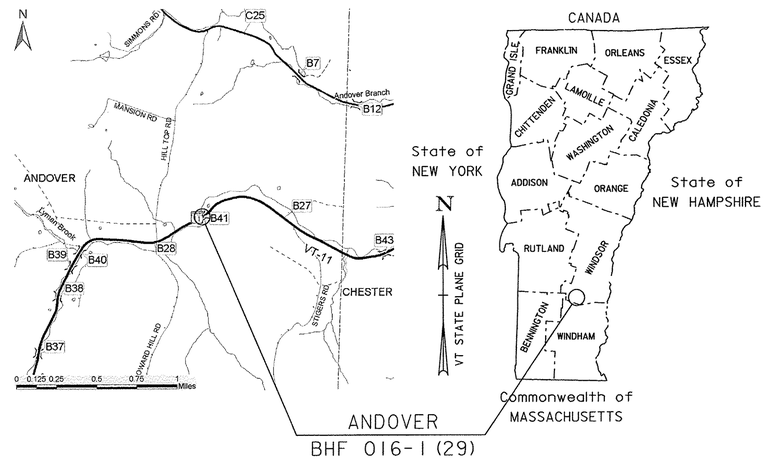
STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT

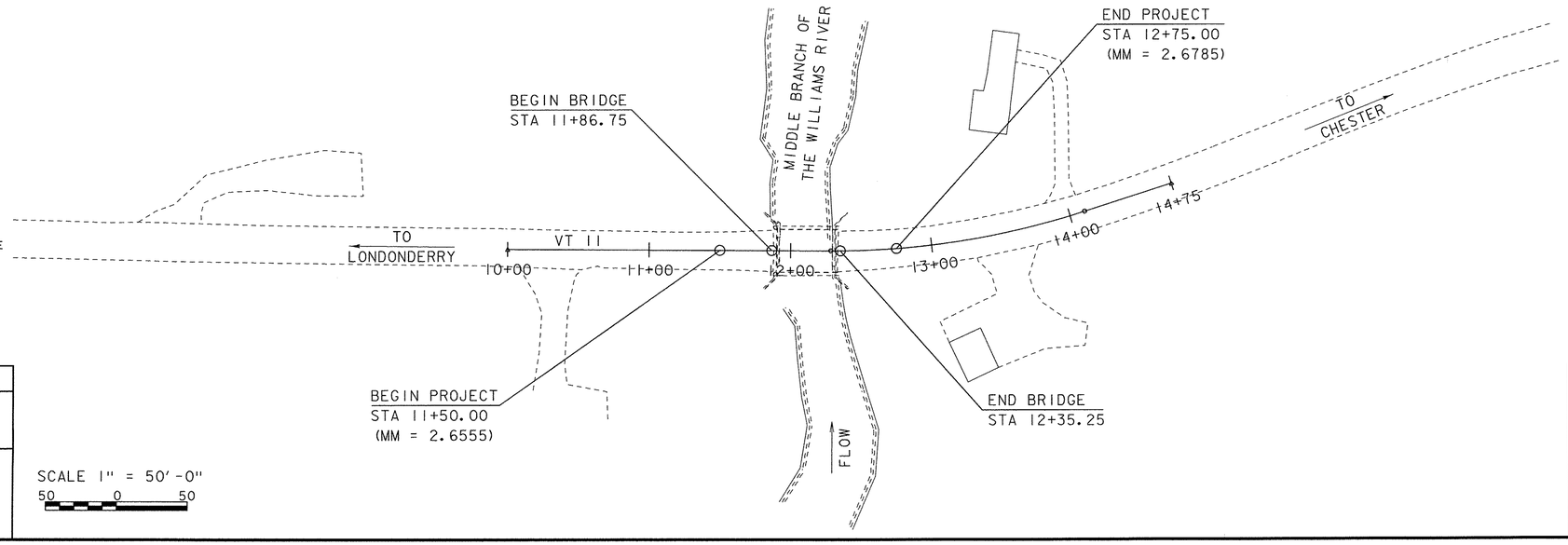
TOWN OF ANDOVER
COUNTY OF WINDSOR

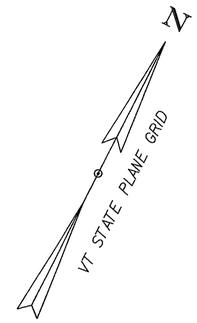
ROUTE NO : VT RTE 11, RURAL MINOR ARTERIAL BRIDGE NO : 41

PROJECT LOCATION: BEGINNING ON VT 11 APPROXIMATELY 4.0 MILES EAST OF THE INTERSECTION OF VT 11 AND VT 121 AND EXTENDING WESTERLY ALONG VT 11 FOR 0.024 MILES.

PROJECT DESCRIPTION: REMOVAL AND REPLACEMENT OF DECK AND SUPERSTRUCTURE WITH MINOR SUBSTRUCTURE REPAIRS, RELATED ROADWAY APPROACH AND CHANNEL WORK.

LENGTH OF STRUCTURE: 48.50 FEET
LENGTH OF ROADWAY: 76.50 FEET
LENGTH OF PROJECT: 125.00 FEET





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.

QUALITY ASSURANCE PROGRAM : LEVEL 2	
SURVEYED BY :	R. GILMAN
SURVEYED DATE :	5-28-2012
DATUM	
VERTICAL	NAVD88
HORIZONTAL	NAD83 (1996)

SCALE 1" = 50'-0"
50 0 50

DIRECTOR OF PROJECT DELIVERY APPROVED	DATE 1/9/2015
PROJECT MANAGER :	C. CARLSON, P.E.
PROJECT NAME :	ANDOVER
PROJECT NUMBER :	BHF 016-1(29)
SHEET 1 OF 48 SHEETS	

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version
LRFD

INDEX OF SHEETS

PLAN SHEETS

1	TITLE SHEET
2	PRELIMINARY INFORMATION SHEET
3 - 4	TYPICAL SECTIONS
5	CONVENTIONAL SYMBOLOGY LEGEND
6	GENERAL NOTES
7 - 8	QUANTITY SHEETS
9	BRIDGE QUANTITY SHEET
10	TIE
11	LAYOUT
12	PROFILE
13 - 17	TRAFFIC CONTROL SHEETS
18	UTILITY LAYOUT
19	PLAN & ELEVATION
20	FRAMING PLAN
21 - 22	BRIDGE END TYPICALS
23	NEXT BEAM TYPICAL SECTIONS
24	BRIDGE BEARINGS
25	APPROACH SLAB DETAILS
26 - 27	ABUTMENT PLAN & ELEVATION
28 - 29	ABUTMENT REINFORCING
30 - 31	WINGWALL REINFORCING
32	REINFORCING STEEL SCHEDULE
33	GROUT BAG PLACEMENT
34 - 38	VT 11 CROSS SECTIONS
39	MATERIAL TRANSITION DETAIL
40	BANKING DIAGRAM
41 - 42	CHANNEL CROSS SECTIONS
43	EPSC NARRATIVE
44	EPSC EXISTING LAYOUT
45	EPSC CONSTRUCTION LAYOUT
46	EPSC FINAL LAYOUT
47 - 48	EPSC DETAILS

STANDARDS LIST

C-10	CURBING	02-11-2008
E-136B	STATE ROUTE MARKER SIGN DETAILS	08-08-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	02-10-2014
G-19	GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS	11-15-2002
S-360A	BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM	04-23-2012
S-360B	GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM	04-23-2012
S-363	THRIE BEAM TO STANDARD STEEL BEAM TRANSITION SECTION	04-23-2012
T-1	TRAFFIC CONTROL GENERAL NOTES	08-06-2012
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-17	TRAFFIC CONTROL MISCELLANEOUS DETAILS	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-29	CONSTRUCTION SIGN DETAILS	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	08-06-2012
T-36	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING	08-06-2012

STRUCTURES DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	2/9/2012
SD-502.00	CONCRETE DETAILS AND NOTES	10/10/2012
SD-516.10	BRIDGE JOINT ASHPALTIC PLUG	8/29/2011

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: Dec. 2013

DRAINAGE AREA : 12.0 sq. mi.
CHARACTER OF TERRAIN : Hilly to mountainous
STREAM CHARACTERISTICS : Sinuous, incised and alluvial
NATURE OF STREAMBED : Gravel, cobbles and a some boulders

PEAK FLOW DATA

Q 2.33 =	800 cfs	Q 50 =	2700 cfs
Q 10 =	1670 cfs	Q 100 =	3170 cfs
Q 25 =	2240 cfs	Q 500 =	4300 cfs

DATE OF FLOOD OF RECORD : unknown
ESTIMATED DISCHARGE: unknown
WATER SURFACE ELEV.: unknown
NATURAL STREAM VELOCITY : @ Q50 = 12.0 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: Single span concrete T-beam bridge with steel beam widening
YEAR BUILT: Built 1927, widened 1963
CLEAR SPAN(NORMAL TO STREAM): 41'
VERTICAL CLEARANCE ABOVE STREAMBED: 10'
WATERWAY OF FULL OPENING: 380 sq. ft.
DISPOSITION OF STRUCTURE: Retain abutments and replace superstructrue
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1059.8'	VELOCITY =	7.0 fps
Q10 =	1061.9'	"	10.0 fps
Q25 =	1062.5'	"	12.1 fps
Q50 =	1063.3'	"	12.9 fps
Q100 =	1064.0'	"	13.5 fps

LONG TERM STREAMBED CHANGES: Some scour through the bridge

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 1068.5'
DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: N.A. - stream divides — DISTANCE:
HIGHWAY # : — STRUCTURE #:
CLEAR SPAN: — CLEAR HEIGHT:
YEAR BUILT: — FULL WATERWAY:
STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: Andover — DISTANCE: 4000'
HIGHWAY # : TH 29 — STRUCTURE #: 27
CLEAR SPAN: 32' — CLEAR HEIGHT: 8'
YEAR BUILT: 1974 — FULL WATERWAY: 250 sq. ft.
STRUCTURE TYPE: Steel beam bridge with concrete deck

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span Next Beam bridge

CLEAR SPAN(NORMAL TO STREAM): 41'
VERTICAL CLEARANCE ABOVE STREAMBED: 11'
WATERWAY OF FULL OPENING: 440 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1059.8'	VELOCITY=	7.0 fps
Q10 =	1061.9'	"	10.1 fps
Q25 =	1062.5'	"	12.1 fps
Q50 =	1063.3'	"	12.9 fps
Q100 =	1064.0'	"	13.5 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 1068.5'
DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1066.1'
VERTICAL CLEARANCE: @ Q50 = 2.8'

SCOUR: Contraction scour - Q100 = 1' and Q500 = 2'
Additional abutment scour and long term degradation can be expected.
REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW:	25 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	10 cfs	Depth = 0.5'
ORDINARY HIGH WATER:	340 cfs	Depth = 3.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge required
CLEAR SPAN (NORMAL TO STREAM):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

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	2.84	1.38					
POSTING							
OPERATING	4.26	1.79	3.82	1.76	2.48	2.13	2.61
COMMENTS:							

DESIGN VALUES

1.	DESIGN LIVE LOAD		HL-93
2.	FUTURE PAVEMENT	d_p:	3.0 INCH
3.	DESIGN SPAN	L:	44'-0" FT
4.	MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	1.09 INCH
5.	PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f_y:	270 KSI
6.	PRESTRESSED CONCRETE STRENGTH	f'_c:	10.0 KSI
7.	PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	8.0 KSI
8.	CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	---
9.	CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	4.0 KSI
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.	NOMINAL BEARING RESISTANCE OF SOIL	q_n:	---
15.	SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
16.	NOMINAL BEARING RESISTANCE OF ROCK	q_n:	---
17.	ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
18.	PILE RESISTANCE FACTOR	ϕ:	---
19.	LATERAL PILE DEFLECTION	Δ:	---
20.	BASIC WIND SPEED	V_{3s}:	---
21.	MINIMUM GROUND SNOW LOAD	P_g:	---
22.	SEISMIC DATA — PGA: 0	S_s:	---
		S_1:	---
23.			---
24.			---
25.			---
26.			---

AS BUILT "REBAR" DETAIL

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

TRAFFIC DATA

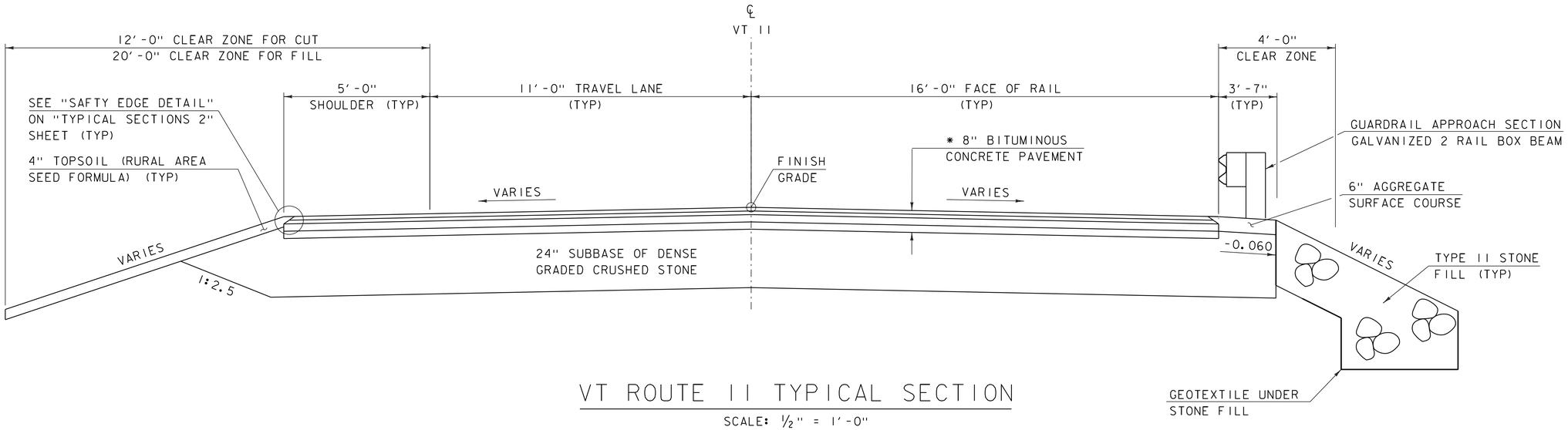
YEAR	ADT	DHV	% D	% T	ADTT
2015	2700	320	53	13.7	440
2035	2900	340	53	19.2	670

20 year ESAL for flexible pavement from 2015 to 2035 : 2770000
40 year ESAL for flexible pavement from 2015 to 2055 : 6188000
Design Speed : 50 mph

PROJECT NAME: **ANDOVER**
PROJECT NUMBER: **BHF 016-1(29)**

FILE NAME: **s12b140pi.dgn**
PROJECT LEADER: **C. CARLSON**
DESIGNED BY: **D. PETERSON**
PRELIMINARY INFORMATION SHEET

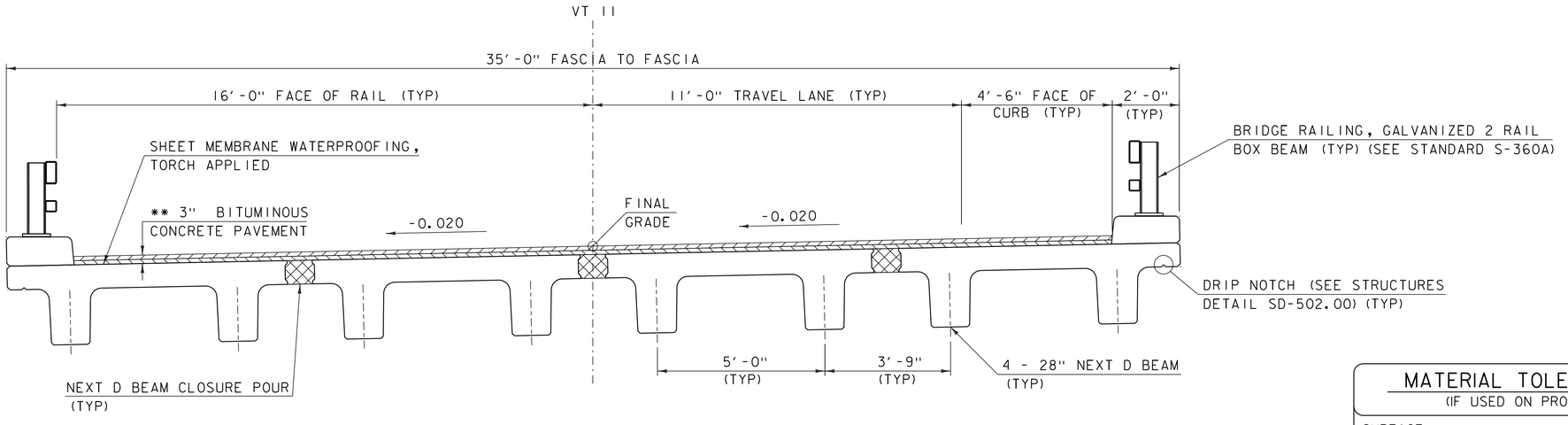
PLOT DATE: 2/10/2015
DRAWN BY: **S. PIRO**
CHECKED BY: **D. PETERSON**
SHEET 2 OF 48



VT ROUTE 11 TYPICAL SECTION

SCALE: ½" = 1'-0"

* 1½" TYPE IVS BITUMINOUS CONCRETE PAVEMENT
1½" TYPE IVS BITUMINOUS CONCRETE PAVEMENT
2½" TYPE IIS BITUMINOUS CONCRETE PAVEMENT
2½" TYPE IIS BITUMINOUS CONCRETE PAVEMENT



BRIDGE TYPICAL SECTION

SCALE: ½" = 1'-0"

** 1½" TYPE IVS BITUMINOUS CONCRETE PAVEMENT
1½" TYPE IVS BITUMINOUS CONCRETE PAVEMENT

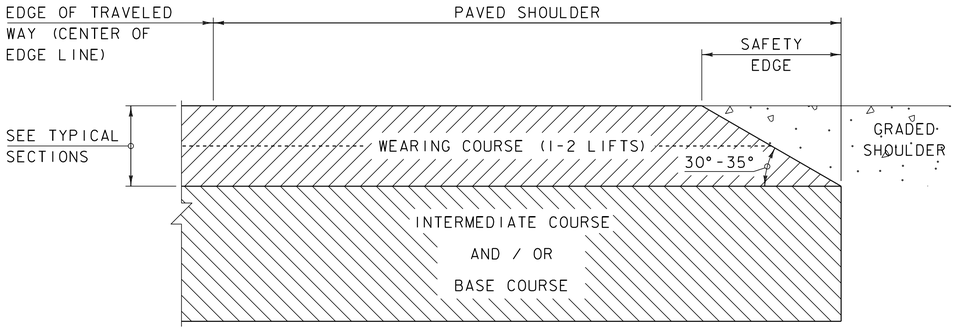
MATERIAL TOLERANCES
(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

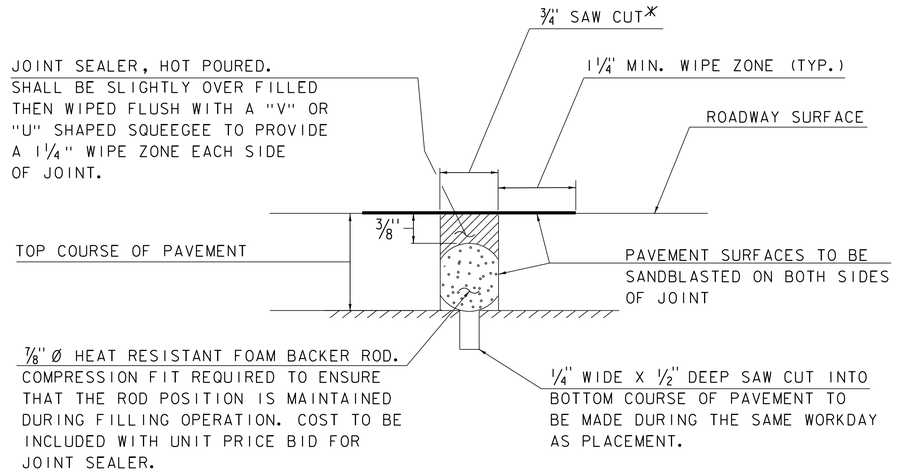
FILE NAME: sl2bl40typ.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
TYPICAL SECTIONS 1

PLOT DATE: 06-JAN-2015
DRAWN BY: S. PIRO
CHECKED BY: D. PETERSON
SHEET 3 OF 48



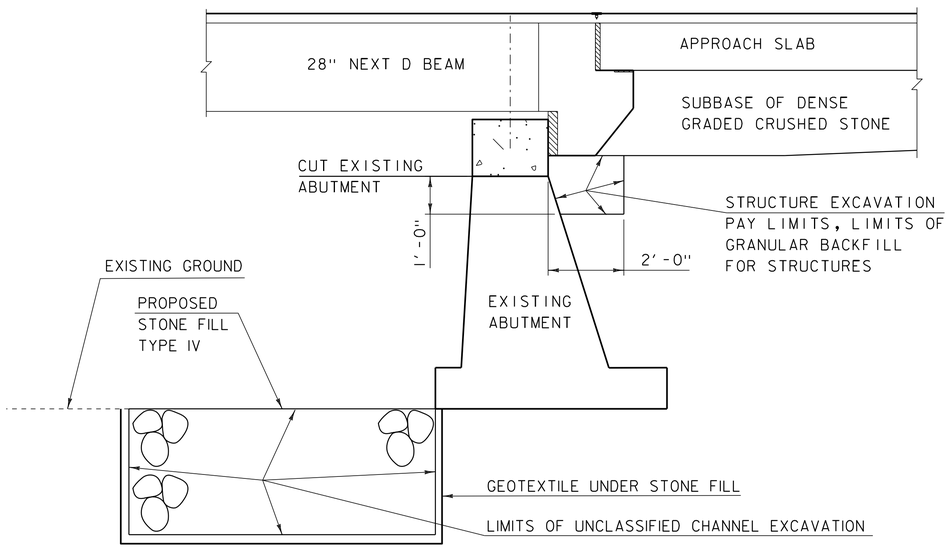
SAFETY EDGE DETAIL
(NOT TO SCALE)

1. LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.
2. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.
3. THE PAVED SHOULDER EXTENDS FROM THE EDGE OF TRAVELED WAY TO THE EDGE OF THE WEARING COURSE, INCLUDING THE "SAFETY EDGE".



SAWED PAVEMENT JOINT DETAIL
(NOT TO SCALE)

* JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUTS WILL BE MADE DIRECTLY OVER THE END OF CONCRETE DECK. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING THE JOINT SEALER.



EARTH WORK TYPICAL SECTION
(NOT TO SCALE)

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: sl2bl40typ.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: S. PIRO
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
TYPICAL SECTIONS 2	SHEET 4 OF 48

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	BENCHMARK
	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

	UTILITY (GENERIC-UNKNOWN)
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)

	UTILITY (GENERIC-UNKNOWN)
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	PROJECT DEMARCATION FENCE
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	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

SEE EPSC DETAIL SHEETS FOR ADDITIONAL SYMBOLOGY

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

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:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: sl2bl40legend.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: S. PIRO
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
CONVENTIONAL SYMBOLOGY LEGEND	SHEET 5 OF 48

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011 AND ITS LATEST REVISIONS, THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FIFTH EDITION, DATED 2012 AND ITS LATEST REVISIONS AND THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS THIRD EDITION, DATED 2010 AND ITS LATEST REVISIONS.

2. THE BRIDGE WAS DESIGNED FOR THE HL-93 LIVE LOADS.

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

4. ADJUSTMENTS TO THE BITUMINOUS WEARING SURFACE ON THE BRIDGE SHALL BE MADE TO ACCOUNT FOR THE DIFFERENCE BETWEEN BEAM CAMBER AND THE THEORETICAL ROADWAY PROFILE. THE WEARING SURFACE SHALL BE SHIMMED TRANSVERSELY AS NECESSARY TO ACCOUNT FOR POTENTIAL DIFFERENTIAL CAMBER OF THE ADJACENT BEAMS.

EARTHWORK AND RELATED ITEMS

5. TEMPORARY CONSTRUCTION FILLS WITHIN THE WATERCOURSE FOR ANY PURPOSE SHALL CONSIST OF CLEAN STONE FILL ONLY. NO OTHER FILLING IN THE STREAM SHALL OCCUR WITHOUT THE APPROVAL OF THE RIVER MANAGEMENT ENGINEER.

6. THE BACKFILL BEHIND THE ABUTMENTS SHALL NOT BE PLACED HIGHER THAN THE BRIDGE SEATS UNTIL CONSTRUCTION ON THE ABUTMENTS AND DECK IS COMPLETED.

7. THE "STONE FILL, TYPE III" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE NEXT BEAMS ARE SET.

8. ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE" SHALL INCLUDE:

   - REMOVAL OF EXISTING SUPERSTRUCTURE INCLUDING: BRIDGE PAVEMENT, STEEL AND CONCRETE BEAMS, CONCRETE BRIDGE DECK AND BRIDGE CURB AND RAIL.
   - CUTTING AND PARTIAL REMOVAL OF THE EXISTING SUBSTRUCTURES TO THE ELEVATIONS SHOW IN THE PLANS, INCLUDING CUTTING OFF THE EXISTING REINFORCING STEEL.

CONCRETE AND REINFORCING

9. SUBSTRUCTURE CONCRETE SHALL BE HIGH PERFORMANCE CONCRETE, CLASS B. PAYMENT WILL BE MADE UNDER CONTRACT ITEMS 501.34.

10. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT THE UNDERSIDE OF THE DECK BETWEEN DRIP NOTCHES.

11. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS SHOWN IN THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.

12. THE CONTRACTOR MAY CHOOSE TO HAVE THE CURBS ON THE BRIDGE PRECAST WITH THE FASCIA NEXT BEAM OR TO CAST THE CURBS IN PLACE AFTER THE FASCIA NEXT BEAMS HAVE BEEN SET. CONCRETE FOR CAST-IN-PLACE CURBS SHALL MEET THE REQUIREMENTS OF SECTION 501 FOR CONCRETE, HIGH PERFORMANCE CLASS A AND WILL BE PAID FOR UNDER CONTRACT ITEM 501.33. CONCRETE FOR PRECAST CURBS SHALL MEET THE REQUIREMENTS OF SECTION 540 AND WILL BE PAID FOR UNDER CONTRACT ITEM 900.640 SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS)(NEXT 28 D).

13. ALL REINFORCING STEEL BELOW THE BRIDGE SEAT AND IN THE WINGWALLS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL I REINFORCING AND WILL BE PAID FOR UNDER CONTRACT ITEM 507.11. REINFORCING IN THE APPROACH SLABS AND APPROACH SLAB CLOSURE POURS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL I REINFORCING. ALL COSTS ASSOCIATED WITH THE APPROACH SLAB CLOSURE POUR REINFORCING SHALL BE INCLUDED IN THE BID PRICE FOR EACH 540.10 AND 900.645, "SPECIAL PROVISION, (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)" CONTRACT ITEM AS APPROPRIATE. LONGITUDINAL REINFORCING STEEL IN THE BRIDGE CURBS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL II REINFORCING AND WILL BE PAID FOR UNDER CONTRACT ITEM 507.12.

14. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE:
    SPACING: +/- 1 INCH
    CLEARANCE: +/- ¼ INCH

15. THE METHOD OF FORMING FOR SUBSEQUENT POURS AFTER PLACING PRECAST/PRESTRESSED SUPERSTRUCTURE UNITS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR IS ENCOURAGED TO WORK WITH THE FABRICATOR IF ADDITIONAL SUPPORTS ARE REQUIRED. IN NO CASE SHALL THE CONTRACTOR ATTACH ADDITIONAL FORM OR SCREED SUPPORTS BY DRILLING OR SIMILAR MEANS INTO ANY PRECAST/PRESTRESSED SUPERSTRUCTURE UNIT.

16. BARS SHALL BE DRILLED AND GROUTED INTO THE EXISTING ABUTMENTS AND WINGWALLS AS SHOWN ON THE PLANS. THE DOWELS SHALL HAVE A 2'-0" MINIMUM EMBEDMENT IN THE SUBSTRUCTURE AND SHALL EXTEND A MINIMUM OF 1'-6" INTO THE NEW CONCRETE, UNLESS NOTED OTHERWISE.

NEXT D BEAMS

17. THE NEXT D BEAMS ARE A NON-PROPRIETARY SHAPE DEVELOPED BY PCI NORTHEAST (PCINE). STANDARDIZED SECTION PROPERTIES AND DETAILS MAY BE FOUND AT HTTP://WWW.PCINE.ORG.

18. DESIGN VALUES
    a. CONCRETE COMPRESSIVE STRENGTH: f'c = 10,000 PSI
    b. CONCRETE COMPRESSIVE STRENGTH AT RELEASE: f'ci = 8,000 PSI
    c. PRESTRESSING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS
    d. ASSUMED MODULUS OF ELASTICITY = 28,500 KSI
    e. JACKING FORCE PER STRAND = 47 KIPS
    f. SERVICE LOADS:

MEMBER MOMENT:	343.1 K-FT
SUPERIMPOSED DEAD LOAD MOMENT:	70.3 K-FT
LIVE LOAD AND IMPACT MOMENT:	677.0 K-FT
DEAD LOAD REACTION:	42.6 KIPS
LIVE LOAD AND IMPACT REACTION:	78.8 KIPS
TOTAL REACTION:	121.4 KIPS
CAMBER AT RELEASE:	1.09 INCHES
FINAL CAMBER:	2.36 INCHES

19. ADDITIONAL LONGITUDINAL STEEL IN THE NEXT BEAM AND CURTAIN WALL CLOSURE POURS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL II REINFORCING AND WILL BE PAID FOR UNDER CONTRACT ITEM 900.640 SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS)(NEXT 28 D).

20. FORMING FOR ENDS OF FLANGES ALONG LONGITUDINAL CLOSURE POURS SHALL BE TREATED WITH CONCRETE SURFACE RETARDER, OR SIMILAR, TO PROVIDE A ROUGHENED / EXPOSED AGGREGATE SURFACE; AND SHALL BE POWER WASHED WITH WATER PRIOR TO ERECTION OF THE BEAMS.

21. THE CONCRETE FOR FLANGE CLOSURE POURS SHALL BE PAID FOR UNDER ITEM 900.608 SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ).

22. METHOD OF FORMING FLANGE CONNECTION SHALL BE DETERMINED BY THE CONTRACTOR. THE FORMS SHALL BE REMOVABLE AND ABLE TO ACCOMMODATE DIFFERENTIAL CAMBER. FORM SUPPORTS SHALL NOT BE ATTACHED TO ANY PREFABRICATED SUPERSTRUCTURE ELEMENT BY DRILLING OR SIMILAR MEANS.

23. THE FABRICATOR MAY ALTER THE DESIGN AS DETAILED IN THESE PLANS TO ACCOMMODATE THEIR SPECIFIC OPERATION. ANY ALTERATION SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT TO MEET SPECIFIED CRITERIA AND SHALL BE APPROVED BY THE PROJECT MANAGER.

24. PAYMENT FOR CURTAIN WALL CONCRETE AND REINFORCING STEEL, WITH THE EXCEPTION OF THAT REQUIRED FOR CLOSURE POURS, WILL BE INCLUDED UNDER CONTRACT ITEM 900.640 SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS)(NEXT 28 D).

TRAFFIC CONTROL

25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN. 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 MORE DETAILS. ALL COST SHALL BE INCLUDED IN ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).

26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DETOUR AND CONSTRUCTION SIGNING. THE EXACT LOCATION WILL BE COORDINATED BY THE RESIDENT ENGINEER AND THE CONTRACTOR AND SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, DATED 2009, AND ITS LATEST REVISIONS AND THE LATEST EDITION OF THE STANDARD HIGHWAY SIGNS (SHS) BOOK.

27. THE PROPOSED DETOUR WILL USE VT 103 AND VT 100 TO MAINTAIN TRAFFIC WHILE VT 11 IS CLOSED TO THROUGH TRAFFIC FOR THE REPLACEMENT OF BRIDGE 41.

28. BRIDGE 41 SHALL BE CLOSED FOR NO MORE THAN 10 CONSECUTIVE CALENDAR DAYS. SEE SPECIAL PROVISIONS FOR WORK REQUIREMENTS AND INCENTIVE/DISINCENTIVE PROVISIONS FOR THE BRIDGE CLOSURE PERIOD. THE TOWN OF ANDOVER AND DISTRICT 2 SHALL BE NOTIFIED TWO WEEKS PRIOR TO THE CLOSURE.

29. TRAFFIC CONTROL WARNING SIGNS SHALL BE PROVIDED PER STANDARDS T-10 AND T-17. ADDITIONAL PROJECT CONSTRUCTION SIGNS SHALL BE INSTALLED AS REQUIRED BY THE RESIDENT ENGINEER.

30. ALL ON AND OFF PROJECT SIGNS AND BARRICADES AS REQUIRED FOR THE DETOUR AND/OR ORDERED BY THE RESIDENT ENGINEER WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE PAID FOR UNDER ITEM 900.645, SPECIAL PROVISION, "TRAFFIC CONTROL, ALL INCLUSIVE". ALL SIGNS AND BARRICADES SHALL BE INSPECTED DAILY AND REPAIRED AS NECESSARY. ALL SIGNS AND BARRICADES SHALL BE CLEARED OF DUST AND DEBRIS WEEKLY.

31. THE STATE ROUTE MARKERS USED FOR THE DETOUR AS SHOWN ON THE PLANS SHALL FOLLOW STANDARD E-136B. THESE SIGNS SHALL BE REMOVED AT THE END OF THE CONSTRUCTION PERIOD. THESE SIGNS AND THEIR REMOVAL SHALL BE PAID FOR UNDER ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).

32. PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE PLACED AS SHOWN ON THE PLANS. THE PCMS'S SHALL BE PLACED AT THE PROJECT LOCATION 14 DAYS PRIOR TO THE BRIDGE CLOSURE TO WARN OF THE IMPENDING DETOUR. THE MESSAGES SHALL BE UPDATED AS CONSTRUCTION PROGESSES. PAYMENT FOR THESE SIGNS WILL BE MADE FOR UNDER ITEM 641.17 "PORTABLE CHANGEABLE MESSAGE SIGN RENTAL".

33. THE MESSAGES ON THE PCMS'S AND THEIR PLACEMENT SHALL BE DETERMINED BY THE RESIDENT ENGINEER AS DETAILED ON THE "PROJECT SITE TRAFFIC CONTROL" PLAN.

34. INSTALLATION OF DETOUR SIGNS SHALL NOT BLOCK ANY EXISITNG TRAFFIC CONTROL SIGN ASSEMBLIES. CONTRACTOR SHALL TRY TO MAINTAIN AT LEAST 200 FEET BETWEEN SIGN ASSEMBLIES.

35. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ADJUSTMENTS AS NEEDED TO THE TRAFFIC CONTROL PLAN DUE TO CONFLICTS WITH EXISTING SIGNS AND DRIVEWAYS. ALL EXISTING TRAFFIC CONTROL SIGNS THAT CONFLICT WITH THE DETOUR SHALL BE FULLY COVERED.

36. ALL SIGNS REMOVED OR COVERED BY THE CONTRACTOR SHALL BE REPLACED OR UNCOVERED WHEN THE TRAFFIC CONTROL SIGNS ARE REMOVED.

37. FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION "TRAFFIC CONTROL, ALL INCLUSIVE".

38. FOR MORE INFORMATION REGARDING THE DETOUR SEE THE PROJECT SPECIAL PROVISIONS.

MISCELLANEOUS

39. ITEM 404.65 "EMULSIFIED ASPHALT" IS TO BE APPLIED AT A RATE OF 0.025 GAL/SY ON ALL COLD PLANED SURFACES AND BETWEEN SUCCESSIVE COURSES OF PAVEMENT OR AS DIRECTED BY THE ENGINEER.

40. THE CONTRACTOR SHALL BE AWARE THAT THE CHANNEL ON THE SOUTH EAST CORNER OF THE BRIDGE HAS CHANGED SIGNIFICANTLY SINCE THE PROJECT WAS SURVEYED IN 2012 DUE TO A STORM IN AUGUST 2014.

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

FILE NAME: 12B140/STR/sl2b140gn.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
GENERAL NOTES

PLOT DATE: 22-JAN-2015
DRAWN BY: S. PIRO
CHECKED BY: D. PETERSON

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY	EROSION CONTROL	BRIDGE	FULL C. E. ITEMS
1			
660			
		80	
1			
		10	
		10	
446			
440			
30			
9			
1			
		6	
		14	
		2400	
		315	
		488	
		20	
		64	
		168	
		64	
		97	
		64	
		97	
		1	
		16	
		1	
		1	
		1	
		1	
1			
280			
		90	
160			
4			
4			
257			
250			

TOTALS

GRAND TOTAL	FINAL
1	
660	
80	
1	
10	
10	
446	
440	
30	
9	
1	
6	
14	
2400	
315	
488	
20	
64	
168	
64	
97	
64	
97	
1	
16	
1	
1	
1	
1	
1	
280	
90	
160	
4	
4	
257	
250	

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	
SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	
CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	
CY	AGGREGATE SURFACE COURSE	401.10	
CWT	EMULSIFIED ASPHALT	404.65	
LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	
CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33	
CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34	
LB	REINFORCING STEEL, LEVEL I	507.11	
LB	REINFORCING STEEL, LEVEL II	507.12	
LF	DRILLING AND GROUTING DOWELS	507.16	
GAL	WATER REPELLENT, SILANE	514.10	
LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10	
SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20	
LF	JOINT SEALER, HOT POURED	524.11	
LF	BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM	525.33	
EACH	PARTIAL REMOVAL OF STRUCTURE	529.20	
EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17	
	BEGIN OPTION AA		
LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 1)	540.10	
LS	SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)(APPROACH SLAB NO. 1)	900.645	
	END OPTION AA		
	BEGIN OPTION BB		
LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 2)	540.10	
LS	SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)(APPROACH SLAB NO. 2)	900.645	
	END OPTION BB		
MGAL	DUST CONTROL WITH WATER	609.10	
CY	STONE FILL, TYPE II	613.11	
CY	STONE FILL, TYPE IV	613.13	
LF	CAST-IN-PLACE CONCRETE CURB, TYPE B	616.28	
EACH	MANUFACTURED TERMINAL SECTION, TANGENT	621.51	
EACH	GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM	621.72	
LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	
HR	UNIFORMED TRAFFIC OFFICERS	630.10	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		EARTHWORKS SUMMARY
		FILL AVAILABLE
660	CY	COMMON EXCAVATION (660 X 1.0)
24	CY	UNCLASSIFIED CHANNEL EXCAVATION (80 X 0.3)
0	CY	TRENCH EXCAVATION OF EARTH (0 X 1)
3	CY	STRUCTURE EXCAVATION (10 X 0.3)
0	CY	COFFERDAM EXCAVATION, EARTH (0 X 0.3)
0	CY	COFFERDAM EXCAVATION, ROCK (0 X 1)
3	CY	ROUNDING
690	**CY**	**TOTAL FILL AVAILABLE**
		FILL REQUIRED
0	CY	FACTORED FILL (0 X 1.15)
0	CY	ROUNDING
0	**CY**	**TOTAL FILL REQUIRED**
690		**TOTAL WASTE**

(N.A.B.I.) = NOT A BID ITEM

(FPQ) FINAL PAY QUANTITY

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

FILE NAME: 12B140/STR/s12b140qs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
QUANTITY SHEET 1

PLOT DATE: 22-JAN-2015
DRAWN BY: S. PIRO
CHECKED BY: D. PETERSON

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
420									420		HR	FLAGGERS	630.15				
			1						1		LS	FIELD OFFICE, ENGINEERS	631.10				
			1						1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
			1						1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
			3000						3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
1									1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
28									28		DAY	PORTABLE CHANGEABLE MESSAGE SIGN RENTAL	641.17				
660									660		LF	4 INCH WHITE LINE	646.20				
650									650		LF	4 INCH YELLOW LINE	646.21				
150		190							340		SY	GEOTEXTILE UNDER STONE FILL	649.31				
	178								178		SY	GEOTEXTILE FOR SILT FENCE	649.51				
	64								64		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61				
	10								10		LB	SEED	651.15				
	10								10		LB	SEED, WINTER RYE	651.17				
	100								100		LB	FERTILIZER	651.18				
	1								1		TON	AGRICULTURAL LIMESTONE	651.20				
	1								1		TON	HAY MULCH	651.25				
	20								20		CY	TOPSOIL	651.35				
	180								180		SY	GRUBBING MATERIAL	651.40				
	1								1		LS	EPSC PLAN	652.10				
	50								50		HR	MONITORING EPSC PLAN	652.20				
	1								1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
	100								100		SY	TEMPORARY EROSION MATTING	653.20				
	30								30		CY	VEHICLE TRACKING PAD	653.35				
	530								530		LF	PROJECT DEMARCATION FENCE	653.55				
		5							5		CY	SPECIAL PROVISION (GROUT BAGS)	900.608				
		8							8		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)	900.608				
		176							176		LF	SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS)(NEXT 28 D)	900.640				
1									1		LS	SPECIAL PROVISION (CPM SCHEDULE)	900.645				
1									1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
1									1		LU	SPECIAL PROVISION (INCENTIVE/DISINCENTIVE)(N.A.B.I.)	900.650				
1									1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
1									1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
340		68							408		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

FILE NAME: 12B140/STR/sl2b140qs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
QUANTITY SHEET 2

PLOT DATE: 22-JAN-2015
DRAWN BY: S. PIRO
CHECKED BY: D. PETERSON
SHEET 8 OF 48

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES

SUPERSTRUCTURE	ABUTMENT NO.1	ABUTMENT NO. 2	CHANNEL	TOTALS: BRIDGE TOTAL	UNIT	DESCRIPTIONS: ITEMS	ITEM NUMBER
			80	80	CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27
	5	5		10	CY	STRUCTURE EXCAVATION	204.25
	5	5		10	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30
	3	3		6	CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33
	7	7		14	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34
	1200	1200		2400	LB	REINFORCING STEEL, LEVEL I	507.11
315				315	LB	REINFORCING STEEL, LEVEL II	507.12
	244	244		488	LF	DRILLING AND GROUTING DOWELS	507.16
6	7	7		20	GAL	WATER REPELLENT, SILANE	514.10
64				64	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10
168				168	SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20
64				64	LF	JOINT SEALER, HOT POURED	524.11
97				97	LF	BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM	525.33
1				1	EACH	PARTIAL REMOVAL OF STRUCTURE	529.20
	8	8		16	EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17
						BEGIN OPTION AA	
1				1	LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 1)	540.10
1				1	LS	SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)(APPROACH SLAB NO. 1)	900.645
						END OPTION AA	
						BEGIN OPTION BB	
1				1	LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 2)	540.10
1				1	LS	SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)(APPROACH SLAB NO. 2)	900.645
						END OPTION BB	
			90	90	CY	STONE FILL, TYPE IV	613.13
			190	190	SY	GEOTEXTILE UNDER STONE FILL	649.31
	5			5	CY	SPECIAL PROVISION (GROUT BAGS)	900.608
8				8	CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)	900.608
176				176	LF	SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS)(NEXT 28 D)	900.640
68				68	TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

FILE NAME: 12B140/STR/sl2b140qs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE QUANTITY SHEET

PLOT DATE: 22-JAN-2015
DRAWN BY: S. PIRO
CHECKED BY: D. PETERSON
SHEET 9 OF 48

GPS CONTROL POINTS

HVCTRL #1

SIMONSVILLE
NORTH = 276627.440
EAST = 1583690.570
ELEV. = 1137.542

GENERAL LOCATION ANDOVER, VT. IN THE VILLAGE OF SIMONSVILLE. TO REACH FROM THE INTERSECTION OF VT. ROUTES 121 AND 11 IN NORTH WINDHAM (LONDONDERRY) GO NORTHEAST ALONG VT. ROUTE 11 FOR 3.4 MI (5.5 KM) TO THE SITE OF THE MARK ON THE LEFT IN A ROCK OUTCROP IN A GRASSY AREA. IT IS 0.3 MI (0.5 KM) WEST OF THE INTERSECTION OF VT. ROUTE 11 AND HILL TOP ROAD (NORTH) AND HOWARD HILL ROAD (SOUTH). THE MARK IS SET IN THE TOP OF A 0.8 X 0.6 M (2.0 FT) ROCK OUTCROP. IT IS 5.5 M (18.0 FT) NORTH OF AND ABOUT 0.3 M (1.0 FT) LOWER THAN THE NORTH EDGE OF PAVEMENT OF VT. ROUTE 11, 33.3 M (109.3 FT) NORTHWEST OF POLE NO.237, 39.4 M (129.3 FT) NORTHEAST OF POLE NO. 242/227, AND 1.6 M (5.2 FT) SOUTH OF A FIBERGLASS WITNESS POST.

