

# STATE OF VERMONT AGENCY OF TRANSPORTATION



## PROPOSED IMPROVEMENT BRIDGE PROJECT

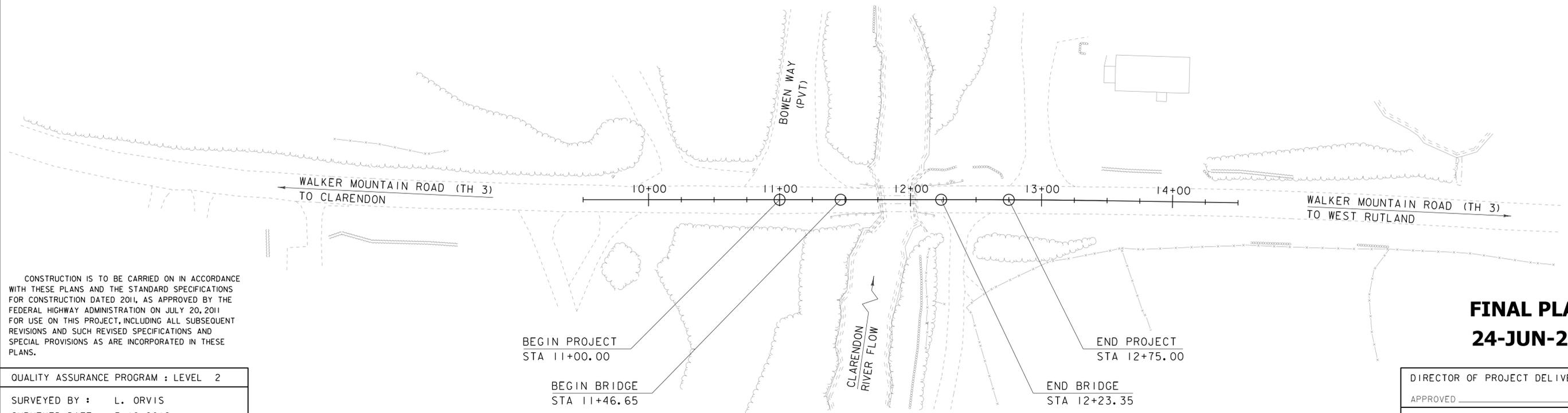
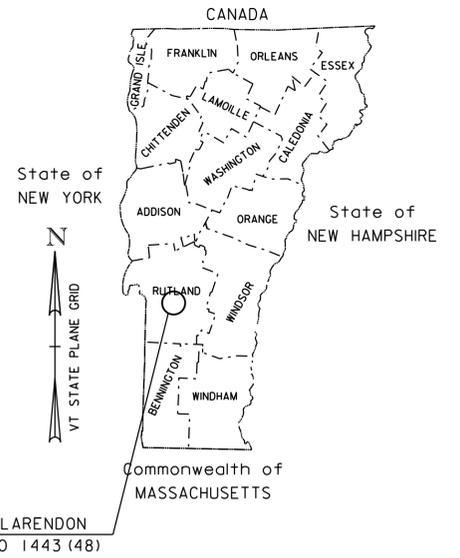
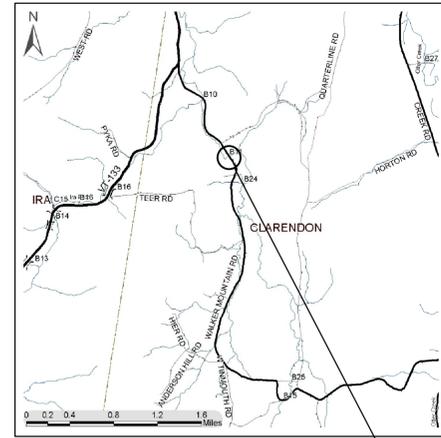
TOWN OF CLARENDON  
COUNTY OF RUTLAND

ROUTE NO : TH 3 (CLASS 2), RURAL COLLECTOR BRIDGE NO : 11

PROJECT LOCATION : 1.05 MILES SOUTH OF THE INTERSECTION OF TH 3 AND VT RT 133

PROJECT DESCRIPTION : REPLACEMENT OF BRIDGE 11 WITH A NEW PRECAST CONCRETE STRUCTURE WITH RELATED APPROACH AND CHANNEL WORK.

LENGTH OF STRUCTURE : 76.70 FEET.  
LENGTH OF ROADWAY : 98.30 FEET.  
LENGTH OF PROJECT : 175.00 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 :	3-18-2012
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (92)

SCALE 1" = 40' - 0"  
40 0 40

**FINAL PLANS  
24-JUN-2015**

DIRECTOR OF PROJECT DELIVERY	
APPROVED _____	DATE _____
PROJECT MANAGER : K. M. HIGGINS, P.E.	
PROJECT NAME :	CLARENDON
PROJECT NUMBER :	BRO 1443 (48)
SHEET 1 OF 58 SHEETS	

# PRELIMINARY INFORMATION SHEET (BRIDGE)

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**FINAL HYDRAULIC REPORT**

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**STANDARDS LIST**

D-20	HIGHWAY CROSSING FOR UNDERGROUND UTILITIES	03-03-2003
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-154	WARNING SIGN DETAILS	05-01-2004
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-4	PLANK RAIL, GUIDE POSTS, MARKER POSTS	06-01-1994
J-3	MAIL BOX SUPPORT DETAILS	08-07-1995
S-352B	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	08-22-2012
S-352C	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	08-22-2012
T-1	TRAFFIC CONTROL GENERAL NOTES	08-06-2012
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-17	TRAFFIC CONTROL MISCELLANEOUS DETAILS	08-06-2012
T-24	TRAFFIC CONTROL FOR MAINTENANCE PAVEMENT MARKING OPERATION	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
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T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-31	CONSTRUCTION SIGN DETAILS	08-06-2012
T-40	DELINEATORS AND MILEPOSTS	01-02-2013
T-42	BRIDGE NUMBER PLAQUE	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013

**STRUCTURES DETAIL SHEETS**

SD-501.00	CONCRETE DETAILS AND NOTES	5/7/2010
SD-502.00	CONCRETE DETAILS AND NOTES	5/7/2010
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	5/7/2010
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES	5/7/2010
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES	5/7/2010

**HYDROLOGIC DATA**

Date: December 2013

DRAINAGE AREA : 25.0 sq. mi.  
 CHARACTER OF TERRAIN : Mountainous, mostly forested  
 STREAM CHARACTERISTICS : Sinuous and alluvial  
 NATURE OF STREAMBED : Sand and gravel

**PEAK FLOW DATA**

Q 2.33 =	680 cfs	Q 50 =	2135 cfs
Q 10 =	1315 cfs	Q 100 =	2750 cfs
Q 25 =	1735 cfs	Q 500 =	3850 cfs

DATE OF FLOOD OF RECORD : Unknown  
 ESTIMATED DISCHARGE : Unknown  
 WATER SURFACE ELEV. : Unknown  
 NATURAL STREAM VELOCITY : @ Q25 = 7.6 fps  
 ICE CONDITIONS : Moderate  
 DEBRIS : Light to moderate  
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No  
 IS ORDINARY RISE RAPID? No  
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No  
 IF YES, DESCRIBE:

WATERSHED STORAGE: <6% HEADWATERS:  
 UNIFORM: X  
 IMMEDIATELY ABOVE SITE:

**EXISTING STRUCTURE INFORMATION**

STRUCTURE TYPE: Single span concrete T-beam  
 YEAR BUILT: 1927  
 CLEAR SPAN(NORMAL TO STREAM): 26'  
 VERTICAL CLEARANCE ABOVE STREAMBED: ~9'  
 WATERWAY OF FULL OPENING: 190 sq. ft.  
 DISPOSITION OF STRUCTURE: Remove and replace  
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

**WATER SURFACE ELEVATIONS AT:**

Q2.33 =	641.1'	VELOCITY =	8.8 fps
Q10 =	643.6'	"	11.8 fps
Q25 =	645.3'	"	7.6 fps
Q50 =	645.7'	"	7.8 fps
Q100 =	646.2'	"	8.8 fps

LONG TERM STREAMBED CHANGES: None noted except scour through bridge

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes  
 FREQUENCY: Below Q10  
 RELIEF ELEVATION: 643.0'  
 DISCHARGE OVER ROAD @Q100: 1085 cfs

**UPSTREAM STRUCTURE**

TOWN: Clarendon DISTANCE: 2330'  
 HIGHWAY #: TH 16 STRUCTURE #: 24  
 CLEAR SPAN: 60' CLEAR HEIGHT: 10'  
 YEAR BUILT: 2006 FULL WATERWAY:  
 STRUCTURE TYPE: Prestress concrete slab

**DOWNSTREAM STRUCTURE**

TOWN: Clarendon DISTANCE: 3540'  
 HIGHWAY #: TH 3 STRUCTURE #: 10  
 CLEAR SPAN: 76' CLEAR HEIGHT: 9'  
 YEAR BUILT: 1957 FULL WATERWAY:  
 STRUCTURE TYPE: Rolled beam

**LRFR LOAD RATING FACTORS**

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.29	1.13					
POSTING							
OPERATING	2.96	1.47	2.33	1.53	2.09	1.86	2
COMMENTS:	FOR NEXT BEAM SUPERSTRUCTURE						

**AS BUILT "REBAR" DETAIL**

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

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.29	1.13					
POSTING							
OPERATING	2.96	1.47	2.33	1.53	2.09	1.86	2
COMMENTS:	FOR PBU SUPERSTRUCTURE						

**TRAFFIC DATA**

YEAR	ADT	DHV	% D	% T	ADTT	
2015	700	100	54	5.3	40	20 year ESAL for flexible pavement from 2015 to 2035 : 188000
2035	750	110	54	6.1	50	40 year ESAL for flexible pavement from 2015 to 2055 : 407000
						Design Speed : 35 mph

**PROPOSED STRUCTURE**

STRUCTURE TYPE: Single span prefabricated units  
 CLEAR SPAN(NORMAL TO STREAM): 70'  
 VERTICAL CLEARANCE ABOVE STREAMBED: ~8'  
 WATERWAY OF FULL OPENING: 380 sq. ft.

**WATER SURFACE ELEVATIONS AT:**

Q2.33 =	640.2'	VELOCITY=	6.3 fps
Q10 =	641.8'	"	7.0 fps
Q25 =	642.8'	"	7.6 fps
Q50 =	643.7'	"	7.9 fps
Q100 =	643.9'	"	10.1 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes  
 FREQUENCY: Below Q25  
 RELIEF ELEVATION: 643.0'  
 DISCHARGE OVER ROAD @Q100: 65 cfs

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 642.9'  
 VERTICAL CLEARANCE: @ Q25 = 0.1'

SCOUR: Contraction scour = 1.5' at Q500

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

**PERMIT INFORMATION**

AVERAGE DAILY FLOW: 50 cfs DEPTH OR ELEVATION:  
 ORDINARY LOW WATER: 25 cfs ~0.5'  
 ORDINARY HIGH WATER: 300 cfs ~2.0'

**TEMPORARY BRIDGE REQUIREMENTS**

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

**ADDITIONAL INFORMATION**

**TRAFFIC MAINTENANCE NOTES**

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

**DESIGN VALUES**

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	d <sub>p</sub> : 0.0 INCH
3. DESIGN SPAN	L: 74.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: 1.60 INCH
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f <sub>y</sub> : 270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f' <sub>c</sub> : 8.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' <sub>cr</sub> : 10.0 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f' <sub>c</sub> : 4.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f' <sub>c</sub> : 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f' <sub>c</sub> : 3.5 KSI
11. CONCRETE, CLASS C	f' <sub>c</sub> : 3.0 KSI
12. REINFORCING STEEL	f <sub>y</sub> : 60 KSI
13. STRUCTURAL STEEL AASHTO M270 (GALVANIZED OR METALLIZED)	f <sub>y</sub> : 50 KSI
14. NOMINAL BEARING RESISTANCE OF SOIL	q <sub>n</sub> : 4.0 KSF
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
16. NOMINAL BEARING RESISTANCE OF ROCK	q <sub>n</sub> : 10.0 KSF
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
18. PILE RESISTANCE FACTOR	φ: 0.65
19. LATERAL PILE DEFLECTION	Δ: ---
20. BASIC WIND SPEED	V <sub>3s</sub> : ---
21. MINIMUM GROUND SNOW LOAD	p <sub>g</sub> : ---
22. SEISMIC DATA	PGA: 0.65
23.	---
24.	---
25.	---
26.	---

PROJECT NAME: **CLARENDON**

PROJECT NUMBER: **BRO 1443(48)**

FILE NAME: s12|160 PI Sheet Builder NEXT PLOT DATE: 3/22/2015  
 PROJECT LEADER: K. HIGGINS DRAWN BY: T. MATTHEWS  
 DESIGNED BY: J. GRIGAS CHECKED BY: G. LAROCHE  
**PRELIMINARY INFORMATION SHEET 1** SHEET 2 OF 58

**GENERAL**

- 1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE VERMONT AGENCY OF TRANSPORTATION 2011 STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE 2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, AND THEIR LATEST REVISIONS.
- 2. ALL 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. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING CONSISTENCY BETWEEN FABRICATOR'S SHOP DRAWINGS AND ENSURING THAT ALL PRECAST AND RAIL COMPONENTS FIT TOGETHER.
- 4. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
- 5. NO ADJUSTMENTS TO THE BITUMINOUS WEARING SURFACE ON THE BRIDGE SHALL BE MADE TO ACCOUNT FOR THE DIFFERENCE BETWEEN BEAM CAMBER AND THE THEORETICAL ROADWAY PROFILE. THE WEARING SURFACE SHALL BE SHIMMED TRANSVERSELY AS NECESSARY TO ACCOUNT FOR POTENTIAL DIFFERENTIAL CAMBER OF THE ADJACENT BEAMS.
- 6. NO SUBSTITUTION FOR PRECAST WILL BE PERMITTED.

**TRAFFIC CONTROL**

- 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR ALL STAGES OF CONSTRUCTION. THE PLAN SHALL CLEARLY DETAIL HOW TRAFFIC WILL BE MAINTAINED. THE PLAN SHALL SPECIFY ALL CONSTRUCTION ACTIVITIES REQUIRING ALTERNATING ONE WAY TRAFFIC, RELATE THOSE ACTIVITIES TO THE CONSTRUCTION SCHEDULE, AND SHOW APPROPRIATE TEMPORARY TRAFFIC CONTROL. THE CONTRACTOR SHALL SUBMIT DETAILED TRAFFIC CONTROL PLANS TO THE ENGINEER FOR APPROVAL PER SUBSECTION 105.03. ALL COSTS SHALL BE INCLUDED IN ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".
- 8. ALL ITEMS REQUIRED TO IMPLEMENT THE CONTRACTOR'S TRAFFIC CONTROL PLAN WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED INCLUDED IN THE BID PRICE FOR ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".
- 9. INSTALLATION OF TEMPORARY TRAFFIC CONTROL SIGNS SHALL NOT BLOCK ANY EXISTING TRAFFIC CONTROL SIGN ASSEMBLIES. THE CONTRACTOR SHALL TRY TO MAINTAIN AT LEAST 200 FEET BETWEEN SIGN ASSEMBLIES.
- 10. THE TOWN OF CLARENDON SHALL BE RESPONSIBLE FOR CHOOSING AND SIGNING THE DETOUR ROUTE. THE CONTRACTOR SHALL NOTIFY THE TOWN A MINIMUM OF THREE WEEKS IN ADVANCE OF THE BRIDGE CLOSURE PERIOD.

**EARTHWORK**

- 11. THE "STONE FILL, TYPE III" AND "STREAM BED MATERIAL, TYPE I" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE NEW BEAMS ARE SET.
- 12. THE REMOVAL OF EXISTING STRUCTURE SHALL BE PAID FOR UNDER ITEM 529.15, "REMOVAL OF EXISTING STRUCTURE". THIS WORK SHALL INCLUDE REMOVAL OF ANY PORTIONS OF THE EXISTING ABUTMENTS THAT FALL OUTSIDE THE LIMITS OF STRUCTURE EXCAVATION OR UNCLASSIFIED CHANNEL EXCAVATION.
- 13. THE GRAVEL DRIVES OFF OF WING WALLS 3 AND 4 SHALL BE PLACED AND GRADED TO THE SATISFACTION OF THE PROPERTY OWNER. WORK FOR THIS SHALL BE CONSIDERED INCIDENTAL TO ITEM 410.10 "AGGREGATE SURFACE COURSE".
- 14. THE CONTRACTOR MAY SUBSTITUTE SUBBASE MATERIAL FOR THE SAND BORROW SHOWN IN THE MATERIALS TRANSITION. THE SUBBASE MATERIAL SHALL BE THE TYPE SPECIFIED IN THE CONTRACT AND SHALL BE PLACED TO MEET THE SUBBASE SPECIFICATIONS. IF SUBBASE IS PLACED IN LIEU OF SAND BORROW, A GEOTEXTILE MEETING THE REQUIREMENTS OF ITEM 649.11 "GEOTEXTILE FOR ROAD BED SEPARATOR" SHALL BE PLACED BETWEEN THE SUBGRADE AND SUBBASE MATERIAL. ALL COSTS ASSOCIATED WITH THE SUBSTITUTION INCLUDING THE GEOTEXTILE SHALL BE INCIDENTAL TO 203.31 "SAND BORROW".

**CONCRETE**

- 15. ALL RECESSED LIFTING POINTS SHALL BE FILLED WITH A TYPE IV MORTAR PER SUBSECTION 707.03 AND WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST ITEM.

- 16. 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.
- 17. ALL FORM SUPPORTS AND FORM TIES THAT ARE TO REMAIN PERMANENTLY IN THE CONCRETE ABOVE THE BRIDGE SEAT SHALL GALVANIZED AND CONFORM TO SECTION 726 OF THE STANDARD SPECIFICATIONS.
- 18. BRIDGE RAIL SHALL BE HIGH PERFORMANCE CLASS A CONCRETE AND SHALL BE PAID UNDER ITEM 525.45, "BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION". THE EFFECTIVE CURE TIME OF THE BRIDGE RAIL MAY BE REDUCED TO A MINIMUM OF (7) SEVEN DAYS PROVIDED THAT THE CONCRETE HAS REACHED 85% OF THE COMPRESSIVE STRENGTH. THE BRIDGE RAIL SHALL MEET ALL OTHER SPECIFICATIONS OF SECTION 501 OF THE STANDARD SPECIFICATIONS.
- 19. BRIDGE RAIL SHALL NOT BE POURED UNTIL THE CONCRETE IN THE LONGITUDINAL CLOSURE POUR BETWEEN BEAMS HAS REACHED A MINIMUM OF 4,000 PSI.
- 20. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT THE UNDERSIDE OF THE DECK BETWEEN DRIP NOTCHES.
- 21. ALL EXPOSED EDGES SHALL HAVE A 1"x1" CHAMFER UNLESS OTHERWISE NOTED.

**REINFORCING STEEL**

- 22. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING STEEL INSTITUTE".
- 23. TEST BARS SHALL BE PROVIDED IN ACCORDANCE WITH THE "VERMONT AGENCY OF TRANSPORTATION MATERIAL SAMPLING MANUAL" AVAILABLE ON THE AGENCY WEBSITE. A MINIMUM OF TWO TEST SECTIONS ARE REQUIRED FOR EACH SIZE, BRAND, AND GRADE OR TYPE OF REINFORCING. SEE THE MANUAL FOR ACCEPTABLE DIMENSIONS OF TEST SECTIONS. ALL COSTS ASSOCIATED WITH PROVIDING BARS FOR TESTING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE PRECAST ITEM.
- 24. ALL REINFORCING STEEL IN THE NEXT BEAMS, PREFABRICATED BRIDGE UNITS, AND APPROACH SLABS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR "REINFORCING STEEL, LEVEL II" AND ARE INCIDENTAL TO THE APPROPRIATE PRECAST ITEM.
- 25. BARS LABELED N7, N8, AND N9 IN THE PBU DETAILS 2 SHEET SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR "REINFORCING STEEL, LEVEL II" AND ARE PAID UNDER 507.12 "REINFORCING STEEL, LEVEL II (FPQ)" FOR THE APPROPRIATE PBU ALTERNATE.
- 26. ALL REINFORCING STEEL IN THE CLOSURE POURS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR "REINFORCING STEEL, LEVEL II" AND ARE PAID UNDER ITEM 507.12 REINFORCING STEEL, LEVEL II (FPQ)".
- 27. ALL ABUTMENT REINFORCING STEEL LOCATED OR EXTENDING ABOVE THE BRIDGE SEAT SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR "REINFORCING STEEL, LEVEL II" AND ARE INCIDENTAL TO THE APPROPRIATE ABUTMENT OPTION.
- 28. CUTTING AND REPAIRING DAMAGED AREAS OF COATED REINFORCING STEEL SHALL BE PERFORMED IN ACCORDANCE WITH SUBSECTION 507.04.
- 29. 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:	2 ½ INCH
ALONG BOTTOM SURFACE OF NEXT BEAM:	1¾ INCH
ALONG BOTTOM SURFACE OF PBU:	1 ½ INCH
ELSEWHERE UNLESS OTHERWISE INDICATED:	3 INCH

**PRECAST ABUTMENTS AND POST TENSIONING**

- 30. IF A VERTICAL CONSTRUCTION JOINT IS REQUIRED BY THE CONTRACTOR FOR SHIPMENT OF THE ABUTMENTS, 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.
- 31. EPOXY BOUNDING COMPOUND SHALL BE APPLIED TO ALL VERTICAL MATCH CAST CONSTRUCTION JOINTS. SEE AGENCY WEBSITE FOR LIST OF APPROVED EPOXY BOUNDING COMPOUNDS. PAYMENT FOR EPOXY WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE PRECAST ITEM.

- 32. 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 IN THE UNIT PRICE BID FOR THE APPROPRIATE PRECAST ITEM. 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.
- 33. GALVANIZE ANCHOR ASSEMBLIES AFTER FABRICATION ACCORDING TO AASHTO M232M/M 232.
- 34. DESIGN VALUES
  - a. CONCRETE COMPRESSIVE STRENGTH: f<sub>c</sub> = 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. THE JACKING FORCE PER STRAND = 32 KIPS
- 35. THE CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF SUBSECTION 711.01 AND SHALL BE GALVANIZED PER SUBSECTION 726.08 OF THE STANDARD SPECIFICATIONS. ALL COSTS ASSOCIATED WITH PLACING THE CORRUGATED STEEL PIPE, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE PRECAST ABUTMENT ITEM.
- 36. THE CONCRETE FOR THE ABUTMENT PILE CAVITIES SHALL BE PAID FOR UNDER ITEM 900.608 SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)". SEE SPECIAL PROVISIONS FOR REQUIREMENTS.
- 37. SHEET MEMBRANE WATERPROOFING, PREFORMED SHEET SHALL MEET THE REQUIREMENTS OF SUBSECTION 726.11 OF THE GENERAL SPECIAL PROVISIONS, DATED APRIL 7, 2015; AND SHALL BE APPLIED TO THE ENTIRE FAR FACE OF THE ABUTMENT ABOVE THE BRIDGE SEAT AND EXTENDING A MINIMUM OF ONE (1) FOOT BELOW THE BRIDGE SEAT AND ONE (1) FOOT ONTO THE CHEEKWALL PAST THE VERTICAL CONSTRUCTION JOINT. PAYMENT FOR MEMBRANE WILL BE INCIDENTAL TO THE APPROPRIATE PRECAST OPTION.
- 38. THE BACKFILL BEHIND THE ABUTMENTS SHALL BE LIMITED TO A HEIGHT OF 3'-0" BELOW THE BRIDGE SEAT AND NO CRANES SHALL BE CLOSER THAN 1'-0" TO THE ABUTMENT DURING THE ERECTION OF THE SUPERSTRUCTURE.

**NEXT D BEAMS**

- 39. 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>.
- 40. DESIGN VALUES
  - a. CONCRETE COMPRESSIVE STRENGTH: f<sub>c</sub> = 10,000 PSI.
  - b. CONCRETE COMPRESSIVE STRENGTH AT RELEASE: f<sub>ci</sub> = 8,000 PSI
  - c. PRESTRESSING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS
  - d. ASSUMED MODULUS OF ELASTICITY = 28,500 KSI.
  - e. PRESTRESSING STRANDS SHALL EACH BE PULLED TO HAVE A NET TENSION OF 44.0 KIPS AFTER ACCOUNTING FOR CHUCK SLIPPAGE.
  - f. SERVICE LOADS
 

MEMBER MOMENT	1125.1 K-FT
SUPERIMPOSED DEAD LOAD MOMENT	514.8 K-FT
LIVE LOAD AND IMPACT MOMENT	1837.2 K-FT
DEAD LOAD REACTION	89.1 KIPS
LIVE LOAD AND IMPACT REACTION	107.4 KIPS
TOTAL REACTION	136 KIPS
CAMBER AT RELEASE	1 5/8 INCHES
FINAL CAMBER	2 3/4 INCHES
- 41. THE NEXT BEAM FABRICATOR SHALL PROVIDE THEIR OWN ESTIMATED CAMBER AT RELEASE IN THE FABRICATION DRAWINGS.
- 42. DUE TO STABILITY CONCERNS AT THE ABUTMENTS DURING THE ERECTION OF THE SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT THE ERECTION PLAN A MINIMUM OF 30 CALENDAR DAYS PRIOR TO THE BRIDGE CLOSURE PERIOD. UNDER NO CIRCUMSTANCES SHALL A BRIDGE CLOSURE PERIOD BEGIN PRIOR TO HAVING AN ACCEPTED ERECTION PLAN.
- 43. THE FABRICATOR MAY ALTER THE DESIGN AS DETAILED IN THE PLANS TO ACCOMMODATE THEIR SPECIFIC OPERATION. THIS ALTERATION SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN STATE OF VERMONT TO MEET SPECIFIED CRITERIA AND SHALL BE APPROVED BY THE PROJECT MANAGER.

PROJECT NAME: CLARENDON	
PROJECT NUMBER: BRO 1443(48)	
FILE NAME: sl2jl60gen.dgn	PLOT DATE: 24-JUN-2015
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. GRIGAS
DESIGNED BY: J. GRIGAS	CHECKED BY: G. LAROCHE
GENERAL NOTES I	SHEET 3 OF 58

**PREFABRICATED BRIDGE UNITS**

- 44. PREFABRICATED BRIDGE UNITS ARE A NON-PROPRIETARY PRODUCT.
- 45. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01
- 46. ANY HOLES IN THE WEBS OF THE FASCIA BEAMS NOT OTHERWISE FILLED SHALL BE FILLED WITH BUTTON HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.19.
- 47. ANY CONNECTIONS NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE PROJECT MANAGER FOR APPROVAL.
- 48. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SECTION 506 UNLESS OTHERWISE NOTED.
- 49. FLEMING BRACKETS OR SIMILAR FALSE WORK SHALL BE PLACED AT A MAXIMUM SPACING OF 4 FEET. THE BRACKETS SHALL BEAR NEAR THE BOTTOM FLANGE AND IN NO CASE SHALL THEY BEAR ABOVE THE BOTTOM QUARTER WEB.
- 50. AFTER THE SUPERSTRUCTURE STEEL HAS BEEN ERECTED AT THE DECK CASTING SITE, AND BEFORE ANY FORMWORK OR OTHER LOADS ARE ADDED TO THE GIRDERS, BEAM PROFILES SHALL BE TAKEN AS DIRECTED BY THE RESIDENT ENGINEER FOR USE IN DETERMINING DECK FORMWORK ELEVATIONS.
- 51. BEAM WEBS AND CROSS FRAMES SHALL BE PLUMB IN FINAL POSITION.
- 52. PBU DECKS SHALL MEET THE REQUIREMENTS OF "CONCRETE, HIGH PERFORMANCE CLASS A".
- 53. PBU STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF SECTION 506 OF THE STANDARD SPECIFICATIONS.
- 54. DUE TO STABILITY CONCERNS AT THE ABUTMENTS DURING THE ERECTION OF THE SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT THE ERECTION PLAN A MINIMUM OF 30 CALENDAR DAYS PRIOR TO THE BRIDGE CLOSURE PERIOD. UNDER NO CIRCUMSTANCES SHALL A BRIDGE CLOSURE PERIOD BEGIN PRIOR TO HAVING AN ACCEPTED ERECTION PLAN.
- 55. ALL WELDING TO THE STRUCTURAL STEEL SHALL BE COMPLETED PRIOR TO GALVANIZING OR METALLIZING.
- 56. 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 LICENSED IN STATE OF VERMONT TO MEET SPECIFIED CRITERIA AND SHALL BE APPROVED BY THE PROJECT MANAGER.

**LONGITUDINAL CLOSURE POURS**

- 57. THE CONCRETE EDGES ALONG THE LONGITUDINAL CLOSURE POURS SHALL BE TREATED TO PROVIDE A ROUGHENED/ EXPOSED AGGREGATE SURFACE. THAT AMPLITUDE OF THE EXPOSED AGGREGATE SHALL BE A MINIMUM OF 1/8" AND BE COMPLETED PRIOR TO ERECTION OF THE BEAMS. THE FABRICATOR SHALL INDICATE THE METHOD USED TO ACHIEVE THIS PROFILE ON THE FABRICATION DRAWINGS AND METHOD USED TO PROTECT THE REINFORCING STEEL.
- 58. THE CONCRETE FOR FLANGE CLOSURE POURS SHALL BE PAID FOR UNDER ITEM 900.608 SPECIAL "PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)". SEE SPECIAL PROVISIONS FOR REQUIREMENTS.
- 59. THE LONGITUDINAL CLOSURE POUR CONCRETE SHALL OBTAIN A STRENGTH OF 4,000 PSI PRIOR TO ANY VEHICULAR LOADING.

**ABUTMENT CLOSURE/END DIAPHRAGM**

- 60. THE CONCRETE FOR THE ABUTMENT CLOSURE POUR SHALL BE 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)". SEE SPECIAL PROVISIONS FOR REQUIREMENTS.
- 61. AFTER THE CONCRETE HAS BEEN PLACED AND THE FINISHING OPERATIONS CONCLUDED IT SHALL NOT BE WALKED ON OR DISTURBED IN ANY MANNER, INCLUDING THE REMOVAL OF FORMS FOR 12 HOURS.
- 62. THE END DIAPHRAGM CLOSURE POUR CONCRETE SHALL OBTAIN A STRENGTH OF 4,000 PSI PRIOR TO ANY VEHICULAR LOADING.

**APPROACH SLABS**

- 63. APPROACH SLAB CONCRETE STRENGTH:  $f_c = 5,000$  PSI.
- 64. CORRUGATED POST-TENSIONING DUCTS IN THE PRECAST APPROACH SLABS FOR DOWEL CONNECTIONS SHALL BE CONSTRUCTED FROM EITHER POLYETHYLENE OR POLYPROPYLENE. THE DUCT SHALL HAVE A MINIMUM MATERIAL THICKNESS OF 0.080 IN. +/- 0.010 IN. AND SHALL HAVE A WHITE COATING ON THE OUTSIDE OR SHALL BE OF WHITE MATERIAL WITH ULTRAVIOLET STABILIZERS ADDED. POLYETHYLENE DUCT SHALL BE FABRICATED FROM RESINS MEETING OR EXCEEDING THE REQUIREMENTS OF ASTM D 3350 WITH A CELL CLASSIFICATION OF 345464A. POLYPROPYLENE DUCT SHALL BE FABRICATED FROM RESINS MEETING OR EXCEEDING THE REQUIREMENTS OF ASTM D 4101 WITH A CELL CLASSIFICATION RANGE OF PP0340B44544 TO PP340B65884. ALL COSTS ASSOCIATED WITH PLACING THE DUCTS SHALL BE INCLUDED IN THE BID PRICE FOR THE APPROPRIATE PRECAST APPROACH SLAB OPTION.
- 65. GROUT USED TO FILL DOWEL DUCTS IN THE PRECAST APPROACH SLABS FOR DOWEL CONNECTIONS SHALL BE MORTAR, TYPE IV IN ACCORDANCE WITH SECTION 540 – PRECAST CONCRETE. ALL COSTS ASSOCIATED WITH PROVIDING AND PLACING GROUT FOR THE APPROACH SLAB DOWEL CONNECTIONS SHALL BE INCLUDED IN THE BID PRICE FOR THE APPROPRIATE PRECAST APPROACH SLAB OPTION.

**H-PILES**

- 66. THE PILES SHALL BE HP 12X63.
- 67. TO PREVENT DAMAGE TO THE PILES, PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04 (f).
- 68. PILES SHALL BE DRIVEN TO A MINIMUM OF 18 FEET BELOW THE PILE CAP ELEVATION WITH NO EMBEDMENT INTO ROCK. IF COMPETENT BEDROCK IS ENCOUNTERED SHALLOWER THAN 18 FEET BELOW THE BOTTOM OF THE PILE CAP, PRE-EXCAVATION OF THE INTEGRAL ABUTMENT PILES IS REQUIRED WITH A MINIMUM PILE LENGTH OF 13 FEET AND A MINIMUM EMBEDMENT OF 3 FEET INTO COMPETENT BEDROCK.
- 69. THE CONTRACTOR MAY PRE-EXCAVATE THE PILE LOCATIONS IN THE 14 DAY PERIOD PRIOR TO THE BRIDGE CLOSURE PERIOD. THIS WORK SHALL BE DONE DURING DAILY LANE CLOSURES.
- 70. THE PILES SHALL BE DRIVEN TO A NOMINAL PILE DRIVING RESISTANCE ( $R_{NDR}$ ) OF 310 KIPS.
- 71. A MINIMUM OF ONE DYNAMIC PILE TESTS SHALL BE CONDUCTED AT ABUTMENT ONE. PAYMENT WILL BE MADE UNDER ITEM 505.45, "DYNAMIC PILE LOADING TEST".
- 72. ALL PRE-EXCAVATED HOLES SHALL BE A MINIMUM OF 23 INCHES IN DIAMETER. THE ENTIRE PRE-EXCAVATED HOLE SHALL BE BACKFILLED WITH SAND. SAND SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 703.03. REFER TO THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
- 73. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL IN PLACE LENGTHS MAY VARY.
- 74. THE TOPS OF THE PILES 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 PLACEMENT COMMENCES.
- 75. PAYMENT FOR PRE-EXCAVATION OF PILES SHALL BE PAID FOR UNDER ITEM 900.640, "SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENTS PILES, EARTH)" OR ITEM 900.640, "SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENTS PILES, ROCK)".

**MISCELLANEOUS**

- 76. EXISTING CONDITIONS SHEET HAS BEEN INCLUDED FOR THE CONTRACTOR TO USE FOR SUBMITTALS.
- 77. ITEM 404.65 "EMULSIFIED ASPHALT" IS TO BE APPLIED AT A RATE OF 0.025 GAL/SY BETWEEN SUCCESSIVE COURSES OF PAVEMENT OR AS DIRECTED BY THE ENGINEER.
- 78. THE STONEWALL OFF OF WING WALL 3 SHALL BE PLACED TO THE SATISFACTION OF THE PROPERTY OWNER.
- 79. ITEM 520.10, "MEMBRANE WATERPROOFING, SPRAY APPLIED" SHALL BE APPLIED TO THE BRIDGE DECK AS PER THE MANUFACTURER'S INSTRUCTIONS AND EXTEND ONTO THE APPROACH SLABS 2 FEET BEYOND THE BEGIN BRIDGE/END OF BRIDGE.

PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

FILE NAME: sl2j160gen.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
GENERAL NOTES 2

PLOT DATE: 24-JUN-2015  
DRAWN BY: J. GRIGAS  
CHECKED BY: G. LAROCHE  
SHEET 4 OF 58

# QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROLS	BRIDGE	FULL CE ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				EARTHWORK SUMMARY
							600				600		CY	COMMON EXCAVATION	203.15				FILL AVAILABLE
									1225		1225		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				COMMON EXCAVATION (600 x 1.0)
							90				90		CY	SAND BORROW	203.31				CHANNEL EXCAVATION (1225 x 0.3)
							25				25		CY	GRANULAR BORROW	203.32				STRUCTURE EXCAVATION (175 x 0.3)
							40				40		CY	TRENCH EXCAVATION OF EARTH	204.20				TRENCH EXCAVATION (1 x 0.9)
							1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				ROUNDING
									175		175		CY	STRUCTURE EXCAVATION	204.25				TOTAL FILL AVAILABLE
									75		75		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				FILL REQUIRED
							250				250		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				PLANMETERED FILL (0 CY EARTH + 25 CY GRANULAR)
							350				350		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				FACTORED FILL (x1.15)
							20				20		CY	AGGREGATE SURFACE COURSE	401.10				ROUNDING
							20				20		CY	AGGREGATE SHOULDERS, IN PLACE	402.10				TOTAL FILL REQUIRED
							6				6		CWT	EMULSIFIED ASPHALT	404.65				TOTAL WASTE
							1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
									1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10				
									240		240		LF	STEEL PILING, HP 12 X 63	505.155				
									2		2		EACH	DYNAMIC PILE LOADING TEST	505.45				
														BEGIN ALTERNATE ZA1					
									1800		1800		LB	REINFORCING STEEL, LEVEL II (FPQ)	507.12				
									31		31		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)	900.608				
									226		226		LF	SPECIAL PROVISION (PRESTRESSED NEXT D BEAMS)(NEXT 36D)	900.640				
														END ALTERNATE ZA1					
														BEGIN ALTERNATE ZA2					
									5020		5020		LB	REINFORCING STEEL, LEVEL II (FPQ)	507.12				
									38		38		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)	900.608				
									226		226		LF	SPECIAL PROVISION (PREFABRICATED BRIDGE UNIT SUPERSTRUCTURE)	900.640				
									1		1		LS	SPECIAL PROVISION (GALVANIZING STRUCTURAL STEEL)	900.645				
														END ALTERNATE ZA2					
														BEGIN ALTERNATE ZA3					
									5020		5020		LB	REINFORCING STEEL, LEVEL II (FPQ)	507.12				
									38		38		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)	900.608				
									226		226		LF	SPECIAL PROVISION (PREFABRICATED BRIDGE UNIT SUPERSTRUCTURE)	900.640				
									1		1		LS	SPECIAL PROVISION (METALIZING STRUCTURAL STEEL)	900.645				
														END ALTERNATE ZA3					
									15		15		GAL	WATER REPELLENT, SILANE	514.10				
									45		45		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
									200		200		SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10				
									45		45		LF	JOINT SEALER, HOT POURED	524.11				
									155		155		LF	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	525.45				

PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)  
FILE NAME: sl2j160quantitysheet PLOT DATE: 24-JUN-2015  
PROJECT LEADER: K. HIGGINS DRAWN BY: J. GRIGAS  
DESIGNED BY: J. GRIGAS CHECKED BY: G. LAROCHE  
QUANTITY SHEET 1 SHEET 5 OF 58

# QUANTITY SHEET 2

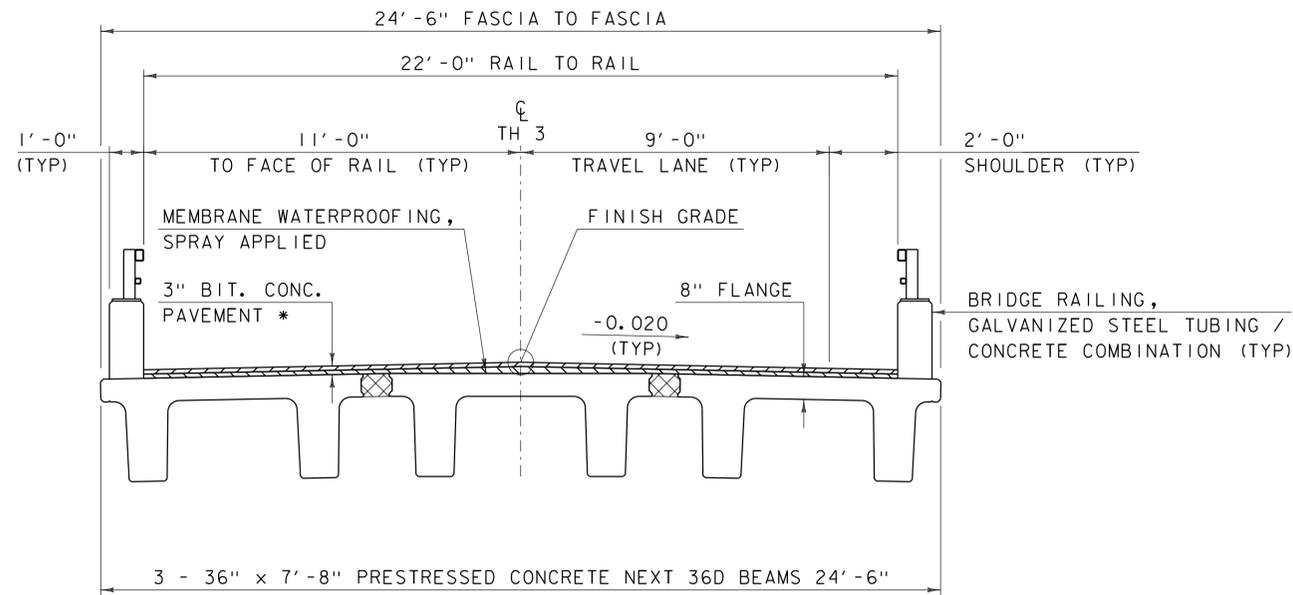
SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROLS	BRIDGE	FULL CE ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
									1		1		EACH	REMOVAL OF STRUCTURE (EXISTING BRIDGE AND ABUTMENTS)	529.15				
									12		12		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17				
														BEGIN OPTION AA					
									1		1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT #1)	540.10				
									1		1		LS	SPECIAL PROVISION (CONTRACTOR FABRICATED PRECAST CONCRETE STRUCTURE)(ABUTMENT #1)	900.645				
														END OPTION AA					
														BEGIN OPTION BB					
									1		1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT #2)	540.10				
									1		1		LS	SPECIAL PROVISION (CONTRACTOR FABRICATED PRECAST CONCRETE STRUCTURE)(ABUTMENT #2)	900.645				
														END OPTION BB					
														BEGIN OPTION CC					
									1		1		LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB #1)	540.10				
									1		1		LS	SPECIAL PROVISION (CONTRACTOR FABRICATED PRECAST CONCRETE STRUCTURE)(APPROACH SLAB #1)	900.645				
														END OPTION CC					
														BEGIN OPTION DD					
									1		1		LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB #2)	540.10				
									1		1		LS	SPECIAL PROVISION (CONTRACTOR FABRICATED PRECAST CONCRETE STRUCTURE)(APPROACH SLAB #2)	900.645				
														END OPTION DD					
														BEGIN OPTION EE					
							76				76		LF	18" CSP .064 (2-2/3 X 1/2)	601.0015				
							76				76		LF	18" CAAP .060 (2-2/3 X 1/2)	601.0215				
							76				76		LF	18" PCCSP .079 (2-2/3 X 1/2)	601.0416				
							76				76		LF	18" RCP CLASS III	601.0815				
							76				76		LF	18" CPEP	601.0915				
							76				76		LF	18" CPPP (SL)	601.2815				
														END OPTION EE					
								1			1		MGAL	DUST CONTROL WITH WATER	609.10				
							10				10		CY	STONE FILL, TYPE I	613.10				
									525		525		CY	STONE FILL, TYPE III	613.12				
							4				4		EACH	RELOCATE MAILBOX, SINGLE SUPPORT	617.10				
							2				2		EACH	STEEL MARKER POSTS	619.16				
							2				2		EACH	REMOVING AND RESETTING PROPERTY MARKERS	619.20				
							55				55		LF	BOX BEAM GUARDRAIL	621.30				
							100				100		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
							2				2		EACH	GUIDE POSTS (WOOD)	621.85				
							40				40		LF	SLEEVES FOR UTILITIES	625.10				
							200				200		HR	FLAGGERS	630.15				
										1	1		LS	FIELD OFFICE, ENGINEERS	631.10				

PROJECT NAME: CLARENDON  
 PROJECT NUMBER: BRO 1443(48)  
 FILE NAME: sl2j160quantitiesheet PLOT DATE: 24-JUN-2015  
 PROJECT LEADER: K. HIGGINS DRAWN BY: J. GRIGAS  
 DESIGNED BY: J. GRIGAS CHECKED BY: G. LAROCHE  
 QUANTITY SHEET 2 SHEET 6 OF 58

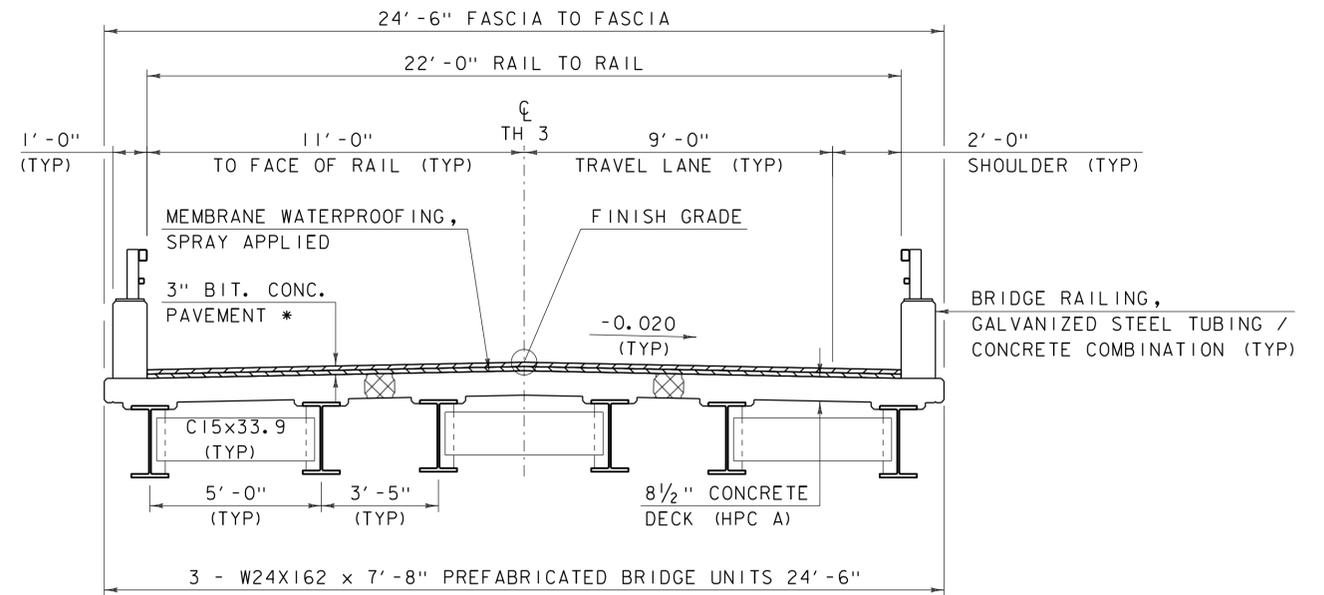
# QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROLS	BRIDGE	FULL CE ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
										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				
							650				650		LF	4 INCH WHITE LINE	646.20				
							650				650		LF	4 INCH YELLOW LINE	646.21				
									650		650		SY	GEOTEXTILE UNDER STONE FILL	649.31				
								240			240		SY	GEOTEXTILE FOR SILT FENCE	649.51				
								40			40		LB	SEED	651.15				
								40			40		LB	SEED, WINTER RYE	651.17				
								40			40		LB	FERTILIZER	651.18				
								1			1		TON	AGRICULTURAL LIMESTONE	651.20				
								1			1		TON	HAY MULCH	651.25				
								40			40		CY	TOPSOIL	651.35				
									290		290		SY	GRUBBING MATERIAL	651.40				
								1			1		LS	EPSC PLAN	652.10				
								40			40		HR	MONITORING EPSC PLAN	652.20				
								1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
								200			200		SY	TEMPORARY EROSION MATTING	653.20				
								60			60		CY	VEHICLE TRACKING PAD	653.35				
								525			525		LF	BARRIER FENCE	653.50				
							14				14		SF	TRAFFIC SIGNS, TYPE A	675.20				
							60				60		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
							1				1		EACH	REMOVING SIGNS	675.50				
							2				2		EACH	DELINEATOR WITH STEEL POST	676.10				
							1				1		EACH	REMOVAL OF EXISTING DELINEATOR	676.12				
									100		100		CY	SPECIAL PROVISION (STREAM BED MATERIAL, TYPE I)	900.608				
							4				4		EACH	SPECIAL PROVISION (GUARDRAIL APPROACH SECTION TO CONCRETE COMBINATION BRIDGE RAILING)	900.620				
							1				1		EACH	SPECIAL PROVISION (GUARDRAIL END ASSEMBLY TYPE IA )	900.620				
									265		265		LF	SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES)(EARTH)	900.640				
									40		40		LF	SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES)(ROCK)	900.640				
							1				1		LS	SPECIAL PROVISION (CPM SCHEDULE)	900.645				
							1				1		LS	SPECIAL PROVISION (REMOVE AND RELOCATE EXISTING STONE WALL)	900.645				
								1			1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)	900.645				
							1				1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
							1				1		LU	SPECIAL PROVISION (INCENTIVE, DISINCENTIVE)	900.650				
							1				1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(NABI)	900.650				
							1				1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(NABI)	900.650				
							185				185		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)  
FILE NAME: sl2j160quantitiesheet PLOT DATE: 24-JUN-2015  
PROJECT LEADER: K. HIGGINS DRAWN BY: J. GRIGAS  
DESIGNED BY: J. GRIGAS CHECKED BY: G. LAROCHE  
QUANTITY SHEET 3 SHEET 7 OF 58



BRIDGE TYPICAL SECTION NEXT BEAM ALTERNATE  
SCALE 3/8" = 1'-0"

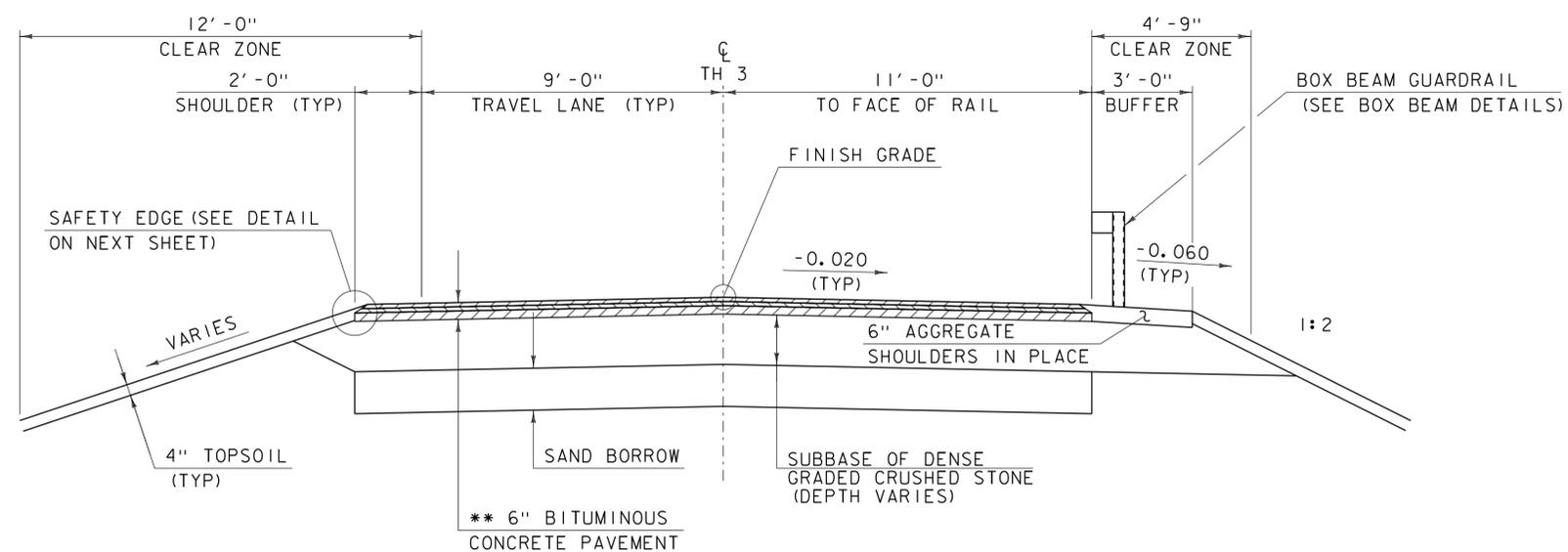


BRIDGE TYPICAL SECTION PBU ALTERNATE  
SCALE 3/8" = 1'-0"

\* 1 1/2" BITUMINOUS CONCRETE PAVEMENT TYPE III OR IVS OVER  
1 1/2" BITUMINOUS CONCRETE PAVEMENT TYPE III OR IVS

**MATERIAL TOLERANCES**  
(IF USED ON PROJECT)

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



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

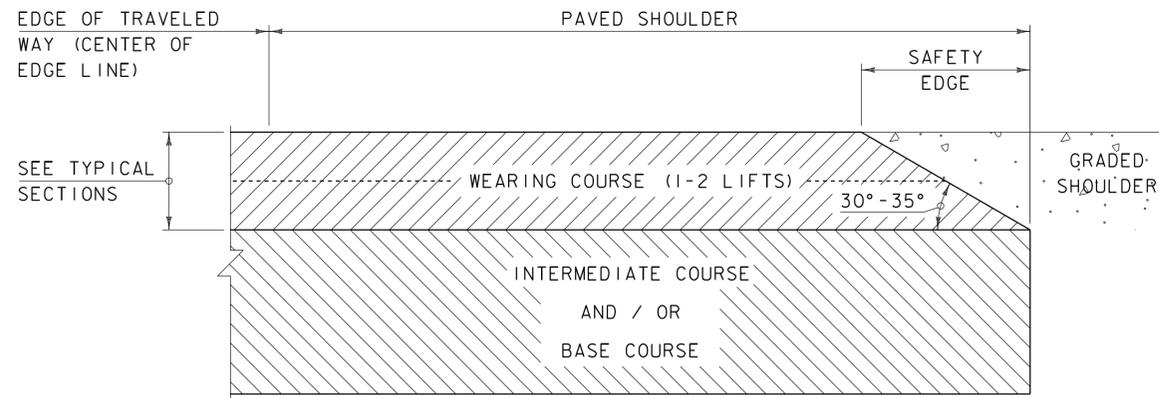
\*\* 1 1/2" BITUMINOUS CONCRETE PAVEMENT TYPE III OR IVS OVER  
1 1/2" BITUMINOUS CONCRETE PAVEMENT TYPE III OR IVS OVER  
3" BITUMINOUS CONCRETE PAVEMENT TYPE I OR IIS

1'-6" SUBBASE OF DENSE GRADED CRUSHED STONE  
1'-3" SAND BORROW

PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

FILE NAME: sl2j160typical.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
TYPICAL SECTIONS I

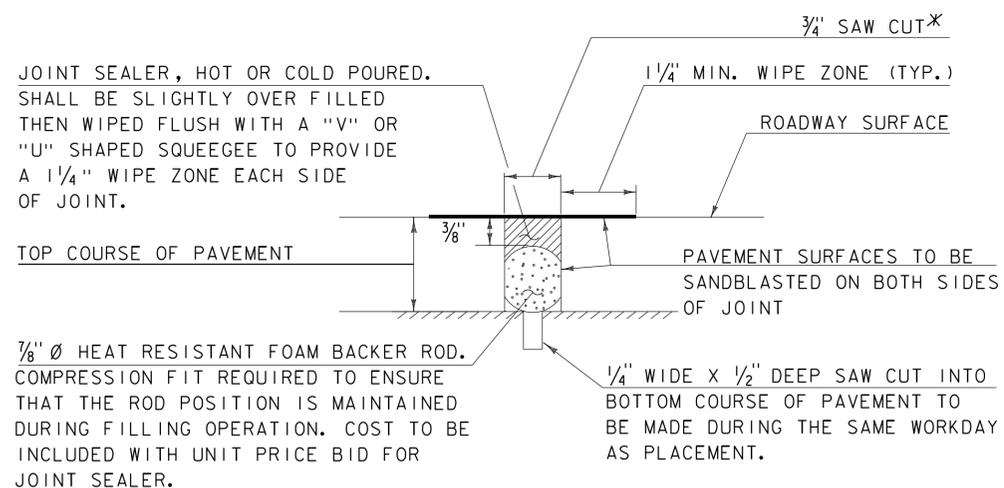
PLOT DATE: 24-JUN-2015  
DRAWN BY: J. GRIGAS  
CHECKED BY: G. LAROCHE  
SHEET 8 OF 58



**SAFETY EDGE DETAIL**

(NOT TO SCALE)

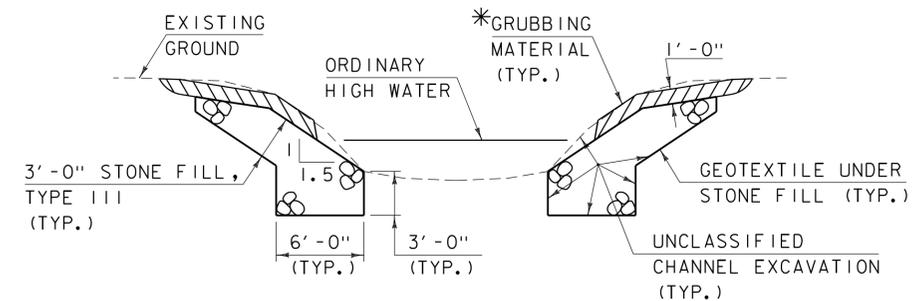
1. LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.
2. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE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



**SAWED PAVEMENT JOINT DETAIL**

(NOT TO SCALE)

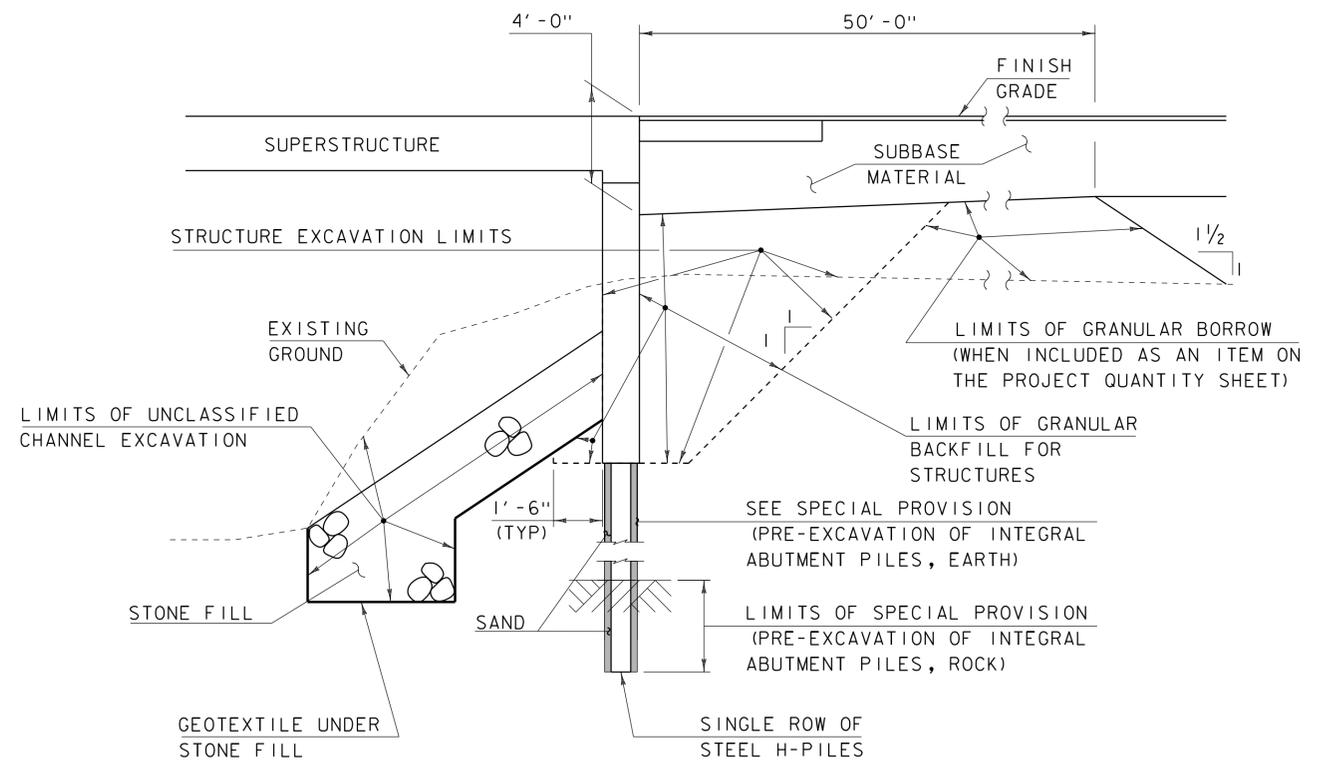
\*JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUTS WILL BE MADE DIRECTLY OVER THE END OF CONCRETE DECK. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING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



**TYPICAL CHANNEL SECTION**

(NOT TO SCALE)

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



**TYPICAL INTEGRAL ABUTMENT SECTION**

(NOT TO SCALE)

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

PROJECT NAME: CLARENDON	
PROJECT NUMBER: BRO 1443(48)	
FILE NAME: sl2j160typical.dgn	PLOT DATE: 24-JUN-2015
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. GRIGAS
DESIGNED BY: J. GRIGAS	CHECKED BY: G. LAROCHE
TYPICAL SECTIONS 2	SHEET 9 OF 58

**GENERAL INFORMATION**

**SYMBOLGY LEGEND NOTE**

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

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

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

**COMMON TOPOGRAPHIC POINT SYMBOLS**

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

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

**PROPOSED GEOMETRY CODES**

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

**UTILITY SYMBOLGY**

**UNDERGROUND UTILITIES**

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

**ABOVE GROUND UTILITIES (AERIAL)**

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

**PROJECT CONSTRUCTION SYMBOLGY**

**PROJECT DESIGN & LAYOUT SYMBOLGY**

— — — CZ — — —	CLEAR ZONE
—————	PLAN LAYOUT MATCHLINE

**PROJECT CONSTRUCTION FEATURES**

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

**CONVENTIONAL BOUNDARY SYMBOLGY**

**BOUNDARY LINES**

—————	TOWN BOUNDARY LINE
—————	COUNTY BOUNDARY LINE
—————	STATE BOUNDARY LINE
———	PROPOSED STATE R.O.W. (LIMITED ACCESS)
———	PROPOSED STATE R.O.W.
———	STATE ROW (LIMITED ACCESS)
———	STATE ROW
———	TOWN ROW
-----	PERMANENT EASEMENT LINE (P)
-----	TEMPORARY EASEMENT LINE (T)
-----	SURVEY LINE
— P — P —	PROPERTY LINE (P/L)
— L — L —	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 SYMBOLGY**

