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V.A.O.T. STANDARDS

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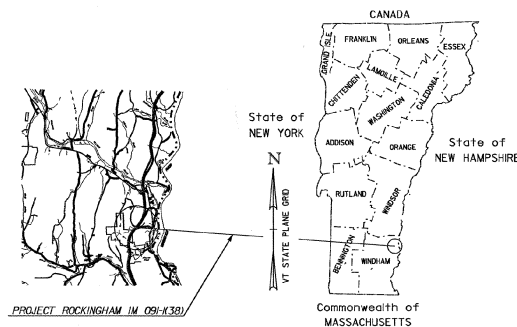
STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT

BEGINNING AT A POINT APPROXIMATELY 2.29 MILES NORTH OF THE WESTMINSTER-ROCKINGHAM TOWN LINE AND EXTENDING NORTH 0.09 MILES

WORK TO BE PERFORMED ON THIS PROJECT INCLUDES REPLACEMENT OF BRIDGE 21-3 (84' DIAPHRAGM GUTTERED, METAL PLATE PIPE) WITH A NEW PRECAST CONCRETE BOX AND ALL RELATED CHANNEL AND ROADWAY WORK. ALSO INCLUDED IS THE DECK JOINT REPLACEMENT FOR BRIDGES 22-N & 22-S OVER TH 46.



TRAFFIC DATA

2001 ADT - 13600

DHV - 2000

FUNCTIONAL CLASSIFICATION: INTERSTATE

RECORD PLANS

CONTRACTOR:	BAZIN BROS. TRUCKING - WESTMINSTER, VT
RESIDENT ENGINEER:	D. W. BREER
CONSTRUCTION BEGAN:	MAY 15, 2001
CONSTRUCTION COMPLETE:	OCTOBER 22, 2001
RECORD PLANS BY:	D. BREER
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY	<i>D. W. Breer</i> RESIDENT ENGINEER
DATE	1/07/02
NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found on microfiche in Central Files.	

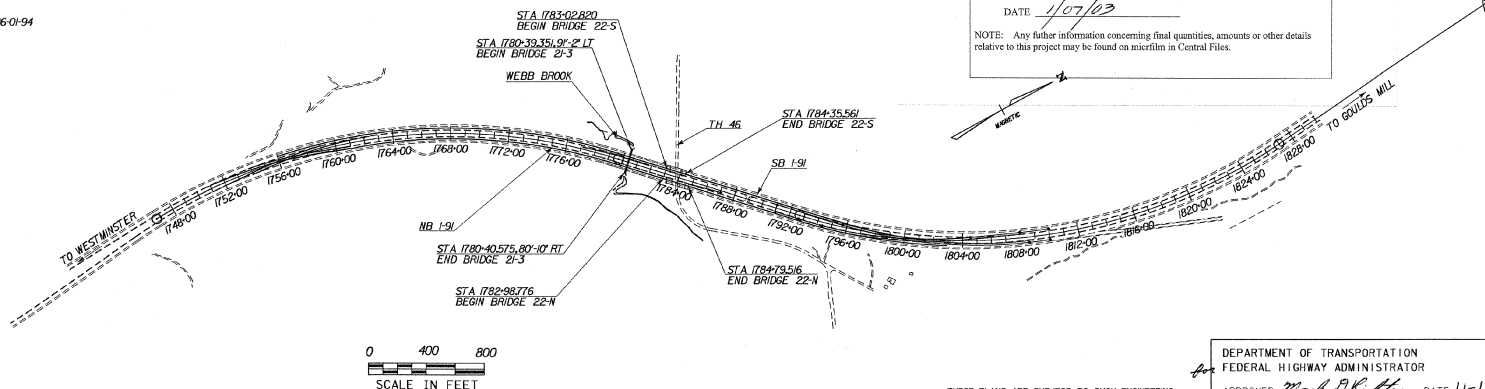
CONVENTIONAL SYMBOLS

COUNTY LINE	— — — — —
TOWN LINE	— — — — —
LIMITS OF ACCESS	— — — — —
POINT OF ACCESS	X
FENCE LINE	X — — — — — X — — — — —
STONE WALL	— — — — —
TRAVELED WAY	— — — — —
GUARD RAIL	— — — — —
RAILROAD	— — — — —
SURVEY LINE	— — — — —
CULVERT	— — — — —
POWER POLE	— — — — —
TELEPHONE POLE	— — — — —
CONTROL OF ACCESS	— — — — —
PROPERTY LINE	— — — — —
R.O.W. TAKING LINE	— — — — —
SLOPE RIGHTS	— — — — —
TOP OF CUT	— — — — —
TOE OF SLOPE	— — — — —

SURVEYED BY: VTRANS SURVEY CREW
SURVEYED DATE: MARCH 29, 2000

DATUM

VERTICAL BASED ON LOCAL SURVEY
HORIZONTAL BASED ON LOCAL SURVEY



THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROJECT DEVELOPMENT.
CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1990, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON MARCH 15, 1990 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATOR	
APPROVED	<i>Mark D. K. Allen</i> DATE 11-16-00
DIRECTOR OF PROJECT DEVELOPMENT	
APPROVED	<i>[Signature]</i> DATE 12/4/00
PROJECT MANAGER: DAVID HOYNE	
PROJECT NAME: BR 21-3, BR 22-N AND BR 22-S	
PROJECT NUMBER: ROCKINGHAM 1M 091-1 (38)	
SHEET 1 OF 23 SHEETS	

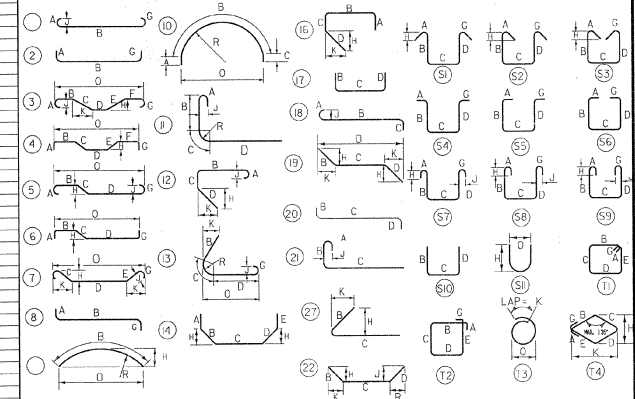
QUANTITY SHEET

NO.	ITEM	UNIT	QUANTITY BREAKDOWN							GRAND TOTAL
			PRECAST BOX	INLET STRUCT.	OUTLET STRUCT.	SB I-91	NB I-91	BR. 22-N	BR. 22-S	
203.16	SOLID ROCK EXCAVATION	CY	175	75						250
203.29	EXCAVATION OF SURFACES & PAVEMENTS	CY				760	100			860
203.31	SAND BORROW	CY				180	205			385
204.25	STRUCTURE EXCAVATION (MODIFIED)	CY	47.30	125	215					507.0
204.30	GRANULAR BACKFILL FOR STRUCTURES	CY	26.30	95	80					200.0
210.00	COLD PLANING	SY				3900	4250			8150
213.00	MILLED RUMBLE STRIPS	LF				8400	9400			17800
301.35	SUBBASE OF DENSE GRADED CRUSHED STONE	CY				525	570			1095
404.45	TAR EMULSION	GAL	58							58
404.65	EMULSIFIED ASPHALT	OWT				98	102			200
406.25	BITUMINOUS CONCRETE PAVEMENT (PG-58-28)	TON				1020	980			2000
501.25	CONCRETE CLASS B	CY	41	34						75
502.15	REINFORCING STEEL	LB	4050	3550						7600
514.00	WATER REPELLENT	GAL	1	1				13	11	26
516.00	BRIDGE EXPANSION JOINT (ASPHALTIC PLUG TYPE)	LF						160	80	240
519.20	SHEET MEMBRANE WATERPROOFING	SY	300							300
540.00	PRECAST CONCRETE BOX (8' X 6' X 180')	LS	1					10	5	15
580.01	REPAIR OF CONCRETE SUPERSTRUCTURE	SY						10	5	15
580.03	REPAIR OF CONCRETE SUBSTRUCTURE	SY						10	5	15
580.04	REPAIR OF CONCRETE SUBSTRUCTURE	SY						10	5	15
605.00	UNDERDRAIN	LF	430							430
608.00	BULLDOZER RENTAL TYPE I	HR				10	10			20
608.25	ALL PURPOSE EXCAVATOR TYPE I	HR				10	10			20
613.00	STONE FILL TYPE I	CY				50	50			100
613.12	STONE FILL TYPE II	CY		78						78
613.13	STONE FILL TYPE III	CY			135					135
620.50	REMOVING AND RESETTING FENCE	LF				125	125			250
621.57	ENERGY ABSORPTION ATTENUATOR (SAND FILLED BARREL)	EACH				1	1			2
621.75	REMOVAL & RESET GUARD RAIL	LF				206	120			326
621.90	TEMPORARY TRAFFIC BARRIER	LF				4600	4900			9500
630.00	UNIFORMED TRAFFIC OFFICERS	HR				50	50			100
630.15	FLAGGERS	HR				50	50			100
631.00	FIELD OFFICE - ENGINEERS	EA	1							1
631.06	TESTING EQUIPMENT - CONCRETE	LS		0.5	0.5					1
631.07	TESTING EQUIPMENT - BITUMINOUS	LS				0.5	0.5			1
631.25	FIELD OFFICE TELEPHONE (NAB)	HR	520							520
631.40	EMPLOYEE TRAINESHIP	LS	1							1
631.50	MOBILIZATION	LS	1							1
641.00	TRAFFIC CONTROL	LS	1							1
641.15	PORTABLE CHANGEABLE MESSAGE BOARD	EA				1	1			2
646.414	DURABLE G' WHITE LINE	LF				273	256			529
646.415	DURABLE G' YELLOW LINE	LF				218	205			423
646.614	TEMPORARY G' WHITE LINE (TAPE, TYPE II)	LF				14200	15000			29200
646.615	TEMPORARY G' YELLOW LINE (TAPE, TYPE II)	LF				1300	10600			20900
646.620	RAISED PAVEMENT MARKERS TYPE I	EA				1573	1475			3048
646.625	BLACK PAVEMENT MARKING MASKING TAPE	SY				6000	6500			12500
649.31	GEOTEXTILE UNDER STONE FILL	SY	87	67	100					254
649.41	GEOTEXTILE FOR UNDER DRAIN TRENCH LINING	SY	100							100
649.51	GEOTEXTILE FOR SILT FENCE	SY				565	565			1130
651.15	SEED	LB	20							20
651.17	SEED - WINTER RYE	LB				20	20			40
651.18	FERTILIZER	LB	100							100
651.20	AGRICULTURAL LIMESTONE	TON	1							1
651.25	HAY MULCH	TON						85	85	170
651.26	HAY BALES FOR EROSION CONTROL	EA								60
651.35	TOPSOIL	CY	60							100
651.40	GRUBBING MATERIAL	SY				50	50			100
654.00	EROSION MATTING	SY				200	200			400

NO.	ITEM	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G
INLET HEADWALL												
1	36	5	6'-4"	H501	STR							
2	15	5	15'-6"	H502	STR							
3	15	5	11'-6"	H503	STR							
4	15	5	14'-6"	H504	STR							
5	48	5	8'-4"	H505	STR							
6	24	5	4'-0"	H506	IF	1-6	1-0	1-6				
7	22	5	13'-11"	H507	STR							
8	22	5	9'-11"	H508	STR							
9	10	5	11'-3"	H509	STR							
10	11	5	2'-8"	H510	IF	0-10	1-0	0-10				
11	2	5	14'-4"	H511	STR							
12	2	5	10'-4"	H512	STR							
13	44	7	8'-6"	H701	STR							
14	38	8	10'-10"	H801	IF	4-0	6-10	0				
OUTLET HEADWALL												
15	30	5	6'-4"	H501	STR							
16	30	5	11'-6"	H503	STR							
17	15	5	14'-6"	H504	STR							
18	22	5	4'-0"	H506	IF	1-6	1-0	1-6				
19	44	5	9'-11"	H508	STR							
20	10	5	11'-3"	H509	STR							
21	11	5	2'-8"	H510	IF	0-10	1-0	0-10				
22	4	5	10'-4"	H512	STR							
23	40	5	8'-3"	H513	STR							
24	40	7	8'-6"	H701	STR							
25	34	8	10'-10"	H801	IF	4-0	6-10	0				

~ NOTES ~

- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE 'SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT', AASHTO M-318/ASTM A-615-S10, ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
- FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "D" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
- "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
- "H" DIMENSION ON STRUTS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
- WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
- ▲ DENOTES BARS TO BE CUT IN FIELD.
- * DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- Δ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- "E" IN PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



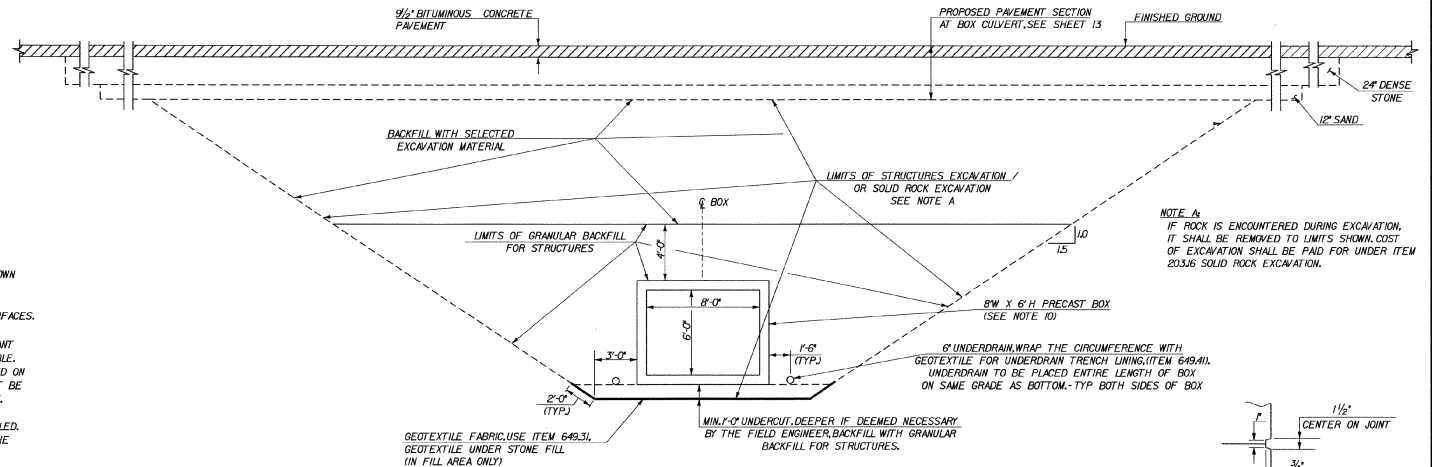
ASTM STANDARD REINFORCING BARS				
BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION DIAMETER INCHES	CROSS SECTIONAL AREA SQ. INCHES	PERIMETER INCHES
#3	.376	.375	.11	1.478
#4	.668	.500	.20	1.571
#5	1.043	.625	.31	1.963
#6	1.502	.750	.44	2.356
#7	2.044	.875	.60	2.749
#8	2.670	1.000	.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	ROCKINGHAM	Bridge No.	21-3, 22-N, 22-S
Highway No.	I-91	Log. Sta.	
I-91 NB & SB OVER WEBB BROOK & TH 46		Surv. Sta.	
QUANTITIES AND REINFORCING SCHEDULE			
Designed By	L. Wilson	Drawn By	L. Wilson
Checked By		Bridge Design Supervisor	J. MacKowski
Date		Date	
PROJECT BR 21-3, BR 22-N AND BR 22-S		PROJECT NO. ROCKINGHAM IN 09H-1381	
L.G.C. Info. 6/23/2000		L.G.C. Info. 6/23/2000	
Bridge Sheet No.		Sheet 2 of 23	