HVCTRL #2

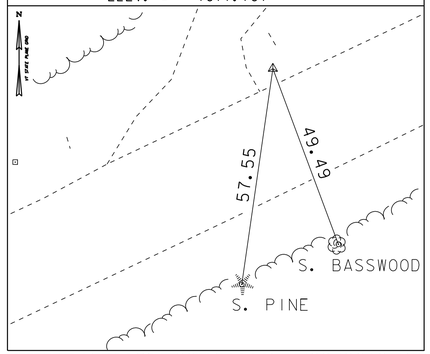
SIMONSVILLE AZ MK
NORTH = 276452.330
EAST = 1585221.640
ELEV. = 1104.463

GENERAL LOCATION ANDOVER, VT. IN THE VILLAGE OF SIMONSVILLE. TO REACH FROM THE INTERSECTION OF VT. ROUTES 121 AND 11 IN NORTH WINDHAM LONDONDERRY) GO NORTHEAST ALONG VT. ROUTE 11 FOR 3.7 MI (6.0 KM) TO THE INTERSECTION OF HOWARD HILL ROAD RIGHT AND THE SITE OF THE MARK ON THE RIGHT. THE MARK IS SET 2 CM BELOW GROUND SURFACE IN THE TOP OF 30 CM DIAMETER CONCRETE MONUMENT SET 1.1 M (3.6 FT) DEEP. IT IS 16.3 M (53.5 FT) SOUTH OF AND ABOUT 0.3 M (1.0 FT) LOWER THAN THE CENTERLINE OF VT. ROUTE 11, 3.6 M (11.8 FT) EAST OF THE CENTERLINE OF HOWARD HILL ROAD, 11.3 M (37.1 FT) WEST OF THE NORTHWEST PORCH CORNER OF A 1 1/2 STORY WOOD FRAME HOUSE, 14.0 M (45.9 FT) EAST OF POLE NO. 1/230A/220-A, AND 1.8 M (5.9 FT) SOUTH OF A STOP SIGN AND A FIBERGLASS WITNESS POST.

TRAVERSE TIES

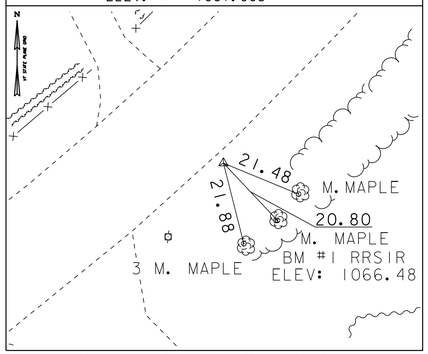
HVCTRL #3

NORTH = 277154.304
EAST = 1586402.825
ELEV. = 1077.701



HVCTRL #4

NORTH = 277421.339
EAST = 1586957.674
ELEV. = 1067.003



NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

*MAIN TRAVERSE COMPLETED 5/28/2012 BY R. GILMAN P.C. & P. WINTERS & C. CYR

ALIGNMENT TIES

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

DATUM

VERTICAL NAVD 88
HORIZONTAL NAD 83 (96)
ADJUSTMENT NONE

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

FILE NAME: s12b140tie.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
TIE

PLOT DATE: 06-JAN-2015
DRAWN BY: S. PIRO
CHECKED BY: D. PETERSON
SHEET 10 OF 48

CONSTRUCT DRIVE (PAVED)
VT II STA 13+25.00 - 13+75.00 RT

COLD PLANING, BITUMINOUS PAVEMENT
VTII STA 10+50.00 - 11+00.00
VTII STA 13+25.00 - 13+75.00

4" YELLOW LINE
VT II STA 10+50.00 - 13+75.00 LT/RT

4" WHITE LINE
VT II STA 10+50.00 - 13+75.00 LT
VT II STA 10+50.00 - 13+75.00 RT

STONE FILL, TYPE II
VT II STA 11+40.00 - 11+88.00 RT
VT II STA 11+45.00 - 11+88.00 LT
VT II STA 12+33.83 - 12+58.50 RT
VT II STA 12+33.83 - 12+44.00 LT

CAST-IN-PLACE CONCRETE CURB, TYPE B
VT II STA 11+47.03 - 11+86.74 RT
VT II STA 11+47.03 - 11+86.74 LT
VT II STA 12+35.20 - 12+73.78 RT
VT II STA 12+35.20 - 12+76.03 LT

BENCHMARK
RR SPIKE IN POLE
ELEV = 1073.34

POB
STA 10+00.00

BEGIN APPROACH
STA 10+50.00

BEGIN PROJECT
STA 11+50.00

CONSTRUCTION
LIMITS (TYP)

STONE FILL
TYPE IV (TYP)

STA 52+00.00

PC
STA 12+28.46

END BRIDGE
STA 12+35.25
BK P.O.S.T.

END PROJECT
STA 12+75.00

PT
STA 14+10.77

POE
STA 14+75.00

N 63° 18' 00.00" E

N 45° 08' 00.00" E

10+00
11+00
12+00
13+00
14+00
14+75

52+00

50+00

STA 50+00.00

MAINLINE STA 12+25.00
=CHANNEL STA 51+00.00
△ = 90° LT

BEGIN BRIDGE
STA 11+86.75

STONE FILL
TYPE II (TYP)

END APPROACH
STA 13+75.00

PI
STA 13+20.39 BK
STA 13+18.84 AHD

R=16'
(TYP)

CURVE (1)
DELTA = 18° 10' 00"
D = 9° 57' 52"
R = 575.00'
T = 91.93'
L = 182.31'
E = 7.30'

EXISTING BRIDGE INFO
CONCRETE T-BEAM,
WIDENED WITH STEEL BEAMS
BUILT IN 1927,
WIDENED IN 1963
SPAN = 44'
WIDTH = 35'

NOTE: THE RIVER CHANNEL LIMITS SHOWN ON THIS SHEET ARE FROM A 2012 SURVEY. IN AUGUST 2014 A RAIN EVENT ALTERED THE RIVER LIMITS AND SOME LIMITS ARE LOCATED IN DIFFERENT LOCATION.

GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM
VT II STA 11+57.66 - 11+88.25 LT
VT II STA 11+57.66 - 11+88.25 RT
VT II STA 12+33.65 - 12+65.13 LT
VT II STA 12+33.73 - 12+63.48 RT

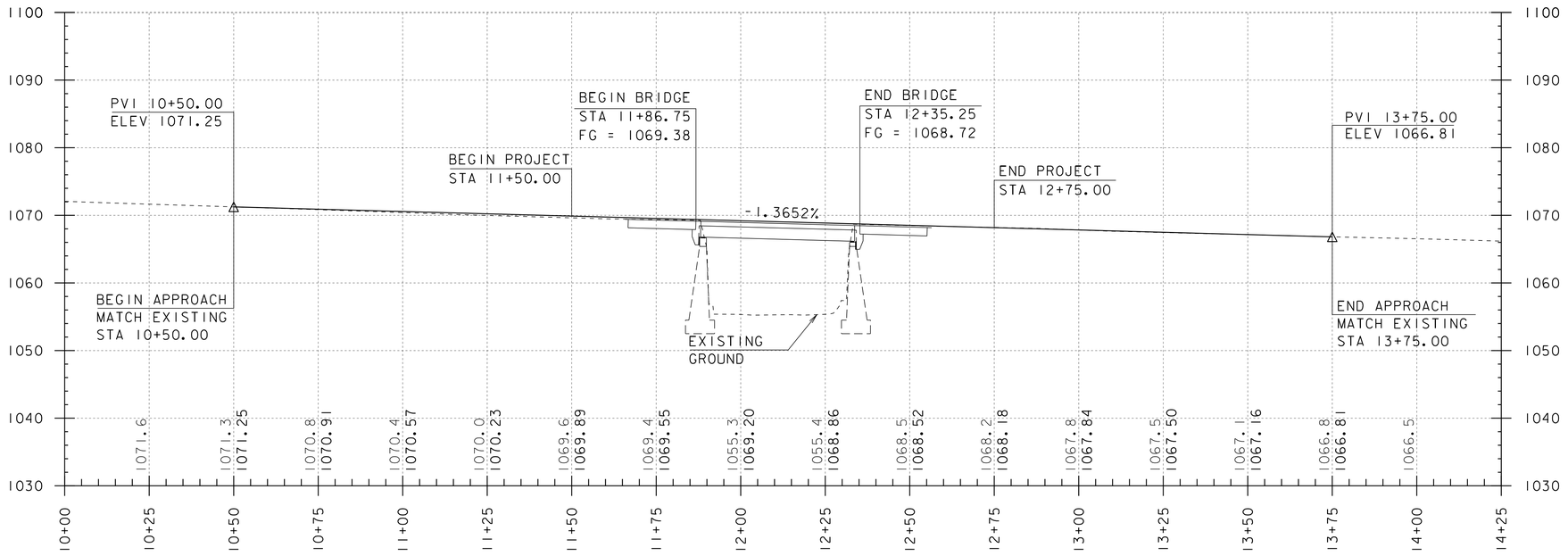
REMOVAL AND DISPOSAL OF GUARDRAIL
VTII STA 11+23.27 - 11+87.09 RT
VTII STA 11+23.47 - 11+87.63 LT
VTII STA 12+34.63 - 12+97.33 RT
VTII STA 12+34.79 - 13+00.91 LT

BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM
VTII STA 11+88.25 - 12+33.73 RT
VTII STA 11+88.25 - 12+33.65 LT

MANUFACTORED TERMINAL SECTION, TANGENT
VTII STA 11+07.67 - 11+57.66 RT
VTII STA 11+07.67 - 11+57.66 LT
VTII STA 12+63.48 - 13+12.15 RT
VTII STA 12+65.13 - 13+16.55 LT

LAYOUT
SCALE 1" = 20'-0"
20 0 20

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: sl2bl40bdr_nul.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: S. PIRO
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
LAYOUT	SHEET 11 OF 48



PROFILE ALONG VT 11

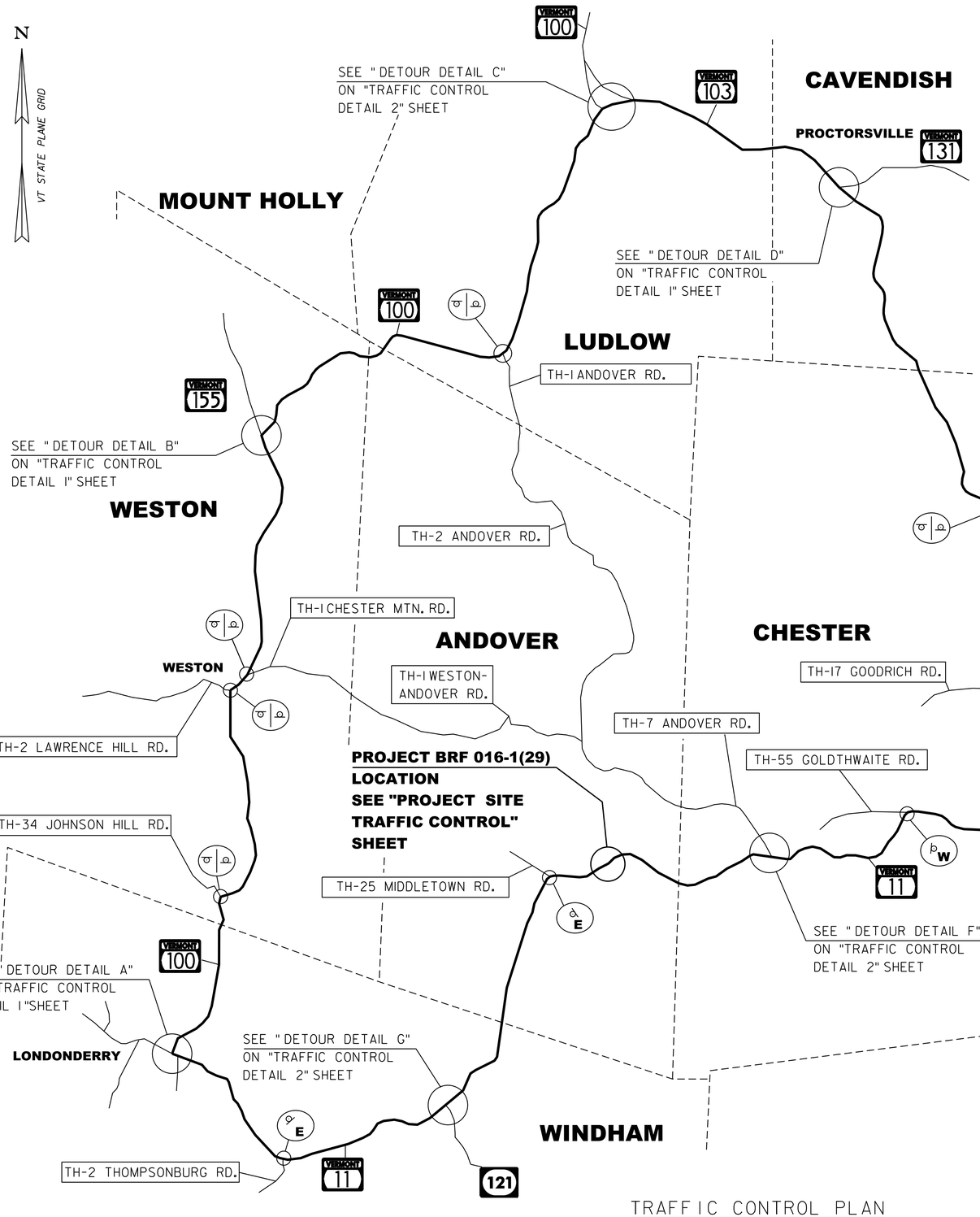
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"

NOTE:

ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADES ALONG PROPOSED CENTERLINE.

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: s12b140pro.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: S. PIRO
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
PROFILE	SHEET 12 OF 48



TRAFFIC CONTROL PLAN

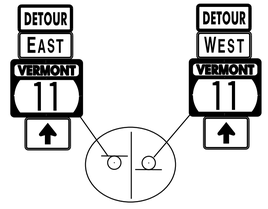
SCALE 1" = 4000'

TRAFFIC CONTROL NOTES:

1. ALL SIGNS SHALL BE LOCATED SO THEY ARE VISIBLE AND ABLE TO BE READ BY THE TRAVELING PUBLIC. SIGNS SHALL BE INSTALLED SO AS NOT TO OBSTRUCT EXISTING SIGNS.
2. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE ''MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'' (MUTCD) AND THE ''STANDARD HIGHWAY SIGNS AND MARKING'' BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).
3. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING ''AMERICAN SOCIETY FOR TESTING AND MATERIALS'' ASTM D4956 TYPE VII, VIII OR IX REQUIREMENTS, UNLESS OTHERWISE NOTED. SOLID SUBSTRATE REGULATORY SIGNS (WHITE BACKGROUND) SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING ASTM D4956 TYPE III.
4. SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, AND UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
5. FIXED SIGNS SHALL BE SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST SEVEN FEET ABOVE THE EDGE OF PAVEMENT. THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT OR FOUR FEET OUTSIDE GUARDRAIL. ALL SIGNS SHALL BE INSTALLED WITHIN VTRANS OR TOWN RIGHTS-OF-WAY (ROW). IF THE SIGN CANNOT BE INSTALLED IN THE ROW, CONTRACTOR SHALL GET PERMISSION FROM THE LANDOWNER.
6. WHERE SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL BE ''NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM'' (NCHRP) REPORT 350 COMPLIANT. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POST(S). WHEN ANCHORS ARE INSTALLED THE STUB SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.
7. DETOUR ROUTE MARKER ASSEMBLIES SHALL BE INSTALLED ADJACENT TO THE EXISTING ROUTE MARKER ASSEMBLIES AT THE INTERSECTIONS.
8. ALL WORK REQUIRED FOR THE DETOUR WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE).

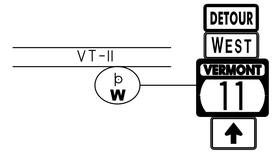
LEGEND
(SEE NOTE 8)

- CONFIRMATORY ROUTE MARKER ASSEMBLY.
- W — WEST CONFIRMATORY ROUTE MARKER ASSEMBLY.
- E — EAST CONFIRMATORY ROUTE MARKER ASSEMBLY.



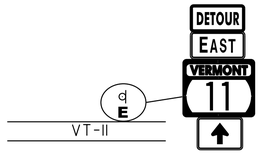
CONFIRMATORY ROUTE MARKER ASSEMBLY

NOT TO SCALE



WEST CONFIRMATORY ROUTE MARKER ASSEMBLY

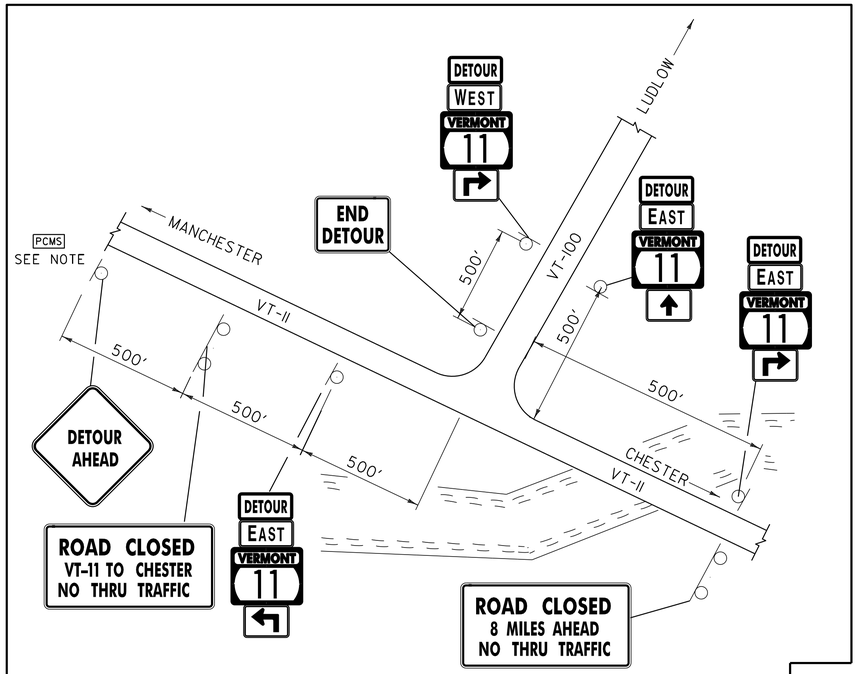
NOT TO SCALE



EAST CONFIRMATORY ROUTE MARKER ASSEMBLY

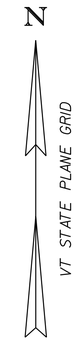
NOT TO SCALE

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: 12bl40/STR/12bl40derour.dgn	PLOT DATE: 22-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROKES
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
TRAFFIC CONTROL PLAN	SHEET 13 OF 48



DETOUR DETAIL A

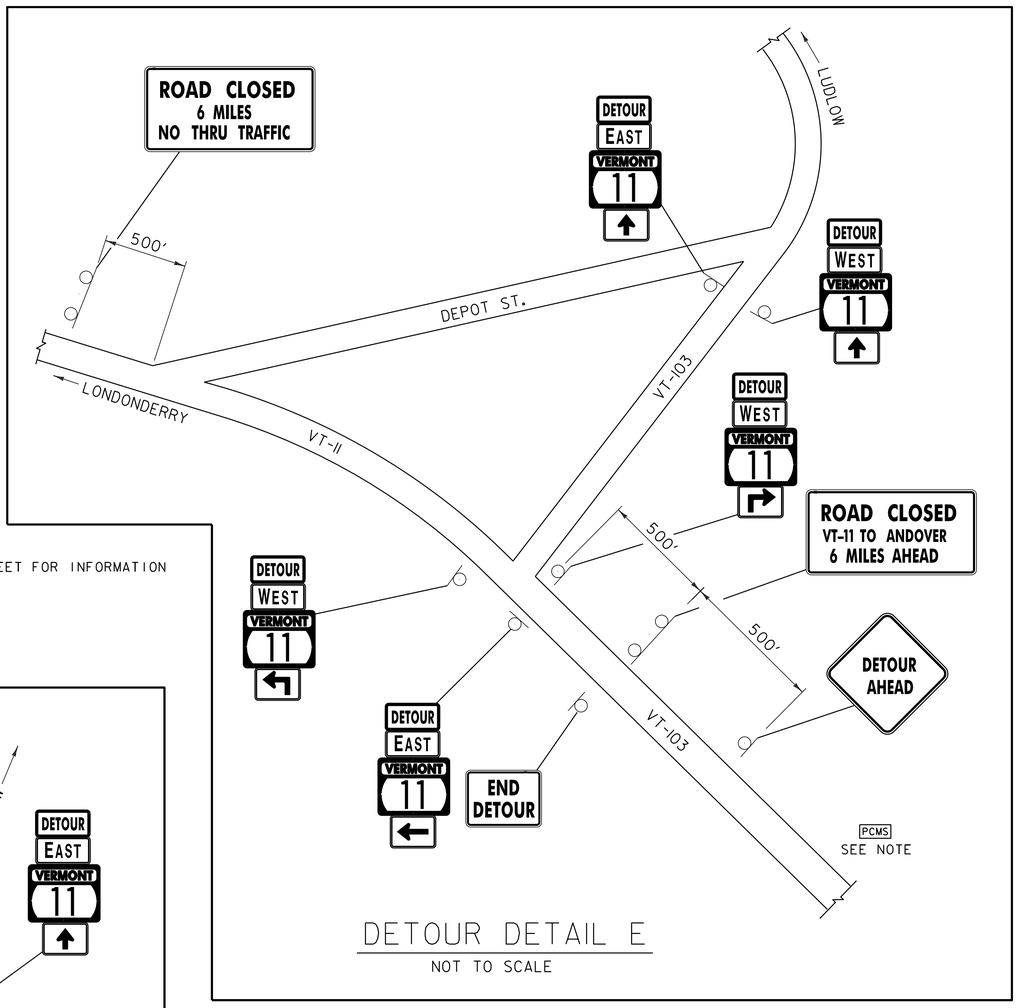
NOT TO SCALE



NOTE: SEE "PROJECT SITE TRAFFIC CONTROL" SHEET FOR INFORMATION ON PORTABLE CHANGEABLE MESSAGE SIGNS.

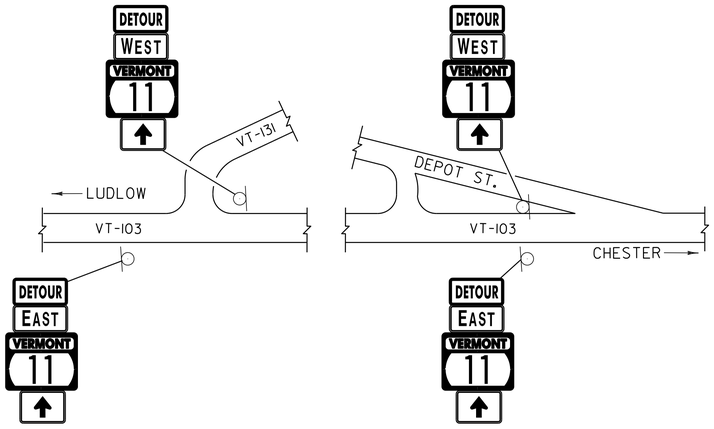
LEGEND

PCMS - PORTABLE CHANGEABLE MESSAGE SIGN



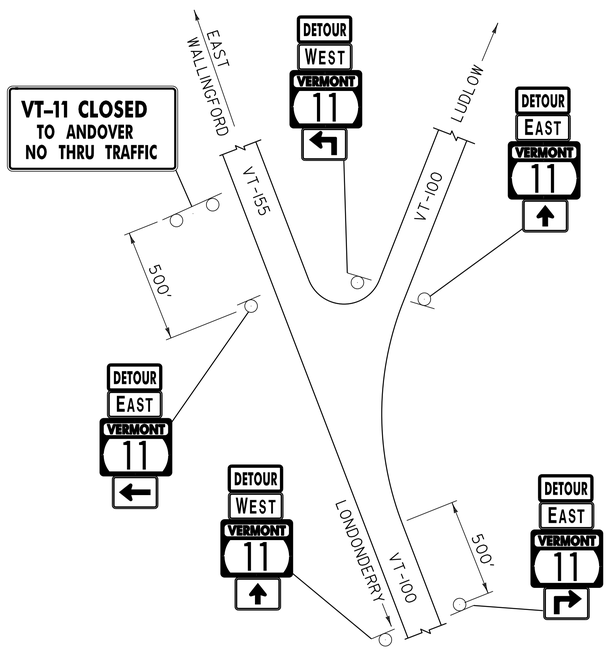
DETOUR DETAIL E

NOT TO SCALE



DETOUR DETAIL D

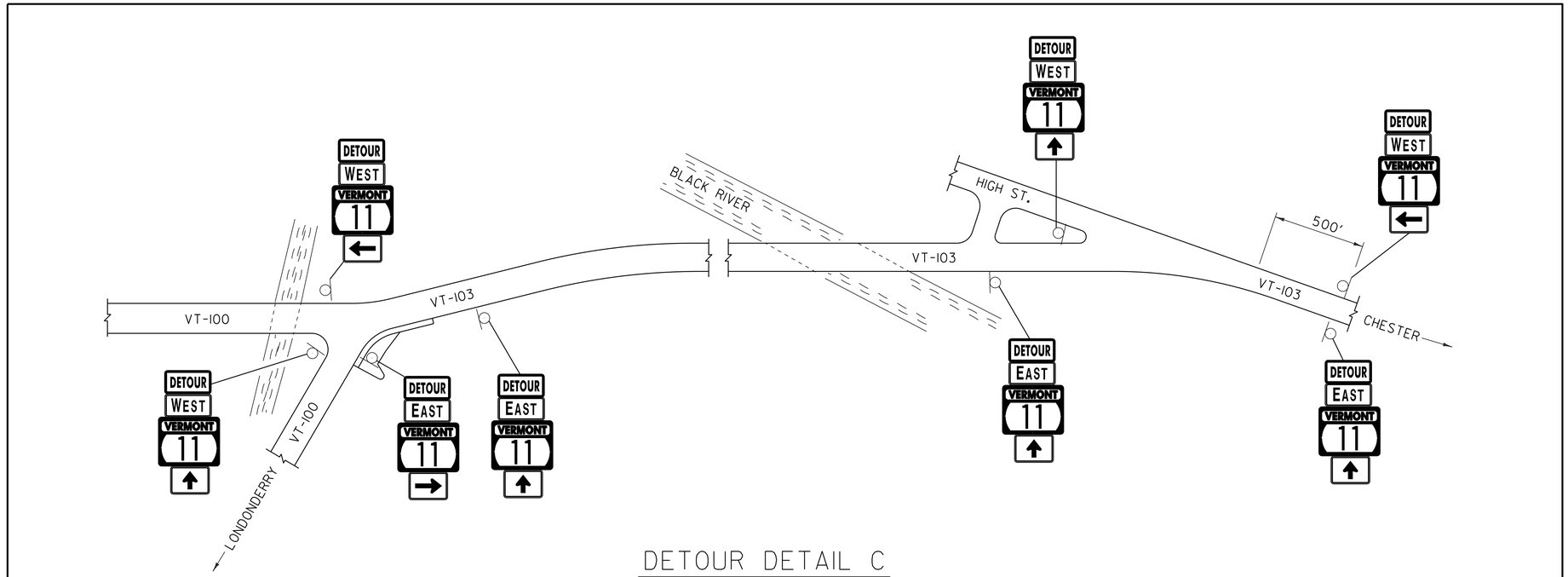
NOT TO SCALE



DETOUR DETAIL B

NOT TO SCALE

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: 12b140/STR/12b140derour.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROKES
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
TRAFFIC CONTROL DETAIL 1	SHEET 14 OF 48

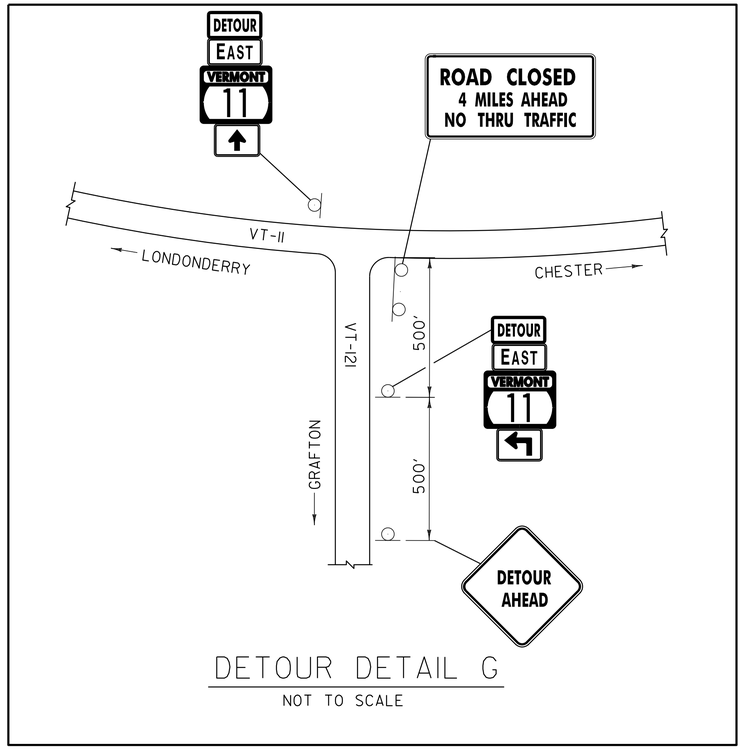


DETOUR DETAIL C

NOT TO SCALE

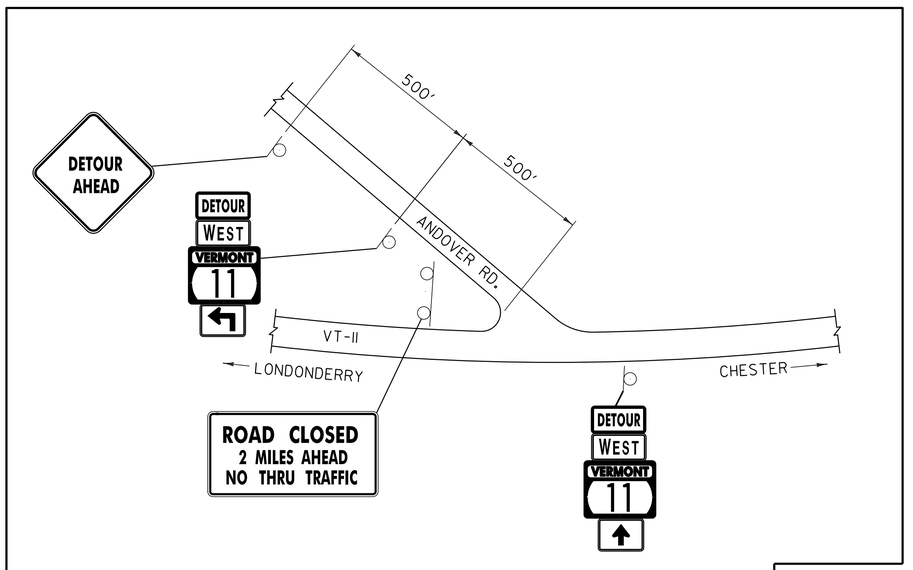
N

VT STATE PLANE GRID



DETOUR DETAIL G

NOT TO SCALE



DETOUR DETAIL F

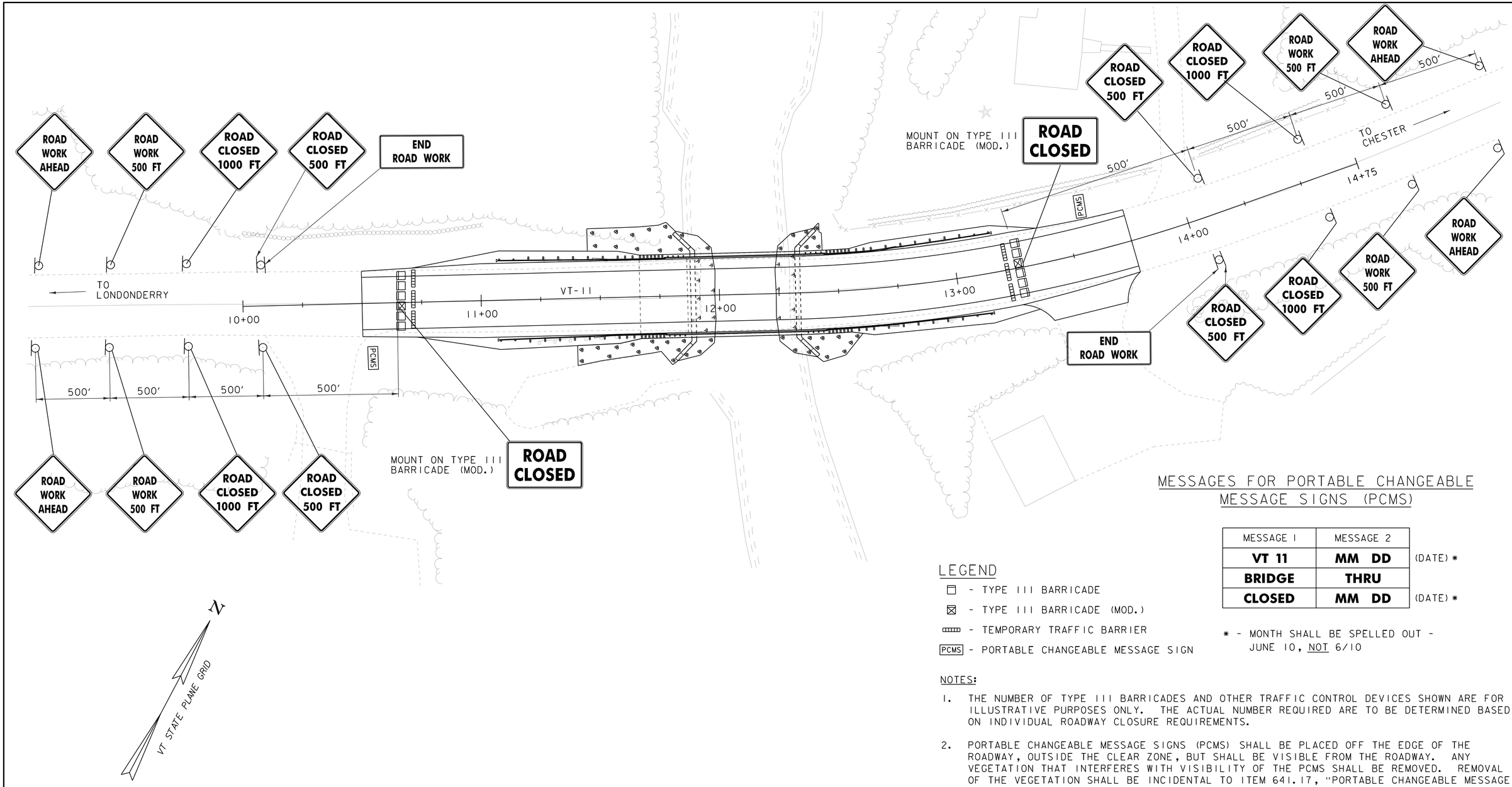
NOT TO SCALE

PROJECT NAME: ANDOVER

PROJECT NUMBER: BHF 016-1(29)

FILE NAME: 12b140/STR/12b140deroour.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
TRAFFIC CONTROL DETAIL 2

PLOT DATE: 06-JAN-2015
DRAWN BY: G. ROKES
CHECKED BY: D. PETERSON
SHEET 15 OF 48



MESSAGES FOR PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS)

MESSAGE 1	MESSAGE 2	
VT 11	**MM DD**	(DATE) *
BRIDGE	**THRU**	
CLOSED	**MM DD**	(DATE) *

* - MONTH SHALL BE SPELLED OUT - JUNE 10, NOT 6/10

LEGEND

- ☐ - TYPE III BARRICADE
- ☒ - TYPE III BARRICADE (MOD.)
- ▭ - TEMPORARY TRAFFIC BARRIER
- PCMS - PORTABLE CHANGEABLE MESSAGE SIGN

NOTES:

1. THE NUMBER OF TYPE III BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BASED ON INDIVIDUAL ROADWAY CLOSURE REQUIREMENTS.

2. PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE PLACED OFF THE EDGE OF THE ROADWAY, OUTSIDE THE CLEAR ZONE, BUT SHALL BE VISIBLE FROM THE ROADWAY. ANY VEGETATION THAT INTERFERES WITH VISIBILITY OF THE PCMS SHALL BE REMOVED. REMOVAL OF THE VEGETATION SHALL BE INCIDENTAL TO ITEM 641.17, "PORTABLE CHANGEABLE MESSAGE SIGN RENTAL".

3. THE PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL DISPLAY THE MESSAGE SHOWN TWO WEEKS (14 DAYS) PRIOR TO THE CLOSURE OF THE BRIDGE. THE PCMS SHALL NOT BE A PART OF THE DETOUR AND SHALL BE REMOVED ONCE THE DETOUR IS IMPLEMENTED AND THE BRIDGE IS CLOSED.

4. TEMPORARY TRAFFIC BARRIER SHALL MEET THE REQUIREMENTS OF SECTION 621 AND WILL BE INCLUDED FOR PAYMENT UNDER CONTRACT ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL -INCLUSIVE)

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

FILE NAME: 12b140/STR/12b140detour.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
PROJECT SITE TRAFFIC CONTROL

PLOT DATE: 06-JAN-2015
DRAWN BY: G. ROKES
CHECKED BY: D. PETERSON
SHEET 16 OF 48

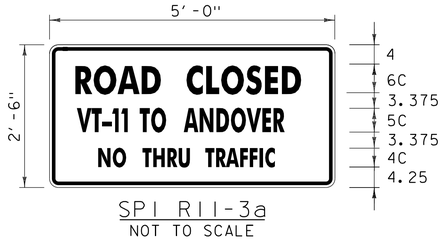
IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (IN)	SIZE OF SIGN HEIGHT (IN)	TEXT	NUMBER OF SIGNS REQ'D	REMARKS
M1-5	30	24	VERMONT 11	45*	STD. E-136B
M3-2	24	12	EAST	24*	STD. E-136B
M3-4	24	12	WEST	21*	STD. E-136B
M4-8	24	12	DETOUR	45*	SHSM
M4-8A	24	18	END DETOUR	2	SHSM
M5-1L	21	15		5	STD. E-136B SIGNS SHALL BE BLACK ARROW AND BORDER ON RETRORELECTIVE ORANGE BACKGROUD
M5-1R	21	15		4	STD. E-136B SIGNS SHALL BE BLACK ARROW AND BORDER ON RETRORELECTIVE ORANGE BACKGROUD
M6-1L	21	15		4	STD. E-136B SIGNS SHALL BE BLACK ARROW AND BORDER ON RETRORELECTIVE ORANGE BACKGROUD
M6-1R	21	15		1	STD. E-136B SIGNS SHALL BE BLACK ARROW AND BORDER ON RETRORELECTIVE ORANGE BACKGROUD
M6-3	21	15		31*	STD. E-136B SIGNS SHALL BE BLACK ARROW AND BORDER ON RETRORELECTIVE ORANGE BACKGROUD
W20-2	48	48	DETOUR AHEAD	4	SHSM
W20-3	48	48	ROAD CLOSED 500 FT	4	SHSM
W20-3	48	48	ROAD CLOSED 1000 FT	4	SHSM
R11-2	48	30	ROAD CLOSED	2	SHSM
SP1 R11-3a	60	30	ROAD CLOSED VT-11 TO ANDOVER NO THRU TRAFFIC	1	SEE NOTES AND DETAILS THIS SHEET
SP2 R11-3a	60	30	ROAD CLOSED VT-11 TO CHESTER NO THRU TRAFFIC	1	SEE NOTES AND DETAILS THIS SHEET
SP3 R11-3a	60	30	ROAD CLOSED X MILES NO THRU TRAFFIC	5	SEE NOTES AND DETAILS THIS SHEET

* = NUMBER OF SIGNS REQ'D ASSUMING APPROXIMATELY 15 LOCATIONS OF CONFIRMATORY ROUTE MARKER ASSEMBLY DETAIL.

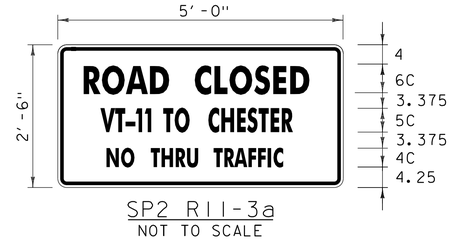
IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (IN)	SIZE OF SIGN HEIGHT (IN)	TEXT	NUMBER OF SIGNS REQ'D	REMARKS
SP4 R11-3a	60	30	VT-11 CLOSED TO ANDOVER NO THRU TRAFFIC	1	SEE NOTES AND DETAILS THIS SHEET
W20-1	48	48	ROAD WORK AHEAD	4	SHSM
W20-1	48	48	ROAD WORK 500 FT	4	SHSM
G20-2	36	18	END ROAD WORK	2	SHSM

NOTES:

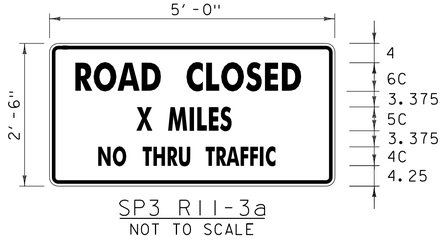
1. COLORS FOR THE SP1 R11-3a, SP2 R11-3a AND R11-3a SIGNS SHALL BE BLACK TEXT AND BORDER ON RETROREFLECTIVE WHITE BACKGROUND.
2. TWO ORANGE FLAGS (ONE EACH SIDE) SHALL BE PLACED AT THE TOP OF THE R11-3A, SP1 SP2 SP3 AND SP4 SIGNS.
3. THE M1-5, M3-2, AND THE M3-4 SIGNS SHALL BECOME THE PROPERTY OF THE STATE AFTER THEY ARE REMOVED FROM THE DETOUR. THE CONTRACTOR SHALL DELIVER THE SIGNS TO THE CHESTER DISTRICT GARAGE. ALL COSTS ASSOCIATED WITH PROVIDING THE SIGNS TO THE STATE SHALL BE INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION(TRAFFIC CONTROL, ALL INCLUSIVE).



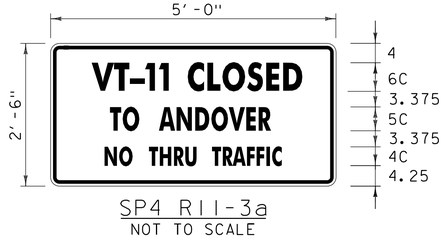
SP1 R11-3a
NOT TO SCALE



SP2 R11-3a
NOT TO SCALE



SP3 R11-3a
NOT TO SCALE



SP4 R11-3a
NOT TO SCALE

ALL DIMENSIONS ARE IN INCHES.

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: 12b140/STR/12b140derour.dgn	PLOT DATE: 22-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROKES
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
TRAFFIC CONTROL SIGNS	SHEET 17 OF 48

N

VT STATE PLANE GRID

MIDDLE BRANCH OF THE WILLIAMS RIVER

RETAIN EXISTING POLE

BEGIN APPROACH
STA 10+50.00

BEGIN PROJECT
STA 11+50.00

END BRIDGE
STA 12+35.25
BK P.O.S.T.

END PROJECT
STA 12+75.00

VT 11
TO LONDONDERRY

VT 11
TO CHESTER

10+00

11+00

12+00

13+00

14+00

14+75

AER E&T

COMB #1/222/2/211

COMB #221/2/210

COMB #1/220/209

COMB #1/220/208

COMB #1/220/207

COMB #221/A

RETAIN EXISTING POLE
AND GUY WIRE

NEW POLE
STA. 13+79.50 23'-6" RIGHT
CONNECT EXISTING SERVICE LINE
AND ELECTRIC/TELEPHONE RISERS
TO NEW POLE

END APPROACH
STA 13+75.00

REMOVE EXISTING
POLE AND GUY WIRE

NEW POLE W/ ANCHOR COMB 221
STA. 10+89.0 35'-0" RIGHT
CONNECT EXISTING SERVICE LINE
TO THE NEW POLE

BEGIN BRIDGE
STA 11+86.75

REMOVE EXISTING POLE

NEW POLE W/ ANCHOR COMB 220
STA. 12+82.0 39'-0" RIGHT

REMOVE EXISTING POLE
AND GUY WIRE

FLOW

NOTE:

1. THE SECTION BETWEEN COMB 220 & 221 CAN BE DE-ENERGIZED AT THE REQUEST OF THE CONTRACTOR.

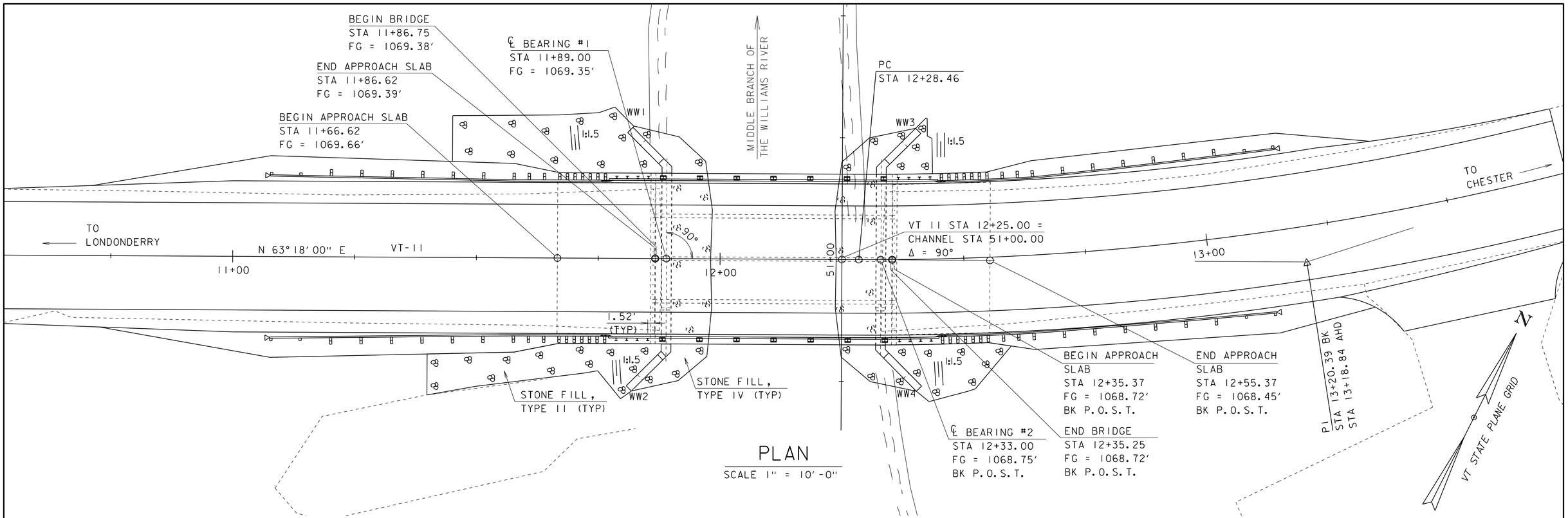
2. NEW POLES AND LINES WILL BE MOVED BY OTHERS.