**EPSC MEASURES**

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

SEE EPSC DETAIL SHEETS FOR ADDITIONAL SYMBOLGY

**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 SYMBOLGY**

**EXISTING FEATURES**

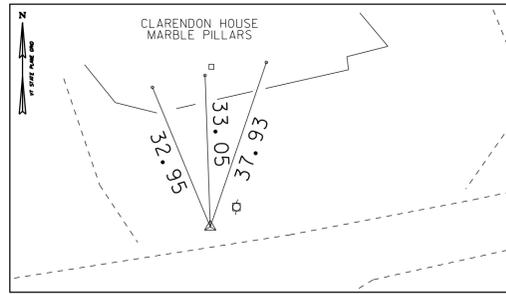
-----	ROAD EDGE PAVEMENT
-----	ROAD EDGE GRAVEL
-----	DRIVEWAY EDGE
-----	DITCH
-----	FOUNDATION
— x — x — x — x —	FENCE (EXISTING)
— □ — □ — □ — □ —	FENCE WOOD POST
— ○ — ○ — ○ — ○ —	FENCE STEEL POST
~~~~~	GARDEN
—	ROAD GUARDRAIL
	RAILROAD TRACKS
-----	CULVERT (EXISTING)
-----	STONE WALL
-----	WALL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

PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

FILE NAME: I2J160/sl2j160legend.dgn PLOT DATE: 24-JUN-2015  
PROJECT LEADER: K. HIGGINS DRAWN BY: K. FRIEDLAND  
DESIGNED BY: J. GRIGAS CHECKED BY: G. LAROCHE  
LEGEND SHEET SHEET 10 OF 58

GPS CONTROL POINTS

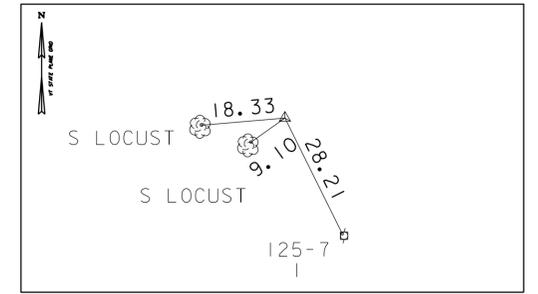
HVCTRL #1  
 SPRINGS TEMP 1  
 NORTH = 382442.365  
 EAST = 1502188.866  
 ELEV. = 691.040



LOCATION - CLARENDON SPRINGS, 3 MILES SOUTH OF WEST RUTLAND

FROM THE JUNCTION OF ROUTES 4A AND 133 IN WEST RUTLAND, TAKE RTE 133 SOUTH FOR 2.25 MI TO A "Y" INTERSECTION. GO LEFT ON A PAVED ROAD FOR 1.2 MI. TO A GRAVEL ROAD LEFT (EAST). GO LEFT (EAST) ON THE GRAVEL ROAD FOR 50 METERS TO AN INTERSECTION AND THE OLD CLARENDON SPRINGS HOTEL AND THE MARK ON THE LEFT. THE MARK IS A REBAR WITH A DRILL HOLE IN IT, LEFT 0.3 M BELOW GROUND LEVEL. THE MARK IS 12.2 M SOUTH OF THE SW CORNER OF A 3 1/2 STORY BRICK BUILDING, 16.0 M SW OF THE SE CORNER OF A 3 1/2 STORY BRICK BUILDING, 2.1 M SW OF POLE # 125-2/8-10/2.

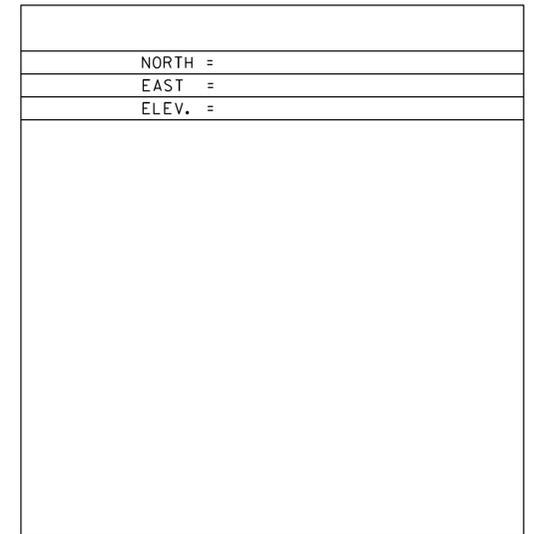
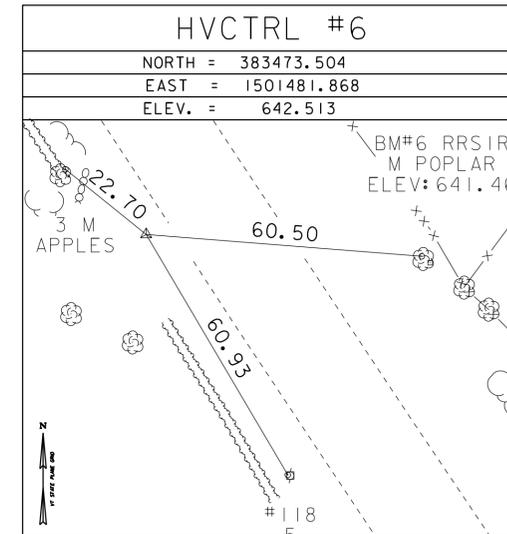
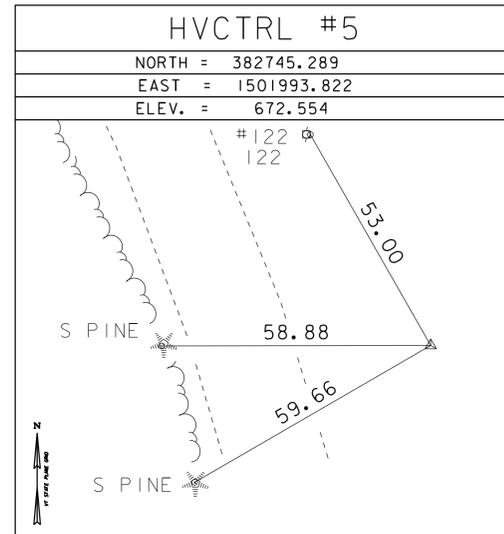
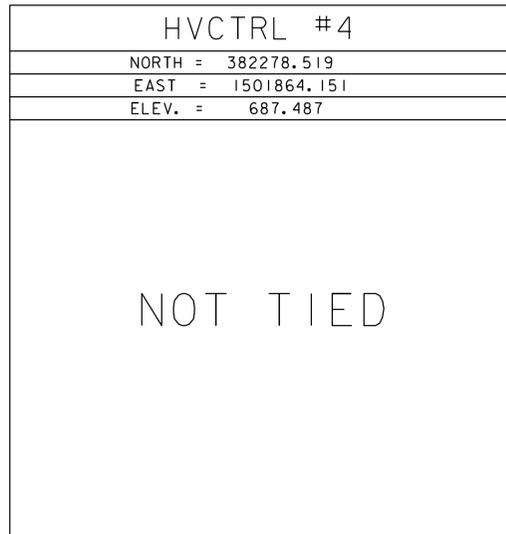
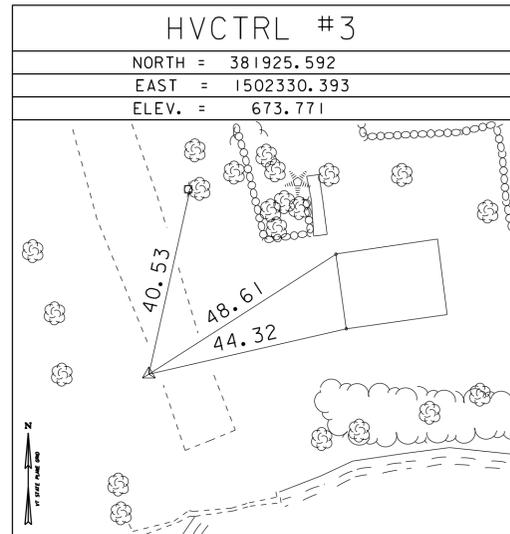
HVCTRL #2  
 SPRINGS TEMP 2  
 NORTH = 381427.561  
 EAST = 1502479.265  
 ELEV. = 680.440



LOCATION - CLARENDON SPRINGS, 3 MILES SOUTH OF WEST RUTLAND

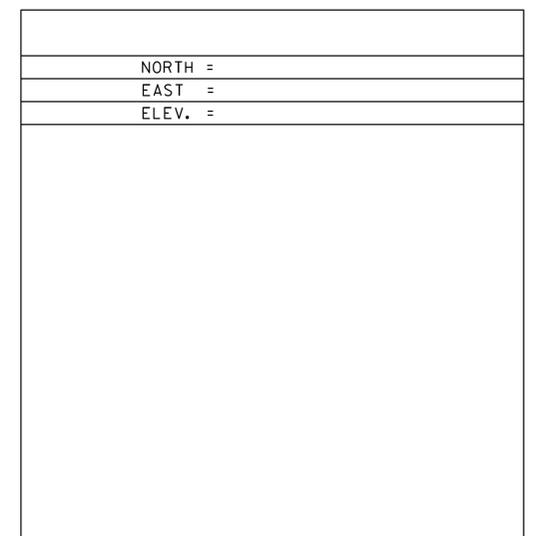
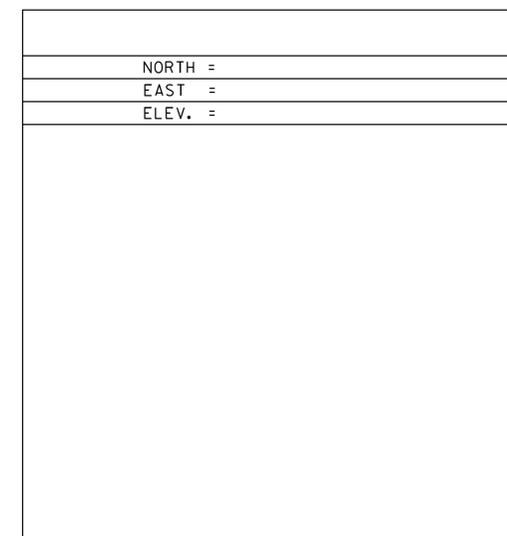
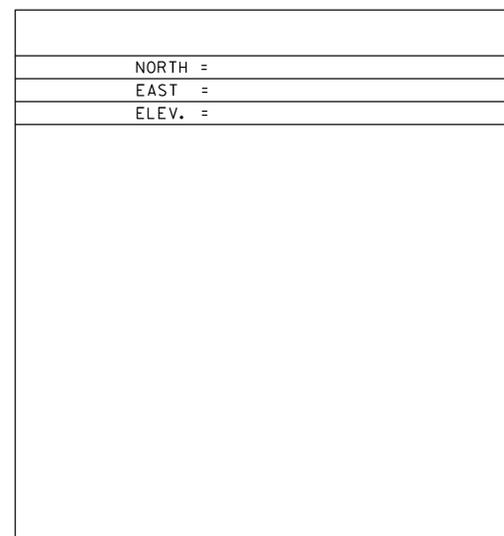
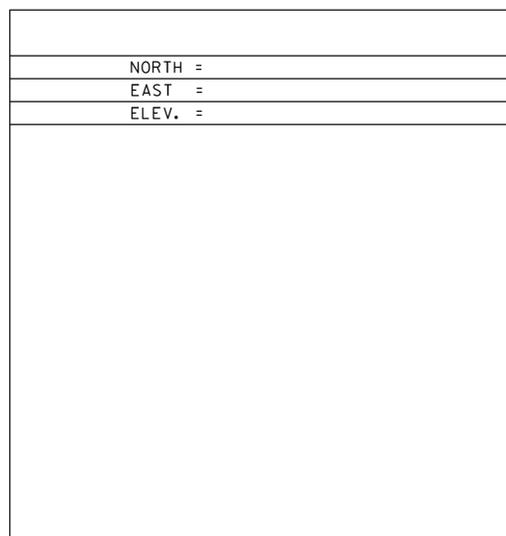
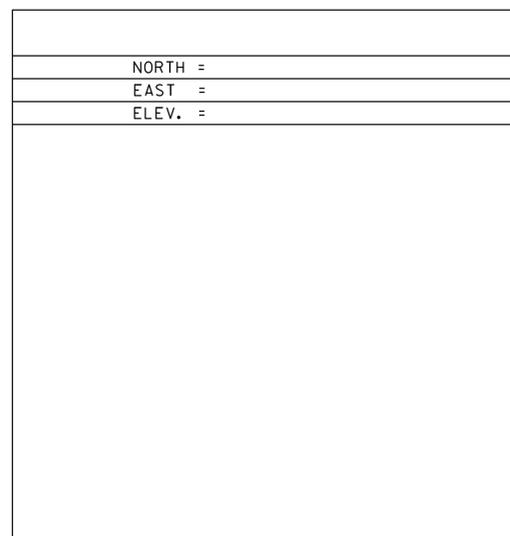
FROM THE JUNCTION OF ROUTES 4A AND 133 IN WEST RUTLAND, TAKE RTE 133 SOUTH FOR 2.25 MI TO A "Y" INTERSECTION. GO LEFT ON A PAVED ROAD FOR 1.2 MI. TO A GRAVEL ROAD LEFT (EAST). GO LEFT (EAST) ON THE GRAVEL ROAD FOR 50 METERS TO AN INTERSECTION AND THE OLD CLARENDON SPRINGS HOTEL AND THE MARK ON THE LEFT. THE MARK IS A REBAR WITH A DRILL HOLE IN IT, LEFT 0.3 M BELOW GROUND LEVEL. THE MARK IS 8.5 M SOUTH OF POLE # 125-7/1, 3.2 M WEST OF THE CENTERLINE OF A GRAVEL ROAD, 8.7 M SE OF THE CORNER OF A WOOD AND WIRE FENCE.

TRAVERSE TIES



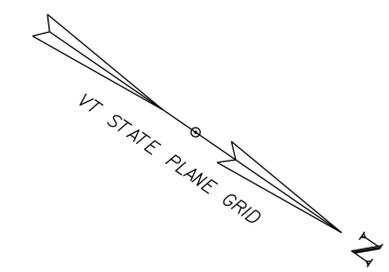
\*MAIN TRAVERSE COMPLETED 1/12/1996 BY L. ORVIS [95J286] SECONDARY TRAVERSE 3/15/2012 BY L. ORVIS P.C & G. HITCHCOCK

ALIGNMENT TIES



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

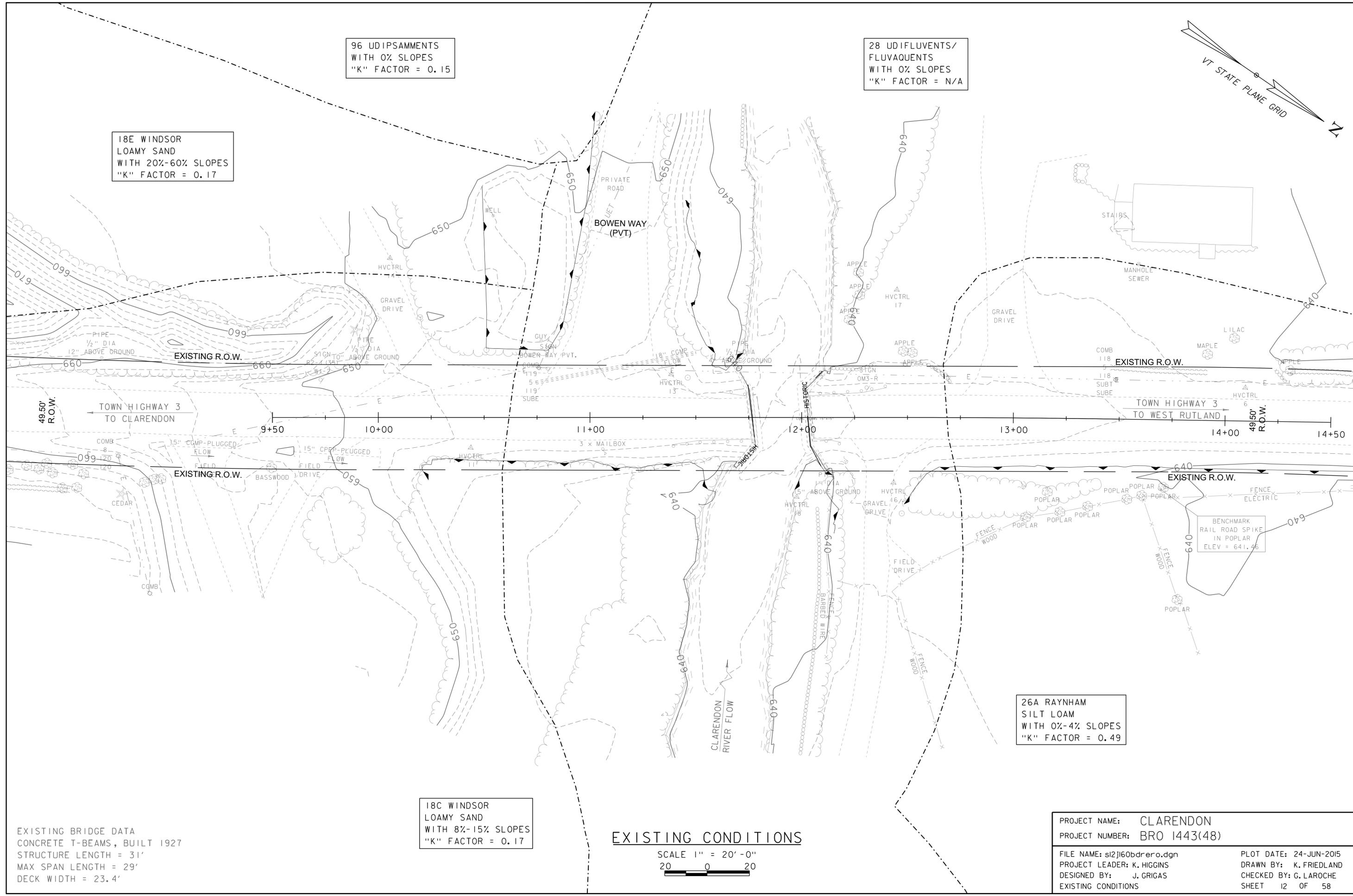
PROJECT NAME: CLARENDON	
PROJECT NUMBER: BHO 1443 (48)	
FILE NAME: x12j160t1.dgn	PLOT DATE: 24-JUN-2015
PROJECT LEADER: K. HIGGINS	DRAWN BY: G. HITCHCOCK
DESIGNED BY: VTRAN	CHECKED BY: P. BEYOR
TIE SHEET	SHEET II OF 58



96 UDIPSAMMENTS  
WITH 0% SLOPES  
"K" FACTOR = 0.15

28 UDIFLUENTS/  
FLUVAQUENTS  
WITH 0% SLOPES  
"K" FACTOR = N/A

18E WINDSOR  
LOAMY SAND  
WITH 20%-60% SLOPES  
"K" FACTOR = 0.17



EXISTING BRIDGE DATA  
CONCRETE T-BEAMS, BUILT 1927  
STRUCTURE LENGTH = 31'  
MAX SPAN LENGTH = 29'  
DECK WIDTH = 23.4'

18C WINDSOR  
LOAMY SAND  
WITH 8%-15% SLOPES  
"K" FACTOR = 0.17

**EXISTING CONDITIONS**

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

26A RAYNHAM  
SILT LOAM  
WITH 0%-4% SLOPES  
"K" FACTOR = 0.49

PROJECT NAME: CLARENDON	
PROJECT NUMBER: BRO 1443(48)	
FILE NAME: sl2j160bdrer0.dgn	PLOT DATE: 24-JUN-2015
PROJECT LEADER: K. HIGGINS	DRAWN BY: K. FRIEDLAND
DESIGNED BY: J. GRIGAS	CHECKED BY: G. LAROCHE
EXISTING CONDITIONS	SHEET 12 OF 58

**CONSTRUCT GRAVEL DRIVES  
W/ 5'-0" PAVED APRONS**

STA 11+12.00 LT - 45.00' WIDE  
STA 12+38.00 RT - 15.00' WIDE  
STA 13+00.00 LT - 28.00' WIDE

**REMOVAL AND DISPOSAL OF GUARDRAIL**

STA 11+38.71 - 11+76.24 RT  
STA 11+61.18 - 11+73.59 LT  
STA 12+03.84 - 12+40.25 LT  
STA 12+05.83 - 12+18.60 RT

**REMOVAL OF EXISTING DELINEATOR**

STA 11+46.19 LT

**RELOCATE MAILBOX, SINGLE SUPPORT  
REMOVE FROM STA 11+06.00 RT (4)  
RELOCATE TO STA 10+20.00 RT (4)**

18" OPTION PIPE  
STA 10+75.00 - 11+50.00

**REMOVAL OF EXISTING CULVERT  
STA 10+75.00 - 11+50.00**

**SPECIAL PROVISION (REMOVE AND  
RELOCATE EXISTING STONE WALL)**

STA 12+12.71 - 12+35.25 LT  
STA 12+47.21 - 12+70.26 LT

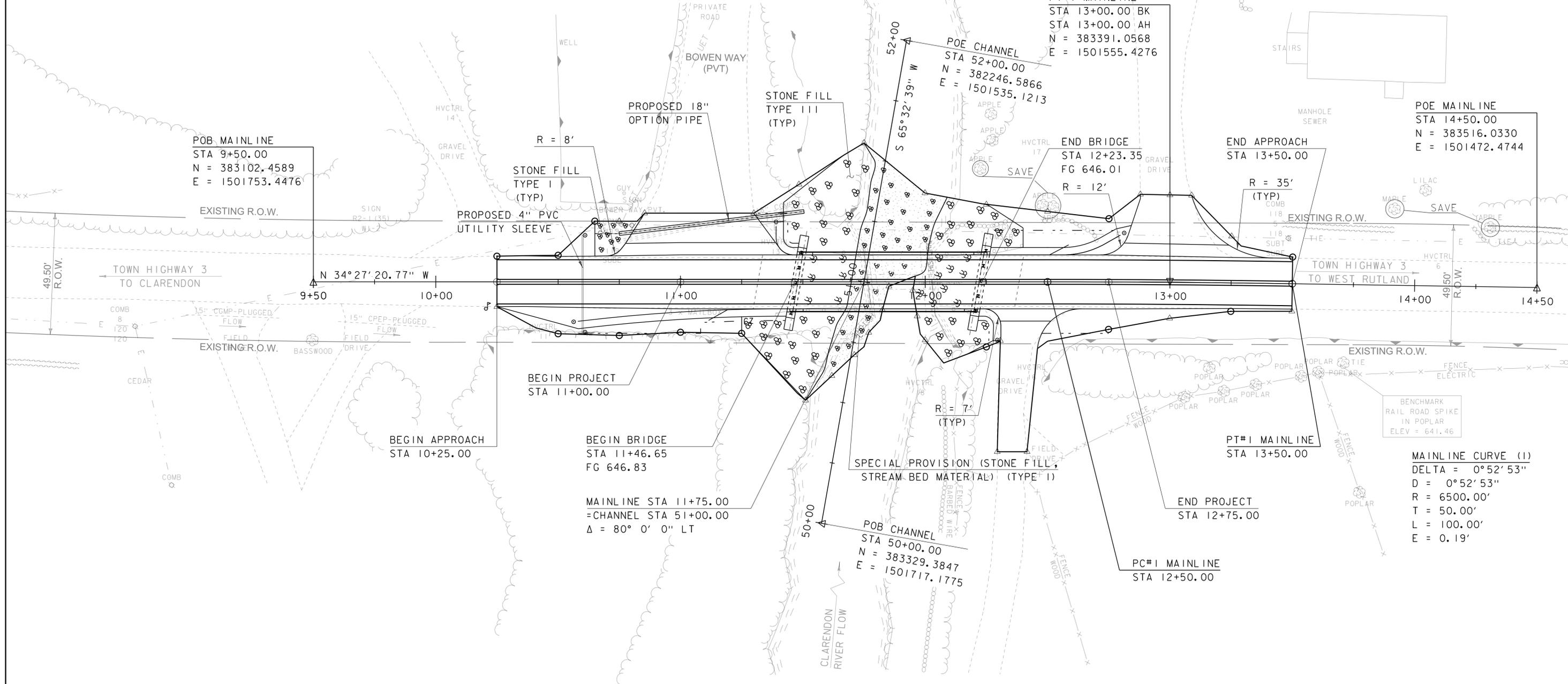
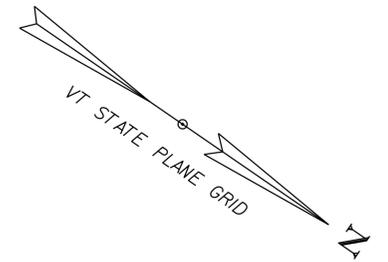
**REMOVING AND RESETTING  
PROPERTY MARKERS**

STA 11+71.00 LT  
N = 383271.2824  
E = 1501608.8904  
STA 12+12.50 RT  
N = 383332.7475  
E = 1501625.1234

**4" SLEEVE FOR FUTURE WATERLINE  
STA 10+60.00**

**STEEL MARKER POST**

STA 10+60.00 LT  
STA 10+60.00 RT



POB MAINLINE  
STA 9+50.00  
N = 383102.4589  
E = 1501753.4476

EXISTING R.O.W.

TOWN HIGHWAY 3  
TO CLARENDON

N 34°27'20.77" W

PROPOSED 4" PVC  
UTILITY SLEEVE

STONE FILL  
TYPE I  
(TYP)

R = 8'

PROPOSED 18"  
OPTION PIPE

STONE FILL  
TYPE III  
(TYP)

PI#1 MAINLINE  
STA 13+00.00 BK  
STA 13+00.00 AH  
N = 383391.0568  
E = 1501555.4276

POE CHANNEL  
STA 52+00.00  
N = 382246.5866  
E = 1501535.1213

END BRIDGE  
