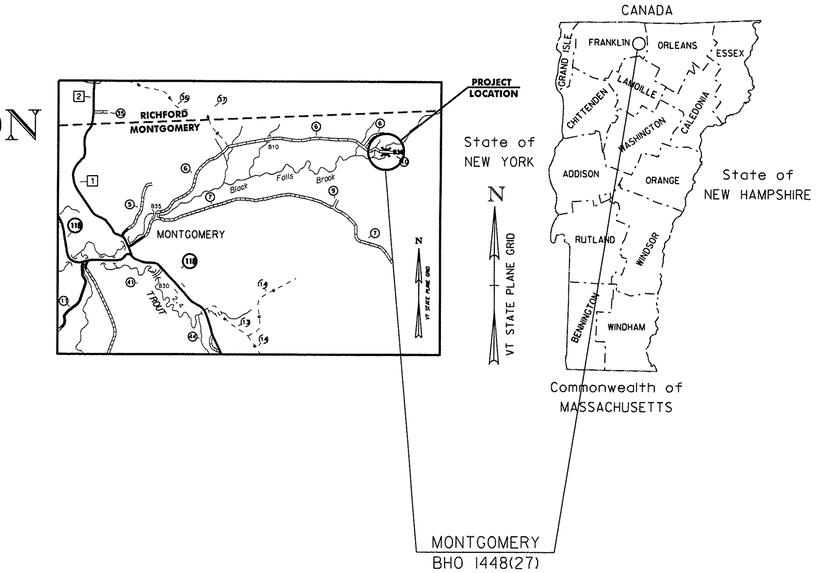
SEE SHEET 2 FOR INDEX OF SHEETS & LIST OF STANDARDS

STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT

TOWN OF MONTGOMERY

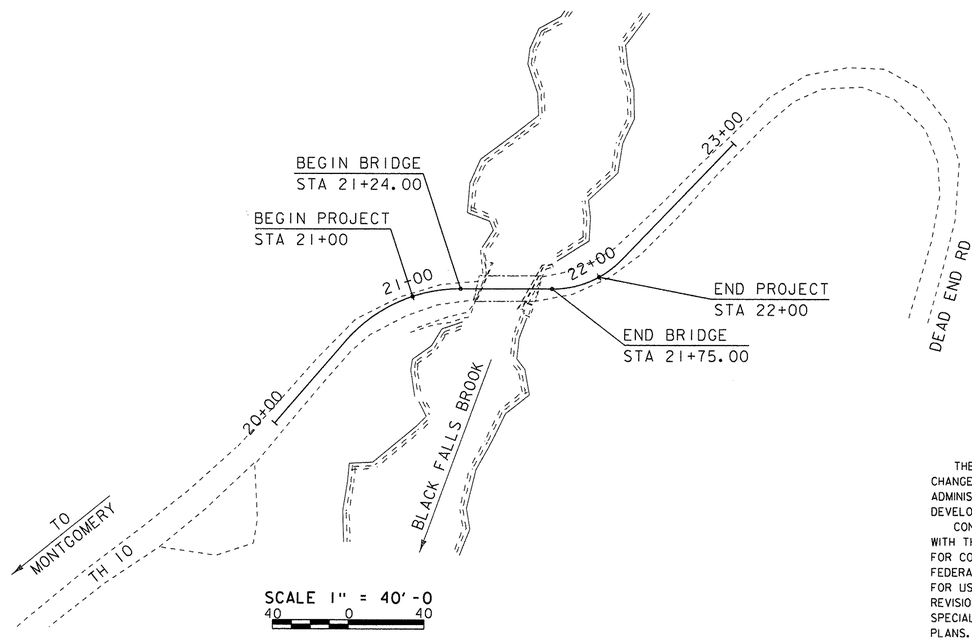
COUNTY OF FRANKLIN

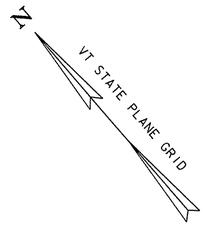
ROUTE NO : TH 10 CLASS 3 BRIDGE NO : 36

PROJECT LOCATION : LOCATED APPROXIMATELY 0.30 MILES FROM THE INTERSECTION OF TH 10 AND TH 6.

PROJECT DESCRIPTION : REPLACEMENT OF THE EXISTING SUPERSTRUCTURE WITH MINIMAL APPROACH, SUBSTRUCTURE, ROADWAY AND CHANNEL WORK.

LENGTH OF STRUCTURE :	51.00 FEET
LENGTH OF ROADWAY :	49.00 FEET
LENGTH OF PROJECT :	100.00 FEET





QUALITY ASSURANCE PROGRAM: LEVEL 2

CONVENTIONAL SYMBOLS

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

SURVEYED BY : R. D. GILMAN
SURVEYED DATE : 10-20-1998

DATUM
VERTICAL : NAVD 88
HORIZONTAL : NAD 83 (96)

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED Kevin S Marshia DATE 11/21/13

PROJECT MANAGER : CAROLYN CARLSON, P.E.

PROJECT NAME : MONTGOMERY
PROJECT NUMBER : BHO 1448(27)

SHEET 1 OF 30 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 12.09.13

LRFD

INDEX OF SHEETS

PLAN SHEETS

STANDARDS LIST

E-134	BRIDGE NUMBER PLAQUE	08-08-1995
E-141	REGULATORY SIGN DETAILS	09-20-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	01-03-2000
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	01-03-2000
G-19	GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS	11-15-2002
T-1	TRAFFIC CONTROL GENERAL NOTES	08-06-2012
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-45	SQUARE TUBE SIGN POST AND ANCHOR	08-06-2012
S-367A	BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING	05-24-2012
S-367B	GUARDRAIL APPROACH SECTION, GALVANIZED HD STEEL BEAM	05-24-2012

STRUCTURAL DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	5/7/2010
SD-502.00	CONCRETE DETAILS AND NOTES	5/7/2010

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: January 2013

DRAINAGE AREA : 3.5 sq. mi.
CHARACTER OF TERRAIN : Mountainous, steep and forested
STREAM CHARACTERISTICS : Sinuous, semi-alluvial
NATURE OF STREAMBED : Gravel, cobbles, ledge

PEAK FLOW DATA

Q 2.33 =	325 cfs	Q 50 =	1400 cfs
Q 10 =	825 cfs	Q 100 =	1650 cfs
Q 25 =	1150 cfs	Q 500 =	2150 cfs

DATE OF FLOOD OF RECORD: Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q25 = 14.9 fps
ICE CONDITIONS : Moderate
DEBRIS: Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes
IS ORDINARY RISE RAPID? Yes
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
IF YES, DESCRIBE:

WATERSHED STORAGE: <1%
HEADWATERS:
UNIFORM: X
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Rolled beam with timber deck
YEAR BUILT: 1919
CLEAR SPAN(NORMAL TO STREAM): 25'
VERTICAL CLEARANCE ABOVE STREAMBED: 11'
WATERWAY OF FULL OPENING: 270 sq. ft.
DISPOSITION OF STRUCTURE: Replace superstructure
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1136.1'	VELOCITY =	14.6 fps
Q10 =	1137.2'	"	16.6 fps
Q25 =	1138.4'	"	17.4 fps
Q50 =	1139.3'	"	12.3 fps
Q100 =	1140.1'	"	13.0 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 1145.0'
DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: None
HIGHWAY # :
CLEAR SPAN:
YEAR BUILT:
STRUCTURE TYPE:
DISTANCE:
STRUCTURE #:
CLEAR HEIGHT:
FULL WATERWAY:

DOWNSTREAM STRUCTURE

TOWN: Montgomery
HIGHWAY # : TH 6
CLEAR SPAN: 65' (45' normal to the stream)
YEAR BUILT: 1970
STRUCTURE TYPE: Rolled beam with concrete deck
DISTANCE: 15,800'
STRUCTURE #: 35
CLEAR HEIGHT: 8'
FULL WATERWAY:

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE	**20**	**36**	**36**	**66**	**30**	**34.5**	**38**
INVENTORY	2.23	1.29					
POSTING							
OPERATING	2.89	1.67	2.69	1.58	2.1	1.91	2.18
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast prestressed voided slab with sleeper slab

CLEAR SPAN(NORMAL TO STREAM): 25'
VERTICAL CLEARANCE ABOVE STREAMBED: 11'
WATERWAY OF FULL OPENING: 275 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1136.1'	VELOCITY=	14.6 fps
Q10 =	1137.2'	"	16.6 fps
Q25 =	1138.4'	"	17.4 fps
Q50 =	1139.3'	"	12.3 fps
Q100 =	1140.1'	"	13.0 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 1145.0'
DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1143.2'
VERTICAL CLEARANCE: @ Q25 = 4.8'

SCOUR: Contraction scour at Q100 = 1' and at Q500 = 2'

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW:	10 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	5 cfs	0.5'
ORDINARY HIGH WATER:	140 cfs	2.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: None required
CLEAR SPAN (NORMAL TO STREAM):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. ROAD CLOSED
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	2.5 INCH
3. DESIGN SPAN	L:	49.33 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	0.85 INCH
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f_y:	270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	7.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	5.5 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	---
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11. CONCRETE, CLASS C	f'_c:	---
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	---
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	4.0 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	---
20. PILE YIELD STRENGTH ASTM A572	f_y:	---
21. PILE SIZE		---
22. EST. PILE LENGTH	L_p:	
23. PILE RESISTANCE FACTOR	ϕ:	---
24. LATERAL PILE DEFLECTION	Δ:	---
25. BASIC WIND SPEED	V_{3s}:	---
26. MINIMUM GROUND SNOW LOAD	p_g:	---
27. SEISMIC DATA PGA: ---	S_s:	---
	S_1:	---

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

TRAFFIC DATA

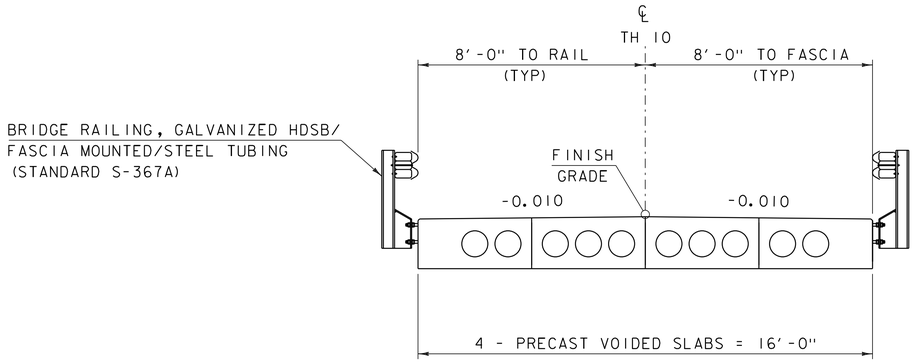
YEAR	ADT	DHV	% D	% T	ADTT
2008	<40	<10	NA	NA	NA
2028	NA	NA	NA	NA	NA

20 year ESAL for flexible pavement from 2008 to 2028 : <50,000
40 year ESAL for flexible pavement from 2008 to 2048 : NA
Design Speed : 25 mph

PROJECT NAME: **MONTGOMERY**
PROJECT NUMBER: **BHO 1448(27)**

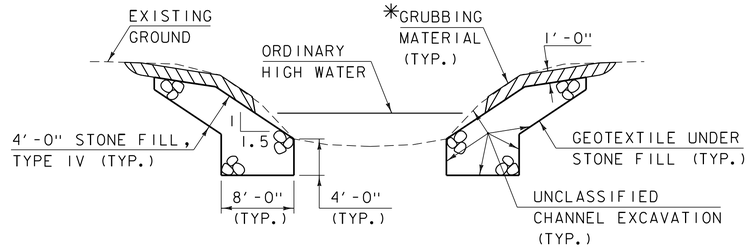
FILE NAME: **s96j306pi.xls**
PROJECT LEADER: **C. CARLSON**
DESIGNED BY: **H. SALLS**
PRELIMINARY INFORMATION

PLOT DATE: 11/21/2013
DRAWN BY: **R. PELLETT**
CHECKED BY: **H. SALLS**
SHEET 2 OF 30



BRIDGE TYPICAL SECTION

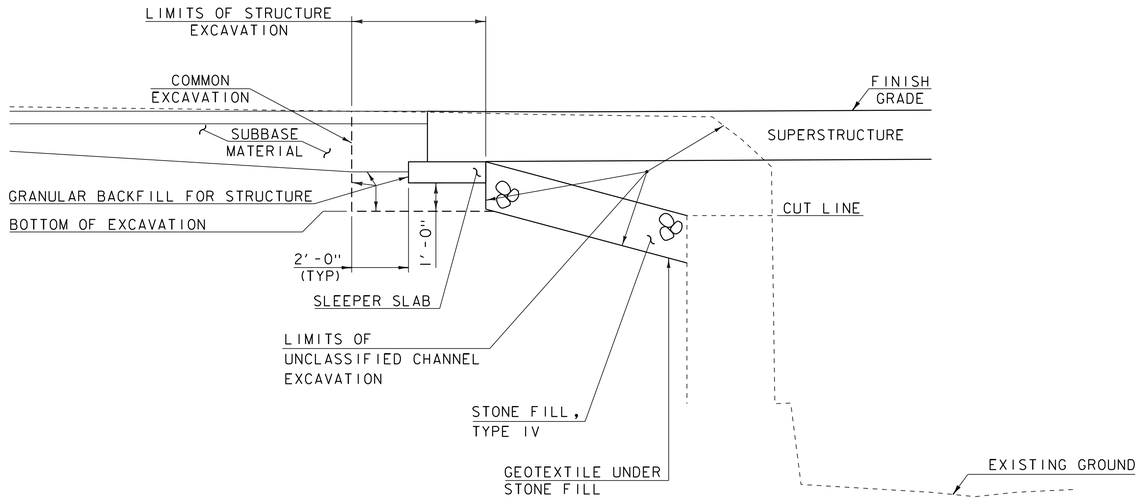
SCALE: 3/8" = 1'-0"



TYPICAL CHANNEL SECTION

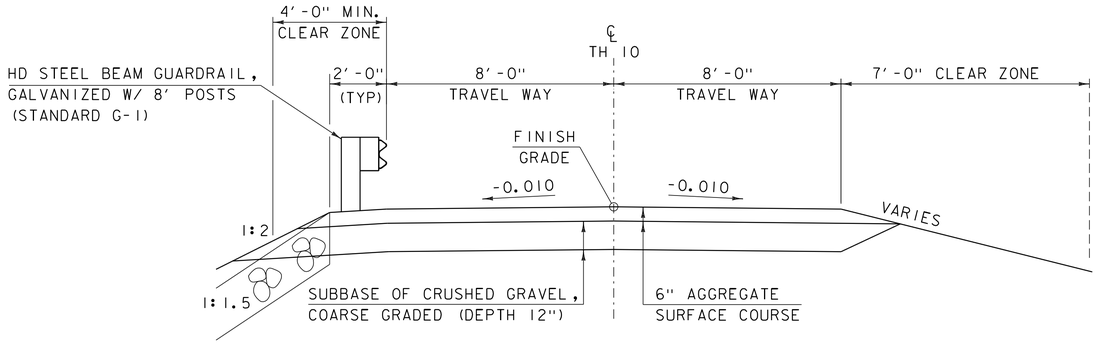
(NOT TO SCALE)

*GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.



SLEEPER SLAB EARTHWORK TYPICAL SECTION

NOT TO SCALE



TYPICAL WITH GUARD RAIL

TYPICAL WITHOUT GUARD RAIL

ROADWAY TYPICAL SECTION

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

MATERIAL TOLERANCES

(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROWS	+/- 1"

PROJECT NAME: MONTGOMERY
PROJECT NUMBER: BHO 1448(27)

FILE NAME: s96j306typ.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
TYPICAL SECTIONS

PLOT DATE: 21-NOV-2013
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 3 OF 30

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2011 STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE 2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, AND THEIR LATEST REVISIONS.

2. DURING THIS PROJECT, THE CONTRACTOR WILL BE ALLOWED TO CLOSE THE BRIDGE FOR 60 CONSECUTIVE HOURS. SEE SPECIAL PROVISIONS FOR WORK REQUIREMENTS DURING THIS CLOSURE PERIOD.

3. **EXISTING DIMENSIONS:** THESE PLANS WERE PREPARED BASED ON INFORMATION OBTAINED FROM REFERENCE PLAN SHEETS. DIMENSIONS AND ANGLES OF THE EXISTING STRUCTURE SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THE CONTRACTOR SHALL TAKE ALL FIELD MEASUREMENTS NECESSARY TO ENSURE PROPER FIT OF THE FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY. WHEN WORKING DRAWINGS BASED ON FIELD MEASUREMENTS ARE SUBMITTED FOR APPROVAL, THE FIELD MEASUREMENTS SHALL ALSO BE SUBMITTED FOR REFERENCE BY THE REVIEWER. NO EXTRA PAYMENT WILL BE MADE FOR OBTAINING THE NECESSARY MEASUREMENTS.

4. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.

EARTHWORK AND RELATED ITEMS

5. ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE" SHALL INCLUDE: EXISTING WOOD DECK, STEEL BEAMS, BRIDGE RAILING AND THE ABUTMENTS TO THE ELEVATION SHOWN IN THE PLANS.

CONCRETE

6. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH X 1 INCH.

7. ITEM 514.10 "WATER REPELLENT, SILANE" SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT THE UNDERSIDE OF THE PRESTRESS UNITS BETWEEN DRIP NOTCHES. SEE SUPPLEMENTAL SPECIFICATION 514.

8. ALL SUPERSTRUCTURE REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL I REINFORCING, EPOXY COATED. PAYMENT WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 510.22. ALL OTHER REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL I REINFORCING AND WILL BE PAID FOR UNDER CONTRACT ITEM 507.11.

9. CUTTING AND REPAIRING DAMAGED AREAS OF COATED REINFORCING STEEL SHALL BE PERFORMED IN ACCORDANCE WITH SUBSECTION 507.04.

10. MINIMUM COVER FOR REINFORCING STEEL SHALL BE AS INDICATED IN THE PLANS.

TRAFFIC CONTROL

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING THE LOCAL TRAFFIC CONTROL PACKAGE IDENTIFYING THE PROJECT BEFORE, DURING AND AFTER THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A DETAILED TRAFFIC CONTROL PLAN TO THE ENGINEER FOR ALL STAGES OF CONSTRUCTION. NO WORK SHALL BEGIN UNTIL THE TRAFFIC CONTROL PLAN HAS BEEN APPROVED. SEE SPECIAL PROVISIONS FOR DETAILS. ALL COST SHALL BE INCLUDED IN ITEM 900.645 "SPECIAL PROVISION, (TRAFFIC CONTROL, ALL-INCLUSIVE)".

12. THE COST FOR ALL ITEMS REQUIRED TO IMPLEMENT THE CONTRACTOR'S TRAFFIC CONTROL PLAN; INCLUDING BUT NOT LIMITED TO TEMPORARY TRAFFIC BARRIER AND CONSTRUCTION SIGNS WILL BE INCLUDED UNDER ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

13. ALL SIGNS, BARRICADE AND OTHER TRAFFIC CONTROL DEVICES SHALL BE CLEANED WEEKLY OR AS DIRECTED BY THE ENGINEER. EXISTING PERMANENT SIGNS THAT CONFLICT WITH TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE REMOVED AND REPLACED OR COVERED FOR THE PERIOD OF TIME THAT THE TRAFFIC CONTROL PLAN IS IMPLEMENTED. COST FOR THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

14. THE CONTRACTOR SHALL ADD SIGN G20-5AP TO THE TOP OF ALL TEMPORARY SPEED LIMIT SIGNS AS DETAILED IN THE MUTCD.

15. PRIOR TO AND AFTER THE MAXIMUM 72 HOUR BRIDGE CLOSURE, THE CONTRACTOR SHALL MAINTAIN TWO WAY TRAFFIC WHEN THE CONTRACTOR IS NOT WORKING. DURING THE CONTRACTOR'S WORKING HOURS, THE CONTRACTOR MAY REDUCE TRAFFIC TO ONE-LANE WITH THE USE OF FLAGGERS, DRUMS, BARRICADES, TEMPORARY TRAFFIC BARRIER AND/OR OTHER TRAFFIC CONTROL DEVICES. THIS WORK WILL BE PAID FOR UNDER ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) EXCEPT THAT FLAGGER HOURS WILL BE PAID SEPARATELY UNDER ITEM 630.15, "FLAGGERS".

PRESTRESSED CONCRETE

16. ITEM 510.22 "PRESTRESSED CONCRETE VOIDED SLABS" PRESTRESSED PRECAST MEMBERS SHALL:

    A. CONFORM TO SECTION 510 "PRESTRESSED CONCRETE."
    B. BE 4 FOOT WIDE VOIDED SLABS (DEPTH VARIES).
    C. USE CONCRETE WITH f'c = 7 KSI AND f'ci = 5.5 KSI.
    D. BE DESIGNED FOR AN AASHTO HL 93 LIVE LOAD.
    E. CONTAIN CONTINUOUS VOIDS EXCEPT AS SHOWN IN THE PLAN DETAIL.
    F. HAVE VOID DRAINS AT THE ENDS OF EACH VOID. THE VOID DRAINS SHALL BE ¾" DIAMETER, NON-FERROUS, AND CLEANED AFTER ERECTION.
    G. CONTAIN PRESTRESSING STRANDS WHICH ARE 0.6 IN. DIAMETER, 270 KSI, LOW-RELAXATION STRANDS PULLED TO 75% OF THEIR YIELD.
    H. HAVE THE ENDS OF THE STRANDS RECESSED AND GROUTED ACCORDING TO STANDARD PRACTICE.
    I. INCLUDE COLD POURED JOINT FILLER, AND TRANSVERSE TENDONS.
    J. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED ¾" X ¾" UNLESS OTHERWISE NOTED.

17. THE FABRICATOR MAY, WITH THE APPROVAL OF THE STRUCTURES ENGINEER, ALTER THE DESIGN AS DETAILED TO MEET THE PLANT'S PRESTRESSING OPERATION AND MATERIAL REQUIREMENTS. AN ALTERNATE STRAND CONFIGURATION MAY BE SUBMITTED FOR APPROVAL, PROVIDED THE DESIGN IS STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT, AND THAT THE DESIGN MEETS ALL OF THE APPLICABLE DESIGN CRITERIA, LOADINGS AND CODES.

18. THE CONTRACTOR SHALL NOTIFY THE VTRANS MATERIALS & RESEARCH STRUCTURAL CONCRETE ENGINEER TWO WEEKS BEFORE THE PRESTRESS FABRICATOR CONSTRUCTS THE UNITS.

19. ITEM 510.22 "PRESTRESSED CONCRETE VOIDED SLABS" TRANSVERSE TENDONS:

    A. POST-TENSIONING STRANDS: 0.6" DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS. THE ASSUMED MODULUS OF ELASTICITY FOR THE STRAND IS 28,500 KSI.
    B. COVER TENDONS WITH A SEAMLESS POLYPROPYLENE SHEATH WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND TENDON.
    C. THE ¾" TENDON PLATES SHALL CONFORM TO AASHTO M270M/M270 GR50.
    D. GALVANIZE PLATES AND CHUCKS AFTER FABRICATION ACCORDING TO AASHTO M232M/M232.
    E. THERE SHALL BE TWO (2) STRANDS PER POST-TENSION DUCT.
    F. TIES SHALL BE TENSIONED TO 33 KIPS FOR EACH 0.5" DIAMETER STRAND AND 47 KIPS FOR EACH 0.6" DIAMETER STRAND.

20. ITEM 510.24 "GROUTING SHEAR KEYS": FILL THE JOINTS BETWEEN THE VOIDED SLABS WITH MORTAR, TYPE IV, AS DESCRIBED IN SUBSECTION 510.13.

21. SERVICE LOADS

MEMBER MOMENT	264.6 K-FT
SUPERIMPOSED DEAD LOAD MOMENT	48.0 K-FT
LIVE LOAD & IMPACT MOMENT	504.3 K-FT
DEAD LOAD REACTION	25.9 K
LIVE LOAD & IMPACT REACTION	46.8 K
TOTAL REACTION	72.7 K
FINAL CAMBER	1.751 IN

CONSTRUCTION SEQUENCE FOR PRESTRESSED VOIDED SLABS

1. **LAY OUT WORKING LINES**:
   A. LAY OUT WORKING LINES FOR THE ENTIRE BRIDGE WIDTH ON THE BEAM SEAT.
   B. MEASURE ALL WORKING LINES FROM A COMMON WORKING POINT
   C. BASE THE WORKING LINES ON THE NOMINAL BEAM WIDTHS.

2. **VERIFY BEAM SEAT ELEVATIONS:**
   A. MEASURE ELEVATIONS AT BEAM SEATS.

3. **ERECT BEAMS:**
   A. PLACE BEAMS TO FIT WITHIN THE WORKING LINES.
   B. AS WORK PROGRESSES, INSTALL HARDWOOD WEDGES BETWEEN ADJACENT BEAMS TO MAINTAIN PROPER JOINT OPENING (A MINIMUM OF ONE WEDGE AT EACH TRANSVERSE TENDON).
   C. DRILL ANCHOR BOLT HOLES.
   D. PLACE ANCHOR BOLTS.
   E. GROUT ANCHOR BOLTS IN SLEEPER SLAB.

4. **INSTALL BACKER ROD:**
   PLACE FILLER BELOW THE KEYWAY BOTTOM, AS SHOWN ON THE PLANS.

5. **INSTALL TRANSVERSE TENDONS:**
   A. FEED TENDONS THROUGH DUCTS.
   B. VERIFY THAT HARDWOOD WEDGES ARE IN PLACE AS REQUIRED TO PREVENT SLIPPAGE OF BEAMS.
   C. POST-TENSION TENDONS USING A CALIBRATED JACK TO APPROXIMATELY 3.0 KIPS TO REMOVE SAG IN THE TENDON AND TO SEAT THE CHUCK.
   D. CURE AS PER SUBSECTION 510.13.

6. **GROUT SHEAR KEYS:**
   A. CLEAN JOINTS WITH AN OIL FREE AIR-BLAST IMMEDIATELY BEFORE GROUT PLACEMENT. VERIFY THAT THE BACKER ROD IS STILL IN PLACE.
   B. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR ADDITIONAL JOINT PREPARATION AND GROUT PLACEMENT.
   C. CAREFULLY ROD JOINTS TO ELIMINATE ANY POSSIBILITY OF VOIDS.
   D. THE REQUIREMENTS OF SUBSECTION 510.13 (d) SHALL BE WAIVED. THE CONTRACTOR SHALL NOT LOAD THE BRIDGE UNTIL THE GROUT HAS REACHED A COMPRESSIVE STRENGTH OF 1,000PSI.

7. **POST-TENSION TRANSVERSE TENDONS:**
   A. GROUT SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1.5 KSI, BASED ON THE MANUFACTURER'S RECOMMENDATIONS, PRIOR TO STRESSING.
   B. PROVIDE APPROPRIATE CUBE MOLDS AS DESCRIBED IN AASHTO T106M/T106 FOR 3 SETS OF 3 DAY CUBES, 3 SETS OF 28 DAY CUBES AND AT A MINIMUM OF 3 MORE CUBES TO TEST FOR THE 1.5 KSI MINIMUM COMPRESSIVE STRENGTH.

MISCELLANEOUS

22. ALL WORK TO PLACE CONCRETE IN THE BASE OF WINGWALL 2 IN THE DRY SHALL BE INCIDENTAL TO THE ITEM 501.34, "HIGH PERFORMANCE CONCRETE, CLASS B". THE CONCRETE SHALL NOT BE DEPOSITED DIRECTLY INTO THE WATER.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS
1			
290			
150			
1			
		30	
		30	
		1	
200			
70			
		4	
		400	
		102	
		102	
		153	
		25	
		119	
1			
		16	
		1	
		1	
	10		
20			
		420	
120			
4			
2			
100			
			1
			1500
1			
190			
	40		
	90		
	10		
	20		
	0.5		
	0.5		
90			
	1		
	10		

TOTALS

GRAND TOTAL	FINAL
1	
290	
150	
1	
30	
30	
1	
200	
70	
4	
400	
102	
102	
153	
25	
119	
1	
16	
1	
1	
10	
20	
420	
120	
4	
2	
100	
1	
1500	
1	
190	
40	
90	
10	
20	
0.5	
0.5	
90	
1	
10	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER	ROUND
LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	
CY	COMMON EXCAVATION	203.15	
CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	
CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	
CY	STRUCTURE EXCAVATION	204.25	
CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	
LS	COFFERDAM (SLEEPER SLAB #1)	208.40	
CY	SUBBASE OF CRUSHED GRAVEL, COARSE GRADED	301.25	
CY	AGGREGATE SURFACE COURSE	401.10	
CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34	
LB	REINFORCING STEEL, LEVEL I	507.11	
LF	PRESTRESSED CONCRETE VOIDED SLABS (21 1/2" - 22" X 48")	510.22	
LF	PRESTRESSED CONCRETE VOIDED SLABS (21" - 21 1/2" X 48")	510.22	
LF	GROUTING SHEAR KEYS	510.24	
GAL	WATER REPELLENT, SILANE	514.10	
LF	BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING	525.44	
EACH	PARTIAL REMOVAL OF STRUCTURE	529.20	
EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17	
LS	PRECAST CONCRETE STRUCTURE (SLEEPER SLAB #1)	540.10	
LS	PRECAST CONCRETE STRUCTURE (SLEEPER SLAB #2)	540.10	
CY	STONE FILL, TYPE I	613.10	
CY	STONE FILL, TYPE II	613.11	
CY	STONE FILL, TYPE IV	613.13	
LF	HD STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS	621.215	
EACH	ANCHOR FOR STEEL BEAM RAIL	621.60	
EACH	GUARDRAIL APPROACH SECTION, GALV HD STEEL BEAM W/ 8FT POSTS	621.738	
HR	FLAGGERS	630.15	
LS	FIELD OFFICE, ENGINEERS	631.10	
DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26	
LS	MOBILIZATION/DEMOBILIZATION	635.11	
SY	GEOTEXTILE UNDER STONE FILL	649.31	
SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515	
SY	GEOTEXTILE FOR FILTER CURTAIN	649.61	
LB	SEED	651.15	
LB	FERTILIZER	651.18	
TON	AGRICULTURAL LIMESTONE	651.20	
TON	HAY MULCH	651.25	
SY	GRUBBING MATERIAL	651.40	
LS	EPSC PLAN	652.10	
HR	MONITORING EPSC PLAN	652.20	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		EARTHWORKS SUMMARY
		FILL AVAILABLE
203	CY	COMMON EXCAVATION (0.7*290 CY)
45	CY	UNCLASSIFIED CHANNEL EXCAVATION (0.3*150 CY)
9	CY	STRUCTURE EXCAVATION (0.3*30)
257	**CY**	**TOTAL FILL AVAILABLE**
		FILL REQUIRED
34.5	CY	FACTORED FILL (1.15*30)
0.5	CY	ROUNDING
35	**CY**	**TOTAL FILL REQUIRED**
222	**CY**	**TOTAL WASTE**

PROJECT NAME: MONTGOMERY
PROJECT NUMBER: BHO 1448(27)

FILE NAME: s96j306qs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
QUANTITY SHEET 1

PLOT DATE: 21-NOV-2013
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 5 OF 30

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
	ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
		1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
		30			30		CY	VEHICLE TRACKING PAD	653.35				
		440			440		LF	PROJECT DEMARCATION FENCE	653.55				
	1				1		EACH	REMOVING SIGNS	675.50				
	2				2		EACH	SPECIAL PROVISION (GUARDRAIL APPROACH SECTION, GALVANIZED HD STEEL BEAM W/ 8FT POSTS)	900.620				
	1				1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				

PROJECT NAME: MONTGOMERY
PROJECT NUMBER: BHO 1448(27)

FILE NAME: s96j306qs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
QUANTITY SHEET 2

PLOT DATE: 11-DEC-2013
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 6 OF 30

