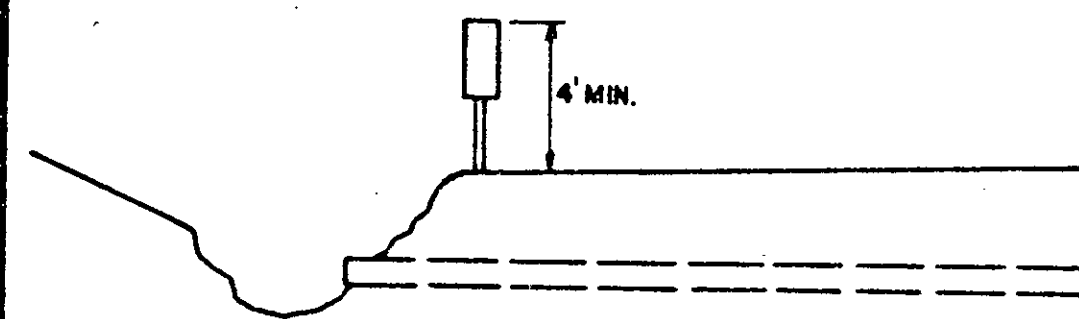
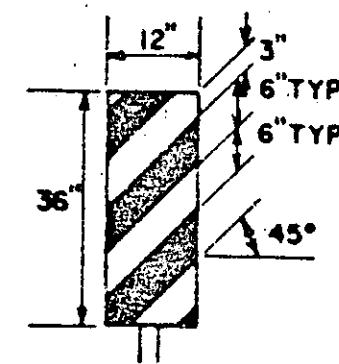


# DELINEATOR AND HAZARD MARKER DETAILS FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED



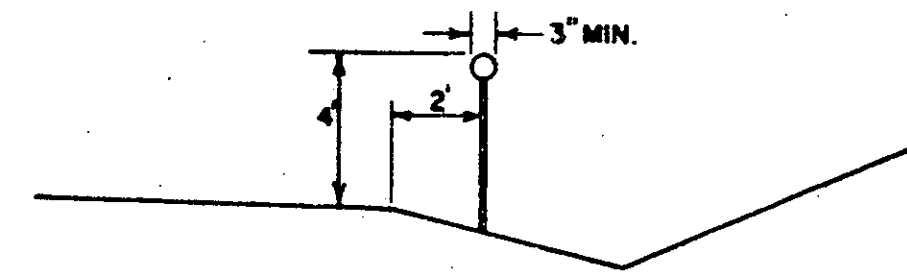
HAZARD MARKER TYPICAL

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 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 HAZARD MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION, WHENEVER POSSIBLE.



VERTICAL PANEL

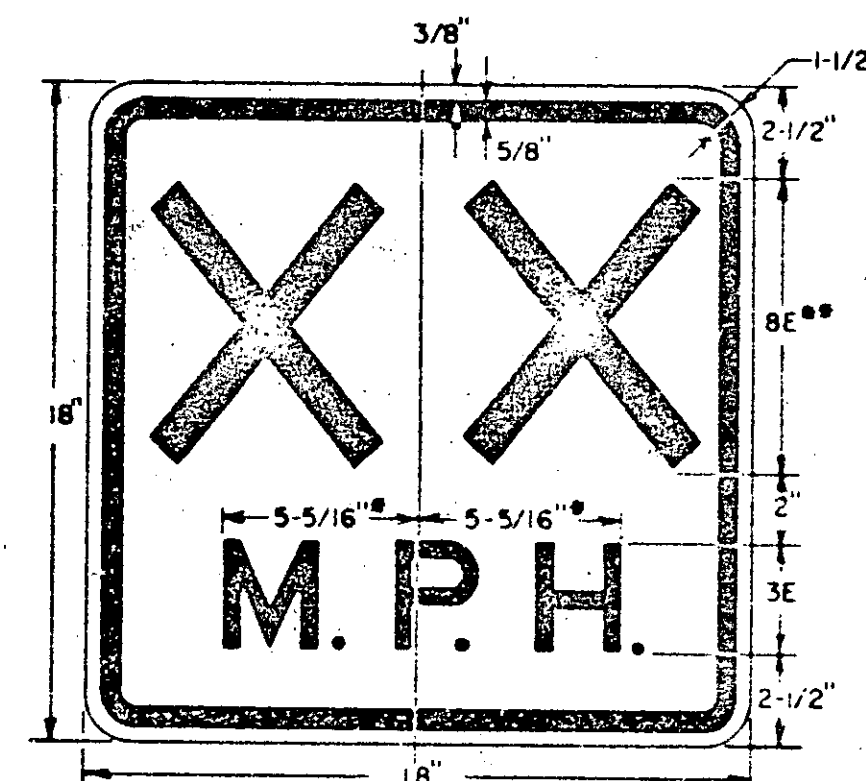
VERTICAL PANELS SHALL HAVE ALTERNATING ORANGE AND WHITE REFLECTORIZED STRIPS (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS). THESE DEVICES MAY BE USED FOR TRAFFIC SEPARATION OR SHOULDER BARRICADING WHERE SPACE IS AT A MINIMUM.



