

# STATE OF VERMONT AGENCY OF TRANSPORTATION



## PROPOSED IMPROVEMENT BRIDGE PROJECT

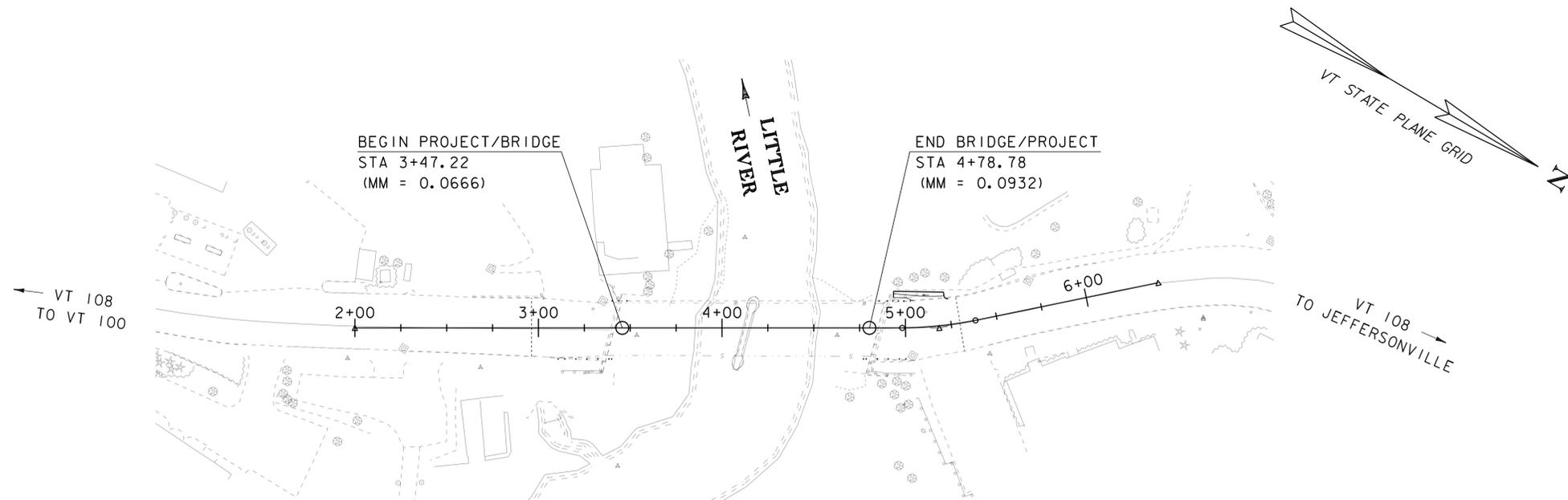
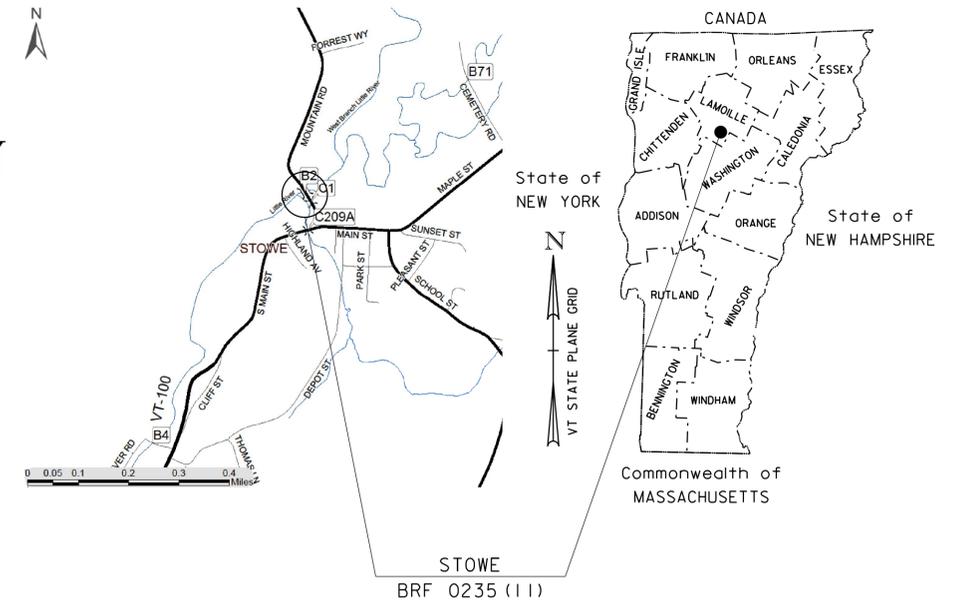
TOWN OF STOWE  
COUNTY OF LAMOILLE

ROUTE NO : VT RT 108, MAJOR COLLECTOR BRIDGE NO : 2

PROJECT LOCATION: BEGINNING 0.066 MILES WEST OF THE INTERSECTION OF VT 108 AND VT 100 AND EXTENDING 0.028 MILES WEST ON VT 108.

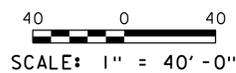
PROJECT DESCRIPTION: REPLACEMENT OF EXISTING BRIDGE TO INCLUDE THE SUPERSTRUCTURE AND SUBSTRUCTURE FULL REPLACEMENT AND APPROACH ROADWAY WORK.

LENGTH OF STRUCTURE: 131.56 FEET  
 LENGTH OF ROADWAY: 0.00 FEET  
 LENGTH OF PROJECT: 131.56 FEET



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

QUALITY ASSURANCE PROGRAM : LEVEL 2	
SURVEYED BY :	R. GILMAN
SURVEYED DATE :	9/21/2009
DATUM	
VERTICAL	NAVD88
HORIZONTAL	NAD83 (96)



**FINAL PLANS**  
**04-JUN-2014**

DIRECTOR OF PROGRAM DEVELOPMENT	
APPROVED _____	DATE _____
PROJECT MANAGER : C. CARLSON, P.E.	
PROJECT NAME : STOWE	
PROJECT NUMBER : BRF 0235 (11)	
SHEET 1 OF 62 SHEETS	

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FINAL HYDRAULIC REPORT

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STANDARDS LIST

C-2A	PORTLAND CEMENT CONCRETE SIDEWALK DRIVE ENTRANCES WITH SIDEWALK A	10-14-2005
C-2B	PORTLAND CEMENT CONCRETE SIDEWALK DRIVE ENTRANCES WITH SIDEWALK A	10-14-2005
C-3A	SIDEWALK RAMPS	03-10-2008
C-3B	SIDEWALK RAMPS AND MEDIAN ISLANDS	03-10-2008
C-10	CURBING	02-11-2008
D-15	PRECAST REINF CONC. MH-GRATES, CAST IRON GRATE WITH FRAME, TYPE D & E	06-01-1994
G-6A	CABLE GUARD RAIL W/WOOD POSTS - ANCHORS	06-01-1994
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
S-364A	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
T-42	BRIDGE NUMBER PLAQUE	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013

HYDROLOGIC DATA

Date: January 2014

DRAINAGE AREA : 52.8 sq. mi.  
 CHARACTER OF TERRAIN : Hilly to mountainous, a mixture of forested and open land  
 STREAM CHARACTERISTICS : Semi-alluvial, sinuous, floodplain - wide upst and narrow dnst  
 NATURE OF STREAMBED : Gravel, cobbles and some ledge

PEAK FLOW DATA

Q 2.33 =	2500 cfs	Q 50 =	6060 cfs
Q 10 =	4100 cfs	Q 100 =	7150 cfs
Q 25 =	5200 cfs	Q 500 =	9680 cfs

DATE OF FLOOD OF RECORD : unknown  
 ESTIMATED DISCHARGE : unknown  
 WATER SURFACE ELEV. : unknown  
 NATURAL STREAM VELOCITY : @ Q50 = 8.3 fps  
 ICE CONDITIONS : Moderate  
 DEBRIS : Moderate  
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No  
 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 : Two span steel beam bridge  
 YEAR BUILT : 1944, reconstructed 1973  
 CLEAR SPAN(NORMAL TO STREAM) : Two 67' spans = 134' total  
 VERTICAL CLEARANCE ABOVE STREAMBED : 27'  
 WATERWAY OF FULL OPENING : 2050 sf  
 DISPOSITION OF STRUCTURE : Remove and replace  
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : See record plans & borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	692.9'	VELOCITY =	7.1 fps
Q10 =	696.0'	"	7.3 fps
Q25 =	697.3'	"	8.2 fps
Q50 =	698.3'	"	8.8 fps
Q100 =	699.5'	"	9.4 fps

LONG TERM STREAMBED CHANGES : 1' to 2' of scour through the bridge.  
 No other changes noted.

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: Above Q100  
 RELIEF ELEVATION: 710.5'  
 DISCHARGE OVER ROAD @Q100: none

UPSTREAM STRUCTURE

TOWN: N.A. - River divides DISTANCE: \_\_\_\_\_  
 HIGHWAY #: \_\_\_\_\_ STRUCTURE #: \_\_\_\_\_  
 CLEAR SPAN: \_\_\_\_\_ CLEAR HEIGHT: \_\_\_\_\_  
 YEAR BUILT: \_\_\_\_\_ FULL WATERWAY: \_\_\_\_\_  
 STRUCTURE TYPE: \_\_\_\_\_

DOWNSTREAM STRUCTURE

TOWN: Stowe DISTANCE: 3500'  
 HIGHWAY #: T.H. 5 STRUCTURE #: 4  
 CLEAR SPAN: 70' CLEAR HEIGHT: 15'  
 YEAR BUILT: 1940 FULL WATERWAY: N/A  
 STRUCTURE TYPE: Steel beam bridge with concrete deck

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	4.24	1.19					
POSTING							
OPERATING	3.26	1.55	2.83	1.72	2.91	2.57	2.55
COMMENTS:							

AS BUILT "REBAR" DETAIL

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

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2015 to 2035 : 2566000
2015	8200	1100	53	4.3	340	40 year ESAL for flexible pavement from 2015 to 2055 : 6385000
2035	9200	1200	53	6.8	600	Design Speed : 25 mph

PROPOSED STRUCTURE

STRUCTURE TYPE: New single span steel girder bridge

CLEAR SPAN(NORMAL TO STREAM): 123'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 24'  
 WATERWAY OF FULL OPENING: 1900 sf per

WATER SURFACE ELEVATIONS AT:

Q2.33 =	692.6'	VELOCITY=	6.9 fps
Q10 =	695.8'	"	6.9 fps
Q25 =	697.1'	"	7.8 fps
Q50 =	698.0'	"	8.3 fps
Q100 =	699.2'	"	8.8 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: Above Q100  
 RELIEF ELEVATION: 710.5'  
 DISCHARGE OVER ROAD @Q100: none

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 707.4'  
 VERTICAL CLEARANCE: @ Q50 = 9.4'

SCOUR: Contraction scour calculated as 3' at Q100 and 7' at Q500. Scour may be less where ledge is present.  
 REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: 110 cfs DEPTH OR ELEVATION:  
 ORDINARY LOW WATER: 50 cfs Depth = 2.0'  
 ORDINARY HIGH WATER: 1100 cfs Depth = 6.0'

TEMPORARY BRIDGE REQUIREMENTS

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

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON AN OFF SITE DETOUR.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	---
3. DESIGN SPAN	L: 130.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f <sub>y</sub> : 270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f' <sub>c</sub> : ---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' <sub>cr</sub> : ---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f' <sub>c</sub> : 4.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f' <sub>c</sub> : 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f' <sub>c</sub> : 3.5 KSI
11. CONCRETE, CLASS C	f' <sub>c</sub> : 3.0 KSI
12. REINFORCING STEEL	f <sub>y</sub> : 60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)	f <sub>y</sub> : 50 KSI
14. SOIL UNIT WEIGHT	γ: 0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q <sub>n</sub> : 4.0 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: 0.45
17. NOMINAL BEARING RESISTANCE OF ROCK	q <sub>n</sub> : ---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
19. NOMINAL AXIAL PILE RESISTANCE	q <sub>p</sub> : 790.0 KIPS
20. PILE YIELD STRENGTH ASTM A572	f <sub>y</sub> : 50 KSI
21. PILE SIZE	HP 12X 84
22. EST. PILE LENGTH	L <sub>p</sub> : ---
23. PILE RESISTANCE FACTOR	φ: 0.65
24. LATERAL PILE DEFLECTION	Δ: 0.76 INCH
25. BASIC WIND SPEED	V <sub>3s</sub> : ---
26. MINIMUM GROUND SNOW LOAD	p <sub>g</sub> : ---
27. SEISMIC DATA	PGA: 15 %g S <sub>s</sub> : --- S <sub>1</sub> : ---

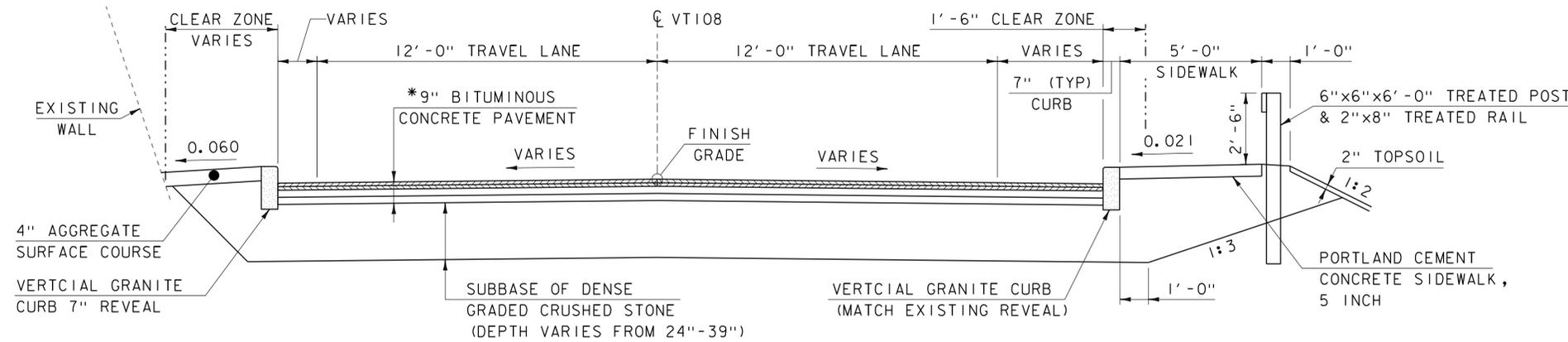
PROJECT NAME: STOWE

PROJECT NUMBER: BRF 0235 (11)

FILE NAME: s87e052pi.dgn PLOT DATE: 6/3/2014  
 PROJECT LEADER: C. CARLSON DRAWN BY: M. LONGSTREET  
 DESIGNED BY: D. PETERSON CHECKED BY: J. LACROIX  
**PRELIMINARY INFORMATION SHEET 1** SHEET 2 OF 62

PILE DRIVING AND TESTING REQUIREMENTS

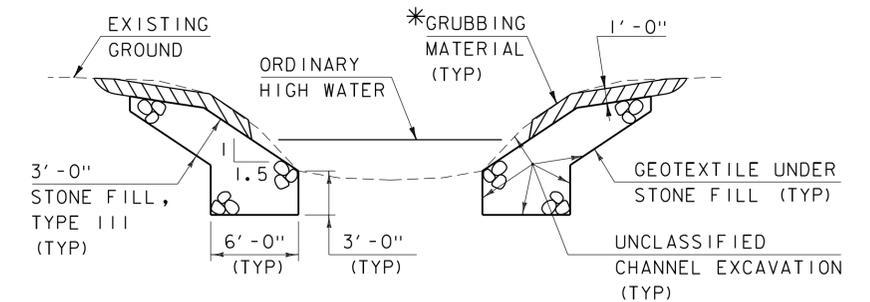
1. NOMINAL PILE DRIVING CAPACITY *R<sub>nd</sub>*: N/A
2. PILE TEST RESISTANCE FACTOR *φ*: N/A
3. MAXIMUM PILE TIP ELEVATION *N<sub>A</sub>*: NA
4. PRE-EXCAVATIONED INTEGRAL ABUTMENT PILES. MIN. 3'-0" INTO SOLID ROCK, SAND FILL AROUND PILE IN CAVITY.



**ROADWAY TYPICAL SECTION**

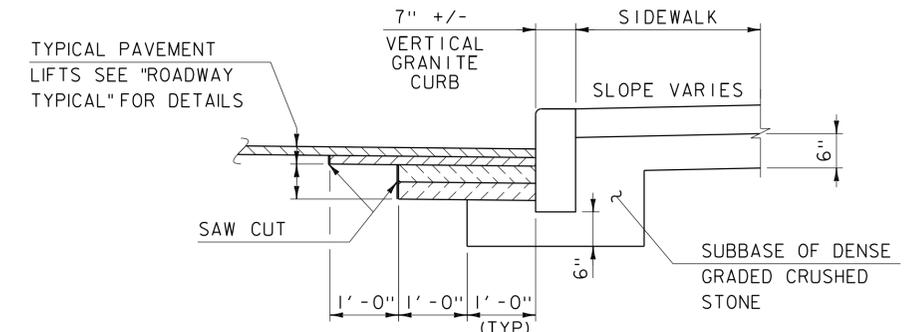
SCALE: 3/8" = 1'-0"

\*2 LIFTS OF 1 1/2" BITUM. CONC. PAVEMENT TYPE IIIS OVER  
2 LIFTS OF 3" BITUM. CONC. PAVEMENT TYPE IS OR IIS  
PAID UNDER SPECIAL PROVISION (BITUMINOUS CONCRETE  
PAVEMENT, SMALL QUANTITY).



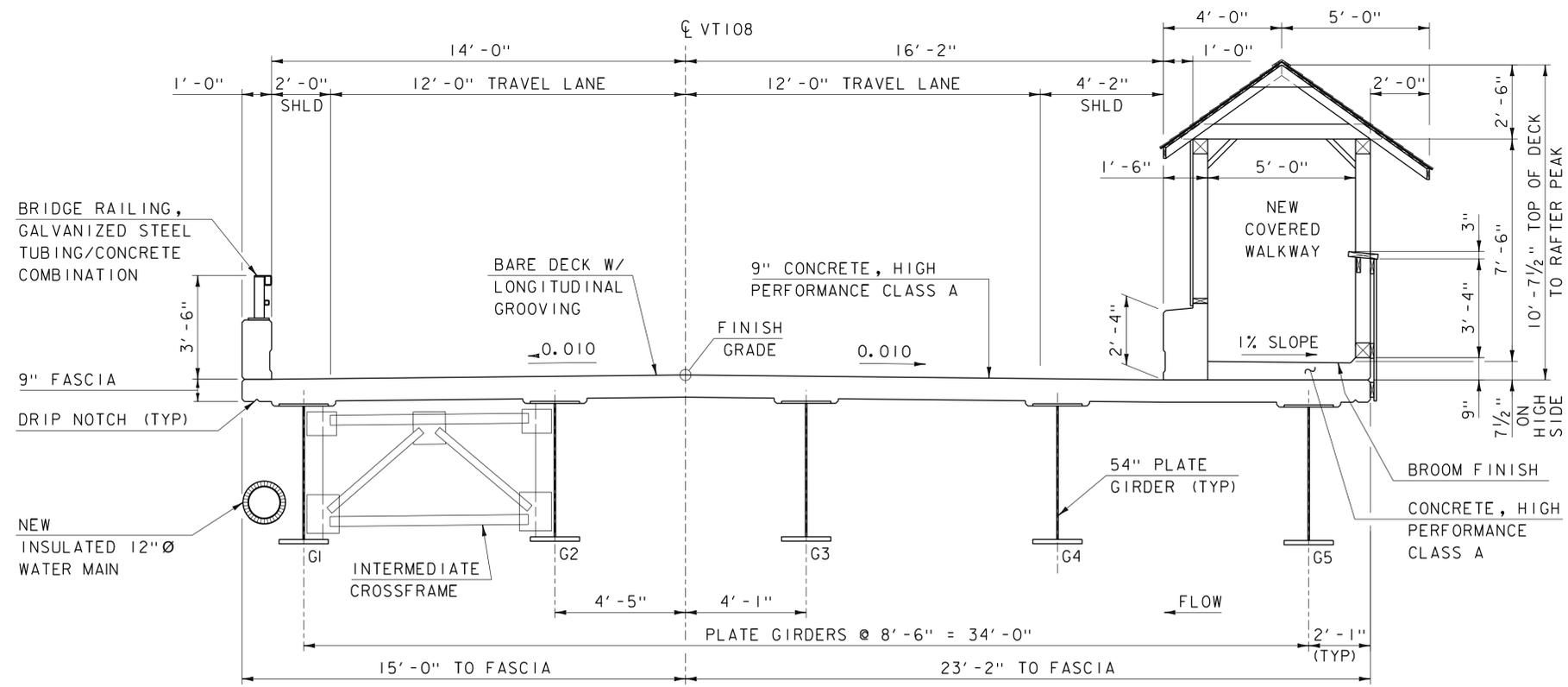
**TYPICAL CHANNEL SECTION**  
(NOT TO SCALE)

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



**CURB & SIDEWALK TYPICAL**

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

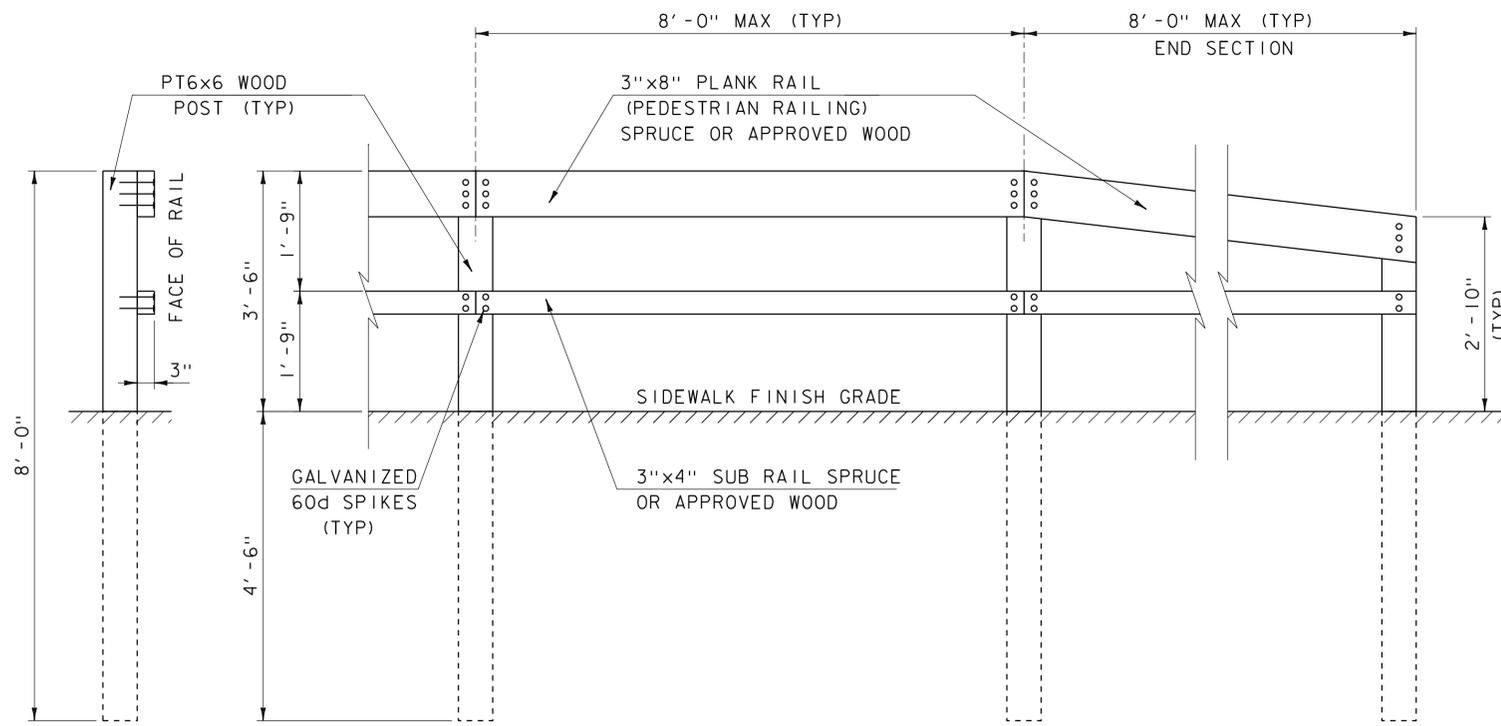


**BRIDGE TYPICAL SECTION**

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

MATERIAL TOLERANCES (IF USED ON PROJECT)	
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROWS	+/- 1"

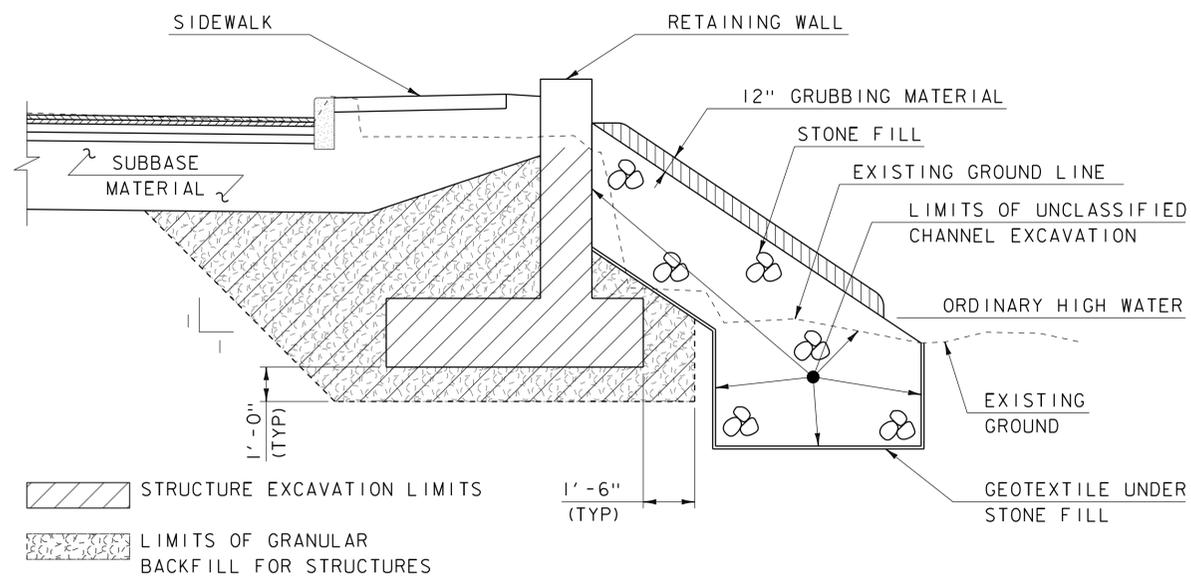
PROJECT NAME:	STOWE	PLOT DATE:	04-JUN-2014
PROJECT NUMBER:	BRF 0235 (II)	DRAWN BY:	M. LONGSTREET
FILE NAME:	s87e052typ.dgn	DESIGNED BY:	D. PETERSON
PROJECT LEADER:	C. CARLSON	CHECKED BY:	J. LACROIX
TYPICAL SECTIONS SHEET 1			SHEET 3 OF 62



**PLANK RAIL (PEDESTRIAN RAILING)**

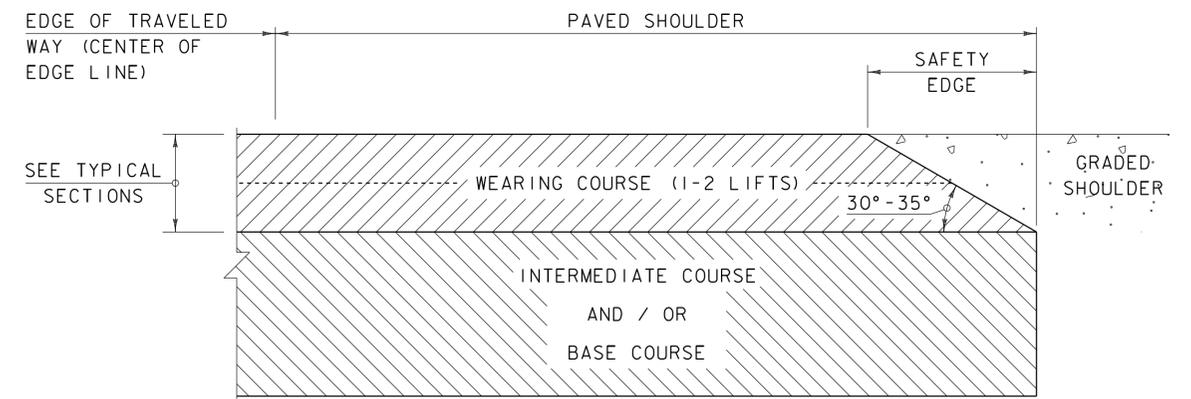
SCALE:  $\frac{3}{4}$ " = 1'-0"

- 1) THE HANDGRIP PORTION OF GUARDRAIL SHALL HAVE A SMOOTH SURFACE WITH NO SHARP CORNERS.
- 2) EDGES ON TOP SIDES OF WOOD PLANK SHALL HAVE A RADIUS OF 1/4". GUARDRAIL SHALL BE CONTINUOUS FOR THE FULL LENGTH AS INDICATED ON THE PLANS.



**RETAINING WALL EARTHWORK TYPICAL**

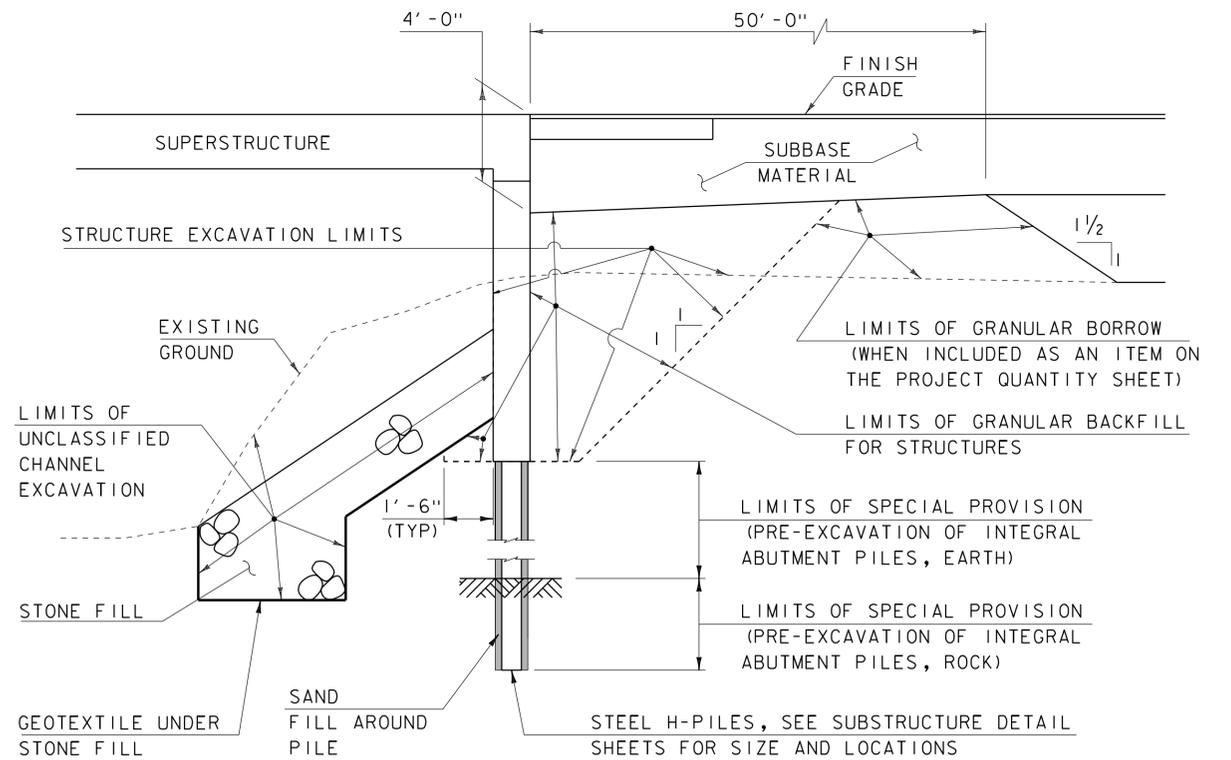
SCALE:  $\frac{3}{8}$ " = 1'-0"



**SAFETY EDGE DETAIL**

NOT TO SCALE

- NOTES:
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".



**EARTHWORK TYPICAL SECTION**

NOT TO SCALE

PROJECT NAME: STOWE  
PROJECT NUMBER: BRP 0235 (II)

FILE NAME: s87e052typ.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: D. PETERSON  
TYPICAL SECTIONS SHEET 2

PLOT DATE: 04-JUN-2014  
DRAWN BY: M. LONGSTREET  
CHECKED BY: J. LACROIX  
SHEET 4 OF 62

## GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE VERMONT AGENCY OF TRANSPORTATION 2011 STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE 2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, AND THEIR LATEST REVISIONS.
2. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
3. ALL PRECAST SUBSTRUCTURE AND APPROACH SLAB CONCRETE ELEMENTS SHALL BE FABRICATED TO THE SPECIFIED DIMENSIONS AND ERECTED IN THE SPECIFIED LOCATIONS, ALL WITHIN TOLERANCES DEFINED ON THE PLANS AND IN THE PRECAST/PRESTRESSED CONCRETE INSTITUTE TOLERANCE MANUAL FOR PRECAST AND PRESTRESSED CONCRETE CONSTRUCTION, MNL 135-00, AND ITS LATEST REVISIONS.

## EARTHWORK

4. ITEM 529.15 "REMOVAL OF STRUCTURE" SHALL INCLUDE:
  - THE REMOVAL OF THE EXISTING SUPERSTRUCTURE AND ANY PORTION OF THE EXISTING ABUTMENTS AND PIERS NOT REMOVED UNDER STRUCTURE EXCAVATION OR UNCLASSIFIED CHANNEL EXCAVATION.
  - THE CONCRETE PIER SHALL BE REMOVED COMPLETELY OR CUT OFF AT STREAM BED ELEVATION.
  - THE LAID UP STONE UNDER THE EXISTING VW #4 SHALL BE REMOVED COMPLETELY.
5. ABUTMENT STONE FILL: PLACE STONE FILL UNDER THE BRIDGE BEFORE SETTING THE STRUCTURAL STEEL.
6. REMOVAL OF THE EXISTING BOX CULVERT HEADWALL FOR DRAINAGE INSTALLATION SHALL BE TO THE ELEVATION SHOWN ON THE PLANS. PAYMENT SHALL BE MADE UNDER ITEM 203.16, SOLID ROCK EXCAVATION.

## CONCRETE

7. ITEM 514.10, "WATER REPELLENT, SILANE", SHALL BE APPLIED TO ALL EXPOSED CONCRETE ON THE BRIDGE SUPERSTRUCTURE, INCLUDING THE SIDEWALK INSIDE THE COVERED WALKWAY, AND SUBSTRUCTURE, WITH THE EXCEPTION OF THE BOTTOM OF THE DECK BETWEEN THE DRIP NOTCHES.
8. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH BY 1 INCH, UNLESS OTHERWISE NOTED.
9. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
10. ITEM 501.33, HIGH PERFORMANCE CONCRETE, CLASS A: USE FOR THE DECK, SIDEWALKS AND INTEGRAL ABUTMENT CURTAIN WALL AND WING WALLS ABOVE THE PILE CAP CONSTRUCTION JOINT.
11. ALL PRECAST SUBSTRUCTURE AND APPROACH SLAB CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 540 – PRECAST CONCRETE.
12. ALL CONCRETE FOR PRECAST APPROACH SLAB CLOSURE POURS AND ABUTMENT PILE CAVITIES SHALL MEET THE REQUIREMENTS OF ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)".
13. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING STEEL INSTITUTE".
14. ALL REINFORCING STEEL IN THE SUPERSTRUCTURE, INCLUDING THE DECK, SIDEWALK, BRIDGE RAIL AND ANY STEEL EXTENDING INTO HPC, CLASS A SHALL MEET THE REQUIREMENTS FOR LEVEL III CORROSION RESISTANCE, SOLID STAINLESS REINFORCING STEEL IN ACCORDANCE WITH SECTION 507.
15. ALL REINFORCING STEEL IN THE PRECAST APPROACH SLABS AND PRECAST ABUTMENTS, INCLUDING WINGWALLS, SHALL MEET THE REQUIREMENTS FOR LEVEL II CORROSION RESISTANCE IN ACCORDANCE WITH SECTION 507. PAYMENT FOR APPROACH SLAB CLOSURE POUR REINFORCING WILL BE PAID UNDER ITEM 507.12. PAYMENT FOR ALL OTHER APPROACH SLAB AND PRECAST ABUTMENT REINFORCING WILL BE MADE UNDER THE APPROPRIATE SECTION 540 CONTRACT ITEM.
16. ALL MECHANICAL SPLICES FOR BAR REINFORCEMENT SHALL MEET THE REQUIREMENTS OF SECTION 507. REINFORCING STEEL CORROSION RESISTANCE FOR ALL MECHANICAL SPLICES SHALL MATCH THE BARS THAT THEY ARE INTENDED TO SPLICE.
17. GROUT FOR MECHANICAL SPLICES FOR BAR REINFORCEMENT SHALL BE APPROVED BY THE SPLICE MANUFACTURER. THE CONTRACTOR SHALL SUBMIT A GROUTING PROCEDURE PROPOSAL TO THE ENGINEER, INCLUDING A PREMIX NAME BRAND FOR APPROVAL.

18. A TEMPLATE SHALL BE USED FOR THE LAYOUT OF MECHANICAL SPLICES FOR BAR REINFORCEMENT. THE SAME TEMPLATE SHALL BE USED FOR MATCHING FACES OF EACH CONNECTION.
19. ALL CONNECTIONS BETWEEN PRECAST UNITS SHALL BE DRY FIT PRIOR TO DELIVERY TO THE PROJECT SITE.
20. PAYMENT FOR MECHANICAL CONNECTORS SHALL INCIDENTAL TO ITEMS 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT #1) AND "PRECAST CONCRETE STRUCTURE (ABUTMENT #2).
21. FORMWORK FOR SURFACES ON THE PRECAST APPROACH SLABS THAT WILL BE IN CONTACT WITH LONGITUDINAL CLOSURE POURS SHALL BE TREATED WITH CONCRETE SURFACE RETARDER, OR SIMILAR, TO PROVIDE A ROUGHENED SURFACE; AND POWER WASHED WITH WATER PRIOR TO ERECTION.

## PRECAST ABUTMENTS AND POST TENSIONING

22. THE UNIT PRICE FOR EACH PRECAST ABUTMENT SHALL INCLUDE THE ASSOCIATED PRECAST PORTIONS OF THE WINGWALLS, (EXCLUDING THE FREESTANDING PORTION OF WINGWALL #4) AND ALL LABOR AND MATERIALS TO CONNECT WINGWALLS TO THE PILE CAPS. THIS WORK SHALL BE PAID FOR UNDER ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT #1)" AND "PRECAST CONCRETE STRUCTURE (ABUTMENT #2)" AS APPROPRIATE.
23. IF VERTICAL CONSTRUCTION JOINTS ARE REQUIRED BY THE CONTRACTOR FOR SHIPMENT OF THE ABUTMENTS, THEN THE SECTIONS SHALL BE KEYED AND MATCH CAST. A JOINT DETAIL SHALL BE SHOWN ON THE FABRICATION DRAWINGS.
24. ALL POST-TENSIONING STRAND AND CONDUIT SHALL CONFORM TO THE REQUIREMENTS OF SECTION 510 – PRESTRESSED CONCRETE. GALVANIZED ANCHOR ASSEMBLIES, CONDUIT, AND POST-TENSIONING STRANDS SHALL BE INCLUDED UNDER ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT #1) AND "PRECAST CONCRETE STRUCTURE (ABUTMENT #2)" AS APPROPRIATE. POST-TENSIONING STRANDS SHALL BE COVERED WITH SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND STRAND) FOR THE LENGTH OF THE STRAND, EXCEPT AT ANCHORAGE LOCATIONS.
25. GALVANIZE ANCHOR ASSEMBLIES AFTER FABRICATION ACCORDING TO AASHTO M232/M 232.
26. DESIGN VALUES
  - i. CONCRETE COMPRESSIVE STRENGTH:  $f_c = 5000$  PSI.
  - ii. POST-TENSIONING STRANDS: 0.5 INCH DIAMETER, 270 KSI, LOW RELAXATION 7-WIRE STRANDS.
  - iii. ASSUMED MODULUS OF ELASTICITY IS 28,500 KSI.
  - iv. THERE SHALL BE 2 STRANDS PER CONDUIT.
  - v. JACKING FORCE PER STRAND = 32 KIPS
27. THE CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF SUBSECTION 711.01. ALL COSTS ASSOCIATED WITH PLACING THE CORRUGATED STEEL PIPE SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT #1)" AND ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT #2)".
28. THE FREESTANDING PORTION OF WINGWALL #4 SHALL BE PAID FOR UNDER ITEM 540.10, PRECAST CONCRETE STRUCTURE (RETAINING WALL).

## STRUCTURAL STEEL

29. ALL NEW STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270/M 270, GRADE 50. ALL NEW STRUCTURAL STEEL.
30. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.
31. BEAM WEBS AND CROSS FRAMES SHALL BE PLUMB IN FINAL POSITION.
32. CHARPY V-NOTCH TEST: TEST STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS IN ACCORDANCE WITH SUBSECTION 714.01.
33. BOLTS FOR ALL BOLTED FIELD CONNECTIONS SHALL BE 7/8 INCH DIAMETER HIGH STRENGTH BOLTS IN 15/16 INCH DIAMETER HOLES UNLESS OTHERWISE NOTED.
34. CONNECTIONS NOT SHOWN IN THE PLANS SHALL BE DETAILED BY THE FABRICATOR IN THE FABRICATION DRAWINGS AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL.
35. AFTER THE SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF GIRDERS SHALL BE TAKEN UNDER DIRECTION OF THE RESIDENT ENGINEER FOR USE IN DETERMINING THE FINAL GRADE AND HAUNCH DEPTHS.
36. FLEMING BRACKETS OR SIMILAR FALSE WORK: SPACE FLEMING BRACKETS OR SIMILAR FALSEWORK AS REQUIRED BY DESIGN WITH A MAXIMUM SPACING OF 4'-0". THE DESIGN OF FALSEWORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
37. HOLES IN WEB: FILL ANY BOLT HOLES IN THE WEBS OF THE BEAMS NOT OTHERWISE FILLED WITH BUTTON HEAD OR HEX HEAD BOLTS MEETING AASHTO M164 TYPE I. TIGHTEN THE BOLTS IN ACCORDANCE WITH SUBSECTION 506.19 OF THE STANDARD SPECIFICATIONS.

## H-PILES

38. PRE-EXCAVATION IS REQUIRED AT ALL PILE LOCATIONS. PAYMENT SHALL BE PAID FOR UNDER ITEM 900.640, "SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENTS PILES, EARTH)" OR ITEM 900.640, "SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENTS PILES, ROCK)".
39. THE PILE LOCATIONS SHALL BE PRE-EXCAVATED WITH A MINIMUM PENETRATION OF 3 FEET INTO COMPETENT BEDROCK. THE MINIMUM REQUIRED PILE LENGTH IS 10 FEET. IF COMPETENT BEDROCK IS ENCOUNTERED SHALLOWER THAN 7 FEET BELOW THE BOTTOM OF THE PILE CAP, PRE-EXCAVATION TO A MINIMUM DEPTH OF 10 FEET BELOW THE PILE CAP IS REQUIRED. PRE-EXCAVATED HOLES SHALL BE 24 INCHES IN DIAMETER.
40. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AND ARE SHOWN ON THE BORING LOGS. THE ACTUAL IN PLACE LENGTHS MAY VARY.

## TRAFFIC CONTROL

41. TRAFFIC SHALL BE MAINTAINED ON A DETOUR AROUND THE BRIDGE DURING CONSTRUCTION. THE TOWN SHALL BE NOTIFIED 2 WEEKS PRIOR TO CLOSURE.
42. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING, INSTALLING AND MAINTAINING ALL ON AND OFF PROJECT SIGNS AS DETAILED IN THE DETOUR SIGN PACKAGE AND TRAFFIC CONTROL SHEETS INCLUDED IN THE PLANS. THIS WORK WILL BE INCIDENTAL TO ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".
43. AT LEAST ONE PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) SHALL BE POSITIONED IN ADVANCE OF EACH APPROACH TO THE WORK ZONE ADVISING OF THE ACTIVITY AHEAD.

## COVERED WALKWAY

44. PAYMENT FOR THE ANCHOR BOLTS USED TO CONNECT THE COVERED WALKWAY TO THE BRIDGE SHALL BE INCIDENTAL TO ITEM 501.33, HIGH PERFORMANCE CONCRETE, CLASS A. THE ANCHOR BOLTS SHALL CONFORM TO ASTM A 449. NUTS AND WASHERS SHALL CONFORM TO SECTION 709.01(h) OF THE STANDARD SPECIFICATIONS.
45. ALL LUMBER SHALL MEET THE REQUIREMENTS OF SECTION 522 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED IN THE PLANS.
46. ALL LUMBER IN THE COVERED WALKWAY SHALL BE ROUGH-SAWN (FULL DIMENSION) EXCEPT WHERE NOTED "S4S" (DRESSED LUMBER). SEE SECTION 709.01(d) OF THE STANDARD SPECIFICATIONS FOR FULL DEFINITIONS.
47. LUMBER AND TIMBERS DESIGNATED "PT" SHALL BE PRESSURE TREATED AND MEET THE REQUIREMENTS OF SECTION 522.13 OF THE STANDARD SPECIFICATIONS INCLUDING SUBSECTION 726.01.
48. ALL INTERIOR AND EXTERIOR UNTREATED WOOD SURFACES SHALL BE PAINTED WITH INSECTICIDE/FUNGICIDE AND FIRE RETARDANT COATINGS IN ACCORDANCE WITH SUBSECTION 708.05 (b) and (c).
49. ALL METAL FASTENERS SHALL BE ASTM A307 AND GALVANIZED IN ACCORDANCE WITH AASHTO M 232/M 232.
50. ALL NAILS AND SPIKES SHALL CONFORM TO ASTM F1667 AND BE DOUBLE HOT DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M 232/M 232 UNLESS OTHERWISE SPECIFIED IN THE PLANS.

## MISCELLANEOUS

51. THE REMOVAL OF THE EXISTING WOODEN PEDESTRIAN RAIL LEADING UP TO THE COVERED WALKWAY SHALL BE PAID FOR UNDER ITEM 621.80, "REMOVAL AND DISPOSAL OF GUARDRAIL".
52. THE LIGHTING FOR THE COVERED WALKWAY SHALL BE PAID FOR UNDER ITEM 900.645 SPECIAL PROVISION (LIGHTING FOR COVERED WALKWAY).

