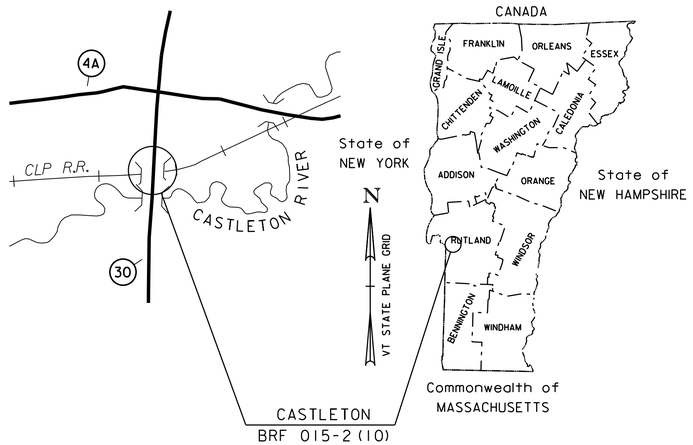
STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT

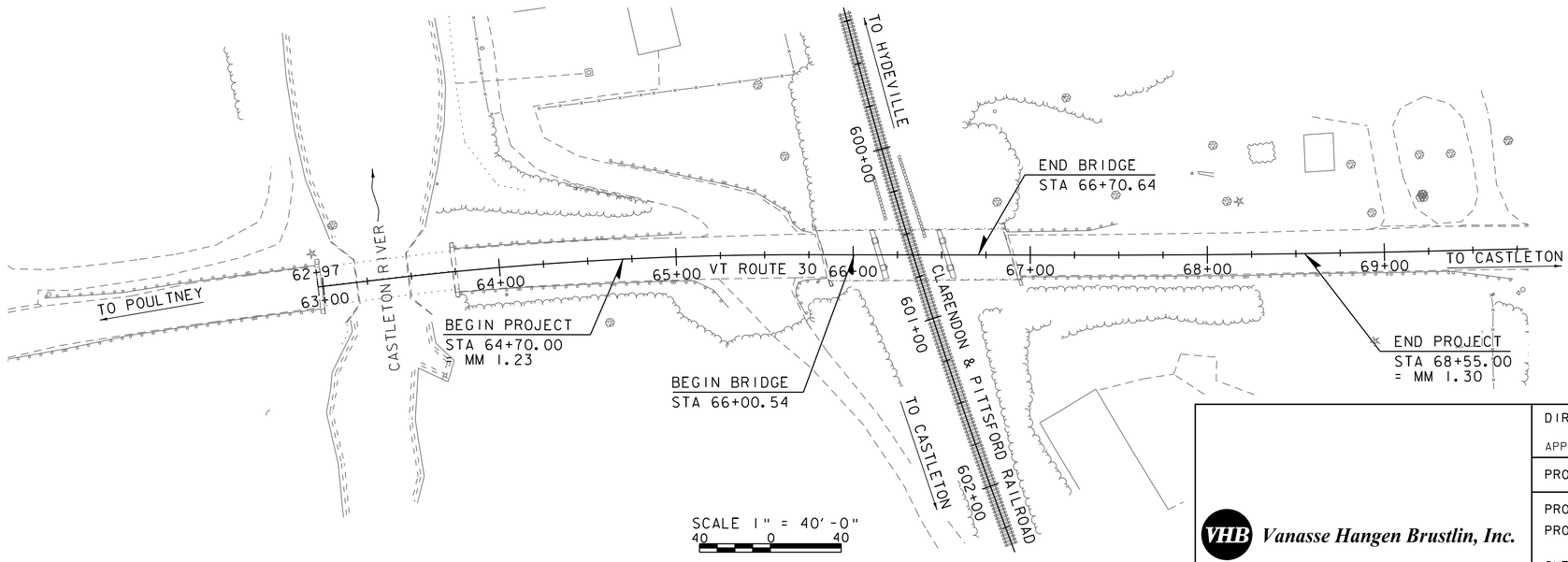
TOWN OF CASTLETON
COUNTY OF RUTLAND
VT ROUTE 30 (RURAL MINOR ARTERIAL), BRIDGE NO 93

PROJECT LOCATION: LOCATED IN THE COUNTY OF RUTLAND, TOWN OF CASTLETON, ON VT ROUTE 30; BRIDGE NO. 93 OVER THE CLARENDON AND PITTSFORD RAILROAD; APPROXIMATELY 0.3 MILES SOUTH OF INTERSECTION OF VT ROUTE 30 AND VT ROUTE 4A.

PROJECT DESCRIPTION: WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES THE REMOVAL AND REPLACEMENT OF BRIDGE NO. 93 ON THE EXISTING ALIGNMENT, WITH ASSOCIATED ROADWAY AND RAIL WORK.

LENGTH OF STRUCTURE: 70.10 FEET
LENGTH OF ROADWAY: 314.90 FEET
LENGTH OF PROJECT: 385.00 FEET

LENGTH OF RAIL WORK: 1126.00 FEET



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

QUALITY ASSURANCE PROGRAM : LEVEL 2
SURVEYED BY : L. ORVIS SURVEYED DATE : 03-28-2012
DATUM VERTICAL NAVD 88 HORIZONTAL NAD83 (1992)

Vanasse Hangen Brustlin, Inc.

DIRECTOR OF PROJECT DELIVERY

APPROVED _____ DATE _____

PROJECT MANAGER : JENNIFER M.V. FITCH, P.E.

PROJECT NAME : CASTLETON
PROJECT NUMBER : BRF 015-2(10)

SHEET 1 OF 82 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 11.06.15

LRFD

INDEX OF SHEETS

PLAN SHEETS

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G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	01-03-2000
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-136B	STATE ROUTE MARKER SIGN DETAILS	08-08-1995
E-193	PAVEMENT MARKING DETAILS	08-18-1995
S-360A	BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM	04-23-2012
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T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	08-06-2012
T-42	BRIDGE NUMBER PLAQUE	04-09-2014
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STRUCTURES DETAILS

SD-501.00	CONCRETE DETAILS AND NOTES	6/4/2010
SD-502.00	CONCRETE DETAILS AND NOTES	6/4/2010
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	6/4/2010

FINAL HYDRAULIC REPORT

TRAFFIC MAINTENANCE NOTES

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

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	0.0 INCH
3. DESIGN SPAN	L:	67.30 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	2.15 INCH
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f_y:	270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	10.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	7.5 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	---
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	---
11. CONCRETE, CLASS C	f'_c:	---
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	---
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	---
20. PILE YIELD STRENGTH ASTM A572	f_y:	50 KSI
21. PILE SIZE		HP 12x63
22. EST. PILE LENGTH	L_p:	75 FT
23. PILE RESISTANCE FACTOR	ϕ:	0.65
24. LATERAL PILE DEFLECTION	Δ:	---
25. BASIC WIND SPEED	V_{3s}:	---
26. MINIMUM GROUND SNOW LOAD	p_g:	---
27. SEISMIC DATA — PGA: ---	S_s:	---
	S_1:	---

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE	**20**	**36**	**36**	**66**	**30**	**34.5**	**38**
INVENTORY	2.03	1.1					
POSTING							
OPERATING	2.85	1.46	2.77	1.85	2.39	2.14	2.35
COMMENTS:	The exterior beam controls the rating.						

VHB *Vanasse Hangen Brustlin, Inc.*

AS BUILT "REBAR" DETAIL

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

* - SEE PROJECT NOTES

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY	Rndr:	*
2. PILE TEST RESISTANCE FACTOR	ϕ:	**0.65**
3. MAXIMUM PILE TIP ELEVATION		*

4. A MINIMUM OF 3 DYNAMIC TESTS SHALL BE PERFORMED DURING INSTALLATION. NO LESS THAN 1 TEST SHOULD BE PERFORMED AT EACH ABUTMENT. THE REMAINING SHOULD BE CALIBRATED BY WAVE EQUATION ANALYSIS.

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	
2015	4000	450	52	5.8	250	20 year ESAL for flexible pavement from 2015 to 2035 : 2064000
2035	4200	470	52	8.9	410	40 year ESAL for flexible pavement from 2015 to 2055 : 4920000
						Design Speed : 30 mph

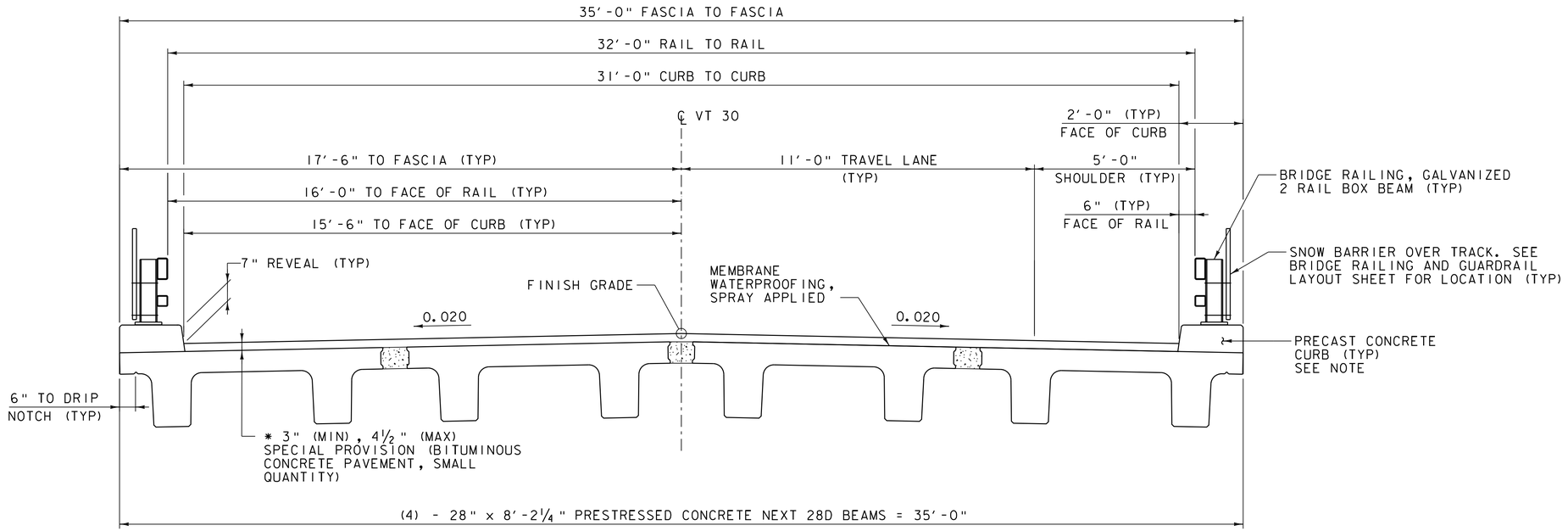
PROJECT NAME: **CASTLETON**

PROJECT NUMBER: **BRF 015-2(10)**

FILE NAME: **z12b138pi.dgn**
PROJECT LEADER: **S.E. BURBANK**
DESIGNED BY: **E.A. FIALA**
PRELIMINARY INFORMATION SHEET

PLOT DATE: 9/18/2014
DRAWN BY: **E.A. FIALA**
CHECKED BY: **S.E. BURBANK**
SHEET 2 OF 82

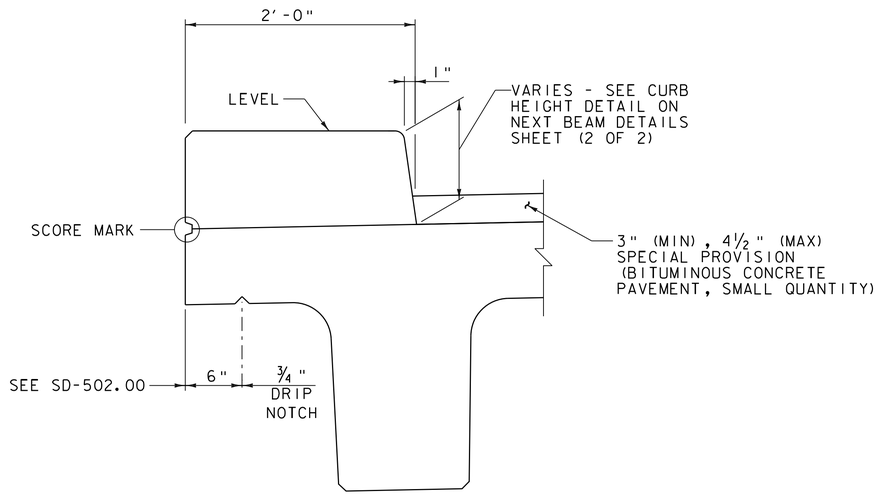
VHB 57632



* (2) - 1½" LIFTS OF TYPE IVS OR
(3) - 1½" LIFTS OF TYPE IVS

TYPICAL BRIDGE SECTION

SCALE ½" = 1'-0"



FASCIA DETAIL

SCALE 1½" = 1'-0"

NOTE: COSTS FOR PRECAST CURB ON BRIDGE TO BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 900.640, "SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS) (NEXT 28D)".

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)

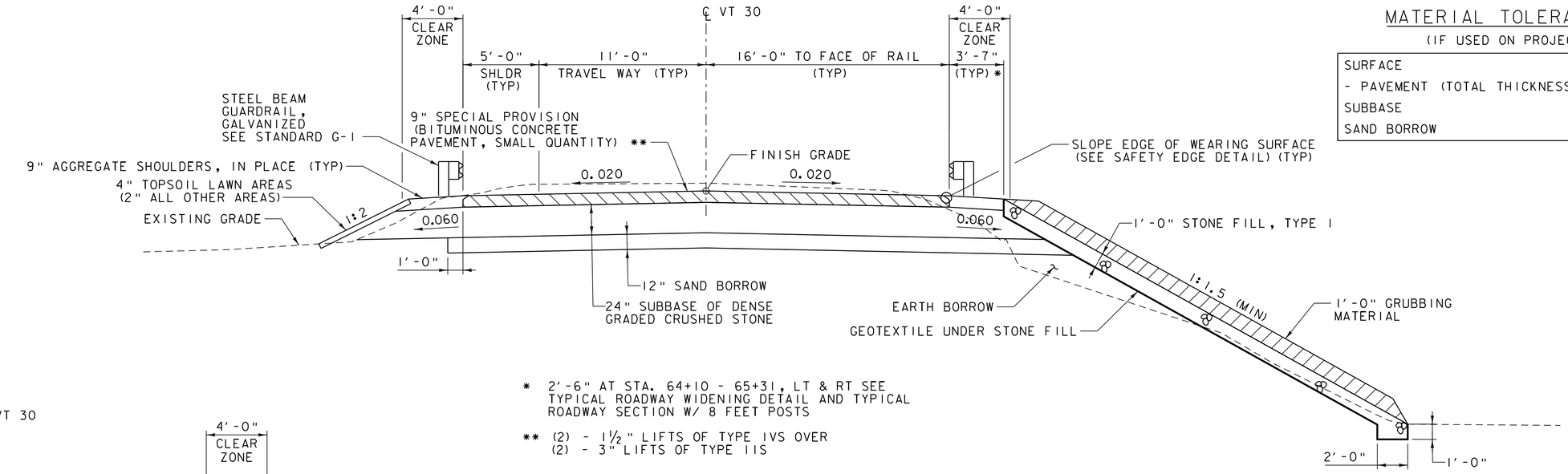
FILE NAME: z12bl38typ.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
TYPICAL BRIDGE SECTION	SHEET 3 OF 82

VHB Vanasse Hangen Brustlin, Inc.

MATERIAL TOLERANCES

(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

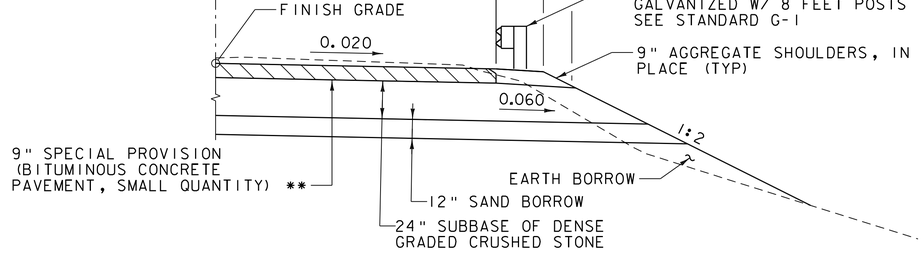


* 2'-6" AT STA. 64+10 - 65+31, LT & RT SEE TYPICAL ROADWAY WIDENING DETAIL AND TYPICAL ROADWAY SECTION W/ 8 FEET POSTS

** (2) - 1½" LIFTS OF TYPE IVS OVER (2) - 3" LIFTS OF TYPE IIS

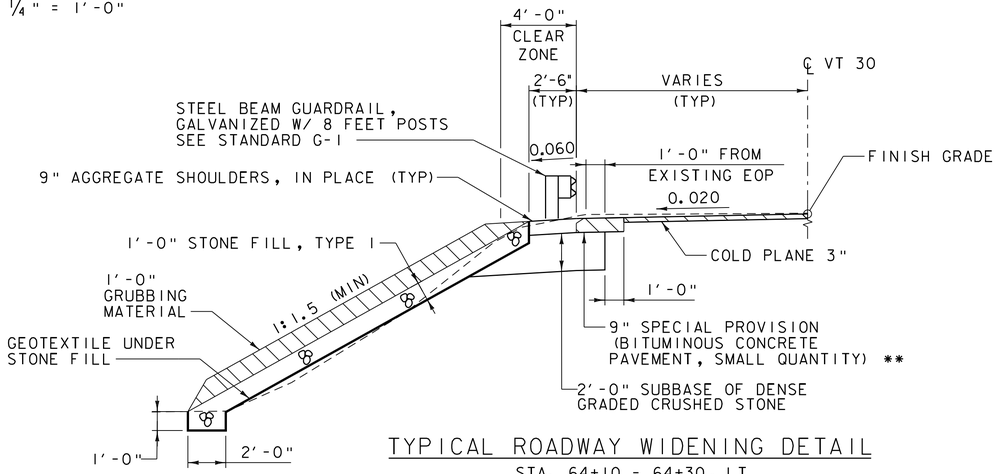
TYPICAL ROADWAY SECTION

SCALE 1/4" = 1'-0"



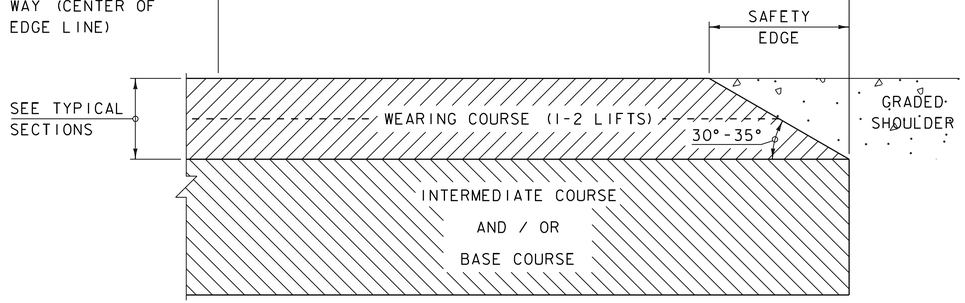
TYPICAL ROADWAY SECTION W/ 8 FEET POSTS

STA. 64+30 - 65+31, LT & RT
SCALE 1/4" = 1'-0"



TYPICAL ROADWAY WIDENING DETAIL

STA. 64+10 - 64+30, LT
SCALE 1/4" = 1'-0"



SAFETY EDGE DETAIL

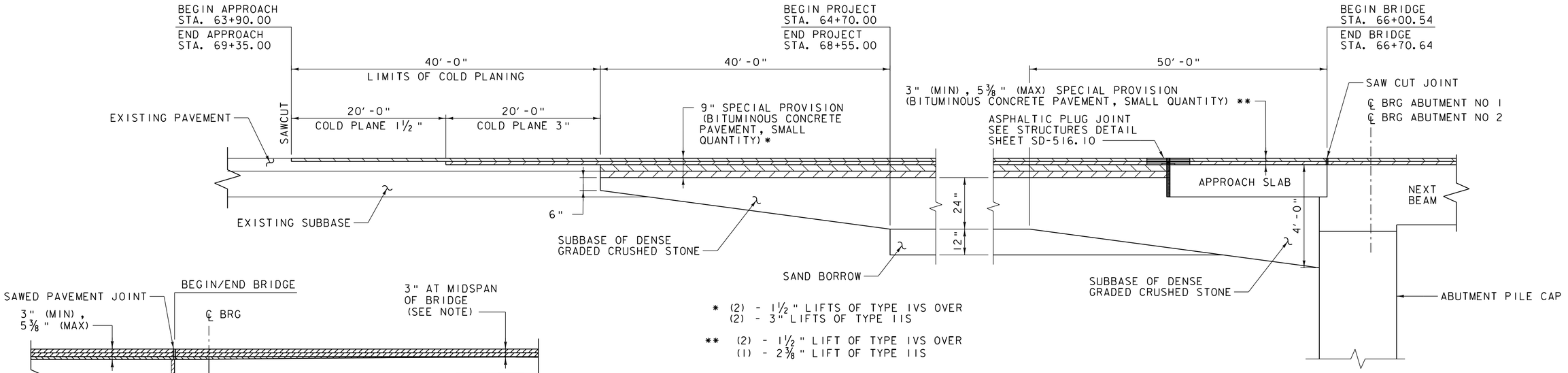
NOT TO SCALE

1. 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.

2. THE PAVED SHOULDER EXTENDS FROM THE EDGE OF TRAVELED WAY TO THE EDGE OF THE WEARING COURSE, INCLUDING THE "SAFETY EDGE".

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12bl38typ.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
TYPICAL SECTIONS (1 OF 3)	SHEET 4 OF 82



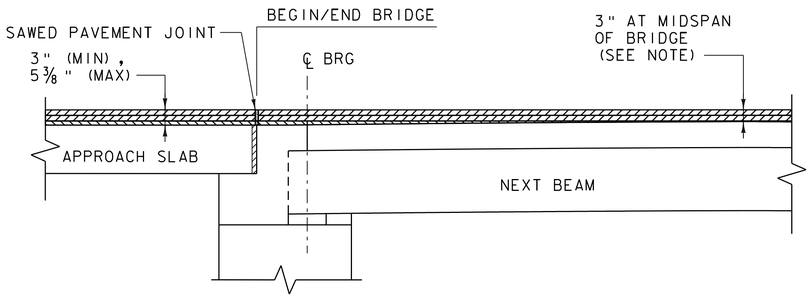
* (2) - 1½" LIFTS OF TYPE IVS OVER
(2) - 3" LIFTS OF TYPE IIS

** (2) - 1½" LIFT OF TYPE IVS OVER
(1) - 2⅜" LIFT OF TYPE IIS

NOTE: EMULSIFIED ASPHALT IS TO BE APPLIED AT A RATE OF 0.040 GAL/SY BETWEEN ALL LIFTS OF BITUMINOUS CONCRETE PAVEMENT, ON ALL COLD PLANED SURFACES, AND THE APPROACH SLAB PRIOR TO PLACING THE FIRST LIFT, AS DIRECTED BY THE ENGINEER.

APPROACH SECTION

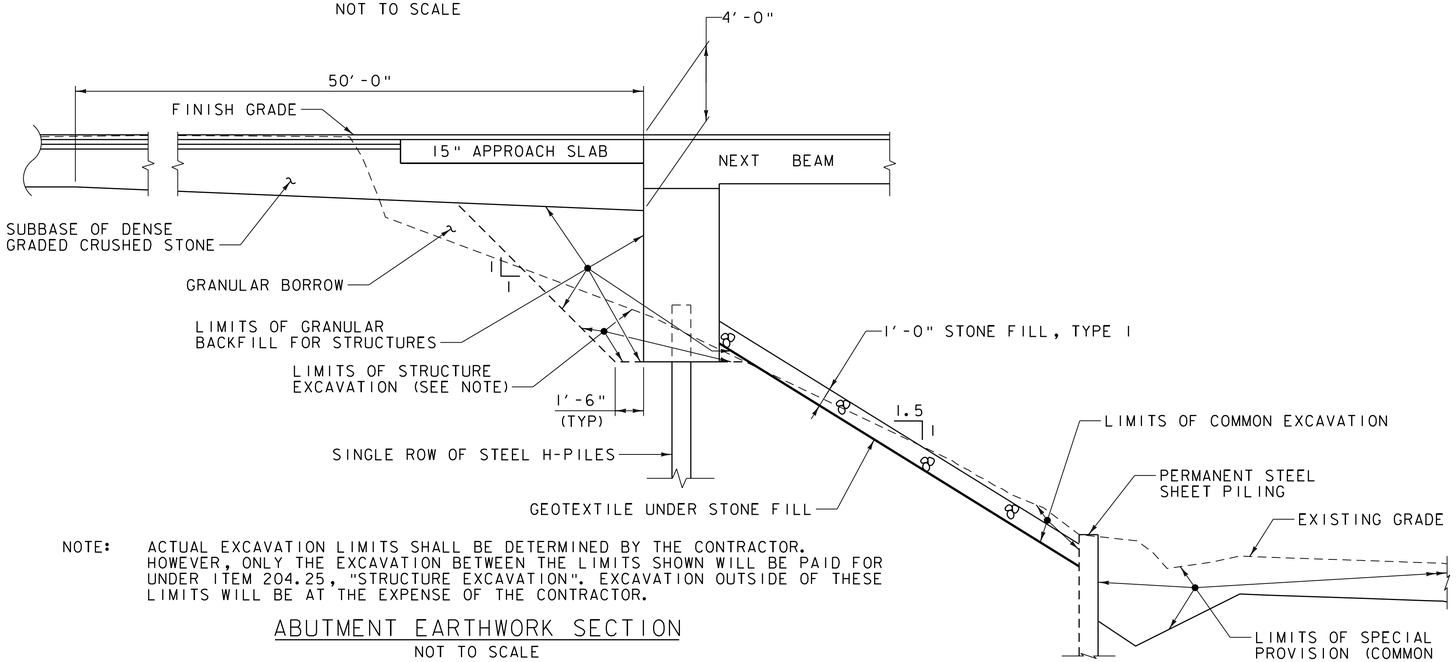
NOT TO SCALE



NOTE: PAVEMENT THICKNESS VARIES ON BRIDGE TO ACCOUNT FOR THE DIFFERENCE BETWEEN FINISH GRADE AND DESIGNED CAMBER OF THE BEAMS. SEE NEXT BEAM DETAILS (2 OF 2) FOR PAVEMENT THICKNESS AND PRECAST CONCRETE CURB HEIGHT DETAIL.

PAVEMENT TRANSITION DETAIL

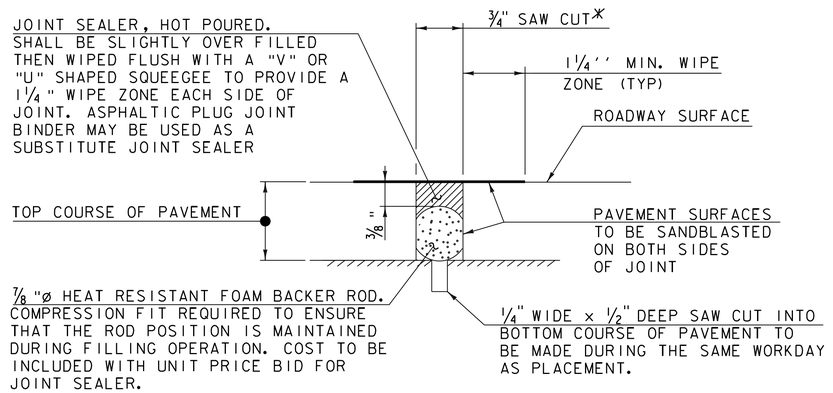
NOT TO SCALE



NOTE: ACTUAL EXCAVATION LIMITS SHALL BE DETERMINED BY THE CONTRACTOR. HOWEVER, ONLY THE EXCAVATION BETWEEN THE LIMITS SHOWN WILL BE PAID FOR UNDER ITEM 204.25, "STRUCTURE EXCAVATION". EXCAVATION OUTSIDE OF THESE LIMITS WILL BE AT THE EXPENSE OF THE CONTRACTOR.

ABUTMENT EARTHWORK SECTION

NOT TO SCALE



SAWED PAVEMENT JOINT DETAIL

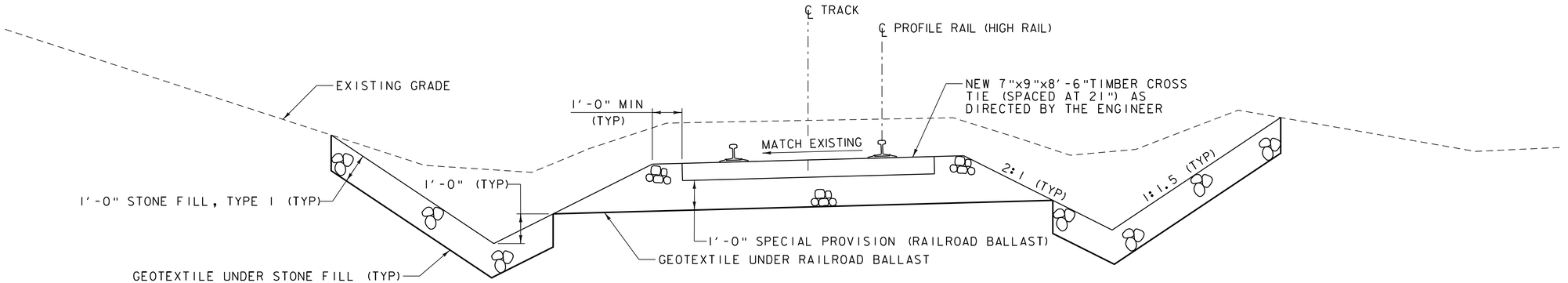
(NOT TO SCALE)

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

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON	
PROJECT NUMBER: BRF 015-2(10)	
FILE NAME: z12b138typ.dgn	PLOT DATE: 9/21/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A.FIALA	CHECKED BY: S.E. BURBANK
TYPICAL SECTIONS (2 OF 3)	SHEET 5 OF 82

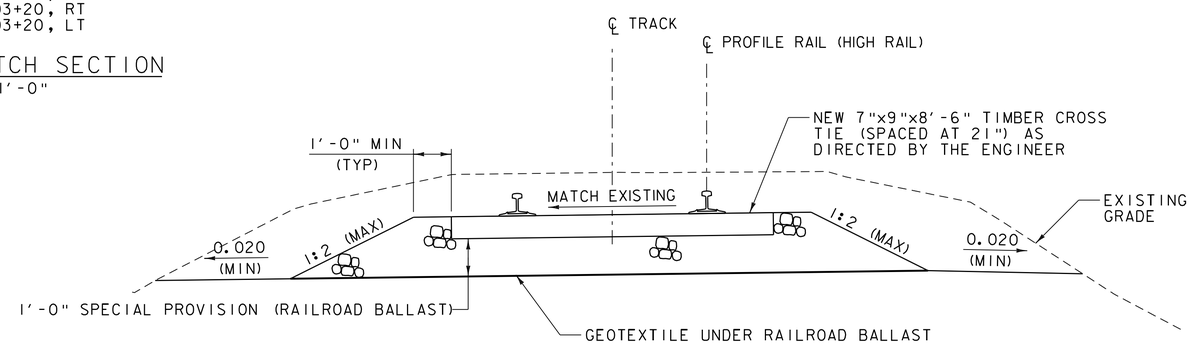
VHB 57632



STA. 598+58 - 599+79, LT
STA. 598+58 - 600+14, RT
STA. 600+99 - 603+20, RT
STA. 601+20 - 603+20, LT

TYPICAL RAIL DITCH SECTION

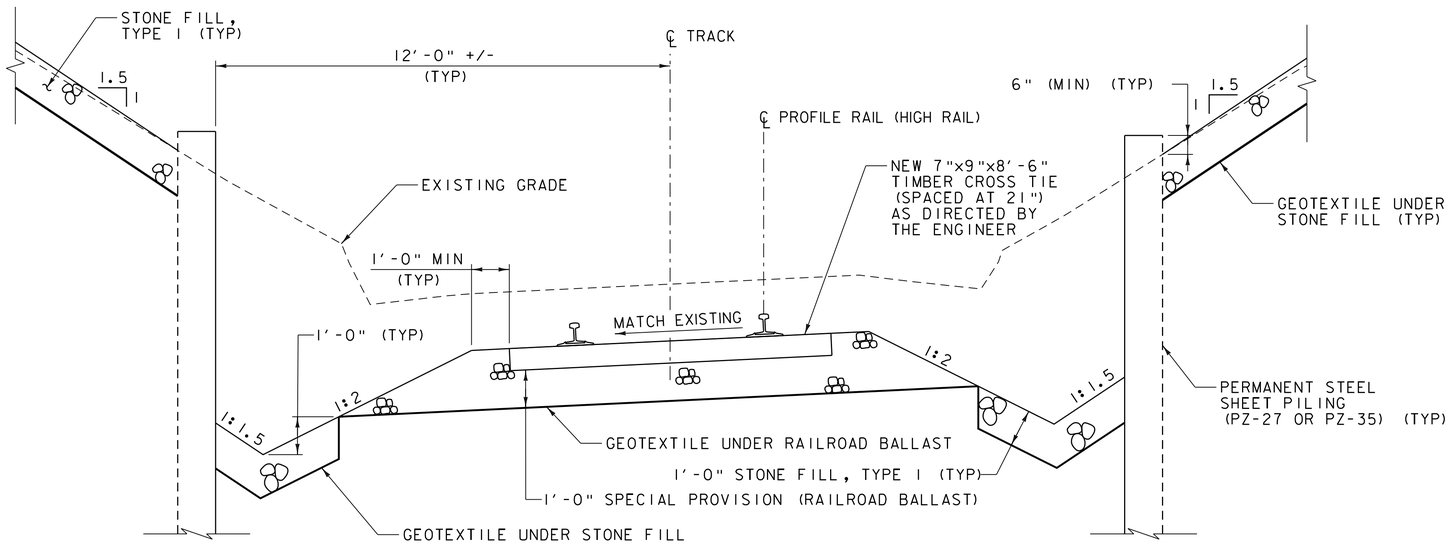
SCALE ½" = 1'-0"



STA. 594+94 - 598+58, LT & RT
STA. 603+20 - 606+20, LT & RT

TYPICAL RAIL CUT SECTION

SCALE ½" = 1'-0"



STA. 599+79 - 601+20, LT
STA. 600+14 - 600+99, RT

TYPICAL RAIL SHEETING SECTION

SCALE ½" = 1'-0"

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138typ.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
TYPICAL SECTIONS (3 OF 3)	SHEET 6 OF 82

PROJECT NOTES

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION, AND ITS LATEST REVISIONS.

2. ALL PRECAST CONCRETE ELEMENTS TO BE FABRICATED TO THE SPECIFIED DIMENSIONS WITHIN THE TOLERANCES DICTATED IN THE PRECAST/PRESTRESSED CONCRETE INSTITUTE TOLERANCE MANUAL FOR PRECAST AND PRESTRESSED CONCRETE CONSTRUCTION, MNL 135-00, AND ITS LATEST REVISIONS.

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

4. NO ADJUSTMENTS TO THE BITUMINOUS WEARING SURFACE ON THE BRIDGE SHALL BE MADE TO ACCOUNT FOR THE DIFFERENCE BETWEEN THE ACTUAL BEAM CAMBER AND THE THEORETICAL ROADWAY PROFILE. THE WEARING SURFACE SHALL BE SHIMMED TRANSVERSELY AS NECESSARY TO ACCOUNT FOR POTENTIAL DIFFERENTIAL CAMBER OF THE ADJACENT BEAMS.

5. REMOVAL OF EXISTING BRIDGE PAVEMENT SHALL BE PAID AS ITEM 529.10, "REMOVAL OF BRIDGE PAVEMENT".

6. ITEM 529.15, "REMOVAL OF STRUCTURE", SHALL INCLUDE THE COMPLETE REMOVAL AND DISPOSAL OF THE EXISTING BRIDGE SUBSTRUCTURE AND SUPERSTRUCTURE, INCLUDING ALL BRIDGE RAIL, PIERS, BEARINGS AND ANCHOR BOLTS, WHERE THE REMOVAL IS OUTSIDE OF THE AREAS COVERED BY THE CONTRACT EXCAVATION ITEMS.

7. NO SUBSTITUTION FOR PRECAST CONCRETE WILL BE PERMITTED.

8. USE OF TEMPORARY BRIDGE WILL NOT BE PERMITTED.

9. A PRE-CLOSURE MEETING SHALL BE HELD ONE WEEK PRIOR TO THE BRIDGE CLOSURE PERIOD. THE FOLLOWING INDIVIDUALS SHALL BE INVITED TO ATTEND THE PRE-CLOSURE MEETING: THE RAILROAD, PROJECT MANAGER, STRUCTURE CONSTRUCTION ENGINEER, RESIDENT ENGINEER, CONTRACTOR, AND THE DESIGN CONSULTANT.

10. CONTRACTOR SHALL BE RESPONSIBLE FOR PUMPING SEWAGE FROM THE MANHOLE ON THE NORTH SIDE OF THE BRIDGE TO THE SEWER TREATMENT PLANT IN THE EVENT THE SEWER LINE IS DAMAGED DURING CONSTRUCTION. DAMAGE TO THE SEWER LINE AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER AND TOWN OF CASTLETON AT THE CONTRACTOR'S EXPENSE.

11. DUE TO STABILITY CONCERNS AT THE ABUTMENTS DURING THE ERECTION OF THE SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT THE ERECTION PLAN A MINIMUM OF 30 WORKING DAYS PRIOR TO ERECTING THE SUPERSTRUCTURE.

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

13. THE CONTRACTOR, ENGINEER, AND REPRESENTATIVE FROM THE TOWN OF POULTNEY SHALL CONDUCT A PRE AND POST DETOUR ROUTE CLOSURE SURVEY TO DOCUMENT THE PRE-BRIDGE CLOSURE ROADWAY CONDITIONS ON MAIN STREET, COLLEGE STREET AND YORK STREET AS SHOWN IN THE DETOUR PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN THE DETOUR ROUTE IN POULTNEY TO PRE-CLOSURE CONDITIONS DURING THE BRIDGE CLOSURE PERIOD AND AT THE END OF THE BRIDGE CLOSURE PERIOD. ALL WORK (LINE STRIPING, BITUMINOUS CONCRETE PAVEMENT, ETC.) SHALL BE PAID FOR UNDER ITEM 900.650, "SPECIAL PROVISION (LOCAL TRAFFIC MAINTENANCE)".

TRAFFIC CONTROL

14. THE CONTRACTOR SHALL IMPLEMENT THE ROAD CLOSURE, TRAFFIC CONTROL, AND DETOUR AS SHOWN ON THE PLANS.

15. THE CONTRACTOR SHALL NOTIFY THE TOWN A MINIMUM OF SIX (6) WEEKS PRIOR TO CLOSING VT ROUTE 30. THE CONTRACTOR SHALL NOTIFY THE VT STATE POLICE DISPATCHER AT 802-468-5355, EXT 212; AND NEW YORK STATE WASHINGTON COUNTY DISPATCHER'S OFFICE AT 518-747-3325 A MINIMUM OF TWO (2) WEEKS PRIOR TO CLOSING VT ROUTE 30, IMMEDIATELY ONCE VT ROUTE 30 IS CLOSED AND AGAIN WHEN IT IS OPENED.

16. FULL ACCESS TO ALL DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL".

17. UNLESS COVERED UNDER INDIVIDUAL PAY ITEMS OR NOTED OTHERWISE, ALL COSTS FOR WORK SHOWN ON THE TRAFFIC CONTROL SHEETS AND FOR TEMPORARY TRAFFIC CONTROL DEVICES WILL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR ITEM 641.10, "TRAFFIC CONTROL". THIS INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING ITEMS:

    TEMPORARY TRAFFIC BARRIERS
    RETROREFLECTIVE DRUMS & CONES
    SIGNS
    SIGN POSTS
    INSTALLATION OF SIGNS AND SIGN POSTS

    TEMPORARY TRAFFIC BARRIER SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 621.

18. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).

EARTHWORK

19. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SUBSECTION 301.06 REGARDING THE COMPACTION OF THE SUBBASE MATERIAL.

20. THE "STONE FILL, TYPE I" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE NEW BEAMS ARE SET.

CONCRETE AND REINFORCING STEEL

21. ITEM 514.10, "WATER REPELLENT, SILANE", SHALL BE APPLIED TO ALL EXPOSED CONCRETE ON THE BRIDGE SUPERSTRUCTURE AND SUBSTRUCTURE, WITH THE EXCEPTION OF THE BOTTOM OF THE PRECAST NEXT BEAMS BETWEEN THE DRIP NOTCHES.

22. ALL CONCRETE PLACED INTEGRALLY WITH THE SUPERSTRUCTURE SHALL BE ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)". ALL PRECAST SUBSTRUCTURE AND APPROACH SLAB CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 540 - PRECAST CONCRETE.

23. THE CONNECTION BETWEEN APPROACH SLAB UNITS SHALL MEET THE REQUIREMENTS OF ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)".

24. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI).

25. ALL REINFORCEMENT SHALL MEET THE REQUIREMENTS OF LEVEL II REINFORCING STEEL IN ACCORDANCE WITH SECTION 507. PAYMENT FOR STEEL REINFORCEMENT IN NEXT D BEAMS, INCLUDING REINFORCING FOR THE CLOSURE POUR AND PRECAST CONCRETE BRIDGE CURBS WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 900.640. PAYMENT FOR STEEL REINFORCEMENT IN PRECAST SUBSTRUCTURE UNITS AND APPROACH SLABS, INCLUDING REINFORCING FOR THE CLOSURE POUR, WILL BE MADE UNDER THE APPROPRIATE SECTION 540 CONTRACT ITEM.

26. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

ALONG BACK FACES OF WALLS AGAINST EARTH:	2 INCH
ALONG TOP SURFACE OF DECK SLAB:	2½ INCH
ALONG BOTTOM SURFACE OF DECK SLAB:	1¾ INCH
ELSEWHERE UNLESS OTHERWISE NOTED:	3 INCH

PRECAST ABUTMENTS AND POST-TENSIONING

27. 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. NO LESS THAN TWO PILES SHALL SUPPORT EACH PRECAST ABUTMENT SECTION.

28. POST-TENSIONING AND ASSOCIATED ITEMS ARE ONLY REQUIRED IF THE PILE CAP IS CONSTRUCTED OF MORE THAN ONE UNIT. ANY POST-TENSIONING STRANDS AND CONDUIT SHALL ADHERE 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 NO. 1)" OR "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 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.

29. GALVANIZE ANCHOR ASSEMBLIES AFTER FABRICATION ACCORDING TO AASHTO M232M/M232.

30. DESIGN VALUES
    A. CONCRETE COMPRESSIVE STRENGTH: f'c = 5,000 PSI.
    B. POST-TENSIONING STRANDS: 0.5 INCH DIAMETER, 270 KSI, LOW RELAXATION 7-WIRE STRANDS.
    C. ASSUMED MODULUS OF ELASTICITY IS 28,500 KSI.
    D. THERE SHALL BE 2 STRANDS PER CONDUIT.
    E. JACKING FORCE PER STRAND = 32 KIPS.

31. THE CONCRETE FOR THE ABUTMENT NO. 1 AND ABUTMENT NO. 2 PILE CAVITIES SHALL MEET THE REQUIREMENTS OF ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)".

32. THE CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF SUBSECTION 711.01. ALL COSTS ASSOCIATED WITH FURNISHING AND PLACING THE CORRUGATED STEEL PIPE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)" OR ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)".

33. PROPOSED SEQUENCE OF CONSTRUCTION
    A. PREPARE AND GRADE FOUNDATION TO REQUIRED ELEVATION.
    B. DRIVE PILES.
    C. PLACE PRECAST ABUTMENTS AND INSTALL TRANSVERSE STRANDS (IF MORE THAN ONE UNIT).
    D. APPLY EPOXY BONDING COMPOUND TO MATCH CAST FACES OF VERTICAL CONSTRUCTION JOINT.
    E. USE A CALIBRATED JACK TO TENSION 3 KIPS TO REMOVE SAG IN STRANDS.
    F. CHECK ALIGNMENT OF PILE CAP ELEMENTS.
    G. STRESS POST-TENSIONING STRANDS USING A CALIBRATED JACK.
    H. FILL PILE CAVITIES WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)".
    I. PLACE PRECAST WINGWALLS AND GROUT SPLICE CONNECTORS.
    J. BACKFILL MAY BE COMPLETED AFTER SPLICE CONNECTOR GROUT HAS REACHED 85% OF 5,000 PSI. BACKFILL SHALL NOT EXCEED BRIDGE SEAT ELEVATIONS UNTIL NEXT BEAMS ARE SET AND THE CLOSURE POUR IS CAST.

34. ALTERNATE SEQUENCE OF CONSTRUCTION MAY BE SUBMITTED FOR APPROVAL BY THE PROJECT MANAGER.

NEXT D BEAMS

35. NEXT D BEAMS ARE A NON-PROPRIETARY SHAPE DEVELOPED BY PCI NORTHEAST ("PCINE"). STANDARDIZED SECTION PROPERTIES AND DETAILS MAY BE FOUND AT http://www.pcine.org

36. DESIGN VALUES
    A. CONCRETE COMPRESSIVE STRENGTH: f'c = 10,000 PSI.
    B. CONCRETE COMPRESSIVE STRENGTH AT RELEASE: f'ci = 7,500 psi.
    C. PRESTRESSING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS
    D. ASSUMED MODULUS OF ELASTICITY = 28,5000 KSI
    E. PRESTRESSING STRANDS SHALL EACH BE PULLED TO HAVE A NET TENSION FORCE OF 44.0 KIPS AFTER ACCOUNTING FOR CHUCK SLIPPAGE.
    F. SERVICE LOADS

MEMBER MOMENT	803 K-FT
NON-COMPOSITE SUPERIMPOSED DEAD LOAD MOMENT	177 K-FT
COMPOSITE SUPERIMPOSED DEAD LOAD MOMENT	275 K-FT
LIVE LOAD AND IMPACT MOMENT	1,297 K-FT
DEAD LOAD REACTION	75 KIPS
LIVE LOAD AND IMPACT REACTION	92 KIPS
TOTAL REACTION	167 KIPS
FINAL CAMBER AT ERECTION	3 ¼ INCHES

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

38. FILL THE FLANGE TO FLANGE CONNECTION WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)".

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

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

41. NEXT BEAMS SHALL BE PAID FOR AS ITEM 900.640, "SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS)(NEXT 28 D)".

42. THE PRECAST CONCRETE CURBS ON NEXT D BEAMS SHALL BE POURED PRIOR TO THE ERECTION OF NEXT BEAMS.

43. PROPOSED SEQUENCE OF CONSTRUCTION
    A. LAYOUT WORKING LINES THE ENTIRE WIDTH OF THE BRIDGE ALONG CENTERLINE OF BEARING, MEASURED FROM A SINGLE WORKING POINT. THE WORKING LINES SHALL BE BASED ON THE NOMINAL BEAM WIDTHS.
    B. VERIFY THE BEAM SEAT ELEVATIONS AND TAKE CORRECTIVE ACTION IF NECESSARY.
    C. INSTALL BEARINGS.
    D. ERECT THE BEAMS TO FIT WITHIN THE WORKING LINES.
    E. ADJUST FASCIA BEAM TO FIT SNUG AGAINST ½" CORK ON INTERIOR OF CHEEKWALL.
    F. CONSTRUCT FORMS FOR THE FLANGE AND CURTAIN WALL CONNECTION POURS.
    G. GROUT CONNECTIONS BETWEEN BEAM FLANGES AND CURE.
    H. COMPLETE BEAM-END CLOSURE POUR TO BOTTOM OF DECK ALLOWING FOR APPROACH SLAB BRACKET.
    I. COMPLETE PLACEMENT OF BACKFILL AND PREPARE GRADE FOR APPROACH SLABS.
    J. PLACE APPROACH SLABS.
    K. GROUT REBAR DOWELS IN APPROACH SLAB.
    L. COMPLETE LONGITUDINAL CLOSURE POURS OF APPROACH SLAB.
    M. COMPLETE BEAM-END CLOSURE POUR TO TOP OF DECK AND APPROACH SLABS.

44. ALTERNATE SEQUENCE OF CONSTRUCTION MAY BE SUBMITTED FOR APPROVAL BY THE PROJECT MANAGER.

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: z12bl38pn.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: E.A. FIALA
PROJECT NOTES (1 OF 2)
PLOT DATE: 9/21/2014
DRAWN BY: M.C. SCOTT
CHECKED BY: S.E. BURBANK
SHEET 7 OF 82

H-PILES

45. TO PREVENT DAMAGE TO THE PILES, PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04 (f).

46. ABUTMENT PILES
    A. THE PILES SHALL BE HP 12x63.
    B. THE PILES SHALL BE DRIVEN TO NOMINAL PILE DRIVING RESISTANCE (RNDR) OF 288 KIPS, PROVIDED A MINIMUM PENETRATION OF 25 FEET BELOW THE BOTTOM OF PILE CAP HAS BEEN ACHIEVED.

47. A MINIMUM OF THREE DYNAMIC TESTS ARE REQUIRED DURING PILES INSTALLATION. NO LESS THAN ONE DYNAMIC PILE TEST SHALL BE CONDUCTED AT EACH ABUTMENT. PAYMENT WILL BE MADE UNDER ITEM 505.45, "DYNAMIC PILE LOADING TEST".

48. THE TOPS OF THE PILES AFTER DRIVING SHALL NOT VARY FROM THE POSITION SHOWN ON THE PLANS BY MORE THAN 3 INCHES. THE PILE ORIENTATION SHALL NOT VARY BY MORE THAN 5 DEGREES. THE CONTRACTOR SHALL DEMONSTRATE TO THE SATISFACTION OF THE ENGINEER HOW THE TOLERANCES WILL BE MET. THESE MEASURES SHALL BE DEMONSTRATED IN A SUBMITTAL TO BE ACCEPTED BEFORE PILE DRIVING COMMENCES.

49. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL IN PLACE LENGTHS MAY VARY.

ABUTMENT CLOSURE/END DIAPHRAGM

50. THE ABUTMENT CLOSURE POUR SHALL BE MADE WITH HPC RAPID SET CONCRETE. PAYMENT WILL BE MADE UNDER ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)."

APPROACH SLABS

51. PRECAST CONCRETE COMPRESSIVE STRENGTH: f'c = 4,000 PSI.

52. SLAB EDGES IN CONTACT WITH HPC RAPID SET CONCRETE SHALL BE TREATED WITH CONCRETE SURFACE RETARDER, OR SIMILAR, TO PROVIDE A ROUGHENED SURFACE; AND SHALL BE POWER WASHED WITH WATER PRIOR TO INSTALLATION.

53. FILL CLOSURE POURS WITH HPC RAPID SET CONCRETE IN ACCORDANCE WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)".

54. THE APPROACH SLABS ARE TO BE SET AT THE GIVEN ELEVATIONS IN ORDER TO ACCOMMODATE THE ROADWAY GEOMETRY. THE PAVEMENT OVER THE APPROACH SLAB WILL VARY TO ACCOUNT FOR THE DIFFERENCE BETWEEN THE TOP OF SLAB ELEVATIONS AND THE FINISH GRADE. A MINIMUM OF 3" PAVEMENT SHALL BE MAINTAINED OVER THE APPROACH SLABS.

SHEET PILING

55. ALL STEEL SHEET PILING SHALL BE PZ-27 (SECTION MODULUS (IN^3/FT) = 31.0) OR PZ-35 (SECTION MODULUS (IN^3/FT) = 48.9) AND SHALL CONFORM TO AASHTO M202, GRADE 50.

56. THE STEEL SHEET PILING SHALL HAVE A MINIMUM EMBEDMENT DEPTH OF 20 FEET AND A TOTAL LENGTH OF 30.5 FEET.

57. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER INFORMATION ON THE TYPE OF EQUIPMENT PROPOSED TO BE USED, METHODS OF OPERATION, SEQUENCE OF SHEET PILE DRIVING, AND DETAILS OF ALL PILE DRIVING EQUIPMENT AND ACCESSORIES.

58. THE PERMANENT STEEL SHEET PILING SHALL BE INSTALLED BEFORE THE NEW PRECAST ABUTMENTS ARE SET ONTO THE STEEL H-PILES.

RAILROAD

59. ALL CONTRACTOR DESIGN, CONSTRUCTION AND FABRICATION SHALL CONFORM TO THE "AMERICAN RAILWAY ENGINEERING & MAINTENANCE OF WAY ASSOCIATION (AREMA) MANUAL FOR RAILWAY ENGINEERING, 2009" AND THE "STATE OF VERMONT AGENCY OF TRANSPORTATION (VTRANS) STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2011" AND ITS LATEST REVISIONS.

60. THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT CONTINUOUS COORDINATION WITH THE OPERATOR, CLARENDON AND PITTSFORD RAILROAD, CO (CLP), WILL BE REQUIRED THROUGHOUT CONSTRUCTION. CLP WILL PROVIDE THE CONTRACTOR WITH FLAGGERS FOR PROTECTION OF RAILROAD TRAFFIC WHILE WORK IS BEING PERFORMED WITHIN THE RAILROAD RIGHT OF WAY (R.O.W.). THE CONTRACTOR SHALL NOT ENTER THE R.O.W. AT ANY TIME WITHOUT CLP AUTHORIZATION. ALL COSTS FOR RAILROAD FLAGGER PROTECTION AND RAILROAD COORDINATION SHALL BE INCLUDED UNDER ITEM 900.650, "SPECIAL PROVISION (MAINTENANCE OF RAILROAD TRAFFIC)(N.A.B.I.)". SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

61. ALL WORK WITHIN THE RAILROAD R.O.W. SHALL BE PERFORMED DURING THE TIME SEGMENTS IN THE CONTRACT DOCUMENTS. SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

62. THE RAILROAD R.O.W. WIDTH IS DELINEATED ON THE LAYOUT SHEET. CONSTRUCTION AND ACCESS SHALL BE WITHIN THE R.O.W. UNLESS OTHERWISE APPROVED BY THE PROPERTY OWNER(S) AND VTRANS ENVIRONMENTAL PERMITTING. THE CONTRACTOR SHALL COORDINATE DIRECTLY WITH THE PROPERTY OWNER(S) TO OBTAIN WRITTEN APPROVAL OF LAND USE OUTSIDE THE R.O.W. THE CONTRACTOR SHALL SUBMIT COPIES OF WRITTEN PROPERTY AGREEMENTS TO THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL PERMITTING REQUIRED FOR OUTSIDE THE R.O.W. LAND USE AT NO ADDITIONAL COST TO THE STATE.

63. THE CONTRACTOR IS ALLOWED A SINGLE TEMPORARY RAILROAD CROSSING. THE CONTRACTOR SHALL COORDINATE THIS LOCATION WITH THE CLP. THE TEMPORARY CROSSING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CLP'S REQUIREMENTS. RUBBER TIRES SHALL BE PLACED ON THE RAILS WHENEVER TRACKED VEHICLES UTILIZE THE TEMPORARY CROSSING.

64. WITH THE EXCEPTION OF THE FIBER OPTIC CABLE AND THE TOWN SEWER LINE, THERE IS NO RECORD OF ANY UNDERGROUND UTILITIES THAT WOULD BE IMPACTED BY LOWERING OF THE TRACK AS DETAILED IN THE PROJECT PLANS. FIBER OPTIC UTILITY WILL BE LOWERED BY OTHERS PRIOR TO THE START OF CONSTRUCTION. THE SEWER LINE SHALL BE PROTECTED AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR IS ADVISED THAT EXPLORATORY EXCAVATION TO LOCATE EXISTING UNDERGROUND FACILITIES MAY BE NECESSARY TO PROTECT THESE FACILITIES FROM DAMAGE. SEE THE UTILITY SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS. THE CONTRACTOR SHALL CONTACT DIG-SAFE, CLP, FIRST LIGHT, AND THE TOWN OF CASTLETON TO DETERMINE THE PRESENCE AND LOCATION OF ANY UTILITIES WHETHER IN SERVICE OR OUT OF SERVICE, PRIOR TO ANY CONSTRUCTION AT THE SITE. THE UTILITY COMPANY SHALL BE RESPONSIBLE FOR LOWERING THE EXISTING FIBER OPTIC CABLE.

65. DAMAGE AS A RESULT OF THE WORK TO EXISTING COMPONENTS TO REMAIN, INCLUDING THE SEWER LINE IN THE TOWN OF CASTLETON, SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AS DIRECTED AND APPROVED BY THE ENGINEER AT NO ADDITIONAL EXPENSE TO THE BRIDGE OWNER (VTRANS), THE RAILROAD OPERATOR (CLP), OR THE SEWER OPERATOR (TOWN OF CASTLETON).

66. THE CONTRACTOR SHALL FIELD VERIFY EXISTING TOP OF RAIL ELEVATIONS AT THE HIGH RAIL AND SHALL VERIFY DESIRED FINAL TOP OF RAIL ELEVATIONS WITH CLP BEFORE STARTING THE WORK. TEMPORARY CHANGES TO TOP OF RAIL ELEVATIONS DURING THE WORK MUST BE APPROVED BY THE ENGINEER AND CLP BEFORE ADVANCING THE WORK.

67. THE CONDITION OF THE CROSS TIES WITHIN THE LIMITS OF THE RAIL LOWERING SHALL BE REVIEWED BY THE CONTRACTOR, ENGINEER, AND THE CLP FOR REMOVAL AND REPLACEMENT. FOR ESTIMATING PURPOSES IT WAS ASSUMED THAT 50% OF THE TIES WILL BE REMOVED AND REPLACED. NO TIES SHALL BE REMOVED AND REPLACED WITHOUT THE APPROVAL OF THE ENGINEER. PAYMENT FOR REMOVING, REPLACING AS DIRECTED BY THE ENGINEER, AND RESETTING EXISTING TIMBER CROSS TIES WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 900.640 (REMOVE AND RESET RAILROAD TRACKS).

68. THE EXISTING RAIL SHALL BE REMOVED AND RESET AS REQUIRED FOR THE LOWERING OF THE TRACKS. EXISTING RAILS AND JOINT BARS SHALL BE REUSED. THE CONTRACTOR SHALL PROVIDE ALL NEW RAIL ANCHORS, TRACK BOLTS, WASHERS, AND NUTS FOR JOINT BARS AND ALL NEW TRACK SPIKES AND TIE PLATES WHERE THE CROSS TIES ARE TO BE REMOVED AND REPLACED. PAYMENT WILL BE MADE UNDER CONTRACT ITEM 900.640, "SPECIAL PROVISION (REMOVE AND RESET RAILROAD TRACKS)".

69. NEW TRACK BOLTS FOR THE EXISTING 6-HOLE RAIL JOINT BARS SHALL BE 7/8" DIAMETER x 5 ½" LONG. NEW TRACK SPIKES FOR THE NEW 4-HOLE TIE PLATES SHALL BE 6" TRACK CUT SPIKES. SEE THE SPECIAL PROVISIONS FOR ADDITIONAL MATERIAL REQUIREMENTS.

70. TIE PLATE PADS WILL NOT BE USED UNDER TIE PLATES ON ANY OF THE NEW CROSS TIES.

71. NEW BALLAST AND TIMBER CROSS TIES SHALL BE PLACED AS REQUIRED FOR THE LOWERING OF THE TRACKS. THE CONTRACTOR SHALL PROVIDE THE CROSS TIES AND BALLAST. SEE THE SPECIAL PROVISIONS FOR MATERIAL REQUIREMENTS.

72. PRIOR TO REMOVING THE EXISTING RAIL, THE CONTRACTOR SHALL SURVEY THE EXISTING RAIL AND SUPERELEVATION OF THE EXISTING RAIL AND ESTABLISH SUFFICIENT SURVEY CONTROL TO ACCURATELY RESET THE RAIL TO THE ELEVATIONS SHOWN ON THE RAIL PROFILE, TO PROVIDE 21'-2¼" VERTICAL CLEARANCE BETWEEN THE LOWERED RAIL AND THE NEW BRIDGE LOW CHORD, AND TO RESET THE EXISTING SUPERELEVATION. PAYMENT FOR THIS WORK WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 900.640, "SPECIAL PROVISION REMOVE AND RESET RAILROAD TRACKS)".

MISCELLANEOUS

73. ITEM 520.10, "SHEET MEMBRANE WATERPROOFING, SPRAY APPLIED" SHALL BE APPLIED TO THE BRIDGE DECK AS PER THE MANUFACTURER'S INSTRUCTIONS AND EXTEND ONTO THE APPROACH SLAB 2'-0" BEYOND THE BEGIN BRIDGE/END OF BRIDGE.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY	EROSION CONTROL	RAILROAD	BRIDGE	FULL C.E. ITEMS
1				
1750				
350				
			190	
1				
			12	
			150	
230				
1120				
75				
16				
1				
			1	
			900	
			7300	
			3	
			10	
			66	
			265	
			68	
			141	
			335	
			1	
			16	
			1	
			1	
			1	
			1	
1				
1				
	465	400		
155				
			104	
330				
175				
4				
4				
57				
480				
		2		

TOTALS

GRAND TOTAL	FINAL
1	
1750	
350	
190	
1	
12	
150	
230	
1120	
75	
16	
1	
1	
900	
7300	
3	
10	
66	
265	
68	
141	
335	
1	
16	
1	
1	
1	
1	
1	
865	
155	
104	
330	
175	
4	
4	
57	
480	
2	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER	ROUND
LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	
CY	COMMON EXCAVATION	203.15	
CY	SAND BORROW	203.31	
CY	GRANULAR BORROW	203.32	
CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	
CY	STRUCTURE EXCAVATION	204.25	
CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	
SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	
CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	
CY	AGGREGATE SHOULDERS, IN PLACE	402.10	
CWT	EMULSIFIED ASPHALT	404.65	
LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	
LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10	
LF	STEEL PILING, HP 12 X 63	505.155	
SF	PERMANENT STEEL SHEET PILING (MIN. SECTION MODULUS = 31.0 IN3/FT)	505.35	
EACH	DYNAMIC PILE LOADING TEST	505.45	
GAL	WATER REPELLENT, SILANE	514.10	
LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10	
SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10	
LF	JOINT SEALER, HOT POURED	524.11	
LF	BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM	525.33	
SY	REMOVAL OF BRIDGE PAVEMENT	529.10	
EACH	REMOVAL OF STRUCTURE (3,085 SF - EST.)	529.15	
EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17	
LS	PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)	540.10	
LS	PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)	540.10	
LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 1)	540.10	
LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 2)	540.10	
EACH	CHANGING ELEVATION OF SEWER MANHOLES	604.42	
MGAL	DUST CONTROL WITH WATER	609.10	
CY	STONE FILL, TYPE I	613.10	
LF	PRECAST REINFORCED CONCRETE CURB, TYPE B	616.26	
LF	SNOW BARRIER	620.75	
LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20	
LF	STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS	621.205	
EACH	ANCHOR FOR STEEL BEAM RAIL	621.60	
EACH	GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM	621.72	
LF	REMOVE AND RESET GUARDRAIL	621.75	
LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	
MFBM	INSULATION BOARD	622.10	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		EARTHWORKS SUMMARY
1750	CY	COMMON EXCAVATION (1750 * 1.0)
1725	CY	SPECIAL PROV. (COMMON EXCAVATION RAIL) (2300 * 0.75)
9	CY	STRUCTURE EXCAVATION (12 * 0.75)
3475	CY	SUBTOTAL
5	CY	ROUNDING
3480	CY	TOTAL
3480	CY	FILL AVAILABLE
350	CY	FILL REQUIRED (EARTH BORROW)
3,130	CY	TOTAL WASTE

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: z12b138qs.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: E.A. FIALA
QUANTITY SHEET #1

PLOT DATE: 09/19/2014
DRAWN BY: M.C. SCOTT
CHECKED BY: E.A. FIALA
SHEET 9 OF 81

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES								TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	EROSION CONTROL	RAILROAD	BRIDGE	FULL C.E. ITEMS				GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
480								480		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	TRAFFIC CONTROL	641.10				
2								2		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
1090								1090		LF	4 INCH WHITE LINE	646.20				
1090								1090		LF	4 INCH YELLOW LINE	646.21				
	1025	1150						2175		SY	GEOTEXTILE UNDER STONE FILL	649.31				
	1390							1390		SY	GEOTEXTILE FOR SILT FENCE	649.51				
	6.75							6.75		LB	SEED	651.15				
	50							50		LB	FERTILIZER	651.18				
	0.25							0.25		TON	AGRICULTURAL LIMESTONE	651.20				
	0.25							0.25		TON	HAY MULCH	651.25				
	70							70		CY	TOPSOIL	651.35				
	1075							1075		SY	GRUBBING MATERIAL	651.40				
	1							1		LS	EPSC PLAN	652.10				
	160							160		HR	MONITORING EPSC PLAN	652.20				
	1							1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
	515							515		SY	TEMPORARY EROSION MATTING	653.20				
	30							30		CY	VEHICLE TRACKING PAD	653.35				
	2900							2900		LF	PROJECT DEMARCATION FENCE	653.55				
18								18		SF	TRAFFIC SIGNS, TYPE A	675.20				
60								60		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
1								1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
		2300						2300		CY	SPECIAL PROVISION (COMMON EXCAVATION RAIL)	900.608				
			27					27		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)	900.608				
		560						560		CY	SPECIAL PROVISION (RAILROAD BALLAST)	900.608				
			281					281		LF	SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS)(NEXT 28D)	900.640				
		1131						1131		LF	SPECIAL PROVISION (REMOVE AND RESET RAILROAD TRACKS)	900.640				
1								1		LS	SPECIAL PROVISION (CPM SCHEDULE)	900.645				
1								1		LU	SPECIAL PROVISION (LOCAL ROADWAY MAINTENANCE)	900.650				
		1						1		LU	SPECIAL PROVISION (MAINTENANCE OF RAILROAD TRAFFIC) (N.A.B.I.)	900.650				
1								1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
1								1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
		1						1		LU	SPECIAL PROVISION (RAILROAD INCENTIVE/DISINCENTIVE)(N.A.B.I.)	900.650				
1								1		LU	SPECIAL PROVISION (ROADWAY INCENTIVE/DISENCENTIVE)(N.A.B.I.)	900.650				
45								45		SY	SPECIAL PROVISION (HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES)	900.675				

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: z12b138qs.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: E.A. FIALA
QUANTITY SHEET #2

PLOT DATE: 09/19/2014
DRAWN BY: M.C. SCOTT
CHECKED BY: E.A. FIALA
SHEET 10 OF 81

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES

					ROADWAY	EROSION CONTROL	RAILROAD	BRIDGE	FULL C.E. ITEMS
					660				

TOTALS

GRAND TOTAL	FINAL
660	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER	ROUND
TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY
389	TON	TYPE IVS - WEARING COURSE
264	TON	TYPE IIS - BASE COURSE
7	TON	ROUNDING
660	TON	TOTAL

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: z12b138qs.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: E.A. FIALA
QUANTITY SHEET #3

PLOT DATE: 09/19/2014
DRAWN BY: M.C. SCOTT
CHECKED BY: E.A. FIALA
SHEET 11 OF 81

GENERAL INFORMATION

SYMBOLOGY LEGEND NOTE

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

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

POINT	CODE	DESCRIPTION
	CH	CHANNEL EASEMENT
	CONST	CONSTRUCTION EASEMENT
	CUL	CULVERT EASEMENT
	D&C	DISCONNECT & CONNECT
	DIT	DITCH EASEMENT
	DR	DRAINAGE EASEMENT
	DRIVE	DRIVEWAY EASEMENT
	EC	EROSION CONTROL
	I&M	INSTALL & MAINTAIN EASEMENT
	LAND	LANDSCAPE EASEMENT
	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	CALCULATED ROW POINT
[DISTANCE]		DISTANCE CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

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

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

PROPOSED GEOMETRY CODES

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

UTILITY SYMBOLOGY

UNDERGROUND UTILITIES

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

ABOVE GROUND UTILITIES (AERIAL)

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

PROJECT CONSTRUCTION SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

- CZ — CLEAR ZONE
- PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

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

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

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

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

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

ENVIRONMENTAL RESOURCES

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

ARCHEOLOGICAL & HISTORIC

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

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

EXISTING FEATURES

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

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: z12bl38LegendSheet.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: VTRANS
CONVENTIONAL SYMBOLOGY LEGEND

PLOT DATE: 9/19/2014
DRAWN BY: E.A. FIALA
CHECKED BY: S.E. BURBANK

GPS CONTROL POINTS

HVCTRL #1

4 AND 30 AZ MK

NORTH = 409162.672
EAST = 1455266.440
ELEV. = 511.154

GENERAL LOCATION, CASTLETON, VT.
TO REACH FROM THE U.S. ROUTE 4 EASTBOUND BRIDGE OVER VT ROUTE 30 GO EAST ALONG U.S. ROUTE 4 EASTBOUND FOR 0.4 MI (0.6 KM) TO A U-TURN LEFT. TURN LEFT INTO U-TURN AND PARK VEHICLE. WALK EAST ALONG THE TOP OF THE SOUTH EDGE OF A ROCK CUT IN THE MEDIAN FOR ABOUT 110 M (360.9 FT) TO THE SITE OF THE MARK. THE MARK IS SET FLUSH WITH THE GROUND SURFACE IN THE TOP OF A MASSIVE ROCK OUTCROP. IT IS 16.3 M (53.5 FT) (SLOPE) NORTH OF AND ABOUT 8 M (26.2 FT) HIGHER THAN THE NORTH EDGE OF PAVEMENT OF THE U.S. ROUTE 4 EASTBOUND LANE, 107.5 M (352.7 FT) EAST OF THE EAST EDGE OF PAVEMENT OF THE U-TURN, 15.0 M (49.2 FT) (SLOPE) NORTHWEST OF THE CENTER OF A DROP INLET, 4.0 M (13.1 FT) NORTHWEST OF THE SOUTHEAST EDGE OF THE ROCK CUT, 3.2 M (10.5 FT) EAST OF A TRIPLE TRUNK 3 CM CEDAR, AND 0.6 M (2.0 FT) SOUTHWEST OF A FIBERGLASS WITNESS POST.

HVCTRL #2

4 AND 30

NORTH = 407313.559
EAST = 1453250.519
ELEV. = 455.642

GENERAL LOCATION, CASTLETON, VT.
TO REACH FROM THE U.S. ROUTE 4 EASTBOUND BRIDGE OVER VT ROUTE 30 GO SOUTH ALONG VT ROUTE 30 FOR ABOUT 100 M (328.1 FT) TO THE MARK ON THE LEFT IN A GRASS TRIANGLE FORMED BY THE EAST EDGE OF VT ROUTE 30 AND TWO LEGS OF THE U.S. ROUTE 4 EASTBOUND ENTRANCE RAMP. THE MARK IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF THE NORTHEAST CORNER OF A 1.2 M (3.9 FT) SQUARE CONCRETE BASE FOR A DROP INLET. IT IS 3.6 M (11.8 FT) EAST OF AND ABOUT 0.1 M (0.3 FT) LOWER THAN THE EAST EDGE OF PAVEMENT OF VT ROUTE 30, 14.4 M (47.2 FT) NORTH OF THE SOUTH POINT OF THE GRASS TRIANGLE, 7.6 M (24.9 FT) SOUTHEAST OF THE NORTHWEST POINT OF THE TRIANGLE, 13.4 M (44.0 FT) SOUTHWEST OF THE NORTHEAST POINT OF THE TRIANGLE, 0.15 M (0.49 FT) SOUTH OF THE NORTH EDGE OF THE CONCRETE BASE, AND 0.15 M (0.49 FT) WEST OF A FIBERGLASS WITNESS POST AND THE EAST EDGE OF THE CONCRETE BASE.

MAIN TRAVERSE TIES

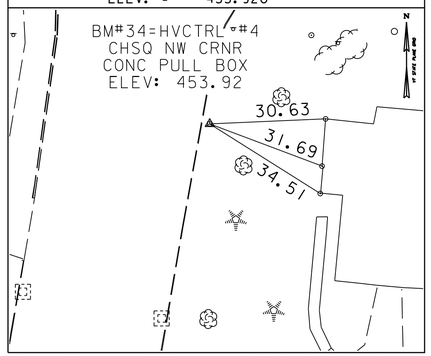
HVCTRL #3

NORTH = 405869.465
EAST = 1452940.393
ELEV. = 453.529

NOT TIED

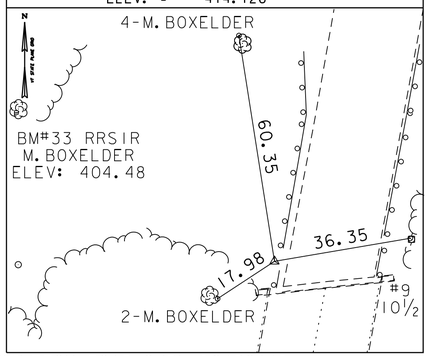
HVCTRL #4

NORTH = 404714.404
EAST = 1452786.203
ELEV. = 453.920



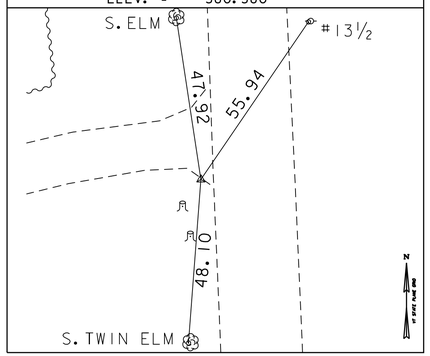
HVCTRL #5

NORTH = 403386.539
EAST = 1452523.569
ELEV. = 414.126



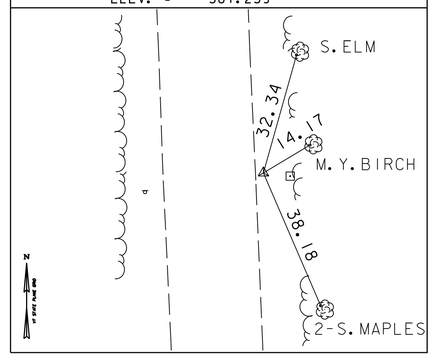
HVCTRL #6

NORTH = 402364.299
EAST = 1452476.207
ELEV. = 380.380



HVCTRL #7

NORTH = 401123.889
EAST = 1452552.093
ELEV. = 381.239



*MAIN TRAVERSE COMPLETED 9/22/1997 BY L. ORVIS P.C. & R. BULLOCK FOR POULTNEY - CASTLETON FO15-2(3) [84B814]

ALIGNMENT TIES

NORTH =	NORTH =	NORTH =	NORTH =	NORTH =
EAST =	EAST =	EAST =	EAST =	EAST =
ELEV. =	ELEV. =	ELEV. =	ELEV. =	ELEV. =

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83(92)
ADJUSTMENT COMPASS

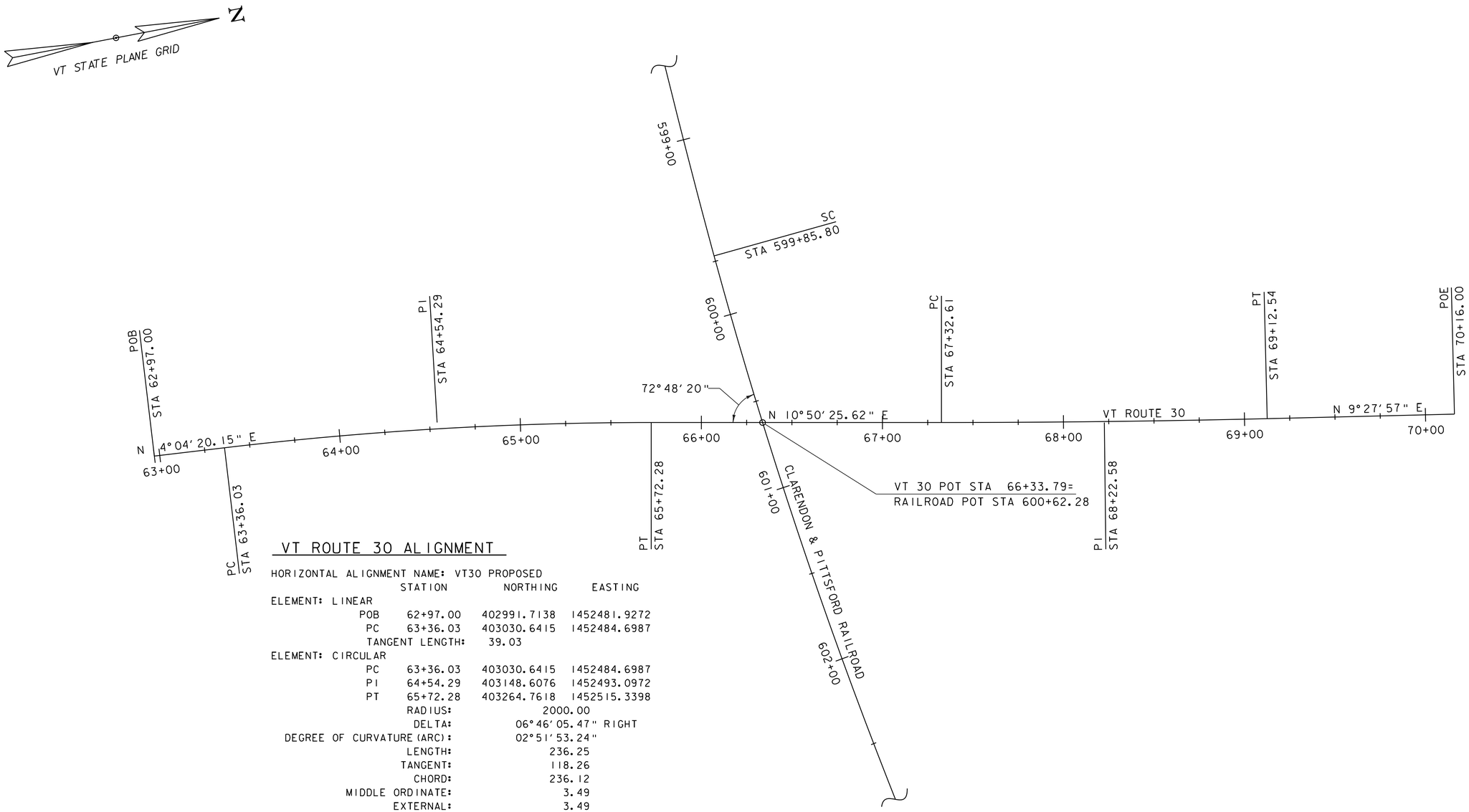
Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2 (10)

FILE NAME: z12b138ti.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: VTRANS
TIE SHEET

PLOT DATE: 9/19/2014
DRAWN BY: R. BULLOCK
CHECKED BY: S.E. BURBANK
SHEET 13 OF 82

VHB 57632



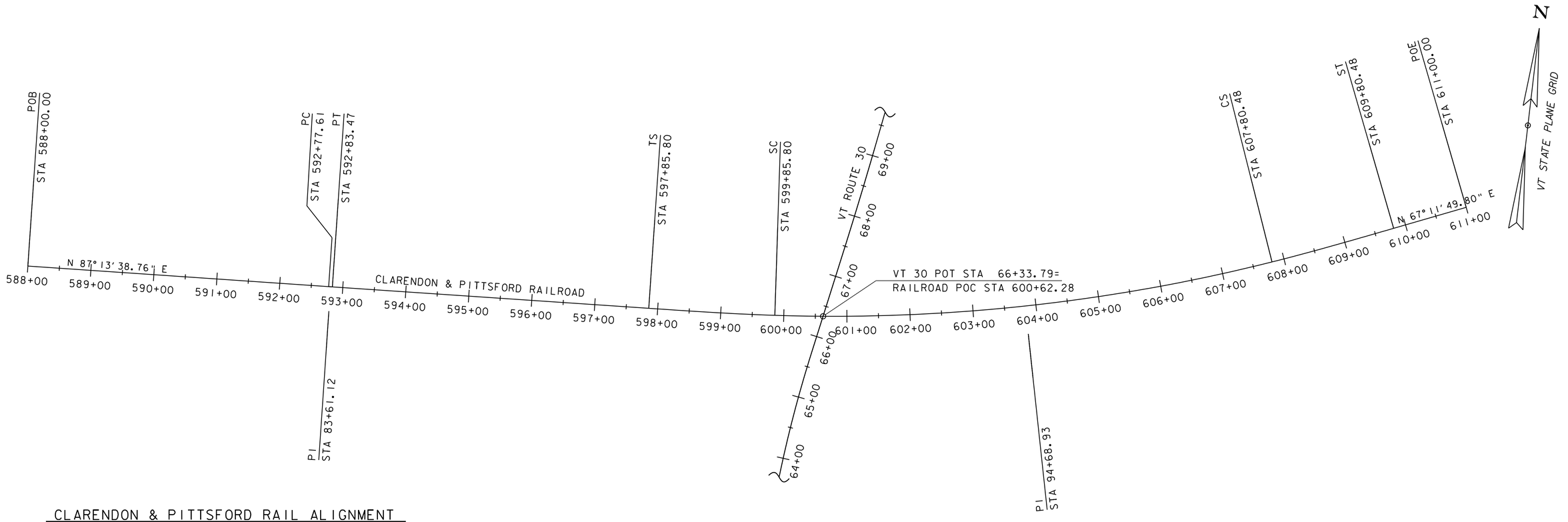
VT ROUTE 30 ALIGNMENT

HORIZONTAL ALIGNMENT NAME: VT30 PROPOSED

	STATION	NORTHING	EASTING
ELEMENT: LINEAR			
POB	62+97.00	402991.7138	1452481.9272
PC	63+36.03	403030.6415	1452484.6987
TANGENT LENGTH:	39.03		
ELEMENT: CIRCULAR			
PC	63+36.03	403030.6415	1452484.6987
PI	64+54.29	403148.6076	1452493.0972
PT	65+72.28	403264.7618	1452515.3398
RADIUS:	2000.00		
DELTA:	06° 46' 05.47" RIGHT		
DEGREE OF CURVATURE (ARC):	02° 51' 53.24"		
LENGTH:	236.25		
TANGENT:	118.26		
CHORD:	236.12		
MIDDLE ORDINATE:	3.49		
EXTERNAL:	3.49		
ELEMENT: LINEAR			
PT	65+72.28	403264.7618	1452515.3398
PC	67+32.61	403422.2280	1452545.4933
TANGENT LENGTH:	160.33		
ELEMENT: CIRCULAR			
PC	67+32.61	403422.2280	1452545.4933
PI	68+22.58	403510.5944	1452562.4147
PT	69+12.54	403599.3412	145257.2115
RADIUS:	7500.00		
DELTA:	01° 22' 28.57" LEFT		
DEGREE OF CURVATURE (ARC):	00° 45' 50.20"		
LENGTH:	179.94		
TANGENT:	89.97		
CHORD:	179.93		
MIDDLE ORDINATE:	0.54		
EXTERNAL:	0.54		
ELEMENT: LINEAR			
PT	69+12.54	403599.3412	1452577.2115
POE	70+16.00	403701.3895	1452594.2260
TANGENT LENGTH:	103.46		

VHB *Vanasse Hangen Brustlin, Inc.*

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12bl38align.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
ROADWAY ALIGNMENT LAYOUT SHEET	SHEET 14 OF 82



CLARENDON & PITTSFORD RAIL ALIGNMENT

PROJECT NAME: Z12B138
DESCRIPTION: VT30 MATCH
HORIZONTAL ALIGNMENT NAME: RAIL CL
DESCRIPTION: MATCH EXISTING
STYLE: ALIGN1

	STATION	NORTHING	EASTING
ELEMENT: LINEAR			
POB	588+00.00	403257.6281	1451266.5376
PC	592+77.61	403280.7309	1451743.5902
TANGENT DIRECTION:	N 87° 13' 38.76" E		
TANGENT LENGTH:	483.19		
ELEMENT: CIRCULAR			
PC	592+77.61	403280.7309	1451743.5902
PI	592+80.54	403280.8725	1451746.5136
CC		413269.0251	1451259.8748
PT	592+83.54	403281.0158	1451749.4370
RADIUS:	10000.00		
DELTA:	0° 02' 00.74" LEFT		
DEGREE OF CURVATURE (ARC):	0° 34' 22.65"		
LENGTH:	5.85		
TANGENT:	2.93		
CHORD:	5.85		
MIDDLE ORDINATE:	0.00		
EXTERNAL:	0.00		
ELEMENT: LINEAR			
PT	592+83.47	403281.0158	1451749.4370
TS	597+85.80	403305.6084	1452251.1725
TANGENT DIRECTION:	N 87° 11' 38.02" E		
TANGENT LENGTH:	502.34		

	STATION	NORTHING	EASTING
ELEMENT: CLOTHOID			
TS	597+85.80	403305.6084	1452251.1725
SPI	599+19.15	403312.1363	1452384.3545
SC	599+85.80	403317.7346	1452450.7935
ENTRANCE RADIUS:	0.00		
EXIT RADIUS:	2850.00		
LENGTH:	200.00		
ANGLE:	2° 00' 37.36" LEFT		
CONSTANT:	754.98		
LONG TANGENT:	133.34		
SHORT TANGENT:	66.67		
LONG CHORD:	199.99		
XS:	199.98		
YS:	2.34		
P:	0.58		
K:	100.00		
ELEMENT: CIRCULAR			
SC	599+85.80	403317.7346	1452450.7935
PI	603+85.74	403351.3147	1452849.3132
CC		406157.6705	1452211.4946
CS	607+80.48	403493.2841	1453223.1986
RADIUS:	2850.00		
DELTA:	15° 58' 33.49" LEFT		
DEGREE OF CURVATURE (ARC):	2° 00' 37.36"		
LENGTH:	794.67		
TANGENT:	399.93		
CHORD:	792.10		
MIDDLE ORDINATE:	27.65		
EXTERNAL:	27.92		

	STATION	NORTHING	EASTING
ELEMENT: CLOTHOID			
CS	607+80.48	403493.2841	1453223.1986
SPI	608+47.15	403516.9524	1453285.5307
ST	609+80.48	403568.6306	1453408.4512
ENTRANCE RADIUS:	2850.00		
EXIT RADIUS:	0.00		
LENGTH:	200.00		
ANGLE:	2° 00' 37.36" LEFT		
CONSTANT:	754.98		
LONG TANGENT:	133.34		
SHORT TANGENT:	66.67		
LONG CHORD:	199.99		
XS:	199.98		
YS:	2.34		
P:	0.58		
K:	100.00		
ELEMENT: LINEAR			
ST	609+80.48	403568.6306	1453408.4512
POE	611+00.00	403612.7901	1453513.4879
TANGENT DIRECTION:	N 67° 11' 49.80" E		
TANGENT LENGTH:	119.52		

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: z12b138align_rail.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: E.A. FIALA
RAIL ALIGNMENT LAYOUT SHEET

PLOT DATE: 9/19/2014
DRAWN BY: C.J. HAKEY
CHECKED BY: S.E. BURBANK
SHEET 15 OF 82

VHB 57632

N

VT STATE PLANE GRID

CASTLETON SEWER PLANT

GARAGE

LIGHT POLE

15" ACCGMP GOOD CONDITION FLOW

DI

CHAIN LINK FENCE

ELM

AER E&T

TWO 8" SEWER MAINS INTO SEWER PLANT FLOW

TO HYDEVILLE

599+00

RR R.O.W.

TWO 8" SEWER MAINS FLOW

MANHOLE SANITARY SEWER

BOXELDER

12" SEWER FLOW

BEGIN BRIDGE
STA. 66+00.54
FG 410.84

PERMANENT STEEL SHEET PILING (TYP)

600+00

CASTLETON RIVER

STONE FILL

T&E

IRON PIPE

MATCH EXISTING GUARDRAIL

STATE R.O.W.

ASH

STONE

PAVED DRIVE

R8-3A

CZ

END BRIDGE
STA. 66+70.64
FG 413.40

BOXELDER TIE

DUG WELL

SHED

BOXELDER

CRABAPPLE

GRAVEL DRIVE

MAPL

JUNIPER

MAPLE

LILAC

END PROJECT
STA. 68+55.00

12" SEWER MAINS FLOW

BEGIN APPROACH
STA. 63+90.00

TO POULTNEY

VT ROUTE 30

64+00

65+00

66+00

67+00

68+00

69+00

TO CASTLETON

MM 0300 1103 0120

LOCUS

GUY

COMB 9 10.5

COMB 8 10 65E

IRON PIPE

WIRE FENCE

WOOD WALL

END APPROACH
STA. 69+35.00

BEGIN PROJECT
STA. 64+70.00

WOODS

CLASS II WETLAND

STONE FILL, TYPE I (TYP)

601+00

602+00

CLARENDON & PITTSFORD RAILROAD

EDGE OF GRAVEL

MATCH EXISTING RAIL

GRAVEL DRIVE

PAVED DRIVE

GARAGE

TO CASTLETON

BRUSH

BRUS'

SNOW BARRIER
STA. 66+04 - 66+56, LT
STA. 66+15 - 66+67, RT

REMOVE AND RESET GUARDRAIL
STA. 63+92 - 64+11, LT
STA. 64+12 - 64+31, RT
STA. 68+79 - 68+98, RT

ANCHOR FOR STEEL BEAM RAIL
STA. 64+98, LT
STA. 65+13, RT
STA. 65+57, LT
STA. 67+51, LT

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 64+11 - 65+03, LT
STA. 64+31 - 65+29, RT
STA. 65+66 - 65+77, LT
STA. 65+68 - 65+86, RT
STA. 66+87 - 67+49, LT
STA. 66+95 - 68+79, RT

LIMITS OF COLD PLANING
STA. 63+90 - 64+30, RT & LT
STA. 68+95 - 69+35, RT & LT

PRECAST REINFORCED CONCRETE CURB, TYPE B
STA. 65+59 - 65+96, LT
STA. 65+72 - 66+06, RT
STA. 66+66 - 67+05, LT
STA. 66+76 - 67+16, RT

GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM
STA. 65+67 - 65+95, LT
STA. 65+77 - 66+06, RT
STA. 66+65 - 66+95, LT
STA. 66+76 - 67+05, RT

BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM
STA. 65+95 - 66+65, LT
STA. 66+06 - 66+76, RT

STEEL BEAM GUARDRAIL, GALVANIZED
STA. 64+97 - 65+09, LT
STA. 65+13 - 65+25, RT
STA. 65+45 - 65+67, LT
STA. 65+62 - 65+77, RT
STA. 66+95 - 67+63, LT
STA. 67+05 - 68+79, RT

STEEL BEAM GUARDRAIL, GALV. W/ 8 FEET POSTS
STA. 64+11 - 64+97, LT
STA. 64+31 - 65+13, RT

STONE FILL, TYPE I
STA. 64+05 - 64+51, LT
STA. 66+90 - 68+75, RT

EDGE OF PAVEMENT ROADWAY WIDTH TRANSITION
STA. 64+11.00, 11.92' LT
STA. 64+31.00, 12.29' RT
STA. 65+11.11, 16.00' LT
STA. 65+19.00, 16.00' RT
STA. 67+51.06, 16.00' LT
STA. 67+64.00, 16.00' RT
STA. 68+94.00, 13.02' LT
STA. 68+94.00, 10.84' RT

CONSTRUCT 30.0' PAVED DRIVE
STA. 65+11 - 65+77, LT

CONSTRUCT 5.0' PAVED APRON
STA. 65+13 - 65+70, RT
STA. 68+95 - 69+34, LT

CONSTRUCT 10.5' GRAVEL DRIVE
STA. 65+25 - 65+66, RT

EXISTING BRIDGE DATA

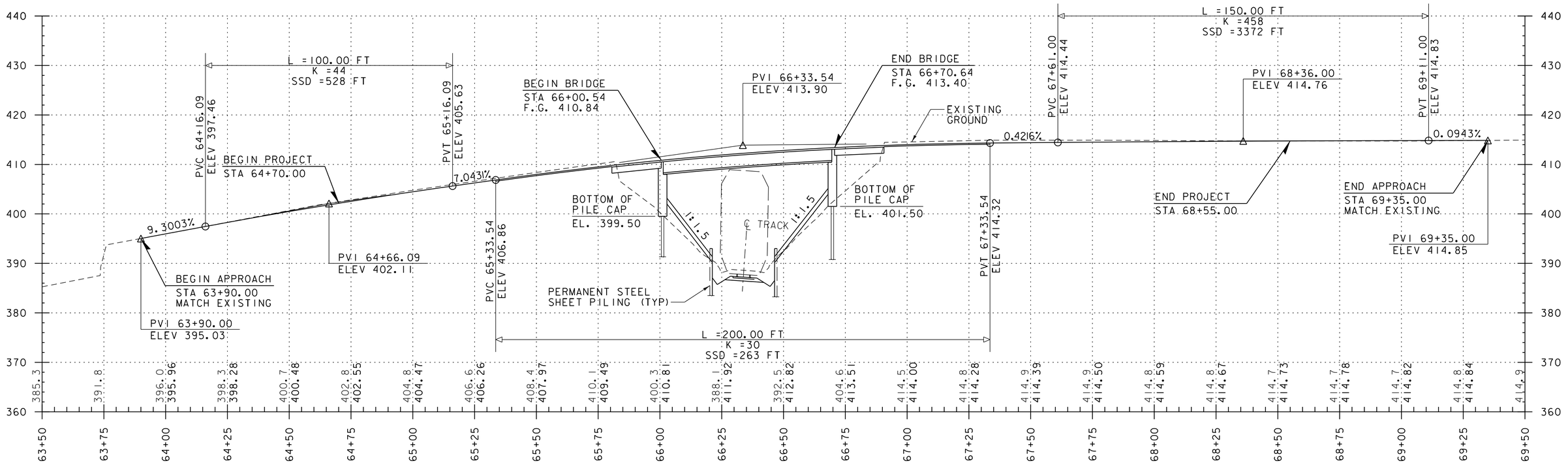
THREE SPAN STEEL BEAM WITH CAST-IN-PLACE CONCRETE DECK BUILT IN 1938
SPAN LENGTH = 3-SPAN, 36'-0" MAX SPAN
STRUCTURE LENGTH = 109'-0"
DECK WIDTH OUT TO OUT = 29'-0"
BRIDGE WIDTH CURB TO CURB = 25'-6"

0 20 40
SCALE IN FEET

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12bl38bdr_nul.dgn	PLOT DATE: 9/21/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
ROADWAY LAYOUT SHEET	SHEET 16 OF 82

VHB 57632



VT 30 PROFILE

SCALE 1" = 20' VERTICAL
1" = 10' HORIZONTAL

NOTE:

GRADES SHOWN TO THE NEAREST
TENTH ARE EXISTING GRADE ALONG ℄

GRADES SHOWN TO THE NEAREST
HUNDREDTH ARE FINISH GRADE ALONG ℄

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12bl38pro.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
ROADWAY PROFILE SHEET	SHEET 17 OF 82

N

VT STATE PLANE GRID

POB
STA 588+00.00

PC
STA 592+77.61

PT
STA 592+83.47

PI
STA 592+80.54

MATCHLINE STA. 593+50

WOODS

588+00 589+00 590+00 591+00 592+00 593+00

TO HYDEVILLE

TO CASTLETON

WOODS

0 20 40
SCALE IN FEET

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)

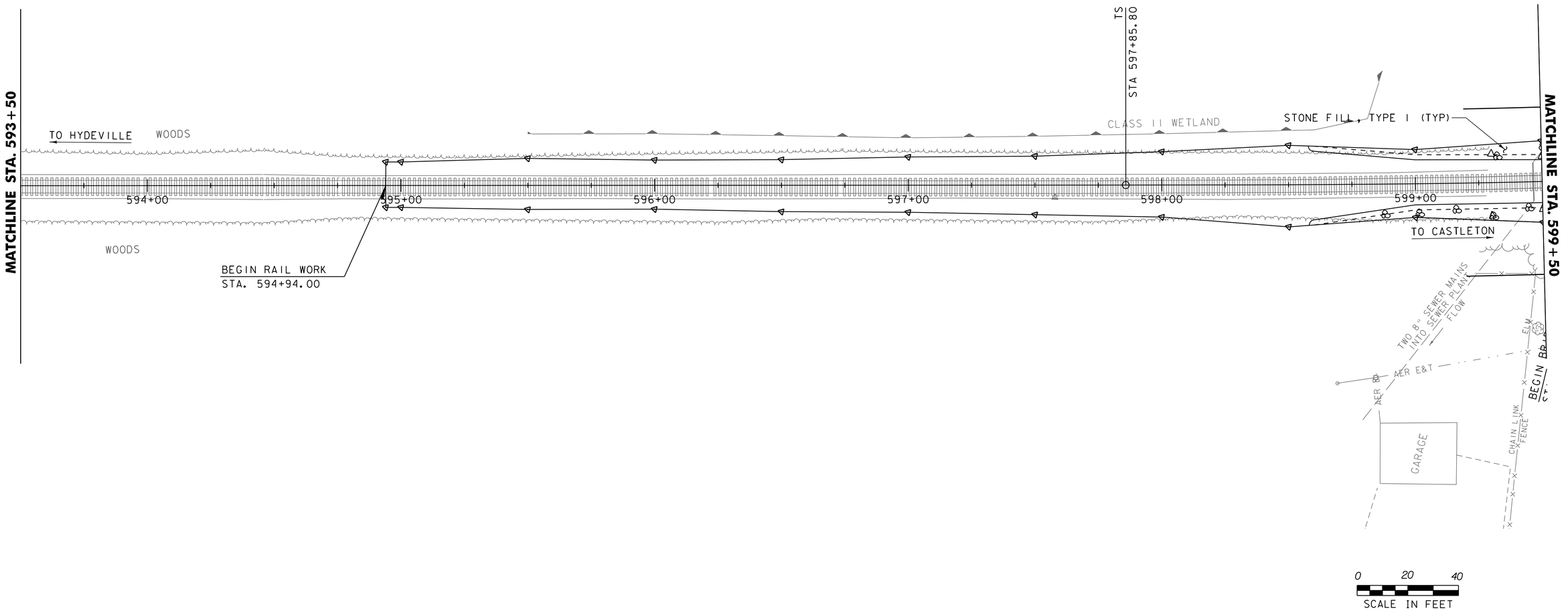
FILE NAME: z12bl38bdr_nul.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
RAIL LAYOUT SHEET (1 OF 4)	SHEET 18 OF 82

VHB 57632

N

VT STATE PLANE GRID

STONE FILL, TYPE I
STA. 598+58 - 599+50, LT & RT



0 20 40

SCALE IN FEET

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)

FILE NAME: z12bl38bdr_nul.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
RAIL LAYOUT SHEET (2 OF 4)	SHEET 19 OF 82

VHB Vanasse Hangen Brustlin, Inc.

VHB 57632

N

VT STATE PLANE GRID

PERMANENT STEEL SHEET PILING
STA. 599+79 - 601+20, LT
STA. 600+14 - 600+99, RT

STONE FILL, TYPE I
STA. 599+50 - 603+20, LT & RT

MATCHLINE STA. 599+50

MATCHLINE STA. 605+50

VT ROUTE 30

SC STA 599+85.80

12" SEWER FLOW

TWO 8" SEWER MAINS FLOW

BOULDER

BOXELDER

ASH

GARAGE

PAVED DRIVE

AER E&T

CZ

CLARENDON & PITTSFORD RAILROAD

600+00 601+00 602+00 603+00 604+00 605+00

65+00 66+00 67+00

TO HYDEVILLE

TO CASTLETON

BRUSH

WOODS

CLASS II WETLAND

3'x3' STONE BOX

STONE FILL, TYPE I (TYP)

PERMANENT STEEL SHEET PILING (TYP)

FRA DOT #248-948G
MP A88.86

PI STA 603+88.35

0 20 40
SCALE IN FEET

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(110)

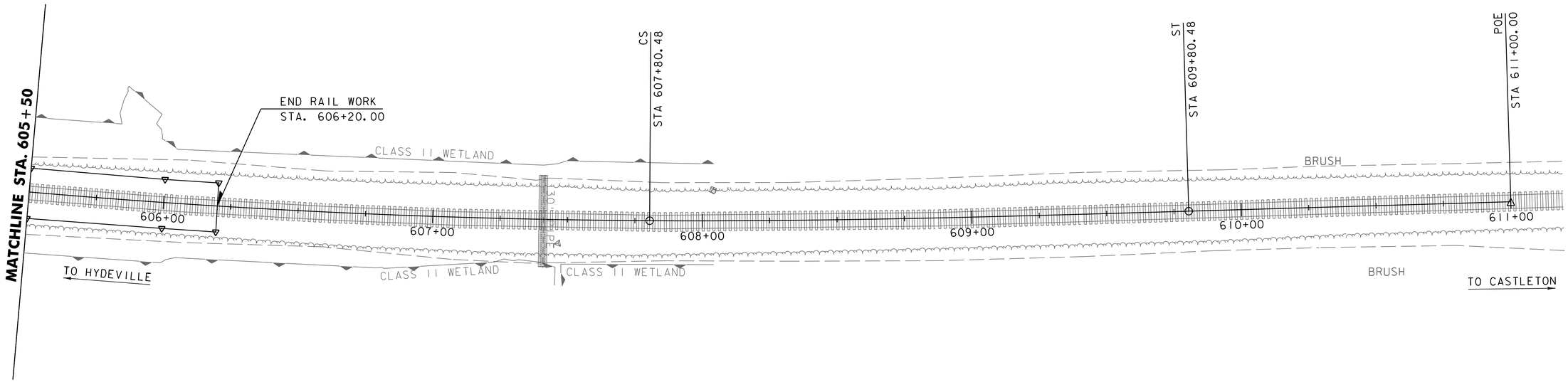
FILE NAME: z12bl38bdr_nul.dgn	**PLOT DATE:** 9/19/2014
PROJECT LEADER: S.E. BURBANK	**DRAWN BY:** E.A. FIALA
DESIGNED BY: E.A. FIALA	**CHECKED BY:** S.E. BURBANK
RAIL LAYOUT SHEET (3 OF 4)	**SHEET** 20 **OF** 82

Vanasse Hangen Brustlin, Inc.