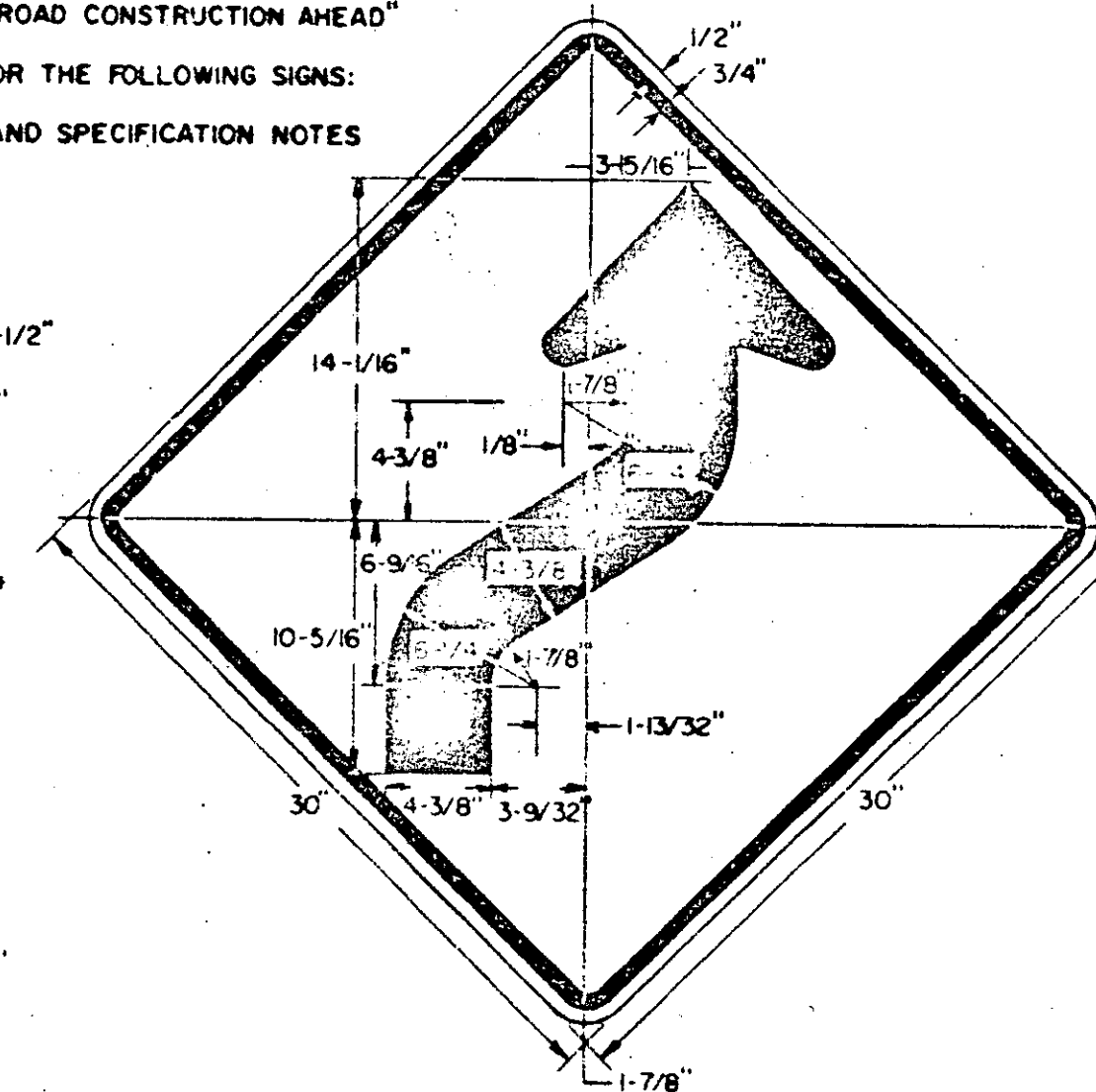
DELINEATOR TYPICAL

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.

