C 22.00	

TOWN	SERIES/TEXT DIMENSIONS 3"	4"	6"
HARMONYVILLE	B 18.00	B 26.00•	
HARTFORD	C 16.96	C 22.00	
HARTLAND	C 16.64	B 17.95	
HARTLAND FOUR CORS.	SEE NOTE A		
HARTWELLVILLE	B 22.00•	B 26.00•	
HAVEN		C 13.55	
HEARTWELLVILLE	B 22.00•	B 26.00•	
HERO		C 10.87	
HIGHGATE		C 20.74	
HIGHGATE CTR.	B 18.00		
HIGHGATE FALLS	B 18.00		
HIGHGATE SPRS.	B 18.00		
HILL		C 9.100	
HINESBURG	C 18.00	C 22.00	
HORTONIA	C 16.22	C 21.62	
HUBBARDTON	B 17.56	B 22.00	
HYDEVILLE	C 17.53	C 22.00	
HYDE PARK		B 22.00	
IRA	C 5.070	C 6.760	C 10.14
IRASBURG	C 16.17	C 21.57	
IRASVILLE	C 16.62	C 22.00	
ISLAND		C 15.04	
ISLAND POND	B 18.00		
ISLE		C 9.100	
JACKSONVILLE	B 18.00	B 22.00	
JAMAICA	C 14.12	C 18.81	B 22.00
JAY	C 5.930	C 7.890	C 11.85
JEFFERSONVILLE	B 22.00•	B 26.00•	
JERICHO	C 13.61	C 18.14	B 22.00
JOHNSON	C 15.19	C 20.25	B 22.00
JONESVILLE	C 18.00	B 21.28	
JUNCTION		C 20.95	
KEELER		C 15.73	
KEELER BAY	C 18.00		
KIRBY		C 12.65	
KIRBY CORS.	B 18.00		
LAKE		C 10.25	
LAKE ELMORE	B 18.00	B 22.00	
LARABEES		C 21.98	
LARABEES PT.	B 18.00		
LEICESTER	C 17.01	C 22.00	
LEMINGTON	C 18.00	C 22.00	
LOAF		C 10.82	
LINE		C 9.100	
LONDONDERRY	B 18.00	B 26.00•	
LOWER		C 14.18	
LOWER GRANVILLE	B 22.00•		
LOWER PLAIN	B 18.00		
LUDLOW	C 13.04	C 17.38	B 20.99
LUNENBURG	C 18.00	B 20.38	
LYNDON	C 12.47	C 16.62	B 20.11
LYNDON CTR.	B 18.00		
LYNDONVILLE	B 17.56	B 22.00	
MAIDSTONE	C 18.00	C 22.00	
MALLETTS		C 21.30	
MALLETTS BAY	B 18.00		
MANCHESTER	C 18.00	B 22.00	
MANCHESTER CTR.	B 22.00•		
MANCHESTER DEPOT	SEE NOTE A		
MANCHESTER VIL.	B 18.00		
MAQUAM	C 13.67	C 18.20	B 22.00
MARSHFIELD	C 18.00	B 21.67	
MCINDOE		C 18.73	
MCINDOE FALLS	B 22.00•		
MENDON	C 13.00	C 17.33	B 20.66
MIDDLEBURY	B 16.74	B 22.00	
MIDDLESEX	C 18.00	C 22.00	
MIDDLETOWN		B 22.00	
MIDDLETOWN SPRS.	B 22.00•		
MILL		C 9.500	
MILLS		C 12.36	
MILL VILLAGE	B 18.00		
MONTGOMERY	B 17.78	B 22.00	
MONTGOMERY CTR.	B 22.00•		
MONTPELIER	B 16.00	B 21.32	
MORETOWN	C 17.69	C 22.00	B 22.00
MORGAN	C 13.25	C 17.66	
MORGAN CTR.	B 18.00		
MORRISVILLE	B 17.31	B 22.00	
MORSES		C 17.33	
MORSES LINE	B 18.00		

• ADJUST BORDER TO CENTER TEXT AND MILEAGE

NOTE A

THESE TEXTS MUST BE REDUCED TO 2'' SERIES B:

BRIDGEWATER CORS.	18.00
CHECKERBERRY VIL.	18.00
HARTLAND FOUR CORS.	18.00
MANCHESTER DEPOT	18.00

TEXT LAYOUT DIMENSIONS ARE BASED ON THE ''LETTER & NUMERAL WIDTHS AND SPACE'' TABLES FOUND IN THE ''STANDARD HIGHWAY SIGNS'' BOOKLET. MINOR VARIATIONS IN TEXT DIMENSIONS ARE ACCEPTABLE BASED ON INDIVIDUAL MANUFACTURER'S LETTER FABRICATION. SIGNIFICANT CHANGES WHICH AFFECT SIGN APPEARANCE SHALL BE BROUGHT TO THE ATTENTION OF THE VAOT'S TRAFFIC AND SAFETY DIVISION, BEFORE FABRICATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

FLAT SHEET ALUMININUM	0.080''
HIGH DENSITY OVERLAID PLYWOOD	1/2 ''
GALVANIZED FLAT SHEET STEEL	16 GAGE

THE REFLECTIVE MATERIAL SHALL BE A GREEN REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT AND BORDER SHALL BE CUT-OUT REFLECTORIZED WHITE OR SILVER LETTERS.

COLORS

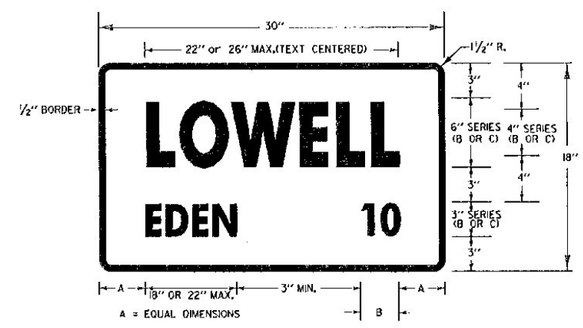
SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT ON A REFLECTORIZED GREEN BACKGROUND.

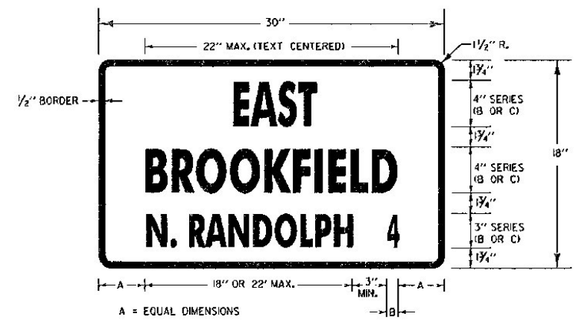
LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS APPROVED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

SIGNS SHALL MEET THE STATE SPECIFICATIONS FOR ''TRAFFIC SIGNS''. SEE THE APPROPRIATE STANDARD SHEETS FOR SIGN OFFSET PLACEMENT AND POST INFORMATION.





REVISIONS AND CORRECTIONS

APPROVED: OCT 21, 1992
DATE

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

VILLAGE SIGNS
A - M

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-128 A

TOWN	SERIES/TEXT DIMENSIONS 3"	4"	6"
NEW HAVEN	C 18.00	B 21.68	
N. HAVEN JCT.	B 18.00		
NEWBURY	C 15.43	C 20.57	
NEWFANE	C 14.86	C 19.80	B 22.00
NEWPORT	C 15.02	C 20.02	
NEWPORT CTR.	B 18.00		
NORTH (W/SERIES	B (VILLAGE NAME)	B 11.08	
(W/SERIES	C (VILLAGE NAME)	C 13.90	
N. BENNINGTON	B 18.00		
N. CLARENDON	B 18.00		
N. CONCORD	C 18.00		
N. DORSET	C 17.75		
N. ENOSBURG	B 18.00		
N. FAIRFAX	C 18.00		
NORTHFIELD	C 18.00	B 21.07	
NORTHFIELD CTR.	B 22.00*		
NORTHFIELD FALLS	SEE NOTE A		
N. HARTLAND	B 18.00		
NORTH HERO	B 17.79		
N. HYDE PARK	B 18.00		
N. MONTPELIER	B 18.00		
N. PAWLET	C 17.77		
N. POWNAL	C 18.00		
N. RANDOLPH	B 18.00		
NORTH RUPERT	B 18.00		
N. SHELDON	C 18.00		
N. THETFORD	B 18.00		
NORTH TROY	B 18.00		
N. TUNBRIDGE	B 18.00		
N. WESTMINSTER	B 22.00*		
N. WINDHAM	B 17.16		
NORTON	C 12.79	C 17.05	B 20.47
NORWICH	C 14.37	C 19.16	B 22.00
OLD		B 6.350	
OLD BENNINGTON	B 22.00*		
ORANGE	C 12.93	C 17.24	B 20.94
ORLEANS	C 14.77	C 19.69	B 22.00
ORWELL	C 12.78	C 17.02	B 20.48
PASSUMPSIC	B 16.91	B 22.00	
PAWLET	C 12.29	C 16.37	B 19.82
PERKINSVILLE	B 18.00	B 22.00	
PIERCES		C 17.68	
PIERCES COR.	B 18.00		
PITTSFIELD	C 17.85	C 22.00	
PITTSFORD	C 17.42	C 22.00	
PITTSFORD MILLS	B 22.00*		
PLAIN		C 12.01	
PLAINFIELD	C 18.00	C 22.00	
PLYMOUTH	C 17.05	C 22.00	
PLYMOUTH UNION	B 22.00*		
POINT		C 12.27	
POMPANOOSUC	B 18.00	B 26.00*	
POND		C 11.23	
POST		C 10.70	
POST MILLS	C 18.00		
POULTNEY	C 16.44	C 21.91	
POWNAL	C 13.17	C 17.54	B 21.47
PROCTOR	C 14.65	C 19.52	B 22.00
PROCTORSVILLE	B 18.00	B 26.00*	
PUTNAMVILLE	B 17.84	B 22.00	
PUTNEY	C 12.41	C 16.54	B 19.94
RANDOLPH	C 17.22	C 22.00	
RANDOLPH CTR.	B 18.00		
RAWSONVILLE	B 18.00	B 22.00	
READSBORO	C 16.00	B 20.74	
READSBORO FALLS	SEE NOTE A		
RICHFORD	C 16.02	C 21.36	
RICHMOND	C 16.59	C 22.00	
RICKER		C 15.01	
RICKER MILLS	B 18.00		
RIPTON	C 11.48	C 15.30	C 22.00
RIVER		C 12.23	
ROBINSON	C 16.25	C 21.67	
ROCHESTER	C 18.00	C 22.00	
ROCKINGHAM	B 16.82	B 22.00	
ROCKY		C 13.84	
ROCKY DALE	B 17.91		
ROXBURY	C 15.21	C 20.27	B 22.00
ROXBURY FLAT	B 18.00		
ROYALTON	C 16.49	C 21.96	
RUPERT	C 12.46	C 16.62	B 19.81
RUTLAND	C 14.38	C 19.17	
RYEGATE		C 18.85	

TOWN	SERIES/TEXT DIMENSIONS 3"	4"	6"
ST. ALBANS	C 18.00	B 22.00	
ST. ALBANS BAY	B 18.00*		
ST. GEORGE	C 18.00		
ST. JOHNSBURY	B 22.00*	B 26.00*	
ST. JOHNSBURY CTR	SEE NOTE A		
SAXTONS		C 19.86	
SAXTONS RIVER	B 22.00*		
SPARSBURG	B 15.49	B 20.65	
SHAFTSBURY	C 18.00	B 22.00	
SHAFTSBURY CTR.	B 22.00*		
SHARON	C 12.95	C 17.26	B 20.99
SHAWVILLE	C 17.78	C 22.00	
SHEFFIELD	C 17.26	C 22.00	
SHELBURNE	C 18.00	B 20.34	
SHELDON		C 19.60	
SHELDON JCT.	B 18.00		
SHERBURNE	C 18.00	B 20.68	
SHERBURNE CTR.	B 18.00		
SHOREHAM	C 17.69	C 22.00	
SIMONSVILLE	B 17.31	B 22.00	
SIMPSONVILLE	B 18.00	B 22.00	
SOUTH (W/SERIES	B VILLAGE NAME)	B 10.93	
(W/SERIES	C VILLAGE NAME)	C 13.73	
SOUTH ALBURG	B 18.00		
SOUTH BARRE	B 18.00		
S. BURLINGTON	B 18.00		
S. DORSET	C 17.75		
S. DUXBURY	B 17.69		
SOUTH HERO	B 17.68		
S. HINESBURG	B 18.00		
S. LONDONDERRY	B 18.00		
S. NEWBURY	B 17.57		
S. NORTHFIELD	B 18.00		
S. RANDOLPH	B 18.00		
S. ROYALTON	B 18.00		
S. SHAFTSBURY	B 22.00*		
S. STARKSBORO	B 22.00*		
S. STRAFFORD	B 18.00		
S. TUNBRIDGE	B 18.00		
SOUTH VERNON	B 18.00		
SOUTH WALDEN	B 18.00		
S. WALLINGFORD	B 22.00*		
S. WOODBURY	B 18.00		
S. WOODSTOCK	B 18.00		
SPRINGFIELD	B 17.02	B 22.00	
SPRINGS		C 18.57	
STAMFORD	C 17.05	C 22.00	
STARKSBORO	B 17.17	B 22.00	
STATION		C 17.21	
STEVENS		C 18.98	
STEVENS MILLS	B 18.00		
STOCKBRIDGE	B 17.85	B 22.00	
STOWE	C 10.65	C 14.18	C 21.29
STRAFFORD		B 20.29	
SUDBURY	C 15.37	C 20.51	B 22.00
SWANTON	C 15.1	C 20.12	B 22.00
TAFTS		C 12.70	
TAFTS CORNER	B 18.00		
TAFTSVILLE	C 18.00	B 20.10	
TALCVILLE	C 16.93	C 22.00	
TARRETTVILLE	B 18.00	B 22.00	
THETFORD		C 21.86	
THETFORD CTR.	B 18.00		
THETFORD HILL	B 18.00		
TINMOUTH	C 16.06	C 21.40	
TOPSHAM		C 20.33	
TOWNSHEND	C 18.00	B 21.16	
TROY	C 8.270	C 11.01	C 16.53
TUNBRIDGE	C 18.00	C 22.00	
TYSON	C 10.20	C 13.59	C 20.40
UNDERHILL	C 17.91	C 22.00	
UNDERHILL FLATS	B 22.00*		
UNION		C 12.80	
VERGENNES	C 18.00	B 20.04	
VERNON	C 12.89	C 17.18	B 20.52
VERSHIRE	C 16.85	C 21.13	
VILLAGE		C 17.60	
WAITSFIELD	C 18.00	C 22.00	
WAITS		C 12.48	
WAITS RIVER	B 18.00		
WALDEN	C 12.72	C 16.95	C 20.63
WALDEN STA.	B 18.00		

TOWN	SERIES/TEXT DIMENSIONS 3"	4"	6"
WALLACE		C 19.31	
WALLACE POND	B 22.00*		
WALLINGFORD	B 18.00	B 22.00	
WALTHAM	C 14.95	C 19.90	
WARDSBORO	C 18.00	B 21.54	
WARDSBORO CTR.	B 22.00*		
WASHINGTON	B 16.98	B 22.00	
WATERBURY	C 18.00	B 20.95	
WATERVILLE	C 18.00	B 20.90	
WEATHERSFIELD		B 26.00*	
WEATHERSFIELD BOW	SEE NOTE A		
WELLS	C 10.41	C 13.87	C 18.35
WELLS RIVER	B 18.00		
WEST (W/SERIES	B VILLAGE NAME)	B 8.990	
(W/SERIES	C VILLAGE NAME)	C 11.20	
W. ADDISON	C 18.00		
W. ARLINGTON	B 18.00		
W. BERKSHIRE	B 18.00		
WEST BERLIN	B 18.00		
W. BRAINTREE	B 18.00		
W. BRATTLEBORO	B 22.00*		
W. BRIDGEWATER	B 22.00*		
WEST BURKE	B 18.00		
W. CHARLESTON	B 22.00*		
W. CORNWALL	B 18.00		
W. DANVILLE	B 17.78		
WEST DOVER	B 17.94		
W. ENOSBURG	B 18.00		
WEST FAIRLEE	B 18.00		
WESTFIELD	C 17.62	C 22.00	
WESTFORD	C 17.19	C 22.00	
WEST GROTON	B 18.00		
W. HARTFORD	B 18.00		
WESTMINSTER	B 18.00	B 22.00	
WESTMORE	C 17.62	C 22.00	
WESTON	C 12.92	C 17.21	
WEST PAWLET	B 18.00		
W. RUPERT	B 18.00		
W. RUTLAND	B 17.25		
W. SWANTON	B 17.98		
W. TOPSHAM	B 17.51		
W. TOWNSHEND	B 18.00		
W. WARDSBORO	B 22.00*		
W. WOODSTOCK	B 18.00		
WEYBRIDGE		C 22.00	
WEYBRIDGE HILL	B 22.00*		
WHEELOCK	C 17.07	C 22.00	
WHITE RIVER		B 22.00	
WH. RIVER JCT.	B 18.00		
WHITING	C 12.92	C 17.22	B 21.18
WHITINGHAM	C 18.00	B 21.82	
WILDER	C 11.73	C 15.63	C 22.00
WILLIAMSTOWN	B 18.00	B 26.00*	
WILLISTON	C 17.02	C 22.00	
WILMINGTON	C 18.00	B 21.47	
WINDHAM		C 19.75	
WINDSOR	C 14.37	C 19.16	B 22.00
WINOOSKI	C 15.39	C 20.51	B 22.00
WOLCOTT	C 14.68	C 19.55	B 22.00
WOODBURY	C 18.00	C 22.00	
WOODFORD	C 17.91	C 22.00	
WOODSTOCK	C 18.00	B 21.20	
WORCESTER	C 18.00	B 20.52	

NOTE A

THESE TEXTS MUST BE REDUCED TO 2" SERIES B:

NORTHFIELD FALLS	17.79
READSBORO FALLS	18.00
ST. JOHNSBURY CTR.	18.00
WEATHERSFIELD BOW	18.00

TEXT LAYOUT DIMENSIONS ARE BASED ON THE "LETTER & NUMERAL WIDTHS AND SPACE" TABLES FOUND IN THE "STANDARD HIGHWAY SIGNS" BOOKLET. MINOR VARIATIONS IN TEXT DIMENSIONS ARE ACCEPTABLE BASED ON INDIVIDUAL MANUFACTURER'S LETTER FABRICATION. SIGNIFICANT CHANGES WHICH AFFECT SIGN APPEARANCE SHALL BE BROUGHT TO THE ATTENTION OF THE VAOT'S TRAFFIC AND SAFETY DIVISION, BEFORE FABRICATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

FLAT SHEET ALUMINUM	0.080"
HIGH DENSITY OVERLAID PLYWOOD	1/2"
GALVANIZED FLAT SHEET STEEL	16 GAGE

THE REFLECTIVE MATERIAL SHALL BE A SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT AND BORDER SHALL BE CUT-OUT REFLECTORIZED LETTERS. ALL REFLECTIVE SHEETING SHALL MEET THE MINIMUM REQUIREMENTS OF AASHTO TYPE II.

COLORS

SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT AND BORDER ON A REFLECTORIZED GREEN BACKGROUND.

LETTERING

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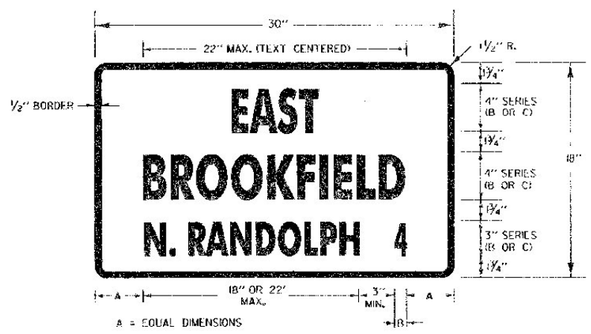
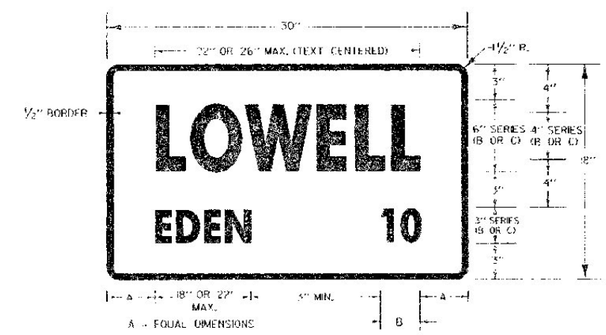




* ADJUST BORDER TO CENTER TEXT AND MILEAGE

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

OCT. 21, 1992 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

VILLAGE SIGNS
N - W

/traf/std/std128b.dgn : std128b.

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-128B

TOWN	SERIES/TEXT DIMENSIONS 3"	4"	6"
NEW HAVEN	C 18.00	B 21.68	
N. HAVEN JCT.	B 18.00		
NEWBURY	C 15.43	C 20.57	
NEWFANE	C 14.86	C 19.80	B 22.00
NEWPORT	C 15.02	C 20.02	
NEWPORT CTR.	B 18.00		
NORTH (W/SERIES	B (VILLAGE NAME)	B 11.08	
(W/SERIES	C (VILLAGE NAME)	C 13.90	
N. BENNINGTON	B 18.00		
N. CLARENDON	B 18.00		
N. CONCORD	C 18.00		
N. DORSET	C 17.75		
N. ENOSBURG	B 18.00		
N. FAIRFAX	C 18.00		
NORTHFIELD	C 18.00	B 21.07	
NORTHFIELD CTR.	B 22.00*		
NORTHFIELD FALLS	SEE NOTE A		
N. HARTLAND	B 18.00		
NORTH HERO	B 17.79		
N. HYDE PARK	B 18.00		
N. MONTPELIER	B 18.00		
N. PAWLET	C 17.77		
N. POWNAL	C 18.00		
N. RANDOLPH	B 18.00		
NORTH RUPERT	B 18.00		
N. SHELDON	C 18.00		
N. THETFORD	B 18.00		
NORTH TROY	B 18.00		
N. TUNBRIDGE	B 18.00		
N. WESTMINSTER	B 22.00*		
N. WINDHAM	B 17.16		
NORTON	C 12.79	C 17.05	B 20.47
NORWICH	C 14.37	C 19.16	B 22.00
OLD		B 6.350	
OLD BENNINGTON	B 22.00*		
ORANGE	C 12.93	C 17.24	B 20.94
ORLEANS	C 14.77	C 19.69	B 22.00
ORWELL	C 12.78	C 17.02	B 20.48
PASSUMPSIC	B 16.91	B 22.00	
PAWLET	C 12.29	C 16.37	B 19.82
PERKINSVILLE	B 18.00	B 22.00	
PIERCES		C 17.68	
PIERCES COR.	B 18.00		
PITTSFIELD	C 17.85	C 22.00	
PITTSFORD	C 17.42	C 22.00	
PITTSFORD MILLS	B 22.00*		
PLAIN		C 12.01	
PLAINFIELD	C 18.00	C 22.00	
PLYMOUTH	C 17.05	C 22.00	
PLYMOUTH UNION	B 22.00*		
POINT		C 12.27	
POMPANOOSUC	B 18.00	B 26.00*	
POND		C 11.23	
POST		C 10.70	
POST MILLS	C 18.00		
POULTNEY	C 16.44	C 21.91	
POWNAL	C 13.17	C 17.54	B 21.47
PROCTOR	C 14.65	C 19.52	B 22.00
PROCTORSVILLE	B 18.00	B 26.00*	
PUTNAMVILLE	B 17.84	B 22.00	
PUTNEY	C 12.41	C 16.54	B 19.94
RANDOLPH	C 17.22	C 22.00	
RANDOLPH CTR.	B 18.00		
RAWSONVILLE	B 18.00	B 22.00	
READSBORO	C 18.00	B 20.74	
READSBORO FALLS	SEE NOTE A		
RICHFORD	C 16.02	C 21.36	
RICHMOND	C 16.53	C 22.00	
RICKER		C 15.01	
RICKER MILLS	B 18.00		
RIPTON	C 11.48	C 15.30	C 22.00
RIVER		C 12.23	
ROBINSON	C 16.25	C 21.67	
ROCHESTER	C 18.00	C 22.00	
ROCKINGHAM	B 16.82	B 22.00	
ROCKY		C 13.84	
ROCKY DALE	B 17.91		
ROXBURY	C 15.21	C 20.27	B 22.00
ROXBURY FLAT	B 18.00		
ROYALTON	C 16.49	C 21.96	
RUPERT	C 12.46	C 16.62	B 19.81
RUTLAND	C 14.38	C 19.17	
RYEGATE		C 18.95	

TOWN	SERIES/TEXT DIMENSIONS 3"	4"	6"
ST. ALBANS	C 18.00	B 22.00	
ST. ALBANS BAY	B 18.00*		
ST. GEORGE	C 18.00		
ST. JOHNSBURY	B 22.00*	B 26.00*	
ST. JOHNSBURY CTR	SEE NOTE A		
SAXTONS		C 19.86	
SAXTONS RIVER	B 22.00*		
SEARSBURG	B 15.49	B 20.65	
SHAFTSBURY	C 18.00	B 22.00	
SHAFTSBURY CTR.	B 22.00*		
SHARON	C 12.95	C 17.26	B 20.99
SHAWVILLE	C 17.78	C 22.00	
SHEFFIELD	C 17.26	C 22.00	
SHELBURNE	C 18.00	B 20.34	
SHELDON		C 19.60	
SHELDON JCT.	B 18.00		
SHERBURNE	C 18.00	B 20.68	
SHERBURNE CTR.	B 18.00		
SHOREHAM	C 17.69	C 22.00	
SIMONSVILLE	B 17.31	B 22.00	
SIMPSONVILLE	B 18.00	B 22.00	
SOUTH (W/SERIES	B VILLAGE NAME)	B 10.93	
(W/SERIES	C VILLAGE NAME)	C 13.73	
SOUTH ALBURG	B 18.00		
SOUTH BARRE	B 18.00		
S. BURLINGTON	B 18.00		
S. DORSET	C 17.75		
S. DUXBURY	B 17.69		
SOUTH HERO	B 17.68		
S. HINESBURG	B 18.00		
S. LONDONDERRY	B 18.00		
S. NEWBURY	B 17.57		
S. NORTHFIELD	B 18.00		
S. RANDOLPH	B 18.00		
S. ROYALTON	B 18.00		
S. SHAFTSBURY	B 22.00*		
S. STARKSBORO	B 22.00*		
S. STRAFFORD	B 18.00		
S. TUNBRIDGE	B 18.00		
SOUTH VERNON	B 18.00		
SOUTH WALDEN	B 18.00		
S. WALLINGFORD	B 22.00*		
S. WOODBURY	B 18.00		
S. WOODSTOCK	B 18.00		
SPRINGFIELD	B 17.02	B 22.00	
SPRINGS		C 18.57	
STAMFORD	C 17.05	C 22.00	
STARKSBORO	B 17.17	B 22.00	
STATION		C 17.21	
STEVENS		C 18.98	
STEVENS MILLS	B 18.00		
STOCKBRIDGE	B 17.85	B 22.00	
STOWE	C 10.65	C 14.18	C 21.29
STRAFFORD		B 20.29	
SUDBURY	C 15.37	C 20.51	B 22.00
SWANTON	C 15.1	C 20.12	B 22.00
TAFTS		C 12.70	
TAFTS CORNER	B 18.00		
TAFTSVILLE	C 18.00	B 20.10	
TALCVILLE	C 16.33	C 22.00	
TARBELLVILLE	B 18.00	B 22.00	
THETFORD		C 21.86	
THETFORD CTR.	B 18.00		
THETFORD HILL	B 18.00		
TINMOUTH	C 16.06	C 21.40	
TOPSHAM		C 20.33	
TOWNSHEND	C 18.00	B 21.16	
TROY	C 8.270	C 11.01	C 16.53
TUNBRIDGE	C 18.00	C 22.00	
TYSON	C 10.20	C 13.59	C 20.40
UNDERHILL	C 17.91	C 22.00	
UNDERHILL FLATS	B 22.00*		
UNION		C 12.80	
VERGENNES	C 18.00	B 20.04	
VERNON	C 12.89	C 17.18	B 20.52
VERSHIRE	C 15.85	C 21.13	
VILLAGE		C 17.60	
WAITSFIELD	C 18.00	C 22.00	
WAITS		C 12.48	
WAITS RIVER	B 18.00		
WALDEN	C 12.72	C 16.95	C 20.63
WALDEN STA.	B 18.00		

TOWN	SERIES/TEXT DIMENSIONS 3"	4"	6"
WALLACE		C 19.31	
WALLACE POND	B 22.00*		
WALLINGFORD	B 18.00	B 22.00	
WALTHAM	C 14.95	C 19.90	
WARDSBORO	C 18.00	B 21.54	
WARDSBORO CTR.	B 22.00*		
WASHINGTON	B 16.98	B 22.00	
WATERBURY	C 18.00	B 20.95	
WATERVILLE	C 18.00	B 20.90	
WEATHERSFIELD		B 26.00*	
WEATHERSFIELD BOW	SEE NOTE A		
WELLS	C 10.41	C 13.87	C 18.35
WELLS RIVER	B 18.00		
WEST (W/SERIES	B VILLAGE NAME)	B 8.990	
(W/SERIES	C VILLAGE NAME)	C 11.20	
W. ADDISON	C 18.00		
W. ARLINGTON	B 18.00		
W. BERKSHIRE	B 18.00		
WEST BERLIN	B 18.00		
W. BRAINTREE	B 18.00		
W. BRATTLEBORO	B 22.00*		
W. BRIDGEWATER	B 22.00*		
WEST BURKE	B 18.00		
W. CHARLESTON	B 22.00*		
W. CORNWALL	B 18.00		
W. DANVILLE	B 17.78		
WEST DOVER	B 17.94		
W. ENOSBURG	B 18.00		
WEST FAIRLEE	B 18.00		
WESTFIELD	C 17.62	C 22.00	
WESTFORD	C 17.19	C 22.00	
WEST GROTON	B 18.00		
W. HARTFORD	B 18.00		
WESTMINSTER	B 18.00	B 22.00	
WESTMORE	C 17.62	C 22.00	
WESTON	C 12.92	C 17.21	
WEST PAWLET	B 18.00		
W. RUPERT	B 18.00		
W. RUTLAND	B 17.25		
W. SWANTON	B 17.98		
W. TOPSHAM	B 17.51		
W. TOWNSHEND	B 18.00		
W. WARDSBORO	B 22.00*		
W. WOODSTOCK	B 18.00		
WEYBRIDGE		C 22.00	
WEYBRIDGE HILL	B 22.00*		
WHEELOCK	C 17.07	C 22.00	
WHITE RIVER		B 22.00	
WH. RIVER JCT.	B 18.00		
WHITING	C 12.92	C 17.22	B 21.18
WHITINGHAM	C 18.00	B 21.82	
WILDER	C 11.73	C 15.63	C 22.00
WILLIAMSTOWN	B 18.00	B 26.00*	
WILLISTON	C 17.02	C 22.00	
WILMINGTON	C 18.00	B 21.47	
WINDHAM		C 19.75	
WINDSOR	C 14.37	C 19.16	B 22.00
WINOOSKI	C 15.39	C 20.51	B 22.00
WOLCOTT	C 14.68	C 19.55	B 22.00
WOODBURY	C 18.00	C 22.00	
WOODFORD	C 17.91	C 22.00	
WOODSTOCK	C 18.00	B 21.20	
WORCESTER	C 18.00	B 20.52	

* ADJUST BORDER TO CENTER TEXT AND MILEAGE

NOTE A

THESE TEXTS MUST BE REDUCED TO 2'' SERIES B:

NORTHFIELD FALLS	17.79
READSBORO FALLS	18.00
ST. JOHNSBURY CTR.	18.00
WEATHERSFIELD BOW	18.00

TEXT LAYOUT DIMENSIONS ARE BASED ON THE ''LETTER & NUMERAL WIDTHS AND SPACE'' TABLES FOUND IN THE ''STANDARD HIGHWAY SIGNS'' BOOKLET. MINOR VARIATIONS IN TEXT DIMENSIONS ARE ACCEPTABLE BASED ON INDIVIDUAL MANUFACTURER'S LETTER FABRICATION. SIGNIFICANT CHANGES WHICH AFFECT SIGN APPEARANCE SHALL BE BROUGHT TO THE ATTENTION OF THE VAOT'S TRAFFIC AND SAFETY DIVISION, BEFORE FABRICATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

FLAT SHEET ALUMININUM	0.080''
HIGH DENSITY OVERLAID PLYWOOD	1/2 ''
GALVANIZED FLAT SHEET STEEL	16 GAGE

THE REFLECTIVE MATERIAL SHALL BE A GREEN REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT AND BORDER SHALL BE CUT-OUT REFLECTORIZED WHITE OR SILVER LETTERS.

COLORS

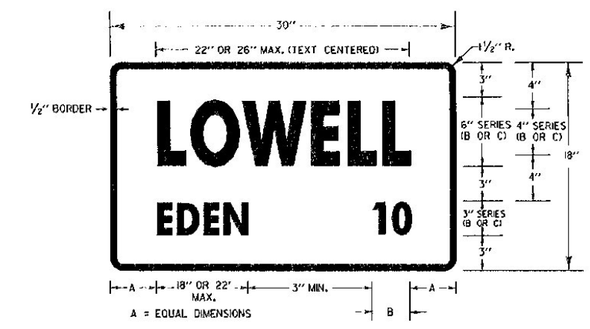
SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT ON A REFLECTORIZED GREEN BACKGROUND.

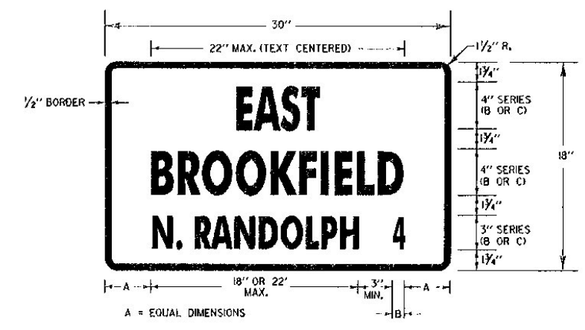
LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS APPROVED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

SIGNS SHALL MEET THE STATE SPECIFICATIONS FOR ''TRAFFIC SIGNS''. SEE THE APPROPRIATE STANDARD SHEETS FOR SIGN OFFSET PLACEMENT AND POST INFORMATION.





REVISIONS AND CORRECTIONS

APPROVED OCT 21, 1992
DATE

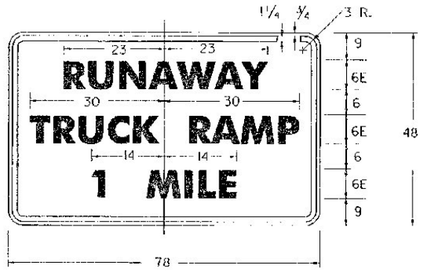
Gordon S. MacArthur
DIRECTOR OF ENGINEERING

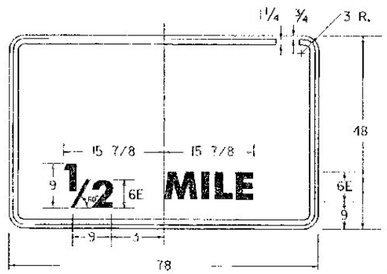
David A. Ross
TRAFFIC AND SAFETY ENGINEER

VILLAGE SIGNS
N - W

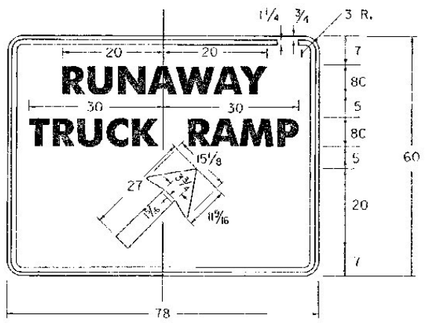
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-128 B





ALL SIGN DIMENSIONS ARE IN INCHES



COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING.

A) EXTRUDED ALUMINUM PANELS, WITH REFLECTIVE SHEETING.

B) FORMED GALVANIZED STEEL PANELS, WITH REFLECTIVE SHEETING.

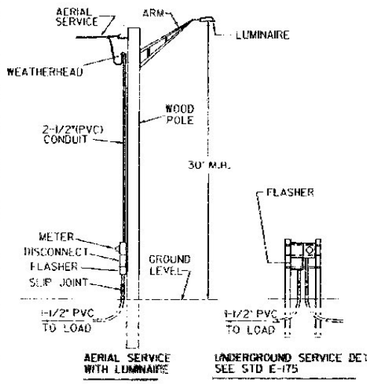
THE TEXT, BORDER AND SYMBOLS SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

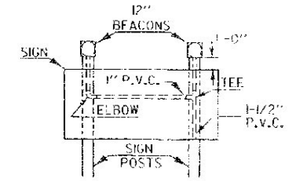
SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".



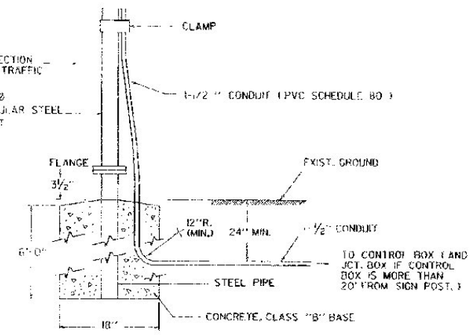
AERIAL SERVICE WITH LUMINAIRE

UNDERGROUND SERVICE DETAIL, SEE STD E-175

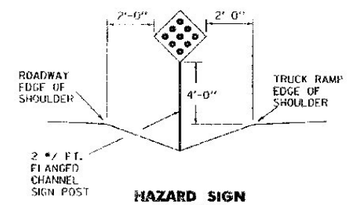


CONDUIT DETAILS BETWEEN BEACONS

(SIGN SHOWN FACING TRAFFIC)



SIGN POST BASE DETAIL

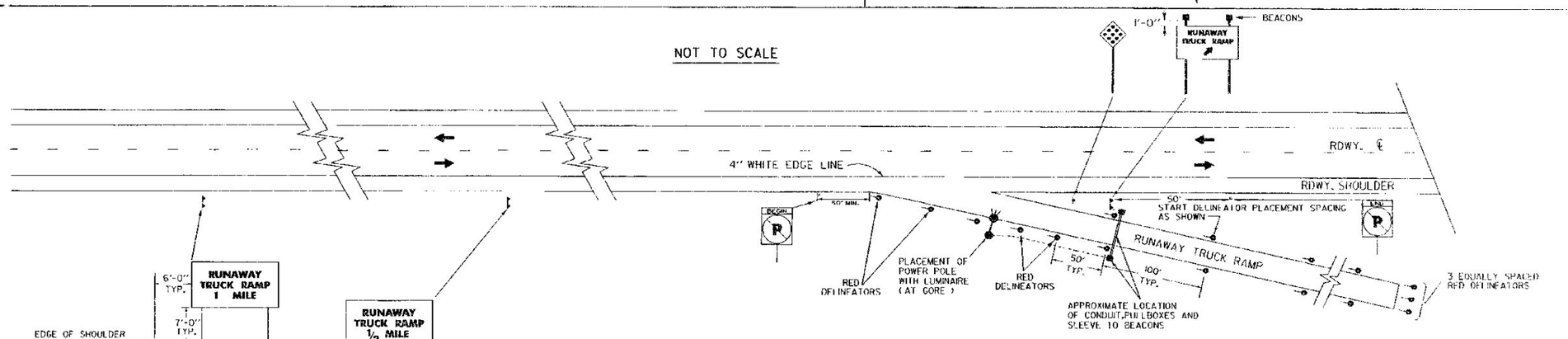


HAZARD SIGN AT GORE

FLASHING BEACON NOTES:

1. POWER MAY COME FROM THE SAME SOURCE AS A TRAFFIC SIGNAL AND/OR STREET LIGHT.
2. THE FLASHER UNIT SHALL BE A ONE CIRCUIT FOR A SINGLE BEACON INSTALLATION AND A TWO CIRCUIT FOR A TWO BEACON INSTALLATION, AND SHALL INCLUDE A RADIO INTERFERENCE FILTER.
3. BATTERY OPERATED FLASHERS WILL NOT BE ALLOWED.
4. BOTTOM OF BEACON (S) SHALL BE A MINIMUM OF 8'-0" AND A MAXIMUM OF 12' 0" ABOVE EDGE OF PAVEMENT.
5. FOR URBAN AREA PLACEMENT SEE APPROPRIATE (STANDARD) SHEETS.
6. THE CONTRACTOR SHALL SUPPLY AND INSTALL THE INDICATED EQUIPMENT AND HARDWARE: BEACONS, 3" Ø TUBULAR STEEL POSTS AND FOUNDATIONS, WIRE (#12 AWG. COPPER) MINIMUM ½ METER SOCKET, DISCONNECT CABINET WITH APPROPRIATE CIRCUIT BREAKERS, CONDUIT, POLE RISER WITH WEATHER HEAD, POWER DROP STANCHION, JUNCTION BOX (ES) AND ALL OTHER MISC. MATERIALS AND HARDWARE TO MAKE THE BEACONS OPERATIONAL.
7. A CLAMPING DEVICE AS APPROVED BY THE ENGINEER SHALL BE USED TO ATTACH THE CONDUIT TO THE SIGN POST (S).
8. PAYMENT FOR THE ABOVE INSTALLATION (S) SHALL BE AS FOLLOWS: BEACON (S) SHALL BE PAID UNDER ITEM 678J6, SIGN (S) AND POST (S) SHALL BE PAID UNDER THEIR APPROPRIATE ITEM NUMBER (S).

NOT TO SCALE

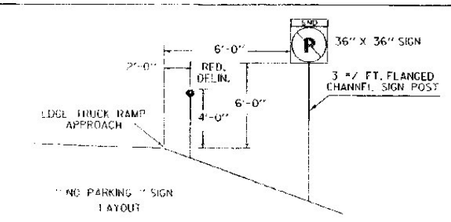


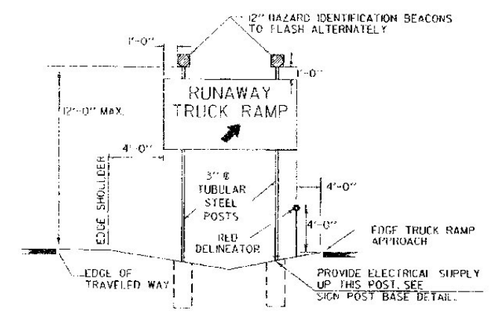
STREET LIGHT AND FLASHING BEACON INSTALLATION FOR RUNAWAY TRUCK RAMP

INSTALL A WOOD POLE OF SUFFICENT LENGTH TO MOUNT A LUMINAIRE WITH A 30 FOOT MOUNTING HEIGHT.
THE LOCATION OF THIS POLE SHALL BE BEYOND THE CLEAR ZONE OF THE THROUGH LANE AND AT LEAST 10 FEET OFF THE EDGE OF PAVEMENT OF THE TRUCK ESCAPE RAMP. LIGHT POLE TO BE SET APPROXIMATELY AT THE GORE AREA OF THE THRU WAY AND THE TRUCK ESCAPE RAMP.
INSTALL A RAINTIGHT ENCLOSURE ON THIS POLE (OPTION WHEN PERMITTED) WITH METER SOCKET, FLASHER AND AT LEAST TWO CIRCUIT BREAKERS AND MAIN DISCONNECT FOR STREET LIGHT AND FLASHING BEACONS.
THE LUMINAIRE TO BE EITHER A 150 WATT HIGH PRESSURE SODIUM OR A 250 WATT MERCURY VAPOR WITH CUT-OFF OPTICS, TYPE III DISTRIBUTION AND BRACKET ARM OF SUFFICENT LENGTH SO LUMINAIRE IS OVER PAVED EDGE OF TRUCK ESCAPE RAMP.

THE ELECTRICAL CIRCUITRY FOR THE FLASHING BEACONS SHALL BE RUN UNDERGROUND FROM THE ABOVE MENTIONED POWER DROP POLE TO THE NEAR POLE OF THE FLASHING BEACON INSTALLATION. USE 1-½" INCH CONDUIT, STEEL OR P.V.C. AND TRENCH OR JACK A 6" SLEEVE UNDER THE TRUCK ESCAPE RAMP WITH NECESSARY PULLBOX(ES) AS PER PLAN.

PAYMENT FOR THE ABOVE INSTALLATION OF THE STREET LIGHT AND BEACONS SHALL BE UNDER ITEM 678J6 FLASHING BEACONS. SIGNS AND POSTS TO BE PAID AS SEPARATE ITEMS.





OTHER STDS. REQUIRED: E-160 E-163 E-173 E-175

REVISIONS AND CORRECTIONS

AUG. 02, 1988 - DATE OF ORIGINAL ISSUE

AUG. 08, 1995 - REVISED LUMININAIRE DETAIL AND MISC. NOTES.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon R. MacArthur
DIRECTOR OF ENGINEERING

Donald A. Rose
TRAFFIC AND SAFETY ENGINEER

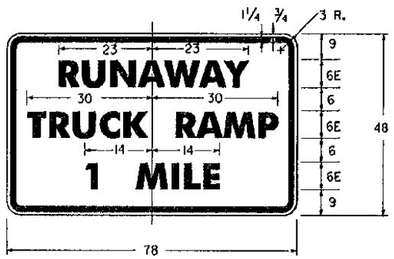
RUNAWAY TRUCK RAMP SIGN DETAIL SHEET

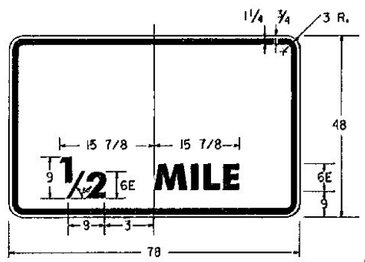
/traf/std/std29.dgn : std29.f

VERMONT AGENCY OF TRANSPORTATION

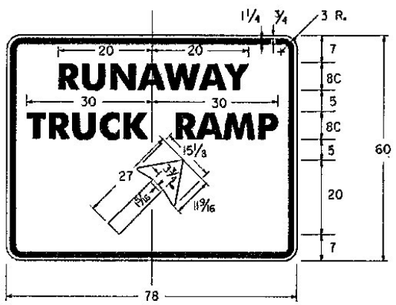
STANDARD

E-129





ALL SIGN DIMENSIONS ARE IN INCHES



COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING.

A) EXTRUDED ALUMINUM PANELS, WITH REFLECTIVE SHEETING.

B) FORMED GALVANIZED STEEL PANELS, WITH REFLECTIVE SHEETING.

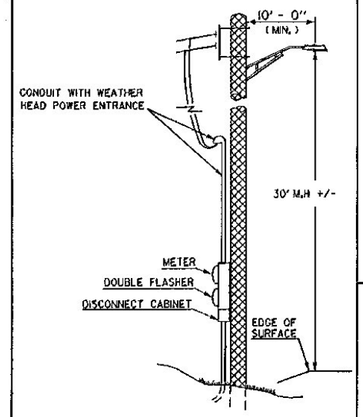
THE TEXT, BORDER AND SYMBOLS SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

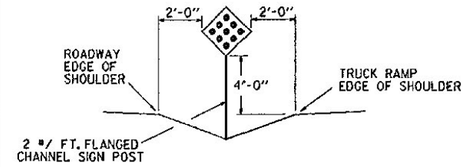
SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

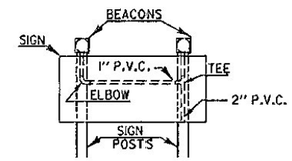


THE "RUNAWAY TRUCK RAMP" YELLOW LENS FLASHING BEACONS AND RELATED EQUIPMENT CONSISTING OF FLASHER, RADIO INTERFERENCE FILTER, CIRCUIT BREAKERS IN RAINTIGHT CABINET SHALL CONFORM WITH SUB-SECTION 752.07.

POWER POLE AND LUMINAIRE DETAIL

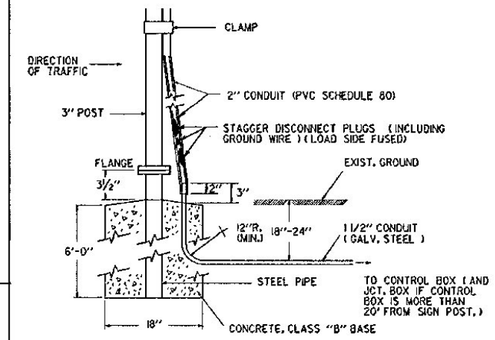


HAZARD SIGN AT GORE



CONDUIT DETAILS BETWEEN BEACONS

(SIGN SHOWN FACING TRAFFIC)



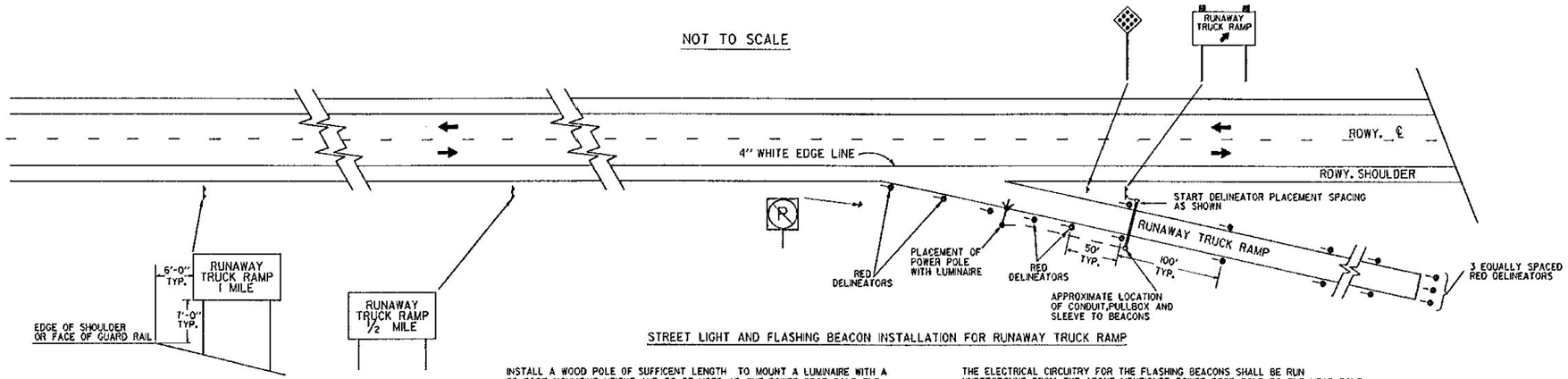
NOTES :

WIRE CONNECTIONS AT THE BASE OF THE SIGNPOST SHALL BE FUSED ON THE LOAD SIDE WITH A WATERTIGHT PLUG-IN TYPE CONNECTOR WHICH WILL DISCONNECT WITHOUT DAMAGE DURING A POST KNOCKDOWN.

THE CONTRACTOR SHALL SUPPLY AND INSTALL THE INDICATED EQUIPMENT AND ALL NECESSARY HARDWARE SUCH AS BEACONS, WIRE (# 12 MIN.), CABLE, METER SOCKET, CONDUIT AND POLE RISER WITH WEATHER HEAD, POWER POLE, JCT BOX, CONDUIT AND MISC. MATERIAL REQUIRED TO MAKE THE BEACONS OPERATIONAL. PAYMENT FOR THIS SYSTEM WILL BE FOR FLASHING BEACON, 1 EACH. SIGNS AND POSTS WILL BE PAID AS SEPARATE ITEMS.

SIGN POST BASE DETAIL

NOT TO SCALE

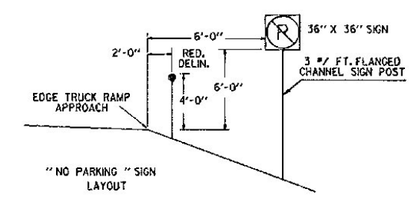


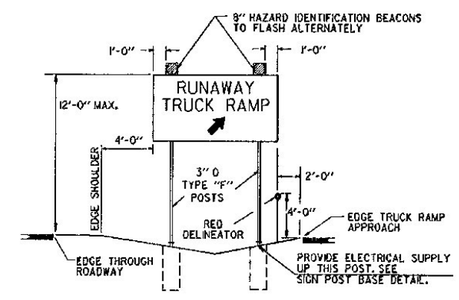
STREET LIGHT AND FLASHING BEACON INSTALLATION FOR RUNAWAY TRUCK RAMP

INSTALL A WOOD POLE OF SUFFICENT LENGTH TO MOUNT A LUMINAIRE WITH A 30 FOOT MOUNTING HEIGHT AND TO BE USED AS THE POWER DROP POLE. THE LOCATION OF THIS POLE SHALL BE BEYOND THE SAFETY ZONE OF THE THROUGH LANE AND BE AT LEAST 10 FEET OFF THE EDGE OF PAVEMENT OF THE TRUCK ESCAPE RAMP. LIGHT POLE TO BE SET APPROXIMATELY AT THE GORE AREA OF THE THRU WAY AND THE TRUCK ESCAPE RAMP.
INSTALL A RAINTIGHT ENCLOSURE ON THIS POLE WITH METER SOCKET, FLASHER AND AT LEAST TWO CIRCUIT BREAKERS AND MAIN DISCONNECT FOR STREET LIGHT AND FLASHING BEACONS.
THE LUMINAIRE TO BE EITHER A 150 WATT HIGH PRESSURE SODIUM OR A 250 WATT MERCURY VAPOR WITH CUT-OFF OPTICS, TYPE III DISTRIBUTION AND BRACKET ARM OF SUFFICENT LENGTH SO LUMINAIRE IS OVER PAVED EDGE OF TRUCK ESCAPE RAMP.

THE ELECTRICAL CIRCUITRY FOR THE FLASHING BEACONS SHALL BE RUN UNDERGROUND FROM THE ABOVE MENTIONED POWER DROP POLE TO THE NEAR POLE OF THE FLASHING BEACON INSTALLATION. USE 1 1/2" INCH CONDUIT, STEEL OR P.V.C. AND TRENCH OR JACK A 6" SLEEVE UNDER THE TRUCK ESCAPE RAMP WITH NECESSARY PULLBOX(ES) AS PER PLAN. SEE RUNAWAY TRUCK RAMP DETAIL SHEET FOR ADDITIONAL DETAILS.

PAYMENT FOR THE ABOVE INSTALLATION OF THE STREET LIGHT AND BEACONS SHALL BE UNDER ITEM 678.16 FLASHING BEACONS. SIGNS AND POSTS TO BE PAID AS SEPARATE ITEMS.





REVISIONS AND CORRECTIONS

APPROVED 8/22/88
DATE

David B Kelley
CHIEF ENGINEER

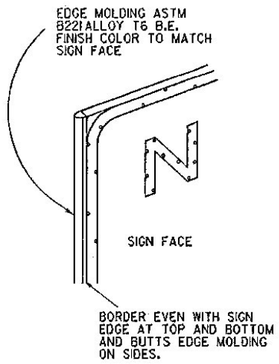
Arthur Gore
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Marlon O. Mac Arthur
TRAFFIC AND SAFETY ENGINEER

RUNAWAY TRUCK RAMP
SIGN DETAIL SHEET

VERMONT AGENCY OF TRANSPORTATION

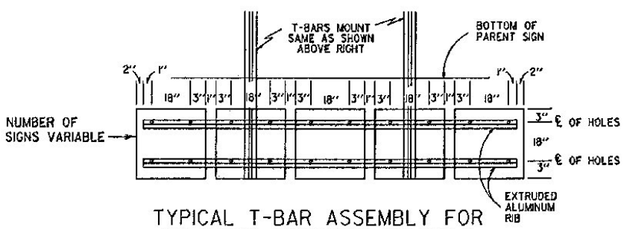
STANDARD
E-129



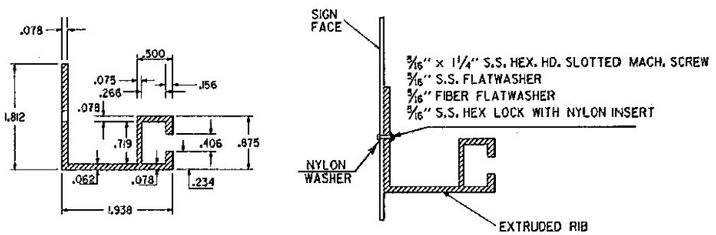
INDIVIDUAL LETTERS, DIGITS, SYMBOLS, AND BORDERS FOR THE SIGN SHALL BE SHAPED FROM 0.032 INCH SHEET ALUMINUM CONFORMING TO THE REQUIREMENTS OF ASTM B 209, ALLOY 3003-H-12. LEGEND AND BORDER TO BE ATTACHED TO THE SIGN FACE WITH 1/8" RIVETS.

SERVICE SIGN MOUNTING DETAILS

WHEN USED, THE SERVICE SIGNS SHALL APPEAR IN THE SAME SEQUENCE AS SHOWN ABOVE. THE PARENT SIGN SHOWN IS ONLY AN EXAMPLE. THE SIGNS SHALL BE INSTALLED ON THE SIGN SHOWN ON THE PLANS. THE SERVICE SIGNS SHALL BE MOUNTED TO THE PARENT SIGN WITH TEE BARS AND EXTRUDED ALUMINUM RIBS. OTHER METHODS OF INSTALLATION MAY BE SUBMITTED TO THE TRAFFIC DESIGN SECTION FOR APPROVAL. IN NO CASE SHALL ANY SUPPORT BE ATTACHED TO THE W-SHAPED STEEL SIGN SUPPORT BELOW THE FUSE PLATE.

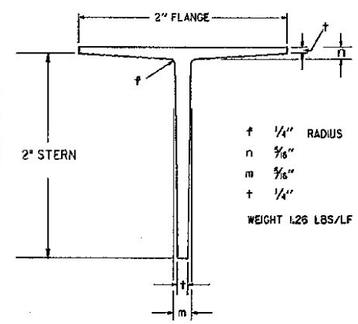


TYPICAL T-BAR ASSEMBLY FOR MOUNTING SERVICES SYMBOLS (24" x 24" UNITS SHOWN)

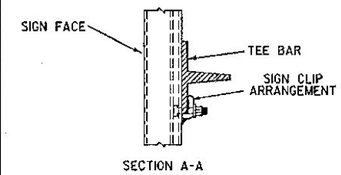


DETAIL
EXTRUDED ALUMINUM RIB
ALUM. ALLOY 6063-T6

EXTRUDED ALUMINUM PANEL SIGN CLIP

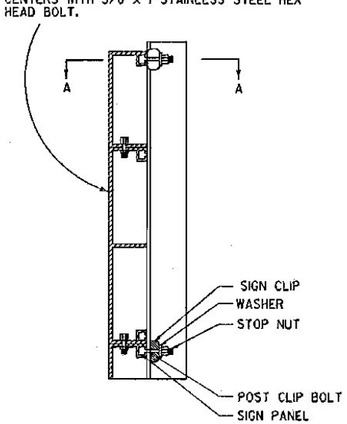


TEE BAR



SECTION A-A

12" x 6" EXTRUDED ALUMINUM SIGN PANELS 6063-T6. 6"x 6" PANEL PLACED ON TOP WHEN REQUIRED. PANELS BOLTED TOGETHER ON 24" CENTERS WITH 3/8" x 1" STAINLESS STEEL HEX HEAD BOLT.

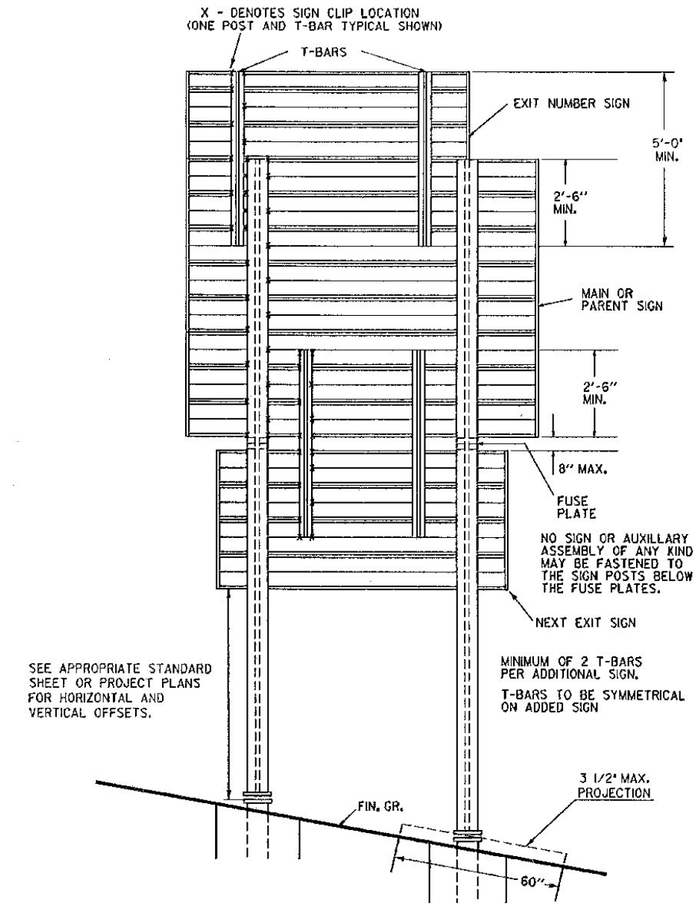


SIDE VIEW

SIGN MOUNTING DETAIL

NOTES

1. THE ALUMINUM TEE BAR SHALL BE OF 6063-T6 ALLOY.
2. EXTRUDED ALUMINUM PANEL SIGN CLIP SHALL BE 356-T6 ALLOY FABRICATED TO GIVE PROPER CLAMPING ON ALL FLANGES (TAPERED OR PARALLEL) FROM 1/8" TO 19/32" IN THICKNESS. A FLAT WASHER SHALL BE USED UNDER THE NUT.
3. BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL. BOLTS SHALL BE 3/8" DIAMETER, 2 INCHES IN LENGTH WITH A HEAD CAPABLE OF BEING INSERTED INTO EXTRUDED ALUMINUM SIGN PANEL SLOTS. NUTS SHALL BE OF A LOCK NUT DESIGN, THREADS MATCHING BOLT. THE WASHER SHALL HAVE A 25/64" I.D. x 3/4" O.D. x .091 THICKNESS.



TYPICAL SIGN INSTALLATION ON W-SHAPED STEEL POSTS WITH T-BAR EXTENSIONS

REVISIONS AND CORRECTIONS
MARCH 1, 1988 - MAJOR REVISIONS

APPROVED

SEPT. 10, 1987
DATE

David W. Kelley
CHIEF ENGINEER

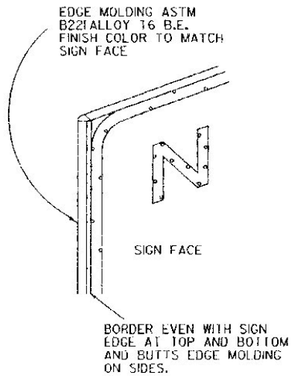
Arthur J. Gosa
DIRECTOR OF PLANNING AND PRECONSTRUCTION

Gordon D. MacArthur
TRAFFIC AND SAFETY ENGINEER

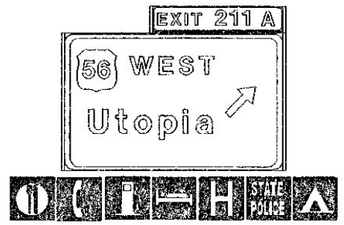
TYPE "B" GUIDE SIGN ATTACHMENT DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-130

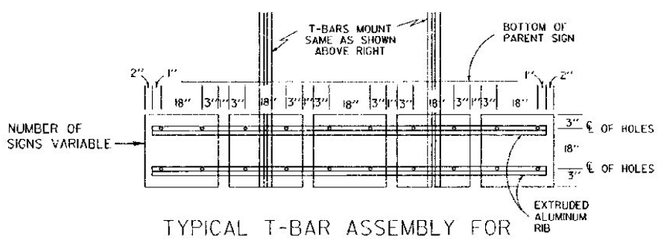


INDIVIDUAL LETTERS, DIGITS, SYMBOLS, AND BORDERS FOR THE SIGN SHALL BE SHAPED FROM 0.032 INCH SHEET ALUMINUM CONFORMING TO THE REQUIREMENTS OF ASTM B 209, ALLOY 3003-H-12. LEGEND AND BORDER TO BE ATTACHED TO THE SIGN FACE WITH 1/8" RIVETS.

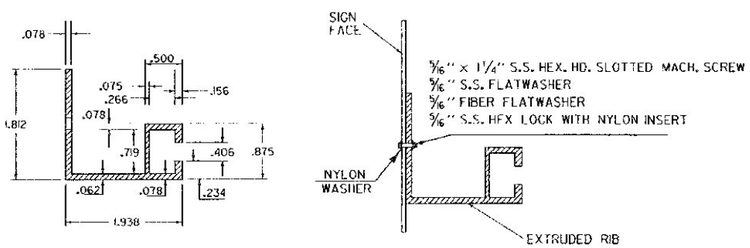


SERVICE SIGN MOUNTING DETAILS

WHEN USED, THE SERVICE SIGNS SHALL APPEAR IN THE SAME SEQUENCE AS SHOWN ABOVE. THE PARENT SIGN SHOWN IS ONLY AN EXAMPLE. THE SIGNS SHALL BE INSTALLED ON THE SIGN SHOWN ON THE PLANS. THE SERVICE SIGNS SHALL BE MOUNTED TO THE PARENT SIGN WITH TEE BARS AND EXTRUDED ALUMINUM RIBS. OTHER METHODS OF INSTALLATION MAY BE SUBMITTED TO THE TRAFFIC DESIGN SECTION FOR APPROVAL. IN NO CASE SHALL ANY SUPPORT BE ATTACHED TO THE W-SHAPED STEEL SIGN SUPPORT BELOW THE FUSE PLATE.

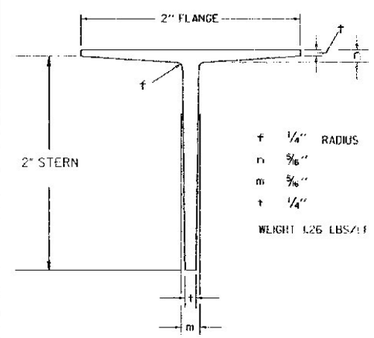


TYPICAL T-BAR ASSEMBLY FOR MOUNTING SERVICES SYMBOLS
(24" x 24" UNITS SHOWN)

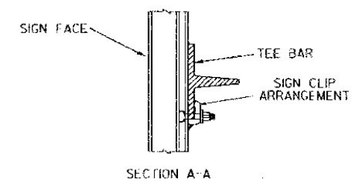


DETAIL
EXTRUDED ALUMINUM RIB
ALUM. ALLOY 6063-T6

EXTRUDED ALUMINUM PANEL SIGN CLIP

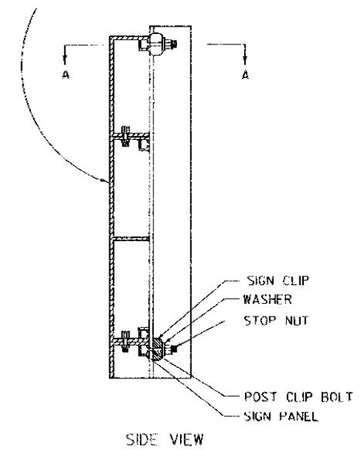


TEE BAR



SECTION A-A

12" x 6" EXTRUDED ALUMINUM SIGN PANELS 6063-T6. 6"x 6" PANEL PLACED ON TOP WHEN REQUIRED. PANELS BOLTED TOGETHER ON 24" CENTERS WITH 3/8" x 1" STAINLESS STEEL HEX HEAD BOLT.

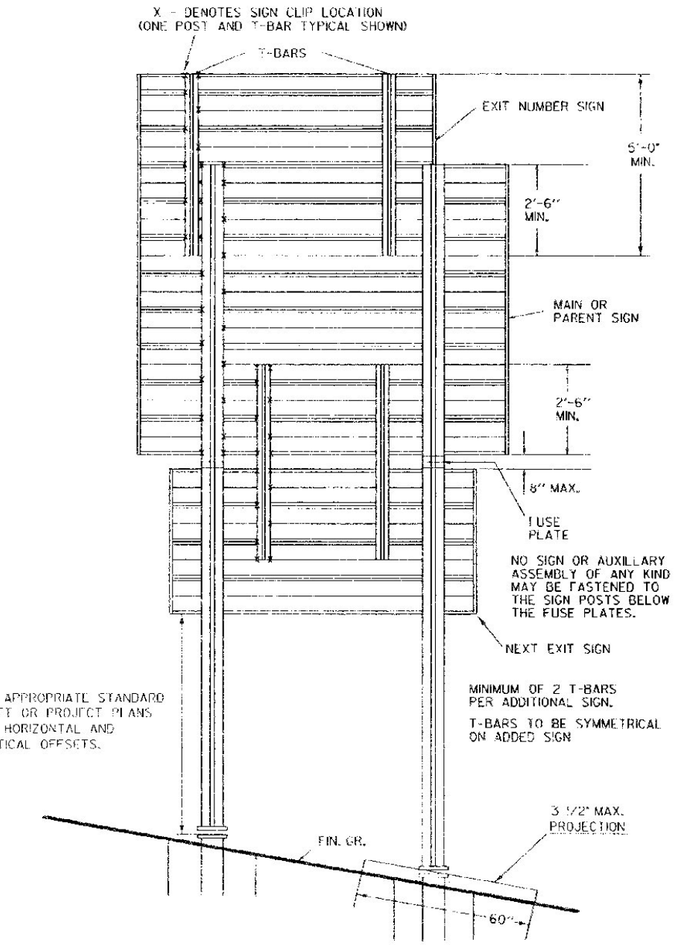


SIDE VIEW

SIGN MOUNTING DETAIL

NOTES

1. THE ALUMINUM TEE BAR SHALL BE OF 6063-T6 ALLOY.
2. EXTRUDED ALUMINUM PANEL SIGN CLIP SHALL BE 356-T6 ALLOY FABRICATED TO GIVE PROPER CLAMPING ON ALL FLANGES (TAPERED OR PARALLEL) FROM 1/8" TO 19/32" IN THICKNESS. A FLAT WASHER SHALL BE USED UNDER THE NUT.
3. BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL. BOLTS SHALL BE 5/16" DIAMETER, 2 INCHES IN LENGTH WITH A HEAD CAPABLE OF BEING INSERTED INTO EXTRUDED ALUMINUM SIGN PANEL SLOTS. NUTS SHALL BE OF A LOCK NUT DESIGN. THREADS MATCHING BOLT. THE WASHER SHALL HAVE A 5/16" I.D. x 3/4" O.D. x .091 THICKNESS.



TYPICAL SIGN INSTALLATION ON
W-SHAPED STEEL POSTS
WITH T-BAR EXTENSIONS

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
MARCH 01, 1988 MAJOR REVISIONS
AUG. 08, 1995 - MINOR REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon D. MacAllister
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

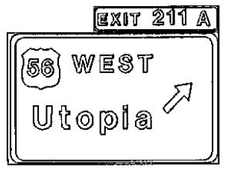
TYPE "B" GUIDE SIGN ATTACHMENT DETAILS

/traf/std/stdel30.dgn : stdel30.f

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-130

INDIVIDUAL LETTERS, DIGITS, SYMBOLS, AND BORDERS FOR THE SIGN SHALL BE SHAPED FROM 0.032 INCH SHEET ALUMINUM CONFORMING TO THE REQUIREMENTS OF ASTM B 209, ALLOY 3003-H-12. THE CHARACTERS SHALL BE REFLECTORIZED, IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE SHEETING MANUFACTURER, WITH REFLECTIVE SHEETING CONFORMING TO THE REQUIREMENTS OF SUBSECTION 750.08, ENCLOSED LENS SILVER-WHITE. LEGEND AND BORDER TO BE ATTACHED TO THE SIGN FACE WITH 1/8" RIVETS.



SERVICE SIGN MOUNTING DETAILS

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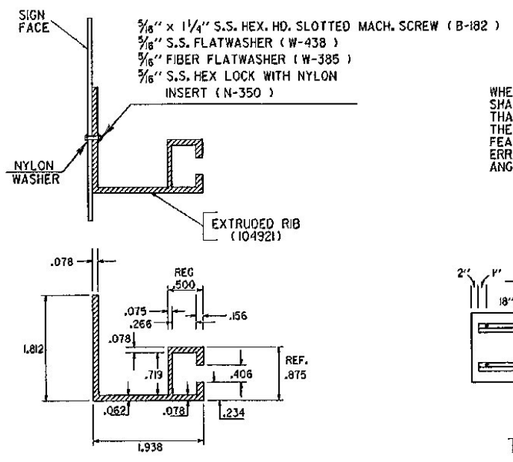
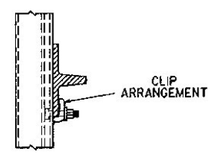


DETAIL
EXTRUDED ALUMINUM RIB
ALUM. ALLOY 6063-T6

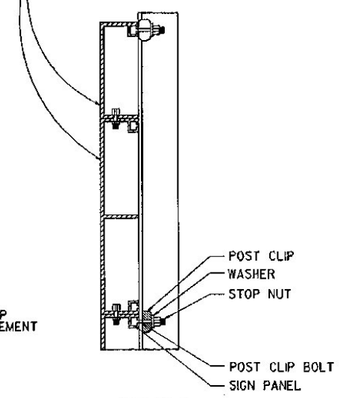
POST CLIP ALUMINUM ASTM B-108, ALLOY 356-T6 (M-517) WITH 3/8" x 2" SQUARE HEAD STAINLESS STEEL BOLT B-453 WITH 3/4" O.D. x 25/64" I.D. x .091 STAINLESS STEEL LOCKNUT (N-361). 3/8" x 1 3/4" SQUARE HEAD STAINLESS STEEL BOLT (B-296) AS ALTERNATE.

12" x 6" EXTRUDED ALUMINUM SIGN PANELS 6063-T6. 6" PANEL PLACED ON TOP WHEN REQUIRED. PANELS BOLTED TOGETHER ON 24" CENTERS WITH 3/8" x 1" STAINLESS STEEL HEX HEAD BOLT, (B-294) AND A 3/8" STAINLESS STEEL HEX NUT (N-326).

EXTRUDED ALUMINUM PANEL SIGN CLIP

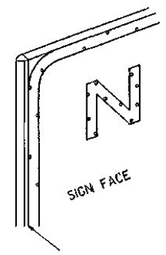


TOP VIEW



SIDE VIEW

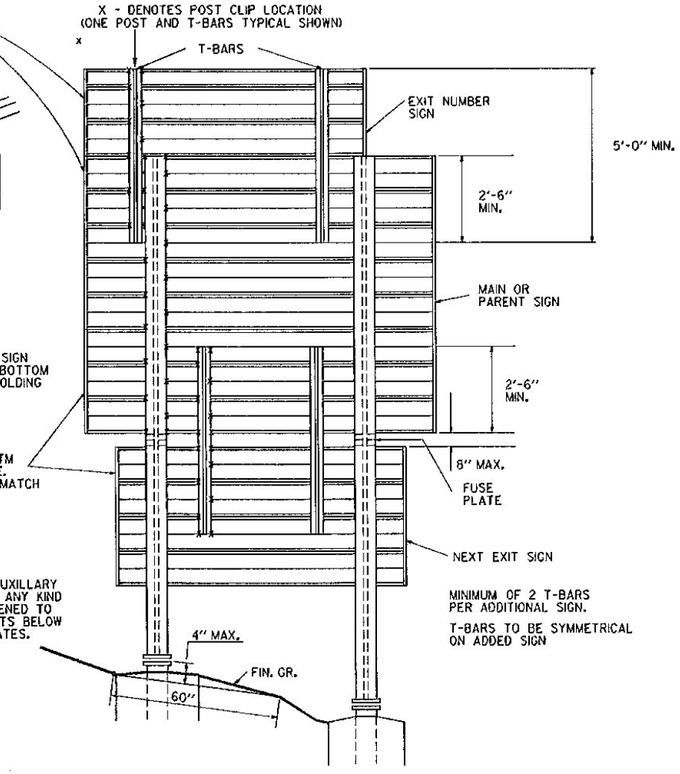
SIGN MOUNTING DETAIL



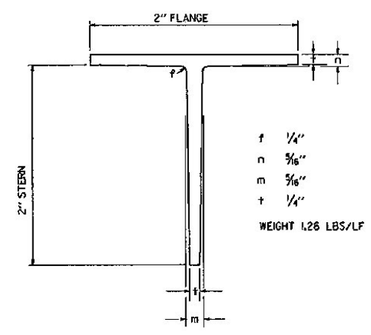
BORDER EVEN WITH SIGN EDGE AT TOP AND BOTTOM AND BUTTS EDGE MOLDING ON SIDES.

EDGE MOLDING ASTM B221 ALLOY T6 B.E. FINISH COLOR TO MATCH SIGN FACE

NO SIGN OR AUXILLARY ASSEMBLY OF ANY KIND MAY BE FASTENED TO THE SIGN POSTS BELOW THE FUSE PLATES.

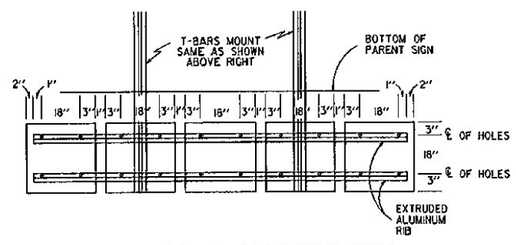


TYPICAL SIGN INSTALLATION ON W-SHAPED STEEL POSTS WITH T-BAR EXTENSIONS



TEE BAR

WHEN PLACED BEHIND GUARDRAIL, NON-YIELDING SIGN POSTS SHALL BE PLACED OUTSIDE THE DEFLECTION DISTANCE FOR THAT PARTICULAR TYPE OF RAIL.
THE SIGNPOSTS WILL NOT HAVE SLIP BASES OR BREAK-A-WAY FEATURES UNLESS THE SIGN POSTS CAN BE STRUCK BY "AN ERRANT VEHICLE LEAVING THE ROADWAY AT AN ENCROACHMENT ANGLE OR 15 OR LESS.



TYPICAL T-BAR ASSEMBLY FOR MOUNTING SERVICES SYMBOLS (24" x 24" UNITS)

NOTES

1. THE ALUMINUM TEE BAR SHALL BE OF 6063T6 ALLOY MINIMUM OF 5 FEET IN LENGTH.
2. EXTRUDED ALUMINUM PANEL SIGN CLIP SHALL BE 356 T6 ALLOY FABRICATED TO GIVE PROPER CLAMPING ON ALL FLAGNES (TAPERED OR PARALLEL) FROM 1/8" TO 19/32" IN THICKNESS. A FLAT WASHER SHALL BE USED UNDER THE NUT.
3. BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL. BOLTS SHALL BE 3/8" DIAMETER, 2 INCHES IN LENGTH WITH A HEAD CAPABLE OF BEING INSERTED INTO EXTRUDED ALUMINUM SIGN PANEL SLOTS. NUTS SHALL BE OF A LOCK NUT DESIGN, THREADS MATCHING BOLT. THE WASHER SHALL HAVE A 25/64" I.D. x 3/4" O.D. x .091 THICKNESS.

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David B Kelley
CHIEF ENGINEER

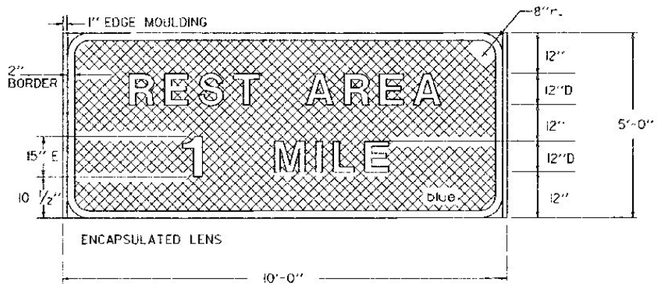
Arthur Stone
DIRECTOR, OF PLANNING AND PRE-CONSTRUCTION

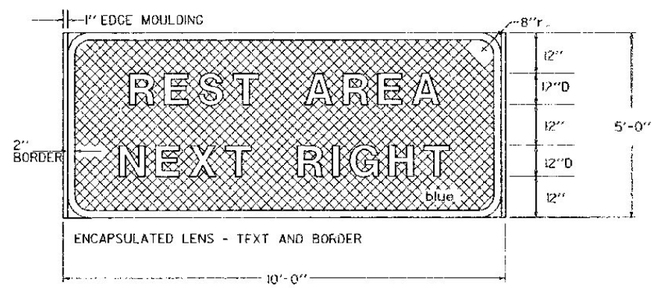
Gordon H. MacArthur
TRAFFIC AND SAFETY ENGINEER

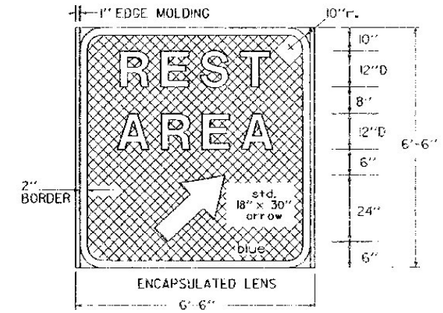
TYPE "B" GUIDE SIGN ATTACHMENT DETAILS

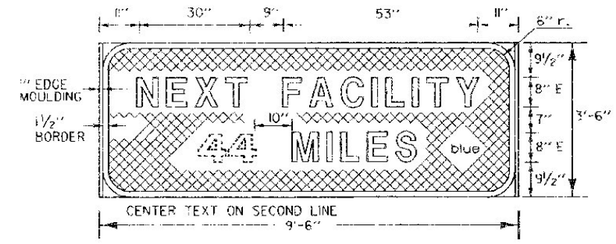
VERMONT AGENCY OF TRANSPORTATION

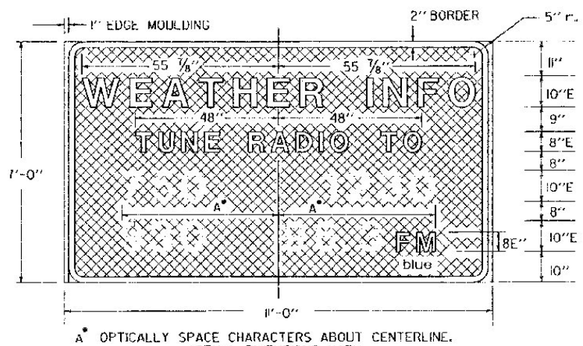
STANDARD
E-130



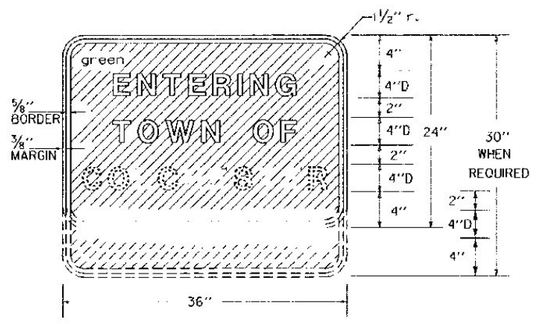


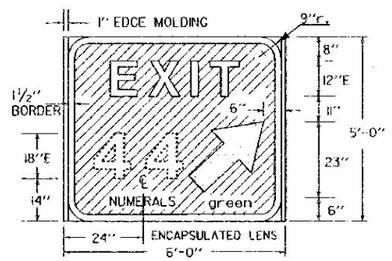


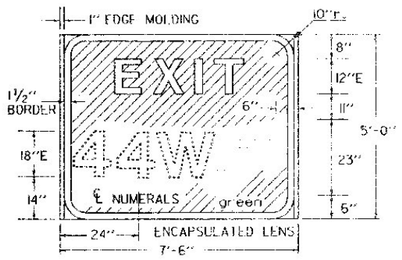


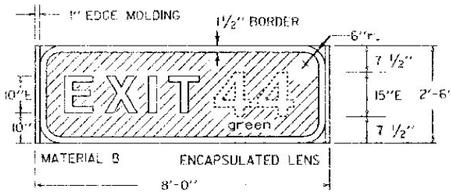


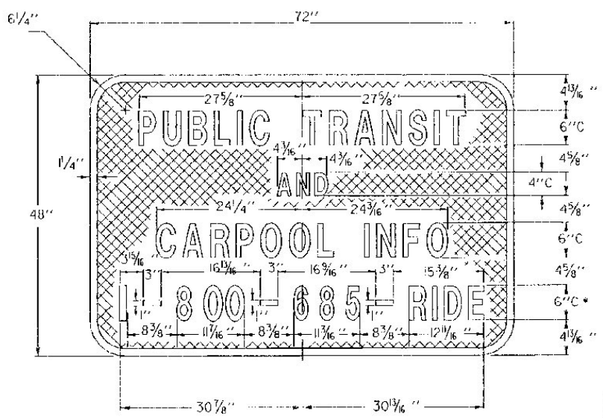
A* OPTICALLY SPACE CHARACTERS ABOUT CENTERLINE. ACTUAL DIMENSIONS VARY.



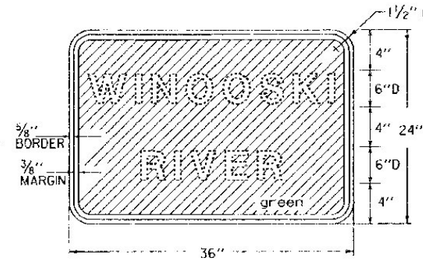


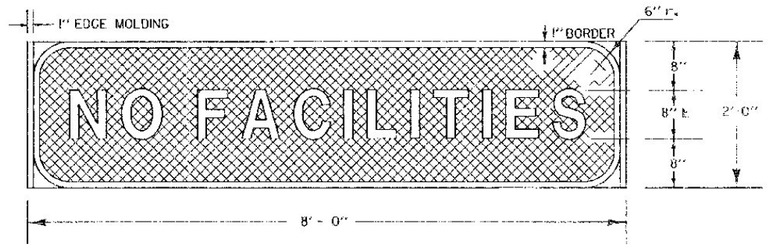


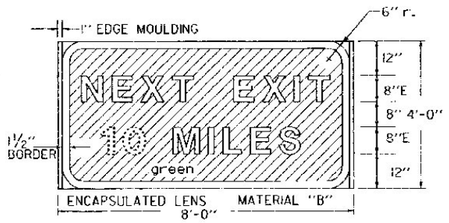




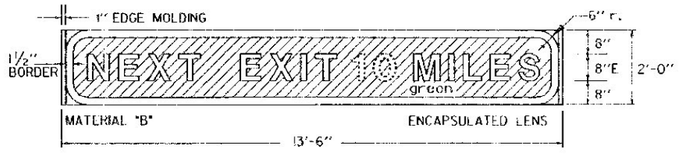
* Reduce spacing of text by 40%.







USE THIS SIGN WHEN PARENT SIGN IS LESS THAN 14' (HORIZ.)



USE THIS SIGN WHEN PARENT SIGN IS 14' OR MORE (HORIZ.)

GENERAL:

DOTTED LINES AND NUMERALS INDICATE TEXT THAT VARIES. GREEN SIGNS HAVE SINGLE LINE CROSSHATCHING AND BLUE SIGNS ARE SHOWN WITH DOUBLE LINE CROSSHATCHING.

MATERIALS:

THE SIGN BASE MATERIAL USED FOR THE GUIDE SIGNS ON THIS SHEET MAY BE ANY OF THE FOLLOWING EXCEPT AS NOTED:

A - HIGH DENSITY OVERLAID PLYWOOD, 3/4" MINIMUM THICKNESS WITH REFLECTIVE SHEETING. (MAY BE USED FOR TYPE A SIGNS ONLY).
B - EXTRUDED ALUMINUM PANELS, WITH REFLECTIVE SHEETING.
C - FORMED GALVANIZED STEEL PANELS, WITH REFLECTIVE SHEETING.

TEXT AND BORDER:

THE MATERIAL FOR THE TEXT AND BORDER AND SYMBOLS OF THESE SIGNS SHALL BE OF FLAT SHEET ALUMINUM 0.040" THICKNESS WITH WHITE OR SILVER ENCAPSULATED SHEETING, AS NOTED FOR EACH SIGN.

THE "EXIT NUMBER" PANELS AND "NEXT EXIT MILES" SIGNS SHALL BE ENCAPSULATED LENS SHEETING ONLY IN THE FOLLOWING INSTANCES:

1.) WHEN MOUNTED OVERHEAD
2.) WHEN MOUNTED ABOVE THE ADVANCED "1 MILE" SIGNS
3.) WHEN MOUNTED ON THE "RIGHT LANE" OR "NEXT RIGHT" SIGNS - (TEXT ONLY)

THE EXIT GORE SIGN SHALL BE CONSTRUCTED ENTIRELY WITH ENCAPSULATED LENS SHEETING.

COLORS:

THE SIGNS SHALL HAVE A REFLECTORIZED WHITE TEXT ON A REFLECTORIZED GREEN OR BLUE BACKGROUND AS INDICATED FOR EACH SIGN UNLESS OTHERWISE NOTED. THE GREEN AND BLUE SHALL CONFORM WITH THOSE FOUND IN STANDARD COLOR TOLLERANCE CHARTS AS APPROVED BY THE U.S. DEPT. OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING:

LETTERS AND DIGITS SHALL CONFORM WITH THE REQUIREMENTS FOUND IN THE PUBLICATION "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

DESIGNS:

THE DESIGN OF THESE SIGNS SHALL CONFORM WITH THE DETAILS SET FORTH IN THE MANUAL "STANDARD HIGHWAY SIGNS" AS SPECIFIED IN "THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

SPECIFICATIONS:

THE SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR "TRAFFIC SIGNS".

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
DEC. 18, 1989 - CHANGE DIMENSION ERRORS
CHANGE 2 DIGIT EXIT SIGN SIZE.
AUG. 08, 1995 - REVISED CARPOOL SIGN DETAIL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

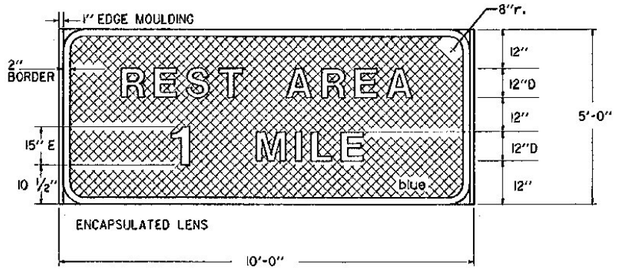
GUIDE SIGN DETAILS

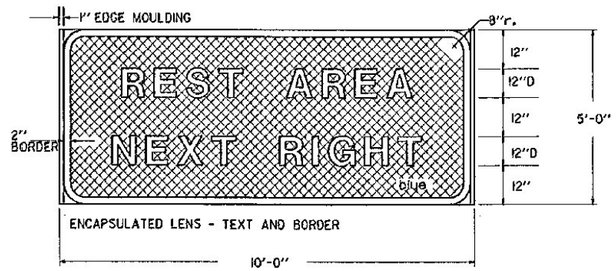
/traf/std/stdel3l.dgn : stdel3l.1

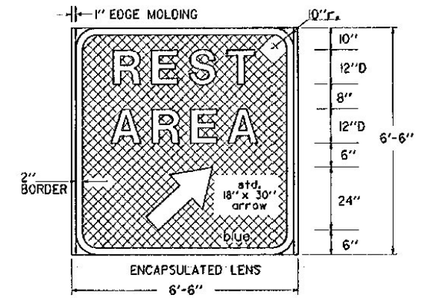
VERMONT AGENCY OF TRANSPORTATION

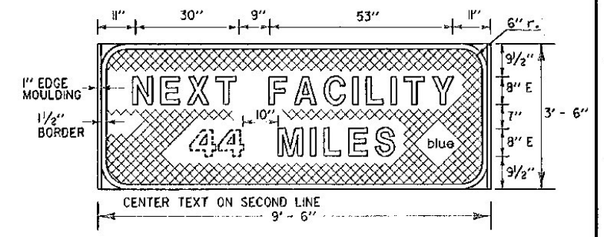
STANDARD

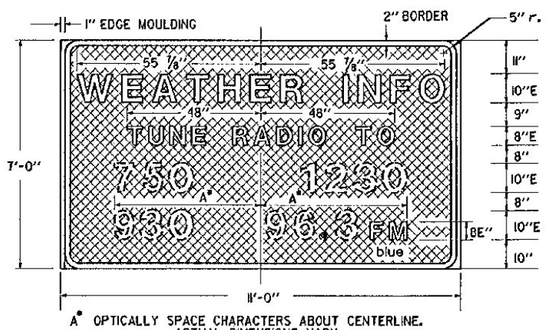
E-131



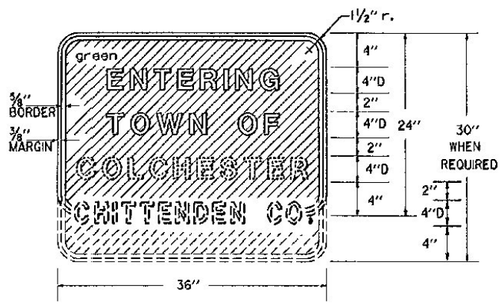


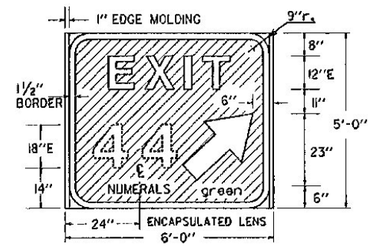


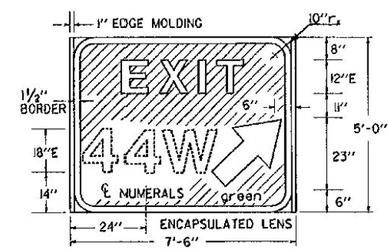


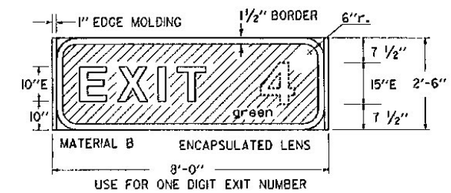


A* OPTICALLY SPACE CHARACTERS ABOUT CENTERLINE.
ACTUAL DIMENSIONS VARY.

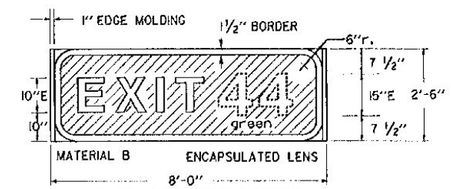




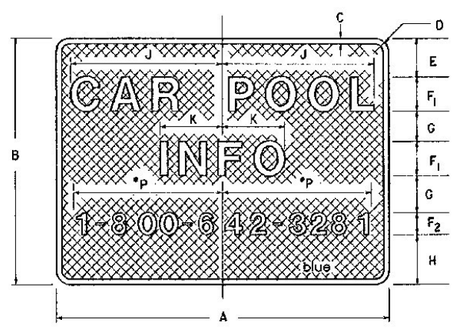




USE FOR ONE DIGIT EXIT NUMBER



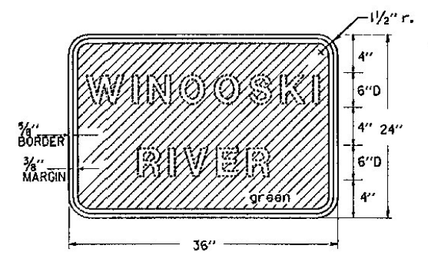
USE FOR TWO DIGIT EXIT NUMBER

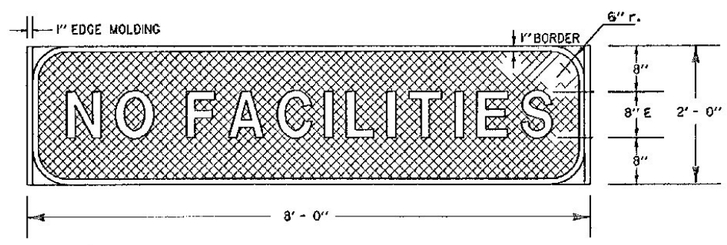


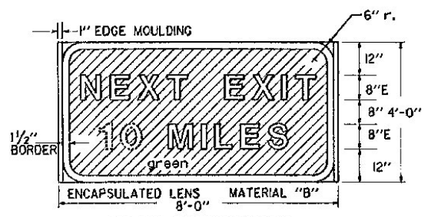
* REDUCE NUMERAL TO NUMERAL SPACING 20 %.
TOTAL DASH SPACE : FWY. 3 1/2 ; STD. 3 1/8.

SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F1	F2	G	H	J	K	L	M	N	P
STD. AND EXPWY.	54	42	3/4	1 1/4	6	6E	6C	5	8	20 5/8	8 5/8	6 3/4	1	1/8	24
FWY.	72	54	1 1/4	1 3/4	8	8E	8C	6	10	31 5/8	13 1/4	8 1/2	1 1/2	1 1/2	32

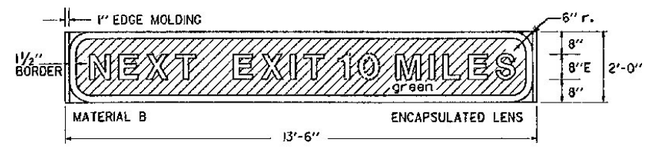
FWY. SIZE REQUIRES 1" EDGE MOULDING







USE THIS SIGN WHEN PARENT SIGN IS LESS THAN 14' (HORIZ.)



USE THIS SIGN WHEN PARENT SIGN IS 14' OR MORE (HORIZ.)

GENERAL

DOTTED LINES AND NUMERALS INDICATE TEXT THAT VARIES. GREEN SIGNS HAVE SINGLE LINE CROSSHATCHING AND BLUE SIGNS ARE SHOWN WITH DOUBLE LINE CROSSHATCHING.

MATERIALS

THE SIGN BASE MATERIAL USED FOR THE GUIDE SIGNS ON THIS SHEET MAY BE ANY OF THE FOLLOWING EXCEPT AS NOTED:

A - HIGH DENSITY OVERLAID PLYWOOD, 3/4" MINIMUM THICKNESS WITH REFLECTIVE SHEETING. (MAY BE USED FOR TYPE A SIGNS ONLY).
B - EXTRUDED ALUMINUM PANELS, WITH REFLECTIVE SHEETING.
C - FORMED GALVANIZED STEEL PANELS, WITH REFLECTIVE SHEETING.

TEXT AND BORDER

THE MATERIAL FOR THE TEXT AND BORDER AND SYMBOLS OF THESE SIGNS SHALL BE OF FLAT SHEET ALUMINUM 0.040" THICKNESS WITH WHITE OR SILVER ENCAPSULATED SHEETING, AS NOTED FOR EACH SIGN.
THE "EXIT NUMBER" PANELS AND "NEXT EXIT MILES" SIGNS SHALL BE ENCAPSULATED LENS SHEETING ONLY IN THE FOLLOWING INSTANCES:

1.) WHEN MOUNTED OVERHEAD
2.) WHEN MOUNTED ABOVE THE ADVANCED "1 MILE" SIGNS
3.) WHEN MOUNTED ON THE "RIGHT LANE" OR "NEXT RIGHT" SIGNS - (TEXT ONLY)

THE EXIT GORE SIGN SHALL BE CONSTRUCTED ENTIRELY WITH ENCAPSULATED LENS SHEETING.

COLORS

THE SIGNS SHALL HAVE A REFLECTORIZED WHITE TEXT ON A REFLECTORIZED GREEN OR BLUE BACKGROUND AS INDICATED FOR EACH SIGN UNLESS OTHERWISE NOTED. THE GREEN AND BLUE SHALL CONFORM WITH THOSE FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPT. OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE REQUIREMENTS FOUND IN THE PUBLICATION "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

DESIGNS

THE DESIGN OF THESE SIGNS SHALL CONFORM WITH THE DETAILS SET FORTH IN THE MANUAL "STANDARD HIGHWAY SIGNS" AS SPECIFIED IN "THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

SPECIFICATIONS

THE SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR "TRAFFIC SIGNS".

REVISIONS AND CORRECTIONS

DEC. 18, 1989 - CHANGE DIMENSION ERRORS
CHANGE 2 DIGIT EXIT SIGN SIZE.

APPROVED

SEPT. 10, 1987
DATE

David B. Kelley
CHIEF ENGINEER

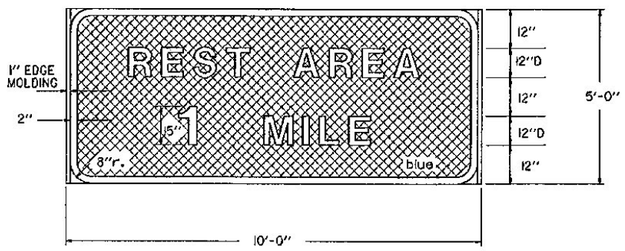
Arthur Gore
DIRECTOR OF PLANNING

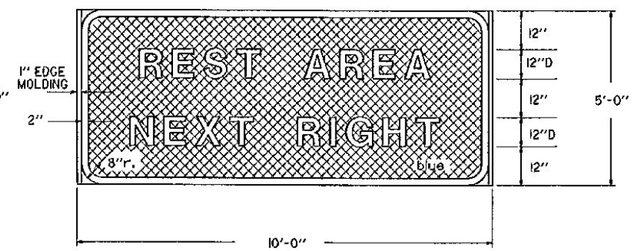
Gordon R. MacAdam
TRAFFIC AND SAFETY ENGINEER

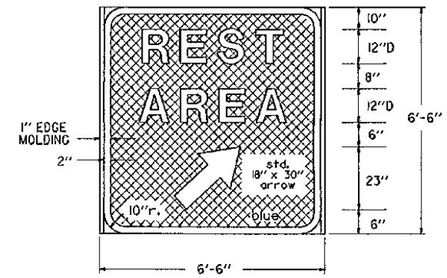
GUIDE SIGN DETAILS

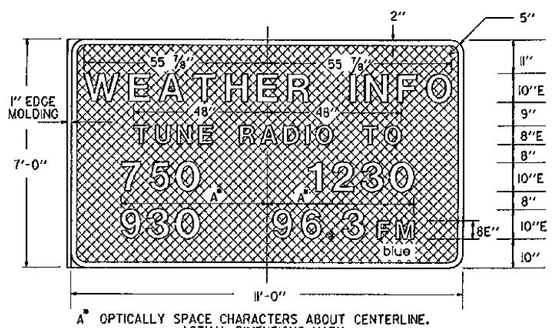
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-131

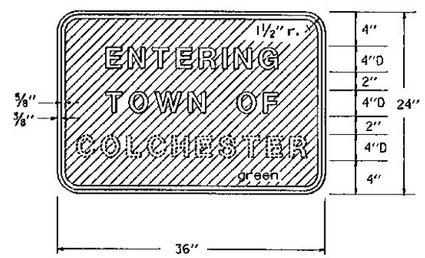


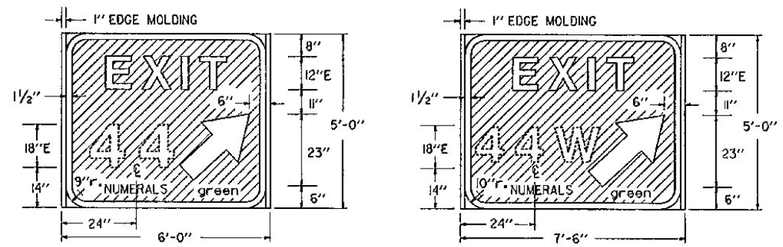






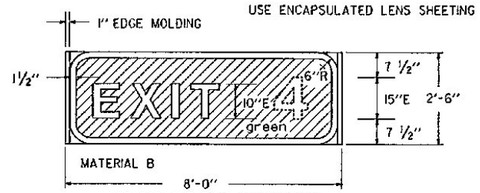
A* OPTICALLY SPACE CHARACTERS ABOUT CENTERLINE. ACTUAL DIMENSIONS VARY.



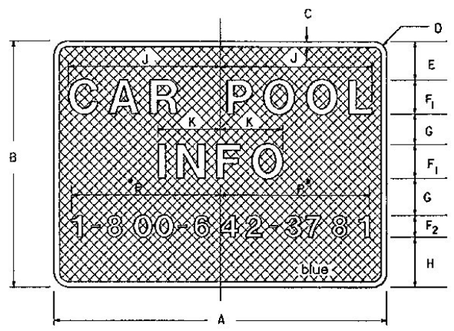


USE ENCAPSULATED LENS SHEETING OR EQUIVALENT

NOTE: DOTTED LINES AND NUMERALS INDICATE TEXT THAT VARIES.

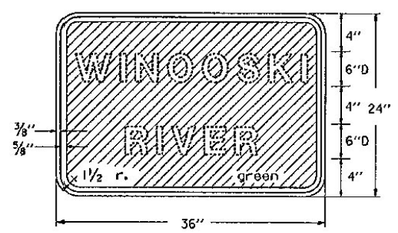


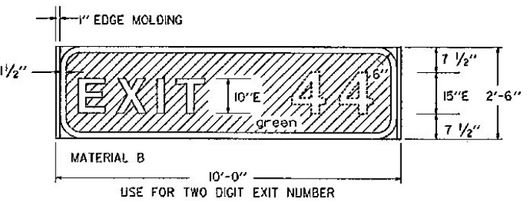
USE FOR ONE DIGIT EXIT NUMBER



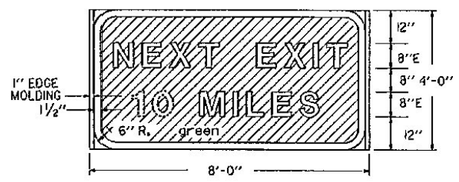
* REDUCE NUMERAL TO NUMERAL SPACING 20 %. TOTAL DASH SPACE : FWY. 3 1/2 ; STD. 3 1/8.

SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F_1	F_2	G	H	J	K	L	M	N	P
STD. AND EXPWY.	54	42	3/4	1 1/4	6	6E	6C	5	8	20 5/8	8 5/8	6 3/4	1	1 1/8	24
FWY.	72	54	1 1/4	1 3/4	8	8E	8C	6	10	31 5/8	13 1/4	8 1/2	1 1/2	1 1/2	32

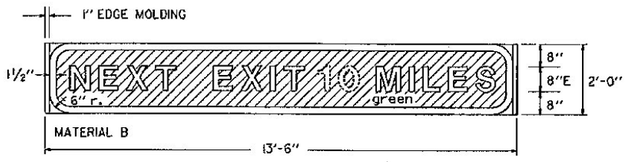




USE FOR TWO DIGIT EXIT NUMBER



USE THIS SIGN WHEN PARENT SIGN IS LESS THAN 14' (HORIZ.)



USE THIS WHEN PARENT SIGN IS 14' OR MORE (HORIZ.)

MATERIALS

THE SIGN BASE MATERIAL USED FOR THE GUIDE SIGNS ON THIS SHEET MAY BE ANY OF THE FOLLOWING EXCEPT AS NOTED:

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C - FORMED GALVANIZED STEEL PANELS, WITH REFLECTIVE SHEETING.

TEXT AND BORDER

THE MATERIAL FOR THE TEXT AND BORDER AND SYMBOLS OF THESE SIGNS SHALL BE OF FLAT SHEET ALUMINUM 0.040 THICKNESS WITH WHITE OR SILVER ENCAPSULATED SHEETING.

COLORS

THE SIGNS SHALL HAVE A REFLECTORIZED WHITE TEXT ON A REFLECTORIZED GREEN OR BLUE BACKGROUND AS INDICATED FOR EACH SIGN. THE GREEN AND BLUE SHALL CONFORM WITH THOSE FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPT. OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE REQUIREMENTS FOUND IN THE PUBLICATION "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

DESIGNS

THE DESIGN OF THESE SIGNS SHALL CONFORM WITH THE DETAILS SET FORTH IN THE MANUAL "STANDARD HIGHWAY SIGNS" AS SPECIFIED IN "THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."

SPECIFICATIONS

THE SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR "TRAFFIC SIGNS."

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David B. Kelley
CHIEF ENGINEER

Arthur Ross
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

GUIDE SIGN DETAILS

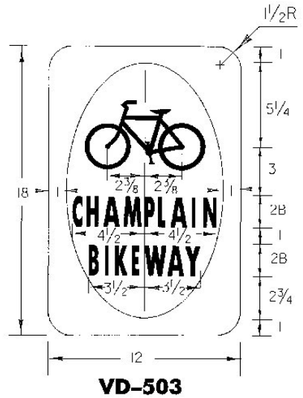
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-131

*** REDUCE LETTER SPACING 50%**

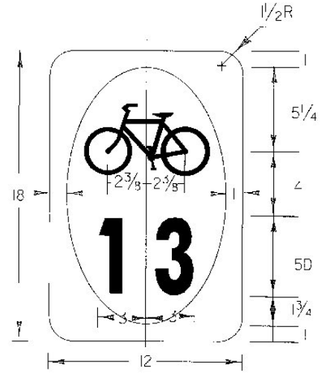
D4-3

COLORS: BACKGROUND - WHITE (REFL)
TEXT, BORDER AND SYMBOLS - GREEN (RFLTL)



VD-503

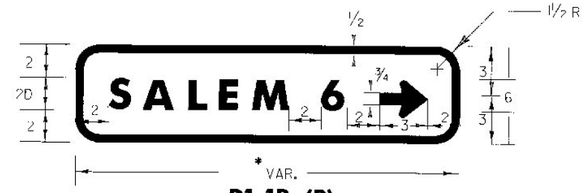
COLORS:
LEGEND AND SYMBOL - WHITE (REFL)
INNER BACKGROUND - GREEN (REFL)
OUTER BACKGROUND - WHITE (REFL)



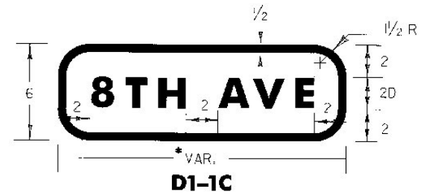
M1-8

COLORS:
LEGEND AND SYMBOL - WHITE (REFL)
INNER BACKGROUND - GREEN (REFL)
OUTER BACKGROUND - WHITE (REFL)

D1-1B (L)

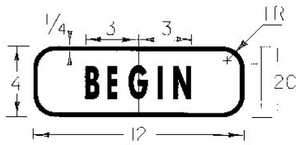


D1-1B (R)

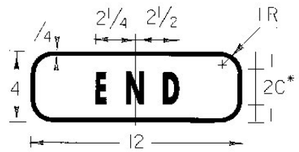


D1-1C

*** 24 INCH MAX.**

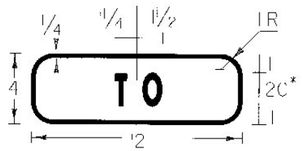


M4-11



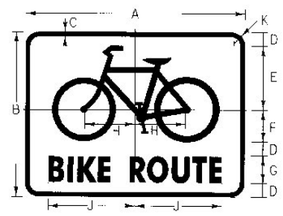
*** INCREASE LETTER SPACING 100%**

M4-12



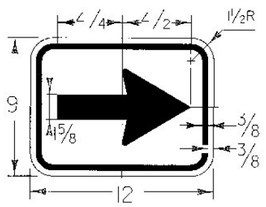
*** INCREASE LETTER SPACING 100%**

M4-13

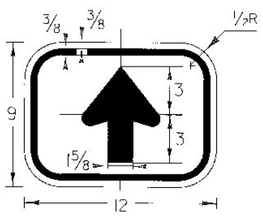


D11-1

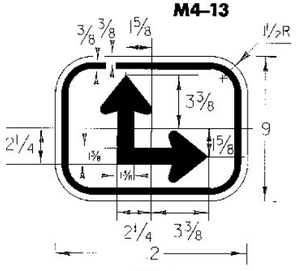
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN & STD	24	18	1/2	1 1/2	7	3 1/2	30	5 1/2	9 1/2	1/2



M7-1



M7-2



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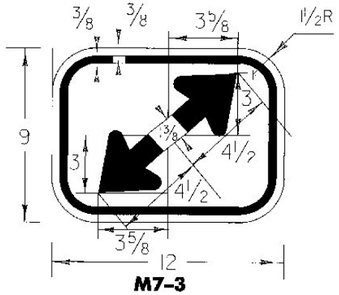

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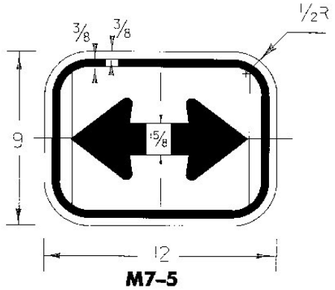

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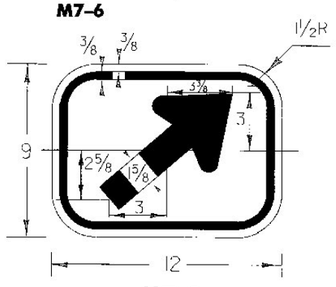

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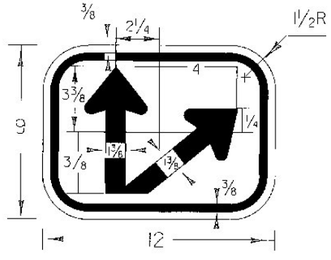


M7-7

GENERAL

SEE STANDARD E-144 FOR ARROWHEAD DETAILS. SEE FHWA STANDARD HIGHWAY SIGN BOOK FOR BIKE DETAIL.
SUPPLEMENTAL PLAQUES SHALL BE USED ONLY IN COMBINATION WITH GUIDE SIGNS. THEY SHALL NOT BE MOUNTED ALONE OR DISPLAYED ALONE. IF USED, A SUPPLEMENTAL PLAQUE SHALL BE INSTALLED ON THE SAME POST(S) AS THE GUIDE SIGN.

COLORS

THE SIGNS SHOWN ON THIS SHEET SHALL HAVE REFLECTORIZED WHITE TEXT, SYMBOLS AND BORDER ON A REFLECTORIZED GREEN BACKGROUND UNLESS OTHERWISE NOTED.
THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY AASHTO AND APPROVED BY THE FHWA.

MATERIALS

THE SIGN BASE MATERIALS USED FOR GUIDE SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING MINIMUM THICKNESSES NOTED:

	12 X 4 12 X 9 12 X 18	24 X 9 24 X 18
FLAT SHEET ALUMINUM	0.060"	0.080"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"

THE REFLECTIVE MATERIAL SHALL BE ASTM TYPE III GREEN OR WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT AND BORDER MAY BE LETTERING FILM OR SILK SCREENED.

SPECIFICATIONS

GUIDE SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS AS DESCRIBED IN THE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

TEXT DESIGN

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM TO THE LATEST VERSION OF FHWA'S 'STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'. DETAILS SHALL CONFORM WITH THOSE DESCRIBED IN THE PUBLICATION 'STANDARD HIGHWAY SIGNS' AS SPECIFIED IN THE MUTCD.

ALL DIMENSIONS ARE IN INCHES EXCEPT WHERE NOTED

OTHER STDS. E-144
REQUIRED:

REVISIONS AND CORRECTIONS
DEC 30, 2002 - DATE OF ORIGINAL ISSUE
May 30, 2003 - Superceded

APPROVED

DIRECTOR OF PROJECT DEVELOPMENT

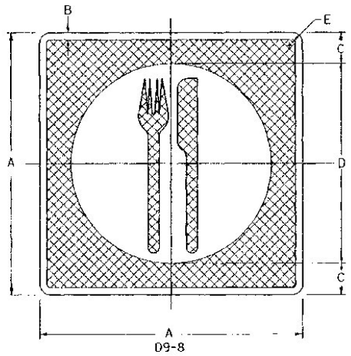
TRAFFIC OPERATIONS ENGINEER

FEDERAL HIGHWAY ADMINISTRATION

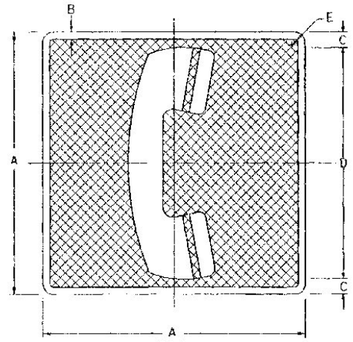
BICYCLE GUIDE SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

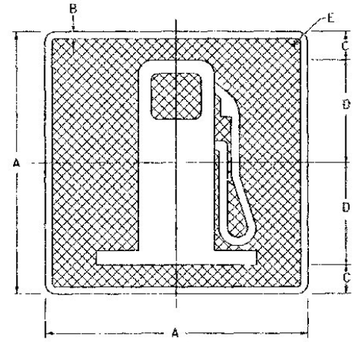
STANDARD
E-131B



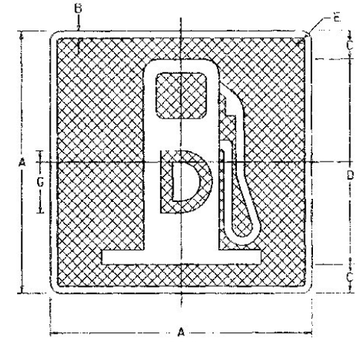
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN	18	1/2	1 1/2	15	1 1/2
STD	24	1/2	2	20	1 1/2
SPECIAL	30	3/4	2 1/2	25	1 7/8



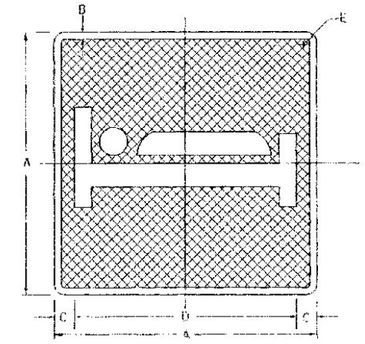
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN	18	1/2	1 1/2	15	1 1/2
STD	24	1/2	2	20	1 1/2
SPECIAL	30	3/4	2 1/2	25	1 7/8



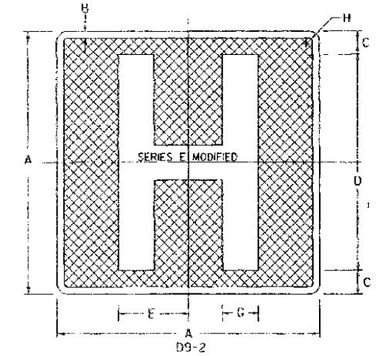
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN	18	1/2	3	6	1 1/2
STD	24	1/2	3	9	1 1/2
SPECIAL	30	3/4	3 3/4	11 1/4	1 7/8



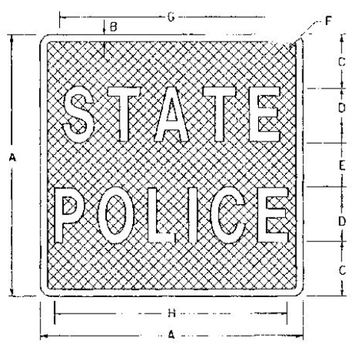
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	G
MIN	18	1/2	1 1/2	15	1 1/2	4E(M)
STD	24	1/2	2	20	1 1/2	6E(M)
SPECIAL	30	3/4	2 1/2	25	1 7/8	8E(M)



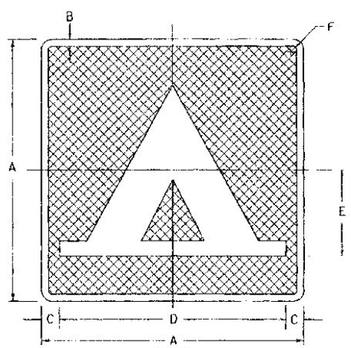
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN	18	1/2	1 1/2	15	1 1/2
STD	24	1/2	2	20	1 1/2
SPECIAL	30	3/4	2 1/2	25	1 7/8



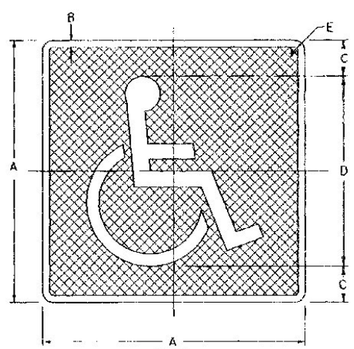
SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	G	H
MIN	18	1/2	1 1/2	15			1 1/2
STD	24	1/2	2	20	6 5/8	3 1/5	1 1/2
SPECIAL	30	3/4	2 1/2	25	8	4	1 7/8



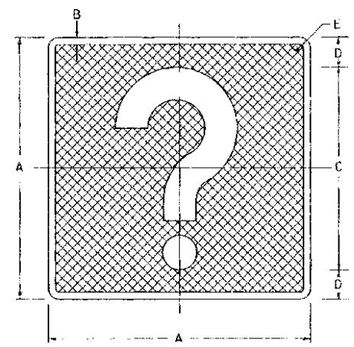
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MIN AND STD	24	1/2	5	5C	4	1/2	14 9/16	18
SPECIAL	30	1/2	6	6C	6	1/2	18 3/4	22 7/16



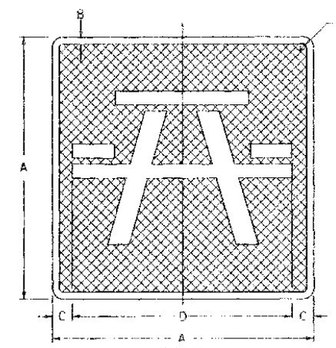
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MIN	18	1/2	1 1/2	15	6	1 1/2
STD	24	1/2	2	20	8	1 1/2
SPECIAL	30	3/4	2 1/2	25	10	1 7/8



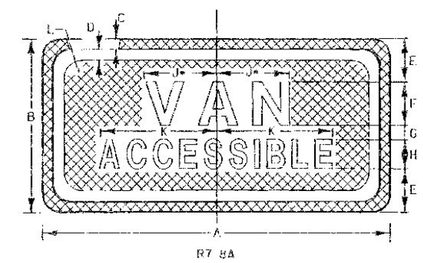
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN	18	1/2	1 1/2	15	1 1/2
STD	24	1/2	2	20	1 1/2
SPECIAL	30	3/4	2 1/2	25	1 7/8



SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN	18	1/2	1 1/2	15	1 1/2
STD	24	1/2	2	20	1 1/2
SPECIAL	30	3/4	2 1/2	25	1 7/8



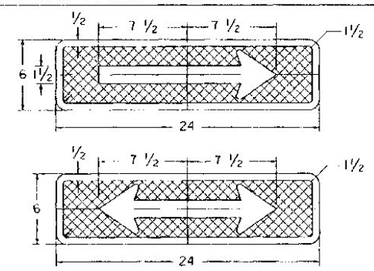
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN	18	1/2	1 1/2	15	1 1/2
STD	24	1/2	2	20	1 1/2
SPECIAL	30	3/4	2 1/2	25	1 7/8

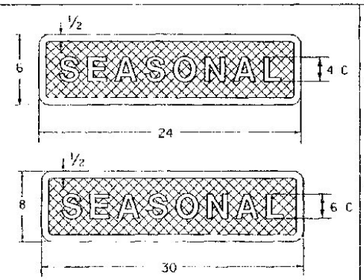


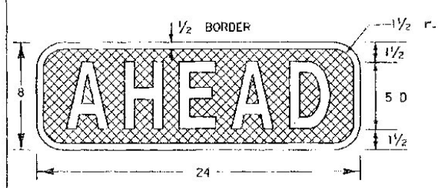
• INCREASE SPACING 50%

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
STD	12	6	3/8	3/8	1 1/2	1 1/2D	1/2	1D	2 1/4	4	1 1/2
SPECIAL	18	9	3/8	5/8	2 1/4	2D	1	1 1/2D	2 3/4	7	1 1/2

NOTE :
ALL DIMENSIONS SHOWN IN INCHES







NOTES

MATERIALS

THE SIGN BASE MATERIAL USED FOR THE GUIDE SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING MINIMUM THICKNESSES NOTED.

A - FLAT SHEET ALUMINUM - 0.060
B - HIGH DENSITY OVERLAID PLYWOOD - 1/2"
C - GALVANIZED FLAT SHEET STEEL - 16 GA.

COLORS

THE SIGNS SHALL BE WHITE OR SILVER REFLECTORIZED SHEETING WITH A REVERSE SCREENED BLUE BACKGROUND. THE BLUE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS AND APPROVED BY THE U.S. DEPT. OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING

LETTERS SHALL CONFORM WITH THE REQUIREMENTS FOUND IN THE PUBLICATION "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

DESIGN

THE DESIGN OF THESE SIGNS SHALL CONFORM WITH THE DETAILS SET FORTH IN THE MANUAL "STANDARD HIGHWAY SIGNS" AS SPECIFIED IN "THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES." LETTER-NUMERAL DESIGNATION UNDER EACH SYMBOL IS IDENTIFICATION IN MANUAL.

SPECIFICATIONS

THESE SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR "TRAFFIC SIGNS."

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
DEC. 18, 1989 - DELETED SERVICE MOUNTING DETAIL
REVISED "STATE POLICE" SIGN
ADDED "AHEAD" SIGN
AUG. 18, 1995 - SIGN DETAIL REVISIONS PER STANDARD HIGHWAY SIGNS MANUAL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

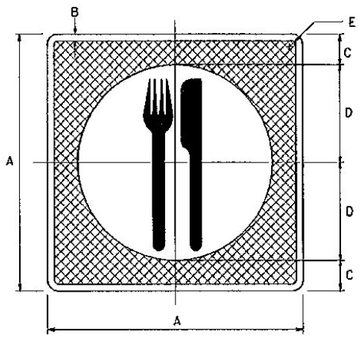
TRAFFIC AND SAFETY ENGINEER

GENERAL MOTORIST SERVICES SIGN DETAILS

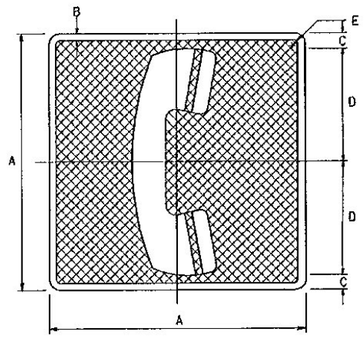
/traf/std/stdel32.dgn : stdel32.i

VERMONT AGENCY OF TRANSPORTATION

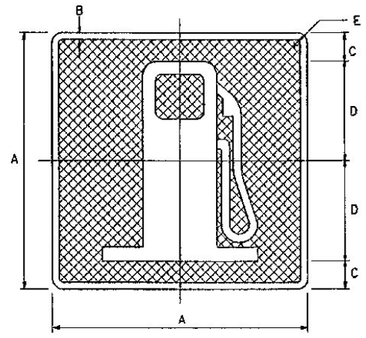
STANDARD E-132



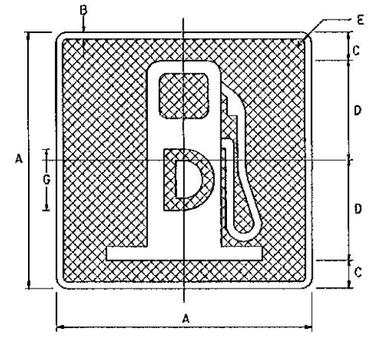
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD	24	1/2	3	9	1 1/2	24
SPECIAL	30	3/4	3 3/4	11 1/4	1 7/8	24



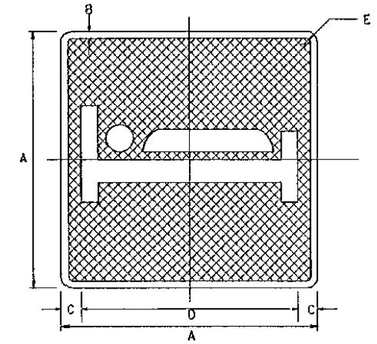
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
STD	24	1/2	1 1/2	10 1/2	1 1/2
SPECIAL	30	3/4	2	13	1 7/8



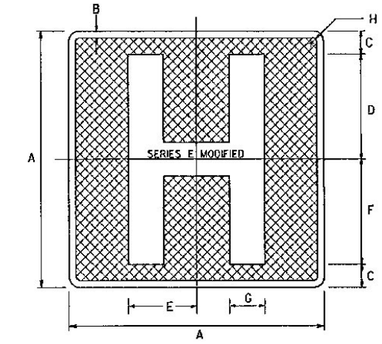
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD	24	1/2	3	9	1 1/2	24
SPECIAL	30	3/4	3 3/4	11 1/4	1 7/8	24



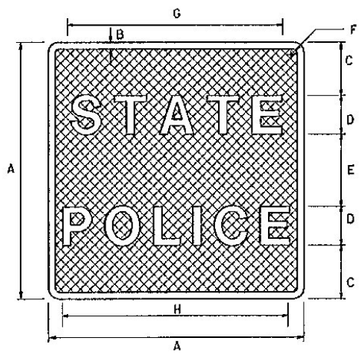
SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	F	G
STD	24	1/2	3	9	1 1/2	24	6E(M)
SPECIAL	30	3/4	3 3/4	11 1/4	1 7/8	24	7 1/2E(M)



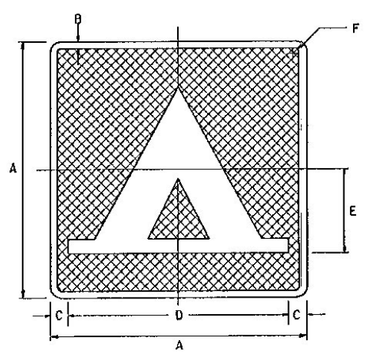
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD	24	1/2	1 1/2	21	1 1/2	24
SPECIAL	30	3/4	2	26	1 7/8	24



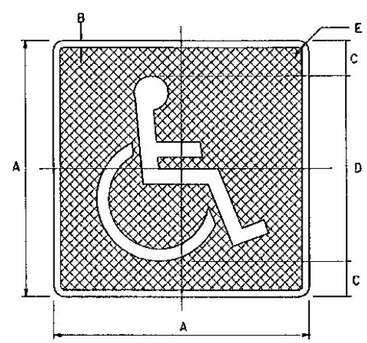
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
STD	24	1/2	4	8	6 3/8	8	3 1/5	1 1/2
SPECIAL	30	3/4	5	10	8	10	4	1 7/8



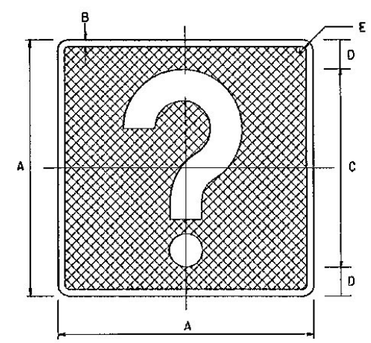
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MIN AND STD	24	1/2	5	5C	4	1 1/2	14 9/16	18
SPECIAL	30	1/2	6	6C	5	1 1/2	18 3/4	22 7/16



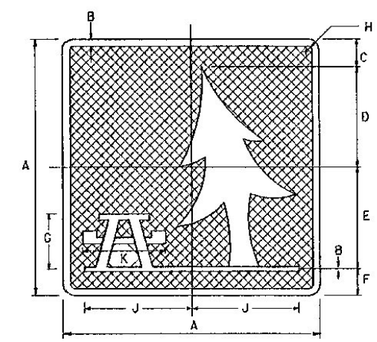
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD&MIN	24	1/2	1 1/2	21	8	1 1/2
SPECIAL	30	3/4	2	26	10	1 7/8



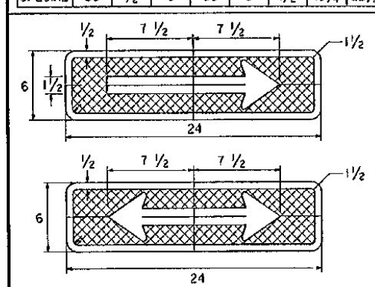
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
STD&MIN	24	1/2	3	18	1 1/2
SPECIAL	30	3/4	3 3/4	22 1/2	1 7/8

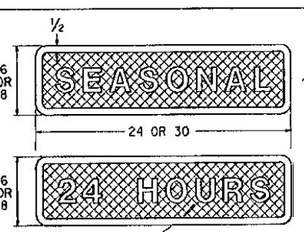


SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
STD	24	1/2	18 1/2	3 3/4	1 1/2
SPECIAL	30	3/4	23 1/4	4 3/4	1 7/8

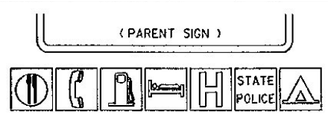


SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
STD&MIN	24	1/2	1 1/2	10 1/2	9 1/2	2 1/2	5 1/4	8	10	1 1/2
SPECIAL	30	3/4	1 7/8	13 1/8	11 7/8	3 1/8	6 3/16	10	12 1/2	1 7/8





USE 30" × 8" PANEL AND 6"C TEXT WITH THE 30" × 30" SIZE SYMBOLS.



SERVICE SIGN MOUNTING DETAILS

WHEN USED, THE SERVICE SIGNS SHALL APPEAR IN THE SAME SEQUENCE AS SHOWN ABOVE. THE SIGNS SHALL BE INSTALLED ON THE SIGN SHOWN ON THE PLANS. THE SERVICE SIGNS SHALL BE MOUNTED TO THE PARENT SIGN WITH TEE BARS PER STANDARD E-24B. A 1.12 POUND PER FOOT MEMBER SHALL BE USED FOR SIGN MOUNTING TO THE TEE BARS. OTHER METHODS OF INSTALLATION MAY BE SUBMITTED TO THE TRAFFIC DESIGN SECTION FOR APPROVAL. IN NO CASE SHALL ANY SUPPORT BE ATTACHED TO THE W-SHAPED STEEL SIGN SUPPORT BELOW THE FUSE PLATE.

NOTES

MATERIALS

THE SIGN BASE MATERIAL USED FOR THE GUIDE SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING MINIMUM THICKNESSES NOTED.

A - FLAT SHEET ALUMINUM - 0.060
B - HIGH DENSITY OVERLAID PLYWOOD - 1/2"
C - GALVANIZED FLAT SHEET STEEL - 16 GA.

COLORS

THE SIGNS SHALL BE WHITE OR SILVER REFLECTORIZED SHEETING WITH A REVERSE SCREENED BLUE BACKGROUND. THE BLUE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS AND APPROVED BY THE U.S. DEPT. OF TRANSPORTATION, FEDERAL HIGHWAY ADIMINISTRATION.

LETTERING

LETTERS SHALL CONFORM WITH THE REQUIREMENTS FOUND IN THE PUBLICATION "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

DESIGN

THE DESIGN OF THESE SIGNS SHALL CONFORM WITH THE DETAILS SET FORTH IN THE MANUAL "STANDARD HIGHWAY SIGNS" AS SPECIFIED IN "THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES." LETTER-NUMERAL DESIGNATION UNDER EACH SMYBOL IS IDENTIFICATION IN MANUAL.

SPECIFICATIONS

THESE SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR "TRAFFIC SIGNS."

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David B. Kelley
CHIEF ENGINEER

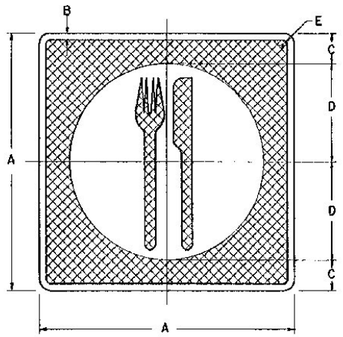
Arthur Gross
DIRECTOR OF PLANNING AND PRECONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

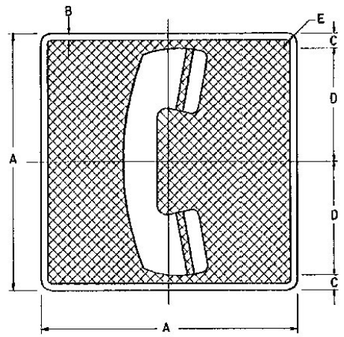
GENERAL MOTORIST SERVICES SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

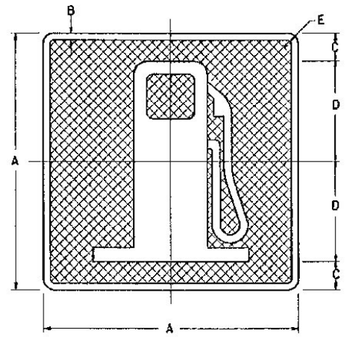
STANDARD
E-132



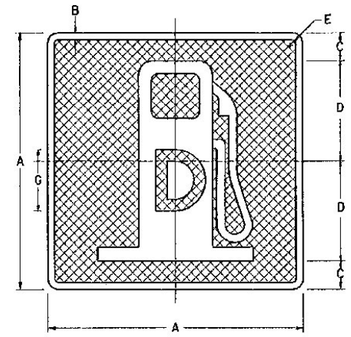
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD	24	1/2	3	9	1 1/2	24
SPECIAL	30	3/4	3 3/4	11 1/4	1 7/8	24



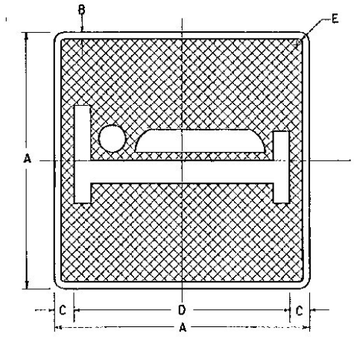
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
STD	24	1/2	1 1/2	10 1/2	1 1/2
SPECIAL	30	3/4	2	13	1 7/8



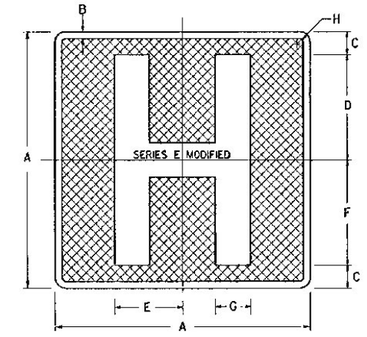
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD	24	1/2	3	9	1 1/2	24
SPECIAL	30	3/4	3 3/4	11 1/4	1 7/8	24



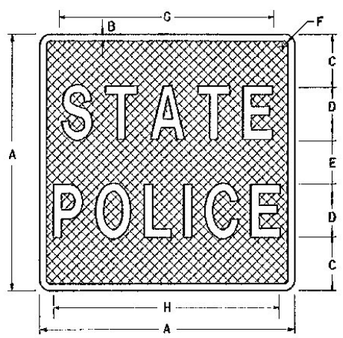
SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	F	G
STD	24	1/2	3	9	1 1/2	24	6E(M)
SPECIAL	30	3/4	3 3/4	11 1/4	1 7/8	24	7 1/2E(M)



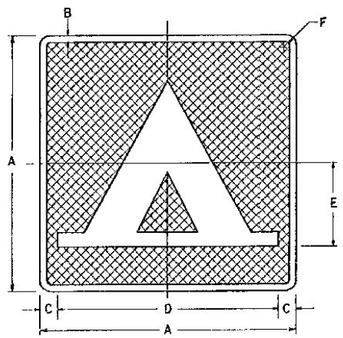
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD	24	1/2	1 1/2	21	1 1/2	24
SPECIAL	30	3/4	2	26	1 7/8	24



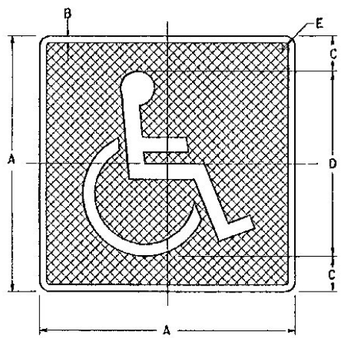
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
STD	24	1/2	4	8	6 3/8	8	3 1/5	1 1/2
SPECIAL	30	3/4	5	10	8	10	4	1 7/8



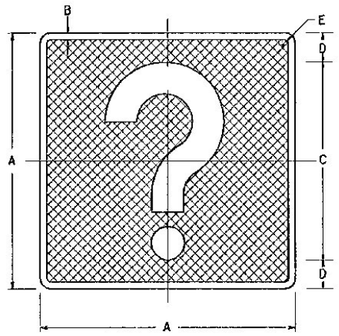
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MIN AND STD	24	1/2	5	5C	4	1 1/2	14 9/16	18
SPECIAL	30	1/2	6	6C	6	1 1/2	18 3/4	22 7/16



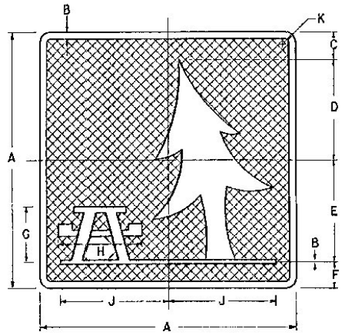
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD&MIN	24	1/2	1 1/2	21	8	1 1/2
SPECIAL	30	3/4	2	26	10	1 7/8



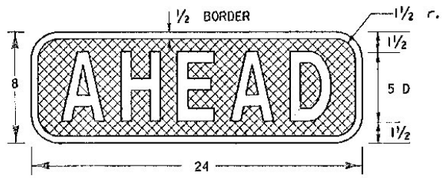
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
STD&MIN	24	1/2	3	18	1 1/2
SPECIAL	30	3/4	3 3/4	22 1/2	1 7/8



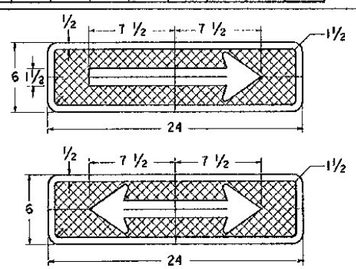
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
STD	24	1/2	18 1/2	2 3/4	1 1/2
SPECIAL	30	3/4	23 1/4	3 3/8	1 7/8

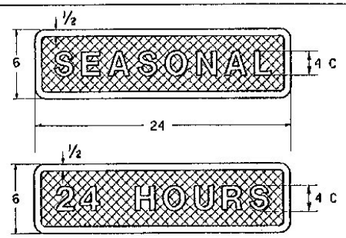


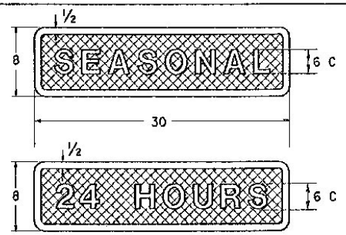
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
STD&MIN	24	1/2	1 1/2	10 1/2	9 1/2	2 1/2	5 1/4	8	10	1 1/2
SPECIAL	30	3/4	1 7/8	13 1/8	11 7/8	3 1/8	6 3/16	10	12 1/2	1 7/8



NOTE :
ALL DIMENSIONS SHOWN IN INCHES







USE 30 × 8 PANEL AND 6C TEXT WITH THE 30 × 30 SIZE SYMBOLS.

NOTES

MATERIALS

THE SIGN BASE MATERIAL USED FOR THE GUIDE SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING MINIMUM THICKNESSES NOTED.

A - FLAT SHEET ALUMINUM - 0.060
B - HIGH DENSITY OVERLAID PLYWOOD - 1/2"
C - GALVANIZED FLAT SHEET STEEL - 16 GA.

COLORS

THE SIGNS SHALL BE WHITE OR SILVER REFLECTORIZED SHEETING WITH A REVERSE SCREENED BLUE BACKGROUND. THE BLUE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS AND APPROVED BY THE U.S. DEPT. OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING

LETTERS SHALL CONFORM WITH THE REQUIREMENTS FOUND IN THE PUBLICATION 'STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS' PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

DESIGN

THE DESIGN OF THESE SIGNS SHALL CONFORM WITH THE DETAILS SET FORTH IN THE MANUAL "STANDARD HIGHWAY SIGNS" AS SPECIFIED IN "THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES." LETTER-NUMERAL DESIGNATION UNDER EACH SYMBOL IS IDENTIFICATION IN MANUAL.

SPECIFICATIONS

THESE SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR "TRAFFIC SIGNS."

REVISIONS AND CORRECTIONS

DEC. 18, 1989 - DELETED SERVICE MOUNTING DETAIL
REVISED "STATE POLICE" SIGN
ADDED "AHEAD" SIGN

APPROVED

SEPT. 10, 1987
DATE

Daniel B. Kelley
CHIEF ENGINEER

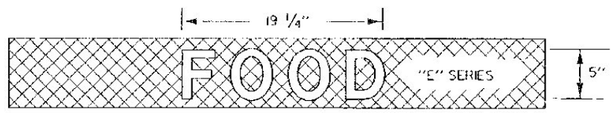
Stephen J. Gross
DIRECTOR OF PLANNING

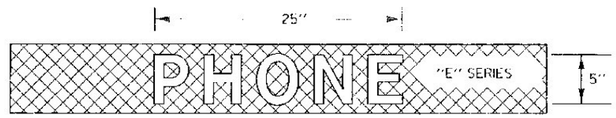
Gordon R. MacArthur
TRAFFIC AND SAFETY ENGINEER

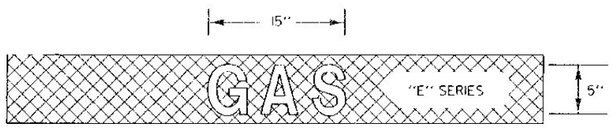
GENERAL MOTORIST SERVICES SIGN DETAILS

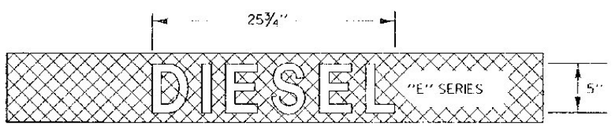
VERMONT AGENCY OF TRANSPORTATION

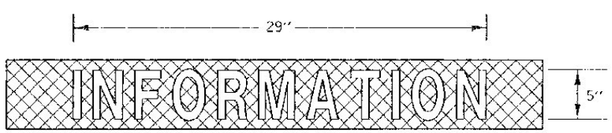
STANDARD
E-132







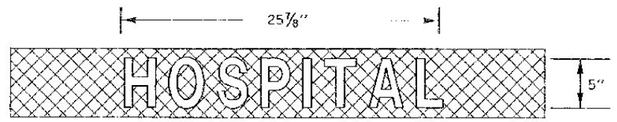




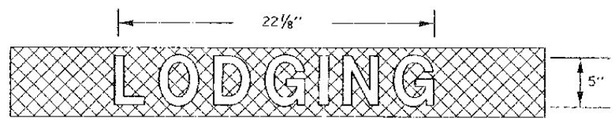
"B" SERIES

"C" SERIES

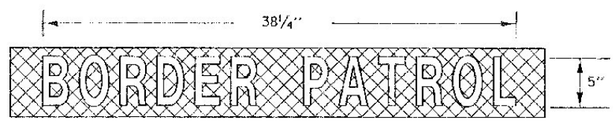
"C" SERIES *



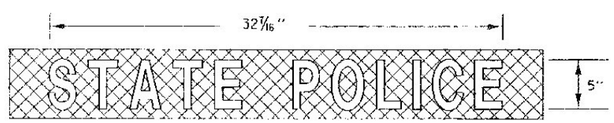
"C" SERIES *



"C" SERIES



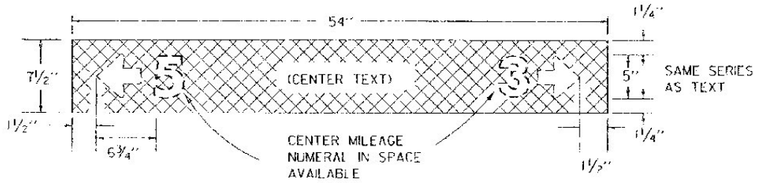
"B" SERIES



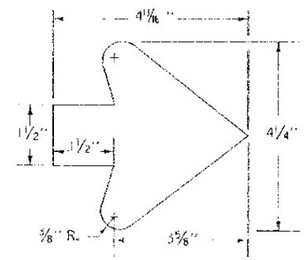
"B" SERIES

TEXT

* HORIZONTAL SPACING OF LETTERS MAY BE REDUCED SLIGHTLY IF NECESSARY.



SIGN & LEGEND LAYOUT DIMENSIONS



ARROW DIMENSIONS

GENERAL:
DOTTED LINES DENOTE VARIABLE TEXT. CROSSHATCHING DENOTES BLUE BACKGROUND.

MATERIALS:
THE SIGN BASE MATERIAL FOR SERVICES SIGNS SHALL BE HIGH DENSITY OVERLAID PLYWOOD • INCH THICK OR FLAT SHEET ALUMINUM 0.125 INCH THICK. THE REFLECTIVE MATERIAL SHALL BE BLUE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND

COLORS:
DESTINATION SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT ON A REFLECTORIZED BLUE BACKGROUND.

LETTERING:
LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS APPROVED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS:
SIGNS SHALL MEET THE STATE SPECIFICATIONS FOR "TRAFFIC SIGNS".

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

DEC. 18, 1989 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - ADDED SIGN DETAILS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacCallum
DIRECTOR OF ENGINEERING

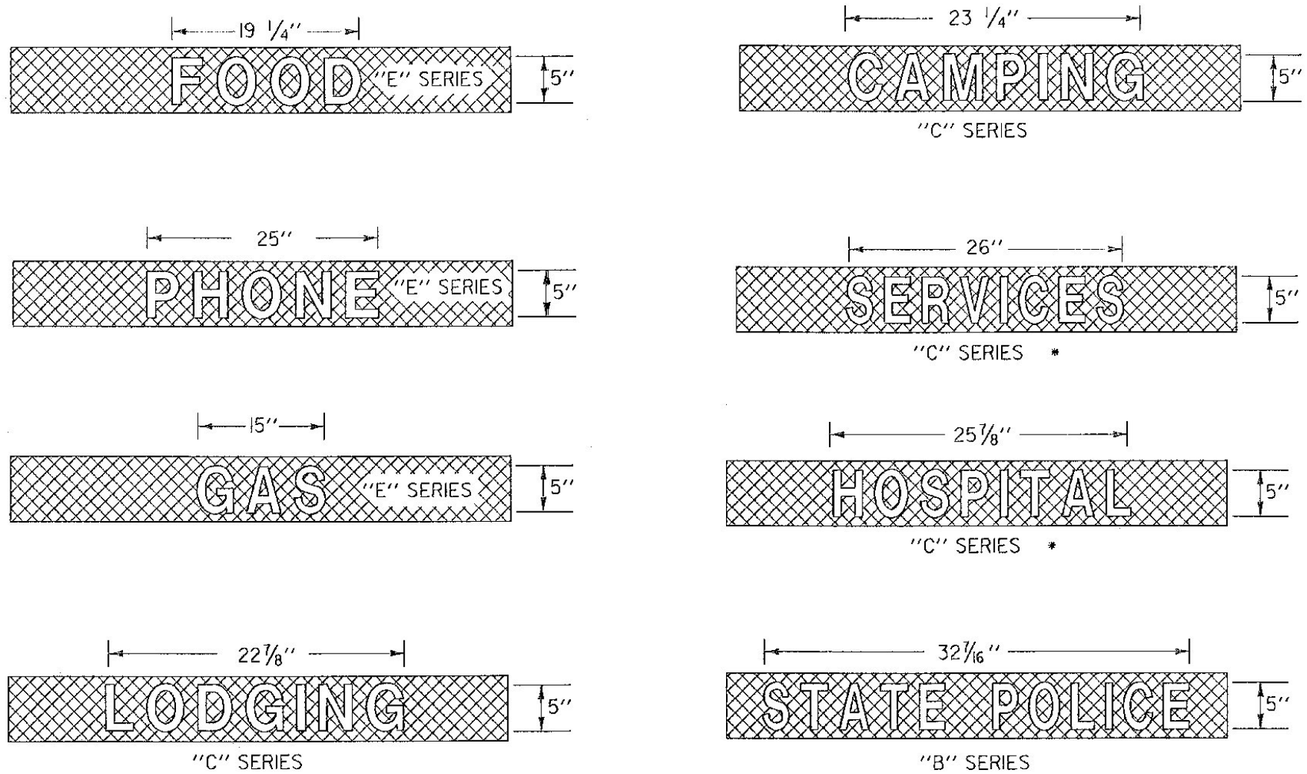
David A. Rose
TRAFFIC AND SAFETY ENGINEER

SERVICE SIGN DETAILS

/traf/std/stde133.dgn : stde133.1

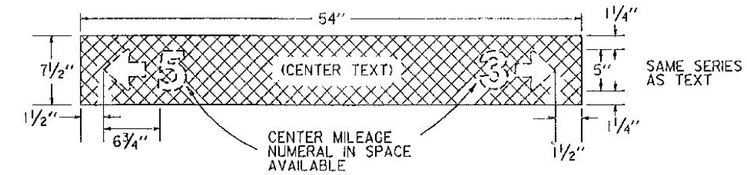
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-133

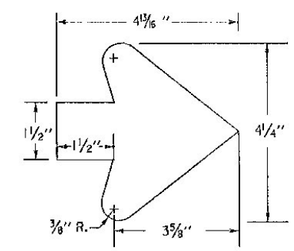


* HORIZONTAL SPACING OF LETTERS MAY BE REDUCED SLIGHTLY IF NECESSARY.

TEXT



SIGN & LEGEND LAYOUT DIMENSIONS



ARROW DIMENSIONS

GENERAL

DOTTED LINES DENOTE VARIABLE TEXT. CROSSHATCHING DENOTES BLUE BACKGROUND.

MATERIALS

THE SIGN BASE MATERIAL FOR SERVICES SIGNS SHALL BE HIGH DENSITY OVERLAID PLYWOOD 5/8 INCH THICK OR FLAT SHEET ALUMINUM 0.125 INCH THICK. THE REFLECTIVE MATERIAL SHALL BE BLUE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT SHALL BE CUT-OUT REFLECTORIZED WHITE OR SILVER LETTERS.

COLORS

DESTINATION SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT ON A REFLECTORIZED BLUE BACKGROUND.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS APPROVED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

SIGNS SHALL MEET THE STATE SPECIFICATIONS FOR "TRAFFIC SIGNS".

REVISIONS AND CORRECTIONS

APPROVED 12/18/89
DATE

David B. Kelley
CHIEF ENGINEER

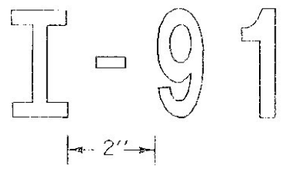
Arthur J. Gore
DIRECTOR OF PLANNING

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

SERVICE SIGN DETAILS

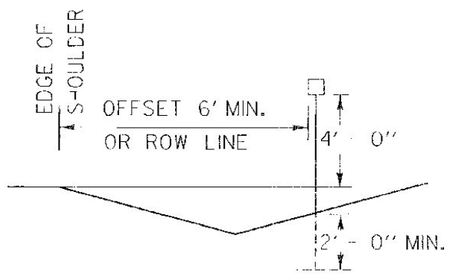
VERMONT AGENCY OF TRANSPORTATION

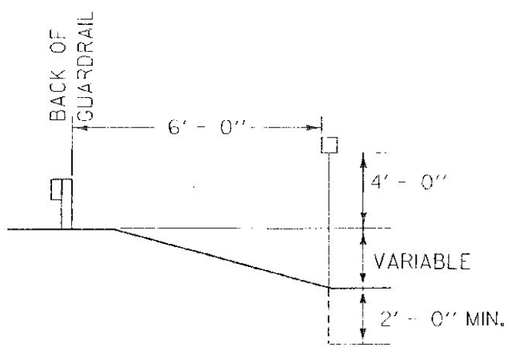
STANDARD
E-133

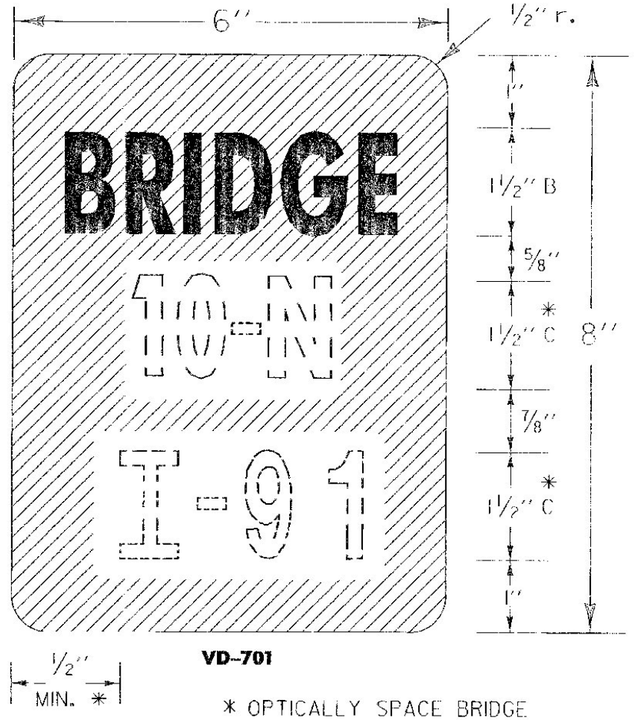


HYPHENATED WORD DETAIL

FOR EXAMPLE, ROUTE NUMBERS SHALL APPEAR AS: I-91, US5, VT22







VD-701

* OPTICALLY SPACE BRIDGE AND ROUTE NUMBERS. SERIES B LETTERS MAY BE USED TO MAINTAIN VISUAL INTEGRITY.

NOTES:

GENERAL:
DOTTED LINES AND NUMERALS INDICATE TEXT THAT VARIES.

PAYMENT:
BRIDGE PLAQUES SHALL BE PAID AS TRAFFIC SIGNS, TYPE "A", AND POSTS PAID AS FLANGED CHANNEL STEEL SIGN POSTS.

MATERIAL:
THE SIGN BASE MATERIAL SHALL BE 0.04" FLAT SHEET ALUMINUM.

COLORS:
THE SIGN SHALL HAVE A REFLECTORIZED WHITE TEXT ON REFLECTORIZED GREEN BACKGROUND. THE COLORS SHALL CONFORM WITH THOSE FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAYADMINISTRATION.

LETTERING:
LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS AS PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

POSTS:
FLANGED CHANNEL STEEL 2#/FT POSTS SHALL BE USED WHEN THE POST LENGTH EXCEEDS 7 FEET. FOR LENGTH OF 7 FEET OR LESS, A 1.12#/FT STEEL SIGN POST SHALL BE USED.

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS
DEC. 17, 1989 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - MISC NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

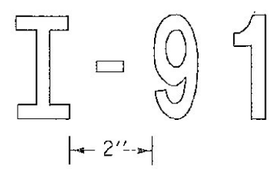
David A. Rose
TRAFFIC AND SAFETY ENGINEER

BRIDGE NUMBER PLAQUE

/traf/std/std134.dgn : std134.i

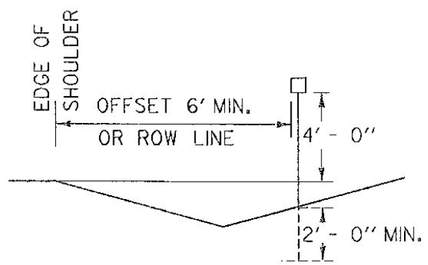
VERMONT AGENCY OF TRANSPORTATION

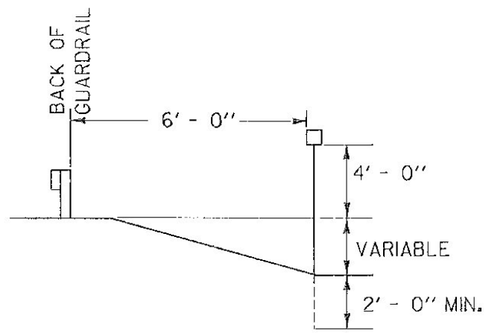
STANDARD
E-134

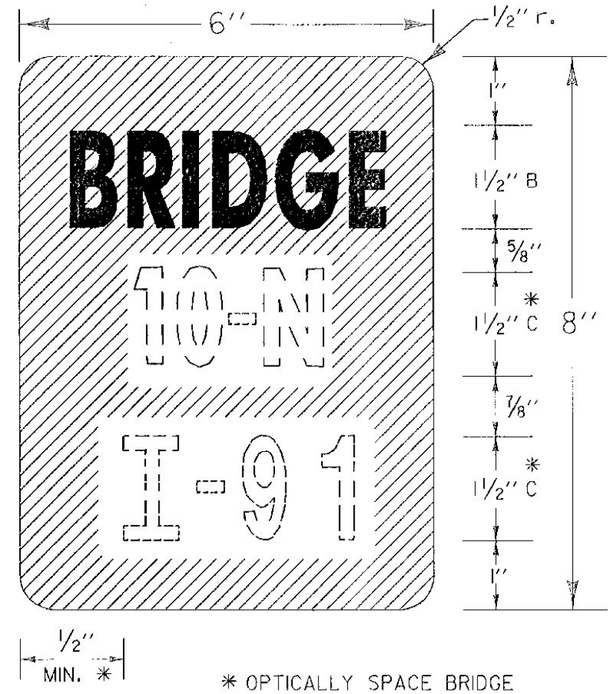


HYPHENATED WORD DETAIL

ROUTE NUMBERS SHALL APPEAR : FOR EXAMPLE AS : I-91, US 5 , VT 22







* OPTICALLY SPACE BRIDGE AND ROUTE NUMBERS. SERIES B LETTERS MAY BE USED TO MAINTAIN VISUAL INTEGRITY.

NOTES

GENERAL:

DOTTED LINES AND NUMERALS INDICATE TEXT THAT VARIES.

PAYMENT:

MILEMARKERS SHALL BE PAID AS TRAFFIC SIGNS, TYPE ''A'', AND POSTS PAID AS FLANGED CHANNEL STEEL SIGN POSTS.

MATERIAL:

THE SIGN BASE MATERIAL SHALL BE 0.04 '' FLAT SHEET ALUMINUM .

COLORS:

THE SIGN SHALL HAVE A REFLECTORIZED WHITE TEXT ON A REFLECTORIZED GREEN BACKGROUND. THE COLORS SHALL CONFORM WITH THOSE FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

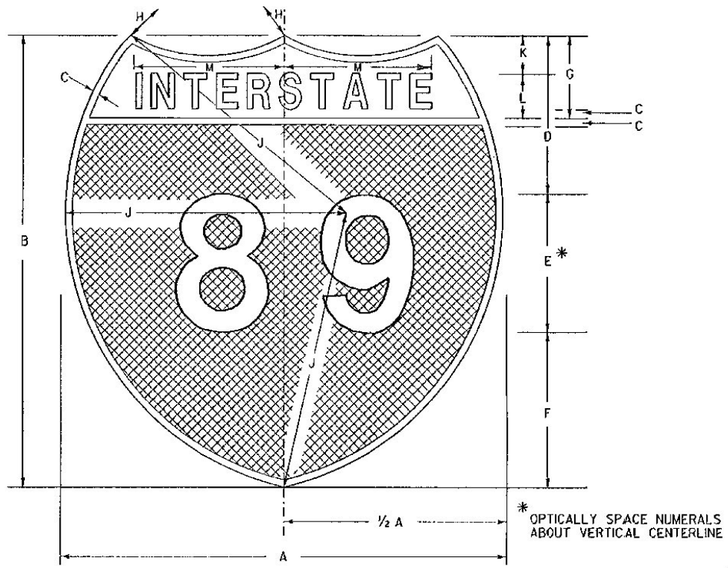
LETTERING:

LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS AS PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

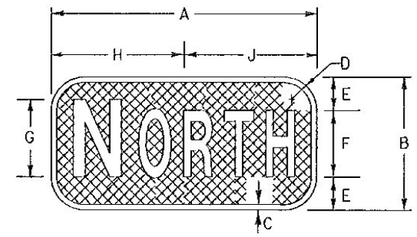
POSTS:

FLANGED CHANNEL STEEL 2 #/FT. POSTS SHALL BE USED WHEN MILEMARKERS ARE INSTALLED BEHIND GUARDRAIL OR WHEN THE POST LENGTH EXCEEDS 7 FEET. FOR LENGTHS OF 7 FEET OR LESS, A 1.12 #/FT. STEEL SIGN POST SHALL BE USED.

REVISIONS AND CORRECTIONS	APPROVED 12/18/89 DATE David B. Kelley CHIEF ENGINEER Arthur Ross DIRECTOR OF PLANNING Gordon R. MacAllister TRAFFIC AND SAFETY ENGINEER	BRIDGE NUMBER PLAQUE	VERMONT AGENCY OF TRANSPORTATION	STANDARD E-134



TYPICAL SIGN TEXTS



CARDINAL DIRECTION MARKER

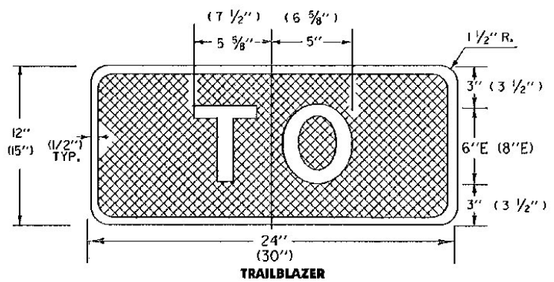
SIGN	DIMENSIONS (INCHES)							NORTH		SOUTH		EAST		WEST	
	A	B	C	D	E	F	G	H	J	H	J	H	J	H	J
MIN. & STD.	24	12	½	1½	3	6C	7C	10¼	10¼	10¼	9⅜	7⅞	8⅜	8¾	8⅞
SPECIAL	30	15	½	1½	3½	8C	9C	12⅞	12⅞	12⅞	12½	10⅜	11⅛	11⅝	11⅝

INTERSTATE SHIELD FOR INDEPENDENT AND GUIDE SIGN USE

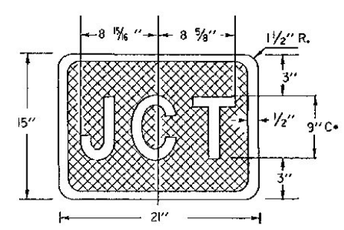
SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
1,2-DIGITS	24	24	½	6½	12 D	5½	5	15	15	2	2½C	7⅞
1,2-DIGITS	36	36	¾	9¾	18 D	8¼	7½	22½	22½	3	3¾C	11⅞
3-DIGITS	30	24	½	6½	12 D	5½	5	24	17	2	2½C	7⅞
3-DIGITS	45	36	¾	9¾	18 D	8¼	7½	36	25½	3	3¾C	11⅞

COLORS

LEGEND AND BORDERS -WHITE (REFL)
TOP -RED (REFL)
BOTTOM (CROSS-HATCHED) -BLUE (REFL)



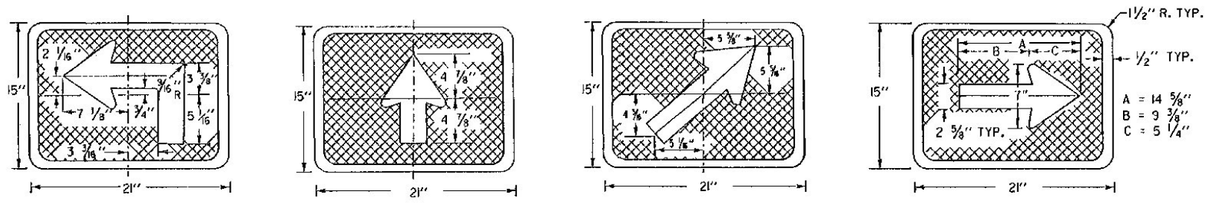
TRAILBLAZER



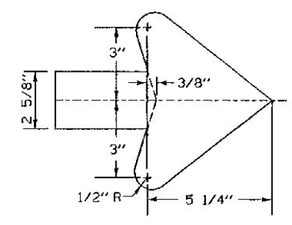
JUNCTION MARKER

INCREASE SPACING 25%

NUMBER IN PARENTHESES INDICATE DIMENSIONS FOR FREEWAY - EXPRESSWAY SIZE



DIRECTIONAL ARROWS OR ADVANCE TURN ARROWS



ARROW DETAILS

MATERIALS

THE SIGN BASE MATERIAL MAY BE ANY OF THE FOLLOWING MINIMUM THICKNESS NOTED:

FLAT SHEET ALUMINUM

LESS THAN 24'' X 24''	0.060''
WHEN USED ON GUIDE SIGNS	0.060''
24'' X 24'', 30'' X 24''	0.080''
36'' X 36'', 45'' X 36''	0.100''

GALVANIZED FLAT SHEET STEEL

LESS THAN 24'' X 24''	18 GAGE
WHEN USED ON GUIDE SIGNS	18 GAGE
24'' X 24'', 30'' X 24''	16 GAGE
36'' X 36'', 45'' X 36''	14 GAGE

THE REFLECTIVE MATERIAL SHALL BE ENCAPSULATED LENS, WHITE OR SILVER REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE MARKER. THE TEXTS OF THE INTERSTATE ROUTE MARKERS AND THE AUXILIARY, EXCEPT TRAILBLAZER AUXILIARES, SHALL BE REVERSE SCREENED.

COLORS

THE INTERSTATE ROUTE MARKER SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT AND BORDER ON A REFLECTORIZED RED AND BLUE BACKGROUND. AUXILIARY MARKERS USED WITH INTERSTATE SHIELDS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT AND BORDER ON A REFLECTORIZED BLUE BACKGROUND.

THE RED AND BLUE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE ''STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.

SPECIFICATIONS

INTERSTATE ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR ''TRAFFIC SIGNS''.

DESIGNS

THE DESIGNS OF INTERSTATE ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE ''MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'' ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.

REVISIONS AND CORRECTIONS

JAN. 23, - 1989 - ADDED ENCAPSULATED SHEETING.
- 30" X 15" SIGNS
OCT. 21, 1992 - NEW CARDINAL SIGN & DIMENSION, ADDED ARROW DETAIL, AND REVISED TITLE BLOCK
JAN 13 1993 - REVISED CARDINAL DIRECTION MARKER BOX

APPROVED: SEPT. 10, 1987
DATE

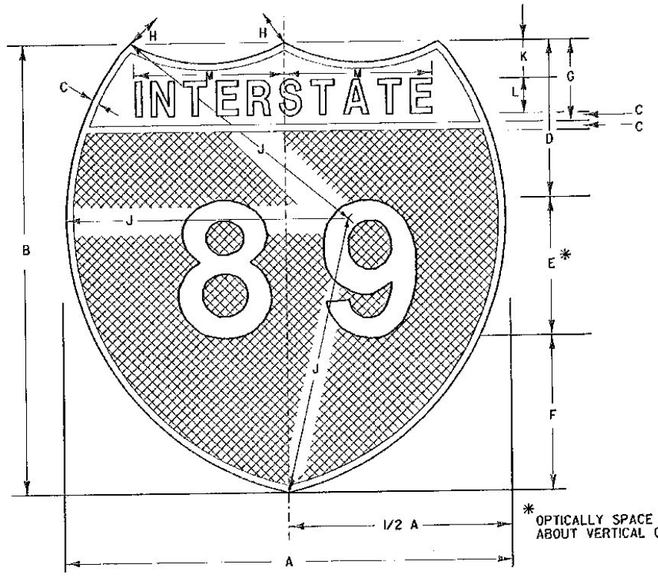
Gordon R. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

INTERSTATE ROUTE MARKER SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-135



* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE

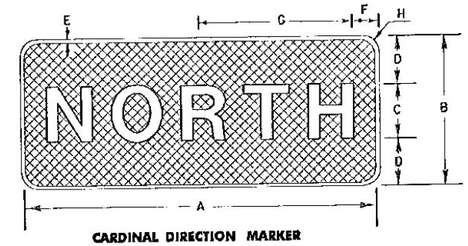
INTERSTATE SHIELD FOR INDEPENDENT AND GUIDE SIGN USE

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
1,2-DIGITS	24	24	1/2	8 1/2	12 D	5 1/2	5	15	15	2	2 1/2 C	7 13/16
1,2-DIGITS	36	36	3/4	9 3/4	18 D	8 1/4	7 1/2	22 1/2	22 1/2	3	3 3/4 C	11 11/16
3-DIGITS	30	24	1/2	6 1/2	12 D	5 1/2	5	24	17	2	2 1/2 C	7 13/16
3-DIGITS	45	36	3/4	9 3/4	18 D	8 1/4	7 1/2	36	25 1/2	3	3 3/4 C	11 11/16

COLORS

LEGEND AND BORDERS -WHITE (REFL)
TOP -RED (REFL)
BOTTOM (CROSS-HATCHED) -BLUE (REFL)

TYPICAL SIGN TEXTS

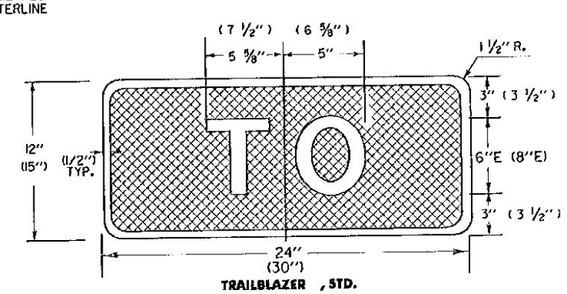


CARDINAL DIRECTION MARKER

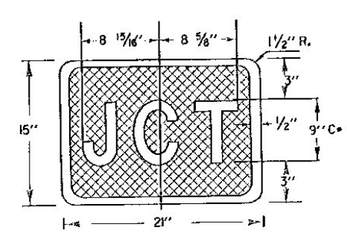
LEGEND MAY ALSO BE SOUTH, EAST, OR WEST

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F		G		H
	—	—	—	—	—	NORTH	SOUTH	NORTH	SOUTH	—
STD	24	12	6C	3	1/2	2	2 1/8	•10	• 9 7/8	1 1/2
EXPWY FWY	30	15	7C	3 1/2	1/2	2 1/2	3	12 1/2	12	1 1/2

• LETTER TO LETTER SPACING HAS BEEN REDUCED 20 %

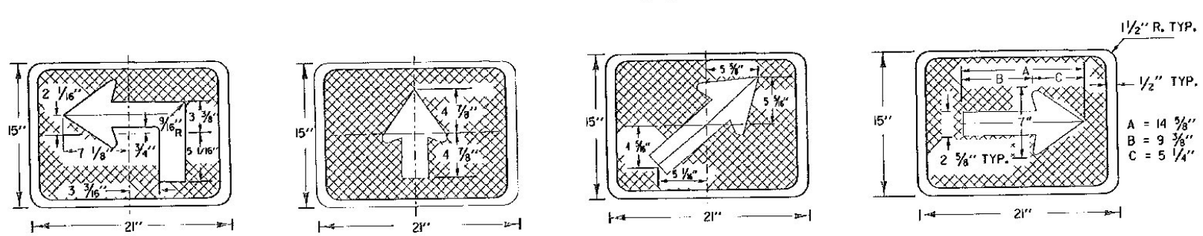


TRAILBLAZER , STD.



JUNCTION MARKER

NUMBER IN PARENTHESES INDICATE
DIMENSIONS FOR FREEWAY - EXPRESSWAY SIZE



DIRECTIONAL ARROWS OR ADVANCE TURN ARROWS

MATERIALS

THE SIGN BASE MATERIAL MAY BE ANY OF THE OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED:

FLAT SHEET ALUMINUM

24"x24", 30"x24"	0.080"
36"x36", 45"x36"	0.100"
WHEN USED ON GUIDE SIGNS	0.060"

GALVANIZED FLAT SHEET STEEL

24"x24", 30"x24"	16 GAGE
36"x36", 45"x36"	14 GAGE

THE REFLECTIVE MATERIAL SHALL BE ENCAPSULATED LENS WHITE OR SILVER REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE MARKER. THE TEXTS OF THE INTERSTATE ROUTE MARKERS, AND THE AUXILIARY EXCEPT TRAILBLAZER AUXILIARIES, SHALL BE REVERSE SCREENED.

COLORS

THE INTERSTATE ROUTE MARKER SHALL HAVE A REFLECTORIZED MARKERS WHITE OR SILVER TEXT AND BORDER ON A REFLECTORIZED RED AND BLUE BACKGROUND. AUXILIARY MARKERS USED WITH INTERSTATE SHIELDS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT AND BORDER ON A REFLECTORIZED BLUE BACKGROUND.

THE RED AND BLUE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE "STANDARD ALPHABETS FOR HIGHWAY SIGNS" APPROVED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

INTERSTATE ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD VERMONT SPECIFICATIONS FOR "TRAFFIC SIGNS."

DESIGNS

THE DESIGNS OF INTERSTATE ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICALS.

REVISIONS AND CORRECTIONS

JAN. 23, - 1989 - ADDED ENCAPSULATED SHEETING,
- 30" X 15" SIGNS

APPROVED

SEPT. 10, 1987
DATE

David B Kelley
CHIEF ENGINEER

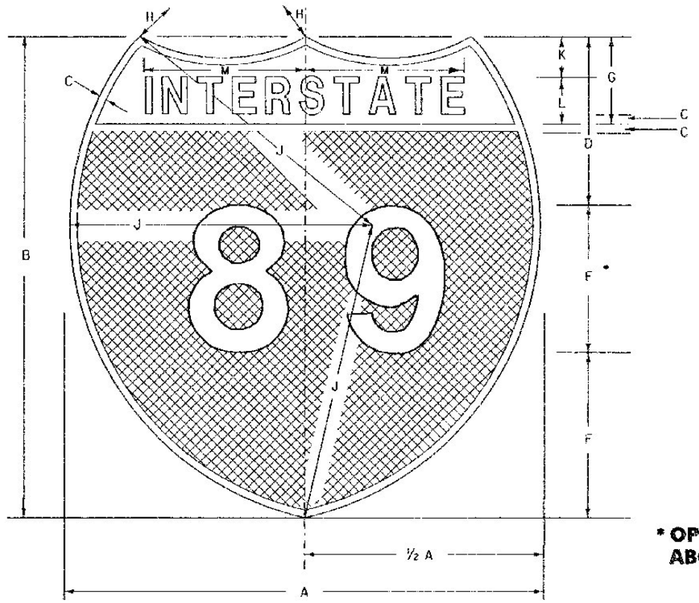
Arthur Jones
DIRECTOR OF PLANNING AND PRECONSTRUCTION

Gordon S. MacArthur
TRAFFIC AND SAFETY ENGINEER

INTERSTATE ROUTE MARKER SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-135



M1-1

INTERSTATE SHIELD FOR INDEPENDENT AND GUIDE SIGN USE

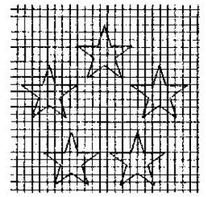
SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
1,2-DIGITS	24	24	½	6½	12 D	5½	5	15	15	2	2½C	7⅛
1,2-DIGITS	36	36	¾	9¾	18 D	8¼	7½	22½	22½	3	3¾C	11⅛
3-DIGITS	30	24	½	6½	12 D	5½	5	24	17	2	2½C	7⅛
3-DIGITS	45	36	¾	9¾	18 D	8¼	7½	36	25½	3	3¾C	11⅛

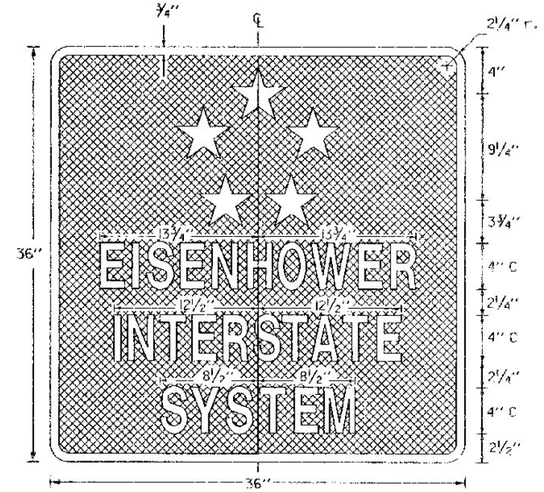
COLORS

LEGEND AND BORDERS -WHITE (REFL)
TOP -RED (REFL)
BOTTOM (CROSS-HATCHED) -BLUE (REFL)

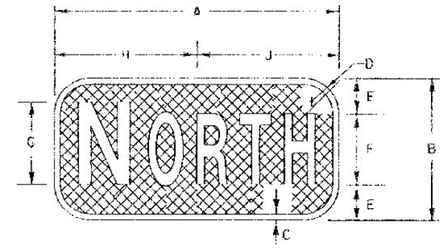
TYPICAL SIGN TEXTS

*** OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE**





COLORS
LEGEND - WHITE (REFL)
BACKGROUND - BLUE (REFL)



CARDINAL DIRECTION MARKER

SIGN	DIMENSIONS (INCHES)							M3-1 NORTH		M3-3 SOUTH		M3-2 EAST		M3-4 WEST	
	A	B	C	D	E	F	G	H	J	H	J	H	J	H	J
MIN. & STD.	24	12	½	1½	3	6C	7C	10¼	10¼	10¼	9⅜	7⅞	8⅜	8¼	8⅜
SPECIAL	30	15	½	1½	3½	8C	9C	12⅝	12⅝	12⅝	12½	10⅜	11⅞	11⅜	11⅜

MATERIALS

THE SIGN BASE MATERIAL MAY BE ANY OF THE FOLLOWING MINIMUM THICKNESS NOTED:

FLAT SHEET ALUMINUM

LESS THAN 24" X 24"	0.060"
WHEN USED ON GUIDE SIGNS	0.060"
24" X 24", 30" X 24"	0.080"
36" X 36", 45" X 36"	0.100"

GALVANIZED FLAT SHEET STEEL

LESS THAN 24" X 24"	18 GAGE
WHEN USED ON GUIDE SIGNS	18 GAGE
24" X 24", 30" X 24"	16 GAGE
36" X 36", 45" X 36"	14 GAGE

THE REFLECTIVE MATERIAL SHALL BE ENCAPSULATED LENS, WHITE OR SILVER REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE MARKER. THE TEXTS OF THE INTERSTATE ROUTE MARKERS AND THE AUXILIARY, EXCEPT TRAILBLAZER AUXILIARES, SHALL BE REVERSE SCREENED.

COLORS

THE INTERSTATE ROUTE MARKER SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT AND BORDER ON A REFLECTORIZED RED AND BLUE BACKGROUND. AUXILIARY MARKERS USED WITH INTERSTATE SHIELDS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT AND BORDER ON A REFLECTORIZED BLUE BACKGROUND.

THE RED AND BLUE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING

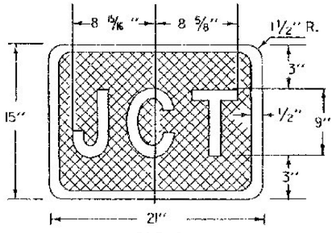
LETTERS AND DIGITS SHALL CONFORM WITH THE "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.

SPECIFICATIONS

INTERSTATE ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

DESIGNS

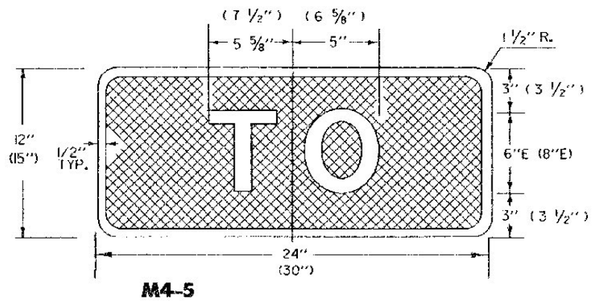
THE DESIGNS OF INTERSTATE ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.



M2-1

JUNCTION MARKER

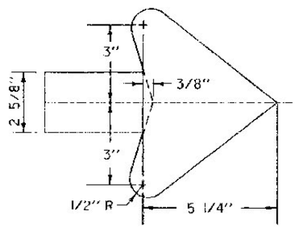
INCREASE SPACING 25%



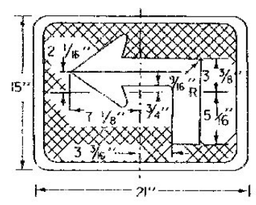
M4-5

TRAILBLAZER

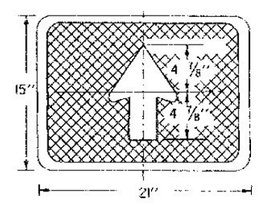
NUMBER IN PARENTHESES INDICATES DIMENSIONS FOR FREEWAY - EXPRESSWAY SIZE



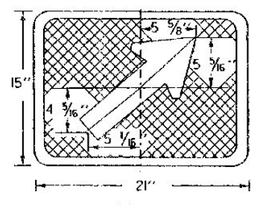
ARROW DETAILS



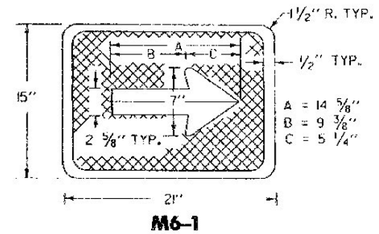
M5-1



M6-3



M6-2



M6-1

DIRECTIONAL ARROWS OR ADVANCE TURN ARROWS

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23 1989 - ADDED ENCAPSULATED SHEETING, 30" X 15" SIGNS
OCT. 21, 1992 - NEW CARDINAL SIGN & DIMENSION, ADDED ARROW DETAIL, AND REVISED TITLE BLOCK.
JAN. 13, 1993 - REVISED CARDINAL DIRECTION MARKER BOX
AUG. 18, 1995 - ADDED EISENHOWER SIGN DETAIL

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

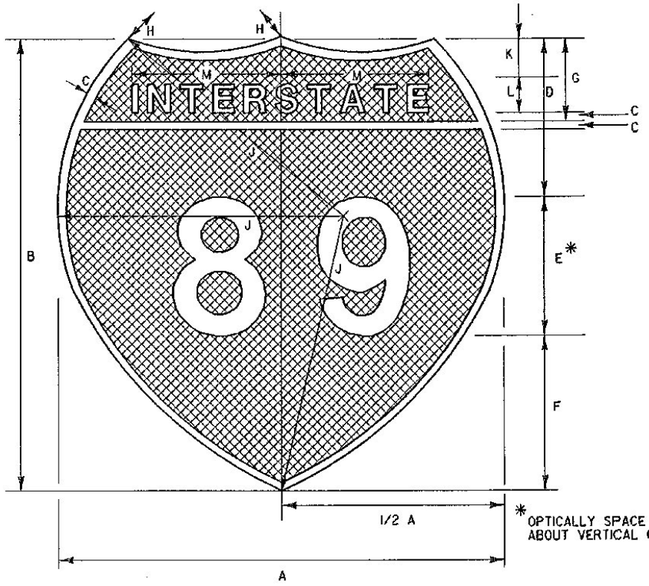
INTERSTATE ROUTE MARKER SIGN DETAILS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

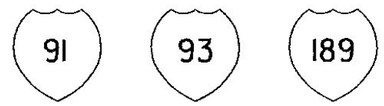
/traf/std/stdel35.dgn : stdel35.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-135



*OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE



TYPICAL SIGN TEXTS

INTERSTATE SHIELD FOR INDEPENDENT AND GUIDE SIGN USE

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
1,2-DIGITS	24	24	1/2	6 1/2	12 D	5 1/2	5	15	15	2	2 1/2 C	7 13/16
1,2-DIGITS	36	36	3/4	9 3/4	18 D	8 1/4	7 1/2	22 1/2	22 1/2	3	3 3/4 C	11 11/16
1,2-DIGITS	48	48	1	13	24 D	11	10	30	30	4	5 C	15 5/16
3-DIGITS	30	24	1/2	6 1/2	12 D	5 1/2	5	24	17	2	2 1/2 C	7 13/16
3-DIGITS	45	36	3/4	9 3/4	18 D	8 1/4	7 1/2	36	25 1/2	3	3 3/4 C	11 11/16
3-DIGITS	60	48	1	13	24 D	11	10	48	34	4	5 C	15 5/16

COLORS

LEGEND	-WHITE (REFL)
TOP	-RED (REFL)
BOTTOM	-BLUE (REFL)

MATERIALS

THE SIGN BASE MATERIAL MAY BE ANY OF THE OF THE FOLLOWING, OF THE MINUMUM THICKNESS NOTED:

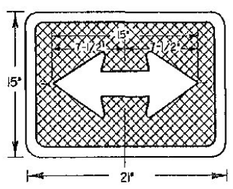
FLAT SHEET ALUMINUM

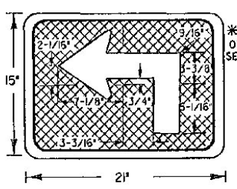
24" X 24"	0.080"
36" X 36"	0.100"
WHEN USED ON GUIDE SIGNS	0.060"

GALVANIZED FLAT SHEET STEEL

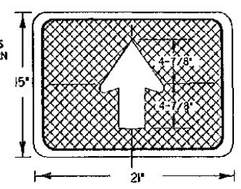
24" X 24"	16 GAGE
36" X 36"	14 GAGE

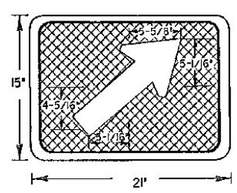
THE REFLECTIVE MATERIAL SHALL BE ENCAPSULATED LENS SILVER REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE MARKER. THE TEXTS OF THE INTERSTATE ROUTE MARKERS, AND OF THE AUXILIARY MARKERS EXCEPT TRAILBLAZER AUXILIARIES, SHALL BE REVERSE SCREENED.