VHB 57632

N

VT STATE PLANE GRID



0 20 40

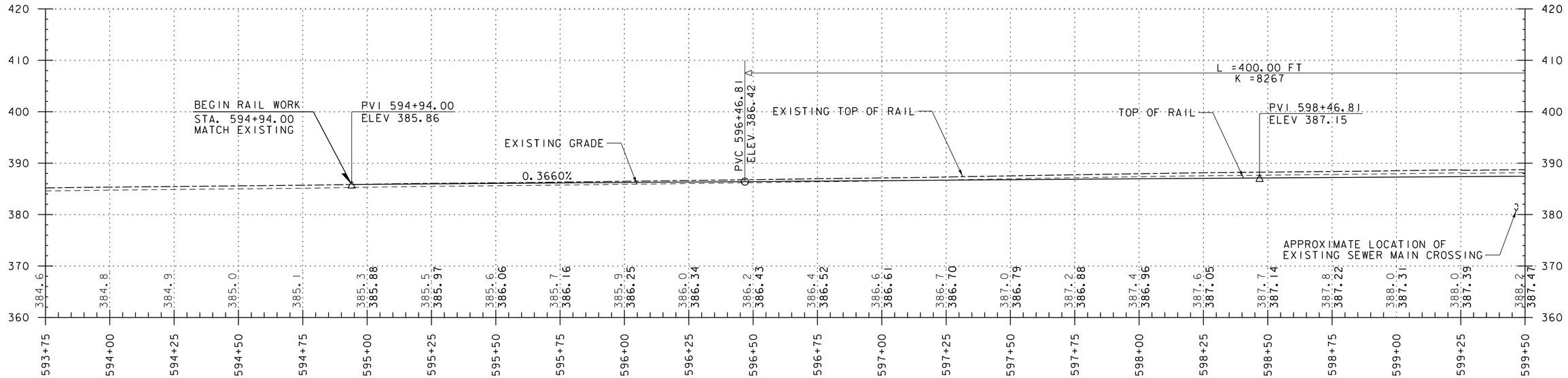
SCALE IN FEET

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)

FILE NAME: z12b138bdr_nul.dgn	PLOT DATE: 9/21/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
RAIL LAYOUT SHEET (4 OF 4)	SHEET 21 OF 82

VHB *Vanasse Hangen Brustlin, Inc.*

VHB 57632



RAIL PROFILE

SCALE 1" = 20' VERTICAL
1" = 10' HORIZONTAL

NOTE:

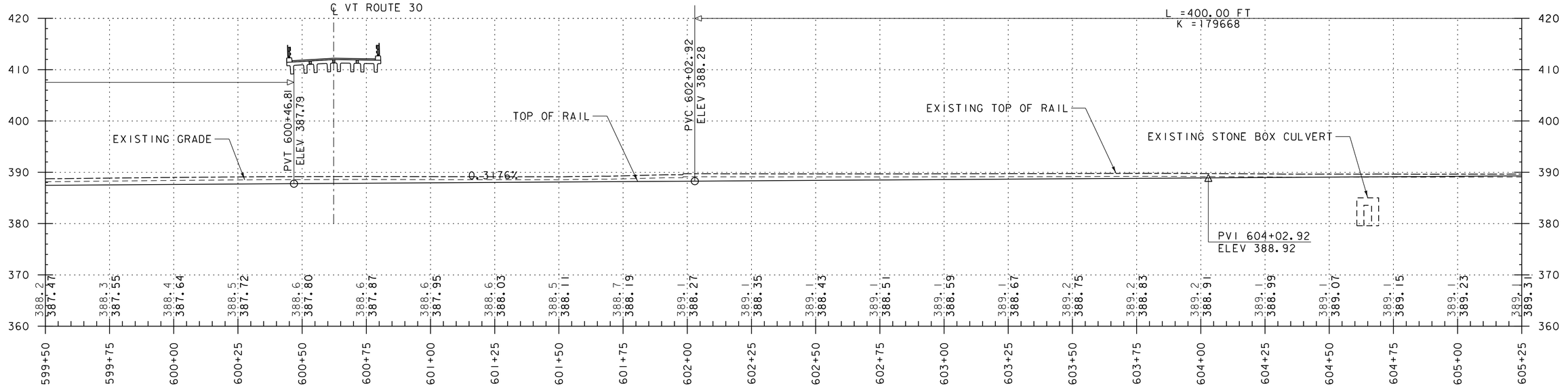
GRADES SHOWN TO THE NEAREST
TENTH ARE EXISTING GRADE ALONG ℄

GRADES SHOWN TO THE NEAREST
HUNDREDTH ARE HIGHEST TOP OF RAIL ALONG ℄

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12bl38pro_rail.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
RAIL PROFILE SHEET (1 OF 3)	SHEET 22 OF 82

VHB 57632



RAIL PROFILE

SCALE 1" = 20' VERTICAL
1" = 10' HORIZONTAL

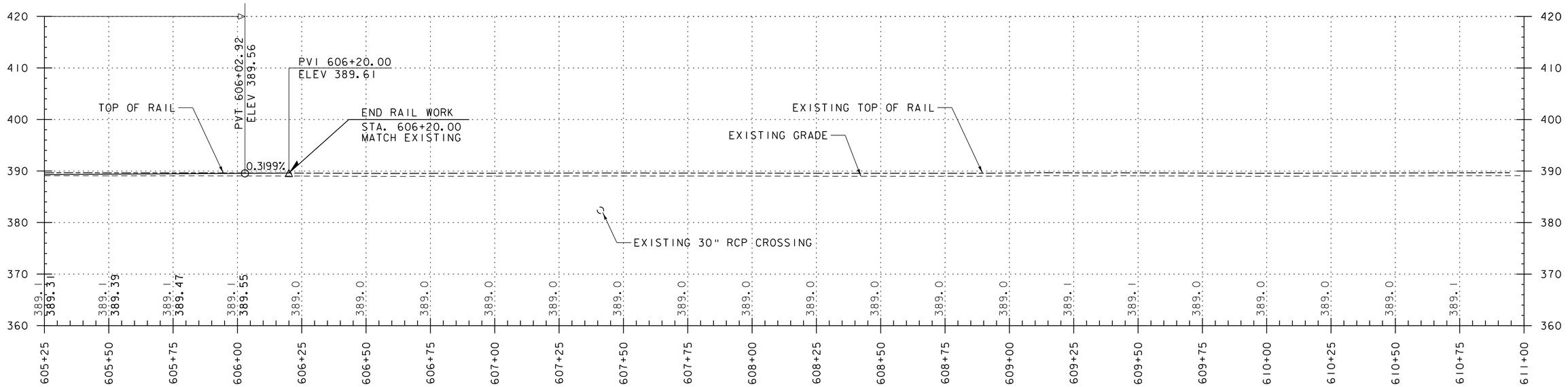
NOTE:

GRADES SHOWN TO THE NEAREST
TENTH ARE EXISTING GRADE ALONG ℄

GRADES SHOWN TO THE NEAREST
HUNDREDTH ARE HIGHEST TOP OF RAIL ALONG ℄

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138pro_rail.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
RAIL PROFILE SHEET (2 OF 3)	SHEET 23 OF 82



RAIL PROFILE

SCALE 1" = 20' VERTICAL
1" = 10' HORIZONTAL

NOTE:

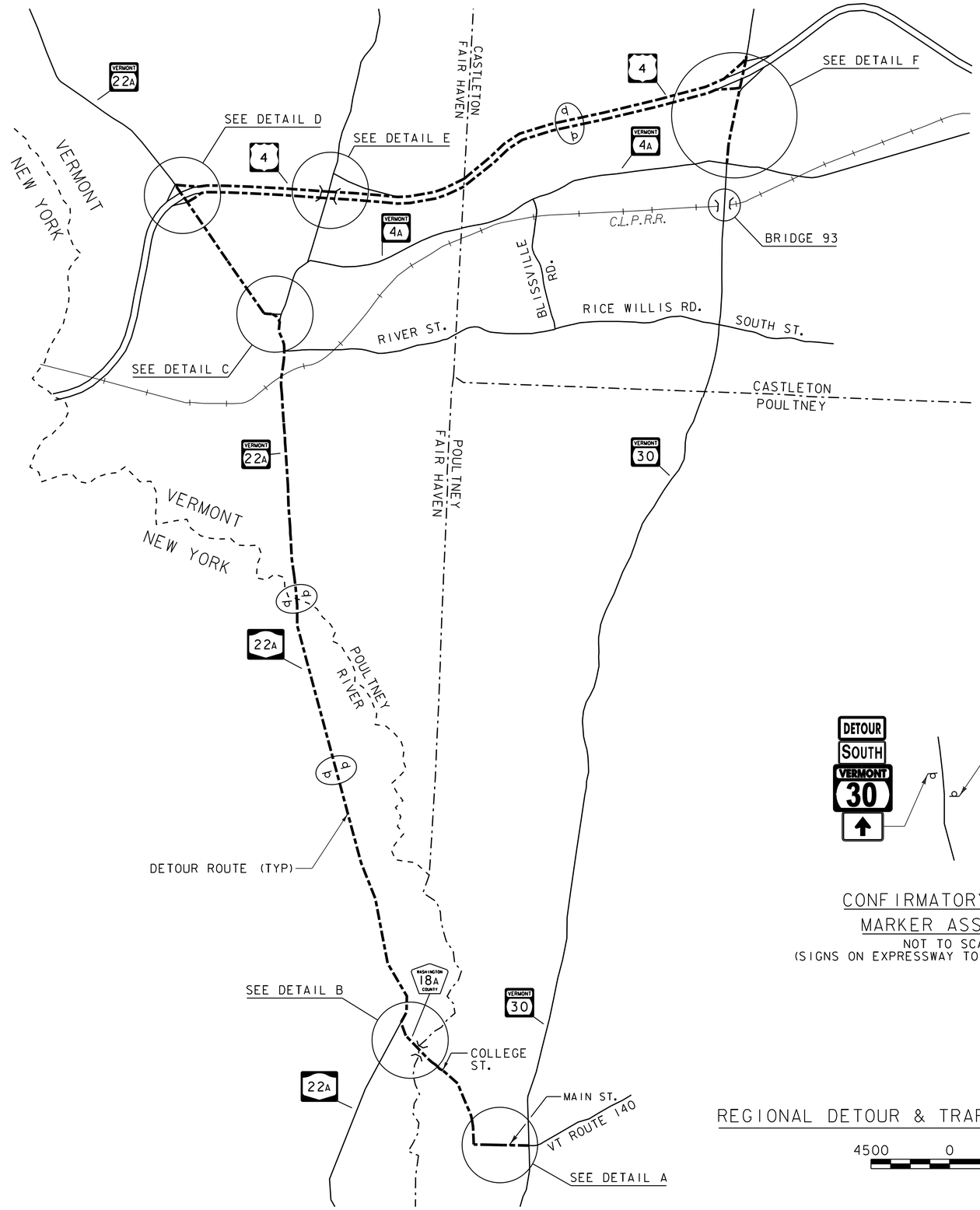
GRADES SHOWN TO THE NEAREST
TENTH ARE EXISTING GRADE ALONG ℄

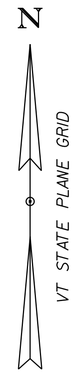
GRADES SHOWN TO THE NEAREST
HUNDREDTH ARE HIGHEST TOP OF RAIL ALONG ℄

VHB *Vanasse Hangen Brustlin, Inc.*

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12bl38pro_rail.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
RAIL PROFILE SHEET (3 OF 3)	SHEET 24 OF 82

VHB 57632



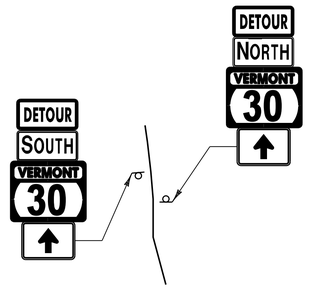


TRAFFIC CONTROL NOTES:

1. INSTALL CONFIRMATORY ROUTE MARKERS ALONG THE DETOUR ROUTE AT THE INTERSECTIONS AND MILE MARKERS AS INDICATED ON THIS PLAN.
2. WHEN EXISTING ROUTE MARKER ASSEMBLIES ARE LOCATED AT THE INTERSECTIONS OR ALONG THE DETOUR ROUTE THE DETOUR ROUTE MARKER ASSEMBLIES SHALL BE INSTALLED ADJACENT TO THE EXISTING ROUTE MARKER ASSEMBLES.
3. SEE TCP (2 OF 6) AND TCP (3 OF 6) FOR DETAILS A THROUGH F.

LEGEND

(a b) CONFIRMATORY ROUTE MARKER ASSEMBLY (SEE NOTES 1 & 2 ABOVE)



CONFIRMATORY ROUTE MARKER ASSEMBLY

NOT TO SCALE

(SIGNS ON EXPRESSWAY TO BE SIZED LARGER)

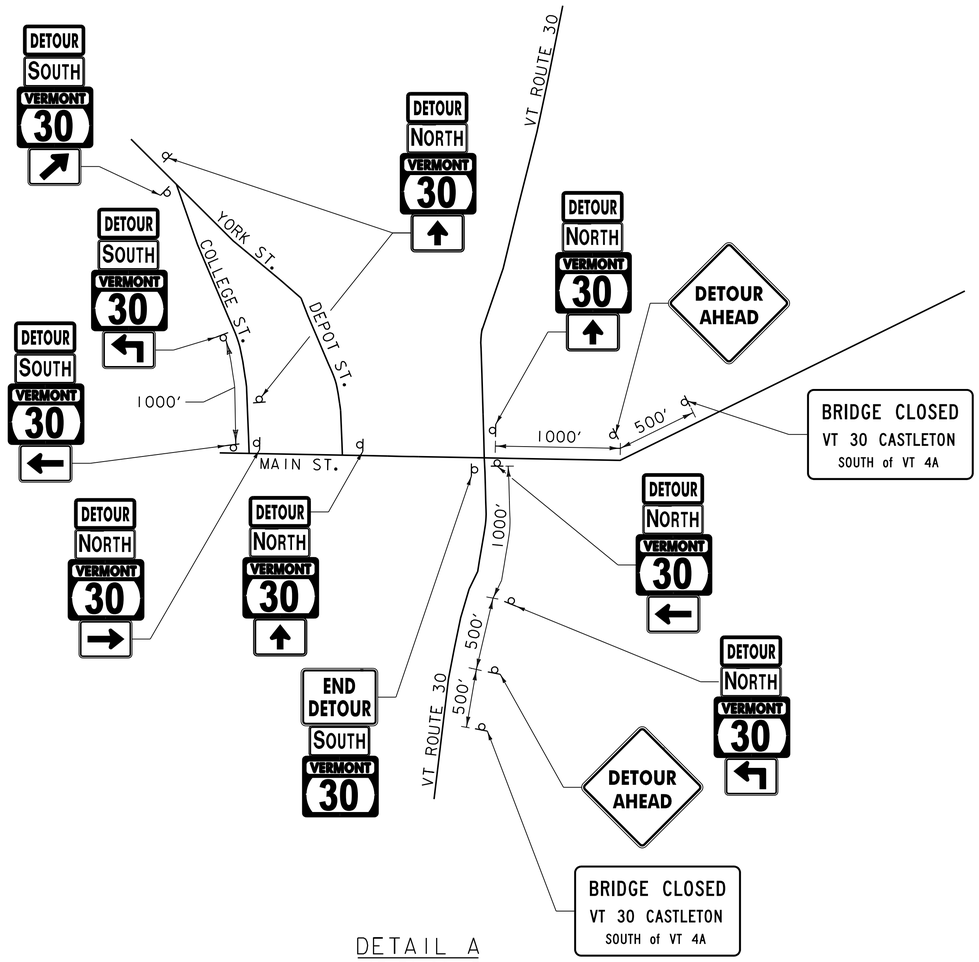
REGIONAL DETOUR & TRAFFIC CONTROL PLAN

4500 0 4500

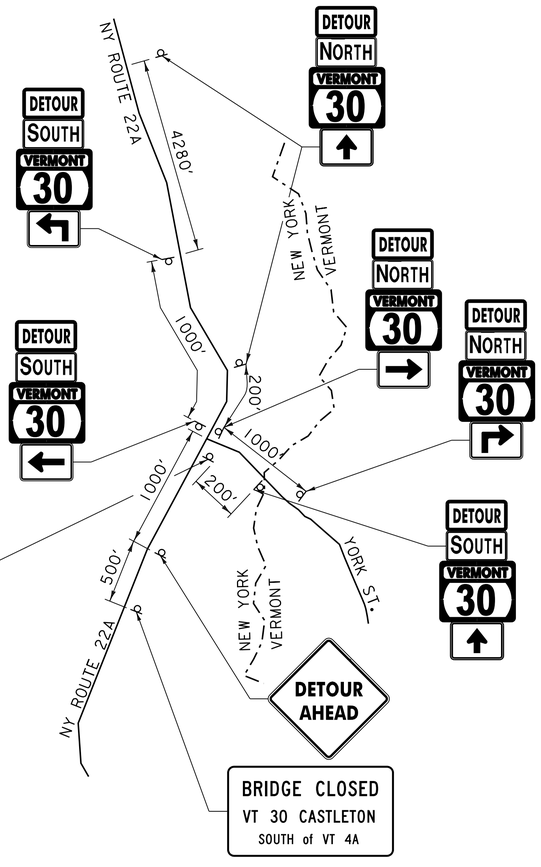
Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138tcp.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: D.A. GINGRAS
DESIGNED BY: VTRANS	CHECKED BY: S.E. BURBANK
TRAFFIC CONTROL PLAN (1 OF 6)	SHEET 25 OF 82

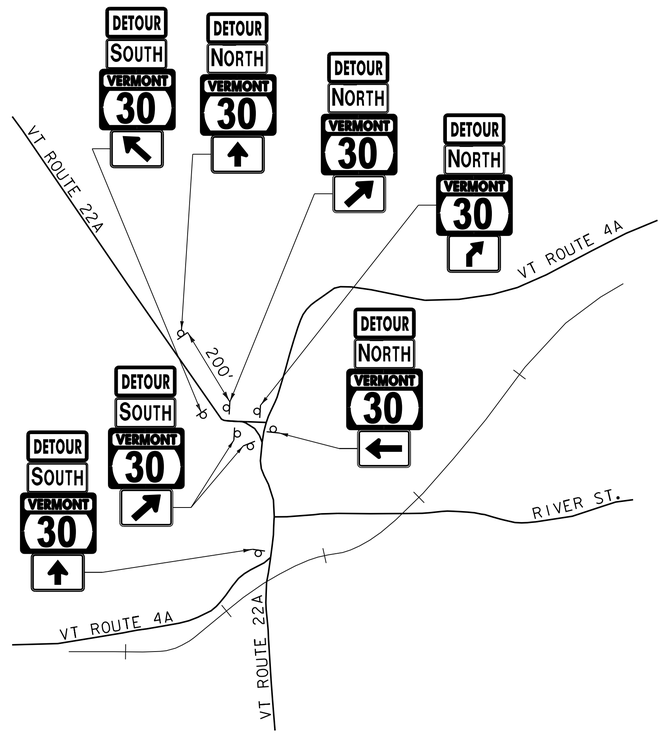
VHB 57632



DETAIL A
NOT TO SCALE



DETAIL B
NOT TO SCALE

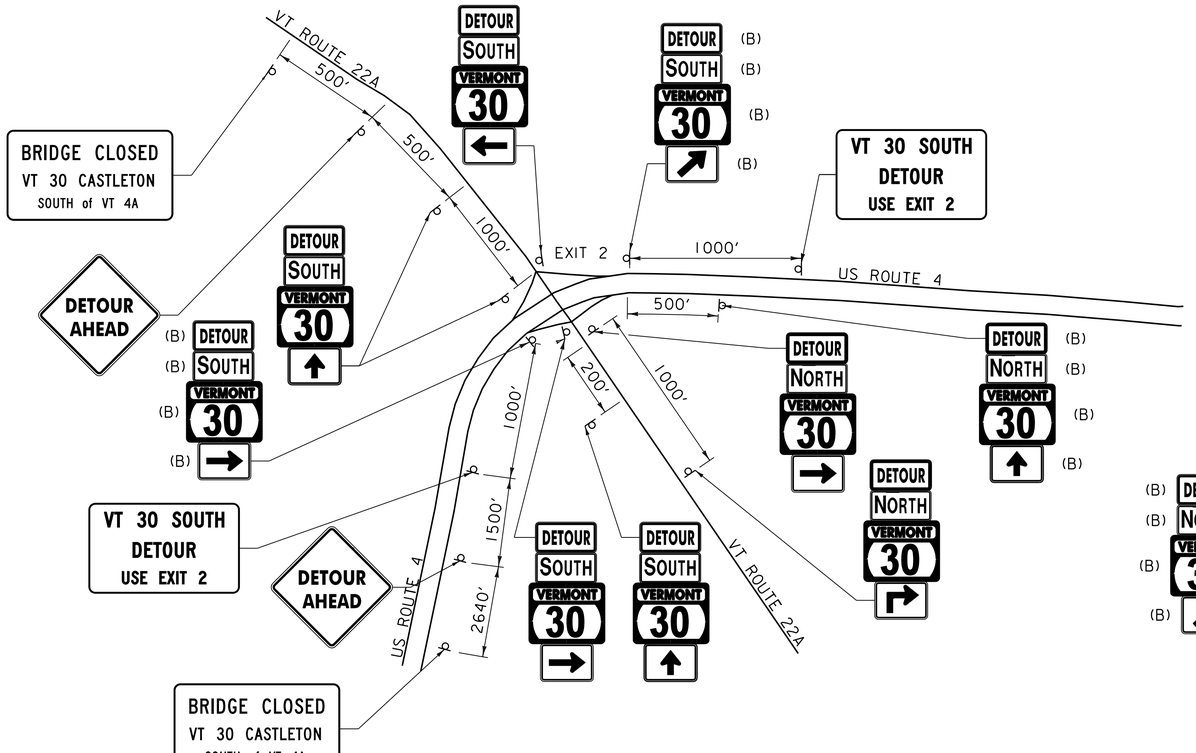


DETAIL C
NOT TO SCALE

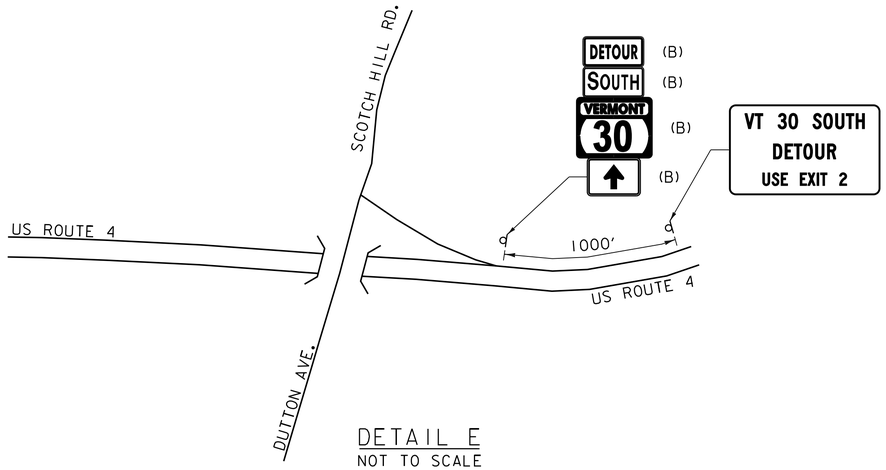
NOTE:
1. ALL DISTANCES ARE APPROXIMATE AND MAY VARY IN FIELD.

Vanasse Hangen Brustlin, Inc.

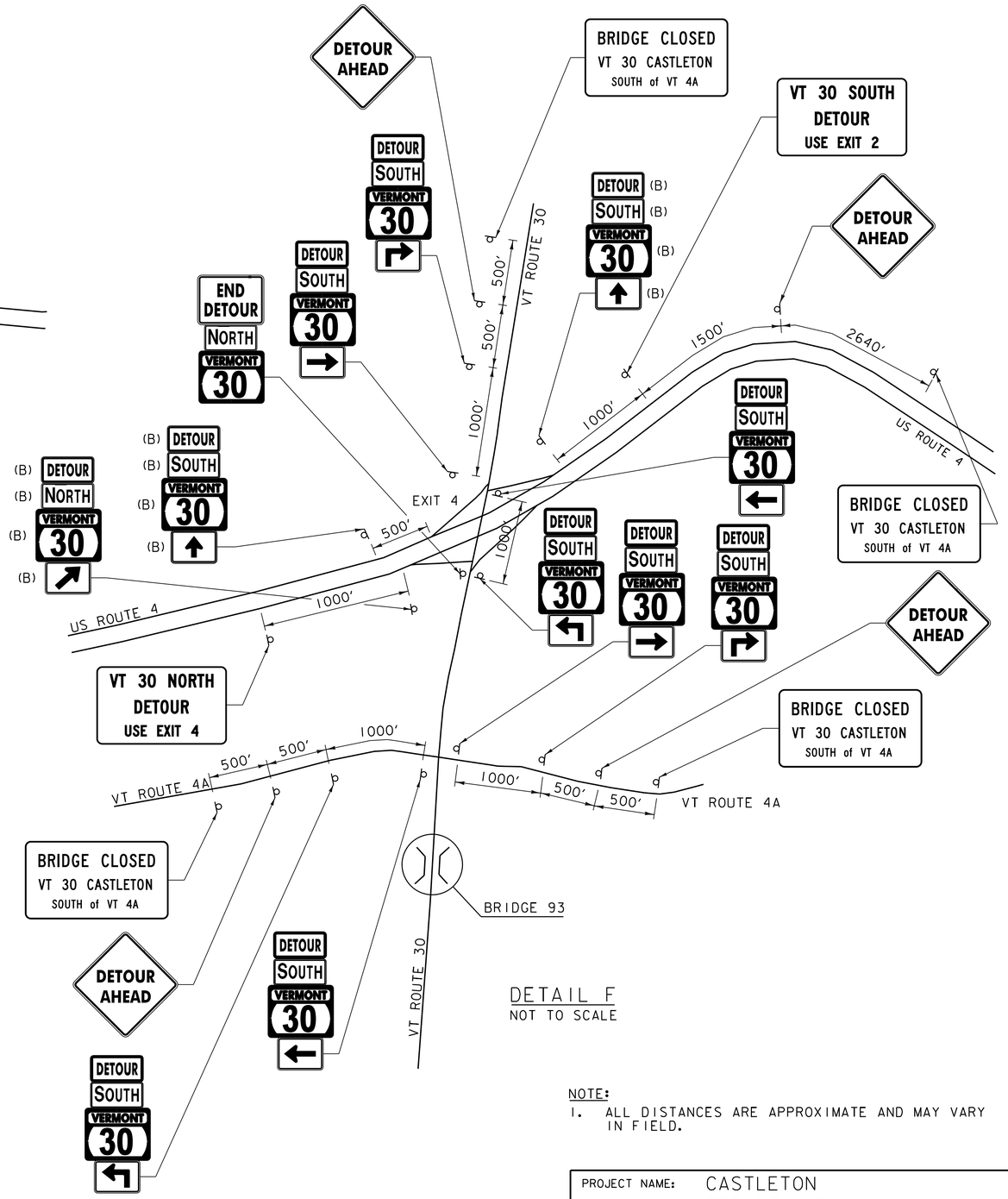
PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12bl38tcp.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: D.A. GINGRAS
DESIGNED BY: D.A. GINGRAS	CHECKED BY: S.E. BURBANK
TRAFFIC CONTROL PLAN (2 OF 6)	SHEET 26 OF 82



DETAIL D
NOT TO SCALE



DETAIL E
NOT TO SCALE



DETAIL F
NOT TO SCALE

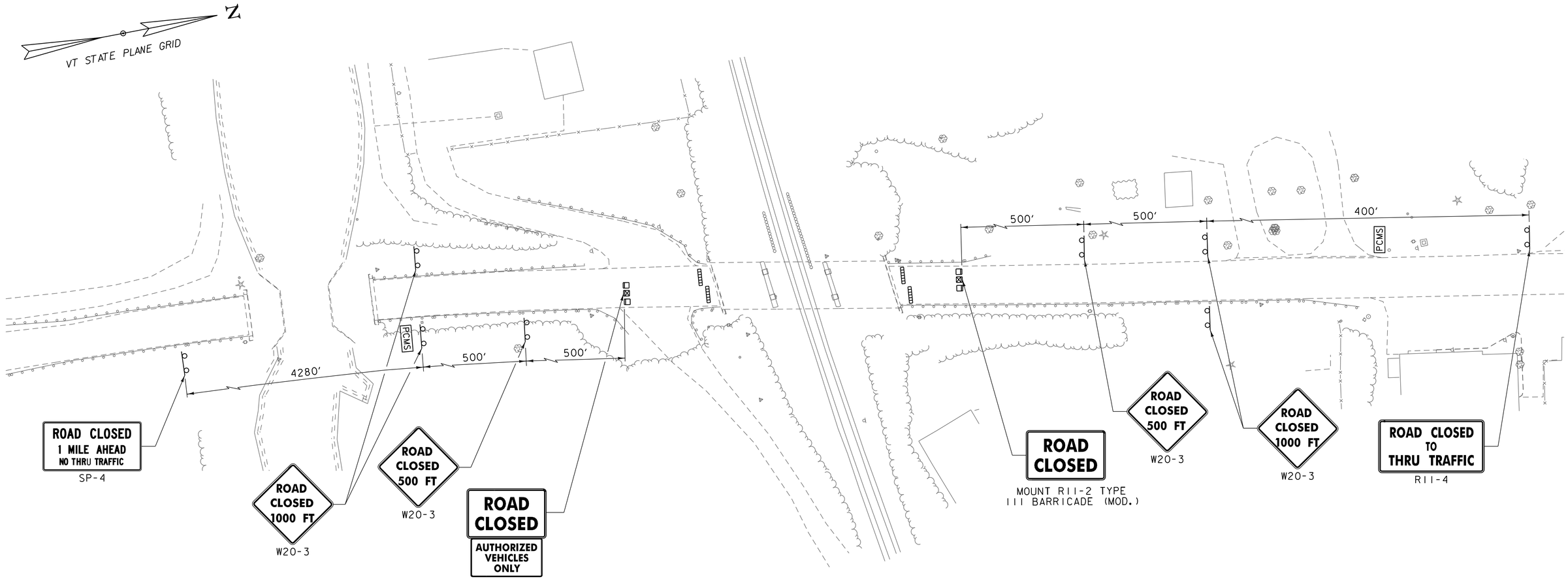
NOTE:
1. ALL DISTANCES ARE APPROXIMATE AND MAY VARY IN FIELD.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)

FILE NAME: z12b138tcp.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: D.A. GINGRAS
DESIGNED BY: D.A. GINGRAS	CHECKED BY: S.E. BURBANK
TRAFFIC CONTROL PLAN (3 OF 6)	SHEET 27 OF 82

VHB *Vanasse Hangen Brustlin, Inc.*

VHB 57632



LOCAL TRAFFIC CONTROL PLAN

NOT TO SCALE

LEGEND

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

NOTES:

1. SEE TRAFFIC CONTROL PLAN (1 OF 6) FOR ADDITIONAL NOTES.
2. THE COSTS OF TEMPORARY TRAFFIC CONTROL DEVICES INCLUDING BUT NOT LIMITED TO ALL SIGNS, SIGN POSTS, TYPE III BARRICADES, AND TEMPORARY TRAFFIC BARRIERS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 641.10 "TRAFFIC CONTROL". PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) WILL BE PAID FOR SEPARATELY UNDER CONTRACT ITEM 641.15.
3. THE PCMS SHALL DISPLAY THE MESSAGES SHOWN ON TRAFFIC CONTROL PLAN (5 OF 6) ONE WEEK (7 DAYS) PRIOR TO THE CLOSURE OF THE BRIDGE. THE PCMS SHALL REMAIN IN PLACE FOR THE DURATION OF CONSTRUCTION, UNTIL THE ROAD IS OPEN TO TRAFFIC.
4. 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.
5. SEE THE PROJECT SPECIAL PROVISIONS FOR ALLOWABLE BRIDGE CLOSURE PERIOD.

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138tcp.dgn	PLOT DATE: 9/21/2014
PROJECT LEADER: S.E.BURBANK	DRAWN BY: D.A. GINGRAS
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
TRAFFIC CONTROL PLAN (4 OF 6)	SHEET 28 OF 82

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (IN)	SIZE OF SIGN HEIGHT (IN)	TEXT	NUMBER OF SIGNS REQ'D	REMARKS
M1-5	24	24	VERMONT 30	47*	SEE NOTE 5
M1-5 (B)	36	36	VERMONT 30	9*	SEE NOTE 5
M3-2	24	12	NORTH	21*	SEE NOTE 5
M3-2 (B)	36	18	NORTH	3*	SEE NOTE 5
M3-4	24	12	SOUTH	26*	SEE NOTE 5
M3-4 (B)	36	18	SOUTH	6*	SEE NOTE 5
M4-8	24	12	DETOUR	45*	MOUNT ABOVE THE M3-2 OR M3-4
M4-8 (B)	36	18	DETOUR	9*	MOUNT ABOVE THE M3-2 OR M3-4
M4-8A	24	18	END DETOUR	2	MOUNT ON ONE POST
M5-1L	21	15		5	MOUNT BELOW THE M1-5
M5-1R	21	15		4	MOUNT BELOW THE M1-5
M5-2R	21	15		1	MOUNT BELOW THE M1-5
M6-1L	21	15		7	MOUNT BELOW THE M1-5
M6-1L	21	15		5	MOUNT BELOW THE M1-5
M6-1L (B)	30	21		1	MOUNT BELOW THE M1-5
M6-2L	21	15		1	MOUNT BELOW THE M1-5
M6-2R	21	15		4	MOUNT BELOW THE M1-5

* - NUMBER OF SIGNS REQUIRED ASSUMING APPROXIMATELY 3 LOCATIONS OF CONFIRMATORY ROUTE MARKER ASSEMBLY DETAIL

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (IN)	SIZE OF SIGN HEIGHT (IN)	TEXT	NUMBER OF SIGNS REQ'D	REMARKS
M6-2R (B)	30	21		2	MOUNT BELOW THE M1-5
M6-3	21	15		17*	MOUNT BELOW THE M1-5
M6-3 (B)	30	21		6*	MOUNT BELOW THE M1-5
R5-11	30	24	AUTHORIZED VEHICLES ONLY	1	MOUNT BELOW R11-2
R11-2	48	24	ROAD CLOSED	2	MOUNT ON TYPE III BARRICADE (MOD.)
R11-4	60	30	ROAD CLOSED TO THRU TRAFFIC	1	MOUNT ON TWO POSTS
SP-1	66	36	BRIDGE CLOSED VT 30 CASTLETON SOUTH of VT 4A	9	MOUNT ON TWO POSTS
SP-2	60	36	VT 30 SOUTH DETOUR USE EXIT 2	4	MOUNT ON TWO POSTS
SP-3	60	36	VT 30 NORTH DETOUR USE EXIT 4	1	MOUNT ON TWO POSTS
SP-4	60	30	ROAD CLOSED 1 MILE AHEAD NO THRU TRAFFIC	1	MOUNT ON TWO POSTS
W20-2	48	48	DETOUR AHEAD	9	MOUNT ON TWO POSTS
W20-3	48	48	ROAD CLOSED 500 FT	2	MOUNT ON TWO POSTS
W20-3	48	48	ROAD CLOSED 1000 FT	4	MOUNT ON TWO POSTS

NOTES:

1. COLORS FOR THE M1-5, M1-5(B), M3-2, M3-2(B), M3-4, AND M3-4(B) SIGNS SHALL MATCH THE COLORS SHOWN ON VTRANS STD. E-136B.
2. COLORS FOR THE M5-1L, M5-1R, M5-2R, M6-1L, M6-1L(B), M6-1R, M6-2L, M6-2R, M6-2R(B), M6-3 AND THE M6-3(B) SIGNS SHALL BE A BLACK ARROW AND BORDER ON RETROREFLECTIVE FLUORESCENT ORANGE BACKGROUND.
3. COLORS FOR THE M4-8, M4-8, AND M4-8(B) SIGNS SHALL BE BLACK TEXT AND BORDER ON RETROREFLECTIVE FLUORESCENT ORANGE BACKGROUND.
4. COLORS FOR THE SP-1, SP-2, AND SP-3 SIGNS SHALL BE BLACK TEXT AND BORDER ON RETROREFLECTIVE FLUORESCENT ORANGE BACKGROUND.
5. THE M1-5, M1-5B, M3-2, M3-2(B), M3-4 AND THE M3-4(B) SIGNS SHALL BECOME THE PROPERTY OF THE STATE AFTER THEY ARE REMOVED FROM THE DETOUR. THE CONTRACTOR SHALL DELIVER THE SIGNS TO THE STATE GARAGE ON VT-30 IN CASTLETON, JUST NORTH OF THE PROJECT. ALL COSTS ASSOCIATED WITH PROVIDING THE SIGNS TO THE STATE SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL".
6. ALL DETOUR SIGNS SHALL BE COVERED COMPLETELY WHEN THE DETOUR IS NOT IN USE.
7. SEE NEXT SHEET FOR DIMENSIONS FOR SP-1, SP-2, SP-3 AND SP-4 SIGNS.

MESSAGES FOR PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) - AT BRIDGE

MESSAGE 1	MESSAGE 2	
VT 30	MMMM DD	(DATE) **
BRIDGE	TO	
CLOSED	MMMM DD	(DATE) **

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

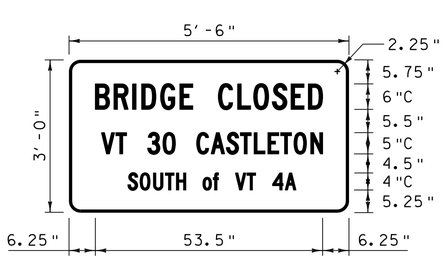
Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

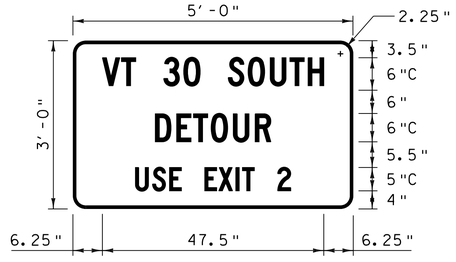
FILE NAME: z12b138tcp.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: E.A. FIALA
TRAFFIC CONTROL PLAN (5 OF 6)

PLOT DATE: 9/19/2014
DRAWN BY: D.A. GINGRAS
CHECKED BY: S.E. BURBANK
SHEET 29 OF 82

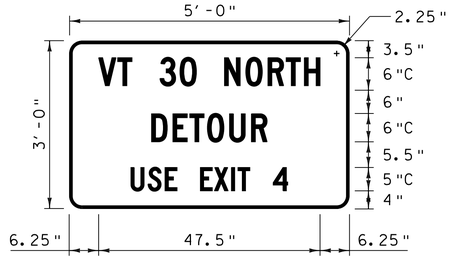
VHB 57632



SP-1
NOT TO SCALE



SP-2
NOT TO SCALE



SP-3
NOT TO SCALE

SP-4
NOT TO SCALE

NOTE: COLORS FOR THE SP-4 SIGN SHALL BE BLACK TEXT AND BORDER ON RETROREFLECTVE FLORESCENT WHITE BACKGROUND. TWO ORANGE FLAGS (ONE EACH SIDE) SHALL BE PLACED AT THE TOP OF THE SP-2 SIGNS. BORDER SHALL BE 0.075" AND INDENT SHALL BE 0.50".

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: z12b138tcp.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: E.A. FIALA
TRAFFIC CONTROL PLAN (6 OF 6)

PLOT DATE: 9/19/2014
DRAWN BY: D.A. GINGRAS
CHECKED BY: S.E. BURBANK
SHEET 30 OF 82

N

VT STATE PLANE GRID

INSULATION BOARD
STA. 599+39 - 599+50, RT
STA. 599+43 - 599+54, LT

APPROXIMATE LOCATION OF SEWER MAIN CROSSING

EXISTING POLE (RETAIN)

CASTLETON SEWER PLANT

GARAGE

TWO 8" SEWER MAINS INTO SEWER PLANT

FLOW

INSTALL INSULATION BOARD OVER SEWER MAINS AT DITCH LINE (TYP) SEE DETAIL THIS SHEET

LIGHT POLE

RR R.O.W.

BEGIN BRIDGE
STA. 66+00.54
FG 410.84

NEW ANCHOR

STA 65+58, 50' LT NEW POLE

NEW ANCHOR

RETIRE EXISTING LINE

CASTLETON RIVER

NEW ANCHOR

STA 62+91, 27' LT NEW POLE

RETIRE EXISTING STUB POLE

STATE R.O.W.

AER E&T

BEGIN APPROACH
STA. 63+90.00

PAVED DRIVE

CZ

GRAVEL DRIVE

599+00

600+00

62+97

63+00

64+00

65+00

66+00

MATCHLINE STA. 66+25

NEW ANCHOR

GUY

EXISTING POLE (RETAIN)

ELECTRIC POLE 13

EXISTING LINE (RETAIN)

COMB 12 13

NEW POLE EXISTING LOCATION

NEW ANCHOR

COMB 7 12

RETIRE EXISTING LINE

RETIRE EXISTING POLE

STATE R.O.W.

CLASS II WETLAND

RETIRE EXISTING LINE

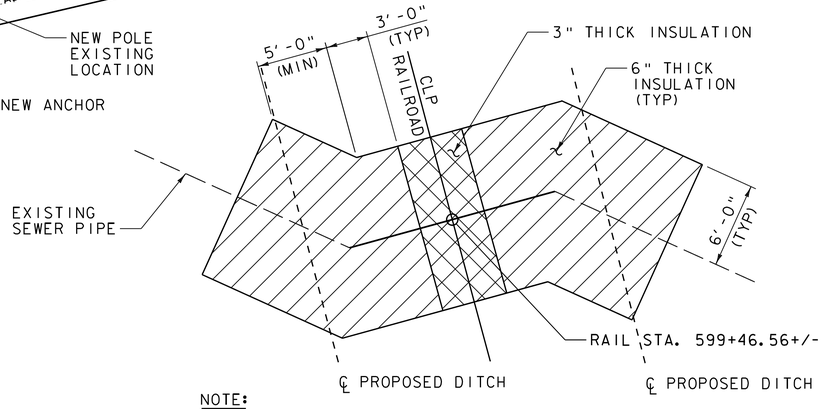
BEGIN PROJECT
STA. 64+70.00

WOODS

RETIRE EXISTING POLES AND ANCHOR

STONE FILL, TYPE I (TYP)

CLASS II WETLAND



NOTE:
1. STAGGER INSULATION JOINTS TO PROVIDE OVERLAPPING LAYERS.
2. INSULATION BOARD SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 60 PSI AND BE IN ACCORDANCE WITH ASTM D1621.

INSULATION BOARD DETAIL
SCALE 3/16" = 1'-0"

20 0 20
SCALE IN FEET

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138bdr_utility.dgn	PLOT DATE: 9/21/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
UTILITY LAYOUT SHEET (1 OF 2)	SHEET 31 OF 82

VHB 57632

VT STATE PLANE GRID

CHANGING ELEVATION
OF SEWER MANHOLES
STA. 67+53, LT

MATCHLINE STA. 66+25

RR R.O.W.

W/O 6" SEWER MAINS FLOW

MANHOLE SANITARY SEWER

12" SEWER FLOW

PERMANENT STEEL SHEET PILING (TYP.)

STA 68+10, 23' LT NEW POLE

END BRIDGE
STA. 66+70.64
FG 413.40

NEW SPAN GUY

STATE R.O.W.

END PROJECT
STA. 68+55.00

EXISTING LINE (RETAIN)

NEW POLE EXISTING LOCATION

EXISTING LINE (RETAIN)

AER E&T

SHED

DUG WELL

GRAVEL DRIVE

GUY

SUBT COMB 4

COMB 406

MANHOLE SANITARY SEWER

VT ROUTE 30

67+00 68+00 69+00 70+00 70+16

END APPROACH
STA. 69+35.00

PAVED DRIVE

FIRE HYDRANT

ARTESIAN WELL

BUILDING

COMB 9 10.5

CZ

POLE 10

RETIRE EXISTING POLE

RETIRE EXISTING LINE

EXISTING POLE (RETAIN)

NEW ANCHOR

RETIRE EXISTING LINE

RETIRE EXISTING LINE

RETIRE EXISTING LINE

GARAGE

PAVED DRIVE

GRAVEL DRIVE

RR R.O.W.

CLARENDON & PITTSFORD RAILROAD

601+00

602+00

EDGE OF GRAVEL

BRUSH

20 0 20

SCALE IN FEET

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12bl38bdr_utility.dgn	PLOT DATE: 9/21/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
UTILITY LAYOUT SHEET (2 OF 2)	SHEET 32 OF 82

VHB 57632

VT STATE PLANE GRID

N

TO HYDEVILLE

4 INCH YELLOW LINE
STA. 63+90 - 69+35, LT & RT

4 INCH WHITE LINE
STA. 63+90 - 69+35, LT & RT

TRAFFIC SIGNS, TYPE A
STA. 64+16, RT
STA. 65+95, RT
STA. 66+76, LT
STA. 68+65, LT

STA. 66+76, LT
BRIDGE 93 VT 30
N VD-701
N

STA. 67+25, LT
N VW060 HIDDEN DRIVES
N W13-1P 30 M.P.H.
N

BEGIN BRIDGE
STA. 66+00.54
FG 410.84

END BRIDGE
STA. 66+70.64
FG 413.40

END PROJECT
STA. 68+55.00

BEGIN APPROACH
STA. 63+90.00

TO POULTNEY

VT ROUTE 30

CZ

SWL

DYL

64+00

65+00

66+00

67+00

68+00

69+00

TO CASTLETON

END APPROACH
STA. 69+35.00

WOOD WALL

BEGIN PROJECT
STA. 64+70.00

STA. 61+20, RT
R VW060 HIDDEN DRIVES
R

STA. 64+16, RT
N VW060 HIDDEN DRIVES
N W13-1P 30 M.P.H.
N

STA. 65+95, RT
BRIDGE 93 VT 30
N VD-701
N

STA. 70+08, LT
R VW060 HIDDEN DRIVES
R

CLARENDON & PITTSFORD RAILROAD

TO CASTLETON

SIGNING LEGEND
N = NEW
RET = RETAIN
R = REMOVE
S = SALVAGE

STRIPING LEGEND
DYL = DOUBLE YELLOW LINE
SWL = SINGLE WHITE LINE

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: z12b138tsl.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: E.A. FIALA
TRAFFIC SIGNS & LINE STRIPING SHEET

PLOT DATE: 9/19/2014
DRAWN BY: E.A. FIALA
CHECKED BY: S.E. BURBANK
SHEET 33 OF 82

VHB 57632

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET

MILE MARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (IN)	HEIGHT (IN)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL LB/FT 1.12	2.0	3.0	SQUARE STEEL (IN) LB/FT 1.75 1.88	2.0 2.42	2.5 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (IN) LB/FT 3.0 1.3	4.0 1.7	4.0 MOD 1.7	FOUND-ATION	TUBULAR STEEL Ø (IN) LB/FT 3.0 7.6	3.5 9.0	4.0 10.8	5.0 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
OPTION ITEMS																																			
VT 30																																			
64+16, RT 67+25, LT	HIDDEN DRIVES 30 M.P.H.	2	30	30	12.5						2				X			X															VW060		E-154
		2	18	18	4.5																											W13-1P		SHSM
65+95, RT 66+76, LT	BRIDGE 93 VT 30	2	6	8	0.67						2				X			X															VD-701		T-42
AVERAGE POST LENGTH = 15 FEET FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."											FT	FT	FT	FT 60	FT	FT		EA	LB	LB	LB		LB	LB	LB	LB								
	TOTALS				SF 17.67	SF	EA.	SF			FT			FT 60					LB			EA.	LB				EA.	EA.	LB					

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON	
PROJECT NUMBER: BRF 015-2(10)	
FILE NAME: z12b138tss.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
TRAFFIC SIGN SUMMARY SHEET	SHEET 34 OF 82

VHB 57632

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

SHEAR STRENGTH

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

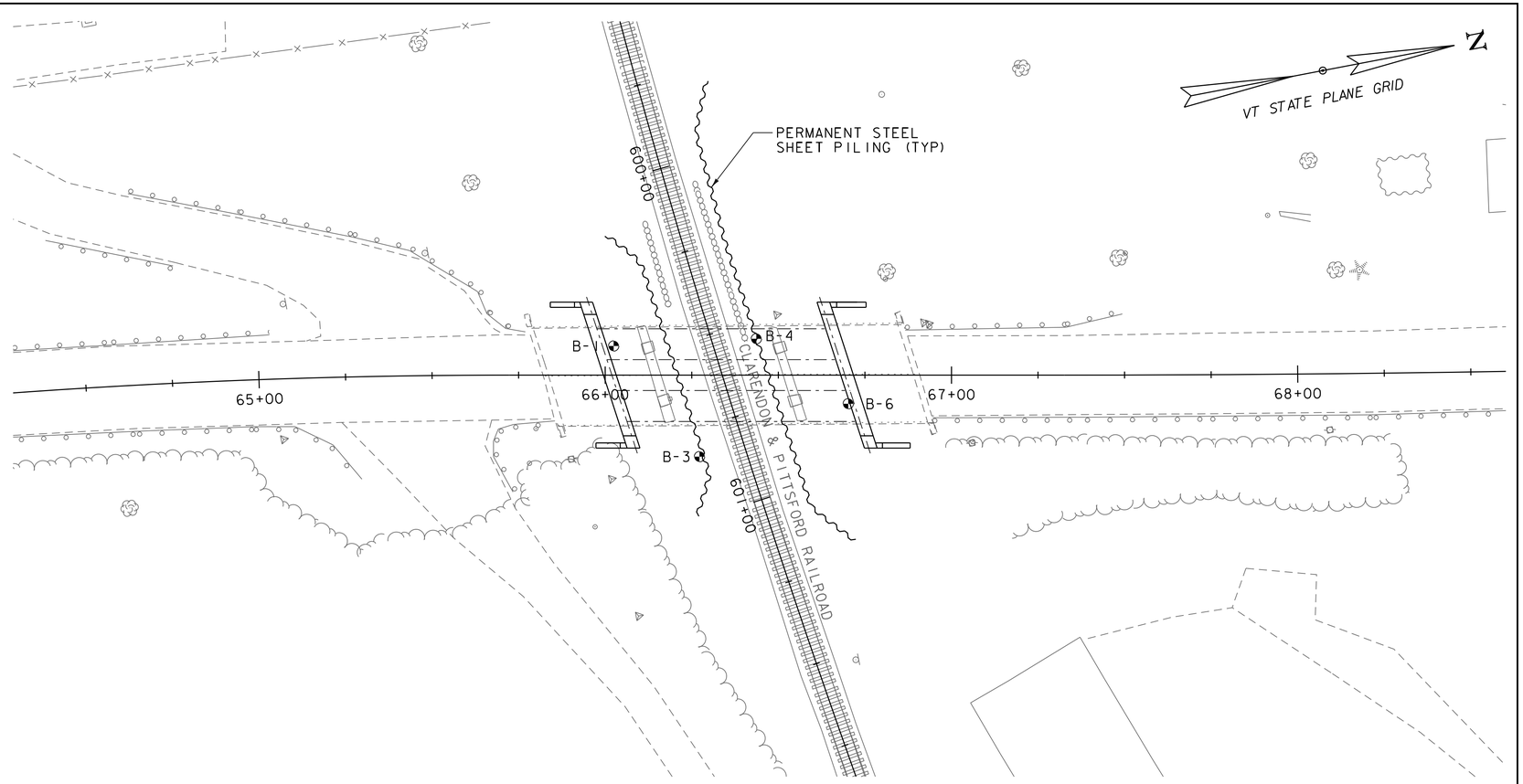
CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
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
S	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 5/8"
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
RQD	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
gry	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mltc	Multicolored
or	Orange		



BORING LAYOUT

0 20 40

SCALE IN FEET

BORING CHART

HOLE NO.	SURV. STATION	OFFSET (FEET)	GROUND ELEVATION	ELEVATION TLOB
B-1	66+02.45	8.42 LT	410.9	N/A
B-3	66+27.73	23.55 RT	389.3	N/A
B-4	66+43.65	10.50 LT	388.9	N/A
B-6	66+70.19	8.28 RT	413.4	N/A

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.

GENERAL NOTES

1. The subsurface explorations shown herein were made in October 2013 by Transtech Drilling Services and GeoDesign, Inc.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by Mikes Coring and Boring and the Agency, and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. 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.
4. 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.
5. 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.
6. 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.
7. Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in survey feet.