STA 12+23.35  
FG 646.01  
R = 12'

END APPROACH  
STA 13+50.00

R = 35'  
(TYP)

POE MAINLINE  
STA 14+50.00  
N = 383516.0330  
E = 1501472.4744

EXISTING R.O.W.

TOWN HIGHWAY 3  
TO WEST RUTLAND

EXISTING R.O.W.

BEGIN PROJECT  
STA 11+00.00

BEGIN BRIDGE  
STA 11+46.65  
FG 646.83

BEGIN APPROACH  
STA 10+25.00

SPECIAL PROVISION (STONE FILL,  
STREAM BED MATERIAL) (TYPE I)

MAINLINE STA 11+75.00  
= CHANNEL STA 51+00.00  
Δ = 80° 0' 0" LT

POB CHANNEL  
STA 50+00.00  
N = 383329.3847  
E = 1501717.1775

PT#1 MAINLINE  
STA 13+50.00

END PROJECT  
STA 12+75.00

PC#1 MAINLINE  
STA 12+50.00

MAINLINE CURVE (1)  
DELTA = 0°52'53"  
D = 0°52'53"  
R = 6500.00'  
T = 50.00'  
L = 100.00'  
E = 0.19'

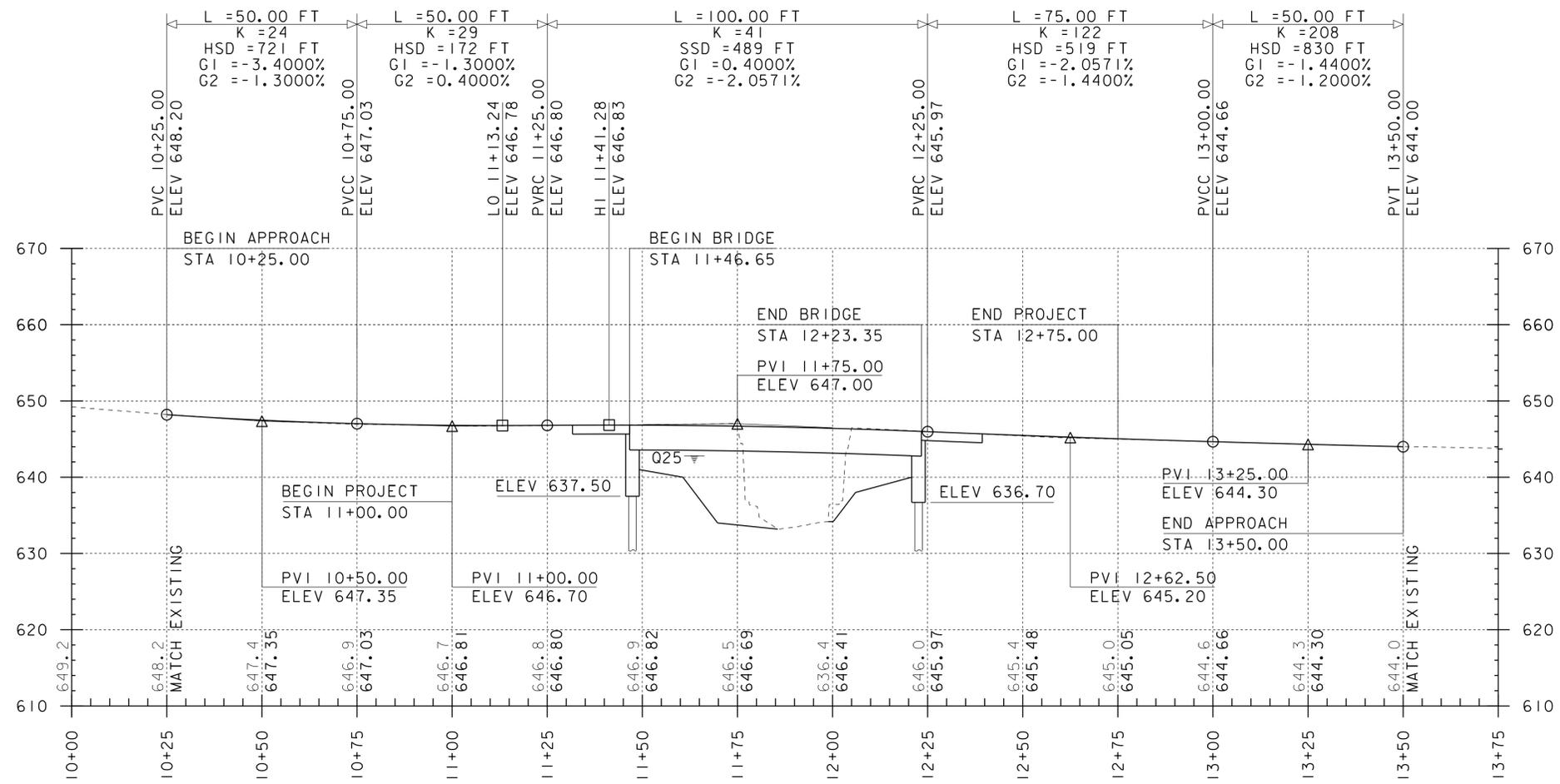
**LAYOUT SHEET**

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

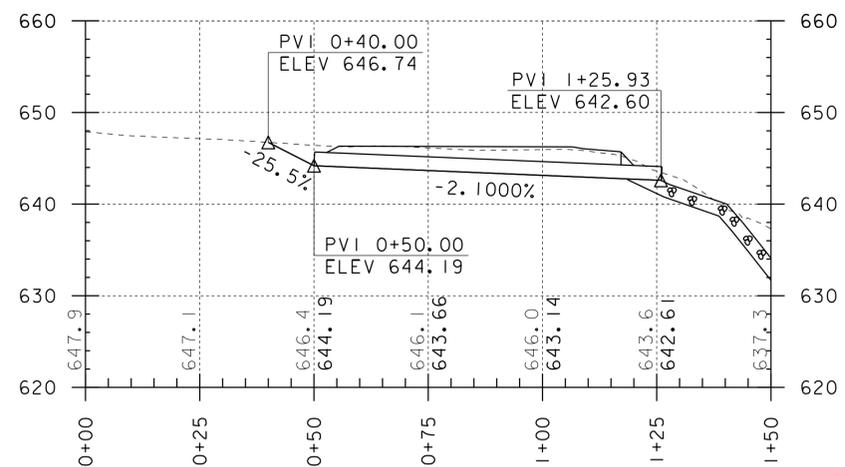
PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

FILE NAME: sl2j160bdr.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
LAYOUT SHEET

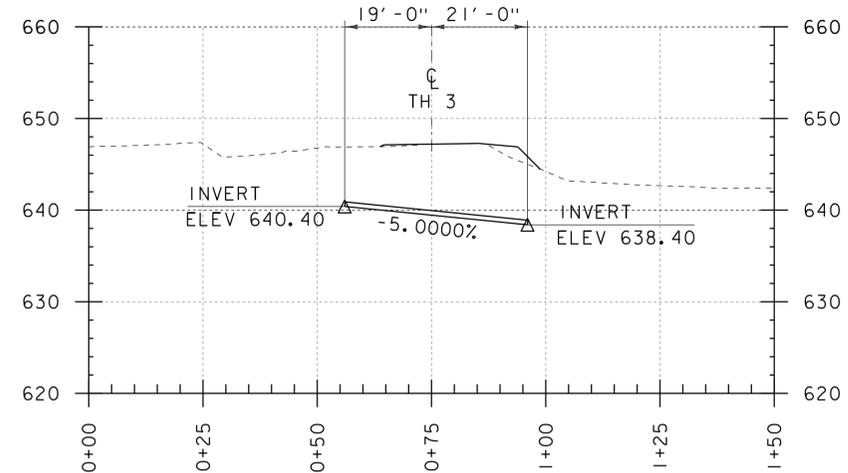
PLOT DATE: 24-JUN-2015  
DRAWN BY: K. FRIEDLAND  
CHECKED BY: G. LAROCHE  
SHEET 13 OF 58



**MAINLINE PROFILE**  
 HORIZONTAL SCALE 1" = 20'-0"  
 VERTICAL SCALE 1" = 10'-0"



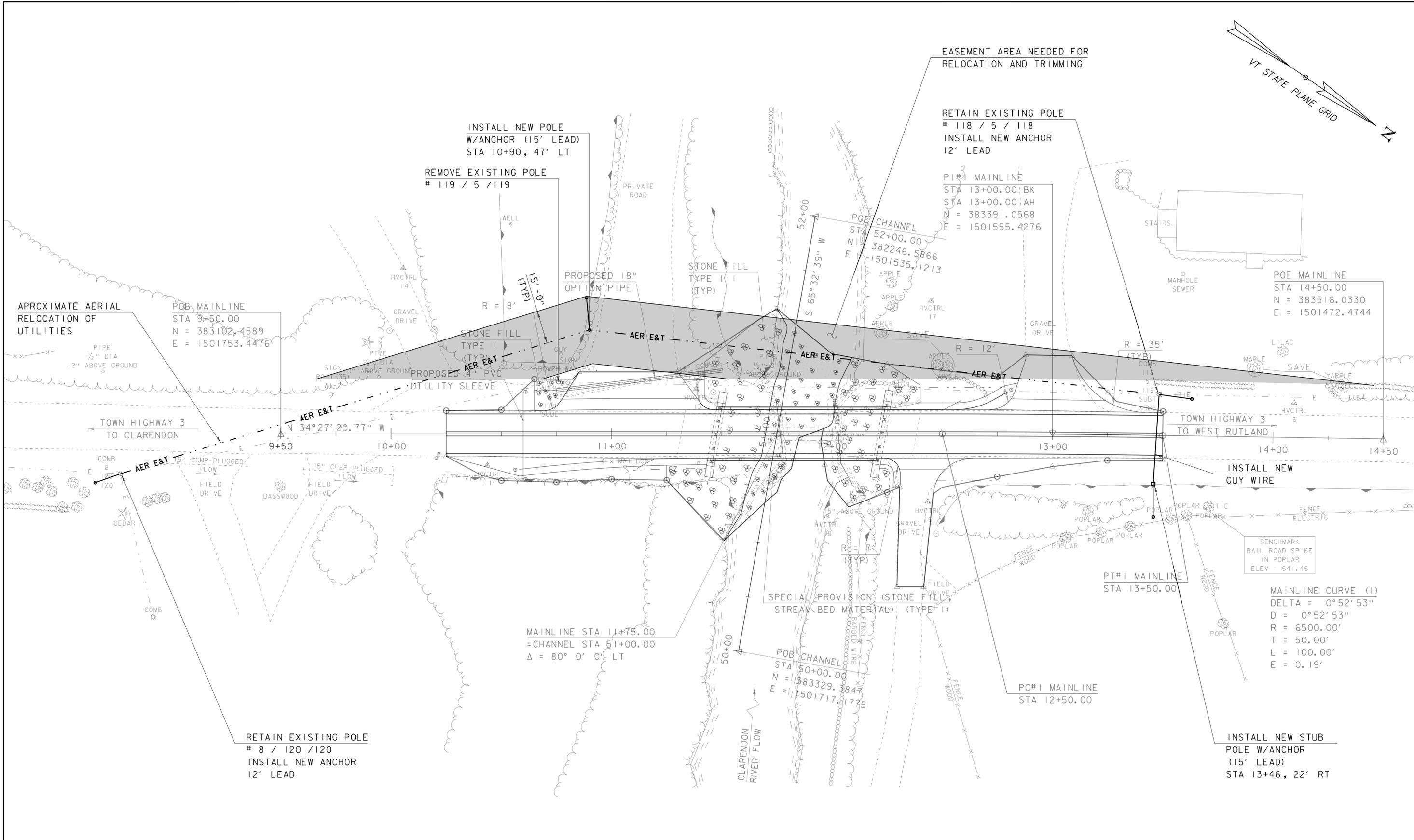
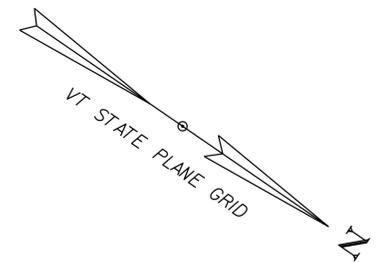
**OPTION PIPE PROFILE**  
 HORIZONTAL SCALE 1" = 20'-0"  
 VERTICAL SCALE 1" = 10'-0"



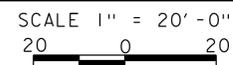
**UTILITY SLEEVE PROFILE (STA 10+60)**  
 HORIZONTAL SCALE 1" = 20'-0"  
 VERTICAL SCALE 1" = 10'-0"

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

PROJECT NAME: CLARENDON	PLOT DATE: 22-JUL-2015
PROJECT NUMBER: BRO 1443(48)	DRAWN BY: J. GRIGAS
FILE NAME: sl2j160profile.dgn	CHECKED BY: G. LAROCHE
PROJECT LEADER: K. HIGGINS	SHEET 14 OF 58
DESIGNED BY: J. GRIGAS	
MAINLINE PROFILE	



**PROPOSED UTILITY LAYOUT**

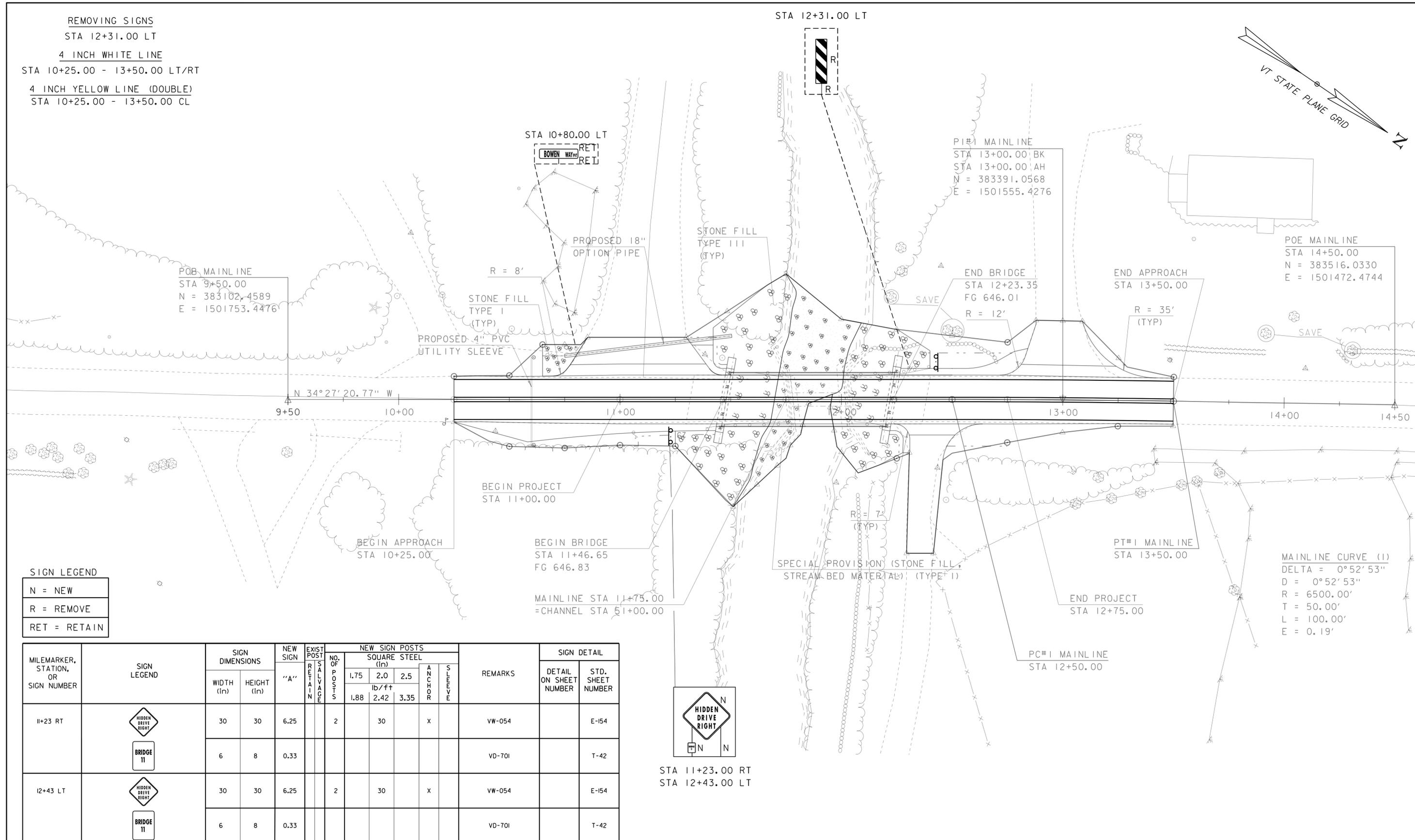
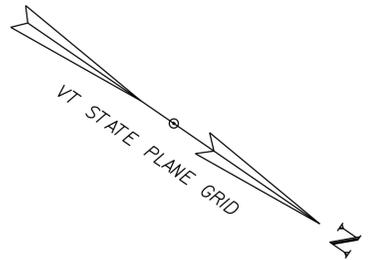


PROJECT NAME: CLARENDON	
PROJECT NUMBER: BRO 1443(48)	
FILE NAME: sl2j160ut1.dgn	PLOT DATE: 24-JUN-2015
PROJECT LEADER: K. HIGGINS	DRAWN BY: K. FRIEDLAND
DESIGNED BY: L. WHEELER	CHECKED BY: J. SALVATORI
PROPOSED UTILITY LAYOUT	SHEET 15 OF 58

REMOVING SIGNS  
STA 12+31.00 LT

4 INCH WHITE LINE  
STA 10+25.00 - 13+50.00 LT/RT  
4 INCH YELLOW LINE (DOUBLE)  
STA 10+25.00 - 13+50.00 CL

STA 12+31.00 LT



SIGN LEGEND

- N = NEW
- R = REMOVE
- RET = RETAIN

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS		NEW SIGN "A"	EXIST POST RETAIN	NO. OF POSTS	NEW SIGN POSTS SQUARE STEEL (in)				REMARKS	SIGN DETAIL		
		WIDTH (in)	HEIGHT (in)				SQUARE STEEL			ANCHOR		S	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
							1.75	2.0	2.5					
11+23 RT		30	30	6.25		2		30		X		VW-054	E-154	
		6	8	0.33								VD-701	T-42	
12+43 LT		30	30	6.25		2		30		X		VW-054	E-154	
		6	8	0.33								VD-701	T-42	
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	EA					
<b>TOTALS</b>							SF	60	FT	60	SHS = STANDARD HIGHWAY SIGNS (MUTCD)			



STA 11+23.00 RT  
STA 12+43.00 LT

SIGN & PAVEMENT MARKINGS

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

NOTE:  
ADJUST NEW CENTERLINE AND EDGE LINES TO MATCH EXISTING LINES AT BEGIN/END APPROACH

PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

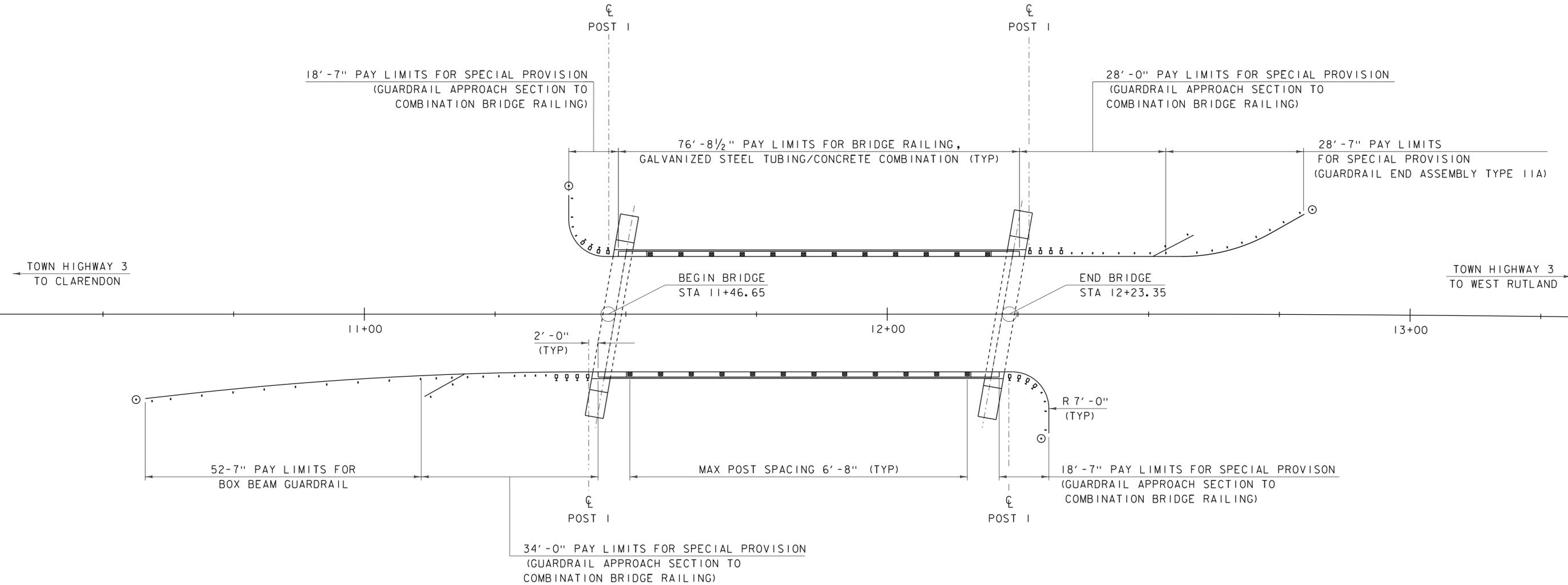
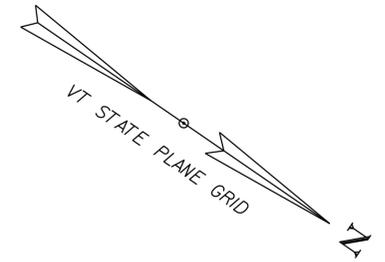
FILE NAME: sl2j160s1gn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: S. COLEY  
SIGN AND PAVEMENT MARKINGS

PLOT DATE: 24-JUN-2015  
DRAWN BY: S. COLEY  
CHECKED BY: J. GRIGAS  
SHEET 16 OF 58

BOX BEAM GUARDRAIL  
 STA 10+58.25 - 11+10.89 RT  
 SPECIAL PROVISION (GUARDRAIL APPROACH  
 SECTION TO COMBINATION BRIDGE RAILING)  
 STA 11+10.89 - 11+44.88 RT  
 STA 11+33.59 - 11+48.75 LT  
 STA 12+21.25 - 12+30.73 RT  
 STA 12+25.12 - 12+56.13 LT

DELINEATOR W/ STEEL POST  
 STA 10+56.34 RT  
 STA 11+39.10 LT  
 GUIDE POST (WOOD)  
 STA 12+30.90 RT  
 STA 12+81.21 LT

CLARENDON RIVER  
 FLOW

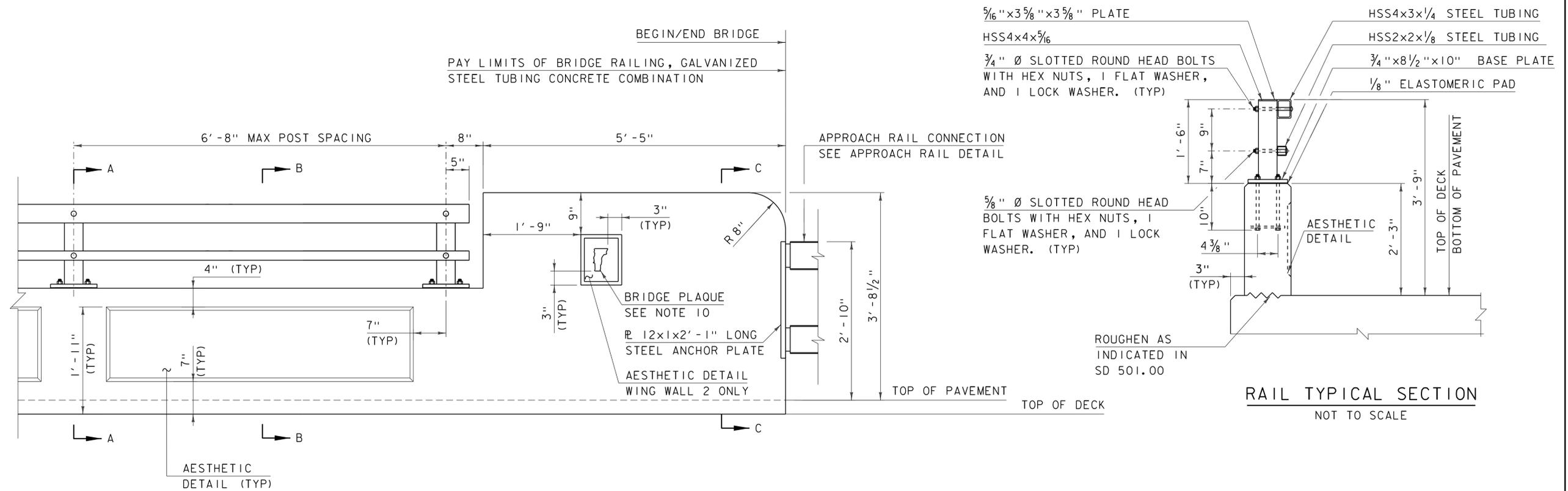


RAIL LAYOUT SHEET  
 SCALE 1" = 10'-0"

NOTES:

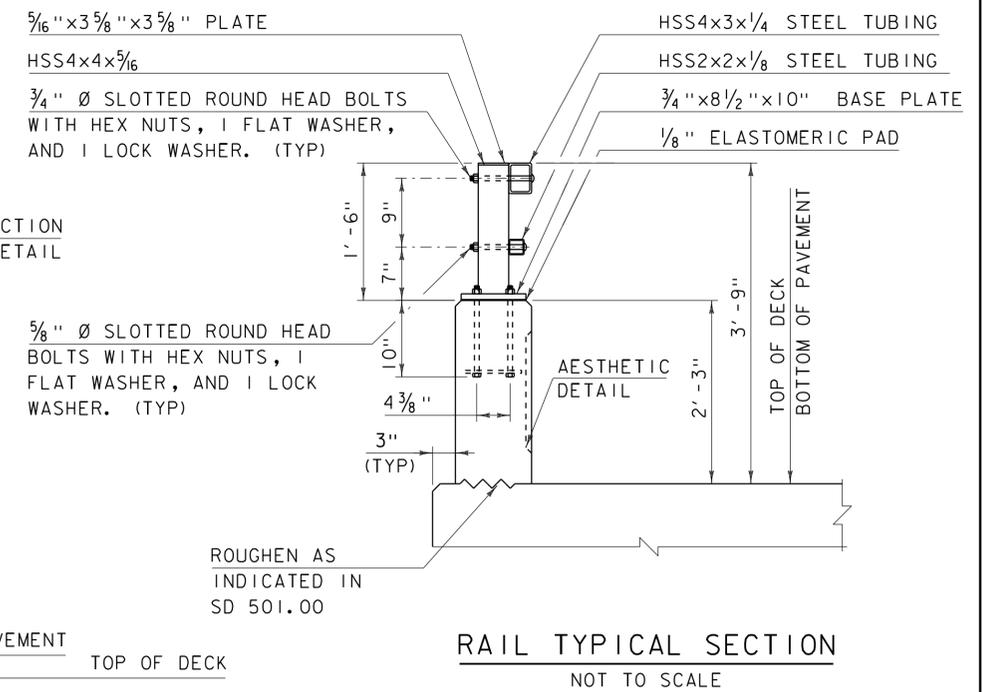
1. ALL DIMENSIONS ARE ALONG THE FACE OF RAIL.
2. SEE BOX BEAM DETAIL SHEET, G-4, S-352A, S-352B, S-352C, AND T-40 FOR ADDITIONAL DETAILS.

PROJECT NAME: CLARENDON	
PROJECT NUMBER: BRO 1443(48)	
FILE NAME: sl2j160bdr_rail.dgn	PLOT DATE: 24-JUN-2015
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. GRIGAS
DESIGNED BY: J. GRIGAS	CHECKED BY: G. LAROCHE
RAIL LAYOUT SHEET	SHEET 17 OF 58



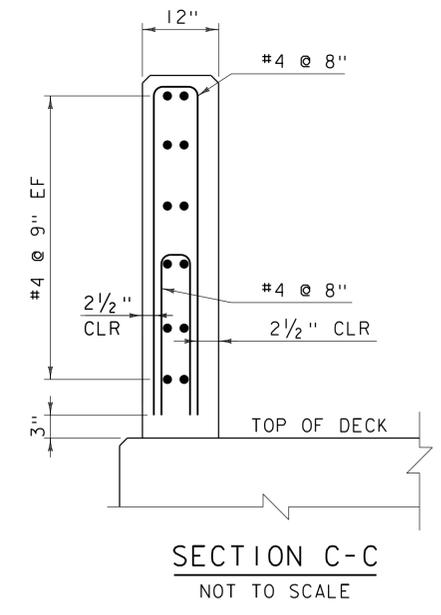
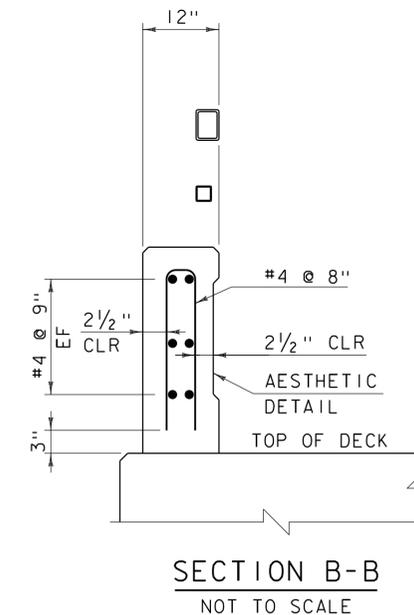
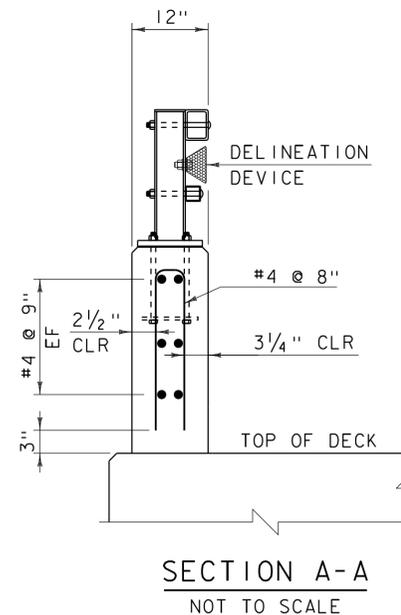
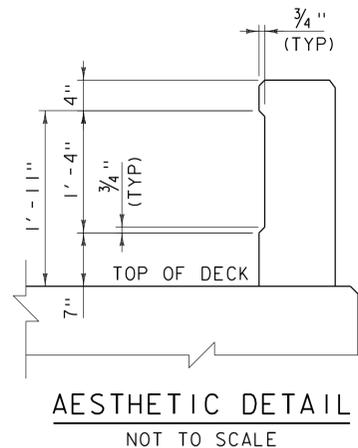
**RAILING & END WALL APPROACH**

NOT TO SCALE



**NOTES:**

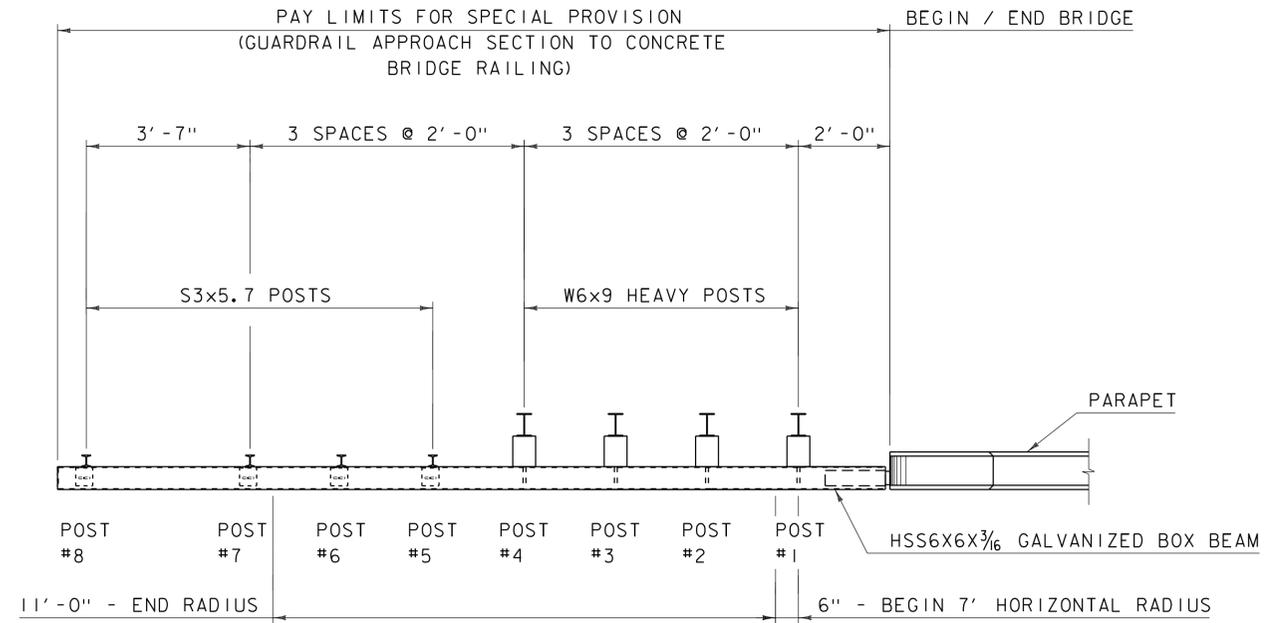
1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
3. ALL POSTS SHALL BE SET NORMAL TO GRADE.
4. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POSTS AND PREFERABLY TO AT LEAST 4 POSTS.
5. HOLES IN RAILS FOR TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
6. BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
7. RAIL TUBES SHALL BE ATTACHED USING 3/4" FULL DIAMETER BODY ASTM A 449 (TYPE I) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE.
8. SEE BOX BEAM DETAILS FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED OF THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT. PAYMENT FOR THE DELINEATORS SHALL BE INCIDENTAL TO OTHER ITEM 525.45, "BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION."