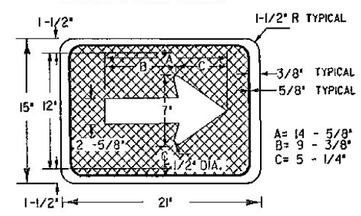


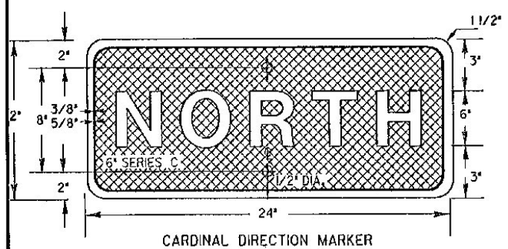
*OTHER DIMENSIONS SEE ADVANCE TURN ARROW.



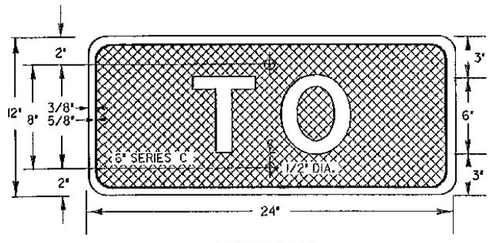


DIRECTION ARROW OR ADVANCE TURN ARROW

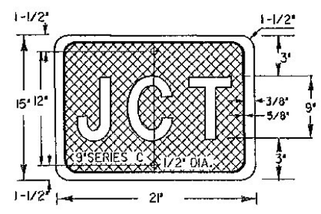




CARDINAL DIRECTION MARKER
LEGEND MAY ALSO BE SOUTH, EAST, OR WEST



TRAILBLAZER



JUNCTION MARKER

COLORS

THE OFFICIAL INTERSTATE ROUTE MARKER SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT AND BORDER ON A REFLECTORIZED RED AND BLUE BACKGROUND. AUXILIARY MARKERS USED WITH INTERSTATE ROUTE MARKERS SHALL HAVE A REFLECTORIZED WHITE AND SILVER TEXT AND BORDER ON A REFLECTORIZED BLUE BACKGROUND.

THE RED AND BLUE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE "STANDARD ALPHABETS FOR HIGHWAY SIGNS" APPROVED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

INTERSTATE ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR "TRAFFIC SIGNS."

DESIGNS

THE DESIGNS OF INTERSTATE ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICALS.

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David B. Keller
CHIEF ENGINEER

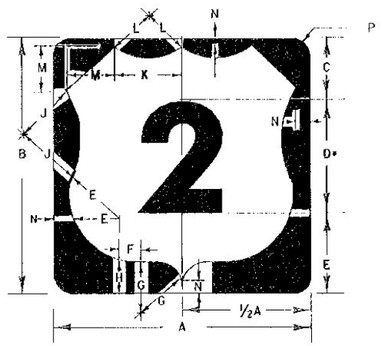
Arthur Gore
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

INTERSTATE ROUTE MARKER SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-135

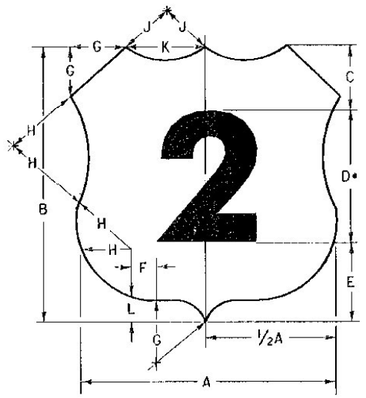


U.S. ROUTE MARKER

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
1 DIGIT	24	24	5½	12D	6½	1	5½	2½	7½	7	5½	4½	½	1½
1 DIGIT	36	36	8¼	18D	9¾	1½	8¼	3¾	11¼	10½	8¼	6½	¾	2¼
3,-digits	30	24	5½	12D	6½	4	5½	2½	7½	10	9½	4½	½	1½
3,-digits	45	36	8¼	18D	9¾	5½	8¼	3¾	11¼	15	14¼	6½	¾	2¼

COLORS

TEXT AND BORDER - BLACK (NON REFL.)
BACKGROUND - WHITE (REFL.)

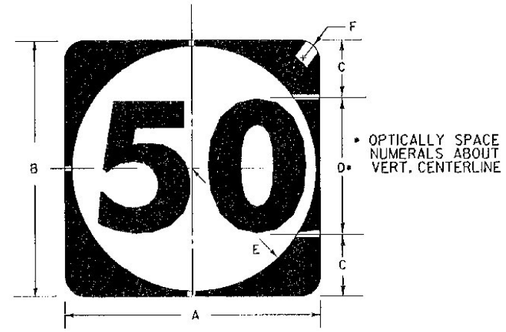


U.S. ROUTE MARKER FOR GUIDE SIGN USE

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
1,2-digits	24	24	5½	12D	6½	1	5	7	5	7	2
1,2-digits	36	36	8¼	18D	9¾	1½	7½	10½	7½	10½	3
3,-digits	30	24	5½	12D	6½	4	5	7	9	10	2
3,-digits	45	36	8¼	18D	9¾	5½	7½	10½	13½	15	3

COLORS

TEXT - BLACK (NON REFL.)
BACKGROUND - WHITE (REFL.)

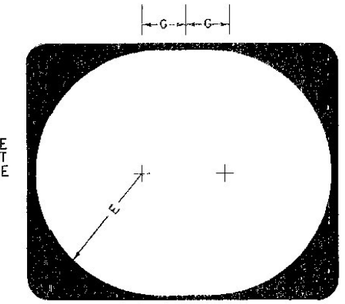


1 OR 2 DIGIT STATE ROUTE MARKERS

SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	F	G
1,2-digits	24	24	6	12D	11	1½	-
1,2-digits	36	36	9	18D	16½	2¼	-
3,-digits	30	24	6	12D	11	1½	3
3,-digits	45	36	9	18D	16½	2¼	4½

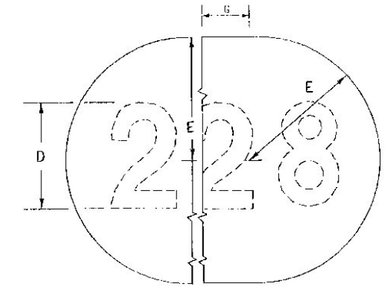
COLORS

TEXT AND BORDER - BLACK (NON REFL.)
BACKGROUND - WHITE (REFL.)



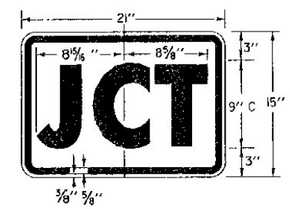
3 DIGIT STATE ROUTE MARKER

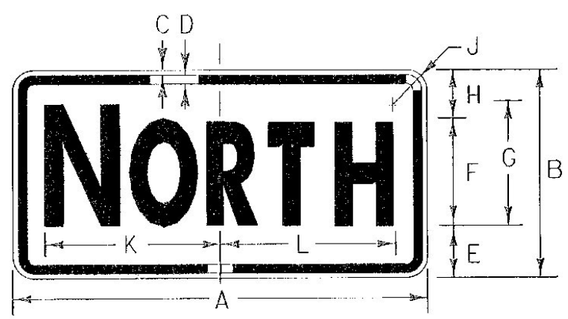
(SEE DIMENSION CHART FOR 1 OR 2 DIGIT SIGNS)



STATE ROUTE MARKER FOR GUIDE SIGN USE

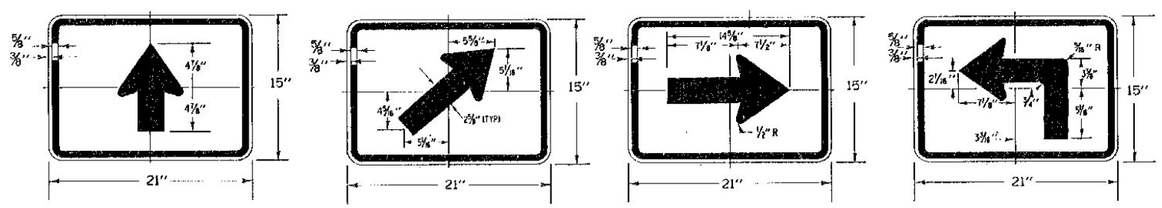
SIGN	DIMENSIONS (INCHES)		
	D	E	G
1,2-digits	12D	12	-
1,2-digits	18D	18	-
3,-digits	12D	12	3
3,-digits	18D	18	4½



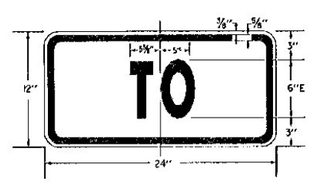


SIGN	DIMENSIONS (INCHES)									NORTH		SOUTH		EAST		WEST	
	A	B	C	D	E	F	G	H	J	K	L	K	L	K	L	K	L
MIN. & STD.	24	12	⅛	⅝	2¾	6C	7C	3¼	1½	10¼	10¼	10¼	9 15/16	7⅛	8⅜	8¾	8 15/16
SPECIAL	30	15	⅛	⅝	3¼	8C	9C	3¾	1½	12 5/16	12 5/16	12 11/16	12½	10⅛	11⅛	11⅝	11⅝

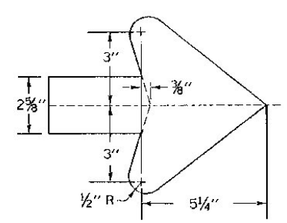
CARDINAL DIRECTION MARKER



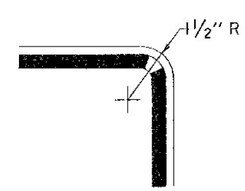
DIRECTION ARROW OR ADVANCE TURN ARROWS



TRAILBLAZER



ARROW DETAILS



TYPICAL RADIUS DETAIL

MATERIALS

THE SIGN BASE MATERIAL MAY BE ANY OF THE FOLLOWING, WITH THE MINIMUM THICKNESSES AS NOTED:

FLAT SHEET ALUMINUM

LESS THAN 24" X 24"	0.060"
WHEN USED ON GUIDE SIGNS	0.060"
24" X 24", 30" X 24"	0.080"
36" X 36", 45" X 36"	0.100"

GALVANIZED FLAT SHEET STEEL

LESS THAN 24" X 24"	18 GAGE
WHEN USED ON GUIDE SIGNS	18 GAGE
24" X 24", 30" X 24"	16 GAGE
36" X 36", 45" X 36"	14 GAGE

THE REFLECTIVE MATERIAL SHALL BE WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND. THE TEXTS MAY BE LETTERING FILM, SILK SCREENED, OR HAND PAINTED.

COLORS

U.S. AND STATE ROUTE MARKERS SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUNDS.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

SPECIFICATIONS

U.S. AND STATE ROUTE MARKERS AND AUXILIARY ROUTE MARDERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

DESIGNS

THE DESIGNS OF STATE ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

REVISIONS AND CORRECTIONS

APRIL 29, 1988 - FHWA COMMENTS
OCT. 21, 1992 - NEW CARDINAL & JCT. SIGNS & REVISED TITLE BLOCK
JAN. 13, 1993 - REVISED CARDINAL DIRECTION MARKER BOX

APPROVED: SEPT. 10, 1987
DATE

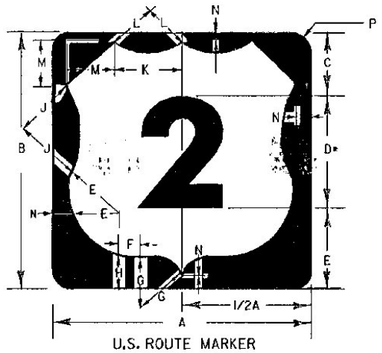
Gordon S. MacArthur
DIRECTOR OF ENGINEERING

David A. Roar
TRAFFIC AND SAFETY ENGINEER

U.S. AND STATE ROUTE MARKER SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

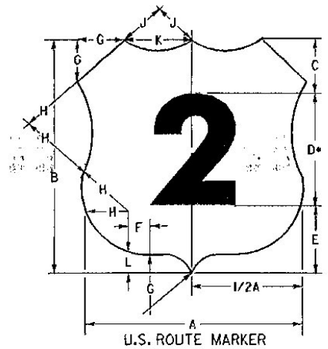
STANDARD E-136



U.S. ROUTE MARKER

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
1 DIGIT	24	24	5-1/2	12D	6-1/2	1	5-1/2	2-1/2	7-1/2	7	5-1/2	4-1/2	1/2	1-1/2
1 DIGIT	36	36	8-1/4	18D	9-3/4	1-1/2	8-1/4	3-3/4	11-1/4	10-1/2	8-1/4	6-1/2	3/4	2-1/4
3,-digits	30	24	5-1/2	12D	6-1/2	4	5-1/2	2-1/2	7-1/2	10	9-1/2	4-1/2	1/2	1-1/2
3,-digits	45	36	8-1/4	18D	9-3/4	5-1/2	8-1/4	3-3/4	11-1/4	15	14-1/4	6-1/2	3/4	2-1/4

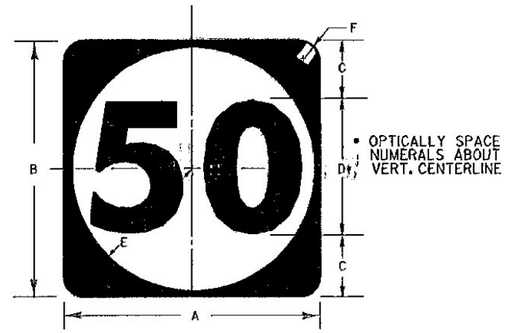
COLORS
TEXT AND BORDER - BLACK (NON REFL.)
BACKGROUND - WHITE (REFL.)



U.S. ROUTE MARKER
FOR GUIDE SIGN USE

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
1,2-digits	24	24	5-1/2	12D	6-1/2	1	5	7	5	7	2
1,2-digits	36	36	8-1/4	18D	9-3/4	1-1/2	7-1/2	10-1/2	7-1/2	10-1/2	3
3,-digits	30	24	5-1/2	12D	6-1/2	4	5	7	9	10	2
3,-digits	45	36	8-1/4	18D	9-3/4	5-1/2	7-1/2	10-1/2	13-1/2	15	3

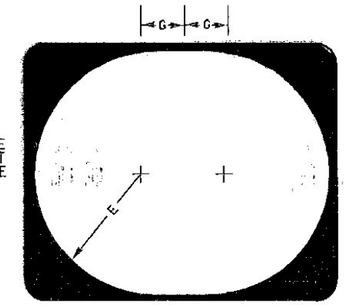
COLORS
TEXT - BLACK (NON REFL.)
BACKGROUND - WHITE (REFL.)



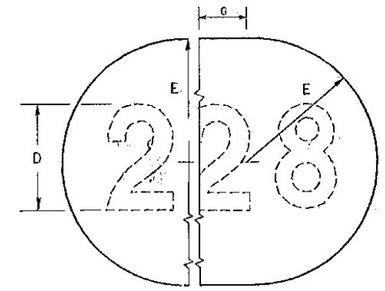
1 OR 2 DIGIT
STATE ROUTE MARKERS

SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	F	G
1,2-digits	24	24	6	12D	11	1-1/2	-
1,2-digits	36	36	9	18D	16-1/2	2-1/4	-
3,-digits	30	24	6	12D	11	1-1/2	3
3,-digits	45	36	9	18D	16-1/2	2-1/4	4-1/2

COLORS
TEXT AND BORDER - BLACK (NON REFL.)
BACKGROUND - WHITE (REFL.)



3 DIGIT
STATE ROUTE MARKER
(SEE DIMENSION CHART FOR 1 OR 2 DIGIT SIGNS)



STATE ROUTE MARKER
FOR GUIDE SIGN USE

SIGN	DIMENSIONS (INCHES)		
	D	E	G
1,2-digits	12D	12	-
1,2-digits	18D	18	-
3,-digits	12D	12	3
3,-digits	18D	18	4-1/2

DESIGNS
THE DESIGNS OF STATE ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE "MANUAL ON TRAFFIC CONTROL DEVICES" PREPARED BY THE NATIONAL JOINT COMMITTEE ON TRAFFIC CONTROL DEVICES.

MATERIALS
THE SIGN BASE MATERIAL MAY BE ANY OF THE FOLLOWING, WITH THE MINIMUM THICKNESSES AS NOTED:

FLAT SHEET ALUMINUM
LESS THAN 24" x 24" 0.060"
24" x 24", 24" x 30" 0.080"
GALVANIZED FLAT SHEET STEEL
LESS THAN 24" x 24" 18 GAGE
24" x 24", 24" x 30" 16 GAGE

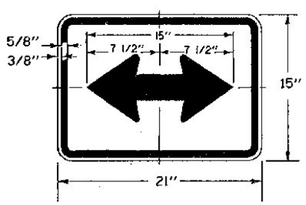
U.S. AND STATE ROUTE MARKERS TO BE MOUNTED ON INTERSTATE GUIDE SIGNS SHALL BE A MINIMUM THICKNESS AS FOR SIGNS LESS THAN 24" x 24".

THE REFLECTIVE MATERIAL SHALL BE WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND. THE TEXTS MAY BE LETTERING FILM, SILK SCREENED, OR HAND PAINTED.

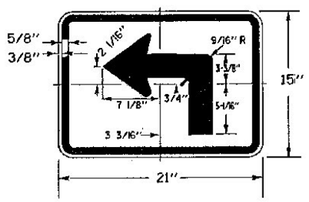
COLORS
U.S. AND STATE ROUTE MARKERS SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUNDS.

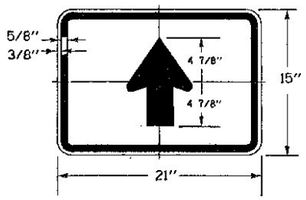
LETTERING
LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS APPROVED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS
U.S. AND STATE ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

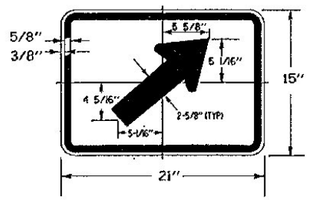


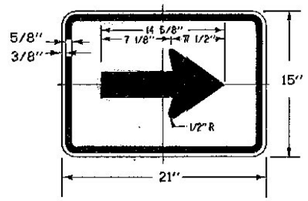
ALSO **"SOUTH", "EAST", AND "WEST"**

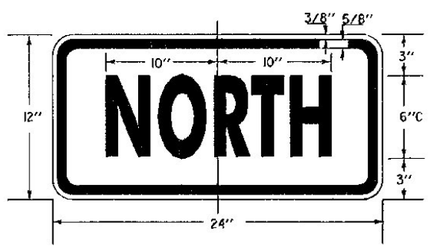




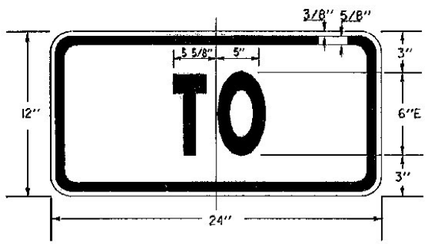
DIRECTION ARROW OR ADVANCE TURN ARROWS



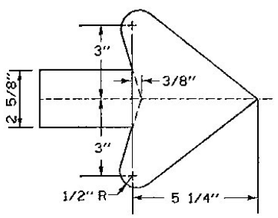




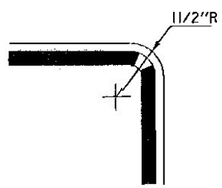
CARDINAL DIRECTION MARKER



TRAILBLAZER



ARROW DETAILS



TYPICAL RADIUS DETAIL

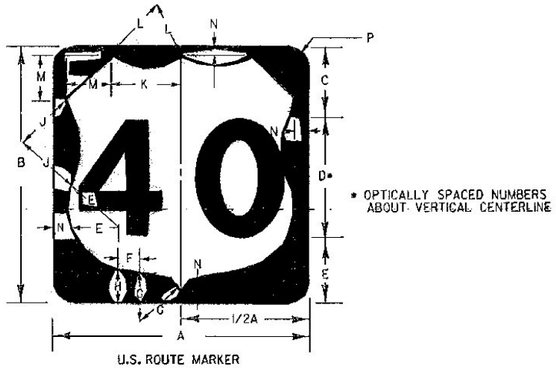
REVISIONS AND CORRECTIONS
APRIL 29, 1988 - FHWA COMMENTS

APPROVED
SEPT. 10, 1987
DATE
CHIEF ENGINEER
DIRECTOR OF PLANNING AND PRECONSTRUCTION
TRAFFIC AND SAFETY ENGINEER

U.S. AND STATE ROUTE MARKER SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-136

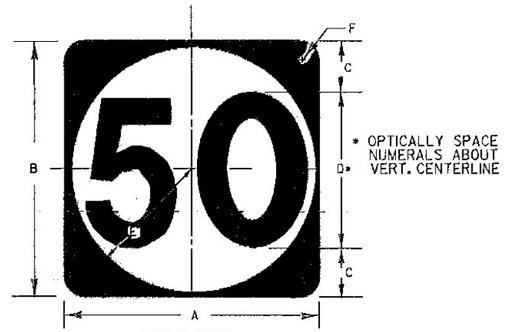


U.S. ROUTE MARKER

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
1,2-digits	24	24	5-1/2	12D	6-1/2	1	5-1/2	2-1/2	7-1/2	7	5-1/2	4-1/2	1/2	1-1/2
1,2-digits	36	36	8-1/4	18D	9-3/4	1-1/2	8-1/4	3-3/4	11-1/4	10-1/2	8-1/4	6-1/2	3/4	2-1/4
3,-digits	30	24	5-1/2	12D	6-1/2	4	5-1/2	2-1/2	7-1/2	10	9-1/2	4-1/2	1/2	1-1/2
3,-digits	45	36	8-1/4	18D	9-3/4	5-1/2	8-1/4	3-3/4	11-1/4	15	14-1/4	6-1/2	3/4	2-1/4

COLORS

SHIELD - WHITE (REFL.)
BACKGROUND AND NUMERALS- BLACK (NON-REFL.)

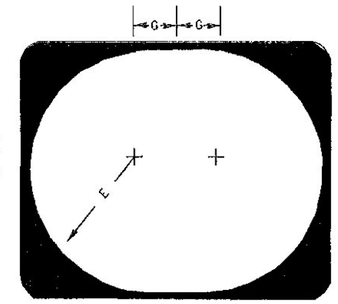


1 OR 2 DIGIT
STATE ROUTE MARKERS

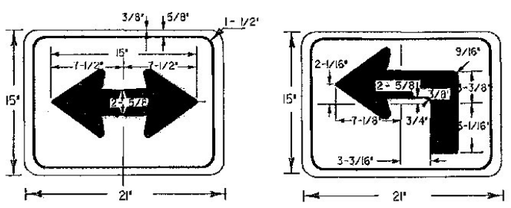
SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	F	G
1,2-DIGIT(S)	24	24	6	12D	11	1-1/2	-
1,2-DIGIT(S)	36	36	9	18D	16-1/2	2-1/4	-
3-DIGITS	30	24	6	12D	11	1-1/2	3
3-DIGITS	45	36	9	18D	16-1/2	2-1/4	4-1/2

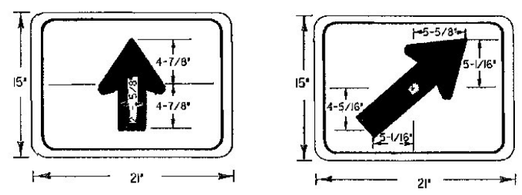
COLORS

LEGEND -BLACK (NON. REFL.)
BACKGROUND - WHITE (REFL)

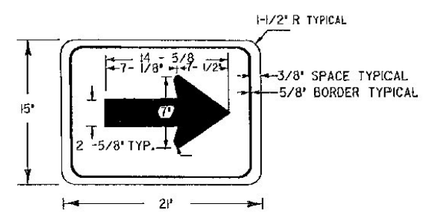


3 DIGIT
STATE ROUTE MARKER

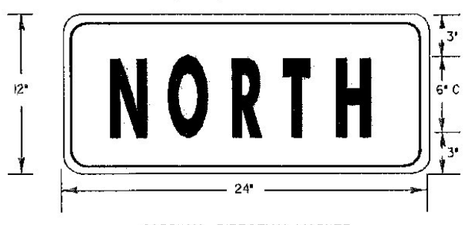




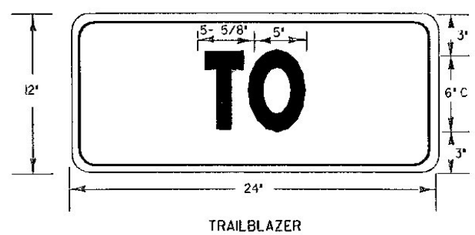
DIRECTION ARROW OR ADVANCE TURN ARROW



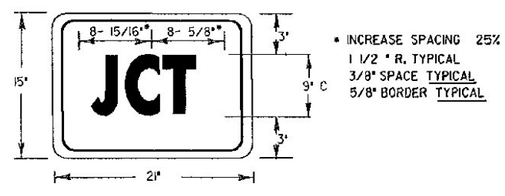
ALSO "SOUTH," "EAST," AND "WEST"



CARDINAL DIRECTION MARKER



TRAILBLAZER



JUNCTION MARKER

DESIGNS

THE DESIGNS OF STATE ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES' PREPARED BY THE NATIONAL JOINT COMMITTEE ON 'TRAFFIC CONTROL DEVICES.'

MATERIALS

THE SIGN BASE MATERIAL MAY BE ANY OF THE OF THE FOLLOWING, OF THE MINUMUM THICKNESS NOTED:

FLAT SHEET ALUMINUM

LESS THAN 24" X 24"	0.060"
24" X 24", 24" X 30"	0.080"

GALVANIZED FLAT SHEET STEEL

LESS THAN 24" X 24"	18 GAGE
24" X 24", 24" X 30"	16 GAGE

U.S. AND STATE ROUTE MARKERS TO BE MOUNTED ON INTERSTATE GUIDE SIGNS, SHALL BE OF A THICKNESS AS FOR SIGNS LESS THAN 24" X 24"

THE REFLECTIVE MATERIAL SHALL BE WHITE OR SILVER REFLECTIVE SHEETING, APPLIED TO THE ENTIRE BACKGROUND. THE TEXTS MAY BE LETTERING FILM, SILK SCREENED, OR HAND PAINTED.

COLORS

U.S. AND STATE ROUTE MARKERS SHALL HAVE BLACK TEXTS ON REFLECTORIZED WHITE OR SILVER BACKGROUNDS.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS APPROVED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

U.S. AND STATE ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR 'TRAFFIC SIGNS'.

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David B. Kelley
CHIEF ENGINEER

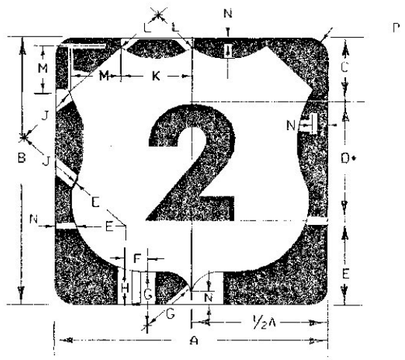
Arthur Ross
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

U.S. AND STATE ROUTE MARKER SIGN DETAILS

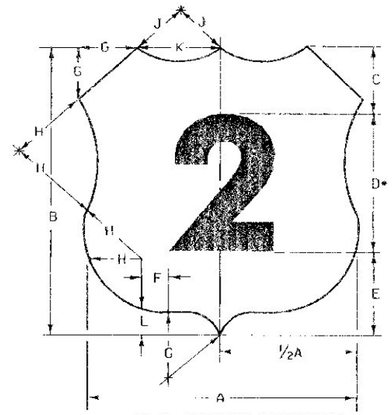
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-136



U.S. ROUTE MARKER
M1-4

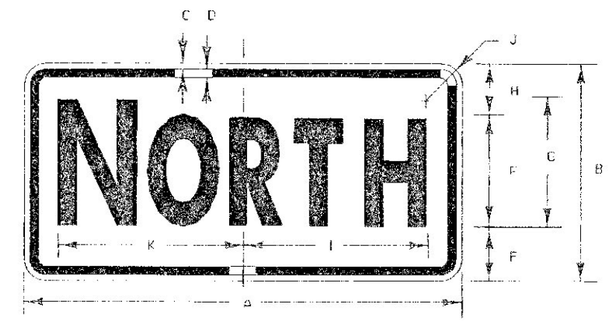
* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE



U.S. ROUTE MARKER FOR GUIDE SIGN USE

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
1DIGIT	24	24	5½	12D	6½	1	5½	2½	7½	7	5½	4½	½	1½
1DIGIT	36	36	8¼	18D	9¾	1½	8¼	3¾	11¼	10½	8¼	6½	¾	2¼
3. digits	30	24	5½	12D	6½	4	5½	2½	7½	10	9½	4½	½	1½
3.-digits	45	36	8¼	18D	9¾	5½	8¼	3¾	11¼	15	14¼	6½	¾	2¼

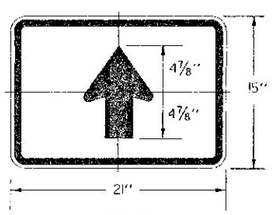
SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
1.2-digits	24	24	5½	12D	6½	1	5	7	5	7	2
1.2-digits	36	36	8¼	18D	9¾	1½	7½	10½	7½	10½	3
3.-digits	30	24	5½	12D	6½	4	5	7	9	10	2
3.-digits	45	36	8¼	18D	9¾	5½	7½	10½	13½	15	3



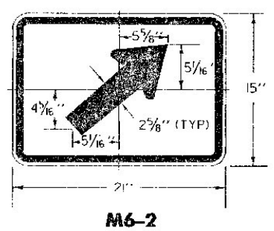
M3-1 M3-3 M3-2 M3-4

SIGN	DIMENSIONS (INCHES)									NORTH		SOUTH		EAST		WEST	
	A	B	C	D	E	F	G	H	J	K	L	K	L	K	L	K	L
MIN. & STD.	24	12	⅞	⅝	2¾	6C	7C	3¼	1½	10¼	10¼	10¼	9⅝	7⅞	8⅜	9¾	8⅝
SPECIAL	30	15	⅞	⅝	3¼	8C	9C	3¾	1½	12⅝	12⅝	12⅝	12½	10⅜	11⅛	11⅝	11⅝

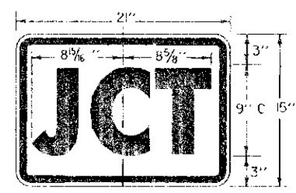
CARDINAL DIRECTION MARKER



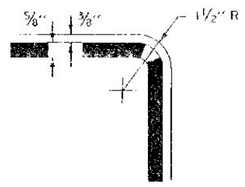
M6-3



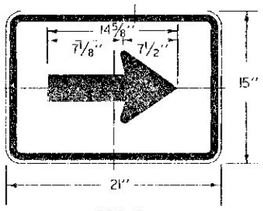
M6-2



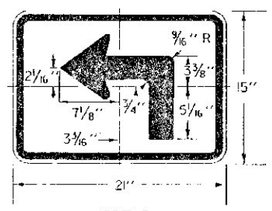
M2-1



TYPICAL RADIUS AND BORDER DETAIL

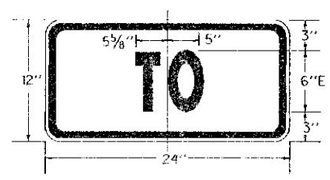


M6-1



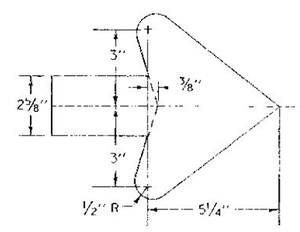
M5-1

DIRECTION ARROW OR ADVANCE TURN ARROWS



M4-5

TRAILBLAZER



ARROW DETAILS

MATERIALS

THE SIGN BASE MATERIAL MAY BE ANY OF THE FOLLOWING, WITH THE MINIMUM THICKNESSES AS NOTED:

FLAT SHEET ALUMINUM

LESS THAN 24" X 24"	0.060"
WHEN USED ON GUIDE SIGNS	0.060"
24" X 24", 30" X 24"	0.080"
36" X 36", 45" X 36"	0.100"

GALVANIZED FLAT SHEET STEEL

LESS THAN 24" X 24"	18 GAGE
WHEN USED ON GUIDE SIGNS	18 GAGE
24" X 24", 30" X 24"	16 GAGE
36" X 36", 45" X 36"	14 GAGE

THE REFLECTIVE MATERIAL SHALL BE WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND. THE TEXTS MAY BE LETTERING FILM, SILK SCREENED, OR HAND PAINTED.

COLORS

U.S. ROUTE MARKERS SHALL HAVE BLACK TEXT AND BORDER ON REFLECTORIZED WHITE BACKGROUNDS.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

SPECIFICATIONS

U.S. ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

DESIGNS

THE DESIGNS OF U.S. ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

AUG. 08, 1995 DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

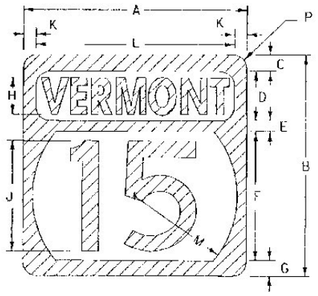
U.S. ROUTE MARKER SIGN DETAILS

/traf/std/std36a.dgn : std36a.i

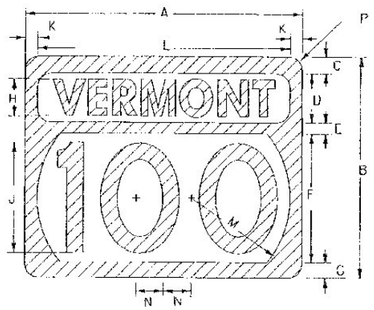
VERMONT AGENCY OF TRANSPORTATION

STANDARD

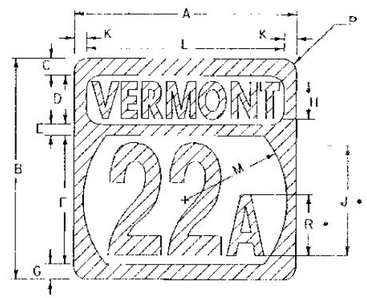
E-136 A



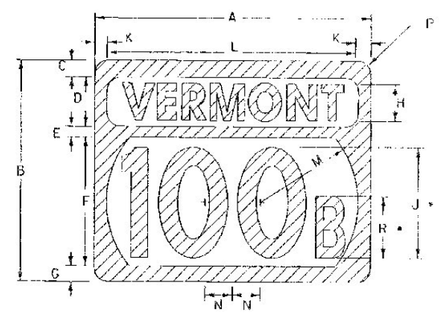
1 OR 2 DIGIT STATE ROUTE MARKER



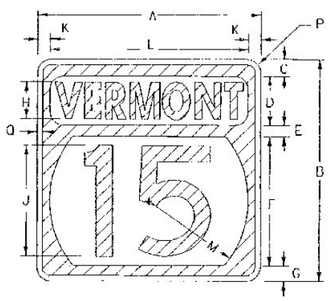
3 DIGIT STATE ROUTE MARKER

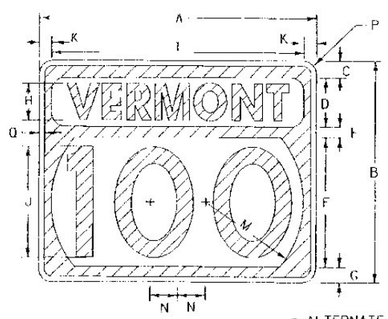


1 OR 2 DIGIT ALTERNATE STATE ROUTE MARKER



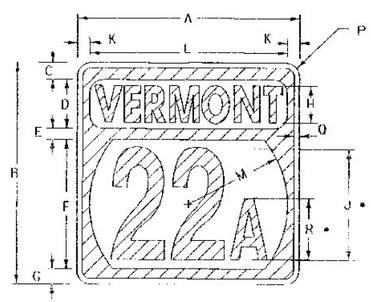
3 DIGIT ALTERNATE STATE ROUTE MARKER

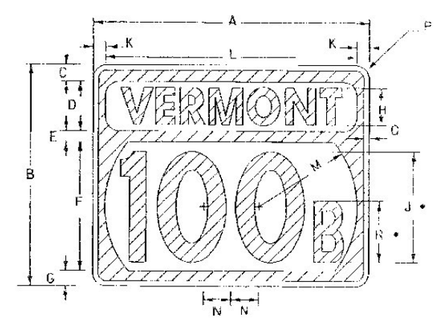




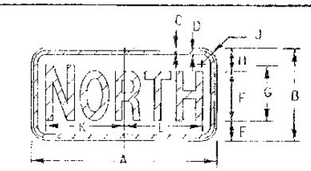
STATE ROUTE MARKER FOR GUIDE SIGN USE. (INTERSTATE TYPICAL)

• ALTERNATE ROUTE SIGNS: OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTER-LINE AND REDUCE SPACING AS NECESSARY FOR EACH ROUTE





ALTERNATE STATE ROUTE MARKER FOR GUIDE SIGN USE. (INTERSTATE TYPICAL)

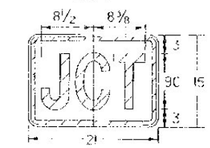


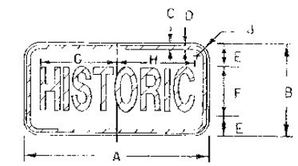
M3-1 M3-3 M3-2 M3-4

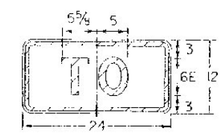
SIGN	DIMENSIONS (INCHES)									NORTH		SOUTH		EAST		WEST	
	A	B	C	D	E	F	G	H	J	K	L	K	L	K	L	K	L
MIN. & STD.	24	12	3/8	5/8	2 3/4	6C	7C	3 1/4	1 1/2	10 1/4	10 1/4	10 1/4	9 9/16	7 7/16	8 3/8	8 3/4	8 11/16
SPECIAL	30	15	3/8	5/8	3 1/4	8C	9C	3 3/4	1 1/2	12 11/16	12 11/16	12 11/16	12 1/2	10 3/8	11 1/8	11 5/8	11 5/8

CARDINAL DIRECTION MARKER

M2-1







M4-5

TRAILBLAZER

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN. & STD.	24	12	3/8	5/8	3 1/2	5B	10 1/8	9 7/8	1 1/2
SPECIAL	30	15	3/8	5/8	4	7D*	12 3/8	12 5/8	1 1/2

* REDUCE SPACING 35%

MATERIALS

THE SIGN BASE MATERIAL MAY BE ANY OF THE FOLLOWING, WITH THE MINIMUM THICKNESSES AS NOTED:

FLAT SHEET ALUMINUM

LESS THAN 24" X 24"	0.060"
WHEN USED ON GUIDE SIGNS	0.060"
24" X 24", 30" X 24"	0.080"
36" X 36", 45" X 36"	0.100"

GALVANIZED FLAT SHEET STEEL

LESS THAN 24" X 24"	18 GAGE
WHEN USED ON GUIDE SIGNS	18 GAGE
24" X 24", 30" X 24"	16 GAGE
36" X 36", 45" X 36"	14 GAGE

THE REFLECTIVE MATERIAL SHALL BE WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND. THE TEXTS MAY BE LETTERING FILM, SILK SCREENED, OR HAND PAINTED.

COLORS

COLORS FOR GUIDE USE: TEXT AND SHIELD - GREEN (REFL.) BACKGROUND AND BORDER - WHITE (REFL.)
STATE ROUTE MARKERS SHALL HAVE REFLECTIVE GREEN TEXT AND BORDERS ON REFLECTORIZED WHITE BACKGROUNDS.

GREEN AREAS ARE INDICATED BY SINGLE LINE CROSSHATCHING

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

SPECIFICATIONS

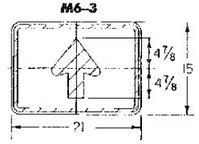
STATE ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

DESIGNS

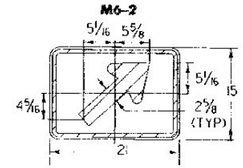
THE DESIGNS OF STATE ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

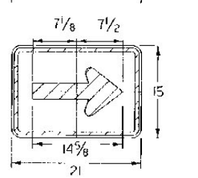
SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
1,2-digits	24	24	1 1/2	6	1	14	1 1/2	4C	12D	1	22	11	-	1 1/2	1/2	7B
1,2 digits	36	36	2 5/16	8	1 3/4	21	2 5/8	6C	18D	2	32	16 1/2	-	2 1/4	1/8	10B
3,-digits	30	24	1 1/2	6	1	14	1 1/2	4D	12D	1	28	11	3	1 1/2	1/2	7B
3,-digits	45	36	2 5/8	8	1 3/4	21	2 5/8	6D	18D	2	41	16 1/2	4 1/2	2 1/4	1/8	10B

M6-3

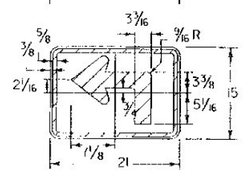


M6-2



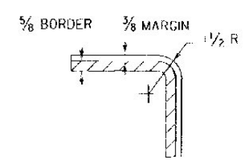


M6-1

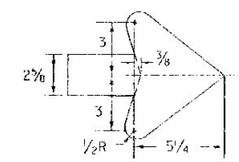


M5-1

DIRECTION ARROW OR ADVANCE TURN ARROWS



TYPICAL RADIUS DETAIL



TYPICAL ARROW DETAIL

(ALL DIMENSIONS IN INCHES)

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

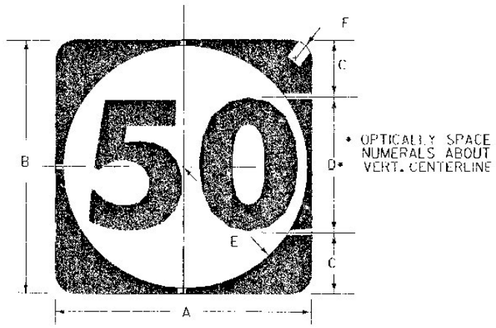
TRAFFIC AND SAFETY ENGINEER

STATE ROUTE MARKER SIGN DETAILS

/traf/std/stdel36b.dgn : stdel36b.i

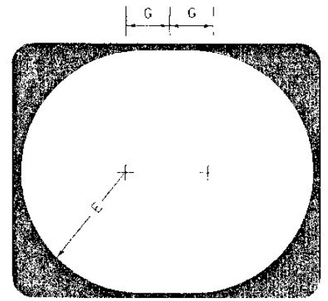
VERMONT AGENCY OF TRANSPORTATION

STANDARD E-136B

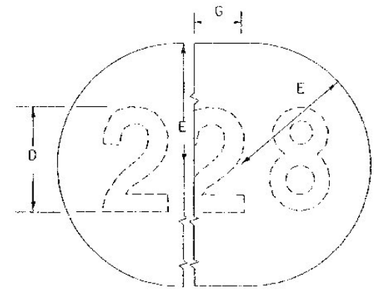


1 OR 2 DIGIT STATE ROUTE MARKERS

SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	F	G
1,2-digits	24	24	6	12D	11	1½	-
1,2-digits	36	36	9	18D	16½	2¼	-
3,-digits	30	24	6	12D	11	1½	3
3,-digits	45	36	9	18D	16½	2¼	4½

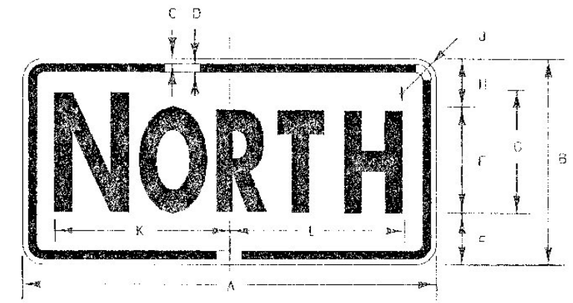


3 DIGIT STATE ROUTE MARKER
(SEE DIMENSION CHART FOR TOP 2 DIGIT SIGNS)



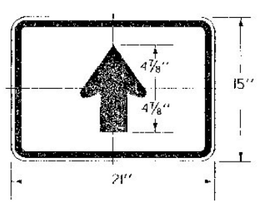
STATE ROUTE MARKER FOR GUIDE SIGN USE

SIGN	DIMENSIONS (INCHES)		
	D	E	G
1,2-digits	12D	12	-
1,2-digits	18D	18	-
3,-digits	12D	12	3
3,-digits	18D	18	4½

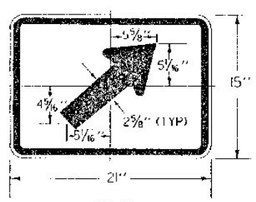


SIGN	DIMENSIONS (INCHES)									M3-1 NORTH		M3-3 SOUTH		M3-2 EAST		M3-4 WEST	
	A	B	C	D	E	F	G	H	J	K	L	K	L	K	L	K	L
MIN. & STD.	24	12	⅜	⅝	2¾	6C	7C	3¼	1½	10¼	10¼	10¼	9⅝	7⅞	8⅜	8¾	8⅝
SPECIAL	30	15	⅜	⅝	3¼	8C	9C	3¾	1½	12⅝	12⅝	12⅝	12½	10⅜	11⅛	11⅝	11⅝

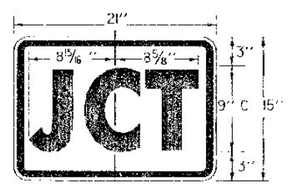
CARDINAL DIRECTION MARKER



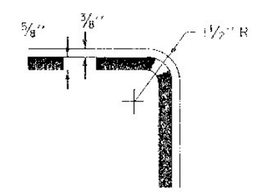
M6-3



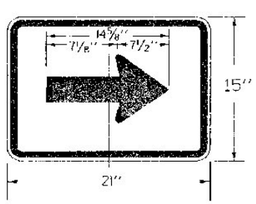
M6-2



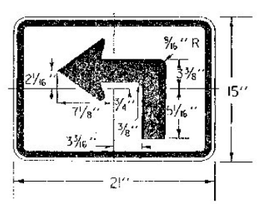
M2-1



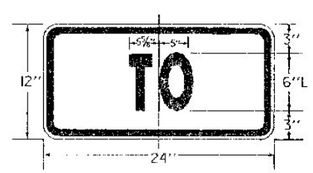
TYPICAL RADIUS AND BORDER DETAIL



M6-1

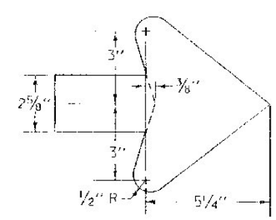


M5-1



M4-5

TRAILBLAZER



ARROW DETAILS

DIRECTION ARROW OR ADVANCE TURN ARROWS

MATERIALS

THE SIGN BASE MATERIAL MAY BE ANY OF THE FOLLOWING, WITH THE MINIMUM THICKNESSES AS NOTED:

FLAT SHEET ALUMINUM

LESS THAN 24" X 24"	0.060"
WHEN USED ON GUIDE SIGNS	0.080"
24" X 24", 30" X 24"	0.080"
36" X 36", 45" X 36"	0.100"

GALVANIZED FLAT SHEET STEEL

LESS THAN 24" X 24"	18 GAGE
WHEN USED ON GUIDE SIGNS	18 GAGE
24" X 24", 30" X 24"	16 GAGE
36" X 30", 45" X 36"	14 GAGE

THE REFLECTIVE MATERIAL SHALL BE WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND. THE TEXTS MAY BE LETTERING FILM, SILK SCREENED, OR HAND PAINTED.

COLORS

STATE NUMBERED TOWN HIGHWAY ROUTE MARKERS SHALL HAVE BLACK TEXT AND BORDER ON REFLECTORIZED WHITE BACKGROUNDS.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

SPECIFICATIONS

STATE NUMBERED TOWN HIGHWAY ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

DESIGNS

THE DESIGNS OF STATE NUMBERED TOWN HIGHWAY ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

AUG. 08, 995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Brendan D. McCallum
DIRECTOR OF ENGINEERING

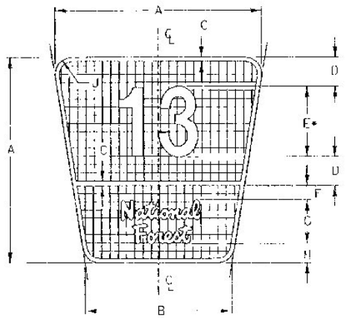
David A. Ross
TRAFFIC AND SAFETY ENGINEER

STATE NUMBERED TOWN HIGHWAY SIGN DETAILS

/traf/std/std136c.dgn : std136c.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-136 C

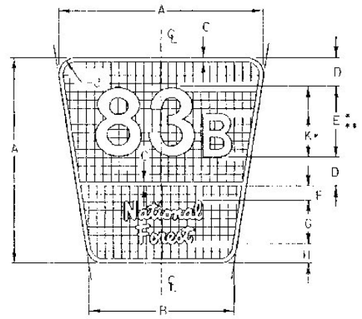


SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN.	18	12¾	½	2⅝	6D	1⅛	4	1⅝	2
STD.	24	17	½	3½	8D	1¾	5	2¼	2½
SPECIAL	36	25½	½	5¼	10D	2⅝	7½	3⅜	3¾

* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE

1 OR 2 DIGIT ROUTE MARKERS

M1-7

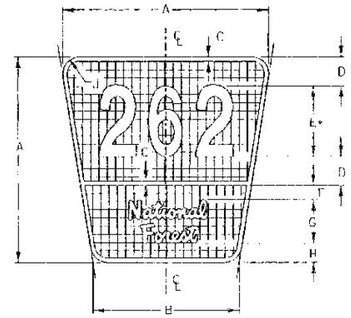


SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	F	I	O	P	J	K
MIN.	18	2¾	½	2⅝	6D	1¼	4	1⅝	2	4B
STD.	24	17	½	3½	8D	1¾	5	2¼	2½	5B
SPECIAL	36	25½	½	5¼	10D	2⅝	7½	3⅜	3¾	6B

** Reduce spacing by 40%

1 OR 2 DIGIT ROUTE MARKERS

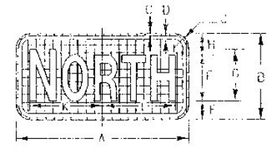
M1-7



SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN.	18	12¾	½	2⅝	6B	1⅛	4	1⅝	2
STD.	24	17	½	3½	8B	1¾	5	2¼	2½
SPECIAL	36	25½	½	5¼	10B	2⅝	7½	3⅜	3¾

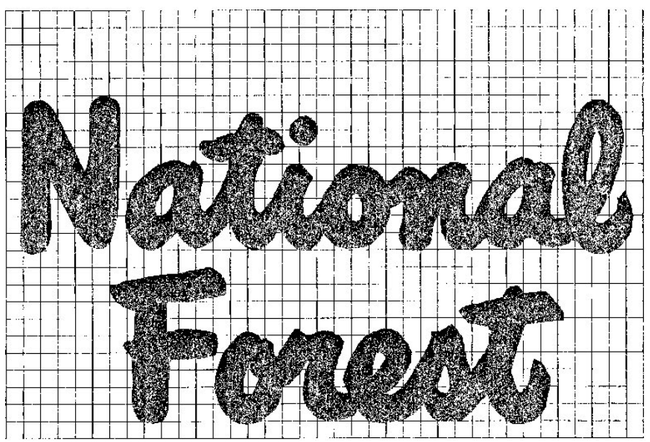
3 DIGIT ROUTE MARKERS

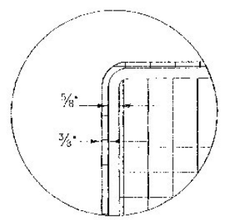
M1-7



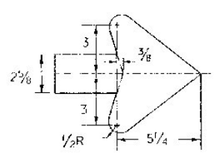
SIGN	DIMENSIONS (INCHES)									NORTH		SOUTH		EAST		WEST	
	A	B	C	D	E	F	G	H	J	K	L	K	L	K	I	K	L
MIN. & STD.	24	12	⅜	⅝	2¾	6C	7C	3¼	1½	10¼	10¼	10¼	9⅛	7⅞	8⅛	8¾	8⅛
SPECIAL	30	15	⅜	⅝	3¼	8C	9C	3¾	1½	12⅝	12 11/16	12 11/16	12½	10⅜	11⅛	11⅝	11⅝

CARDINAL DIRECTION MARKER



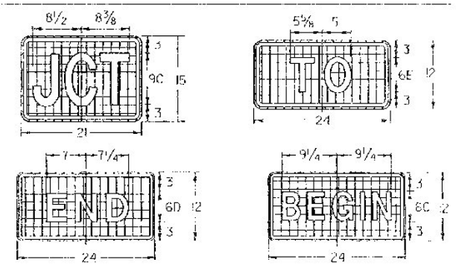


TYPICAL DETAIL FOR AUXILIARY SIGNS, CARDINAL DIRECTION MARKERS AND DIRECTION ARROWS

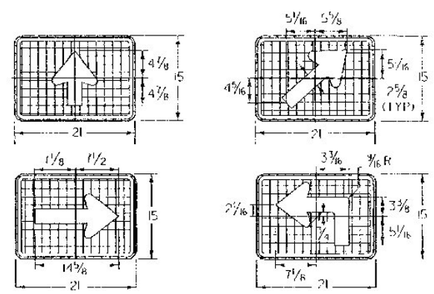


TYPICAL ARROW DETAIL

ALL DIMENSIONS IN INCHES



AUXILIARY SIGNS



DIRECTION ARROW OR ADVANCE TURN ARROWS

MATERIALS

THE SIGN BASE MATERIAL MAY NOT BE ANY OF THE FOLLOWING, WITH THE MINIMUM THICKNESS AS NOTED:

FLAT SHEET ALUMINUM

LESS THAN 24" X 24"	0.060"
WHEN USED ON GUIDE SIGNS	0.060"
24" X 24"	0.080"
36" X 36"	0.100"

GALVANIZED FLAT SHEET STEEL

LESS THAN 24" X 24"	18 GAGE
WHEN USED ON GUIDE SIGNS	18 GAGE
24" X 24"	16 GAGE
36" X 36"	14 GAGE

THE REFLECTORIZED MATERIAL SHALL BE BROWN REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND. THE TEXTS MAY BE LETTERING FILM, SILK SCREEN OR HAND PAINTED.

COLORS

NATIONAL FOREST ROUTE MARKERS SHALL HAVE REFLECTIVE WHITE TEXT AND BORDERS ON REFLECTORIZED BROWN BACKGROUNDS. BROWN AREAS ARE INDICATED BY DOUBLE LINE CROSSHATCHING.

THE COLORS SHALL CONFORM WITH THOSE FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, AND FEDERAL HIGHWAY ADMINISTRATION.

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA

SPECIFICATIONS

NATIONAL FOREST ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

DESIGNS

THE DESIGNS OF NATIONAL FOREST ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

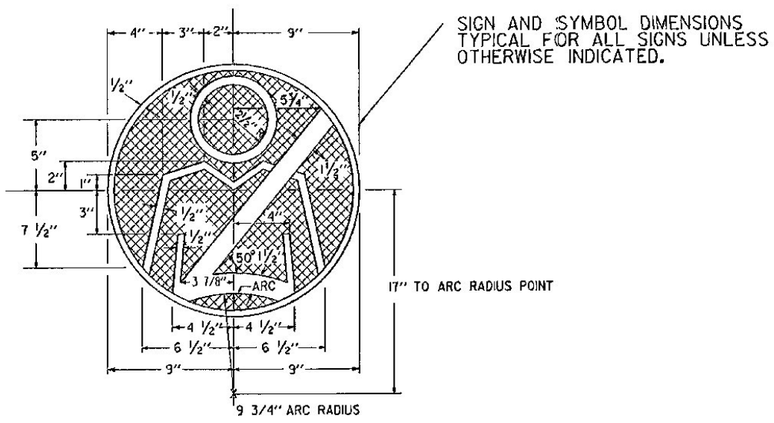
NATIONAL FOREST ROUTE MARKER SIGN DETAILS

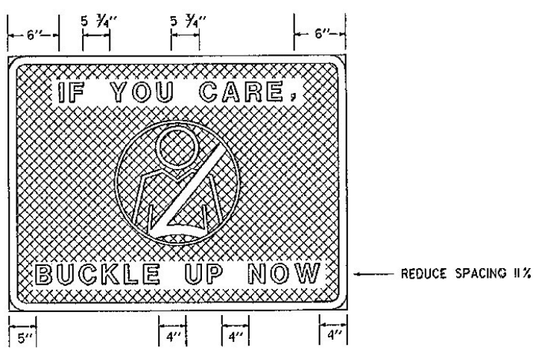
/traf/std/sid136d.dgn : sidex136d.i

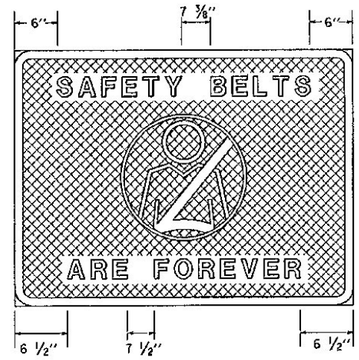
VERMONT AGENCY OF TRANSPORTATION

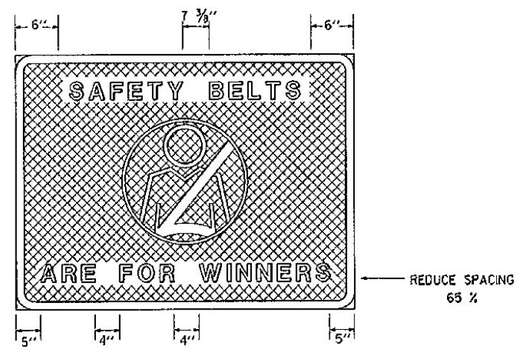
STANDARD

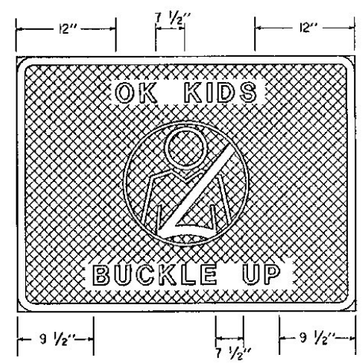
E-136 D

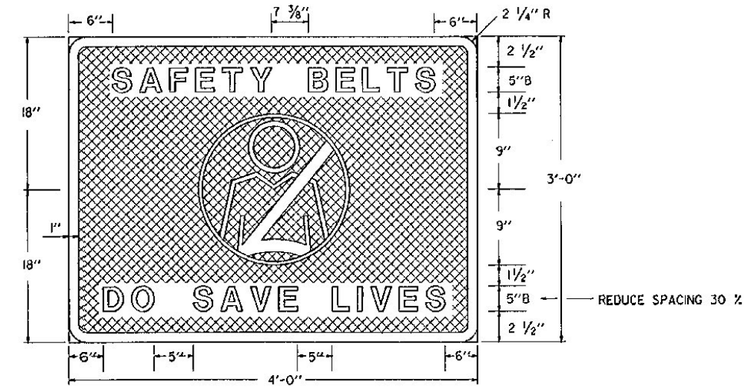


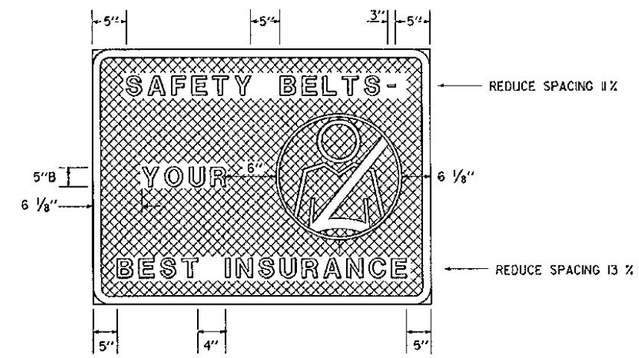












NOTES

MATERIALS
THE SIGN BASE MATERIAL USED FOR GUIDE SIGNS SHOWN ON THIS SHEET SHALL BE ACRYLIC OVERLAID PLYWOOD, 3/4" MINIMUM THICKNESS WITH RELECTIVE SHEETING.

COLORS
THE SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT ON A REFLECTORIZED BLUE BACKGOUND. THE BLUE SHALL CONFORM WITH THAT FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPT. OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING
LETTERS AND DIGITS SHALL CONFORM WITH THE REQUIREMENTS FOUND IN THE PUBLICATION "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

DESIGNS
THE DESIGN OF THESE SIGNS SHALL CONFORM WITH THE DETAILS SET FORTH IN THE MANUAL "STANDARD HIGHWAY SIGNS" AS SPECIFIED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."

SPECIFICATIONS
THE SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

TEXT, BORDER AND SYMBOL
THE MATERIAL FOR THE SYMBOL SHALL BE OF FLAT SHEET ALUMINUM, 0.040" THICKNESS WITH WHITE OR SILVER ENCAPSULATED LENS SHEETING. THE TEXT AND BORDER SHALL BE CUT-OUT STICK-ON WHITE OR SILVER ENCAPSULATED LENS SHEETING.

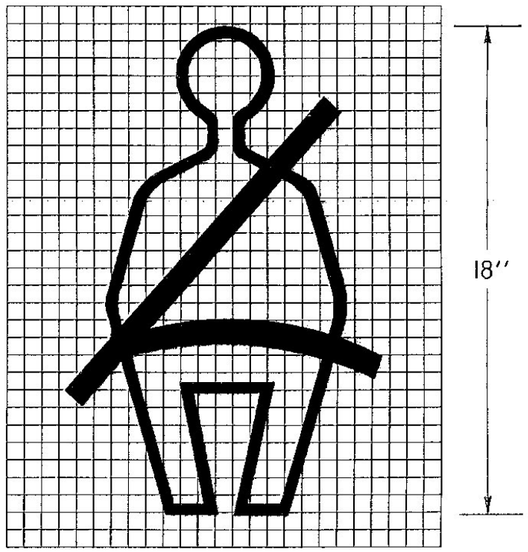
REVISIONS AND CORRECTIONS
APRIL 29, 1988 - FHWA COMMENTS

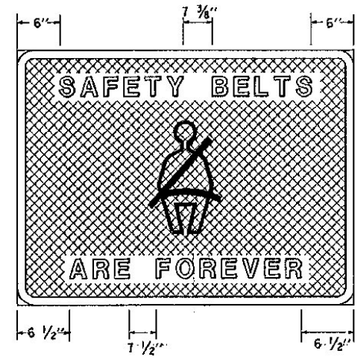
APPROVED
SEPT. 10, 1987
DATE
CHIEF ENGINEER
DIRECTOR OF PLANNING AND PRECONSTRUCTION
TRAFFIC AND SAFETY ENGINEER

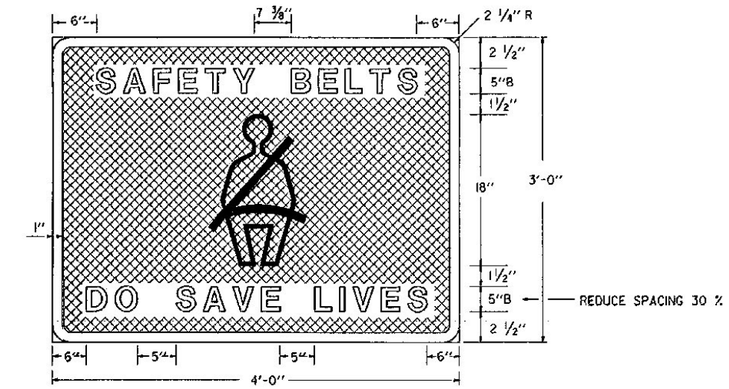
SEATBELT GUIDE SIGN DETAILS

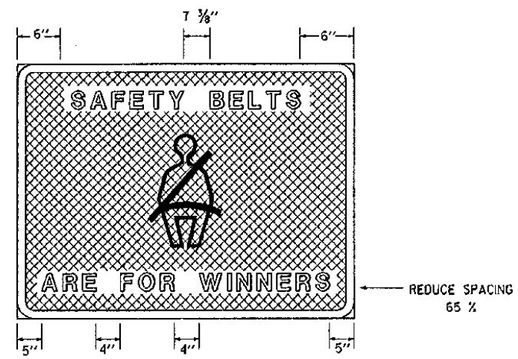
VERMONT AGENCY OF TRANSPORTATION

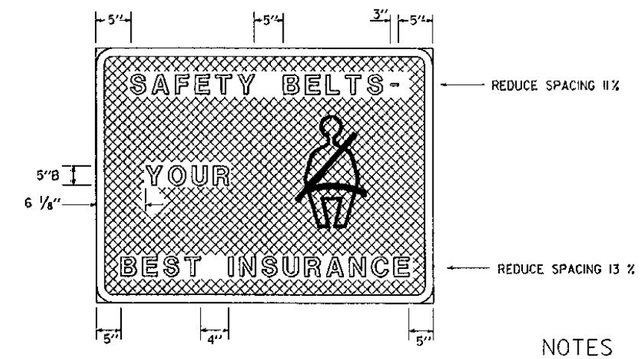
STANDARD
E-137

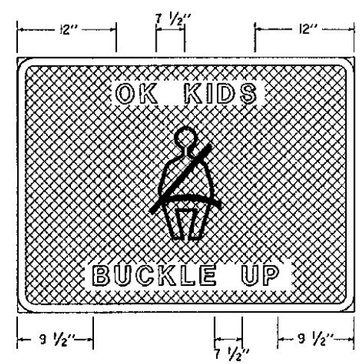


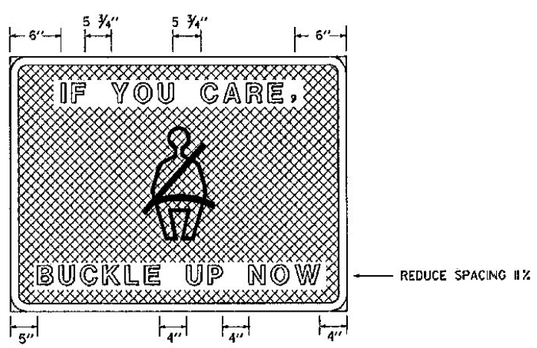












NOTES

MATERIALS
THE SIGN BASE MATERIAL USED FOR GUIDE SIGNS SHOWN ON THIS SHEET SHALL BE ACRYLIC OVERLAID PLYWOOD, 3/4" MINIMUM THICKNESS, WITH RELECTIVE SHEETING.

COLORS
THE SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT ON A REFLECTORIZED BLUE BACKGOUND. THE SYMBOL SHALL BE WHITE OR SILVER. THE BLUE SHALL CONFORM WITH THAT FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPT. OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING
LETTERS AND DIGITS SHALL CONFORM WITH THE REQUIREMENTS FOUND IN THE PUBLICATION "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS," PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

DESIGNS
THE DESIGN OF THESE SIGNS SHALL CONFORM WITH THE DETAILS SET FORTH IN THE MANUAL "STANDARD HIGHWAY SIGNS", AS SPECIFIED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."

SPECIFICATIONS
THE SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

TEXT, BORDER AND SYMBOL
THE MATERIAL FOR THE SYMBOL SHALL BE OF FLAT SHEET ALUMINUM, 0.040" THICKNESS WITH WHITE OR SILVER ENCAPSULATED LENS SHEETING. THE TEXT AND BORDER SHALL BE CUT-OUT STICK-ON WHITE OR SILVER ENCAPSULATED LENS SHEETING.

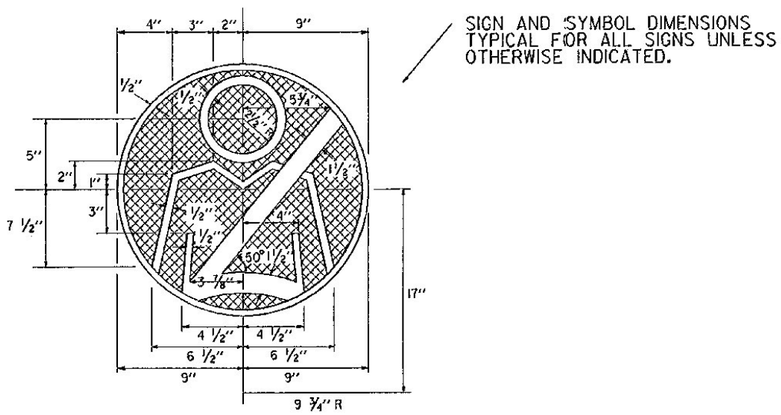
REVISIONS AND CORRECTIONS
APRIL 29, 1988 - FHWA COMMENTS
JUNE 21, 1989 - SYMBOL CHANGE PER FHWA

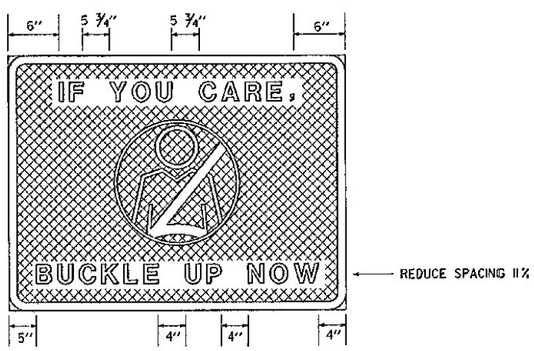
APPROVED
SEPT. 10, 1987
DATE
Paul O Kelley
CHIEF ENGINEER
Arthur Gore
DIRECTOR OF PLANNING AND PRECONSTRUCTION
Gordon H. MacArthur
TRAFFIC AND SAFETY ENGINEER

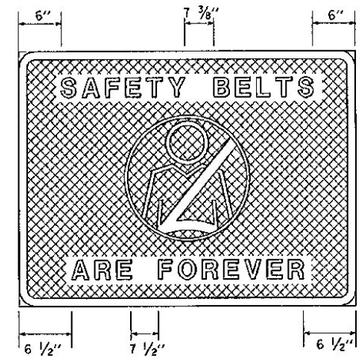
SEATBELT GUIDE SIGN DETAILS

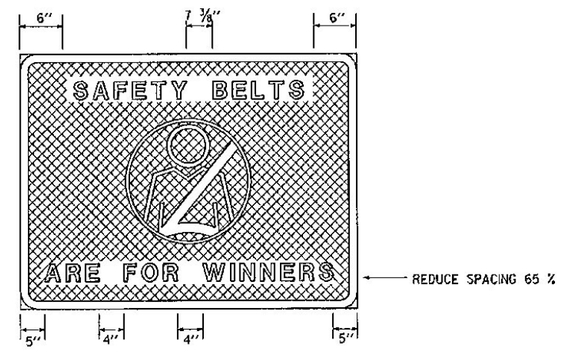
VERMONT AGENCY OF TRANSPORTATION

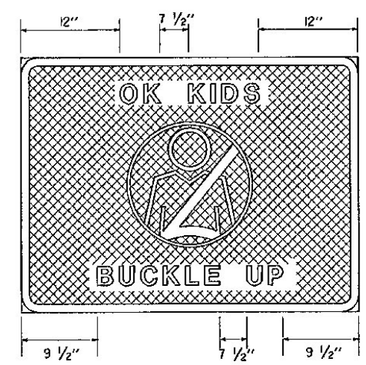
STANDARD
E-137

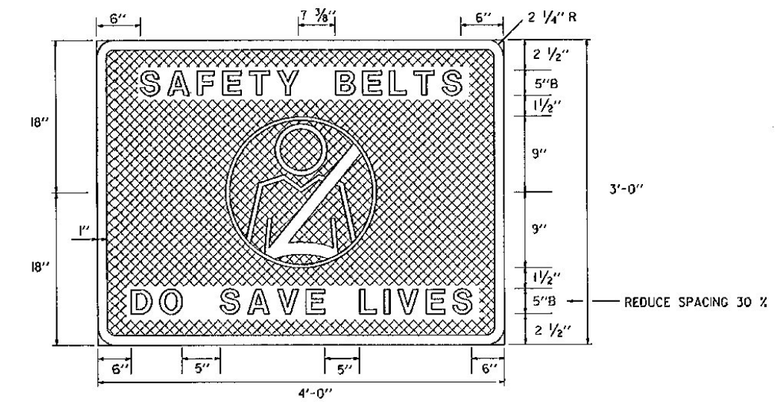


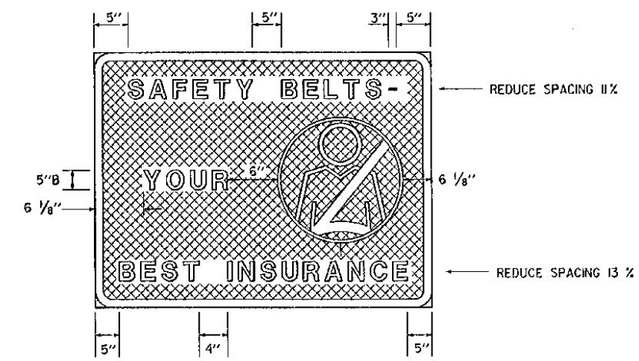












NOTES

MATERIALS
THE SIGN BASE MATERIAL USED FOR GUIDE SIGNS SHOWN ON THIS SHEET SHALL BE ACRYLIC OVERLAID PLYWOOD, 3/4" MINIMUM THICKNESS WITH RELECTIVE SHEETING.

COLORS
THE SIGNS SHALL HAVE A REFLECTORIZED WHITE TEXT ON A REFLECTORIZED BLUE BACKGOUND. THE BLUE SHALL CONFORM WITH THAT FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPT. OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

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SPECIFICATIONS
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TEXT, BORDER AND SYMBOL
THE MATERIAL FOR THE SYMBOL SHALL BE OF FLAT SHEET ALUMINUM, 0.040" THICKNESS WITH WHITE OR SILVER ENCAPSULATED LENS SHEETING. THE TEXT AND BORDER SHALL BE CUT-OUT STICK-ON WHITE OR SILVER ENCAPSULATED LENS SHEETING.

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David W. Kelley
CHIEF ENGINEER

Arthur Gibb
DIRECTOR, OF PLANNING AND PRE-CONSTRUCTION

Lendon B. MacAllen
TRAFFIC AND SAFETY ENGINEER

SEATBELT GUIDE SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-137

MILEMARKER INFORMATION

IN ORDER TO PROVIDE FOR AN ACCURATE SYSTEM OF LOCATION, MILEMARKERS ARE INSTALLED ALONG U.S. AND STATE HIGHWAYS, CLASS 1 TOWN HIGHWAYS, FEDERAL AID PRIMARY AND FEDERAL AID SECONDARY HIGHWAYS.

THE FOLLOWING INFORMATION IS PROVIDED FOR INSTALLATION GUIDANCE.

MILEMARKERS WILL NORMALLY BE INSTALLED AT EACH 0.20 MI. INTERVAL, ALTERNATING FROM ONE SIDE OF THE ROAD TO THE OTHER, THUS HAVING A SIGN FACING TRAFFIC EACH 0.40 MILE. A MILEMARKER WILL ALSO BE INSTALLED AT EACH INTERSECTION, ON THE POST WITH THE STOP SIGN, (MILEMARKER TO BE PLACED PARALLEL TO MAINLINE VISIBLE TO TRAFFIC.) ANY MILEMARKER LOCATION FALLING WITHIN 0.05 MI. OF AN INTERSECTION WILL BE OMITTED. IF A NORMAL MILEMARKER LOCATION FALLS WITHIN 50' OF AN EXISTING HIGHWAY SIGN, THE MILEMARKER WILL BE INSTALLED ON THE EXISTING POST. WHEN NORMAL LOCATION OF A MILEMARKER IS UNDESIRABLE, I.E. ON A LAWN, DRIVEWAY, LEDGE, ETC., AN ATTEMPT WILL BE MADE TO LOCATE IT ACROSS THE ROAD. IF NO SUITABLE LOCATION CAN BE FOUND WITHIN 50' OF THE NORMAL LOCATION ON EITHER SIDE OF THE ROAD, IT MAY BE OMITTED. IF A NORMAL MILEMARKER LOCATION FALLS WITHIN 50 FT. OF A POWER POLE, MAIL BOX OR OTHER OBJECT WHICH WILL GIVE IT PARTIAL PROTECTION, LOCATE IT NEAR OR AT SUCH PROTECTIVE FEATURE.

ON CLASS I TOWN HIGHWAYS (CITIES, VILLAGES) OR OTHER CONGESTED AREAS, MILEMARKERS WILL ONLY BE INSTALLED ON EXISTING SIGN POSTS AND WILL CARRY THE ACTUAL MILEAGE TO THAT LOCATION. A MILEMARKER EACH 0.10 +/- MILE IS DESIRABLE THROUGH SUCH AREAS.

THE TOP ROW OF NUMERALS INDICATE THE ROUTE NUMBER. THESE INCLUDE:

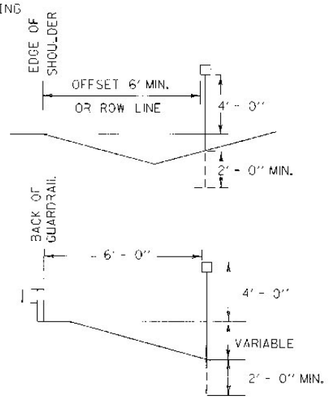
1) THE STATE ROUTE NUMBER, THE FOURTH NUMERAL OF WHICH BEING THE LETTER DESIGNATION. THUS, U.S. 2 WOULD BE 0020, ROUTE 100B WOULD BE 1002, ETC.

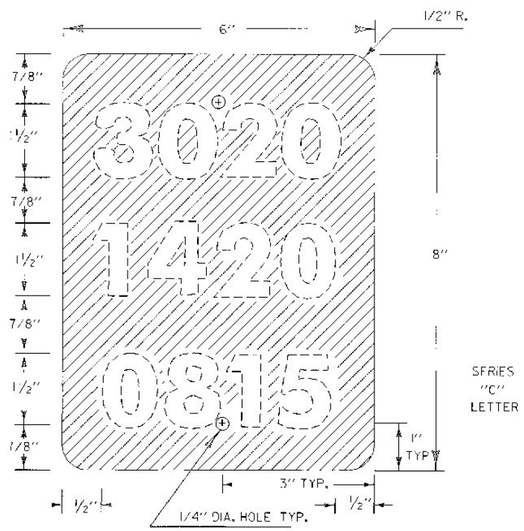
2) A 9000 SERIES NUMBER FOR NAMED STATE HIGHWAYS, CLASS I AND II TOWN HIGHWAYS AS LISTED ON THIS SHEET.

3) FEDERAL AID SECONDARY ROUTES ON TOWN HIGHWAYS USE F.A.S., ROUTE DESIGNATION NUMBERS, AS SHOWN ON THE PLANNING DIVISIONS MAP TITLED "FEDERAL AID SYSTEMS ON VERMONT HIGHWAYS".

THE SECOND ROW OF NUMERALS INDICATE THE COUNTY AND TOWN. THE COUNTY IS INDICATED IN THE FIRST TWO NUMBERS, CODED ALPHABETICALLY. THE TOWN IS INDICATED IN THE LAST TWO NUMBERS, CODED ALPHABETICALLY WITHIN THE COUNTY. THUS WATERBURY, THE EIGHTEENTH TOWN ALPHABETICALLY, IN WASHINGTON COUNTY, THE TWELFTH COUNTY ALPHABETICALLY, WOULD BE INDICATED AS 1218 ON THE MARKER.

THE BOTTOM ROW OF NUMERALS INDICATES THE MILEAGE IN HUNDREDTHS FROM THE TOWN LINE OR BEGINNING OF A ROUTE (TRAVELING SOUTH TO NORTH OR WEST TO EAST). THE ROUTE DIRECTION IS ESTABLISHED USING THE AGENCY'S ROUTE LOG AND PROGRESS CHARTS" AS A GUIDE.





COUNTY/TOWN DESIGNATIONS

1 - ADDISON

0101 ADDISON
0102 BRIDPORT
0103 BRISTOL
0104 CORNWALL
0105 FERRISBURG
0106 GOSHEN
0107 GRANVILLE
0108 HANCOCK
0109 LEICESTER
0110 LINCOLN
0111 MIDDLEBURY
0112 MONKTON
0113 NEW HAVEN
0114 ORWELL
0115 PANTON
0116 RIPTON
0117 SALISBURY
0118 SHOREHAM
0119 STARKSBORO
0120 VERGENNES
0121 WALTHAM
0122 WEYBRIDGE
0123 WHITING

2 - BENNINGTON

0201 ARLINGTON
0202 BENNINGTON
0203 DORSET
0204 GLASTENBURY
0205 LANDGROVE
0206 MANCHESTER
0207 PERU
0208 POWNAL
0209 READSBORO
0210 RUPERT
0211 SANDGATE
0212 SEARSBURG
0213 SHAFTSBURY
0214 STAMFORD
0215 SUNDERLAND
0216 WINHALL
0217 WOODFORD

3 - CALEDONIA

0301 BARNET
0302 BURKE
0303 DANVILLE
0304 GROTON
0305 HARDWICK
0306 KIRBY
0307 LYNDON
0308 NEWARK
0309 PEACHAM
0310 RYEGATE
0311 ST. JOHNSBURY
0312 SHEFFIELD
0313 STANNARD
0314 SUTTON
0315 WALDEN
0316 WATERFORD
0317 WHEELOCK

4 - CHITTENDEN

0401 BOLTON
0402 BUEL'S GORE
0403 BURLINGTON
0404 CHARLOTTE
0405 COLCHESTER
0406 ESSEX
0407 HINESBURG
0408 HUNTINGTON
0409 JERICHO
0410 MILTON
0411 RICHMOND
0412 ST. GEORGE
0413 SHELBURNE
0414 SO. BURLINGTON
0415 UNDERHILL
0416 WESTFORD
0417 WILLISTON
0418 WINOOSKI

5 - ESSEX

0501 AVERILL
0502 AVERY'S GORE
0503 BLOOMFIELD
0504 BRIGHTON
(ISLAND POND)
0505 BRUNSWICK
0506 CANAAN
0507 CONCORD
0508 EAST HAVEN
0509 FERDINAND
0510 GRANBY
0511 GUILDHALL
0512 LEMINGTON
0513 LEWIS
0514 LUNENBURG
0515 MAIDSTONE
0516 NORTON
0517 VICTORY
0518 WARNER'S GRANT
0519 WARREN'S GORE

6 - FRANKLIN

0601 BAKERSFIELD
0602 BERKSHIRE
0603 ENOSBURG
0604 FAIRFAX
0605 FAIRFIELD
0606 FLETCHER
0607 FRANKLIN
0608 GEORGIA
0609 HIGHGATE
0610 MONTGOMERY
0611 RICHFORD
0612 ST. ALBANS CITY
0613 ST. ALBANS TOWN
0614 SHELDON
0615 SWANTON

7 GRAND ISLE

0701 ALBURG
0702 GRAND ISLE
0703 ISLE LA MOTTE
0704 NORTH HERO
0705 SOUTH HERO

8 LAMOILLE

0801 BELVIDERE
0802 CAMBRIDGE
0803 EDEN
0804 ELMORE
0805 HYDE PARK
0806 JOHNSON
0807 MORRISTOWN
(MORRISVILLE)
0808 STOWE
0809 WATERVILLE
0810 WOLCOTT

9 - ORANGE

0901 BRADFORD
0902 BRAINTREE
0903 BROOKFIELD
0904 CHELSEA
0905 CORINTH
0906 FAIRLEE
0907 NEWBURY
0908 ORANGE
0909 RANDOLPH
0910 STRAFFORD
0911 THETFORD
0912 TOPSHAM
0913 TUNBRIDGE
0914 VERSHIRE
0915 WASHINGTON
0916 WEST FAIRLEE
0917 WILLIAMSTOWN

10 - ORLEANS

1001 ALBANY
1002 BARTON
(ORLEANS VILLAGE)
1003 BROWNINGTON
1004 CHARLESTON
1005 COVENTRY
1006 CRAFTSBURY
1007 DERBY
1008 GLOVER
1009 GREENSBORO
1010 HOLLAND
1011 IRASBURG
1012 JAY
1013 LOWELL
1014 MORGAN
1015 NEWPORT CITY
1016 NEWPORT TOWN
1017 TROY
1018 WESTFIELD
1019 WESTMORE

11 - RUTLAND

1101 BENSON
1102 BRANDON
1103 CASTLETON
1104 CHITTENDEN
1105 CLARENDON
1106 DANBY
1107 FAIR HAVEN
1108 HUBBARDTON
1109 IRA
1110 MENDON
1111 MIDDLETOWN
SPRINGS
1112 MT. HOLLY
1113 MT. TABOR
1114 PAWLET
1115 PITTSFIELD
1116 PITTSFORD
1117 POULTNEY
1118 PROCTOR
1119 RUTLAND CITY
1120 RUTLAND TOWN
1121 SHERBURNE
1122 SHREWSBURY
1123 SUDBURY
1124 TINMOUTH
1125 WALLINGFORD
1126 WELLS
1127 WEST HAVEN
1128 WEST RUTLAND

12 - WASHINGTON

1201 BARRE CITY
1202 BARRE TOWN
1203 BERLIN
1204 CABOT
1205 CALAIS
1206 DUXBURY
1207 E. MONTPELIER
1208 FAYSTON
1209 MARSHFIELD
1210 MIDDLESEX
1211 MONTPELIER
1212 MORETOWN
1213 NORTHFIELD
1214 PLAINFIELD
1215 ROXBURY
1216 WAITSFIELD
1217 WARREN
1218 WATERBURY
1219 WOODBURY
1220 WORCESTER

13 - WINDHAM

1301 ATHENS
1302 BRATTLEBORO
1303 BROOKLINE
1304 DOVER
1305 DUMMERSTON
1306 GRAFTON
1307 GUILFORD
1308 HALIFAX
1309 JAMAICA
1310 LONDONDERRY
1311 MARLBORO
1312 NEWFANE
1313 PUTNEY
1314 ROCKINGHAM
(SAXTONS RIVER)
(BELLOWS FALLS)
1315 SOMERSET
1316 STRATTON
1317 TOWNSHEND
1318 VERNON
1319 WARDSBORO
1320 WESTMINSTER
1321 WHITTINGHAM
1322 WILMINGTON
1323 WINDHAM

14 - WINDSOR

1401 ANDOVER
1402 BALTIMORE
1403 BARNARD
1404 BETHEL
1405 BRIDGEWATER
1406 CAVENDISH
1407 CHESTER
1408 HARTFORD
(WHITE RIVER JUNCTION)
1409 HARTLAND
1410 LUDLOW
1411 NORWICH
1412 PLYMOUTH
1413 POMFRET
1414 READING
1415 ROCHESTER
1416 ROYALTON
1417 SHARON
1418 SPRINGFIELD
1419 STOCKBRIDGE
1420 WEATHERSFIELD
1421 WESTON
1422 WEST WINDSOR
1423 WINDSOR
1424 WOODSTOCK

CLASS I AND II TOWN HIGHWAYS

ROUTE CODE NUMBER	AND NAMED STATE HIGHWAY
9020	BARNET STATE HIGHWAY
9025	BENNINGTON NORTH STATE HIGHWAY
9030	BERLIN STATE HIGHWAY
9090	BRATTLEBORO STATE HIGHWAY
9150	CASTLETON STATE HIGHWAY
9180	COVENTRY STATE HIGHWAY
9210	FAIR HAVEN STATE HIGHWAY
9240	FAIRLEE STATE HIGHWAY
9270	FERRISBURG STATE HIGHWAY
9330	MAIDSTONE STATE HIGHWAY
9360	MIDDLESEX STATE HIGHWAY
9390	MONTPELIER STATE HIGHWAY
9420	MONTPELIER JUNCTION STATE HIGHWAY
9430	NEWBURY STATE HIGHWAY
9480	NORTON STATE HIGHWAY
9540	NORWICH STATE HIGHWAY
9600	PUTNEY STATE HIGHWAY
9630	QHECHEE STATE HIGHWAY
9720	ST. ALBANS ST. HWY. SOUTH
9730	ST. JOHNSBURY ST. HWY.
9750	SOUTH ALBURG STATE HIGHWAY
9840	WESTMINSTER STATE HIGHWAY
9870	WILDER STATE HIGHWAY
9900	WINHALL STATE HIGHWAY
9990	WEST RUTLAND-RUTLAND (BUS. US-4)
9991	BELLOWS FALLS SOUTH (ROCK-WEST ST.)
9992	BELLOWS FALLS SOUTH (BRIDGE ST.)
9993	BURLINGTON (ALTERNATE US-7)
9995	MONTPELIER (BUS. US-2)
9996	NEWPORT (ALTERNATE US-5)
9997	ST. JOHNSBURY (ALTERNATE US-5)
9998	SO. BURLINGTON-KENNEDY DRIVE

PAYMENT:
MILEMARKERS SHALL BE PAID AS TRAFFIC SIGNS, TYPE "A", AND POSTS PAID AS FLANGED CHANNEL STEEL SIGN POSTS.

MATERIAL:
THE SIGN BASE MATERIAL SHALL BE 0.04" FLAT SHEET ALUMINUM.

COLORS:
THE SIGN SHALL HAVE A REFLECTORIZED WHITE TEXT ON A REFLECTORIZED GREEN BACKGROUND. THE COLORS SHALL CONFORM WITH THOSE FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING:
LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS AS PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

POSTS:
FLANGED CHANNEL STEEL 2 #/FT. POSTS SHALL BE USED WHEN THE POST LENGTH EXCEEDS 7 FEET. FOR LENGTHS OF 7 FEET OR LESS, A 1.12 #/FT. STEEL SIGN POST SHALL BE USED.

OTHER STDS. REQUIRED: E-160

REVISIONS AND CORRECTIONS
OCT. 20, 988 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - MINOR NOTE REVISIONS
May 30, 2003 - Superceded

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED
DIRECTOR OF ENGINEERING
TRAFFIC AND SAFETY ENGINEER

MILEMARKER DETAILS STATE AND TOWN HIGHWAYS

/traf/std/stdel38.cgn : stdel38.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-138

MILEMARKER INFORMATION

IN ORDER TO PROVIDE FOR AN ACCURATE SYSTEM OF LOCATION, MILEMARKERS ARE INSTALLED ALONG U.S. AND STATE HIGHWAYS, CLASS I TOWN HIGHWAYS, FEDERAL AID PRIMARY AND FEDERAL AID SECONDARY HIGHWAYS.

THE FOLLOWING INFORMATION IS PROVIDED FOR INSTALLATION GUIDANCE.

MILEMARKERS WILL NORMALLY BE INSTALLED AT EACH 0.20 MI. INTERVAL, ALTERNATING FROM ONE SIDE OF THE ROAD TO THE OTHER, THUS HAVING A SIGN FACING TRAFFIC EACH 0.40 MILE. A MILEMARKER WILL ALSO BE INSTALLED AT EACH INTERSECTION, ON THE POST WITH THE STOP SIGN. (MILEMARKER TO BE PLACED PARALLEL TO MAINLINE VISIBLE TO TRAFFIC.) ANY MILEMARKER LOCATION FALLING WITHIN 0.05 MI. OF AN INTERSECTION WILL BE OMITTED. IF A NORMAL MILEMARKER LOCATION FALLS WITHIN 50' OF AN EXISTING HIGHWAY SIGN, THE MILEMARKER WILL BE INSTALLED ON THE EXISTING POST. WHEN NORMAL LOCATION OF A MILEMARKER IS UNDESIRABLE, I.E. ON A LAWN, DRIVEWAY, LEDGE, ETC., AN ATTEMPT WILL BE MADE TO LOCATE IT ACROSS THE ROAD. IF NO SUITABLE LOCATION CAN BE FOUND WITHIN 50' OF THE NORMAL LOCATION ON EITHER SIDE OF THE ROAD, IT MAY BE OMITTED. IF A NORMAL MILEMARKER LOCATION FALLS WITHIN 50 FT. OF A POWER POLE, MAIL BOX OR OTHER OBJECT WHICH WILL GIVE IT PARTIAL PROTECTION, LOCATE IT NEAR OR AT SUCH PROTECTIVE FEATURE.

ON CLASS I TOWN HIGHWAYS (CITIES, VILLAGES) OR OTHER CONGESTED AREAS, MILEMARKERS WILL ONLY BE INSTALLED ON EXISTING SIGN POSTS AND WILL CARRY THE ACTUAL MILEAGE TO THAT LOCATION. A MILEMARKER EACH 0.10 +/- MILE IS DESIRABLE THROUGH SUCH AREAS.

THE TOP ROW OF NUMERALS INDICATE THE ROUTE NUMBER. THESE INCLUDE:

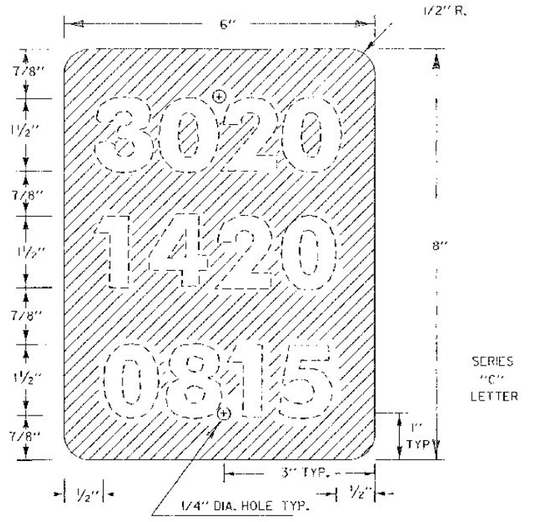
1) THE STATE ROUTE NUMBER, THE FOURTH NUMERAL OF WHICH BEING THE LETTER DESIGNATION. THUS, U.S. 2 WOULD BE 0020, ROUTE 100B WOULD BE 1002, ETC.

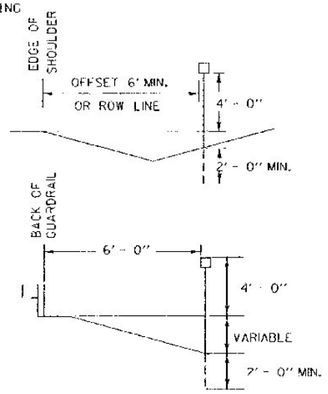
2) A 9000 SERIES NUMBER FOR NAMED STATE HIGHWAYS, CLASS I AND II TOWN HIGHWAYS AS LISTED ON THIS SHEET.

3) FEDERAL AID SECONDARY ROUTES ON TOWN HIGHWAYS USE F.A.S. ROUTE DESIGNATION NUMBERS, AS SHOWN ON THE PLANNING DIVISIONS MAP TITLED "FEDERAL AID SYSTEMS ON VERMONT HIGHWAYS".

THE SECOND ROW OF NUMERALS INDICATE THE COUNTY AND TOWN. THE COUNTY IS INDICATED IN THE FIRST TWO NUMBERS, CODED ALPHABETICALLY. THE TOWN IS INDICATED IN THE LAST TWO NUMBERS, CODED ALPHABETICALLY WITHIN THE COUNTY. THUS WATERBURY, THE EIGHTEENTH TOWN ALPHABETICALLY, IN WASHINGTON COUNTY, THE TWELFTH COUNTY ALPHABETICALLY, WOULD BE INDICATED AS 1218 ON THE MARKER.

THE BOTTOM ROW OF NUMERALS INDICATES THE MILEAGE IN HUNDREDTHS FROM THE TOWN LINE OR BEGINNING OF A ROUTE (TRAVELING SOUTH TO NORTH OR WEST TO EAST). THE ROUTE DIRECTION IS ESTABLISHED USING THE AGENCY'S ROUTE LOG AND PROGRESS CHARTS" AS A GUIDE.





CLASS I AND II TOWN HIGHWAYS

ROUTE CODE NUMBER	AND NAMED STATE HIGHWAY
9020	BARNET STATE HIGHWAY
9025	BENNINGTON NORTH STATE HIGHWAY
9030	BERLIN STATE HIGHWAY
9090	BRATTLEBORO STATE HIGHWAY
9150	CASTLETON STATE HIGHWAY
9180	COVENTRY STATE HIGHWAY
9210	FAIR HAVEN STATE HIGHWAY
9240	FAIRLEE STATE HIGHWAY
9270	FERRISBURG STATE HIGHWAY
9330	MALDSTONE STATE HIGHWAY
9360	MIDDLESEX STATE HIGHWAY
9390	MONTPELIER STATE HIGHWAY
9420	MONTPELIER JUNCTION STATE HIGHWAY
9430	NEWBURY STATE HIGHWAY
9480	NORTON STATE HIGHWAY
9540	NORWICH STATE HIGHWAY
9600	PUTNEY STATE HIGHWAY
9630	QHECHEE STATE HIGHWAY
9720	ST. ALBANS ST. HWY. SOUTH
9730	ST. JOHNSBURY ST. HWY.
9750	SOUTH ALBURG STATE HIGHWAY
9840	WESTMINSTER STATE HIGHWAY
9870	WILDER STATE HIGHWAY
9900	WINDALL STATE HIGHWAY
9990	WEST RUTLAND-RUTLAND (BUS. US-4)
9991	BELLOWS FALLS S0117(ROCK-WEST ST.)
9992	BELLOWS FALLS S1117(BRIDGE ST.)
9993	BURLINGTON (ALTERNATE US 7)
9995	MONTPELIER (BUS. US-2)
9996	NEWPORT (ALTERNATE US 5)
9997	ST. JOHNSBURY (ALTERNATE US-5)
9998	SO. BURLINGTON-KENNEDY DRIVE

COUNTY/TOWN DESIGNATIONS

1 - ADDISON
0101 ADDISON
0102 BRIDPORT
0103 BRISTOL
0104 CORNWALL
0105 FERRISBURG
0106 GOSHEN
0107 GRANVILLE
0108 HANCOCK
0109 LEICESTER
0110 LINCOLN
0111 MIDDLEBURY
0112 MONKTON
0113 NEW HAVEN
0114 ORWELL
0115 PANTON
0116 RIPTON
0117 SALISBURY
0118 SHOREHAM
0119 STARKSBORO
0120 VERGENNES
0121 WALTHAM
0122 WEYBRIDGE
0123 WHITING

2 - BENNINGTON
0201 ARLINGTON
0202 BENNINGTON
0203 DORSET
0204 GLASTENBURY
0205 LANDGROVE
0206 MANCHESTER
0207 PERU
0208 POWNAL
0209 READSBORO
0210 RUPERT
0211 SANDGATE
0212 SEARSBURG
0213 SHAFTSBURY
0214 STAMFORD
0215 SUNDERLAND
0216 WINHALL
0217 WOODFORD

3 - CALEDONIA
0301 BARNET
0302 BURKE
0303 DANVILLE
0304 GROTON
0305 HARDWICK
0306 KIRBY
0307 LYNDON
0308 NEWARK
0309 PEACHAM
0310 RYEGATE
0311 ST. JOHNSBURY
0312 SHEFFIELD
0313 STANNARD
0314 SUTTON
0315 WALDEN
0316 WATERFORD
0317 WHEELOCK

4 - CHITTENDEN
0401 BOLTON
0402 BULL'S GORE
0403 BURLINGTON
0404 CHARLOTTE
0405 COLCHESTER
0406 ESSEX
0407 HINESBURG
0408 HUNTINGTON
0409 JERICHO
0410 MILTON
0411 RICHMOND
0412 ST. GEORGE
0413 SHELBURNE
0414 SO. BURLINGTON
0415 UNDERHILL
0416 WESTFORD
0417 WILLISTON
0418 WINOOSKI

5 - ESSEX
0501 AVERILL
0502 AVERY'S GORE
0503 BLOOMFIELD
0504 BRIGHTON (ISLAND POND)
0505 BRUNSWICK
0506 CANAAN
0507 CONCORD
0508 EAST HAVEN
0509 FERDINAND
0510 GRANBY
0511 GUILDHALL
0512 LEMINGTON
0513 LEWIS
0514 LUNENBURG
0515 MALDSTONE
0516 NORTON
0517 VICTORY
0518 WARNER'S GRANT
0519 WARREN'S GORE

6 - FRANKLIN
0601 BAKERSFIELD
0602 BERKSHIRE
0603 ENOSBURG
0604 FAIRFAX
0605 FAIRFIELD
0606 FLETCHER
0607 FRANKLIN
0608 GEORGIA
0609 HIGHGATE
0610 MONTGOMERY
0611 RICHFORD
0612 ST. ALBANS CITY
0613 ST. ALBANS TOWN
0614 SHELDON
0615 SWANTON

7 - GRAND ISLE
0701 ALBURG
0702 GRAND ISLE
0703 ISLE LA MOTTE
0704 NORTH HERO
0705 SOUTH HERO

8 - LAMOILLE
0801 BELVIDERE
0802 CAMBRIDGE
0803 EDEN
0804 ELMORE
0805 HYDE PARK
0806 JOHNSON
0807 MORRISTOWN (MORRISVILLE)
0808 STOWE
0809 WATERVILLE
0810 WOLCOTT

9 - ORANGE
0901 BRADFORD
0902 BRAINTREE
0903 BROOKFIELD
0904 CHELSEA
0905 CORINTH
0906 FAIRLEE
0907 NEWBURY
0908 ORANGE
0909 RANDOLPH
0910 STRAFFORD
0911 THETFORD
0912 TOPSHAM
0913 TUNBRIDGE
0914 VERSHIRE
0915 WASHINGTON
0916 WEST FAIRLEE
0917 WILLIAMSTOWN

10 - ORLEANS
1001 ALBANY
1002 BARTON (ORLEANS VILLAGE)
1003 BROWNINGTON
1004 CHARLESTON
1005 COVENTRY
1006 CRAFTSBURY
1007 DERBY
1008 GLOVER
1009 GREENSBORO
1010 HOLLAND
1011 IRASBURG
1012 JAY
1013 LOWELL
1014 MORGAN
1015 NEWPORT CITY
1016 NEWPORT TOWN
1017 TROY
1018 WESTFIELD
1019 WESTMORE

11 - RUTLAND
1101 BENSON
1102 BRANDON
1103 CASTLETON
1104 CHITTENDEN
1105 CLARENDON
1106 DANBY
1107 FAIR HAVEN
1108 HUBBARDTON
1109 IRA
1110 MENDON
1111 MIDDLETOWN SPRINGS
1112 MT. HOLLY
1113 MT. TABOR
1114 PAWLET
1115 PITTSFIELD
1116 PITTSFORD
1117 POULTNEY
1118 PROCTOR
1119 RUTLAND CITY
1120 RUTLAND TOWN
1121 SHELBURNE
1122 SHREWSBURY
1123 SUNBURY
1124 TINMOUTH
1125 WALLINGFORD
1126 WELLS
1127 WEST HAVEN
1128 WEST RUTLAND

12 - WASHINGTON
1201 BARRE CITY
1202 BARRE TOWN
1203 BERLIN
1204 CABOT
1205 CALAIS
1206 DUXBURY
1207 E. MONTPELIER
1208 FAYSTON
1209 MARSHFIELD
1210 MIDDLESEX
1211 MONTPELIER
1212 MORETOWN
1213 NORTHFIELD
1214 PLAINFIELD
1215 ROXBURY
1216 WAITSFIELD
1217 WARREN
1218 WATERBURY
1219 WOODBURY
1220 WORCESTER

13 - WINDHAM
1301 ATHENS
1302 BRATTLEBORO
1303 BROOKLINE
1304 DOVER
1305 DUMMERSTON
1306 GRAFTON
1307 GUILFORD
1308 HALIFAX
1309 JAMAICA
1310 LONDONDERRY
1311 MARLBORO
1312 NEWFANE
1313 PUTNEY
1314 ROCKINGHAM (SAXTONS RIVER) (BELLOWS FALLS)
1315 SOMERSET
1316 STRATTON
1317 TOWNSHEND
1318 VERNON
1319 WARDSBORO
1320 WESTMINSTER
1321 WHITINGHAM
1322 WILMINGTON
1323 WINDHAM

14 - WINDSOR
1401 ANDOVER
1402 BALTIMORE
1403 BARNARD
1404 BETHEL
1405 BRIDGEWATER
1406 CAVENDISH
1407 CHESTER
1408 HARTFORD (WHITE RIVER JUNCTION)
1409 ASHLAND
1410 LUDLOW
1411 NORWICH
1412 PLYMOUTH
1413 POMFRET
1414 READING
1415 ROCHESTER
1416 ROYALTON
1417 SHARON
1418 SPRINGFIELD
1419 STOCKBRIDGE
1420 WEATHERSFIELD
1421 WESTON
1422 WEST WINDSOR
1423 WINDSOR
1424 WOODSTOCK

PAYMENT:
MILEMARKERS SHALL BE PAID AS TRAFFIC SIGNS, TYPE "A", AND POSTS PAID AS FLANGED CHANNEL STEEL SIGN POSTS.

MATERIAL:
THE SIGN BASE MATERIAL SHALL BE 0.04" FLAT SHEET ALUMINUM.

COLORS:
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OTHER STDS. REQUIRED: E-160

REVISIONS AND CORRECTIONS
OCT. 20, 1988 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

MILEMARKER DETAILS STATE AND TOWN HIGHWAYS

/trai/stc/stdel38.dgn : stcel38.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-138

MILEMARKER INFORMATION

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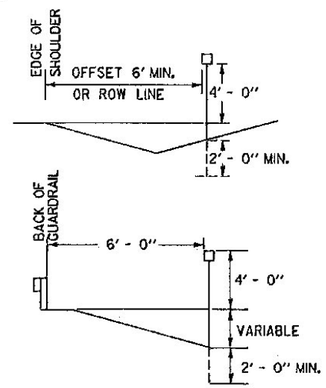
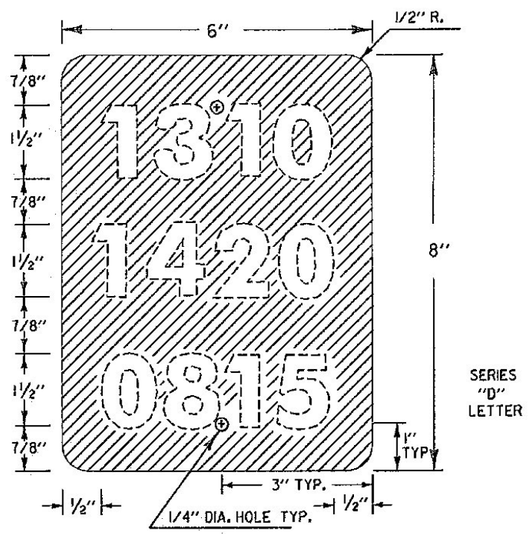




COUNTY/TOWN DESIGNATIONS

1 - ADDISON

0101 ADDISON
0102 BRIDPORT
0103 BRISTOL
0104 CORNWALL
0105 FERRISBURG
0106 GOSHEN
0107 GRANVILLE
0108 HANCOCK
0109 LEICESTER
0110 LINCOLN
0111 MIDDLEBURY
0112 MONKTON
0113 NEW HAVEN
0114 ORWELL
0115 PANTON
0116 RIPTON
0117 SALISBURY
0118 SHOREHAM
0119 STARKSBORO
0120 VERGENNES
0121 WALTHAM
0122 WEYBRIDGE
0123 WHITING

2 - BENNINGTON

0201 ARLINGTON
0202 BENNINGTON
0203 DORSET
0204 GLASTENBURY
0205 LANDGROVE
0206 MANCHESTER
0207 PERU
0208 POWNAL
0209 READSBORO
0210 RUPERT
0211 SANDGATE
0212 SEARSBURG
0213 SHAFTSBURY
0214 STAMFORD
0215 SUNDERLAND
0216 WINHALL
0217 WOODFORD

3 - CALEDONIA

0301 BARNET
0302 BURKE
0303 DANVILLE
0304 GROTON
0305 HARDWICK
0306 KIRBY
0307 LYNDON
0308 NEWARK
0309 PEACHAM
0310 RYEGATE
0311 ST. JOHNSBURY
0312 SHEFFIELD
0313 STANNARD
0314 SUTTON
0315 WALDEN
0316 WATERFORD
0317 WHEELOCK

4 - CHITTENDEN

0401 BOLTON
0402 BUEL'S GORE
0403 BURLINGTON
0404 CHARLOTTE
0405 COLCHESTER
0406 ESSEX
0407 HINESBURG
0408 HUNTINGTON
0409 JERICHO
0410 MILTON
0411 RICHMOND
0412 ST. GEORGE
0413 SHELBURNE
0414 SO. BURLINGTON
0415 UNDERHILL
0416 WESTFORD
0417 WILLISTON
0418 WINOOSKI

5 - ESSEX

0501 AVERILL
0502 AVERY'S GORE
0503 BLOOMFIELD
0504 BRIGHTON (ISLAND POND)
0505 BRUNSWICK
0506 CANAAN
0507 CONCORD
0508 EAST HAVEN
0509 FERDINAND
0510 GRANBY
0511 GUILDHALL
0512 LEMINGTON
0513 LEWIS
0514 LUNENBURG
0515 MAIDSTONE
0516 NORTON
0517 VICTORY
0518 WARNER'S GRANT
0519 WARREN'S GORE

6 - FRANKLIN

0601 BAKERSFIELD
0602 BERKSHIRE
0603 ENOSBURG
0604 FAIRFAX
0605 FAIRFIELD
0606 FLETCHER
0607 FRANKLIN
0608 GEORGIA
0609 HIGHGATE
0610 MONTGOMERY
0611 RICHFORD
0612 ST. ALBANS CITY
0613 ST. ALBANS TOWN
0614 SHELDON
0615 SWANTON

7 - GRAND ISLE

0701 ALBURG
0702 GRAND ISLE
0703 ISLE LA MOTTE
0704 NORTH HERO
0705 SOUTH HERO

8 - LAMOILLE

0801 BELVIDERE
0802 CAMBRIDGE
0803 EDEN
0804 ELMORE
0805 HYDE PARK
0806 JOHNSON
0807 MORRISTOWN (MORRISVILLE)
0808 STOWE
0809 WATERVILLE
0810 WOLCOTT

9 - ORANGE

0901 BRADFORD
0902 BRAINTREE
0903 BROOKFIELD
0904 CHELSEA
0905 CORINTH
0906 FAIRLEE
0907 NEWBURY
0908 ORANGE
0909 RANDOLPH
0910 STRAFFORD
0911 THETFORD
0912 TOPSHAM
0913 TUNBRIDGE
0914 VERSHIRE
0915 WASHINGTON
0916 WEST FAIRLEE
0917 WILLIAMSTOWN

10 - ORLEANS

1001 ALBANY
1002 BARTON (ORLEANS VILLAGE)
1003 BROWNINGTON
1004 CHARLESTON
1005 COVENTRY
1006 CRAFTSBURY
1007 DERBY
1008 GLOVER
1009 GREENSBORO
1010 HOLLAND
1011 IRASBURG
1012 JAY
1013 LOWELL
1014 MORGAN
1015 NEWPORT CITY
1016 NEWPORT TOWN
1017 TROY
1018 WESTFIELD
1019 WESTMORE

11 - RUTLAND

1101 BENSON
1102 BRANDON
1103 CASTLETON
1104 CHITTENDEN
1105 CLARENDON
1106 DANBY
1107 FAIR HAVEN
1108 HUBBARDTON
1109 IRA
1110 MENDON
1111 MIDDLETOWN SPRINGS
1112 MT. HOLLY
1113 MT. TABOR
1114 PAWLET
1115 PITTSFIELD
1116 PITTSFORD
1117 POULTNEY
1118 PROCTOR
1119 RUTLAND CITY
1120 RUTLAND TOWN
1121 SHERBURNE
1122 SHREWSBURY
1123 SUDBURY
1124 TINMOUTH
1125 WALLINGFORD
1126 WELLS
1127 WEST HAVEN
1128 WEST RUTLAND

12 - WASHINGTON

1201 BARRE CITY
1202 BARRE TOWN
1203 BERLIN
1204 CABOT
1205 CALAIS
1206 DUXBURY
1207 E. MONTPELIER
1208 FAYSTON
1209 MARSHFIELD
1210 MIDDLESEX
1211 MONTPELIER
1212 MORETOWN
1213 NORTHFIELD
1214 PLAINFIELD
1215 ROXBURY
1216 WAITSFIELD
1217 WARREN
1218 WATERBURY
1219 WOODBURY
1220 WORCESTER

13 - WINDHAM

1301 ATHENS
1302 BRATTLEBORO
1303 BROOKLINE
1304 DOVER
1305 DUMMERSTON
1306 GRAFTON
1307 GUILFORD
1308 HALIFAX
1309 JAMAICA
1310 LONDONDERRY
1311 MARLBORO
1312 NEWFANE
1313 PUTNEY
1314 ROCKINGHAM (SAXTONS RIVER) (BELLOWS FALLS)
1315 SOMERSET
1316 STRATTON
1317 TOWNSHEND
1318 VERNON
1319 WARDSBORO
1320 WESTMINSTER
1321 WHITINGHAM
1322 WILMINGTON
1323 WINDHAM

14 - WINDSOR

1401 ANDOVER
1402 BALTIMORE
1403 BARNARD
1404 BETHEL
1405 BRIDGEWATER
1406 CAVENDISH
1407 CHESTER
1408 HARTFORD (WHITE RIVER JUNCTION)
1409 HARTLAND
1410 LUDLOW
1411 NORWICH
1412 PLYMOUTH
1413 POMFRET
1414 READING
1415 ROCHESTER
1416 ROYALTON
1417 SHARON
1418 SPRINGFIELD
1419 STOCKBRIDGE
1420 WEATHERSFIELD
1421 WESTON
1422 WEST WINDSOR
1423 WINDSOR
1424 WOODSTOCK

CLASS I AND II TOWN HIGHWAYS

ROUTE CODE NUMBER	AND NAMED STATE HIGHWAY
9020	BARNET STATE HIGHWAY
9025	BENNINGTON NORTH STATE HIGHWAY
9030	BERLIN STATE HIGHWAY
9090	BRATTLEBORO STATE HIGHWAY
9150	CASTLETON STATE HIGHWAY
9180	COVENTRY STATE HIGHWAY
9210	FAIR HAVEN STATE HIGHWAY
9240	FAIRLEE STATE HIGHWAY
9270	FERRISBURG STATE HIGHWAY
9330	MAIDSTONE STATE HIGHWAY
9360	MIDDLESEX STATE HIGHWAY
9390	MONTPELIER STATE HIGHWAY
9420	MONTPELIER JUNCTION ROAD
9430	NEWBURY STATE HIGHWAY
9480	NORTON STATE HIGHWAY
9540	NORWICH STATE HIGHWAY
9600	PUTNEY STATE HIGHWAY
9630	QHECHEE STATE HIGHWAY
9720	ST. ALBANS ST. HWY. SOUTH
9730	ST. JOHNSBURY ST. HWY.
9780	SOUTH ALBURG STATE HIGHWAY
9840	WESTMINSTER STATE HIGHWAY
9870	WILDER STATE HIGHWAY
9900	WINHALL STATE HIGHWAY
9990	WEST RUTLAND-RUTLAND (BUS. US-4)
9991	BELLOWS FALLS S0117(ROCK-WEST ST.)
9992	BELLOWS FALLS S1117(BRIDGE ST.)
9993	BURLINGTON (ALTERNATE US-7)
9995	MONTPELIER (BUS. US-2)
9996	NEWPORT (ALTERNATE US-5)
9997	ST. JOHNSBURY (ALTERNATE US-5)
9998	SO. BURLINGTON-KENNEDY DRIVE

NOTES

PAYMENT:

MILEMARKERS SHALL BE PAID AS TRAFFIC SIGNS, TYPE ''A'', AND POSTS PAID AS FLANGED CHANNEL STEEL SIGN POSTS.

MATERIAL:

THE SIGN BASE MATERIAL SHALL BE 0.04 '' FLAT SHEET ALUMINUM .

COLORS:

THE SIGN SHALL HAVE A REFLECTORIZED WHITE TEXT ON A REFLECTORIZED GREEN BACKGROUND. THE COLORS SHALL CONFORM WITH THOSE FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING:

LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS AS PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

POSTS:

FLANGED CHANNEL STEEL 2 #/FT. POSTS SHALL BE USED WHEN MILEMARKERS ARE INSTALLED BEHIND GUARDRAIL OR WHEN THE POST LENGTH EXCEEDS 7 FEET. FOR LENGTHS OF 7 FEET OR LESS, A 1.12 #/FT. STEEL SIGN POST SHALL BE USED.

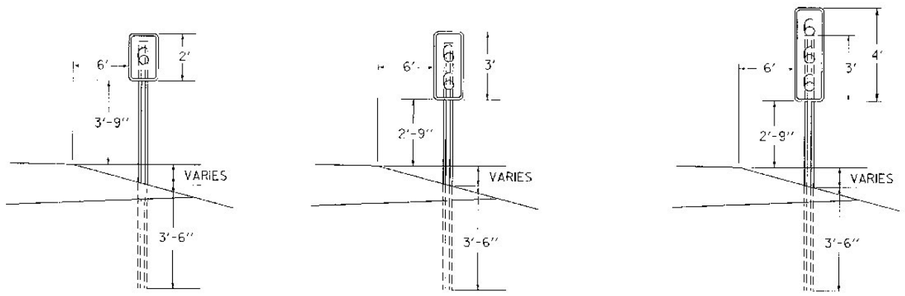
REVISIONS AND CORRECTIONS

APPROVED 10/20/88
DATE
David B Kelley
CHIEF ENGINEER
Arthur Gore
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION
Gordon A. McArthur
TRAFFIC AND SAFETY ENGINEER

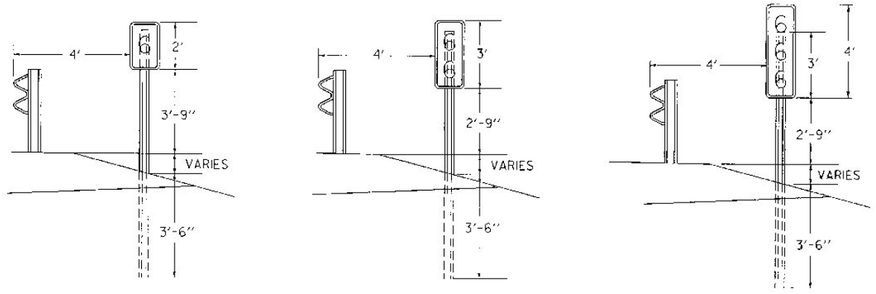
MILEMARKER DETAILS STATE AND TOWN HIGHWAY

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-138



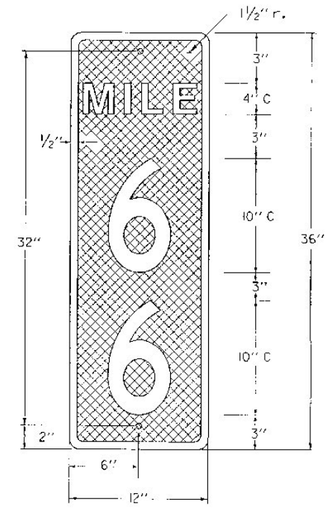
MOUNTING HEIGHTS WITHOUT GUARD RAIL



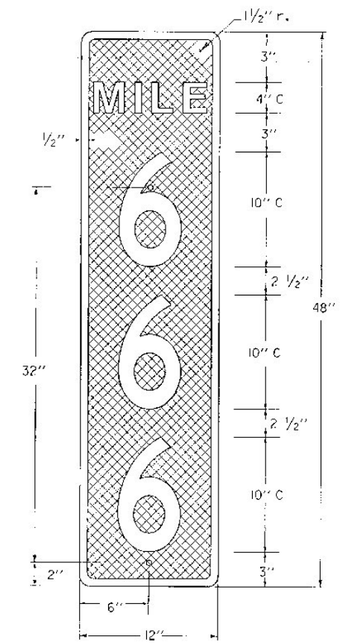
MOUNTING HEIGHTS WITH GUARD RAIL

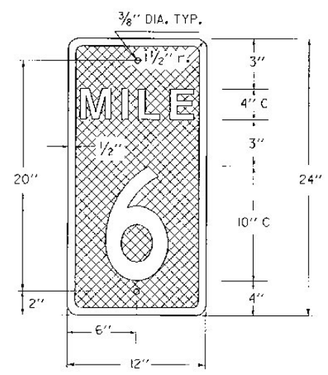
"MILE MARKERS SHALL BE ELIMINATED IF THEY OCCUR ON A BRIDGE. A MILEPOST TYPE A PLAQUE WITH A TYPE B PLAQUE READING "00" WILL BE SUBSTITUTED FOR THE MILEMARKER. MILEPOST PLAQUE DETAILS ARE SHOWN ON THE APPROPRIATE STANDARD SHEETS.

D10-2



D10-3





D10-1

COLORS:

THE SIGNS SHALL HAVE WHITE REFLECTIVE NUMERALS, BORDER AND LEGEND ON A GREEN REFLECTORIZED BACKGROUND. THE GREEN REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE COLORS SHALL CONFORM WITH THE STANDARD COLOR TOLERANCE CHARTS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.

TEXT:

LETTERS AND NUMBERS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGN AS PRESCRIBED IN THE PUBLICATION "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING". AVAILABLE FROM THE FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

MILE MARKER SIGNS SHALL BE .080 FLAT SHEET ALUMINUM. SIGNS SHALL BE MOUNTED ON FLANGED CHANNEL STEEL SIGN SUPPORTS WEIGHING 3 LB PER LINEAR FOOT.

PAYMENT:

THE MILE MARKER SIGNS SHALL BE PAID AS TRAFFIC SIGNS TYPE A. THE POSTS SHALL BE PAID AS FLANGED CHANNEL SIGN POSTS.

OTHER STDS. REQUIRED: E-160

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon D. MacArthur
DIRECTOR OF ENGINEERING

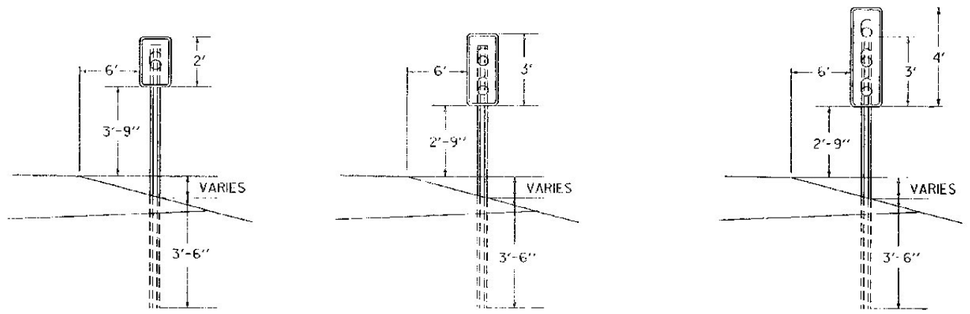
David A. Ross
TRAFFIC AND SAFETY ENGINEER

MILEMARKER DETAILS INTERSTATE

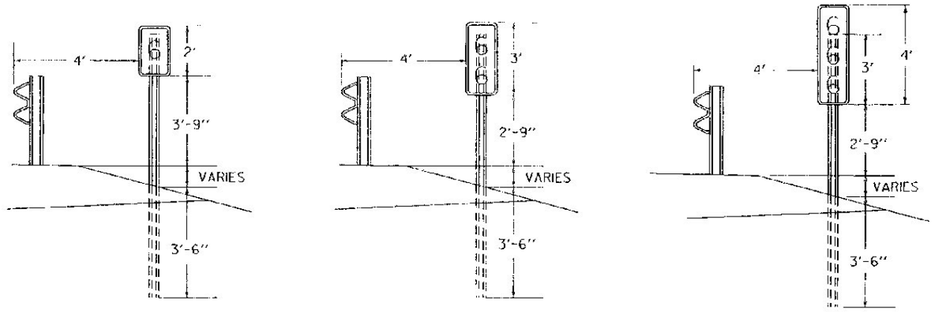
/traf/std/std139.dgn : std139.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-139



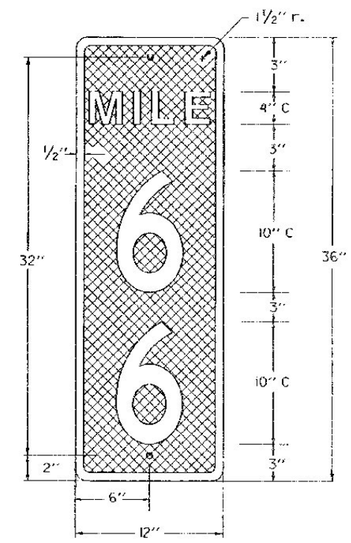
MOUNTING HEIGHTS WITHOUT GUARD RAIL



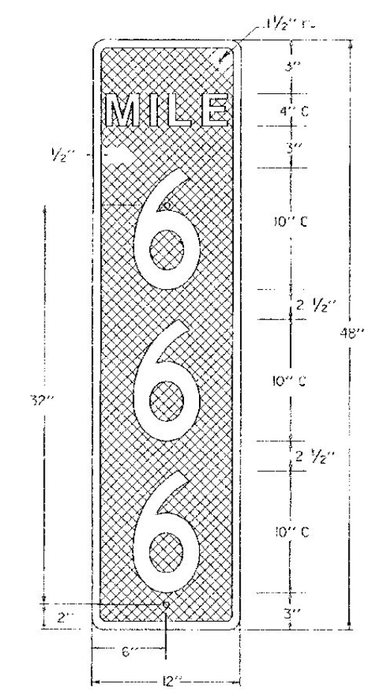
MOUNTING HEIGHTS WITH GUARD RAIL

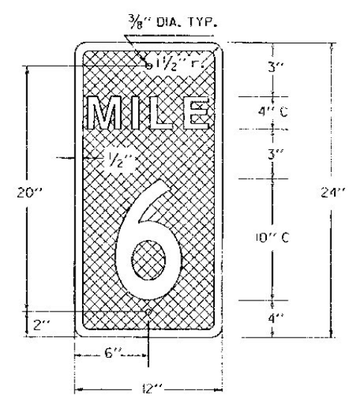
"MILE MARKERS SHALL BE ELIMINATED IF THEY OCCUR ON A BRIDGE. A MILEPOST TYPE A PLAQUE WITH A TYPE B PLAQUE READING "00" WILL BE SUBSTITUTED FOR THE MILEMARKER. MILEPOST PLAQUE DETAILS ARE SHOWN ON THE APPROPRIATE STANDARD SHEETS.

D10–2



D10–3





D10–1

COLORS:

THE SIGNS SHALL HAVE WHITE REFLECTIVE NUMERALS, BORDER AND LEGEND ON A GREEN REFLECTORIZED BACKGROUND. THE GREEN REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE COLORS SHALL CONFORM WITH THE STANDARD COLOR TOLERANCE CHARTS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.

TEXT:

LETTERS AND NUMBERS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGN AS PRESCRIBED IN THE PUBLICATION "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING". AVAILABLE FROM THE FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

MILE MARKER SIGNS SHALL BE .080 FLAT SHEET ALUMINUM. SIGNS SHALL BE MOUNTED ON FLANGED CHANNEL STEEL SIGN SUPPORTS WEIGHING 3 LB PER LINEAR FOOT.

PAYMENT:

THE MILE MARKER SIGNS SHALL BE PAID AS TRAFFIC SIGNS TYPE A. THE POSTS SHALL BE PAID AS FLANGED CHANNEL SIGN POSTS.

OTHER STDS. REQUIRED: E-160

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacArthur
DIRECTOR OF ENGINEERING

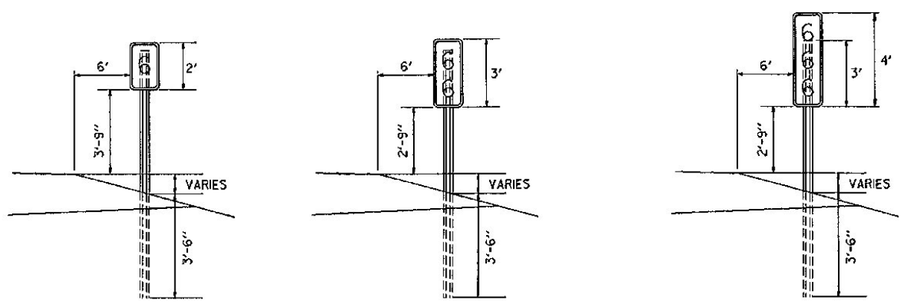
David A. Ross
TRAFFIC AND SAFETY ENGINEER

MILEMARKER DETAILS INTERSTATE

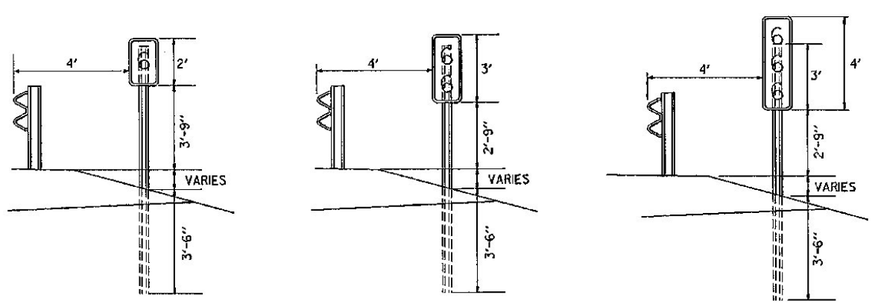
/traf/std/std139.dgn : std139.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-139

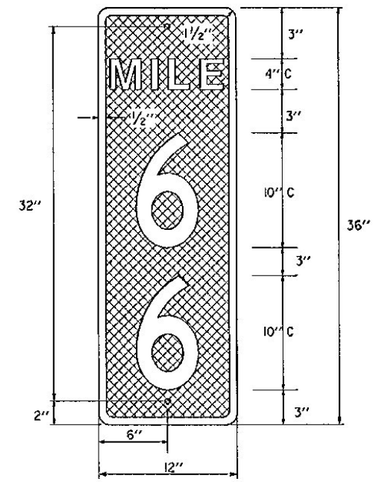


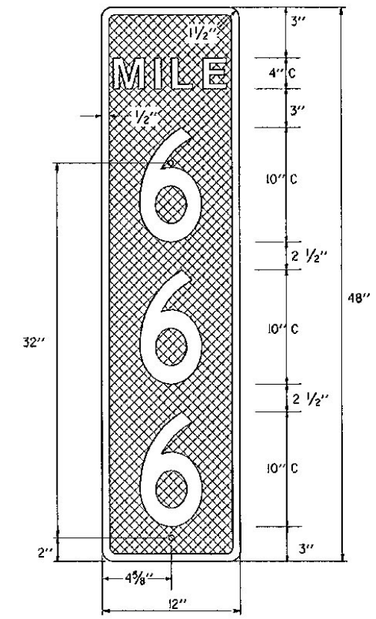
MOUNTING HEIGHTS WITHOUT GUARD RAIL



MOUNTING HEIGHTS WITH GUARD RAIL

MILEPOSTS SHALL BE ELIMINATED IF THEY OCCUR ON A BRIDGE. A TYPE A PLAQUE WITH A TYPE B PLAQUE READING "00" WILL BE SUBSTITUTED FOR THE MILEPOST. PLAQUES ARE SHOWN ON STANDARD SHEET E-198 AND E-E199*.





COLORS

THE COLORS SHALL CONFORM WITH THE STANDARD COLOR TOLERANCE CHARTS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

TEXT

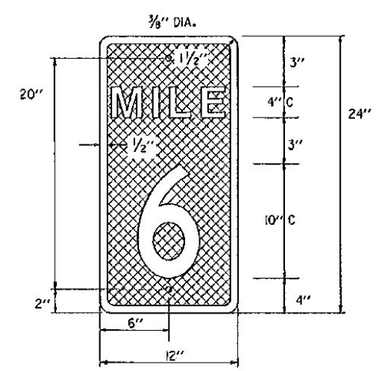
LETTERS AND NUMBERS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGN AS PRESCRIBED IN THE PUBLICATION "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING", AVAILABLE FROM THE FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

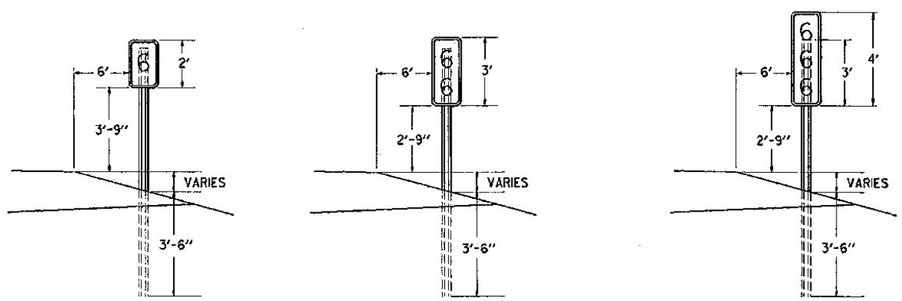
MILE MARKER SIGNS SHALL BE .080 FLAT SHEET ALUMINUM WITH WHITE REFLECTIVE NUMERALS, BORDER AND LEGEND ON A GREEN RELECTORIZED BACKGROUND. THE GREEN REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. SIGNS SHALL BE MOUNTED ON FLANGED CHANNEL STEEL SIGN SUPPORTS WEIGHTING 2 LB PER LINEAR FOOT.

PAYMENT

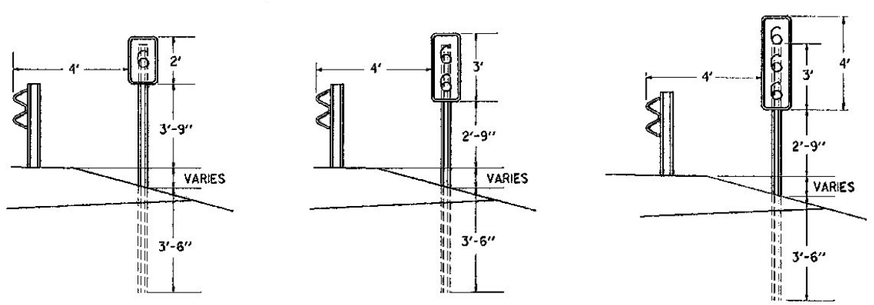
THE GUIDE SIGNS SHALL BE PAID AS TRAFFIC SIGNS TYPE A. THE POSTS SHALL BE PAID AS FLANGED CHANNEL SIGN POSTS.



REVISIONS AND CORRECTIONS	APPROVED	SEPT. 10, 1987 DATE David B. Kelley CHIEF ENGINEER Arthur V. Ross DIRECTOR OF PLANNING AND PRE-CONSTRUCTION Gordon B. MacArthur TRAFFIC AND SAFETY ENGINEER	# MILE MARKER DETAILS	VERMONT AGENCY OF TRANSPORTATION	STANDARD E-139

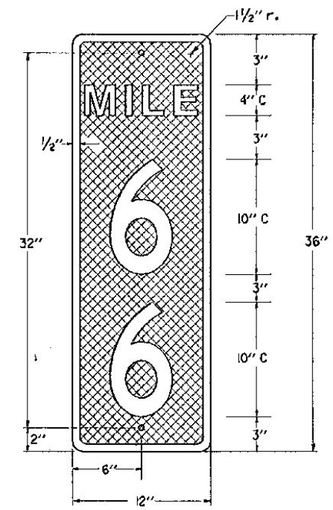


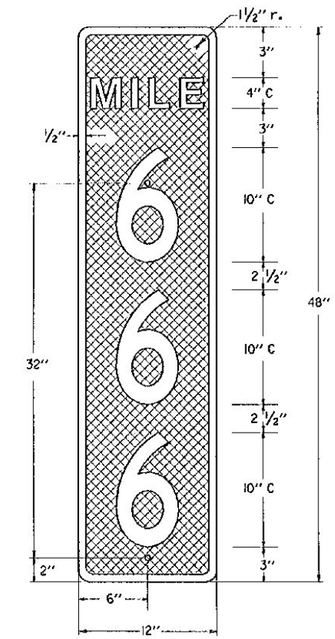
MOUNTING HEIGHTS WITHOUT GUARD RAIL

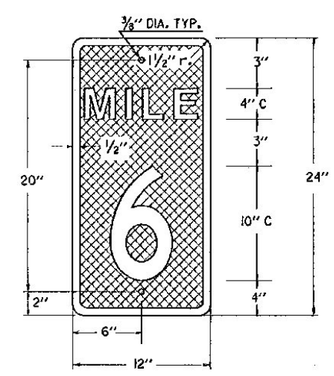


MOUNTING HEIGHTS WITH GUARD RAIL

"MILE MARKERS SHALL BE ELIMINATED IF THEY OCCUR ON A BRIDGE. A MILEPOST TYPE A PLAQUE WITH A TYPE B PLAQUE READING "00" WILL BE SUBSTITUTED FOR THE MILEMARKER. MILEPOST PLAQUE DETAILS ARE SHOWN ON THE APPROPRIATE STANDARD SHEETS.







COLORS

THE COLORS SHALL CONFORM WITH THE STANDARD COLOR TOLERANCE CHARTS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

TEXT

LETTERS AND NUMBERS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGN AS PRESCRIBED IN THE PUBLICATION "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING", AVAILABLE FROM THE FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

MILE MARKER SIGNS SHALL BE .080 FLAT SHEET ALUMINUM WITH WHITE REFLECTIVE NUMERALS, BORDER AND LEGEND ON A GREEN RELECTORIZED BACKGROUND. THE GREEN REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. SIGNS SHALL BE MOUNTED ON FLANGED CHANNEL STEEL SIGN SUPPORTS WEIGHTING 2½ LB PER LINEAR FOOT.

PAYMENT

THE MILE MARKER SIGNS SHALL BE PAID AS TRAFFIC SIGNS TYPE A. THE POSTS SHALL BE PAID AS FLANGED CHANNEL SIGN POSTS.

REVISIONS AND CORRECTIONS

DEC. 18, 1989 - CHANGED POST TO 2½ LB/FT

APPROVED

SEPT. 10, 1987
DATE

David B Kelley
CHIEF ENGINEER

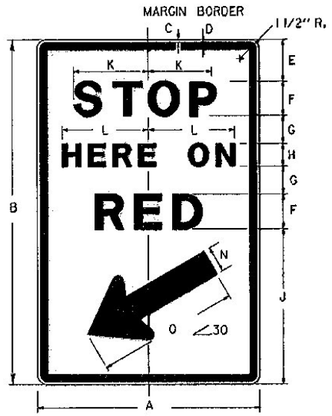
Arthur J Gosse
DIRECTOR OF PLANNING

Gordon B. MacAllister
TRAFFIC AND SAFETY ENGINEER

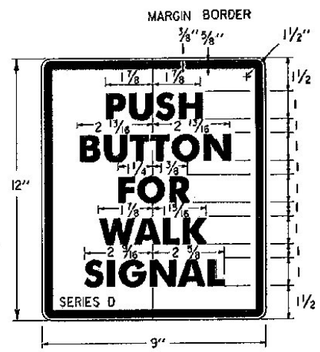
MILE MARKER DETAILS

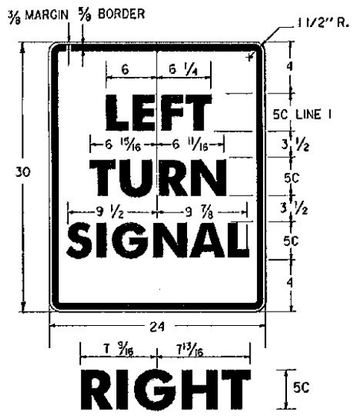
VERMONT AGENCY OF TRANSPORTATION

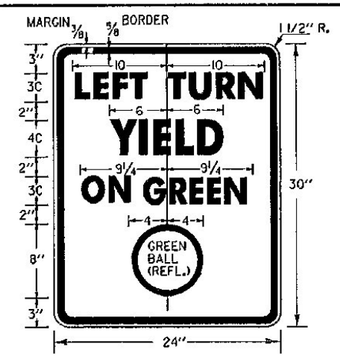
STANDARD
E-139

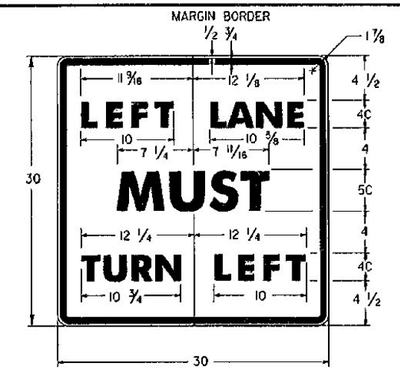


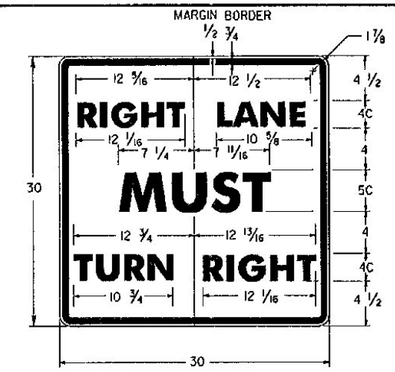
SIGN	A	B	C	D	E	F	G	H
STD.	24	36	3/8	5/8	4	5D	2 1/2	3D
SPECIAL	36	48	5/8	7/8	6	6D	4	4D
	J	K		L	M	N	Q	
STD.	14	4 3/16		8 3/16	6	2 5/8	14 5/8	
SPECIAL	18	7 3/4		9 13/16	7 1/8	2 3/4	6	

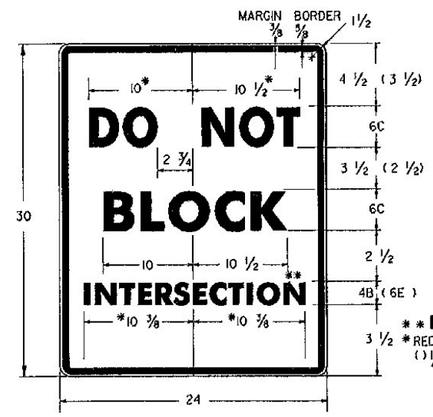




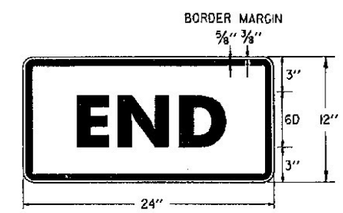


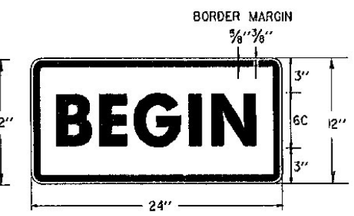


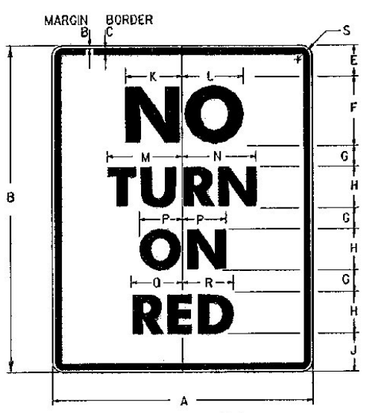




** DRIVE
* REDUCE SPACING 50 %
( ) INDICATES DIMENSIONS FOR "DO NOT BLOCK DRIVE" SIGN

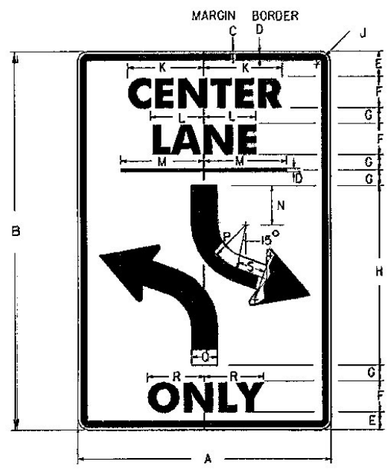




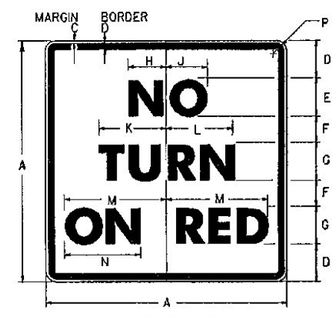


POST MOUNTING

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
STD.	24	30	3/8	5/8	3 1/4	5E	2 1/4	4D	3	4 13/16
SPECIAL	36	48	5/8	7/8	6	8E	3 1/2	6D	5 1/2	7 3/4
	L		M	N	P	Q		R	S	
STD.	5 3/16		6 5/8	6 1/2	3 1/2	4 5/8		4 7/8	1 1/2	
SPECIAL	8 1/4		10	9 3/4	5 1/4	6 7/8		7 7/8	2 1/4	



SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN. AND STD.	24	36	3/8	5/8	2 1/2	3E	1 1/2	16	1 1/2	8 7/16
SPECIAL	36	48	5/8	7/8	3 1/2	5E	1 1/2	20	2 1/4	14 1/16
	L		M	N	P	Q		R	S	
MIN. AND STD.	5 3/4		8	2 1/2	6	2		5 5/16	1 1/2	
SPECIAL	9 1/2		12	3	8	3		9 7/8	2	



OVERHEAD MOUNTING

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	18	3/8	5/8	2 3/4	3E	1 3/4	3D	2 15/16	3 1/16	5	4 7/8	7 1/8	5 1/4	1 1/2
STD.	24	3/8	5/8	3 1/2	4E	2 1/2	4D	3 7/8	4 1/8	5 5/8	6 1/2	9 1/2	6 1/2	1 1/2
SPECIAL	30	1/2	3/4	4 1/2	5E	3D	5D	4 13/16	5 3/16	8 1/4	8 1/8	11 7/8	7 3/4	1 7/8

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

		24" x 12" 24" x 24" 24" x 30"	
	9" x 12" 18" x 18"	24" x 36" 30" x 30"	36" x 36" 36" x 48"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. WHEN MOUNTED OVERHEAD, ALL SIGNS SHALL HAVE ENCAPSULATED LENS REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

TEXT DESIGN:
LETTERS, DIGITS, ARROWS, SPACINGS AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS:
REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

REVISIONS AND CORRECTIONS

APRIL 25, 1988 - FHWA COMMENTS

APPROVED

OCT. 30, 1987
DATE

David B. Kelley
CHIEF ENGINEER

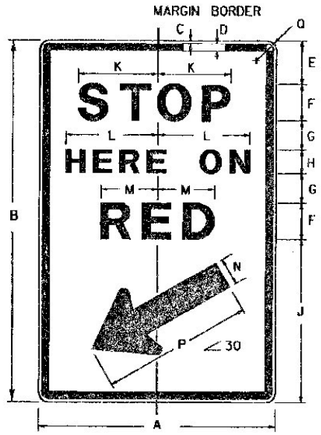
Arthur J. Gosa
DIRECTOR OF PLANNING AND PRE/CONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

REGULATORY SIGN DETAILS

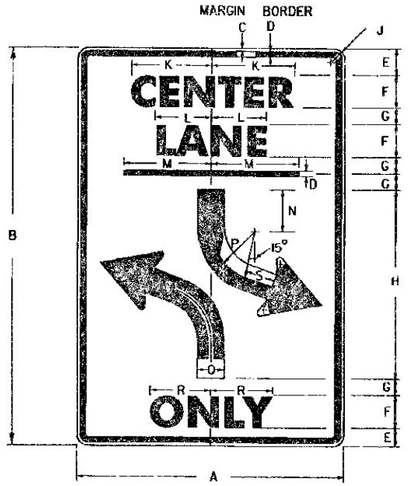
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-140



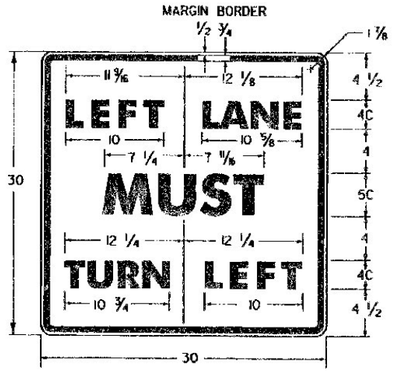
R10-6

SIGN	A	B	C	D	E	F	G	H
STD.	24	36	3/8	5/8	4	5D	2 1/2	3D
SPECIAL	36	48	5/8	7/8	6	6D	4	4D
	J	K	L	M	N	P	Q	
STD.	14	4 3/16	8 3/16	6	2 5/8	14 5/8	1 1/2	
SPECIAL	18	7 3/4	9 13/16	7 1/8	2 3/4	16	2 1/4	

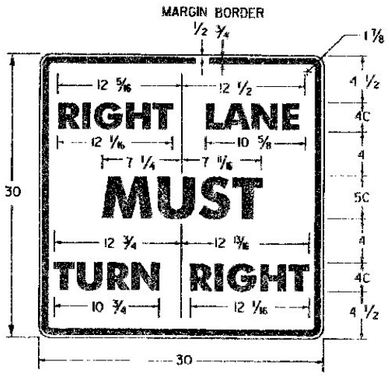


R3-9B

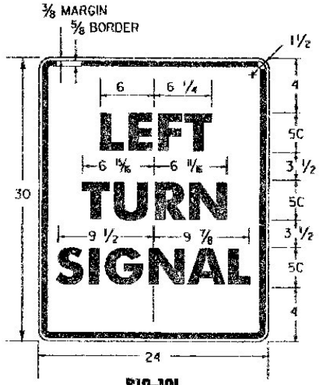
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
STD.	24	36	3/8	5/8	2 1/2	3E	1 1/2	16	1 1/2	8 7/16
SPECIAL	36	48	5/8	7/8	3 1/2	5E	1 1/2	20	2 1/4	14 1/16
	L		M	N	P	Q	R	S		
STD.	5 3/4		8	2 1/2	6	2	5 5/16	1 1/2		
SPECIAL	9 1/2		12	3	8	3	9 7/8	2		



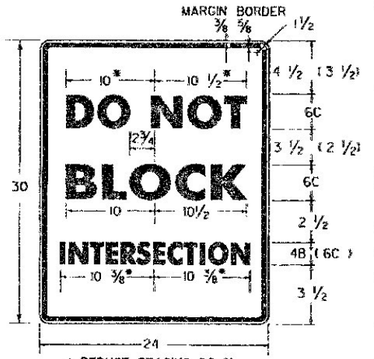
R3-7L



R3-7R

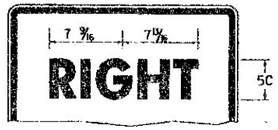


R10-10L



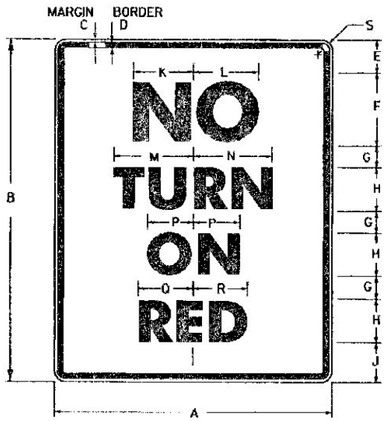
* REDUCE SPACING 50 %
( ) INDICATES DIMENSIONS FOR "DO NOT BLOCK DRIVE" SIGN

R10-7



R10-10R

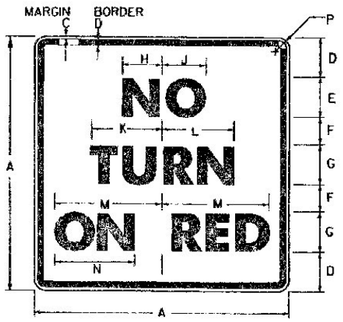
VR-656



POST MOUNTING

R10-11A

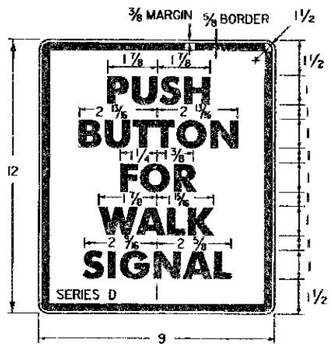
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
STD.	24	30	3/8	5/8	3 1/4	5E	2 1/4	4D	3	4 15/16
SPECIAL	36	48	5/8	7/8	6	8E	3 1/2	6D	5 1/2	7 3/4
	L		M	N	P	Q	R	S		
STD.	5 7/16		6 5/8	6 1/2	3 1/2	4 5/8	4 7/8	1 1/2		
SPECIAL	8 1/4		10	9 3/4	5 1/4	6 7/8	7 3/8	2 1/4		



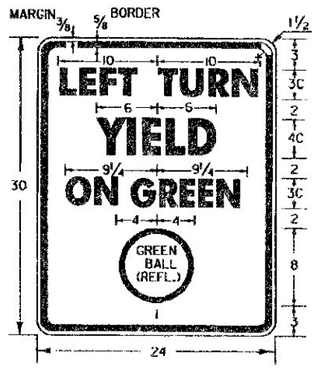
OVERHEAD MOUNTING

R10-11B

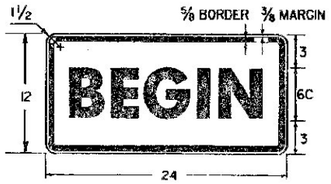
SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	18	3/8	5/8	2 3/4	3E	1 3/4	3D	2 5/8	3 1/16	5	4 7/8	7 1/8	5 1/4	1 1/2
STD.	24	3/8	5/8	3 1/2	4E	2 1/2	4D	3 7/8	4 1/8	5 5/8	6 1/2	9 1/2	6 1/2	1 1/2
SPECIAL	30	1/2	3/4	4 1/2	5E	3D	5D	4 15/16	5 3/16	8 1/4	8 1/8	11 7/8	7 3/4	1 7/8



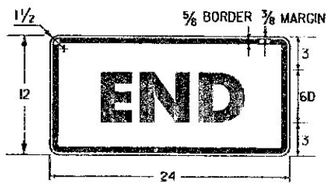
R10-4



R10-12



M4-11



M4-6

GENERAL:

1. ALL DIMENSIONS IN INCHES.
2. SEE STANDARD E-144 FOR ARROWHEAD DETAILS.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	9" X 12" 18" X 18"	24" X 12" 24" X 24" 24" X 30" 24" X 36" 30" X 30"	36" X 48"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. WHEN MOUNTED OVERHEAD, ALL SIGNS SHALL HAVE ENCAPSULATED LENS REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

OTHER STDS. : E-144
REQUIRED

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
SEPT. 20, 1995 - ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS, SHEET REALIGNMENT

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

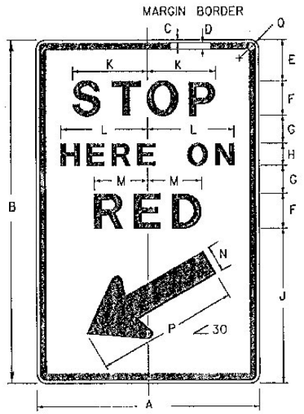
TRAFFIC AND SAFETY ENGINEER

REGULATORY SIGN DETAILS

/traf/std/std140.dgn : std140.1

VERMONT AGENCY OF TRANSPORTATION

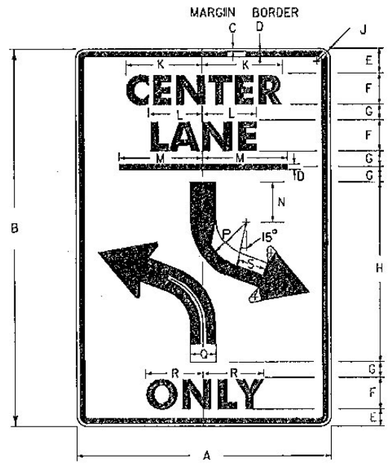
STANDARD
E-140



R10-6

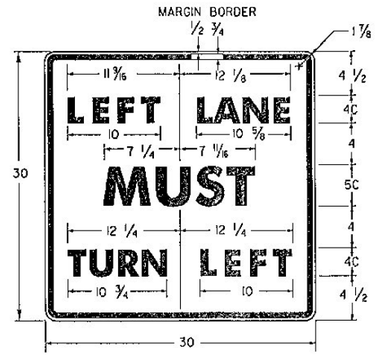
SIGN	A	B	C	D	E	F	G	H
STD.	24	36	3/8	5/8	4	5D	2 1/2	3D
SPECIAL	36	48	5/8	7/8	6	6D	4	4D

	J	K	L	M	N	P	Q
STD.	14	4 5/16	8 3/16	6	2 5/8	14 5/8	1 1/2
SPECIAL	18	7 3/4	9 11/16	7 1/8	2 3/4	16	2 1/4

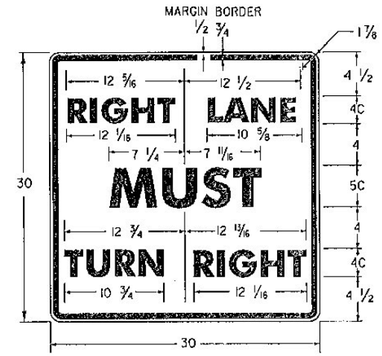


R3-9B

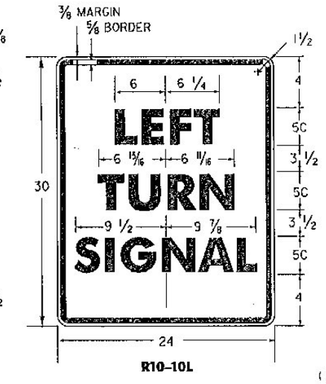
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
STD.	24	36	3/8	5/8	2 1/2	3E	1 1/2	16	1 1/2	8 7/16
SPECIAL	36	48	5/8	7/8	3 1/2	5E	1 1/2	20	2 1/4	14 1/16
	L		M		N	P	Q		R	S
STD.	5 3/4		8		2 1/2	16	2		5 5/16	1 1/2
SPECIAL	9 1/2		12		3	18	3		9 7/8	2



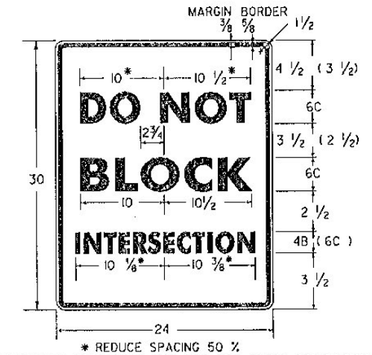
R3-7L



R3-7R

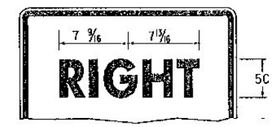


R10-10L

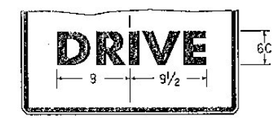


* REDUCE SPACING 50 %
( ) INDICATES DIMENSIONS FOR "DO NOT BLOCK DRIVE" SIGN

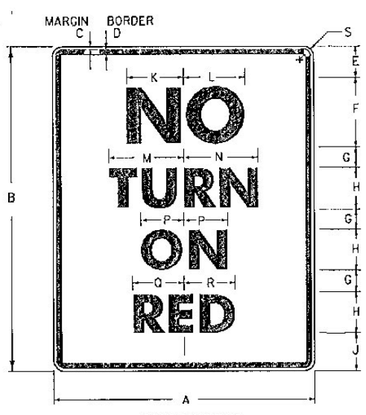
R10-7



R10-10R



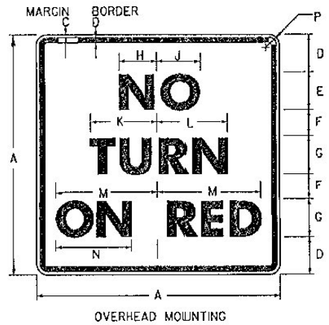
VR-656



POST MOUNTING

R10-11A

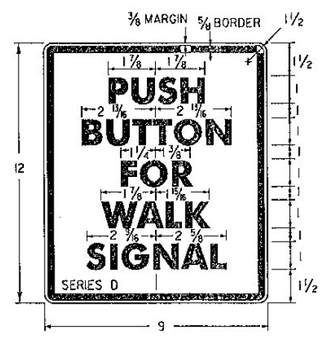
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
STD.	24	30	1/3	5/8	3 1/4	5E	2 1/4	4D	3	4 13/16
SPECIAL	36	48	5/8	7/8	6	8E	3 1/2	6D	5 1/2	7 3/4
	L		M		N		P		Q	R	S
STD.	5 3/16		6 5/8		6 1/2		3 1/2		4 5/8	4 7/8	1 1/2
SPECIAL	8 1/4		10		9 3/4		5 1/4		6 7/8	7 3/8	2 1/4



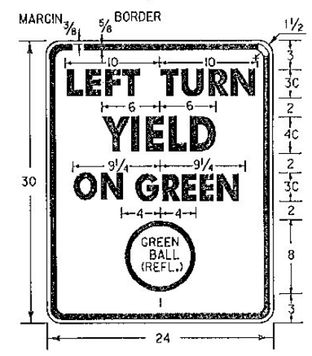
OVERHEAD MOUNTING

R10-11B

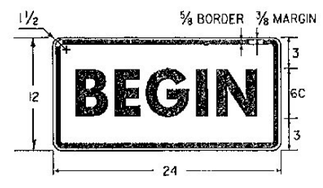
SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	18	1/3	5/8	2 3/4	3E	1 3/4	3D	2 5/8	3 1/16	5	4 7/8	7 1/8	5 1/4	1 1/2
STD.	24	1/3	5/8	3 1/2	4E	2 1/2	4D	3 7/8	4 1/8	5 5/8	6 1/2	9 1/2	6 1/2	1 1/2
SPECIAL	30	1/2	3/4	4 1/2	5E	3D	5D	4 13/16	5 7/16	8 1/4	8 1/8	11 7/8	7 3/4	1 7/8



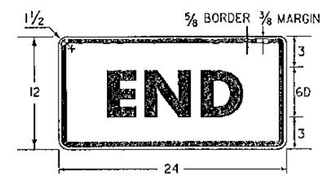
R10-4



R10-12



M4-11



M4-6

GENERAL:

1. ALL DIMENSIONS IN INCHES.
2. SEE STANDARD E-144 FOR ARROWHEAD DETAILS.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	9'' X 12'' 18'' X 18''	24'' X 12'' 24'' X 24'' 24'' X 30'' 24'' X 36'' 30'' X 30''	36'' X 48''
FLAT SHEET ALUMINUM	0.060''	0.080''	0.100''
HIGH DENSITY OVERLAID PLYWOOD	1/2''	1/2''	5/8''
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. WHEN MOUNTED OVERHEAD, ALL SIGNS SHALL HAVE ENCAPSULATED LENS REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

OTHER STDS. REQUIRED: E-144

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
SEPT. 20, 1995 - ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS, SHEET REALIGNMENT

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

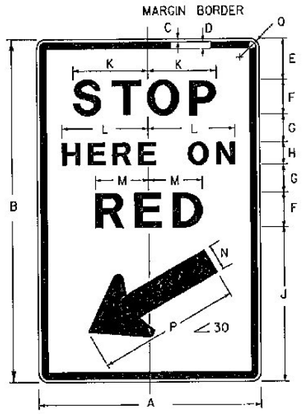
TRAFFIC AND SAFETY ENGINEER

REGULATORY SIGN DETAILS

/traf/std/stdel40.dgn : stdel40.I

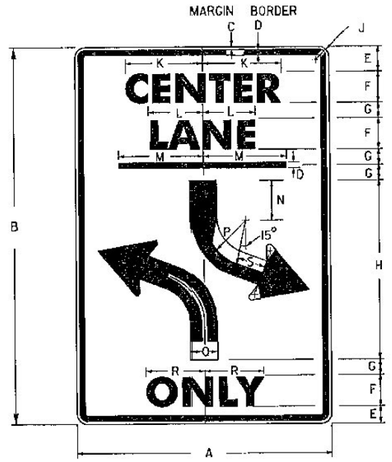
VERMONT AGENCY OF TRANSPORTATION

STANDARD E-140



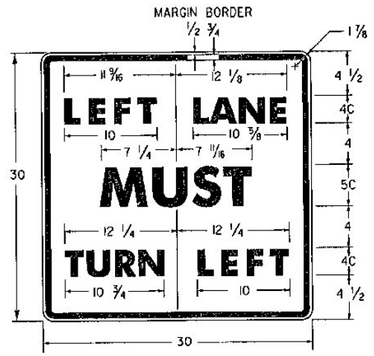
R10-6

SIGN	A	B	C	D	E	F	G	H
STD.	24	36	3/8	5/8	4	5D	2 1/2	3D
SPECIAL	36	48	5/8	7/8	6	6D	4	4D
	J	K	L	M	N	P	Q	
STD.	14	4 3/16	8 3/16	6	2 5/8	14 5/8	1 1/2	
SPECIAL	18	7 3/4	9 13/16	7 1/8	2 3/4	16	2 1/4	

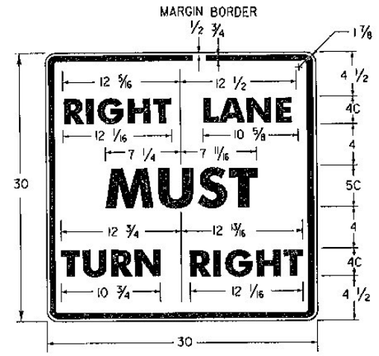


R3-9B

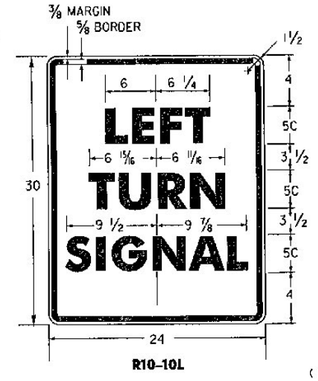
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
STD.	24	36	3/8	5/8	2 1/2	3E	1 1/2	16	1 1/2	8 7/16
SPECIAL	36	48	5/8	7/8	3 1/2	5E	1 1/2	20	2 1/4	14 1/16
	L	M	N	P	Q	R	S			
STD.	5 3/4	8	2 1/2	6	2	5 5/16	1 1/2			
SPECIAL	9 1/2	12	3	8	3	9 7/8	2			



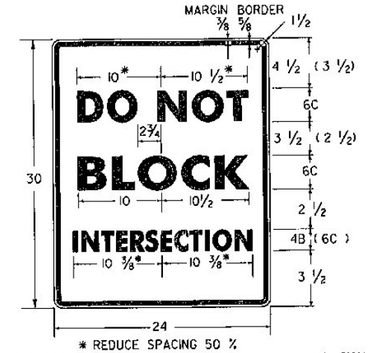
R3-7L



R3-7R

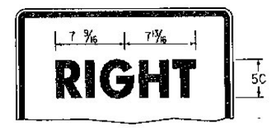


R10-10L



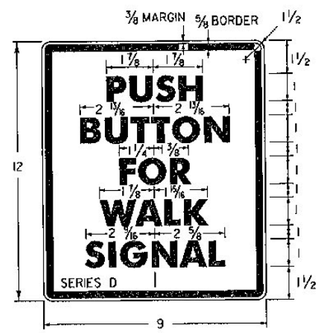
* REDUCE SPACING 50 %
( ) INDICATES DIMENSIONS FOR "DO NOT BLOCK DRIVE" SIGN

R10-7

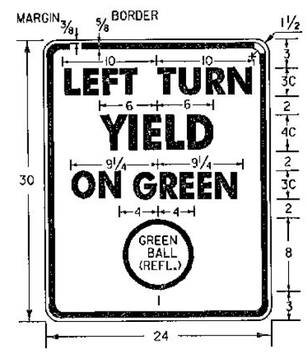


R10-10R

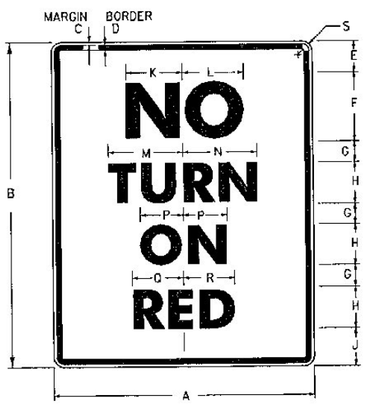
VR-656



R10-4



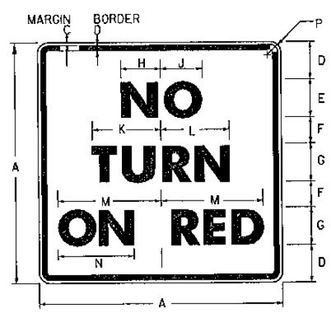
R10-12



POST MOUNTING

R10-11A

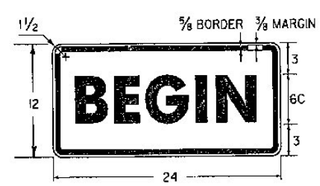
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
STD.	24	30	3/8	5/8	3 1/4	5E	2 1/4	4D	3	4 15/16
SPECIAL	36	48	5/8	7/8	6	8E	3 1/2	6D	5 1/2	7 3/4
	L	M	N	P	Q	R	S			
STD.	5 3/16	6 5/8	6 1/2	3 1/2	4 5/8	4 7/8	1 1/2			
SPECIAL	8 1/4	10	9 3/4	5 1/4	6 7/8	7 3/8	2 1/4			



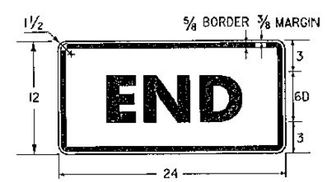
OVERHEAD MOUNTING

R10-11B

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	18	3/8	5/8	2 3/4	3E	1 3/4	3D	2 5/8	3 1/16	5	4 7/8	7 1/8	5 1/4	1 1/2
STD.	24	3/8	5/8	3 1/2	4E	2 1/2	4D	3 7/8	4 1/8	5 5/8	6 1/2	9 1/2	6 1/2	1 1/2
SPECIAL	30	1/2	3/4	4 1/2	5E	3D	5D	4 15/16	5 3/16	8 1/4	8 1/8	11 7/8	7 3/4	1 7/8



M4-11



M4-6

GENERAL:

1. ALL DIMENSIONS IN INCHES.
2. SEE STANDARD E-144 FOR ARROWHEAD DETAILS.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	9'' X 12'' 18'' X 18''	24'' X 12'' 24'' X 24'' 24'' X 30'' 24'' X 36'' 30'' X 30''	36'' X 48''
FLAT SHEET ALUMINUM	0.060''	0.080''	0.100''
HIGH DENSITY OVERLAID PLYWOOD	1/2''	1/2''	5/8''
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. WHEN MOUNTED OVERHEAD, ALL SIGNS SHALL HAVE ENCAPSULATED LENS REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

OTHER STDS.: REQUIRED E-144

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
SEPT. 20, 1995 - ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS, SHEET REALIGNMENT

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

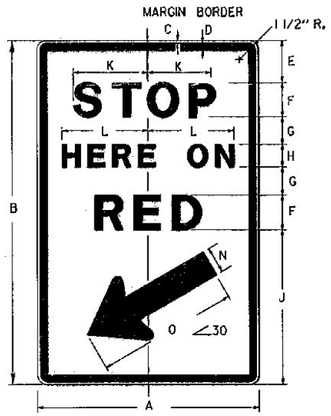
TRAFFIC AND SAFETY ENGINEER

REGULATORY SIGN DETAILS

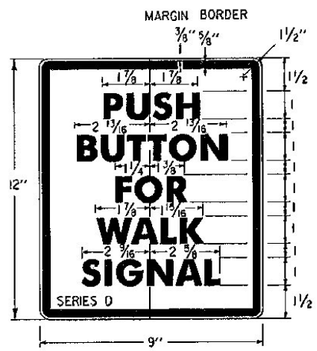
/traf/std/stdel40.dgn : stdel40.1

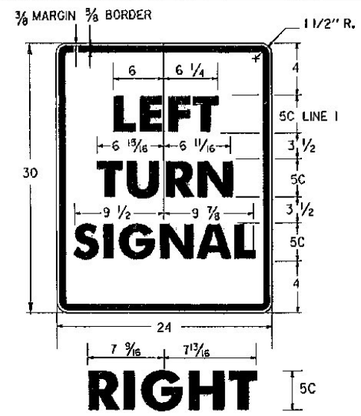
VERMONT AGENCY OF TRANSPORTATION

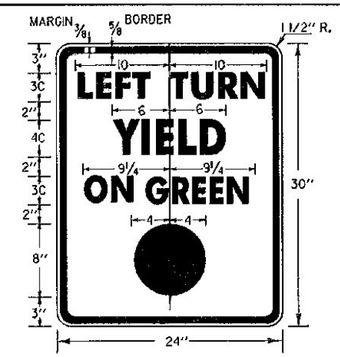
STANDARD E-140

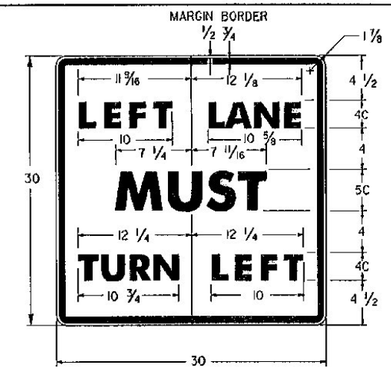


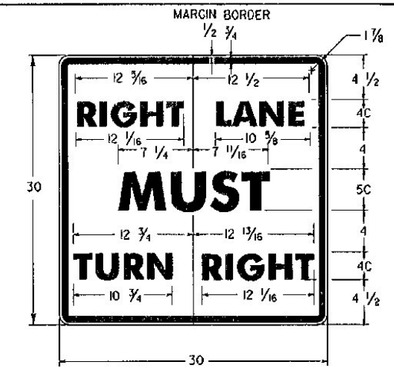
SIGN	A	B	C	D	E	F	G	H
STD.	24	36	3/8	5/8	4	5D	2 1/2	3D
SPECIAL	36	48	5/8	7/8	6	6D	4	4D
	J		K		L	M	N	O
STD.	14		4 3/16		8 3/16	6	2 3/8	14 3/8
SPECIAL	18		7 3/4		9 13/16	7 1/8	2 3/4	6

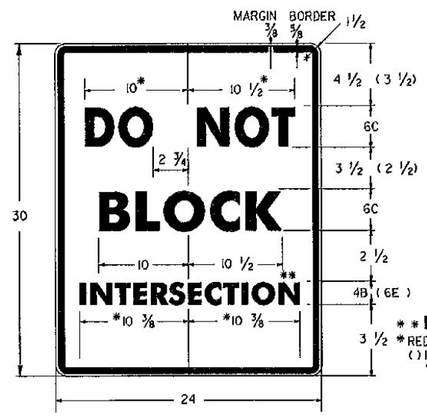


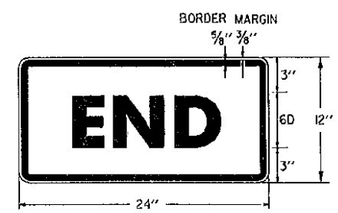


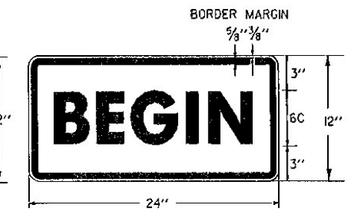


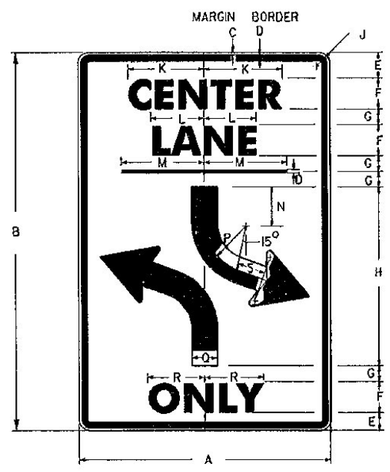




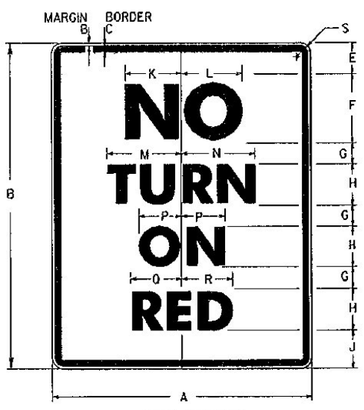






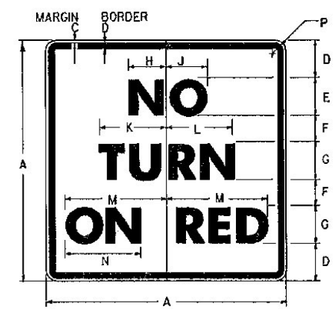


SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN. AND STD.	24	36	3/8	5/8	2 1/2	3E	1 1/2	16	1 1/2	8 7/16
SPECIAL	36	48	5/8	7/8	3 1/2	5E	1 1/2	20	2 1/4	14 1/16
	L		M		N	P	Q		R	S
MIN. AND STD.	5 3/4		8		2 1/2	6	2		5 3/16	1 1/2
SPECIAL	9 1/2		12		3	8	3		9 7/8	2



POST MOUNTING

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
STD.	24	30	3/8	5/8	3 1/4	5E	2 1/4	4D	3	4 13/16
SPECIAL	36	48	5/8	7/8	6	8E	3 1/2	6D	5 1/2	7 3/4
	L		M		N	P	Q		R	S
STD.	5 3/16		6 5/8		6 1/2	3 1/2	4 5/8		4 7/8	1 1/2
SPECIAL	8 1/4		10		9 3/4	5 1/4	6 7/8		7 7/8	2 1/4



OVERHEAD MOUNTING

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	18	3/8	5/8	2 3/4	3E	1 3/4	3D	2 15/16	3 1/16	5	4 7/8	7 1/8	5 1/4	1 1/2
STD.	24	3/8	5/8	3 1/2	4E	2 1/2	4D	3 7/8	4 1/8	5 5/8	6 1/2	9 1/2	6 1/2	1 1/2
SPECIAL	30	1/2	3/4	4 1/2	5E	3D	5D	4 13/16	5 3/16	8 1/4	8 1/8	11 7/8	7 3/4	1 7/8

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

		24" x 12" 24" x 24" 24" x 30"	
	9" x 12" 18" x 18"	24" x 36" 30" x 30"	36" x 36" 36" x 48"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	3/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. WHEN MOUNTED OVERHEAD, ALL SIGNS SHALL HAVE ENCAPSULATED LENS REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACINGS AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

REVISIONS AND CORRECTIONS

APPROVED

OCT. 30, 1987
DATE

David B. Kelley
CHIEF ENGINEER

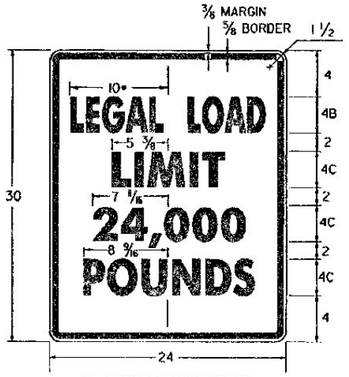
Arthur J. Sevas
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

REGULATORY SIGN DETAILS

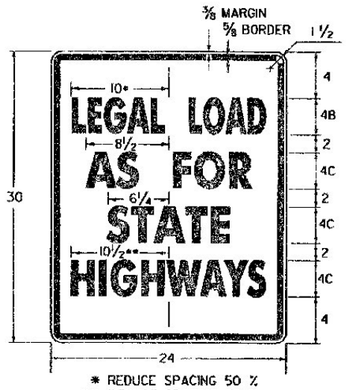
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-140



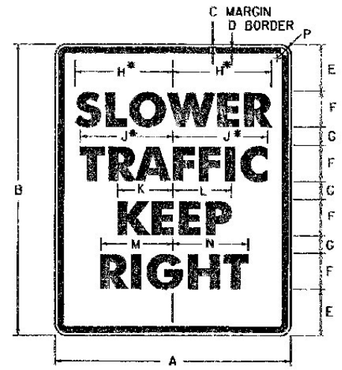
* REDUCE SPACING 50 %
LINE 3 ALTERNATE - 16,000

VR-017



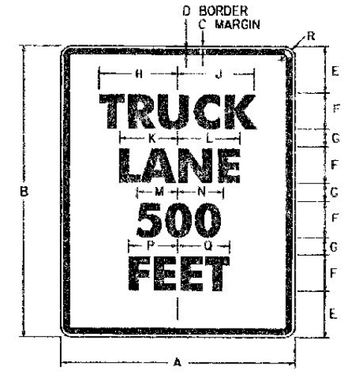
* REDUCE SPACING 50 %
** REDUCE SPACING 38 %

VR-079

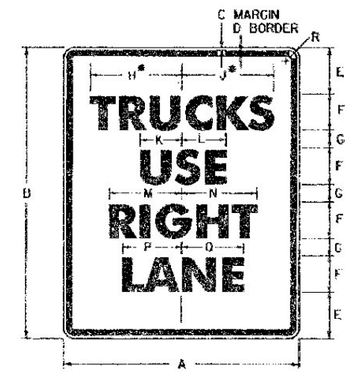


* REDUCE SPACING 25 %

R4-3

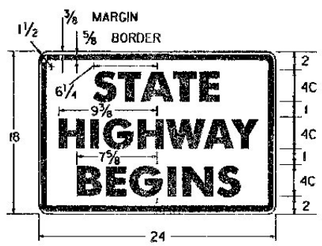


R4-6

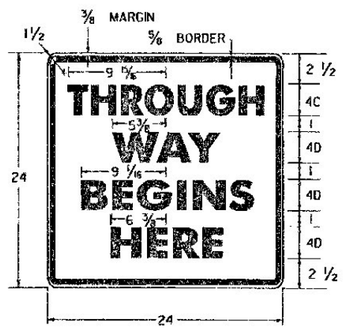


* REDUCE SPACING 32 %

R4-5



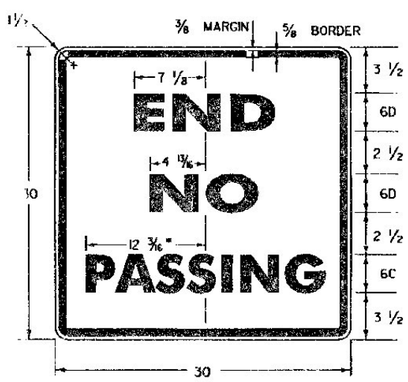
VR-039



VR-041

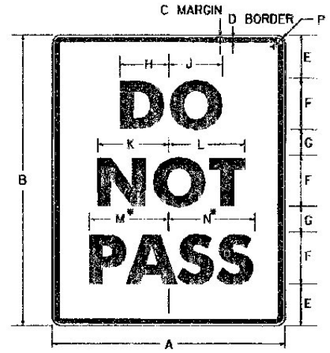
VR-038

VR-040



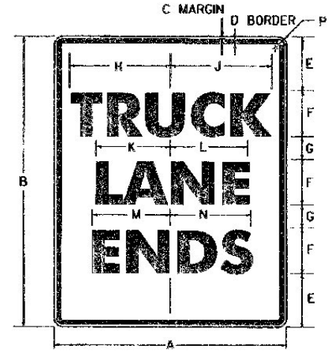
* REDUCE SPACING 50 %

VR-417



* REDUCE SPACING 40 %

R4-1



VR-186

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
STD.	24	30	3/8	5/8	3 5/8	4D	2 1/4	9 3/4	10	6	6 9/16	7 1/8	7 5/8	1 1/2
EXPWY.	36	48	5/8	7/8	6	6D	4	14 5/8	15	9	9 13/16	10 11/16	11 3/8	2 1/4
FWY.	48	60	3/4	1 1/4	7 1/4	8D	4 1/2	19 1/2	20	12	13 1/8	14 1/4	15 1/8	3

SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
STD.	24	30	3/8	5/8	3 5/8	4E	2 1/4	9 13/16	9 11/16	7 9/16	7 11/16	5 11/16	5 13/16	6 7/8	7 1/16	1 1/2
EXPWY.	36	48	5/8	7/8	6	6E	4	14 3/4	14 1/2	11 5/16	11 1/2	8 1/2	8 3/4	10 5/16	10 5/8	2 1/4
FWY.	48	60	3/4	1 1/4	7 1/4	8E	4 1/2	19 5/8	19 3/8	15 1/8	15 3/8	11 3/8	11 5/8	13 3/4	14 1/8	3

SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
STD.	24	30	3/8	5/8	3 5/8	4D	2 1/4	9 9/16	9 3/16	4 3/4	5	7 1/8	7 5/8	6 1/4	6 5/8	1 1/2
EXPWY.	36	48	5/8	7/8	6	6D	4	14 9/16	13 11/16	7 1/8	7 1/2	10 11/16	11 3/8	9 3/8	9 15/16	2 1/4
FWY.	48	60	3/4	1 1/4	7 1/4	8D	4 1/2	19 1/8	18 3/8	9 1/2	10	14 1/4	15 1/4	12 1/2	13 1/4	3

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
STD.	24	30	3/8	5/8	3 1/2	6D	2 1/2	4 11/16	5	7 1/8	7 3/8	9 3/8	9 3/4	1 1/2
EXPWY.	36	48	5/8	7/8	7	8D	5	6 1/4	6 5/8	9 1/2	9 3/4	12 1/2	13	2 1/4
FWY.	48	60	3/4	1 1/4	8	10D	7	7 3/4	8 5/16	11 7/16	12 1/4	15 5/8	16 1/4	3

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
STD.	24	30	3/8	5/8	3 1/2	6C	2 1/2	10 1/4	10 3/16	7 3/4	7 3/4	7 15/16	8	1 1/2
EXPWY.	36	48	5/8	7/8	7	8C	5	13 11/16	13 5/8	10 3/8	10 5/16	10 11/16	10 11/16	2 1/4
FWY.	48	60	3/4	1 1/4	8	10D	7	20 5/8	20 5/8	15 7/8	15 5/8	16 1/16	16 1/16	3

GENERAL:

1. ALL DIMENSIONS IN INCHES.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	24'' X 18'' 24'' X 24'' 24'' X 30'' 30'' X 30''	36'' X 48'' 48'' X 60''
FLAT SHEET ALUMINUM	0.080''	0.100''
HIGH DENSITY OVERLAID PLYWOOD	1/2''	5/8''
GALVANIZED FLAT SHEET STEEL	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

OTHER STDS.: NONE REQUIRED

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAIL. ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

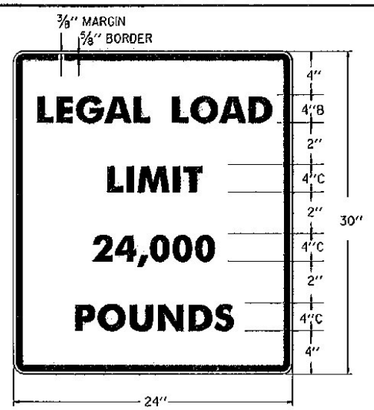
TRAFFIC AND SAFETY ENGINEER

REGULATORY SIGN DETAILS

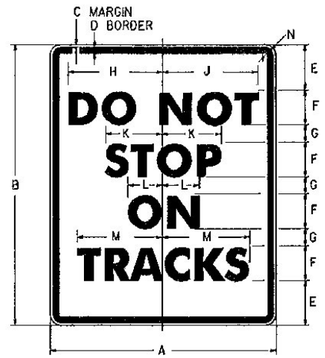
/traf/std/std141.dgn : std141.1

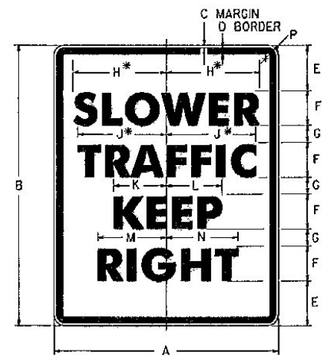
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-141

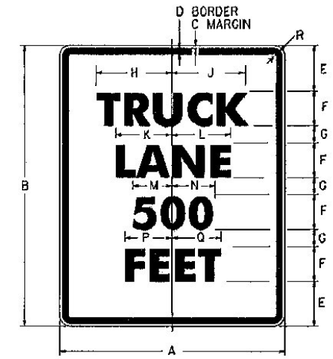


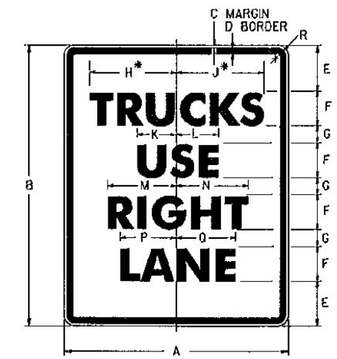
LINE 3 ALTERNATE - **16,000**





*REDUCE SPACING 25 %





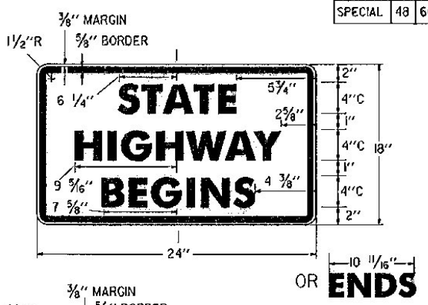
*REDUCE SPACING 32 %

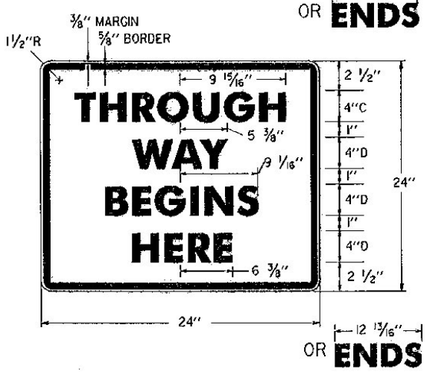
SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
STD.	24	30	3/8	5/8	3 5/8	4D	2 1/4	9 1/4	9 5/8	6 3/16	3 1/2	10	1 1/2
SPECIAL	36	48	5/8	7/8	6	6D	4	14	14 7/16	9 3/4	5 1/4	15	2 1/4
SPECIAL	48	60	3/4	1 1/4	7 1/4	8D	4 1/2	18 1/2	19 1/4	13 1/8	7	20	3

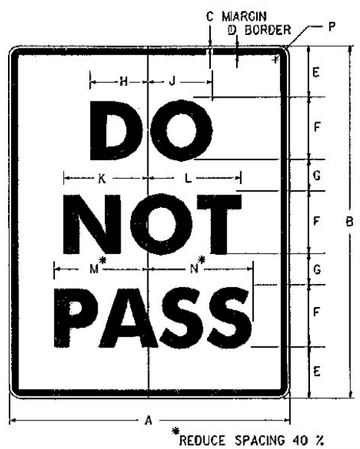
SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
STD.	24	30	3/8	5/8	3 5/8	4D	2 1/4	9 3/4	10	6	6 3/16	7 1/8	7 5/8	1 1/2
EXPWY.	36	48	5/8	7/8	6	6D	4	14 5/8	15	9	9 13/16	10 11/16	11 3/8	2 1/4
FWY.	48	60	3/4	1 1/4	7 1/4	8D	4 1/2	19 1/2	20	12	13 1/8	14 1/4	15 1/4	3

SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
STD.	24	30	3/8	5/8	3 5/8	4E	2 1/4	9 13/16	9 11/16	7 9/16	7 11/16	5 11/16	5 13/16	6 7/8	7 1/16	1 1/2
EXPWY.	36	48	5/8	7/8	6	6E	4	14 3/4	14 1/2	11 5/16	11 1/2	8 1/2	8 3/4	10 5/16	10 5/8	2 1/4
FWY.	48	60	3/4	1 1/4	7 1/4	8E	4 1/2	19 5/8	19 3/8	15 1/8	15 3/8	11 3/8	11 5/8	13 3/4	14 1/8	3

SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
STD.	24	30	3/8	5/8	3 5/8	4D	2 1/4	9 3/16	9 3/16	4 3/4	5	7 1/8	7 5/8	6 1/4	6 5/8	1 1/2
EXPWY.	36	48	5/8	7/8	6	6D	4	14 5/16	13 13/16	7 1/8	7 1/2	10 11/16	11 3/8	9 3/8	9 15/16	2 1/4
FWY.	48	60	3/4	1 1/4	7 1/4	8D	4 1/2	19 1/8	18 3/8	9 1/2	10	14 1/4	15 1/4	12 1/2	13 1/4	3

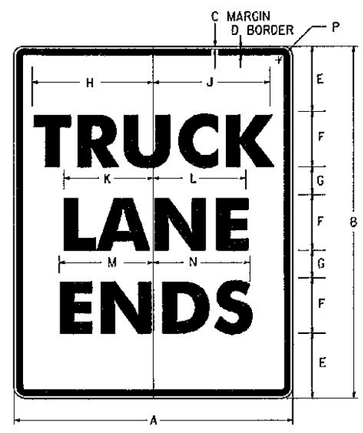




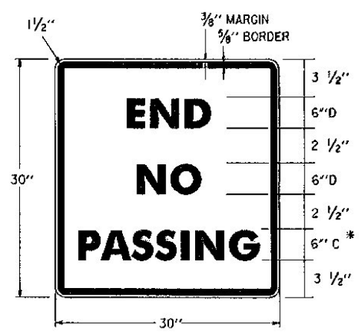


*REDUCE SPACING 40 %

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
STD.	24	30	3/8	5/8	3 1/2	6D	2 1/2	4 11/16	5	7 1/8	7 3/8	9 3/8	9 3/4	1 1/2
EXPWY.	36	48	5/8	7/8	7	8D	5	6 1/4	6 5/8	9 1/2	9 3/4	12 1/2	13	2 1/4
FWY.	48	60	3/4	1 1/4	8	10D	7	7 3/4	8 5/16	11 7/8	12 1/4	15 5/8	16 1/4	3



SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
STD.	24	30	3/8	5/8	3 1/2	6C	2 1/2	10 1/4	10 3/16	7 3/4	7 3/4	7 15/16	8	1 1/2
EXPWY.	36	48	5/8	7/8	7	8C	5	13 11/16	13 5/8	10 3/8	10 5/16	10 11/16	10 11/16	2 1/4
FWY.	48	60	3/4	1 1/4	8	10D	7	20 5/8	20 5/8	15 7/8	15 15/16	16 1/16	16 1/16	3



* REDUCE SPACING 49 %

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	24" x 18" 24" x 24" 24" x 30" 30" x 30"	36" x 48" 48" x 60"
FLAT SHEET ALUMINUM	0.060"	0.080" 0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2" 5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE 14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

REVISIONS AND CORRECTIONS

APPROVED

OCT. 30, 1987
DATE

David B Kelley
CHIEF ENGINEER

Arthur J Gosse
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

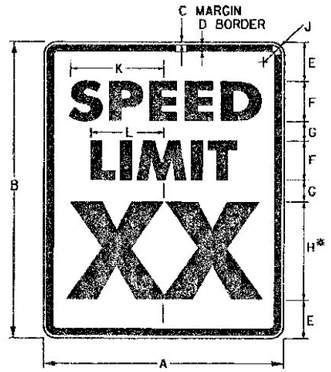
Gordon B. Mac Arthur
TRAFFIC AND SAFETY ENGINEER

REGULATORY SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

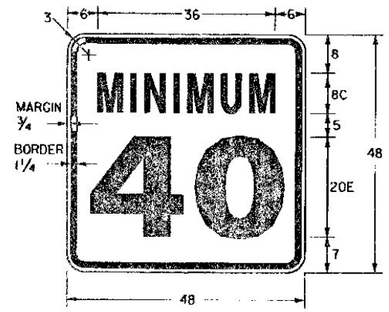
E-141



* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE.