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: z12bl38bor.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: E.A. FIALA
BORING INFORMATION SHEET

PLOT DATE: 9/19/2014
DRAWN BY: E.A. FIALA
CHECKED BY: S.E. BURBANK
SHEET 35 OF 82

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

Bridge No. 93 over C&P Railroad
Castleton BRF 015-2(10)
(GeoDesign #750-09.14)

Boring No.: **B-1**
Page No.: 1 of 3
Pin No.: 12b138
Checked By: SPK

Boring Crew: J. Leonhardt (TransTech), J. Gilman (GeoDesign)
Date Started: 10/18/13 Date Finished: 10/22/13
VTSPG NAD83: N 403295.98 ft E 1452512.75 ft
Station: 18+86 Offset: 8.40
Ground Elevation: 410.9 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	2 in
Hammer Wt:	140 lb.	140 lb.
Hammer Fall:	30 in.	30 in.
Hammer/Rod Type:	Auto/NWJ	
Rig:	CME 550X ATV	C_E = ~1.5

Groundwater Observations [3]

Date	Depth (ft)	Notes
10/21/13	27.8	In casing (2 days)

BOTTOM OF CAP
EL = 399.5

ESTIMATED PILE TIP
EL = 329.5

Depth (ft)	Strata[1]	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)[2]	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
		Existing Bridge Deck (Approx.).							
		Air Space Between Bridge Deck and Ground Surface (See Remark 5).							
15		S1 (15' to 17'): Very loose, brown fine to coarse SAND, some Silt, little fine Gravel, trace Root Fibers, wet. Rec. = 1.0 ft (AASHTO M145 Classification: A-2-4.)	WOH-WOH-1-1	14.8	26.0	43.2	30.8	NP	NP
		S2 (17' to 19'): Loose, brown fine to coarse SAND, some Silt, little fine Gravel, wet. Rec. = 0.5 ft (AASHTO M145 Classification: A-2-4.)	2-2-2-2 (4)	14.8	26.9	41.3	31.8	NP	NP
20		S3 (19' to 21'): Medium dense, brown fine to coarse SAND, some Silt, little fine to coarse Gravel, wet. Rec. = 0.7 ft (AASHTO M145 Classification: A-2-4.)	4-2-8-4 (10)	14.0	33.0	39.3	27.7	NP	NP
		S4 (21' to 23'): Very loose, brown fine to coarse SAND, some Silt, some fine Gravel, wet. Rec. = 0.4 ft (AASHTO M145 Classification: A-1-b.)	2-2-1-2 (3)	13.1	33.6	41.9	24.5	NP	NP
25		S5 (23' to 25'): Soft, tan with gray seams, SILT & CLAY, trace fine to coarse Sand, trace fine Gravel, wet. Rec. = 0.9 ft (AASHTO M145 Classification: A-4.)	1-1-1-1 (2)	37.7	0.6	2.8	96.6	32	8
30		S6 (29' to 31'): Medium dense, gray fine to coarse SAND and SILT & CLAY, little fine to coarse Gravel, wet. Rec. = 1.2 ft (AASHTO M145 Classification: A-4.)	4-17-11-12 (28)	11.4	29.9	31.6	38.5	22	5
35		S7 (34' to 36'): Medium dense, gray fine to coarse SAND and Clayey SILT, trace fine Gravel, wet. Rec. = 1.2 ft	5-7-12-17 (29)	11.8	Testing Not Performed				
40		S8 (39' to 41'): Medium dense, no recovery. Rec. = 0.0 ft	8-14-13-14 (27)	11.3	Testing Not Performed				
45		S9 (44' to 46'): Medium dense, gray SILT & CLAY and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 1.2 ft (AASHTO M145 Classification: A-4.)	7-11-14-29 (25)	11.2	29.6	26.1	44.3	25	6
		S10 (49' to 51'): Medium dense, gray SILT & CLAY and fine to coarse SAND, little	9-10-15-	11.4	Testing Not Performed				

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_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GEODESIGN BORING LOG 750-09.14-CASTLETON BRF 015-2(10).GPJ VERMONT AOT.GDT 12/4/13

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

Bridge No. 93 over C&P Railroad
Castleton BRF 015-2(10)
(GeoDesign #750-09.14)

Boring No.: **B-1**
Page No.: 2 of 3
Pin No.: 12b138
Checked By: SPK

Boring Crew: J. Leonhardt (TransTech), J. Gilman (GeoDesign)
Date Started: 10/18/13 Date Finished: 10/22/13
VTSPG NAD83: N 403295.98 ft E 1452512.75 ft
Station: 18+86 Offset: 8.40
Ground Elevation: 410.9 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	2 in
Hammer Wt:	140 lb.	140 lb.
Hammer Fall:	30 in.	30 in.
Hammer/Rod Type:	Auto/NWJ	
Rig:	CME 550X ATV	C_E = ~1.5

Groundwater Observations [3]

Date	Depth (ft)	Notes
10/21/13	27.8	In casing (2 days)

Depth (ft)	Strata[1]	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)[2]	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
		fine to coarse Gravel, wet. Rec. = 1.2 ft	18 (25)						
55		S11 (54' to 56'): Dense, gray SILT & CLAY and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 0.7 ft	9-13-18-20 (31)	13.0	Testing Not Performed				
60		S12 (59' to 61'): Dense, gray SILT & CLAY and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 0.9 ft (AASHTO M145 Classification: A-4.)	11-18-20-26 (28)	11.3	28.1	26.1	45.8	25	6
65		S13 (64' to 66'): Dense, gray SILT & CLAY and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 1.2 ft	8-14-17-23 (31)	11.5	Testing Not Performed				
70									
75		S14 (74' to 76'): Dense, gray Clayey SILT, some fine to coarse Sand, little fine Gravel, wet. Rec. = 1.5 ft (AASHTO M145 Classification: A-4.)	11-20-19-25 (39)	13.2	23.7	22.8	53.5	24	4
80									
85		S15 (84' to 86'): Dense, gray Clayey SILT, some fine to coarse Sand, little fine Gravel, wet. Rec. = 1.0 ft	11-15-18-25 (33)	10.9	Testing Not Performed				
90									
95		S16 (94' to 96'): Dense, gray SILT & CLAY, some fine to coarse Sand, trace fine Gravel, wet. Rec. = 1.3 ft (AASHTO M145 Classification: A-4.)	10-16-25-36 (41)	15.1	17.7	23.7	58.6	26	6

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_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GEODESIGN BORING LOG 750-09.14-CASTLETON BRF 015-2(10).GPJ VERMONT AOT.GDT 12/4/13

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

Bridge No. 93 over C&P Railroad
Castleton BRF 015-2(10)
(GeoDesign #750-09.14)

Boring No.: **B-1**
Page No.: 3 of 3
Pin No.: 12b138
Checked By: SPK

Boring Crew: J. Leonhardt (TransTech), J. Gilman (GeoDesign)
Date Started: 10/18/13 Date Finished: 10/22/13
VTSPG NAD83: N 403295.98 ft E 1452512.75 ft
Station: 18+86 Offset: 8.40
Ground Elevation: 410.9 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	2 in
Hammer Wt:	140 lb.	140 lb.
Hammer Fall:	30 in.	30 in.
Hammer/Rod Type:	Auto/NWJ	
Rig:	CME 550X ATV	C_E = ~1.5

Groundwater Observations [3]

Date	Depth (ft)	Notes
10/21/13	27.8	In casing (2 days)

Depth (ft)	Strata[1]	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)[2]	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
105		S17 (104' to 106'): Refusal, gray SILT & CLAY and fine to coarse SAND, little fine Gravel, wet. Rec. = 0.9 ft	26-52-50/3" (R)	13.8	Testing Not Performed				
110									
115		S18 (114' to 116'): Refusal, gray SILT & CLAY and fine to coarse SAND, little fine Gravel, wet. Rec. = 0.9 ft (AASHTO M145 Classification: A-4.)	30-51-50/3" (R)	10.0	30.2	26.5	43.3	24	6
120		S19 (120' to 122'): Very dense, gray SILT & CLAY and fine to coarse SAND, little fine Gravel, wet. Rec. = 1.0 ft	38-46-54-50/3" (100)	8.7	Testing Not Performed				
125		Hole stopped @ 122.0 ft Boring terminated at 122 feet deep with no refusal.							
130									
135									
140									
145									

Remarks:
1. Exploration locations were taped in the field by GeoDesign. Elevations were estimated based on topographic plan provided by VHB.
2. Sample moisture descriptions may not accurately reflect in-situ conditions due to wash-drive drilling methods.
3. Visual soil descriptions are per the Burmister system. Lab testing gradations reported are per AASHTO M145.
4. Samples S2 and S4 were not sampled in accordance with ASTM D 1586 procedures (borehole was not advanced between consecutive samples).
5. Boring was drilled through 6 inch core hole (performed by VTrans 10/16/13) and depths are were measured from the bridge deck. Distance from deck to ground surface below was approximately 15 feet.
6. Driller advanced casing to 30 feet deep and then open hole below 30 feet deep; noted loss of water when drilling between 40 and 45 feet; drove casing to 50 feet deep.
7. Driller noted excessive rig chatter while advancing roller bit from 71 to 72 feet deep (possible cobble/gravel).
8. At end of day on 10/18/13 borehole advanced to 76 feet deep. On 10/21/13, casing advanced to 60 feet deep.
9. Driller reported borehole instability while attempting to sample 84 to 86 feet deep (cave in ~5'). Therefore, driller Advanced casing to 80 feet.
10. At end of day on 10/21/13 borehole advanced to 96 feet deep with casing at 95 feet deep.
11. Soil samples were tested by VTrans soil laboratory and results were transmitted to GeoDesign for incorporation into boring logs.

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_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GEODESIGN BORING LOG 750-09.14-CASTLETON BRF 015-2(10).GPJ VERMONT AOT.GDT 12/4/13

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138borlog.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: GEODESIGN	CHECKED BY: S.E. BURBANK
BORING LOGS (1 OF 4)	SHEET 36 OF 82

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

Bridge No. 93 over C&P Railroad
Castleton BRF 015-2(10)
(GeoDesign #750-09.14)

Boring No.: **B-3**
Page No.: 1 of 1
Pin No.: 12b138
Checked By: SPK

Boring Crew: J. Leonhardt (TransTech), J. Gilman (GeoDesign)
Date Started: 10/24/13 Date Finished: 10/24/13
VTSPG NAD83: N 403314.31 ft E 1452548.87 ft
Station: 19+08 Offset: 10.50
Ground Elevation: 389.3 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	2 in
Hammer Wt:	140 lb.	140 lb.
Hammer Fall:	30 in.	30 in.
Hammer/Rod Type:	Auto/NWJ	
Rig:	CME 550X ATV	C_E = ~1.5

Groundwater Observations [3]

Date	Depth (ft)	Notes
10/24/13		See Remark 2

ESTIMATED BOTTOM OF PERMANENT STEEL SHEET PILING, EL = 362.00

Depth (ft)	Strata[1]	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)[2]	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
0		S1 (0' to 2'): Loose, brown to gray SILT & CLAY and fine to coarse SAND, little fine to coarse Gravel, trace Wood, trace Glass, moist. Rec. = 0.9 ft (AASHTO M145 Classification: A-4.)	1-1-5-5 (6)	13.7	29.1	25.1	45.8	25	6
		S2 (2' to 4'): Loose, gray fine to coarse SAND and SILT, little fine to coarse Gravel, moist. Rec. = 1.8 ft (AASHTO M145 Classification: A-4.)	4-5-4-5 (9)	9.6	30.1	31.7	38.2	NP	NP
5		S3 (4' to 6'): Medium dense, gray SILT & CLAY, some fine to coarse SAND, some fine to coarse Gravel, wet. Rec. = 1.0 ft (AASHTO M145 Classification: A-4.)	4-6-11-12 (17)	11.7	31.1	24.5	44.4	24	6
		S4 (6' to 8'): Medium dense, gray SILT & CLAY and fine to coarse SAND, trace fine Gravel, trace Glass, wet. Rec. = 1.3 ft (AASHTO M145 Classification: A-4.)	6-7-11-12 (18)	19.7	15.1	30.4	54.5	27	5
10		S5 (8' to 10'): Dense, gray SILT & CLAY and fine to coarse SAND, some fine to coarse Gravel, wet. Rec. = 1.0 ft	5-33-11-12 (44)	11.3	Testing Not Performed				
15		S6 (14' to 16'): Medium dense, gray SILT & CLAY and fine to coarse SAND, some fine to coarse Gravel, wet. Rec. = 1.0 ft (AASHTO M145 Classification: A-4.)	6-8-20-18 (28)	11.4	33.5	25.6	40.9	25	6
20		S7 (19' to 21'): Medium dense, gray SILT & CLAY and fine to coarse SAND, some fine to coarse Gravel, wet. Rec. = 1.0 ft	5-9-13-15 (22)	11.9	Testing Not Performed				
25		S8 (24' to 26'): Medium dense, gray SILT & CLAY and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 0.3 ft	7-10-13-17 (23)	15.7	Testing Not Performed				
30		S9 (29' to 31'): Medium dense, gray SILT & CLAY and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 1.4 ft (AASHTO M145 Classification: A-4.)	7-11-13-16 (24)	12.8	29.5	25.5	45.0	25	6
35		S10 (34' to 36'): Medium dense, gray SILT & CLAY and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 1.3 ft	15-12-16-20 (28)	11.8	Testing Not Performed				
		Hole stopped @ 36.0 ft Boring terminated at 36 feet deep with no refusal.							
40									
45									

Remarks:
1. Exploration locations were taped in the field by GeoDesign. Elevations were estimated based on topographic plan provided by VHB.
2. Sample moisture descriptions may not accurately reflect in-situ conditions due to wash-drive drilling methods. Unable to discern ground water elevation due to continuously adding water to the borehole during roller bit advance.
3. Visual soil descriptions are per the Burmister system. Lab testing gradations reported are per AASHTO M145.
4. Samples S2 and S4 were not sampled in accordance with ASTM D 1586 procedures (borehole was not advanced between consecutive samples).
5. Soil samples were tested by VTrans soil laboratory and results were transmitted to GeoDesign for incorporation into boring logs.

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_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GEODESIGN BORING LOG 750-09.14-CASTLETON BRF 015-2(10).GPJ VERMONT AOT.GDT 12/4/13

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

Bridge No. 93 over C&P Railroad
Castleton BRF 015-2(10)
(GeoDesign #750-09.14)

Boring No.: **B-4**
Page No.: 1 of 3
Pin No.: 12b138
Checked By: SPK

Boring Crew: J. Leonhardt (TransTech), J. Gilman (GeoDesign)
Date Started: 10/16/13 Date Finished: 10/17/13
VTSPG NAD83: N 403336.83 ft E 1452518.45 ft
Station: 19+28 Offset: 10.50
Ground Elevation: 388.9 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	2 in
Hammer Wt:	140 lb.	140 lb.
Hammer Fall:	30 in.	30 in.
Hammer/Rod Type:	Auto/NWJ	
Rig:	CME 550X ATV	C_E = ~1.5

Groundwater Observations [3]

Date	Depth (ft)	Notes
10/17/13		See Remark 2

ESTIMATED BOTTOM OF PERMANENT STEEL SHEET PILING, EL = 362.00

Depth (ft)	Strata[1]	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)[2]	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
0		S1 (0' to 2'): Medium dense, dark brown SILT, some fine to coarse Sand. some fine to coarse Gravel, trace Root Fibers/Wood, moist. Rec. = 0.6 ft (AASHTO M145 Classification: A-4.)	2-5-5-13 (10)	7.3	37.3	26.2	36.5	NP	NP
		S2 (2' to 4'): Medium dense, brown fine to coarse SAND, some fine to coarse Gravel, some Silt, dry. Rec. = 1.8 ft (AASHTO M145 Classification: A-1-b.)	12-12-14-7 (26)	7.6	38.1	40.0	21.9	NP	NP
5		S3 (4' to 6'): Stiff, gray with dark gray seams, SILT & CLAY, trace fine Gravel, trace fine to coarse Sand, wet (dark seams higher plasticity). Rec. = 1.2 ft	4-5-5-30 (10)	30.5	1.5	0.9	97.6	Remark 11	
		S4 (6' to 8'): Medium dense, gray SILT & CLAY, some fine to coarse Sand, little fine to coarse Gravel, wet (Top 3" similar description as S3). Rec. = 1.3 ft (AASHTO M145 Classification: A-4.)	12-10-10-14 (20)	15.5	23.2	24.2	52.6	23	5
10		S5 (8' to 10'): Medium dense, gray SILT & CLAY, some fine to coarse Sand, little fine to coarse Gravel, wet. Rec. = 0.4 ft	6-6-8-14 (14)	11.2	Testing Not Performed				
15		S6 (14' to 16'): Medium dense, gray fine to coarse SAND, some fine to coarse Gravel, some Clayey Silt, wet. Rec. = 0.2 ft	6-8-11-15 (19)		Testing Not Performed				
20		S7 (19' to 21'): Medium dense, gray SILT and fine to coarse SAND, some fine to coarse Gravel, wet. Rec. = 1.0 ft (AASHTO M145 Classification: A-4.)	6-10-12-15 (22)	12.4	30.4	27.3	42.3	NP	NP
25		S8 (24' to 26'): Medium dense, no recovery. Rec. = 0.0 ft	14-12-16-16 (28)		Testing Not Performed				
30		S9 (29' to 31'): Medium dense, gray SILT & CLAY and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 1.5 ft (AASHTO M145 Classification: A-4.)	7-9-12-19 (21)	12.1	23.2	26.6	50.2	26	6
35		S10 (34' to 36'): Medium dense, gray SILT & CLAY and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 1.0 ft	7-12-17-19 (29)	11.8	Testing Not Performed				
40		S11 (39' to 41'): Medium dense, gray SILT & CLAY and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 1.4 ft	6-9-15-18 (24)		Testing Not Performed				
45		S12 (44' to 46'): Dense, gray SILT, some fine to coarse Sand, some fine to coarse Gravel, wet. Rec. = 0.8 ft (AASHTO M145 Classification: A-4.)	8-12-18-21 (30)	11.2	30.2	26.0	43.8	NP	NP
		S13 (49' to 51'): Dense, no recovery. Rec. = 0.0 ft	16-13-		Testing Not Performed				

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_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GEODESIGN BORING LOG 750-09.14-CASTLETON BRF 015-2(10).GPJ VERMONT AOT.GDT 12/4/13

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

Bridge No. 93 over C&P Railroad
Castleton BRF 015-2(10)
(GeoDesign #750-09.14)

Boring No.: **B-4**
Page No.: 2 of 3
Pin No.: 12b138
Checked By: SPK

Boring Crew: J. Leonhardt (TransTech), J. Gilman (GeoDesign)
Date Started: 10/16/13 Date Finished: 10/17/13
VTSPG NAD83: N 403336.83 ft E 1452518.45 ft
Station: 19+28 Offset: 10.50
Ground Elevation: 388.9 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	2 in
Hammer Wt:	140 lb.	140 lb.
Hammer Fall:	30 in.	30 in.
Hammer/Rod Type:	Auto/NWJ	
Rig:	CME 550X ATV	C_E = ~1.5

Groundwater Observations [3]

Date	Depth (ft)	Notes
10/17/13		See Remark 2

Depth (ft)	Strata[1]	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)[2]	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
50			18-24 (31)						
60		S14 (59' to 61'): Dense, gray fine to coarse SAND, some Clayey Silt, wet. Rec. = 0.1 ft	11-16-22-26 (38)		Testing Not Performed				
65		S15 (64' to 65'): Hard, gray SILT & CLAY, some fine to coarse Sand, little fine Gravel, wet. Rec. = 1.3 ft (AASHTO M145 Classification: A-4.)	10-13-19-22 (32)	13.5	22.8	25.4	51.8	26	6
70									
75		S16 (74' to 76'): Hard, gray SILT & CLAY, some fine to coarse Sand, little fine Gravel, wet. Rec. = 1.3 ft	12-17-22-25 (39)	17.2	Testing Not Performed				
80									
85		S17 (84' to 86'): Refusal, gray Clayey SILT, some fine to coarse Sand, little fine Gravel, wet. Rec. = 1.1 ft (AASHTO M145 Classification: A-4.)	18-30-50/2" (R)	13.6	12.8	21.9	65.3	20	3
90									
95		S18 (94' to 96'): Very dense, gray Clayey SILT, some fine to coarse Sand, little fine Gravel, wet. Rec. = 1.3 ft	20-36-48-57 (84)	9.7	Testing Not Performed				
		Hole stopped @ 96.0 ft Boring terminated at 96 feet deep with no refusal.							

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_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GEODESIGN BORING LOG 750-09.14-CASTLETON BRF 015-2(10).GPJ VERMONT AOT.GDT 12/4/13

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138borlog.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E.BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: GEODESIGN	CHECKED BY: S.E. BURBANK
BORING LOGS (2 OF 4)	SHEET 37 OF 82

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

Bridge No. 93 over C&P Railroad
Castleton BRF 015-2(10)
(GeoDesign #750-09.14)

Boring No.: **B-4**
Page No.: 3 of 3
Pin No.: 12b138
Checked By: SPK

Boring Crew: J. Leonhardt (TransTech), J. Gilman (GeoDesign)
Date Started: 10/16/13 Date Finished: 10/17/13
VTSPG NAD83: N 403336.83 ft E 1452518.45 ft
Station: 19+28 Offset: 10.50
Ground Elevation: 388.9 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	2 in
Hammer Wt:	140 lb.	140 lb.
Hammer Fall:	30 in.	30 in.
Hammer/Rod Type:	Auto/NWJ	
Rig:	CME 550X ATV	C_E = ~1.5

Groundwater Observations [3]

Date	Depth (ft)	Notes
10/17/13		See Remark 2

Depth (ft)	Strata[1]	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)[2]	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
105		Remarks: 1. Exploration locations were taped in the field by GeoDesign. Elevations were estimated based on topographic plan provided by VHB. 2. Sample moisture descriptions may not accurately reflect in-situ conditions due to wash-drive drilling methods. Unable to discern ground water elevation due to continuously adding water to the borehole during roller bit advance. 3. Visual soil descriptions are per the Burmister system. Lab testing gradations reported are per AASHTO M145. 4. Samples S2 and S4 were not sampled in accordance with ASTM D 1586 procedures (borehole was not advanced between consecutive samples). 5. Driller advanced casing to 9 feet deep and then open hole below 9 feet deep. 6. At end of day on 10/16/13, borehole advanced to 46 feet deep. 7. Borehole caved to approximately 25 feet deep overnight. Driller advanced casing to 19 feet deep and cleaned out to resume advance. 8. Driller noted rig chatter when advancing roller bit 48 to 49 feet deep, and 71 to 71.5 feet deep (possible cobble/gravel). 9. Driller drove split spoon samples S15 and S16 and waited 5 minutes to withdraw to improve recovery. 10. Soil samples were tested by VTrans soil laboratory and results were transmitted to GeoDesign for incorporation into boring logs. 11. While cohesive soils were present in sample S3 at 4' deep, not enough was available to perform Atterberg Limits testing.							
110									
115									
120									
125									
130									
135									
140									
145									

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_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GEODESIGN BORING LOG 750-09.14-CASTLETON BRF 015-2(10).GPJ VERMONT AOT.GDT 12/4/13

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
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BORING LOG

Bridge No. 93 over C&P Railroad
Castleton BRF 015-2(10)
(GeoDesign #750-09.14)

Boring No.: **B-6**
Page No.: 1 of 3
Pin No.: 12b138
Checked By: SPK

Boring Crew: Leonhardt (TransTech), JDG/JFW (GeoDesign)
Date Started: 10/22/13 Date Finished: 10/24/13
VTSPG NAD83: N 403359.36 ft E 1452541.92 ft
Station: 19+54 Offset: 8.30
Ground Elevation: 413.4 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	2 in
Hammer Wt:	140 lb.	140 lb.
Hammer Fall:	30 in.	30 in.
Hammer/Rod Type:	Auto/NWJ	
Rig:	CME 550X ATV	C_E = ~1.5

Groundwater Observations [3]

Date	Depth (ft)	Notes
10/24/13		See Remark 2

BOTTOM OF CAP
EL = 401.5

ESTIMATED PILE TIP
EL = 331.5

Depth (ft)	Strata[1]	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)[2]	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
5		Existing Bridge Deck (Approx.). Air Space Between Bridge Deck and Ground Surface (See Remark 4).							
10									
15		S1 (13' to 15'): Very loose, tan brown fine to coarse SAND, some Silt, little fine to coarse Gravel, trace Asphalt, dry. Rec. = 0.8 ft (AASHTO M145 Classification: A-2-4.)	2-1-1-1 (2)	9.0	22.8	44.9	32.3	NP	NP
		S2 (15' to 17'): Loose, tan brown SILT, some fine to coarse Sand, little fine Gravel, little Asphalt, dry. Rec. = 1.0 ft (AASHTO M145 Classification: A-4.)	2-2-2-3 (4)	17.4	17.8	15.9	66.3	NP	NP
		S3 (17' to 19'): Very loose, brown fine to coarse SAND, some Silt, little fine to coarse Gravel, wet. Rec. = 0.5 ft (AASHTO M145 Classification: A-1-b.)	2-2-1-2 (3)	16.8	19.9	58.7	21.4	NP	NP
20		S4 (19' to 21'): Loose, tan brown SILT and fine to coarse SAND, little fine Gravel, wet. Rec. = 0.8 ft (AASHTO M145 Classification: A-4.)	3-2-2-2 (4)	20.9	23.6	32.6	43.8	NP	NP
		S5 (21' to 23'): Loose, (Top 10") similar description as S4; (Bottom 12") tan brown with reddish layers Clayey SILT, trace fine to medium Sand, wet. Rec. = 1.8 ft (AASHTO M145 Classification: A-4.)	2-3-3-3 (6)	31.6		1.2	98.8	26	1
25		S6 (24' to 26'): Medium, gray with dark gray layers, SILT & CLAY, trace fine to coarse Sand, trace fine Gravel, wet. Rec. = 2.0 ft (AASHTO M145 Classification: A-4.)	WOH-2-2-1 (4)	37.2	1.5	1.1	97.4	31	9
30		S7 (29' to 31'): Medium dense, gray Clayey SILT and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 0.7 ft	2-6-9-14 (15)	24.3					
35		S8 (34' to 36'): Medium dense, gray fine to coarse SAND, some Silt, some fine to coarse Gravel, wet. Rec. = 0.3 ft (AASHTO M145 Classification: A-2-4.)	8-11-16-19 (27)	11.3	38.7	31.6	29.7	NP	NP
40		S9 (39' to 41'): Medium dense, gray Clayey SILT and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 1.1 ft (AASHTO M145 Classification: A-4.)	6-12-14-15 (26)	12.5	27.0	26.2	46.8	27	3
45		S10 (44' to 46'): Dense, gray layered Clayey SILT (grading locally to SILT & CLAY) and fine to coarse SAND, little fine to coarse Gravel (occasionally decomposed), wet. Rec. = 0.75 ft	8-11-19-17 (30)	11.4					
		S11 (49' to 51'): Medium dense, gray SILT & CLAY (grading locally to Clayey Silt)	8-10-15-	11.0					

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_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GEODESIGN BORING LOG 750-09.14-CASTLETON BRF 015-2(10).GPJ VERMONT AOT.GDT 12/4/13

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

Bridge No. 93 over C&P Railroad
Castleton BRF 015-2(10)
(GeoDesign #750-09.14)

Boring No.: **B-6**
Page No.: 2 of 3
Pin No.: 12b138
Checked By: SPK

Boring Crew: Leonhardt (TransTech), JDG/JFW (GeoDesign)
Date Started: 10/22/13 Date Finished: 10/24/13
VTSPG NAD83: N 403359.36 ft E 1452541.92 ft
Station: 19+54 Offset: 8.30
Ground Elevation: 413.4 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	2 in
Hammer Wt:	140 lb.	140 lb.
Hammer Fall:	30 in.	30 in.
Hammer/Rod Type:	Auto/NWJ	
Rig:	CME 550X ATV	C_E = ~1.5

Groundwater Observations [3]

Date	Depth (ft)	Notes
10/24/13		See Remark 2

Depth (ft)	Strata[1]	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)[2]	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
55		and fine to coarse SAND, some fine to coarse Gravel, wet. Rec. = 1.5 ft	15 (25)						
60		S12 (59' to 61'): Dense, gray SILT & CLAY (grading locally to Clayey SILT) and fine to coarse SAND, some fine to coarse Gravel, wet. Rec. = 0.83 ft (AASHTO M145 Classification: A-4.)	9-12-18-19 (30)	10.3	29.6	26.7	43.7	24	6
65									
70		S13 (69' to 71'): Dense, gray SILT & CLAY (grading locally to Clayey SILT) and fine to coarse SAND, some fine to coarse Gravel, wet. Rec. = 1.33 ft	11-15-21-23 (36)	11.9					
75									
80		S14 (78' to 81'): Dense, gray SILT & CLAY (grading locally to Clayey SILT) and fine to coarse Sand, little fine to coarse Gravel, wet. Rec. = 1.17 ft (AASHTO M145 Classification: A-4.)	10-16-18-22 (34)	12.5	23.0	26.7	50.3	25	6
85									
90		S15 (89' to 91'): Dense, gray SILT & CLAY (grading locally to Clayey SILT) and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 1.0 ft	9-15-19-25 (34)	13.5					
		Hole stopped @ 91.0 ft Boring terminated at 91 feet deep with no refusal.							
95									

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_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GEODESIGN BORING LOG 750-09.14-CASTLETON BRF 015-2(10).GPJ VERMONT AOT.GDT 12/4/13

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: z12b138borlog.dgn
PROJECT LEADER: BRF 015-2(10)
DESIGNED BY: GEODESIGN
BORING LOGS (3 OF 4)

PLOT DATE: 9/19/2014
DRAWN BY: E.A. FIALA
CHECKED BY: S.E. BURBANK
SHEET 38 OF 82

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

Bridge No. 93 over C&P Railroad
Castleton BRF 015-2(10)
(GeoDesign #750-09.14)

Boring No.: **B-6**
Page No.: 3 of 3
Pin No.: 12b138
Checked By: SPK

Boring Crew: Leonhardt (TransTech), JDG/JFW (GeoDesign)
Date Started: 10/22/13 Date Finished: 10/24/13
VTSPG NAD83: N 403359.36 ft E 1452541.92 ft
Station: 19+54 Offset: 8.30
Ground Elevation: 413.4 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	2 in
Hammer Wt:	140 lb.	140 lb.
Hammer Fall:	30 in.	30 in.
Hammer/Rod Type:	Auto/NWJ	
Rig:	CME 550X ATV	C_E = ~1.5

Groundwater Observations [3]

Date	Depth (ft)	Notes
10/24/13		See Remark 2

Depth (ft)	Strata[1]	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)[2]	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
105		Remarks: 1. Exploration locations were taped in the field by GeoDesign. Elevations were estimated based on topographic plan provided by VHB. 2. Sample moisture descriptions may not accurately reflect in-situ conditions due to wash-drive drilling methods. Unable to discern ground water elevation due to continuously adding water to the borehole during roller bit advance. 3. Samples S2 and S4 were not sampled in accordance with ASTM D 1586 procedures (borehole was not advanced between consecutive samples). 4. Boring was drilled through 6 inch core hole (performed by VTrans 10/16/13) and depths are were measured from the bridge deck. Distance from deck to ground surface below was 13 feet. 5. At end of day on 10/22/13, borehole advanced to 41 feet deep. 6. After sampling S13 at 69' deep noted rods beginning to bind on inferred cobbles between 50' and 60' deep. Driller advanced casing to 60' deep prior to continuing with borehole advance to S14 at 79' deep. 7. At end of day on 10/23/13, borehole advanced to 91 feet deep. 8. Soil samples were tested by VTrans soil laboratory and results were transmitted to GeoDesign for incorporation into boring logs.							
110									
115									
120									
125									
130									
135									
140									
145									

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_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

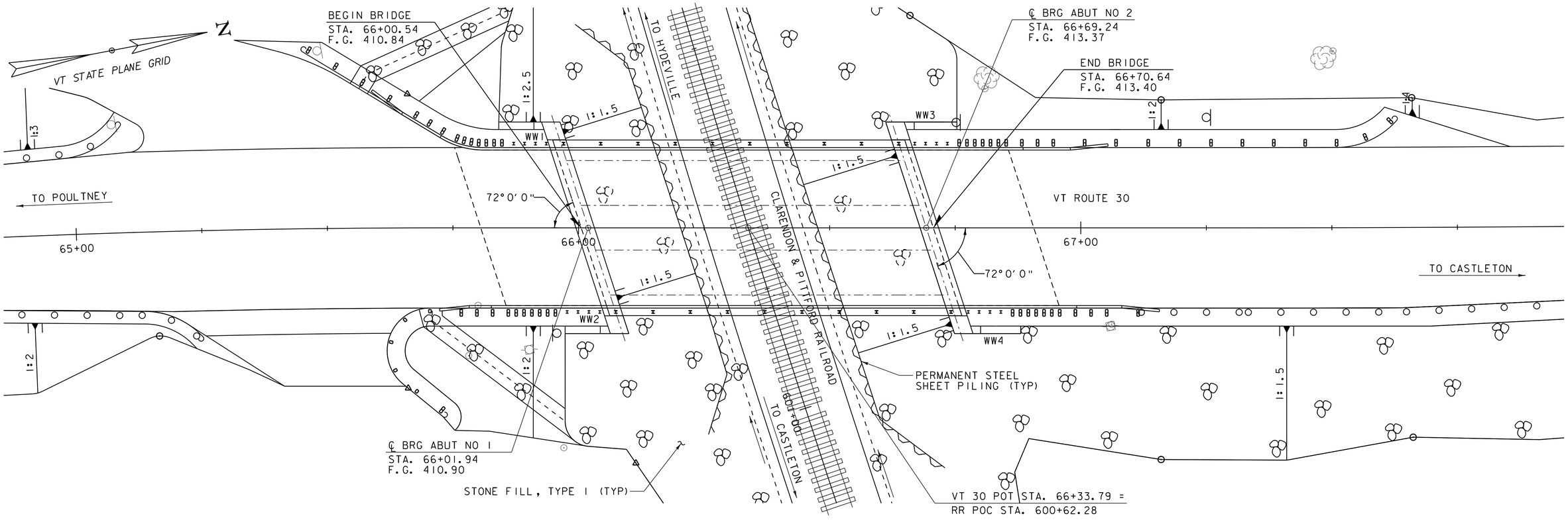
GEODESIGN BORING LOG 750-09.14-CASTLETON BRF 015-2(10).GPJ VERMONT AOT.GDT 12/4/13

Vanasse Hangen Brustlin, Inc.

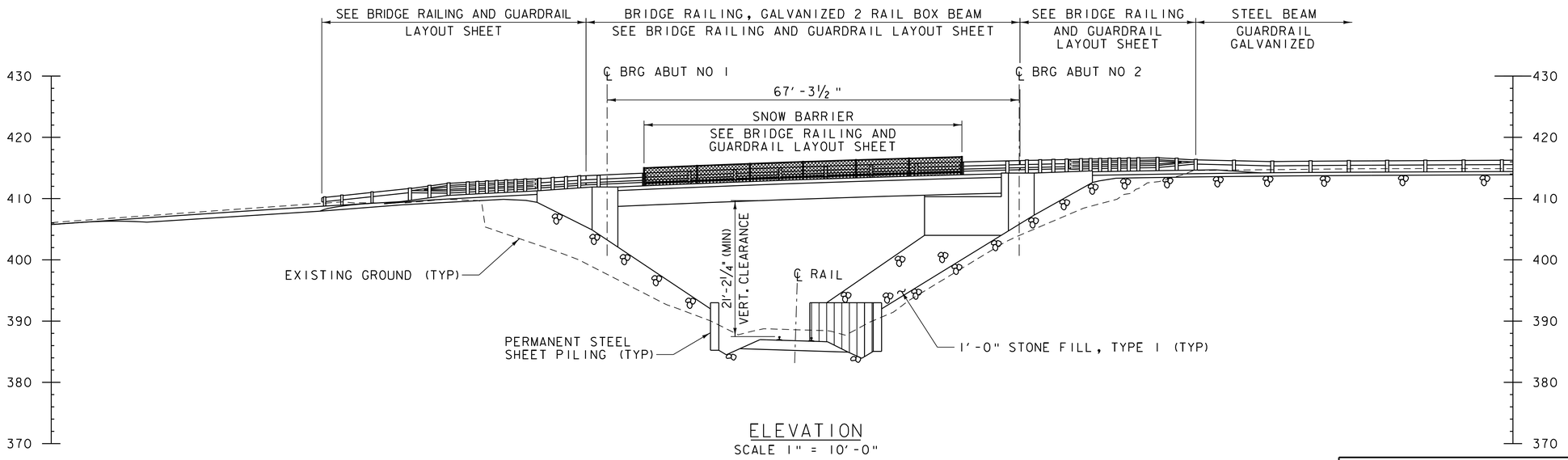
PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: z12b138borlog.dgn
PROJECT LEADER: BRF 015-2(10)
DESIGNED BY: GEODESIGN
BORING LOGS (4 OF 4)

PLOT DATE: 9/19/2014
DRAWN BY: E.A. FIALA
CHECKED BY: S.E. BURBANK
SHEET 39 OF 82



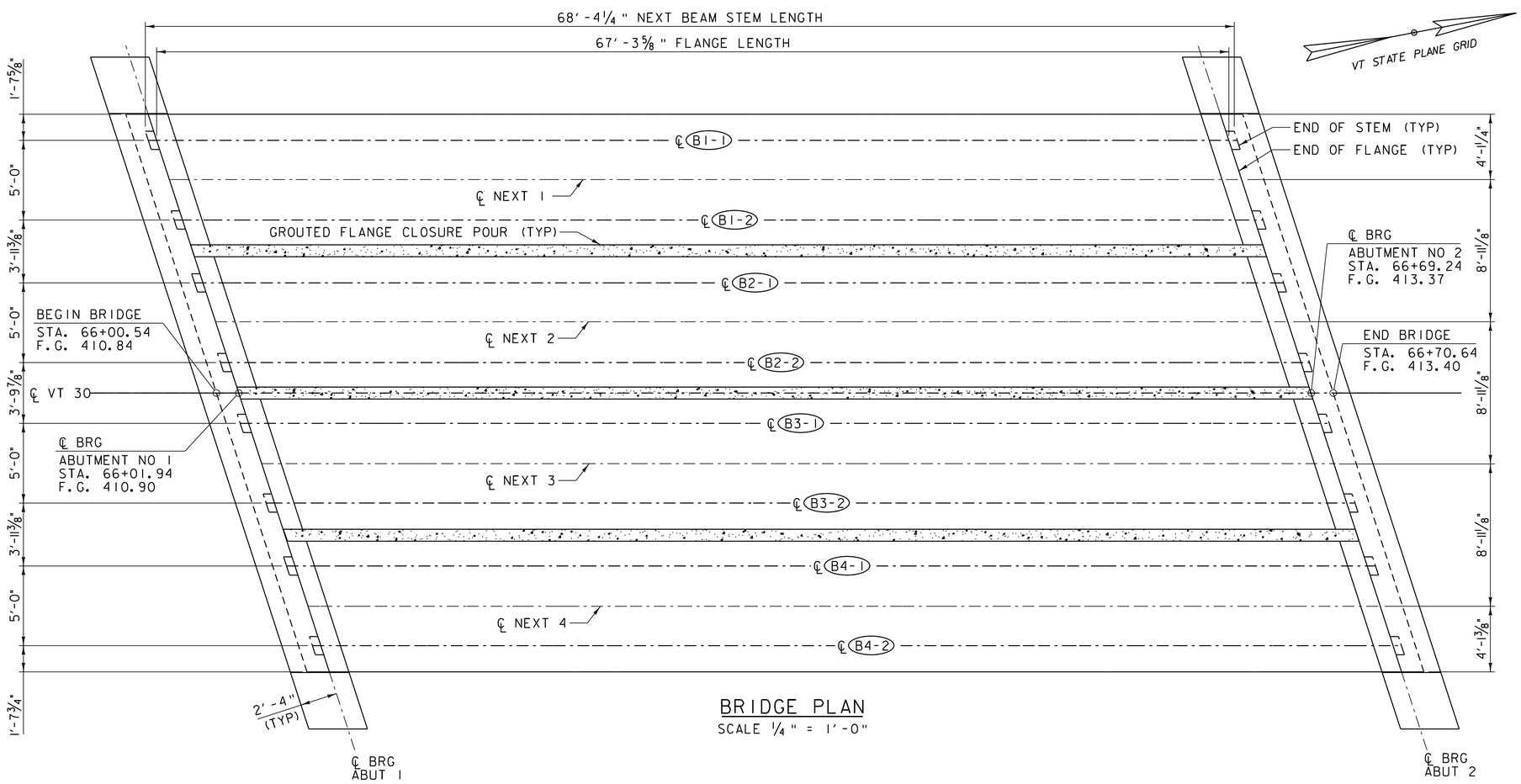
PLAN
SCALE 1" = 10'-0"



ELEVATION
SCALE 1" = 10'-0"

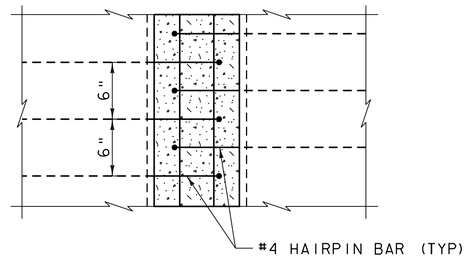
Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138pe.dgn	PLOT DATE: 9/21/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
PLAN AND ELEVATION	SHEET 40 OF 82

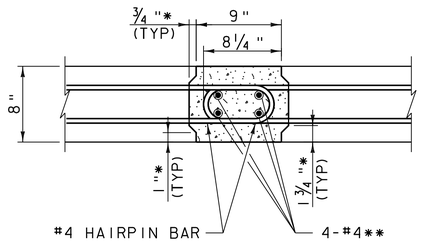


BRIDGE PLAN

SCALE ¼" = 1'-0"



PLAN



SECTION

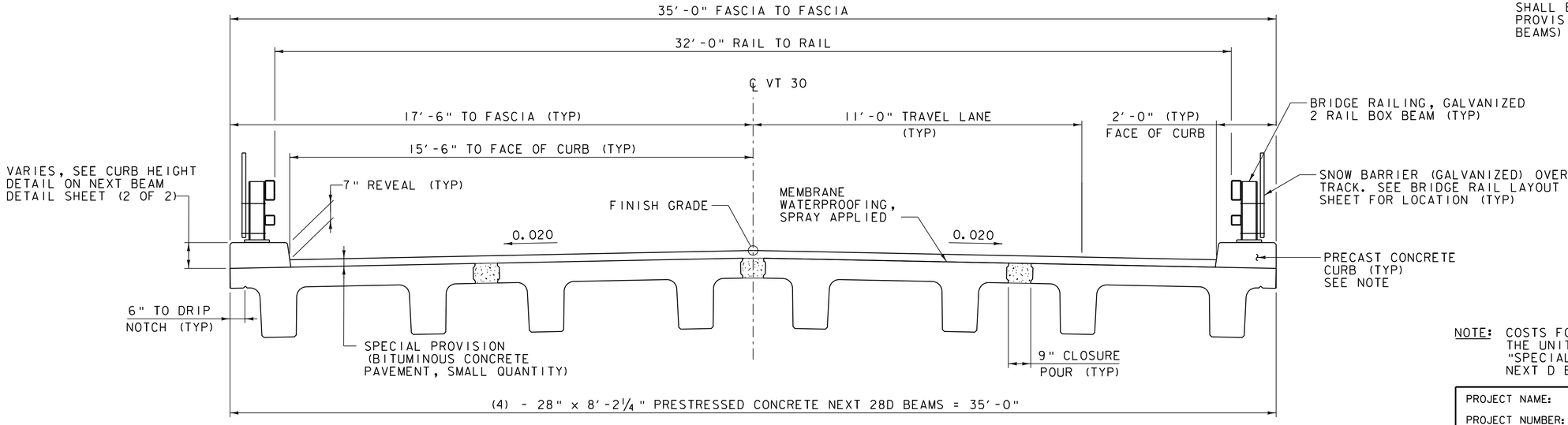
FLANGE CONNECTION DETAILS

SCALE 1½" = 1'-0"

= SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)

* DIMENSIONS ARE TO KEY IN JOINT

** FOUR #4 BARS SHALL BE PLACED AS SHOWN ALONG ENTIRE LENGTH OF JOINT. PAYMENT SHALL BE INCIDENTAL TO "SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS) (NEXT 28D)".



TYPICAL BRIDGE SECTION

SCALE ½" = 1'-0"

NOTE: COSTS FOR PRECAST CURB TO BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 900.640, "SPECIAL PROVISON (PRESTRESSED CONCRETE NEXT D BEAMS) (NEXT 28 D)".

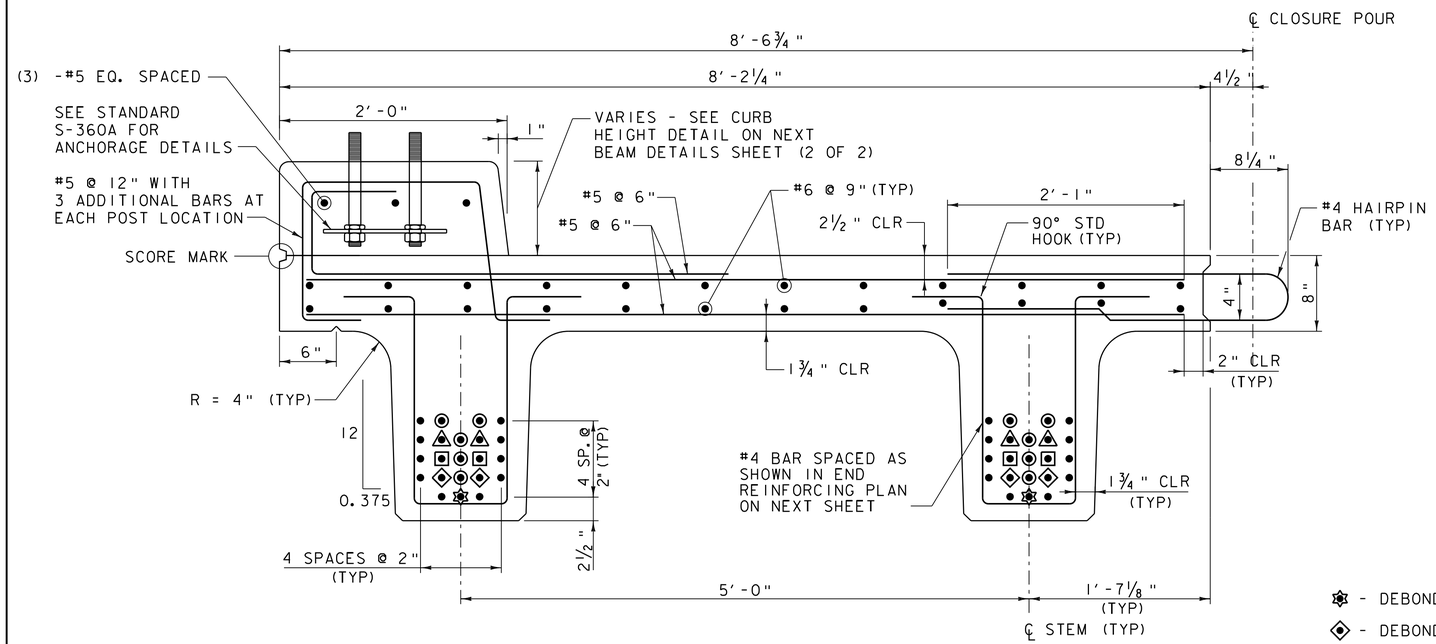
Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: z12b138sup.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: E.A. FIALA
BRIDGE FRAMING PLAN

PLOT DATE: 9/21/2014
DRAWN BY: M.C. SCOTT
CHECKED BY: S.E. BURBANK
SHEET 41 OF 82

VHB 57632

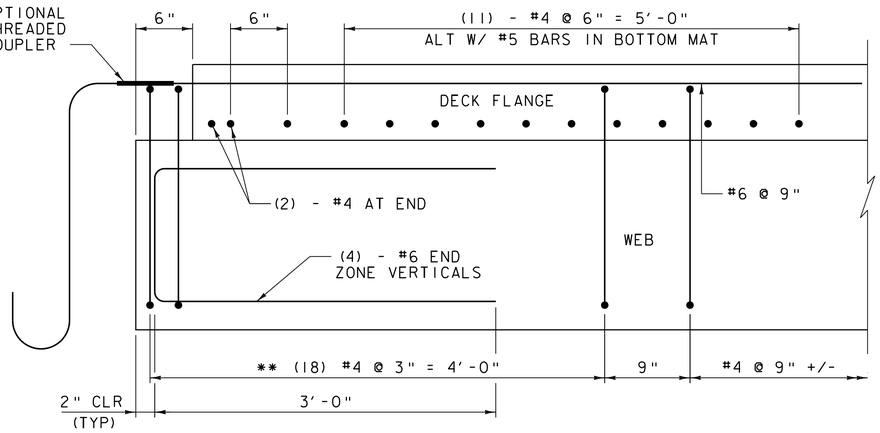


NOTE: CONTRACTOR TO PROVIDE THREADED INSERT IN NEXT BEAM FOR FLANGE CONNECTION. THREADED INSERT SHALL BE DESIGNED BY THE CONTRACTOR. (NOT SHOWN FOR CLARITY.)

NEXT 1 & 4

(BEAM 1 SHOWN, BEAM 4 HAS CURB OPPOSITE HAND)

SCALE 1½" = 1′-0"

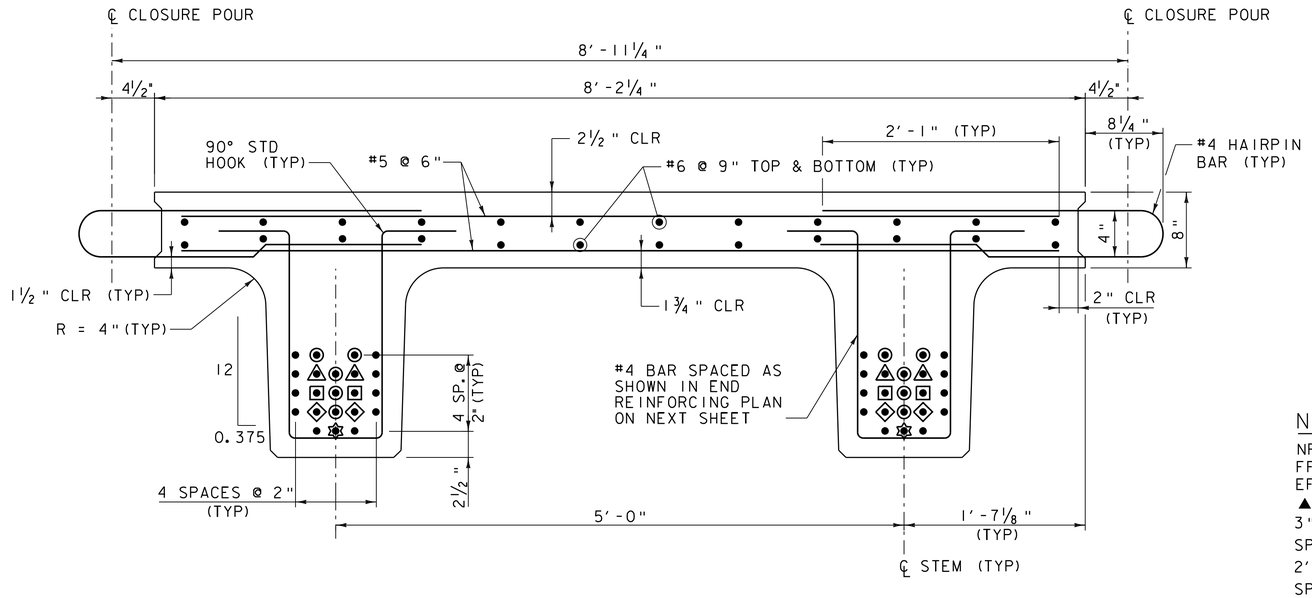


ADDITIONAL END BEAM REINFORCING LONGITUDINAL SECTION

BARS IN DECK FLANGE OMITTED FOR CLARITY

SCALE 1½" = 1′-0"

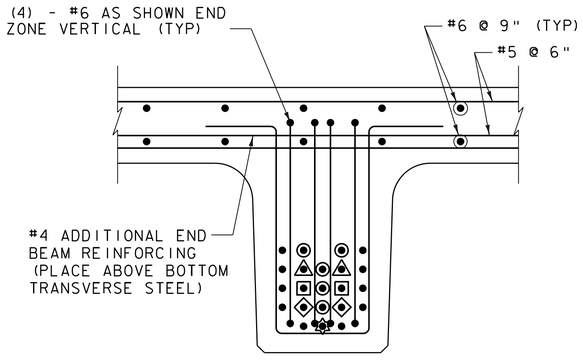
- ⊛ - DEBONDED 10′
- ◈ - DEBONDED 8′
- ⊡ - DEBONDED 6′
- ◬ - DEBONDED 4′
- ⊙ - DEBONDED 6"



NOTE: CONTRACTOR TO PROVIDE THREADED INSERT IN NEXT BEAM FOR FLANGE CONNECTION. THREADED INSERT SHALL BE DESIGNED BY THE CONTRACTOR. (NOT SHOWN FOR CLARITY.)

NEXT 2 & 3

SCALE 1½" = 1′-0"



END SECTION

SCALE 1½" = 1′-0"

NOTE: SEE NEXT SHEET FOR SKEWED END DETAIL.

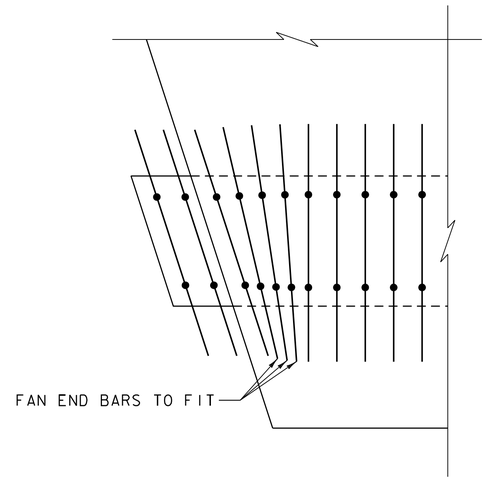
NOTE:

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.

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12bl38sup.dgn	PLOT DATE: 9/21/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
NEXT BEAM DETAILS (1 OF 2)	SHEET 42 OF 82

VHB 57632



SKEWED END DETAIL

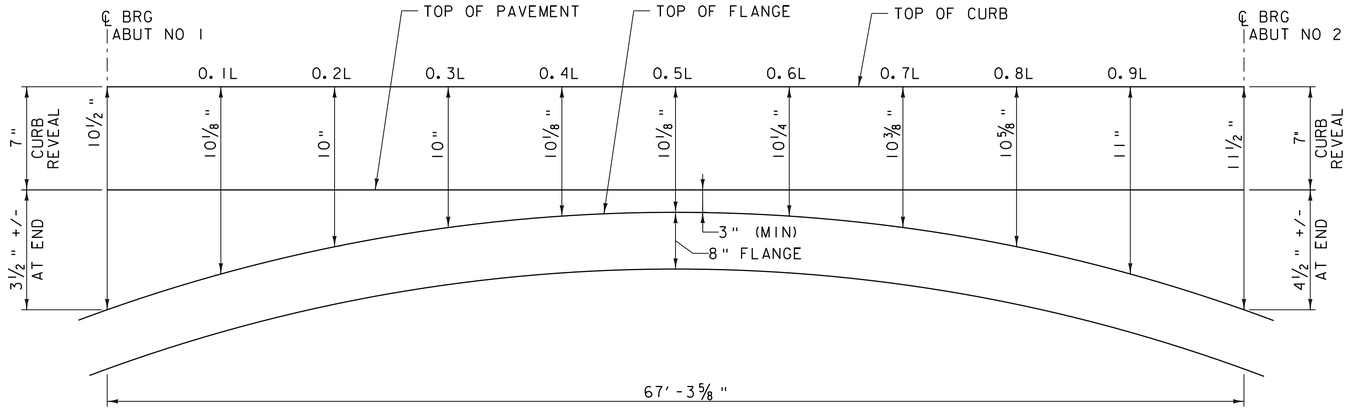
SCALE 1½" = 1'-0"

NOTE:

1. BARS IN DECK FLANGE OMITTED FOR CLARITY.
2. TRANSVERSE REINFORCING IN THE DECK SHALL BE PLACED PARALLEL TO THE SKEW.

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.



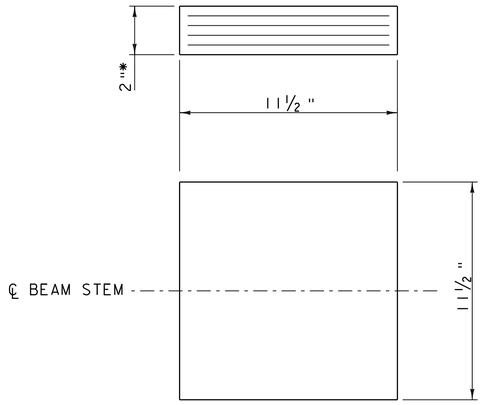
CURB HEIGHT DETAIL

NOT TO SCALE
(BEAM 1 SHOWN, BEAM 4 SIMILAR BY 180° ROTATION)

Vanasse Hangen Brustlin, Inc.