9. BRIDGE RAILING SHALL HAVE A RUBBED FINISH IN ACCORDANCE WITH SECTION 501.
10. BRIDGE PLAQUE TO BE PLACED IN LOCATION SHOWN ON CONTRACT PLANS ON THE PARAPET OFF OF WINGWALL 2. THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND WILL BE CONSIDERED INCIDENTAL TO PAY ITEM 525.45, "BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION."
11. BRIDGE PLAQUE TO HAVE A 3" BORDER FOR THE AESTHETIC DETAIL.



**NOTE:**  
 EF = EACH FACE  
 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.  
 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

SEE STANDARD S352-B AND S352-C FOR FURTHER DETAILS

PROJECT NAME:	CLARENDON	FILE NAME:	sl2j160raildet.dgn	PLOT DATE:	22-JUL-2015
PROJECT NUMBER:	BRO 1443(48)	PROJECT LEADER:	K. HIGGINS	DRAWN BY:	S. COLEY
		DESIGNED BY:	J. GRIGAS	CHECKED BY:	G. LAROCHE
		BRIDGE RAIL DETAILS		SHEET	18 OF 58

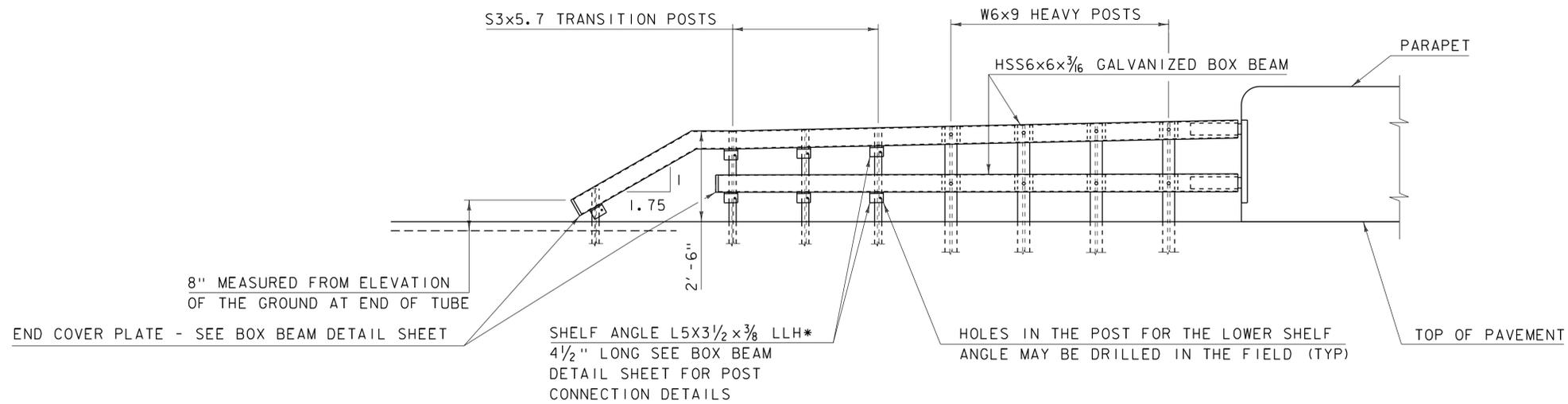


POST 1	645.78
POST 2	645.72
POST 3	645.57
POST 4	645.35
POST 5	645.08
POST 6	644.77
POST 7	644.47
POST 8	643.91

WW #4 GUARDRAIL  
GROUND ELEVATION

APPROACH RAIL PLAN @ WW1 AND WW4

NOT TO SCALE



APPROACH RAIL ELEVATION @ WW1 AND WW4

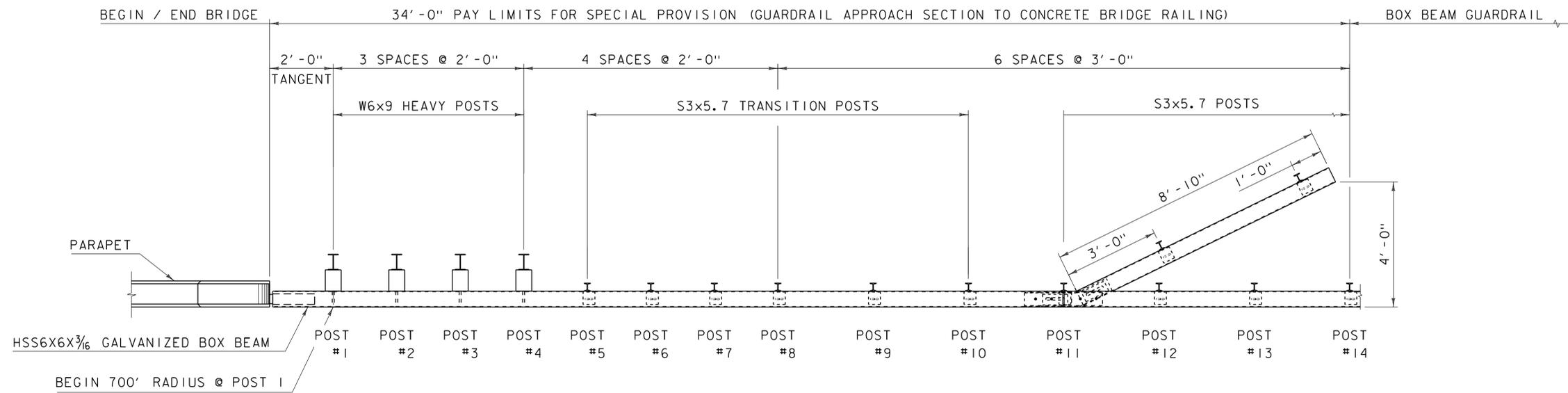
NOT TO SCALE  
\*LONG LEG HORIZONTAL

NOTES:

1. APPROACH RAIL TO BE SHOP BENT.
2. ANY HOLES THAT ARE FIELD DRILLED SHALL HAVE THEIR GALVANIZING REPAIRED PER SECTION 726.08 OF THE STANDARD SPECIFICATIONS.
3. REFERENCE BOX BEAM DETAIL SHEET FOR FURTHER DETAILS.
4. RAILS ARE SHOWN STRAIGHT FOR CLARITY
5. WING WALL 4 APPROACH RAIL WILL HAVE TO BE BENT IN THE VERTICAL DIRECTION AS WELL. ELEVATIONS ARE GIVEN FOR USE BY THE FABRICATOR.

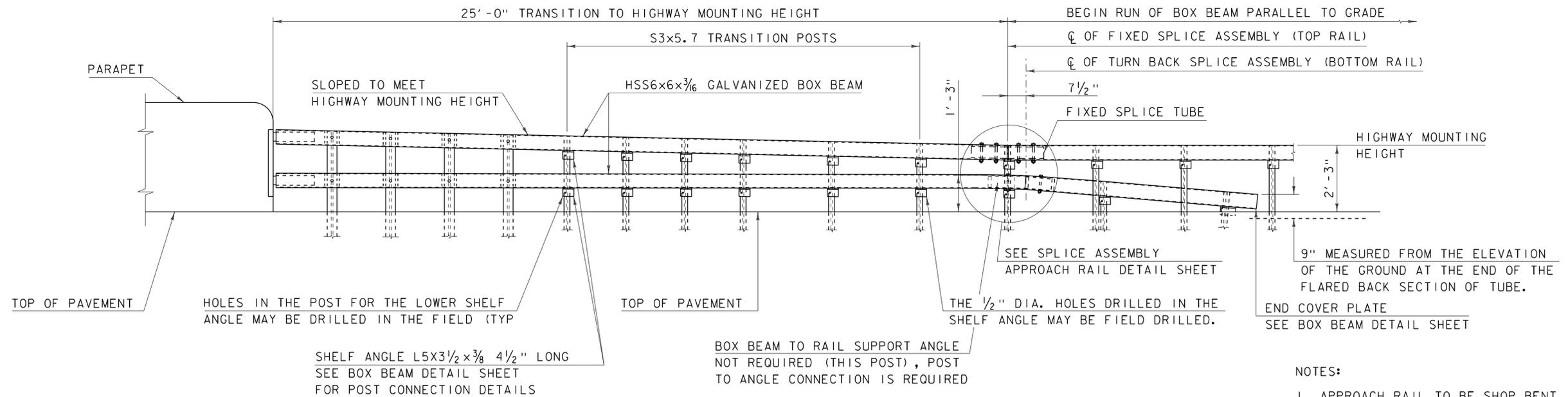
PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

FILE NAME: sl2j160raildet.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
APPROACH RAIL WW1 AND WW4  
PLOT DATE: 24-JUN-2015  
DRAWN BY: S. COLEY  
CHECKED BY: G. LAROCHE  
SHEET 19 OF 58



**APPROACH RAIL PLAN @ WW2**

NOT TO SCALE



**APPROACH RAIL ELEVATION @ WW2**

NOT TO SCALE

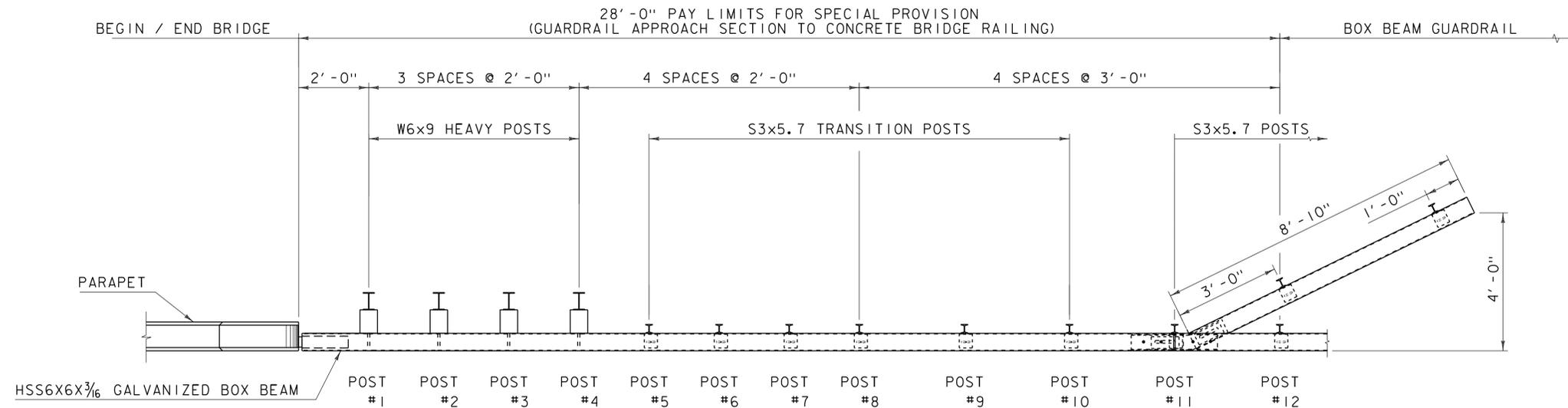
**NOTES:**

1. APPROACH RAIL TO BE SHOP BENT.
2. ANY HOLES THAT ARE FIELD DRILLED SHALL HAVE THEIR GALVANIZING REPAIRED PER SECTION 726.08. OF THE STANDARD SPECIFICATION.
3. REFERENCE BOX BEAM DETAIL SHEET FOR FURTHER DETAILS
4. RAILS SHOWN STRAIGHT FOR CLARITY

PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

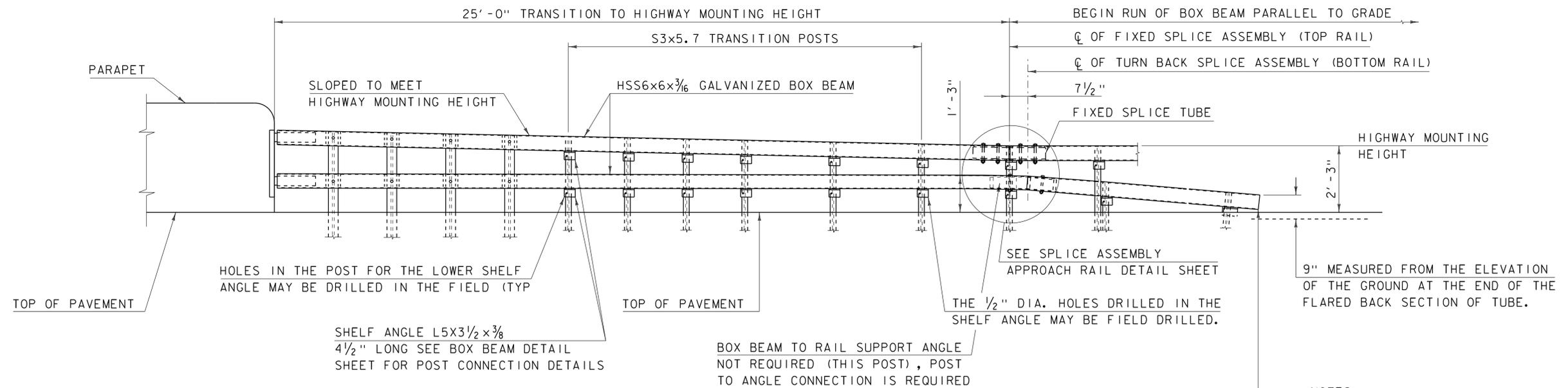
FILE NAME: sl2j160raildet.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
APPROACH RAIL WW2

PLOT DATE: 24-JUN-2015  
DRAWN BY: S. COLEY  
CHECKED BY: G. LAROCHE  
SHEET 20 OF 58



**APPROACH RAIL PLAN @ WW3**

NOT TO SCALE



**APPROACH RAIL ELEVATION @ WW3**

NOT TO SCALE

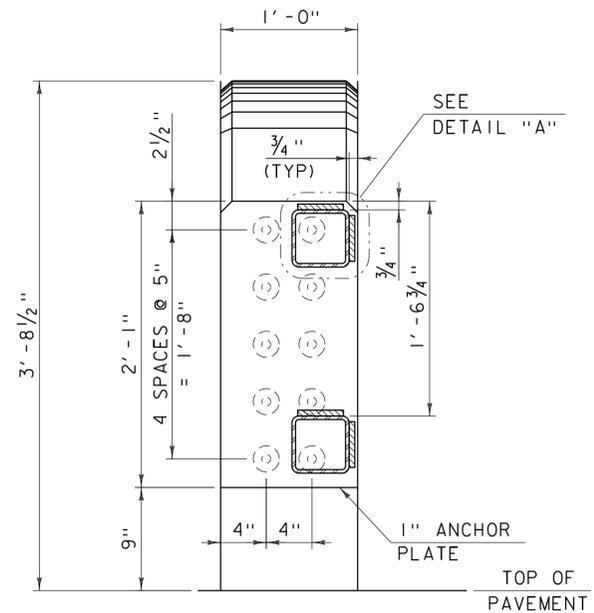
**NOTES:**

1. ANY HOLES THAT ARE FIELD DRILLED SHALL HAVE THEIR GALVANIZING REPAIRED PER SECTION 726.08 OF THE STANDARD SPECIFICATIONS.
2. REFERENCE BOX BEAM DETAIL SHEET FOR FURTHER DETAILS
3. RAILS SHOWN STRAIGHT FOR CLARITY

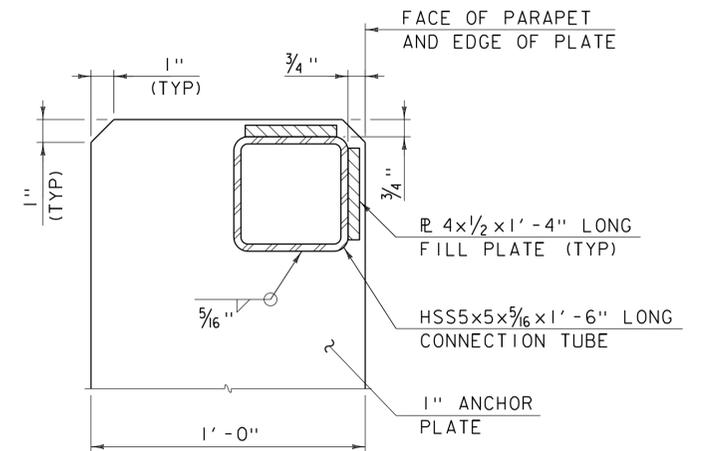
PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

FILE NAME: sl2j160raildet.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
APPROACH RAIL WW3

PLOT DATE: 24-JUN-2015  
DRAWN BY: S. COLEY  
CHECKED BY: G. LAROCHE  
SHEET 21 OF 58

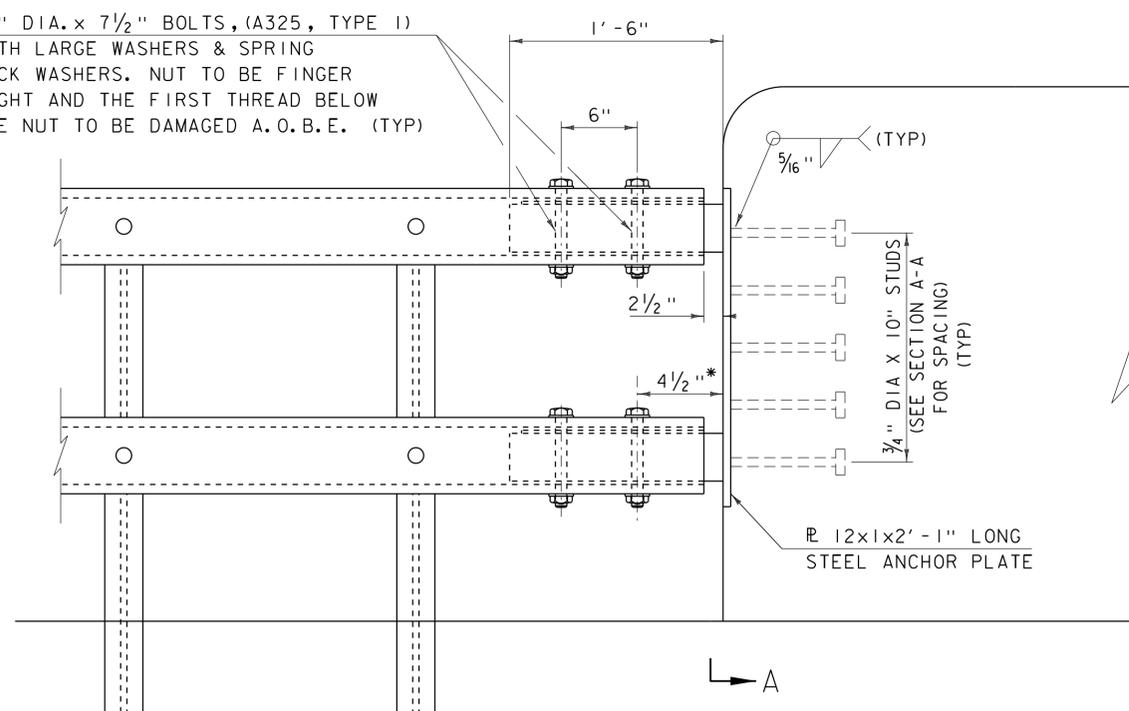


SECTION A-A  
NOT TO SCALE

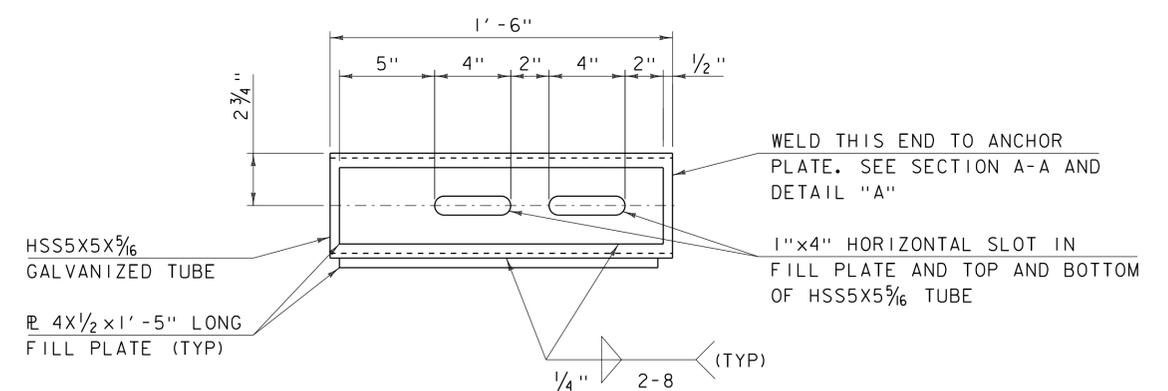


DETAIL "A"  
NOT TO SCALE

3/4" DIA. x 7 1/2" BOLTS, (A325, TYPE 1)  
WITH LARGE WASHERS & SPRING  
LOCK WASHERS. NUT TO BE FINGER  
TIGHT AND THE FIRST THREAD BELOW  
THE NUT TO BE DAMAGED A.O.B.E. (TYP)



APPROACH RAIL DETAIL  
NOT TO SCALE



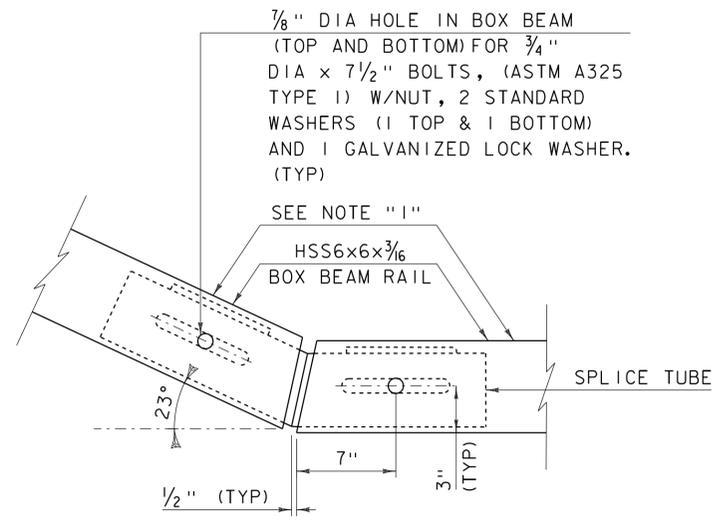
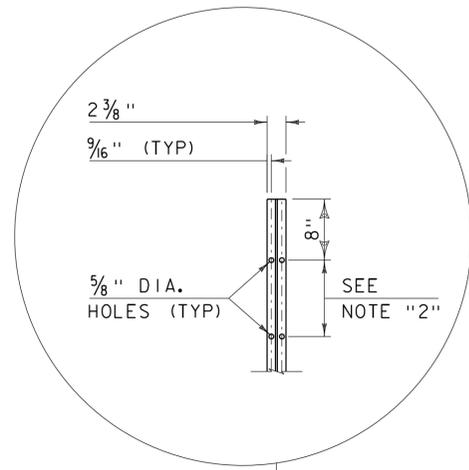
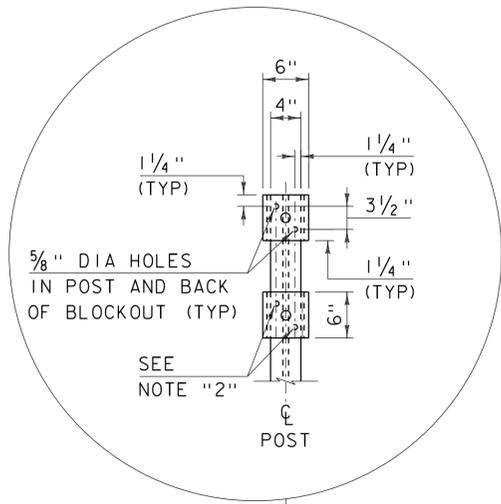
CONNECTION TUBE PLATE  
PLAN VIEW  
NOT TO SCALE

\* AT 68°F (INCREASE DIMENSIONS IF  
MORE THAN 1 1/2" OF EXPANSION  
IS ANTICIPATED).

PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

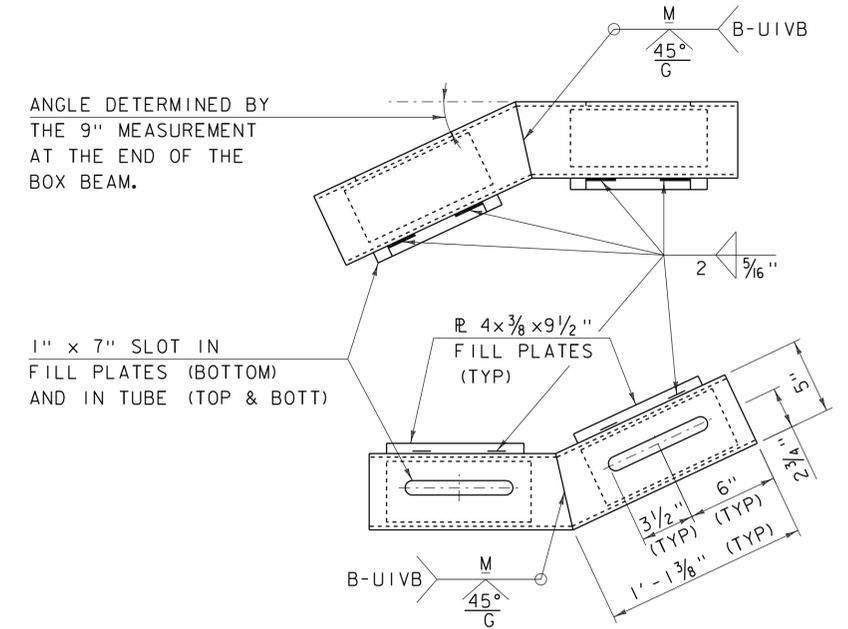
FILE NAME: sl2j160r01det.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
APPROACH RAIL DETAILS 1

PLOT DATE: 24-JUN-2015  
DRAWN BY: S. COLEY  
CHECKED BY: G. LAROCHE  
SHEET 22 OF 58



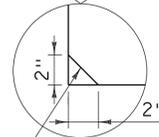
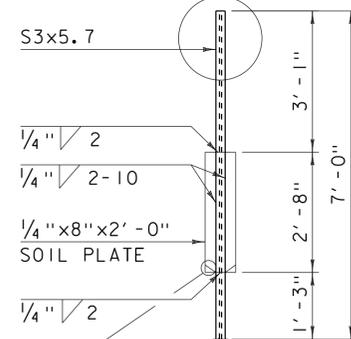
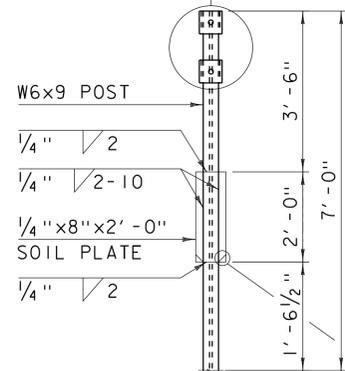
**SPLICE DETAIL AT BOTTOM RAIL TURN BACK PLAN**

NOT TO SCALE



**SPLICE TUBE DETAIL FOR TURN BACK**

NOT TO SCALE



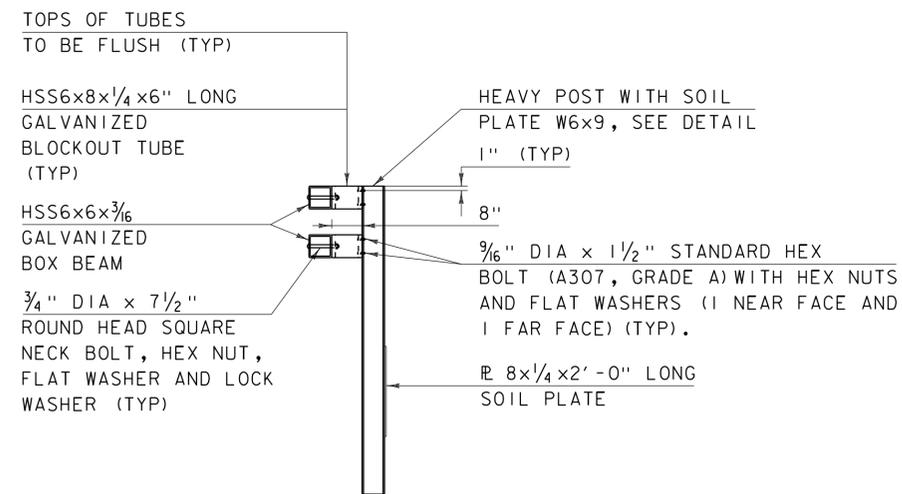
BOTTOM CORNERS MAY BE CLIPPED TO AID DRIVING

**HEAVY POST DETAIL**

NOT TO SCALE

**TRANSITION POST DETAIL**

NOT TO SCALE

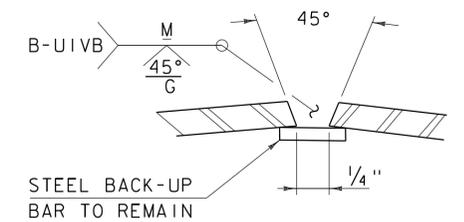


**HEAVY POST ELEVATION**

NOT TO SCALE

NOTES:

- PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
- HOLES IN POST FOR LOWER RAIL MAY BE LOCATED AND DRILLED IN THE FIELD. IF SO, GALVANIZING SHALL BE REPAIRED PER SECTION 726.08.



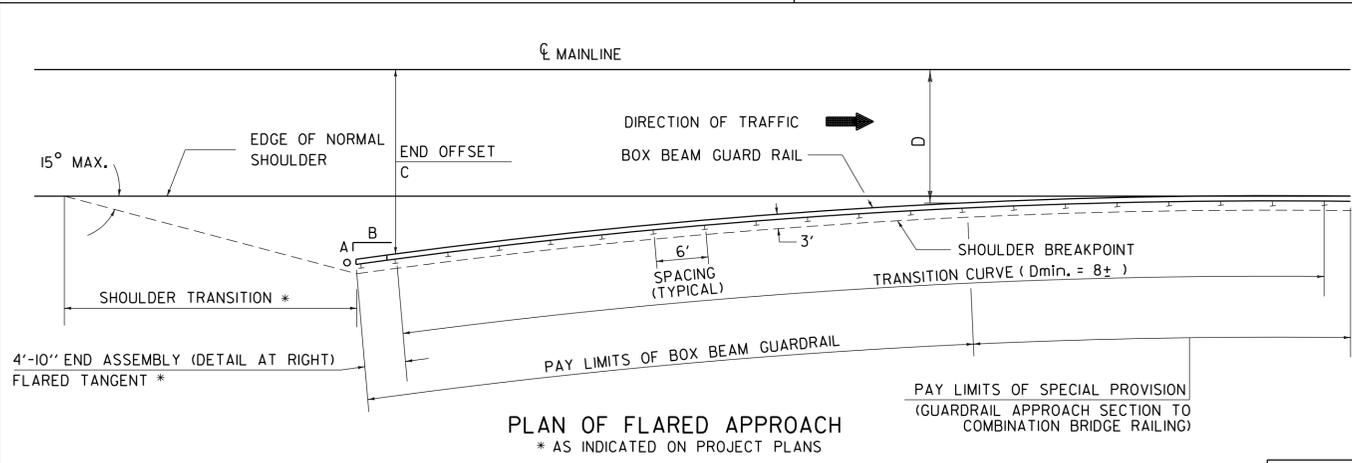
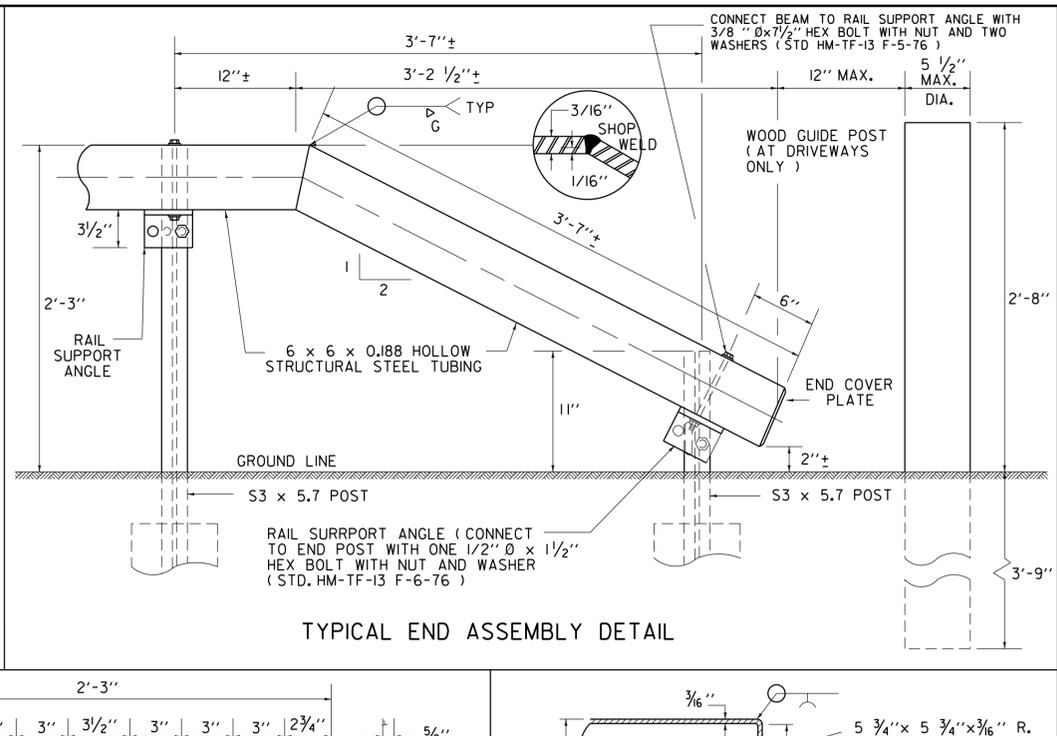
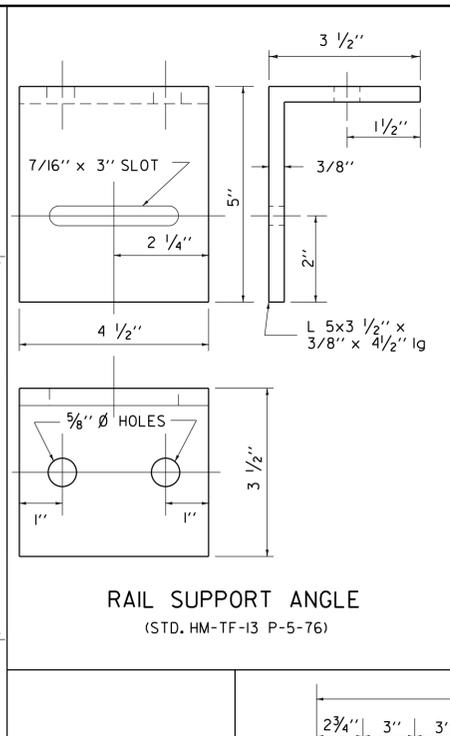
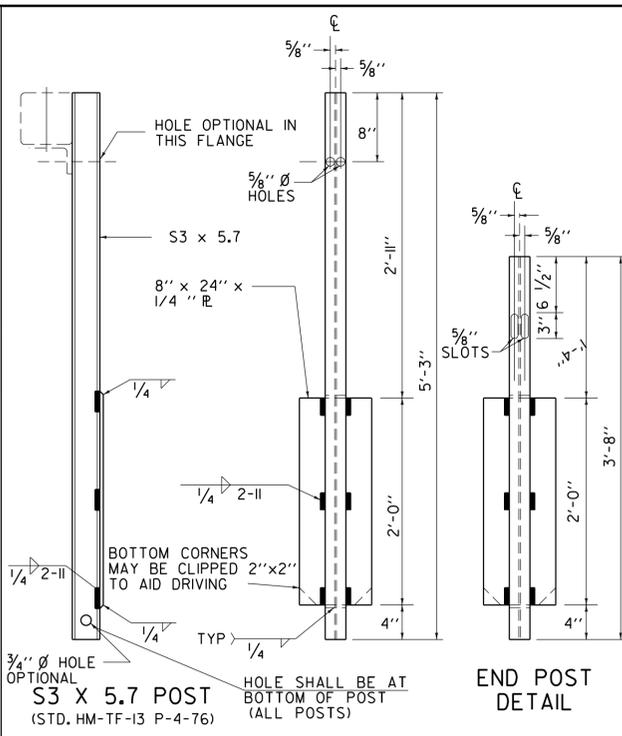
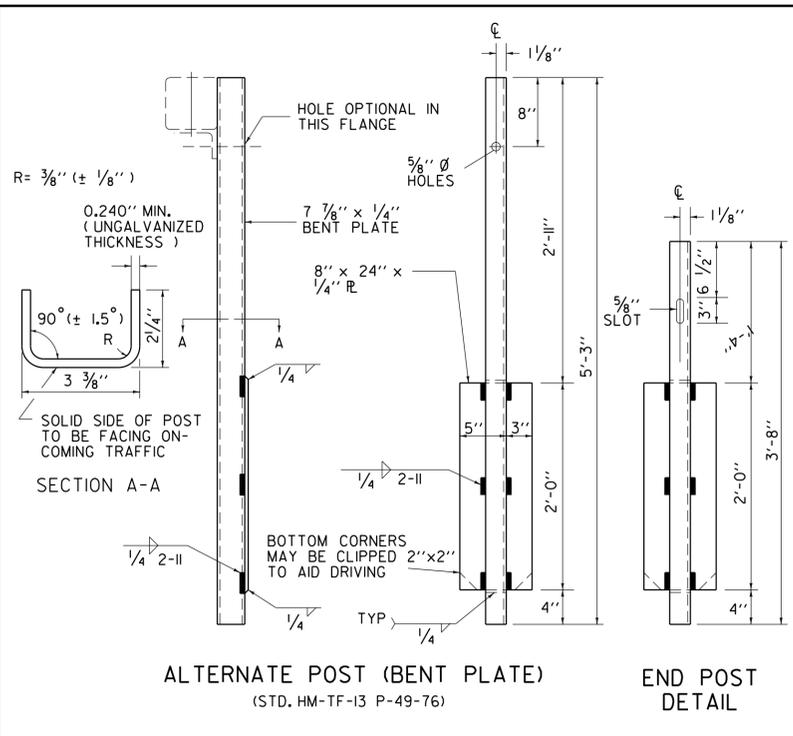
**WELD DETAIL FOR SPLICE TUBE**

NOT TO SCALE

PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

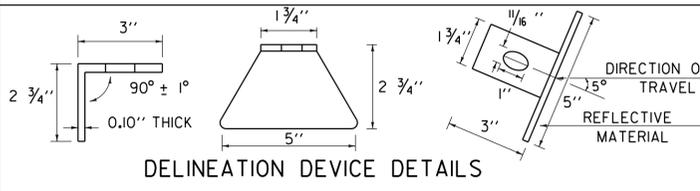
FILE NAME: sl2j160raildet.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
APPROACH RAIL DETAILS 2

PLOT DATE: 24-JUN-2015  
DRAWN BY: S. COLEY  
CHECKED BY: G. LAROCHE  
SHEET 23 OF 58



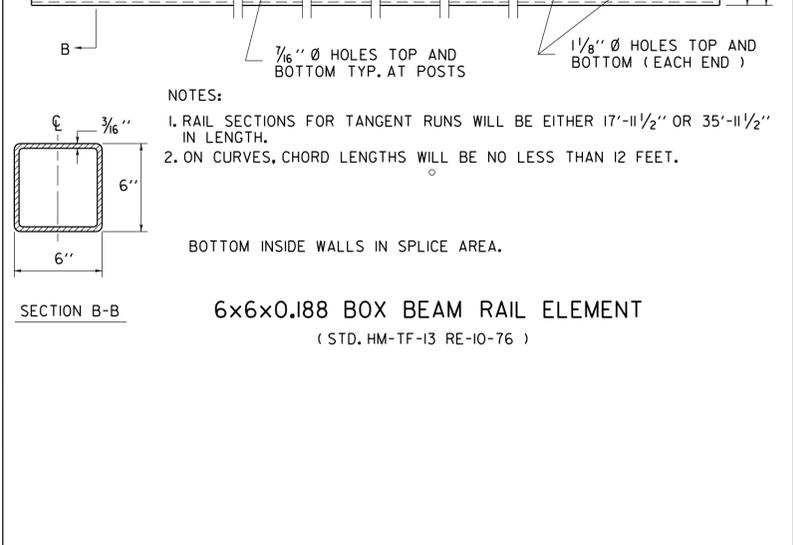