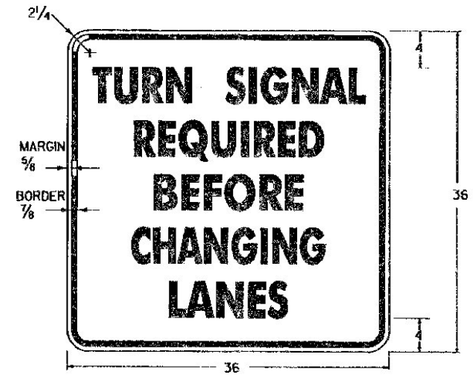
R2-1

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN	18	24	3/8	5/8	3	3E	2	8E	1 1/2	7 3/16	5 1/2
STD	24	30	3/8	5/8	4	4E	2	10E	1 1/2	9 3/16	7 3/16
EXPWY	36	48	5/8	7/8	6	6E	5	14E	2 1/4	14 3/8	11
FWY	48	60	3/4	1 1/4	8	8E	4	20E	3	19 1/8	14 5/8



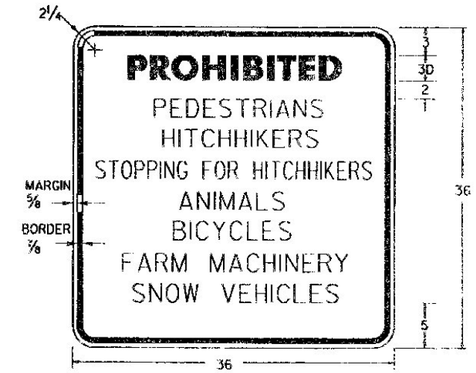
TO BE USED WITH "SPEED LIMIT 55" OR "65" FWY SIGN ONLY

VR-141



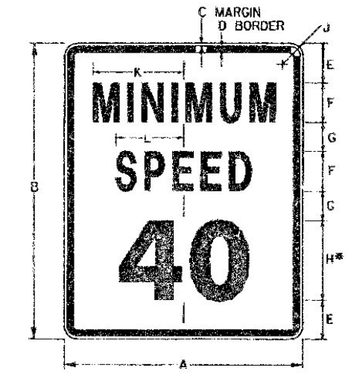
TEXT 4"C; SPACING 2"

VR-002



TEXT 2"C, SPACING 1 1/2", EXCEPT WHERE NOTED.

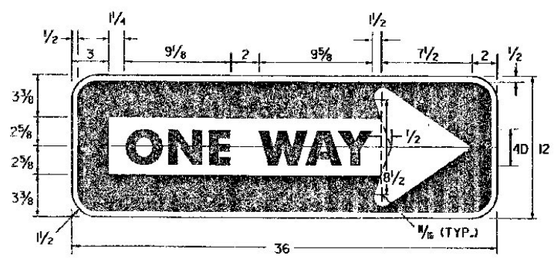
VR-046



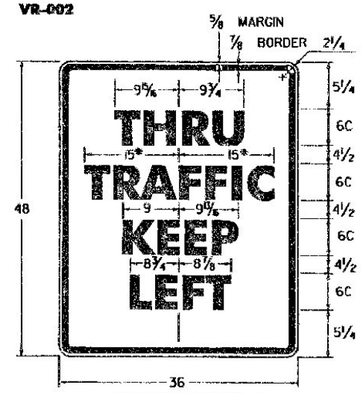
* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE.

R2-4

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
STD	24	30	3/8	5/8	4	4E	2	10E	1 1/2	9 3/16	6 11/16
EXPWY	36	48	5/8	7/8	6	6E	5	14E	2 1/4	13 3/4	10 3/16
FWY	48	60	3/4	1 1/4	8	8E	4	20E	3	18 3/8	13 5/8

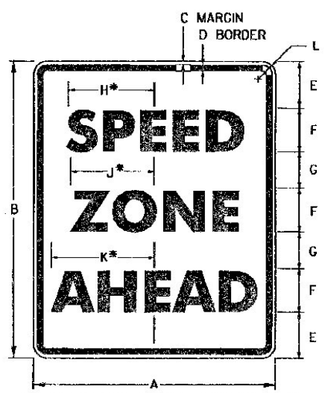


R6-1R



* REDUCE SPACING 25 %

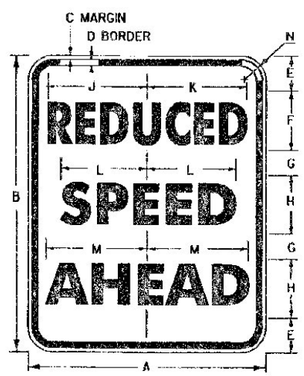
VR-118L



* FOR STD SIZE, REDUCE SPACING 40 %

R2-5C

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN.	18	24	3/8	5/8	3 1/2	4C	2 1/2	6 11/16	5 1/2	7	1 1/2
STD.	24	30	3/8	5/8	3 1/2	6C	2 1/2	9 3/16	7 3/16	9 3/4	1 1/2
EXPWY.	36	48	5/8	7/8	7	8C	5	13 5/8	11 1/16	14	2 1/4
FWY.	48	60	3/4	1 1/4	9	10C	6	17	13 11/16	17 1/2	3



R2-5A

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	18	24	3/8	5/8	3 1/2	4B	2 1/2	4C	6 7/8	7	6 11/16	7	1 1/2
STD.	24	30	3/8	5/8	3 1/2	6B	2 1/2	6C	10	10 3/4	9 3/16	9 3/4	1 1/2
EXPWY.	36	48	5/8	7/8	7	8B	5	8C	14 1/4	14 3/4	13 5/8	14	2 1/4
FWY.	48	60	3/4	1 1/4	9	10B	6	10C	17 3/4	18 7/16	17	17 1/2	3

* FOR FWY SIZE, REDUCE SPACING 50 %

R8-7

SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
EXPWY.	30	24	3/8	5/8	3 1/2	4C	2 1/2	4D	12 1/2	13	12 3/4	6 7/16	7	1 1/2
FWY.	48	36	5/8	7/8	5	6D	4	6D	20 7/16	21 1/8	19 1/8	10 11/16	10 9/16	2 1/4

GENERAL:

1. ALL DIMENSIONS IN INCHES.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	18" X 24"	24" X 30" 30" X 24"	36" X 12" 36" X 36" 36" X 48" 48" X 36" 48" X 48" 48" X 60"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

OTHER STDS. : NONE REQUIRED

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE

SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAILS, ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

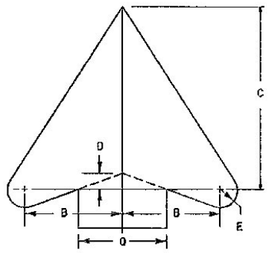
REGULATORY SIGN DETAILS

/traf/std/stdel42.dgn : stdel42.I

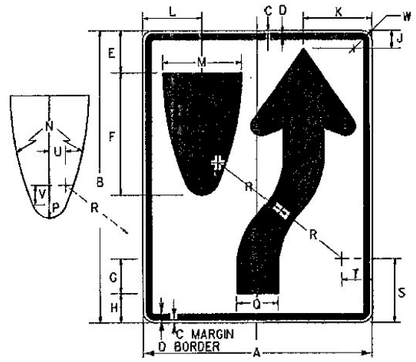
VERMONT AGENCY OF TRANSPORTATION

STANDARD

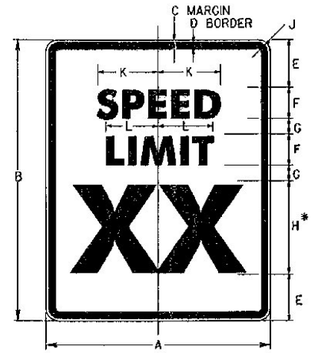
E-142



ARROW HEAD	DIMENSIONS (INCHES)				
	SIZE	B	C	D	E
MINIMUM	18x24	3 1/2	6 1/3	7/16	3/16
STANDARD	24x30	4 3/8	8 1/8	5/8	13/16
EXPRESSWAY	36x48	6 7/8	12 3/16	15/16	1 3/16
FREEWAY	48x60	9 1/16	16 1/4	1 1/4	1 5/8

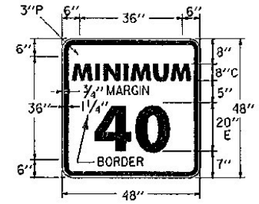


SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN	18	24	3/8	5/8	3 3/8	9 3/8	1 7/8	2 1/4	1 3/8	5 1/2
STD	24	30	3/8	5/8	4 1/2	12 1/2	2 1/2	3	1 7/8	7 3/8
EXPWY	36	48	5/8	7/8	6 3/4	18 3/4	3 3/4	4 1/2	2 13/16	11 1/8
FWY	48	60	3/4	1 1/4	9	25	5	6	3 3/4	14 13/16
	L	M	N	P	Q	R	S	T	U	V	W
MIN	4 11/16	6	22 1/2	1 1/2	3	6 3/4	4 1/8	2 1/4	1 1/16	7/16	1 1/2
STD	6 1/4	8	30	2	4	9	5 1/2	3	1 3/8	2 13/16	1 1/2
EXPWY	9 3/8	12	45	3	6	13 1/2	8 1/4	4 1/2	2	2 3/4	2 1/4
FWY	12 1/2	16	60	4	8	18	11	6	2 11/16	5	3

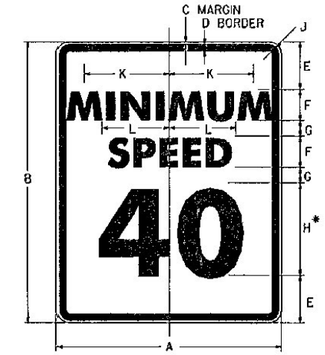


SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN	18	24	3/8	5/8	3	3E	2	8E	1 1/2	7 3/16	5 1/2
STD	24	30	3/8	5/8	4	4E	2	10E	1 1/2	9 3/16	7 5/16
EXPWY	36	48	5/8	7/8	6	6E	5	14E	2 1/4	14 3/8	11
FWY	48	60	3/4	1 1/4	8	8E	4	20E	3	19 1/3	14 5/8

* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE.

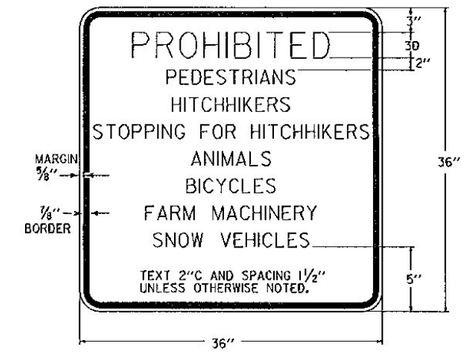


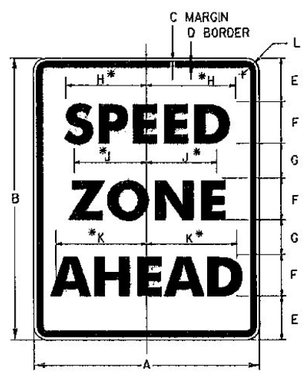
TO BE USED WITH "SPEED LIMIT 65 OR 55" SIGN-FWY ONLY.



SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN & STD	24	30	7/8	5/8	4	4C	2	10D	1 1/2	9 3/16	6 13/16
EXPWY	36	48	5/8	7/8	6	6C	5	14D	2 1/4	13 3/4	10 3/16
FWY	48	60	3/4	1 1/4	8	8C	6	16D	3	18 3/8	13 5/8

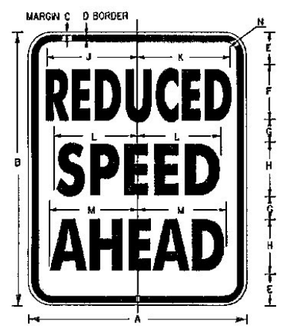
* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE.





SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN.	18	24	3/8	5/8	3 1/2	4C	2 1/2	6 13/16	5 1/2	7	1 1/2
STD.	24	30	3/8	5/8	3 1/2	6C	2 1/2	9 3/16	7 3/16	9 3/4	1 1/2
EXPWY.	36	48	5/8	7/8	7	8C	5	13 5/8	11 1/16	14	2 1/4
FWY.	48	60	3/4	1 1/4	9	10C	6	17	13 13/16	17 1/2	3

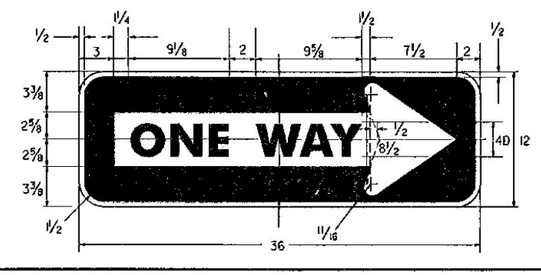
* FOR STD SIZE, REDUCE SPACING 40 %



SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	18	24	3/8	5/8	3 1/2	4B	2 1/2	4C	6 7/8	7	6 13/16	7	1 1/2
STD.	24	30	3/8	5/8	3 1/2	6B	2 1/2	6C	10	10 3/4	9 3/16	9 3/4	1 1/2
EXPWY.	36	48	5/8	7/8	7	8B	5	8C	14 1/4	14 3/4	13 5/8	14	2 1/4
FWY.	48	60	3/4	1 1/4	9	10B	6	10C	17 3/4	18 7/16	17	17 1/2	3

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
EXPWY.	30	24	3/8	5/8	3 1/2	4C	2 1/2	4D	12 1/2	13	12 3/4	6 7/16	7	1 1/2
FWY.	48	36	5/8	7/8	5	6D	4	6D	20 7/16	21 1/8	19 1/8	10 1/16	10 3/16	2 1/4

* FOR FWY SIZE, REDUCE SPACING 50 %



COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

			36" x 12" 36" x 36" 36" x 48" 48" x 36" 48" x 48" 48" x 60"
		24" x 30"	
	18" x 24"	30" x 24"	
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

REVISIONS AND CORRECTIONS

APPROVED

OCT. 30, 1987
DATE

David B. Kelley
CHIEF ENGINEER

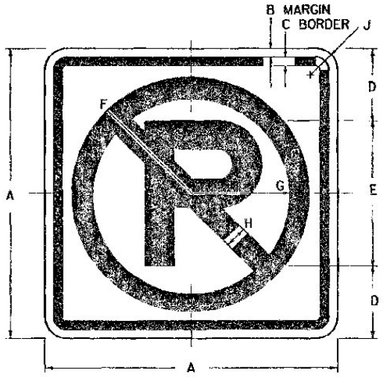
Arthur J. Gosse
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon R. MacArthur
TRAFFIC AND SAFETY ENGINEER

REGULATORY SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

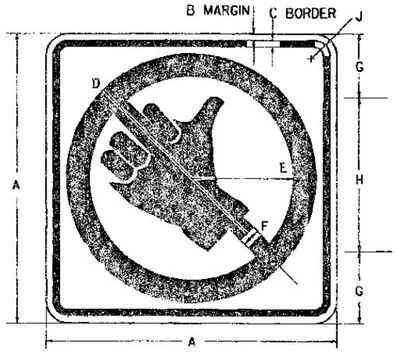
STANDARD
E-142



COLORS
CIRCLE AND DIAGONAL - RED (REFL - RURAL)
SYMBOL AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (REFL - RURAL)

R8-3A

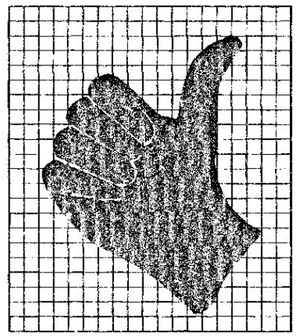
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
URBAN MIN. AND STD.	12	3/8	3/8	3	6E(M)	4 7/8	3 7/8	1	1 1/2
RURAL MIN. AND STD.	24	3/8	5/8	6	12E(M)	10 1/2	8 1/2	2	1 1/2
EXPWY.	36	5/8	7/8	9	18E(M)	15 3/4	12 3/4	3	2 1/4
FWY.	48	3/4	1 1/4	12	24E(M)	21	17	4	3

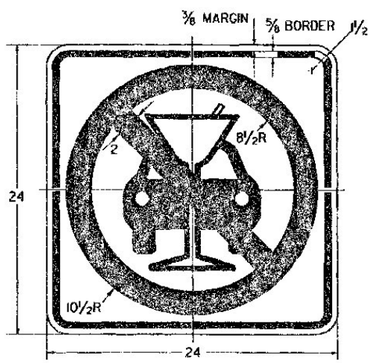


COLORS
CIRCLE AND DIAGONAL - RED (REFL)
SYMBOL AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (REFL)

R9-4A

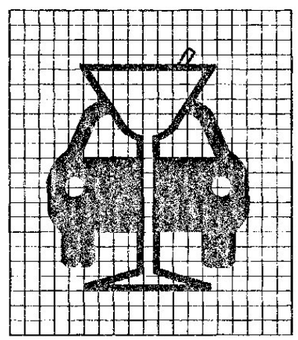
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN.	18	3/8	5/8	7 7/8	6 3/8	1 1/2	3 3/4	10 1/2	1 1/2
STD.	24	3/8	5/8	10 1/2	8 1/2	2	5	14	1 1/2

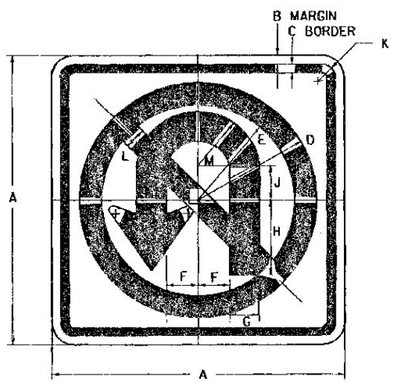




COLORS
CIRCLE AND DIAGONAL - RED (REFL)
SYMBOL AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (REFL)

VR-654

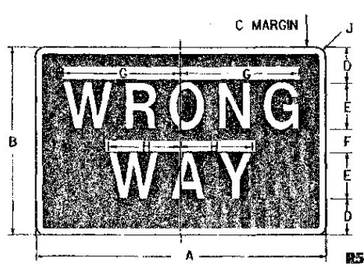




COLORS
CIRCLE AND DIAGONAL - RED (REFL)
ARROW AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (REFL)

R3-4

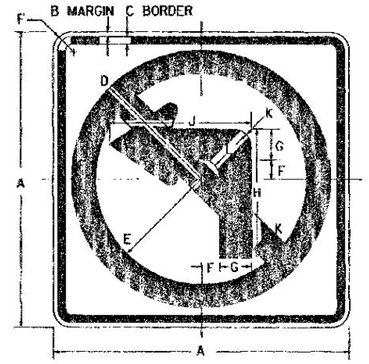
SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MIN. AND STD.	24	3/8	5/8	10 1/2	8 1/2	2 1/2	2 1/2	6	2 1/4	1 1/2	2	5
SPECIAL	30	1/2	3/4	13 1/8	10 5/8	3 1/8	3 1/8	7 1/2	2 15/16	1 7/8	2 1/2	6 1/4
EXPWY.	36	5/8	7/8	15 3/4	12 3/4	3 3/4	3 3/4	9	3 3/8	2 1/4	3	7 1/2
SPECIAL	48	3/4	1 1/4	21	17	5	5	12	4 1/2	3	4	10



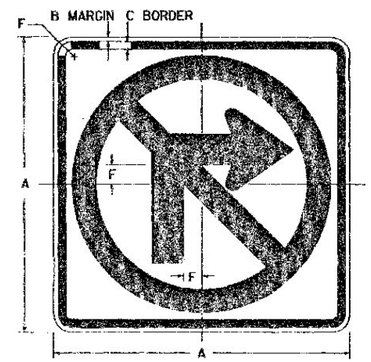
R5-1A

"WRONG WAY"
COLORS
LEGEND - WHITE (REFL)
BACKGROUND - RED (REFL)
ENCAPSULATED LENS

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN.	30	18	5/8	3	5D	2	11 1/16	6 11/16	1 1/2
STD.	36	24	3/4	4 1/2	6D	3	13 5/16	8 1/16	1 1/2
SPECIAL	42	30	7/8	5	8D	4	17 3/4	10 3/4	1 7/8



R3-2

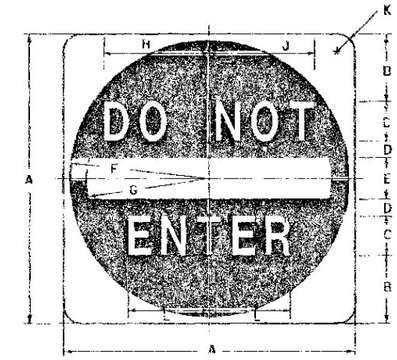


R3-1

NOTE :
USE SAME ARROW DETAIL FOR R3-1 AND R3-2

COLORS
CIRCLE AND DIAGONAL - RED (REFL)
ARROW AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (REFL)

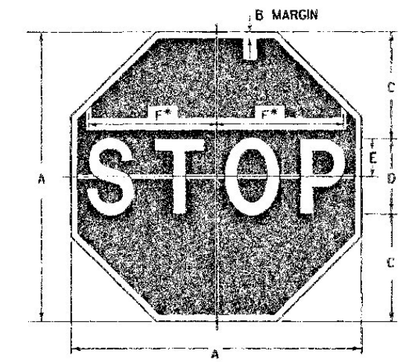
SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN. AND STD.	24	3/8	5/8	10 1/2	8 1/2	1 1/2	2 1/2	10 1/2	11 1/2	2	1/2
SPECIAL	30	1/2	3/4	13 1/8	10 5/8	1 7/8	3 1/8	13 1/8	14 1/2	2 1/2	5/8
EXPWY.	36	5/8	7/8	15 3/4	12 3/4	2 1/4	3 3/4	15 3/4	17 1/4	3	3/4
SPECIAL	48	3/4	1 1/4	21	17	3	5	21	23	4	1



COLORS
SYMBOL - RED (REFL)
LEGEND AND BACKGROUND - WHITE (REFL)
ENCAPSULATED LENS

R5-1

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN. AND STD.	30	6 1/2	4D	2	5	14 1/2	12 1/2	9 3/4	10	1 7/8	7 7/8
EXPWY.	36	7 1/2	5D	2 1/2	6	17 1/2	15	12	12 3/8	2 1/4	9 9/16
SPECIAL	48	11	6D	3	8	23 1/2	20	14 1/2	15	3	11 3/4



* REDUCE SPACING 40 %

COLORS
LEGEND - WHITE (REFL)
BACKGROUND - RED (REFL)
ENCAPSULATED LENS

R1-1

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
BIKE	18	3/8	6	6C	3	7 3/4
MIN.	24	5/8	8	8C	4	10
STD.	30	3/4	10	10C	5	12 1/2
EXPWY.	36	7/8	12	12C	6	15
SPECIAL	48	1 1/4	16	16C	8	20

GENERAL:

1. ALL DIMENSIONS IN INCHES.
2. SEE STANDARD E-144 FOR ARROWHEAD DETAILS.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	12'' X 12'' 18'' X 18''	24'' X 24'' 30'' X 18'' 30'' X 30''	36'' X 24'' 36'' X 36'' 42'' X 30'' 48'' X 48''
FLAT SHEET ALUMINUM	0.060''	0.080''	0.100''
HIGH DENSITY OVERLAID PLYWOOD	1/2''	1/2''	5/8''
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE BLACK PORTIONS OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

OTHER STDS. : E-144
REQUIRED

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAILS, ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

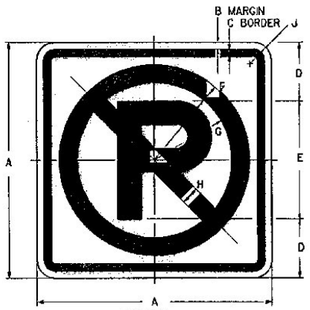
TRAFFIC AND SAFETY ENGINEER

REGULATORY SIGN DETAILS

/traf/std/stdel43.dgn : stdel43.1

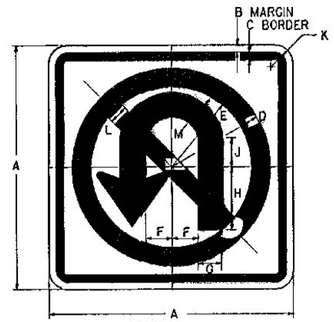
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-143



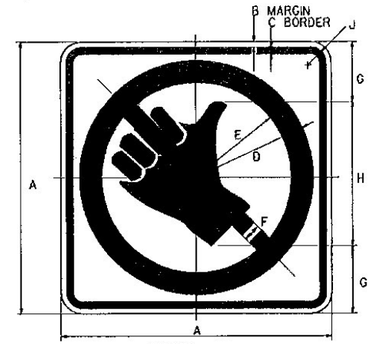
COLORS
CIRCLE AND DIAGONAL - RED (REFL - RURAL)
SYMBOL AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (REFL - RURAL)

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
URBAN MIN. AND STD.	12	3/8	3/8	3	6E(M)	4 7/8	3 7/8	1	1/2
RURAL MIN. AND STD.	24	7/8	7/8	6	12E(M)	10 1/2	8 1/2	2	1 1/2
EXPWY.	36	5/8	7/8	9	18E(M)	15 3/4	12 3/4	3	2 1/4
FWY.	48	3/4	1 1/4	12	24E(M)	21	17	4	3



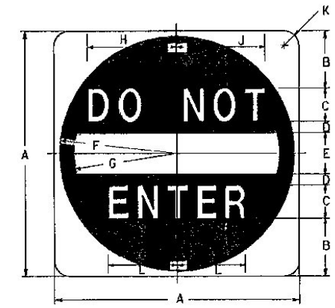
COLORS
CIRCLE AND DIAGONAL - RED (REFL)
ARROW AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (REFL)

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MIN. AND STD.	24	3/8	5/8	10 1/2	8 1/2	2 1/2	2 1/2	6	2 1/4	1 1/2	2	5
SPECIAL	30	1/2	3/4	13 1/8	10 5/8	3 1/8	3 1/8	7 1/2	2 13/16	1 7/8	2 1/2	6 1/4
EXPWY.	36	5/8	7/8	15 3/4	12 3/4	3 3/4	3 3/4	9	3 3/8	2 1/4	3	7 1/2
SPECIAL	48	3/4	1 1/4	21	17	5	5	12	4 1/2	3	4	10



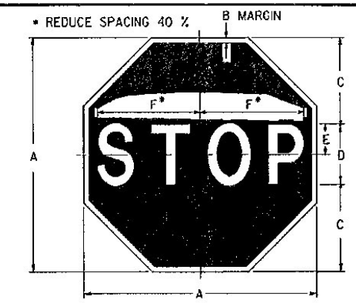
COLORS
CIRCLE AND DIAGONAL - RED (REFL)
SYMBOL AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (REFL)

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN.	18	3/8	5/8	7 7/8	6 3/8	1 1/2	3 3/4	10 1/2	1 1/2
STD.	24	7/8	7/8	10 1/2	8 1/2	2	5	14	1 1/2



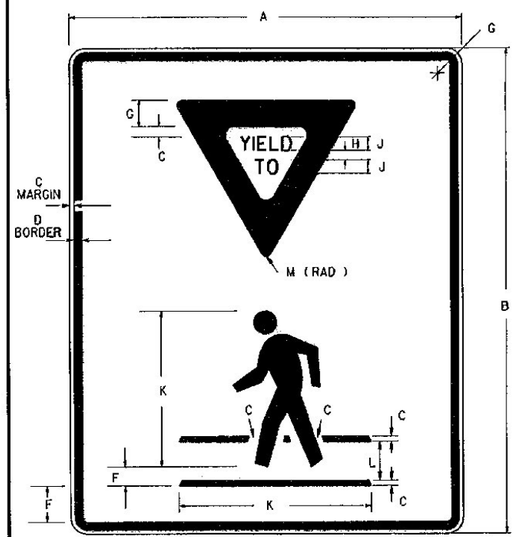
COLORS
SYMBOL - RED (REFL)
LEGEND AND BACKGROUND - WHITE (REFL)
ENCAPSULATED LENS

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN. AND STD.	30	6 1/2	4D	2	5	14 1/2	12 1/2	9 3/4	10	1 7/8	7 7/8
EXPWY.	36	7 1/2	5D	2 1/2	6	17 1/2	15	12	12 3/8	2 1/4	9 13/16
SPECIAL	48	11	6D	3	8	23 1/2	20	14 1/2	15	3	11 3/4



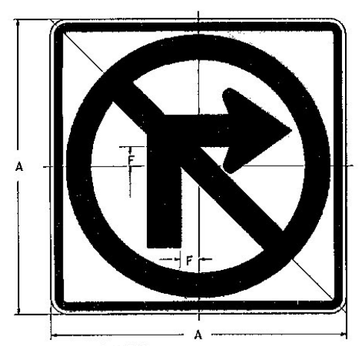
COLORS
LEGEND - WHITE (REFL)
BACKGROUND - RED (REFL)
ENCAPSULATED LENS

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
BIKE	18	3/8	6	6C	3	7 3/4
MIN.	24	5/8	8	8C	4	10
STD.	30	3/4	10	10C	5	12 1/2
EXPWY.	36	7/8	12	12C	6	15
SPECIAL	48	1 1/4	16	16C	8	20

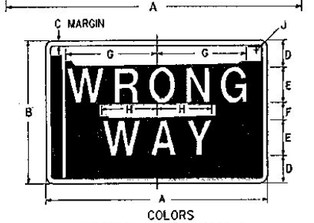


COLORS
LEGEND, SYMBOL, BORDER - BLACK
BACKGROUND - WHITE (REFL)
TRIANGLE - RED (REFL)

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
SMALL	18	24	3/8	5/8	11	3/4	1 1/8	5/8	1 1/2C	9	1 3/4	1/4
LARGE	24	30	1/2	13/16	13 3/4	15/16	1 1/2	3/4	2 C	11 1/4	2 3/16	5/16

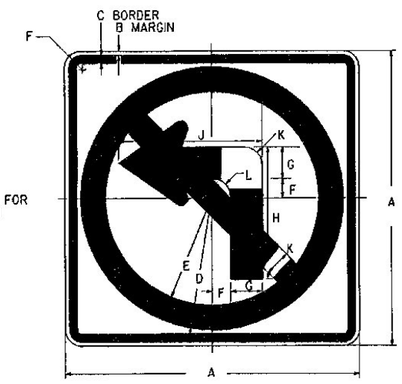


DETAILS SAME FOR EACH SIGN



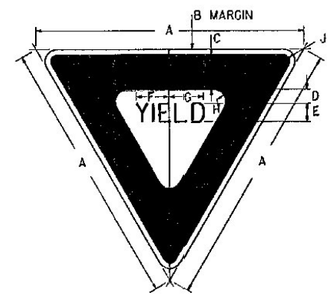
COLORS
LEGEND - WHITE (REFL)
BACKGROUND - RED (REFL)
ENCAPSULATED LENS

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN.	30	18	5/8	3	5D	2	11/16	6 11/16	1 1/2		
STD.	36	24	3/4	4 1/2	6D	3	13 5/8	8 1/16	1 1/2		
SPECIAL	42	30	7/8	5	8D	4	17 3/4	10 3/4	1 7/8		



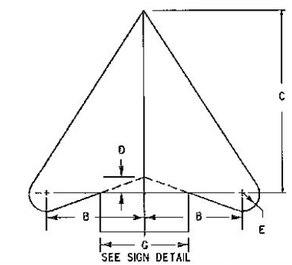
COLORS
CIRCLE AND DIAGONAL - RED (REFL)
ARROW AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (REFL)

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN. AND STD.	24	3/8	5/8	10 1/2	8 1/2	1 1/2	2 1/2	10 1/2	1 1/2	2	1/2
SPECIAL	30	1/2	3/4	13 1/8	10 5/8	1 7/8	3 1/8	13 1/8	1 41/2	2 1/2	5/8
EXPWY.	36	5/8	7/8	15 3/4	12 3/4	2 1/4	3 3/4	15 3/4	1 7 1/4	3	3/4
SPECIAL	48	3/4	1 1/4	21	17	3	5	21	23	4	1



COLORS
LEGEND AND BORDER - RED (REFL)
BACKGROUND - WHITE (REFL)
ENCAPSULATED LENS

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
BIKE	24	3/8	3	1 7/8	2C	3 1/4	3	7/8	1 1/2
MIN.	30	5/8	4	1 3/4	2 1/2C	3 15/16	3 5/8	7/8	1 1/2
STD.	36	3/4	5	2	3C	4 11/16	4 3/8	1 1/4	2
EXPWY.	48	1	6	2 3/4	4C	6 1/4	5 7/8	2	3
SPECIAL	60	1 1/2	8	3 1/2	5C	7 7/8	7 1/4	2 1/2	4



ARROW HEAD	DIMENSIONS (INCHES)				
	SIZE	B	C	D	E
MIN. AND STD.	24x24	2 7/8	5/16	7/8	1/2
SPECIAL	30x30	3 5/8	6 3/8	1/2	5/8
EXPWY.	36x36	4 5/16	7 5/8	9/16	3/4
SPECIAL	48x48	5 3/4	10 1/8	3/4	1

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL BE AS DETAILED FOR EACH SIGN. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY FOLLOWING OF THE MINIMUM THICKNESS NOTED.

		24" ▽		
		24" × 24"		
		24" × 30"	36" ▽	
		30" ▽	36" × 24"	
	12" × 12"	30" × 18"	36" × 36"	48" ▽
	18" × 18"	30" × 30"	48" × 48"	60" ▽
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	3/4"	3/4"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

THE BLACK PORTIONS OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENING OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

TEXT DESIGN:

LETTERS, DIGITS, ARROW, SPACINGS AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

REVISIONS AND CORRECTIONS

APPROVED

OCT. 30, 1987
DATE

David B Kelley
CHIEF ENGINEER

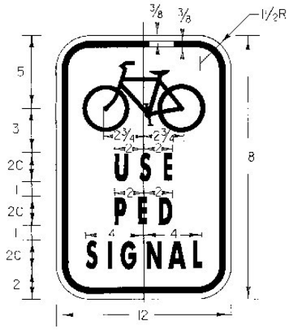
Arthur Jones
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

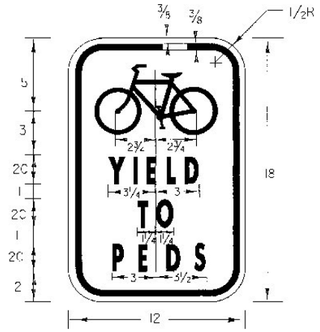
REGULATORY SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

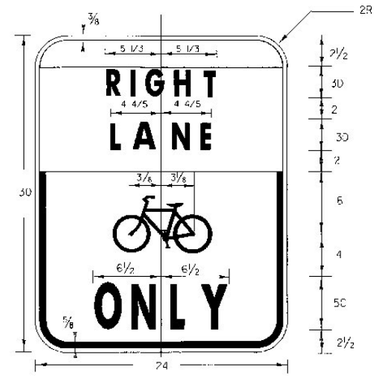
STANDARD
E-143



R9-5

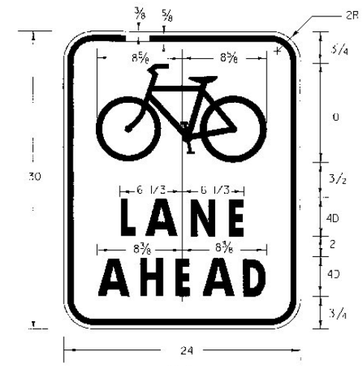


R9-6

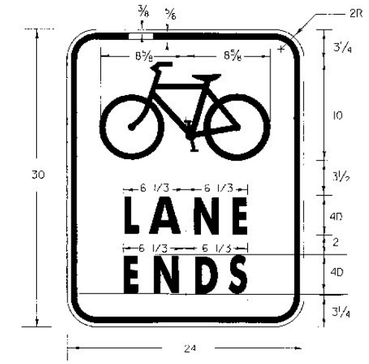


COLORS: THE TOP OF THIS SIGN IS BLACK
BACKGROUND WITH WHITE TEXT

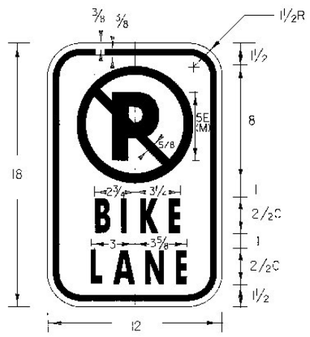
R3-17



R3-16

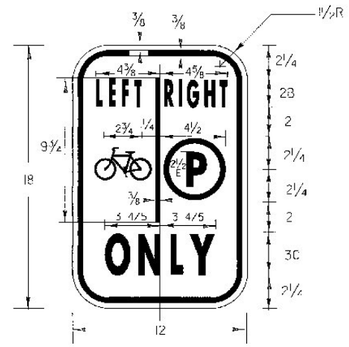


R3-16A



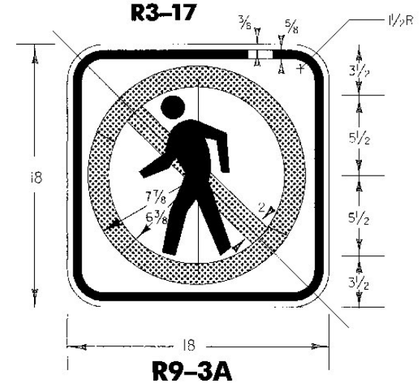
R7-9A

COLORS: LEGEND, CIRCLE, DIAGONAL - RED
BACKGROUND - WHITE
LETTER P. BORDER - BLACK



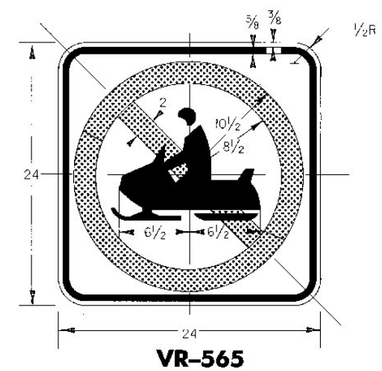
R13-7A

COLORS: LEGEND - BLACK
BACKGROUND - WHITE (REFLECTIVE)
CIRCLE - GREEN (REFLECTIVE)

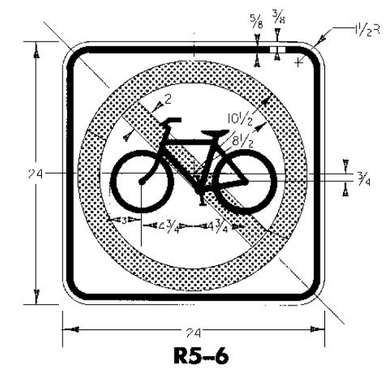


R9-3A

COLORS: CIRCLE AND DIAGONAL-RED
SYMBOL AND BORDER - BLACK
BACKGROUND WHITE

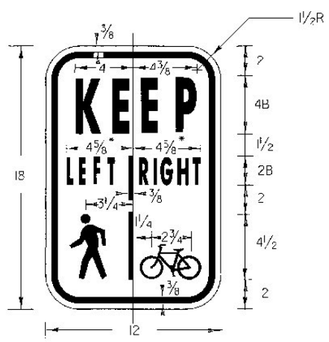


VR-565

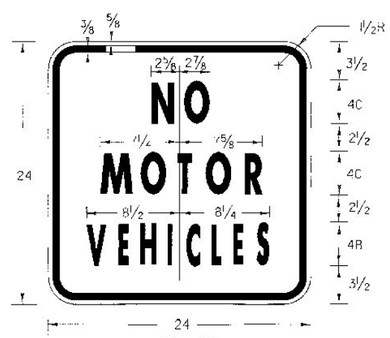


R5-6

COLORS: CIRCLE AND DIAGONAL-RED
SYMBOL AND BORDER - BLACK
BACKGROUND WHITE



R9-7



R5-3

R4-4

*REDUCE LETTER SPACING 20%
**OPTICALLY CENTER ARROW ON VERTICAL CENTERLINE

GENERAL

1. SEE STANDARD E-144 FOR ARROWHEAD DETAILS. SEE STANDARD E-152 FOR PEDESTRIAN DETAIL. SEE STANDARD E-153 FOR SNOWMOBILE DETAIL. SEE FHWA STANDARD HIGHWAY SIGN BOOK FOR BIKE DETAILS

COLORS

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE A REFLECTORIZED WHITE BACKGROUND WITH BLACK TEXT AND BORDER UNLESS OTHERWISE NOTED.
THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY AASHTO AND APPROVED BY THE FHWA.

MATERIALS

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING MINIMUM THICKNESSES NOTED:

	12 X 18 18 X 18	24 X 24 24 X 30	36 X 30
FLAT SHEET ALUMINUM	0.050"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"

THE REFLECTIVE MATERIAL SHALL BE ASTM TYPE III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE BLACK, RED OR GREEN PORTIONS OF THE SIGNS MAY BE LETTERING FILM OR SILK SCREENED.

SPECIFICATIONS

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS AS DESCRIBED IN THE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

TEXT DESIGN

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM TO THE LATEST VERSION OF FHWA'S 'STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'. DETAILS SHALL CONFORM WITH THOSE DESCRIBED IN THE PUBLICATION 'STANDARD HIGHWAY SIGNS' AS SPECIFIED IN THE VUTCD.

NOTE: ALL DIMENSIONS ARE IN INCHES EXCEPT WHERE NOTED

OTHER STDS. E-144, E-152, E-153
REQUIRED:

REVISIONS AND CORRECTIONS
DEC. 30, 2002 - DATE OF ORIGINAL ISSUE
May 30, 2003 - Superceded

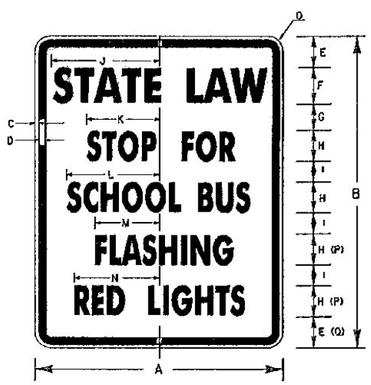
APPROVED

DIRECTOR OF PROJECT DEVELOPMENT
TRAFFIC OPERATIONS ENGINEER
FEDERAL HIGHWAY ADMINISTRATION

REGULATORY SIGN DETAILS

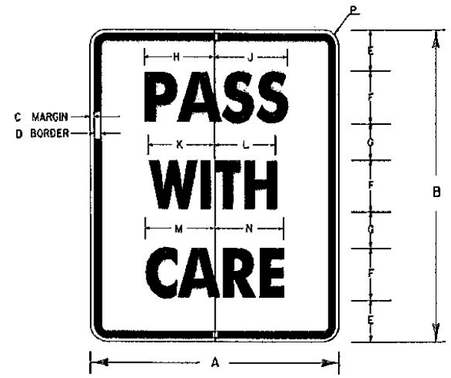
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-143B

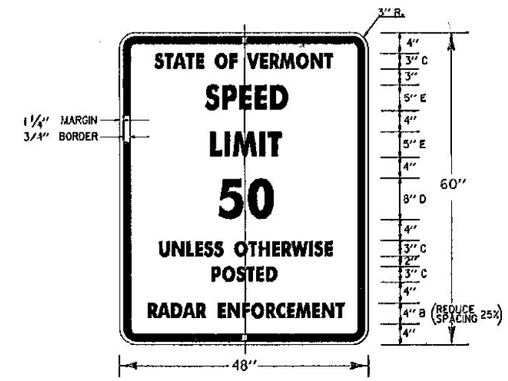


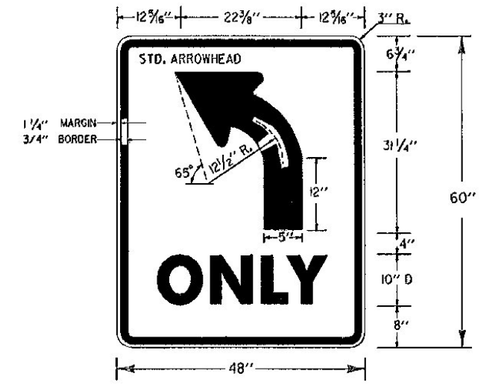
SIGN	DIMENSIONS (INCHES)																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
STD.	24	30	3/8	5/8	3	3" B	3	4" B	1 1/2	7 11/16	10 5/8	10 7/16	6 5/16	8 5/16	1 1/2	3" B	2 1/2
EXPWY. & FWY.	48	60	3/4	1 1/4	6	7" C	5	6" B	4	21	14 1/4	18 1/16	12 3/16	16 3/16	3	—	—

† REDUCE LETTER TO LETTER SPACING BY 25%. WORD TO WORD SPACE = 2"

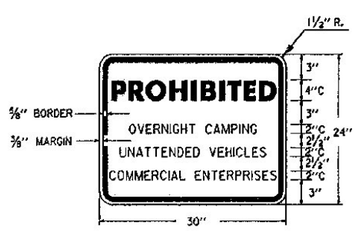


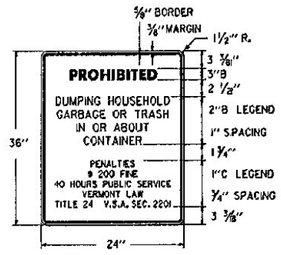
SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	18	24	3/8	5/8	3 1/2	4C	2 1/2	5 7/16	5 5/8	5	4 3/4	5 3/8	5 1/2	1 1/2
STD.	24	30	3/8	5/8	3 1/2	6C	2 1/2	8 3/16	8 7/16	7 1/2	7 3/16	8	8 1/4	1 1/2
EXPWY.	36	48	5/8	7/8	7	8C	5	10 7/8	11 1/4	10	9 1/2	10 11/16	11	2 1/4
FWY.	48	60	3/4	1 1/4	8	10C	7	13 5/8	14 1/16	12 1/2	11 15/16	13 3/8	13 3/4	3

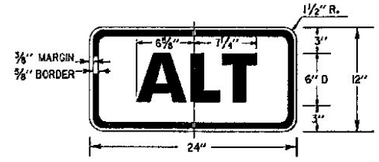


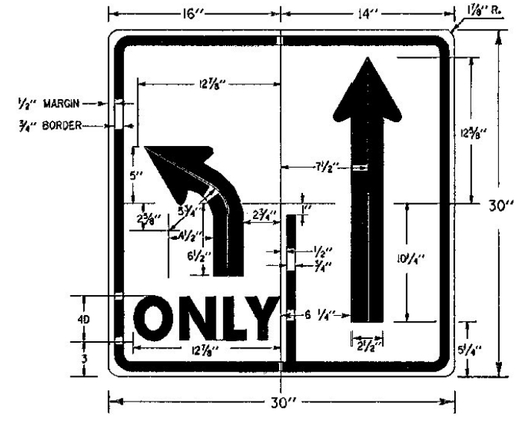


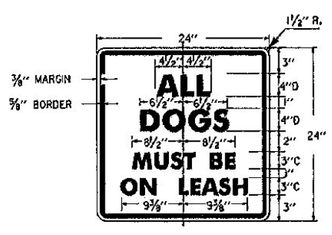
(OVERHEAD SIGN)

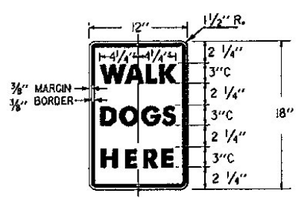












COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR THE REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

		24" x 12"	36" x 48"
		24" x 24"	
	12" x 18"	24" x 36"	
	18" x 24"	30" x 24"	48" x 60"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/8"	1/2"	3/4"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

WHEN MOUNTED OVERHEAD, ALL SIGNS SHALL HAVE ENCAPSULATED LENS REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

REVISIONS AND CORRECTIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

JAN. 23, 1989
DATE

David B. Kelley
CHIEF ENGINEER

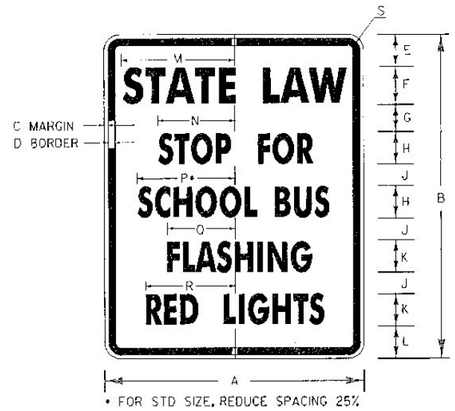
Arthur Gross
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon R. MacCallum
TRAFFIC AND SAFETY ENGINEER

REGULATORY SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

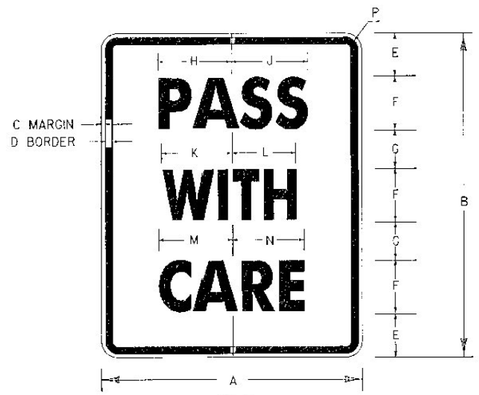
STANDARD
E-144



* FOR STD SIZE, REDUCE SPACING 25%

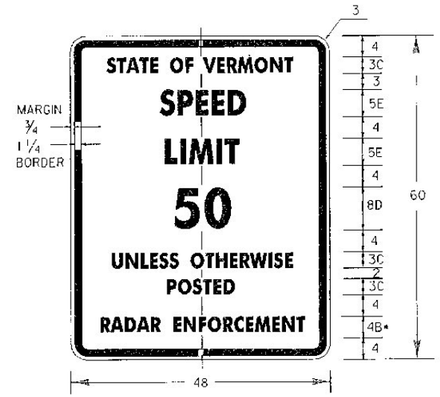
VR-048

SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T
STD.	24	30	3/8	5/8	3	4B	3	3B	1 1/2	3B	2 1/2	9 1/2	10 5/8	10 7/16	6 5/16	8 5/16	1 1/2
EXPWY. & FWY.	48	60	3/4	1 1/4	6	7C	5	6B	4	6B	6	21	14 1/4	18 1/16	12 3/16	16 3/16	3



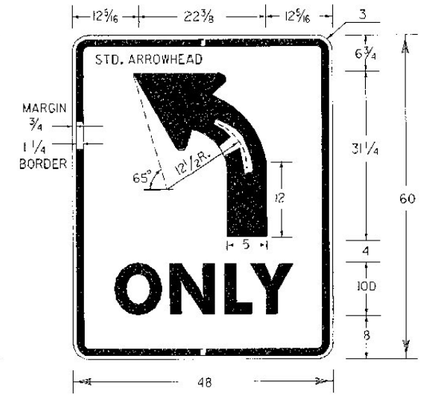
R4-2

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	18	24	3/8	5/8	3 1/2	4C	2 1/2	5 7/16	5 5/8	5	4 3/4	5 3/8	5 1/2	1 1/2
STD.	24	30	3/8	5/8	3 1/2	6C	2 1/2	8 3/16	8 7/16	7 1/2	7 3/16	8	8 1/4	1 1/2
EXPWY.	36	48	5/8	7/8	7	8C	5	10 7/8	11 1/4	10	9 1/2	10 11/16	11	2 1/4
FWY.	48	60	3/4	1 1/4	8	10C	7	13 5/8	14 1/16	12 1/2	11 15/16	13 3/8	13 3/4	3



* REDUCE SPACING 25%

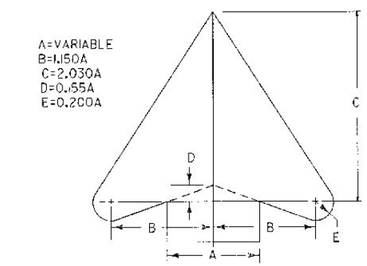
VR-114



(OVERHEAD SIGN)

R3-5

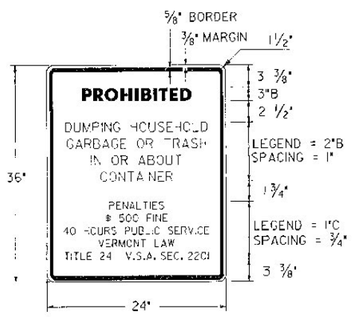
ARROW HEAD DETAIL



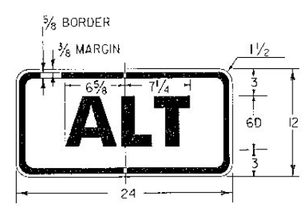
DIMENSIONS (INCHES)				
A	B	C	D	E
2	2 5/16	4 1/16	5/16	3/8
2 1/4	2 5/8	4 1/2	3/8	7/16
2 1/2	2 7/8	5 1/16	3/8	1/2
2 5/8	3	5 1/4	1/8	1/2
2 3/4	3 3/16	5 5/16	7/16	9/16
3	3 1/2	6 1/8	7/16	9/16
3 1/8	3 5/8	6 3/8	1/2	5/8
3 1/4	3 3/4	6 5/8	1/2	5/8
3 5/16	3 13/16	6 11/16	1/2	11/16
3 1/2	4	7 1/8	9/16	11/16
3 3/4	4 5/16	7 5/8	9/16	3/4
4	4 5/8	8 1/8	5/8	13/16
4 1/16	4 3/4	8 1/4	5/8	13/16

DIMENSIONS (INCHES)				
A	B	C	D	E
4 1/4	4 7/8	8 5/8	5/8	13/16
4 3/8	5	8 7/8	11/16	7/8
4 1/2	5 3/16	9 1/8	11/16	7/8
4 3/4	5 7/16	9 5/8	3/4	1
4 7/8	5 5/8	9 7/8	3/4	1
5	5 3/4	10 1/8	3/4	1
5 1/4	6	10 5/8	13/16	1 1/16
5 1/2	6 3/8	11 1/8	7/8	1 1/8
5 3/4	6 5/8	11 1/8	7/8	1 1/8
6	6 7/8	12 3/16	15/16	1 3/16
6 1/2	7 1/2	13 3/16	1	1 5/16
7	8	14 3/16	1 1/16	1 3/8
7 1/2	8 5/8	15 3/16	1 1/8	1 1/2
8	9 3/16	16 1/4	1 1/4	1 5/8

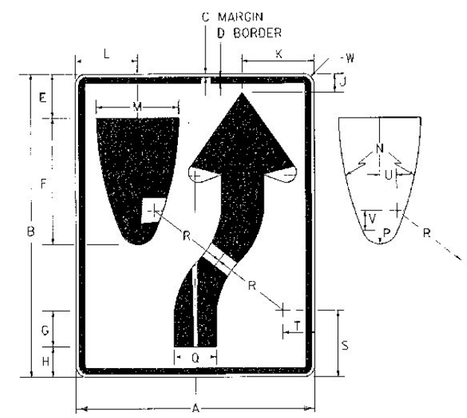
VR-032



VR-278



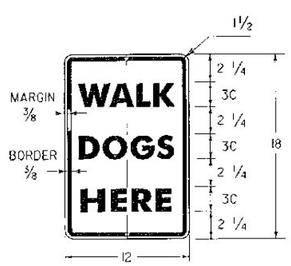
M4-1A



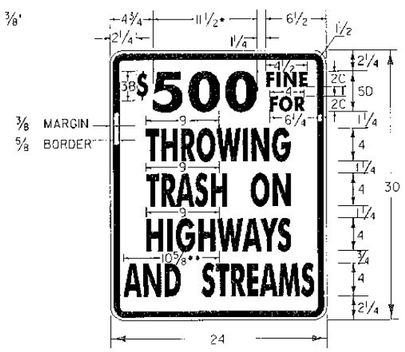
R4-7

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN	18	24	3/8	5/8	3 3/8	9 3/8	1 7/8	2 1/4	1 3/8	5 1/2
STD	24	30	3/8	5/8	4 1/2	12 1/2	2 1/2	3	1 7/8	7 3/8
EXPWY	36	48	5/8	7/8	6 3/4	18 3/4	3 3/4	4 1/2	2 13/16	11 1/8
FWY	48	60	3/4	1 1/4	9	25	5	6	3 3/4	14 13/16
	L	M	N	P	Q	R	S	T	U	V	W
MIN	4 1/16	6	22 1/2	1 1/2	3	6 3/4	4 1/8	2 1/4	1 1/16	7/16	1 1/2
STD	6 1/4	8	30	2	4	9	5 1/2	3	1 3/8	2 13/16	1 1/2
EXPWY	9 3/8	12	45	3	6	13 1/2	8 1/4	4 1/2	2	2 3/4	2 1/4
FWY	12 1/2	16	60	4	8	18	11	6	2 11/16	5	3

VR-648



VR-541



* REDUCE SPACING 40%
** REDUCE SPACING 60%

VR-023b

GENERAL:

1. ALL DIMENSIONS IN INCHES.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	12'' X 18'' 18'' X 24''	24'' X 12'' 24'' X 24'' 24'' X 30'' 24'' X 36'' 30'' X 24''	36'' X 48'' 48'' X 60''
FLAT SHEET ALUMINUM	0.060''	0.080''	0.100''
HIGH DENSITY OVERLAID PLYWOOD	1/2''	1/2''	5/8''
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. WHEN MOUNTED OVERHEAD, ALL SIGNS SHALL HAVE ENCAPSULATED LENS REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

OTHER STDS.: NONE REQUIRED

REVISIONS AND CORRECTIONS

JAN. 23, 1989 - DATE OF ORIGINAL ISSUE
SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAILS. ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS
FEB. 2, 1998 - REMOVED VR-023, REPLACED WITH VR-278

APPROVED

DIRECTOR OF PROJECT DEVELOPMENT

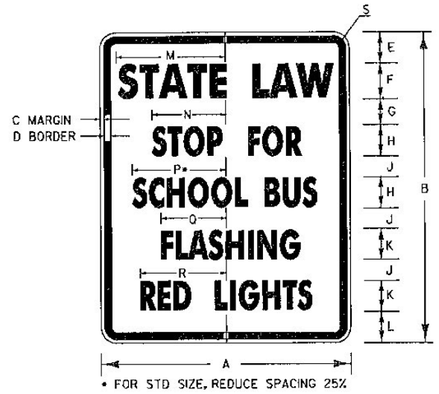
Gordon R. MacArthur
DIRECTOR OF CONSTRUCTION AND MAINTENANCE

REGULATORY SIGN DETAILS

/traf/std/stdel44.cgn: stde44.

VERMONT AGENCY OF TRANSPORTATION

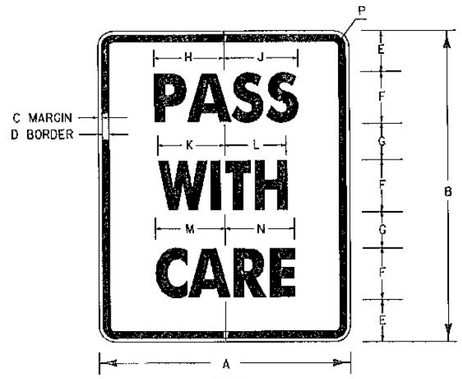
STANDARD
E-144



• FOR STD SIZE, REDUCE SPACING 25%

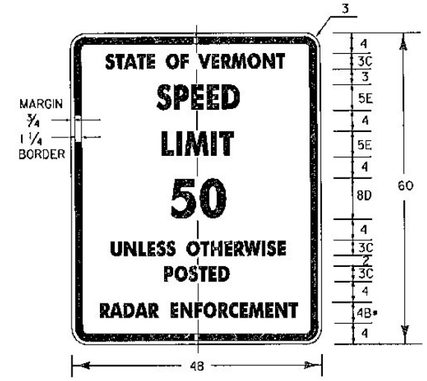
VR-048

SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T
STD.	24	30	3/8	5/8	3	4B	3	3B	1 1/2	3B	2 1/2	9 1/2	10 5/8	10 7/16	6 5/16	8 5/16	1 1/2
EXPWY. & FWY.	48	60	3/4	1 1/4	6	7C	5	6B	4	6B	6	21	14 1/4	18 1/16	12 3/16	16 3/16	3



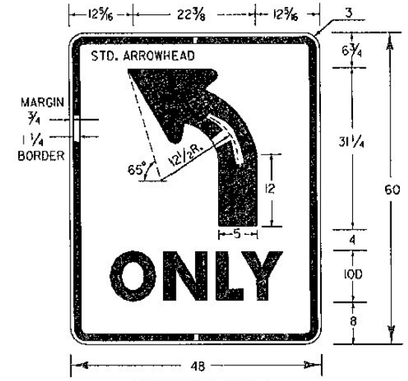
R4-2

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	18	24	3/8	5/8	3 1/2	4C	2 1/2	5 7/16	5 5/8	5	4 3/4	5 3/8	5 1/2	1 1/2
STD.	24	30	3/8	5/8	3 1/2	6C	2 1/2	8 3/16	8 7/16	7 1/2	7 3/16	8	8 1/4	1 1/2
EXPWY.	36	48	5/8	7/8	7	8C	5	10 7/16	11 1/4	10	9 1/2	10 11/16	11	2 1/4
FWY.	48	60	3/4	1 1/4	8	10C	7	13 5/8	14 1/16	12 1/2	11 15/16	13 3/8	13 3/4	3



• REDUCE SPACING 25%

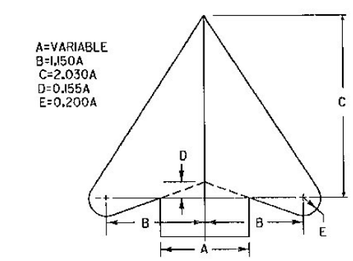
VR-114



(OVERHEAD SIGN)

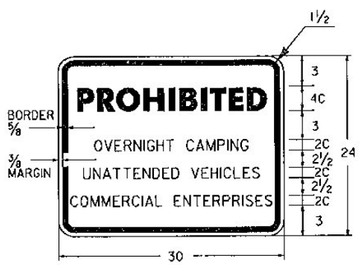
R3-5

ARROW HEAD DETAIL

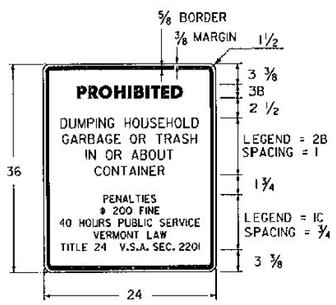


DIMENSIONS (INCHES)				
A	B	C	D	E
2	2 5/16	4 1/16	5/16	3/8
2 1/4	2 5/8	4 1/2	3/8	7/16
2 1/2	2 7/8	5 1/16	3/8	1/2
2 5/8	3	5 1/4	3/8	1/2
2 3/4	3 3/16	5 3/16	7/16	9/16
3	3 1/2	6 1/8	7/16	9/16
3 1/8	3 5/8	6 5/8	1/2	5/8
3 1/4	3 3/4	6 5/8	1/2	5/8
3 5/16	3 13/16	6 11/16	1/2	11/16
3 1/2	4	7 1/8	9/16	11/16
3 3/4	4 5/16	7 5/8	9/16	3/4
4	4 5/8	8 1/8	5/8	13/16
4 1/16	4 3/4	8 1/4	5/8	13/16

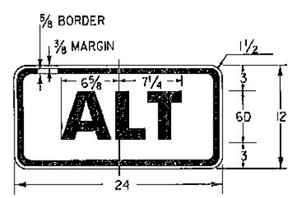
DIMENSIONS (INCHES)				
A	B	C	D	E
4 1/4	4 7/8	8 5/8	5/8	13/16
4 3/8	5	8 7/8	11/16	7/8
4 1/2	5 3/16	9 1/8	11/16	7/8
4 3/4	5 7/16	9 5/8	3/4	1
4 7/8	5 5/8	9 7/8	3/4	1
5	5 3/4	10 1/8	3/4	1
5 1/4	6	10 5/8	13/16	1 1/16
5 1/2	6 3/8	11 1/8	7/8	1 1/8
5 3/4	6 5/8	11 11/16	7/8	1 1/8
6	6 7/8	12 3/16	15/16	1 3/16
6 1/2	7 1/2	13 3/16	1	1 5/16
7	8	14 3/16	1 1/16	1 3/8
7 1/2	8 5/8	15 3/16	1 1/8	1 1/2
8	9 3/16	16 1/4	1 1/4	1 5/8



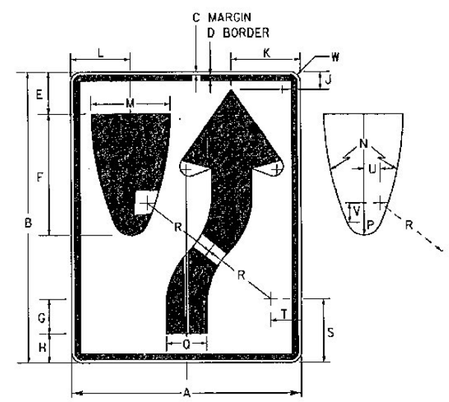
VR-032



VR-023

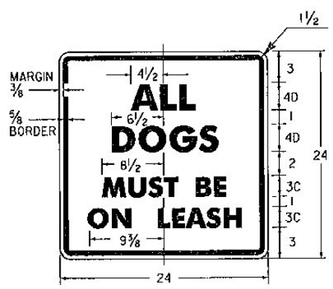


M4-1A

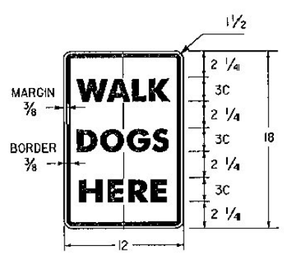


R4-7

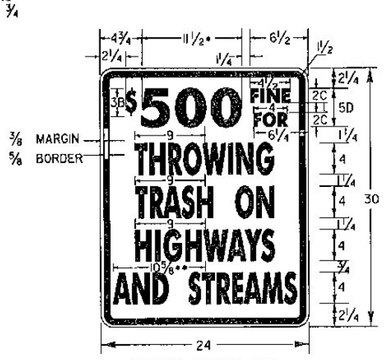
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN	18	24	3/8	5/8	3 3/8	9 3/8	1 7/8	2 1/4	1 3/8	5 1/2
STD	24	30	3/8	5/8	4 1/2	12 1/2	2 1/2	3	1 7/8	7 3/8
EXPWY	36	48	5/8	7/8	6 3/4	18 3/4	3 3/4	4 1/2	2 11/16	11 1/8
FWY	48	60	3/4	1 1/4	9	25	5	6	3 3/4	14 13/16
	L	M	N	P	Q	R	S	T	U	V	W
MIN	4 11/16	6	22 1/2	1 1/2	3	6 3/4	4 1/8	2 1/4	1 1/16	7/16	1 1/2
STD	6 1/4	8	30	2	4	9	5 1/2	3	1 3/8	2 15/16	1 1/2
EXPWY	9 3/8	12	45	3	6	13 1/2	8 1/4	4 1/2	2	2 3/4	2 1/4
FWY	12 1/2	16	60	4	8	18	11	6	2 11/16	5	3



VR-648



VR-541



• REDUCE SPACING 40%
•• REDUCE SPACING 60%

VR-023b

GENERAL:

1. ALL DIMENSIONS IN INCHES.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	12'' X 18'' 18'' X 24''	24'' X 12'' 24'' X 24'' 24'' X 30'' 24'' X 36'' 30'' X 24''	36'' X 48'' 48'' X 60''
FLAT SHEET ALUMINUM	0.060''	0.080''	0.100''
HIGH DENSITY OVERLAID PLYWOOD	1/2''	1/2''	5/8''
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. WHEN MOUNTED OVERHEAD, ALL SIGNS SHALL HAVE ENCAPSULATED LENS REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

OTHER STDS.: NONE REQUIRED

REVISIONS AND CORRECTIONS

JAN. 23, 1989 - DATE OF ORIGINAL ISSUE
SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAILS, ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

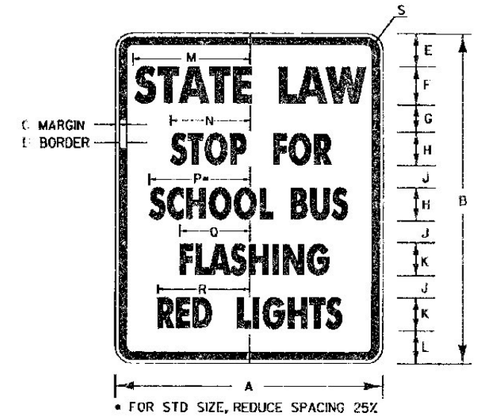
TRAFFIC AND SAFETY ENGINEER

REGULATORY SIGN DETAILS

/traf/std/stdel44.dgn: stdel44.1

VERMONT AGENCY OF TRANSPORTATION

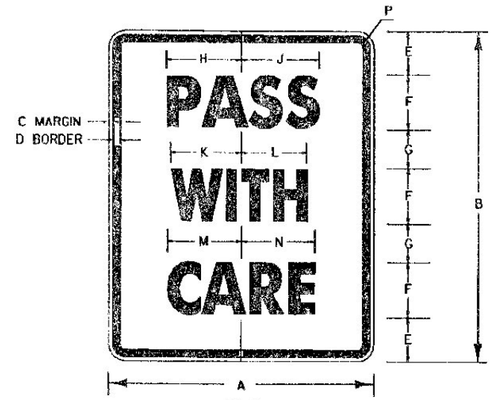
STANDARD
E-144



• FOR STD SIZE, REDUCE SPACING 25%

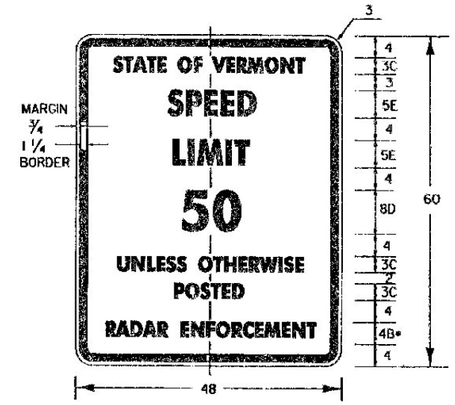
VR-048

SIGN	DIMENSIONS (INCHES)																
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T
STD.	24	30	3/8	5/8	3	4B	3	3B	1 1/2	3B	2 1/2	9 1/2	10 5/8	10 7/16	6 5/16	8 5/16	1 1/2
EXPWY. & FWY.	48	60	3/4	1 1/4	6	7C	5	6B	4	6B	6	21	14 1/4	18 1/16	12 9/16	16 5/16	3



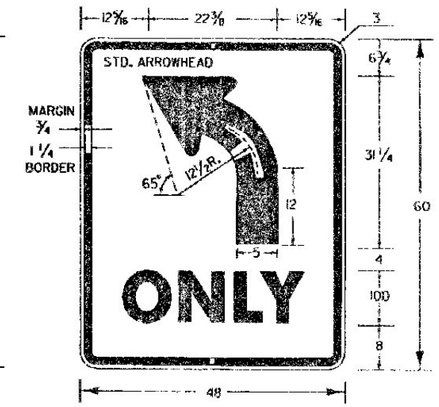
R4-2

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	18	24	3/8	5/8	3 1/2	4C	2 1/2	5 7/16	5 5/8	5	4 3/4	5 3/8	5 1/2	1 1/2
STD.	24	30	3/8	5/8	3 1/2	6C	2 1/2	8 3/16	8 7/16	7 1/2	7 3/16	8	8 1/4	1 1/2
EXPWY.	36	48	5/8	7/8	7	8C	5	10 7/8	11 1/4	10	9 1/2	10 11/16	11	2 1/4
FWY.	48	60	3/4	1 1/4	8	10C	7	13 5/8	14 1/16	12 1/2	11 15/16	13 3/8	13 3/4	3



• REDUCE SPACING 25%

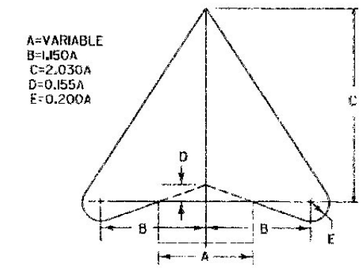
VR-114



(OVERHEAD SIGN)

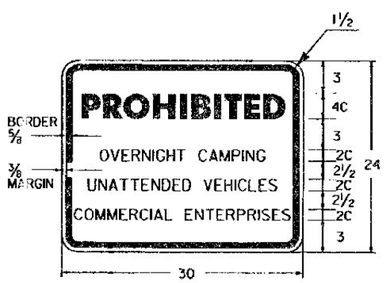
R3-5

ARROW HEAD DETAIL

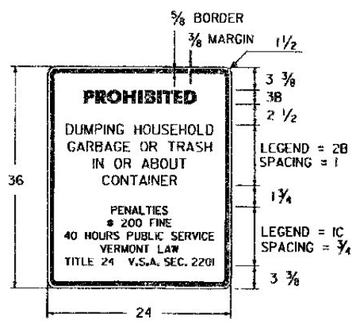


DIMENSIONS (INCHES)				
A	B	C	D	E
2	2 5/16	4 1/16	5/16	3/8
2 1/4	2 5/8	4 1/2	3/8	7/16
2 1/2	2 7/8	5 1/16	3/8	1/2
2 5/8	3	5 1/4	3/8	1/2
2 3/4	3 3/16	5 5/16	7/16	9/16
3	3 1/2	6 1/8	7/16	9/16
3 1/8	3 5/8	6 3/16	1/2	5/8
3 1/4	3 3/4	6 5/8	1/2	5/8
3 5/16	3 13/16	6 11/16	1/2	11/16
3 1/2	4	7 1/8	9/16	11/16
3 3/4	4 5/16	7 5/8	9/16	3/4
4	4 5/8	8 1/8	5/8	13/16
4 1/16	4 3/4	8 1/4	5/8	13/16

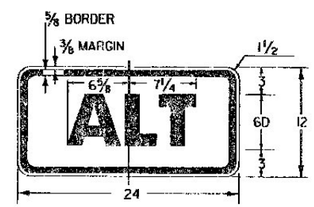
DIMENSIONS (INCHES)				
A	B	C	D	E
4 1/4	4 7/8	8 5/8	5/8	13/16
4 3/8	5	8 7/8	11/16	7/8
4 1/2	5 3/16	9 1/8	11/16	7/8
4 3/4	5 7/16	9 5/8	3/4	1
4 7/8	5 5/8	9 7/8	3/4	1
5	5 3/4	10 1/8	3/4	1
5 1/4	6	10 5/8	13/16	1 1/16
5 1/2	6 3/8	11 1/8	7/8	1 1/8
5 3/4	6 5/8	11 11/16	7/8	1 1/8
6	6 7/8	12 3/16	15/16	1 3/16
6 1/2	7 1/2	13 3/16	1	1 5/16
7	8	14 3/16	1 1/16	1 3/8
7 1/2	8 5/8	15 3/16	1 1/8	1 1/2
8	9 3/16	16 1/4	1 1/4	1 5/8



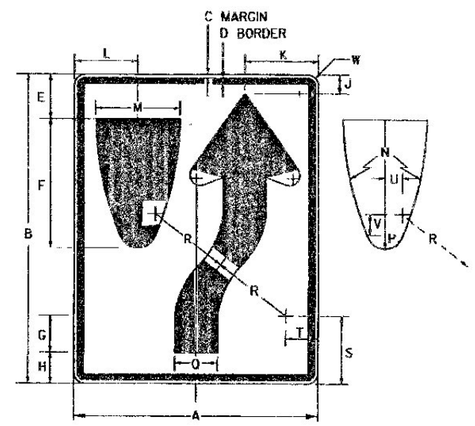
VR-032



VR-023

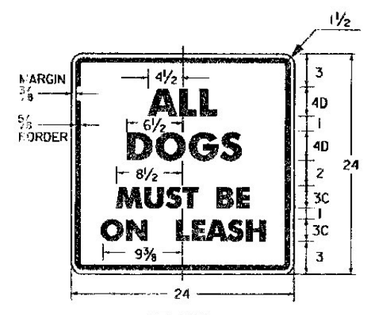


M4-1A

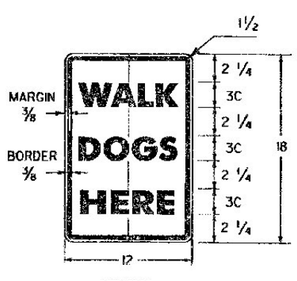


R4-7

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN	18	24	3/8	5/8	3 3/8	9 3/8	1 7/8	2 1/4	1 3/8	5 1/2
STD	24	30	3/8	5/8	4 1/2	12 1/2	2 1/2	3	1 7/8	7 3/8
EXPWY	36	48	5/8	7/8	6 3/4	18 3/4	3 3/4	4 1/2	2 11/16	11 1/8
FWY	48	60	3/4	1 1/4	9	25	5	6	3 3/4	14 13/16
	L	M	N	P	O	R	S	T	U	V	W
MIN	4 11/16	6	22 1/2	1 1/2	3	6 3/4	4 1/8	2 1/4	11/16	7/16	1 1/2
STD	6 1/4	8	30	2	4	9	5 1/2	3	1 3/8	2 15/16	1 1/2
EXPWY	9 3/8	12	45	3	6	13 1/2	8 1/4	4 1/2	2	2 3/4	2 1/4
FWY	12 1/2	16	60	4	8	18	11	6	2 11/16	5	3



VR-648



VR-541

• REDUCE SPACING 40%
•• REDUCE SPACING 60%

VR-023b

GENERAL:

1. ALL DIMENSIONS IN INCHES.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	12'' X 18'' 18'' X 24''	24'' X 12'' 24'' X 24'' 24'' X 30'' 24'' X 36'' 30'' X 24''	36'' X 48'' 48'' X 60''
FLAT SHEET ALUMINUM	0.060''	0.080''	0.100''
HIGH DENSITY OVERLAID PLYWOOD	1/2''	1/2''	5/8''
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. WHEN MOUNTED OVERHEAD, ALL SIGNS SHALL HAVE ENCAPSULATED LENS REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

OTHER STDS.: NONE REQUIRED

REVISIONS AND CORRECTIONS

JAN. 23, 1989 - DATE OF ORIGINAL ISSUE

SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAILS, ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

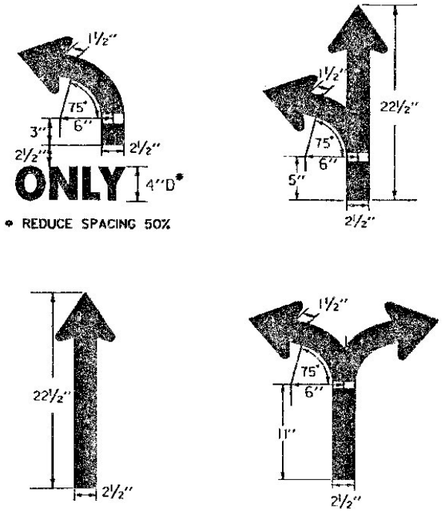
REGULATORY SIGN DETAILS

/traf/std/stde144.dgn: stde144.!

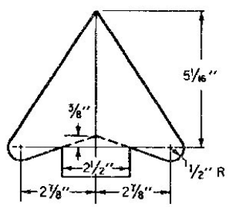
VERMONT AGENCY OF TRANSPORTATION

STANDARD

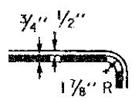
E-144



SYMBOL DETAILS



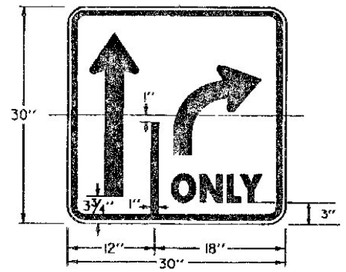
ARROW HEAD DETAIL



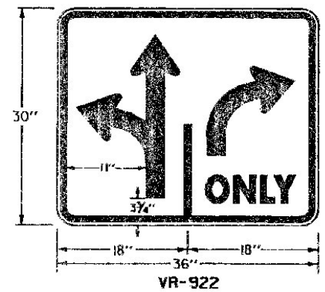
BORDER/MARGIN DETAIL

NOTES:

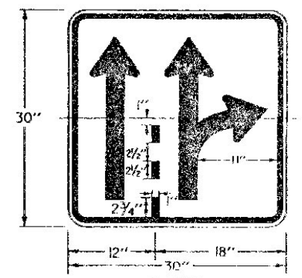
1. OPTICALLY CENTER SYMBOLS WITHIN SECTIONS UNLESS OTHERWISE NOTED.
2. ''VR-9XX'' IS THE SIGN CODE NUMBER.
3. MIRROR IMAGES ARE NOT SHOWN BUT CARRY THE SAME CODE NUMBER.
4. THESE SIGNS ARE INTENDED FOR GROUND MOUNTING ONLY.
5. OTHER VARIATIONS OF THESE STANDARD DESIGNS ARE DEPICTED IN THE VT SIGN IDENTIFICATION MANUAL. WHEN THEY ARE USED THEY SHOULD BE DESIGNED USING THE DIMENSIONS AND DETAILS SHOWN HERE.



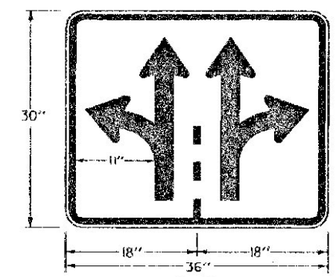
VR-921



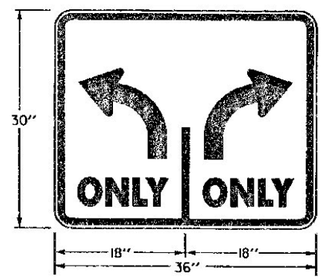
VR-922



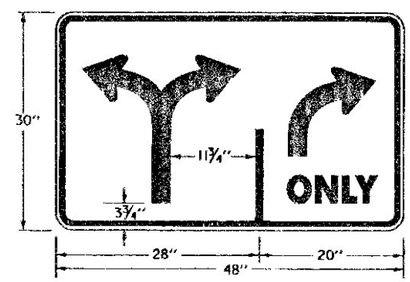
VR-923



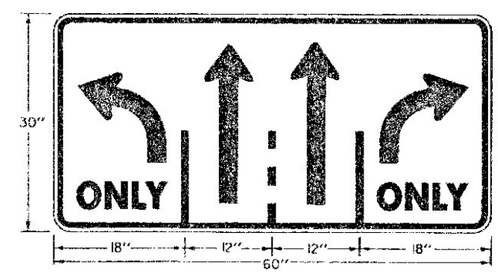
VR-924



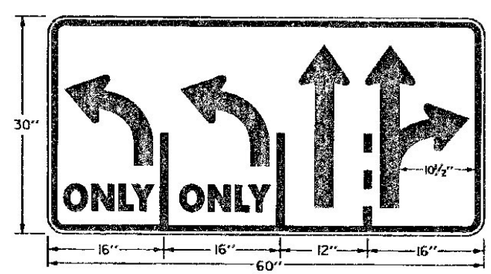
VR-925



VR-926



VR-941



VR-942

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	30'' X 30''	36'' X 30''	48'' X 30'' 60'' X 30''
FLAT SHEET ALUMINUM	0.080''	0.100''	0.125''
HIGH DENSITY OVERLAID PLYWOOD	1/2''	5/8''	5/8''
GALVANIZED FLAT SHEET STEEL	16 GAGE	14 GAGE	12 GAGE

THE REFLECTIVE MATERIAL SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

OTHER STDS. REQUIRED NONE

REVISIONS AND CORRECTIONS

DEC. 23, 1994 - DATE OF ORIGINAL ISSUE

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

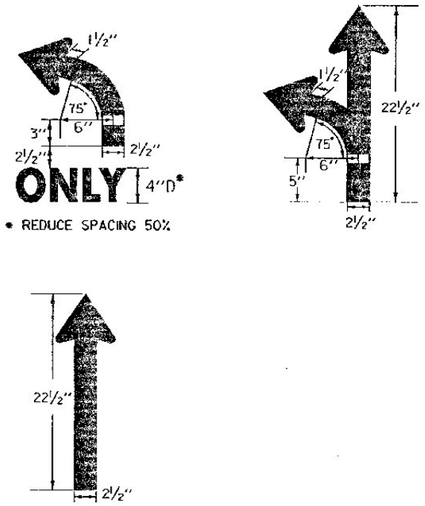
REGULATORY SIGN DETAILS
LANE USE CONTROL SIGNS
TWO AND FOUR LANE APPROACHES

/traf/std/std145.dgn/std145a.1

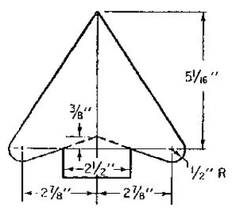
VERMONT AGENCY OF TRANSPORTATION

STANDARD

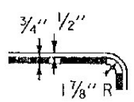
E-145 A



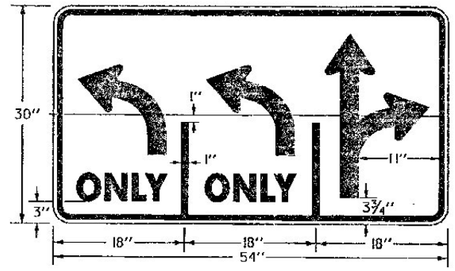
SYMBOL DETAILS



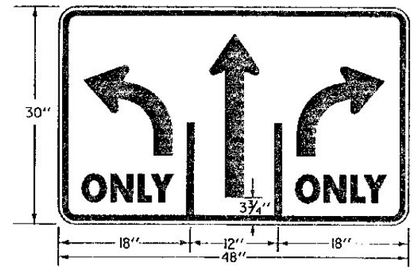
ARROW HEAD DETAIL



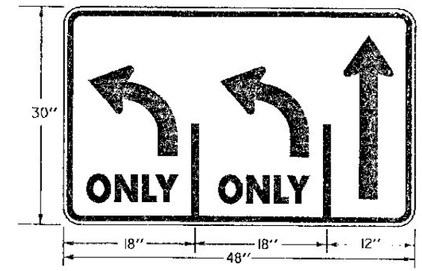
BORDER/MARGIN DETAIL



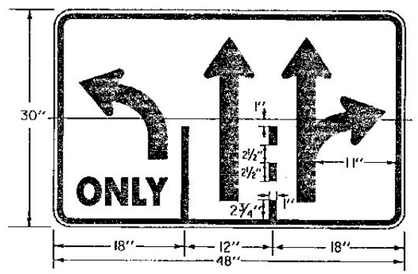
VR-931



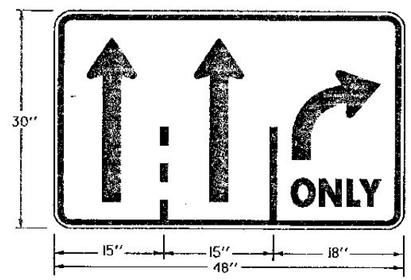
VR-932



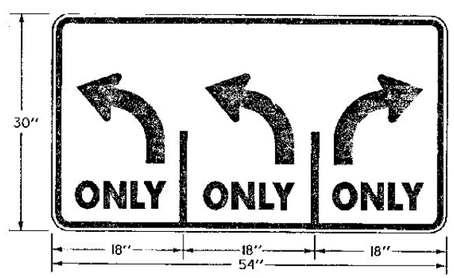
VR-933



VR-934



VR-935



VR-936

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	48" X 30" 54" X 30"
FLAT SHEET ALUMINUM	0.125"
HIGH DENSITY OVERLAID PLYWOOD	5/8"
GALVANIZED FLAT SHEET STEEL	12 GAGE

THE REFLECTIVE MATERIAL SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

NOTES:

1. OPTICALLY CENTER SYMBOLS WITHIN SECTIONS UNLESS OTHERWISE NOTED.
2. "VR-9XX" IS THE SIGN CODE NUMBER.
3. MIRROR IMAGES ARE NOT SHOWN BUT CARRY THE SAME CODE NUMBER.
4. THESE SIGNS ARE INTENDED FOR GROUND MOUNTING ONLY.
5. OTHER VARIATIONS OF THESE STANDARD DESIGNS ARE DEPICTED IN THE VT SIGN IDENTIFICATION MANUAL. WHEN THEY ARE USED THEY SHOULD BE DESIGNED USING THE DIMENSIONS AND DETAILS SHOWN HERE.

REVISIONS AND CORRECTIONS

DEC. 23, 1994 - DATE OF ORIGINAL ISSUE

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

REGULATORY SIGN DETAILS
LANE USE CONTROL SIGNS
THREE LANE APPROACHES

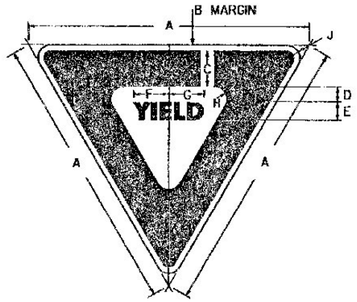
/traf/std/stdel45.dgn/stdel45b.l

OTHER STDS. REQUIRED **NONE**

VERMONT AGENCY OF TRANSPORTATION

STANDARD

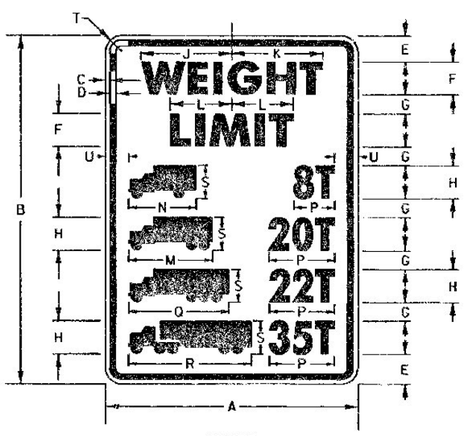
E-145B



COLORS
LEGEND AND BORDER - RED (REFL.)
BACKGROUND - WHITE (REFL.)
ENCAPSULATED LENS

R1-2

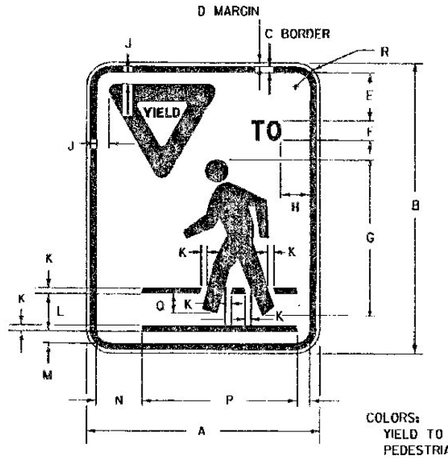
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
BIKE	24	3/8	3	1 3/8	2C	3 1/4	3	7/8	1 1/2
MIN.	30	5/8	4	1 3/4	2 1/2C	3 15/16	3 5/8	7/8	1 1/2
STD.	36	3/4	5	2	3C	4 11/16	4 3/8	1 1/4	2
EXPWY.	48	1	6	2 3/4	4C	6 1/4	5 7/8	2	3
SPECIAL	60	1 1/2	8	3 1/2	5C	7 7/8	7 1/4	2 1/2	4



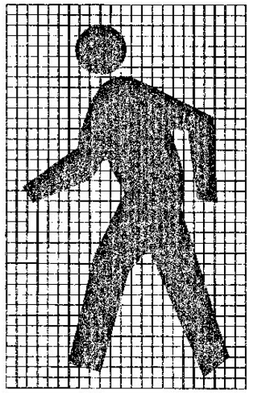
COLORS
LEGEND - BLACK (NON-REFL.)
BACKGROUND - WHITE (REFL.)

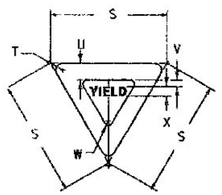
VR-015

SIGN	DIMENSIONS (INCHES)																		
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
MIN.	24	36	3/8	5/8	2 3/4	3E	2 1/2	3C	7 7/8	8 3/8	5 3/4	7 1/4	6	var	9 1/2	11	3	1 1/2	2 1/2
STD.	30	42	1/2	3/4	3 3/8	4E	2 1/4	4C	10 1/2	11 1/8	7 3/8	10	8	var	12	14 5/8	4	1 7/8	2 3/4
EXPWY.	36	54	5/8	7/8	3 7/8	5E	3 1/4	5C	13 1/8	14	9 1/8	12 1/2	10	var	15	18 3/8	5	2 1/4	3
FWY.	48	66	3/4	1 1/4	3 3/4	6E	4 1/2	6C	15 3/4	16 3/4	11 1/2	16	12	var	18	22	6	3	5



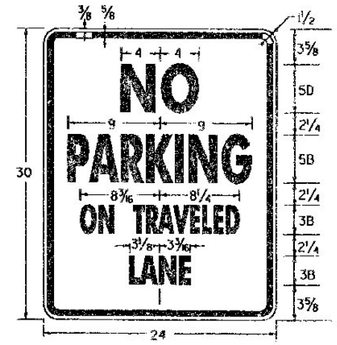
VR-004A





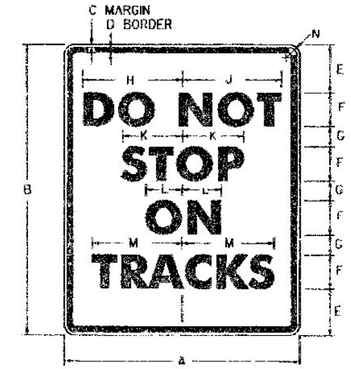
COLORS:
YIELD TO PEDESTRIAN SIGNS HAVE A BLACK PEDESTRIAN SYMBOL, BLACK TEXT, A BLACK BORDER AND A REFLECTORIZED RED YIELD SYMBOL ON A REFLECTORIZED WHITE BACKGROUND

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
STD.	24	30	5/8	3/8	5	2D	12	2 1/4	15/16	5/8	3 1/4
SIGN	M	N	P	Q	R	S	T	U	V	W	X
STD.	1 1/4	4 3/4	16	2	1 1/2	12	3/4	1 3/4	11/16	7/16	10



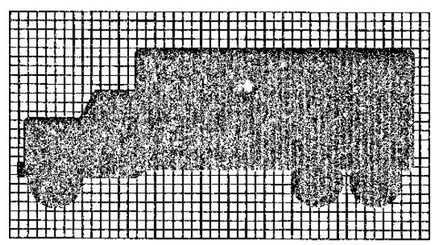
COLORS
LEGEND - RED (REFL.)
BACKGROUND - WHITE (REFL.)

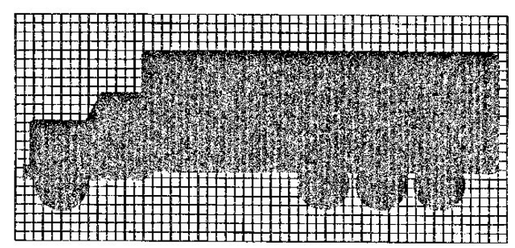
VR - 020

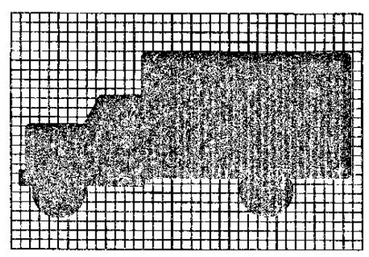


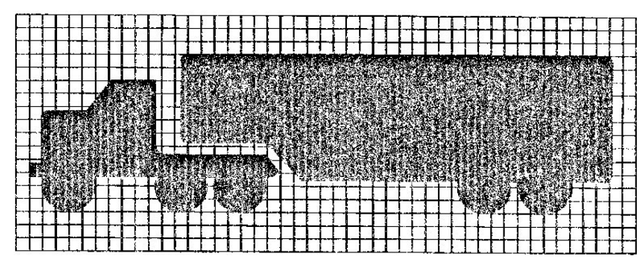
R8-8

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
STD.	24	30	3/8	5/8	3 5/8	4D	2 1/4	9 1/4	9 5/8	6 9/16	3 1/2	10	1 1/2
SPECIAL	36	48	5/8	7/8	6	6D	4	14	14 7/16	9 3/4	5 1/4	15	2 1/4
SPECIAL	48	60	3/4	1 1/4	7 1/4	8D	4 1/2	18 1/2	19 1/4	13 1/8	7	20	3









GENERAL:

1. ALL DIMENSIONS IN INCHES.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL BE AS DETAILED FOR EACH SIGN. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICAILS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	24" ▽ 30" ▽ 24" X 30" 24" X 36" 30" X 42"	36" ▽ 36" X 48" 36" X 54" 48" X 60" 48" X 66"	48" ▽ 60" ▽
FLAT SHEET ALUMINUM	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	16 GAGE	14 GAGE	12 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS."

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.

OTHER STDS.: NONE REQUIRED

REVISIONS AND CORRECTIONS

SEPT. 20, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

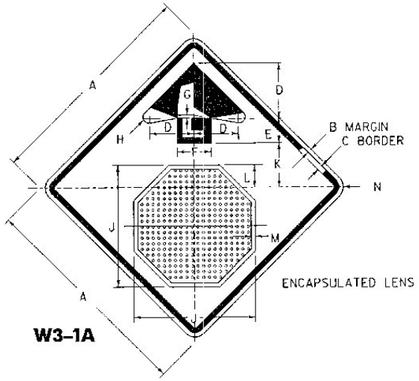
REGULATORY SIGN DETAILS

/traf/std/std146.dgn : std146.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-146

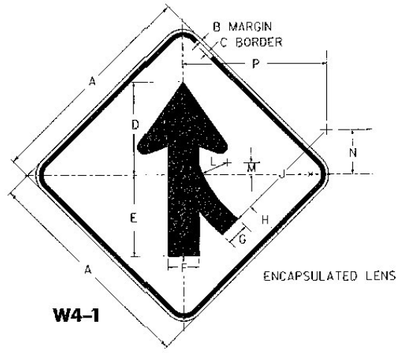


W3-1A

COLORS

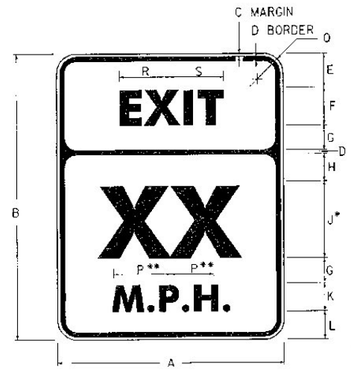
BORDER AND ARROW - BLACK (NON-REFL)
SYMBOL - WHITE BORDER ON RED BACKGROUND (REFL)

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	30	1/2	3/4	7 1/2	3 3/4	5	5/8	5/8	15 3/4	6 1/4	2 7/8	1/2	1 7/8
STD.	36	5/8	7/8	9	4 1/2	6	3/4	7/8	19	7 1/2	3 1/2	5/8	2 1/4
SPECIAL	48	3/4	1 1/4	12	6	8	1	1/2	25 5/8	10	4 1/2	3/4	3



W4-1

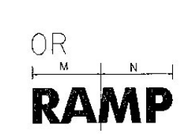
SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	24	3/8	5/8	10 1/4	8 3/4	3 1/2	2 3/8	4 7/8	22 1/4	1 1/2	6 3/8	2 5/8	10 3/8	22 3/16
STD.	30	1/2	3/4	13	11	4 3/8	3	5 1/4	28	1 7/8	8	3	13	27 3/4
EXPWY.	36	5/8	7/8	15 3/4	13 1/4	5 1/4	3 5/8	6 5/8	33 5/8	2 1/4	9 5/8	4	15 5/8	33 5/8
FWY.	48	3/4	1 1/4	20 1/2	17 1/2	7	4 3/4	8 3/8	45	3	12 7/8	5 1/4	20 3/4	44 7/8



W13-2

- *OPTICALLY SPACE NUMBERS ABOUT VERTICAL CENTERLINE
- **INCREASE SPACING 100%
- THE "RAMP" SPEED SIGN IS USED ON RAMPS LEADING FROM ONE FREEWAY TO ANOTHER AND THE "EXIT" SPEED SIGN IS USED ON NORMAL EXITS.

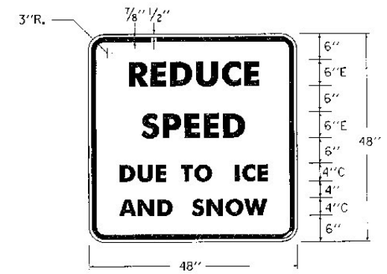
OR



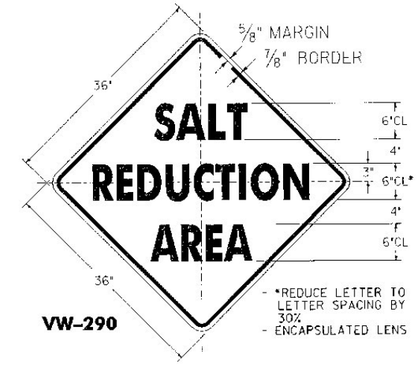
WITH "RAMP" TEXT SIGN NUMBER S

W13-3

SIGN	DIMENSIONS (INCHES)																
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	O	R	S
MIN. & STD.	24	30	3/8	5/8	3 1/2	4E	2 1/2	2 7/8	8E	3E	3	8 1/4	8 1/2	5 5/16	1 1/2	6 1/8	6 3/8
EXPWY.	36	48	5/8	7/8	6	6E	4	5 1/8	12E	4E	6	12 3/8	12 3/4	7 1/16	2 1/4	9 1/4	9 1/2
FWY.	48	60	3/4	1 1/4	7	8E	5	5 3/4	16E	6E	6	16 1/2	17	10 5/8	3	12 1/4	12 3/4

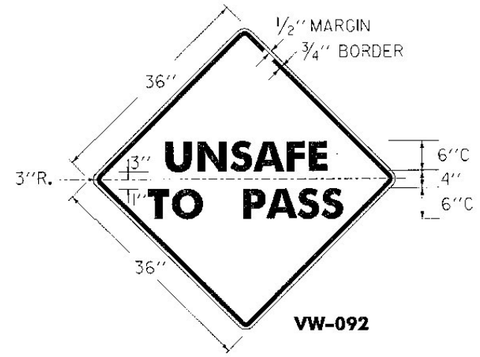


VW-003

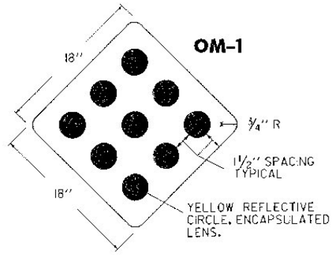


- *REDUCE LETTER TO LETTER SPACING BY 30%
- ENCAPSULATED LENS

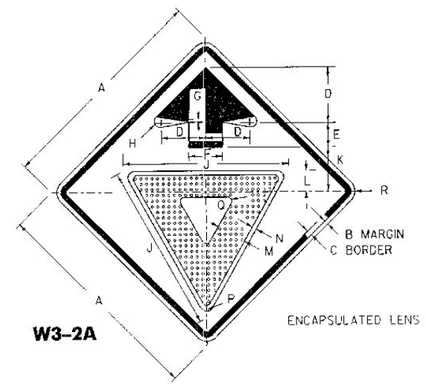
VW-290



VW-092



HAZARD MARKERS SHALL BE OF 0.060 FLAT SHEET ALUMINUM OR 18 GAGE GALVANIZED FLAT SHEET STEEL, WITH A NON-REFLECTIVE YELLOW BACKGROUND AND NINE 4" DIA. CIRCLES EVENLY SPACED WITHMATERIALS AS NOTED ABOVE.

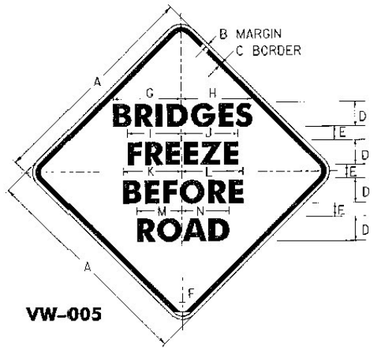


W3-2A

COLORS

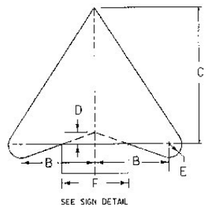
BORDER AND ARROW - BLACK (NON-REFL)
SYMBOL - RED BORDER ON WHITE BACKGROUND (REFL)

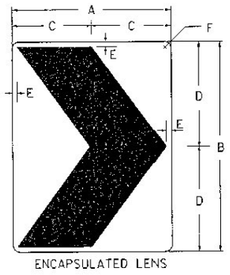
SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	O	R
MIN.	30	1/2	3/4	7 1/2	3 3/4	5	5/8	5/8	25	6 1/4	3	3 3/8	1/2	1 1/4	5/8	1 7/8
STD.	36	5/8	7/8	9	4 1/2	6	3/4	7/8	28	7 1/2	3 3/8	3 3/4	5/8	1 3/8	3/4	2 1/4
SPECIAL	48	3/4	1 1/4	12	6	8	1	1/2	38	10	4 1/2	5	3/4	1 7/8	1	3



VW-005

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
STD.	36	3/8	5/8	5C	2	2	11/2	11/2	9 9/16	9 7/8	10 1/4	10 1/4	6 7/8	6 7/8
FWY./EXP.	48	3/4	1 1/4	6C	3	3	13 1/2	13 1/2	11 11/16	11 11/16	12 1/4	12 5/16	8 5/16	8 5/16





W1-8

ARROW HEAD	DIMENSIONS (INCHES)				
	SIZE	B	C	D	E
MIN. AND STD.	24x24	4	7 1/8	9/16	11/16
SPECIAL	30x30	5	8 7/8	11/16	7/8
EXPWY.	36x36	6	10 5/8	15/16	1 1/16
SPECIAL	48x48	8	14 7/16	1 1/16	1 3/8

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MIN.	12	18	6	9	1/2	1 1/2
STD.	18	24	9	12	3/4	1 1/2
SPECIAL	24	30	12	15	7/8	1 1/2
EXPWY.	30	36	15	18	1	1 7/8
FWY.	36	48	18	24	1 1/8	2 1/4

COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	12" x 18" 18" x 24"	24" x 24' 24" x 30' 30" x 30" 30" x 36"	36" x 36" 36" x 48"	48" x 48" 48" x 60"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

THE TEXT, BORDER, AND SYMBOL SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - ADDED SIGN DETAIL AND I.D. NUMBER FOR EACH DETAIL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon H. MacAskill
DIRECTOR OF ENGINEERING

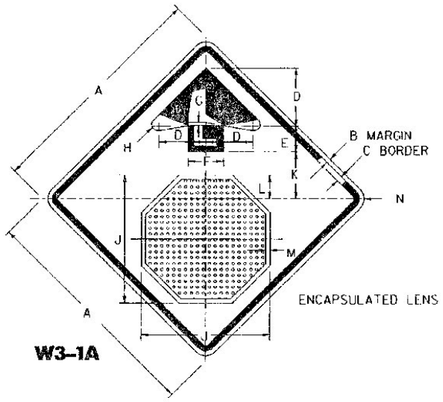
David A. Ross
TRAFFIC AND SAFETY ENGINEER

WARNING SIGN DETAILS

/traf/std/stdel50cgn : stde.50.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-150

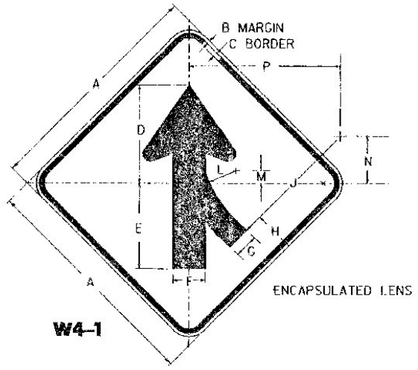


W3-1A

COLORS

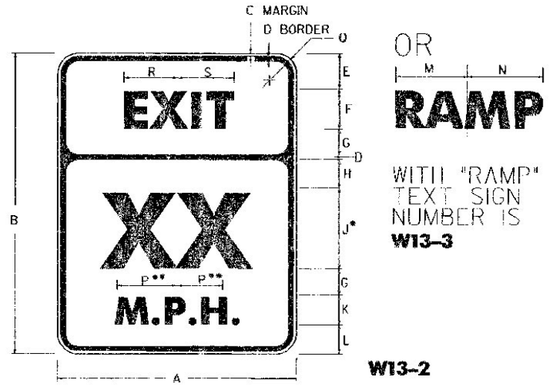
BORDER AND ARROW - BLACK (NON-REFL)
SYMBOL - WHITE BORDER ON RED BACKGROUND (REFL)

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	30	1/2	3/4	7 1/2	3 3/4	5	5/8	5/8	15 3/4	6 1/4	2 7/8	1/2	1 7/8
STD.	36	5/8	7/8	9	4 1/2	6	3/4	7/8	19	7 1/2	3 1/2	5/8	2 1/4
SPECIAL	48	3/4	1 1/4	12	6	8	1	1/2	25 1/8	10	4 1/2	3/4	3



W4-1

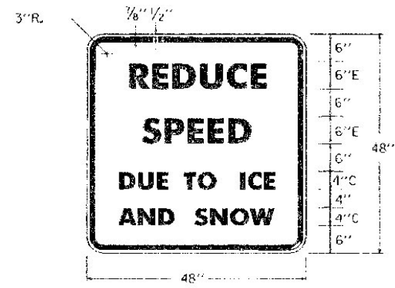
SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	24	3/8	5/8	10 1/4	8 3/4	3 1/2	2 3/8	4 3/4	22 1/4	1 1/2	6 3/8	2 5/8	10 3/8	22 3/16
STD.	30	1/2	3/4	13	11	4 3/8	3	5 1/4	28	1 7/8	8	3	13	27 3/4
EXPWY.	36	5/8	7/8	15 3/4	13 1/4	5 1/4	3 5/8	6 3/8	33 5/8	2 1/4	9 5/8	4	15 5/8	33 5/16
FWY.	48	3/4	1 1/4	20 1/2	17 1/2	7	4 3/4	8 3/8	45	3	12 7/8	5 1/4	20 3/4	44 3/8



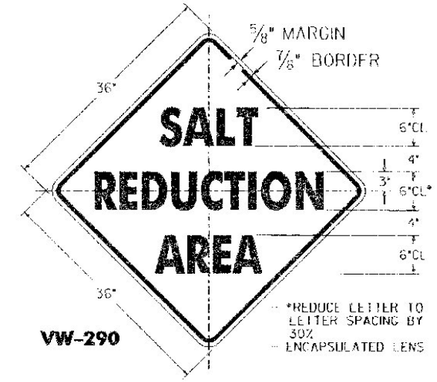
W13-2

- *OPTICALLY SPACE NUMBERS ABOUT VERTICAL CENTERLINE
- **INCREASE SPACING 100%
- THE "RAMP" SPEED SIGN IS USED ON RAMPS LEADING FROM ONE FREEWAY TO ANOTHER AND THE "EXIT" SPEED SIGN IS USED ON NORMAL EXITS.

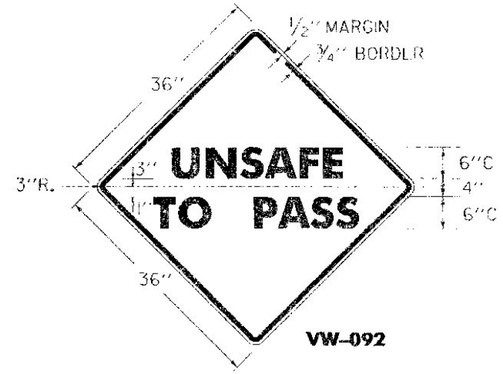
SIGN	DIMENSIONS (INCHES)																
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
MIN. & STD.	24	30	3/8	5/8	3 1/2	4E	2 1/2	2 7/8	8E	3E	3	8 1/4	8 1/2	5 5/16	1/2	6 1/8	6 3/8
EXPWY.	36	48	5/8	7/8	6	6F	4	5 1/8	12E	4E	6	12 3/8	12 3/4	7 11/16	2 1/4	9 1/4	9 1/2
FWY.	48	60	3/4	1 1/4	7	8E	5	5 3/4	16E	6E	6	16 1/2	17	10 5/8	3	12 1/4	12 3/4



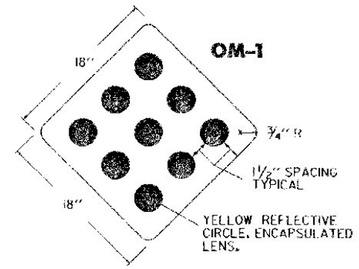
VW-003



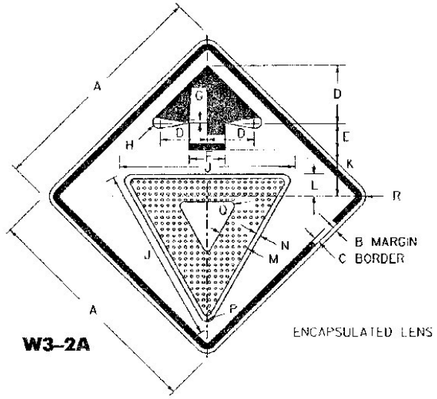
VW-290



VW-092



HAZARD MARKERS SHALL BE OF 0.060 FLAT SHEET ALUMINUM OR 18 GAGE GALVANIZED FLAT SHEET STEEL, WITH A NON-REFLECTIVE YELLOW BACKGROUND AND NINE 4" DIA. CIRCLES EVENLY SPACED WITHMATERIALS AS NOTED ABOVE.

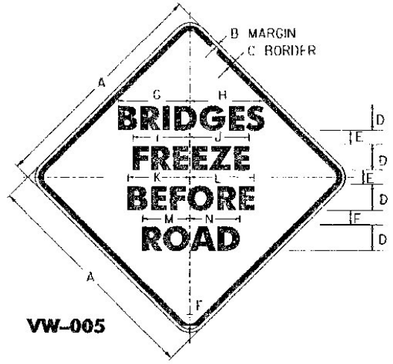


W3-2A

COLORS

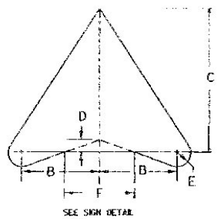
BORDER AND ARROW - BLACK (NON-REFL)
SYMBOL - RED BORDER ON WHITE BACKGROUND (REFL)

SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
MIN.	30	1/2	3/4	1 1/2	3 3/4	5	5/8	5/16	25	6 1/4	3	3 3/8	1/2	1 1/4	5/8	1 1/8
STD.	36	5/8	7/8	9	4 1/2	6	3/4	3/8	28	7 1/2	3 3/8	3 3/4	5/8	1 3/8	3/4	2 1/4
SPECIAL	48	3/4	1 1/4	12	6	8	1	1/2	38	10	4 1/2	5	3/4	1 7/8	1	3

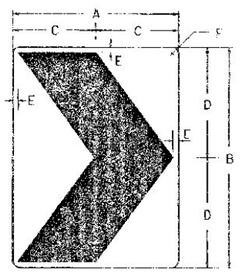


VW-005

SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
STD.	36	3/8	5/8	5C	2	2	11 1/2	11 1/2	9 9/16	9 7/8	10 1/4	10 1/4	6 7/8	6 7/8
EXPWY./EXP.	48	3/4	1 1/4	6C	3	3	13 1/2	13 1/2	11 13/16	11 15/16	12 1/4	12 3/16	8 5/16	8 5/16



ARROW HEAD	DIMENSIONS (INCHES)				
	SIZE	B	C	D	E
MIN. AND STD.	24x24	4	7 1/8	9/16	11/16
SPECIAL	30x30	5	8 7/8	11/16	7/8
EXPWY.	36x36	6	10 5/8	15/16	1 1/16
SPECIAL	48x48	8	14 3/16	1 1/16	1 3/8



ENCAPSULATED LENS

W1-8

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MIN.	12	18	6	9	1/2	1 1/2
STD.	18	24	9	12	3/4	1 1/2
SPECIAL	24	30	12	15	7/8	1 1/2
EXPWY.	30	36	15	18	1	1 7/8
FWY.	36	48	18	24	1 1/8	2 1/4

COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	12" x 18" / 18" x 24"	24" x 24" / 24" x 30" / 30" x 30" / 30" x 36"	36" x 36" / 36" x 48"	48" x 48" / 48" x 60"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	3/8"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

THE TEXT, BORDER, AND SYMBOL SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - ADDED SIGN DETAIL AND I.D. NUMBER FOR EACH DETAIL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

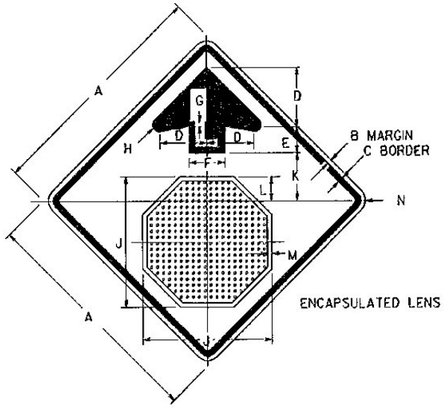
David A. Rozzi
TRAFFIC AND SAFETY ENGINEER

WARNING SIGN DETAILS

/traf/std/std50dgn : std50.1

VERMONT AGENCY OF TRANSPORTATION

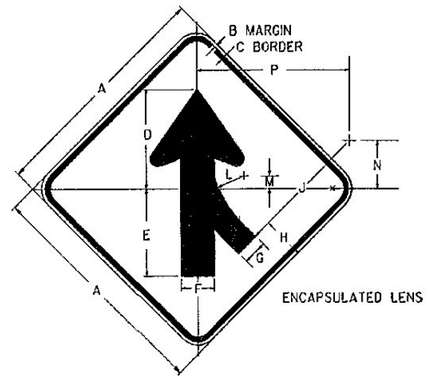
STANDARD
E-150



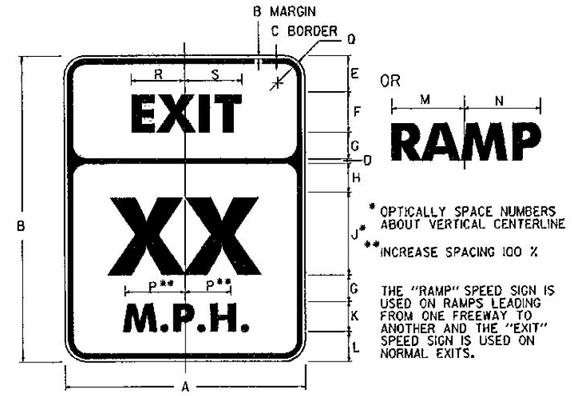
COLORS

BORDER AND ARROW - BLACK (NON-REFL)
SYMBOL - WHITE BORDER ON RED BACKGROUND (REFL)

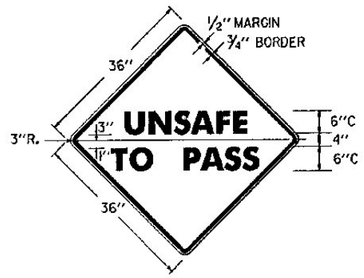
SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	30	1/2	3/4	7 1/2	3 3/4	5	5/8	5/16	15 3/4	6 1/4	2 7/8	1/2	1 7/8
STD.	36	5/8	7/8	9	4 1/2	6	3/4	3/8	19	7 1/2	3 1/2	5/8	2 1/4
SPECIAL	48	3/4	1 1/4	12	6	8	1	1/2	25 1/8	10	4 1/2	3/4	3

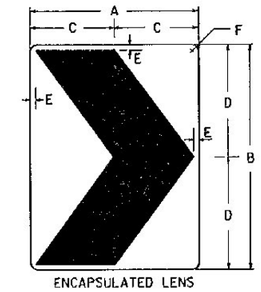


SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	24	7/8	5/8	10 1/4	8 3/4	3 1/2	2 3/8	4 3/16	22 1/4	1 1/2	6 3/8	2 5/8	10 3/8	22 3/16
STD.	30	1/2	3/4	13	11	4 3/8	3	5 1/4	28	1 7/8	8	3	13	27 3/4
EXPWY.	36	5/8	7/8	15 3/4	13 3/4	5 1/4	3 5/8	6 5/16	33 5/8	2 1/4	9 5/8	4	15 5/8	33 5/16
FWY.	48	3/4	1 1/4	20 1/2	17 1/2	7	4 3/4	8 3/8	45	3	12 13/16	5 1/4	20 3/4	44 7/8

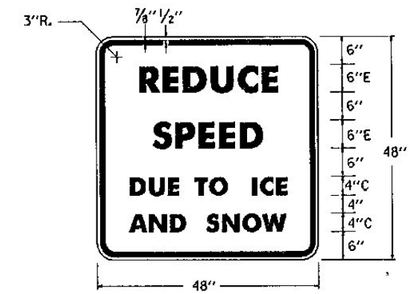


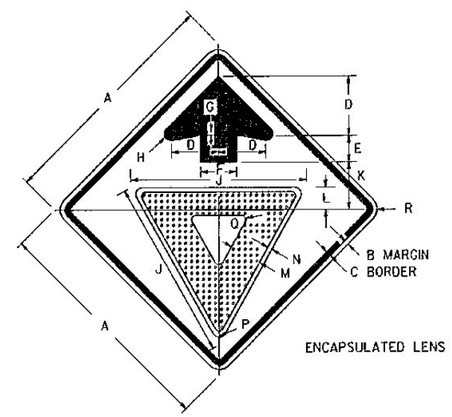
SIGN	DIMENSIONS (INCHES)																
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
MIN. & STD.	24	30	7/8	5/8	3 1/2	4E	2 1/2	2 7/8	8E	3E	3	8 1/4	8 1/2	5 5/16	1 1/2	6 1/8	6 5/8
EXPWY.	36	48	5/8	7/8	6	6E	4	5 1/8	12E	4E	6	12 3/8	12 3/4	7 1/16	2 1/4	9 1/4	9 1/2
FWY.	48	60	3/4	1 1/4	7	8E	5	5 3/4	16E	6E	6	16 1/2	17	10 5/8	3	12 1/4	12 3/4





SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MIN.	12	18	6	9	1/2	1 1/2
STD.	18	24	9	12	3/4	1 1/2
SPECIAL	24	30	12	15	7/8	1 1/2
EXPWY.	30	36	15	18	1	1 7/8
FWY.	36	48	18	24	1 1/8	2 1/4

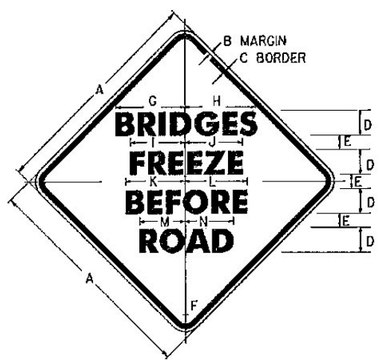




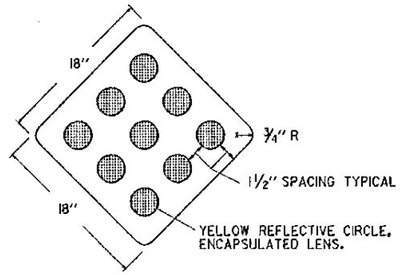
COLORS

BORDER AND ARROW - BLACK (NON-REFL)
SYMBOL - RED BORDER ON WHITE BACKGROUND (REFL)

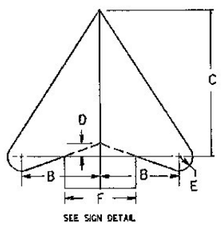
SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
MIN.	30	1/2	3/4	7 1/2	3 3/4	5	5/8	5/16	25	6 1/4	3	3 3/8	1/2	1 1/4	5/8	1 7/8
STD.	36	5/8	7/8	9	4 1/2	6	3/4	3/8	28	7 1/2	3 7/8	3 3/4	5/8	1 3/8	3/4	2 1/4
SPECIAL	48	3/4	1 1/4	12	6	8	1	1/2	38	10	4 1/2	5	3/4	1 7/8	1	3



SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
STD.	36	5/8	5/8	5C	2	2	11 1/2	11 1/2	9 13/16	9 7/8	10 1/4	10 1/4	6 7/8	6 7/8
FWY./EXP.	48	3/4	1 1/4	6C	3	3	13 1/2	13 1/2	11 3/16	11 3/16	12 1/4	12 5/16	8 5/16	8 5/16



HAZARD MARKERS SHALL BE OF 0.060 FLAT SHEET ALUMINUM OR 18 GAGE GALVANIZED FLAT SHEET STEEL, WITH A NON-REFLECTIVE YELLOW BACKGROUND AND NINE 4" DIA. CIRCLES EVENLY SPACED WITH MATERIALS AS NOTED ABOVE.



ARROW HEAD	DIMENSIONS (INCHES)				
	SIZE	B	C	D	E
MIN. AND STD.	24x24	4	7 1/8	9/16	11/16
SPECIAL	30x30	5	8 7/8	11/16	7/8
EXPWY.	36x36	6	10 5/8	13/16	1 1/16
SPECIAL	48x48	8	14 3/16	1 1/16	1 3/8

COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	12" x 18" 18" x 24"	24" x 24" 24" x 30" 30" x 30" 30" x 36"	36" x 36" 36" x 48"	48" x 48" 48" x 60"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	3/8"	3/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

THE TEXT, BORDER, AND SYMBOL SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

REVISIONS AND CORRECTIONS

APPROVED

OCT. 30, 1987
DATE

CHIEF ENGINEER

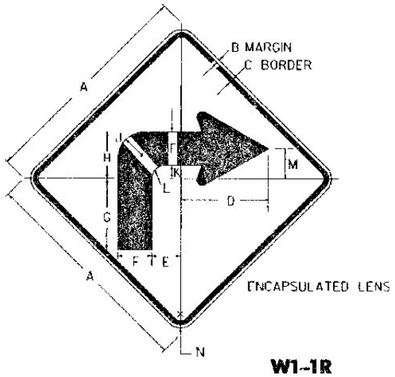
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

TRAFFIC AND SAFETY ENGINEER

WARNING SIGN DETAILS

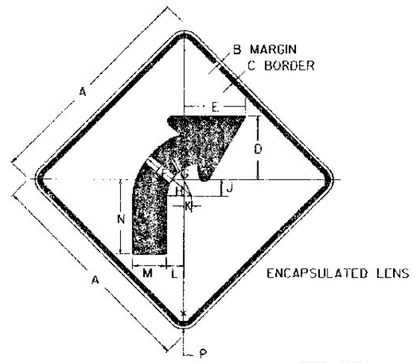
VERMONT AGENCY OF TRANSPORTATION

STANDARD E-150



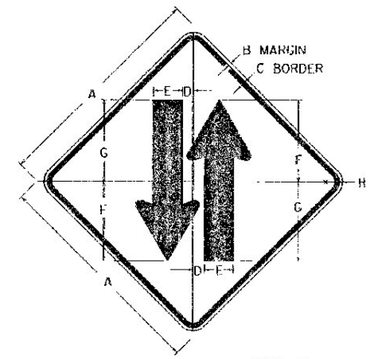
W1-1R

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M	N
BIKE	18	3/8	5/8	7 1/4	2 1/4	2 5/8	5 7/8	3 3/4	1 1/8	1	5/8	2 1/2	1 1/2
MIN.	24	3/8	5/8	9 5/8	3	3 1/2	7 3/4	5	2 1/2	1 1/2	15/16	3 1/4	1 1/2
STD.	30	1/2	3/4	12	3 3/4	4 3/8	9 11/16	6 1/4	3	1 7/8	1	4 1/16	1 7/8
EXPWY.	36	5/8	7/8	14 3/8	4 1/2	5 1/4	11 5/8	7 1/2	3 5/8	2 1/4	1 1/4	4 7/8	2 1/4
SPECIAL	48	3/4	1 1/4	19 3/16	6	7	15 1/2	10	4 7/8	3	1 5/16	6 1/2	3



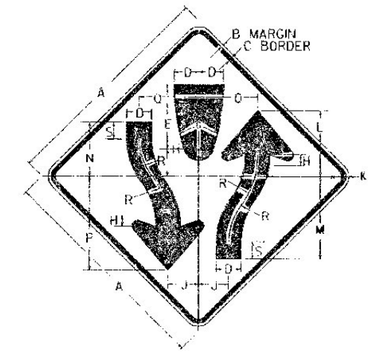
W1-2R

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
BIKE	18	3/8	5/8	5 3/8	5 1/2	6	4 3/4	3 3/8	1 3/4	1 1/4	2	2 5/8	6 1/4	1 1/2
MIN.	24	3/8	5/8	7 1/8	7 1/4	8	6 1/4	4 1/2	2 11/32	1 3/4	2 3/4	3 1/2	8 1/4	1 1/2
STD.	30	1/2	3/4	8 7/8	9 1/16	10	7 13/16	5 5/8	2 15/16	2 3/16	3 7/16	4 3/8	10 5/16	1 7/8
EXPWY.	36	5/8	7/8	10 5/8	10 7/8	12	9 3/8	6 3/4	3 1/2	2 5/8	4 1/8	5 1/4	12 3/8	2 1/4
FWY.	48	3/4	1 1/4	14 3/16	14 1/2	16	12 1/2	9	4 11/16	3 1/2	5 1/2	7	16 1/2	3



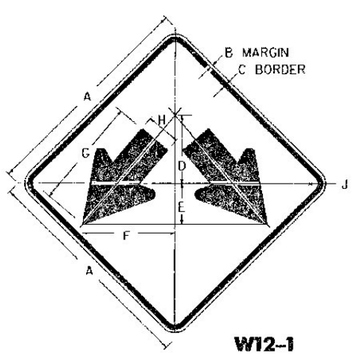
W6-3

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MIN.	24	3/8	5/8	2	3	9	8 1/2	1 1/2
STD.	30	1/2	3/4	2 1/16	3 3/4	11 1/4	10 5/8	1 7/8
EXPWY.	36	5/8	7/8	2 15/16	4 1/2	13 1/2	12 3/4	2 1/4
SPECIAL	48	3/4	1 1/4	3 7/8	6	18	17	3



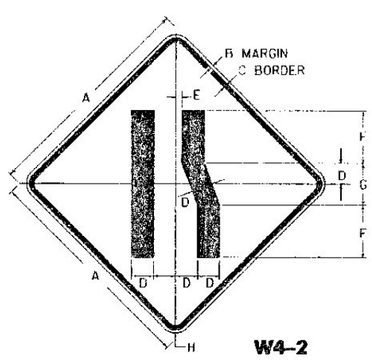
W6-1

SIGN	DIMENSIONS (INCHES)																
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
MIN.	30	1/2	3/4	3 5/16	8 5/16	1 1/8	25	1 11/16	4 1/8	1 7/8	10	11 5/8	7 15/16	13 11/16	7 7/8	8 5/16	2 1/16
STD. & EXPWY.	36	5/8	7/8	4	10	5	30	2	5	2 1/4	12	14	9 1/2	16 1/2	9 1/2	10	2 1/2
SPECIAL	48	3/4	1 1/4	5 1/4	13 1/8	6 3/16	39 5/16	2 5/8	6 3/16	3	16	18 11/16	12 11/16	22	12 7/16	13 1/8	3 5/16



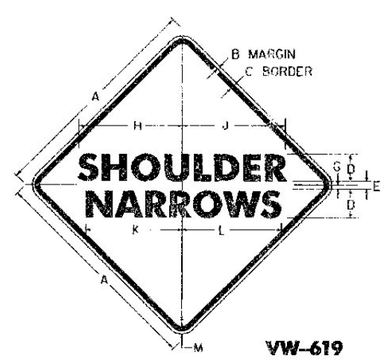
W12-1

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
STD. & MIN.	24	3/8	5/8	8	4 1/8	9 3/4	11 5/8	3 1/8	1 1/2
SPECIAL	30	1/2	3/4	10	5 1/4	12 5/8	14 11/16	4	1 7/8
SPECIAL	36	5/8	7/8	12	6 1/8	14 5/8	17 1/2	4 3/4	2 1/4



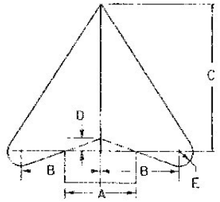
W4-2

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MIN.	30	1/2	3/4	3 3/8	15/16	8 1/16	6 3/4	1 1/8
STD. & EXPWY.	36	5/8	7/8	4	1	10	8	2 1/4
FWY.	48	3/4	1 1/4	5 5/16	1 3/8	13 3/16	10 5/8	3



VW-619

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MIN & STD.	36	5/8	7/8	5C	3	6D	1	13 11/16	13 1/16	17 7/8	18 1/4	2 1/4
EXPWY.	48	3/4	1 1/4	7D	3 1/2	7D	1	23 13/16	23 1/8	21 1/2	21 13/16	3



SEE SIGN DETAIL
FOR APPROPRIATE WIDTH

DIMENSIONS (INCHES)				
A	B	C	D	E
2 5/8	3	5 1/4	3/8	1/2
3	3 1/2	6 1/8	7/16	9/16
3 1/8	3 5/8	6 5/8	1/2	5/8
3 1/4	3 3/4	6 7/8	1/2	5/8
3 5/16	13 11/16	6 11/16	1/2	11/16
3 1/2	4	7 1/8	9/16	11/16
3 3/4	4 1/16	7 5/8	9/16	3/4
4	4 5/8	8 1/8	3/8	5/8
4 3/8	5	8 7/8	11/16	7/8
4 1/2	5 3/16	9 1/16	11/16	7/8
4 3/4	5 7/16	9 5/8	3/4	1
5	5 3/4	10 1/8	3/4	1
5 1/4	6	10 5/8	13/16	1 1/16
6	6 7/8	12 3/16	15/16	1 3/16
6 1/2	7 1/2	13 3/16	1	1 3/16
7	8	14 3/16	1 1/16	1 3/8
8	9 3/16	16 1/4	1 1/4	1 5/8

COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORATATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	18" x 18"	24" x 12" 24" x 24" 30" x 30"	36" x 18" 36" x 36"	48" x 24" 48" x 48" 60" x 30"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	3/8"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

THE TEXT, BORDER AND SYMBOLS SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKROUND OF THE SIGN. ECAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKROUND WHERE NOTED.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACING, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGN PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR 'TRAFFIC SIGNS'.

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

OCT. 31, 1987 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - MISC. NOTE CHANGES AND ADDED I.D. NUMBERS TO EACH DETAIL.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

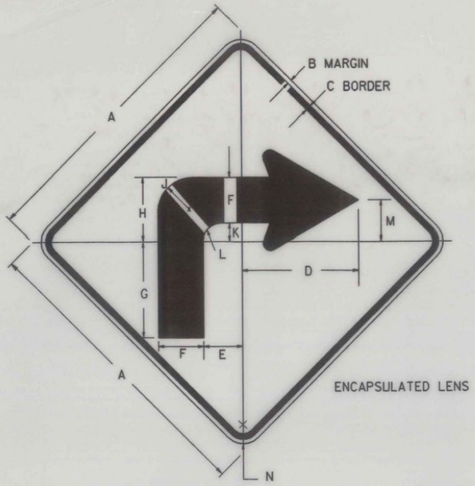
TRAFFIC AND SAFETY ENGINEER

WARNING SIGNS DETAIL

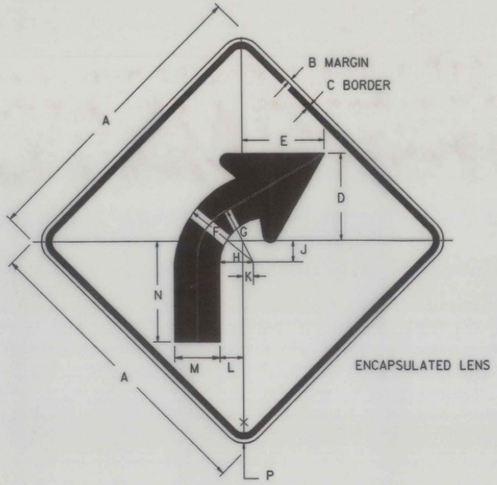
/traf/std/stdel51.dgn : stdel51.

VERMONT AGENCY OF TRANSPORTATION

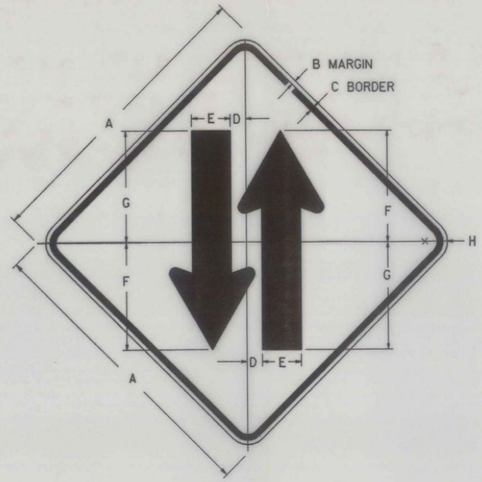
STANDARD
E-151



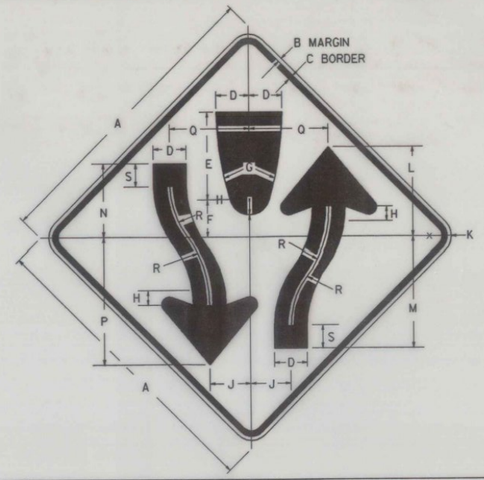
SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
BIKE	18	3/8	5/8	7 1/4	2 1/4	2 5/8	5 7/8	3 3/4	1 7/8	1	5/8	2 1/2	1 1/2
MIN.	24	3/8	5/8	9 5/8	3	3 1/2	7 3/4	5	2 1/2	1 1/2	13/16	3 1/4	1 1/2
STD.	30	1/2	3/4	12	3 3/4	4 3/8	9 11/16	6 1/4	3	1 7/8	1	4 1/16	1 7/8
EXPWY.	36	5/8	7/8	14 3/8	4 1/2	5 1/4	11 5/8	7 1/2	3 5/8	2 1/4	1 1/4	4 7/8	2 1/4
SPECIAL	48	3/4	1 1/4	19 3/16	6	7	15 1/2	10	4 7/8	3	1 5/8	6 1/2	3



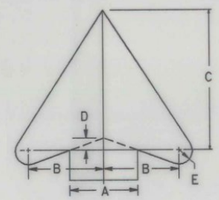
SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
BIKE	18	3/8	5/8	5 3/8	5 1/2	6	4 3/4	3 3/8	1 3/4	1 1/4	2	2 5/8	6 1/4	1 1/2
MIN.	24	3/8	5/8	7 1/8	7 1/4	8	6 1/4	4 1/2	2 11/32	1 3/4	2 3/4	3 1/2	8 1/4	1 1/2
STD.	30	1/2	3/4	8 7/8	9 1/16	10	7 13/16	5 5/8	2 15/16	2 3/16	3 7/16	4 3/8	10 5/16	1 7/8
EXPWY.	36	5/8	7/8	10 5/8	10 7/8	12	9 3/8	6 3/4	3 1/2	2 5/8	4 1/8	5 1/4	12 3/8	2 1/4
FWY.	48	3/4	1 1/4	14 3/16	14 1/2	16	12 1/2	9	4 11/16	3 1/2	5 1/2	7	16 1/2	3



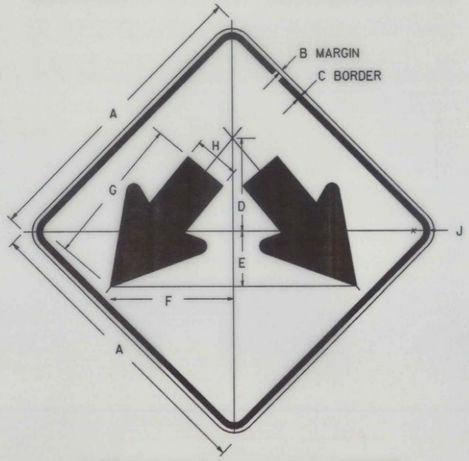
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MIN.	24	3/8	5/8	2	3	9	8 1/2	1 1/2
STD.	30	1/2	3/4	2 7/16	3 3/4	11 1/4	10 5/8	1 7/8
EXPWY.	36	5/8	7/8	2 15/16	4 1/2	13 1/2	12 3/4	2 1/4
SPECIAL	48	3/4	1 1/4	3 7/8	6	18	17	3



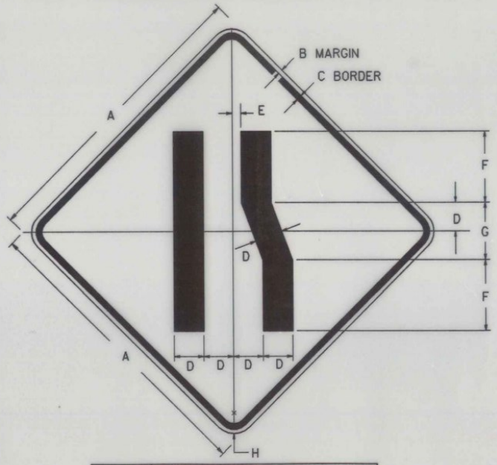
SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
MIN.	30	1/2	3/4	3 5/16	8 5/16	4 1/8	25	1 11/16	4 1/8	1 7/8	10	11 5/8	7 15/16	13 11/16	7 7/8	8 5/16	2 1/16
STD. & EXPWY.	36	5/8	7/8	4	10	5	30	2	5	2 1/4	12	14	9 1/2	16 1/2	9 1/2	10	2 1/2
SPECIAL	48	3/4	1 1/4	5 1/4	13 1/8	6 9/16	39 9/16	2 5/8	6 9/16	3	16	18 11/16	12 11/16	22	12 7/16	13 1/8	3 5/16



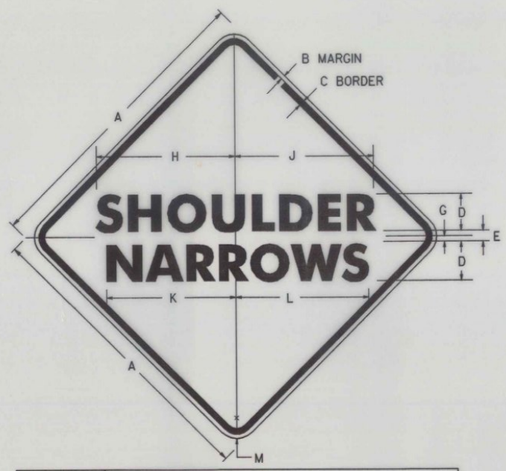
DIMENSIONS (INCHES)				
A	B	C	D	E
2 5/8	3	5 1/4	3/8	1/2
3	3 1/2	6 1/8	7/16	9/16
3 1/8	1 5/8	6 3/8	1/2	5/8
3 5/16	3 13/16	6 11/16	1/2	11/16
3 1/2	4	7 1/8	9/16	11/16
3 3/4	4 5/16	7 5/8	9/16	3/4
4	4 5/8	8 1/8	5/8	13/16
5 1/4	6	10 5/8	13/16	1 1/16
6	6 7/8	12 3/16	15/16	1 3/16
7	8	14 3/16	1 1/16	1 3/8



SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
STD. & MIN.	24	3/8	5/8	8	4 1/8	9 3/4	11 5/8	3 1/8	1 1/2
SPECIAL	30	1/2	3/4	10	5 1/4	12 3/8	14 11/16	4	1 7/8
SPECIAL	36	5/8	7/8	12	6 1/8	14 5/8	17 1/2	4 3/4	2 1/4



SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MIN.	30	1/2	3/4	3 3/8	13/16	8 7/16	6 3/4	1 7/8
STD. & EXPWY.	36	5/8	7/8	4	1	10	8	2 1/4
FWY.	48	3/4	1 1/4	5 5/16	1 3/8	13 5/16	10 5/8	3



SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MIN & STD.	36	5/8	7/8	5C	3	6D	1	13 11/16	13 1/16	17 5/8	18 1/4	2 1/4
EXPWY.	48	3/4	1 1/4	7D	3 1/2	7D	1	23 13/16	23 7/8	21 1/2	21 9/16	3

COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	18" x 18"	24" x 24" 30" x 30"	36" x 36"	48" x 48"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

THE TEXT, BORDER AND SYMBOLS SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

REVISIONS AND CORRECTIONS

APPROVED

OCT. 30, 1987
DATE

David B. Kelley
CHIEF ENGINEER

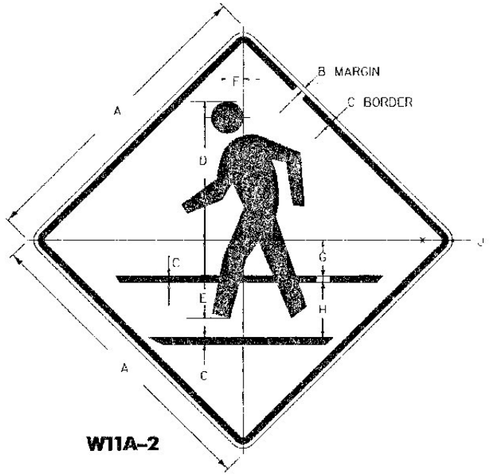
Arthur Gosa
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

WARNING SIGN DETAIL

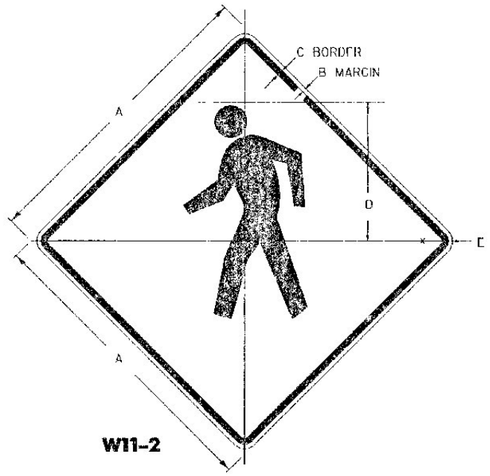
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-151



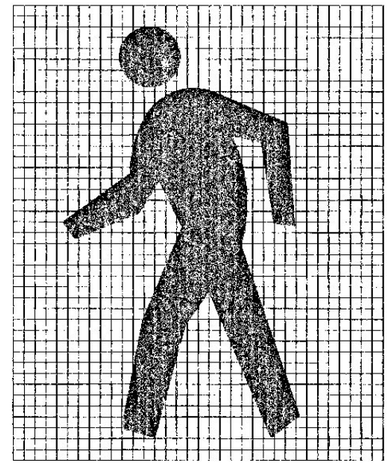
W11A-2

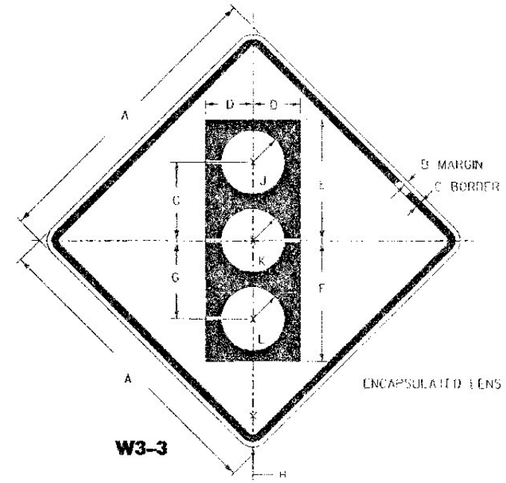
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
BIKE	18	3/8	5/8	8 3/8	4 3/4	3/4	2 5/8	3 3/16	1 1/2
MIN.	24	3/8	5/8	11	6 3/8	1 3/16	3 1/8	4 3/4	1 1/2
STD.	30	1/2	3/4	14	8	1 1/2	4	6	1 1/8
EXPWY.	36	5/8	7/8	16 3/4	9 5/8	1 11/16	4 3/4	7 1/4	2 1/4
SPECIAL	48	3/4	1 1/4	22	12 3/4	2 3/8	6 1/4	9 1/2	3



W11-2

SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN.	24	3/8	5/8	11	1 1/2
STD.	30	1/2	3/4	13 1/2	1 7/8
EXPWY.	36	5/8	7/8	16	2 1/4
SPECIAL	48	3/4	1 1/4	22	3

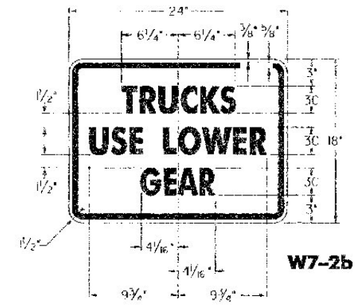




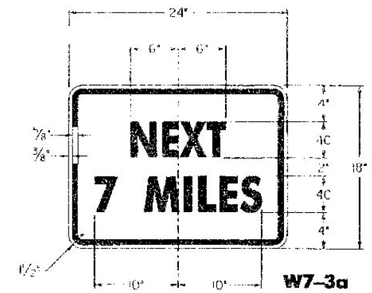
W3-3

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
BIKE	18	3/8	5/8	3	8	2 1/4	5	1 1/2
MIN.	30	1/2	3/4	5	13 3/4	3 3/4	8 3/4	1 1/8
STD. & MIN.	36	5/8	7/8	6 3/4	15 3/4	4 1/4	10	2 1/4
SPECIAL	48	3/4	1 1/4	1 1/2	20	5	12 1/2	3

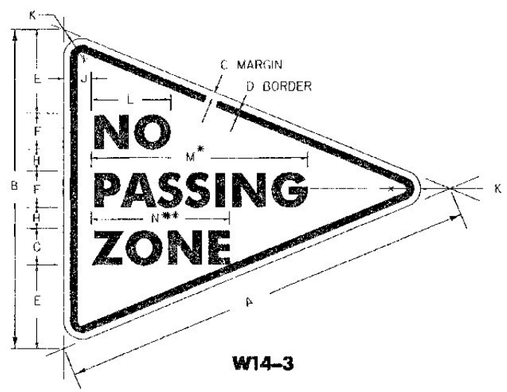
ADDITIONAL COLORS : J - REFL. RED
CIRCLE RADIUS = F K - REFL. YELLOW
L - REFL. GREEN



W7-2b



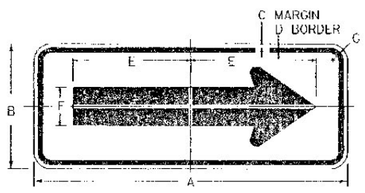
W7-3a



W14-3

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	40	30	1/2	3/4	7 1/4	4D	4C	1 3/4	2 1/2	1 7/8	6 1/2	22 9/16	11 11/16
STD.	48	36	5/8	7/8	8 1/2	5D	5C	2	3	2 1/4	8	26 13/16	12 3/4
SPECIAL	64	48	3/4	1 1/4	12	6D	6C	3	4	3	10 3/4	33 11/16	16 3/16

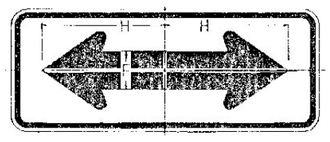
** FOR STD. SIZE REDUCE SPACING 35 %
* FOR STD. SIZE REDUCE SPACING 20 %



W1-6

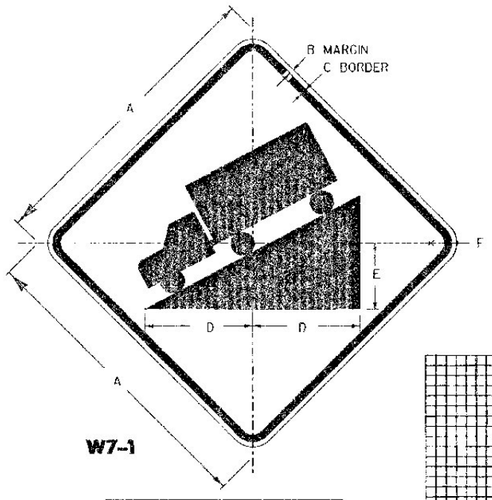
ENCAPSULATED LENS

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
BIKE	24	12	3/8	5/8	9 5/8	3 1/4	1 1/2	10 3/8
MIN.	36	18	3/8	5/8	14 5/8	5	1 1/2	15 5/8
STD.	48	24	1/2	3/4	19 1/2	6 1/2	1 7/8	20 1/2
SPECIAL	60	30	5/8	7/8	24 3/8	8	2 1/4	25 5/8



W1-7

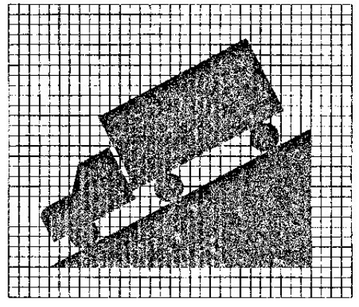
ENCAPSULATED LENS



W7-1

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MIN.	24	3/8	5/8	8 3/4	6	1 1/2
STD.	30	1/2	3/4	11	7 1/2	1 7/8
EXPWY.	36	5/8	7/8	13 1/4	9	2 1/4
FWY.	48	3/4	1 1/4	17 1/2	12	3

ENCAPSULATED LENS



COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	18" x 18"	24" x 12" 24" x 24" 30" x 30"	36" x 18" 40" x 30" 36" x 36"	48" x 24" 48" x 36" 48" x 48" 60" x 30" 64" x 48"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

THE TEXT, BORDER AND SYMBOLS SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. SEE STANDARD SHEET E-150 FOR ARROWHEAD DETAILS.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

OTHER STDS. REQUIRED: E-150

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
JANUARY 1991 - 4 X 2 ARROW ENCAPSULATED LENS & 40 X 30 ADDED
OCT. 21, 1992 - PENNANT SIZE ADDED
AUG. 08, 1995 - DELETED & ADDED SIGN DETAILS AND ADDED I.D. NUMBER TO EACH DETAIL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. CHWA FINAL APPROVAL PENDING.

APPROVED

Gordon D. MacArthur
DIRECTOR OF ENGINEERING

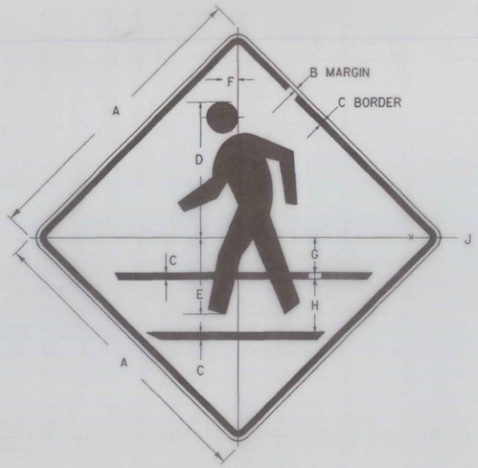
David A. Ross
TRAFFIC AND SAFETY ENGINEER

WARNING SIGN DETAILS

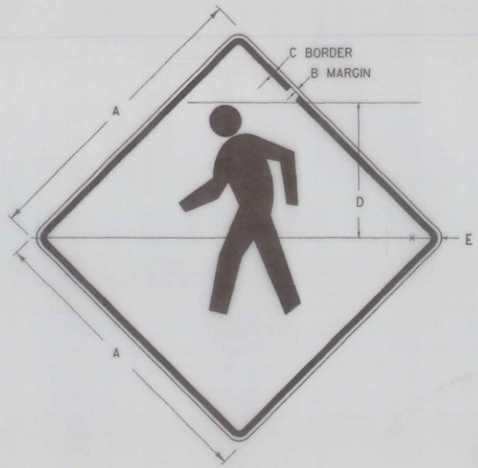
/traf/std/stdel52.dgn : stdel52.i

VERMONT AGENCY OF TRANSPORTATION

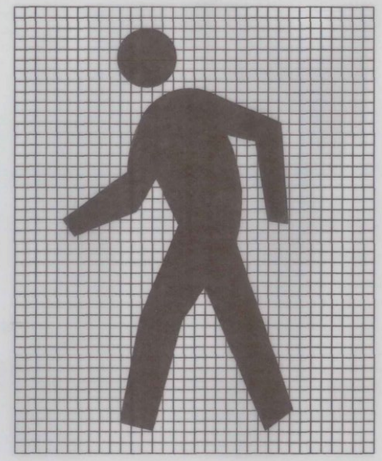
STANDARD
E-152

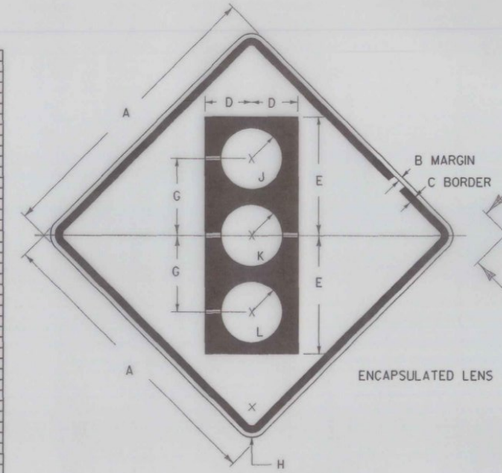


SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
BIKE	18	3/8	5/8	8 3/8	4 3/4	3/4	2 3/8	3 5/8	1 1/2
MIN.	24	3/8	5/8	11	6 3/8	1 3/16	3 1/8	4 3/4	1 1/2
STD.	30	1/2	3/4	14	8	1 1/2	4	6	1 7/8
EXPWY.	36	5/8	7/8	16 3/4	9 5/8	1 13/16	4 3/4	7 1/4	2 1/4
SPECIAL	48	3/4	1 1/4	22	12 3/4	2 3/8	6 1/4	9 1/2	3



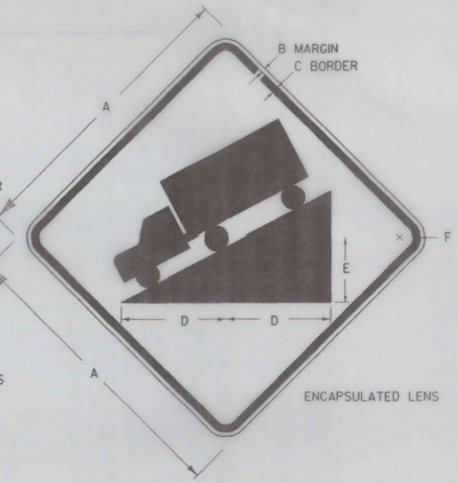
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN.	24	3/8	5/8	11	1 1/2
STD.	30	1/2	3/4	13 1/2	1 7/8
EXPWY.	36	5/8	7/8	16	2 1/4
SPECIAL	48	3/4	1 1/4	22	3



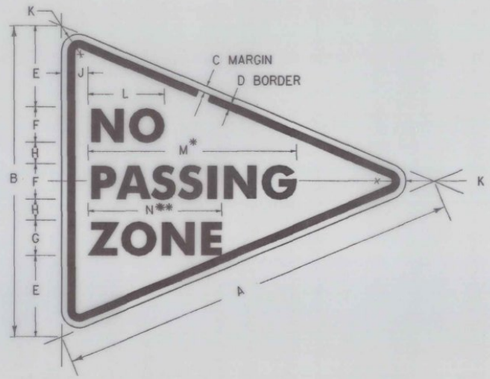


SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
BIKE	18	3/8	5/8	3	8	2 1/4	5	1 1/2
MIN.	30	1/2	3/4	5	13 3/4	3 3/4	8 3/4	1 7/8
STD. & MIN.	36	5/8	7/8	5 3/4	15 3/4	4 1/4	10	2 1/4
SPECIAL	48	3/4	1 1/4	7 1/2	20	5	12 1/2	3

ADDITIONAL COLORS : J - REFL. RED
K - REFL. YELLOW
L - REFL. GREEN
CIRCLE RADIUS = F

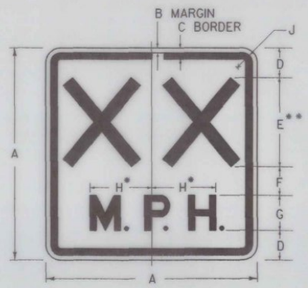


SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MIN.	24	3/8	5/8	8 3/4	6	1 1/2
STD.	30	1/2	3/4	11	7 1/2	1 7/8
EXPWY.	36	5/8	7/8	13 1/4	9	2 1/4
FWY.	48	3/4	1 1/4	17 1/2	12	3



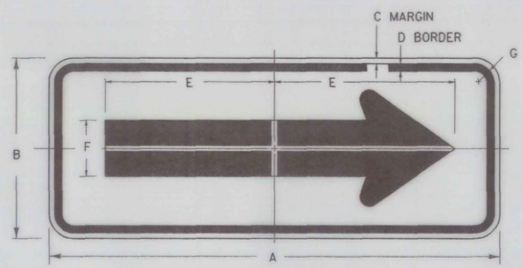
SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	40	30	1/2	3/4	7 1/4	4D	4C	1 3/4	2 1/2	1 7/8	6 1/2	22 9/16	11 1/16
STD.	48	36	5/8	7/8	8 1/2	5D	5C	2	3	2 1/4	8	26 13/16	12 3/4
SPECIAL	64	48	3/4	1 1/4	12	6D	6C	3	4	3	10 3/4	33 11/16	16 9/16

** FOR STD. SIZE REDUCE SPACING 35 %
* FOR STD. SIZE REDUCE SPACING 20 %

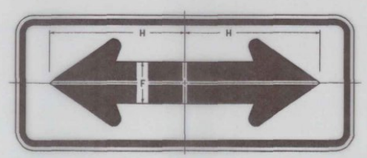


** OPTICALLY SPACE NUMERALS ABOUT VERT. CENTERLINE.
* INCREASE SPACING 100 %

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
STD.	18	3/8	5/8	2 1/2	8E	2	3E	5 5/16	1 1/2
SPECIAL	24	3/8	5/8	3 5/8	10E	2 3/4	4E	7 1/16	1 1/2



SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
BIKE	24	12	3/8	5/8	9 5/8	3 1/4	1 1/2	10 3/8
MIN.	36	18	3/8	5/8	14 5/8	5	1 1/2	15 5/8
STD.	48	24	1/2	3/4	19 1/2	6 1/2	1 7/8	20 1/2
SPECIAL	60	30	5/8	7/8	24 3/8	8	2 1/4	25 3/8



ENCAPSULATED LENS

COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	18" x 18"	24" x 12" 24" x 24" 30" x 30"	36" x 18" 40" x 30" 36" x 36"	48" x 24" 48" x 36" 48" x 48" 60" x 30" 64" x 48"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

THE TEXT, BORDER AND SYMBOLS SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. SEE STANDARD SHEET E-150 FOR ARROWHEAD DETAILS.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

REVISIONS AND CORRECTIONS

JAN. - 1991 - 4 X 2 ARROW ENCAPSULATED LENS
- 60 X 30 ADDED
OCT 21, 1992 - PENNANT SIZE ADDED

APPROVED — OCT. 30, 1987 DATE

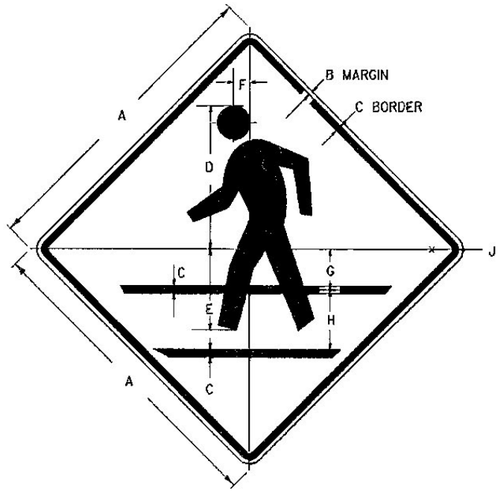
Gordon S. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

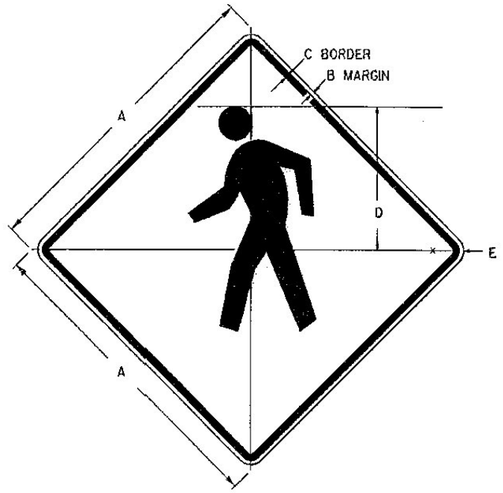
WARNING SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

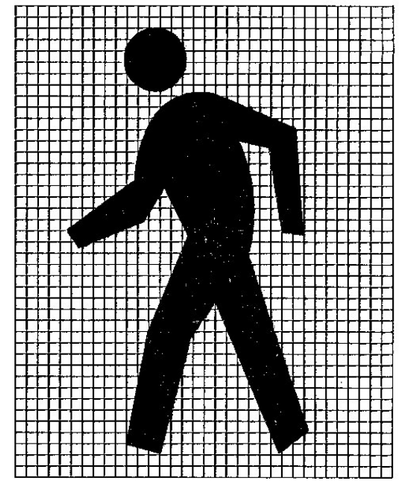
STANDARD E-150

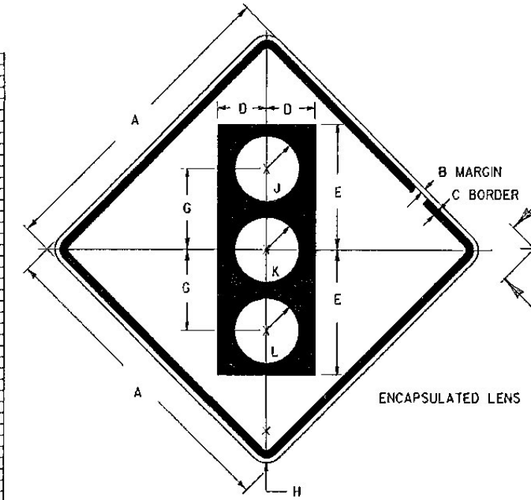


SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
BIKE	18	3/8	5/8	8 3/8	4 3/4	3/4	2 3/8	3 5/8	1 1/2
MIN.	24	3/8	5/8	11	6 3/8	1 3/16	3 1/8	4 3/4	1 1/2
STD.	30	1/2	3/4	14	8	1 1/2	4	6	1 7/8
EXPWY.	36	5/8	7/8	16 3/4	9 5/8	1 13/16	4 3/4	7 1/4	2 1/4
SPECIAL	48	3/4	1 1/4	22	12 3/4	2 3/8	6 1/4	9 1/2	3



SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN.	24	3/8	5/8	11	1 1/2
STD.	30	1/2	3/4	13 1/2	1 7/8
EXPWY.	36	5/8	7/8	16	2 1/4
SPECIAL	48	3/4	1 1/4	22	3

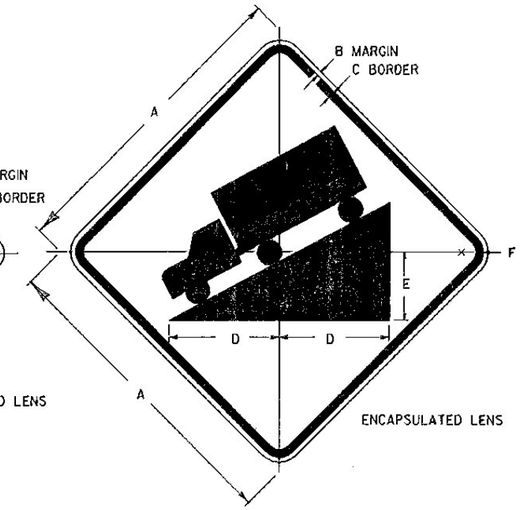




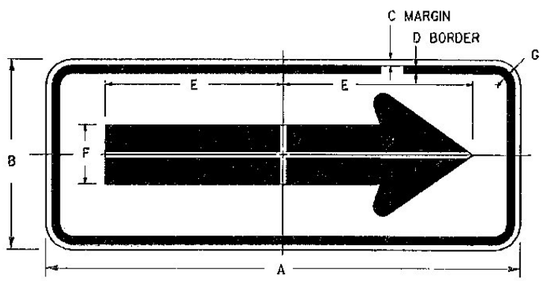
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
BIKE	18	3/8	5/8	3	8	2 1/4	5	1 1/2
MIN.	30	1/2	3/4	5	13 3/4	3 3/4	8 3/4	1 7/8
STD. & MIN.	36	5/8	7/8	5 3/4	15 3/4	4 1/4	10	2 1/4
SPECIAL	48	3/4	1 1/4	7 1/2	20	5	12 1/2	3

ADDITIONAL COLORS : J - REFL. RED
K - REFL. YELLOW
L - REFL. GREEN

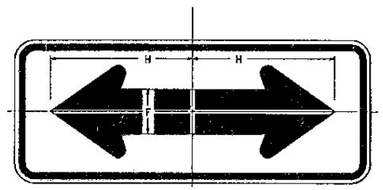
CIRCLE RADIUS = F

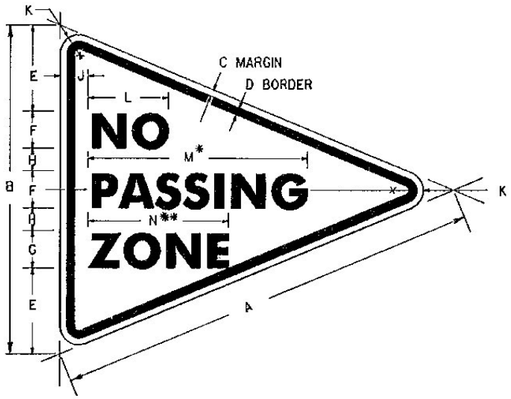


SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MIN.	24	3/8	5/8	8 3/4	6	1 1/2
STD.	30	1/2	3/4	11	7 1/2	1 7/8
EXPWY.	36	5/8	7/8	13 1/4	9	2 1/4
FWY.	48	3/4	1 1/4	17 1/2	12	3



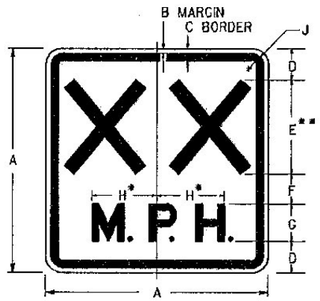
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
BIKE	24	12	3/8	5/8	9 5/8	3 1/4	1 1/2	10 5/8
MIN.	36	18	3/8	5/8	14 5/8	5	1 1/2	15 5/8
STD.	48	24	1/2	3/4	19 1/2	6 1/2	1 7/8	20 1/2





SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	40	30	1/2	3/4	7 1/4	40	4C	1 3/4	2 1/2	1 7/8	6 1/2	22 9/16	11 1/16
STD.	48	36	5/8	7/8	8 1/2	5D	5C	2	3	2 1/4	8	26 13/16	12 3/4
SPECIAL	64	48	3/4	1 1/4	12	6D	6C	3	4	3	10 3/4	33 11/16	16 9/16

**FOR STD. SIZE REDUCE SPACING 35 %
*FOR STD. SIZE REDUCE SPACING 20 %



** OPTICALLY SPACE NUMERALS ABOUT VERT. CENTERLINE.
* INCREASE SPACING 100 %

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
STD.	18	3/8	5/8	2 1/2	8E	2	3E	5 5/16	1 1/2
SPECIAL	24	3/8	5/8	3 5/8	10E	2 3/4	4E	7 1/16	1 1/2

COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	18" x 18"	24" x 12" 24" x 24" 30" x 30"	36" x 18" 36" x 36"	48" x 24" 48" x 48"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

THE TEXT, BORDER AND SYMBOLS SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. SEE STANDARD SHEET E-150 FOR ARROWHEAD DETAILS.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

REVISIONS AND CORRECTIONS

APPROVED

OCT. 30, 1987
DATE

David N. Kelley
CHIEF ENGINEER

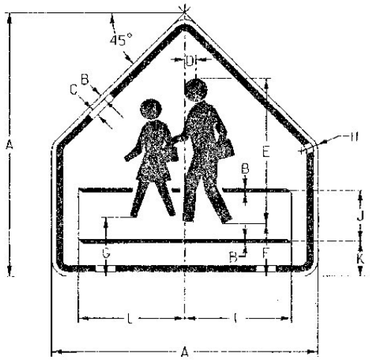
Arthur Jones
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

WARNING SIGN DETAILS

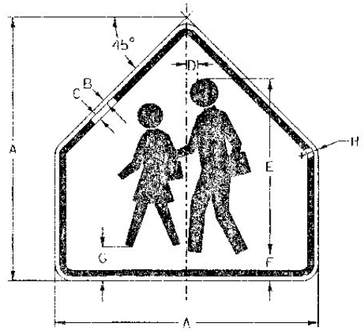
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-15



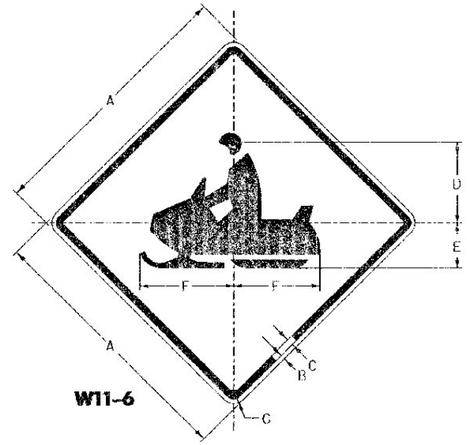
S2-1

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN./STD.	30	1/2	3/4	1 1/4	16 1/2	6	6 1/2	1 7/8	5 3/4	4	12
EXPWY.	36	5/8	7/8	1 1/2	19 3/4	7 1/4	7 13/16	2 1/4	6 7/8	4 3/4	14 3/8
SPECIAL	48	3/4	1 1/4	2	26 1/2	9 1/2	10 3/8	3	9 1/4	6 1/2	18 1/4



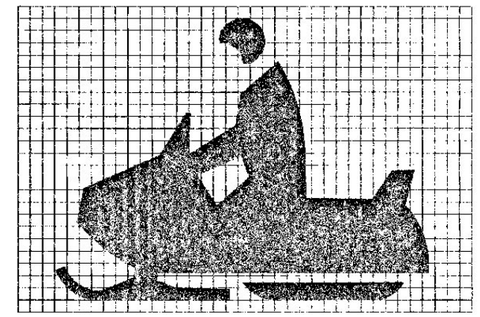
S1-1

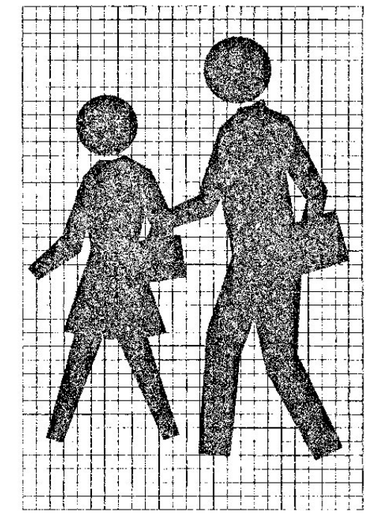
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MIN./STD.	30	1/2	3/4	2	20	3	3 3/4	1 7/8
EXPWY.	36	5/8	7/8	2 1/2	24	3 1/2	4 1/2	2 1/4
SPECIAL	48	3/4	1 1/4	3 1/4	32	5	6	3

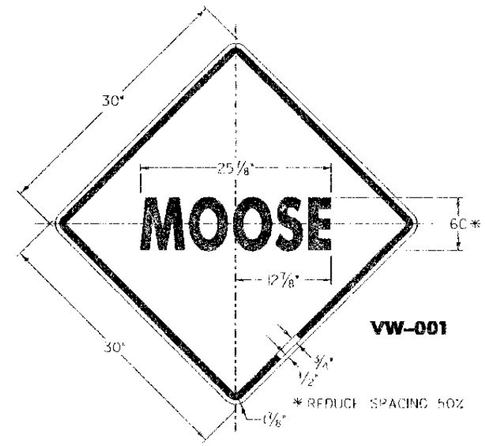


W11-6

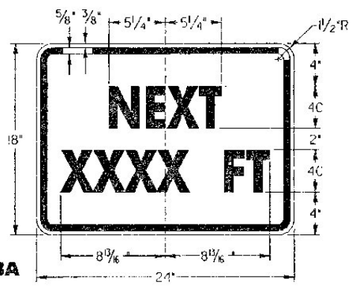
SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	F	G
MIN.	24	3/8	5/8	9 9/16	4 7/16	10 3/16	1 1/2
STD.	30	1/2	3/4	11 7/16	5 5/16	12 11/16	1 7/8
SPECIAL	36	5/8	7/8	14 1/8	6 3/4	15 1/4	2 1/4



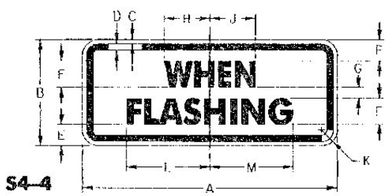




VW-001

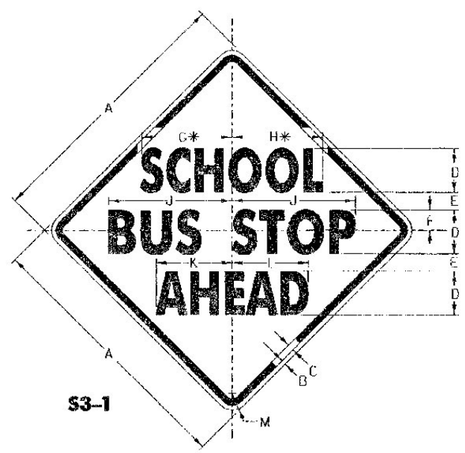


W7-3A



S4-4

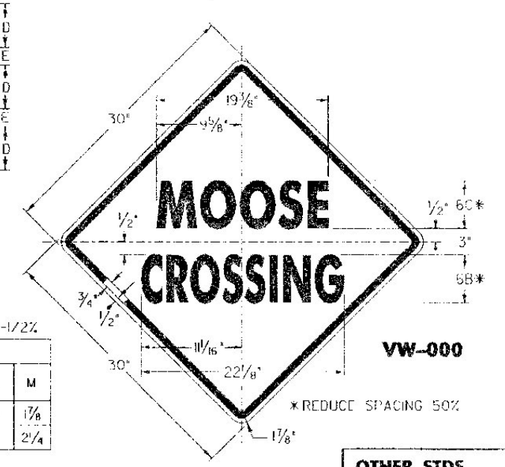
SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MIN./STD.	24	10	3/8	5/8	2	2 1/2D	1	4 3/8	4 1/4	1 1/2	7 5/8	8 1/16
EXPWY.	36	15	5/8	7/8	2 3/4	4D	1 1/2	6 15/16	6 13/16	2 1/4	12 1/16	12 15/16
SPECIAL	48	20	3/4	1 1/4	4	5D	2	8 3/4	8 1/2	3	15 1/4	16 1/8



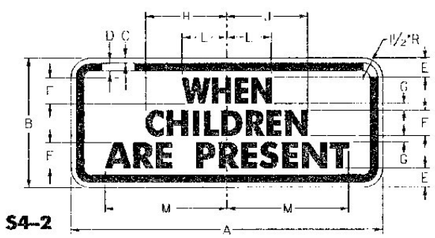
S3-1

*REDUCE SPACING 13-1/2%

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MIN./STD.	30	1/2	3/4	5C	2	2 1/2	10	10 1/2	14	8 1/4	9	1 7/8
SPECIAL	36	5/8	7/8	6C	3	3	11 3/4	12 3/4	17	10	11	2 1/4

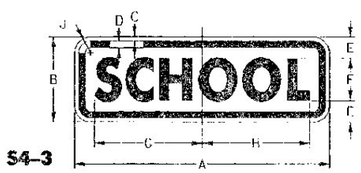


VW-000



S4-2

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MIN./STD.	24	10	3/8	5/8	1 1/2	2D	1/2	3 1/2	3 5/16	1 1/2	6 1/4	9 9/16
EXPWY.	36	15	5/8	7/8	2 1/4	3D	3/4	5 5/16	5 1/8	2 1/4	9 3/8	14
SPECIAL	48	20	3/4	1 1/4	3	4D	1	7	6 5/8	3	12 1/2	18 5/8



S4-3

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN./STD.	24	8	3/8	5/8	2	4D	10	10 1/4	1 1/2
EXPWY.	36	12	5/8	7/8	3	6D	15	15 3/8	2 1/4
SPECIAL	48	16	3/4	1 1/4	4	8D	20	20 1/2	3

COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	24" X 8" 24" X 10" 24" X 18" 24" X 24" 30" X 30"	36" X 12" 36" X 15" 36" X 36"	48" X 16" 48" X 20"
FLAT SHEET ALUMINUM	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	16 GAGE	14 GAGE	12GAGE

THE TEXT, BORDER AND SYMBOL SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

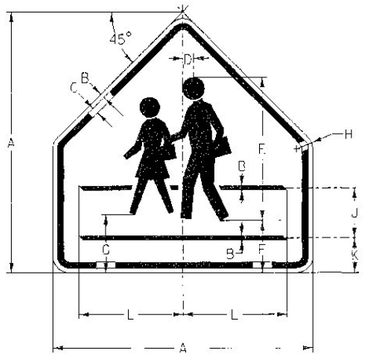
WARNING SIGN DETAILS

/traf/std/stdel53.dgn ; stdel53.i

VERMONT AGENCY OF TRANSPORTATION

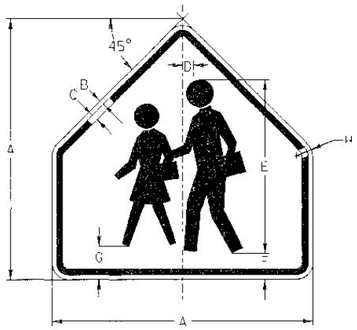
STANDARD

E-153



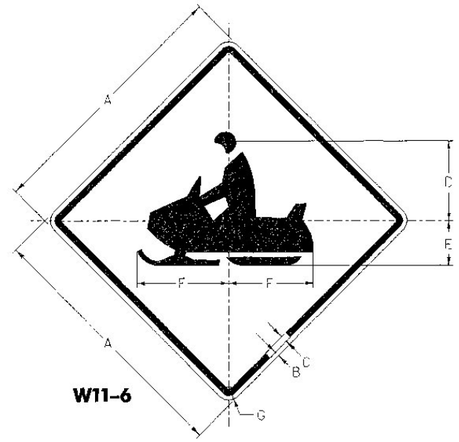
S2-1

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MN./STD.	30	1/2	3/4	1 1/4	16 1/2	6	6 1/2	1 7/8	5 3/4	4	12
EXPWY.	36	5/8	7/8	1 1/2	19 3/4	7 1/4	7 3/16	2 1/4	6 7/8	4 3/4	4 3/8
SPECIAL	48	3/4	1 1/4	2	26 1/2	9 1/2	10 3/8	3	8 1/4	6 1/2	6 1/4



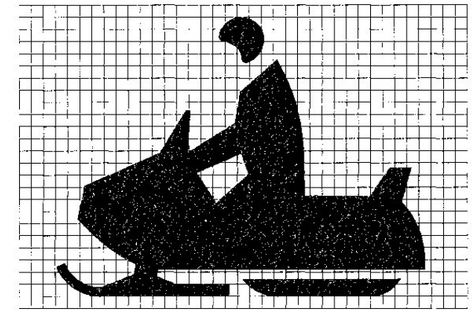
S1-1

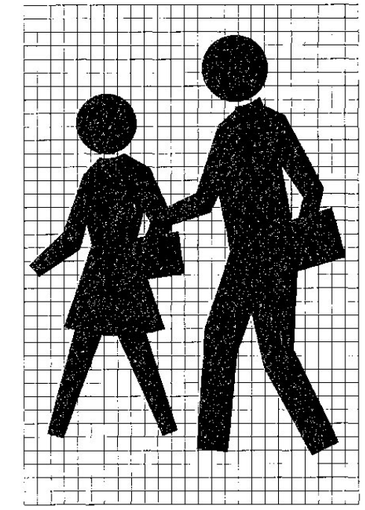
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MN./STD.	30	1/2	3/4	2	20	3	3 3/4	1 1/8
EXPWY.	36	5/8	7/8	2 1/2	24	3 1/2	4 1/2	2 1/4
SPECIAL	48	3/4	1 1/4	3 1/4	32	5	6	3

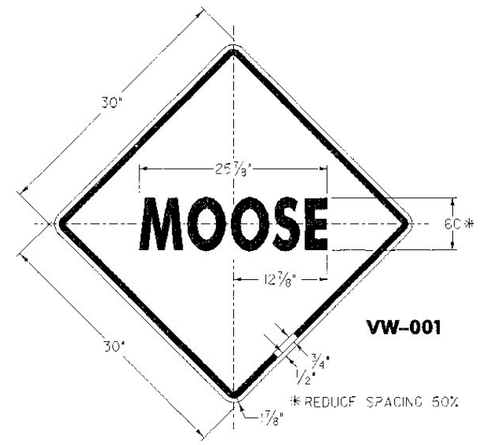


W11-6

SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	F	G
MN.	24	3/8	5/8	9 7/16	4 7/16	0 3/16	1 1/2
STD.	30	1/2	3/4	1 7/16	5 3/16	12 7/16	1 7/8
SPECIAL	36	5/8	7/8	14 1/8	6 3/4	15 1/4	2 1/4

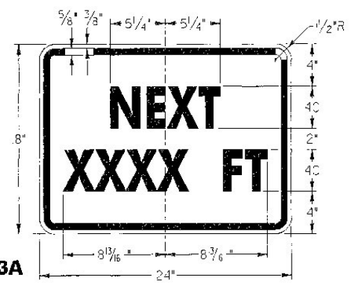




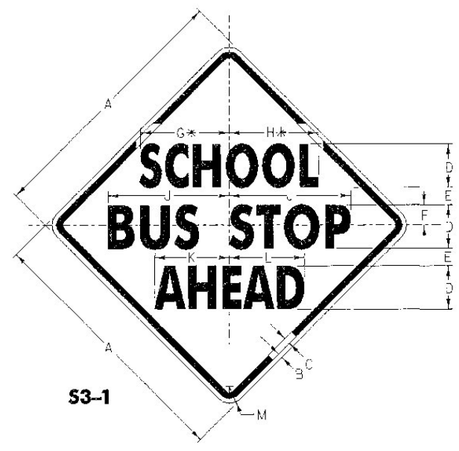


VW-001

*REDUCE SPACING 50%



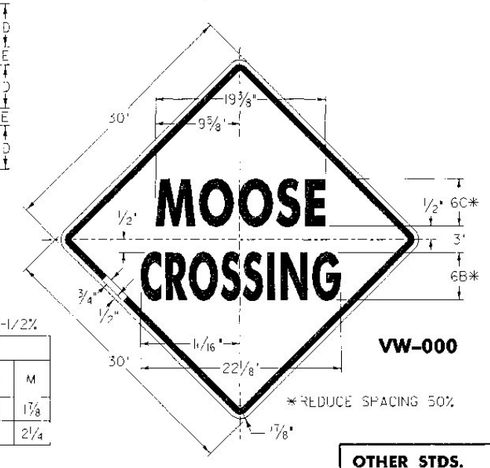
W7-3A



S3-1

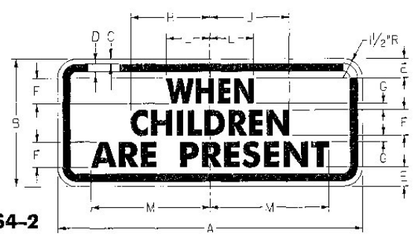
*REDUCE SPACING 13-1/2%

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MN./STD.	30	1/2	3/4	5C	2	2 1/2	10	10 1/2	4	8 1/4	9	1 7/8
SPECIAL	36	5/8	7/8	6C	3	3	1 3/4	12 3/4	17	10	1	2 1/4

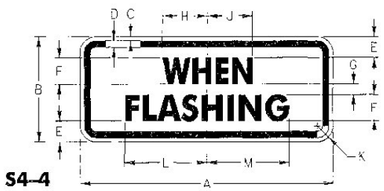


VW-000

*REDUCE SPACING 50%

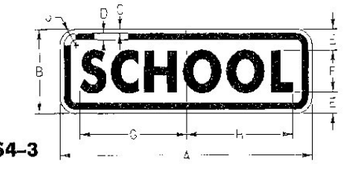


S4-2



S4-4

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MN./STD.	24	10	3/8	5/8	2	2 1/2D	1	4 3/8	4 1/4	1/2	7 5/8	8 1/6
EXPWY.	36	15	5/8	7/8	2 3/4	4D	1 1/2	6 3/16	6 11/16	2 1/4	12 3/16	12 5/16
SPECIAL	48	20	3/4	1 1/4	4	5D	2	8 3/4	8 1/2	3	15 1/4	16 1/8



S4-3

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MN./STD.	24	8	3/8	5/8	2	4D	10	10 1/4	1 1/2
EXPWY.	36	12	5/8	7/8	3	6D	15	15 3/8	2 1/4
SPECIAL	48	16	3/4	1 1/4	4	8D	20	20 1/2	3

COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	24" X 8" 24" X 10" 24" X 18" 24" X 24" 30" X 30"	36" X 12" 36" X 15" 36" X 36"	48" X 16" 48" X 20"
FLAT SHEET ALUMINUM	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	16 GAGE	14 GAGE	12GAGE

THE TEXT, BORDER AND SYMBOL SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. INCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacCutler
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

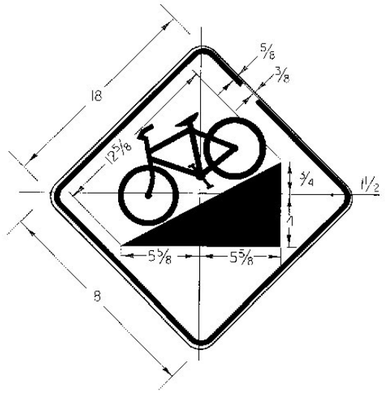
WARNING SIGN DETAILS

/traf/stc/stde153.dgn : stde153.1

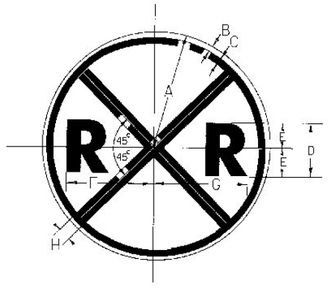
VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-153

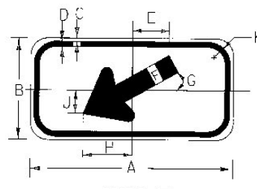


W7-5



W10-1

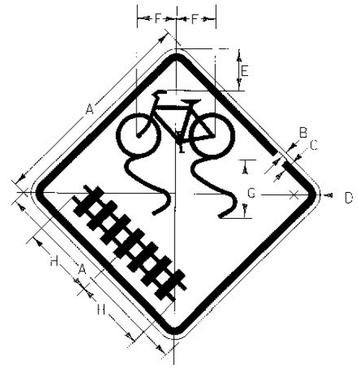
SIGN	DIMENSIONS							
	A	B	C	D	E	F	G	H
PATH	9	3/8	5/8	4E	2	7 1/5	7 2/5	2
MIN.	12	3/8	5/8	5E	2 1/2	9 3/5	5 3/5	2 1/2



W16-7

FOR USE WITH W11-1

SIGN	DIMENSIONS									
	A	B	C	D	E	F	G	H	J	K
MIN. OR STD.	24	12	3/8	5/8	4 1/4	3	30°	5 3/4	3 2/5	2
EXPWY. OR SPECIA	30	18	1/2	3/4	6 2/5	4 1/2	30°	8 3/5	4 4/5	2



VW-376

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
PATH	18	3/8	5/8	1 1/2	3 1/2	3 3/8	5	6
STD.	30	1/2	3/4	1 7/8	5 13/16	5 1/2	8 1/4	10

VW-562

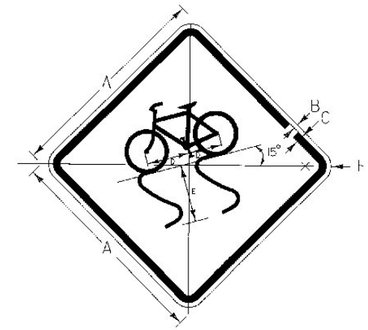
FOR USE WITH W8-10

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
PATH	12	9	5/8	3/8	2	2C	1	3 1/2	1 1/2
STD.	24	18	3/8	5/8	4	4C	2	6 7/8	1 1/2

VP-396

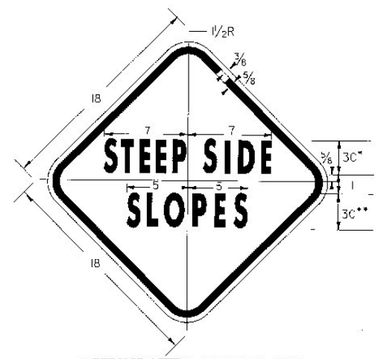
FOR USE WITH W8-10

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
PATH	12	9	3/4	3/8	1 1/2	2 1/2B	1	4 3/4	5	1 1/2
STD.	24	18	3/8	5/8	3	5B	2	9 7/8	10 1/2	1 1/2



W8-10

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
PATH	18	3/8	5/8	3 5/8	5 3/4	1 1/2
STD.	30	1/2	3/4	6	9 5/8	7/8



* REDUCE LETTER SPACING 60%
** REDUCE LETTER SPACING 75%

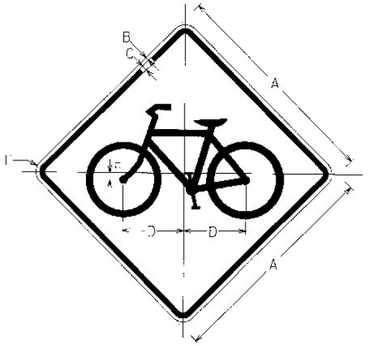
VW-560

* REDUCE LETTER SPACING 25%

W8-10A

FOR USE WITH W8-10

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
PATH	12	9	5/8	3/8	2	2C	1 1/2	1 1/2C	5	5 1/4	4 3/8	1 1/4	1 1/2
STD.	24	18	3/8	5/8	4	4C	3	3C	10	10 3/4	9	8 5/8	1 1/2



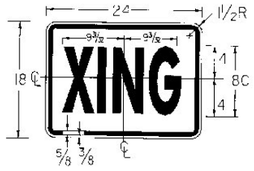
W11-1

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
PATH	18	3/8	5/8	5	5/8	1 1/2
MIN.	24	5/8	5/8	6 11/16	11/16	1 1/2
STD.	30	1 1/2	3/4	8 1/2	.	1 7/8
EXPWY.	36	5/8	7/8	10	1 3/16	2 1/4
SPECIAL	48	3/4	1/4	13 3/8	1 5/8	3

W16-1

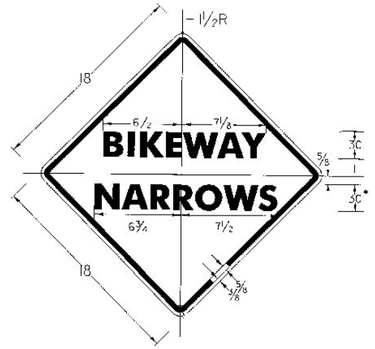
FOR USE WITH W11-1

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN.	18	24	3/8	5/8	3 1/2	4C	2 1/2	6 7/8	3 3/8	5 1/2	1 1/2
STD.	24	30	3/8	5/8	4 1/4	5C	3 1/4	8 5/8	4 7/8	6 7/8	1 1/2



VW-265

FOR USE WITH W11-1



* REDUCE LETTER SPACING 50%

W5-4A

GENERAL

SEE STANDARD E-144 FOR ARROW HEAD DETAILS. SEE FHWA STANDARD HIGHWAY SIGN HOOK FOR BIKE, RR TRACK AND SLIPPERY WHEN WET DETAILS.
SUPPLEMENTAL PLAQUES SHALL BE USED ONLY IN COMBINATION WITH WARNING SIGNS. THEY SHALL NOT BE MOUNTED ALONE OR DISPLAYED ALONE. IF USED A SUPPLEMENTAL PLAQUE SHALL BE INSTALLED ON THE SAME POST(S) AS THE WARNING SIGN.

COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND, UNLESS OTHERWISE NOTED. A FLUORESCENT YELLOW-GREEN BACKGROUND COLOR WITH A BLACK LEGEND AND BORDER MAY BE USED FOR BICYCLE CROSSING WARNING SIGN (W11-1) AND SUPPLEMENTAL PLAQUES WHERE INADEQUATE STOPPING SIGHT DISTANCE IS AVAILABLE. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY AASHTO AND APPROVED BY THE FHWA.

MATERIALS

THE SIGN BASE MATERIALS USED FOR WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING MINIMUM THICKNESSES NOTED:

	12" X 9"	24" X 12" / 24" X 18" / 24" X 24" / 24" X 30"	30" X 30"	36" X 36"	48" X 48"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"	
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"	5/8"	

THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ASTM TYPE III REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND. FLOURESCENT YELLOW-GREEN BACKGROUND SHALL BE ASTM TYPE VIII SHEETING. THE TEXT AND BORDER MAY BE LETTERING FILM OR SILK SCREENED.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS AND TEXT DIMENSIONS SHALL CONFORM TO THE LATEST VERSION OF FHWA'S 'STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'. DETAILS SHALL CONFORM WITH THOSE DESCRIBED IN THE PUBLICATION 'STANDARD HIGHWAY SIGNS' AS SPECIFIED IN THE MUTCD.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR 'TRAFFIC SIGNS' AS DESCRIBED IN THE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

ALL DIMENSIONS ARE IN INCHES EXCEPT WHERE NOTED

OTHER STDS. REQUIRED: E-144, E-131B

REVISIONS AND CORRECTIONS
DEC. 30, 2002 - DATE OF ORIGINAL ISSUE
May 30, 2003 - Superceded

APPROVED

DIRECTOR OF PROJECT DEVELOPMENT

TRAFFIC OPERATIONS ENGINEER

FEDERAL HIGHWAY ADMINISTRATION

WARNING SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

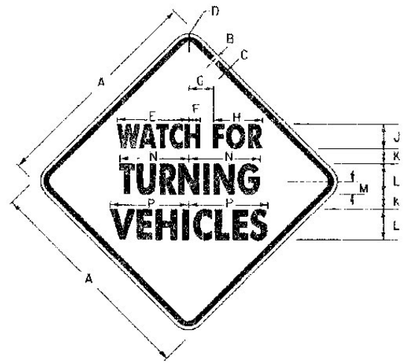
STANDARD
E-153B

W5-1

LETTER SPACING REDUCED 25%

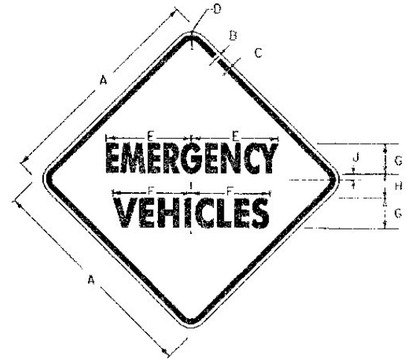
SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	F	F	G	H	J	K	L
MIN	30	1/2	3/4	5D	3	1 3/4	7 7/8	8 5/8	14 3/4	15 1/8	1 7/8
STD	36	5/8	7/8	6D	3 1/2	2	9 1/2	10 5/16	17 5/8	18 1/4	2 1/4
SPECIAL	48	3/4	1 1/4	8D	4	3	12 11/16	13 3/4	23 1/2	23 3/8	3

VW-205



SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN	30	1/2	3/4	1 7/8	9 5/8	1 1/2	3 3/8	6 3/8	4B	2	5B	2	9 1/4	10 1/4
STD	36	5/8	7/8	2 1/4	11 3/4	1 7/8	4	8	4C	2 1/2	5C	2	11 1/2	12 7/8
SPECIAL	48	3/4	1 1/4	3	14 3/4	2 3/8	5 3/8	10	5C	3 3/8	8B	2 5/8	14 11/16	16 3/16

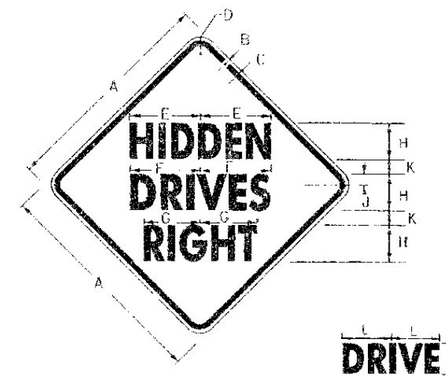
VW-544



SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN	30	1/2	3/4	1 7/8	12 3/4	9 1/16	4C*	3 5/8	7/8
STD	36	5/8	7/8	2 1/4	14 5/16	11 5/16	5C*	4	1
SPECIAL	48	3/4	1 1/4	3	19 1/8	15 7/16	6C	5 3/8	1 3/8

* LETTER SPACING REDUCED 50%

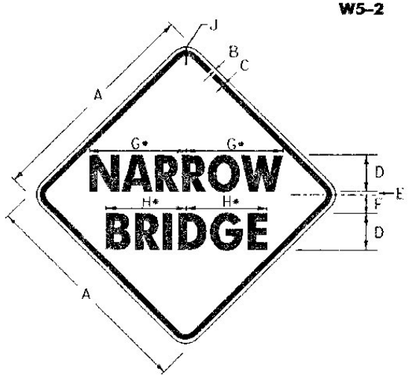
VW-054



VW-133

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MIN	24	3/8	5/8	1 1/2	7 11/16	7 5/8	6 3/16	4C	1 3/16	2	6 3/16	4 7/8
STD	30	1/2	3/4	1 7/8	9 3/16	9 1/2	7 11/16	5C	1 1/2	2	7 3/4	6 1/8
EXPWY.	36	5/8	7/8	2 1/4	11 7/16	11 7/16	9 3/16	6C	1 11/16	2 3/8	9 3/16	7 3/8
SPECIAL	48	3/4	1 1/4	3	15 5/8	15 1/4	12 5/16	8C	2 3/8	3 3/16	12 3/8	9 11/16

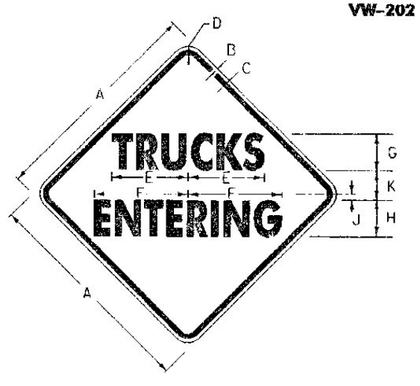
W5-2



REDUCE LETTER SPACING BY 20%

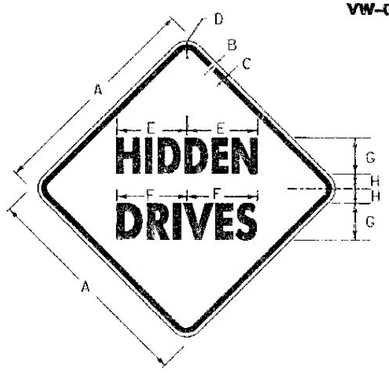
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN	24	3/8	5/8	4D	1/4	2	10 7/16	8 3/4	1 1/2
STD	30	1/2	3/4	5D	1/2	2 1/2	13 11/16	10 7/8	1 7/8
SPECIAL	36	5/8	7/8	6D	3/4	3	15 11/16	13 11/16	2 1/4

VW-202



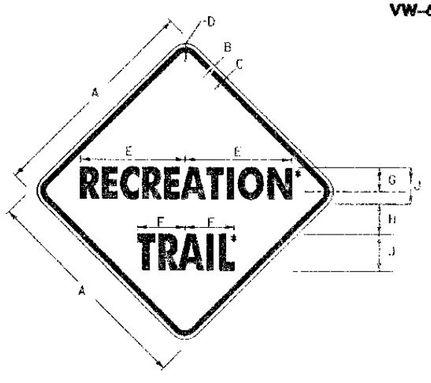
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN	30	1/2	3/4	1 7/8	14 7/16	6 11/16	5C	5C	3/4	4
STD	36	5/8	7/8	2 1/4	17 3/8	8	6C	6C	7/8	4 3/16
SPECIAL	48	3/4	1 1/4	3	23 1/8	10 11/16	8B	8C	1 3/16	6 3/8

VW-060



SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MIN	24	3/8	5/8	1 1/2	7 11/16	7 5/8	4C	2
STD	30	1/2	3/4	1 7/8	9 3/16	9 1/2	5C	2
EXPWY.	36	5/8	7/8	2 1/4	11 1/2	11 7/16	6C	2 3/8
SPECIAL	48	3/4	1 1/4	3	15 3/8	15 1/4	8C	3 3/16

VW-622



REDUCE LETTER SPACING BY 50%

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN	24	3/8	5/8	1 1/2	11 3/16	5 5/16	2 11/16	3 3/16	4C
STD	30	1/2	3/4	1 7/8	14 7/16	6 11/16	3 5/16	4 3/16	5C
SPECIAL	36	5/8	7/8	2 1/4	17 3/8	8	4	5	6C

COLORS

ALL OF THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND, EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION AND THE FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED:

	24" x 24" 30" x 30"	36" x 36"	48" x 48"
FLAT SHEET ALUMINUM	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	5/8"	3/4"
GALVANIZED FLAT SHEET STEEL	16 GAGE	14 GAGE	12 GAGE

THE TEXT, BORDER AND SYMBOLS SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS AND TEXT SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

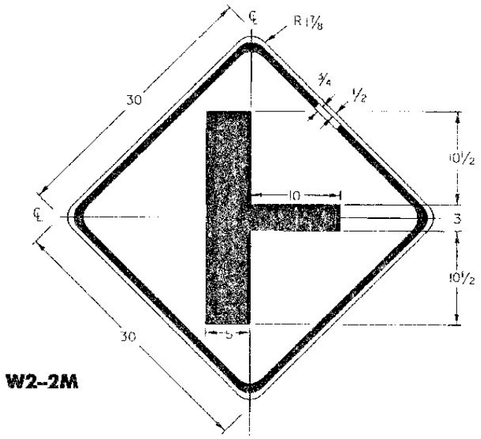
WARNING SIGN DETAILS

/traf/std/stdel54.dgn : stdel54.i

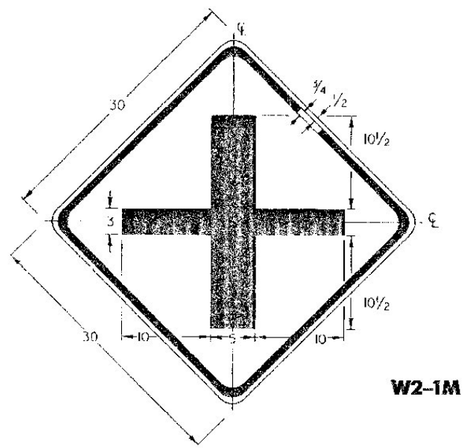
VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-154

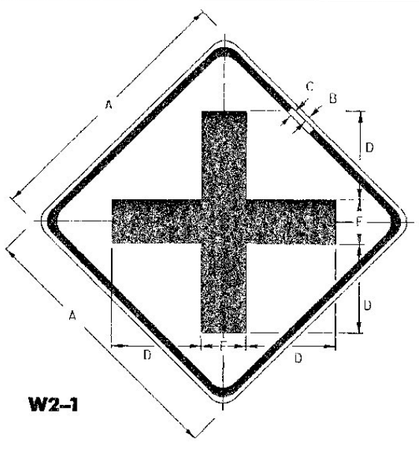


W2-2M



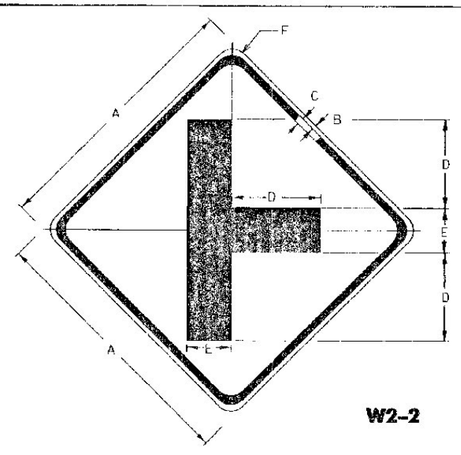
W2-1M

STATE ROUTE /TOWN HIGHWAY INTERSECTION SIGNS (TYP.)



W2-1

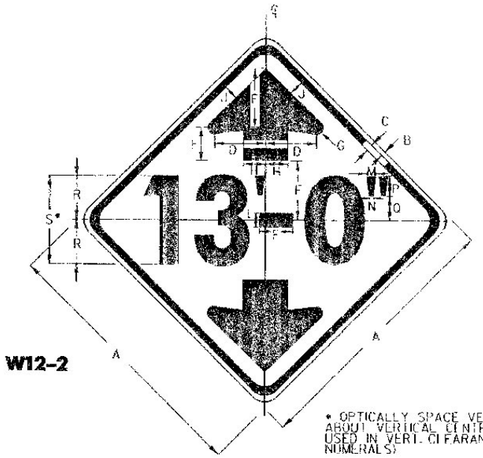
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
BIKE	18	3/8	5/8	6	3	1 1/2
MIN.	24	3/8	5/8	8	4	1 1/2
STD.	30	1/2	3/4	10	5	1 7/8
EXPWY.	36	5/8	7/8	12	6	2 1/4
SPECIAL	48	3/4	1 1/4	16	8	3



W2-2

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
BIKE	18	3/8	5/8	6	3	1 1/2
MIN.	24	3/8	5/8	8	4	1 1/2
STD.	30	1/2	3/4	10	5	1 7/8
EXPWY.	36	5/8	7/8	12	6	2 1/4
SPECIAL	48	3/4	1 1/4	16	8	3

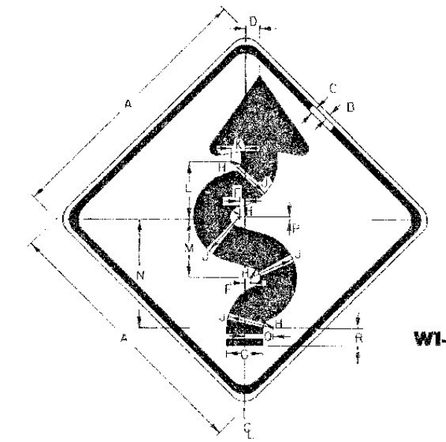
STATE ROUTE /STATE ROUTE INTERSECTION SIGNS (TYP.)



W12-2

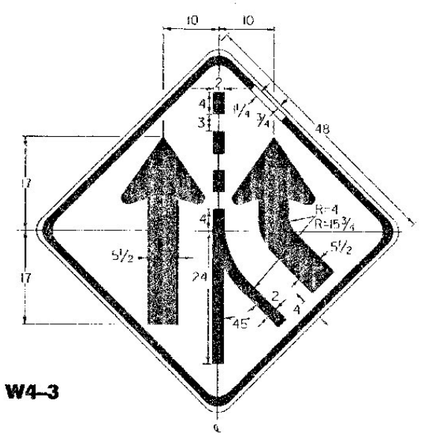
* OPTICALLY SPACE VERTICAL CLEARANCE ABOUT VERTICAL CENTERLINE (WHERE 10" IS USED IN VERT. CLEARANCE, USE SERIES C NUMERALS)

SIGN	DIMENSIONS (INCHES)																
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
MIN.	30	1/2	3/4	5 3/4	6 7/8	3 3/4	3/4	2 1/2	1 11/16	1 7/8	1 9/16	1	7/16	2 1/4	3 5/16	5	10D
STD. & EXPWY.	36	5/8	7/8	6 7/8	8	4 1/2	1	3	2	2 1/4	1 1/8	1 1/4	1/2	2 3/4	4	6	12D
EWY.	48	3/4	1 1/4	9 3/16	10 7/8	5 7/8	1 5/16	4	2 5/8	3	2 7/16	1 5/8	5/8	3 5/8	5 1/2	8	16D

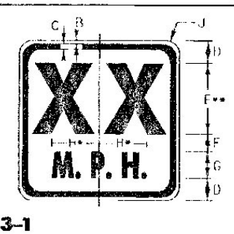


W1-5

SIGN	DIMENSIONS (INCHES)																
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
BIKE	18	3/8	7/8	1	9 5/16	7/8	2 1/2	5/8	3	1	4	4	8 5/8	1/4	2	1 1/4	1 1/2
MIN.	24	3/8	5/8	1 1/4	12 3/4	1/2	3 1/4	7/8	4 1/8	1 1/4	5 5/16	5 1/4	11 3/8	1/4	2 1/2	1 17/32	1 1/2
STD.	30	1/2	3/4	1 9/16	15 15/16	5/8	4 1/16	1 1/32	5 5/32	1 5/16	6 9/64	6 3/16	14 1/32	3/16	3 1/8	2	1 7/8
EXPWY.	36	5/8	7/8	1 7/8	19 1/8	3/4	4 7/8	1 5/16	6 3/16	1 7/8	7 7/8	7 7/16	17 1/16	3/8	3 3/4	2 11/32	2 1/4
SPECIAL	48	3/4	1 1/4	2 1/2	25 1/2	1	6 1/2	1 3/4	8 1/4	2 1/2	10 3/8	10 1/2	22 3/4	1/2	5	3 3/16	3



W4-3



W13-1

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
STD.	18	5/8	5/8	2 1/2	8E	2	3E	5 5/16	1 1/2
SPECIAL	24	3/8	5/8	3 5/16	10E	2 1/4	4E	7/16	1 1/2

* INCREASE SPACING 100%
** OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE

COLORS:
ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION AND THE FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:
THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF MINIMUM THICKNESS NOTED.

	FLAT SHEET ALUMINUM	HIGH DENSITY OVERLAID PLYWOOD	GALVANIZED FLAT SHEET STEEL
18" X 18"	0.060"	1/2"	18 GAGE
24" X 24", 30" X 30"	0.080"	1/2"	16 GAGE
36" X 36"	0.109"	5/8"	14 GAGE
48" X 48"	0.125"	5/8"	12 GAGE

THE TEXT, BORDER AND SYMBOLS SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

TEXT:
LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. SEE STANDARD SHEET E-150 FOR ARROWHEAD DETAILS.

SPECIFICATIONS:
WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

OTHER STDS. REQUIRED: E-150

REVISIONS AND CORRECTIONS
AUG. 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

WARNING SIGN DETAILS

/traf/std/stdel55.dgn : stdel55.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-155

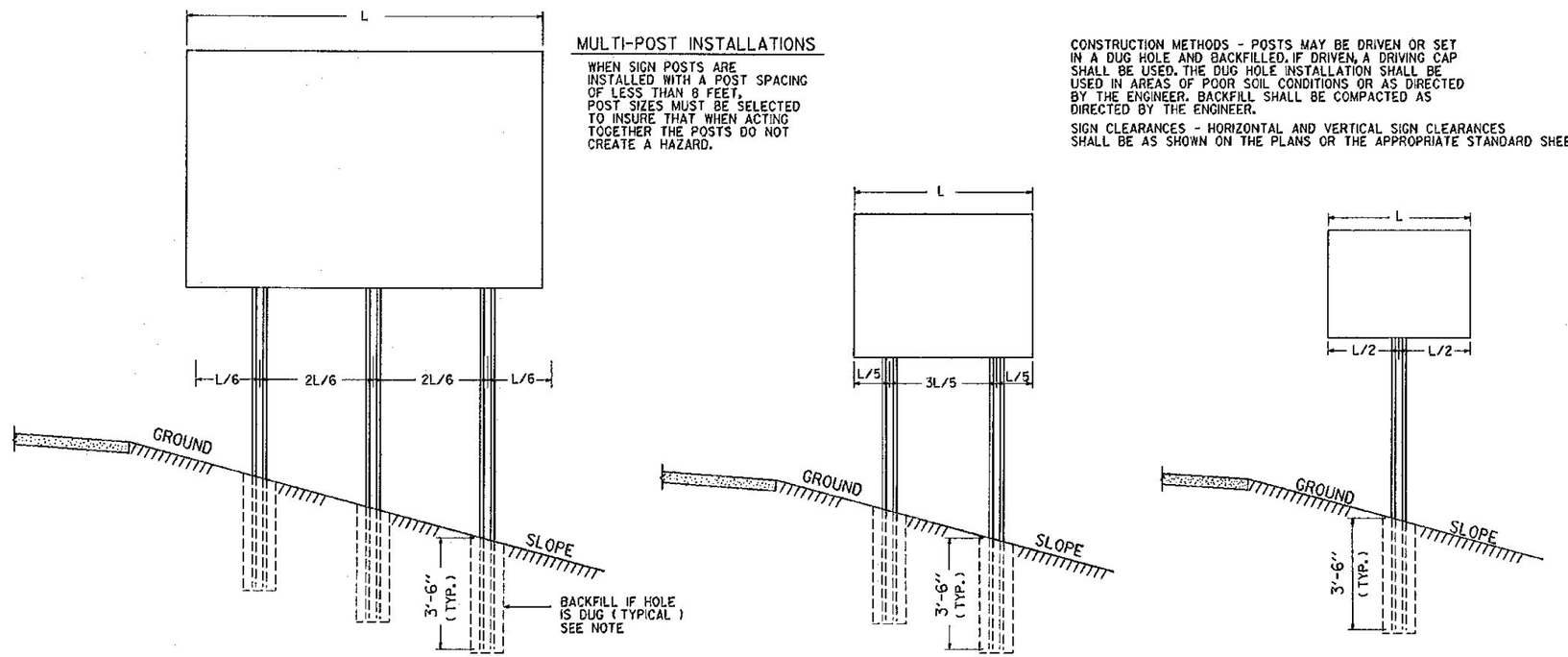
GENERAL NOTES

CONSTRUCTION METHODS - POSTS MAY BE DRIVEN OR SET IN A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLATION SHALL BE USED IN AREAS OF POOR SOIL CONDITIONS OR AS DIRECTED BY THE ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE ENGINEER.

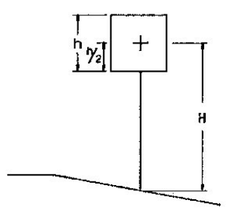
SIGN CLEARANCES - HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE AS SHOWN ON THE PLANS OR THE APPROPRIATE STANDARD SHEET.

MULTI-POST INSTALLATIONS

WHEN SIGN POSTS ARE INSTALLED WITH A POST SPACING OF LESS THAN 8 FEET, POST SIZES MUST BE SELECTED TO INSURE THAT WHEN ACTING TOGETHER THE POSTS DO NOT CREATE A HAZARD.



POST SPACING DETAILS

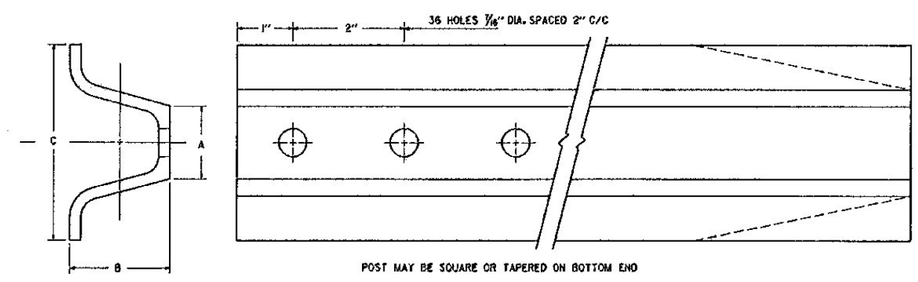


SINGULAR 2 LB AND 2.5 LB PER FOOT POSTS SHALL ONLY BE USED IN URBAN AREAS.

POST SELECTION CHART		
SIGN AREA (FT ^{2}) × H (FT) ≤ SV (SELECTION VALUE)		
POST SIZE	Sv	DESIGN CRITERIA
2 LB/FT. (ONE POST INSTALLATION)	32	WIND SPEED = 60 MPH (10-YEAR MEAN RECURRENCE INTERVAL) WIND PRESSURE = 12 PSF STEEL MIN YIELD Fy = 50,000 PSI ALLOWABLE STRESS = (1.4) 0.55 Fy
2 LB/FT. (TWO POST INSTALLATION)	62	
2.5 LB/FT.	77	
3 LB/FT.	107	

POST SIZE POUNDS PER LINEAR FOOT	DIMENSIONS			PLASTIC SECTION MODULUS, Z
	A	B	C	
2	1 9/32"	1 31/64"	3 1/16"	0.26 IN.^{3}
2 1/2	1 9/32"	1 35/64"	3 1/16"	0.40 IN.^{3}
3	1 5/16"	1 7/8"	3 1/2"	0.53 IN.^{3}

SIMILAR DIMENSIONS ARE ACCEPTABLE, HOWEVER PLASTIC SECTION MODULUS VALUES SHALL NOT BE EXCEEDED.



POST MAY BE SQUARE OR TAPERED ON BOTTOM END

REVISIONS AND CORRECTIONS

MARCH 1, 1988 - FHWA REVIEW COMMENTS

APPROVED

SEPT. 10, 1987
DATE

David S. Kelley
CHIEF ENGINEER

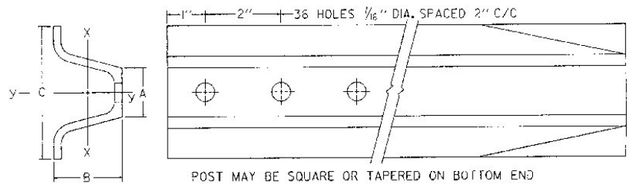
Arthur Gore
DIRECTOR OF PLANNING AND PRECONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

FLANGED CHANNEL STEEL SIGN POST

VERMONT AGENCY OF TRANSPORTATION

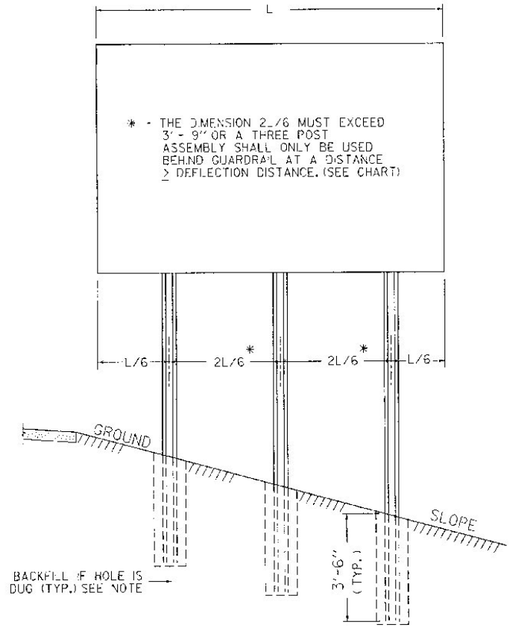
STANDARD E-160



POST MAY BE SQUARE OR TAPERED ON BOTTOM END

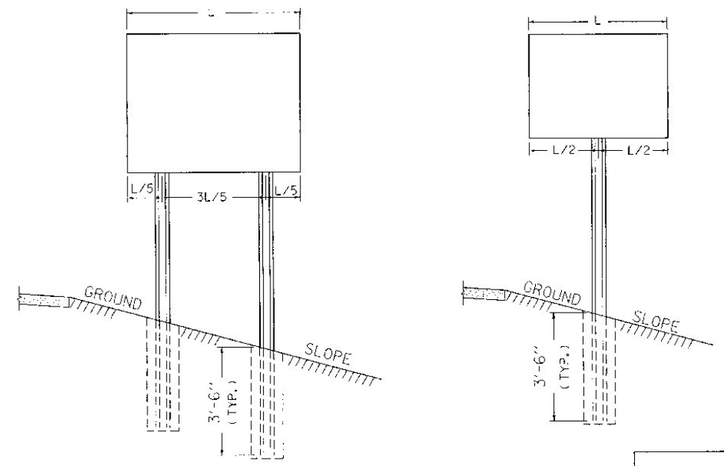
POST SIZE (LB/FT.)	DIMENSIONS			SECTION MODULUS, X-X
	A	B	C	
2	1 9/32"	1 3/64"	3 1/16"	0.225 $IN.^3$
3	1 5/16"	1 7/8"	3 1/2"	0.403 $IN.^3$

SIMILAR DIMENSIONS ARE ACCEPTABLE, HOWEVER SECTION MODULUS VALUES SHALL NOT BE EXCEEDED.



MULTI-POST INSTALLATIONS

WHEN SIGN POSTS ARE INSTALLED WITH A POST SPACING OF LESS THAN 8 FEET, POST SIZES MUST BE SELECTED TO INSURE THAT WHEN ACTING TOGHETHER THE POSTS DO NOT CREATE A HAZARD. REFER TO V.A.O.T. SIGN POST DESIGN GUIDELINE FOR ADDITIONAL DETAILS.



POST SPACING DETAILS

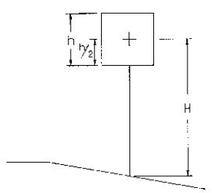
GENERAL NOTES

CONSTRUCTION METHODS - POSTS MAY BE DRIVEN OR SET IN A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLTION SHALL BE USED IN AREAS OF POOR SOIL CONDITIONS OR AS DIRECTED BY THE RESIDENT ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE RESIDENT ENGINEER.

IN AREAS WHERE LEDGE ROCK IS ENCOUNTERED, POSTS WILL BE SET IN A HOLE WITH 2" CLEARANCE AND GROUTED WITH TYPE 4 MORTAR 24" BELOW THE SURFACE OF THE SOLID ROCK, UNLESS THE POSTS PENETRATE THE GROUND A MINIMUM OF 3'-6". THE PORTION OF THE POST IN CONTACT WITH THE MORTAR SHALL BE COATED WITH AN APPROVED COATING.

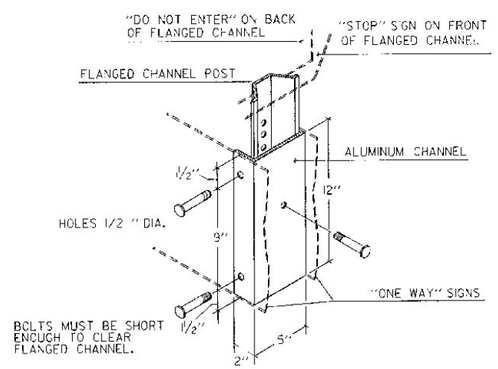
SIGN CLEARANCES - HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE SHOWN ON THE PLANS OR THE APPROPRIATE STD. SHEETS.

SINGLE POST INSTALLATIONS SHALL BE LIMITED TO A SIGN AREA OF 12-1/2 SQ.FT. OR LESS.



POST SELECTION CHART		
SIGN AREA (FT^2) x H (FT) SSV (SELECTION VALUE)		
POST SIZE	Sv	DESIGN CRITERIA
2 LB/FT. (ONE POST INSTALLATION)	32	WIND SPEED = 60 MPH (10-YEAR MEAN RECURRENCE INTERVAL)
2 LB/FT. (TWO POST INSTALLATION)	62	WIND PRESSURE = 13 PSF
3 LB/FT.	07	STEEL MIN YIELD Fy = 50,000 PSI ALLOWABLE STRESS = (1.1)0.60 Fy

SINGULAR 2 LB./FT. POSTS SHALL ONLY TO BE USED IN URBAN AREAS.

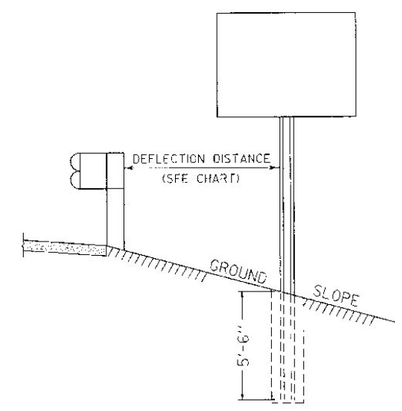


DETAIL OF TYPE "A" OR "B" MOUNTING BRACKET. SEE STANDARD E-120 FOR CLEARANCES.

GUARDRAIL DEFLECTION CHART
(PER AASHTO - ROADSIDE DESIGN GUIDE - 1988)

TYPE		GR POST SPACING	DEFLECTION
THREE CABLE	W/STEEL POSTS	16' - 0"	12'
	W/WOODEN POSTS	12' - 6"	12'
W-BEAM	W/WEAK POST	12' - 6"	7'
	W/STRONG POST	6' - 3"	3'
BOX BEAM		6' - 0"	5'
THRIE BEAM	W/WEAK POST	12' - 6"	4'
	W/STRONG POST	6' - 3"	2'

THIS CHART LISTS THE THEORETICAL DEFLECTION DISTANCE UPON IMPACT OF VARIOUS GUARDRAIL WITH DIFFERENT TYPES AND SPACING OF POSTS.



WHEN USING FLANGED CHANNEL POSTS ON STEEP SLOPES (1 ON 2 OR STEEPER FILL SLOPES BEHIND GUARDRAIL), ADD 2' EMBEDDMENT TO THE POST LENGTH TO GIVE THE ASSEMBLY MORE STABILITY. HOWEVER IF SIGN POST IS LOCATED INSIDE THE DEFLECTION DISTANCE, THE SIGN POST SHALL BE SET AT A DEPTH OF 3'-6".

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

SEP. 10, 1987 - DATE OF ORIGINAL ISSUE
MAR. 01, 1988 - FHWA REVIEW COMMENTS
OCT. 21, 1992 - ADDED DETAILS, REVISED NOTES & REVISED TITLE BLOCK
AUG. 18, 1995 - DELETION OF 2.5 #/FT. POST AND TWO-RAIL ALUMINUM. ADDED ADDITIONAL NOTE.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon R. MacCallum
DIRECTOR OF ENGINEERING

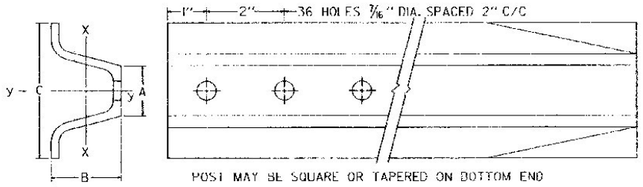
David C. Ross
TRAFFIC AND SAFETY ENGINEER

FLANGED CHANNEL STEEL SIGN POST

/traf/std/stde60.dgn : stde160.1

VERMONT AGENCY OF TRANSPORTATION

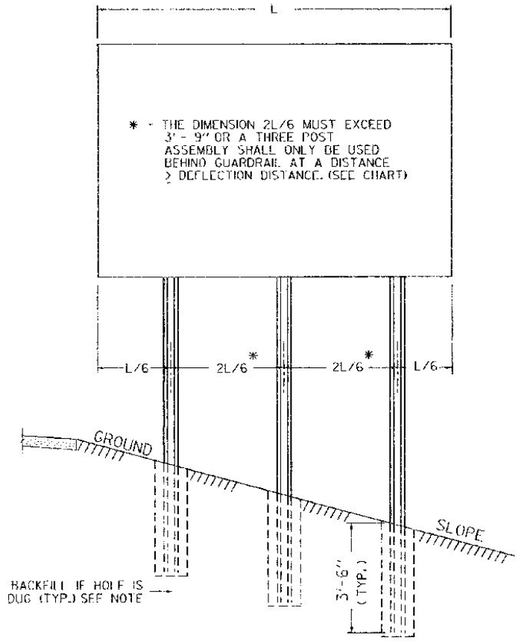
STANDARD
E-160



POST MAY BE SQUARE OR TAPERED ON BOTTOM END

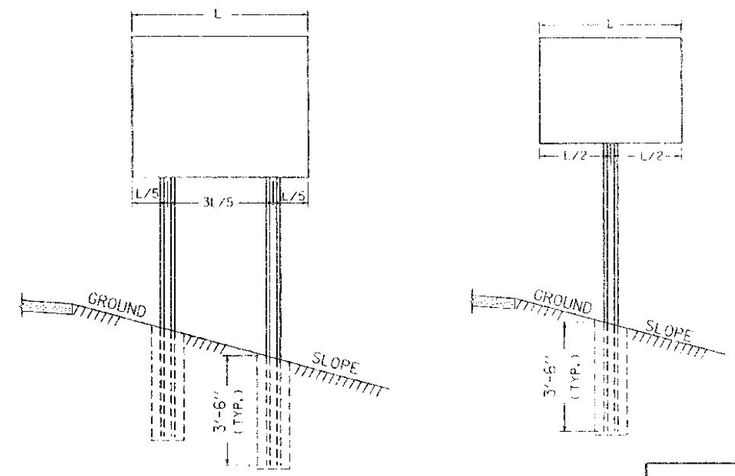
POST SIZE (LB/FT.)	DIMENSIONS			SECTION MODULUS, X-X
	A	B	C	
2	1 9/32"	1 3/64"	3 7/16"	0.225 $IN.^3$
3	1 5/16"	1 7/8"	3 1/2"	0.403 $IN.^3$

SIMILAR DIMENSIONS ARE ACCEPTABLE, HOWEVER SECTION MODULUS VALUES SHALL NOT BE EXCEEDED.



MULTI-POST INSTALLATIONS

WHEN SIGN POSTS ARE INSTALLED WITH A POST SPACING OF LESS THAN 8 FEET, POST SIZES MUST BE SELECTED TO INSURE THAT WHEN ACTING TOGHETHER THE POSTS DO NOT CREATE A HAZARD, REFER TO V.A.O.T. SIGN POST DESIGN GUIDELINE FOR ADDITIONAL DETAILS.



POST SPACING DETAILS

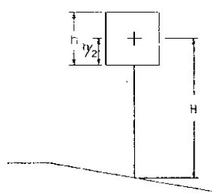
GENERAL NOTES

CONSTRUCTION METHODS - POSTS MAY BE DRIVEN OR SET IN A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLTION SHALL BE USED IN AREAS OF POOR SOIL CONDITIONS OR AS DIRECTED BY THE RESIDENT ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE RESIDENT ENGINEER.

IN AREAS WHERE LEDGE ROCK IS ENCOUNTERED, POSTS WILL BE SET IN A HOLE WITH 2" CLEARANCE AND GROUTED WITH TYPE 4 MORTAR 24" BELOW THE SURFACE OF THE SOLID ROCK, UNLESS THE POSTS PENETRATE THE GROUND A MINIMUM OF 3'-6". THE PORTION OF THE POST IN CONTACT WITH THE MORTAR SHALL BE COATED WITH AN APPROVED COATING.

SIGN CLEARANCES - HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE SHOWN ON THE PLANS OR THE APPROPRIATE STD. SHEETS.

SINGLE POST INSTALLATIONS SHALL BE LIMITED TO A SIGN AREA OF 12-1/2 SQ.FT. OR LESS.

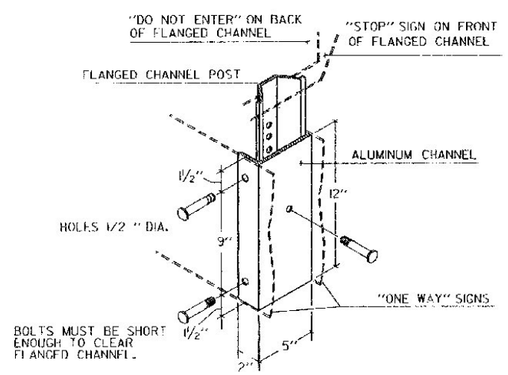


POST SELECTION CHART

SIGN AREA (FT^2) x H (FT) ≤ SV (SELECTION VALUE)

POST SIZE	Sv	DESIGN CRITERIA
2 LB/FT. (ONE POST INSTALLATION)	32	WIND SPEED = 60 MPH (10-YEAR MEAN RECURRENCE INTERVAL)
2 LB/FT. (TWO POST INSTALLATION)	62	WIND PRESSURE = 13 PSF
3 LB/FT.	107	STEEL MIN YIELD Fy = 50,000 PSI ALLOWABLE STRESS = (1.4) 0.60 Fy

SINGULAR 2 LB./FT. POSTS SHALL ONLY TO BE USED IN URBAN AREAS.



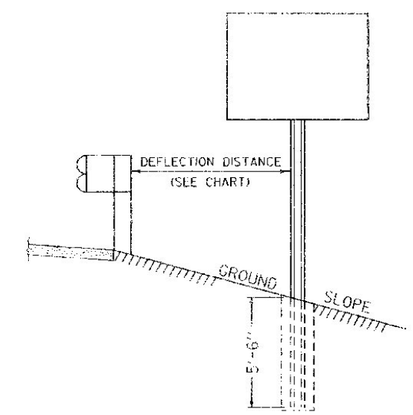
DETAIL OF TYPE "A" OR "B" MOUNTING BRACKET. SEE STANDARD E-120 FOR CLEARANCES.

GUARDRAIL DEFLECTION CHART

(PER AASHTO - ROADSIDE DESIGN GUIDE - 1989)

TYPE		GR POST SPACING	DEFLECTION
THREE CABLE	W/STEEL POSTS	16' - 0"	12'
	W/WOODEN POSTS	12' - 6"	12'
W-BEAM	W/WEAK POST	12' - 6"	7'
	W/STRONG POST	6' - 3"	3'
BOX BEAM		6' - 0"	5'
THRIE BEAM	W/WEAK POST	12' - 6"	4'
	W/STRONG POST	6' - 3"	2'

THIS CHART LISTS THE THEORETICAL DEFLECTION DISTANCE UPON IMPACT OF VARIOUS GUARDRAIL WITH DIFFERENT TYPES AND SPACING OF POSTS.



WHEN USING FLANGED CHANNEL POSTS ON STEEP SLOPES (1 ON 2 OR STEEPER FILL SLOPES BEHIND GUARDRAIL), ADD 2' EMBEDDMENT TO THE POST LENGTH TO GIVE THE ASSEMBLY MORE STABILITY. HOWEVER IF SIGN POST IS LOCATED INSIDE THE DEFLECTION DISTANCE, THE SIGN POST SHALL BE SET AT A DEPTH OF 3'-6".

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

SEP. 10, 1987 - DATE OF ORIGINAL ISSUE
MAR. 01, 1988 - FHWA REVIEW COMMENTS
OCT. 21, 1992 - ADDED DETAILS, REVISED NOTES & REVISED TITLE BLOCK
AUG. 18, 1995 - DELETION OF 2.5 #/FT. POST AND TWO-RAIL ALUMINUM. ADDED ADDITIONAL NOTE.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

FLANGED CHANNEL STEEL SIGN POST

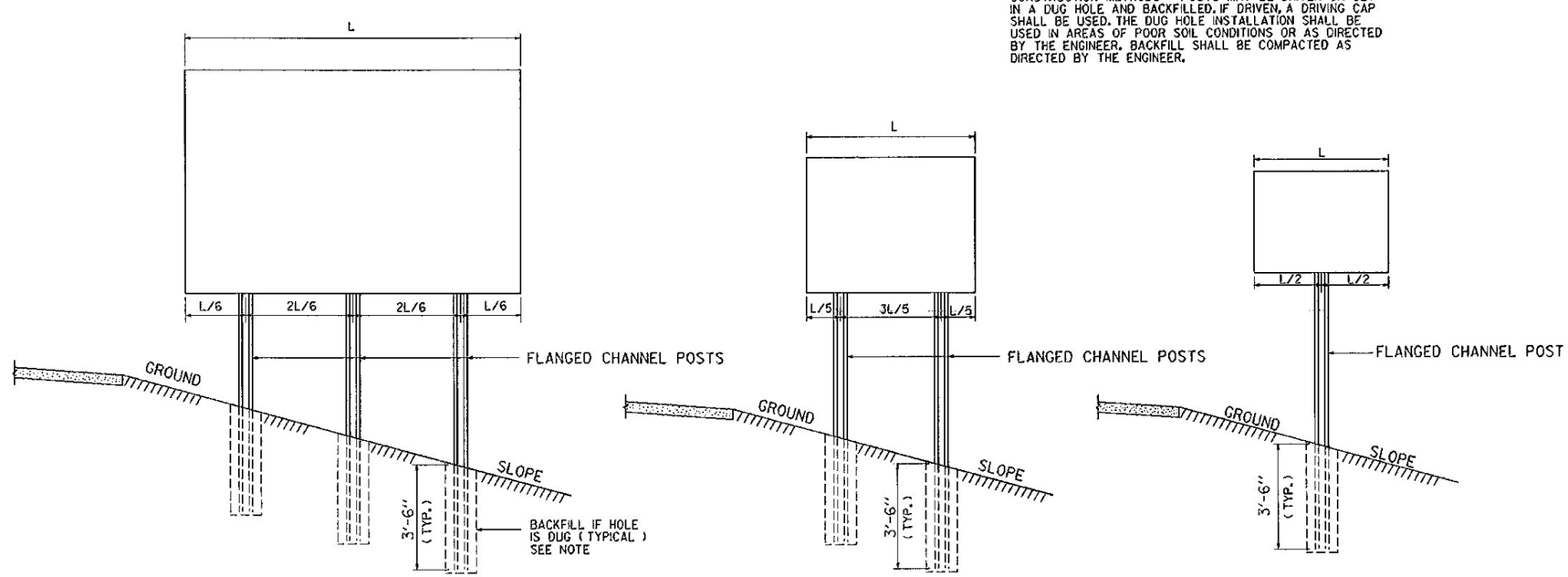
/traf/std/stdel60.dgn : stdel60.i

VERMONT AGENCY OF TRANSPORTATION

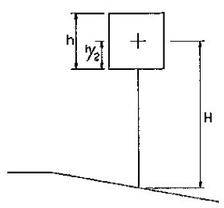
STANDARD E-160

GENERAL NOTES

CONSTRUCTION METHODS - POSTS MAY BE DRIVEN OR SET IN A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLATION SHALL BE USED IN AREAS OF POOR SOIL CONDITIONS OR AS DIRECTED BY THE ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE ENGINEER.



POST SPACING DETAILS



POST SELECTION CHART		
SIGN AREA (FT ^{2}) x H (FT) ≤SV (SELECTION VALUE)		
POST SIZE	Sv	DESIGN CRITERIA
2 LB/FT. 2 1/2 LB/FT. 3 LB/FT.	32 77 107	WIND SPEED = 60 MPH (10-YEAR MEAN RECURRENCE INTERVAL) WIND PRESSURE = 12 PSF STEEL MIN YIELD Fy = 50,000 PSI ALLOWABLE STRESS = (1.4) 0.55 Fy

POST SIZE POUNDS PER LINEAR FOOT	DIMENSIONS			PLASTIC SECTION MODULUS, Z
	A	B	C	
2	1 9/32"	1 31/64"	3 1/16"	0.26 IN.^{3}
2 1/2	1 9/32"	1 35/64"	3 1/16"	0.40 IN.^{3}
3	1 5/16"	1 7/8"	3 1/2"	0.53 IN.^{3}

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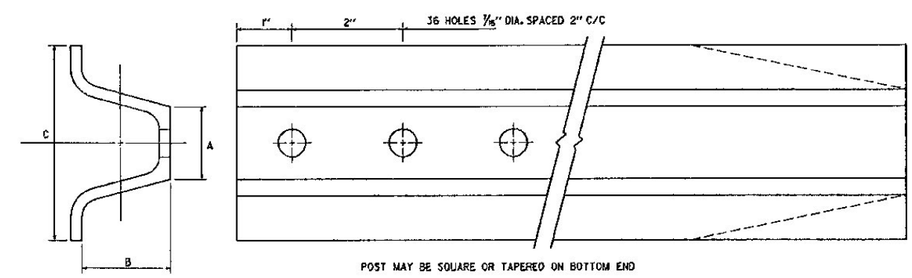


POST MAY BE SQUARE OR TAPERED ON BOTTOM END

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David B. Kelley
CHIEF ENGINEER

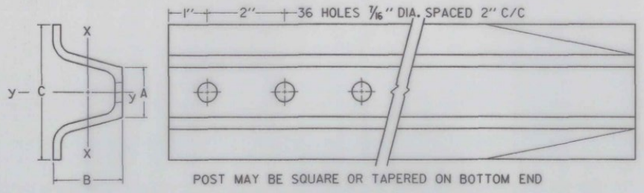
Arthur Gross
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

FLANGED CHANNEL STEEL SIGN POST

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-160



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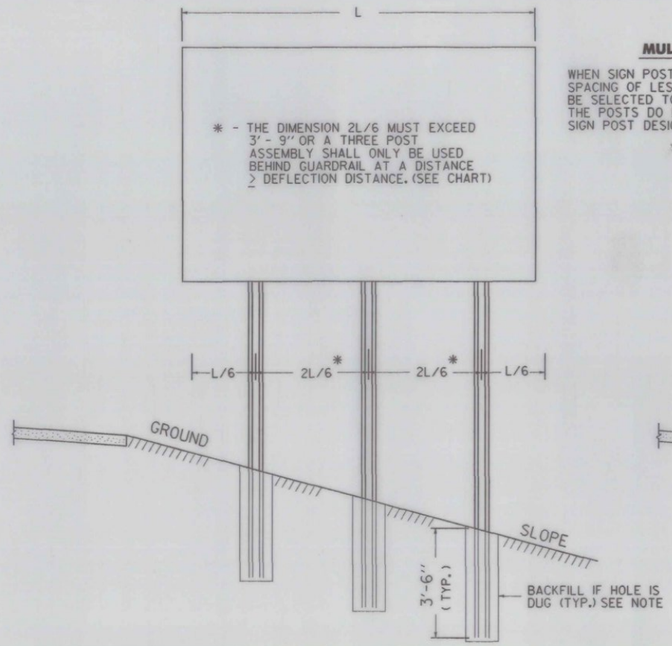

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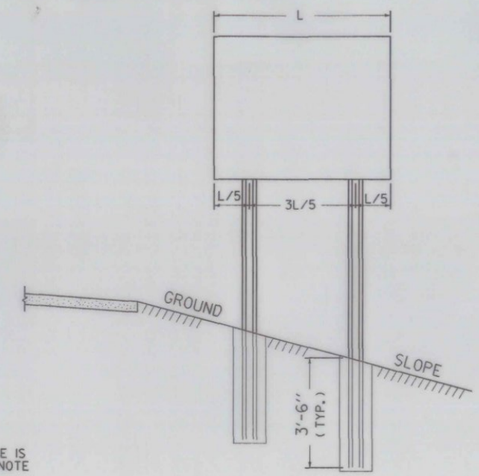

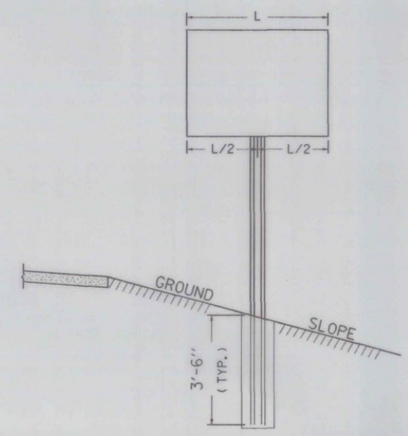

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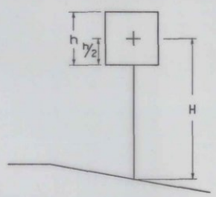

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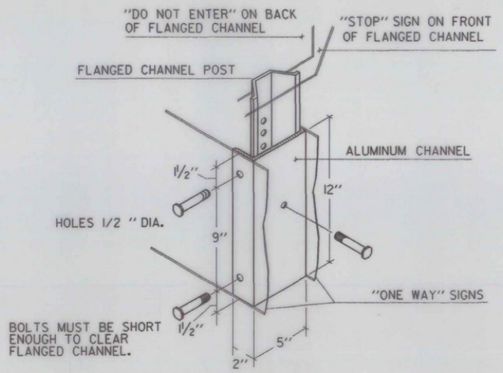
2 LB/FT. (TWO POST INSTALLATION)	62	
2.5 LB/FT. *	77	
3 LB/FT.	107	

SINGULAR 2 LB./FT. POSTS SHALL ONLY TO BE USED IN URBAN AREAS.

2.5 LB./FT. POSTS SHALL NOT BE USED FOR NEW INSTALLATIONS. INFORMATION IS PROVIDED ONLY FOR CHECKING RETAINED POSTS.



DETAIL OF TYPE "A" OR "B" MOUNTING BRACKET. SEE STANDARD E-120 FOR CLEARANCES.

GUARDRAIL DEFLECTION CHART
(PER AASHTO - ROADSIDE DESIGN GUIDE - 1988)

TYPE		GR POST SPACING	DEFLECTION
THREE CABLE	W/STEEL POSTS	16' - 0"	12'
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TWO-RAIL ELLIPTICAL ALUMINUM			2'

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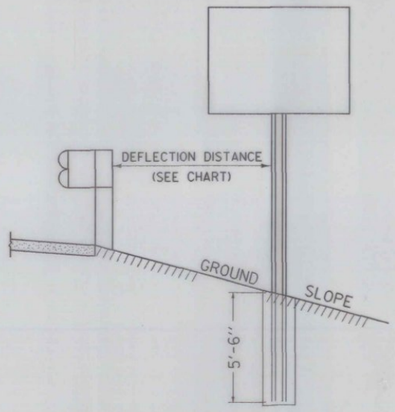

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REVISIONS AND CORRECTIONS

MARCH 1, 1988 - FHWA REVIEW COMMENTS
OCT. 21, 1992 - ADDED DETAILS, REVISED NOTES & REVISED TITLE BLOCK

APPROVED SEPT. 10, 1987
DATE

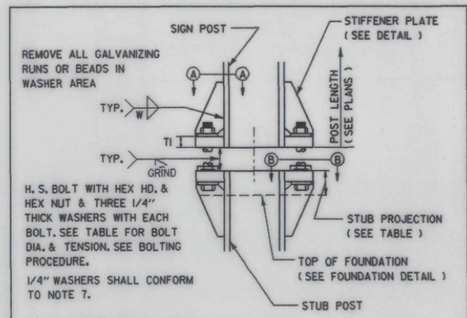
Gordon S. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

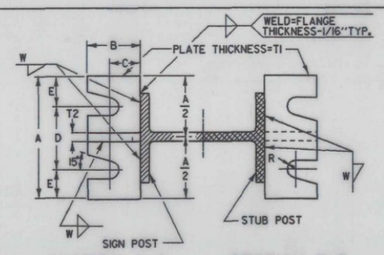
FLANGED CHANNEL STEEL SIGN POST

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-160



SLIP BASE DETAIL
(ELEVATION)



SECTION A-A SECTION B-B

(SEE TABLE FOR DIMENSIONS)

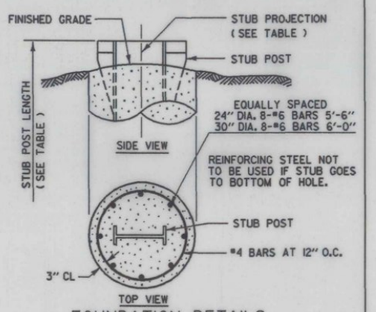
SECTIONS SHOWN ARE FOR INSTALLATIONS ON RIGHT SHOULDER AND IN GORE. PLATE SLOT BEVELS ARE OPPOSITE FOR INSTALLATIONS IN THE MEDIAN OF DIVIDED HIGHWAYS AND TWO WAY RAMPS.

SLIP BASE DETAIL
(SECTION)

POST SIZE	BOLT SIZE	A	B	C	D	E	TI	T2	W	R	F	G	H	J	K	L	N	DI	T3	BOLT DIA.	BASE DIA.	BASE DEPTH	MIN. STUB LENGTH	STUB PROJ.	VOLUME OF SINGLE BASE
	BASE CONNECTION DATA TABLE										FUSE PLATE DATA TABLE									FOUNDATION DATA					
W6X9	5/8" Ø X 3 1/2" *	5"	2"	1 1/4"	2 3/4"	1 1/8"	3/4"	1/2"	1/4"	11/32"	3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"	9/16"	1/4"	1/2"	24"	6'-0"	3'-0"	2 1/2"	0.70 C.Y.
W6X12											4 3/8"	2 1/2"	1 1/4"	6"	3 1/2"	1 1/4"	5/8"	11/16"	3/8"	5/8"					
W6X15											4 3/8"	2 1/2"	1 1/4"	5 1/4"	2 3/4"	1 1/4"	5/8"	11/16"	3/8"	5/8"					
W8X18											4 3/4"	2 1/2"	1 1/2"	5 1/4"	2 3/4"	1 1/4"	3/4"	13/16"	1/2"	3/4"					
W8X21	3/4" Ø X 4 1/2" **	6"	2 1/4"	1 3/8"	3 1/2"	1 1/4"	1"	3/4"	5/16"	13/32"	5 1/4"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	3/4"	13/16"	1/2"	3/4"					
W10X22																									
W10X26																									
W12X30		7"			4"	1 1/2"					5 1/4"	3"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	3/4"	13/16"	1/2"	3/4"	30"	6'-6"	3'-0"	2 1/2"	1.2 C.Y.

* 5/8" BOLTS SHALL HAVE A MINIMUM THREAD LENGTH OF 2 INCHES

** 3/4" BOLTS SHALL HAVE A MINIMUM THREAD LENGTH OF 2 1/4 INCHES THESE BOLTS SHALL BE FURNISHED WITH TWO NUTS FOR EACH BOLT.



FOUNDATION DETAILS

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION

1. MAKE SURE ALL BOLTS ARE FROM THE SAME STOCK.
2. TRY NUTS ON BOLT THREADS MAKING SURE THEY TURN EASILY.
3. PLACE (3) BOLTS IN "SKIDMORE - WILHELM" DEVICE. TORQUE TO PROPER TENSION IN DEVICE. CALIBRATE TORQUE WRENCH BY CHECKING TORQUE ON THESE THREE BOLTS WHEN UNDER PROPER TENSION IN DEVICE.
4. USE THE AVERAGE OF THE THREE TORQUES ON SIMILAR BOLTS IN THE REAL SUPPORT.
5. ASSEMBLE POSTS TO STUB WITH BOLTS AND WITH THREE 1/4" FLAT WASHERS, (ONE EACH: UNDER HEAD OF BOLT , BETWEEN PLATES , AND UNDER NUT.)
6. SHIM AS REQUIRED TO PLUMB POST.
7. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH A 12" TO 15" WRENCH TO BED WASHERS AND SHIMS AND TO CLEAN BOLT THREADS. THEN LOOSEN EACH BOLT IN TURN AND RETIGHTEN IN A SYSTEMATIC ORDER TO THE PRESCRIBED TENSION.
8. THE BASE PLATE BOLTS WILL BE TORQUED TO PRESCRIBED BOLT TENSION SHOWN BELOW. AFTER THE INITIAL TORQUING USE A SECOND NUT TO INSURE THAT THE FIRST NUT WILL NOT BACK OFF. THE CONTRACTOR WITH THE AGENCY INSPECTOR WILL RETURN TO THE SIGN TWO MORE TIMES AT INTERVALS OF 30 DAYS FOR THE PURPOSE OF CHECKING AND REESTABLISHING THE PRESCRIBED TORQUE. THE SECOND NUT SHALL REMAIN AS A LOCK NUT.
9. THE "SKIDMORE - WILHELM" DEVICE IS AVAILABLE THROUGH THE V.A.O.T. CONSTRUCTION DIVISION.

GENERAL NOTES

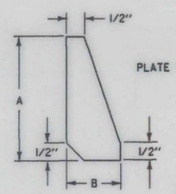
1. DESIGN CONFORMS WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS , LUMINAIRES AND TRAFFIC SIGNALS.
2. MATERIAL AND FABRICATION SHALL CONFORM TO THE REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SHEETS AND SPECIFICATIONS.
3. ALL STRUCTURAL STEEL SHALL CONFORM TO A.S.T.M. A-36.
4. ALL STRUCTURAL STEEL , BOLTS , NUTS AND WASHERS SHALL BE GALVANIZED AS PER A.S.T.M. A-153 EXCEPT AS NOTED BELOW.
5. ALL HIGH STRENGTH BOLTS , NUTS AND WASHERS SHALL BE GALVANIZED AS PER A.S.T.M. A-123. THE POST CUT SHALL BE A SAW CUT ONLY. ALL OTHER CUTS EXCLUDING POST CUTS MAY BE FLAME CUT PROVIDED ALL EDGES ARE GROUND SMOOTH. METAL PROJECTING BEYOND THE PLATE FACE WILL NOT BE PERMITTED. ALL POST HOLES SHALL BE DRILLED.
6. ALL HIGH STRENGTH BOLTS AND NUTS SHALL CONFORM TO A.S.T.M. A-325
7. ALL 1/4" FLAT WASHERS SHALL CONFORM TO THE HARDNESS REQUIREMENTS FOR A.S.T.M. A-325 WASHERS.
8. PAINT FOR SAW CUT SHALL BE A SINGLE COMPONENT ZINC-RICH COMPOUND YIELDING A DRIED FILM OF AT LEAST 85% PURE ZINC. IT SHALL MEET OR EXCEED THE REQUIREMENT OF VT. L05 "ZINC RICH COATING".
9. EXTREME CARE SHOULD BE TAKEN TO KEEP THE SLIP JOINT FREE OF ANY FOREIGN MATERIAL , EITHER BY WRAPPING THE JOINT OR THOROUGH CLEANING IMMEDIATELY AFTER POURING OF CONCRETE.
10. ALL FUSE PLATE BOLTS SHALL BE TIGHTENED BY THE FABRICATOR TO THE PRESCRIBED BOLT TENSION SHOWN BELOW. THE CONTRACTOR WILL BE HELD RESPONSIBLE TO CHECK AND CERTIFY THAT THE REQUIRED RESIDUAL TENSIONS ARE OBTAINED.
11. NO MORE THAN 600 LBS. OF POST WILL BE ALLOWED BELOW THE FUSE PLATE.
12. THE AMOUNT OF TORQUE NECESSARY TO ACHIEVE THE PROPER BOLT TENSION FOR BOTH THE "FUSE PLATE" AND THE "SLIP BASE" SHALL BE DETERMINED BY USE OF A SUITABLE TORQUE WRENCH CALIBRATED IN A "SKIDMORE-WILHELM" DEVICE. THE PROCEDURE FOR CALIBRATING THE WRENCH IS OUTLINED IN THE "PROCEDURE FOR ASSEMBLY OF BASE CONNECTION" ON THIS SHEET.
13. DUE TO THE VARIABILITY OF THE GALVANIZATION ON THE BOLTS , NUTS AND WASHERS ETC., NO FORMULA OR TABLES SHALL BE USED TO CALCULATE THE REQUIRED CONVERSION FROM BOLT TENSION TO APPLIED TORQUE , UNLESS APPROVED BY THE TRAFFIC AND SAFETY DIVISION.
14. THE INSPECTION OF THE "FUSE PLATE BOLTS" SHALL BE AS OUTLINED IN THE MOST RECENT EDITION OF AASTHO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" , SECTION 10.J7.5 "INSPECTION OF CONNECTIONS USING HIGH STRENGTH BOLTS."
15. INSPECTION OF THE "SLIP BASE BOLTS" SHALL BE AS FOLLOWS: USING A TORQUE WRENCH , WHICH HAS BEEN CALIBRATED IN THE "SKIDMORE-WILHELM" DEVICE WITH THREE BOLTS OF THE SAME GRADE , SIZE AND CONDITION AS THOSE UNDER INSPECTION , THE INSPECTOR SHALL SET THE WRENCH FOR THE MAXIMUM SETTING SHOWN BELOW FOR "SLIP BASE BOLTS" AND TEST ALL "SLIP BASE BOLTS" IN EACH ASSEMBLY.
    A) IF THE BOLT BEING TESTED TURNS MORE THAN 5° UPON APPLICATION OF THE WRENCH SET TO THE MAXIMUM , THE INSPECTOR SHALL SET THE WRENCH TO THE MINIMUM AND RETEST THE BOLT. IF THE BOLT TURNS LESS THAN 5° UPON APPLICATION OF THE WRENCH SET TO MINIMUM , IT SHALL BE CONSIDERED ACCEPTABLE. IF THE BOLT TURNS MORE THAN 5° UPON APPLICATION OF THE WRENCH SET TO MINIMUM , IT SHALL BE TIGHTENED AT LEAST TO THE MINIMUM.
    B) IF THE BOLT BEING TESTED TURNS LESS THAN 5° UPON APPLICATION OF THE WRENCH SET TO MAXIMUM , IT SHALL BE LOOSENED AND RETIGHTENED SO THAT IT FALLS WITHIN THE RANGE SPECIFIED AND REINSPECTED AS OUTLINED ABOVE.
16. BOLT TENSIONS

FUSE PLATE BOLTS

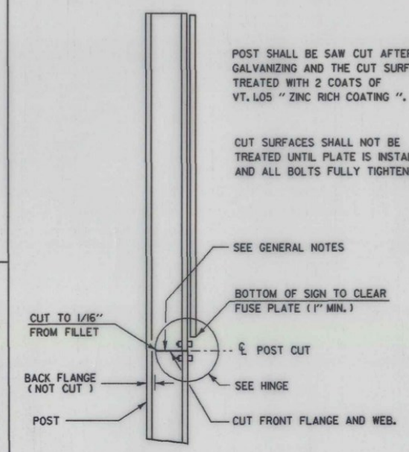
BOLT SIZE	MIN. BOLT TENSION	MAX. BOLT TENSION
1/2" DIA.	12000 LBS.	15000 LBS.
5/8" DIA.	19200 LBS.	24500 LBS.
3/4" DIA.	28400 LBS.	36000 LBS.

SLIP BASE BOLTS

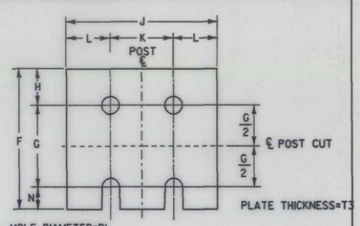
BOLT SIZE	MIN. BOLT TENSION	MAX. BOLT TENSION
5/8" DIA.	1740 LBS.	2660 LBS.
3/4" DIA.	2400 LBS.	3600 LBS.



STIFFENER PLATE
(SEE TABLE FOR DIMENSIONS)

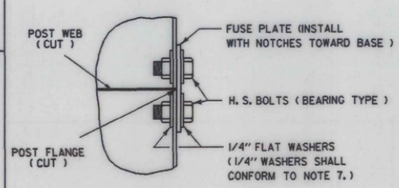


FUSE PLATE-POST DETAIL

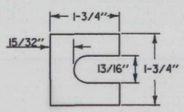


USE H. S. BOLTS WITH HEX. HD. AND HEX. NUTS , ONE 1/4" THICK FLAT WASHERS UNDER EACH BOLT HEAD , AND ONE 1/4" THICK WASHER UNDER NUT.
1/4" WASHERS SHALL CONFORM TO NOTE 7.

FUSE PLATE
(SEE TABLE FOR DIMENSIONS)

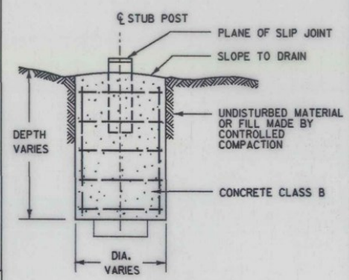


FUSE PLATE "HINGE" DETAIL
(SEE NOTE 11)
FLANGE HOLES FOR HINGE SHALL BE DRILLED

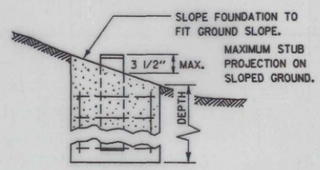


FURNISH TWO .012" ± THICK AND TWO .032" ± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M. B-36.

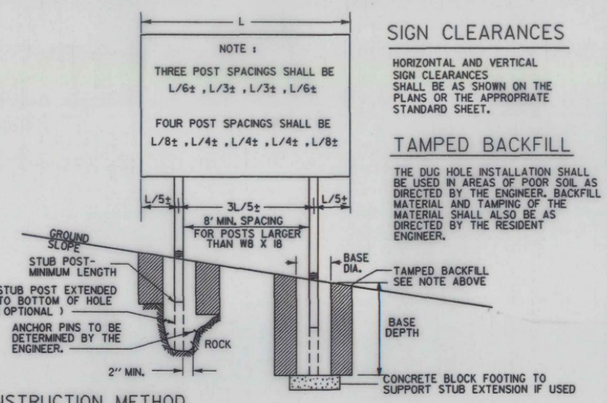
SHIM DETAIL



FLAT GROUND
FOUNDATION DETAILS



SLOPING GROUND
FOUNDATION DETAILS



SIGN CLEARANCES

HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE AS SHOWN ON THE PLANS OR THE APPROPRIATE STANDARD SHEET.

TAMPED BACKFILL

THE DUG HOLE INSTALLATION SHALL BE USED IN AREAS OF POOR SOIL AS DIRECTED BY THE ENGINEER. BACKFILL MATERIAL AND TAMPING OF THE MATERIAL SHALL ALSO BE AS DIRECTED BY THE RESIDENT ENGINEER.

CONSTRUCTION METHOD

HOLES FOR POST FOOTINGS MAY BE AUGERED OR DUG. THE HOLES MAY BE LEFT WITH EARTH SIDES, IF THE MATERIAL IS FIRM, AND ALL DISTRUBED SOIL AROUND THE CIRCUMFERENCE OF THE AUGERED HOLE IS REMOVED. IF NOT , A SUITABLE FORM APPROVED BY THE ENGINEER SHALL BE USED. CORRUGATED METAL CULVERT PIPE OR PAPER FORMS MANUFACTURED FOR USE AS CONCRETE COLUMN FORMS WILL BE ACCEPTABLE. IF THE STUB IS EXTENDED TO THE BOTTOM OF THE HOLE , A CONCRETE BLOCK FOOTING SHALL BE UTILIZED TO SUPPORT THE POST AND THE POST SHALL BE HELD SECURELY IN PLACE AT THE BOTTOM. THIS MAY BE DONE BY EMBEDDING THE POST AND CONCRETE BLOCK FOOTING IN WET CONCRETE AND ALLOWING TO SET WITH THE POST SECURED IN POSITION , PLUMBED AND PROPERLY BRACED , THE REMAINING FOOTING MAY BE POURED. THE TIME BETWEEN POURS FOR THE CURING OF THE CONCRETE SHALL BE AS DETERMINED BY THE ENGINEER. THE FORM SHALL BE LEFT IN PLACE AND THE HOLE BACKFILLED. AND COMPACTED AS DIRECTED BY THE ENGINEER. NO PART OF THE FORM SHALL SHOW ABOVE THE GROUND LINE WHEN THE WORK IS COMPLETED.

REVISIONS AND CORRECTIONS

MARCH 1, 1988 - FHWA COMMENTS

APPROVED

SEPT. 10, 1987
DATE

David S. Kelley
CHIEF ENGINEER

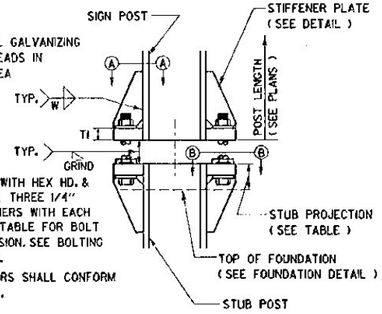
Arthur Gore
DIRECTOR OF PLANNING AND PRECONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

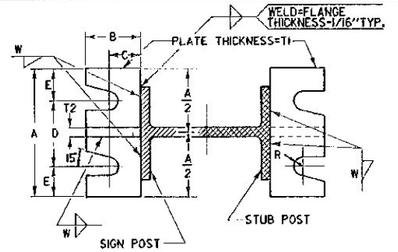
W-SHAPED STEEL SIGN POST

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-161



SLIP BASE DETAIL
(ELEVATION)



SECTION A-A **SECTION B-B**

(SEE TABLE FOR DIMENSIONS)

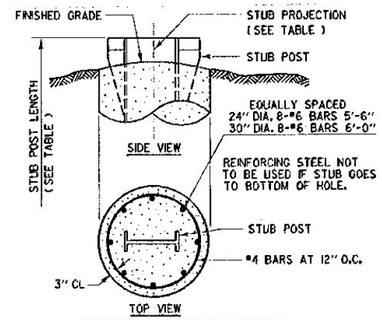
SECTIONS SHOWN ARE FOR INSTALLATIONS ON RIGHT SHOULDER AND IN GORE. PLATE SLOT BEVELS ARE OPPOSITE FOR INSTALLATIONS IN THE MEDIAN OF DIVIDED HIGHWAYS AND TWO WAY RAMPS.

SLIP BASE DETAIL
(SECTION)

POST SIZE	BOLT SIZE	A	B	C	D	E	T1	T2	W	R	F	G	H	J	K	L	N	D1	T3	BOLT DIA.	BASE DIA.	BASE DEPTH	MIN. STUB LENGTH	STUB PROJ.	VOLUME OF SINGLE BASE
		BASE CONNECTION DATA TABLE									FUSE PLATE DATA TABLE									FOUNDATION DATA					
W6X9	5/8" Ø X 3 1/2"	5"	2"	1 1/4"	2 3/4"	1 1/8"	3/4"	1/2"	1/4"	11/32"	3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"	9/16"	1/4"	1/2"	24"	6'-0"	3'-0"	2 1/2"	0.70 C.Y.
W6X12																									
W6X15	*										4 3/8"	2 1/2"	1 1/4"	6"	3 1/2"	1 1/4"	5/8"	1 1/16"	3/8"	5/8"					
W8X18											4 3/8"	2 1/2"	1 1/4"	5 1/4"	2 3/4"	1 1/4"	5/8"	1 1/16"	3/8"	5/8"					
W8X21	3/4" Ø X 4 1/2"	6"	2 1/4"	1 3/8"	3 1/2"	1 1/4"	1"	3/4"	5/16"	13/32"	4 3/4"	2 1/2"	1 1/2"	5 1/4"	2 3/4"	1 1/4"	3/4"	13/16"	1/2"	3/4"					
W10X22											5 1/4"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	3/4"	13/16"	1/2"	3/4"					
W10X26	**																								
W12X30		7"			4"	1 1/2"					5 1/4"	3"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	3/4"	13/16"	1/2"	3/4"	30"	6'-6"	3'-0"	2 1/2"	1.2 C.Y.

* 5/8" BOLTS SHALL HAVE A MINIMUM THREAD LENGTH OF 2 INCHES

** 3/4" BOLTS SHALL HAVE A MINIMUM THREAD LENGTH OF 2 1/4 INCHES
THESE BOLTS SHALL BE FURNISHED WITH TWO NUTS FOR EACH BOLT.



FOUNDATION DETAILS

1. MAKE SURE ALL BOLTS ARE FROM THE SAME STOCK.
2. TRY NUTS ON BOLT THREADS MAKING SURE THEY TURN EASILY.
3. PLACE (3) BOLTS IN "SKIDMORE - WILHELM" DEVICE. TORQUE TO PROPER TENSION IN DEVICE. CALIBRATE TORQUE WRENCH BY CHECKING ON THESE THREE BOLTS WHEN UNDER PROPER TENSION IN DEVICE.
4. USE THE AVERAGE OF THE THREE TORQUES ON SIMILAR BOLTS IN THE REAL SUPPORT.
5. ASSEMBLE POSTS TO STUB WITH BOLTS AND WITH THREE 1/4" FLAT WASHERS. (ONE EACH: UNDER HEAD OF BOLT, BETWEEN PLATES, AND UNDER NUT.)
6. SHIM AS REQUIRED TO PLUMB POST.
7. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH A 12" TO 15" WRENCH TO BED WASHERS AND SHIMS AND TO CLEAN BOLT THREADS, THEN LOOSEN EACH BOLT IN TURN AND RETIGHTEN IN A SYSTEMATIC ORDER TO THE PRESCRIBED TENSION.
8. THE BASE PLATE BOLTS WILL BE TORQUED TO PRESCRIBED BOLT TENSION SHOWN BELOW. AFTER THE INITIAL TORQUING USE A SECOND NUT TO INSURE THAT THE FIRST NUT WILL NOT BACK OFF. THE CONTRACTOR WITH THE AGENCY INSPECTOR WILL RETURN TO THE SIGN TWO MORE TIMES AT INTERVALS OF 30 DAYS FOR THE PURPOSE OF CHECKING AND RE-ESTABLISHING THE PRESCRIBED TORQUE. THE SECOND NUT SHALL REMAIN AS A LOCK NUT.
9. THE "SKIDMORE - WILHELM" DEVICE IS AVAILABLE THROUGH THE V.A.O.T. CONSTRUCTION DIVISION.

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION

GENERAL NOTES

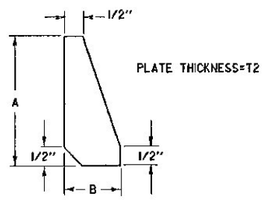
1. DESIGN CONFORMS WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.
2. MATERIAL AND FABRICATION SHALL CONFORM TO THE REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SHEETS AND SPECIFICATIONS.
3. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 183.
4. ALL STRUCTURAL STEEL, BOLTS NUTS, AND WASHERS SHALL BE GALVANIZED AS PER AASHTO M 232 EXCEPT AS NOTED BELOW.
5. ALL HIGH STRENGTH BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AS PER AASHTO M 232. THE POST CUT SHALL BE A SAW CUT ONLY. ALL OTHER CUTS EXCLUDING POST CUTS MAY BE FLAME CUT PROVIDED ALL EDGES ARE GROUND SMOOTH. METAL PROJECTING BEYOND THE PLATE FACE WILL NOT BE PERMITTED. ALL POST HOLES SHALL BE DRILLED.
6. ALL HIGH STRENGTH BOLTS AND NUTS SHALL CONFORM TO AASHTO M 164.
7. ALL 1\4" FLAT WASHERS SHALL CONFORM TO THE HARDNESS REQUIREMENTS FOR AASHTO M 164 WASHERS.
8. PAINT FOR SAW CUT SHALL BE A SINGLE COMPONENT ZINC-RICH COMPOUND YIELDING A DRIED FILM OF AT LEAST 85% PURE ZINC. IT SHALL MEET OR EXCEED THE REQUIREMENT OF VT.1.05 "ZINC RICH COATING".
9. EXTREME CARE SHOULD BE TAKEN TO KEEP THE SLIP JOINT FREE OF ANY FOREIGN MATERIAL, EITHER BY WRAPPING THE JOINT OR THOROUGH CLEANING IMMEDIATELY AFTER POURING OF CONCRETE.
10. ALL FUSE PLATE BOLTS SHALL BE TIGHTENED BY THE FABRICATOR TO THE PRESCRIBED BOLT TENSION SHOWN BELOW. THE CONTRACTOR WILL BE HELD RESPONSIBLE TO CHECK AND CERTIFY THAT THE REQUIRED RESIDUAL TENSIONS ARE OBTAINED.
11. NO MORE THAN 600 LBS. OF POST WILL BE ALLOWED BELOW THE FUSE PLATE.
12. THE AMOUNT OF TORQUE NECESSARY TO ACHIEVE THE PROPER BOLT TENSION FOR BOTH THE "FUSE PLATE" AND THE "SLIP BASE" SHALL BE DETEMINED BY USE OF A SUITABLE TORQUE WRENCH CALIBRATED IN A "SKIDMORE-WELHELM" DEVICE. THE PROCEDURE FOR CALIBRATING THE WRENCH IS OUTLINED IN THE "PROCEDURE FOR ASSEMBLY OF BASE CONNECTION" ON THIS SHEET.
13. DUE TO THE VARIABILITY OF THE GALVANIZATION ON THE BOLTS, NUTS, AND WASHERS, ETC., NO FORMULA OR TABLES SHALL BE USED TO CALCULATE THE REQUIRED CONVERSION FROM BOLT TENSION TO APPLIED TORQUE. UNLESS APPROVED BY TRAFFIC AND SAFETY DIVISION.
14. THE INSPECTION OF THE "FUSE PLATE BOLTS" SHALL BE AS OUTLINED IN THE MOST RECENT EDITION OF AASTHO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES", SECTION 10.17.5 "INSPECTION OF CONNECTIONS USING HIGH STRENGTH BOLTS".
15. INSPECTION OF THE "SLIP BASE BOLTS" SHALL BE AS FOLLOWS: USING A TORQUE WRENCH WHICH HAS BEEN CALIBRATED IN THE "SKIDMOE-WILHELM" DEVICE WITH THREE BOLTS OF THE SAME GRADE, SIZE AND CONDITION AS THOSE UNDER INSPECTION, THE INSPECTOR SHALL SET THE WRENCH FOR MAXIMUM SETTING SHOWN BELOW FOR "SLIP BASE BOLTS" AND TEST ALL "SLIP BASE BOLTS" IN EACH ASSEMBLY.
    A) IF THE BOLT BEING TESTED TURNS MORE THAN 5° UPON APPLICATION OF THE WRENCH SET TO THE MAXIMUM, THE INSPECTOR SHALL SET THE WRENCH TO THE MINIMUM AND RETEST THE BOLT. IF THE BOLT TURNS LESS THAN 5° UPON APPLICATION OF THE WRENCH SET TO MINIMUM, IT SHALL BE CONSIDERED ACCEPTABLE. IF THE BOLT TURNS MORE THAN 5° UPON APPLICATION OF THE WRENCH SET TO MINIMUM, IT SHALL BE TIGHTENED AT LEAST TO THE MINIMUM.
    B) IF THE BOLT BEING TESTED TURNS LESS THAN 5° UPON APPLICATION OF THE WRENCH SET TO MAXIMUM, IT SHALL BE LOOSENED AND RETIGHTENED SO THAT IT FALLS WITHIN THE RANGE SPECIFIED AND REINSPECTED AS OUTLINED ABOVE.
16. BOLT TENSIONS

FUSE PLATE BOLTS

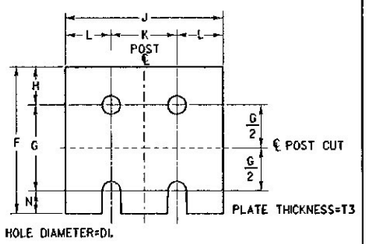
BOLT SIZE	MIN. BOLT TENSION	MAX. BOLT TENSION
1/2" DIA.	12000 LBS.	15000 LBS.
5/8" DIA.	19200 LBS.	24500 LBS.
3/4" DIA.	28400 LBS.	36000 LBS.

SLIP BASE BOLTS

BOLT SIZE	MIN. BOLT TENSION	MAX. BOLT TENSION
5/8" DIA.	1740 LBS.	2660 LBS.
3/4" DIA.	2400 LBS.	3600 LBS.

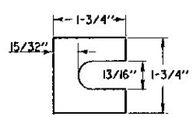


STIFFENER PLATE
(SEE TABLE FOR DIMENSIONS)



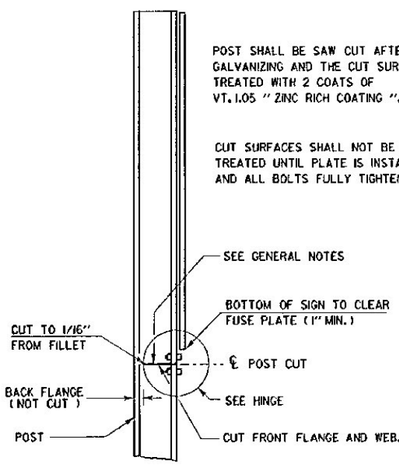
USE H. S. BOLTS WITH HEX. HD. AND HEX. NUTS, ONE 1/4" THICK FLAT WASHERS UNDER EACH BOLT HEAD, AND ONE 1/4" THICK WASHER UNDER NUT.
1/4" WASHERS SHALL CONFORM TO NOTE 7.

FUSE PLATE
(SEE TABLE FOR DIMENSIONS)

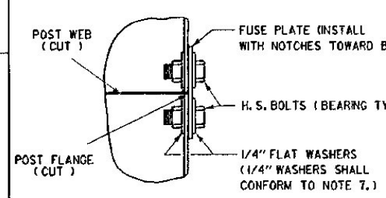


FURNISH TWO .012"± THICK AND TWO .032" ± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M. B-36.

SHIM DETAIL

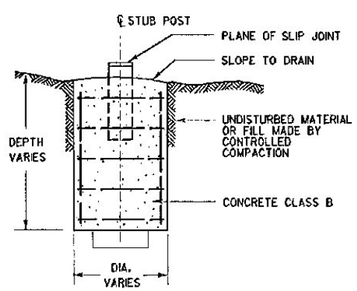


FUSE PLATE-POST DETAIL

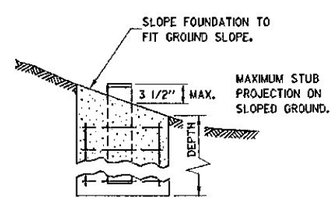


FUSE PLATE "HINGE" DETAIL
(SEE NOTE 11)

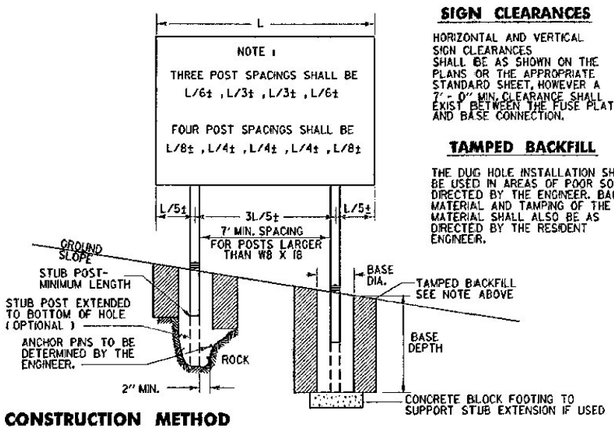
FLANGE HOLES FOR HINGE SHALL BE DRILLED



FLAT GROUND FOUNDATION DETAILS



SLOPING GROUND FOUNDATION DETAILS



CONSTRUCTION METHOD

HOLES FOR POST FOOTINGS MAY BE AUGERED OR DUG. THE HOLES MAY BE LEFT WITH EARTH SIDES, IF THE MATERIAL IS FIRM, AND ALL DISTURBED SOIL AROUND THE CURCUMFRENCE OF THE AUGERED HOLE IS REMOVED. IF NOT, A SUITABLE FORM APPROVED BY THE ENGINEER SHALL BE USED. CORRUGATED METAL CULVERT PIPE OR PAPER FORMS MANUFACTURED FOR USE AS CONCRETE COLUMN FORMS WILL BE ACCEPTABLE. IF THE STUB IS EXTENDED TO THE BOTTOM OF THE HOLE, A CONCRETE BLOCK FOOTING SHALL BE UTILIZED TO SUPPORT THE POST AND THE POST SHALL BE HELD SECURELY IN PLACE AT THE BOTTOM. THIS MAY BE DONE BY EMBEDDING THE POST AND CONCRETE BLOCK FOOTING IN WET CONCRETE AND ALLOWING TO SET WITH THE POST SECURED IN POSITION, PLUMBED AND PROPERLY BRACED. THE REMAINING FOOTING MAY BE POURED. THE TIME BETWEEN POURS FOR THE CURING OF THE CONCRETE SHALL BE AS DETERMINED BY THE ENGINEER. NO PART OF THE FORM SHALL SHOW ABOVE THE GROUND LINE WHEN THE WORK IS COMPLETED.

SIGN CLEARANCES

HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE AS SHOWN ON THE PLANS OR THE APPROPRIATE STANDARD SHEET, HOWEVER A 7'-0" MIN. CLEARANCE SHALL EXIST BETWEEN THE FUSE PLATE AND BASE CONNECTION.

TAMPED BACKFILL

THE DUG HOLE INSTALLATION SHALL BE USED IN AREAS OF POOR SOIL AS DIRECTED BY THE ENGINEER. BACKFILL MATERIAL AND TAMPING OF THE MATERIAL SHALL ALSO BE AS DIRECTED BY THE RESIDENT ENGINEER.

REVISIONS AND CORRECTIONS

MARCH 4, 1988 - FHWA COMMENTS

JUNE 21, 1989 - FHWA - CHANGE TO 7' FUSE PLATE CLEARANCE

APPROVED SEPT. 10, 1987
DATE

David B. Kelley
CHIEF ENGINEER

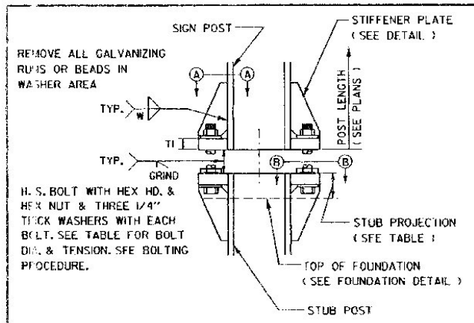
Arthur Gore
DIRECTOR OF PLANNING AND PRECONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

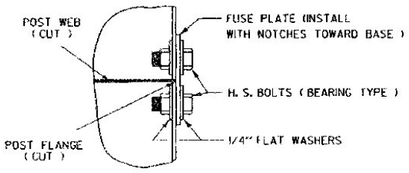
W-SHAPED STEEL SIGN POST

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-161



SLIP BASE DETAIL
(ELEVATION)



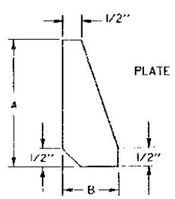
FUSE PLATE "HINGE" DETAIL
(SEE NOTE 7)

FLANGE HOLES FOR HINGE SHALL BE DRILLED

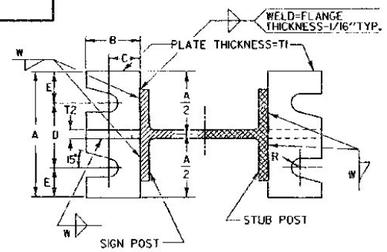
POST SIZE	BOLT SIZE	A	B	C	D	E	TI	T2	W	R	F	G	H	J	K	L	N	DI	T3	BOLT DIA.	BASE DIA.	BASE DEPTH	MIN. STUB LENGTH	STUB PROJ.	VOLUME OF SINGLE BASE
		BASE CONNECTION DATA TABLE									FUSE PLATE DATA TABLE									FOUNDATION DATA					
W6X9	5/8" Ø X 3 1/2" *	5"	2"	1 1/4"	2 3/4"	1 1/8"	3/4"	1/2"	1/4"	11/32"	3 3/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"	9/16"	1/4"	1/2"	24"	6'-0"	3'-0"	2 1/2"	0.70 C.Y.
W6X12																									
W6X15											4 1/8"	2 1/2"	1 1/4"	6"	3 1/2"	1 1/4"	5/8"	11/16"	3/8"	7/8"					
W8X18											4 3/8"	2 1/2"	1 1/4"	5 1/4"	2 3/4"	1 1/4"	7/8"	11/16"	3/8"	5/8"					
W8X21	3/4" Ø X 4 1/2" **	6"	2 1/4"	1 3/8"	3 1/2"	1 1/4"	1"	3/4"	5/16"	11/32"	4 3/4"	2 1/2"	1 1/2"	5 1/4"	2 3/4"	1 1/4"	3/4"	11/16"	1/2"	3/4"					
W10X22											5 1/4"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	3/4"	11/16"	1/2"	3/4"					
W10X26																									
W12X30		7"			4"	1 1/2"					5 1/4"	3"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	3/4"	11/16"	1/2"	3/4"	30"	6'-6"	3'-0"	2 1/2"	1.2 C.Y.

* 5/8" BOLTS SHALL HAVE A MINIMUM THREAD LENGTH OF 2 INCHES

** 3/4" BOLTS SHALL HAVE A MINIMUM THREAD LENGTH OF 2 1/4 INCHES
THESE BOLTS SHALL BE FURNISHED WITH TWO NUTS FOR EACH BOLT.



STIFFENER PLATE
(SEE TABLE FOR DIMENSIONS)



SECTION A-A **SECTION B-B**

(SEE TABLE FOR DIMENSIONS)

SECTIONS SHOWN ARE FOR INSTALLATIONS ON RIGHT SHOULDER AND IN GORE. PLATE SLOT BEVELS ARE OPPOSITE FOR INSTALLATIONS IN THE MEDIAN OF DIVIDED HIGHWAYS AND TWO WAY RAMPS.

SLIP BASE DETAIL
(SECTION)

1. MAKE SURE ALL BOLTS ARE FROM THE SAME STOCK.
2. TRY NUTS ON BOLT THREADS MAKING SURE THEY TURN EASILY.
3. PLACE (3) BOLTS IN "SKIDMORE - WILHELM" DEVICE. TORQUE TO PROPER TENSION IN DEVICE. CALIBRATE TORQUE WRENCH BY CHECKING ON THESE THREE BOLTS WHEN UNDER PROPER TENSION IN DEVICE.
4. USE THE AVERAGE OF THE THREE TORQUES ON SIMILAR BOLTS IN THE REAL SUPPORT.
5. ASSEMBLE POSTS TO STUB WITH BOLTS AND WITH THREE 1/4" FLAT WASHERS. (ONE EACH: UNDER HEAD OF BOLT, BETWEEN PLATES, AND UNDER NUT.)
6. SHIM AS REQUIRED TO PLUMB POST.
7. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH A 12" TO 15" WRENCH TO BED WASHERS AND SHIMS AND TO CLEAN BOLT THREADS, THEN LOOSEN EACH BOLT IN TURN AND RETIGHTEN IN A SYSTEMATIC ORDER TO THE PRESCRIBED TENSION.
8. THE BASE PLATE BOLTS WILL BE TORQUED TO PRESCRIBED BOLT TENSION SHOWN BELOW. AFTER THE INITIAL TORQUING USE A SECOND NUT TO INSURE THAT THE FIRST NUT WILL NOT BACK OFF. THE CONTRACTOR WITH THE AGENCY INSPECTOR WILL RETURN TO THE SIGN TWO MORE TIMES AT INTERVALS OF 30 DAYS FOR THE PURPOSE OF CHECKING AND RE-ESTABLISHING THE PRESCRIBED TORQUE. THE SECOND NUT SHALL REMAIN AS A LOCK NUT.
9. THE "SKIDMORE - WILHELM" DEVICE IS AVAILABLE THROUGH THE V.A.O.T. CONSTRUCTION DIVISION.

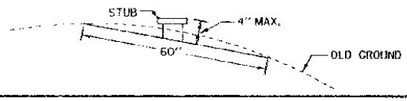
PROCEDURE FOR ASSEMBLY OF BASE CONNECTION

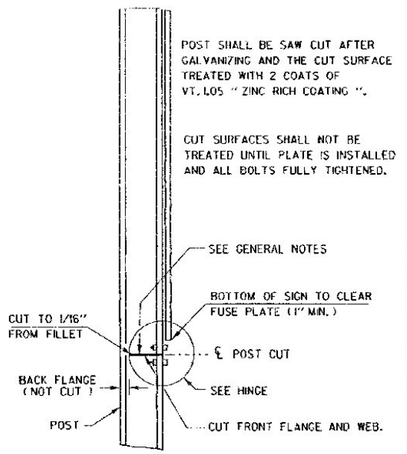
GENERAL NOTES

1. DESIGN CONFORMS WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.
2. MATERIAL AND FABRICATION SHALL CONFORM TO THE REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SHEETS AND SPECIFICATIONS.
3. THE POST CUT SHALL BE A SAW CUT ONLY. ALL OTHER CUTS EXCLUDING POST CUTS MAY BE FLAME CUT PROVIDED ALL EDGES ARE GROUND SMOOTH. METAL PROJECTING BEYOND THE PLATE FACE WILL NOT BE PERMITTED. ALL POST HOLES SHALL BE DRILLED.
4. ALL SAW CUTS SHALL BE PAINTED WITH AN APPROVED COATING.
5. EXTREME CARE SHOULD BE TAKEN TO KEEP THE SLIP JOINT FREE OF ANY FOREIGN MATERIAL, EITHER BY WRAPPING THE JOINT OR THOROUGH CLEANING IMMEDIATELY AFTER POURING OF CONCRETE.
6. ALL FUSE PLATE BOLTS SHALL BE TIGHTENED BY THE FABRICATOR TO THE PRESCRIBED BOLT TENSION. THE CONTRACTOR WILL BE HELD RESPONSIBLE TO CHECK AND CERTIFY THAT THE REQUIRED RESIDUAL TENSIONS ARE OBTAINED.
7. THE TOTAL WEIGHT OF TWO (2) POSTS WITH 3' - 2" SPACING OR A SINGLE POST OF A TWO (2) POSTS INSTALLATION WITH 7' - 0" SPACING SHALL NOT EXCEED 800 POUNDS BELOW THE FUSE PLATE.
8. THE AMOUNT OF TORQUE NECESSARY TO ACHIEVE THE PROPER BOLT TENSION FOR BOTH THE "FUSE PLATE" AND THE "SLIP BASE" SHALL BE DETEMINED BY USE OF A SUITABLE TORQUE WRENCH CALIBRATED IN A "SKIDMORE-WELHELM" DEVICE. THE PROCEDURE FOR CALIBRATING THE WRENCH IS OUTLINED IN THE "PROCEDURE FOR ASSEMBLY OF BASE CONNECTION" ON THIS SHEET.
9. DUE TO THE VARIABILITY OF THE GALVANIZATION ON THE BOLTS, NUTS, AND WASHERS, ETC., NO FORMULA OR TABLES SHALL BE USED TO CALCULATE THE REQUIRED CONVERSION FROM BOLT TENSION TO APPLIED TORQUE. UNLESS APPROVED BY TRAFFIC AND SAFETY DIVISION.
10. THE INSPECTION OF THE "FUSE PLATE BOLTS" SHALL BE AS OUTLINED IN THE MOST RECENT EDITION OF AASTHO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES", SECTION 11.5.6 "CONNECTIONS USING HIGH STRENGTH BOLTS".
11. INSPECTION OF THE "SLIP BASE BOLTS" SHALL BE AS FOLLOWS: USING A TORQUE WRENCH WHICH HAS BEEN CALIBRATED IN THE "SKIDMORE-WILHELM" DEVICE WITH THREE BOLTS OF THE SAME GRADE, SIZE AND CONDITION AS THOSE UNDER INSPECTION. THE INSPECTOR SHALL SET THE WRENCH FOR MAXIMUM SETTING SHOWN BELOW FOR "SLIP BASE BOLTS" AND TEST ALL "SLIP BASE BOLTS" IN EACH ASSEMBLY.
    A) IF THE BOLT BEING TESTED TURNS MORE THAN 5 UPON APPLICATION OF THE WRENCH SET TO THE MAXIMUM, THE INSPECTOR SHALL SET THE WRENCH TO THE MINIMUM AND RETEST THE BOLT. IF THE BOLT TURNS LESS THAN 5 UPON APPLICATION OF THE WRENCH SET TO MINIMUM, IT SHALL BE CONSIDERED ACCEPTABLE. IF THE BOLT TURNS MORE THAN 5 UPON APPLICATION OF THE WRENCH SET TO MINIMUM, IT SHALL BE TIGHTENED AT LEAST TO THE MINIMUM.
    B) IF THE BOLT BEING TESTED TURNS LESS THAN 5 UPON APPLICATION OF THE WRENCH SET TO MAXIMUM, IT SHALL BE LOOSENED AND RETIGHTENED SO THAT IT FALLS WITHIN THE RANGE SPECIFIED AND REINSPECTED AS OUTLINED ABOVE.
12. SLIP BASE BOLT TENSIONS

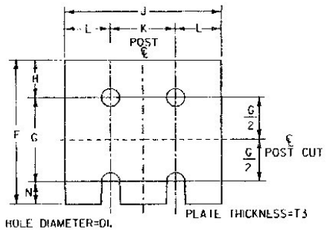
BOLT SIZE	MIN. BOLT TENSION	MAX. BOLT TENSION
5/8" DIA.	1740 LBS.	2680 LBS.
3/4" DIA.	2400 LBS.	3680 LBS.

13. ALL DIMENSIONS REFERRING TO STUB HEIGHT IN THE VARIOUS TABLES AND FOUNDATION DETAILS SHALL BE ADJUSTED AS REQUIRED TO RESULT IN A TOTAL STUB HEIGHT WHICH IS NOT MORE THAN FOUR INCHES ABOVE A 60-INCH CHORD ALIGNED RADIALLY TO THE CENTERLINE OF THE HIGHWAY AND CONNECTING ANY POINT, WITHIN THE LENGTH OF THE CHORD, ON THE GROUND SURFACE ON ONE SIDE OF THE SUPPORT TO A POINT ON THE GROUND SURFACE ON THE OTHER SIDE.



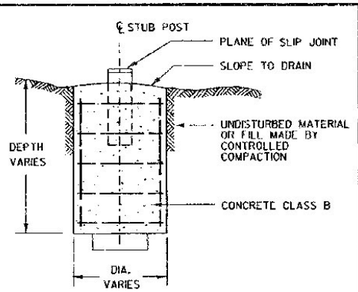


FUSE PLATE-POST DETAIL

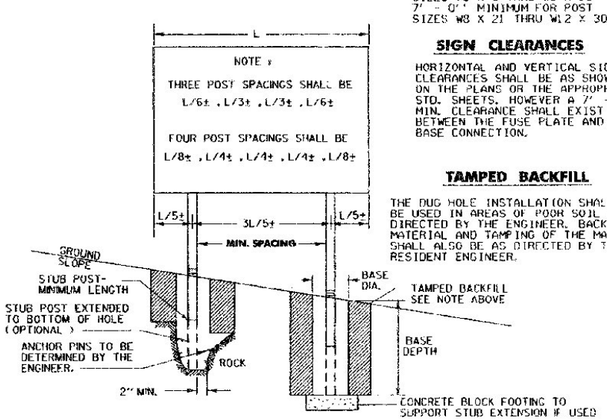


USE H.S. BOLTS WITH HEX. AND HEX. NUTS, ONE 1/4" THICK FLAT WASHERS UNDER EACH BOLT HEAD, AND ONE (1) 1/4" THICK FLAT WASHER UNDER THE NUT.

FUSE PLATE
(SEE TABLE FOR DIMENSIONS)



FLAT GROUND FOUNDATION DETAILS



POST SPACING

3' - 2" MINIMUM FOR POST SIZES W6 X 9 THRU W8 X 18
7' - 0" MINIMUM FOR POST SIZES W8 X 21 THRU W12 X 30.

SIGN CLEARANCES

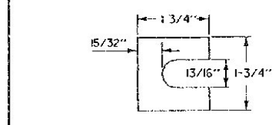
HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE AS SHOWN ON THE PLANS OR THE APPROPRIATE STD. SHEETS, HOWEVER A 7' - 0" MIN. CLEARANCE SHALL EXIST BETWEEN THE FUSE PLATE AND BASE CONNECTION.

TAMPED BACKFILL

THE DUG HOLE INSTALLATION SHALL BE USED IN AREAS OF POOR SOIL AS DIRECTED BY THE ENGINEER. BACKFILL MATERIAL AND TAMPING OF THE MATERIAL SHALL ALSO BE AS DIRECTED BY THE RESIDENT ENGINEER.

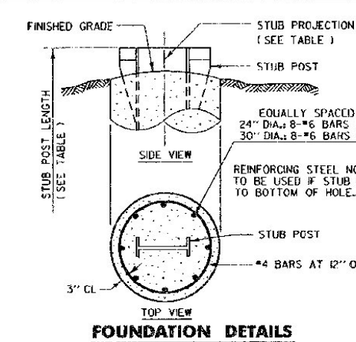
CONSTRUCTION METHOD

HOLES FOR POST FOOTINGS MAY BE AUGERED OR DUG. THE HOLES MAY BE LEFT WITH EARTH SIDES, IF THE MATERIAL IS FIRM, AND ALL DISTURBED SOIL AROUND THE CURCUMFRENCE OF THE AUGERED HOLE IS REMOVED. IF NOT, A SUITABLE FORM APPROVED BY THE ENGINEER SHALL BE USED. CORRUGATED METAL CULVERT PIPE OR PAPER FORMS MANUFACTURED FOR USE AS CONCRETE COLUMN FORMS WILL BE ACCEPTABLE. IF THE STUB IS EXTENDED TO THE BOTTOM OF THE HOLE, A CONCRETE BLOCK FOOTING SHALL BE UTILIZED TO SUPPORT THE POST AND THE POST SHALL BE HELD SECURELY IN PLACE AT THE BOTTOM. THIS MAY BE DONE BY EMBEDDING THE POST AND CONCRETE BLOCK FOOTING IN WET CONCRETE AND ALLOWING TO SET WITH THE POST SECURED IN POSITION, PLUMBED AND PROPERLY BRACED. THE REMAINING FOOTING MAY BE POURED. THE TIME BETWEEN POURS FOR THE CURING OF THE CONCRETE SHALL BE AS DETERMINED BY THE ENGINEER. NO PART OF THE FORM SHALL SHOW ABOVE THE GROUND LINE WHEN THE WORK IS COMPLETED.

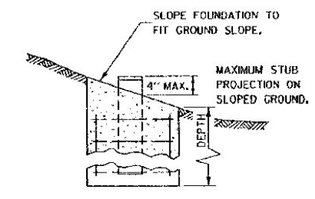


FURNISH TWO .012" ± THICK AND TWO .032" ± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M. B-36.

SHIM DETAIL



FOUNDATION DETAILS



SLOPING GROUND FOUNDATION DETAILS

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
MAR. 21, 1988 - FHWA COMMENTS
JUNE 21, 1989 - FHWA - CHANGE TO 7' FUSE PLATE CLEARANCE
OCT. 21, 1992 - REVISED NOTES AND POST SPACING REQUIREMENTS
AUG. 18, 1995 - REVISED GENERAL NOTE 4

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon D. MacArthur
DIRECTOR OF ENGINEERING

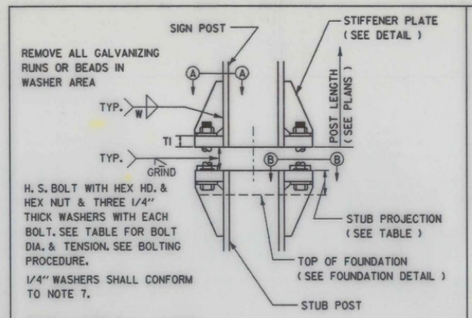
David A. Ross
TRAFFIC AND SAFETY ENGINEER

W-SHAPED STEEL SIGN POST

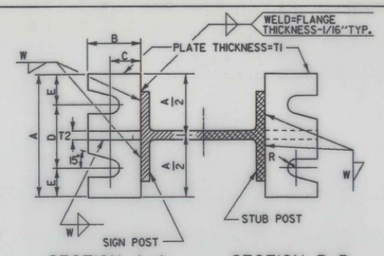
/traf/std/stde161.dgn : stdex161

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-161



SLIP BASE DETAIL
(ELEVATION)



SECTION A-A SECTION B-B

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SLIP BASE DETAIL
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W6X12											4 3/8"	2 1/2"	1 1/4"	6"	3 1/2"	1 1/4"	5/8"	11/16"	3/8"	5/8"					
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W10X26																									
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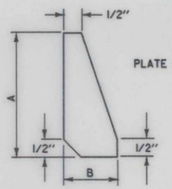
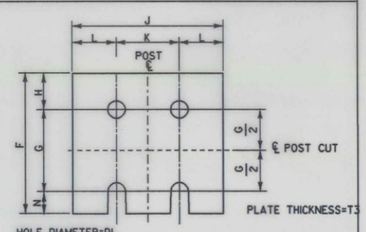


STIFFENER PLATE
(SEE TABLE FOR DIMENSIONS)

FUSE PLATE-POST DETAIL



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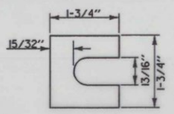
1/4" WASHERS SHALL CONFORM TO NOTE 7.

FUSE PLATE
(SEE TABLE FOR DIMENSIONS)



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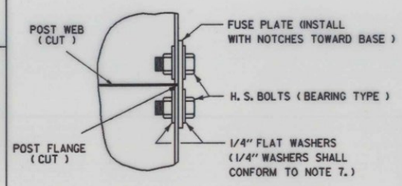
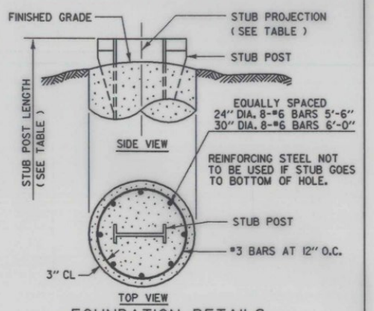
SHIM DETAIL



FUSE PLATE "HINGE" DETAIL
(SEE NOTE 11)
FLANGE HOLES FOR HINGE SHALL BE DRILLED



FOUNDATION DETAILS

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION

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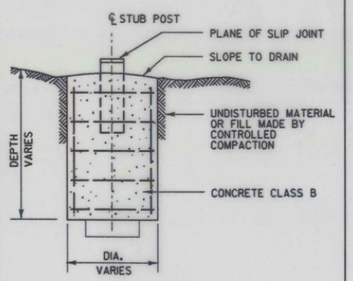
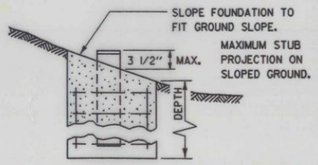
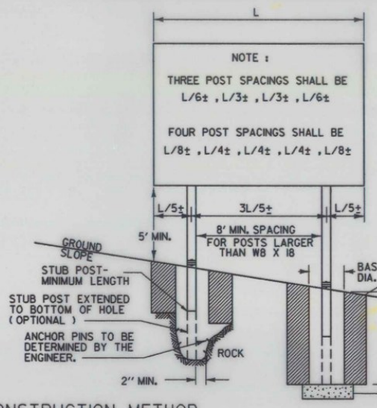


FLAT GROUND
FOUNDATION DETAILS



SLOPING GROUND
FOUNDATION DETAILS



TAMPED BACKFILL

THE DUG HOLE INSTALLATION SHALL BE USED IN AREAS OF POOR SOIL AS DIRECTED BY THE ENGINEER. BACKFILL MATERIAL AND TAMPING OF THE MATERIAL SHALL ALSO BE AS DIRECTED BY THE RESIDENT ENGINEER.

CONSTRUCTION METHOD

HOLES FOR POST FOOTINGS MAY BE AUGERED OR DUG. THE HOLES MAY BE LEFT WITH EARTH SIDES, IF THE MATERIAL IS FIRM, AND ALL DISTRUBED SOIL AROUND THE CIRCUMFERENCE OF THE AUGERED HOLE IS REMOVED. IF NOT , A SUITABLE FORM APPROVED BY THE ENGINEER SHALL BE USED. CORRUGATED METAL CULVERT PIPE OR PAPER FORMS MANUFACTURED FOR USE AS CONCRETE COLUMN FORMS WILL BE ACCEPTABLE. IF THE STUB IS EXTENDED TO THE BOTTOM OF THE HOLE , A CONCRETE BLOCK FOOTING SHALL BE UTILIZED TO SUPPORT THE POST AND THE POST SHALL BE HELD SECURELY IN PLACE AT THE BOTTOM. THIS MAY BE DONE BY EMBEDDING THE POST AND CONCRETE BLOCK FOOTING IN WET CONCRETE AND ALLOWING TO SET WITH THE POST SECURED IN POSITION , PLUMBED AND PROPERLY BRACED , THE REMAINING FOOTING MAY BE POURED. THE TIME BETWEEN POURS FOR THE CURING OF THE CONCRETE SHALL BE AS DETERMINED BY THE ENGINEER. THE FORM SHALL BE LEFT IN PLACE AND THE HOLE BACKFILLED. AND COMPACTED AS DIRECTED BY THE ENGINEER. NO PART OF THE FORM SHALL SHOW ABOVE THE GROUND LINE WHEN THE WORK IS COMPLETED.

GENERAL NOTES

1. DESIGN CONFORMS WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS , LUMINAIRES AND TRAFFIC SIGNALS.
2. MATERIAL AND FABRICATION SHALL CONFORM TO THE REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SHEETS AND SPECIFICATIONS.
3. ALL STRUCTURAL STEEL SHALL CONFORM TO A.S.T.M. A-36.
4. ALL STRUCTURAL STEEL , BOLTS , NUTS AND WASHERS SHALL BE GALVANIZED AS PER A.S.T.M. A-153 EXCEPT AS NOTED BELOW.
5. ALL HIGH STRENGTH BOLTS , NUTS AND WASHERS SHALL BE GALVANIZED AS PER A.S.T.M. A-123. THE POST CUT SHALL BE A SAW CUT ONLY. ALL OTHER CUTS EXCLUDING POST CUTS MAY BE FLAME CUT PROVIDED ALL EDGES ARE GROUND SMOOTH. METAL PROJECTING BEYOND THE PLATE FACE WILL NOT BE PERMITTED. ALL POST HOLES SHALL BE DRILLED.
6. ALL HIGH STRENGTH BOLTS AND NUTS SHALL CONFORM TO A.S.T.M. A-325
7. ALL 1/4" FLAT WASHERS SHALL CONFORM TO THE HARDNESS REQUIREMENTS FOR A.S.T.M. A-325 WASHERS.
8. PAINT FOR SAW CUT SHALL BE A SINGLE COMPONENT ZINC-RICH COMPOUND YIELDING A DRIED FILM OF AT LEAST 85% PURE ZINC. IT SHALL MEET OR EXCEED THE REQUIREMENT OF VT. L05 "ZINC RICH COATING".
9. MAIN SIGNS SHALL BE ERECTED A MINIMUM OF 7 FEET ABOVE EDGE OF PAVEMENT AND A MINIMUM OF 5 FEET ABOVE THE GROUND. IF AUXILIARY PANELS ARE ATTACHED BELOW THE MAIN SIGN , THE MINIMUM FOR THE MAIN SIGN ABOVE THE EDGE OF PAVEMENT SHALL BE 8 FEET AND THE MINIMUM FOR THE AUXILIARY PANELS SHALL BE 5 FEET. THE 5 FOOT MINIMUM GROUND CLEARANCE SHALL ALSO APPLY TO AUXILIARY PANELS.
10. EXTREME CARE SHOULD BE TAKEN TO KEEP THE SLIP JOINT FREE OF ANY FOREIGN MATERIAL , EITHER BY WRAPPING THE JOINT OR THOROUGH CLEANING IMMEDIATELY AFTER POURING OF CONCRETE.
11. ALL FUSE PLATE BOLTS SHALL BE TIGHTENED BY THE FABRICATOR TO THE PRESCRIBED BOLT TENSION SHOWN BELOW. THE CONTRACTOR WILL BE HELD RESPONSIBLE TO CHECK AND CERTIFY THAT THE REQUIRED RESIDUAL TENSIONS ARE OBTAINED.
12. NO MORE THAN 600 LBS. OF POST WILL BE ALLOWED BELOW THE FUSE PLATE.
13. THE AMOUNT OF TORQUE NECESSARY TO ACHIEVE THE PROPER BOLT TENSION FOR BOTH THE "FUSE PLATE" AND THE "SLIP BASE" SHALL BE DETERMINED BY USE OF A SUITABLE TORQUE WRENCH CALIBRATED IN A "SKIDMORE-WILHELM" DEVICE. THE PROCEDURE FOR CALIBRATING THE WRENCH IS OUTLINED IN THE "PROCEDURE FOR ASSEMBLY OF BASE CONNECTION" ON THIS SHEET.
14. DUE TO THE VARIABILITY OF THE GALVANIZATION ON THE BOLTS , NUTS AND WASHERS ETC., NO FORMULA OR TABLES SHALL BE USED TO CALCULATE THE REQUIRED CONVERSION FROM BOLT TENSION TO APPLIED TORQUE , UNLESS APPROVED BY THE TRAFFIC AND SAFETY DIVISION.
15. THE INSPECTION OF THE "FUSE PLATE BOLTS" SHALL BE AS OUTLINED IN THE MOST RECENT EDITION OF AASTHO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES", SECTION 10.17.5 "INSPECTION OF CONNECTIONS USING HIGH STRENGTH BOLTS."
16. INSPECTION OF THE "SLIP BASE BOLTS" SHALL BE AS FOLLOWS: USING A TORQUE WRENCH , WHICH HAS BEEN CALIBRATED IN THE "SKIDMORE-WILHELM" DEVICE WITH THREE BOLTS OF THE SAME GRADE , SIZE AND CONDITION AS THOSE UNDER INSPECTION , THE INSPECTOR SHALL SET THE WRENCH FOR THE MAXIMUM SETTING SHOWN BELOW FOR "SLIP BASE BOLTS" AND TEST ALL "SLIP BASE BOLTS" IN EACH ASSEMBLY.
    A. IF THE BOLT BEING TESTED TURNS MORE THAN 5° UPON APPLICATION OF THE WRENCH SET TO THE MAXIMUM , THE INSPECTOR SHALL SET THE WRENCH TO THE MINIMUM AND RETEST THE BOLT. IF THE BOLT TURNS LESS THAN 5° UPON APPLICATION OF THE WRENCH SET TO MINIMUM , IT SHALL BE CONSIDERED ACCEPTABLE. IF THE BOLT TURNS MORE THAN 5° UPON APPLICATION OF THE WRENCH SET TO MINIMUM , IT SHALL BE TIGHTENED AT LEAST TO THE MINIMUM.
    B. IF THE BOLT BEING TESTED TURNS LESS THAN 5° UPON APPLICATION OF THE WRENCH SET TO MAXIMUM , IT SHALL BE LOOSENED AND RETIGHTENED SO THAT IT FALLS WITHIN THE RANGE SPECIFIED AND REINSPECTED AS OUTLINED ABOVE.
17. BOLT TENSIONS

FUSE PLATE BOLTS

BOLT SIZE	MIN. BOLT TENSION	MAX. BOLT TENSION
1/2" DIA.	12000 LBS.	15000 LBS.
5/8" DIA.	19200 LBS.	24500 LBS.
3/4" DIA.	28400 LBS.	36000 LBS.

SLIP BASE BOLTS

BOLT SIZE	MIN. BOLT TENSION	MAX. BOLT TENSION
5/8" DIA.	1740 LBS.	2660 LBS.
3/4" DIA.	2400 LBS.	3600 LBS.

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David B Kelley
CHIEF ENGINEER

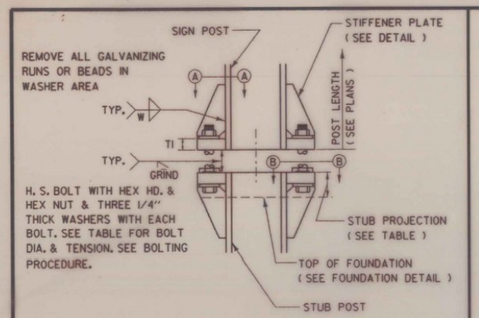
Arthur Gloss
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

G. B. MacArthur
TRAFFIC AND SAFETY ENGINEER

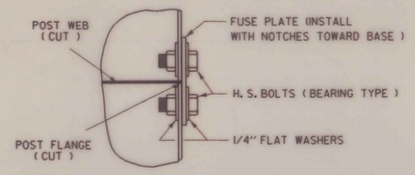
W-SHAPED STEEL SIGN POST

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-161



SLIP BASE DETAIL (ELEVATION)



FUSE PLATE "HINGE" DETAIL

(SEE NOTE 7)

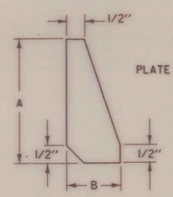
FLANGE HOLES FOR HINGE SHALL BE DRILLED

POST SIZE	BOLT SIZE	A	B	C	D	E	TI	T2	W	R
W6X9	5/8" Ø X 3 1/2" *	5"	2"	1 1/4"	2 3/4"	1 1/8"	3/4"	1/2"	1/4"	11/32"
W6X12										
W6X15										
W8X18										
W8X21	3/4" Ø X 4 1/2" **	6"	2 1/4"	1 3/8"	3 1/2"	1 1/4"	1"	3/4"	5/16"	11/32"
W10X22										
W10X26										
W12X30		7"			4"	1 1/2"				

POST SIZE	FUSE PLATE DATA TABLE									FOUNDATION DATA					
	F	G	H	J	K	L	N	DI	T3	BOLT DIA.	BASE DIA.	BASE DEPTH	MIN. STUB LENGTH	STUB PROJ.	VOLUME OF SINGLE BASE
W6X9	3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"	9/16"	1/4"	1/2"	24"	6'-0"	3'-0"	2 1/2"	0.70 C.Y.
W6X12															
W6X15	4 3/8"	2 1/2"	1 1/4"	6"	3 1/2"	1 1/4"	5/8"	11/16"	3/8"	5/8"					
W8X18	4 3/8"	2 1/2"	1 1/4"	5 1/4"	2 3/4"	1 1/4"	5/8"	11/16"	3/8"	5/8"					
W8X21	4 3/4"	2 1/2"	1 1/2"	5 1/4"	2 3/4"	1 1/4"	3/4"	13/16"	1/2"	3/4"					
W10X22	5 1/4"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	3/4"	13/16"	1/2"	3/4"					
W10X26															
W12X30	5 1/4"	3"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	3/4"	13/16"	1/2"	3/4"	30"	6'-6"	3'-0"	2 1/2"	1.2 C.Y.

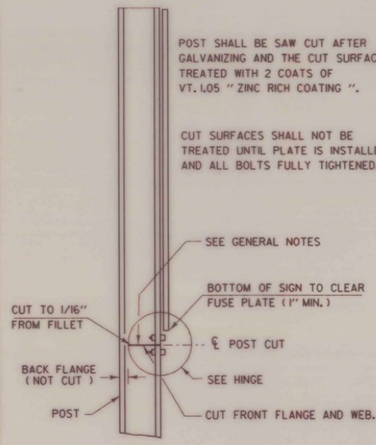
* 5/8" BOLTS SHALL HAVE A MINIMUM THREAD LENGTH OF 2 INCHES

** 3/4" BOLTS SHALL HAVE A MINIMUM THREAD LENGTH OF 2 1/4 INCHES THESE BOLTS SHALL BE FURNISHED WITH TWO NUTS FOR EACH BOLT.

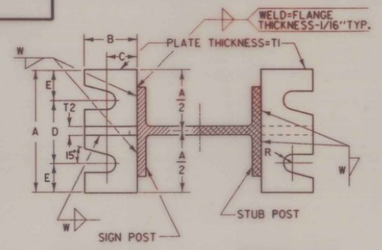


STIFFENER PLATE

(SEE TABLE FOR DIMENSIONS)



FUSE PLATE-POST DETAIL



SECTION A-A **SECTION B-B**

(SEE TABLE FOR DIMENSIONS)

SECTIONS SHOWN ARE FOR INSTALLATIONS ON RIGHT SHOULDER AND IN GORE. PLATE SLOT BEVELS ARE OPPOSITE FOR INSTALLATIONS IN THE MEDIAN OF DIVIDED HIGHWAYS AND TWO WAY RAMPS.

SLIP BASE DETAIL (SECTION)

1. MAKE SURE ALL BOLTS ARE FROM THE SAME STOCK.
2. TRY NUTS ON BOLT THREADS MAKING SURE THEY TURN EASILY.
3. PLACE (3) BOLTS IN ''SKIDMORE - WILHELM' DEVICE. TORQUE TO PROPER TENSION IN DEVICE. CALIBRATE TORQUE WRENCH BY CHECKING ON THESE THREE BOLTS WHEN UNDER PROPER TENSION IN DEVICE.
4. USE THE AVERAGE OF THE THREE TORQUES ON SIMILAR BOLTS IN THE REAL SUPPORT.
5. ASSEMBLE POSTS TO STUB WITH BOLTS AND WITH THREE 1/4'' FLAT WASHERS. (ONE EACH: UNDER HEAD OF BOLT, BETWEEN PLATES, AND UNDER NUT.)
6. SHIM AS REQUIRED TO PLUMB POST.
7. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH A 12'' TO 15'' WRENCH TO BED WASHERS AND SHIMS AND TO CLEAN BOLT THREADS, THEN LOOSEN EACH BOLT IN TURN AND RETIGHTEN IN A SYSTEMATIC ORDER TO THE PRESCRIBED TENSION.
8. THE BASE PLATE BOLTS WILL BE TORQUED TO PRESCRIBED BOLT TENSION SHOWN BELOW. AFTER THE INITIAL TORQUING USE A SECOND NUT TO INSURE THAT THE FIRST NUT WILL NOT BACK OFF. THE CONTRACTOR WITH THE AGENCY INSPECTOR WILL RETURN TO THE SIGN TWO MORE TIMES AT INTERVALS OF 30 DAYS FOR THE PURPOSE OF CHECKING AND RE-ESTABLISHING THE PRESCRIBED TORQUE. THE SECOND NUT SHALL REMAIN AS A LOCK NUT.
9. THE ''SKIDMORE - WILHELM' DEVICE IS AVAILABLE THROUGH THE V.A.O.T. CONSTRUCTION DIVISION.

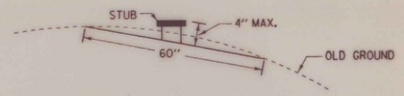
PROCEDURE FOR ASSEMBLY OF BASE CONNECTION

GENERAL NOTES

1. DESIGN CONFORMS WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.
2. MATERIAL AND FABRICATION SHALL CONFORM TO THE REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SHEETS AND SPECIFICATIONS.
3. THE POST CUT SHALL BE A SAW CUT ONLY. ALL OTHER CUTS EXCLUDING POST CUTS MAY BE FLAME CUT PROVIDED ALL EDGES ARE GROUND SMOOTH. METAL PROJECTING BEYOND THE PLATE FACE WILL NOT BE PERMITTED. ALL POST HOLES SHALL BE DRILLED.
4. PAINT FOR SAW CUT SHALL BE A SINGLE COMPONENT ZINC-RICH COMPOUND YIELDING A DRIED FILM OF AT LEAST 85% PURE ZINC. IT SHALL MEET OR EXCEED THE REQUIREMENT OF VT.1.05 ''ZINC RICH COATING''.
5. EXTREME CARE SHOULD BE TAKEN TO KEEP THE SLIP JOINT FREE OF ANY FOREIGN MATERIAL, EITHER BY WRAPPING THE JOINT OR THOROUGH CLEANING IMMEDIATELY AFTER POURING OF CONCRETE.
6. ALL FUSE PLATE BOLTS SHALL BE TIGHTENED BY THE FABRICATOR TO THE PRESCRIBED BOLT TENSION. THE CONTRACTOR WILL BE HELD RESPONSIBLE TO CHECK AND CERTIFY THAT THE REQUIRED RESIDUAL TENSIONS ARE OBTAINED.
7. THE TOTAL WEIGHT OF TWO (2) POSTS WITH 3' - 2'' SPACING OR A SINGLE POST OF A TWO (2) POSTS INSTALLATION WITH 7' - 0'' SPACING SHALL NOT EXCEED 600 POUNDS BELOW THE FUSE PLATE.
8. THE AMOUNT OF TORQUE NECESSARY TO ACHIEVE THE PROPER BOLT TENSION FOR BOTH THE ''FUSE PLATE'' AND THE ''SLIP BASE'' SHALL BE DETEMINED BY USE OF A SUITABLE TORQUE WRENCH CALIBRATED IN A ''SKIDMORE-WELHELM'' DEVICE. THE PROCEDURE FOR CALIBRATING THE WRENCH IS OUTLINED IN THE ''PROCEDURE FOR ASSEMBLY OF BASE CONNECTION'' ON THIS SHEET.
9. DUE TO THE VARIABILITY OF THE GALVANIZATION ON THE BOLTS, NUTS, AND WASHERS, ETC., NO FORMULA OR TABLES SHALL BE USED TO CALCULATE THE REQUIRED CONVERSION FROM BOLT TENSION TO APPLIED TORQUE. UNLESS APPROVED BY TRAFFIC AND SAFETY DIVISION.
10. THE INSPECTION OF THE ''FUSE PLATE BOLTS'' SHALL BE AS OUTLINED IN THE MOST RECENT EDITION OF AASTHO ''STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES'', SECTION 11.5.6 ''CONNECTIONS USING HIGH STRENGTH BOLTS ''.
11. INSPECTION OF THE ''SLIP BASE BOLTS'' SHALL BE AS FOLLOWS: USING A TORQUE WRENCH WHICH HAS BEEN CALIBRATED IN THE ''SKIDMORE-WILHELM'' DEVICE WITH THREE BOLTS OF THE SAME GRADE. SIZE AND CONDITION AS THOSE UNDER INSPECTION, THE INSPECTOR SHALL SET THE WRENCH FOR MAXIMUM SETTING SHOWN BELOW FOR ''SLIP BASE BOLTS'' AND TEST ALL ''SLIP BASE BOLTS'' IN EACH ASSEMBLY.
    - A) IF THE BOLT BEING TESTED TURNS MORE THAN 5 UPON APPLICATION OF THE WRENCH SET TO THE MAXIMUM. THE INSPECTOR SHALL SET THE WRENCH TO THE MINIMUM AND RETEST THE BOLT. IF THE BOLT TURNS LESS THAN 5 UPON APPLICATION OF THE WRENCH SET TO MINIMUM, IT SHALL BE CONSIDERED ACCEPTABLE. IF THE BOLT TURNS MORE THAN 5 UPON APPLICATION OF THE WRENCH SET TO MINIMUM, IT SHALL BE TIGHTENED AT LEAST TO THE MINIMUM.
    - B) IF THE BOLT BEING TESTED TURNS LESS THAN 5 UPON APPLICATION OF THE WRENCH SET TO MAXIMUM, IT SHALL BE LOOSENED AND RETIGHTENED SO THAT IT FALLS WITHIN THE RANGE SPECIFIED AND REINSPECTED AS OUTLINED ABOVE.
12. SLIP BASE BOLT TENSIONS

BOLT SIZE	MIN. BOLT TENSION	MAX. BOLT TENSION
5/8 '' DIA.	1740 LBS.	2660 LBS.
3/4 '' DIA.	2400 LBS.	3660 LBS.

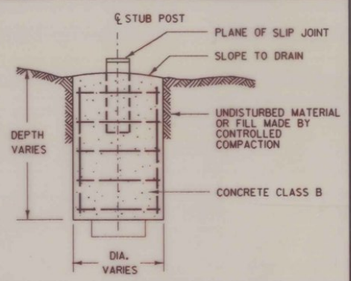
13. ALL DIMENSIONS REFERRING TO STUB HEIGHT IN THE VARIOUS TABLES AND FOUNDATION DETAILS SHALL BE ADJUSTED AS REQUIRED TO RESULT IN A TOTAL STUB HEIGHT WHICH IS NOT MORE THAN FOUR INCHES ABOVE A 60-INCH CHORD ALIGNED RADIALLY TO THE CENTERLINE OF THE HIGHWAY AND CONNECTING ANY POINT, WITHIN THE LENGTH OF THE CHORD, ON THE GROUND SURFACE ON ONE SIDE OF THE SUPPORT TO A POINT ON THE GROUND SURFACE ON THE OTHER SIDE.



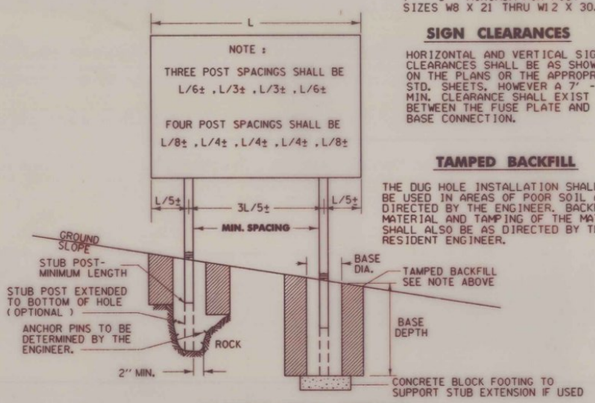
USE H. S. BOLTS WITH HEX. AND HEX. NUTS, ONE 1/4 '' THICK FLAT WASHERS UNDER EACH BOLT HEAD, AND ONE (1) 1/4 '' THICK FLAT WASHER UNDER THE NUT.

FUSE PLATE

(SEE TABLE FOR DIMENSIONS)



FLAT GROUND FOUNDATION DETAILS



POST SPACING

3' - 2'' MINIMUM FOR POST SIZES W6 X 9 THRU W8 X 18
7' - 0'' MINIMUM FOR POST SIZES W8 X 21 THRU W12 X 30.

SIGN CLEARANCES

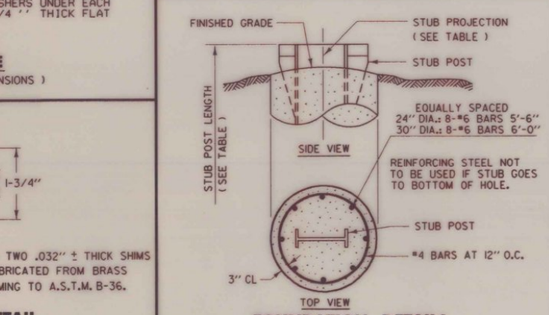
HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE AS SHOWN ON THE PLANS OR THE APPROPRIATE STD. SHEETS. HOWEVER A 7' - 0'' MIN. CLEARANCE SHALL EXIST BETWEEN THE FUSE PLATE AND BASE CONNECTION.

TAMPED BACKFILL

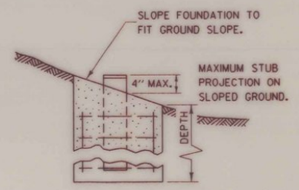
THE DUG HOLE INSTALLATION SHALL BE USED IN AREAS OF POOR SOIL AS DIRECTED BY THE ENGINEER. BACKFILL MATERIAL AND TAMPING OF THE MATERIAL SHALL ALSO BE AS DIRECTED BY THE RESIDENT ENGINEER.

CONSTRUCTION METHOD

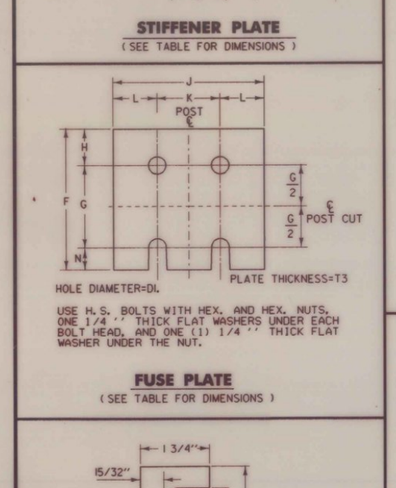
HOLES FOR POST FOOTINGS MAY BE AUGERED OR DUG. THE HOLES MAY BE LEFT WITH EARTH SIDES, IF THE MATERIAL IS FIRM, AND ALL DISTURBED SOIL AROUND THE CURCUMFRENCE OF THE AUGERED HOLE IS REMOVED. IF NOT, A SUITABLE FORM APPROVED BY THE ENGINEER SHALL BE USED. CORRUGATED METAL CULVERT PIPE OR PAPER FORMS MANUFACTURED FOR USE AS CONCRETE COLUMN FORMS WILL BE ACCEPTABLE. IF THE STUB IS EXTENDED TO THE BOTTOM OF THE HOLE, A CONCRETE BLOCK FOOTING SHALL BE UTILIZED TO SUPPORT THE POST AND THE POST SHALL BE HELD SECURELY IN PLACE AT THE BOTTOM. THIS MAY BE DONE BY EMBEDDING THE POST AND CONCRETE BLOCK FOOTING IN WET CONCRETE AND ALLOWING TO SET WITH THE POST SECURED IN POSITION. PLUMBED AND PROPERLY BRACED. THE REMAINING FOOTING MAY BE POURED. THE TIME BETWEEN POURS FOR THE CURING OF THE CONCRETE SHALL BE AS DETERMINED BY THE ENGINEER. NO PART OF THE FORM SHALL SHOW ABOVE THE GROUND LINE WHEN THE WORK IS COMPLETED.



FOUNDATION DETAILS



SLOPING GROUND FOUNDATION DETAILS



FURNISH TWO .012"± THICK AND TWO .032" ± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M. B-36.

SHIM DETAIL

REVISIONS AND CORRECTIONS

MARCH 1, 1988 - FHWA COMMENTS
JUNE 21, 1989 - FHWA - CHANGE TO 7' FUSE PLATE CLEARANCE
OCT 21, 1992 - REVISED NOTES AND POST SPACING REQUIREMENTS AND TITLE BLOCK REVISED

APPROVED: SEPT. 10, 1987
DATE

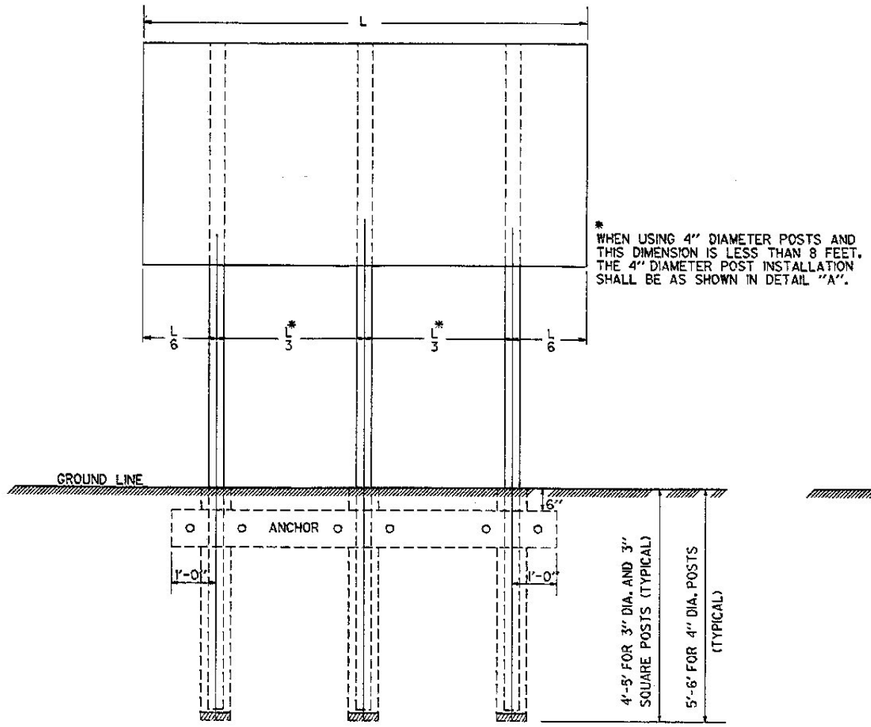
Gordon B. MacArthur
DIRECTOR OF ENGINEERING

David A Ross
TRAFFIC AND SAFETY ENGINEER

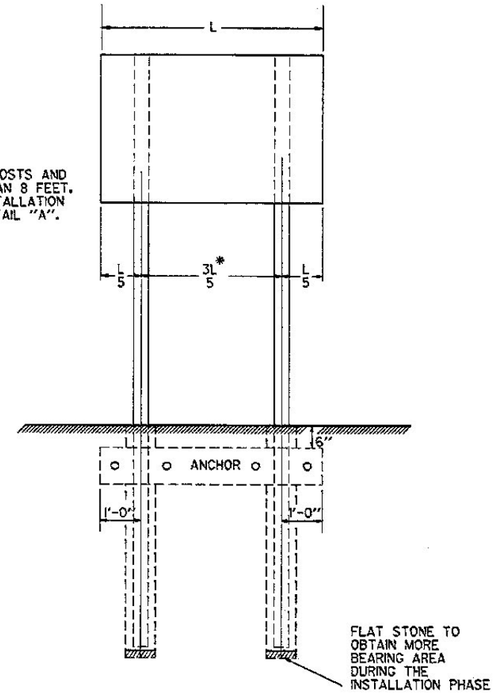
W-SHAPED STEEL SIGN POST

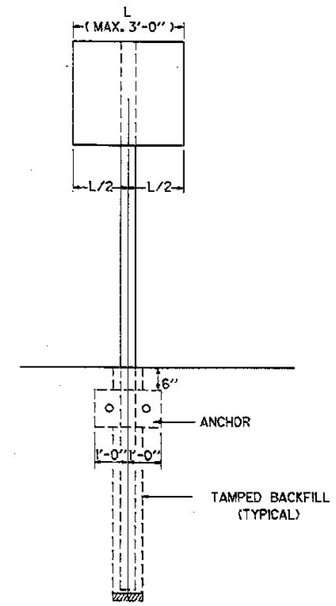
VERMONT AGENCY OF TRANSPORTATION

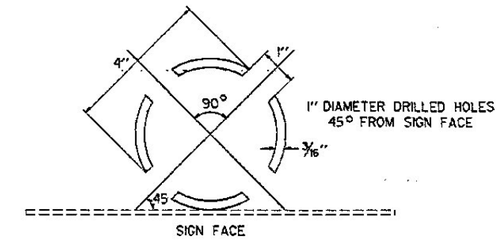
STANDARD
E-161



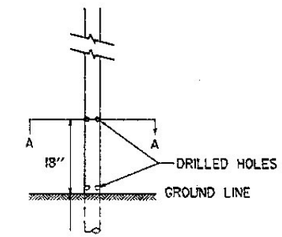
* WHEN USING 4" DIAMETER POSTS AND THIS DIMENSION IS LESS THAN 8 FEET, THE 4" DIAMETER POST INSTALLATION SHALL BE AS SHOWN IN DETAIL "A".





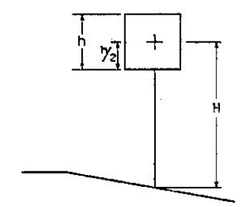


SECTION A-A



DETAIL A

4" DIAMETER POST
(MODIFIED)



POST SELECTION CHART DETAIL

POSTS THE POSTS FOR THESE INSTALLATIONS SHALL BE EXTRUDED TUBULAR POSTS OF ALUMINUM ALLOY 6061-T6.

HARDWARE THE ASSEMBLY HARDWARE USED TO FASTEN A SIGN TO THE POSTS SHALL BE ALUMINUM OR STAINLESS STEEL OF A STANDARD COMMERCIAL DESIGN.

ANCHORS USE TWO (2) PIECES OF 2" x 12" ROUGH PLANK. PLANKS, UNLESS OTHERWISE NOTED, SHALL CONFORM TO " STANDARD SPECIFICATIONS FOR CONSTRUCTION " SECTION 728.02

ERECTION ALL POSTS SHALL BE PLUMB AND LOCATED AS SPECIFIED BY DRAWINGS OR BY THE ENGINEER IN THE FIELD. LOCKNUTS ON 3/8" # 16 ALUMINUM POST BOLT CLIPS SHALL BE TORQUED TO 225 INCH POUNDS USING DRY, CLEAN, UNLUBRICATED THREADS. WHERE ALUMINUM SURFACES ARE TO BE PLACED IN CONTACT WITH WOOD, THEY SHALL BE GIVEN A THICK COAT OF AN ALKALI-RESISTANT BITUMINOUS PAINT MEETING THE REQUIREMENTS OF MILITARY SPECIFICATION MIL-P-6883, WHICH SHALL BE DRY BEFORE INSTALLATION.

THE HOLE SHALL BE CAREFULLY DUG AND THE POST SET TO THE DEPTH SPECIFIED ABOVE. POST SHALL NOT BE DRIVEN. THE BACKFILL MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF APPROVED GRAVEL OR SHALL BE A MATERIAL APPROVED BY THE ENGINEER. COMPACTION OF THE BACKFILL WILL BE DONE AS DIRECTED BY THE ENGINEER.

IN AREAS WHERE LEDGE ROCK IS ENCOUNTERED POSTS WILL BE SET AND GROUTED 24" DEEP IN THE LEDGE UNLESS THE POSTS PENETRATE THE GROUND 4'.

POST WEIGHTS		
POST DIAMETER	WALL THICKNESS	WEIGHT PER FT.
3" ROUND	3/16"	1.9 LBS
4" ROUND	3/16"	2.6 LBS
3" SQUARE	3/16"	2.5 LBS

POST SELECTION CHART		
SIGN AREA (FT.^{2}) x H(FT.) ÷ SV (SELECTION VALUE)		
POST SIZE	Sv (FT.^{3})	DESIGN CRITERIA
3" DIA.	257	WIND VELOCITY = 60 MPH (10 YEAR
4" DIA. (MODIFIED)	315	MEAN RECURRENCE INTERVAL) WIND
		PRESSURE = 12 PSF, ALUMINUM Fy =
3" SQUARE TUBE*	350	24,000 PSI, ALLOWABLE STRESS
4" DIA.	477	= 1.4 (24,000) PSI

*USE ON SINGLE POST INSTALLATIONS ONLY

REVISIONS AND CORRECTIONS

MARCH 1, 1988 FHWA REVIEW COMMENTS

APPROVED SEPT. 10, 1987
DATE

David W Kelley
CHIEF ENGINEER

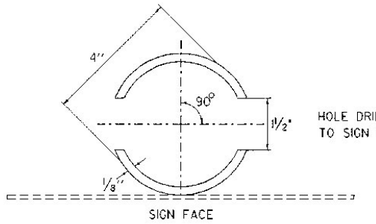
Arthur Jones
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon S. MacArthur
TRAFFIC AND SAFETY ENGINEER

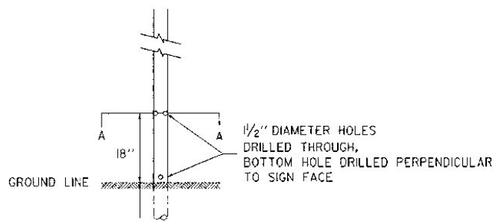
TUBULAR ALUMINUM SIGN POST

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-162

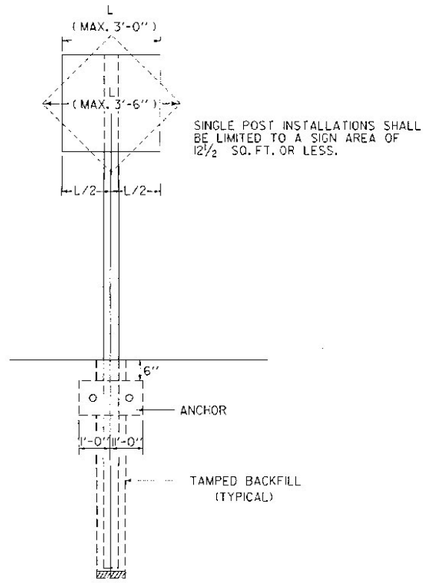


SECTION A-A

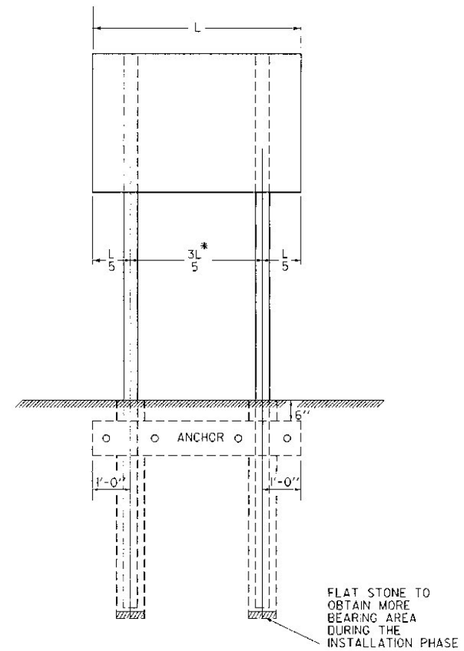


DETAIL A

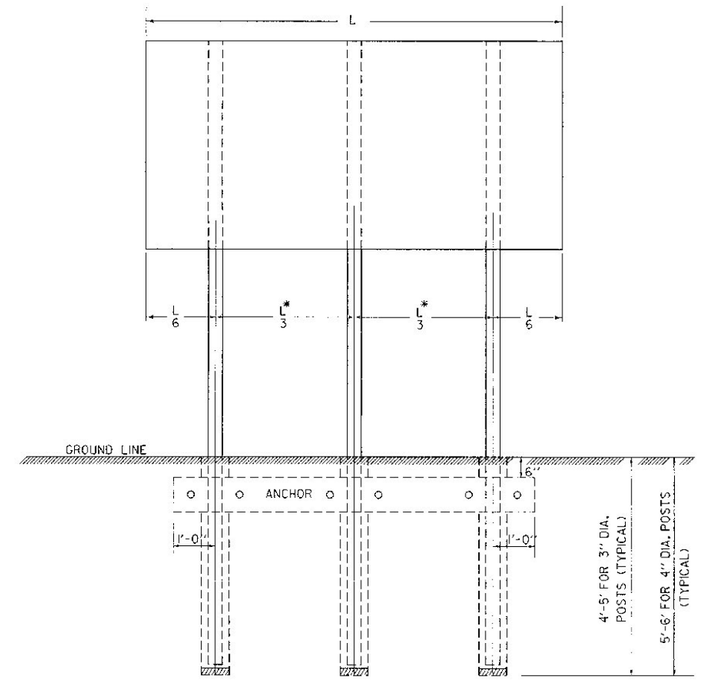
4" DIAMETER POST
(MODIFIED)

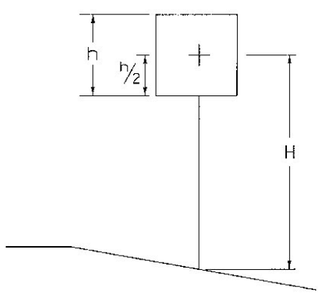


* WHEN CONSTRUCTING MULTIPLE POST INSTALLATIONS, THE POST SPACING SHALL BE A MINIMUM OF 7' - 4" CENTER TO CENTER OF THE POSTS UNLESS USED BEHIND GUARD-RAIL A DISTANCE ≥ THE DEFLECTION DISTANCE (SEE STD. E-160).



IN AREAS WHERE LEDGE ROCK IS ENCOUNTERED POSTS WILL BE SET AND GROUTED WITH TYPE 4 MORTAR, 24" BELOW THE TOP SURFACE OF THE SOLID ROCK UNLESS THE POSTS PENETRATE THE GROUND A MIN. 4'.





POST SELECTION CHART		
SIGN AREA (FT.²) x H(FT.) ≤ SV (SELECTION VALUE)		
POST SIZE	SV (FT.³)	DESIGN CRITERIA
3" DIA.	182	WIND VELOCITY = 60 MPH (10 YEAR MEAN RECURRENCE INTERVAL) WIND PRESSURE = 13 PSF ALUMINUM FY = 24,000 PSI ALLOWABLE STRESS = 1.4 (24,000)PSI
4" DIA. *	334	
4" DIA. (MOD) *	329	

* TWO POST INSTALLATIONS - USE ONLY BEHIND GUARDRAIL AT A DISTANCE ≥ THE GUARDRAIL DEFLECTION DISTANCE. (SEE STD. E-160)

POST WEIGHTS		
POST DIAMETER	WALL THICKNESS	WEIGHT PER FT.
3" ROUND	⅛"	1.3 LBS
4" ROUND	⅛"	1.7 LBS
4" ROUND (MOD.)	⅛"	1.7 LBS

NOTES

ANCHORS USE TWO (2) PIECES OF 2" x 12" ROUGH PLANK. PLANKS, UNLESS OTHERWISE NOTED, SHALL CONFORM TO " STANDARD SPECIFICATIONS FOR CONSTRUCTION " SECTION 728.02

ERECTION LOCKNUTS ON ⅜" # 16 ALUMINUM POST BOLT CLIPS SHALL BE TORQUED TO 225 INCH POUNDS USING DRY, CLEAN, UNLUBRICATED THREADS. WHERE ALUMINUM SURFACES ARE TO BE PLACED IN CONTACT WITH WOOD, THEY SHALL BE GIVEN A THICK COAT OF AN ALKALI-RESISTANT BITUMINOUS PAINT MEETING THE REQUIREMENTS OF MILITARY SPECIFICATION MIL-P-6883, WHICH SHALL BE DRY BEFORE INSTALLATION.

THE HOLE SHALL BE CAREFULLY DUG AND THE POST SET TO THE DEPTH SPECIFIED ABOVE. POST SHALL NOT BE DRIVEN. THE BACKFILL MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF APPROVED GRAVEL OR SHALL BE A MATERIAL APPROVED BY THE ENGINEER. COMPACTION OF THE BACKFILL WILL BE PERFORMED AS DIRECTED BY THE ENGINEER.

OTHER STDS. REQUIRED: E-160

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
MAR. 11, 1988 - FHWA REVIEW COMMENTS
AUG. 18, 1995 - REVISED POST WALL THICKNESS AND APPROPRIATE VALUES. ADDED 4" DIAMETER (MOD.) POST.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

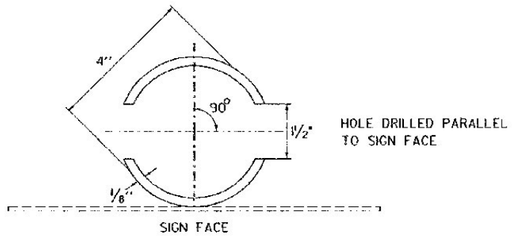
TUBULAR ALUMINUM SIGN POST

/traf/std/stde162.dgn : stde162.i

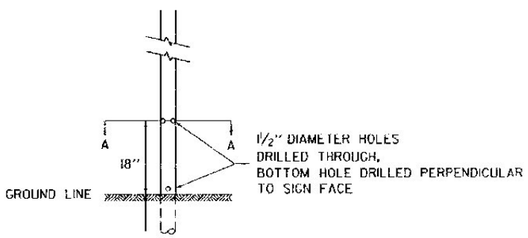
VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-162

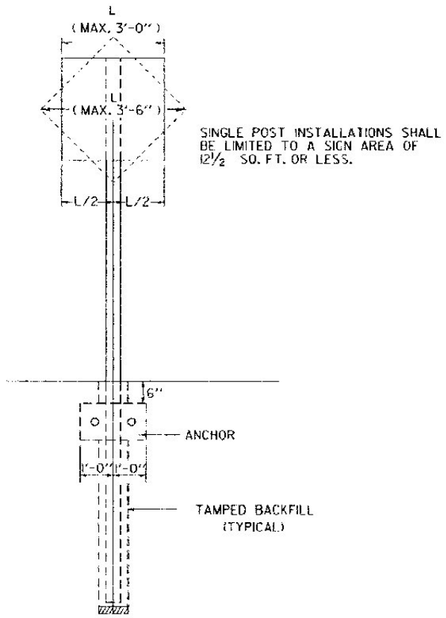


SECTION A-A



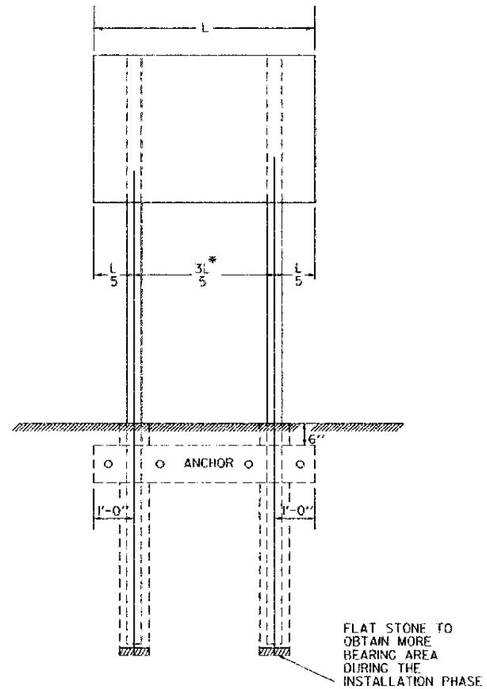
DETAIL A

4" DIAMETER POST
(MODIFIED)

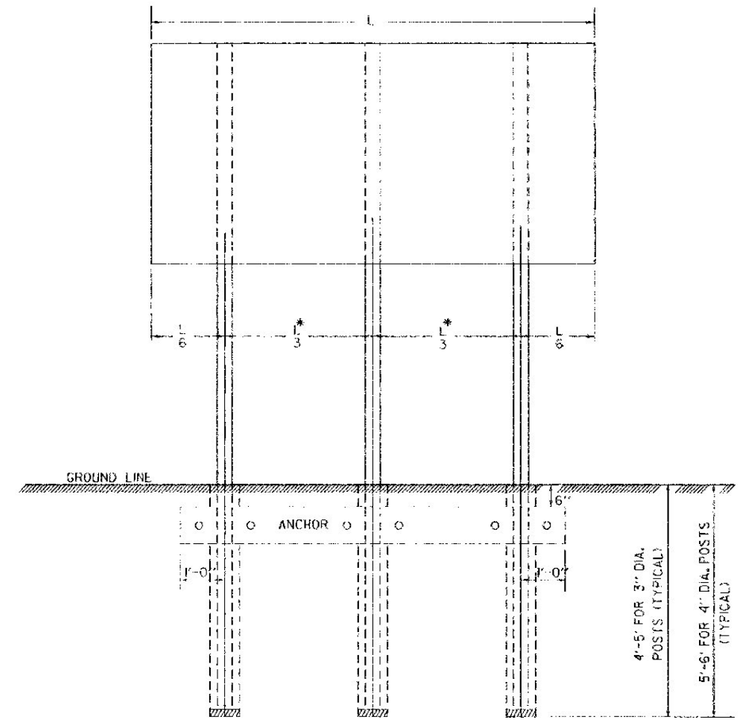


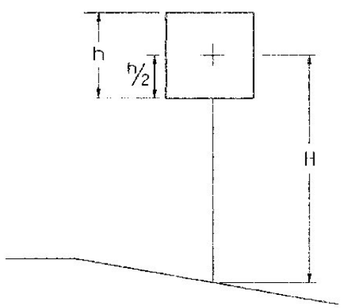
SINGLE POST INSTALLATIONS SHALL BE LIMITED TO A SIGN AREA OF 12½ SQ. FT. OR LESS.

* WHEN CONSTRUCTING MULTIPLE POST INSTALLATIONS, THE POST SPACING SHALL BE A MINIMUM OF 7' - 4" CENTER TO CENTER OF THE POSTS UNLESS USED BEHIND GUARD-RAIL A DISTANCE ≥ THE DEFLECTION DISTANCE (SEE STD. E-160).



IN AREAS WHERE LEDGE ROCK IS ENCOUNTERED POSTS WILL BE SET AND GROUTED WITH TYPE 4 MORTAR, 24" BELOW THE TOP SURFACE OF THE SOLID ROCK UNLESS THE POSTS PENETRATE THE GROUND A MIN. 4'.





POST SELECTION CHART		
SIGN AREA (FT.²) x H(FT.) ≤ SV (SELECTION VALUE)		
POST SIZE	Sv (FT.³)	DESIGN CRITERIA
3" DIA.	182	WIND VELOCITY = 60 MPH (10 YEAR MEAN RECURRENCE INTERVAL) WIND PRESSURE = 13 PSF ALUMINUM Fy = 24,000 PSI ALLOWABLE STRESS = 1.4 (24,000)PSI
4" DIA.*	334	
4" DIA. (MOD)*	329	

* TWO POST INSTALLATIONS - USE ONLY BEHIND GUARDRAIL AT A DISTANCE > THE GUARDRAIL DEFLECTION DISTANCE. (SEE STD. E-160)

POST WEIGHTS		
POST DIAMETER	WALL THICKNESS	WEIGHT PER FT.
3" ROUND	1/8"	1.3 LBS
4" ROUND	1/8"	1.7 LBS
4" ROUND (MOD.)	1/8"	1.7 LBS

NOTES

ANCHORS USE TWO (2) PIECES OF 2" x 12" ROUGH PLANK. PLANKS, UNLESS OTHERWISE NOTED, SHALL CONFORM TO " STANDARD SPECIFICATIONS FOR CONSTRUCTION " SECTION 728.02

ERECTION LOCKNUTS ON ⅜" # 16 ALUMINUM POST BOLT CLIPS SHALL BE TORQUED TO 225 INCH POUNDS USING DRY, CLEAN, UNLUBRICATED THREADS. WHERE ALUMINUM SURFACES ARE TO BE PLACED IN CONTACT WITH WOOD, THEY SHALL BE GIVEN A THICK COAT OF AN ALKALI-RESISTANT BITUMINOUS PAINT MEETING THE REQUIREMENTS OF MILITARY SPECIFICATION MIL-P-6883, WHICH SHALL BE DRY BEFORE INSTALLATION.

THE HOLE SHALL BE CAREFULLY DUG AND THE POST SET TO THE DEPTH SPECIFIED ABOVE. POST SHALL NOT BE DRIVEN. THE BACKFILL MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF APPROVED GRAVEL OR SHALL BE A MATERIAL APPROVED BY THE ENGINEER. COMPACTION OF THE BACKFILL WILL BE PERFORMED AS DIRECTED BY THE ENGINEER.

OTHER STDS. REQUIRED: E-160

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
MAR. 11, 1988 - FHWA REVIEW COMMENTS
AUG. 18, 1995 - REVISED POST WALL THICKNESS AND APPROPRIATE VALUES. ADDED 4" DIAMETER (MOD.) POST.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

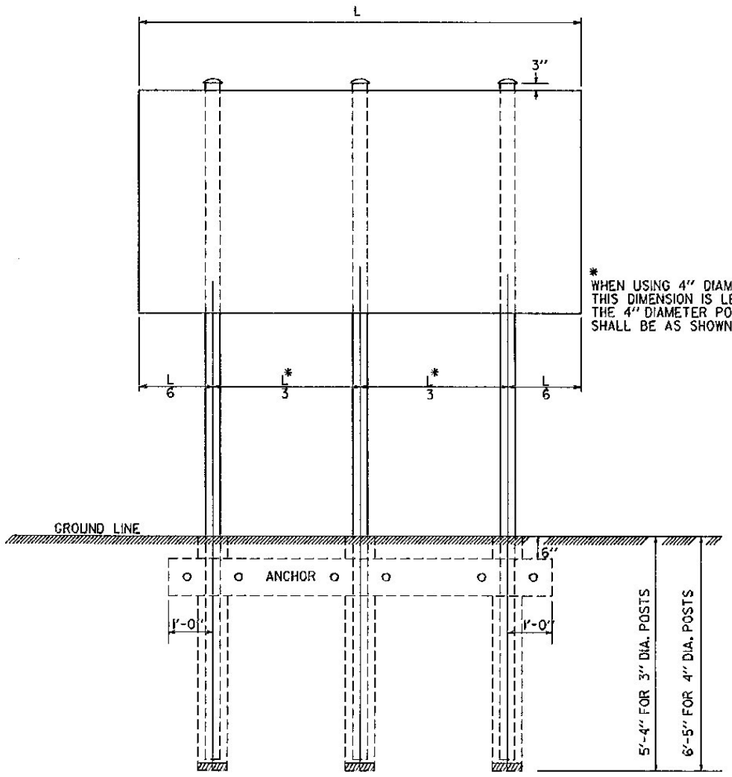
TUBULAR ALUMINUM SIGN POST

/traf/std/stdel62.dgn : stdel62.

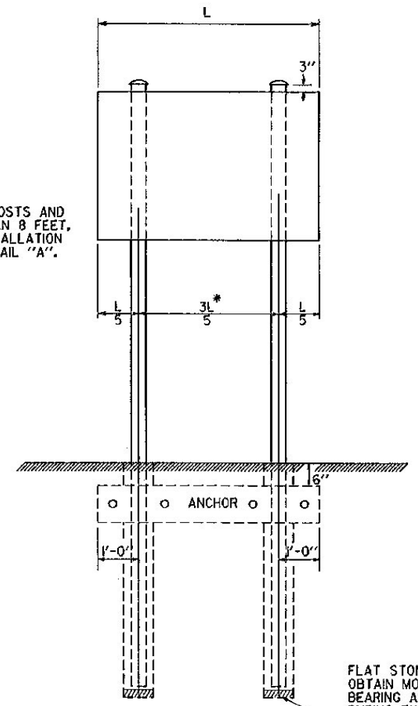
VERMONT AGENCY OF TRANSPORTATION

STANDARD

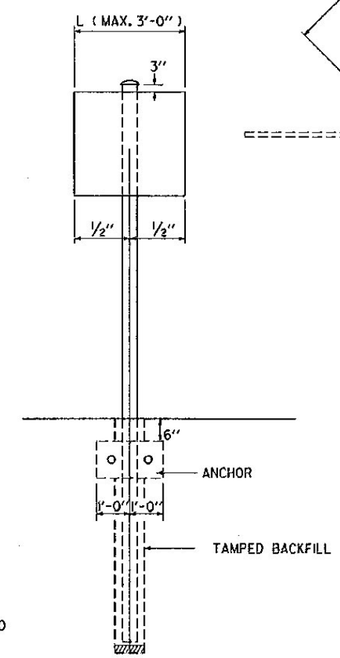
E-162

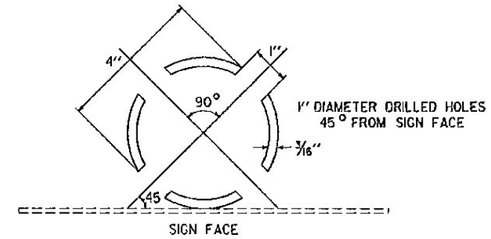


* WHEN USING 4" DIAMETER POSTS AND THIS DIMENSION IS LESS THAN 8 FEET, THE 4" DIAMETER POST INSTALLATION SHALL BE AS SHOWN IN DETAIL "A".

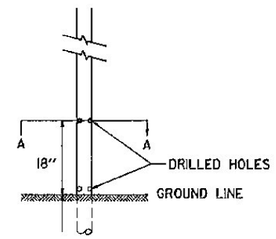


FLAT STONE TO OBTAIN MORE BEARING AREA DURING THE INSTALLATION PHASE





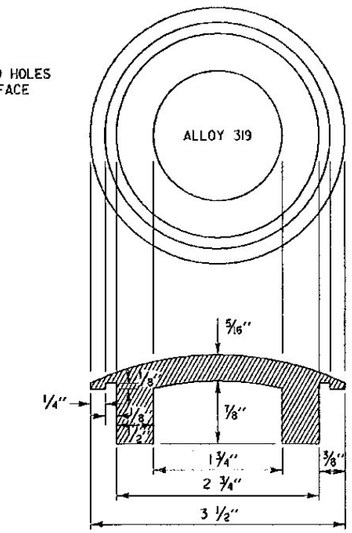
SECTION A-A



DETAIL A

4" DIAMETER POST (MODIFIED)

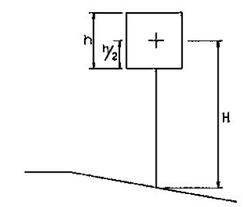
CAST ALUMINUM CAP FOR SIGN POSTS



DIMENSIONS SHOWN ARE FOR 3" O.D., 2 3/4" I.D. + COMMERCIAL TOLERANCES. CAPS DESIGNED FOR DRIVE FIT DIMENSIONS ARE PROPORTIONAL FOR LARGER DIAMETER TUBING

POST DIAMETER	WALL THICKNESS	WEIGHT PER FT.
3" ROUND	3/16"	1.9 LBS
4" ROUND	3/16"	2.6 LBS
3" SQUARE	3/16"	2.5 LBS

TUBULAR ALUMINUM POST



POST SELECTION CHART DETAIL

POSTS THE POSTS FOR THESE INSTALLATIONS SHALL BE EXTRUDED TUBULAR POSTS OF ALUMINUM ALLOY 6061-T6.

HARDWARE THE ASSEMBLY HARDWARE USED TO FASTEN A SIGN TO THE POSTS SHALL BE ALUMINUM OR STAINLESS STEEL OF A STANDARD COMMERCIAL DESIGN APPROVED BY THE DEPARTMENT.

ANCHORS USE TWO (2) PIECES OF 2" x 12" ROUGH PLANK. PLANKS, UNLESS OTHERWISE NOTED, SHALL CONFORM TO " STANDARD SPECIFICATIONS FOR CONSTRUCTION " SECTION 728.02

IN AREAS WHERE LEDGE ROCK IS ENCOUNTERED POSTS WILL BE SET AND GROUTED 24" DEEP IN THE LEDGE UNLESS THE POSTS PENETRATE THE GROUND 4'.

ERECTION ALL POSTS SHALL BE PLUMB AND LOCATED AS SPECIFIED BY DRAWINGS OR BY THE ENGINEER IN THE FIELD. LOCKNUTS ON 3/8" # 16 ALUMINUM POST BOLT CLIPS SHALL BE TORQUED TO 225 INCH POUNDS USING DRY, CLEAN, UNLUBRICATED THREADS. WHERE ALUMINUM SURFACES ARE TO BE PLACED IN CONTACT WITH WOOD, THEY SHALL BE GIVEN A THICK COAT OF AN ALKALI-RESISTANT BITUMINOUS PAINT MEETING THE REQUIREMENTS OF MILITARY SPECIFICATION MIL-P-6883, WHICH SHALL BE DRY BEFORE INSTALLATION.

THE HOLE SHALL BE CAREFULLY DUG AND THE POST SET TO THE DEPTH SPECIFIED ABOVE. POST SHALL NOT BE DRIVEN. THE BACKFILL MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF GRANULAR BACKFILL FOR STRUCTURES OR SHALL BE MATERIAL APPROVED BY THE ENGINEER. COMPACTION OF THE BACKFILL WILL BE DONE AS DIRECTED BY THE ENGINEER.