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES

SUPER-STRUCTURE	WINGWALL 1	WINGWALL 2	WINGWALL 3	WINGWALL 4	SLEEPER SLAB 1	SLEEPER SLAB 2	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER
					15	15	30	CY	STRUCTURE EXCAVATION	204.25
					15	15	30	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30
					1		1	LS	COFFERDAM (SLEEPER SLAB #1)	208.40
	4						4	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34
	100	100	100	100			400	LB	REINFORCING STEEL, LEVEL I	507.11
102							102	LF	PRESTRESSED CONCRETE VOIDED SLABS (21 1/2" - 22" X 48")	510.22
102							102	LF	PRESTRESSED CONCRETE VOIDED SLABS (21" - 21 1/2" X 48")	510.22
153							153	LF	GROUTING SHEAR KEYS	510.24
7	3	3	3	3	3	3	25	GAL	WATER REPELLENT, SILANE	514.10
119							119	LF	BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING	525.44
16							16	EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17
					1		1	LS	PRECAST CONCRETE STRUCTURE (SLEEPER SLAB #1)	540.10
						1	1	LS	PRECAST CONCRETE STRUCTURE (SLEEPER SLAB #2)	540.10
					345	75	420	CY	STONE FILL, TYPE IV	613.13

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

PROJECT NAME: MONTGOMERY
PROJECT NUMBER: BHO 1448(27)

FILE NAME: s96j306qs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
QUANTITY SHEET 3

PLOT DATE: 21-NOV-2013
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 7 OF 30

GENERAL INFORMATION

SYMBOLOGY LEGEND NOTE

THE SYMBOLOGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLOGY. THE SYMBOLOGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLOGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R.O.W. ABBREVIATIONS (CODES) & SYMBOLS

POINT	CODE	DESCRIPTION
	CH	CHANNEL EASEMENT
	CONST	CONSTRUCTION EASEMENT
	CUL	CULVERT EASEMENT
	D&C	DISCONNECT & CONNECT
	DIT	DITCH EASEMENT
	DR	DRAINAGE EASEMENT
	DRIVE	DRIVEWAY EASEMENT
	EC	EROSION CONTROL
	HWY	HIGHWAY EASEMENT
	I&M	INSTALL & MAINTAIN EASEMENT
	LAND	LANDSCAPE EASEMENT
	R&RES	REMOVE & RESET
	R&REP	REMOVE & REPLACE
	SR	SLOPE RIGHT
	UE	UTILITY EASEMENT
	(P)	PERMANENT EASEMENT
	(T)	TEMPORARY EASEMENT
■	BNDNS	BOUND SET
⧈	BNDNS	BOUND TO BE SET
●	IPNS	IRON PIN SET
◎	IPNS	IRON PIN TO BE SET
⊠	CALC	EXISTING ROW POINT
○	PROW	PROPOSED ROW POINT
[LENGTH]		LENGTH CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT	CODE	DESCRIPTION
	APL	BOUND APPARENT LOCATION
	BM	BENCH MARK
	BND	BOUND
	CB	CATCH BASIN
	COMB	COMBINATION POLE
	DITHR	DROP INLET THROATED DNC
	EL	ELECTRIC POWER POLE
	FPOLE	FLAGPOLE
	GASFIL	GAS FILLER
	GP	GUIDE POST
	GSO	GAS SHUT OFF
	GUY	GUY POLE
	GUYW	GUY WIRE
	GV	GATE VALUE
	H	TREE HARDWOOD
	HCTRL	CONTROL HORIZONTAL
	HVCTRL	CONTROL HORIZ. & VERTICAL
	HYD	HYDRANT
	IP	IRON PIN
	IPIPE	IRON PIPE
	LI	LIGHT - STREET OR YARD
	MB	MAILBOX
	MH	MANHOLE (MH)
	MM	MILE MARKER
	PM	PARKING METER
	PMK	PROJECT MARKER
	POST	POST STONE/WOOD
	RRSIG	RAILROAD SIGNAL
	RRSL	RAILROAD SWITCH LEVER
	S	TREE SOFTWOOD
	SAT	SATELLITE DISH
	SHRUB	SHRUB
	SIGN	SIGN
	STUMP	STUMP
	TEL	TELEPHONE POLE
	TIE	TIE
	TSIGN	SIGN W/DOUBLE POST
	VCTRL	CONTROL VERTICAL
	WELL	WELL
	WSO	WATER SHUT OFF

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

CODE	DESCRIPTION
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
CC	CENTER OF CURVE
PT	POINT OF TANGENCY
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
STA	STATION PREFIX
AH	AHEAD STATION SUFFIX
BK	BACK STATION SUFFIX
D	CURVE DEGREE OF (100FT)
R	CURVE RADUIS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE

UTILITY SYMBOLOGY

UNDERGROUND UTILITIES

- UT — TELEPHONE
- UE — ELECTRIC
- UC — CABLE (TV)
- UEC — ELECTRIC+CABLE
- UET — ELECTRIC+TELEPHONE
- UCT — CABLE+TELEPHONE
- UECT — ELECTRIC+CABLE+TELEP.
- G — GAS LINE
- W — WATER LINE
- S — SANITARY SEWER (SEPTIC)

ABOVE GROUND UTILITIES (AERIAL)

- T — TELEPHONE
- E — ELECTRIC
- C — CABLE (TV)
- EC — ELECTRIC+CABLE
- ET — ELECTRIC+TELEPHONE
- AER E&T — ELECTRIC+TELEPHONE
- CT — CABLE+TELEPHONE
- ECT — ELECTRIC+CABLE+TELEP.
- UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

- CZ — CLEAR ZONE
- PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

- TOP OF CUT SLOPE
- TOE OF FILL SLOPE
- STONE FILL
- BOTTOM OF DITCH ℄
- CULVERT PROPOSED
- STRUCTURE SUBSURFACE
- PDF — PDF — PROJECT DEMARCATION FENCE
- BF — BF — BARRIER FENCE
- TREE PROTECTION ZONE (TPZ)
- STRIPING LINE REMOVAL
- SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

- TOWN LINE — TOWN BOUNDARY LINE
- COUNTY LINE — COUNTY BOUNDARY LINE
- STATE LINE — STATE BOUNDARY LINE
- PROPOSED STATE R.O.W. (LIMITED ACCESS)
- PROPOSED STATE R.O.W.
- STATE ROW (LIMITED ACCESS)
- STATE ROW
- TOWN ROW
- PERMANENT EASEMENT LINE (P)
- TEMPORARY EASEMENT LINE (T)
- SURVEY LINE
- P/L — PROPERTY LINE (P/L)
- SR SR SR — SLOPE RIGHTS
- 6f — 6F PROPERTY BOUNDARY
- 4f — 4F PROPERTY BOUNDARY
- HAZ — HAZARDOUS WASTE

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

- FILTER CURTAIN
- SILT FENCE
- SILT FENCE WOVEN WIRE
- CHECK DAM
- DISTURBED AREAS REQUIRING RE-VEGETATION
- EROSION MATTING

ENVIRONMENTAL RESOURCES

- WETLAND BOUNDARY
- RIPARIAN BUFFER ZONE
- WETLAND BUFFER ZONE
- SOIL TYPE BOUNDARY
- T&E — THREATENED & ENDANGERED SPECIES
- HAZ — HAZ — HAZARDOUS WASTE AREA
- AG — AGRICULTURAL LAND
- HABITAT — FISH & WILDLIFE HABITAT
- FLOOD PLAIN — FLOOD PLAIN
- OHW — ORDINARY HIGH WATER (OHW)
- STORM WATER
- USDA FOREST SERVICE LANDS
- WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC

- ARCH — ARCHEOLOGICAL BOUNDARY
- HISTORIC DIST — HISTORIC DISTRICT BOUNDARY
- HISTORIC — HISTORIC AREA
- Ⓗ HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

EXISTING FEATURES

- ROAD EDGE PAVEMENT
- ROAD EDGE GRAVEL
- DRIVEWAY EDGE
- DITCH
- FOUNDATION
- FENCE (EXISTING)
- FENCE WOOD POST
- FENCE STEEL POST
- GARDEN
- ROAD GUARDRAIL
- RAILROAD TRACKS
- CULVERT (EXISTING)
- STONE WALL
- WALL
- WOOD LINE
- BRUSH LINE
- HEDGE
- BODY OF WATER EDGE
- LEDGE EXPOSED

PROJECT NAME: MONTGOMERY
PROJECT NUMBER: BHO 1448(27)

FILE NAME: s96j306legend.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
CONVENTIONAL SYMBOLOGY-LEGEND

PLOT DATE: 21-NOV-2013
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 8 OF 30

GPS CONTROL POINTS

HVCTRL #1

MONTGOMERY TEMP 1

NORTH = 878062.21
EAST = 1616599.34
ELEV. = 1225.29

GENERAL LOCATION, MONTGOMERY, VT. TO REACH FROM THE INTERSECTION OF VT ROUTES 118 AND 242 IN MONTGOMERY CENTER GO NORTHWEST ALONG VT ROUTE 118 FOR 2.4 MI (3.9 KM) TO THE INTERSECTION OF SOUTH RICHFORD ROAD RIGHT, AT A TRIANGULAR SHAPED PARK IN MONTGOMERY VILLAGE. BEAR RIGHT AND GO NORTH ALONG SOUTH RICHFORD ROAD FOR 0.1 MI (0.2 KM) TO THE INTERSECTION OF NORTH HILL AND BLACK FALLS ROAD RIGHT. TURN RIGHT AND GO EAST ALONG NORTH HILL AND BLACK FALLS ROAD FOR 0.5 MI (0.8 KM) TO THE Y-INTERSECTION OF BLACK FALLS ROAD LEFT AND NORTH HILL ROAD RIGHT. BEAR LEFT AND GO NORTHEAST ALONG BLACK FALLS ROAD FOR 2.7 MI (4.3 KM) TO THE INTERSECTION OF A GRAVEL ROAD LEFT. BEAR LEFT AND GO NORTHEAST ALONG THE GRAVEL ROAD FOR 0.05 MI (0.08 KM) TO THE SITE OF THE MARK ON THE RIGHT. THE MARK IS A CENTERPUNCHED REBAR SET FLUSH WITH GROUND SURFACE. IT IS 4.2 M (13.8 FT) SOUTHEAST OF AND ABOUT 0.2 M (0.7 FT) HIGHER THAN THE CENTERLINE OF THE GRAVEL ROAD, 6.7 M (22.0 FT) NORTHEAST OF THE CENTERLINE OF A FIELD DRIVE LEADING TO A SHED, 8.4 M (27.6 FT) SOUTHEAST OF A 30 CM YELLOW BIRCH, 13.1 M (43.0 FT) SOUTHWEST OF TWIN 20 CM MAPLES, AND 0.3 M (1.0 FT) NORTHWEST OF A WOODEN WITNESS POST.

HVCTRL #2

MONTGOMERY TEMP 2

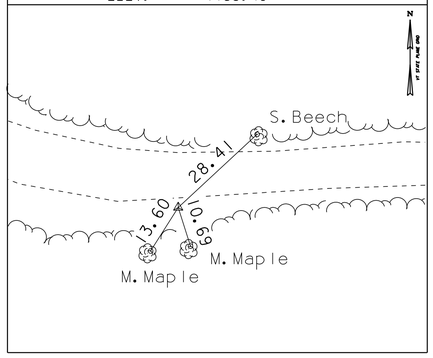
NORTH = 882130.57
EAST = 1617866.62
ELEV. = 1187.89

GENERAL LOCATION, MONTGOMERY, VT. TO REACH FROM THE INTERSECTION OF VT ROUTES 118 AND 242 IN MONTGOMERY CENTER GO NORTHWEST ALONG VT ROUTE 118 FOR 2.4 MI (3.9 KM) TO THE INTERSECTION OF SOUTH RICHFORD ROAD RIGHT, AT A TRIANGULAR SHAPED PARK IN MONTGOMERY VILLAGE. BEAR RIGHT AND GO NORTH ALONG SOUTH RICHFORD ROAD FOR 0.1 MI (0.2 KM) TO THE INTERSECTION OF NORTH HILL AND BLACK FALLS ROAD RIGHT. TURN RIGHT AND GO EAST ALONG NORTH HILL AND BLACK FALLS ROAD FOR 0.5 MI (0.8 KM) TO THE Y-INTERSECTION OF BLACK FALLS ROAD LEFT AND NORTH HILL ROAD RIGHT. BEAR RIGHT AND GO EAST AND SOUTH ALONG NORTH HILL ROAD FOR 2.2 MI (3.5 KM) TO THE SITE OF THE MARK ON THE LEFT. IT IS ABOUT 40 M (131.2 FT) SOUTH OF A 90 CM DIAMETER METAL CULVERT WHICH PASSES UNDER THE ROAD. THE MARK IS A CENTERPUNCHED REBAR SET 3 CM BELOW GROUND SURFACE. IT IS 4.5 M (14.8 FT) EAST OF AND ABOUT 0.2 M (0.7 FT) LOWER THAN THE CENTERLINE OF NORTH HILL ROAD, 26.3 M (86.3 FT) SOUTH OF POLE NO.21D/28X, 39.7 M (130.2 FT) NORTHWEST OF POLE NO.21D/29, 11.4 M (37.4 FT) SOUTH OF THE CENTERLINE OF A FIELD DRIVE, AND 0.3 M (1.0 FT) NORTH OF A WOODEN WITNESS POST.

TRAVERSE TIES

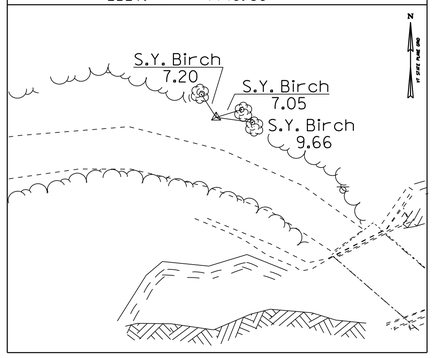
HVCTRL #6

NORTH = 881572.68
EAST = 1618370.41
ELEV. = 1153.48



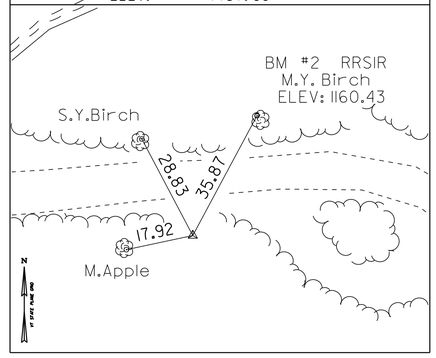
HVCTRL #7

NORTH = 881598.29
EAST = 1618691.59
ELEV. = 1146.38



HVCTRL #8

NORTH = 881519.38
EAST = 1618873.76
ELEV. = 1157.89



NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

* Main traverse Completed 10/20/98 by R.Gilman P.C. & T. Companion

ALIGNMENT TIES

CONTROL LINE DATA - TH10

POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)	PC	PI	PT	DELTA	R	L	T
100	N 81°47'35.79" E	56.98 '	881582.41	1618600.55		20+00.00					
	S 49°01'31.07" E	85.48 '	881595.77	1618693.18	20+56.98		21+25.65	49°10'53.13"	80.00 '	68.67 '	36.61 '
	N 84°48'21.45" E	106.51 '	881525.75	1618773.8	21+74.51		22+14.80	46°10'07.48"	-50.00 '	40.29 '	21.31 '
107			881535.39	1618879.88		23+00.00					

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (96)
ADJUSTMENT Compass

PROJECT NAME: MONTGOMERY
PROJECT NUMBER: BHO 1448(27)

FILE NAME: s96j306tie.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
TIE SHEET

PLOT DATE: 21-NOV-2013
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 9 OF 30

BRIDGE RAILING, GALVANIZED
HDSB/FASCIA MOUNTED/STEEL TUBING
STA 21+23.70 RT - 21+73.90 RT
STA 21+25.16 LT - 21+81.36 LT

GUARDRAIL APPROACH SECTION,
GALVANIZED HD STEEL BEAM
W/ 8FT POSTS
STA 21+02.43 LT - 21+25.16 LT
STA 21+73.90 RT - 21+95.54 RT

SPECIAL PROVISION (GUARDRAIL
APPROACH SECTION,GALVANIZED
HD STEEL BEAM W/ 8FT POST)
STA 21+02.86 RT - 21+23.70 RT
STA 21+81.36 LT - 22+12.43 LT

HD STEEL BEAM GUARDRAIL,
GALVANIZED W/ 8 FEET POSTS
STA 20+53.71 RT - 21+02.86 RT
STA 20+91.59 LT - 21+02.43 LT
STA 21+95.54 RT - 22+07.24 RT
STA 22+12.43 LT - 22+35.52 LT

ANCHOR FOR STEEL BEAM RAIL
STA 20+58.71 RT
STA 20+96.54 LT
STA 22+02.24 RT
STA 22+30.52 LT

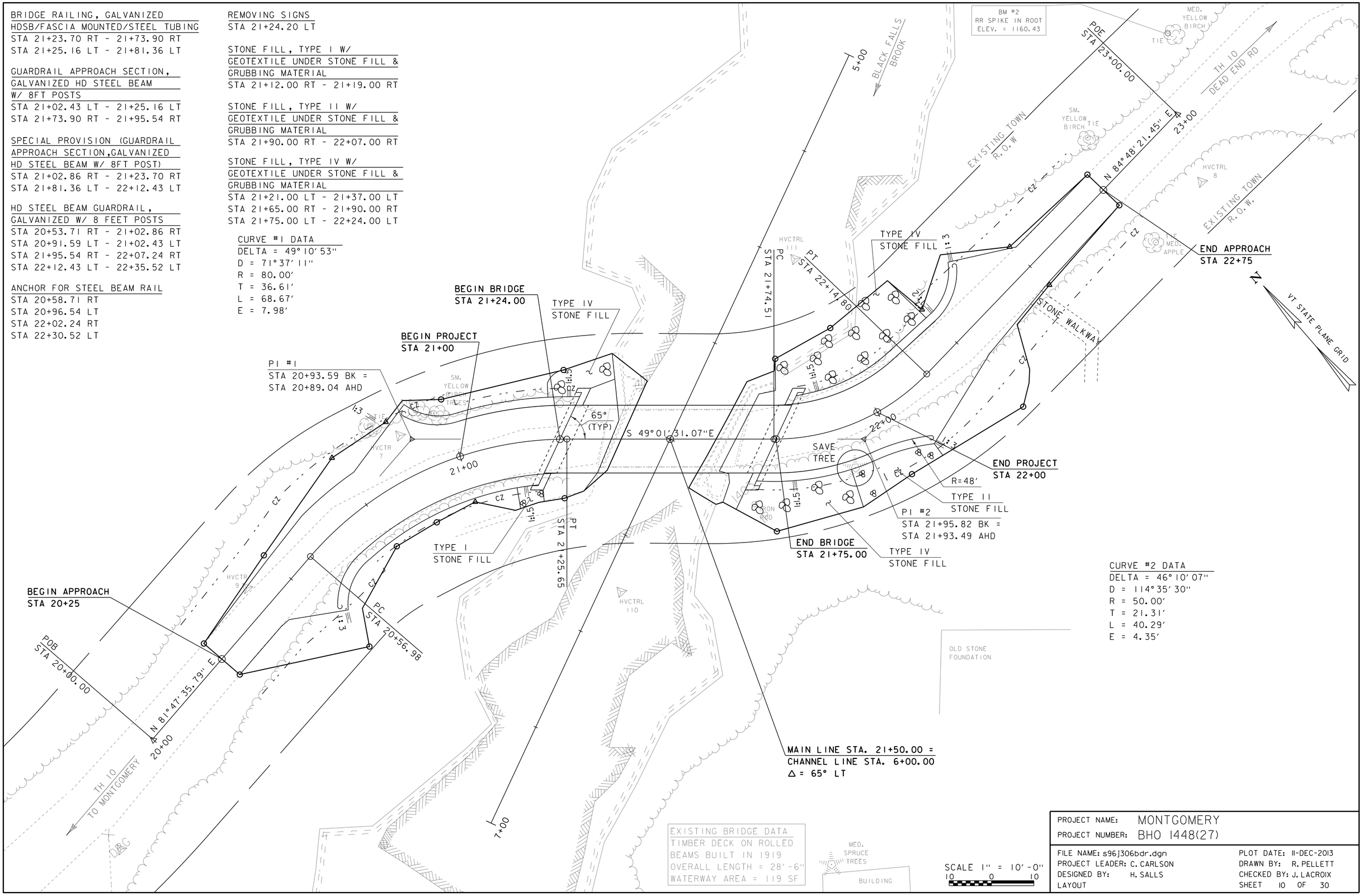
REMOVING SIGNS
STA 21+24.20 LT

STONE FILL, TYPE I W/
GEOTEXTILE UNDER STONE FILL &
GRUBBING MATERIAL
STA 21+12.00 RT - 21+19.00 RT

STONE FILL, TYPE II W/
GEOTEXTILE UNDER STONE FILL &
GRUBBING MATERIAL
STA 21+90.00 RT - 22+07.00 RT

STONE FILL, TYPE IV W/
GEOTEXTILE UNDER STONE FILL &
GRUBBING MATERIAL
STA 21+21.00 LT - 21+37.00 LT
STA 21+65.00 RT - 21+90.00 RT
STA 21+75.00 LT - 22+24.00 LT

CURVE #1 DATA
DELTA = 49° 10' 53"
D = 71° 37' 11"
R = 80.00'
T = 36.61'
L = 68.67'
E = 7.98'



CURVE #2 DATA
DELTA = 46° 10' 07"
D = 114° 35' 30"
R = 50.00'
T = 21.31'
L = 40.29'
E = 4.35'

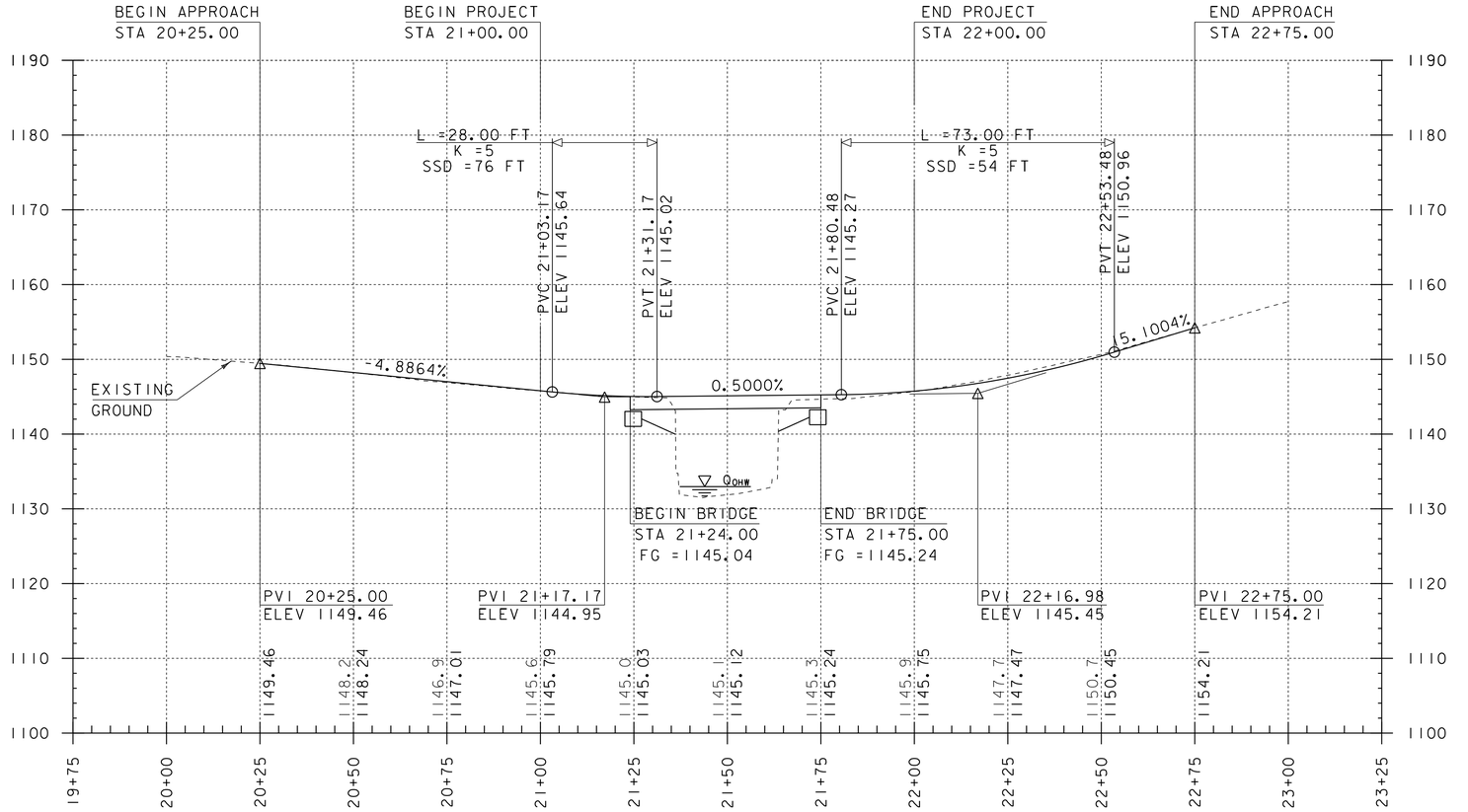
EXISTING BRIDGE DATA
TIMBER DECK ON ROLLED
BEAMS BUILT IN 1919
OVERALL LENGTH = 28'-6"
WATERWAY AREA = 119 SF

SCALE 1" = 10'-0"
10 0 10

PROJECT NAME: MONTGOMERY	
PROJECT NUMBER: BHO 1448(27)	
FILE NAME: s96j306bdr.dgn	PLOT DATE: 11-DEC-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: J. LACROIX
LAYOUT	SHEET 10 OF 30

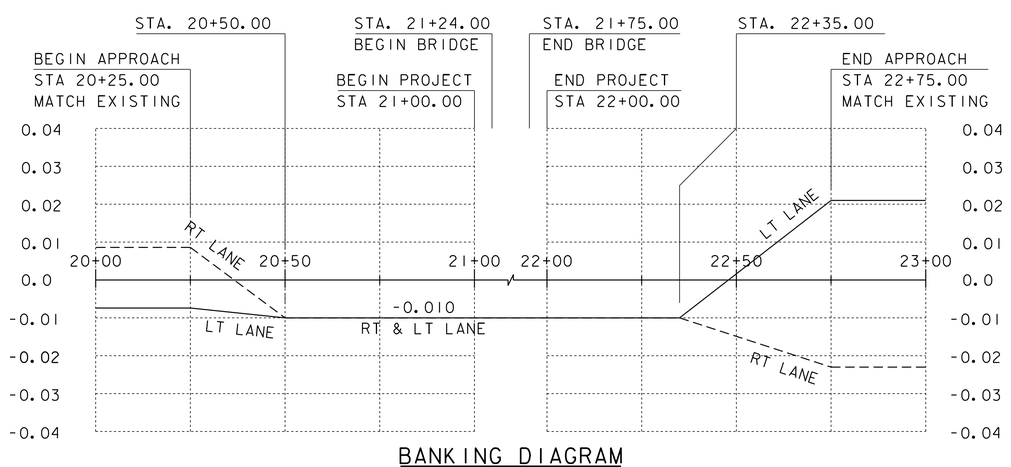
THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.

THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE FINISH GRADES ALONG THE PROPOSED ALIGNMENT.



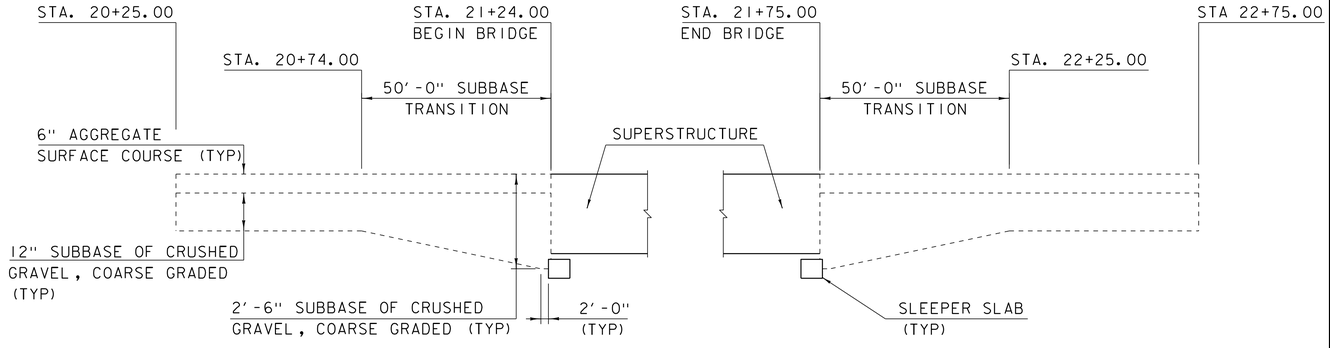
TH 10 PROFILE

SCALE: HORIZONTAL 1" = 20'-0"
SCALE: VERTICAL 1" = 10'-0"



BANKING DIAGRAM

HOR. SCALE 1" = 20'-0"
NO VERT. SCALE



SUBBASE TRANSITION DETAIL

N.T.S.

PROJECT NAME: MONTGOMERY
PROJECT NUMBER: BHO 1448(27)

FILE NAME: s96j306pro.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
PROFILE & DETAILS

PLOT DATE: 21-NOV-2013
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 11 OF 30

APPROACH RAIL NOTES:

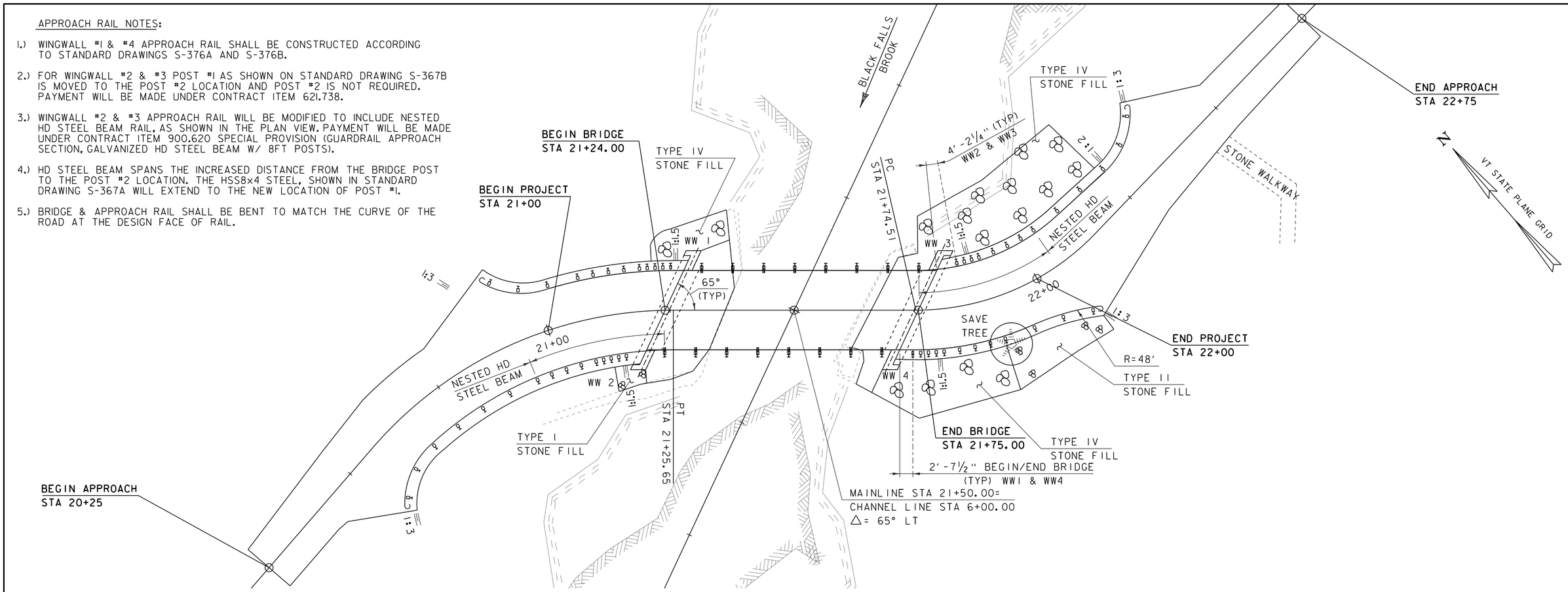
1.) WINGWALL #1 & #4 APPROACH RAIL SHALL BE CONSTRUCTED ACCORDING TO STANDARD DRAWINGS S-376A AND S-376B.

2.) FOR WINGWALL #2 & #3 POST #1 AS SHOWN ON STANDARD DRAWING S-367B IS MOVED TO THE POST #2 LOCATION AND POST #2 IS NOT REQUIRED. PAYMENT WILL BE MADE UNDER CONTRACT ITEM 621.738.