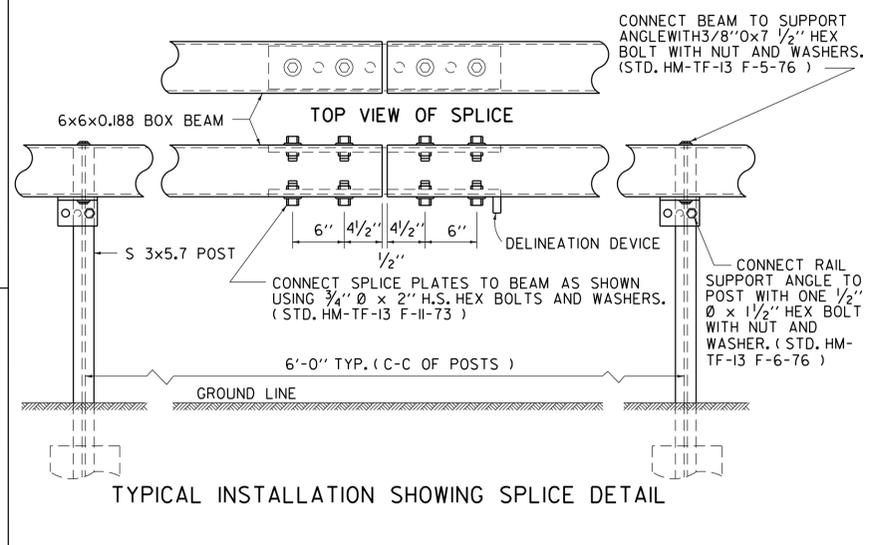
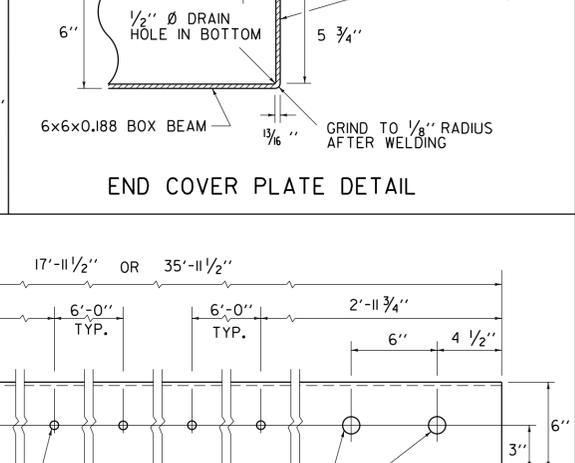
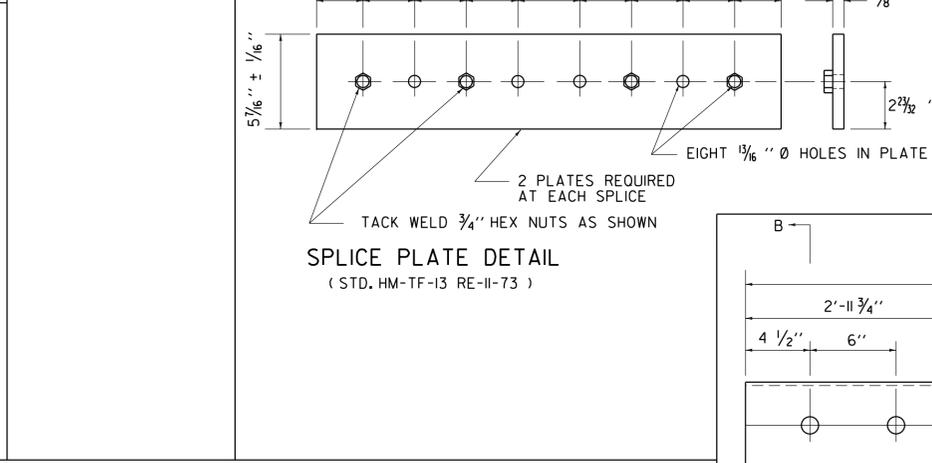
MAX. FLARE RATE (B:A)	TRANSITION CURVE LENGTH	OFFSET "C" FOR MIN. TRANS. CURVE	END OFFSET	OFFSET "D" FOR APPROACH RAIL
9:1	78 FEET	15'-4"	15'-4"	11'-9"

- GENERAL NOTES**
- FOR MATERIAL REQUIREMENTS AND CONSTRUCTION DETAILS SEE SPECIFICATIONS FOR BOX BEAM GUARD RAIL.
  - RAIL ALIGNMENT TO BE STRAIGHT AT SPLICES. NO LATERAL BENDS PERMITTED WITHIN THE SPLICE. THIS DOES NOT PRECLUDE THE SHOP FABRICATION OF BENT SPLICES.
  - THE LINE OF BOX BEAM GUARD RAIL WHEN COMPLETED SHALL PRESENT A SMOOTH AND PLEASING GRADE LINE IN BOTH HORIZONTAL AND VERTICAL PLANES.
  - ALL POSTS IN A GIVEN RUN TO BE OF THE SAME TYPE.
  - TRANSITION CURVE TO BEGIN AT POST 1 OF APPROACH RAIL. SEE APPROACH RAIL WW2 FOR FURTHER DETAILS.

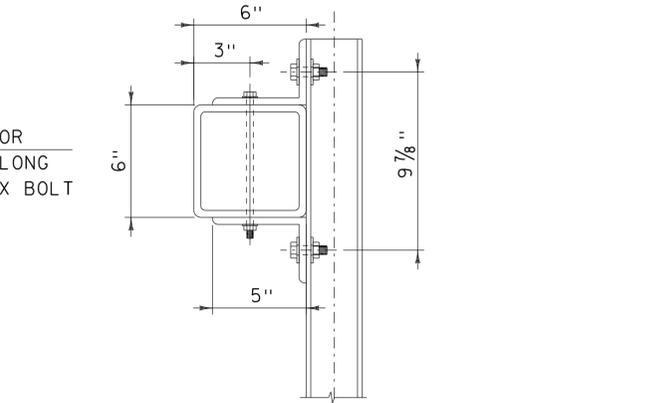
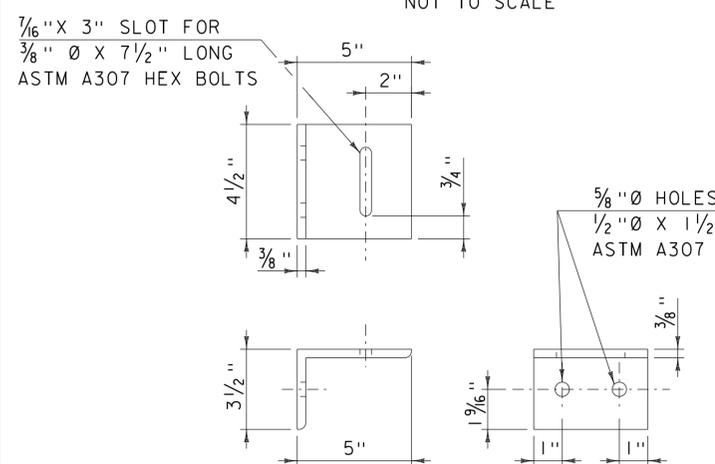
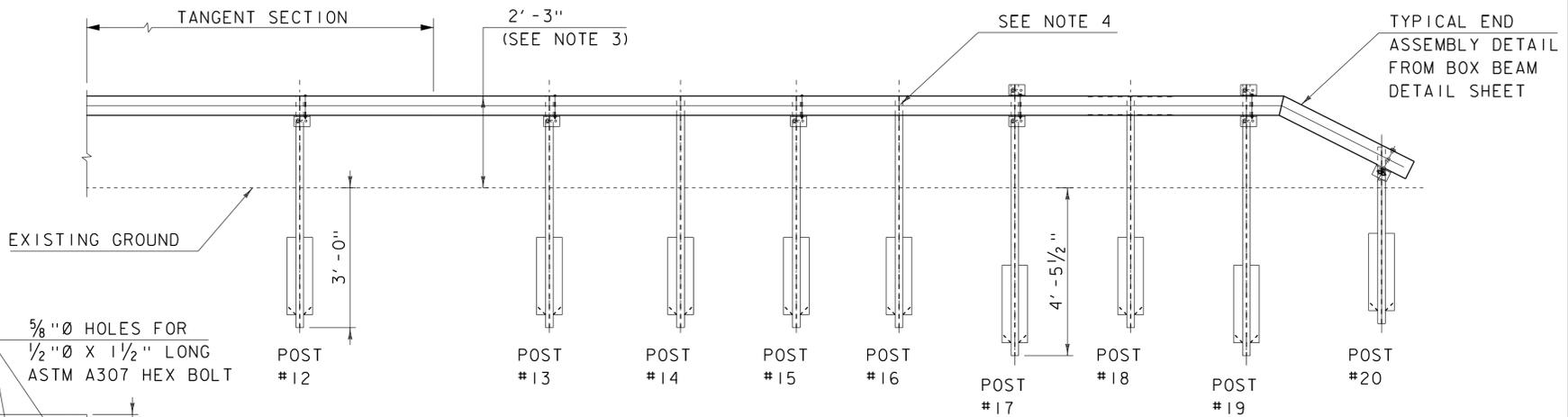
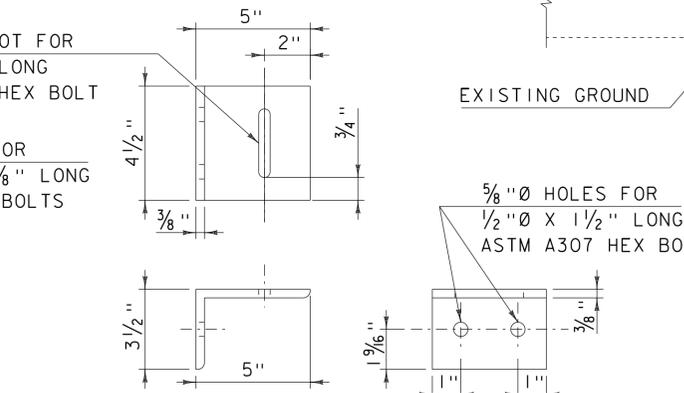
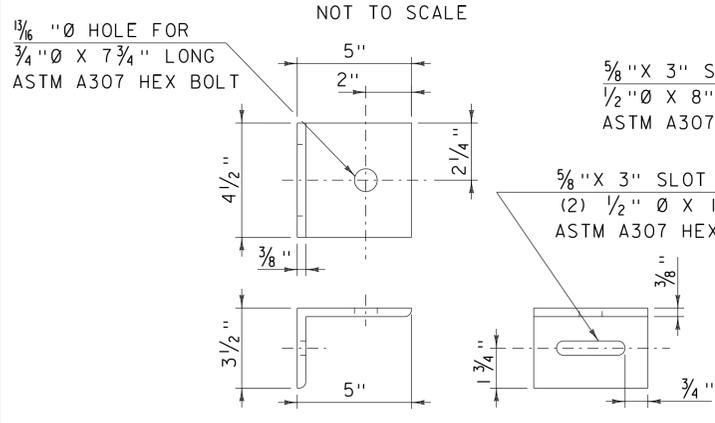
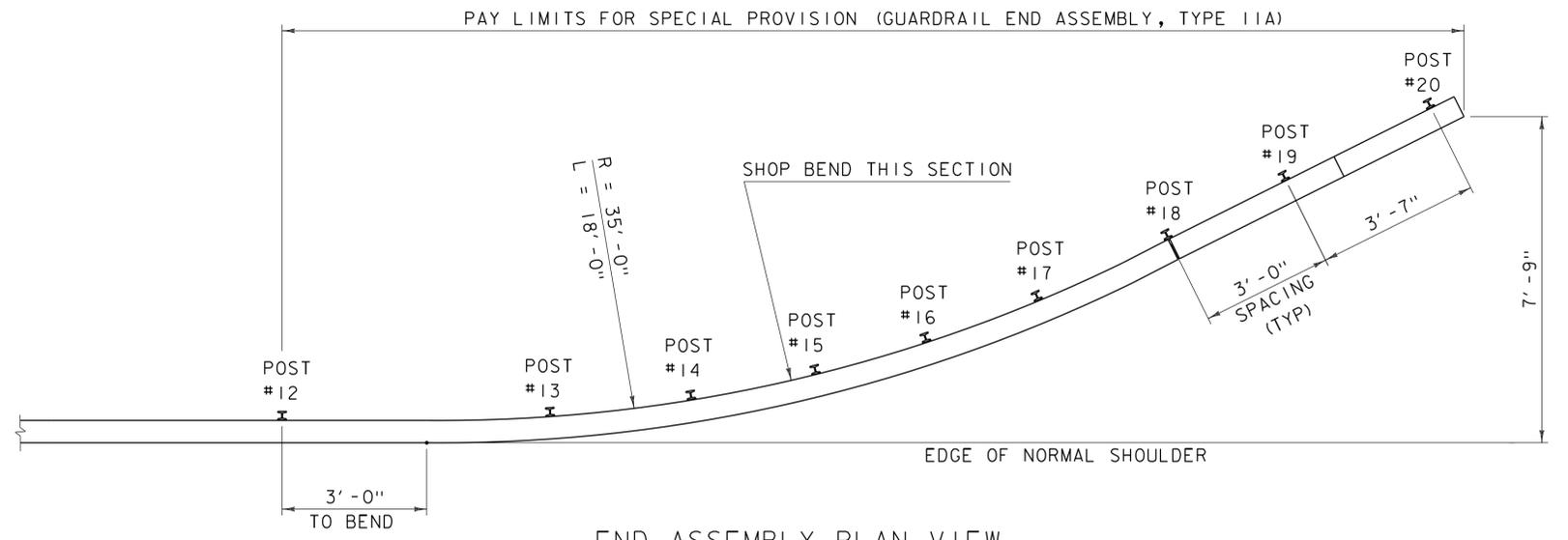
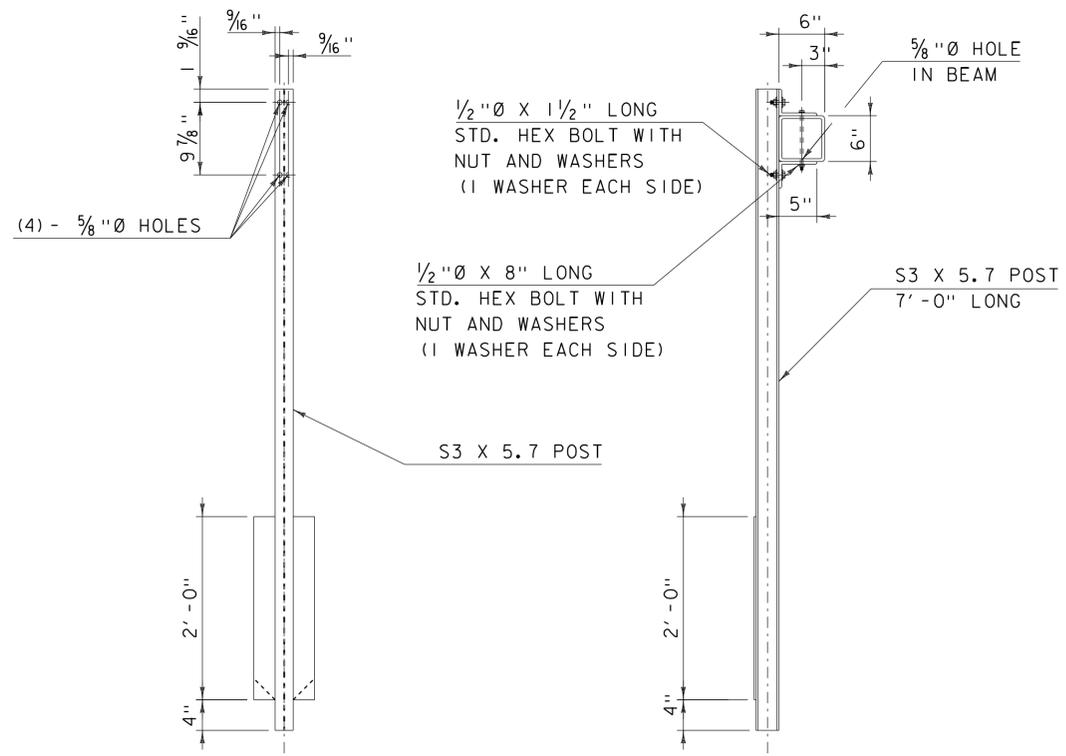


THIS REFLECTORIZED ALUMINUM DELINEATION DEVICE IS TO BE ERECTED EVERY 36 FEET, AT SPLICES. DELINEATOR SHALL MEET SPECIFICATION REQUIREMENTS FOR ASTM B209 ALLOY 5052-H32.

DELINEATION DEVICES SHALL MEET THREE REQUIREMENTS OF SUBSECTION 728.04 AND 750.08. REFLECTIVE MATERIAL SHALL BE OF ENCAPSULATED LENS SILVER OR AMBER.



PROJECT NAME:	CLARENDON
PROJECT NUMBER:	BRO 1443(48)
FILE NAME:	sl2j16orildet.dgn
PROJECT LEADER:	K. HIGGINS
DESIGNED BY:	J. GRIGAS
BOX BEAM DETAILS	
PLOT DATE:	24-JUN-2015
DRAWN BY:	S. COLEY
CHECKED BY:	G. LAROCHE
SHEET	24 OF 58



- NOTES:
1. POSTS 17 AND 19 SHALL BE EXTRA LONG POSTS. POSTS 12, 13, 14, 14, 15, 16 AND 18 SHALL BE STANDARD LENGTH.
  2. POSTS 17 AND 19 SHALL BE FASTENED TO THE RAIL USING DETAIL "A".
  3. THE DRAWING INDICATES THE TERMINAL INSTALLED ON LEVEL GROUND. WHEN INSTALLED OVER A SLOPE OR DITCH, THE TERMINAL END SHOULD BE PUSHED DOWN WITH THE EQUIVALENT OF APPROXIMATELY 100 LBS EFFORT TO DEPRESS THE TERMINAL DOWN.
  4. POSTS 14, 16 AND 18 SHALL NOT BE CONNECTED TO BOX BEAM GUIDE RAIL.
  5. SEE BOX BEAM DETAIL SHEET FOR SPLICE AND TYPICAL END ASSEMBLY DETAILS.

PROJECT NAME:	CLARENDON	FILE NAME:	sl2j160raildet.dgn	PLOT DATE:	24-JUN-2015
PROJECT NUMBER:	BRO 1443(48)	PROJECT LEADER:	K. HIGGINS	DRAWN BY:	S. COLEY
		DESIGNED BY:	J. GRIGAS	CHECKED BY:	G. LAROCHE
		GUARDRAIL END ASSEMBLY TYPE IIA		SHEET	25 OF 58

**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**

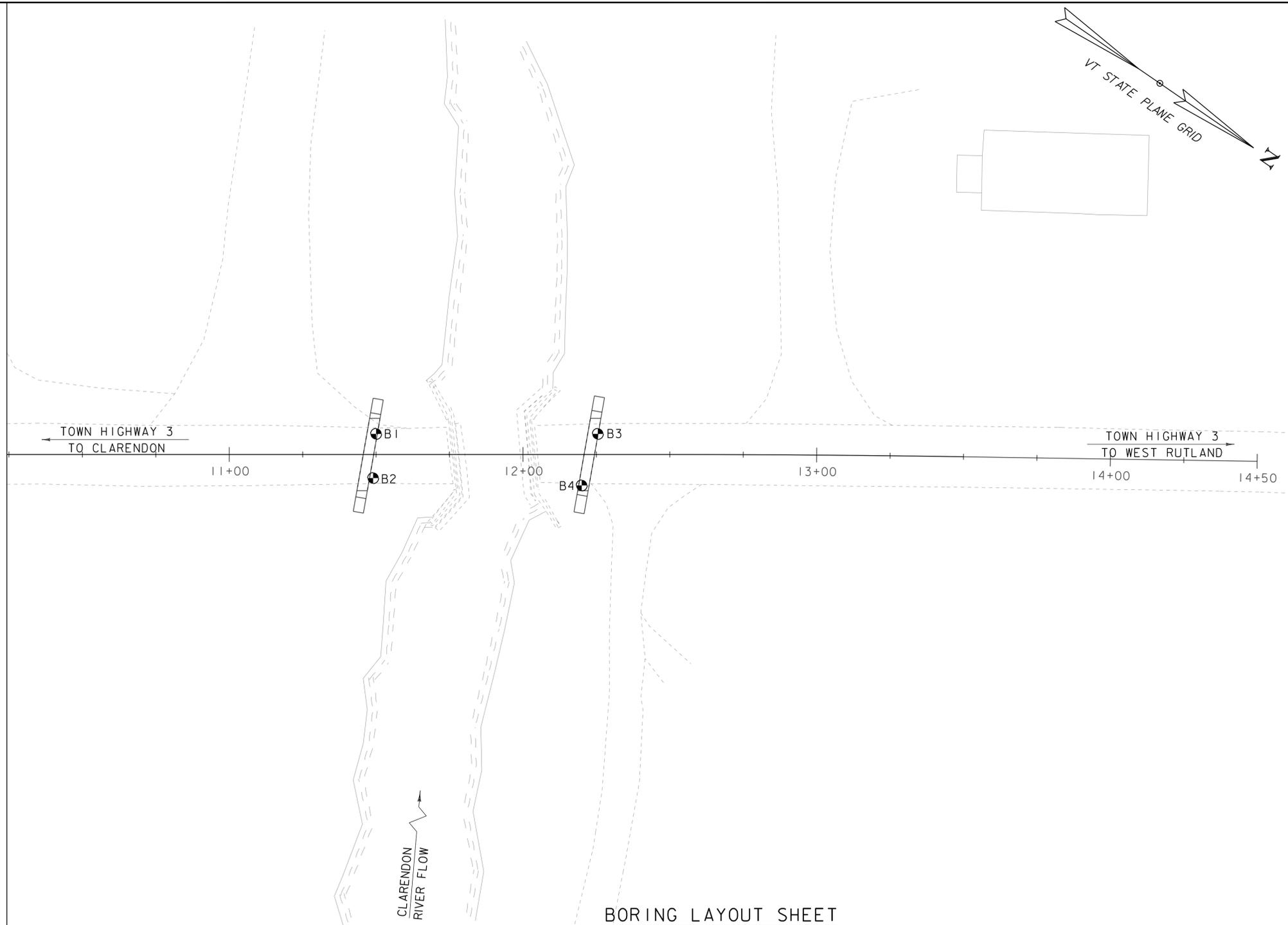
- ▼ Water Elevation
- ⊙ Standard Penetration Boring
- ⊕ Auger Boring
- ⊖ Rod Sounding
- S Sample
- N Standard Penetration Test Blow Count Per Foot For:  
2" O. D. Sampler  
1 3/8" I. D. Sampler  
Hammer Weight Of 140 Lbs.  
Hammer Fall Of 30"
- VS Field Vane Shear Test
- US Undisturbed Soil Sample
- 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 7/8"
- 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
- 1/2 Rec. Percent Recovery
- ROD Rock Quality Designation
- CBR California Bearing Ratio
- < Less Than
- > Greater Than
- R Refusal (N > 100)
- VTSPG NAD83 - See Note 7

**COLOR**

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

**DEFINITIONS (AASHTO)**

- BEDROCK (LEDGE)** - Rock in its native location of indefinite thickness.
- BOULDER** - A rock fragment with an average dimension > 12 inches.
- COBBLE** - Rock fragments with an average dimension between 3 and 12 inches.
- GRAVEL** - Rounded particles of rock < 3" and > 0.0787" (#10 sieve).
- SAND** - Particles of rock < 0.0787" (#10 sieve) and > 0.0029" (#200 sieve).
- SLT** - 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.



**BORING LAYOUT SHEET**

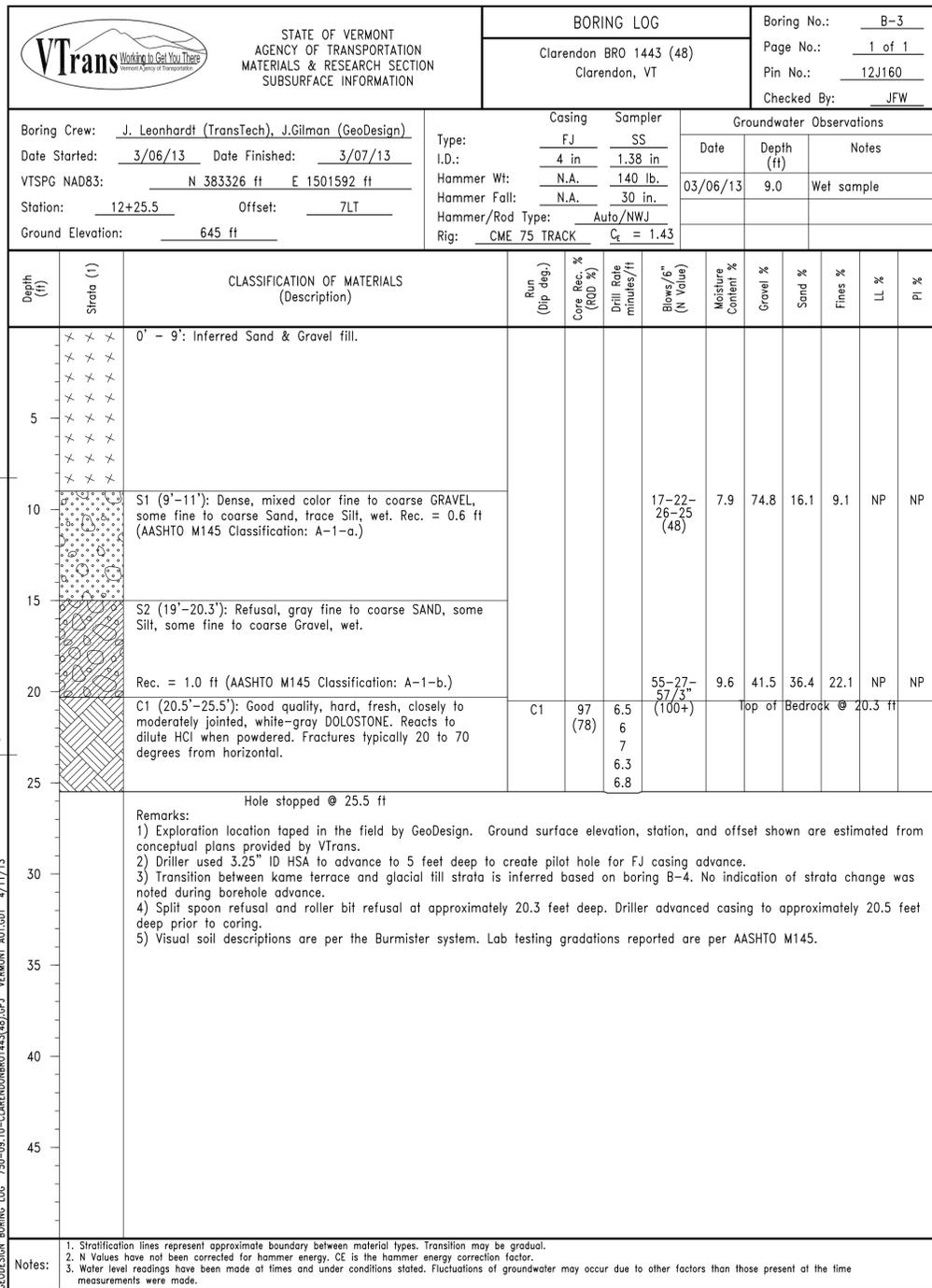
SCALE 1" = 20' - 0"  
20 0 20

**GENERAL NOTES**

1. The subsurface explorations shown herein were made between 03/04/13 and 03/07/13 by the Agency.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
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 meters and survey feet.

PROJECT NAME: CLARENDON	PLOT DATE: 24-JUN-2015
PROJECT NUMBER: BRO 1443(48)	DRAWN BY: K. FRIENDLAND
FILE NAME: sl2j160boring.dgn	CHECKED BY: G. LAROCHE
PROJECT LEADER: K. HIGGINS	SHEET 26 OF 58
DESIGNED BY: J. GRIGAS	
BORING LAYOUT SHEET	

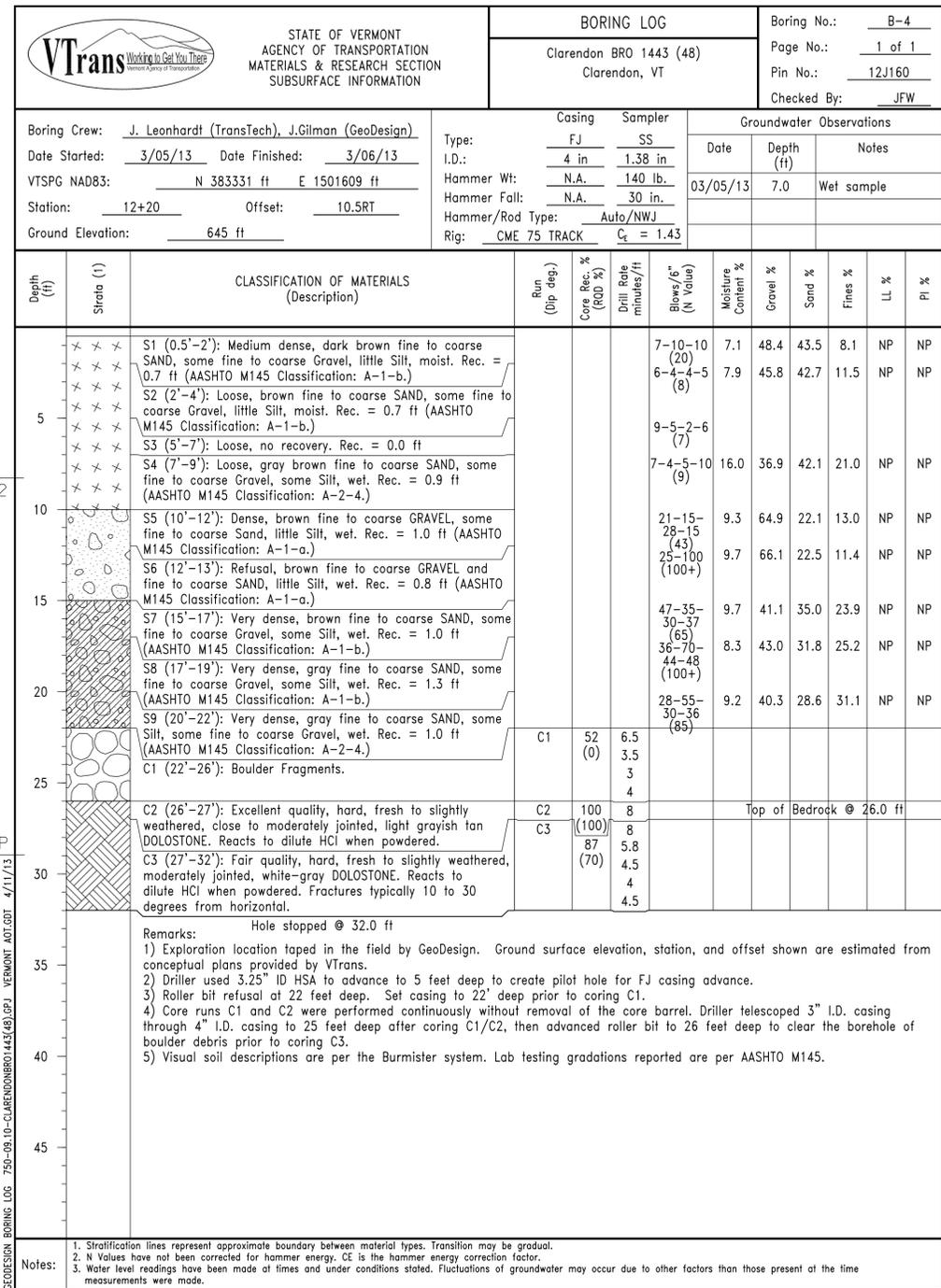




BOTTOM OF  
PILE CAP AB#2  
ELEV. 636.70

EST. PILE TIP  
ELEV. 621.50

GEODESIGN BORING LOG: 750-09-10-CLARENDONBRO1443(48).GPJ - VERMONT AOT.GDT 4/11/13



BOTTOM OF  
PILE CAP AB#2  
ELEV. 636.70

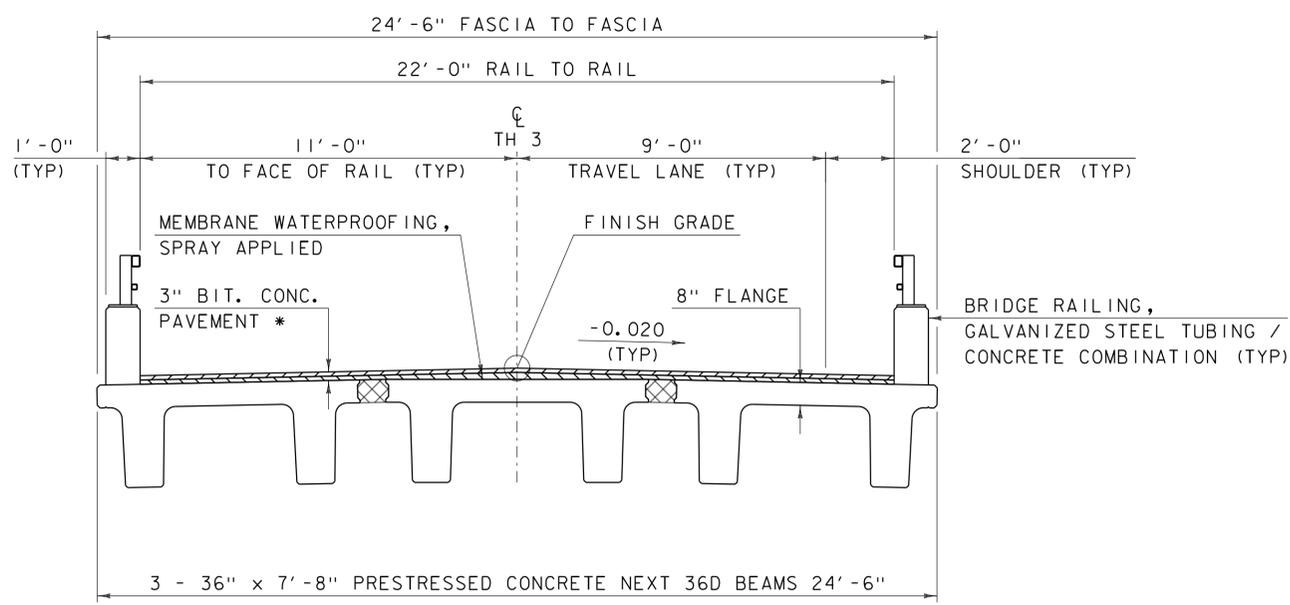
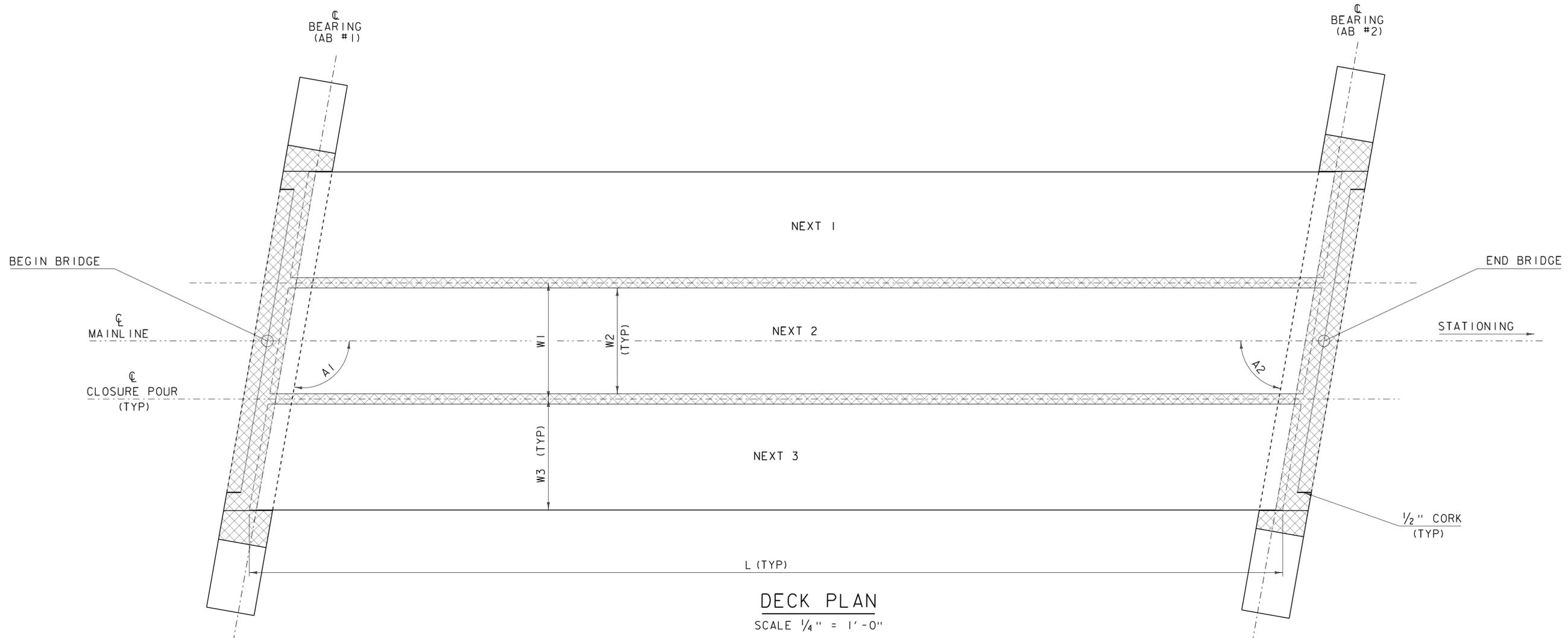
EST. PILE TIP  
ELEV. 616.00

GEODESIGN BORING LOG: 750-09-10-CLARENDONBRO1443(48).GPJ - VERMONT AOT.GDT 4/11/13

PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

FILE NAME: sl2j160boring  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
BORING LOGS 2

PLOT DATE: 24-JUN-2015  
DRAWN BY: J. GRIGAS  
CHECKED BY: G. LAROCHE  
SHEET 28 OF 58



SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)

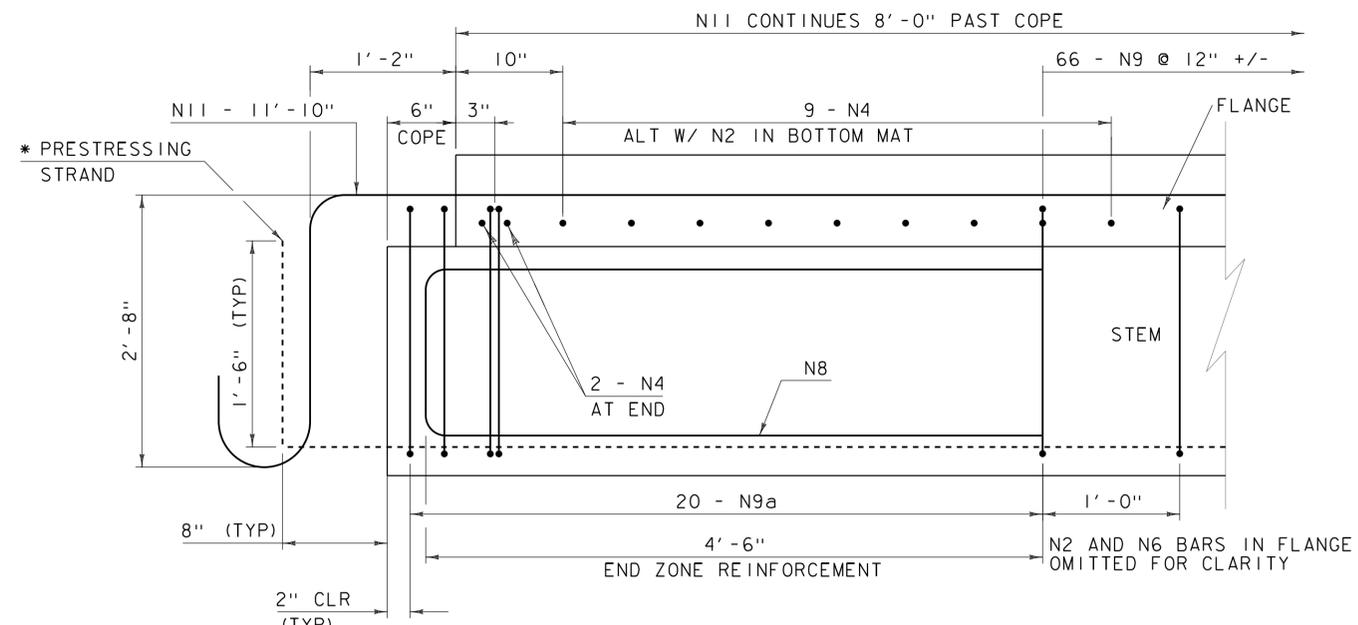
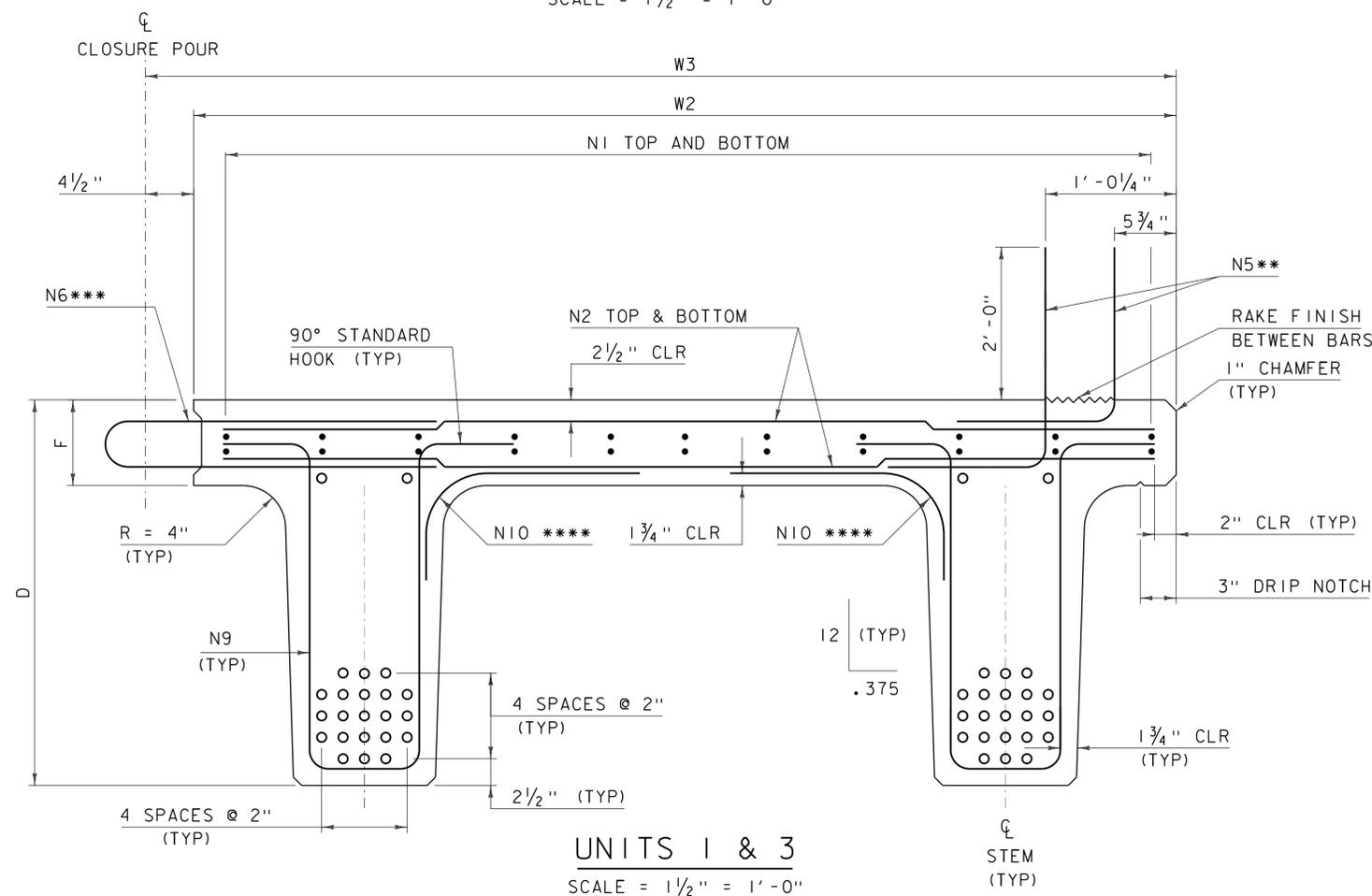
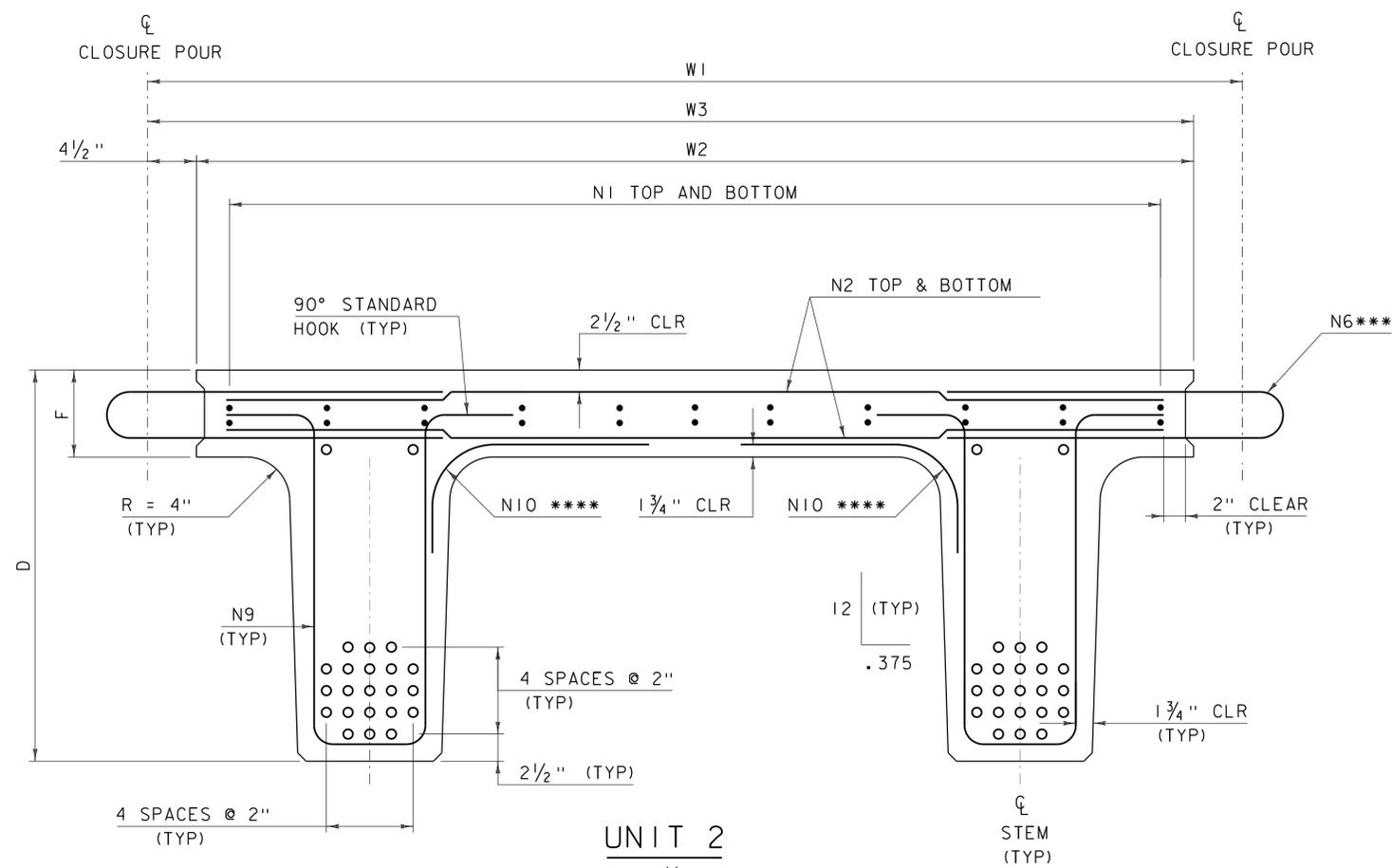
BITUMINOUS CONCRETE PAVEMENT\*

L	75'-0 1/4"
W1	8'-5"
W2	7'-8"
W3	8'-0 1/2"

SKEW	A1	100°
	A2	80°

\*BITUMINOUS CONCRETE PAVEMENT IN DECK PLAN VIEW IS OMITTED FOR CLARITY

PROJECT NAME:	CLARENDON
PROJECT NUMBER:	BRO 1443(48)
FILE NAME:	sl2j160sup
PROJECT LEADER:	K. HIGGINS