POST SELECTION CHART		
SIGN AREA (FT.^{2}) x H(FT.) = SV (SELECTION VALUE)		
POST SIZE	Sv (FT.^{3})	DESIGN CRITERIA
3" DIA.	225	WIND VELOCITY = 60 MPH (10 YEAR
4" DIA. (MODIFIED)	276	MEAN RECURRENCE INTERVAL) WIND
		PRESSURE = 12 PSF, ALUMINUM Fy =
3" SQUARE TUBE*	307	21,000 PSI, ALLOWABLE STRESS
4" DIA.	418	= 1.4 (21,000) PSI

*USE ON SINGLE POST INSTALLATIONS ONLY

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David B Kelley
CHIEF ENGINEER

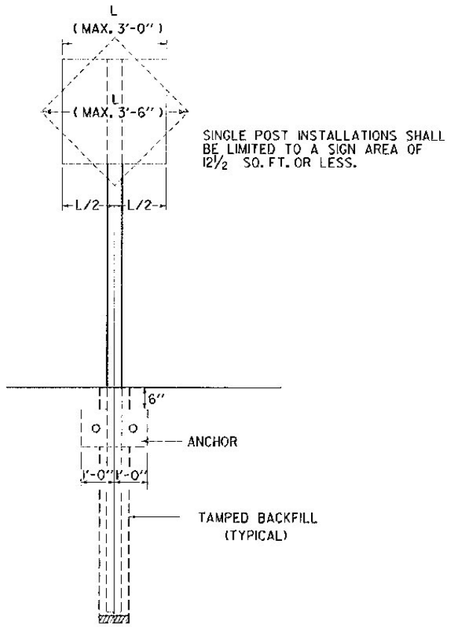
Arthur Ross
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

G. A. MacArthur
TRAFFIC AND SAFETY ENGINEER

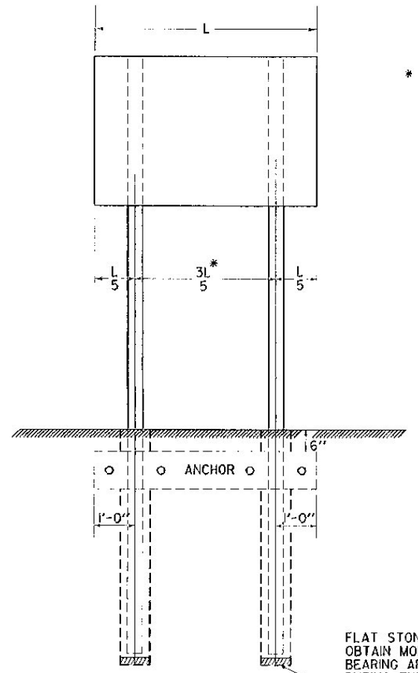
TUBULAR ALUMINUM SIGN POST

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-162



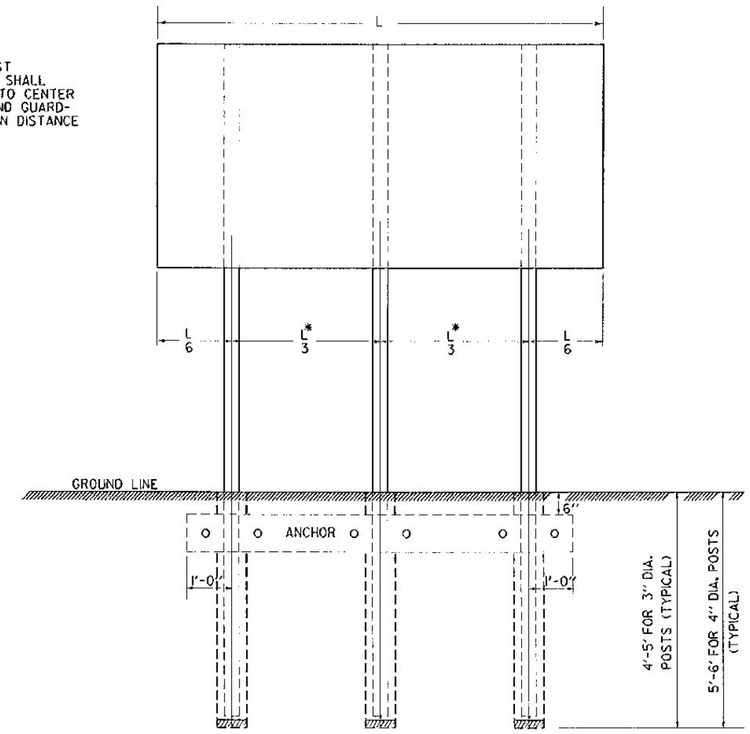
SINGLE POST INSTALLATIONS SHALL BE LIMITED TO A SIGN AREA OF $12\frac{1}{2}$ SQ. FT. OR LESS.

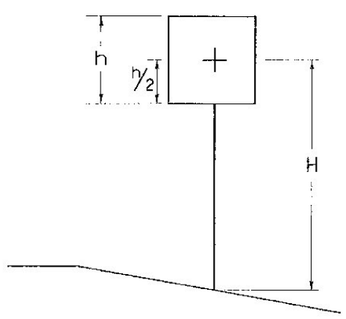


* WHEN CONSTRUCTING MULTIPLE POST INSTALLATIONS, THE POST SPACING SHALL BE A MINIMUM OF 7' - 4" CENTER TO CENTER OF THE POSTS UNLESS USED BEHIND GUARD-RAIL A DISTANCE ≥ THE DEFLECTION DISTANCE (SEE STD. E-160).

FLAT STONE TO OBTAIN MORE BEARING AREA DURING THE INSTALLATION PHASE

IN AREAS WHERE LEDGE ROCK IS ENCOUNTERED POSTS WILL BE SET AND GROUTED 24" DEEP IN THE LEDGE UNLESS THE POSTS PENETRATE THE GROUND A MIN. 4'.





POST SELECTION CHART		
SIGN AREA (FT.^{2}) x H(FT.) ≤ SV (SELECTION VALUE)		
POST SIZE	Sv (FT.^{3})	DESIGN CRITERIA
3" DIA.	257	WIND VELOCITY = 60 MPH (10 YEAR MEAN RECURRENCE INTERVAL)
4" DIA. *	477	WIND PRESSURE = 13 PSF ALUMINUM Fy = 24,000 PSI ALLOWABLE STRESS = 1.4 (24,000) PSI

* USE ONLY BEHIND GUARDRAIL AT A DISTANCE ≥ THE GUARDRAIL DEFLECTION DISTANCE. (SEE STD. E-160)

POST WEIGHTS		
POST DIAMETER	WALL THICKNESS	WEIGHT PER FT.
3" ROUND	3/16"	1.9 LBS
4" ROUND	3/16"	2.6 LBS

NOTES

ANCHORS USE TWO (2) PIECES OF 2" x 12" ROUGH PLANK. PLANKS, UNLESS OTHERWISE NOTED, SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SECTION 728.02

ERECTION LOCKNUTS ON 3/8" # 16 ALUMINUM POST BOLT CLIPS SHALL BE TORQUED TO 225 INCH POUNDS USING DRY, CLEAN, UNLUBRICATED THREADS. WHERE ALUMINUM SURFACES ARE TO BE PLACED IN CONTACT WITH WOOD, THEY SHALL BE GIVEN A THICK COAT OF AN ALKALI-RESISTANT BITUMINOUS PAINT MEETING THE REQUIREMENTS OF MILITARY SPECIFICATION MIL-P-6883, WHICH SHALL BE DRY BEFORE INSTALLATION.

THE HOLE SHALL BE CAREFULLY DUG AND THE POST SET TO THE DEPTH SPECIFIED ABOVE. POST SHALL NOT BE DRIVEN. THE BACKFILL MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF APPROVED GRAVEL OR SHALL BE A MATERIAL APPROVED BY THE ENGINEER. COMPACTION OF THE BACKFILL WILL BE PERFORMED AS DIRECTED BY THE ENGINEER.

REVISIONS AND CORRECTIONS

MARCH 1, 1988 - FHWA REVIEW COMMENTS

OCT 21, 1992 - REVISED NOTES, CHARTS AND TITLE BLOCK

APPROVED: SEPT. 10, 1987
DATE

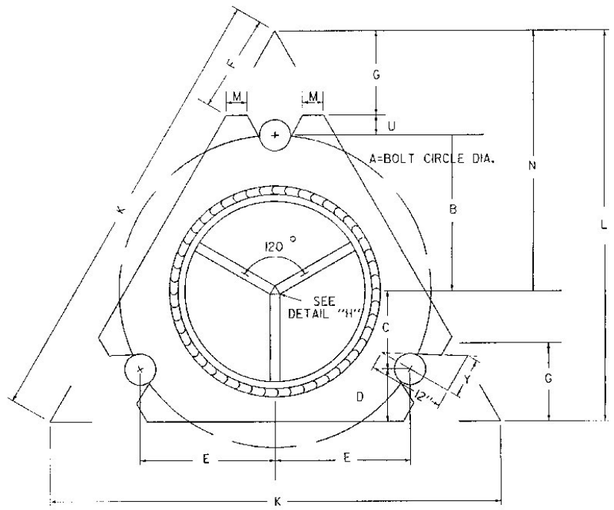
Gordon B. Mac Arthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

TUBULAR ALUMINUM SIGN POST

VERMONT AGENCY OF TRANSPORTATION

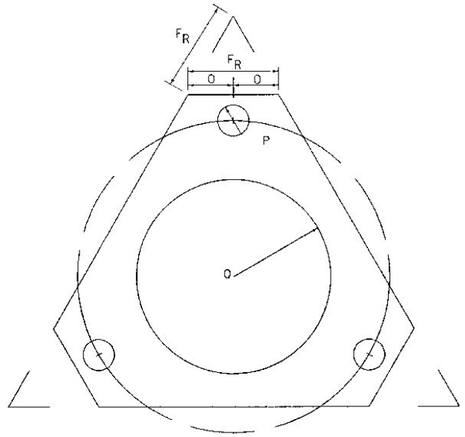
STANDARD
E-162



DETAILS OF MULTI-DIRECTIONAL SLIP BASE

TABLE A

DIMENSIONS NOMINAL PIPE SIZES	BOLT SIZE & TORQUE	WELD SIZE	t	Y	A	B	C	D	E	F	G	K	L	M	U	N
3" DIA. 3½" DIA.	⅝"Φ×3¼" T=450"LBS.	⅜"	⅝"	7"	7"	3½"	1¾"	1¼"	3"	2 5/16"	2"	10⅞"	9"	½"	½"	6"
4" DIA. 5" DIA.	¾"Φ×3¾" T=750"LBS.	7/16"	⅞"	8 9/16"	9"	4½"	2¼"	1½"	3⅞"	2⅞"	2½"	13"	11¼"	⅝"	½"	7½"



BOLT RETAINER PLATE

28 GAUGE (0.0187") GALVANIZED STEEL

BOLT RETAINER PLATE SIMILAR IN DETAIL TO THE BASE PLATES WITH THE FOLLOWING EXCEPTIONS

DIMENSIONS NOMINAL PIPE SIZES	F_R	O	P	O
3" DIA. 3½" DIA.	2⅛"	11/16"	1 1/16"	2½"
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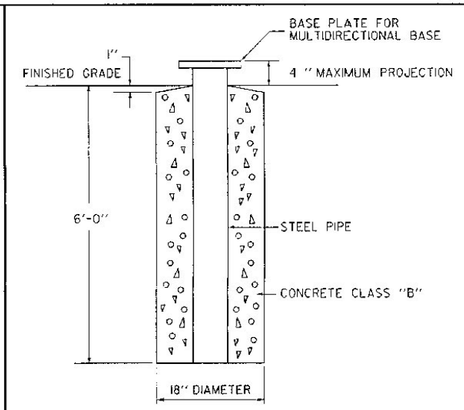
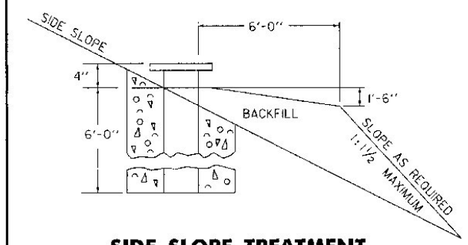
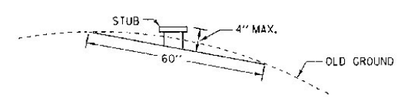


FOUNDATION DETAIL



SIDE SLOPE TREATMENT



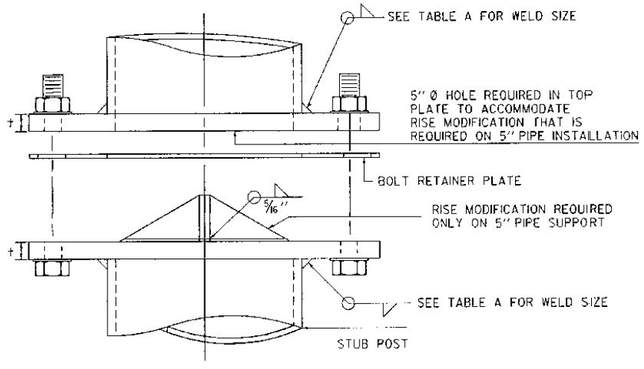
SEE GENERAL NOTE # 4.

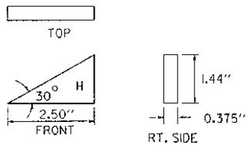
GENERAL NOTES

1. THE STEEL PIPE SHALL BE MANUFACTURED TO ASTM A501 OR ASTM A-53, TYPES E OR S, GRADE B AND SHALL BE GALVANIZED AS PER ASTM A-153.
2. THE MATERIAL FOR THE MULTIDIRECTIONAL SLIP BASE ASSEMBLY SHALL CONFORM TO AASHTO M-270, GRADE 36 STEEL, AND BE GALVANIZED AS PER ASTM A-153.
3. THE BOLTS, NUTS AND CIRCULAR WASHERS SHALL CONFORM TO ASTM SECTION 15 A-325, "HIGH STRENGTH CARBON STEEL BOLTS FOR STRUCTURAL STEEL JOINTS". ALL BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AS PER ASTM A-123.
4. ALL DIMENSIONS REFERRING TO STUB HEIGHT IN THE VARIOUS TABLES AND FOUNDATION DETAILS SHALL BE ADJUSTED AS REQUIRED TO RESULT IN A TOTAL STUB HEIGHT WHICH IS NOT MORE THAN FOUR INCHES ABOVE A 60-INCH CHORD ALIGNED RADIALLY TO THE CENTERLINE OF THE HIGHWAY AND CONNECTING ANY POINT, WITHIN THE LENGTH OF THE CHORD, ON THE GROUND SURFACE ON ONE SIDE OF THE SUPPORT TO A POINT ON THE GROUND SURFACE ON THE OTHER SIDE.

CONSTRUCTION METHOD

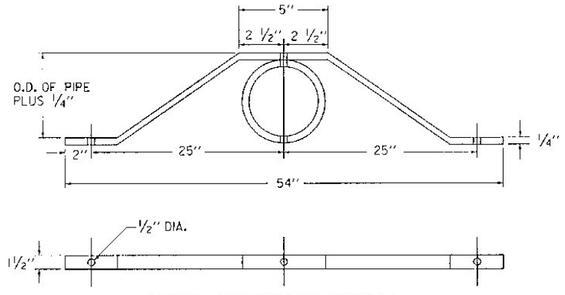
HOLES FOR POST FOOTINGS MAY BE AUGERED OR DUG. IF THE MATERIAL IS FIRM AND IF ALL DISTURBED SOIL AROUND THE CIRCUMFERENCE OF THE THE AUGERED HOLE IS REMOVED, THE HOLES MAY BE LEFT WITH EARTH SIDES. IF NOT, A SUITABLE FORM APPROVED BY THE ENGINEER SHALL BE USED. CORRUGATED METAL CULVERT PIPE OR PAPER FORMS, MANUFACTURED FOR USE AS CONCRETE COLUMN FORMS, WILL BE ACCEPTABLE. THE STUB SHALL BE EXTENDED TO THE BOTTOM OF THE HOLE AND SET ON A CONCRETE PAD FOOTING TO SUPPORT THE POST SO THE POST SHALL BE HELD SECURELY IN PLACE AT THE BOTTOM. THIS MAY BE DONE BY EMBEDDING THE POST AND CONCRETE BLOCK FOOTING IN WET CONCRETE, AND ALLOWING TO SET WITH THE POST SECURED IN POSITION; PLUMBED AND PROPERLY BRACED. THE REMAINDER OF THE FOOTING MAY THEN BE POURED. THE TIME BETWEEN POURS FOR THE CURING OF THE CONCRETE SHALL BE AS DETERMINED BY THE ENGINEER. THE FORM SHALL BE LEFT IN PLACE AND THE HOLE BACKFILLED AND COMPACTED AS DIRECTED BY THE ENGINEER. NO PART OF THE FORM SHALL SHOW ABOVE THE GROUND LINE WHEN THE WORK IS COMPLETED.





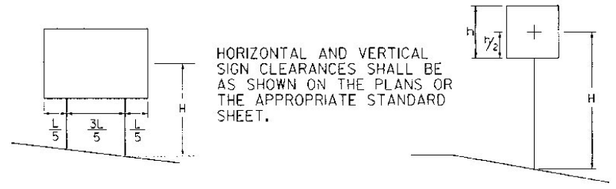
DETAIL "H"

3 REQUIRED
MOUNTED 120° APART
RISE MODIFICATION REQUIRED ONLY FOR 5" PIPE SUPPORT



SIGN SUPPORT BRACE

(REQUIRED WHEN INSTALLING 3 ASSEMBLY FRAME AS SHOWN ON STANDARD E-123)



HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE AS SHOWN ON THE PLANS OR THE APPROPRIATE STANDARD SHEET.

POST SELECTION CHART DETAIL

POST SELECTION CHART

SIGN AREA (FT ^{2}) × H (FT) ≤ SV (SELECTION VALUE)

POST DIA. INCHS	WEIGHT LB/FT	Sv	DESIGN CRITERIA
3	7.6	265	WIND SPEED = 60 MPH (10-YEAR MEAN RECURRENCE INTERVAL) WIND PRESSURE = 13 PSF STEEL MIN YIELD Fy = 36,000 PSI ALLOWABLE STRESS = (1.4) 0.60 Fy
3 ½	9.0	368	
4	10.8	494	
5	14.6	839	

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

SEPT. 26, 1987 - DATE OF ORIGINAL ISSUE
AUG. 18, 1995 - REVISED TITLE BLOCK

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon H. MacArthur
DIRECTOR OF ENGINEERING

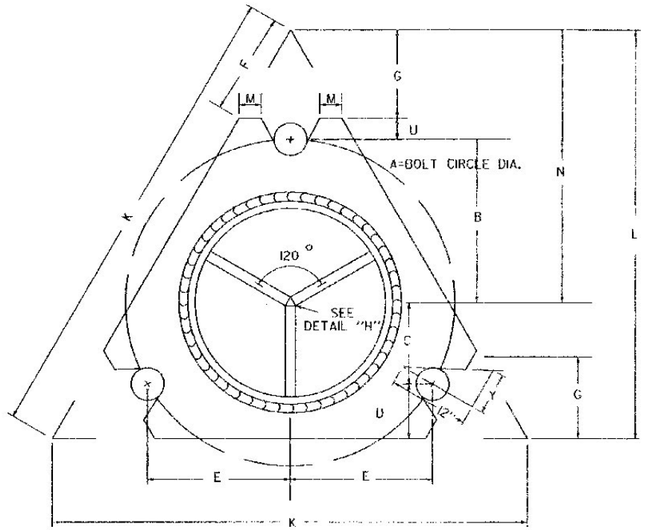
Dale A. Rorabacher
TRAFFIC AND SAFETY ENGINEER

TUBULAR STEEL SIGN POST

/traf/std/stdel63.dgn : stdel63.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-163



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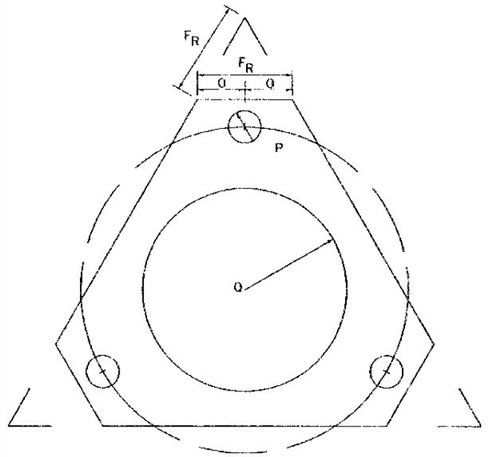

BOLT RETAINER PLATE

28 GAUGE (0.0187") GALVANIZED STEEL

BOLT RETAINER PLATE SIMILAR IN DETAIL TO THE BASE PLATES WITH THE FOLLOWING EXCEPTIONS

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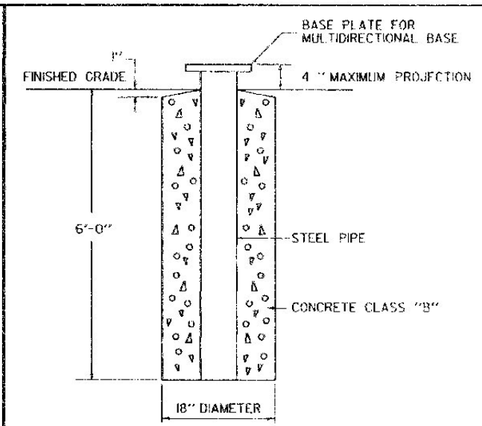
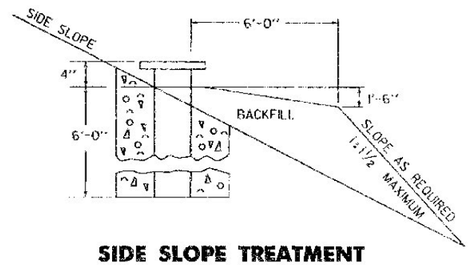
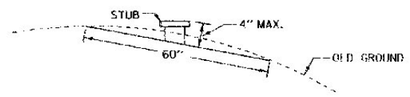


FOUNDATION DETAIL



SIDE SLOPE TREATMENT



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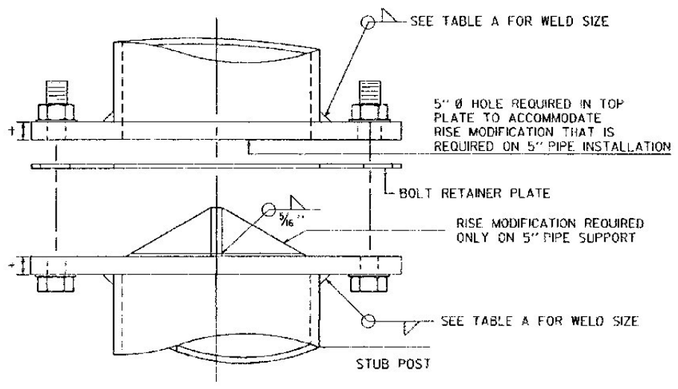

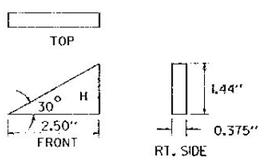

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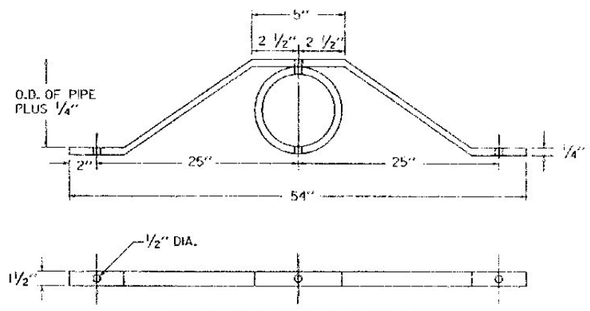

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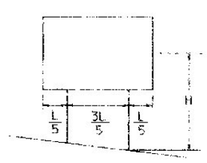

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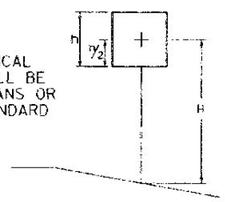

POST SELECTION CHART DETAIL

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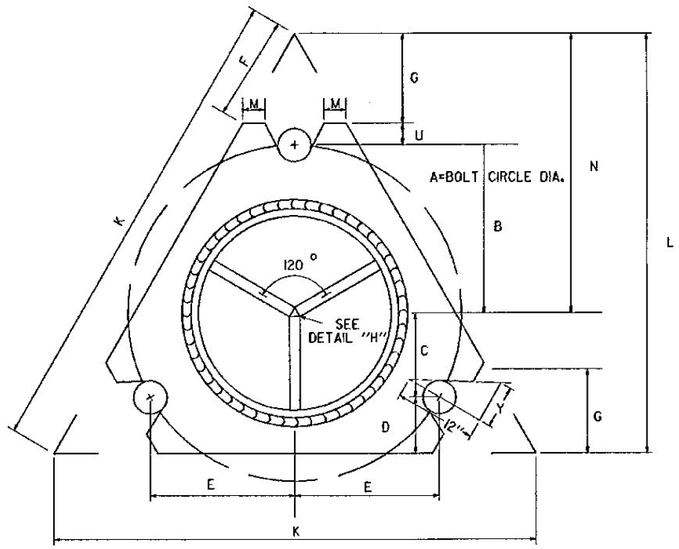
TUBULAR STEEL SIGN POST

/traf/std/stdel63.dgn : stdel63.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-163



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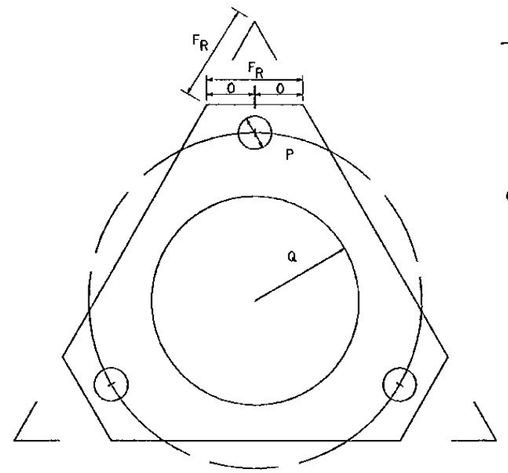

BOLT RETAINER PLATE

11 GAUGE (0.1225") GALVANIZED STEEL

BOLT RETAINER PLATE SIMILAR IN DETAIL TO THE BASE PLATES WITH THE FOLLOWING EXCEPTIONS

DIMENSIONS NOMINAL PIPE SIZES	F_R	O	P	Q
3" DIA. 3½" DIA.	2⅛"	1 1/16"	11/16"	2½"
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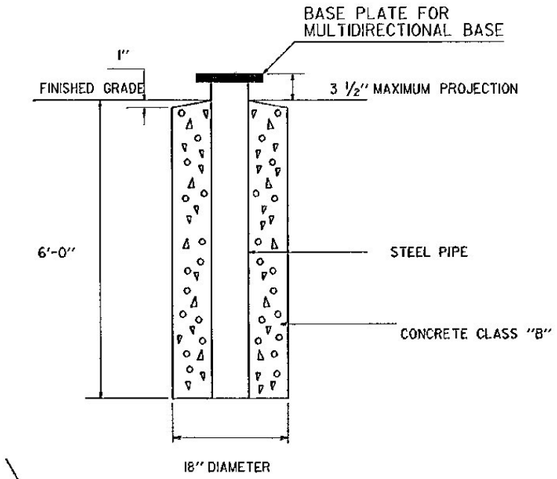

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3. THE BOLTS, NUTS AND CIRCULAR WASHERS SHALL CONFORM TO ASTM SECTION 15 A-325, "HIGH STRENGTH CARBON STEEL BOLTS FOR STRUCTURAL STEEL JOINTS". ALL BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AS PER ASTM A-123.
4. THE INSTALLATION AND INSPECTION OF THE BOLTED CONNECTION SHALL CONFORM TO SUBSECTION 506.19 (CONNECTIONS USING HIGH-STRENGTH BOLTS) OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION.

CONSTRUCTION METHOD

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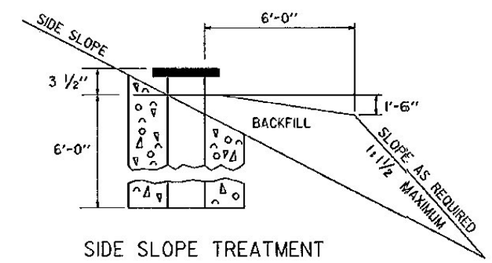
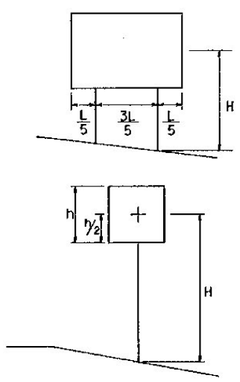
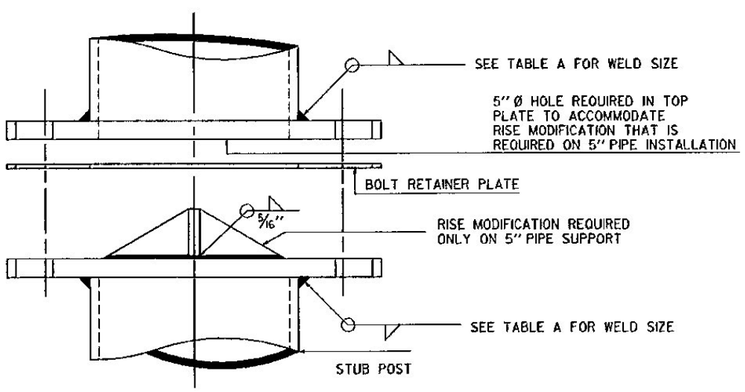
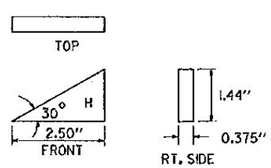


SIDE SLOPE TREATMENT



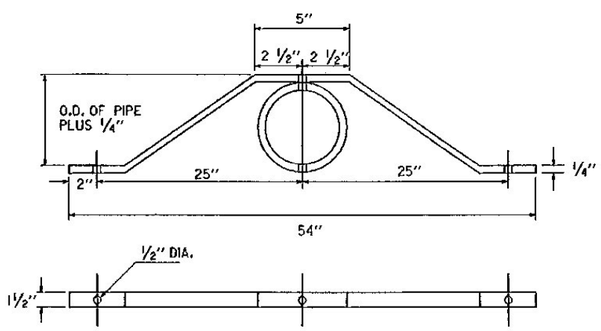
POST SELECTION CHART DETAIL





DETAIL "H"

3 REQUIRED
MOUNTED 120 °APART
RISE MODIFICATION REQUIRED ONLY FOR 5" PIPE SUPPORT



SIGN SUPPORT BRACE

(REQUIRED WHEN INSTALLING 3 ASSEMBLY FRAME AS SHOWN ON STANDARD E-123)

POST SELECTION CHART

SIGN AREA (FT ^{2}) x H (FT) ≤SV (SELECTION VALUE)

POST DIA.INCHS	WEIGHT LB/FT	Sv	DESIGN CRITERIA
3	7.6	265	WIND SPEED = 60 MPH (10-YEAR MEAN RECURRENCE INTERVAL) WIND PRESSURE = 15 PSF STEEL MIN YIELD Fy = 36,000 PSI ALLOWABLE STRESS = (1.4) 0.55 Fy
3 ½	9.0	368	
4	10.8	494	
5	14.6	839	

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David B Kelley
CHIEF ENGINEER

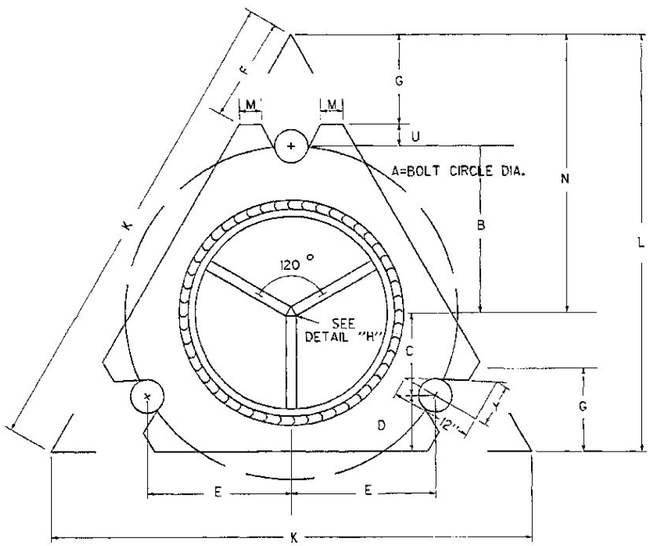
Arthur J Gosse
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

S.B. MacArthur
TRAFFIC AND SAFETY ENGINEER

TUBULAR STEEL SIGN POST

VERMONT AGENCY OF TRANSPORTATION

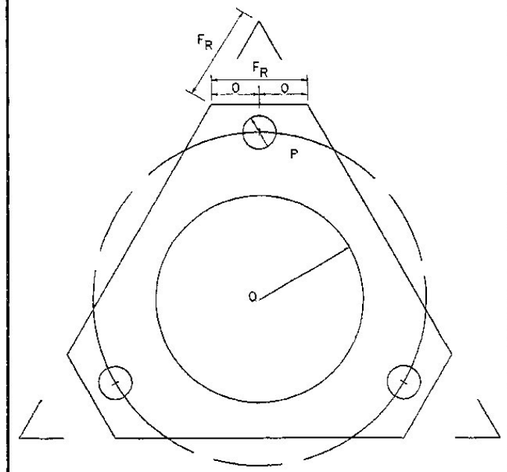
STANDARD
E-163



DETAILS OF MULTI-DIRECTIONAL SLIP BASE

TABLE A

DIMENSIONS NOMINAL PIPE SIZES	BOLT SIZE & TORQUE	WELD SIZE	t	Y	A	B	C	D	E	F	G	K	L	M	U	N
3" DIA. 3½" DIA.	⅝"Ø×3¼" T=450"LBS.	⅜"	⅝"	7"	7"	3½"	1¾"	1¼"	3"	2 5/16"	2"	10⅜"	9"	½"	½"	6"
4" DIA. 5" DIA.	¾"Ø×3¾" T=750"LBS.	7/16"	⅞"	8 9/16"	9"	4½"	2¼"	1½"	3⅞"	2⅞"	2½"	13"	11¼"	⅝"	½"	7½"

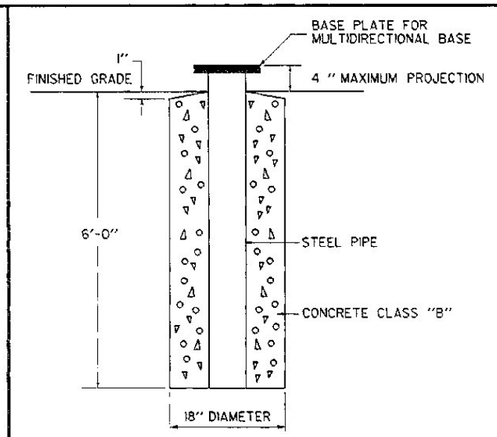


BOLT RETAINER PLATE

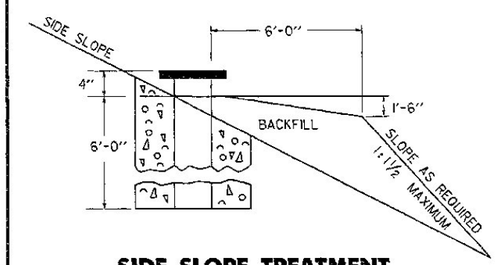
28 GAUGE (0.0187") GALVANIZED STEEL

BOLT RETAINER PLATE SIMILAR IN DETAIL TO THE BASE PLATES WITH THE FOLLOWING EXCEPTIONS

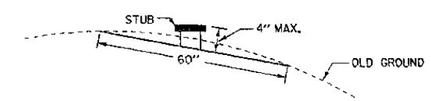
DIMENSIONS NOMINAL PIPE SIZES	F_R	O	P	O
3" DIA. 3½" DIA.	2⅛"	1 1/16"	11/16"	2½"
4" DIA. 5" DIA.	2⅝"	1 5/16"	13/16"	2⅞"



FOUNDATION DETAIL



SIDE SLOPE TREATMENT



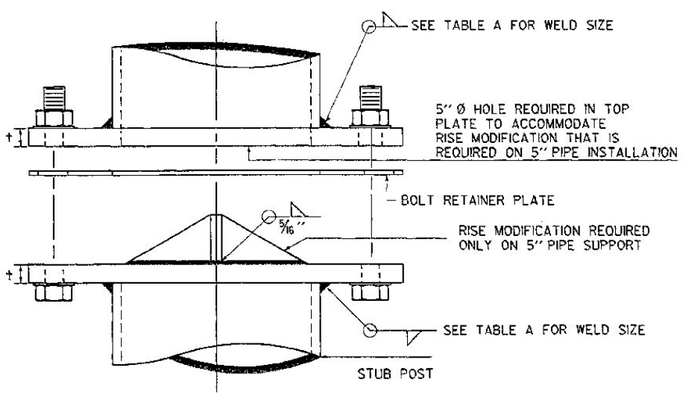
SEE GENERAL NOTE # 4.

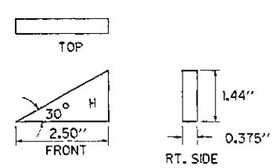
GENERAL NOTES

1. THE STEEL PIPE SHALL BE MANUFACTURED TO ASTM A501 OR ASTM A-53, TYPES E OR S, GRADE B AND SHALL BE GALVANIZED AS PER ASTM A-153.
2. THE MATERIAL FOR THE MULTIDIRECTIONAL SLIP BASE ASSEMBLY SHALL CONFORM TO AASHTO M-270, GRADE 36 STEEL, AND BE GALVANIZED AS PER ASTM A-153.
3. THE BOLTS, NUTS AND CIRCULAR WASHERS SHALL CONFORM TO ASTM SECTION 15 A-325, "HIGH STRENGTH CARBON STEEL BOLTS FOR STRUCTURAL STEEL JOINTS". ALL BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AS PER ASTM A-123.
4. ALL DIMENSIONS REFERRING TO STUB HEIGHT IN THE VARIOUS TABLES AND FOUNDATION DETAILS SHALL BE ADJUSTED AS REQUIRED TO RESULT IN A TOTAL STUB HEIGHT WHICH IS NOT MORE THAN FOUR INCHES ABOVE A 60-INCH CHORD ALIGNED RADIALLY TO THE CENTERLINE OF THE HIGHWAY AND CONNECTING ANY POINT, WITHIN THE LENGTH OF THE CHORD, ON THE GROUND SURFACE ON ONE SIDE OF THE SUPPORT TO A POINT ON THE GROUND SURFACE ON THE OTHER SIDE.

CONSTRUCTION METHOD

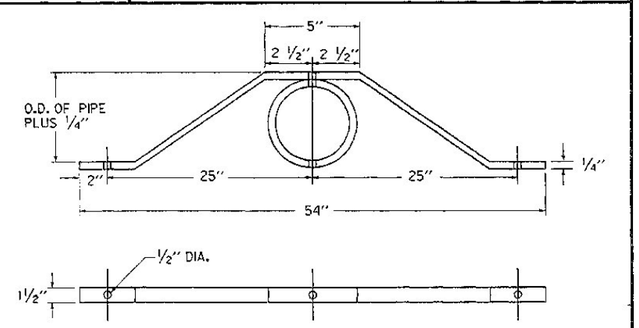
HOLES FOR POST FOOTINGS MAY BE AUGERED OR DUG. IF THE MATERIAL IS FIRM AND IF ALL DISTURBED SOIL AROUND THE CIRCUMFERENCE OF THE THE AUGERED HOLE IS REMOVED, THE HOLES MAY BE LEFT WITH EARTH SIDES. IF NOT, A SUITABLE FORM APPROVED BY THE ENGINEER SHALL BE USED. CORRUGATED METAL CULVERT PIPE OR PAPER FORMS, MANUFACTURED FOR USE AS CONCRETE COLUMN FORMS, WILL BE ACCEPTABLE. THE STUB SHALL BE EXTENDED TO THE BOTTOM OF THE HOLE AND SET ON A CONCRETE PAD FOOTING TO SUPPORT THE POST SO THE POST SHALL BE HELD SECURELY IN PLACE AT THE BOTTOM. THIS MAY BE DONE BY EMBEDDING THE POST AND CONCRETE BLOCK FOOTING IN WET CONCRETE, AND ALLOWING TO SET WITH THE POST SECURED IN POSITION; PLUMBED AND PROPERLY BRACED. THE REMAINDER OF THE FOOTING MAY THEN BE POURED. THE TIME BETWEEN POURS FOR THE CURING OF THE CONCRETE SHALL BE AS DETERMINED BY THE ENGINEER. THE FORM SHALL BE LEFT IN PLACE AND THE HOLE BACKFILLED AND COMPACTED AS DIRECTED BY THE ENGINEER. NO PART OF THE FORM SHALL SHOW ABOVE THE GROUND LINE WHEN THE WORK IS COMPLETED.





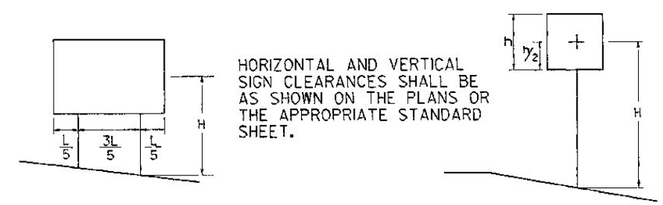
DETAIL "H"

3 REQUIRED
MOUNTED 120° APART
RISE MODIFICATION REQUIRED ONLY FOR 5" PIPE SUPPORT



SIGN SUPPORT BRACE

(REQUIRED WHEN INSTALLING 3 ASSEMBLY FRAME AS SHOWN ON STANDARD E-123)



HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE AS SHOWN ON THE PLANS OR THE APPROPRIATE STANDARD SHEET.

POST SELECTION CHART DETAIL

POST SELECTION CHART

SIGN AREA (FT ^{2}) x H (FT) ≤ SV (SELECTION VALUE)

POST DIA. INCHS	WEIGHT LB/FT	Sv	DESIGN CRITERIA
3	7.6	265	WIND SPEED = 60 MPH (10-YEAR MEAN RECURRENCE INTERVAL) WIND PRESSURE = 13 PSF STEEL MIN YIELD Fy = 36,000 PSI ALLOWABLE STRESS = (1.4) 0.60 Fy
3 ½	9.0	368	
4	10.8	494	
5	14.6	839	

REVISIONS AND CORRECTIONS

OCT. 21, 1992 - REVISED NOTES AND DIMENSIONS AND TITLE BLOCK

APPROVED: SEPT. 10, 1987
DATE

Gordon S. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

TUBULAR STEEL SIGN POST

VERMONT AGENCY OF TRANSPORTATION

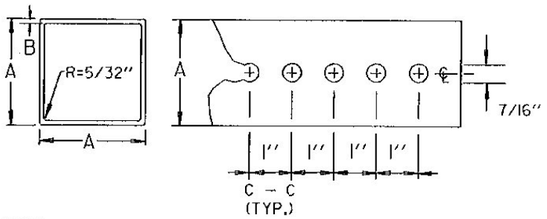
STANDARD
E-163

GUARDRAIL DEFLECTION CHART

(PER AASHTO - ROADSIDE DESIGN GUIDE - 1988)

TYPE		GR POST SPACING	DEFLECTION
THREE CABLE	W/STEEL POSTS	16' - 0"	12'
	W/WOODEN POSTS	12' - 6"	12'
W-BEAM	W/WEAK POST	12' - 6"	7'
	W/STRONG POST	6' - 3"	3'
BOX BEAM		6' - 0"	5'
THRIE BEAM	W/WEAK POST	12' - 6"	4'
	W/STRONG POST	6' - 3"	2'
TWO-RAIL ELLIPTICAL ALUMINUM			2'

THIS CHART LISTS THE THEORETICAL DEFLECTION DISTANCE UPON IMPACT OF VARIOUS GUARDRAIL WITH DIFFERENT TYPES AND SPACING OF POSTS.



NOTE :

THE POSTS SHALL BE CAREFULLY FORMED OF STEEL WITH A MINIMUM YIELD OF 55,000 PSI, INTO A SIZE AND SHAPE WITH CORNERS INDUCTION WELDED IN SUCH A MANNER THAT NEITHER FLASH NOR WELD SHALL INTERFERE WITH THE TELESCOPING PROPERTIES, NOR DAMAGE THE GALVANIZING.

- THE WALL THICKNESS TOLERANCES SHALL BE +.007 AND -.011 FOR THE 12 GAUGE.

DIMENSION DETAILS AND POST SELECTION CHART

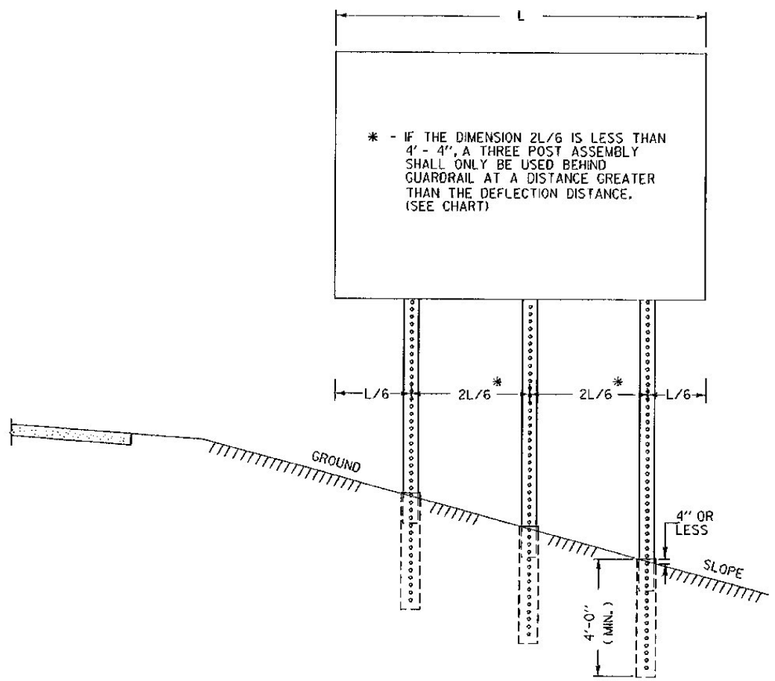
POST SELECTION CHART

SIGN AREA (FT^2) X H (FT) ≤ SV (SELECTION VALUE)

POST SIZE LBS/FT.	DIMENSIONS A	*B	GAUGE	SECTION MODULUS IN^3	ONE POST Sv	TWO POST Sv	THREE POST Sv	NUMBER PERMITTED IN 8' PATH
2.30	1-3/4"	.105	12	0.265	85	170	255	TWO
2.65	2"	.105	12	0.372	119	239	358	TWO
3.35	2-1/2"	.105	12	0.642	206	412	616	ONE

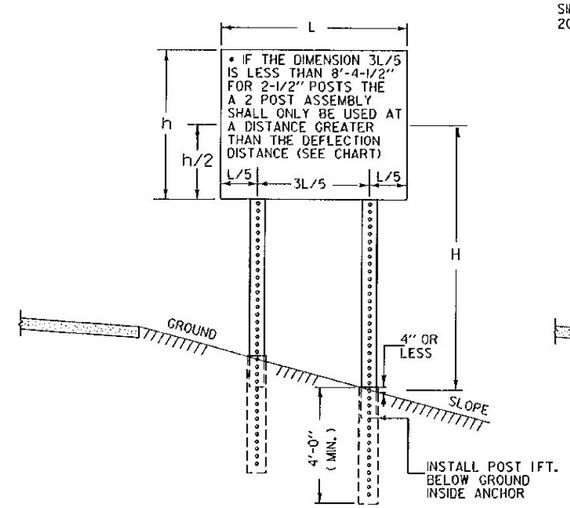
DESIGN CRITERIA:

WIND SPEED = 60 MPH (10 -YEAR MEAN RECURRENCE INTERVAL)
WIND PRESSURE = 13 PSF
STEEL MINIMUM YIELD = 55,000 PSI
ALLOWABLE STRESS = (1.4) 0.60 FY



MULTI-POST INSTALLATIONS

WHEN SIGN POSTS ARE INSTALLED WITH A POST SPACING OF LESS THAN 8 FEET, POST SIZES MUST BE SELECTED TO INSURE THAT WHEN ACTING TOGETHER THE POSTS DO NOT CREATE A HAZARD.



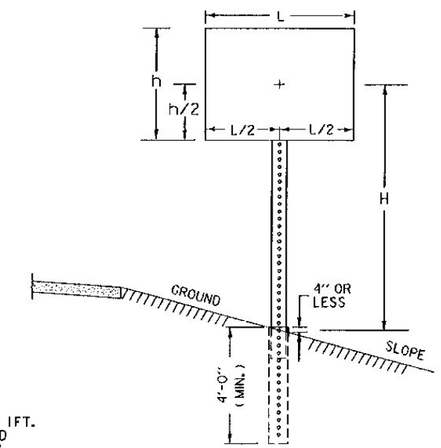
POST SPACING DETAILS

GENERAL NOTES

CONSTRUCTION METHODS - POSTS MAY BE DRIVEN OR SET IN A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLATION SHALL BE USED IN AREAS OF POOR SOIL CONDITIONS OR AS DIRECTED BY THE RESIDENT ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE RESIDENT ENGINEER.

SIGN CLEARANCES - HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE SHOWN ON THE PLANS OR THE APPROPRIATE STD. SHEETS.

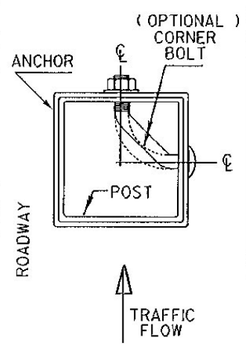
SINGLE POST INSTALLATIONS SHALL BE LIMITED TO A SIGN AREA OF 20 SQ. FT. OR LESS



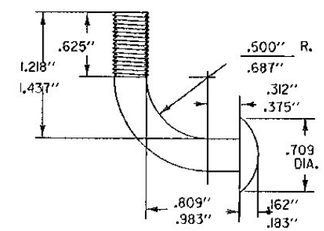
NOTE

WHEN USING SQUARE STEEL POSTS ON STEEP SLOPES (1ON 2 OR STEEPER) ADD ONE FOOT EMBEDMENT FOR GREATER STABILITY.

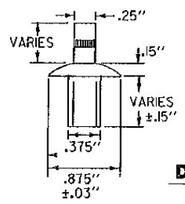
TOP VIEW OF ANCHOR, POST AND BOLT



OPTIONAL CORNER BOLT DETAILS



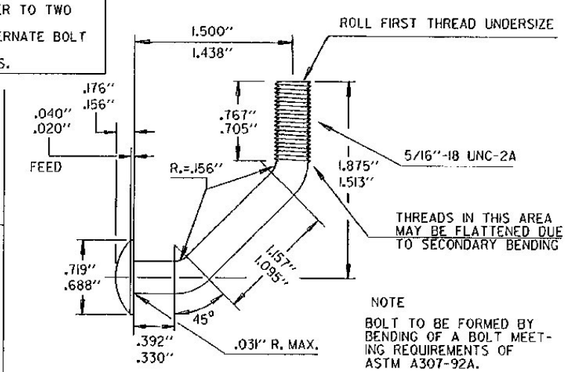
FOR 1-3/4" TO 2-1/2" SQ. TUBE BOLT SIZE VARIES WITH POST SIZE



THIS DRIVE RIVET MAY BE SUBSTITUTED FOR EITHER OF THE CORNER BOLTS SHOWN ABOVE OR TO THE RIGHT.

DRIVE RIVET

DOUBLE DIMENSIONS REFER TO TWO ALTERNATE BOLT SIZES.

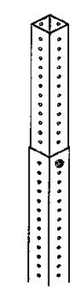


NOTE

BOLT TO BE FORMED BY BENDING OF A BOLT MEETING REQUIREMENTS OF ASTM A307-92A.

* DIMENSIONS VARY AS NEEDED FOR POST SIZE USED

CONNECTION DETAIL



POST IS TO BE INSERTED INTO ANCHOR ONE FOOT BELOW GROUND LEVEL. ANCHOR IS TO BE 4'-0" MINIMUM LENGTH WITH NO MORE THAN 4" ABOVE GROUND. ANCHOR IS ONE SIZE (1/4") GREATER THAN THE POST AND ALL ANCHORS ARE TO BE 12 GAGE EXCEPT ANCHORS FOR 2-1/2" POSTS ARE TO BE 7 GAGE. CONNECTION IS TO BE MADE USING THE BOLT PROVIDED WITH THE SIGN SYSTEM (SEE DETAILS LEFT). AT THE TOP HOLE IN THE ANCHOR (APPROXIMATELY 3-1/2" ABOVE GROUND). THREE INCH ANCHORS WHICH DO NOT HAVE HOLES ON 1" CENTERS WILL REQUIRE DRILLING OF 7/16" HOLES FOR CONNECTIONS.

(SEE DETAIL LEFT FOR BOLT PLACEMENT)

OTHER STDS. REQUIRED	E-120, E-160 SIGN POST DEGN. GUIDE

REVISIONS AND CORRECTIONS

APRIL 27, 1994 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacAtee
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

PRELIMINARY

SQUARE STEEL SIGN POST

/traf/std/stdel64.dgn/stdel64.I

VERMONT AGENCY OF TRANSPORTATION

STANDARD

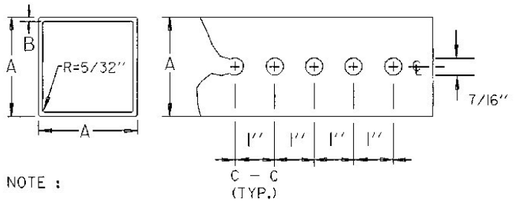
E-164

GUARDRAIL DEFLECTION CHART

(PER AASHTO - ROADSIDE DESIGN GUIDE - 1988)

TYPE		GR POST SPACING	DEFLECTION
THREE CABLE	W/STEEL POSTS	16' - 0"	12'
	W/WOODEN POSTS	12' - 6"	12'
W-BEAM	W/WEAK POST	12' - 6"	7'
	W/STRONG POST	6' - 3"	3'
BOX BEAM		6' - 0"	5'
THRIE BEAM	W/WEAK POST	12' - 6"	4'
	W/STRONG POST	6' - 3"	2'

THIS CHART LISTS THE THEORETICAL DEFLECTION DISTANCE UPON IMPACT OF VARIOUS GUARDRAIL WITH DIFFERENT TYPES AND SPACING OF POSTS.



NOTE :

THE POSTS SHALL BE CAREFULLY FORMED OF STEEL WITH A MINIMUM YIELD OF 55,000 PSI, INTO A SIZE AND SHAPE WITH CORNERS INDUCTION WELDED IN SUCH A MANNER THAT NEITHER FLASH NOR WELD SHALL INTERFERE WITH THE TELESCOPING PROPERTIES, NOR DAMAGE THE GALVANIZING.

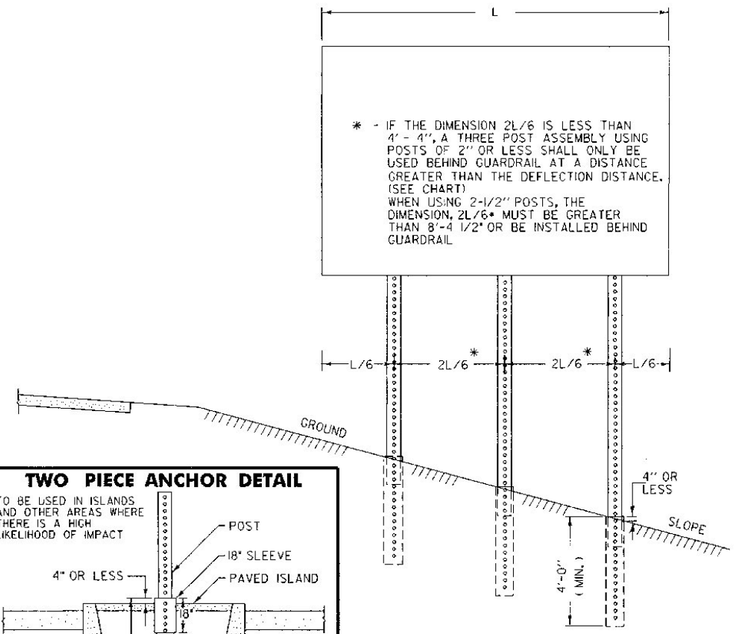
* THE WALL THICKNESS TOLERANCES SHALL BE +.005 AND -.010 FOR THE 12 GAUGE.
  THE WALL THICKNESS TOLERANCES SHALL BE +.002" AND -.008" FOR THE 14 GAGE.

DIMENSION DETAILS AND POST SELECTION CHART

POST SELECTION CHART								
SIGN AREA (FT^2) X H (FT) ≤ SV (SELECTION VALUE)								
POST SIZE	DIMENSIONS			SECTION MODULUS	ONE POST	TWO POST	THREE POST	NUMBER PERMITTED
LBS/FT.	A	*B	GAUGE	IN^3	Sv	Sv	Sv	IN 8' PATH
2.30	1-3/4"	.083	14	0.231	74	148	222	TWO
2.65	2"	.083	14	0.296	95	190	286	TWO
3.35	2-1/2"	.105	12	0.642	206	412	616	ONE

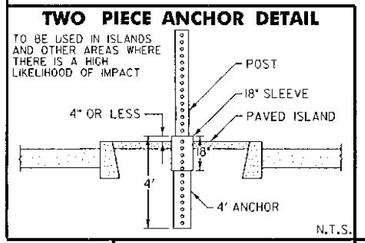
DESIGN CRITERIA:

WIND SPEED = 60 MPH (10 -YEAR MEAN RECURRENCE INTERVAL)
WIND PRESSURE = 13 PSF
STEEL MINIMUM YIELD = 55,000 PSI
ALLOWABLE STRESS = (1.4) 0.60 FY



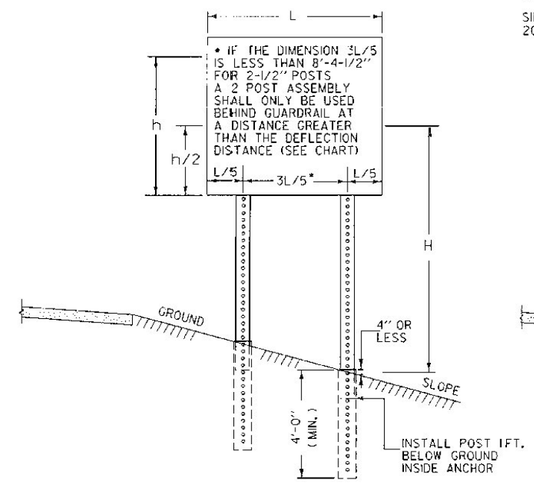
TWO PIECE ANCHOR DETAIL

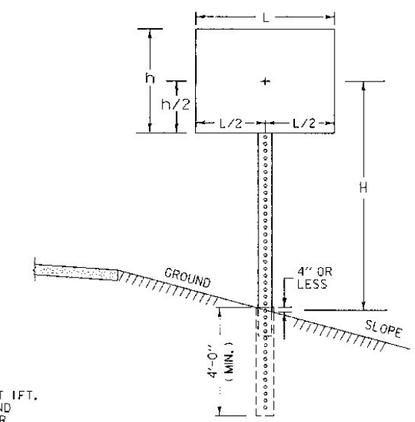
TO BE USED IN ISLANDS AND OTHER AREAS WHERE THERE IS A HIGH LIKELIHOOD OF IMPACT



N.T.S.

MULTI-POST INSTALLATIONS





NOTE

WHEN USING SQUARE STEEL POSTS ON STEEP SLOPES (1ON 2 OR STEEPER) ADD ONE FOOT EMBEDMENT FOR GREATER STABILITY.

POST SPACING DETAILS

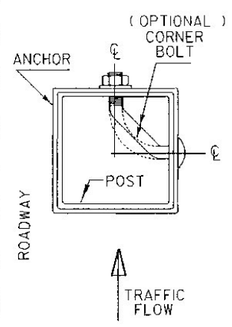
GENERAL NOTES

CONSTRUCTION METHODS - POSTS MAY BE DRIVEN OR SET IN A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLATION SHALL BE USED IN AREAS OF POOR SOIL CONDITIONS OR AS DIRECTED BY THE RESIDENT ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE RESIDENT ENGINEER.

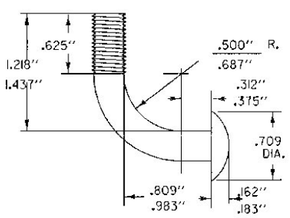
SIGN CLEARANCES - HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE SHOWN ON THE PLANS OR THE APPROPRIATE STD. SHEETS.

SINGLE POST INSTALLATIONS SHALL BE LIMITED TO A SIGN AREA OF 20 SQ. FT. OR LESS

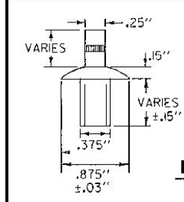
TOP VIEW OF ANCHOR, POST AND BOLT



OPTIONAL CORNER BOLT DETAILS



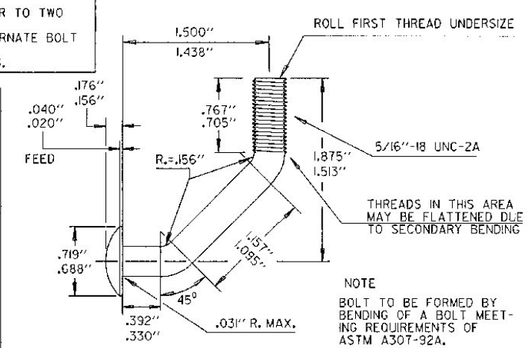
FOR 1-3/4" TO 2-1/2" SQ. TUBE BOLT SIZE VARIES WITH POST SIZE



THIS DRIVE RIVET MAY BE SUBSTITUTED FOR EITHER OF THE CORNER BOLTS SHOWN ABOVE OR TO THE RIGHT.

DRIVE RIVET

DOUBLE DIMENSIONS REFER TO TWO ALTERNATE BOLT SIZES.



NOTE

BOLT TO BE FORMED BY BENDING OF A BOLT MEETING REQUIREMENTS OF ASTM A307-92A.

* DIMENSIONS VARY AS NEEDED FOR POST SIZE USED

CONNECTION DETAIL

POST IS TO BE INSERTED INTO ANCHOR ONE FOOT BELOW GROUND LEVEL. ANCHOR IS TO BE 4'-0" MINIMUM LENGTH WITH NO MORE THAN 4" ABOVE GROUND. ANCHOR IS ONE SIZE (1/4") GREATER THAN THE POST AND ALL ANCHORS ARE TO BE 12 GAGE EXCEPT ANCHORS FOR 2-1/2" POSTS ARE TO BE 7 GAGE. CONNECTION IS TO BE MADE USING THE BOLT PROVIDED WITH THE SIGN SYSTEM (SEE DETAILS LEFT), AT THE TOP HOLE IN THE ANCHOR (APPROXIMATELY 3-1/2" ABOVE GROUND). THREE INCH ANCHORS WHICH DO NOT HAVE HOLES ON 1" CENTERS WILL REQUIRE DRILLING OF 7/16" HOLES FOR CONNECTIONS.

(SEE DETAIL LEFT FOR BOLT PLACEMENT)

OTHER STDS. REQUIRED E-120, E-160

REVISIONS AND CORRECTIONS

APR. 27, 1994 - DATE OF ORIGINAL ISSUE
JUL. 21, 1994 - REVISED POST GAUGES
AUG. 18, 1995 - ADDED TWO PIECE ANCHOR DETAIL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

PRELIMINARY

SQUARE STEEL SIGN POST

/traf/stc/stdel64.dgn/stdel64.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD

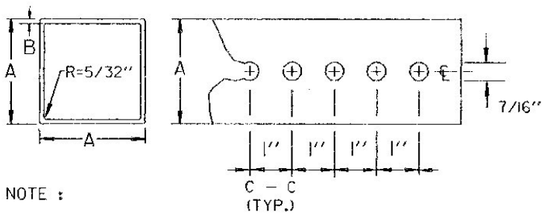
E-164

GUARDRAIL DEFLECTION CHART

(PER AASHTO - ROADSIDE DESIGN GUIDE - 1988)

TYPE		CR POST SPACING	DEFLECTION
THREE CABLE	W/STEEL POSTS	16' - 0"	12'
	W/WOODEN POSTS	12' - 6"	12'
W-BEAM	W/WEAK POST	12' - 6"	7'
	W/STRONG POST	6' - 3"	3'
BOX BEAM		6' - 0"	5'
THRIE BEAM	W/WEAK POST	12' - 6"	4'
	W/STRONG POST	6' - 3"	2'

THIS CHART LISTS THE THEORETICAL DEFLECTION DISTANCE UPON IMPACT OF VARIOUS GUARDRAIL WITH DIFFERENT TYPES AND SPACING OF POSTS.



NOTE :

THE POSTS SHALL BE CAREFULLY FORMED OF STEEL WITH A MINIMUM YIELD OF 55,000 PSI. INTO A SIZE AND SHAPE WITH CORNERS INDUCTION WELDED IN SUCH A MANNER THAT NEITHER FLASH NOR WELD SHALL INTERFERE WITH THE TELESCOPING PROPERTIES, NOR DAMAGE THE GALVANIZING.

* THE WALL THICKNESS TOLERANCES SHALL BE +.005 AND -.010 FOR THE 12 GAUGE.
  THE WALL THICKNESS TOLERANCES SHALL BE +.002" AND -.008" FOR THE 14 GAGE.

DIMENSION DETAILS AND POST SELECTION CHART

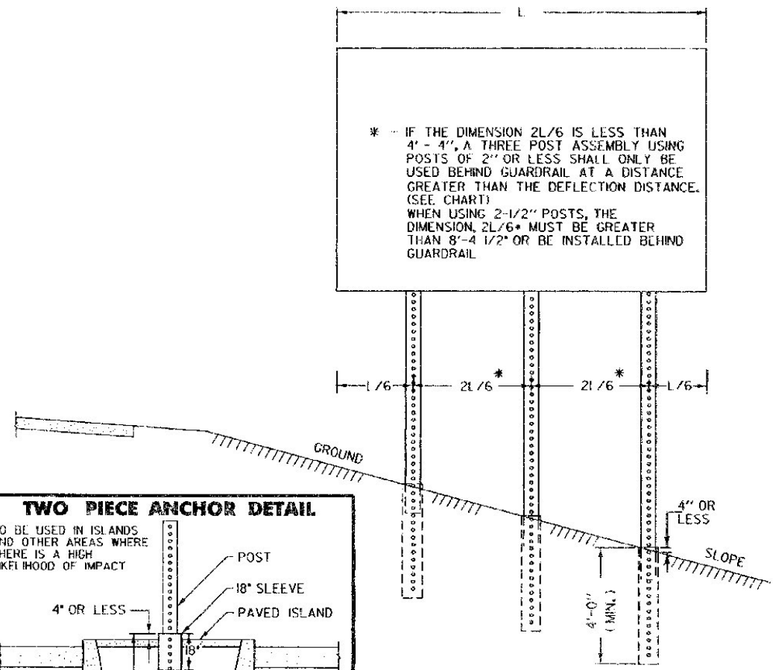
POST SELECTION CHART

SIGN AREA (FT^2) X H (FT) ≤ SV (SELECTION VALUE)

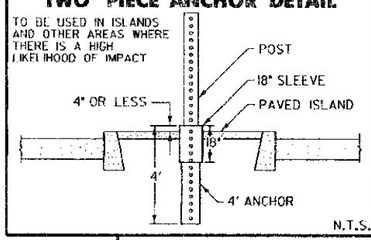
POST SIZE LBS/FT.	DIMENSIONS A	*B	GAUGE	SECTION MODULUS IN^3	ONE POST S_V	TWO POST S_V	THREE POST S_V	NUMBER PERMITTED IN 8' PATH
2.30	1-3/4"	.083	14	0.231	74	148	222	TWO
2.65	2"	.083	14	0.296	95	190	286	TWO
3.35	2-1/2"	.105	12	0.642	206	412	616	ONE

DESIGN CRITERIA:

WIND SPEED = 60 MPH (10 -YEAR MEAN RECURRENCE INTERVAL)
WIND PRESSURE = 13 PSF
STEEL MINIMUM YIELD = 55,000 PSI
ALLOWABLE STRESS = (1.4) 0.60 FY

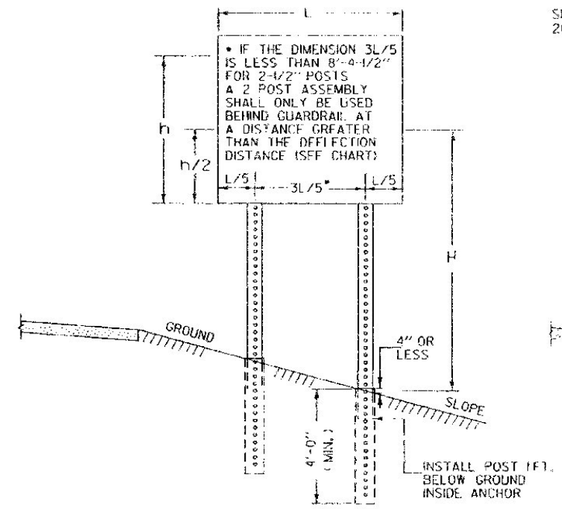


TWO PIECE ANCHOR DETAIL



N.T.S.

MULTI-POST INSTALLATIONS



POST SPACING DETAILS

GENERAL NOTES

CONSTRUCTION METHODS - POSTS MAY BE DRIVEN OR SET IN A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLATION SHALL BE USED IN AREAS OF POOR SOIL CONDITIONS OR AS DIRECTED BY THE RESIDENT ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE RESIDENT ENGINEER.

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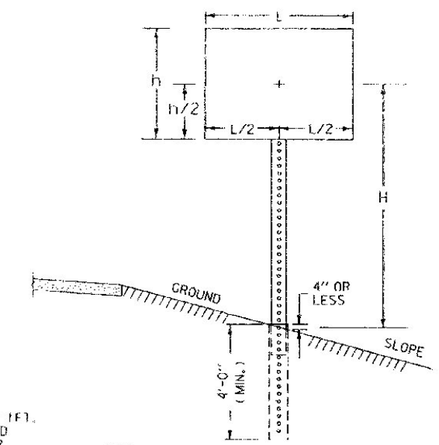
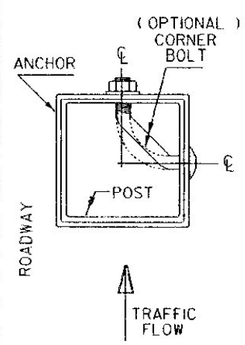


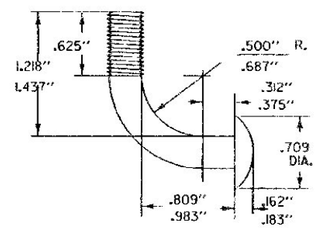
NOTE

WHEN USING SQUARE STEEL POSTS ON STEEP SLOPES (1ON 2 OR STEEPER) ADD ONE FOOT EMBEDMENT FOR GREATER STABILITY.

TOP VIEW OF ANCHOR, POST AND BOLT



OPTIONAL CORNER BOLT DETAILS



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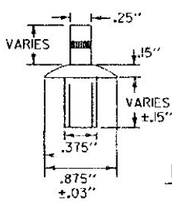

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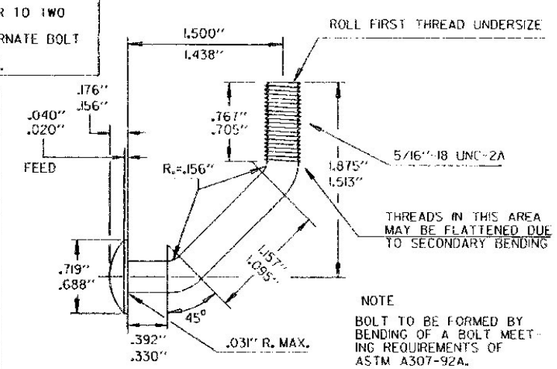
DRIVE RIVET

DOUBLE DIMENSIONS REFER TO TWO ALTERNATE BOLT SIZES.



NOTE

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(SEE DETAIL LEFT FOR BOLT PLACEMENT)

OTHER STDS. REQUIRED E-120, E-160

REVISIONS AND CORRECTIONS

APR. 27, 1994 - DATE OF ORIGINAL ISSUE
JUL. 21, 1994 - REVISED POST GAUGES
AUG. 18, 1995 - ADDED TWO PIECE ANCHOR DETAIL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

PRELIMINARY

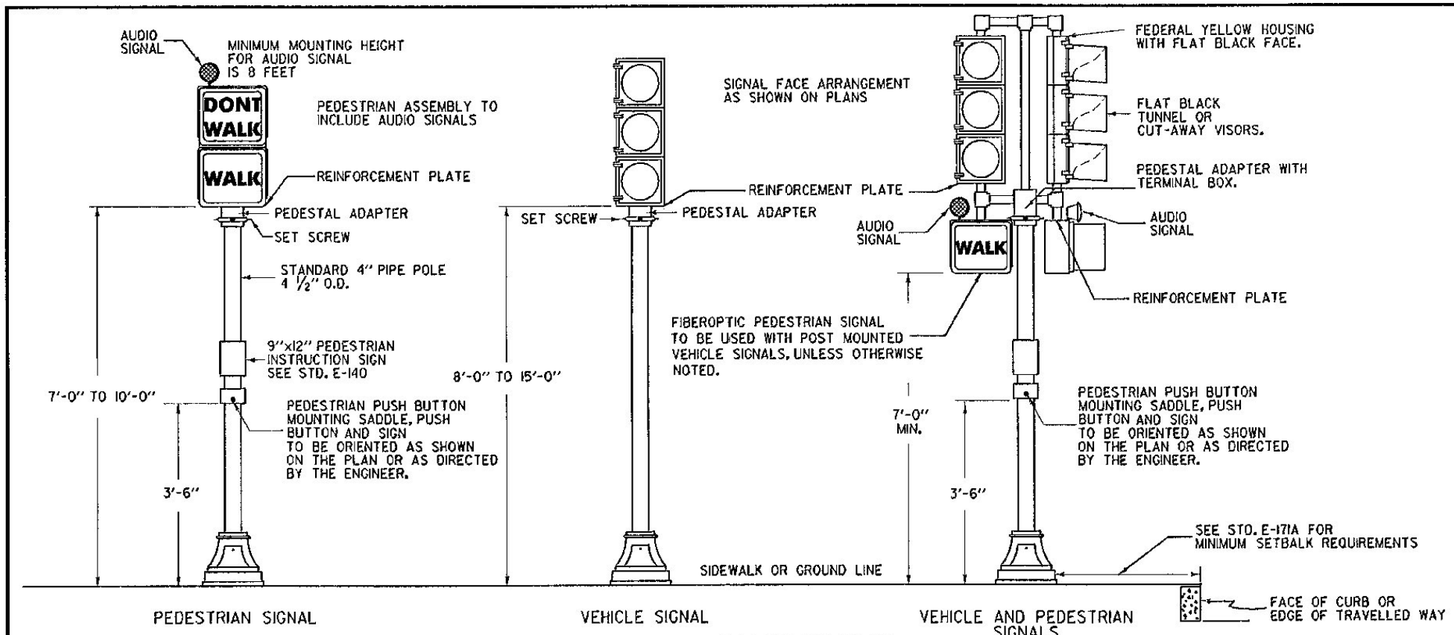
SQUARE STEEL SIGN POST

/traf/std/stdel64.dgn/stdel64.1

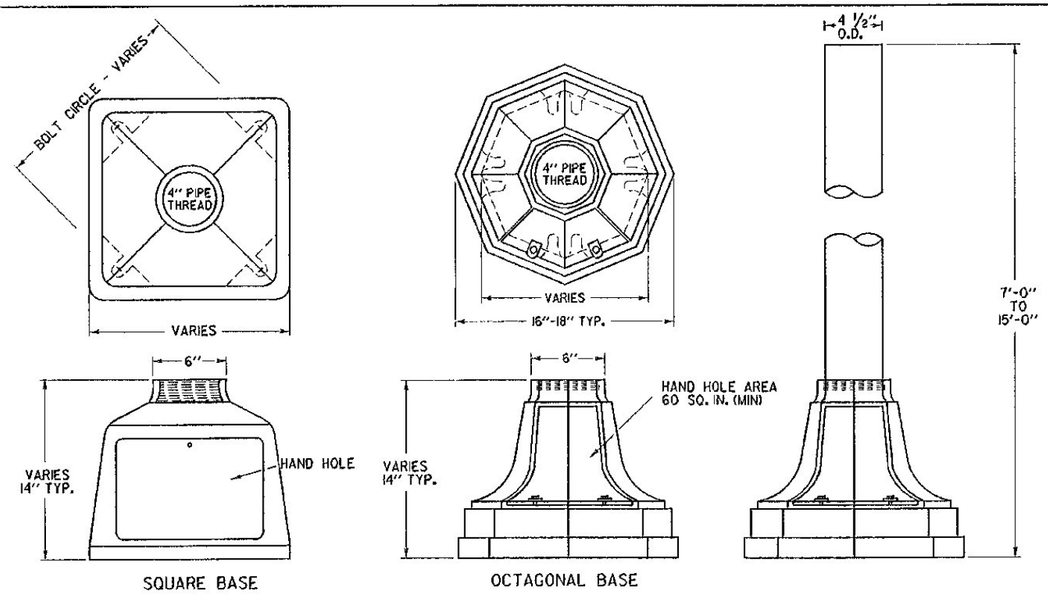
VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-164



PEDESTAL POLE INSTALLATION

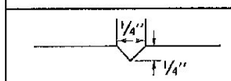


DIMENSIONS FOR PEDESTAL BASES VARY WITH DIFFERENT MANUFACTURERS. SQUARE OR OCTAGONAL BASE MAY BE USED UNLESS OTHERWISE NOTED ON THE PLANS.

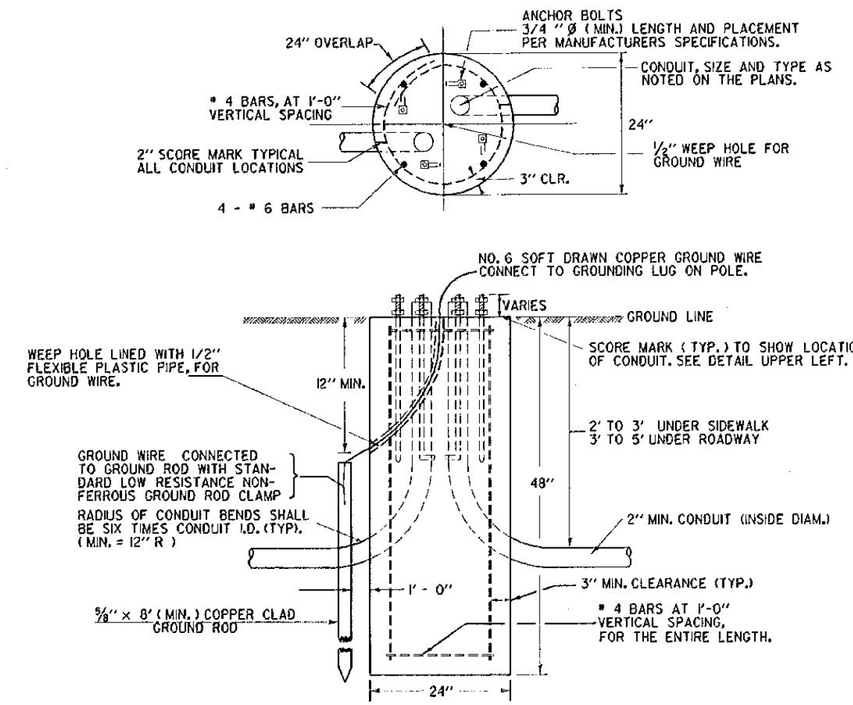
DETAILS OF TRAFFIC SIGNAL PEDESTAL POST AND BASE

NOTES

1. REFER TO STANDARD E-171A FOR TRAFFIC SIGNAL GENERAL NOTES
2. STEEL PEDESTAL POSTS AND BASES SHALL BE PAINTED FEDERAL YELLOW, AFTER GALVANIZATION. ALUMINUM POSTS AND BASES SHALL HAVE A NATURAL ALUMINUM FINISH.
3. ALL POST TOP MOUNTED SIGNALS (PEDESTRIAN AND TRAFFIC) SHALL BE HEAVY DUTY ALUMINUM.
4. REFER TO THE "STANDARD SPECIFICATIONS FOR CONSTRUCTION" FOR ANCHOR BOLT MATERIAL SPECIFICATIONS



SCORE MARK DETAIL (TYP.)



DETAILS OF REINFORCED CONCRETE FOOTING FOR PEDESTAL POST

REVISIONS AND CORRECTIONS

MAY 14, 1990 - FHWA COMMENTS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION, FHWA FINAL APPROVAL PENDING.

APPROVED JUNE 21, 1989
DATE

CHIEF ENGINEER

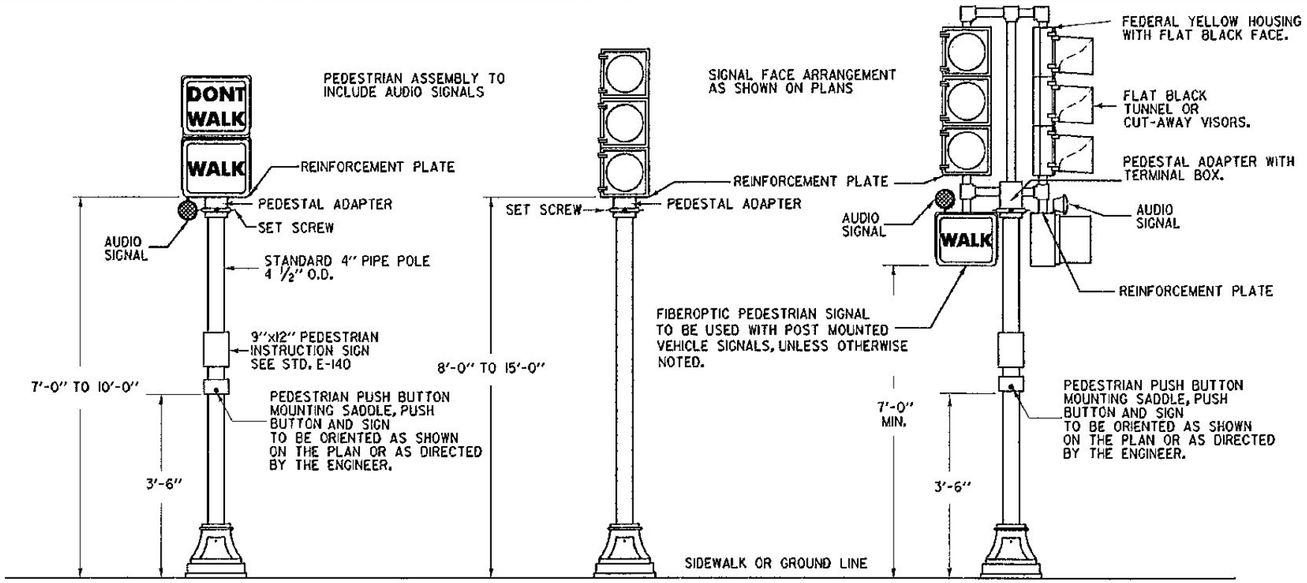
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL SIGNALS PEDESTAL POST MOUNTED

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-170



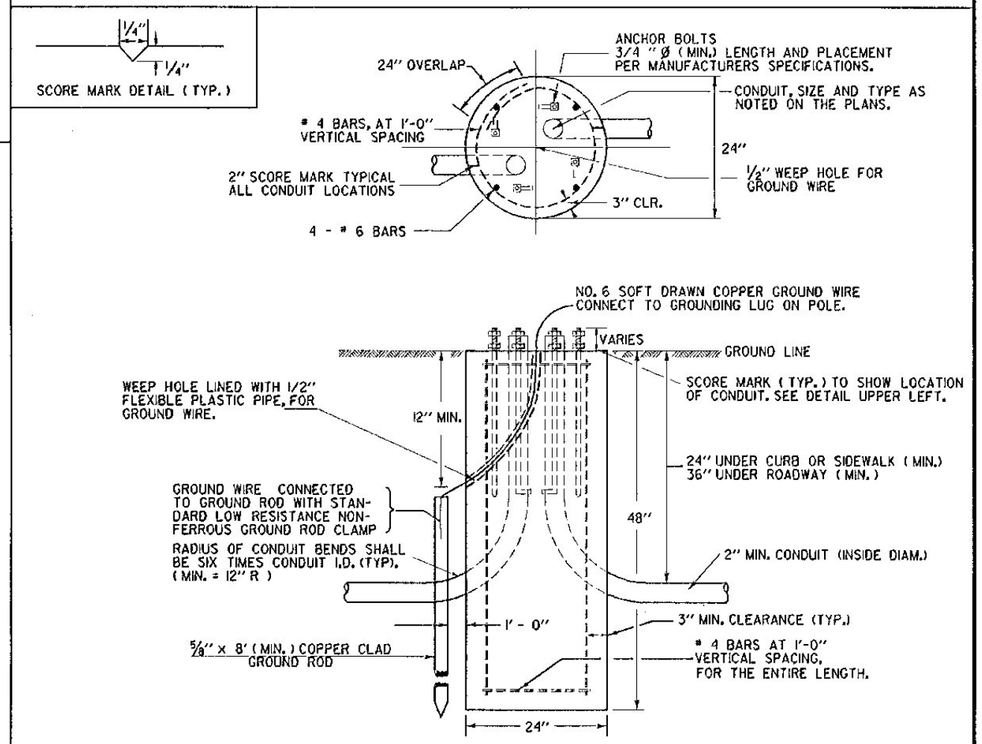
PEDESTAL POLE INSTALLATION

NOTES

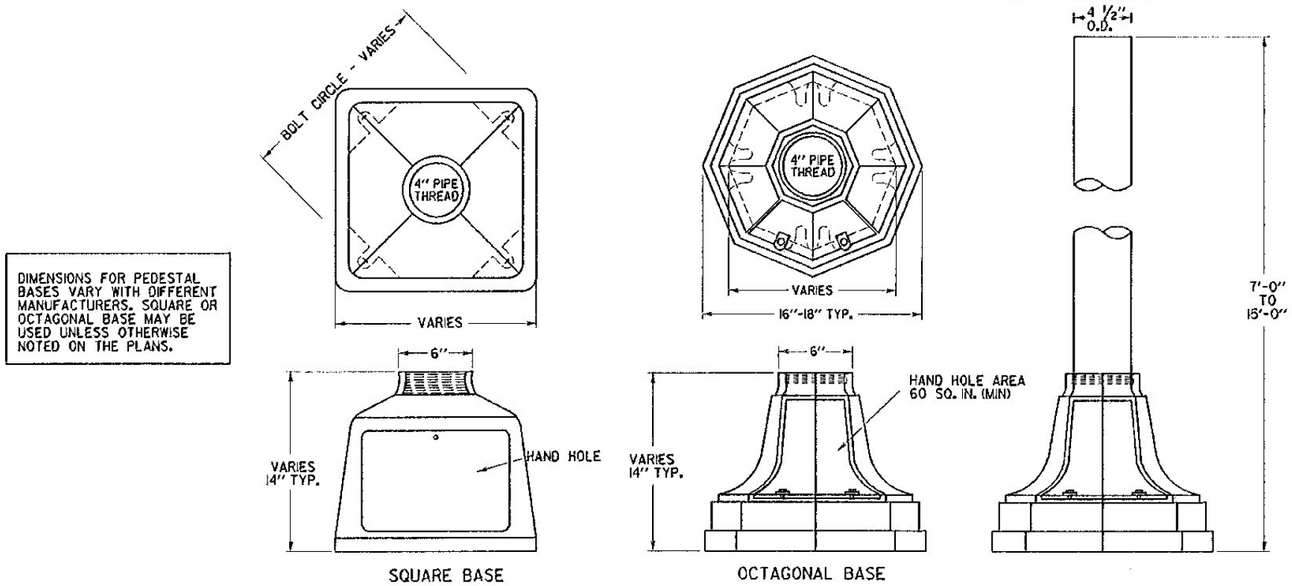
1. REFER TO STANDARD E-171A FOR TRAFFIC SIGNAL GENERAL NOTES
2. ANCHOR BOLTS AND WASHERS SHALL BE AN AUSTENITIC GRADE OF STAINLESS STEEL CONFORMING TO THE CHEMISTRY OF ASTM A276 TYPE 304 WITH THE FOLLOWING PHYSICAL PROPERTIES:

(a)	TENSILE STRENGTH, MINIMUM	80,000 psi
(b)	YIELD STRENGTH, MINIMUM	55,000 psi
(c)	ELONGATION IN 2 INCHES, MINIMUM	25 %
(d)	ROCKWELL B HARDNESS, MINIMUM	86
	OR CHARPY V-NOTCH (AASHTO T243 USING H FREQUENCY OF TESTING), MINIMUM	15 ft - lbs. at 40°F

3. THE ANCHOR BOLT NUTS SHALL BE THE HEAVY HEX TYPE CONFORMING TO THE REQUIREMENTS OF ASTM A-194 GRADE 8.
4. STEEL PEDESTAL POSTS AND BASES SHALL BE PAINTED FEDERAL YELLOW, AFTER GALVANIZATION. ALUMINUM POSTS AND BASES SHALL HAVE A NATURAL ALUMINUM FINISH.
5. ALL POST TOP MOUNTED SIGNALS (PEDESTRIAN AND TRAFFIC) SHALL BE HEAVY DUTY ALUMINUM.



DETAILS OF REINFORCED CONCRETE FOOTING FOR PEDESTAL POST



DIMENSIONS FOR PEDESTAL BASES VARY WITH DIFFERENT MANUFACTURERS. SQUARE OR OCTAGONAL BASE MAY BE USED UNLESS OTHERWISE NOTED ON THE PLANS.

DETAILS OF TRAFFIC SIGNAL PEDESTAL POST AND BASE

REVISIONS AND CORRECTIONS

APPROVED JUNE 21, 1989
DATE

David B. Kelley
CHIEF ENGINEER

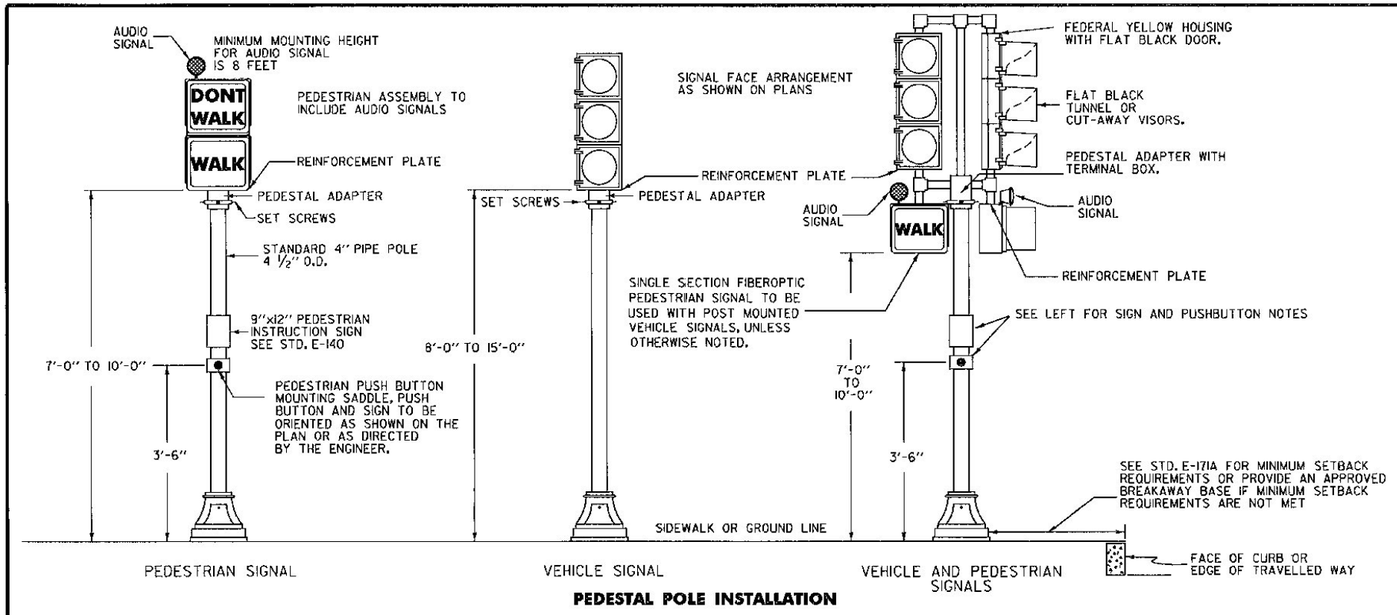
Arthur Gore
DIRECTOR OF PLANNING AND PRECONSTRUCTION

Gordon B. Mac Arthur
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL SIGNALS PEDESTAL POST MOUNTED

VERMONT AGENCY OF TRANSPORTATION

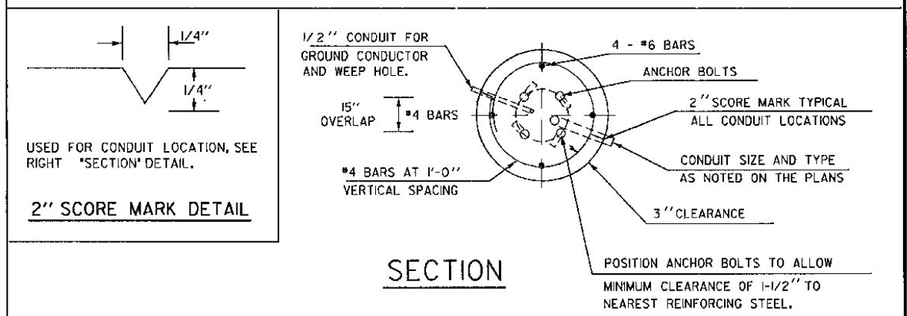
STANDARD
E-170

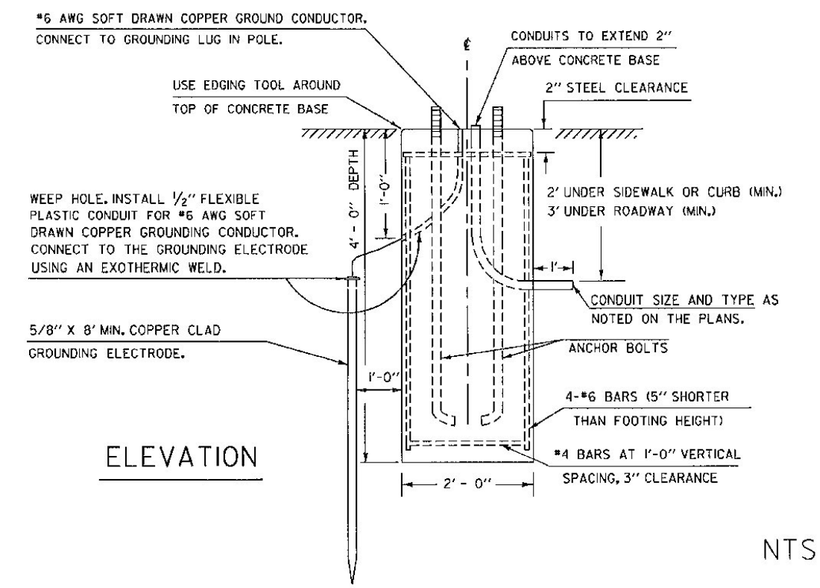


PEDESTAL POLE INSTALLATION

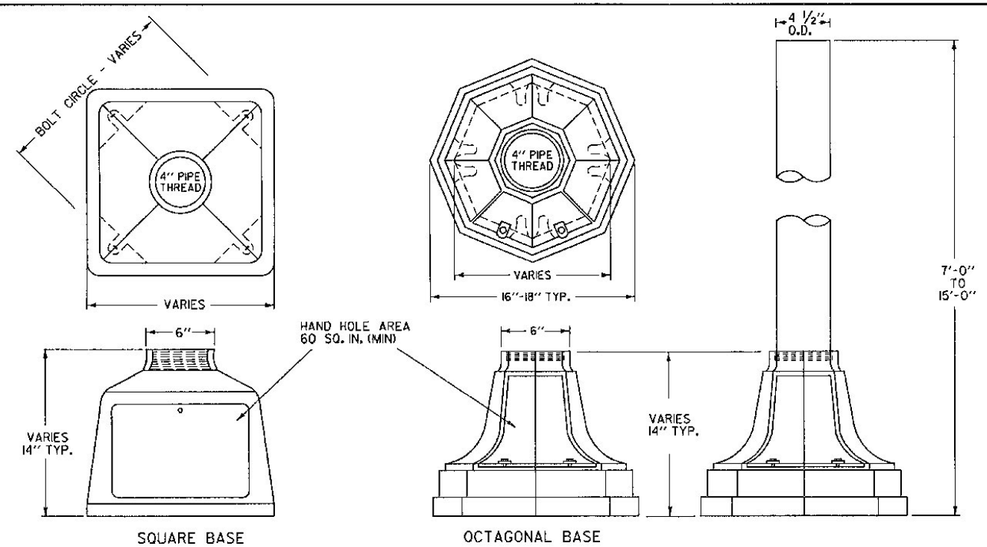
NOTES

1. REFER TO STANDARD E-171A FOR TRAFFIC SIGNAL GENERAL NOTES.
2. STEEL PEDESTAL POSTS AND BASES SHALL BE PAINTED FEDERAL YELLOW, AFTER GALVANIZATION. UNLESS OTHERWISE NOTED IN THE PLANS. ALUMINUM POSTS AND BASES SHALL HAVE A NATURAL ALUMINUM FINISH.
3. ALL PEDESTAL POLES WHICH ARE PROVIDED WITH A BREAKAWAY FEATURE SHALL CONFORM TO THE REQUIREMENTS OF THE AASHTO 1985 STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, SECTION 7 AND SUBSEQUENT REVISIONS.
4. REFER TO STD E-171C FOR PEDESTRIAN PUSH BUTTON ACCESSIBILITY DETAILS.





DETAILS OF REINFORCED CONCRETE FOOTING FOR PEDESTAL POST



DIMENSIONS FOR PEDESTAL BASES VARY WITH DIFFERENT MANUFACTURERS. SQUARE OR OCTAGONAL BASE MAY BE USED UNLESS OTHERWISE NOTED ON THE PLANS.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

DETAILS OF TRAFFIC SIGNAL PEDESTAL POST AND BASE

OTHER STDS. REQUIRED E - 140, E - 171A, E-171B, E-171C

REVISIONS AND CORRECTIONS

JUNE 21, 1989 - DATE OF ORIGINAL ISSUE
MAY 14, 1990 - FHWA COMMENTS
NOV. 17, 1993 - MISC. COMMENTS
AUG. 9, 1995 - CORRECTED BUTTON HEIGHT, ADDED NOTE 4, REVISED BASE GROUNDING & OTHER STDS REQUIRED.

APPROVED

Gordon S. MacOtter
DIRECTOR OF ENGINEERING

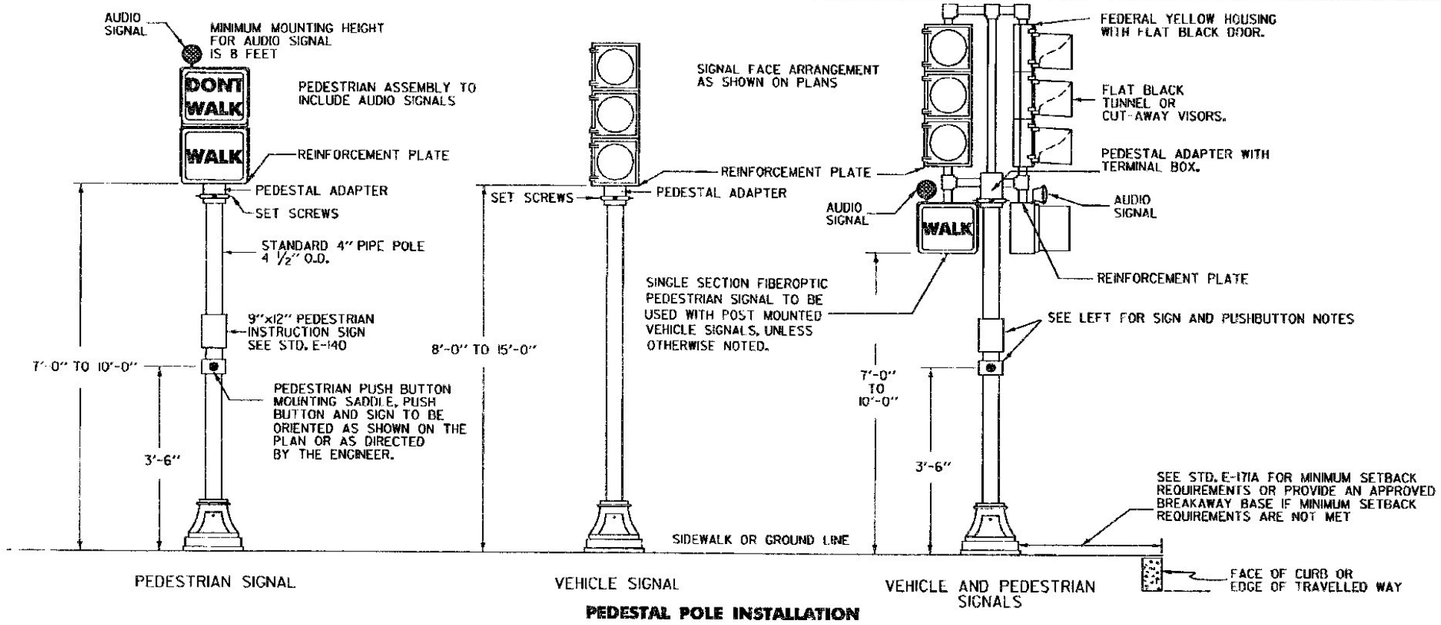
David A. Ross
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL SIGNALS PEDESTAL POST MOUNTED

/traf/std/std170.dgn - std170.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-170



PEDESTAL POLE INSTALLATION

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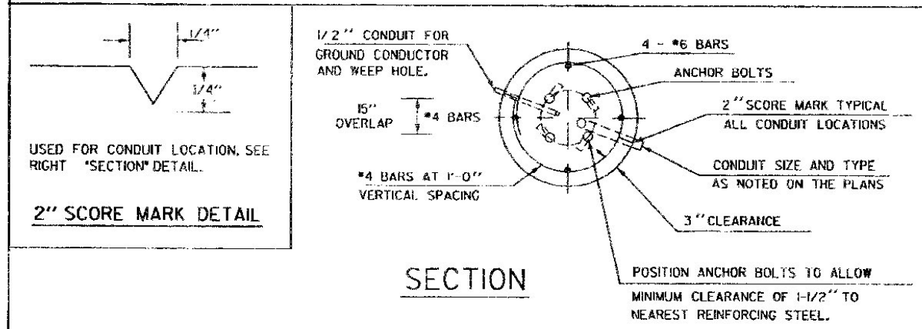

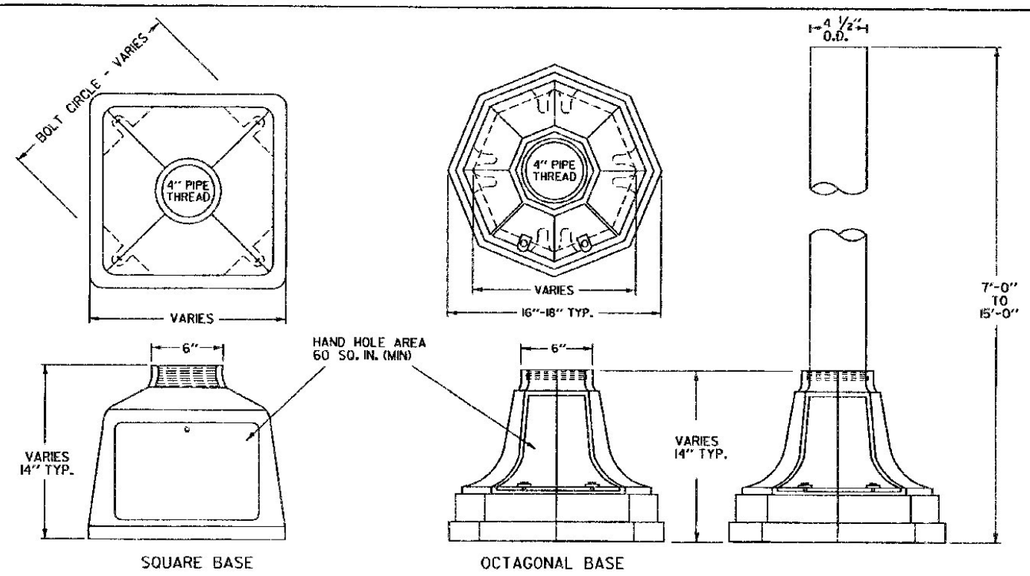

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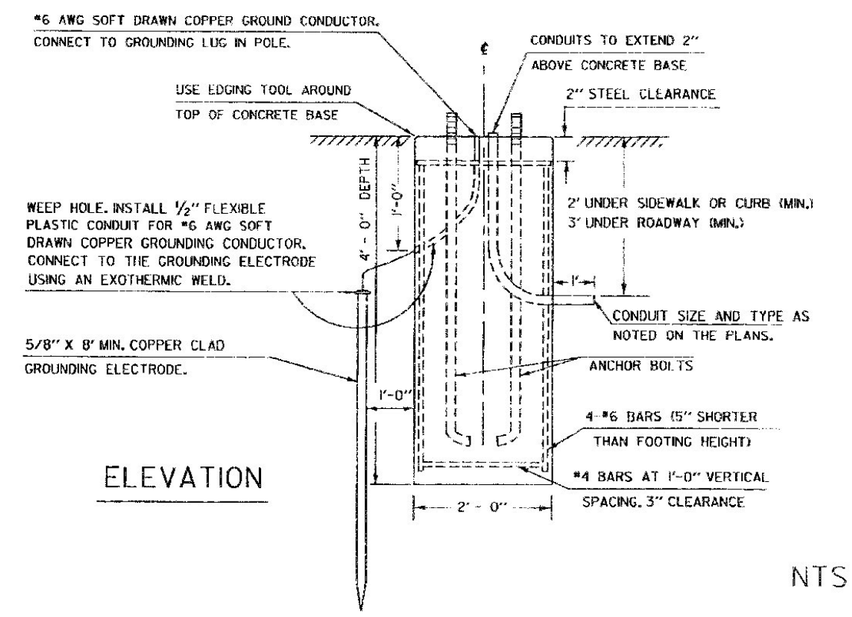
DETAILS OF TRAFFIC SIGNAL PEDESTAL POST AND BASE



DETAILS OF REINFORCED CONCRETE FOOTING FOR PEDESTAL POST

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

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REVISIONS AND CORRECTIONS

JUNE 21, 1989 - DATE OF ORIGINAL ISSUE
MAY 14, 1990 - FHWA COMMENTS
NOV. 17, 1993 - MISC. COMMENTS
AUG. 9, 1995 - CORRECTED BUTTON HEIGHT, ADDED NOTE 4, REVISED BASE GROUNDING & OTHER STDS REQUIRED.

APPROVED

Gordon S. MacArthur
DIRECTOR OF ENGINEERING

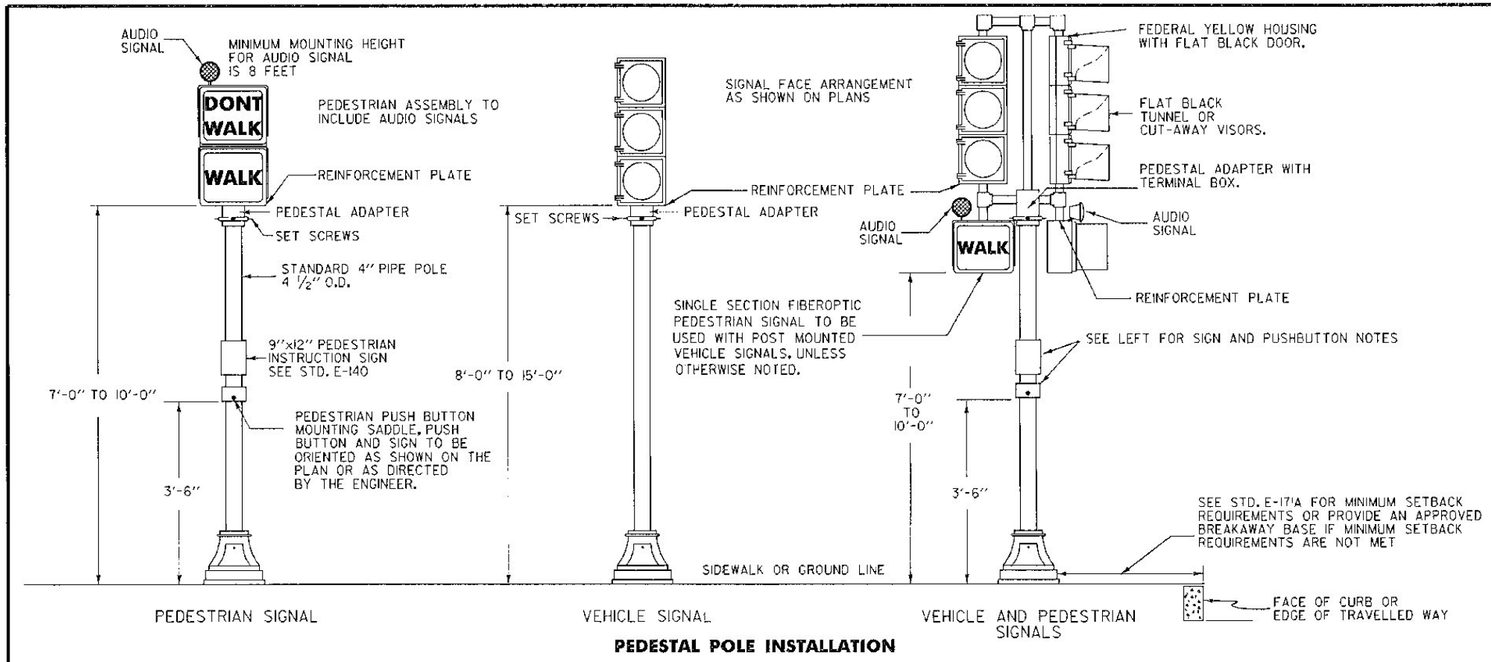
David A. Ross
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL SIGNALS PEDESTAL POST MOUNTED

/traf/std/stdel70.dgn - stdel70.1

VERMONT AGENCY OF TRANSPORTATION

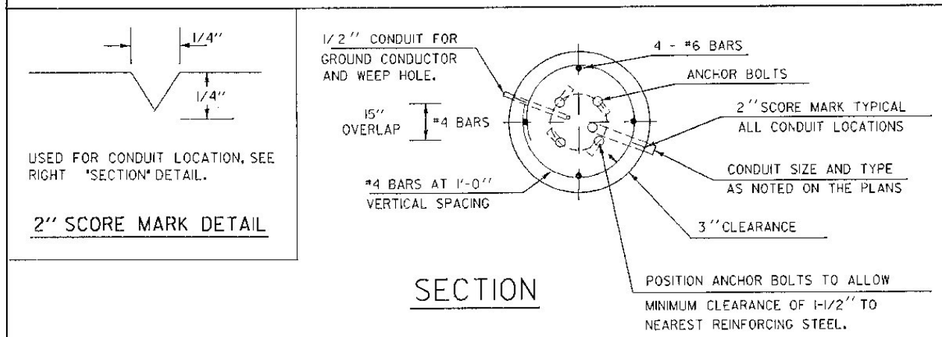
STANDARD E-170

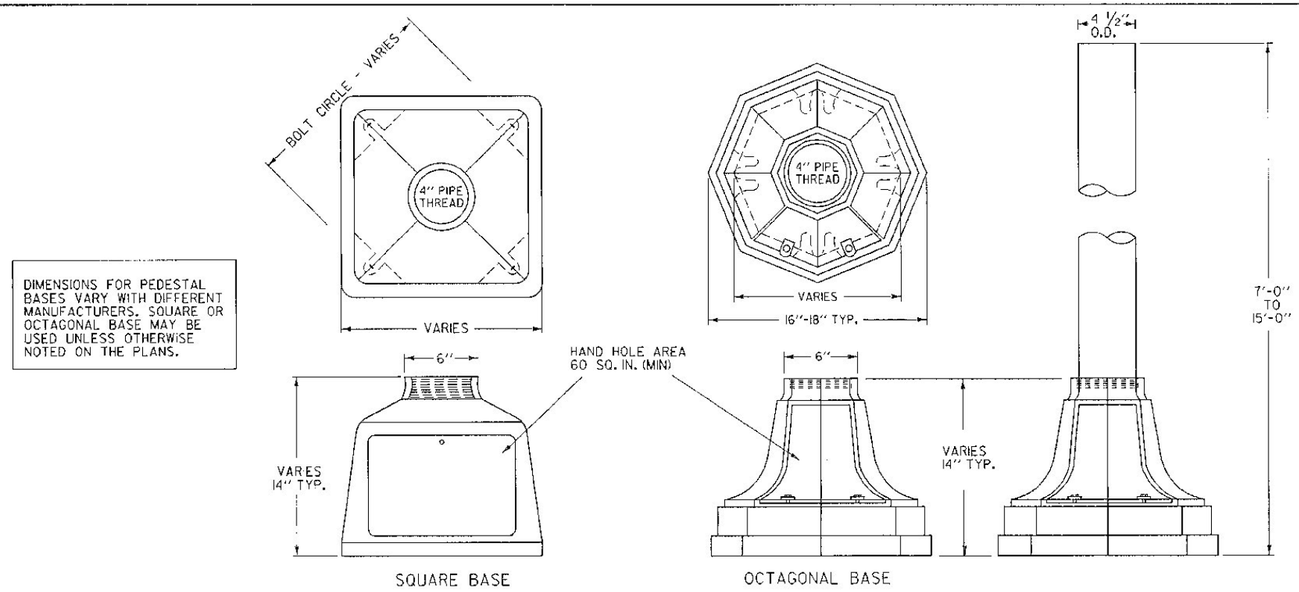


PEDESTAL POLE INSTALLATION

NOTES

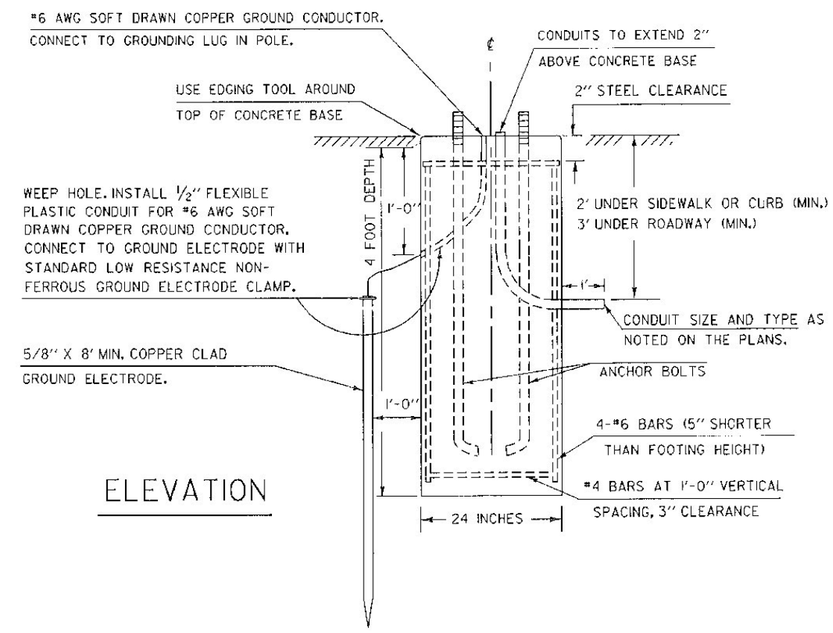
1. REFER TO STANDARD E-171A FOR TRAFFIC SIGNAL GENERAL NOTES
2. STEEL PEDESTAL POSTS AND BASES SHALL BE PAINTED FEDERAL YELLOW, AFTER GALVANIZATION. UNLESS OTHERWISE NOTED IN THE PLANS. ALUMINUM POSTS AND BASES SHALL HAVE A NATURAL ALUMINUM FINISH.
3. ALL PEDESTAL POLES WHICH ARE PROVIDED WITH A BREAKAWAY FEATURE SHALL CONFORM TO THE REQUIREMENTS OF THE AASHTO 1985 STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, SECTION 7 AND SUBSEQUENT REVISIONS.





DIMENSIONS FOR PEDESTAL BASES VARY WITH DIFFERENT MANUFACTURERS. SQUARE OR OCTAGONAL BASE MAY BE USED UNLESS OTHERWISE NOTED ON THE PLANS.

DETAILS OF TRAFFIC SIGNAL PEDESTAL POST AND BASE



DETAILS OF REINFORCED CONCRETE FOOTING FOR PEDESTAL POST

OTHER STDS. REQUIRED E - 140, E - 171A

REVISIONS AND CORRECTIONS

JUNE 21, 1989 - DATE OF ORIGINAL ISSUE
MAY 14, 1990 - FHWA COMMENTS
NOV. 17, 1993 - MISC. COMMENTS

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

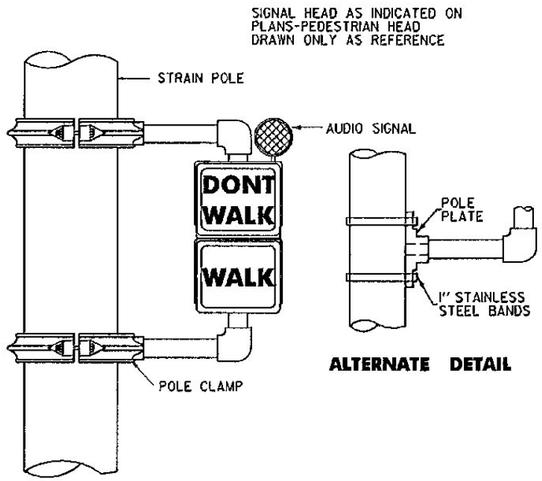
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL SIGNALS PEDESTAL POST MOUNTED

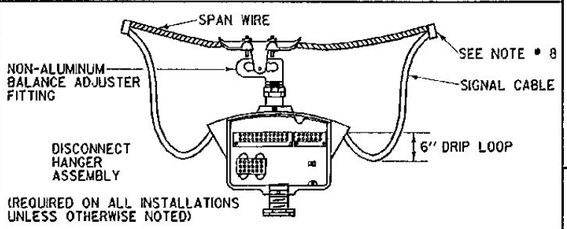
/traf/std/stdel70.dgn - stdel70.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-170



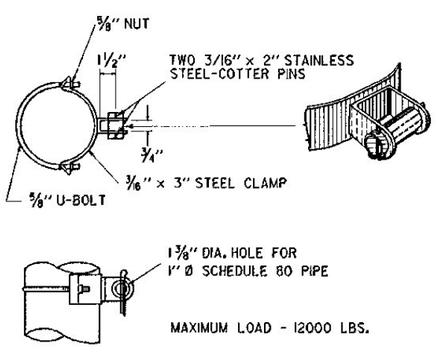
POLE MOUNTING DETAIL



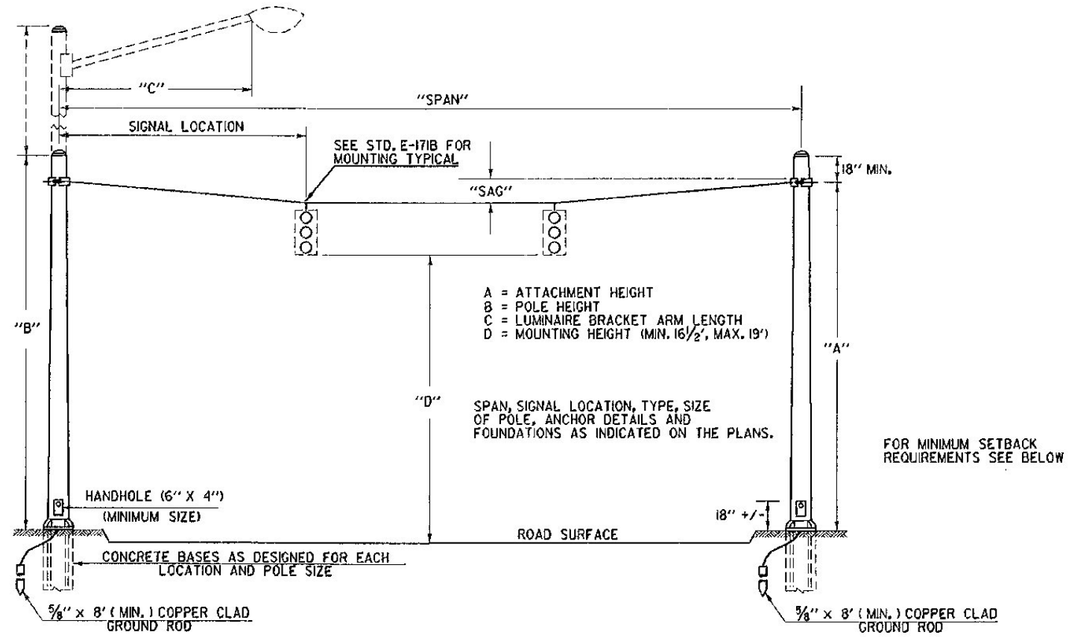
WHERE BACKPLATES ARE REQUIRED, THE SIGNAL IS TO BE LOWERED SO THAT THE BACKPLATE IS BELOW SPAN WIRE.

A SWIVEL BALANCE ADJUSTER MAY BE REQUIRED WHEN MULTIFACE SIGNAL HEADS WILL NOT HANG PLUMB.

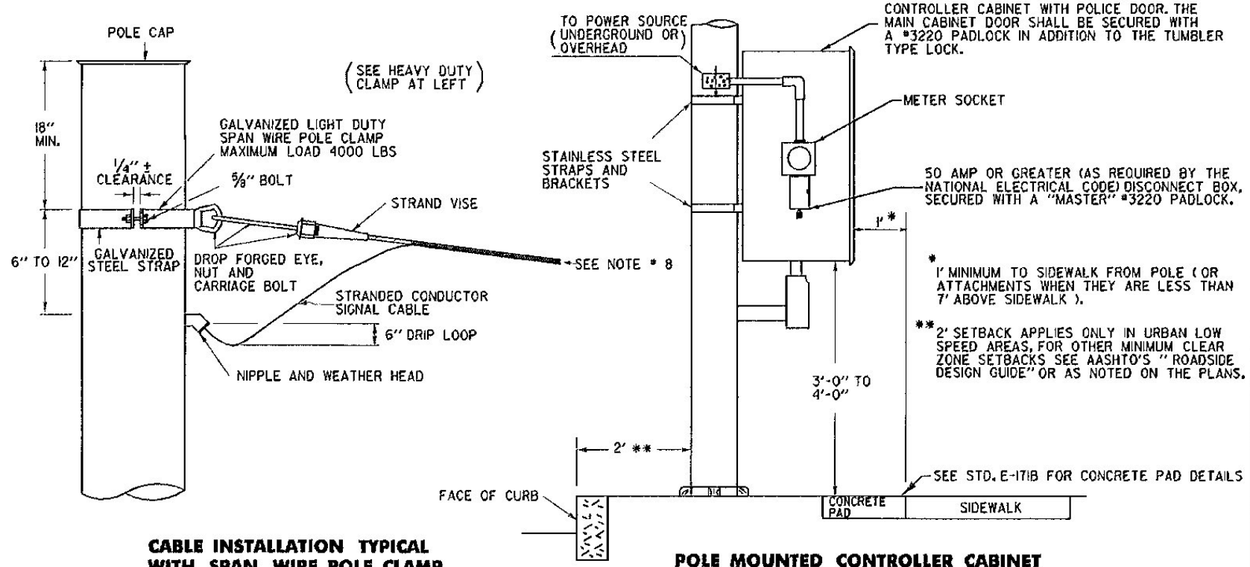
SPAN WIRE MOUNTING TYPICAL



HEAVY DUTY GALVANIZED SPAN WIRE CLAMP



SPAN WIRE MOUNTED TRAFFIC SIGNALS WITH LUMINAIRES



CABLE INSTALLATION TYPICAL WITH SPAN WIRE POLE CLAMP

POLE MOUNTED CONTROLLER CABINET INSTALLATION TYPICAL

NOTES

1) ALL SOLID STATE TRAFFIC SIGNAL EQUIPMENT SHALL MEET OR EXCEED ALL REQUIREMENTS OF THE LATEST REVISION OF THE NEMA AND IMSA STANDARDS FOR TRAFFIC CONTROL SYSTEMS.

2) ALL ELECTRICAL WIRE AND CABLE SHALL BE COPPER. ELECTRICAL SIGNAL CABLE FROM TRAFFIC SIGNAL CONTROLLER TO SIGNAL HEADS SHALL BE COMPOSED OF A.W.G. # 12 STRANDED CONDUCTORS, AND SHALL MEET THE INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION (IMSA) WIRE AND CABLE SPECIFICATIONS.

3. PEDESTRIAN PUSH BUTTONS SHALL BE MOUNTED 3.5 FEET ABOVE THE SIDEWALK OR GROUND, WITH THE "PUSH BUTTON FOR WALK SIGNAL" SIGN MOUNTED IMMEDIATELY ABOVE OR INCORPORATED IN THE PUSH BUTTON ASSEMBLY SIGNAL UNIT.

4. THE PEDESTRIAN SIGNAL HEADS SHALL HAVE AUDIO SIGNALS TO INDICATE ALLOWABLE PEDESTRIAN MOVEMENT FOR THE VISUALLY IMPAIRED DURING THE PEDESTRIAN PHASE. THEY SHALL BE OF THE TYPE NORMALLY USED FOR SUCH AN INSTALLATION AND BE WIRED IN SUCH A WAY AS TO BE EASILY DEACTIVATED. AFTER THE AUDIO SIGNAL HAS BEEN INSTALLED AND FIELD TESTED IT SHALL BE DEACTIVATED, UNLESS NOTED OTHERWISE. PEDESTRIAN PUSH BUTTONS SHALL BE INSTALLED AT EACH END OF EACH CROSSWALK WHERE ACTUATED PEDESTRIAN SIGNALS ARE INSTALLED OR AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL SUBMIT THE PROPOSED SYSTEM FOR REVIEW PRIOR TO INSTALLATION.

5) THE PEDESTRIAN HEADS SHALL HAVE TEXT "WALK", "DON'T WALK", UNLESS OTHERWISE NOTED. THEY SHALL MEET THE LATEST REQUIREMENTS OF THE MUTCD.

6) SIGNAL TIMING IS APPROXIMATE AND IS NOT TO BE CONSIDERED FINAL. ALL NECESSARY HARDWARE TO CHANGE THE TIMING SHALL BE ON HAND WHEN THE SIGNALS ARE ACTIVATED. THE RESIDENT ENGINEER SHALL PERFORM CHECKS DURING THE AM AND PM PEAK PERIODS TO INSURE OPTIMUM SETTINGS. IF REQUIRED, APPROPRIATE TIMING CHANGES SHALL BE MADE TO "TUNE" THE CONTROLLER TO ITS BEST EFFICIENCY PRIOR TO COMPLETION OF THE PROJECT. TIMING CHANGES WILL BE ESTABLISHED BY A REPRESENTATIVE OF THE V.A.O.T. TRAFFIC AND SAFETY DIVISION. TIMING ADJUSTMENTS SHALL BE SUBSIDIARY TO ITEM, TRAFFIC CONTROL SIGNALS. TIMING CHANGES WILL NOT EFFECT THE RUNNING OF THE 30 DAY TEST PERIOD.

7) THE TRAFFIC SIGNAL STRAIN POLES SHALL BE BACK RAKED BEFORE THE WIRES AND SIGNALS ARE INSTALLED SO THAT THE POLES WILL APPEAR PLUMB WHEN DEAD LOAD DEFLECTION DUE TO SPAN WIRE AND SIGNAL HEADS OCCURS. THE AMOUNT OF BACK RAKE SHALL BE AS SHOWN ON THE PLANS.

8) THE STRANDED CONDUCTOR SIGNAL CABLE SHALL BE LASHED TO THE SPAN WIRE WITH STAINLESS ALLOY 430 LASHING (SPINNING) WIRE.

9) WHEN STREET LIGHTS ARE INSTALLED ON A TRAFFIC SIGNAL STRAIN POLE, THE LUMINAIRES AND BRACKET ARMS ARE INCLUDED UNDER ITEM, TRAFFIC CONTROL SIGNAL. PARTICULAR ATTENTION SHOULD BE GIVEN TO THE SPECIFICATIONS ON STREET LIGHTING TO INSURE COMPLIANCE WITH ALL THE REQUIREMENTS OF THAT SECTION.

10) THE SIGNAL SYSTEM SHALL NOT OPERATE WITHOUT THE APPROPRIATE PAVEMENT MARKINGS AND RELATED SIGNING.

11) THE SIGNAL HEADS SHALL BE COVERED WITH AN OPAQUE COVERING UNTIL SUCH TIME AS THE SIGNAL SYSTEM IS FUNCTIONAL. AT NO TIME SHOULD THE HEADS BE VIEWED WITHOUT HAVING SOME FORM OF SIGNAL INDICATION I.E. FLASHING OPERATION OR SEQUENCING AS PER PLAN. REFER TO PROJECT GENERAL SPECIAL PROVISIONS FOR COVERING DETAILS.

12) THE CONFLICT MONITER SHALL BE CAPABLE OF DETECTING A LACK OF RED SIGNAL AS WELL AS THE GREEN, YELLOW AND WALK SIGNALS AND SHALL BE CAPABLE OF STORING AT LEAST NINE PREVIOUS FAULTS FOR RECALL VIA A DISPLAY SCREEN.

13) THE VEHICLE DETECTOR AMPLIFIERS AND PHASE MODULES (WHERE APPROPRIATE) INSIDE THE CONTROLLER CABINET SHALL HAVE LABELS TO INDICATE WHICH PHASE AND MOVEMENT GOES WITH EACH. THE LABELS SHALL BE 1/2" WIDE. THE LOOP DETECTOR LEAD-INS SHALL BE LABELED AS TO WHICH MOVEMENT AND LANE THEY ARE FROM. VEHICLE DETECTOR AMPLIFIERS SHALL BE OF A TYPE WHICH FAIL IN THE "ON" POSITION.

14) THE CONTRACTOR SHALL PROVIDE A MINIMUM OF TWO COPIES OF THE INSTRUCTION MANUALS FOR THE CONTROLLER, LOOP DETECTORS, CONFLICT MONITORS, AND ANY OTHER EQUIPMENT INCLUDED IN THE CABINET. ONE COPY IS TO BE KEPT IN THE CABINET AND THE OTHER GIVEN TO THE PARTY RESPONSIBLE FOR MAINTENANCE OF THE SIGNAL SYSTEM. ADDITIONAL COPIES TO BE PROVIDED AS CALLED FOR ON THE PLANS.

15) FOR PROGRAMMABLE SOLID STATE CONTROLLERS, COPIES OF THE FINAL PROGRAM LISTING SHALL BE PROVIDED AND DISTRUBUTED AS DETAILED IN NOTE 14.

16) PHASING CHANGES, IF REQUESTED AND FEASIBLE, SHALL BE CONSIDERED AS PART OF THE CONTRACT, EXTRA COMPENSATION FOR THE CHANGES WILL BE AUTHORIZED FOLLOWING APPROVAL OF THE ESTIMATE.

17) THE NEW TRAFFIC SIGNALS SHALL BE ACTIVATED ONLY UPON THE APPROVAL OF THE ENGINEER AND AFTER FLASHING FOR A MINIMUM OF 24 HOURS.

18) IF THE PROJECT INVOLVES REPLACING OR IMPROVING AN EXISTING TRAFFIC SIGNAL, TRAFFIC SHALL BE CONTROLLED BY A UNIFORMED TRAFFIC OFFICER AT ANY TIME THE SIGNAL IS NOT EITHER SEQUENCING AS PER PLAN OR OPERATING ON FLASH. THE SWITCH FROM THE OLD TO THE NEW SIGNAL SHALL BE DONE DURING OFF-PEAK TRAFFIC AND IN SUCH A WAY AS TO MINIMIZE DOWN TIME.

19) REMOVAL OF EXISTING SIGNAL EQUIPMENT, INCLUDING FOOTINGS, SHALL BE SUBSIDIARY TO THE ITEM, TRAFFIC CONTROL SIGNAL.

20) TRAFFIC & PEDESTRIAN SIGNALS MOUNTED ON THE SIDE OF THE SIGNAL POLES MAY BE ATTACHED BY METHODS OTHER THAN THOSE SHOWN. SHOP DRAWINGS MUST BY SUBMITTED TO THE TRAFFIC DESIGN SECTION OF THE V.A.O.T. FOR APPROVAL PRIOR TO CONSTRUCTION.

21) REFER TO STANDARD E-171B FOR ADDITIONAL NOTES.

22) ALL RIGIDLY MOUNTED TRAFFIC AND PEDESTRIAN SIGNAL HEADS (POST TOP, SIDE OR ARM MOUNTED) SHALL BE HEAVY DUTY ALUMINUM, UNLESS OTHERWISE NOTED ON THE PLANS.

23) ALL TRAFFIC SIGNAL POLE OR POST ANCHOR BOLTS SHALL BE STAINLESS STEEL.

24) WHEN (FREE SWINGING) OPTICALLY PROGRAMMABLE SIGNAL HEADS ARE REQUIRED, THEY SHALL NOT BE INSTALLED ON THE SAME HANGER ASSEMBLY AS LIGHTER WEIGHT HEADS, UNLESS OTHERWISE NOTED ON THE PLANS. WHEN TWO HANGER ASSEMBLIES ARE INSTALLED CLOSE TOGETHER, THE BOTTOM OF THE SIGNALS SHALL BE CONNECTED BY A FLAT ARM ASSEMBLY TO PREVENT THE HEADS FROM HITTING IN THE WIND.

25) THE CABINET DOOR SHALL BE SUPPLIED WITH TEST SWITCHES FOR EACH PHASE.

REVISIONS AND CORRECTIONS

MAY 14, 1990 - FHWA COMMENTS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

JUNE 21, 1989
DATE

CHIEF ENGINEER

DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

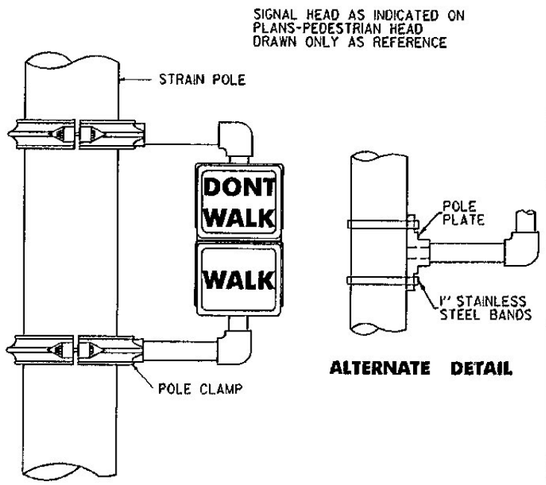
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL SIGNALS GENERAL NOTES & DETAILS

VERMONT AGENCY OF TRANSPORTATION

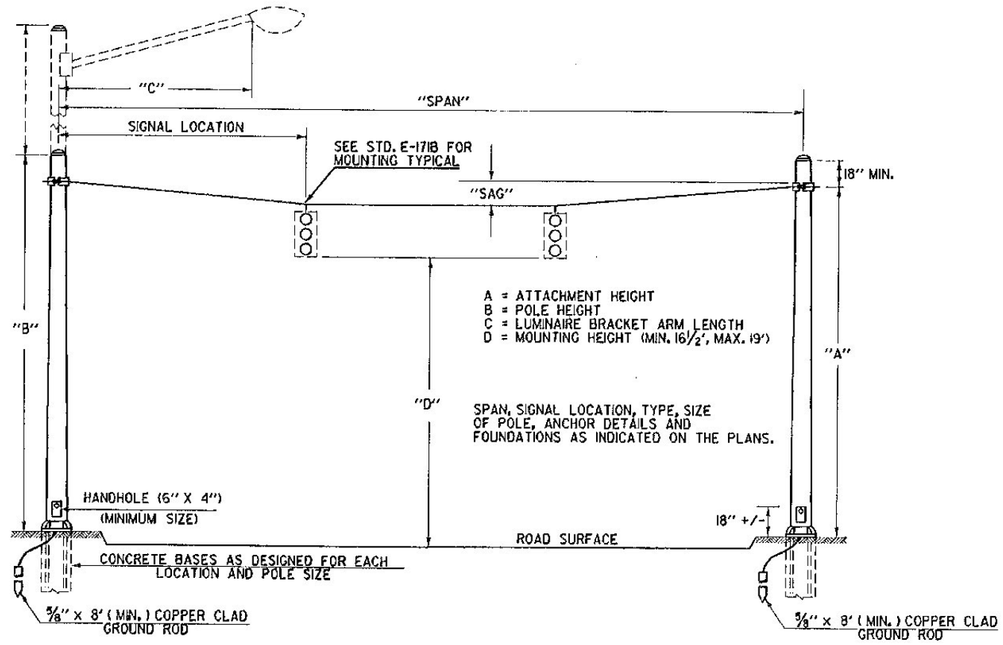
STANDARD

E-171A

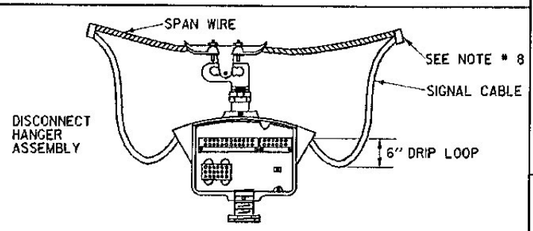


ALTERNATE DETAIL

POLE MOUNTING DETAIL



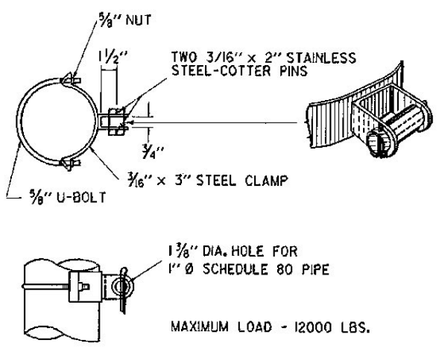
SPAN WIRE MOUNTED TRAFFIC SIGNALS WITH LUMINAIRES



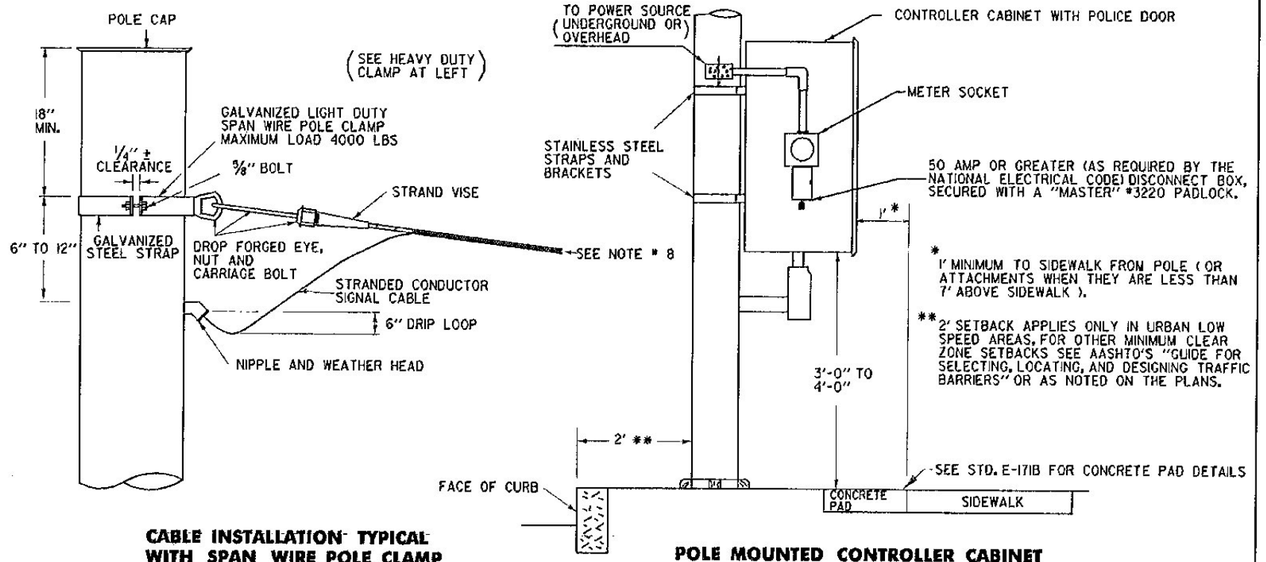
WHERE BACKPLATES ARE REQUIRED, THE SIGNAL IS TO BE LOWERED SO THAT THE BACKPLATE IS BELOW SPAN WIRE.

A SWIVEL BALANCE ADJUSTER MAY BE REQUIRED WHEN MULTIFACE SIGNAL HEADS WILL NOT HANG PLUMB.

SPAN WIRE MOUNTING TYPICAL



HEAVY DUTY GALVANIZED SPAN WIRE CLAMP



* 1' MINIMUM TO SIDEWALK FROM POLE (OR ATTACHMENTS WHEN THEY ARE LESS THAN 7' ABOVE SIDEWALK).

** 2' SETBACK APPLIES ONLY IN URBAN LOW SPEED AREAS. FOR OTHER MINIMUM CLEAR ZONE SETBACKS SEE AASHTO'S "GUIDE FOR SELECTING, LOCATING, AND DESIGNING TRAFFIC BARRIERS" OR AS NOTED ON THE PLANS.

CABLE INSTALLATION TYPICAL WITH SPAN WIRE POLE CLAMP

POLE MOUNTED CONTROLLER CABINET INSTALLATION TYPICAL

NOTES

1) ALL SOLID STATE TRAFFIC SIGNAL EQUIPMENT SHALL MEET OR EXCEED ALL REQUIREMENTS OF THE LATEST REVISION OF THE NEMA AND IMSA STANDARDS FOR TRAFFIC CONTROL SYSTEMS.

2) ALL ELECTRICAL WIRE AND CABLE SHALL BE COPPER. ELECTRICAL SIGNAL CABLE FROM TRAFFIC SIGNAL CONTROLLER TO SIGNAL HEADS SHALL BE COMPOSED OF A.W.G. # 12 STRANDED CONDUCTORS, AND SHALL MEET THE INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION (IMSA) WIRE AND CABLE SPECIFICATIONS.

3. PEDESTRIAN PUSH BUTTONS SHALL BE MOUNTED 3.5 FEET ABOVE THE SIDEWALK OR GROUND, WITH THE "PUSH BUTTON FOR WALK SIGNAL" SIGN MOUNTED IMMEDIATELY ABOVE OR INCORPORATED IN THE PUSH BUTTON ASSEMBLY SIGNAL UNIT.

4. THE PEDESTRIAN SIGNAL HEADS SHALL HAVE AUDIO SIGNALS TO INDICATE ALLOWABLE PEDESTRIAN MOVEMENT FOR THE VISUALLY IMPAIRED DURING THE PEDESTRIAN PHASE. THEY SHALL BE OF THE TYPE NORMALLY USED FOR SUCH AN INSTALLATION AND BE WIRED IN SUCH A WAY AS TO BE EASILY DEACTIVATED. AFTER THE AUDIO SIGNAL HAS BEEN INSTALLED AND FIELD TESTED IT SHALL BE DEACTIVATED, UNLESS NOTED OTHERWISE. PEDESTRIAN PUSH BUTTONS SHALL BE INSTALLED AT EACH END OF EACH CROSSWALK WHERE ACTUATED PEDESTRIAN SIGNALS ARE INSTALLED OR AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL SUBMIT THE PROPOSED SYSTEM FOR REVIEW PRIOR TO INSTALLATION.

5) THE PEDESTRIAN HEADS SHALL HAVE TEXT "WALK", "DON'T WALK", UNLESS OTHERWISE NOTED. THEY SHALL MEET THE LATEST REQUIREMENTS OF THE MUTCD.

6) SIGNAL TIMING IS APPROXIMATE AND IS NOT TO BE CONSIDERED FINAL. ALL NECESSARY HARDWARE TO CHANGE THE TIMING SHALL BE ON HAND WHEN THE SIGNALS ARE ACTIVATED. THE RESIDENT ENGINEER SHALL PERFORM CHECKS DURING THE AM AND PM PEAK PERIODS TO INSURE OPTIMUM SETTINGS. IF REQUIRED, APPROPRIATE TIMING CHANGES SHALL BE MADE TO "TUNE" THE CONTROLLER TO ITS BEST EFFICIENCY PRIOR TO COMPLETION OF THE PROJECT. TIMING CHANGES WILL BE ESTABLISHED BY A REPRESENTATIVE OF THE V.A.O.T. TRAFFIC AND SAFETY DIVISION. TIMING ADJUSTMENTS SHALL BE SUBSIDIARY TO ITEM, TRAFFIC CONTROL SIGNALS. TIMING CHANGES WILL NOT EFFECT THE RUNNING OF THE 30 DAY TEST PERIOD.

7) THE TRAFFIC SIGNAL STRAIN POLES SHALL BE BACK RAKED BEFORE THE WIRES AND SIGNALS ARE INSTALLED SO THAT THE POLES WILL APPEAR PLUMB WHEN DEAD LOAD DEFLECTION DUE TO SPAN WIRE AND SIGNAL HEADS OCCURS. THE AMOUNT OF BACK RAKE SHALL BE AS SHOWN ON THE PLANS.

8) THE STRANDED CONDUCTOR SIGNAL CABLE SHALL BE LASHED TO THE SPAN WIRE WITH STAINLESS ALLOY .430 LASHING (SPINNING) WIRE.

9) WHEN STREET LIGHTS ARE INSTALLED ON A TRAFFIC SIGNAL STRAIN POLE, THE LUMINAIRES AND BRACKET ARMS ARE INCLUDED UNDER ITEM, TRAFFIC CONTROL SIGNAL. PARTICULAR ATTENTION SHOULD BE GIVEN TO SECTION ON STREET LIGHTING TO INSURE COMPLIANCE WITH ALL THE REQUIREMENTS OF THAT SECTION.

10) WHEN PAVEMENT MARKINGS ARE INCLUDED AS CONTRACT ITEMS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE PAVEMENT MARKINGS UNTIL THE PROJECT IS ACCEPTED. IF THE MARKINGS BECOME DISCOLORED, FADED OR WORN, THEY SHALL BE APPLIED AS SOON AS THE ROADWAY SURFACE IS COMPLETED. THE SIGNAL SYSTEM SHALL NOT OPERATE WITHOUT THE APPROPRIATE PAVEMENT MARKINGS AND RELATED SIGNING.

11) THE SIGNAL HEADS SHALL BE COVERED WITH AN OPAQUE COVERING UNTIL SUCH TIME AS THE SIGNAL SYSTEM IS FUNCTIONAL. AT NO TIME SHOULD THE HEADS BE VIEWED WITHOUT HAVING SOME FORM OF SIGNAL INDICATION I.E. FLASHING OPERATION OR SEQUENCING AS PER PLAN. REFER TO PROJECT GENERAL SPECIAL PROVISIONS FOR COVERING DETAILS.

12) THE CONFLICT MONITER SHALL BE CAPABLE OF DETECTING A LACK OF RED SIGNAL AS WELL AS THE GREEN, YELLOW AND WALK SIGNALS.

13) THE CABINET AMPLIFIERS AND PHASE MODULES (WHERE APPROPRIATE)INSIDE THE CONTROLLER CABINET SHALL HAVE LABELS TO INDICATE WHICH PHASE AND MOVEMENT GOES WITH EACH. THE LABELS SHALL BE 1/2" WIDE. THE LOOP DETECTOR LEAD-INS SHALL BE LABELED AS TO WHICH MOVEMENT AND LANE THEY ARE FROM.

14) THE CONTRACTOR SHALL PROVIDE A MINIMUM OF TWO COPIES OF THE INSTRUCTION MANUALS FOR THE CONTROLLER, LOOP DETECTORS, CONFLICT MONITORS, AND ANY OTHER EQUIPMENT INCLUDED IN THE CABINET. ONE COPY IS TO BE KEPT IN THE CABINET AND THE OTHER GIVEN TO THE PARTY RESPONSIBLE FOR MAINTENANCE OF THE SIGNAL SYSTEM. ADDITIONAL COPIES TO BE PROVIDED AS CALLED FOR ON THE PLANS.

15) FOR PROGRAMMABLE SOLID STATE CONTROLLERS, COPIES OF THE FINAL PROGRAM LISTING SHALL BE PROVIDED AND DISTRIBUTED AS DETAILED IN NOTE 14.

16) PHASING CHANGES, IF REQUESTED AND FEASIBLE, SHALL BE CONSIDERED AS PART OF THE CONTRACT. EXTRA COMPENSATION FOR THE CHANGES WILL BE AUTHORIZED FOLLOWING APPROVAL OF THE ESTIMATE.

17) THE NEW TRAFFIC SIGNALS SHALL BE ACTIVATED ONLY UPON THE APPROVAL OF THE ENGINEER.

18) IF THE PROJECT INVOLVES REPLACING OR IMPROVING AN EXISTING TRAFFIC SIGNAL, TRAFFIC SHALL BE CONTROLLED BY A UNIFORMED TRAFFIC OFFICER AT ANY TIME THE SIGNAL IS NOT EITHER SEQUENCING AS PER PLAN OR OPERATING ON FLASH. THE SWITCH FROM THE OLD TO THE NEW SIGNAL SHALL BE DONE DURING OFF-PEAK TRAFFIC AND IN SUCH A WAY AS TO MINIMIZE DOWN TIME.

19) REMOVAL OF EXISTING SIGNAL EQUIPMENT, INCLUDING FOOTINGS, SHALL BE SUBSIDIARY TO THE ITEM, TRAFFIC CONTROL SIGNAL.

20) TRAFFIC & PEDESTRIAN SIGNALS MOUNTED ON THE SIDE OF THE SIGNAL POLES MAY BE ATTACHED BY METHODS OTHER THAN THOSE SHOWN, SHOP DRAWINGS MUST BY SUBMITTED TO THE TRAFFIC DESIGN SECTION OF THE V.A.O.T. FOR APPROVAL PRIOR TO CONSTRUCTION.

21) REFER TO STANDARD E-171B FOR ADDITIONAL NOTES.

22) ALL RIGIDLY MOUNTED TRAFFIC AND PEDESTRIAN SIGNAL HEADS (POST TOP, SIDE OR ARM MOUNTED) SHALL BE HEAVY DUTY ALUMINUM, UNLESS OTHERWISE NOTED ON THE PLANS.

23) ALL TRAFFIC SIGNAL POLE OR POST ANCHOR BOLTS SHALL BE STAINLESS STEEL. REFER TO STANDARD E-170 FOR ADDITIONAL DETAILS.

24) WHEN (FREE SWINGING) OPTICALLY PROGRAMMABLE SIGNAL HEADS ARE REQUIRED, THEY SHALL NOT BE INSTALLED ON THE SAME HANGER ASSEMBLY AS LIGHTER WEIGHT HEADS, UNLESS OTHERWISE NOTED ON THE PLANS. WHEN TWO HANGER ASSEMBLIES ARE INSTALLED CLOSE TOGETHER, THE BOTTOM OF THE SIGNALS SHALL BE CONNECTED BY A FLAT ARM ASSEMBLY TO PREVENT THE HEADS FROM HITTING IN THE WIND.

REVISIONS AND CORRECTIONS

APPROVED

JUNE 21, 1989
DATE

David B Kelley
CHIEF ENGINEER

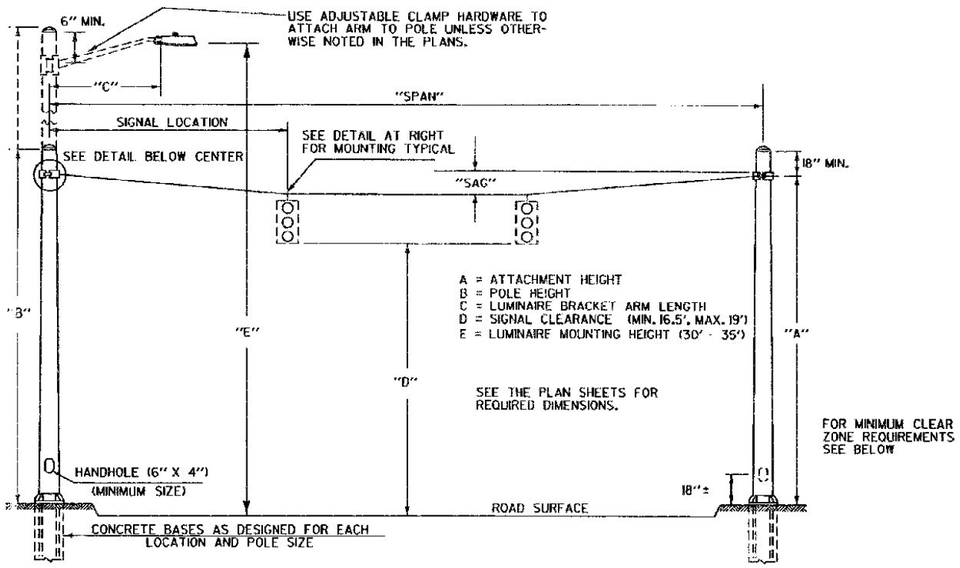
Arthur Jones
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon H. MacArthur
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL SIGNALS GENERAL NOTES & DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-171A



SPAN WIRE MOUNTED TRAFFIC SIGNALS WITH LUMINAIRES

NOTES

1) ALL TRAFFIC SIGNAL EQUIPMENT SHALL MEET OR EXCEED ALL REQUIREMENTS OF THE LATEST REVISION OF THE NATIONAL ELECTRICAL MANUFACTURERS ASSOC. (NEMA) AND THE INTERNATIONAL MUNICIPAL SIGNAL ASSOC. (IMSA) STANDARDS FOR TRAFFIC CONTROL SYSTEMS.

2) ALL ELECTRICAL WIRE AND CABLE SHALL BE COPPER. ELECTRICAL SIGNAL CABLE FROM TRAFFIC SIGNAL CONTROLLER TO SIGNAL HEADS SHALL BE COMPOSED OF AWG # 12 (MIN) STRANDED CONDUCTORS, AND SHALL MEET IMSA WIRE AND CABLE SPECIFICATIONS.

3) ALL SIGNAL HEAD CABLES SHALL BE CONTINUOUS FROM THE CONTROLLER TO THE NEAREST SIGNAL HEAD TO WHICH THEY APPLY. THE CABLE SHALL ALSO BE CONTINUOUS FROM THE FIRST SIGNAL HEAD TO ANY ADDITIONAL HEADS WITH TERMINATION IN THE DISCONNECT HANGER.

4) THE PEDESTRIAN SIGNAL HEADS SHALL HAVE AUDIO SIGNALS TO INDICATE ALLOWABLE PEDESTRIAN MOVEMENT FOR THE VISUALLY IMPAIRED DURING THE PEDESTRIAN PHASE. THEY SHALL BE OF THE TYPE NORMALLY USED FOR SUCH AN INSTALLATION AND BE WIRED IN SUCH A WAY AS TO BE EASILY DEACTIVATED. AFTER THE AUDIO SIGNAL HAS BEEN INSTALLED AND FIELD TESTED IT SHALL BE DEACTIVATED, UNLESS AN EXCLUSIVE PEDESTRIAN PHASE IS OPERATING AT THE INTERSECTION. PEDESTRIAN PUSH BUTTONS SHALL BE INSTALLED AT EACH END OF EACH CROSSWALK WHERE ACTUATED PEDESTRIAN SIGNALS ARE INSTALLED OR AS SHOWN ON THE PLANS.

5) THE PEDESTRIAN HEADS SHALL HAVE TEXT ''WALK'', ''DONT WALK'', UNLESS OTHERWISE NOTED. THEY SHALL MEET THE LATEST REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

6) WHEN STREET LIGHTS ARE INSTALLED ON A TRAFFIC SIGNAL STRAIN POLE, AND THE STREET LIGHTING ITEM IS NOT PART OF THE CONTRACT, THE LUMINAIRES AND BRACKET ARMS ARE INCLUDED UNDER THE TRAFFIC CONTROL SIGNAL ITEM. THEY SHALL MEET ALL OF THE REQUIREMENTS OF SECTION 679 OF THE CURRENT VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

7) SIGNAL TIMING IS APPROXIMATE AND IS NOT TO BE CONSIDERED FINAL. ALL NECESSARY HARDWARE TO CHANGE THE TIMING SHALL BE ON HAND WHEN THE SIGNALS ARE ACTIVATED. THE RESIDENT ENGINEER SHALL PERFORM CHECKS DURING THE AM AND PM PEAK PERIODS TO INSURE OPTIMUM SETTINGS. IF REQUIRED, APPROPRIATE TIMING CHANGES SHALL BE MADE TO ''FINE-TUNE'' THE CONTROLLER TO ITS BEST EFFICIENCY PRIOR TO COMPLETION OF THE PROJECT. TIMING CHANGES WILL BE APPROVED BY A REPRESENTATIVE OF THE V.A.O.T. TRAFFIC AND SAFETY DIVISION. TIMING ADJUSTMENTS SHALL BE SUBSIDIARY TO THE TRAFFIC CONTROL SIGNAL ITEM. MINOR TIMING CHANGES MADE TO ''FINE-TUNE'' THE CONTROLLER WILL NOT AFFECT THE RUNNING OF THE 30 DAY TEST PERIOD.

8) THE TRAFFIC SIGNAL STRAIN POLES SHALL BE BACK RAKED BEFORE THE WIRES AND SIGNALS ARE INSTALLED SO THAT THE POLES WILL BE PLUMB WHEN DEAD LOAD DEFLECTION DUE TO SPAN WIRE AND SIGNAL HEADS OCCURS. THE AMOUNT OF BACK RAKE SHALL BE AS SHOWN ON THE PLANS.

9) THE SIGNAL SYSTEM SHALL NOT OPERATE WITHOUT THE APPROPRIATE PAVEMENT MARKINGS AND RELATED SIGNING IN PLACE.

10) THE SIGNAL HEADS SHALL BE COVERED WITH AN OPAQUE COVERING UNTIL SUCH TIME AS THE SIGNAL SYSTEM IS FUNCTIONAL. AT NO TIME SHOULD THE HEADS BE VIEWED WITHOUT HAVING SOME FORM OF SIGNAL INDICATION, I.E. FLASHING OPERATION OR SEQUENCING AS PER PLAN.

11) THE CONFLICT MONITOR SHALL BE CAPABLE OF DETECTING A LACK OF RED, GREEN, YELLOW OR WALK SIGNAL AND SHALL BE CAPABLE OF STORING AT LEAST NINE PREVIOUS FAULTS FOR RECALL VIA A DISPLAY SCREEN.

12) THE VEHICLE DETECTOR AMPLIFIERS AND PHASE MODULES (WHERE APPROPRIATE) INSIDE THE CONTROLLER CABINET SHALL HAVE LABELS TO INDICATE WHICH PHASE AND MOVEMENT GOES WITH EACH. THE LABELS SHALL BE 1/2'' WIDE. THE LOOP DETECTOR LEAD-INS SHALL ALSO BE LABELED AT THE TERMINAL BOARD AS TO WHICH MOVEMENT AND LANE THEY ARE FROM. VEHICLE DETECTOR AMPLIFIERS SHALL BE OF A TYPE THAT FAIL IN THE ''ON'' POSITION.

13) TEST SWITCHES FOR EACH PHASE SHALL BE PLACED EITHER ON THE CABINET DOOR OR IN A CONVENIENT LOCATION ON THE SIDE WALL.

14) ALL DOOR MOUNTED SWITCHES AND BUTTONS SHALL BE PROTECTED FROM ACCIDENTAL BUMPING OR FROM COMING INTO CONTACT WITH OTHER EQUIPMENT WHEN THE DOOR IS CLOSED.

15) ALL SIGNALS SHALL BE WIRED SUCH THAT NO MORE THAN TWO THROUGH FACES (NORTH-SOUTH AND/OR EAST-WEST) ARE WIRED INTO ONE LOAD SWITCH EVEN THOUGH TWO APPROACHES ARE GREEN DURING THE SAME PHASE.

16) THE CONTRACTOR SHALL PROVIDE A MINIMUM OF TWO COPIES OF THE INSTRUCTION MANUALS FOR THE CONTROLLER, LOOP DETECTORS, CONFLICT MONITORS, AND ANY OTHER EQUIPMENT INCLUDED IN THE CABINET. ONE COPY IS TO BE KEPT IN THE CABINET AND THE OTHER GIVEN TO THE PARTY RESPONSIBLE FOR MAINTENANCE OF THE SIGNAL SYSTEM. ADDITIONAL COPIES TO BE PROVIDED AS CALLED FOR ON THE PLANS.

17) FOR PROGRAMMABLE SOLID STATE CONTROLLERS AND MASTERS, COPIES OF THE FINAL PROGRAM LISTINGS SHALL BE PROVIDED AND DISTRIBUTED AS DETAILED IN NOTE 16.

18) PHASING CHANGES, IF REQUESTED AND FEASIBLE, SHALL BE CONSIDERED AS PART OF THE CONTRACT. EXTRA COMPENSATION FOR THE CHANGES MAY BE AUTHORIZED FOLLOWING APPROVAL OF THE ESTIMATE.

19) TRAFFIC SIGNALS INSTALLED AT NEW LOCATIONS SHALL BE ACTIVATED ONLY UPON THE APPROVAL OF THE ENGINEER AND AFTER FLASHING FOR A MINIMUM OF 48 HRS.

20) IF THE PROJECT INVOLVES REPLACING OR IMPROVING AN EXISTING TRAFFIC SIGNAL, TRAFFIC SHALL BE CONTROLLED BY A UNIFORMED TRAFFIC OFFICER AT ANY TIME THE SIGNAL IS NOT SEQUENCING PER PLAN OR OPERATING ON FLASH. THE SWITCH FROM THE OLD TO THE NEW SIGNAL SHALL BE DONE DURING OFF-PEAK TRAFFIC AND IN SUCH A WAY AS TO MINIMIZE DOWN TIME.

21) TRAFFIC & PEDESTRIAN SIGNALS MOUNTED ON THE SIDE OF THE SIGNAL POLES MAY BE ATTACHED BY METHODS OTHER THAN THOSE SHOWN. SHOP DRAWINGS FOR THE ALTERNATE MOUNTING HARDWARE MUST BY SUBMITTED TO THE TRAFFIC DESIGN SECTION OF THE VAOT VIA THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

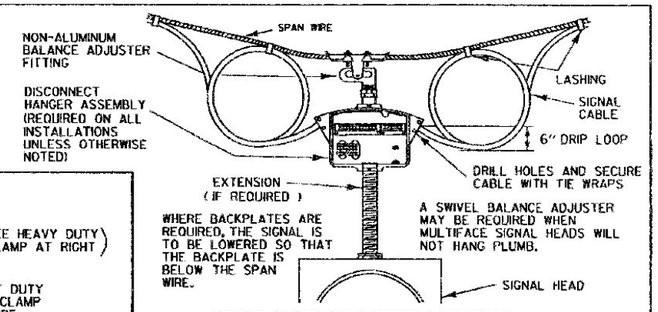
22) ALL RIGIDLY MOUNTED TRAFFIC AND PEDESTRIAN SIGNAL HEADS (POST TOP, SIDE OR ARM MOUNTED) SHALL BE HEAVY DUTY ALUMINUM, UNLESS OTHERWISE NOTED ON THE PLANS.

23) WHEN (FREE SWINGING) OPTICALLY PROGRAMMABLE SIGNAL HEADS ARE REQUIRED, THEY SHALL NOT BE INSTALLED ON THE SAME HANGER ASSEMBLY AS LIGHTER WEIGHT HEADS, UNLESS OTHERWISE NOTED ON THE PLANS. WHEN TWO HANGER ASSEMBLIES ARE INSTALLED CLOSE TOGETHER, THE BOTTOM OF THE SIGNALS SHALL BE CONNECTED BY A FLAT ARM ASSEMBLY TO PREVENT THE HEADS FROM HITTING EACH OTHER.

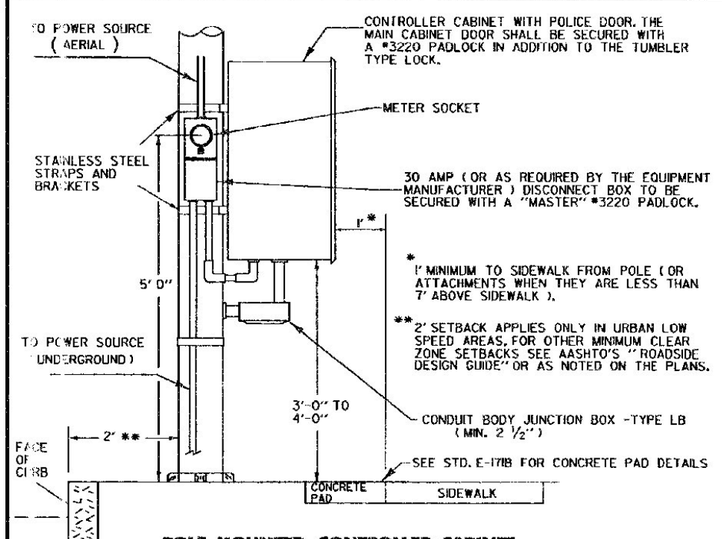
24) WHEN MASKING OF OPTICALLY PROGRAMMABLE SIGNAL HEADS IS REQUIRED, THE HEADS SHALL BE RIGIDLY MOUNTED OR TETHERED, AS SHOWN ON STD E-171B.

25) WHEN STREET LIGHTING AND SIGNALS ARE INSTALLED AT THE SAME LOCATION, THE POWER FOR EACH SHALL BE SEPARATED AT THE STANCHION OR SERVICE.

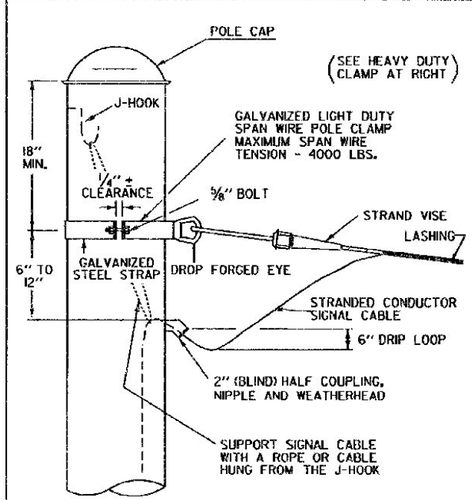
26) WHEN MORE THAN ONE SIGNAL IS POWERED FROM THE SAME SERVICE, EACH SHALL HAVE ITS OWN DISCONNECT AT THE STANCHION.



SPAN WIRE MOUNTING TYPICAL

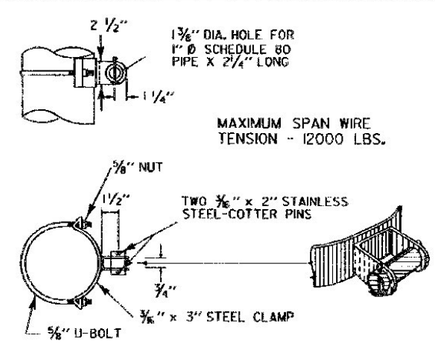


POLE MOUNTED CONTROLLER CABINET INSTALLATION TYPICAL



CABLE INSTALLATION TYPICAL WITH SPAN WIRE POLE CLAMP

(LIGHT DUTY GALVANIZED)



SPAN WIRE CLAMP

(HEAVY DUTY GALVANIZED)

OTHER STDS. REQUIRED E - 171B, E - 175

REVISIONS AND CORRECTIONS

JUNE 21, 1989 - DATE OF ORIGINAL ISSUE
MAY 14, 1990 - FHWA COMMENTS
NOV. 17, 1993 - FHWA COMMENTS. NOTE REVISIONS AND POLE MOUNTING DETAIL MOVED TO E-171B
AUG. 9, 1995 - GENERAL REVISION OF NOTES & DETAILS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

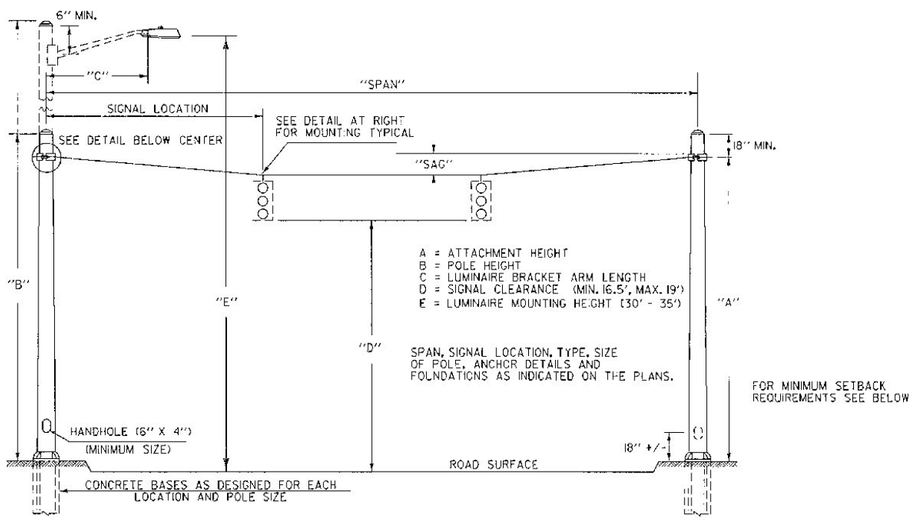
TRAFFIC CONTROL SIGNALS GENERAL NOTES & DETAILS

/traf/std/stdel71a.dgn - stdel71a.l

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-171A



SPAN WIRE MOUNTED TRAFFIC SIGNALS WITH LUMINAIRES

NOTES

1) ALL SOLID STATE TRAFFIC SIGNAL EQUIPMENT SHALL MEET OR EXCEED ALL REQUIREMENTS OF THE LATEST REVISION OF THE NATIONAL ELECTRICAL MANUFACTURERS ASSOC. (NEMA) AND THE INTERNATIONAL MUNICIPAL SIGNAL ASSOC. (IMSA) STANDARDS FOR TRAFFIC CONTROL SYSTEMS.

2) ALL ELECTRICAL WIRE AND CABLE SHALL BE COPPER. ELECTRICAL SIGNAL CABLE FROM TRAFFIC SIGNAL CONTROLLER TO SIGNAL HEADS SHALL BE COMPOSED OF A.W.G. # 12 (MIN) STRANDED CONDUCTORS, AND SHALL MEET IMSA WIRE AND CABLE SPECIFICATIONS.

3) ALL SIGNAL HEAD CABLES SHALL BE CONTINUOUS FROM THE CONTROLLER TO THE NEAREST SIGNAL HEAD TO WHICH IT APPLIES. THE CABLE SHALL ALSO BE CONTINUOUS FROM THE FIRST SIGNAL HEAD TO ANY ADDITIONAL HEADS WITH TERMINATION IN THE DISCONNECT HANGER.

4) THE PEDESTRIAN SIGNAL HEADS SHALL HAVE AUDIO SIGNALS TO INDICATE ALLOWABLE PEDESTRIAN MOVEMENT FOR THE VISUALLY IMPAIRED DURING THE PEDESTRIAN PHASE. THEY SHALL BE OF THE TYPE NORMALLY USED FOR SUCH AN INSTALLATION AND BE WIRED IN SUCH A WAY AS TO BE EASILY DEACTIVATED. AFTER THE AUDIO SIGNAL HAS BEEN INSTALLED AND FIELD TESTED IT SHALL BE DEACTIVATED, UNLESS NOTED OTHERWISE. PEDESTRIAN PUSH BUTTONS SHALL BE INSTALLED AT EACH END OF EACH CROSSWALK WHERE ACTUATED PEDESTRIAN SIGNALS ARE INSTALLED OR AS SHOWN ON THE PLANS.

5) THE PEDESTRIAN HEADS SHALL HAVE TEXT ''WALK'', ''DONT WALK'', UNLESS OTHERWISE NOTED. THEY SHALL MEET THE LATEST REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

6) WHEN STREET LIGHTS ARE INSTALLED ON A TRAFFIC SIGNAL STRAIN POLE, AND THE STREET LIGHTING ITEM IS NOT PART OF THE CONTRACT, THE LUMINAIRES AND BRACKET ARMS ARE INCLUDED UNDER THE TRAFFIC CONTROL SIGNAL ITEM. THEY SHALL MEET ALL OF THE REQUIREMENTS OF SECTION 679 OF THE CURRENT VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

7) SIGNAL TIMING IS APPROXIMATE AND IS NOT TO BE CONSIDERED FINAL. ALL NECESSARY HARDWARE TO CHANGE THE TIMING SHALL BE ON HAND WHEN THE SIGNALS ARE ACTIVATED. THE RESIDENT ENGINEER SHALL PERFORM CHECKS DURING THE AM AND PM PEAK PERIODS TO INSURE OPTIMUM SETTINGS. IF REQUIRED, APPROPRIATE TIMING CHANGES SHALL BE MADE TO ''FINE-TUNE'' THE CONTROLLER TO ITS BEST EFFICIENCY PRIOR TO COMPLETION OF THE PROJECT. TIMING CHANGES WILL BE ESTABLISHED BY A REPRESENTATIVE OF THE V.A.O.T. TRAFFIC AND SAFETY DIVISION. TIMING ADJUSTMENTS SHALL BE SUBSIDIARY TO THE TRAFFIC CONTROL SIGNAL ITEM. MINOR TIMING CHANGES MADE TO ''FINE-TUNE'' THE CONTROLLER WILL NOT EFFECT THE RUNNING OF THE 30 DAY TEST PERIOD.

8) THE TRAFFIC SIGNAL STRAIN POLES SHALL BE BACK RAKED BEFORE THE WIRES AND SIGNALS ARE INSTALLED SO THAT THE POLES WILL BE PLUMB WHEN DEAD LOAD DEFLECTION DUE TO SPAN WIRE AND SIGNAL HEADS OCCURS. THE AMOUNT OF BACK RAKE SHALL BE AS SHOWN ON THE PLANS.

9) THE SIGNAL SYSTEM SHALL NOT OPERATE WITHOUT THE APPROPRIATE PAVEMENT MARKINGS AND RELATED SIGNING IN PLACE.

10) THE SIGNAL HEADS SHALL BE COVERED WITH AN OPAQUE COVERING UNTIL SUCH TIME AS THE SIGNAL SYSTEM IS FUNCTIONAL. AT NO TIME SHOULD THE HEADS BE VIEWED WITHOUT HAVING SOME FORM OF SIGNAL INDICATION. I.E. FLASHING OPERATION OR SEQUENCING AS PER PLAN.

11) THE CONFLICT MONITOR SHALL BE CAPABLE OF DETECTING A LACK OF RED SIGNAL AS WELL AS THE GREEN, YELLOW AND WALK SIGNALS AND SHALL BE CAPABLE OF STORING AT LEAST NINE PREVIOUS FAULTS FOR RECALL VIA A DISPLAY SCREEN.

12) THE VEHICLE DETECTOR AMPLIFIERS AND PHASE MODULES (WHERE APPROPRIATE) INSIDE THE CONTROLLER CABINET SHALL HAVE LABELS TO INDICATE WHICH PHASE AND MOVEMENT GOES WITH EACH. THE LABELS SHALL BE 1/2'' WIDE. THE LOOP DETECTOR LEAD-INS SHALL ALSO BE LABELED AT THE TERMINAL BOARD AS TO WHICH MOVEMENT AND LANE THEY ARE FROM. VEHICLE DETECTOR AMPLIFIERS SHALL BE OF A TYPE THAT FAIL IN THE ''ON'' POSITION.

13) ALL LOAD SWITCH BAYS SHALL BE LABELED ON THE CABINET WALL.

14) TEST SWITCHES FOR EACH PHASE SHALL BE PLACED EITHER ON THE CABINET DOOR OR IN A CONVENIENT LOCATION ON THE SIDE WALL.

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20) THE NEW TRAFFIC SIGNALS SHALL BE ACTIVATED ONLY UPON THE APPROVAL OF THE ENGINEER AND AFTER FLASHING FOR A MINIMUM OF 48 HOURS.

21) IF THE PROJECT INVOLVES REPLACING OR IMPROVING AN EXISTING TRAFFIC SIGNAL, TRAFFIC SHALL BE CONTROLLED BY A UNIFORMED TRAFFIC OFFICER AT ANY TIME THE SIGNAL IS NOT SEQUENCING PER PLAN OR OPERATING ON FLASH. THE SWITCH FROM THE OLD TO THE NEW SIGNAL SHALL BE DONE DURING OFF-PEAK TRAFFIC AND IN SUCH A WAY AS TO MINIMIZE DOWN TIME.

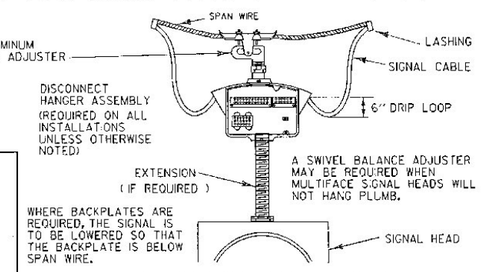
22) REMOVAL OF EXISTING SIGNAL EQUIPMENT, INCLUDING FOOTINGS AND BACKFILL OF THE HOLES, SHALL BE SUBSIDIARY TO THE TRAFFIC CONTROL SIGNAL ITEM.

23) TRAFFIC & PEDESTRIAN SIGNALS MOUNTED ON THE SIDE OF THE SIGNAL POLES MAY BE ATTACHED BY METHODS OTHER THAN THOSE SHOWN. SHOP DRAWINGS FOR THE ALTERNATE MOUNTING HARDWARE MUST BY SUBMITTED TO THE TRAFFIC DESIGN SECTION OF THE VAOT VIA THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

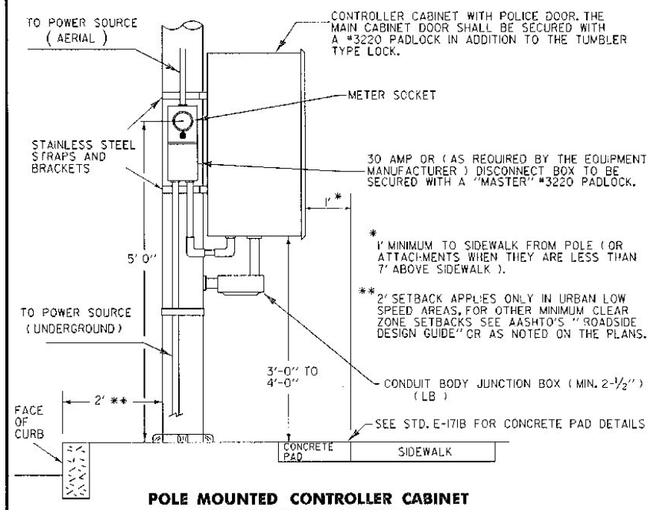
24) ALL RIGIDLY MOUNTED TRAFFIC AND PEDESTRIAN SIGNAL HEADS (POST TOP, SIDE OR ARM MOUNTED) SHALL BE HEAVY DUTY ALUMINUM, UNLESS OTHERWISE NOTED ON THE PLANS.

25) WHEN (FREE SWINGING) OPTICALLY PROGRAMMABLE SIGNAL HEADS ARE REQUIRED, THEY SHALL NOT BE INSTALLED ON THE SAME HANGER ASSEMBLY AS LIGHTER WEIGHT HEADS, UNLESS OTHERWISE NOTED ON THE PLANS. WHEN TWO HANGER ASSEMBLIES ARE INSTALLED CLOSE TOGETHER, THE BOTTOM OF THE SIGNALS SHALL BE CONNECTED BY A FLAT ARM ASSEMBLY TO PREVENT THE HEADS FROM HITTING EACH OTHER.

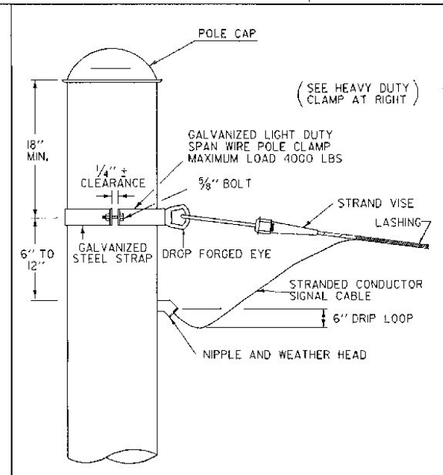
26) WHEN MASKING OF OPTICALLY PROGRAMMABLE SIGNAL HEADS IS REQUIRED, THE HEADS SHALL BE RIGIDLY MOUNTED OR TETHERED.



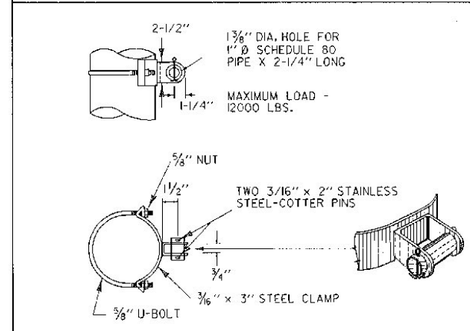
SPAN WIRE MOUNTING TYPICAL



POLE MOUNTED CONTROLLER CABINET INSTALLATION TYPICAL



CABLE INSTALLATION TYPICAL WITH SPAN WIRE POLE CLAMP
(LIGHT DUTY GALVANIZED)



SPAN WIRE CLAMP
(HEAVY DUTY GALVANIZED)

OTHER STDS. REQUIRED E - 171B, E - 175

REVISIONS AND CORRECTIONS

JUNE 21, 1989 - DATE OF ORIGINAL ISSUE
MAY 14, 1990 - FHWA COMMENTS
NOV. 17, 1993 - FHWA COMMENTS, NOTE REVISIONS AND POLE MOUNTING DETAIL MOVED TO E-171B

APPROVED

Gordon J. MacArthur
DIRECTOR OF ENGINEERING

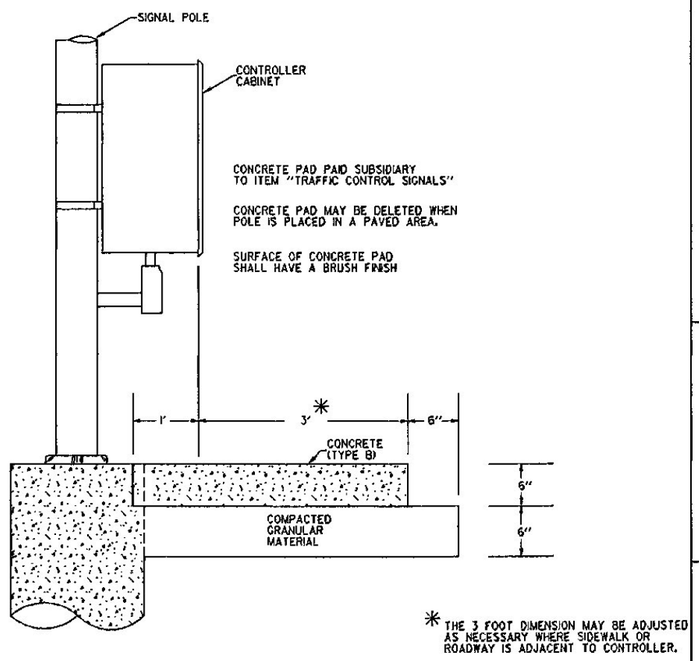
Frank E. Ross
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL SIGNALS GENERAL NOTES & DETAILS

/traf/std/stdel71a.dgn - atdel71a.1

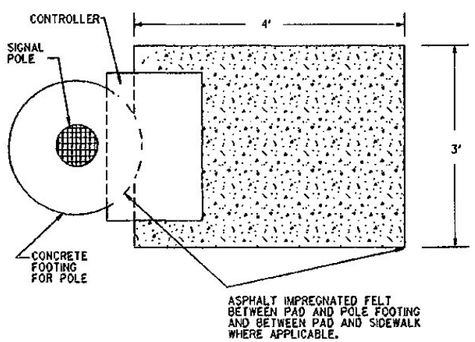
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-171A



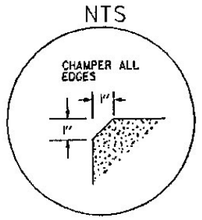
* THE 3 FOOT DIMENSION MAY BE ADJUSTED AS NECESSARY WHERE SIDEWALK OR ROADWAY IS ADJACENT TO CONTROLLER.