PROJECT NAME: STOWE  
PROJECT NUMBER: BRF 0235 (II)

FILE NAME: s87e052forms.dgn PLOT DATE: 04-JUN-2014  
PROJECT LEADER: C. CARLSON DRAWN BY: M. LONGSTREET  
DESIGNED BY: D. PETERSON CHECKED BY: J. LACROIX  
GENERAL NOTES SHEET 5 OF 62

# QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROL	BRIDGE	FULL C. E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				
							650				650		CY	COMMON EXCAVATION	203.15				
							210				210		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				
							228				228		CY	TRENCH EXCAVATION OF EARTH	204.20				
							1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				
									570		570		CY	STRUCTURE EXCAVATION	204.25				
							50		480		530		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
							690				690		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
							510				510		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
							2				2		CY	AGGREGATE SURFACE COURSE	401.10				
							5				5		CWT	EMULSIFIED ASPHALT	404.65				
							1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
									220		220		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33				
									1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10				
									159		159		LF	STEEL PILING HP 12 X 84	505.165				
									208000		208000		LB	STRUCTURAL STEEL, PLATE GIRDER	506.55				
									58135		58135		LB	REINFORCING STEEL, LEVEL III	507.13				
									1		1		LS	SHEAR CONNECTORS (1734 - 7/8" X 7")	508.15				
									440		440		SY	LONGITUDINAL DECK GROOVING	509.10				
									62		62		GAL	WATER REPELLENT, SILANE	514.10				
									63		63		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
									63		63		LF	JOINT SEALER, HOT POURED	524.11				
									134		134		LF	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	525.45				
									480		480		SY	REMOVAL OF BRIDGE PAVEMENT	529.10				
									1		1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20				
									10		10		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17				
									1		1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT #1 )	540.10				
									1		1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT #2 )	540.10				
									1		1		LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB #1)	540.10				
									1		1		LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB #2)	540.10				
									1		1		LS	PRECAST CONCRETE STRUCTURE (RETAINING WALL)	540.10				
														BEGIN OPTION AA					
							210				210		LF	18" CAAP .060 (2-2/3 X 1/2)	601.0215				
							210				210		LF	18" PCCSP .064 (2-2/3 X 1/2)	601.0415				
							210				210		LF	18" RCP CLASS III	601.0815				
							210				210		LF	18" CPEP(SL)	601.2615				
														END OPTION AA					
							6				6		EACH	PRECAST REINFORCED CONCRETE DROP INLET WITH CAST IRON GRATE	604.18				
							1				1		EACH	PRECAST REINFORCED CONCRETE MANHOLE WITH CAST IRON COVER	604.21				
							1				1		MGAL	DUST CONTROL WITH WATER	609.10				

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PROJECT LEADER:	C. CARLSON
DESIGNED BY:	D. PETERSON
QUANTITY SHEET I	
PLOT DATE:	04-JUN-2014
DRAWN BY:	M. LONGSTREET
CHECKED BY:	J. LACROIX
SHEET	6 OF 62

# 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
									230		230		CY	STONE FILL, TYPE III	613.12				
							408				408		LF	VERTICAL GRANITE CURB	616.21				
							139				139		SY	PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH	618.10				
							14				14		SY	PORTLAND CEMENT CONCRETE SIDEWALK, 8 INCH	618.11				
							11				11		SF	DETECTABLE WARNING SURFACE	618.30				
							84				84		LF	PLANK RAIL	621.15				
							86				86		LF	BOX BEAM GUARDRAIL	621.30				
							111				111		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
							80				80		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
							800				800		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				
							1				1		LS	PUBLIC RELATIONS OFFICER	641.12				
							4				4		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
							700				700		LF	4 INCH WHITE LINE	646.20				
							700				700		LF	4 INCH YELLOW LINE	646.21				
							32				32		LF	CROSSWALK MARKING	646.31				
									220		220		SY	GEOTEXTILE UNDER STONE FILL	649.31				
								60			60		SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515				
								85			85		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61				
								2			2		LB	SEED	651.15				
								2			2		LB	SEED, WINTER RYE	651.17				
								12			12		LB	FERTILIZER	651.18				
								0.1			0.1		TON	AGRICULTURAL LIMESTONE	651.20				
								0.1			0.1		TON	HAY MULCH	651.25				
								6			6		CY	TOPSOIL	651.35				
								80			80		SY	GRUBBING MATERIAL	651.40				
								1			1		LS	EPSC PLAN	652.10				
								40			40		HR	MONITORING EPSC PLAN	652.20				
								1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
								30			30		SY	TEMPORARY EROSION MATTING	653.20				
								30			30		CY	VEHICLE TRACKING PAD	653.35				
								3			3		EACH	INLET PROTECTION DEVICE, TYPE I	653.40				
								275			275		LF	BARRIER FENCE	653.50				
								65			65		LF	PROJECT DEMARCATIOn FENCE	653.55				
											4		EACH	REMOVING SIGNS	675.50				
											4		EACH	ERECTING SALVAGED SIGNS	675.60				

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 QUANTITY SHEET 2  
 PLOT DATE: 04-JUN-2014  
 DRAWN BY: M. LONGSTREET  
 CHECKED BY: J. LACROIX  
 SHEET 7 OF 62

# QUANTITY SHEET 3

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
							2				2		EACH	SETTING SALVAGED POSTS	675.61				
							40				40		LF	ELECTRICAL CONDUIT (1")(PVC)	678.21				
							40				40		LF	ELECTRICAL WRING	678.24				
							1				1		EACH	TEMPORARY TRAFFIC SIGNAL SYSTEM	678.40				
									13		13		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)	900.608				
									102		102		LF	SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES, EARTH)	900.640				
									38		38		LF	SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES, ROCK)	900.640				
									1		1		LS	SPECIAL PROVISION (COVERED WALKWAY)	900.645				
										1	1		LS	SPECIAL PROVISION (CPM SCHEDULE)	900.645				
									1		1		LS	SPECIAL PROVISION (LIGHTING FOR COVERED WALKWAY)	900.645				
							1				1		LS	SPECIAL PROVISION (TEMPORARY WATER LINE)	900.645				
							1				1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSME)	900.645				
							1				1		LS	SPECIAL PROVISION (WATER MAIN ON BRIDGE)(12")	900.645				
							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				
							280				280		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

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 QUANTITY SHEET 3  
 PLOT DATE: 04-JUN-2014  
 DRAWN BY: M. LONGSTREET  
 CHECKED BY: J. LACROIX  
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# BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						APP SLAB 1	ABUTMENT 1	SUPER-STRUCTURE	ABUTMENT 2	APP SLAB 2	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS	
							247		323		570	CY	STRUCTURE EXCAVATION	204.25				
							205		275		480	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
							41	138	41		220	CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33				
							0.5		0.5		1	LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10				
							60		99		159	LF	STEEL PILING HP 12 X 84	505.165				
								208000			208000	LB	STRUCTURAL STEEL, PLATE GIRDER	506.55				
							2675	52833	2627		58135	LB	REINFORCING STEEL, LEVEL III	507.13				
								1			1	LS	SHEAR CONNECTORS (1734 - 7/8" X 7")	508.15				
								440			440	SY	LONGITUDINAL DECK GROOVING	509.10				
							4	54	4		62	GAL	WATER REPELLENT, SILANE	514.10				
							32		31		63	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
							32		31		63	LF	JOINT SEALER, HOT POURED	524.11				
								134			134	LF	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	525.45				
								480			480	SY	REMOVAL OF BRIDGE PAVEMENT	529.10				
								1			1	EACH	PARTIAL REMOVAL OF STRUCTURE	529.20				
							5		5		10	EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17				
							1				1	LS	PRECAST CONCRETE STRUCTURE (ABUTMENT #1)	540.10				
									1		1	LS	PRECAST CONCRETE STRUCTURE (ABUTMENT #2)	540.10				
						1					1	LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB #1)	540.10				
										1	1	LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB #2)	540.10				
									1		1	LS	PRECAST CONCRETE STRUCTURE (RETAINING WALL)	540.10				
							110		120		230	CY	STONE FILL, TYPE III	613.12				
							100		120		220	SY	GEOTEXTILE UNDER STONE FILL	649.31				
						2.5	4		4	2.5	13	CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)	900.608				
							28		74		102	LF	SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES, EARTH)	900.640				
							22		16		38	LF	SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES, ROCK)	900.640				
								1			1	LS	SPECIAL PROVISION (COVERED WALKWAY)	900.645				
								1			1	LS	SPECIAL PROVISION (LIGHTING FOR COVERED WALKWAY)	900.645				

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BRIDGE QUANTITY SHEET	
PLOT DATE:	04-JUN-2014
DRAWN BY:	M. LONGSTREET
CHECKED BY:	J. LACROIX
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**GENERAL INFORMATION**

**SYMBOLGY LEGEND NOTE**

THE SYMBOLGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLGY. THE SYMBOLGY 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. SYMBOLGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