3. SEE THE UTILITY SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

UTILITY LAYOUT

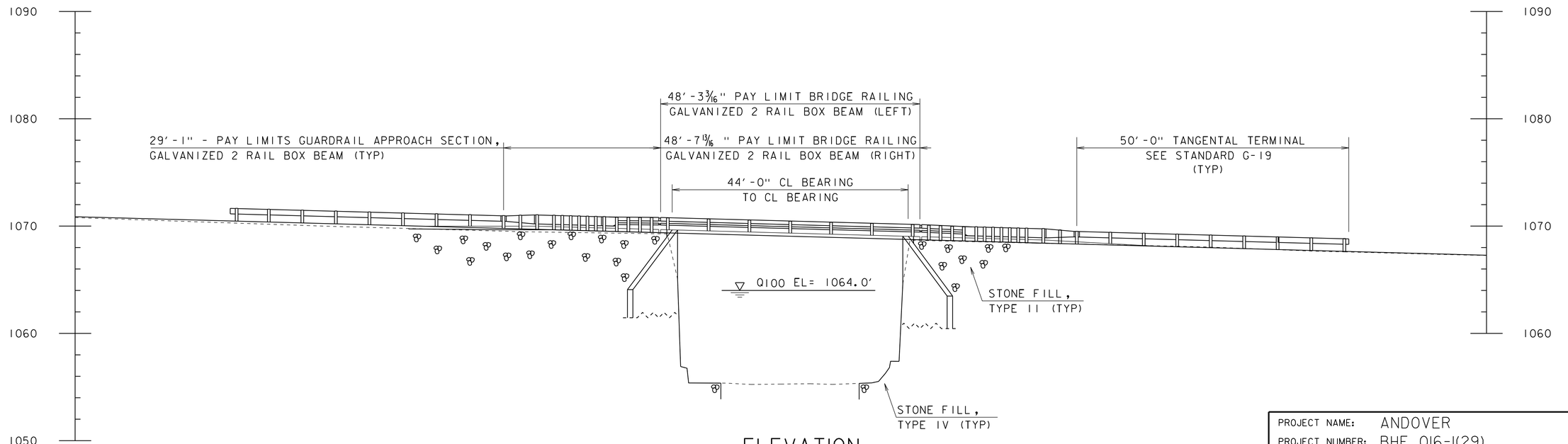
SCALE 1" = 20'-0"

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: sl2bl40bdr_util.dgn	PLOT DATE: 07-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: S. PIRO
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
UTILITY LAYOUT	SHEET 18 OF 48



PLAN

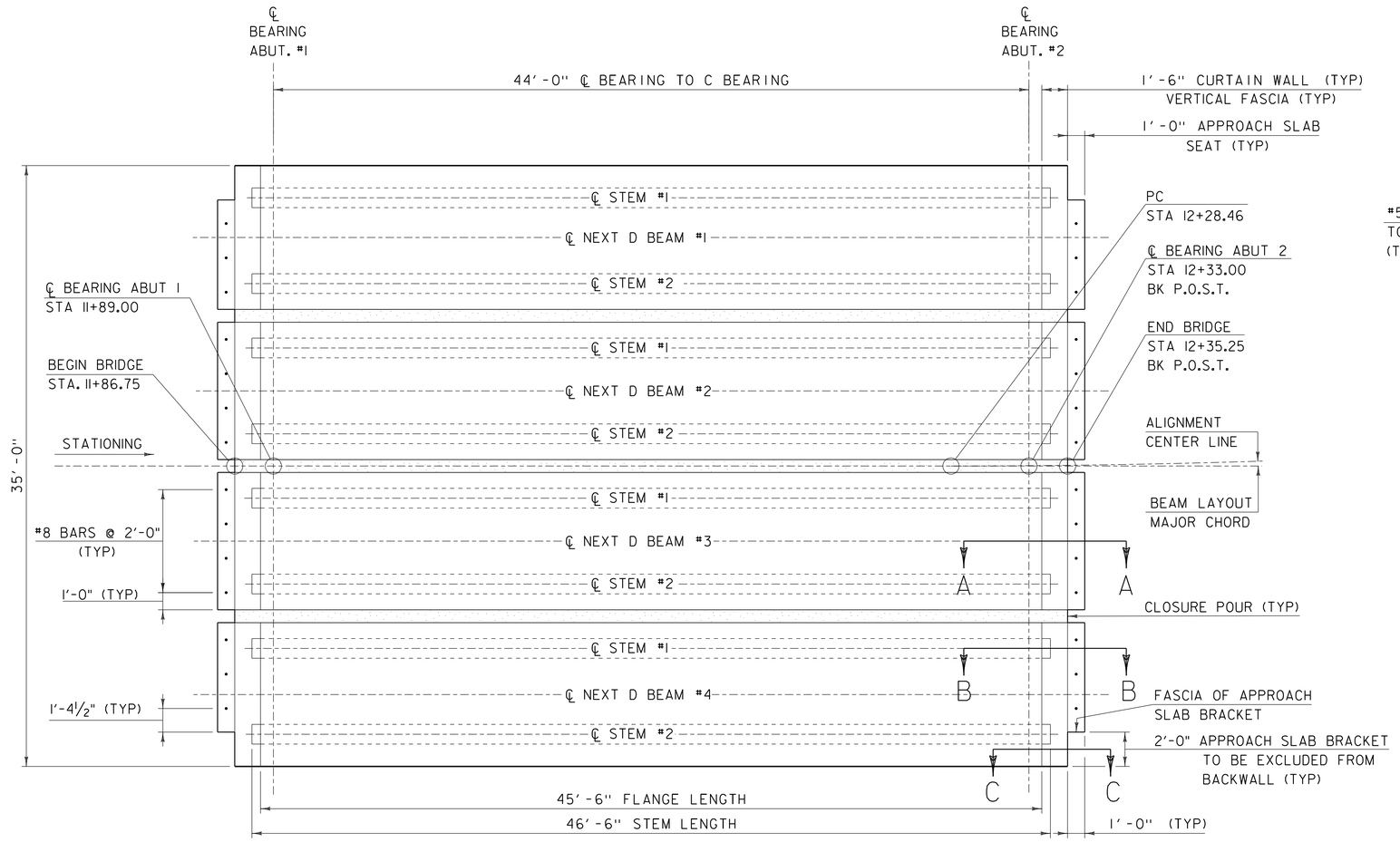
SCALE 1" = 10'-0"



ELEVATION

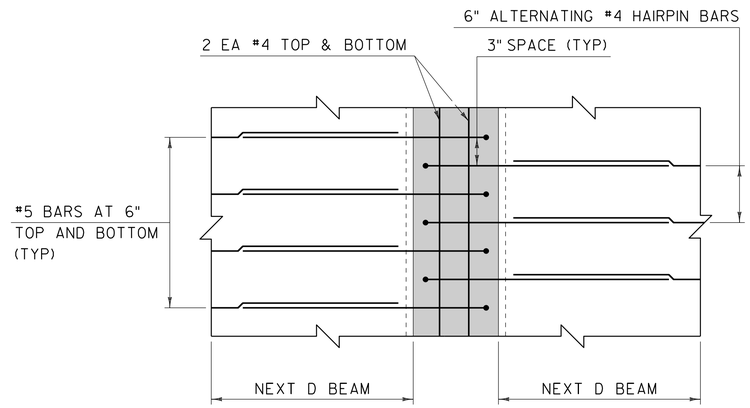
SCALE 1" = 10'-0"

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: sl2bl40pe.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: S. PIRO
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
PLAN AND ELEVATION	SHEET 19 OF 48



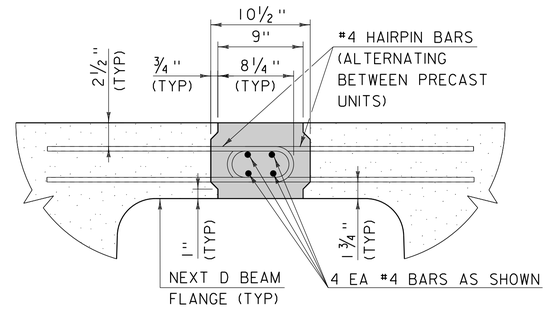
DECK PLAN

SCALE ¼" = 1'-0"



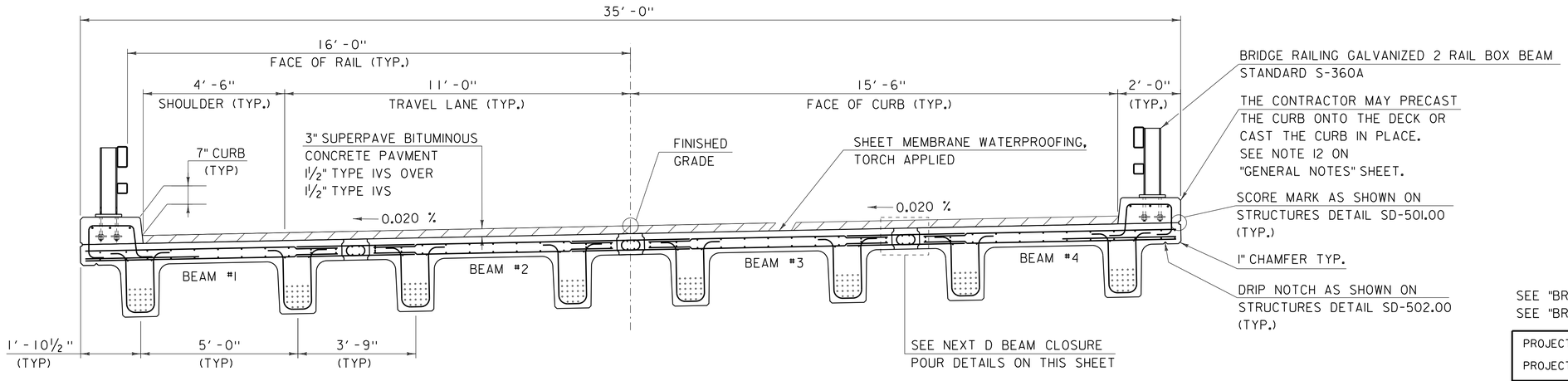
NEXT D BEAM CLOSURE POUR DETAIL PLAN

SCALE 1½" = 1'-0"



NEXT D BEAM CLOSURE POUR DETAIL ELEVATION

SCALE 1½" = 1'-0"



BRIDGE TYPICAL SECTION

SCALE: ½" = 1'-0"

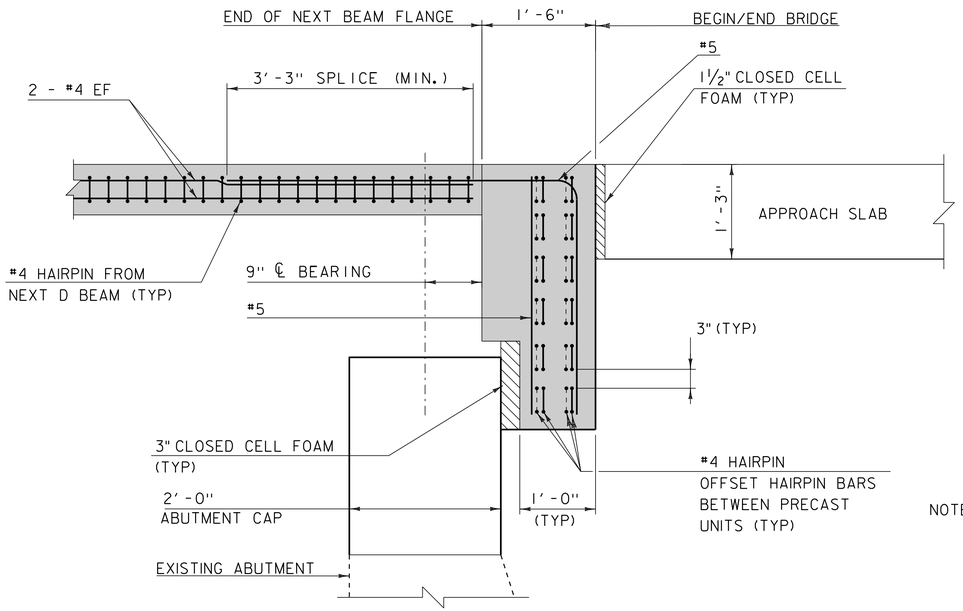
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-7" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

SEE "BRIDGE END TYPICAL 1" SHEET FOR SECTIONS A-A AND B-B
SEE "BRIDGE END TYPICAL 2" SHEET FOR SECTION C-C

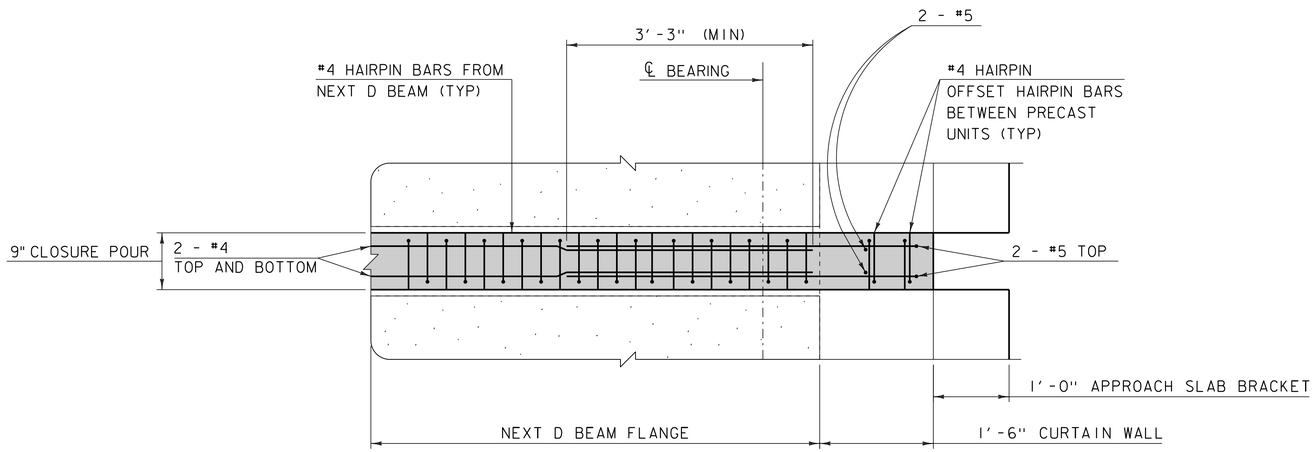
PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

FILE NAME: sl2bl40sup.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
FRAMING PLAN
PLOT DATE: 22-JAN-2015
DRAWN BY: S. PIRO
CHECKED BY: D. PETERSON
SHEET 20 OF 48



BRIDGE END DETAIL CLOSURE POUR

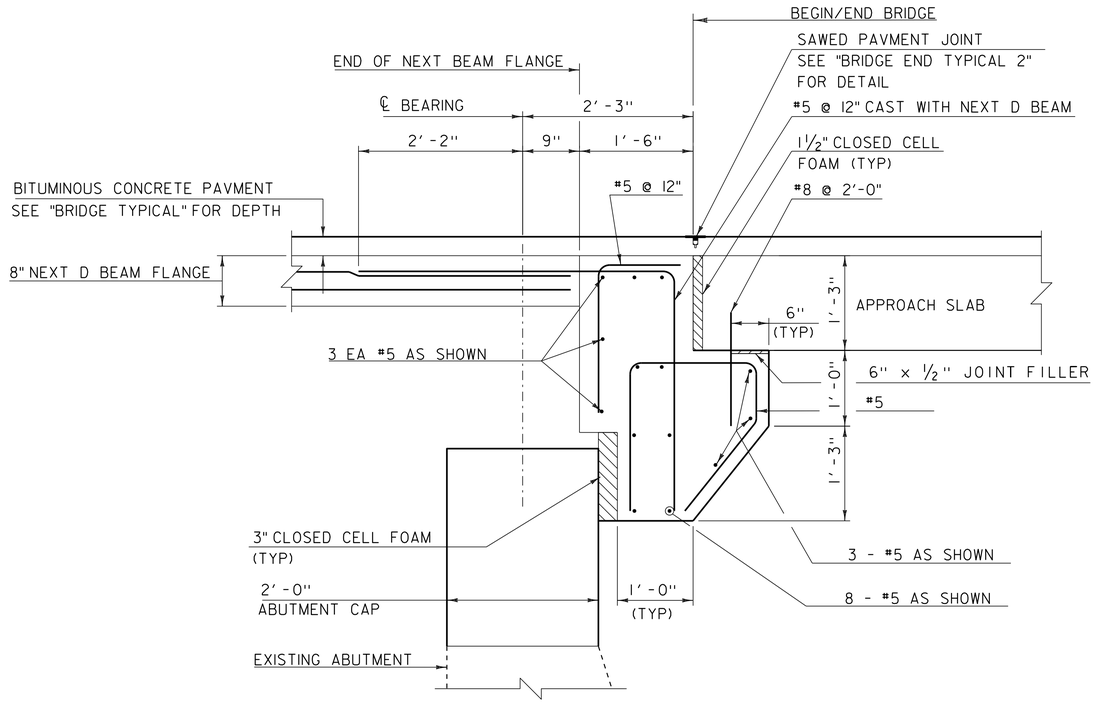
SCALE: 1" = 1'-0"



BRIDGE END DETAIL CLOSURE POUR LAYOUT

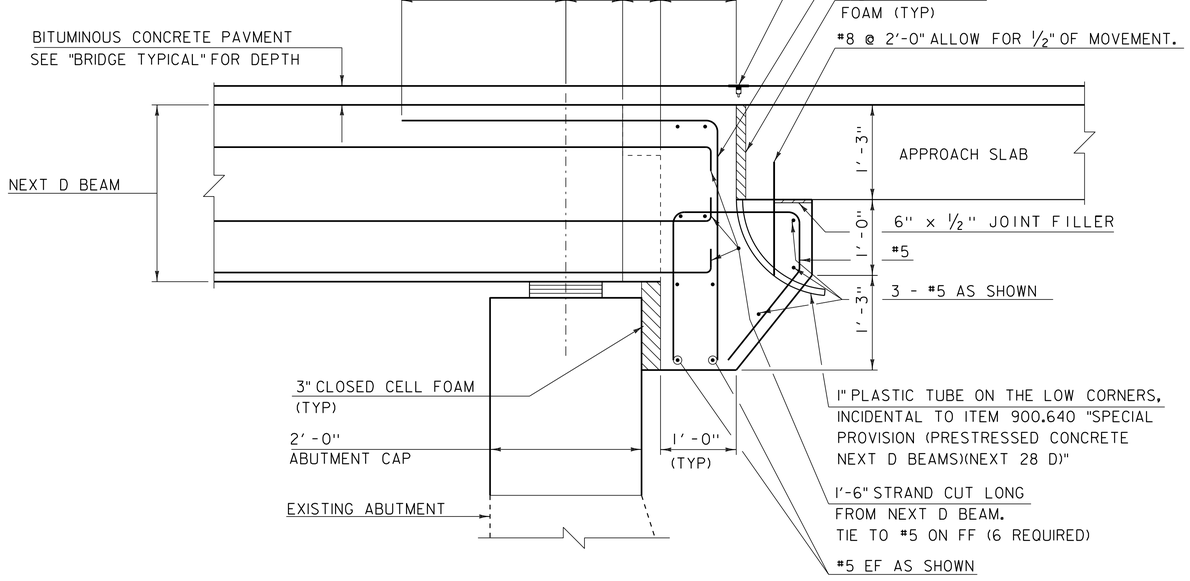
SCALE: 1" = 1'-0"

NOTE: SEE "BRIDGE END TYPICAL 2" FOR "BRIDGE END DETAIL CLOSURE POUR BACK".



SECTION A - A

SCALE: 1" = 1'-0"



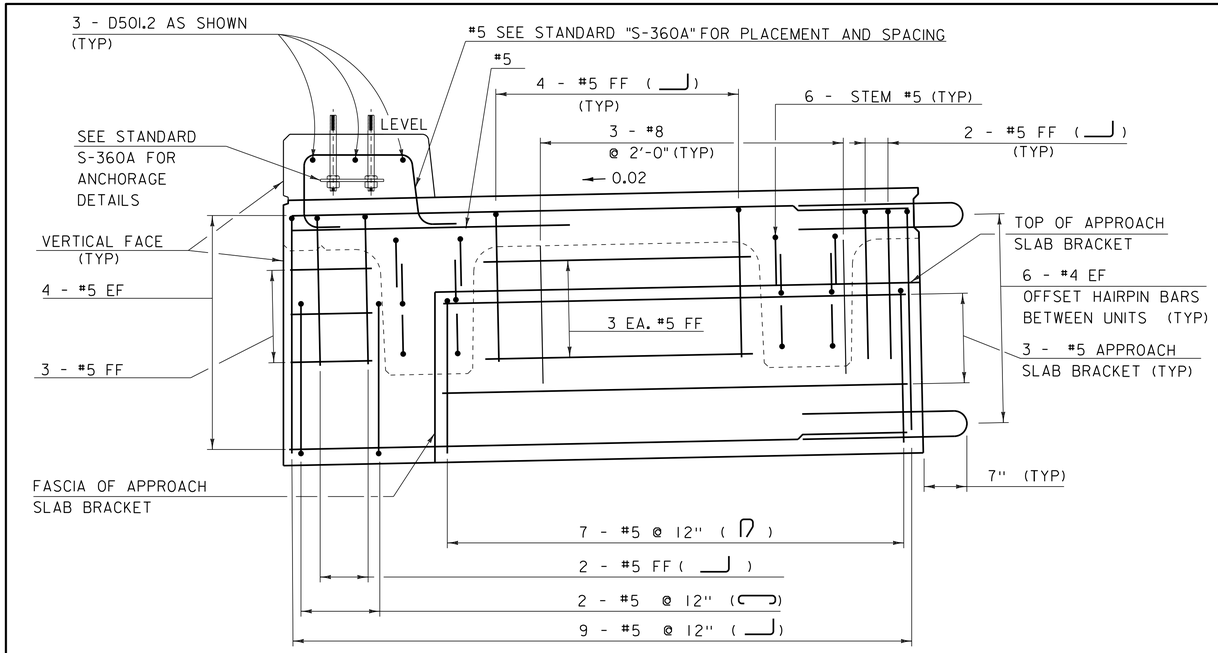
SECTION B - B

SCALE: 1" = 1'-0"

NOTE:

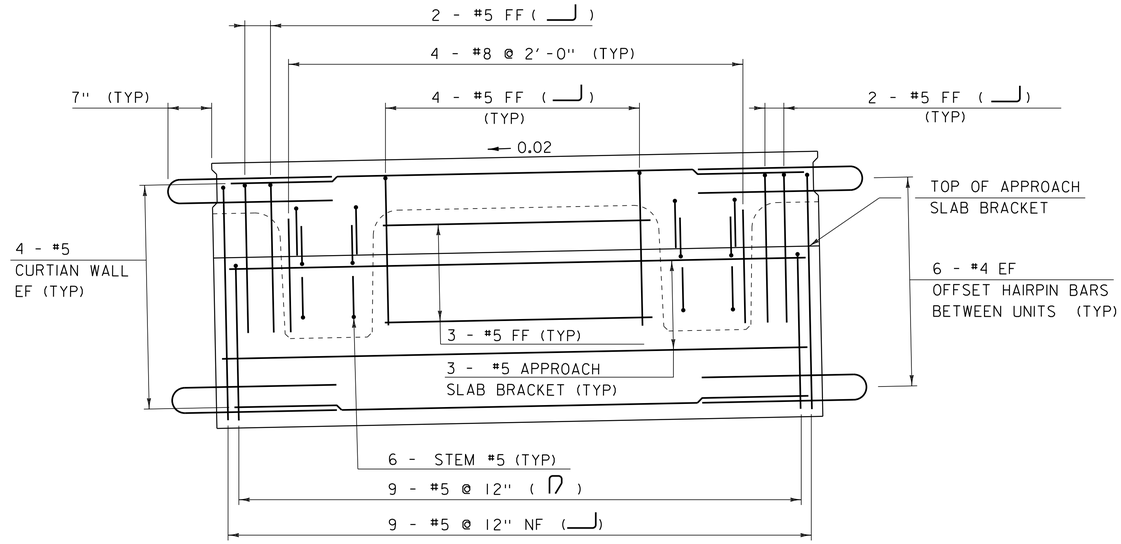
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-7" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: s12b140sup.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: G.ROKES
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
BRIDGE END TYPICAL 1	SHEET 21 OF 48



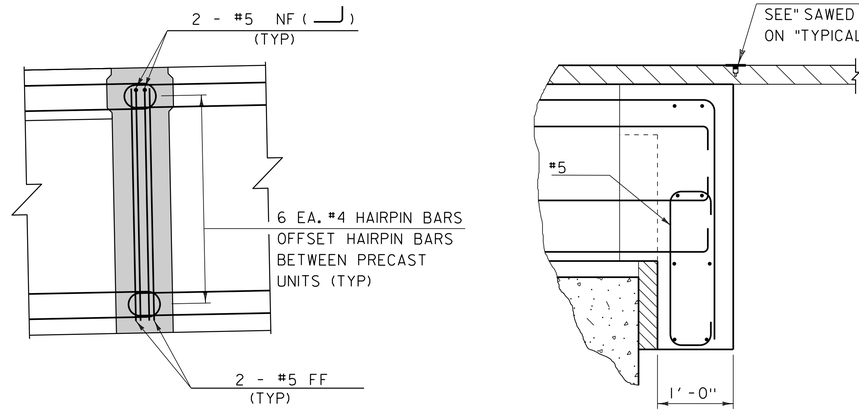
PRECAST CONCRETE CURTAIN WALL BEAM 1 (BEAM 4 SIMILAR) REINFORCING ELEVATION

SCALE: 1" = 1'-0"



PRECAST CONCRETE CURTAIN WALL BEAM 2 (BEAM 3 SIMILAR) REINFORCING ELEVATION

SCALE: 1" = 1'-0"

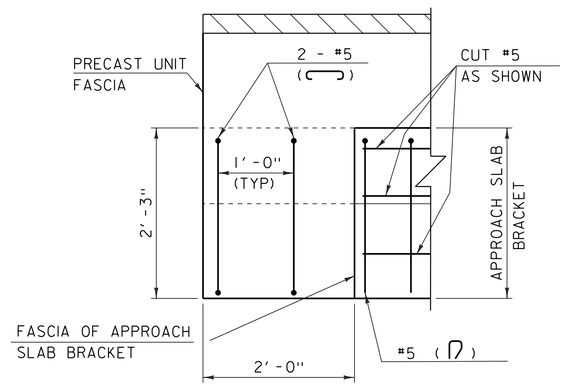


BRIDGE END DETAIL CLOSURE POUR BACK

SCALE: 1" = 1'-0"

SECTION C - C

SCALE: 1" = 1'-0"



SECTION C - C ELEVATION

SCALE: 1" = 1'-0"

NOTE: BAR NOMENCLATURE THAT INCLUDES A (SHAPE) DESIGNATION INDICATES BARS SHAPE AND PLACEMENT.

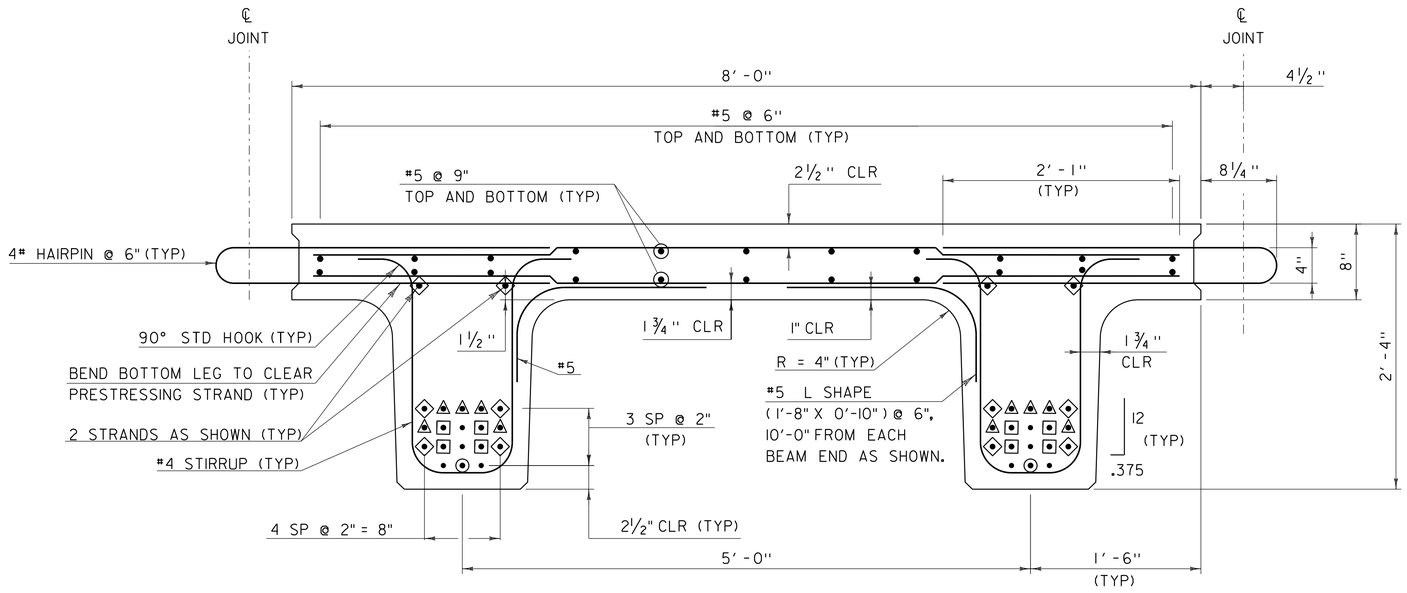
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-7" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

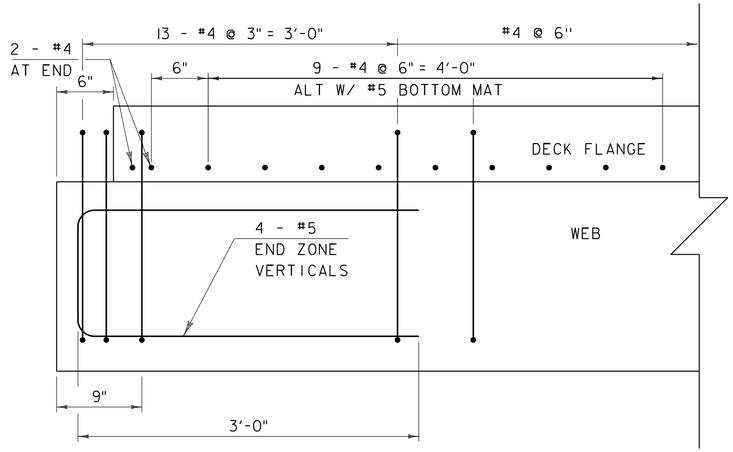
FILE NAME: sl2bl40sup.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE END TYPICAL 2

PLOT DATE: 06-JAN-2015
DRAWN BY: G.ROKES
CHECKED BY: D. PETERSON
SHEET 22 OF 48



NEXT 28 D BEAM SECTION BEAM 2 (BEAM 3 SIMILAR)

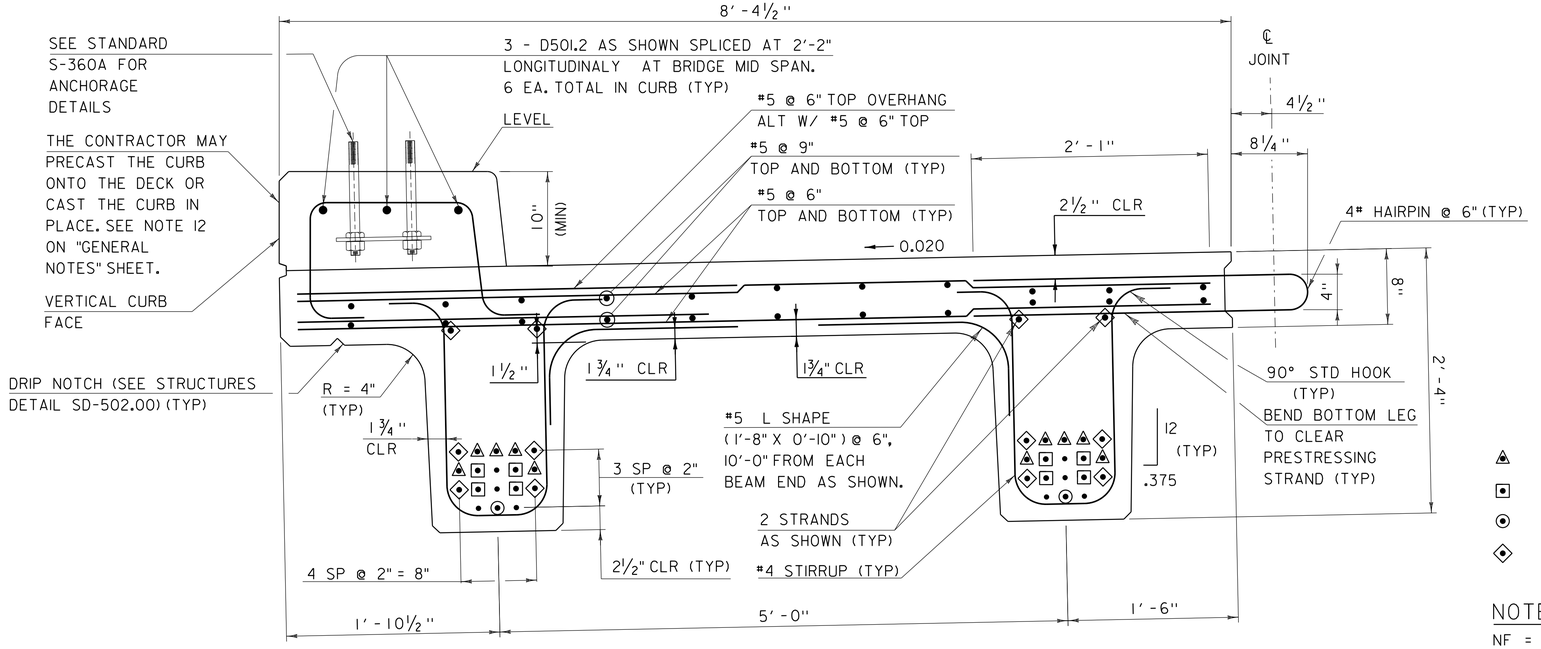
SCALE: 1½" = 1'-0"



ADDITIONAL END BEAM REINFORCING LONGITUDINAL SECTION

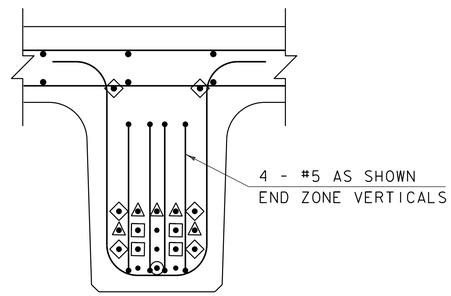
SCALE: 1½" = 1'-0"

•BARS IN DECK FLANGE OMITTED FOR CLARITY



NEXT 28 D BEAM SECTION BEAM 1 (BEAM 4 SIMILAR)

SCALE: 1½" = 1'-0"



BEAM END SECTION

SCALE: 1½" = 1'-0"

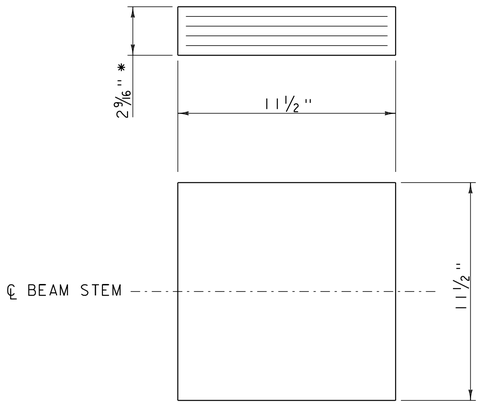
STRAND LEGEND

- ▲ DEBONDED 0'-6" EACH END
- ⊡ DEBONDED 2'-0" EACH END
- ⊙ DEBONDED 4'-0" EACH END
- ◈ 1' - 6" STRAND CUT LONG EACH END

NOTE:

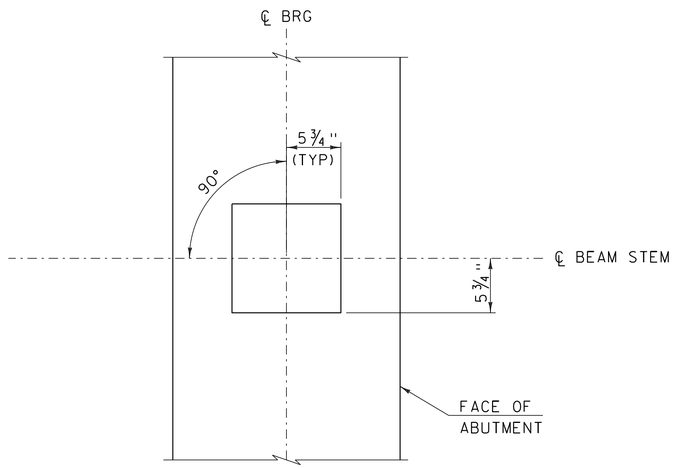
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
3" CLEAR, UNLESS OTHERWISE
SPECIFIED ON THE PLANS.
2'-7" BAR LAP UNLESS OTHERWISE
SPECIFIED ON THE PLANS.

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: s12b140sup.dgn	PLOT DATE: 23-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: C.ROKES
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
NEXT BEAM TYPICAL SECTIONS	SHEET 23 OF 48



* 2 - 1/8" EXTERIOR LAYERS OF ELASTOMER
4 - 1/2" INTERIOR LAYERS OF ELASTOMER
5 - 1/16" STEEL REINFORCING PLATES

ELASTOMERIC BEARING DETAIL
SCALE 3" = 1'-0"



PLAN
SCALE 1 1/2" = 1'-0"

BEARING NOTES

1. BEARINGS SHALL CONFORM TO THE APPLICABLE SUBSECTIONS OF SECTIONS 531 AND 731.

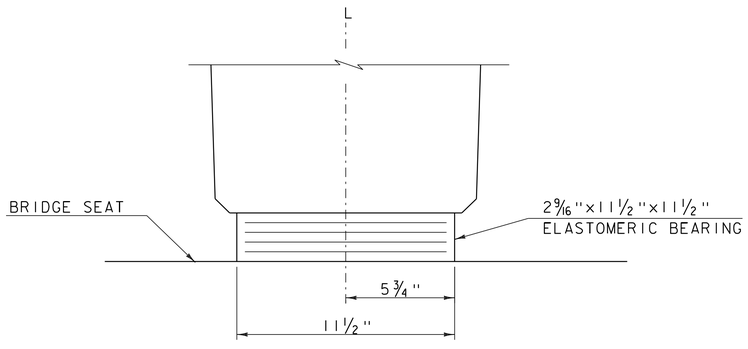
2. ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMER SHALL BE STEEL MEETING THE REQUIREMENTS OF SUBSECTION 714.02. ALL INTERNAL STEEL PLATES SHALL BE SAND BLASTED AND FREE OF COATINGS, RUST, AND MILL SCALE. THE PLATES SHALL BE FREE OF SHARP EDGES AND BURRS.

3. STEEL REINFORCED ELASTOMERIC BEARINGS SHALL HAVE A MINIMUM 1/8" EDGE SEAL OF ELASTOMER INTEGRAL WITH BEARING OVER ALL INTERNAL PLATES.

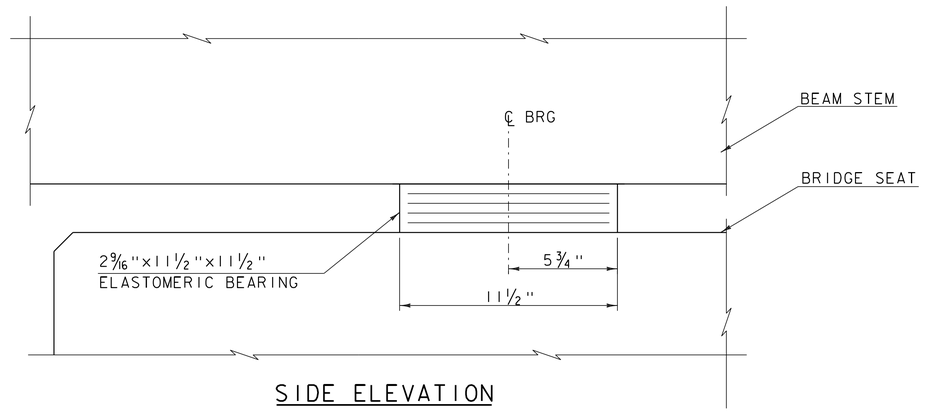
4. THE ELASTOMER SHALL BE GRADE 60 SHORE A DUROMETER.

5. THE ELASTOMER SHALL MEET THE REQUIREMENTS OF LOW TEMPERATURE ZONE D, GRADE 4.

6. THE CONTRACTOR IS ADVISED TO HAVE A MINIMUM OF 16 - 1/4"x12 1/2"x12 1/2" GALVANIZED STEEL SHIMS AVAILABLE FOR USE FOR ELEVATION ADJUSTMENTS UPON THE SETTING OF THE SUPERSTRUCTURE UNITS. THE SHIMS SHALL BE FABRICATED ACCORDING TO SECTION 531 AND SHALL BE INCLUDED UNDER ITEM 531.17, "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD".



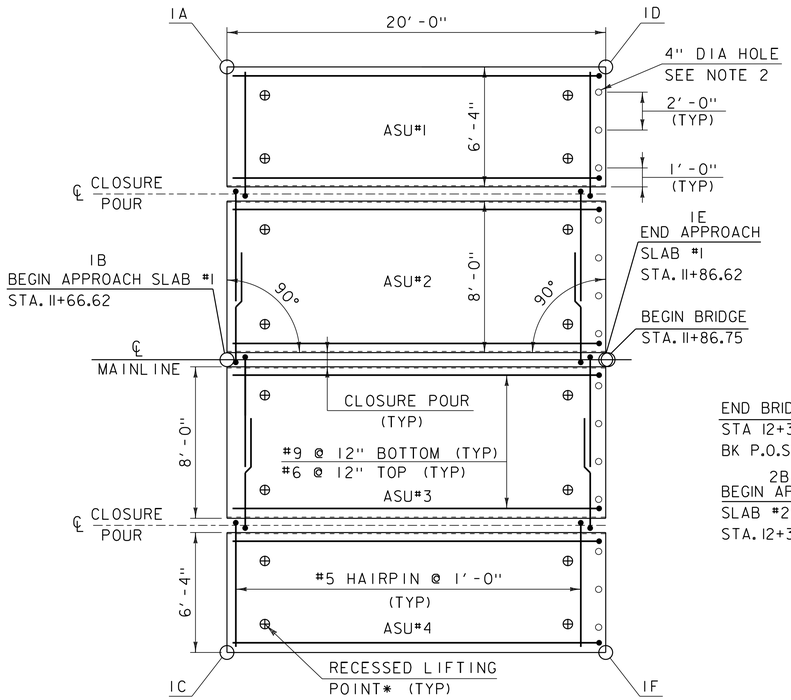
FRONT ELEVATION



SIDE ELEVATION

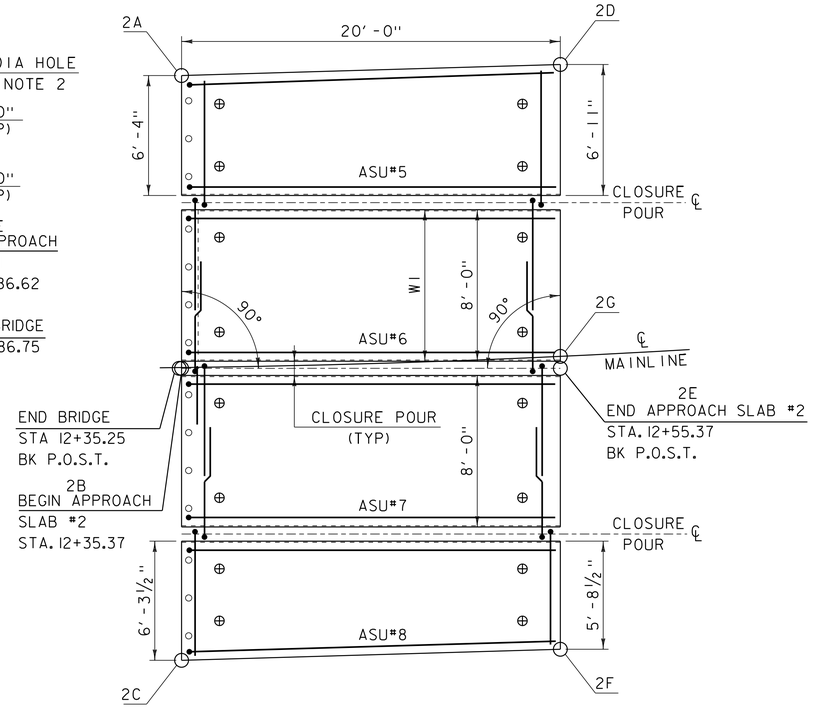
ELASTOMERIC BEARING DETAILS
SCALE 3" = 1'-0"

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: sl2bl40sup.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: G.ROKES
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
BRIDGE BEARINGS	SHEET 24 OF 48



APPROACH SLAB #1 PLAN VIEW

SCALE 1/4" = 1'-0"



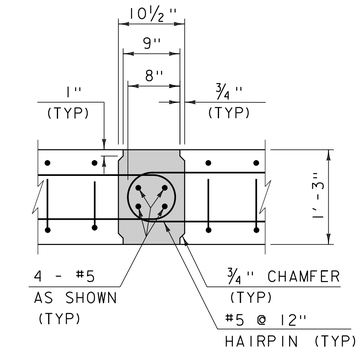
APPROACH SLAB #2 PLAN VIEW

SCALE 1/4" = 1'-0"

NOTE:

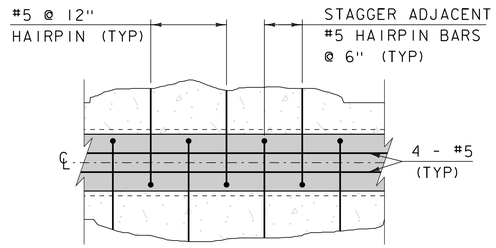
1. FABRICATOR TO DESIGN LIFTING POINTS AND INCLUDE CALCULATIONS WITH SUBMITTAL.
2. FABRICATOR TO ENSURE 4" DIA. HOLES IN APPROACH SLAB UNIT WILL MATCH UP WITH #8 BARS THAT ARE IN THE PRECAST END SECTION APPROACH SLAB BRACKET.