CROSS-SECTION

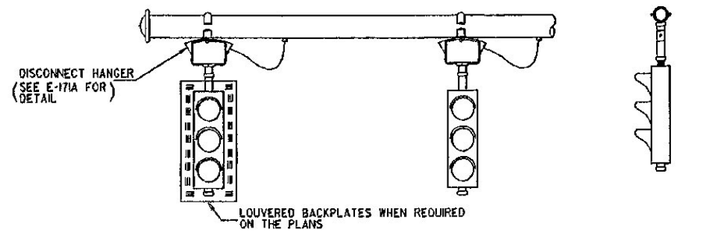


TOP VIEW

NTS

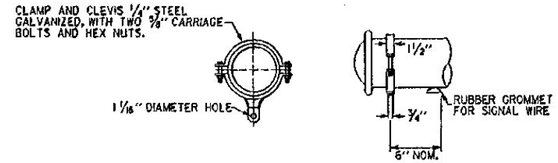


CONCRETE PAD DETAIL FOR POLE MOUNTED CONTROLLER CABINET



FRONT VIEW **SIDE VIEW**

SIGNAL HANGER DETAIL



MAST ARM MOUNTING DETAILS FOR FREE SWINGING TRAFFIC SIGNALS

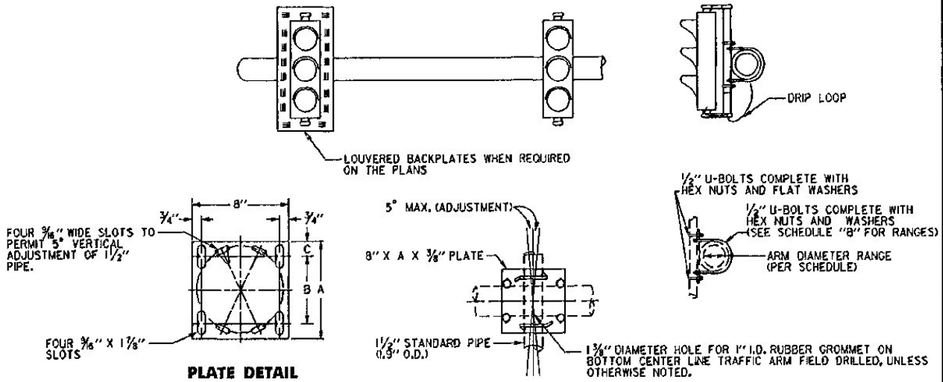
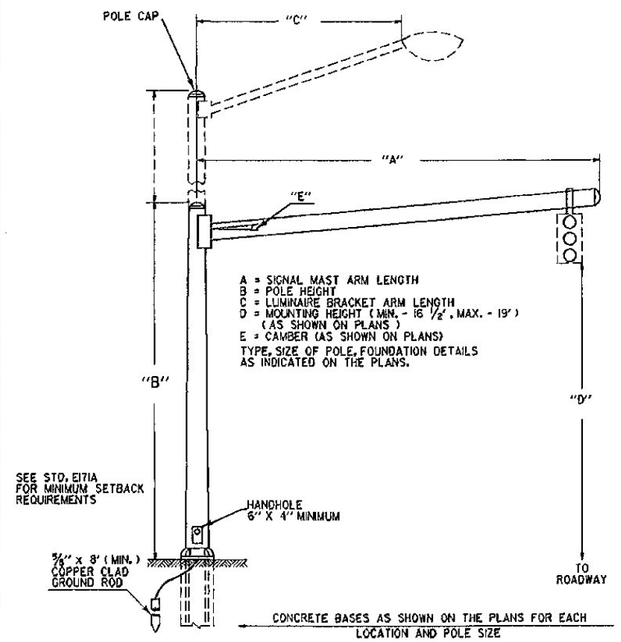


PLATE DETAIL

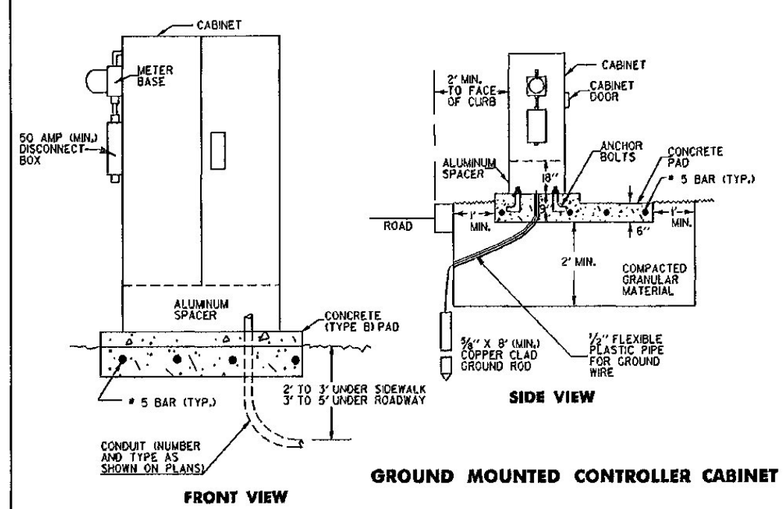
SIGNAL MOUNTING PLATE SCHEDULE			
ARM DIAMETER	A	B	C
3.1" - 5.2"	8 3/4"	5 3/8"	1 11/16"
5.2" - 7.9"	10 3/4"	7 5/8"	1 3/16"
7.9" - 11.3"	14"	10 7/8"	1 3/16"

NOTE:
1.) SIGNAL HEAD CABLES SHALL BE CONTINUOUS FROM THE CONTROLLER TO THE NEAREST SIGNAL HEAD TO WHICH IT APPLIES. THE CABLE SHALL ALSO BE CONTINUOUS FROM THE FIRST SIGNAL HEAD TO ANY ADDITIONAL HEADS WITH TERMINATION ON THE TERMINALS WITHIN THE SIGNAL HEAD HOUSING, OR DISCONNECT HANGAR.
2.) ALL MATERIAL SHALL BE GALVANIZED STEEL.

MAST ARM MOUNTING DETAILS FOR FIXED MOUNT TRAFFIC SIGNALS

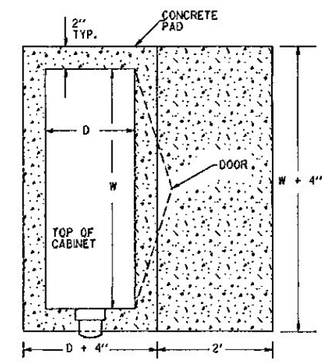


CANTILEVER MOUNTED TRAFFIC SIGNALS (AND LUMINAIRES)



FRONT VIEW **SIDE VIEW**

GROUND MOUNTED CONTROLLER CABINET



TOP VIEW

THE CABINET DIMENSIONS "D" AND "W" VARY WITH MANUFACTURER. A TYPICAL "P" CABINET HAS DIMENSIONS OF D = 26" AND W = 46".

NTS

NOTES:

1.) CONTOLLER CABINETS OF DIFFERENT SIZES MAY REQUIRE ADJUSTMENTS TO THE DIMENSIONS SHOWN.

2.) THE NUMBER 5 BARS SHALL BE SPACED AT 16" CENTER TO CENTER WITH A MINIMUM OF 3" COVER TO THE GROUND. THEY SHALL RUN BOTH NORMAL AND TRANSVERSE IN THE CONCRETE PAD.

3.) CONCRETE PAD SHALL HAVE A BRUSH FINISH.

4.) THE CONTROLLER CABINET ANCHOR BOLT DIMENSIONS SHALL BE SUPPLIED BY THE CABINET MANUFACTURER. THESE BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.

5.) THE 50 AMP. DISCONNECT BOX SHALL BE SECURED WITH A MASTER # 3220 PADLOCK.

6.) THE ALUMINUM CABINET SPACER MAY BE DELETED IN URBAN AREAS, IF SO NOTED ON THE PLANS.

7.) AN ASPHALT IMPREGNATED PAD SHALL BE USED BETWEEN THE CONTROLLER PAD AND ADJACENT SIDEWALK, WHERE APPLICABLE.

NOTES

1.) REFER TO STANDARD E-171A FOR APPROPRIATE NOTES.

2.) ALTERNATE METHODS FOR RIGID MOUNTING OF SIGNALS TO MAST ARMS MAY BE USED. SHOP DRAWINGS SHALL BE SUBMITTED TO THE TRAFFIC DESIGN SECTION FOR APPROVAL PRIOR TO CONSTRUCTION.

3.) ALL RIGIDLY MOUNTED TRAFFIC & PEDESTRIAN SIGNALS SHALL BE PROVIDED WITH REINFORCEMENT PLATES AT THE ATTACHMENT POINTS.

REVISIONS AND CORRECTIONS
MAY 14, 1990 - FHWA COMMENTS

APPROVED JUNE 21, 1989
DATE

CHIEF ENGINEER

DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

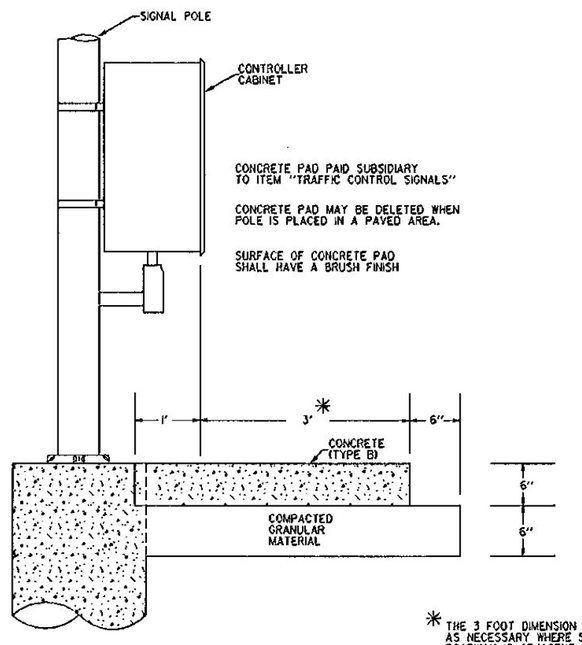
TRAFFIC AND SAFETY ENGINEER

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

TRAFFIC CONTROL SIGNALS MISC. DETAILS

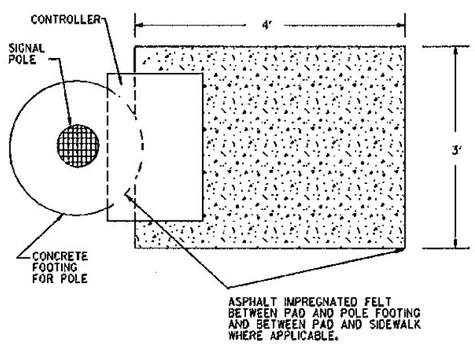
VERMONT AGENCY OF TRANSPORTATION

STANDARD E-171B



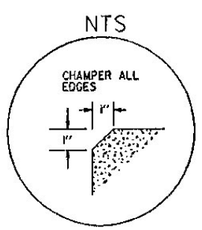
* THE 3 FOOT DIMENSION MAY BE ADJUSTED AS NECESSARY WHERE SIDEWALK OR ROADWAY IS ADJACENT TO CONTROLLER.

CROSS-SECTION

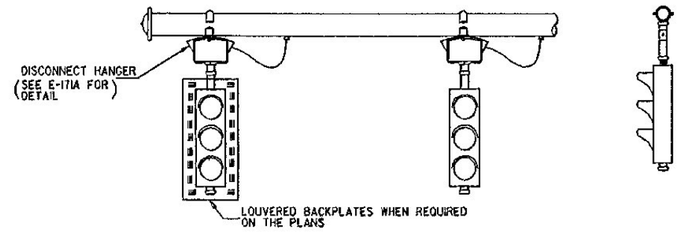


TOP VIEW

NTS

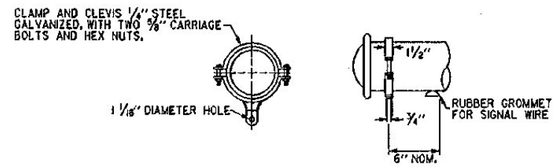


CONCRETE PAD DETAIL FOR POLE MOUNTED CONTROLLER CABINET



FRONT VIEW **SIDE VIEW**

SIGNAL HANGER DETAIL



MAST ARM MOUNTING DETAILS FOR FREE SWINGING TRAFFIC SIGNALS

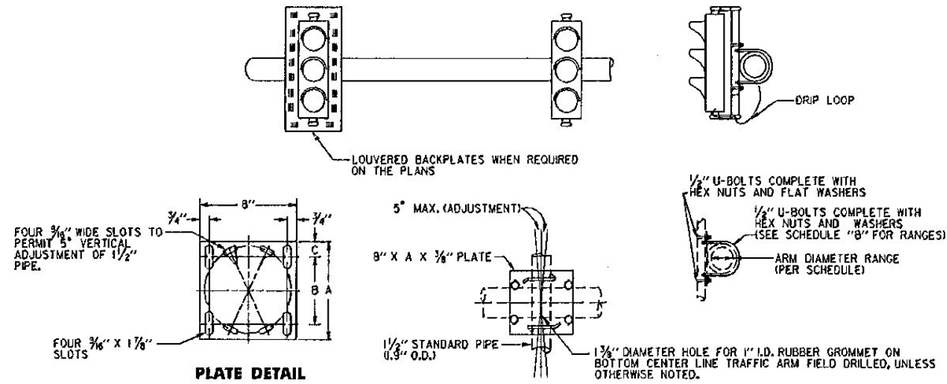
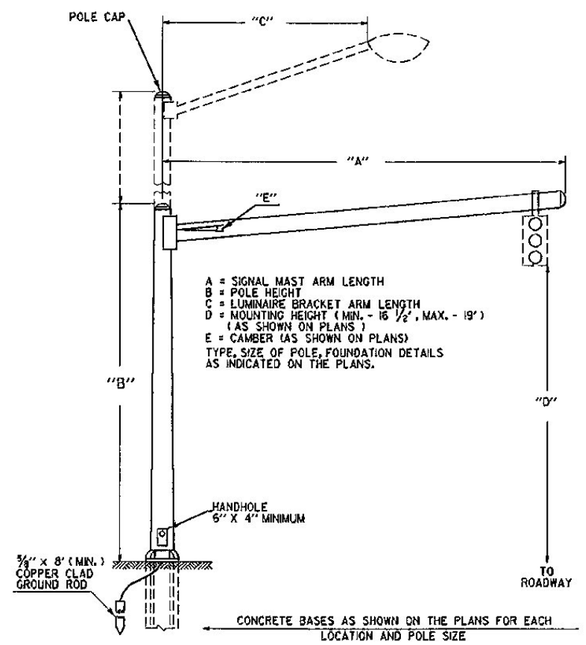


PLATE DETAIL

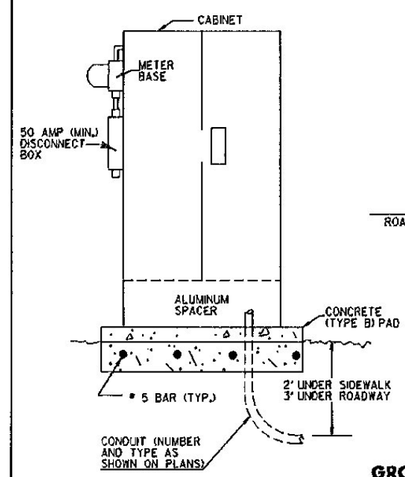
SIGNAL MOUNTING PLATE SCHEDULE			
ARM DIAMETER	A	B	C
3.1" - 5.2"	8 3/4"	5 1/8"	1 11/16"
5.2" - 7.9"	10 3/4"	7 5/8"	1 3/16"
7.9" - 11.3"	14"	10 7/8"	1 3/16"

NOTE:
1.) SIGNAL HEAD CABLES SHALL BE CONTINUOUS FROM THE CONTROLLER TO THE NEAREST SIGNAL HEAD TO WHICH IT APPLIES. THE CABLE SHALL ALSO BE CONTINUOUS FROM THE FIRST SIGNAL HEAD TO ANY ADDITIONAL HEADS WITH TERMINATION ON THE TERMINALS WITHIN THE SIGNAL HEAD HOUSING, OR DISCONNECT HANGAR.
2.) ALL MATERIAL SHALL BE GALVANIZED STEEL.

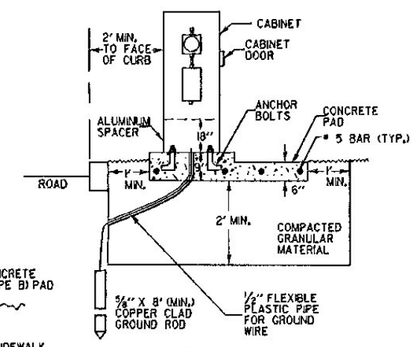
MAST ARM MOUNTING DETAILS FOR FIXED MOUNT TRAFFIC SIGNALS



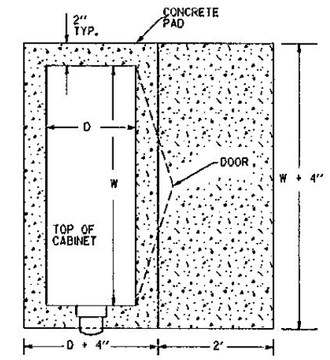
CANTILEVER MOUNTED TRAFFIC SIGNALS (AND LUMINAIRES)



FRONT VIEW



SIDE VIEW



TOP VIEW

THE CABINET DIMENSIONS "D" AND "W" VARY WITH MANUFACTURER. A TYPICAL "P" CABINET HAS DIMENSIONS OF D = 26" AND W = 46".

GROUND MOUNTED CONTROLLER CABINET

NTS

NOTES:

1.) CONTOLLER CABINETS OF DIFFERENT SIZES MAY REQUIRE ADJUSTMENTS TO THE DIMENSIONS SHOWN.

2.) THE NUMBER 5 BARS SHALL BE SPACED AT 16" CENTER TO CENTER WITH A MINIMUM OF 3" COVER TO THE GROUND. THEY SHALL RUN BOTH NORMAL AND TRANSVERSE IN THE CONCRETE PAD.

3.) CONCRETE PAD SHALL HAVE A BRUSH FINISH.

4.) THE CONTROLLER CABINET ANCHOR BOLT DIMENSIONS SHALL BE SUPPLIED BY THE CABINET MANUFACTURER. THESE BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.

5.) THE 50 AMP. DISCONNECT BOX SHALL BE SECURED WITH A MASTER # 3220 PADLOCK.

6.) THE ALUMINUM CABINET SPACER MAY BE DELETED IN URBAN AREAS, IF SO NOTED ON THE PLANS.

7.) AN ASPHALT IMPREGNATED PAD SHALL BE USED BETWEEN THE CONTROLLER PAD AND ADJACENT SIDEWALK, WHERE APPLICABLE.

NOTES

1.) REFER TO STANDARD E-171A FOR APPROPRIATE NOTES.

2.) ALTERNATE METHODS FOR RIGID MOUNTING OF SIGNALS TO MAST ARMS MAY BE USED. SHOP DRAWINGS SHALL BE SUBMITTED TO THE TRAFFIC DESIGN SECTION FOR APPROVAL PRIOR TO CONSTRUCTION.

3.) ALL RIGIDLY MOUNTED TRAFFIC & PEDESTRIAN SIGNALS SHALL BE PROVIDED WITH REINFORCEMENT PLATES AT THE ATTACHMENT POINTS.

REVISIONS AND CORRECTIONS

APPROVED JUNE 21, 1989
DATE

David B. Kelley
CHIEF ENGINEER

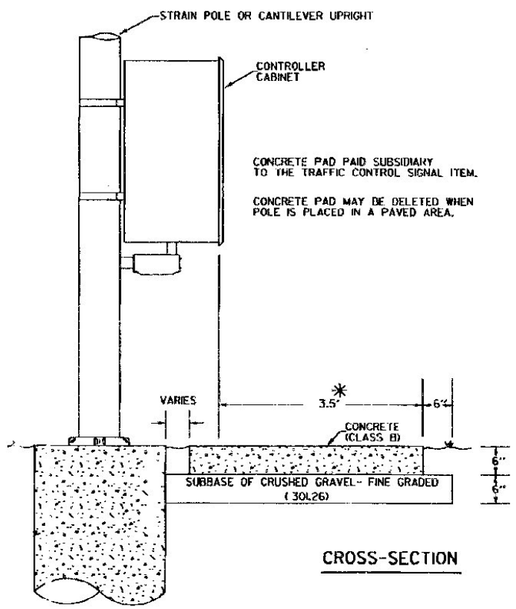
Arthur Gore
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon R. MacArthur
TRAFFIC AND SAFETY ENGINEER

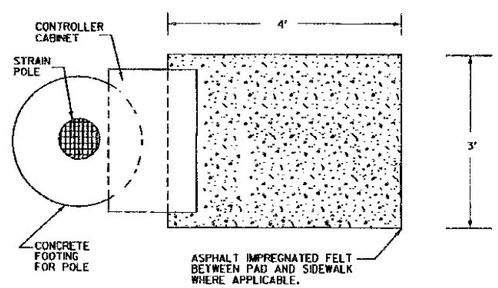
TRAFFIC CONTROL SIGNALS
MISC. DETAILS

VERMONT AGENCY OF TRANSPORTATION

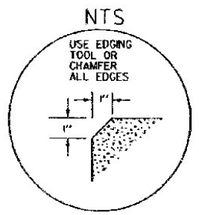
STANDARD
E-171B



CROSS-SECTION

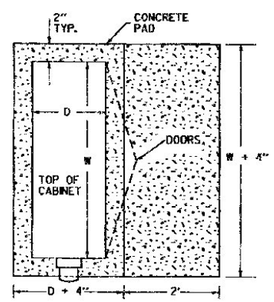


TOP VIEW



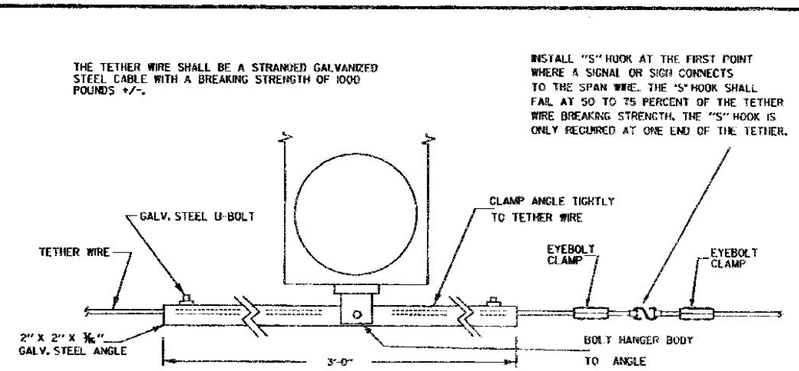
* THE 3.5 FOOT DIMENSION MAY BE ADJUSTED AS NECESSARY WHERE SIDEWALK OR ROADWAY IS ADJACENT TO CONTROLLER.

CONCRETE PAD DETAIL FOR POLE MOUNTED CONTROLLER CABINET



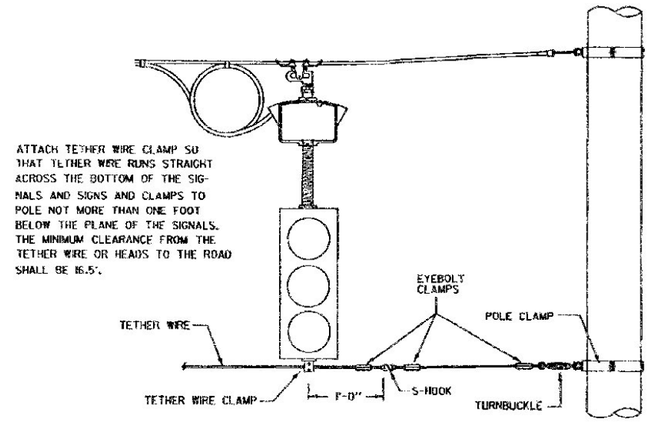
TOP VIEW

THE CABINET DIMENSIONS "D" AND "W" VARY WITH MANUFACTURER. A TYPICAL "P" CABINET HAS DIMENSIONS OF D = 26" AND W = 46".

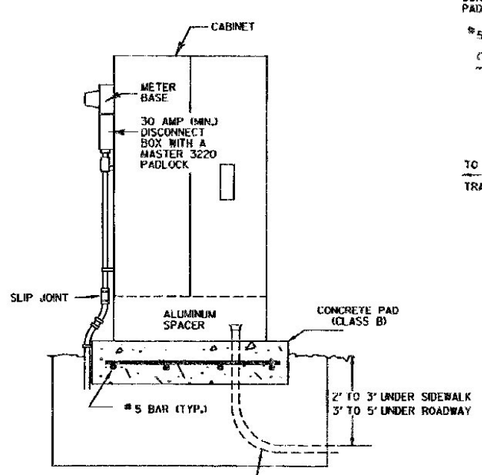


OPTICALLY PROGRAMMED SIGNAL HEAD WHEN MASKING IS REQUIRED

TETHER WIRE ATTACHMENT DETAILS

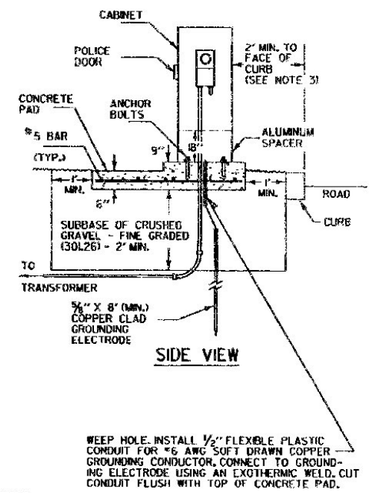


STANDARD OR UNMASKED OPTICALLY PROGRAMMED SIGNAL HEAD



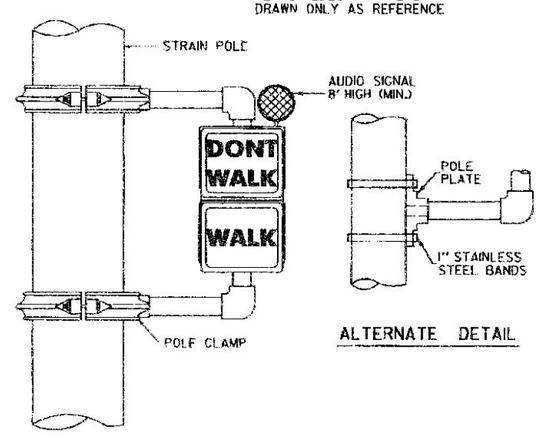
FRONT VIEW

CONDUIT NUMBER, TYPE AND SIZE AS SHOWN ON THE PLANS) 1" MIN. SPACING OF CONDUIT ENTRIES IN FLOOR OF CABINET.



SIDE VIEW

GROUND MOUNTED CONTROLLER CABINET



ALTERNATE DETAIL

DETAIL FOR POLE MOUNTING SIGNAL HEAD

NOTES:

1. THE CONCRETE PAD SURFACE SHALL HAVE A BRUSHED FINISH.
2. AN ASPHALT IMPREGNATED FELT PAD SHALL BE USED BETWEEN THE CONTROLLER PAD AND ADJACENT SIDEWALK, WHERE APPLICABLE.
3. THE MINIMUM CLEAR ZONE IN LOW SPEED URBAN AREAS IS 2' BEYOND THE FACE OF CURB. IN OTHER CASES, THE MINIMUM IS EQUAL TO THE CLEAR ZONE AS DEFINED IN AASHTO'S ROADSIDE DESIGN GUIDE.
4. THE CONRETE AND SUBBASE OF CRUSHED GRAVEL SHALL BE SUBSIDIARY TO THE TRAFFIC SIGNAL ITEM.
5. FOR GROUND MOUNTED CABINET INSTALLATIONS:
   A. THE METER SHOULD BE INSTALLED AS SHOWN ON THE PLANS. THE PREFERRED METER LOCATION IS ON A SEPARATE POLE OR STANCHION. HOWEVER, IF LIMITING CONDITIONS EXIST, THE METER MAY BE INSTALLED ON THE CONTROLLER CABINET ON THE SIDE AWAY FROM APPROACHING TRAFFIC.
   B. THE NUMBER 5 BARS SHALL BE SPACED 16" CENTER TO CENTER WITH A MINIMUM OF 3" COVER TO THE GROUND. THEY SHALL RUN BOTH NORMAL AND TRANSVERSE IN THE CONCRETE PAD.
   C. ANCHOR BOLT DIMENSIONS SHALL BE SUPPLIED BY THE CABINET MANUFACTURER. THESE BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.
   D. THE ALUMINUM SPACER MAY BE DELETED IN URBAN AREAS, IF SO NOTED ON THE PLANS.

OTHER STDS. REQUIRED E - 171A, E - 175

REVISIONS AND CORRECTIONS

JUNE 21, 1989 - DATE OF ORIGINAL ISSUE
MAY 14, 1990 - FHWA COMMENTS
NOV. 17, 1993 - FHWA COMMENTS, NOTE REVISIONS, MOVED CANTILEVER DETAILS TO NEW E-171C AND ADDED TETHER WIRE DETAIL
AUG. 9, 1995 - SPECIFIED MATERIAL UNDER PAD, REVISED NOTES AND MINOR CORRECTIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

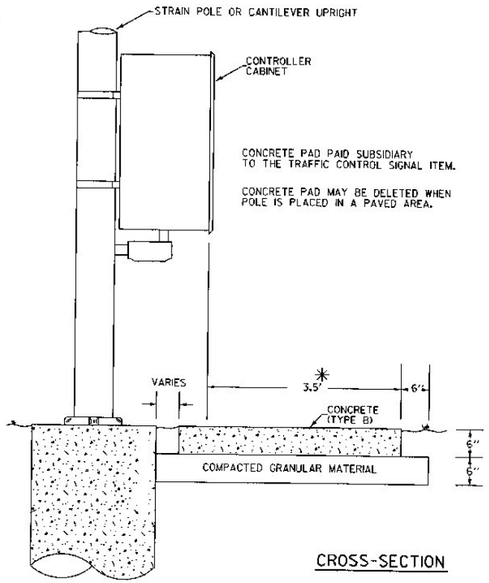
David A. Ross
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL SIGNALS MISC. DETAILS

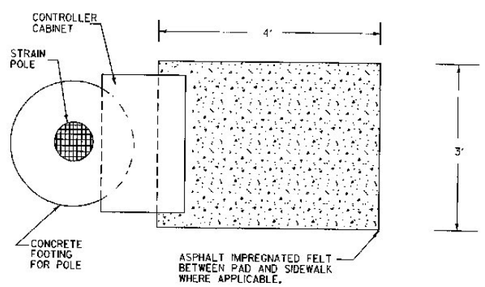
/traf/std/std171b.dgn - std171b.1

VERMONT AGENCY OF TRANSPORTATION

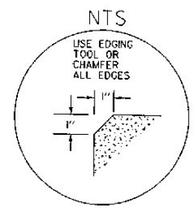
STANDARD E-171B



CROSS-SECTION



TOP VIEW

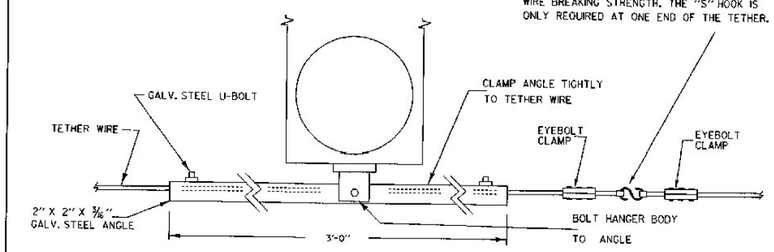


* THE 3.5 FOOT DIMENSION MAY BE ADJUSTED AS NECESSARY WHERE SIDEWALK OR ROADWAY IS ADJACENT TO CONTROLLER.

CONCRETE PAD DETAIL FOR POLE MOUNTED CONTROLLER CABINET

TETHER WIRE BREAKING STRENGTH SHALL BE 1000 POUNDS +/-.

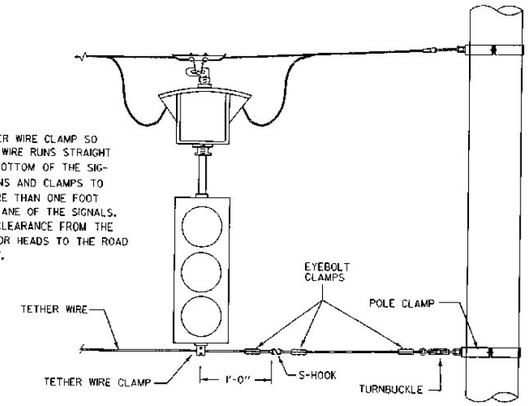
INSTALL "S" HOOK AT THE FIRST POINT WHERE A SIGNAL OR SIGN CONNECTS TO THE SPAN WIRE. THE "S" HOOK SHALL FAIL AT 50 TO 75 PERCENT OF THE TETHER WIRE BREAKING STRENGTH. THE "S" HOOK IS ONLY REQUIRED AT ONE END OF THE TETHER.



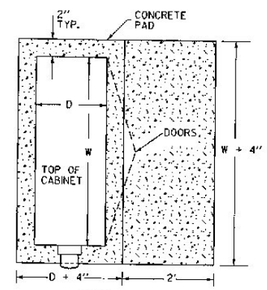
OPTICALLY PROGRAMMED SIGNAL HEAD WHEN MASKING IS REQUIRED

TETHER WIRE ATTACHMENT DETAILS

ATTACH TETHER WIRE CLAMP SO THAT TETHER WIRE RUNS STRAIGHT ACROSS THE BOTTOM OF THE SIGNALS AND SIGNS AND CLAMPS TO POLE NOT MORE THAN ONE FOOT BELOW THE PLANE OF THE SIGNALS. THE MINIMUM CLEARANCE FROM THE TETHER WIRE OR HEADS TO THE ROAD SHALL BE 16.5'.



STANDARD OR UNMASKED OPTICALLY PROGRAMMED SIGNAL HEAD



TOP VIEW

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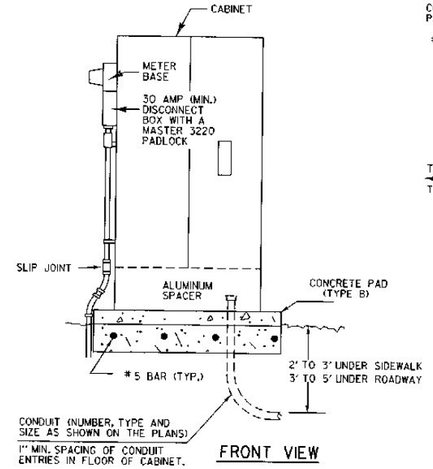
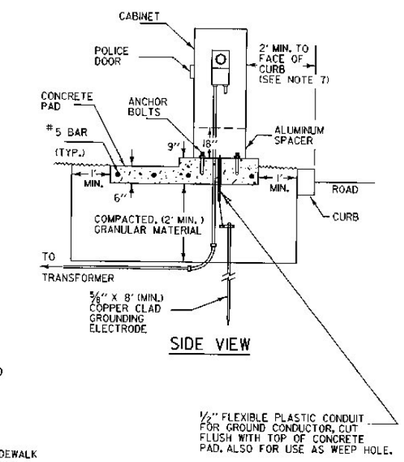


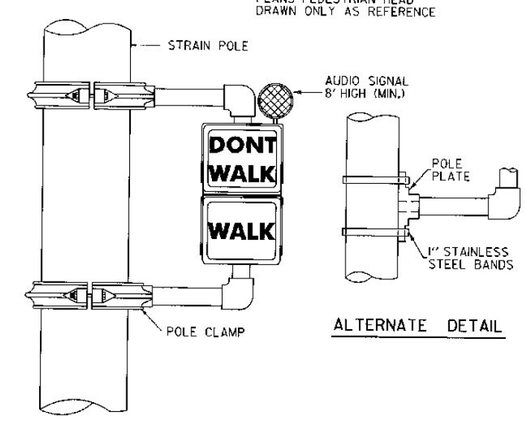
FRONT VIEW



SIDE VIEW

GROUND MOUNTED CONTROLLER CABINET

SIGNAL HEAD AS INDICATED ON PLANS-PEDESTRIAN HEAD DRAWN ONLY AS REFERENCE



ALTERNATE DETAIL

DETAIL FOR POLE MOUNTING SIGNAL HEAD

NOTES:

1. FOR GROUND MOUNTED INSTALLATIONS, THE METER SHOULD BE INSTALLED AS SHOWN ON THE PLANS. THE PREFERRED METER LOCATION IS ON A SEPARATE POLE OR STANCHION. HOWEVER, IF LIMITING CONDITIONS EXIST, THE METER MAY BE INSTALLED ON THE CONTROLLER CABINET ON THE SIDE AWAY FROM APPROACHING TRAFFIC.
2. FOR GROUND MOUNTED INSTALLATIONS, THE NUMBER 5 BARS SHALL BE SPACED 16" CENTER TO CENTER WITH A MINIMUM OF 3" COVER TO THE GROUND. THEY SHALL RUN BOTH NORMAL AND TRANSVERSE IN THE CONCRETE PAD.
3. THE CONCRETE PAD SURFACE SHALL HAVE A BRUSHED FINISH.
4. THE GROUND MOUNTED CONTROLLER CABINET ANCHOR BOLT DIMENSIONS SHALL BE SUPPLIED BY THE CABINET MANUFACTURER. THESE BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.
5. FOR GROUND MOUNTED INSTALLATIONS, THE ALUMINUM SPACER MAY BE DELETED IN URBAN AREAS, IF SO NOTED ON THE PLANS.
6. AN ASPHALT IMPREGNATED FELT PAD SHALL BE USED BETWEEN THE CONTROLLER PAD AND ADJACENT SIDEWALK, WHERE APPLICABLE.
7. THE MINIMUM CLEAR ZONE IN LOW SPEED URBAN AREAS IS 2'. IN OTHER CASES, THE MINIMUM IS EQUAL TO THE CLEAR ZONE AS DEFINED IN AASHTO'S ROADSIDE DESIGN GUIDE. SEE GROUND MOUNT (SIDE VIEW) DETAIL.

OTHER STDS. REQUIRED E - 171A, E - 175

REVISIONS AND CORRECTIONS

JUNE 21, 1989 - DATE OF ORIGINAL ISSUE
MAY 14, 1990 - FHWA COMMENTS
NOV. 17, 1993 - FHWA COMMENTS, NOTE REVISIONS, MOVED CANTILEVER DETAILS TO NEW E-171C AND ADDED TETHER WIRE DETAIL

APPROVED

Gordon R. MacArthur
DIRECTOR OF ENGINEERING

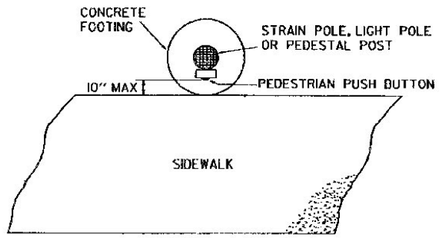
David A. Rose
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL SIGNALS MISC. DETAILS

/traf/std/std171b.dgn - std171b.i

VERMONT AGENCY OF TRANSPORTATION

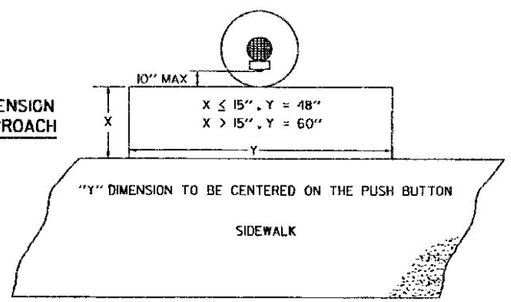
STANDARD E-171B

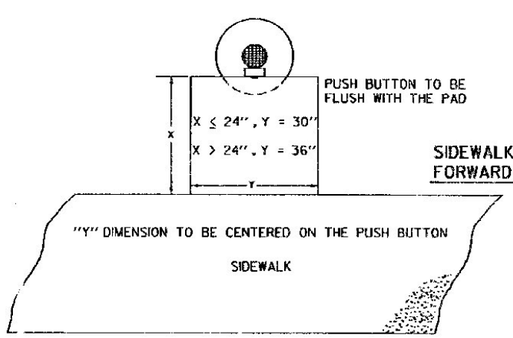


IF THE PEDESTRIAN PUSH BUTTON IS NOT LOCATED WITHIN 10'' OF THE SIDEWALK, AN EXTENSION TO THE SIDEWALK MUST BE PROVIDED AS SHOWN BELOW. BUTTONS LOCATED ON THE SIDE OF CONTROLLER CABINETS MAY REQUIRE EXTENSION OF THE CONCRETE PAD, SHOWN ON STD E-171B, TO MEET THIS REQUIREMENT.

WHEN SIDEWALK EXTENSIONS ARE PROVIDED, A SUBBASE OF FINE GRADED CRUSHED GRAVEL SHALL BE PLACED AND ASPHALT IMPREGNATED FELT SHALL BE USED BETWEEN THE EXTENSION AND THE SIDEWALK AS SHOWN ON STD E-171B.

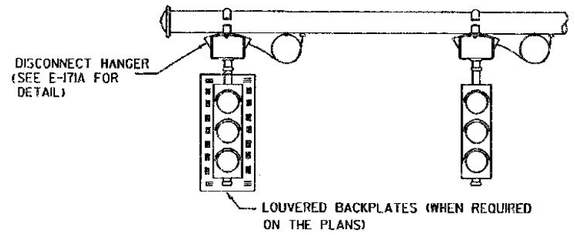
SIDEWALK EXTENSION PARALLEL APPROACH





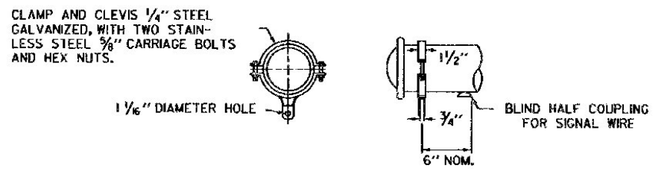
SIDEWALK EXTENSION FORWARD APPROACH

PEDESTRIAN PUSH BUTTON ACCESSIBILITY DETAIL



FRONT VIEW

SIDE VIEW

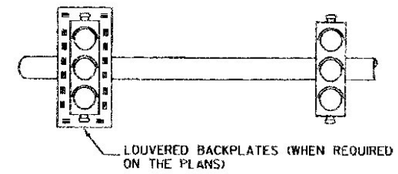


MAST ARM MOUNTING DETAILS FOR FREE SWINGING TRAFFIC SIGNALS

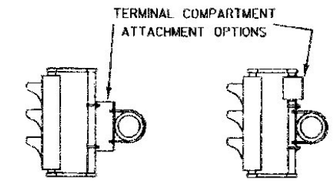
CANTILEVER MOUNTED TRAFFIC SIGNALS (AND LUMINAIRES)

MINIMUM SIGNAL CLEARANCE SHALL BE:
16.5' FOR FREE SWINGING HEADS, OR
17' FOR FIXED MOUNTED HEADS

SEE THE CANTILEVER / FOOTING DETAIL SHEET(S) FOR ADDITIONAL INFORMATION.

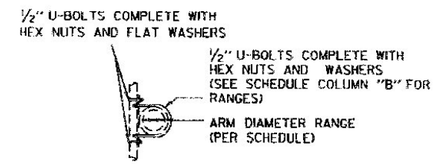


FRONT VIEW



SIDE VIEW

SIGNAL MOUNTING PLATE SCHEDULE			
ARM DIAMETER	A	B	C
3 1/10" - 5 2/10"	8 3/4"	5 3/8"	1 11/16"
5 2/10" - 7 9/10"	10 3/4"	7 5/8"	1 9/16"
7 9/10" - 11 3/10"	14"	10 7/8"	1 3/16"



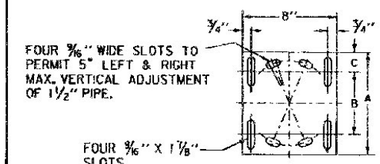
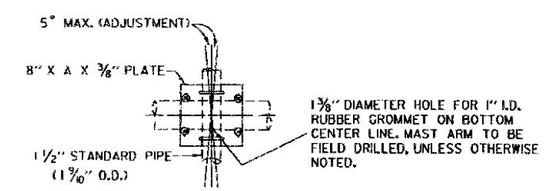


PLATE DETAIL



1. ALTERNATE METHODS FOR RIGID MOUNTING OF SIGNALS TO MAST ARMS MAY BE USED. SHOP DRAWINGS FOR THE ALTERNATE METHOD HARDWARE SHALL BE SUBMITTED TO THE TRAFFIC DESIGN SECTION VIA THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
2. ALL RIGIDLY MOUNTED TRAFFIC AND PEDESTRIAN SIGNALS SHALL BE PROVIDED WITH REINFORCEMENT PLATES AT THE ATTACHMENT POINTS.
3. ALL NUTS, BOLTS AND WASHERS SHALL BE STAINLESS STEEL.
4. ALL OTHER MOUNTING BRACKET MATERIALS SHALL BE GALVANIZED STEEL.

MAST ARM MOUNTING DETAILS FOR FIXED MOUNT TRAFFIC SIGNALS (PREFERRED METHOD)

OTHER STDS. REQUIRED E - 170 , E - 171A , E - 171B

REVISIONS AND CORRECTIONS

NOV. 17, 1993 - DATE OF ORIGINAL ISSUE

AUG. 9, 1995 - ADDED PED. PUSH BUTTON ACCESSIBILITY DETAIL, REMOVED GENERAL CANTILEVER DETAIL, MINOR CORRECTIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

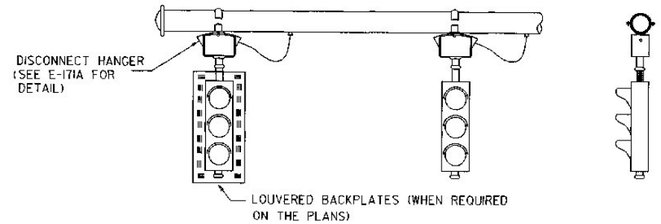
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL SIGNALS
CANTILEVER MOUNTING DETAILS
PED. PUSH BUTTON ACCESSIBILITY DETAIL

/traf/std/std171c.dgn - std171c.1

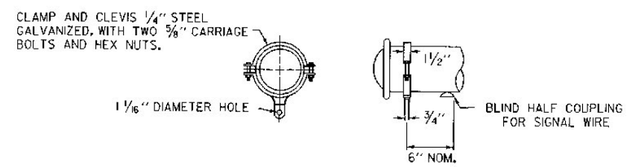
VERMONT AGENCY OF TRANSPORTATION

STANDARD E-171C

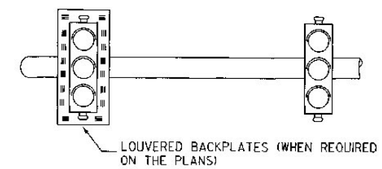


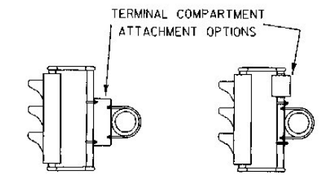
FRONT VIEW

SIDE VIEW

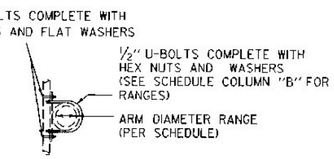


MAST ARM MOUNTING DETAILS FOR FREE SWINGING TRAFFIC SIGNALS





SIGNAL MOUNTING PLATE SCHEDULE			
ARM DIAMETER	A	B	C
3.1" - 5.2"	8 3/4"	5 3/8"	1 11/16"
5.2" - 7.9"	10 3/4"	7 5/8"	1 9/16"
7.9" - 11.3"	14"	10 7/8"	1 9/16"



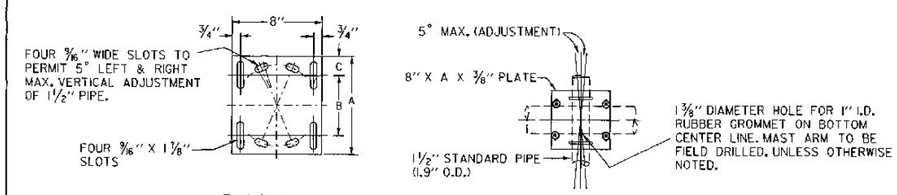
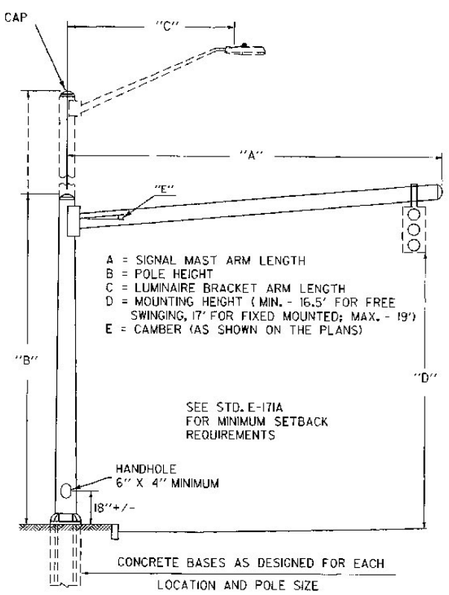


PLATE DETAIL

1. ALTERNATE METHODS FOR RIGID MOUNTING OF SIGNALS TO MAST ARMS MAY BE USED. SHOP DRAWINGS FOR THE ALTERNATE METHOD HARDWARE SHALL BE SUBMITTED TO THE TRAFFIC DESIGN SECTION VIA THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
2. ALL RIGIDLY MOUNTED TRAFFIC AND PEDESTRIAN SIGNALS SHALL BE PROVIDED WITH RE-INFORCEMENT PLATES AT THE ATTACHMENT POINTS.
3. ALL MATERIALS SHALL BE GALVANIZED STEEL.

MAST ARM MOUNTING DETAILS FOR FIXED MOUNT TRAFFIC SIGNALS PREFERRED METHOD



CANTILEVER MOUNTED TRAFFIC SIGNALS (AND LUMINAIRES)

OTHER STDS. REQUIRED E - 171A , E - 171B

REVISIONS AND CORRECTIONS

NOV. 17, 1993 - DATE OF ORIGINAL ISSUE

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

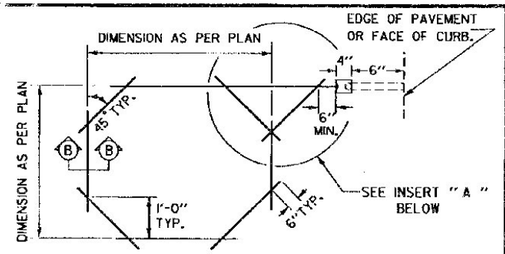
TRAFFIC CONTROL SIGNALS
CANTILEVER MOUNTING DETAILS

/traf/std/stdel72b.dgn - stdel71c.l

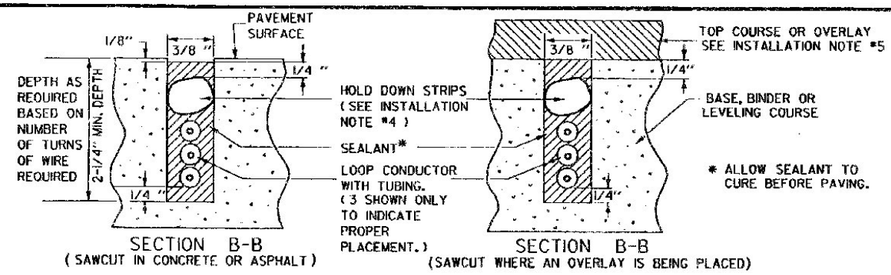
VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-171C



VEHICLE DETECTOR LOOP LAYOUT DETAIL



LOOP SAWCUT DETAIL

LONG LOOPS

LOOP INDUCTANCE DESIGN TABLE

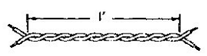
LENGTH OF LOOP (FEET)	LOOP INDUCTANCE (MICROHENRIES) WIDTH OF LOOP 6 FEET 1 TURN	6 FEET 2 TURNS	6 FEET 3 TURNS	8 FEET 1 TURN	8 FEET 2 TURNS	8 FEET 3 TURNS
10	-	98	206	-	104	218
15	-	138	291	-	144	303
20	-	178	376	-	184	388
25	-	218	461	-	224	473
30	-	258	546	-	264	558
35	-	298	-	-	304	-
40	106	338	-	108	344	-
45	118	378	-	120	384	-
50	131	418	-	133	424	-
55	143	458	-	145	464	-
60	156	498	-	158	504	-
65	168	538	-	170	544	-
70	181	578	-	183	584	-

NOTE:

1. THE ABOVE INDUCTANCES ARE ESTIMATED VALUES USING THE FOLLOWING EQUATIONS.

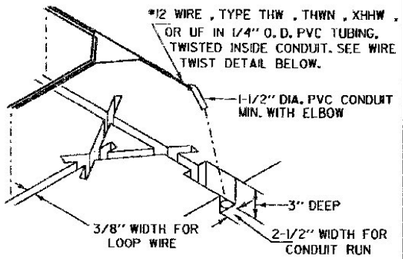
   1 TURN = (PERIMETER X 0.5) + (LOOP LENGTH X 1.5)
   2 TURN = (PERIMETER X 1.5) + (LOOP LENGTH X 5.0)
   3 TURN = (PERIMETER X 3.0) + (LOOP LENGTH X 11.0)

2. SEE NOTES #1 & 3 UNDER THE RECTANGULAR LOOP TABLE.

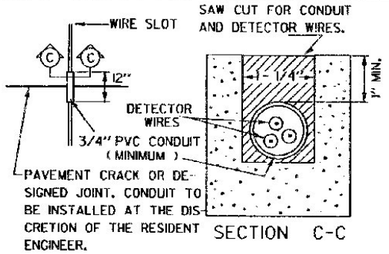


MINIMUM 5 TWISTS PER FOOT.
BOTH WIRES SHALL BE TWISTED

WIRE TWIST DETAIL



INSERT "A" LAYOUT DETAIL



DETECTOR WIRE ACROSS CRACKS OR JOINTS

RECTANGULAR LOOPS

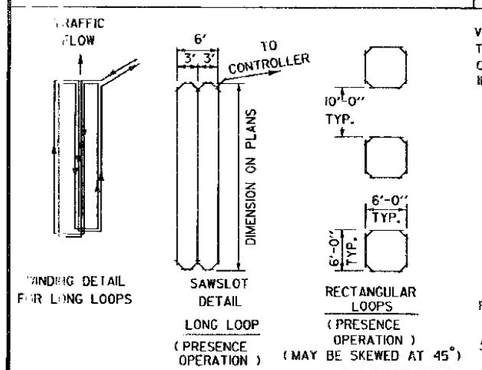
LOOP INDUCTANCE DESIGN TABLE

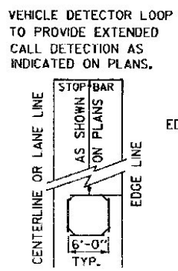
LENGTH OF LOOP (FEET)	WIDTH OF LOOP 4 FEET	6 FEET	8 FEET	10 FEET	LOOP PERIMETER (FT.)	LOOP INDUCTANCE (MICROHENRIES) 2 TURNS K=.42	3 TURNS K=.38	4 TURNS K=.36	5 TURNS K=.33
8	6	-	-	-	24	40	82	138	198
10	8	-	-	-	28	47	96	161	231
12	10	8	-	-	32	54	109	184	264
14	12	10	-	-	36	60	123	207	297
16	14	12	10	-	40	67	137	230	330
18	16	14	12	-	44	74	151	254	367
20	18	16	14	-	48	81	164	277	396
22	20	18	16	-	52	87	178	300	429
24	22	20	18	-	56	94	192	323	462
26	24	22	20	-	60	101	205	346	495
28	26	24	22	-	64	108	219	369	-
30	28	26	24	-	68	114	232	392	-
32	30	28	26	-	72	121	246	415	-
34	32	30	28	-	76	128	260	438	-
37	35	33	31	-	82	138	280	472	-
42	40	38	36	-	92	155	315	530	-

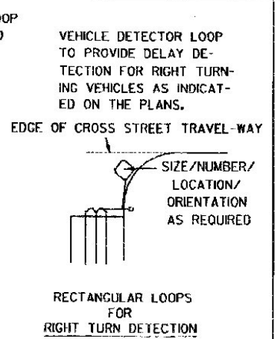
NOTE:

1. TO THE ABOVE LOOP INDUCTANCES, ADD 25 MICROHENRIES FOR EACH 100 FEET OF LEAD-IN CABLE FROM THE PAVEMENT LOOP TO THE CONTROLLER CABINET. LOOP LEAD-IN LENGTH SHALL NOT EXCEED 750 FEET.
2. THE FORMULA USED FOR THE TABLE ABOVE IS INDUCTANCE (L) = KPN^2 WHERE $K = \frac{5}{10+N}$, N = NO. OF TURNS, P = LOOP PERIMETER.
3. WHEN LOOPS ARE CONNECTED IN SERIES (PREFERRED FOR SMALL LOOPS), THE TOTAL INDUCTANCE BECOMES THE SUM OF ALL INDUCTANCES. WHEN LOOPS ARE CONNECTED IN PARALLEL (PREFERRED FOR LONG LOOPS), THE COMBINED INDUCTANCE CAN BE CALCULATED FROM THE FOLLOWING EQUATION.

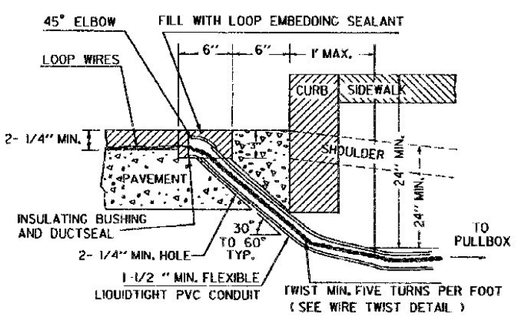
$$L_P = \left[\frac{1}{\frac{1}{L_1}+\frac{1}{L_2}+\frac{1}{L_3}\ldots\ldots}\right] + \text{LOOP LEAD-IN INDUCTANCES.}$$







TYPICAL LOOP DESIGNS



CONDUIT DETAIL FOR LOOP LEAD-IN TO CONTROLLER / PULL BOX

GENERAL NOTES

1. THE TERM "VEHICLE DETECTOR LOOP" SHALL REFER TO THE SENSOR EQUIPMENT EMBEDDED IN THE PAVEMENT WHICH SENSES VEHICLE PASSAGE OR PRESENCE. THE TERM "CABINET AMPLIFIER" SHALL REFER TO THE ELECTRICAL OR ELECTRONIC DEVICE LOCATED IN THE CONTROLLER CABINET WHICH RESPONDS DIRECTLY TO A VEHICLE ACTUATION AND INTERFACES WITH THE CONTROLLER.
2. WHEN THE DISTANCE FROM THE SAWCUT TO THE CONTROLLER EXCEEDS 25 FEET, SHIELDED CABLE SHALL BE USED TO EXTEND LOOP LEAD-INS FROM A JUNCTION BOX, PULLBOX OR POLE BASE TO THE CABINET. IT SHALL MEET THE REQUIREMENTS OF ISMA SPEC. NO. 50-2.
3. VEHICLE DETECTOR LOOP SHALL BE INSTALLED IN SUCH A WAY AS TO MAXIMIZE SENSITIVITY AND BE CAPABLE OF DETECTING MOTORCYCLES AND BICYCLES, WHILE ELIMINATING FALSE CALLS FROM VEHICLES IN ADJACENT LANES. LOOPS SHOULD BE DESIGNED SO THAT THE TOTAL INDUCTANCE (LOOP(S) PLUS LEAD-IN(S)) AT THE AMPLIFIER IS BETWEEN 100 AND 450 MICROHENRIES (200-300 PREFERRED). FOR SINGLE LOOPS, THE LOOP INDUCTANCE SHOULD BE AT LEAST TWICE THAT OF THE LEAD-IN. FOR MULTIPLE LOOPS, THE INDUCTANCE ON THE STREET SIDE OF THE SPLICE SHOULD BE AT LEAST TWICE THAT ON THE CONTROLLER SIDE.
4. THE LOOPS SHALL BE CENTERED IN THEIR RESPECTIVE LANES, UNLESS OTHERWISE NOTED.
5. ALL LOOPS SHALL OPERATE IN THE PRESENCE MODE WITH THE CONTROLLER SET TO LOCKING MEMORY FOR "LEFT-ONLY" OR "THRU-ONLY" LANES. ALL OTHER LANES SHALL UTILIZE NON-LOCKING MEMORY, UNLESS OTHERWISE NOTED.
6. ALL LOOPS IN "RIGHT TURN ONLY" LANES OR LOOP PLACED TO DETECT ONLY RIGHT TURNING VEHICLES SHALL HAVE DELAYED CALL LOOP AMPLIFIERS, UNLESS OTHERWISE NOTED.
7. ALL LOOP DETECTORS SHALL BE OF A TYPE THAT FAIL IN THE "ON" MODE.
8. ALL LOOP AND LEAD-IN WIRE SHALL BE #12 AWG. THE RESISTANCE OF #12 AWG IS 1.62 OHMS / 1000' AT 77° F.

INSTALLATION NOTES

1. ALL SPLICES SHALL BE MADE IN PULLBOXES, JUNCTION BOXES, OR POLE BASES. ALL SPLICES SHALL BE SOLDERED, USING ROSIN CORE SOLDER, AND THEN BE FULLY SEALED BY THE APPLICATION OF DUAL-WALL, HEAT-SHRINKABLE TUBING, UNLESS OTHERWISE NOTED. A MINIMUM OF 3' OF SLACK SHALL BE LEFT IN EACH CABLE IN EACH BOX OR BASE.
2. ALL LOOP WIRES SHALL BE INSTALLED IN PVC TUBING. THE TUBING ENDS SHALL BE SEALED USING LOOP SEALANT PRIOR TO INSTALLATION IN THE SAWCUT.
3. BEFORE LAYING IN THE LOOP WIRE, A ONE-QUARTER INCH BEAD OF SEALANT SHALL BE PLACED IN THE SAWCUT AND ALLOWED TO SET UP SUFFICIENTLY TO GIVE THE WIRE SOME SUPPORT. EACH WIRE SHALL BE EASED INTO THE SAWCUT WITH A BLUNT WOODEN STICK.
4. THE LOOP WIRES SHALL BE HELD IN PLACE DURING INSTALLATION BY SHORT STRIPS OF POLYETHYLENE FOAM SEALANT BACKERS. THE STRIPS SHALL BE ABOUT 2" LONG AND PLACED EVERY 2 FEET. THEY ARE TO REMAIN IN PLACE WHEN THE SLOT IS SEALED.
5. VEHICLE DETECTOR LOOPS SHALL BE PLACED IN SAWCUTS IN THE PAVEMENT COURSE IMMEDIATELY BELOW THE WEARING SURFACE AND PAVED OVER WHENEVER POSSIBLE. IF THE WEARING SURFACE IS MORE THAN 1-3/4" IN DEPTH, THE SAWCUT SHALL BE MADE AFTER THE WEARING SURFACE IS PLACED. IF PAVING IS NOT PART OF THE PROJECT, THE SAWCUT SHALL BE MADE IN EXISTING PAVEMENT.
6. WHEN LOOP WIRES ARE PLACED BELOW THE WEARING SURFACE, THE SEALANT SHALL BE PROPERLY CURED BEFORE THE FINAL PAVEMENT IS PLACED.
7. LOOP LEAD-INS FROM ADJACENT LOOPS ACTUATING DIFFERENT PHASES SHALL BE IN SEPARATE SAWCUTS AND CONDUITS TO THE PULLBOX OR POLE BASE.
8. LOOP LEAD-INS SHALL BE KEPT AT LEAST ONE FOOT AWAY FROM POWER WIRING, WHENEVER POSSIBLE.
9. ALL ELECTRICAL WORK AND MATERIALS SHALL MEET THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE.
10. LOOP WIRES FROM EACH LOOP AND/OR APPROACH SHALL BE COLOR CODED OR OTHERWISE IDENTIFIED AT EACH PULLBOX OR JUNCTION BOX, IN THE POLE BASE(S) AND AT THE TERMINAL BOARD IN THE CONTROLLER CABINET. FOLLOWING INSTALLATION, THE CONTRACTOR SHALL SUPPLY 2 COPIES OF A SCHEMATIC SHOWING THE FOLLOWING INFORMATION.
    1. NUMBER OF TURNS.
    2. DIMENSIONS FOR EACH LOOP.
    3. LOOP LEAD-IN ROUTING FROM THE SAWCUT TO THE CONTROLLER.
    4. TYPE OF CONNECTIONS AT EACH SPLICE (SERIES, PARALLEL OR SERIES-PARALLEL).

    ONE COPY SHALL BE LEFT IN THE CONTROLLER CABINET AND THE OTHER GIVEN TO THE TRAFFIC SHOP OR LOCAL OFFICIAL RESPONSIBLE FOR THE SIGNAL MAINTENANCE.

LOOP TESTING

DURING INSTALLATION OF THE LOOPS, THE CONTRACTOR SHALL MEASURE THE LOOP INDUCTANCE, LEAKAGE TO GROUND AND LOOP RESISTANCE IN THE PRESENCE OF THE RESIDENT ENGINEER. THE CONTRACTOR SHALL PROVIDE THE APPROPRIATE EQUIPMENT. THE INSTALLATION SHALL BE CONSIDERED ACCEPTABLE IF:

1. THE INDUCTANCE READING IS WITHIN 10% ± OF THE CALCULATED VALUE.
2. THE INSULATION TEST (LEAKAGE TO GROUND) IS ABOVE 5 MEGOHMS FOR EXISTING LOOPS AND 100 MEGOHMS FOR NEW LOOPS USING A 500 VOLT DC INPUT.
3. THE LOOP RESISTANCE IS WITHIN 25% ± OF THE CALCULATED VALUE.

IF THE READINGS FALL OUTSIDE THE ABOVE RANGES, CORRECTIVE MEASURES MAY BE REQUIRED AND THE ENGINEER SHALL NOTIFY THE TRAFFIC AND SAFETY DIVISION. THE COST OF TESTING THE LOOPS AND ANY NECESSARY CORRECTIONS SHALL BE SUBSIDIARY TO THE ITEM "VEHICLE DETECTOR LOOP". THE CALCULATED VALUES SHALL BE SHOWN ON THE PLANS. LOOP TESTING IS NOT REQUIRED FOR TEMPORARY LOOPS.

CONDUIT FILL DESIGN VALUES

AVAILABLE CONDUIT AREA: SIZE I.D.	SIZE O.D.	26 % FILL (IN²)	CONDUCTOR SIZE TABLE: CROSS SECTIONAL AREA (IN²)	NUMBER OF CONDUCTORS	GAUGE #14	#12	#10	#8	#6
1"	1.315	0.23		1	.021	.025	.031	.060	.082
1-1/4"	1.660	0.39		2	.093	.129			
1-1/2"	1.900	0.53		5	.142	.200			
2"	2.375	0.87		7	.170	.260	CALCULATE AS REQUIRED		
2-1/2"	2.875	1.24		9	.297	.413			
3"	3.500	1.92		12	.317	.436			
3-1/2"	4.000	2.57		16	.402	.601			
4"	4.500	3.31		19	.425	.658			

OTHER STDS. REQUIRED NONE

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
NOV. 17 1993 - MAJOR NOTE & TABLE REVISIONS
AUG. 9, 1995 - REVISED INSTALLATION NOTES 5 & 6, TYP. LOOP DESIGN & MINOR CHANGES

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

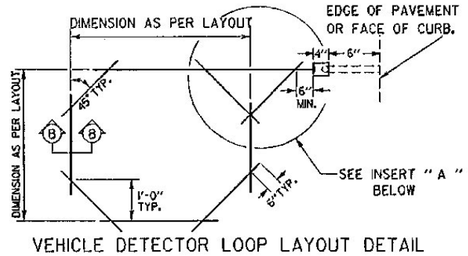
TRAFFIC AND SAFETY ENGINEER

VEHICLE DETECTOR LOOP DETAILS

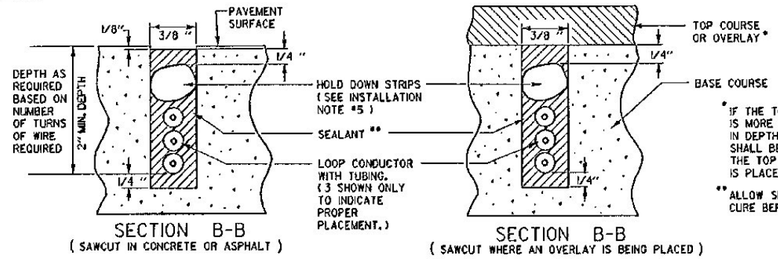
/traf/sta/stdel72.dgn - stdel72.

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-172



VEHICLE DETECTOR LOOP LAYOUT DETAIL



* IF THE TOP COURSE IS MORE THAN 1 3/4 " IN DEPTH , THE SAWCUT SHALL BE MADE AFTER THE TOP COURSE IS PLACED.

** ALLOW SEALANT TO CURE BEFORE PAVING.

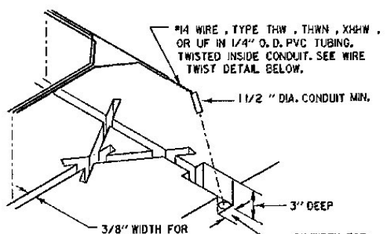
LOOP SLOT DETAIL

LONG LOOPS VEHICLE DETECTOR LOOP INDUCTANCE DESIGN

LOOP INDUCTANCE (MICROHENRIES)

		WIDTH OF LOOP					
		4 FEET		6 FEET		8 FEET	
		1 TURN	2 TURNS	1 TURN	2 TURNS	1 TURN	2 TURNS
LENGTH OF LOOP	10	29	92	31	98	33	104
	15	41	132	43	138	45	144
	20	54	172	56	178	58	184
	22	59	188	61	194	63	200
	24	64	204	66	210	68	216
	26	69	220	71	226	73	232
	28	74	236	76	242	78	248
	30	79	252	81	258	83	264
	32	84	268	86	274	88	280
	35	91	292	93	298	95	304
	40	104	332	106	338	108	344
	45	116	372	118	378	120	384
	50	129	412	131	418	133	424
	55	141	452	143	458	145	464
	60	154	492	156	498	158	504
	65	166	532	168	538	170	544
	70	179	572	181	578	183	584
	80	204	-	206	-	208	-
	90	229	-	231	-	233	-
	100	254	-	256	-	258	-

NOTE : 1. SEE NOTE #1 FOR RECTANGULAR LOOPS.
2. THE ABOVE INDUCTANCES ARE ESTIMATED VALUES USING THE FOLLOWING EQUATIONS.
1 TURN = (PERIMETER X 0.5) + (LOOP LENGTH X 1.5)
2 TURN = (PERIMETER X 1.5) + (LOOP LENGTH X 5.0)
3. SEE NOTE #3 FOR RECTANGULAR LOOPS.



LAYOUT DETAIL INSERT " A "

RECTANGULAR LOOPS VEHICLE DETECTOR LOOP INDUCTANCE DESIGN TABLE

	WIDTH OF LOOP				LOOP PERIMETER (FT.)	LOOP INDUCTANCE (MICROHENRIES)			
	4 FEET	6 FEET	8 FEET	10 FEET		1 TURN K=.45	2 TURNS K=.42	3 TURNS K=.38	4 TURNS K=.36
LENGTH OF LOOP	8	6	-	-	24	11	40	82	138
	10	8	-	-	28	13	47	96	161
	12	10	8	-	32	14	54	109	184
	14	12	10	-	36	16	60	123	207
	16	14	12	10	40	18	67	137	230
	18	16	14	12	44	20	74	151	254
	20	18	16	14	48	22	81	164	277
	22	20	18	16	52	23	87	178	300
	24	22	20	18	56	25	94	192	323
	26	24	22	20	60	27	101	205	346
	28	26	24	22	64	29	108	219	369
	30	28	26	24	68	31	114	232	392
	32	30	28	26	72	32	121	246	415
	34	32	30	28	76	34	128	260	438
	37	35	33	31	82	37	138	280	472
	42	40	38	36	92	41	155	315	530
	47	45	43	41	102	46	172	349	588
	52	50	48	46	112	50	188	383	-
	57	55	53	51	122	55	205	417	-
	62	60	58	56	132	59	222	451	-
	72	70	68	-	152	68	256	520	-
	82	80	-	-	172	77	289	588	-
	92	90	-	-	192	86	323	-	-
	102	100	-	-	212	95	356	-	-

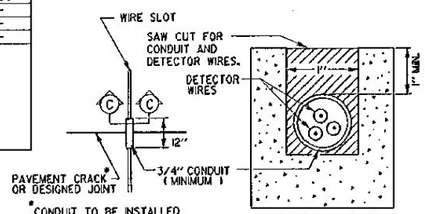
NOTE 1 : TO THE ABOVE LOOP INDUCTANCES, ADD 25 MICROHENRIES FOR EACH 100 FEET OF LEAD-IN CABLE FROM THE PAVEMENT LOOP TO THE DETECTOR CABINET. LOOP FEEDER LENGTH SHALL NOT EXCEED 750 FEET FOR A SINGLE OR MULTIPLE LOOP SYSTEM.

2 : THE INDUCTIVE FORMULA USED FOR THE TABLE ABOVE IS $L = KPN^2$, WHERE $K = \frac{5}{10+N}$.

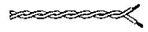
THIS IS THE " MARYLAND-ILLINOIS " FORMULA FROM A REPORT ON VEHICLE DETECTORS , BY KLATT (1973) .

3 : WHEN LOOPS ARE CONNECTED IN SERIES , THE TOTAL INDUCTANCE BECOMES THE SUM OF ALL INDUCTANCES. WHEN LOOPS ARE CONNECTED IN PARALLEL (PREFERRED DESIGN) , THE COMBINED INDUCTANCE CAN BE CALCULATED FROM THE FOLLOWING EQUATION.

$$L = \left[\frac{1}{\frac{1}{L_1} + \frac{1}{L_2} + \frac{1}{L_3} \cdots\cdots} \right] + \text{LOOP FEEDER INDUCTANCES.}$$

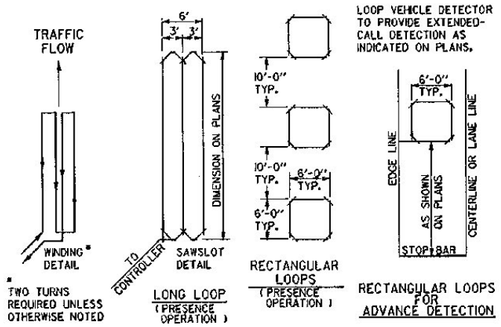


DETECTOR WIRE ACROSS CRACKS OR JOINTS

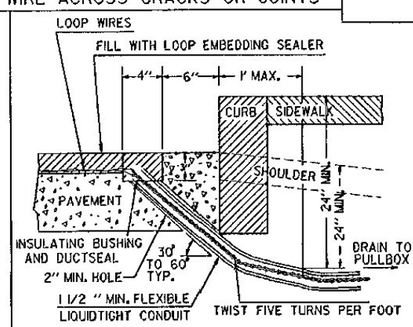


MINIMUM 5 TWISTS PER FOOT. BOTH WIRES SHALL BE TWISTED

WIRE TWIST DETAIL



TYPICAL LOOP DESIGNS



CONDUIT DETAIL FOR LOOP LEAD-IN TO CONTROLLER / PULL BOX

CONDUIT FILL DESIGN VALUES

AVAILABLE CONDUIT AREA

SIZE	* 26 % FILL (IN ^{2})
1"	0.23
1 1/4 "	0.39
1 1/2 "	0.53
2 "	0.87
2 1/2 "	1.24
3 "	1.92
3 1/2 "	2.57

* 1984 NATIONAL ELECTRICAL CODES INDICATES 40 % FILL

CONDUCTOR SIZE TABLE

NUMBER OF CONDUCTORS	CROSS SECTIONAL AREA (IN^2)	GAUGE #14	#12	#10	#8	#6
	1	.021	.025	.031	.060	.082
	2	.093	.129	CALCULATE AS REQUIRED		
	3	.142	.200			
	7	.170	.260			
	9	.297	.413			
	12	.317	.436			
	16	.402	.601			
	19	.425	.658			

GENERAL NOTES

1. THE TERM " VEHICLE DETECTOR LOOP " SHALL REFER TO THE SENSOR ELEMENT IMBEDDED IN THE PAVEMENT WHICH SENSES VEHICLE PASSAGE OR PRESENCE. THE TERM " CABINET AMPLIFIER " SHALL REFER TO THE ELECTRICAL OR ELECTRONIC DEVICE LOCATED IN THE CONTROL CABINET WHICH RESPONDS DIRECTLY TO A VEHICLE ACTUATION AND INTERFACES WITH THE CONTROLLER.
2. WHEN THE DISTANCE FROM THE VEHICLE DETECTOR LOOP TO THE CONTROLLER EXCEEDS 25 FEET, SHIELDED CABLE SHALL BE USED TO EXTEND LOOP LEAD-INS FROM A JUNCTION OR PULLBOX OR POLE BASE TO THE CABINET. IT SHALL MEET THE REQUIREMENTS OF IMSA SPEC. NO. 50-2.
3. WHEN THE DISTANCE FROM THE VEHICLE DETECTOR LOOP TO THE CONTROLLER EXCEEDS 250 FEET , #12 AWG WIRE SHALL BE USED FOR THE BOTH THE LOOP WIRE AND THE SHIELDED CABLE.
4. THE VEHICLE DETECTOR LOOP SHALL BE INSTALLED IN SUCH A WAY AS TO MAXIMIZE SENSITIVITY , AND SHALL BE CAPABLE OF DETECTING MOTORCYCLES AND BICYCLES , WHILE ELIMINATING FALSE CALLS FROM VEHICLES IN ADJACENT LANES. LOOPS SHALL BE DESIGNED SO THAT THE LOOPS AND FEEDER LINES TOTAL INDUCTANCE AT THE AMPLIFIER IS BETWEEN 100 AND 300 MICROHENRIES.
5. THE LOOPS SHALL BE CENTERED IN THEIR RESPECTIVE LANES , UNLESS OTHERWISE NOTED.
6. ALL LOOPS SHALL OPERATE IN THE PRESENCE MODE WITH THE CONTROLLER SET TO NON-LOCKING MEMORY , UNLESS OTHERWISE NOTED.
7. ALL LOOPS IN " RIGHT TURN ONLY " LANES SHALL HAVE DELAYED CALL LOOP AMPLIFIERS , UNLESS OTHERWISE NOTED.
8. PVC JACKETED WIRE OR CABLE SHALL NOT BE USED WHERE EXPOSED TO SUNLIGHT.

LOOP TESTING

DURING INSTALLATION OF THE LOOPS , THE CONTRACTOR , IN THE PRESENCE OF THE ENGINEER , SHALL MEASURE THE LOOP INDUCTANCE , LEAKAGE TO GROUND AND LOOP RESISTANCE. THE CONTRACTOR SHALL PROVIDE THE APPROPRIATE EQUIPMENT. THE INSTALLATION SHALL BE CONSIDERED ACCEPTABLE IF :

1. THE INDUCTANCE READING IS WITHIN 10% + OF THE CALCULATED VALUE.
2. THE LEAKAGE TO GROUND IS ABOVE 1 MEGOHM.
3. THE LOOP RESISTANCE IS WITHIN 25% ± OF THE CALCULATED VALUE.

IF THE READINGS FALL OUTSIDE THE ABOVE RANGES , CORRECTIVE MEASURES SHALL BE TAKEN AND THE ENGINEER SHALL NOTIFY THE TRAFFIC AND SAFETY DIVISION. THE COST OF TESTING THE LOOPS AND ANY NECESSARY CORRECTIONS SHALL BE SUBSIDIARY TO THE ITEM "VEHICLE DETECTOR LOOP ". THE CALCULATED VALUES SHALL BE SHOWN ON THE PLANS. LOOP TESTING IS NOT REQUIRED FOR TEMPORARY LOOPS.

INSTALLATION NOTES

1. NO WIRE SPLICING EXCEPT IN PULL OR JUNCTION BOXES, AND POLE BASES. SPLICES SHALL BE SOLDERED (ROSIN CORE) AND WRAPPED IN PLASTIC TAPE AND COATED WITH A SEALANT USED FOR SUCH PURPOSES. AN EPOXY SPLICE SHALL BE USED WHEN CALLED FOR ON THE PLANS.
2. LOOP SEALANT SHALL BE APPLIED USING A PRESSURE SYSTEM.
3. ALL LOOP WIRES SHALL BE INSTALLED IN PVC TUBING , EXCEPT AS NOTED IN GENERAL NOTE #8. THE TUBING ENDS SHALL BE SEALED USING LOOP SEALANT PRIOR TO INSTALLATION IN THE SAWCUT.
4. BEFORE LAYING IN THE LOOP WIRE , A ONE-QUARTER INCH OF SEALANT SHALL BE PLACED IN THE SAW SLOT AND ALLOWED TO SET UP SUFFICIENTLY TO GIVE THE WIRE SOME SUPPORT. EACH WIRE SHALL BE PLACED IN THE SAW SLOT WITH A BLUNT WOODEN STICK AND SEALED BEFORE PLACING THE NEXT WIRE ON TOP UNTIL THE REQUIRED NUMBER OF TURNS IS COMPLETE.
5. THE LOOP WIRES SHALL BE HELD IN PLACE DURING INSTALLATION BY SHORT STRIPS OF POLYETHYLENE FOAM SEALANT BACKERS. THE STRIPS SHALL BE ABOUT 2" LONG AND PLACED EVERY 2 FEET. THEY ARE TO REMAIN IN PLACE WHEN THE SLOT IS SEALED.
6. VEHICLE DETECTOR LOOPS SHALL BE PLACED IN SAWCUTS IN THE BASE COURSE AND PAVED OVER WHENEVER POSSIBLE. IF PAVING IS NOT PART OF THE PROJECT , THE SAWCUTS SHALL BE MADE IN THE EXISTING PAVEMENT.
7. WHEN LOOP WIRES ARE PLACED IN THE BASE COURSE , THE SEALANT SHALL BE PROPERLY CURED BEFORE THE FINAL PAVEMENT IS PLACED.
8. LOOP LEAD-INS FROM ADJACENT LOOPS ACTUATING DIFFERENT PHASES SHALL BE IN SEPARATE SAWSLOTS TO THE CURB PULLBOX.
9. LOOP FEEDERS SHALL BE AT LEAST ONE FOOT AWAY FROM POWER WIRING , WHENEVER POSSIBLE.
10. ALL ELECTRICAL WORK AND MATERIALS SHALL MEET THE REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
11. LOOP WIRES FROM EACH LOOP AND/OR APPROACH SHALL BE COLOR CODED OR OTHERWISE IDENTIFIED AT EACH PULLBOX OR JUNCTION BOX , IN THE POLE BASE(S) AND AT THE TERMINAL BOARD IN THE CONTROLLER CABINET. FOLLOWING INSTALLATION , THE CONTRACTOR SHALL SUPPLY 2 COPIES OF A SCHEMATIC (MINIMUM - FULL SIZE PLAN SCALE) SHOWING THE NUMBER OF TURNS & DIMENSIONS FOR EACH LOOP , THE LOOP LEAD-IN ROUTING FROM THE SAWCUT TO THE CONTROLLER AND THE TYPE OF CONNECTIONS AT EACH SPLICE (SERIES , PARALLEL OR SERIES - PARALLEL). ONE COPY SHALL BE LEFT IN THE CONTROLLER CABINET AND THE OTHER GIVEN TO THE DISTRICT ENGINEER OR LOCAL OFFICIAL WHO IS RESPONSIBLE FOR THE SIGNAL MAINTENANCE.

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David B. Kelley
CHIEF ENGINEER

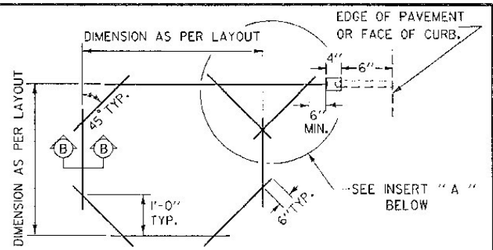
Arthur Gross
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon B. MacAllister
TRAFFIC AND SAFETY ENGINEER

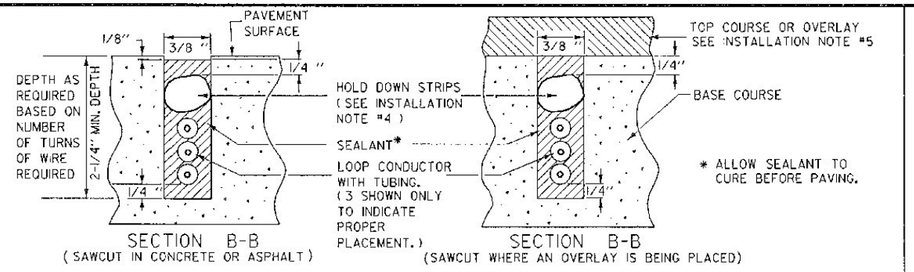
VEHICLE DETECTOR LOOP DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-172



VEHICLE DETECTOR LOOP LAYOUT DETAIL



LOOP SAWCUT DETAIL

LONG LOOPS

LOOP INDUCTANCE DESIGN TABLE

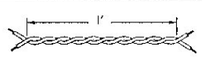
LENGTH OF LOOP (FEET)	LOOP INDUCTANCE (MICROHENRIES) WIDTH OF LOOP: 6 FEET, 1 TURN	6 FEET, 2 TURNS	6 FEET, 3 TURNS	8 FEET, 1 TURN	8 FEET, 2 TURNS	8 FEET, 3 TURNS
10	-	98	209	-	104	218
15	-	138	291	-	144	303
20	-	178	376	-	184	388
25	-	218	461	-	224	473
30	-	258	546	-	264	558
35	-	298	-	-	304	-
40	106	338	-	108	344	-
45	118	378	-	120	384	-
50	131	418	-	133	424	-
55	143	458	-	145	464	-
60	156	498	-	158	504	-
65	168	538	-	170	544	-
70	181	578	-	183	584	-

NOTE:

1. THE ABOVE INDUCTANCES ARE ESTIMATED VALUES USING THE FOLLOWING EQUATIONS.

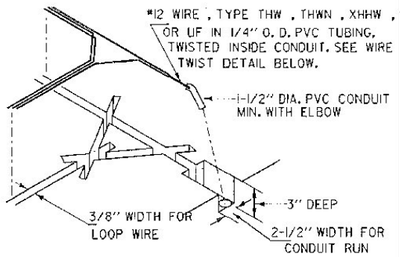
   1 TURN = (PERIMETER X 0.5) + (LOOP LENGTH X 1.5)
   2 TURN = (PERIMETER X 1.5) + (LOOP LENGTH X 5.0)
   3 TURN = (PERIMETER X 3.0) + (LOOP LENGTH X 11.0)

2. SEE NOTES #1 & 3 UNDER THE RECTANGULAR LOOP TABLE.

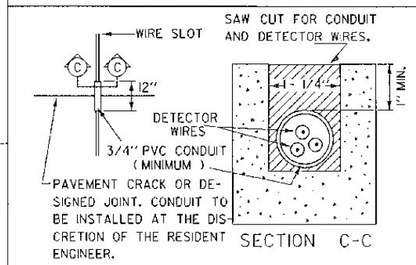


MINIMUM 5 TWISTS PER FOOT. BOTH WIRES SHALL BE TWISTED

WIRE TWIST DETAIL



INSERT "A" LAYOUT DETAIL



DETECTOR WIRE ACROSS CRACKS OR JOINTS

RECTANGULAR LOOPS

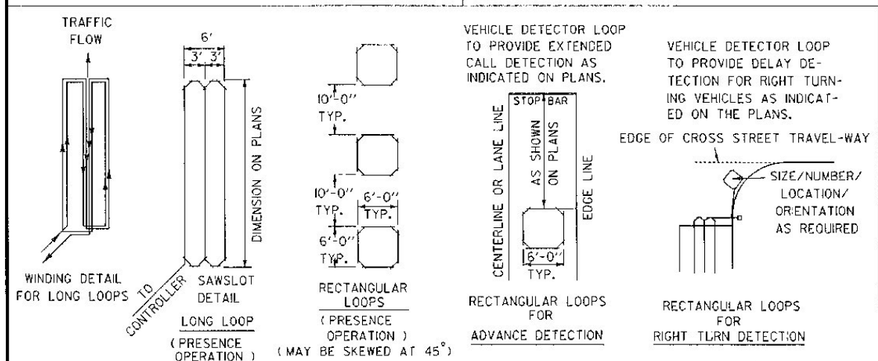
LOOP INDUCTANCE DESIGN TABLE

LENGTH OF LOOP (FEET)	WIDTH OF LOOP: 4 FEET	6 FEET	8 FEET	10 FEET	LOOP PERIMETER (FT.)	LOOP INDUCTANCE (MICROHENRIES): 2 TURNS K=.42	3 TURNS K=.38	4 TURNS K=.36	5 TURNS K=.33
	8	6	-	-	24	40	82	138	198
	10	8	-	-	28	47	96	161	231
	12	10	8	-	32	54	109	184	264
	14	12	10	-	36	60	123	207	297
	16	14	12	10	40	67	137	230	330
	18	16	14	12	44	74	151	254	367
	20	18	16	14	48	81	164	277	396
	22	20	18	16	52	87	178	300	429
	24	22	20	18	56	94	192	323	462
	26	24	22	20	60	101	205	346	495
	28	26	24	22	64	108	219	369	-
	30	28	26	24	68	114	232	392	-
	32	30	28	26	72	121	246	415	-
	34	32	30	28	76	128	260	438	-
	37	35	33	31	82	138	280	472	-
	42	40	38	36	92	155	315	530	-

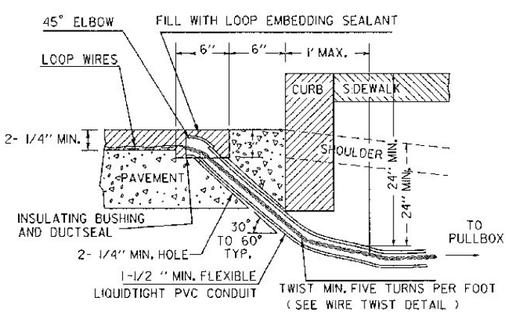
NOTE:

1. TO THE ABOVE LOOP INDUCTANCES, ADD 25 MICROHENRIES FOR EACH 100 FEET OF LEAD-IN CABLE FROM THE PAVEMENT LOOP TO THE CONTROLLER CABINET. LOOP LEAD-IN LENGTH SHALL NOT EXCEED 750 FEET.
2. THE FORMULA USED FOR THE TABLE ABOVE IS INDUCTANCE (L) = KPN^2. WHERE $K = \frac{5}{10+N}$, N = NO. OF TURNS, P = LOOP PERIMETER. THIS IS THE "MARYLAND-ILLINOIS" FORMULA FROM THE REPORT ON VEHICLE DETECTORS BY KLATT (1973).
3. WHEN LOOPS ARE CONNECTED IN SERIES (PREFERRED FOR SMALL LOOPS), THE TOTAL INDUCTANCE BECOMES THE SUM OF ALL INDUCTANCES. WHEN LOOPS ARE CONNECTED IN PARALLEL (PREFERRED FOR LONG LOOPS), THE COMBINED INDUCTANCE CAN BE CALCULATED FROM THE FOLLOWING EQUATION.

$$L_P = \left[\frac{1}{\frac{1}{L_1}+\frac{1}{L_2}+\frac{1}{L_3}\ldots\ldots}\right] + \text{LOOP LEAD-IN INDUCTANCES.}$$



TYPICAL LOOP DESIGNS



CONDUIT DETAIL FOR LOOP LEAD-IN TO CONTROLLER / PULL BOX

GENERAL NOTES

1. THE TERM "VEHICLE DETECTOR LOOP" SHALL REFER TO THE SENSOR EQUIPMENT EMBEDDED IN THE PAVEMENT WHICH SENSES VEHICLE PASSAGE OR PRESENCE. THE TERM "CABINET AMPLIFIER" SHALL REFER TO THE ELECTRICAL OR ELECTRONIC DEVICE LOCATED IN THE CONTROLLER CABINET WHICH RESPONDS DIRECTLY TO A VEHICLE ACTUATION AND INTERFACES WITH THE CONTROLLER.
2. WHEN THE DISTANCE FROM THE SAWCUT TO THE CONTROLLER EXCEEDS 25 FEET, SHIELDED CABLE SHALL BE USED TO EXTEND LOOP LEAD-INS FROM A JUNCTION BOX, PULLBOX OR POLE BASE TO THE CABINET. IT SHALL MEET THE REQUIREMENTS OF ISMA SPEC. NO. 50-2.
3. VEHICLE DETECTOR LOOP SHALL BE INSTALLED IN SUCH A WAY AS TO MAXIMIZE SENSITIVITY AND BE CAPABLE OF DETECTING MOTORCYCLES AND BICYCLES, WHILE ELIMINATING FALSE CALLS FROM VEHICLES IN ADJACENT LANES. LOOPS SHOULD BE DESIGNED SO THAT THE TOTAL INDUCTANCE [LOOP(S) PLUS LEAD-IN(S)] AT THE AMPLIFIER IS BETWEEN 100 AND 450 MICROHENRIES (200-300 PREFERRED). FOR SINGLE LOOPS, THE LOOP INDUCTANCE SHOULD BE AT LEAST TWICE THAT OF THE LEAD-IN. FOR MULTIPLE LOOPS, THE INDUCTANCE ON THE STREET SIDE OF THE SPLICE SHOULD BE AT LEAST TWICE THAT ON THE CONTROLLER SIDE.
4. THE LOOPS SHALL BE CENTERED IN THEIR RESPECTIVE LANES, UNLESS OTHERWISE NOTED.
5. ALL LOOPS SHALL OPERATE IN THE PRESENCE MODE WITH THE CONTROLLER SET TO LOCKING MEMORY FOR "LEFT-ONLY" OR "THRU-ONLY" LANES. ALL OTHER LANES SHALL UTILIZE NON-LOCKING MEMORY, UNLESS OTHERWISE NOTED.
6. ALL LOOPS IN "RIGHT TURN ONLY" LANES OR LOOP PLACED TO DETECT ONLY RIGHT TURNING VEHICLES SHALL HAVE DELAYED CALL LOOP AMPLIFIERS, UNLESS OTHERWISE NOTED.
7. ALL LOOP DETECTORS SHALL BE OF A TYPE THAT FAIL IN THE "ON" MODE.
8. ALL LOOP AND LEAD-IN WIRE SHALL BE #12 AWG. THE RESISTANCE OF #12 AWG IS 1.62 OHMS / 1000' AT 77° F.

INSTALLATION NOTES

1. ALL SPLICES SHALL BE MADE IN PULLBOXES, JUNCTION BOXES, OR POLE BASES. ALL SPLICES SHALL BE SOLDERED, USING ROSIN CORE SOLDER, AND THEN BE FULLY SEALED BY THE APPLICATION OF DUAL-WALL, HEAT-SHRINKABLE TUBING, UNLESS OTHERWISE NOTED. A MINIMUM OF 3' OF SLACK SHALL BE LEFT IN EACH CABLE IN EACH BOX OR BASE.
2. ALL LOOP WIRES SHALL BE INSTALLED IN PVC TUBING. THE TUBING ENDS SHALL BE SEALED USING LOOP SEALANT PRIOR TO INSTALLATION IN THE SAWCUT.
3. BEFORE LAYING IN THE LOOP WIRE, A ONE-QUARTER INCH BEAD OF SEALANT SHALL BE PLACED IN THE SAWCUT AND ALLOWED TO SET UP SUFFICIENTLY TO GIVE THE WIRE SOME SUPPORT. EACH WIRE SHALL BE EASED INTO THE SAWCUT WITH A BLUNT WOODEN STICK.
4. THE LOOP WIRES SHALL BE HELD IN PLACE DURING INSTALLATION BY SHORT STRIPS OF POLYETHYLENE FOAM SEALANT BACKERS. THE STRIPS SHALL BE ABOUT 2" LONG AND PLACED EVERY 2 FEET. THEY ARE TO REMAIN IN PLACE WHEN THE SLOT IS SEALED.
5. VEHICLE DETECTOR LOOPS SHALL BE PLACED IN SAWCUTS IN THE BASE COURSE AND PAVED OVER WHENEVER POSSIBLE. IF THE TOP COURSE IS MORE THAN 1-3/4" IN DEPTH, THE SAWCUT SHALL BE MADE AFTER THE TOP COURSE IS PLACED. IF PAVING IS NOT PART OF THE PROJECT, THE SAWCUT SHALL BE MADE IN EXISTING PAVEMENT.
6. WHEN LOOP WIRES ARE PLACED IN THE BASE COURSE, THE SEALANT SHALL BE PROPERLY CURED BEFORE THE FINAL PAVEMENT IS PLACED.
7. LOOP LEAD-INS FROM ADJACENT LOOPS ACTUATING DIFFERENT PHASES SHALL BE IN SEPARATE SAWCUTS AND CONDUITS TO THE PULLBOX OR POLE BASE.
8. LOOP LEAD-INS SHALL BE KEPT AT LEAST ONE FOOT AWAY FROM POWER WIRING, WHENEVER POSSIBLE.
9. ALL ELECTRICAL WORK AND MATERIALS SHALL MEET THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE.
10. LOOP WIRES FROM EACH LOOP AND/OR APPROACH SHALL BE COLOR CODED OR OTHERWISE IDENTIFIED AT EACH PULLBOX OR JUNCTION BOX, IN THE POLE BASE(S) AND AT THE TERMINAL BOARD IN THE CONTROLLER CABINET. FOLLOWING INSTALLATION, THE CONTRACTOR SHALL SUPPLY 2 COPIES OF A SCHEMATIC SHOWING THE FOLLOWING INFORMATION.
    1. NUMBER OF TURNS.
    2. DIMENSIONS FOR EACH LOOP.
    3. LOOP LEAD-IN ROUTING FROM THE SAWCUT TO THE CONTROLLER.
    4. TYPE OF CONNECTIONS AT EACH SPLICE (SERIES, PARALLEL OR SERIES-PARALLEL).

    ONE COPY SHALL BE LEFT IN THE CONTROLLER CABINET AND THE OTHER GIVEN TO THE TRAFFIC SHOP OR LOCAL OFFICIAL RESPONSIBLE FOR THE SIGNAL MAINTENANCE.

LOOP TESTING

DURING INSTALLATION OF THE LOOPS, THE CONTRACTOR SHALL MEASURE THE LOOP INDUCTANCE, LEAKAGE TO GROUND AND LOOP RESISTANCE IN THE PRESENCE OF THE RESIDENT ENGINEER. THE CONTRACTOR SHALL PROVIDE THE APPROPRIATE EQUIPMENT. THE INSTALLATION SHALL BE CONSIDERED ACCEPTABLE IF:

1. THE INDUCTANCE READING IS WITHIN 10% ± OF THE CALCULATED VALUE.
2. THE INSULATION TEST (LEAKAGE TO GROUND) IS ABOVE 5 MEGOHMS FOR EXISTING LOOPS AND 100 MEGOHMS FOR NEW LOOPS USING A 500 VOLT DC INPUT.
3. THE LOOP RESISTANCE IS WITHIN 25% ± OF THE CALCULATED VALUE.

IF THE READINGS FALL OUTSIDE THE ABOVE RANGES, CORRECTIVE MEASURES MAY BE REQUIRED AND THE ENGINEER SHALL NOTIFY THE TRAFFIC AND SAFETY DIVISION. THE COST OF TESTING THE LOOPS AND ANY NECESSARY CORRECTIONS SHALL BE SUBSIDIARY TO THE ITEM "VEHICLE DETECTOR LOOP". THE CALCULATED VALUES SHALL BE SHOWN ON THE PLANS. LOOP TESTING IS NOT REQUIRED FOR TEMPORARY LOOPS.

CONDUIT FILL DESIGN VALUES

AVAILABLE CONDUIT AREA: SIZE I.D.	SIZE O.D.	26 % FILL (IN 2)	CONDUCTOR SIZE TABLE: CROSS SECTIONAL AREA (IN2)	NUMBER OF CONDUCTORS	GAUGE #14	#12	#10	#8	#6
1"	1.315	0.23		1	.021	.025	.031	.060	.082
1-1/4"	1.660	0.39		2	.093	.129			
1-1/2"	1.900	0.53		5	.142	.200			
2"	2.375	0.87		7	.170	.260	CALCULATE AS REQUIRED		
2-1/2"	2.875	1.24		9	.297	.413			
3"	3.500	1.92		12	.317	.436			
3-1/2"	4.000	2.57		16	.402	.601			
4"	4.500	3.31		19	.425	.658			

OTHER STDS. REQUIRED NONE

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
NOV. 17 1993 - MAJOR NOTE & TABLE REVISIONS

APPROVED

Gordon S. MacArthur
DIRECTOR OF ENGINEERING

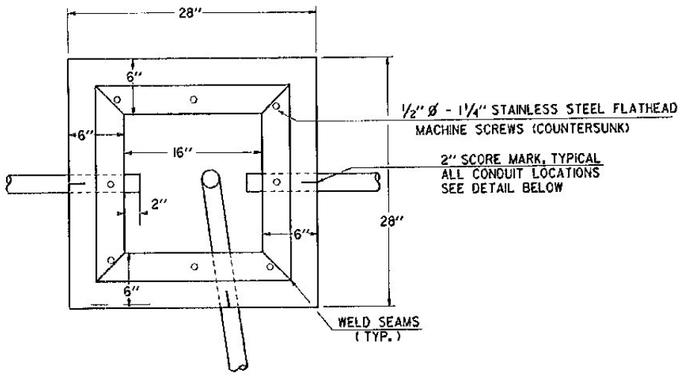
David D. Ross
TRAFFIC AND SAFETY ENGINEER

VEHICLE DETECTOR LOOP DETAILS

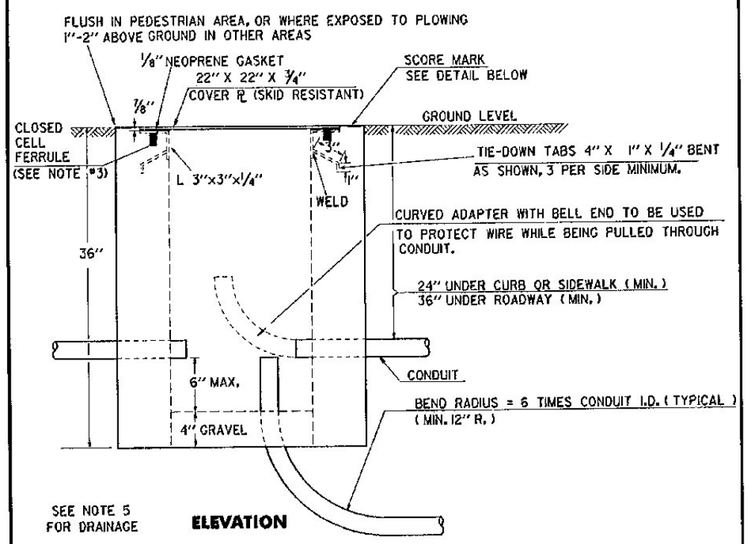
/traf/std/stdel72.dgn - stdel72.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-172

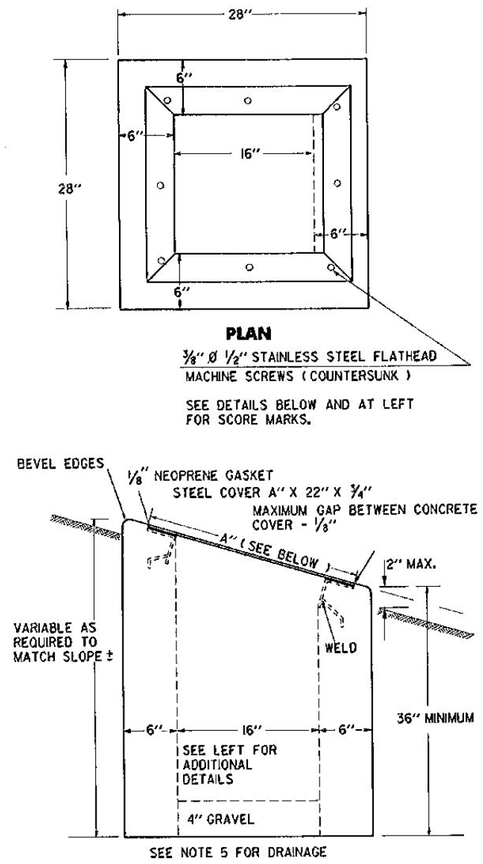


PLAN



ELEVATION

CONCRETE PULLBOX INSTALLED IN LEVEL GROUND



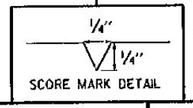
PLAN

ELEVATION

STEEL COVER "A" DIMENSION

SLOPE	A	
1-2	25"	USE SLOPE CLOSEST TO FIELD CONDITIONS
1-3	24"	
1-4, 1-6	23"	
1-10	22'	

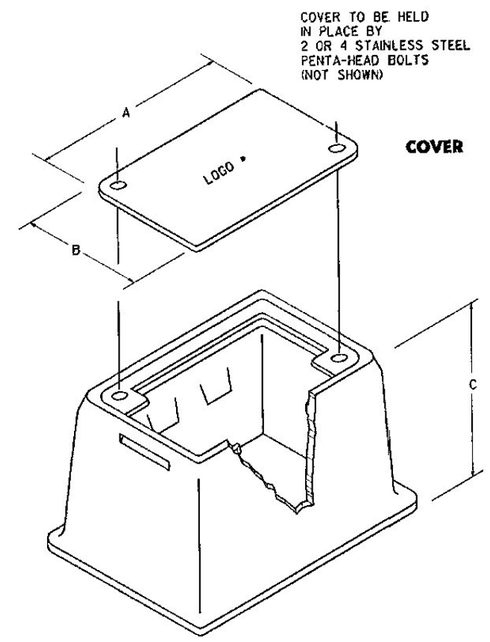
CONCRETE PULL BOX INSTALLED ON SLOPE



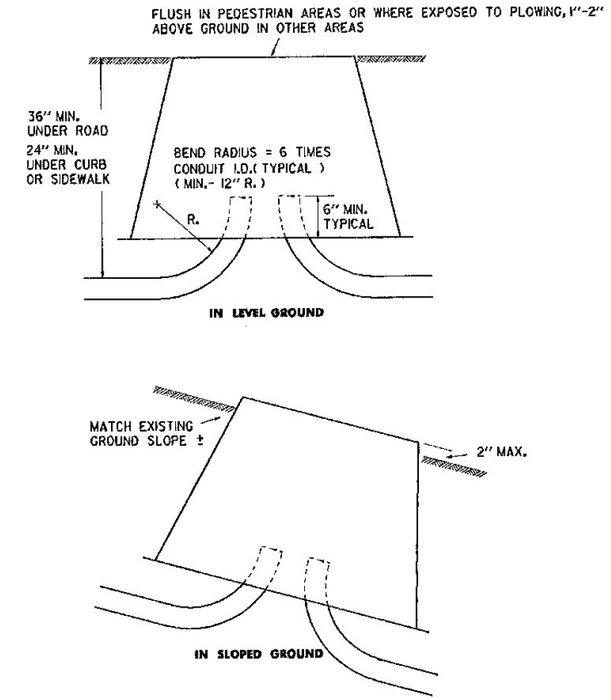
SCORE MARK DETAIL

- ALTERNATE LOGOS
  - TRAFFIC SIGNAL
  - RAILWAY SIGNAL
  - ELECTRIC
  - STREET LIGHTING
  - TRAFFIC CONTROL

LOGO APPLICATION BY MANUFACTURER WITH TEXT AS SHOWN ON PLANS.



COVER



DIMENSIONS A THRU C AS SHOWN ON THE PLANS. (SHAPE MAY VARY WITH MANUFACTURER)

JUNCTION BOX

JUNCTION BOX & PULL BOX NOTES

1. ALL PULL BOXES TO BE CONCRETE, CLASS B.
2. SCORE TOP OF PULL BOXES TO SHOW LOCATION OF CONDUIT (S).
3. FOR PULL BOXES PROVIDE CLOSED CELL FERRULES IN CONCRETE BELOW THREADED HOLES IN THE COVER FRAME TO PERMIT RETHREADING AT A FUTURE DATE. THE FERRULE SHALL BE WELDED TO THE 3" X 3" X 1/4" ANGLE.
4. CONDUIT SIZE-AS SHOWN ON THE PLANS.
5. EXCAVATION FOR THE UNITS, SHALL INCLUDE EXCAVATION OF AN AREA ONE FOOT OUTSIDE THE UNITS AND EXTENDING ONE FOOT BELOW THE FINISH GRADE OF THE BOTTOM OF THE UNITS. ONE FOOT OF GRANULAR MATERIAL SHALL BE PLACED IN THE EXCAVATED AREA PRIOR TO INSTALLATION. WHERE NECESSARY AND AT THE DISCRETION OF THE ENGINEER, A DRAINAGE CHANNEL SHALL BE PROVIDED FROM THE UNIT TO THE DITCH. PAYMENT SHALL BE SUBSIDARY TO UNITS. IF ADDITIONAL DRAINAGE IS REQUIRED BY THE ENGINEER (FOR EXAMPLE, UNDERDRAIN), IT SHALL BE PAID AT UNIT PRICE FOR THAT ITEM.
6. ALL EXPOSED METAL HARDWARE, INCLUDING PULLBOX COVERS, FRAMES & ANGLES, SHALL BE GALVANIZED OR STAINLESS STEEL.
7. SEE STANDARD SPECIFICATIONS, FOR JUNCTION BOX MATERIAL REQUIREMENTS. THE COVER LOADING SHALL BE MODIFIED TO 15000 POUNDS OVER A 10" X 10" AREA.
8. ALL CONDUIT SHALL ENTER JUNCTION BOXES FROM THE BOTTOM, NOT THRU THE SIDE WALL.

REVISIONS AND CORRECTIONS

APRIL 1, 1989 - REVISED COVER DIMENSIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

SEPT. 10, 1987
DATE

David B. Kelley
CHIEF ENGINEER

Arthur Gore
DIRECTOR OF PLANNING AND PRECONSTRUCTION

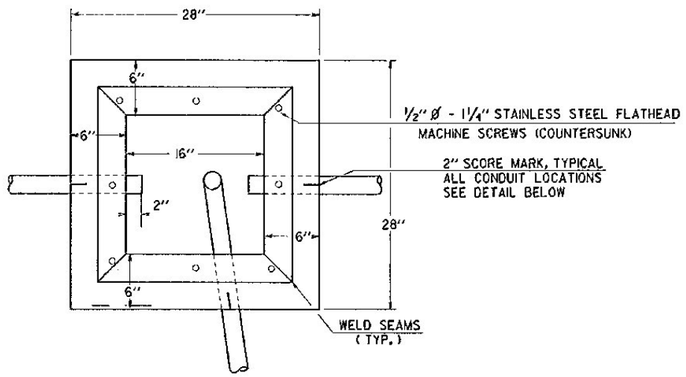
Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

PULL BOXES AND JUNCTION BOXES

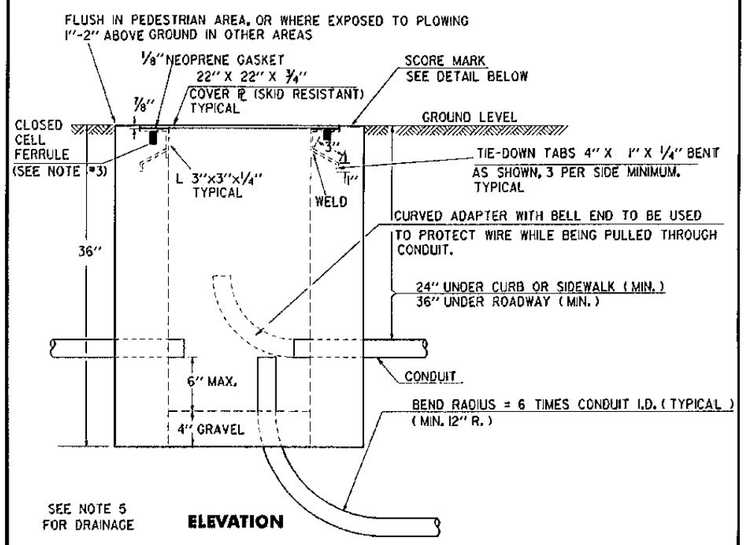
VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-173

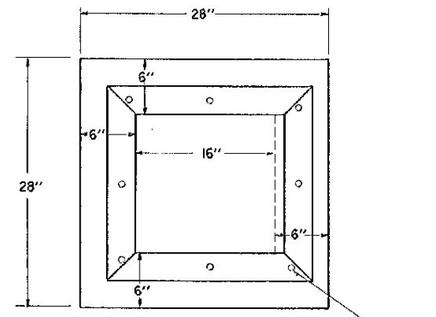


PLAN



ELEVATION

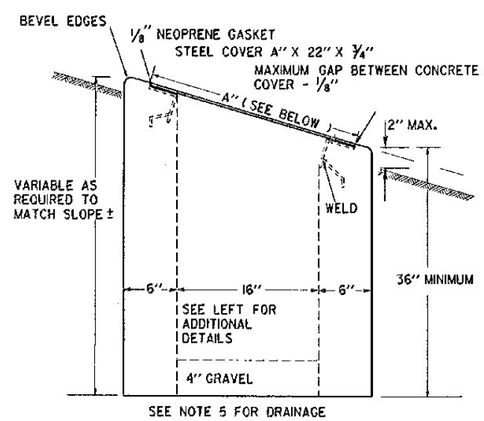
CONCRETE PULLBOX INSTALLED IN LEVEL GROUND



PLAN

1/2" Ø - 1 1/4" STAINLESS STEEL FLATHEAD MACHINE SCREWS (COUNTERSUNK)

SEE DETAILS BELOW AND AT LEFT FOR SCORE MARKS.



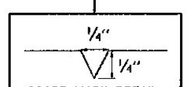
ELEVATION

STEEL COVER "A" DIMENSION

SLOPE	A
1-2	25"
1-3	24"
1-4, 1-6	23"
1-10	22'

USE SLOPE CLOSEST TO FIELD CONDITIONS

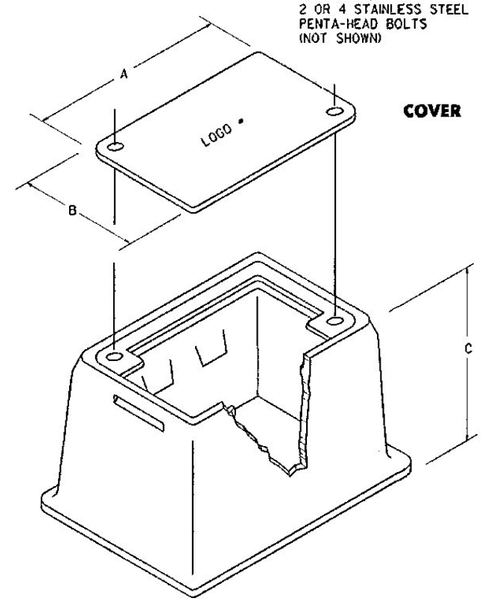
CONCRETE PULL BOX INSTALLED ON SLOPE



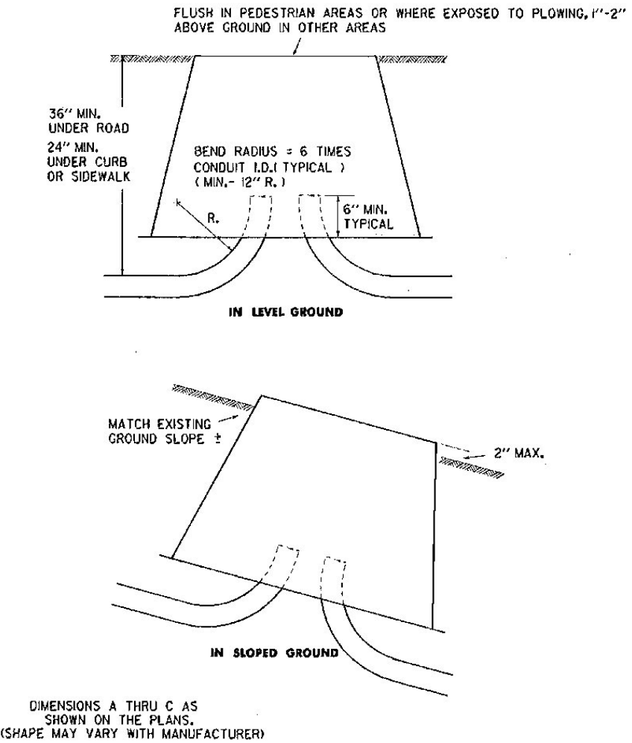
SCORE MARK DETAIL

- ALTERNATE LOGOS
  - TRAFFIC SIGNAL
  - RAILWAY SIGNAL
  - ELECTRIC
  - STREET LIGHTING
  - TRAFFIC CONTROL

LOGO APPLICATION BY MANUFACTURER WITH TEXT AS SHOWN ON PLANS.



COVER



DIMENSIONS A THRU C AS SHOWN ON THE PLANS. (SHAPE MAY VARY WITH MANUFACTURER)

JUNCTION BOX

JUNCTION BOX & PULL BOX NOTES

1. ALL PULL BOXES TO BE CONCRETE, CLASS B.
2. SCORE TOP OF PULL BOXES TO SHOW LOCATION OF CONDUIT (S).
3. FOR PULL BOXES PROVIDE CLOSED CELL FERRULES IN CONCRETE BELOW THREADED HOLES IN THE COVER FRAME TO PERMIT RETHREADING AT A FUTURE DATE. THE FERRULE SHALL BE WELDED TO THE 3" X 3" X 1/4" ANGLE.
4. CONDUIT SIZE-AS SHOWN ON THE PLANS.
5. EXCAVATION FOR THE UNITS, SHALL INCLUDE EXCAVATION OF AN AREA ONE FOOT OUTSIDE THE UNITS AND EXTENDING ONE FOOT BELOW THE FINISH GRADE OF THE BOTTOM OF THE UNITS. ONE FOOT OF GRANULAR MATERIAL SHALL BE PLACED IN THE EXCAVATED AREA PRIOR TO INSTALLATION. WHERE NECESSARY AND AT THE DISCRETION OF THE ENGINEER, A DRAINAGE CHANNEL SHALL BE PROVIDED FROM THE UNIT TO THE DITCH. PAYMENT SHALL BE SUBSIDARY TO UNITS. IF ADDITIONAL DRAINAGE IS REQUIRED BY THE ENGINEER (FOR EXAMPLE, UNDERDRAIN), IT SHALL BE PAID AT UNIT PRICE FOR THAT ITEM.
6. ALL EXPOSED METAL HARDWARE, INCLUDING PULLBOX COVERS, FRAMES & ANGLES, SHALL BE GALVANIZED OR STAINLESS STEEL.
7. SEE STANDARD SPECIFICATIONS, FOR JUNCTION BOX MATERIAL REQUIREMENTS. THE COVER LOADING SHALL BE MODIFIED TO 15000 POUNDS OVER A 10" X 10" AREA.
8. ALL CONDUIT SHALL ENTER JUNCTION BOXES FROM THE BOTTOM, NOT THRU THE SIDE WALL.

REVISIONS AND CORRECTIONS

APRIL 1, 1989 - REVISED COVER DIMENSIONS
MAY 26, 1989 - FHWA COMMENTS

APPROVED

SEPT. 10, 1987
DATE

David B. Kelley
CHIEF ENGINEER

Arthur Gore
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

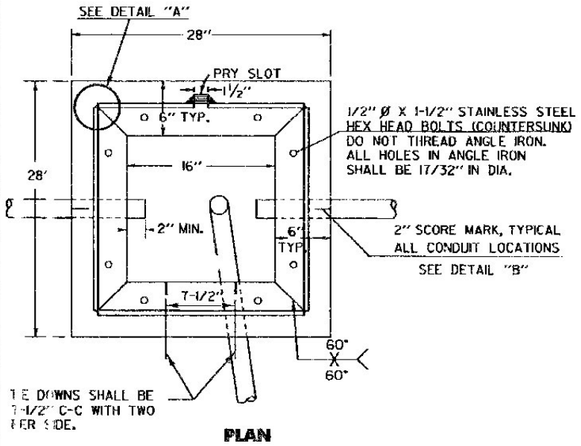
Gordon S. MacCartney
TRAFFIC AND SAFETY ENGINEER

PULL BOXES AND JUNCTION BOXES

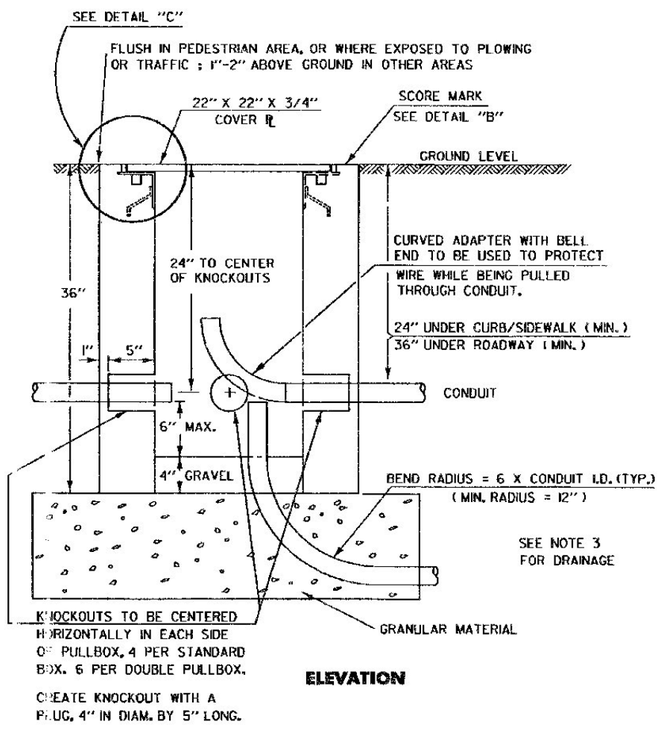
VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-173

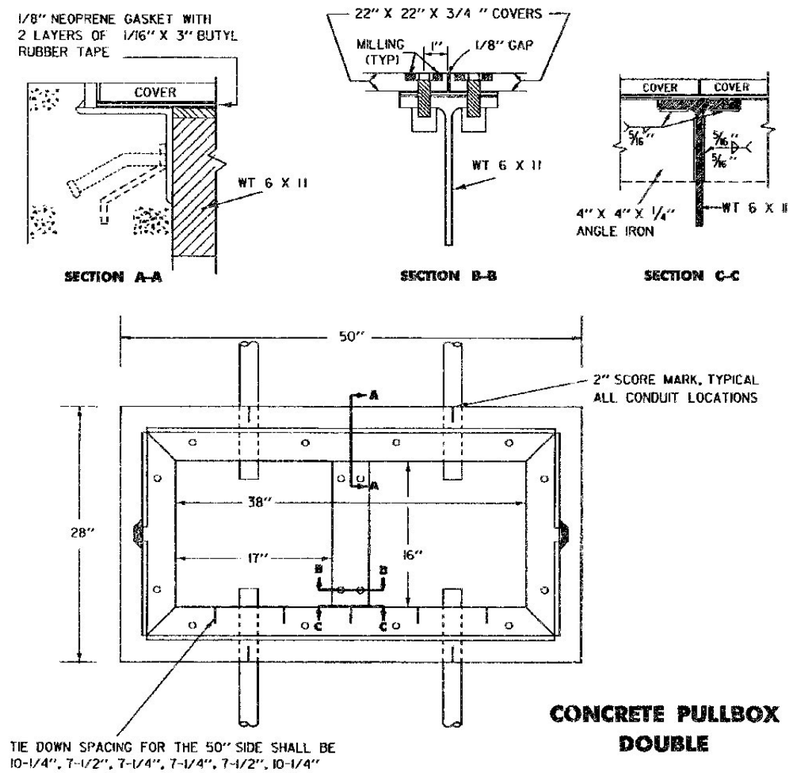


PLAN

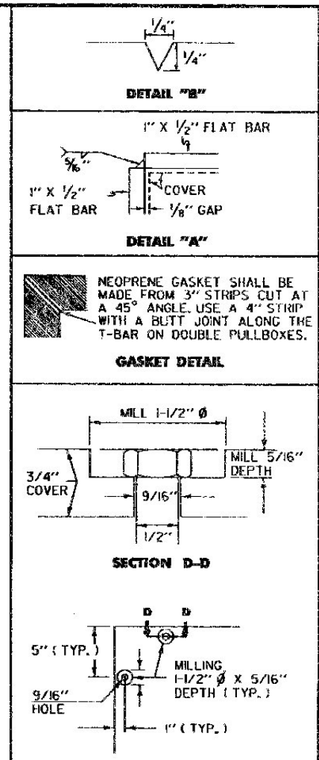


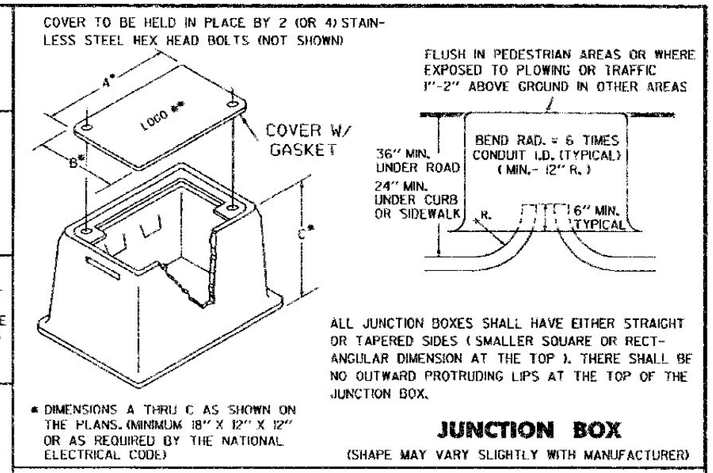
ELEVATION

CONCRETE PULLBOX STANDARD



CONCRETE PULLBOX DOUBLE



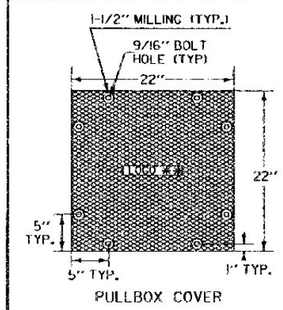


* DIMENSIONS A THRU C AS SHOWN ON THE PLANS. (MINIMUM 18" X 12" X 12" OR AS REQUIRED BY THE NATIONAL ELECTRICAL CODE)

ALL JUNCTION BOXES SHALL HAVE EITHER STRAIGHT OR TAPERED SIDES (SMALLER SQUARE OR RECTANGULAR DIMENSION AT THE TOP). THERE SHALL BE NO OUTWARD PROTRUDING LIPS AT THE TOP OF THE JUNCTION BOX.

JUNCTION BOX

(SHAPE MAY VARY SLIGHTLY WITH MANUFACTURER)



LOGO APPLICATION BY MANUFACTURER WITH TEXT AS SHOWN ON PLANS.

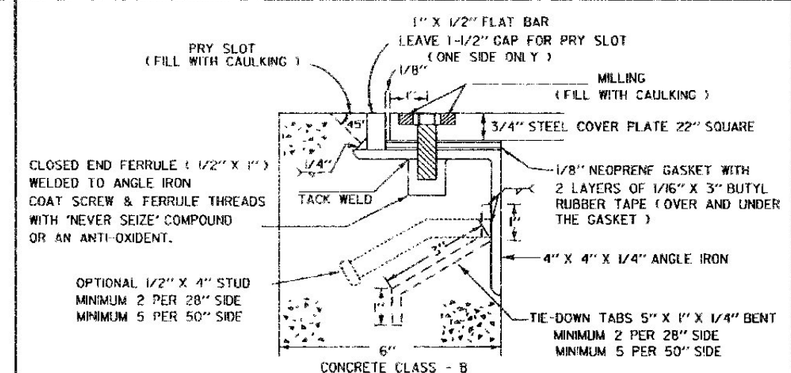
** ALTERNATE LOGOS
SIGNAL
ELECTRIC
LIGHTING

ALL PULLBOX COVERS SHALL BE SKID RESISTANT. ALL COVERS SHALL HAVE THE LOGO PUNCHED OR STAMPED INTO A FLAT RECTANGLAR AREA. MINIMUM LETTER HEIGHT IS 1/2", MINIMUM DEPTH IS 1/16". DOUBLE PULLBOXES REQUIRE ONLY ONE LOGO. ALL HOLES IN THE COVER SHALL BE 9/16" IN DIA.

PULLBOX COVER & LOGO DETAILS

PULLBOX & JUNCTION BOX NOTES

1. ALL PULLBOXES SHALL BE CONSTRUCTED WITH CONCRETE, CLASS B.
2. CONDUIT SIZE AS SHOWN ON THE PLANS.
3. EXCAVATION FOR THE UNITS SHALL INCLUDE EXCAVATION OF AN AREA ONE FOOT OUTSIDE THE UNITS AND EXTENDING ONE FOOT BELOW THE FINISH GRADE OF THE BOTTOM OF THE UNITS. ONE FOOT OF GRANULAR MATERIAL SHALL BE PLACED IN THE EXCAVATED AREA AND PROPERLY COMPACTED PRIOR TO INSTALLATION. WHERE NECESSARY AND AT THE DISCRETION OF THE ENGINEER, A DRAINAGE PIPE (MINIMUM 3" PERFORATED PVC) SHALL BE PROVIDED FROM THE UNIT TO THE NEAREST APPROPRIATE OUTLET. DRAINAGE WORK SHALL NOT BE PAID DIRECTLY, BUT WILL BE CONSIDERED PART OF THE PULLBOX OR JUNCTION BOX ITEM.
4. ALL EXPOSED METAL HARDWARE, INCLUDING PULLBOX COVERS, FRAMES & ANGLES, SHALL BE GALVANIZED OR STAINLESS STEEL.
5. ALL CONDUIT SHALL ENTER JUNCTION BOXES FROM THE BOTTOM, NOT THROUGH THE SIDE WALL.
6. CONDUITS SHALL NOT ENTER DOUBLE PULLBOXES, DIRECTLY UNDER THE "T" BAR.
7. THE PRY SLOT AND THE COVER GAPS SHALL BE FILLED WITH CAULKING JUST PRIOR TO PROJECT COMPLETION.
8. WHEN INSTALLED ON SLOPES, PULLBOXES AND JUNCTION BOXES SHALL BE TIPPED TO MATCH THE EXISTING SLOPE UP TO A 1 ON 4 SLOPE. ON STEEPER SLOPES, THEY SHALL BE INSTALLED AS ON A 1 ON 4 SLOPE. A SUFFICIENT AMOUNT OF THE EXCAVATED MATERIAL SHALL BE USED TO SHAPE AROUND THE LOW SIDE OF THE BOX SUCH THAT THE MAXIMUM EXPOSURE IS 2". THE MATERIAL SHALL BE TAPERED OVER AN AREA EXTENDING ABOUT 5' FROM THE BOX. IF SUFFICIENT MATERIAL IS NOT AVAILABLE, MATERIAL MEETING THE REQUIREMENTS OF EARTH BORROW (SUBSECTION 703.02) SHALL BE USED. PAYMENT SHALL BE CONSIDERED PART OF THE PULLBOX OR JUNCTION BOX ITEM.
9. ALL COVERS SHALL BE FLUSH WITH THE BOXES AND FRAMES.
10. ALL CONDUITS ENTERING A PULLBOX OR JUNCTION BOX SHALL HAVE BUSHINGS TO PROTECT THE CABLES.



DETAIL "C"

OTHER STDS. REQUIRED NONE

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
APRIL 1, 1989 - REVISED COVER DIMENSIONS
MAY 26, 1989 - FHWA COMMENTS
NOV. 17, 1993 - MAJOR REVISIONS, STANDARDIZATION OF PULLBOX COVERS
AUG. 9, 1995 - REVISED NOTE 8, CHANGED LOGO OPTIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacArthur
DIRECTOR OF ENGINEERING

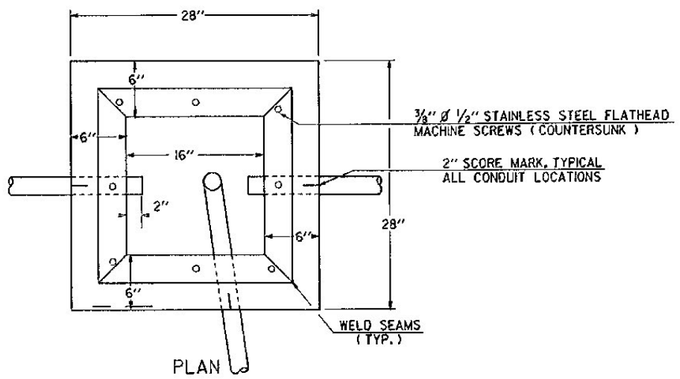
David A. Ross
TRAFFIC AND SAFETY ENGINEER

PULLBOXES AND JUNCTION BOXES

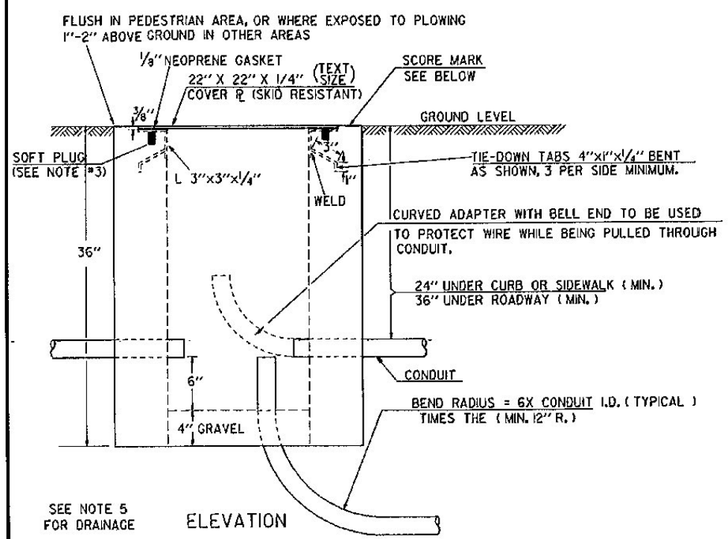
/traf/std/stdel73.dgn - stdel73.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-173

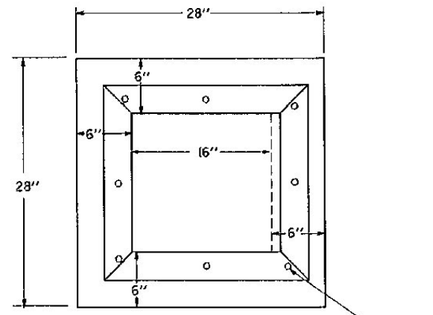


PLAN



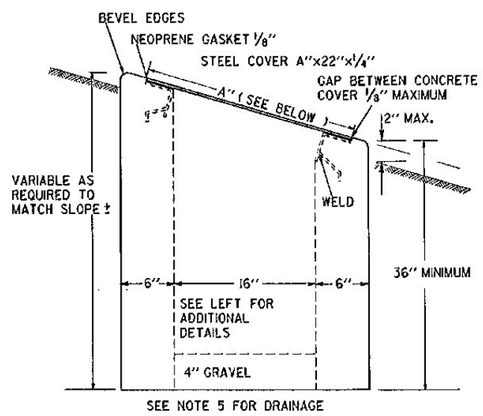
ELEVATION

CONCRETE PULLBOX INSTALLED IN LEVEL GROUND



PLAN

3/8" Ø 1/2" STAINLESS STEEL FLATHEAD MACHINE SCREWS (COUNTERSUNK)



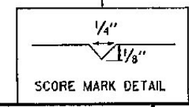
ELEVATION

STEEL COVER "A" DIMENSION

SLOPE	A
1-2	25"
1-3	24"
1-4, 1-6	23"
1-10	SEE LEFT

USE SLOPE CLOSEST TO FIELD CONDITIONS

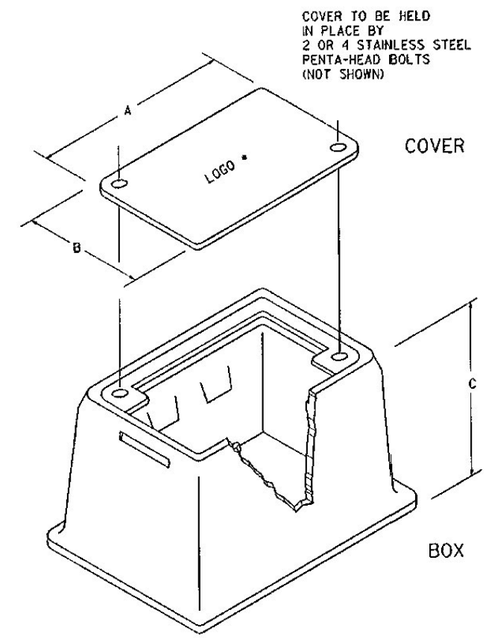
CONCRETE PULL BOX INSTALLED ON SLOPE



SCORE MARK DETAIL

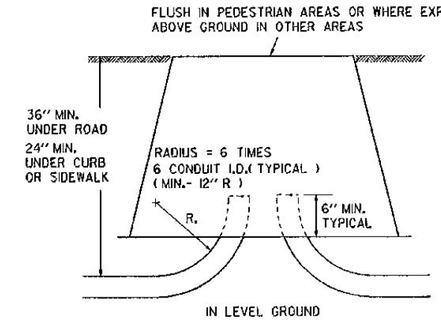
- ALTERNATE LOGOS
  - TRAFFIC SIGNAL
  - RAILWAY SIGNAL
  - ELECTRIC
  - STREET LIGHTING
  - TRAFFIC CONTROL

REQUIRED LOGO AS SHOWN ON THE PLANS

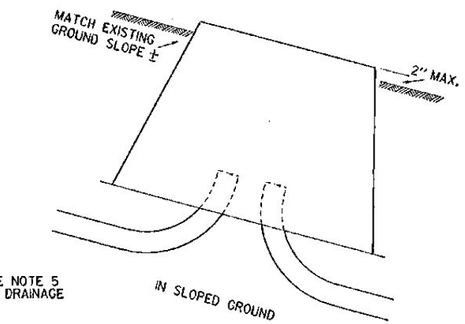


DIMENSIONS A THRU C AS SHOWN ON THE PLANS. (SHAPE MAY VARY WITH MANUFACTURER)

JUNCTION BOX



IN LEVEL GROUND



IN SLOPED GROUND

JUNCTION BOX & PULL BOX NOTES

1. ALL PULL BOXES TO BE CONCRETE, CLASS B.
2. SCORE TOP OF PULL BOXES TO SHOW LOCATION OF CONDUIT (S).
3. FOR PULL BOXES PROVIDE SOFT PLUGS IN CONCRETE BELOW THREADED HOLES IN THE COVER FRAME TO PERMIT RETHREADING AT A FUTURE DATE.
4. CONDUIT SIZE-AS SHOWN ON THE PLANS.
5. EXCAVATION FOR THE UNITS, SHALL INCLUDE EXCAVATION OF AN AREA ONE FOOT OUTSIDE THE UNITS AND EXTENDING ONE FOOT BELOW THE FINISH GRADE OF THE BOTTOM OF THE UNITS. ONE FOOT OF GRANULAR MATERIAL SHALL BE PLACED IN THE EXCAVATED AREA PRIOR TO INSTALLATION. WHERE NECESSARY AND AT THE DISCRETION OF THE ENGINEER, A DRAINAGE CHANNEL SHALL BE PROVIDED FROM THE UNIT TO THE DITCH. PAYMENT SHALL BE SUBSIDARY TO UNITS. IF ADDITIONAL DRAINAGE IS REQUIRED BY THE ENGINEER (FOR EXAMPLE, UNDERDRAIN), IT SHALL BE PAID AT UNIT PRICE FOR THAT ITEM.
6. ALL EXPOSED METAL HARDWARE, INCLUDING PULLBOX COVERS, FRAMES & ANGLES, SHALL BE GALVANIZED OR STAINLESS STEEL.
7. SEE STANDARD SPECIFICATIONS, INCLUDING PULLBOX COVERS, FRAMES & ANGLES, FOR JUNCTION BOX SPECIFICATIONS SUBSECTION 752.12.
8. ALL CONDUIT SHALL ENTER JUNCTION BOXES FROM THE BOTTOM , NOT THRU THE SIDE WALL.

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David W Kelley
CHIEF ENGINEER

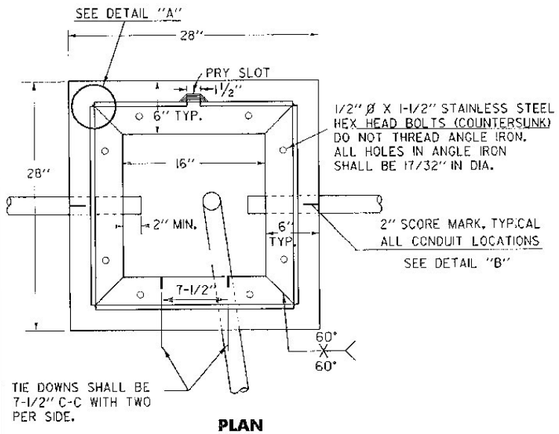
Arthur J Gosse
DIRECTOR OF PLANNING AND PRECONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

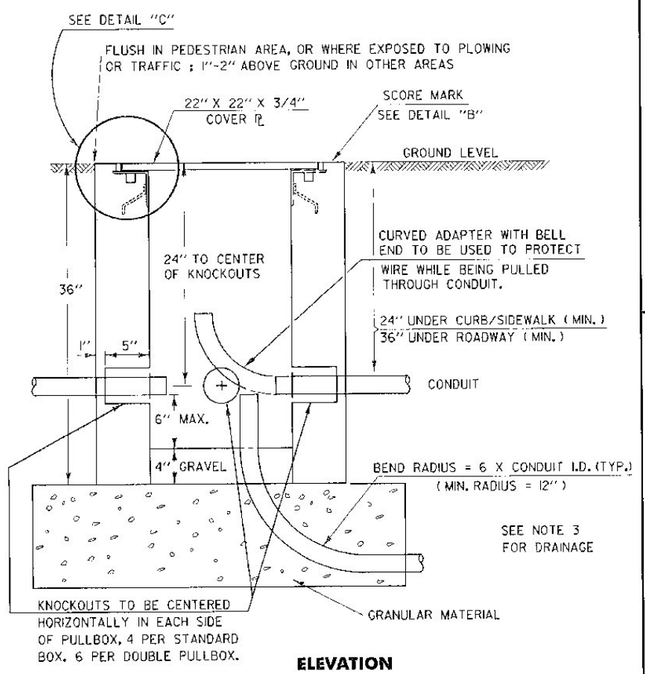
PULL BOXES AND JUNCTION BOXES

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-173

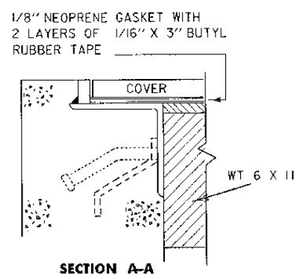


PLAN

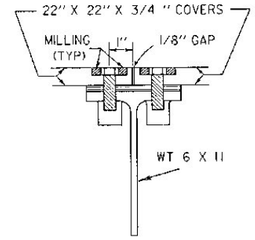


ELEVATION

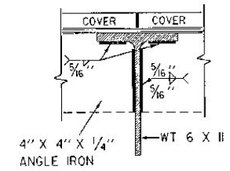
CONCRETE PULLBOX STANDARD



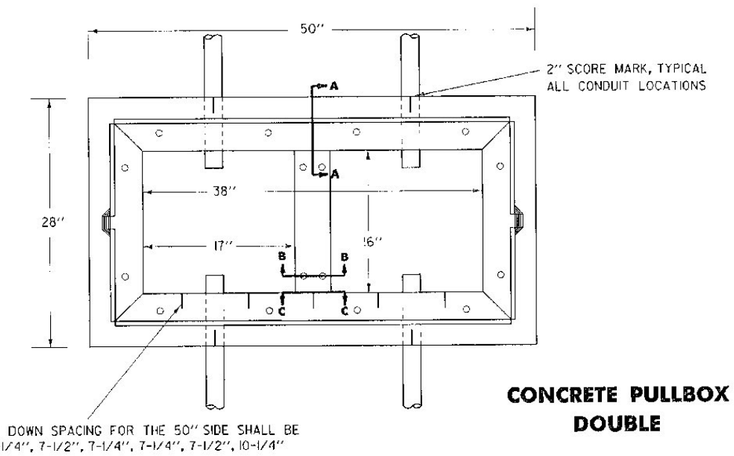
SECTION A-A



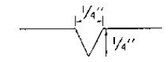
SECTION B-B



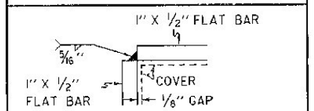
SECTION C-C



CONCRETE PULLBOX DOUBLE



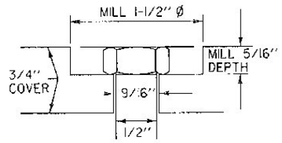
DETAIL "B"



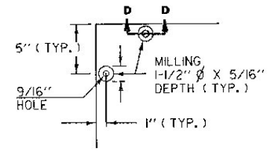
DETAIL "A"

NEOPRENE GASKET SHALL BE MADE FROM 3" STRIPS CUT AT A 45° ANGLE. USE A 4" STRIP WITH A BUTT JOINT ALONG THE T-BAR ON DOUBLE PULLBOXES.

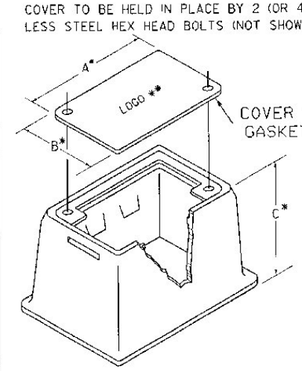
GASKET DETAIL



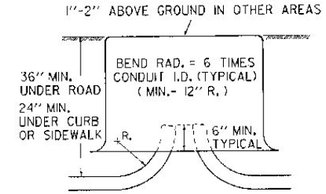
SECTION D-D



BOLT / MILLING DETAIL



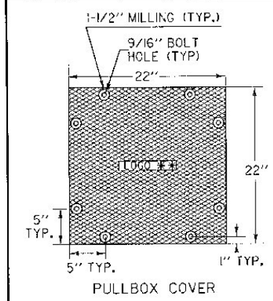
* DIMENSIONS A THRU C AS SHOWN ON THE PLANS. (MINIMUM 18" X 12" X 12" OR AS REQUIRED BY THE NATIONAL ELECTRICAL CODE)



ALL JUNCTION BOXES SHALL HAVE EITHER STRAIGHT OR TAPERED SIDES (SMALLER SQUARE OR RECTANGULAR DIMENSION AT THE TOP). THERE SHALL BE NO OUTWARD PROTRUDING LIPS AT THE TOP OF THE JUNCTION BOX.

JUNCTION BOX

(SHAPE MAY VARY SLIGHTLY WITH MANUFACTURER)



PULLBOX COVER

LOGO APPLICATION BY MANUFACTURER WITH TEXT AS SHOWN ON PLANS.

** ALTERNATE LOGOS
TRAFFIC SIGNAL
ELECTRIC
STREET LIGHTING

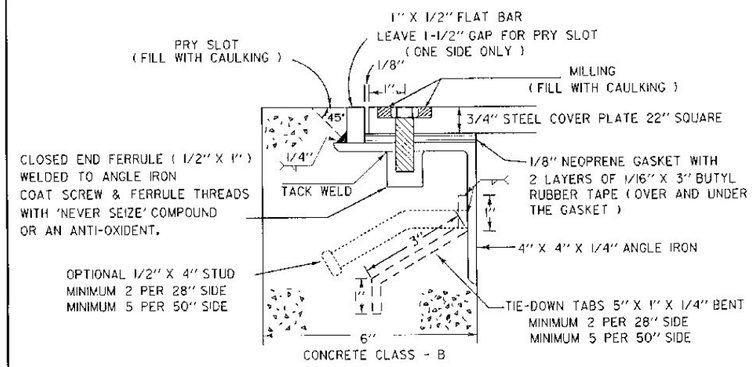
ALL PULLBOX COVERS SHALL BE SKID RESISTANT. ALL COVERS SHALL HAVE THE LOGO PUNCHED OR STAMPED INTO A FLAT RECTANGLAR AREA. MINIMUM LETTER HEIGHT IS 1/2". MINIMUM DEPTH IS 1/16". DOUBLE PULLBOXES REQUIRE ONLY ONE LOGO.

ALL HOLES IN THE COVER SHALL BE 9/16" IN DIA.

PULLBOX COVER & LOGO DETAILS

PULLBOX & JUNCTION BOX NOTES

1. ALL PULLBOXES SHALL BE CONSTRUCTED WITH CONCRETE, CLASS B.
2. CONDUIT SIZE AS SHOWN ON THE PLANS.
3. EXCAVATION FOR THE UNITS SHALL INCLUDE EXCAVATION OF AN AREA ONE FOOT OUTSIDE THE UNITS AND EXTENDING ONE FOOT BELOW THE FINISH GRADE OF THE BOTTOM OF THE UNITS. ONE FOOT OF GRANULAR MATERIAL SHALL BE PLACED IN THE EXCAVATED AREA AND PROPERLY COMPACTED PRIOR TO INSTALLATION. WHERE NECESSARY AND AT THE DISCRETION OF THE ENGINEER, A DRAINAGE PIPE (MINIMUM 3" PERFORATED PVC) SHALL BE PROVIDED FROM THE UNIT TO THE NEAREST APPROPRIATE OUTLET. DRAINAGE WORK SHALL NOT BE PAID DIRECTLY, BUT WILL BE CONSIDERED PART OF THE PULLBOX OR JUNCTION BOX ITEM.
4. ALL EXPOSED METAL HARDWARE, INCLUDING PULLBOX COVERS, FRAMES & ANGLES, SHALL BE GALVANIZED OR STAINLESS STEEL.
5. ALL CONDUIT SHALL ENTER JUNCTION BOXES FROM THE BOTTOM, NOT THROUGH THE SIDE WALL.
6. CONDUITS SHALL NOT ENTER DOUBLE PULLBOXES, DIRECTLY UNDER THE "T" BAR.
7. THE PRY SLOT AND THE COVER GAPS SHALL BE FILLED WITH CAULKING JUST PRIOR TO PROJECT COMPLETION.
8. WHEN INSTALLED ON SLOPES, PULLBOXES AND JUNCTION BOXES SHALL BE TIPPED TO MATCH THE EXISTING SLOPE UP TO A 1 ON 4 SLOPE. ON STEEPER SLOPES, THEY SHALL BE INSTALLED AS ON A 1 ON 4 SLOPE. A SUFFICIENT AMOUNT OF THE EXCAVATED MATERIAL SHALL BE USED TO SHAPE AROUND THE LOW SIDE OF THE BOX SUCH THAT THE MAXIMUM EXPOSURE IS 2". IF SUFFICIENT MATERIAL IS NOT AVAILABLE, MATERIAL MEETING THE REQUIREMENTS OF EARTH BORROW (SUBSECTION 703.02) SHALL BE USED. PAYMENT SHALL BE CONSIDERED PART OF THE PULLBOX OR JUNCTION BOX ITEM.
9. ALL COVERS SHALL BE FLUSH WITH THE BOXES AND FRAMES.
10. ALL CONDUITS ENTERING A PULLBOX OR JUNCTION BOX SHALL HAVE BUSHINGS TO PROTECT THE CABLES.



DETAIL "C"

OTHER STDS. REQUIRED NONE

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
APRIL 1, 1989 - REVISED COVER DIMENSIONS
MAY 26, 1989 - FHWA COMMENTS
NOV. 17, 1993 - MAJOR REVISIONS, STANDARDIZATION OF PULLBOX COVERS

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

Donald A. Bean
TRAFFIC AND SAFETY ENGINEER

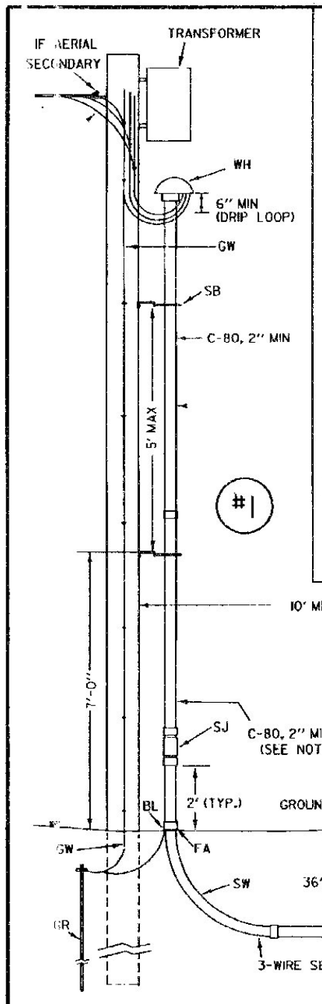
PULLBOXES AND JUNCTION BOXES

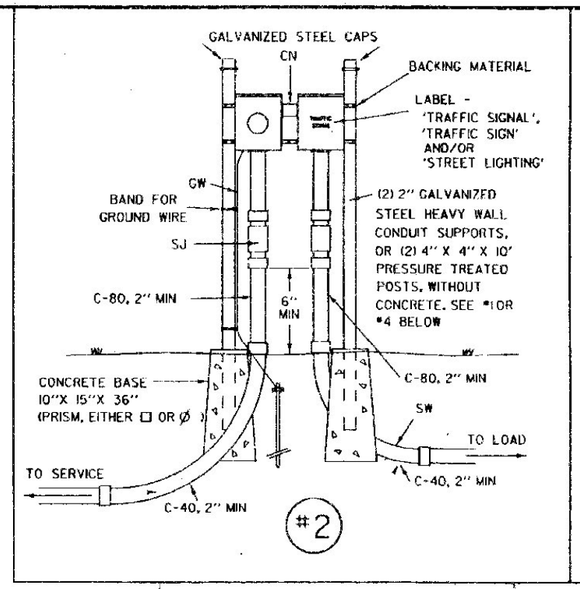
/traf/std/stdel73.cgn - stde 73.1

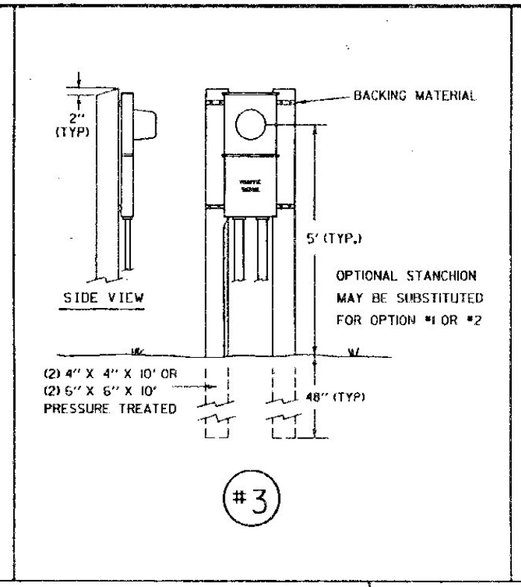
VERMONT AGENCY OF TRANSPORTATION

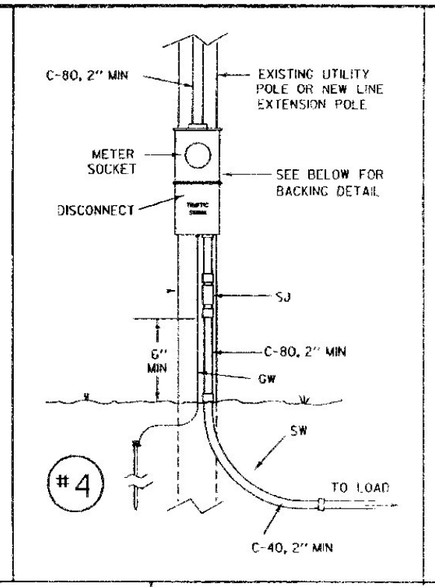
STANDARD

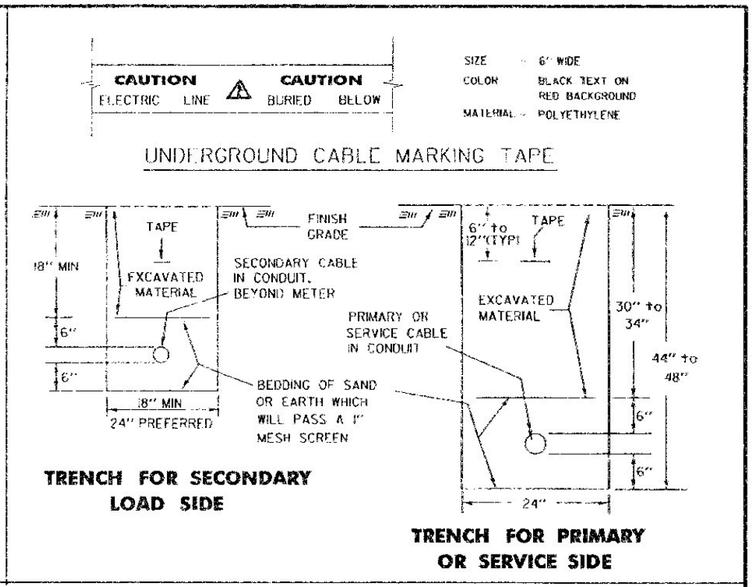
E-173

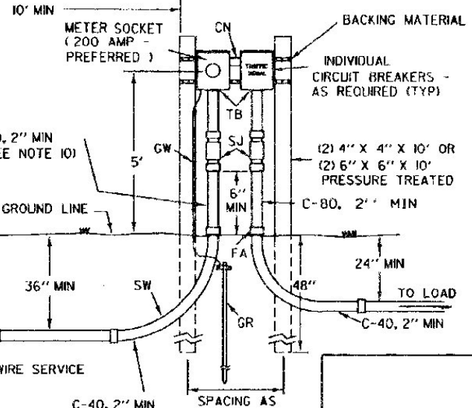








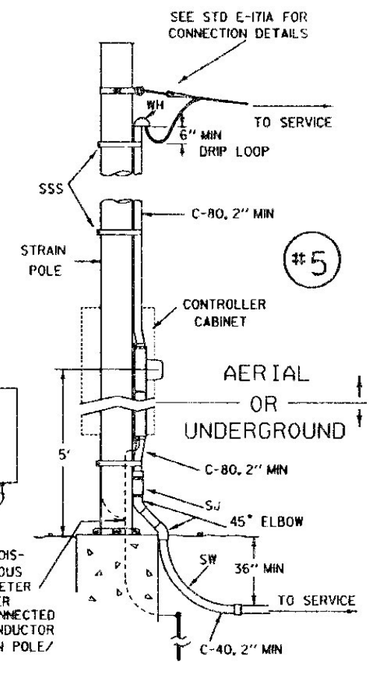


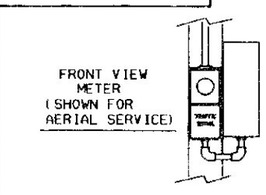


UTILITY POLE

STANCHION

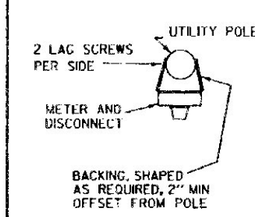
LEGEND	
ITEM	MATERIAL
BL	BONDING LUG (IF STEEL CONDUIT)
C-40	CONDUIT - PVC SCHEDULE 40
C-80	CONDUIT - PVC SCHEDULE 80
CN	CONDUIT NIPPLE
FA	FEMALE ADAPTER OR COUPLINGS AS REQUIRED
GR	GROUND ELECTRODE, 5/8" X 8' (MIN) COPPER CLAD (2 REQ.)
GW	GROUND CONDUCTOR, #6 AWG CU (MIN)
SB	STANDOFF BRACKET (SEE DETAIL)
SJ	SLIP JOINT, INSTALL 2/3 OPEN
SSS	STAINLESS STEEL STRAP (1" MIN)
SW	90° SWEEPS, (PVC) 36" R. - SERVICE, 24" R. - LOAD
TB	THREADED BUSHING
WH	WEATHERHEAD OR CONDULATOR



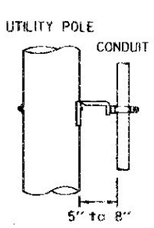


THE POWER SERVICE METER AND DISCONNECT SHALL HAVE A CONTINUOUS GROUND CONDUCTOR FROM THE METER TO THE GROUND ELECTRODE. OTHER GROUND CONDUCTORS MAY BE CONNECTED TO THIS CONTINUOUS GROUND CONDUCTOR WITH SPLIT NUTS. SEE THE STRAIN POLE/ FOOTING DETAIL SHEET.

DIRECT SERVICE TO STRAIN POLE

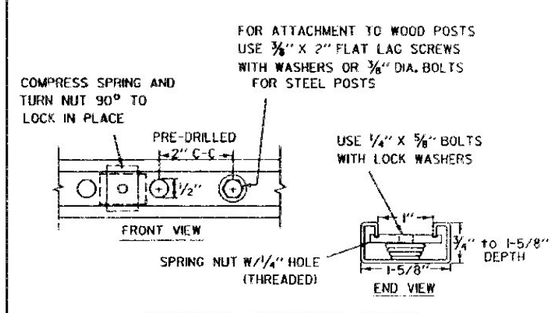


BACKING FOR OPTION #4



STANDOFF BRACKET

USUALLY FURNISHED BY THE UTILITY COMPANY



BACKING MATERIAL DETAIL

ALL MATERIAL & HARDWARE TO BE GALVANIZED

NOTES

THE CONTRACTOR SHALL CONTACT THE LOCAL UTILITY COMPANY AND ADHERE TO ANY EQUIPMENT, PROCEDURE AND CRITERIA VARIATIONS WHICH PERTAIN. SEE SPECIAL PROVISIONS FOR THE UTILITY CONTACT. THE CONTRACTOR SHALL PROVIDE TO THE ENGINEER ALL SPECIFIC INFORMATION CONCERNING UTILITY REQUIREMENTS PRIOR TO THE PRECONSTRUCTION MEETING OR THE START OF WORK, WHICHEVER IS FIRST.

1. ALL CONSTRUCTION MUST COMPLY WITH THE NATIONAL ELECTRICAL CODE AND UTILITY COMPANY REQUIREMENTS.
2. STANCHIONS MUST BE PLACED OUTSIDE THE CLEAR ZONE OR THEY MUST BE PROTECTED BY GUARDRAIL. THE LOCATION OF STANCHIONS MUST BE APPROVED BY THE UTILITY COMPANY PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL MATERIALS, EXCEPT FOR STANDOFF BRACKETS WHICH ARE USUALLY FURNISHED AND INSTALLED BY THE UTILITY COMPANY. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL MATERIALS, EXCEPT THOSE ATTACHED TO THE UTILITY POLE. ALL MATERIAL AND INSTALLATION COSTS FOR THE POWER SERVICE, EXCEPT FOR THE WIRED CONDUIT, SHALL BE CONSIDERED PART OF THE TRAFFIC SIGNAL, STREET LIGHTING OR SIGN ITEM, WHICHEVER IS APPLICABLE.
4. ALL EXPOSED METAL EQUIPMENT MUST BE GROUNDED.
5. ATTACH CONDUIT ON THE SIDE OF THE POLE OR STANCHION AWAY FROM TRAFFIC. CONTACT THE LOCAL UTILITY COMPANY FOR FINAL PLACEMENT.
6. MATERIALS AND DIMENSIONS APPLY TO ALL STANCHIONS.
7. IN RURAL AREAS, WITH THE PERMISSION OF THE UTILITY COMPANY, THE METER AND THE DISCONNECT MAY BE INSTALLED ON AN EXISTING UTILITY POLE. SEE OPTION #4.
8. OPTION #1, #2, #3 OR #5 MAY BE USED IN URBAN AREAS, EITHER RESIDENTIAL OR COMMERCIAL, OR AS DETERMINED BY THE UTILITY AND APPROVED BY THE ENGINEER.
9. THE METER AND DISCONNECT SHALL BE ATTACHED THE STANCHION/POLE WITH TWO LENGTHS OF GALVANIZED BACKING MATERIAL.
10. SERVICE CONDUIT SHALL BE MINIMUM 2 INCH. SMALLER CONDUIT MAY BE ALLOWED WITH PRIOR APPROVAL FROM THE UTILITY AND THE ENGINEER AND AFTER CONSULTATION WITH THE TRAFFIC & SAFETY DIVISION.
11. WHEN MORE THAN ONE GROUND ELECTRODE IS REQUIRED, THEY SHALL BE A MINIMUM OF 6' APART.
12. METERS MAY NOT BE REQUIRED BY ALL UTILITY COMPANIES.
13. ALL EXPOSED CONDUIT SHALL BE SCHEDULE 80.

OTHER STDS. REQUIRED (WHEN OPTION #5 IS USED) E - 171A

SEE PLANS FOR OPTION #

REVISIONS AND CORRECTIONS

NOV. 17, 1993 - DATE OF ORIGINAL ISSUE

APPROVED

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David A. Ross
TRAFFIC AND SAFETY ENGINEER

POWER DROP STANCHIONS

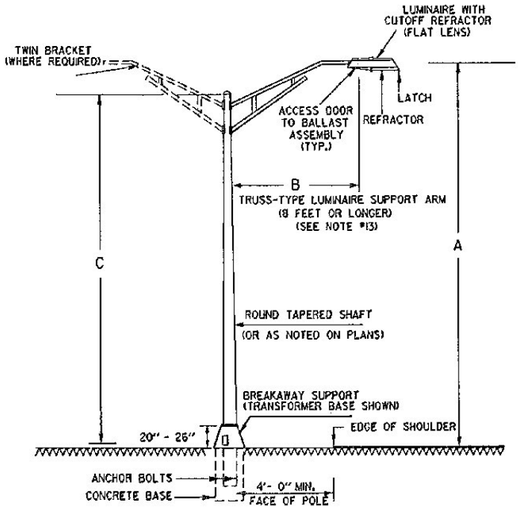
/traf/std/stdel75.dgn - stdel75.l

VERMONT AGENCY OF TRANSPORTATION

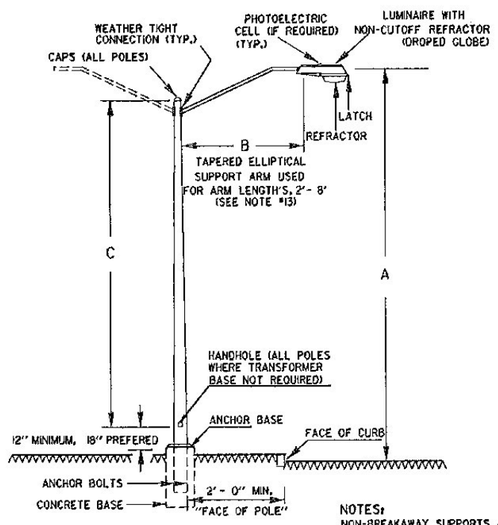
STANDARD

E-175

ROUND ALUMINUM AND STEEL POLES



DIMENSIONS:
A=MOUNTING HEIGHT
B=LUMINAIRE SUPPORT ARM LENGTH
C= POLE HEIGHT

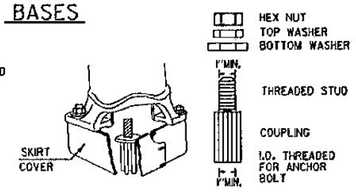


ALL SUPPORT ARMS TO BE EQUIPPED WITH 2" SLIPFITTER FOR MOUNTING LUMINAIRE UNLESS OTHERWISE INDICATED.

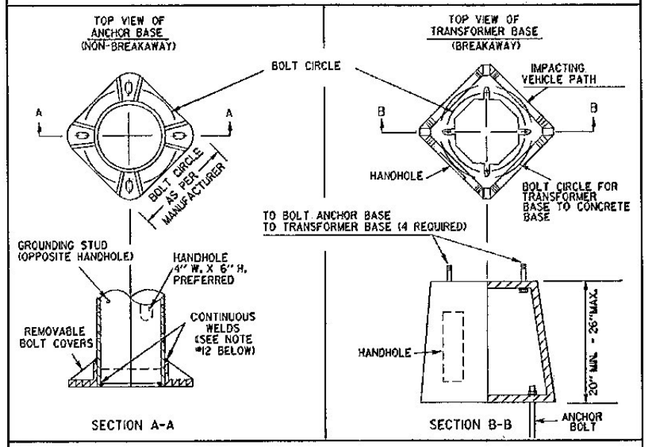
NOTES:
NON-BREAKAWAY SUPPORTS ARE APPROPRIATE IN URBAN AREAS WHERE THERE ARE CURBS AND SIDEWALKS AND WHERE POSTED SPEEDS ARE 30 M.P.H. OR LESS.

BASES

NOTES:
1) DIMENSIONS SHOWN FOR ANCHOR BASES AND TRANSFORMER BASES MAY VARY SLIGHTLY WITH DIFFERENT MANUFACTURERS.
2) FOR BREAKAWAY DESIGN A TRANSFORMER BASE, BREAKAWAY COUPLINGS, OR OTHER APPROVED METHOD SHALL BE PLACED BETWEEN THE ANCHOR BASE AND THE CONCRETE BASE.
3) ANCHOR BOLT TEMPLATE FURNISHED BY POLE MANUFACTURER.



BREAKAWAY SUPPORT COUPLING



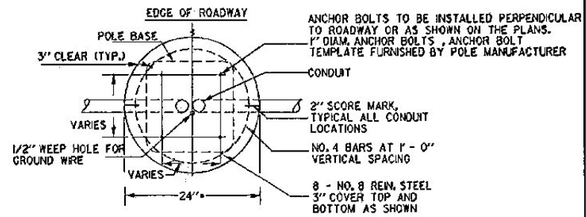
POLES, ANCHOR BASES, ARMS, AND LUMINAIRES. GENERAL NOTES

1. NO POLE SHALL BE INSTALLED WITHOUT A LUMINAIRE ALREADY ATTACHED.
2. ANCHOR BASE AND ANCHOR BOLT DIMENSIONS SHOWN ARE FOR A SINGLE ARM POLE OF HEIGHT 35 FEET OR LESS. SEE PLANS FOR OTHER CONDITIONS.
3. ALL POLES OF THE BREAKAWAY DESIGN SHALL YIELD OR BREAKAWAY WITH A CHANGE IN VEHICLE MOMENTUM OF LESS THAN 1100 POUNDS-SECONDS WHEN STRUCK BY 2250 POUNDS AT 20 M.P.H. TO 60 M.P.H.
4. A 12 FOOT OR LONGER ARM REQUIRES A 6 INCH OUTSIDE DIAMETER POLE TOP.
5. LUMINAIRES SHALL MEET SPECIFICATIONS AS SHOWN ON THE PLANS.
6. ALL ELECTRICAL MATERIAL AND ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE AREA ELECTRICAL INSPECTOR AND/OR THE POWER COMPANY WITH JURISDICTION IN THE PROJECT AREA.
7. ALL WORK MUST MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, AS WELL AS LOCAL AND STATE CODES.
8. ALL STREET LIGHT POLES SHALL HAVE A METAL TAG ATTACHED TO THE HANDHOLE WITH THE POLE NUMBER, WATTAGE AND TYPE OF LAMP, EXAMPLE, #2-150W.-H.P.S.- MCII, MINIMUM LETTER SIZE 1/2 INCH HIGH. PAYMENT FOR TAGS WILL BE SUBSIDIARY TO ITEM 679.15, STREET LIGHTING.
9. POLES, BASE PLATES, AND ARMS SHALL MEET THE SPECIFICATION OF THE LATEST EDITION OF AASHTO-AGC-ARTBA'S GUIDE TO STANDARDIZED HIGHWAY LIGHTING POLE HARDWARE.
10. ANCHOR BOLTS WILL BE ACCEPTABLE WITH EITHER ROLLED OR CUT-IN THREADS WITH MINOR VARIATIONS FROM THE 1" DIAMETER.
11. ALL LIGHT POLES SHALL HAVE A BREAKAWAY DESIGN FEATURE UNLESS OTHERWISE NOTED ON THE PLANS.
12. ALL WELDS SHALL BE AT LEAST AS STRONG AS THE MATERIAL BEING WELDED.
13. LUMINAIRE SUPPORT ARMS IN A LENGTH OF 8 FEET ARE AVAILABLE IN EITHER SINGLE MEMBER OR TRUSS TYPE. PLAN SHEET SHALL SPECIFY WHICH IS TO BE USED.
14. ANCHOR BOLTS AND WASHERS SHALL BE AN AUSENITIC GRADE OF STAINLESS STEEL CONFORMING TO THE CHEMISTRY OF ASTM A276 TYPE 304 WITH THE FOLLOWING PHYSICAL PROPERTIES:

(a)	TENSILE STRENGTH, MINIMUM	80,000 psi
(b)	YIELD STRENGTH, MINIMUM	55,000 psi
(c)	ELONGATION IN 2 INCHES, MINIMUM	25 %
(d)	ROCKWELL B HARDNESS, MINIMUM	86
	OR CHARPY V-NOTCH (AASHTO T243 USING H FREQUENCY OF TESTING), MINIMUM	15 ft - lbs. at 40°F

NUTS FOR THE ANCHOR BOLTS SHALL BE THE HEAVY HEX TYPE CONFORMING TO THE REQUIREMENTS OF ASTM A-194 GRADE 8.

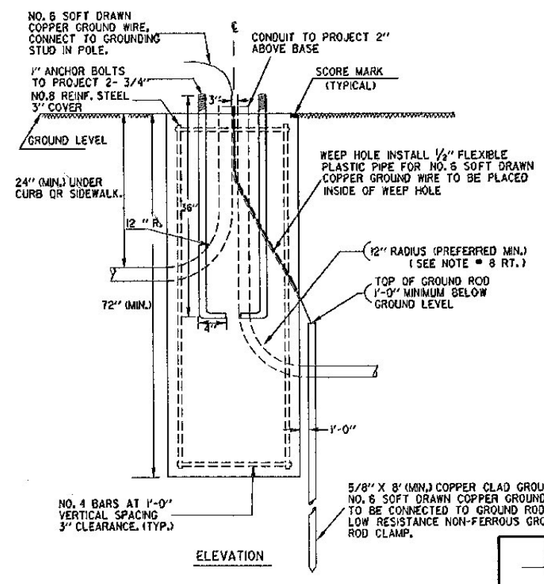
CONCRETE BASE



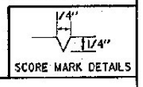
ANCHOR BOLTS TO BE INSTALLED PERPENDICULAR TO ROADWAY OR AS SHOWN ON THE PLANS. 1" DIAM. ANCHOR BOLTS, ANCHOR BOLT TEMPLATE FURNISHED BY POLE MANUFACTURER

* USE 30" WITH TRANSFORMER BASES, ARM OVER 8' LONG OR WHEN OTHERWISE NOTED.

PLAN

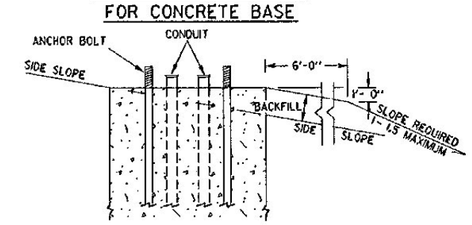


ELEVATION

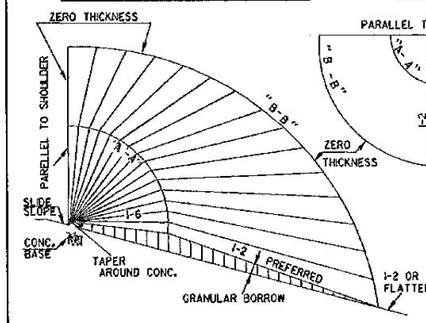


SCORE MARK DETAILS

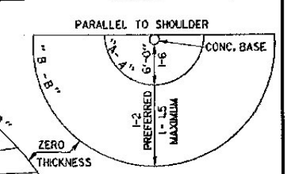
SIDE SLOPE TREATMENT FOR CONCRETE BASE



PLAN & PROFILE VIEW



PLAN VIEW



EXIST. SLOPE	FILL QUANT.
1-4=	4 CY.
1-3=	16 CY.

TO BE PAID AS GRANULAR BORROW

CONCRETE BASE NOTES

1. ALL CONCRETE BASES TO BE CONCRETE, CLASS B.
2. ALL REINFORCING STEEL TO CONFORM TO THE REQUIREMENTS FOR 'REINFORCING STEEL'.
3. TEMPLATE FOR ANCHOR BOLTS, STAINLESS STEEL ANCHOR BOLTS, NUTS, AND WASHERS TO BE OBTAINED BY CONTRACTOR FROM POLE MANUFACTURER PRIOR TO CONSTRUCTION OF BASES.
4. SCORE TOP OF CONCRETE BASE TO SHOW LOCATION OF CONDUIT (S).
5. CONDUIT SIZE - AS SHOWN ON THE PLANS.
6. ALL EXPOSED METAL HARDWARE SHALL BE GALVANIZED OR STAINLESS STEEL.
7. IF THE ELECTRICAL CONDUIT IN THE CONCRETE BASE IS GALVANIZED STEEL, GROUNDING BUSHINGS SHALL BE USED.
8. THE MINIMUM RADIUS FOR RIGID GALVANIZED ELECTRICAL CONDUIT SHALL BE SIX TIMES THE INSIDE DIAMETER OF THE CONDUIT.
9. SEE STANDARD SHEET E-173 FOR PULL BOX DETAIL.

GUARD RAIL DEFLECTION CHART FOR PLACEMENT OF NON-FRANGIBLE SUPPORTS BEHIND GUARD RAIL.	OFFSET, FACE OF RAIL TO FACE OF POLE.
Three Cable w/Lt. Steel Posts	12 ft.
Three Cable w/Hvy. Steel Posts	12 ft.
W-Beam w/Lt. Steel Posts	8 ft.
Box Beam w/Steel Posts	5 ft.
W-Beam w/Wood Posts	4 ft.
W-Beam w/Hvy. Steel Posts	4 ft.
Two-Rail Elliptical Aluminum	2 ft.

REVISIONS AND CORRECTIONS

MARCH 1, 1988 - FHWA REVIEW COMMENTS

APPROVED

SEPT. 10, 1987
DATE

David W. Kelley
CHIEF ENGINEER

Arthur Gore
DIRECTOR OF PLANNING AND PRECONSTRUCTION

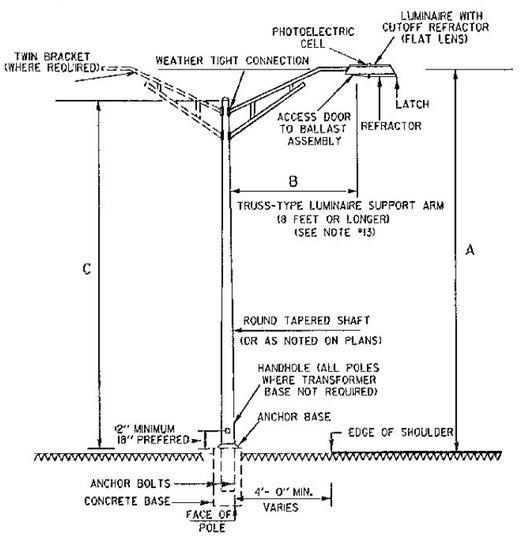
Gordon S. MacArthur
TRAFFIC AND SAFETY ENGINEER

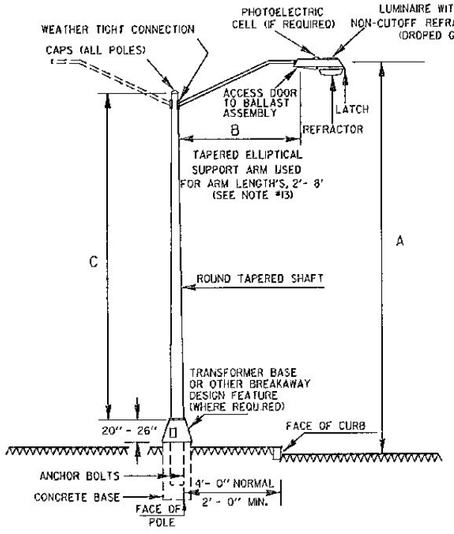
STREET LIGHTING DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-180

ROUND ALUMINUM AND STEEL POLES



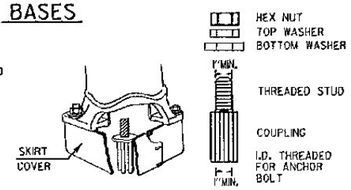


ALL SUPPORT ARMS TO BE EQUIPPED WITH 2" SLIPFITTER FOR MOUNTING LUMINAIRE UNLESS OTHERWISE INDICATED.

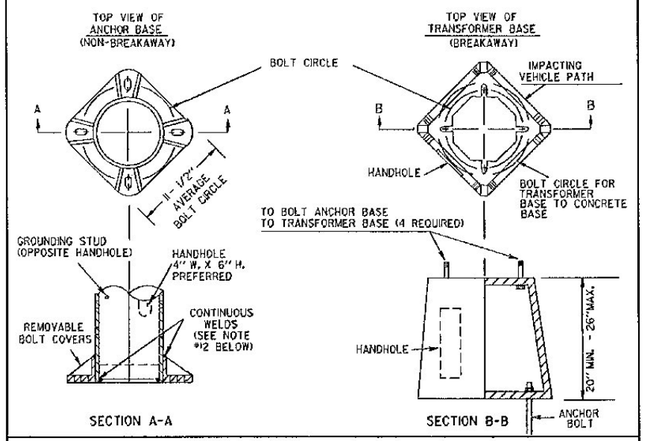
DIMENSIONS:
A=MOUNTING HEIGHT
B=LUMINAIRE SUPPORT ARM LENGTH
C= POLE HEIGHT

BASES

NOTES:
1) DIMENSIONS SHOWN FOR ANCHOR BASES AND TRANSFORMER BASES MAY VARY SLIGHTLY WITH DIFFERENT MANUFACTURERS.
2) FOR BREAKAWAY DESIGN A TRANSFORMER BASE, BREAKAWAY COUPLINGS, OR OTHER APPROVED METHOD SHALL BE PLACED BETWEEN THE ANCHOR BASE AND THE CONCRETE BASE.
3) ANCHOR BOLT TEMPLATE FURNISHED BY POLE MANUFACTURER.



BREAKAWAY SUPPORT COUPLING



POLES, ANCHOR BASES, ARMS, AND LUMINAIRES. GENERAL NOTES

1. NO POLE SHALL BE INSTALLED WITHOUT A LUMINAIRE ALREADY ATTACHED.
2. ANCHOR BASE AND ANCHOR BOLT DIMENSIONS SHOWN ARE FOR A SINGLE ARM POLE OF HEIGHT 35 FEET OR LESS. SEE PLANS FOR OTHER CONDITIONS.
3. ALL POLES OF THE BREAKAWAY DESIGN SHALL YIELD OR BREAKAWAY WITH A CHANGE IN VEHICLE MOMENTUM OF LESS THAN 1100 POUNDS-SECONDS WHEN STRUCK BY 2250 POUNDS AT 20 M.P.H. TO 60 M.P.H.
4. A 12 FOOT OR LONGER ARM REQUIRES A 6 INCH OUTSIDE DIAMETER POLE TOP.
5. LUMINAIRES SHALL MEET SPECIFICATIONS AS SHOWN ON THE PLANS.
6. ALL ELECTRICAL MATERIAL AND ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE AREA ELECTRICAL INSPECTOR AND/OR THE POWER COMPANY WITH JURISDICTION IN THE PROJECT AREA.
7. ALL WORK MUST MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, AS WELL AS LOCAL AND STATE CODES.
8. ALL STREET LIGHT POLES SHALL HAVE A METAL TAG ATTACHED TO THE HANDHOLE WITH THE POLE NUMBER, WATTAGE AND TYPE OF LAMP, EXAMPLE, #2-150W,-H.P.S.- MCII, MINIMUM LETTER SIZE 1/2 INCH HIGH. PAYMENT FOR TAGS WILL BE SUBSIDIARY TO ITEM 679.15, STREET LIGHTING.
9. POLES, BASE PLATES, AND ARMS SHALL MEET THE SPECIFICATION OF THE LATEST EDITION OF AASHTO-AGC-ARTBA'S GUIDE TO STANDARDIZED HIGHWAY LIGHTING POLE HARDWARE.
10. ANCHOR BOLTS WILL BE ACCEPTABLE WITH EITHER ROLLED OR CUT-IN THREADS WITH MINOR VARIATIONS FROM THE 1" DIAMETER.
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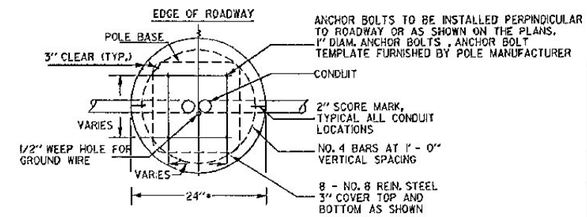
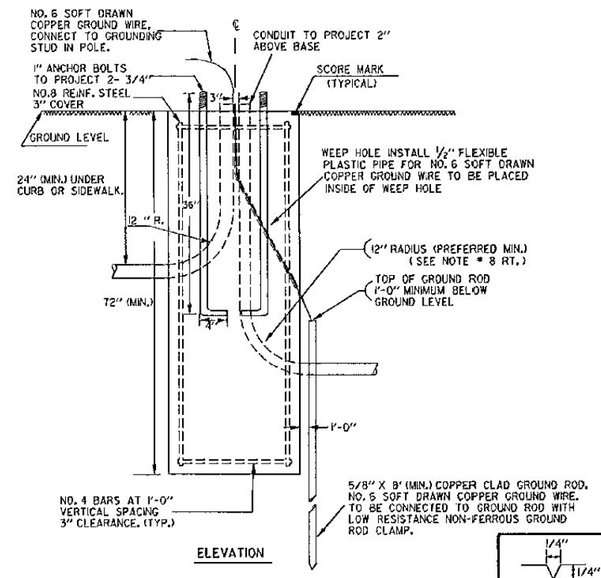
12. ALL WELDS SHALL BE AT LEAST AS STRONG AS THE MATERIAL BEING WELDED.
13. LUMINAIRE SUPPORT ARMS IN A LENGTH OF 8 FEET ARE AVAILABLE IN EITHER SINGLE MEMBER OR TRUSS TYPE. PLAN SHEET SHALL SPECIFY WHICH IS TO BE USED.

CONCRETE BASE

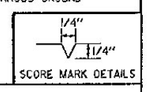


* USE 30" WITH TRANSFORMER BASES, ARM OVER 8' LONG OR WHEN OTHERWISE NOTED.

PLAN



ELEVATION



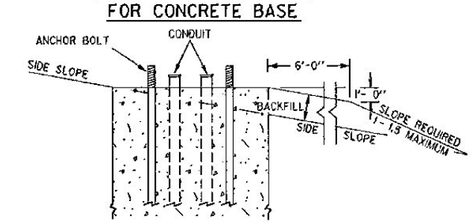
SCORE MARK DETAILS

14. ANCHOR BOLTS AND WASHERS SHALL BE AN AUSENITIC GRADE OF STAINLESS STEEL CONFORMING TO THE CHEMISTRY OF ASTM A276 TYPE 304 WITH THE FOLLOWING PHYSICAL PROPERTIES:

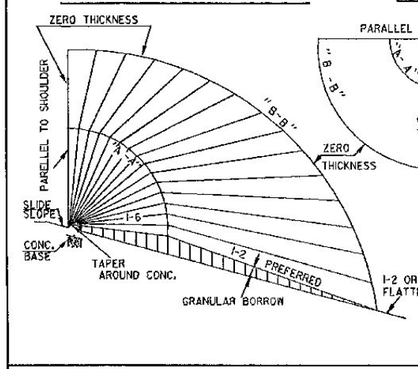
(a)	TENSILE STRENGTH, MINIMUM	80,000 psi
(b)	YIELD STRENGTH, MINIMUM	55,000 psi
(c)	ELONGATION IN 2 INCHES, MINIMUM	25 %
(d)	ROCKWELL B HARDNESS, MINIMUM	86
	OR CHARPY V-NOTCH (AASHTO T243 USING H FREQUENCY OF TESTING), MINIMUM	15 ft.- lbs. at 40°F

NUTS FOR THE ANCHOR BOLTS SHALL BE THE HEAVY HEX TYPE CONFORMING TO THE REQUIREMENTS OF ASTM A-194 GRADE 8.

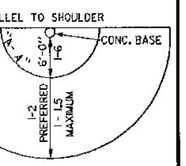
SIDE SLOPE TREATMENT FOR CONCRETE BASE



PLAN & PROFILE VIEW



PLAN VIEW



EXIST. SLOPE	FILL QUANT.
1-4=	4 CY.
1-3=	16 CY.