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

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

**COMMON TOPOGRAPHIC POINT SYMBOLS**

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

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

**PROPOSED GEOMETRY CODES**

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

**UTILITY SYMBOLGY**

**UNDERGROUND UTILITIES**

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

**ABOVE GROUND UTILITIES (AERIAL)**

— T —	UTILITY (GENERIC-UNKNOWN)
— E —	TELEPHONE
— 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 SYMBOLGY**

**PROJECT DESIGN & LAYOUT SYMBOLGY**

— 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
XXXXXX	TREE PROTECTION ZONE (TPZ)
////	STRIPING LINE REMOVAL
~~~~	SHEET PILES

**CONVENTIONAL BOUNDARY SYMBOLGY**

**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	P	PROPERTY LINE (P/L)
L	L	
SR	SR	SLOPE RIGHTS
6f	6f	6F PROPERTY BOUNDARY
4f	4f	4F PROPERTY BOUNDARY
HAZ	HAZ	HAZARDOUS WASTE

**EPSC LAYOUT PLAN SYMBOLGY**

**EPSC MEASURES**

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

**ENVIRONMENTAL RESOURCES**

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

**ARCHEOLOGICAL & HISTORIC**

— ARCH —	ARCHEOLOGICAL BOUNDARY
— HISTORIC DIST —	HISTORIC DISTRICT BOUNDARY
— HISTORIC —	HISTORIC AREA
⊞	HISTORIC STRUCTURE

**CONVENTIONAL TOPOGRAPHIC SYMBOLGY**

**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: STOWE  
PROJECT NUMBER: BRF 0235 (II)

FILE NAME: s87e052forms.dgn PLOT DATE: 04-JUN-2014  
PROJECT LEADER: C. CARLSON DRAWN BY: M. LONGSTREET  
DESIGNED BY: D. PETERSON CHECKED BY: J. LACROIX  
CONVENTIONAL SYMBOLGY LEGEND SHEET 10 OF 62

GPS CONTROL POINTS

COTTAGE

BRASS SURVEY DISK  
 NORTH = 720366.318  
 EAST = 1583870.117  
 ELEV. = 766.304

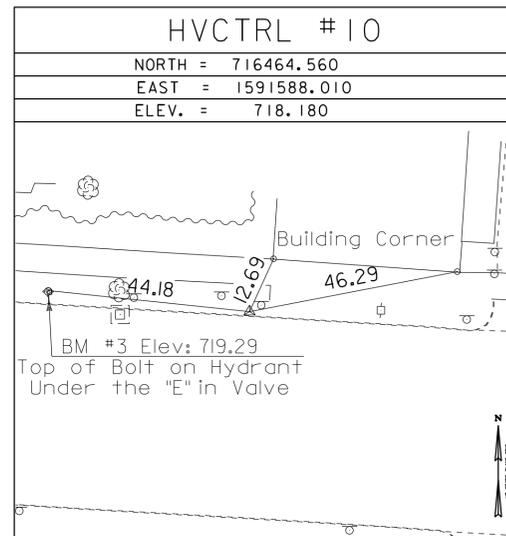
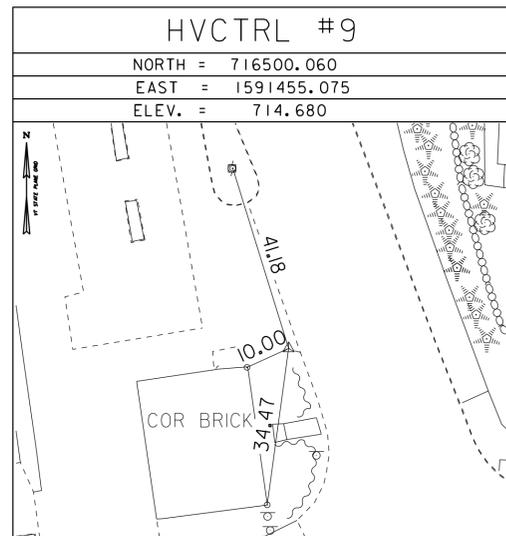
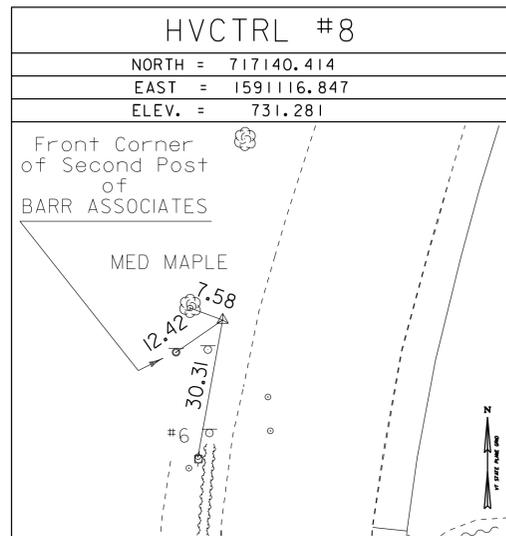
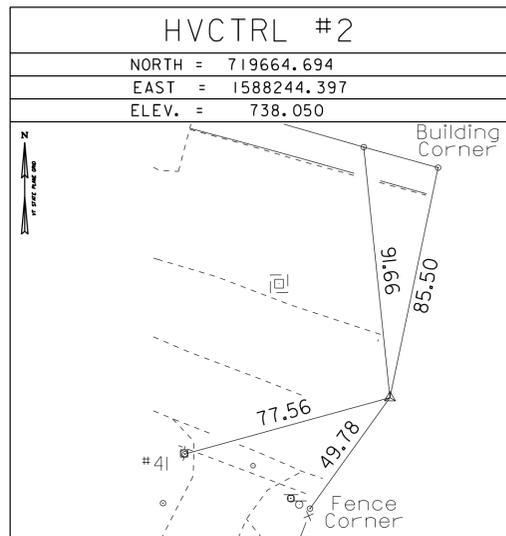
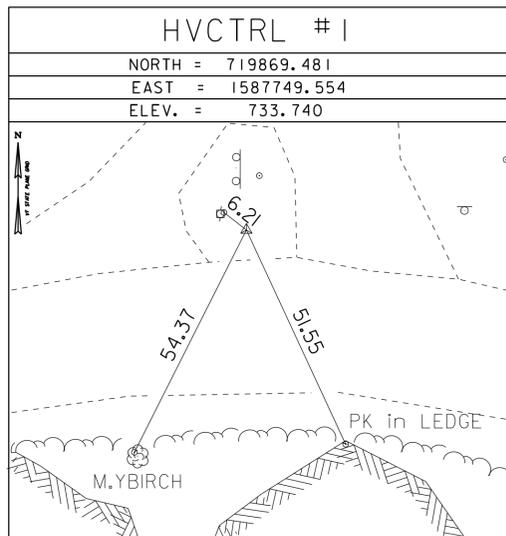
DESCRIBED BY VERMONT AGENCY OF TRANSPORTATION 1996 (DJM) GENERAL LOCATION - THE STATION IS LOCATED IN THE TOWN OF STOWE, 1.6 MI (2.6 KM) NORTHWEST OF STOWE VILLAGE, 8.2 MI (13.2 KM) SOUTHWEST OF MORRISVILLE, AND 9.9 MI (15.9 KM) NORTH NORTHEAST OF WATERBURY. TO REACH FROM THE JUNCTION OF VERMONT ROUTE 100 AND VERMONT ROUTE 108 IN STOWE VILLAGE, PROCEED NORTHERLY ALONG ROUTE 108 FOR 2.0 MI (3.2 KM) TO COTTAGE CLUB ROAD (TH 29) ON THE RIGHT. PROCEED NORTHEASTERLY ALONG COTTAGE CLUB ROAD FOR 0.1 MI (0.2 KM) TO THE MARK ON THE RIGHT. THE MARK IS A STATE OF VERMONT SURVEY DISK SET IN THE TOP OF A CONCRETE MONUMENT 30 CM IN DIAMETER, FLUSH WITH THE GROUND SURFACE. IT IS LOCATED 128 FT (39.0 M) NORTHEAST OF UTILITY POLE 1, 88.5 FT (27.0 M) SOUTHWEST OF UTILITY POLE 3, 36 FT (11.0 M) SOUTHWEST OF A CHAINLINK FENCE, 18.5 FT (5.6 M) SOUTHWEST OF THE CENTERLINE OF COTTAGE CLUB ROAD (TH 29), AND 3 FT (0.9 M) NORTHWEST OF A FIBERGLASS WITNESS POST. OWNERSHIP IS THE TOWN OF STOWE.

VILLAGE GREEN

BRASS SURVEY DISK  
 NORTH = 720026.656  
 EAST = 1585800.072  
 ELEV. = 750.852

DESCRIBED BY VERMONT AGENCY OF TRANSPORTATION 1996 (DJM) GENERAL LOCATION - THE STATION IS LOCATED IN THE TOWN OF STOWE, 1.2 MI (1.9 KM) NORTHWEST OF STOWE VILLAGE, 8.1 MI (13.0 KM) SOUTHWEST OF MORRISVILLE, AND 9.8 MI (15.8 KM) NORTH NORTHEAST OF WATERBURY. TO REACH FROM THE JUNCTION OF VERMONT ROUTE 100 AND VERMONT ROUTE 108 IN STOWE VILLAGE, PROCEED NORTHERLY ALONG ROUTE 108 FOR 1.7 MI (2.7 KM) TO CAPE COD ROAD (TH 31) ON THE RIGHT. TURN RIGHT AND GO NORTHEAST ALONG CAPE COD ROAD FOR 0.15 MI (0.24 KM) TO THE MARK ON THE RIGHT. THE MARK IS A STATE OF VERMONT SURVEY DISK SET IN THE TOP OF A CONCRETE MONUMENT 30 CM IN DIAMETER FLUSH WITH THE GROUND SURFACE. IT IS LOCATED 176.5 FT (53.8 M) SOUTHWEST OF THE CENTERLINE OF A PAVED DRIVE TO VILLAGE GREEN CONDOMINIUMS, 66.5 FT (20.3 M) NORTHEAST OF UTILITY POLE 3, 31.5 FT (9.6 M) NORTH OF A HIGHWAY SIGN (SPEED LIMIT 35), 14.5 FT (4.4 M) SOUTHWEST OF THE CENTERLINE OF CAPE COD ROAD (TH 31), AND 1 FT (0.3 M) WEST OF A FIBERGLASS WITNESS POST. OWNERSHIP IS THE STATE OF VERMONT.

TRAVERSE TIES



\* Main Traverse Completed 9/21/09 by R.Gilman P.C. & P.Winters & T.Parker Points 1&2 are Points 6&7 from Stowe STP 029-1(16) "93b059"

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	Compass

PROJECT NAME: STOWE	
PROJECT NUMBER: BRF 0235 (II)	
FILE NAME: 87e052\survey\87e052t1.dg	PLOT DATE: 04-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. BULLOCK
DESIGNED BY: D. PETERSON	CHECKED BY: J. LACROIX
TIE SHEET	SHEET II OF 62

**BOX BEAM GUARDRAIL**  
 VT108 STA 3+40.12 LT - STA 3+50.21 LT  
 VT108 STA 4+83.56 LT - STA 5+03.00 LT  
 VT108 STA 3+10.78 RT - STA 3+41.87 RT  
 VT108 STA 4+75.08 RT - STA 5+00.00 RT

**VERTICAL GRANITE CURB**  
 VT108 STA 3+34.25 LT - STA 3+50.21 LT  
 VT108 STA 4+83.56 LT - STA 5+05.00 LT  
 VT108 STA 5+23.64 LT - STA 6+40.00 LT  
 VT108 STA 2+39.50 RT - STA 2+99.00 RT  
 VT108 STA 3+05.00 RT - STA 3+41.87 RT  
 VT108 STA 4+75.08 RT - STA 5+14.83 RT  
 VT108 STA 5+35.23 RT - STA 6+40.00 RT

**PLANK RAIL**  
 GAS VT108 STA 3+10.00 RT - STA 3+41.87 RT  
 STATION VT108 STA 4+73.60 RT - STA 5+05.00 RT

BM NO. 1  
 CHISELED SQUARE  
 ON CONCRETE PAD  
 EL. 711.251

**BEGIN APPROACH  
 MATCH EXISTING  
 STA 2+39.50**

POB  
 STA 2+00.00

**REMOVAL AND DISPOSAL OF GUARDRAIL**  
 VT108 STA 3+12.00 - STA 3+35.00 RT  
 VT108 STA 4+83.00 - STA 5+05.00 RT

**PRECAST REINFORCED CONCRETE  
 MANHOLE WITH CAST IRON COVER**  
 VT108 STA 5+04.00 - 30.00 RT (7)

**PRECAST REINFORCED CONCRETE DROP  
 INLET WITH CAST IRON GRATE**

VT108 STA 2+74.00 - 13.27' RT	(1)
VT108 STA 2+73.90 - 15.36' LT	(3)
VT108 STA 3+33.11 - 19.35' LT	(2)
VT108 STA 5+04.00 - 15.09' RT	(6)
VT108 STA 5+62.69 - 12.73' RT	(5)
VT108 STA 5+70.96 - 15.55' LT	(4)

**CONSTRUCT PAVED DRAINAGE DITCH**  
 VT108 STA 5+00.00 RT (5.5' Wx27' L)

**CONSTRUCT PAVED APRON**  
 VT108 STA 3+25.00 LT (9.43' Wx35' L)

**CONSTRUCT DRIVE (PAVED)**  
 VT108 STA 5+25.00 RT (8.53' Wx38' L)

**REMOVAL AND DISPOSAL OF GUARDRAIL**  
 VT108 STA 3+12.52 RT (20.0')  
 VT108 STA 3+39.25 LT (9.0')  
 VT108 STA 5+04.64 RT (22.5')  
 VT108 STA 5+07.86 LT (14.2')

**COLD PLANING, BITUMINOUS PAVEMENT**  
 VT108 STA 2+39.50 - 2+89.50  
 VT108 STA 5+37.50 - 6+40.00

VT 108 STA 4+00.00 =  
 CHANNEL LINE STA 11+00.00  
 $\Delta = 75^\circ$  LT

CL BEARING #1  
 STA 3+48.00  
**BEGIN  
 PROJECT/BRIDGE  
 STA 3+47.22**

CL BEARING #2  
 STA 4+78.00  
**END BRIDGE/PROJECT  
 STA 4+78.78**

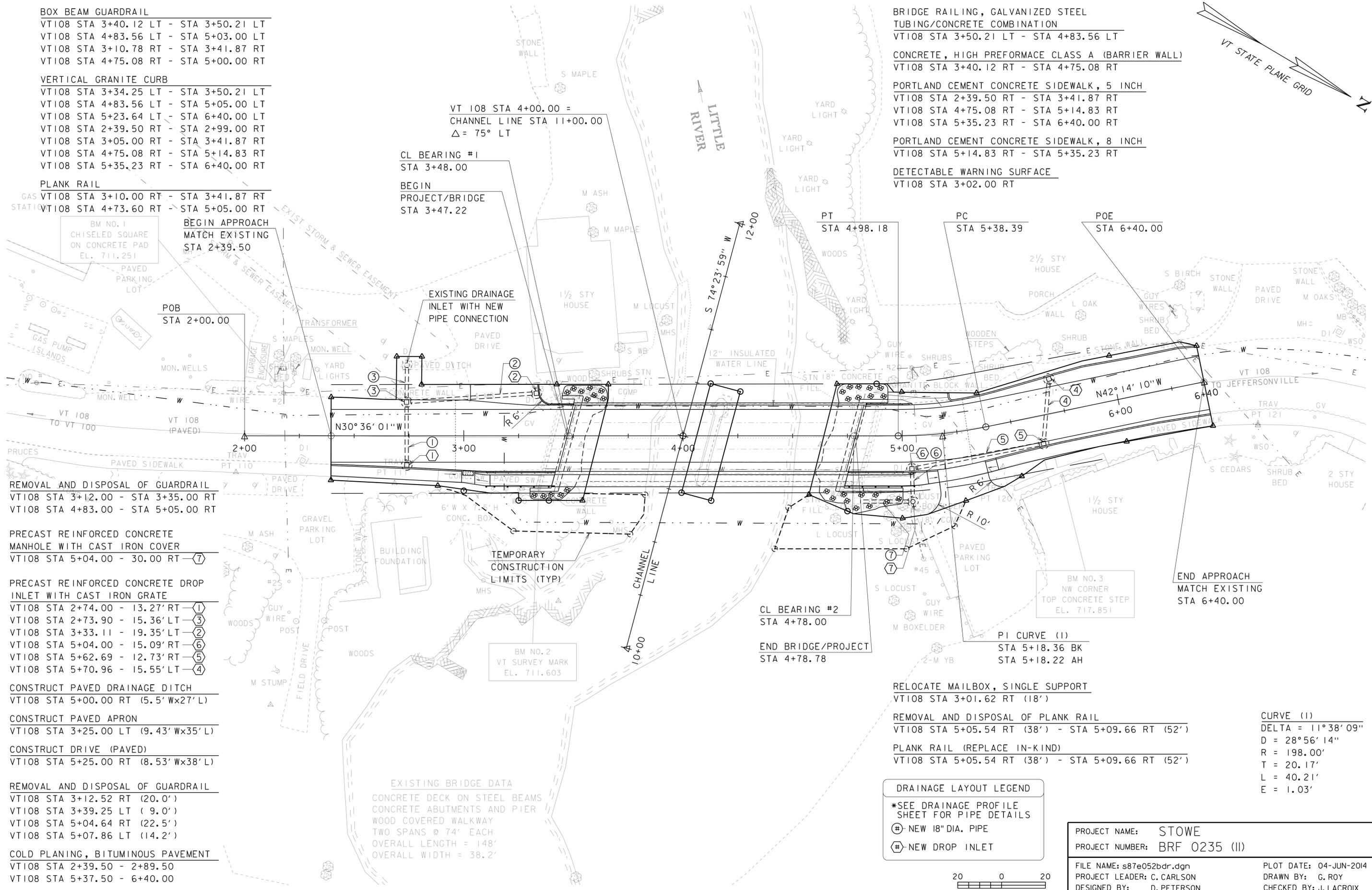
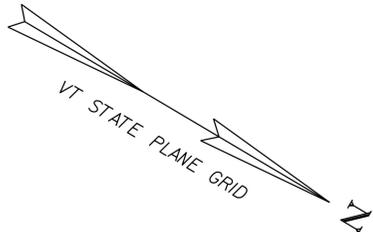
**BRIDGE RAILING, GALVANIZED STEEL  
 TUBING/CONCRETE COMBINATION**  
 VT108 STA 3+50.21 LT - STA 4+83.56 LT

**CONCRETE, HIGH PREFORMACE CLASS A (BARRIER WALL)**  
 VT108 STA 3+40.12 RT - STA 4+75.08 RT

**PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH**  
 VT108 STA 2+39.50 RT - STA 3+41.87 RT  
 VT108 STA 4+75.08 RT - STA 5+14.83 RT  
 VT108 STA 5+35.23 RT - STA 6+40.00 RT

**PORTLAND CEMENT CONCRETE SIDEWALK, 8 INCH**  
 VT108 STA 5+14.83 RT - STA 5+35.23 RT

**DETECTABLE WARNING SURFACE**  
 VT108 STA 3+02.00 RT



**EXISTING BRIDGE DATA**  
 CONCRETE DECK ON STEEL BEAMS  
 CONCRETE ABUTMENTS AND PIER  
 WOOD COVERED WALKWAY  
 TWO SPANS @ 74' EACH  
 OVERALL LENGTH = 148'  
 OVERALL WIDTH = 38.2'

**DRAINAGE LAYOUT LEGEND**  
 \*SEE DRAINAGE PROFILE SHEET FOR PIPE DETAILS  
 (⊕) - NEW 18" DIA. PIPE  
 (⊕) - NEW DROP INLET

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

**RELOCATE MAILBOX, SINGLE SUPPORT**  
 VT108 STA 3+01.62 RT (18')

**REMOVAL AND DISPOSAL OF PLANK RAIL**  
 VT108 STA 5+05.54 RT (38') - STA 5+09.66 RT (52')

**PLANK RAIL (REPLACE IN-KIND)**  
 VT108 STA 5+05.54 RT (38') - STA 5+09.66 RT (52')

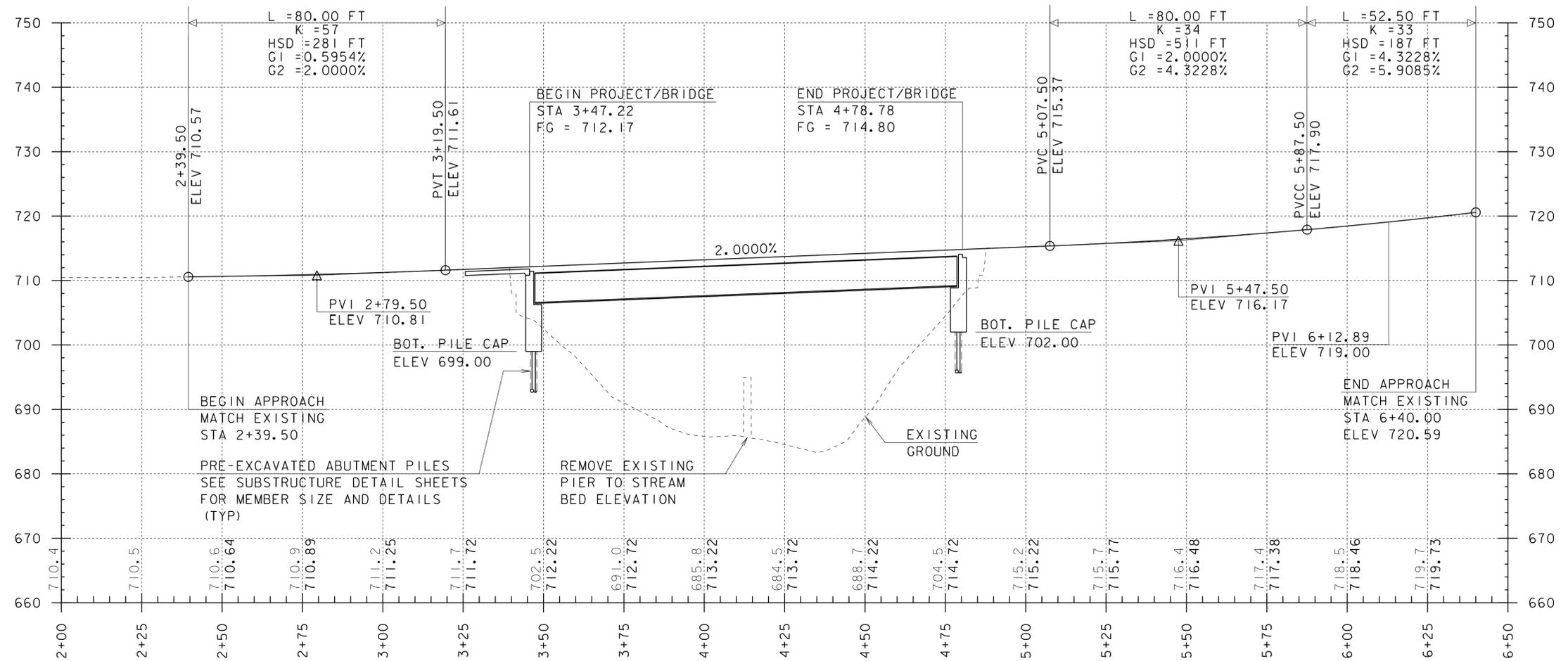
**CURVE (I)**  
 DELTA = 11° 38' 09"  
 D = 28° 56' 14"  
 R = 198.00'  
 T = 20.17'  
 L = 40.21'  
 E = 1.03'

PROJECT NAME: STOWE  
 PROJECT NUMBER: BRF 0235 (II)

FILE NAME: s87e05bdr.dgn  
 PROJECT LEADER: C. CARLSON  
 DESIGNED BY: D. PETERSON  
 LAYOUT SHEET

PLOT DATE: 04-JUN-2014  
 DRAWN BY: G. ROY  
 CHECKED BY: J. LACROIX  
 SHEET 12 OF 62

# VT108\_Proposed



## PROFILE ALONG VT 108

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:	STOWE
PROJECT NUMBER:	BRF 0235 (II)
FILE NAME:	s87e052pro.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	D. PETERSON
VT 108 PROFILE	
PLOT DATE:	04-JUN-2014
DRAWN BY:	G. ROY
CHECKED BY:	M. LONGSTREET
SHEET	13 OF 62

VT 108 STA 4+00.00 =  
 CHANNEL LINE STA 11+00.00  
 $\Delta = 75^\circ$  LT

TEMP SERVICE  
 LINE  
 DE-ENERGIZE  
 LEAVE IN PLACE  
 (HARD GUARD)

REMOVE SERVICE LINES  
 DURING CONSTRUCTION

ABANDONED  
 WATERLINE

TEMPORARY UNDERGROUND SERVICE  
 3 - 2" DIA CONDUITS

TEMP UTILITY AND  
 CONST. ACCESS BRIDGE  
 8" TEMP WATER

EXISTING ELECTRIC  
 CONDUIT TO COVERED  
 WALKWAY LIGHTING

DE-ENERGIZE BRIDGE  
 WALK SERVICE LINE  
 AND REMOVE

GUY WIRE TO BE  
 REMOVED ONLY WHEN  
 NECESSARY (BY OTHERS)

CHANNEL  
 LINE

S 74° 23' 59" W  
 12+00

2+00

3+00

4+00

5+00

6+00

6+40

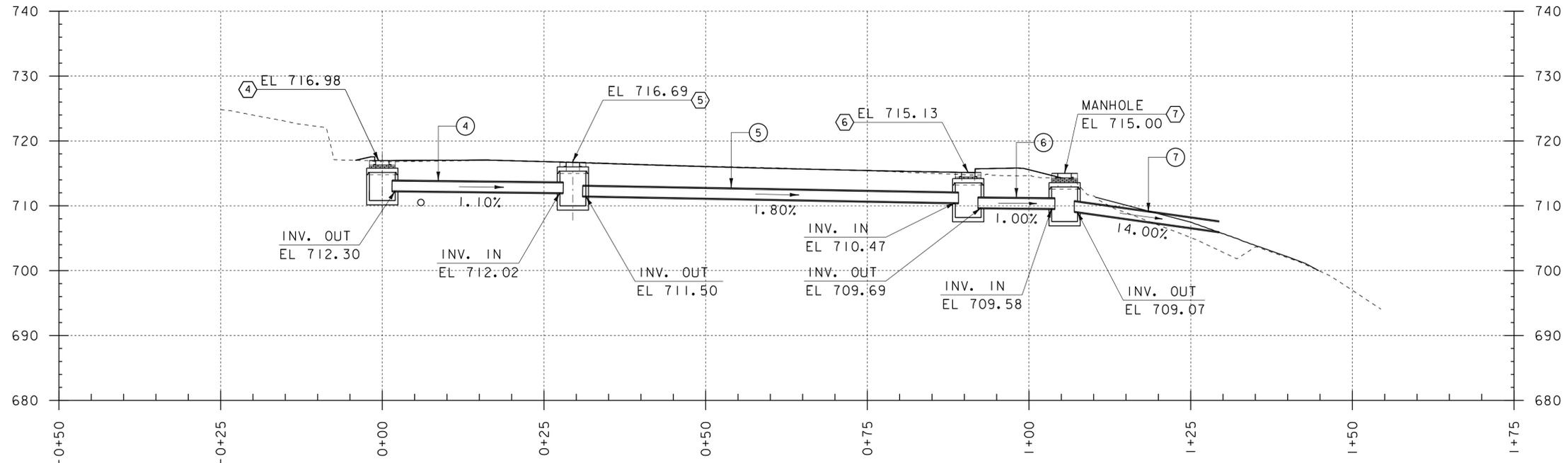
20 0 20  
 SCALE: 1" = 20' - 0"

PROJECT NAME: STOWE  
 PROJECT NUMBER: BRF 0235 (II)

FILE NAME: s87e052bdr\_util.dgn  
 PROJECT LEADER: C. CARLSON  
 DESIGNED BY: D. PETERSON  
 UTILITY LAYOUT

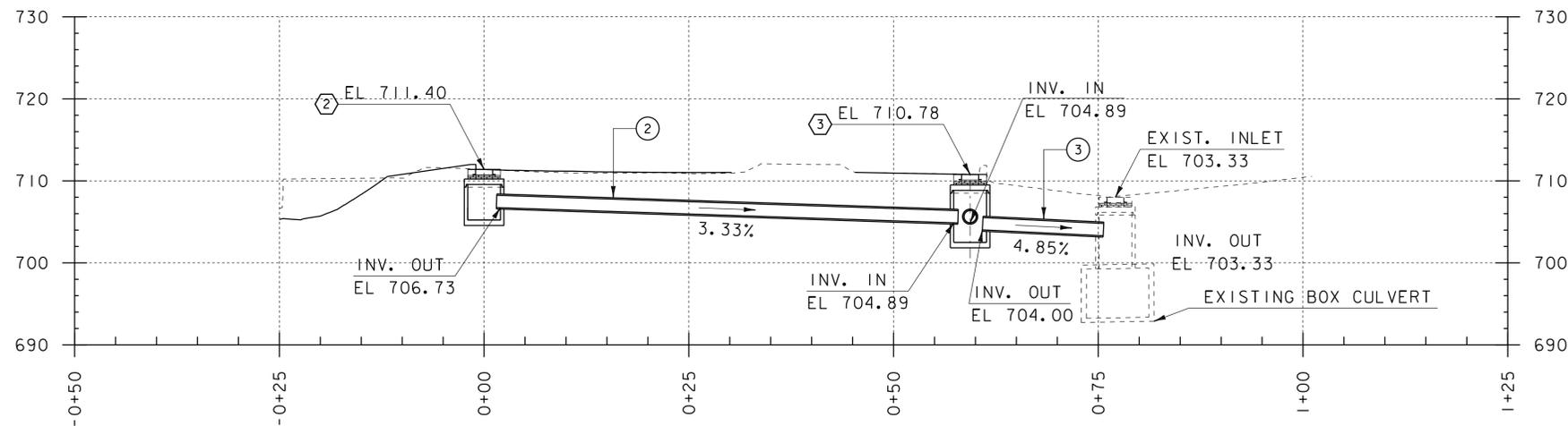
PLOT DATE: 04-JUN-2014  
 DRAWN BY: M. LONGSTREET  
 CHECKED BY: J. LACROIX  
 SHEET 14 OF 62

INLET #4 - PIPE #4  
 INLET #5 - PIPE #5  
 INLET #6 - PIPE #6  
 INLET #7 - PIPE #7



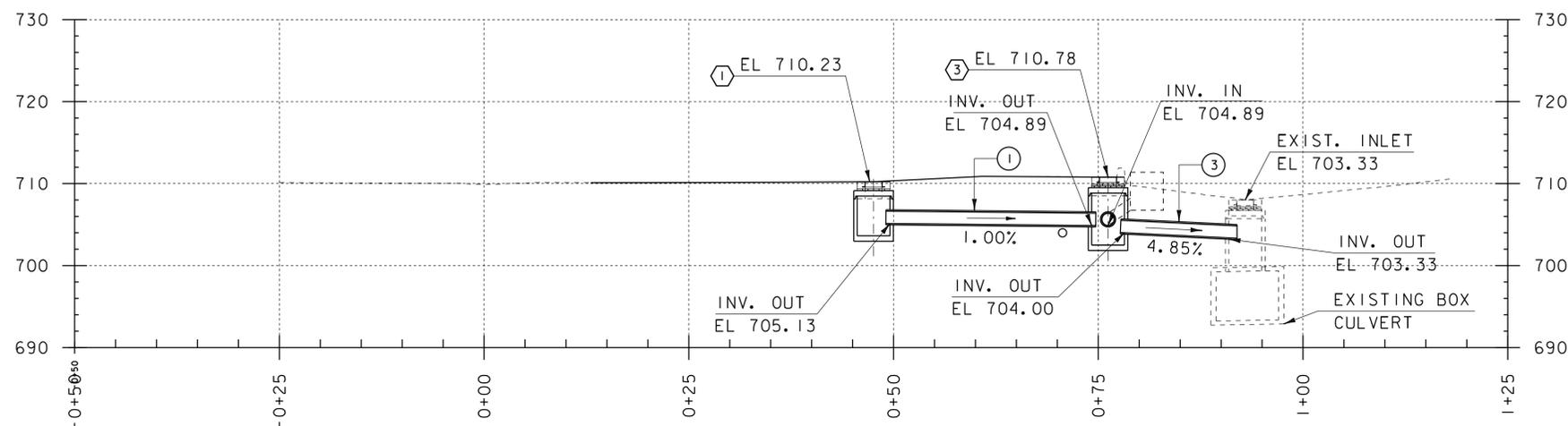
- ④-NEW CPEP/CAAP/RCP/CCSP  
DIAMETER = 18"  
LENGTH = 25'-6"
- ⑤-NEW CPEP/CAAP/RCP/CCSP  
DIAMETER = 18"  
LENGTH = 57'-2"
- ⑥-NEW CPEP/CAAP/RCP/CCSP  
DIAMETER = 18"  
LENGTH = 11'-0"
- ⑦-NEW CPEP/CAAP/RCP/CCSP  
DIAMETER = 18"  
LENGTH = 22'-0"
- ④-NEW CB
- ⑤-NEW CB
- ⑥-NEW CB
- ⑦-NEW MANHOLE (MH)

INLET #2 - PIPE #2  
 INLET #3 - PIPE #3  
 TO EXISTING INLET



- ②-NEW CPEP/CAAP/RCP/CCSP  
DIAMETER = 18"  
LENGTH = 55'-5"
- ③-NEW CPEP/CAAP/RCP/CCSP  
DIAMETER = 18"  
LENGTH = 13'-9"
- ②-NEW CB
- ③-NEW CB

IN #1 - PIPE #1  
 IN #3 - PIPE #3  
 TO EXISTING INLET



- ①-NEW CPEP/CAAP/RCP/CCSP  
DIAMETER = 18"  
LENGTH = 24'-8"
- ③-NEW CPEP/CAAP/RCP/CCSP  
DIAMETER = 18"  
LENGTH = 13'-9"
- ①-NEW CB
- ③-NEW CB

⊕ NEW PIPE: DIA 18"  
TYPE: OPTION PIPE

⊕ NEW DROP INLET (CB)  
OR MANHOLE (MH)

NOTES:  
 1) SEE "LAYOUT SHEET"  
 FOR CB STATION OFFSET  
 LOCATIONS FROM VT108 ML.

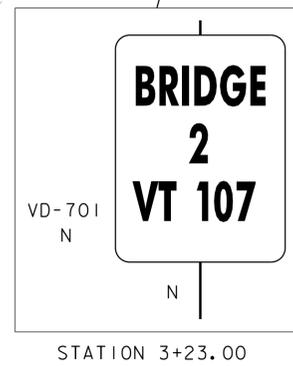
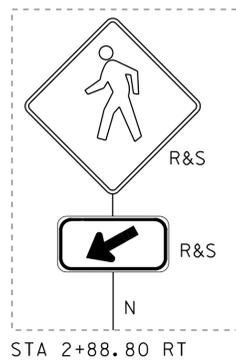
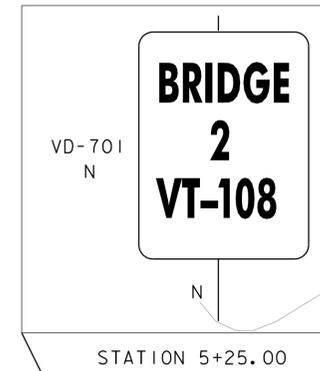
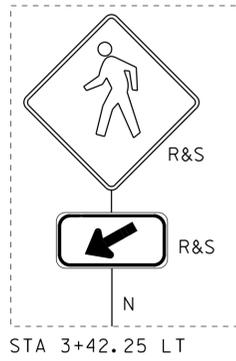
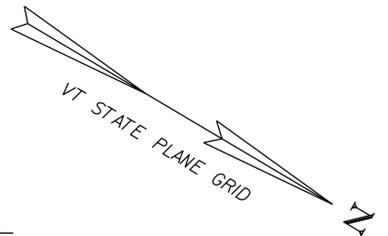
PROJECT NAME: STOWE	
PROJECT NUMBER: BRF 0235 (II)	
FILE NAME: s87e052xsl.dgn	PLOT DATE: 04-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: D. KARABEGOVIĆ
DESIGNED BY: D. PETERSON	CHECKED BY: M. LONGSTREET
PIPE PROFILES	SHEET 15 OF 62



4" YELLOW LINE (DOUBLE)  
 VT108 STA 2+39.50 - STA 6+40.00

4" WHITE LINE  
 VT108 STA 2+39.50 LT - STA 6+40.00 LT  
 VT108 STA 2+39.00 RT - STA 6+40.00 RT

CROSSWALK MARKING  
 VT108 3+02.00 15.5 RT - STA 3+06.00 15.5 LT



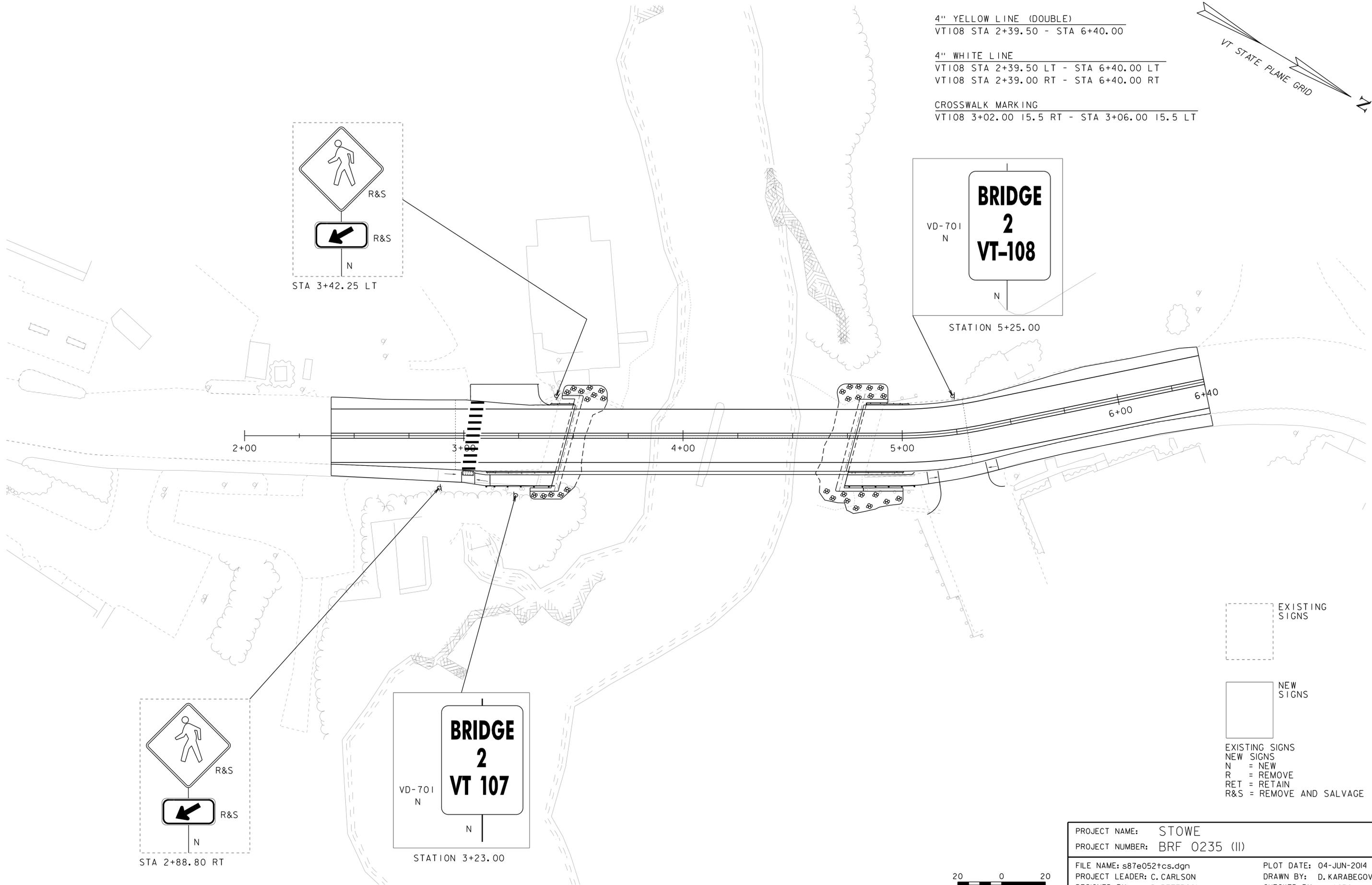
EXISTING SIGNS  
 NEW SIGNS  
 N = NEW  
 R = REMOVE  
 RET = RETAIN  
 R&S = REMOVE AND SALVAGE

PROJECT NAME: STOWE  
 PROJECT NUMBER: BRF 0235 (II)

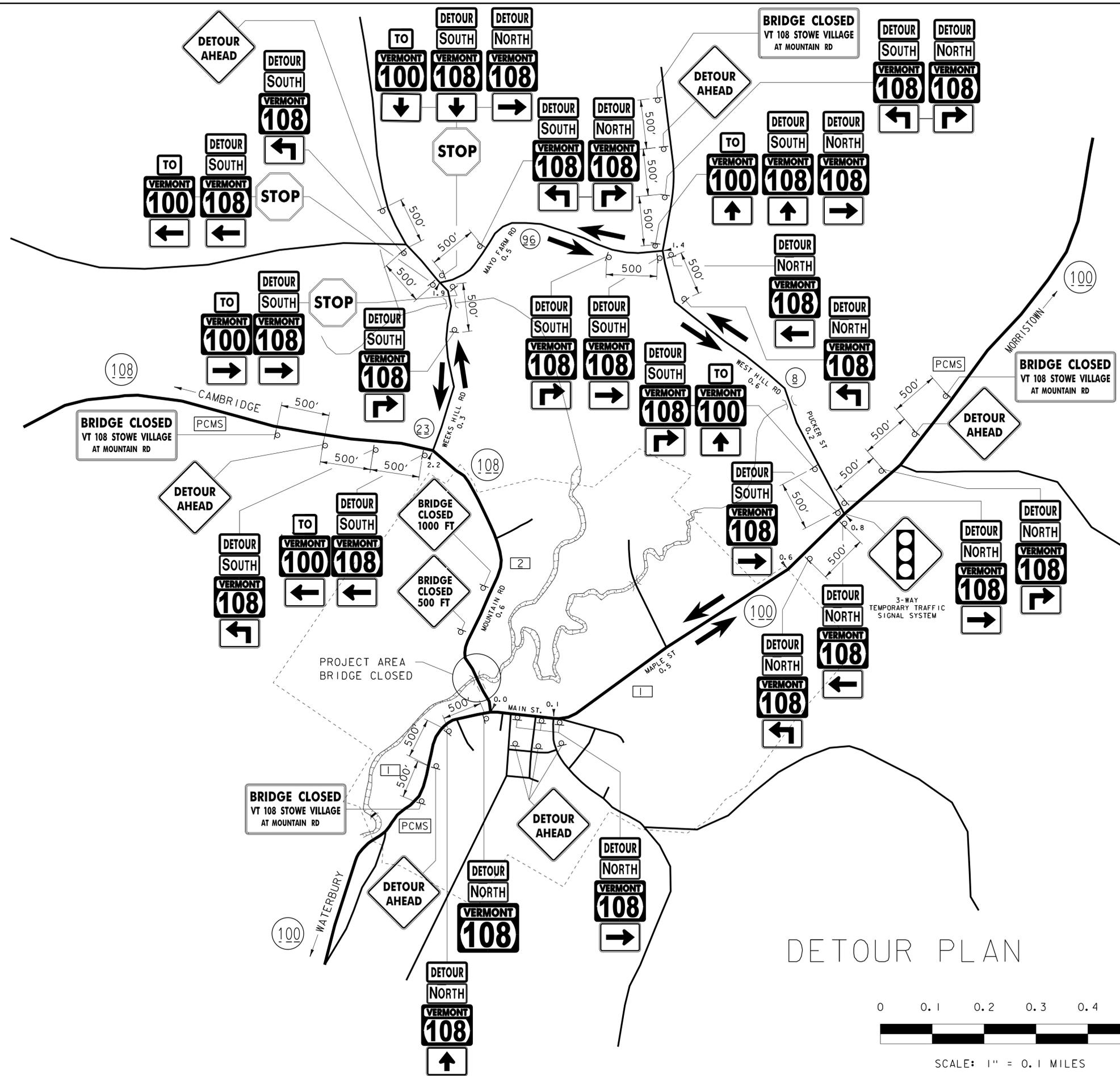
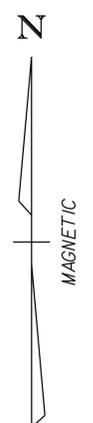
FILE NAME: s87e052tcs.dgn  
 PROJECT LEADER: C. CARLSON  
 DESIGNED BY: D. PETERSON  
 TRAFFIC SIGNS & STRIPING