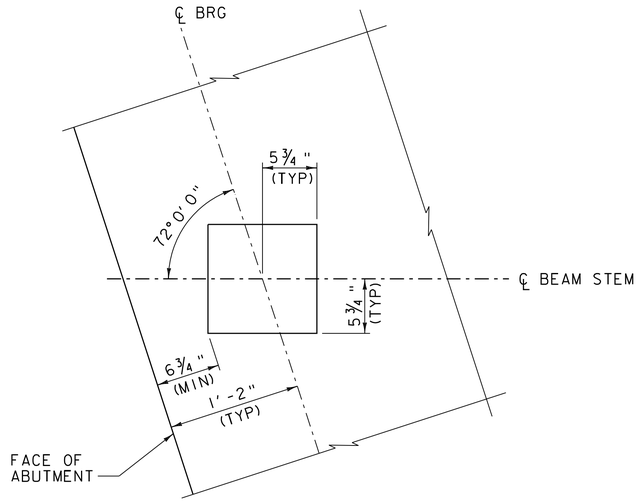
PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138sup.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: M.C. SCOTT
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
NEXT BEAM DETAILS (2 OF 2)	SHEET 43 OF 82

VHB 57632



* 2 - ⅛" EXTERIOR LAYERS OF ELASTOMER
3 - ½" INTERIOR LAYERS OF ELASTOMER
4 - 1/16" STEEL REINFORCING PLATES

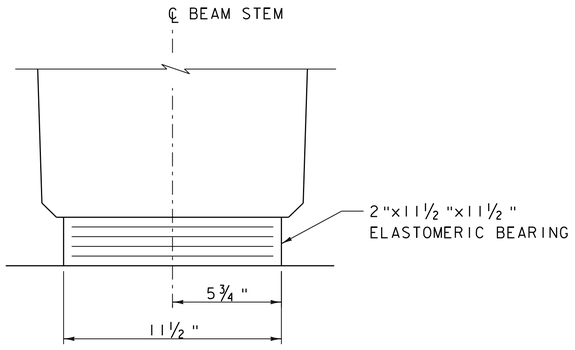
ELASTOMERIC BEARING DETAIL
SCALE 3" = 1'-0"



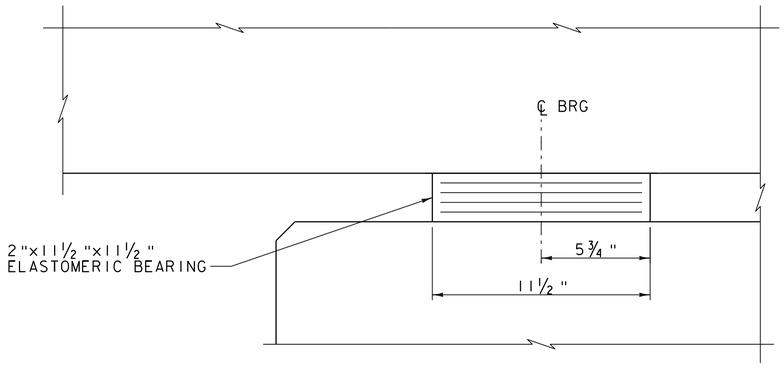
PLAN
SCALE 1½" = 1'-0"

BEARING NOTES

1. BEARINGS SHALL CONFORM TO THE APPLICABLE SUBSECTIONS OF SECTIONS 531 AND 731.
2. ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMER SHALL BE STEEL MEETING THE REQUIREMENTS OF SUBSECTION 714.02. ALL INTERNAL STEEL PLATES SHALL BE SAND BLASTED AND FREE OF COATINGS, RUST, AND MILL SCALE. THE PLATES SHALL BE FREE OF SHARP EDGES AND BURRS.
3. STEEL REINFORCED ELASTOMERIC BEARINGS SHALL HAVE A MINIMUM ⅛" EDGE SEAL OF ELASTOMER INTEGRAL WITH BEARING OVER ALL INTERNAL PLATES.
4. THE ELASTOMER SHALL BE GRADE 60 SHORE A DUROMETER.
5. THE CONCRETE UNDER THE BEARING DEVICE SHALL BE LEVEL.
6. THE CONTRACTOR IS ADVISED TO HAVE A MINIMUM OF 16 - ¼"x12½"x12½" GALVANIZED STEEL SHIMS AVAILABLE FOR USE FOR ELEVATION ADJUSTMENTS UPON THE SETTING OF THE SUPERSTRUCTURE UNITS. THE SHIMS SHALL BE FABRICATED ACCORDING TO SECTION 531 AND PAYMENT SHALL BE INCLUDED UNDER ITEM 531.17, "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD".



FRONT ELEVATION

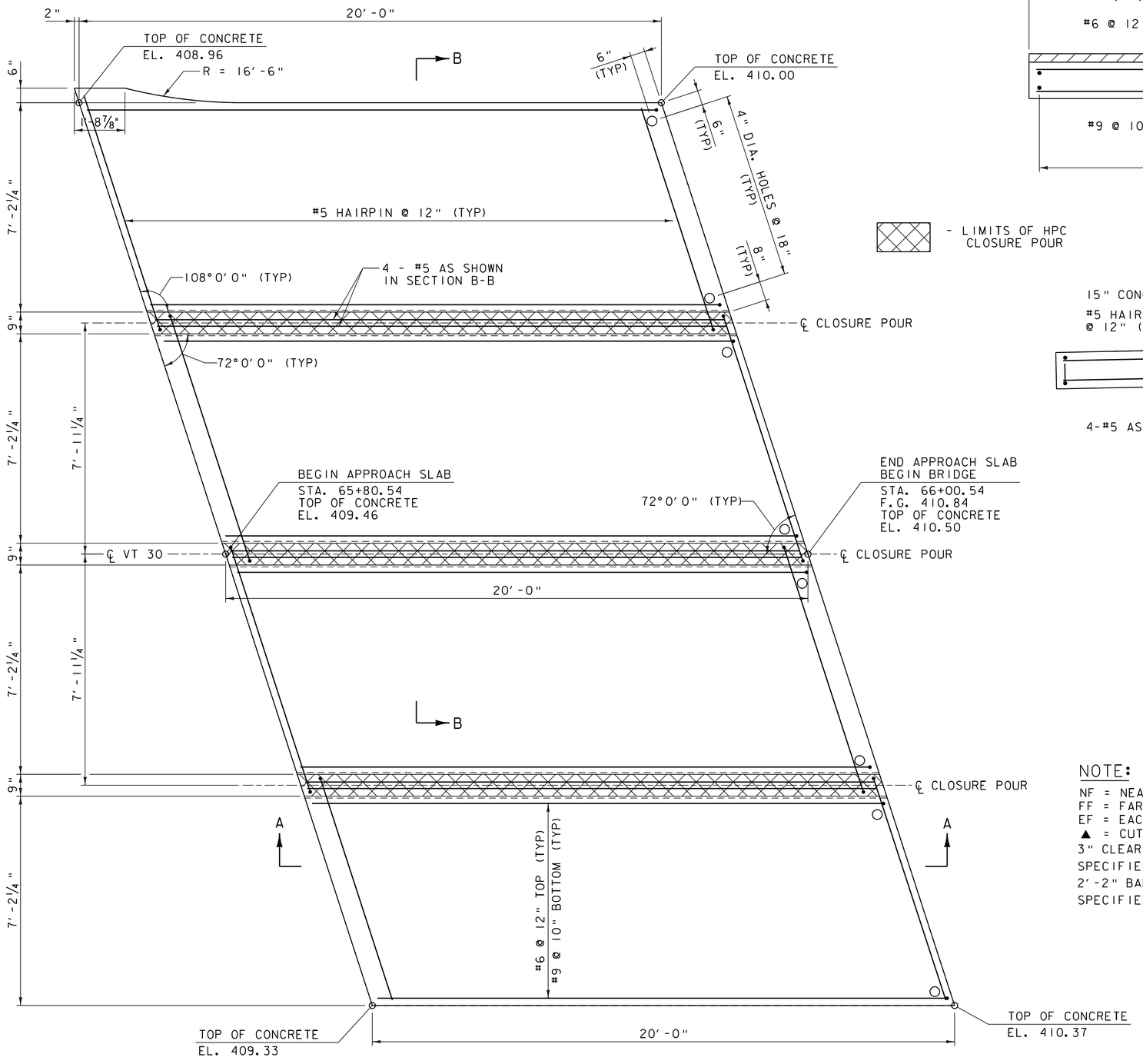


SIDE ELEVATION

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

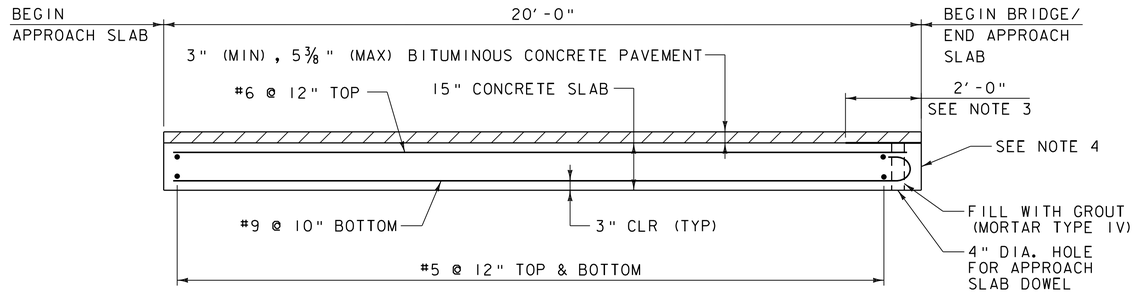
Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138brg.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
BEARING DETAILS	SHEET 44 OF 82

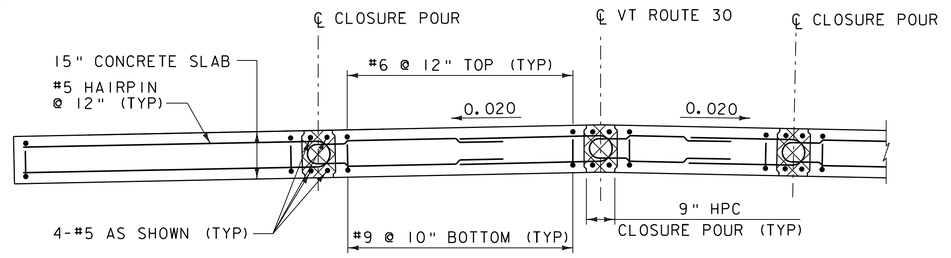


APPROACH SLAB NO 1 PLAN
SCALE ½" = 1'-0"

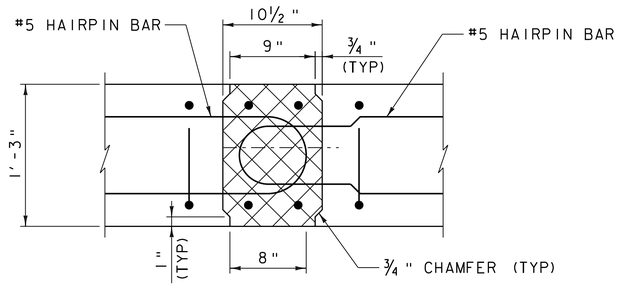
- LIMITS OF HPC CLOSURE POUR



SECTION A-A
SCALE ½" = 1'-0"



SECTION B-B
SCALE ½" = 1'-0"



JOINT DETAIL
SCALE 1½"=1'-0"

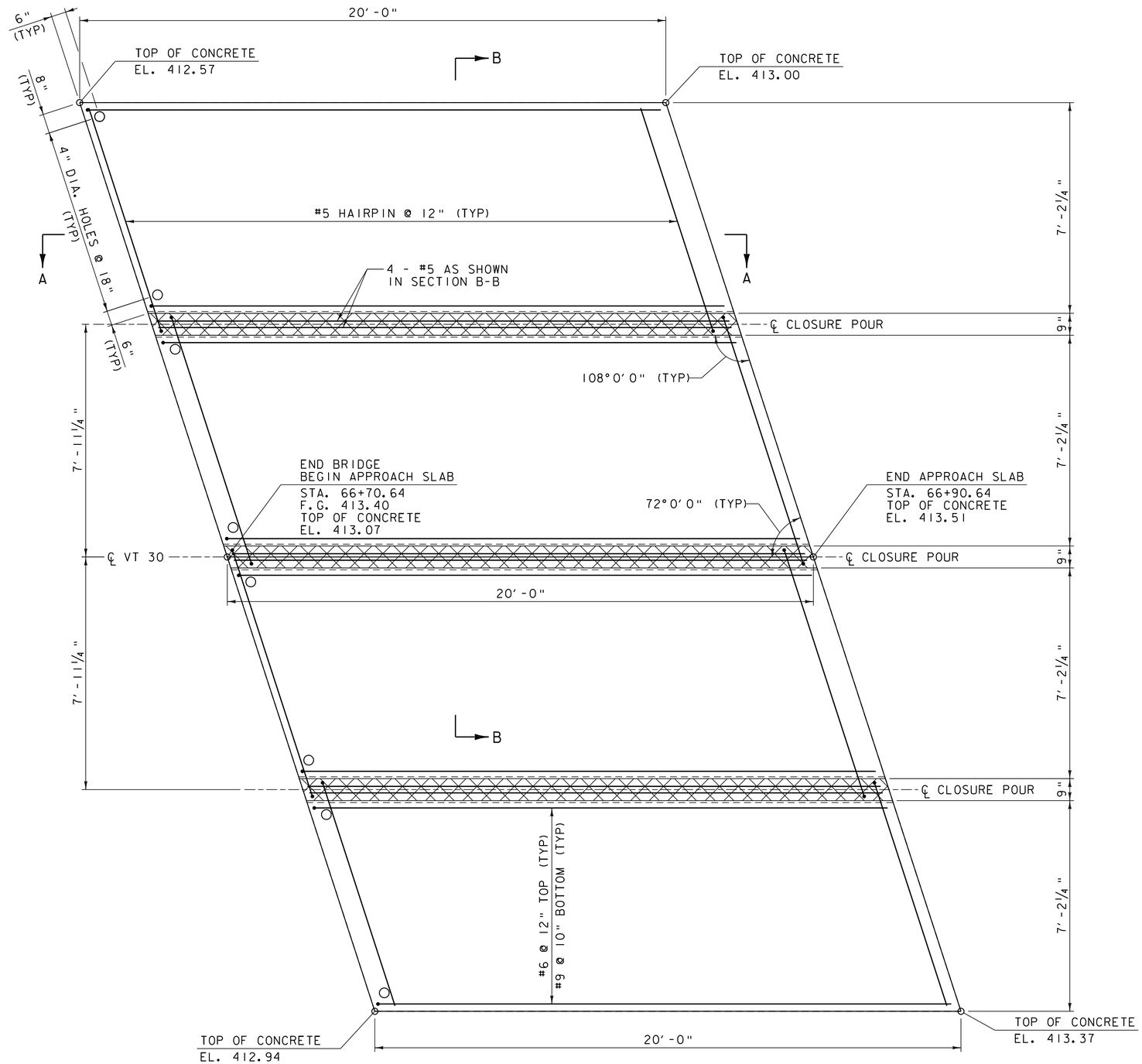
NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

NOTES:
1. LIFTING POINTS IN APPROACH SLABS TO BE LOCATED BY FABRICATOR.
2. CONTRACTOR SHALL INCLUDE IN THE FABRICATION DRAWINGS THE METHOD AND DETAILS FOR ESTABLISHING CONTINUOUS CONTACT WITH SUBGRADE AND SUPPORT FOR PRECAST APPROACH SLABS.
3. MEMBRANE WATERPROOFING, SPRAY APPLIED SHALL BE APPLIED 2'-0" ONTO APPROACH SLAB FROM BEGIN/END BRIDGE.
4. FRONT FACE OF APPROACH SLAB SHALL BE VERTICAL WHEN PLACED ON APPROACH SLAB SEAT.
5. BURIED FRONT FACE OF PRECAST CONCRETE CURB AT APPROACH SLAB SHALL BE VERTICAL BELOW PAVEMENT TO AVOID CONFLICT WITH APPROACH SLAB.

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138slab.dgn	PLOT DATE: 9/21/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
PRECAST APPROACH SLABS (1 OF 2)	SHEET 45 OF 82

VHB 57632



APPROACH SLAB NO 2 PLAN

SCALE ½" = 1'-0"

NOTE:

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

- LIMITS OF HPC CLOSURE POUR

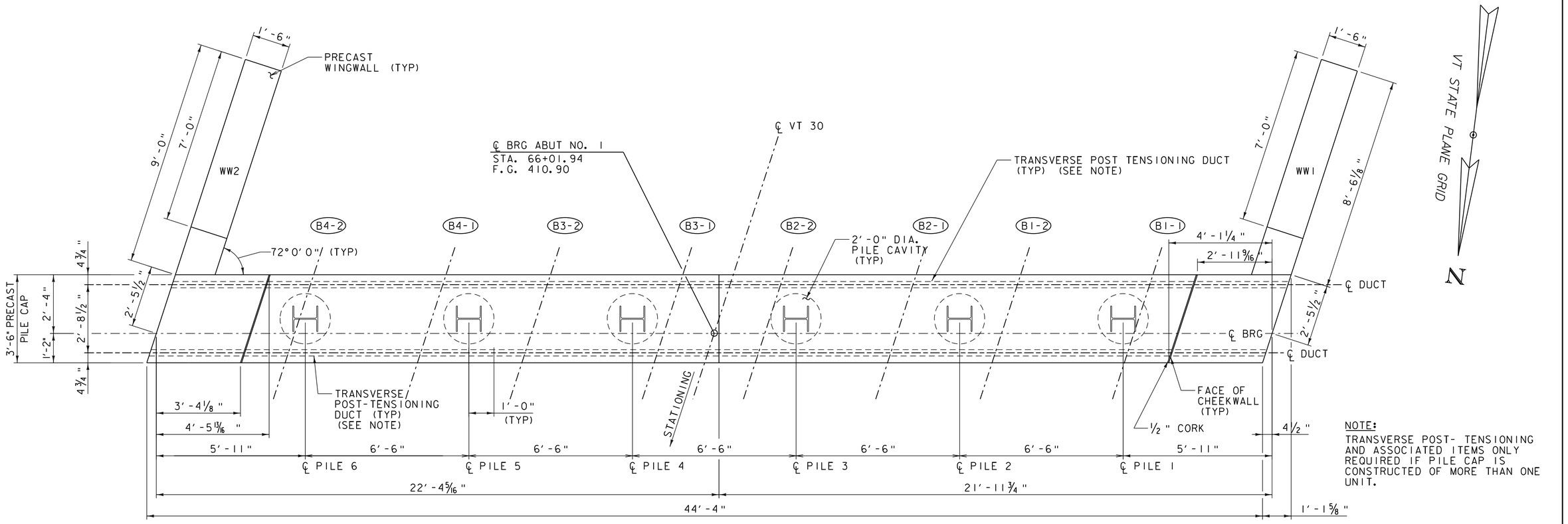
NOTES:

1. LIFTING POINTS IN APPROACH SLABS TO BE LOCATED BY FABRICATOR.
2. CONTRACTOR SHALL INCLUDE IN THE FABRICATION DRAWINGS THE METHOD AND DETAILS FOR ESTABLISHING CONTINUOUS CONTACT WITH SUBGRADE AND SUPPORT FOR PRECAST APPROACH SLABS.
3. MEMBRANE WATERPROOFING, SPRAY APPLIED SHALL BE APPLIED 2'-0" ONTO APPROACH SLAB FROM BEGIN/END BRIDGE.
4. FRONT FACE OF APPROACH SLAB SHALL BE VERTICAL WHEN PLACED ON APPROACH SLAB SEAT.
5. BURIED FRONT FACE OF PRECAST CONCRETE CURB AT APPROACH SLAB SHALL BE VERTICAL BELOW PAVEMENT TO AVOID CONFLICT WITH APPROACH SLAB.
6. SEE PRECAST APPROACH SLAB (1 OF 2) FOR JOINT DETAIL, SECTION A-A, AND SECTION B-B.

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138slab.dgn	PLOT DATE: 9/21/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
PRECAST APPROACH SLABS (2 OF 2)	SHEET 46 OF 82

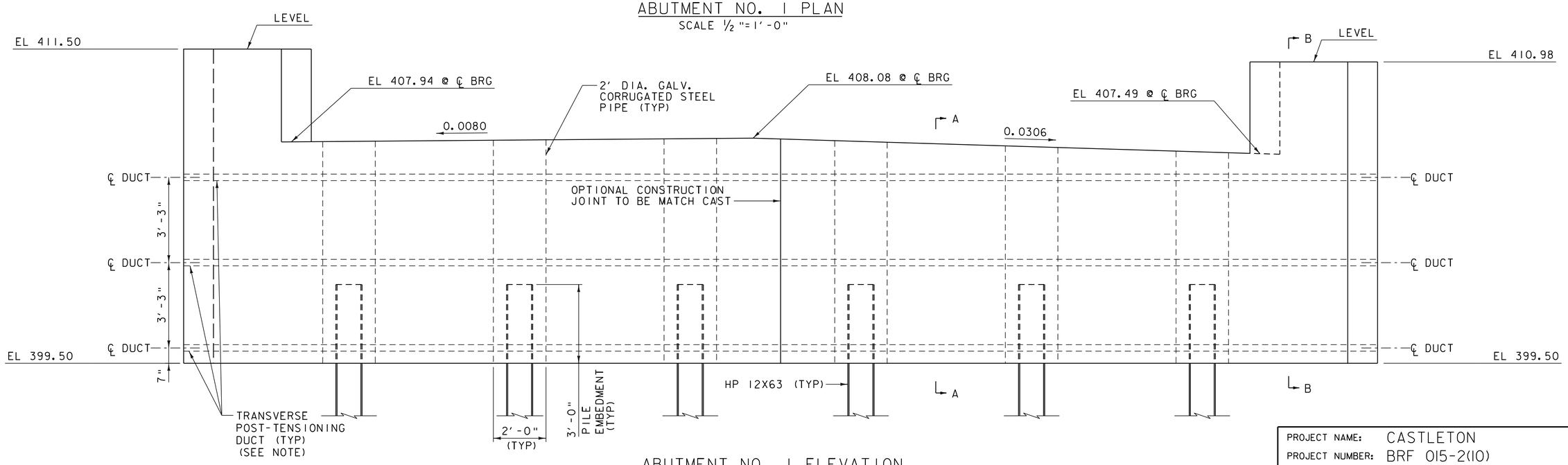
VHB 57632



NOTE:
TRANSVERSE POST- TENSIONING AND ASSOCIATED ITEMS ONLY REQUIRED IF PILE CAP IS CONSTRUCTED OF MORE THAN ONE UNIT.

ABUTMENT NO. 1 PLAN

SCALE 1/2"=1'-0"



ABUTMENT NO. 1 ELEVATION

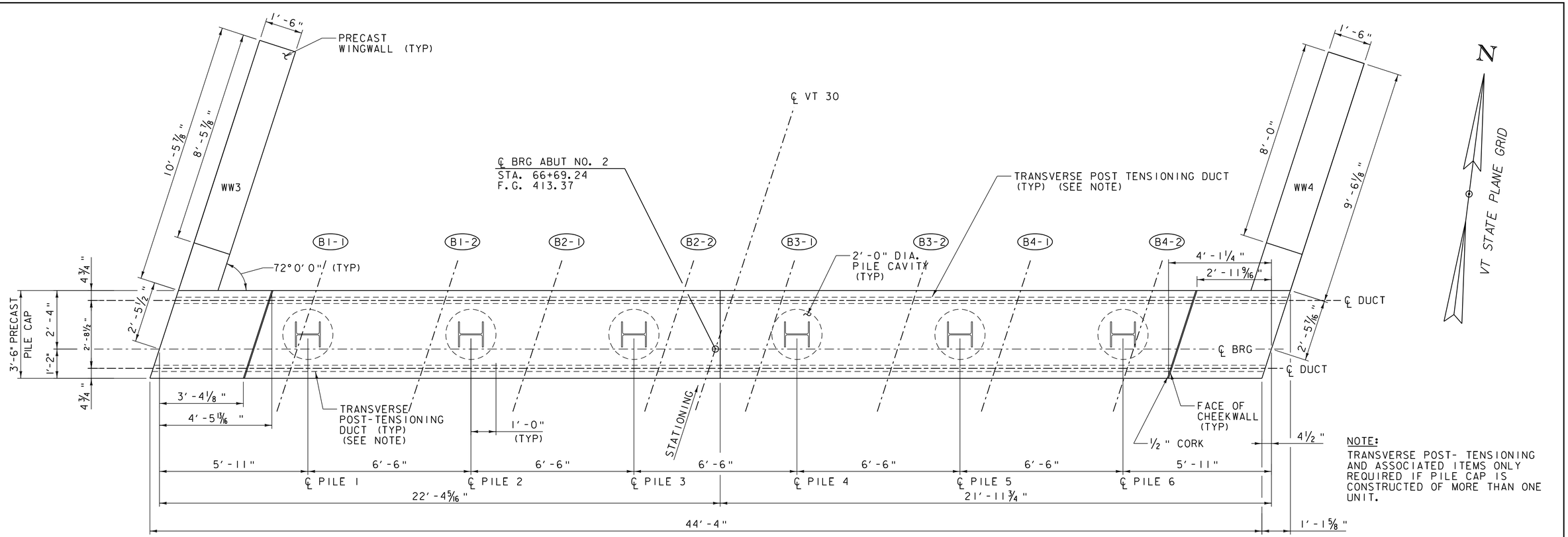
SCALE 1/2"=1'-0"

SEE ABUTMENT SECTIONS SHEET FOR SECTIONS A-A AND B-B.

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138sub.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: M.C. SCOTT
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
ABUTMENT NO 1 PLAN & ELEVATION	SHEET 47 OF 82

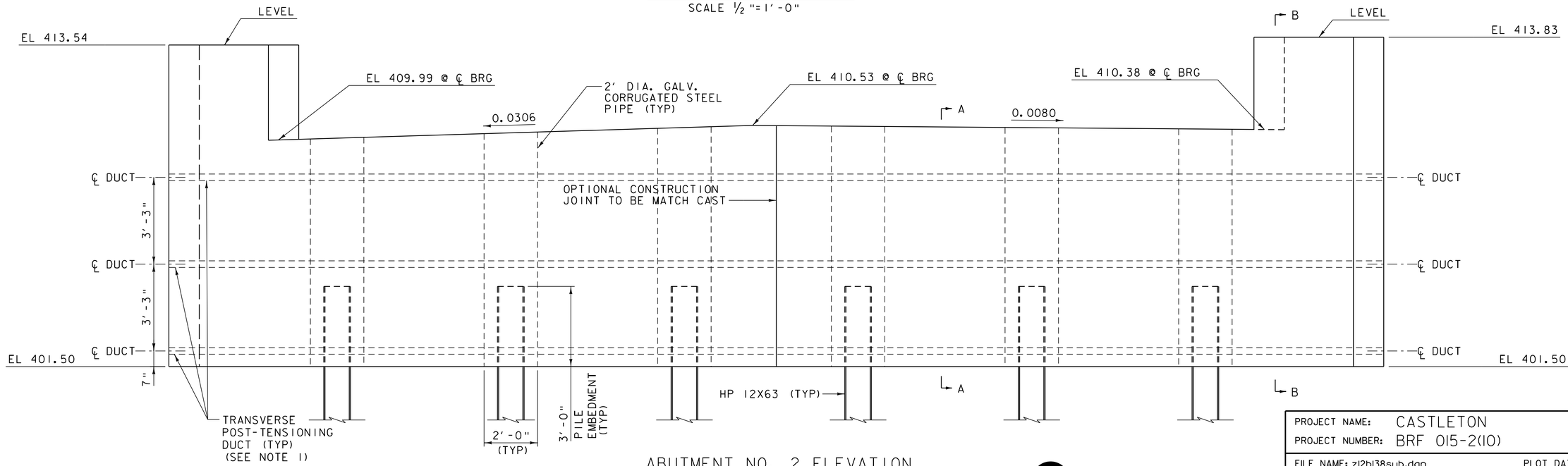
VHB 57632



NOTE:
TRANSVERSE POST- TENSIONING AND ASSOCIATED ITEMS ONLY REQUIRED IF PILE CAP IS CONSTRUCTED OF MORE THAN ONE UNIT.

ABUTMENT NO. 2 PLAN

SCALE ½"=1'-0"



ABUTMENT NO. 2 ELEVATION

SCALE ½"=1'-0"

SEE ABUTMENT SECTIONS SHEET FOR SECTIONS A-A AND B-B.

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138sub.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: M.C. SCOTT
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
ABUTMENT NO 2 PLAN & ELEVATION	SHEET 48 OF 82

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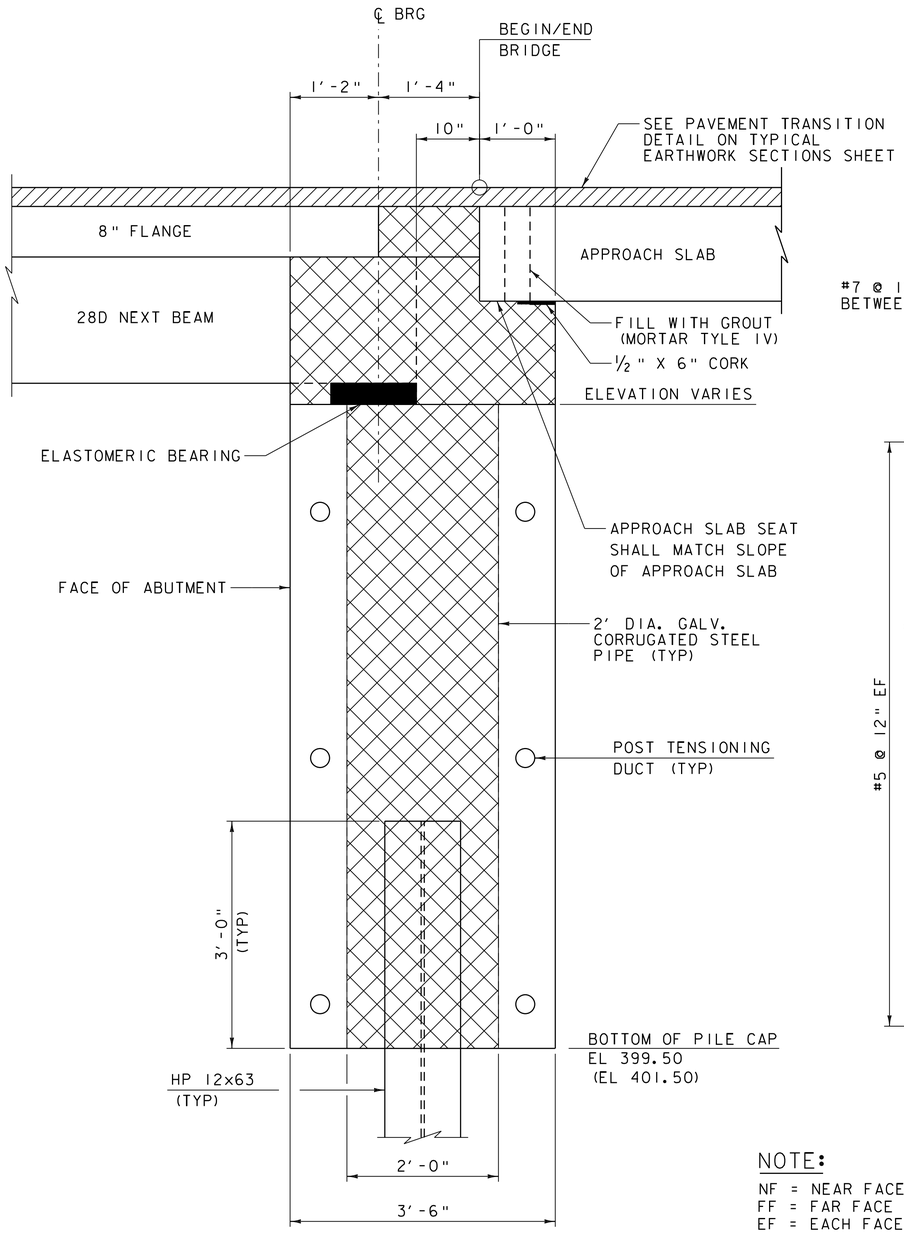
NOTES:

1. ABUTMENTS SHALL BE PRECAST CONCRETE ACCORDING TO SECTION 540.
2. SEE PROJECT NOTES FOR ADDITIONAL FABRICATION, CONSTRUCTION, AND SEQUENCE NOTES.
3. ELEVATIONS SHOWN ARE FOR ABUTMENT NO 1. (ELEVATIONS FOR ABUTMENT NO 2 SHOWN IN PARENTHESIS.)

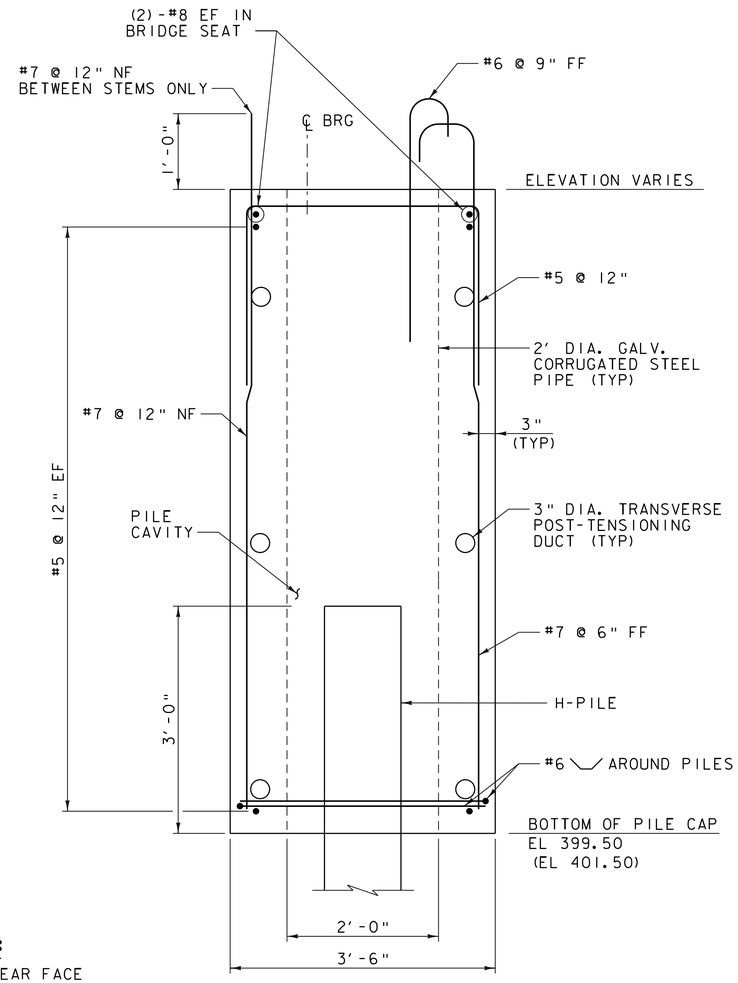
LIMITS OF HPC CLOSURE POUR



BRIDGE END DETAIL

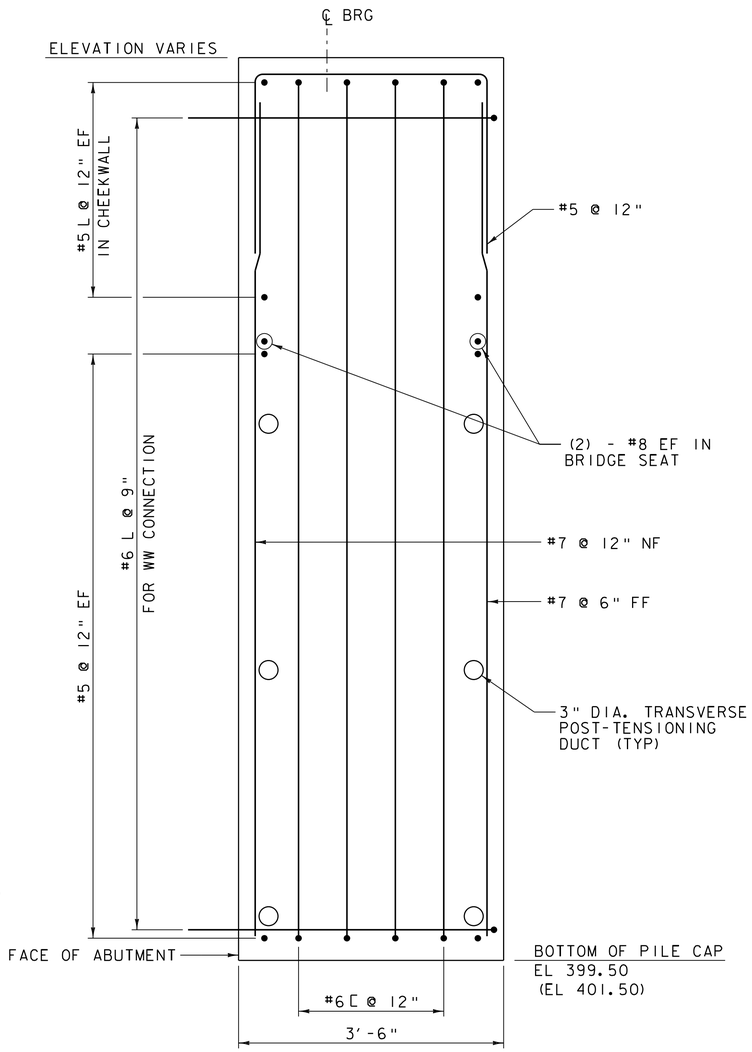
(ABUT NO 1 SHOWN, ABUT NO 2 SIMILAR, OPPOSITE HAND)
(DIMENSIONS ARE NORMAL TO ℄ BRG)

SCALE 1" = 1'-0"



SECTION A-A

SCALE 1" = 1'-0"



SECTION B-B

SCALE 1" = 1'-0"

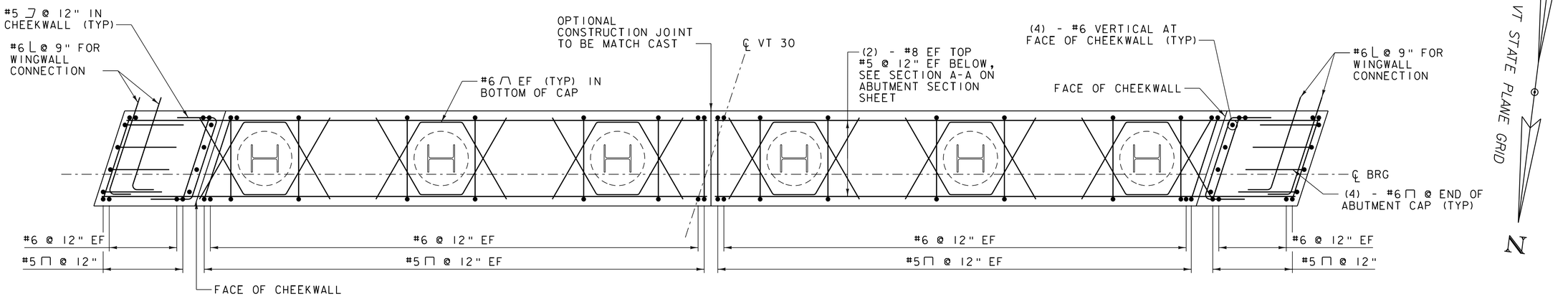
NOTE:

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.

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON	
PROJECT NUMBER: BRF 015-2(10)	
FILE NAME: z12b138sub.dgn	PLOT DATE: 9/21/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: M.C. SCOTT
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
ABUTMENT SECTIONS	SHEET 49 OF 82

VHB 57526

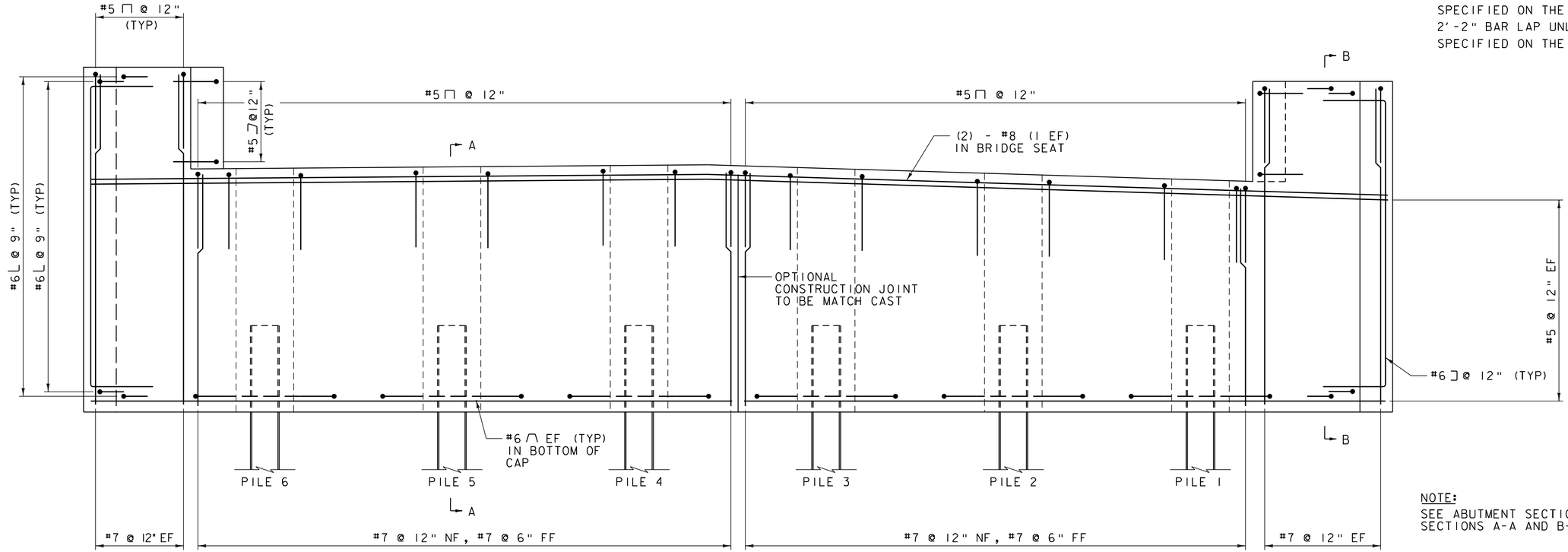


ABUTMENT NO. 1 REINFORCING PLAN

(TRANSVERSE POST-TENSIONING DUCTS & GROUT DUCTS NOT SHOWN FOR CLARITY)
(ABUTMENT NO. 2 SIMILAR)
SCALE ½"=1'-0"

NOTE:

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



ABUTMENT NO. 1 REINFORCING ELEVATION

(TRANSVERSE POST-TENSIONING DUCTS & GROUT DUCTS NOT SHOWN FOR CLARITY)
(ABUTMENT NO. 2 SIMILAR)
SCALE ½"=1'-0"

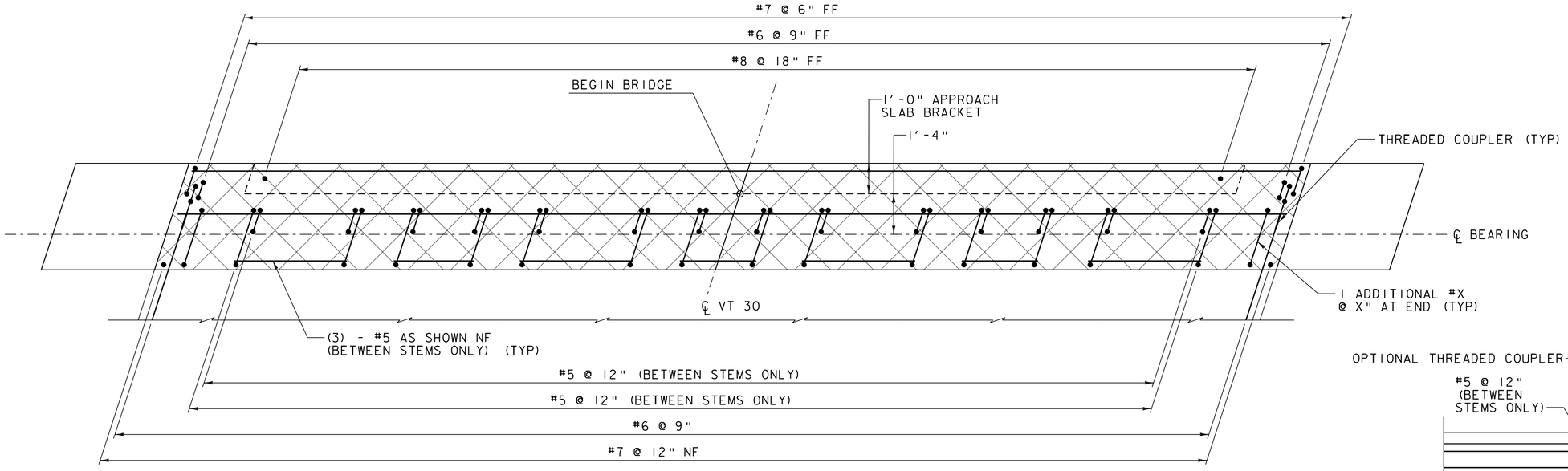
NOTE:

SEE ABUTMENT SECTIONS SHEET FOR SECTIONS A-A AND B-B.

Vanasse Hangen Brustlin, Inc.

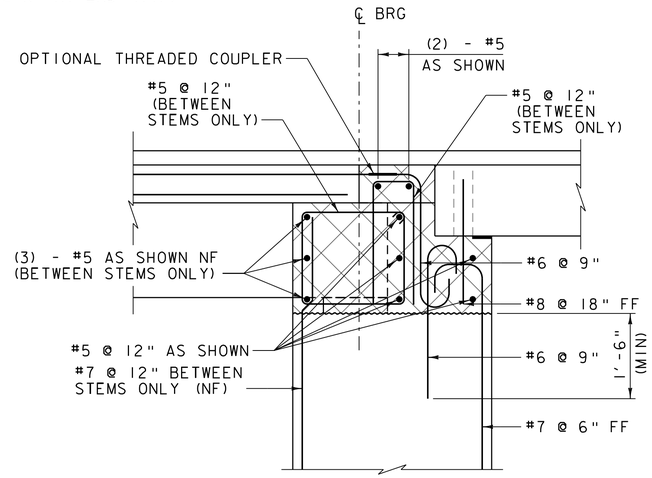
PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138sub.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
ABUTMENT REINFORCEMENT	SHEET 50 OF 82

VHB 57632



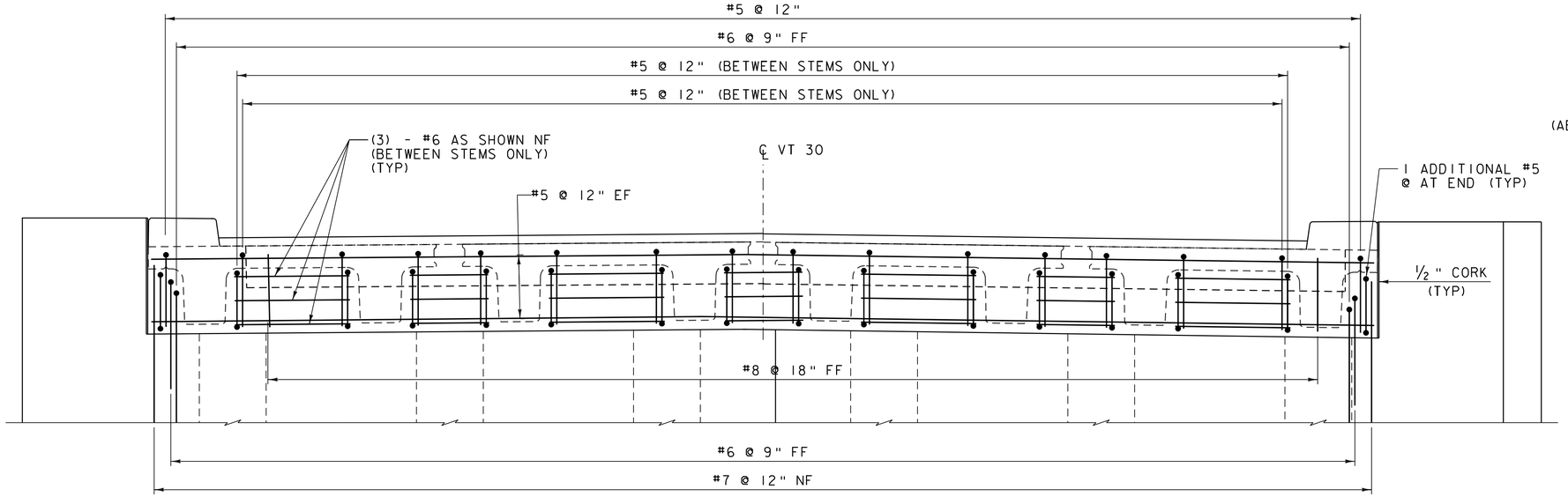
ABUTMENT NO. 1
DECK CLOSURE POUR REINFORCING PLAN

(TRANSVERSE POST-TENSIONING DUCTS & GROUT DUCTS NOT SHOWN FOR CLARIFY)
(ABUTMENT NO. 2 SIMILAR)
SCALE ½"=1'-0"



BRIDGE END DETAIL

(ABUT NO. 1 SHOWN, ABUT NO. 2 SIMILAR, OPPOSITE HAND)
(DIMENSIONS ARE NORMAL TO ℄ BRG)
SCALE ¾" = 1'-0"



ABUTMENT NO. 1
DECK CLOSURE POUR REINFORCING ELEVATION

(TRANSVERSE POST-TENSIONING DUCTS NOT SHOWN FOR CLARIFY)
(ABUTMENT NO. 2 SIMILAR)
SCALE ½"=1'-0"

LIMITS OF HPC CLOSURE POUR

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.