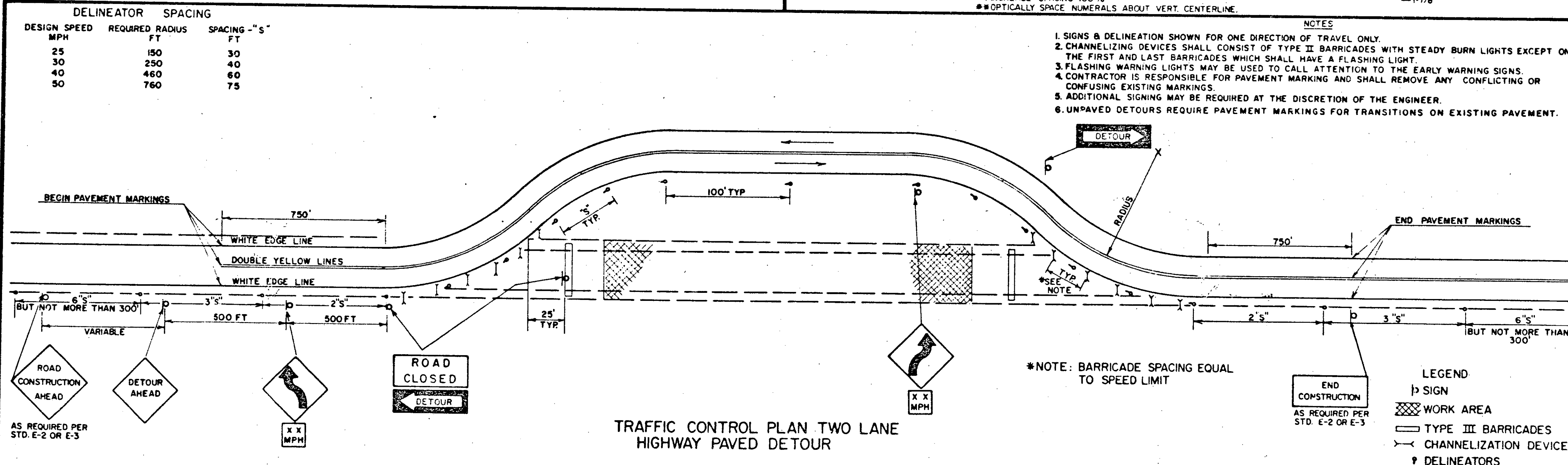


\* INCREASE SPACING 100%  
\* OPTICALLY SPACE NUMERALS ABOUT VERT. CENTERLINE.