PLOT DATE: 04-JUN-2014  
 DRAWN BY: D. KARABEGOVIC  
 CHECKED BY: J. LACROIX  
 SHEET 17 OF 62

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





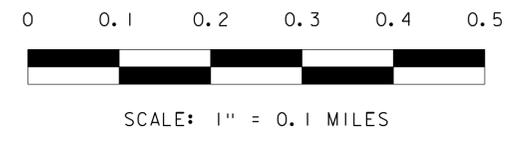


MESSAGES FOR PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) [PCMS]

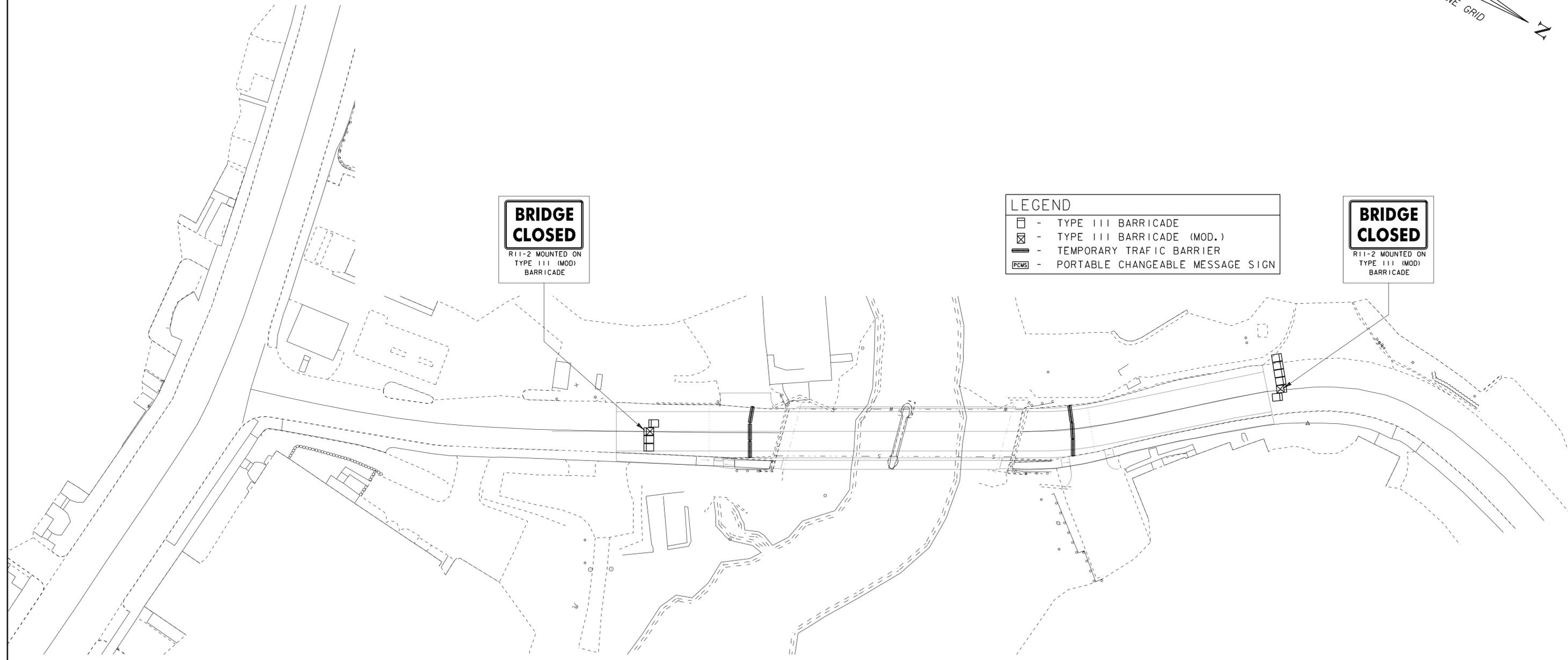
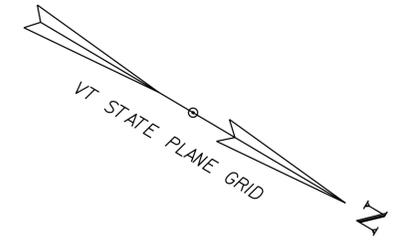
MESSAGE 1	MESSAGE 2
<b>VT 108</b>	<b>April 6</b>
<b>BRIDGE</b>	<b>THRU</b>
<b>CLOSED</b>	<b>May 29</b>

- 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 641.15, "PORTABLE CHANGEABLE MESSAGE SIGN".
  3. THE PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL DISPLAY THE MESSAGE SHOWN ONE WEEK (7 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.

DETOUR PLAN



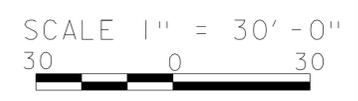
PROJECT NAME: STOWE	PLOT DATE: 04-JUN-2014
PROJECT NUMBER: BRF 0235 (II)	DRAWN BY: M. LONGSTREET
FILE NAME: s87e052detour.dgn	CHECKED BY: J. LACROIX
PROJECT LEADER: C. CARLSON	SHEET 19 OF 62
DESIGNED BY: D. PETERSON	
TRAFFIC DETOUR PLAN	



**BRIDGE  
CLOSED**  
R11-2 MOUNTED ON  
TYPE III (MOD)  
BARRICADE

LEGEND	
	- TYPE III BARRICADE
	- TYPE III BARRICADE (MOD.)
	- TEMPORARY TRAFFIC BARRIER
	- PORTABLE CHANGEABLE MESSAGE SIGN

**BRIDGE  
CLOSED**  
R11-2 MOUNTED ON  
TYPE III (MOD)  
BARRICADE



PROJECT NAME: STOWE	PLOT DATE: 04-JUN-2014
PROJECT NUMBER: BRF 0235 (II)	DRAWN BY: M. LONGSTREET
FILE NAME: s87e052detour.dgn	CHECKED BY: J. LACROIX
PROJECT LEADER: C. CARLSON	SHEET 20 OF 62
DESIGNED BY: D. PETERSON	
TRAFFIC CONTROL PLAN	

LIST OF MAJOR EQUIPMENT

EQUIPMENT ITEM 678.40	QUANTITY
POWER METER ON STANCHION	1
BREAKER PANEL ON STANCHION	1
TRAFFIC SIGNAL CONTROLLER (NEMA TS2)	1
NEMA POLE MOUNTED CONTROLLER CABINET PAINTED FLAT BLACK WITH ANCILLARY CONTROL EQUIPMENT	1
WESTERN RED CEDAR OR SOUTHERN PINE WOODEN STRAIN POLE (SP-2)	1
ONE WAY, 3-SECTION, 12-INCH POLYCARBONATE MAST ARM MOUNTED LED TRAFFIC SIGNAL HEAD WITH TUNNEL VISORS AND 5" LOUVERED BACK- PLATES WITH ALL PIECES PAINTED FLAT BLACK	7
DETECTOR EXTENSION BRACKET	3
DETECTOR ASSEMBLY	3
DETECTION PROCESSOR CARD	3

TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION  
(VT-100 & WEST HILL ROAD)

- WOODEN STRAIN POLE  
STA 226+03 LT (SP-1)
- POLE MOUNT CABINET/CONTROLLER  
STA 226+03 LT (SP-1)
- POWER STANCHION  
STA 226+82 RT (SP-2)

CONTROLLER TIMING CHART

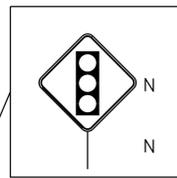
VT ROUTE 100 & WEST HILL ROAD								
PHASE	1	2	3	4	5	6	7	8
TRAFFIC MOVEMENT	->			↓		<-		
MINIMUM GREEN		5		5		5		
MAXIMUM 1 GREEN		33		16		33		
MAXIMUM 2 GREEN		42		22		42		
MAXIMUM 3 GREEN		--		--		--		
YELLOW CLEARANCE		4.4		3.2		4.4		
ALL RED CLEARANCE		1.5		1.5		1.5		
VEH. EXTENSION		2		2		2		
RECALL MODE		SOFT		--		SOFT		

CONTROLLER TO RUN MAX 1 TIMINGS WHEN  
VT-108 BRIDGE IS OPEN TO TRAFFIC

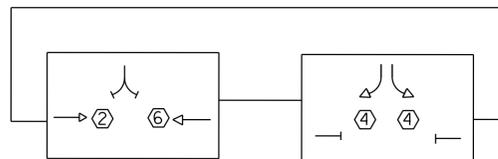
CONTROLLER TO RUN MAX 2 TIMINGS WHEN  
VT-108 BRIDGE IS CLOSED TO TRAFFIC

CONTROLLER TO FLASH FROM  
11:00 PM TO 6:00 AM

STA 222+50 NEW W3-3  
REMOVE WHEN SIGNAL IS REMOVED



PHASING DIAGRAM



TEMPORARY 24 INCH STOP BAR

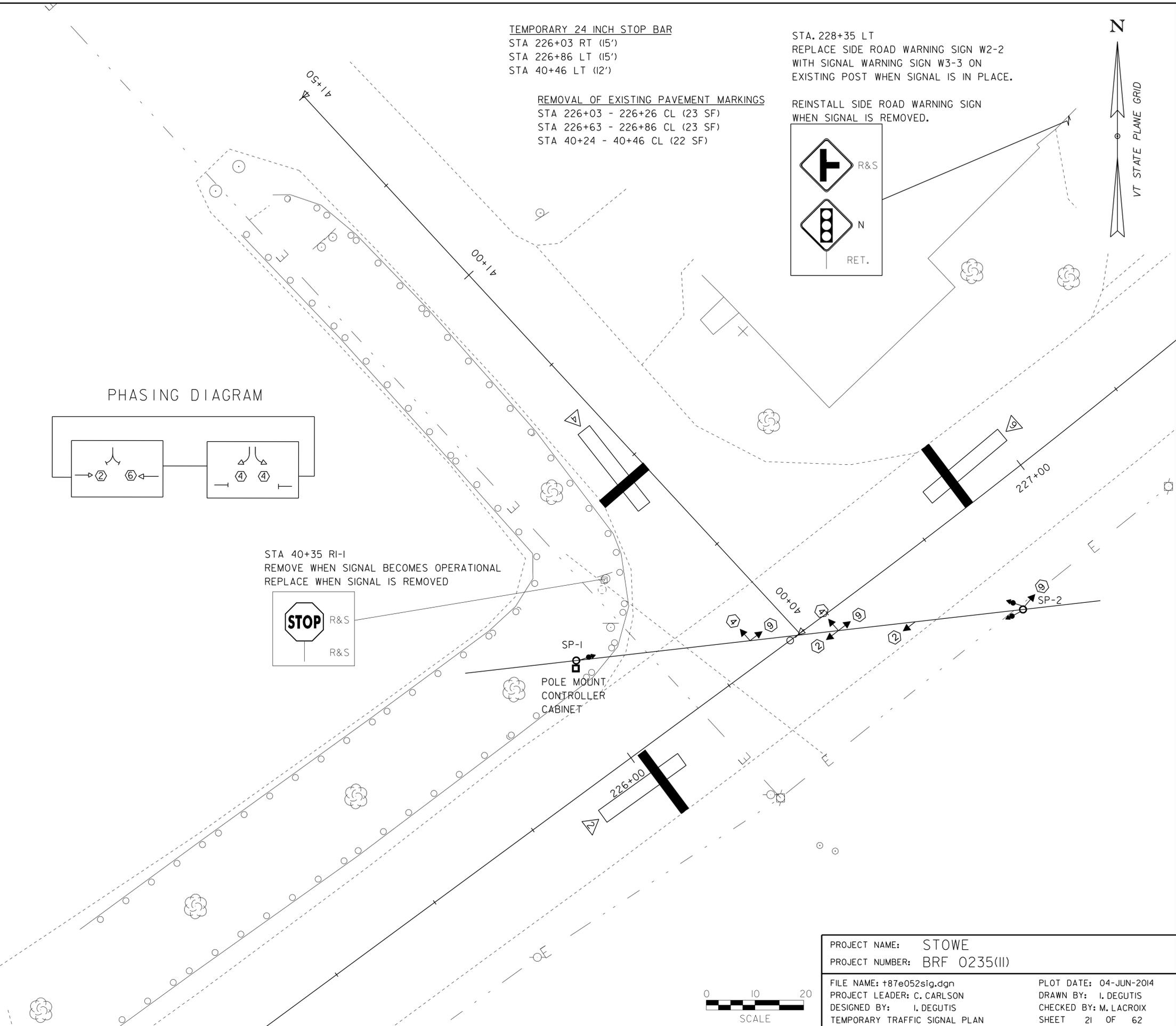
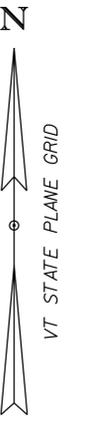
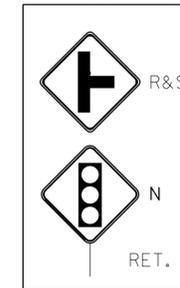
- STA 226+03 RT (15')
- STA 226+86 LT (15')
- STA 40+46 LT (12')

REMOVAL OF EXISTING PAVEMENT MARKINGS

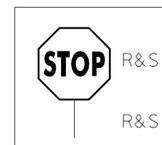
- STA 226+03 - 226+26 CL (23 SF)
- STA 226+63 - 226+86 CL (23 SF)
- STA 40+24 - 40+46 CL (22 SF)

STA. 228+35 LT  
REPLACE SIDE ROAD WARNING SIGN W2-2  
WITH SIGNAL WARNING SIGN W3-3 ON  
EXISTING POST WHEN SIGNAL IS IN PLACE.

REINSTALL SIDE ROAD WARNING SIGN  
WHEN SIGNAL IS REMOVED.



STA 40+35 RI-1  
REMOVE WHEN SIGNAL BECOMES OPERATIONAL  
REPLACE WHEN SIGNAL IS REMOVED



PROJECT NAME: STOWE  
PROJECT NUMBER: BRF 0235(II)

FILE NAME: t87e052sig.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: I. DEGUTIS  
TEMPORARY TRAFFIC SIGNAL PLAN

PLOT DATE: 04-JUN-2014  
DRAWN BY: I. DEGUTIS  
CHECKED BY: M. LACROIX  
SHEET 21 OF 62

# TRAFFIC SIGNAL SYSTEM NOTES

## A. NEW SIGNAL EQUIPMENT

1. ALL SIGNAL HEADS SHALL BE 12" POLYCARBONATE. THE SIGNAL HEADS SHALL HAVE FLAT BLACK HOUSINGS AND VISORS.
2. ALL SIGNAL HEADS SHALL HAVE FLAT BLACK LOUVERED BACKPLATES.
3. THE CONTROLLER SHALL BE AN ASC/3-2100 (NEMA TS2) OR NAZTEC MODEL 980 (NEMA TS2) OR MCCAIN ATC eX (NEMA TS2) IN A NEMA POLE MOUNT CONTROL CABINET INSTALLED AT THE LOCATION SHOWN ON THE PLANS. THE TRAFFIC CONTROL CABINET SHALL BE ORIENTED SUCH THAT THE DOOR DOES NOT FACE THE ROADWAY.
4. ALL SIGNAL HEADS SHALL HAVE RED, YELLOW AND GREEN L.E.D. SIGNALS WITH A VISIBLE BEAM SPREAD OF 80 DEGREES OFF AXIS.
5. ALL TRAFFIC SIGNAL EQUIPMENT SHALL BE PAINTED FLAT BLACK IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
6. ALL TRAFFIC SIGNAL EQUIPMENT AND SPAN WIRE HANGING SIGNS SHALL HAVE SAFETY CABLES.
7. A DISCONNECT BREAKER FOR EACH CIRCUIT SHALL BE INSTALLED IN A RAINPROOF (NEMA 3R), LOCKED CABINET ON A STANCHION NEXT TO OR BELOW THE METER SOCKET.

## B. SIGNAL OPERATION

1. SWITCH-OVER TO THE NEW TRAFFIC SIGNAL SYSTEM SHALL NOT OCCUR DURING PEAK TRAFFIC OPERATING PERIODS. UNIFORMED TRAFFIC OFFICERS SHALL CONTROL TRAFFIC DURING THE SWITCH-OVER.
2. ALL SIGNALS SHALL DWELL ON VT ROUTE 100 UNLESS OTHERWISE NOTED.
3. THE VT ROUTE 100 THRU PHASE SHALL BE USED FOR THE START-UP PHASE FOLLOWING FLASHING OPERATION.
4. SIGNAL TIMING SHOWN ON THE PLANS MAY REQUIRE FINE-TUNING IN THE FIELD BASED ON TRAFFIC OBSERVATION AND/OR ADDITIONAL FIELD STUDIES.

## C. TRAFFIC SIGNAL CONDUIT

1. ALL TRAFFIC SIGNAL CONDUIT SHALL BE SCHEDULE 80 PVC.
2. WHEN CONDUIT IS PLACED BELOW THE ROADWAY OR ACROSS SIDE ROADS, IT SHALL BE PLACED IN A STEEL SLEEVE, SIZE SHOWN ON THE PLANS.
3. ALL TRAFFIC SIGNAL CONDUIT WORK SHALL BE PERFORMED IN ACCORDANCE WITH VTRANS' "STANDARD SPECIFICATIONS FOR CONSTRUCTION", DATED 2011, SECTION 678.

## D. STOP BAR DETECTION EQUIPMENT

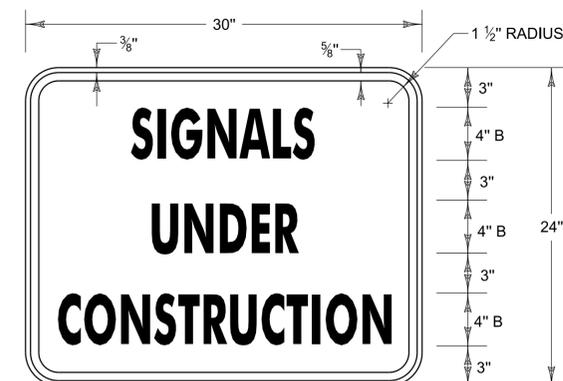
1. STOP BAR DETECTORS SHALL BE PLACED SO THAT OCCLUSION IS MINIMIZED AND PHASED IS NOT AFFECTED.
2. STOP BAR DETECTION ZONES SHALL EXTEND FIVE FEET PAST THE STOP BAR.
3. SEE THE PLANS AND/OR THE SPECIAL PROVISIONS FOR A DETAILED LIST OF EQUIPMENT.

## E. GENERAL

1. A UNIFORMED TRAFFIC OFFICER WITH A BLUE LIGHT SHALL BE PRESENT DURING ALL LANE CLOSURES.
2. THE CONTRACTOR SHALL ACQUIRE ALL THE NECESSARY PERMITS AND MAKE ALL NECESSARY ARRANGEMENTS WITH THE UTILITY COMPANY TO PROVIDE A PERMANENT POWER SUPPLY TO THE TRAFFIC SIGNAL EQUIPMENT, IF APPLICABLE. THE ROUTING OF POWER TO THE INTERSECTION SHALL BE SUCH THAT THE STATE HAS FULL RESPONSIBILITY FROM THE TRANSFORMER THROUGH THE SIGNAL SYSTEM. NO INTERVENING OWNERSHIP/RESPONSIBILITY SHALL BE ALLOWED.
3. ALL ELECTRICAL WIRING SHALL BE DONE BY A LICENSED ELECTRICIAN AND OVERSEEN BY A MASTER ELECTRICIAN.
4. SEE STANDARDS E171-A AND 171-B FOR ADDITIONAL NOTES.
5. SAG ON THE LOADED SPAN WIRE SHALL NOT EXCEED 5% OF THE TOTAL LENGTH OF THE WIRE.
6. CONTRACTOR SHALL SCHEDULE A PRE-FINAL INSPECTION AND OBTAIN WRITTEN APPROVAL OF WORK FROM VTRANS TRAFFIC SIGNAL TECHNICIAN.

## TRAFFIC CONTROL NOTES FOR TRAFFIC SIGNAL SYSTEM WORK

1. THE FOLLOWING NOTES APPLY TO TRAFFIC CONTROL NECESSARY FOR THE INSTALLATION OR MODIFICATION OF THE TRAFFIC SIGNALS ONLY. FOR OVERALL PROJECT TRAFFIC CONTROL MANAGEMENT REQUIREMENTS REFER TO THE TRAFFIC CONTROL PLANS AND SECTION 641 OF THE CONTRACT SPECIAL PROVISIONS.
2. DURING CONSTRUCTION, ONE-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES ON VT ROUTE 100. TWO-WAY TRAFFIC SHALL BE MAINTAINED AT NIGHT, ON WEEKENDS AND HOLIDAYS. DURING PEAK TRAFFIC AND DURING CONSTRUCTION. AT THE DISCRETION OF THE ENGINEER, UNIFORMED TRAFFIC OFFICERS OR TRAINED FLAG PERSONS SHALL DIRECT TRAFFIC, WHENEVER REQUIRED.
3. TRAFFIC CONTROL SIGNING AND CHANNELIZING DEVICES SHALL BE IN ACCORDANCE WITH THE APPROPRIATE STANDARD DRAWINGS (T-1, T-28, T-29, T-30, T-31, T-17, T-21) AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
4. AFTER SIGNAL INSTALLATION, ALL HEADS MUST BE COVERED (TURNING SHALL NOT BE ALLOWED) UNTIL TURNED ON. THE METHOD OF COVERING SHALL BE AS FOLLOWS:
  - ALL NEW TRAFFIC AND PEDESTRIAN SIGNAL HEADS WHICH HAVE BEEN INSTALLED BUT NOT PLACED IN EITHER FLASHING OR FULL OPERATION SHALL BE COVERED. EXISTING SIGNAL HEADS WHICH ARE PLACED OUT OF SERVICE IN ORDER TO PERFORM WORK ON THE SIGNAL SYSTEM SHALL ALSO BE COVERED. EXCEPT WHEN SUCH WORK CAN BE COMPLETED IN A RELATIVELY SHORT PERIOD OF TIME (SEVERAL HOURS) AND TRAFFIC CONTROL HAS BEEN PROVIDED FOR.
  - THE SIGNAL COVERS SHALL CONSIST OF A ONE-PIECE PLASTIC BAG HAVING A MINIMUM THICKNESS OF FOUR MIL. THE BAG SHALL BE OPAQUE. THE COVER SHALL SLIP OVER THE ENTIRE SIGNAL HEAD AND SHALL BE SECURELY TIED AT THE OPENING WITH A ROPE OF SUFFICIENT SIZE AND STRENGTH TO SECURE THE COVER. AN INTERMEDIATE ROPE OF THE SAME MATERIAL SHALL BE DRAWN AROUND THE CENTER OF THE COVER TO PREVENT EXCESS FLAPPING IN THE WIND.
  - A DRAIN HOLE SHALL BE MADE AT THE BOTTOM OF THE BAG TO ALLOW THE ESCAPE OF MOISTURE. NO TAPE OR ADHESIVE WILL BE ALLOWED TO BE ATTACHED TO ANY SURFACE OF THE SIGNAL HOUSING OR LENSES. ALL COVERS SHALL BE PLACED IN A NEAT WORKMANLIKE MANNER. ANY COVER WHICH IS TORN OR MISSING SHALL BE IMMEDIATELY REPLACED. PAYMENT FOR THE COVERS, THEIR REPLACEMENT, AND REMOVAL AND ALL INCIDENTALS FOR COMPLETION OF THE WORK SHALL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE TRAFFIC SIGNAL.
5. WHERE TWO-WAY TRAFFIC IS MAINTAINED DURING CONSTRUCTION, THE SIGN PACKAGE SHOWN ON STD. T-21 SHOULD BE USED. APPROACH CONSTRUCTION SIGNING SHALL REMAIN IN PLACE DURING THE ENTIRE CONSTRUCTION PERIOD. OTHER SIGNING SHALL BE REMOVED OR COVERED WHEN NOT APPLICABLE.
6. VARIATIONS IN THE SIGNING PACKAGES MAY BE DICTATED BY UNIQUE GEOMETRY AND/OR TRAFFIC CONDITIONS AND THE TRAFFIC CONTROL PLANS.
7. THE CONTRACTOR SHALL NOT WORK WITHIN THE HIGHWAY RIGHT-OF-WAY WITHOUT THE APPROPRIATE CONSTRUCTION SIGNING IN PLACE AS SHOWN ON STD. T-10.
8. AT LOCATIONS WHERE SIGNALS CURRENTLY EXIST, A WORKING SIGNAL SYSTEM SHALL BE IN PLACE AT THE END OF EACH DAY. IF THE SIGNAL SYSTEM IS NOT WORKING AT THE END OF THE DAY, THE CONTRACTOR SHALL PROVIDE UNIFORMED TRAFFIC OFFICERS TO CONTROL TRAFFIC UNTIL SUCH TIME THAT THE EXISTING OR NEW SIGNAL SYSTEM IS IN OPERATION AT NO COST TO THE STATE OF VERMONT.
9. "SIGNALS UNDER CONSTRUCTION" SIGN PANELS SHALL BE MOUNTED UNDER "ROAD WORK AHEAD" SIGNS ANYTIME SIGNAL SYSTEM WORK IS BEING PERFORMED. SEE SIGN DETAIL ON THIS SHEET.



MATERIALS: SEE STD. E-144  
 COLORS: TEXT & BORDER - BLACK  
 BACKGROUND - ORANGE (RETROREFLECTIVE SHEETING)

### CONSTRUCTION SIGN DETAIL

NOT TO SCALE  
 TO BE INSTALLED ON ROAD WORK AHEAD SIGN POSTS.

PROJECT NAME: STOWE  
 PROJECT NUMBER: BRF 0235(II)

FILE NAME: t87e052sig.dgn	PLOT DATE: 04-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: I. DEGUTIS
DESIGNED BY: I. DEGUTIS	CHECKED BY: M. LACROIX
TRAFFIC SIGNAL SYSTEM NOTES	SHEET 22 OF 62

**SOIL CLASSIFICATION**

**AASHTO**

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

**ROCK QUALITY DESIGNATION**

R.O.D. (%)	ROCK DESCRIPTION
<25	Very Poor
25 to 50	Poor
51 to 75	Fair
76 to 90	Good
>90	Excellent

**SHEAR STRENGTH**

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

**CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY**

DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

**COMMONLY USED SYMBOLS**

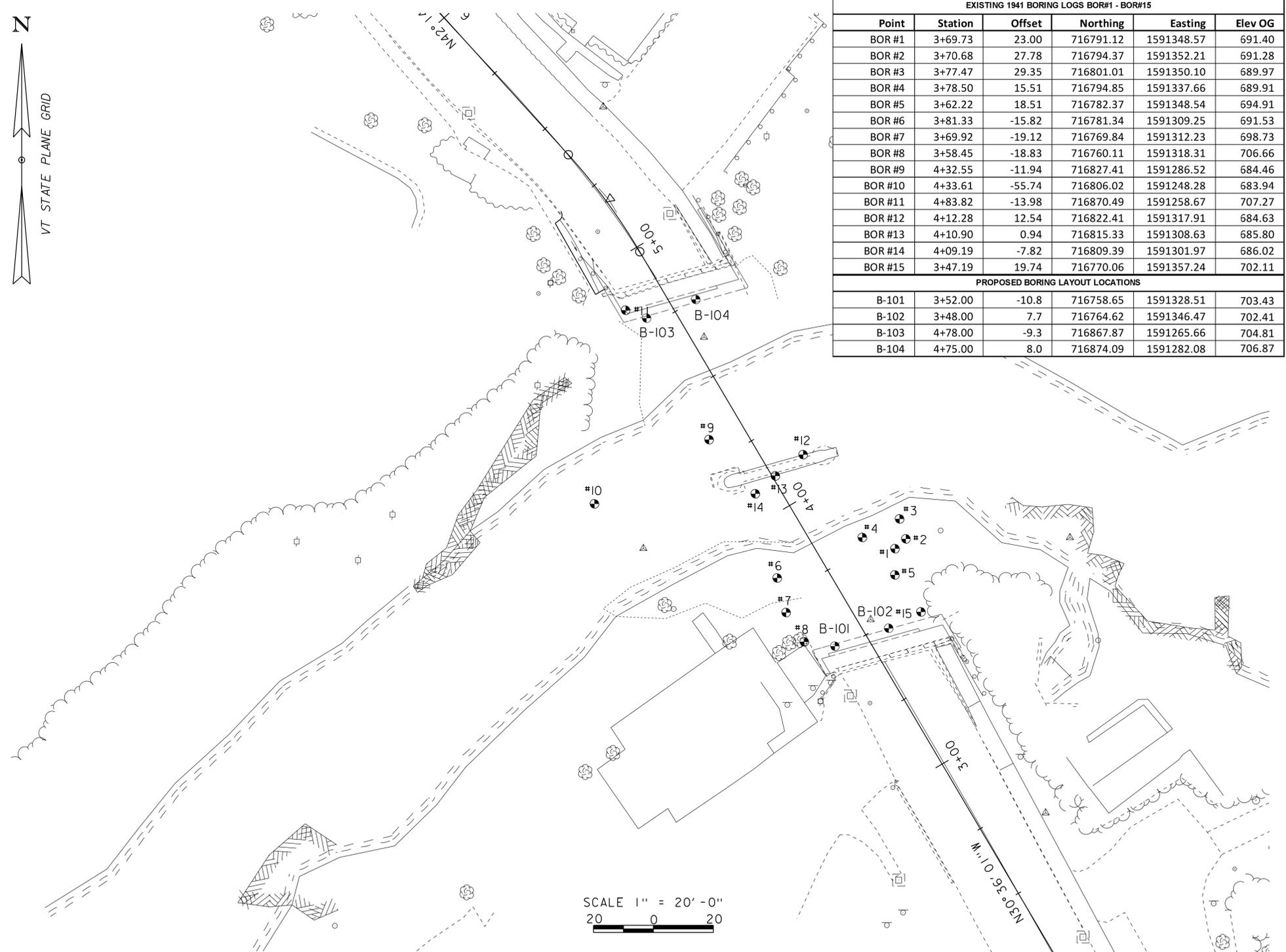
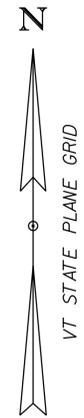
- ▼ Water Elevation
- ⊕ Standard Penetration Boring
- ⊕ Auger Boring
- ⊕ Rod Sounding
- Sample