TO BE PAID AS GRANULAR BORROW

CONCRETE BASE NOTES

1. ALL CONCRETE BASES TO BE CONCRETE, CLASS B.
2. ALL REINFORCING STEEL TO CONFORM TO THE REQUIREMENTS FOR 'REINFORCING STEEL'.
3. TEMPLATE FOR ANCHOR BOLTS, STAINLESS STEEL ANCHOR BOLTS, NUTS, AND WASHERS TO BE OBTAINED BY CONTRACTOR FROM POLE MANUFACTURER PRIOR TO CONSTRUCTION OF BASES.
4. SCORE TOP OF CONCRETE BASE TO SHOW LOCATION OF CONDUIT (S).
5. CONDUIT SIZE - AS SHOWN ON THE PLANS.
6. ALL EXPOSED METAL HARDWARE SHALL BE GALVANIZED OR STAINLESS STEEL.
7. IF THE ELECTRICAL CONDUIT IN THE CONCRETE BASE IS GALVANIZED STEEL, GROUNDING BUSHINGS SHALL BE USED.
8. THE MINIMUM RADIUS FOR RIGID GALVANIZED ELECTRICAL CONDUIT SHALL BE SIX TIMES THE INSIDE DIAMETER OF THE CONDUIT.
9. SEE STANDARD SHEET E-173 FOR PULL BOX DETAIL.

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David B Kelley
CHIEF ENGINEER

Arthur Gore
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

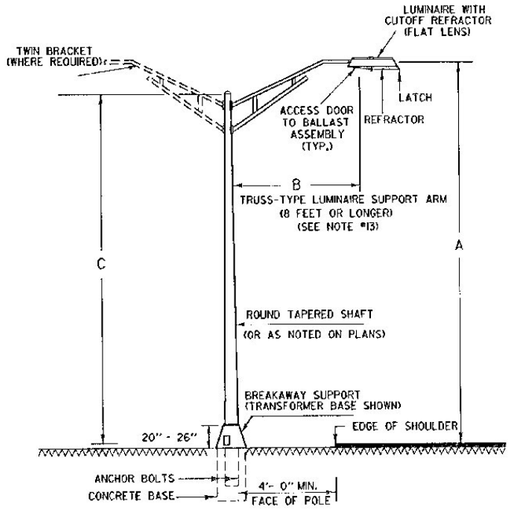
H. B. MacArthur
TRAFFIC AND SAFETY ENGINEER

STREET LIGHTING DETAILS

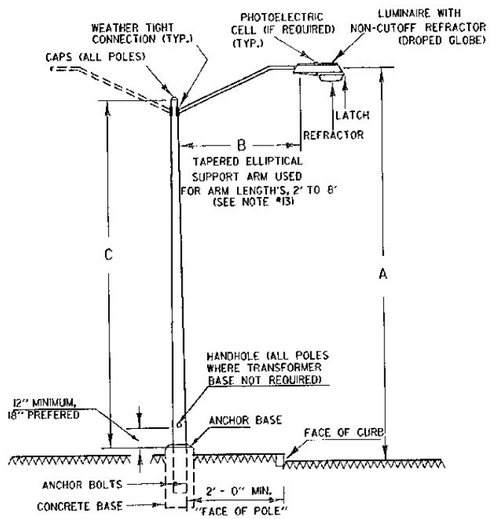
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-180

ROUND ALUMINUM AND STEEL POLES



DIMENSIONS:
A=MOUNTING HEIGHT
B=LUMINAIRE SUPPORT ARM LENGTH
C= POLE HEIGHT



ALL SUPPORT ARMS TO BE EQUIPPED WITH 2" SLIPFITTER FOR MOUNTING LUMINAIRE UNLESS OTHERWISE INDICATED.

NOTES:
NON-BREAKAWAY SUPPORTS ARE APPROPRIATE IN SOME URBAN AREAS AS OUTLINED IN THE AASHTO "ROADSIDE DESIGN GUIDE".

BASES

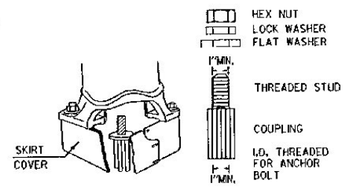
NOTES:

1) DIMENSIONS SHOWN FOR ANCHOR BASES AND TRANSFORMER BASES MAY VARY SLIGHTLY WITH DIFFERENT MANUFACTURERS.

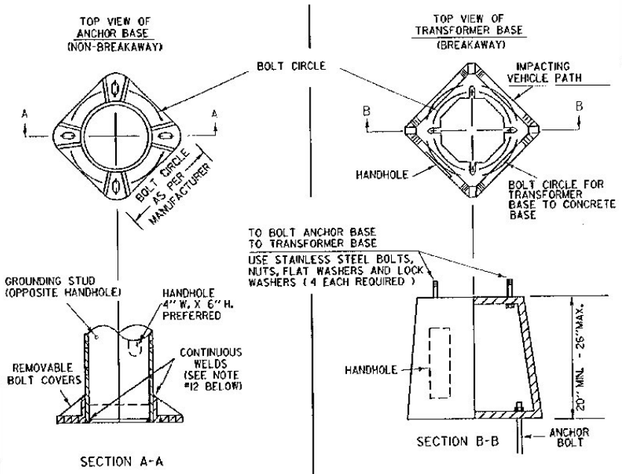
2) FOR BREAKAWAY DESIGN A TRANSFORMER BASE, BREAKAWAY COUPLINGS, OR OTHER APPROVED METHOD SHALL BE PLACED BETWEEN THE ANCHOR BASE AND THE CONCRETE BASE.

3) ANCHOR BOLT TEMPLATE FURNISHED BY POLE MANUFACTURER.

4) ALL NUTS, WASHERS, AND STUDS SHALL BE STAINLESS STEEL.



BREAKAWAY SUPPORT COUPLING

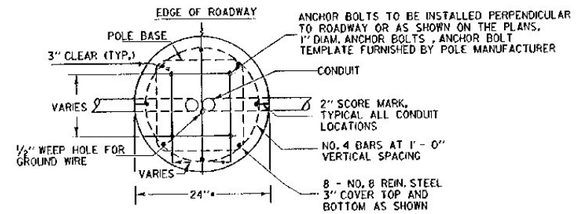


GUARDRAIL DEFLECTION CHART
PER AASHTO - ROADSIDE DESIGN GUIDE 1988

TYPE		OR POST SPACING	DEFLECTION
THREE CABLE	W/STEEL POSTS	16' - 0''	12'
	W/WOODEN POSTS	12' - 6''	12'
W-BEAM	W/WEAK POST	12' - 6''	7'
	W/STRONG POST	6' - 3''	3'
BOX BEAM		6' - 0''	5'
THRIE BEAM	W/WEAK POST	12' - 6''	4'
	W/STRONG POST	6' - 3''	2'
TWO-RAIL ELIPTICAL ALUMINUM			2'

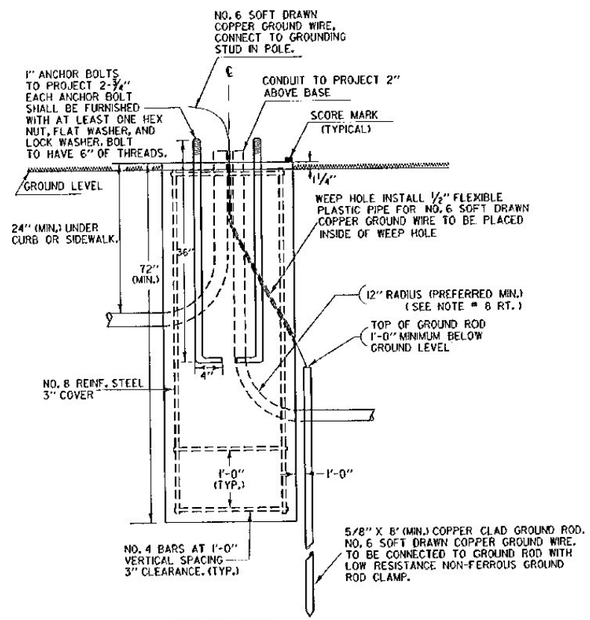
THIS CHART LISTS THE THEORETICAL DEFLECTION DISTANCE UPON IMPACT OF VARIOUS GUARDRAIL WITH DIFFERENT TYPES AND SPACINGS OF POSTS.

CONCRETE BASE



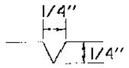
* USE 30" WITH TRANSFORMER BASES. ARM OVER 8' LONG OR WHEN OTHERWISE NOTED.

PLAN



ELEVATION

THIS SHEET NOT TO SCALE



SCORE MARK DETAILS

POLES, ANCHOR BASES, ARMS, AND LUMINAIRES.
GENERAL NOTES

1. NO POLE SHALL BE INSTALLED WITHOUT A LUMINAIRE ALREADY ATTACHED.
2. ANCHOR BASE AND ANCHOR BOLT DIMENSIONS SHOWN ARE FOR A SINGLE ARM POLE.
3. ALL LIGHT POLES WHICH ARE PROVIDED WITH A BREAKAWAY FEATURE SHALL CONFORM TO THE REQUIREMENTS OF THE AASHTO 1985 STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, SECTION 7 AND SUBSEQUENT REVISIONS.
4. A 12 FOOT OR LONGER ARM REQUIRES A 6 INCH OUTSIDE DIAMETER POLE TOP.
5. LUMINAIRES SHALL MEET SPECIFICATIONS AS SHOWN ON THE PLANS.
6. ALL ELECTRICAL MATERIAL AND ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE AREA ELECTRICAL INSPECTOR AND/OR THE POWER COMPANY WITH JURISDICTION IN THE PROJECT AREA.
7. ALL WORK MUST MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, AS WELL AS LOCAL AND STATE CODES.
8. ALL STREET LIGHT POLES SHALL HAVE A METAL TAG ATTACHED TO THE POLE. SEE PLAN DETAIL SHEET. PAYMENT FOR TAGS WILL BE SUBSIDIARY TO ITEM 679.15, STREET LIGHTING.
9. POLES, BASE PLATES, AND ARMS SHALL MEET THE SPECIFICATION OF THE LATEST EDITION OF AASHTO-AGC-ARTBA'S '' GUIDE TO STANDARDIZED HIGHWAY LIGHTING POLE HARDWARE''.
10. ANCHOR BOLTS WILL BE ACCEPTABLE WITH EITHER ROLLED OR CUT-IN THRADS WITH MINOR VARIATIONS FROM THE 1'' DIAMETER.
11. ALL LIGHT POLES SHALL HAVE A BREAKAWAY DESIGN FEATURE UNLESS OTHERWISE NOTED ON THE PLANS.
12. ALL WELDS SHALL BE AT LEAST AS STRONG AS THE MATERIAL BEING WELDED.
13. LUMINAIRE SUPPORT ARMS IN A LENGTH OF 8 FEET ARE AVAILABLE IN EITHER SINGLE MEMBER OR TRUSS TYPE. PLAN SHEET SHALL SPECIFY WHICH IS TO BE USED. IF NOT SPECIFIED, OPTIONAL, OR IF REPLACEMENT, MATCH EXISTING OR SURROUNDING TYPE.
14. POLE OFFSET (FACE OF POLE TO BACK OF GUARDRAIL) SHALL BE EQUAL TO OR GREATER THAN THE DEFLECTION DISTANCE SHOWN IN THE CHART.

CONCRETE BASE NOTES

1. ALL CONCRETE BASES TO BE CONCRETE, CLASS B, AND SHALL HAVE A SMOOTH LEVEL TOP SURFACE FINISHED WITH A 1/2 INCH RADIUS EDGING TOOL.
2. ALL REINFORCING STEEL TO CONFORM TO THE REQUIREMENTS FOR ''REINFORCING STEEL.''
3. TEMPLATE FOR ANCHOR BOLTS, STAINLESS STEEL ANCHOR BOLTS, NUTS, AND WASHERS TO BE OBTAINED BY CONTRACTOR PRIOR TO CONSTRUCTION OF BASES.
4. SCORE TOP OF CONCRETE BASE TO SHOW LOCATION OF CONDUIT(S).
5. CONDUIT SIZE - AS SHOWN ON THE PLANS.
6. ALL EXPOSED METAL HARDWARE SHALL BE GALVANIZED OR STAINLESS STEEL.
7. IF THE ELECTRICAL CONDUIT IN THE CONCRETE BASE IS GALVANIZED STEEL. GROUNDING BUSHINGS SHALL BE USED.
8. THE MINIMUM RADIUS FOR RIGID METALLIC OR NON-METALLIC ELECTRICAL CONDUIT SHALL BE SIX TIMES THE INSIDE DIAMETER OF THE CONDUIT.
9. SEE STANDARD SHEET E-173 FOR PULL BOX DETAIL.

REVISIONS AND CORRECTIONS

MARCH 1, 1988 - FHWA REVIEW COMMENTS
OCT 21, 1992 - REVISED NOTES , DEFLECTION CHART AND AND REVISED TITLE BLOCK.

APPROVED: SEPT. 10, 1987
DATE

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

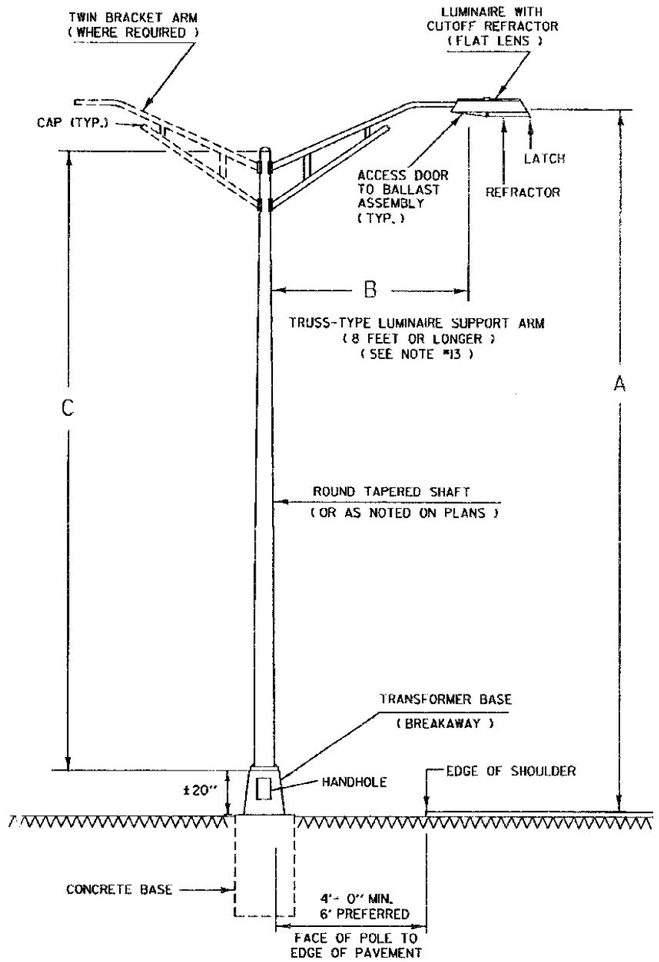
David A. Ross
TRAFFIC AND SAFETY ENGINEER

STREET LIGHTING DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-180

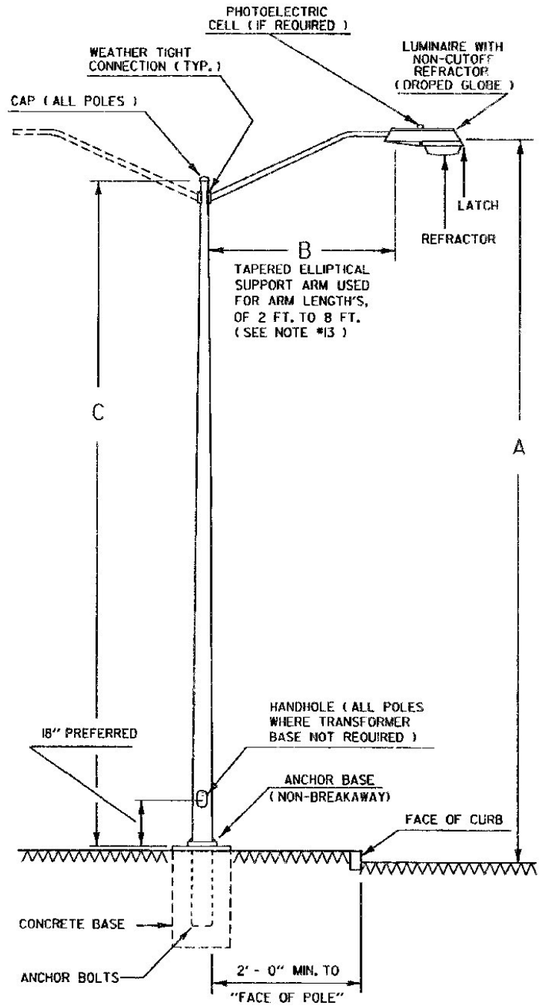
ROUND - TAPERED, ALUMINUM OR STEEL POLES



DIMENSIONS:

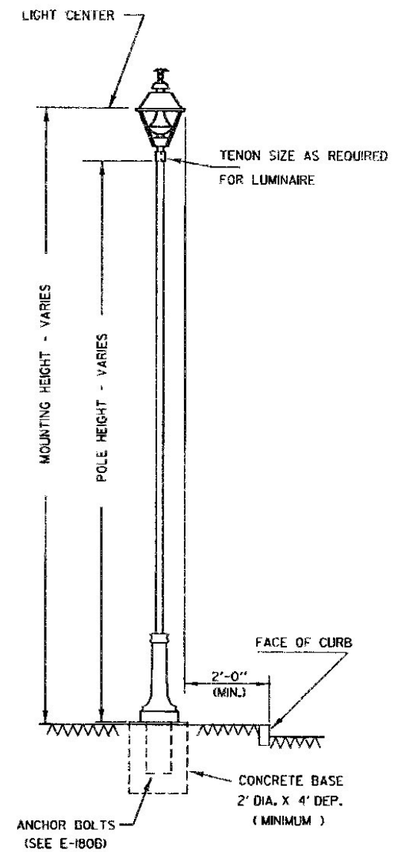
A = MOUNTING HEIGHT
B = LUMINAIRE SUPPORT ARM LENGTH
C = POLE HEIGHT

FOR OTHER BREAKAWAY SUPPORTS SEE STANDARD SHEET E-180B



NOTES:
ALL SUPPORT ARMS TO BE EQUIPPED WITH 2" SLIPFITTER FOR MOUNTING LUMINAIRE UNLESS OTHERWISE INDICATED.

NON-BREAKAWAY SUPPORTS ARE APPROPRIATE IN SOME URBAN AREAS AS OUTLINED IN THE AASHTO "ROADSIDE DESIGN GUIDE".



ORNAMENTAL LIGHTING

POLES, ANCHOR BASES, ARMS, AND LUMINAIRES.
GENERAL NOTES

1. NO POLE SHALL BE INSTALLED WITHOUT A LUMINAIRE ALREADY ATTACHED.
2. ANCHOR BASE AND ANCHOR BOLT DIMENSIONS ARE SHOWN ON STANDARD SHEET E-180B.
3. ALL LIGHT POLES WHICH ARE PROVIDED WITH A BREAKAWAY FEATURE SHALL CONFORM TO THE REQUIREMENTS OF THE AASHTO 1985 STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, SECTION 7 AND SUBSEQUENT REVISIONS.
4. A 12 FOOT OR LONGER ARM REQUIRES A 6 INCH OUTSIDE DIAMETER POLE TOP.
5. LUMINAIRES SHALL MEET SPECIFICATIONS AS SHOWN ON THE PLANS.
6. ALL ELECTRICAL MATERIAL AND ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE AREA ELECTRICAL INSPECTOR AND/OR THE POWER COMPANY WITH JURISDICTION IN THE PROJECT AREA.
7. ALL WORK MUST MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, AS WELL AS LOCAL AND STATE CODES.
8. ALL STREET LIGHT POLES (EXCEPT ORNAMENTAL POLES) SHALL HAVE A METAL TAG ATTACHED TO THE POLE, SEE PLAN DETAIL SHEET. PAYMENT FOR TAGS WILL BE SUBSIDIARY TO OTHER STREET LIGHTING ITEMS.
9. POLES, BASE PLATES, AND ARMS SHALL MEET THE SPECIFICATION OF THE LATEST EDITION OF AASHTO-AGC-ARTBA'S " GUIDE TO STANDARDIZED HIGHWAY LIGHTING POLE HARDWARE" OR AS OTHERWISE NOTED ON THE PLANS.
10. ANCHOR BOLTS WILL BE ACCEPTABLE WITH EITHER ROLLED OR CUT-IN THREADS WITH MINOR VARIATIONS FROM THE SPECIFIED DIAMETER.
11. ALL LIGHT POLES SHALL HAVE A BREAKAWAY DESIGN FEATURE UNLESS OTHERWISE NOTED ON THE PLANS.
12. ALL WELDS SHALL BE AT LEAST AS STRONG AS THE MATERIAL BEING WELDED.
13. LUMINAIRE SUPPORT ARMS IN A LENGTH OF 8 FEET ARE AVAILABLE IN EITHER SINGLE MEMBER OR TRUSS TYPE. PLAN SHEET SHALL SPECIFY WHICH IS TO BE USED. IF NOT SPECIFIED, OPTIONAL, OR IF REPLACEMENT, MATCH EXISTING OR SURROUNDING TYPE.
14. POLE OFFSET (FACE OF POLE TO BACK OF GUARDRAIL) SHALL BE EQUAL TO OR GREATER THAN THE DEFLECTION DISTANCE SHOWN IN THE CHART. (SEE E-180B)
15. POLES FOR ORNAMENTAL LIGHTING ARE AVAILABLE IN MANY MATERIALS, SHAPES, STYLES AND LENGTHS. PLANS SHALL SPECIFY.

THIS SHEET NOT TO SCALE	OTHER STDS. REQUIRED	E-180B, E-181

REVISIONS AND CORRECTIONS

AUG. 9, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

David A. Rose
TRAFFIC AND SAFETY ENGINEER

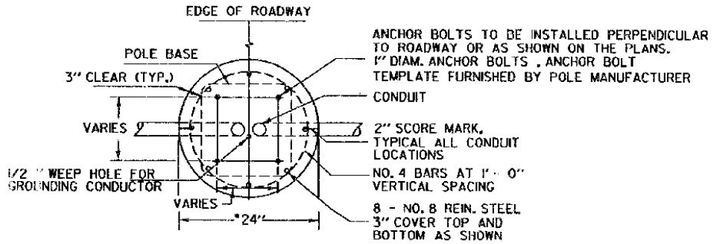
STREET LIGHTING DETAILS

/trdf/std/stdel80a.dgn/stdel80a.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-180A

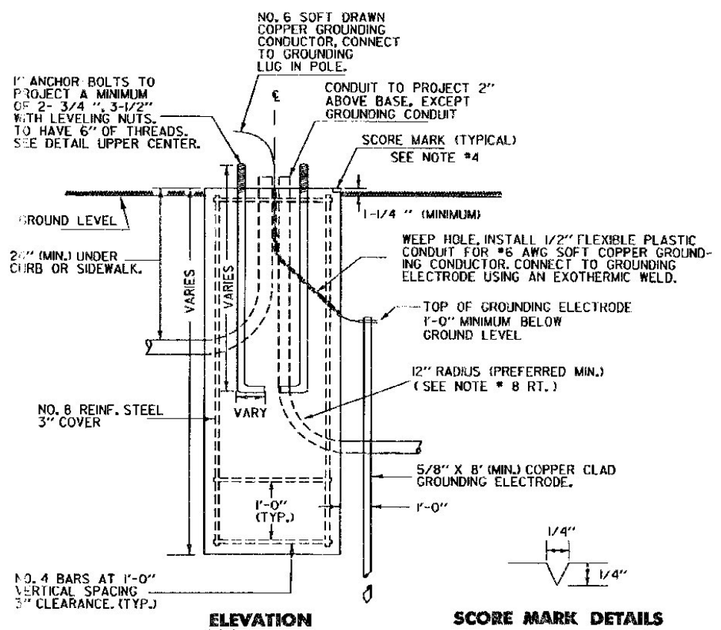
CONCRETE BASE



* USE 30" DIAM. WITH TRANSFORMER BASES, ARM OVER 8' LONG OR WHEN OTHERWISE NOTED.

PLAN VIEW

NOTE: SEE CHART AT RIGHT AND NOTE BELOW CHART FOR OTHER ANCHOR BOLT DIMENSIONS.

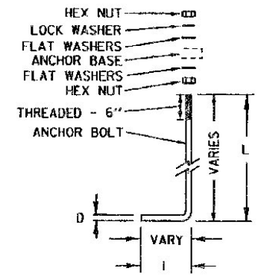


ELEVATION

SCORE MARK DETAILS

NOTES:

THERE ARE FOUR BASIC SIZES FOR CONCRETE BASES, 2 FEET X 4 FEET TO BE USED WITH POLE TOP MOUNTED LUMINAIRES WITH A MOUNTING HEIGHT OF LESS THAN 20 FEET. A CONCRETE BASE SIZE OF 2 FEET X 6 FEET FOR POLES WITH LESS THAN 40 FOOT MOUNTING HEIGHT AND ARMS UP TO 8 FEET IN LENGTH. THIRD, A BASE SIZE OF 2-1/2 FEET X 6 FEET FOR POLES WITH LESS THAN 40 FOOT MOUNTING HEIGHT AND ARMS LESS THAN 10 FEET IN LENGTH WHICH WILL BE INSTALLED ON A TRANSFORMER BASE. FORTH, A BASE SIZE 2-1/2 FEET X 8 FEET FOR A 40 FOOT OR GREATER MOUNTING HEIGHT, A 10 FOOT OR GREATER ARM LENGTH WITH OR WITHOUT TRANSFORMER BASE.



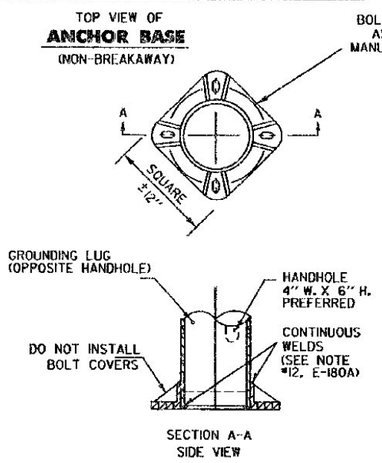
ALL ANCHOR BOLTS TO BE STAINLESS STEEL

DIMENSION TABLE									
MOUNTING HEIGHT	NO. OF ARMS	ANCHOR BASE				SLIP BASE			
		D	L	I	UNC	D	L	I	UNC
30	1 / 2	1	36	4	8	1-1/4	42	6	7
35	1 / 2	1	36	4	8	1-1/4	42	6	7
40	1 / 2	1 / 1-1/4	36 / 42	4 / 6	8 / 7	1-1/4	42	6	7

NOTE:

FOR MOUNTING HEIGHTS LESS THAN 30 FEET, USE THE ANCHOR BOLT DIMENSIONS AS RECOMMENDED BY THE POLE MANUFACTURER. LENGTH, HOOK, DIAMETER AND BOLT PROJECTION.

TOP VIEW OF
ANCHOR BASE
(NON-BREAKAWAY)



ANCHOR BASE

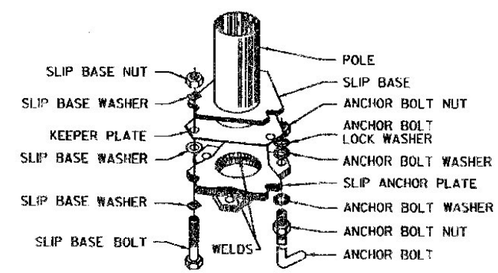
NOTES:

1) DIMENSIONS SHOWN FOR ANCHOR BASE AND TRANSFORMER BASE MAY VARY SLIGHTLY WITH DIFFERENT MANUFACTURERS.

2) ANCHOR BOLT TEMPLATE FURNISHED BY POLE MANUFACTURER.

VARIOUS BREAKAWAY OPTIONS

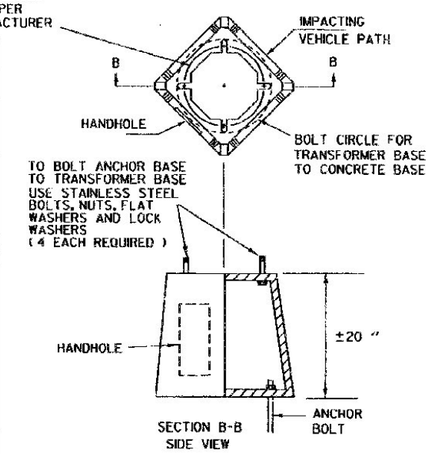
TYPE SHALL BE SPECIFED ON PROJECT PLANS



SLIP BASE ASSEMBLY

(BREAKAWAY)

TOP VIEW OF
TRANSFORMER BASE
(RECOMMENDED BREAKAWAY FEATURE)



TRANSFORMER BASE

3) FOR BREAKAWAY DESIGN A TRANSFORMER BASE, BREAKAWAY COUPLINGS, SLIP BASE OR OTHER APPROVED METHOD SHALL BE INSTALLED BETWEEN THE ANCHOR BASE AND THE CONCRETE BASE.

CONCRETE BASE AND GENERAL NOTES

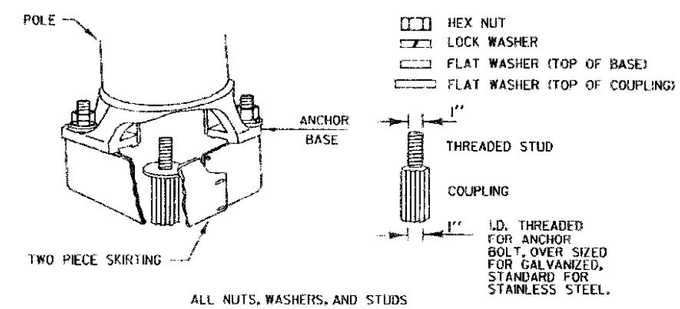
1. ALL CONCRETE BASES TO BE CONCRETE, CLASS B, AND SHALL HAVE A SMOOTH LEVEL TOP SURFACE FINISHED WITH A 1/2 INCH RADIUS EDGING TOOL.
2. ALL REINFORCING STEEL TO CONFORM TO THE REQUIREMENTS FOR ''REINFORCING STEEL.''
3. TEMPLATE FOR ANCHOR BOLTS, STAINLESS STEEL ANCHOR BOLTS, NUTS, AND WASHERS TO BE OBTAINED BY CONTRACTOR PRIOR TO CONSTRUCTION OF BASES.
4. SCORE TOP OF CONCRETE BASE TO SHOW LOCATION OF CONDUIT(S).
5. CONDUIT SIZE - AS SHOWN ON THE PLANS.
6. ALL EXPOSED METAL HARDWARE SHALL BE GALVANIZED OR STAINLESS STEEL.
7. IF THE ELECTRICAL CONDUIT IN THE CONCRETE BASE IS GALVANIZED STEEL, GROUNDING BUSHINGS SHALL BE USED.
8. THE MINIMUM RADIUS FOR RIGID METALLIC OR NON-METALLIC ELECTRICAL CONDUIT SHALL BE SIX TIMES THE INSIDE DIAMETER OF THE CONDUIT.
9. SEE STANDARD SHEET E-173 FOR PULL BOX DETAIL.
10. ANY BREAKAWAY FEATURE WHICH HAS BEEN APPROVED FOR USE ON FEDERAL AID HIGHWAY PROJECTS AND MEET THE 1985 "AASHTO" REQUIREMENT FOR A BREAKWAY FEATURE MAY BE USED UNLESS A SPECIFIC TYPE IS STATED ON THE PLANS.

GUARDRAIL DEFLECTION CHART
PER AASHTO - ROADSIDE DESIGN GUIDE 1988

TYPE		GR POST SPACING	DEFLECTION
THREE CABLE	W/STEEL POSTS	16' - 0"	12'
	W/WOODEN POSTS	12' - 6"	12'
W-BEAM	W/WEAK POST	12' - 6"	7'
	W/STRONG POST	6' - 3"	3'
BOX BEAM		6' - 0"	5'
THRIE BEAM	W/WEAK POST	12' - 6"	4'
	W/STRONG POST	6' - 3"	2'

THIS CHART LISTS THE THEORETICAL DEFLECTION DISTANCE UPON IMPACT OF VARIOUS GUARDRAIL WITH DIFFERENT TYPES AND SPACINGS OF POSTS.

STAINLESS STEEL BREAKAWAY SUPPORT COUPLINGS



ALL NUTS, WASHERS, AND STUDS SHALL BE STAINLESS STEEL.

THIS SHEET NOT TO SCALE	OTHER STDS. REQUIRED	E-173, E-180A, E-181

REVISIONS AND CORRECTIONS

AUG. 9, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

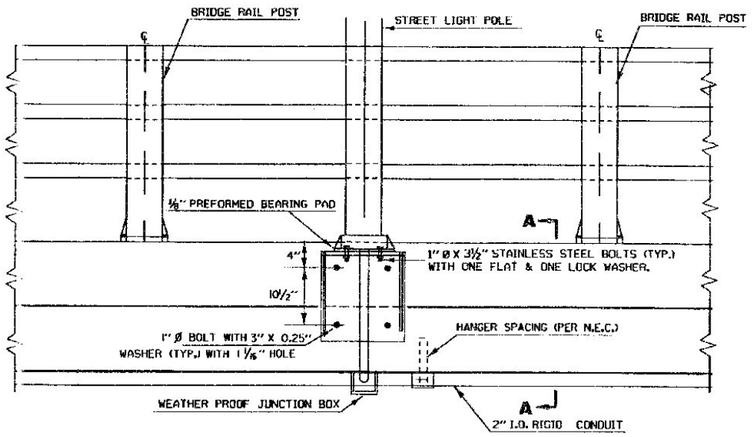
TRAFFIC AND SAFETY ENGINEER

STREET LIGHTING DETAILS

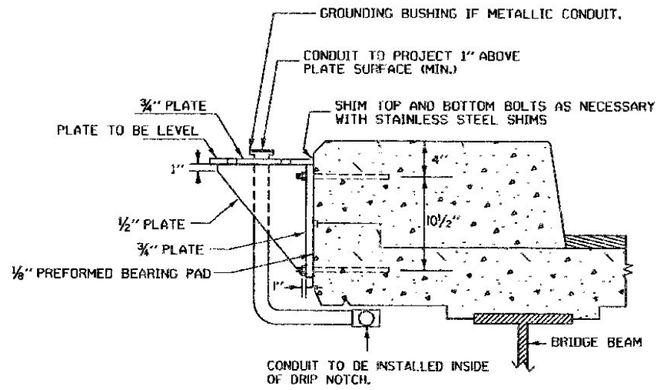
/traf/std/stdel80b.dgn/stdel80b.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-180B



ELEVATION VIEW-FASCIA



SECTION A-A

NOTES

JUNCTION BOXES AND EXPANSION COUPLINGS SHALL BE OF THE SAME MATERIAL AND FINISH AS THE CONDUIT. HANGERS AND HARDWARE SHALL BE GALVANIZED.

SIZE OF JUNCTION BOXES TO CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE. (N.E.C.)

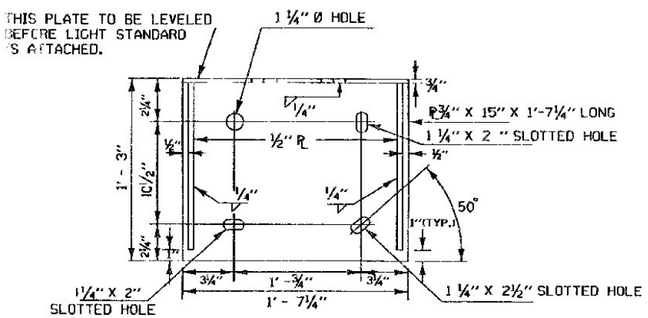
CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS OF HANGERS, JUNCTION BOXES, AND CONDUIT EXPANSION COUPLINGS TO ENGINEER FOR APPROVAL.

ANCHOR BOLTS, NUTS AND WASHERS AND TEMPLATE FOR ANCHOR BOLTS TO BE OBTAINED BY CONTRACTOR FROM POLE MANUFACTURER.

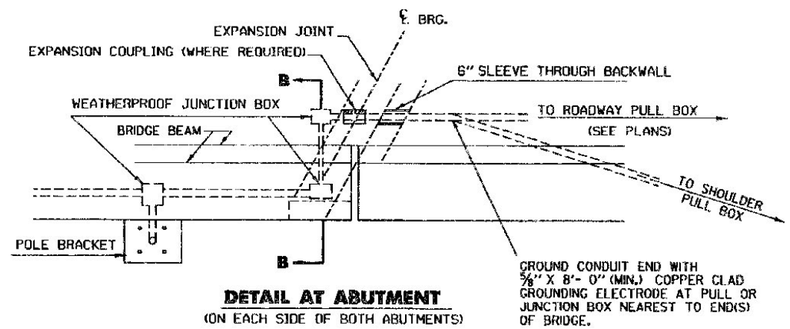
BRACKET ASSEMBLY SHALL BE GALVANIZED AFTER FABRICATION PER AASHTO M-232. STEEL IN BRACKET SHALL MEET THE REQUIREMENTS OF SUBSECTION 714.02.

SEE STANDARDS E-180A AND E-180B FOR POLE & LUMINAIRE DETAILS.

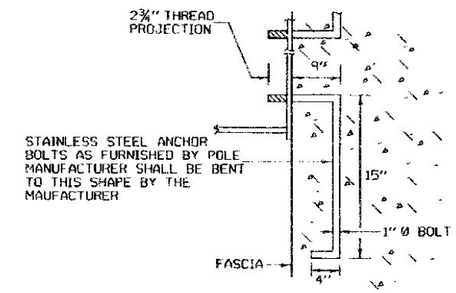
SEE STANDARD SHEET E-173 FOR PULL BOX DETAIL.



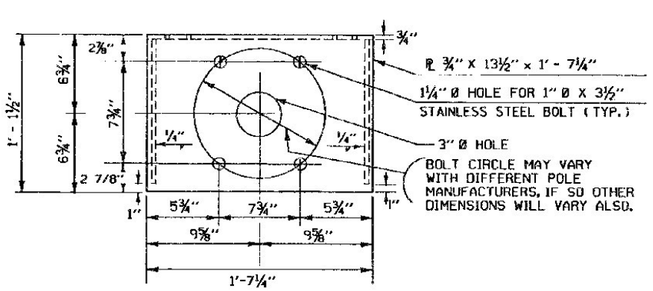
BRACKET ELEVATION VIEW



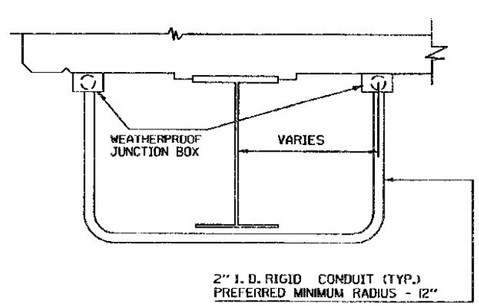
DETAIL AT ABUTMENT
(ON EACH SIDE OF BOTH ABUTMENTS)



BOLT ORIENTATION
PLAN VIEW

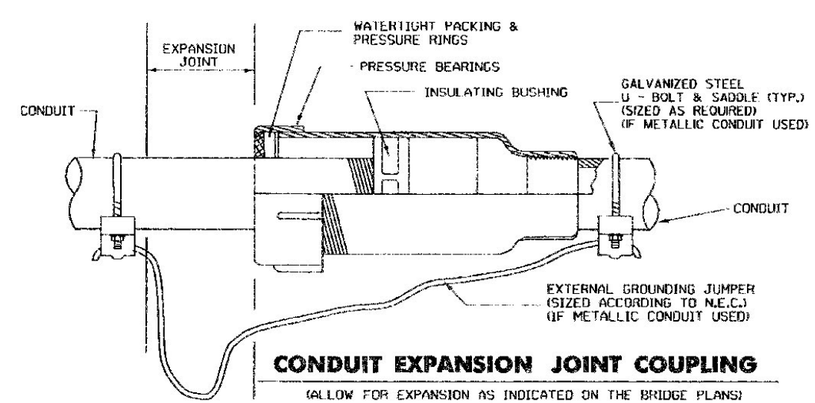


BRACKET PLAN VIEW
FOR 11" BOLT CIRCLE



SECTION B-B

PREFERRED MINIMUM RADIUS - 12"



CONDUIT EXPANSION JOINT COUPLING
(ALLOW FOR EXPANSION AS INDICATED ON THE BRIDGE PLANS)

THIS SHEET IS NOT TO SCALE

OTHER STDS REQUIRED E-173, E180A, E-180B

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
OCT. 21, 1992 - REVISED NOTES & TITLE BLOCK
AUG. 9, 1995 - REVISED NOTES & REMOVED GRANITE CURB.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon H. MacAskill
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

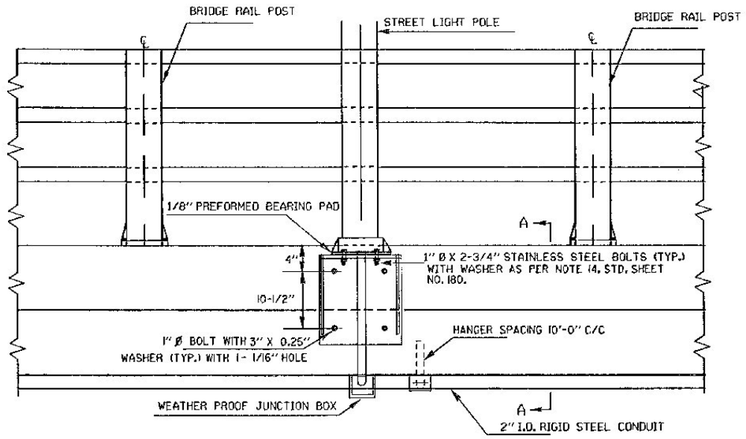
TYPICAL BRIDGE MOUNTING DETAILS FOR STREET LIGHT POLE

(FOR LUMINAIRE MOUNTING HEIGHTS ≤ 35 FEET)

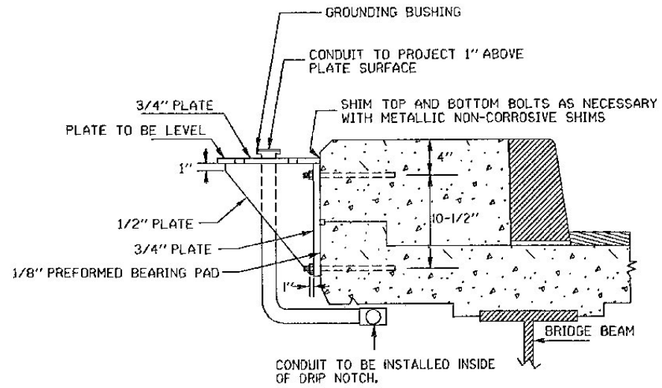
/traf/std/std181.dgn/std181.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-181



ELEVATION VIEW-FASCIA



SECTION A-A

NOTES

JUNCTION BOXES AND HARDWARE SHALL BE OF THE SAME MATERIAL AND FINISH AS THE CONDUIT.

SIZE OF JUNCTION BOXES TO CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.

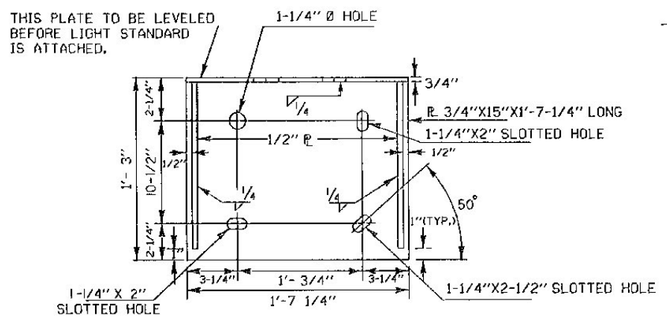
CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS OF HANGERS, JUNCTION BOXES, AND CONDUIT EXPANSION COUPLINGS TO ENGINEER FOR APPROVAL.

ANCHOR BOLTS, NUTS AND WASHERS AND TEMPLATE FOR ANCHOR BOLTS TO BE OBTAINED BY CONTRACTOR FROM POLE MANUFACTURER. THESE SHALL MEET THE REQUIREMENTS OF NOTE 14, STD. SHEET NO 180.

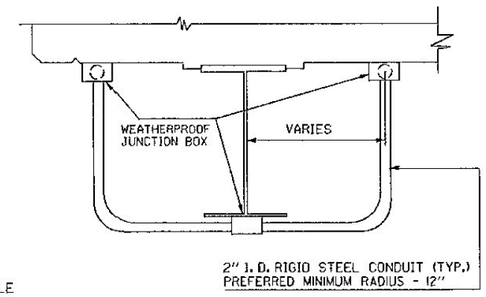
BRACKET ASSEMBLY SHALL BE GALVANIZED AFTER FABRICATION PER ASTM A-153. STEEL IN BRACKET SHALL MEET THE REQUIREMENTS OF SUBSECTION 714.02.

SEE STANDARD E-180 FOR POLE & LUMINAIRE DETAILS.

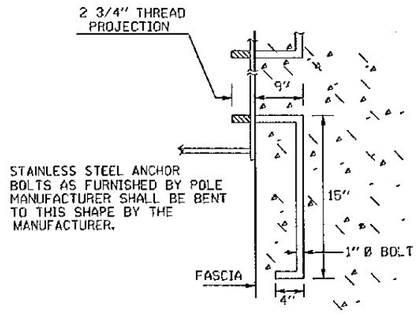
SEE STANDARD SHEET E-173 FOR PULL BOX DETAIL.



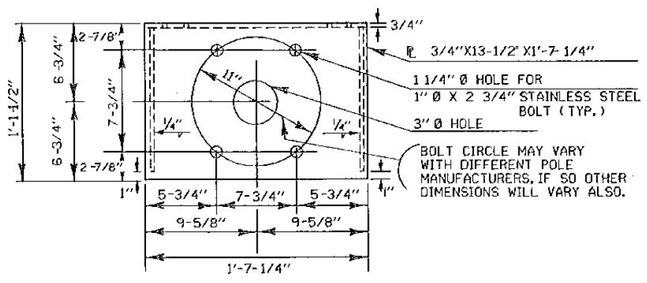
BRACKET ELEVATION VIEW



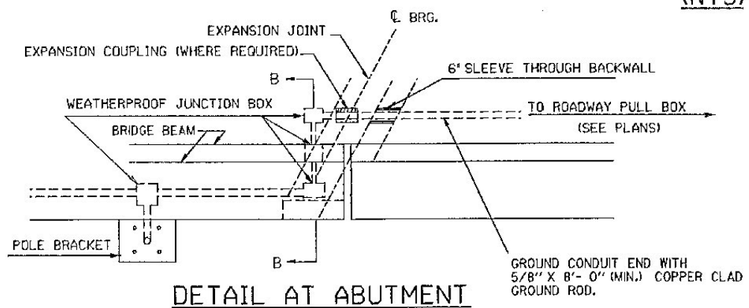
SECTION B-B



BOLT ORIENTATION PLAN VIEW (NTS)

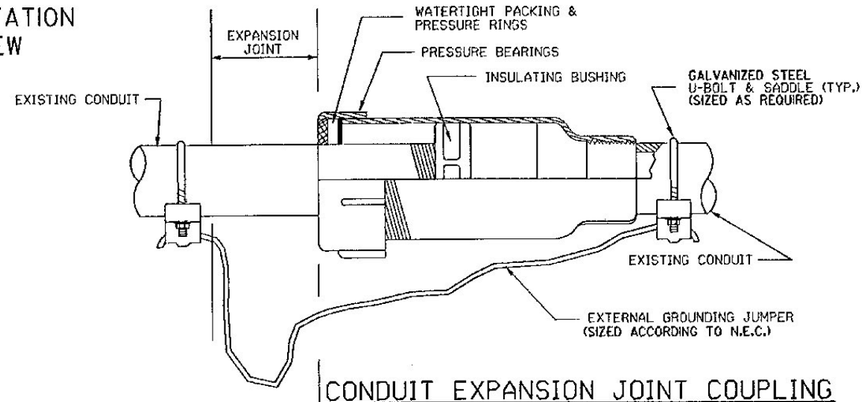


BRACKET PLAN VIEW FOR 11" BOLT CIRCLE



DETAIL AT ABUTMENT

(ON EACH SIDE OF BOTH ABUTMENTS)



CONDUIT EXPANSION JOINT COUPLING

(ALLOW FOR EXPANSION AS INDICATED ON THE BRIDGE PLANS)

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David D. Kelley
CHIEF ENGINEER

Arthur J. Gallo
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

E. L. MacArthur
TRAFFIC AND SAFETY ENGINEER

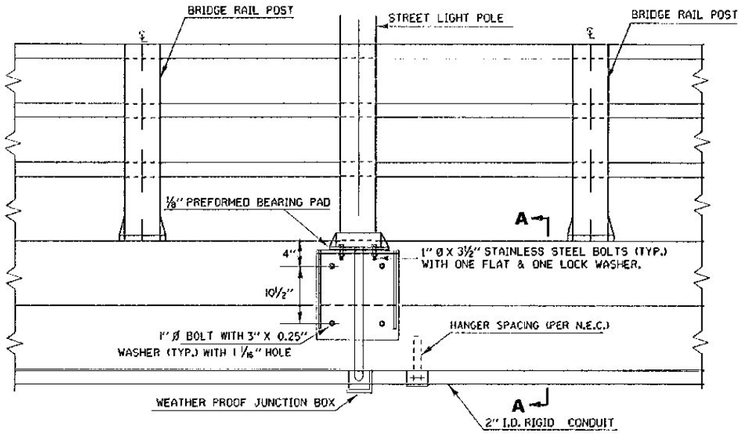
TYPICAL BRIDGE MOUNTING DETAILS FOR STREET LIGHT POLE

(FOR LUMINAIRE MOUNTING HEIGHTS ≤ 35 FEET)

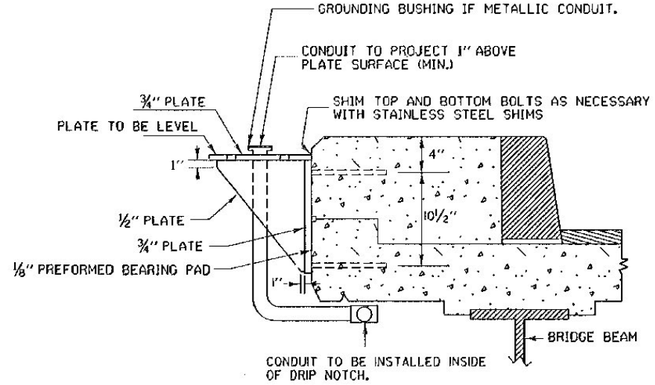
VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-181



ELEVATION VIEW-FASCIA



SECTION A-A

NOTES

JUNCTION BOXES AND EXPANSION COUPLINGS SHALL BE OF THE SAME MATERIAL AND FINISH AS THE CONDUIT. HANGERS AND HARDWARE SHALL BE GALVANIZED.

SIZE OF JUNCTION BOXES TO CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE. (N.E.C.)

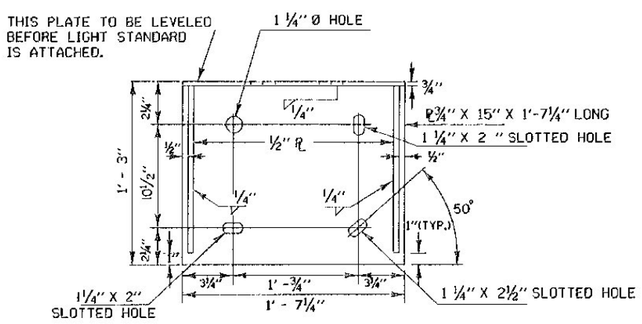
CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS OF HANGERS, JUNCTION BOXES, AND CONDUIT EXPANSION COUPLINGS TO ENGINEER FOR APPROVAL.

ANCHOR BOLTS, NUTS AND WASHERS AND TEMPLATE FOR ANCHOR BOLTS TO BE OBTAINED BY CONTRACTOR FROM POLE MANUFACTURER.

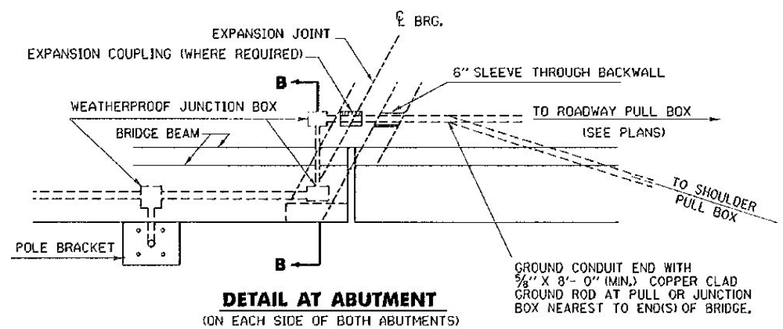
BRACKET ASSEMBLY SHALL BE GALVANIZED AFTER FABRICATION PER AASHTO M-232. STEEL IN BRACKET SHALL MEET THE REQUIREMENTS OF SUBSECTION 714.02.

SEE STANDARD E-180 FOR POLE & LUMINAIRE DETAILS.

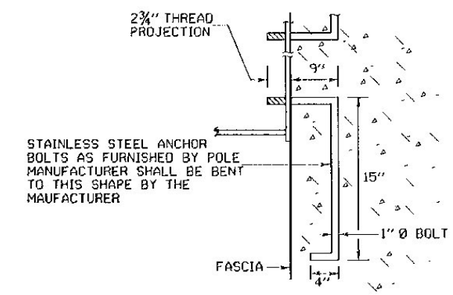
SEE STANDARD SHEET E-173 FOR PULL BOX DETAIL.



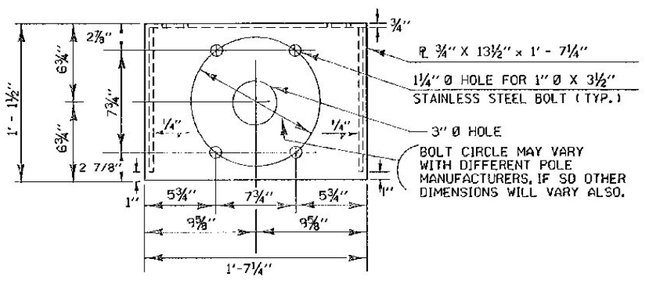
BRACKET ELEVATION VIEW



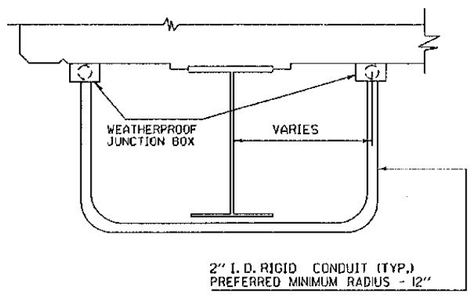
DETAIL AT ABUTMENT
(ON EACH SIDE OF BOTH ABUTMENTS)



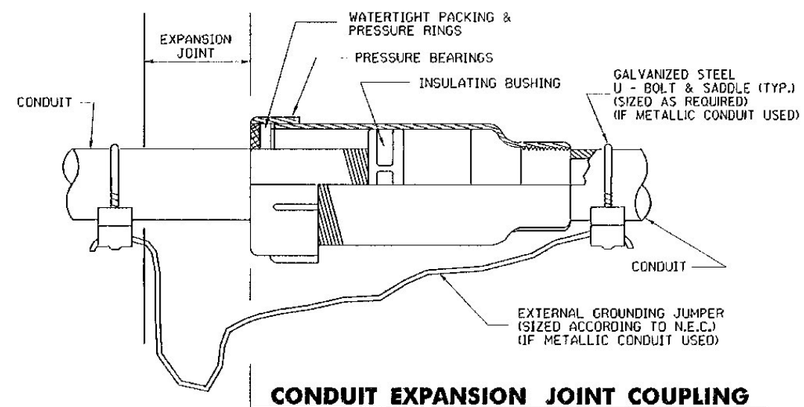
BOLT ORIENTATION
PLAN VIEW



BRACKET PLAN VIEW
FOR 11" BOLT CIRCLE



SECTION B-B



CONDUIT EXPANSION JOINT COUPLING
(ALLOW FOR EXPANSION AS INDICATED ON THE BRIDGE PLANS)

THIS SHEET NOT TO SCALE

REVISIONS AND CORRECTIONS

OCT21, 1992- REVISED NOTES & TITLE BLOCK

APPROVED: SEPT. 10, 1987
DATE

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

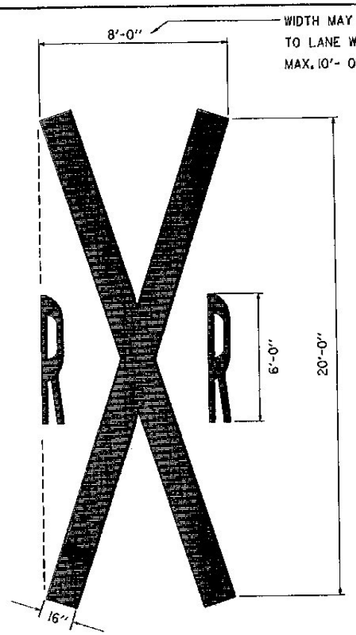
David A. Roser
TRAFFIC AND SAFETY ENGINEER

TYPICAL BRIDGE MOUNTING DETAILS FOR STREET LIGHT POLE

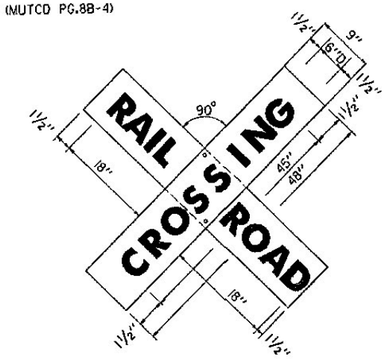
(FOR LUMINAIRE MOUNTING HEIGHTS ≤ 35 FEET)

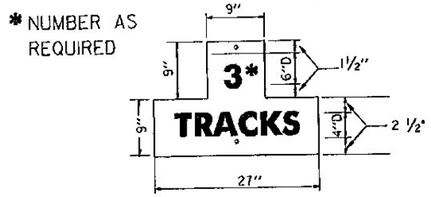
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-181

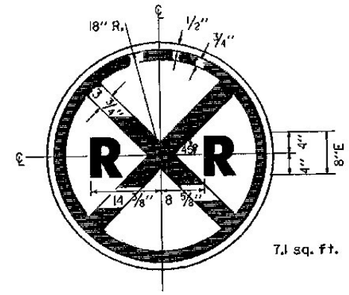


PAVEMENT MARKINGS





RAILROAD CROSSING SIGN (CROSSBUCK)

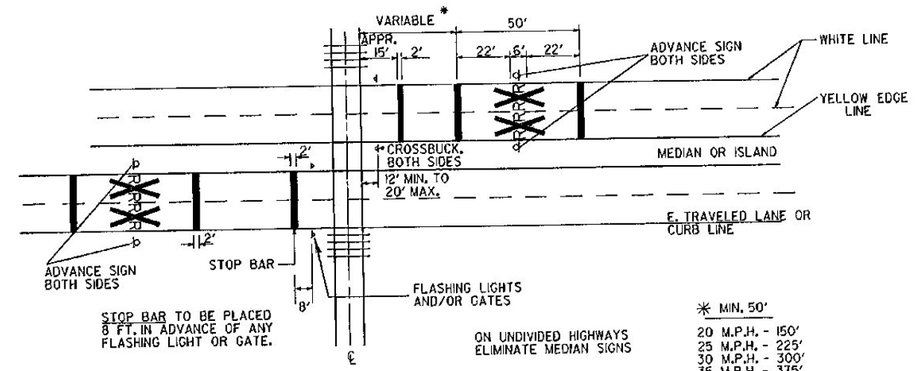


ADVANCE SIGN

SIGN MATERIALS AND COLORS

CROSSBUCKS SHALL BE EITHER 5/8" HIGH DENSITY OVERLAY PLYWOOD OR 0.100" ALUMINUM W/SILVER OR WHITE ENCAPSULATED LENS SHEETING, APPLIED TO BOTH SIDES OF SIGN PANELS.

ADVANCE SIGN SHALL BE 0.125" ALUMINUM W/YELLOW REFLECTIVE SHEETING. MULTI-TRACK SIGN SHALL BE 0.06" ALUMINUM W/SILVER OR WHITE REFLECTIVE SHEETING. TEXT, STRIPES AND BORDERS SHALL BE EITHER BLACK PAINTED OR LETTERING FILM.



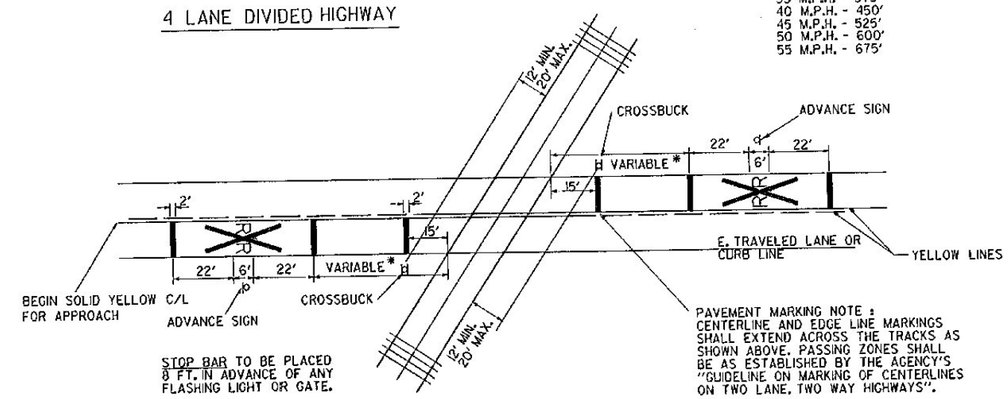
STOP BAR TO BE PLACED 8 FT. IN ADVANCE OF ANY FLASHING LIGHT OR GATE.

ON UNDIVIDED HIGHWAYS ELIMINATE MEDIAN SIGNS

* MIN. 50'

20 M.P.H. - 150'
25 M.P.H. - 225'
30 M.P.H. - 300'
35 M.P.H. - 375'
40 M.P.H. - 450'
45 M.P.H. - 525'
50 M.P.H. - 600'
55 M.P.H. - 675'

4 LANE DIVIDED HIGHWAY

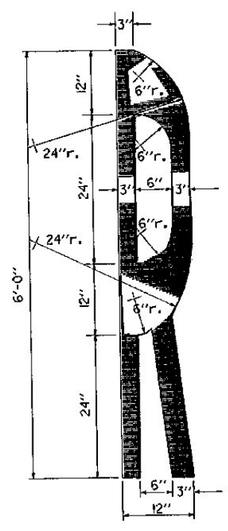


STOP BAR TO BE PLACED 8 FT. IN ADVANCE OF ANY FLASHING LIGHT OR GATE.

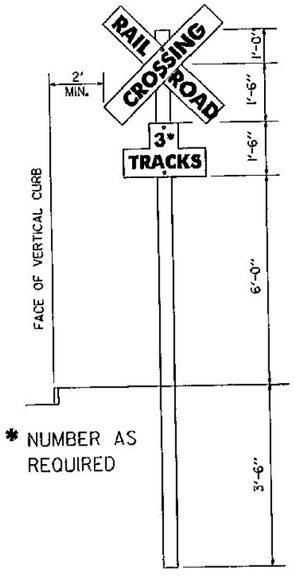
PAVEMENT MARKING NOTE : CENTERLINE AND EDGE LINE MARKINGS SHALL EXTEND ACROSS THE TRACKS AS SHOWN ABOVE. PASSING ZONES SHALL BE AS ESTABLISHED BY THE AGENCY'S "GUIDELINE ON MARKING OF CENTERLINES ON TWO LANE, TWO WAY HIGHWAYS".

2 LANE HIGHWAY PAVED

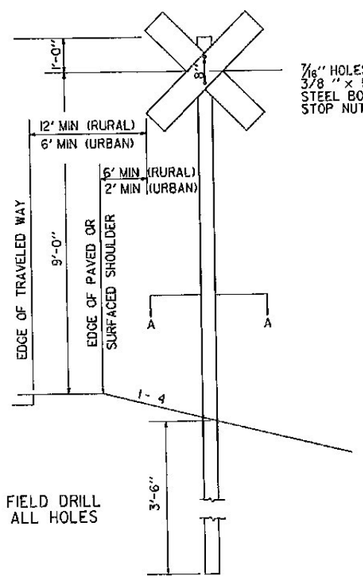
ALSO APPLICABLE TO UNPAVED ROADS FOR PLACEMENT OF CROSSBUCKS AND ADVANCE SIGNS



MATERIALS :
REFER TO GENERAL SPECIAL PROVISIONS FOR ADDITIONAL REFLECTORIZED PAVEMENT MARKING INFORMATION.

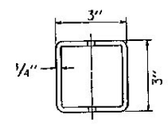


* NUMBER AS REQUIRED



7/16" HOLES FOR 3/8" x 5" STAINLESS STEEL BOLTS W/ELASTIC STOP NUTS

FIELD DRILL ALL HOLES



SECTION A-A

ALUMINUM TUBE 6061-T6 ALLOY

GENERAL NOTES

1. PAVEMENT MARKINGS

THESE MARKINGS SHALL BE PLACED, IF PHYSICALLY FEASIBLE, ON ALL PAVED APPROACHES TO RAILROAD CROSSINGS, WHERE THERE ARE SIGNALS AND/OR AUTOMATIC GATE AND AT ALL OTHER CROSSINGS WHERE THE PREVAILING SPEED OF HIGHWAY TRAFFIC IS 40 M.P.H. OR GREATER.

THE MARKINGS SHALL ALSO BE PLACED AT CROSSINGS WHERE ENGINEERING STUDIES INDICATE THERE IS A SIGNIFICANT POTENTIAL CONFLICT BETWEEN VEHICLES AND TRAINS. ALL MARKINGS SHALL BE WHITE EXCEPT FOR MEDIAN EDGELINES AND CENTERLINE ON 2 LANE ROADS WHICH SHALL BE YELLOW. THE RAILROAD CROSSING SYMBOL SHALL CONSIST OF THE "X" FLANKED BY TWO "R"'s AND THREE 24' STOP BARS; TWO BRACKETING THE "X", ONE AT THE CROSSING. AT MINOR CROSSINGS OR IN URBAN AREAS, THESE MARKINGS MAY BE OMITTED IF AN ENGINEERING STUDY INDICATES THAT OTHER DEVICES INSTALLED PROVIDE SUITABLE PROTECTION.

2. CROSSBUCKS

WHERE PHYSICALLY FEASIBLE AND VISIBLE TO APPROACHING TRAFFIC, THESE SIGNS SHALL BE INSTALLED ON THE RIGHT-HAND SIDE OF THE ROADWAY FOR EACH APPROACH TO THE CROSSING. MULTI-LANE DIVIDED HIGHWAYS SHALL HAVE SIGNS MOUNTED ON BOTH SIDES OF THE ROADWAY APPROACHES.

3. AUXILIARY SIGNS

A 'NUMBER OF TRACKS' SIGN SHALL BE USED WHERE THERE ARE TWO OR MORE TRACKS AT THE CROSSING.

4. ADVANCE WARNING SIGNS

RAILROAD ADVANCE WARNING SIGNS WILL BE PROVIDED AND LOCATED IN ACCORDANCE WITH SECTION 8B-3 OF MUTCD

REVISIONS AND CORRECTIONS

JAN. 12, 1988 - REVISED LOCATION OF ADVANCE SIGNS

APPROVED SEPT. 10, 1987
DATE

David S. Kelley
CHIEF ENGINEER

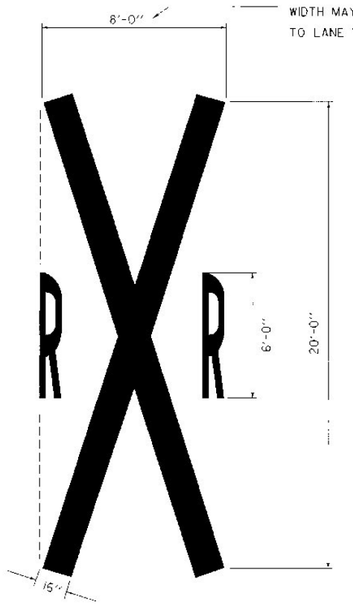
Arthur Gore
DIRECTOR OF PLANNING AND PRECONSTRUCTION

Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

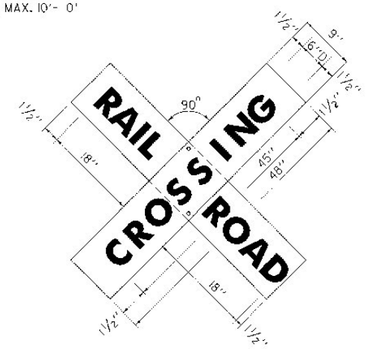
RAILROAD CROSSING SIGNS AND PAVEMENT MARKINGS

VERMONT AGENCY OF TRANSPORTATION

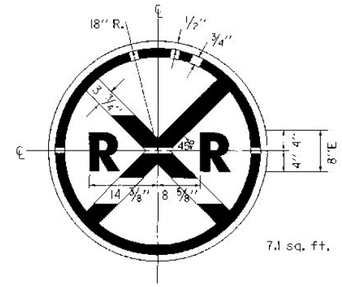
STANDARD
E-190



PAVEMENT MARKINGS



RAILROAD CROSSING SIGN (CROSSBUCK)



ADVANCE SIGN

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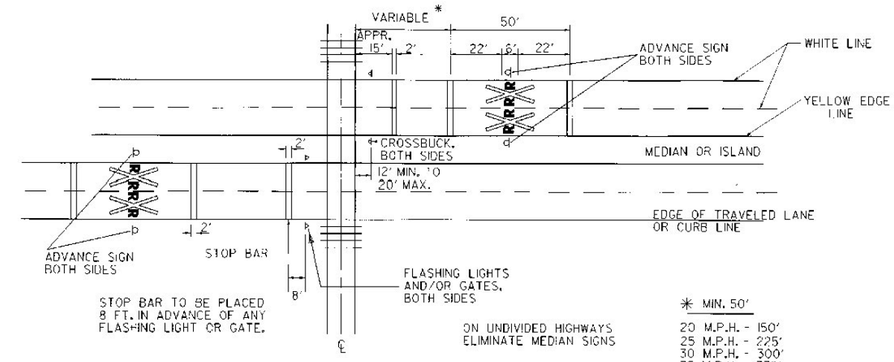

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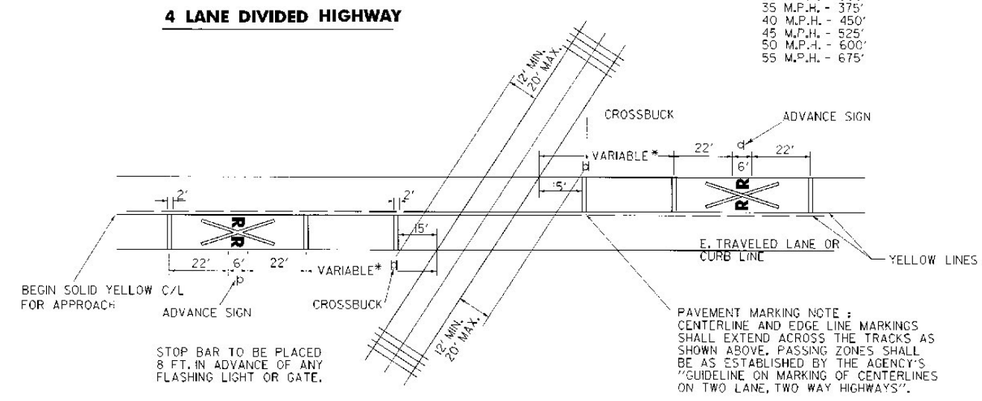
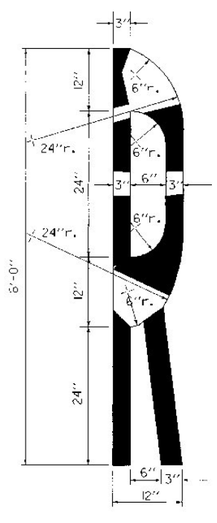
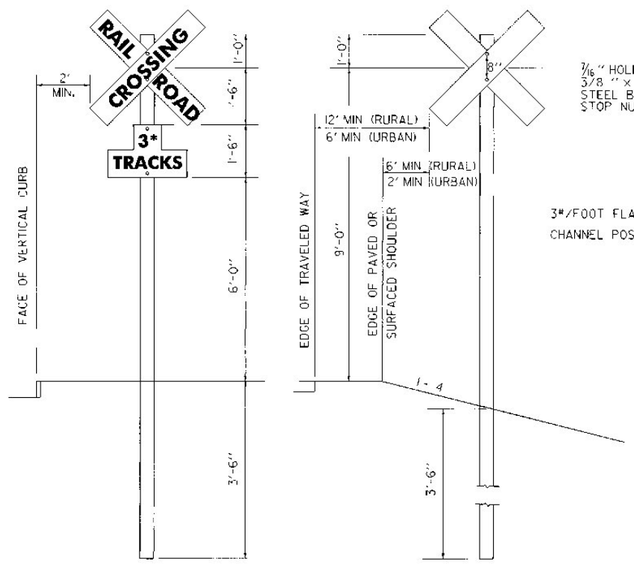
4 LANE DIVIDED HIGHWAY



2 LANE HIGHWAY PAVED

ALSO APPLICABLE TO UNPAVED ROADS FOR PLACEMENT OF CROSSBUCKS AND ADVANCE SIGNS





GENERAL NOTES

1. PAVEMENT MARKINGS

THESE MARKINGS SHALL BE PLACED, IF PHYSICALLY FEASIBLE, ON ALL PAVED APPROACHES TO RAILROAD CROSSINGS, WHERE THERE ARE SIGNALS AND/OR AUTOMATIC GATE AND AT ALL OTHER CROSSINGS WHERE THE PREVAILING SPEED OF HIGHWAY TRAFFIC IS 40 M.P.H. OR GREATER.

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3. AUXILIARY SIGNS

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4. ADVANCE WARNING SIGNS

RAILROAD ADVANCE WARNING SIGNS WILL BE PROVIDED AND LOCATED IN ACCORDANCE WITH SECTION 8B-3 OF MUTCD

THIS SHEET IS NOT TO SCALE	OTHER STDS REQUIRED E-160

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
JAN. 12, 1988 - REVISE LOCATION OF ADVANCE SIGNS
AUG. 18, 1995 - DELETED ALUMINUM 3" X 3" TUBE
Superceded June 30, 2003

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacArthur
DIRECTOR OF ENGINEERING

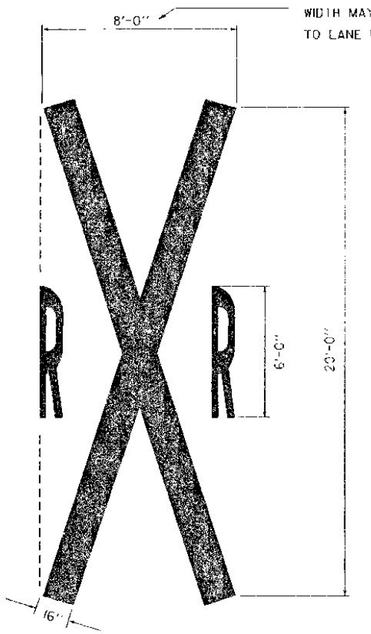
D. J. Ross
TRAFFIC AND SAFETY ENGINEER

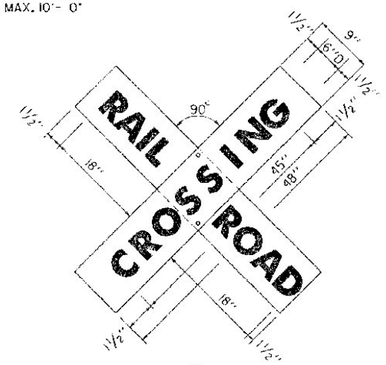
RAILROAD CROSSING SIGNS AND PAVEMENT MARKINGS

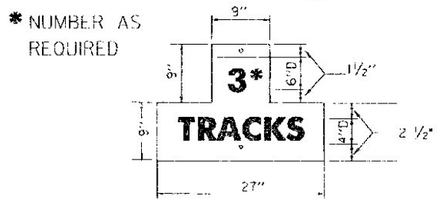
/traf/std/stde190.dgn/stde190.1

VERMONT AGENCY OF TRANSPORTATION

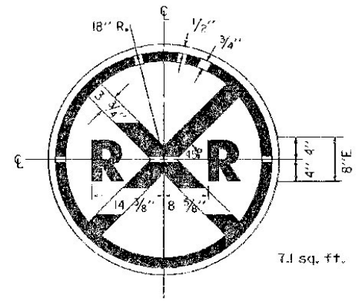
STANDARD
E-190







RAILROAD CROSSING SIGN (CROSSBUCK)



ADVANCE SIGN

SIGN MATERIALS AND COLORS

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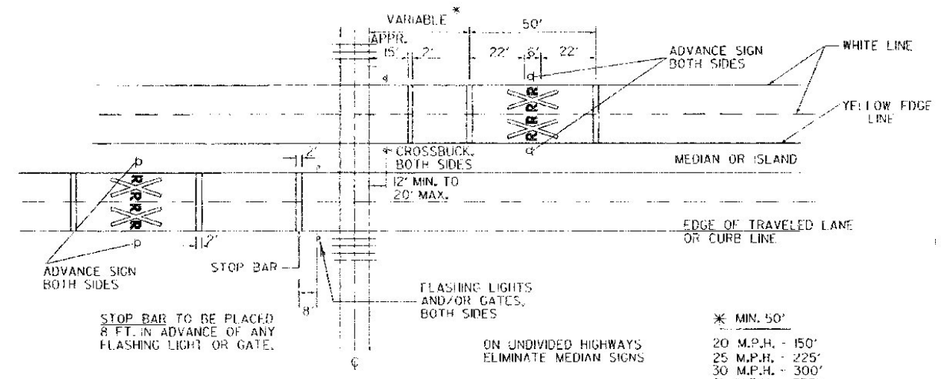
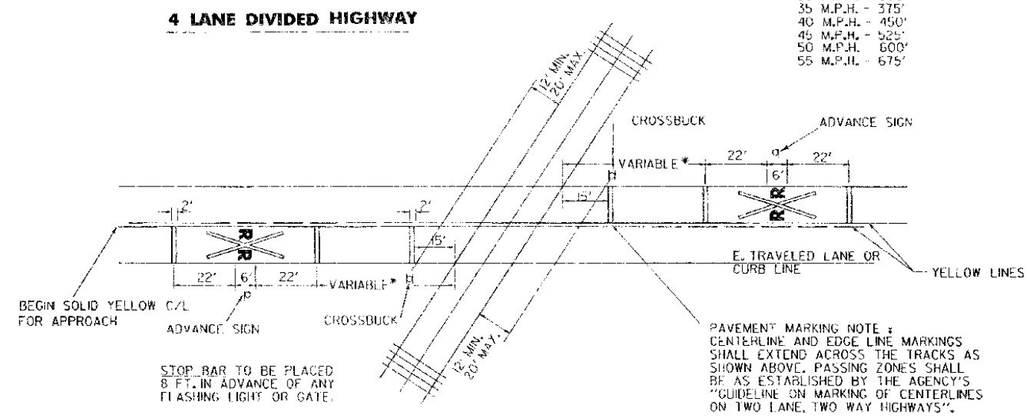


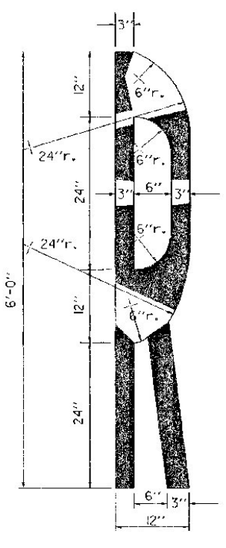
4 LANE DIVIDED HIGHWAY

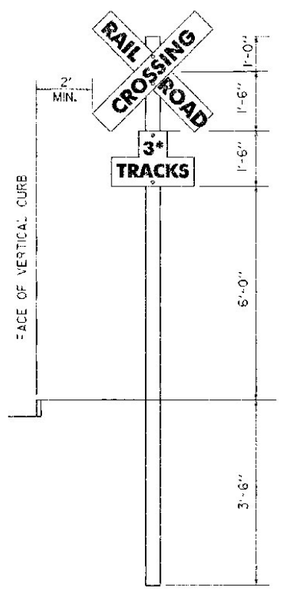


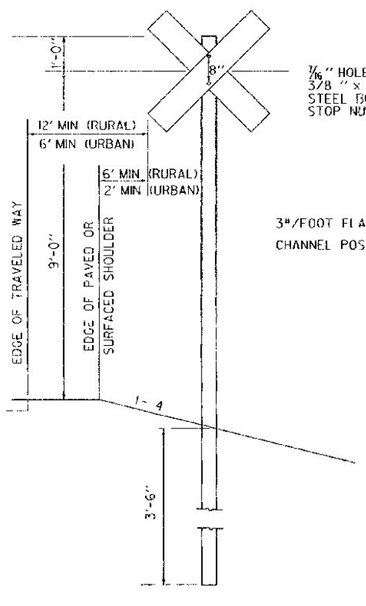
2 LANE HIGHWAY PAVED

ALSO APPLICABLE TO UNPAVED ROADS FOR PLACEMENT OF CROSSBUCKS AND ADVANCE SIGNS

PAVEMENT MARKINGS







7/16" HOLES FOR 3/8" x 5" STAINLESS STEEL BOLTS W/ELASTIC STOP NUTS

3#/FOOT FLANGED CHANNEL POST

GENERAL NOTES

1. PAVEMENT MARKINGS

THESE MARKINGS SHALL BE PLACED, IF PHYSICALLY FEASIBLE, ON ALL PAVED APPROACHES TO RAILROAD CROSSINGS, WHERE THERE ARE SIGNALS AND/OR AUTOMATIC GATE AND AT ALL OTHER CROSSINGS WHERE THE PREVAILING SPEED OF HIGHWAY TRAFFIC IS 40 M.P.H. OR GREATER.

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4. ADVANCE WARNING SIGNS

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THIS SHEET IS NOT TO SCALE	OTHER STDS REQUIRED E-160

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
JAN. 12, 1988 - REVISE LOCATION OF ADVANCE SIGNS
AUG. 18, 1995 - DELETED ALUMINUM 3" X 3" TUBE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

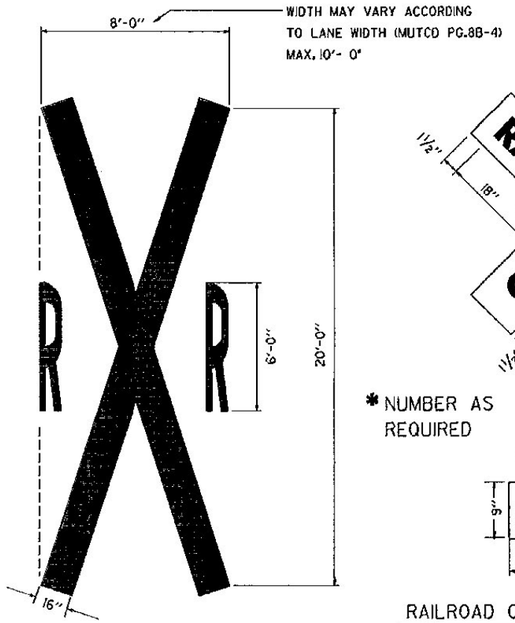
TRAFFIC AND SAFETY ENGINEER

RAILROAD CROSSING SIGNS AND PAVEMENT MARKINGS

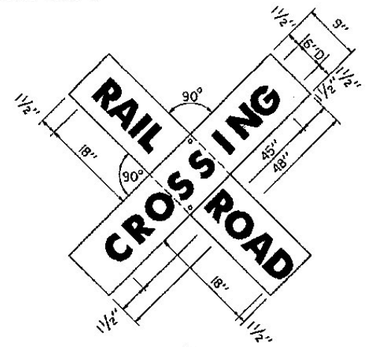
/traf/std/stdel90.dgn/stdel90.i

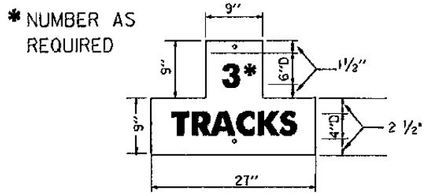
VERMONT AGENCY OF TRANSPORTATION

STANDARD E-190

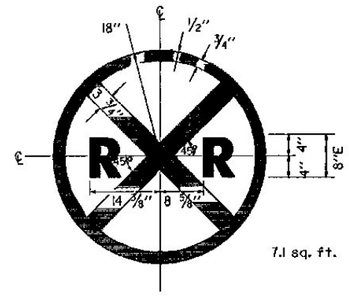


PAVEMENT MARKINGS





RAILROAD CROSSING SIGN (CROSSBUCK)

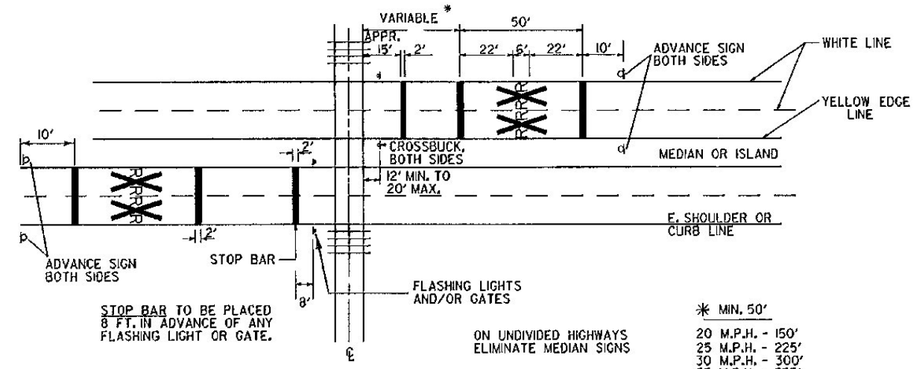


ADVANCE SIGN

SIGN MATERIALS AND COLORS

CROSSBUCKS SHALL BE EITHER ⅝" HIGH DENSITY OVERLAY PLYWOOD OR 0.100 ALUMINUM W/SILVER OR WHITE ENCAPSULATED LENS SHEETING, APPLIED TO BOTH SIDES OF SIGN PANELS.

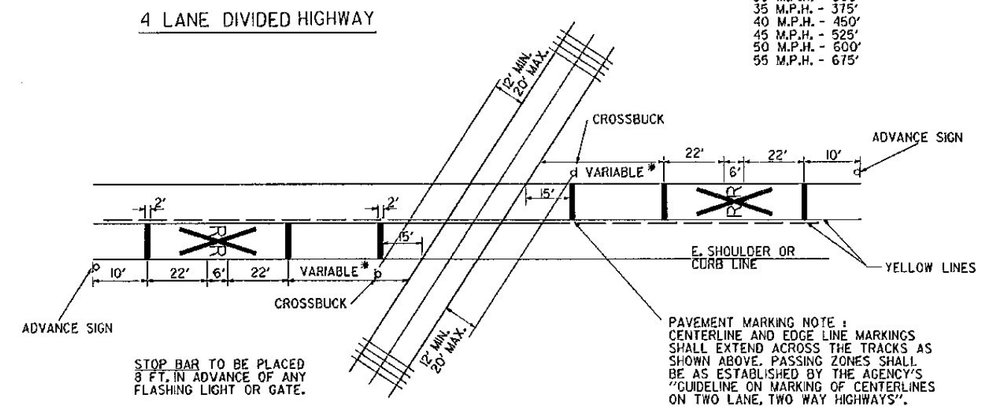
ADVANCE SIGN SHALL BE 0.125 ALUMINUM W/YELLOW REFLECTIVE SHEETING. MULTI-TRACK SIGN SHALL BE 0.06 ALUMINUM W/SILVER OR WHITE REFLECTIVE SHEETING. TEXT, STRIPES AND BORDERS SHALL BE EITHER BLACK PAINTED OR LETTERING FILM.



4 LANE DIVIDED HIGHWAY

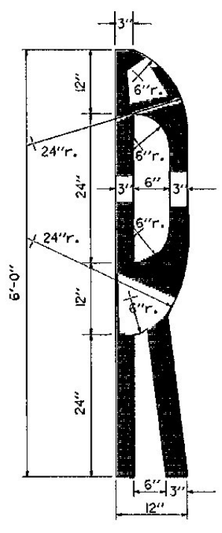
* MIN. 50'

20 M.P.H. - 150'
25 M.P.H. - 225'
30 M.P.H. - 300'
35 M.P.H. - 375'
40 M.P.H. - 450'
45 M.P.H. - 525'
50 M.P.H. - 600'
55 M.P.H. - 675'

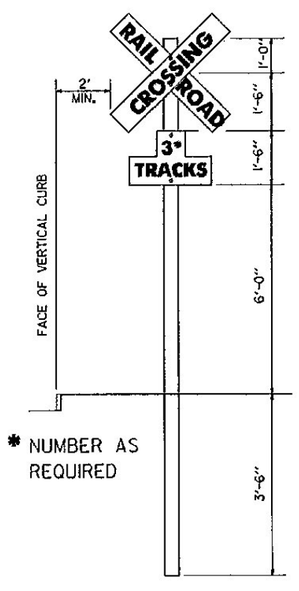


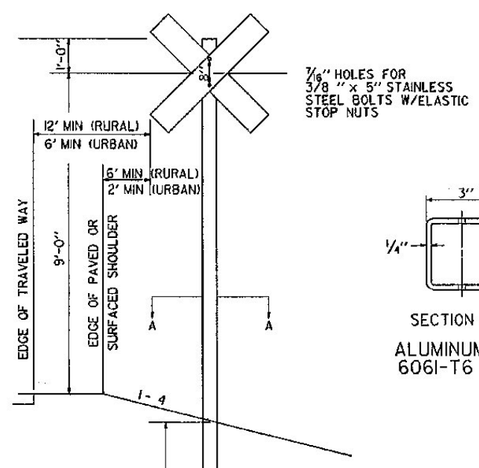
2 LANE HIGHWAY PAVED

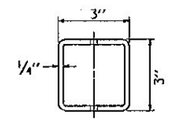
ALSO APPLICABLE TO UNPAVED ROADS FOR PLACEMENT OF CROSSBUCKS AND ADVANCE SIGNS



MATERIALS :
REFER TO GENERAL SPECIAL PROVISIONS FOR ADDITIONAL REFLECTORIZED PAVEMENT MARKING INFORMATION.







SECTION A-A

ALUMINUM TUBE 6061-T6 ALLOY

GENERAL NOTES

1. PAVEMENT MARKINGS

THESE MARKINGS SHALL BE PLACED, IF PHYSICALLY FEASIBLE, ON ALL PAVED APPROACHES TO RAILROAD CROSSINGS, WHERE THERE ARE SIGNALS AND/OR AUTOMATIC GATE AND AT ALL OTHER CROSSINGS WHERE THE PREVAILING SPEED OF HIGHWAY TRAFFIC IS 40 M.P.H. OR GREATER.

THE MARKINGS SHALL ALSO BE PLACED AT CROSSINGS WHERE ENGINEERING STUDIES INDICATE THERE IS A SIGNIFICANT POTENTIAL CONFLICT BETWEEN VEHICLES AND TRAINS. ALL MARKINGS SHALL BE WHITE EXCEPT FOR MEDIAN EDGELINES AND CENTERLINE ON 2 LANE ROADS WHICH SHALL BE YELLOW. THE RAILROAD CROSSING SYMBOL SHALL CONSIST OF THE 'X' FLANKED BY TWO 'R'.s AND THREE 24" STOP BARS, TWO BRACKETING THE 'X' ONE AT THE CROSSING . AT MINOR CROSSINGS OR IN URBAN AREAS, THESE MARKINGS MAY BE OMITTED IF AN ENGINEERING STUDY INDICATES THAT OTHER DEVICES INSTALLED PROVIDE SUITABLE PROTECTION.

2. CROSSBUCKS

WHERE PHYSICALLY FEASIBLE AND VISIBLE TO APPROACHING TRAFFIC, THESE SIGNS SHALL BE INSTALLED ON THE RIGHT-HAND SIDE OF THE ROADWAY FOR EACH APPROACH TO THE CROSSING.

3. AUXILIARY SIGNS

A 'NUMBER OF TRACKS' SIGN SHALL BE USED WHERE THERE ARE TWO OR MORE TRACKS AT THE CROSSING.

4. ADVANCE WARNING SIGNS

RAILROAD ADVANCE WARNING SIGNS WILL BE PROVIDED AND LOCATED IN ACCORDANCE WITH SECTION 8B-3 OF MUTCD

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David B Kelly
CHIEF ENGINEER

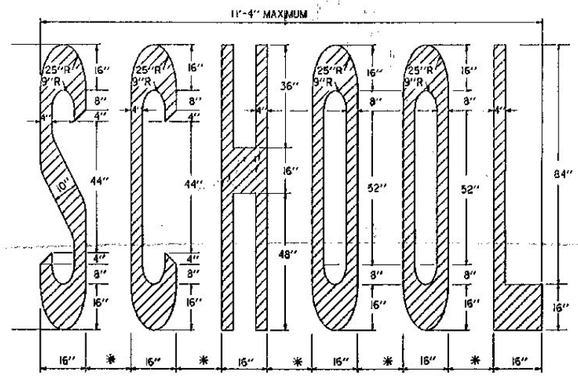
Arthur Gore
DIRECTOR, OF PLANNING AND PRE-CONSTRUCTION

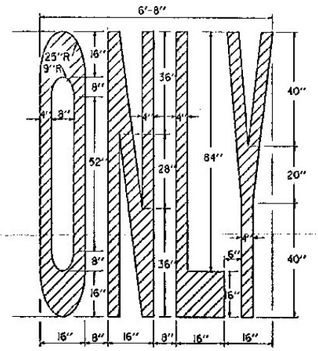
Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

RAILROAD CROSSING SIGNS AND PAVEMENT MARKINGS

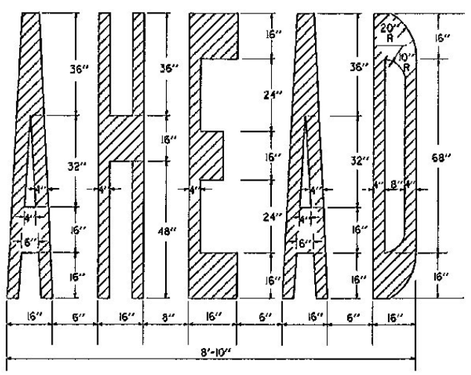
VERMONT AGENCY OF TRANSPORTATION

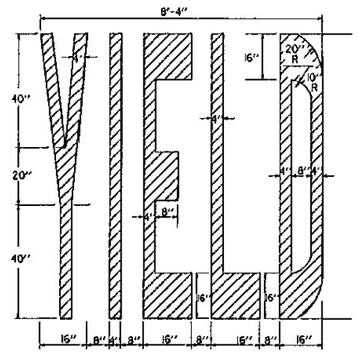
STANDARD
E-190

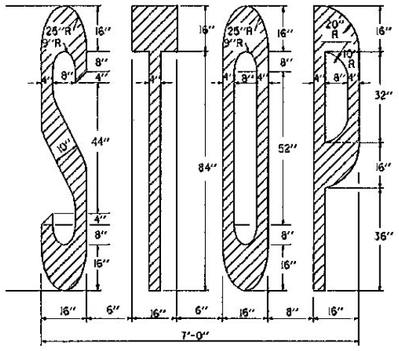


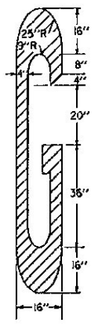


* (4"-8") - ADJUST TO AVAILABLE PAVEMENT WIDTH

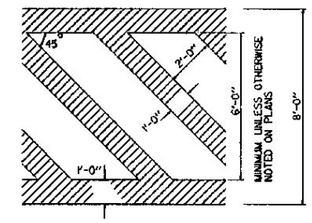








THE LETTER "G" PERTAINS TO THE WORD "SIGNAL" FOR OTHER LETTERS, SEE ABOVE.

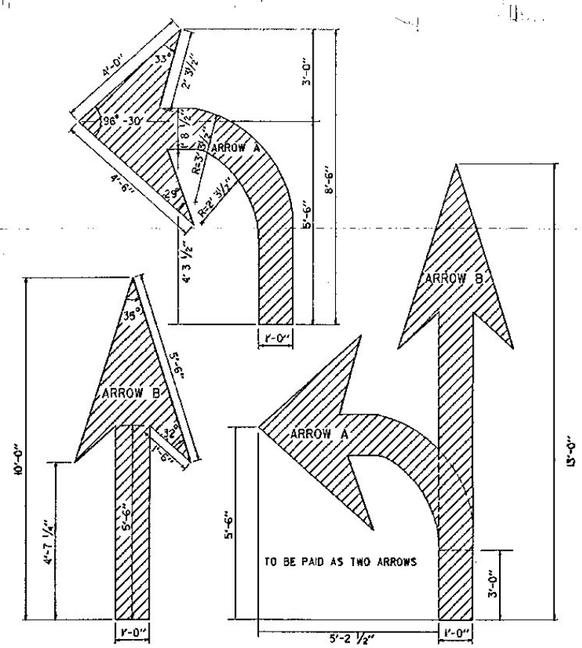


LETTER HEIGHT

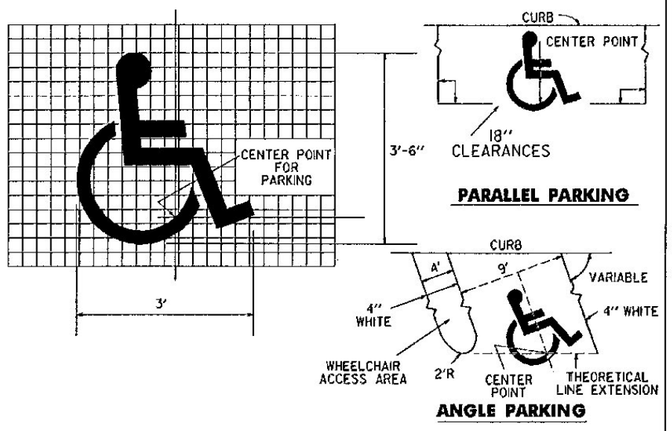
DIMENSIONS ARE FOR 8' - 4" LETTER HEIGHTS. A LESSER HEIGHT OF 8' - 0" IS ACCEPTABLE AS LONG AS THE DIMENSIONS ARE PROPORTIONAL TO THE DETAILS SHOWN SEE NOTE BELOW.

ARROWS AND WORD MARKINGS THAT CONFORM TO THE DIMENSIONS SHOWN ON THIS SHEET OR AS DETAILED IN THE BOOKLET ENTITLED "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (CURRENT EDITION) PREPARED BY THE FEDERAL HIGHWAY ADMINISTRATION WILL BE ACCEPTABLE.

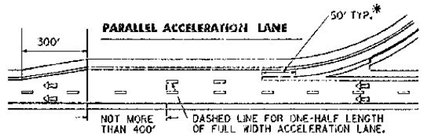
LETTER IN WORD MARKING AND CROSSWALK DETAILS



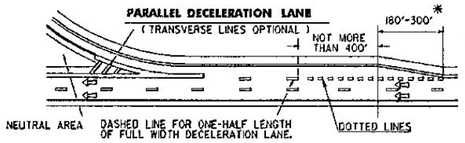
ARROW DETAILS



HANDICAPPED PAVEMENT MARKING DETAILS



* MAY BE MADE LONGER TO EMPHASIZE SITUATIONS WHERE THE CROSSING REQUIRES UNUSUAL CARE SUCH AS HIGH VOLUME MERGE AREAS.



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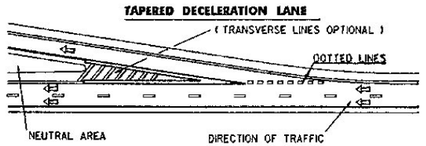

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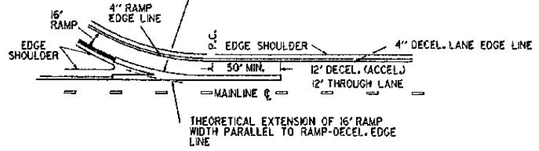
RAMP MARKINGS

LEGEND

- 4" WHITE LINES
- 4" YELLOW LINES
- 8" CHANNELIZATION WHITE LINES
- 4" WHITE DOTTED LINES (2' SOLID - 4' GAP)

IMPORTANT NOTE

ACTUAL LOCATION OF 8" GORE MARKING TRANSITION CURVE MUST BE OFFSET FROM THE THEORETICAL RAMP EXTENSION LINE TO PROVIDE A VISUALLY SMOOTH RAMP ENTRANCE.



DETAIL - GORE MARKING TRANSITION CURVE

REVISIONS AND CORRECTIONS

JAN. 23, 1989 - ADDED DOTTED LINES, "SIGNAL" DIMENSIONS, CLARIFIED LETTER HEIGHT.

APPROVED

SEPT. 10, 1987
DATE

David B Kelley
CHIEF ENGINEER

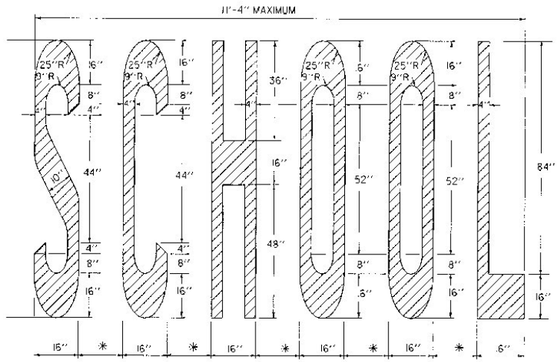
Arthur Gore
DIRECTOR OF PLANNING AND PRECONSTRUCTION

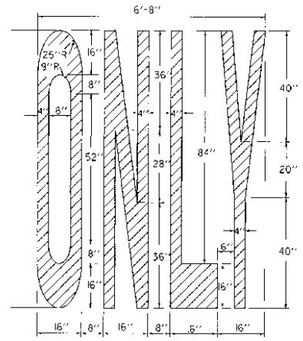
Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

PAVEMENT MARKING DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-191





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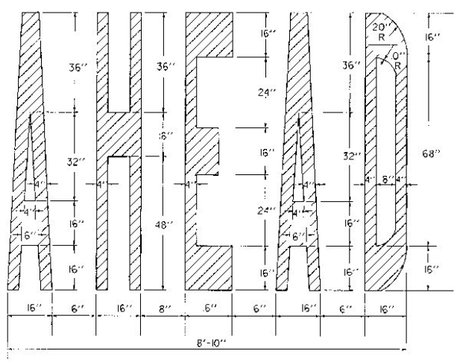

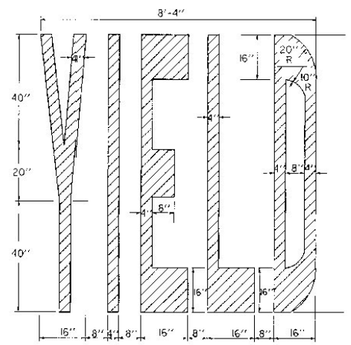

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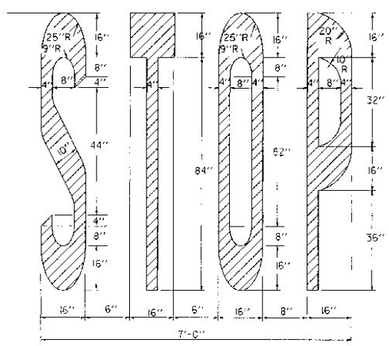

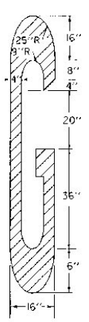

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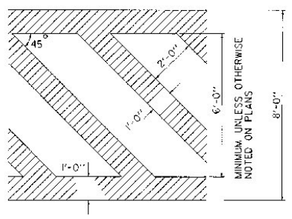

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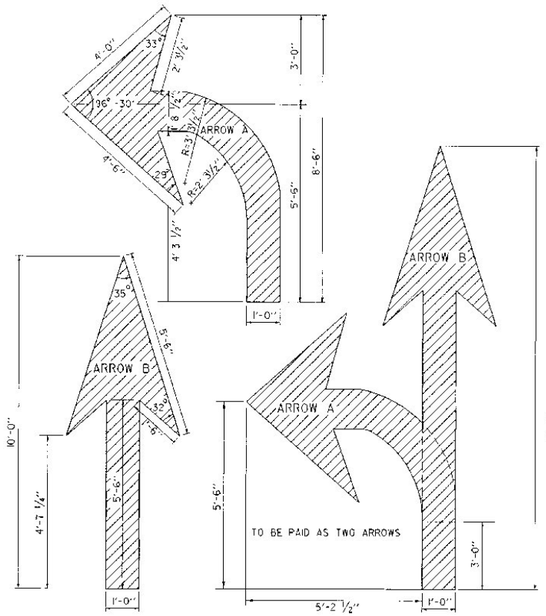
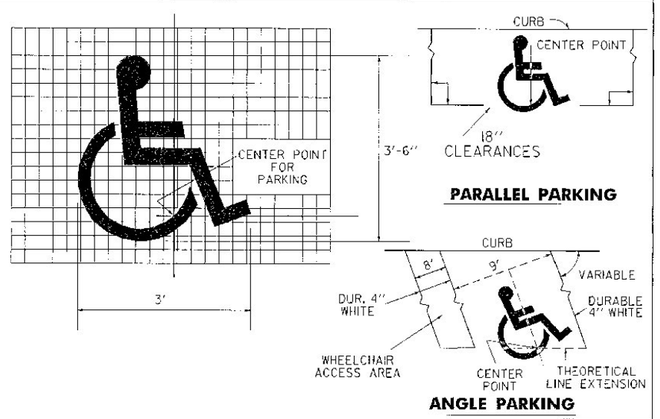
LETTER IN WORD MARKING AND CROSSWALK DETAILS



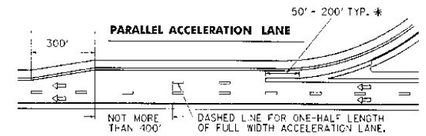
ARROW DETAILS



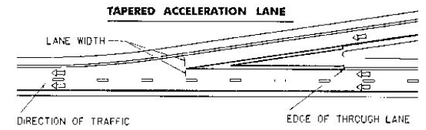
PARALLEL PARKING

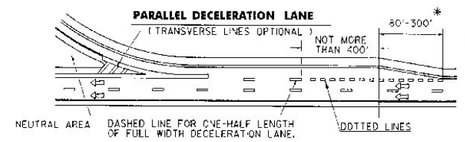
ANGLE PARKING

HANDICAPPED PAVEMENT MARKING DETAILS



* USE LONGER LENGTH TO EMPHASIZE SITUATIONS WHERE THE CROSSING REQUIRES UNUSUAL CARE SUCH AS HIGH VOLUME MERGE AREAS.





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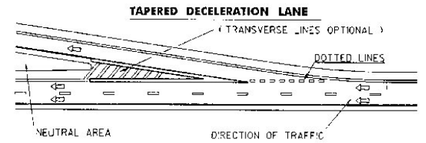


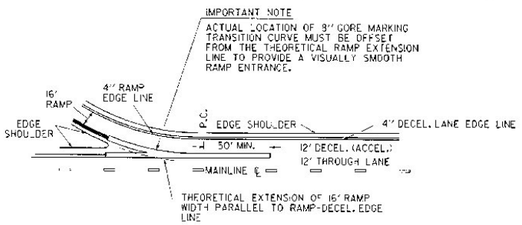
TRANSVERSE LINES SHALL CONSIST OF 8" WHITE LINES SPACED 5'-0" C-C AND SET AT 45° TO MAIN LINE EDGE LINES. THESE MARKINGS SHALL BE USED TO INCREASE VISIBILITY DUE TO DIFFICULT VERTICAL OR HORIZONTAL ALIGNMENT, AS DIRECTED BY THE RESIDENT ENGINEER.

RAMP MARKINGS

LEGEND

- 4" WHITE LINES
- 4" YELLOW LINES
- 8" CHANNELIZATION WHITE LINES
- 4" WHITE DOTTED LINES (2' SOLID - 4' GAP)
- DIRECTION OF TRAFFIC FLOW

IMPORTANT NOTE
ACTUAL LOCATION OF 8" GORE MARKING TRANSITION CURVE MUST BE OFFSET FROM THE THEORETICAL RAMP EXTENSION LINE TO PROVIDE A VISUALLY SMOOTH RAMP ENTRANCE.



DETAIL - GORE MARKING TRANSITION CURVE

THIS SHEET IS NOT TO SCALE

OTHER STDS. REQUIRED

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - ADDED DOTTED LINES, "SIGNAL" DIMENSIONS, CLARIFIED LETTER HEIGHT.
AUG. 18, 1995 - MISC. NOTE CHANGES

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

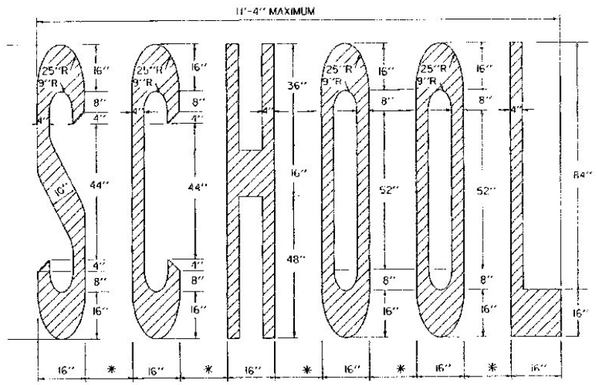
TRAFFIC AND SAFETY ENGINEER

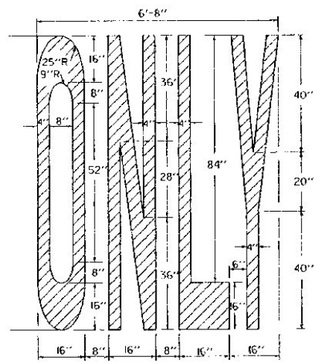
PAVEMENT MARKING DETAILS

/traf/std/std191.dgn/std191.1

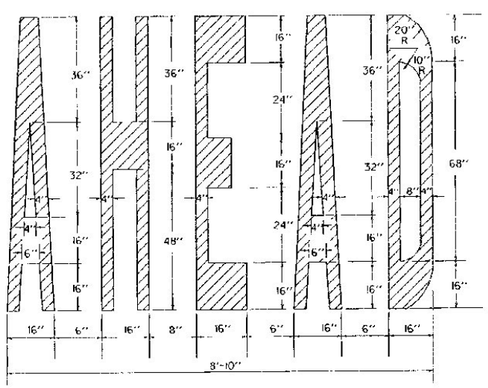
VERMONT AGENCY OF TRANSPORTATION

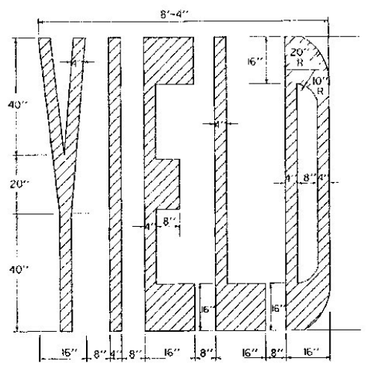
STANDARD E-191





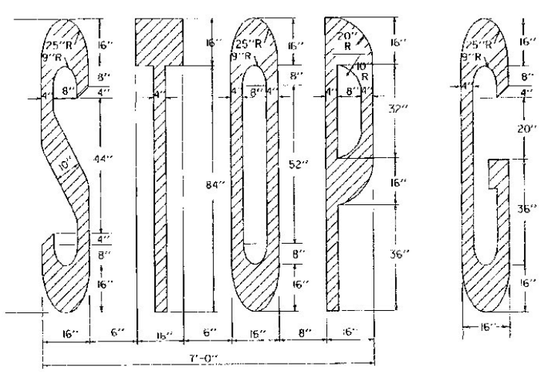
* (4"-8") - ADJUST TO AVAILABLE PAVEMENT WIDTH



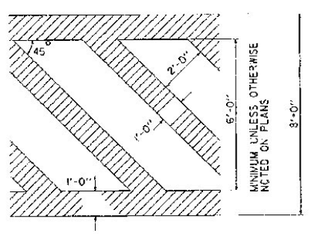


LETTER HEIGHT

DIMENSIONS ARE FOR 8' - 4" LETTER HEIGHTS. A LESSER HEIGHT OF 8' - 0" IS ACCEPTABLE AS LONG AS THE DIMENSIONS ARE PROPORTIONAL TO THE DETAILS SHOWN SEE NOTE BELOW.

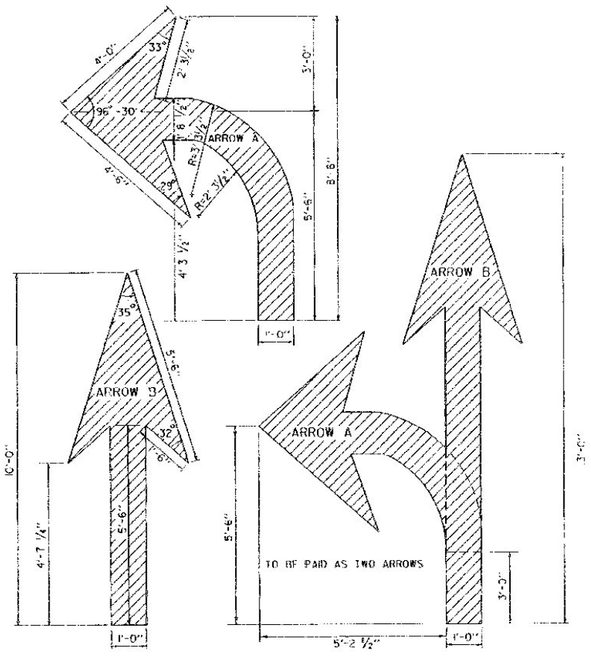


THE LETTER "G" PERTAINS TO THE WORD "SIGNAL" FOR OTHER LETTERS, SEE ABOVE.

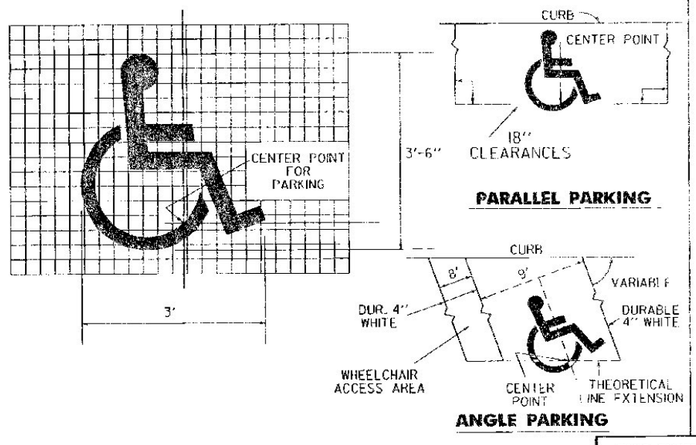


ARROWS AND WORD MARKINGS THAT CONFORM TO THE DIMENSIONS SHOWN ON THIS SHEET OR AS DETAILED IN THE BOOKLET ENTITLED "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (CURRENT EDITION) PREPARED BY THE FEDERAL HIGHWAY ADMINISTRATION WILL BE ACCEPTABLE.

LETTER IN WORD MARKING AND CROSSWALK DETAILS



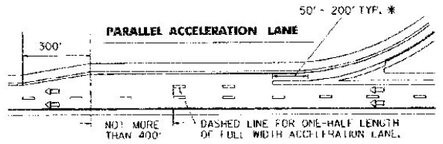
ARROW DETAILS



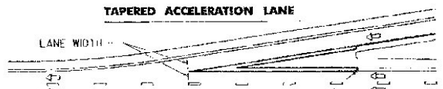
PARALLEL PARKING

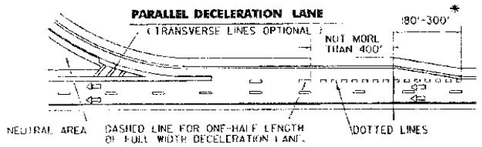
ANGLE PARKING

HANDICAPPED PAVEMENT MARKING DETAILS



* USE LONGER LENGTH TO EMPHASIZE SITUATIONS WHERE THE CROSSING REQUIRES UNUSUAL CARE SUCH AS HIGH VOLUME MERGE AREAS.





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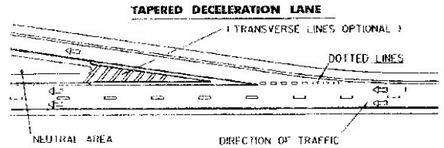


TRANSVERSE LINES SHALL CONSIST OF 8" WHITE LINES SPACED 5'-0" C-C AND SET AT 45° TO MAIN LINE EDGE LINES. THESE MARKINGS SHALL BE USED TO INCREASE VISIBILITY DUE TO DIFFICULT VERTICAL OR HORIZONTAL ALIGNMENT, AS DIRECTED BY THE RESIDENT ENGINEER.

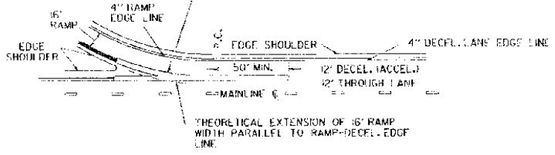
RAMP MARKINGS

LEGEND

- 4" WHITE LINES
- 4" YELLOW LINES
- 8" CHANNELIZATION WHITE LINES
- 4" WHITE DOTTED LINES (2' SOLID - 4' GAP)
- DIRECTION OF TRAFFIC FLOW

IMPORTANT NOTE

ACTUAL LOCATION OF 8" GORE MARKING TRANSITION CURVE MUST BE OFFSET FROM THE THEORETICAL RAMP EXTENSION LINE TO PROVIDE A VISUALLY SMOOTH RAMP ENTRANCE.



DETAIL - GORE MARKING TRANSITION CURVE

THIS SHEET IS NOT TO SCALE

OTHER STDS. REQUIRED

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - ADDED DOTTED LINES, "SIGNAL" DIMENSIONS, CLARIFIED LETTER HEIGHT.
AUG. 18, 1995 - MISC. NOTE CHANGES

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

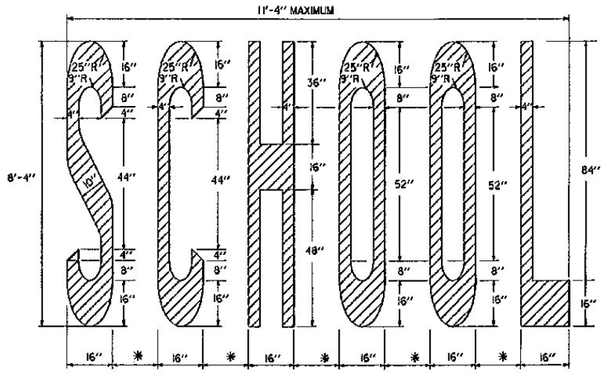
TRAFFIC AND SAFETY ENGINEER

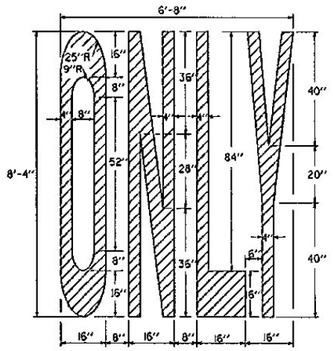
PAVEMENT MARKING DETAILS

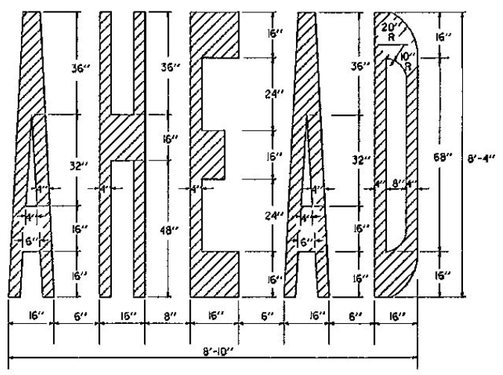
/1rcf/std/std191.dgn/std191

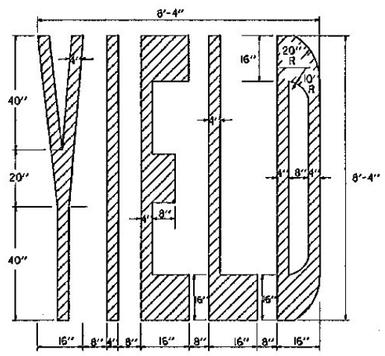
VERMONT AGENCY OF TRANSPORTATION

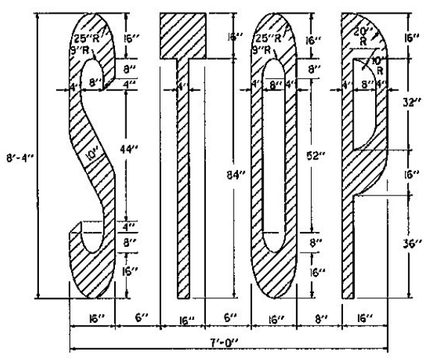
STANDARD E-191

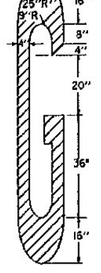












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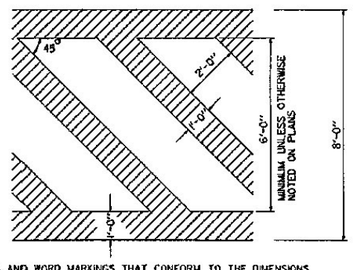

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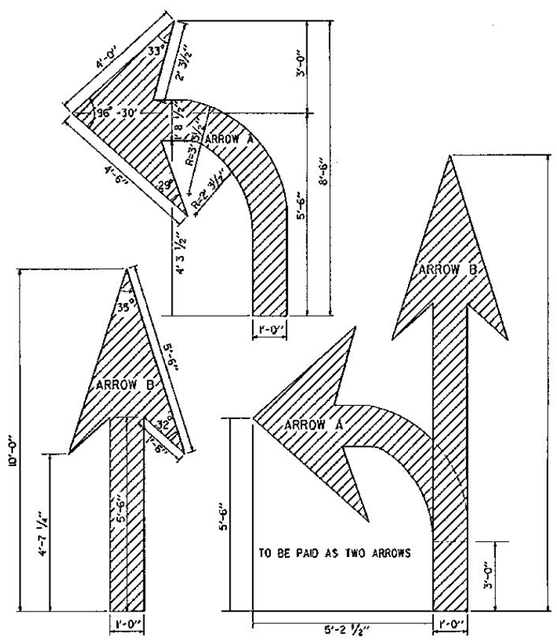

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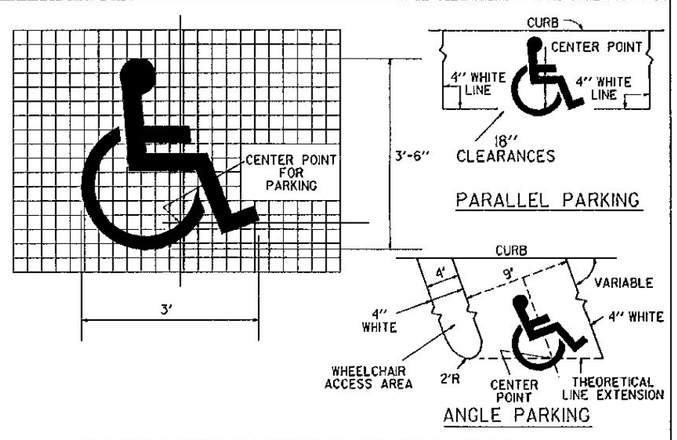

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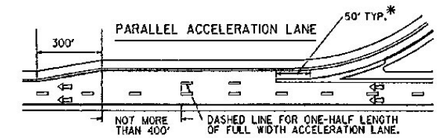

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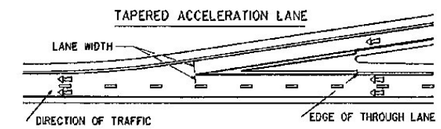

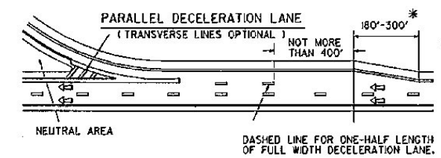

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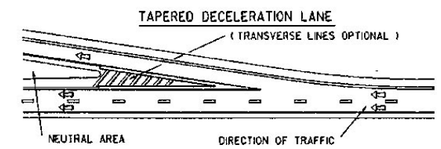

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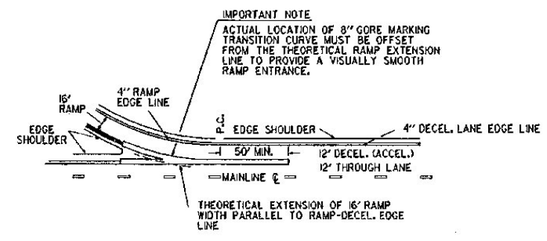


DETAIL - GORE MARKING TRANSITION CURVE

REVISIONS AND CORRECTIONS

APPROVED

SEPT. 10, 1987
DATE

David B. Kelley
CHIEF ENGINEER

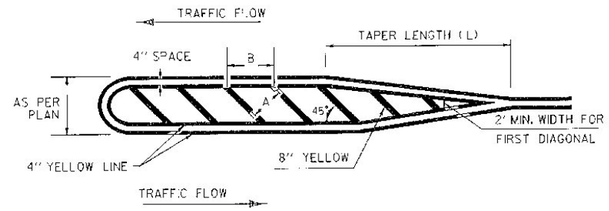
Arthur Jones
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

E. A. Mac Arthur
TRAFFIC AND SAFETY ENGINEER

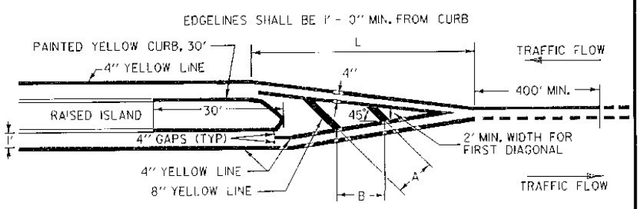
PAVEMENT MARKING DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-191



PAINTED ISLAND DETAIL



ISLAND APPROACH MARKINGS

DIMENSIONS		CONDITIONS FOR USE	
A	B		
5'	7'	LOW SPEED OR HIGH SPEED/W POOR SIGHT DISTANCE, <200'	WHERE LENGTH OF DIAGONAL AREA IS 75' MAX.
10'	14'	HIGH SPEED AND GOOD SIGHT DISTANCE, ≥200'	WHERE LENGTH OF DIAGONAL AREA EXCEEDS 75'

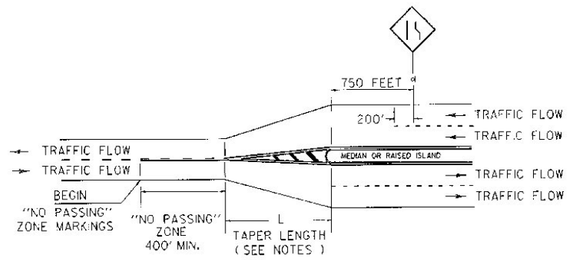
TAPER LENGTH NOTES

1. FOR SPEEDS 45 MPH OR MORE, L = S X W
2. FOR SPEEDS 40 MPH OR LESS, $L = W S^2/60$
   S = 85TH PERCENTILE SPEED OR POSTED SPEED LIMIT IN MILES PER HOUR.
   W = OFFSET DISTANCE IN FEET
3. MINIMUM LENGTH OF TAPER = (L) — L = 100 FEET IN URBAN AREA; L = 200 FEET IN RURAL AREAS
4. LENGTH "L" CAN BE EXTENDED AS REQUIRED TO IMPROVE VISIBILITY OR TO PROVIDE A SMOOTHER TRANSITION

NOTE:

A SOLID LINE IN THE DIRECTION OF TRAVEL IS BEGUN AT A LOCATION 400 FEET MIN. IN ADVANCE OF THE BEGIN TAPER FOR THE PAVEMENT WIDTH TRANSITION.

PASSING ZONE SHOWN FOR REFERENCE ONLY, ACTUAL MARKINGS BASED ON FIELD CONDITIONS.



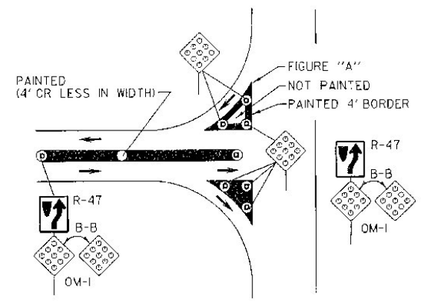
"NO PASSING" ZONE LAYOUT IN PAVEMENT WIDTH TRANSITIONS, TWO LANE HIGHWAY TO DIVIDED HIGHWAY

THE FOLLOWING GUIDELINES WILL BE USED WHEN PAINTING ISLAND ON STATE HIGHWAYS AND RECOMMENDED FOR ISLANDS ON OTHER SYSTEMS WITHIN THE STATE.

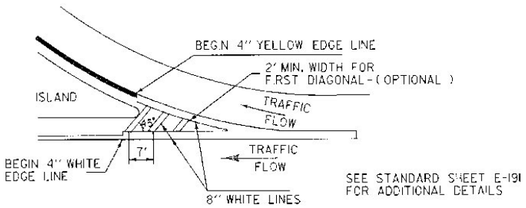
I. PAINTING: ISLANDS WHICH ARE FOUR FEET IN WIDTH AND TRIANGLE ISLANDS WHICH ARE LESS THAN FOUR HUNDRED AND FIFTY SQUARE FEET SHALL BE PAINTED ENTIRELY. TRIANGLES WHICH ARE FOUR HUNDRED AND FIFTY SQUARE FEET AND LARGER SHALL BE PAINTED WITH A FOUR FOOT BORDER AS SHOWN ON FIGURE "A" OF THE PAINTED ISLAND DETAIL.

II. SIGNS: ALL APPROACH NOSES TO THE ISLANDS IN THE LINE OF TRAFFIC WILL BE SIGNED WITH A KEEP RIGHT (R-47) SIGN AS WELL AS OBJECT MARKERS PLACED BACK TO BACK TO INDICATE THE BEGINNING (END) OF THE ISLAND.

III. EXCEPTIONS: THERE WILL BE SPECIAL CASES WHICH REQUIRE AN EXCEPTION TO, OR MODIFICATION OF THIS GUIDELINE. THESE QUESTIONS SHOULD BE REFERRED TO THE TRAFFIC AND SAFETY ENGINEER OR HIS DELEGATED REPRESENTATIVE.

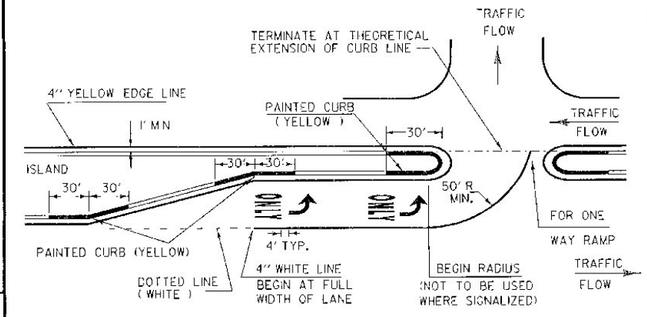


PAINTED ISLANDS

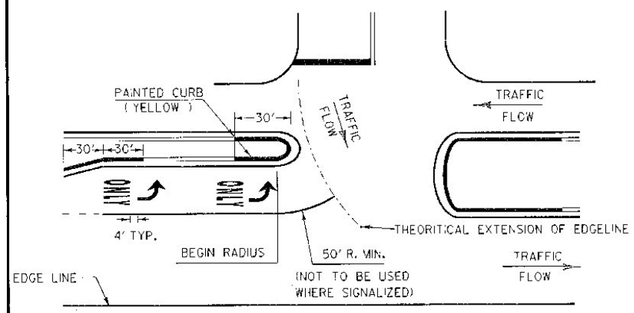


GORE MARKING DETAIL – EXIT

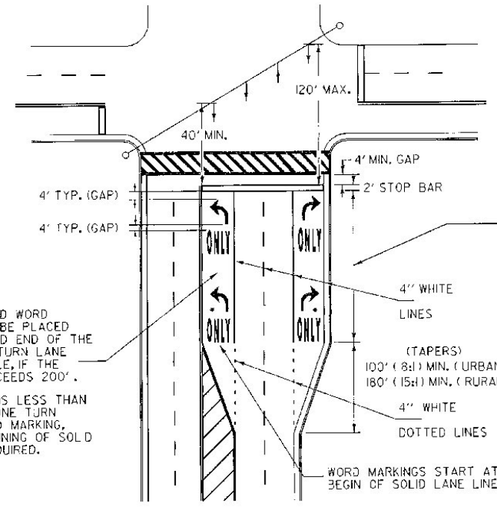
TRANSVERSE LINES



TURN LANE AND PAINTED CURB DETAIL



CURB PAINTING: CURB SHALL BE PAINTED ON THE ISLAND NOSE AND TO A POINT 30 FEET FROM THE END OF THE ISLAND. IN ADDITION, CURB SHALL BE PAINTED 30 FEET FROM ANY CHANGE IN CURB DIRECTION.



TURN ARROWS AND WORD MARKINGS SHALL BE PLACED AT THE BEGIN AND END OF THE LEFT (OR RIGHT) TURN LANE AND IN THE MIDDLE, IF THE LANE LENGTH EXCEEDS 200'.

* IF LANE LENGTH IS LESS THAN 100 FEET, ONLY ONE TURN ARROW AND WORD MARKING, PLACED AT BEGINNING OF SOLID LANE LINE, IS REQUIRED.

TYPICAL MARKINGS FOR SIGNALIZED INTERSECTION

EXCLUSIVE TURN LANES (LEFT OR RIGHT) LANE LINES SHALL BE SOLID AND EXTEND BACK FROM THE STOP LINE TO THE POINT OF FULL LANE WIDTH OF THE TURN LANE.

THE MINIMUM STORAGE LENGTH IS 50'.

I. STORAGE LENGTH REQUIRED
   A. UNSIGNALIZED
      VOL OF LT (HR) ÷ CYCLES/HR. X 2 X 25'/VEH.
      (ASSUME A 60 SEC. CYCLE)
   B. SIGNALIZED
      1. ESTIMATED -- USE ABOVE WITH ACTUAL CYCLE LENGTH.
      2. PREFERRED METHOD -- HIGHWAY CAPACITY MANUAL, APPENDIX I.

II. ADDITIONAL STORAGE LENGTH TO BE PROVIDED FOR DECELERATION.
   (TAPER/DECEL. FROM CHART) - (MIN. TAPER) - 1/2 (STORAGE - 50')

AVE. RUNNING SPEED (MPH)	TAPER/DECEL BASED ON A 10 MPH REDUCTION
20	100'
30	160'
40	235'
50	315'
60	435'

THIS SHEET NOT TO SCALE

OTHER STDS. REQUIRED E-191 E-193

REVISIONS AND CORRECTIONS

AUG. 18, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

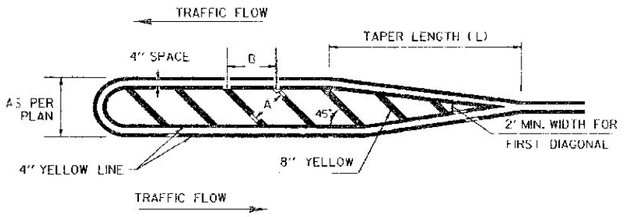
PAVEMENT MARKING DETAILS

/traf/std/std192.dgn/stdd192.

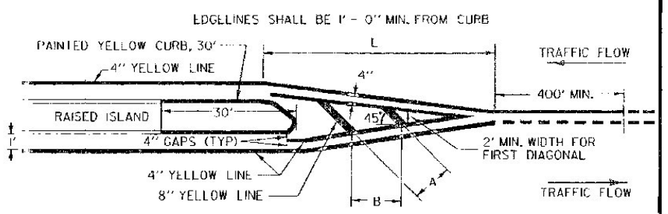
VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-192



PAINTED ISLAND DETAIL



ISLAND APPROACH MARKINGS

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   S = 85TH PERCENTILE SPEED OR POSTED SPEED LIMIT IN MILES PER HOUR.
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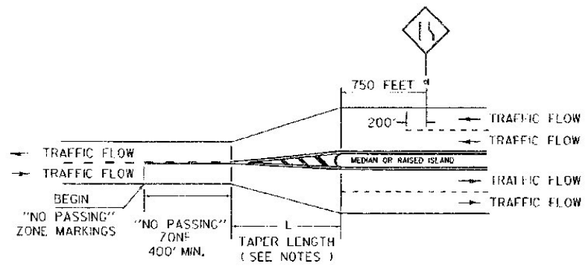
3. MINIMUM LENGTH OF TAPER = (L) — L = 100 FEET IN URBAN AREA; L = 200 FEET IN RURAL AREAS
4. LENGTH "L" CAN BE EXTENDED AS REQUIRED TO IMPROVE VISIBILITY OR TO PROVIDE A SMOOTHER TRANSITION

NOTE:

A SOLID LINE IN THE DIRECTION OF TRAVEL IS BEGUN AT A LOCATION 400 FEET MIN. IN ADVANCE OF THE BEGIN TAPER FOR THE PAVEMENT WIDTH TRANSITION.

PASSING ZONE SHOWN FOR REFERENCE ONLY, ACTUAL MARKINGS BASED ON FIELD CONDITIONS.



"NO PASSING" ZONE LAYOUT IN PAVEMENT WIDTH TRANSITIONS, TWO LANE HIGHWAY TO DIVIDED HIGHWAY

THE FOLLOWING GUIDELINES WILL BE USED WHEN PAINTING ISLAND ON STATE HIGHWAYS AND RECOMMENDED FOR ISLANDS ON OTHER SYSTEMS WITHIN THE STATE.

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II. SIGNS: ALL APPROACH NOSES TO THE ISLANDS IN THE LINE OF TRAFFIC WILL BE SIGNED WITH A KEEP RIGHT (R-47) SIGN AS WELL AS OBJECT MARKERS PLACED BACK TO BACK TO INDICATE THE BEGINNING (END) OF THE ISLAND.

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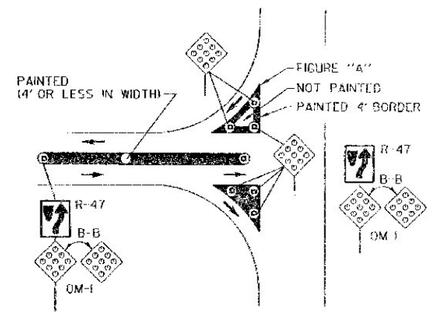

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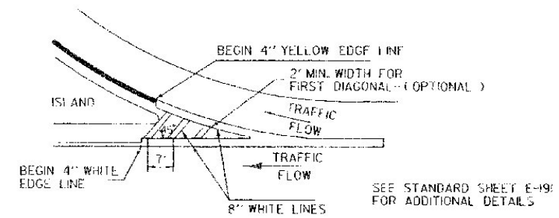
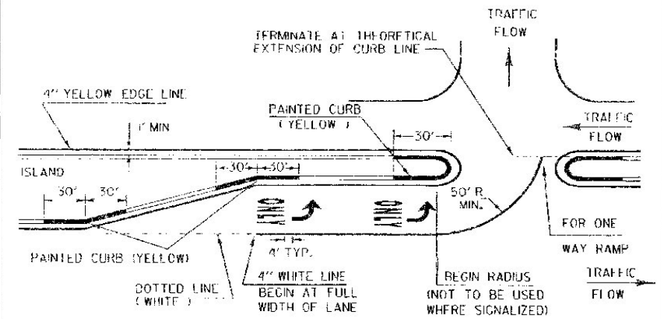
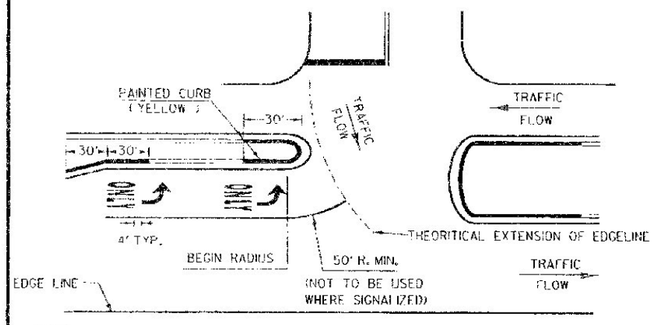


GORE MARKING DETAIL - EXIT

TRANSVERSE LINES



TURN LANE AND PAINTED CURB DETAIL



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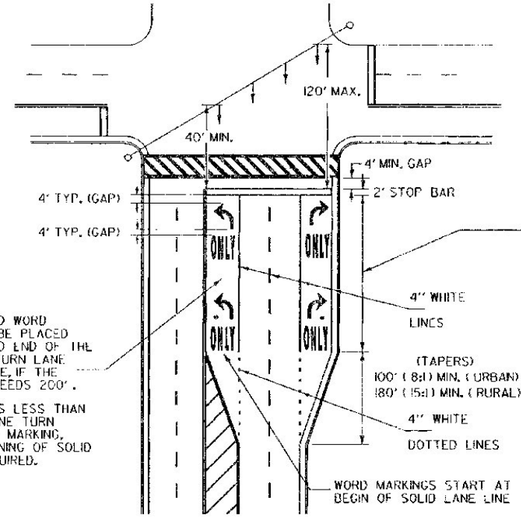

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* IF LANE LENGTH IS LESS THAN 100 FEET, ONLY ONE TURN ARROW AND WORD MARKING, PLACED AT BEGINNING OF SOLID LANE LINE, IS REQUIRED.

TYPICAL MARKINGS FOR SIGNALIZED INTERSECTION

EXCLUSIVE TURN LANES (LEFT OR RIGHT) LANE LINES SHALL BE SOLID AND EXTEND BACK FROM THE STOP LINE TO THE POINT OF FULL LANE WIDTH OF THE TURN LANE.

THE MINIMUM STORAGE LENGTH IS 50'.

I. STORAGE LENGTH REQUIRED
   A. UNSIGNALIZED
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      (ASSUME A 60 SEC. CYCLE)
   B. SIGNALIZED
      1. ESTIMATED -- USE ABOVE WITH ACTUAL CYCLE LENGTH.
      2. PREFERRED METHOD -- HIGHWAY CAPACITY MANUAL, APPENDIX I.

II. ADDITIONAL STORAGE LENGTH TO BE PROVIDED FOR DECELERATION.
   (TAPER/DECEL. FROM CHART) - (MIN. TAPER) - 1/2 (STORAGE - 50')

AVE. RUNNING SPEED (MPH)	TAPER/DECEL BASED ON A 10 MPH REDUCTION
20	100'
30	160'
40	235'
50	315'
60	435'

THIS SHEET NOT TO SCALE

OTHER STDS. REQUIRED E-191 E-193

REVISIONS AND CORRECTIONS

AUG. 18, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

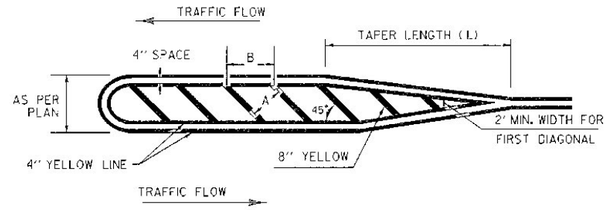
PAVEMENT MARKING DETAILS

/traf/std/stdel92.dgn/stdel92.i

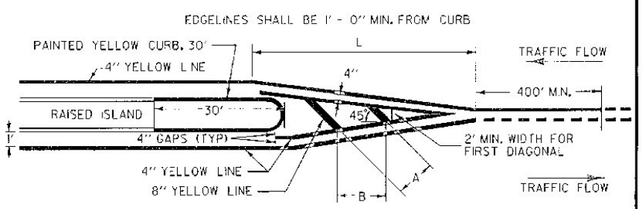
VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-192



PAINTED ISLAND DETAIL



ISLAND APPROACH MARKINGS

DIMENSIONS		CONDITIONS FOR USE	
A	B		
5'	7'	LOW SPEED OR HIGH SPEED/W POOR SIGHT DISTANCE, <200'	WHERE LENGTH OF DIAGONAL AREA IS 75' MAX.
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TAPER LENGTH NOTES

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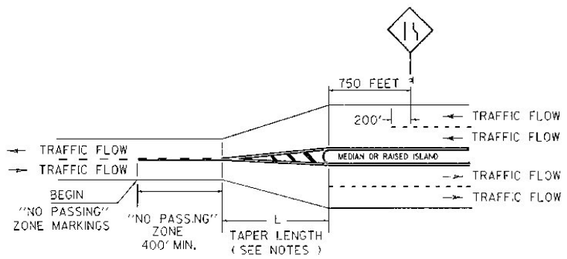

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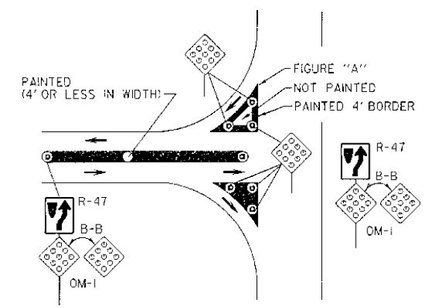

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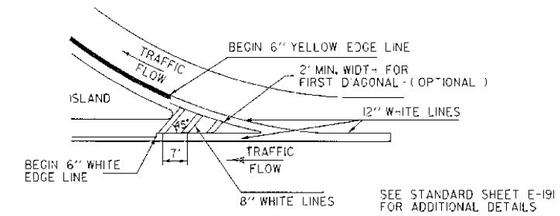
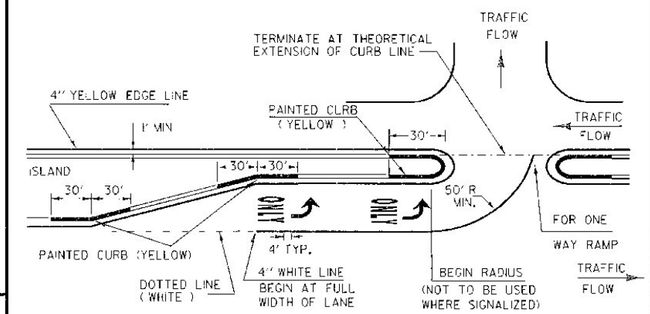


GORE MARKING DETAIL - EXIT

TRANSVERSE LINES



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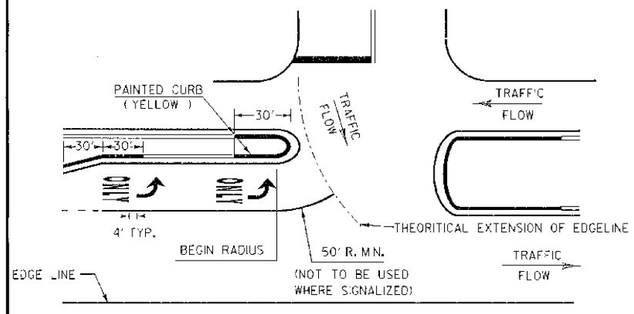

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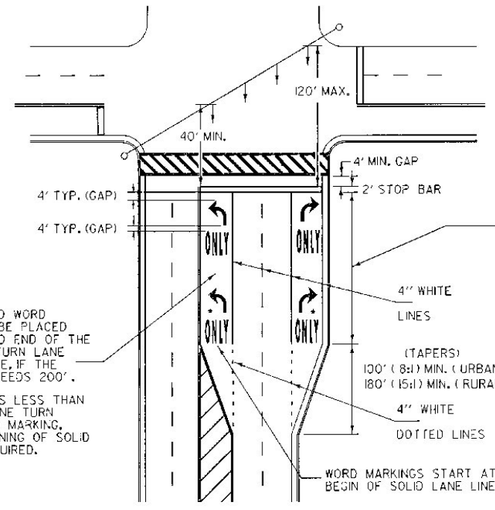

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OTHER STDS. REQUIRED E-191 E-193

REVISIONS AND CORRECTIONS

AUG. 18, 1995 - DATE OF ORIGINAL ISSUE
OCT. 14, 1998 - CHANGED GORE MARKING DETAIL

APPROVED

DIRECTOR OF PROJECT DEVELOPMENT

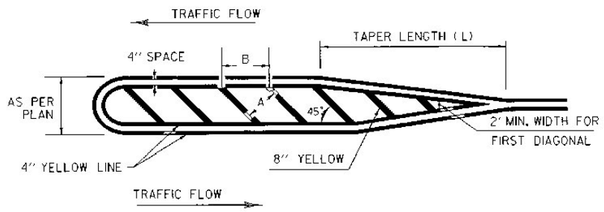
PAVEMENT MARKING DETAILS

/trcf/std/std192.dgn/std192.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-192



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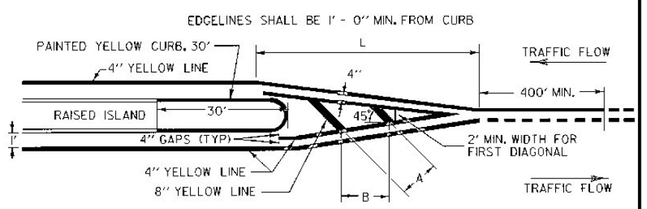

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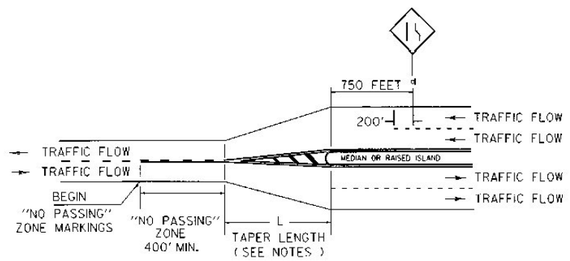

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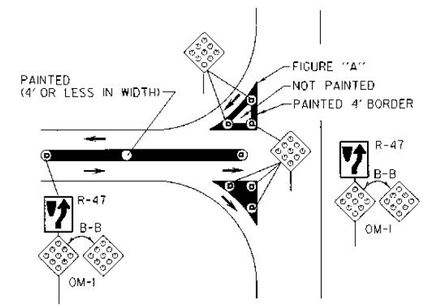

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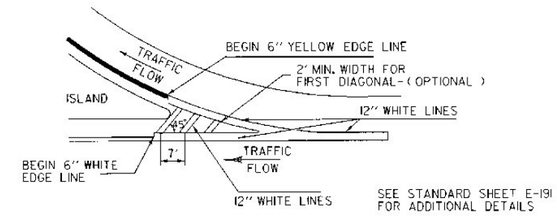
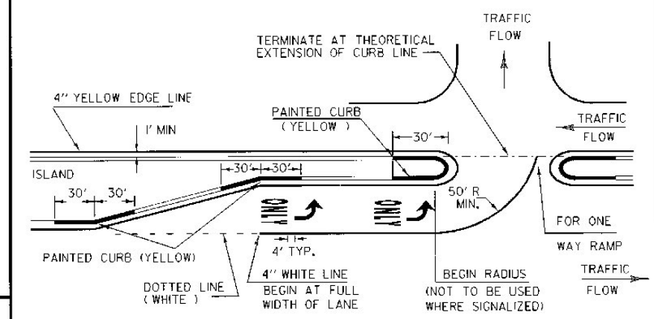


GORE MARKING DETAIL - EXIT

TRANSVERSE LINES



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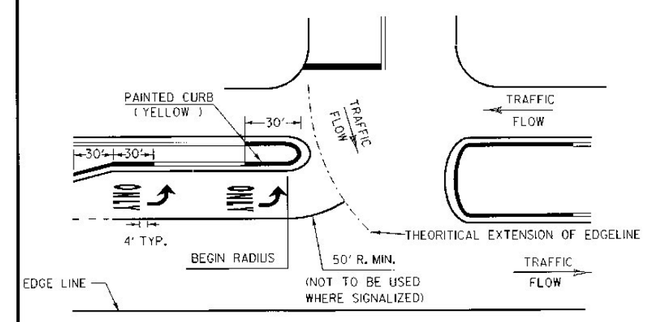

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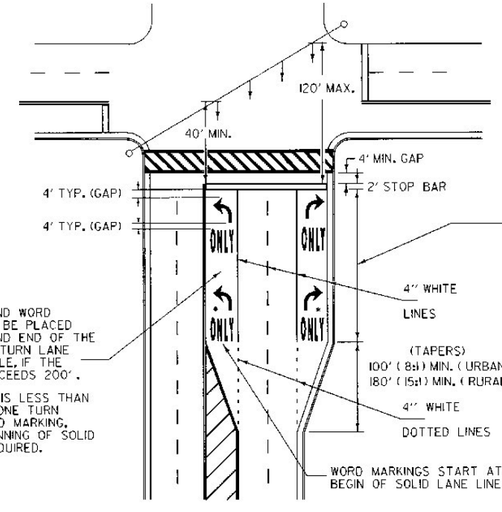

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OTHER STDS. REQUIRED E-191 E-193

REVISIONS AND CORRECTIONS

AUG. 18, 1995 - DATE OF ORIGINAL ISSUE
OCT. 14, 1998 - CHANGED GORE MARKING DETAIL
DEC. 28, 1998 - CHANGED GORE MARKING HATCHING TO 12" PER FHWA

APPROVED

DIRECTOR OF PROJECT DEVELOPMENT

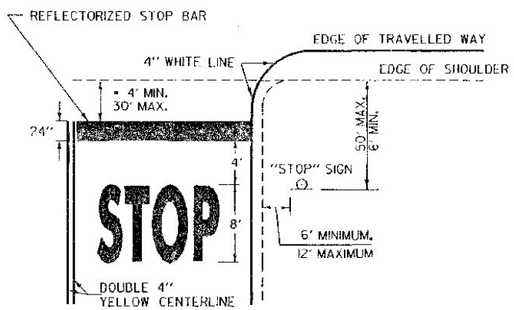
PAVEMENT MARKING DETAILS

/traf/std/stdel92.dgn/stdel92.i

VERMONT AGENCY OF TRANSPORTATION

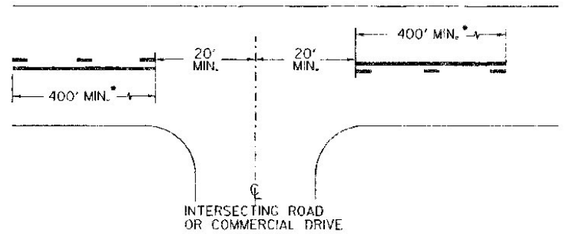
STANDARD

E-192



* THE "DESIRED STOPPING POINT" IS THE LOCATION BASED ON SITE CONDITIONS THAT BEST ALLOWS THE STOPPED VEHICLE TO VIEW THE APPROACHING TRAFFIC.

STOP BAR LAYOUT



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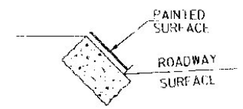
CENTERLINE BREAKES:

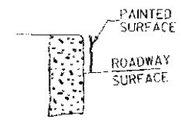
A. AT ALL STATE HIGHWAYS AND TOWN HIGHWAYS, INCLUDING CLASS 4 TH'S. THAT HAVE STOP AND LEGAL LOAD LIMIT SIGNS INSTALLED

B. COMMERCIAL DRIVES:
1. WHERE A SEPERATE TURN LANE EXISTS ON THE MAIN LINE (LT. OR RT.)
2. SIGNIFICANT TRAFFIC VOLUMES EXISTS.
3. IF MOTORISTS NEED ASSISTANCE TO DEFINE ENTRANCE POINTS.

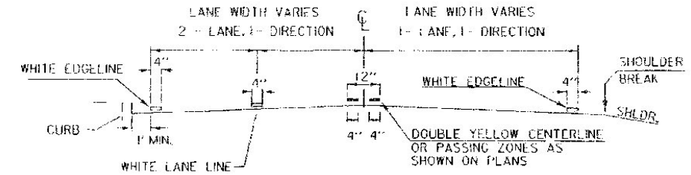
CENTERLINE LAYOUT



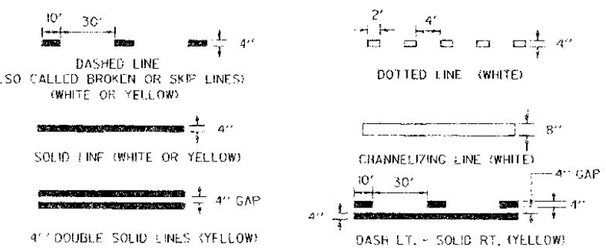
GRANITE SLOPE EDGING



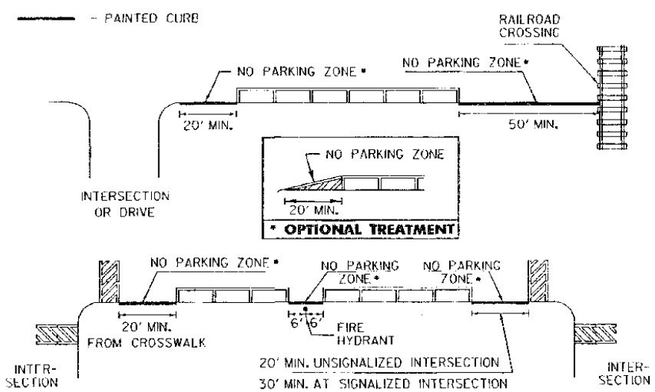
VERTICAL GRANITE CURB



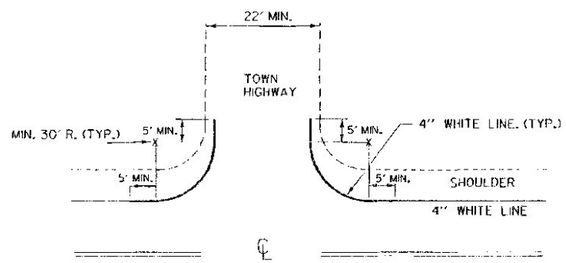
PAVEMENT MARKING PLACEMENT DETAIL



PAVEMENT MARKING LINE DETAILS



NO PARKING LAYOUT DETAILS

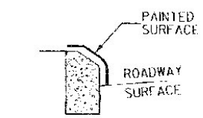


EDGELINES SHALL BE APPLIED TO ALL STATE HIGHWAYS AND SHOULD BE MAINTAINED AT A CONSTANT DISTANCE FROM THE CENTERLINE UNLESS PAVEMENT WIDTH INCREASES TO ALLOW WIDER LANES.

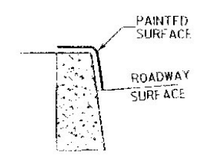
APPLY EDGELINE AS DETAILED ON ALL PAVED CLASS 1 & CLASS 2 TOWN HIGHWAYS AND ANY CLASS 3 TOWN HIGHWAY 22 FEET OR MORE IN WIDTH.

IF MIN. 30 FOOT RADIUS CANNOT BE OBTAINED, OR THE TOWN HIGHWAY IS NOT PAVED, BREAK THE EDGELINE USING AN 80 FOOT GAP AT INTERSECTION.

EDGELINE LAYOUTS

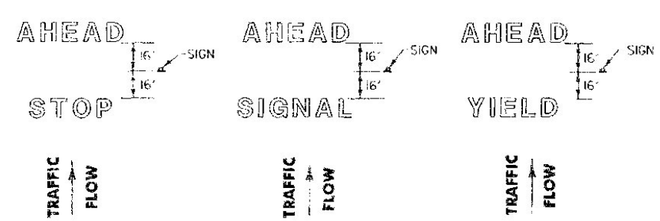


TYPE A (CONCRETE)



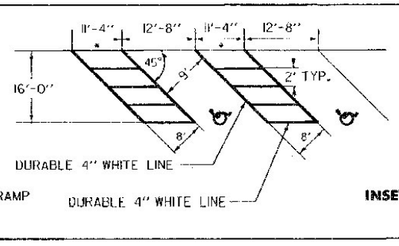
TYPE B (CONCRETE)

PAINTED CURB



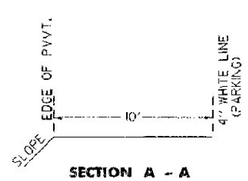
LETTER IN WORD MARKING SPACING DETAIL

NOTE: SINGLE WORDS CENTERED ON SIGN ie: SCHOOL OR YIELD



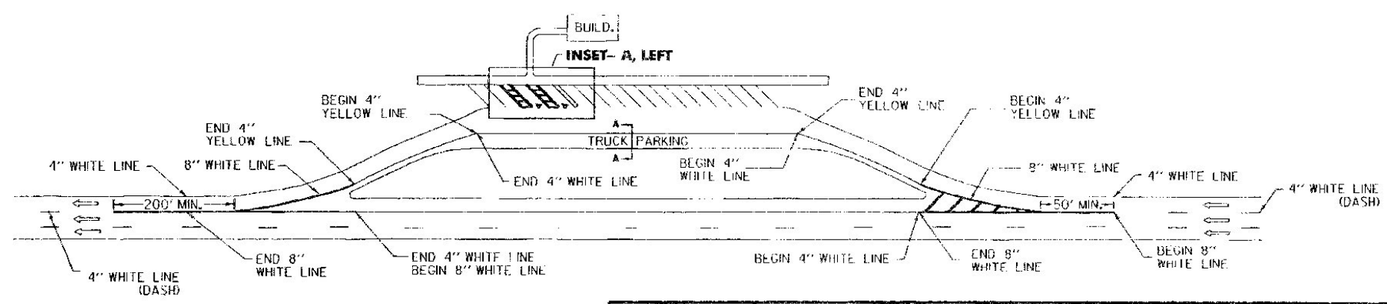
NOTE:

SEE STANDARD SHEET E-191 FOR HANDICAP SYMBOL POSITIONING AND DETAIL.



SECTION A - A

TRUCK PARKING DETAIL



REST AREA PARKING DETAILS

THIS SHEET IS NOT TO SCALE

OTHER STDS. E - 191, E - 192 REQUIRED

REVISIONS AND CORRECTIONS

AUG. 18, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

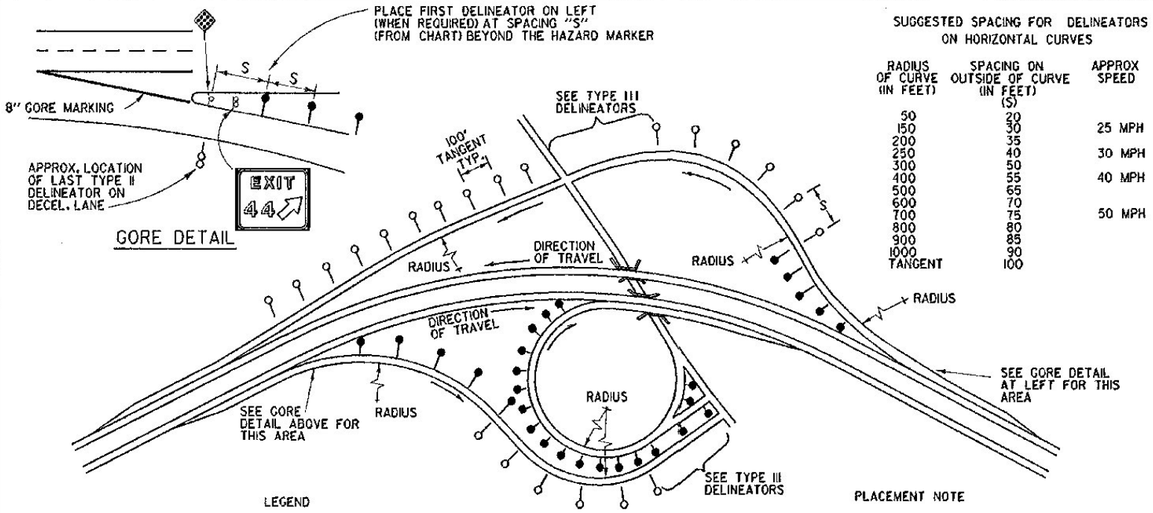
PAVEMENT MARKING DETAILS

/trcf/std/stdel93.dgn/stdel93.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-193



SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES

RADIUS OF CURVE (IN FEET)	SPACING ON OUTSIDE OF CURVE (IN FEET) (S)	APPROX SPEED
50	20	
150	30	25 MPH
200	35	
250	40	30 MPH
300	50	
400	55	40 MPH
500	65	
600	70	
700	75	50 MPH
800	80	
900	85	
1000	90	
TANGENT	100	

LEGEND

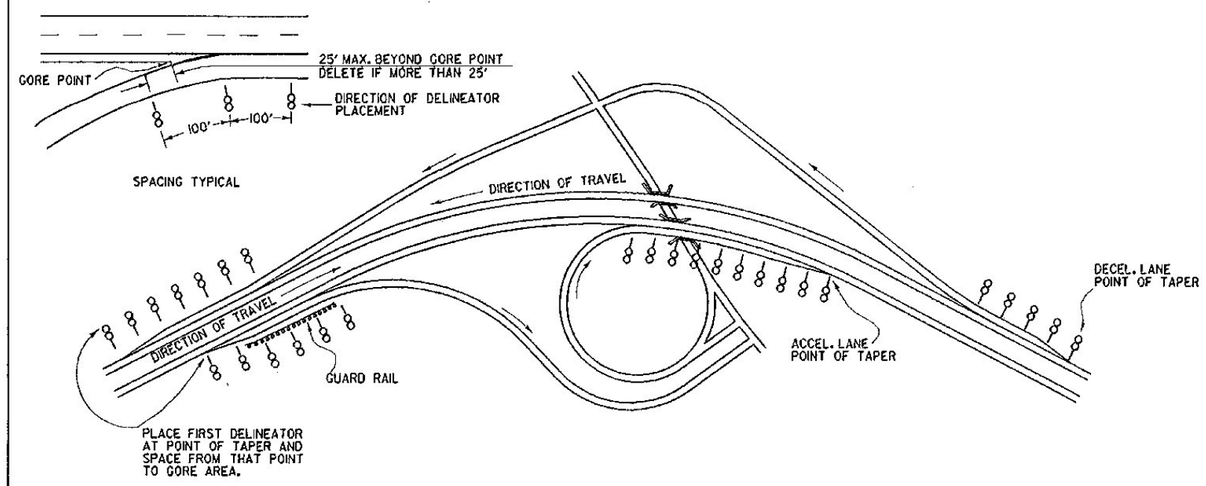
WHITE OR AMBER
RIGHT SIDE — LEFT SIDE

A TYPE I DELINEATOR CONSISTS OF A SINGLE WHITE OR AMBER REFLECTOR BUTTON MOUNTED ON A 1.12 LB/FT MIN. FLANGED CHANNEL POST AND IS POSITIONED TO REFLECT TO TRAFFIC APPROACHING FROM THE NORMAL DIRECTION OF TRAVEL.

TYPE I (RAMPS)

PLACEMENT NOTE

TYPE I DELINEATORS ARE TO BE PLACED ON THE OUTSIDE OF RAMP CURVES AT THE APPROPRIATE SPACING FOR CURVE RADIUS OR RAMP SPEED AS SHOWN ON THE CHART AND PLACED AT 100 FOOT SPACING ON TANGENT ON THE DRIVERS' RIGHT. AMBER DELINEATORS ARE REQUIRED ON THE DRIVERS' LEFT AND WHITE DELINEATORS ON THE RIGHT. DELINEATORS SHALL NOT BE OMITTED BEHIND GUARD RAIL ON THE RAMPS AS IS THE CASE WITH TYPE I DELINEATORS ALONG THE MAIN LINE.



LEGEND

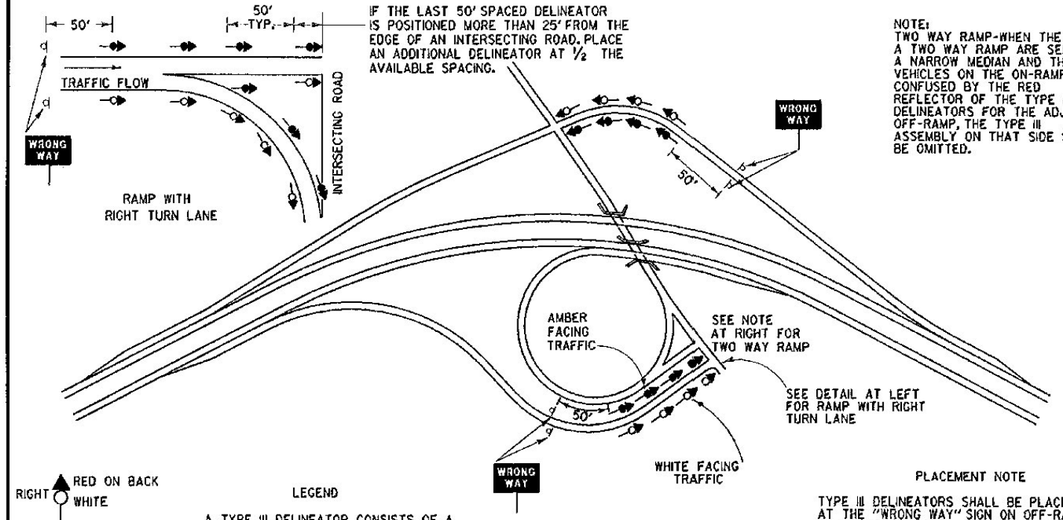
DOUBLE WHITE

A TYPE II DELINEATOR CONSISTS OF TWO WHITE REFLECTOR BUTTONS MOUNTED ONE ABOVE THE OTHER ON A 1.12 LB/FT MIN. FLANGED CHANNEL POST AND IS POSITIONED TO REFLECT TO TRAFFIC APPROACHING FROM THE NORMAL DIRECTION OF TRAVEL.

TYPE II

PLACEMENT NOTE

TYPE II DELINEATORS SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF ACCELERATION AND DECELERATION LANES AT 100 FOOT INTERVALS AND SHALL NOT BE OMITTED BEHIND GUARD RAIL. DELINEATORS SHALL START AT THE BEGINNING POINT OF THE ACCEL. OR DECEL. LANE TAPER, AND END AT THE NOSE OF THE ENTRANCE OR EXIT GORE.



NOTE:
TWO WAY RAMP-WHEN THE TRAVEL LANES FOR A TWO WAY RAMP ARE SEPARATED BY ONLY A NARROW MEDIAN AND THERE IS LIKELIHOOD VEHICLES ON THE ON-RAMP COULD BE CONFUSED BY THE RED REFLECTOR OF THE TYPE III DELINEATORS FOR THE ADJACENT OFF-RAMP, THE TYPE III ASSEMBLY ON THAT SIDE SHOULD BE OMITTED.

RIGHT: RED ON BACK, WHITE
LEFT: RED ON BACK, AMBER

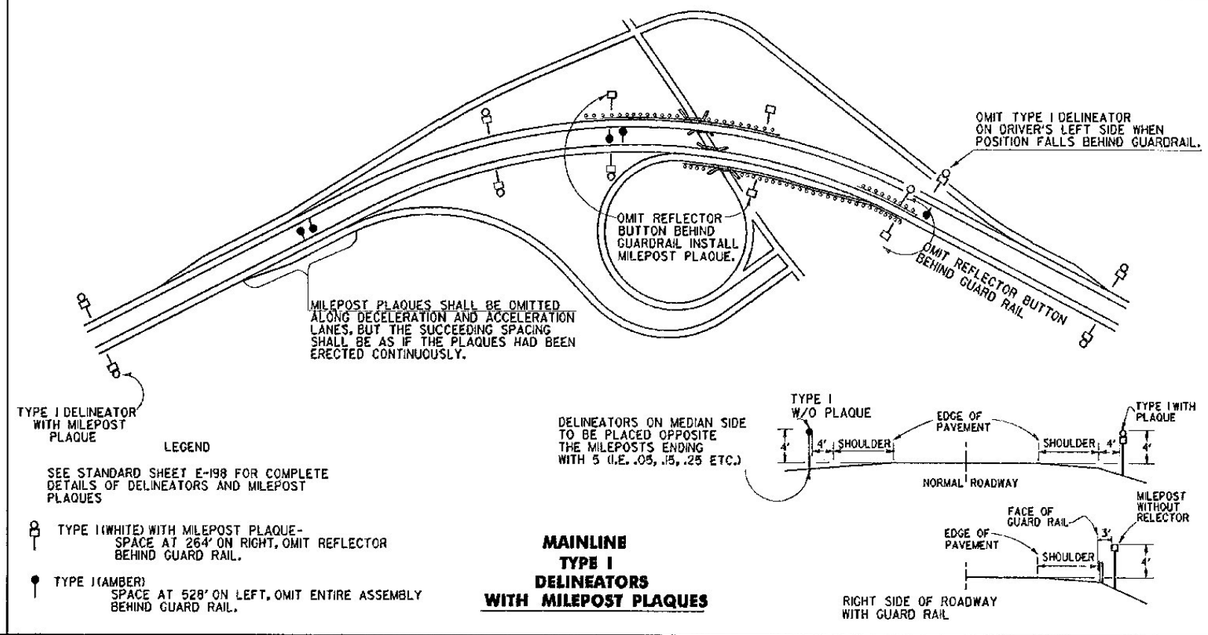
LEGEND

A TYPE III DELINEATOR CONSISTS OF A TYPE I DELINEATOR FACING THE NORMAL DIRECTION OF TRAVEL AND A SINGLE RED REFLECTOR FACING THE OPPOSITE DIRECTION, BOTH MOUNTED ON A 1.12 LB/FT MIN. FLANGED CHANNEL POST. THE WHITE AND RED COMBINATION IS PLACED ON THE DRIVER'S RIGHT AND THE AMBER AND RED ON THE LEFT.

TYPE III

PLACEMENT NOTE

TYPE III DELINEATORS SHALL BE PLACED BEGINNING AT THE "WRONG WAY" SIGN ON OFF-RAMPS AND INSTALLED ON 50' SPACING TO A POINT NOT MORE THAN 25 FEET FROM THE INTERSECTING ROADWAY. THE "WRONG WAY" SIGNS ARE NORMALLY 250 FEET FROM THE INTERSECTING ROADWAY.



LEGEND

SEE STANDARD SHEET E-198 FOR COMPLETE DETAILS OF DELINEATORS AND MILEPOST PLAQUES

TYPE I (WHITE) WITH MILEPOST PLAQUE- SPACE AT 264' ON RIGHT, OMIT REFLECTOR BEHIND GUARD RAIL.

TYPE I (AMBER) SPACE AT 528' ON LEFT, OMIT ENTIRE ASSEMBLY BEHIND GUARD RAIL.

DELINEATORS ON MEDIAN SIDE TO BE PLACED OPPOSITE THE MILEPOSTS ENDING WITH 5 (I.E. .05, .15, .25 ETC.)

MAINLINE TYPE I DELINEATORS WITH MILEPOST PLAQUES

REVISIONS AND CORRECTIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

JAN. 23, 1989
DATE

David B. Kelley
CHIEF ENGINEER

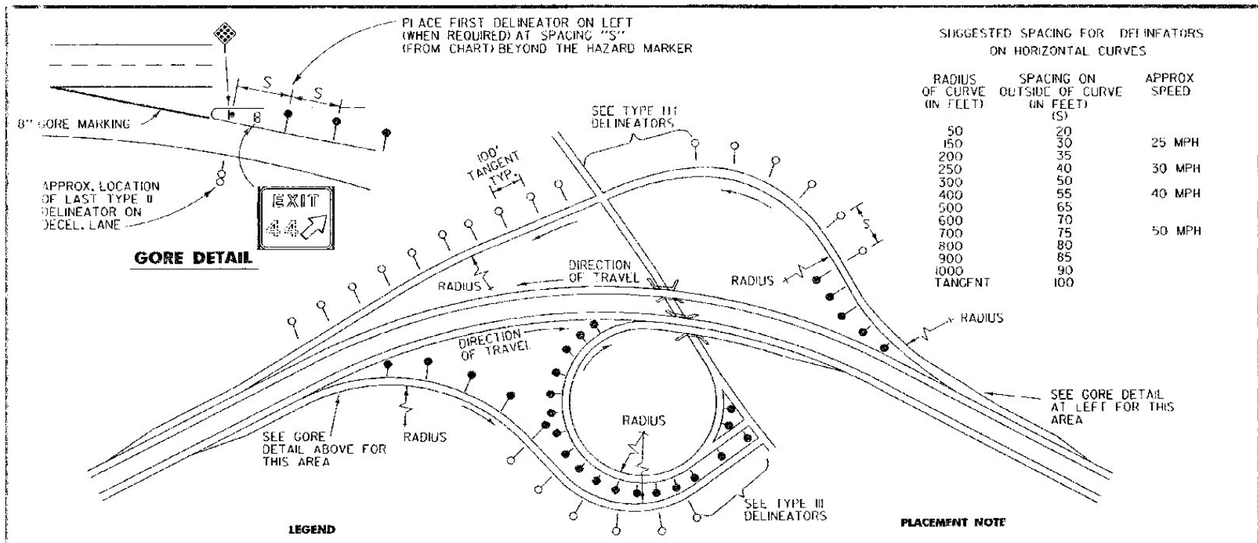
Arthur J. Gosse
DIRECTOR OF PLANNING AND PRE-CONSTRUCTION

Gordon A. MacArthur
TRAFFIC AND SAFETY ENGINEER

DELINEATOR PLACEMENT TYPICAL

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-197



SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES

RADIUS OF CURVE (IN FEET)	SPACING ON OUTSIDE OF CURVE (IN FEET) (S)	APPROX SPEED
50	20	
150	30	25 MPH
200	35	
250	40	30 MPH
300	50	
400	55	40 MPH
500	65	
600	70	
700	75	50 MPH
800	80	
900	85	
1000	90	
TANGENT	100	

LEGEND

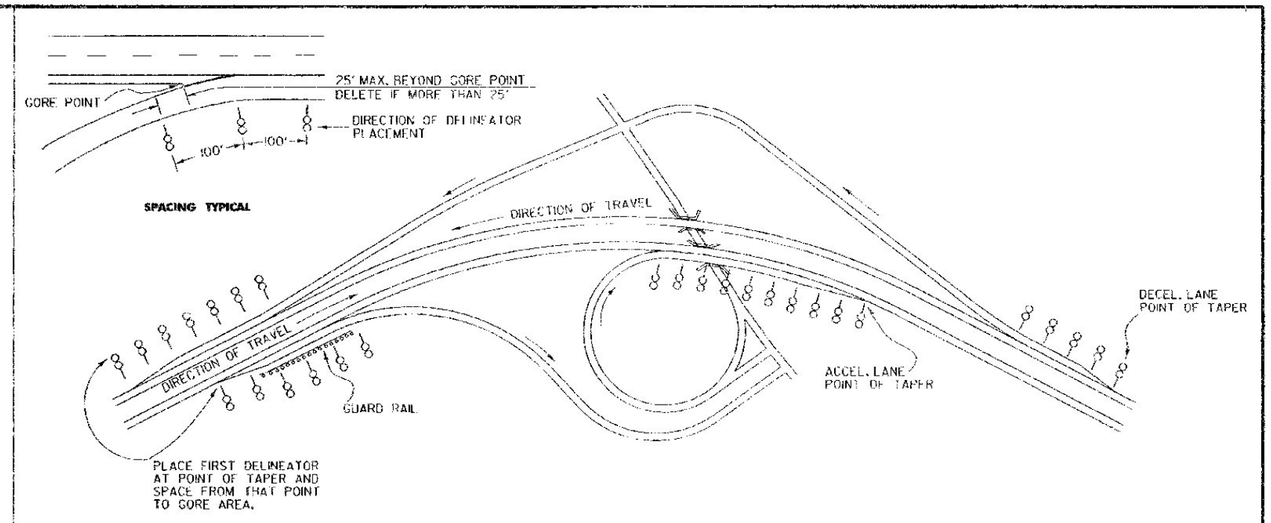
WHITE OR AMBER
RIGHT SIDE — LEFT SIDE

A TYPE I DELINEATOR CONSISTS OF A SINGLE WHITE OR AMBER REFLECTOR BUTTON MOUNTED ON A 1/2 LB/FT MIN. FLANGED CHANNLL POST AND IS POSITIONED TO REFLECT TO TRAFFIC APPROACHING FROM THE NORMAL DIRECTION OF TRAVEL.

TYPE I (RAMPS)

PLACEMENT NOTE

TYPE I DELINEATORS ARE TO BE PLACED ON THE OUTSIDE OF RAMP CURVES AT THE APPROPRIATE SPACING FOR CURVE RADIUS OR RAMP SPEED AS SHOWN ON THE CHART AND PLACED AT 100 FOOT SPACING ON TANGENT ON THE DRIVERS' RIGHT. AMBER DELINEATORS ARE REQUIRED ON THE DRIVERS' LEFT AND WHITE DELINEATORS ON THE RIGHT. DELINEATORS SHALL NOT BE OMITTED BEHIND GUARD RAIL ON THE RAMPS AS IS THE CASE WITH TYPE I DELINEATORS ALONG THE MAIN LINE.



LEGEND

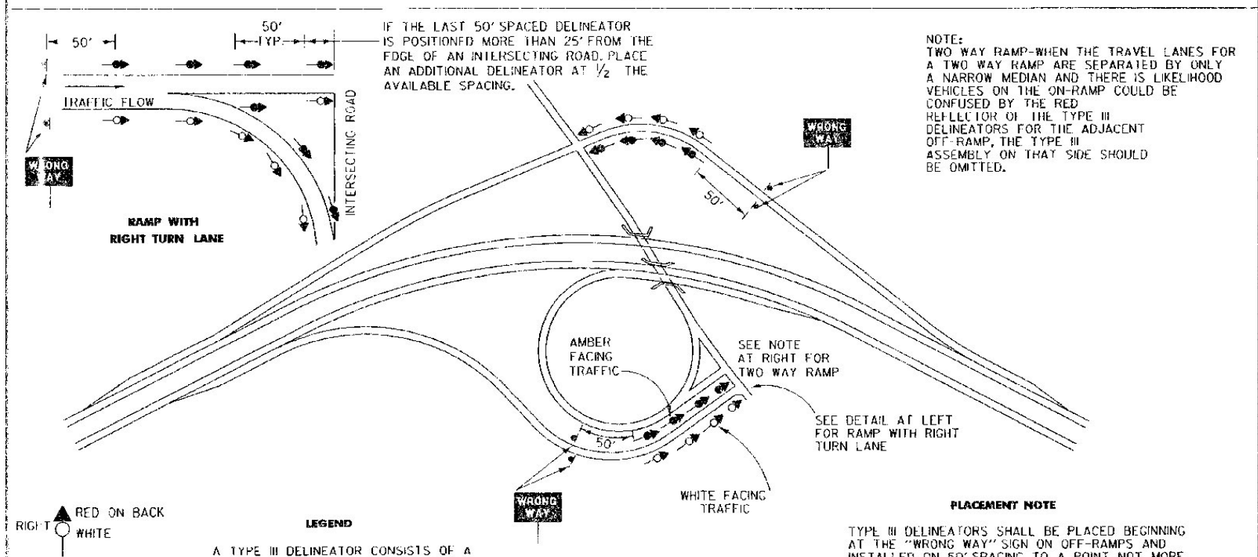
DOUBLE WHITE

A TYPE II DELINEATOR CONSISTS OF TWO WHITE REFLECTOR BUTTONS MOUNTED ONE ABOVE THE OTHER ON A 1/2 LB/FT MIN. FLANGED CHANNEL POST AND IS POSITIONED TO REFLECT TO TRAFFIC APPROACHING FROM THE NORMAL DIRECTION OF TRAVEL.

TYPE II

PLACEMENT NOTE

TYPE II DELINEATORS SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF ACCELERATION AND DECELERATION LANES AT 100 FOOT INTERVALS AND SHALL NOT BE OMITTED BEHIND GUARD RAIL. DELINEATORS SHALL START AT THE BEGINNING POINT OF THE ACCEL. OR DECEL. LANE TAPER, AND END AT THE NOSE OF THE ENTRANCE OR EXIT GORE.



NOTE:
TWO WAY RAMP-WHEN THE TRAVEL LANES FOR A TWO WAY RAMP ARE SEPARATED BY ONLY A NARROW MEDIAN AND THERE IS LIKELIHOOD VEHICLES ON THE ON-RAMP COULD BE CONFUSED BY THE RED REFLECTOR OF THE TYPE III DELINEATORS FOR THE ADJACENT OFF-RAMP, THE TYPE III ASSEMBLY ON THAT SIDE SHOULD BE OMITTED.

LEGEND

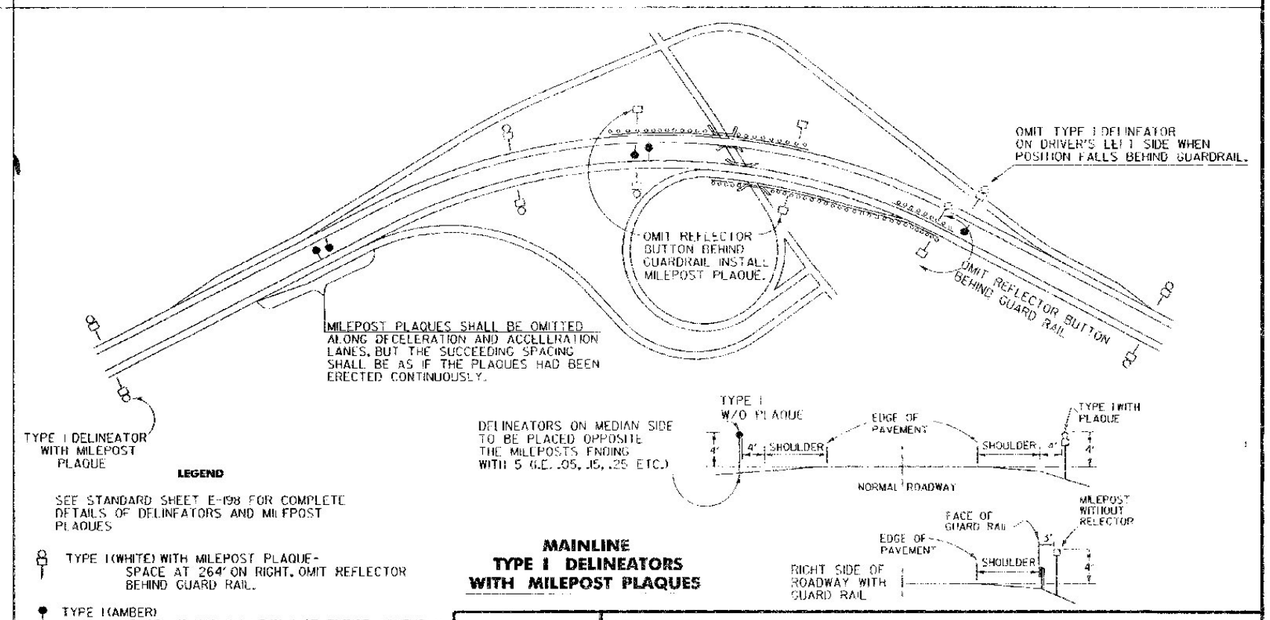
RIGHT: RED ON BACK, WHITE
LEFT: RED ON BACK, AMBER

A TYPE III DELINEATOR CONSISTS OF A TYPE I DELINEATOR FACING THE NORMAL DIRECTION OF TRAVEL AND A SINGLE RED REFLECTOR FACING THE OPPOSITE DIRECTION, BOTH MOUNTED ON A 1/2 LB/FT MIN. FLANGED CHANNEL POST. THE WHITE AND RED COMBINATION IS PLACED ON THE DRIVER'S RIGHT AND THE AMBER AND RED ON THE LEFT.