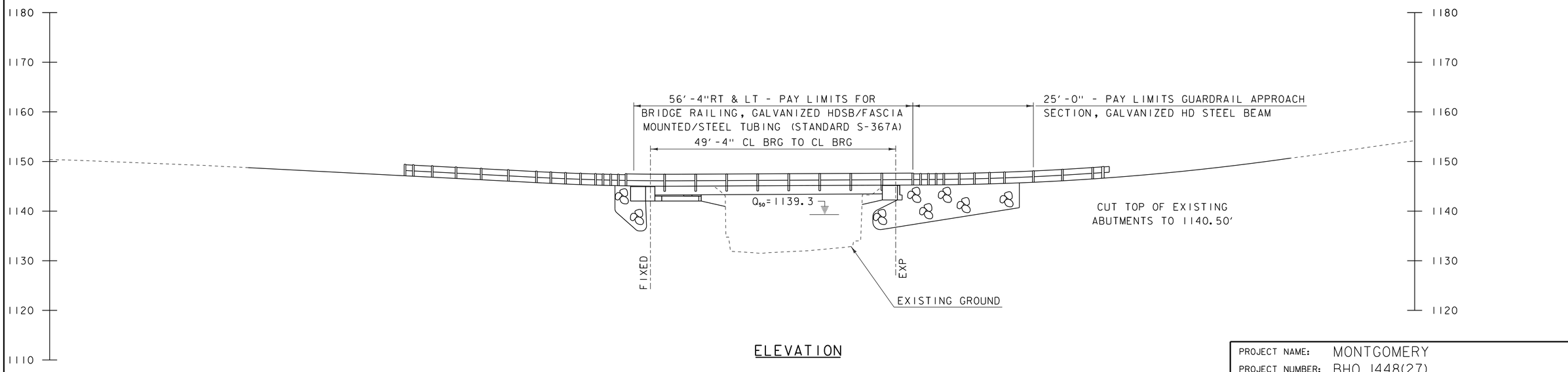
3.) WINGWALL #2 & #3 APPROACH RAIL WILL BE MODIFIED TO INCLUDE NESTED HD STEEL BEAM RAIL, AS SHOWN IN THE PLAN VIEW. PAYMENT WILL BE MADE UNDER CONTRACT ITEM 900.620 SPECIAL PROVISION (GUARDRAIL APPROACH SECTION, GALVANIZED HD STEEL BEAM W/ 8FT POSTS).

4.) HD STEEL BEAM SPANS THE INCREASED DISTANCE FROM THE BRIDGE POST TO THE POST #2 LOCATION. THE HSS8x4 STEEL, SHOWN IN STANDARD DRAWING S-367A WILL EXTEND TO THE NEW LOCATION OF POST #1.

5.) BRIDGE & APPROACH RAIL SHALL BE BENT TO MATCH THE CURVE OF THE ROAD AT THE DESIGN FACE OF RAIL.



PLAN



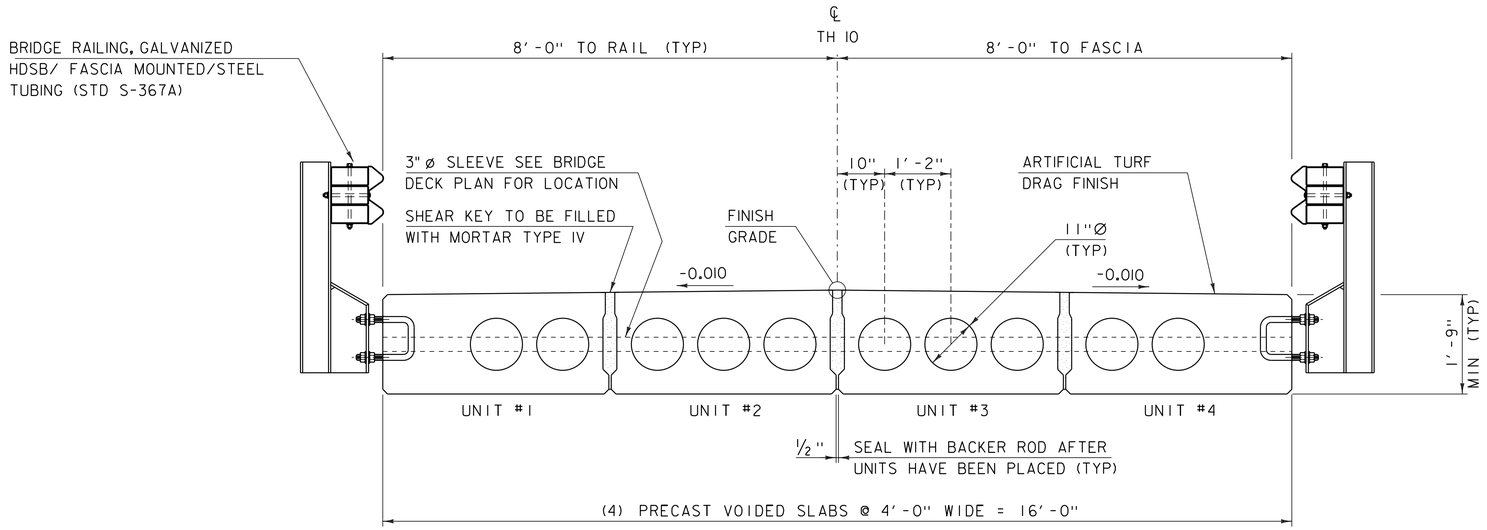
ELEVATION

SCALE 1" = 10'-0"
10 0 10

PROJECT NAME:	MONTGOMERY
PROJECT NUMBER:	BHO 1448(27)
FILE NAME: s96j306pe.dgn	PLOT DATE: 11-DEC-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: J. LACROIX
PLAN AND ELEVATION	SHEET 12 OF 30

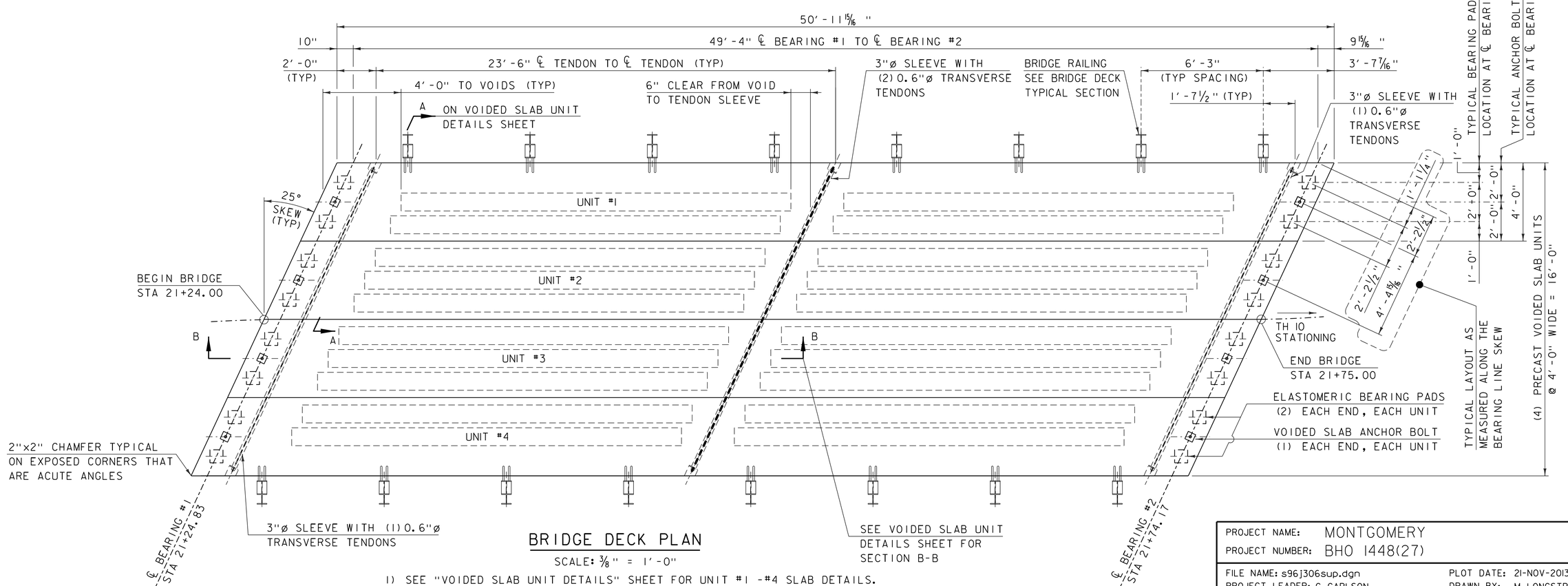
BRIDGE DECK NOTES:

1. THE FABRICATOR SHALL DESIGN AND LOCATE LIFTING ANCHORS FOR EACH VOIDED SLAB UNIT. THE LIFTING ANCHORS SHALL BE REMOVED AFTER ERECTION. THE ANCHORS SHALL BE COVERED WITH A MINIMUM OF 2" OF MORTAR TYPE IV. THE ANCHORS SHALL BE GALVANIZED OF STAINLESS STEEL; ANY DAMAGE TO ANY COATINGS SHALL BE REPAIRED AS PER MANUFACTURES SPECIFICATION PRIOR TO COVERING.



BRIDGE DECK TYPICAL SECTION

SCALE: ¾" = 1'-0"



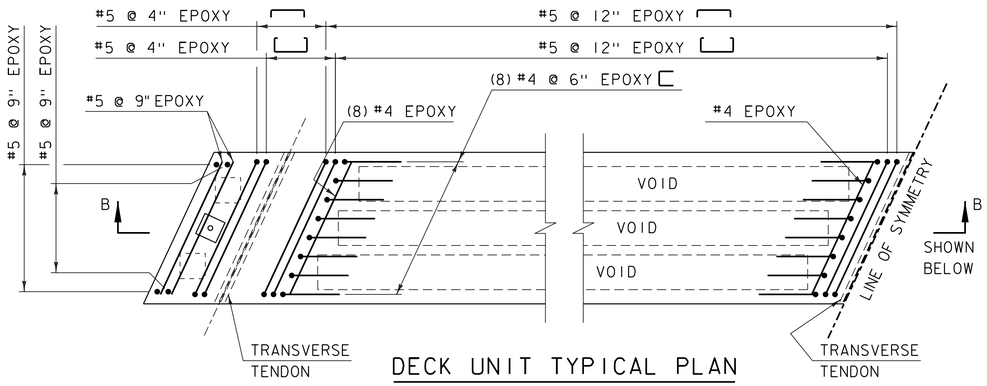
BRIDGE DECK PLAN

SCALE: ⅜" = 1'-0"

1) SEE "VOIDED SLAB UNIT DETAILS" SHEET FOR UNIT #1 -#4 SLAB DETAILS.

2) ALL SUPERSTRUCTURE REINFORCING STEEL SHALL BE LEVEL 1 EPOXY COATED.

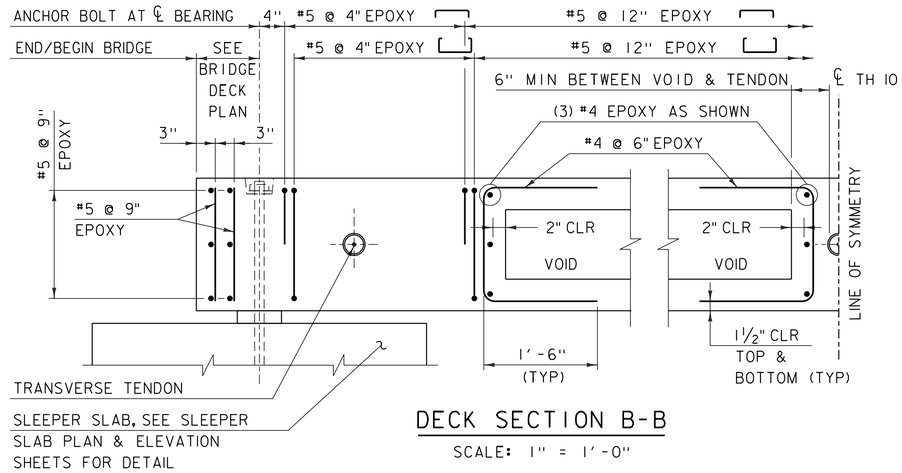
PROJECT NAME:	MONTGOMERY
PROJECT NUMBER:	BHO 1448(27)
FILE NAME: s96j306sup.dgn	PLOT DATE: 21-NOV-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: M. LONGSTREET
DESIGNED BY: C. BURRALL	CHECKED BY: H. SALLS
DECK TYPICAL & PLAN	SHEET 13 OF 30



DECK UNIT TYPICAL PLAN

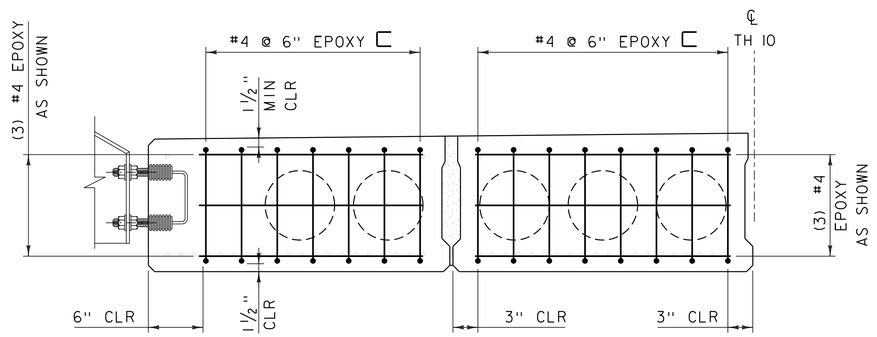
SCALE: ½" = 1'-0"

1. ALL SUPERSTRUCTURE REINFORCING STEEL SHALL BE LEVEL 1 EPOXY COATED.
2. REINFORCING STEEL SHOWN IN THIS PLAN IS TYPICAL FOR UNITS 1-4.



DECK SECTION B-B

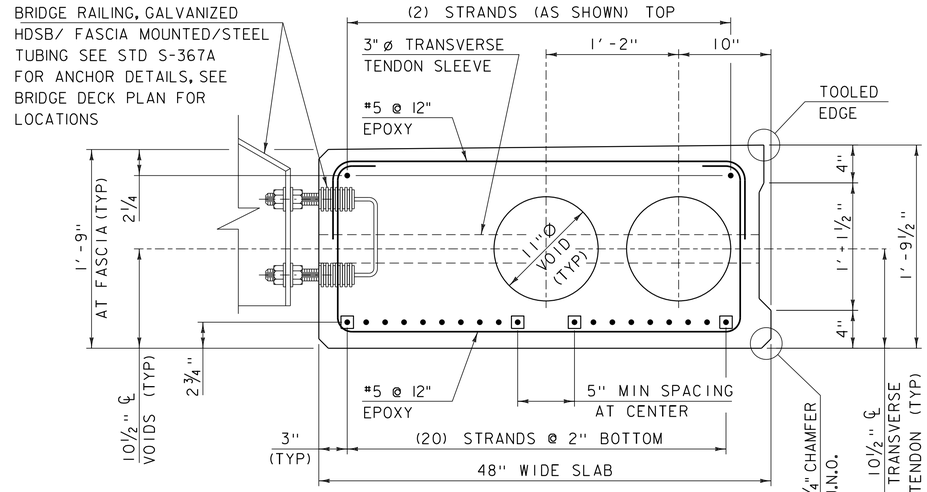
SCALE: 1" = 1'-0"



DECK SECTION A-A

SCALE: 1" = 1'-0"

1. UNIT #1 & #2 DRAWN ABOVE, UNIT #3 & #4 ARE A MIRROR IMAGE.
2. SECTION DRAWN NORMAL TO DECK, NOT AT SKEW, FOR CLARITY.
3.) REINFORCING STEEL SHOWN IN THIS SECTION IS REQUIRED AT EACH OF THE (4) LOCATIONS WHERE END OF VOIDS ARE LOCATED, IN EACH SLAB UNIT,



▣ = DEBONDED STRANDS FOR 48" EACH END
U.N.O. = UNLESS NOTED OTHERWISE

UNIT #1 & #4 SLAB DETAIL

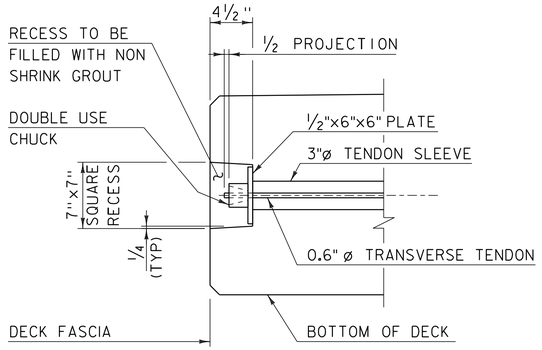
SCALE: 1½" = 1'-0"

▣ = DEBONDED STRANDS FOR 48" EACH END
U.N.O. = UNLESS NOTED OTHERWISE

UNIT #2 & #3 SLAB DETAIL

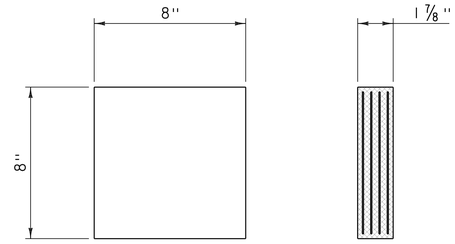
SCALE: 1½" = 1'-0"

PROJECT NAME:	MONTGOMERY
PROJECT NUMBER:	BHO 1448(27)
FILE NAME: s96j306sup.dgn	PLOT DATE: 21-NOV-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: M. LONGSTREET
DESIGNED BY: C. BURRALL	CHECKED BY: H. SALLS
VOIDED SLAB UNIT DETAILS	SHEET 14 OF 30



TRANSVERSE TENDON CHUCK DETAIL

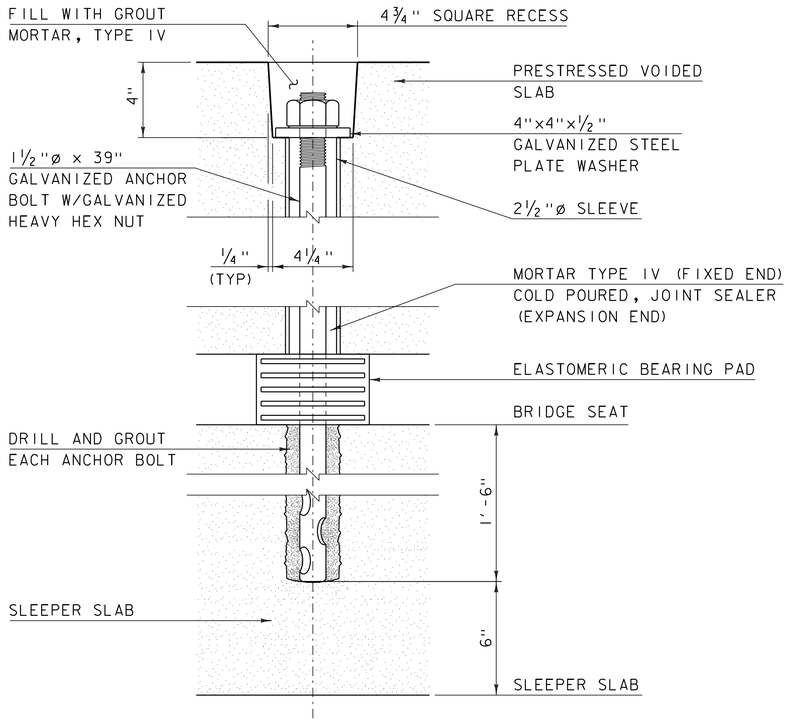
SCALE: 1½" = 1'-0"



ELASTOMERIC BEARING DETAIL

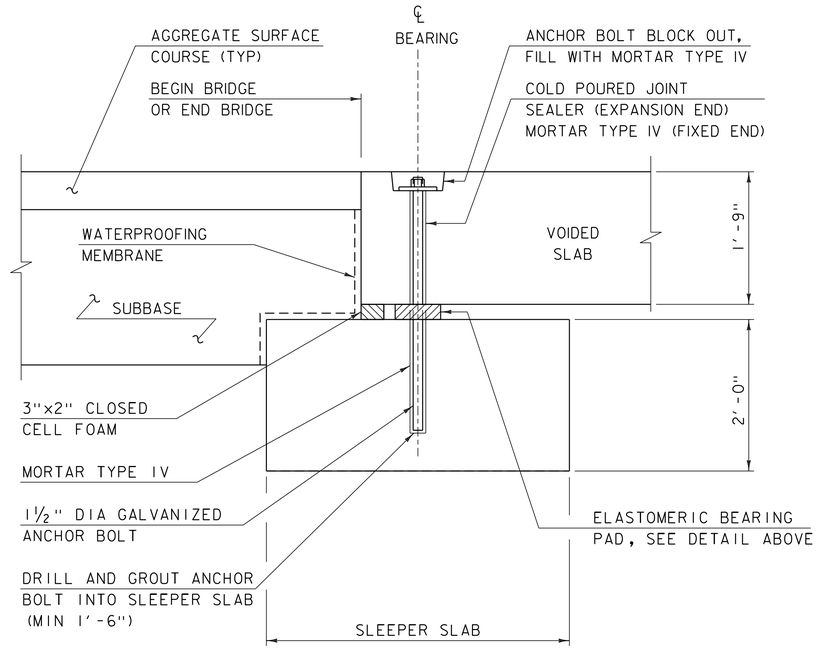
SCALE: 3" = 1'-0"

¼" ELASTOMERIC OUTER LAYER (TOP, BOTTOM, AND SIDES)
(3) ⅜" LAYERS OF INTERIOR ELASTOMERIC ALTERNATING W/
(4) 1/16" STEEL REINFORCING PLATES



ANCHOR BOLT DETAIL

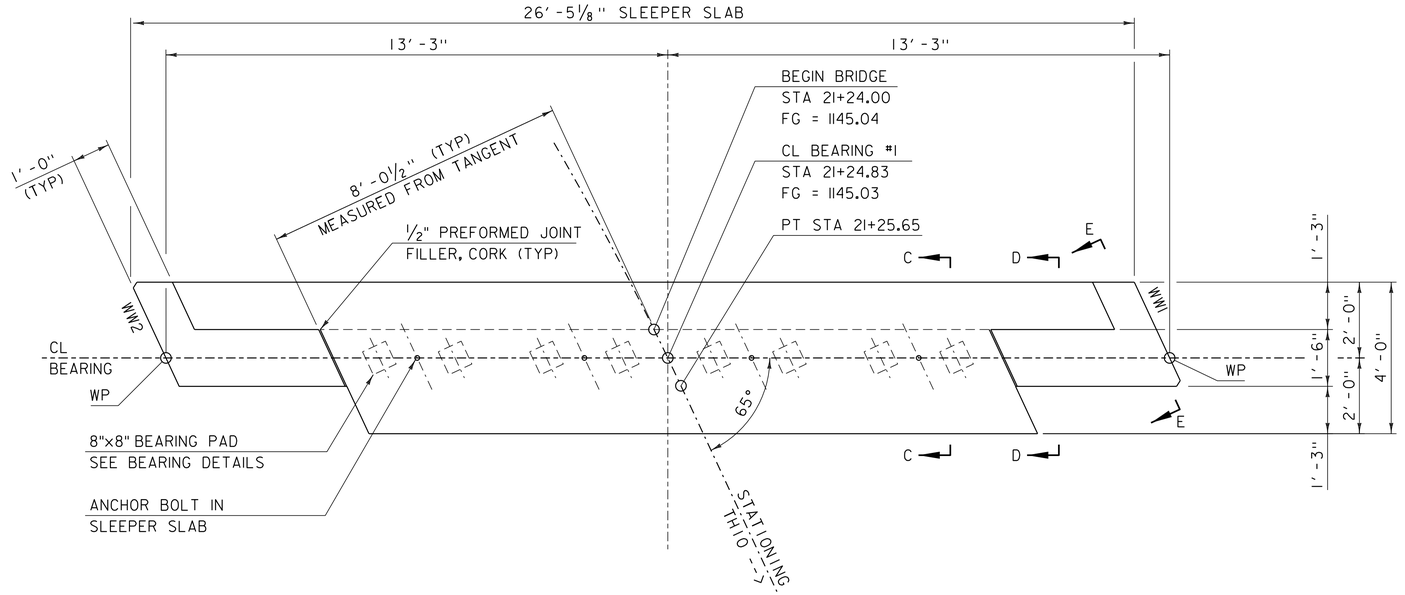
SCALE: 3" = 1'-0"



BEGIN / END BRIDGE DETAIL

SCALE: 1" = 1'-0"

PROJECT NAME:	MONTGOMERY
PROJECT NUMBER:	BHO 1448(27)
FILE NAME: s96j306sup.dgn	PLOT DATE: 21-NOV-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: M. LONGSTREET
DESIGNED BY: C. BURRALL	CHECKED BY: H. SALLS
BEARING & MISCELLANEOUS DETAILS	SHEET 15 OF 30

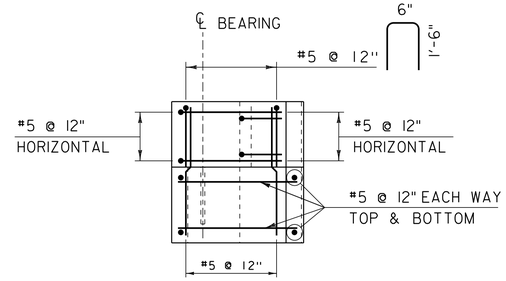


SLEEPER SLAB 1 PLAN

SCALE: ½" = 1'-0"

SLEEPER SLAB 1 ELEVATION

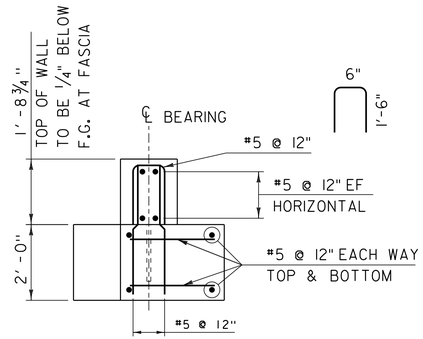
SCALE: ½" = 1'-0"



TYPICAL SECTION E-E

SCALE: ½" = 1'-0"

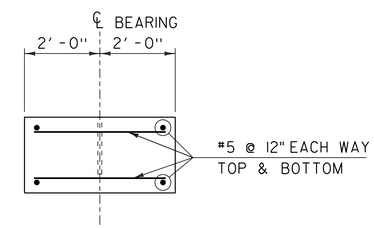
THIS SECTION TYPICAL FOR SLEEPER SLAB 1& 2
THROUGH WING WALLS 1,2,3,4



TYPICAL SECTION D-D

SCALE: ½" = 1'-0"

THIS SECTION TYPICAL FOR SLEEPER SLAB 1& 2
THROUGH WING WALL EARS 1,2,3,4



TYPICAL SECTION C-C

SCALE: ½" = 1'-0"

THIS SECTION TYPICAL FOR SLEEPER SLAB 1& 2
THROUGH THE SLEEPER SLAB.

SEE SHEET 17 FOR SLEEPER SLAB AND WINGWALL NOTES.

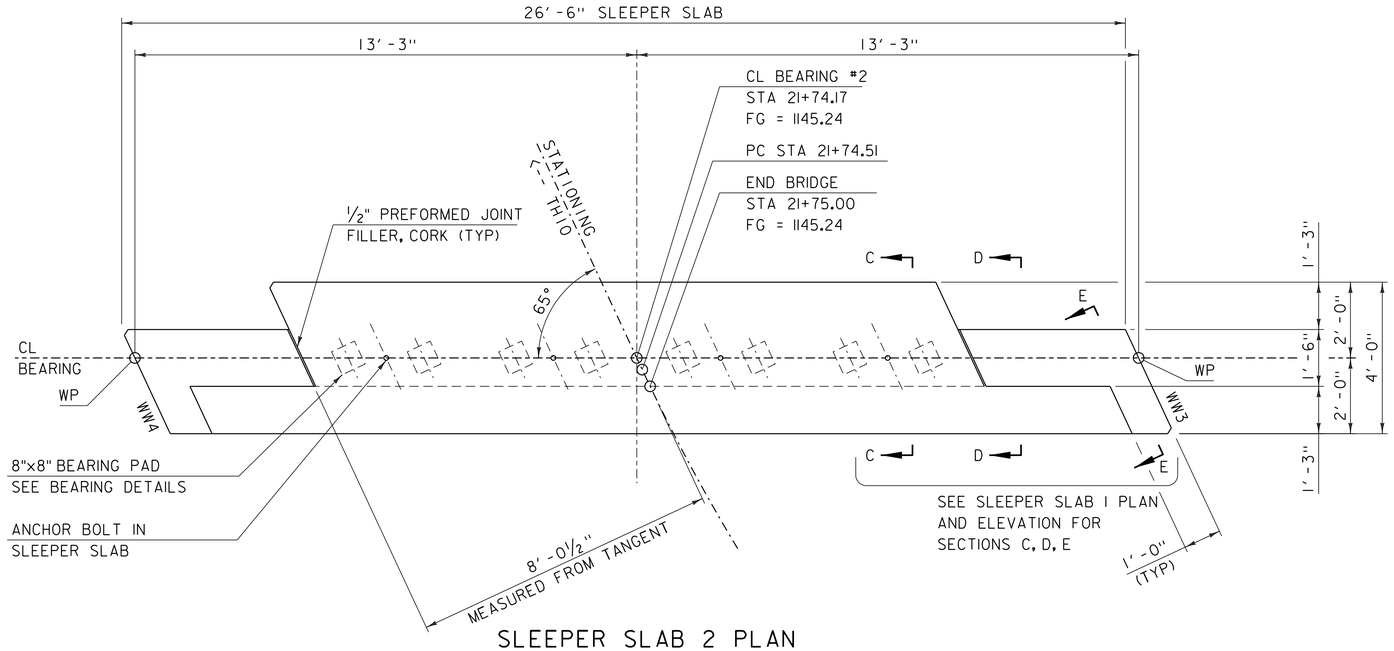
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: MONTGOMERY
PROJECT NUMBER: BHO 1448(27)

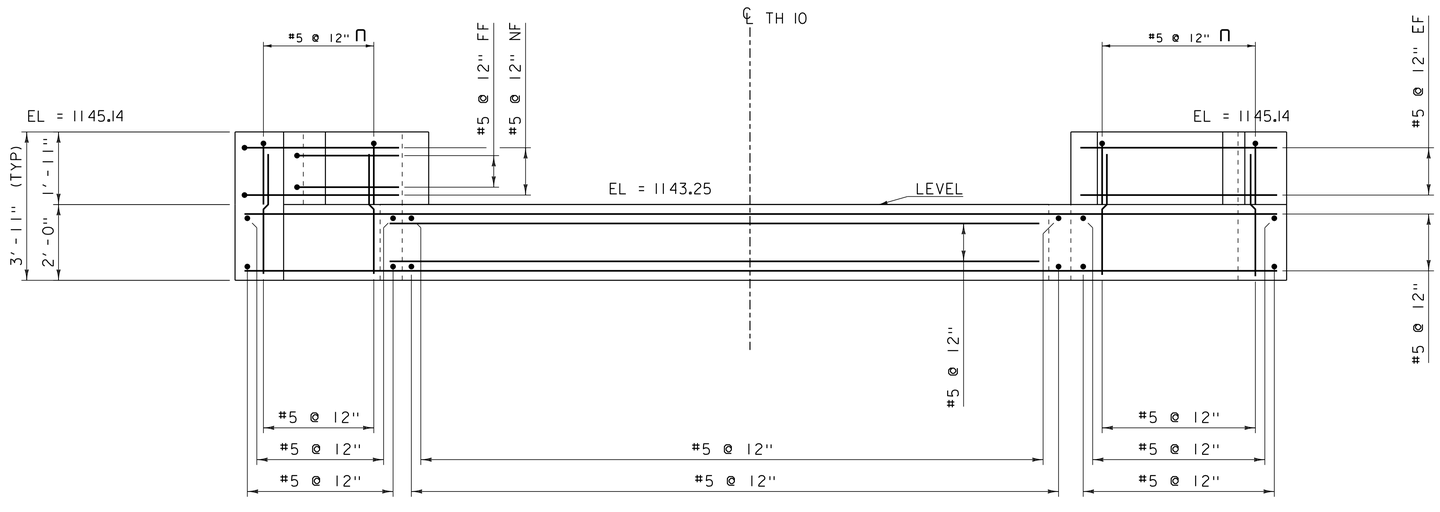
FILE NAME: s96j306sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
SLEEPER SLAB 1 PLAN & ELEVATION

PLOT DATE: 21-NOV-2013
DRAWN BY: M. LONGSTREET
CHECKED BY: J. LACROIX



SLEEPER SLAB 2 PLAN

SCALE: ¼" = 1′-0"



SLEEPER SLAB 2 ELEVATION

SCALE: ¼" = 1′-0"

SLEEPER SLAB AND WINGWALL NOTES:

1. THE SLEEPER SLAB IS TO BE PRECAST CONCRETE UNITS. THE FABRICATOR SHALL DESIGN AND LOCATE LIFTING ANCHOR AS NEEDED.

2. THE WINGWALL (EAR WALLS) SHALL BE PRECAST OR CAST IN PLACE. LIFTING ANCHORS SHALL BE DESIGNED AND LOCATED BY THE FABRICATOR IF REQUIRED. PAYMENT FOR THE WINGWALL (EAR WALLS) SHALL BE INCIDENTAL TO ITEM 540.10 PRECAST CONCRETE STRUCTURE (SLEEPER SLAB).