- N Standard Penetration Test
- Blow Count Per Foot For:
  - 2" O. D. Sampler
  - 1 3/8" I. D. Sampler
  - Hammer Weight Of 140 Lbs.
  - Hammer Fall Of 30"
- VS Field Vane Shear Test
- US Undisturbed Soil Sample
- B Blast
- DC Diamond Core
- MD Mud Drill
- WA Wash Ahead
- HSA Hollow Stem Auger
- AX Core Size 1 1/8"
- BX Core Size 1 3/8"
- NX Core Size 2 1/8"
- M Double Tube Core Barrel Used
- LL Liquid Limit
- PL Plastic Limit
- PI Plasticity Index
- NP Non Plastic
- w Moisture Content (Dry Wgt. Basis)
- D Dry
- M Moist
- MTW Moist To Wet
- W Wet
- Sat Saturated
- Bo Boulder
- Gr Gravel
- Sa Sand
- Si Silt
- Cl Clay
- HP Hardpan
- Le Ledge
- NLTD No Ledge To Depth
- CNPF Can Not Penetrate Further
- TLOB Top of Ledge Or Boulder
- NR No Recovery
- Rec. Recovery
- %Rec. Percent Recovery
- ROD Rock Quality Designation
- CBR California Bearing Ratio
- < Less Than
- > Greater Than
- R Refusal (N > 100)
- VTSPG NAD83 - See Note 7

**COLOR**

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

**DEFINITIONS (AASHTO)**

- BEDROCK (LEDGE)** - Rock in its native location of indefinite thickness.
- BOULDER** - A rock fragment with an average dimension > 12 inches.
- COBBLE** - Rock fragments with an average dimension between 3 and 12 inches.
- GRAVEL** - Rounded particles of rock < 3" and > 0.0787" (#10 sieve).
- SAND** - Particles of rock < 0.0787" (#10 sieve) and > 0.0029" (#200 sieve).
- SILT** - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.
- CLAY** - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.
- VARVED** - Alternate layers of silt and clay.
- HARDPAN** - Extremely dense soil, cemented layer, not softened when wet.
- MUCK** - Soft organic soil (containing > 10% organic material).
- MOISTURE CONTENT** - Weight of water divided by dry weight of soil.
- FLOWING SAND** - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.
- STRIKE** - Angle from magnetic north to line of intersection of bed with a horizontal plane.
- DIP** - Inclination of bed with a horizontal plane.



EXISTING 1941 BORING LOGS BOR#1 - BOR#15					
Point	Station	Offset	Northing	Easting	Elev OG
BOR #1	3+69.73	23.00	716791.12	1591348.57	691.40
BOR #2	3+70.68	27.78	716794.37	1591352.21	691.28
BOR #3	3+77.47	29.35	716801.01	1591350.10	689.97
BOR #4	3+78.50	15.51	716794.85	1591337.66	689.91
BOR #5	3+62.22	18.51	716782.37	1591348.54	694.91
BOR #6	3+81.33	-15.82	716781.34	1591309.25	691.53
BOR #7	3+69.92	-19.12	716769.84	1591312.23	698.73
BOR #8	3+58.45	-18.83	716760.11	1591318.31	706.66
BOR #9	4+32.55	-11.94	716827.41	1591286.52	684.46
BOR #10	4+33.61	-55.74	716806.02	1591248.28	683.94
BOR #11	4+83.82	-13.98	716870.49	1591258.67	707.27
BOR #12	4+12.28	12.54	716822.41	1591317.91	684.63
BOR #13	4+10.90	0.94	716815.33	1591308.63	685.80
BOR #14	4+09.19	-7.82	716809.39	1591301.97	686.02
BOR #15	3+47.19	19.74	716770.06	1591357.24	702.11

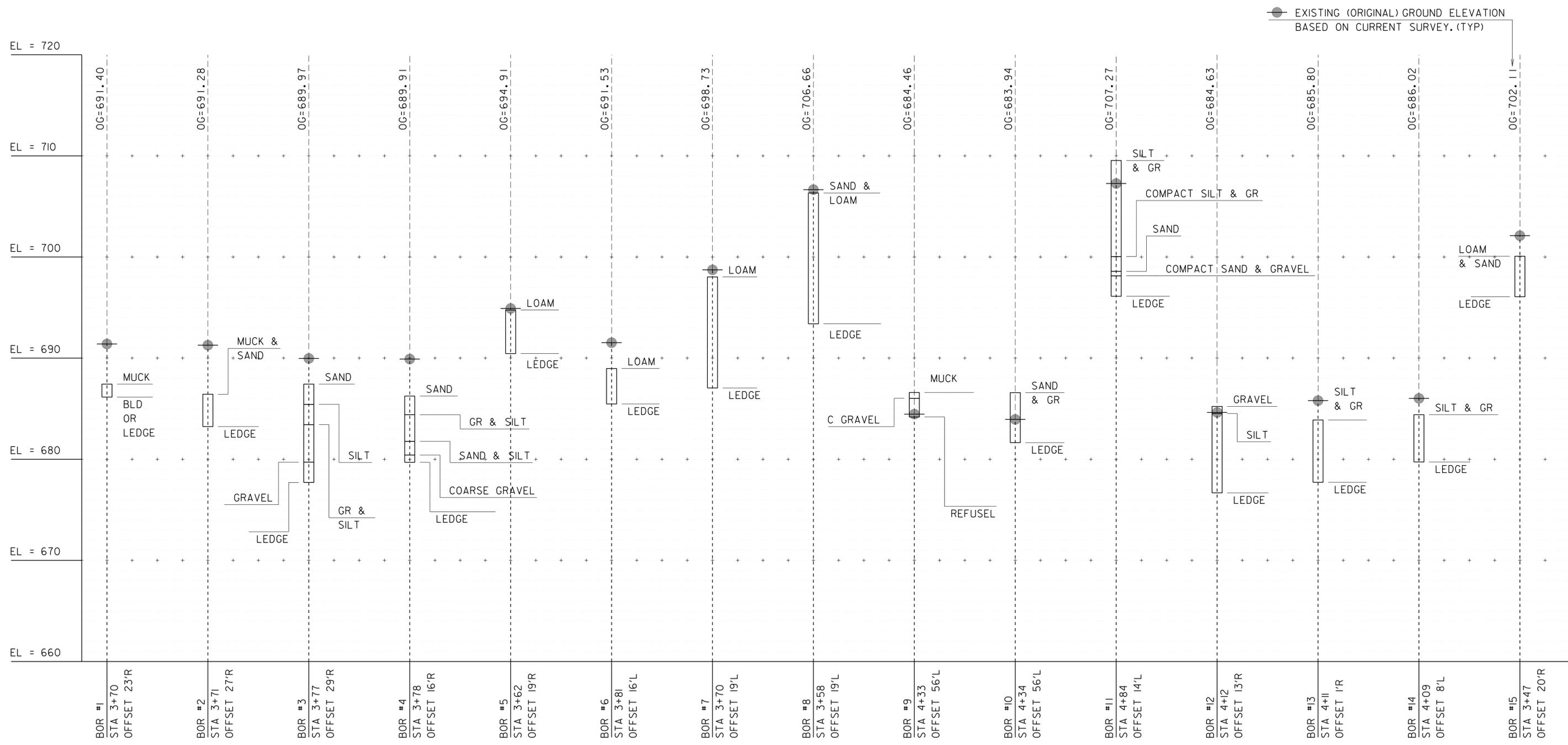
  

PROPOSED BORING LAYOUT LOCATIONS					
B-101	3+52.00	-10.8	716758.65	1591328.51	703.43
B-102	3+48.00	7.7	716764.62	1591346.47	702.41
B-103	4+78.00	-9.3	716867.87	1591265.66	704.81
B-104	4+75.00	8.0	716874.09	1591282.08	706.87

**GENERAL NOTES**

- The subsurface explorations shown herein BOR#1- BOR#15 in 1941, AND B-101- B104 in 2014 by the Agency.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
- Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
- Engineering judgment was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.
- Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
- Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.
- Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.

PROJECT NAME:	STOWE	PLOT DATE:	04-JUN-2014
PROJECT NUMBER:	BRF 0235 (II)	DRAWN BY:	D. KARABEGOVIC
FILE NAME:	s87e052bor.dgn	CHECKED BY:	M. LONGSTREET
PROJECT LEADER:	C. CARLSON	SHEET	23 OF 62
DESIGNED BY:	D. PETERSON		
BORING INFORMATION SHEET			



**NOTES:**

- 1) THESE BORINGS (BOR #1- BOR #15) WERE EXTRACTED FROM 1941 RECORD PLANS "STOWE VILLAGE BRIDGE S.A. 4-1941". THE ELEVATION DATUM USED ON THESE RECORD PLANS APPEARS TO BE RELATIVELY SIMILAR, APPROXIMATELY 0.61' LOWER THAN THE PROPOSED PROJECT VERTICAL DATUM BASED ON F.G. ELEVATIONS AT BEGIN BRIDGE AND END BRIDGE. ELEVATIONS OF THE CHANNEL GROUND LIKLY VERY MORE SIGNIFICANTLY.
- 2) THE SYMBOL (●) INDICATES THE ELEVATION OF THE CURRENT CHANNEL PER THE PROPOSED PROJECT EXISTING GROUND SURVEY. CURRENT EXISTING GROUND ELEVATIONS ARE ALSO LABELED FOR EACH BORING LOCATION.
- 3) THE BORING LOCATIONS WERE SCALED AND PLOTTED USING THE 1941 RECORD PLANS.
- 4) THE APPROXIMATE LOCATIONS OF EACH SUBSURFACE MATERIAL WERE SCALED AND PLOTTED FROM THE 1941 RECORD PLAN BORING TABLE.
- 5) BORING LOGS B-101- B-104 PROVIDE CURRENT INFORMATION.

PROJECT NAME:	STOWE
PROJECT NUMBER:	BRF 0235 (II)
FILE NAME:	s87e052bor.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	D. PETERSON
BORING LOGS 1	
PLOT DATE:	04-JUN-2014
DRAWN BY:	M. LONGSTREET
CHECKED BY:	J. LACROIX
SHEET	24 OF 62

STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: <b>B-101</b>						
		STOWE BHF 0235(11) VT-108 BR-2		Page No.: 1 of 1						
				Pin No.: 87E052						
				Checked By: _____						
Boring Crew: JUDKINS, GARROW, NIETO		Casing	Sampler	Groundwater Observations						
Date Started: 1/14/14 Date Finished: 1/15/14		Type: WB	SS	Date	Depth (ft)	Notes				
VTSPG NAD83: N 716758.65 ft E 1591328.51 ft		I.D.: 4 in	1.5 in							
Station: 3+52 Offset: -10.80		Hammer Wt: N.A.	140 lb.							
Ground Elevation: 703.43 ft		Hammer Fall: N.A.	30 in.							
		Hammer/Rod Type: Auto/AWJ								
		Rig: CME 55 TRACK	C = 1.46							
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Field Note: No Recovery				R@1.0"				
2.5										
5.0		Field Note: NXDC, Cleaned out casing.								
7.5		A-1-b, SiSaGr, gry-brn, Moist, Rec. = 0.9 ft, Lab Note: Broken Rock was within sample.				4-3-4-6 (7)	22.5	52.6	24.9	22.5
10.0		9.0 ft - 11.0 ft, First two feet of run is possible Boulder.. NXMDC	1 (70)	100 (0)	3					
12.5		11.0 ft - 12.0 ft, Dark gray & black, Carbonaceous biotite-muscovite-quartz Phyllite, with quartz laminae. Moderately soft, Unweathered, Fair rock, RMR = 44			2					
		12.0 ft - 17.0 ft, Dark gray & black, Carbonaceous biotite-muscovite-quartz Phyllite, with quartz laminae. Moderately soft, Unweathered, Fair rock, NXMDC, RMR = 49	2 (70)	96 (30)	4					
15.0					3					
					3					
					6					
17.5		17.0 ft - 19.0 ft, Dark gray, Carbonaceous biotite-muscovite-quartz Phyllite, with quartz laminae. Moderately soft, Unweathered, Fair rock, NXMDC, RMR = 54	3 (70)	90 (70)	3					
					5					
20.0		Hole stopped @ 19.0 ft								
22.5		Remarks: 1. Drilling was performed from the bridge deck. 2. Asphalt Pavement depth was 0.20 ft. 3. Concrete depth was 0.90 ft.								
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.										

ESTIMATED PILE  
TIP EL= 689.43

BORING LOG 2 STOWE BHF 0235(11).GPJ VERMONT AOT.GDT 1/31/14

ESTIMATED PILE  
TIP EL= 691.41

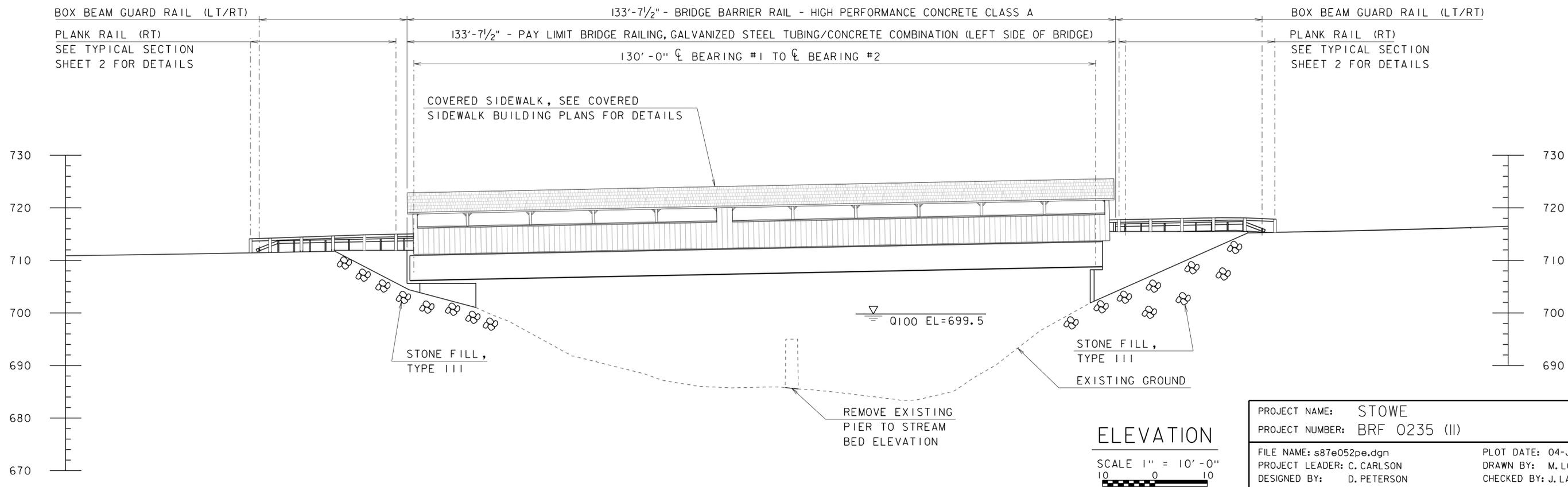
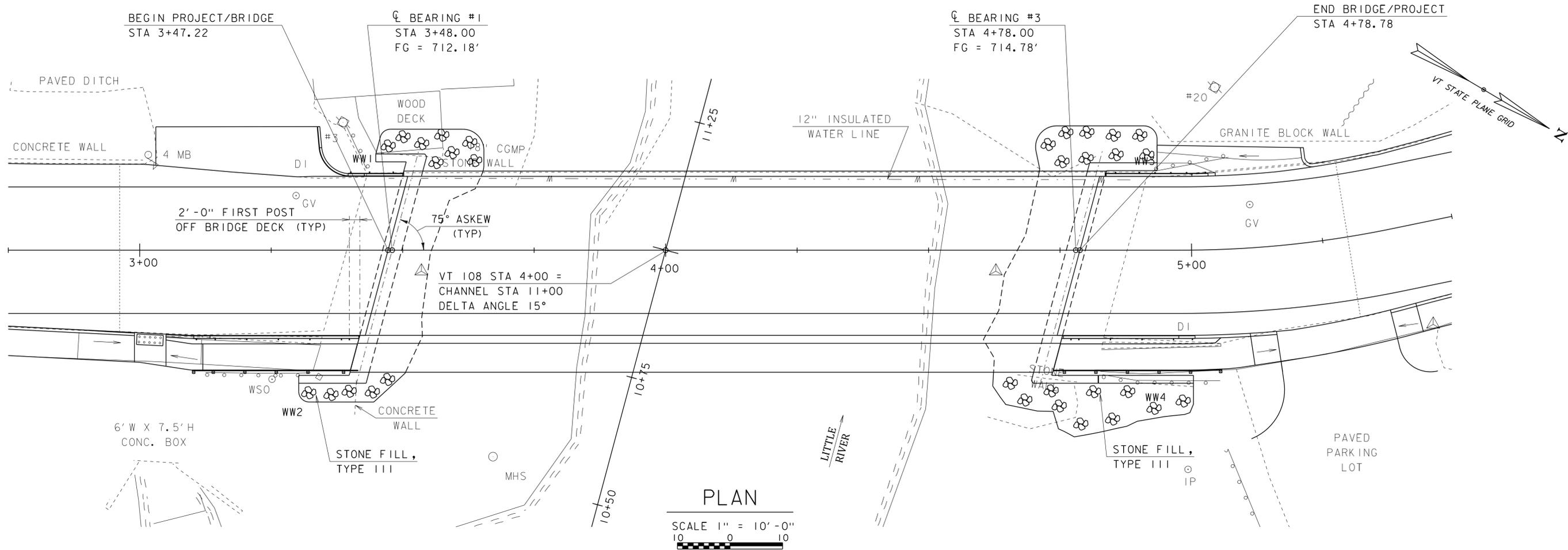
BORING LOG 2 STOWE BHF 0235(11).GPJ VERMONT AOT.GDT 1/31/14

STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: <b>B-102</b>						
		STOWE BHF 0235(11) VT-108 BR-2		Page No.: 1 of 1						
				Pin No.: 87E052						
				Checked By: _____						
Boring Crew: JUDKINS, GARROW, NIETO		Casing	Sampler	Groundwater Observations						
Date Started: 1/17/14 Date Finished: 1/17/14		Type: WB	SS	Date	Depth (ft)	Notes				
VTSPG NAD83: N 716764.62 ft E 1591346.47 ft		I.D.: 4 in	1.5 in	01/17/14	2.0	While drilling.				
Station: 3+48 Offset: 7.70		Hammer Wt: N.A.	140 lb.							
Ground Elevation: 702.41 ft		Hammer Fall: N.A.	30 in.							
		Hammer/Rod Type: Auto/AWJ								
		Rig: CME 55 TRACK	C = 1.46							
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
2.5		A-1-b, SaGr, brn-gry, Moist, Rec. = 1.2 ft, Lab Note: Broken Rock was within sample.				25-11-4-3 (15)	6.9	45.3	36.4	18.3
5.0		A-2-4, SiGrSa, white-brn, Moist, Rec. = 0.5 ft, Lab Note: Broken Rock was within sample.				4-3-10-8 (13)	12.8	28.3	49.4	22.3
		A-2-4, GrSiSa, brn-gry, Moist, Rec. = 1.1 ft, Lab Note: Broken Rock was within sample.				4-2-2-2 (4)	28.3	24.2	42.7	33.1
7.5		A-1-b, SaGr, brn-gry, Moist, Rec. = 0.4 ft, Lab Note: Broken Rock was within sample.				4-10-R@0.0" (R)	15.7	52.8	29.0	18.2
10.0		8.0 ft - 13.0 ft, Grayish green, Chlorite-muscovite-quartz Phyllitic Schist, with quartzofeldspathic layers. Moderately soft, Unweathered, Fair rock, NXMDC, RMR = 58	1 (60)	100 (84)	6					
					3					
					3					
					4					
					4					
12.5		13.0 ft - 18.0 ft, Grayish green, Chlorite-muscovite-quartz Phyllitic Schist, with quartzofeldspathic layers. Moderately soft, Unweathered, Fair rock, NXMDC, RMR = 58	2 (60)	100 (80)	3					
15.0					3					
					3					
					3					
					3					
17.5					3					
20.0		Hole stopped @ 18.0 ft								
22.5		Remarks: 1. Drilling was performed from the bridge deck. 2. Asphalt Pavement depth was 0.15 ft. 3. Concrete depth was 0.67 ft. 4. Hole collapsed at 7.0 ft.								
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.										

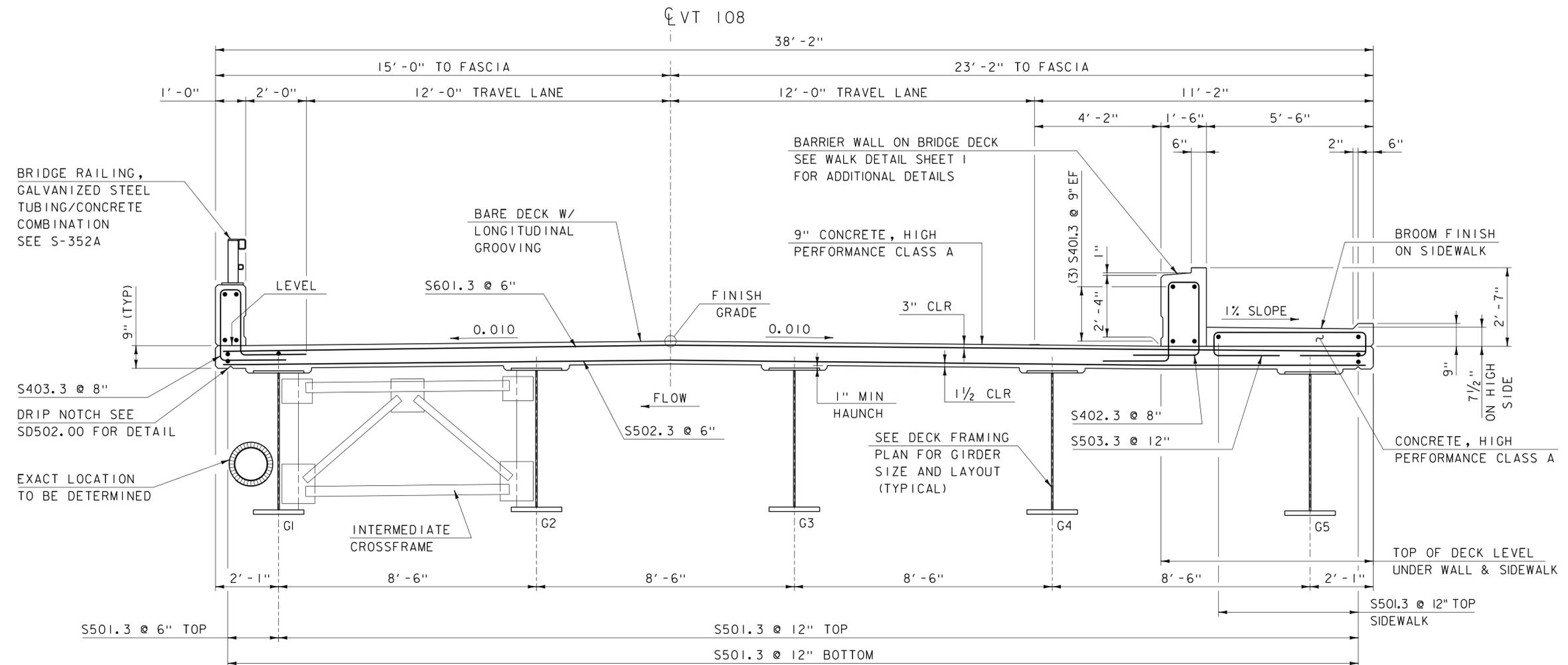
PROJECT NAME: STOWE  
PROJECT NUMBER: BRF 0235 (II)

FILE NAME: s87e052bor.dgn PLOT DATE: 04-JUN-2014  
PROJECT LEADER: C. CARLSON DRAWN BY: M. LONGSTREET  
DESIGNED BY: D. PETERSON CHECKED BY: J. LACROIX  
BORING LOGS 2 SHEET 25 OF 62





PROJECT NAME: STOWE	PLOT DATE: 04-JUN-2014
PROJECT NUMBER: BRF 0235 (II)	DRAWN BY: M. LONGSTREET
FILE NAME: s87e052pe.dgn	CHECKED BY: J. LACROIX
PROJECT LEADER: C. CARLSON	SHEET 27 OF 62
DESIGNED BY: D. PETERSON	
PLAN & ELEVATION	



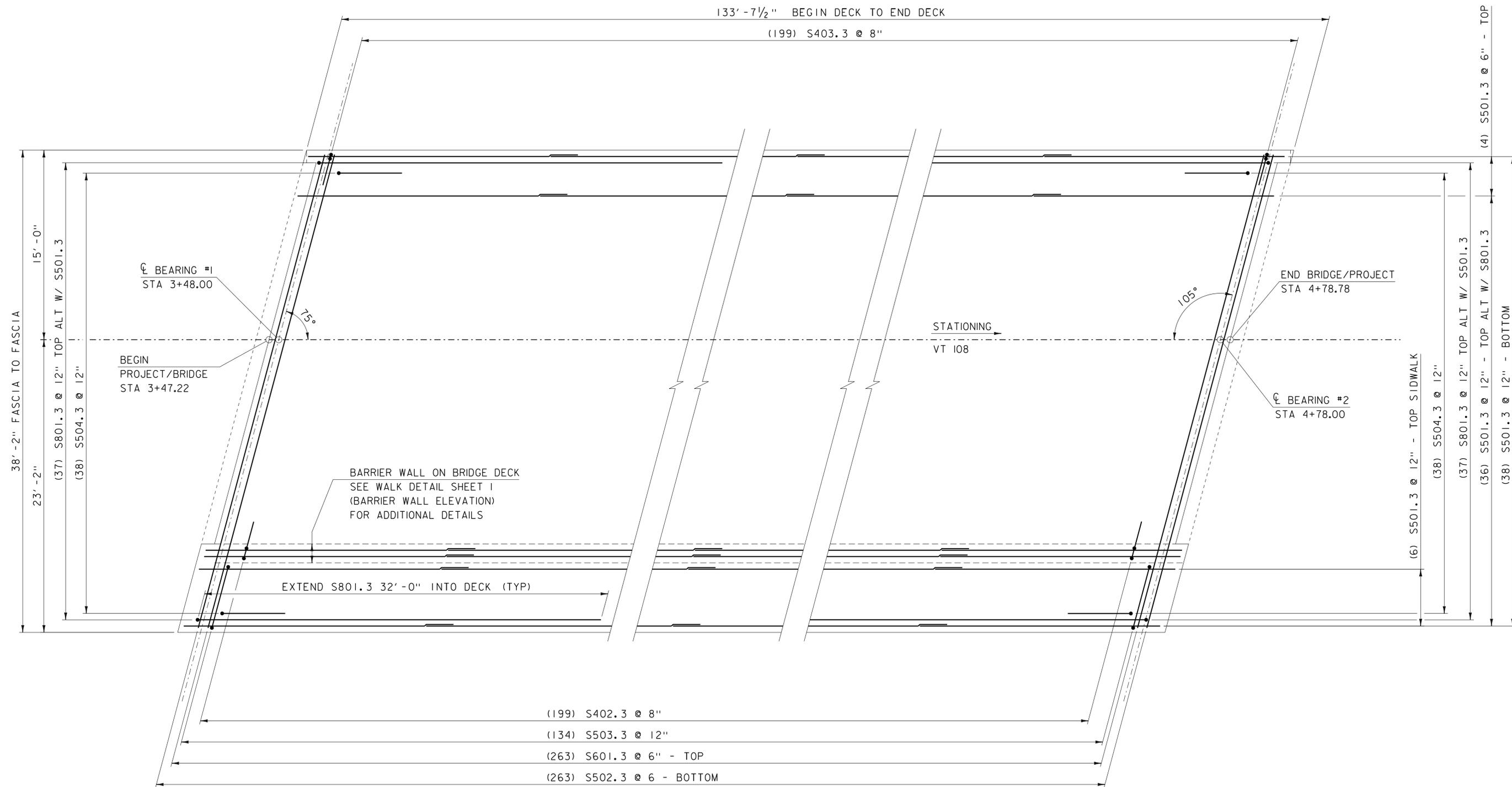
**BRIDGE DECK TYPICAL**

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.

PROJECT NAME: STOWE	
PROJECT NUMBER: BRF 0235 (II)	
FILE NAME: s87e052sup.dgn	PLOT DATE: 04-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: M. LONGSTREET
DESIGNED BY: D. PETERSON	CHECKED BY: J. LACROIX
DECK TYPICAL & DETAILS	SHEET 28 OF 62



**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.

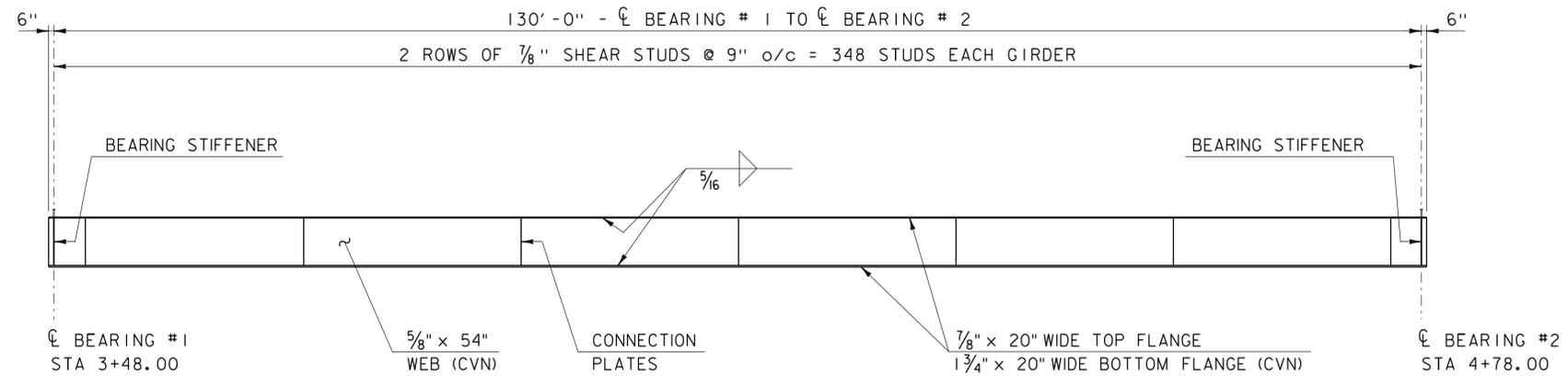
### DECK REINFORCING PLAN

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

PROJECT NAME: STOWE  
 PROJECT NUMBER: BRF 0235 (II)

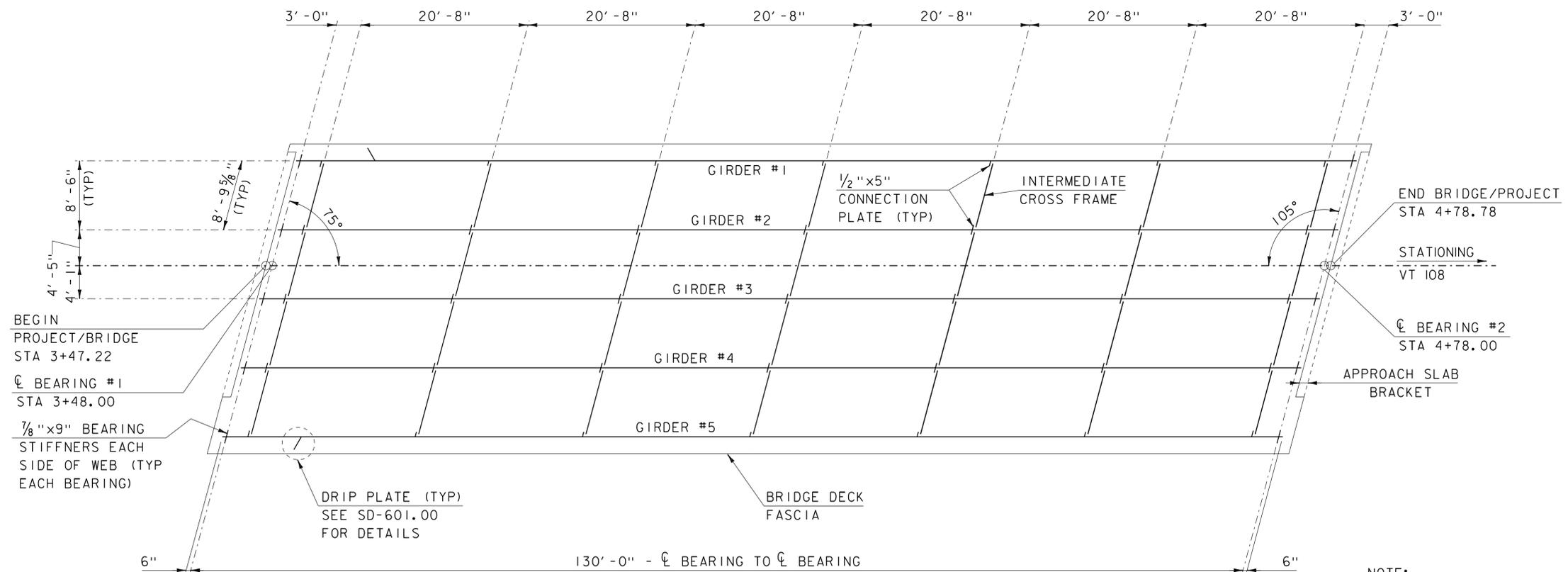
FILE NAME: s87e052sup.dgn  
 PROJECT LEADER: C. CARLSON  
 DESIGNED BY: D. PETERSON  
 DECK REINFORCING PLAN

PLOT DATE: 04-JUN-2014  
 DRAWN BY: D. KARABEGOVIC  
 CHECKED BY: M. LONGSTREET  
 SHEET 29 OF 62



**GIRDER ELEVATION**

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

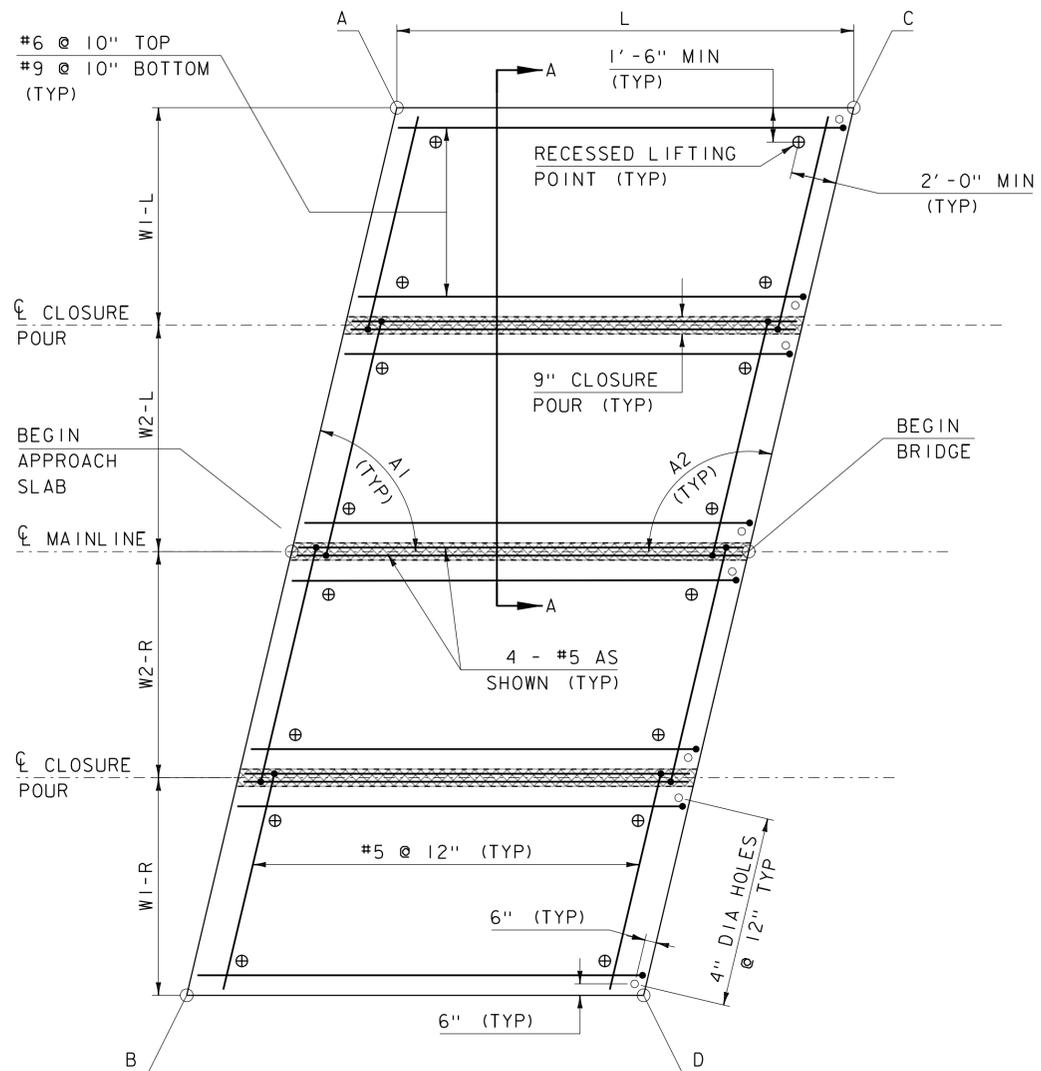


**DECK FRAMING PLAN**

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

NOTE:  
 \* CVN - SHALL MEET CHARPY V-NOTCH REQUIREMENTS FOR MAIN MEMBERS AS INDICATED IN SECTION 714 OF THE STANDARD SPECIFICATION

PROJECT NAME: STOWE	
PROJECT NUMBER: BRF 0235 (II)	
FILE NAME: s87e052sup.dgn	PLOT DATE: 04-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: D. KARABEGOVIC
DESIGNED BY: D. PETERSON	CHECKED BY: M. LONGSTREET
DECK FRAMING PLAN	SHEET 30 OF 62

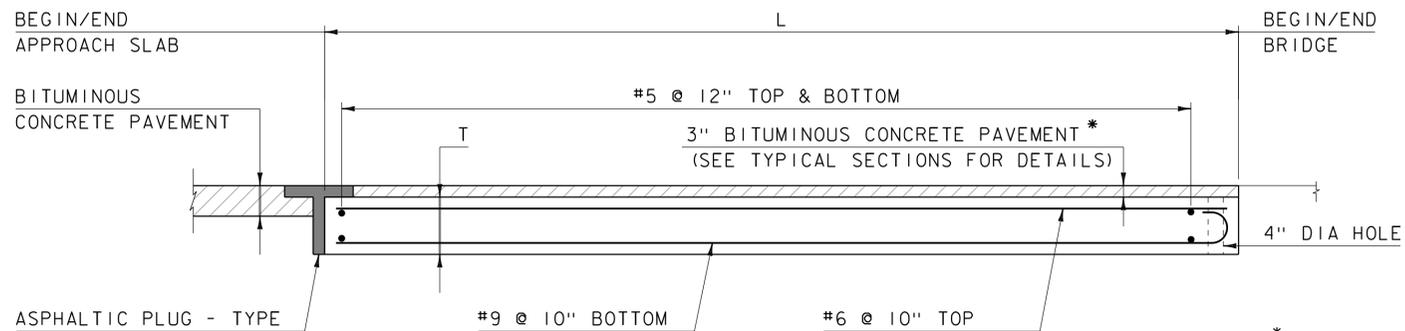


**APPROACH SLAB #1 PLAN VIEW**

SCALE 1/4" = 1'-0"

**NOTE:**

- LIFTING POINTS SHALL BE DESIGNED BY FABRICATOR AND SUBMITTED WITH CALCULATIONS.
- REINFORCING STEEL FOR APPROACH SLAB #1 SHALL BE SIMILAR TO APPROACH SLAB #2.
- CLOSURE POUR CONCRETE SHALL BE PAID FOR UNDER ITEM 900.608 SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)

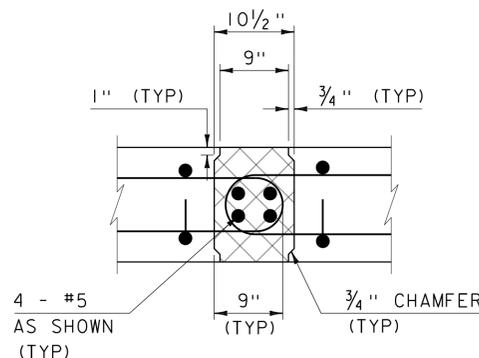


**APPROACH SLAB ELEVATION VIEW**

SCALE 1/2" = 1'-0"