ASU = APPROACH SLAB UNIT



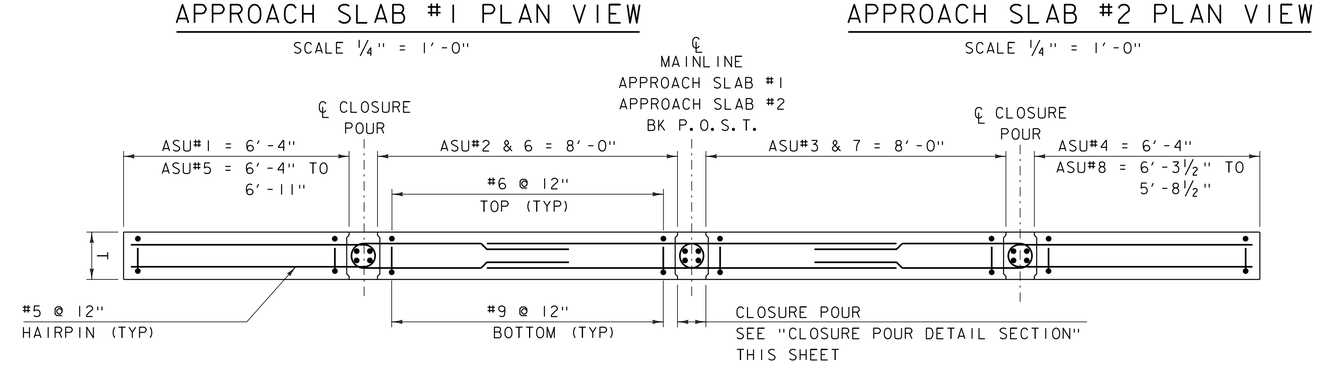
CLOSURE POUR DETAIL SECTION

SCALE 1" = 1'-0"



CLOSURE POUR PLAN

SCALE 1" = 1'-0"



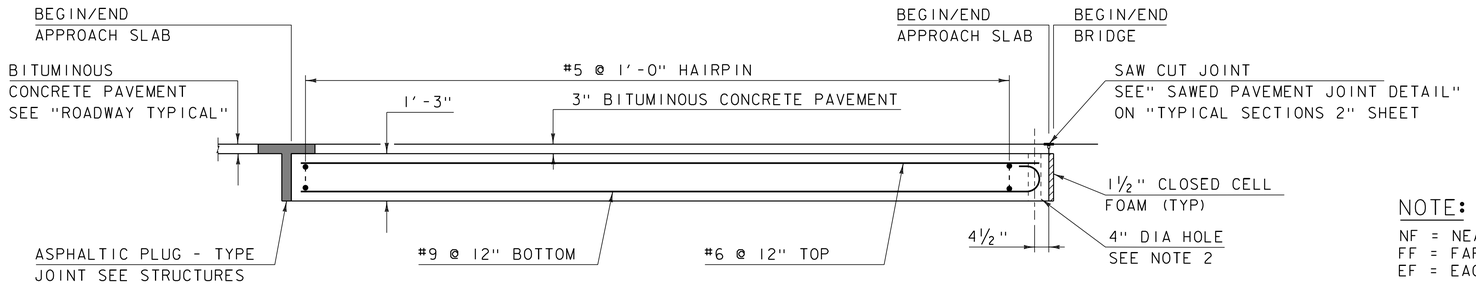
TYPICAL SECTION

SCALE 1/2" = 1'-0"

	STATION	OFFSET	ELEVATION
1A	11+66.62	-15.46	1069.10
1B	11+66.62	℄	1069.41
1C	11+66.62	15.46	1069.72
1D	11+86.62	-15.46	1068.83
1E	11+86.62	℄	1069.14
1F	11+86.62	15.46	1069.45
2A	12+35.57	-15.42	1068.16
2B	12+35.37	℄	1068.47
2C	12+35.19	15.46	1068.78
2D	12+56.13	-15.39	1067.88
2E	12+55.39	℄	1068.20
2F	12+54.68	15.45	1068.52
2G	12+55.37	0.63	1068.51

APPROACH SLAB ELEVATIONS

ALL ELEVATIONS ARE TOP OF SLAB



APPROACH SLAB ELEVATION VIEW

SCALE 1/2" = 1'-0"

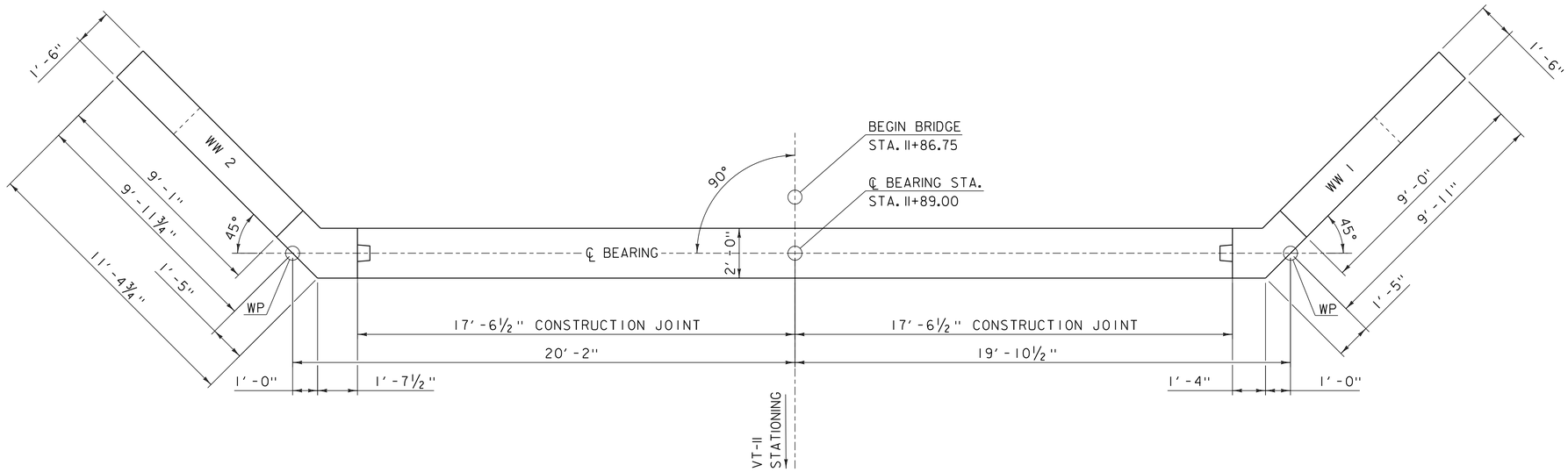
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-7" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

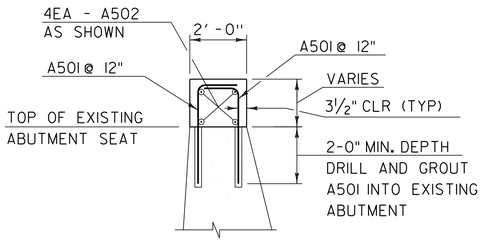
FILE NAME: sl2bl40sup.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
APPROACH SLAB DETAILS

PLOT DATE: 06-JAN-2015
DRAWN BY: G. ROKES
CHECKED BY: D. PETERSON
SHEET 25 OF 48



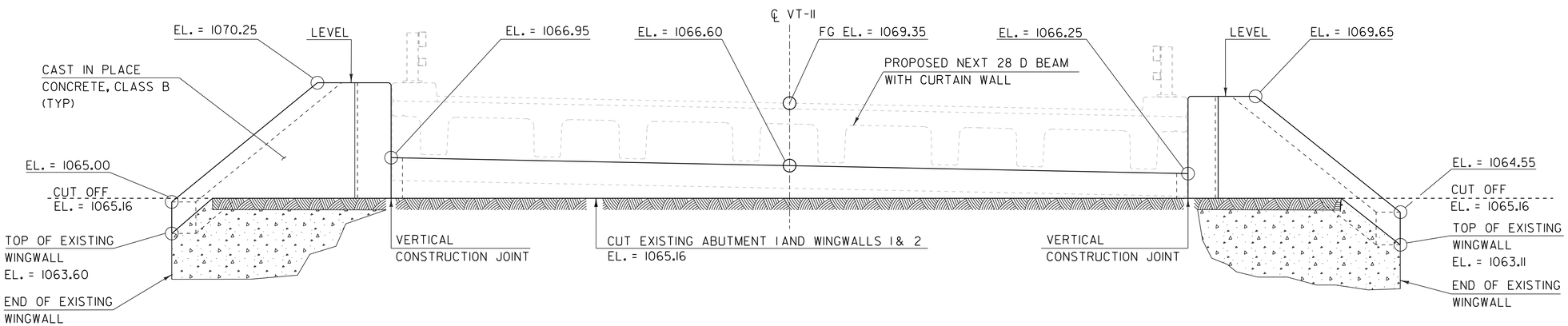
ABUTMENT NO. 1 PLAN

SCALE: ⅜" = 1'-0"



ABUTMENT TYPICAL

SCALE: ⅜" = 1'-0"



ABUTMENT NO. 1 ELEVATION

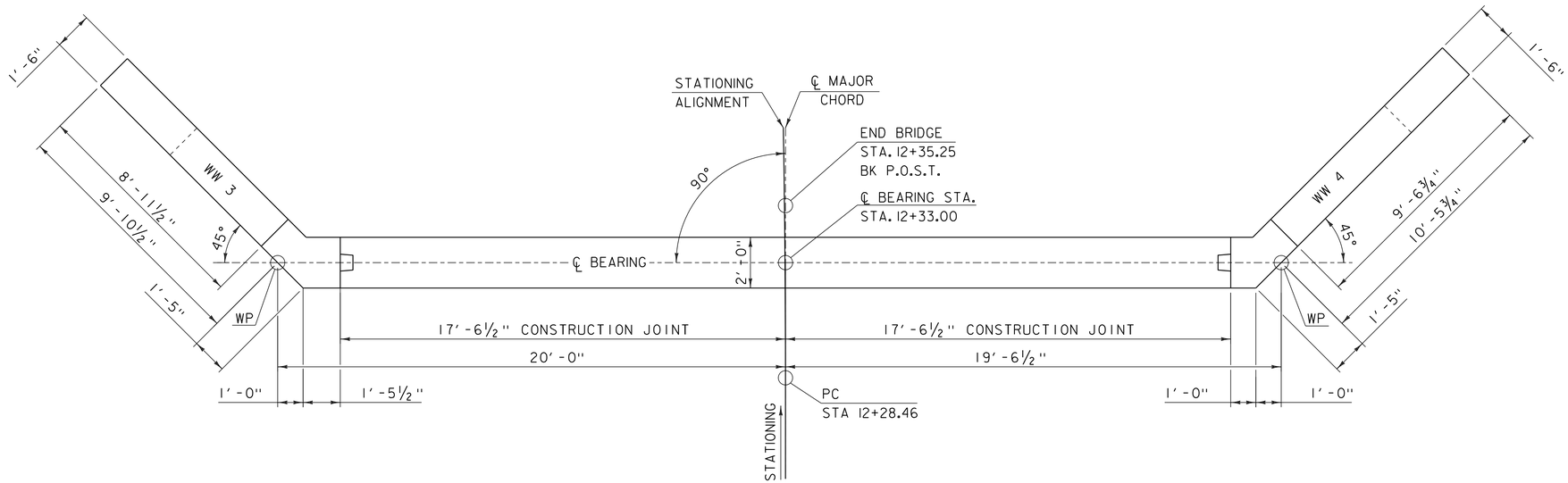
SCALE: ⅜" = 1'-0"

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.

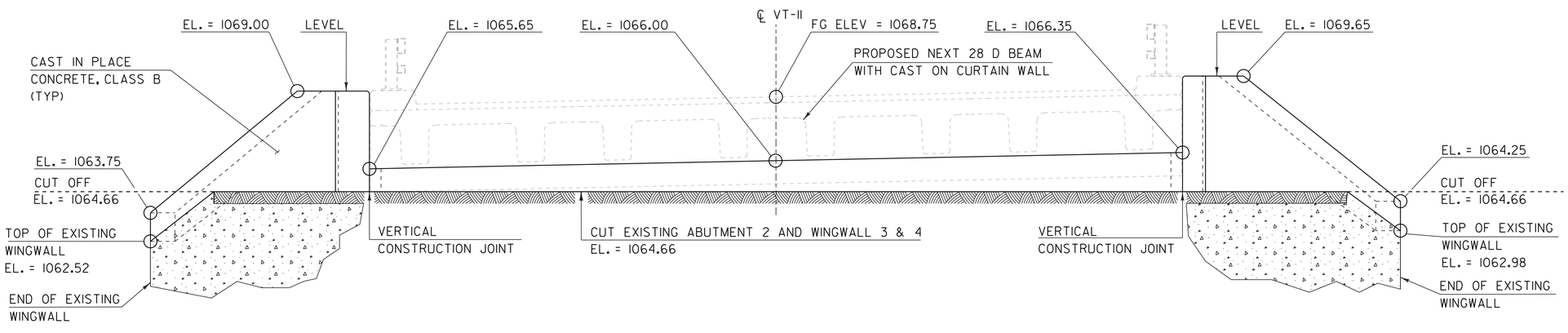
SECTION OF EXISTING ABUTMENT AND WINGWALLS TO BE CUT.

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: s12b140sub.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROKES
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
ABUTMENT 1 PLAN & ELEVATION	SHEET 26 OF 48



ABUTMENT NO. 2 PLAN

SCALE: ⅜" = 1'-0"



ABUTMENT NO. 2 ELEVATION

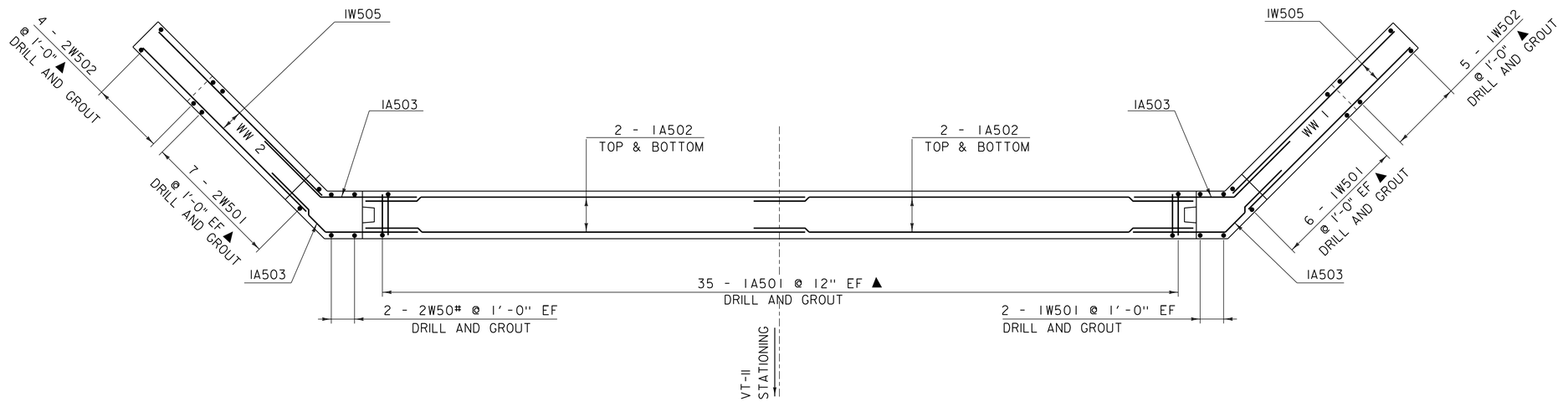
SCALE: ⅜" = 1'-0"

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.

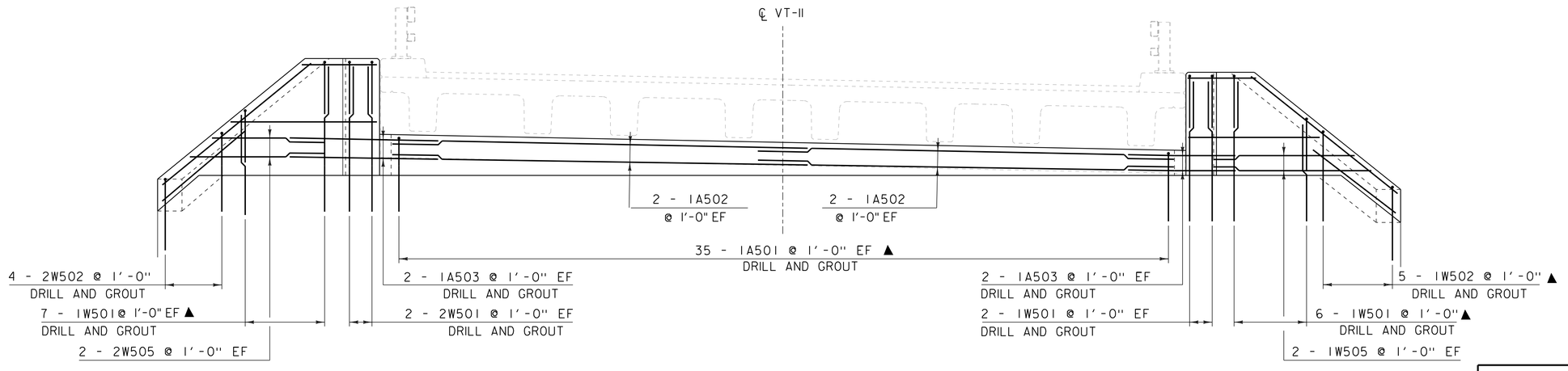
SECTION OF EXISTING ABUTMENT AND WINGWALLS TO BE CUT.

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: sl2bl40sub.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROKES
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
ABUTMENT 2 PLAN & ELEVATION	SHEET 27 OF 48



ABUTMENT NO. 1 BELOW BRIDGE SEAT REINFORCING LAYOUT

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



ABUTMENT NO. 1 REINFORCING ELEVATION

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

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.

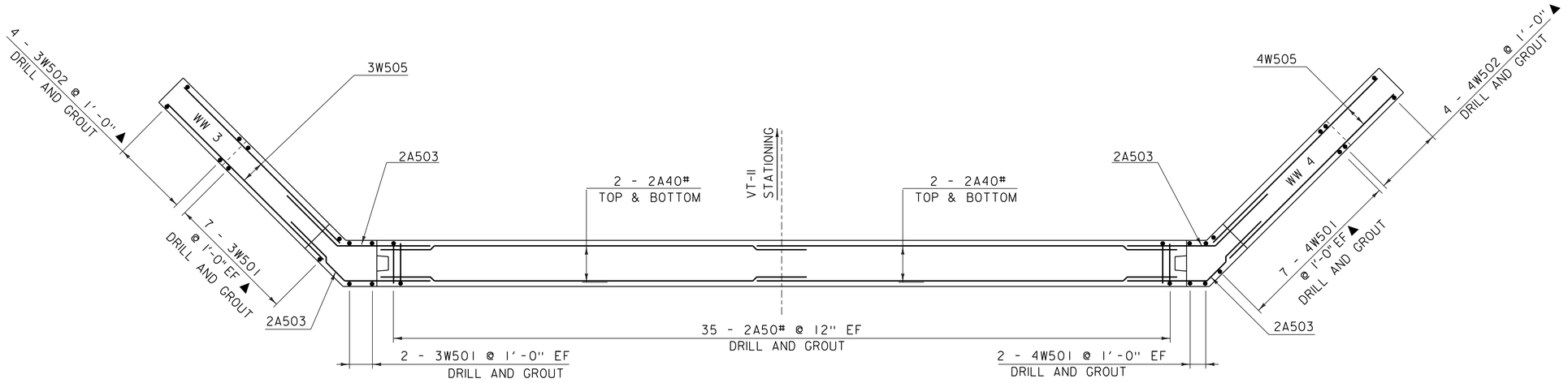
DRILL AND GROUT ABUTMENT AS SHOWN IN THE "ABUTMENT TYPICAL" ON "ABUTMENT 1 PLAN & ELEVATION" SHEET

DRILL AND GROUT WINGWALLS AS SHOWN IN THE "WINGWALL TYPICAL" ON "WINGWALL 1& 2 REINFORCING" SHEET

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

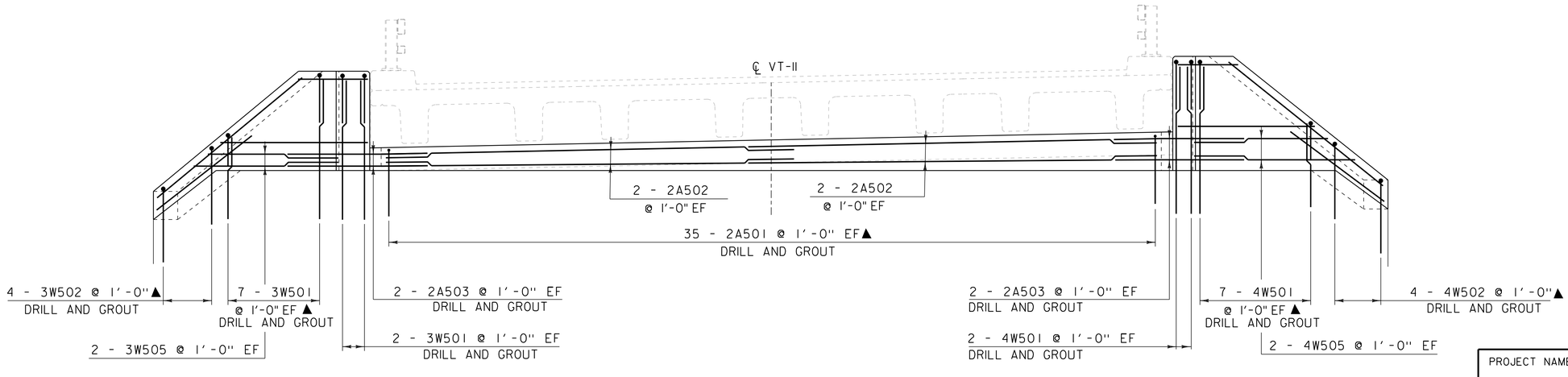
FILE NAME: s12b140sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
ABUTMENT 1 REINFORCING

PLOT DATE: 06-JAN-2015
DRAWN BY: G. ROKES
CHECKED BY: D. PETERSON
SHEET 28 OF 48



ABUTMENT NO. 2 BELOW BRIDGE SEAT REINFORCING LAYOUT

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



ABUTMENT NO. 2 REINFORCING ELEVATION

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

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.

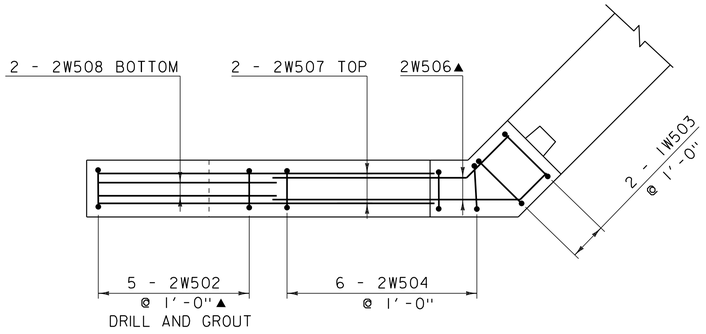
DRILL AND GROUT ABUTMENT AS SHOWN IN THE "ABUTMENT TYPICAL" ON "ABUTMENT 1 PLAN & ELEVATION" SHEET

DRILL AND GROUT WINGWALLS AS SHOWN IN THE "WINGWALL TYPICAL" ON "WINGWALL 1& 2 REINFORCING" SHEET

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

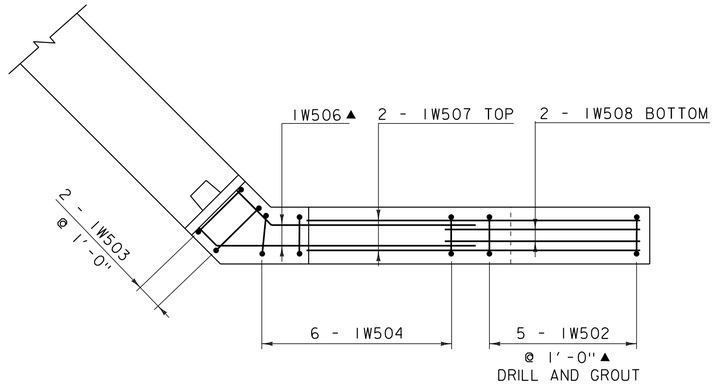
FILE NAME: sl2bl40sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
ABUTMENT 2 REINFORCING

PLOT DATE: 06-JAN-2015
DRAWN BY: G. ROKES
CHECKED BY: D. PETERSON
SHEET 29 OF 48



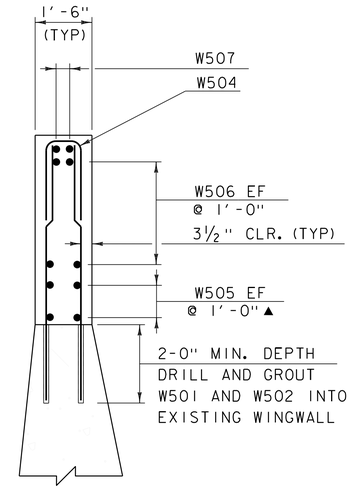
WINGWALL NO. 2 PLAN

SCALE: 1/2" = 1'-0"



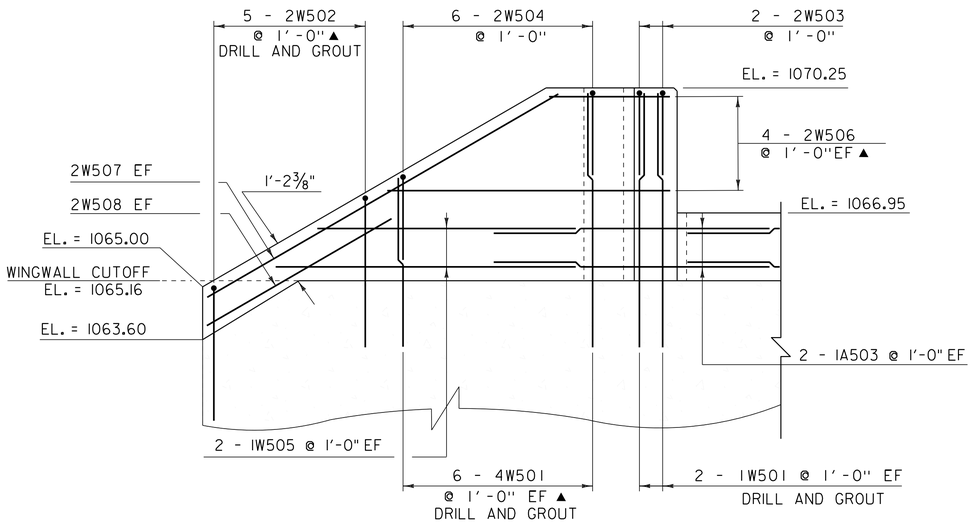
WINGWALL NO. 1 PLAN

SCALE: 1/2" = 1'-0"



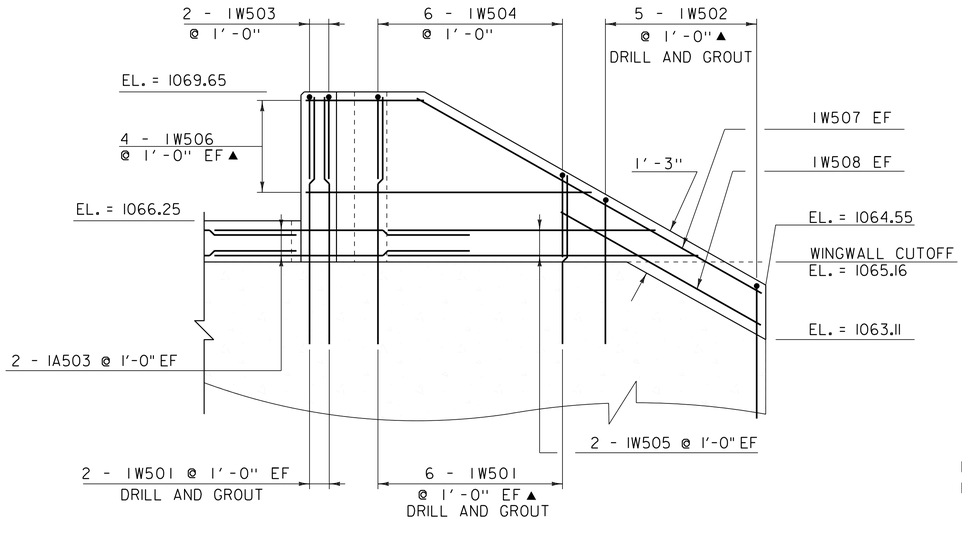
WINGWALL TYPICAL

SCALE: 1/2" = 1'-0"



WINGWALL NO. 2 ELEVATION

SCALE: 1/2" = 1'-0"



WINGWALL NO. 1 ELEVATION

SCALE: 1/2" = 1'-0"

NOTE:

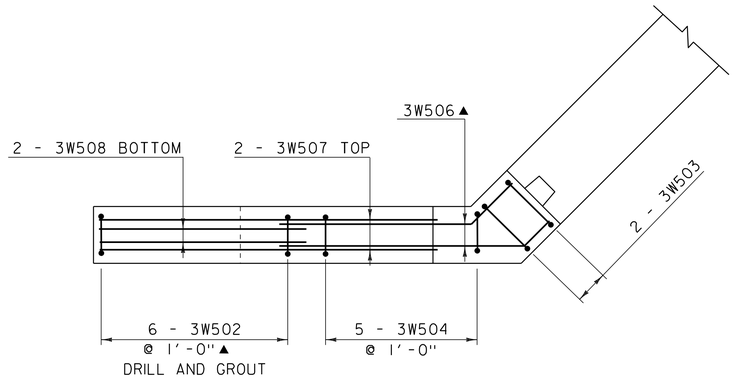
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

DRILL AND GROUT WINGWALLS AS SHOWN IN THE "WINGWALL TYPICAL" ON THIS SHEET

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

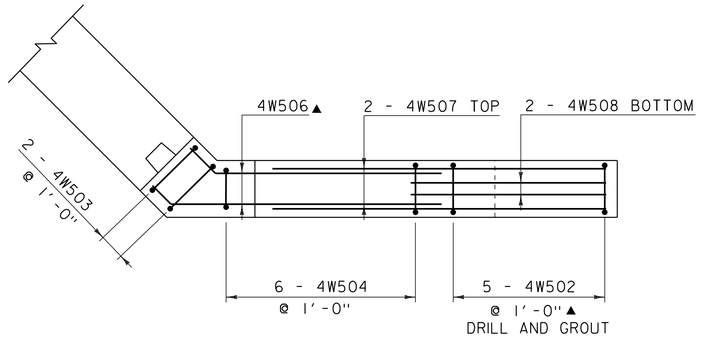
FILE NAME: sl2bl40sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
WINGWALL 1 & 2 REINFORCING

PLOT DATE: 06-JAN-2015
DRAWN BY: G. ROKES
CHECKED BY: D. PETERSON
SHEET 30 OF 48



WINGWALL NO. 3 PLAN

SCALE: ½" = 1'-0"



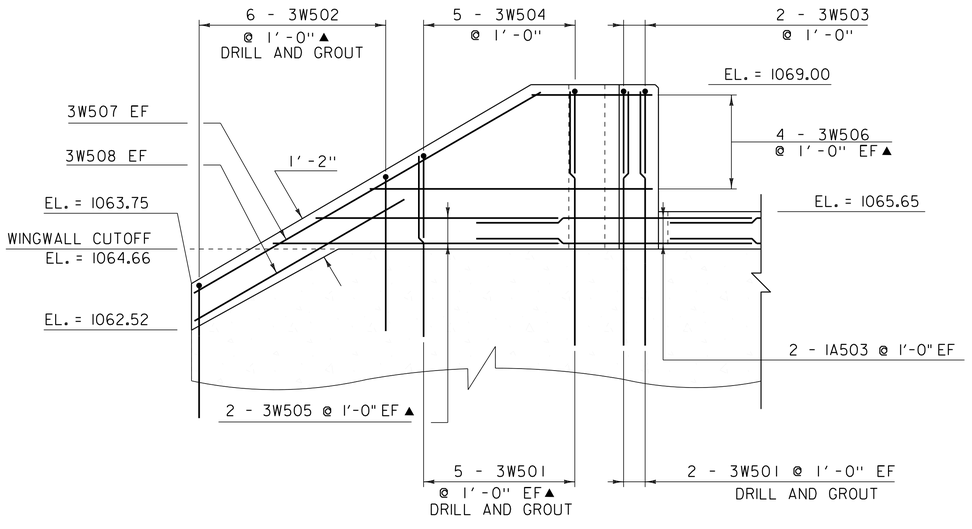
WINGWALL NO. 4 PLAN

SCALE: ½" = 1'-0"

NOTE:

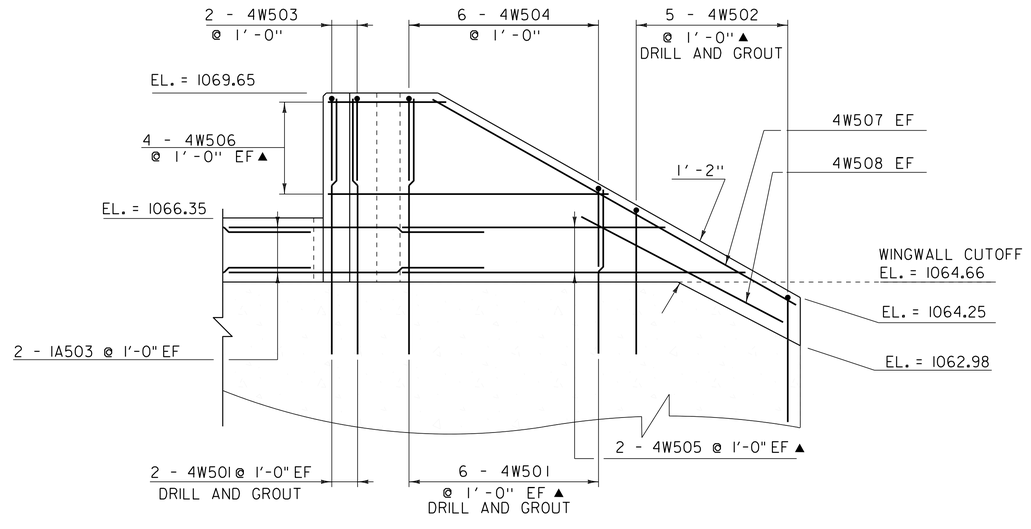
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

DRILL AND GROUT WINGWALLS AS SHOWN IN THE "WINGWALL TYPICAL" ON "WINGWALL 1 & 2 REINFORCING" SHEET



WINGWALL NO. 3 ELEVATION

SCALE: ½" = 1'-0"



WINGWALL NO. 4 ELEVATION

SCALE: ½" = 1'-0"

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: sl2bl40sub.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROKES
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
WINGWALL 3 & 4 REINFORCING	SHEET 31 OF 48

STATE OF VERMONT
AGENCY OF TRANSPORTATION

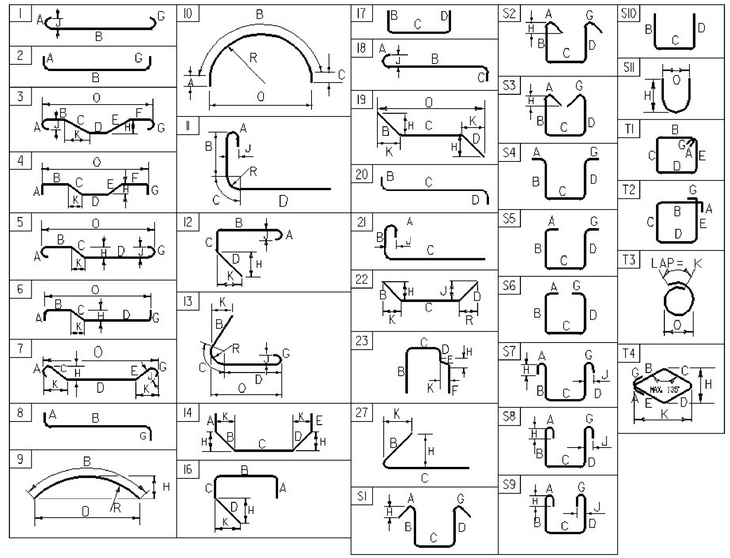
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	DECK																
✳	13	5	25'- 1"	D501.2	STR												
	ABUTMENT #1																
	8	5	18'- 6"	1A502	STR	18'- 6"											
▲	70	5	4'- 6"	1A501	S-10		1'- 5"	3'- 1"	---								
	8	5	7'- 3"	1A503	22		3'- 5"	3'- 10"	---				2'- 5"	---	2'- 5"	---	
	ABUTMENT #2																
	8	5	18'- 6"	2A502	STR	18'- 6"											
▲	70	5	4'- 10"	2A501	S-10		1'- 5"	3'- 5"	---								
	8	5	7'- 5"	2A503	22		3'- 7"	3'- 10"	---				2'- 6"	---	2'- 6"	---	
	WINGWALL #1																
	12	5	6'- 3"	1W501	STR	6'- 3"											
▲	4	5	9'- 8"	1W505	STR	9'- 8"											
	2	5	10'- 1"	1W507	STR	10'- 1"											
✳	2	5	5'- 1"	1W508	STR	5'- 1"											
▲	5	5	7'- 11"	1W502	S-10		3'- 6"	0'- 11"	3'- 6"								
	2	5	5'- 9"	1W503	S-10		2'- 2"	1'- 5"	2'- 2"								
	6	5	5'- 3"	1W504	S-10		2'- 2"	0'- 11"	2'- 2"								
▲	8	5	7'- 6"	1W506	22		1'- 0"	6'- 6"	---				0'- 9"	---	0'- 9"	---	
	WINGWALL #2																
▲	12	5	6'- 5"	2W501	STR	6'- 5"											
▲	4	5	9'- 9"	2W505	STR	9'- 9"											
	2	5	10'- 3"	2W507	STR	10'- 3"											
	2	5	5'- 1"	2W508	STR	5'- 1"											
▲	5	5	8'- 3"	2W502	S-10		3'- 8"	0'- 11"	3'- 8"								
	2	5	5'- 9"	2W503	S-10		2'- 2"	1'- 5"	2'- 2"								
	6	5	5'- 3"	2W504	S-10		2'- 2"	0'- 11"	2'- 2"								
▲	8	5	8'- 1"	2W506	22		1'- 4"	6'- 9"	---				0'- 11"	---	0'- 11"	---	
	WINGWALL # 3																
▲	10	5	6'- 1"	3W501	STR	6'- 1"											
▲	4	5	9'- 8"	3W505	STR	9'- 8"											
	2	5	10'- 5"	3W507	STR	10'- 5"											
	2	5	5'- 3"	3W508	STR	5'- 3"											
▲	6	5	8'- 11"	3W502	S-10		4'- 0"	0'- 11"	4'- 0"								
	2	5	5'- 9"	3W503	S-10		2'- 2"	1'- 5"	2'- 2"								
	5	5	5'- 3"	3W504	S-10		2'- 2"	0'- 11"	2'- 2"								
▲	8	5	6'- 8"	3W506	22		1'- 3"	5'- 5"	---				0'- 11"	---	0'- 11"	---	
	WINGWALL #4																
▲	12	5	6'- 6"	4W501	STR	6'- 6"											
▲	4	5	10'- 4"	4W505	STR	10'- 4"											
	2	5	10'- 11"	4W507	STR	10'- 11"											
	2	5	5'- 6"	4W508	STR	5'- 6"											
▲	5	5	7'- 9"	4W502	S-10		3'- 5"	0'- 11"	3'- 5"								
	2	5	5'- 9"	4W503	S-10		2'- 2"	1'- 5"	2'- 2"								
	6	5	5'- 3"	4W504	S-10		2'- 2"	0'- 11"	2'- 2"								
▲	8	5	7'- 10"	4W506	22		0'- 9"	7'- 1"	---				0'- 6"	---	0'- 6"	---	

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O

~ NOTES ~

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-SI). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION DIAMETER INCHES	AREA INCHES²	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.04	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.14
#9	3.400	1.13	1.00	3.54
#10	4.3	1.270	1.27	3.990
#11	5.31	1.410	1.56	4.430
#14	7.65	1.69	2.25	5.32
#18	13.60	2.26	4.00	7.09

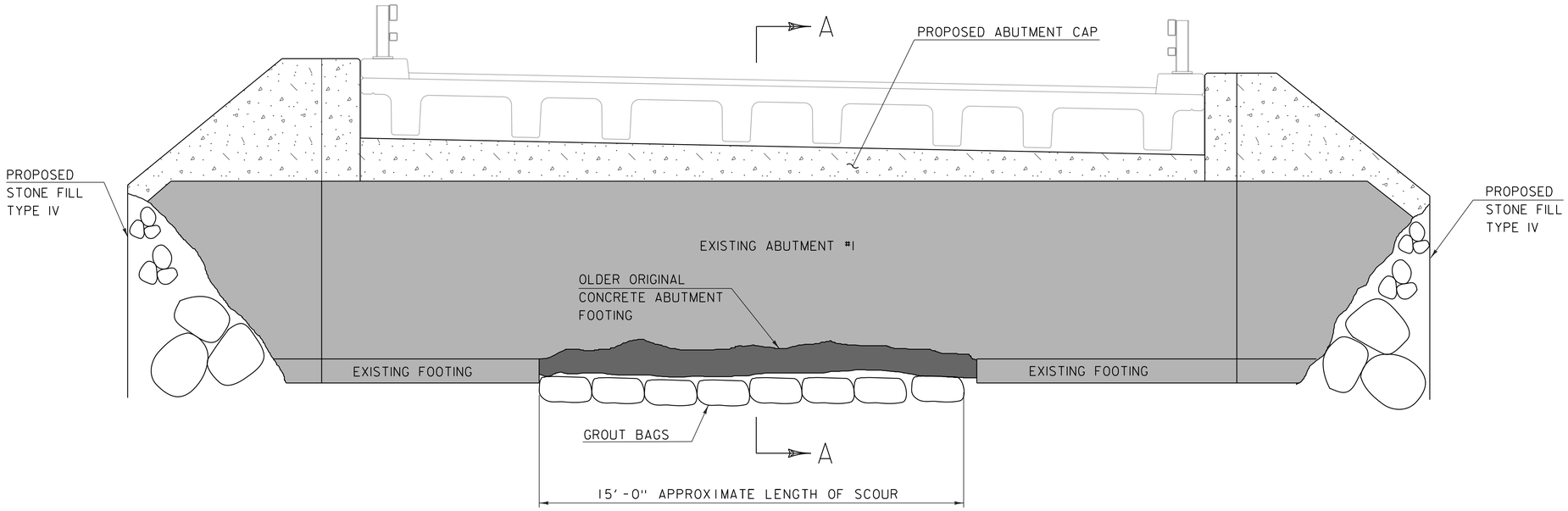
~ REINFORCING STEEL CORROSION RESISTANCE LEVEL ~

THE REINFORCING STEEL MARKS IN THIS SCHEDULE INDICATE THE REQUIRED BAR CORROSION RESISTANCE LEVEL. CORROSION RESISTANCE LEVEL IS DENOTED WITH A .2 FOR LEVEL TWO SUFFIX OR .3 FOR LEVEL THREE SUFFIX, .1 FOR LEVEL ONE IS TO BE OMITTED. THE BAR MATERIAL TYPE AND BAR STEEL GRADE PROVIDED FOR EACH CORROSION LEVEL WILL BE RECORDED ON THE PLAN SET PI SHEET FOR AS-BUILT RECORD PLAN ARCHIVES.