GENERAL NOTES

- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 1990 AND ITS LATEST REVISIONS AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DATED 1998 AND ITS LATEST REVISIONS.
- ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68° F.
- JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- THE "KEY" IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT.
- REINFORCING PLACEMENT TOLERANCES SHALL BE:
SPACING ± 1
CLEARANCE $\pm \frac{1}{4}$ "
- ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED $\frac{1}{2} \times \frac{1}{2}$.
- MINIMUM COVER FOR REINFORCING STEEL SHALL BE THREE (3) INCHES EXCEPT AS SHOWN OTHERWISE ON THE PLANS.
- WATER REPELLENT SHALL BE APPLIED TO ALL EXPOSED CAST-IN-PLACE CONCRETE SURFACES.
- THE PRECAST SECTION SHOWN IS APPROXIMATE, THE ACTUAL SHAPE WILL BE DEPENDANT UPON THE FABRICATOR. MINOR DIFFERENCES FROM THE SHAPE SHOWN ARE ACCEPTABLE. ALL OF THE UNITS SHALL HAVE THE SAME SHAPE. INDIVIDUAL UNITS LENGTHS DEPICTED ON DRAWINGS ARE 8'-0". OTHER UNIT LENGTHS MAY BE USED BUT A MIN LENGTH OF 4' MUST BE ADHERED TO. THE OVERALL LENGTH MEASURED ALONG THE SURVEY CENTERLINE IS 180'. THE LENGTH SHALL BE VERIFIED BY CONTRACTOR PRIOR TO BEGINNING FABRICATION. THE END SECTIONS SHALL BE FABRICATED SO THE HEADWALL IS PLUMB WHEN INSTALLED. THE PLANNED INVERT GRADE IS 0.94%, THIS GRADE SHALL BE FIELD VERIFIED BY THE CONTRACTOR BEFORE THE FABRICATION OF THE END SECTIONS. THE LUMP SUM BID FOR THE BOX SHALL BE FOR THE ACTUAL LENGTH REQUIRED.
- SEE SPECIAL PROVISIONS FOR ADDITIONAL SPECIFICATIONS ON THE PRECAST UNITS.
- THE HEADWALLS, WINGWALLS AND FOOTINGS SHALL BE CAST-IN-PLACE CONCRETE, CLASS B. ALLOWABLE STRESS FOR CAST-IN-PLACE CONCRETE, CLASS B: $f_c = 4000$ PSI
- THE SIDES AND TOP OF THE INLET AND OUTLET END SECTIONS SHALL BE PROVIDED WITH INSERTS FOR THE INSTALLATION OF #5 DWEL BARS. DWELS AND INSERTS SHALL BE PROVIDED BY THE FABRICATOR OF THE PRECAST UNITS WITH COSTS SUBSIDIARY TO THE BOX ITEM.
- THE EXTERIOR (SIDES AND TOP) & INTERIOR (BOTTOM ONLY) OF ALL CONCRETE BOX JOINTS SHALL BE FILLED WITH MORTAR, TYPE N AFTER BEING SET IN THEIR FINAL POSITION. ALL LIFTING HOLES AND ANY OTHER HOLES OR IMPERFECTIONS SHALL ALSO BE FILLED AND ALL MORTAR SHALL BE WET CURED A MIN OF 24 HOURS. PRIOR TO THE WATERPROOFING DESCRIBED BELOW. COSTS FOR ALL MORTAR, TYPE N USED SHALL BE CONSIDERED SUBSIDIARY TO ITEM 5400, PRECAST CONCRETE BOX.
- A TWO FOOT WIDE STRIP OF SHEET MEMBRANE WATERPROOFING SHALL BE CENTERED AND APPLIED AT EACH SIDE JOINT OF BOX FOR FULL HEIGHT. THE ENTIRE TOP SHALL THEN BE COVERED WITH SHEET MEMBRANE WATERPROOFING. THE SHEETS SHALL OVERLAP THE EDGES BY ONE FOOT ON EACH SIDE. AFTER MEMBRANE PLACEMENT, THE REMAINDER OF THE EXPOSED SIDES SHALL BE COATED WITH TAR EMULSION APPLIED AS PER SECTION 40406(a). PAYMENT FOR THE SHEET MEMBRANE WATERPROOFING AND TAR EMULSION SHALL BE BY THEIR RESPECTIVE ITEMS 5920 & 40445.
- OMIT WEEP HOLES IN ALL PRECAST BOX SECTIONS.
- ALL TEMPORARY WATER DIVERSION REQUIREMENTS DURING CONSTRUCTION SHALL BE THE CONTRACTORS RESPONSIBILITY. ALL COSTS ARE SUBSIDIARY TO THE PRECAST BOX CULVERT.
- DUE TO DEPTH OF EXCAVATION AT THIS SITE, SHORING MAY BE REQUIRED ADJACENT TO THE TRAVEL WAY, COSTS FOR ALL WORK AND MATERIALS ASSOCIATED WITH THIS SHORING SHALL BE CONSIDERED SUBSIDIARY TO THE STRUCTURE EXCAVATION ITEM.
- ITEM 20425, STRUCTURE EXCAVATION (MODIFIED) SHALL INCLUDE THE REMOVAL & DISPOSAL OF THE EXISTING 8' x 21' 2" CMP. QUANTITY FOR ITEM 20425 DOES NOT INCLUDE THE VOLUME OF MATERIAL OF THE EXISTING PIPE.
- FOR FOOTINGS IN ROCK ALL OVER BREAKAGE WIDER THAN THE WIDTH OF THE FOOTING SHALL BE REPLACED WITH CONCRETE, CLASS B. A MAXIMUM OF 6' AVERAGE DEPTH SHALL BE PAID FOR AS "STRUCTURE EXCAVATION" AND CONCRETE, CLASS B. ANY ADDITIONAL CONCRETE BEYOND THE LIMITS SPECIFIED SHALL BE PLACED AT NO COST TO THE STATE.
- ALL OVER BREAKAGE BELOW THE INDICATED BOTTOM OF FOOTING SHALL BE REPLACED WITH CONCRETE, CLASS B. A MAXIMUM OF 6' AVERAGE DEPTH SHALL BE PAID FOR AS "STRUCTURE EXCAVATION" AND CONCRETE, CLASS B. ANY ADDITIONAL CONCRETE BEYOND THE LIMITS SPECIFIED SHALL BE PLACED AT NO COST TO THE STATE.



TYPICAL BOX CULVERT SECTION

SCALE: $\frac{1}{4}$ " = 1'-0"

21. DESIGN CRITERIA:

A. MINIMUM WATERWAY AREA = 48 SF

B. SOIL DATA: UNIT WEIGHT 140 PCF
EARTH COVER 0' MIN, 24' MAX.
 K_a (ACTIVE SOIL PRESSURE COEFFICIENT) 0.286

C. MATERIALS: STEEL REINFORCEMENT AASHTO M - 31
GRADE 60 (ASTM A-615-S1)
CONCRETE $f_c = 5000$ PSI

D. DESIGN:

SERVICE LOAD OR LOAD FACTOR DESIGN

LOAD FACTOR: CAPACITY REDUCTION FACTORS
SHEAR - $\phi = 0.85$
BENDING - $\phi = 0.90$

γ AND β FACTORS: (GROUP 1 LOADING)
DEAD LOAD $\gamma = 1.3$, $\beta \geq 1.0$ VERTICAL
&
LIVE LOAD $\gamma = 1.3$, $\beta = 1.67$ LATERAL

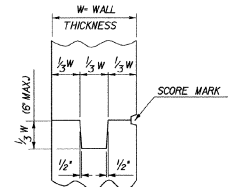
IMPACT - AASHTO 3.8 AND 6.4

SERVICE LOAD AND FACTORS: (GROUP 1 LOADING)
DEAD LOAD $\gamma = 1.0$, $\beta \geq 1.0$ VERTICAL
&
LIVE LOAD $\gamma = 1.0$, $\beta = 1.0$

E. MISCELLANEOUS: DESIGN LIVE LOAD AASHTO HS-20-44

F. SPREAD FOOTINGS: ALLOWABLE BEARING PRESSURE - SOIL 4 KSF
ROCK LEDGE 10 KSF

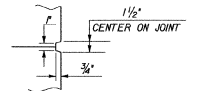
- FOLLOWING THE COMPLETION OF EXCAVATION FOR THE BOX CULVERT THE SOILS AND FOUNDATION ENGINEER / ENGINEERING GEOLOGIST FROM VTTRANS WILL BE REQUIRED TO INSPECT THE FOUNDATION AREA & EMBANKMENT SLOPE TO DETERMINE THE COMPETENCY OF EXISTING EMBANKMENT / ROCK TO SUPPORT THE DESIGN BEARING PRESSURES SHOWN ON THE PLANS.



TYPICAL CONCRETE CONSTRUCTION JOINT

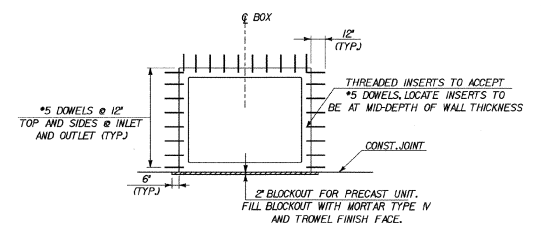
NOT TO SCALE

NOTE A:
IF ROCK IS ENCOUNTERED DURING EXCAVATION, IT SHALL BE REMOVED TO LIMITS SHOWN. COST OF EXCAVATION SHALL BE PAID FOR UNDER ITEM 203J6 SOLID ROCK EXCAVATION.



SCORE MARK DETAIL

NOT TO SCALE



HEADWALL-BOX CONNECTION DETAIL

SCALE: $\frac{1}{4}$ " = 1'-0"

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of **ROCKINGHAM** Bridge Nos. **21-3, 22-N, 22-S**
Highway No. **I-91** Log Sta.
Surr. Sta.

I-91 NB & SB OVER WEBB BROOK & TH 46

BR21-3 TYPICAL SECTION AND GENERAL NOTES

Designed By **Drawn By**
Checked By **Bridge Design Supervisor** Date

PROJECT **BR 21-3, BR 22-N AND BR 22-S** PROJECT NO. **ROCKINGHAM IN 09H-1381**

I.G.C. Info. **6A/Structures/STR6_Bridge Management/Projects/Rockingham/Plans**

Bridge Sheet No. Sheet 3 of 23

SV=

13-NOV-2000

SOIL CLASSIFICATION

AASHTO	
A1	Gravel and Sand
A3	Fine Sand
A2	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
A6	Clayey Soil - Low Compressibility
A7	Clayey Soil - Highly Compressible

UNIFIED SOIL SYSTEM	
GW/GP	Clean Gravels (Few Fines)
GM/GC	Gravels (Appreciable Fines)
SM/SP	Clean Sands (Few Fines)
SW/SC	Sands (Appreciable Fines)
ML/CL	Low Plastic Silts & Clays
OL	Low Plastic Organic Silt
MH/CH	High Plastic Silts & Clays
OH	High Plastic Organic Silt
PT	Highly Organic Soils

MOISTURE

DESCRIPTIVE TERM	OBSERVED IN FIELD	% ± BY ANALYSIS
Dry	No Visible Water	<10
Moist	Damp	10-20
Moist to Wet	Moist to Wet	21-50
Wet	Visible Water	51-70
Saturated		>70

ROCK QUALITY DESIGNATION

R.Q.D.	ROCK DESCRIPTION
<.25	Very Poor
.25 to .50	Poor
.51 to .75	Fair
.76 to .90	Good
>.90	Excellent

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN P.S.F.	CONSISTENCY
<250	Very Soft
250-500	Soft
500-1000	Med. Stiff
1000-2000	Stiff
2000-4000	Very Stiff
>4000	Hard

CORRELATION GUIDE OF 'N' TO DENSITY/CONSISTENCY

DENSITY (GRANULAR SOILS)	CONSISTENCY (COHESIVE SOILS)
DESCRIPTIVE TERM	DESCRIPTIVE TERM
N <5	Very Loose
5-10	Loose
10-24	Med. Dense
25-50	Dense
>50	Very Dense
N <2	Very Soft
2-4	Soft
5-8	Med. Stiff
9-15	Stiff
16-30	Very Stiff
31-60	Hard
>60	Very Hard

COMMONLY USED SYMBOLS

▼	Water Elevation
⊙	Standard Penetration Boring
⊕	Auger Boring
⊗	Rod Sounding
S	Sample
N	Standard Penetration Test
	Blow Count Per Foot For:
	2" O.D. Sampler
	1 1/2" I.D. Sampler
	Hammer Weight Of 140 Lbs.
	Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blot
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1 1/8"
BK	Core Size 1 3/8"
NX	Core Size 2 1/4"
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Sl	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	To Ledge Or Boulder
NR	No Recovery
Rea.	Recovery
2Rec.	Percent Recovery
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than

COLOR

blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gr	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mtc	Multicolored
or	Orange		

DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.
BOULDER - A rock fragment with an average dimension > 12 inches.
COBBLE - Rock fragments with an average dimension between 3 and 12 inches.