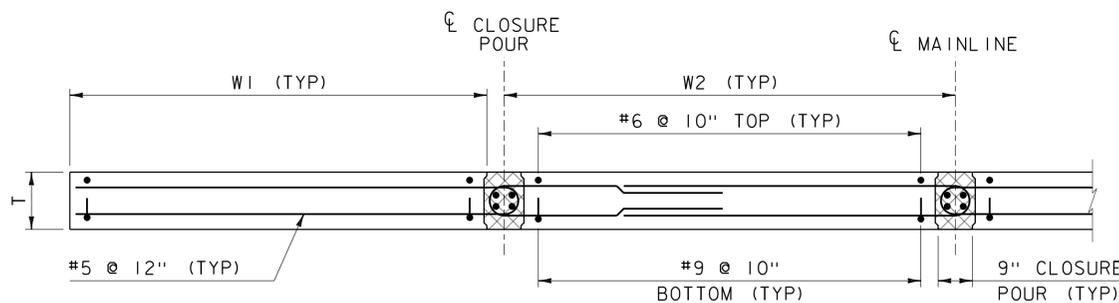
**APPROACH SLAB #2 PLAN VIEW**

NOT TO SCALE



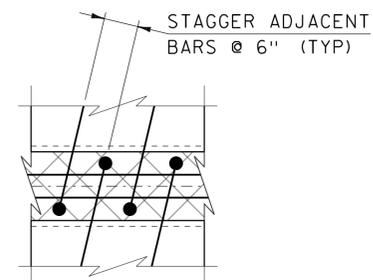
**CONNECTION DETAIL SECTION**

SCALE 1" = 1'-0"



**SECTION A-A**

SCALE 1/2" = 1'-0"



**CONNECTION DETAIL PLAN**

SCALE 1" = 1'-0"

APPROACH SLAB #1			
	STATION	OFFSET	ELEVATION
IA	3+30.97	14.00	711.09
BEGIN AS #1	3+27.22	0.00	711.52
IB	3+22.89	16.17	711.89
IC	3+50.97	14.00	711.85
END AS #1	3+47.22	0.00	711.92
ID	3+42.89	16.17	711.17

APPROACH SLAB #2			
	STATION	OFFSET	ELEVATION
2A	4+82.53	14.00	714.48
BEGIN AS #1	4+78.78	0.00	714.55
2B	4+74.44	16.17	714.30
2C	5+02.86	13.95	714.88
END AS #2	4+98.78	0.00	714.95
2D	4+94.44	16.17	714.69

T	1'-3"
L	20'-0"
W1-R	8'-1"
W2-R	8'-1"
W1-L	7'-0"
W2-L	7'-0"

APPROACH SLAB #1		
A1		75°
A2		105°

APPROACH SLAB #2		
A1		75°
A2		105°

**APPROACH SLAB DIMENSIONS**

**APPROACH SLAB ELEVATIONS**

ALL ELEVATIONS ARE TOP OF SLAB

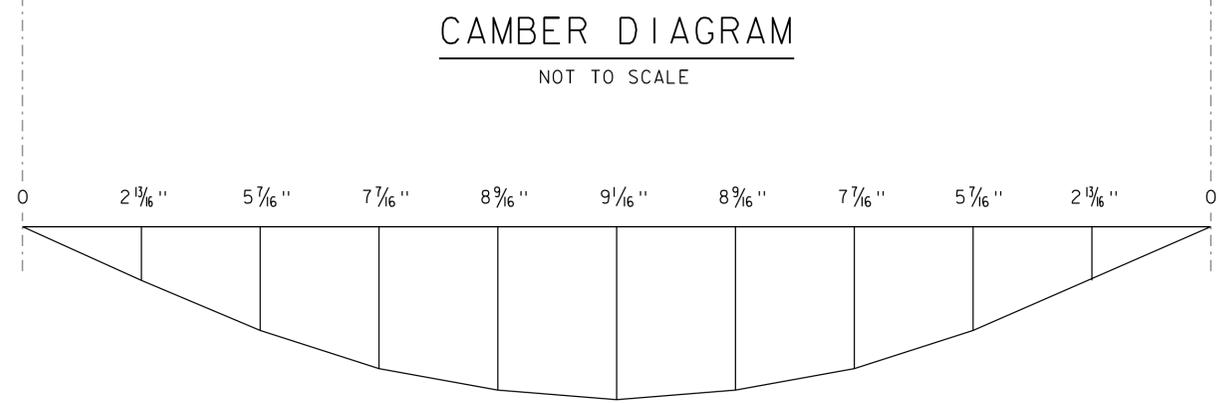
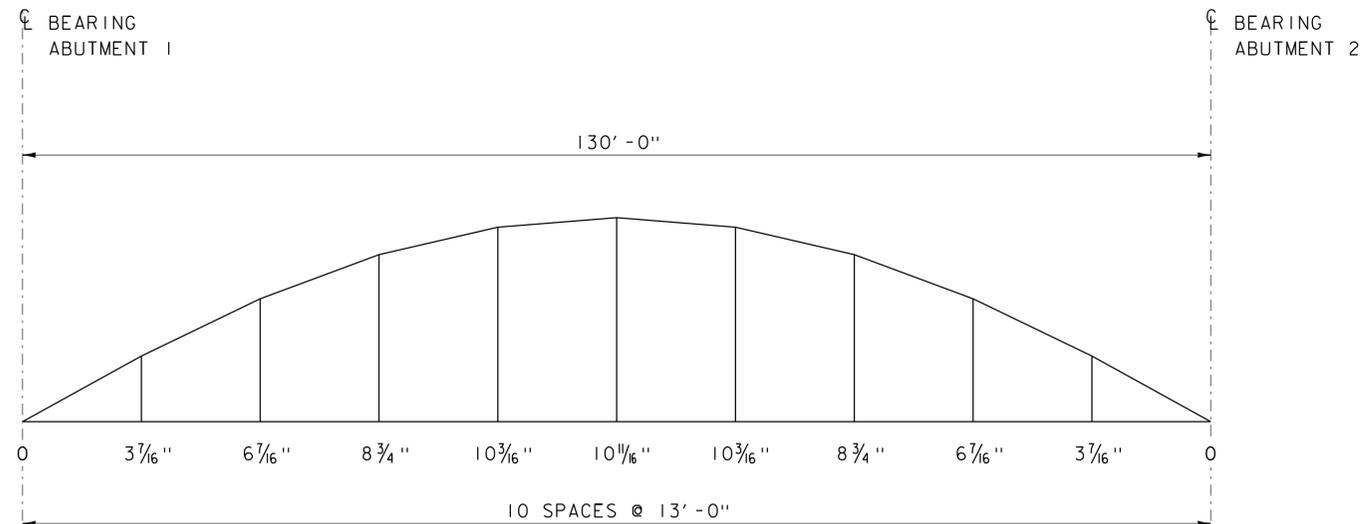
**NOTE:**

- 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.

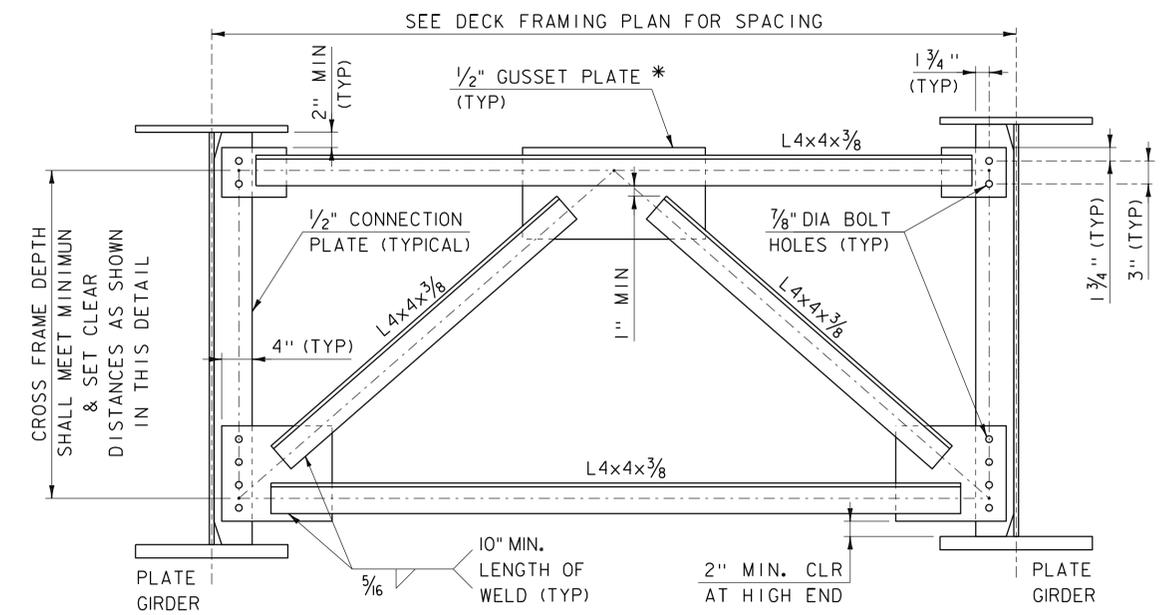
PROJECT NAME: STOWE  
PROJECT NUMBER: BRF 0235 (II)

FILE NAME: s87E052appslab.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: D. PETERSON  
APPROACH SLAB DETAILS

PLOT DATE: 04-JUN-2014  
DRAWN BY: D. KARABEGOVIC  
CHECKED BY: J. LACROIX  
SHEET 31 OF 62



DEAD LOAD DEFLECTION DIAGRAM  
NOT TO SCALE

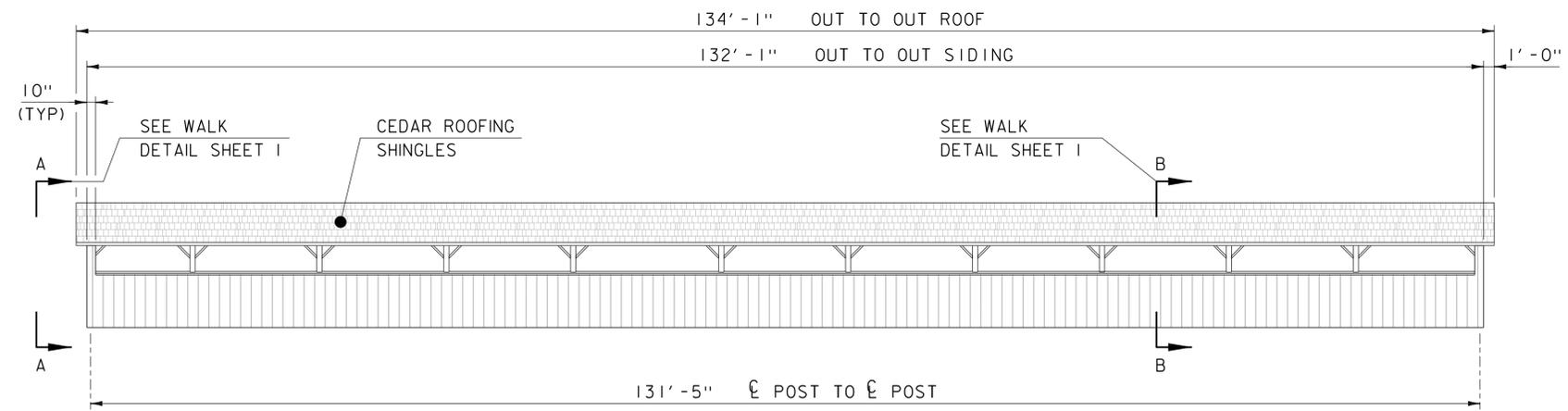


INTERMEDIATE CROSSFRAME DETAILS

SCALE 1" = 1'-0"

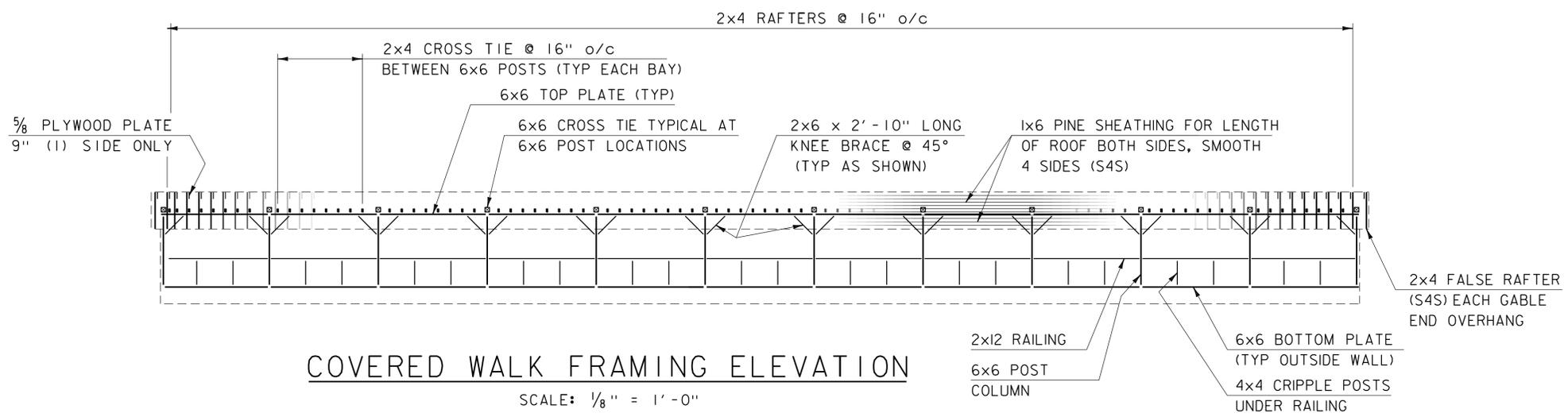
\* THE FABRICATOR MAY ALTER THE SHAPE OF THE GUSSET PLATES AS REQUIRED TO MEET MINIMUM WELDING LENGTH AND MAINTAINING THE BOLT HOLE LOCATIONS.

PROJECT NAME:	STOWE	PLOT DATE:	04-JUN-2014
PROJECT NUMBER:	BRF 0235 (II)	DRAWN BY:	D. KARABEGOVIĆ
FILE NAME:	s87e052sup.dgn	CHECKED BY:	M. LONGSTREET
PROJECT LEADER:	C. CARLSON	SHEET	32 OF 62
DESIGNED BY:	D. PETERSON		
CAMBER & DEFLECTION			



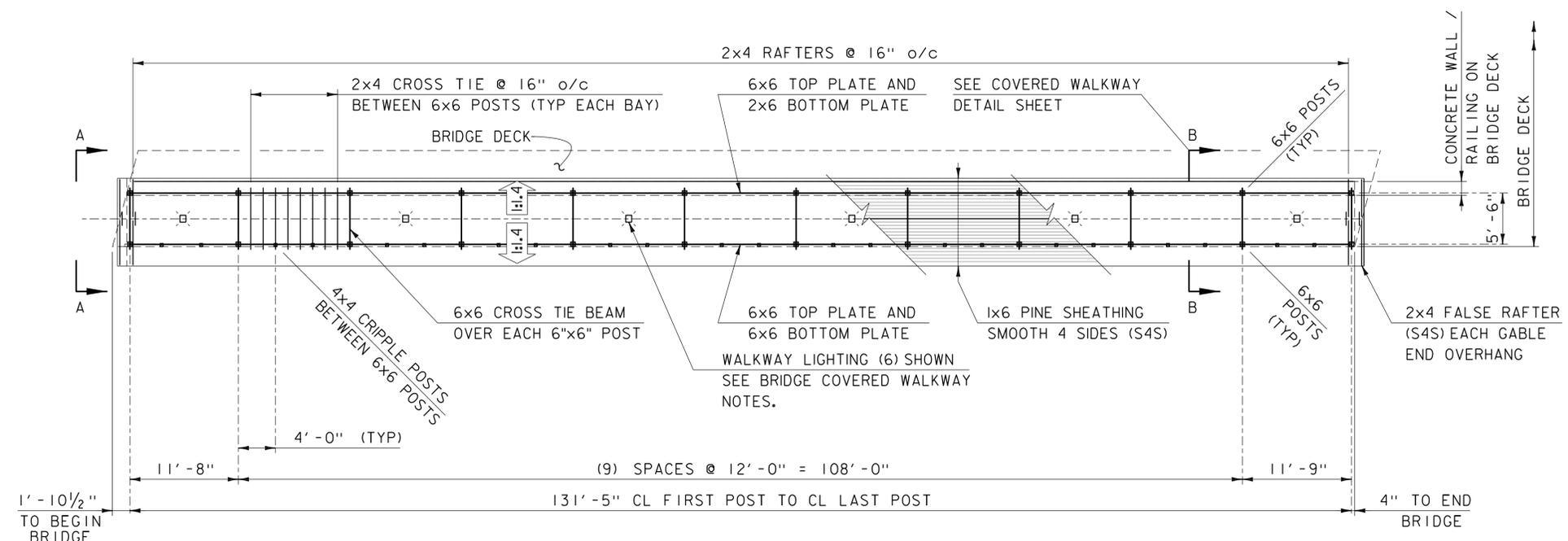
**COVERED WALK EAST ELEVATION**

SCALE: 1/8" = 1'-0" (LOOKING WEST)



**COVERED WALK FRAMING ELEVATION**

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



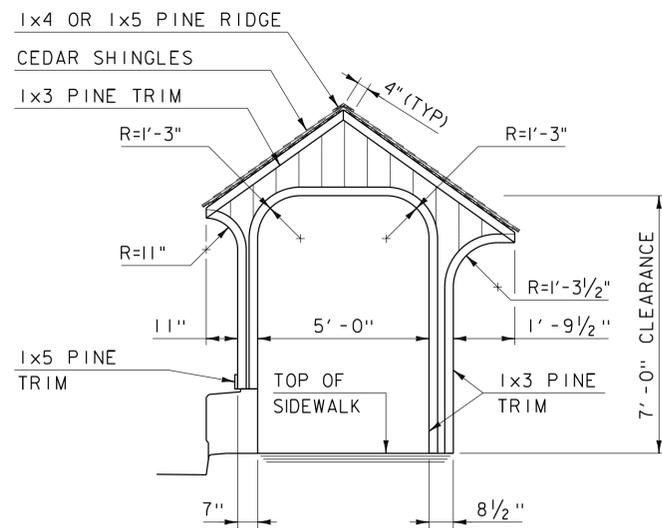
**COVERED WALK FRAMING PLAN**

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

**BRIDGE COVERED WALKWAY NOTES:**

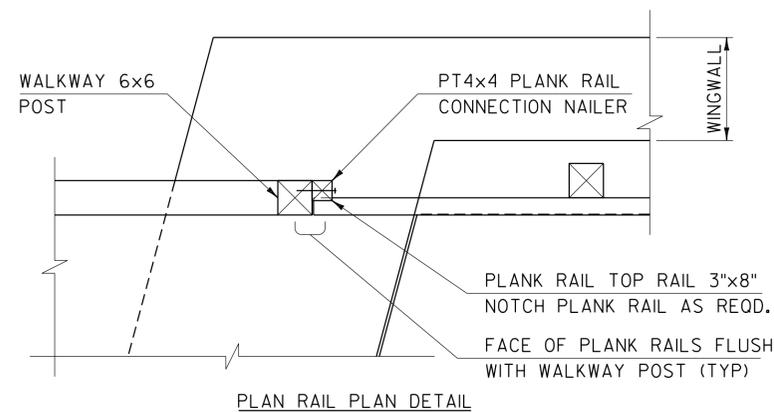
- 1) ALL LUMBER IN WOODEN WALKWAY SHALL BE ROUGH SAWN (FULL DIMENSION) EXCEPT AS NOTED, SMOOTH 4 SIDES (S4S: FINISHED DIMENSION FOR DRESSED LUMBER)
- 2) STRUCTURAL POST, GIRDERS, AND BRACING SHALL BE ROUGH SAWN EASTER SPRUCE, UNLESS NOTED OTHERWISE ON PLANS.
- 3) THE PINE BOARD SIDING SHALL BE ROUGH SAWN EASTER WHITE PINE. THE SIDING SHALL BE PLACED VERTICALLY WITH A 1" GAP BETWEEN EACH BOARD.
- 4) PINE SHEATHING ON THE ROOF SHALL BE 1x6 NUMBER 2 PINE OR BETTER.
- 5) ALL EXTERIOR SIDING, TRIM AND ROOF SHEETING NAILS SHALL BE 2 1/2" STAINLESS STEEL SIDING NAILS.
- 6) ROOFING SHALL BE RED CEDAR SHINGLES, 18" NUMBER 2 GRADE, RED LABEL.
- 7) USE 1 1/2" 14 GAUGE DOUBLE HOT-DIP GALVANIZED CEDAR SHINGLE AND SHAKE NAILS FOR ROOF SHINGLES, (2) NAILS PER SINGLE.
- 8) FINISH - THE CEDAR SHINGLES SHALL BE LEFT NATURAL. ALL OTHER EXTERIOR SURFACES SHALL BE GIVEN TWO COATS OF BLEACHING OIL IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
- 9) THE WOOD AND TIMBER COVERED WALKWAY WILL BE PAID FOR UNDER SPECIAL PROVISION (COVERED WALKWAY).
- 10) THE BARRIER WALL IS NOT CONSIDERED PART OF THE COVERED WALKWAY IT WILL BE CONSTRUCTED AS A SEPARATE ITEM.
- 11) LIGHT FIXTURES AND WIRING ON COVERED WALKWAY SHALL BE PAID FOR UNDER SPECIAL PROVISION (LIGHTING FOR COVERED WALKWAY)

PROJECT NAME: STOWE	
PROJECT NUMBER: BRF 0235 (II)	
FILE NAME: s87e052walk.dgn	PLOT DATE: 04-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: M. LONGSTREET
DESIGNED BY: D. PETERSON	CHECKED BY: J. LACROIX
WALK FRAMING PLAN & ELEVATIONS	SHEET 33 OF 62

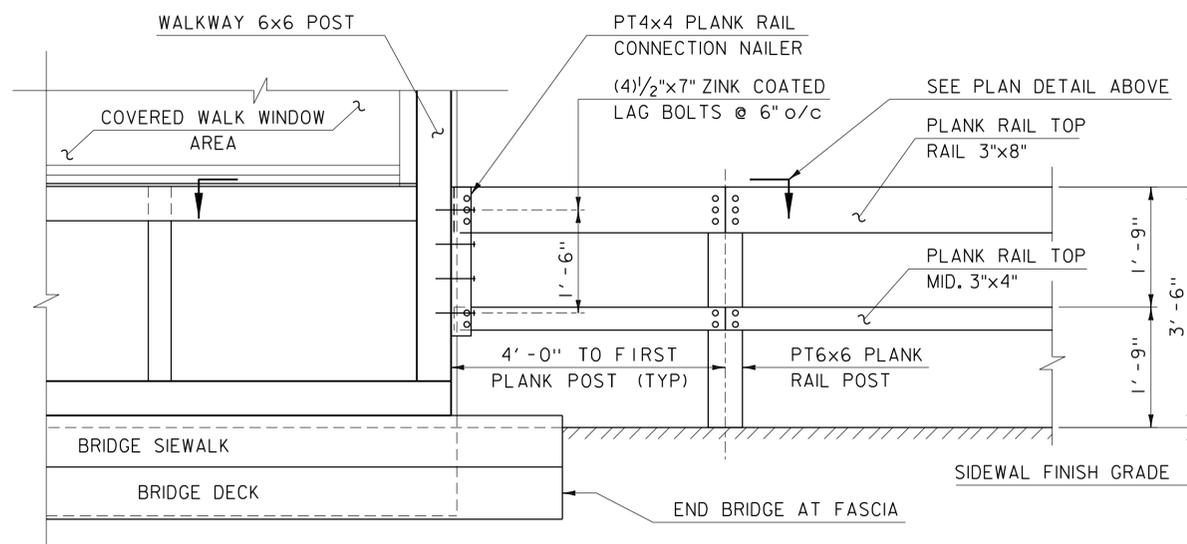


**ELEVATION A-A**

SCALE:  $\frac{3}{8}$ " = 1'-0"



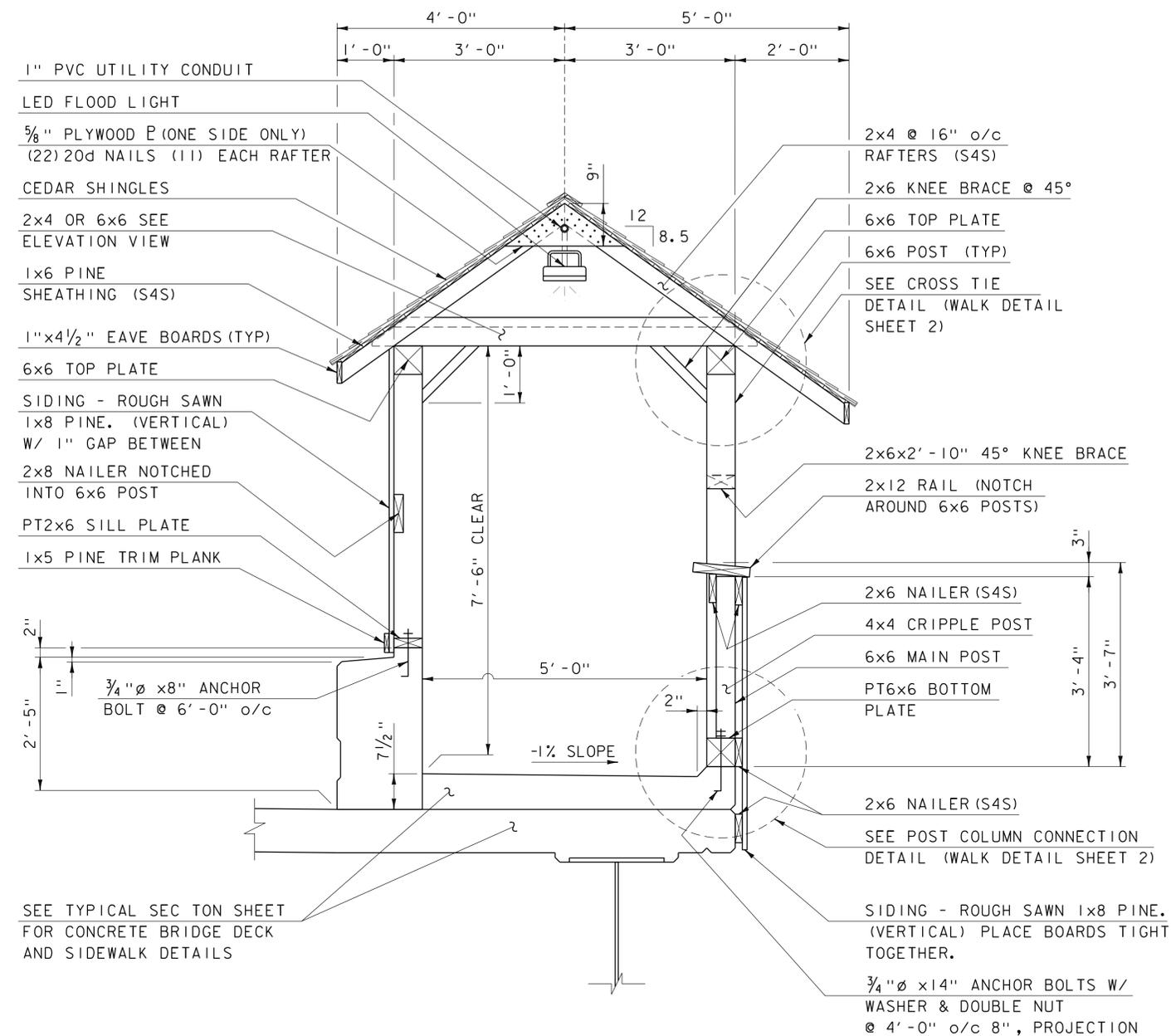
**PLAN RAIL PLAN DETAIL**



**PLAN RAIL CONNECTION DETAIL**

SCALE:  $\frac{3}{4}$ " = 1'-0"

- 1) PLANK RAIL WILL BE PAID FOR UNDER THE "PLANK RAIL" ITEM SEE LAYOUT SHEET FOR LOCATIONS.
- 2) THE PT4x4 AND (4)  $\frac{1}{2}$ "x7" LAG BOLTS WILL BE INCLUDED IN THE COVERED WALKWAY SPECIAL PROVISION ITEM.



**SECTION B-B**

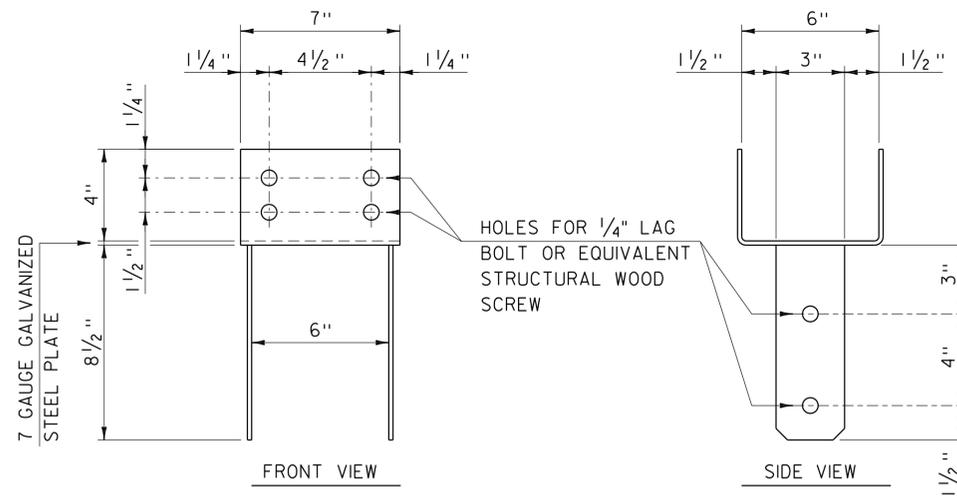
SCALE:  $\frac{3}{4}$ " = 1'-0"

- 1) ALL EXTERIOR SIDING, TRIM AND ROOF SHEETING NAILS SHALL BE  $2\frac{1}{2}$ " STAINLESS STEEL SIDING NAILS.
- 2) USE  $1\frac{1}{2}$ " 14 GAUGE DOUBLE HOT-DIP GALVANIZED CEDAR SHINGLE AND SHAKE NAILS FOR ROOF SHINGLES, (2) NAILS PER SINGLE.

PROJECT NAME: STOWE  
PROJECT NUMBER: BRF 0235 (II)

FILE NAME: s87e052walk.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: D. PETERSON  
WALK DETAIL SHEET 1

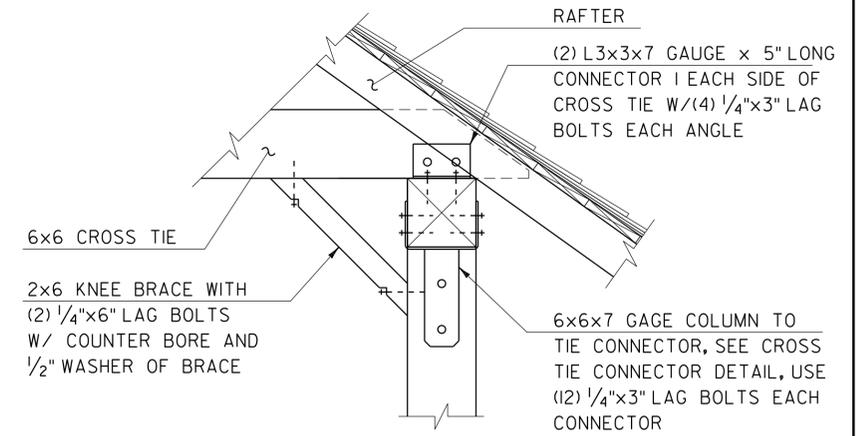
PLOT DATE: 04-JUN-2014  
DRAWN BY: M. LONGSTREET  
CHECKED BY: J. LACROIX  
SHEET 34 OF 62



### 6x6 COLUMN CONNECTOR

SCALE: 3" = 1'-0"

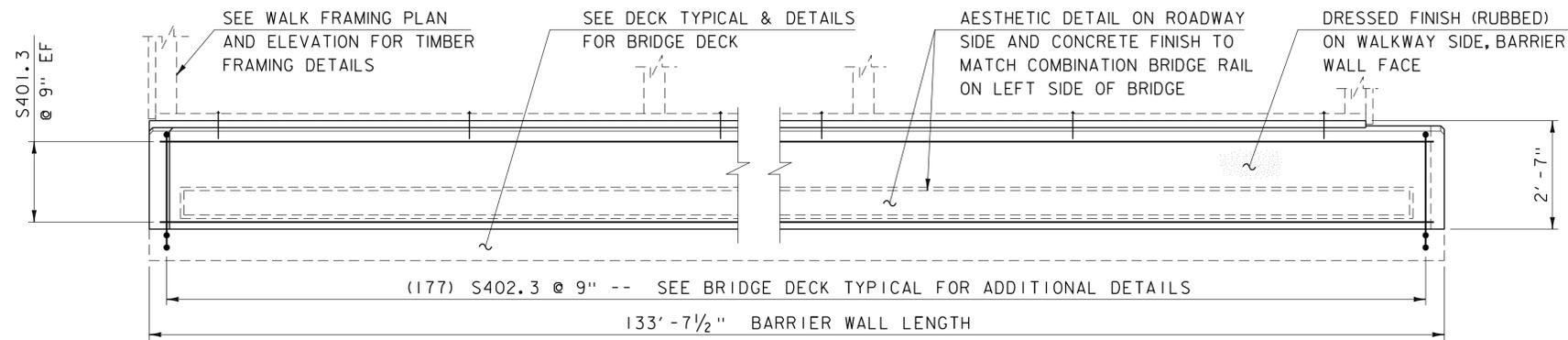
- 1) THE 7 GAUGE GALVANIZED STEEL PLATE USED FOR CONNECTIONS HAS AN ASSUMED APPROXIMATE THICKNESS OF 0.138"



### CROSS TIE DETAIL

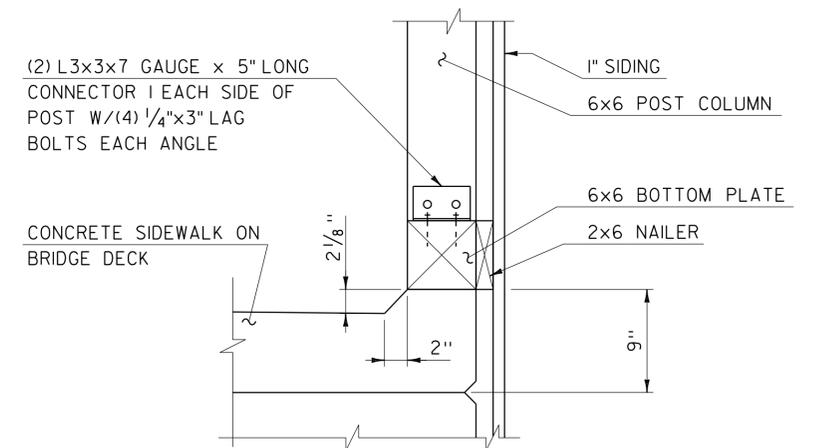
SCALE: 1 1/2" = 1'-0"

- 1) ALL 1/4" LAG BOLTS SHALL BE ZINC PLATED, HEX HEAD LAG SCREWS WITH A 3/4" WASHER, OR EQUIVALENT STRUCTURAL WOOD SCREW. PRE DRILL A PILOT HOLE FOR EACH BOLT.
- 2) ALL LUMBER INCLUDING THE 6x6 POST, CROSS TIE AND KNEE BRACE ARE ROUGH SAWN (FULL DIMENSION)



### BARRIER WALL ELEVATION C-C

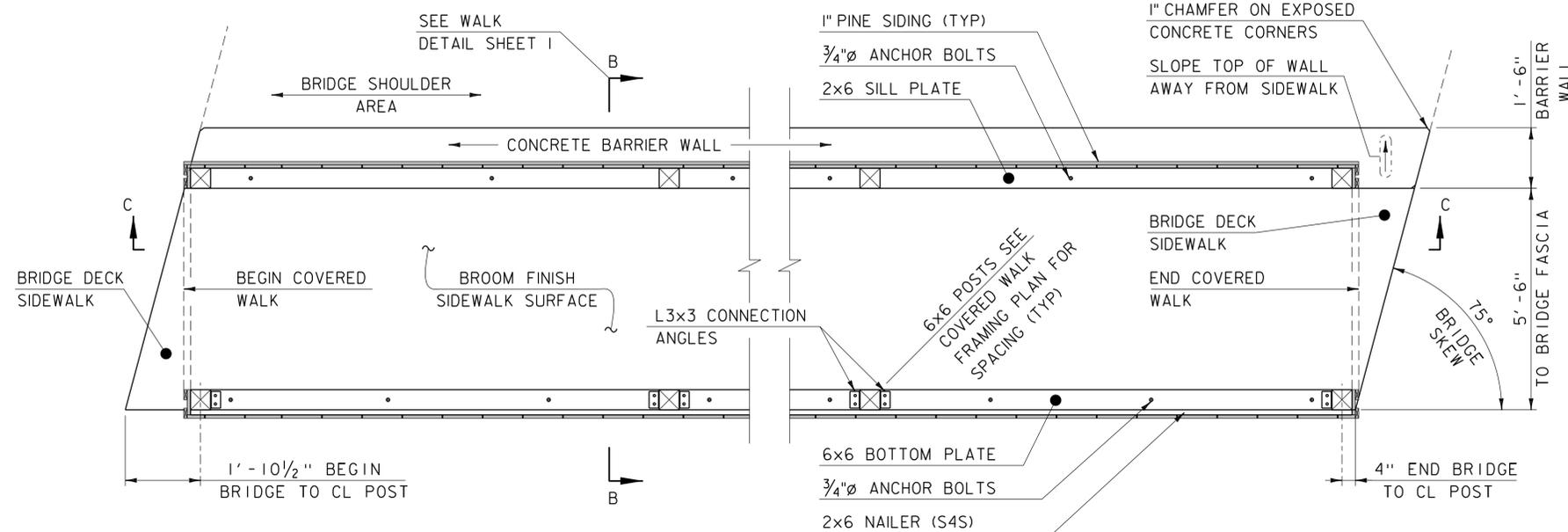
SCALE: 1/2" = 1'-0"



### POST COLUMN CONNECTION DETAIL

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

- 1) ALL 1/4" LAG BOLTS SHALL BE ZINC PLATED, HEX HEAD LAG SCREWS WITH A 3/4" WASHER, OR EQUIVALENT STRUCTURAL WOOD SCREW. PRE DRILL A PILOT HOLE FOR EACH BOLT.
- 2) THE POST COLUMN CONNECTION ON THE CONCRETE BARRIER WALL SIDE OF THE WALK WAY SHALL HAVE (3) 16d GALVANIZED NAILS ON (2) SIDES.



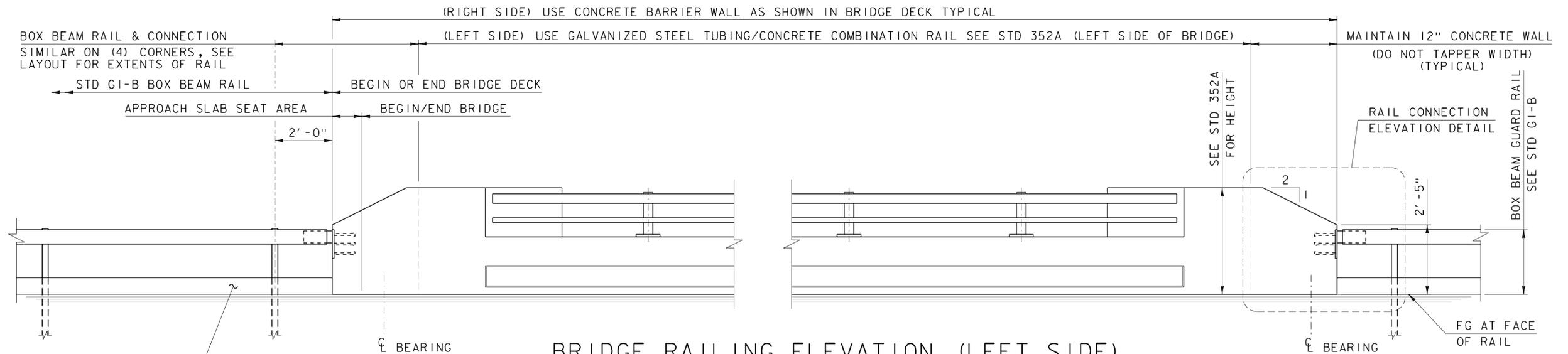
### COVERED WALK PLAN DETAIL

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

PROJECT NAME: STOWE  
PROJECT NUMBER: BRF 0235 (II)

FILE NAME: s87e052walk.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: D. PETERSON  
WALK DETAIL SHEET 2

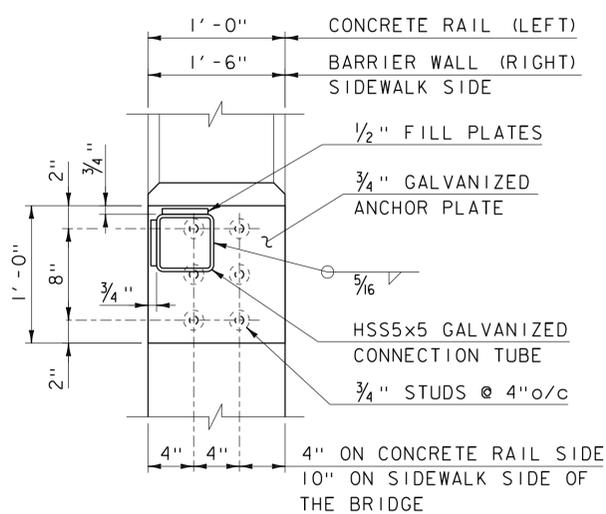
PLOT DATE: 04-JUN-2014  
DRAWN BY: M. LONGSTREET  
CHECKED BY: J. LACROIX  
SHEET 35 OF 62



### BRIDGE RAILING ELEVATION (LEFT SIDE)

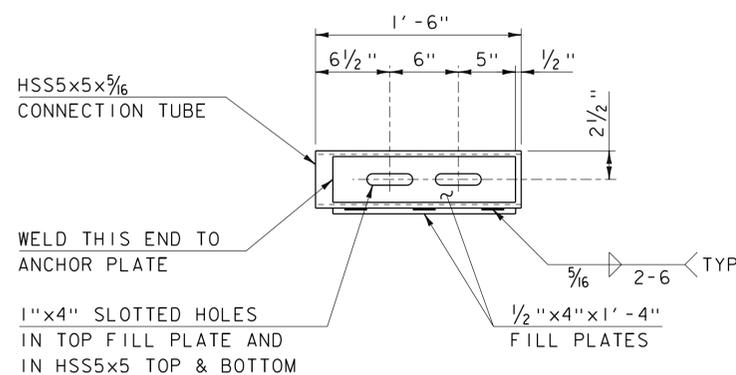
SCALE 1/2" = 1'-0"

- 1) USE BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION RAILING STD 352A. MODIFY RAILING AS SHOWN.
- 2) BOX BEAM GUARD RAIL CONNECTION AND ANCHOR PLATE IS SIMILAR AT THE COVERED WALKWAY BARRIER WALL LOCATIONS.



### SECTION A-A

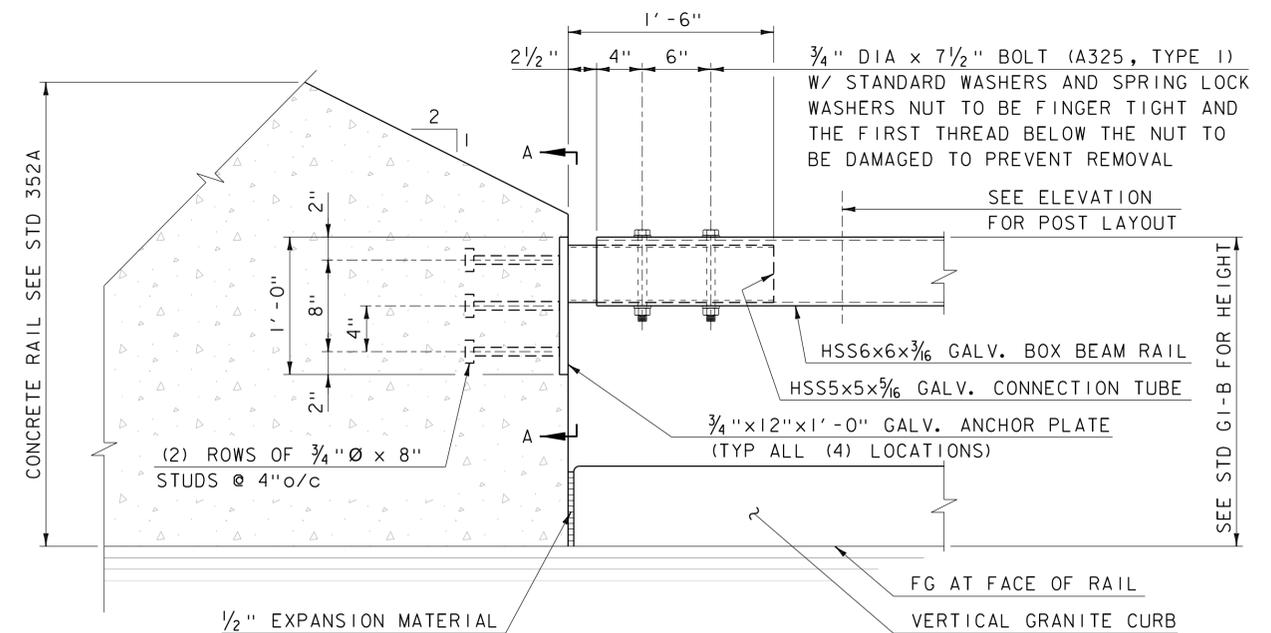
SCALE 1/2" = 1'-0"



### CONNECTION TUBE PLAN DETAIL

SCALE 1/2" = 1'-0"

- 1) ALL HSS STEEL AND PLATE STEEL TO BE GALVANIZED UNLESS OTHERWISE NOTED.



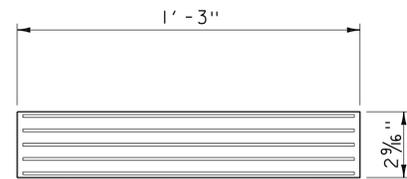
### RAIL CONNECTION ELEVATION DETAIL

SCALE 1/2" = 1'-0"

PROJECT NAME: STOWE  
PROJECT NUMBER: BRF 0235 (II)

FILE NAME: s87e052rail.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: D. PETERSON  
BRIDGE & APPROACH RAIL DETAILS

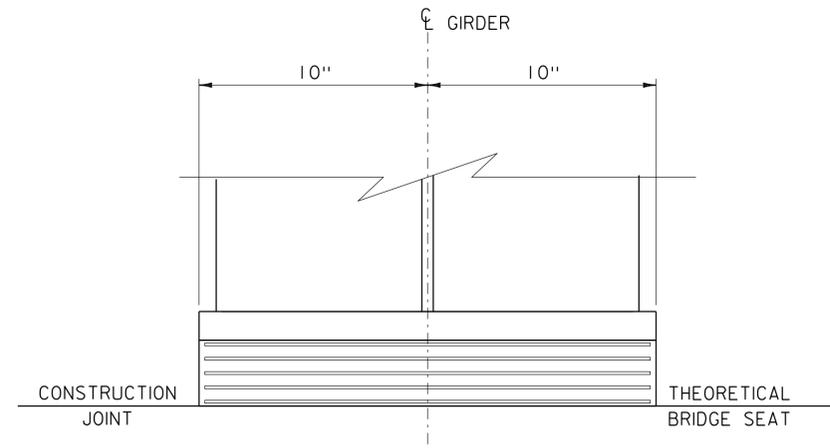
PLOT DATE: 04-JUN-2014  
DRAWN BY: M. LONGSTREET  
CHECKED BY: J. LACROIX  
SHEET 36 OF 62



- 1/8" ELASTOMERIC OUTER LAYER (TOP, BOTTOM, AND ALL-AROUND)
- (4) 1/2" LAYERS OF INTERIOR ELASTOMERIC ALTERNATING W/
- (5) 0.0625" (16 GAUGE) STEEL REINFORCING PLATES

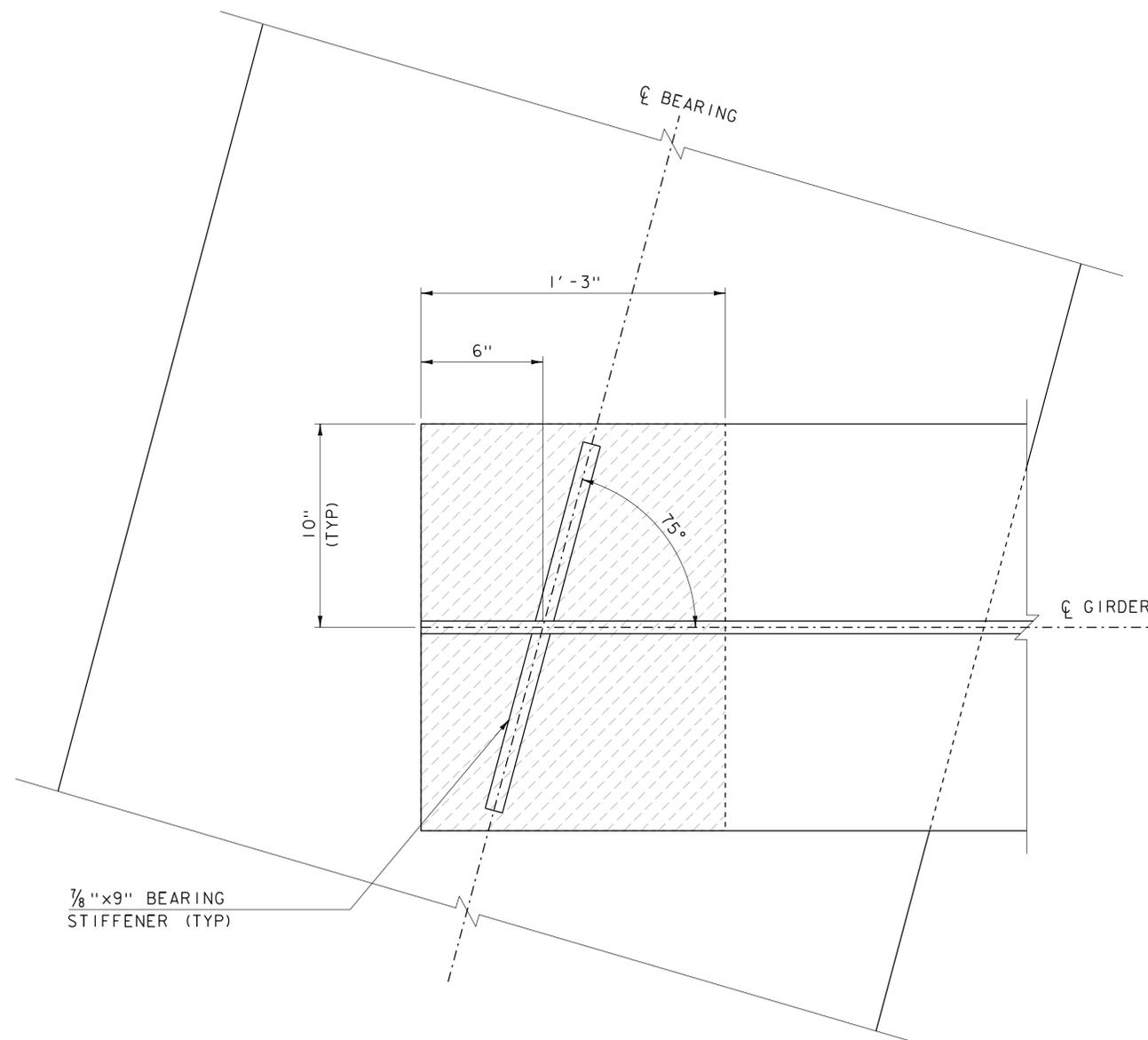
**ELASTOMERIC BEARING PAD MAKE-UP**

SCALE 3" = 1'-0"



**BEARING SECTION**

SCALE 3" = 1'-0"



**BEARING PLAN**

SCALE 3" = 1'-0"

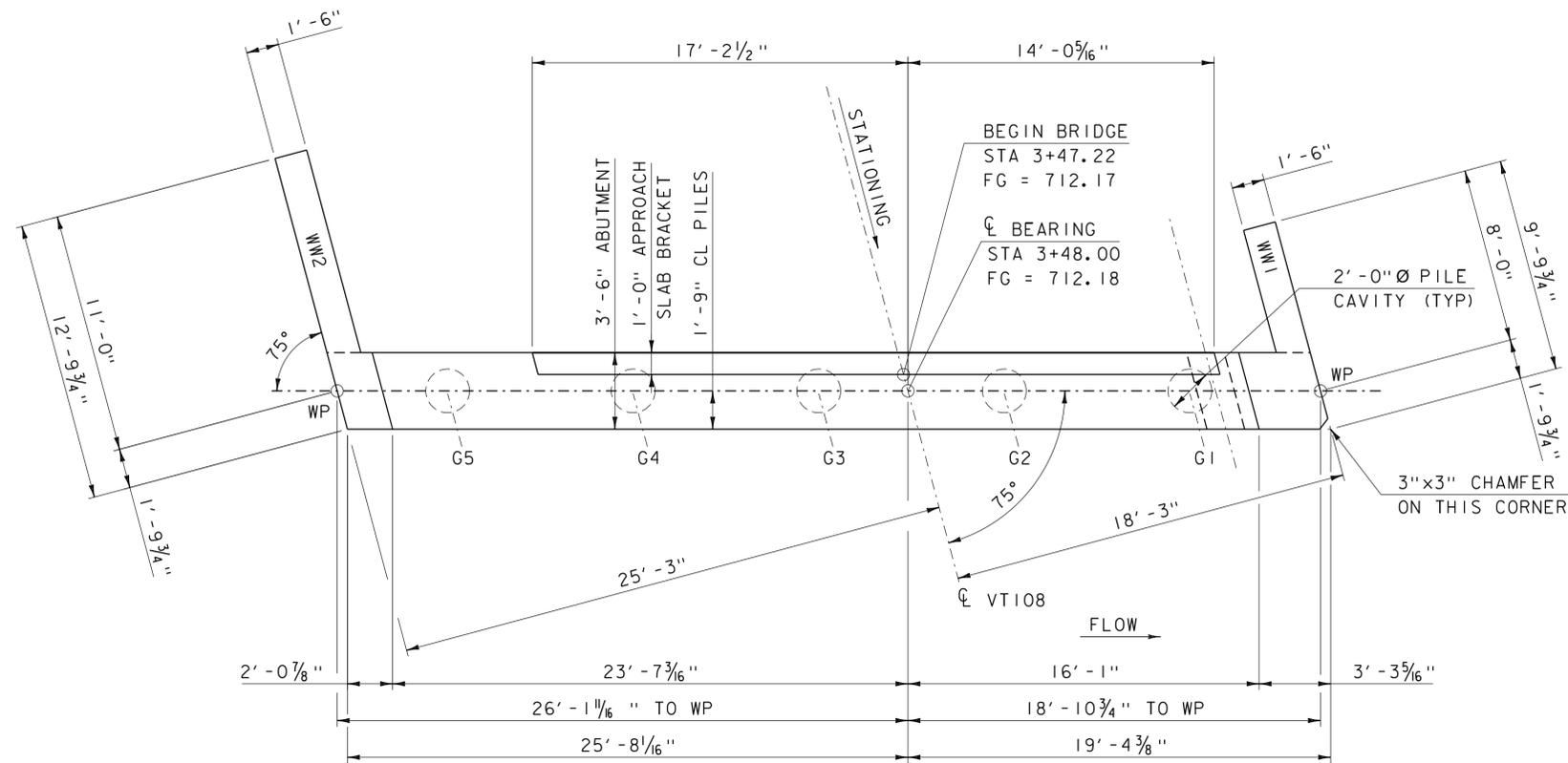
**BEARING DEVICE NOTES**

1. BEARINGS SHALL BE PAID FOR UNDER THE ITEM 531.17 "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD" AND SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTIONS 531 AND 731.
2. ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMERIC SHALL BE STEEL ASTM A36. 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 FOR ELASTOMERIC BEARINGS, ALL MATERIALS SHALL CONFORM TO AASHTO M251M/M251.

PROJECT NAME: STOWE  
PROJECT NUMBER: BRF 0235 (II)

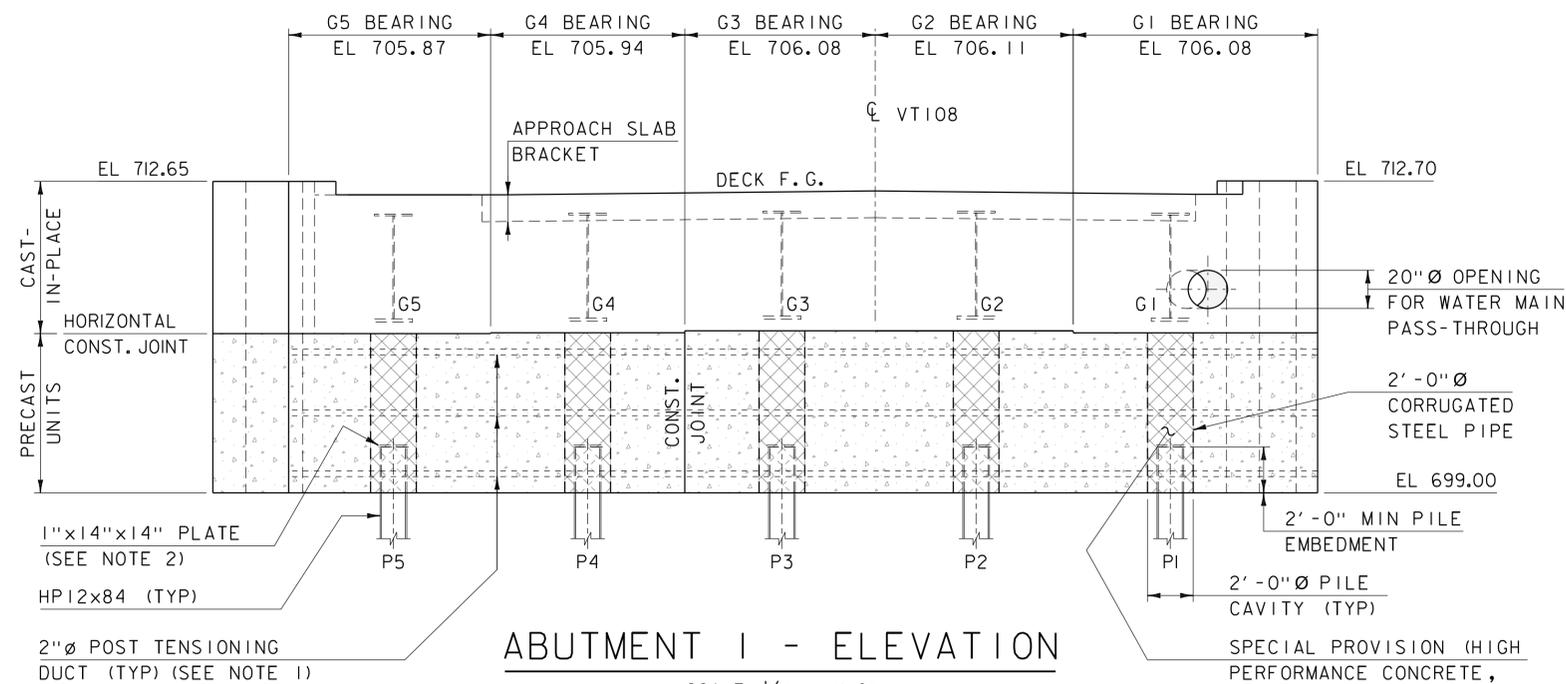
FILE NAME: s87e052brg.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: C. BURRALL  
TEMPORARY BEARING DETAILS

PLOT DATE: 04-JUN-2014  
DRAWN BY: D. PETERSON  
CHECKED BY: M. LONGSTREET  
SHEET 37 OF 62



**ABUTMENT I - PLAN**

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



**ABUTMENT I - ELEVATION**

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

- 1) POST TENSIONING AND ASSOCIATED ITEMS ONLY REQUIRED IF PILE CAP IS CONSTRUCTED OF MORE THAN ONE UNIT.
- 2) ONCE PILES HAVE BEEN CUT TO THEIR FINAL ELEVATIONS, 1"x14"x14" STEEL PLATES SHALL BE WELDED TO THE TOP OF THE PILES. PAYMENT FOR THE PLATES SHALL BE INCIDENTAL TO ITEM 505J65, STEEL PILING, HP 12x84.

PRECAST ABUTMENT FABRICATION TOLERANCES	
LENGTH (OVERALL)	± 1/4"
WIDTH (OVERALL)	± 1/4"
DEPTH (OVERALL)	± 1/4"
VARIATION FROM SPECIFIED END SQUARENESS OR SKEW	± 1/8" PER 12" WIDTH ± 1/2" MAXIMUM
LOCATION OF MECHANICAL SPLICE CONNECTORS MEASURED FROM COMMON REFERENCE POINT	± 1/4"
LOCATION OF PROJECTING REINFORCING MEASURED FROM COMMON REFERENCE POINT	± 1/4"
LOCAL SMOOTHNESS OF ANY SURFACE	± 1/4" IN 10 FEET
LOCATION OF POST TENSIONING CONDUITS	± 1/4"
LOCATION OF PILE CAVITIES	± 1"

PRECAST ABUTMENT ERECTION TOLERANCE	
VARIATION FROM SPECIFIED BRIDGE SEAT ELEVATION	± 1/8", 1/8" MAXIMUM BETWEEN ADJACENT UNITS
PLAN LOCATION OF ANY POINT MEASURED FROM COMMON REFERENCE POINT	± 1/2"
PLUMB	± 1/4" IN 10 FEET ± 1/2" MAXIMUM

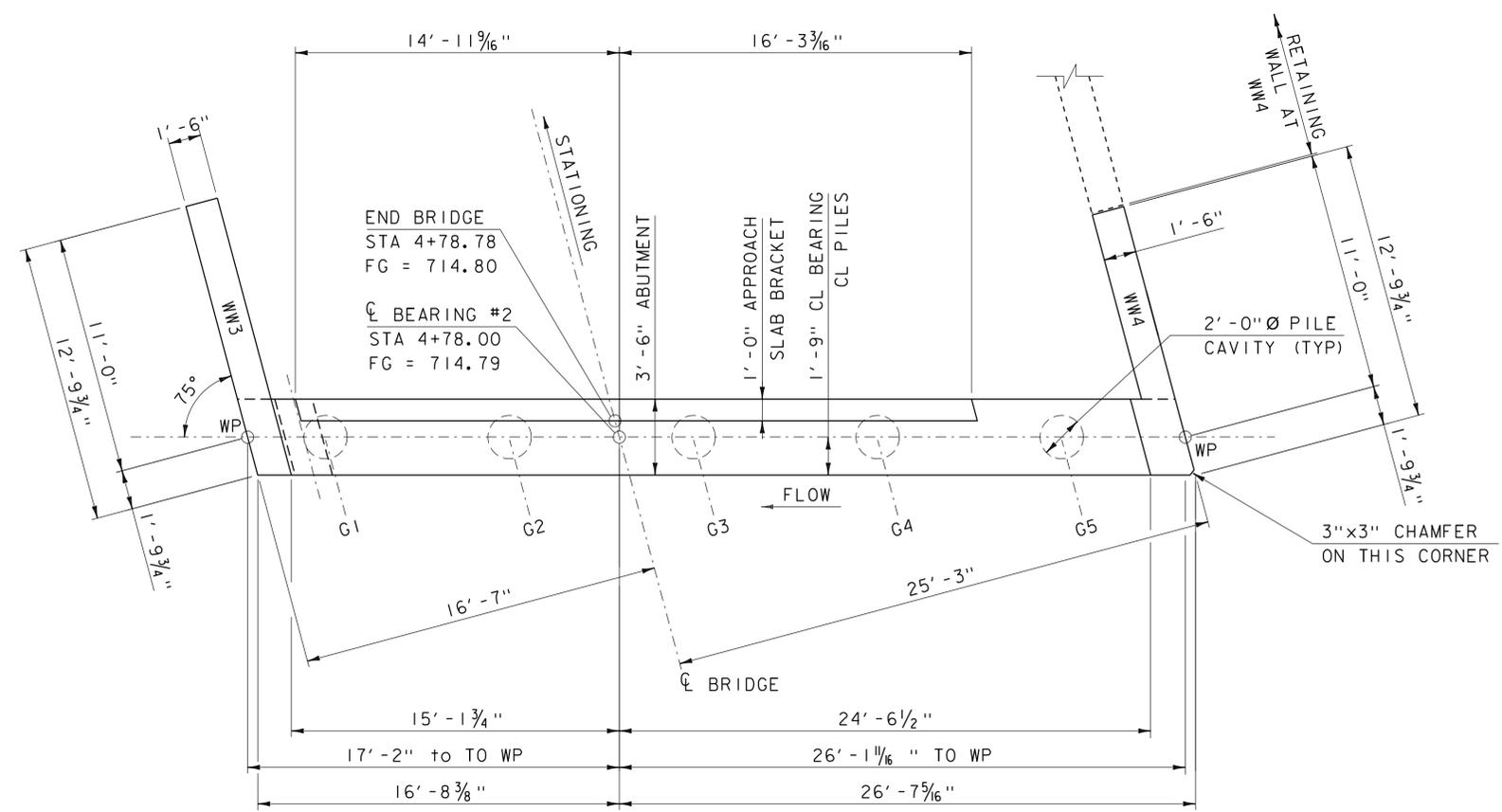
**NOTE:**

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

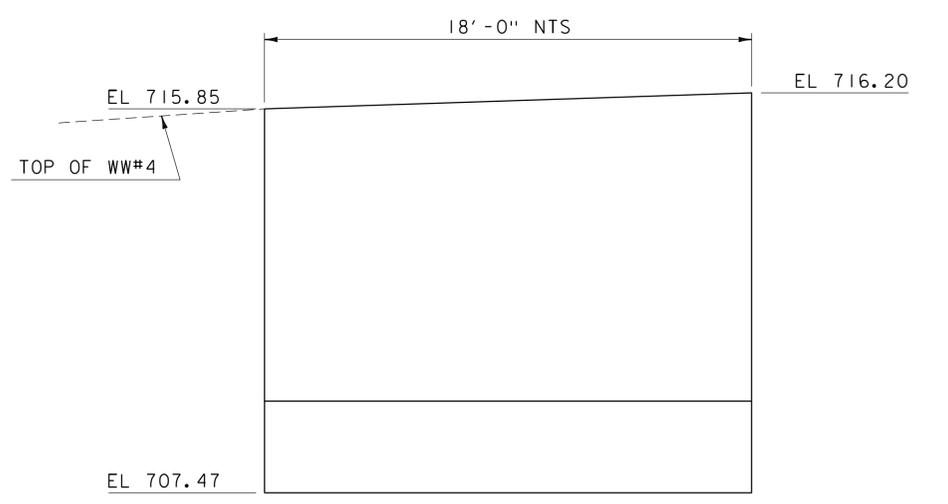
PROJECT NAME: STOWE  
 PROJECT NUMBER: BRF 0235 (II)

FILE NAME: s87e052sub.dgn  
 PROJECT LEADER: C. CARLSON  
 DESIGNED BY: D. PETERSON  
 ABUTMENT #1 PLAN & ELEVATION

PLOT DATE: 04-JUN-2014  
 DRAWN BY: M. LONGSTREET  
 CHECKED BY: C. BURRALL  
 SHEET 38 OF 62

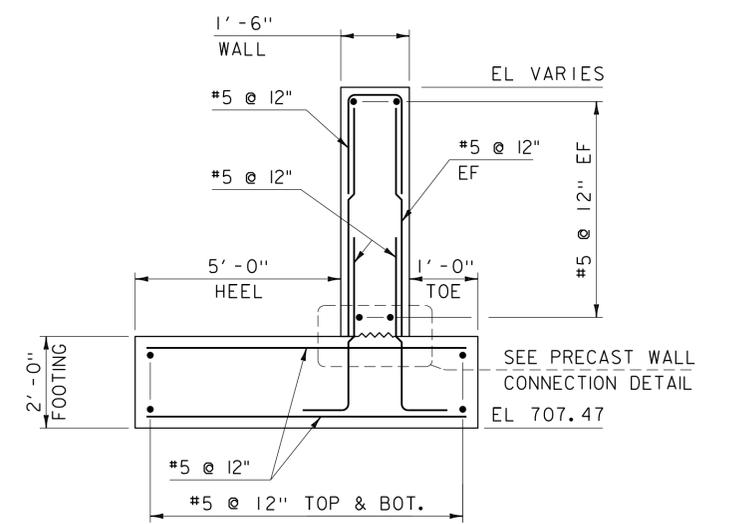


**ABUTMENT 2 - PLAN**  
SCALE: 1/4" = 1'-0"

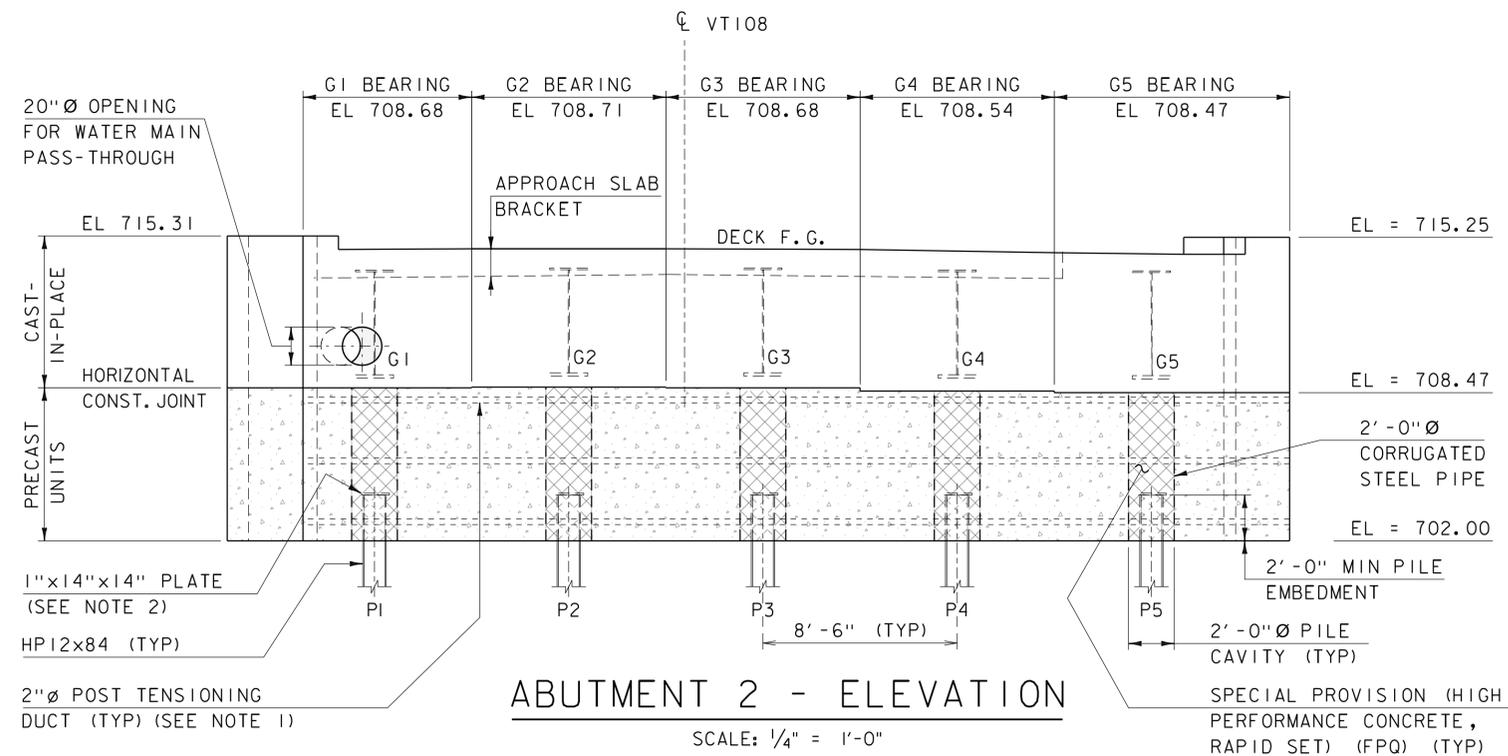


**RETAINING WALL ELEVATION**  
SCALE: 1/2" = 1'-0"

1) SEE RETAINING WALL @ WW4 TYPICAL, FOR REINFORCING AND OTHER DESIGN SPECIFICS.

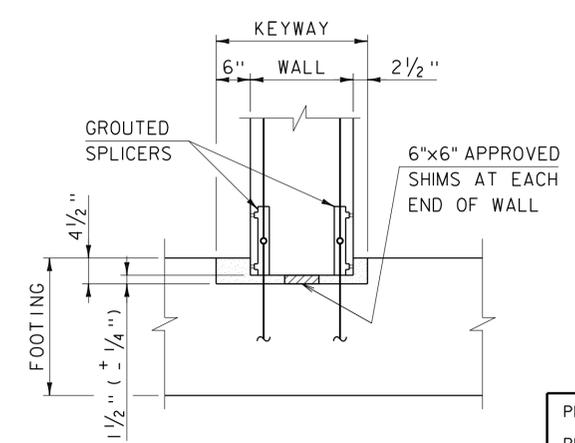


**RETAINING WALL @ WW4 TYPICAL**  
SCALE: 1/2" = 1'-0"



**ABUTMENT 2 - ELEVATION**  
SCALE: 1/4" = 1'-0"

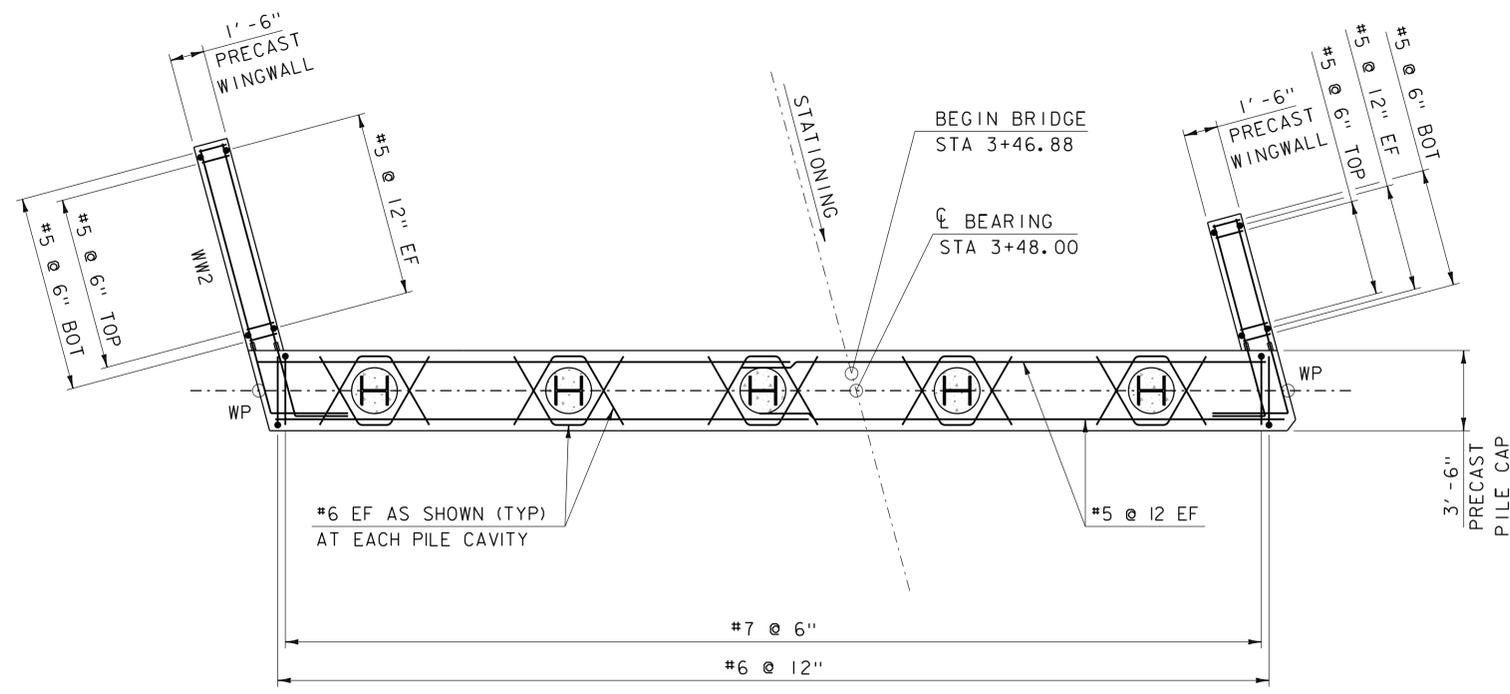
- 1) POST TENSIONING AND ASSOCIATED ITEMS ONLY REQUIRED IF PILE CAP IS CONSTRUCTED OF MORE THAN ONE UNIT.
- 2) ONCE PILES HAVE BEEN CUT TO THEIR FINAL ELEVATIONS, 1"x14"x14" STEEL PLATES SHALL BE WELDED TO THE TOP OF THE PILES. PAYMENT FOR THE PLATES SHALL BE INCIDENTAL TO ITEM 505J8, "STEEL PILING, HP 12x84.



**PRECAST WALL CONNECTION DETAIL**  
SCALE: 3/4" = 1'-0"

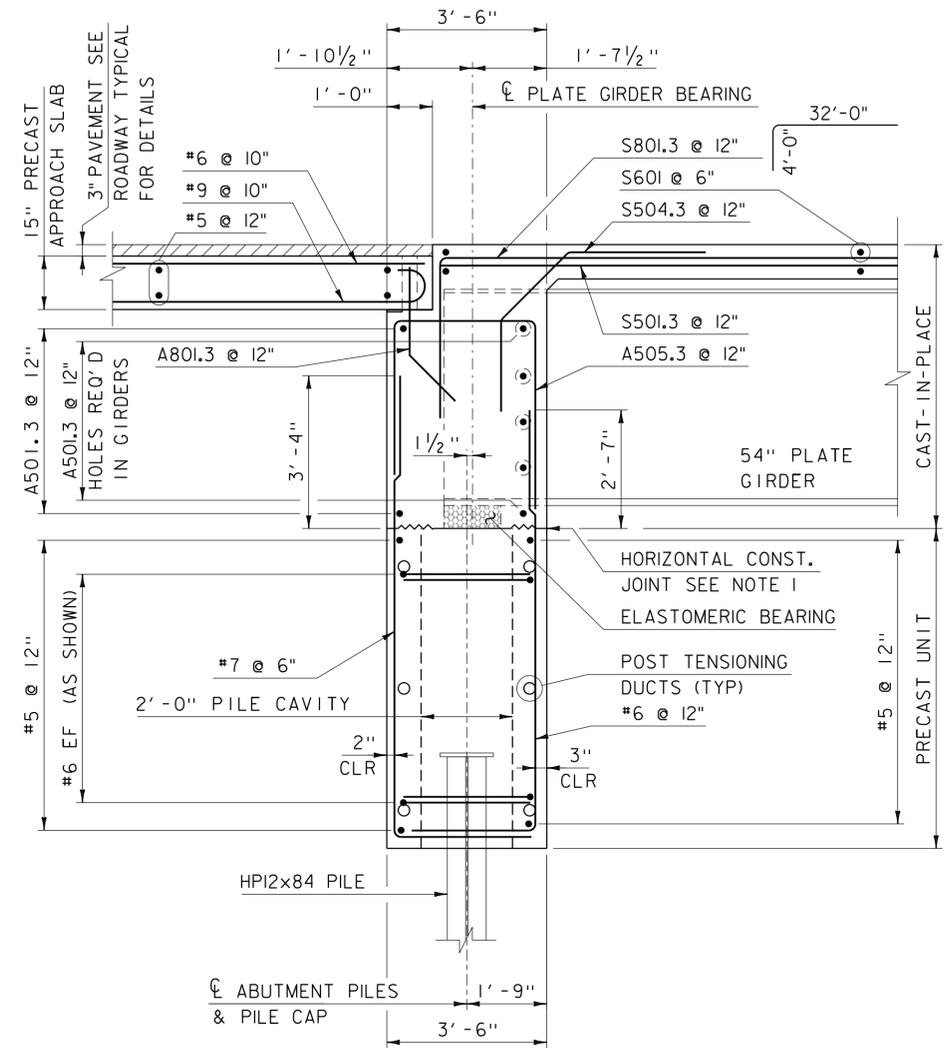
**NOTE:**  
 NF = NEAR FACE  
 FF = FAR FACE  
 EF = EACH FACE  
 ▲ = CUT TO FIT IN FIELD  
 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.  
 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	STOWE
PROJECT NUMBER:	BRF 0235 (II)
FILE NAME:	s87e052sub.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	D. PETERSON
ABUTMENT #2 PLAN & ELEVATION	
PLOT DATE:	04-JUN-2014
DRAWN BY:	D. KARABEGOVIC
CHECKED BY:	M. LONGSTREET
SHEET	39 OF 62



ABUTMENT I PRECAST - REINFORCING PLAN

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