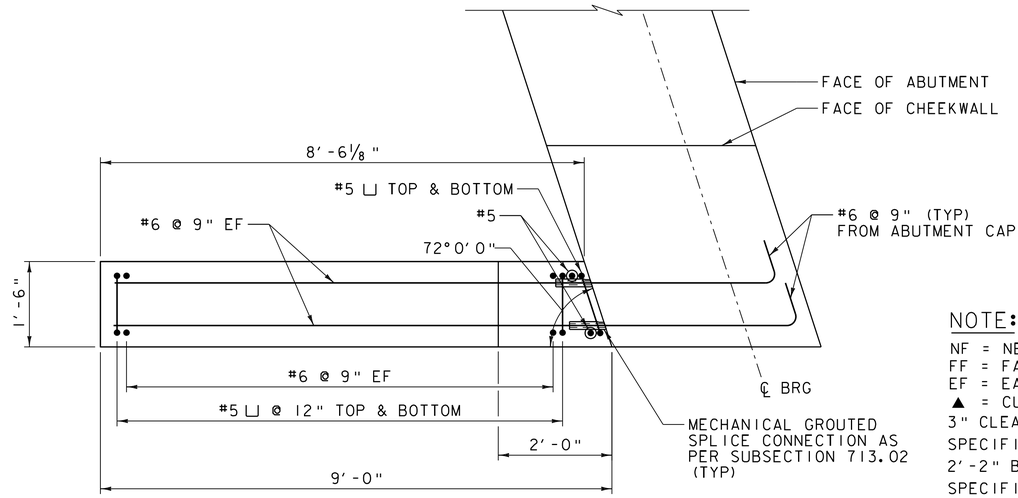
VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: z12b138sub.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: E.A. FIALA
DECK CLOSURE POUR

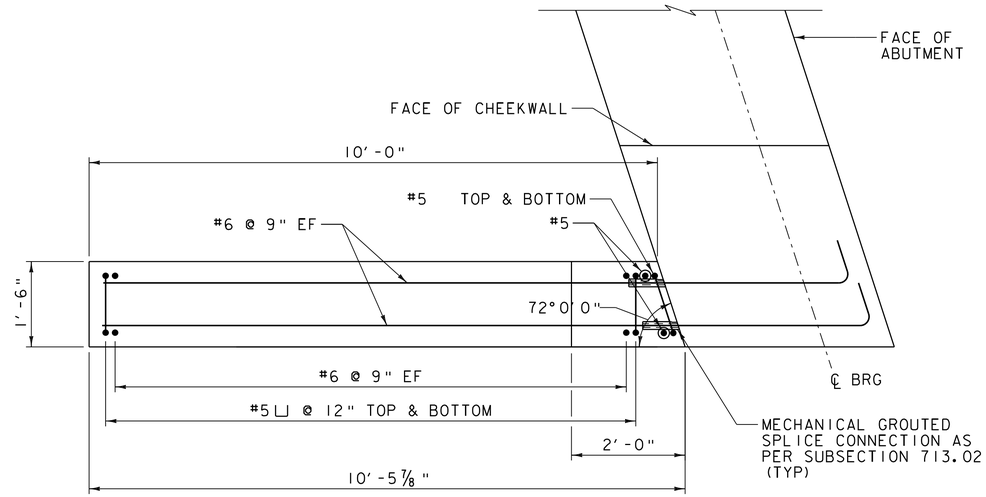
PLOT DATE: 9/19/2014
DRAWN BY: E.A. FIALA
CHECKED BY: S.E. BURBANK
SHEET 51 OF 82

VHB 57632

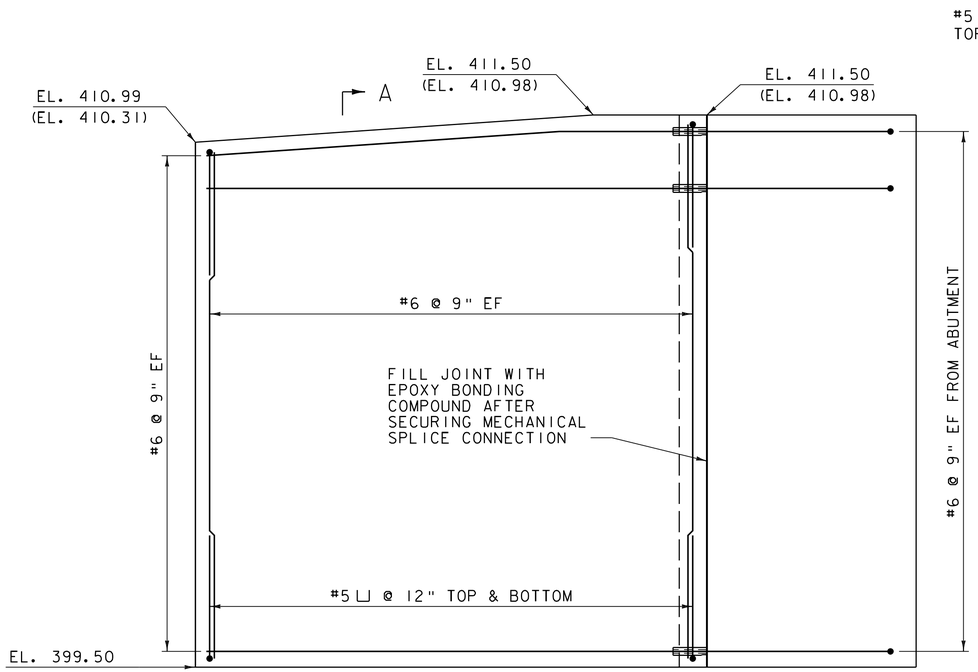


WINGWALL NO. 1 & 2 PLAN
SCALE ¾" = 1'-0"

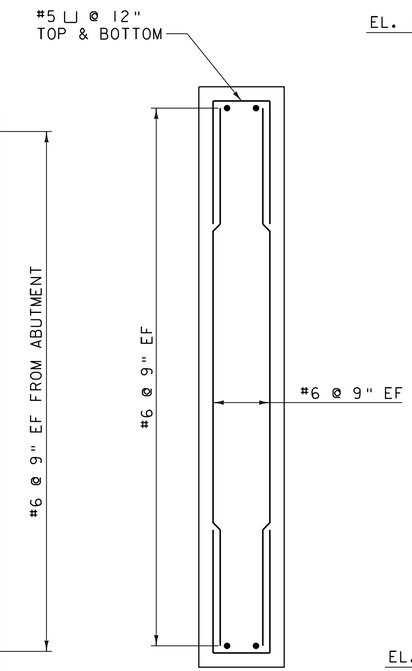
NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.



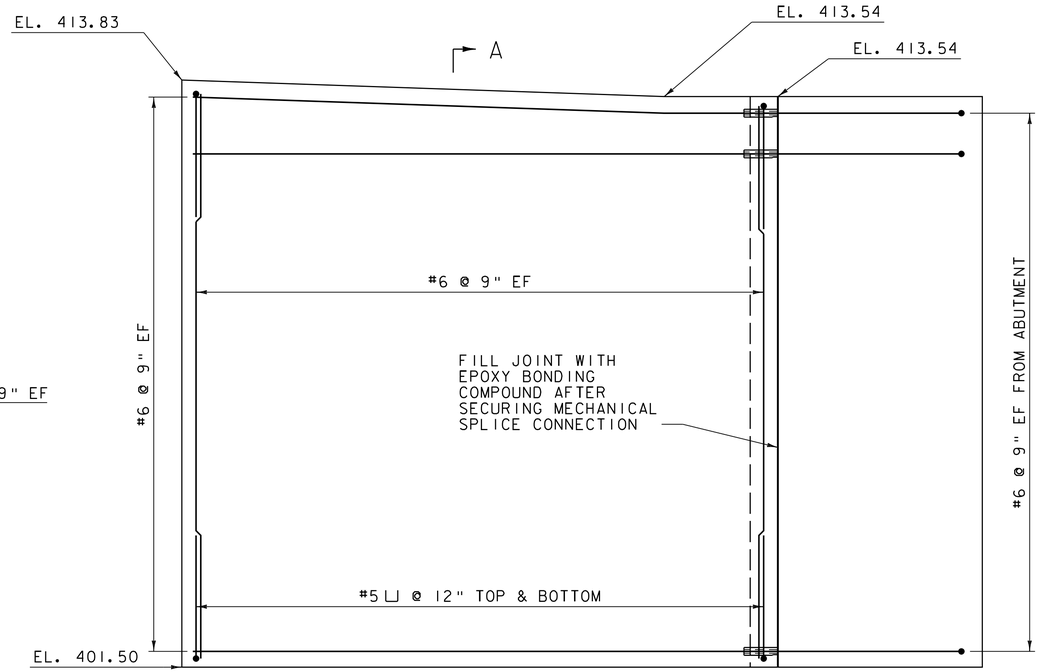
WINGWALL NO. 3 PLAN
SCALE ¾" = 1'-0"



WINGWALL NO 2 ELEVATION
(WINGWALL NO 1 ELEVATIONS SHOWN IN PARENTHESIS)
SCALE ¾"=1'-0"



SECTION A-A
SCALE ¾" = 1'-0"

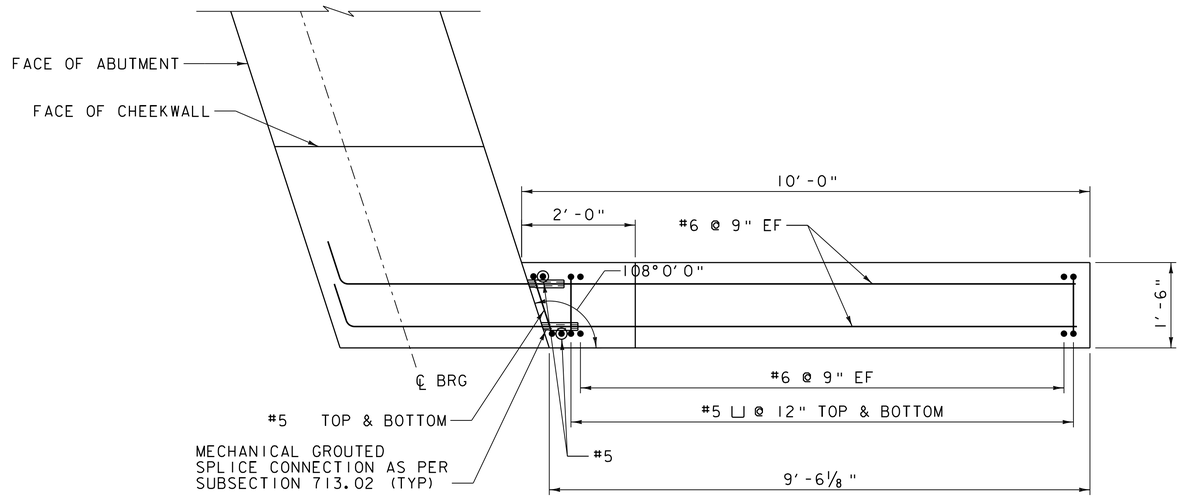


WINGWALL NO. 3 ELEVATION
SCALE ¾" = 1'-0"

NOTE: SEE WINGWALL NOTES ON NEXT SHEET.

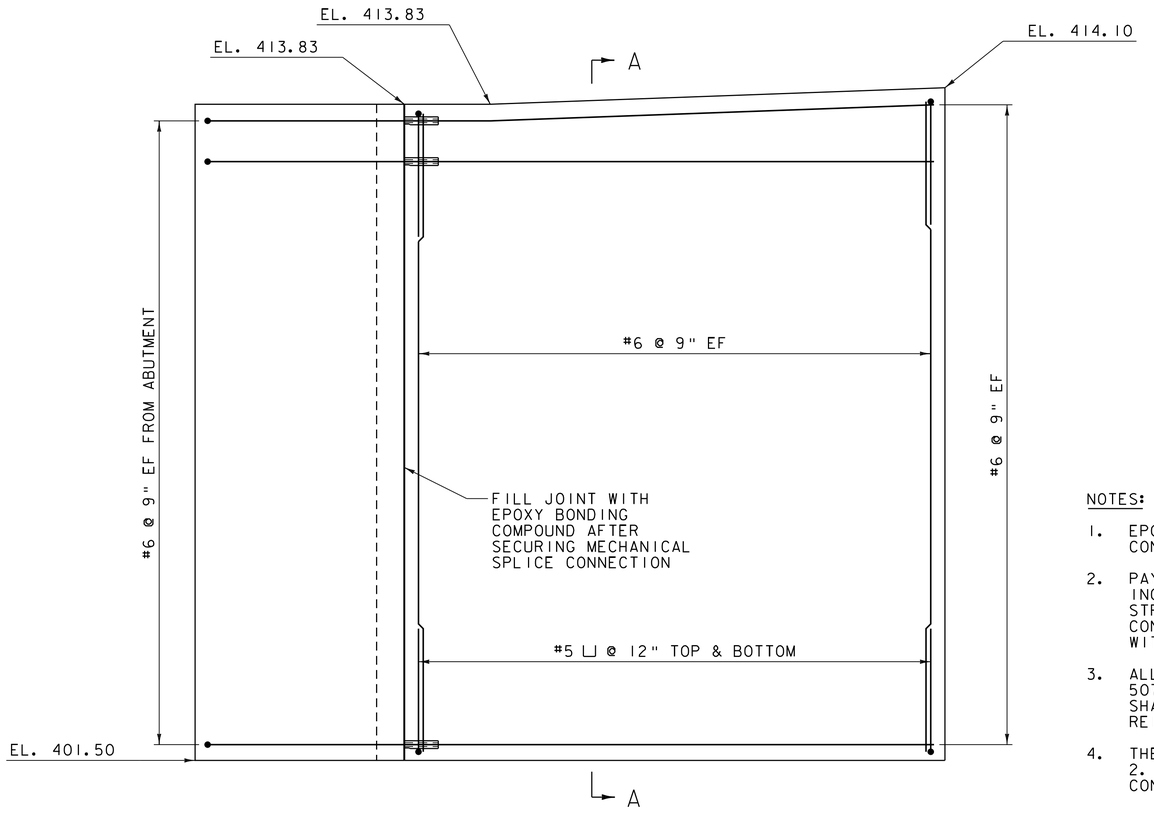
VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON	
PROJECT NUMBER: BRF 015-2(10)	
FILE NAME: z12b138sub.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
WINGWALL DETAILS (1 OF 2)	SHEET 52 OF 82



WINGWALL NO. 4 PLAN

SCALE 3/4" = 1'-0"



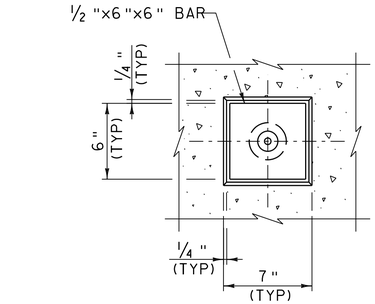
WINGWALL NO. 4 ELEVATION

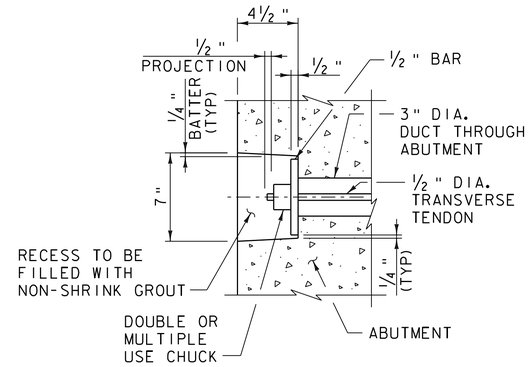
SCALE 3/4" = 1'-0"

NOTE: SEE SECTION A-A ON PREVIOUS SHEET.

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.





TRANSVERSE TENDON DETAIL

NOT TO SCALE

TRANSVERSE TENDON NOTES:

1. MORTAR FOR EXTERIOR POCKETS SHALL BE THE SAME COLOR AND TEXTURE AS THE ABUTMENT CONCRETE.
2. OTHER ANCHORAGE SYSTEMS MAY BE SUBSTITUTED WITH THE APPROVAL OF THE ENGINEER. ALTERNATE ANCHORAGE SYSTEMS SHALL BE WATER TIGHT AND CORROSION PROOF.
3. TRANSVERSE TENDONS SHALL BE COVERED BY A SEAMLESS POLYPROPYLENE SHEATH (WITH CORRSION INHIBITING GREASE BETWEEN THE STRAND/ANCHOR AND THE SHEATH) FOR THE FULL LENGTH OF THE TENDON/ANCHOR, EXCEPT AT THE ANCHORAGE LOCATION.

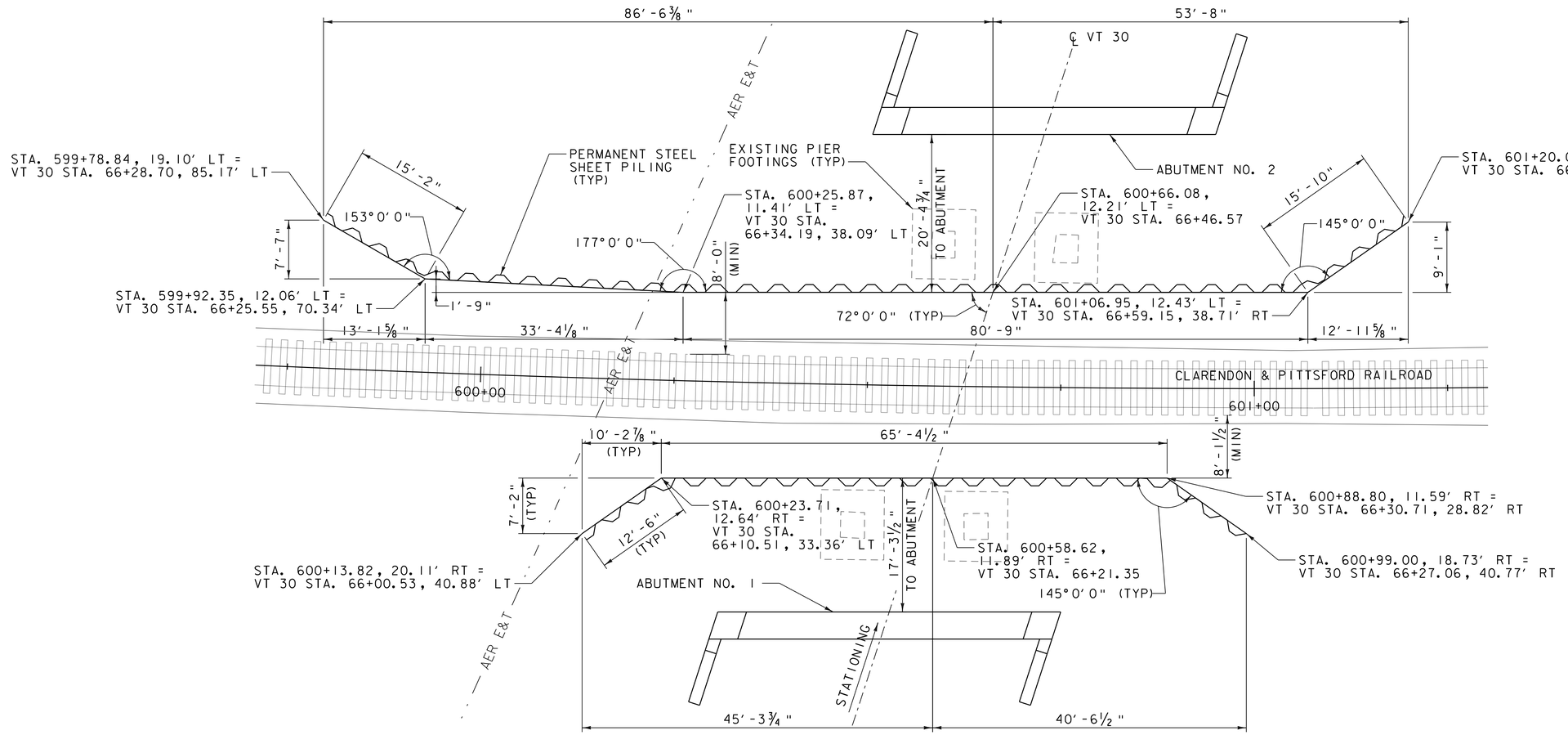
NOTES:

1. EPOXY BONDING COMPOUND SHALL BE INCIDENTAL TO ITEM 540.10, "PRECAST CONCRETE STRUCTURE".
2. PAYMENT FOR ALL REINFORCING STEEL AND MECHANICAL CONNECTORS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 540.10, "PRECAST CONCRETE STRUCTURE". THE CONTRACTOR SHALL PROVIDE THREE (3) MECHANICAL CONNECTORS ASSEMBLED PER SPLICE SIZE FOR TESTING. THE ASSEMBLY SHALL BE WITNESSED BY THE ENGINEER.
3. ALL REINFORCING STEEL IN WINGWALLS SHALL MEET REQUIREMENTS OF SECTION 507 FOR LEVEL II REINFORCING. ALL MECHANICAL CONNECTORS IN WINGWALLS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL I (EPOXY COATED) REINFORCING.
4. THE BRIDGE PLAQUE FURNISHED BY THE AGENCY SHALL BE CAST INTO WINGWALL 2. ALL WORK TO INSTALL THE PLAQUE SHALL BE INCIDENTAL TO THE PRECAST CONCRETE STRUCTURE ITEM. SEE SD-502.00 FOR FURTHER DETAILS.

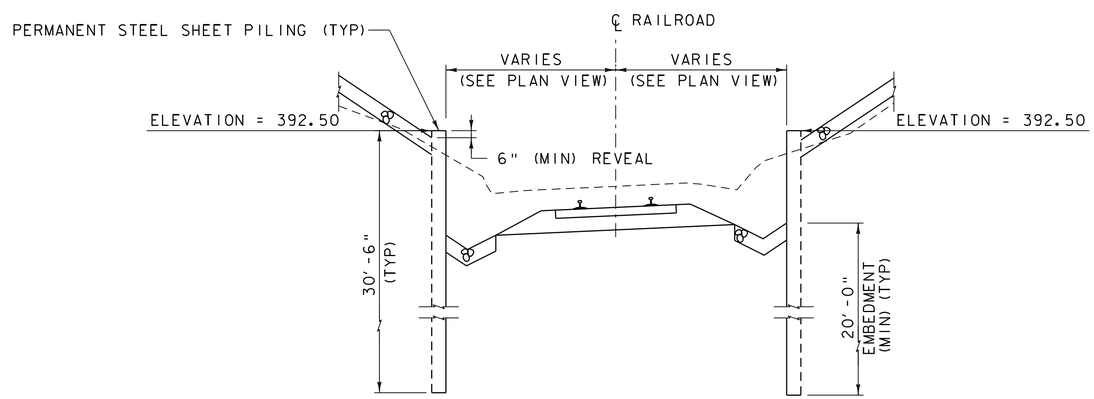
VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON	
PROJECT NUMBER: BRF 015-2(10)	
FILE NAME: z12b138sub.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
WINGWALL DETAILS (2 OF 2)	SHEET 53 OF 82

VHB 57632



PLAN VIEW
SCALE ⅛" = 1′-0"



SHEET PILING TYPICAL SECTION
SCALE 3⁄16" = 1′-0"

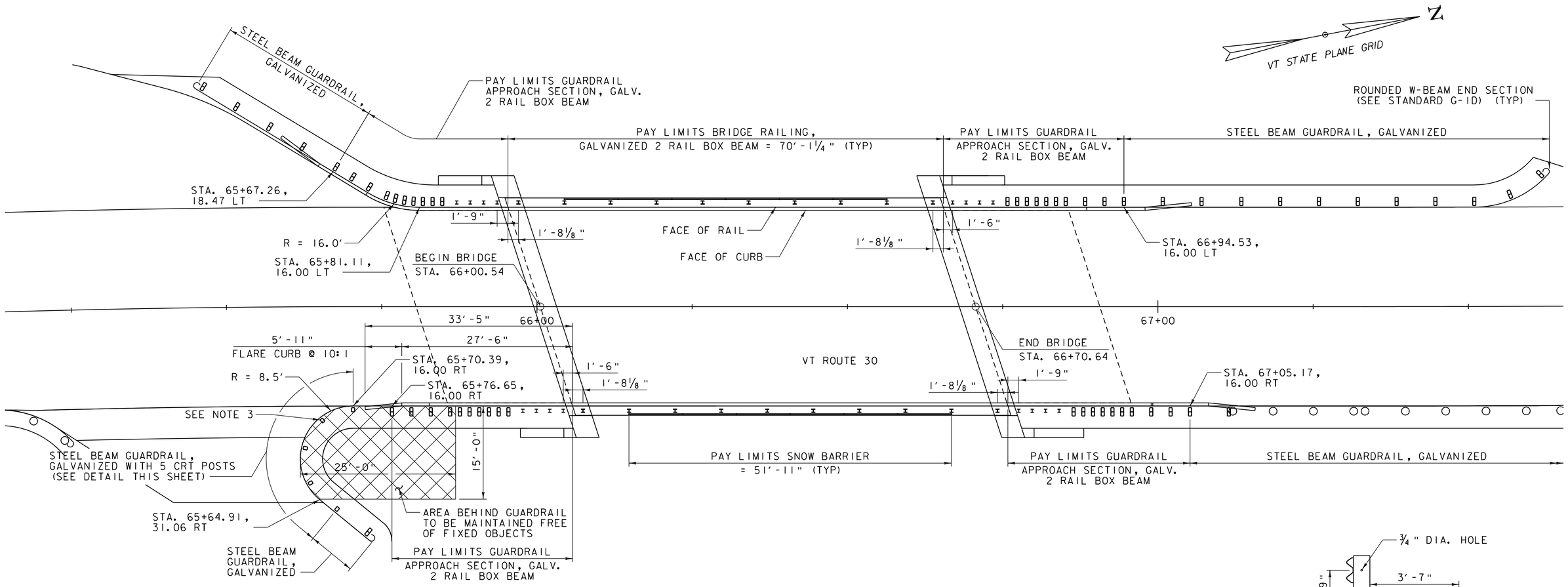
NOTES:

1. IT IS BROUGHT TO THE CONTRACTOR'S ATTENTION THAT POWER LINES WILL BE RELOCATED TO THE WEST SIDE OF THE BRIDGE. THE CONTRACTOR IS RESPONSIBLE FOR THE SAFE INTSTALLATION OF THE SHEETING UNDER THE POWER LINES USING APPROPRIATE MEANS AND METHODS OF INSTALLATION.
2. EXISTING PIER FOOTINGS ARE SHOWN PER FIELD SURVEY. CONTRACTOR SHALL DETERMINE IF THE COMPLETE REMOVAL OF THE PIER FOOTINGS ARE REQUIRED FOR THE INSTALLATION OF THE PERMANENT STEEL SHEET PILING. PIER FOOTINGS SHALL BE REMOVED A MINIMUM OF 1′-0" BELOW FINISH GRADE TO ALLOW FOR THE INSTALLATION OF THE STONE FILL.

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON	
PROJECT NUMBER: BRF 015-2(10)	
FILE NAME: z12b138shtpile.dgn	PLOT DATE: 9/21/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
SHEET PILE DETAILS	SHEET 54 OF 82

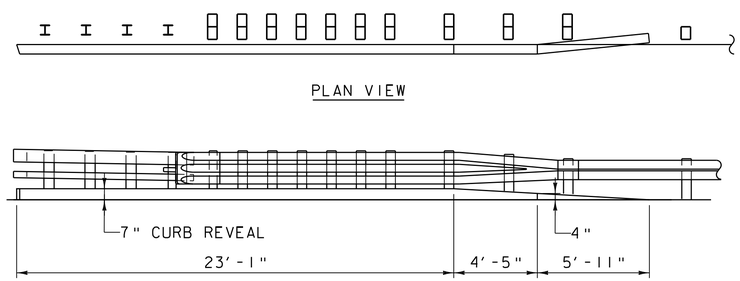
VHB 57632



NOTE: SEE STANDARD S-360B FOR APPROACH SECTION LAYOUT.

BRIDGE RAIL LAYOUT

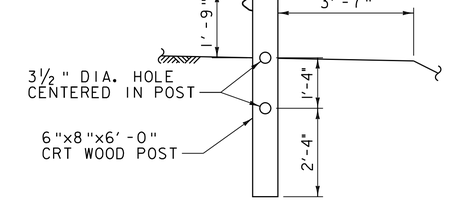
SCALE ⅛" = 1'-0"



CURB DETAIL AT STA. 65+70 - 66+06, RT

SEE STANDARD S-360B FOR INFORMATION NOT SHOWN

SCALE ¼" = 1'-0"



CRT POST DETAIL

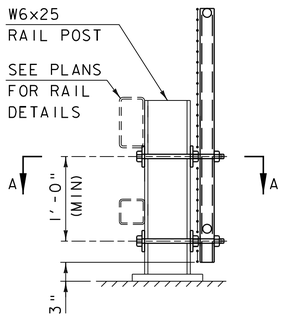
SCALE ½" = 1'-0"

NOTES:

1. SEE FHWA TECHNICAL ADVISORY T5040.32 CURVED W-BEAM GUARDRAIL INSTALLATIONS AT MINOR ROADWAY INTERSECTIONS FOR ADDITIONAL INFORMATION.
2. NO WASHERS ARE USED ON THE ⅝" BUTTON HEAD BOLTS (F-3[10"]-76) CONNECTING THE RAIL TO THE CONTROLLED RELEASING TERMINAL (CRT) POSTS.
3. THIS RAIL IS NOT BOLTED TO THE CRT POSTS.
4. THE CURVED GUARDRAIL SECTION SHALL BE SHOP BENT.
5. SEE STANDARD G-1 FOR ADDITIONAL INFORMATION.

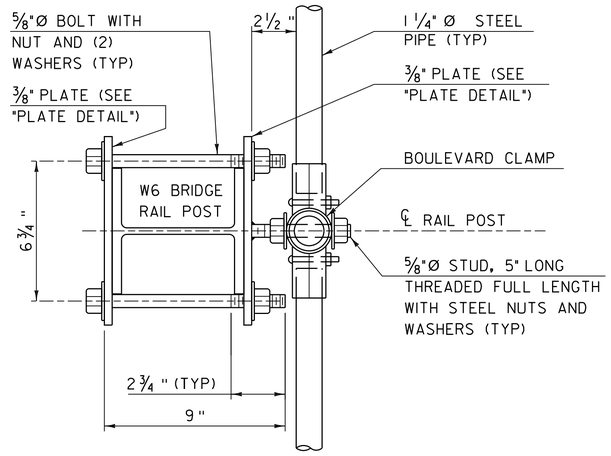
Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON	
PROJECT NUMBER: BRF 015-2(10)	
FILE NAME: z12bl38brail.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
BRIDGE RAILING AND GUARDRAIL LAYOUT	SHEET 55 OF 82

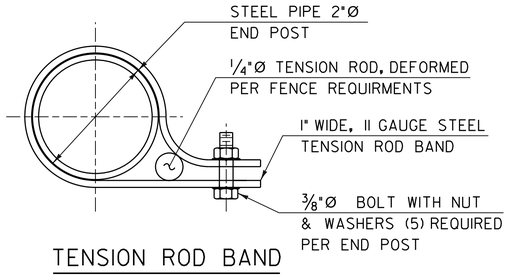


TYPICAL SECTION

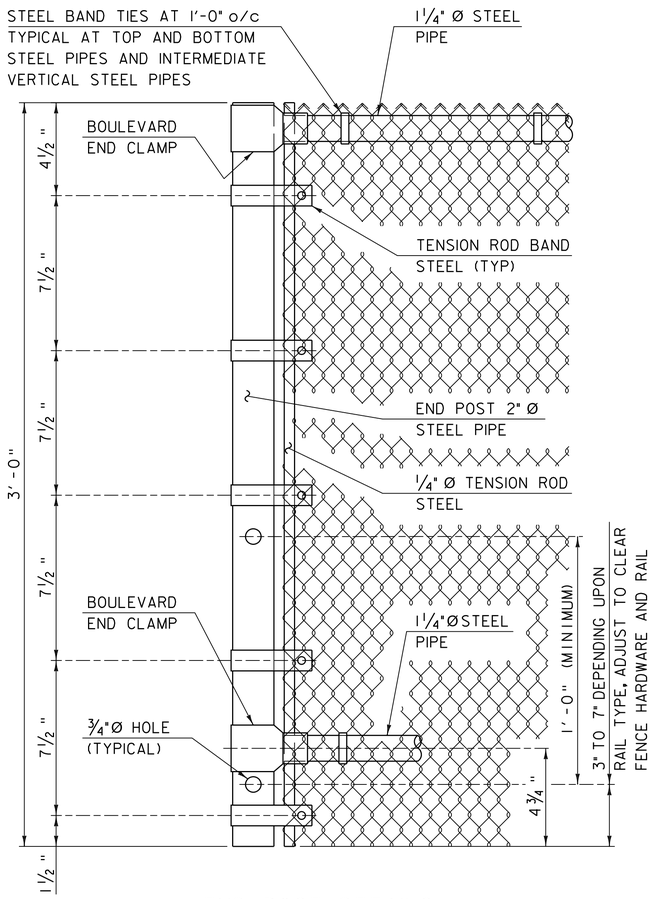
FOR SPECIFIC RAIL CONFIGURATION AND SIZES SEE PLAN SET



SECTION A-A



TENSION ROD BAND



END POST DETAILS

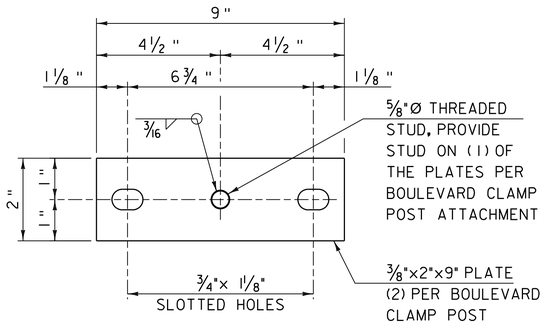
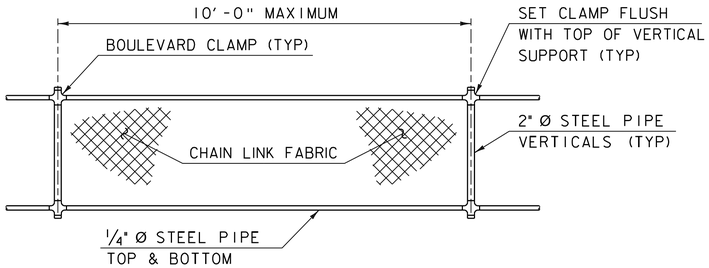


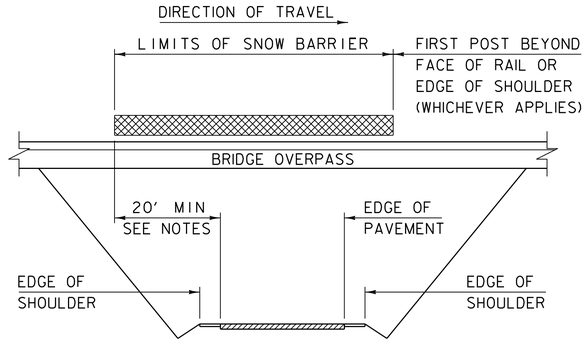
PLATE DETAIL



ELEVATION SNOW BARRIER

NOTES

1. ALL WORK AND MATERIAL SHALL CONFORM TO SECTION 620.
2. THIS SNOW BARRIER CAN BE USED WITH GALVANIZED 2, 3, AND 4 RAIL BOX BEAM.
3. 1 1/4" PIPE LENGTH SHALL BE FIELD CUT TO FIT POST SPACING.
4. CHAIN LINK FABRIC TO BE KNUCKLED TOP AND BOTTOM.
5. ALL STEEL PLATES SHALL CONFORM TO AASHTO M270 GRADE 36.
6. SNOW BARRIER SHALL BEGIN AT THE BRIDGE RAIL POST WHICH WILL PROVIDE A MINIMUM DISTANCE OF 20' (AS SHOWN) OR AS DIRECTED BY THE ENGINEER.
7. ALL REFERENCES TO THE DIAMETERS OF GALVANIZED STEEL PIPE SHALL REFER TO THE OUTSIDE DIAMETER (O.D.).
8. ALL STEEL COMPONENTS OF SNOW BARRIER SHALL BE GALVANIZED IN ACCORDANCE WITH SUBSECTION 726.08.

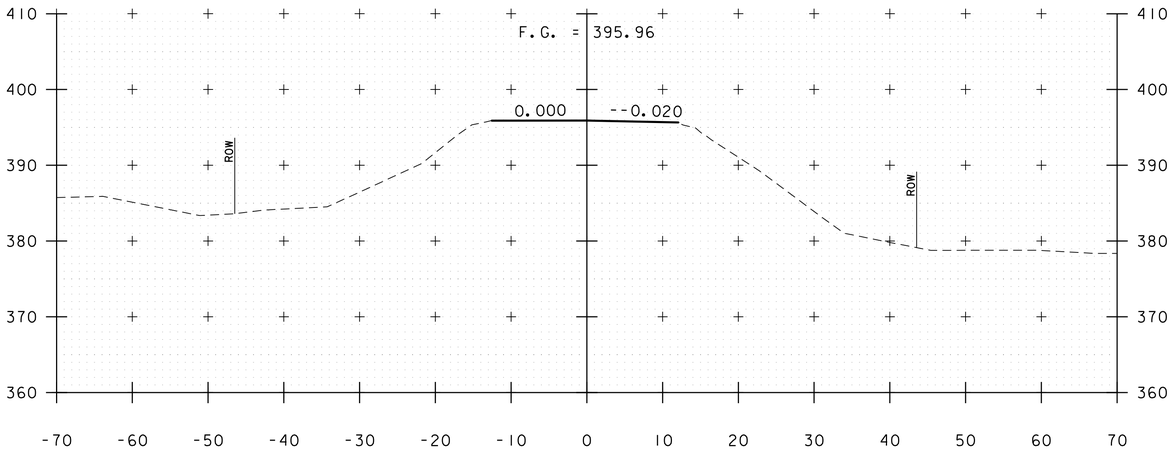


SCHEMATIC SNOW BARRIER LIMITS

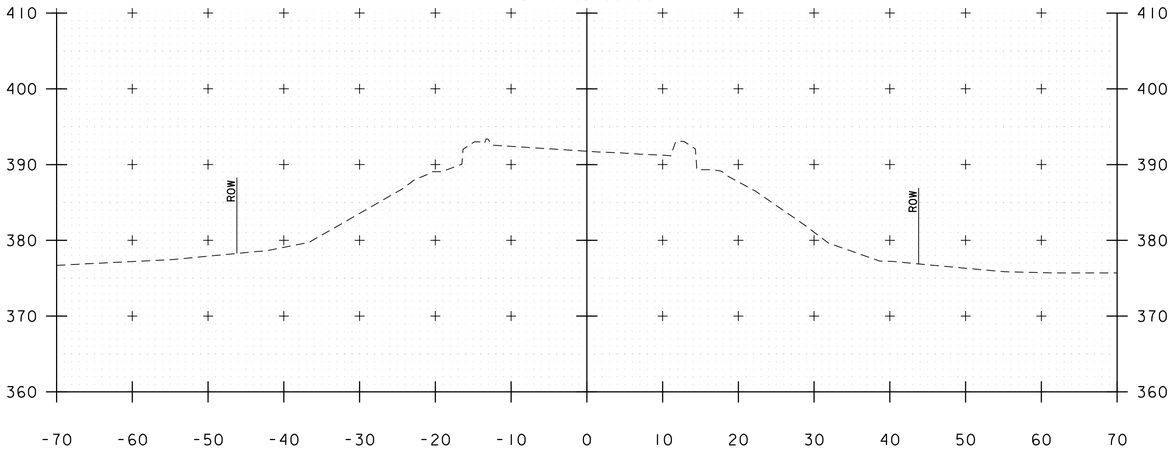
Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)

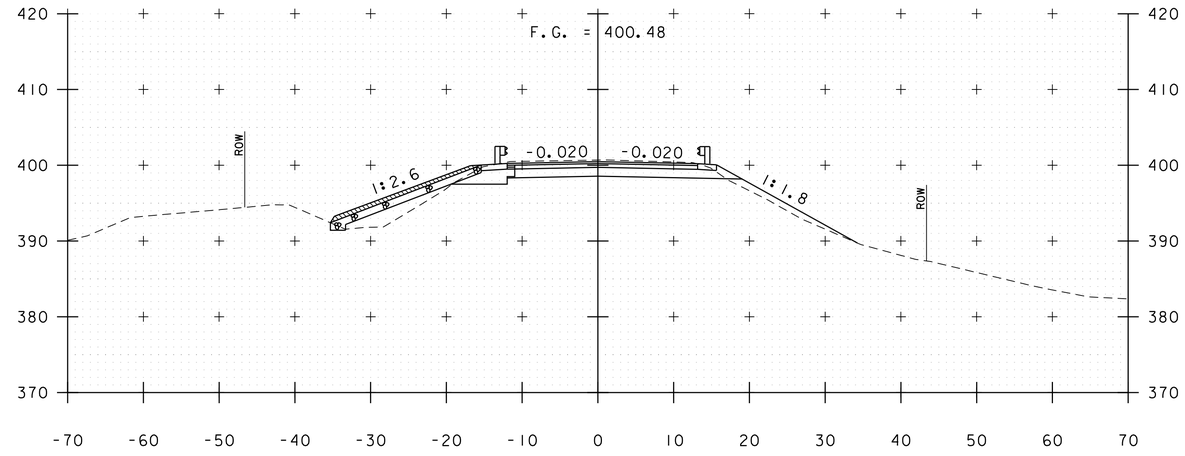
FILE NAME: z12b138snowbarrier.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: A.J. GOUDREAU
DESIGNED BY: VTRANS	CHECKED BY: S.E. BURBANK
SNOW BARRIER DETAILS	SHEET 56 OF 82



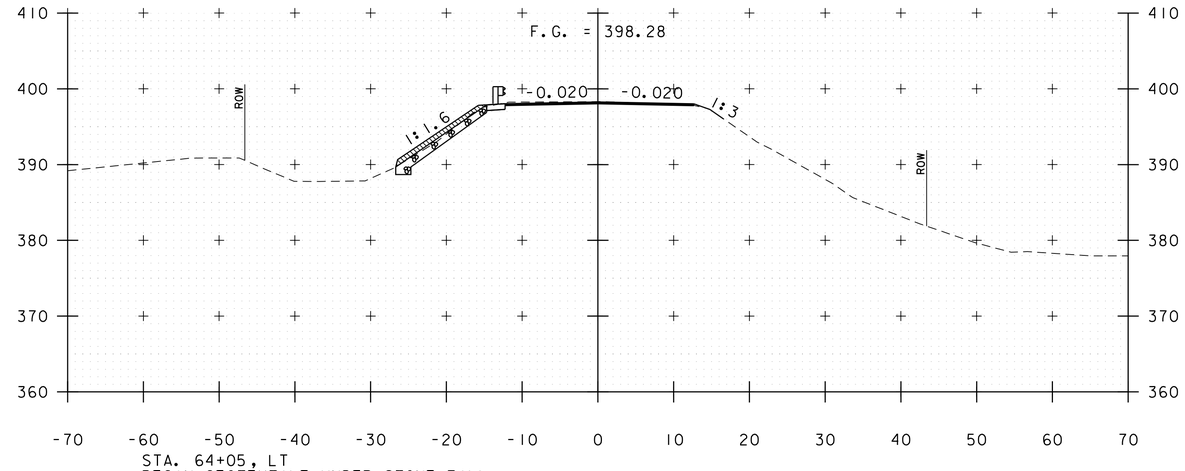
64+00
BEGIN APPROACH
STA. 63+90.00



63+75



64+50



STA. 64+05, LT
BEGIN GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE I
GRUBBING MATERIAL

64+25

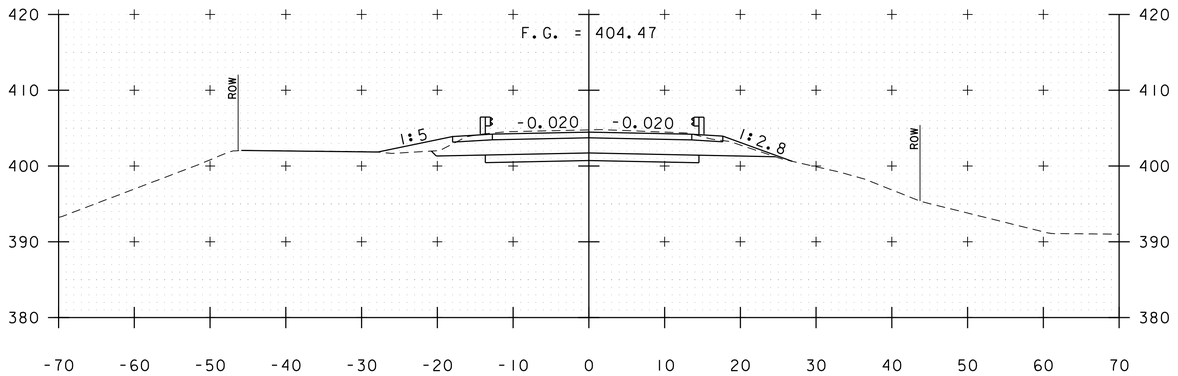
ROADWAY CROSS SECTIONS

SCALE 1" = 10'-0"

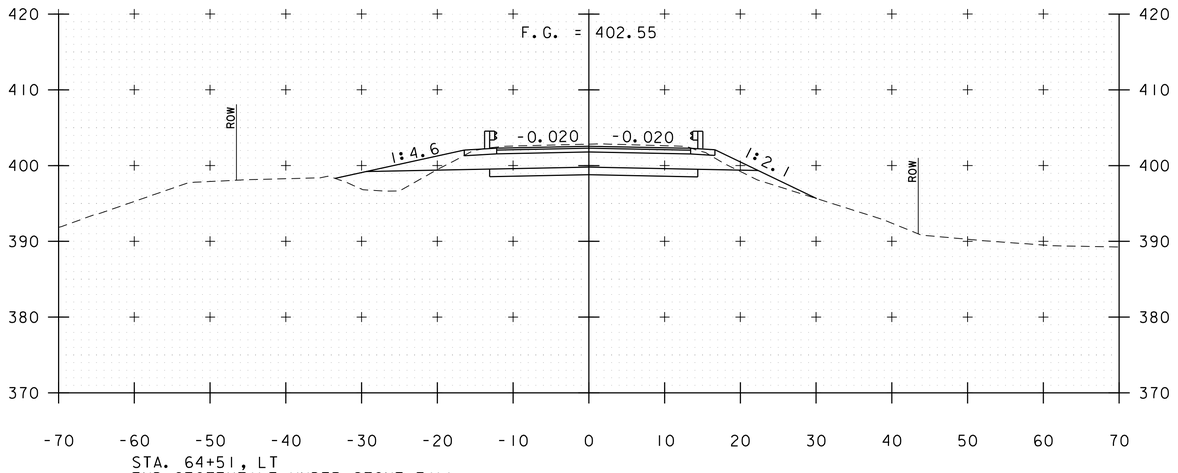
STA. 63+75 - 64+50

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12bl38xs.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: M.C. SCOTT
DESIGNED BY: E.A. FIALA	CHECKED BY: E.A. FIALA
ROADWAY CROSS SECTIONS (1 OF 6)	SHEET 57 OF 82

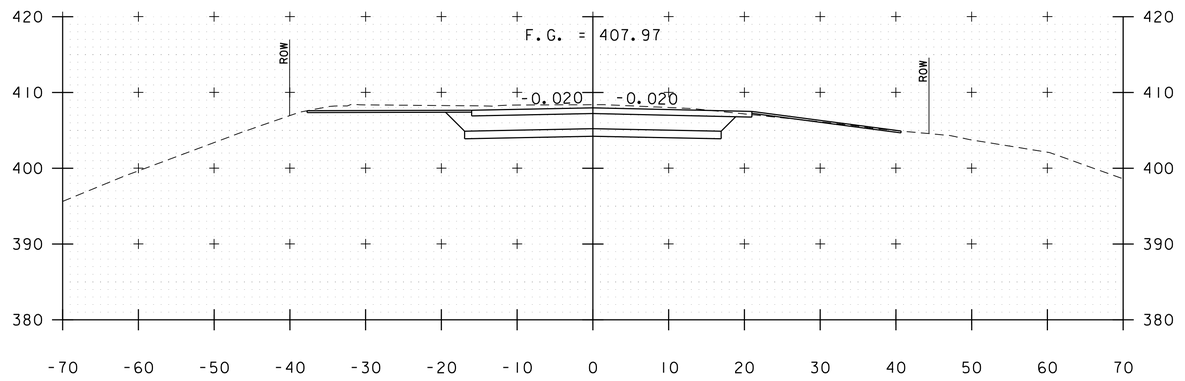


65+00

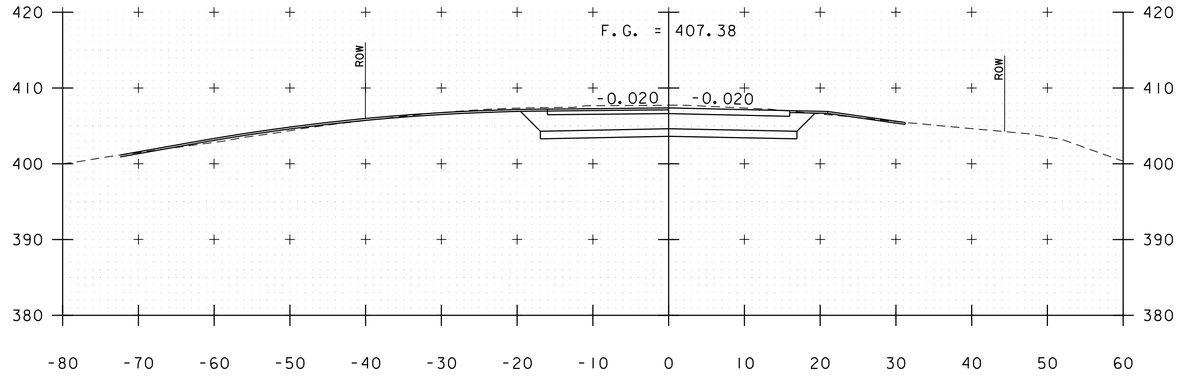


STA. 64+51, LT
END GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE I
GRUBBING MATERIAL

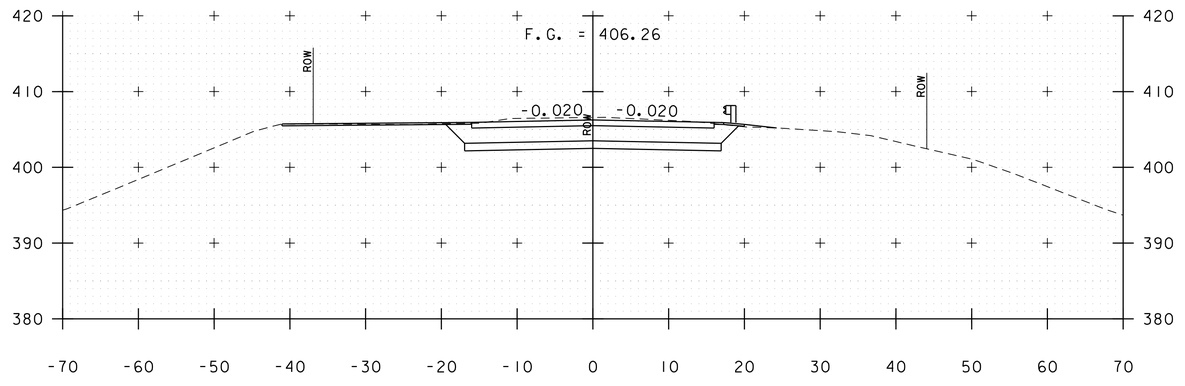
64+75
BEGIN PROJECT
STA. 64+70.00



65+50



Drive, 65+41 LT



65+25

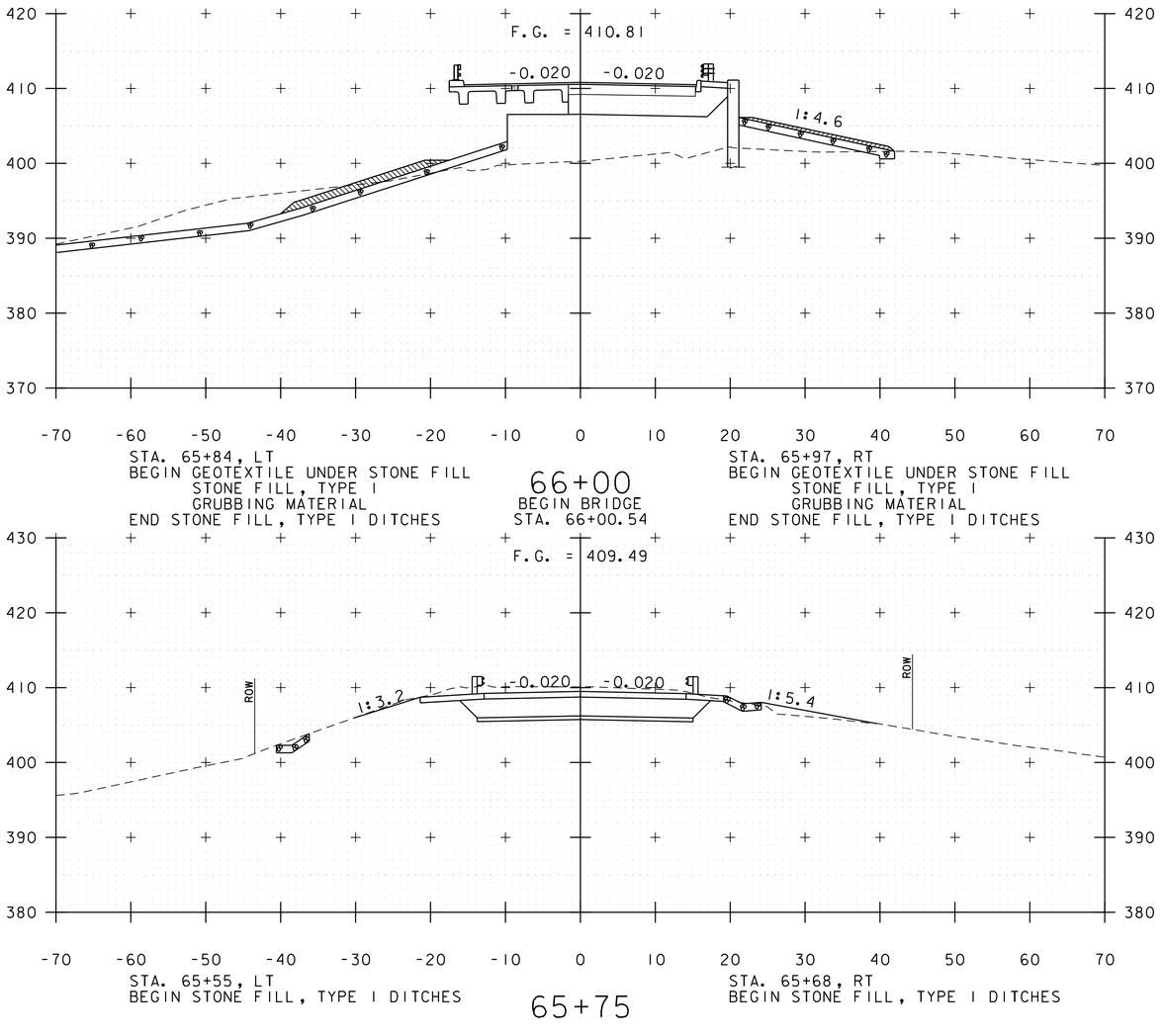
ROADWAY CROSS SECTIONS

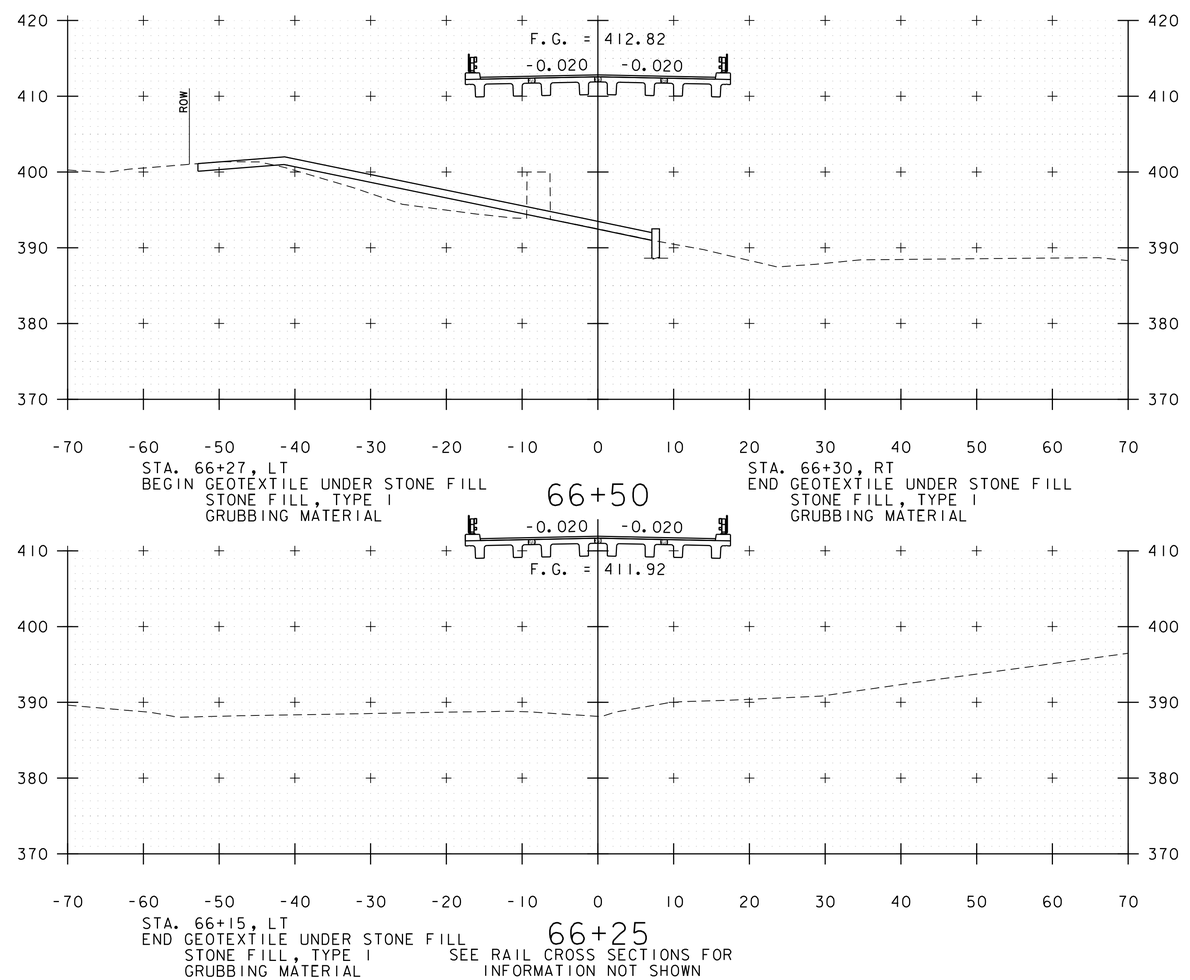
SCALE 1" = 10'-0"