GRAVEL - Rounded particles of rock < 3" and > 0.075" (#20 sieve).

SAND - Particles of rock < 0.075" (#20 sieve) and > 0.0029" (#60 sieve).

SILT - Soil < 0.0029" (#60 sieve), non or slightly plastic and exhibits no strength when air-dried.

CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.

VARIED - Alternate layers of silt and clay.

HARDPAN - Extremely dense soil, cemented layer, not softened when wet.

MUCK - Soft organic soil (containing > 10% organic material).

MOISTURE CONTENT - Weight of water divided by dry weight of soil.

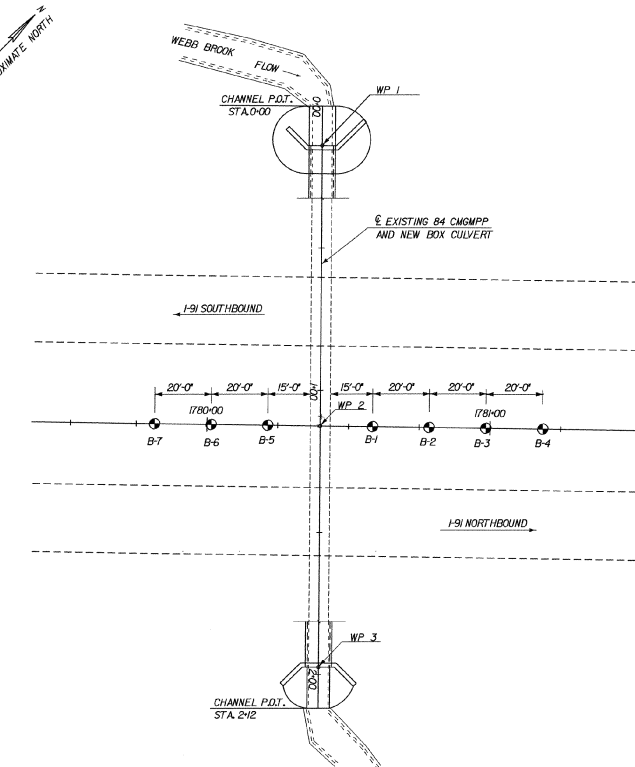
FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.

STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.

DIP - Inclination of bed with a horizontal plane.

GENERAL NOTES

- The subsurface explorations shown herein were made 07-24-00 by the Agency.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
- Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.



BORING LAYOUT

SCALE: 1" = 20'

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of **ROCKINGHAM** Bridge No. **21-3, 22-N, 22-S**

Highway No. **I-91** Log Sta. **1780+00**

I-91 NB & SB OVER WEBB BROOK & TH 46 Surv. Sta.

BR21-3 BORING INFORMATION 1

Designed By **LW/tean** Drawn By **LW/tean**

Checked By **J.Miczowski** Bridge Design Supervisor

PROJECT **BR 21-3, BR 22-N AND BR 22-S** PROJECT NO. **ROCKINGHAM 10 09-H1**

L.G.C. Info. **GA/Structures/STR6_Bridge Management/Projects/Rockingham/plan rock 21-3**

Bridge Sheet No. **4** of **23**

BORING INFORMATION

HOLE NO.		OFFSET	DEPTH	SOIL DESCRIPTION			LAB. CLASS.	GAS DET. P10 READING (PPM)
				FIELD				
				SOIL TYPE	COLOR	MOISTURE		
B-1	(SEE DRAWING)	0.0' - 5.0'	SaSi	BRN	MOIST			
		5.0' - 19.0'	SaSi	BRN/GRY	MOIST			
		19.0' - 24.0'	(PROBABLE LEDGE FILL)	GRAY	MOIST			
		CNPF	(POSSIBLE LEDGE FILL)					

HOLE NO.	STATION	OFFSET	DEPTH	SOIL DESCRIPTION			LAB. CLASS.	GAS DET. P10 READING (PPM)
				FIELD				
				SOIL TYPE	COLOR	MOISTURE		
B-5	(SEE DRAWING)		0.0' - 7.0'	SoSs & BOULDERS	BRN	MOIST		
			7.0' - 11.0'	SoSs	BRN	MOIST		
			11.0' - 12.5'	SoSs	BRN/GRY	MOIST		
			12.5' - 18.0'	(PROBABLE LEDGE FILL)	GRAY	DRY		
			CNPF - IN	(POSSIBLE LEDGE FILL)				

HOLE NO.	STATION	OFFSET	DEPTH	SOIL DESCRIPTION			LAB. CLASS.	GAS DET. P10 READING (PPM)
				FIELD				
				SOIL TYPE	COLOR	MOISTURE		
B-2	(SEE DRAWING)		0.0' - 3.0'	SaSi	BRN	MOIST		
			3.0' - 5.0'	SaGr	BRN	DRY		
			5.0' - 12.0'	SaSi	BRN	DRY		
			12' - 15.0'	SaSi	BRN/GRY	DRY		
			15' - 17.0'	(PROBABLE LEDGE FILL)	GRAY	DRY		
			CNPF	(POSSIBLE LEDGE FILL)				

HOLE NO.	STATION	OFFSET	DEPTH	SOIL DESCRIPTION				LAB. CLASS.	GAS DET. P10 READING (PPM)
				FIELD					
				SOIL TYPE	COLOR	MOISTURE			
B-6	(SEE DRAWING)		0.0' - 5.0'	SeSi & STONES	BRN	MOIST			
			5.0' - 20.0'	SeSi	BRN	MOIST			
			20.0' - 23.5'	(PROBABLE LEDGE FILL)	GRAY	DRY			
			CNPF						

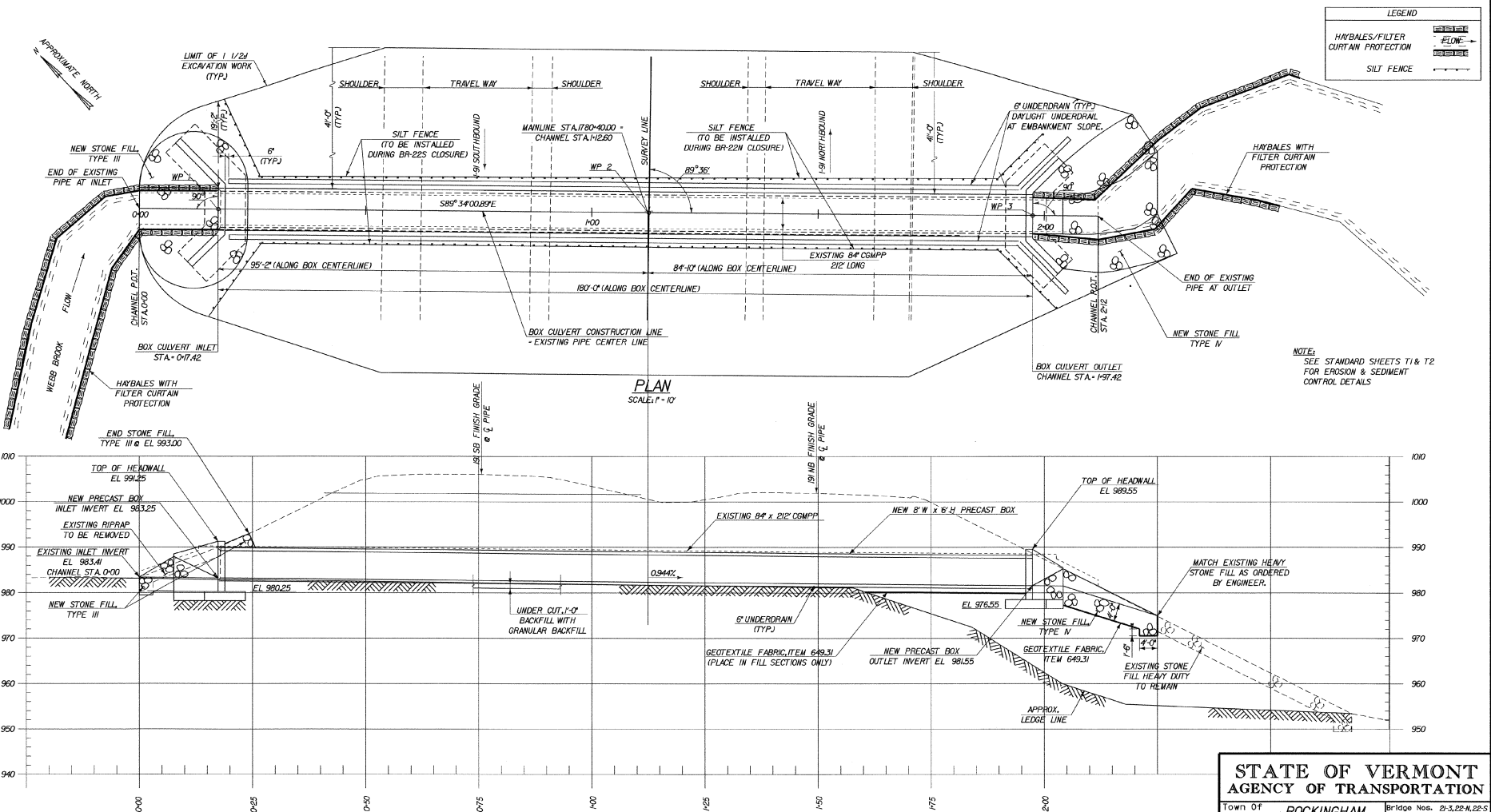
HOLE NO.	STATION	OFFSET	DEPTH	SOIL DESCRIPTION			LAB. CLASS.	GAS DET. P10 READING (PPM)
				FIELD				
				SOIL TYPE	COLOR	MOISTURE		
B-3	(SEE DRAWING)		0.0' - 4.0'	SaSi	BRN	MOIST		
			4.0' - 9.0'	SaSi	BRN	MOIST		
			9.0' - 17.0'	(PROBABLE LEDGE FILL)	GRAY	DRY		
			CNPF	(POSSIBLE LEDGE FILL)				

HOLE NO.	STATION	OFFSET	DEPTH	SOIL DESCRIPTION					LAB. CLASS.	GAS DET. P10 READING (PPM)	
				FIELD							
				SOIL TYPE	COLOR	MOISTURE					
B-7	(SEE DRAWING)		0.0' - 6.5'	SoSi & STONES	BRN	DRY					
			6.5' - 9.0'	SoSi & BOULDERS	BRN	DRY					
			CNPF	(POSSIBLE LEDGE OR LEDGE FILL)							

HOLE NO.	STATION	OFFSET	DEPTH	SOIL DESCRIPTION			LAB. CLASS.	GAS DET. P10 READING (PPM)
				FIELD				
				SOIL TYPE	COLOR	MOISTURE		
B-4	(SEE DRAWING)		0.0' - 4.5'	SaSi	BRN	MOIST		
			4.5' - 12.0'	SaGr	BRN	MOIST		
			12.0' - 14.0'	SaSi	BRN/GRY	MOIST		
			14.0' - 17.5'	(PROBABLE LEDGE FILL)	GRAY	MOIST		
			CNPF - IN	(POSSIBLE LEDGE FILL)				

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	ROCKINGHAM		Bridge No.	21-3, 22-N, 22-S	
Highway No.	1-91		Log Sta.		
			Surv. Sta.		
1-91 NB & SB OVER WEBB BROOK & TH 46					
BR21-3 BORING INFORMATION II					
Designed By	LKW/son		Drawn By	LKW/son	
Checked By	Date		Bridge Design Supervisor	Date	
			J. Macdonald		
PROJECT			PROJECT NO.		
BR 21-3, BR 22-N AND BR 22-S			ROCKINGHAM IN 091-K381		
I.G.C. Info. m5563000 VADT Webb Brook CulBridge371m1.dwg/OTBor.dwg					
Bridge Sheet No.			Sheet 5 of 23		



HYDRAULIC DATA
 DRAINAGE AREA - 15 SQ.MI.
 DESIGN FLOW - 0.50 OUTLET VELOCITY - 15.07 FPS
 DESIGN TAILWATER DEPTH - 3.29 FT
 ORDINARY HIGH WATER DEPTH - 1.4 FT
 Q 10 FLOW 210 CFS HW ELEV. 987.51
 Q 25 FLOW 280 CFS HW ELEV. 988.43
 Q 50 FLOW 335 CFS HW ELEV. 989.13
 Q 100 FLOW 410 CFS HW ELEV. 990.13

ELEVATION
 SCALE: 1" = 10'

WORKING POINTS		
LOCATION	NORTHING	EASTING
WP 1	9725.9247	49968.606
WP 2	9725.2052	50063.3386
WP 3	9724.5640	50148.1721

NOTES:

1. NORTHING AND EASTINGS ARE BASED UPON THE LOCAL SURVEY OF THIS PROJECT, NOT THE VERMONT GRID SYSTEM.

STATE OF VERMONT AGENCY OF TRANSPORTATION

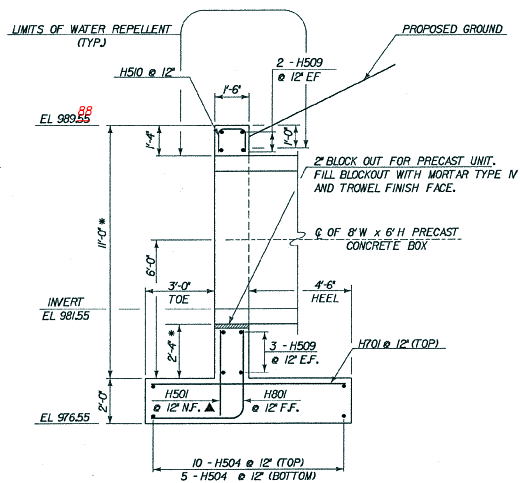
Town Of ROCKINGHAM	Bridge No. 21-3, 22-N, 22-S
Highway No. I-91	Log Sta. 1-91 NB & SB OVER WEBB BROOK & TH 46
Project BR 21-3, BR 22-N AND BR 22-S	Project No. ROCKINGHAM IN 09H-1381
Designed By L. Wilson	Drawn By L. Wilson
Checked By J. Maczowski	Bridge Design Supervisor J. Maczowski
Project Info. 6/20/2009	Bridge Sheet No. 6 of 23