PROJECT NAME: **ANDOVER**
PROJECT NUMBER: **BHF 016-1(29)**

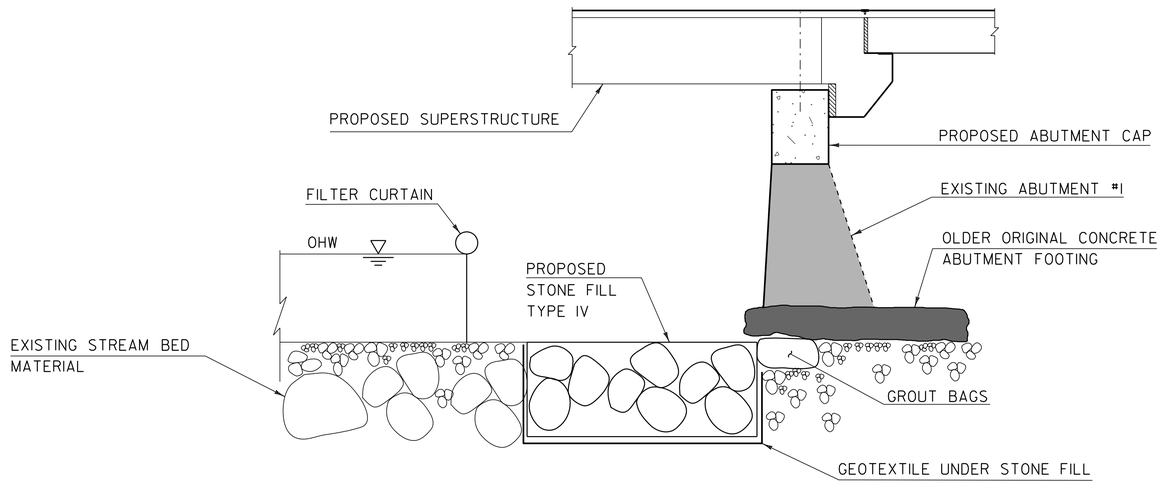
FILE NAME: **s12b140rfs**
PROJECT MANAGER: **C. CARLSON**
DESIGNED BY: **D. PETERSON**
REINFORCING STEEL SCHEDULE

PLOT DATE: **11/20/2014**
DRAWN BY: **G. ROKES**
CHECKED BY: **D. PETERSON**
SHEET 32 OF 48



GROUT BAG PLACEMENT ABUTMENT #1 ELEVATION

SCALE 1/4" = 1'-0"



SECTION A-A

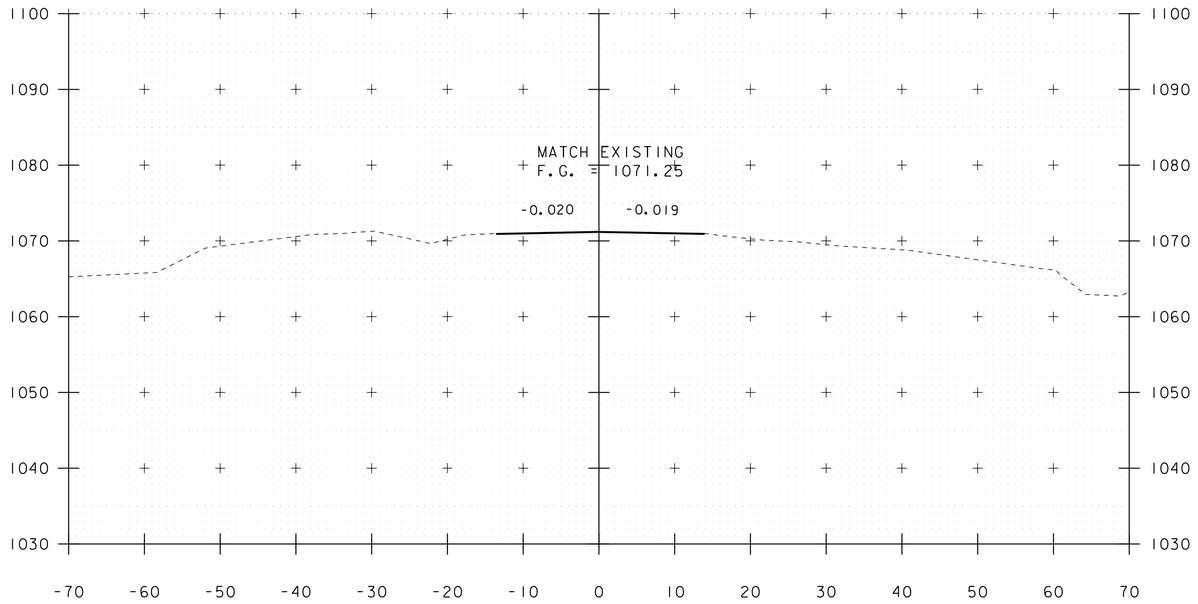
SCALE 1/4" = 1'-0"

NOTE: PAYMENT FOR FURNISHING AND PLACING GROUT BAGS WILL BE UNDER CONTRACT ITEM 900.640 SPECIAL PROVISION (GROUT BAGS).

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

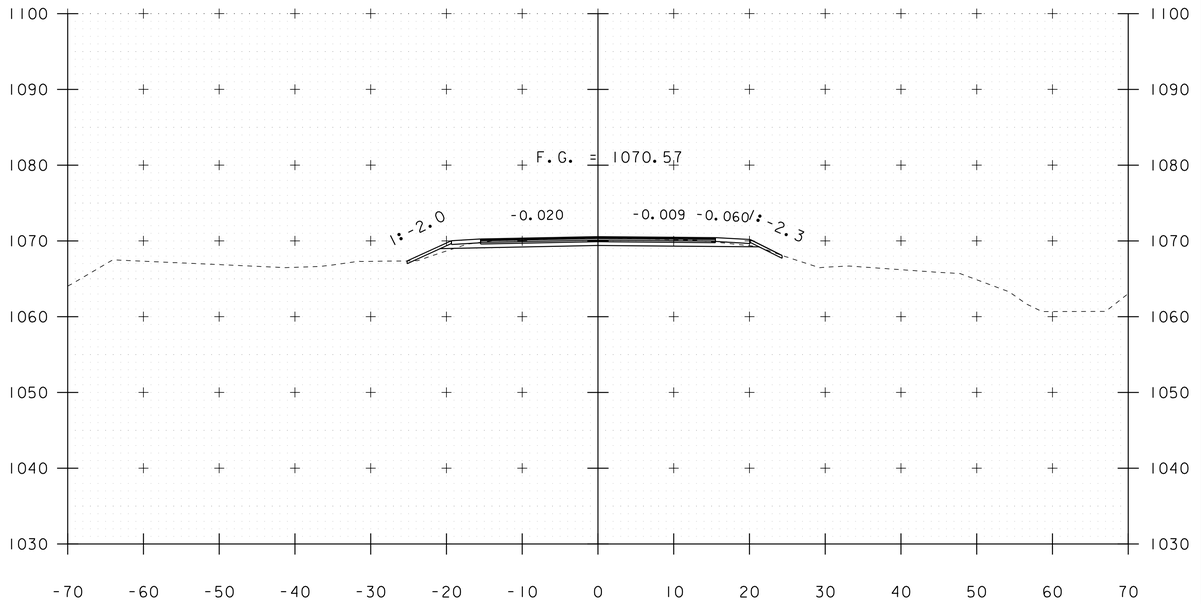
FILE NAME: sl2bl40xs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
GROUT BAG PLACEMENT

PLOT DATE: 06-JAN-2015
DRAWN BY: G. ROKES
CHECKED BY: D. PETERSON
SHEET 33 OF 48

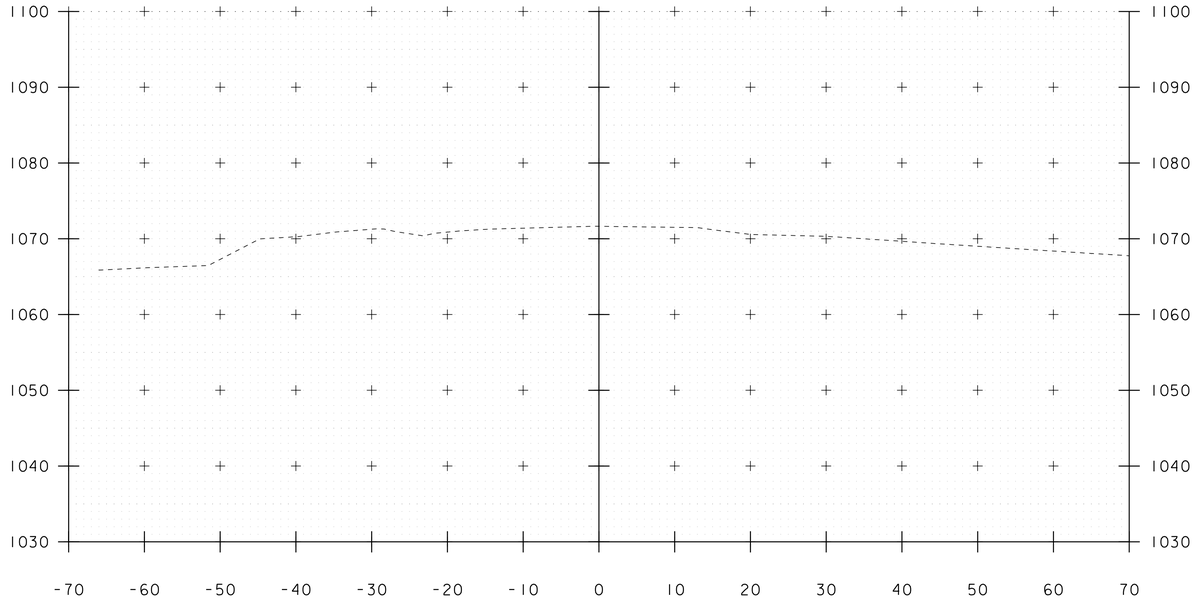


BEGIN APPROACH

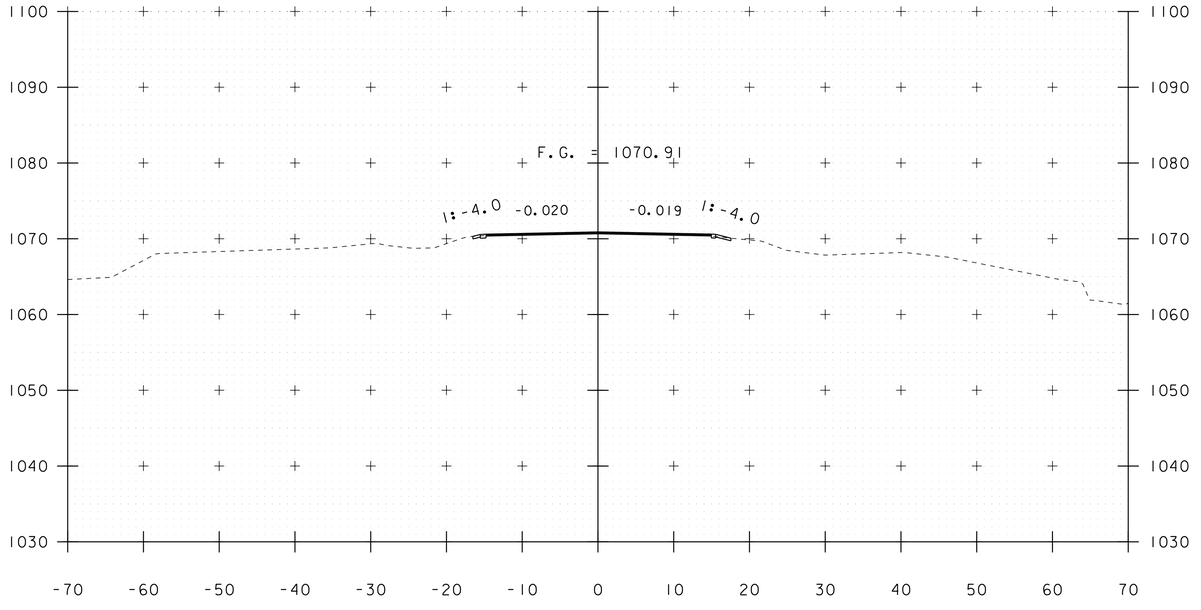
10+50



11+00



10+25



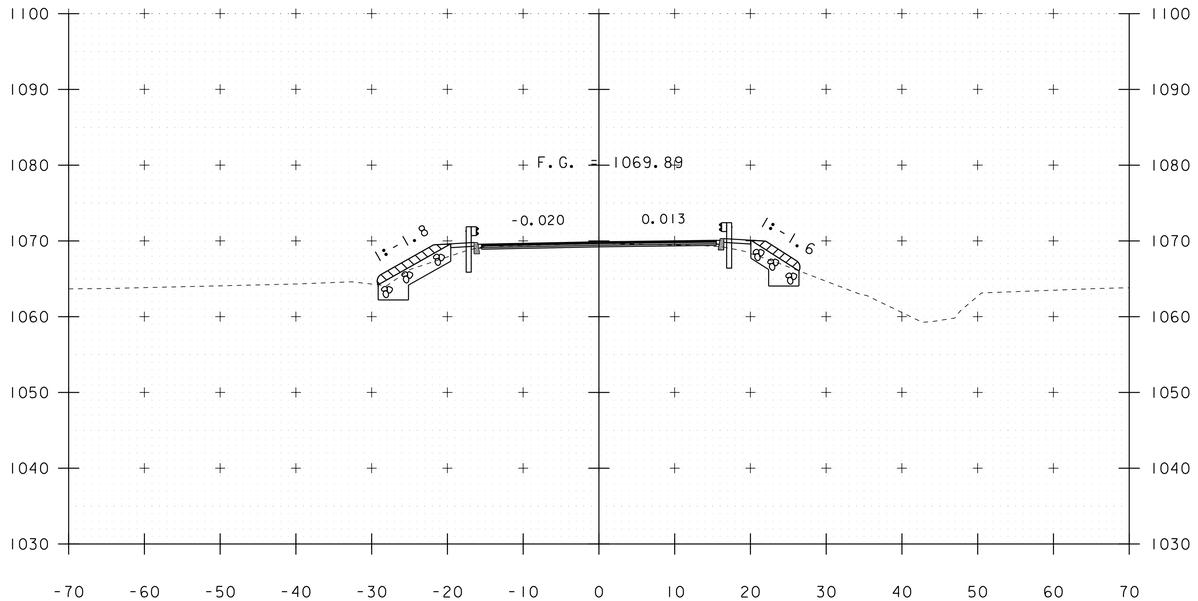
10+75

STA. 10+25 TO STA. 11+00

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

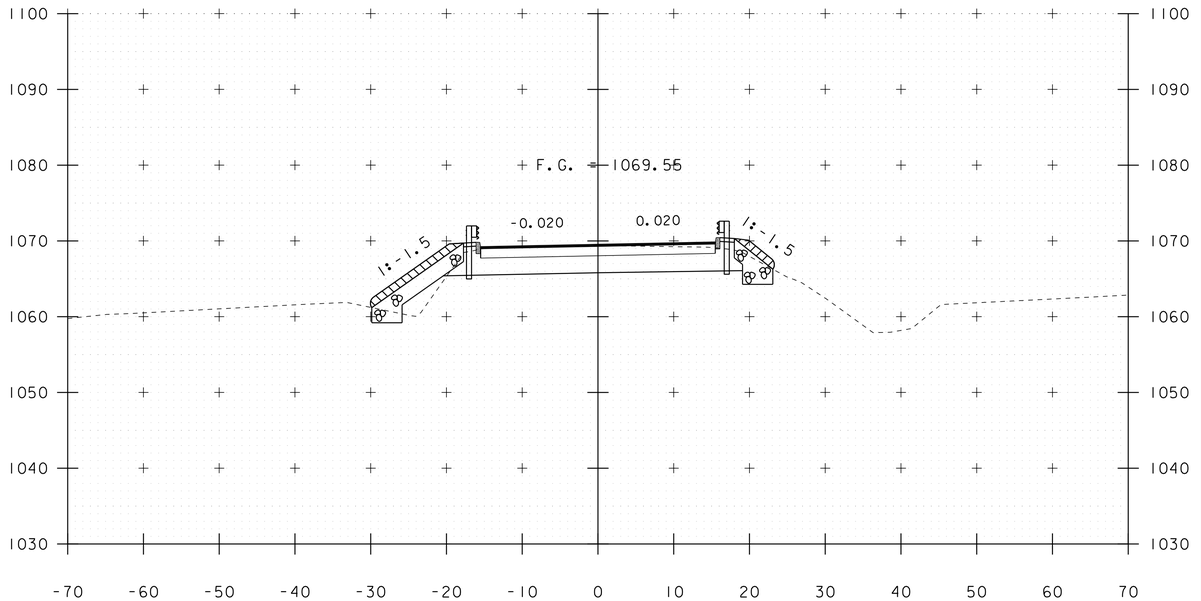
FILE NAME: sl2bl40xs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
VT 11 CROSS SECTIONS 1

PLOT DATE: 06-JAN-2015
DRAWN BY: S. PIRO
CHECKED BY: D. PETERSON
SHEET 34 OF 48



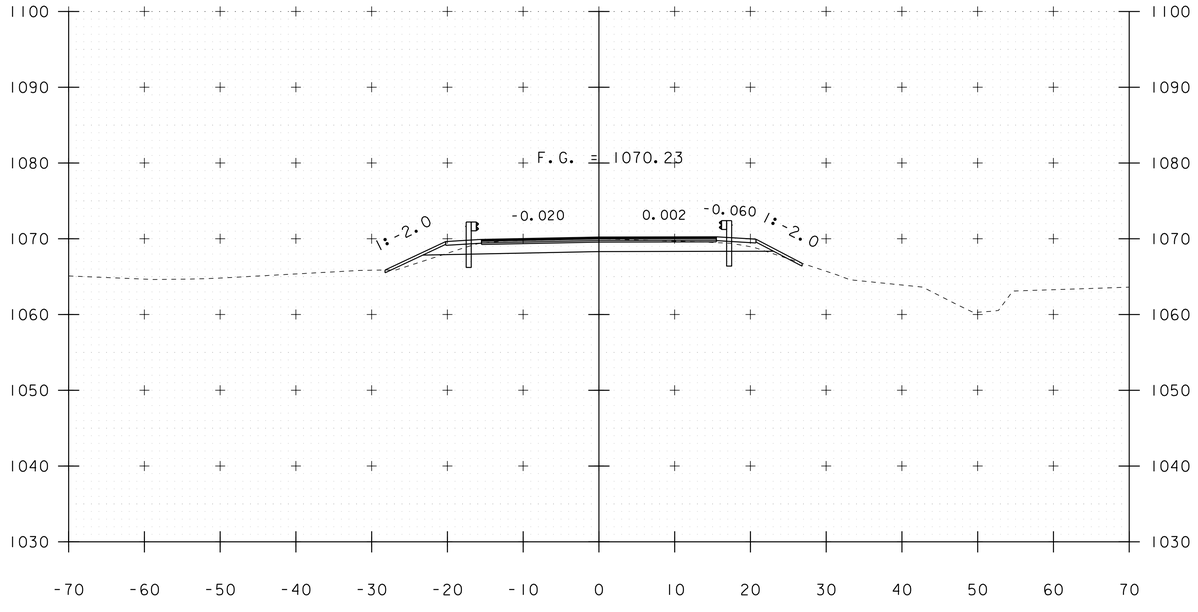
STA 11+45.00 LT & 11+40.00 RT
BEGIN STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

11+50

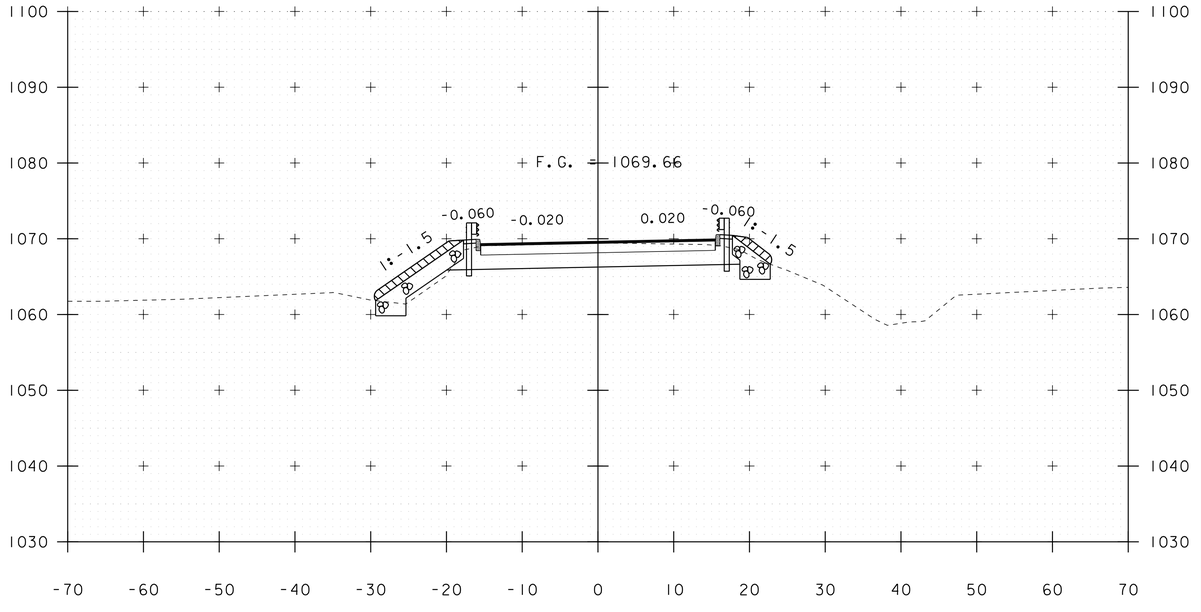


END APPROACH
BEGIN PROJECT

11+75



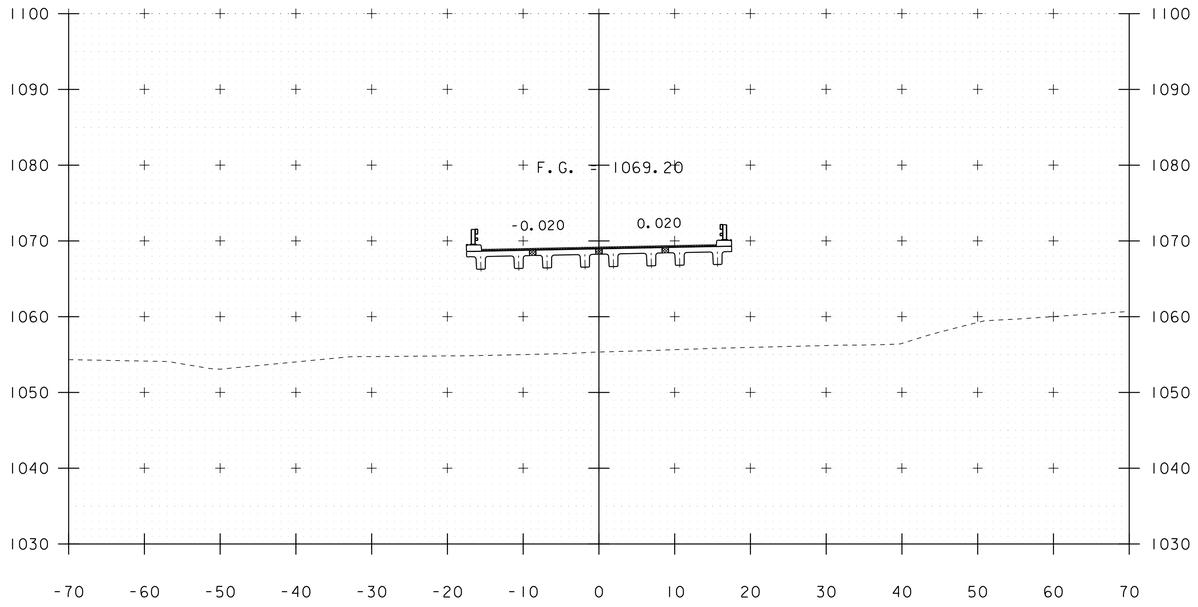
11+25



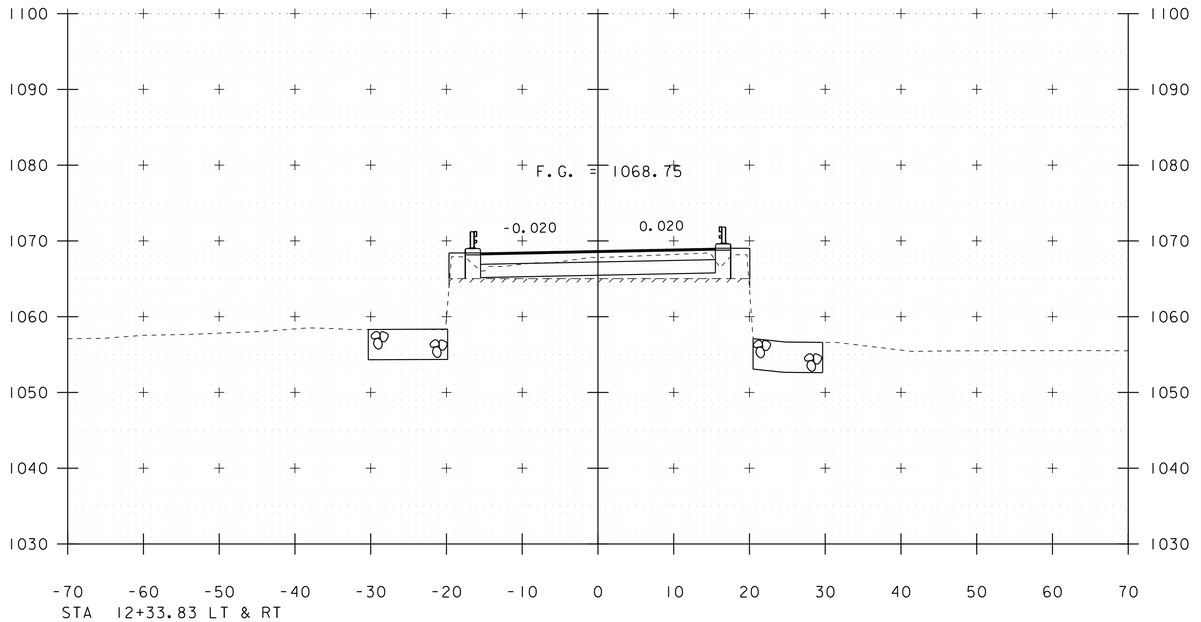
11+66.75

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: sl2bl40xs.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: S. PIRO
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
VT II CROSS SECTIONS 2	SHEET 35 OF 48

STA. 11+25 TO STA. 11+75

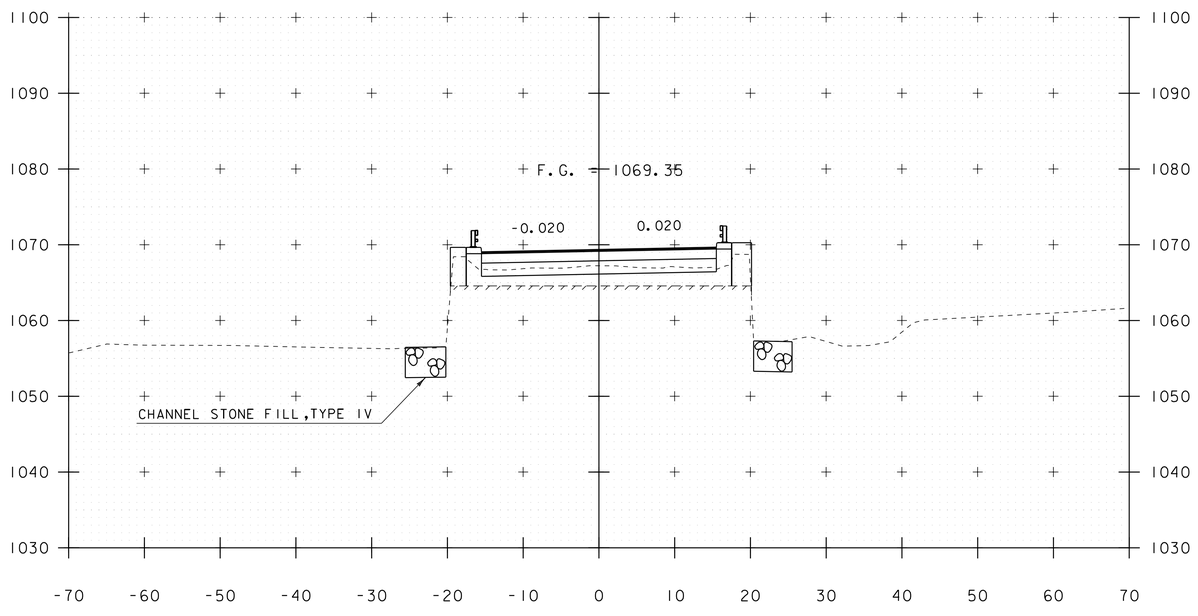


12+00



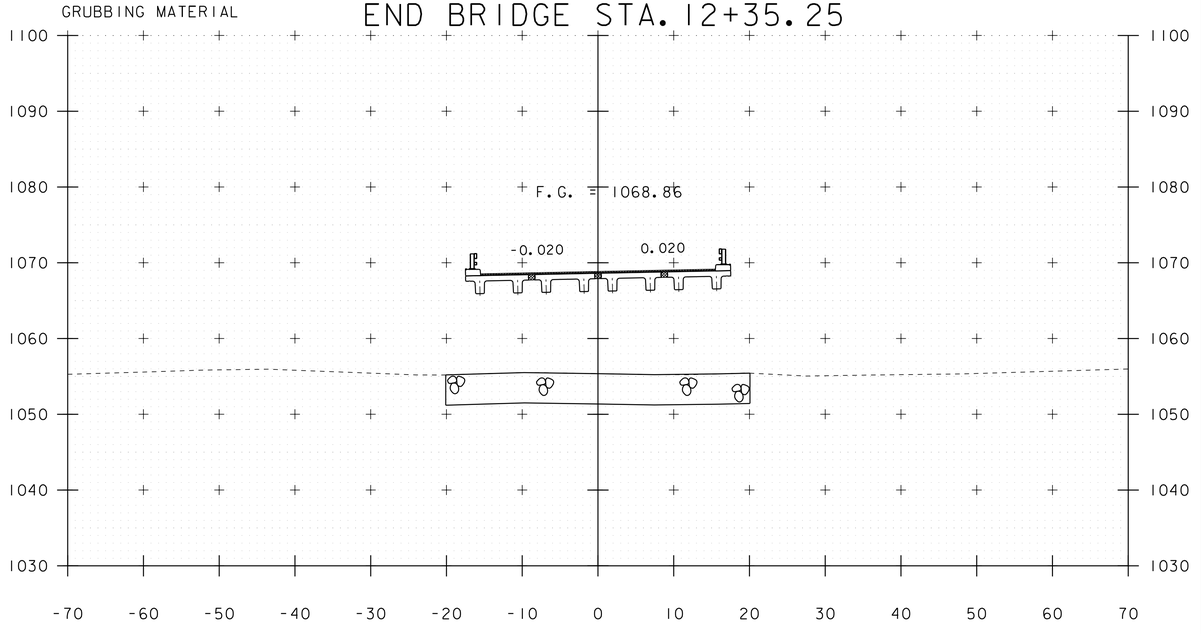
STA 12+33.83 LT & RT
BEGIN STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

12+33.00
END BRIDGE STA. 12+35.25



STA 11+88.00 LT & RT
END STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

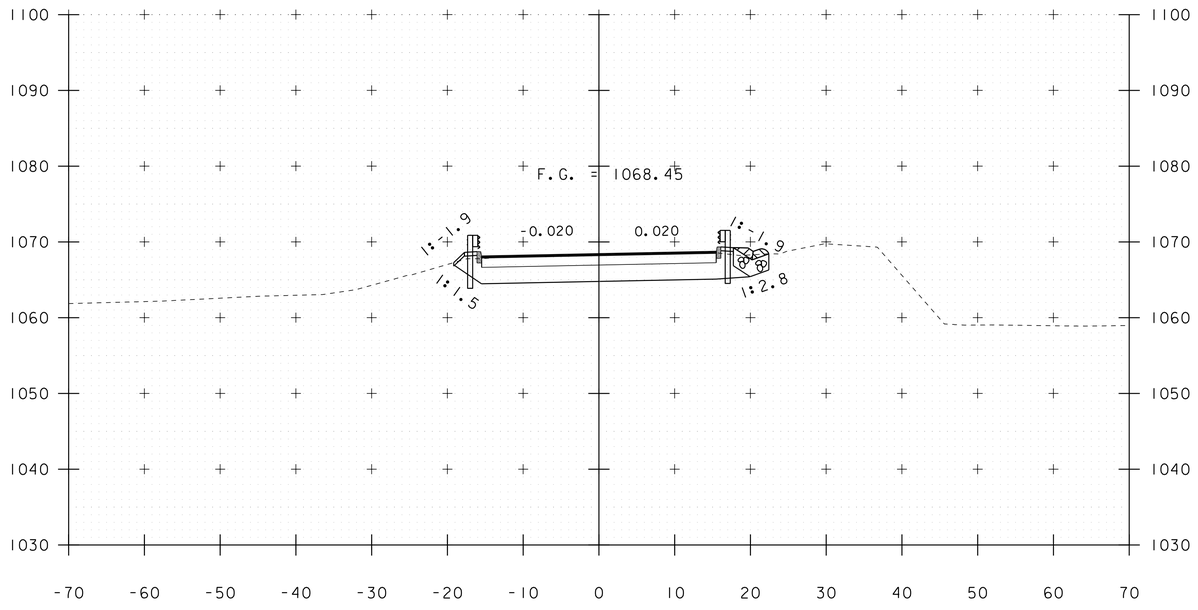
11+89.00
BEGIN BRIDGE STA. 11+86.75



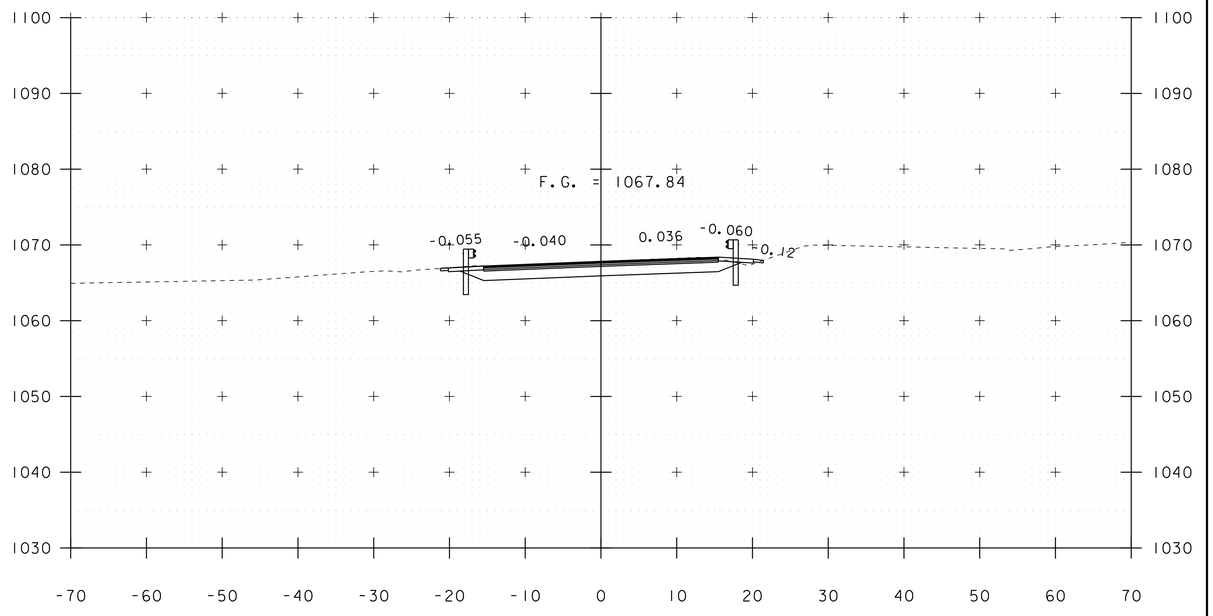
12+25

STA. 11+89 TO STA. 12+33

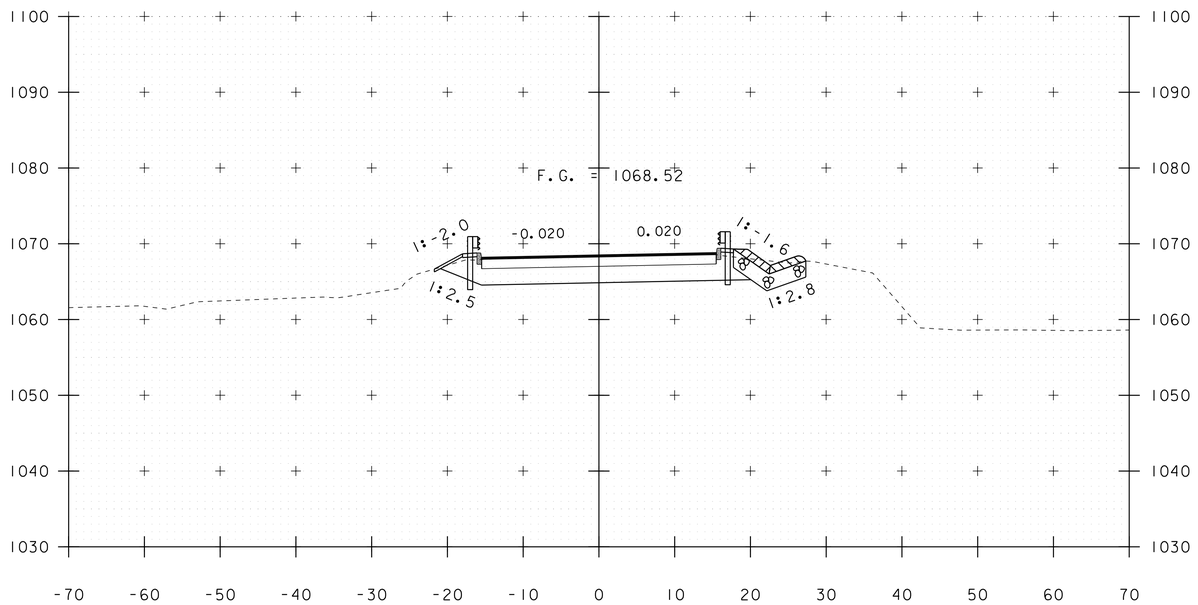
PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: s12b140xs.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: S. PIRO
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
VT IICROSS SECTIONS 3	SHEET 36 OF 48



12+55

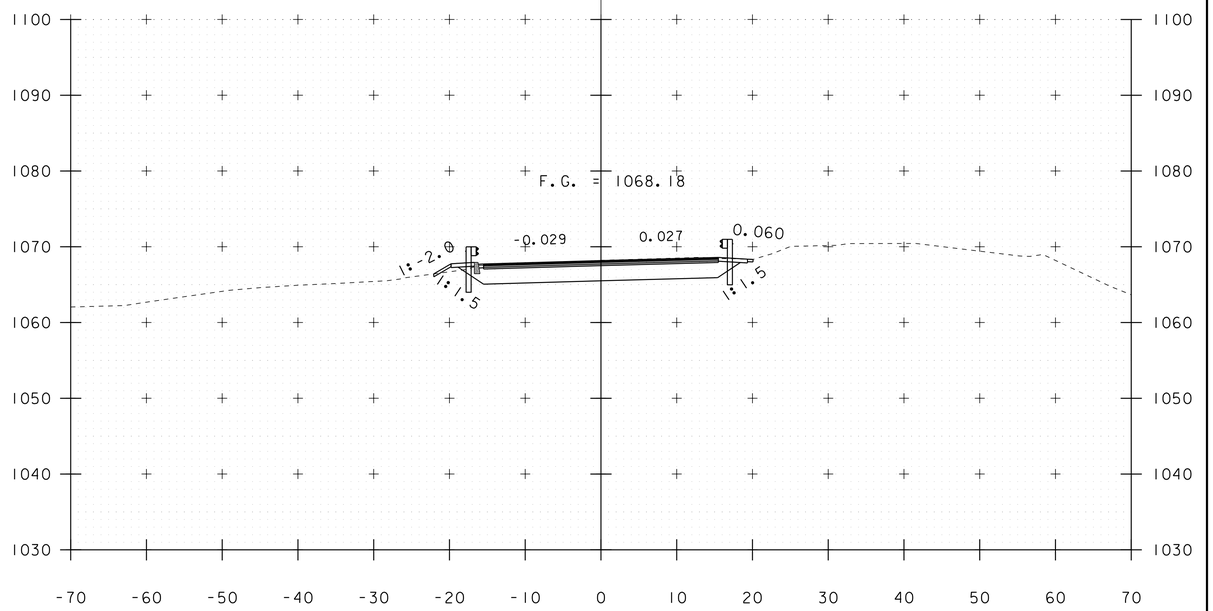


13+00



12+50

STA 12+44.00 LT
END STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL



12+75

STA 12+58.50 RT
BEGIN STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

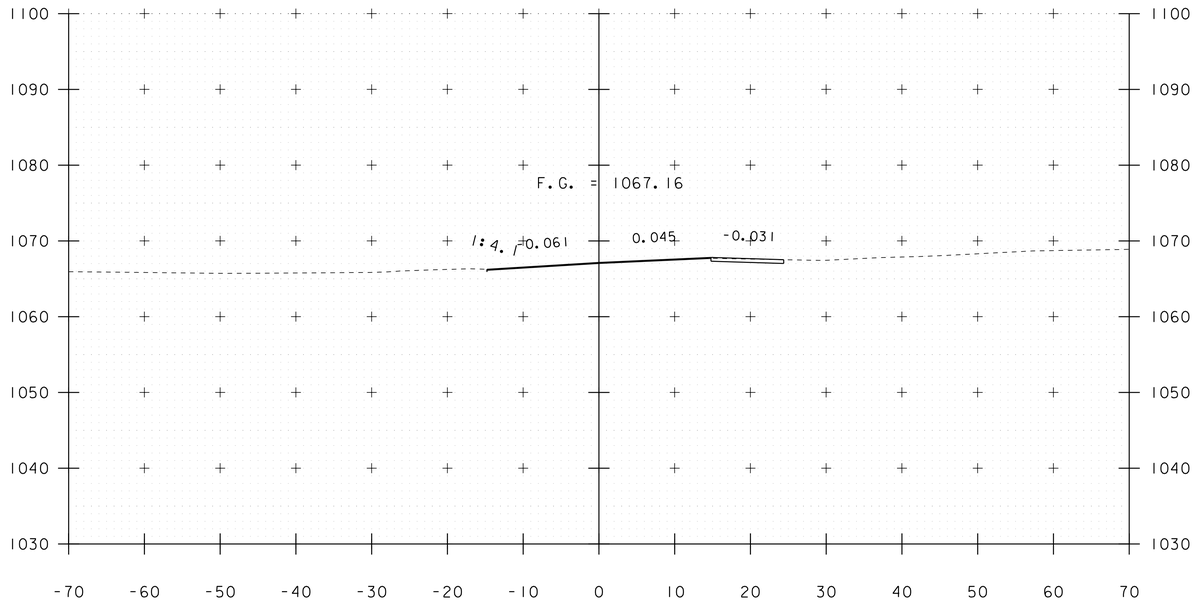
END PROJECT
BEGIN APPROACH

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

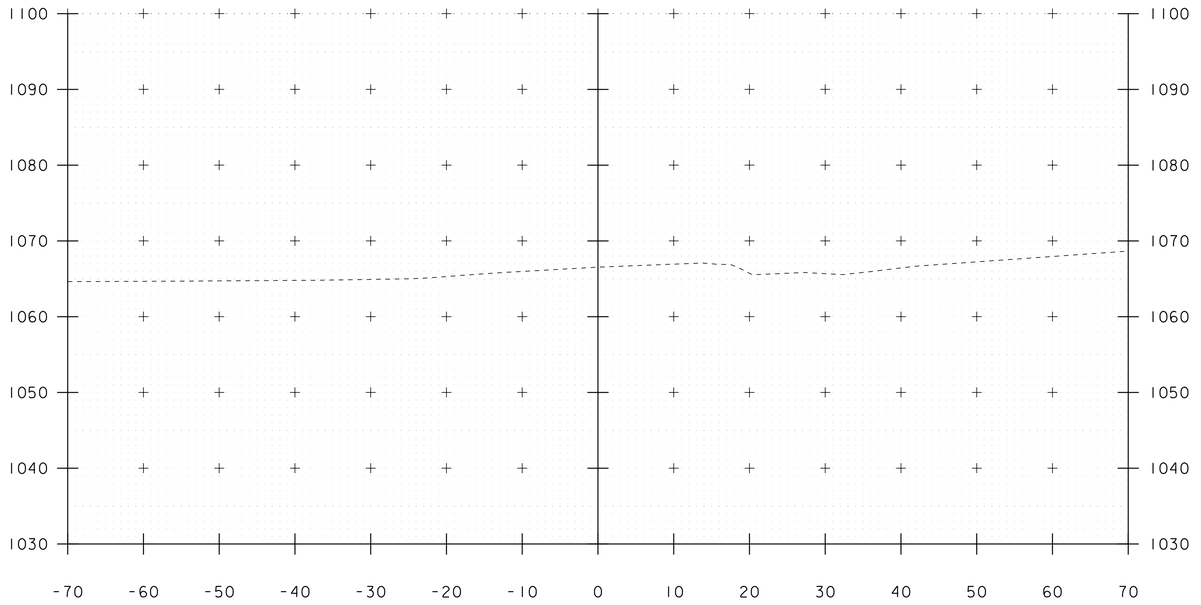
FILE NAME: s12b140xs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
VT II CROSS SECTIONS 4