DESIGNED BY:	J. GRIGAS
NEXT BEAM FRAMING PLAN	
PLOT DATE:	24-JUN-2015
DRAWN BY:	G. DARGAN
CHECKED BY:	J. GRIGAS
SHEET	29 OF 58



NEXT BEAM REINFORCING CHART

BAR	SIZE	SPACING	TYPE
N1	5	9"	STR
N2	5	6"	STR
N3	4	AS SHOWN	STR
N4	4	6"	STR
N5	4	8"	2
N6	4	6"	S11
N8	5	AS SHOWN	S10
N9	4	12"	S4
N9a	4	3"	S4
N10	5	6"	I1
N11	8	6"	S7

NEXT BEAM DIMENSIONS

D	36"
F	8"
W1	8' - 5"
W2	7' - 8"
W3	8' - 0 1/2"

NOTES:

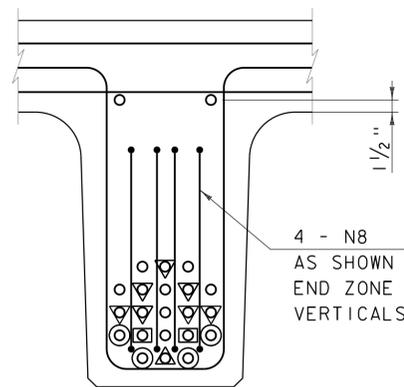
- \* LEAVE FOUR STRANDS LONG PER STEM AS INDICATED. TIE STRANDS TO HORIZONTAL FF REINFORCING IN DECK CLOSURE POUR. SLEEVES FOR PERMANENT BENDING OF THE PRESTRESSING STRANDS WILL NOT BE ALLOWED INSIDE THE CLOSURE POUR.
- \*\* VERTICAL LEGS TO BE SET PLUM IN FINAL CONDITION
- \*\*\* TO BE STAGGERED WITH ADJACENT BEAM
- \*\*\*\* N10 SHALL BE PLACED AS SHOWN FOR THE FIRST 10 FEET AT EACH END OF THE BEAM

3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS  
2'-7" NUMBER 5 BAR LAP LENGTH  
2'-1" NUMBER 4 BAR LAP LENGTH

PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

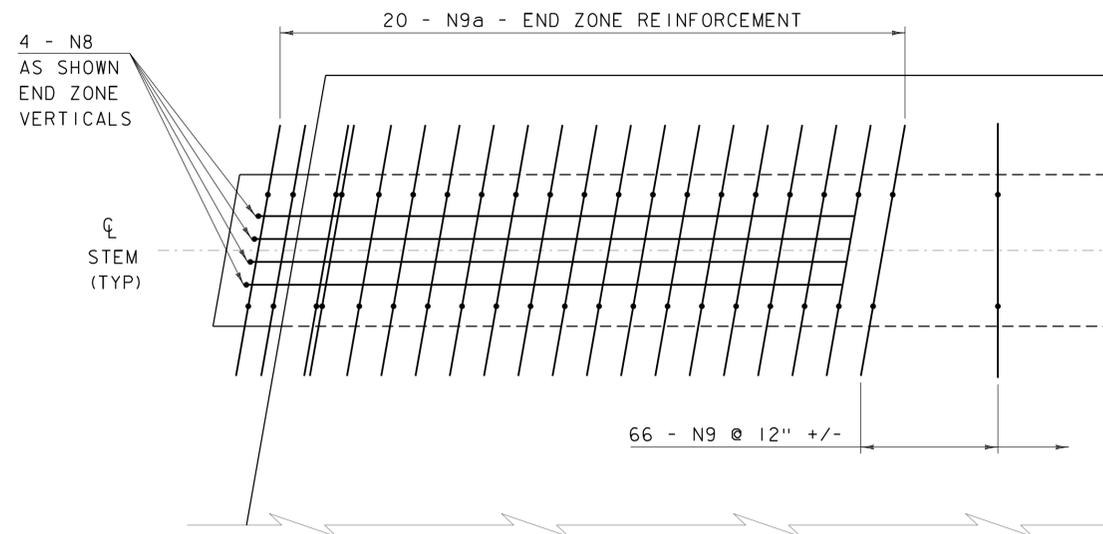
FILE NAME: sl2j160sup.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
NEXT BEAM DETAILS 1

PLOT DATE: 24-JUN-2015  
DRAWN BY: S. COLEY  
CHECKED BY: G. LAROCHE  
SHEET 30 OF 58



**BEAM SECTION**  
SCALE = 1 1/2" = 1'-0"

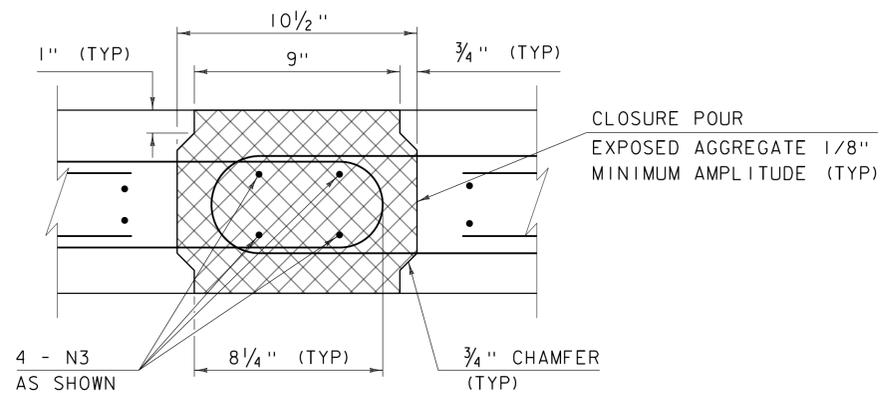
- LEGEND**
- △ - DEBONDED 4'-0"
  - - DEBONDED 2'-0"
  - ▽ - DEBONDED 0'-6"
  - - EXTEND 2'-2" OUT OF BEAM (90° BEND @ 8" OUT)



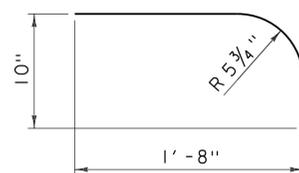
**SKEWED END DETAIL**  
SCALE = 1 1/2" = 1'-0"

**NOTES:**

1. BARS IN DECK FLANGE OMITTED FOR CLARITY.
2. TRANSVERSE REINFORCING IN THE DECK SHALL BE PLACED PARALELL TO THE SKEW UNTIL OUTSIDE THE END ZONE REGION
3. HAIRPIN BARS MAY BE BENT NORMAL TO THE FACE OF THE BEAM IN THE END ZONE REGION

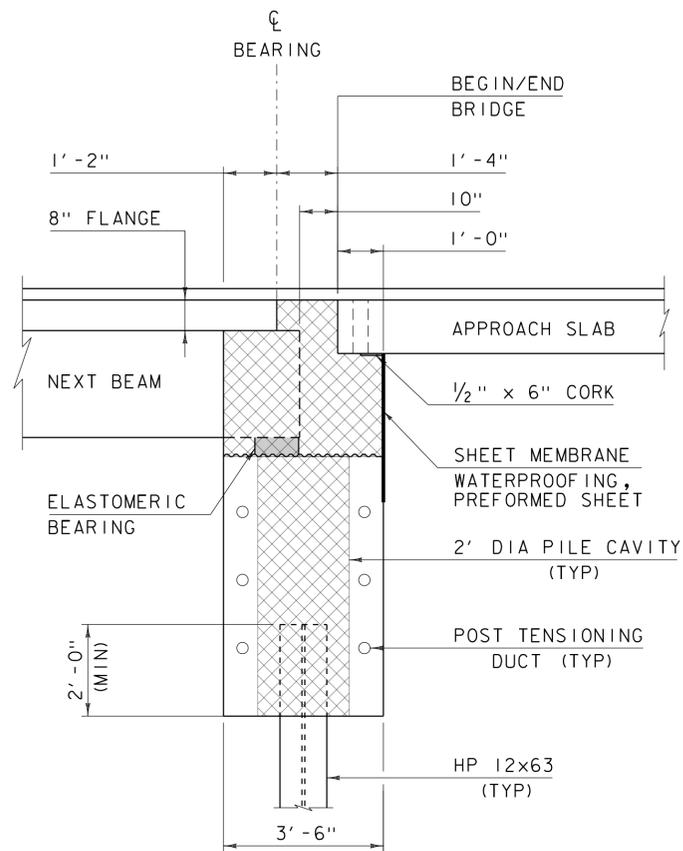


**CONNECTION DETAIL SECTION**  
NOT TO SCALE

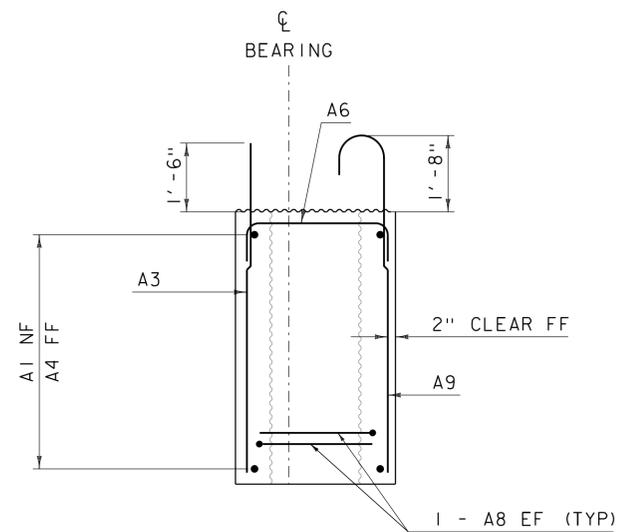


**N10**  
NOT TO SCALE

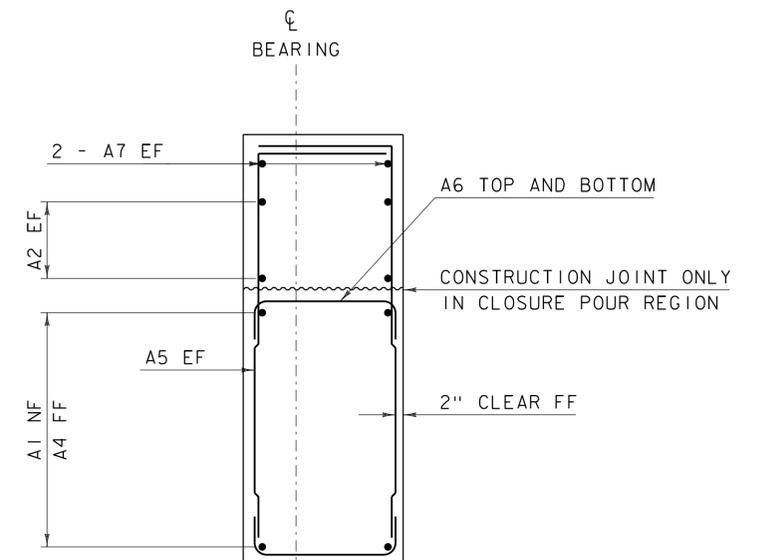
PROJECT NAME: CLARENDON	PLOT DATE: 24-JUN-2015
PROJECT NUMBER: BRO 1443(48)	DRAWN BY: S. COLEY
FILE NAME: sl2j160sup.dgn	CHECKED BY: G. LAROCHE
PROJECT LEADER: K. HIGGINS	SHEET 31 OF 58
DESIGNED BY: J. GRIGAS	
NEXT BEAM DETAILS 2	



ABUTMENT TYPICAL  
NEXT BEAM ALTERNATIVE  
SCALE 1/2" = 1'-0"



ABUTMENT REINFORCING  
AT BRIDGE SEAT  
SCALE 1/2" = 1'-0"



ABUTMENT REINFORCING  
AT CHEEK WALL  
SCALE 1/2" = 1'-0"

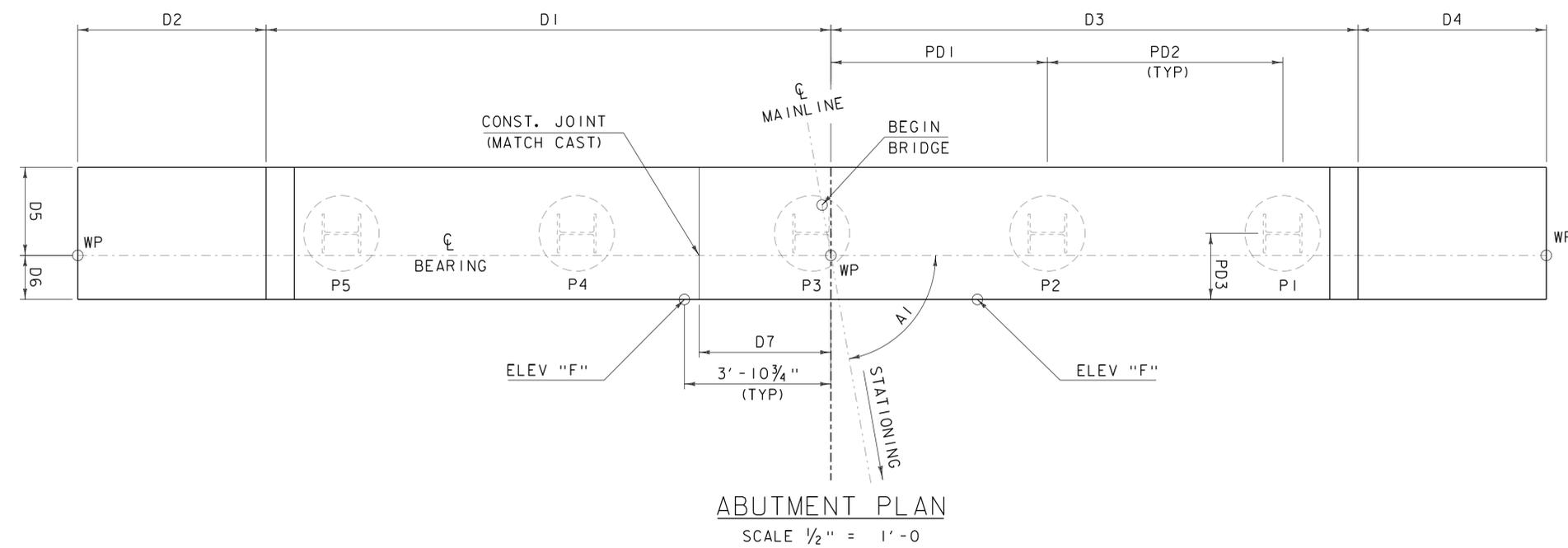
NOTE:

- SEE ABUTMENT REINFORCING SHEET FOR REINFORCING TABLE.

NOTE:

- NF = NEAR FACE
- FF = FAR FACE
- EF = EACH FACE
- 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- 6" LEG LENGTH FOR BAR LABELED A6 SPECIFIED ON THE PLANS.

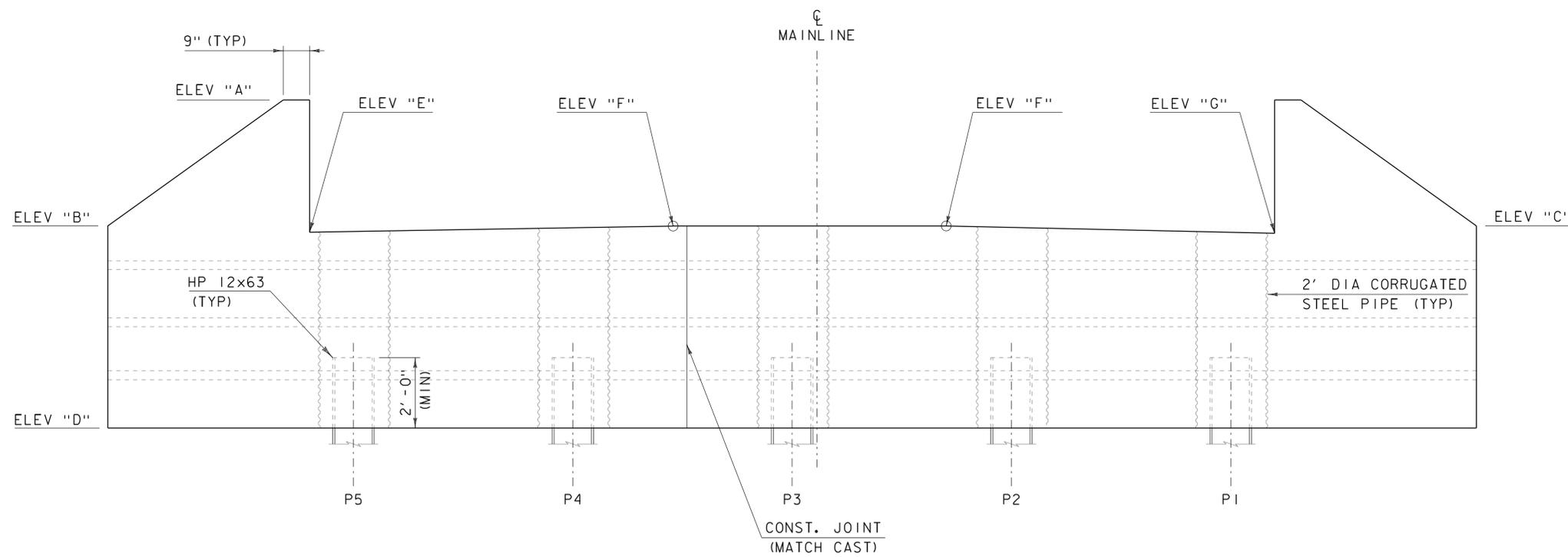
PROJECT NAME: CLARENDON	PLOT DATE: 24-JUN-2015
PROJECT NUMBER: BRO 1443(48)	DRAWN BY: T. MATTHEWS
FILE NAME: sl2j160sub.dgn	CHECKED BY: G. LAROCHE
PROJECT LEADER: K. HIGGINS	SHEET 32 OF 58
DESIGNED BY: J. GRIGAS	
NEXT BEAM ABUTMENT TYPICALS	



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

ABUTMENT DIMENSIONS

	AB1	AB2
D1	15'-0"	15'-0"
D2	5'-0"	5'-0"
D3	14'-0"	14'-0"
D4	5'-0"	6'-0"
D5	2'-4"	2'-4"
D6	1'-2"	1'-2"
D7	3'-6"	2'-6"
PD1	5'-9"	5'-9"
PD2	6'-3"	6'-3"
PD3	1'-9"	1'-9"
A1	80°	80°



ABUTMENT ELEVATION  
SCALE 1/2" = 1'-0"

ABUTMENT ELEVATIONS

	AB1	AB2
ELEV "A"	646.83	646.03
ELEV "B"	643.25	642.37
ELEV "C"	643.25	642.45
ELEV "D"	637.50	636.70

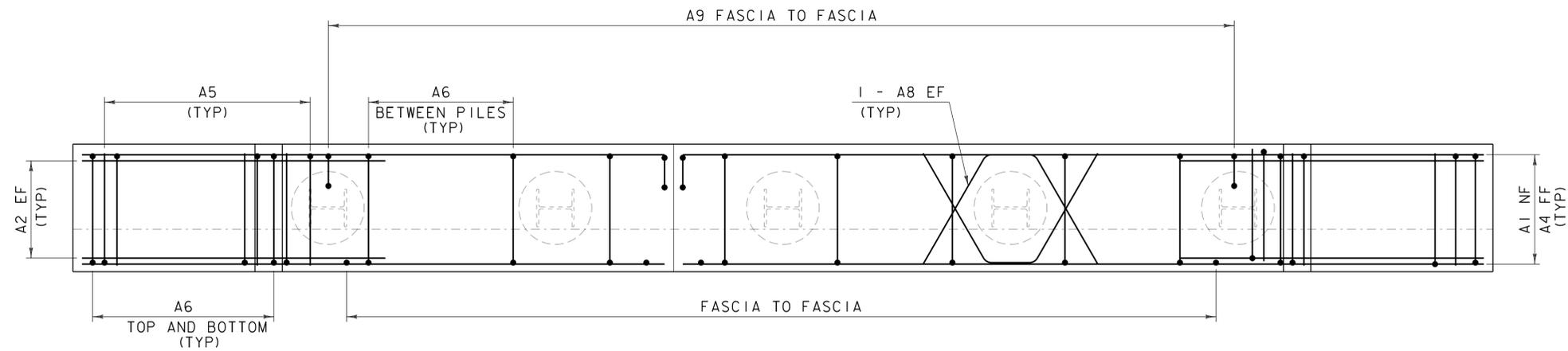
BRIDGE SEAT ELEVATIONS

	AB1	AB2
ELEV "E"	643.07	642.22
ELEV "F"	643.25	642.45
ELEV "G"	643.04	642.29

NOTES:

1. ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR.
2. THE BRIDGE SEAT SHALL HAVE A ROUGHENED FINISH. AREAS UNDER BEARING PADS SHALL BE TROWELED SMOOTH TO THE PROPOSED SLOPE.

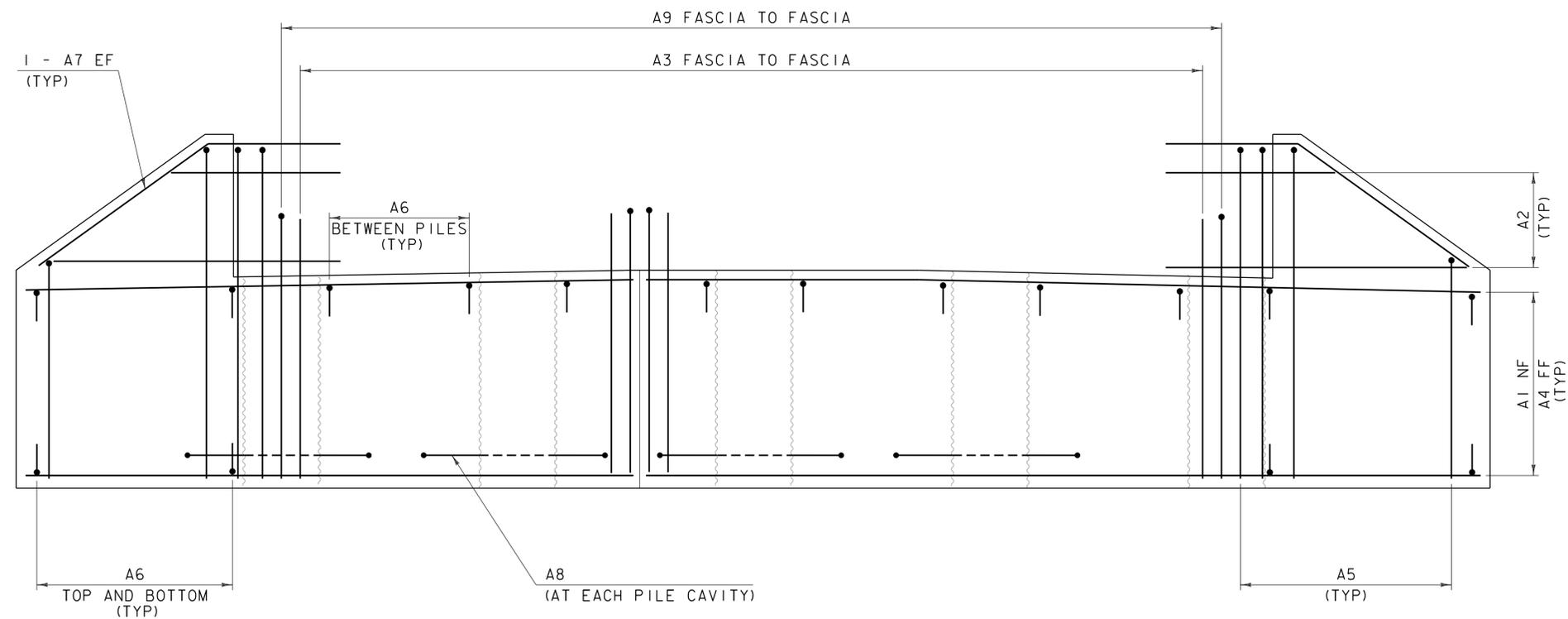
PROJECT NAME: CLARENDON	PLOT DATE: 24-JUN-2015
PROJECT NUMBER: BRO 1443(48)	DRAWN BY: G. DARGAN
FILE NAME: s12j160sub.dgn	CHECKED BY: J. GRIGAS
PROJECT LEADER: K. HIGGINS	NEXT BEAM ABUTMENT PLAN
DESIGNED BY: J. GRIGAS	SHEET 33 OF 58



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

ABUTMENT REINFORCING

BAR	SIZE	SPACING	FACE	TYPE
A1	5	10"	NF	STR
A2	5	10"	EF	STR
A3	5	10"	NF	STR
A4	8	12"	FF	STR
A5	5	10"	EF	20
A6	5	10"	---	S10
A7	5	AS SHOWN	EF	19
A8	6	AS SHOWN	EF	14
A9	9	12"	FF	1



ABUTMENT REINFORCING ELEVATION  
SCALE 1/2" = 1'-0"

NOTES:

1. ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR.
2. EXTEND A2 AND A7 BARS 1'-11" OUT OF WING WALL. CUT TO FIT AT CONFLICTS.
3. SEE ABUTMENT TYPICALS FOR MORE INFORMATION.

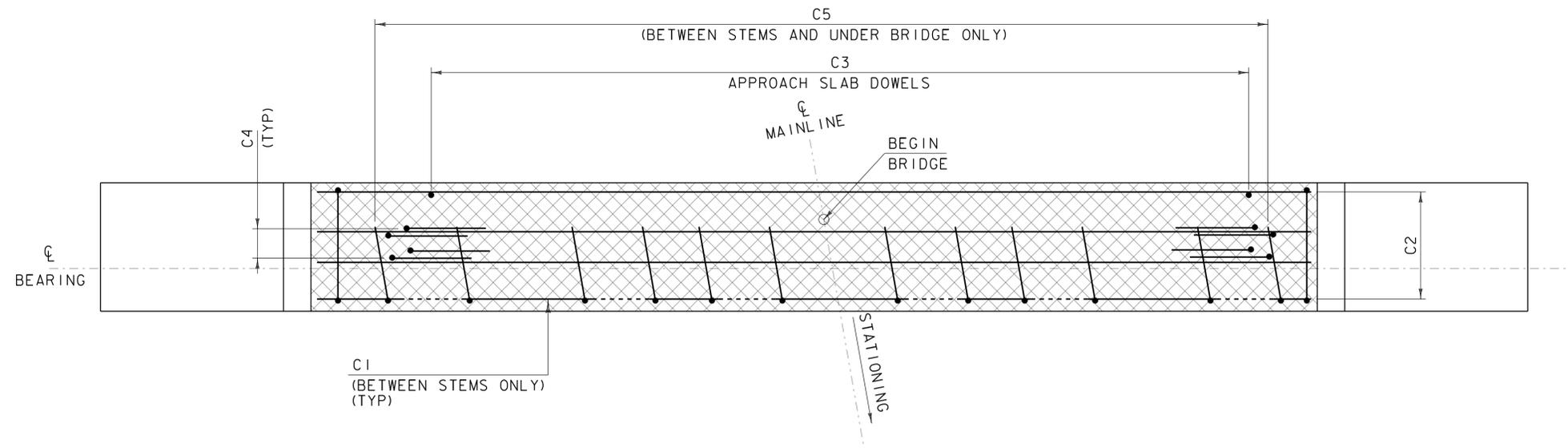
NOTE:

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

PROJECT NAME: CLARENDON  
 PROJECT NUMBER: BRO 1443(48)

FILE NAME: sl2j160sub.dgn  
 PROJECT LEADER: K. HIGGINS  
 DESIGNED BY: J. GRIGAS  
 NEXT BEAM ABUTMENT REINFORCING

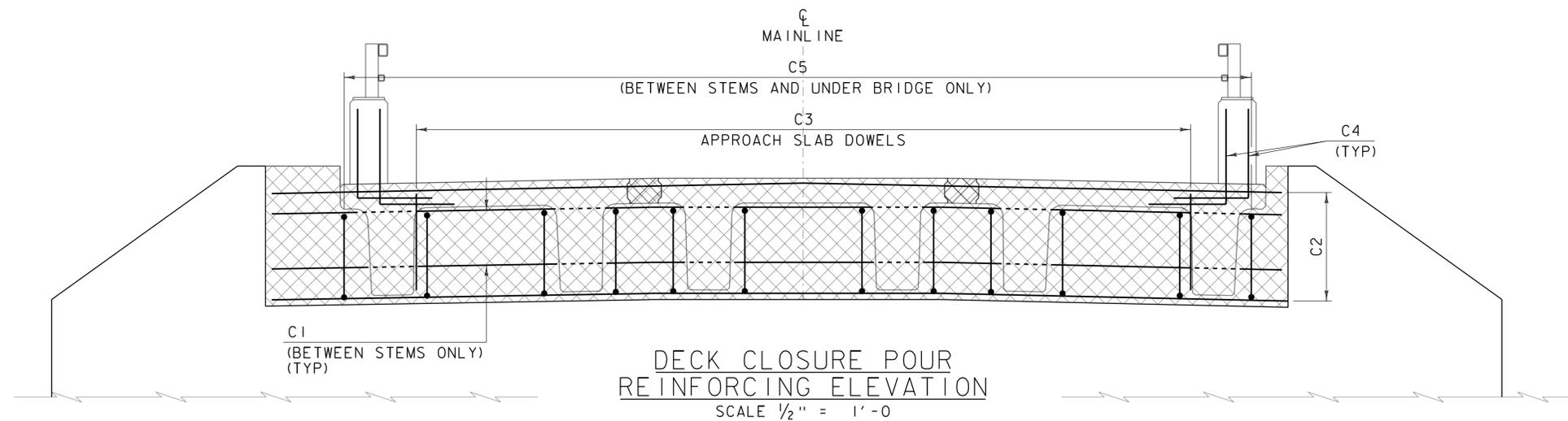
PLOT DATE: 24-JUN-2015  
 DRAWN BY: J. GRIGAS  
 CHECKED BY: G. LAROCHE  
 SHEET 34 OF 58



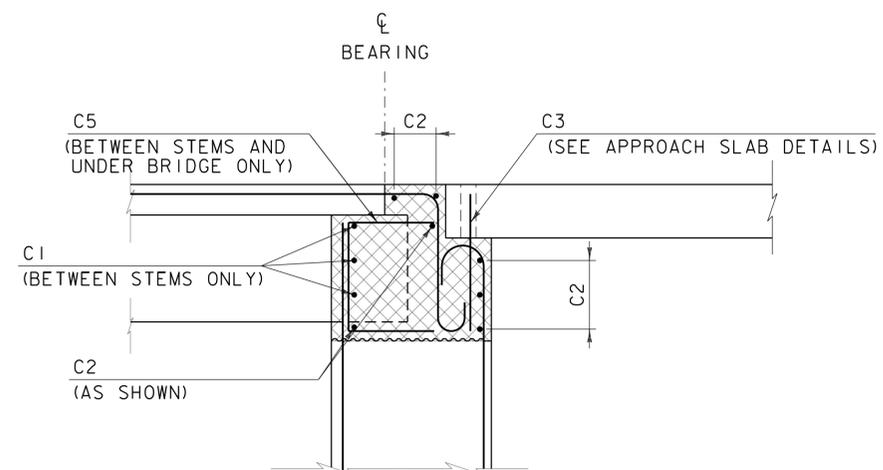
DECK CLOSURE POUR  
REINFORCING PLAN  
SCALE 1/2" = 1'-0"

CLOSURE POUR REINFORCING

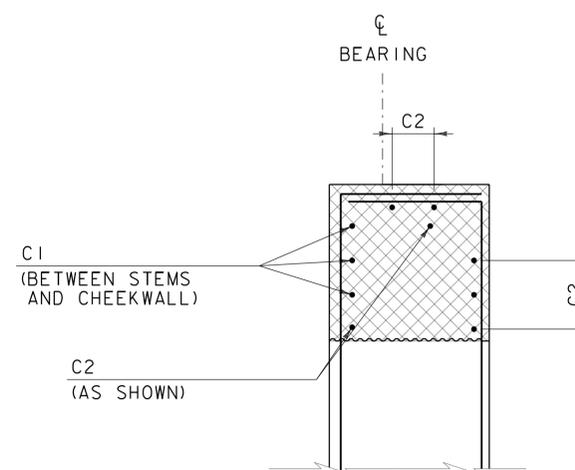
BAR	SIZE	SPACING	FACE	TYPE
C1	5	10"	NF	STR
C2	5	10"	AS SHOWN	STR
C3	6	12"	---	STR
C4	4	8"	---	20
C5	5	10"	---	S10



DECK CLOSURE POUR  
REINFORCING ELEVATION  
SCALE 1/2" = 1'-0"



ABUTMENT ELEVATION AT BRIDGE  
SCALE 1/2" = 1'-0"



ABUTMENT ELEVATION AT CHEEKWALL  
SCALE 1/2" = 1'-0"

NOTE:

1. ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR.