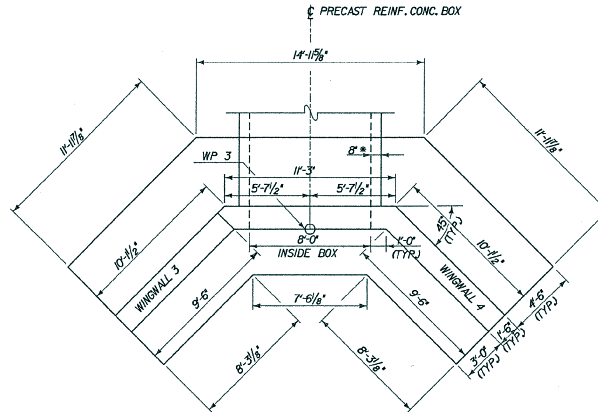
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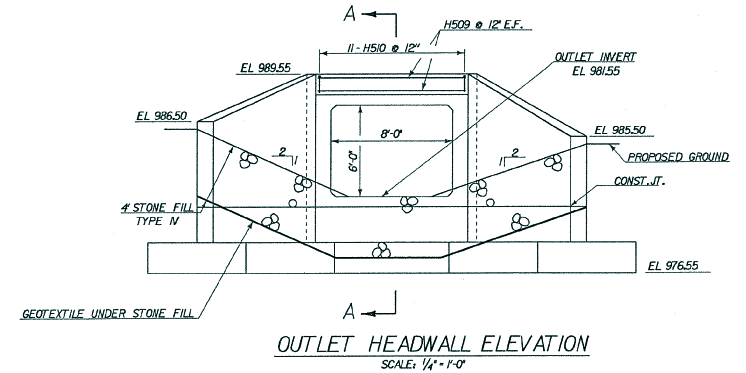
STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of ROCKINGHAM		Bridge Nos. 21-3, 22-4, 22-5	
Highway No. 1-91		Loc. Sta. Surv. Sta.	
1-91 NB & SB OVER WEBB BROOK & TH 46			
BR21-3 INLET HEADWALL DETAILS			
Designed By L.Wilson		Drawn By L.Wilson	
Checked By _____ Date _____		Bridge Design Supervisor J. Mieczkowski Date _____	
PROJECT BR 21-3, BR 22-4 AND BR 22-5		PROJECT NO. ROCKINGHAM IN 09H381	
I.G.C. Info. GS/Structures/ST/166 Bridge Management/Projects/VtRoadPlan/plans road			
Bridge Sheet No. _____		Sheet 7 of 23	



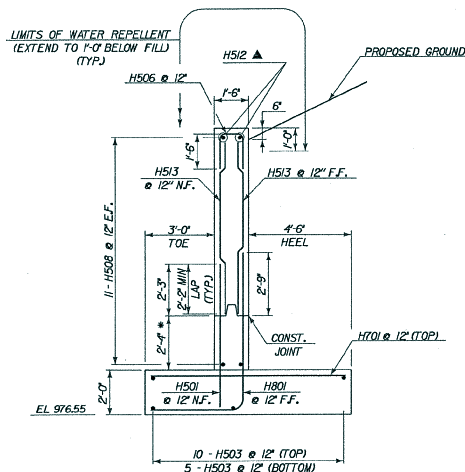
SECTION A-A
SCALE: 3/8" = 1'-0"



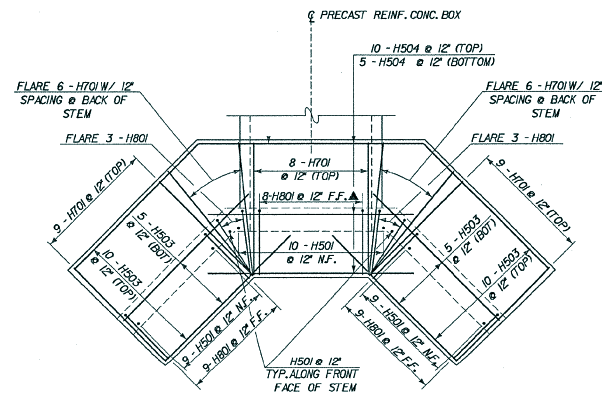
OUTLET HEADWALL PLAN
SCALE: 1/4" = 1'-0"



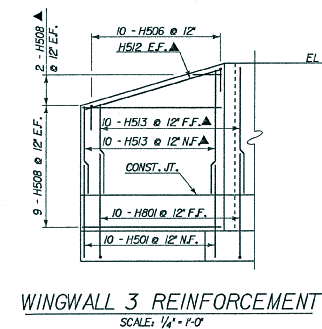
OUTLET HEADWALL ELEVATION
SCALE: 1/4" = 1'-0"



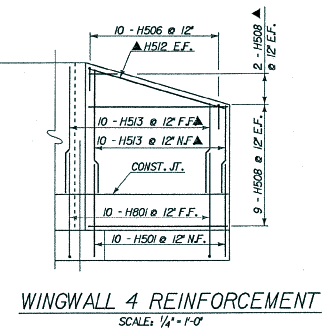
TYPICAL WINGWALL SECTION
SCALE: 3/8" = 1'-0"



FOOTING REINFORCEMENT PLAN
SCALE: 1/4" = 1'-0"



WINGWALL 3 REINFORCEMENT
SCALE: 1/4" = 1'-0"

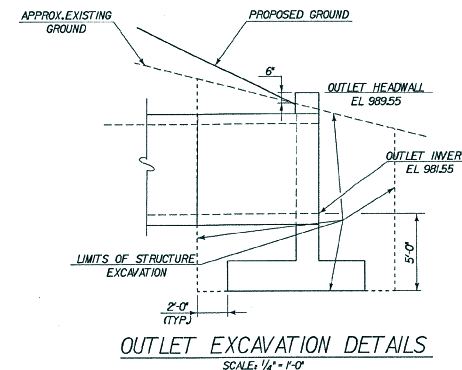


WINGWALL 4 REINFORCEMENT
SCALE: 1/4" = 1'-0"

LEGEND:

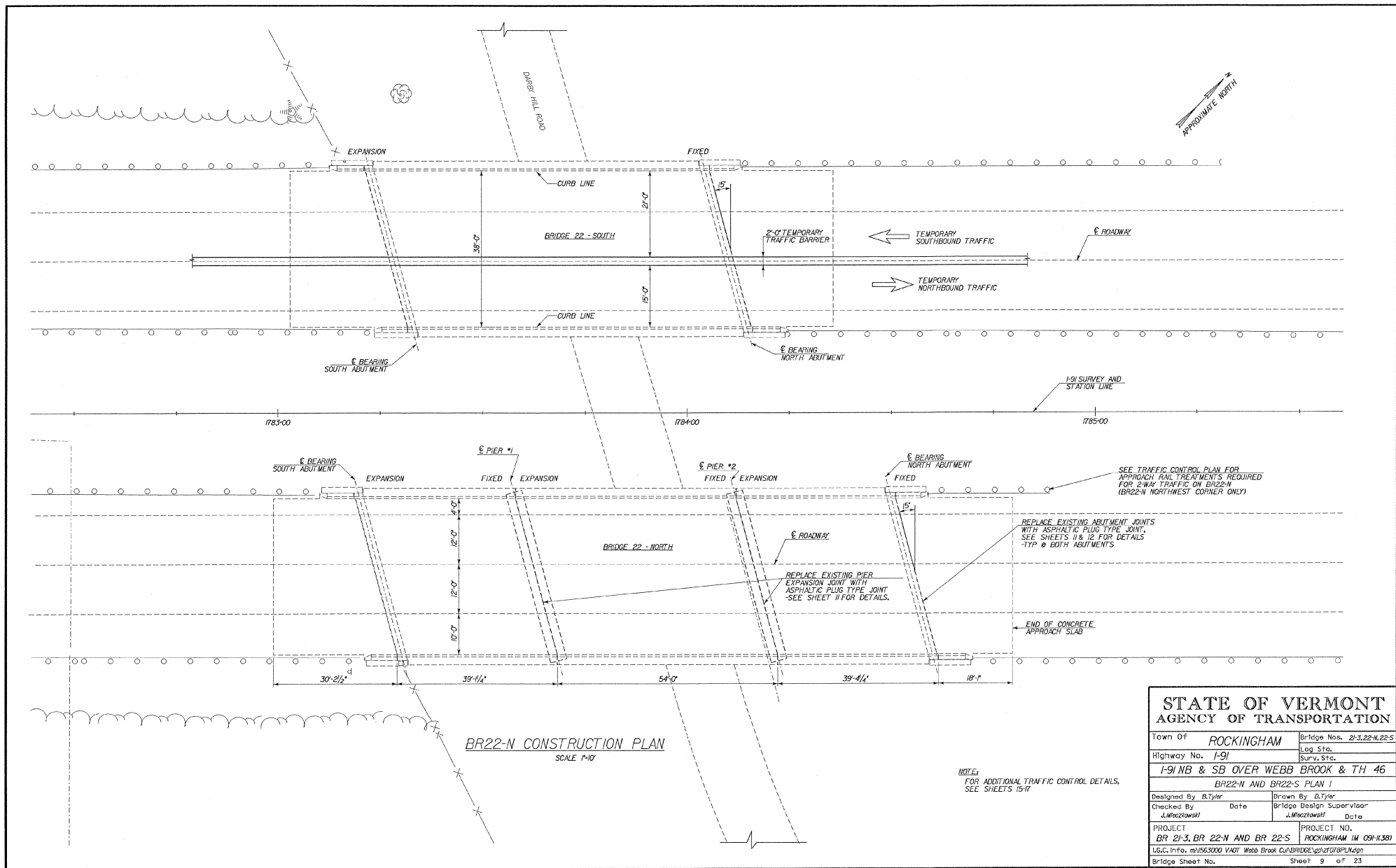
NF - NEAR FACE
FF - FAR FACE
EF - EACH FACE
▲ - CUT TO FIT IN FIELD
3 CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS.

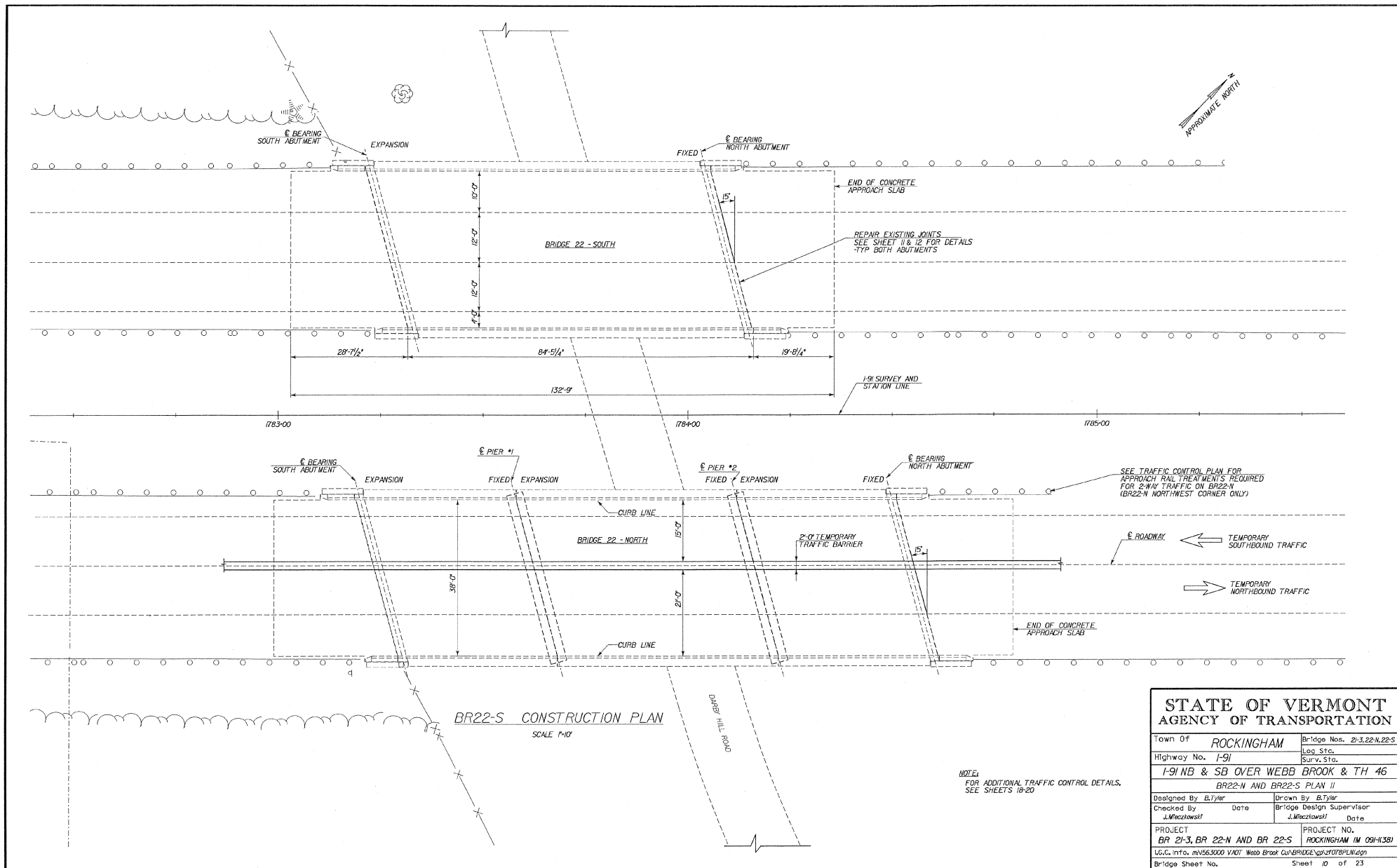
* DIMENSIONS SHOWN ARE FOR AN ASSUMED PC BOX WALL THICKNESS OF 8". ACTUAL DIMENSIONS MAY VARY.



OUTLET EXCAVATION DETAILS
SCALE: 1/4" = 1'-0"

STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of	ROCKINGHAM	Bridge Nos.	21-3, 22-N, 22-S
Highway No.	I-91	Log Sta.	
		Surv. Sta.	
I-91 NB & SB OVER WEBB BROOK & TH 46			
BR21-3 OUTLET HEADWALL DETAILS			
Designed By	L. Wilson	Drawn By	L. Wilson
Checked By		Bridge Design Supervisor	J. Maczkowski
Date		Date	
PROJECT	BR 21-3, BR 22-N AND BR 22-S	PROJECT NO.	ROCKINGHAM 10 091-K381
L.C. Info. m:\563000 VDOT Webb Brook C&D\Bridges\Final\20708out.dgn		Sheet 8 of 23	
Bridge Sheet No.			