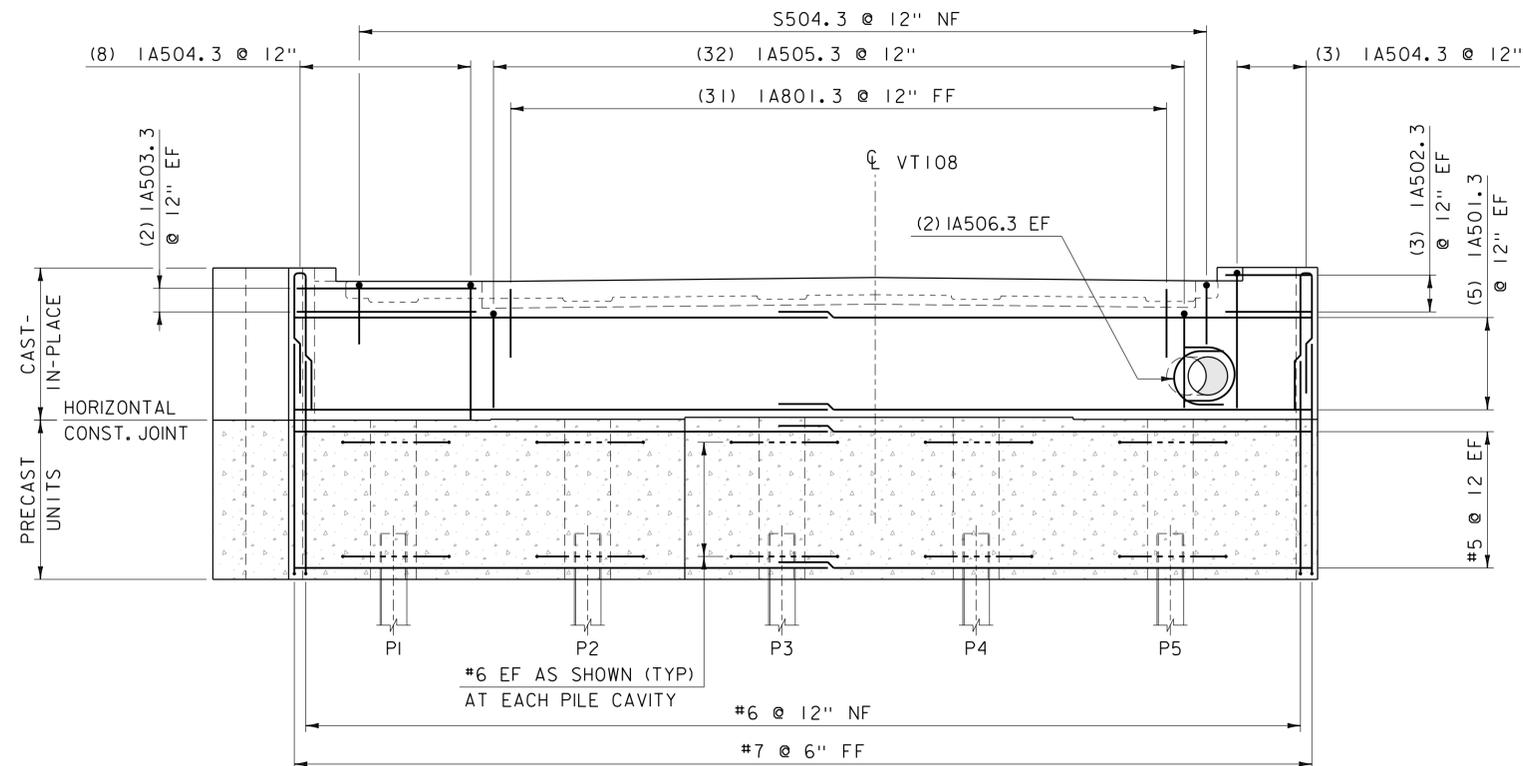
ABUTMENT I & 2 - TYPICAL

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

- HORIZONTAL CONSTRUCTION JOINT SHALL BE ROUGHEND AS SHOWN IN SD-501.00. SURFACE SHALL BE ROUGHEND TO WITHIN 3" OF EACH FACE OF CONCRETE AND WITHIN 3" OF ELASTOMERIC BEARING PADS. SURFACE UNDER EACH BEARING PAD SHALL REMAIN SMOOTH.

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

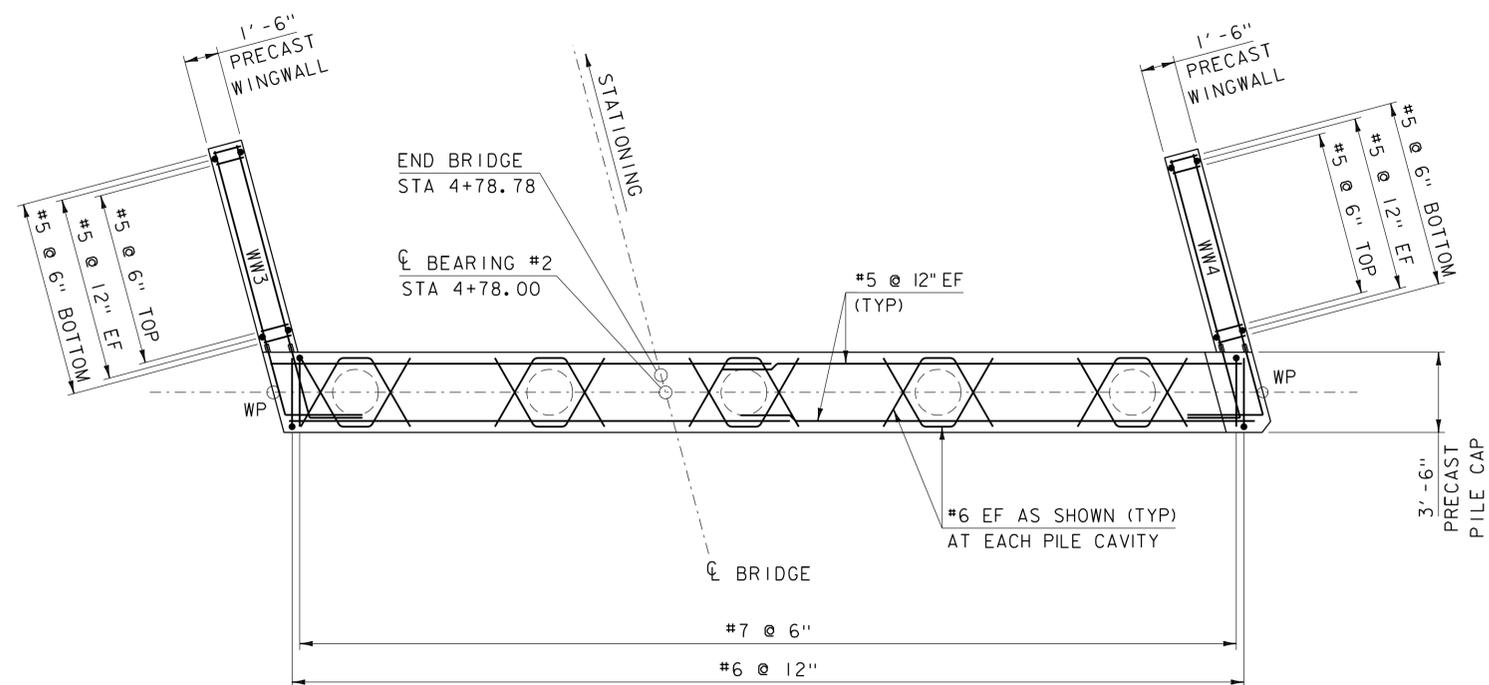
PROJECT NAME:	STOWE	PLOT DATE:	04-JUN-2014
PROJECT NUMBER:	BRF 0235 (II)	DRAWN BY:	M. LONGSTREET
FILE NAME:	s87e052sub.dgn	CHECKED BY:	C. BURRALL
PROJECT LEADER:	C. CARLSON	SHEET	40 OF 62
DESIGNED BY:	D. PETERSON		
ABUTMENT #1 REBAR PLAN & ELEVATION			



ABUTMENT I - REINFORCING ELEVATION

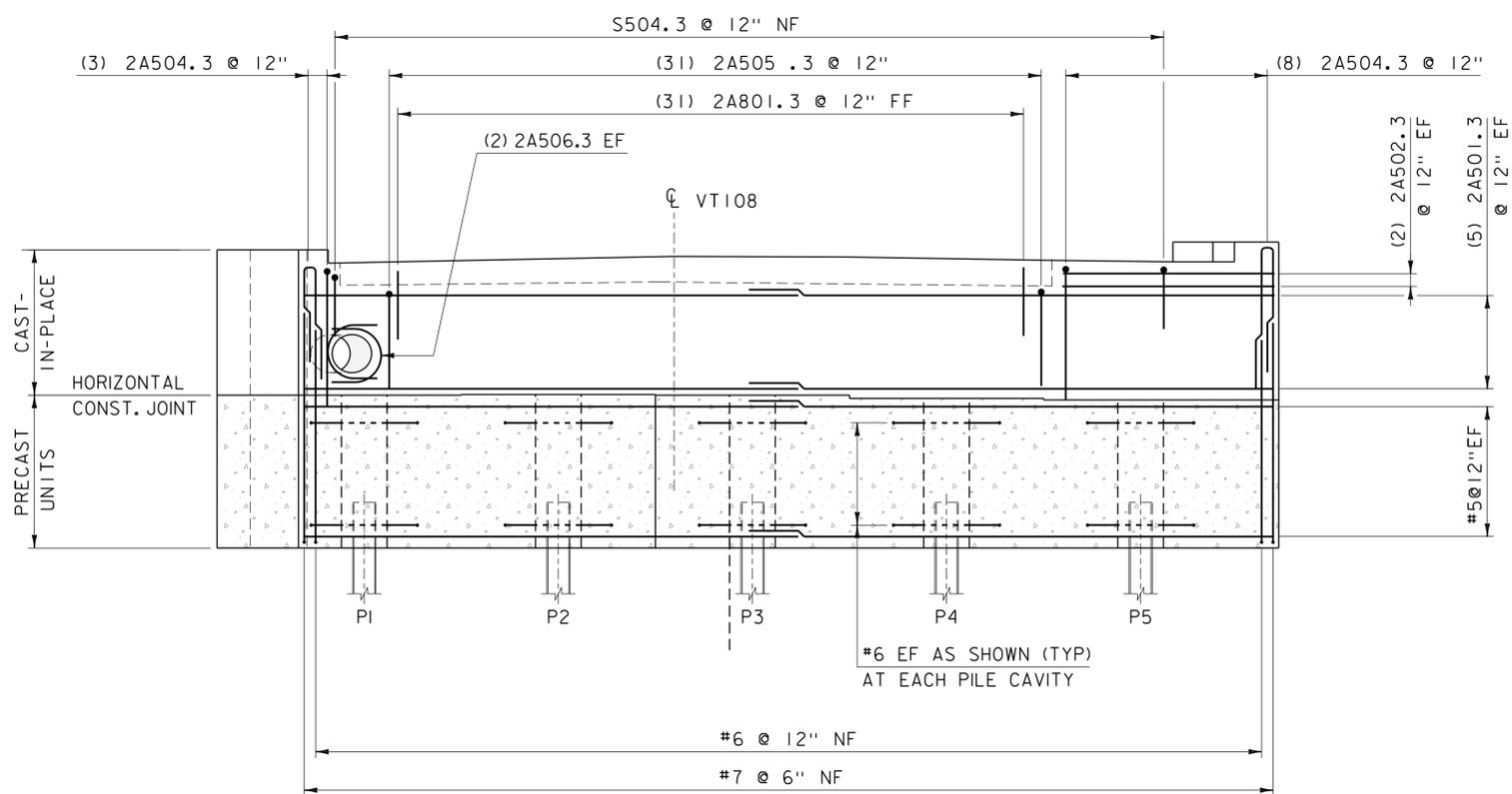
SCALE: 1/4" = 1'-0"

- FIELD CUTTING ABUTMENT #1 & #2 REINFORCING STEEL SHALL BE PERMITTED AS REQUIRED TO FIT 20" DIA WATER MAIN PASS-THROUGH.



ABUTMENT 2 PRECAST - REINFORCEMENT PLAN

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



ABUTMENT 2 - REINFORCING ELEVATION

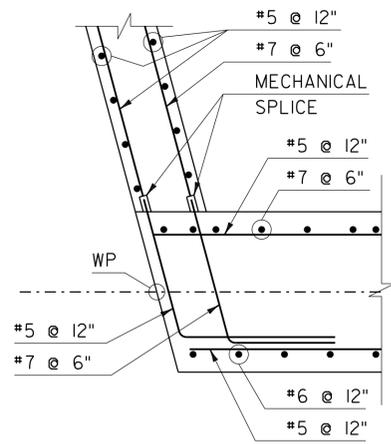
SCALE: 1/4" = 1'-0"

**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.

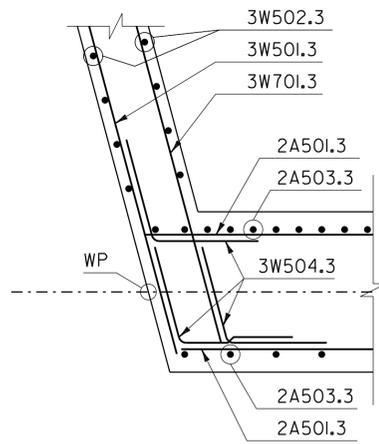
PROJECT NAME: STOWE	
PROJECT NUMBER: BRP 0235 (II)	
FILE NAME: s87e052sub.dgn	PLOT DATE: 04-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: D. KARABEGOVIC
DESIGNED BY: D. PETERSON	CHECKED BY: M. LONGSTREET
ABUTMENT #2 REBAR PLAN & ELEVATION	SHEET 41 OF 62





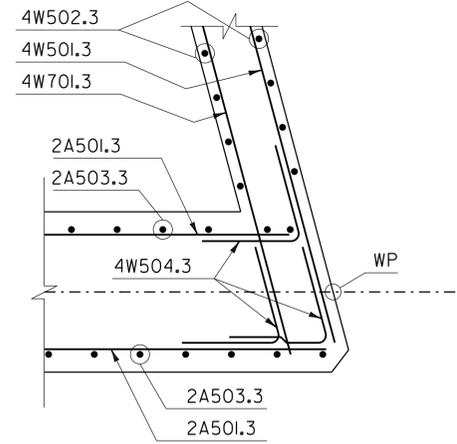
WW3 CORNER DETAIL PCU

SCALE: 1/2" = 1'-0"  
(BELOW SEAT)



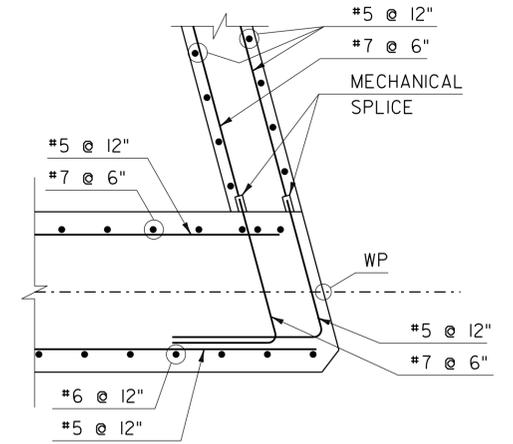
WW3 CORNER DETAIL CIP

SCALE: 1/2" = 1'-0"  
(ABOVE SEAT)



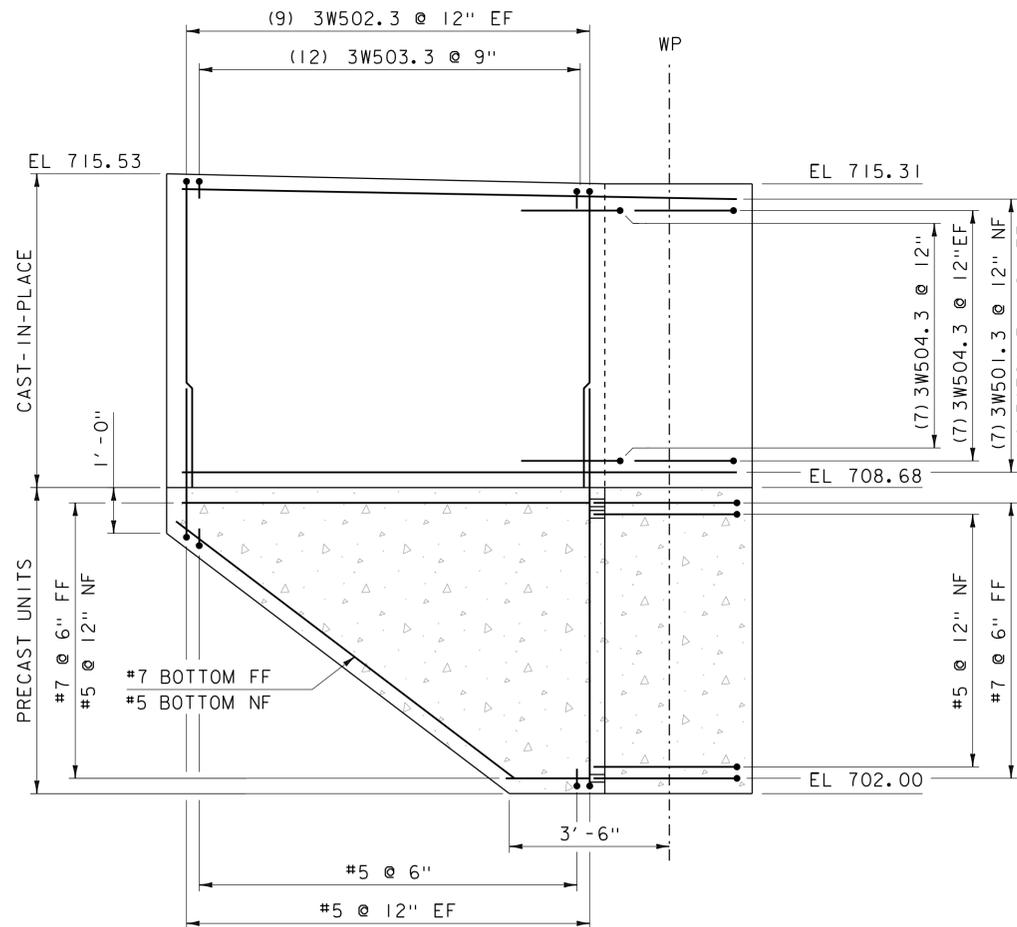
WW4 CORNER DETAIL CIP

SCALE: 1/2" = 1'-0"  
(ABOVE SEAT)



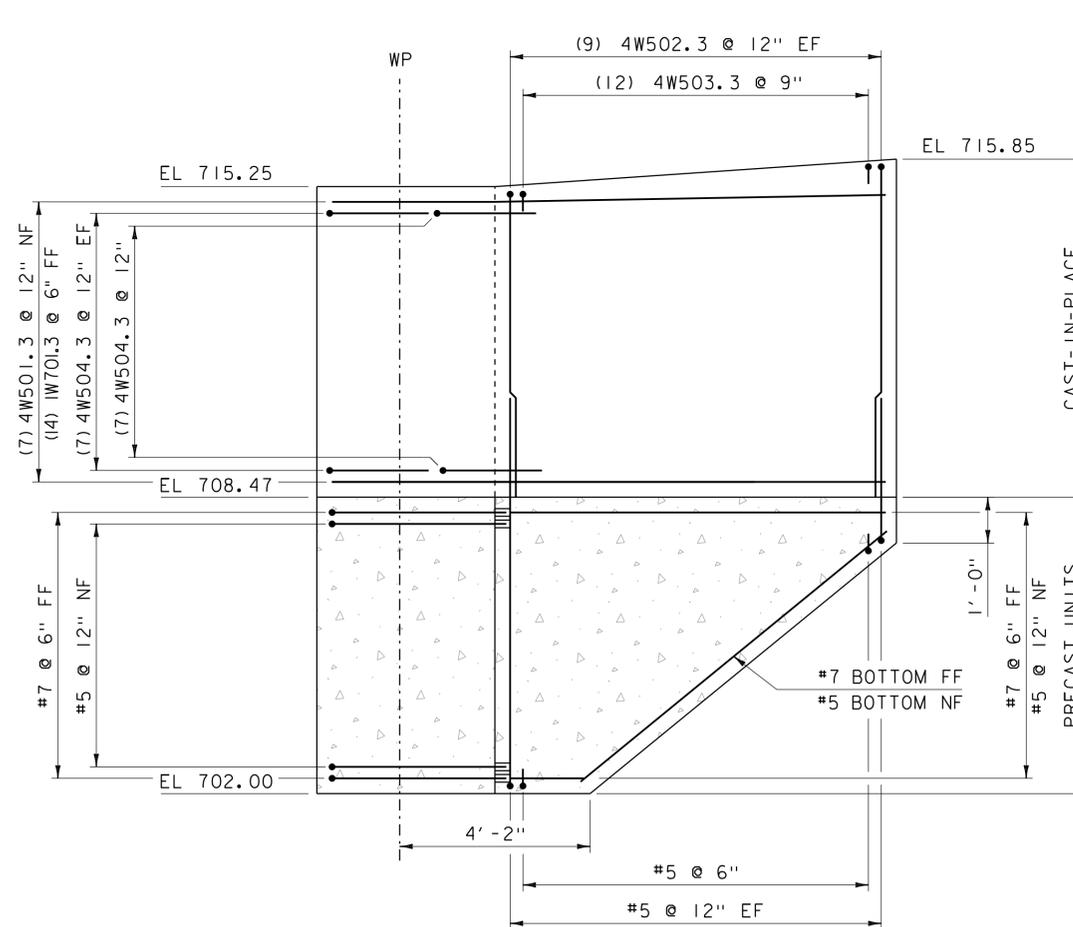
WW4 CORNER DETAIL PCU

SCALE: 1/2" = 1'-0"  
(BELOW SEAT)



WINGWALL 3 - ELEVATION

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



WINGWALL 4 - 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.

PROJECT NAME: STOWE  
PROJECT NUMBER: BRP 0235 (II)

FILE NAME: s87e052sub2.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: D. PETERSON  
WINGWALL 3 - 4 ELEVATION

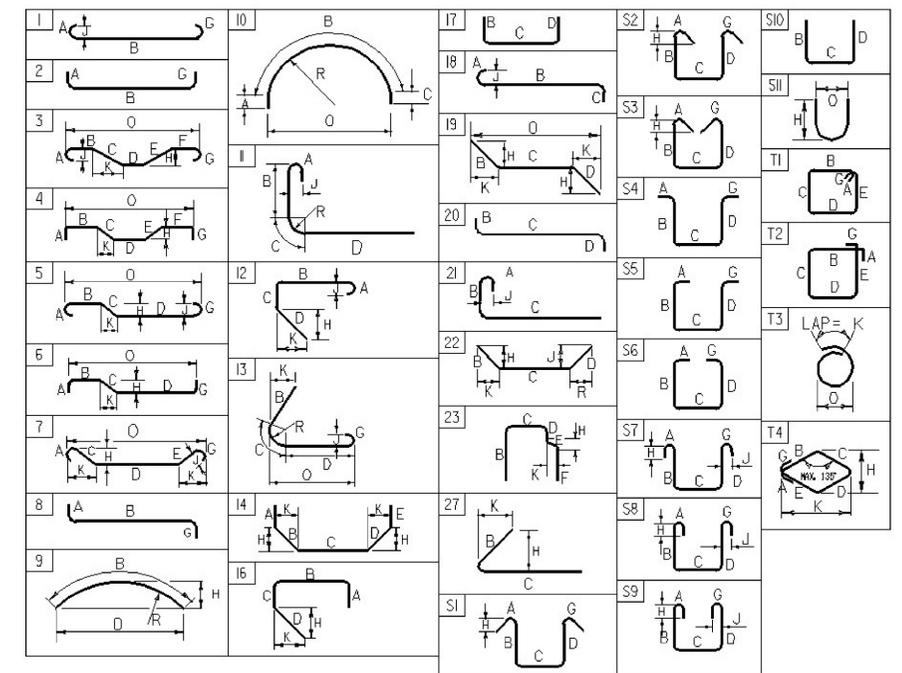
PLOT DATE: 04-JUN-2014  
DRAWN BY: D. KARABEGOVIC  
CHECKED BY: M. LONGSTREET  
SHEET 43 OF 62

# REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O	ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O		
<b>DECK</b>																																					
24	4		34'- 11"	S401.3	STR	34'- 11"																															
336	5		34'- 11"	S501.3	STR	34'- 11"																															
263	5		39'- 0"	S502.3	STR	39'- 0"																															
263	6		39'- 0"	S601.3	STR	39'- 0"																															
74	9		36'- 0"	S801.3	2	4'- 0"	32'- 0"	---																													
199	4		10'- 5"	S402.3	S5	2'- 2"	2'- 5"	1'- 0"	2'- 8"			2'- 2"																									
199	4		9'- 6"	S403.3	S5	2'- 2"	2'- 3"	0'- 7"	2'- 4"			2'- 2"																									
134	5		10'- 10"	S503.3	S6	2'- 2"	0'- 9"	5'- 0"	0'- 9"			2'- 2"																									
76	5		6'- 5"	S504.3	22		2'- 0"	2'- 5"	2'- 0"				1'- 3"	1'- 3"	1'- 3"	1'- 3"																					
<b>ABUTMENT #1</b>																																					
20	5		23'- 4"	1A501.3	STR	23'- 4"																															
6	5		2'- 9"	1A502.3	STR	2'- 9"																															
4	5		7'- 10"	1A503.3	STR	7'- 10"																															
12	5		14'- 11"	1A504.3	S10		5'- 11"	3'- 1"	5'- 11"																												
32	5		11'- 9"	1A505.3	S10		4'- 4"	3'- 1"	4'- 4"																												
4	5		5'- 3"	2A506.3	S11								2'- 1"				2'- 2"																				
31	8		3'- 5"	1A801.3	19		1'- 5"	2'- 0"	---				1'- 0"		1'- 0"		3'- 0"																				
<b>WINGWALL #1</b>																																					
7	5		9'- 4"	1W501.3	STR	9'- 4"																															
13	7		9'- 4"	1W701.3	STR	9'- 4"																															
12	5		6'- 11"	1W502.3	1	0'- 7"	6'- 4"							0'- 5"																							
14	5		2'- 1"	1W503.3	S3	0'- 6"	---	1'- 1"				0'- 6"	0'- 4"																								
21	5		4'- 4"	1W504.3	27		2'- 2"	2'- 2"					2'- 1"			0'- 7"																					
<b>WINGWALL #2</b>																																					
7	5		12'- 4"	2W501.3	STR	12'- 4"																															
14	7		12'- 4"	2W701.3	STR	12'- 4"																															
18	5		7'- 1"	2W502.3	1	0'- 7"	6'- 6"							0'- 5"																							
12	5		2'- 0"	2W503.3	S3	0'- 6"	---	1'- 1"	---			0'- 6"	0'- 4"																								
21	5		4'- 6"	2W504.3	22		2'- 3"	2'- 3"	---				2'- 1"	---	0'- 7"	---																					
<b>ABUTMENT #2</b>																																					
20	5		22'- 6"	2A501.3	STR	22'- 6"																															
4	5		8'- 11"	2A502.3	STR	8'- 11"																															
3	5		14'- 9"	2A504.3	S10		5'- 10"	3'- 1"	5'- 10"																												
31	5		11'- 9"	2A505.3	S10		4'- 4"	3'- 1"	4'- 4"																												
4	5		5'- 3"	2A506.3	S11								2'- 1"				2'- 2"																				
31	8		3'- 5"	2A801.3	19		1'- 5"	2'- 0"	---				1'- 0"		1'- 0"		3'- 0"																				
<b>WINGWALL #3</b>																																					
7	5		12'- 4"	3W501.3	STR	12'- 4"																															
14	7		12'- 4"	3W701.3	STR	12'- 4"																															
18	5		6'- 11"	3W502.3	1	0'- 7"	6'- 4"							0'- 5"																							
12	5		2'- 0"	3W503.3	S3	0'- 6"	---	1'- 1"	---			0'- 6"	0'- 4"																								
21	5		4'- 4"	3W504.3	22		2'- 2"	2'- 2"	---				2'- 1"	---	0'- 7"	---																					
<b>WINGWALL #4</b>																																					
7	5		12'- 4"	4W501.3	STR	12'- 4"																															
14	7		12'- 4"	4W701.3	STR	12'- 4"																															
18	5		7'- 1"	4W502.3	1	0'- 7"	6'- 6"							0'- 5"																							
12	5		2'- 0"	4W503.3	S3	0'- 6"	---	1'- 1"	---			0'- 6"	0'- 4"																								
21	5		4'- 5"	4W504.3	27		2'- 3"	2'- 2"					2'- 1"		0'- 7"																						

~ NOTES ~

- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-S1). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
- FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
- "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
- "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
- WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
- ▲ DENOTES BARS TO BE CUT IN FIELD.
- \* DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



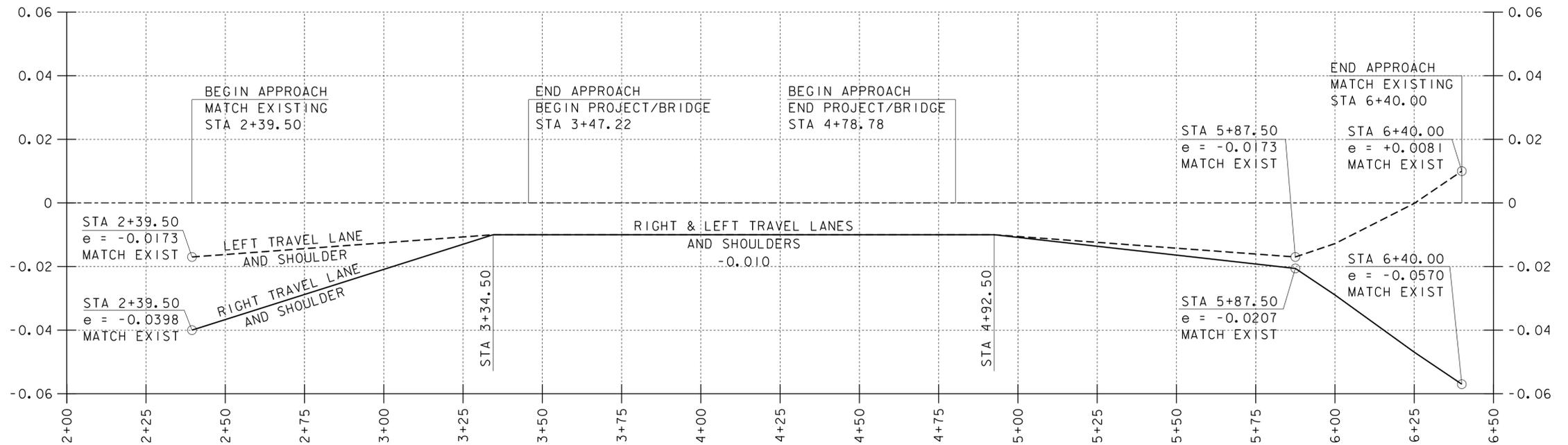
**ASTM STANDARD REINFORCING BARS**

Bar Size	Yield Strength (ksi)	Tensile Strength (ksi)	Elongation (%)	Weight (lb/ft)
#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 ~

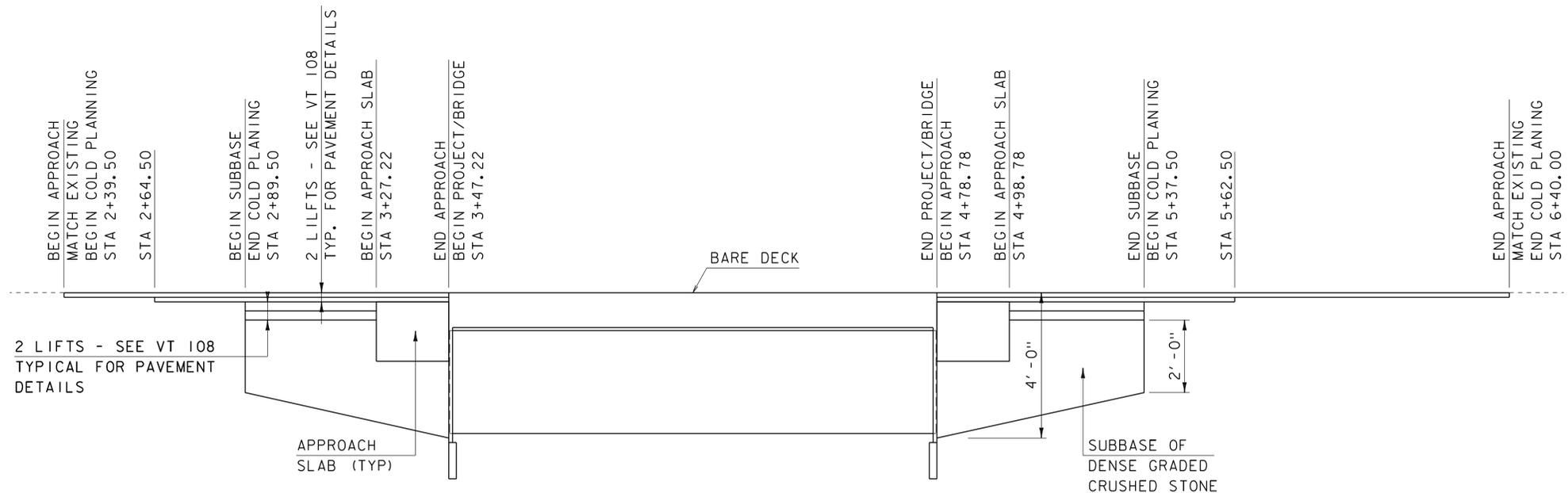
THE REINFORCING STEEL MARKS IN THIS SCHEDULE INDICATE THE REQUIRED BAR CORROSION RESISTANCE LEVEL. CORROSION RESISTANCE LEVEL IS DENOTED WITH A .2 FOR LEVEL TWO SUFFIX OR .3 FOR LEVEL THREE SUFFIX. .1 FOR LEVEL ONE IS TO BE OMITTED. THE BAR MATERIAL TYPE AND BAR STEEL GRADE PROVIDED FOR EACH CORROSION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

PROJECT NAME:	<b>STOWE</b>
PROJECT NUMBER:	<b>BRF 0235 (11)</b>
FILE NAME:	s87e052rss.xls
PROJECT MANAGER:	C. CARLSON
DESIGNED BY:	D. PETERSON
REINFORCING STEEL SCHEDULE	
PLOT DATE:	5/27/2014
DRAWN BY:	M. LONGSTREET
CHECKED BY:	J. LACROIX
SHEET	44 OF 62



### VT 108 BANKING DIAGRAM

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



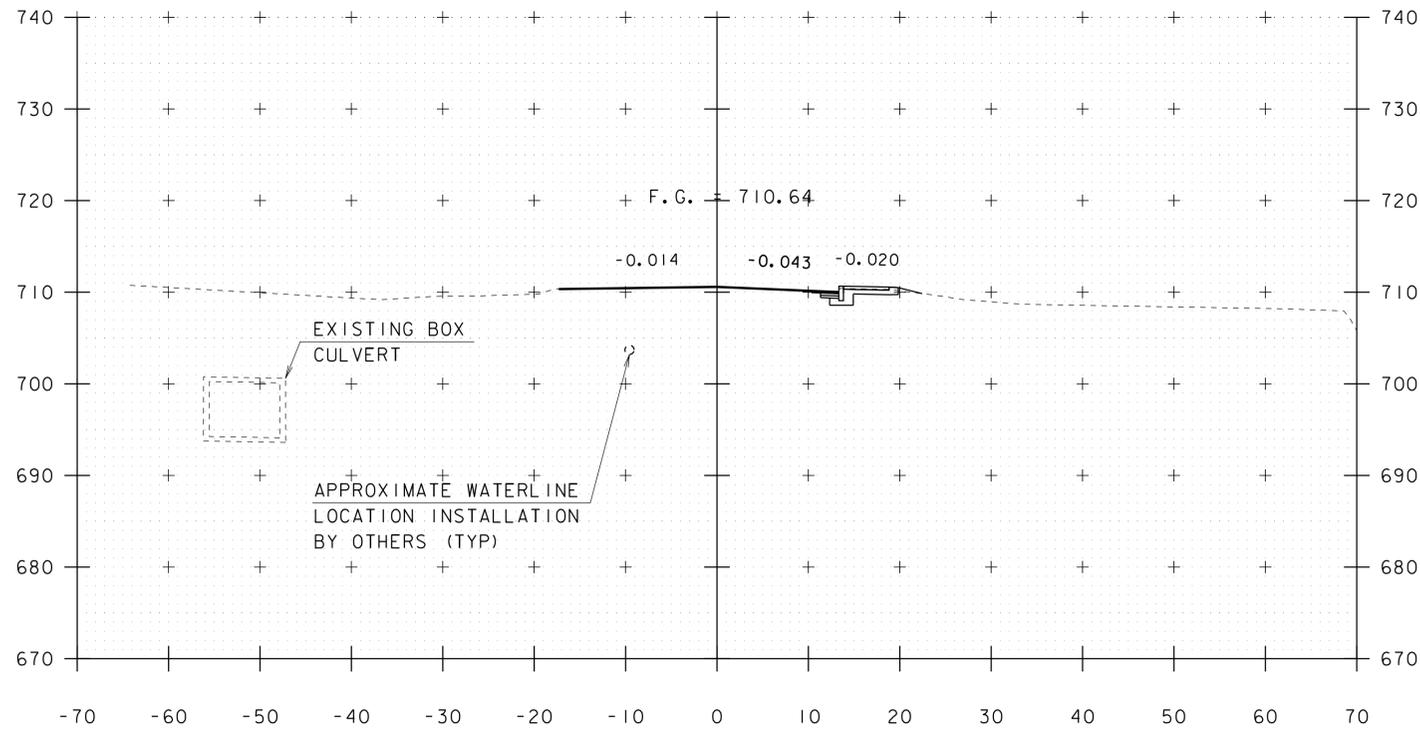
### VT 108 MATERIAL TRANSITION DETAIL

HORIZONTAL SCALE: 1" = 20'-0"  
 NO VERTICAL SCALE

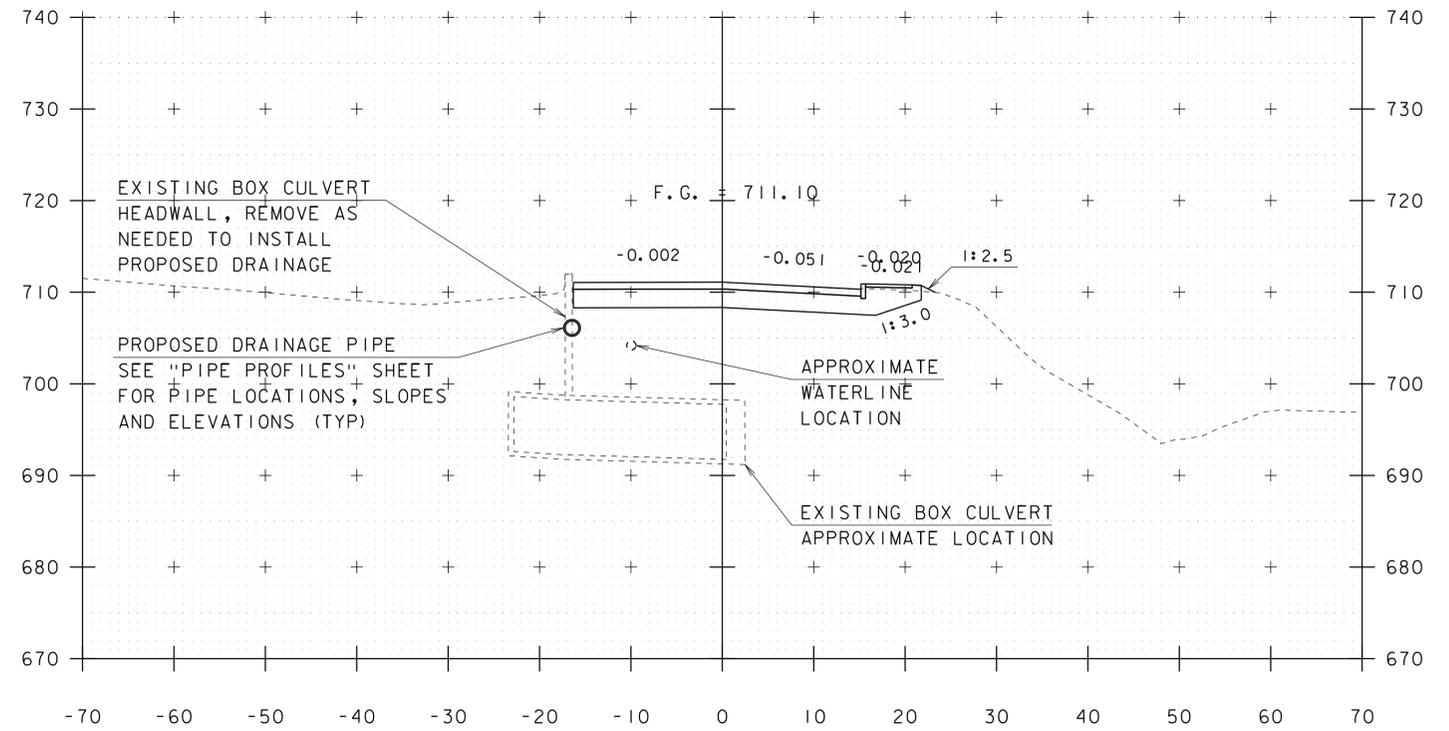
PROJECT NAME: STOWE  
 PROJECT NUMBER: BRF 0235 (II)

FILE NAME: s87e052pro.dgn  
 PROJECT LEADER: C. CARLSON  
 DESIGNED BY: D. PETERSON  
 BANKING DIAGRAM & MATERIAL TRANSITION

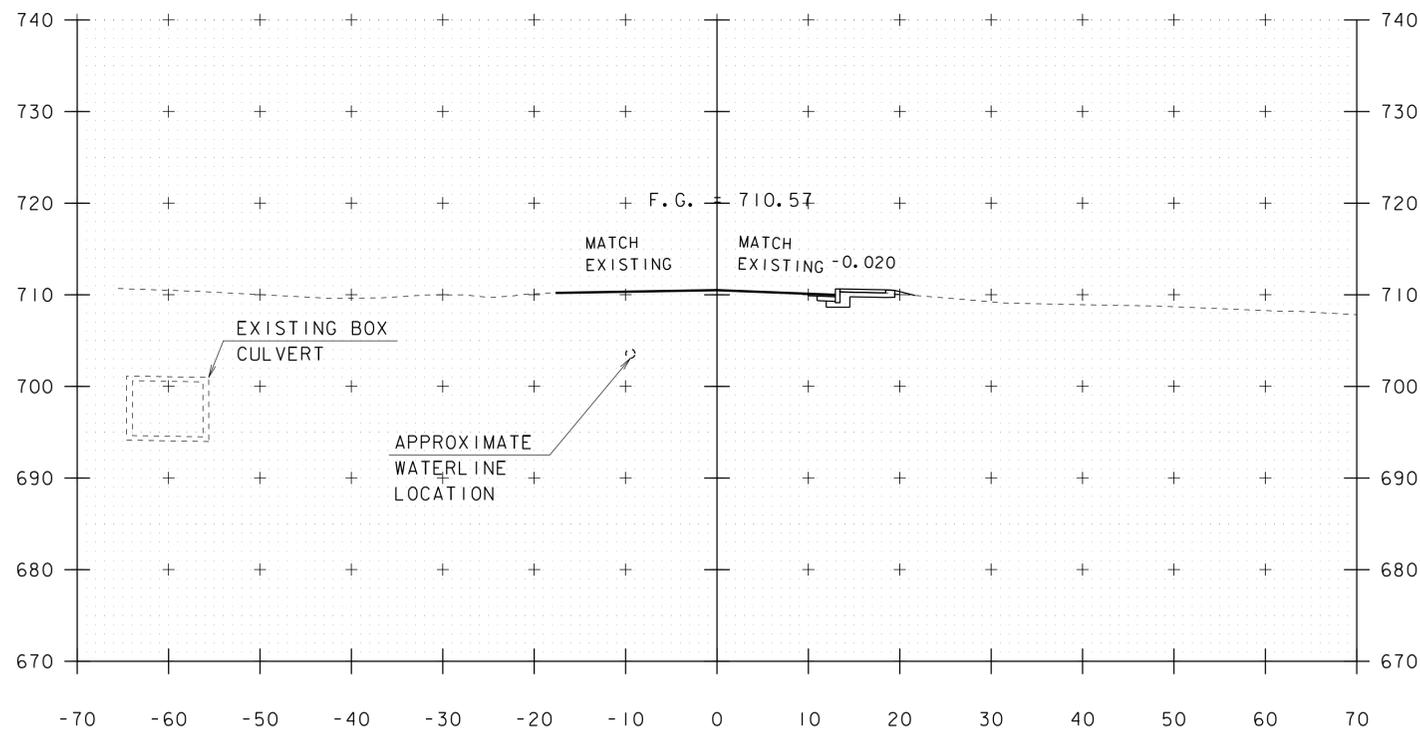
PLOT DATE: 04-JUN-2014  
 DRAWN BY: G. ROY  
 CHECKED BY: M. LONGSTREET  
 SHEET 45 OF 62



2+50

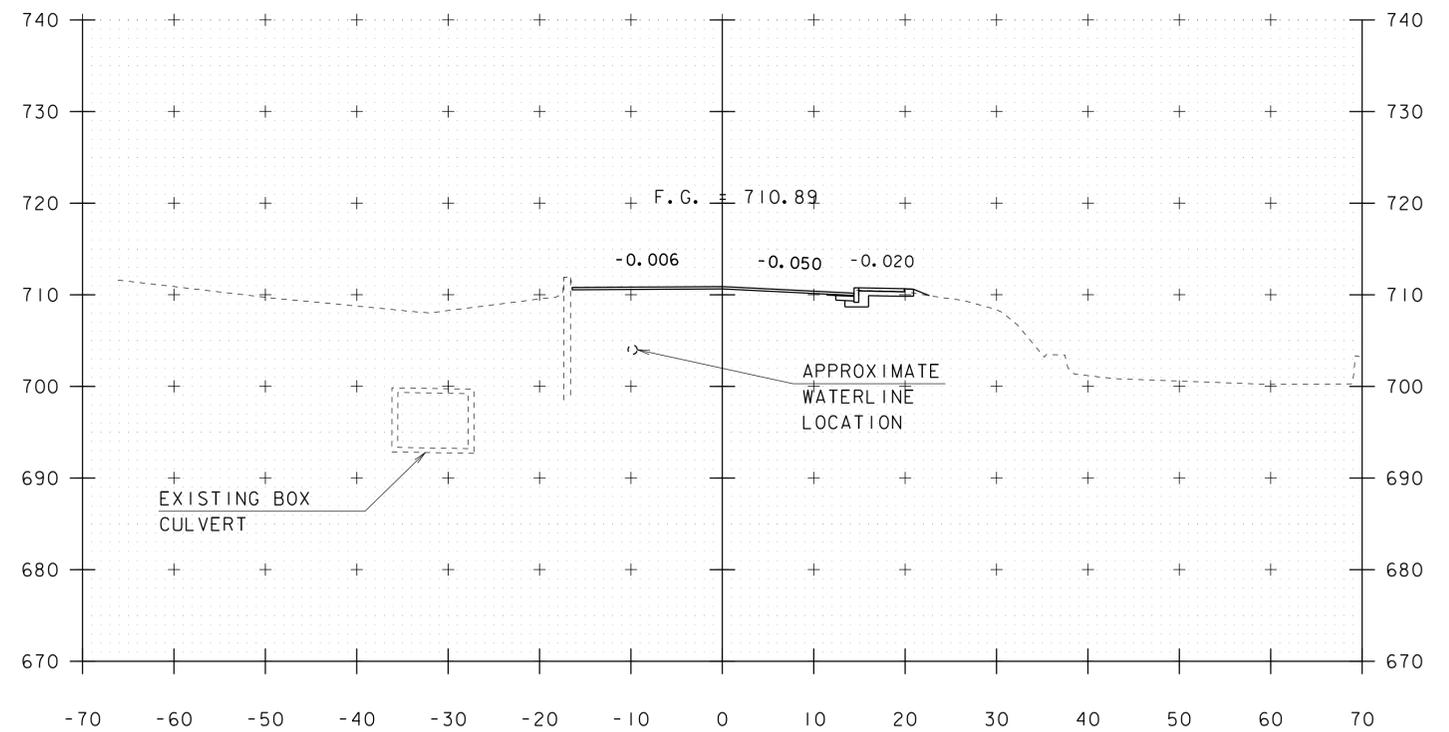


2+90



2+40

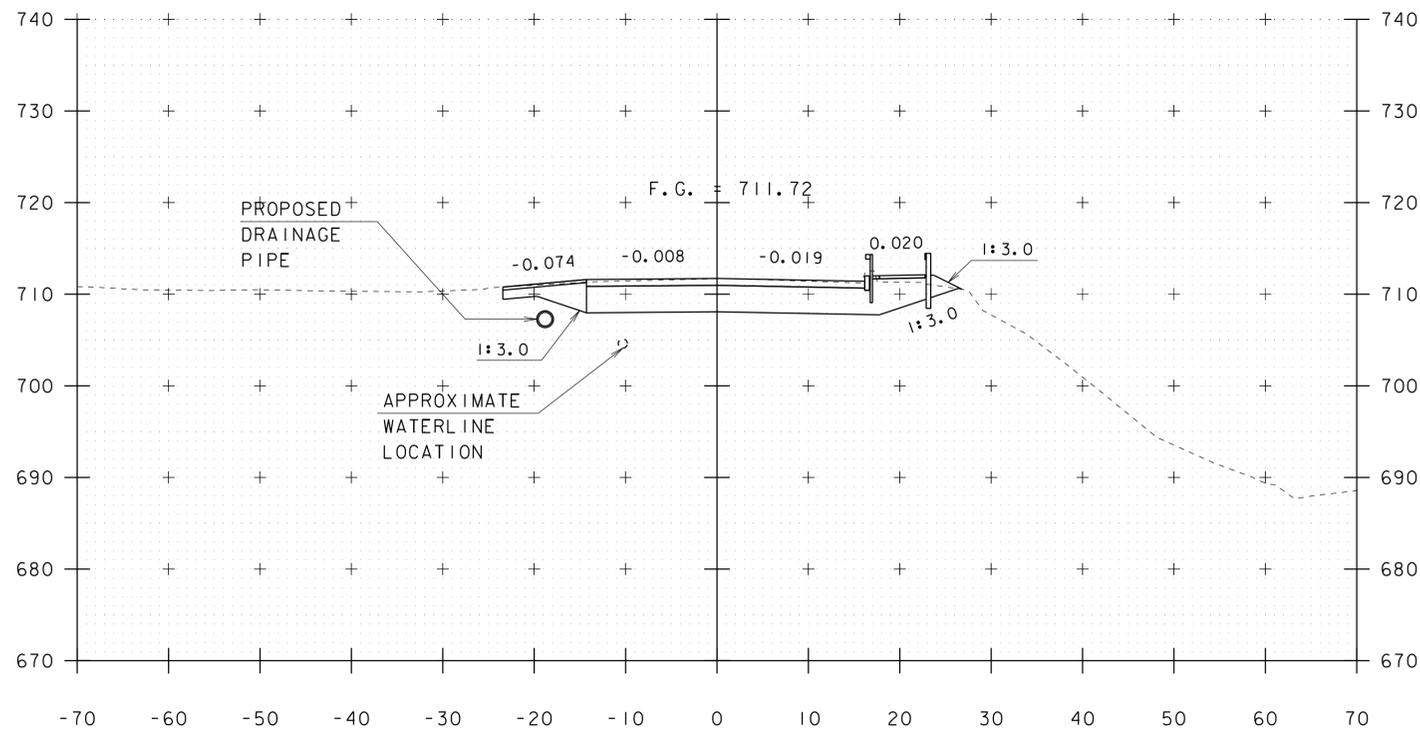
BEGIN APPROACH  
STA 2+39.50



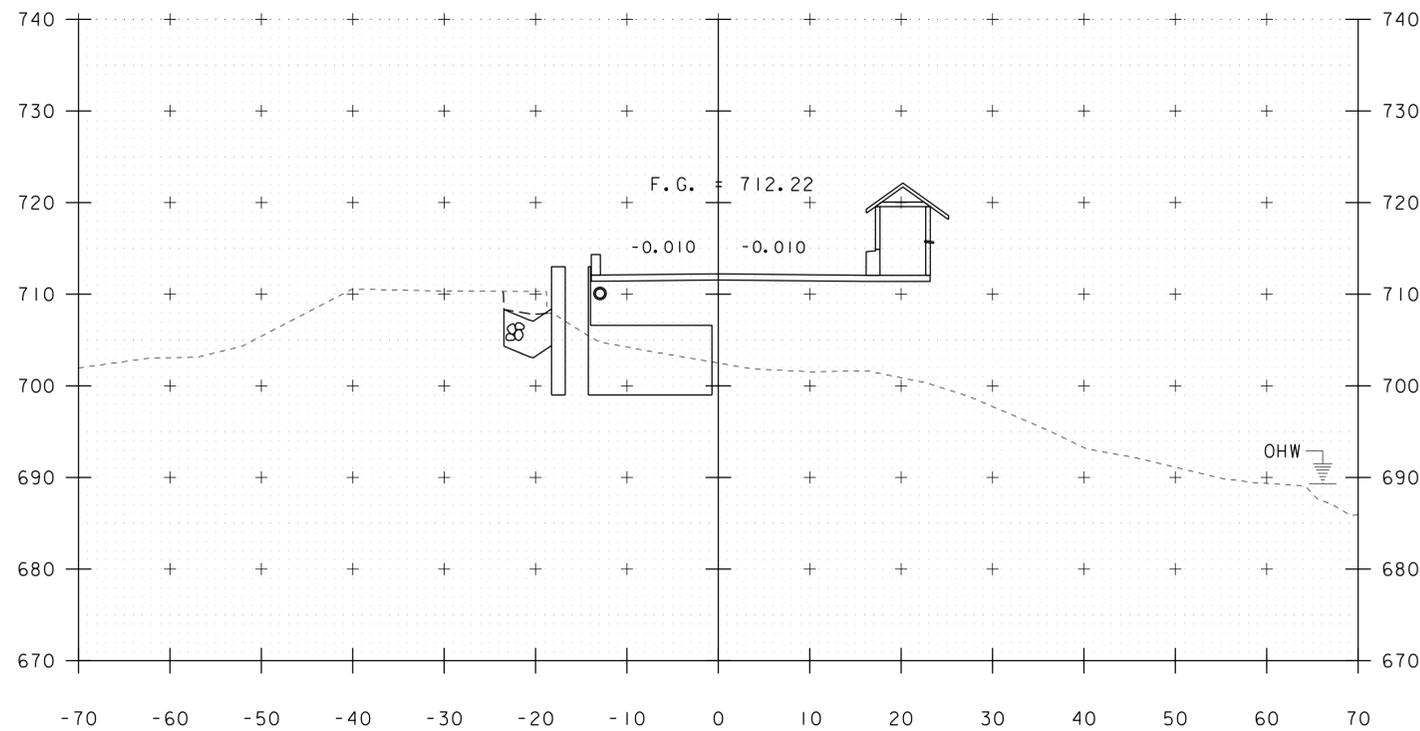
2+75

STA. 2+40 TO STA. 2+90

PROJECT NAME: STOWE	PLOT DATE: 04-JUN-2014
PROJECT NUMBER: BRF 0235 (II)	DRAWN BY: M. LONGSTREET
FILE NAME: s87e052xsl.dgn	DESIGNED BY: D. PETERSON
PROJECT LEADER: C. CARLSON	CHECKED BY: J. LACROIX
VT 108 CROSS SECTIONS SHEET 1	SHEET 46 OF 62

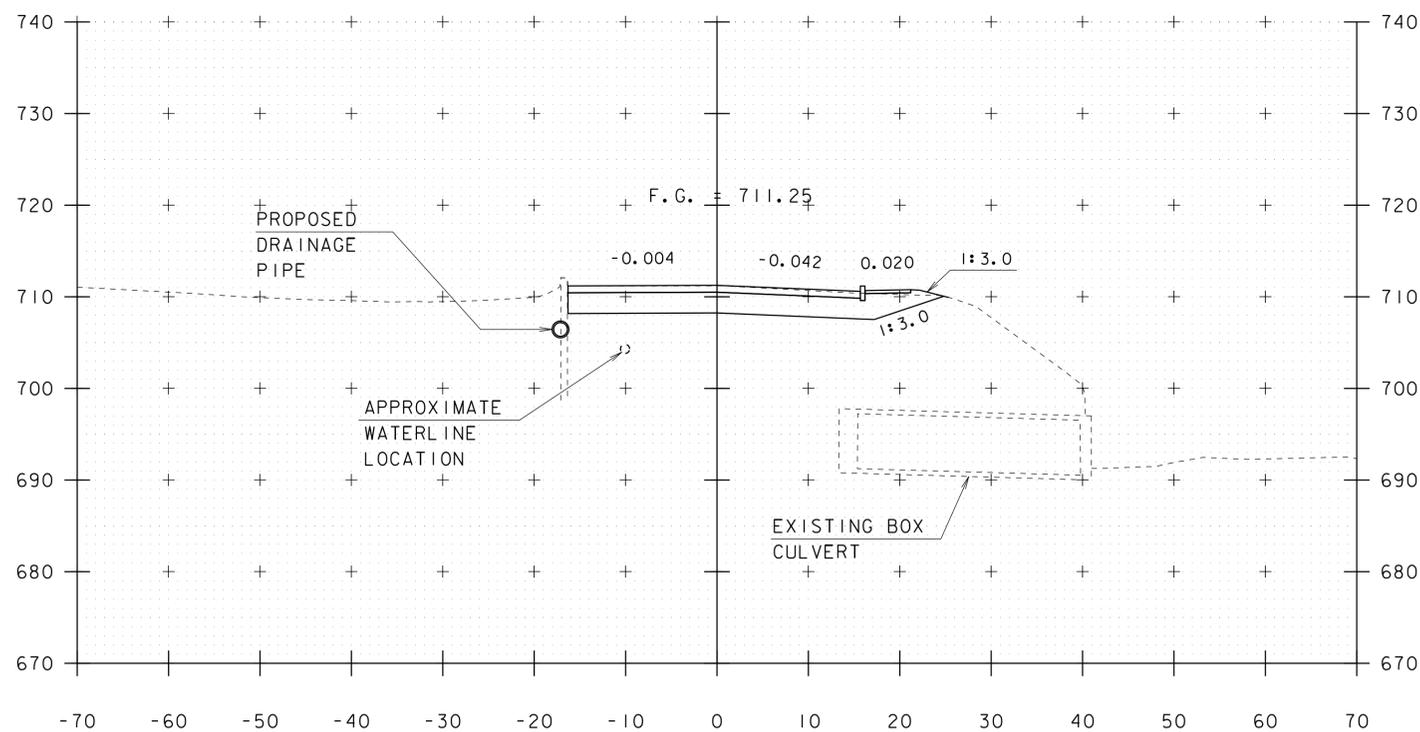


3+25

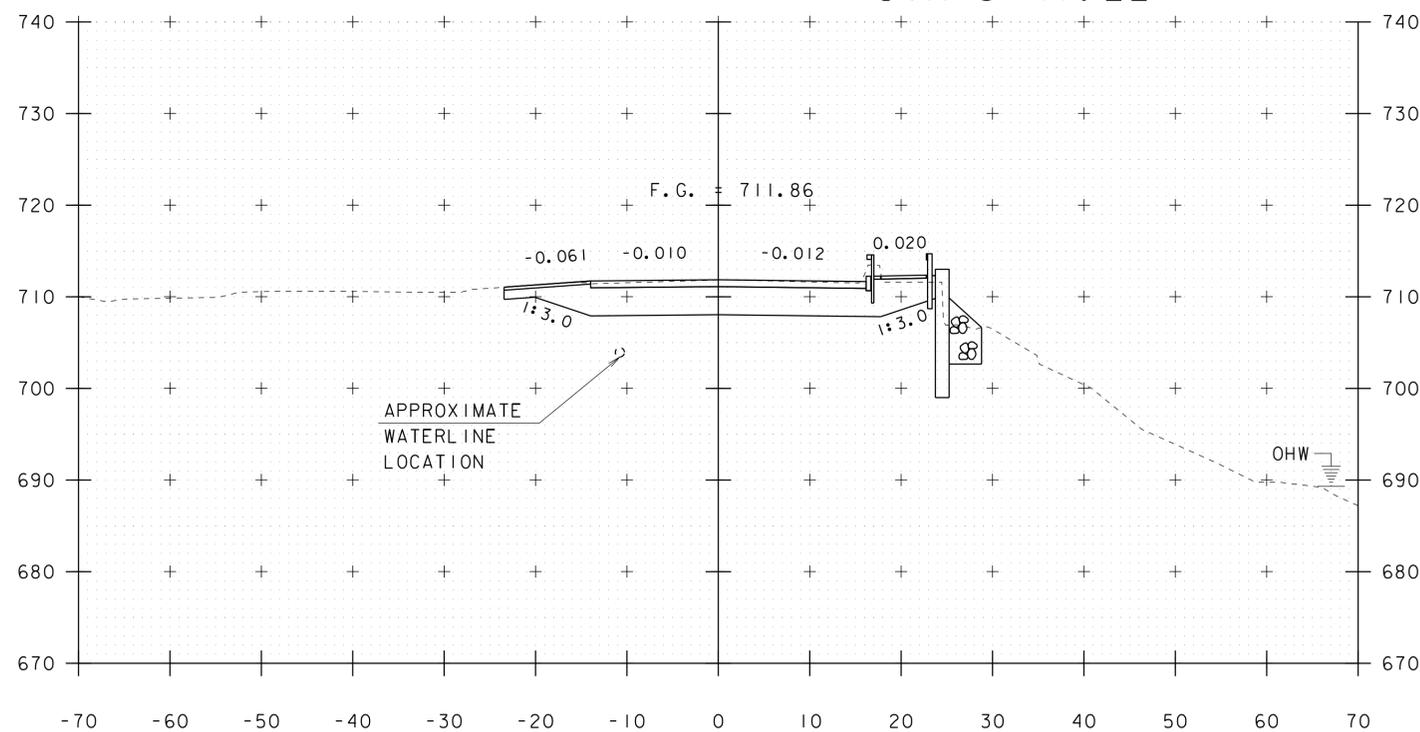


3+50

BEGIN PROJECT/BRIDGE  
STA 3+47.22



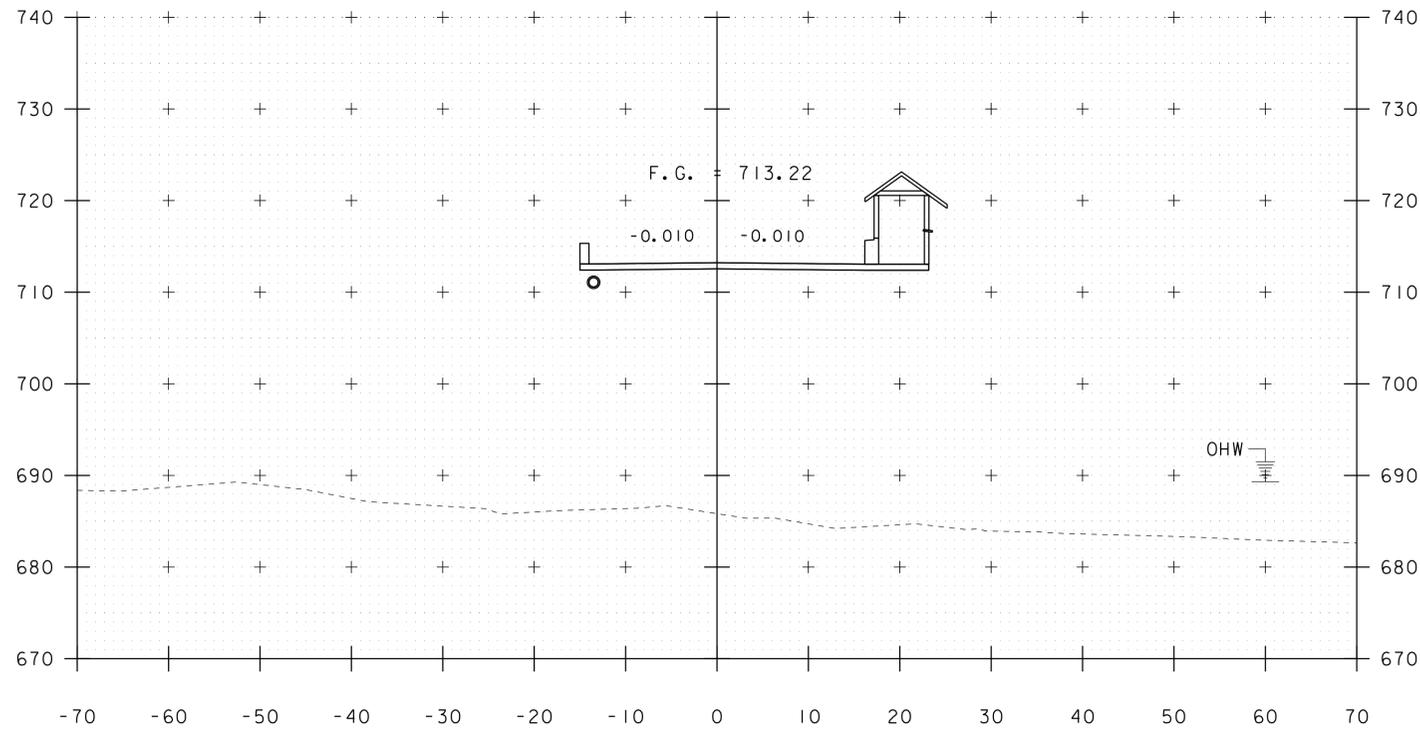
3+00



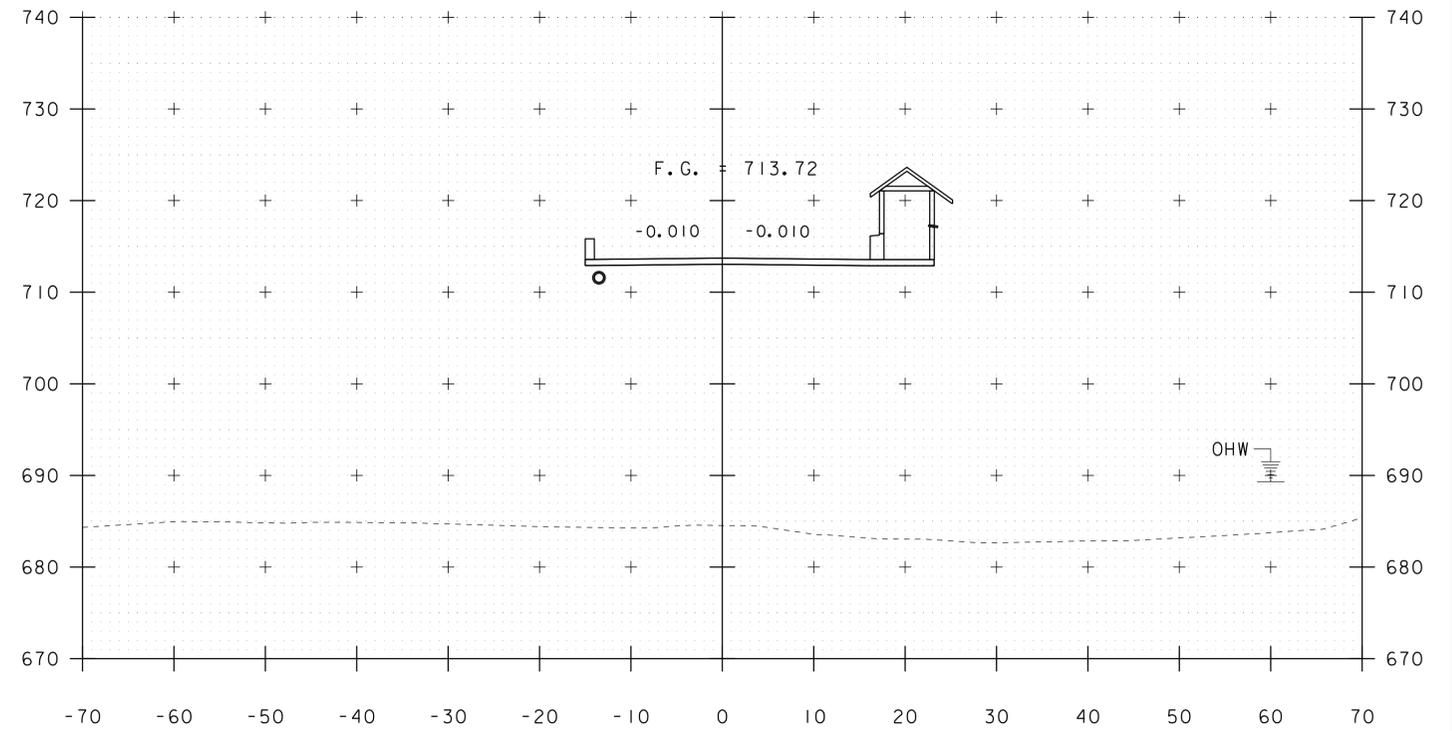
3+32

STA. 3+00 TO STA. 3+50

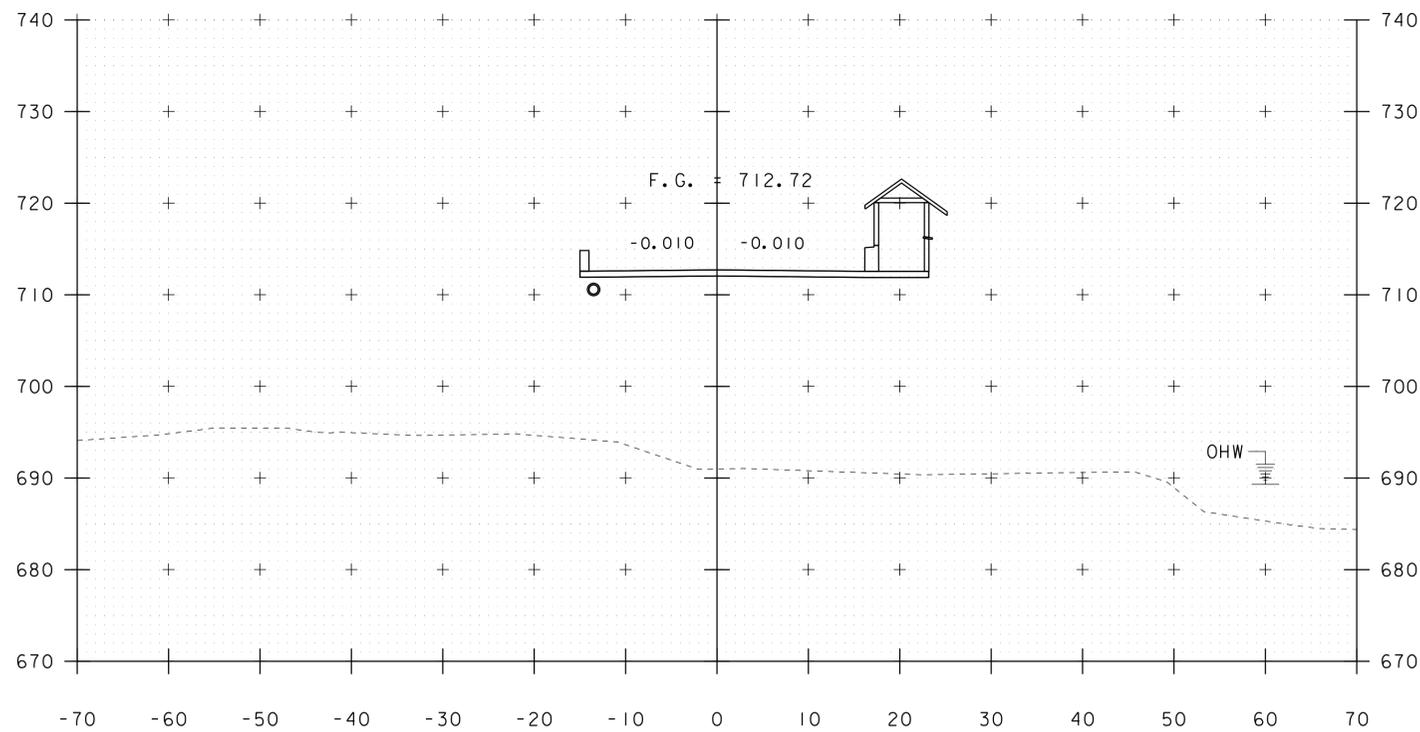
PROJECT NAME:	STOWE	PLOT DATE:	04-JUN-2014
PROJECT NUMBER:	BRF 0235 (11)	DRAWN BY:	M. LONGSTREET
FILE NAME:	s87e052xsl.dgn	DESIGNED BY:	D. PETERSON
PROJECT LEADER:	C. CARLSON	CHECKED BY:	J. LACROIX
VT 108 CROSS SECTIONS SHEET 2		SHEET 47 OF 62	



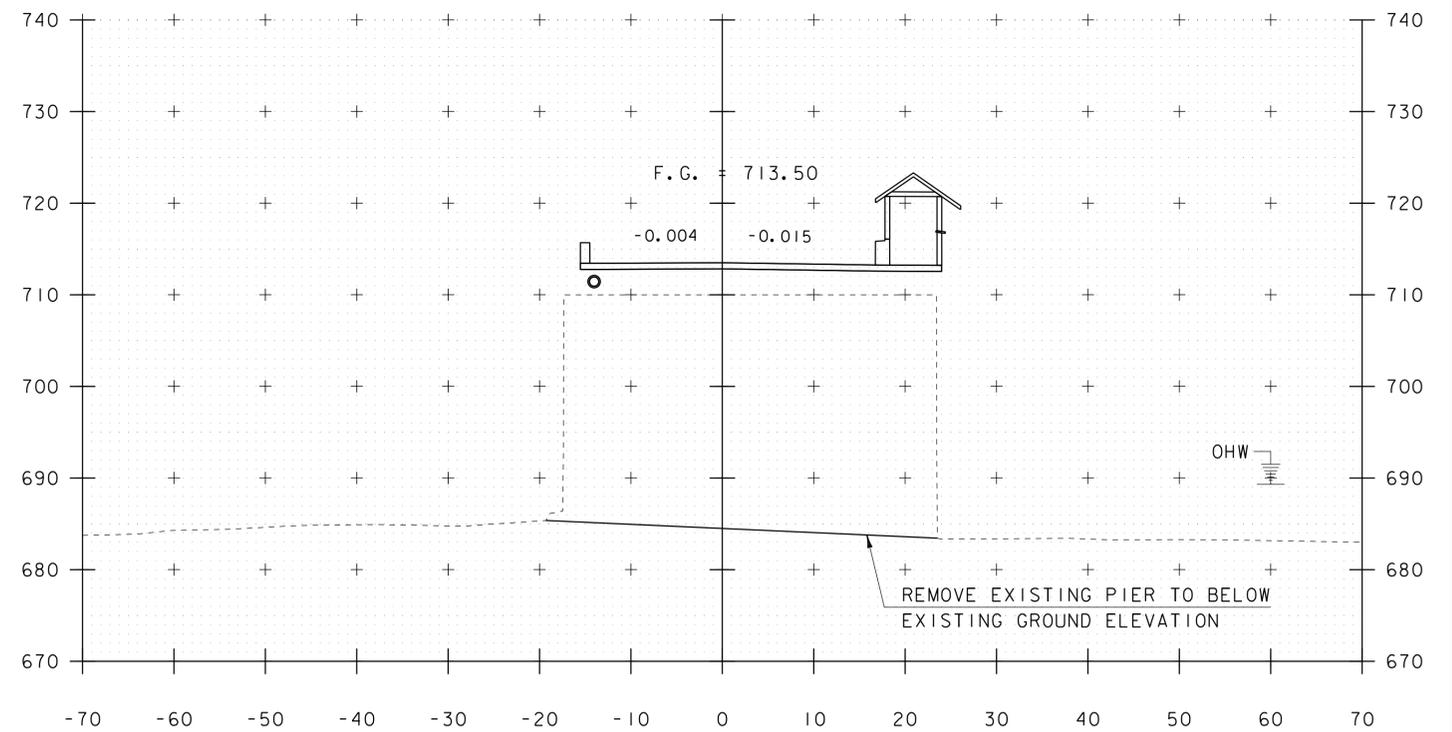
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4+25



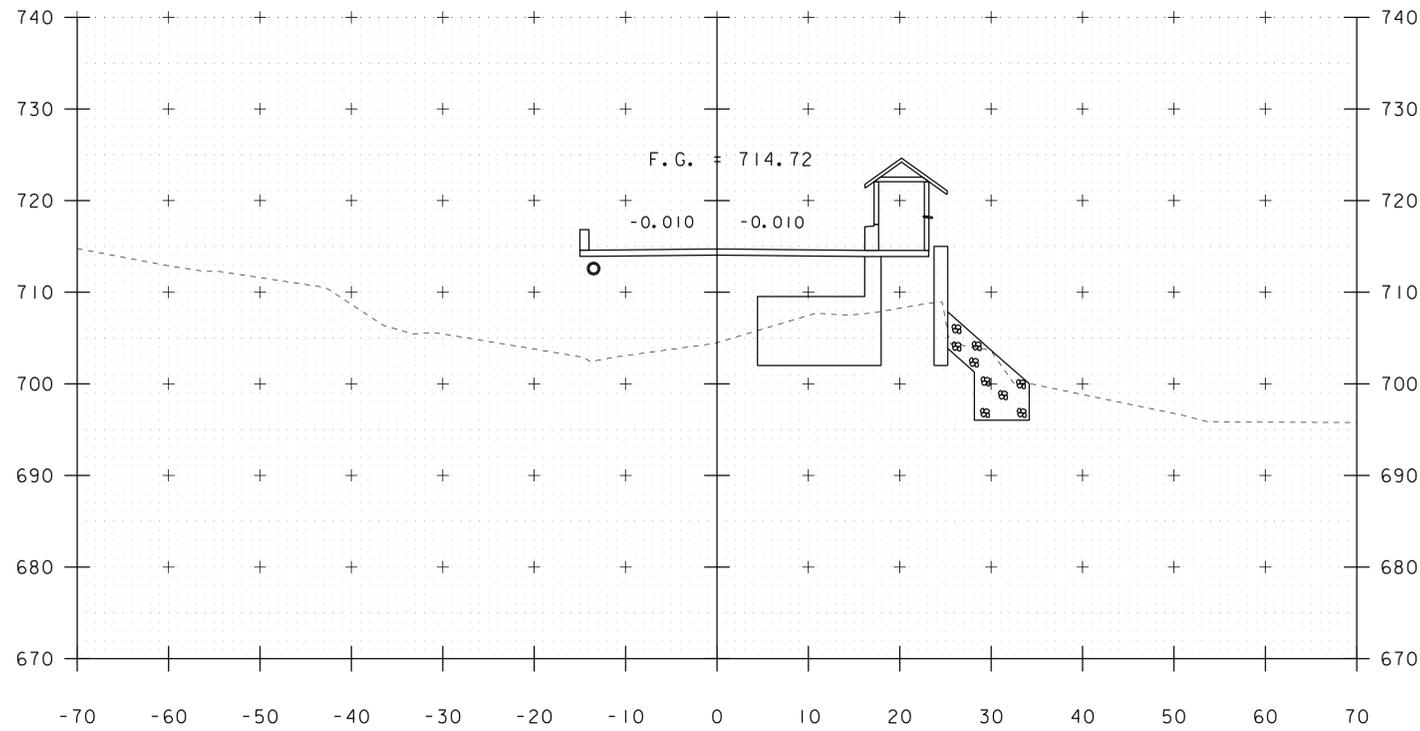
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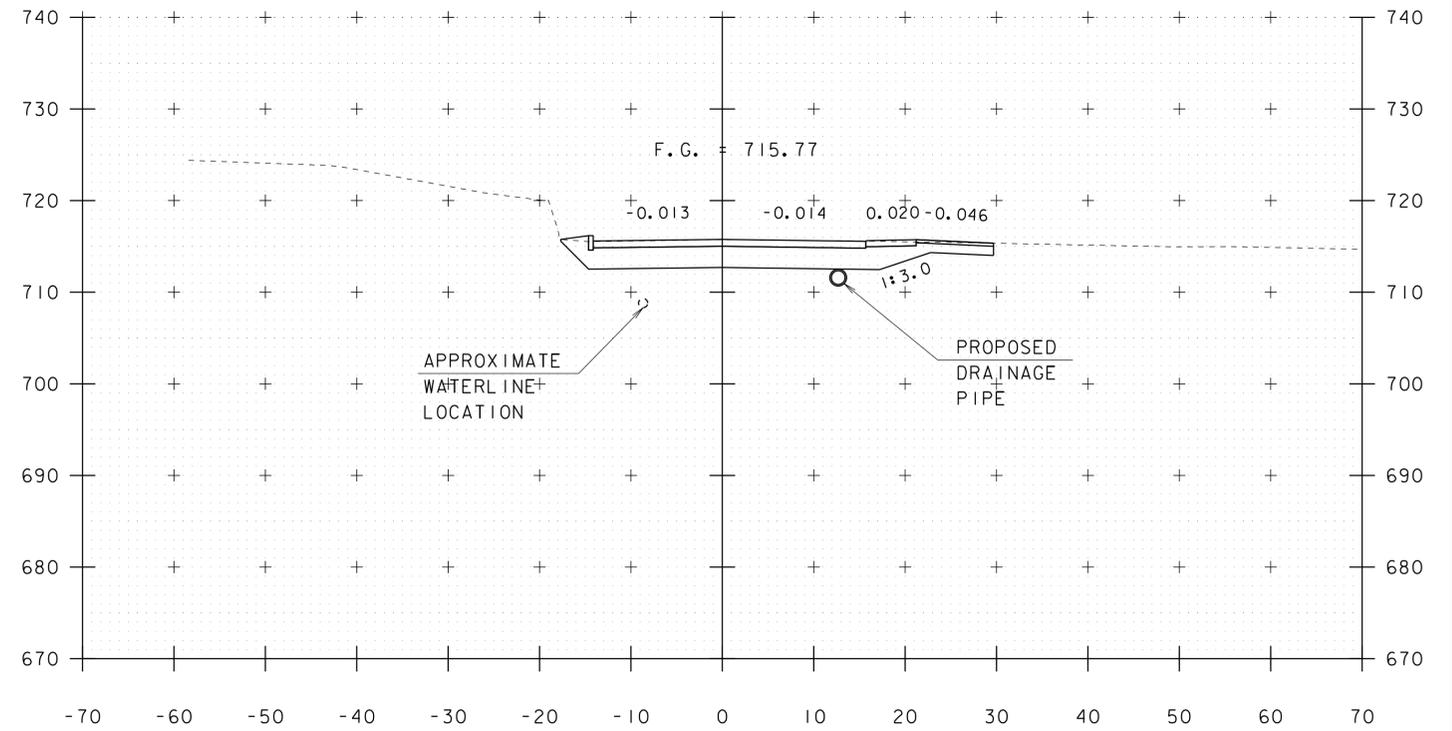
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PROJECT NUMBER: BRF 0235 (II)	
FILE NAME: s87e052xsl.dgn	PLOT DATE: 04-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: M. LONGSTREET
DESIGNED BY: D. PETERSON	CHECKED BY: J. LACROIX
VT 108 CROSS SECTIONS SHEET 3	SHEET 48 OF 62

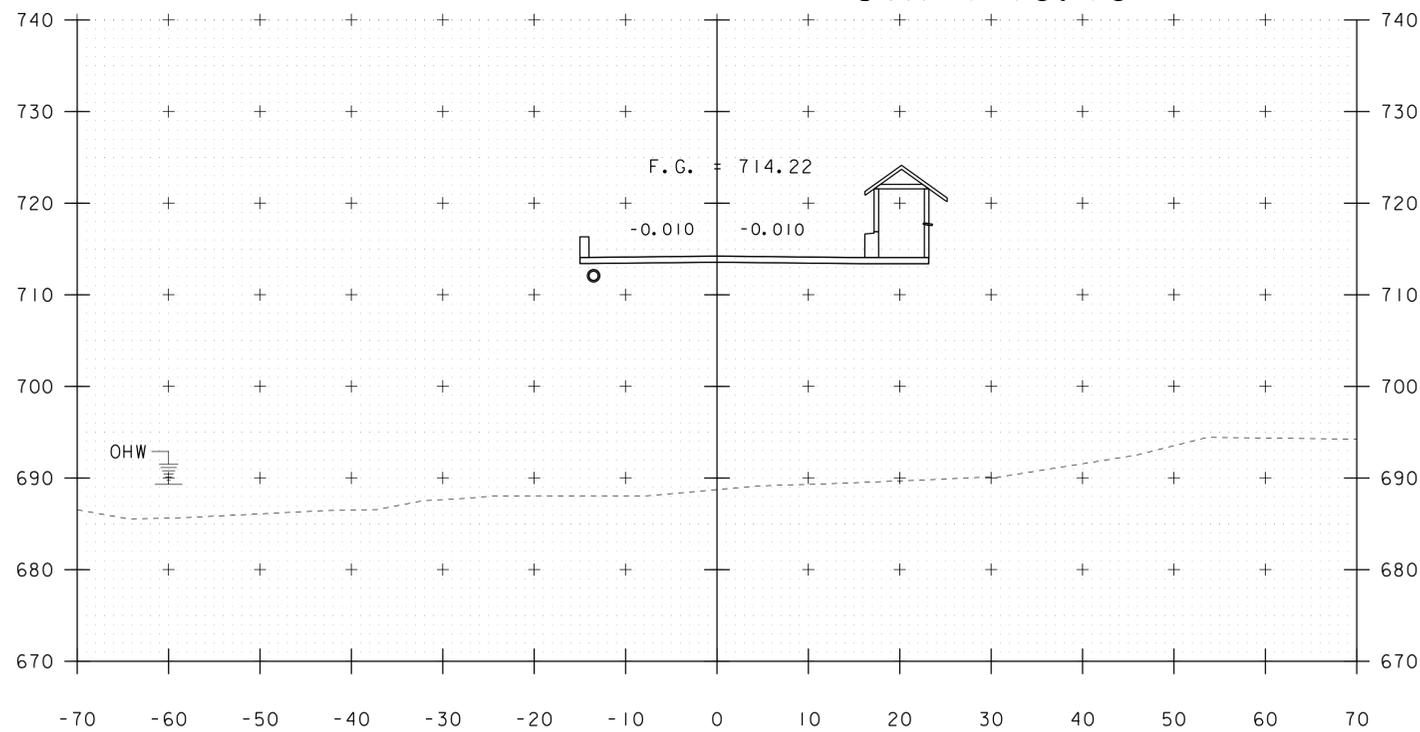
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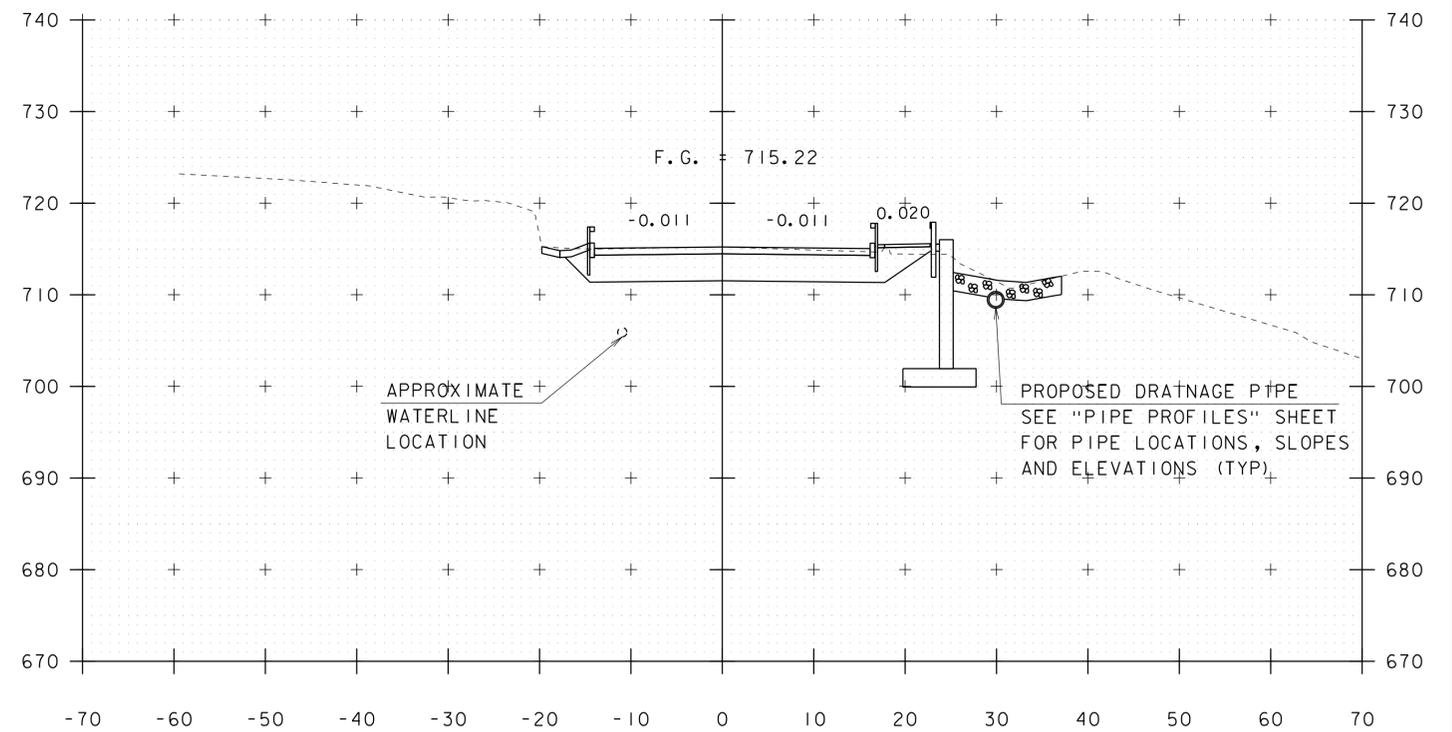
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STA 4+78.78



5+25



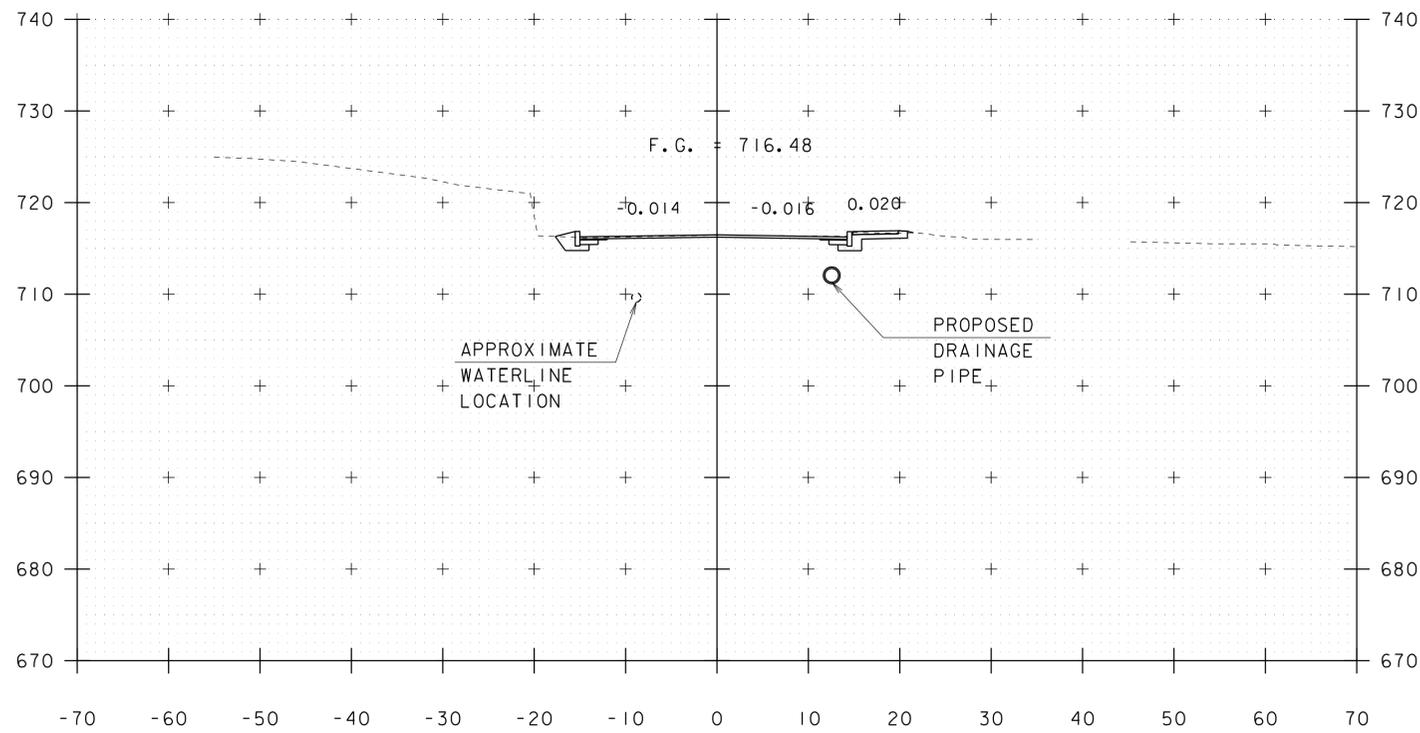
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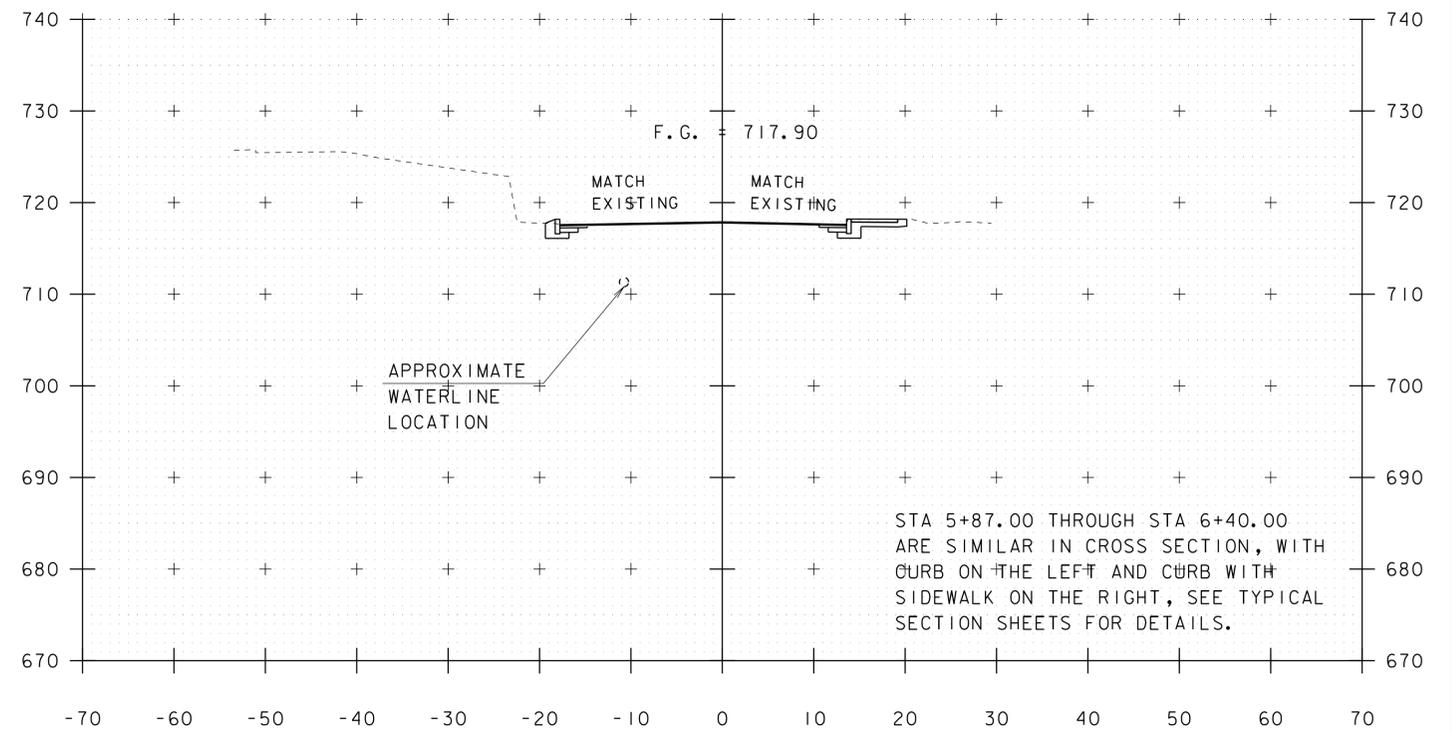
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PROJECT NUMBER: BRP 0235 (II)	
FILE NAME: s87e052xsl.dgn	PLOT DATE: 04-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: M. LONGSTREET
DESIGNED BY: D. PETERSON	CHECKED BY: J. LACROIX
VT 108 CROSS SECTIONS SHEET 4	SHEET 49 OF 62

STA. 4+50 TO STA. 5+25

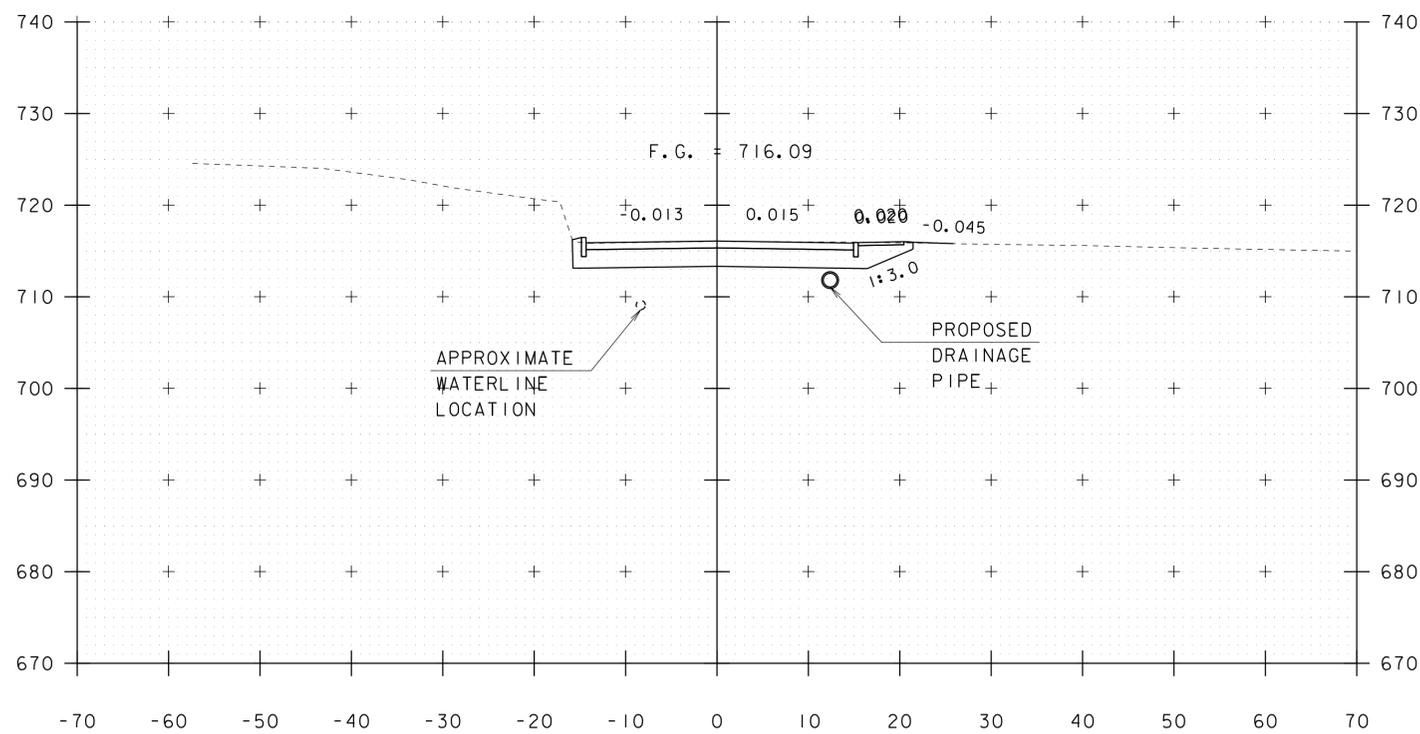


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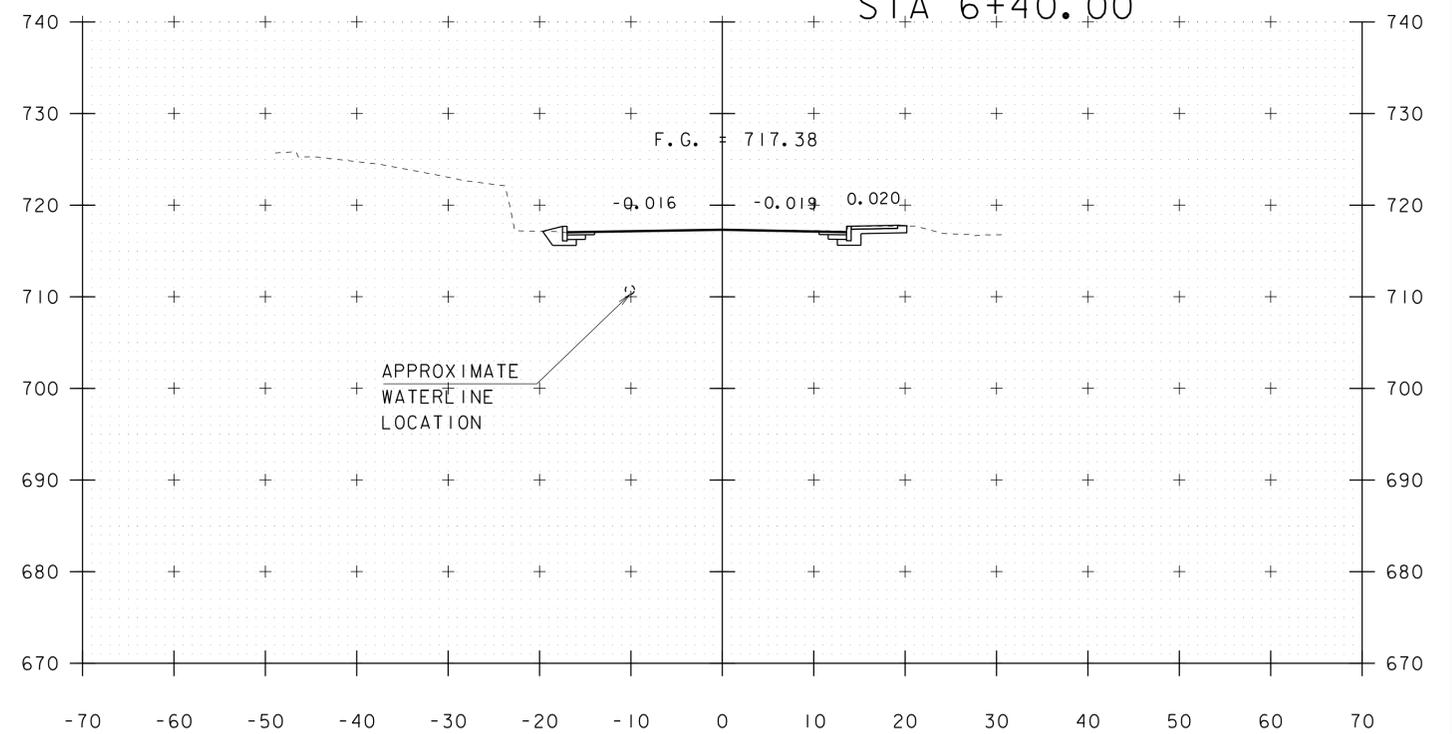


5+87 END APPROACH  
STA 6+40.00

STA 5+87.00 THROUGH STA 6+40.00  
ARE SIMILAR IN CROSS SECTION, WITH  
CURB ON THE LEFT AND CURB WITH  
SIDEWALK ON THE RIGHT, SEE TYPICAL  
SECTION SHEETS FOR DETAILS.



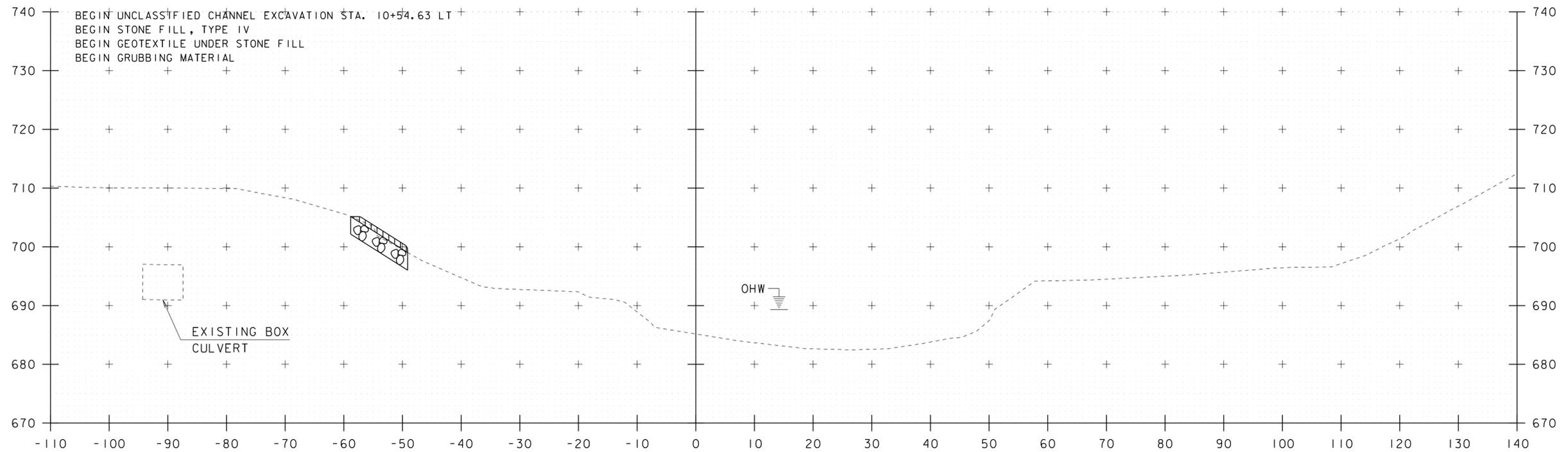
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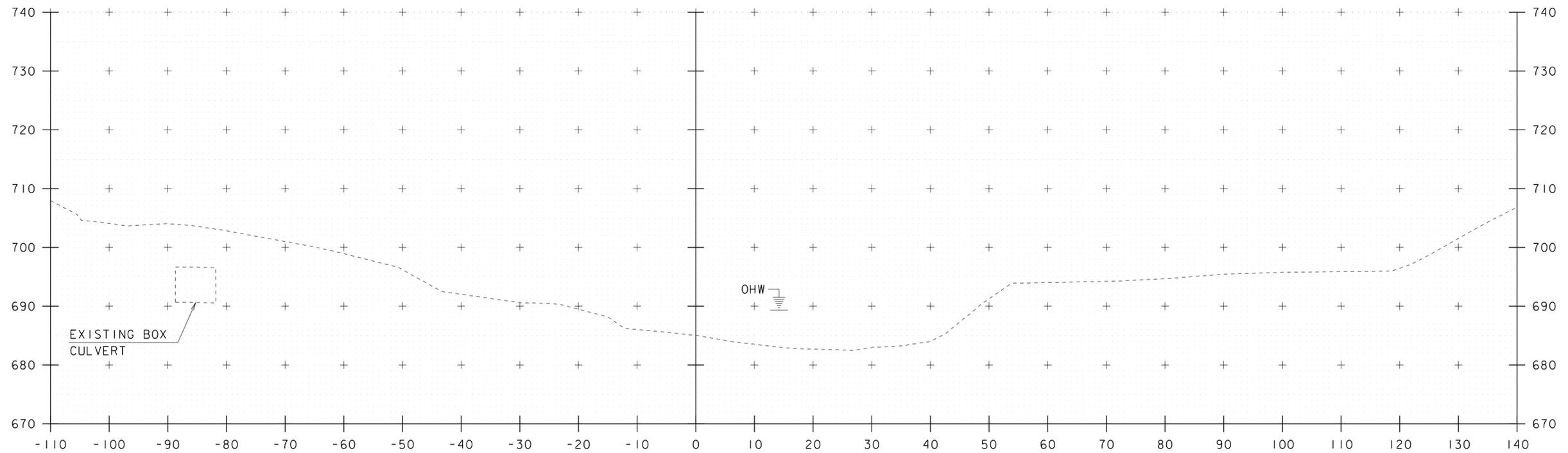
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STA. 5+37 TO STA. 5+87

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PROJECT NUMBER: BRF 0235 (11)	
FILE NAME: s87e052xsl.dgn	PLOT DATE: 04-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: M. LONGSTREET
DESIGNED BY: D. PETERSON	CHECKED BY: J. LACROIX
VT 108 CROSS SECTIONS SHEET 5	SHEET 50 OF 62



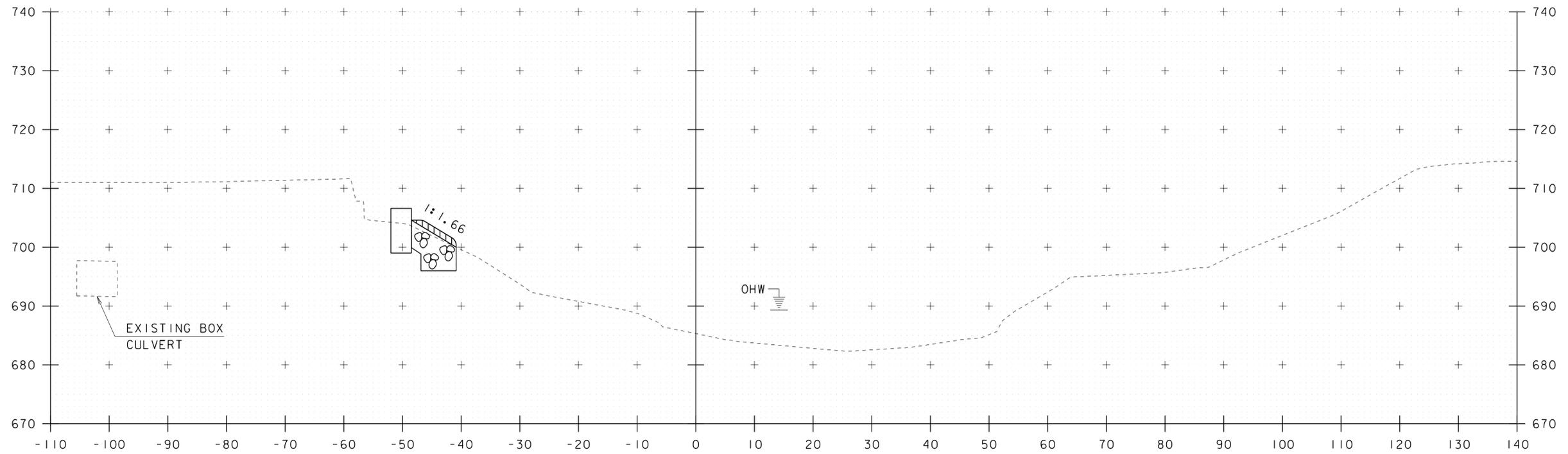
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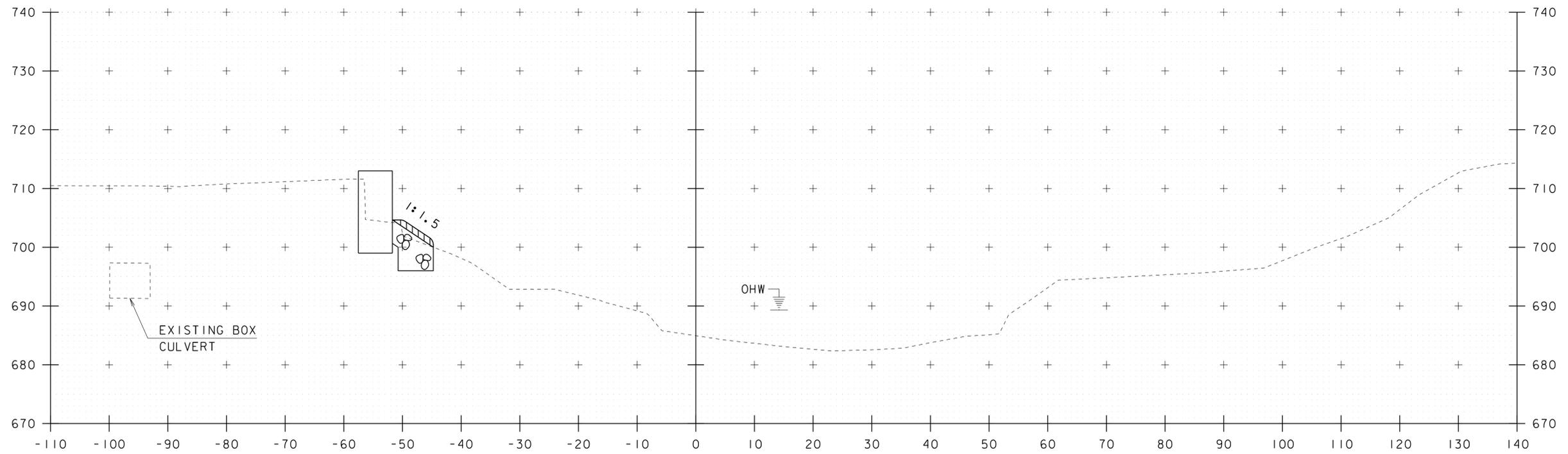
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PROJECT NUMBER: BRF 0235 (11)	
FILE NAME: s87e052xsl.dgn	PLOT DATE: 04-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: M. LONGSTREET
DESIGNED BY: D. PETERSON	CHECKED BY: J. LACROIX
CHANNEL CROSS SECTIONS 1	SHEET 51 OF 62



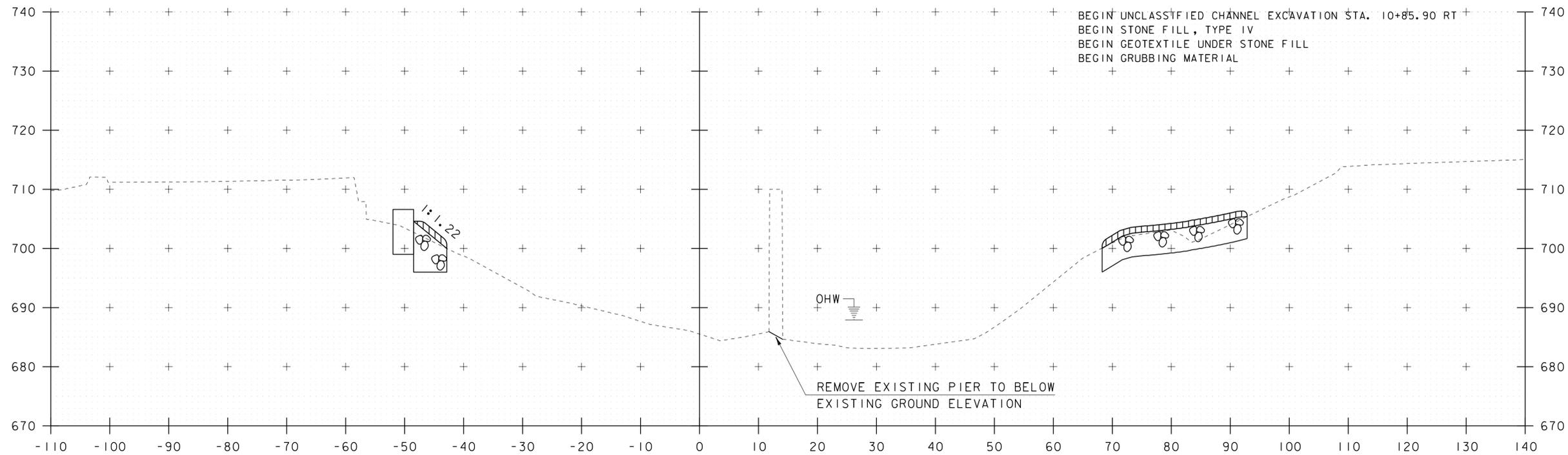
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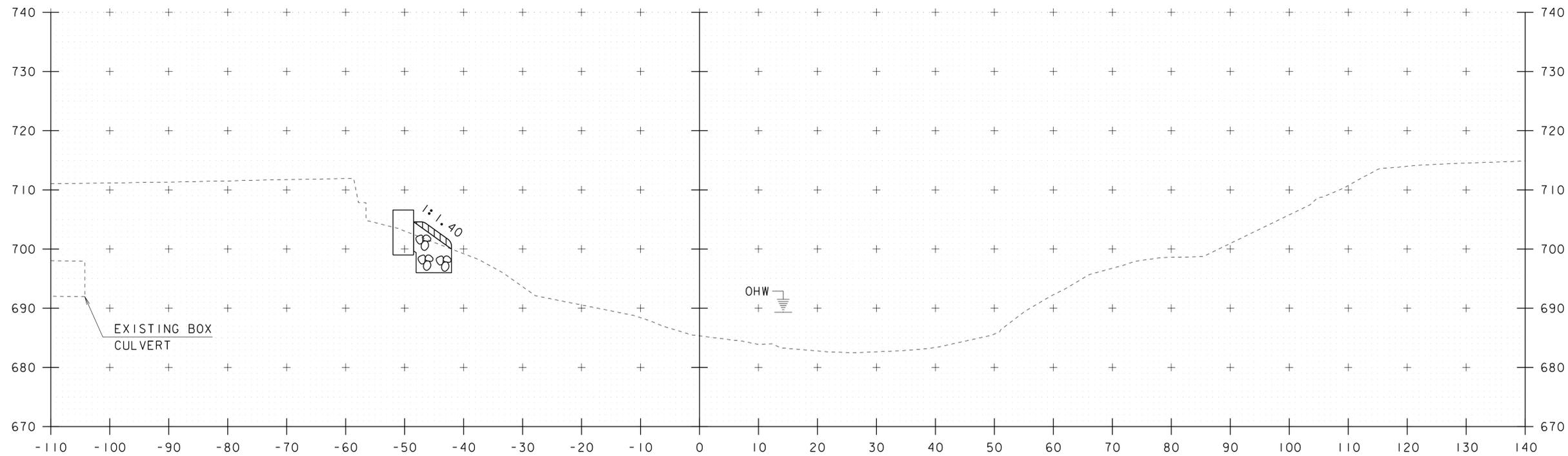