PLOT DATE: 06-JAN-2015
DRAWN BY: S. PIRO
CHECKED BY: D. PETERSON
SHEET 37 OF 48

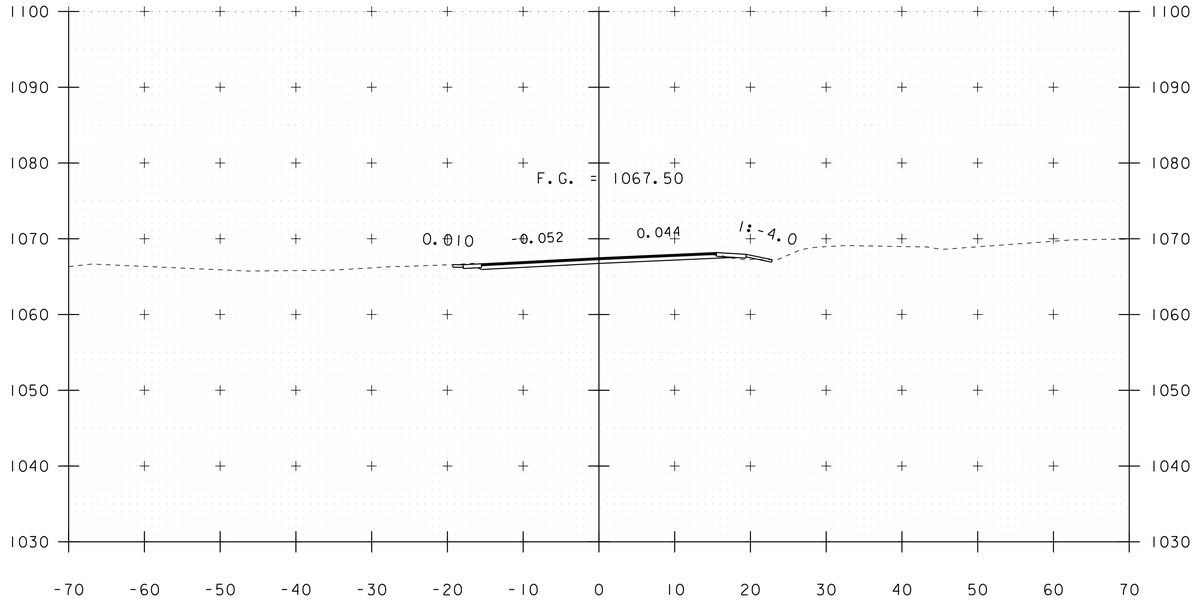
STA. 12+50 TO STA. 13+00



13+50

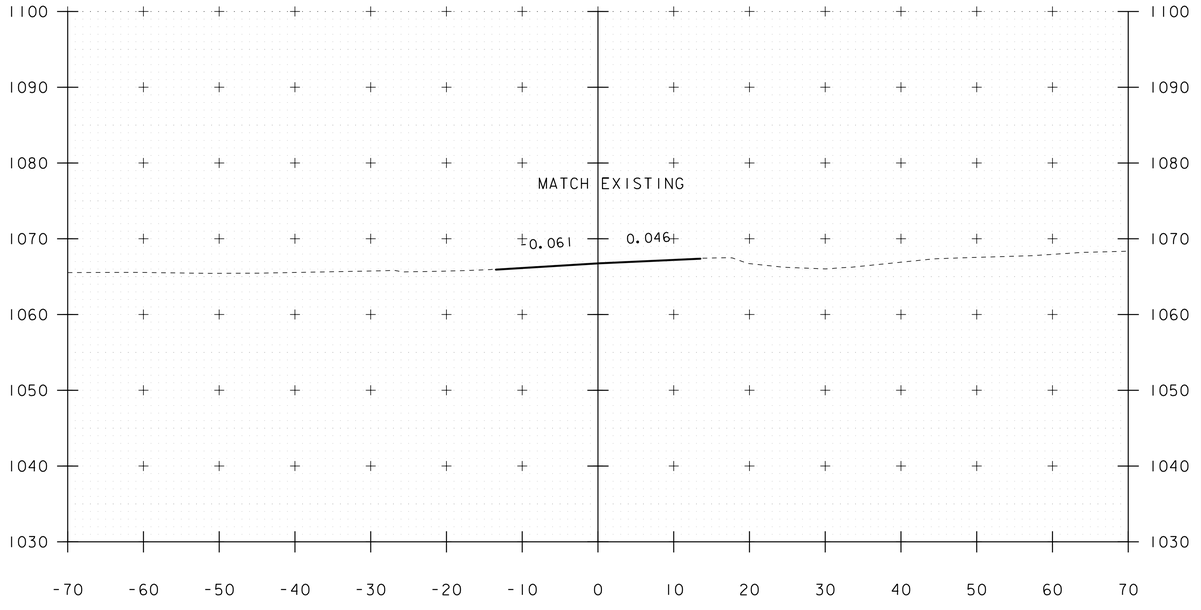


14+00



STA 13+25.00 RT - STA 13+75.00 RT
CONSTRUCT DRIVE

13+25



13+75

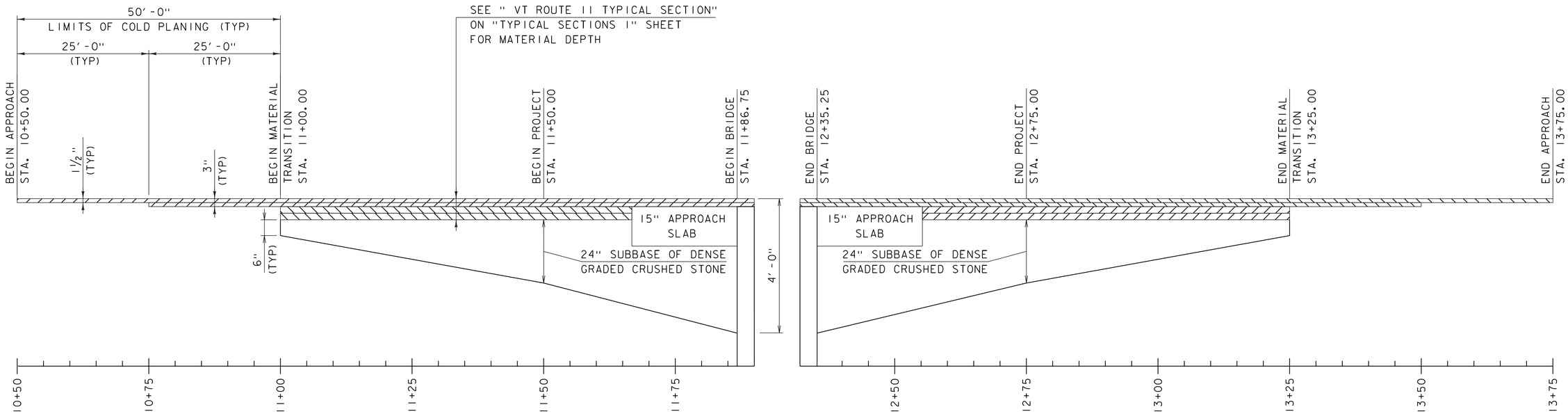
END APPROACH

STA. 13+25 TO STA. 14+00

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

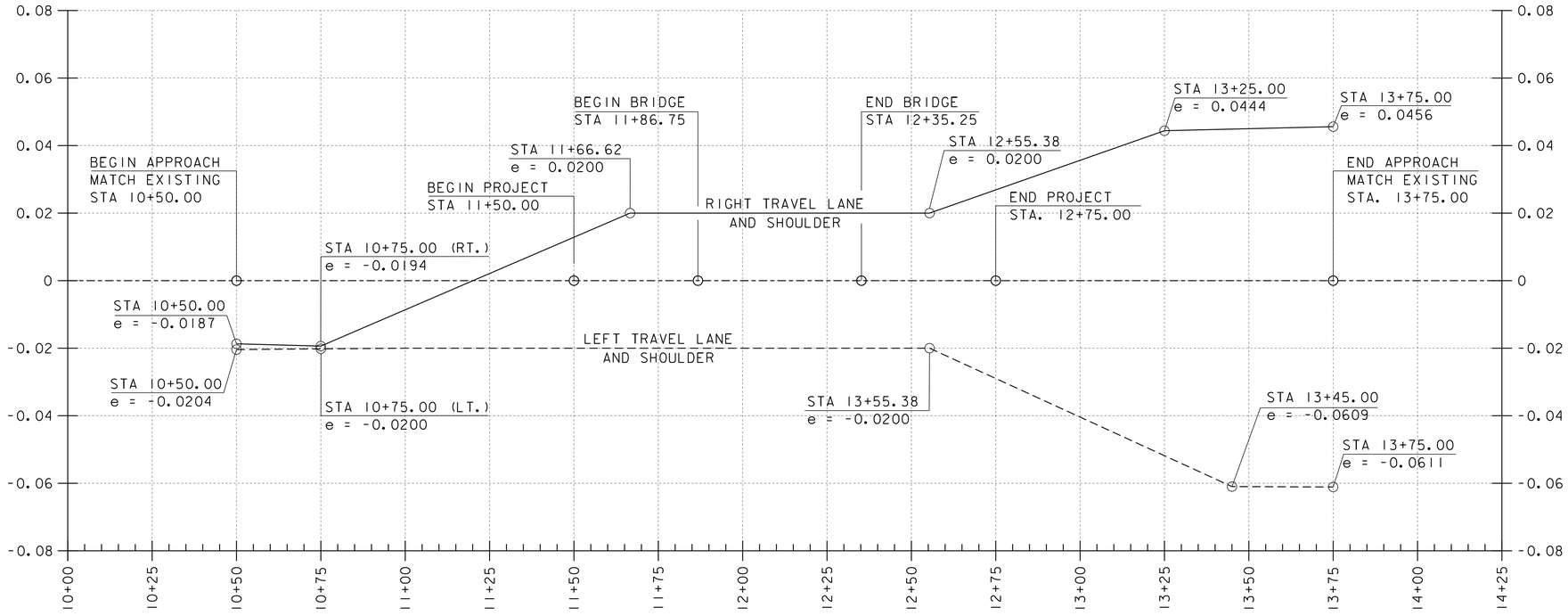
FILE NAME: sl2bl40xs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
VT II CROSS SECTIONS 5

PLOT DATE: 06-JAN-2015
DRAWN BY: S. PIRO
CHECKED BY: D. PETERSON
SHEET 38 OF 48



VT 11 MATERIAL TRANSITION DETAIL

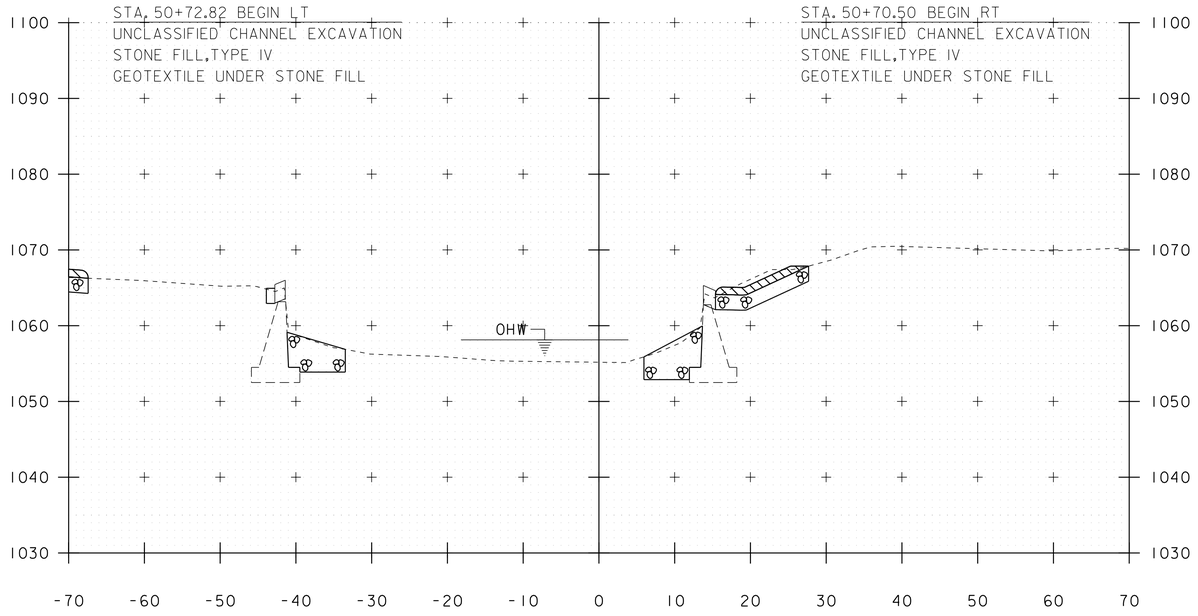
PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: s12bl40pro.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: S. PIRO
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
MATERIAL TRANSITION DETAIL	SHEET 39 OF 48



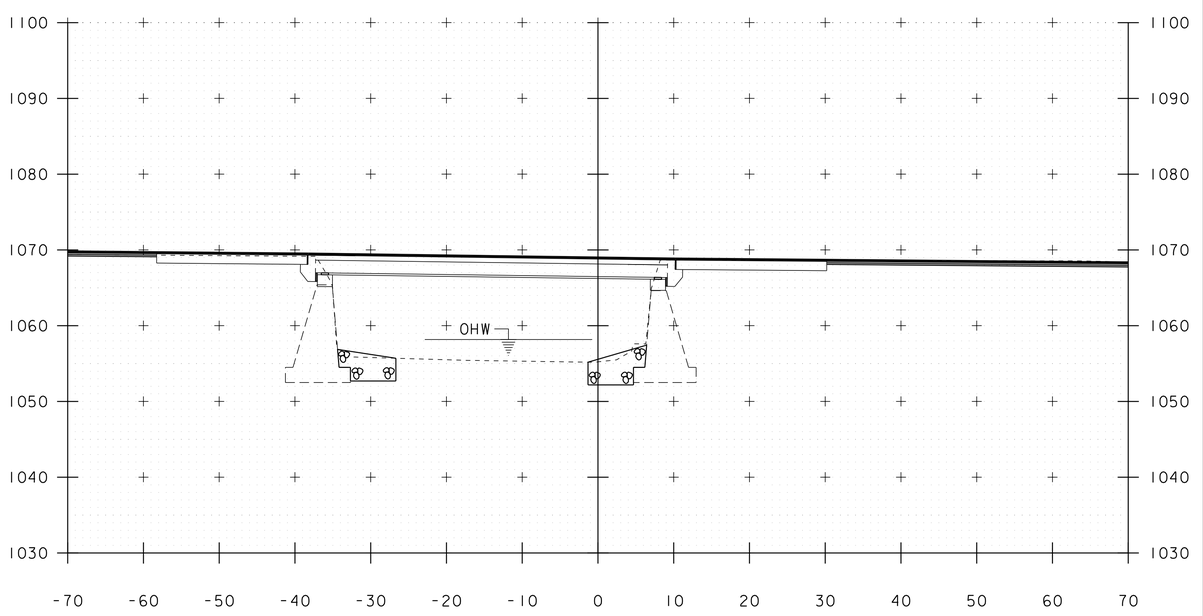
VT 11 BANKING DIAGRAM

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 0.02 '/'

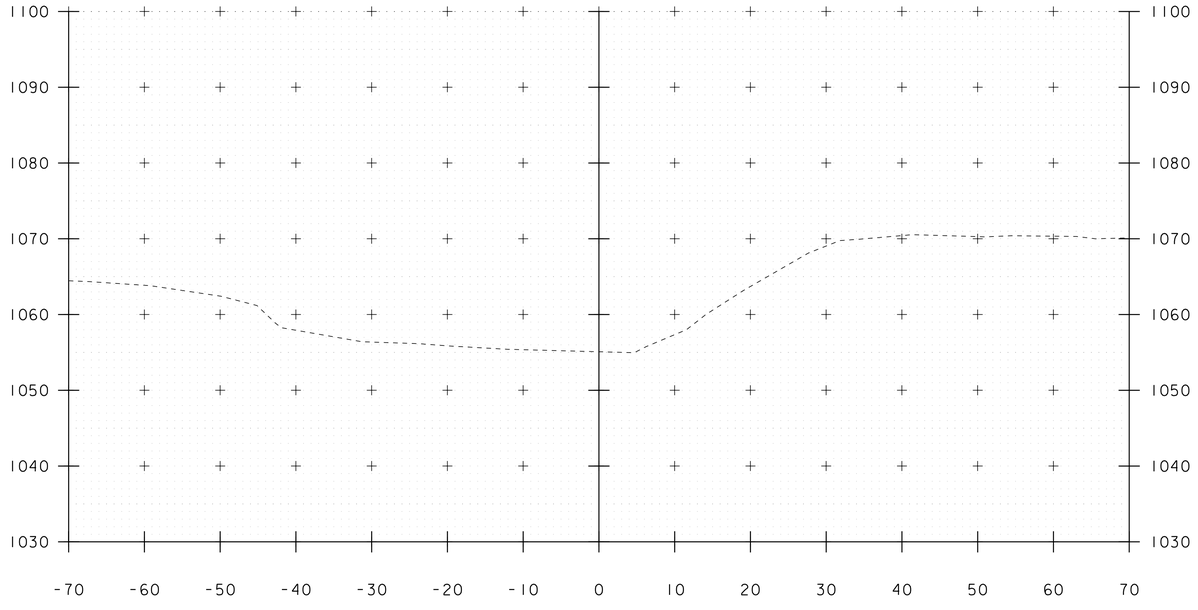
PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: sl2bl40pro.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: S. PIRO
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
BANKING DIAGRAM	SHEET 40 OF 48



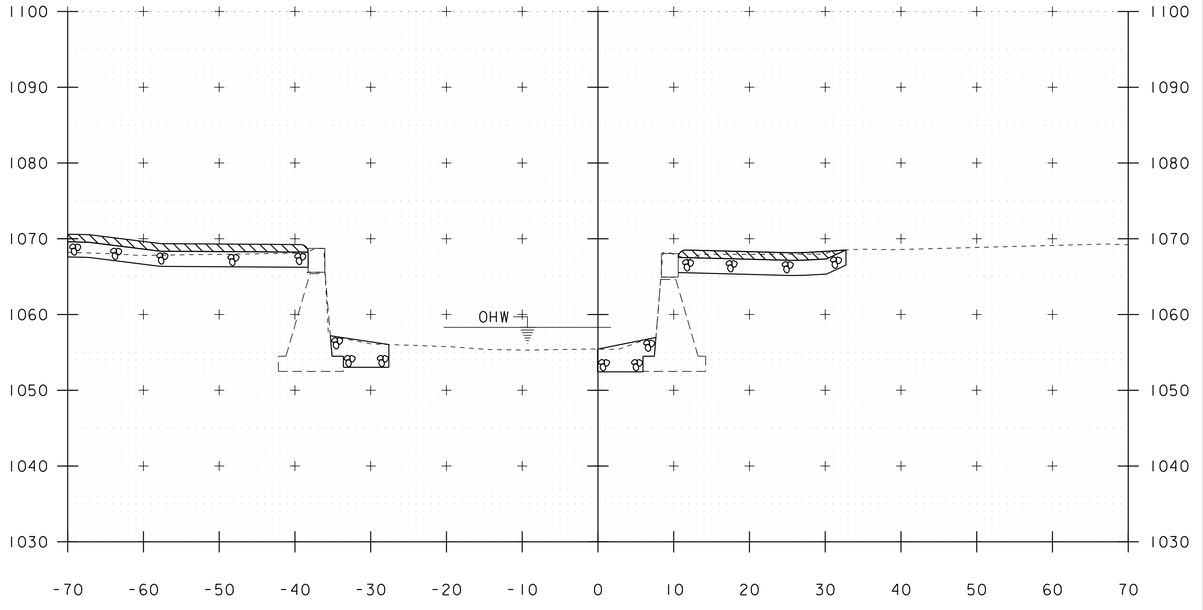
50+75



50+90



50+70



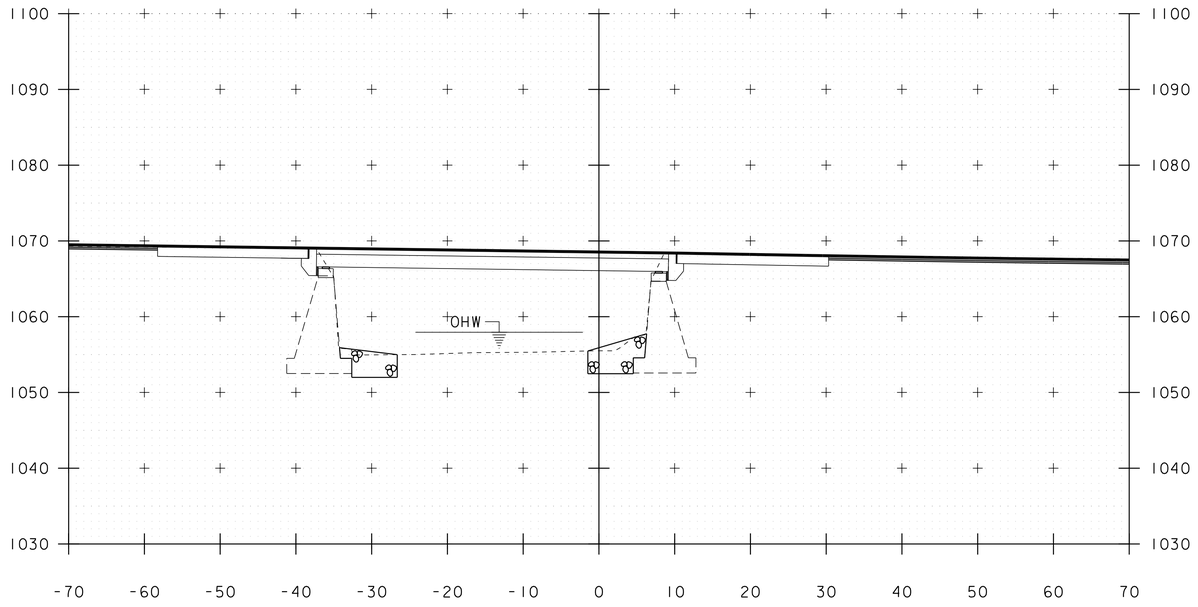
50+80

STA. 50+70 TO STA. 50+90

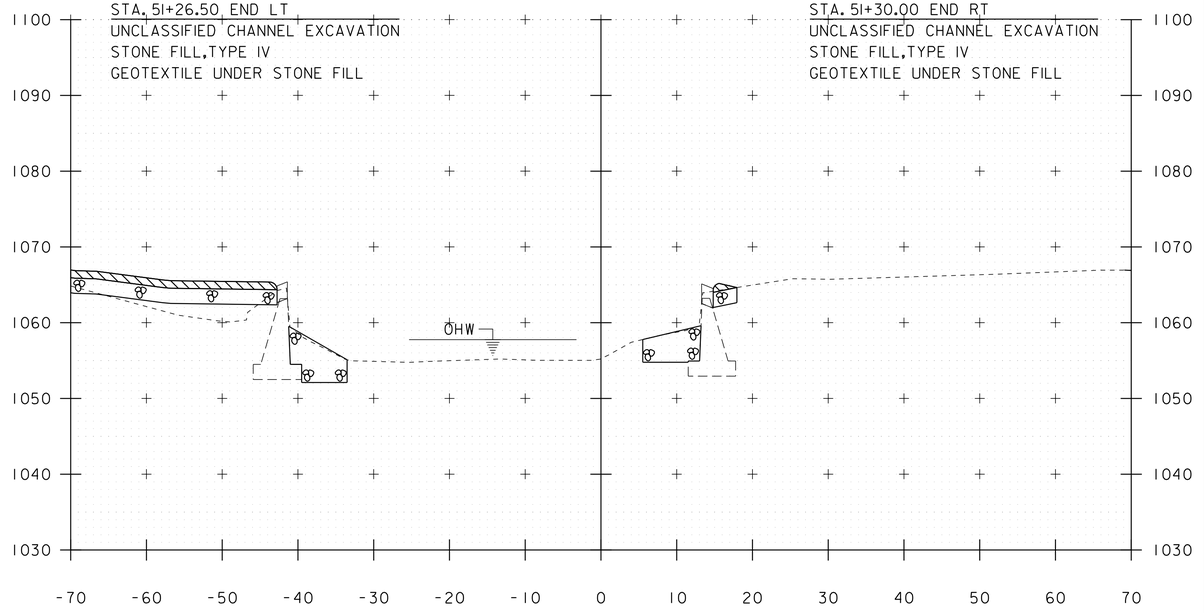
PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

FILE NAME: sl2bl40xs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
CHANNEL CROSS SECTIONS 1

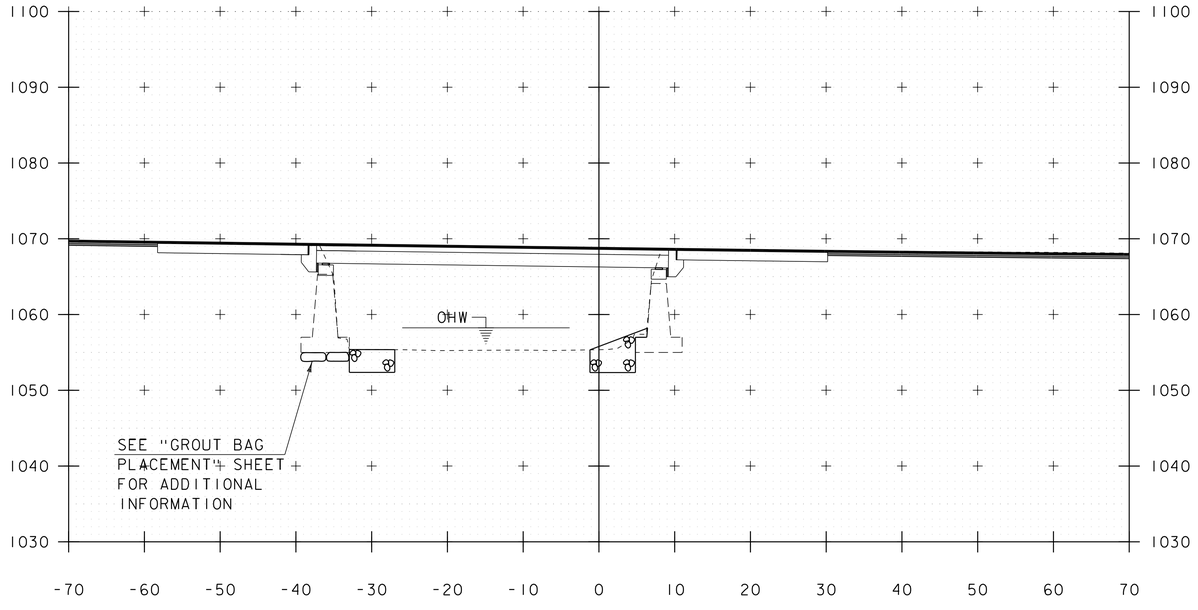
PLOT DATE: 06-JAN-2015
DRAWN BY: S. PIRO
CHECKED BY: D. PETERSON
SHEET 41 OF 48



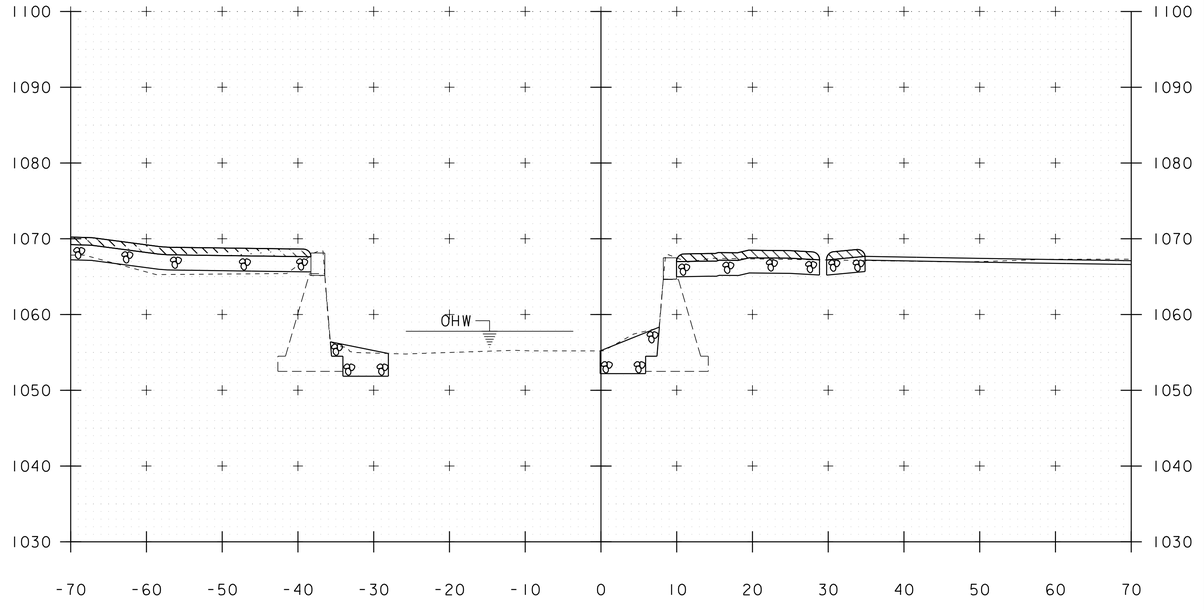
51+10



51+25



51+00



51+20

STA. 51+00 TO STA. 51+25

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

FILE NAME: sl2bl40xs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
CHANNEL CROSS SECTIONS 2

PLOT DATE: 06-JAN-2015
DRAWN BY: S. PIRO
CHECKED BY: D. PETERSON
SHEET 42 OF 48

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT IS ON VT 11 APPROXIMATELY 4.0 MILES EAST OF JUNCTION WITH VT 121 IN ANDOVER, VT. THIS PROJECT INVOLVES THE REMOVAL AND REPLACEMENT OF THE SUPER STRUCTURE ON BRIDGE NO. 41, AND MINOR ROADWAY APPROACH AND CHANNEL WORK. A NEW TWO LANE, PRECAST CONCRETE NEXT BEAM SUPERSTRUCTURE WILL BE PLACED ONTO A NEW BRIDGE SEAT OVER THE EXISTING ABUTMENTS. THE BRIDGE WILL BE CLOSED AND TRAFFIC WILL BE DETOURED FOR THE PERIOD OF CONSTRUCTION. THE TOTAL LENGTH OF THE PROJECT IS 325 FEET, INCLUDING ROADWAY APPROACHES.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.32 ACRES.

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

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE PROJECT SITE IS HILLY TO MOUNTAINOUS WITH SOME OF THE AREA HAVING EROSION DAMAGE FROM HURRICANE IRENE. THE PROJECT AREA CONSISTS OF ESTABLISHED VEGETATION WITH A MIXTURE OF SHRUBS AND GRASS, AND A GRAVEL DRIVEWAY. THERE ARE 3 RESIDENCES IN THE AREA AROUND THE BRIDGE.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

THE MIDDLE BRANCH OF WILLIAMS RIVER IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE RIVER IS CLASSIFIED AS SINUOUS, INCISED, AND ALLUVIAL WITH A CONFINED AND VULNERABLE CHANNEL AT THE SITE. THE STREAM BED CONSISTS OF GRAVEL, COBBLES, AND SOME BOULDERS. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF WATER FROM A FEW NEARBY SLOPES.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF PATCHES OF WOODS, UNDERGROWTH AND GRASS. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REHABILITATING THE EXISTING BRIDGE. 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 NATURAL RESOURCES CONSERVATION SERVICE FOR THE COUNTY OF WINDSOR, VERMONT. SOILS ON THE PROJECT SITE ARE:
COLTON, FINE SANDY LOAM, 3-8% SLOPES, “K FACTOR” = 0.17. THE SOIL IS CONSIDERED TO HAVE LOW EROSION POTENTIAL.

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 ARCHEOLOGICAL AREAS: NO
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: MIDDLE BRANCH OF WILLIAMS RIVER
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 CONTRACTORS 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 WILL BE INSTALLED AS PROPOSED ON THE EPSC CONSTRUCTION LAYOUT.

FILTER CURTAIN WILL BE INSTALLED AT THE DISCRETION OF THE ENGINEER.

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 RELATIVELY FLAT. THEREFORE IT IS NOT ANTICIPATED THAT DIVERSION MEASURES WILL 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.

STONE CHECK DAMS ARE NOT ANTICIPATED ON THIS PROJECT.

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 CONTROLS ON 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.

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.

NO WINTER WORK IS ANTICIPATED.

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

NO DISCHARGE FROM DEWATERING ACTIVITIES IS ANTICIPATED.

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.

1.5.2 OFF-SITE ACTIVITIES

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

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: s12bl40ero_det.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: S. PIRO
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
EPSC NARRATIVE	SHEET 43 OF 48

SOIL INFORMATION:
ADAMS LOAMY FINE SAND
(HIGHLY ERODIBLE)
K-FACTOR = .17, 25%-60% SLOPES
HYDROLOGICAL SOIL GROUP: A

SOIL INFORMATION:
COLTON FINE SANDY LOAM
K-FACTOR = .17, 3%-8% SLOPES
HYDROLOGICAL SOIL GROUP: A

N

VT STATE PLANE GRID

STATE OF VERMONT
BK.18 PG.57 1.4 ACRES

MIDDLE BRANCH OF THE WILLIAMS RIVER

SAVAGE, NEVE & ANN

ARTESIAN WELL

MED. SPRUCE

GRAVEL DRIVE

EXISTING R.O.W.

VT 11 TO CHESTER

VT 11 TO LONDONDERRY

18" RCP FLOW

8" CPEP FLOW

STONE FILL

1070

1060

1090

10+00

11+00

12+00

13+00

14+00

14+75

P L

GORDON, PATRICK JAMES
LIFE ESTATE TO GORDON, IRENE

HOUGHTON, JOSEPH J. &
KRISTINA DRZAL

FLOW

EXISTING LAYOUT

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: sl2bl40bdr_ero.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: S. PIRO
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
EPSC EXISTING LAYOUT	SHEET 44 OF 48

N

VT STATE PLANE GRID

STABILIZED CONSTRUCTION ENTRANCE

BEGIN APPROACH STA 10+50.00

BEGIN PROJECT STA 11+50.00

STONE FILL TYPE IV (TYP)

RIPARIAN BUFFER ZONE

MIDDLE BRANCH OF THE WILLIAMS RIVER

ARTESIAN WELL

MED. SPRUCE

END BRIDGE STA 12+35.25 BK P.O.S.T.

END PROJECT STA 12+75.00

GRAVEL DRIVE

EXISTING R.O.W.

VT 11 TO CHESTER

VT 11 TO LONDONDERRY

18" RCP FLOW

10+00

11+00

12+00

13+00

14+00

14+75

52+00

51+00

50+00

1070

1060

0901

PDF

CZ

RF

STONE FILL TYPE I (TYP)

BEGIN BRIDGE STA 11+88.75

END APPROACH STA 13+75.00

STABILIZED CONSTRUCTION ENTRANCE

18" CPEP FLOW

FLOW

NOTE:
REFER TO CROSS SECTIONS FOR FINAL GROUND CONTOURS

SEE "CONVENTIONAL SYMBOLOGY LEGEND" SHEET FOR LEGEND

CONSTRUCTION LAYOUT

SCALE 1" = 20'-0"

20 0 20

PROJECT NAME:	ANDOVER
PROJECT NUMBER:	BHF 016-1(29)
FILE NAME: sl2bl40bdr_ero.dgn	PLOT DATE: 06-JAN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: S. PIRO
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
EPSC CONSTRUCTION LAYOUT	SHEET 45 OF 48

N

VT STATE PLANE GRID

MIDDLE BRANCH OF THE WILLIAMS RIVER

ARTESIAN WELL

MED. SPRUCE

GRAVEL DRIVE

BEGIN APPROACH
STA 10+50.00

BEGIN PROJECT
STA 11+50.00

STONE FILL
TYPE IV (TYP)

END BRIDGE
STA 12+35.25
BK P.O.S.T.

END PROJECT
STA 12+75.00

EXISTING R.O.W.

VT 11
TO LONDONDERRY

VT 11
TO CHESTER

18" RCP FLOW

18" CPEP FLOW

CZ

1060

1070

1080

1090

52+00

51+00

50+00

10+00

11+00

12+00

13+00

14+00

14+75

STONE FILL
TYPE II (TYP)

BEGIN BRIDGE
STA 11+86.75

END APPROACH
STA 13+75.00

MED. MAPLES

FLOW

NOTE:
REFER TO CROSS SECTIONS FOR FINAL GROUND CONTOURS

SEE "CONVENTIONAL SYMBOLOGY LEGEND" SHEET FOR LEGEND

FINAL LAYOUT

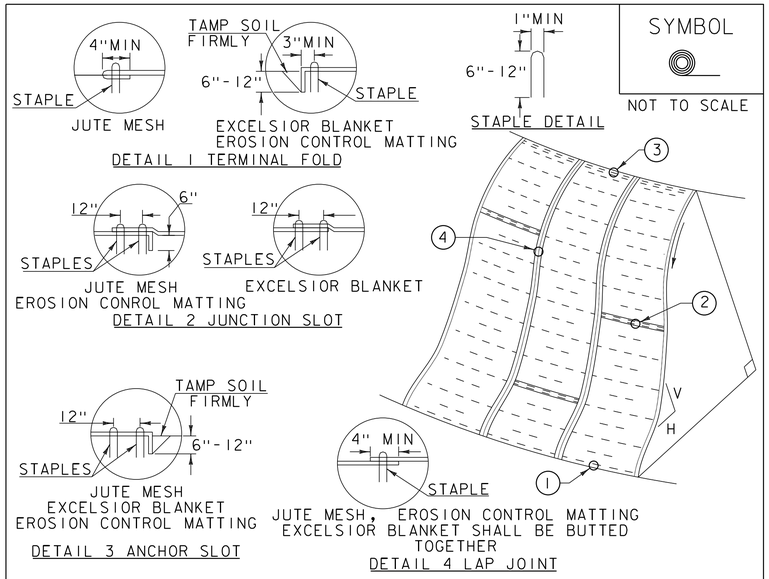
SCALE 1" = 20'-0"

20 0 20

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

FILE NAME: sl2bl40bdr_ero.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
EPSC FINAL LAYOUT

PLOT DATE: 06-JAN-2015
DRAWN BY: S. PIRO
CHECKED BY: D. PETERSON
SHEET 46 OF 48



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. APPLY TO SLOPES GREATER THAN 3H: IV OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION	ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

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 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) ~~OR PERMANENT EROSION MATTING (PAY ITEM 653.21).~~

REVISIONS	
APRIL 16, 2007	JMF
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*

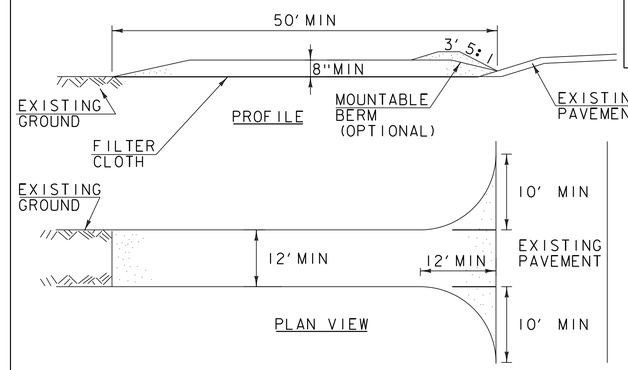
CONSTRUCTION GUIDANCE

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

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 ~~FOR SEED (PAY ITEM 651.15)~~

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



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.

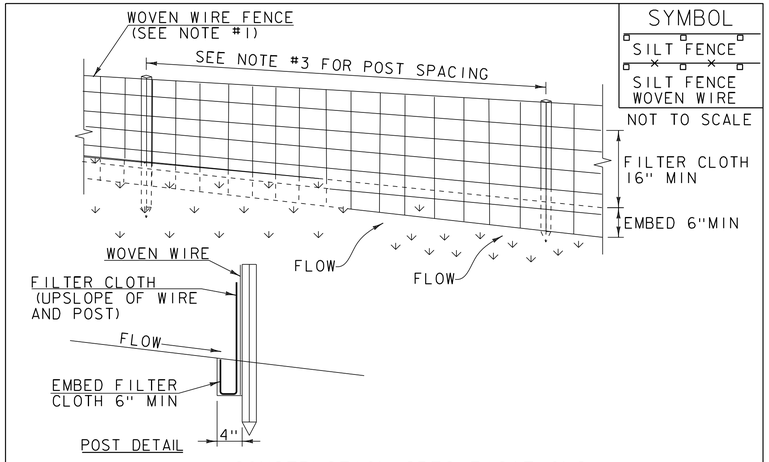
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35) OR AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

FILE NAME: sl2bl40ero_det.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
EPSC DETAIL 1

PLOT DATE: 06-JAN-2015
DRAWN BY: S. PIRO
CHECKED BY: D. PETERSON
SHEET 47 OF 48



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.

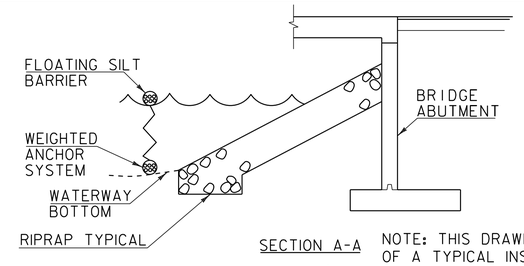
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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 GEO~~TEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).~~

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

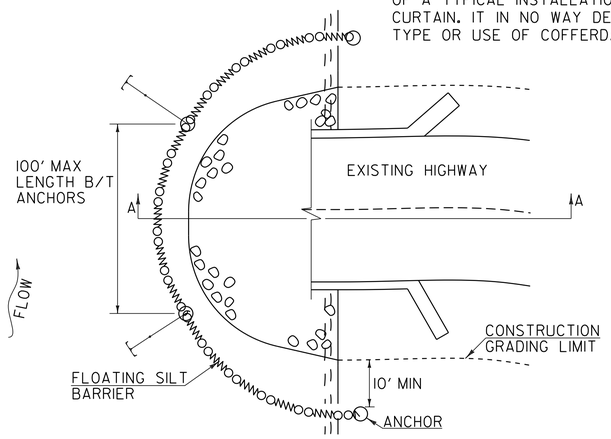


SYMBOL

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.



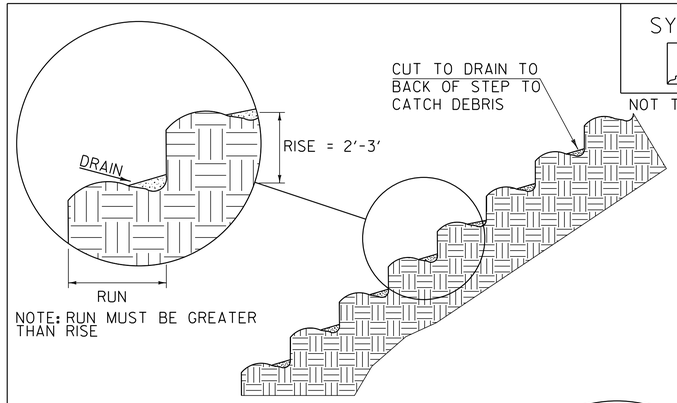
CONSTRUCTION SPECIFICATIONS

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).

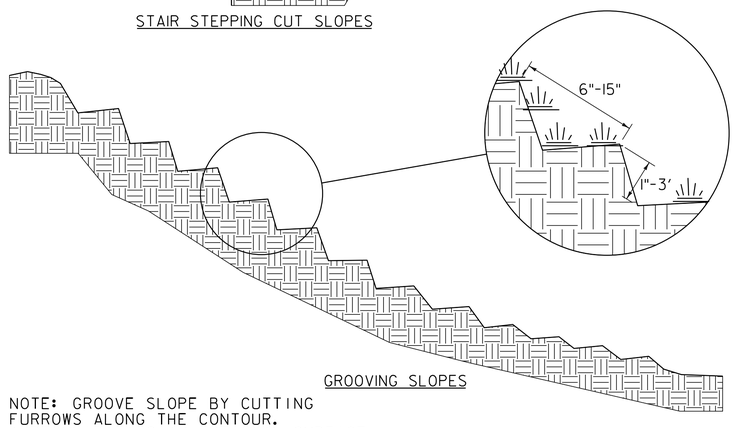
REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF
SEPTEMBER 4, 2009	WHF



SYMBOL

NOT TO SCALE

STAIR STEPPING CUT SLOPES



GROOVING SLOPES

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

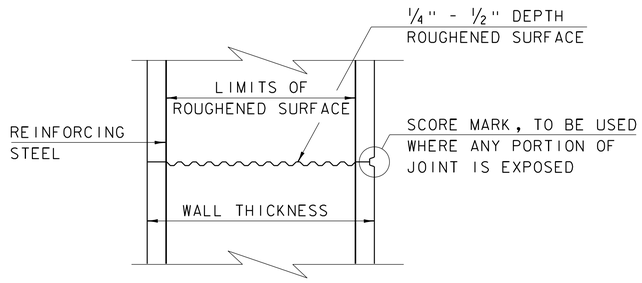
PROJECT NAME: ANDOVER
PROJECT NUMBER: BHF 016-1(29)

FILE NAME: s12b140ero_det.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
EPSC DETAIL 2

PLOT DATE: 06-JAN-2015
DRAWN BY: S. PIRO
CHECKED BY: D. PETERSON
SHEET 48 OF 48

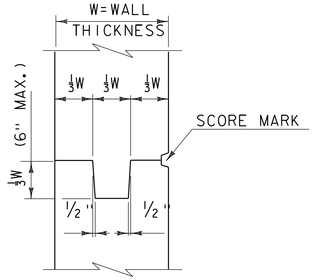
CONCRETE GENERAL NOTES

1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"
2. REINFORCING STEEL SIZE AND SPACING SHOWN IN THE PLANS IS BASED ON 60 KSI STEEL, UNLESS NOTED OTHERWISE. WITH THE ENGINEER'S PERMISSION, BAR SIZE AND SPACING MAY BE MODIFIED ACCORDING TO THE LATEST AASHTO LRFD BRIDGE DESIGN SPECIFICATION AND STRUCTURES DESIGN MANUAL WHEN USING HIGHER STRENGTH STEEL.