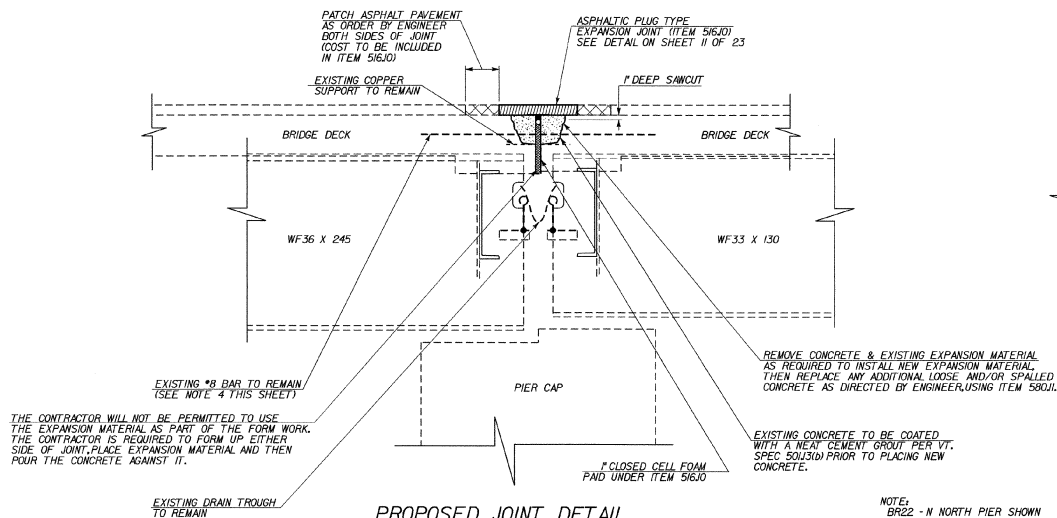
STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	ROCKINGHAM		Bridge Nos.	21-3, 22-N, 22-S
Highway No.	1-91		Log Sta.	
			Surv. Sta.	
1-91 NB & SB OVER WEBB BROOK & TH 46				
BR22-N AND BR22-S PLAN 11				
Designed By	B.Tyler		Drawn By	B.Tyler
Checked By	J. Maczkowski	Date	Bridge Design Supervisor	J. Maczkowski
			Date	
PROJECT			PROJECT NO.	
BR 21-3, BR 22-N AND BR 22-S			ROCKINGHAM 1M 09H-1381	
Log. Info. RV563000 VADT Webb Brook Cw/Bridge/cp210708PLM.dgn				
Bridge Sheet No.	10		of	23

GENERAL NOTES:- BRIDGES 22-N AND 22-S

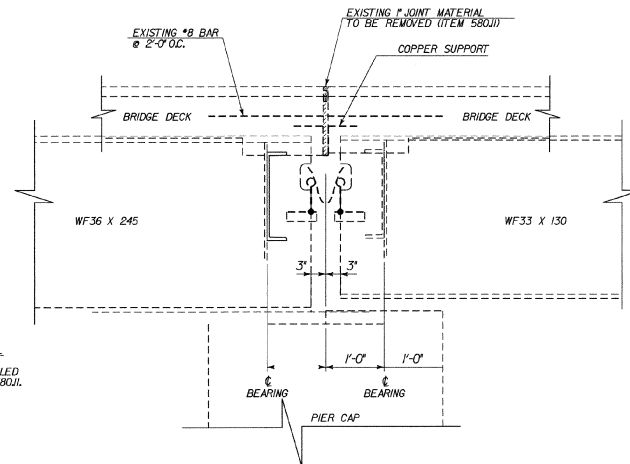
1. NO SURVEY WAS TAKEN FOR BR22N & BR22S. INFORMATION INCLUDED IN THE PLANS WERE TAKEN FROM ORIGINAL PLANS AND ARE FOR INFORMATION ONLY. THE CONTRACTOR IS RESPONSIBLE FOR FIELD CHECKING ANY AND ALL DIMENSIONS APPLICABLE TO THIS WORK.
2. ALL MATERIALS & CONSTRUCTION SHALL CONFORM TO THE AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 1990 AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, FOURTEENTH EDITION, AND ITS LATEST REVISIONS.
3. NO WORK ON THE BRIDGE JOINTS CAN BEGIN UNTIL THE TRAFFIC CONTROL PLAN DETAILED ON SHEETS 15-20 HAS BEEN PUT INTO PLACE FOR THE CLOSURE OF EITHER BR22N OR BR22S AND TRAFFIC HAS BEEN SHIFTED.
4. THE SLAB TO BE REPAIRED AND EXPOSED STEEL WHICH WILL HAVE CONCRETE PLACED AGAINST IT OR AROUND IT SHALL BE SAND BLASTED A MINIMUM OF 24 HOURS PRIOR TO PLACING THE NEW CONCRETE. THE AREA SHALL BE VACUUMED OR FLUSHED WITH HIGH PRESSURE AIR OR WATER TO REMOVE ALL LOOSE PARTICLES, DEBRIS, OR DUST. IF THE AREA THAT HAS BEEN SAND BLASTED GETS WET, WHETHER FROM RAIN OR FROM WASHING, THE CONCRETE MUST REMAIN WET UNTIL THE PLACING OF NEAT CEMENT PASTE AND CONCRETE. IF THE CONCRETE IS ALLOWED TO DRY, THEN THE CONCRETE MUST BE VACUUMED OR FLUSHED AGAIN. THIS WORK SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 580J.
5. THE EXISTING SUBSTRUCTURE CONCRETE SHALL BE REPAIRED AS ORDERED BY THE ENGINEER. THE COST FOR THE WORK PERFORMED SHALL BE PAID FOR UNDER ITEM 580J3 REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I AND ITEM 580J4 REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II.
6. WATER REPELLENT SHALL BE APPLIED TO ALL EXPOSED SUPERSTRUCTURE AND SUBSTRUCTURE CONCRETE SURFACES, OR AS ORDERED BY THE ENGINEER. ALL SURFACES ON WHICH THE WATER REPELLENT IS TO BE APPLIED SHALL BE CLEAN AND THOROUGHLY DRY. DIRT, GREASE, ASPHALT, TAR, STAINS, OR RESINOUS MATERIAL SHALL BE REMOVED FROM THE SURFACES BY APPROVED METHODS, PRIOR TO APPLICATION OF THE WATER REPELLENT.

ASSUMED SUBSTRUCTURE REPAIR AREAS		
	580J3 CLASS I	580J4 CLASS II
BR 22-N	20%	20%
BR 22-S	20%	20%



PROPOSED JOINT DETAIL

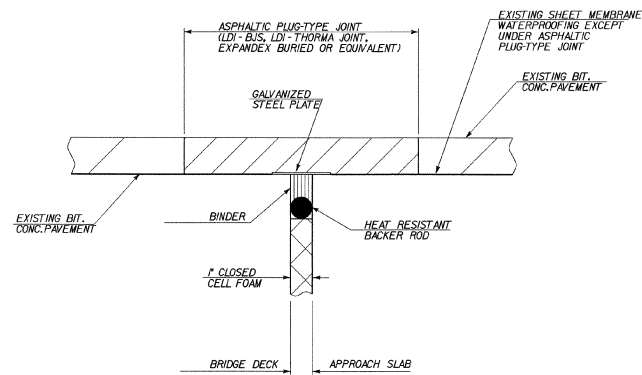
JOINT REPLACEMENT DETAILS AT PIER
SCALE 1" = 1'-0"



EXISTING JOINT DETAIL

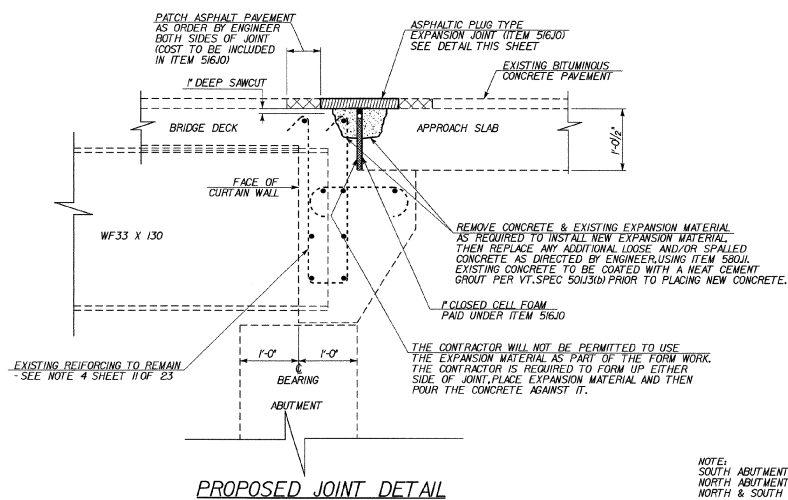
STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	ROCKINGHAM		Bridge Nos.	22-3, 22-N, 22-S
Highway No.	1-91		Log Sta.	
			Surv. Sta.	
I-91 NB & SB OVER WEBB BROOK & TH 46				
BR22-N AND BR22-S JOINT REPAIR DETAILS I				
Designed By		Drawn By		
Checked By	Date	Bridge Design Supervisor	Date	
		J. Maczowski		
PROJECT		PROJECT NO.		
BR 22-3, BR 22-N AND BR 22-S		ROCKINGHAM (M 09-K38)		
L&C. Info. G:\Structures\SR6_Bridge Management\Projects\Rockingham\22-3, 22-N, 22-S				
Bridge Sheet No.		Sheet II of 23		



**ASPHALTIC PLUG-TYPE
JOINT DETAIL**

NTS

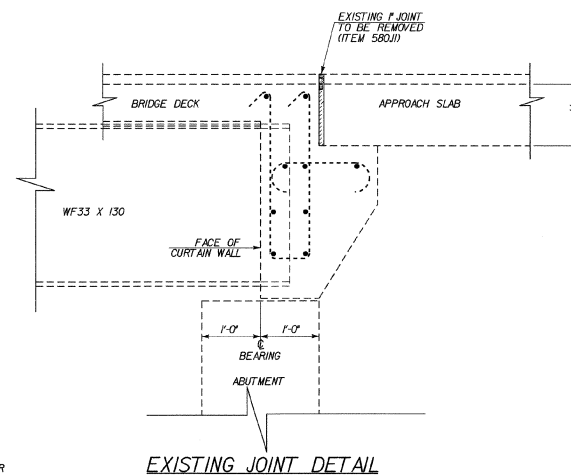


PROPOSED JOINT DETAIL

NOTE:
SOUTH ABUTMENT - BR22-N SHOWN
NORTH ABUTMENT - BR22-N SIMILAR
NORTH & SOUTH ABUTMENT - BR22-S SIMILAR

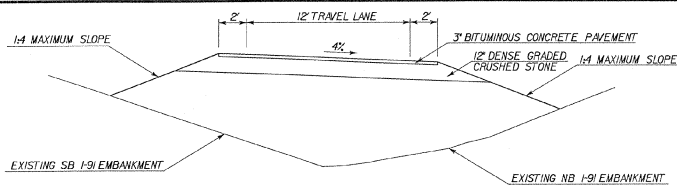
JOINT REPLACEMENT DETAILS AT ABUTMENTS

SCALE 1"=1'-0"

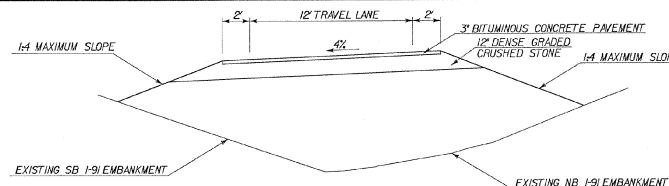


EXISTING JOINT DETAIL

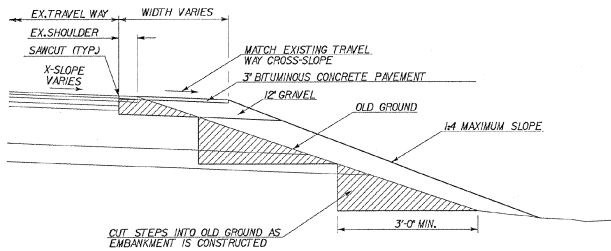
STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of	ROCKINGHAM	Bridge Nos.	21-3, 22-N, 22-S
Highway No.	1-91	Log Sta.	
		Surv. Sta.	
1-91 NB & SB OVER WEBB BROOK & TH 46			
BR22-N AND BR22-S JOINT REPAIR DETAILS II			
Designed By	B.Tyler	Drawn By	B.Tyler
Checked By	J. Mieczkowski	Bridge Design Supervisor	J. Mieczkowski
PROJECT	BR 21-3, BR 22-N AND BR 22-S	PROJECT NO.	ROCKINGHAM 1M 09H-1381
L.G.C. Info. 01/Structure/ST 16_Bridge Management/Projects/Rockingham/21078/12/18			
Bridge Sheet No.		Sheet 12 of 23	



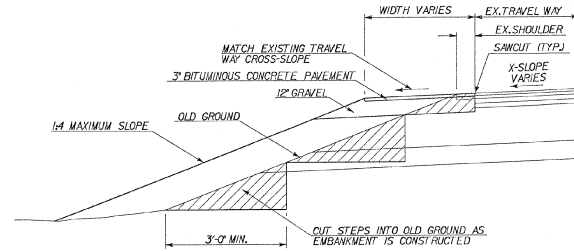
CROSSOVER TYPICAL BANKED RIGHT
NOT TO SCALE



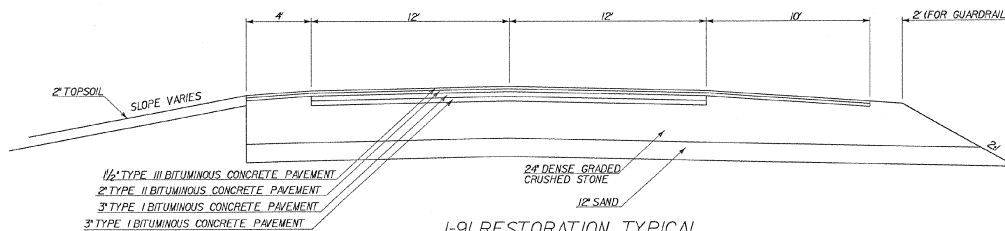
CROSSOVER TYPICAL BANKED LEFT
NOT TO SCALE