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STA. 10+60 TO STA. 10+70

PROJECT NAME:	STOWE	PLOT DATE:	04-JUN-2014
PROJECT NUMBER:	BRF 0235 (11)	DRAWN BY:	M. LONGSTREET
FILE NAME:	s87e052xsl.dgn	DESIGNED BY:	D. PETERSON
PROJECT LEADER:	C. CARLSON	CHECKED BY:	J. LACROIX
CHANNEL CROSS SECTIONS 3		SHEET	52 OF 62



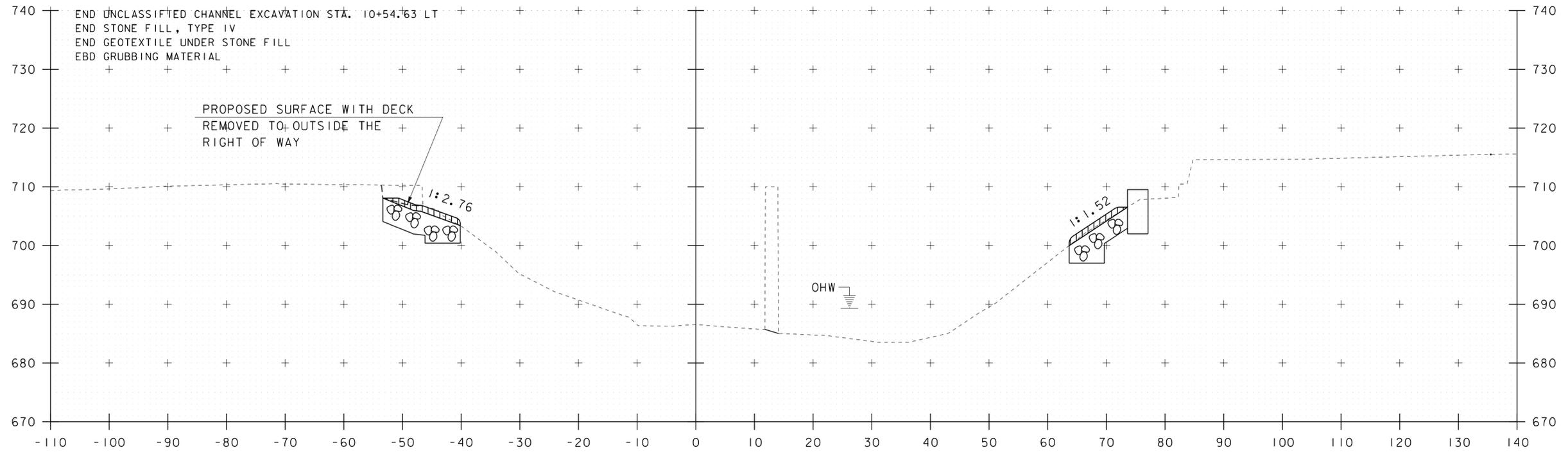
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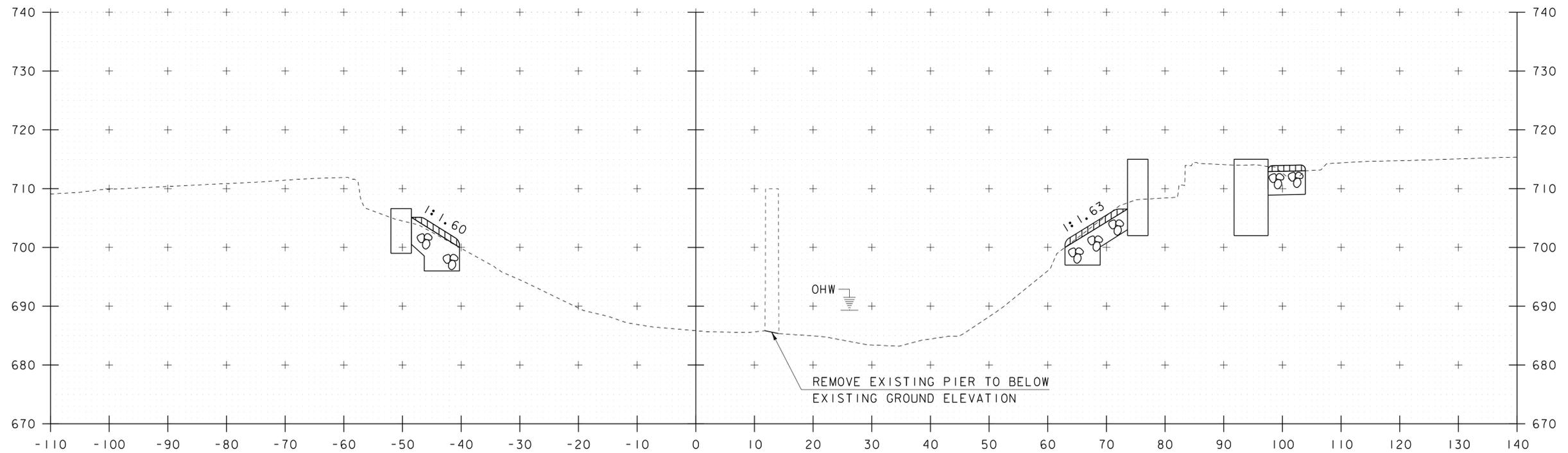
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STA. 10+80 TO STA. 10+90

PROJECT NAME: STOWE	
PROJECT NUMBER: BRF 0235 (11)	
FILE NAME: s87e052xsl.dgn	PLOT DATE: 04-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: M. LONGSTREET
DESIGNED BY: D. PETERSON	CHECKED BY: J. LACROIX
CHANNEL CROSS SECTIONS 3	SHEET 53 OF 62



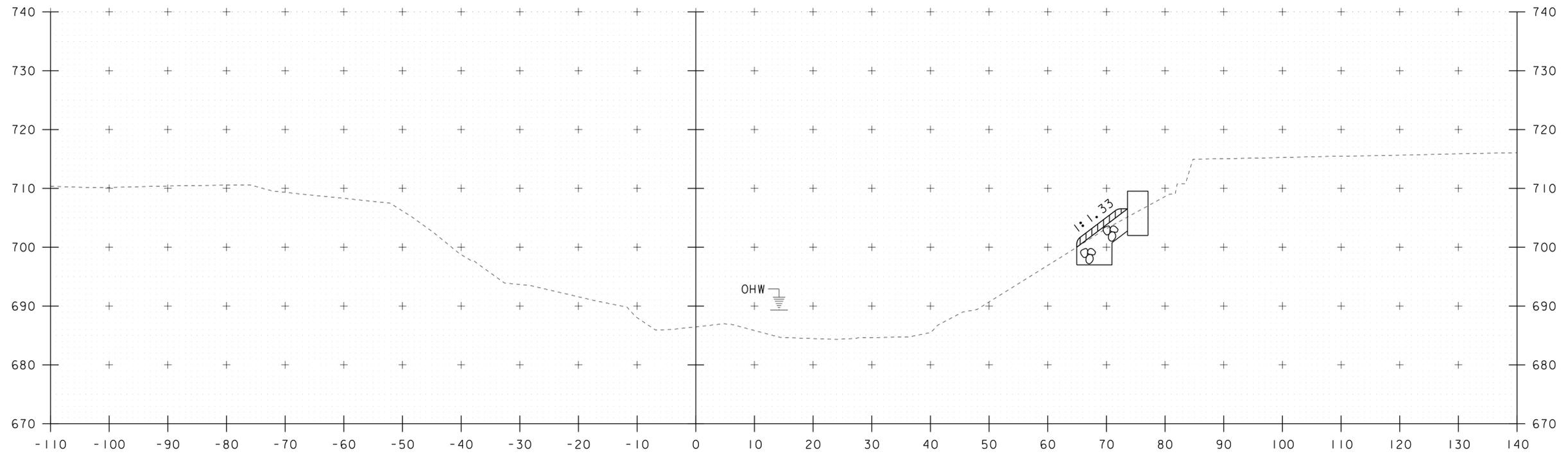
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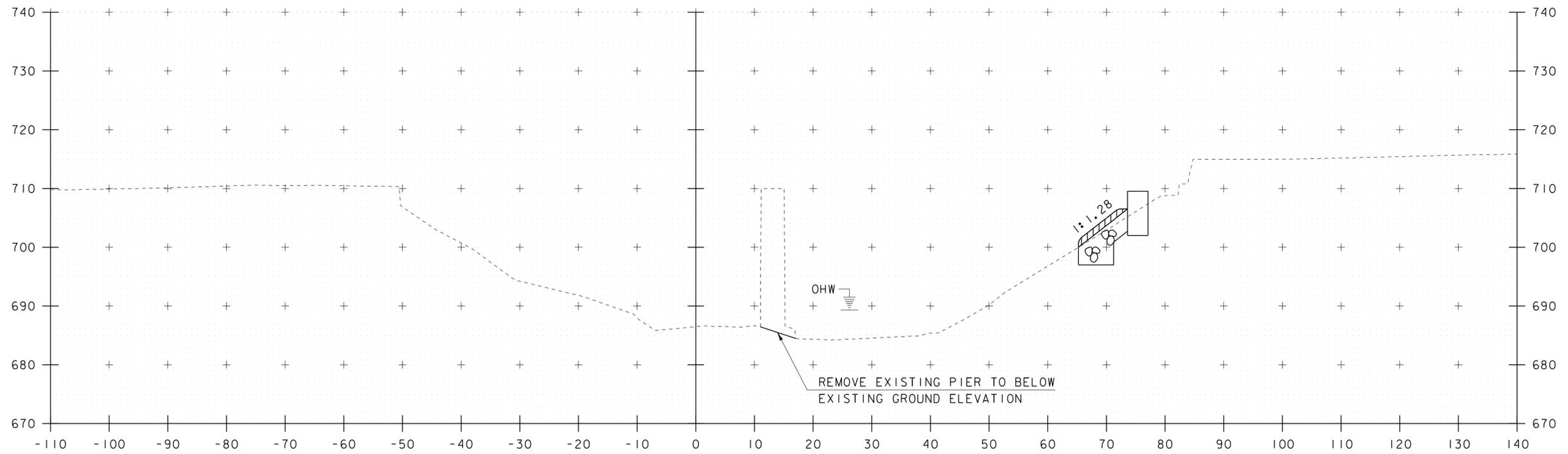
11+00

STA. 11+00 TO STA. 11+10

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PROJECT NUMBER: BRF 0235 (11)	
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PROJECT LEADER: C. CARLSON	DRAWN BY: M. LONGSTREET
DESIGNED BY: D. PETERSON	CHECKED BY: J. LACROIX
CHANNEL CROSS SECTIONS 4	SHEET 54 OF 62



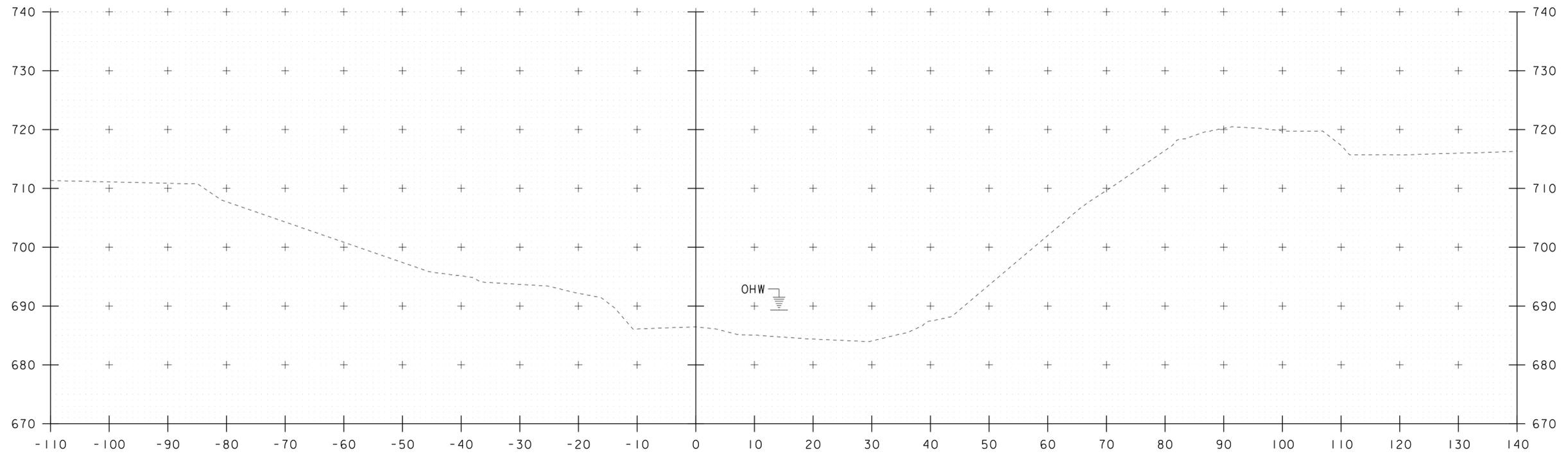
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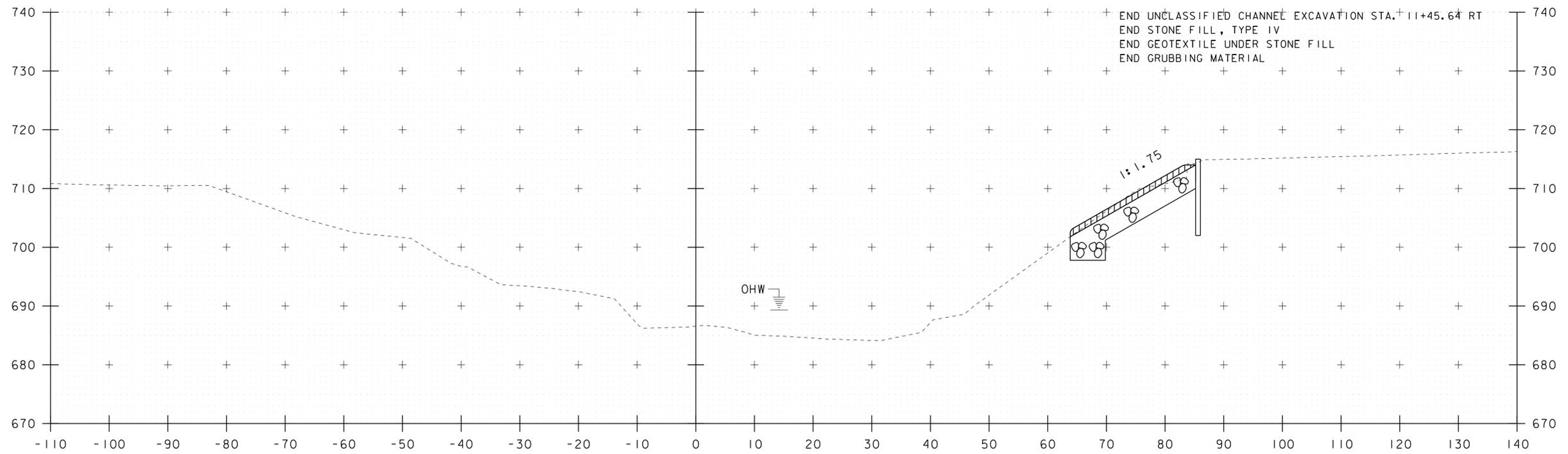
11+20

STA. 11+20 TO STA. 11+30

PROJECT NAME: STOWE	
PROJECT NUMBER: BRF 0235 (11)	
FILE NAME: s87e052xsl.dgn	PLOT DATE: 04-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: M. LONGSTREET
DESIGNED BY: D. PETERSON	CHECKED BY: J. LACROIX
CHANNEL CROSS SECTIONS 5	SHEET 55 OF 62



11+50



11+40

STA. 11+40 TO STA. 11+50

PROJECT NAME: STOWE	
PROJECT NUMBER: BRF 0235 (11)	
FILE NAME: s87e052xsl.dgn	PLOT DATE: 04-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: M. LONGSTREET
DESIGNED BY: D. PETERSON	CHECKED BY: J. LACROIX
CHANNEL CROSS SECTIONS 6	SHEET 56 OF 62

# EPSC PLAN NARRATIVE

## 1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL AND REPLACEMENT OF AN EXISTING 148 FOOT BRIDGE WITH A NEW 130 LONG SINGLE SPAN BRIDGE. THE EXISTING BRIDGE DECK IS 36± FEET WIDE. THE EXISTING DECK IS REINFORCED CONCRETE ON STEEL BEAMS. THERE IS A CONCRETE SIDEWALK ON THE BRIDGE WITH AN ENCLOSED WOODED STRUCTURE. THE BRIDGE RESTS ON TWO ABUTMENTS AND ONE PIER. THE EXISTING ABUTMENTS AND PIER WILL BE REMOVED. THE PIER WILL BE REMOVED TO THE STREAMBED ELEVATION. THE NEW BRIDGE WILL BE A PRECAST DECK ON NEW STEEL GIRDERS WITH NEW SPREAD FOOTING ABUTMENTS ON LEDGE. THE NEW BRIDGE WILL BE THE SAME WIDTH AS THE EXISTING BRIDGE AND WILL INCLUDE THE COMPLETE REPLACEMENT IN KIND OF THE COVERED PEDESTRIAN WALKWAY.

THIS PROJECT IS LOCATED IN STOWE VERMONT, ON VT ROUTE 108, 0.066 MILES WEST OF THE VT 100 AND VT 108 INTERSECTION. THE BRIDGE SPANS OVER THE "LITTLE RIVER".

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 0.42 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON, WITH THE BRIDGE BEING CLOSED TO TRAFFIC FOR NO MORE THAN SIX WEEKS.

## 1.2 SITE INVENTORY

### 1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS MOSTLY WELL ESTABLISHED FOREST WITH SMALL OPEN AREAS IN A MOUNTAINOUS TERRAIN. THERE ARE THREE PAVED DRIVES IN THE PROJECT LIMITS OR ADJACENT TO THE PROJECT LIMITS. THERE ARE COMMERCIAL BUSINESSES ON THREE SIDES OF THE PROJECT AND ONE DRIVE OR PULL ON THE SOUTH END OF THE BRIDGE TO THE NORTH EAST.

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

THE CHANNEL IS MEANDERING UPSTREAM WITH A WIDE FLOODPLAIN. THE DOWNSTREAM CHANNEL IS STRAIGHT, STEEPER AND HAS A NARROW FLOODPLAIN WITH STEEP BANKS. THERE ARE SOME BUILDINGS NEAR THE BRIDGE AND CHANNEL. THERE HAVE BEEN PROBLEMS WITH THE STONE FILL IN FRONT OF THE ABUTMENTS FAILING, AND SOME SCOUR AT THE PIER. THE SURVEY SHOWS THERE IS SOME EXPOSED LEDGE UPSTREAM AND DOWNSTREAM. THE PROJECT IS 6 MILES UPSTREAM FROM THE WATERBURY RESERVOIR. THE PROJECT IS 500 FEET DOWN STREAM FORM THE WEST BRANCH OF THE LITTLE RIVER OUTLET, INTO THE LITTLE RIVER.

### 1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THE CONSTRUCTION OF A NEW DRAINAGE DITCH NEAR WINGWALL #4 AND NEAR WINGWALL #2 FOR ITS INSTALLATION. IMPACTED VEGETATION WILL BE RESEDED AFTER THE PROJECT IS COMPLETED.

### 1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF LAMOILLE, VERMONT. SOILS ON THE PROJECT SITE ARE:

<b>ADAMS LOAMY FINE SAND</b> (NOT HIGHLY ERODIBLE) K-FACTOR = .24, 2%-8% SLOPES HYDROLOGICAL SOIL GROUP: A	<b>BERKSHIRE FINE SANDY LOAM</b> (HIGHLY ERODIBLE) K-FACTOR = .24, 15%-25% SLOPES HYDROLOGICAL SOIL GROUP: B	<b>RUMNEY FINE SANDY LOAM</b> (NOT HIGHLY ERODIBLE) K-FACTOR = .17, 0%-3% SLOPES HYDROLOGICAL SOIL GROUP: C
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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: YES  
PRIME AGRICULTURAL LAND: NO  
THREATENED AND ENDANGERED SPECIES: NO  
WATER RESOURCE: LITTLE RIVER  
WETLANDS: NO

## 1.3 RISK EVALUATION

THIS PROJECT FALLS UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES FOR LOW RISK PROJECTS. ANY MODIFICATIONS TO THE PROJECT THAT INCREASE THE RISK TO ENVIRONMENTAL RESOURCES SHALL BE EVALUATED IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. 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 THAT CONSTRUCTION EQUIPMENT CAN ACCESS, SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, BARRIER FENCE SHALL BE USED INSTEAD OF PROJECT DEMARCATION FENCE WITHIN 100 FEET OF A WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC).

### 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 PLAN. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS.

INLET PROTECTION DEVICES SHALL BE INSTALL IN THE LOCATIONS SHOWN IN THE PLANS.

### 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 EROSION POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

NO SIGNIFICANT CHANNELIZED RUNOFF IS ANTICIPATED. CHECK STRUCTURE MEASURES WILL NOT BE REQUIRED.

### 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 PROPOSED PERMANENT STORMWATER TREATMENT DEVICES FOR THIS PROJECT.

### 1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

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

THE PROJECT AREA IS RELATIVELY FLAT, WITH LIMITED EXPOSED SOILS. NO STABILIZATION MEASURES ARE SPECIFICALLY SHOWN FOR THE PROPOSED PROJECT CONSTRUCTION.

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

### 1.4.9 WINTER STABILIZATION

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

### 1.4.10 STABILIZE SOIL AT FINAL GRADE

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

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

### 1.4.11 DE-WATERING ACTIVITIES

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

DE-WATERING MAY BE REQUIRED TO INSTALL THE ABUTMENT FOOTINGS DEPENDING ON SEASONAL CHANGES TO THE RIVER'S WATER LEVEL.

### 1.4.12 INSPECT YOUR SITE

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

## 1.5 SEQUENCE AND STAGING

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

### 1.5.1 CONSTRUCTION SEQUENCE

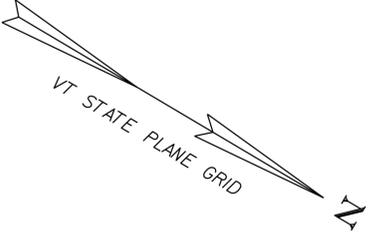
### 1.5.2 OFF-SITE ACTIVITIES

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

### 1.5.3 UPDATES

PROJECT NAME: STOWE  
PROJECT NUMBER: BRF 0235 (II)

FILE NAME: s87e052eroDetails.dgn	PLOT DATE: 04-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: M. LONGSTREET
DESIGNED BY: D. PETERSON	CHECKED BY: J. LACROIX
EPSC NARRATIVE	SHEET 57 OF 62

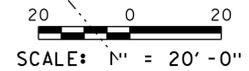
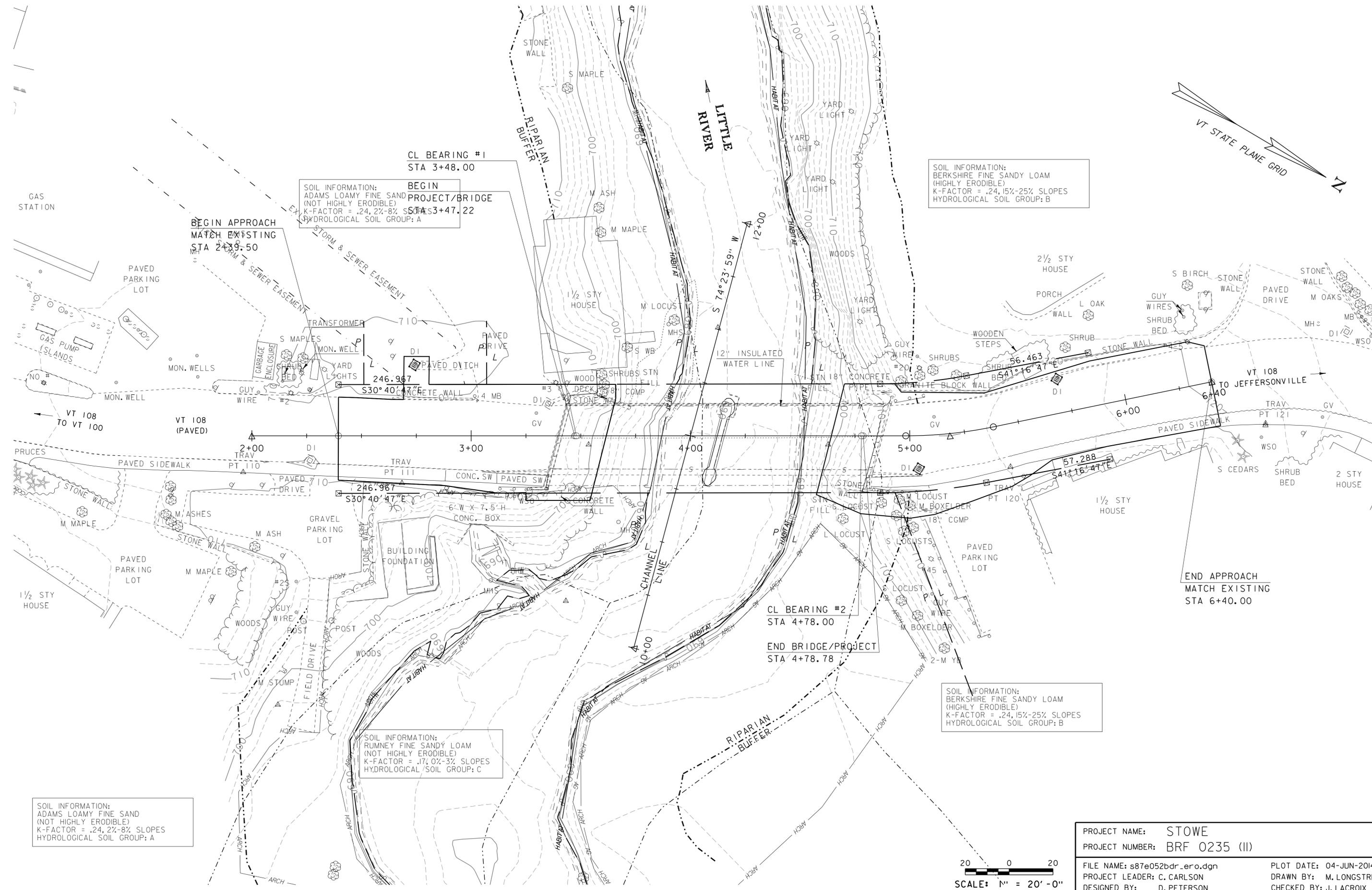


SOIL INFORMATION:  
BERKSHIRE FINE SANDY LOAM  
(HIGHLY ERODIBLE)  
K-FACTOR = .24, 15%-25% SLOPES  
HYDROLOGICAL SOIL GROUP: B

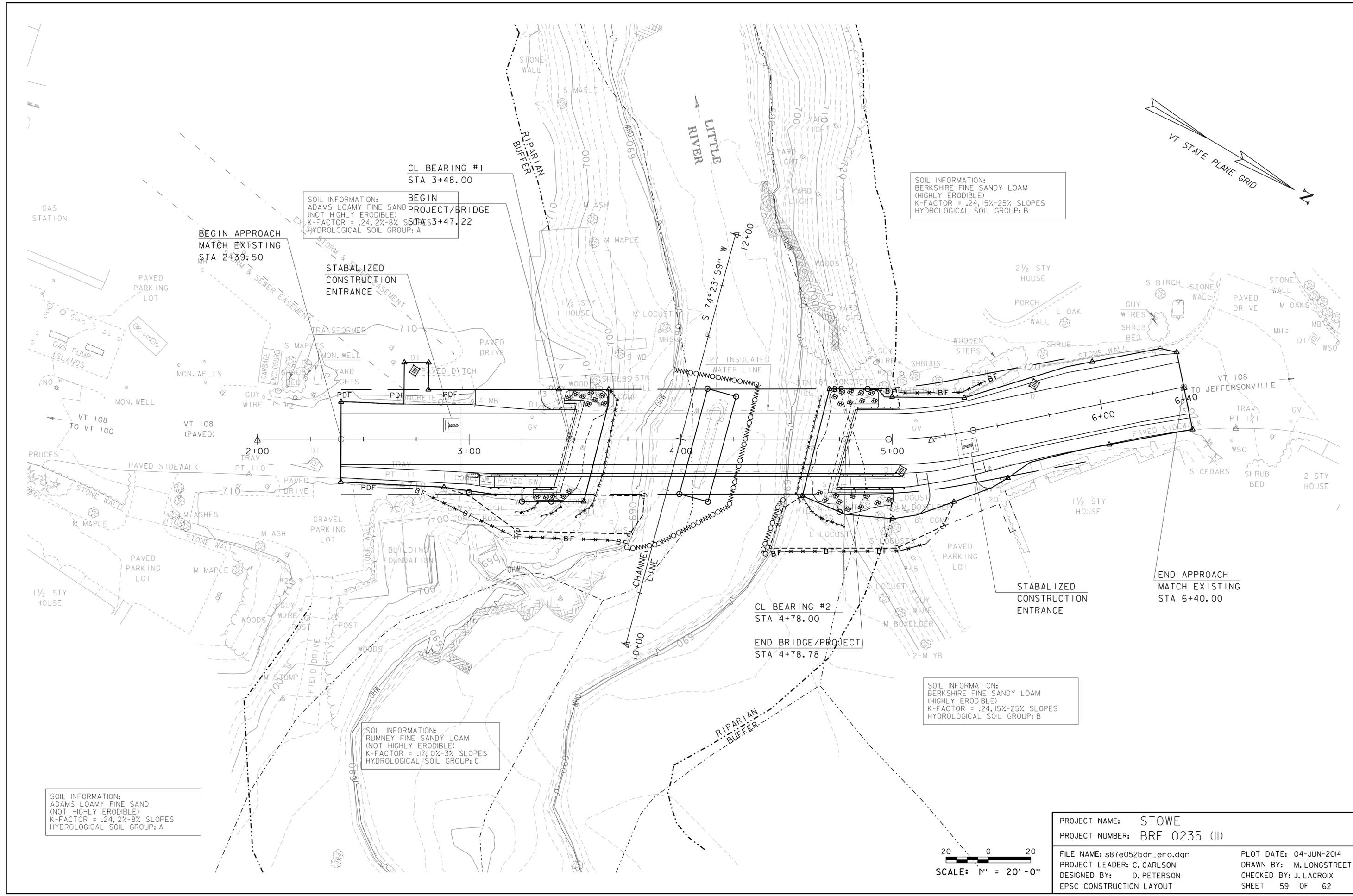
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ADAMS LOAMY FINE SAND  
(NOT HIGHLY ERODIBLE)  
K-FACTOR = .24, 2%-8% SLOPES  
HYDROLOGICAL SOIL GROUP: A

SOIL INFORMATION:  
RUMNEY FINE SANDY LOAM  
(NOT HIGHLY ERODIBLE)  
K-FACTOR = .17, 0%-3% SLOPES  
HYDROLOGICAL SOIL GROUP: C

SOIL INFORMATION:  
ADAMS LOAMY FINE SAND  
(NOT HIGHLY ERODIBLE)  
K-FACTOR = .24, 2%-8% SLOPES  
HYDROLOGICAL SOIL GROUP: A



PROJECT NAME:	STOWE	PLOT DATE:	04-JUN-2014
PROJECT NUMBER:	BRF 0235 (II)	DRAWN BY:	M. LONGSTREET
FILE NAME:	s87e052bdr_ero.dgn	DESIGNED BY:	D. PETERSON
PROJECT LEADER:	C. CARLSON	EPSC EXISTING LAYOUT	CHECKED BY: J. LACROIX
			SHEET 58 OF 62

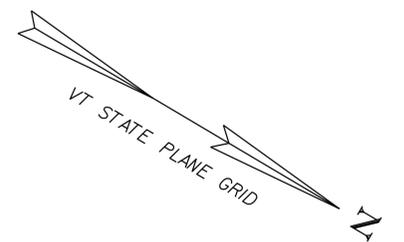


SOIL INFORMATION:  
 BERKSHIRE FINE SANDY LOAM  
 (HIGHLY ERODIBLE)  
 K-FACTOR = .24, 15%-25% SLOPES  
 HYDROLOGICAL SOIL GROUP: B

SOIL INFORMATION:  
 ADAMS LOAMY FINE SAND  
 (NOT HIGHLY ERODIBLE)  
 K-FACTOR = .24, 2%-8% SLOPES  
 HYDROLOGICAL SOIL GROUP: A

SOIL INFORMATION:  
 RUMNEY FINE SANDY LOAM  
 (NOT HIGHLY ERODIBLE)  
 K-FACTOR = .17, 0%-3% SLOPES  
 HYDROLOGICAL SOIL GROUP: C

SOIL INFORMATION:  
 ADAMS LOAMY FINE SAND  
 (NOT HIGHLY ERODIBLE)  
 K-FACTOR = .24, 2%-8% SLOPES  
 HYDROLOGICAL SOIL GROUP: A



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

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PROJECT LEADER:	C. CARLSON	EPSC CONSTRUCTION LAYOUT	CHECKED BY: J. LACROIX
			SHEET 59 OF 62

CL BEARING #1  
 STA 3+48.00

CL BEARING #2  
 STA 4+78.00

END BRIDGE/PROJECT  
 STA 4+78.78

BEGIN APPROACH  
 MATCH EXISTING  
 STA 2+39.50

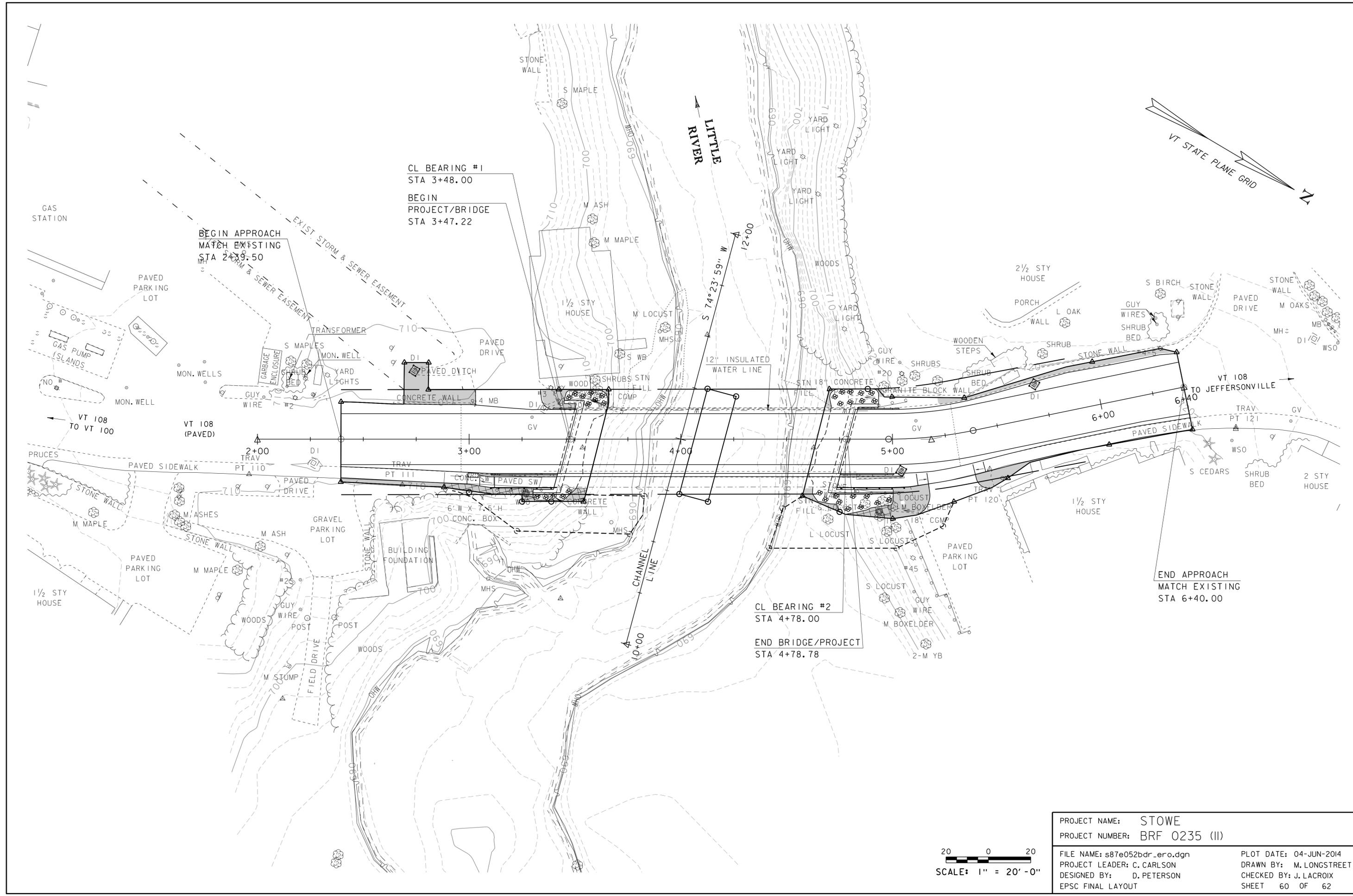
END APPROACH  
 MATCH EXISTING  
 STA 6+40.00

STABILIZED  
 CONSTRUCTION  
 ENTRANCE

STABILIZED  
 CONSTRUCTION  
 ENTRANCE

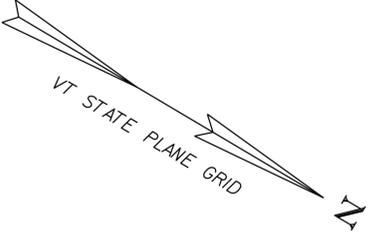
BEGIN  
 PROJECT/BRIDGE  
 STA 3+47.22

END BRIDGE/PROJECT  
 STA 4+78.78



CL BEARING #1  
 STA 3+48.00  
 BEGIN  
 PROJECT/BRIDGE  
 STA 3+47.22

BEGIN APPROACH  
 MATCH EXISTING  
 STA 2+39.50

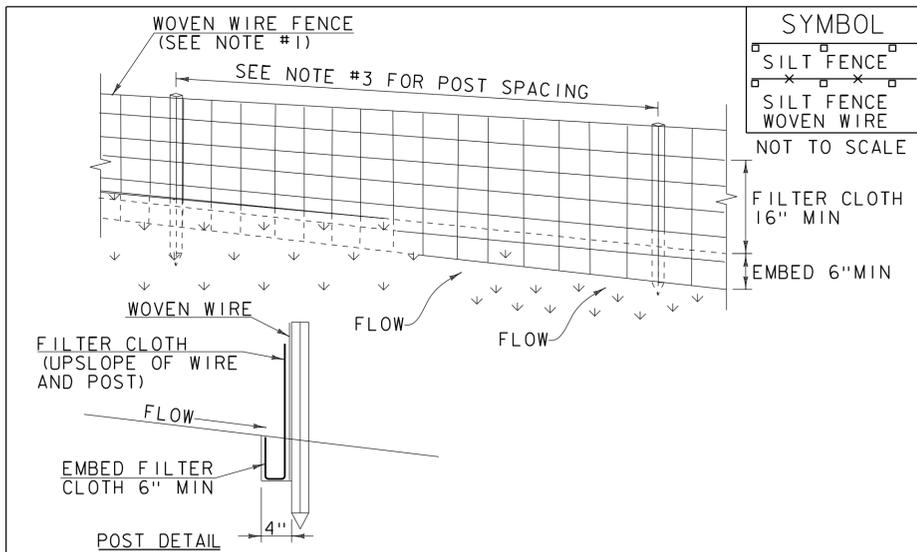


CL BEARING #2  
 STA 4+78.00  
 END BRIDGE/PROJECT  
 STA 4+78.78

END APPROACH  
 MATCH EXISTING  
 STA 6+40.00

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

PROJECT NAME:	STOWE	PLOT DATE:	04-JUN-2014
PROJECT NUMBER:	BRF 0235 (II)	DRAWN BY:	M. LONGSTREET
FILE NAME:	s87e052bdr_ero.dgn	DESIGNED BY:	J. LACROIX
PROJECT LEADER:	C. CARLSON	EPSC FINAL LAYOUT	SHEET 60 OF 62



**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, MIRAF1100X, 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 649.5) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

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

VAOT RURAL AREA MIX					
% WEIGHT	LBS/AC		NAME	GERM %	PURITY %
	BROADCAST	HYDROSEED			
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					
% WEIGHT	LBS/AC		NAME	GERM %	PURITY %
	BROADCAST	HYDROSEED			
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

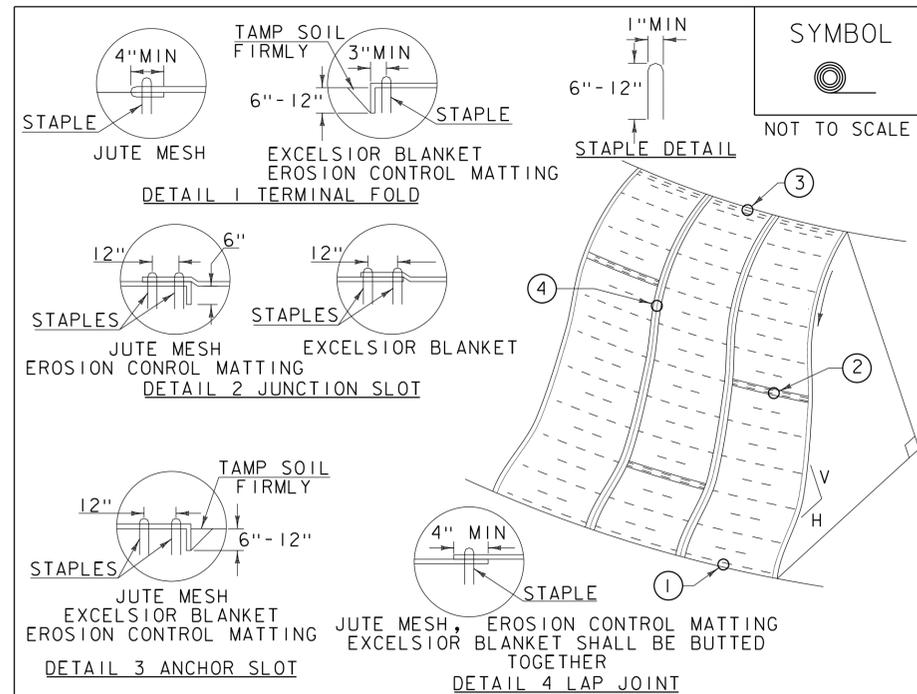
**TURF ESTABLISHMENT**

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

PROJECT NAME: STOWE  
PROJECT NUMBER: BRF 0235 (II)

FILE NAME: s87e052eroDetails.dgn PLOT DATE: 04-JUN-2014  
PROJECT LEADER: C. CARLSON DRAWN BY: M. LONGSTREET  
DESIGNED BY: D. PETERSON CHECKED BY: J. LACROIX  
EPSC DETAIL SHEET 1 SHEET 61 OF 62



**CONSTRUCTION SPECIFICATIONS**

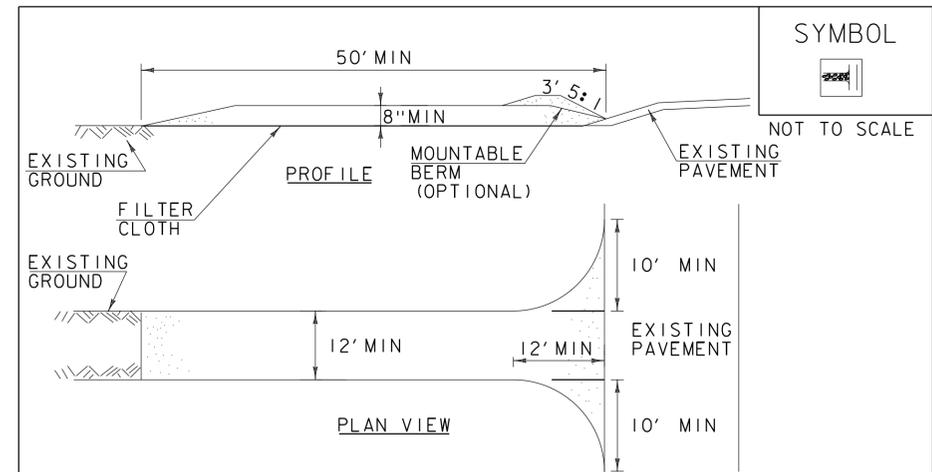
1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4' X 225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4' X 150' 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



**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:	STOWE
PROJECT NUMBER:	BRF 0235 (II)
FILE NAME:	s87e052eroDetails.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	D. PETERSON
EPSC DETAIL SHEET	2
PLOT DATE:	04-JUN-2014
DRAWN BY:	M. LONGSTREET
CHECKED BY:	J. LACROIX
SHEET	62 OF 62