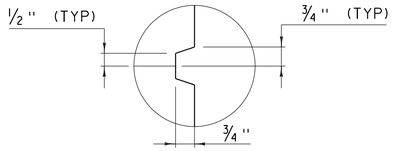


TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

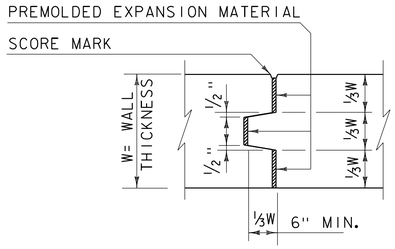
1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



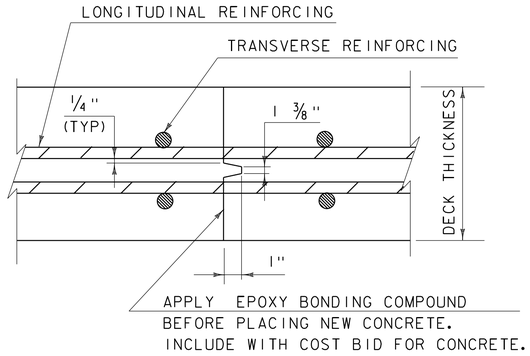
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



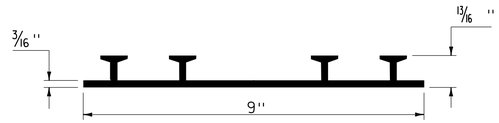
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



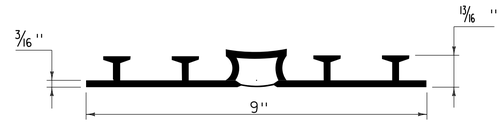
TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



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.

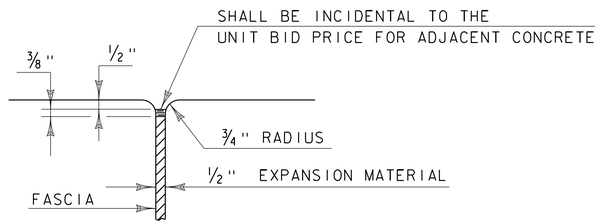
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



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.



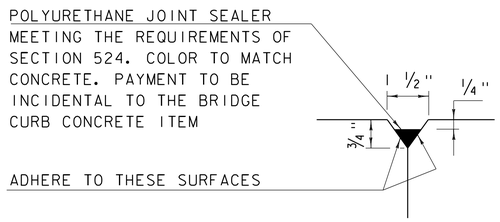
JOINT BETWEEN FASCIA AND WINGWALL
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
FEBRUARY 9, 2012	REBAR SUBSTITUTION ALLOWANCE ADDED TO CONCRETE GENERAL NOTES.

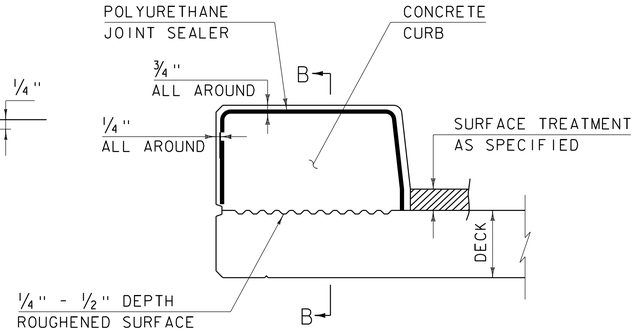
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-501.00

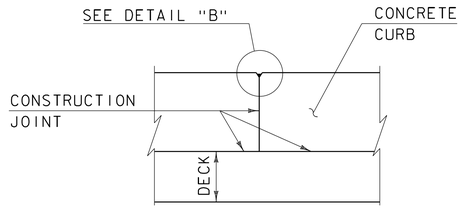


DETAIL "B"
(NOT TO SCALE)

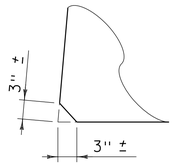


CONCRETE CURB JOINT SECTION
(NOT TO SCALE)

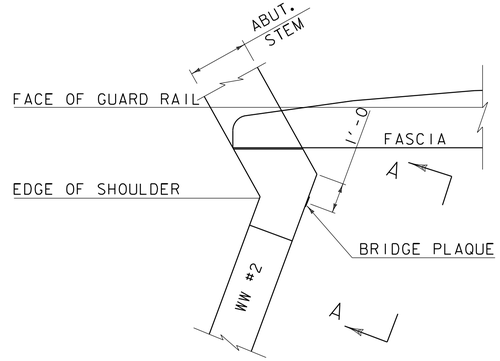
1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



SECTION B - B
(NOT TO SCALE)



ACUTE ANGLE CLIP DETAIL
(NOT TO SCALE)



PLAN

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.

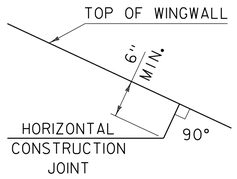
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.

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.

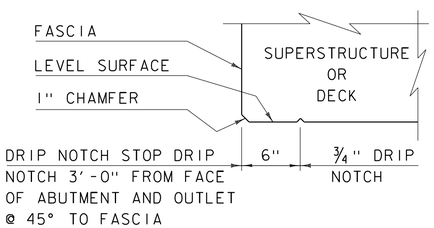
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.

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.

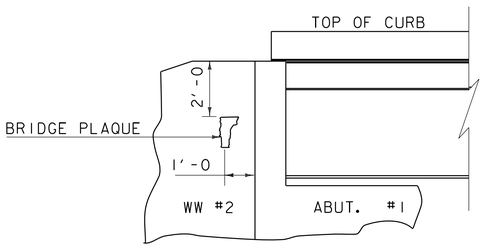
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



HORIZONTAL WINGWALL CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



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.

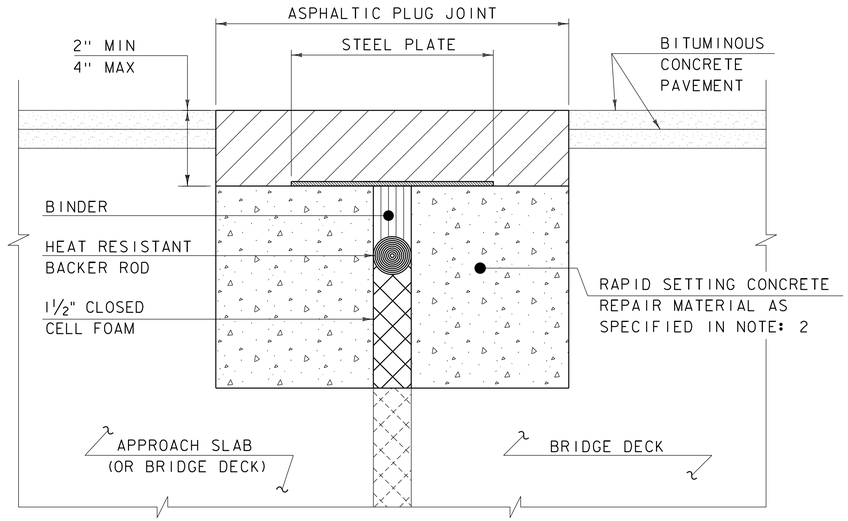
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

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



ASPHALTIC PLUG JOINT DETAIL - REHAB

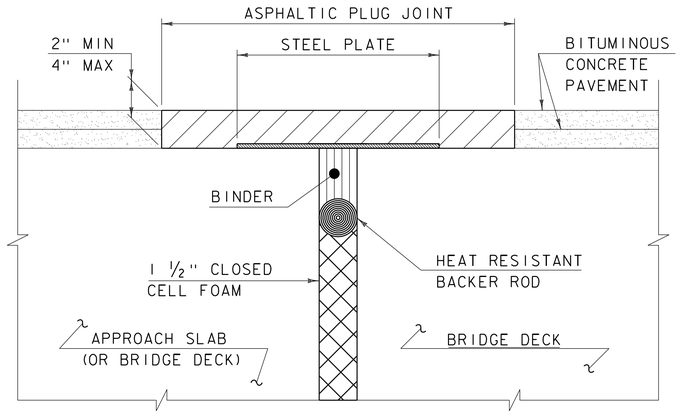
NOTES:

1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL BE INCLUDED IN THE BID PRICE OF ITEM 580.20 RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE.

2. THE CONTRACTOR SHALL REPLACE REMOVED MATERIAL THAT IS LESS THAN 4" FROM FINISHED GRADE WITH ASPHALTIC PLUG JOINT MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 707.15. ALL REMOVED MATERIAL THAT IS GREATER THAN 4 INCHES FROM FINISHED GRADE SHALL BE REPLACED WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.

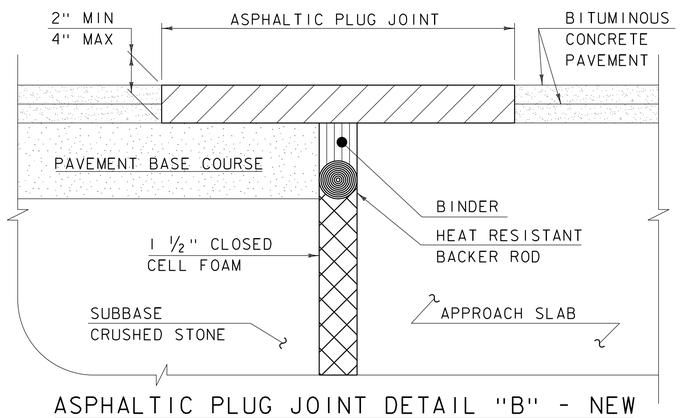
3. REINFORCING STEEL NOT SHOWN FOR CLARITY.

4. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.



ASPHALTIC PLUG JOINT DETAIL "A" - NEW

NOTE:
PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER.



ASPHALTIC PLUG JOINT DETAIL "B" - NEW

ASPHALTIC PLUG JOINT NOTES

INSTALLATION:

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT, MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNEUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.
3. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
4. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
5. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
6. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.

WEATHER LIMITATIONS

APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

1. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.
2. THE ROAD SURFACE IS DRY.
3. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.

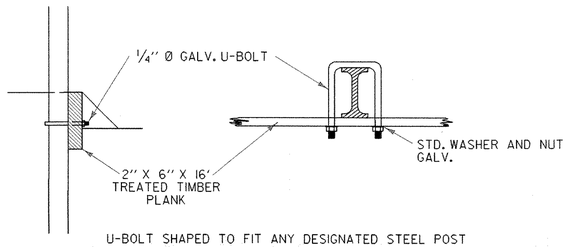
DETAILS ON THIS SHEET ARE NOT TO SCALE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
AUGUST 29, 2011	ADD DETAIL "B" AND REV. NOTES

BRIDGE JOINT
ASPHALTIC PLUG

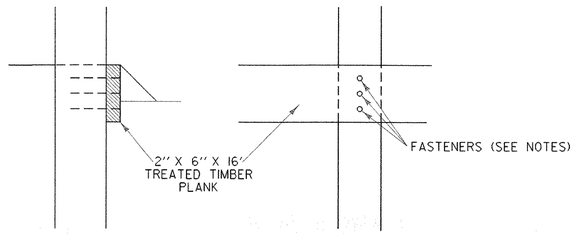
VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - DIVISION

STRUCTURES DETAIL
SD-516.10



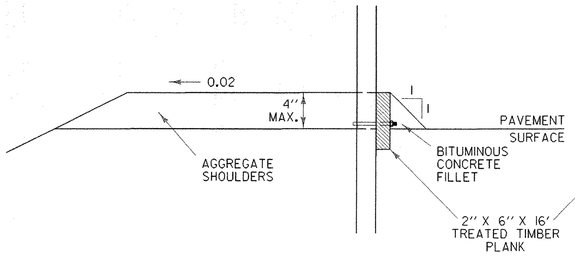
U-BOLT SHAPED TO FIT ANY DESIGNATED STEEL POST

WITH STEEL POSTS

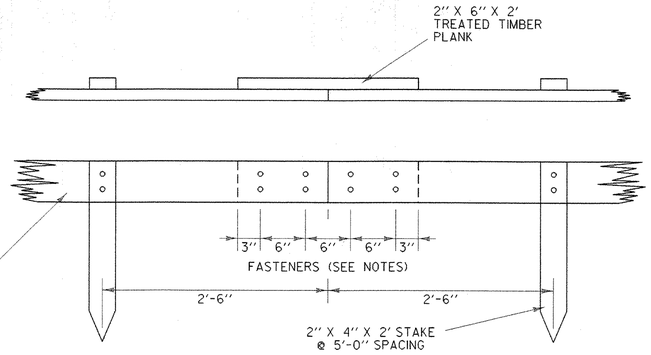


WITH WOOD POSTS (EXISTING CONDITION)

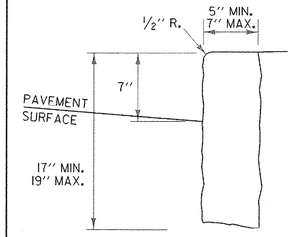
TREATED TIMBER CURB



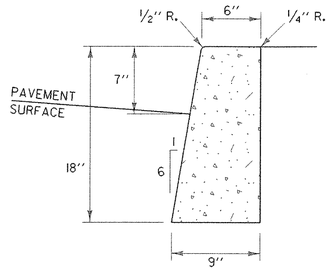
BITUMINOUS CONCRETE FILLET DETAIL



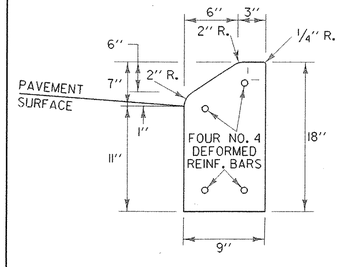
SPLICE DETAIL



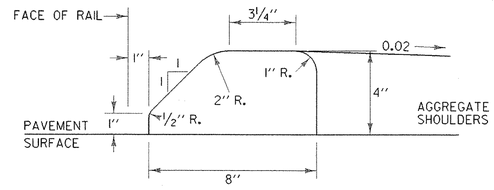
VERTICAL GRANITE CURB



CAST IN PLACE CONCRETE CURB, TYPE B

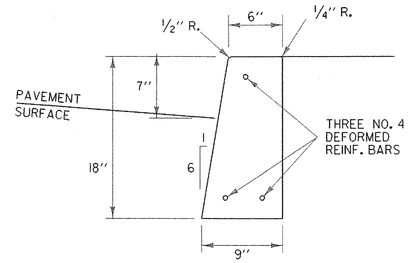


PRECAST REINFORCED CONCRETE CURB, TYPE A

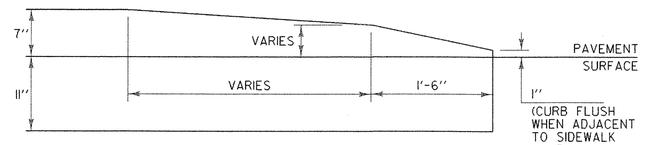


USE ONLY WITH STEEL BEAM GUARDRAIL

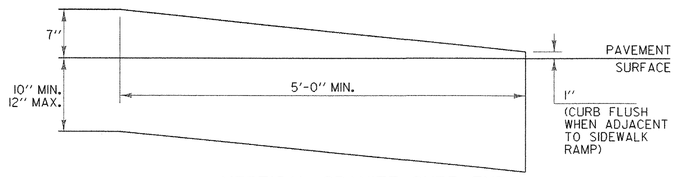
BITUMINOUS CONCRETE CURB, TYPE A



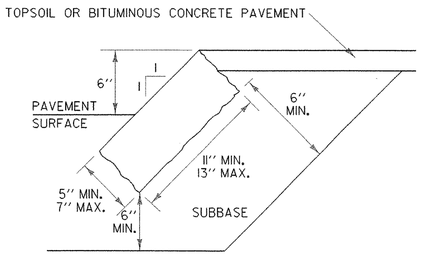
PRECAST REINFORCED CONCRETE CURB, TYPE B



CONCRETE CURB END



VERTICAL GRANITE CURB END



EDGING TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.

GRANITE SLOPE EDGING

GENERAL NOTES:

1. HEIGHT OF REVEAL OF CURB SHALL NOT EXCEED FOUR INCHES WHERE DESIGN OR POSTED SPEED IS EQUAL TO OR GREATER THAN 40 MPH AND WHEN INSTALLED WITH GUARDRAIL (STANDARD SHAPE TO BE BURIED TO THIS DEPTH).
2. WHEN CONCRETE SIDEWALK IS CONSTRUCTED ADJACENT TO CONCRETE OR VERTICAL GRANITE CURB, ASPHALT TREATED FELT SHALL BE PLACED BETWEEN THE SIDEWALK AND CURB FOR THE TOTAL DEPTH OF THE SIDEWALK.
3. FASTENERS (20d NAILS OR SCREWS) SHALL BE CORROSION RESISTANT TO THE TREATED LUMBER.
4. FOR SPECIFICATIONS FOR EXPANSION/CONTRACTION JOINTS AND LENGTHS OF SECTIONS, SEE SECTION 616.
5. JOINTS BETWEEN CURB SECTIONS SHALL BE MORTARED IN CONFORMANCE WITH SECTION 616.
6. BITUMINOUS CONCRETE AND TREATED TIMBER CURB SHALL BE IN CONFORMANCE WITH SECTION 616.
7. TWO INCH MINIMUM CLEARANCE FROM FACE OF CONCRETE TO EDGE OF REINFORCING STEEL.

OTHER STDS. REQUIRED: **NONE**

REVISIONS AND CORRECTIONS

FEB. 11, 2008 - ORIGINAL APPROVAL DATE

APPROVED

Kevin S. Marshia
ROADWAY, TRAFFIC & SAFETY ENGINEER

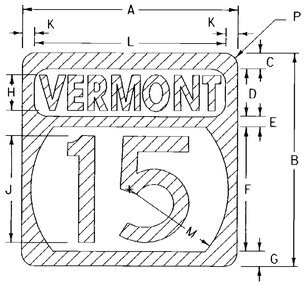
DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter
FEDERAL HIGHWAY ADMINISTRATION

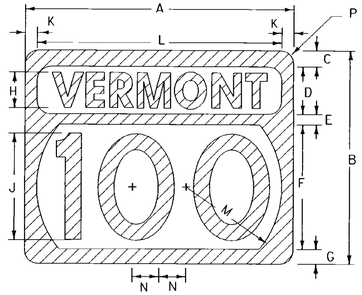
CURBING

VERMONT AGENCY OF TRANSPORTATION

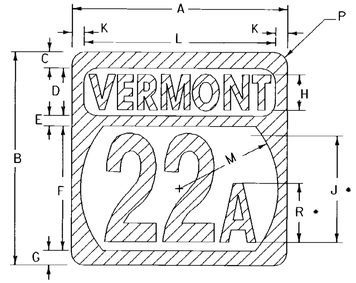
STANDARD C-10



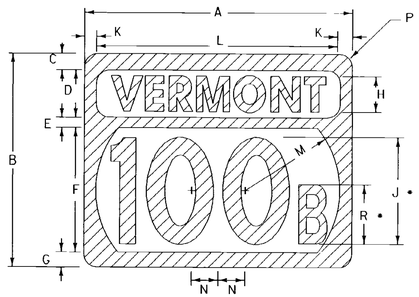
1 OR 2 DIGIT STATE ROUTE MARKER



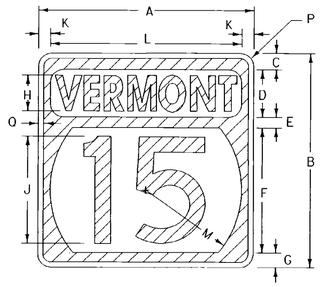
3 DIGIT STATE ROUTE MARKER

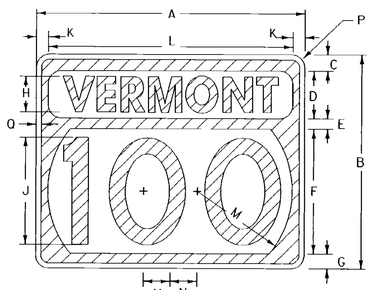


1 OR 2 DIGIT ALTERNATE STATE ROUTE MARKER



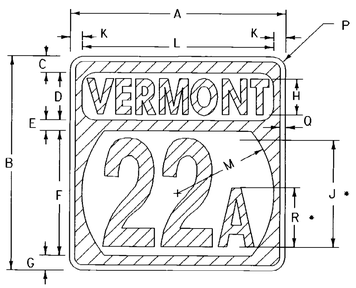
3 DIGIT ALTERNATE STATE ROUTE MARKER

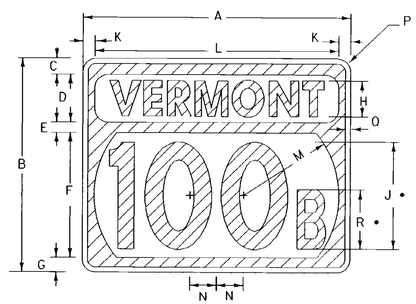




STATE ROUTE MARKER FOR GUIDE SIGN USE. (INTERSTATE TYPICAL)

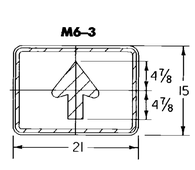
- ALTERNATE ROUTE SIGNS: OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTER-LINE AND REDUCE SPACING AS NECESSARY FOR EACH ROUTE

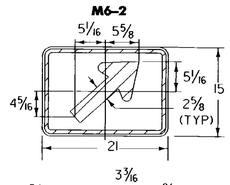


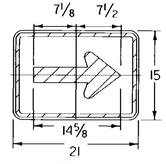


ALTERNATE STATE ROUTE MARKER FOR GUIDE SIGN USE. (INTERSTATE TYPICAL)

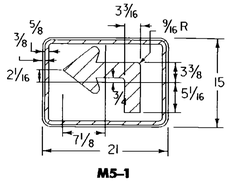
SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
1,2-digits	24	24	1½	6	1	14	1½	4C	12D	1	22	11	-	1½	½	7B
1,2-digits	36	36	2⅝	8	1¾	21	2⅝	6C	18D	2	32	16½	-	2¼	⅞	10B
3,-digits	30	24	1½	6	1	14	1½	4D	12D	1	28	11	3	1½	½	7B
3,-digits	45	36	2⅝	8	1¾	21	2⅝	6D	18D	2	41	16½	4½	2¼	⅞	10B





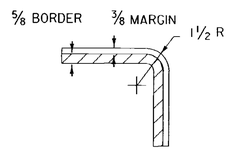


M6-1

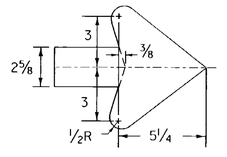


M5-1

DIRECTION ARROW OR ADVANCE TURN ARROWS

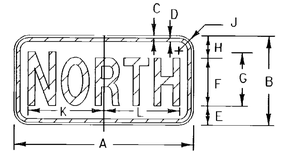


TYPICAL RADIUS DETAIL



TYPICAL ARROW DETAIL

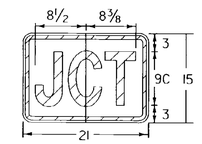
(ALL DIMENSIONS IN INCHES)



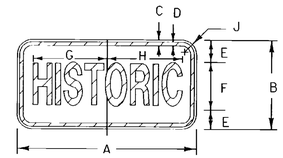
M3-1 M3-3 M3-2 M3-4

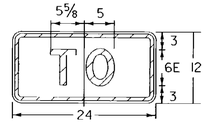
SIGN	DIMENSIONS (INCHES)									NORTH		SOUTH		EAST		WEST	
	A	B	C	D	E	F	G	H	J	K	L	K	L	K	L	K	L
MIN. & STD.	24	12	⅜	⅝	2¾	6C	7C	3¼	1½	10¼	10¼	10¼	9⅛	7⅛	8⅜	8¾	8⅛
SPECIAL	30	15	⅜	⅝	3¼	8C	9C	3¾	1½	12⅛	12⅛	12⅛	12½	10⅜	11⅛	11⅝	11⅝

M2-1



CARDINAL DIRECTION MARKER





M4-5 TRAILBLAZER

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
MIN. & STD.	24	12	⅜	⅝	3½	5B	10⅛	9⅞	1½
SPECIAL	30	15	⅜	⅝	4	7B*	12⅜	12⅝	1½

* REDUCE SPACING 35%

MATERIALS

THE SIGN BASE MATERIAL MAY BE ANY OF THE FOLLOWING, WITH THE MINIMUM THICKNESSES AS NOTED:

FLAT SHEET ALUMINUM

LESS THAN 24'' X 24''	0.060''
WHEN USED ON GUIDE SIGNS	0.060''
24'' X 24'', 30'' X 24''	0.080''
36'' X 36'', 45'' X 36''	0.100''

GALVANIZED FLAT SHEET STEEL

LESS THAN 24'' X 24''	18 GAGE
WHEN USED ON GUIDE SIGNS	18 GAGE
24'' X 24'', 30'' X 24''	16 GAGE
36'' X 36'', 45'' X 36''	14 GAGE

THE REFLECTIVE MATERIAL SHALL BE WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND. THE TEXTS MAY BE LETTERING FILM, SILK SCREENED, OR HAND PAINTED.

COLORS

COLORS FOR GUIDE USE: TEXT AND SHIELD - GREEN (REFL.) BACKGROUND AND BORDER - WHITE (REFL.)
STATE ROUTE MARKERS SHALL HAVE REFLECTIVE GREEN TEXT AND BORDERS ON REFLETORIZED WHITE BACKGROUNDS.

GREEN AREAS ARE INDICATED BY SINGLE LINE CROSSHATCHING

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

SPECIFICATIONS

STATE ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

DESIGNS

THE DESIGNS OF STATE ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE ''MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'' ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE

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

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

David A Ross
TRAFFIC AND SAFETY ENGINEER

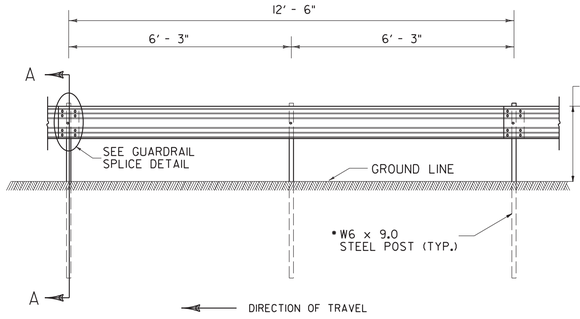
STATE ROUTE MARKER SIGN DETAILS

/traf/std/stdel36b.dgn : stdel36b.i

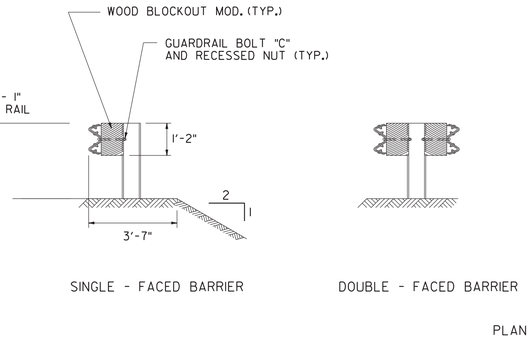
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-136 B

"W" BEAM GUARDRAIL WITH STEEL POSTS



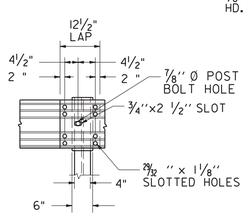
ELEVATION FROM ℄ OF ROAD



SINGLE - FACED BARRIER

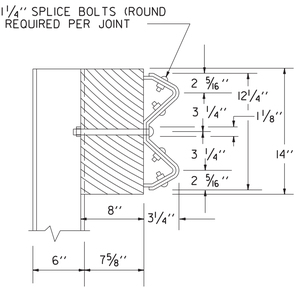
DOUBLE - FACED BARRIER

SECTION A -A



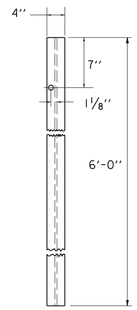
ELEVATION

PLAN

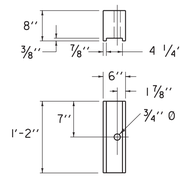


SECTION

GUARDRAIL SPLICE DETAIL



FRONT FACE STEEL POST

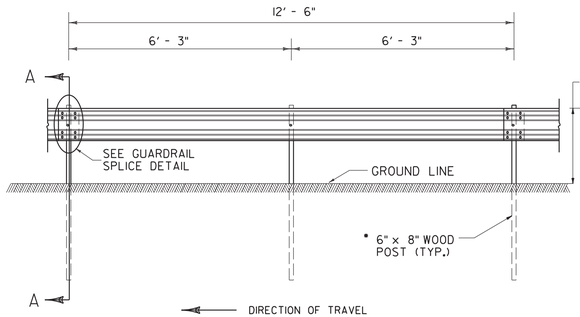


POST FACE
MODIFIED WOOD BLOCKOUT- ROUTED
6" X 8" X 1'-2"
FOR USE W/ STEEL POSTS ONLY

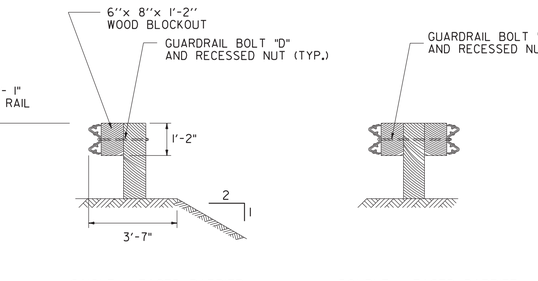
NOTES:

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 APPROPRIATE 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

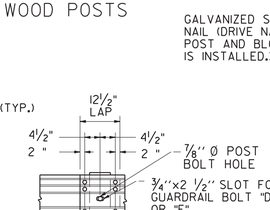


SINGLE - FACED BARRIER

DOUBLE - FACED BARRIER

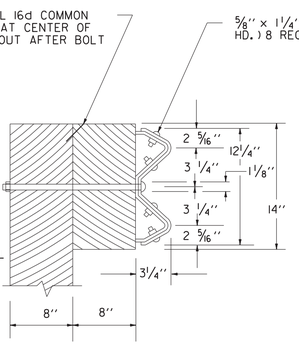
• NOTE : UNLESS OTHERWISE SPECIFIED ON PLANS

SECTION A -A



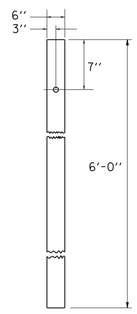
ELEVATION

PLAN

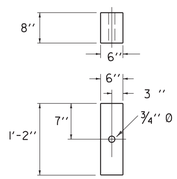


SECTION

GUARDRAIL SPLICE DETAIL



FRONT FACE WOOD POST

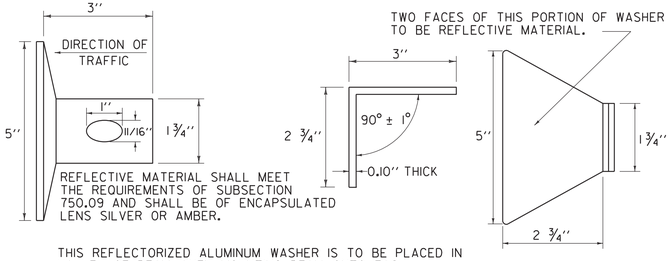


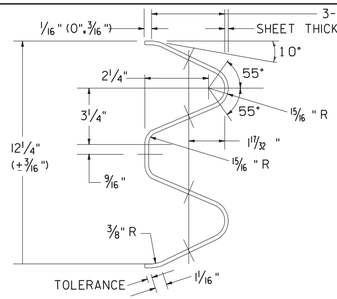
POST FACE
WOOD BLOCKOUT
6" X 8" X 1'-2"

NOTES:

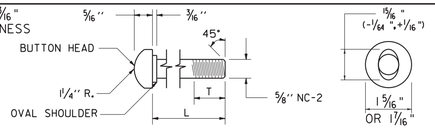
1. BLOCKS SHALL BE MADE OF TIMBER WITH A STRESS GRADE OF 1200 PSI OR MORE. TESTING SHALL BE IN ACCORDANCE WITH WEST COAST LUMBER INSPECTION BUREAU, SOUTHERN PINE INSPECTION BUREAU OR OTHER APPROPRIATE ASSOCIATION. TIMBER FOR BLOCKS SHALL BE ROUGH SAWN (UNPLANED) WITH DIMENSIONS INDICATED. THE SIZE TOLERANCE 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



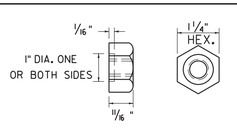


ARTBA RE-3[2@6'-3"=12'-6" CLASS A, TYPE 11-73
TYPICAL GUARDRAIL SECTION

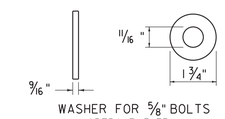


GUARDRAIL BOLT

GUARDRAIL BOLTS				FASTENER USED IN	
BOLT DES.	ARTBA REF. NO.	L	T (MIN.)	STEEL POSTS	WOOD POSTS
"A"	F-3[1¼]-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 I, 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 1/8" AND THE HEAVY DUTY TO BE 5/64 " 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

FEB. 10, 2014 - UPDATED TO REFLECT GUARDRAIL HEIGHT OF 29"; AS NOTED IN FHWA LETTER DATED MAY 17, 2010

APPROVED

HIGHWAY SAFETY & DESIGN ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter

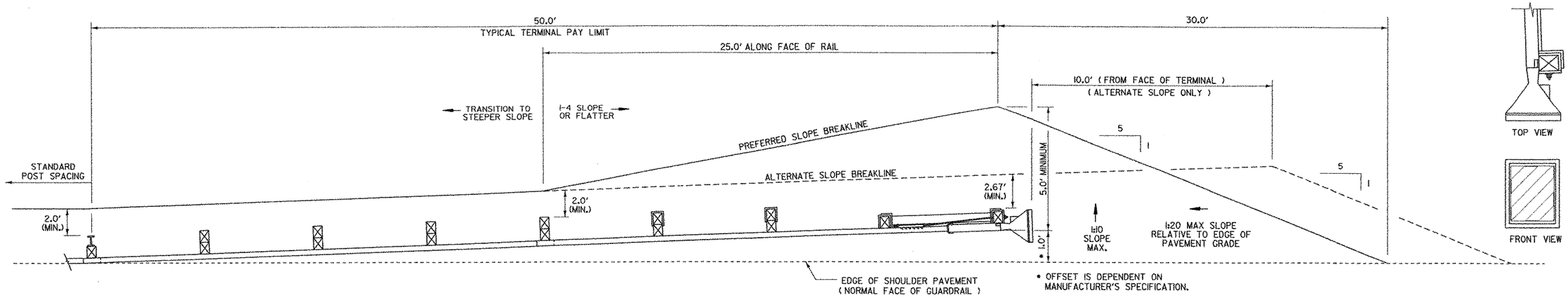
FEDERAL HIGHWAY ADMINISTRATION

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

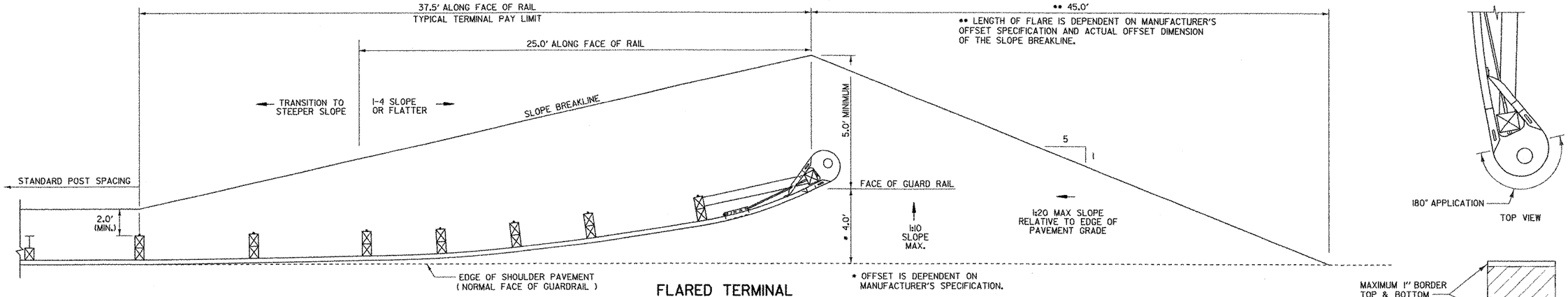
VERMONT AGENCY OF TRANSPORTATION

STANDARD

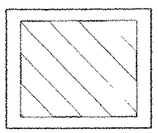
G-1



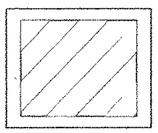
TANGENTIAL TERMINAL



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

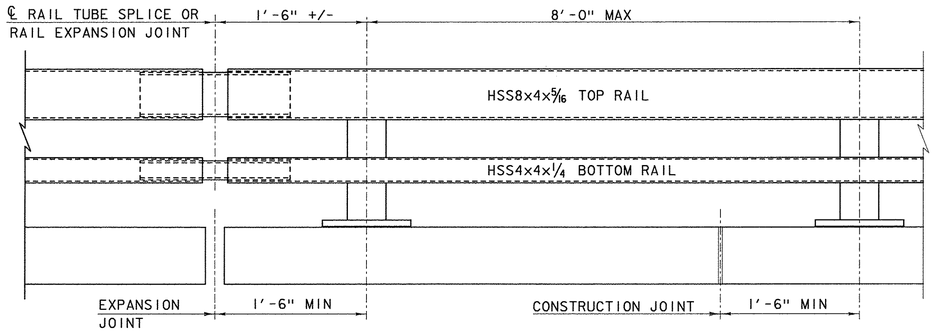
ROADWAY DESIGN ENGINEER

FEDERAL HIGHWAY ADMINISTRATION

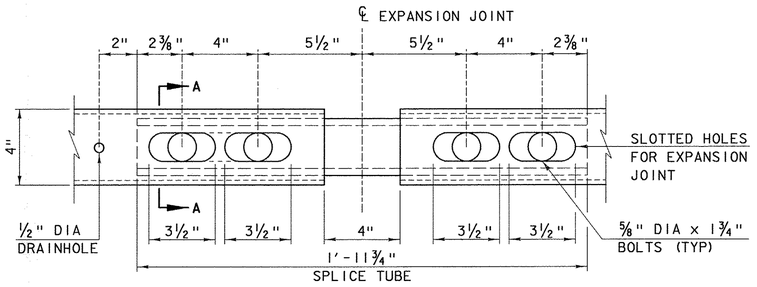
GENERIC PLANS FOR GUARDRAIL END TERMINALS

VERMONT AGENCY OF TRANSPORTATION

STANDARD G-19

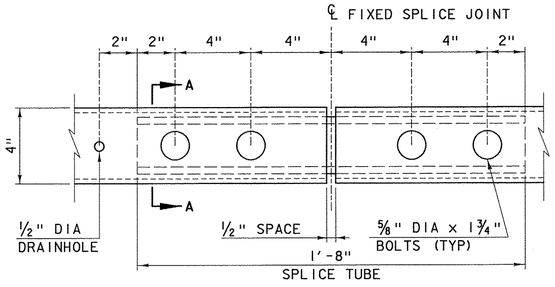


BRIDGE RAILING ELEVATION



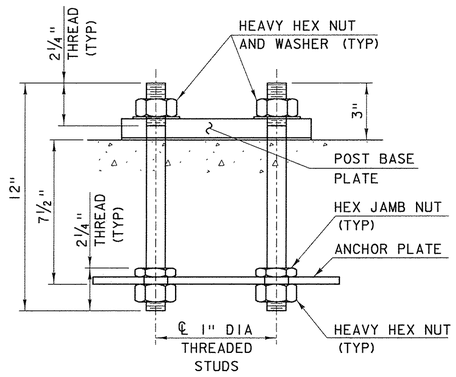
EXPANSION JOINT DETAIL

(BOTTOM VIEW)

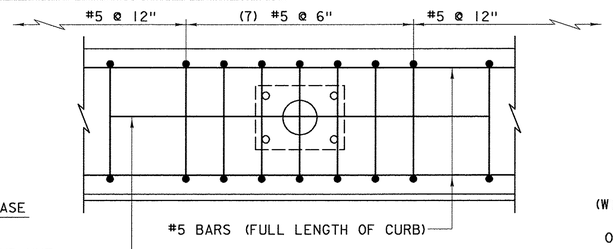


FIXED SPLICE JOINT DETAIL

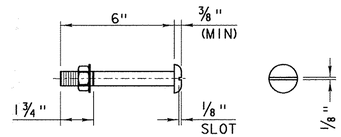
(BOTTOM VIEW)



RAIL POST ANCHORAGE

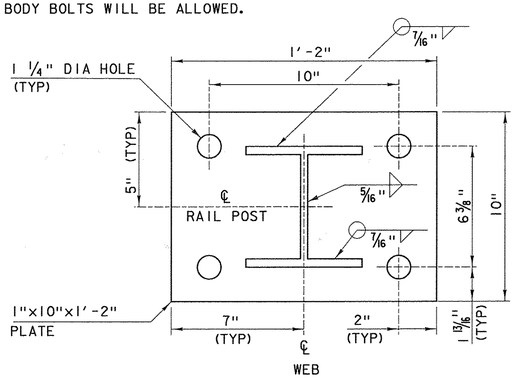


CURB REINFORCING PLAN

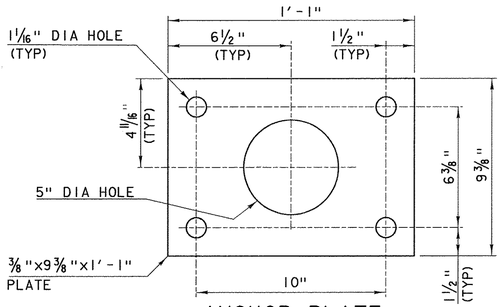


3/4" DIA A449 (TYPE 1) ROUND HEAD BOLT

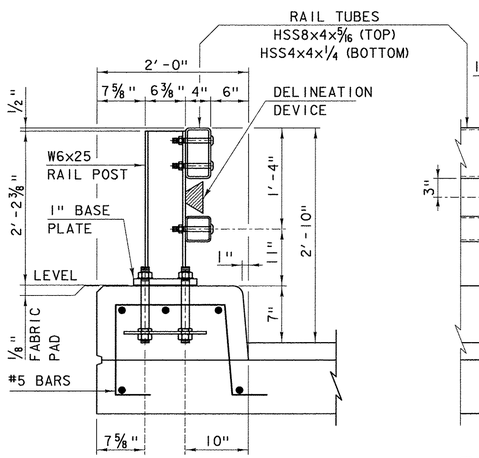
(WITH WASHER AND PREVAILING TORQUE TYPE LOCK NUT)
(SEE NOTE #8)
ONLY FULL DIAMETER BODY BOLTS WILL BE ALLOWED.



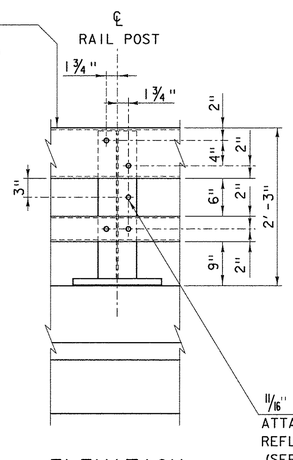
POST BASE PLATE



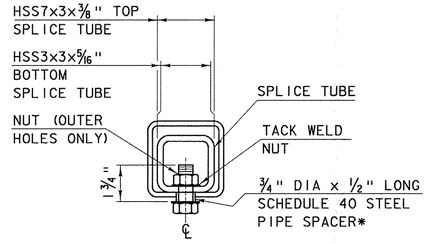
ANCHOR PLATE



TYPICAL SECTION



ELEVATION



5/8" DIA TAPPED HOLE IN SPLICE TUBE
1 1/8"x3 1/2" SLOT* OR 3/4" DIA HOLE**
IN RAIL TUBE FOR 5/8" DIA
BOLT AND PLAIN HARDENED WASHER

A-A RAIL TUBE SPLICE AND RAIL EXPANSION JOINT SECTION

*EXPANSION JOINT
** SPLICE

11/16" DIA HOLE FOR ATTACHMENT OF REFLECTOR UNITS (SEE NOTE #1 ON STANDARD S-363)

NOTES

1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
3. ALL POSTS SHALL BE SET NORMAL TO GRADE.
4. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE RAIL POSTS AND PREFERABLY TO AT LEAST FOUR POSTS.
5. RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTRUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4" AT 45°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
6. HOLES IN RAILS FOR RAIL TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
7. RAIL POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
8. RAIL TUBES SHALL BE ATTACHED USING 3/4" FULL DIAMETER BODY ASTM A 449 (TYPE 1) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE. HOLES IN POSTS SHALL BE 1/16" LARGER THAN THE BOLT SIZE.
9. ANY BENDING OF RAIL SHALL BE DONE AT A FABRICATION PLANT ACCORDING TO A PROCEDURE PROVIDED BY THE FABRICATOR.
10. THE MINIMUM DISTANCE FROM THE POST TO AN EXPANSION JOINT SHALL BE DETERMINED BY THE MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHOR STUD TO THE END OF THE SLAB, OR TO THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
11. 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. PAYMENT SHALL BE INCIDENTAL TO OTHER ITEMS.
12. THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.