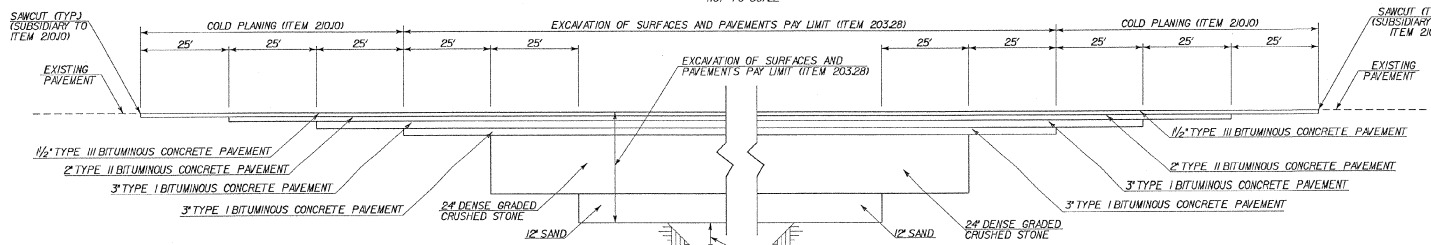
SB 1-91 PAVEMENT WIDENING FOR CROSSOVER DETAIL
NOT TO SCALE



NB 1-91 PAVEMENT WIDENING FOR CROSSOVER DETAIL
NOT TO SCALE



**1-91 RESTORATION TYPICAL
(IN AREA OF BOX CULVERT EXCAVATION)**



**1-91 PAVEMENT AND BASE COURSE TRANSITION
AT WEBB BROOK BOX CULVERT REPLACEMENT**

NOT TO SCALE

NOTES

1. THE PAVEMENT WEARING COURSE FOR 1-91 PAVEMENT SHALL BE TYPE III BITUMINOUS CONCRETE PAVEMENT ASPHALT CEMENT USED IN THE BITUMINOUS CONCRETE PAVEMENT SHALL BE PG 58-28 MIN DESIGN APPROVAL AND TESTING FACILITIES ARE NOT REQUIRED FOR THIS PAVEMENT.
2. COLD PLANING TO BE COMPLETED ACCORDING TO TYPICAL OR AS NOTED OTHERWISE ON THE PLANS. ALL COLD PLANED AREAS SHALL BE TACKED WITH EMULSIFIED ASPHALT.
3. EMULSIFIED ASPHALT TO BE APPLIED ON EXISTING PAVEMENT, BETWEEN ALL COURSES OF PAVEMENT AND ON COLD PLANED AREAS AT THE RATE OF 0.012 G/3Y OR AS DIRECTED BY THE ENGINEER.
4. SLOPE ROUNDING - ALL CUT SLOPE ROUNDDINGS TO BE ROUNDED IN ACCORDANCE WITH STANDARD SHEET B-5.
5. MILEMARKERS DISTURBED BY CONSTRUCTION SHALL BE RESET AT THE DIRECTION OF THE ENGINEER WITH PAVEMENT TO BE SUBSIDIARY TO OTHER ITEMS OF WORK.
6. ALL CROSS OVER AREAS SHALL BE RESTORED TO ORIGINAL CONDITION. THIS WORK IS CONSIDERED PART OF TRAFFIC CONTROL. ALL 1-91 SLOPES SHALL BE RE-ESTABLISHED FOLLOWING DETOUR REMOVAL.

FOR RE-ESTABLISHING 1-91 SLOPES FOLLOWING DETOUR REMOVAL:

% WT	lb/a	NAME	PUR %	GERM %
37.5	22.5	CREEPING RED FESCUE	98	85
37.5	22.5	TALL FESCUE	95	90
5.0	3.0	RED TOP	95	90
15.0	9.0	BIRDFOOT TREFOIL	98	85
5.0	3.0	ANNUL. PRE GRASS	95	85
100.0	60.0			

SEED MIXTURE:
SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT
AND SHALL BE FREE OF ALL NOXIOUS SEED.

SEEDS:
TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

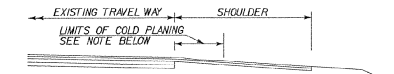
FERTILIZER:
FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF
500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA)

AGRICULTURAL LIMESTONE:
TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED
BY THE ENGINEER.

HAY MULCH:
TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE,
OR AS DIRECTED BY THE ENGINEER.

TOPSOIL:
TO BE USED AS INDICATED ON THE PLANS, OR AS DIRECTED BY
THE ENGINEER.

MARKER POSTS:
TO BE PLACED AS INDICATED OR AS DIRECTED BY THE ENGINEER.



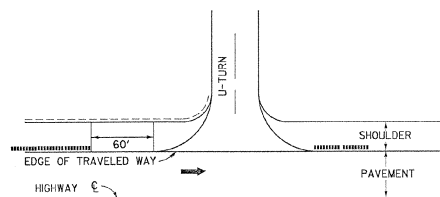
SHOULDER COLD PLANING/OVERLAY
NOT TO SCALE

NOTE:
COLD PLANE A WIDTH OF 25' FROM MEDIAN SHOULDERS THROUGHOUT THE
CROSSOVER/BIDIRECTIONAL TRAFFIC AREA. COLD PLANE A WIDTH OF 4'
FROM OUTSIDE SHOULDERS FOR LENGTH OF BIDIRECTIONAL TRAFFIC.
COLD PLANING DEPTH IS 1 1/2". PLACE 1/2" TYPE III BITUMINOUS CONCRETE
PAVEMENT AFTER COLD PLANING IS COMPLETED.

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of ROCKINGHAM	Bridge Nos. 21-3, 22-N, 22-S
Highway No. 1-91	Log Sta. Surf. Sta.
1-91 NB & SB OVER WEBB BROOK & TH 46	
PAVEMENT TRANSITION DETAILS	
Designed By C. Moly	Drawn By C. Moly
Checked By J. McDuffee	Bridge Design Supervisor J. McDuffee
Date 9/00	Date
PROJECT BR 21-3, BR 22-N AND BR 22-S	PROJECT NO. ROCKINGHAM 1M 03H-1381
I.G.C. Info. MS563000 VDOT Webb Brook Culvert/PAVEMENT DETAILS/210708p1.dgn	
Bridge Sheet No.	Sheet 13 of 23

MILLED RUMBLE STRIPS U TURN DETAIL SHEET

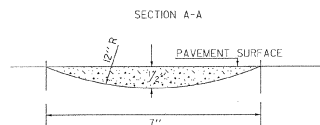


LEGEND

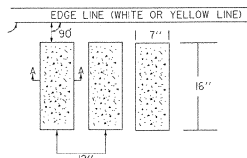
- DIRECTION OF TRAFFIC FLOW
- ▬ MILLED RUMBLE STRIPS
- NOT TO SCALE

THIS DETAIL MAYBE MODIFIED AT THE RESIDENT ENGINEER DISCRETION
IF ACTUAL FIELD CONDITIONS NECESSITATE SUCH ACTIONS.

TYPICAL RUMBLE STRIP MILLING DETAIL



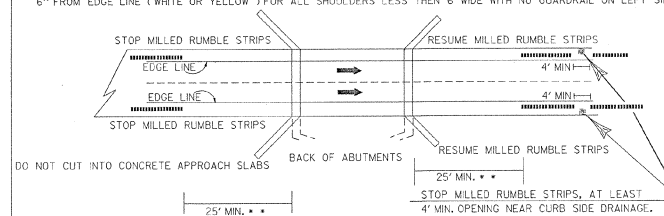
30" FROM EDGE LINE (WHITE OR YELLOW) FOR ALL SHOULDERS 6' OR WIDER
6" FROM EDGE LINES (WHITE OR YELLOW) FOR ALL SHOULDERS LESS
THAN 6' WIDE WITH NO GUARDRAIL.



NOTE: STOP MILLED RUMBLE STRIPS WHEN GUARDRAIL IS WITHIN 4' OF TRAVEL WAY

RUMBLE STRIP BRIDGE & DRAINAGE DETAIL

30" FROM EDGE LINE (WHITE OR YELLOW) FOR ALL SHOULDERS 6' OR WIDER
6" FROM EDGE LINE (WHITE OR YELLOW) FOR ALL SHOULDERS LESS THAN 6' WIDE WITH NO GUARDRAIL ON LEFT SIDE

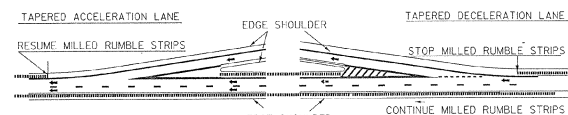
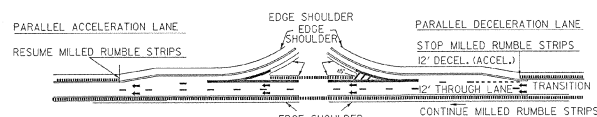


• NOTE: 4' OFFSET TO APPROACH RAIL WILL DETERMINE MINIMUM DISTANCE IN SOME CASES.

LEGEND

- DIRECTION OF TRAFFIC FLOW
- ▬ MILLED RUMBLE STRIPS
- NOT TO SCALE

TYPICAL RUMBLE STRIP MILLING AT INTERCHANGES & REST AREAS



LEGEND

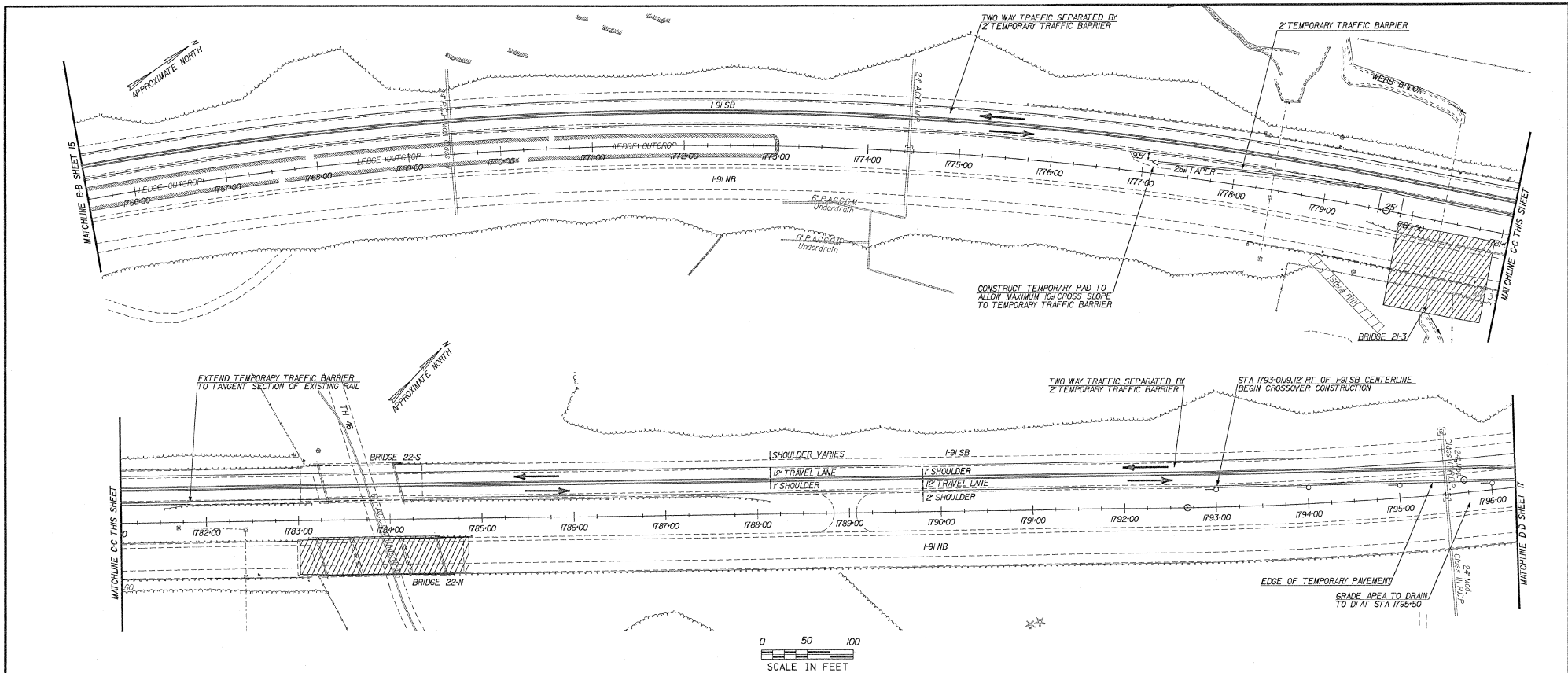
- DIRECTION OF TRAFFIC FLOW
- ▬ MILLED RUMBLE STRIPS
- NOT TO SCALE

LOCATION OF STRIPS WILL VARY DEPENDING ON GUARDRAIL AND BRIDGE PRESENCE.
THIS TYPICAL MAYBE MODIFIED AT THE RESIDENT ENGINEER DISCRETION
IF ACTUAL FIELD CONDITIONS NECESSITATE SUCH ACTIONS.

1. MILLED RUMBLE STRIPS ARE TO BE INSTALLED AS DETAILED ON THIS SHEET UNLESS OTHERWISE APPROVED BY THE VTRANS PROJECT ENGINEER AND/OR VTRANS CONSULTANT PROJECT MANAGER.
2. IF MILLED RUMBLE STRIPS ARE ALREADY IN PLACE WHERE A CROSS-OVER IS TO BE CONSTRUCTED BETWEEN TWO LANES, THEN FOLLOWING APPLIES:
 - A. THE EXISTING MILLED RUMBLE STRIPS ARE NOT TO BE REMOVED OR FILLED IN MORE THEN TWO WEEKS BEFORE THE ACTUAL CROSS-OVER IS TO BE PLACED IN USE.
 - B. ONCE THE CROSSOVER FOR THE PHASE IT IS DESIGN FOR IS TAKEN OUT OF USE THE CONTRACTOR HAS A MAXIMUM OF THIRTY DAYS (30) TO CUT NEW MILLED RUMBLE STRIPS INTO THE MEDIAN SHOULDER.
 - C. MILLED RUMBLE STRIPS SHOULD BE STOPPED AT THE BEGINNING OF A CROSSOVER AS DETAILED FOR TAPERED DECELERATION LANE.