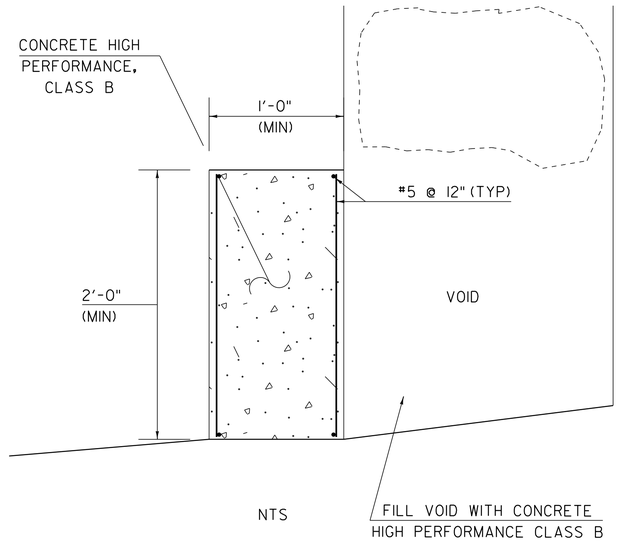
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2′-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: MONTGOMERY
PROJECT NUMBER: BHO 1448(27)

FILE NAME: s96j306sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
SLEEPER SLAB 2 PLAN & ELEVATION

PLOT DATE: 21-NOV-2013
DRAWN BY: M. LONGSTREET
CHECKED BY: J. LACROIX
SHEET 17 OF 30



SUBSTRUCTURE NOTES

THE PICTURES REPRESENT THE EXISTING CONDITION OF THE WINGWALL #2 SUBSTRUCTURE BUT DOES NOT SHOW ALL THE AFFECTED AREAS.

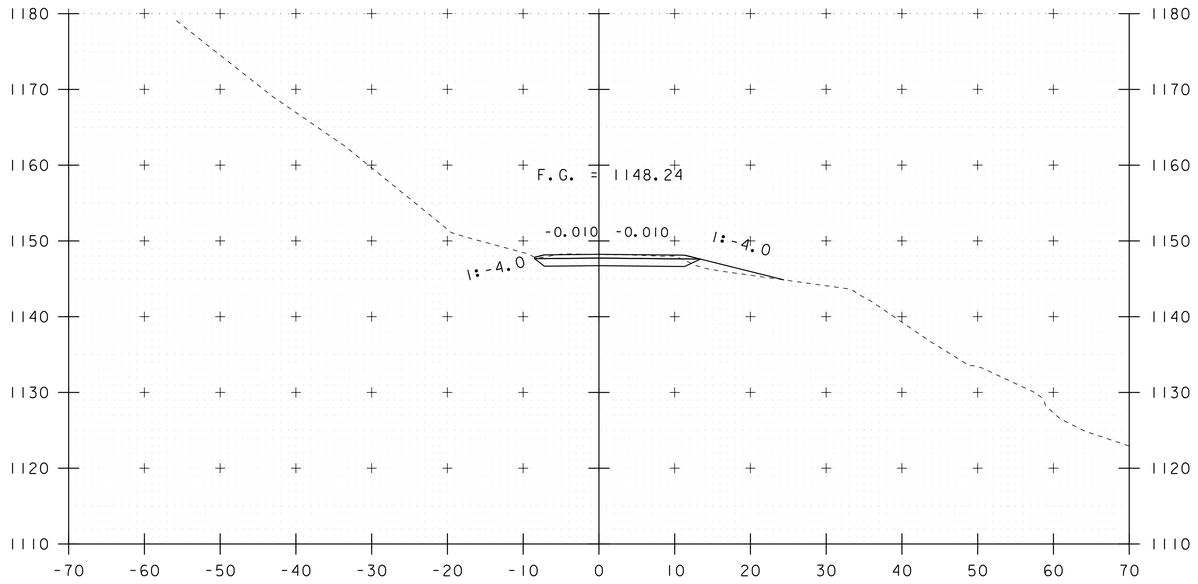
THE INTENTION IS TO FILL THE VOIDS IN WINGWALL #2 WITH CONCRETE. PAYMENT FOR THIS WORK WILL BE MADE NDER ITEM 501.34 CONCRETE, HIGH PERFORMANCE CLASS B AND ITEM 507.11 REINFORCING STEEL, LEVEL 1.

THE DEAD TREE IS TO BE REMOVED BEFORE FORMING AND POURING OF CONCRETE.

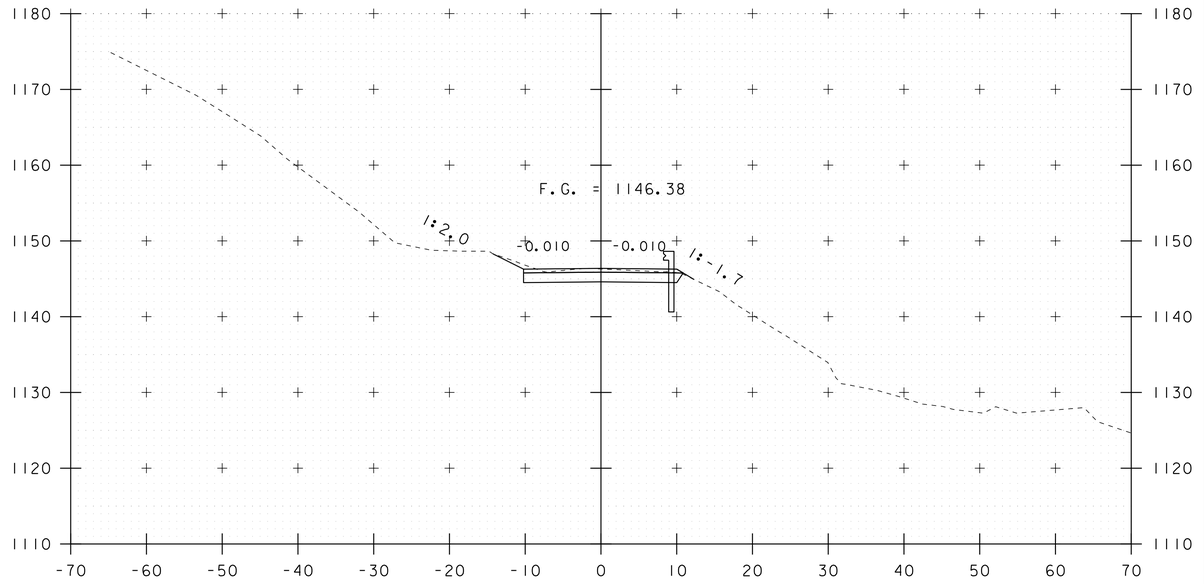
THE ENGINEER WILL DETERMINE THE LEVEL OF REPAIR NEEDED.

EXISTING WINGWALL #2

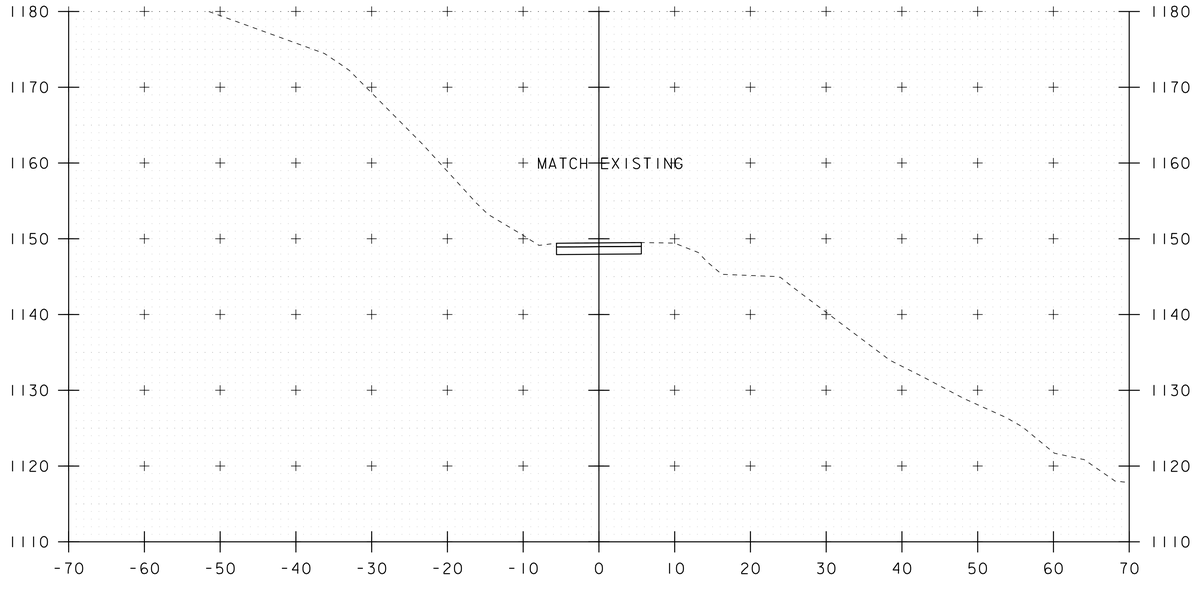
PROJECT NAME:	MONTGOMERY
PROJECT NUMBER:	BHO 1448(27)
FILE NAME: s96j306sub.dgn	PLOT DATE: 11-DEC-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: DZENAN K.
DESIGNED BY: H. SALLS	CHECKED BY: J. LACROIX
EXISTING WINGWALL #2 REPAIR	SHEET 18 OF 30



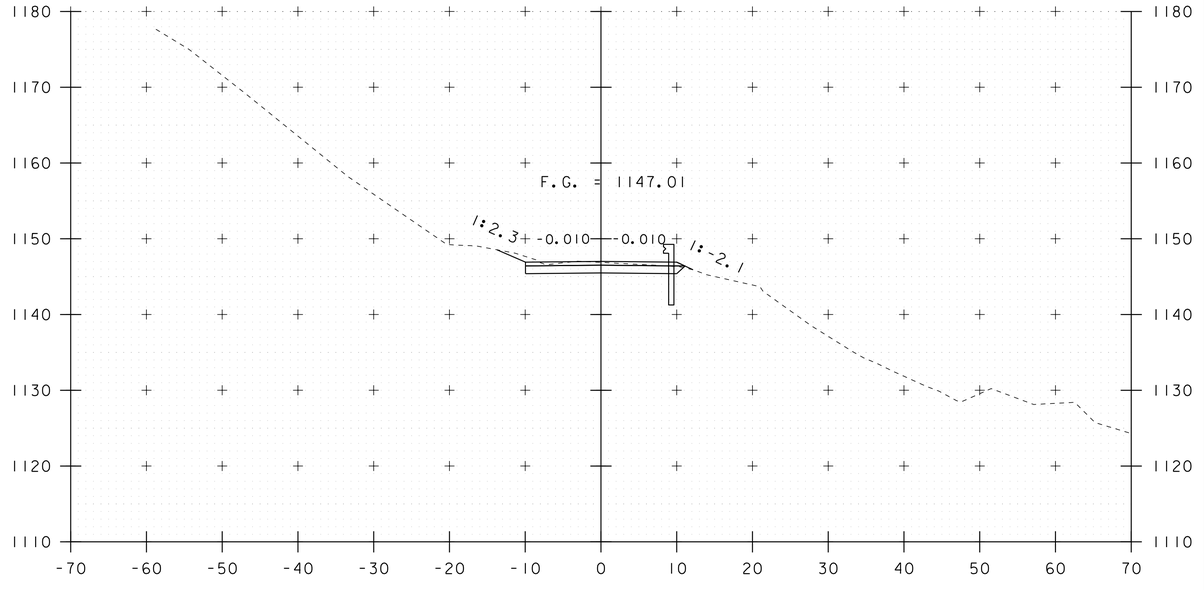
20+50



20+88



20+25 BEGIN APPROACH

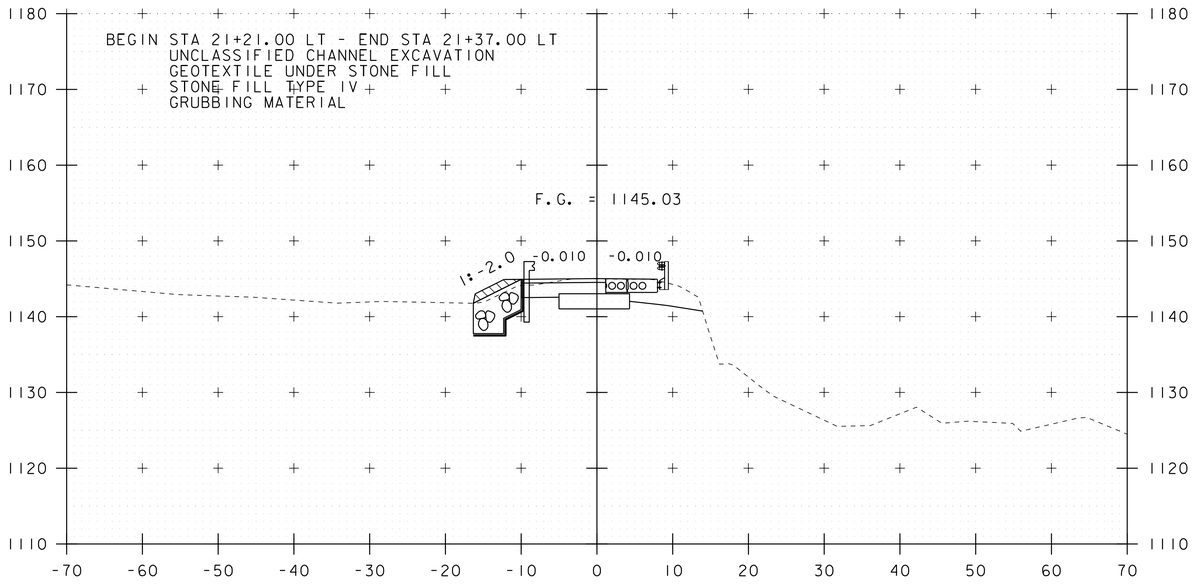


20+75

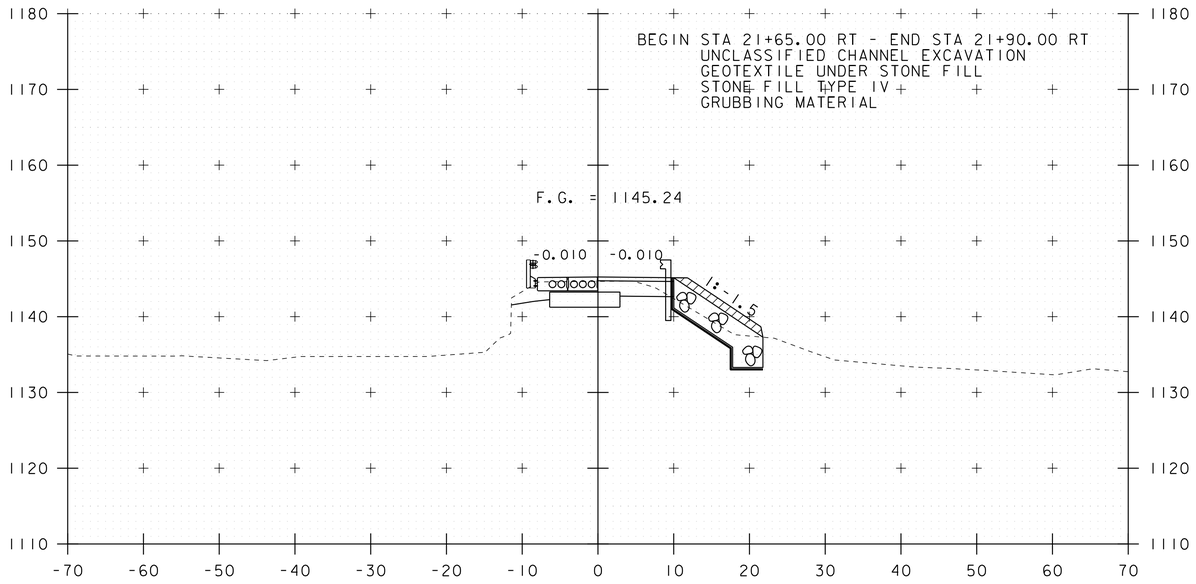
STA. 20+25 TO STA. 20+88

PROJECT NAME:	MONTGOMERY
PROJECT NUMBER:	BHO 1448(27)

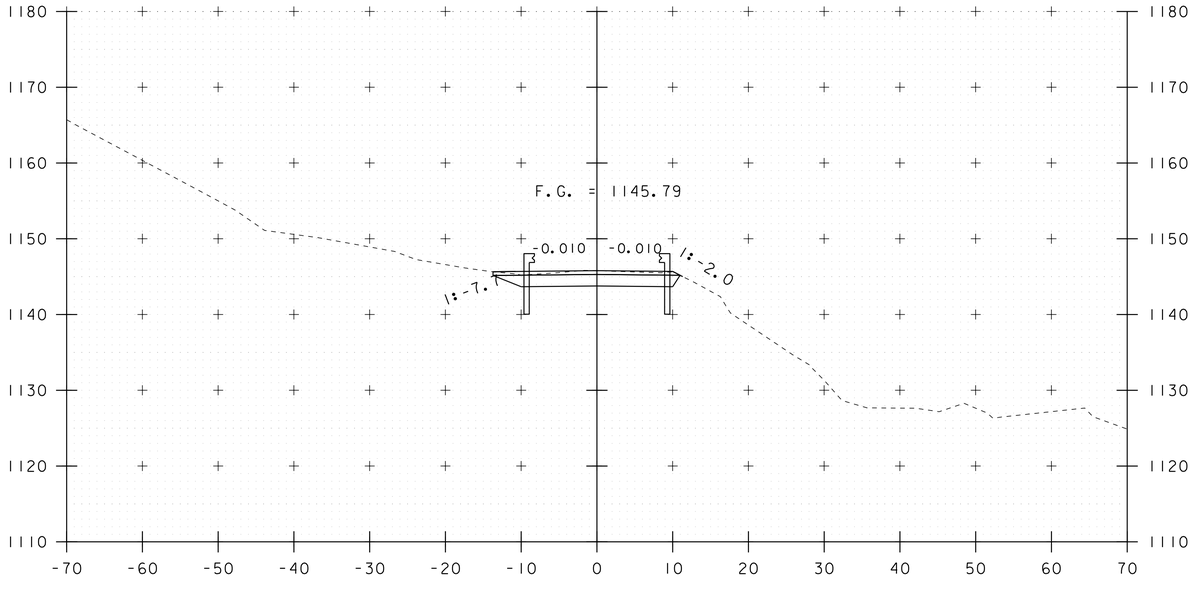
FILE NAME: s96j306xs2.dgn	PLOT DATE: 21-NOV-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: J. LACROIX
MAINLINE CROSS SECTIONS 1	SHEET 19 OF 30



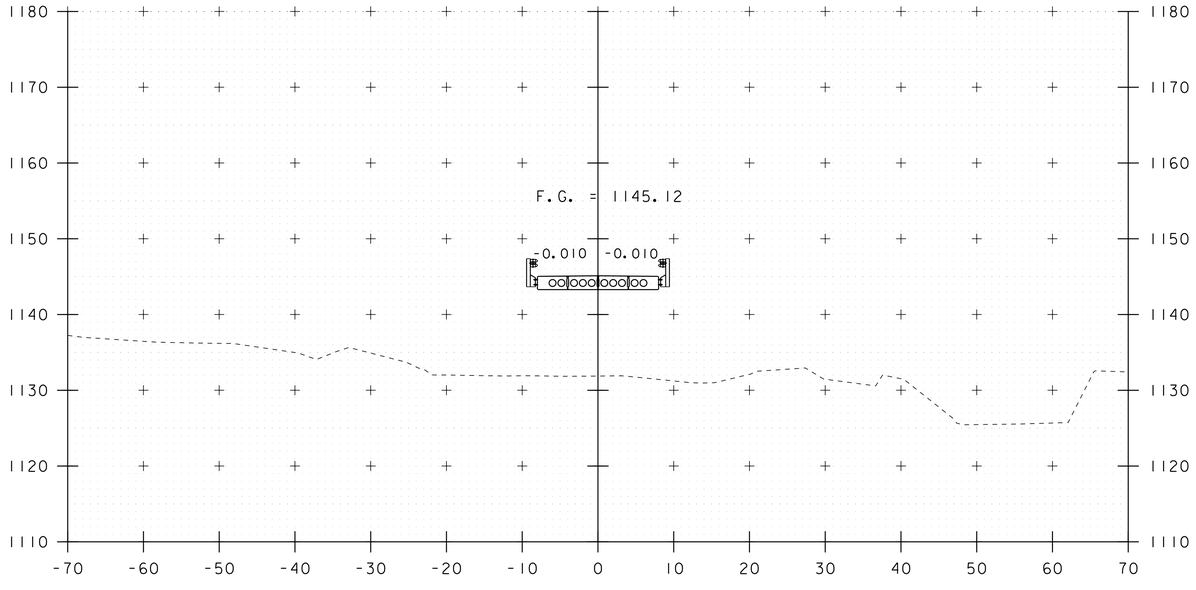
21+25 (BEGIN BRIDGE STA 21+24.00)



21+75 END BRIDGE



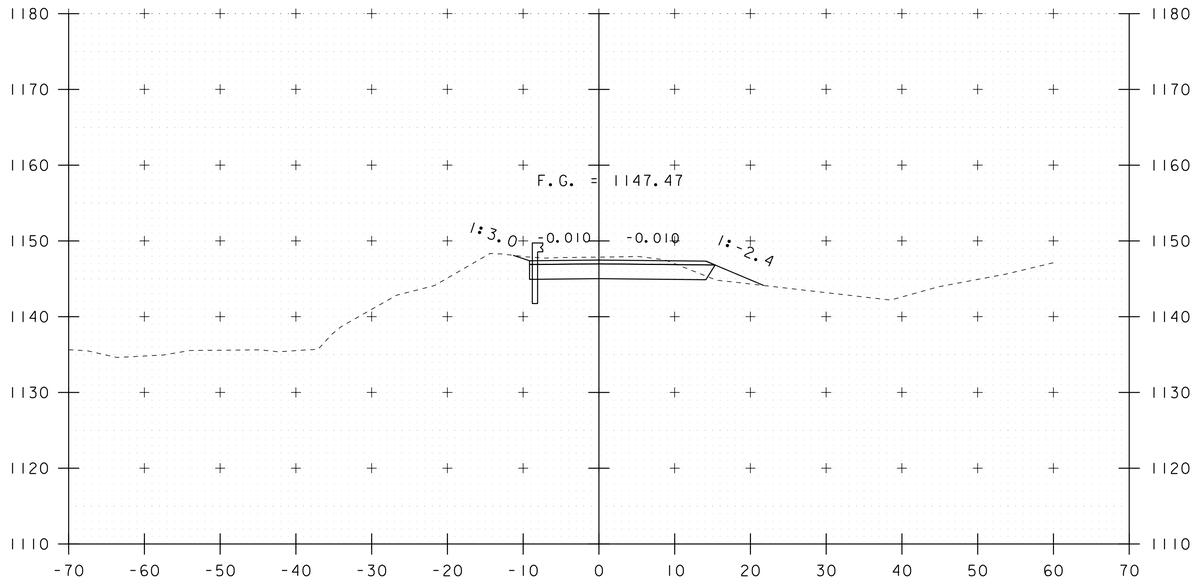
21+00 BEGIN PROJECT



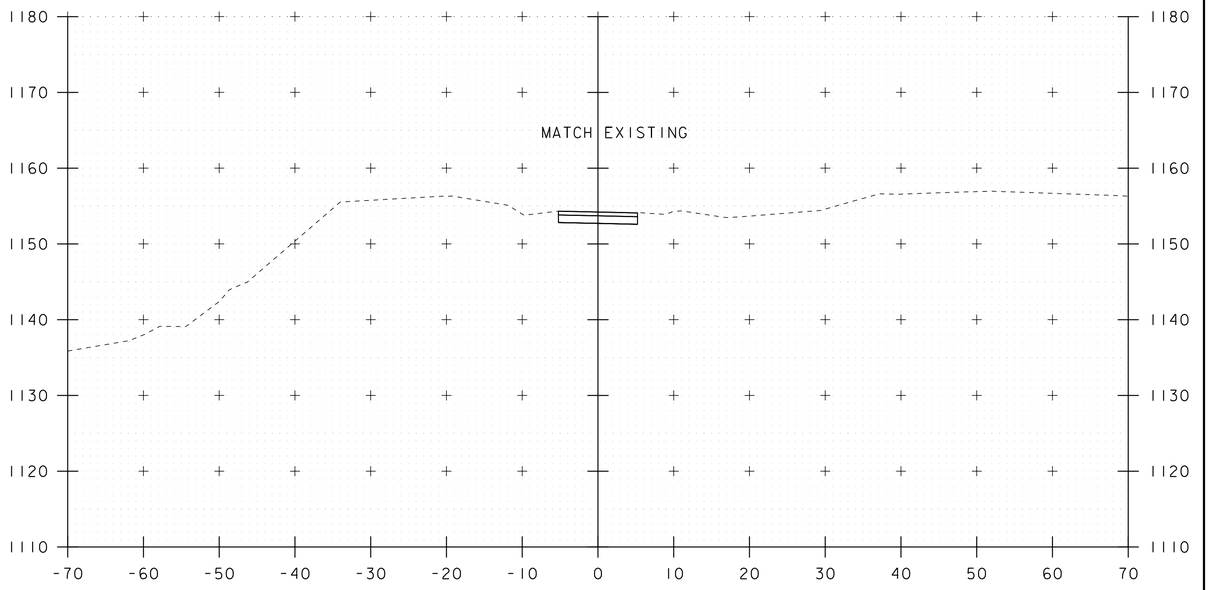
21+50

STA. 21+00 TO STA. 21+75

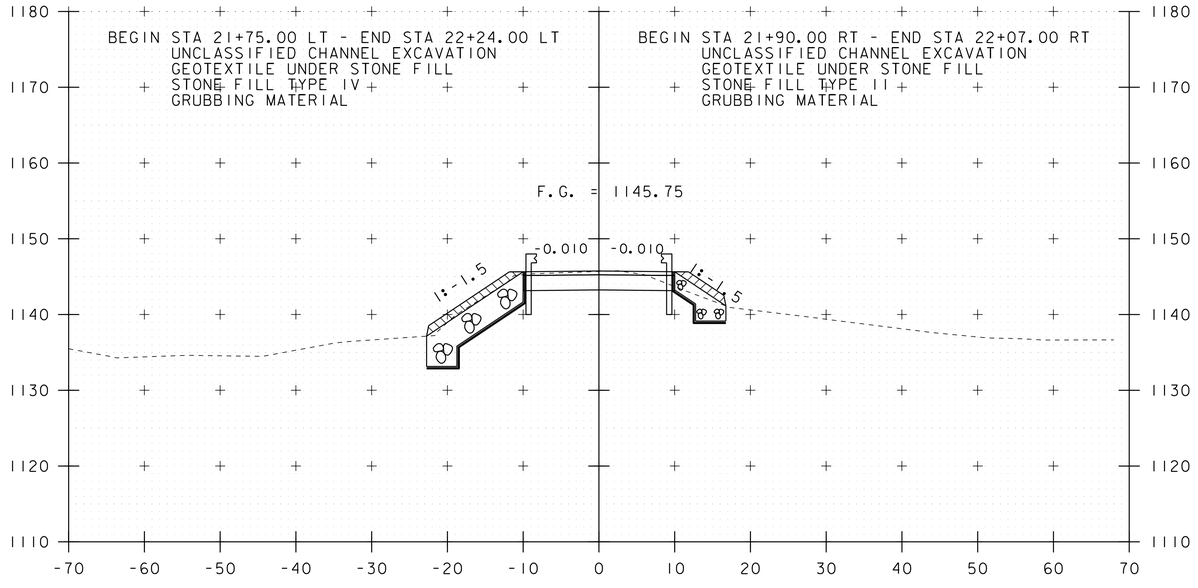
PROJECT NAME:	MONTGOMERY
PROJECT NUMBER:	BHO 1448(27)
FILE NAME: s96j306xs2.dgn	PLOT DATE: 21-NOV-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: J. LACROIX
MAINLINE CROSS SECTIONS 2	SHEET 20 OF 30