STA. 64+75 - 65+50

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138xs.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: M.C. SCOTT
DESIGNED BY: E.A. FIALA	CHECKED BY: E.A. FIALA
ROADWAY CROSS SECTIONS (2 OF 6)	SHEET 58 OF 82





ROADWAY CROSS SECTIONS

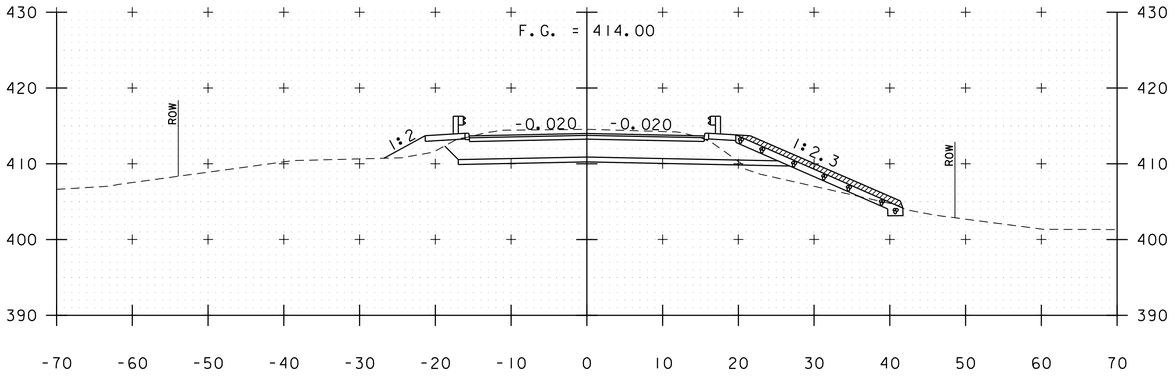
SCALE 1" = 10'-0"

STA. 65+75 - 66+50

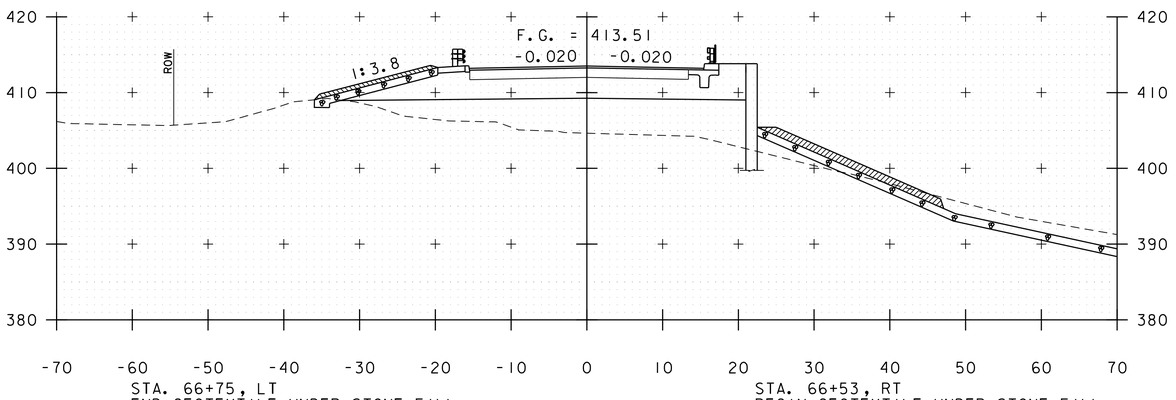
Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-(2)
FILE NAME: z12bl38xs.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: M.C. SCOTT
DESIGNED BY: E.A. FIALA	CHECKED BY: E.A. FIALA
ROADWAY CROSS SECTIONS (3 OF 6)	SHEET 59 OF 82

VHB 57632



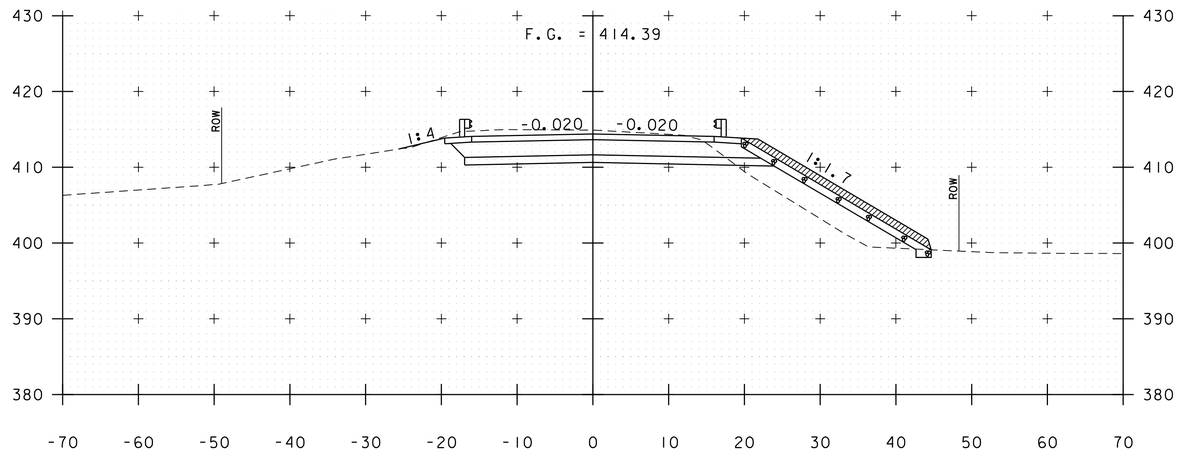
67+00



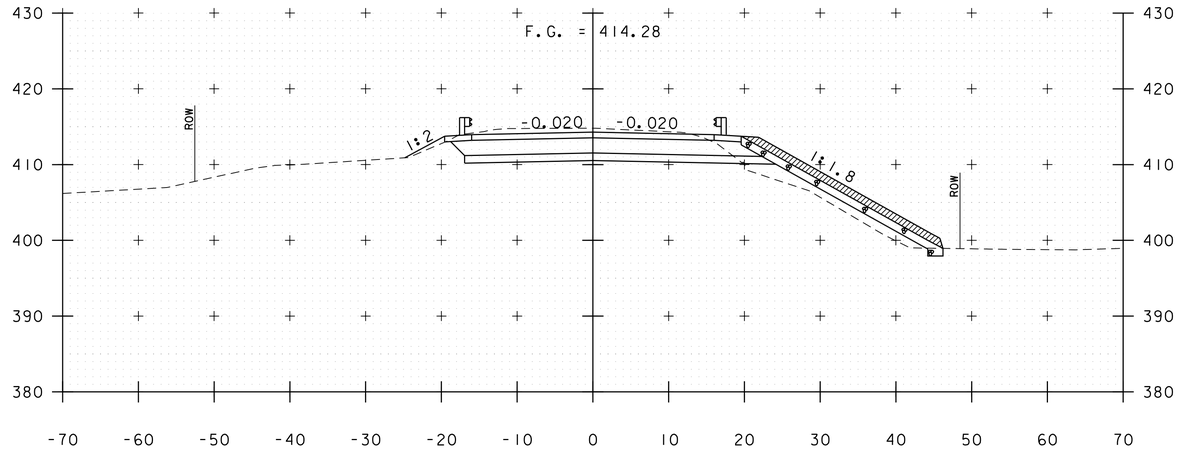
STA. 66+75, LT
END GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE I
GRUBBING MATERIAL

66+75
END BRIDGE
STA. 66+70.64

STA. 66+53, RT
BEGIN GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE I
GRUBBING MATERIAL



67+50



67+25

ROADWAY CROSS SECTIONS

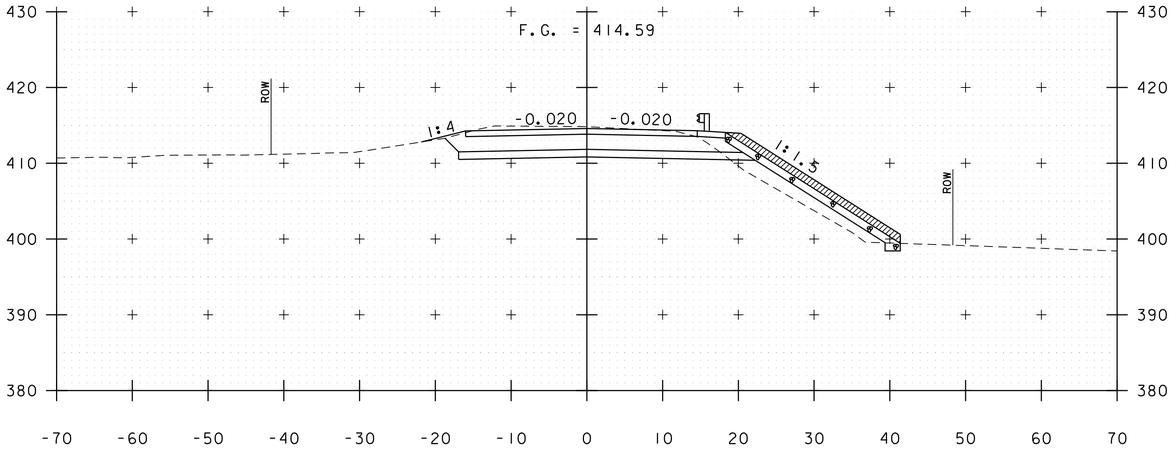
SCALE 1" = 10'-0"

STA. 66+75 - 67+50

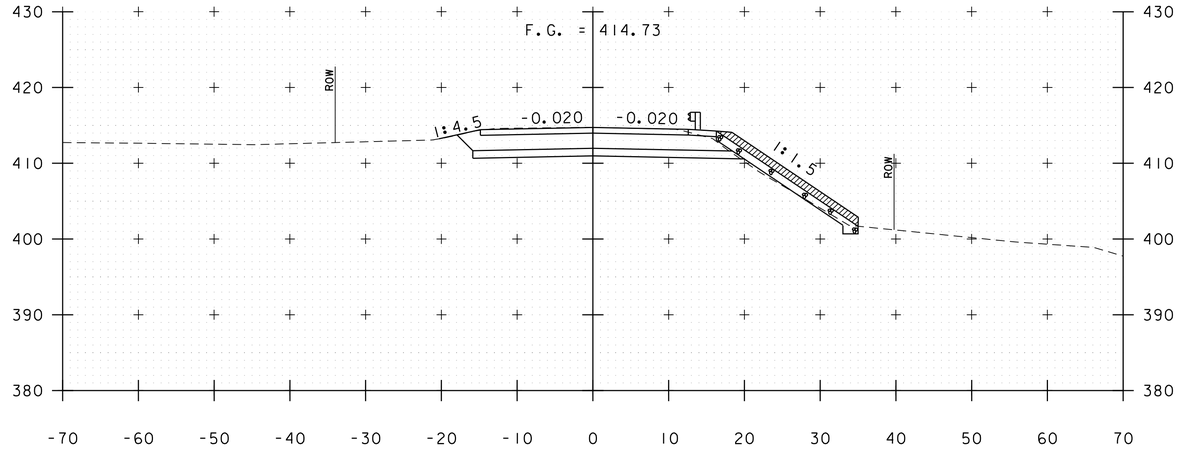
VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-(2)
FILE NAME: z12bl38xs.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: M.C. SCOTT
DESIGNED BY: M.C. SCOTT	CHECKED BY: E.A. FIALA
ROADWAY CROSS SECTIONS (4 OF 6)	SHEET 60 OF 82

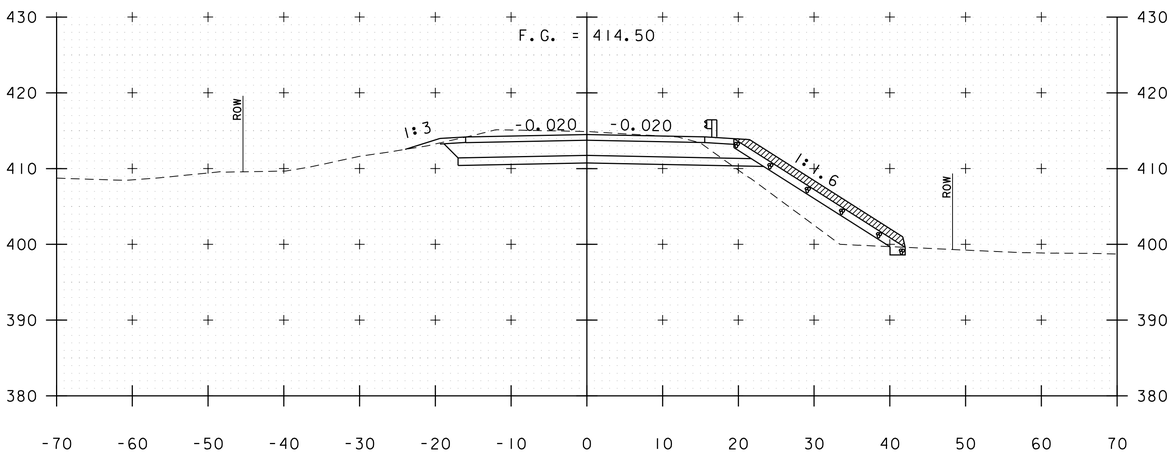
VHB 57632



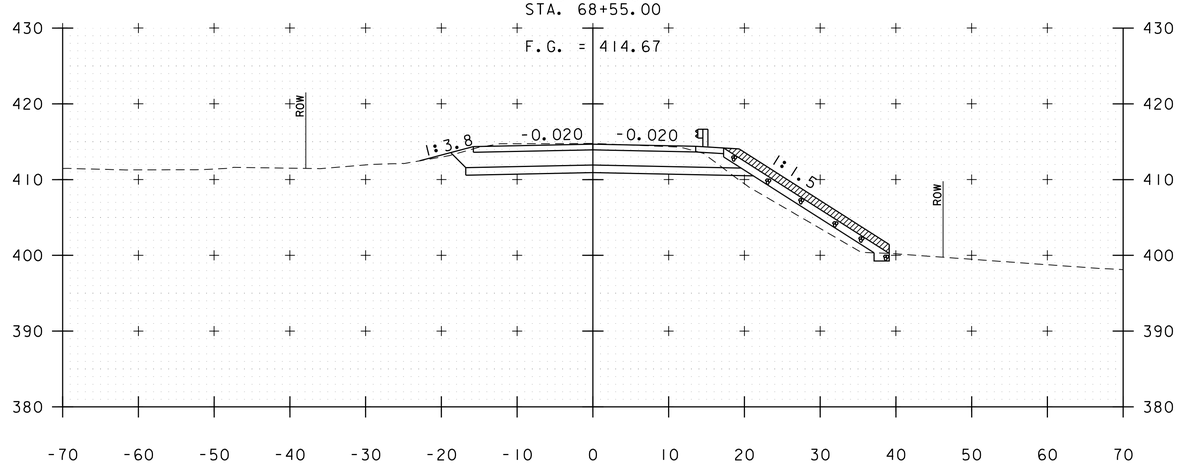
68+00



68+50
END PROJECT
STA. 68+55.00



67+75



68+25

ROADWAY CROSS SECTIONS

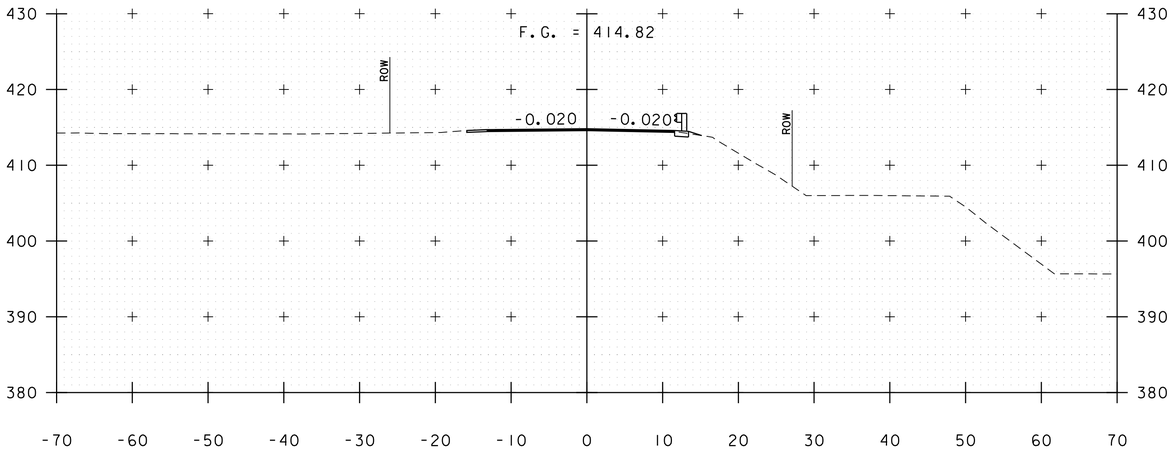
SCALE 1" = 10'-0"

STA. 67+75 - 68+50

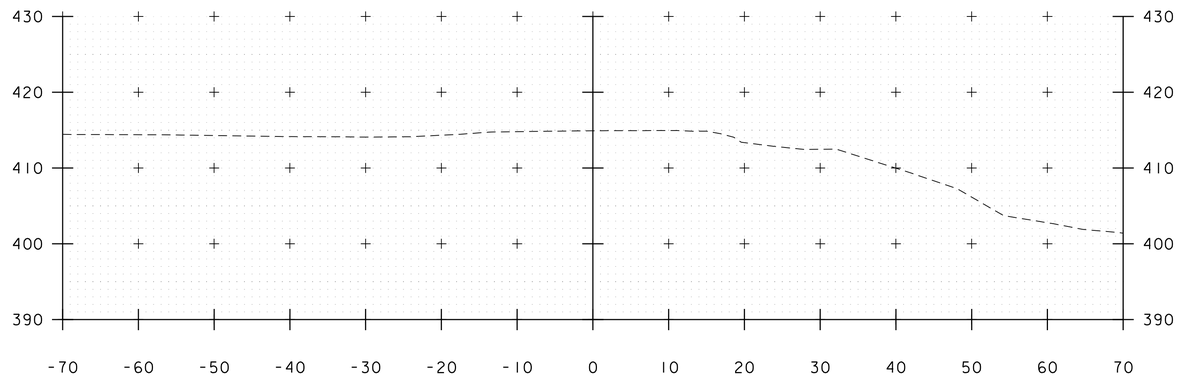
Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-(2)
FILE NAME: z12bl38xs.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: M.C. SCOTT
DESIGNED BY: E.A. FIALA	CHECKED BY: E.A. FIALA
ROADWAY CROSS SECTIONS (5 OF 6)	SHEET 61 OF 82

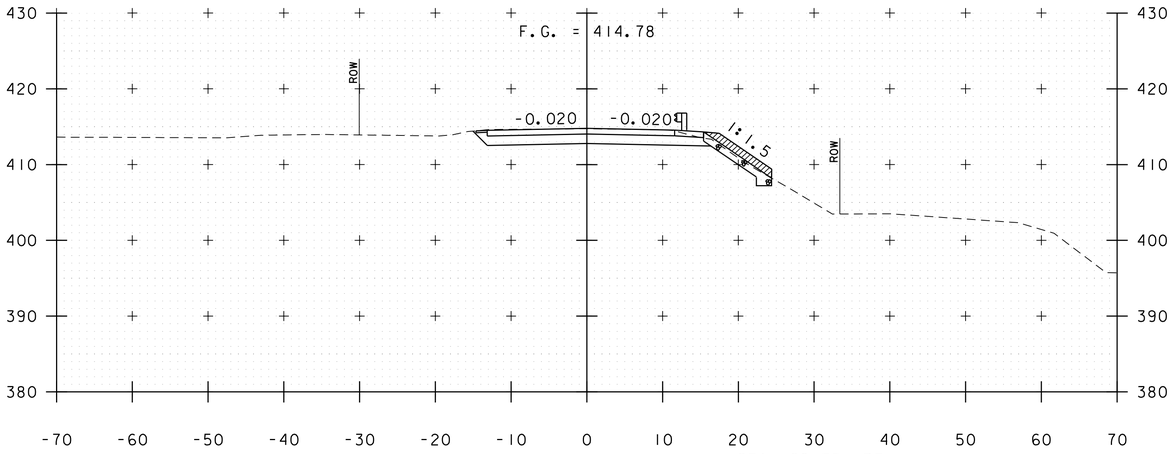
VHB 57632



69+00

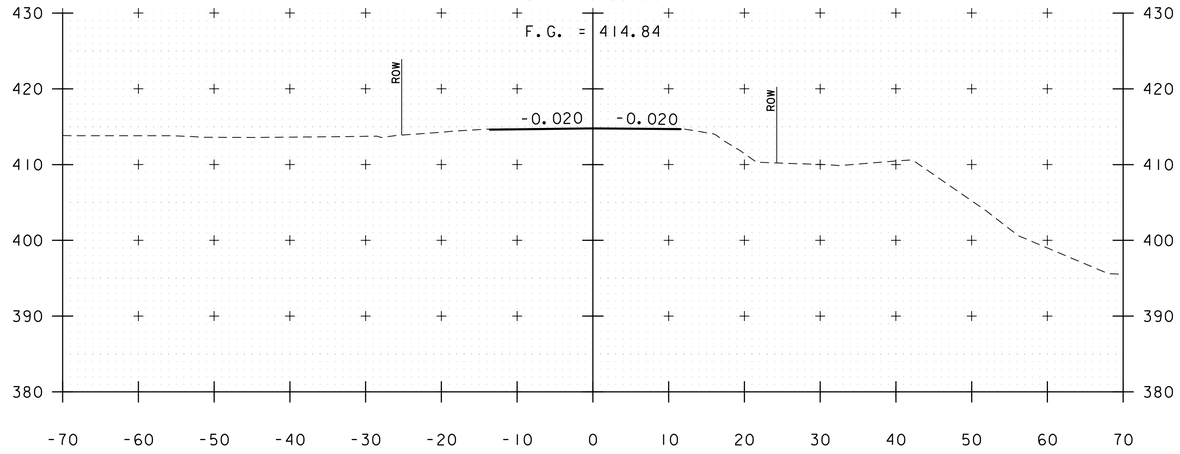


69+50
END APPROACH
STA. 69+35.00



68+75

STA. 68+75, RT
END GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE I
GRUBBING MATERIAL



69+25

ROADWAY CROSS SECTIONS

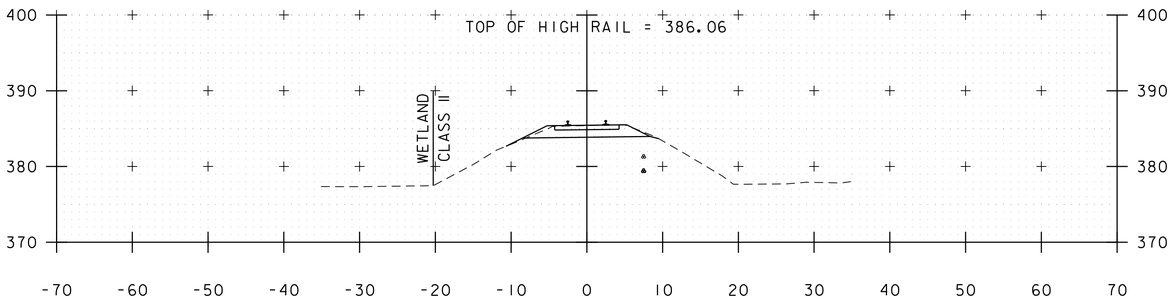
SCALE 1" = 10'-0"

STA. 68+75 - 69+50

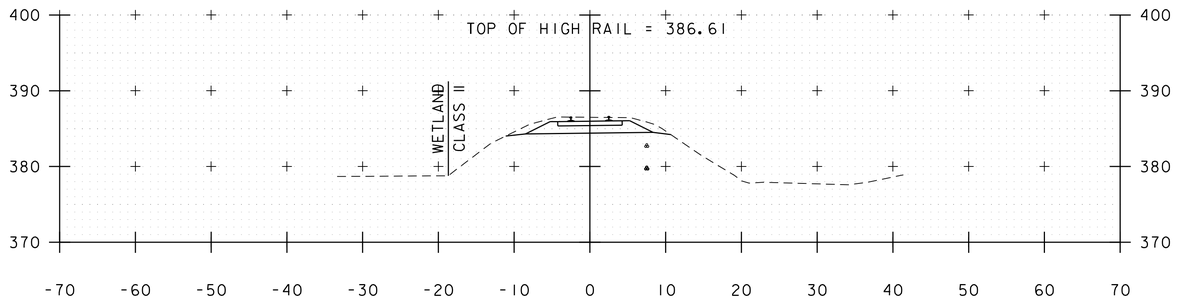
Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-(2)
FILE NAME: z12bl38xs.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: M.C. SCOTT
DESIGNED BY: E.A. FIALA	CHECKED BY: E.A. FIALA
ROADWAY CROSS SECTIONS (6 OF 6)	SHEET 62 OF 82

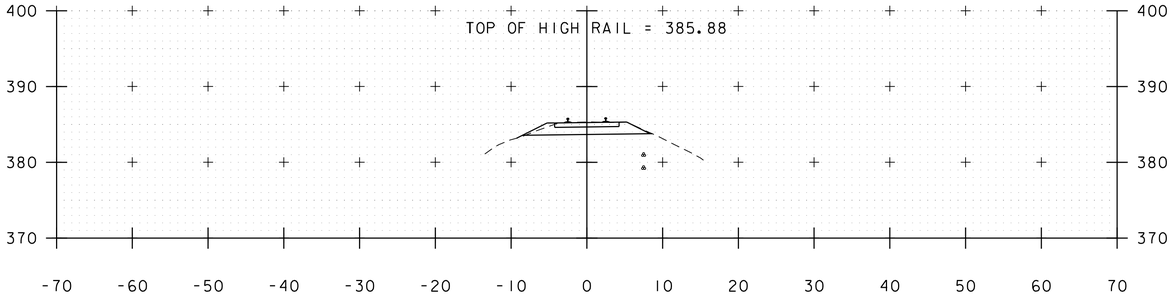
VHB 57632



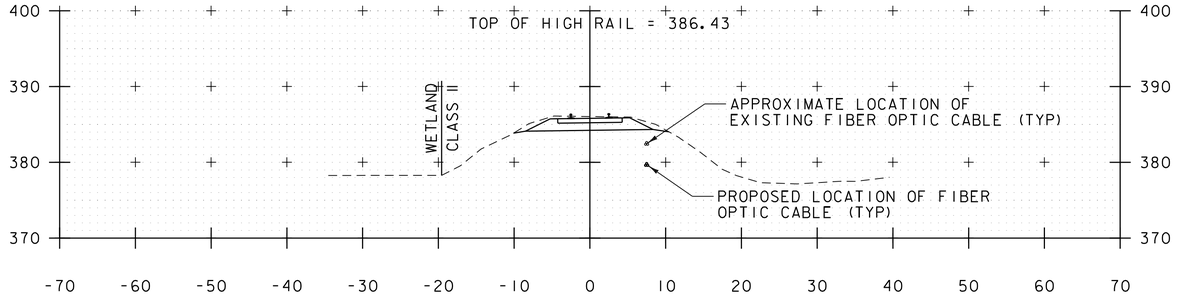
595+50



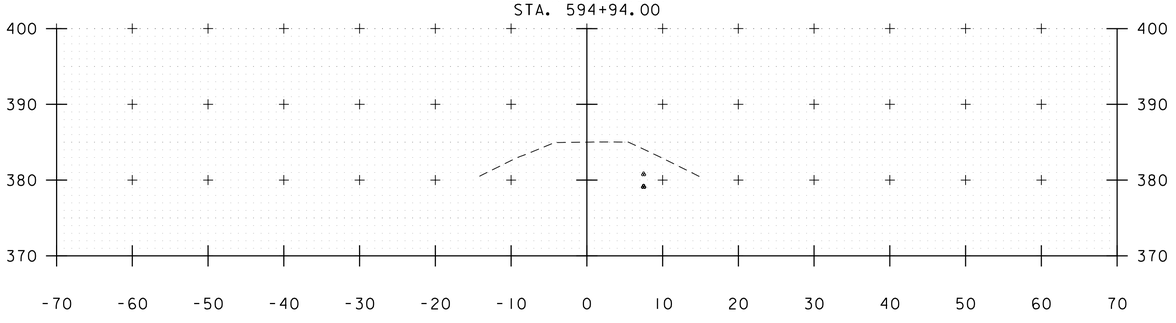
597+00



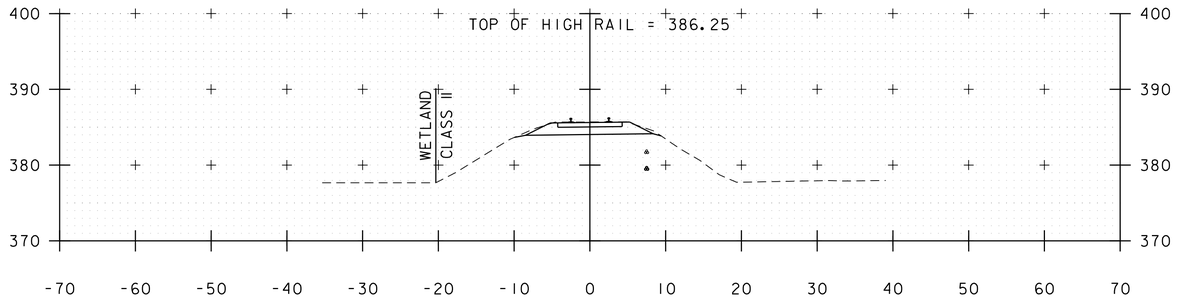
595+00
BEGIN RAIL WORK
STA. 594+94.00



596+50



594+50



596+00

RAILROAD CROSS SECTIONS

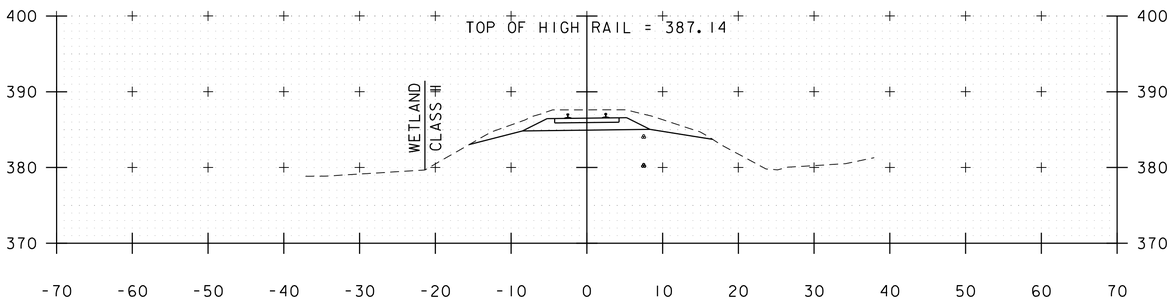
SCALE 1" = 10'-0"

STA. 594+50 - 597+00

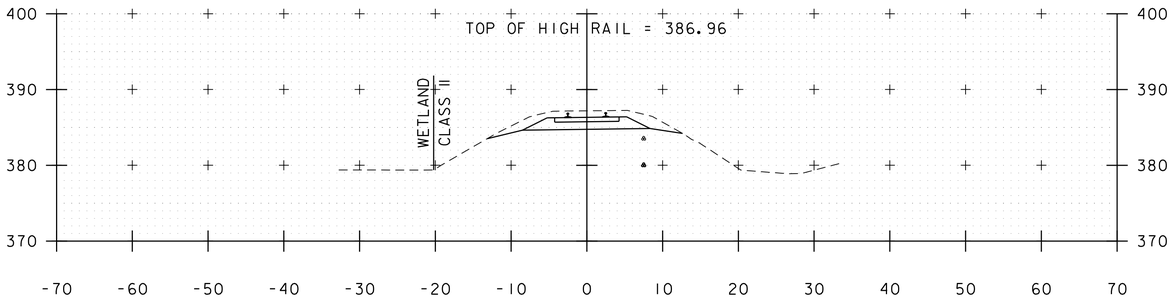
Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138xs.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
RAILROAD CROSS SECTIONS (1 OF 5)	SHEET 63 OF 82

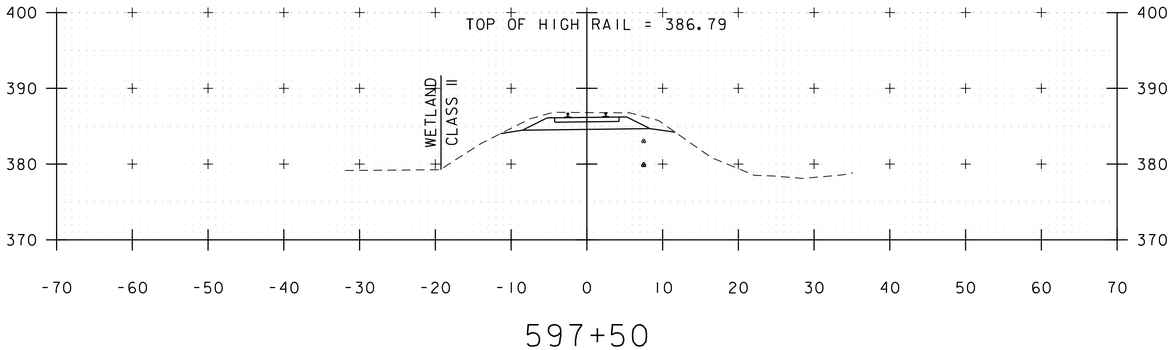
VHB 57632



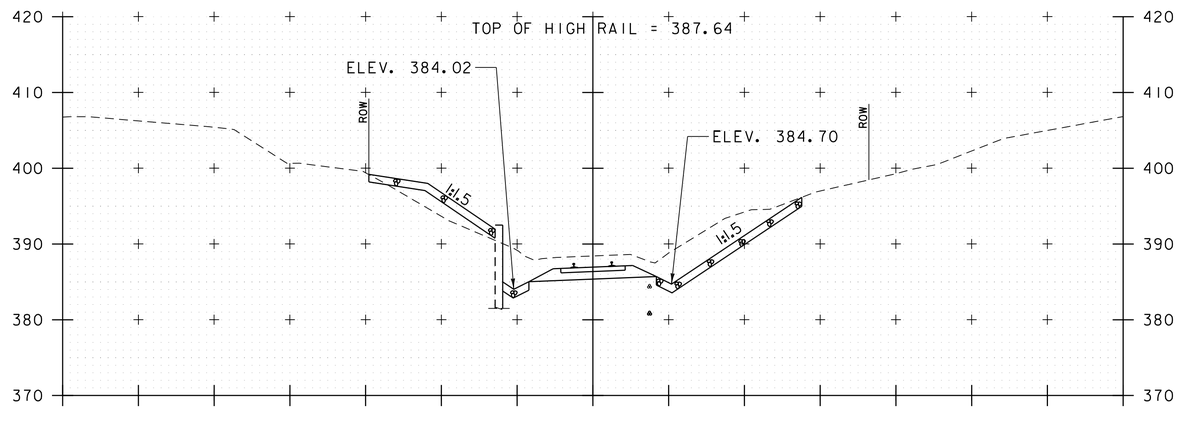
598+50



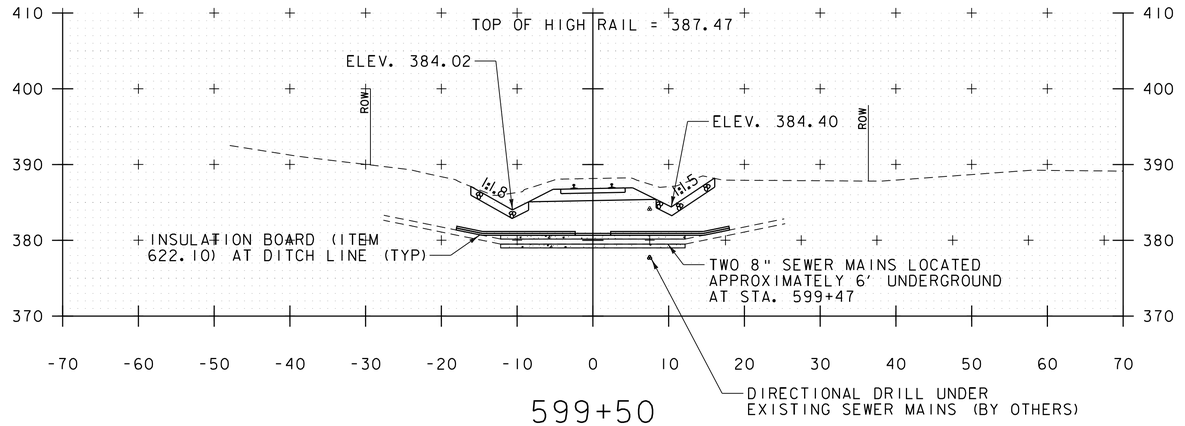
598+00



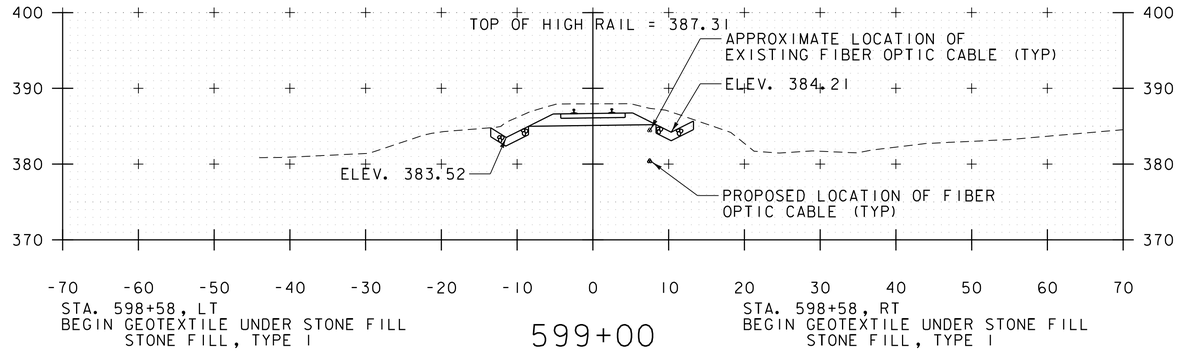
597+50



600+00



599+50



599+00

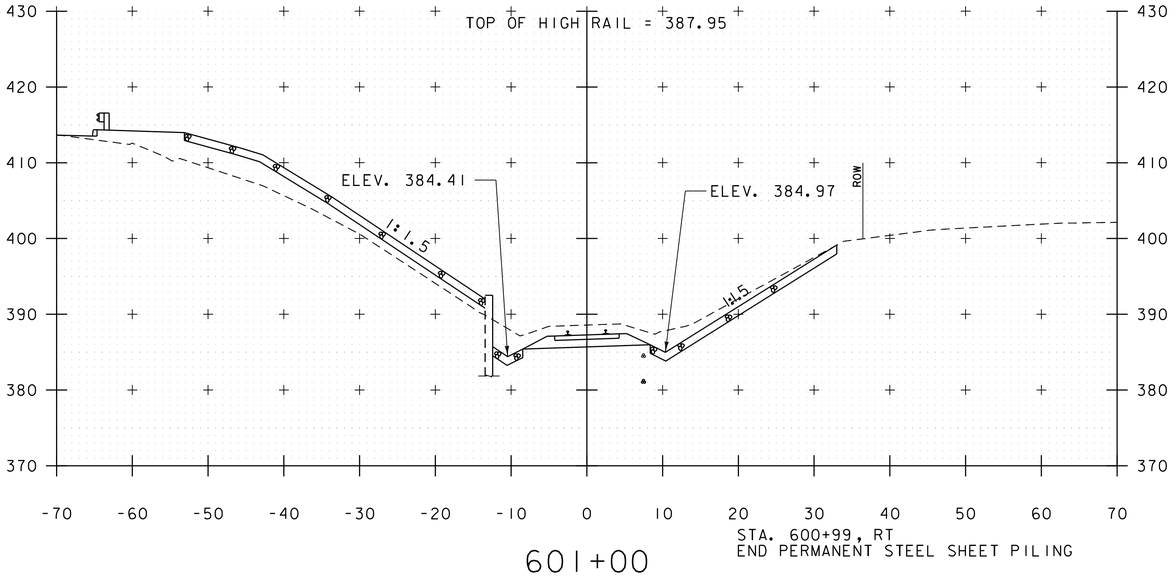
RAILROAD CROSS SECTIONS

SCALE 1" = 10'-0"

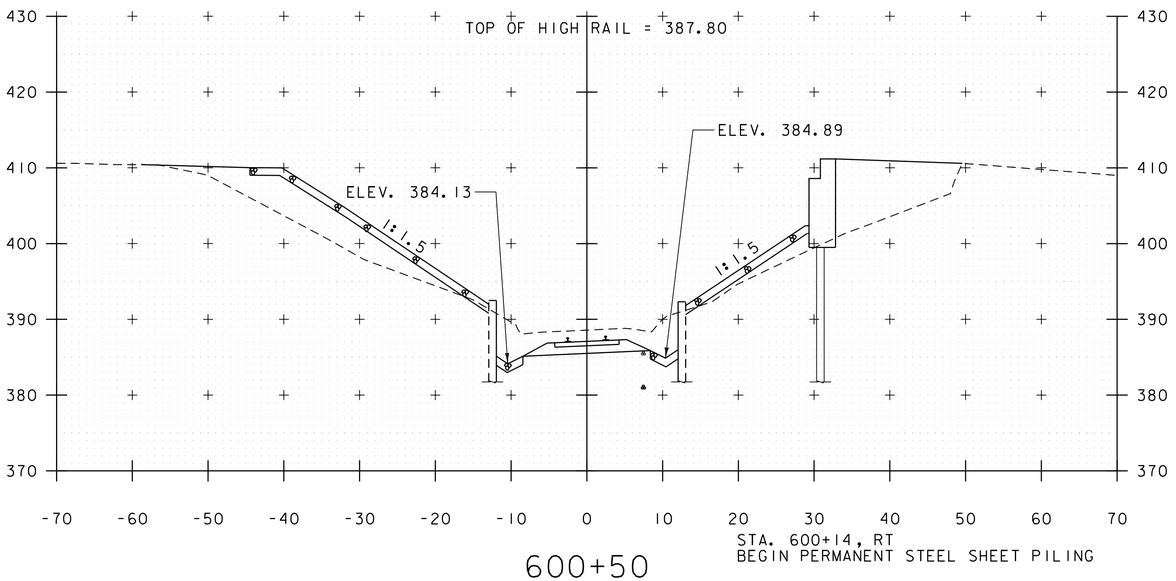
STA. 597+50 - 600+00

Vanasse Hangen Brustlin, Inc.