## 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.



## BARRICADES

### APPLICATION NOTES

TYPE I BARRICADES ARE TO BE USED ON CONVENTIONAL ROADS OR URBAN STREET AND ARTERIALS TO MARK A SPECIFIC LOCATION OF CHANNELIZED 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

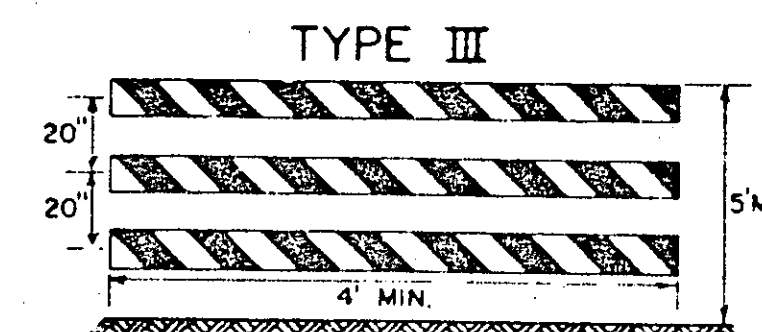
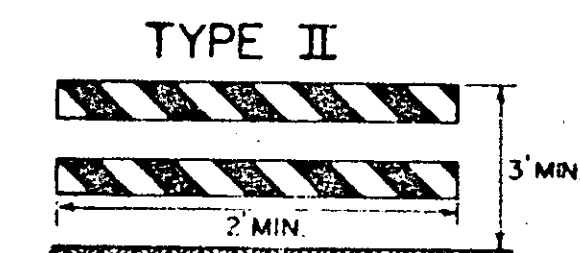
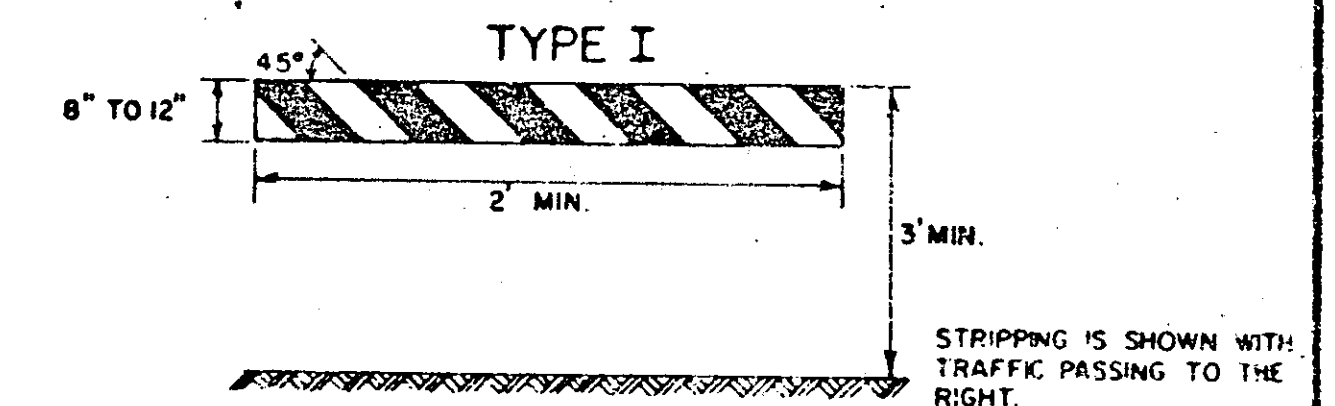
THE BARRICADES PANELS SHOWN ON THIS SHEET SHALL HAVE ALTERNATING REFLECTORIZED WHITE AND ORANGE STRIPES. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY 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.



| BARRICADE       | CHARACTERISTICS        |                             |
|-----------------|------------------------|-----------------------------|
|                 | I                      | II                          |
| WIDTH OF RAIL   | 8" MIN. 12" MAX.       | 8" MIN. 12" MAX.            |
| LENGTH OF RAIL  | 2' MIN.                | 2' 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.

## 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



STANDARD  
E-7