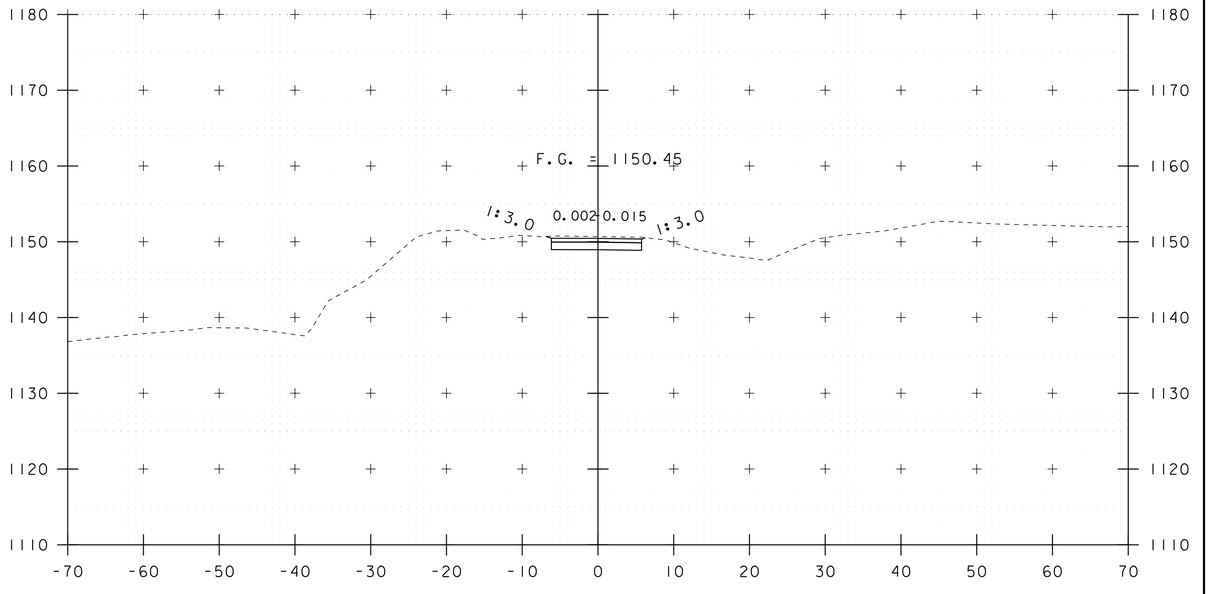
22+25



22+75 END APPROACH



22+00 END PROJECT

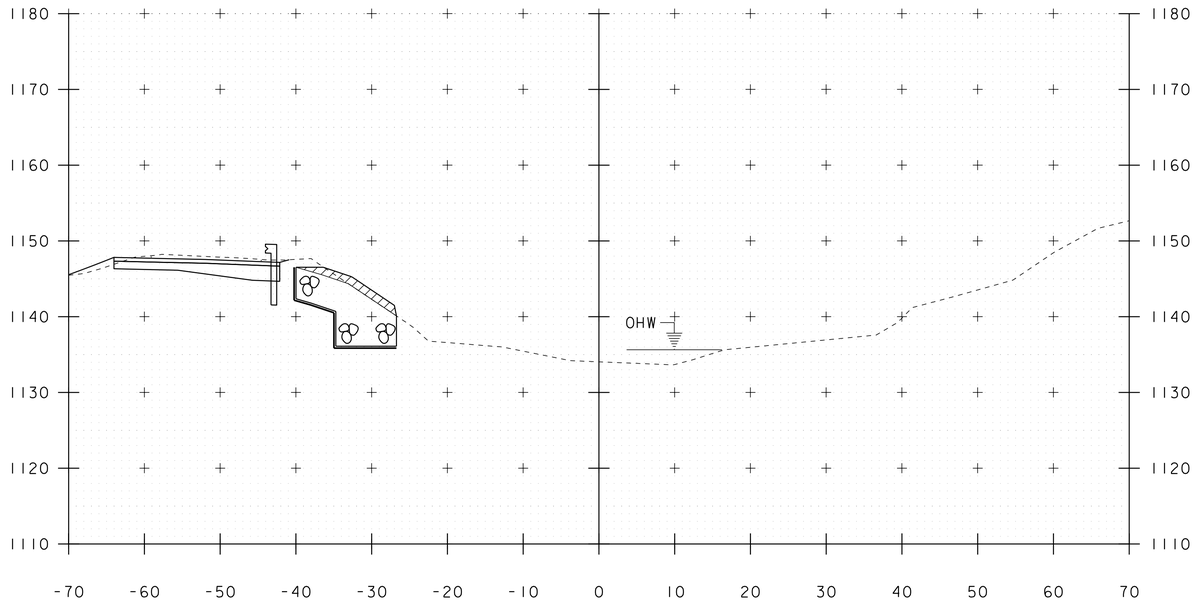


22+50

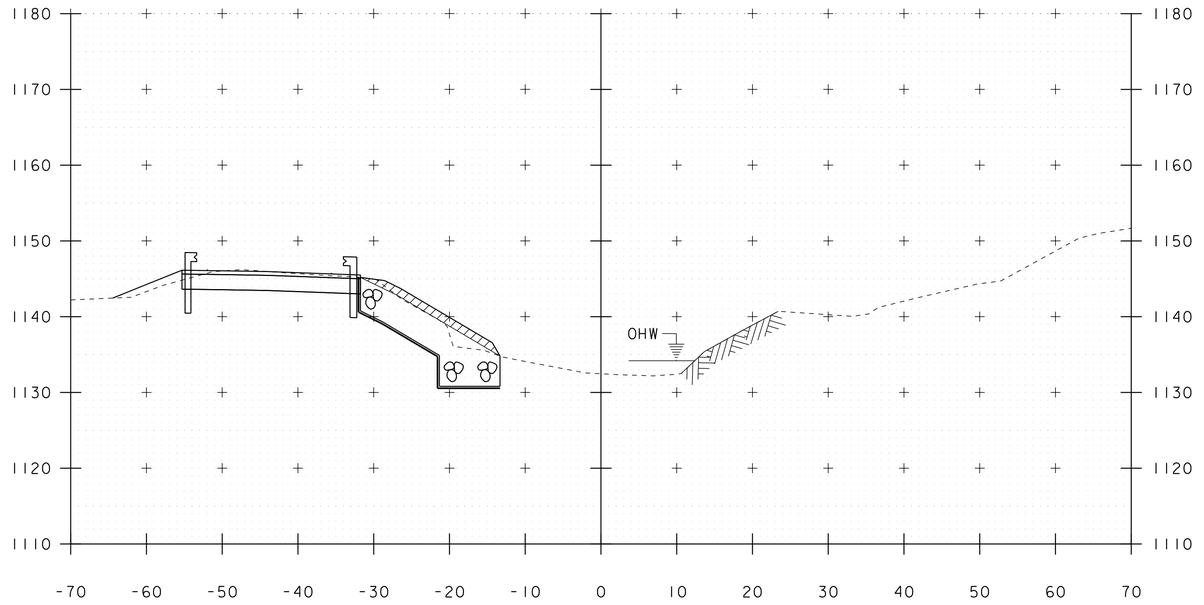
PROJECT NAME:	MONTGOMERY
PROJECT NUMBER:	BHO 1448(27)

FILE NAME: s96j306xs2.dgn	PLOT DATE: 21-NOV-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: J. LACROIX
MAINLINE CROSS SECTIONS 3	SHEET 21 OF 30

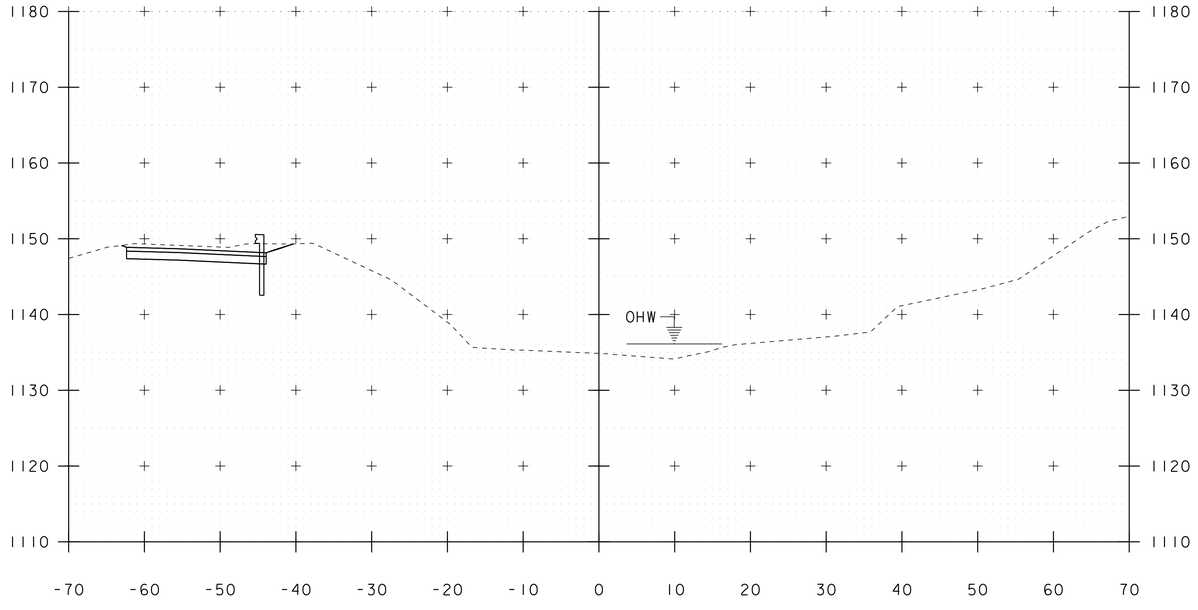
STA. 22+00 TO STA. 22+75



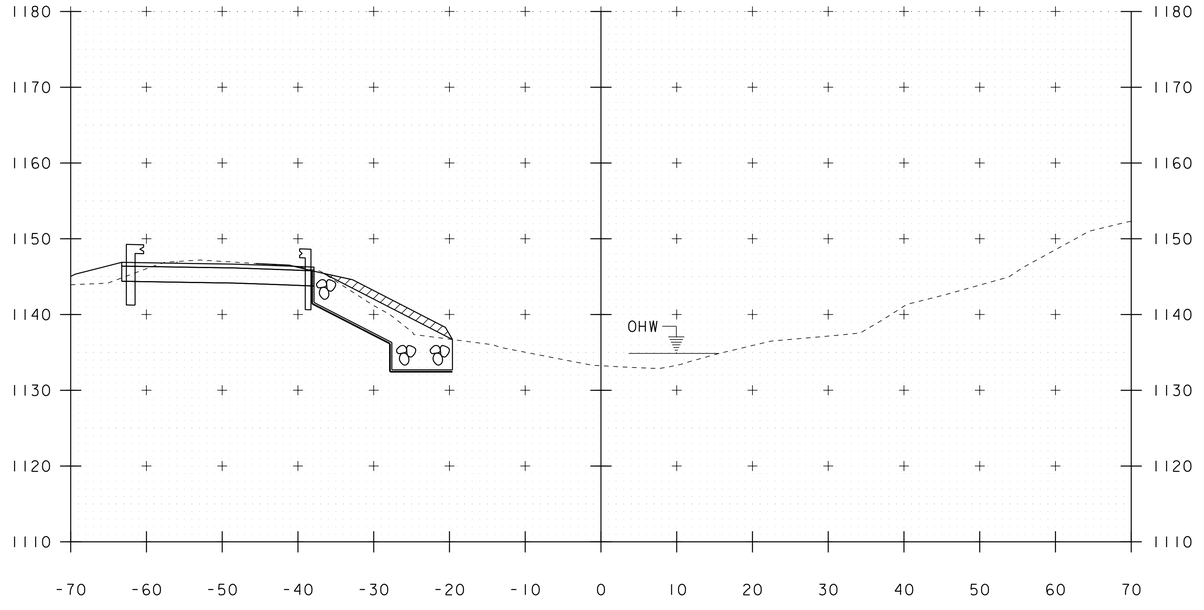
5+50



5+70



5+40



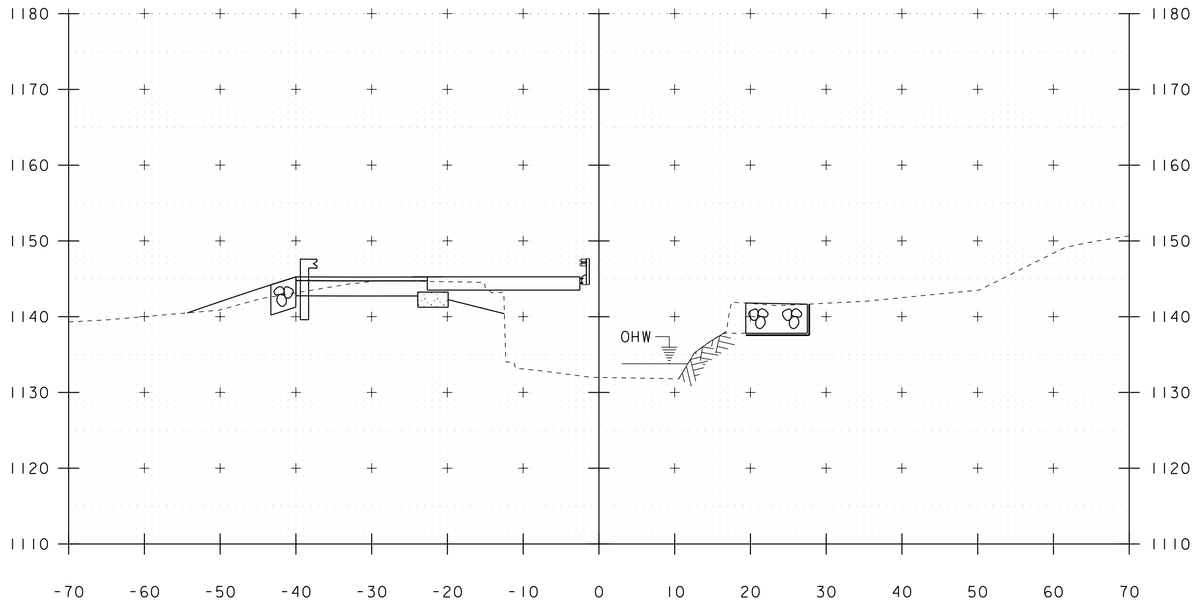
5+60

STA. 5+40 TO STA. 5+70

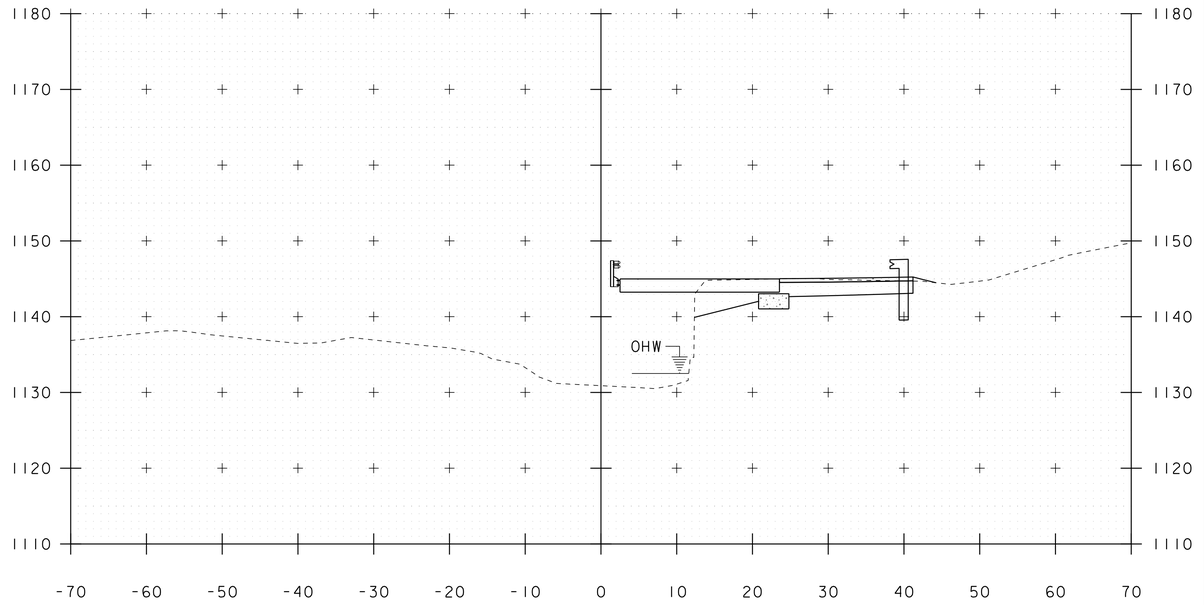
PROJECT NAME: MONTGOMERY
PROJECT NUMBER: BHO 1448(27)

FILE NAME: s96j306xs2.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
CHANNEL LINE CROSS SECTIONS 1

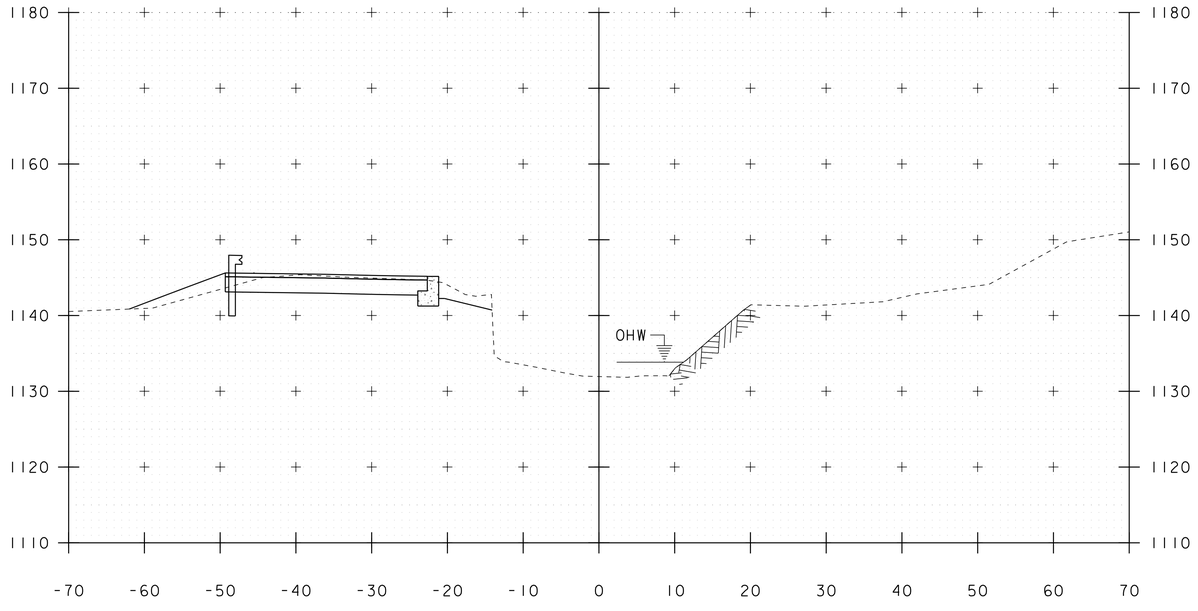
PLOT DATE: 21-NOV-2013
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 22 OF 30



5+90



6+10



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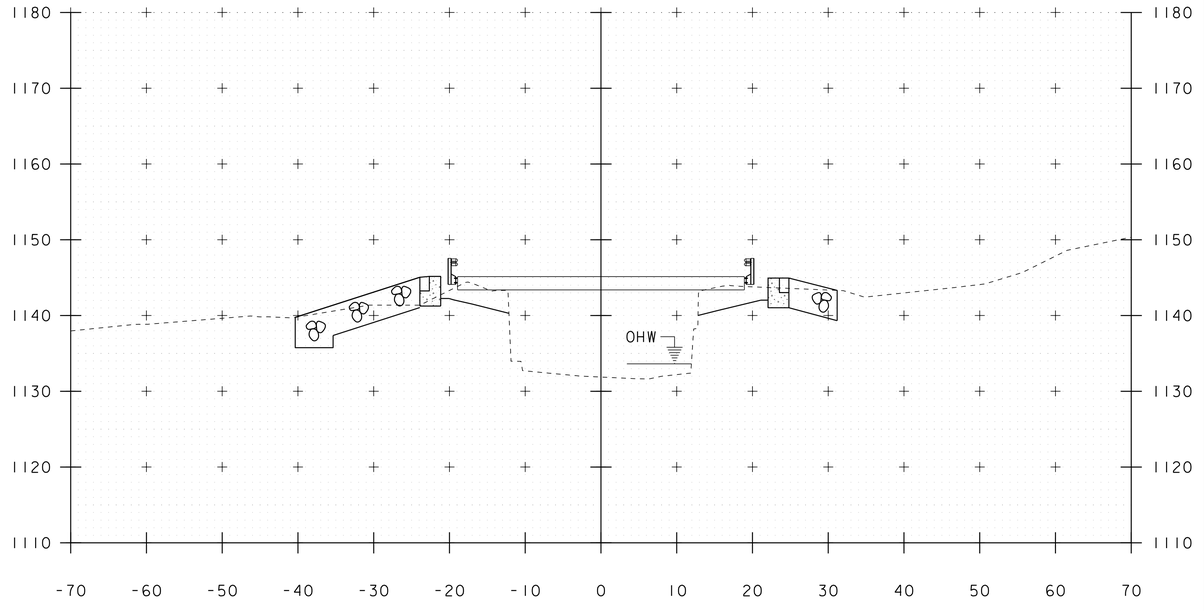


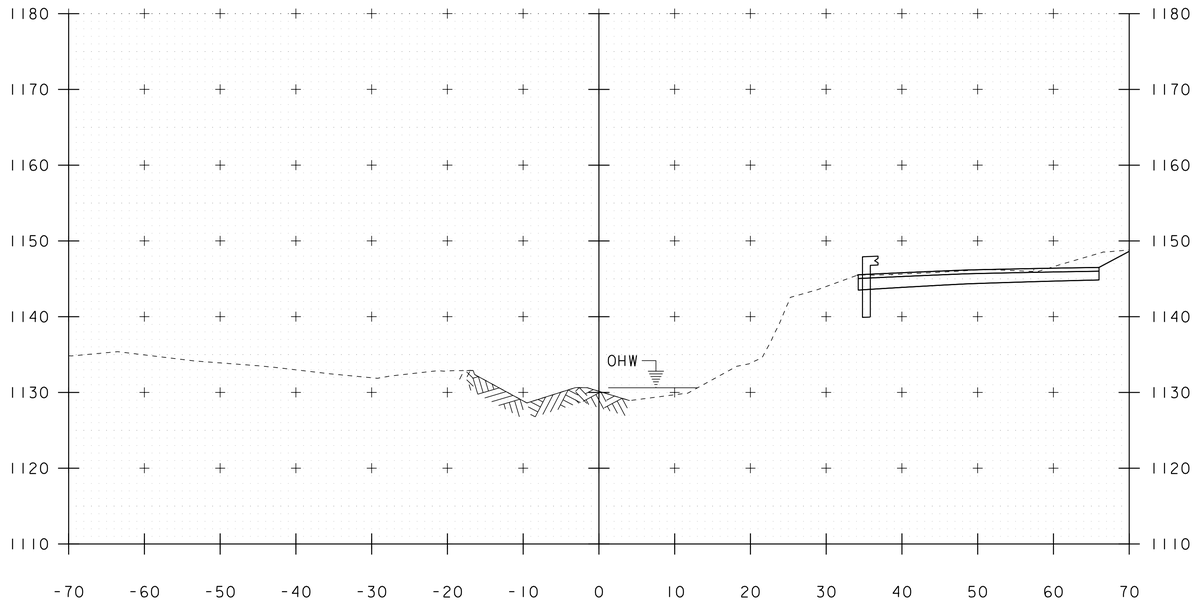
6+00

STA. 5+80 TO STA. 6+10

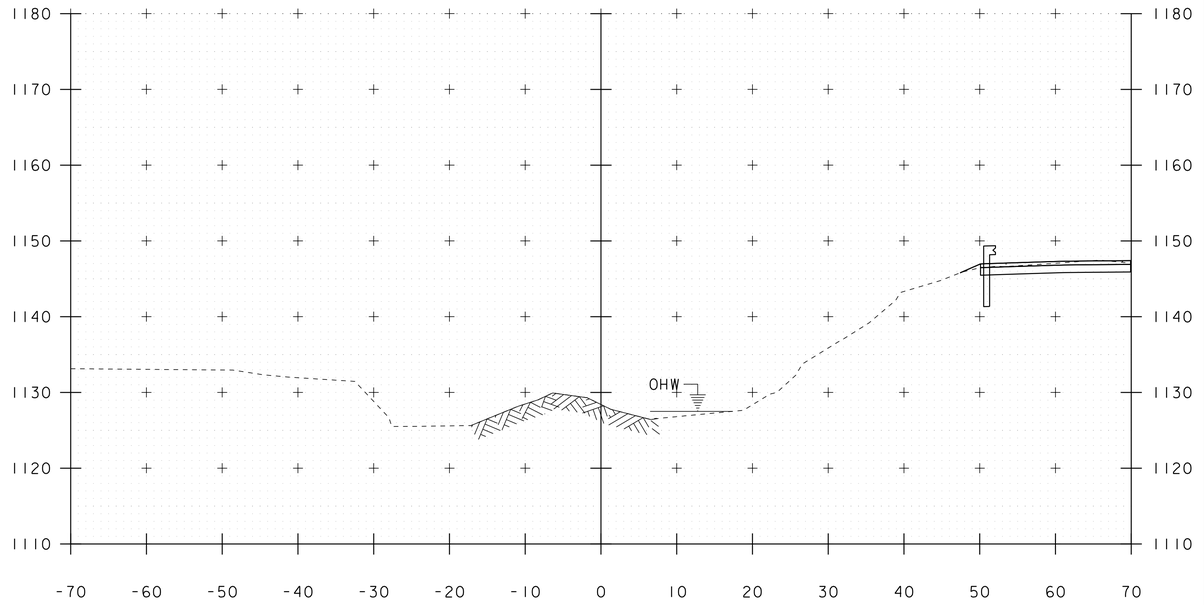
PROJECT NAME: MONTGOMERY
PROJECT NUMBER: BHO 1448(27)

FILE NAME: s96j306xs2.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
CHANNEL LINE CROSS SECTIONS 2

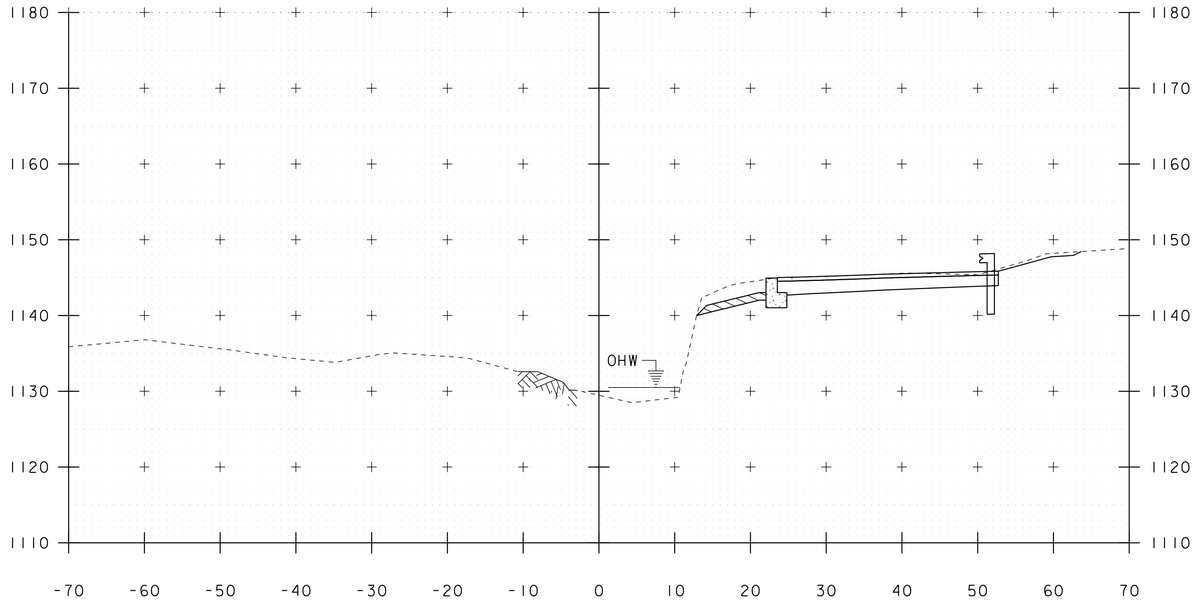
PLOT DATE: 21-NOV-2013
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 23 OF 30



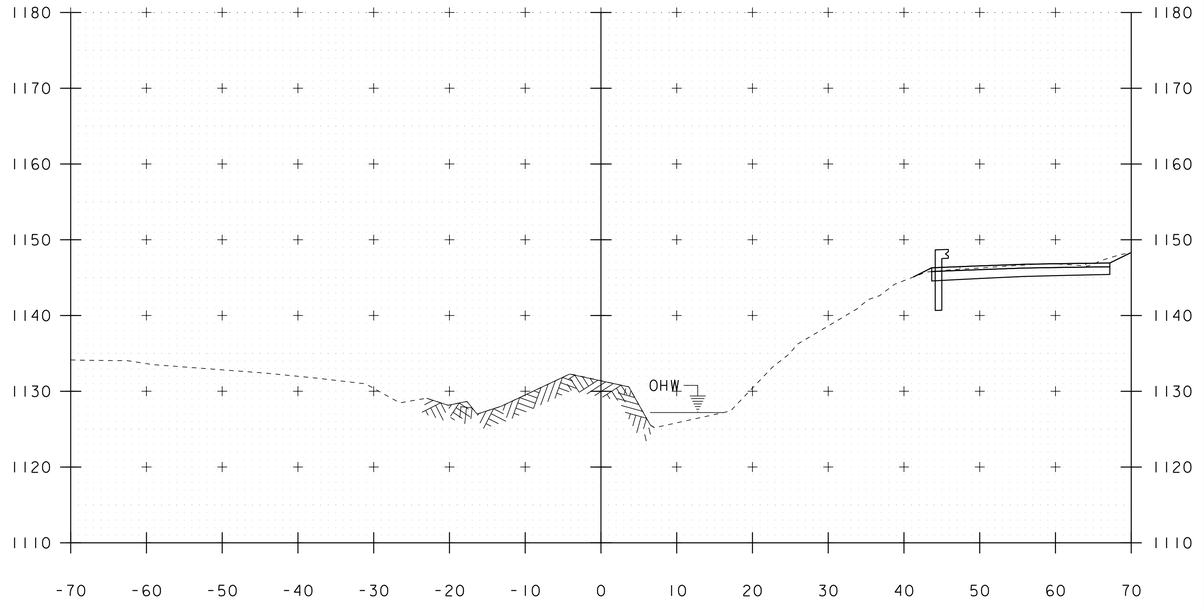
6+30



6+50



6+20



6+40

STA. 6+20 TO STA. 6+50

PROJECT NAME: MONTGOMERY
PROJECT NUMBER: BHO 1448(27)

FILE NAME: s96j306xs2.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
CHANNEL LINE CROSS SECTIONS 3

PLOT DATE: 21-NOV-2013
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 24 OF 30

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT IS LOCATED ON BLACK FALLS ROAD EXTENSION (TH 10), APPROXIMATELY 0.3 MILES FROM THE INTERSECTION OF BLACK FALLS ROAD EXTENSION (TH 10) AND BLACK FALLS ROAD (TH 6) OVER THE BLACK FALLS BROOK. IT INVOLVES THE REPLACEMENT OF THE EXISTING SUPERSTRUCTURE WITH MINIMAL APPROACH ROADWAY AND CHANNEL WORK. THE BRIDGE IS BEING REPLACED WITH A 51 FOOT PRECAST VOIDED SLAB BRIDGE. ROAD WILL BE CLOSED TO TRAFFIC. THE TOTAL LENGTH OF PROJECT IS 100 FEET.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.15 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY
THE TOPOGRAPHY OF THE AREA IS A SADDLE THAT IS WOODED AREA AND SOME RESIDENTIAL AREAS. BLACK FALLS ROAD EXTENSION (TH 10) IS WITHIN THE PROJECT SITE.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES
BLACK FALLS BROOK IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE BROOK IS CLASSIFIED AS SHALLOW. THE STREAM BED CONSISTS OF COBBLES, GRAVEL AND LEDGE.

1.2.3 VEGETATION
THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE BRIDGE. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE IV AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS
ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF FRANKLIN, VERMONT. SOILS ON THE PROJECT SITE ARE:
STOWE STONY, 25% TO 60% SLOPES, “K FACTOR” = 0.17
PERU EXTREMELY STONY SANDY LOAM, 3% TO 15% SLOPES, “K FACTOR” = 0.20.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:
0.0-0.23 = LOW EROSION POTENTIAL
0.24-0.36 = MODERATE EROSION POTENTIAL
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS
CRITICAL HABITATS: NO
HISTORICAL OR ARCHAELOGICAL AREAS: YES, ARCHAELOGICAL ON SOUTH WEST AND EAST SIDES OF PROJECT.
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: BLACK FALLS BROOK
WETLANDS: NO

1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES
SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES.