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	ROCKINGHAM	Bridge Nos.	21-3, 22-N, 22-S
Highway No.	1-91	Log Sta.	
		Surv. Sta.	
1-91 NB & SB OVER WEBB BROOK & TH 46			
RUMBLE STRIP DETAILS			
Designed By	C.WAY	Drawn By	C.WAY
Checked By	J. McDIFFEE	Date	9/00
		Bridge Design Supervisor	J. WIECZKOWSKI
		Date	9/00
PROJECT	BR 21-3, BR 22-N AND BR 22-S	PROJECT NO.	ROCKINGHAM IM 09H-1381
L.G.C. Info. rev/563000 VADT Webb Brook CUNY/NY/DRAIN/DETAILS/rumblestrips.dgn			
Bridge Sheet No.		Sheet	14 of 23



GENERAL NOTES:

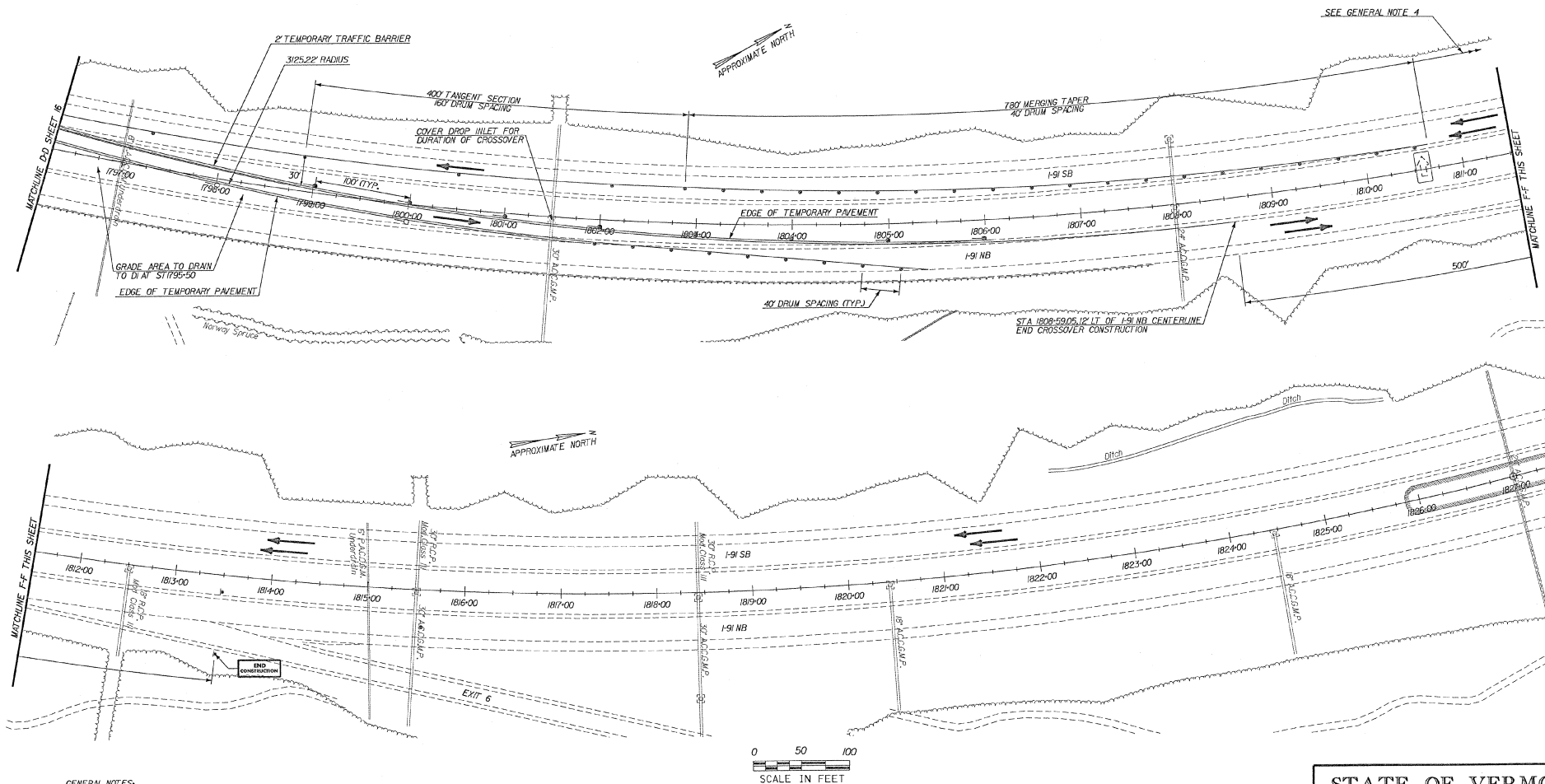
1. DESIGN SPEED 55 MPH.
2. LAYOUT BASED ON VDOT STANDARD E-104.
3. THIS TRAFFIC CONTROL SHEET IS TO BE USED IN CONJUNCTION WITH VDOT STANDARD SHEETS E-103, E-104, E-104A, AND E-107A.
4. SEE VDOT STANDARD SHEET E-103 FOR ADVANCE SIGN PACKAGE SIGN PACKAGE LAYOUT EXTENDS BACK FROM THE BEGINNING OF THE TAPER.
5. EXISTING DRAINAGE STRUCTURES ARE SHOWN ONLY IN AREAS NEAR THE PROPOSED CROSSOVERS. ALL DRAINAGE SHOWN WAS OBTAINED FROM THE EXISTING ROADWAY DESIGN PLANS AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO DESIGNING THE CROSSOVER.
6. PORTABLE CHANGEABLE MESSAGE SIGNS WILL BE PLACED AT EACH APPROACH TO THE CONSTRUCTION AREA AS ORDERED BY THE ENGINEER, AND WILL BE PAD UNDER ITEM 641J5.
7. ALL CROSS OVER AREAS SHALL BE RESTORED TO ORIGINAL CONDITION. THIS WORK IS CONSIDERED PART OF ITEM 646J0, TRAFFIC CONTROL. ALL 1-91 SLOPES SHALL BE RE-ESTABLISHED FOLLOWING DETOUR REMOVAL.

LEGEND

- CONSTRUCTION AREA
- DIRECTION OF TRAFFIC FLOW
- 2 TEMPORARY TRAFFIC BARRIER
- FLASHING ARROW PANEL
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- REFLECTORIZED DRUM
- TYPE III BARRICADE
- ENERGY ABSORPTION ATTENUATOR

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town of ROCKINGHAM	Bridge No. 2-3, 22-N, 22-S
Highway No. 1-91	Log Sta. 1795+00
1-91 NB & SB OVER WEBB BROOK & TH 46	
TRAFFIC CONTROL - BR. 22-N CLOSED (2 OF 3)	
Designed By C. May	Drawn By C. May
Checked By J. McDuffee	Bridge Design Supervisor J. Maczkowski
Date 9/00	Date 9/00
PROJECT BR 2-3, BR 22-N AND BR 22-S	PROJECT NO. ROCKINGHAM IM 091-H3B1
L6.C. Info. m5563000 VDOT Webb Brook Crossover Drainage Plan for 091-H3B1.dwg	
Bridge Sheet No.	Sheet 16 of 23



GENERAL NOTES:

- DESIGN SPEED 55 MPH.
- LAYOUT BASED ON VDOT STANDARD E-104.
- THIS TRAFFIC CONTROL SHEET IS TO BE USED IN CONJUNCTION WITH VDOT STANDARD SHEETS E-103, E-104, E-104A AND E-107A.
- SEE VDOT STANDARD SHEET E-103 FOR ADVANCE SIGN PACKAGE, SIGN PACKAGE LAYOUT EXTENDS BACK FROM THE BEGINNING OF THE 780' MERGING TAPER.
- EXISTING DRAINAGE STRUCTURES ARE SHOWN ONLY IN AREAS NEAR THE PROPOSED CROSSOVERS. ALL DRAINAGE SHOWN WAS OBTAINED FROM THE EXISTING ROADWAY DESIGN PLANS AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO DESIGNING THE CROSSOVER.
- PORTABLE CHANGEABLE MESSAGE SIGNS WILL BE PLACED AT EACH APPROACH TO THE CONSTRUCTION AREA AS ORDERED BY THE ENGINEER, AND WILL BE PAID UNDER ITEM 641.5.
- ALL CROSS OVER AREAS SHALL BE RESTORED TO ORIGINAL CONDITION. THIS WORK IS CONSIDERED PART OF ITEM 646.0, TRAFFIC CONTROL. ALL 1-91 SLOPES SHALL BE RE-ESTABLISHED FOLLOWING DETOUR REMOVAL.

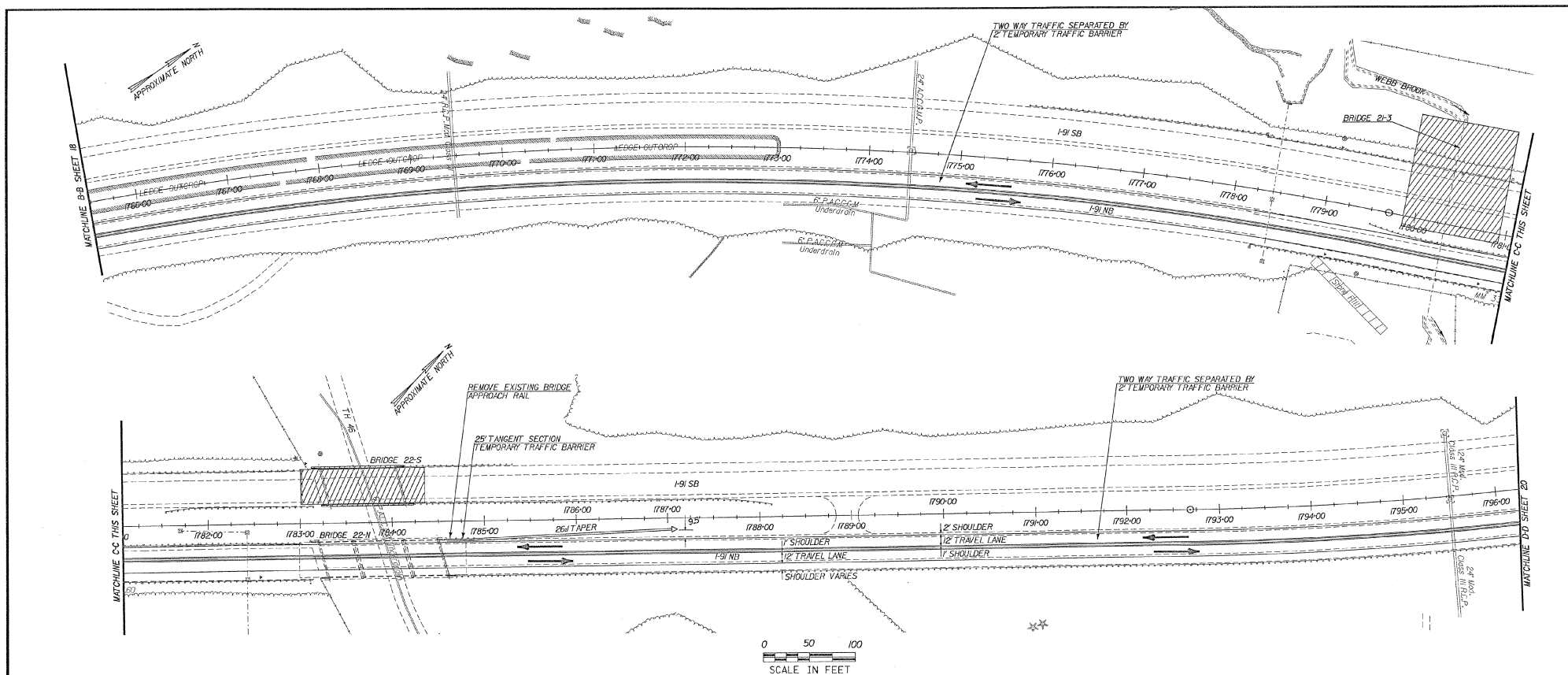
LEGEND

- CONSTRUCTION AREA
- DIRECTION OF TRAFFIC FLOW
- 2" TEMPORARY TRAFFIC BARRIER
- FLASHING ARROW PANEL
- TYPE I (DELINEATOR YELLOW)
- TYPE I (DELINEATOR WHITE)
- REFLECTORIZED DRUM
- TYPE II BARRICADE
- ENERGY ABSORPTION ATTENUATOR



STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	ROCKINGHAM		Bridge Nos.	21-3, 22-N, 22-S
Highway No.	1-91		Log Sta.	
			Surv. Sta.	
1-91 NB & SB OVER WEBB BROOK & TH 46				
TRAFFIC CONTROL - BR. 22-N CLOSED (3 OF 3)				
Designed By	C. Moly		Drawn By	C. Moly
Checked By	J. McDuffee		Bridge Design Supervisor	J. Mieczkowski
Date	9/00		Date	
PROJECT			PROJECT NO.	
BR 21-3, BR 22-N AND BR 22-S			ROCKINGHAM IN 09H-4381	
I.G.C. Info. m:\563000 VDOT Webb Brook CUMVMDRAW\TRAFFIC CONTROL\trc\trc.dwg				
Bridge Sheet No.			Sheet 17 of 23	



GENERAL NOTES:

- DESIGN SPEED 55 MPH.
- LAYOUT BASED ON VDOT STANDARD E-104.
- THIS TRAFFIC CONTROL SHEET IS TO BE USED IN CONJUNCTION WITH VDOT STANDARD SHEETS E-103, E-104, E-104A AND E-107A.
- SEE VDOT STANDARD SHEET E-103 FOR ADVANCE SIGN PACKAGE, SIGN PACKAGE LAYOUT EXTENDS BACK FROM THE BEGINNING OF THE 700' MERGING TAPER.
- EXISTING DRAINAGE STRUCTURES ARE SHOWN ONLY IN AREAS NEAR THE PROPOSED CROSSOVERS. ALL DRAINAGE SHOWN WAS OBTAINED FROM THE EXISTING ROADWAY DESIGN PLANS AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO DESIGNING THE CROSSOVER.
- PORTABLE CHANGEABLE MESSAGE SIGNS WILL BE PLACED AT EACH APPROACH TO THE CONSTRUCTION AREA AS ORDERED BY THE ENGINEER AND WILL BE PAID UNDER ITEM 640.5.
- ALL CROSS OVER AREAS SHALL BE RESTORED TO ORIGINAL CONDITION. THIS WORK IS CONSIDERED PART OF ITEM 640.0. TRAFFIC CONTROL. ALL 1-91 SLOPES SHALL BE RE-ESTABLISHED FOLLOWING DETOUR REMOVAL.