TYPE III

PLACEMENT NOTE

TYPE III DELINEATORS SHALL BE PLACED BEGINNING AT THE "WRONG WAY" SIGN ON OFF-RAMPS AND INSTALLED ON 50' SPACING TO A POINT NOT MORE THAN 25 FEET FROM THE INTERSECTING ROADWAY. THE "WRONG WAY" SIGNS ARE NORMALLY 250 FEET FROM THE INTERSECTING ROADWAY.



LEGEND

SEE STANDARD SHEET E-198 FOR COMPLETE DETAILS OF DELINEATORS AND MILEPOST PLAQUES

TYPE I (WHITE) WITH MILEPOST PLAQUE-SPACE AT 264' ON RIGHT. OMIT REFLECTOR BEHIND GUARD RAIL.

TYPE I (AMBER) SPACE AT 528' ON LEFT. OMIT ENTIRE ASSEMBLY BEHIND GUARD RAIL.

MAINLINE TYPE I DELINEATORS WITH MILEPOST PLAQUES

THIS SHEET IS NOT TO SCALE

OTHER STDS REQUIRED

REVISIONS AND CORRECTIONS

JAN. 23, 1989 - DATE OF ORIGINAL ISSUE

AUG. 18, 1995 - REVISED NOTES

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacArthur
DIRECTOR OF ENGINEERING

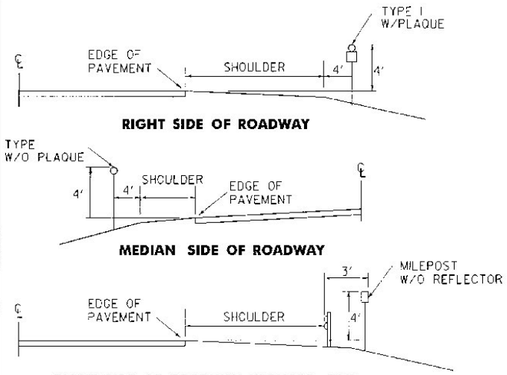
David A. Ross
TRAFFIC AND SAFETY ENGINEER

DELINEATOR PLACEMENT TYPICAL

/traf/std/stde97.dgn/stde97.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-197



TYPICAL PLACEMENT OF TYPE I DELINEATORS AND MILEPOSTS ON DIVIDED HIGHWAY

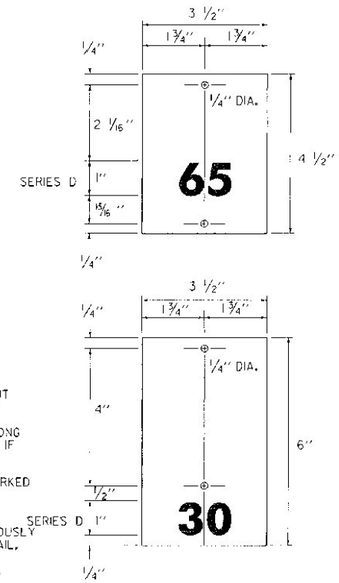
TYPE I DELINEATORS WITH WHITE REFLECTOR UNITS AND THE APPROPRIATE MILEPOST PLAQUES SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF THE DIVIDED HIGHWAYS BETWEEN MILEMARKERS, EXCEPT THAT BEHIND GUARD RAIL MILEPOSTS WITHOUT REFLECTORS SHALL BE ERECTED.

THE TYPE I DELINEATORS WITH OR WITHOUT MILEPOST PLAQUES SHALL BE OMITTED ALONG DECELERATION AND ACCELERATION LANES, BUT THE SUCCEEDING SPACING SHALL BE AS IF THE DELINEATORS HAD BEEN ERECTED CONTINUOUSLY AND SHALL BE SO INDICATED.

THE LOCATION OF TYPE I DELINEATORS AND MILEPOSTS ARE TO BE COMPUTED AND MARKED IN THE FIELD BY THE ENGINEER IN ACCORDANCE WITH THE LATEST REVISION OF THE AGENCY'S "POLICY ON LOCATION MARKING FOR VERMONT DIVIDED HIGHWAYS."

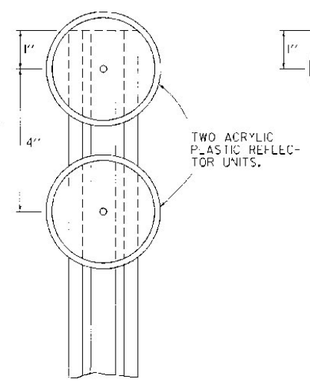
TYPE I AMBER DELINEATORS WITHOUT MILEPOST PLAQUES SHALL BE ERECTED CONTINUOUSLY ALONG THE LEFT OR MEDIAN SIDE ON THE DIVIDED HIGHWAYS EXCEPT BEHIND GUARD RAIL, AND CONTINUED AT APPROXIMATELY THE SAME SPACING THROUGH INTERCHANGES AND REST AREAS WHERE THERE MAY NOT BE ANY TYPE I DELINEATORS ON THE RIGHT SIDE. THE SAME LATERAL PLACEMENT SHALL BE FOLLOWED ON THE LEFT AS ON THE RIGHT. TYPE I DELINEATORS WITHOUT MILEPOST PLAQUE SHALL BE INSTALLED ON INTERSTATE RAMPS AS SHOWN ON THE PLANS.

MILEPOST PLAQUE "A"
(THE NUMERALS ON PART "A" INDICATE THE MILE.)

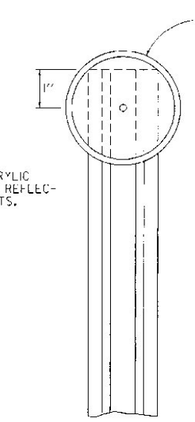


MILEPOST PLAQUE PART "B"
(THE NUMERAL ON PART "B" INDICATES IN FIVE ONE-HUNDREDTHS OF A MILE BETWEEN MILE INCREMENTS.)

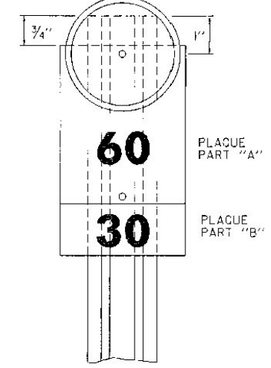
DELINEATORS WITH ACRYLIC PLASTIC REFLECTORS



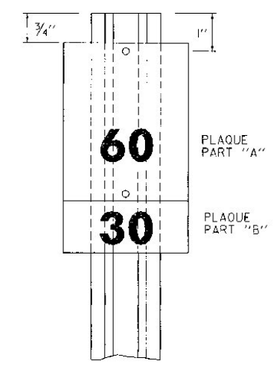
TYPE II



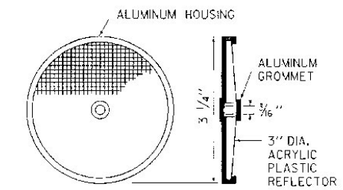
TYPE I WITHOUT PLAQUE



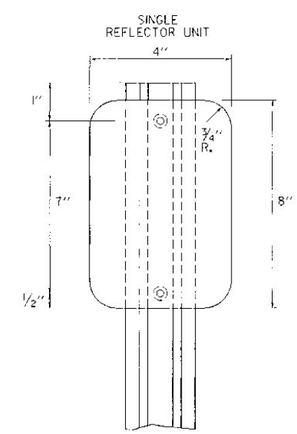
TYPE I WITH PLAQUE



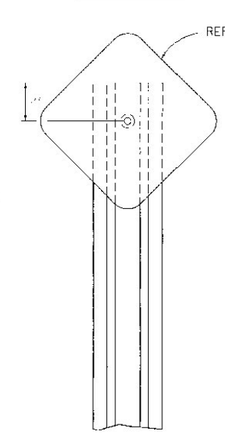
MILEPOST WITHOUT REFLECTOR



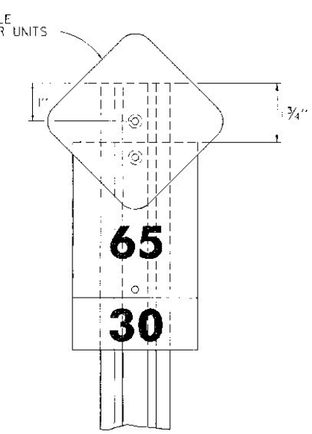
DELINEATOR PLASTIC REFLECTOR UNIT



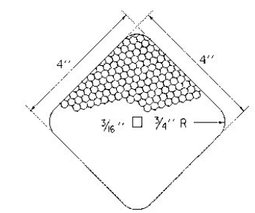
TYPE II



TYPE I WITHOUT PLAQUE

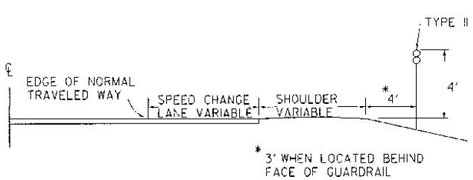


TYPE I WITH PLAQUE



DELINEATOR REFLECTIVE SHEETING UNIT

MATERIAL FOR REFLECTIVE SHEETING DELINEATORS SHALL BE A 0.063" ALUMINUM BACKING WITH A SILVER, AMBER OR RED HIGH INTENSITY REFLECTIVE SHEETING.



TYPICAL PLACEMENT OF TYPE II DELINEATORS ON SPEED CHANGE LANES

TYPE II DELINEATORS SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF THE DECELERATION AND ACCELERATION LANES AT 100' INTERVALS INCLUDING GUARDRAIL SECTIONS. THE DELINEATORS SHALL START AT THE BEGINING OF THE TAPER AND END AT THE NOSE OF THE EXIT OR ENTRANCE GORE. THEY SHALL HAVE WHITE REFLECTOR UNITS.

TYPE III DELINEATORS – SEE NOTE # 1

TYPE III DELINEATORS SHALL BEGIN 50' FROM WRONG WAY SIGNS AND EXTEND EVERY 50' TO A POINT NOT LESS THAN 25' FROM THE DIVIDED HIGHWAY AND BE MOUNTED ON BOTH SIDES OF THE ROAD AS SHOWN ON THE PLANS.

NOTES

1. TYPE III DELINEATORS WILL BE TYPE I DELINEATORS WITH AN ADDITIONAL RED REFLECTIVE UNIT MOUNTED ON THE REVERSE SIDE. THEY SHALL BE ERECTED ON THE RIGHT AND LEFT SIDE OF THE RAMPS AS INDICATED ON THE PLANS.
2. EACH UNIT COMPLETE IN PLACE OF DELINEATOR TYPE I WITH OR WITHOUT PLAQUE, DELINEATOR TYPE II, DELINEATOR TYPE III, OR MILEPOST WITHOUT REFLECTOR SHALL BE PAID FOR AS "DELINEATOR."
3. FOR MOUNTING DELINEATORS AND MILEPOSTS ON BRIDGES, SEE STANDARD E-199.
4. DELINEATOR POSTS SHALL HAVE A MINIMUM EMBEDMENT OF 2' IN THE GROUND.

DELINEATORS WITH REFLECTIVE SHEETING

MILEPOST PLAQUES WITH OR A WITHOUT REFLECTOR UNIT SHALL BE MOUNTED ON THE POST WITH TWO OR THREE 3/16" DIA. BY 1 1/2" LONG ALUMINUM BOLTS WITH 1/2" DIA. ALUMINUM VANDAL RESISTANT NUTS, OR 3/16" DIA. BY 1 1/2" LONG VANDAL RESISTANT FASTENERS.

SECTION MODULUS
YY = 0.11 IN.^{3} MIN.
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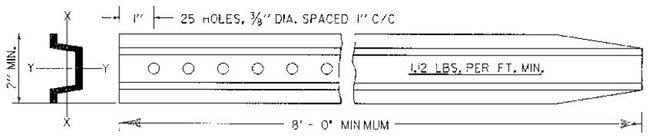


NOT TO SCALE	OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS
SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
AUG. 16, 1995 - MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

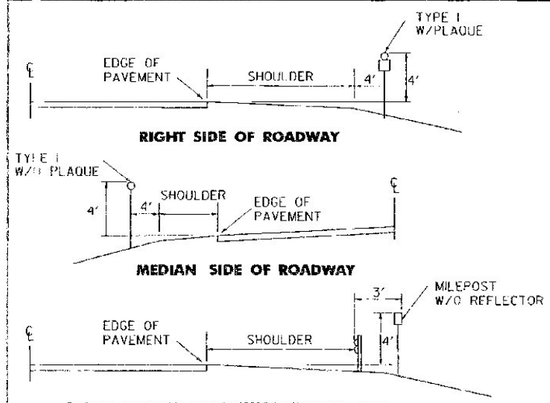
APPROVED
DIRECTOR OF ENGINEERING
TRAFFIC AND SAFETY ENGINEER

FREEWAY - EXPRESSWAY DELINEATORS AND MILEPOSTS

/traf/std/stdel98.dgn : stdel98.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-198



TYPICAL PLACEMENT OF TYPE I DELINEATORS AND MILEPOSTS ON DIVIDED HIGHWAY

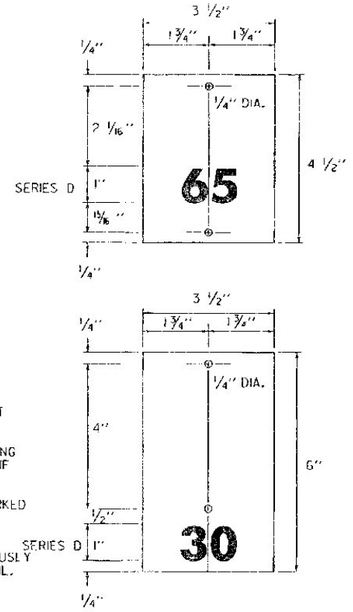
TYPE I DELINEATORS WITH WHITE REFLECTOR UNITS AND THE APPROPRIATE MILEPOST PLAQUES SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF THE DIVIDED HIGHWAYS BETWEEN MILEMARKERS, EXCEPT THAT BEHIND GUARD RAIL MILEPOSTS WITHOUT REFLECTORS SHALL BE ERECTED.

THE TYPE I DELINEATORS WITH OR WITHOUT MILEPOST PLAQUES SHALL BE OMITTED ALONG DECELERATION AND ACCELERATION LANES, BUT THE SUCCEEDING SPACING SHALL BE AS IF THE DELINEATORS HAD BEEN ERECTED CONTINUOUSLY AND SHALL BE SO INDICATED.

THE LOCATION OF TYPE I DELINEATORS AND MILEPOSTS ARE TO BE COMPUTED AND MARKED IN THE FIELD BY THE ENGINEER IN ACCORDANCE WITH THE LATEST REVISION OF THE AGENCY'S "POLICY ON LOCATION MARKING FOR VERMONT DIVIDED HIGHWAYS."

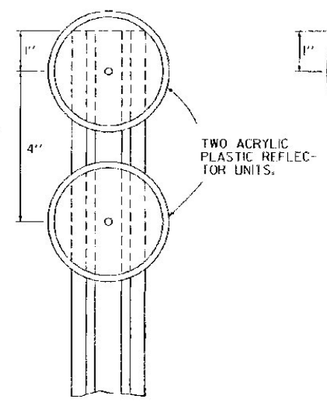
TYPE I AMBER DELINEATORS WITHOUT MILEPOST PLAQUES SHALL BE ERECTED CONTINUOUSLY ALONG THE LEFT OR MEDIAN SIDE ON THE DIVIDED HIGHWAYS EXCEPT BEHIND GUARD RAIL, AND CONTINUED AT APPROXIMATELY THE SAME SPACING THROUGH INTERCHANGES AND REST AREAS WHERE THERE MAY NOT BE ANY TYPE I DELINEATORS ON THE RIGHT SIDE. THE SAME LATERAL PLACEMENT SHALL BE FOLLOWED ON THE LEFT AS ON THE RIGHT. TYPE I DELINEATORS WITHOUT MILEPOST PLAQUE SHALL BE INSTALLED ON INTERSTATE RAMPS AS SHOWN ON THE PLANS.

MILLPOST PLAQUE "A"
(THE NUMERALS ON PART "A" INDICATE THE MILE.)

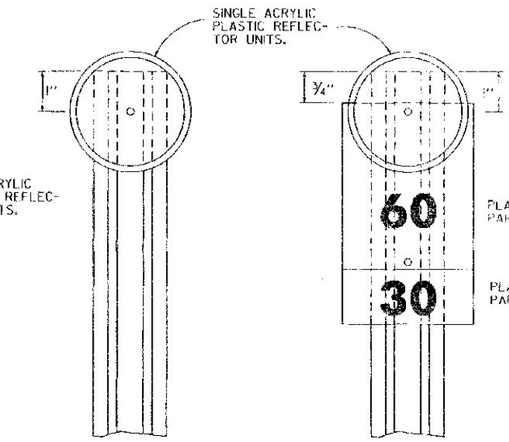


MILEPOST PLAQUE PART "B"
(THE NUMERAL ON PART "B" INDICATES IN FIVE ONE-HUNDREDTHS OF A MILE BETWEEN MILE INCREMENTS.)

DELINEATORS WITH ACRYLIC PLASTIC REFLECTORS

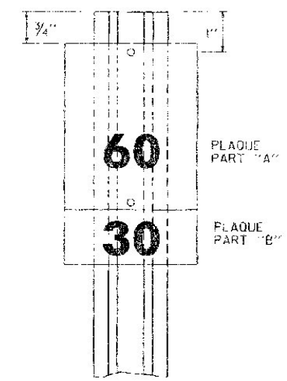


TYPE II

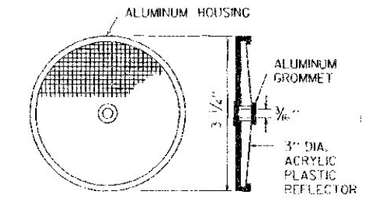


TYPE I WITHOUT PLAQUE

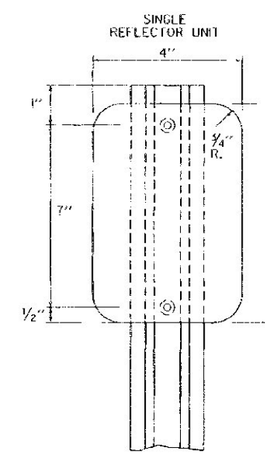
TYPE I WITH PLAQUE



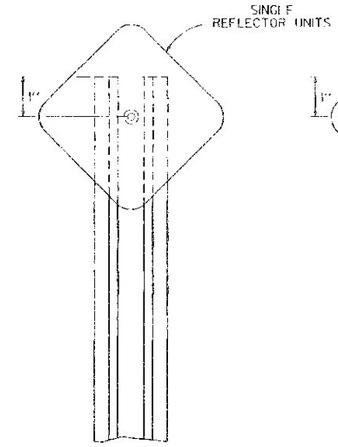
MILEPOST WITHOUT REFLECTOR



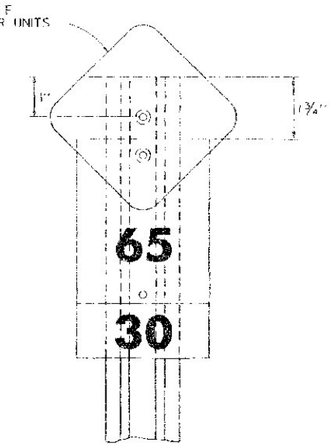
DELINEATOR PLASTIC REFLECTOR UNIT



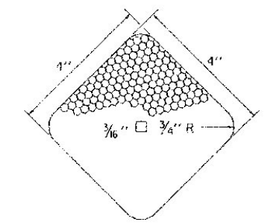
TYPE II



TYPE I WITHOUT PLAQUE

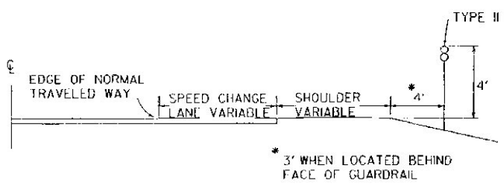


TYPE I WITH PLAQUE



DELINEATOR REFLECTIVE SHEETING UNIT

MATERIAL FOR REFLECTIVE SHEETING DELINEATORS SHALL BE A 0.063" ALUMINUM BACKING WITH A SILVER, AMBER OR RED HIGH INTENSITY REFLECTIVE SHEETING.



TYPICAL PLACEMENT OF TYPE II DELINEATORS ON SPEED CHANGE LANES

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1. TYPE III DELINEATORS WILL BE TYPE I DELINEATORS WITH AN ADDITIONAL RED REFLECTIVE UNIT MOUNTED ON THE REVERSE SIDE. THEY SHALL BE ERECTED ON THE RIGHT AND LEFT SIDE OF THE RAMPS AS INDICATED ON THE PLANS.
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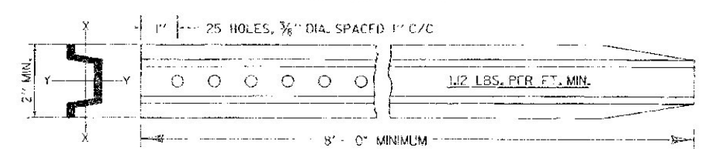

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REVISIONS AND CORRECTIONS
SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
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APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

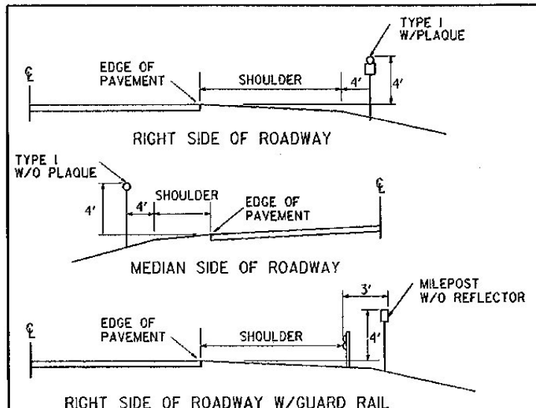
TRAFFIC AND SAFETY ENGINEER

FREEWAY - EXPRESSWAY DELINEATORS AND MILEPOSTS

/traf/std/stdel98.dgn : stdel98.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-198



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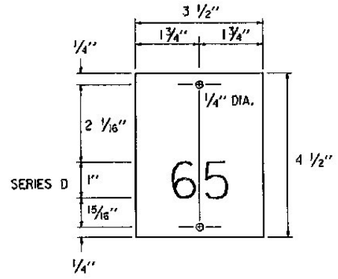
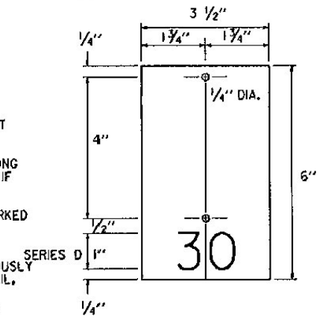
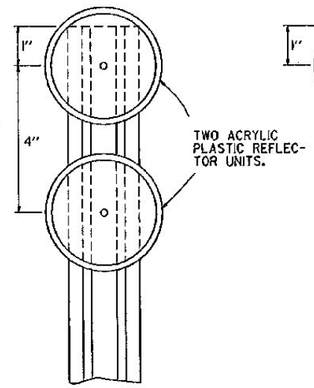
MILEPOST PLAQUE "A"
(THE NUMERALS ON PART "A" INDICATE THE MILE.)



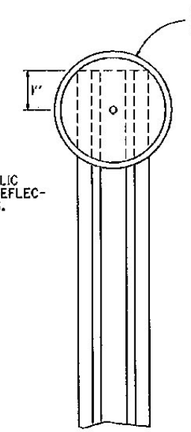


MILEPOST PLAQUE PART "B"
(THE NUMERAL ON PART "B" INDICATES IN FIVE ONE-HUNDREDTHS OF A MILE BETWEEN MILE INCREMENTS.)

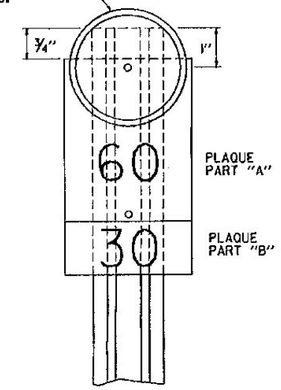
DELINEATORS WITH ACRYLIC PLASTIC REFLECTORS



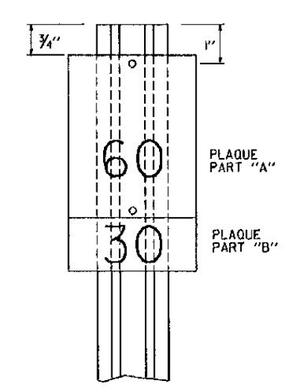
TYPE II



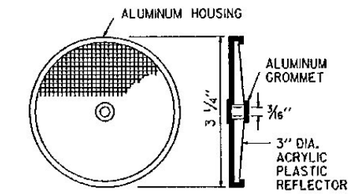
TYPE I WITHOUT PLAQUE



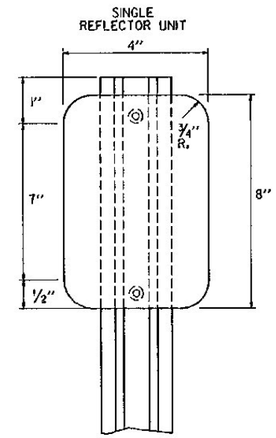
TYPE I WITH PLAQUE



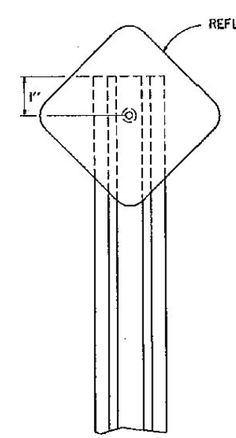
MILEPOST WITHOUT REFLECTOR



DELINEATOR PLASTIC REFLECTOR UNIT



TYPE II



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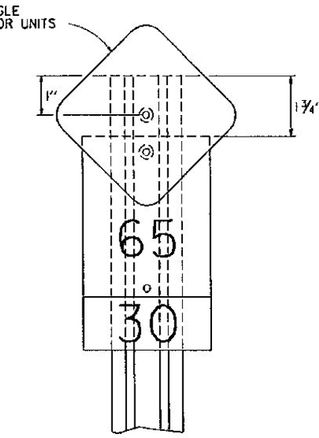

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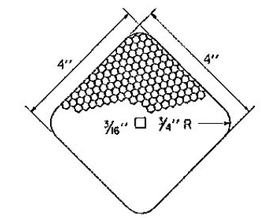

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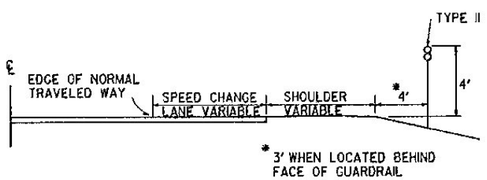

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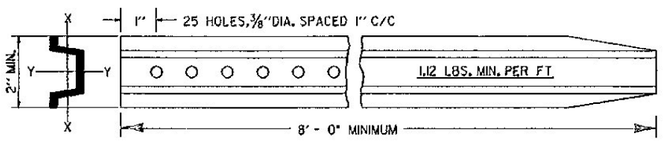
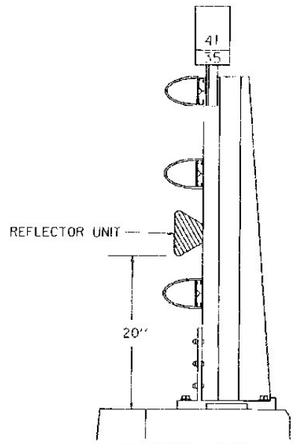
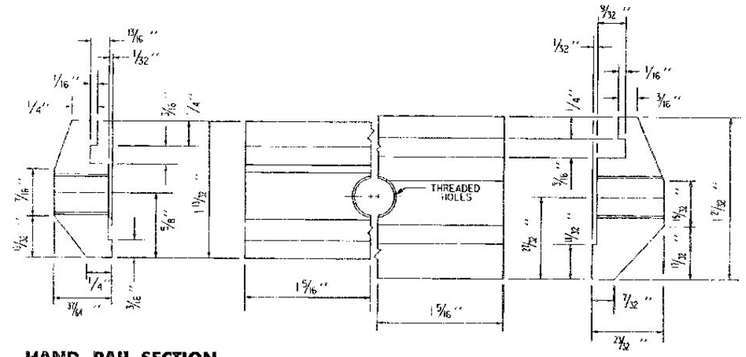


REVISIONS AND CORRECTIONS	APPROVED	DELINEATORS AND MILEPOSTS	VERMONT AGENCY OF TRANSPORTATION	STANDARD E-198

APPROVED — SEPT. 10, 1987 — DATE
David B Kelley — CHIEF ENGINEER
Arthur Gore — DIRECTOR OF PLANNING AND PRE-CONSTRUCTION
G. B. McArthur — TRAFFIC AND SAFETY ENGINEER



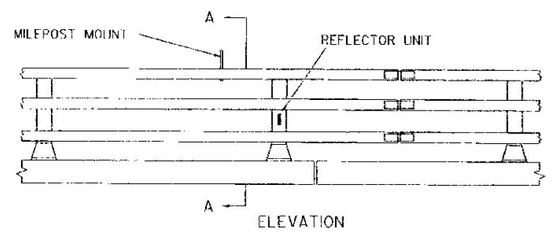
BARRIER RAIL SECTION A-A



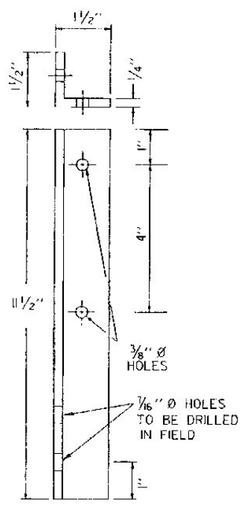
HAND RAIL SECTION
(2 REQUIRED)

DETAIL "A"
TOTAL LENGTH 2 5/8"
ASTM B-221 ALLOY 6061-T6 OR 6061-T5

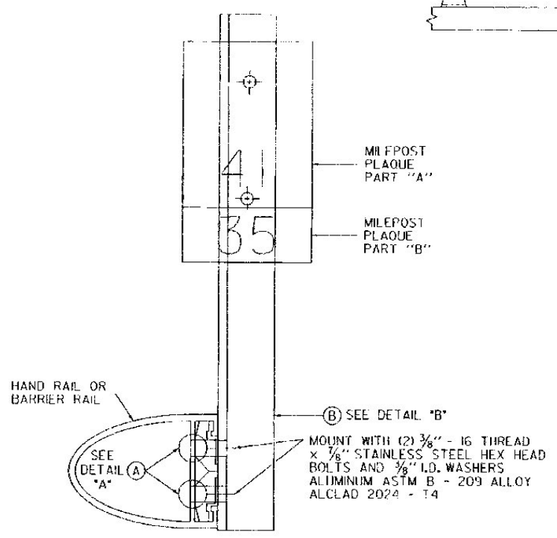
BARRIER RAIL SECTION
(2 REQUIRED)



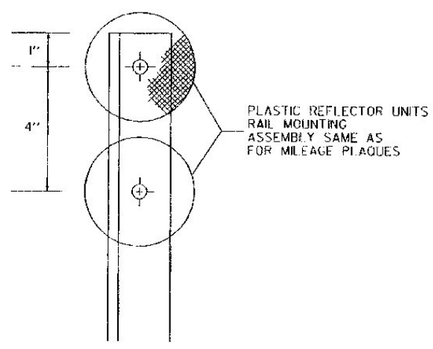
ELEVATION



DETAIL "B"
ALUMINUM ANGLE
ASTM B - 308 ALLOY 6061-T6

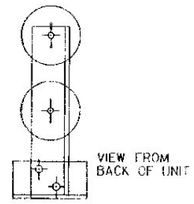


DETAIL FOR MOUNTING ON ALUMINUM BRIDGE RAIL



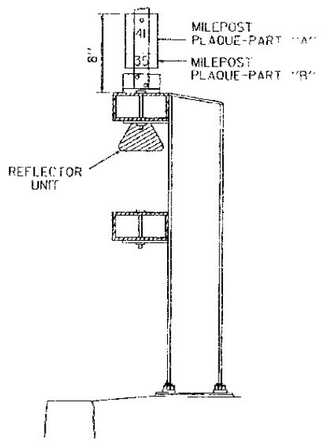
TYPE II
DELINEATOR

TYPE II DELINEATORS WILL BE RAIL MOUNTED AT ONE-HUNDRED FOOT SPACING WHERE ACCELERATION OR DECELERATION LANES ARE CARRIED ACROSS STRUCTURES. ALSO SEE STANDARD E-198

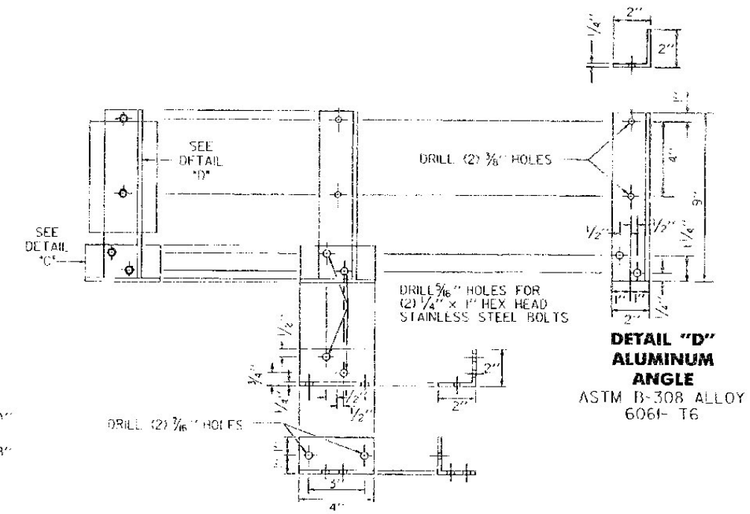


TYPE II
DELINEATOR

TYPE II DELINEATORS WILL BE RAIL MOUNTED AT ONE-HUNDRED FOOT SPACING WHERE ACCELERATION OR DECELERATION LANES ARE CARRIED ACROSS STRUCTURES. ALSO SEE STANDARD E-198



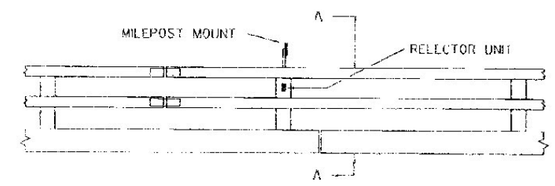
BARRIER RAIL SECTION A-A



DETAIL "D"
ALUMINUM ANGLE
ASTM B-308 ALLOY 6061- T6

DETAIL "C"
ALUMINUM ANGLE
ASTM B-308 ALLOY 6061 T6

MOUNT ON BRIDGE RAIL WITH (2) 3/8" x 1 1/4" STAINLESS STEEL SELF TAPPING SCREWS AND 3/4" O.D. x 3/8" I.D. x 1/16" THICK WASHER. ALUMINUM ASTM B-209 ALLOY ALCLAD 2024-T4.



ELEVATION

DETAIL FOR MOUNTING ON BOX BEAM BRIDGE RAIL

THE REFLECTOR UNIT IS TO BE INSTALLED EVERY 30 FEET ON OR CLOSEST POST.

NOT TO SCALE	OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
AUG. 18, 1995 REVISED REFLECTOR UNIT LOCATION AND ADDED NOTE.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

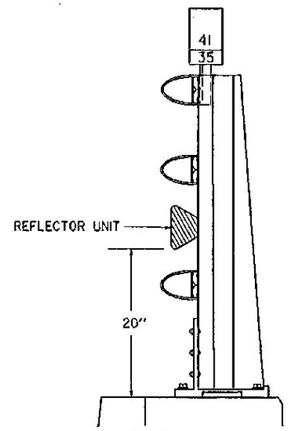
TRAFFIC AND SAFETY ENGINEER

FREEWAY - EXPRESSWAY DELINEATOR AND MILEPOST MOUNTING ON BRIDGE RAIL

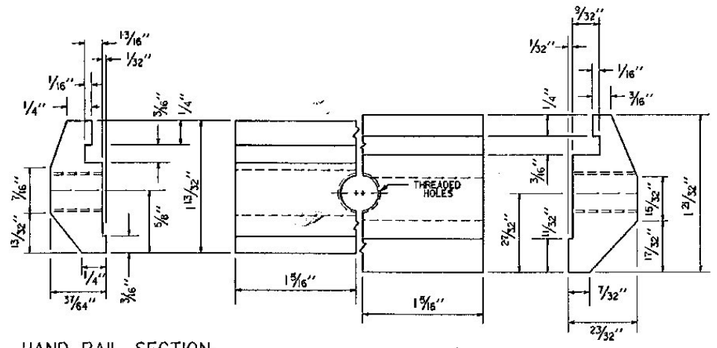
/traf/std/stdel99.dgn : stdel99.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-199



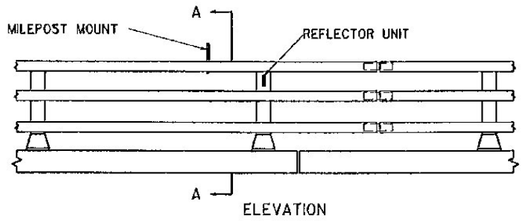
BARRIER RAIL SECTION A-A



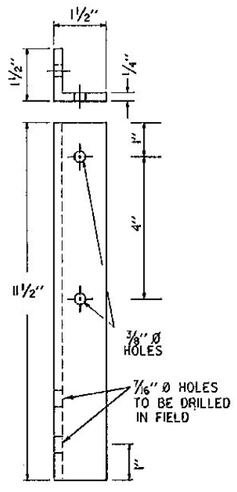
HAND RAIL SECTION
(2 REQUIRED)

DETAIL "A"
TOTAL LENGTH 2 5/8"
ASTM B-221 ALLOY 6061-T6 OR 6061-T5

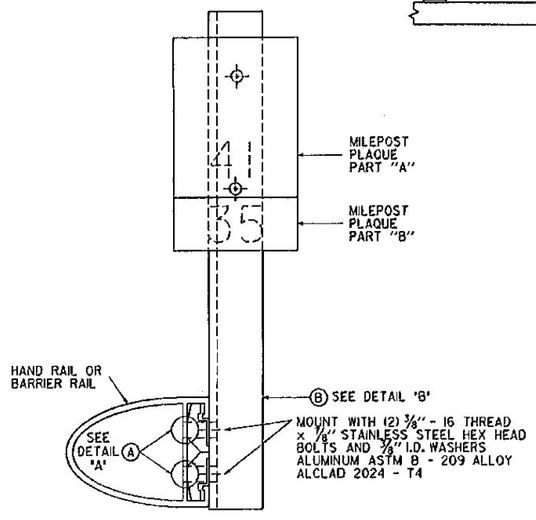
BARRIER RAIL SECTION
(2 REQUIRED)



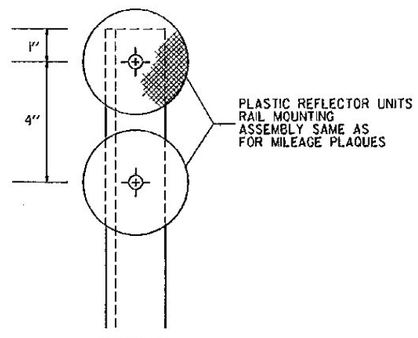
ELEVATION



DETAIL "B"
ALUMINUM ANGLE
ASTM B - 308 ALLOY 6061-T6

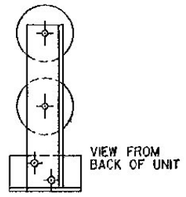


DETAIL FOR MOUNTING ON ALUMINUM BRIDGE RAIL



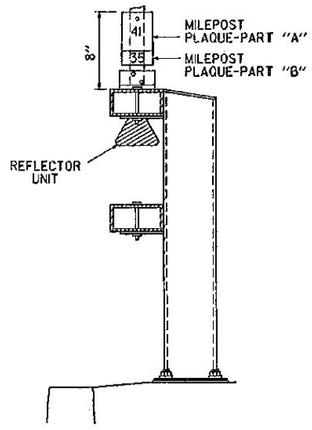
TYPE II
DELINEATOR

TYPE II DELINEATORS WILL BE RAIL MOUNTED AT ONE-HUNDRED FOOT SPACING WHERE ACCELERATION OR DECELERATION LANES ARE CARRIED ACROSS STRUCTURES. ALSO SEE STANDARD E-198

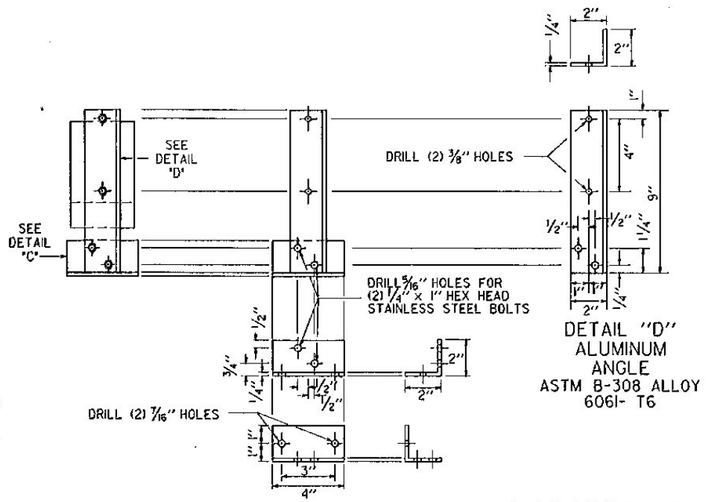


TYPE II
DELINEATOR

TYPE II DELINEATORS WILL BE RAIL MOUNTED AT ONE-HUNDRED FOOT SPACING WHERE ACCELERATION OR DECELERATION LANES ARE CARRIED ACROSS STRUCTURES. ALSO SEE STANDARD E-198



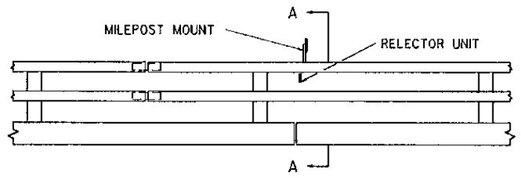
BARRIER RAIL
SECTION A-A



DETAIL "D"
ALUMINUM
ANGLE
ASTM B-308 ALLOY
6061- T6

DETAIL "C"
ALUMINUM ANGLE
ASTM B-308 ALLOY 6061 T6

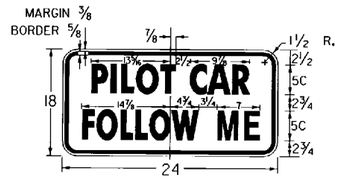
MOUNT ON BRIDGE RAIL WITH (2) 3/8" x 1 1/4" STAINLESS STEEL SELF TAPPING SCREWS AND 3/4 " O.D. x 3/8" I.D. x 1/16" THICK WASHER, ALUMINUM ASTM B-209 ALLOY ALCLAD 2024-T4.



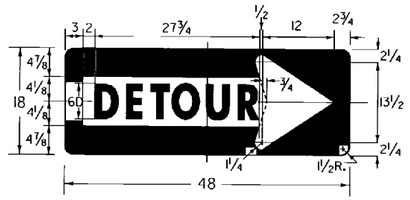
ELEVATION

DETAIL FOR MOUNTING ON BOX BEAM BRIDGE RAIL

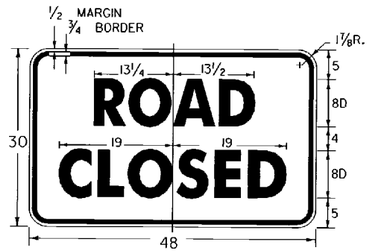
REVISIONS AND CORRECTIONS	APPROVED	SEPT. 10, 1987 DATE David B Kelley CHIEF ENGINEER Arthur Jones DIRECTOR OF PLANNING AND PRE-CONSTRUCTION Gordon B. MacArthur TRAFFIC AND SAFETY ENGINEER	DELINEATOR AND MILEPOST MOUNTING ON BRIDGE RAIL	VERMONT AGENCY OF TRANSPORTATION	STANDARD E-199



G20-4

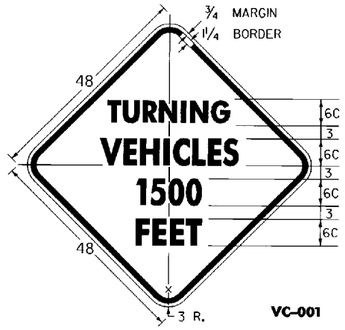


M4-10(R)

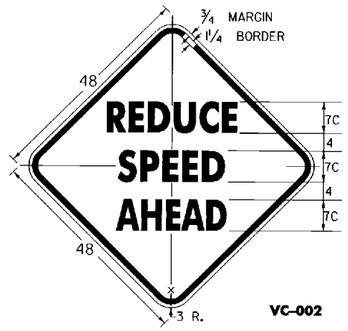


COLORS:
BLACK TEXT AND BORDER
WHITE REFLECTORIZED BACKGROUND

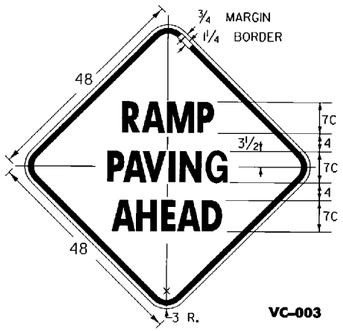
R11-2



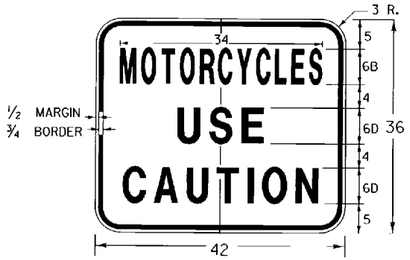
VC-001



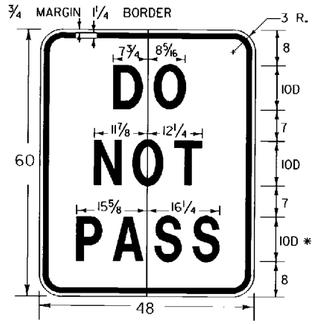
VC-002



VC-003

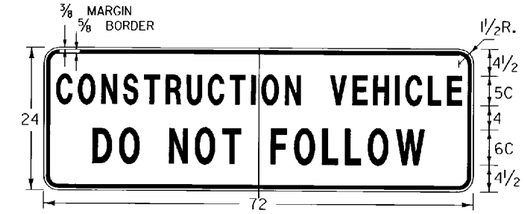


VC-004



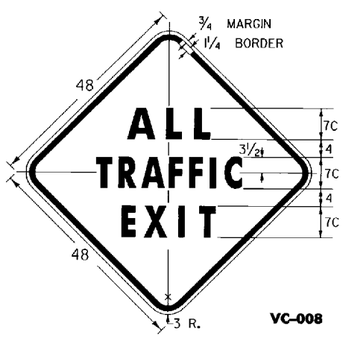
VC-005

* REDUCE SPACING BY 40%

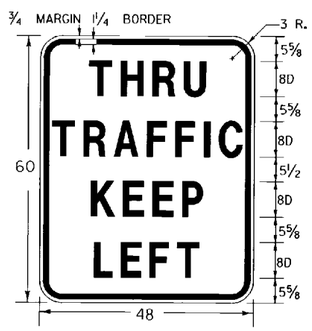


IT IS SUGGESTED THAT THIS SIGN BE DESIGNED TO FOLD, (DOWN OR ACROSS), OR BE COVERED, OR BE REMOVED WHEN NOT IN USE. THE SIGN SHOULD ALSO BE MOUNTED AS TO NOT INTERFERE WITH THE VISIBILITY OF DIRECTIONAL OR TAIL LIGHTS AS REQUIRED BY LAW.

VC-007

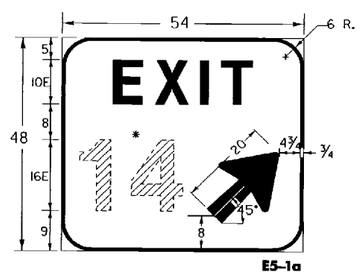


VC-008



VR-118

COLORS: BLACK BORDER & TEXT
WHITE (REFL.) BACKGROUND



E5-1a

* EXIT NUMBER AS PER PLANS
OPTICALLY SPACED

COLORS:
BACKGROUND - GREEN (REFL.)
BORDER, ARROW AND LEGEND - WHITE (REFL.)

NOTES

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS

COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS SHALL BE ON A REFLECTORIZED ORANGE BACKGROUND OF TYPE IIB OR TYPE III REFLECTIVE SHEETING, UNLESS OTHERWISE NOTED.

SIGN DETAILS INDICATE THE APPROPRIATE COLOR.

SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED. HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.

(ALL DIMENSIONS SHOWN IN INCHES)

OTHER STDS. REQUIRED: E-100

REVISIONS AND CORRECTIONS

AUG 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

CONSTRUCTION SIGN DETAILS

/traf/std/std102.dgn : std102A.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-102A

TRAVEL LANE REQUIREMENTS

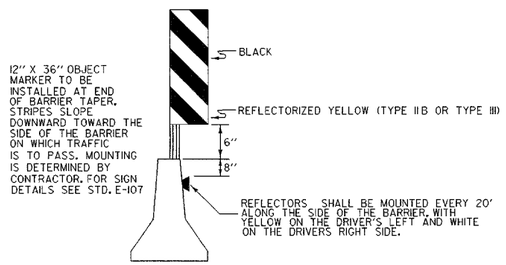
BARRIER SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE CENTERLINE TO ALLOW THE TRAFFIC TO USE THE NORMAL LANE WIDTH.

EDGELINES SHALL BE REMOVED AND NEW TEMPORARY TAPE EDGELINES APPLIED. THE DRIVER'S LEFT EDGELINE SHALL BE A MINIMUM OF ONE FOOT.(TWO FEET IS DESIRABLE) FROM BARRIER. TRAVEL LANE SHALL BE 12 FEET WIDE.

THE TEMPORARY TAPE PAVEMENT MARKINGS SHALL BE OF A TYPE WHICH CAN BE COMPLETELY REMOVED AFTER THE PROJECT IS COMPLETED WITHOUT SCARRING OR MARKING THE PAVEMENT SURFACE. PAYMENT FOR THE TAPE MARKINGS SHALL BE UNDER THE APPROPRIATE ITEM NUMBERS.

PAVEMENT MARKING REMOVALS SHALL BE PAID UNDER THE APPROPRIATE ITEM NUMBER. TEMPORARY TAPE REMOVAL IS NOT PAID UNDER THE REMOVAL ITEM. IT IS SUBSIDIARY TO THE TAPE ITEM.

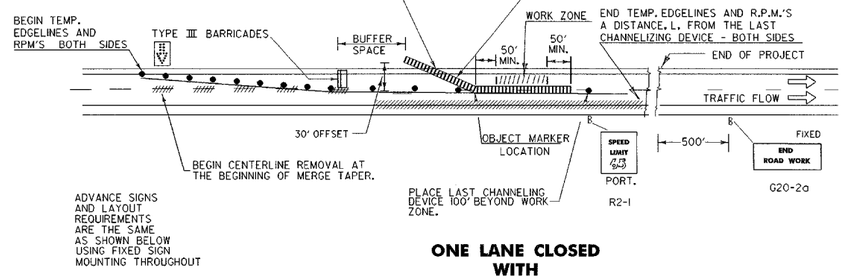
THE RAISED PAVEMENT MARKERS (RPM'S) SHALL BE OF A TYPE WHICH CAN BE EASILY REMOVED AND THEY SHALL BE PLACED TO THE OUTSIDE OF THE TEMPORARY TAPE PAVEMENT MARKINGS. THE RPM'S SHALL BE SPACED AT 20 FT. THE RPM'S ARE TO BE PAID UNDER THE ITEM TEMPORARY RAISED PAVEMENT MARKINGS. IF RPM'S ARE INCLUDED AS AN INTEGRAL PART OF THE TEMPORARY TAPE PAVEMENT MARKINGS. THEN THE COST OF THE RAISED MARKERS SHALL BE CONSIDERED A PART OF THE TEMPORARY PAVEMENT MARKING ITEM AND SEPERATE RPM'S SHALL NOT BE REQUIRED.



''CONCRETE MEDIAN BARRIER'', PROVIDE A MINIMUM TAPER RATE AS SHOWN IN THE TABLE BELOW, WITH A MINIMUM OF 50 FT. OF TANGENT SECTION ON EACH END OF THE WORK ZONE. THE END OF THE BARRIER FACING APPROACHING TRAFFIC SHALL MEET THE FOLLOWING REQUIREMENT: WHEN NO GUARDRAIL IS PRESENT, USE 30' OFFSET FROM EDGE OF TRAVELLED WAY. IF GUARDRAIL IS PRESENT, THEN CONCRETE BARRIER CAN BE TAPERED TO A DISTANCE BEYOND THE DEFLECTION DISTANCE OF THE GUARDRAIL. IF A 30' OFFSET IS NOT ATTAINABLE OR TO A DISTANCE BEYOND THE DEFLECTION DISTANCE OF THE GUARDRAIL, THEN A CRASH ATTENUATOR DESIGNED FOR THE REGULAR SPEED LIMIT OF THE ROADWAY SHALL BE PROVIDED.

IF THE BARRIER IS PLACED SUCH THAT THE TEMPORARY TAPE CAN BE PLACED OVER THE EXISTING DASHED LINE, THEN THE EDGELINES DO NOT NEED TO BE TAPERED BEFORE THE BARRIER AND THE DASHED MARKINGS DO NOT NEED TO BE REMOVED IN THE TANGENT SECTION.

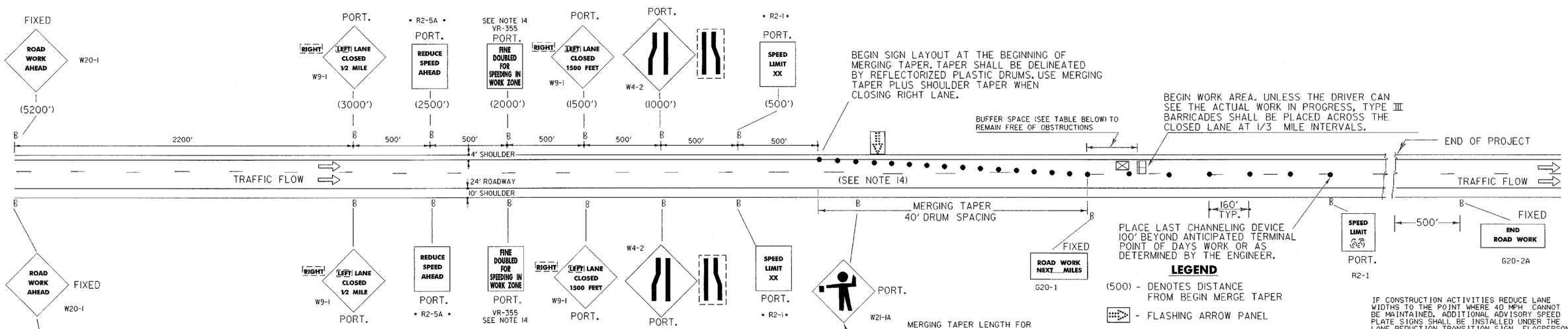
IF THE BARRIER IS PLACED SUCH THAT COVERING THE DASHED LINES WITH THE TEMPORARY TAPE EDGELINE IS NOT POSSIBLE THEN THE EDGELINES SHALL BE TAPERED A LENGTH, L , BOTH IN ADVANCE AND BEYOND THE BARRIER PLACED ON TANGENT.



ONE LANE CLOSED WITH POSITIVE BARRIER PROTECTION

NOTES

1. WHEN CONSTRUCTION EQUIPMENT IS WORKING AT OR NEAR THE EXIT OR ENTRANCE RAMPS, FLAGPERSONS OR UNIFORMED TRAFFIC CONTROL OFFICERS (UTO'S) SHOULD BE USED TO ASSIST IN CONTROLLING TRAFFIC. SEE STD. E-106 FOR TRAFFIC CONTROL DETAILS.
2. ALL SIGNS SHALL BE PLACED BEFORE ANY WORK BEGINS OR EQUIPMENT IS PUT ON THE ROADWAY. SIGNS SHALL BE COVERED OR REMOVED WHEN NOT APPLICABLE. SEE STANDARD SHEET E-100 FOR REQUIREMENTS.
3. CONTRACTOR SHALL HAVE CHANNELIZING DEVICES AND SIGNS FOR LEFT SIDE CLOSURE AND RIGHT SIDE CLOSURE ON PROJECT BEFORE STARTING PROJECT.
4. EXISTING SPEED LIMIT SIGNS SHALL BE COVERED WHEN REDUCED SPEED SIGNS ARE POSTED.
5. CHANNELIZING DEVICES OTHER THAN REFLECTORIZED PLASTIC DRUMS WILL BE ALLOWED ALONG TANGENT SECTIONS AS LONG AS THEY CONFORM TO THE M.U.T.C.D. AND ARE APPROVED BY THE RESIDENT ENGINEER. THE TYPE OF DEVICE SHALL BE CONSISTENT THROUGHOUT THE TANGENT SECTION.
6. THE ''SPEED LIMIT XX'' AND OTHER RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN WORK IS NOT IN PROGRESS AND ROADWAY IS NOT RESTRICTED.
7. ''REDUCED SPEED AHEAD'' SIGNS MAY BE USED IN LIEU OF ''SPEED ZONE AHEAD''.
8. FOR RELATIVELY SHORT TERM PROJECTS WITH NO OFFICIAL SPEED ZONE ENACTMENT, THE SPEED LIMIT AND REDUCED SPEED LIMIT SIGNS CAN BE SUBSTITUTED WITH ADVISORY SPEED PLAQUES MOUNTED AS SUPPLEMENTAL SIGNS ON OTHER WARNING SIGNS.
9. ALL FIXED SIGNS SHALL BE MOUNTED ON YIELDING STEEL. ALUMINUM OR WOOD SUPPORTS AS SHOWN ON APPROPRIATE STANDARD SHEETS.
10. PORTABLE SIGNS SHALL BE KEPT LEVEL WHEN PLACED ON THE EDGE OF ROADWAY AND ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. PAYMENT SUBSIDIARY TO OTHER ITEMS. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACES SHALL BE PLACED ABOVE THE TOP OF THE GUARDRAIL.
11. WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES.
12. THE NUMBER OF CHANNELIZING DEVICES, TYPE III BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.)
13. FOR ANY LONG TERM CLOSURE (GREATER THAN 3 DAYS) EXISTING CENTERLINE SHALL BE REMOVED AND TEMPORARY EDGELINES PLACED AS SHOWN WITH POSITIVE BARRIER.
14. ONLY USE IF TEMPORARY SPEED LIMIT FORM HAS BEEN FILED.



USE PORTABLE ''RIGHT OR LEFT LANE CLOSED 1 MILE'' WHEN SIGN PACKAGE IS MOVED FORWARD. SIGNS NOTED AS FIXED SHALL REMAIN IN PLACE THROUGH THE ENTIRE PROJECT. SIGNS NOTED AS PORTABLE SHALL MOVE AS THE WORK AREA CHANGES. ALL SIGNS SHALL BE REMOVED OR COVERED WHEN NOT NEEDED.

• R2-5A TO BE USED ONLY WITH REGULATORY, TEMPORARY SPEED LIMITS, OTHERWISE USE W13-1 ADVISORY SPEED PLATES.

POSTED SPEED OR 85TH PERCENTILE M.P.H.	MERGING TAPER 12' LANE	SHOULDER TAPER W=10'	BARRIER TAPER RATE	BUFFER SPACE (MINIMUMS)
40	320'	90'	9 TO 1	160'
45	540'	150'	-	270'
50	600'	170'	11 TO 1	300'
55	660'	190'	-	330'
60	720'	200'	13 TO 1	360'
65	780'	220'	-	390'

MERGING TAPER LENGTH FOR WIDTHS OTHER THAN 12 FEET

TAPER FORMULA:

$L = S \times W$ FOR SPEEDS OF 45 OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 OR LESS.

WHERE:

L = MINIMUM LENGTH OF TAPER.
S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.
W = WIDTH OF OFFSET.

LEGEND

(500) - DENOTES DISTANCE FROM BEGIN MERGE TAPER
- FLASHING ARROW PANEL
- REFLECTORIZED PLASTIC DRUM
- PAVEMENT MARKING REMOVAL
- CONCRETE MEDIAN BARRIER
- TYPE III BARRICADE
- TRUCK/TRAILER MOUNTED ATTENUATOR (OPTIONAL)

IF CONSTRUCTION ACTIVITIES REDUCE LANE WIDTHS TO THE POINT WHERE 40 MPH CANNOT BE MAINTAINED, ADDITIONAL ADVISORY SPEED PLATE SIGNS SHALL BE INSTALLED UNDER THE LANE REDUCTION TRANSITION SIGN. FLAGPERSONS AND U.T.O.'S SHALL NOT BE ALLOWED TO INTERFERE WITH TRAFFIC BY STEPPING INTO THE LANE TO REDUCE THE DRIVER'S SPEED.

OTHER STDS. REQUIRED: E-100 E-101 E-102 E-102A E-107A

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - FHWA COMMENTS - CHANGE TO 65 M.P.H. TAPER RATES
OCT. 21, 1992 - ADDED TAPER RATE TABLE & REVISED TITLE BLOCK
AUG. 08, 1995 - DELETED AN INVALID NOTE
SEPT. 23, 1998 - ADDED FINE SIGN VR-355

APPROVED

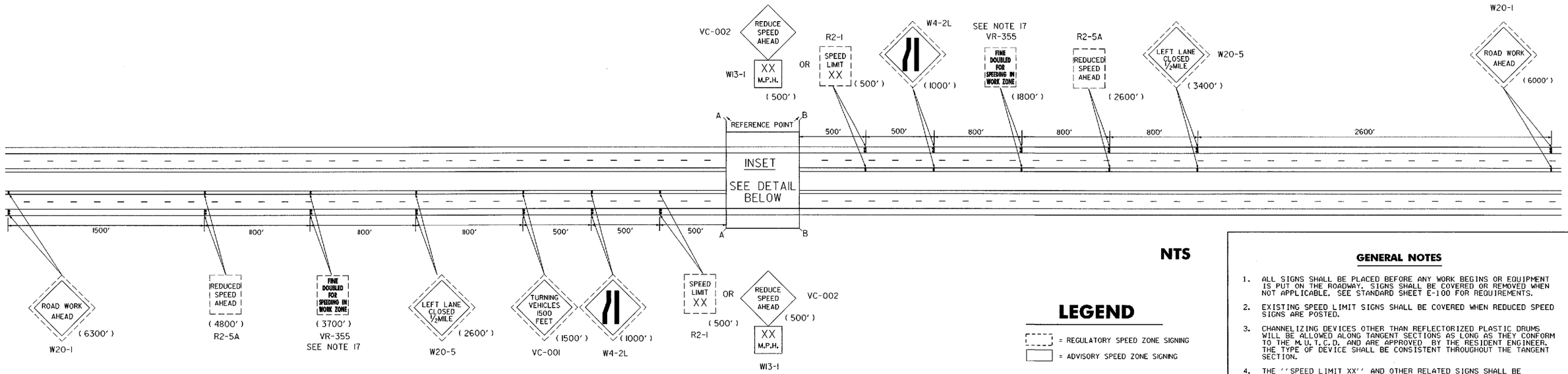
DIRECTOR OF PROJECT DEVELOPMENT

MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY ONE LANE CLOSED

/traf/std/stdel03.dgn : stdel03.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-103



NTS

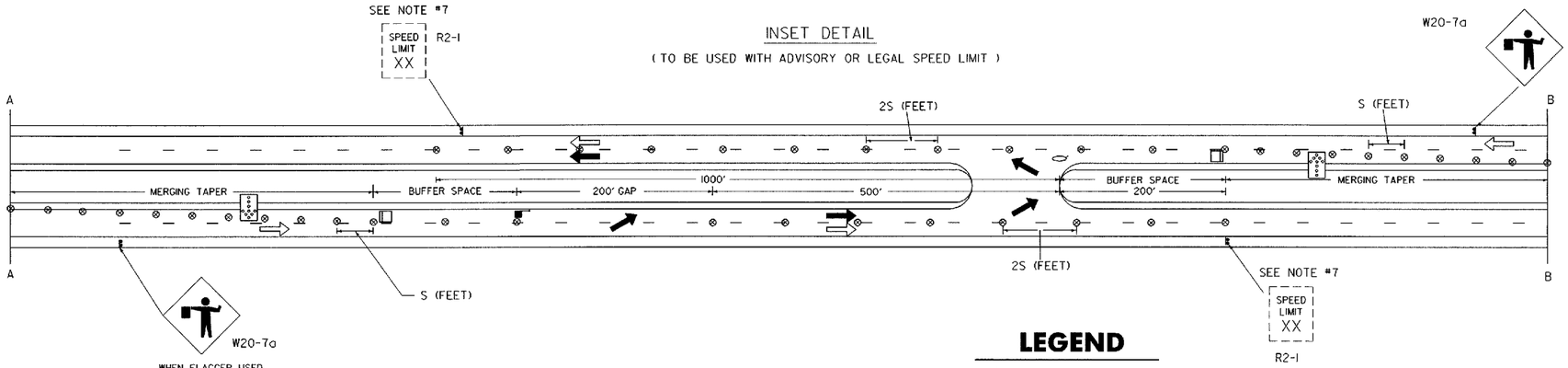
LEGEND

= REGULATORY SPEED ZONE SIGNING

= ADVISORY SPEED ZONE SIGNING

GENERAL NOTES

1. ALL SIGNS SHALL BE PLACED BEFORE ANY WORK BEGINS OR EQUIPMENT IS PUT ON THE ROADWAY. SIGNS SHALL BE COVERED OR REMOVED WHEN NOT APPLICABLE. SEE STANDARD SHEET E-100 FOR REQUIREMENTS.
2. EXISTING SPEED LIMIT SIGNS SHALL BE COVERED WHEN REDUCED SPEED SIGNS ARE POSTED.
3. CHANNELIZING DEVICES OTHER THAN REFLECTORIZED PLASTIC DRUMS WILL BE ALLOWED ALONG TANGENT SECTIONS AS LONG AS THEY CONFORM TO THE M.U.T.C.D. AND ARE APPROVED BY THE RESIDENT ENGINEER. THE TYPE OF DEVICE SHALL BE CONSISTENT THROUGHOUT THE TANGENT SECTION.
4. THE ''SPEED LIMIT XX'' AND OTHER RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN WORK IS NOT IN PROGRESS AND ROADWAY IS NOT RESTRICTED.
5. ''SPEED ZONE AHEAD'' SIGNS MAY BE USED IN LIEU OF ''REDUCED SPEED AHEAD''.
6. FOR RELATIVELY SHORT TERM PROJECTS WITH NO OFFICIAL REGULATORY SPEED ZONE ENACTMENT, ADVISORY SPEED PLAQUES MOUNTED AS SUPPLEMENTAL SIGNS ON OTHER WARNING SIGNS MAY BE USED.
7. WHEN REDUCED REGULATORY SPEED LIMITS ARE USED THEN A SIGN, INFORMING MOTORIST THAT THE TEMPORARY SPEED ZONE HAS ENDED, SHALL BE INSTALLED AT THE END OF THE WORK AREA.
8. ALL FIXED SIGNS SHALL BE MOUNTED ON YIELDING STEEL, ALUMINUM OR WOOD SUPPORTS AS SHOWN ON STANDARD SHEETS E-100 AND E-121.
9. PORTABLE SIGNS SHALL BE KEPT LEVEL WHEN PLACED ON THE EDGE OF ROADWAY AND ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACES SHALL BE PLACED ABOVE THE TOP OF THE GUARDRAIL.
10. WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES.
11. WHEN SIGNING FOR THIS OPERATION INTERFERES WITH THAT FOR WORK ON THE MAINLINE, THE RESIDENT ENGINEER SHALL ESTABLISH THE APPROPRIATE SIGN REQUIREMENTS.
12. THE CHOICE OF USING FLAGGERS OR UNIFORMED OFFICERS IS AT THE DISCRETION OF THE ENGINEER.
13. CHANNELIZING DEVICES SHALL BE PLACED AS FOLLOWS:
    TAPERS - DEVICES SHALL BE SPACED A MAXIMUM OF ''S'' (THE SPEED LIMIT IN FEET) APART.
    TANGENT - DEVICES SHALL BE SPACED 2 X ''S'' (THE SPEED LIMIT IN FEET) APART.
14. THE FLASHING ARROW PANELS SHALL BE LOCATED AS NEAR TO THE FRONT OF THE TAPER AS POSSIBLE WHILE STILL REMAINING INSIDE THE CHANNELIZING DEVICES.
15. MERGING TAPERS SHOULD BE DESIGNED FOR THE SPEED LIMIT OF THE ROADWAY PRIOR TO CONSTRUCTION.
16. CONSTRUCTION VEHICLES USED FOR HAULING MATERIAL AT THE WORK SITE AND TRAVELLING ON PUBLIC HIGHWAYS SHOULD HAVE A ''CONSTRUCTION VEHICLE DO NOT FOLLOW'' SIGN MOUNTED ON THE REAR OF THE VEHICLE.
17. ONLY USE IF TEMPORARY SPEED LIMIT FORM HAS BEEN FILED.



POSTED SPEED OR 85TH PERCENTILE M.P.H.	MERGING TAPER 12′ LANE	BUFFER SPACE (MINIMUM)
40	320′	160′
45	540′	270′
50	600′	300′
55	660′	330′
60	720′	360′
65	780′	390′

LEGEND

= THROUGH TRAFFIC

= CONSTRUCTION VEHICLES

= CHANNELIZING DEVICE

= FLASHING ARROW PANEL

= FLAGGER

= UNIFORMED TRAFFIC OFFICER

= TYPE III BARRICADE

NTS

TD105

OTHER STDS. REQUIRED: E-100 E-101 E-102 E-102A E-107A E-121 E-142

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE
SEPT. 24, 1998 - ADDED FINE SIGN VR-355
APRIL 1, 1999 - ADDED NOTE 17

APPROVED

DIRECTOR OF PROJECT DEVELOPMENT

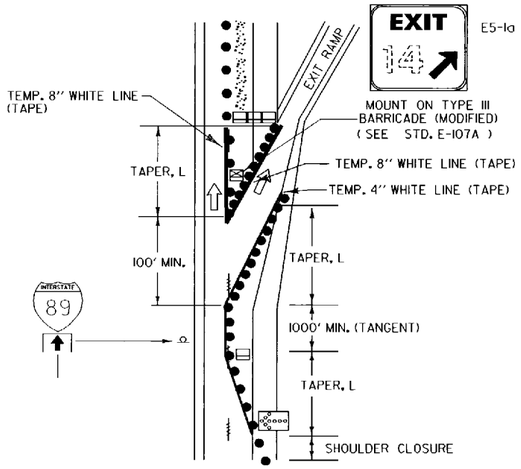
TRAFFIC CONTROL FOR CONSTRUCTION VEHICLE U-TURNS ON DIVIDED HIGHWAY

/traf/std/std105.dgn : std105.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-105



NOT TO SCALE

MAINLINE LANE CLOSURE AT AN EXIT RAMP

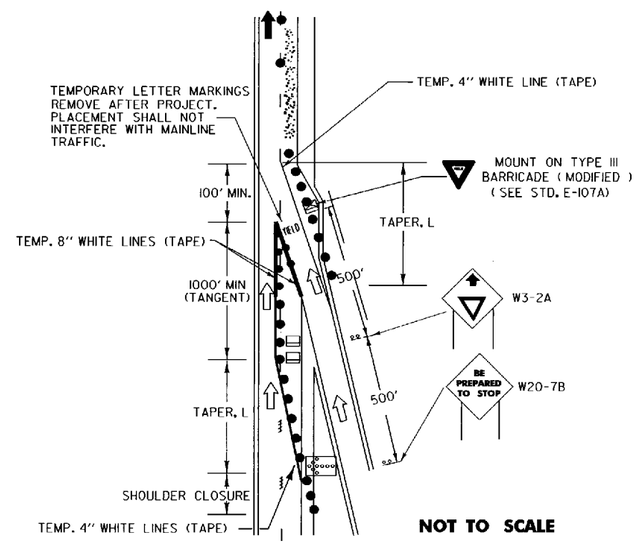
THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT THE GORE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE EXIT RAMP.

NOTES:

1) ALL SIGNS SHALL BE MOUNTED ON FIXED POSTS (YIELDING TYPE) UNLESS OTHERWISE NOTED.
2) CHANNELIZING DEVICES SHALL BE PLACED AS FOLLOWS:
   TAPERS - DEVICES SHALL BE SPACED A MAXIMUM OF "S" (THE SPEED LIMIT IN FEET) APART.
   TANGENT - DEVICES SHALL BE SPACED 2 X "S" (THE SPEED LIMIT IN FEET) APART.
3) ALL DISTANCES ARE DESIRABLE MINIMUMS FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
4) TAPER RATES ARE BASED ON THE POSTED MAILINE AND EXIT SPEEDS.
5) TEMPORARY PAVEMENT MARKINGS ARE REQUIRED WHEN THE LAYOUT IS TO BE IN EFFECT FOR THREE DAYS OR MORE.
6) LANE CLOSURES AND TAPER LENGTHS, L, AS DETAILED ON STANDARD E-103.
7) EXIT SIGN SHALL BE MOUNTED A MINIMUM OF 3' ABOVE THE GROUND AND HIGH ENOUGH TO BE SEEN ABOVE CHANNELIZING DEVICES.

LEGEND

- REFL. 28" CONES
- REFL. PLASTIC DRUMS
- PAVEMENT MARKING REMOVAL
- INDICATES TRAFFIC FLOW
- WORK AREA
- FLASHING ARROW PANEL
- TYPE III BARRICADES
- TYPE III BARRICADES (MOD.)

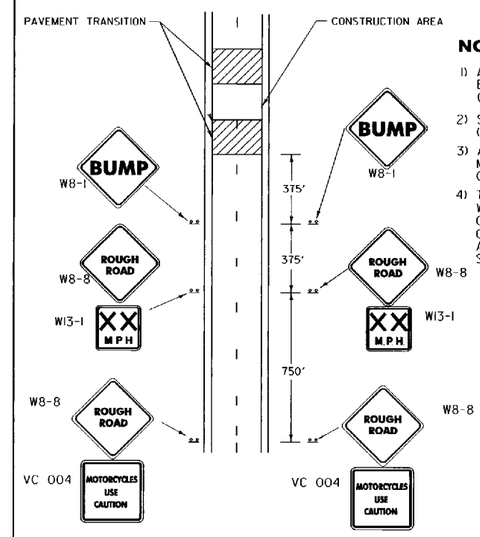


NOT TO SCALE

MAINLINE LANE CLOSURE AT AN ENTRANCE RAMP

THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT AT THE END OF THE ACCELERATION LANE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE ON-RAMP TRAFFIC.

IF THE LENGTH OF THE ACCELERATION LANE IS NOT ADEQUATE, THE YIELD SIGN SHALL BE REPLACED WITH A STOP SIGN. IF A STOP SIGN IS USED, IT SHOULD BE ACCOMPANIED BY A STOP BAR.

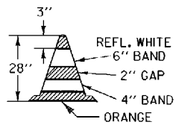


NOTES:

1) ADVISORY SPEED AS DETERMINED BY THE RESIDENT ENGINEER (40 M.P.H. MINIMUM RECOMMENDED)
2) SIGNS MOUNTED ON FIXED POSTS. (YILLDING TYPE)
3) ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.
4) THE BUMP SIGN MAY BE ELIMINATED WHEN THERE IS NO BUMP. WHEN THE CONTRACTOR IS WORKING IN THE CONSTRUCTION AREA THE APPROPRIATE ADVANCED WARNING SIGN PACKAGE SHALL BE USED. SEE STD.E-103.

NOT TO SCALE

ADVANCED WARNING SIGN PACKAGE FOR COLD PLANED (SCARIFIED) SURFACES.

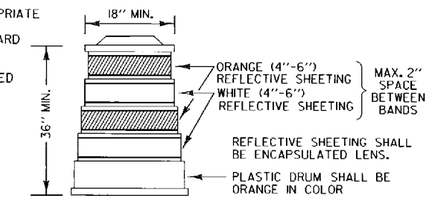


NOTES:

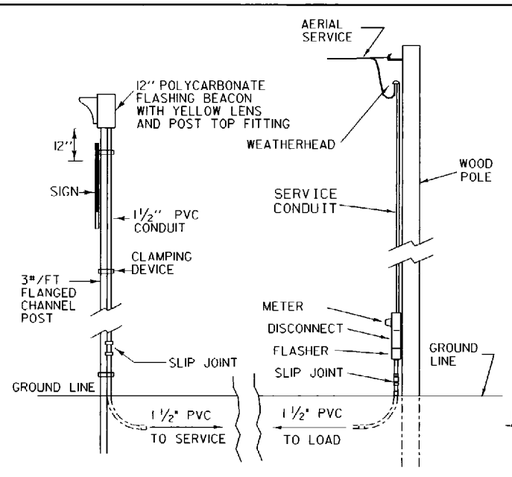
1.) 28" CONES SHALL BE USED ON ROADWAYS WITH SPEED LIMITS OF 35 MPH OR MORE AND ON ALL ROADWAYS DURING HOURS OF DARKNESS.
2.) CONES MAY BE WEIGHTED TO PREVENT OVER-TURNING. HOWEVER THE WEIGHTS SHALL NOT PRESENT A HAZARD IF THE CONE IS STRUCK.
3.) REFLECTIVE SHEETING SHALL BE ENCAPSULATED LENS.

28" REFLECTORIZED CONE

SAND BAGS OR AN APPROPRIATE BALLASTING DEVICE, WHICH DOES NOT PRESENT A HAZARD TO THE IMPACTING VEHICLE OR BECOME A PROJECTILE UPON IMPACT, SHALL BE USED TO WEIGHT DRUMS.



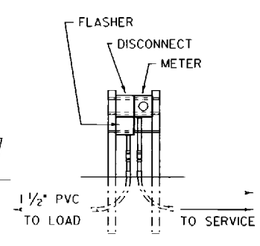
REFLECTORIZED PLASTIC DRUM



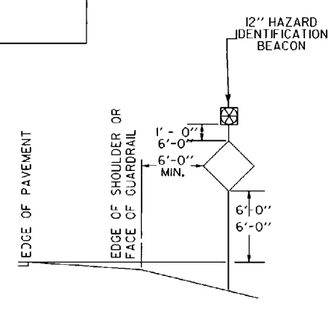
FLASHING BEACON DETAIL

AERIAL SERVICE WITHOUT LUMINAIRE

SEE STANDARD E-175



UNDERGROUND SERVICE DETAIL



SIGN PLACEMENT DETAIL

NOTES:

1.) AT THE CONTRACTOR'S OPTION:
   A. THE POWER SUPPLY MAY BE AERIAL OR UNDERGROUND (SEE DETAIL).
   B. POWER FOR A FLASHING BEACON MAY BE COMBINED WITH POWER FOR A TRAFFIC SIGNAL OR THEY MAY HAVE SEPARATE POWER SOURCES.
   C. THE FLASHER MAY BE INSTALLED ON A STANCHION NEAR THE SIGN, ON A UTILITY POLE (WITH UTILITY COMPANY APPROVAL) OR AT THE SAME LOCATION AS A TRAFFIC SIGNAL CONTROLLER.
2.) THE FLASHER UNIT SHALL BE ONE CIRCUIT AND INCLUDE A RADIO INTERFERENCE FILTER.
3.) BATTERY OPERATED FLASHERS WILL NOT BE ALLOWED.
4.) BOTTOM OF THE BEACON SHALL BE A MIN. OF 8'-0" AND A MAX. OF 12'-0" ABOVE THE EDGE OF THE PAVEMENT.
5.) FOR URBAN AREA PLACEMENT SEE STD. E-121.

OTHER STDS. REQUIRED:				
	E-101	E-102A	E-107A	E-150
	E-102	E-103	E-136	E-175

REVISIONS AND CORRECTIONS

APR 12, 1988 - DATE OF ORIGINAL ISSUE
JAN 23, 1989 - REVISED EXIT SIGN - CLARIFIED EXIT TAPER
SEPT 20, 1993 - REVISED RAMP CLOSURES, FLASHING BEACON DETAILS AND MOVED TYPE III BARRICADE (MOD) TO STDE-107A
AUG 08, 1995 - REVISED BEACON SIZE

APPROVED

Gordon S. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

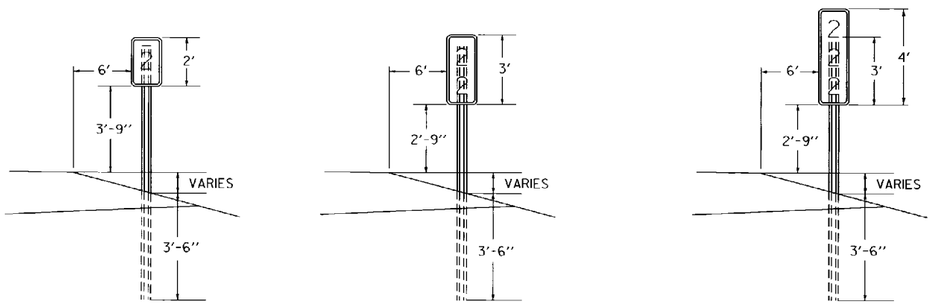
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

TRAFFIC CONTROL MISCELLANEOUS DETAILS

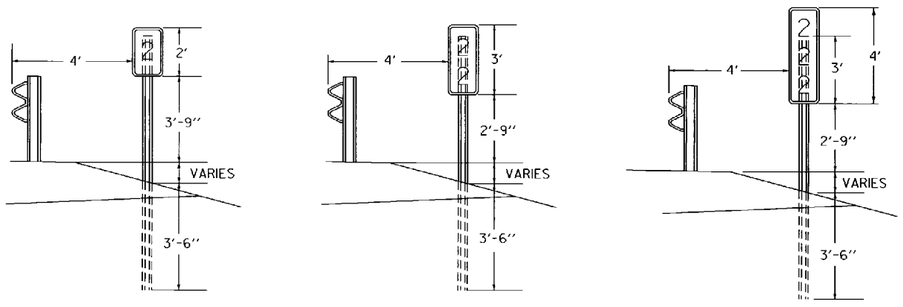
/traf/std/stdel06.dgn : stdel06.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-106



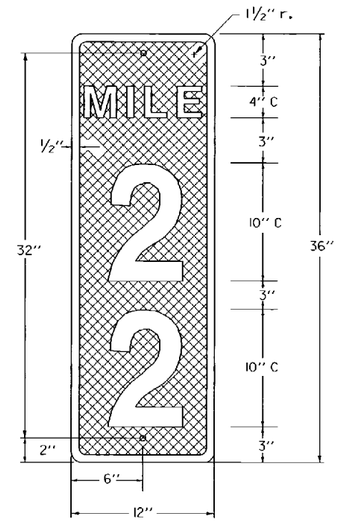
MOUNTING HEIGHTS WITHOUT GUARD RAIL



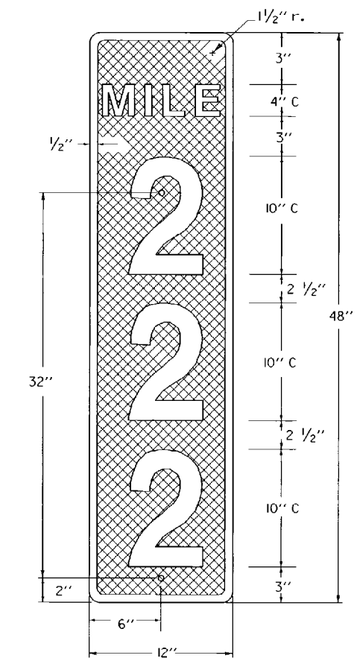
MOUNTING HEIGHTS WITH GUARD RAIL

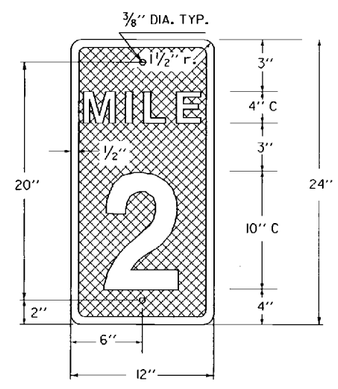
"MILE MARKERS SHALL BE ELIMINATED IF THEY OCCUR ON A BRIDGE. A MILEPOST TYPE A PLAQUE WITH A TYPE B PLAQUE READING "00" WILL BE SUBSTITUTED FOR THE MILEMARKER. MILEPOST PLAQUE DETAILS ARE SHOWN ON THE APPROPRIATE STANDARD SHEETS.

D10–2



D10–3





D10–1

COLORS:

THE SIGNS SHALL HAVE WHITE REFLECTIVE NUMERALS. BORDER AND LEGEND ON A GREEN REFLECTORIZED BACKGROUND. THE GREEN REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE COLORS SHALL CONFORM WITH THE STANDARD COLOR TOLERANCE CHARTS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.

TEXT:

LETTERS AND NUMBERS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGN AS PRESCRIBED IN THE PUBLICATION ''STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING". AVAILABLE FROM THE FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

MILE MARKER SIGNS SHALL BE .080 FLAT SHEET ALUMINUM. SIGNS SHALL BE MOUNTED ON FLANGED CHANNEL STEEL SIGN SUPPORTS WEIGHING 3 LB PER LINEAR FOOT.

PAYMENT:

THE MILE MARKER SIGNS SHALL BE PAID AS TRAFFIC SIGNS TYPE A. THE POSTS SHALL BE PAID AS FLANGED CHANNEL SIGN POSTS.

OTHER STDS. REQUIRED: E-160

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - MINOR NOTE REVISIONS
APRIL 01, 1998 - CHANGED NUMBERS ON SIGN DETAILS DUE TO A DISCRIMINATION COMPLAINT

APPROVED

DIRECTOR OF PROJECT DEVELOPMENT

DIRECTOR OF CONSTRUCTION AND MAINTENANCE

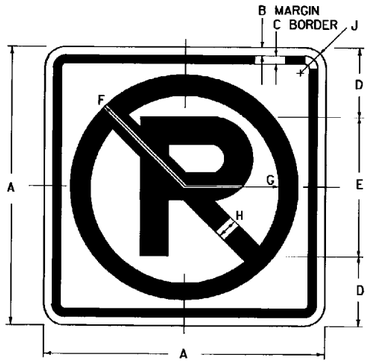
MILEMARKER DETAILS INTERSTATE

/traf/std/std139.dgn : std139.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD

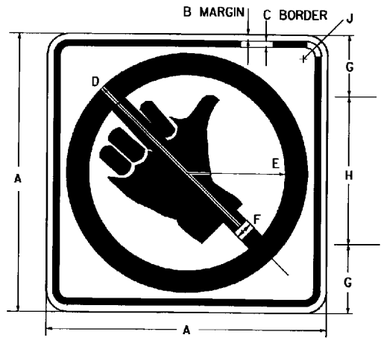
E-139



COLORS
CIRCLE AND DIAGONAL - RED (REFL - RURAL)
SYMBOL AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (REFL - RURAL)

R8-3A

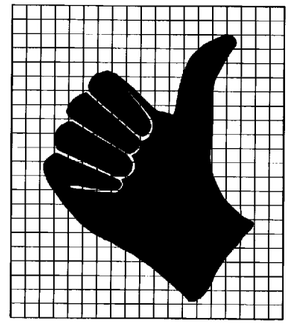
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
URBAN MIN. AND STD.	12	3/8	3/8	3	6E(M)	4 7/8	3 7/8	1	1 1/2
RURAL MIN. AND STD.	24	3/8	5/8	6	12E(M)	10 1/2	8 1/2	2	1 1/2
EXPWY.	36	5/8	7/8	9	18E(M)	15 3/4	12 3/4	3	2 1/4
FWY.	48	3/4	1 1/4	12	24E(M)	21	17	4	3

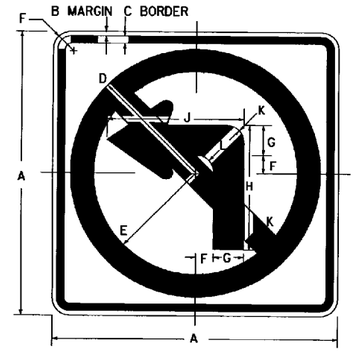


COLORS
CIRCLE AND DIAGONAL - RED (REFL)
SYMBOL AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (REFL)

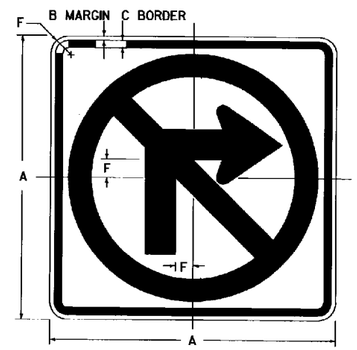
R9-4A

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN.	18	3/8	5/8	7 7/8	6 3/8	1 1/2	3 3/4	10 1/2	1 1/2
STD.	24	3/8	5/8	10 1/2	8 1/2	2	5	14	1 1/2





R3-2

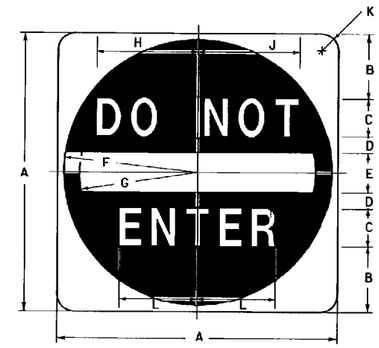


R3-1

NOTE :
USE SAME ARROW DETAIL FOR R3-1 AND R3-2

COLORS
CIRCLE AND DIAGONAL - RED (REFL)
ARROW AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (REFL)

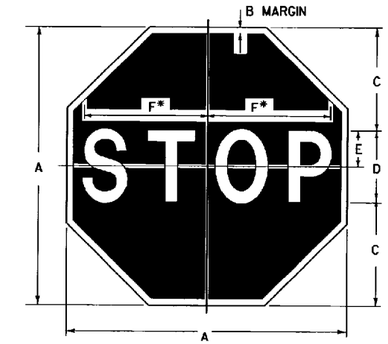
SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN. AND STD.	24	3/8	5/8	10 1/2	8 1/2	1 1/2	2 1/2	10 1/2	11 1/2	2	1/2
SPECIAL	30	1/2	3/4	13 1/8	10 5/8	1 7/8	3 1/8	13 1/8	14 1/2	2 1/2	5/8
EXPWY.	36	5/8	7/8	15 3/4	12 3/4	2 1/4	3 3/4	15 3/4	17 1/4	3	3/4
SPECIAL	48	3/4	1 1/4	21	17	3	5	21	23	4	1



COLORS
SYMBOL - RED (REFL)
LEGEND AND BACKGROUND - WHITE (REFL)
ENCAPSULATED LENS

R5-1

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN. AND STD.	30	6 1/2	4D	2	5	14 1/2	12 1/2	9 3/4	10	1 7/8	7 7/8
EXPWY.	36	7 1/2	5D	2 1/2	6	17 1/2	15	12	12 3/8	2 1/4	9 15/16
SPECIAL	48	11	6D	3	8	23 1/2	20	14 1/2	15	3	11 3/4

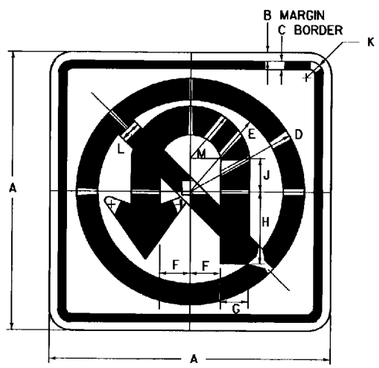


• REDUCE SPACING 40 %

COLORS
LEGEND - WHITE (REFL)
BACKGROUND - RED (REFL)
ENCAPSULATED LENS

R1-1

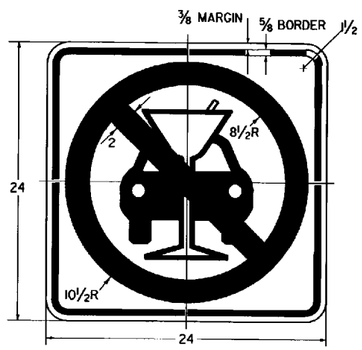
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
BIKE	18	3/8	6	6C	3	7 3/4
MIN.	24	5/8	8	8C	4	10
STD.	30	3/4	10	10C	5	12 1/2
EXPWY.	36	7/8	12	12C	6	15
SPECIAL	48	1 1/4	16	16C	8	20



COLORS
CIRCLE AND DIAGONAL - RED (REFL)
ARROW AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (REFL)

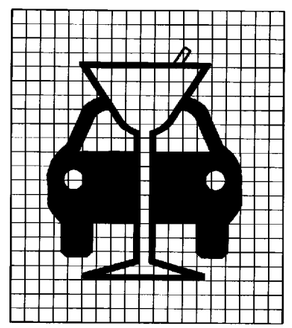
R3-4

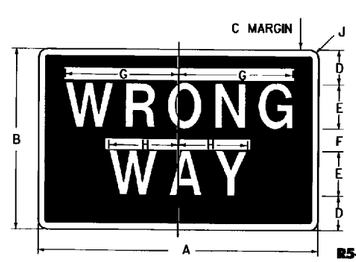
SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MIN. AND STD.	24	3/8	5/8	10 1/2	8 1/2	2 1/2	2 1/2	6	2 1/4	1 1/2	2	5
SPECIAL	30	1/2	3/4	13 1/8	10 5/8	3 1/8	3 1/8	7 1/2	2 15/16	1 7/8	2 1/2	6 1/4
EXPWY.	36	5/8	7/8	15 3/4	12 3/4	3 3/4	3 3/4	9	3 3/8	2 1/4	3	7 1/2
SPECIAL	48	3/4	1 1/4	21	17	5	5	12	4 1/2	3	4	10



COLORS
CIRCLE AND DIAGONAL - RED (REFL)
SYMBOL AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (REFL)

VR-654





R5-1A

"WRONG WAY"

COLORS
LEGEND - WHITE (REFL)
BACKGROUND - RED (REFL)
ENCAPSULATED LENS

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN.	30	18	5/8	3	5D	2	11 7/16	6 11/16	1 1/2
STD.	36	24	3/4	4 1/2	6D	3	13 5/16	8 1/16	1 1/2
SPECIAL	42	30	7/8	5	8D	4	17 3/4	10 3/4	1 7/8

GENERAL:

1. ALL DIMENSIONS IN INCHES.
2. SEE STANDARD E-144 FOR ARROWHEAD DETAILS.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	12'' X 12'' 18'' X 18''	24'' X 24'' 30'' X 18'' 30'' X 30''	36'' X 24'' 36'' X 36'' 42'' X 30'' 48'' X 48''
FLAT SHEET ALUMINUM	0.060''	0.080''	0.100''
HIGH DENSITY OVERLAID PLYWOOD	1/2''	1/2''	5/8''
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE BLACK PORTIONS OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

OTHER STDS. : E-144 REQUIRED

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAILS, ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

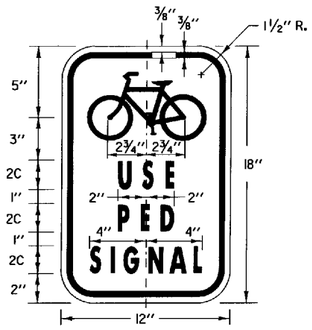
TRAFFIC AND SAFETY ENGINEER

REGULATORY SIGN DETAILS

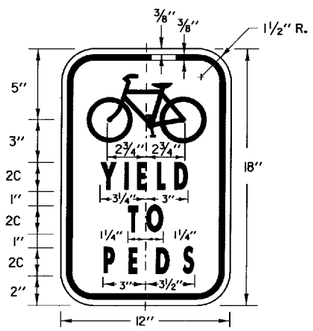
/traf/std/stdel43.dgn : stdel43.1

VERMONT AGENCY OF TRANSPORTATION

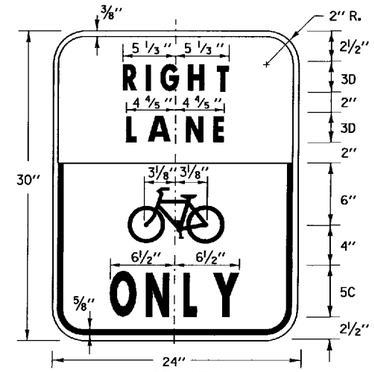
STANDARD
E-143



R9-5

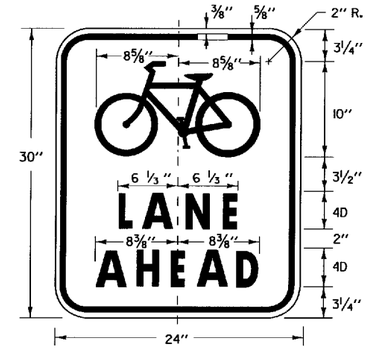


R9-6

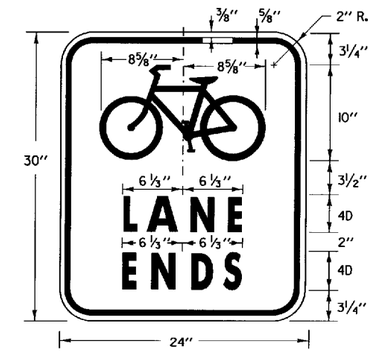


R3-17

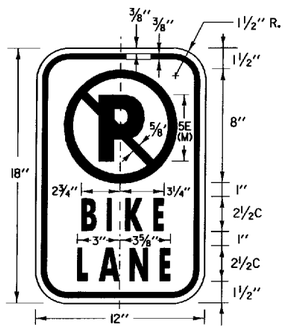
COLORS: THE TOP OF THIS SIGN IS BLACK
BACKGROUND WITH WHITE TEXT



R3-16

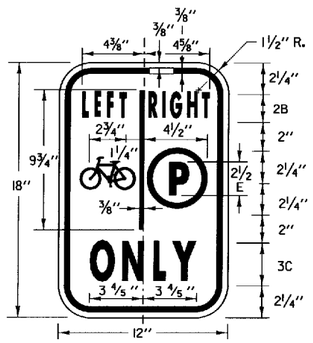


R3-16A



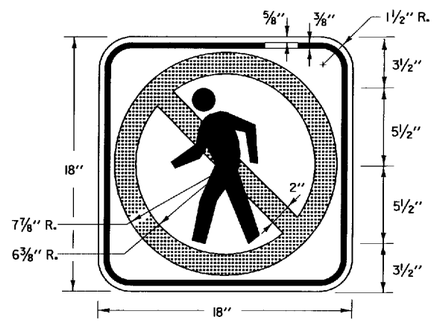
R7-9A

COLORS: LEGEND, CIRCLE, DIAGONAL - RED
BACKGROUND - WHITE
LETTER P, BORDER - BLACK



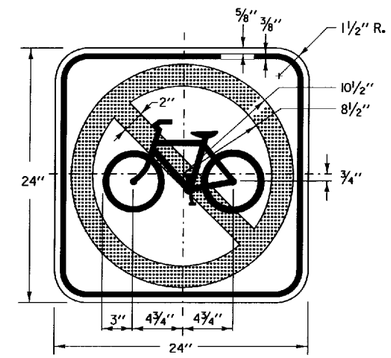
R3-17A

COLORS: LEGEND - BLACK
BACKGROUND - WHITE (REFLECTIVE)
CIRCLE - GREEN (REFLECTIVE)



R9-3A

COLORS: CIRCLE AND DIAGONAL-RED
SYMBOL AND BORDER - BLACK
BACKGROUND - WHITE



R5-6

COLORS: CIRCLE AND DIAGONAL-RED
SYMBOL AND BORDER - BLACK
BACKGROUND - WHITE

GENERAL

SEE STANDARD E-144 FOR ARROWHEAD DETAILS. SEE STANDARD E-152 FOR PEDESTRIAN DETAIL. SEE STANDARD E-153 FOR SNOWMOBILE DETAIL. SEE FHWA STANDARD HIGHWAY SIGN BOOK FOR BIKE DETAILS.

COLORS

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE A REFLECTORIZED WHITE BACKGROUND WITH BLACK TEXT AND BORDER UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY AASHTO AND APPROVED BY THE FHWA.

MATERIALS

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING MINIMUM THICKNESSES NOTED:

	12" x 18" 18" x 18"	24" x 24" 24" x 30"	36" x 30"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"

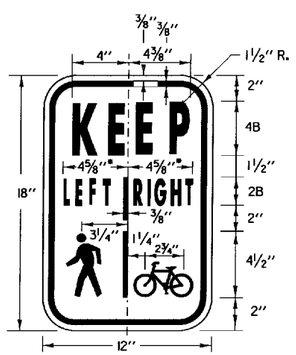
THE REFLECTIVE MATERIAL SHALL BE ASTM TYPE III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE BLACK, RED OR GREEN PORTIONS OF THE SIGNS MAY BE LETTERING FILM OR SILK SCREENED.

SPECIFICATIONS

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS AS DESCRIBED IN THE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

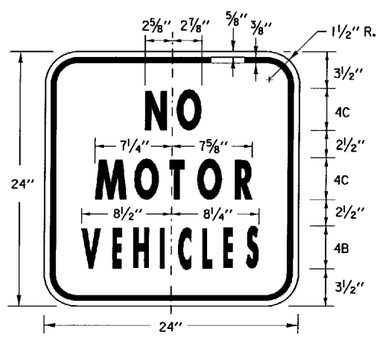
TEXT DESIGN

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM TO THE LATEST VERSION OF FHWA'S "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS". DETAILS SHALL CONFORM WITH THOSE DESCRIBED IN THE PUBLICATION "STANDARD HIGHWAY SIGNS" AS SPECIFIED IN THE MUTCD.

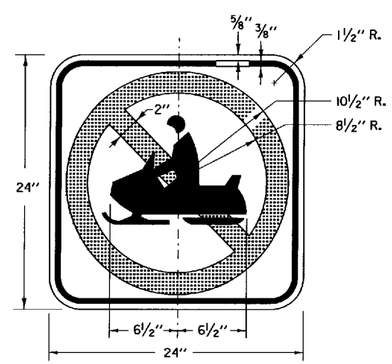


R9-7

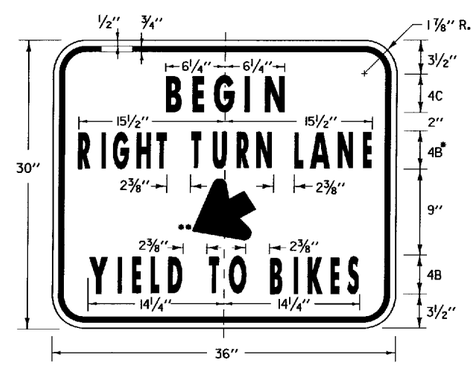
* REDUCE LETTER SPACING 20%



R5-3



VR-565



R4-4

* REDUCE LETTER SPACING 20%
** OPTICALLY CENTER ARROW ON VERTICAL CENTERLINE

SUPERSEDED

OTHER STDS. REQUIRED: E-144, E-152, E-153

REVISIONS AND CORRECTIONS

DECEMBER 30, 2002 - DATE OF ORIGINAL ISSUE
OCTOBER 1, 2003 - MINOR DRAFTING CHANGES

APPROVED

DIRECTOR OF PROGRAM DEVELOPMENT

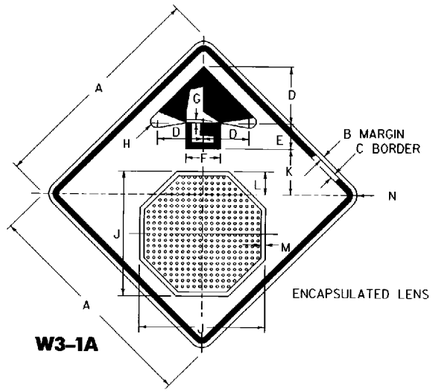
TRAFFIC OPERATIONS ENGINEER

FEDERAL HIGHWAY ADMINISTRATION

REGULATORY SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-143B

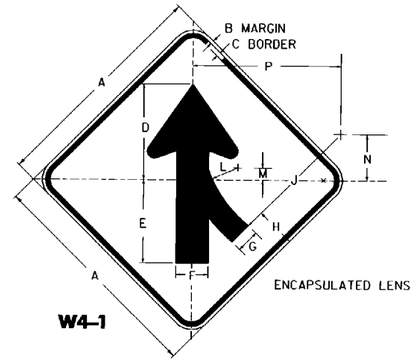


W3-1A

COLORS

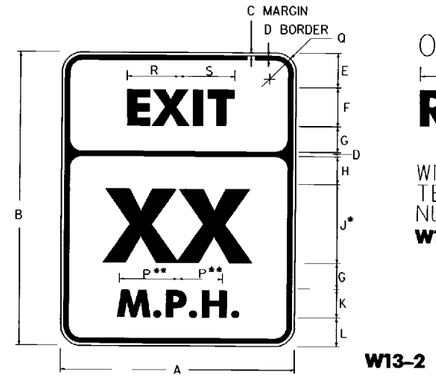
BORDER AND ARROW - BLACK (NON-REFL)
SYMBOL - WHITE BORDER ON RED BACKGROUND (REFL)

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	30	1/2	3/4	7 1/2	3 3/4	5	5/8	5/16	15 3/4	6 1/4	2 7/8	1/2	1 7/8
STD.	36	5/8	7/8	9	4 1/2	6	3/4	3/8	19	7 1/2	3 1/2	5/8	2 1/4
SPECIAL	48	3/4	1 1/4	12	6	8	1	1/2	25 1/8	10	4 1/2	3/4	3



W4-1

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	24	3/8	5/8	10 1/4	8 3/4	3 1/2	2 3/8	4 3/16	22 1/4	1 1/2	6 3/8	2 5/8	10 3/8	22 3/16
STD.	30	1/2	3/4	13	11	4 3/8	3	5 1/4	28	1 7/8	8	3	13	27 3/4
EXPWY.	36	5/8	7/8	15 3/4	13 1/4	5 1/4	3 5/8	6 5/8	33 5/8	2 1/4	9 5/8	4	15 5/8	33 5/16
FWY.	48	3/4	1 1/4	20 1/2	17 1/2	7	4 3/4	8 3/8	45	3	12 5/8	5 1/4	20 3/4	44 3/8



W13-2

- *OPTICALLY SPACE NUMBERS ABOUT VERTICAL CENTERLINE
- ** INCREASE SPACING 100%
- THE "RAMP" SPEED SIGN IS USED ON RAMPS LEADING FROM ONE FREEWAY TO ANOTHER AND THE "EXIT" SPEED SIGN IS USED ON NORMAL EXITS.

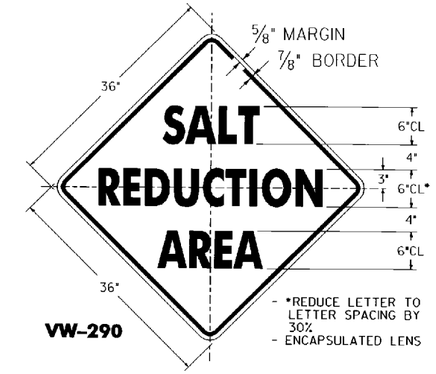
SIGN	DIMENSIONS (INCHES)																
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
MIN. & STD.	24	30	3/8	5/8	3 1/2	4E	2 1/2	2 7/8	8E	3E	3	8 1/4	8 1/2	5 5/16	1 1/2	6 1/8	6 3/8
EXPWY.	36	48	5/8	7/8	6	6E	4	5 1/8	12E	4E	6	12 3/8	12 3/4	7 1/16	2 1/4	9 1/4	9 1/2
FWY.	48	60	3/4	1 1/4	7	8E	5	5 3/4	16E	6E	6	16 1/2	17	10 5/8	3	12 1/4	12 3/4

OR

M N

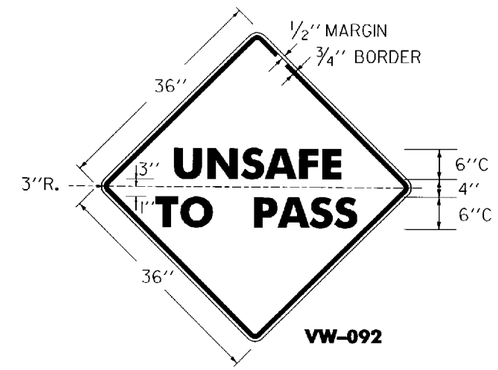
RAMP

WITH "RAMP" TEXT SIGN NUMBER IS **W13-3**

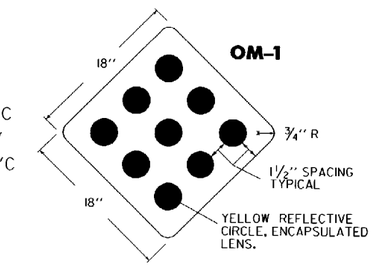


VW-290

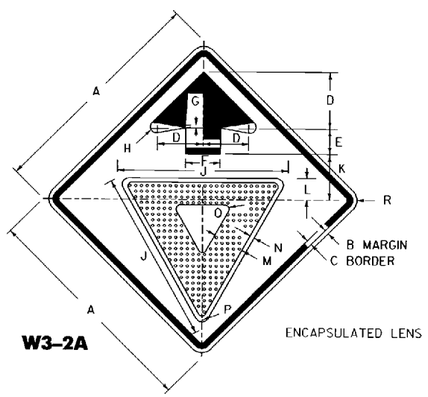
- *REDUCE LETTER TO LETTER SPACING BY 30%
- ENCAPSULATED LENS



VW-092



HAZARD MARKERS SHALL BE OF 0.060 FLAT SHEET ALUMINUM OR 18 GAGE GALVANIZED FLAT SHEET STEEL, WITH A NON-REFLECTIVE YELLOW BACKGROUND AND NINE 4" DIA. CIRCLES EVENLY SPACED WITH MATERIALS AS NOTED ABOVE.

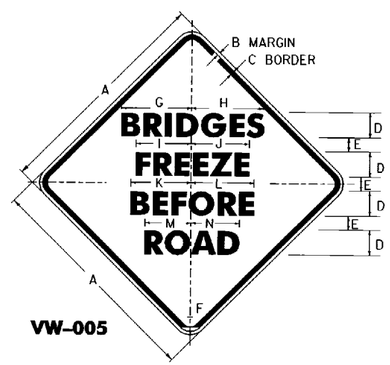


W3-2A

COLORS

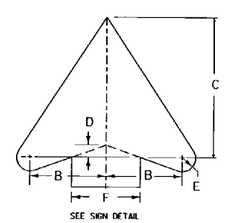
BORDER AND ARROW - BLACK (NON-REFL)
SYMBOL - RED BORDER ON WHITE BACKGROUND (REFL)

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	M	N	P	O	R
MIN.	30	1/2	3/4	7 1/2	3 3/4	5	5/8	5/16	25	6 1/4	3	3 3/8	1/2	1 1/4	5/8	1 7/8
STD.	36	5/8	7/8	9	4 1/2	6	3/4	3/8	28	7 1/2	3 3/8	3 3/4	5/8	1 3/8	3/4	2 1/4
SPECIAL	48	3/4	1 1/4	12	6	8	1	1/2	38	10	4 1/2	5	3/4	1 7/8	1	3

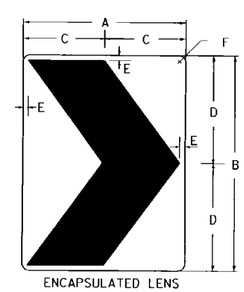


VW-005

SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
STD.	36	3/8	5/8	5C	2	2	11/2	11/2	9 9/16	9 7/8	10 1/4	10 1/4	6 7/8	6 7/8
FWY./EXP.	48	3/4	1 1/4	6C	3	3	13 1/2	13 1/2	11 9/16	11 13/16	12 1/4	12 5/16	8 5/16	8 5/16



ARROW HEAD	DIMENSIONS (INCHES)				
	SIZE	B	C	D	E
MIN. AND STD.	24x24	4	7 1/8	9/16	11/16
SPECIAL	30x30	5	8 7/8	11/16	7/8
EXPWY.	36x36	6	10 5/8	15/16	1 1/16
SPECIAL	48x48	8	14 3/16	1 1/16	1 3/8



ENCAPSULATED LENS

W1-8

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MIN.	12	18	6	9	1/2	1 1/2
STD.	18	24	9	12	3/4	1 1/2
SPECIAL	24	30	12	15	7/8	1 1/2
EXPWY.	30	36	15	18	1	1 7/8
FWY.	36	48	18	24	1 1/8	2 1/4

COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	12" x 18" 18" x 24"	24" x 24" 24" x 30" 30" x 30" 30" x 36"	36" x 36" 36" x 48"	48" x 48" 48" x 60"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

THE TEXT, BORDER, AND SYMBOL SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - ADDED SIGN DETAIL AND I.D. NUMBER FOR EACH DETAIL
JAN. 15, 1997 - REMOVED STORM SIGN DETAIL

APPROVED

DIRECTOR OF ENGINEERING

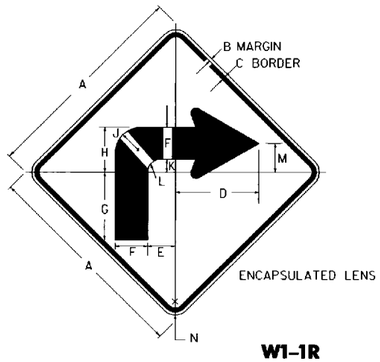
DIRECTOR OF CONSTRUCTION & MAINTENANCE

WARNING SIGN DETAILS

/traf/std/stdel50dgn : stdel50.i

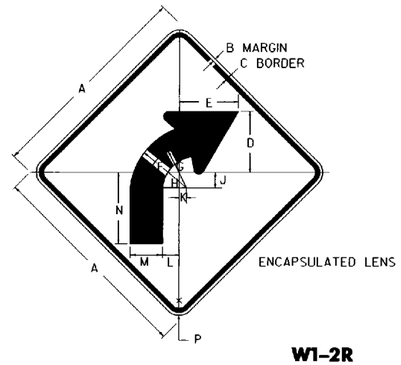
VERMONT AGENCY OF TRANSPORTATION

STANDARD E-150



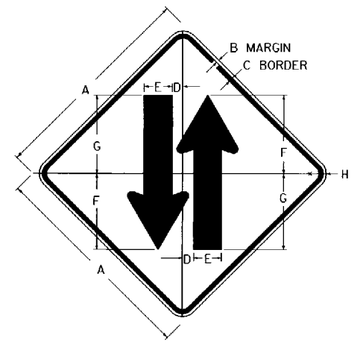
W1-1R

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
BIKE	18	3/8	5/8	7 1/4	2 1/4	2 5/8	5 7/8	3 3/4	1 7/8	1	5/8	2 1/2	1 1/2
MIN.	24	3/8	5/8	9 5/8	3	3 1/2	7 3/4	5	2 1/2	1 1/2	15/16	3 1/4	1 1/2
STD.	30	1/2	3/4	12	3 3/4	4 3/8	9 11/16	6 1/4	3	1 7/8	1	4 1/16	1 7/8
EXPWY.	36	5/8	7/8	14 3/8	4 1/2	5 1/4	11 5/8	7 1/2	3 5/8	2 1/4	1 1/4	4 7/8	2 1/4
SPECIAL	48	3/4	1 1/4	19 3/16	6	7	15 1/2	10	4 7/8	3	1 5/8	6 1/2	3



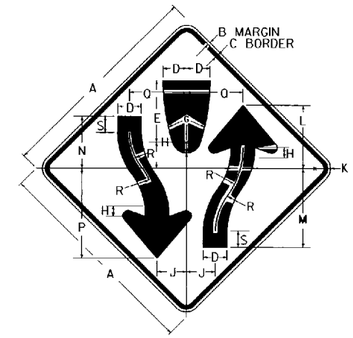
W1-2R

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
BIKE	18	3/8	5/8	5 3/8	5 1/2	6	4 3/4	3 3/8	1 3/4	1 1/4	2	2 5/8	6 1/4	1 1/2
MIN.	24	3/8	5/8	7 1/8	7 1/4	8	6 1/4	4 1/2	2 11/32	1 3/4	2 3/4	3 1/2	8 1/4	1 1/2
STD.	30	1/2	3/4	8 7/8	9 1/16	10	7 13/16	5 5/8	2 15/16	2 3/16	3 7/16	4 3/8	10 5/16	1 7/8
EXPWY.	36	5/8	7/8	10 5/8	10 7/8	12	9 3/8	6 3/4	3 1/2	2 5/8	4 1/8	5 1/4	12 3/8	2 1/4
FWY.	48	3/4	1 1/4	14 3/16	14 1/2	16	12 1/2	9	4 11/16	3 1/2	5 1/2	7	16 1/2	3



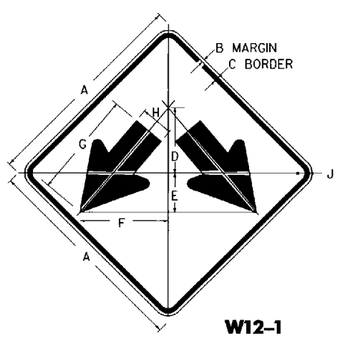
W6-3

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MIN.	24	3/8	5/8	2	3	9	8 1/2	1 1/2
STD.	30	1/2	3/4	2 7/16	3 3/4	11 1/4	10 5/8	1 7/8
EXPWY.	36	5/8	7/8	2 15/16	4 1/2	13 1/2	12 3/4	2 1/4
SPECIAL	48	3/4	1 1/4	3 7/8	6	18	17	3



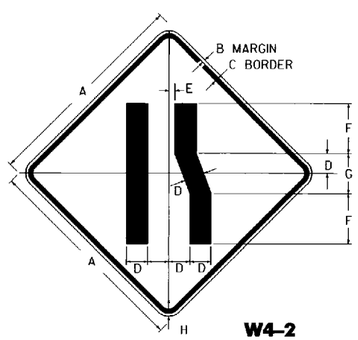
W6-1

SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
MIN.	30	1/2	3/4	3 5/16	8 5/16	4 1/8	25	1 11/16	4 1/8	1 7/8	10	11 5/8	7 15/16	13 11/16	7 7/8	8 5/16	2 1/16
STD. & EXPWY.	36	5/8	7/8	4	10	5	30	2	5	2 1/4	12	14	9 1/2	16 1/2	9 1/2	10	2 1/2
SPECIAL	48	3/4	1 1/4	5 1/4	13 1/8	6 9/16	39 5/16	2 5/8	6 9/16	3	16	18 11/16	12 11/16	22	12 7/16	13 1/8	3 5/16



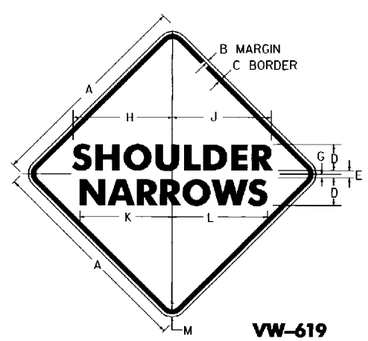
W12-1

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
STD. & MIN.	24	3/8	5/8	8	4 1/8	9 3/4	11 5/8	3 1/8	1 1/2
SPECIAL	30	1/2	3/4	10	5 1/4	12 3/8	14 11/16	4	1 7/8
SPECIAL	36	5/8	7/8	12	6 1/8	14 5/8	17 1/2	4 3/4	2 1/4



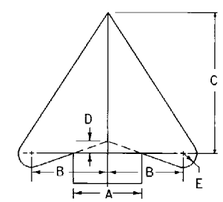
W4-2

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MIN.	30	1/2	3/4	3 3/8	13/16	8 7/16	6 3/4	1 7/8
STD. & EXPWY.	36	5/8	7/8	4	1	10	8	2 1/4
FWY.	48	3/4	1 1/4	5 5/16	1 3/8	13 5/16	10 5/8	3



VW-619

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MIN & STD.	36	5/8	7/8	5C	3	6D	1	13 11/16	13 7/16	17 5/8	18 1/4	2 1/4
EXPWY.	48	3/4	1 1/4	7D	3 1/2	7D	1	23 11/16	23 7/8	21 1/2	21 9/16	3



SEE SIGN DETAIL
FOR APPROPRIATE WIDTH

DIMENSIONS (INCHES)				
A	B	C	D	E
2 5/8	3	5 1/4	3/8	1/2
3	3 1/2	6 1/8	7/16	9/16
3 1/8	1 5/8	6 5/8	1/2	5/8
3 1/4	3 3/4	6 5/8	1/2	5/8
3 5/16	13 11/16	6 11/16	1/2	11/16
3 1/2	4	7 1/8	9/16	11/16
3 3/4	4 5/16	7 5/8	9/16	3/4
4	4 5/8	8 1/8	5/8	13/16
4 3/8	5	8 7/8	11/16	7/8
4 1/2	5 3/16	9 1/8	11/16	7/8
4 3/4	5 1/16	9 5/8	3/4	1
5	5 3/4	10 1/8	3/4	1
5 1/4	6	10 5/8	13/16	1 1/16
6	6 7/8	12 3/16	15/16	1 3/16
6 1/2	7 1/2	13 3/16	1	1 5/16
7	8	14 3/16	1 1/16	1 3/8
8	9 3/16	16 1/4	1 1/4	1 5/8

COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORATATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	18" x 18"	24" x 12" 24" x 24" 30" x 30"	36" x 18" 36" x 36"	48" x 24" 48" x 48" 60" x 30"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

THE TEXT, BORDER AND SYMBOLS SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE RFFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKROUND OF THE SIGN. ECAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKROUND WHERE NOTED.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACING, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGN PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR 'TRAFFIC SIGNS'.

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

OCT. 31, 1987 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - MISC. NOTE CHANGES AND ADDED I.D. NUMBERS TO EACH DETAIL.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon H. MacArthur
DIRECTOR OF ENGINEERING

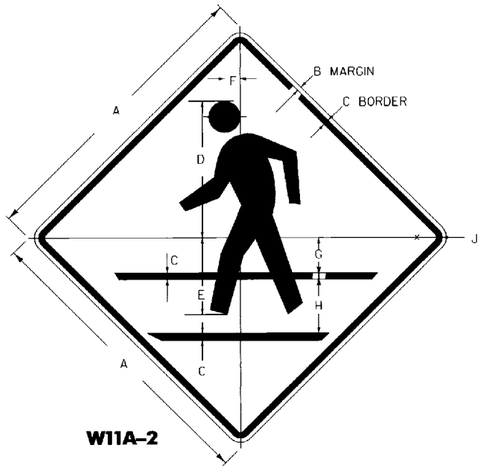
David A. Ross
TRAFFIC AND SAFETY ENGINEER

WARNING SIGNS DETAIL

/traf/std/std151.dgn : std151.i

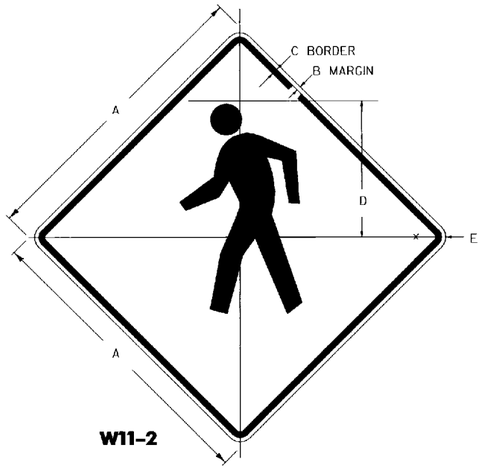
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-151



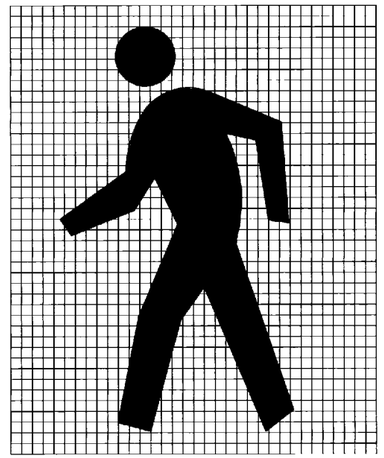
W11A-2

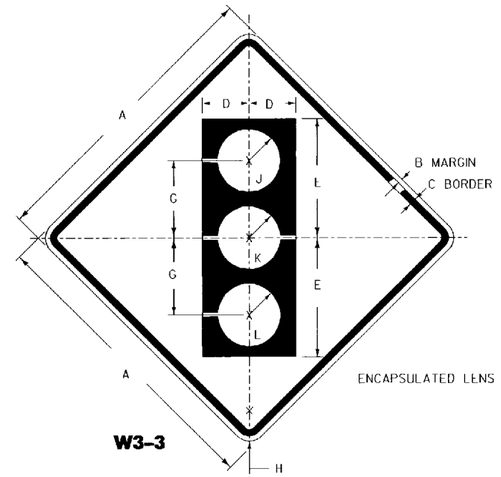
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
BIKE	18	3/8	5/8	8 3/8	4 3/4	3/4	2 3/8	3 5/8	1 1/2
MIN.	24	3/8	5/8	11	6 3/8	1 3/16	3 1/8	4 3/4	1 1/2
STD.	30	1/2	3/4	14	8	1 1/2	4	6	1 7/8
EXPWY.	36	5/8	7/8	16 3/4	9 5/8	1 13/16	4 3/4	7 1/4	2 1/4
SPECIAL	48	3/4	1 1/4	22	12 3/4	2 3/8	6 1/4	9 1/2	3



W11-2

SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN.	24	3/8	5/8	11	1 1/2
STD.	30	1/2	3/4	13 1/2	1 7/8
EXPWY.	36	5/8	7/8	16	2 1/4
SPECIAL	48	3/4	1 1/4	22	3

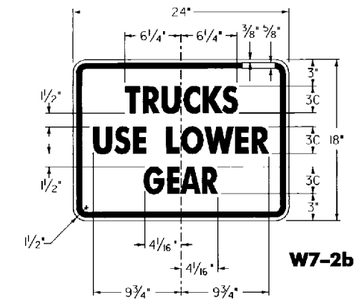




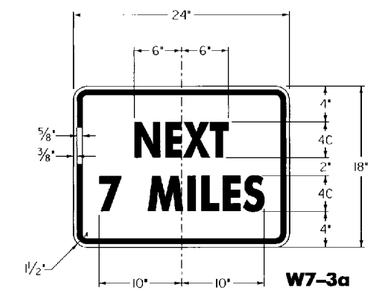
W3-3

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
BIKE	18	3/8	5/8	3	8	2 1/4	5	1 1/2
MIN.	30	1/2	3/4	5	13 3/4	3 3/4	8 3/4	1 7/8
STD. & MIN.	36	5/8	7/8	5 3/4	15 3/4	4 1/4	10	2 1/4
SPECIAL	48	3/4	1 1/4	7 1/2	20	5	12 1/2	3

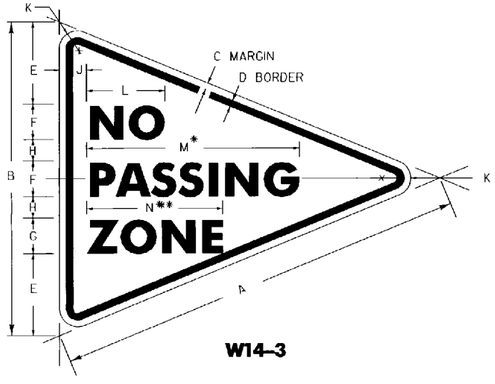
ADDITIONAL COLORS : J - REFL. RED
K - REFL. YELLOW
L - REFL. GREEN
CIRCLE RADIUS = F



W7-2b



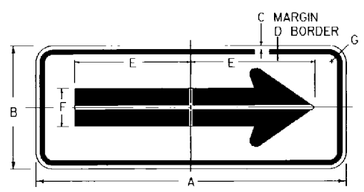
W7-3a



W14-3

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	40	30	1/2	3/4	7 1/4	4D	4C	1 3/4	2 1/2	1 7/8	6 1/2	22 9/16	11 1/16
STD.	48	36	5/8	7/8	8 1/2	5D	5C	2	3	2 1/4	8	26 11/16	12 3/4
SPECIAL	64	48	3/4	1 1/4	12	6D	6C	3	4	3	10 3/4	33 11/16	16 9/16

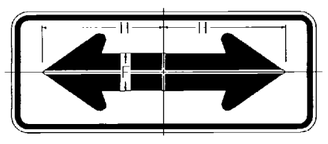
**FOR STD. SIZE REDUCE SPACING 35 %
*FOR STD. SIZE REDUCE SPACING 20 %



W1-6

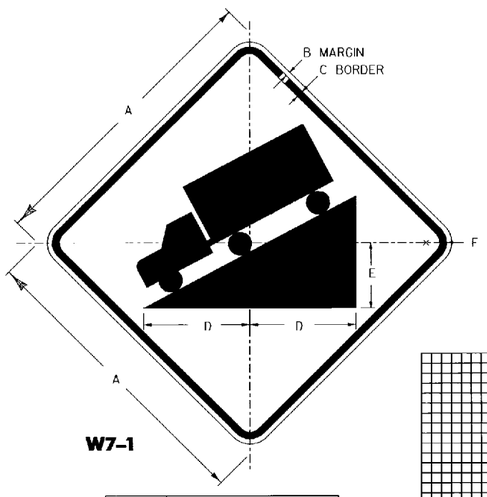
ENCAPSULATED LENS

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
BIKE	24	12	3/8	5/8	9 5/8	3 1/4	1 1/2	10 3/8
MIN.	36	18	3/8	5/8	14 5/8	5	1 1/2	15 5/8
STD.	48	24	1/2	3/4	19 1/2	6 1/2	1 7/8	20 1/2
SPECIAL	60	30	5/8	7/8	24 3/8	8	2 1/4	25 3/8



W1-7

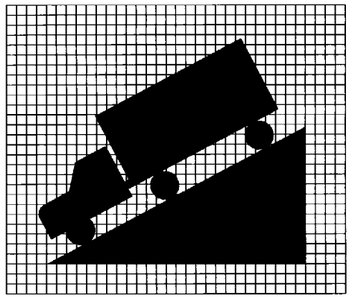
ENCAPSULATED LENS



W7-1

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MIN.	24	3/8	5/8	8 3/4	6	1 1/2
STD.	30	1/2	3/4	11	7 1/2	1 7/8
EXPWY.	36	5/8	7/8	13 1/4	9	2 1/4
FWY.	48	3/4	1 1/4	17 1/2	12	3

ENCAPSULATED LENS



COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	18" x 18"	24" x 12" 24" x 24" 30" x 30"	36" x 18" 40" x 30" 36" x 36"	48" x 24" 48" x 36" 48" x 48" 60" x 30" 64" x 48"
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE	12 GAGE

THE TEXT, BORDER AND SYMBOLS SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. SEE STANDARD SHEET E-150 FOR ARROWHEAD DETAILS.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

OTHER STDS. REQUIRED: E-150

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
JANUARY 1991 - 4 X 2 ARROW ENCAPSULATED LENS & 40 X 30 ADDED
OCT. 21, 1992 - PENNANT SIZE ADDED
AUG. 08, 1995 - DELETED & ADDED SIGN DETAILS AND ADDED I.D. NUMBER TO EACH DETAIL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacArthur
DIRECTOR OF ENGINEERING

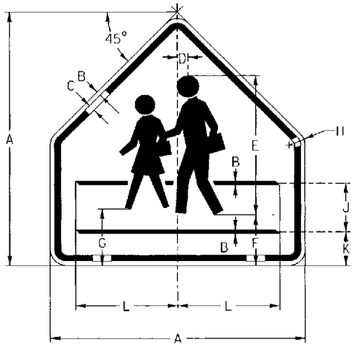
David A. Ross
TRAFFIC AND SAFETY ENGINEER

WARNING SIGN DETAILS

/traf/std/stde152.dgn : stde152.i

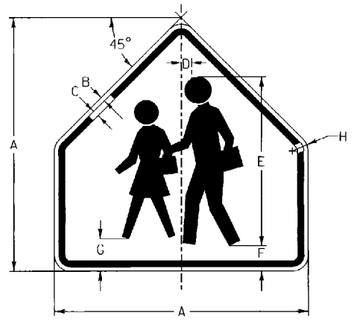
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-152



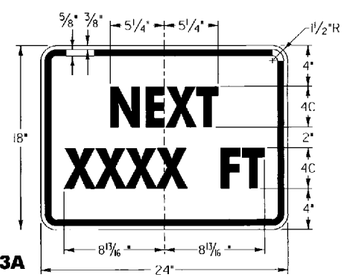
S2-1

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN./STD.	30	1/2	3/4	1 1/4	16 1/2	6	6 1/2	1 1/8	5 3/4	4	12
EXPWY.	36	5/8	7/8	1 1/2	19 3/4	7 1/4	7 13/16	2 1/4	6 7/8	4 3/4	14 3/8
SPECIAL	48	3/4	1 1/4	2	26 1/2	9 1/2	10 3/8	3	9 1/4	6 1/2	19 1/4

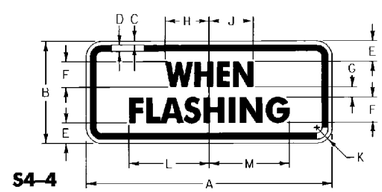


S1-1

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MIN./STD.	30	1/2	3/4	2	20	3	3 3/4	1 7/8
EXPWY.	36	5/8	7/8	2 1/2	24	3 1/2	4 1/2	2 1/4
SPECIAL	48	3/4	1 1/4	3 1/4	32	5	6	3

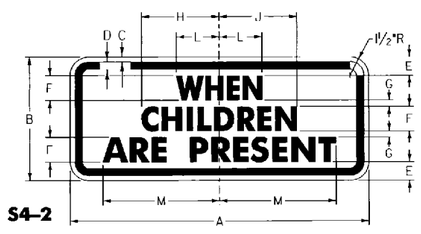


W7-3A

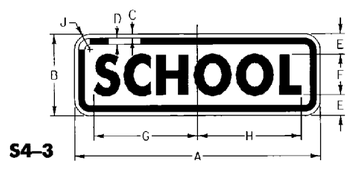


S4-4

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MIN./STD.	24	10	3/8	5/8	2	2 1/2D	1	4 3/8	4 1/4	1 1/2	7 5/8	8 1/16
EXPWY.	36	15	5/8	7/8	2 3/4	4D	1 1/2	6 15/16	6 15/16	2 1/4	12 3/16	12 15/16
SPECIAL	48	20	3/4	1 1/4	4	5D	2	8 3/4	8 1/2	3	15 1/4	16 1/8

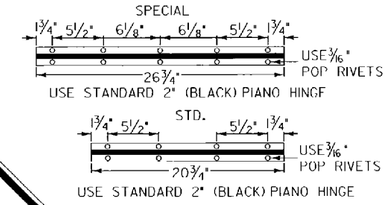


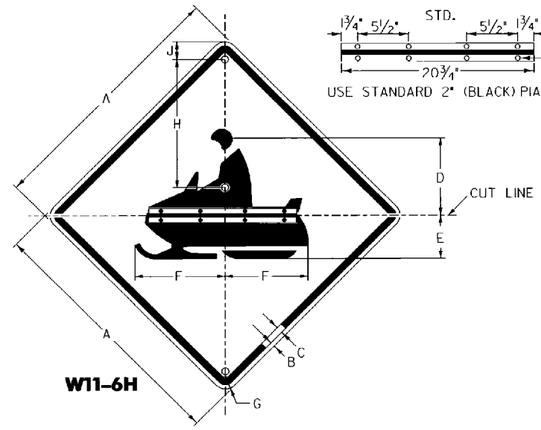
S4-2



S4-3

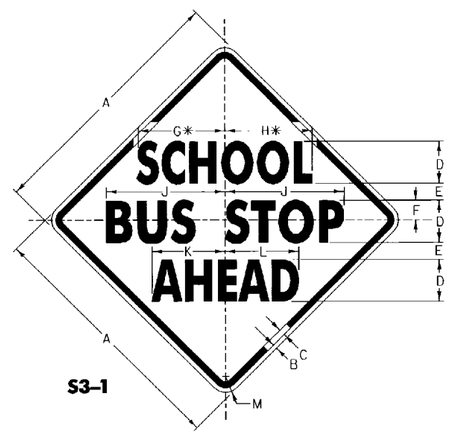
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN./STD.	24	8	3/8	5/8	2	4D	10	10 1/4	1 1/2
EXPWY.	36	12	5/8	7/8	3	6D	15	15 3/8	2 1/4
SPECIAL	48	16	3/4	1 1/4	4	8D	20	20 1/2	3





W11-6H

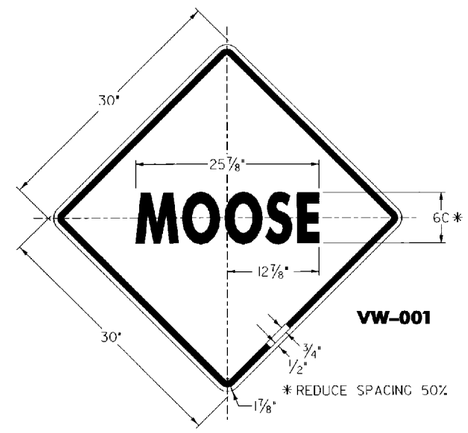
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
STD.	30	1/2	3/4	11 7/16	5 9/16	12 11/16	1 7/8	14	2 1/2
SPECIAL	36	5/8	7/8	14 1/8	6 3/4	15 1/4	2 1/4	19	2 1/2



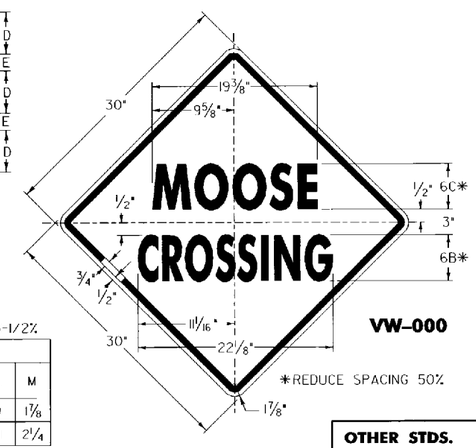
S3-1

*REDUCE SPACING 13-1/2%

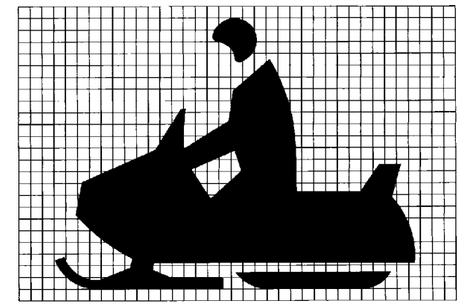
SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MIN./STD.	30	1/2	3/4	5C	2	2 1/2	10	10 1/2	14	8 1/4	9	1 7/8
SPECIAL	36	5/8	7/8	6C	3	3	11 3/4	12 3/4	17	10	11	2 1/4



VW-001



VW-000



COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

	24" X 8" 24" X 10" 24" X 18" 24" X 24" 30" X 30"	36" X 12" 36" X 15" 36" X 36"	48" X 16" 48" X 20"
FLAT SHEET ALUMINUM	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	16 GAGE	14 GAGE	12 GAGE

THE TEXT, BORDER AND SYMBOL SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.
THE HINGE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET ARE A STANDARD ALUMINUM 2" PIANO HINGE WITH BLACK ENAMEL PAINT, USE AN ALUMINUM 3/16" POP RIVET WITH STEEL SHANK.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE
JAN. 15, 1997 - ADDED HINGE DETAIL

APPROVED

DIRECTOR OF ENGINEERING

DIRECTOR OF CONSTRUCTION & MAINTENANCE

WARNING SIGN DETAILS

/traf/std/stdel53.dgn : stdel53.i

VERMONT AGENCY OF TRANSPORTATION

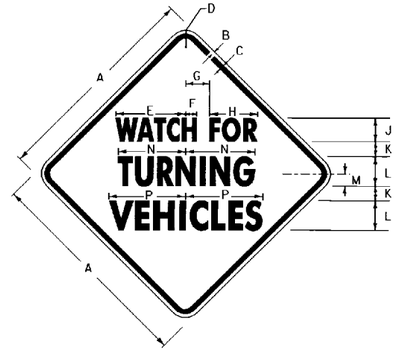
STANDARD
E-153

W5-1

LETTER SPACING REDUCED 25%

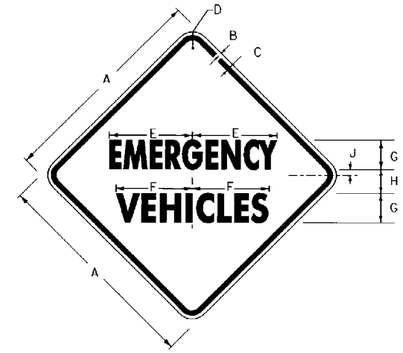
SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN	30	1/2	3/4	5D	3	1 3/4	7 1/8	8 5/8	14 3/4	15 1/8	1 7/8
STD	36	5/8	7/8	6D	3 1/2	2	9 1/2	10 5/16	17 5/8	18 1/4	2 1/4
SPECIAL	48	3/4	1 1/4	8D	4	3	12 11/16	13 3/4	23 1/2	23 3/8	3

VW-205



SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN	30	1/2	3/4	1 1/8	9 5/8	1 1/2	3 3/8	6 3/8	4B	2	5B	2	9 1/4	10 1/4
STD	36	5/8	7/8	2 1/4	11 3/4	1 7/8	4	8	4C	2 1/2	5C	2	11 1/2	12 7/8
SPECIAL	48	3/4	1 1/4	3	14 3/4	2 3/8	5 3/8	10	5C	3 3/8	8B	2 5/8	14 13/16	16 7/16

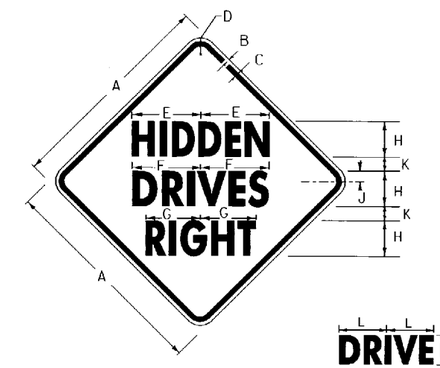
VW-544



SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN	30	1/2	3/4	1 7/8	12 3/4	9 1/16	4C*	3 3/8	7/8
STD	36	5/8	7/8	2 1/4	14 3/16	11 5/16	5C*	4	1
SPECIAL	48	3/4	1 1/4	3	19 1/8	15 7/16	6C	5 3/8	1 3/8

* LETTER SPACING REDUCED 50%

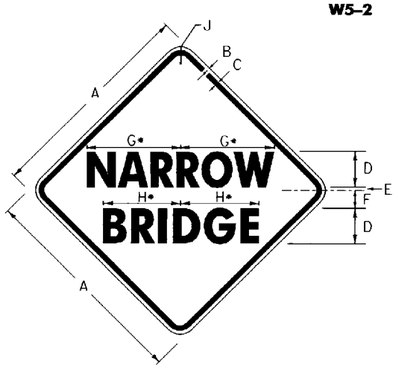
VW-054



VW-133

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
MIN	24	3/8	5/8	1 1/2	7 11/16	7 5/8	6 3/16	4C	1 3/16	2	6 3/16	4 7/8
STD	30	1/2	3/4	1 7/8	9 3/16	9 1/2	7 11/16	5C	1 1/2	2	7 3/4	6 1/8
EXPWY.	36	5/8	7/8	2 1/4	11 7/16	11 7/16	9 3/16	6C	1 13/16	2 3/8	9 5/16	7 3/8
SPECIAL	48	3/4	1 1/4	3	15 3/8	15 1/4	12 5/16	8C	2 3/8	3 3/16	12 3/8	9 11/16

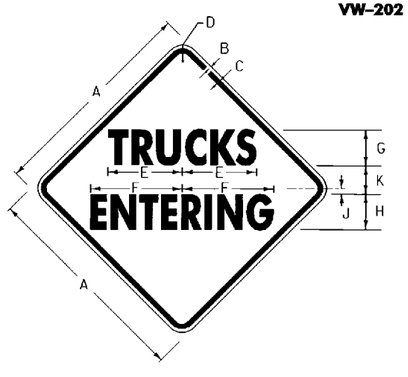
W5-2



REDUCE LETTER SPACING BY 20%

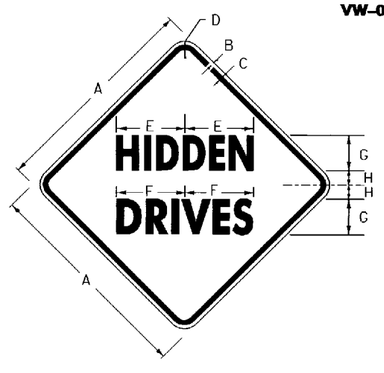
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN	24	3/8	5/8	4D	1/4	2	10 7/16	8 3/4	1 1/2
STD	30	1/2	3/4	5D	1/2	2 1/2	13 11/16	10 7/8	1 7/8
SPECIAL	36	5/8	7/8	6D	3/4	3	15 11/16	13 11/16	2 1/4

VW-202



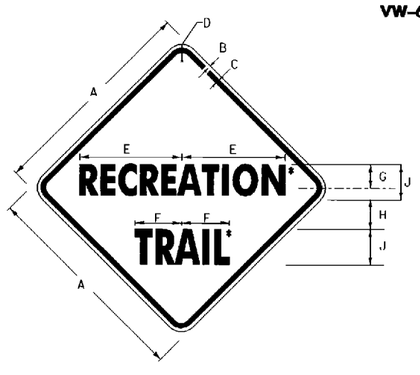
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN	30	1/2	3/4	1 7/8	14 7/16	6 11/16	5C	5C	3/4	4
STD	36	5/8	7/8	2 1/4	17 3/8	8	6C	6C	7/8	4 3/16
SPECIAL	48	3/4	1 1/4	3	23 1/8	10 11/16	8B	8C	1 3/16	6 3/8

VW-060



SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MIN	24	3/8	5/8	1 1/2	7 11/16	7 5/8	4C	2
STD	30	1/2	3/4	1 7/8	9 9/16	9 1/2	5C	2
EXPWY.	36	5/8	7/8	2 1/4	11 1/2	11 7/16	6C	2 3/8
SPECIAL	48	3/4	1 1/4	3	15 3/8	15 1/4	8C	3 3/16

VW-622



REDUCE LETTER SPACING BY 50%

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN	24	3/8	5/8	1 1/2	11 9/16	5 5/16	2 11/16	3 5/16	4C
STD	30	1/2	3/4	1 7/8	14 7/16	6 11/16	3 5/16	4 3/16	5C
SPECIAL	36	5/8	7/8	2 1/4	17 3/8	8	4	5	6C

COLORS
ALL OF THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND, EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION AND THE FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS
THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED:

	24" x 24" 30" x 30"	36" x 36"	48" x 48"
FLAT SHEET ALUMINUM	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAID PLYWOOD	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	16 GAGE	14 GAGE	12 GAGE

THE TEXT, BORDER AND SYMBOLS SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

TEXT DESIGN
LETTERS, DIGITS, SYMBOLS, SPACINGS AND TEXT SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN TEH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

SPECIFICATIONS
WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacArthur
DIRECTOR OF ENGINEERING

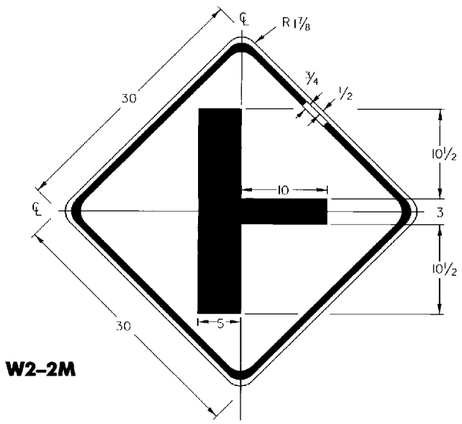
David A. Ross
TRAFFIC AND SAFETY ENGINEER

WARNING SIGN DETAILS

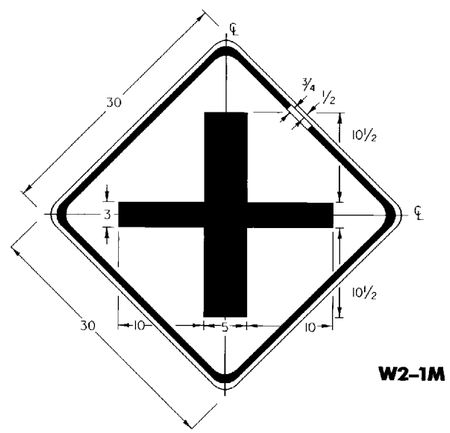
/traf/std/stdel54.dgn : stdel54.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-154

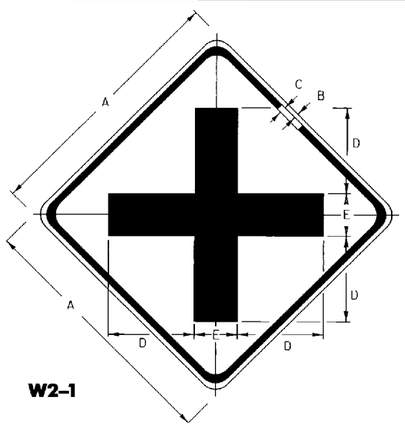


W2-2M



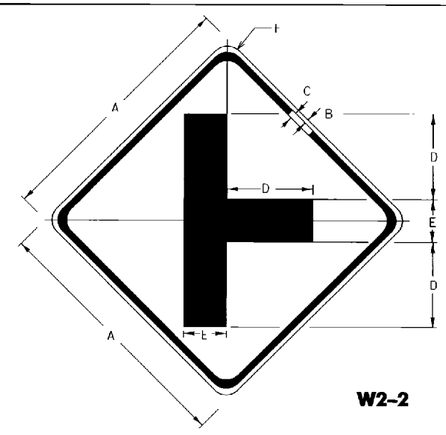
W2-1M

STATE ROUTE /TOWN HIGHWAY INTERSECTION SIGNS (TYP.)



W2-1

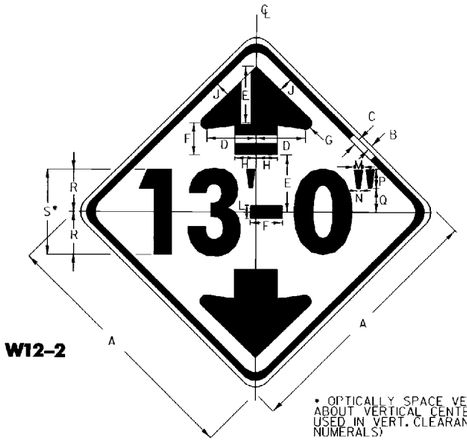
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
BIKE	18	3/8	5/8	6	3	1 1/2
MIN.	24	3/8	5/8	8	4	1 1/2
STD.	30	1/2	3/4	10	5	1 7/8
EXPWY.	36	5/8	7/8	12	6	2 1/4
SPECIAL	48	3/4	1 1/4	16	8	3



W2-2

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
BIKE	18	3/8	5/8	6	3	1 1/2
MIN.	24	3/8	5/8	8	4	1 1/2
STD.	30	1/2	3/4	10	5	1 1/8
EXPWY.	36	5/8	7/8	12	6	2 1/4
SPECIAL	48	3/4	1 1/4	16	8	3

STATE ROUTE /STATE ROUTE INTERSECTION SIGNS (TYP.)

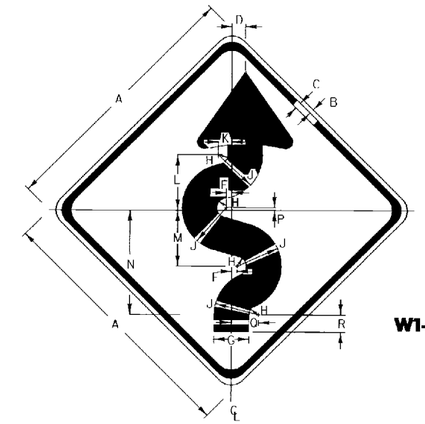


W12-2

* OPTICALLY SPACE VERTICAL CLEARANCE ABOUT VERTICAL CENTERLINE (WHERE 10" IS USED IN VERT. CLEARANCE, USE SERIES C NUMERALS)

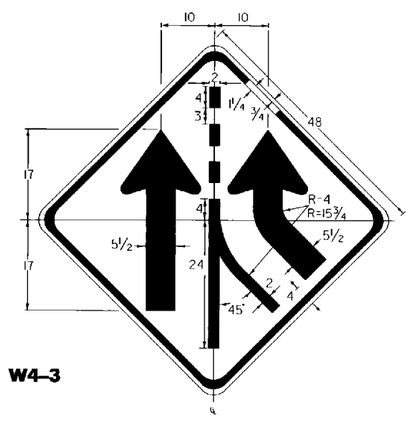
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN.	30	1/2	3/4	5 3/4	6 5/8	3 3/4	3/4	2 1/2	1 11/16	1 7/8
STD. & EXPWY.	36	5/8	7/8	6 7/8	8	4 1/2	1	3	2	2 1/4
EXPWY.	48	3/4	1 1/4	9 3/16	10 5/8	5 7/8	1 5/16	4	2 5/8	3

SIGN	DIMENSIONS (INCHES)								
	L	M	N	P	Q	R	S
MIN.	1	7/16	2 1/4	3 5/16	5	10D	
STD. & EXPWY.	1 3/4	1/2	2 3/4	4	6	12D	
EXPWY.	2 7/16	1 5/8	5/8	3 5/8	5 1/2	8	16D

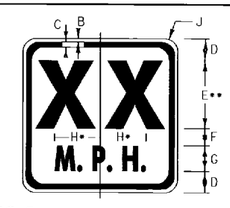


W1-5

SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
BIKE	18	3/8	5/8	1	9 5/8	3/8	2 1/2	5/8	3	1	4	4	8 5/8	1/4	2	1 1/4	1 1/2
MIN.	24	3/8	5/8	1 1/4	12 3/4	1/2	3 1/4	7/8	4 1/8	1 1/4	5 3/16	5 1/4	11 3/8	1/4	2 1/2	1 19/32	1 1/2
STD.	30	1/2	3/4	1 9/16	15 15/16	5/8	4 1/16	1 1/32	5 5/32	1 9/16	6 31/64	6 3/16	14 1/32	5/16	3 1/8	2	1 7/8
EXPWY.	36	5/8	7/8	1 7/8	19 1/8	3/4	4 7/8	1 5/16	6 3/16	1 7/8	7 29/32	7 1/8	17 1/16	3/8	3 3/4	2 15/32	2 1/4
SPECIAL	48	3/4	1 1/4	2 1/2	25 1/2	1	6 1/2	1 3/4	8 1/4	2 1/2	10 3/8	10 1/2	22 3/4	1/2	5	3 3/16	3



W4-3



W13-1

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
STD.	18	3/8	5/8	2 1/2	8E	2	3E	5 5/16	1 1/2
SPECIAL	24	3/8	5/8	3 5/8	10E	2 3/4	4E	7 1/16	1 1/2

* INCREASE SPACING 100%
** OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE

COLORS:

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION AND THE FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF MINIMUM THICKNESS NOTED.

	FLAT SHEET ALUMINUM	HIGH DENSITY OVERLAID PLYWOOD	GALVANIZED FLAT SHEET STEEL
18" X 18"	0.060"	1/2"	18 GAGE
24" X 24", 30" X 30"	0.080"	1/2"	16 GAGE
36" X 36"	0.100"	5/8"	14 GAGE
48" X 48"	0.125"	5/8"	12 GAGE

THE TEXT, BORDER AND SYMBOLS SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

TEXT:

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. SEE STANDARD SHEET E-150 FOR ARROWHEAD DETAILS.

SPECIFICATIONS:

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

OTHER STDS. REQUIRED: E-150

REVISIONS AND CORRECTIONS

AUG. 08. 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon J. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

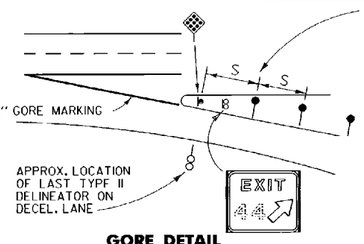
WARNING SIGN DETAILS

/traf/std/std155.dgn : std155.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD

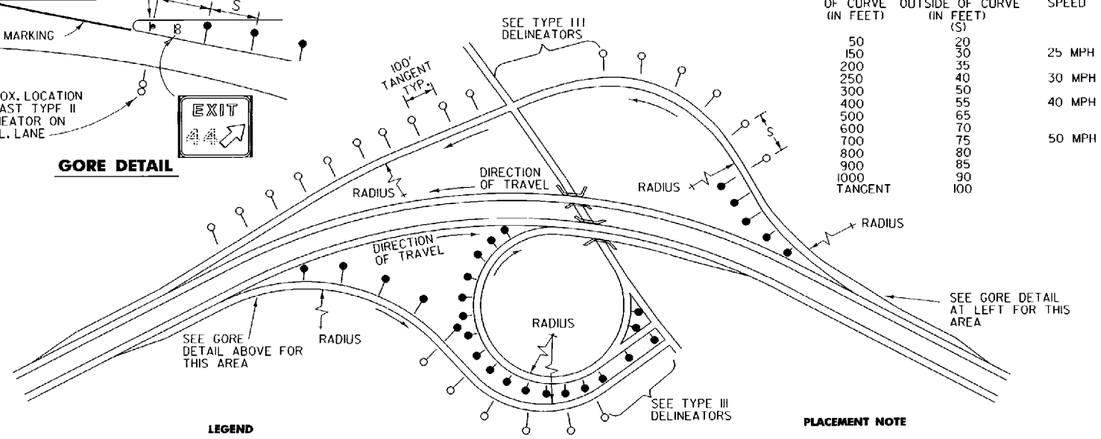
E-155



GORE DETAIL

SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES

RADIUS OF CURVE (IN FEET)	SPACING ON OUTSIDE OF CURVE (IN FEET) (S)	APPROX SPEED
50	20	
150	30	25 MPH
200	35	
250	40	30 MPH
300	50	
400	55	40 MPH
500	65	
600	70	
700	75	50 MPH
800	80	
900	85	
1000	90	
TANGENT	100	



LEGEND

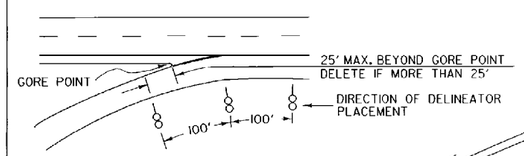
WHITE OR AMBER
RIGHT SIDE — LEFT SIDE

A TYPE I DELINEATOR CONSISTS OF A SINGLE WHITE OR AMBER REFLECTOR BUTTON MOUNTED ON A 1.12 LB/FT MIN. FLANGED CHANNEL POST AND IS POSITIONED TO REFLECT TO TRAFFIC APPROACHING FROM THE NORMAL DIRECTION OF TRAVEL.

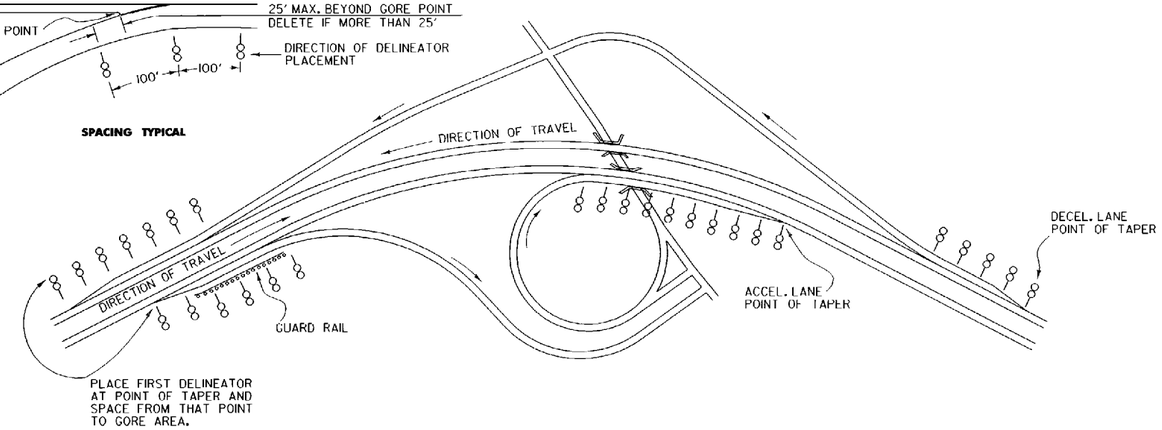
TYPE I (RAMPS)

PLACEMENT NOTE

TYPE I DELINEATORS ARE TO BE PLACED ON THE OUTSIDE OF RAMP CURVES AT THE APPROPRIATE SPACING FOR CURVE RADIUS OR RAMP SPEED AS SHOWN ON THE CHART AND PLACED AT 100 FOOT SPACING ON TANGENT ON THE DRIVERS' RIGHT. AMBER DELINEATORS ARE REQUIRED ON THE DRIVERS' LEFT AND WHITE DELINEATORS ON THE RIGHT. DELINEATORS SHALL NOT BE OMITTED BEHIND GUARD RAIL ON THE RAMPS AS IS THE CASE WITH TYPE I DELINEATORS ALONG THE MAIN LINE.



SPACING TYPICAL



LEGEND

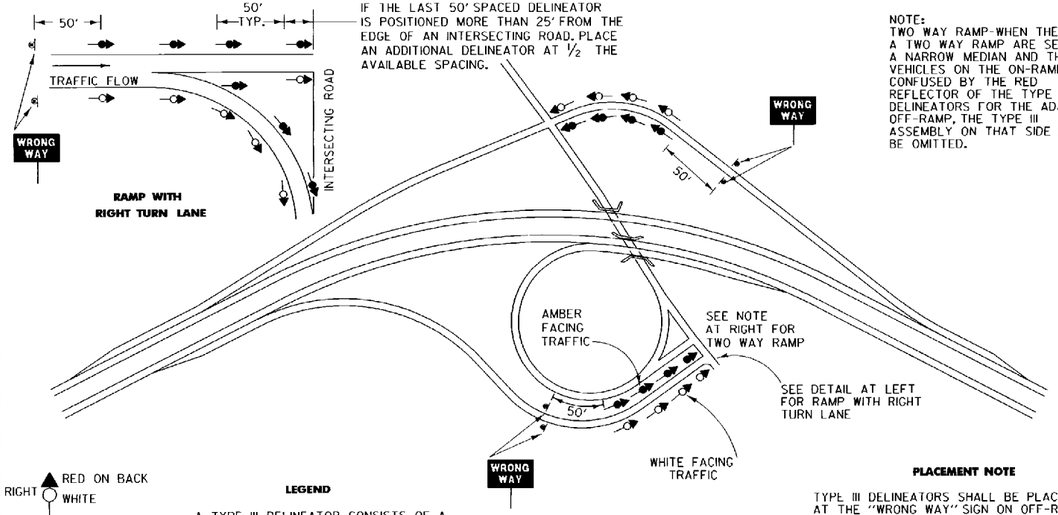
DOUBLE WHITE

A TYPE II DELINEATOR CONSISTS OF TWO WHITE REFLECTOR BUTTONS MOUNTED ONE ABOVE THE OTHER ON A 1.12 LB/FT MIN. FLANGED CHANNEL POST AND IS POSITIONED TO REFLECT TO TRAFFIC APPROACHING FROM THE NORMAL DIRECTION OF TRAVEL.

TYPE II

PLACEMENT NOTE

TYPE II DELINEATORS SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF ACCELERATION AND DECELERATION LANES AT 100 FOOT INTERVALS AND SHALL NOT BE OMITTED BEHIND GUARD RAIL. DELINEATORS SHALL START AT THE BEGINNING POINT OF THE ACCEL. OR DECEL. LANE TAPER, AND END AT THE NOSE OF THE ENTRANCE OR EXIT GORE.



NOTE:
TWO WAY RAMP-WHEN THE TRAVEL LANES FOR A TWO WAY RAMP ARE SEPARATED BY ONLY A NARROW MEDIAN AND THERE IS LIKELIHOOD VEHICLES ON THE ON-RAMP COULD BE CONFUSED BY THE RED REFLECTOR OF THE TYPE III DELINEATORS FOR THE ADJACENT OFF-RAMP, THE TYPE III ASSEMBLY ON THAT SIDE SHOULD BE OMITTED.

LEGEND

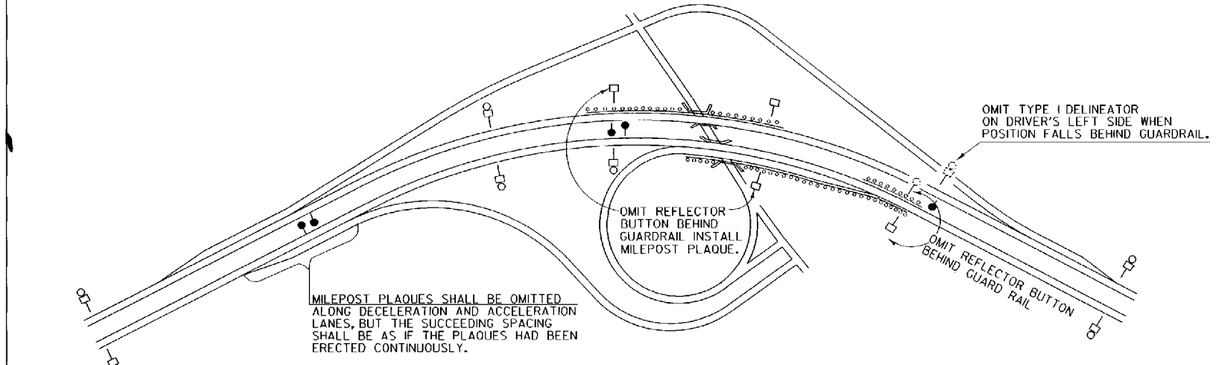
RIGHT: RED ON BACK, WHITE
LEFT: RED ON BACK, AMBER

A TYPE III DELINEATOR CONSISTS OF A TYPE I DELINEATOR FACING THE NORMAL DIRECTION OF TRAVEL AND A SINGLE RED REFLECTOR FACING THE OPPOSITE DIRECTION, BOTH MOUNTED ON A 1.12 LB/FT MIN. FLANGED CHANNEL POST. THE WHITE AND RED COMBINATION IS PLACED ON THE DRIVER'S RIGHT AND THE AMBER AND RED ON THE LEFT.

TYPE III

PLACEMENT NOTE

TYPE III DELINEATORS SHALL BE PLACED BEGINNING AT THE "WRONG WAY" SIGN ON OFF-RAMPS AND INSTALLED ON 50' SPACING TO A POINT NOT MORE THAN 25 FEET FROM THE INTERSECTING ROADWAY. THE "WRONG WAY" SIGNS ARE NORMALLY 250 FEET FROM THE INTERSECTING ROADWAY.



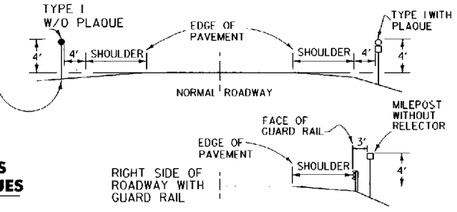
LEGEND

SEE STANDARD SHEET E-198 FOR COMPLETE DETAILS OF DELINEATORS AND MILEPOST PLAQUES

TYPE I (WHITE) WITH MILEPOST PLAQUE-SPACE AT 264' ON RIGHT. OMIT REFLECTOR BEHIND GUARD RAIL.

TYPE I (AMBER) SPACE AT 528' ON LEFT. OMIT ENTIRE ASSEMBLY BEHIND GUARD RAIL.

DELINEATORS ON MEDIAN SIDE TO BE PLACED OPPOSITE THE MILEPOSTS ENDING WITH 5 (I.E. .05, .15, .25 ETC.)



MAINLINE TYPE I DELINEATORS WITH MILEPOST PLAQUES

THIS SHEET IS NOT TO SCALE

OTHER STDS REQUIRED

REVISIONS AND CORRECTIONS

JAN. 23, 1989 - DATE OF ORIGINAL ISSUE

AUG. 18, 1995 - REVISED NOTES

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

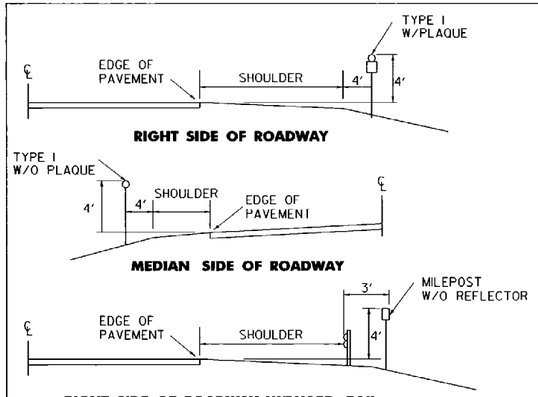
TRAFFIC AND SAFETY ENGINEER

DELINEATOR PLACEMENT TYPICAL

/traf/std/stdel97.dgn/stdel97.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-197



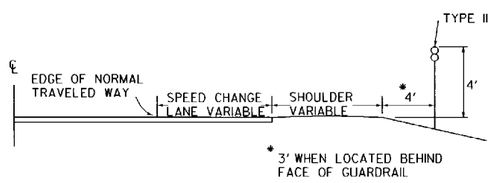
TYPICAL PLACEMENT OF TYPE I DELINEATORS AND MILEPOSTS ON DIVIDED HIGHWAY

TYPE I DELINEATORS WITH WHITE REFLECTOR UNITS AND THE APPROPRIATE MILEPOST PLAQUES SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF THE DIVIDED HIGHWAYS BETWEEN MILEMARKERS, EXCEPT THAT BEHIND GUARD RAIL MILEPOSTS WITHOUT REFLECTORS SHALL BE ERECTED.

THE TYPE I DELINEATORS WITH OR WITHOUT MILEPOST PLAQUES SHALL BE OMITTED ALONG DECELERATION AND ACCELERATION LANES, BUT THE SUCCEEDING SPACING SHALL BE AS IF THE DELINEATORS HAD BEEN ERECTED CONTINUOUSLY AND SHALL BE SO INDICATED.

THE LOCATION OF TYPE I DELINEATORS AND MILEPOSTS ARE TO BE COMPUTED AND MARKED IN THE FIELD BY THE ENGINEER IN ACCORDANCE WITH THE LATEST REVISION OF THE AGENCY'S "POLICY ON LOCATION MARKING FOR VERMONT DIVIDED HIGHWAYS."

TYPE I AMBER DELINEATORS WITHOUT MILEPOST PLAQUES SHALL BE ERECTED CONTINUOUSLY ALONG THE LEFT OR MEDIAN SIDE ON THE DIVIDED HIGHWAYS EXCEPT BEHIND GUARD RAIL, AND CONTINUED AT APPROXIMATELY THE SAME SPACING THROUGH INTERCHANGES AND REST AREAS WHERE THERE MAY NOT BE ANY TYPE I DELINEATORS ON THE RIGHT SIDE. THE SAME LATERAL PLACEMENT SHALL BE FOLLOWED ON THE LEFT AS ON THE RIGHT. TYPE I DELINEATORS WITHOUT MILEPOST PLAQUE SHALL BE INSTALLED ON INTERSTATE RAMPS AS SHOWN ON THE PLANS.



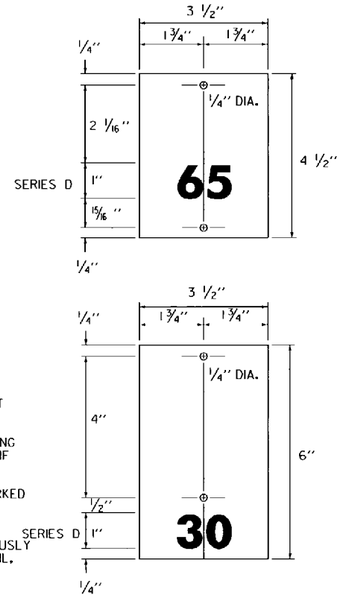
TYPICAL PLACEMENT OF TYPE II DELINEATORS ON SPEED CHANGE LANES

TYPE II DELINEATORS SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF THE DECELERATION AND ACCELERATION LANES AT 100' INTERVALS INCLUDING GUARDRAIL SECTIONS. THE DELINEATORS SHALL START AT THE BEGINNING OF THE TAPER AND END AT THE NOSE OF THE EXIT OR ENTRANCE GORE. THEY SHALL HAVE WHITE REFLECTOR UNITS.

TYPE III DELINEATORS – SEE NOTE # 1

TYPE III DELINEATORS SHALL BEGIN 50' FROM WRONG WAY SIGNS AND EXTEND EVERY 50' TO A POINT NOT LESS THAN 25' FROM THE DIVIDED HIGHWAY AND BE MOUNTED ON BOTH SIDES OF THE ROAD AS SHOWN ON THE PLANS.

MILEPOST PLAQUE "A"
(THE NUMERALS ON PART "A" INDICATE THE MILE.)

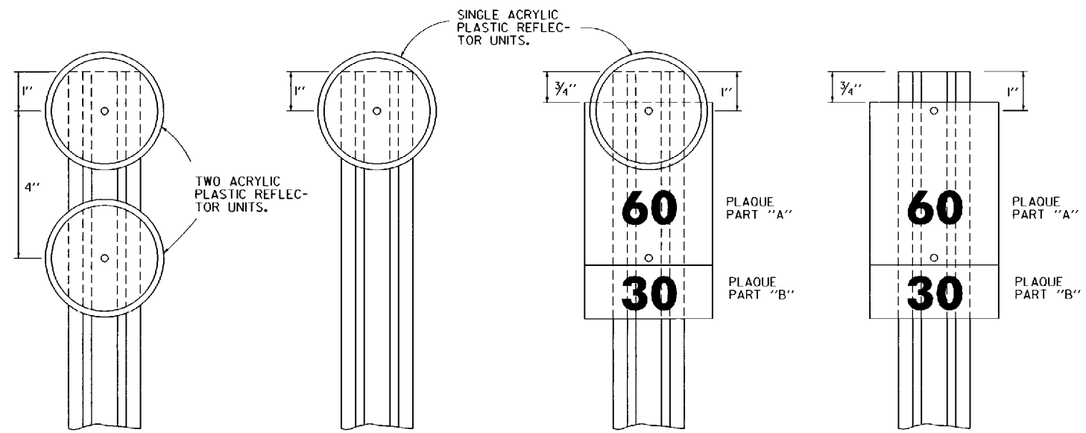


MILEPOST PLAQUE PART "B"
(THE NUMERAL ON PART "B" INDICATES IN FIVE ONE-HUNDREDTHS OF A MILE BETWEEN MILE INCREMENTS.)

NOTES

1. TYPE III DELINEATORS WILL BE TYPE I DELINEATORS WITH AN ADDITIONAL RED REFLECTIVE UNIT MOUNTED ON THE REVERSE SIDE. THEY SHALL BE ERECTED ON THE RIGHT AND LEFT SIDE OF THE RAMPS AS INDICATED ON THE PLANS.
2. EACH UNIT COMPLETE IN PLACE OF DELINEATOR TYPE I WITH OR WITHOUT PLAQUE, DELINEATOR TYPE II, DELINEATOR TYPE III, OR MILEPOST WITHOUT REFLECTOR SHALL BE PAID FOR AS "DELINEATOR".
3. FOR MOUNTING DELINEATORS AND MILEPOSTS ON BRIDGES, SEE STANDARD E-199.
4. DELINEATOR POSTS SHALL HAVE A MINIMUM EMBEDMENT OF 2' IN THE GROUND.
5. WHEN USING DELINEATORS AND MILEPOSTS ON STEEP SLOPES (1 ON 2 OR STEEPER) OR ERODED SOILS ADD ONE FOOT FOR GREATER STABILITY.

DELINEATORS WITH ACRYLIC PLASTIC REFLECTORS

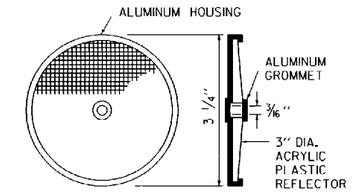


TYPE II

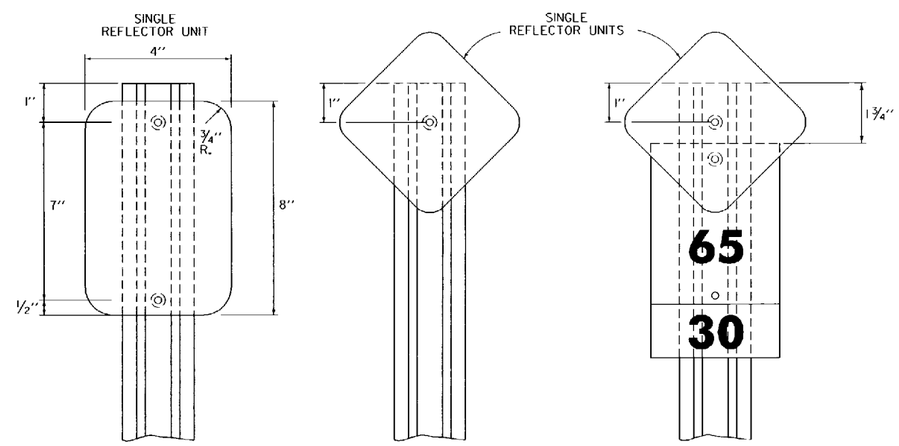
TYPE I WITHOUT PLAQUE

TYPE I WITH PLAQUE

MILEPOST WITHOUT REFLECTOR



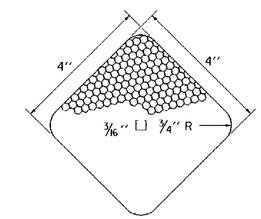
DELINEATOR PLASTIC REFLECTOR UNIT



TYPE II

TYPE I WITHOUT PLAQUE

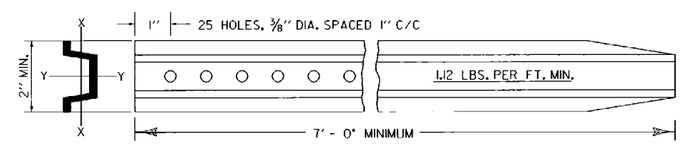
TYPE I WITH PLAQUE



DELINEATOR REFLECTIVE SHEETING UNIT

MATERIAL FOR REFLECTIVE SHEETING DELINEATORS SHALL BE A 0.063" ALUMINUM BACKING WITH A SILVER, AMBER OR RED HIGH INTENSITY REFLECTIVE SHEETING.

SECTION MODULUS
YY = 0.11 IN.^{3} MIN.
XX = 0.08 IN.^{3} MIN.



DELINEATORS WITH REFLECTIVE SHEETING

MILEPOST PLAQUES WITH OR A WITHOUT REFLECTOR UNIT SHALL BE MOUNTED ON THE POST WITH TWO OR THREE 3/8" DIA. BY 1 1/2" LONG ALUMINUM BOLTS WITH 1/2" DIA. ALUMINUM VANDAL RESISTANT NUTS, OR 3/8" DIA. BY 1 1/2" LONG VANDAL RESISTANT FASTENERS.

NOT TO SCALE

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
AUG. 18, 1995 - MINOR NOTE REVISIONS
APRIL 14, 1997 - ADDED NOTE AND CHANGED MINIMUM POST LENGTH

APPROVED

DIRECTOR OF ENGINEERING

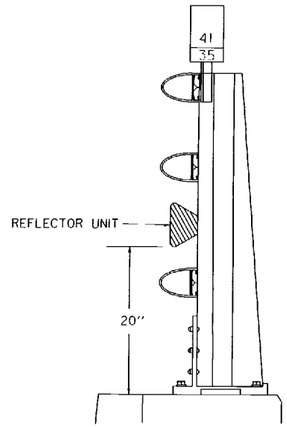
DIRECTOR OF CONSTRUCTION AND MAINTENANCE

FREEWAY - EXPRESSWAY DELINEATORS AND MILEPOSTS

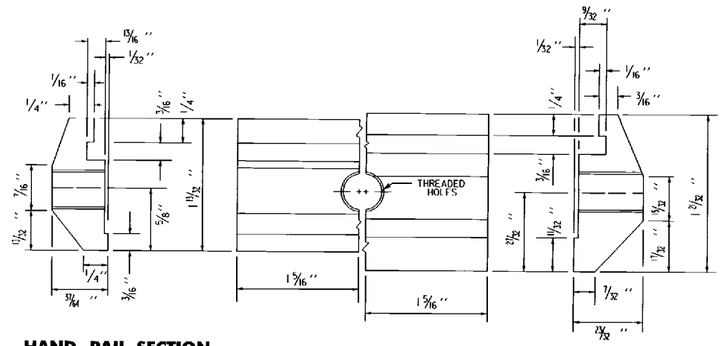
/traf/std/stdel98.dgn : stdel98.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-198



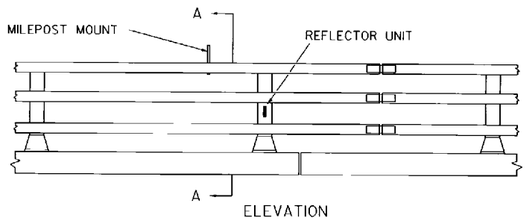
BARRIER RAIL SECTION A–A



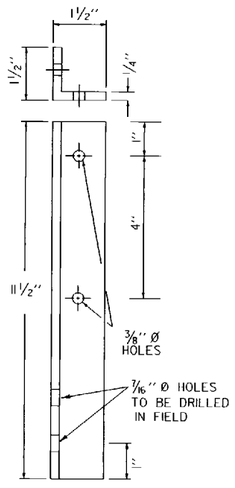
HAND RAIL SECTION
(2 REQUIRED)

DETAIL "A"
TOTAL LENGTH 2 5/8"
ASTM B-221 ALLOY 6061-T6 OR 6061-T5

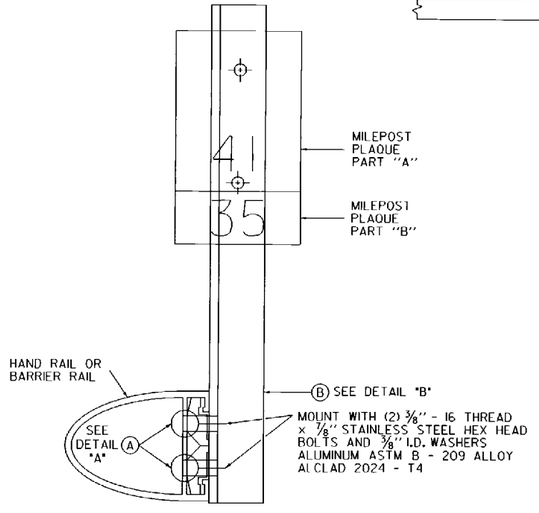
BARRIER RAIL SECTION
(2 REQUIRED)



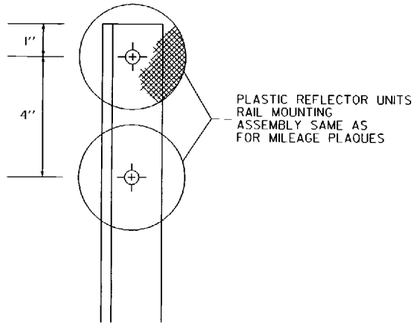
ELEVATION



DETAIL "B"
ALUMINUM ANGLE
ASTM B - 308 ALLOY 6061-T6

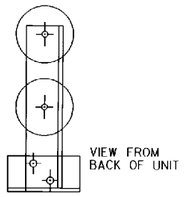


DETAIL FOR MOUNTING ON ALUMINUM BRIDGE RAIL



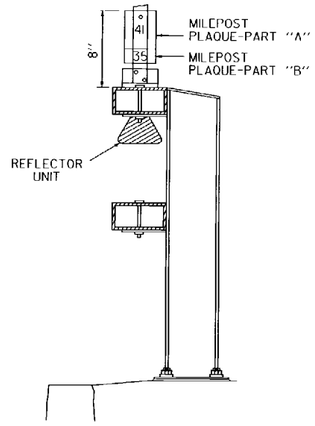
TYPE II DELINEATOR

TYPE II DELINEATORS WILL BE RAIL MOUNTED AT ONE-HUNDRED FOOT SPACING WHERE ACCELERATION OR DECELERATION LANES ARE CARRIED ACROSS STRUCTURES. ALSO SEE STANDARD E-198

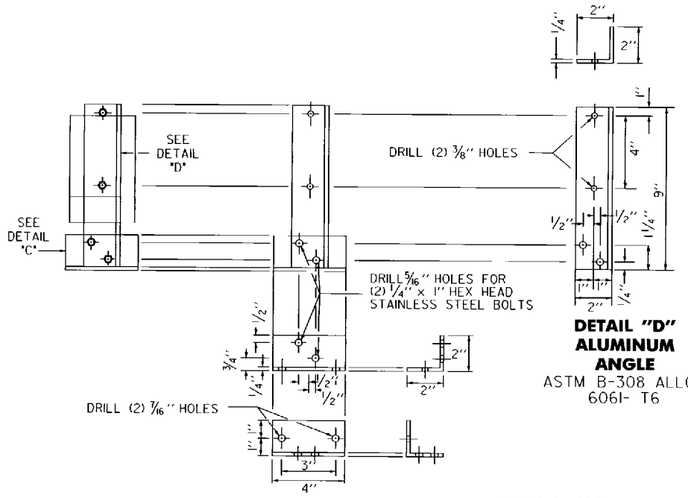


TYPE II DELINEATOR

TYPE II DELINEATORS WILL BE RAIL MOUNTED AT ONE-HUNDRED FOOT SPACING WHERE ACCELERATION OR DECELERATION LANES ARE CARRIED ACROSS STRUCTURES. ALSO SEE STANDARD E-198



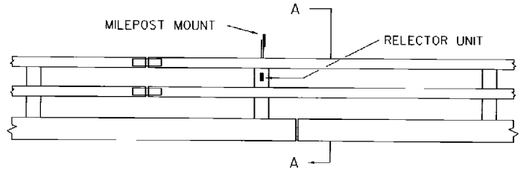
BARRIER RAIL SECTION A–A



DETAIL "C"
ALUMINUM ANGLE
ASTM B-308 ALLOY 6061 T6

DETAIL "D"
ALUMINUM ANGLE
ASTM B-308 ALLOY 6061- T6

MOUNT ON BRIDGE RAIL WITH (2) 3/8" x 1 1/4" STAINLESS STEEL SELF TAPPING SCREWS AND 3/4 " O.D. x 3/8" I.D. x 1/16" THICK WASHER. ALUMINUM ASTM B-209 ALLOY ALCLAD 2024-T4.



ELEVATION

DETAIL FOR MOUNTING ON BOX BEAM BRIDGE RAIL

THE REFLECTOR UNIT IS TO BE INSTALLED EVERY 30 FEET ON OR CLOSEST POST.

NOT TO SCALE

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
AUG. 18, 1995 - REVISED REFLECTOR UNIT LOCATION AND ADDED NOTE.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

FREEWAY - EXPRESSWAY DELINEATOR AND MILEPOST MOUNTING ON BRIDGE RAIL

/traf/std/stdel99.dgn : stdel99.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-199