1.4.2 LIMIT DISTURBANCE AREA
PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION
TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR’S PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

1.4.4 INSTALL SEDIMENT BARRIERS
SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

SILT FENCE AND TURBIDITY CURTAIN SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

1.4.5 DIVERT UPLAND RUNOFF
DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

THE PROJECT AREA IS AT THE HIGH POINT. THERFORE IT IS ANTICPIATED THAT DIVERSION MEASURES WILL NOT BE NECESSARY.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF
CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSIVE POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

1.4.7 CONSTRUCT PERMANENT CONTROLS
PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

NO PERMANENT STORMWATER CONTROLS ANTICIPATED FOR THIS PROJECT.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION
ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

NO EROSION CONTROL MATTING ANTICIPATED FOR THIS PROJECT.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.9 WINTER STABILIZATION
VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

1.4.10 STABILIZE SOIL AT FINAL GRADE
EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

1.4.11 DE-WATERING ACTIVITIES
DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

1.4.12 INSPECT YOUR SITE
INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES
IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SPECIFICATION 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

PROJECT NAME: MONTGOMERY
PROJECT NUMBER: BHO 1448(27)

FILE NAME: s96j306erodet.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
EPSC NARRATIVE

PLOT DATE: 21-NOV-2013
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 25 OF 30

BLACK FALLS BROOK

EXISTING TOWN R.O.W

TH 10 DEAD END RD

MED. YELLOW BIRCH TIE

SM. YELLOW BIRCH TIE

HVCTRL 8

TIE MED. APPLE

END APPROACH
STA 22+75

BEGIN BRIDGE
STA 21+24.00

BEGIN PROJECT
STA 21+00

SM. YELLOW BIRCH TREES

TIE

HVCTR 7

HVCTRL 111

MHO

21+00

22+00

END PROJECT
STA 22+00

IRON ROD

END BRIDGE
STA 21+75.00

BEGIN APPROACH
STA 20+25

HVCTR 9

HVCTRL 110

20+00

TH 10
TO MONTGOMERY

OLD STONE FOUNDATION

MED. SPRUCE TREES

BUILDING

N

VT STATE PLANE GRID

EXISTING BRIDGE DATA
TIMBER DECK ON ROLLED BEAMS BUILT IN 1919
OVERALL LENGTH = 28'-6"
WATERWAY AREA = 119 SF

SyE - STOWE STONY SOILS WITH 25% TO 60% SLOPES "K FACTOR" = 0.17	PrC - PERU EXTREMELY STONY SANDY LOAM WITH 3% TO 15% SLOPES "K FACTOR" = 0.20

NOTE: SEE "EPSC DETAILS 1" &
CONVENTIONAL SYMBOLOGY-LEGEND

SCALE 1" = 10'-0"
10 0 10

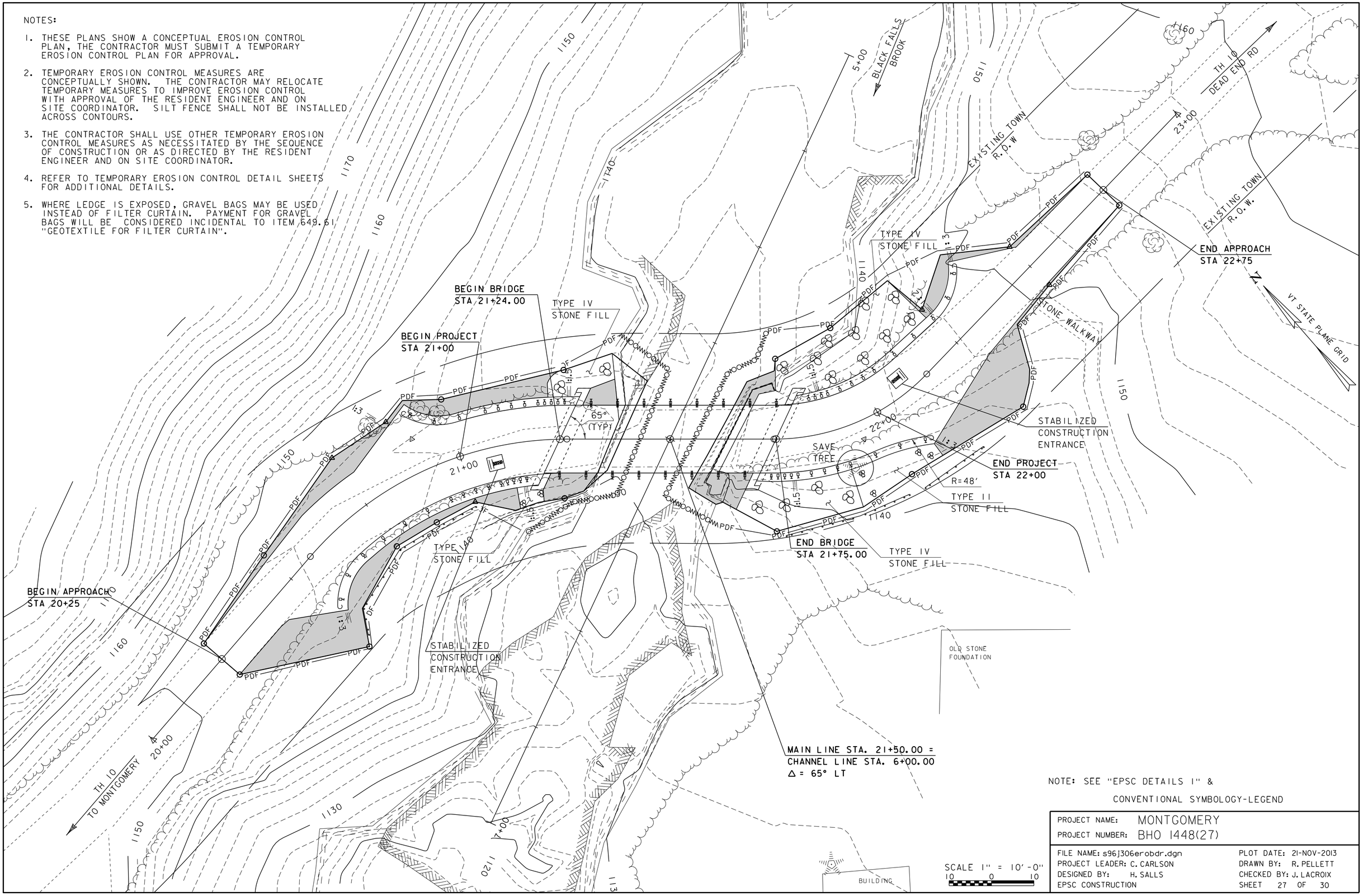
PROJECT NAME: MONTGOMERY
PROJECT NUMBER: BHO 1448(27)

FILE NAME: s96j306erobdr.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
EPSC EXISTING

PLOT DATE: 21-NOV-2013
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 26 OF 30

NOTES:

1. THESE PLANS SHOW A CONCEPTUAL EROSION CONTROL PLAN, THE CONTRACTOR MUST SUBMIT A TEMPORARY EROSION CONTROL PLAN FOR APPROVAL.
2. TEMPORARY EROSION CONTROL MEASURES ARE CONCEPTUALLY SHOWN. THE CONTRACTOR MAY RELOCATE TEMPORARY MEASURES TO IMPROVE EROSION CONTROL WITH APPROVAL OF THE RESIDENT ENGINEER AND ON SITE COORDINATOR. SILT FENCE SHALL NOT BE INSTALLED ACROSS CONTOURS.
3. THE CONTRACTOR SHALL USE OTHER TEMPORARY EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION OR AS DIRECTED BY THE RESIDENT ENGINEER AND ON SITE COORDINATOR.
4. REFER TO TEMPORARY EROSION CONTROL DETAIL SHEETS FOR ADDITIONAL DETAILS.
5. WHERE LEDGE IS EXPOSED, GRAVEL BAGS MAY BE USED INSTEAD OF FILTER CURTAIN. PAYMENT FOR GRAVEL BAGS WILL BE CONSIDERED INCIDENTAL TO ITEM 649.61 "GEOTEXTILE FOR FILTER CURTAIN".



NOTE: SEE "EPSC DETAILS 1" &
CONVENTIONAL SYMBOLOGY-LEGEND

SCALE 1" = 10'-0"
10 0 10

PROJECT NAME: MONTGOMERY	
PROJECT NUMBER: BHO 1448(27)	
FILE NAME: s96j306erobdr.dgn	PLOT DATE: 21-NOV-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: J. LACROIX
EPSC CONSTRUCTION	SHEET 27 OF 30

BEGIN APPROACH
STA 20+25

BEGIN BRIDGE
STA 21+24.00

BEGIN PROJECT
STA 21+00

END APPROACH
STA 22+75

END PROJECT
STA 22+00

END BRIDGE
STA 21+75.00

TYPE IV
STONE FILL

TYPE IA
STONE FILL

TYPE II
STONE FILL

TYPE IV
STONE FILL

BLACK FALLS
BROOK

EXISTING TOWN
R.O.W.

EXISTING TOWN
R.O.W.

TH 10
DEAD END RD

TH 10
TO MONTGOMERY

STONE WALKWAY

SAVE
TREE

R=48'

65°
(TYP)

OLD STONE
FOUNDATION

BUILDING

VT STATE PLANE GRID

SCALE 1" = 10'-0"
10 0 10

NOTE: SEE "EPSC DETAILS 1" &
CONVENTIONAL SYMBOLOGY-LEGEND

PROJECT NAME:	MONTGOMERY
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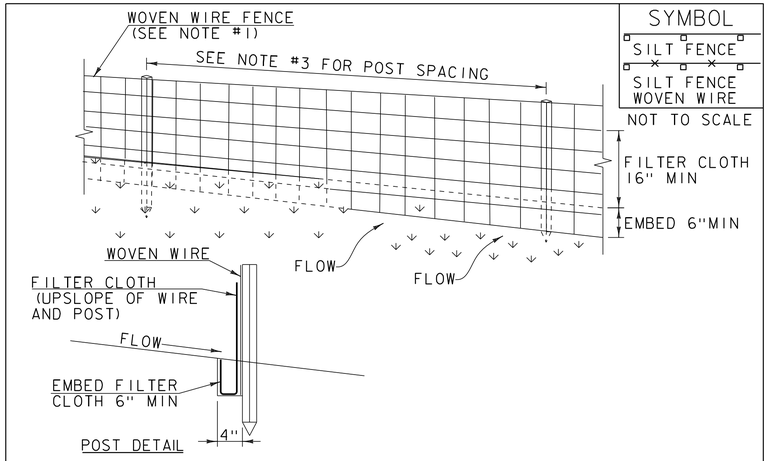
FILE NAME: s96j306erobdr.dgn		PLOT DATE:	21-NOV-2013
PROJECT LEADER:	C. CARLSON	DRAWN BY:	R. PELLETT
DESIGNED BY:	H. SALLS	CHECKED BY:	J. LACROIX
EPSC FINAL		SHEET	28 OF 30



SYMBOL

SILT FENCE

SILT FENCE WOVEN WIRE

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

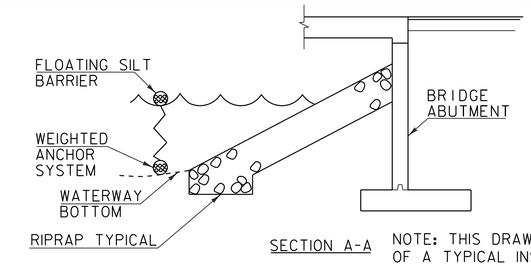
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SILT FENCE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

REVISIONS	
MARCH 21, 2008	WHF
DECEMBER 11, 2008	WHF
JANUARY 13, 2009	WHF

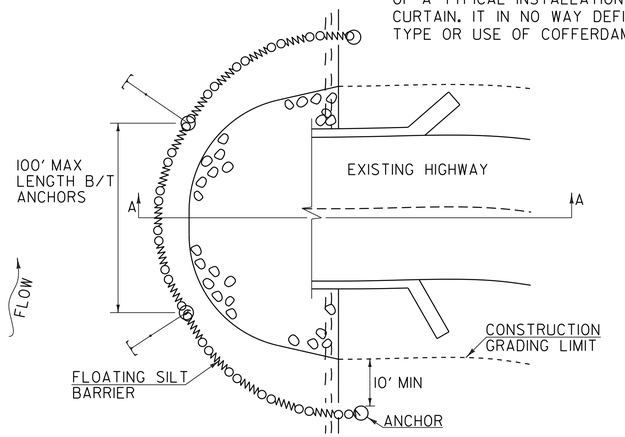


SYMBOL

NOT TO SCALE

SECTION A-A

NOTE: THIS DRAWING IS A DEPICTION OF A TYPICAL INSTALLATION OF FILTER CURTAIN. IT IN NO WAY DEFINES THE TYPE OR USE OF COFFERDAM IF USED.



CONSTRUCTION SPECIFICATIONS

1. FILTER CURTAIN SHALL NOT BE PLACED ACROSS A FLOWING WATERWAY, OR IN A WATERWAY WITH STREAM VELOCITIES GREATER THAN 1.5 FEET/SECOND.
2. MAXIMUM 100' LENGTH BETWEEN ANCHORS.
3. LAST SECTION SHALL TERMINATE A MINIMUM OF 10' BEYOND LIMIT OF DISTURBANCE.
4. THE WEIGHTED ANCHOR SYSTEM SHALL BE A TYPE WHICH ALLOWS THE CURTAIN TO CONFORM TO THE BOTTOM OF THE WATERWAY.
5. THE CURTAIN SHALL BE REMOVED BY SLOWLY PULLING TOWARD THE SHORE MINIMIZING THE ESCAPE OF SEDIMENTS INTO WATERWAY.

FILTER CURTAIN

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 FOR GEOTEXTILE FOR FILTER CURTAIN (PAY ITEM 649.61).

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF
SEPTEMBER 4, 2009	WHF

EPSC LAYOUT PLAN SYMBOLOGY LEGEND

PROJECT BOUNDARY FENCE

- PDF——PDF PROJECT DEMARCATION FENCE
- BF—×—×—BF BARRIER FENCE

EPSC MEASURES

- FILTER CURTAIN
- SILT FENCE
- SILT FENCE WOVEN WIRE
- CHECK DAM
- DISTURBED AREAS REQUIRING RE-VEGETATION
- EROSION MATTING

ENVIRONMENTAL RESOURCES

- WETLAND BOUNDARY
- RIPARIAN BUFFER ZONE
- WETLAND BUFFER ZONE
- SOIL TYPE BOUNDARY
- T&E THREATENED & ENDANGERED SPECIES
- HAZ HAZARDOUS WASTE AREA
- AG AGRICULTURAL LAND
- HABITAT FISH & WILDLIFE HABITAT
- FLOOD PLAIN FLOOD PLAIN
- OHW ORDINARY HIGH WATER (OHW)
- STORM WATER
- USDA FOREST SERVICE LANDS
- WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC

- ARCH ARCHEOLOGICAL BOUNDARY
- HISTORIC DIST HISTORIC DISTRICT BOUNDARY
- HISTORIC HISTORIC AREA
- (H) HISTORIC STRUCTURE

UTILITY SYMBOLOGY

- AER E&T AREAL ELECTRIC & TELEPHONE
- E AREAL ELECTRIC
- UE UNDERGROUND ELECTRIC
- UT UNDERGROUND TELEPHONE
- UC UNDER GROUND TV
- G GAS LINE
- W WATER LINE

CONSTRUCTION FEATURES

- TOE OF SLOPE CUT OR FILL
- STONE FILL, TYPE III
- STONE FILL, TYPE II
- STONE FILL, TYPE I

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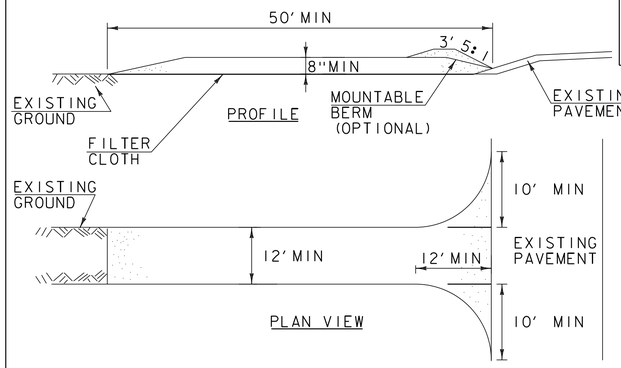
EPSC DETAILS 1

PLOT DATE: 21-NOV-2013
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 29 OF 30

SYMBOL



NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
3. THICKNESS- NOT LESS THAN 8".
4. WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
6. SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

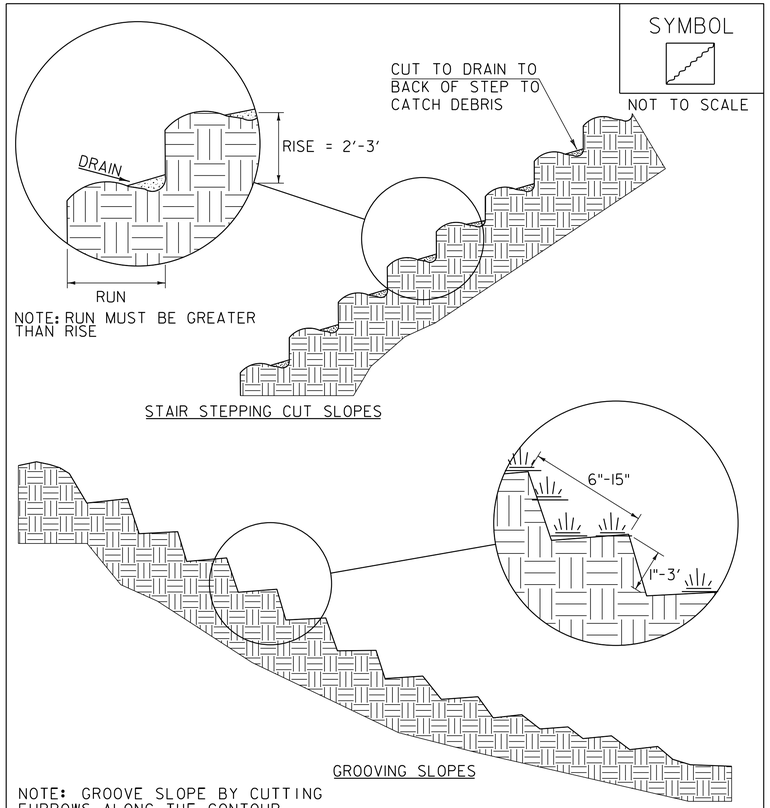
STABILIZED CONSTRUCTION ENTRANCE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35) OR AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

SYMBOL



NOT TO SCALE

NOTE: GROOVE SLOPE BY CUTTING FURROWS ALONG THE CONTOUR. IRREGULARITIES IN THE SOIL SURFACE CATCH RAINWATER AND RETAIN LIME, FERTILIZER AND SEED.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SURFACE ROUGHENING

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF

VAOT RURAL AREA MIX

	LBS/AC				
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
37.5%	22.5	45	CREEPING RED FESCUE	85%	98%
37.5%	22.5	45	TALL FESCUE	90%	95%
5.0%	3	6	RED TOP	90%	95%
15.0%	9	18	BIRDSFOOT TREFOIL	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	85%	95%
100%	60	120			

VAOT URBAN AREA MIX

	LBS/AC				
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
42.5%	34	68	CREEPING RED FESCUE	85%	98%
10.0%	8	16	PERENNIAL RYE GRASS	90%	95%
42.5%	34	68	KENTUCKY BLUE GRASS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	85%	95%
100%	80	160			

SOIL AMENDMENT GUIDANCE

FERTILIZER		LIME	
BROADCAST	HYDROSEED	BROADCAST	HYDROSEED
10-20-10	*FOLLOW*	PELLETIZED	*FOLLOW*
500 LBS/AC	*MANUFACTURER*	2 TONS/AC	*MANUFACTURER*

CONSTRUCTION GUIDANCE

1. RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
2. URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN AREAS DISTURBED BY THE CONTRACTOR.
3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
6. TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
7. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED
8. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

REVISIONS	
JUNE 23, 2009	WHF
JANUARY 15, 2010	WHF
FEBRUARY 16, 2011	WHF

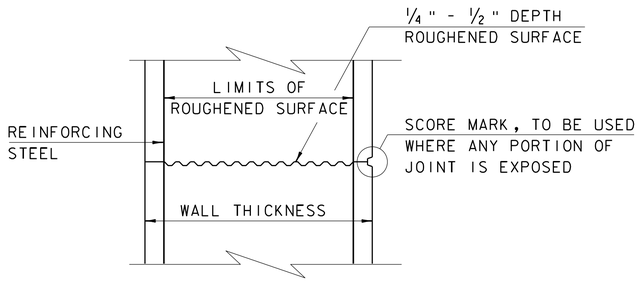
PROJECT NAME: MONTGOMERY
PROJECT NUMBER: BHO 1448(27)

FILE NAME: s96j306erodet.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
EPSC DETAILS 2

PLOT DATE: 21-NOV-2013
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 30 OF 30

CONCRETE GENERAL NOTES

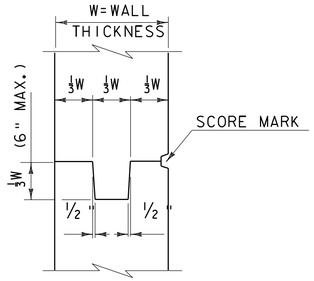
1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"



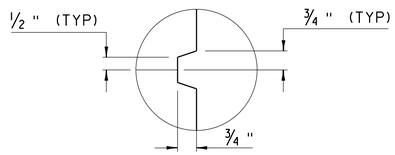
TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.

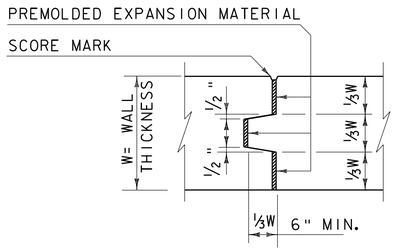
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



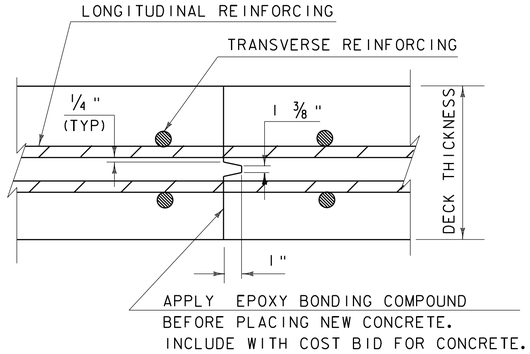
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



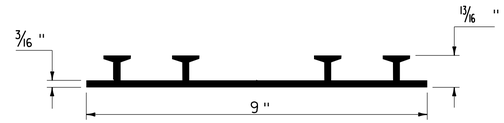
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



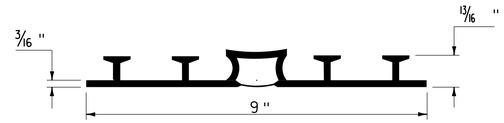
TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



P.V.C. WATERSTOP FOR CONSTRUCTION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

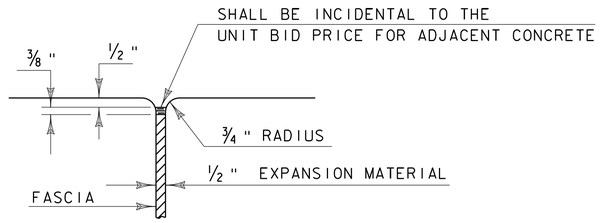
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



P.V.C. WATERSTOP FOR EXPANSION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



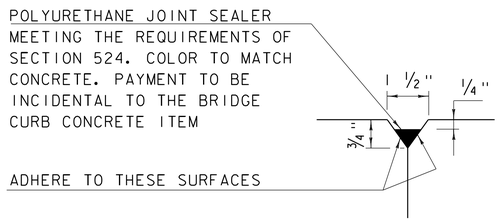
JOINT BETWEEN FASCIA AND WINGWALL
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION

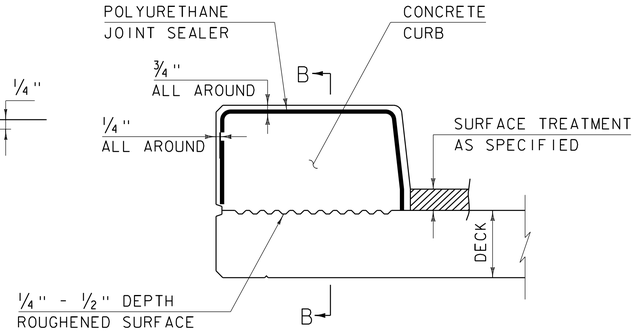
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

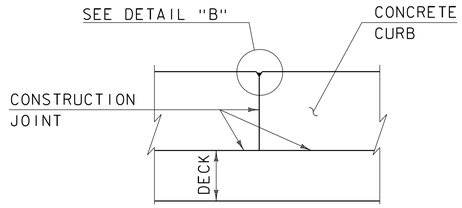
STRUCTURES DETAIL SD-501.00



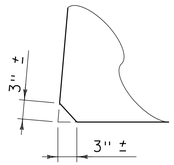
DETAIL "B"
(NOT TO SCALE)



CONCRETE CURB JOINT SECTION
(NOT TO SCALE)



SECTION B - B
(NOT TO SCALE)



ACUTE ANGLE CLIP DETAIL
(NOT TO SCALE)

1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION

CONCRETE CURB JOINT NOTES

1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.

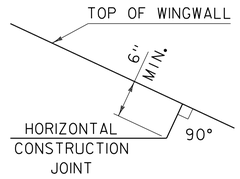
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.

3. ON MULTI-SPAN CONTINUOUS SUPERSTRUCTURES, REGARDLESS OF WHETHER APPROVED SHRINKAGE REDUCING ADMIXTURE IS USED, CURB JOINTS SHALL BE LOCATED OVER THE CENTERLINE OF PIERS AND 7'-0" EACH SIDE OF THE CENTERLINE OF EACH PIER.

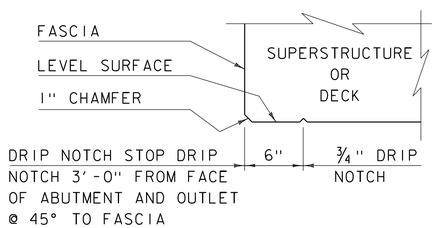
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.

5. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THROUGH CURB CONSTRUCTION JOINTS. CURB STIRRUP BARS SHALL BE TURNED AS NECESSARY TO MAINTAIN COVER IN THE FLARED CURB ENDS.

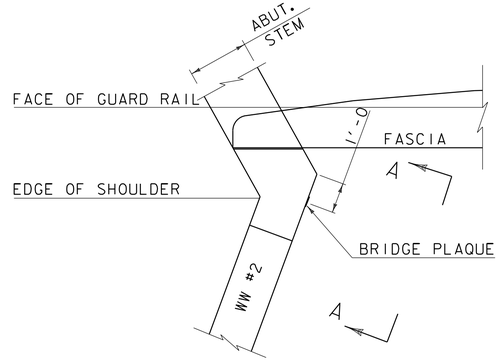
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



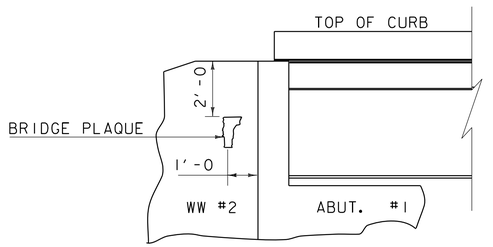
HORIZONTAL WINGWALL CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



PLAN



VIEW "A - A"

BRIDGE PLAQUE
(NOT TO SCALE)

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

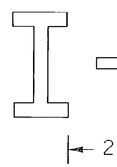
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED AND ADDED TWO DETAILS
OCTOBER 10, 2012	MODIFIED HORZ. JOINT WINGWALL ADD 6" MIN. DIMENSION

CONCRETE DETAILS AND NOTES

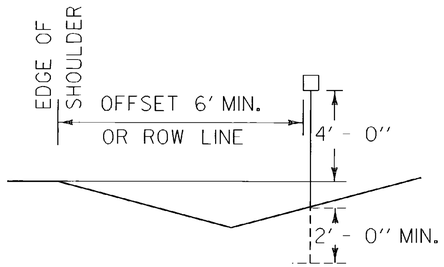
VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

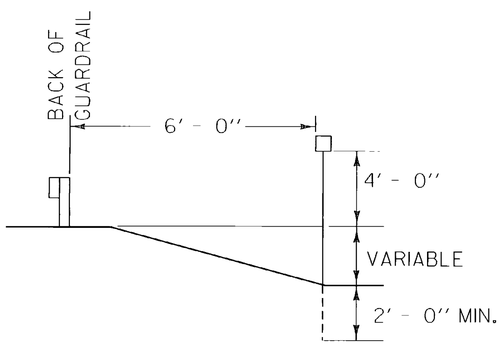
STRUCTURES DETAIL
SD-502.00

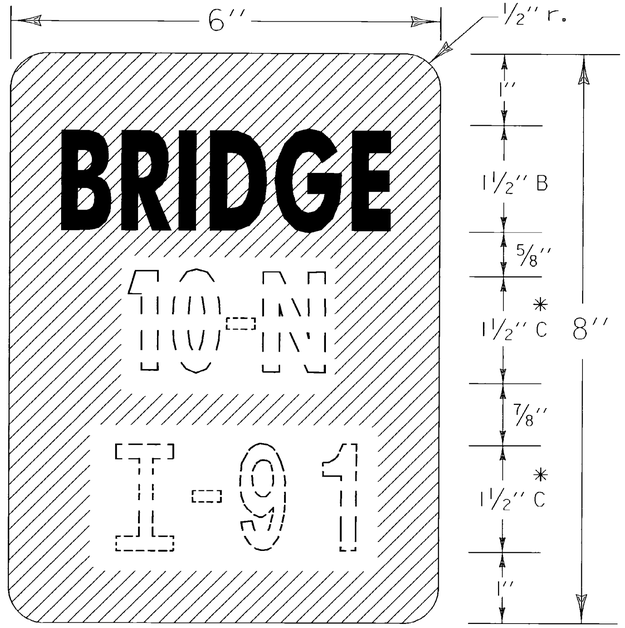


HYPHENATED WORD DETAIL

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 BACKROUND. 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 S. MacArthur
DIRECTOR OF ENGINEERING

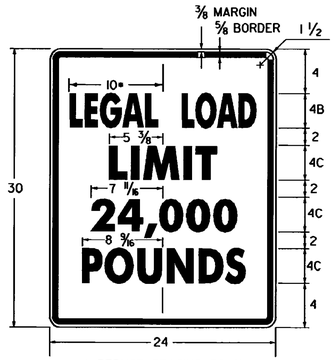
David A Ross
TRAFFIC AND SAFETY ENGINEER

BRIDGE NUMBER PLAQUE

/traf/std/stdel34.dgn : stdel34.i

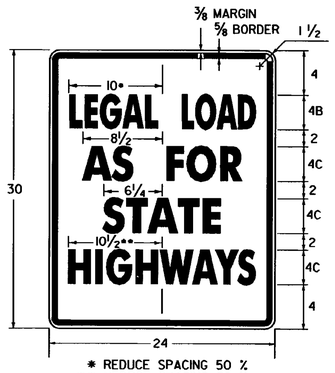
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-134



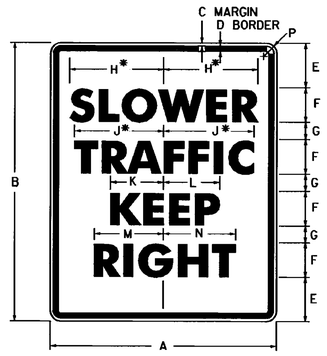
* REDUCE SPACING 50 %
LINE 3 ALTERNATE - **16,000**

VR-017



* REDUCE SPACING 50 %
** REDUCE SPACING 38 %

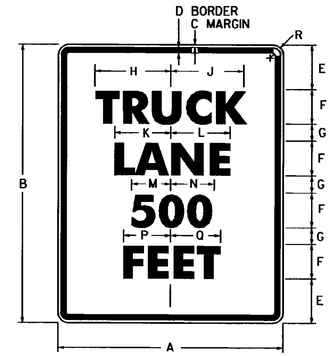
VR-079



* REDUCE SPACING 25 %

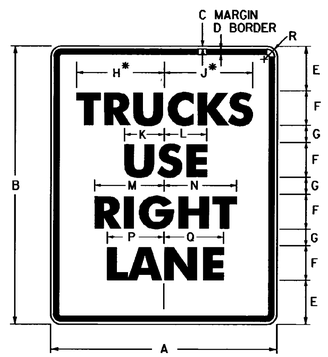
R4-3

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 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



R4-6

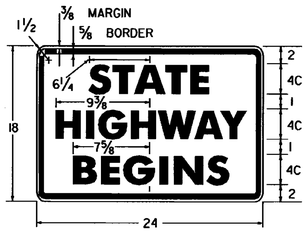
SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
STD.	24	30	3/8	5/8	3 5/8	4E	2 1/4	9 13/16	9 11/16	7 13/16	7 11/16	5 11/16	5 13/16	6 7/8	7 1/16	1 1/2
EXPWY.	36	48	5/8	7/8	6	6E	4	14 3/4	14 1/2	11 5/16	11 1/2	8 1/2	8 3/4	10 5/16	10 5/8	2 1/4
FWY.	48	60	3/4	1 1/4	7 1/4	8E	4 1/2	19 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 %

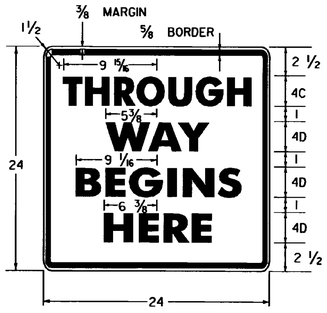
R4-5

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 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



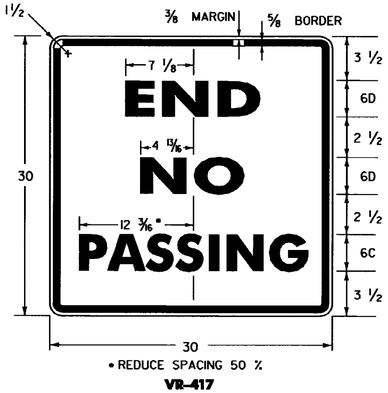
VR-039

VR-038



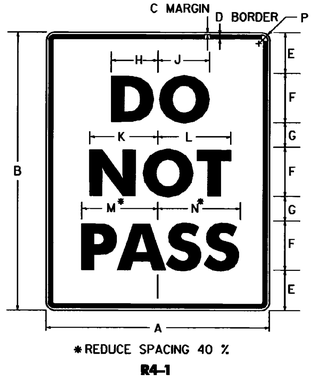
VR-041

VR-040



* REDUCE SPACING 50 %

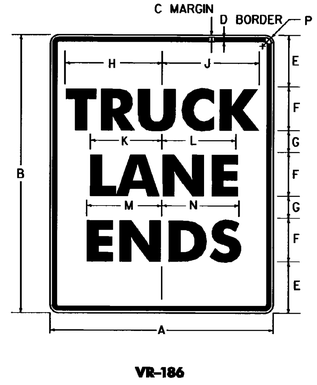
VR-417



*REDUCE SPACING 40 %

R4-1

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 5/8	11 7/8	12 1/4	15 5/8	16 1/4	3



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 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 5/8	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 3/8	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

Gordon H. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

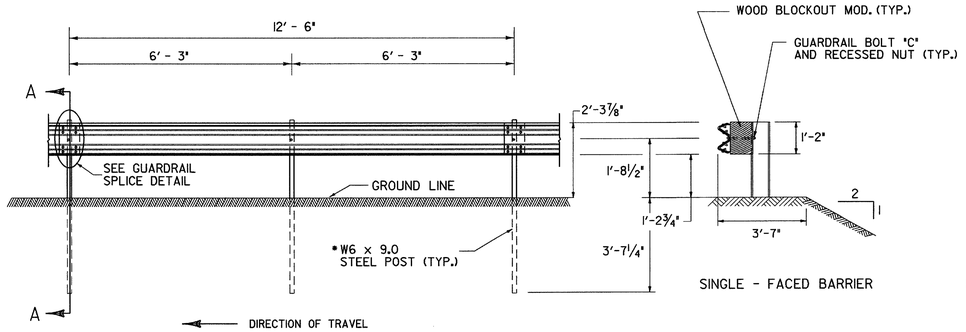
REGULATORY SIGN DETAILS

/traf/std/stdel41.dgn : stdel41.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-141

"W" BEAM GUARDRAIL WITH STEEL POSTS



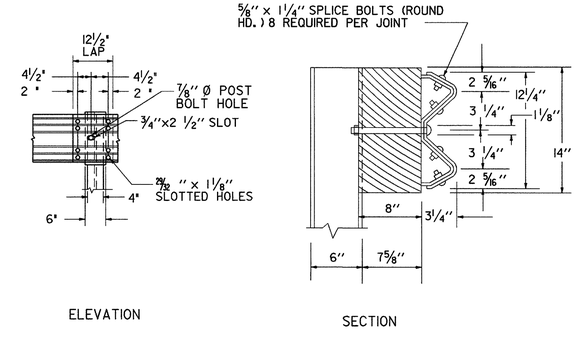
ELEVATION FROM ℄ OF ROAD

SINGLE - FACED BARRIER

DOUBLE - FACED BARRIER

SECTION A -A

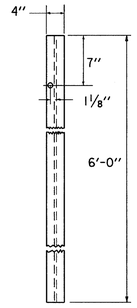
PLAN



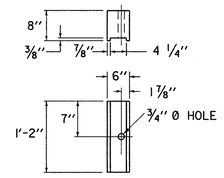
ELEVATION

SECTION

GUARDRAIL SPLICE DETAIL



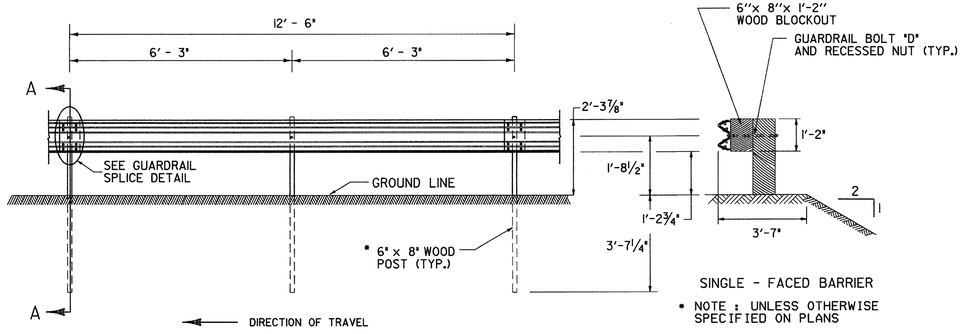
FRONT FACE STEEL POST



POST FACE
MODIFIED WOOD BLOCKOUT- ROUTED
6" X 8" X 1'-2"
FOR USE W/ STEEL POSTS ONLY

NOTES:
1. BLOCKS SHALL BE MADE OF TIMBER WITH A STRESS GRADE OF 1200 PSI OR MORE. TESTING SHALL BE IN ACCORDANCE WITH WEST COAST LUMBER INSPECTION BUREAU, SOUTHERN PINE INSPECTION BUREAU OR OTHER APPRPRIATE ASSOCIATION. TIMBER FOR BLOCKS SHALL BE ROUGH SAWN (UNPLANED) WITH DIMENSIONS INDICATED. THE SIZE TOLERANCE OF ROUGH SAWN BLOCKS IN THE DIRECTION OF THE BOLT HOLES SHALL BE NOT MORE THAN +/- ¼".
2. SUPPLY WOOD BLOCKS PER AASHTO M 168.
3. TREAT WITH PRESERVATIVE PER AASHTO M 133.
4. BLOCKOUTS MAY ALSO BE MADE OF APPROVED ALTERNATIVE MATERIAL.