LEGEND

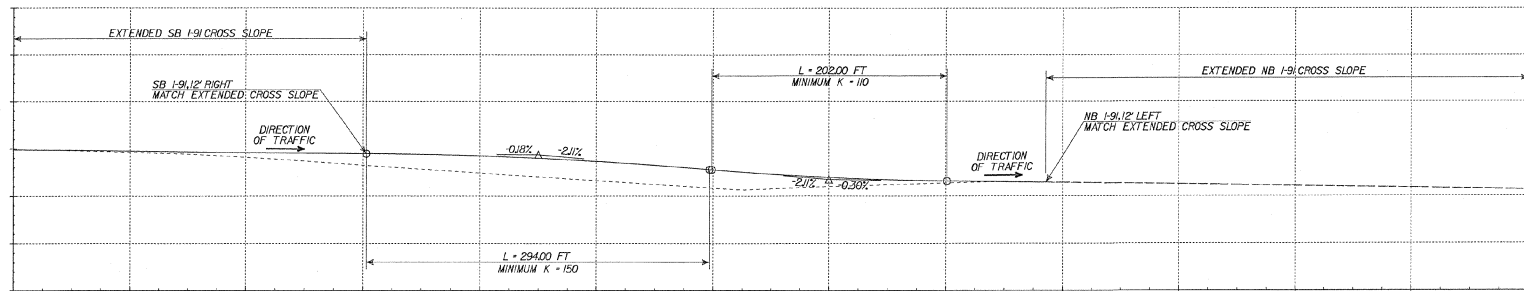
CONSTRUCTION AREA

DIRECTION OF TRAFFIC FLOW
2" TEMPORARY TRAFFIC BARRIER
FLASHING ARROW PANEL
TYPE I DELINEATOR (YELLOW)
TYPE I DELINEATOR (WHITE)
REFLECTORIZED DRUM
TYPE III BARRICADE
ENERGY ABSORPTION ATTENUATOR

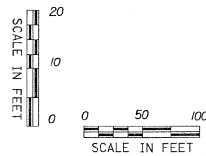
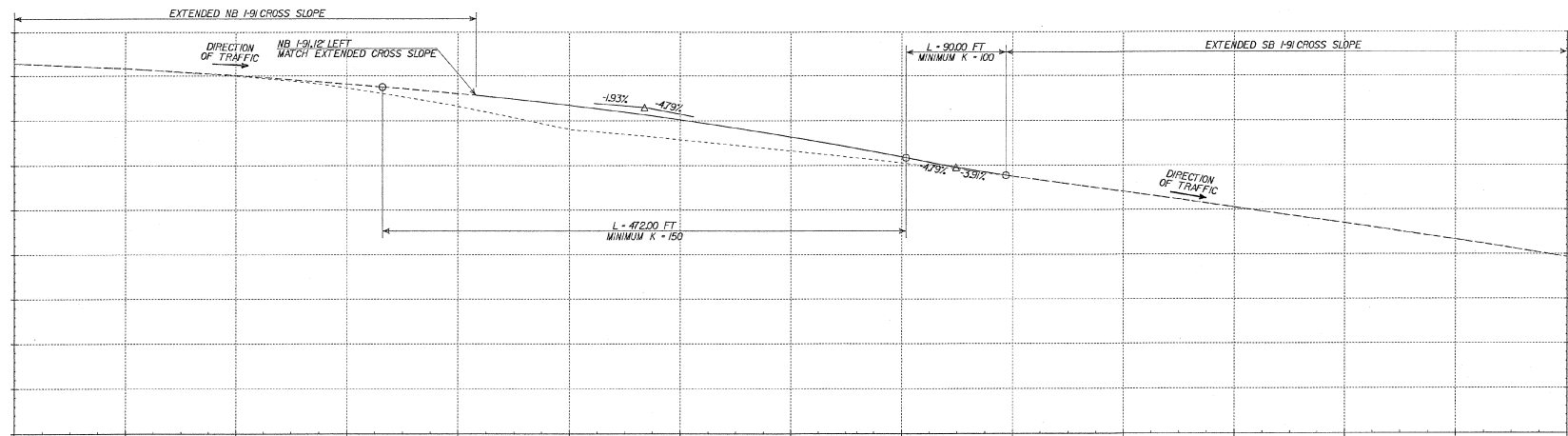
STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	ROCKINGHAM		Bridge Nos.	21-3, 22-N, 22-S
Highway No.	1-91		Log Sta.	
			Surv. Sta.	
1-91 NB & SB OVER WEBB BROOK & TH 46				
TRAFFIC CONTROL - BR. 22-S CLOSED (2 OF 3)				
Designed By	C. Moly		Drawn By	C. Moly
Checked By	J. McDuffee		Bridge Design Supervisor	J. Wozniak
Date	9/00		Date	
PROJECT	BR 21-3, BR 22-N AND BR 22-S		PROJECT NO.	ROCKINGHAM 1M 09-11381
L.G.C. Info. MVS63000 VDOT Webb Brook Crossover/Drainage/CP/PLN/UT08850_bdr.dgn				
Bridge Sheet No.			Sheet 19	of 23

Phase I - NB I-9I Northern Cross-over

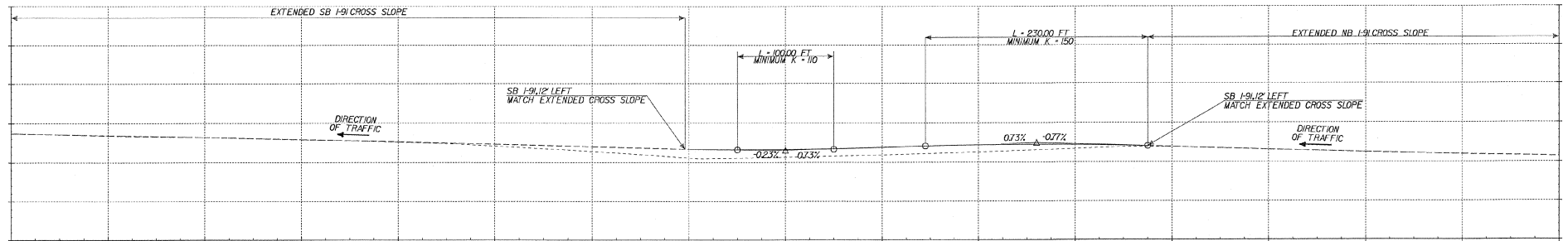


Phase I - NB I-9I Southern Cross-over

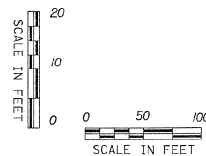
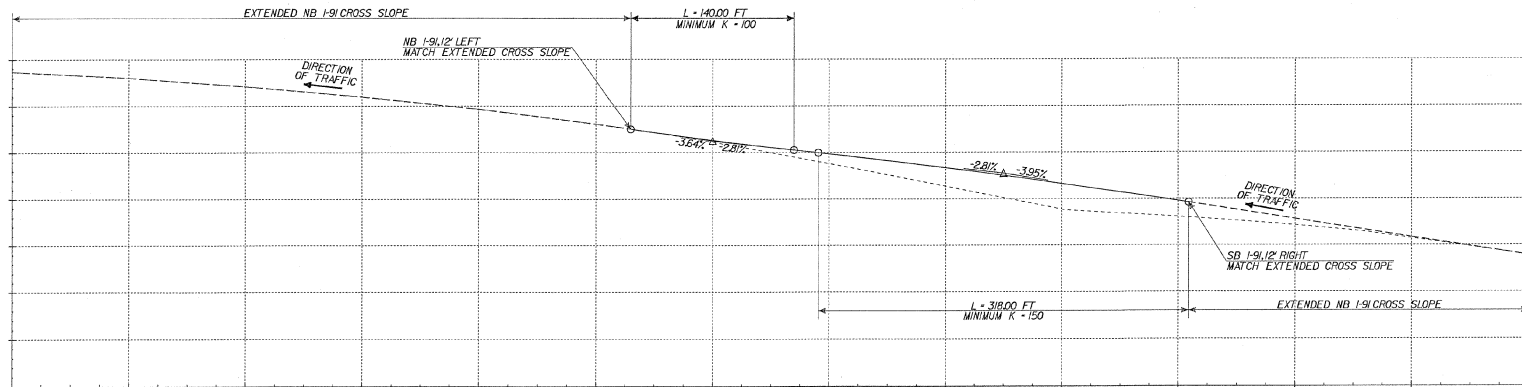


STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town of ROCKINGHAM		Bridge Nos. 21-3, 22-N, 22-S	
Highway No. I-9I		Log. Sta. Surv. Sta. 	
I-9I NB & SB OVER WEBB BROOK & TH 46			
NB I-9I CROSS-OVER PROFILES			
Designed By C. Moly	Date 9/00	Drawn By C. Moly	Date
Checked By J. McArthur	Date 	Bridge Design Supervisor J. McArthur	Date
PROJECT BR 21-3, BR 22-N AND BR 22-S		PROJECT NO. ROCKINGHAM 100 091-1381	
I.G.C. Info. MS63000 VAD Webb Brook CUNYIN-DRAWN-PROFILES-01070909			
Bridge Sheet No. 		Sheet 21 of 23	

Phase II - SB I-91 Northern Cross-over



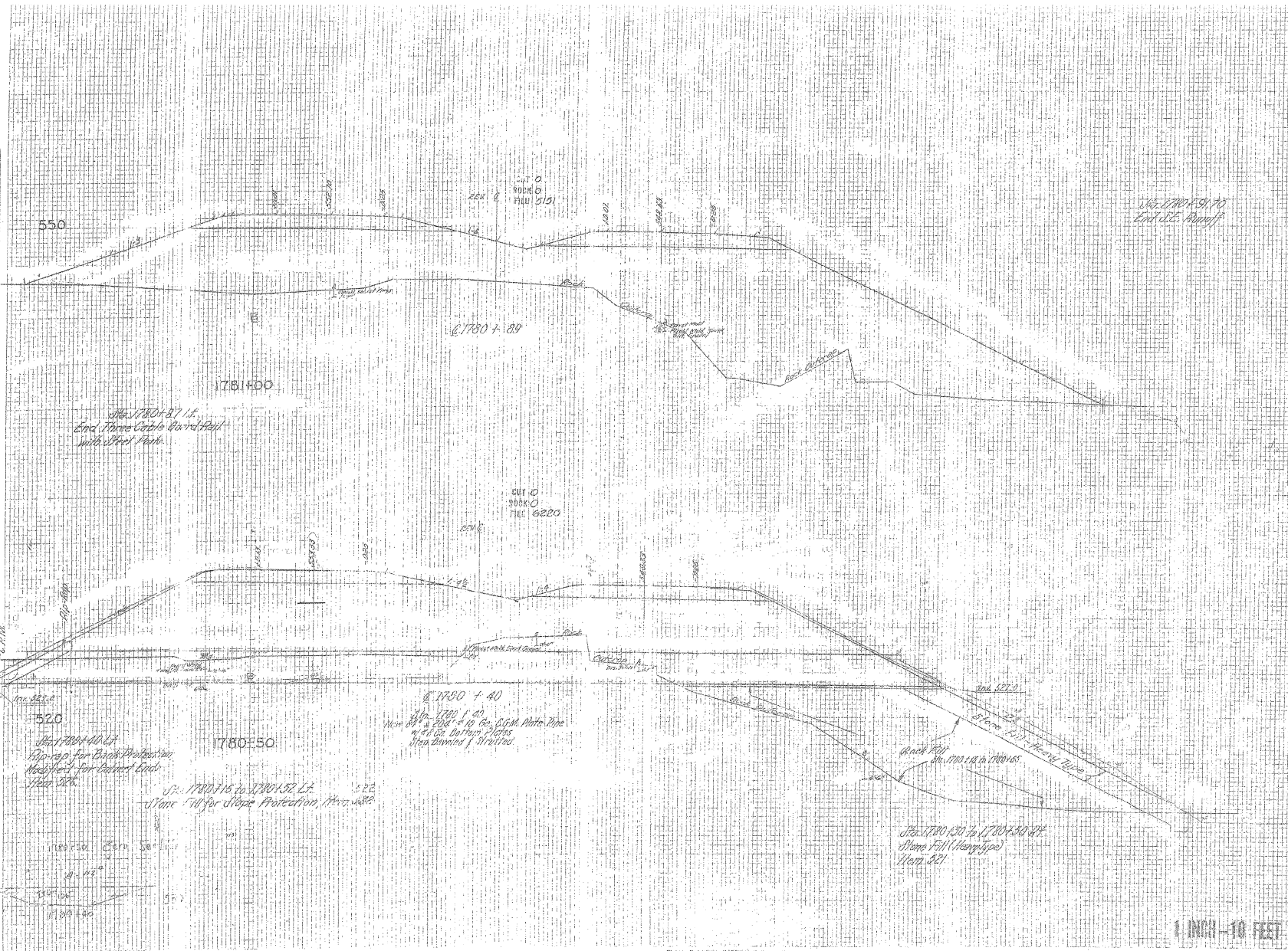
Phase II - SB I-91 Southern Cross-over



STATE OF VERMONT AGENCY OF TRANSPORTATION	
Town Of ROCKINGHAM	Bridge Nos. 21-3, 22-N, 22-S
Highway No. I-91	Log Sta.
I-91 NB & SB OVER WEBB BROOK & TH 46	
SB I-91 CROSS-OVER PROFILES	
Designed By C. May	Drawn By C. May
Checked By J. McDuffee	Bridge Design Supervisor J. McDuffee
Date 9/00	Date
PROJECT BR 21-3, BR 22-N AND BR 22-S	PROJECT NO. ROCKINGHAM (M 09-438)
I.G.C. Info. mh563000 VAD Webb Brook CulVHWY07M-PROFILES.J0708prodgn	
Bridge Sheet No. 	Sheet 22 of 23

101-1-(15)
WESTMINSTER-ROCKINGHAM
CONTRACT NO. 3

101-1-(15)
WESTMINSTER-ROCKINGHAM
CONTRACT NO. 3



WESTMINSTER-ROCKINGHAM	
Stationing	101-1-(15)
Sheet No.	23 of 23
Scale	1" = 10'
Author	101-1-(15)
Checker	101-1-(15)
Engineer	101-1-(15)
Surveyor	101-1-(15)
Contract No.	3