OTHER STDS. REQUIRED: G-1

REVISIONS AND CORRECTIONS

DECEMBER 14, 2009 - ORIGINAL APPROVAL DATE
APRIL 23, 2012 - GENERAL UPDATE 2012

APPROVED

STRUCTURES PROGRAM MANAGER

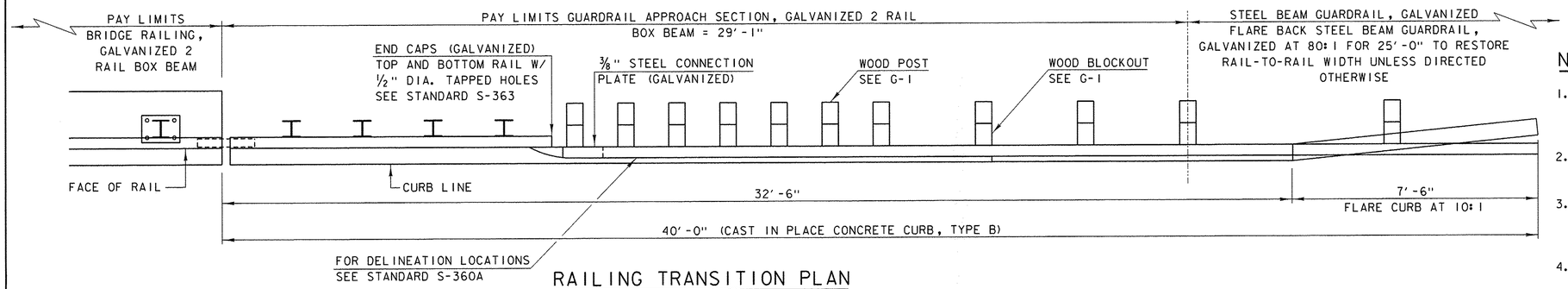
DIRECTOR OF PROGRAM DEVELOPMENT

FEDERAL HIGHWAY ADMINISTRATION

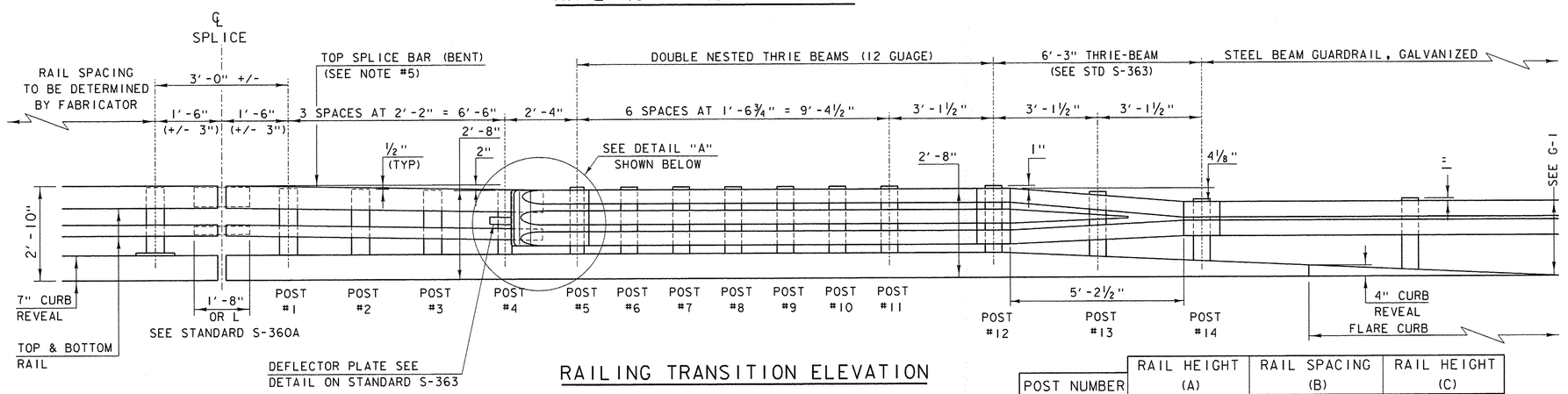
BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM

VERMONT AGENCY OF TRANSPORTATION

STANDARD S-360A



RAILING TRANSITION PLAN

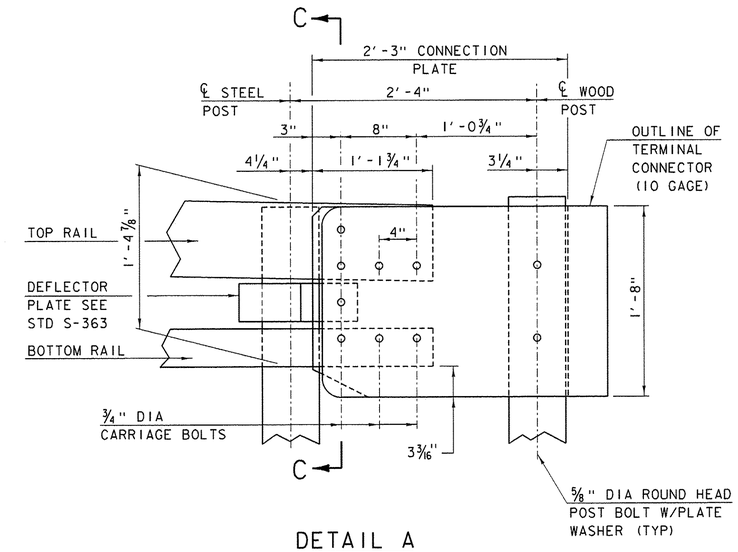


RAILING TRANSITION ELEVATION

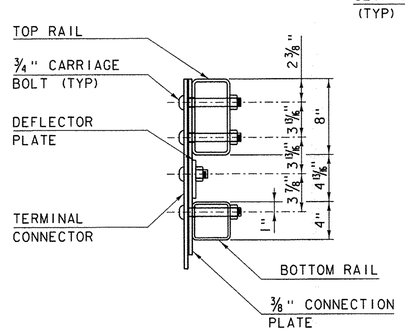
POST NUMBER	RAIL HEIGHT (A)	RAIL SPACING (B)	RAIL HEIGHT (C)
1	2'-9½"	1'-3¾"	1'-5¾"
2	2'-9"	1'-3½"	1'-5½"
3	2'-8½"	1'-3⅜16"	1'-5⅝16"
4	2'-8"	1'-2⅞"	1'-5⅛"

NOTES

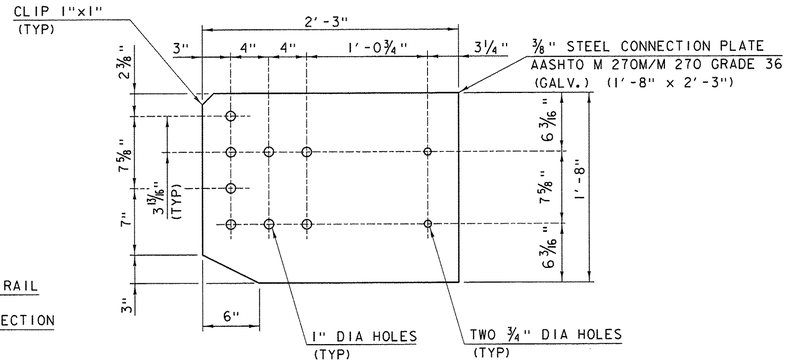
1. PAYMENT FOR GUARDRAIL APPROACH SECTION - GALVANIZED 2 RAIL BOX BEAM SHALL INCLUDE THE TERMINAL CONNECTOR, THE CONNECTION PLATE, THE DEFLECTOR PLATE, RAIL, POSTS, BLOCKS AND ATTACHMENT HARDWARE.
2. ALL APPROACH RAIL SPLICES SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW.
3. TUBE AND STEEL POST MATERIALS, DIMENSION SIZES AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGE RAIL, UNLESS OTHERWISE NOTED.
4. APPROACH RAIL BOLTS SHALL BE ASTM A307 GRADE A AND NUTS SHALL BE AASHTO M291 (ASTM A563 GRADE A OR BETTER) (GALVANIZED). WASHERS SHALL BE ASTM F844.
5. WELD TOP SPLICE BAR TO FIT BEND. USE COMPLETE PENETRATION WELD (B-U2).



DETAIL A



SECTION C-C (CONNECTION PLATE)



CONNECTION PLATE

RAIL POST SECTION (POSTS 1-4)

OTHER STDS. REQUIRED: **G-1, S-363**

REVISIONS AND CORRECTIONS

DECEMBER 14, 2009 - ORIGINAL APPROVAL DATE
APRIL 23, 2012 - GENERAL UPDATE 2012

APPROVED

Wm. Michael Hedges
STRUCTURES ENGINEER

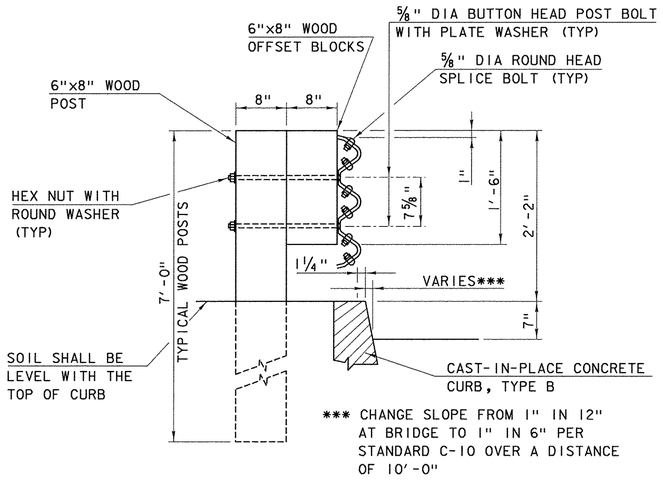
Richard Taitt
DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter
FEDERAL HIGHWAY ADMINISTRATION

GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM

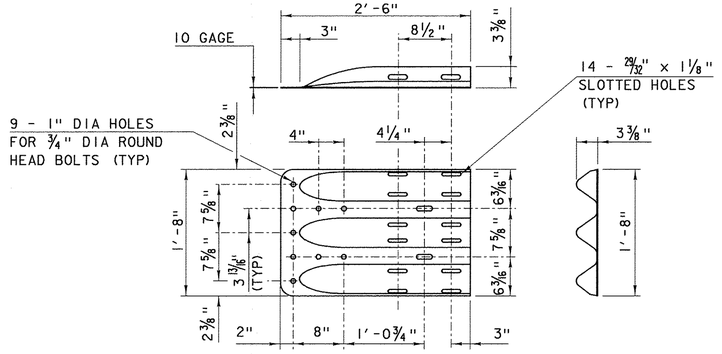
VERMONT AGENCY OF TRANSPORTATION

STANDARD
S-360B



*** CHANGE SLOPE FROM 1" IN 12" AT BRIDGE TO 1" IN 6" PER STANDARD C-10 OVER A DISTANCE OF 10'-0"

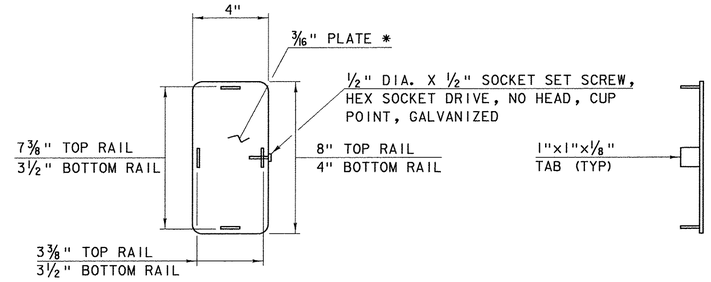
WOOD POST AND THRIE-BEAM RAIL ASSEMBLY



THRIE-BEAM TERMINAL CONNECTOR (HM-TF-13/RE-67)

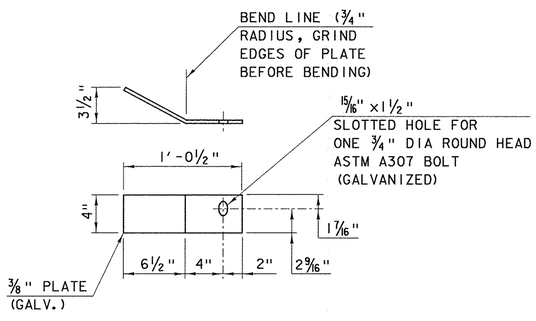
NOTES

1. DELINEATOR DEVICES SHALL BE INSTALLED PER BRIDGE RAIL AND OR GUARDRAIL STANDARD REQUIREMENTS.
2. ON BRIDGES WITH A SIDEWALK, DELINEATORS ARE NOT TO BE INSTALLED ON THE SIDEWALK SIDE OF THE BRIDGE.

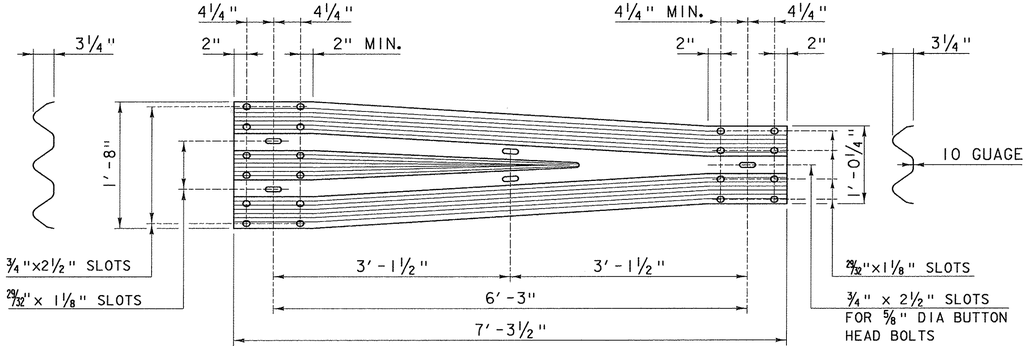


END CAP DETAIL

* ROUND CORNERS 1/2" RADIUS (TYP)



DEFLECTOR PLATE DETAIL



THRIE-BEAM TO STANDARD STEEL BEAM TRANSITION SECTION (HM-TF-13/RE-69)

OTHER STDS. REQUIRED: C-10

REVISIONS AND CORRECTIONS

DECEMBER 14, 2009 - ORIGINAL APPROVAL DATE
APRIL 23, 2012 - GENERAL UPDATE 2012

APPROVED

Wm. Michael Hedges
STRUCTURES ENGINEER

Richard Hebert
DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter
FEDERAL HIGHWAY ADMINISTRATION

THRIE BEAM TO STANDARD STEEL BEAM TRANSITION SECTION

VERMONT AGENCY OF TRANSPORTATION

STANDARD
S-363

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

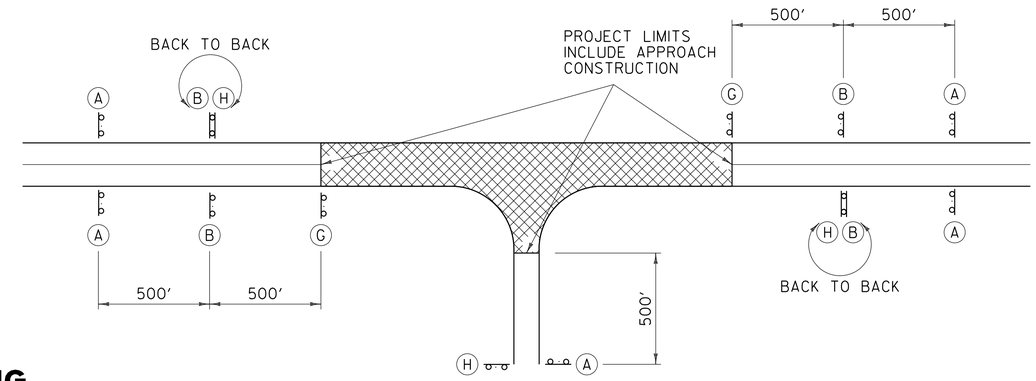
(D) SIDE ROAD WORK 500 FT — VC-869

(E) SIDE ROAD WORK LEFT — VC-869

(F) SIDE ROAD WORK RIGHT — VC-869

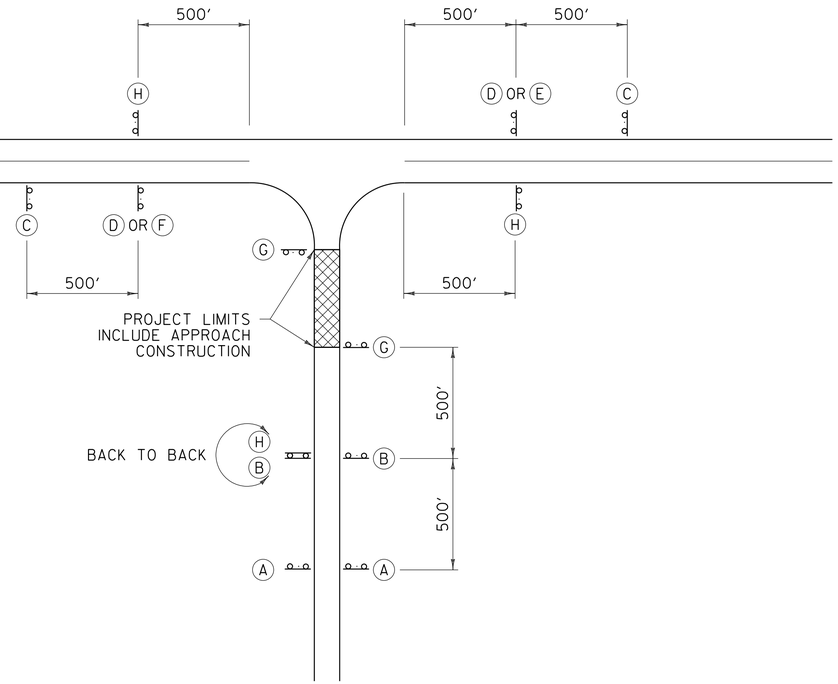
(G) ROAD WORK NEXT XX MILES — G20-1

(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

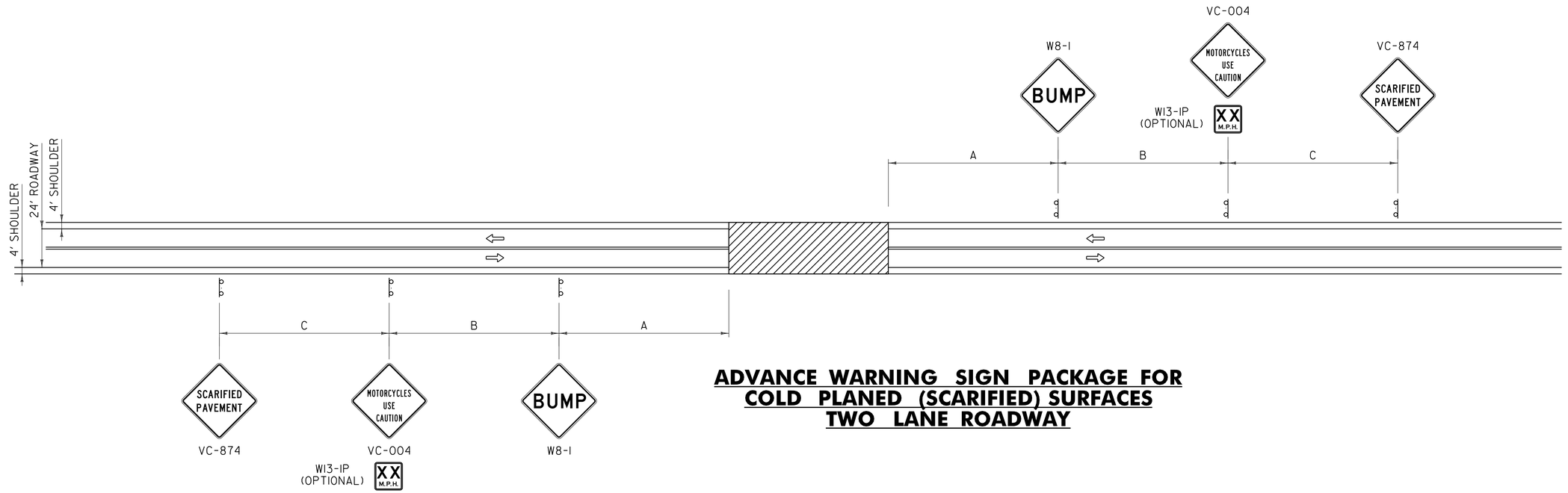
Mark D. Richter

FEDERAL HIGHWAY ADMINISTRATION

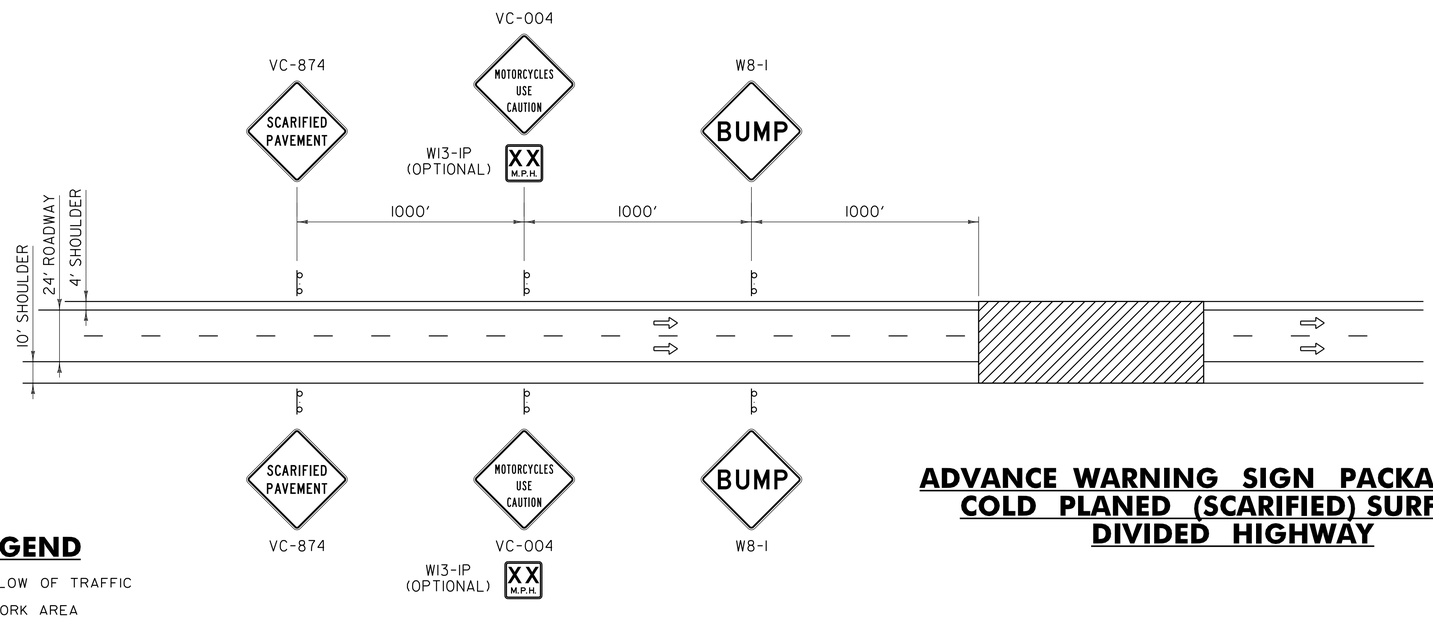
CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING

VERMONT AGENCY OF TRANSPORTATION

STANDARD T-10



ADVANCE WARNING SIGN PACKAGE FOR COLD PLANED (SCARIFIED) SURFACES TWO LANE ROADWAY



ADVANCE WARNING SIGN PACKAGE FOR COLD PLANED (SCARIFIED) SURFACES DIVIDED HIGHWAY

LEGEND

⇨ FLOW OF TRAFFIC

WORK AREA

GENERAL NOTES:

1. THE BUMP SIGN MAY BE ELIMINATED WHEN THERE IS NO BUMP. WHEN THE CONTRACTOR IS WORKING IN THE CONSTRUCTION AREA, THE APPROPRIATE ADVANCED WARNING SIGN PACKAGE SHALL BE USED. SEE THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) FOR ADDITIONAL INFORMATION.
2. GATE POSTING OF SIGNS IS AN OPTION AS DETERMINED BY THE ENGINEER FOR TWO LANE ROADWAY WHEN PASSING, TURNING OR CLIMBING LANES LIMIT VISIBILITY.
3. FOR DIMENSIONS A, B AND C, REFER TO THE MUTCD. USE TABLE 6C-1 (RECOMMENDED ADVANCE WARNING SIGN MINIMUM SPACING), FOR SIGN SPACING.

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

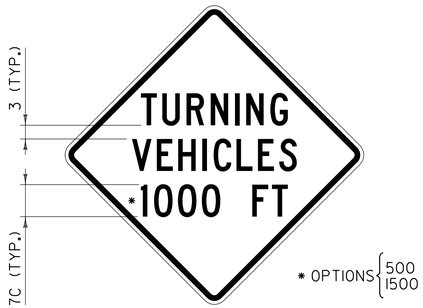
FEDERAL HIGHWAY ADMINISTRATION

TRAFFIC CONTROL MISCELLANEOUS DETAILS

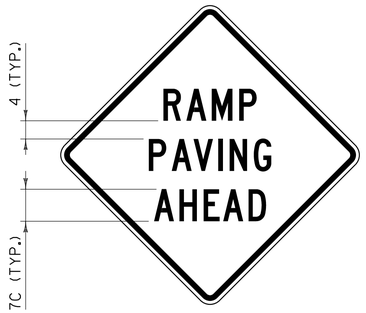
VERMONT AGENCY OF TRANSPORTATION

STANDARD

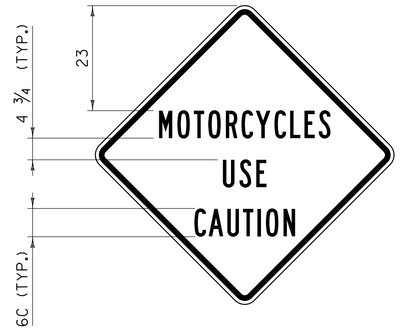
T-17



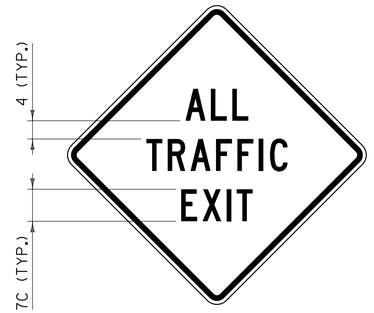
VC–001



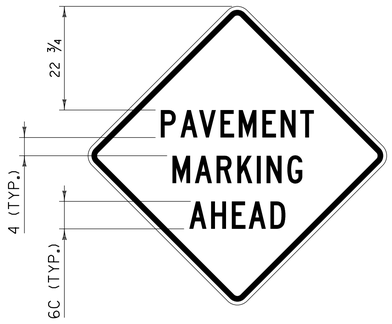
VC–003



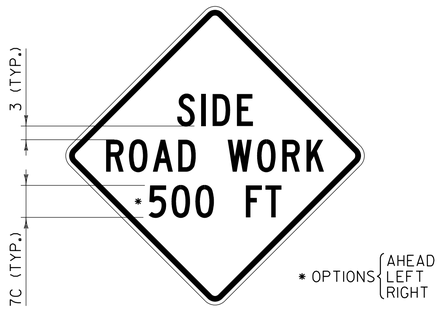
VC–004



VC–008



VC–813



VC–869

VC–874

GENERAL NOTES:

1. COLORS FOR SIGNS SHALL BE BLACK LEGEND AND BORDER ON FLUORESCENT ORANGE BACKGROUND.
2. CONSTRUCTION SIGNS SHALL BE 48 INCH BY 48 INCH. IF SOLID SUBSTRATE SIGNS ARE USED, SIGNS SHALL HAVE CORNERS ROUNDED TO A THREE INCH RADIUS.
3. SIGNS SHALL HAVE 1 1/4 INCH WIDE BORDERS THAT ARE INDENTED 3/4 INCH FROM THE EDGE OF THE SIGN.
4. SIGNS SHALL HAVE THE LEGEND CENTERED HORIZONTALLY AND VERTICALLY ON THE SIGN UNLESS OTHERWISE INDICATED.
5. ALL DIMENSIONS SHOWN 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

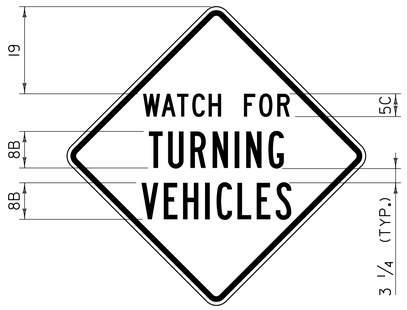
FEDERAL HIGHWAY ADMINISTRATION

CONSTRUCTION SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

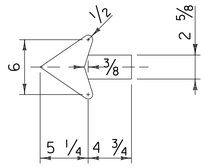
STANDARD

T-28



VC–883

VC–885



VC–886L

VC–886R

NOTES:

1. SIGNS SHALL BE 24 INCH BY 24 INCH. IF SOLID SUBSTRATE SIGNS ARE USED, SIGNS SHALL HAVE CORNERS ROUNDED TO A 1 1/2 INCH RADIUS.
2. SIGNS SHALL HAVE 5/8 INCH WIDE BORDERS THAT ARE INDENTED 3/8 INCH FROM THE EDGE OF THE SIGN.

VC–887

GENERAL NOTES:

1. COLORS FOR SIGNS SHALL BE BLACK LEGEND AND BORDER ON FLUORESCENT ORANGE BACKGROUND.
2. CONSTRUCTION SIGNS SHALL BE 48 INCH BY 48 INCH UNLESS OTHERWISE NOTED. IF SOLID SUBSTRATE SIGNS ARE USED, SIGNS SHALL HAVE CORNERS ROUNDED TO A THREE INCH RADIUS UNLESS OTHERWISE NOTED.
3. SIGNS SHALL HAVE 1 1/4 INCH WIDE BORDERS THAT ARE INDENTED 3/4 INCH FROM THE EDGE OF THE SIGN UNLESS OTHERWISE NOTED.
4. SIGNS SHALL HAVE THE LEGEND CENTERED HORIZONTALLY AND VERTICALLY ON THE SIGN UNLESS OTHERWISE INDICATED.
5. ALL DIMENSIONS SHOWN 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

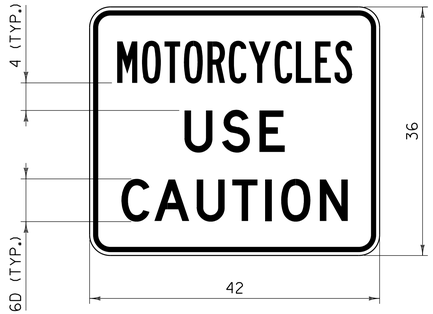
FEDERAL HIGHWAY ADMINISTRATION

CONSTRUCTION SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

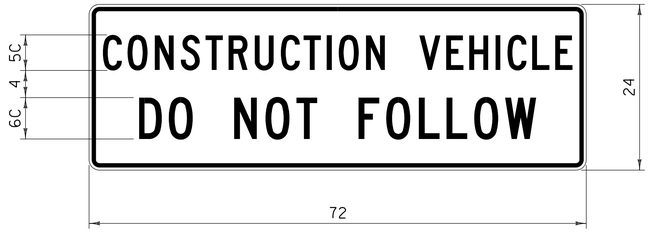
T-29



VC–004P

NOTES:

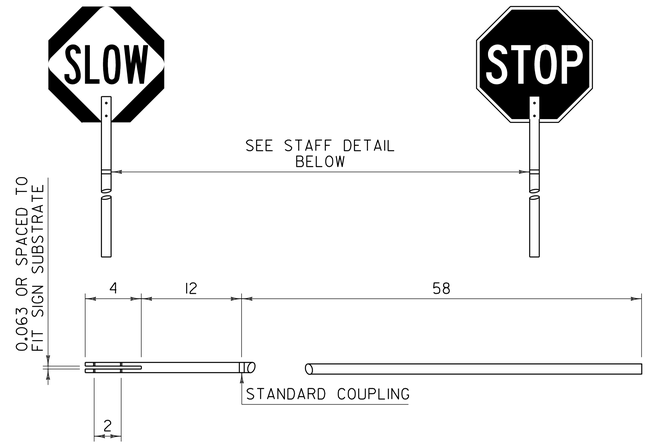
1. CORNERS SHALL BE ROUNDED TO A THREE INCH RADIUS.
2. THE BORDER SHALL BE ¾ INCH WIDE WITH A ½ INCH INDENT FROM THE EDGE OF THE SIGN.
3. "MOTORCYCLES" SHALL HAVE A SPECIFIED WIDTH OF 34 INCHES.
4. "USE" SHALL HAVE A SPECIFIED WIDTH OF 14 ½ INCHES.
5. "CAUTION" SHALL HAVE A SPECIFIED WIDTH OF 32 ¾ INCHES.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



VC–007

NOTES:

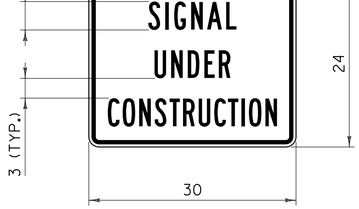
1. CORNERS SHALL BE ROUNDED TO A 1½ INCH RADIUS.
2. THE BORDER SHALL BE ⅝ INCH WIDE WITH A ⅜ INCH INDENT FROM THE EDGE OF THE SIGN.
3. "CONSTRUCTION VEHICLE" SHALL HAVE A SPECIFIED WIDTH OF 68 INCHES.
4. "DO NOT FOLLOW" SHALL HAVE A SPECIFIED WIDTH OF 57 ½ INCHES.
5. SIGN SHALL BE MOUNTED IN A CONSPICUOUS 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

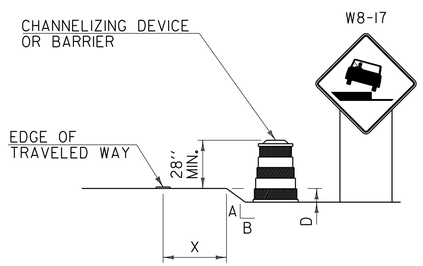
CONSTRUCTION SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

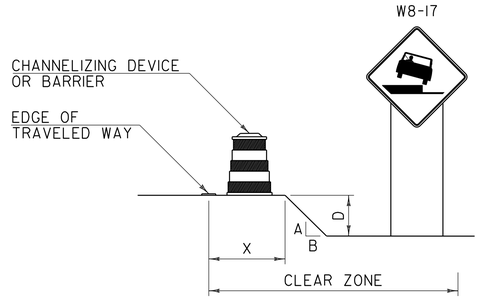
STANDARD

T-30

DROP-OFF ADJACENT TO TRAVELED WAY



TYPE 1

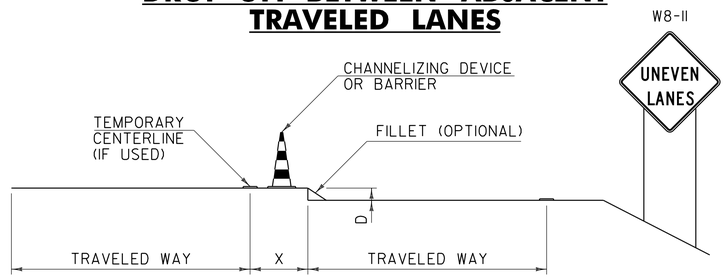


TYPE 2

NOTES:

1. CHANNELIZING DEVICES OR BARRIER SHOULD BE PLACED TO MAXIMIZE THE WIDTH OF THE TRAVELED WAY.
2. SEE CHART "A" FOR SPECIFIC REQUIREMENTS.
3. IF THE DROP-OFF REQUIRES CHANNELIZING DEVICES TO REMAIN IN PLACE OVERNIGHT, THEN "SHOULDER DROP-OFF SYMBOL" (W8-17) SIGNS SHOULD BE INSTALLED.

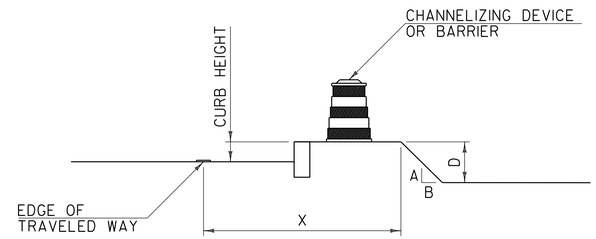
DROP-OFF BETWEEN ADJACENT TRAVELED LANES



NOTES:

1. WHENEVER A LONGITUDINAL DROP-OFF BETWEEN ADJACENT TRAVELED LANES IS TO BE LEFT OVERNIGHT, THEN "UNEVEN LANES" (W8-11) SIGNS AND CHANNELIZING DEVICES SHOULD BE INSTALLED.
2. IF REQUIRED, THE CHANNELIZING DEVICES USED SHOULD BE THOSE WHICH MAXIMIZE THE WIDTH OF THE TRAVELED LANE (I.E. CONES, VERTICAL PANELS OR TUBULAR MARKERS).
3. A BITUMINOUS CONCRETE FILLET WITH A 1.5:1 SLOPE MAY BE USED IN PLACE OF CHANNELIZING DEVICES, HOWEVER THE "UNEVEN LANES" (W8-11) SIGNS SHOULD STILL BE INSTALLED.
4. SEE CHART "A" FOR SPECIFIC REQUIREMENTS.

DROP-OFF BEYOND SHOULDER OR CURB



NOTES:

1. USE CHART "A" FOR VERTICAL CURBS UNDER SIX INCHES, MOUNTABLE CURBS OR ROADWAYS WITH A POSTED SPEED ABOVE 40 MPH.
2. USE CHART "B" FOR VERTICAL CURBS SIX INCHES OR GREATER.

CHART "A"
ALL SPEEDS WITH NO CURB OR MOUNTABLE CURB

X (FEET)	DROP (D) (INCHES)	A:B SLOPE	RECOMMENDED DEVICE
0 TO 4'	LESS THAN 2"	ANY	NONE
	2" TO 6"	1:1.5 OR FLATTER	NONE
		STEEPER THAN 1:1.5	CHANNELIZING DEVICE
	GREATER THAN 6"	1:3 OR FLATTER	NONE
		STEEPER THAN 1:3	BARRIER
4' TO 10'	LESS THAN 6"	ANY	NONE
	6" TO 12"	1:3 OR FLATTER	NONE
		STEEPER THAN 1:3	BARRIER
	GREATER THAN 12"	1:3 OR FLATTER	NONE
		STEEPER THAN 1:3	BARRIER
10' TO CZ	LESS THAN OR EQUAL TO 12"	ANY	NONE
	GREATER THAN 12"	1:3 OR FLATTER	NONE
		STEEPER THAN 1:3	BARRIER

NOTES:

1. THE MINIMUM CLEAR ZONE FOR FREEWAYS IS TO BE DETERMINED PER THE CURRENT AASHTO ROADSIDE DESIGN GUIDE. ALL OTHER HIGHWAYS WILL BE DETERMINED PER THE CURRENT "VERMONT STATE STANDARDS" BOOK.
2. CHANNELIZING DEVICES MAY BE USED INSTEAD OF BARRIER FOR SHORT TERM OPERATIONS.
3. ON BORDERLINE CONDITIONS, THE ENGINEER SHOULD DETERMINE WHICH TREATMENT IS ADEQUATE FOR THE EXISTING CONDITIONS.

CHART "B"
40 MPH OR LESS WITH VERTICAL CURB

X (FEET)	DROP (D) (INCHES)	DEVICE REQUIRED
0-10'	LESS THAN OR EQUAL TO 12"	NONE
0-10'	GREATER THAN 12"	CHANNELIZING DEVICE
GREATER THAN 10'	ANY	NONE

GENERAL NOTES:

1. THESE CONDITIONS AND TREATMENTS ARE ONLY PART OF THE TRAFFIC CONTROL SYSTEM AND SHOULD BE USED IN ADDITION TO THE PROPER WORK ZONE SIGNING.
2. THE FOLLOWING ARE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) COMPLIANT CHANNELIZING DEVICES:

   A. VERTICAL PANEL
   B. TYPE I OR TYPE II BARRICADE
   C. PLASTIC DRUM
   D. CONE - WHERE APPLICABLE
   E. TUBULAR MARKERS

   IF CHANNELIZING DEVICES ARE REQUIRED TO STAY IN PLACE DURING NIGHTTIME HOURS, THEY SHALL BE STABILIZED WHILE UNATTENDED IN ACCORDANCE WITH THE MUTCD.
3. WHERE BARRIER IS NECESSARY, THE BARRIER SHALL BE TAPERED BEYOND THE CLEAR ZONE. WHEN THE BARRIER CANNOT BE TAPERED BEYOND THE CLEAR ZONE, A MUTCD COMPLIANT END TREATMENT SHALL BE USED. BARRIER AND END TREATMENT SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION.
4. CHANNELIZING DEVICE SPACING ALONG A LONGITUDINAL DROP-OFF (TANGENT) SHALL BE AS FOLLOWS:

   TANGENT - CHANNELIZING DEVICES SHALL BE SPACED "2S" ("S" IS EQUAL TO THE POSTED SPEED LIMIT IN FEET) APART.
5. "LOW SHOULDER" (W8-9) AND "SHOULDER DROP-OFF SYMBOL" (W8-17) SIGNS, WHEN USED, SHOULD BEGIN PRIOR TO THE DROP-OFF CONDITION AND SHOULD BE REPEATED EVERY 1500 FEET.

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

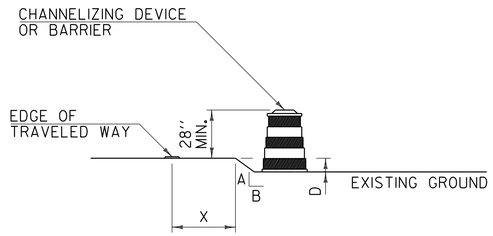
CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

T-35

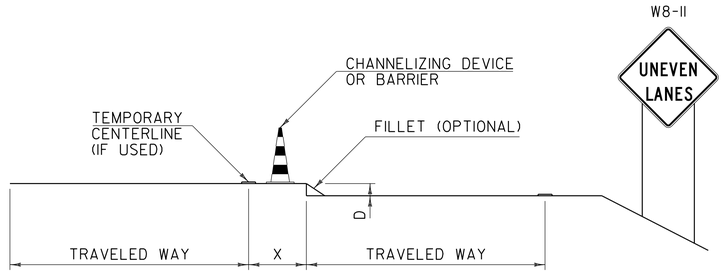
DROP-OFF ADJACENT TO TRAVELED WAY



NOTES:

1. CHANNELIZING DEVICES SHOULD BE PLACED TO MAXIMIZE THE WIDTH OF THE TRAVELED WAY.
2. SEE CHART "A" FOR SPECIFIC REQUIREMENTS.
3. IF THE DROP-OFF REQUIRES CHANNELIZING DEVICES TO REMAIN IN PLACE OVERNIGHT, THEN "LOW SHOULDER" (W8-9) OR "SHOULDER DROP-OFF SYMBOL" (W8-17) SIGNS SHOULD BE INSTALLED.

DROP-OFF BETWEEN ADJACENT TRAVELED LANES



NOTES:

1. WHENEVER A LONGITUDINAL DROP-OFF BETWEEN ADJACENT TRAVELED LANES IS TO BE LEFT OVERNIGHT, THEN "UNEVEN LANES" (W8-11) SIGNS AND CHANNELIZING DEVICES SHOULD BE INSTALLED.
2. IF REQUIRED, THE CHANNELIZING DEVICES USED SHALL BE THOSE WHICH MAXIMIZE THE WIDTH OF THE TRAVELED LANE (I.E. CONES, VERTICAL PANELS OR TUBULAR MARKERS).
3. A BITUMINOUS CONCRETE FILLET WITH A 1.5:1 SLOPE MAY BE USED IN PLACE OF CHANNELIZING DEVICES, HOWEVER THE "UNEVEN LANES" (W8-11) SIGNS SHOULD STILL BE INSTALLED.
4. SEE CHART "A" FOR SPECIFIC REQUIREMENTS.

CHART "A"
ALL SPEEDS WITH NO CURB

X (FEET)	DROP (D) (INCHES)	A:B SLOPE	DEVICE REQUIRED
0 TO 4'	LESS THAN 2"	ANY	NONE
	2" TO 6"	1:1.5 OR FLATTER	NONE
		STEEPER THAN 1:1.5	CHANNELIZING DEVICE
	GREATER THAN 6"	1:3 OR FLATTER	NONE
		STEEPER THAN 1:3	BARRIER
4' TO 10'	LESS THAN 6"	ANY	NONE
	6" TO 12"	1:3 OR FLATTER	NONE
		STEEPER THAN 1:3	BARRIER

NOTE:

1. ON BORDERLINE CONDITIONS, THE ENGINEER SHOULD DETERMINE WHICH TREATMENT IS ADEQUATE FOR THE EXISTING CONDITIONS.

GENERAL NOTES:

1. THESE CONDITIONS AND TREATMENTS ARE ONLY PART OF THE TRAFFIC CONTROL SYSTEM AND SHOULD BE USED IN ADDITION TO THE PROPER WORK ZONE SIGNING.
2. THE FOLLOWING ARE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) COMPLIANT CHANNELIZING DEVICES:

   A. VERTICAL PANEL
   B. TYPE I OR TYPE II BARRICADE
   C. PLASTIC DRUM
   D. CONE - WHERE APPLICABLE
   E. TUBULAR MARKERS

   IF CHANNELIZING DEVICES ARE REQUIRED TO STAY IN PLACE DURING NIGHTTIME HOURS, THEY SHALL BE STABILIZED WHILE UNATTENDED IN ACCORDANCE WITH THE MUTCD.
3. WHERE BARRIER IS NECESSARY, THE BARRIER SHALL BE TAPERED BEYOND THE CLEAR ZONE. WHEN THE BARRIER CANNOT BE TAPERED BEYOND THE CLEAR ZONE, A MUTCD COMPLIANT END TREATMENT SHALL BE USED. BARRIER AND END TREATMENT SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION.
4. CHANNELIZING DEVICE SPACING ALONG A LONGITUDINAL DROP-OFF (TANGENT) SHALL BE AS FOLLOWS:

   TANGENT - CHANNELIZING DEVICES SHALL BE SPACED "2S" ("S" IS EQUAL TO THE POSTED SPEED LIMIT IN FEET) APART.
5. "LOW SHOULDER" (W8-9) AND "SHOULDER DROP-OFF SYMBOL" (W8-17) SIGNS, WHEN USED, SHOULD BEGIN PRIOR TO THE DROP-OFF CONDITION AND SHOULD BE REPEATED EVERY 1500 FEET.

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 ZONE LONGITUDINAL DROP-OFFS FOR PAVING

VERMONT AGENCY OF TRANSPORTATION

STANDARD

T-36