"W" BEAM GUARDRAIL WITH WOOD POSTS



ELEVATION FROM ℄ OF ROAD

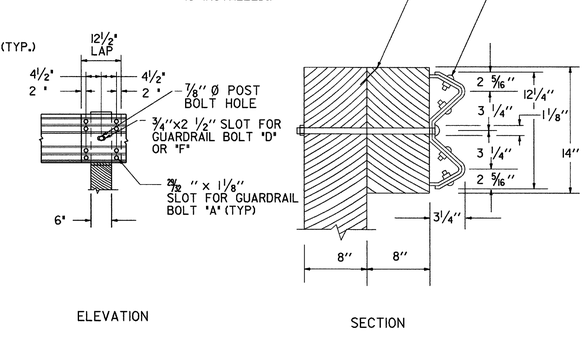
SINGLE - FACED BARRIER

* NOTE : UNLESS OTHERWISE SPECIFIED ON PLANS

DOUBLE - FACED BARRIER

SECTION A -A

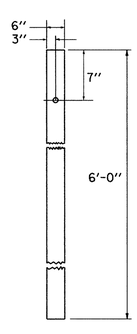
PLAN



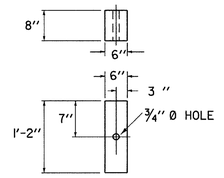
ELEVATION

SECTION

GUARDRAIL SPLICE DETAIL



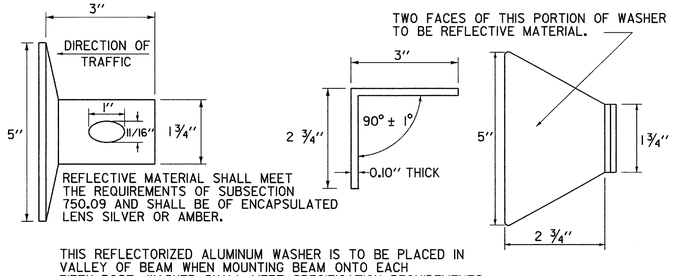
FRONT FACE WOOD POST



POST FACE
WOOD BLOCKOUT
6" X 8" X 1'-2"

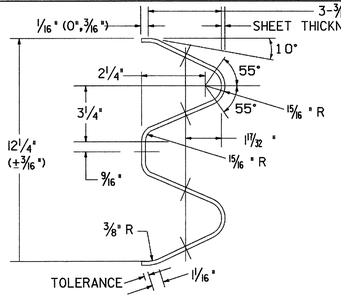
NOTES:
1. BLOCKS SHALL BE MADE OF TIMBER WITH A STRESS GRADE OF 1200 PSI OR MORE. TESTING SHALL BE IN ACCORDANCE WITH WEST COAST LUMBER INSPECTION BUREAU, SOUTHERN PINE INSPECTION BUREAU OR OTHER APPRPRIATE ASSOCIATION. TIMBER FOR BLOCKS SHALL BE ROUGH SAWN (UNPLANED) WITH DIMENSIONS INDICATED. THE SIZE TOLERANCE OF ROUGH SAWN BLOCKS IN THE DIRECTION OF THE BOLT HOLES SHALL BE NOT MORE THAN +/- ¼".
2. SUPPLY WOOD BLOCKS PER AASHTO M 168.
3. TREAT WITH PRESERVATIVE PER AASHTO M 133.
4. BLOCKOUTS MAY ALSO BE MADE OF APPROVED ALTERNATIVE MATERIAL.

GUARDRAIL DELINEATOR



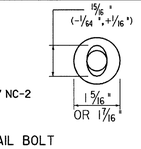
REFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 750.09 AND SHALL BE OF ENCAPSULATED LENS SILVER OR AMBER.

THIS REFLECTORIZED ALUMINUM WASHER IS TO BE PLACED IN VALLEY OF BEAM WHEN MOUNTING BEAM ONTO EACH FIFTH POST. WASHER SHALL MEET SPECIFICATION REQUIREMENTS FOR A.S.T.M. B-209 ALLOY 5052-H32



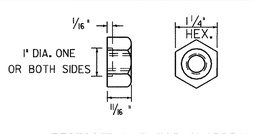
ARTBA RE-3[2@6'-3"=12'-6" CLASS A, TYPE 1]-73

TYPICAL GUARDRAIL SECTION

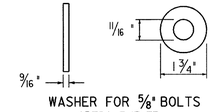


GUARDRAIL BOLT

GUARDRAIL BOLTS				FASTENER USED IN	
BOLT DES.	ARTBA REF. NO.	L	T (MIN.)	STEEL POSTS	WOOD POSTS
"A"	F-3[11¼]-76	1¼"	1"	X	X
"C"	F-3[9½]-76	9½"	1¾"	X	
"D"	F-3[18]-76	18"	2½"		X
"F"	F-3[25]-76	25"	2"		X



RECESSED NUT FOR GUARDRAIL BOLT



WASHER FOR ⅝" BOLTS
ARTBA F-13-73
NOTE: WASHER IS USED UNDER RECESSED NUT WHERE GUARDRAIL BOLT IS USED WITH WOOD POSTS.

GENERAL NOTES:

1. GUARDRAIL SHALL MEET THE REQUIREMENTS OF AASHTO M 180, CLASS A, TYPE 1, UNLESS OTHERWISE DESIGNATED
2. GUARDRAIL SHALL BE SINGLE FACED UNLESS OTHERWISE DESIGNATED
3. GUARDRAIL SECTIONS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW FOR THE LANE NEAREST THE GUARDRAIL.
4. FOR DESCRIPTION AND SPECIFICATION OF PARTS IDENTIFIED BY (ARTBA ...) AND OTHER DETAILS OF POSTS, POST ACCESSORIES, FASTENERS & RAIL ELEMENTS, SEE AASHTO-AGC-ARTBA JOINT TASK FORCE NO. 13, TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE", LATEST EDITION.
5. STANDARD STEEL BEAM TO BE ⅛" AND THE HEAVY DUTY TO BE 9⁄64" THICK.

OTHER STANDARD REQUIRED G-1d

REVISIONS AND CORRECTIONS

JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.
JAN.3,2000 - UPDATED TO REFLECT METRIC STD. CHANGES

APPROVED

DIRECTOR OF PROJECT DEVELOPMENT

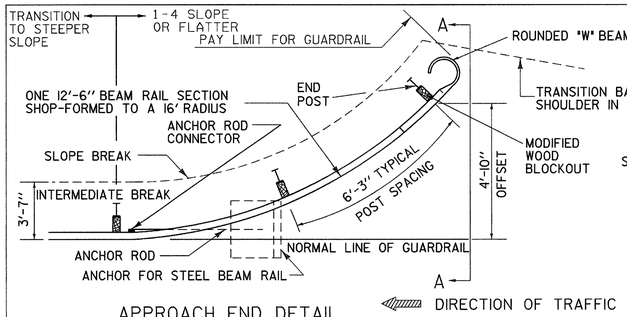
ROADWAY AND TRAFFIC DESIGN ENGINEER

STEEL BEAM GUARDRAIL WITH STEEL POSTS
STEEL BEAM GUARDRAIL WITH WOOD POSTS

VERMONT AGENCY OF TRANSPORTATION

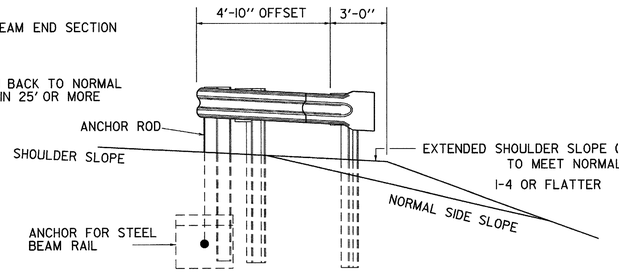
STANDARD

G-1

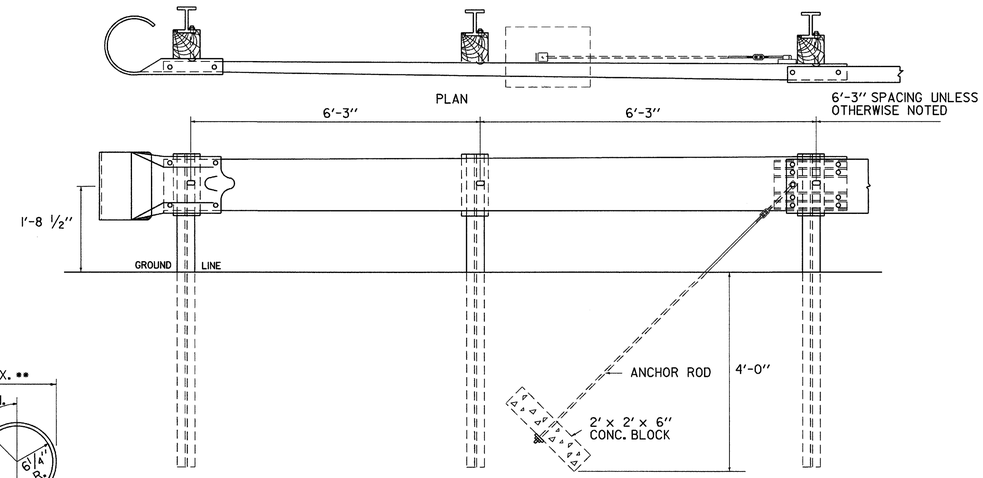


APPROACH END DETAIL

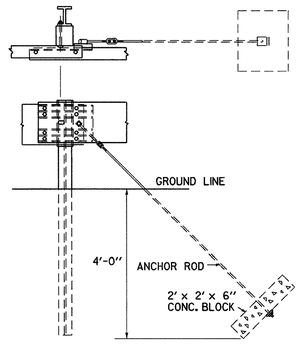
NHS APPROVED FOR USE WHERE DESIGN SPEED IS 40 OR LESS MPH
NON-NHS APPROVED FOR USE WHERE DESIGN SPEED IS 50 OR LESS MPH



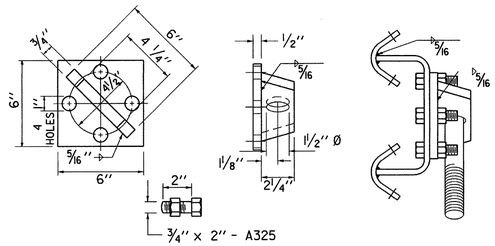
SECTION A-A



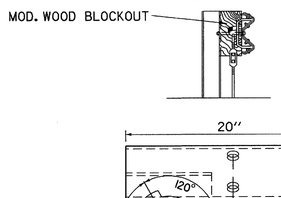
ASSEMBLY ELEVATION

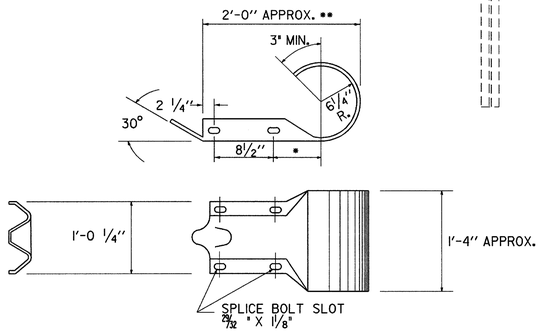


ANCHOR ROD



ANCHOR ROD CONNECTOR





(ARTBA RE-6-79)

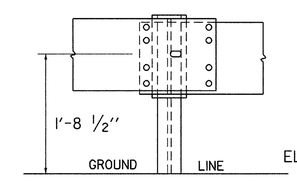
ROUNDED "W" BEAM END SECTION

* THIS DIMENSION IS 7½" IN RE-7-79. IF THE DIMENSION IS USED IN THIS PART, IT WILL GIVE AN ACCEPTABLE OVERALL LENGTH (**) OF APPROXIMATELY 2'- 11/2. "

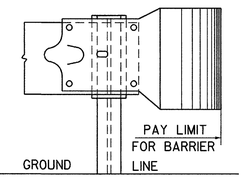
TRAILING END TERMINAL FOR USE ON ONE-WAY HIGHWAYS

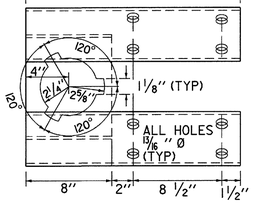
GENERAL NOTES:

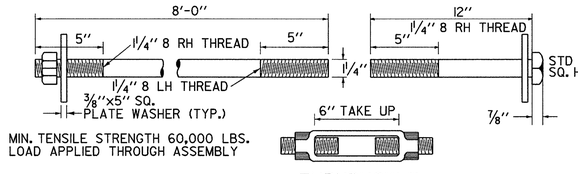
1. ALL METAL PARTS SHALL BE GALVANIZED.
2. ALL WOOD POSTS SHALL BE GIVEN A PRESERVATIVE TREATMENT.
3. DETAILS PERTINENT TO THE STANDARD INSTALLATION OF "W" BEAM SECTIONS WILL BE FOUND ON STANDARD DRAWING G-1.
4. FOR DESCRIPTION AND SPECIFICATIONS OF PARTS IDENTIFIED BY "(ARTBA...)" AND OTHER DETAILS OF POSTS, POST ACCESSORIES, FASTENERS AND RAIL ELEMENTS, SEE AASHTO-AGC-ARTBA JOINT TASK FORCE NO. 13, TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE", LATEST EDITION.



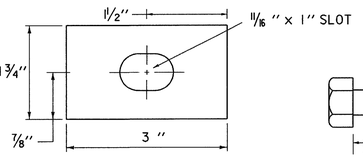
ELEVATION



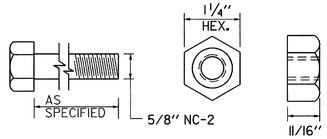




TURNBUCKLE

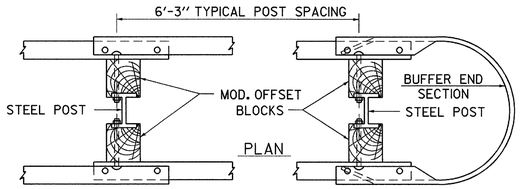


RECTANGULAR GUARDRAIL PLATE WASHER
(ARTBA F-12-73)



5/8" HEX NUT AND BOLT "F"
(ARTBA F-8-76)

FASTENER DETAILS



STEEL BEAM MEDIAN BARRIER

NOTE: TO BE USED OUTSIDE CLEAR ZONE ONLY.

OTHER STANDARD REQUIRED G-1

REVISIONS AND CORRECTIONS
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.
JAN.3,2000 - UPDATED TO REFLECT METRIC STD. CHANGES

APPROVED

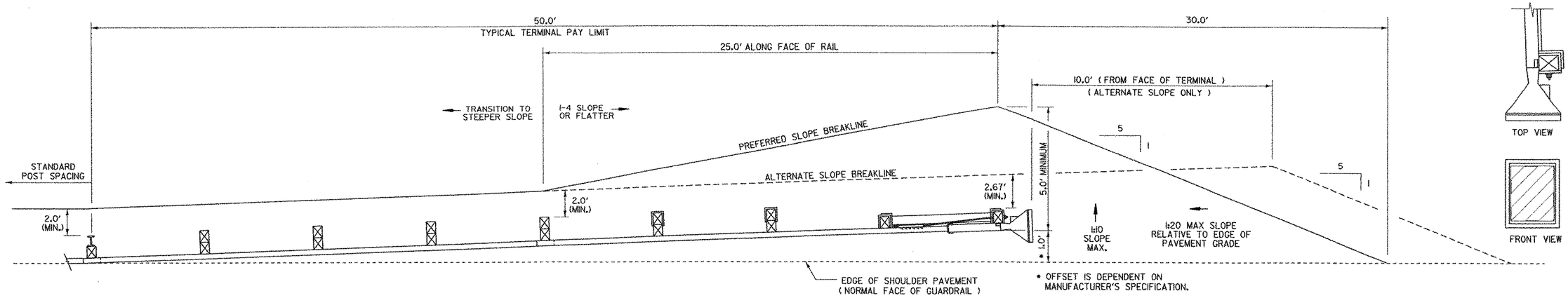
DIRECTOR OF PROJECT DEVELOPMENT

ROADWAY AND TRAFFIC DESIGN ENGINEER

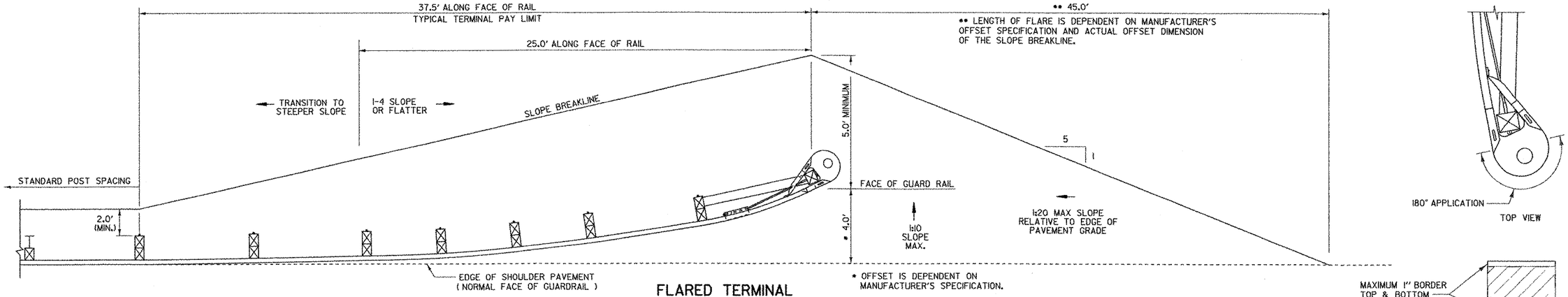
STEEL BEAM GUARDRAIL APPROACH END TERMINAL
STEEL BEAM GUARDRAIL TRAILING END TERMINAL
ANCHOR FOR STEEL BEAM GUARDRAIL
STEEL BEAM MEDIAN BARRIER

VERMONT AGENCY OF TRANSPORTATION

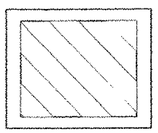
STANDARD
G-1d



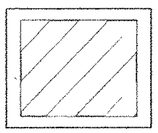
TANGENTIAL TERMINAL



FLARED TERMINAL



ORIENTATION OF REFLECTIVE SHEETING FOR LEFT SIDE OF ROAD HAZARD.



ORIENTATION OF REFLECTIVE SHEETING FOR RIGHT SIDE OF ROAD HAZARD.

GENERAL NOTES

(1) THE AREA IMMEDIATELY BEHIND AND BEYOND THE TERMINAL SHOULD BE REASONABLY TRAVERSABLE AND FREE FROM FIXED-OBJECT HAZARDS TO THE EXTENT PRACTICABLE. IF A CLEAR RUNOUT PATH IS NOT ATTAINABLE, THIS AREA SHOULD AT LEAST BE SIMILAR IN CHARACTER TO UPSTREAM/UNSHIELDED ROADSIDE AREAS.

(2) REFLECTIVE SHEETING SHALL BE PLACED ON THE TERMINAL END OF ALL TANGENT END TERMINALS. THIS SHALL BE OBJECT MARKER MATERIAL (TYPE 3 - STRIPED MARKER OM-3L AND OM-3R) CONSISTING OF A SQUARE OR RECTANGULAR SHAPE WITH ALTERNATING BLACK AND RETROREFLECTIVE YELLOW STRIPES SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES TOWARDS TRAFFIC. THE MINIMUM WIDTH OF THE YELLOW STRIPE SHALL BE 3 INCHES. THE DIMENSIONS OF THE MARKER SHALL EXTEND FOR THE FULL WIDTH OF THE FACE PLATE ON THE TERMINAL HEAD AND BE SUFFICIENT IN HEIGHT (DEPENDENT ON THE TYPE OF END TERMINAL AND HEAD SIZE). REFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 750.08 (B)(3) TYPE III OR HIGHER (AASHTO M 268 (ASTM 4956)). THE COST SHALL BE INCLUDED IN THE COST OF THE END TERMINAL.

(3) REFLECTIVE SHEETING SHALL BE PLACED ON THE END OF FLARED TERMINALS WHICH ARE LOCATED 6 FEET OR LESS FROM THE EDGE OF SHOULDER (NORMAL FACE OF GUARDRAIL. THIS SHALL BE THE SAME OBJECT MARKER MATERIAL SPECIFIED IN NOTE 2. THE COST OF THE REFLECTIVE SHEETING SHALL BE INCLUDED IN THE COST OF THE END TERMINAL.

(4) FOR THE FLARED TERMINAL, WITH AN OFFSET BETWEEN 4 FEET AND 6 FEET FROM THE NORMAL FACE OF GUARDRAIL, THE FOLLOWING SHALL PERTAIN; A REFLECTIVE BUTTON, MOUNTED ON A STANDARD DELINEATOR POST, SHALL BE INSTALLED AT THE NORMAL FACE OF GUARDRAIL, DIRECTLY OPPOSITE THE LEAD END OF THE TERMINAL. THE BUTTON SHALL BE WHITE FOR THE RIGHT SIDE OF THE ROAD AND YELLOW FOR THE LEFT SIDE. ANY DELINEATORS INSTALLED SHALL BE PAID FOR BY THE APPROPRIATE PAY ITEMS.

NOT TO SCALE

REVISIONS AND CORRECTIONS

OCT. 21, 1998 ORIGINAL APPROVAL

NOV. 15, 2002 MODIFIED SLOPE BREAKLINE, REFLECTIVE SHEETING ADDED

APPROVED

DIRECTOR OF PROJECT DEVELOPMENT

ROADWAY DESIGN ENGINEER

FEDERAL HIGHWAY ADMINISTRATION

GENERIC PLANS FOR GUARDRAIL END TERMINALS

VERMONT AGENCY OF TRANSPORTATION

STANDARD G-19

1. TRAFFIC CONTROL DEVICES NOT DETAILED IN THE VERMONT AGENCY OF TRANSPORTATION (VAOT) ''STANDARD DRAWINGS'' OR THE PROJECT PLANS SHALL BE IN ACCORDANCE WITH THE "MANUAL ON TRAFFIC CONTROL DEVICES" (MUTCD) AND THE ''STANDARD HIGHWAY SIGNS AND MARKINGS'' BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).

2. CONSTRUCTION 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. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER.

3. CONSTRUCTION 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.

4. SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. 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.

5. NO CROSS-BRACING OR BACK-BRACING TO KEEP POSTS PLUMB WILL BE ALLOWED. CONCRETE FOUNDATIONS, COLLARS OR SOIL BEARING PLATES ARE NOT PERMITTED. CONSTRUCTION SIGNS SHALL BE PLACED ON TWO POSTS.

6. CONSTRUCTION SIGNS INSTALLED ON POSTS SHALL BE SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST FIVE FEET ABOVE THE EDGE OF PAVEMENT AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT, FOUR FEET OUTSIDE GUARDRAIL, OR TWO 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 SEVEN FEET ABOVE THE SIDEWALK OR EDGE OF PAVEMENT, WHICHEVER IS HIGHER.

7. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AND A MINIMUM OF ONE FOOT ABOVE THE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.

8. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.

9. ROLL UP CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VI AND TYPE VII UNLESS OTHERWISE NOTED.

10. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VIII OR IX REQUIREMENTS UNLESS OTHERWISE NOTED.

11. WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE AASHTO "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POSTS. WHEN ANCHORS ARE INSTALLED, STUBS SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.

12. ROADWAY AND SHOULDER WIDTHS DEPICTED ON THE STANDARD DRAWINGS MAY VARY.

13. THESE STANDARD DRAWINGS ARE INTENDED TO SERVE AS VTRANS STANDARD OPERATING PROCEDURE. IT IS NOTED THAT COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL WORK ZONE MAY BE MODIFIED DUE TO FIELD CONDITIONS, AT THE DISCRETION OF THE ENGINEER.

OTHER STDS. REQUIRED: **NONE**

REVISIONS AND CORRECTIONS

AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED

HIGHWAY SAFETY & DESIGN ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter

FEDERAL HIGHWAY ADMINISTRATION

TRAFFIC CONTROL GENERAL NOTES

VERMONT AGENCY OF TRANSPORTATION

STANDARD

T-1

LEGEND

(A) ROAD WORK AHEAD — W20-1

(B) ROAD WORK 500 FT — W20-1

(C) SIDE ROAD WORK AHEAD — VC-869

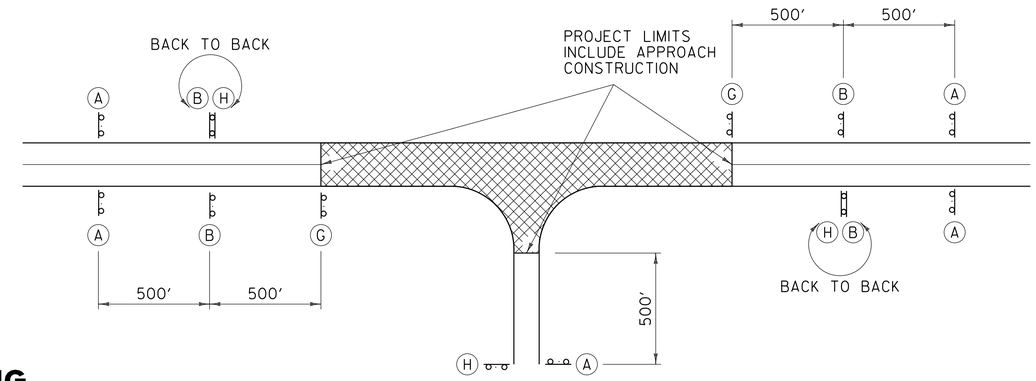
(D) SIDE ROAD WORK 500 FT — VC-869

(E) SIDE ROAD WORK LEFT — VC-869

(F) SIDE ROAD WORK RIGHT — VC-869

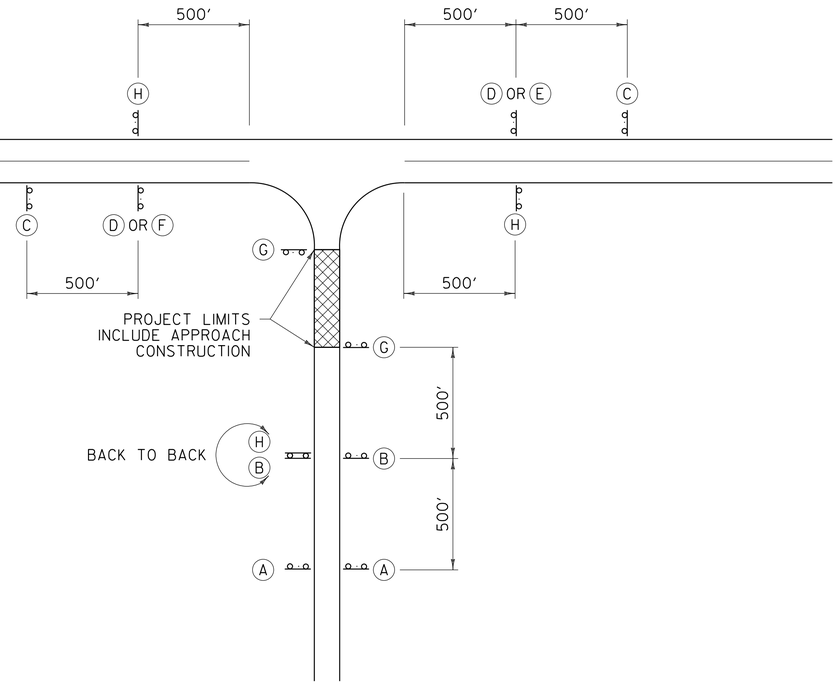
(G) ROAD WORK NEXT XX MILES — G20-1

(H) END ROAD WORK — G20-2



TYPICAL APPROACH SIGNING

FIELD CONDITIONS MAY DICTATE THE ACTUAL PLACEMENT.