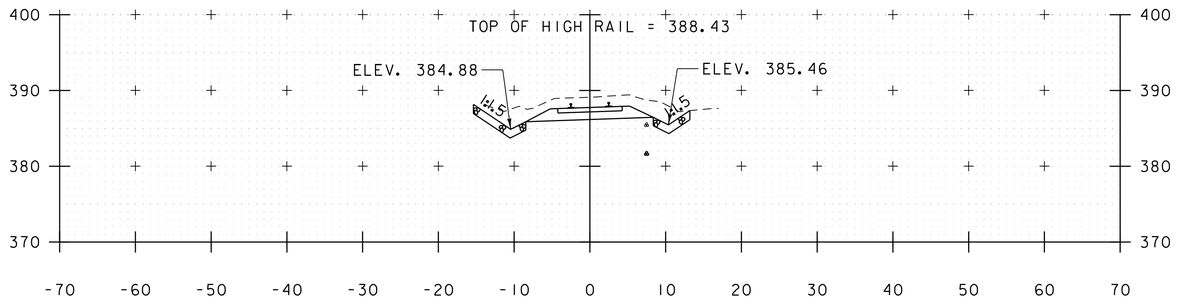
PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12bl38xs.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
RAILROAD CROSS SECTIONS (2 OF 5)	SHEET 64 OF 82



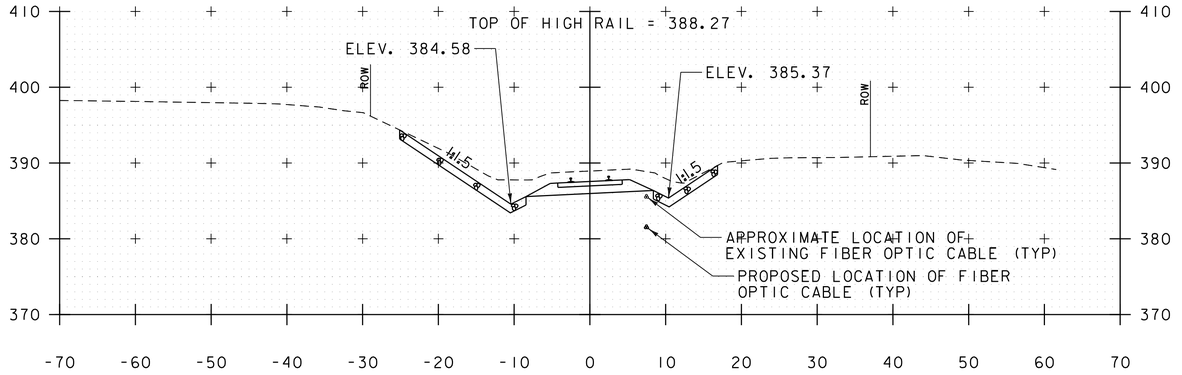
601+00



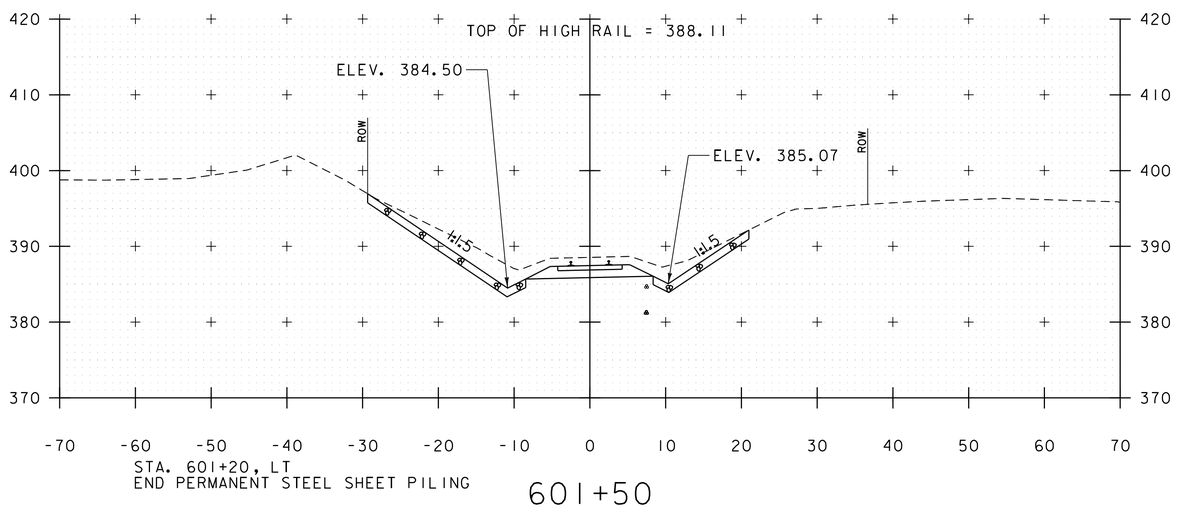
600+50



602+50



602+00



601+50

RAILROAD CROSS SECTIONS

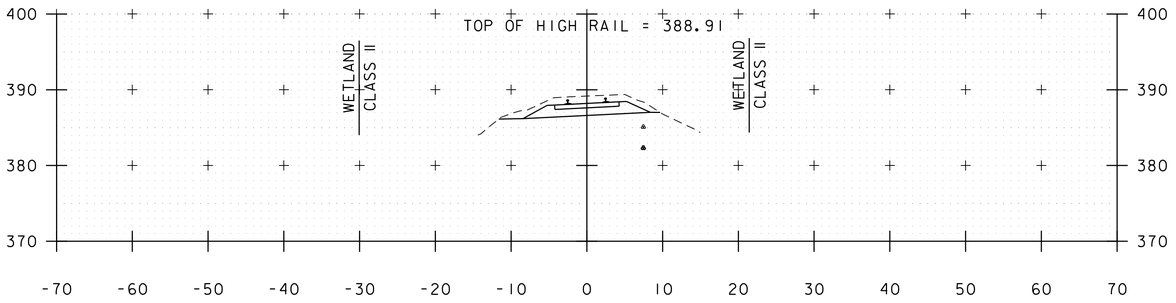
SCALE 1" = 10'-0"

STA. 600+50 - 602+50

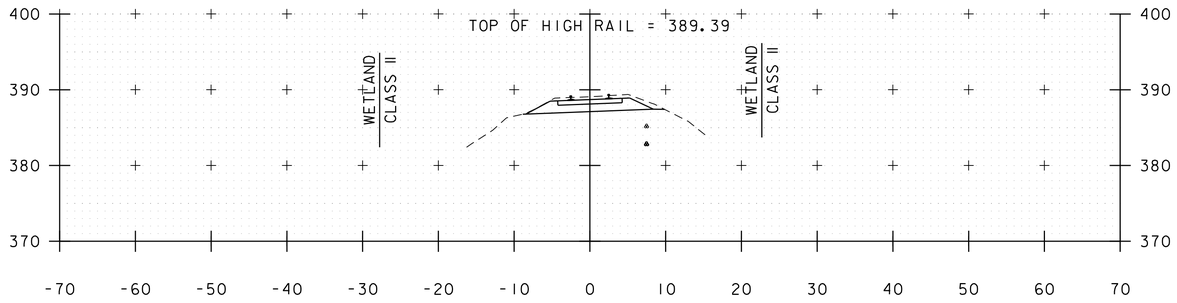
Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138xs.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
RAILROAD CROSS SECTIONS (3 OF 5)	SHEET 65 OF 82

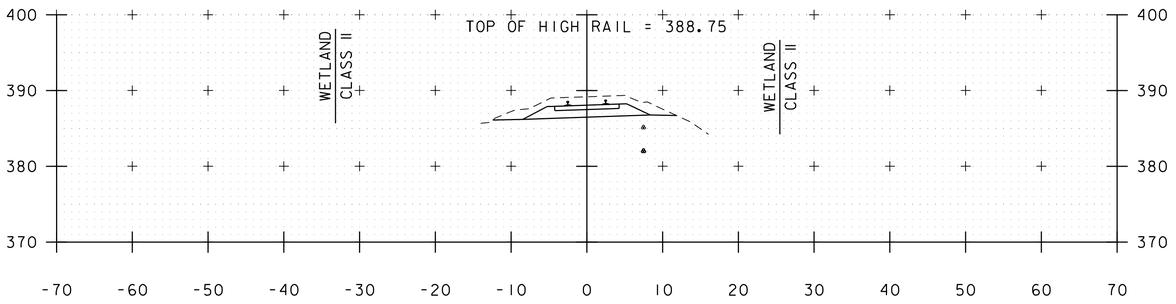
VHB 57632



604+00

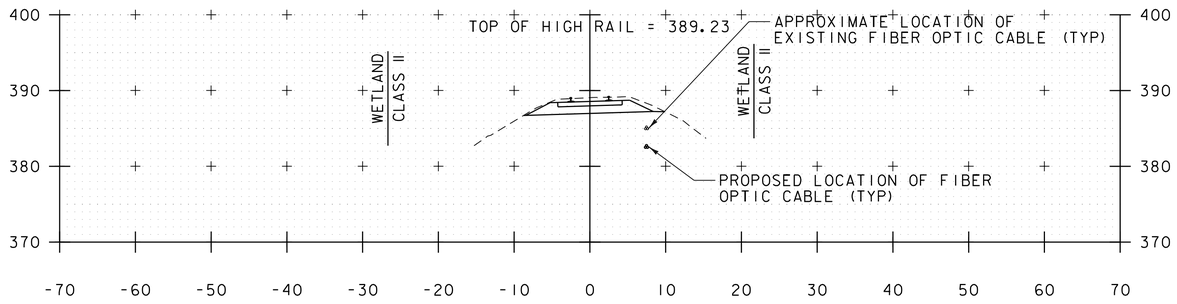


605+50

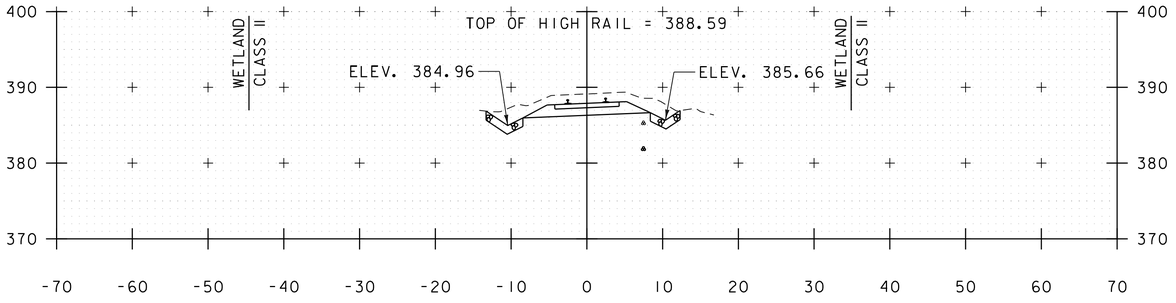


STA. 603+20, LT & RT
END GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE I

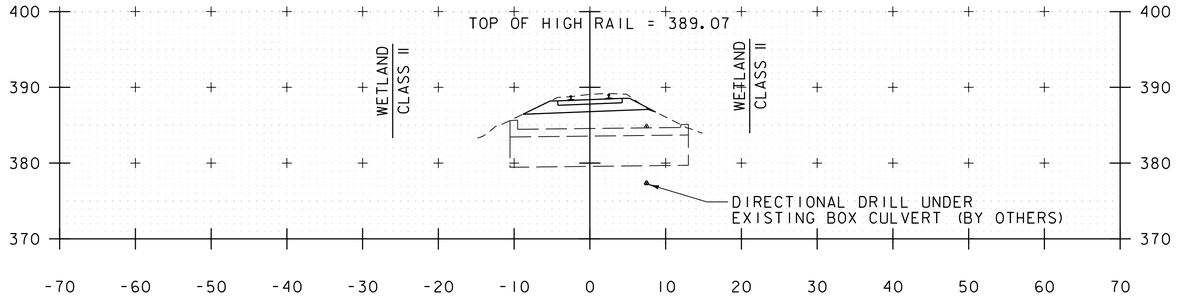
603+50



605+00



603+00



604+50

RAILROAD CROSS SECTIONS

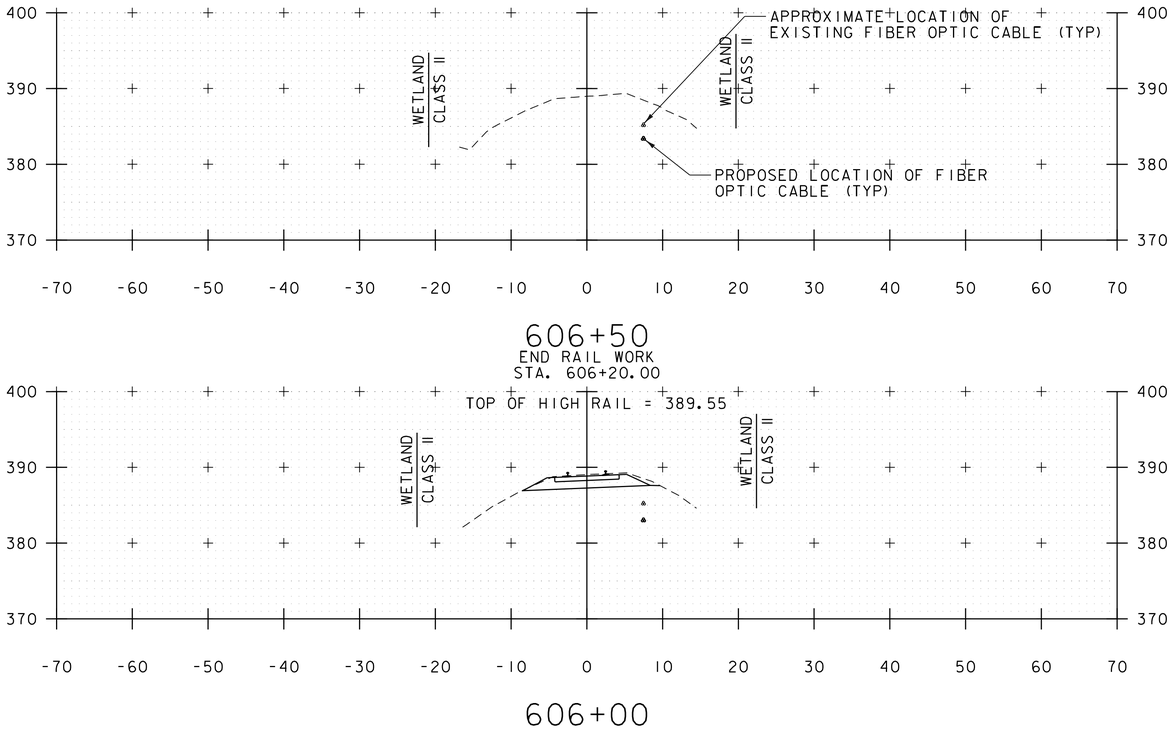
SCALE 1" = 10'-0"

STA. 603+00 - 605+50

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138xs.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
RAILROAD CROSS SECTIONS (4 OF 5)	SHEET 66 OF 82

VHB 57632



RAILROAD CROSS SECTIONS

SCALE 1" = 10'-0"

STA. 606+00 - 606+50

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138xs.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
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RAILROAD CROSS SECTIONS (5 OF 5)	SHEET 67 OF 82

VHB 57632

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL AND REPLACEMENT OF THE EXISTING STEEL BEAM AND CONCRETE DECK SUPERSTRUCTURE, CONCRETE ABUTMENTS, AND CONCRETE PIERS WITH RELATED APPROACH AND RAIL WORK. DURING CONSTRUCTION TRAFFIC WILL BE MAINTAINED ON AN OFF-SITE DETOUR. THIS PROJECT IS LOCATED ON VT 30, OVER THE CLARENDON AND PITTSFORD RAILROAD, APPROXIMATELY 0.3 MILES SOUTH OF THE JUNCTION WITH VT 4A IN THE TOWN OF CASTLETON. THE EXISTING BRIDGE HAS A 36 FOOT MAXIMUM SPAN FOR TOTAL BRIDGE LENGTH OF APPROXIMATELY 109 FEET AND HAS AN OVERALL WIDTH OF 29.0 FEET. THE EXISTING SUBSTRUCTURE CONSISTS OF CONCRETE STUB ABUTMENTS AND PIERS ON SPREAD FOOTINGS.

THE BRIDGE REPLACEMENT INCLUDES THE REMOVAL OF THE EXISTING STRUCTURE IN ITS ENTIRETY AND THE CONSTRUCTION OF A NEW 70.10' SINGLE SPAN BRIDGE WITH PRECAST PRESTRESSED CONCRETE NEXT BEAMS TO CREATE A NEW BRIDGE WIDTH OF 35'-0". NEW INTEGRAL ABUTMENTS, EACH ON A SINGLE ROW OF PILES, AND WINGWALLS WILL BE PRECAST. STEEL SHEET PILING WILL BE DRIVEN IN FRONT OF THE ABUTMENTS TO ALLOW FOR PRESENT AND FUTURE LOWERING OF THE RAIL TRACKS. ASSOCIATED ROADWAY APPROACH WORK INCLUDES PRECAST BRIDGE APPROACH SLABS, WIDENING OF ROADWAY, AND NEW GUARDRAIL. ASSOCIATED RAIL APPROACH WORK INCLUDES LOWERING THE ROAD 1' AND LOWERING THE RAIL TO ACHIEVE 21'-2 ¼" VERTICAL CLEARANCE.

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 1.70 ACRES.

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

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS HILLY WITH A MOSTLY WELL ESTABLISHED FOREST AND OCCASIONAL OPEN AREAS. VT ROUTE 30 HAS PAVED DRIVEWAYS WITHIN THE PROJECT SITE. THERE IS A RESIDENCE AND SEWAGE TREATMENT PLANT ON THE WEST SIDE OF THE PROJECT, AND A VTRANS GARAGE AND BUSINESS TO THE EAST WITH GRASS AND TREE BUFFERS.

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

THERE IS NO WATER SOURCE ON THE PROJECT SITE. WETLANDS ARE TO THE SOUTH AND EAST OF THE BRIDGE.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF MARSH NEAR THE RAILROAD TRACKS AND HARDWOOD TREES NEAR THE ROAD. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE BRIDGE AND LOWERING OF THE RAIL. UPON PROJECT COMPLETION, SLOPES UP TO THE ABUTMENT WILL BE ARMORED WITH STONE FILL TYPE I AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF RUTLAND, VERMONT. THE PRIMARY SOILS ON THE PROJECT SITE ARE WINDSOR LOAMY SAND, 15% TO 25% SLOPES, "K FACTOR" = 0.17 AND IS CONSIDERED TO HAVE LOW EROSION POTENTIAL DUE TO INSIGNIFICANT SLOPES; AND LIMERICK SILT LOAM, "K FACTOR" = 0.49 AND IS CONSIDERED TO HAVE HIGH EROSION POTENTIAL.

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

1.2.5 SENSITIVE RESOURCE AREAS

HISTORICAL OR ARCHEOLOGICAL AREAS: NO
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: NONE
WETLANDS: YES; LOCATED ADJACENT TO THE RAILROAD

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 CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

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

1.4.2 LIMIT DISTURBANCE AREA

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

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

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR'S PROGRESS SCHEDULE.

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

1.4.4 INSTALL SEDIMENT BARRIERS

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

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

1.4.5 DIVERT UPLAND RUNOFF

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

DIVERSION MEASURES ARE NOT ANTICIPATED FOR THIS PROJECT.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

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

STONE CHECK DAMS ARE NOT ANTICIPATED FOR THIS PROJECT.

1.4.7 CONSTRUCT PERMANENT CONTROLS

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

PERMANENT STORMWATER TREATMENT DEVICES ARE NOT ANTICIPATED FOR THIS PROJECT.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

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

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

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

1.4.9 WINTER STABILIZATION

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

1.4.10 STABILIZE SOIL AT FINAL GRADE

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

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

1.4.11 DE-WATERING ACTIVITIES

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

TREATMENT OF DEWATERING COFFERDAM IS NOT ANTICIPATED.

1.4.12 INSPECT YOUR SITE

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

1.5 SEQUENCE AND STAGING

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

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES

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

VT STATE PLANE GRID

N

TO HYDEVILLE

TOWN OF CASTLETON

CLARENDON & PITTSFORD RR

RIDER, JOYCE

BROWN, CHARLES W. & MARY LOU

CLARENDON & PITTSFORD RAILROAD

STATE OF VERMONT

CASTLETON RIVER

RIPRIAN BUFFER

STATE R.O.W.

RR R.O.W.

BEGIN APPROACH
STA. 63+90.00

BEGIN BRIDGE
STA. 66+00.54
FG 410.84

END BRIDGE
STA. 66+70.64
FG 413.40

END PROJECT
STA. 68+55.00

END APPROACH
STA. 69+35.00

BEGIN PROJECT
STA. 64+70.00

TO ROULTNEY

TO CASTLETON

VT ROUTE 30

I-138 PROJECT

STONE FILL, TYPE I (TYP.)

CLASS II WETLAND

CLASS II WETLAND BUFFER

GARAGE

SHED

PAVED DRIVE

GRAVEL DRIVE

SOIL CLASSIFICATION

LIMERICK SILT LOAM (110)
0% TO 3% SLOPES
CLASSIFIED NOT HIGH EROSION POTENTIAL

WINDSOR LOAMY SAND (18D)
15% TO 25% SLOPES
CLASSIFIED POTENTIALLY LOW EROSION

0 20 40
SCALE IN FEET

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(110)
FILE NAME: z12bl38bdr_ero.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
ROADWAY EPSC EXISTING SITE PLAN	SHEET 69 OF 82

VHB 57632

N

VT STATE PLANE GRID

TO HYDEVILLE

TO POULTNEY

TO CASTLETON

VT ROUTE 30

RR R.O.W.

CASTLETON RIVER

RIPRIAN BUFFER

STATE R.O.W.

BEGIN APPROACH
STA. 63+90.00

BEGIN BRIDGE
STA. 66+00.54
FG 410.84

END BRIDGE
STA. 66+70.64
FG 413.40

END APPROACH
STA. 69+35.00

END PROJECT
STA. 68+55.00

BEGIN PROJECT
STA. 64+70.00

PERMANENT STEEL
SHEET PILING (TYP.)

STONE FILL,
TYPE I (TYP.)

CLASS II WETLAND

CLASS II WETLAND BUFFER

CLARENDON & PITTSFORD RAILROAD

GARAGE

SHED

PAVED DRIVE

GRAVEL DRIVE

DUG WELL

BENCH MARK
RAILROAD SPIKE
IN ROOT
ELEV. = 404.48

MANHOLE
SANITARY SEWER

TWO 8" SEWER MAINS INTO SEWER PLANT FLOW

12" SEWER FLOW

15" ACCMP
GOOD CONDITION
FLOW

CHAIN LINK FENCE

WOOD WALL

IRON PIPE

BOXELDER

CRABAPPLE

MAPLE

JUNIPER

LILAC

ASH

599+00
600+00
601+00
602+00

64+00
65+00
66+00
67+00
68+00
69+00

NOTE: SEE EPSC DETAILS FOR SYMBOLOGY.

0 20 40
SCALE IN FEET

VHB Vanasse Hangen Brustlin, Inc.

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ROADWAY EPSC CONSTRUCTION SITE PLAN	SHEET 70 OF 82

VHB 57632

N

VT STATE PLANE GRID

TO HYDEVILLE

599+00

600+00

601+00

602+00

RR R.O.W.

CLAREMON & PITTSFORD RAILROAD

BEGIN BRIDGE
STA. 66+00.54
FG 410.84

END BRIDGE
STA. 66+70.64
FG 413.40

PERMANENT STEEL SHEET PILING (TYP.)

BEGIN APPROACH
STA. 63+90.00

END PROJECT
STA. 68+55.00

END APPROACH
STA. 69+35.00

BEGIN PROJECT
STA. 64+70.00

VT ROUTE 30

TO POULTNEY

TO CASTLETON

STATE R.O.W.

CASTLETON RIVER

RIPRIAN BUFFER

CLASS II WETLAND

CLASS II WETLAND BUFFER

STONE FILL, TYPE I (TYP.)

GARAGE

SHED

PAVED DRIVE

GRAVEL DRIVE

WOODS

BOXELDER

CRABAPPLE

MAPLE

LILAC

JUNIPER

ASH

DUG WELL

MANHOLE SANITARY SEWER

TWO 8" SEWER MAINS INTO SEWER PLANT FLOW

TWO 8" SEWER MAINS FLOW

12" SEWER FLOW

12" SEWER MAIN

15" ACCMP GOOD CONDITION FLOW

CHAIN LINK FENCE

WOOD WALL

IRON PIPE

LIGHT POLE

STONE FILL

AER E&T

CZ

IGN

R8-3A

NOTE: SEE EPSC DETAILS FOR SYMBOLOGY.

0 20 40
SCALE IN FEET

Vanasse Hangen Brustlin, Inc.

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ROADWAY EPSC FINAL SITE PLAN	SHEET 71 OF 82

VHB 57632

N

VT STATE PLANE GRID

TO HYDEVILLE

WOODS

CLASS II WETLAND

380

385

594+00

595+00

596+00

597+00

598+00

599+00

MATCHLINE STA. 599+50

CLARENDON & PITTSFORD RR

180

110

WOODS

BEGIN RAIL WORK
STA. 594+94.00

CLASS II WETLAND BUFFER

TO CASTLETON

TWO 8" SEWER MAINS TO SEWER PLANT

TOWN OF CASTLETON

ELM

BEGIN RR

AER

CHAIN LINK FENCE

GARAGE

390

SOIL CLASSIFICATION

LIMERICK SILT LOAM (110)
0% TO 3% SLOPES
CLASSIFIED NOT HIGH EROSION POTENTIAL

WINDSOR LOAMY SAND (18D)
15% TO 25% SLOPES
CLASSIFIED POTENTIALLY LOW EROSION

0 20 40

SCALE IN FEET

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138bdr_ero.dgn	PLOT DATE: 9/19/2014
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DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
RAIL EPSC EXISTING SITE PLAN (1 OF 3)	SHEET 72 OF 82

VHB 57632

N

VT STATE PLANE GRID

MATCHLINE STA. 599+50

MATCHLINE STA. 605+50

STATE OF VERMONT

CLARENDON & PITTSFORD RR

CLASS II WETLAND BUFFER

CLASS II WETLAND

GARAGE

PAVED DRIVE

GRAVEL DRIVE

BRUSH

WOODS

EDGE OF GRAVEL

12" SEWER FLOW

SANITARY SEWER MANHOLE

SEWER MAIN FLOW

TWO 8" SEWER MAIN FLOW

BOULDER

TIE

AER E&T

HVCTRL

IRON PIN

GUY

SIGN

ASH

TO HYDEVILLE

TO CASTLETON

18D

8.5' WIDE STONE BOX CULVERT WITH 3' WIDE OPENING
TOP OF WALL ELEV. = 384.90
TOP OF OPENING ELEV. = 383.45
GROUND LEVEL ELEV. = 379.45±

3' x 3' STONE BOX

8.5' WIDE STONE BOX CULVERT WITH 3' WIDE OPENING
TOP OF WALL ELEV. = 385.16
TOP OF OPENING ELEV. = 383.71
GROUND LEVEL ELEV. = 379.71±

SOIL CLASSIFICATION

LIMERICK SILT LOAM (110)
0% TO 3% SLOPES
CLASSIFIED NOT HIGH EROSION POTENTIAL

WINDSOR LOAMY SAND (18D)
15% TO 25% SLOPES
CLASSIFIED POTENTIALLY LOW EROSION

0 20 40
SCALE IN FEET

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RAIL EPSC EXISTING SITE PLAN (2 OF 3)	SHEET 73 OF 82

VHB Vanasse Hangen Brustlin, Inc.

VHB 57632

N

VT STATE PLANE GRID

110

MATCHLINE STA. 605+50

END RAIL WORK
STA. 606+20.00

EDGE OF GRAVEL
CLASS II WETLAND
385
606+00
607+00
608+00
609+00
610+00
611+00
TO HYDEVILLE
TO CASTLETON
BRUSH
EDGE OF GRAVEL

110

SOIL CLASSIFICATION

LIMERICK SILT LOAM (110)
0% TO 3% SLOPES
CLASSIFIED NOT HIGH EROSION POTENTIAL

WINDSOR LOAMY SAND (18D)
15% TO 25% SLOPES
CLASSIFIED POTENTIALLY LOW EROSION

0 20 40
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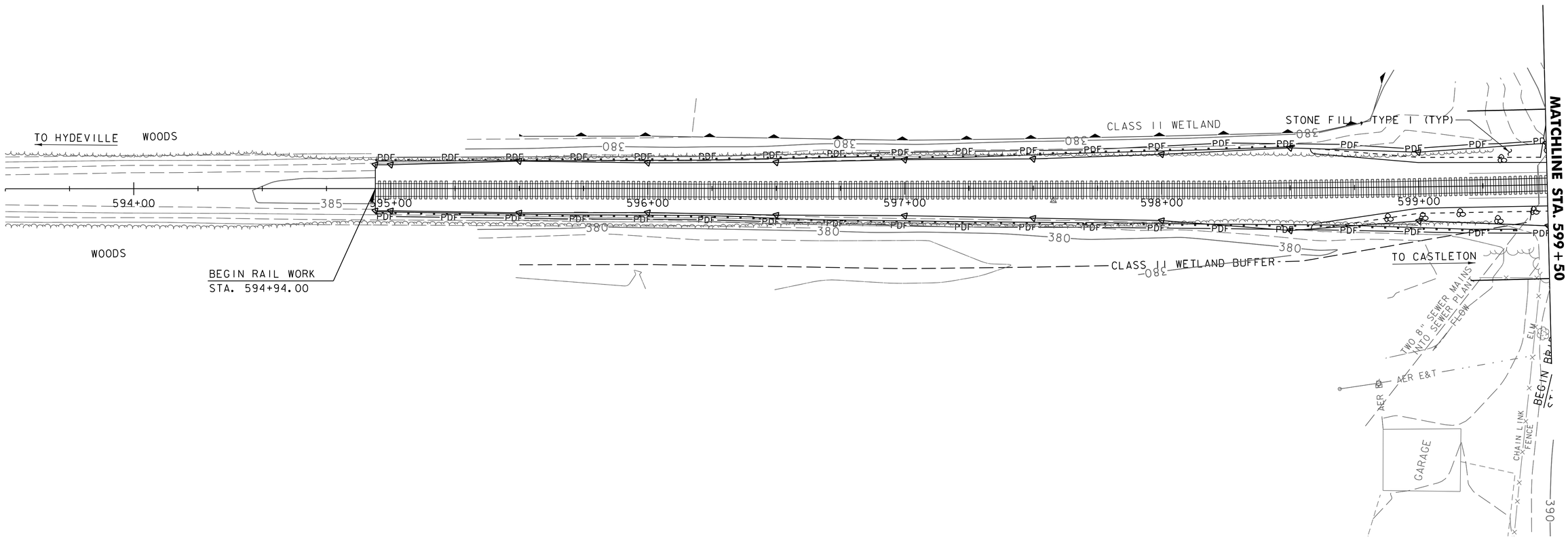
RAIL EPSC EXISTING SITE PLAN (3 OF 3)	SHEET 74 OF 82

VHB 57632

N

VT STATE PLANE GRID

STONE FILL, TYPE I
STA. 598+58 - 599+50, LT & RT



NOTE: SEE EPSC DETAILS FOR SYMBOLOGY.

0 20 40
SCALE IN FEET

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RAIL EPSC CONSTRUCTION SITE PLAN (1 OF 3)	SHEET 75 OF 82

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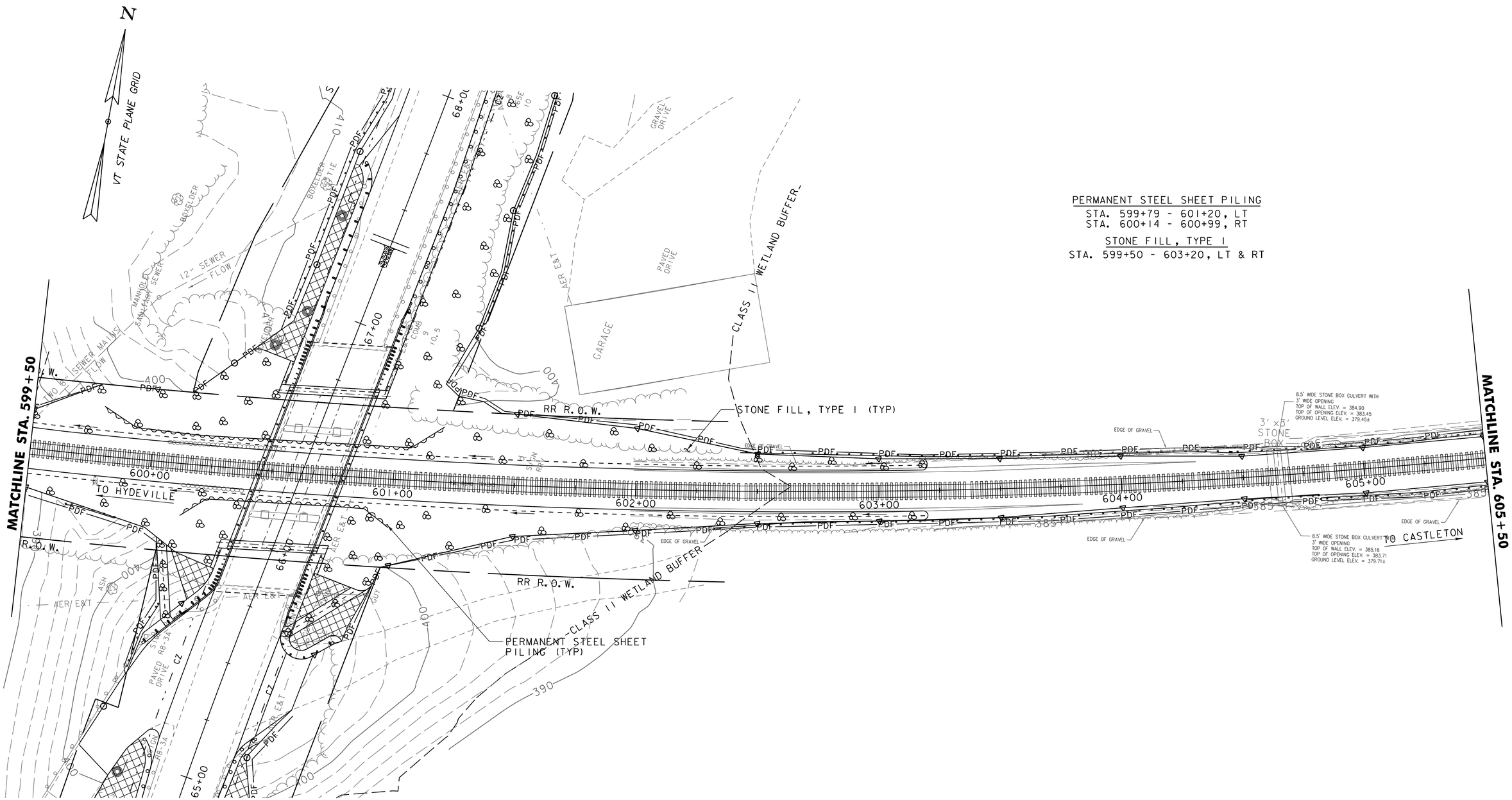

PERMANENT STEEL SHEET PILING
STA. 599+79 - 601+20, LT
STA. 600+14 - 600+99, RT

STONE FILL, TYPE I
STA. 599+50 - 603+20, LT & RT

NOTE: SEE EPSC DETAILS FOR SYMBOLOGY.

0 20 40
SCALE IN FEET

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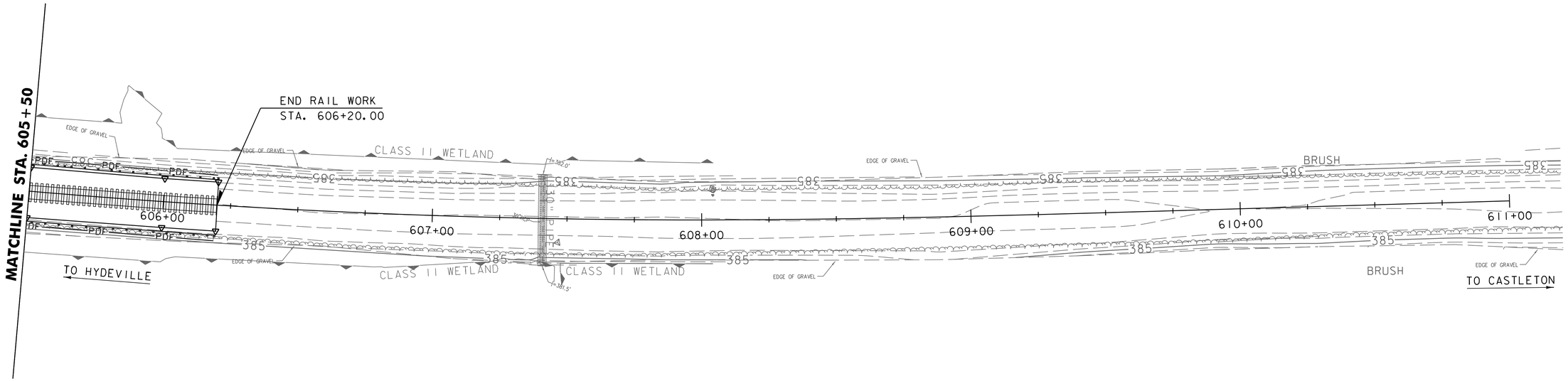
RAIL EPSC CONSTRUCTION SITE PLAN (1 OF 3)	SHEET 76 OF 82

VHB 57632

N

VT STATE PLANE GRID



NOTE: SEE EPSC DETAILS FOR SYMBOLOGY.

0 20 40

SCALE IN FEET

Vanasse Hangen Brustlin, Inc.

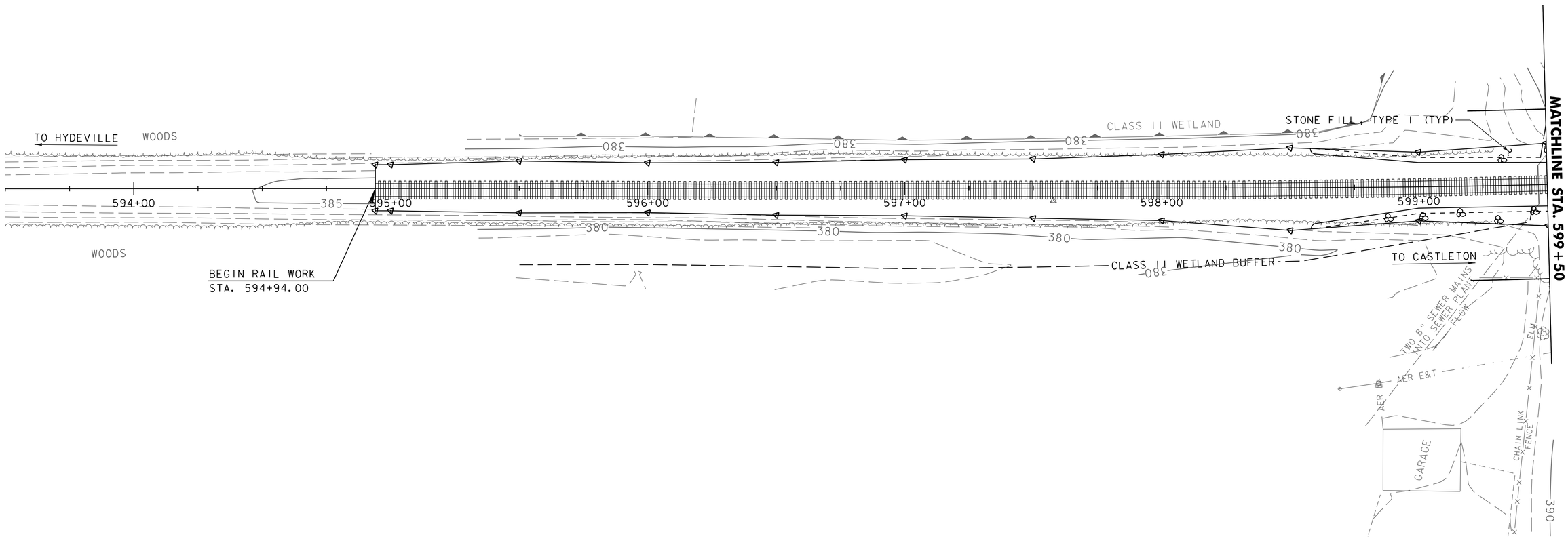
PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138bdr_ero.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
RAIL EPSC CONSTRUCTION SITE PLAN (3 OF 3)	SHEET 77 OF 82

VHB 57632

N

VT STATE PLANE GRID

STONE FILL, TYPE I
STA. 598+58 - 599+50, LT & RT



NOTE: SEE EPSC DETAILS FOR SYMBOLOGY.

0 20 40
SCALE IN FEET

Vanasse Hangen Brustlin, Inc.

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12bl38bdr_ero.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
RAIL EPSC FINAL SITE PLAN (1 OF 3)	SHEET 78 OF 82

VHB 57632

N

VT STATE PLANE GRID

PERMANENT STEEL SHEET PILING
STA. 599+79 - 601+20, LT
STA. 600+14 - 600+99, RT

STONE FILL, TYPE I
STA. 599+50 - 603+20, LT & RT

MATCHLINE STA. 599+50

MATCHLINE STA. 605+50

RR R.O.W.

STONE FILL, TYPE I (TYP)

CLASS II WETLAND BUFFER

PERMANENT STEEL SHEET PILING (TYP)

TO HYDEVILLE

TO CASTLETON

EDGE OF GRAVEL

8.5' WIDE STONE BOX CULVERT WITH 3' WIDE OPENING
TOP OF WALL ELEV. = 384.90
TOP OF OPENING ELEV. = 383.45
GROUND LEVEL ELEV. = 379.45±

8.5' WIDE STONE BOX CULVERT WITH 3' WIDE OPENING
TOP OF WALL ELEV. = 385.16
TOP OF OPENING ELEV. = 383.71
GROUND LEVEL ELEV. = 379.71±

3'×3' STONE BOX

NOTE: SEE EPSC DETAILS FOR SYMBOLOGY.

0 20 40
SCALE IN FEET

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)

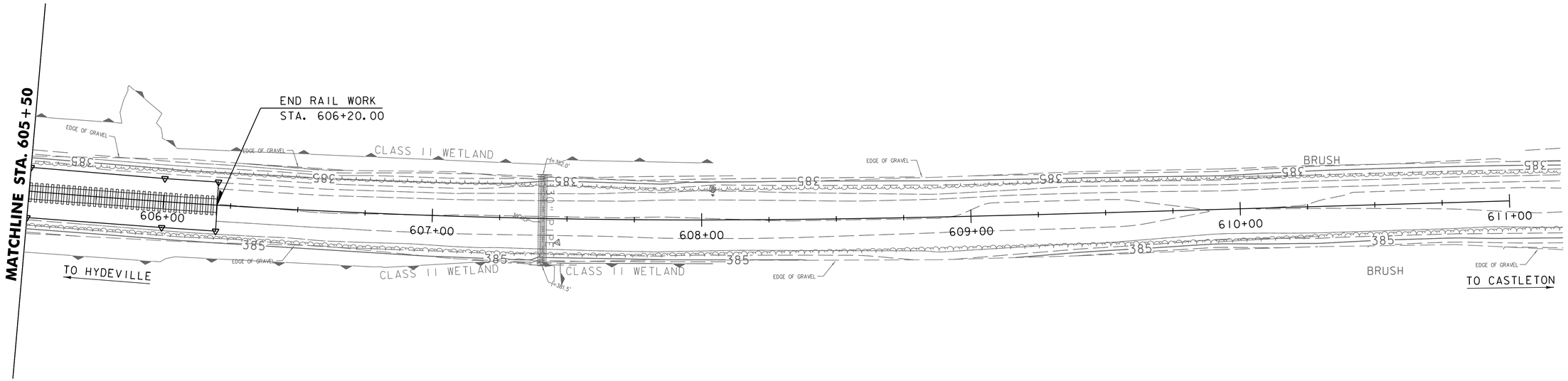
FILE NAME: z12bl38bdr_ero.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
RAIL EPSC FINAL SITE PLAN (2 OF 3)	SHEET 79 OF 82

VHB Vanasse Hangen Brustlin, Inc.

VHB 57632

N

VT STATE PLANE GRID



NOTE: SEE EPSC DETAILS FOR SYMBOLOGY.

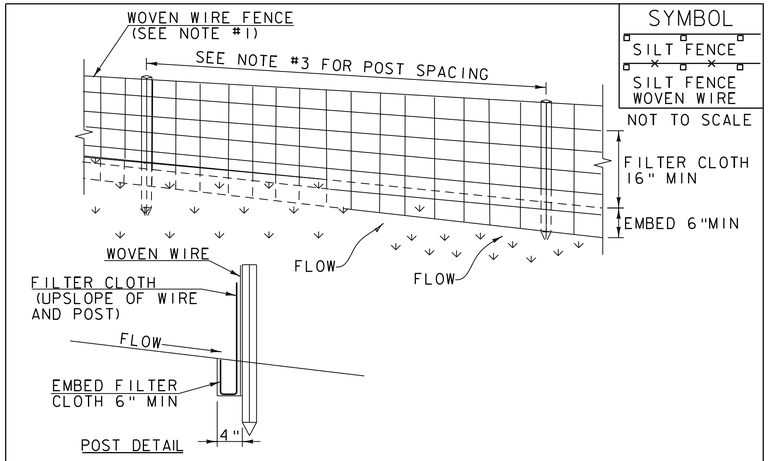
0 20 40

SCALE IN FEET

PROJECT NAME:	CASTLETON
PROJECT NUMBER:	BRF 015-2(10)
FILE NAME: z12b138bdr_ero.dgn	PLOT DATE: 9/19/2014
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
RAIL EPSC FINAL SITE PLAN (3 OF 3)	SHEET 80 OF 82

VHB Vanasse Hangen Brustlin, Inc.

VHB 57632



SYMBOL

SILT FENCE

SILT FENCE WOVEN WIRE

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

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

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

SILT FENCE

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

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

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

VAOT RURAL AREA MIX

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

VAOT URBAN AREA MIX

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

SOIL AMENDMENT GUIDANCE

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

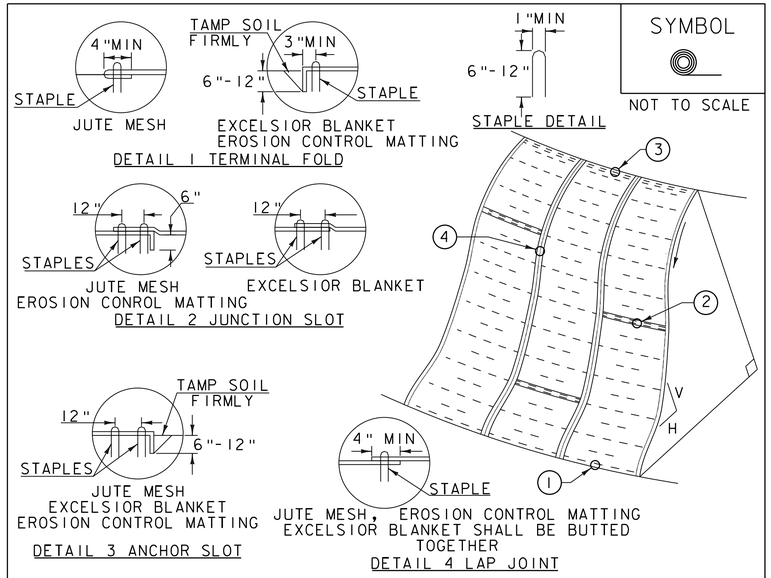
CONSTRUCTION GUIDANCE

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

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

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



SYMBOL

NOT TO SCALE

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'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

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

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF

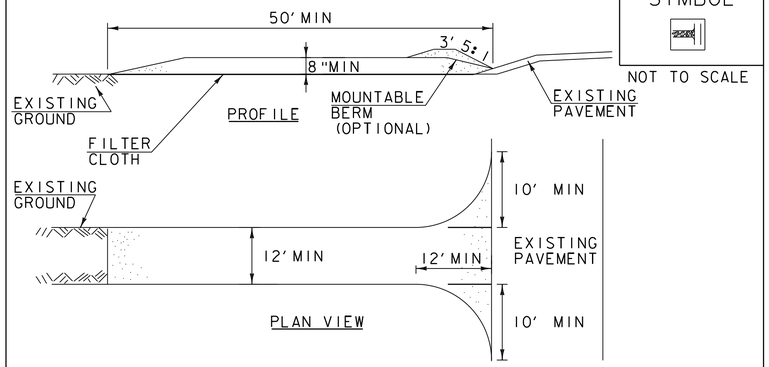
VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: z12b138details ero.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: VTRANS
EROSION CONTROL DETAILS (1 OF 2)

PLOT DATE: 9/19/2014
DRAWN BY: E.A. FIALA
CHECKED BY: S.E. BURBANK
SHEET 81 OF 82

VHB 57632



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

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

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

STABILIZED CONSTRUCTION ENTRANCE

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

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

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

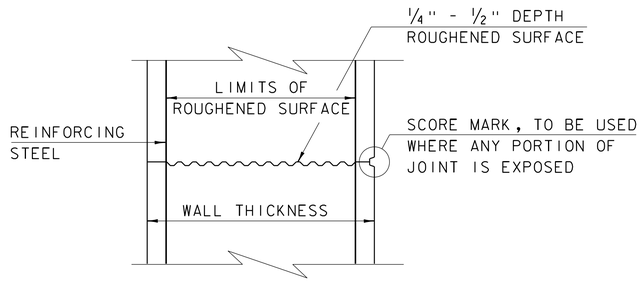
FILE NAME: z12bl38details ero.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: VTRANS
EROSION CONTROL DETAILS (2 OF 2)

PLOT DATE: 9/19/2014
DRAWN BY: E.A. FIALA
CHECKED BY: S.E. BURBANK
SHEET 82 OF 82

VHB 57632

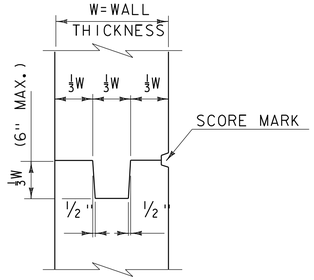
CONCRETE GENERAL NOTES

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

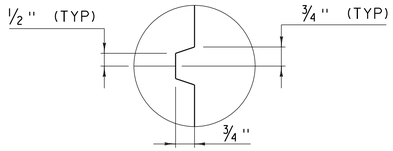


TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

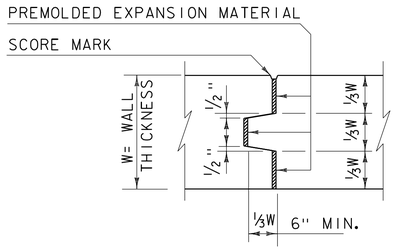
1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



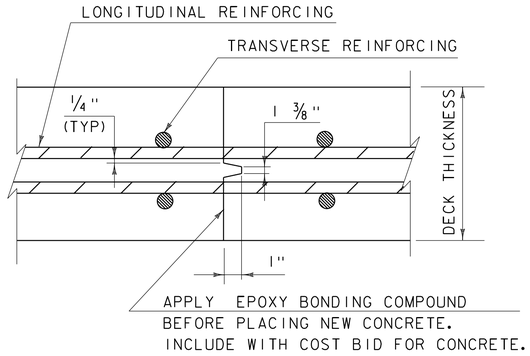
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



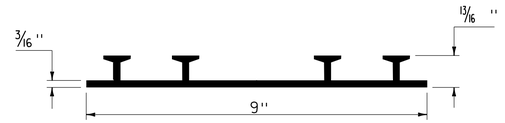
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



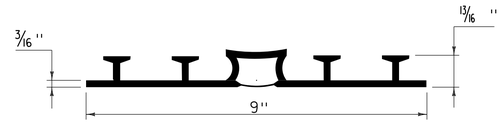
TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



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

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

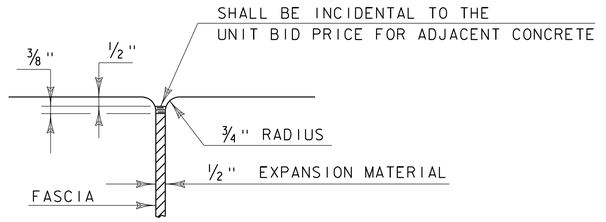
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



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

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

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



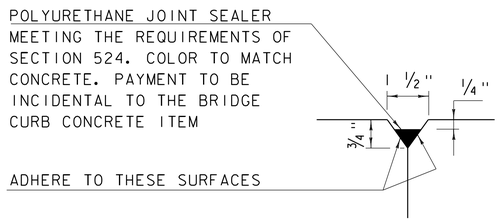
JOINT BETWEEN FASCIA AND WINGWALL
(NOT TO SCALE)

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

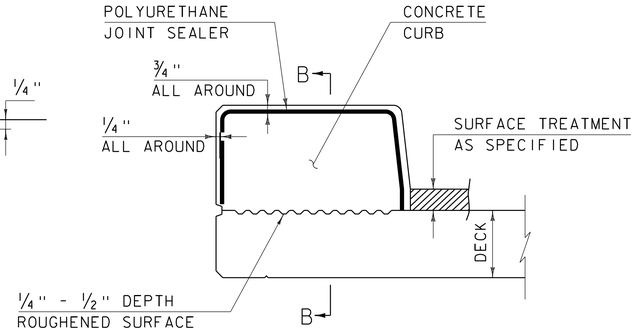
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL SD-501.00

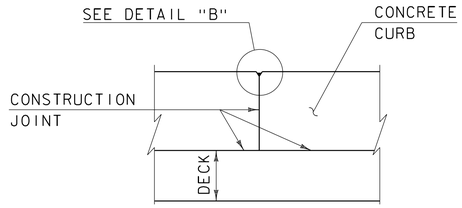


DETAIL "B"
(NOT TO SCALE)



CONCRETE CURB JOINT SECTION
(NOT TO SCALE)

1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



SECTION B - B
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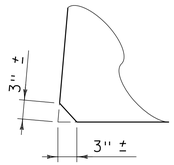
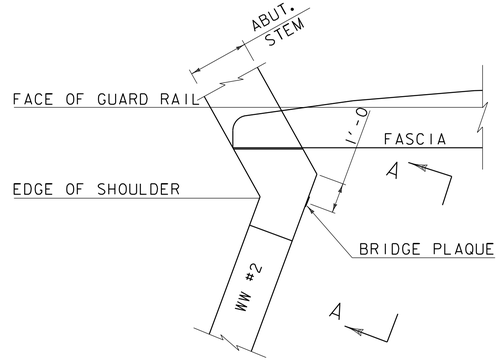


ACUTE ANGLE CLIP DETAIL
(NOT TO SCALE)



PLAN

CONCRETE CURB JOINT NOTES

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

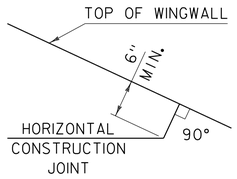
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.

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

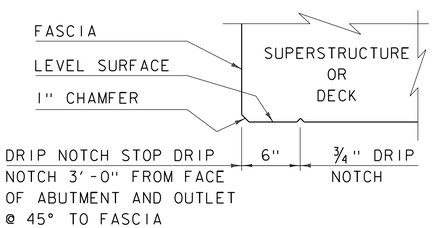
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.

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

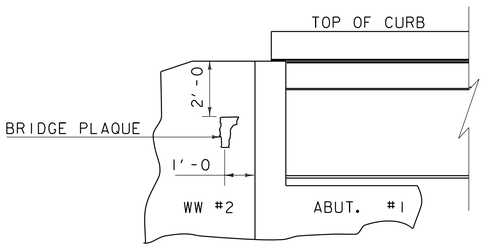
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



HORIZONTAL WINGWALL CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



VIEW "A - A"

BRIDGE PLAQUE
(NOT TO SCALE)

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

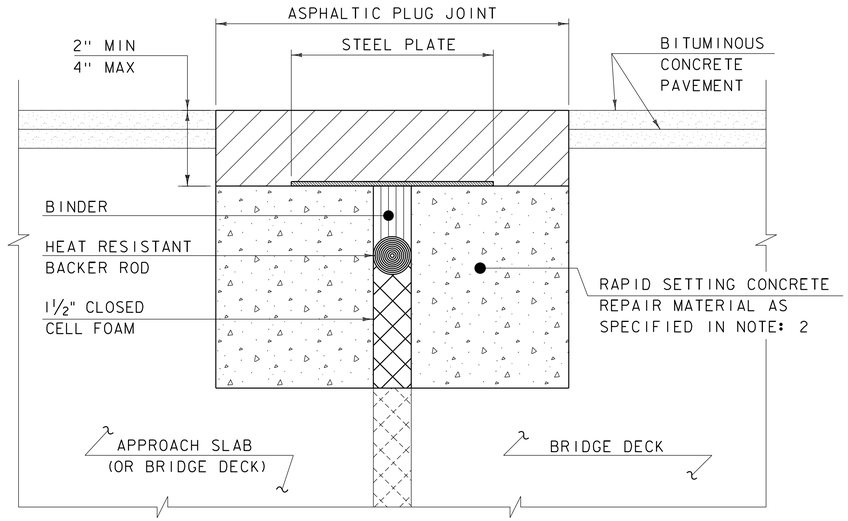
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

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

CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-502.00



ASPHALTIC PLUG JOINT DETAIL - REHAB

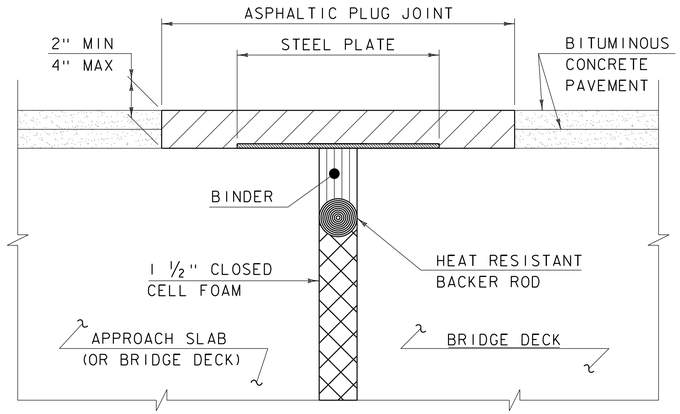
NOTES:

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

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

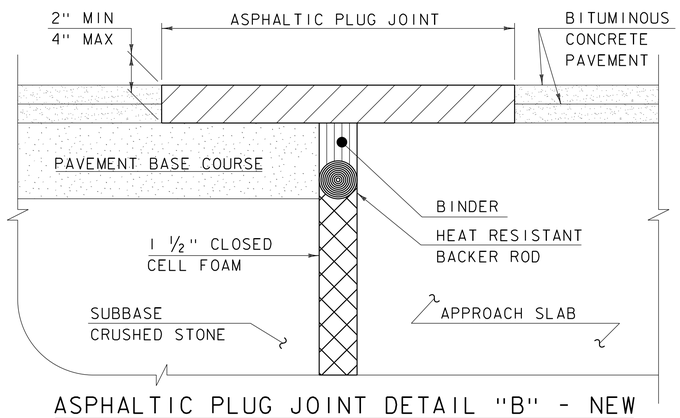
3. REINFORCING STEEL NOT SHOWN FOR CLARITY.

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



ASPHALTIC PLUG JOINT DETAIL "A" - NEW

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



ASPHALTIC PLUG JOINT DETAIL "B" - NEW

ASPHALTIC PLUG JOINT NOTES

INSTALLATION:

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

WEATHER LIMITATIONS

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

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

DETAILS ON THIS SHEET ARE NOT TO SCALE.

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

BRIDGE JOINT
ASPHALTIC PLUG

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - DIVISION

STRUCTURES DETAIL
SD-516.10