SIDE ROAD APPROACH SIGNING

TO BE USED WHEN CONSTRUCTION IS UP TO 1000 FEET FROM THE INTERSECTION. FIELD CONDITIONS MAY DICTATE THE ACTUAL PLACEMENT.

GENERAL NOTES:

1. 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.
2. THE ''ROAD WORK NEXT XX MILES'' SIGN (G20-1) SHALL BE INSTALLED IN ADVANCE OF TEMPORARY TRAFFIC CONTROL ZONES THAT ARE MORE THAN TWO MILES IN LENGTH OR AS DIRECTED BY THE ENGINEER. DISTANCES SHALL BE STATED TO THE NEAREST WHOLE MILE.
3. 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 ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

OTHER STDS. REQUIRED: **T–1, T–28**

REVISIONS AND CORRECTIONS

AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED

HIGHWAY SAFETY & DESIGN ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

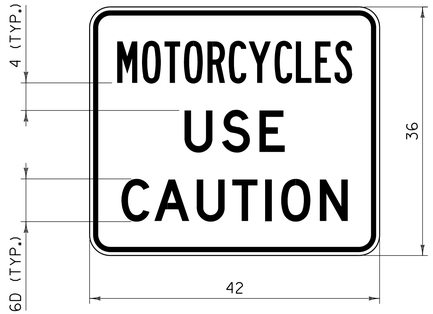
Mark D. Richter

FEDERAL HIGHWAY ADMINISTRATION

CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING

VERMONT AGENCY OF TRANSPORTATION

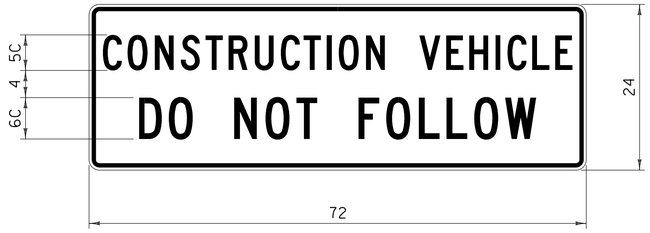
STANDARD T-10



VC–004P

NOTES:

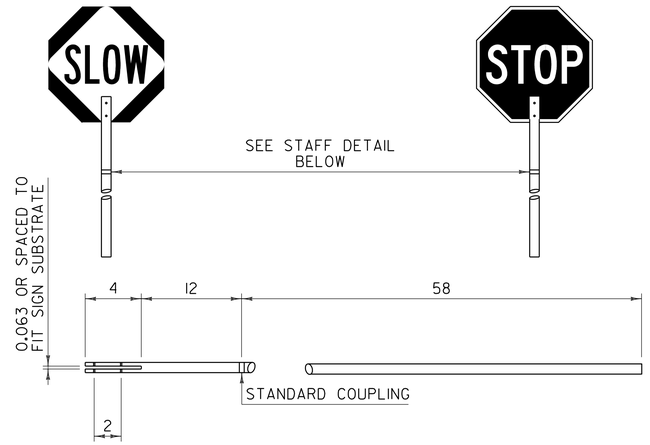
1. CORNERS SHALL BE ROUNDED TO A THREE INCH RADIUS.
2. THE BORDER SHALL BE ¾ INCH WIDE WITH A ½ INCH INDENT FROM THE EDGE OF THE SIGN.
3. "MOTORCYCLES" SHALL HAVE A SPECIFIED WIDTH OF 34 INCHES.
4. "USE" SHALL HAVE A SPECIFIED WIDTH OF 14 ½ INCHES.
5. "CAUTION" SHALL HAVE A SPECIFIED WIDTH OF 32 ¾ INCHES.
6. SIGN SHALL ONLY BE INSTALLED AS A SUPPLEMENTAL TO A PARENT WARNING SIGN AND SHALL NOT BE INSTALLED BY ITSELF.



VC–007

NOTES:

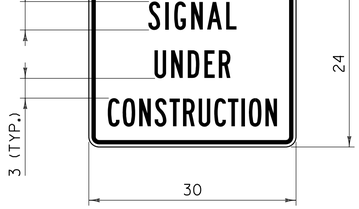
1. CORNERS SHALL BE ROUNDED TO A 1½ INCH RADIUS.
2. THE BORDER SHALL BE ⅝ INCH WIDE WITH A ⅜ INCH INDENT FROM THE EDGE OF THE SIGN.
3. "CONSTRUCTION VEHICLE" SHALL HAVE A SPECIFIED WIDTH OF 68 INCHES.
4. "DO NOT FOLLOW" SHALL HAVE A SPECIFIED WIDTH OF 57 ½ INCHES.
5. SIGN SHALL BE MOUNTED IN A CONSPICUOUS LOCATION ON THE REAR OF THE CONSTRUCTION VEHICLE.
6. THE SIGN SHALL BE MOUNTED AS NOT TO INTERFERE WITH THE VISIBILITY OF DIRECTIONAL SIGNALS OR TAIL LIGHTS AS REQUIRED BY LAW.
7. SIGN SHALL BE COVERED OR REMOVED WHEN NOT IN USE.



STOP–SLOW PADDLE & STAFF DETAIL

NOTES:

1. REFER TO THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK (SHSM) "TEMPORARY TRAFFIC CONTROL - WARNING SIGNS" FOR THE STOP-SLOW PADDLE DESIGN.
2. COLORS FOR THE SLOW SIDE OF THE PADDLE SHALL BE BLACK LEGEND AND BORDER ON A FLUORESCENT ORANGE DIAMOND WITH RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING AASHTO M 268 [ASTM D 4956] TYPE VII, VIII OR IX REQUIREMENTS.
3. COLORS FOR THE STOP SIDE OF THE PADDLE SHALL BE WHITE RETROREFLECTIVE LEGEND AND BORDER ON A RED RETROREFLECTIVE OCTAGON. BOTH COLORS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING AASHTO M 268 [ASTM D 4956] TYPE III.
4. SIGN SUBSTRATE MATERIALS SHALL BE ALUMINUM, ACRYLONITRILE BUTADIENE STYRENE (ABS) PLASTIC OR EQUIVALENT.
5. THE STAFF MAY BE RIGID ABS PLASTIC OR WOOD WITH A ONE TO 1½ INCH DIAMETER.
6. 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.



VC–820

NOTES:

1. CORNERS SHALL BE ROUNDED TO A 1½ INCH RADIUS.
2. THE BORDER SHALL BE ⅝ INCH WIDE WITH A ⅜ INCH INDENT FROM THE EDGE OF THE SIGN.
3. "SIGNAL" SHALL HAVE A SPECIFIED WIDTH OF 12 ¾ INCHES.
4. "UNDER" SHALL HAVE A SPECIFIED WIDTH OF 11 INCHES.
5. "CONSTRUCTION" SHALL HAVE A SPECIFIED WIDTH OF 24 ½ INCHES.
6. SIGN SHALL ONLY BE INSTALLED AS A SUPPLEMENTAL TO A PARENT WARNING SIGN AND SHALL NOT BE INSTALLED BY ITSELF.

GENERAL NOTES:

1. ALL LEGEND SHALL BE CENTERED VERTICALLY AND HORIZONTALLY UNLESS OTHERWISE NOTED.
2. COLORS FOR SIGNS SHALL BE BLACK LEGEND AND BORDER ON FLUORESCENT ORANGE BACKGROUND UNLESS OTHERWISE NOTED.
3. ALL DIMENSIONS IN INCHES.

OTHER STDS. REQUIRED: T–1

REVISIONS AND CORRECTIONS

AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED

HIGHWAY SAFETY & DESIGN ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter

FEDERAL HIGHWAY ADMINISTRATION

CONSTRUCTION SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

T-30

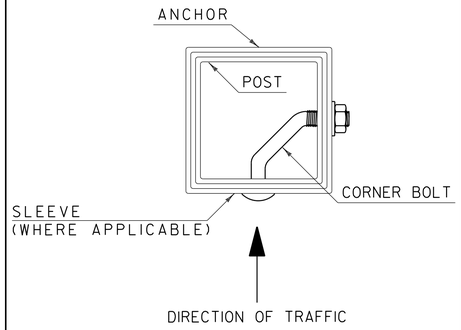
POST AND ANCHOR SELECTION CHART

POST SIZE (IN.)	POST THICKNESS (IN.)	POST WEIGHT (LBS/FT.)	POST GAGE	SECTION MODULUS (IN.³)	ONE POST SV	TWO POST SV	THREE POST SV	POSTS PERMITTED IN 8' PATH	ANCHOR SIZE (IN.)	ANCHOR GAGE	MINIMUM ANCHOR LENGTH
1.75	.083	1.88	14	0.222	45	90	135	TWO	2.00	12	30
2.00	.109	2.42	12	0.393	80	160	240	TWO	2.25	12	48
2.50	.109	3.35	12	0.673	137	274	411	ONE	3.00	7	48

NOTES:

1. ALL SIGN POSTS SHALL HAVE 7/16 INCH HOLES EVERY ONE INCH ON CENTER (ALL FOUR SIDES).
2. THE NUMBER OF SIGN POSTS PERMITTED WITHIN AN EIGHT FOOT PATH ASSUMES THAT THE SIGN ASSEMBLY IS NOT PROTECTED BY GUARDRAIL OR IS LOCATED WITHIN A GUARDRAIL'S DEFLECTION DISTANCE DETERMINED PER THE CURRENT "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) ROADSIDE DESIGN GUIDE. ADDITIONAL POSTS MAY BE INSTALLED USING SLIP BASES THAT MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE AASHTO "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION.
3. TO USE THE SELECTION VALUE (SV) COLUMNS IN THE TABLE ABOVE, MULTIPLY A SIGN'S SURFACE AREA IN SQUARE FEET (H x L) BY THE SIGN'S HEIGHT IN FEET MEASURED FROM THE GROUND TO THE CENTROID OF THE SIGN ASSEMBLY (h). THIS RESULT MUST BE LESS THAN OR EQUAL TO THE CORRESPONDING SELECTION VALUE. NOTE THAT FOR SIGNS WITH MULTIPLE POSTS, THE LARGEST HEIGHT DIMENSION SHALL BE USED TO CALCULATE THE POST SELECTION VALUE.
4. THE DESIGN CRITERIA UTILIZED IN SIGN POST AND ANCHOR SELECTION IS AS FOLLOWS: WIND SPEED OF 70 MPH (10 YEAR MEAN RECURRENCE INTERVAL), WIND PRESSURE OF 19 PSF, STEEL MINIMUM YIELD OF 55,000 PSI, AND AN ALLOWABLE STRESS OF 1.4 (0.60 FY).

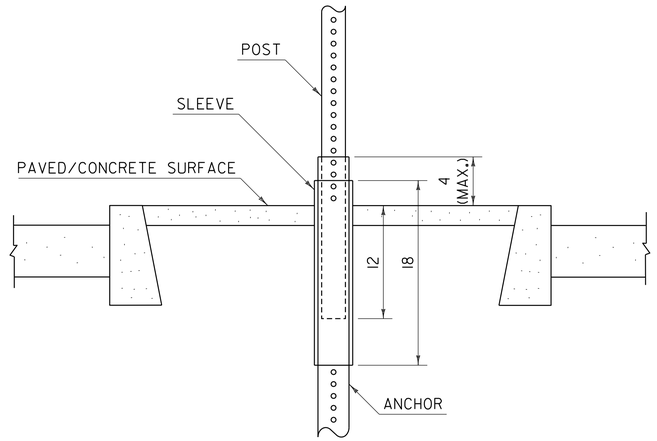
CORNER BOLT INSTALLATION DETAIL



NOTES:

1. CORNER BOLTS SHALL BE 5/16 INCH DIAMETER WITH 18 THREADS PER INCH AND DIMENSIONS SHALL BE DETERMINED BASED ON THE OUTERMOST DIMENSION OF THE SLEEVE, ANCHOR OR POST. THREAD EXPOSURE MUST EXCEED THE CORRESPONDING NUT WIDTH. THE CORNER BOLT AND CORRESPONDING HARDWARE SHALL BE ZINC PLATED, MEETING OR EXCEEDING THE REQUIREMENTS OF THE "AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) A307.

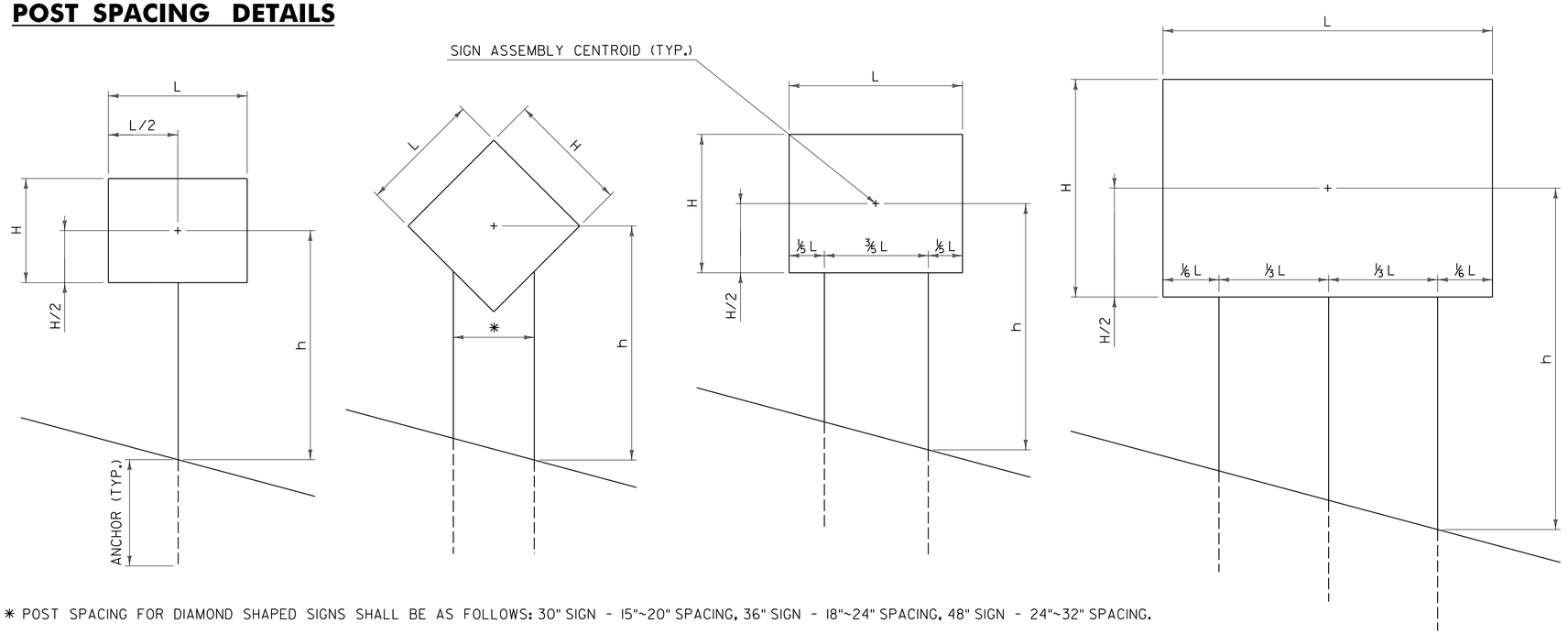
SLEEVE /ANCHOR INSTALLATION DETAIL



NOTES:

1. A SLEEVE SHALL BE INSTALLED FOR SIGN INSTALLATIONS IN CONCRETE OR PAVEMENT.
2. THE SLEEVE SHALL BE 18 INCHES MINIMUM IN LENGTH.
3. THREE INCH SLEEVES THAT DO NOT HAVE HOLES WILL REQUIRE THAT 7/16 INCH HOLES ARE DRILLED TO FACILITATE CONNECTIONS.
4. REFER TO CURRENT EDITION OF THE "VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION" FOR MATERIAL REQUIREMENTS.

POST SPACING DETAILS



* POST SPACING FOR DIAMOND SHAPED SIGNS SHALL BE AS FOLLOWS: 30" SIGN - 15"~20" SPACING, 36" SIGN - 18"~24" SPACING, 48" SIGN - 24"~32" SPACING.

GENERAL NOTES:

1. ALL SQUARE TUBE STEEL POSTS AND ANCHORS SHALL BE FORMED INTO A SIZE AND SHAPE IN SUCH A MANNER THAT NEITHER FLASH NOR WELD SHALL INTERFERE WITH THE TELESCOPING PROPERTIES, NOR DAMAGE THE GALVANIZING.
2. ANCHORS MAY BE DRIVEN OR SET INTO A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLATION METHOD SHALL BE UTILIZED IN AREAS WITH POOR SOIL CONDITIONS OR AS DIRECTED BY THE ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE ENGINEER.
3. THE TOPS OF SIGN POSTS SHALL BE AT OR NEAR THE TOP OF SIGN. THE POST SHALL NOT EXTEND ABOVE THE TOP OF SIGN.
4. SIGN POSTS SHALL BE INSTALLED A MINIMUM OF ONE FOOT BELOW GROUND, INSIDE THE ANCHOR. THE LENGTH OF ANCHOR EXPOSED ABOVE GROUND SHALL NOT EXCEED FOUR INCHES.
5. ALL DIMENSIONS SHOWN IN INCHES.

OTHER STDS. REQUIRED: **NONE**

REVISIONS AND CORRECTIONS

JAN. 2, 2013 - ORIGINAL APPROVAL DATE

APPROVED

HIGHWAY SAFETY & DESIGN ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter

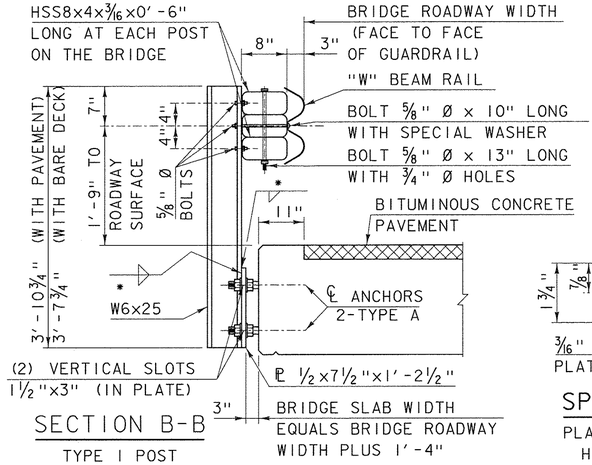
FEDERAL HIGHWAY ADMINISTRATION

SQUARE TUBE SIGN POST AND ANCHOR

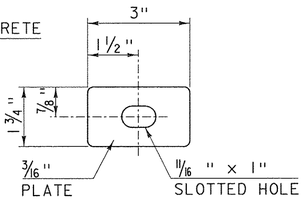
VERMONT AGENCY OF TRANSPORTATION

STANDARD

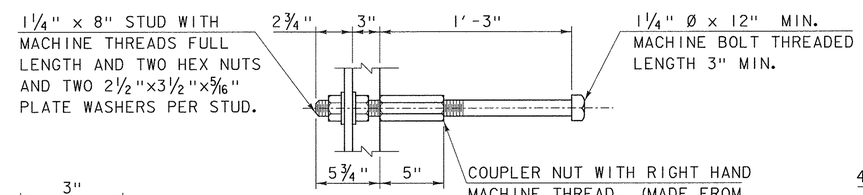
T-45



SECTION B-B
TYPE I POST



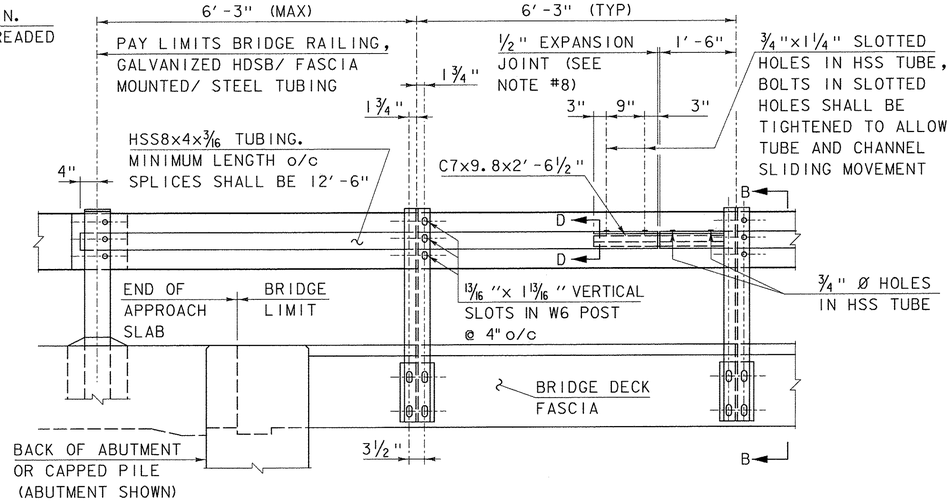
SPECIAL WASHER
PLACE WASHER BETWEEN BOLT HEAD AND FACE OF RAIL.



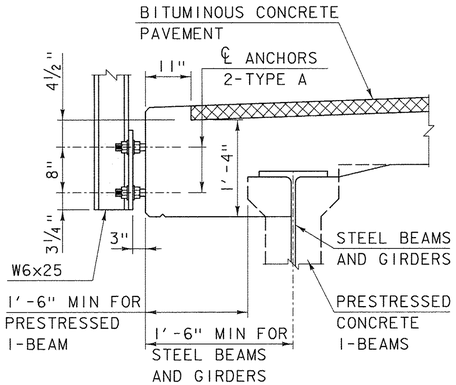
TYPE A ANCHOR DETAIL

DIMENSION ① IS 6" OR 8" DEPENDING ON BOX BEAM DEPTH. SEE PROJECT PLANS AND POST ANCHORAGE DETAILS. DIMENSION ② DETAILED BY FABRICATOR, SEE PROFILE AND CAMBER DETAILS. MINIMUM POST LENGTH IS 3'-6 1/2" AND MAXIMUM POST LENGTH IS 4'-1 1/4".

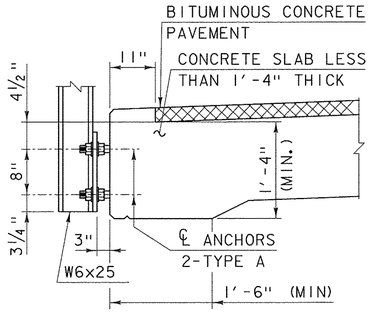
(FOR USE WITH PRESTRESSED CONCRETE BOX BEAMS)



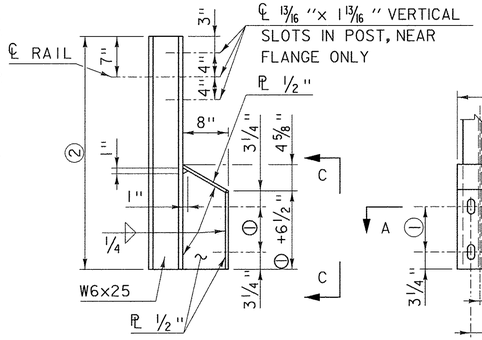
RAILING ELEVATION
(TYPE I POSTS SHOWN)



LONGITUDINAL BEAM BRIDGES

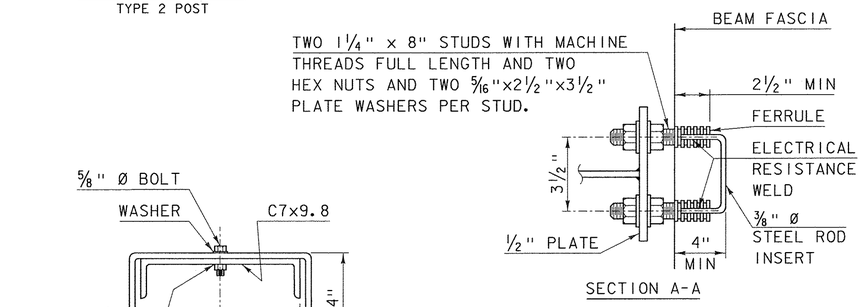


CONCRETE SLABS
(EDGE BEAM SHOWN)



SECTION B-B
TYPE 2 POST

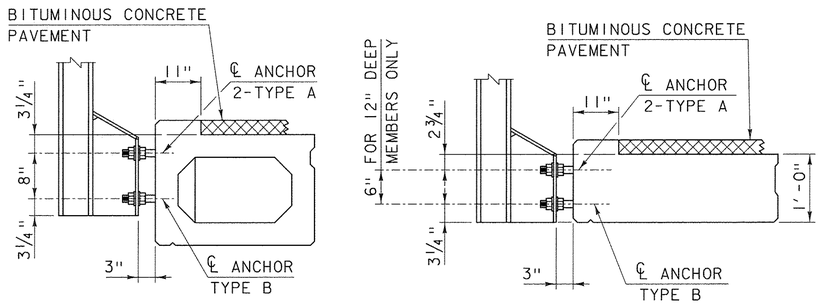
VIEW C-C



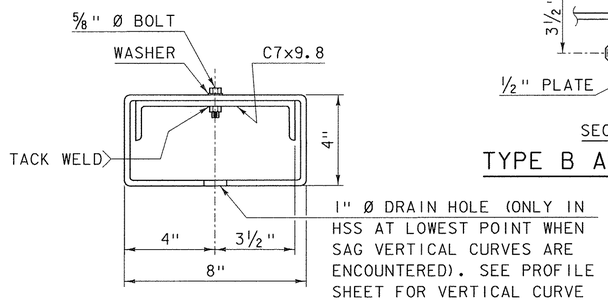
SECTION A-A

TYPE B ANCHOR DETAIL

POST ANCHORAGE DETAILS
(NOT FOR USE WITH PRESTRESSED BOX BEAMS)



POST ANCHORAGE DETAILS (PRECAST CONCRETE)



SECTION D-D

NOTES:

1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. TYPE B ANCHOR INSERTS OF A DIFFERENT TYPE MAY BE PROVIDED, IF APPROVED BY THE ENGINEER.
3. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
4. ALL POSTS SHALL BE SET NORMAL TO GRADE.
5. SPLICES FOR THE STEEL BEAM GUARDRAIL SHALL LAP IN THE DIRECTION OF TRAFFIC.
6. A RAILING JOINT SPLICE SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTRUCTURE EXPANSION JOINTS.
7. SEE STANDARD DRAWING G-1 FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT.
8. THE 1/2" EXPANSION JOINT SHOWN IN THE RAILING ELEVATION IS DESIGNED FOR BRIDGE LENGTHS UP TO 80 FEET, ANY LONGER SPANS WILL HAVE TO BE MODIFIED TO ACCOUNT FOR THEIR MOVEMENT.
9. FOR RADII LESS THAN 950 FEET, HSS8x4 TUBES SHALL BE SHOP BENT TO FIT THE APPLICABLE CURVE.
10. THE MINIMUM DISTANCE FROM THE LAST POST TO THE END OF SLAB IS 1'-6".
11. FERRULES SHALL BE 12L14 COLD DRAWN CARBON STEEL.
12. HOLES IN RAIL FOR RAIL TUBE ATTACHMENT MAY BE FIELD DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
13. THIS RAILING MEETS THE REQUIREMENTS FOR A TL-2 SERVICE LEVEL.

OTHER STDS. REQUIRED: G-1

REVISIONS AND CORRECTIONS

MAY 24, 2012 - ORIGINAL APPROVAL

APPROVED

Wm. Michael Hedges
STRUCTURES ENGINEER

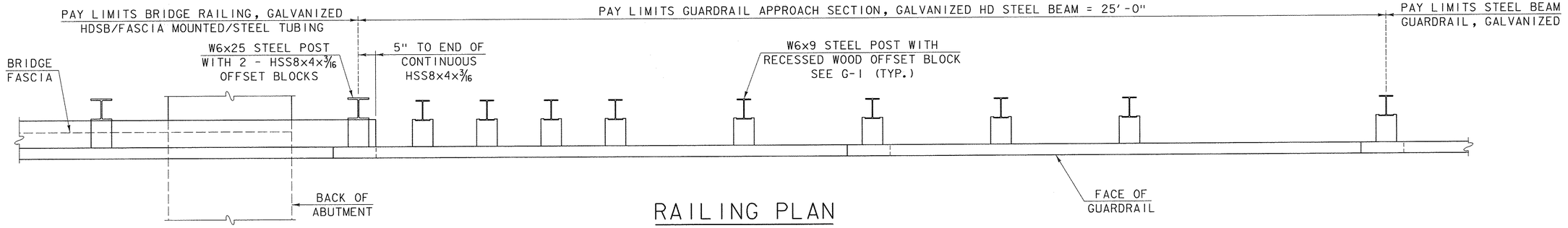
6/5/12
DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter 6-11-2012
FEDERAL HIGHWAY ADMINISTRATION

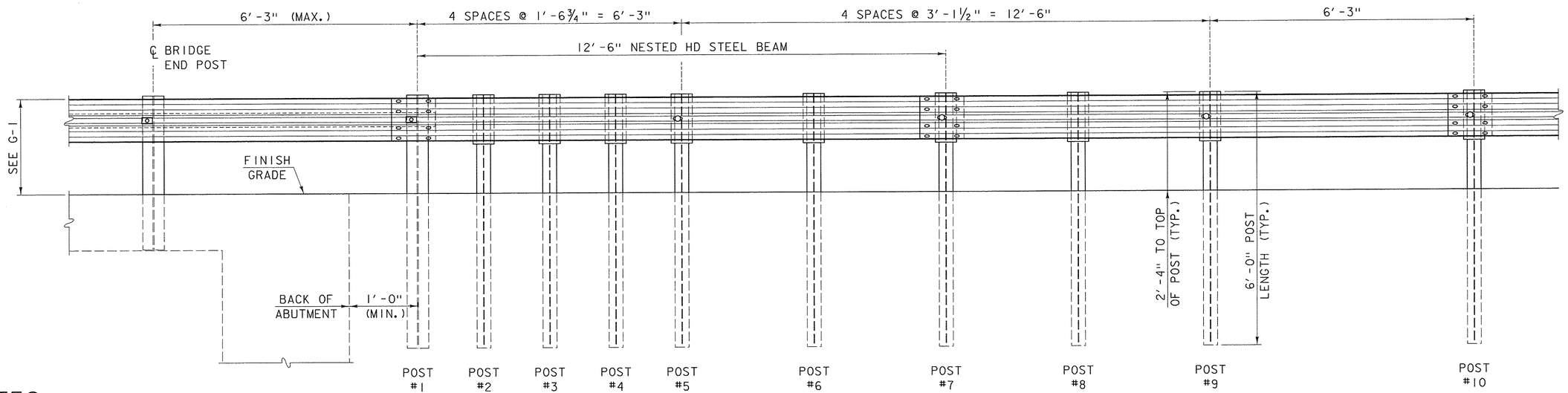
BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/ STEEL TUBING

VERMONT AGENCY OF TRANSPORTATION

STANDARD
S-367A



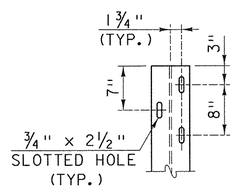
RAILING PLAN



RAILING ELEVATION

NOTES

1. PAYMENT FOR POST #1, HSS8x4x3/16 OFFSET BLOCKS AND TUBULAR BACKUP RAIL EXTENDING TO POST #1 OFF THE BRIDGE SHALL BE MADE UNDER BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING.
2. BLOCKOUTS SHALL BE RECESSED WOOD ONLY. STEEL OR PLASTIC BLOCKOUTS ARE NOT PERMITTED.
3. GUARDRAIL IS NOT ATTACHED TO POST NUMBERS 2-4, 6 AND 8. THERE SHALL BE NO GAP BETWEEN THE POSTS THAT ARE NOT ATTACHED AND THE RAIL. OFFSET BLOCKS SHALL BE ATTACHED TO POST WITH STANDARD POST BOLT.
4. POSTS MAY BE SET IN DRILLED HOLES OR DRIVEN TO GRADE.
5. THIS RAILING MEETS THE REQUIREMENTS FOR A NCHRP REPORT 350 TL-3 SERVICE LEVEL.



POST #1 HOLE DETAIL

OTHER STDS. REQUIRED: G-1

REVISIONS AND CORRECTIONS

MAY 24, 2012 - ORIGINAL APPROVAL

APPROVED

Wm. Michael Hedges
STRUCTURES ENGINEER

Richard Fehnel 6-5-12
DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter 6-11-2012
FEDERAL HIGHWAY ADMINISTRATION

GUARDRAIL APPROACH SECTION, GALVANIZED HD STEEL BEAM

VERMONT AGENCY OF TRANSPORTATION

STANDARD
S-367B