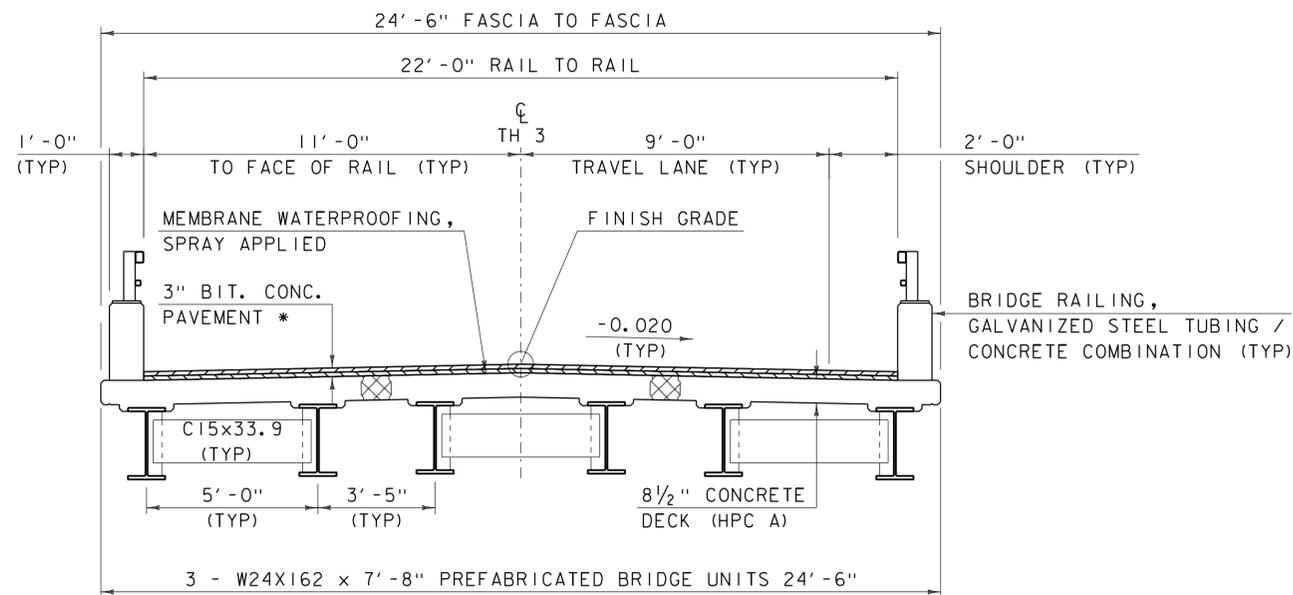
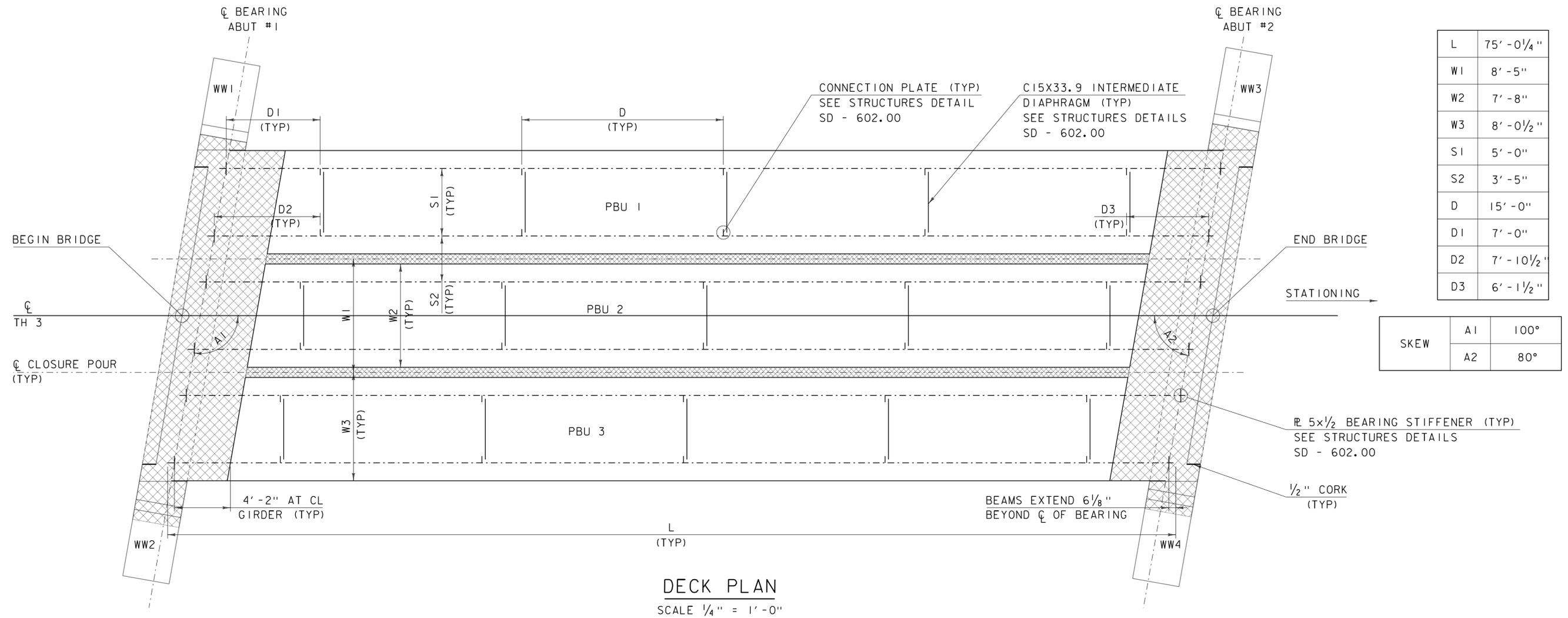
NOTE:

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

PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

FILE NAME: sl2j160sub.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
NEXT BEAM CLOSURE POUR

PLOT DATE: 24-JUN-2015  
DRAWN BY: J. GRIGAS  
CHECKED BY: G. LAROCHE  
SHEET 35 OF 58



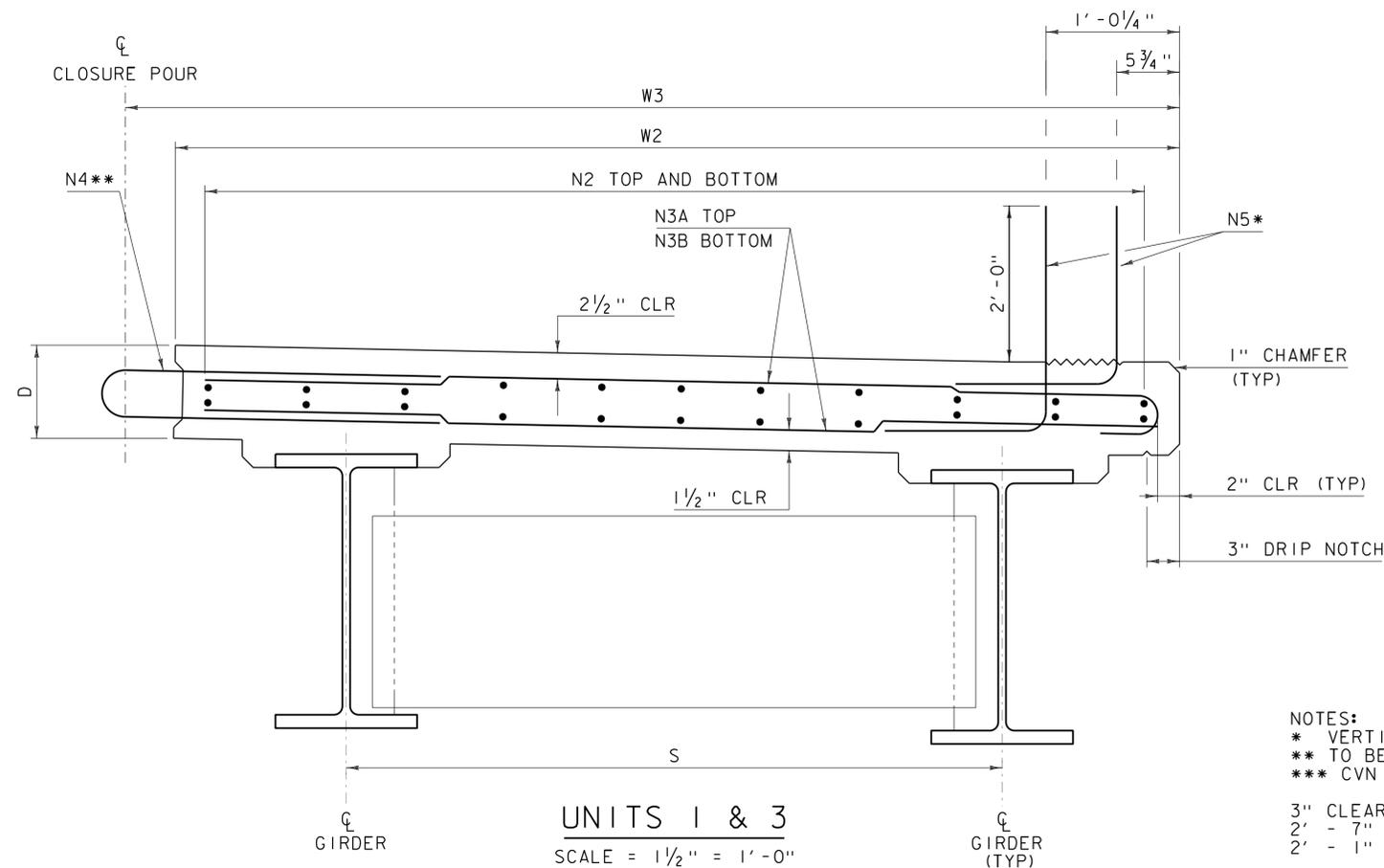
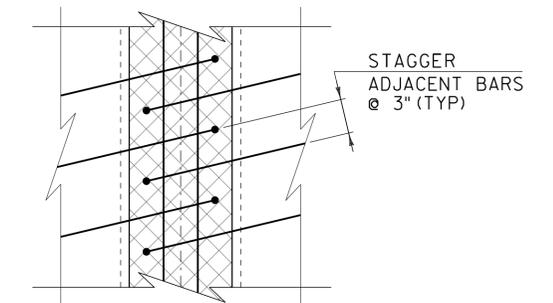
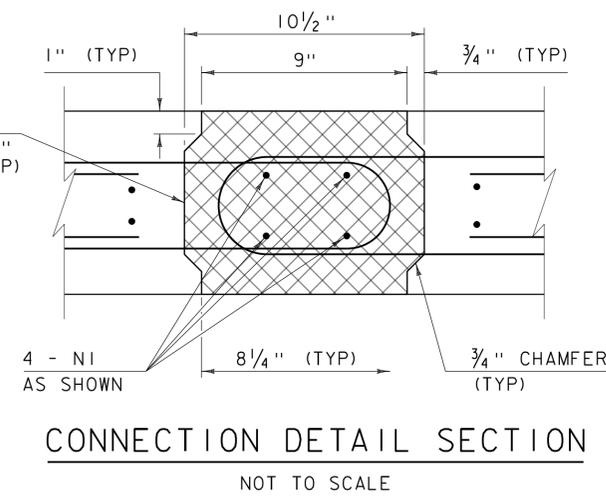
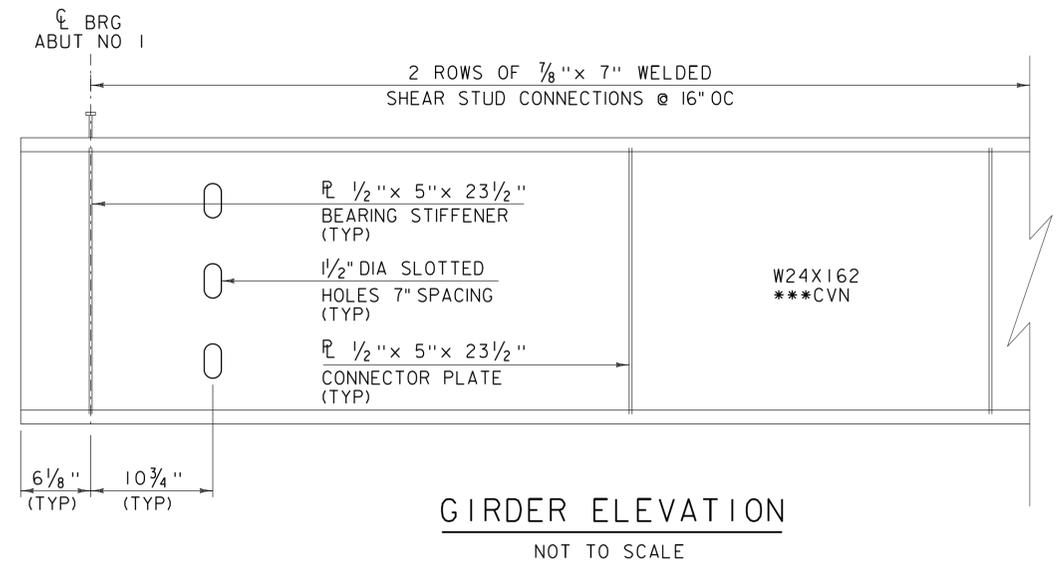
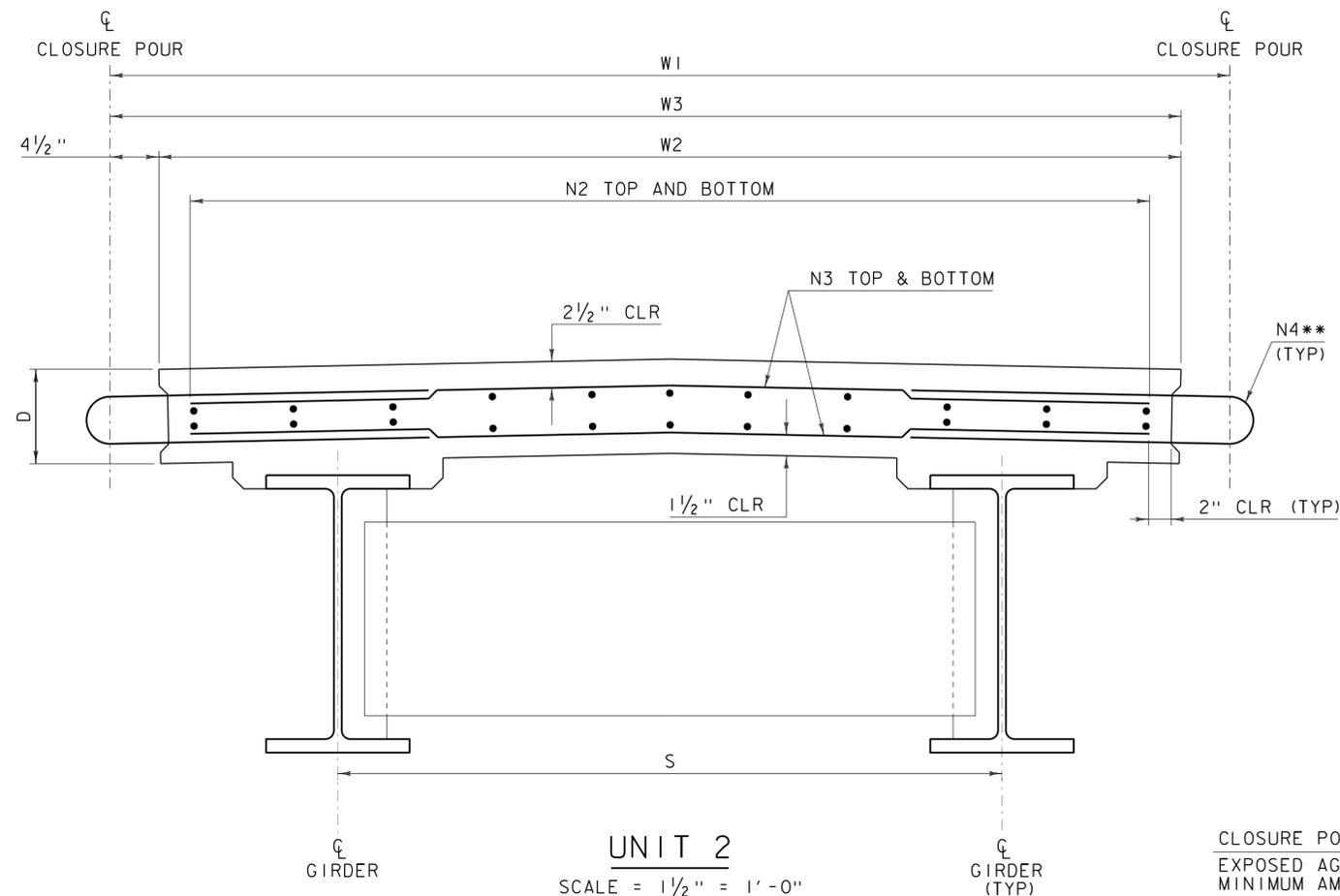
- SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)
- BITUMINOUS CONCRETE PAVEMENT\*

\*BITUMINOUS CONCRETE PAVEMENT IN DECK PLAN VIEW IS OMITTED FOR CLARITY

PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

FILE NAME: sl2j160sup2  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
PBU FRAMING PLAN

PLOT DATE: 24-JUN-2015  
DRAWN BY: T. MATTHEWS  
CHECKED BY: G. LAROCHE  
SHEET 36 OF 58



PBU BEAM REINFORCING CHART

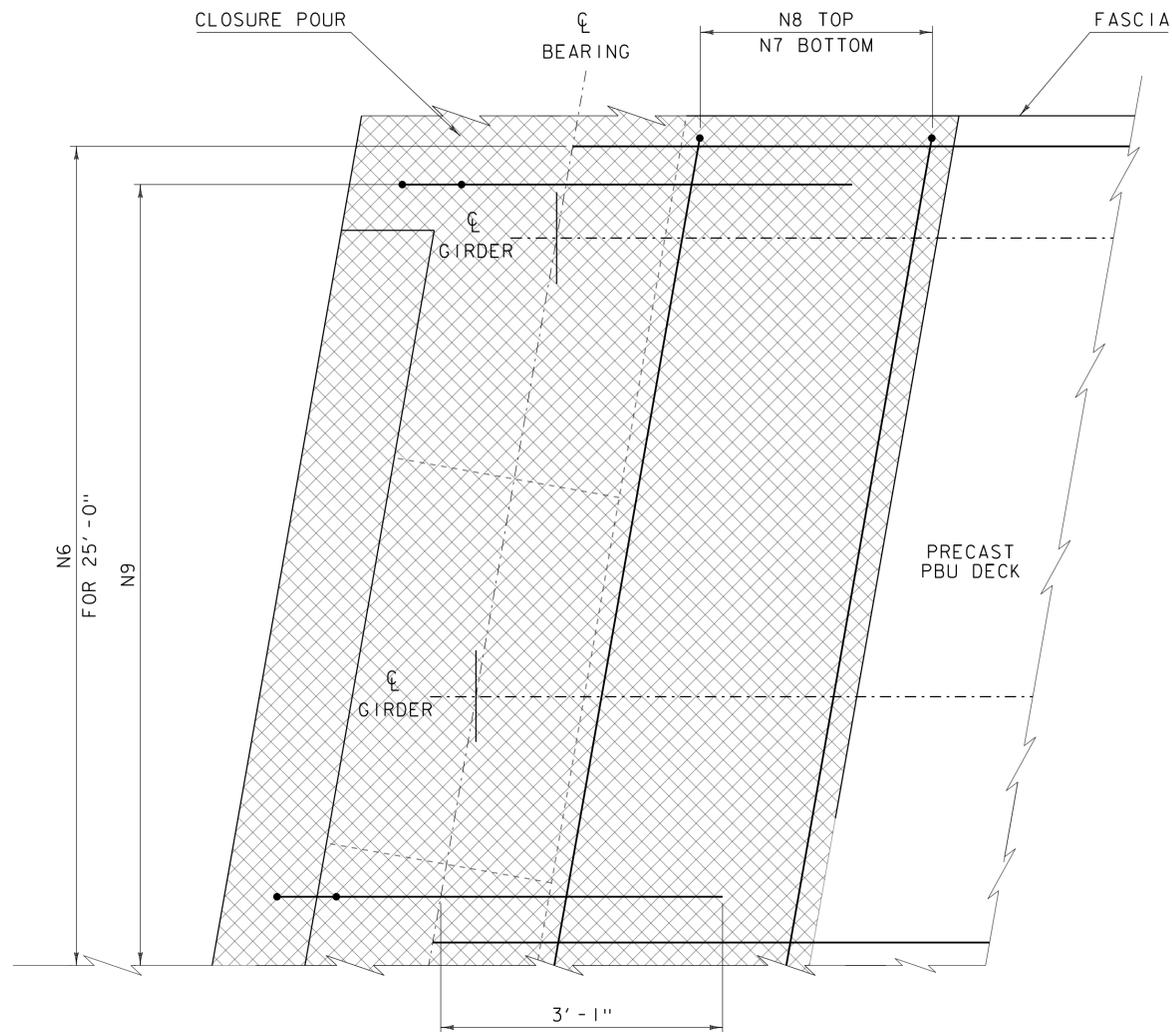
BAR	SIZE	SPACING	TYPE
N1	4	AS SHOWN	STR
N2	5	12"	STR
N3A	5	6"	I
N3B	5	6"	STR
N4	4	6"	SII
N5	4	8"	2

PBU BEAM DIMENSIONS

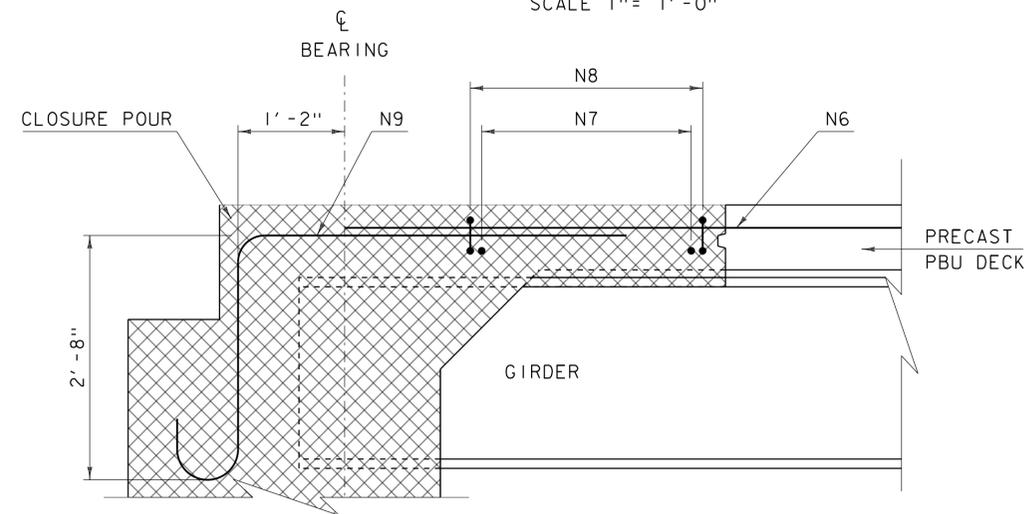
D	8 1/2"
W1	8' - 5"
W2	7' - 8"
W3	8' - 0 1/2"
S	5' - 0"

NOTES:  
 \* VERTICAL LEGS TO BE SET PLUM IN FINAL CONDITION  
 \*\* TO BE STAGGERED WITH ADJACENT BEAM  
 \*\*\* CVN DENOTES THAT CHARPY V-NOTCH TEST IS REQUIRED  
 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS  
 2' - 7" NUMBER 5 BAR LAP LENGTH  
 2' - 1" NUMBER 4 BAR LAP LENGTH

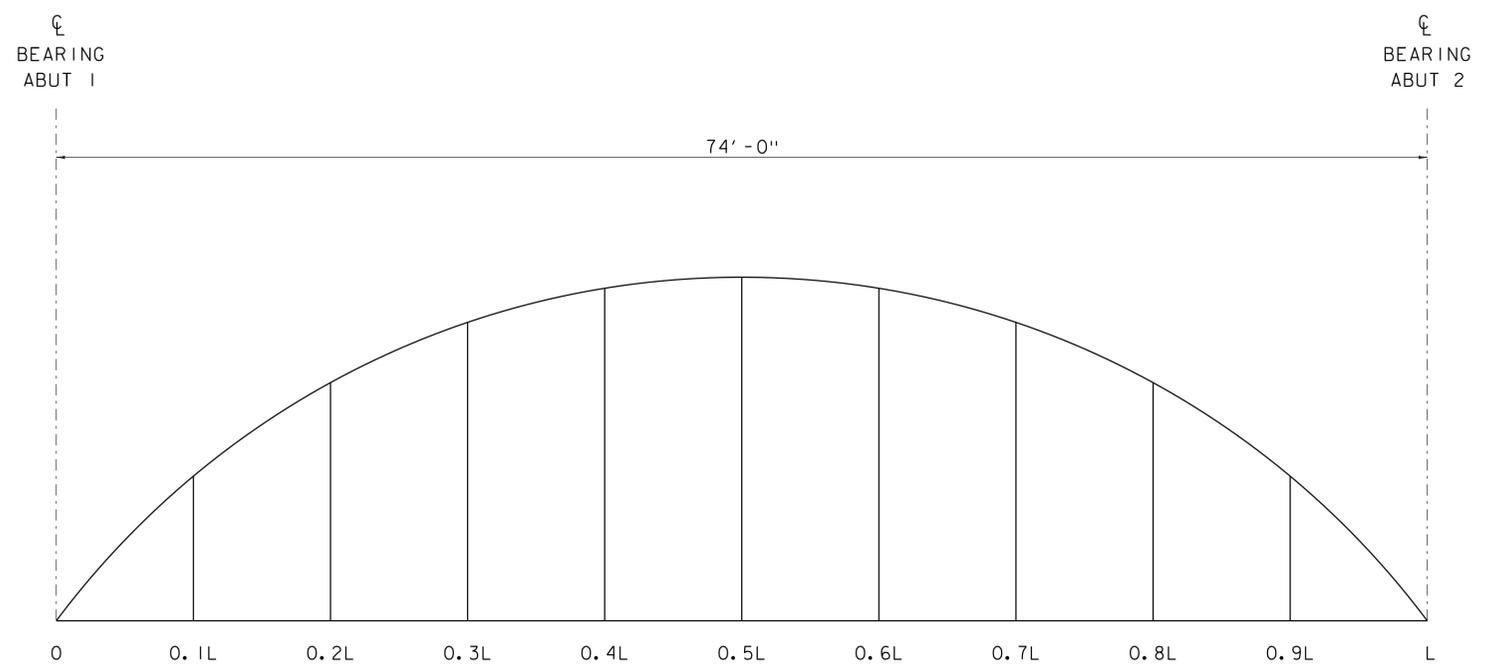
PROJECT NAME: CLARENDON  
 PROJECT NUMBER: BRO 1443(48)  
 FILE NAME: sl2j160Ssup2  
 PROJECT LEADER: K. HIGGINS  
 DESIGNED BY: J. GRIGAS  
 PBU DETAILS 1  
 PLOT DATE: 24-JUN-2015  
 DRAWN BY: S. COLEY  
 CHECKED BY: G. LAROCHE  
 SHEET 37 OF 58



**ADDITIONAL END REINFORCING  
PLAN VIEW**  
SCALE 1" = 1'-0"



**ADDITIONAL END REINFORCING  
ELEVATION VIEW**  
SCALE 1" = 1'-0"



**CAMBER DIAGRAM**  
NOT TO SCALE

	0	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	L
Steel Deflection	0	1/4	1/2	5/8	3/4	13/16	3/4	5/8	1/2	1/4	0
Slab & Super Deflection	0	15/16	13/4	23/8	2 13/16	2 15/16	2 13/16	2 3/8	13/4	15/16	0
Total Deflection	0	1 3/16	2 1/4	3 1/16	3 9/16	3 3/4	3 9/16	3 1/16	2 1/4	1 3/16	0
Residual Camber	0	3/4	1 5/16	1 11/16	1 15/16	2	1 15/16	1 11/16	1 5/16	3/4	0
Total Camber	0	17/8	3 1/2	4 3/4	5 1/2	5 3/4	5 1/2	4 3/4	3 1/2	17/8	0

**CAMBER AND DEFLECTION**  
INCHES

**ADDITIONAL END REINFORCING CHART**

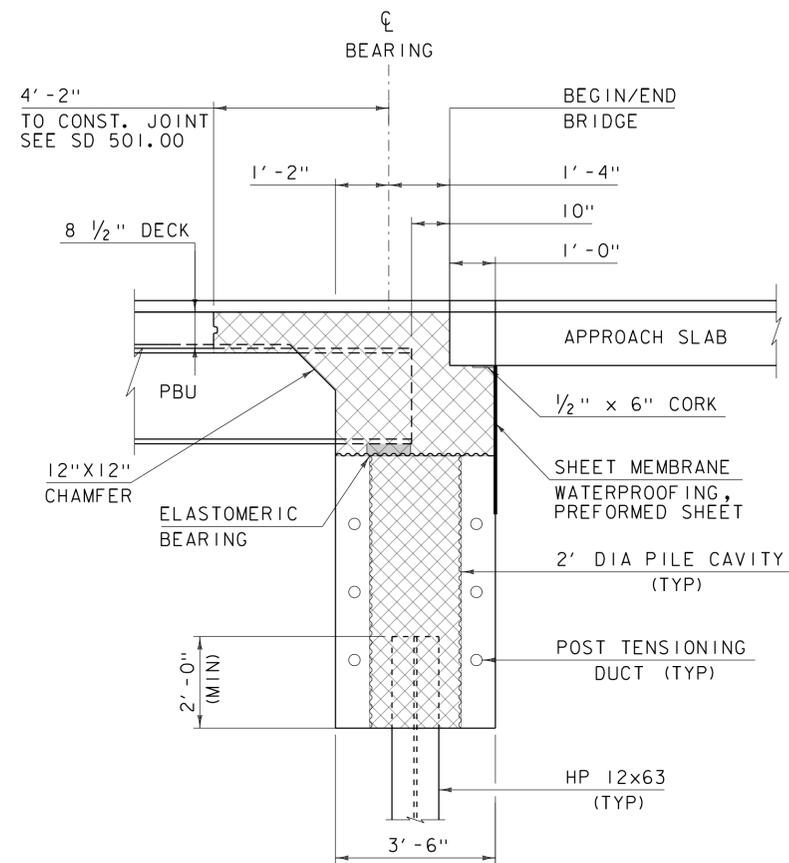
BAR	SIZE	SPACING	TYPE
N6	5	12"	STR
N7	5	6"	STR
N8	5	6"	I
N9	8	6"	I8

\* N2 AND N5 BARS OMITTED FOR CLARITY ALONG WITH BARS DETAILED IN PBU ABUTMENT REINFORCING SHEET AND PBU CLOSURE POUR REINFORCING SHEET.

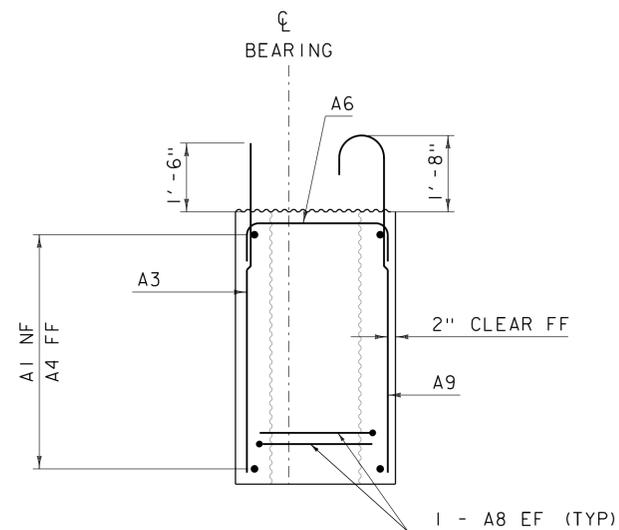
SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)

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

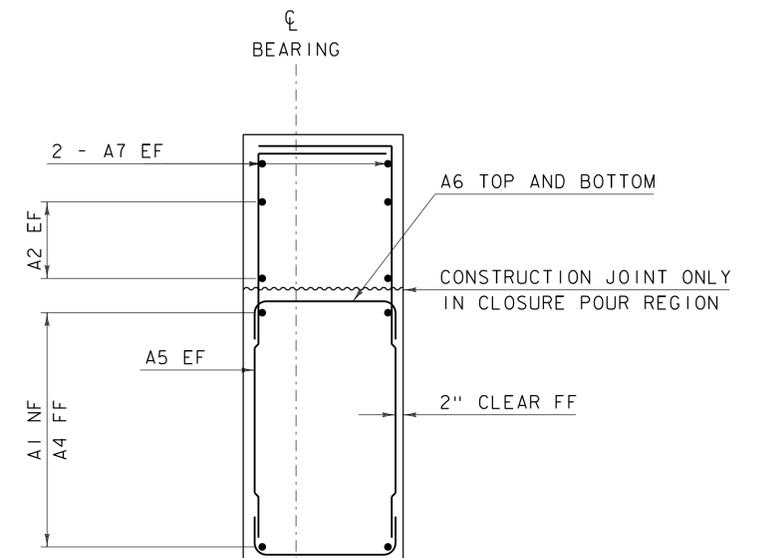
PROJECT NAME: CLARENDON	PLOT DATE: 24-JUN-2015
PROJECT NUMBER: BRO 1443(48)	DRAWN BY: J. GRIGAS
FILE NAME: sl2j160sup2	CHECKED BY: G. LAROCHE
PROJECT LEADER: K. HIGGINS	SHEET 38 OF 58
DESIGNED BY: J. GRIGAS	
PBU DETAILS 2	



ABUTMENT TYPICAL  
PBU OPTION  
SCALE 1/2" = 1'-0"



ABUTMENT REINFORCING  
AT BRIDGE SEAT  
SCALE 1/2" = 1'-0"



ABUTMENT REINFORCING  
AT CHEEK WALL  
SCALE 1/2" = 1'-0"

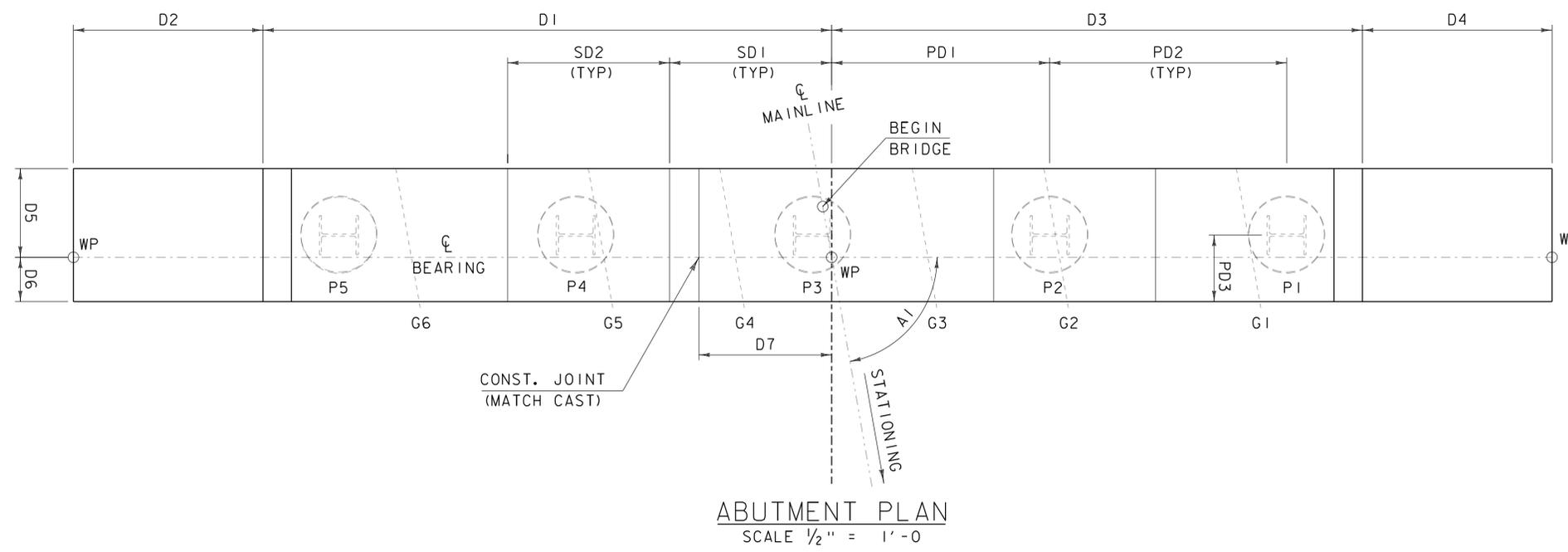
NOTE:

- SEE ABUTMENT REINFORCING SHEET FOR REINFORCING TABLE.

NOTE:

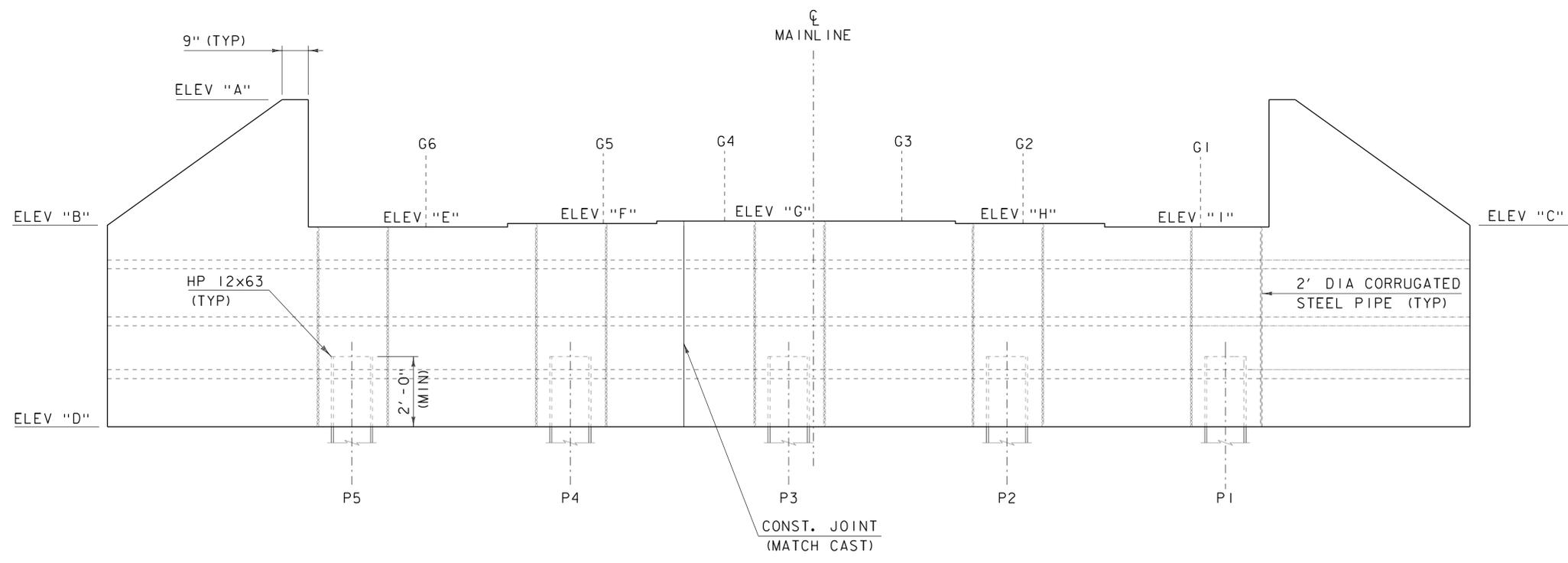
NF = NEAR FACE  
FF = FAR FACE  
EF = EACH FACE  
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.  
6" LEG LENGTH FOR BAR LABELED A6 SPECIFIED ON THE PLANS.

PROJECT NAME: CLARENDON	PLOT DATE: 24-JUN-2015
PROJECT NUMBER: BRO 1443(48)	DRAWN BY: J. GRIGAS
FILE NAME: sl2j160sub2.dgn	CHECKED BY: G. LAROCHE
PROJECT LEADER: K. HIGGINS	SHEET 39 OF 58
DESIGNED BY: J. GRIGAS	
PBU ABUTMENT TYPICALS	



ABUTMENT DIMENSIONS

	AB1	AB2
D1	15'-0"	15'-0"
D2	5'-0"	5'-0"
D3	14'-0"	14'-0"
D4	5'-0"	6'-0"
D5	2'-4"	2'-4"
D6	1'-2"	1'-2"
D7	3'-6"	2'-6"
PD1	5'-9"	5'-9"
PD2	6'-3"	6'-3"
PD3	1'-9"	1'-9"
A1	80°	80°
SD1	4'-3 1/4"	4'-3 1/4"
SD2	4'-3 1/4"	4'-3 1/4"



ABUTMENT ELEVATIONS

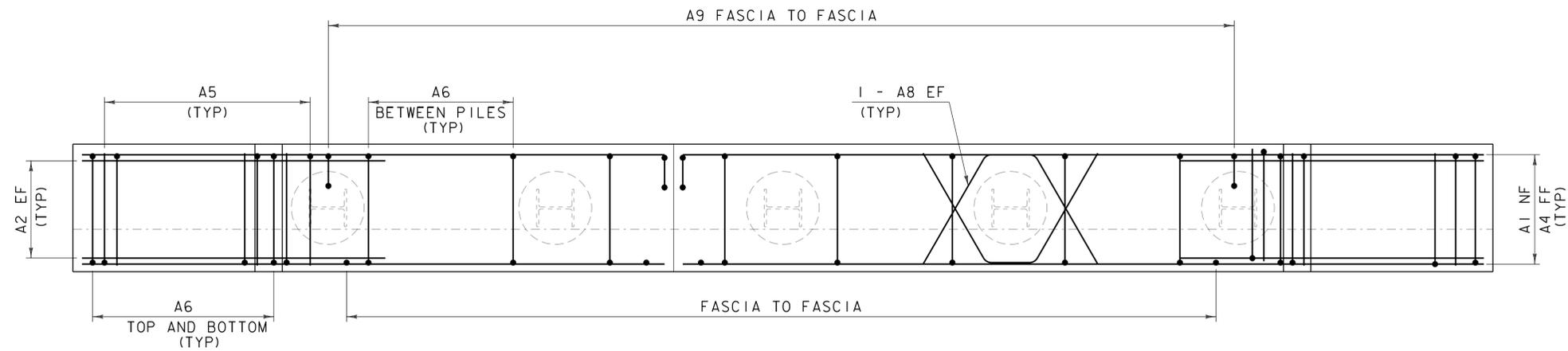
	AB1	AB2
ELEV "A"	646.83	646.03
ELEV "B"	643.25	642.37
ELEV "C"	643.25	642.45
ELEV "D"	637.50	636.70

BRIDGE SEAT ELEVATIONS

	AB1	AB2
ELEV "E"	643.20	642.37
ELEV "F"	643.30	642.49
ELEV "G"	643.37	642.57
ELEV "H"	643.30	642.53
ELEV "I"	643.20	642.44

- NOTES:
1. ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR.
  2. THE BRIDGE SEAT SHALL HAVE A ROUGHENED FINISH. AREAS UNDER BEARING PADS SHALL BE TROWELED SMOOTH TO THE PROPOSED SLOPE.

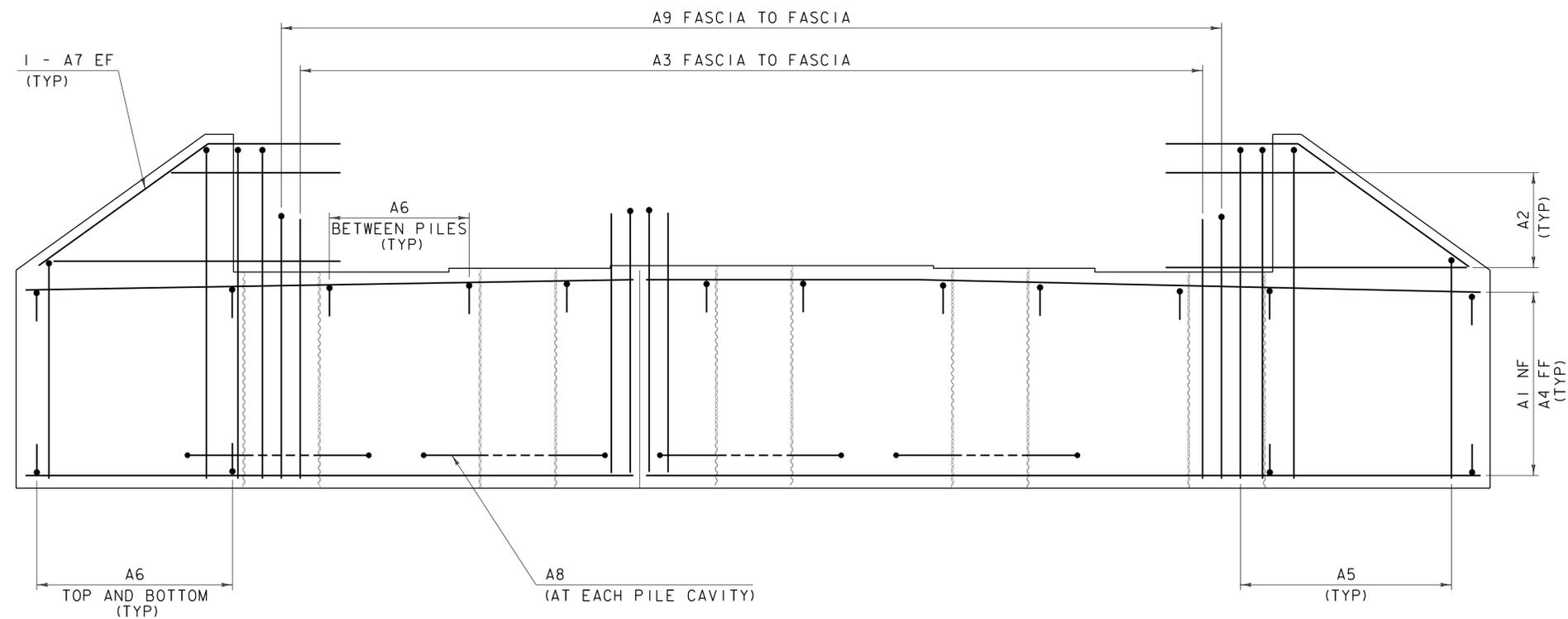
PROJECT NAME:	CLARENDON	PLOT DATE:	24-JUN-2015
PROJECT NUMBER:	BRO 1443(48)	DRAWN BY:	G. DARGAN
FILE NAME:	sl2j160sub2.dgn	CHECKED BY:	J. GRIGAS
PROJECT LEADER:	K. HIGGINS	SHEET	40 OF 58
DESIGNED BY:	J. GRIGAS		
PBU ABUTMENT PLAN			



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

ABUTMENT REINFORCING

BAR	SIZE	SPACING	FACE	TYPE
A1	5	10"	NF	STR
A2	5	10"	EF	STR
A3	5	10"	NF	STR
A4	8	12"	FF	STR
A5	5	10"	EF	20
A6	5	10"	---	S10
A7	5	AS SHOWN	EF	19
A8	6	AS SHOWN	EF	14
A9	9	12"	FF	1



ABUTMENT REINFORCING ELEVATION  
SCALE 1/2" = 1'-0"

NOTES:

1. ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR.
2. EXTEND A2 AND A7 BARS 1'-11" OUT OF WING WALL. CUT TO FIT AT CONFLICTS.
3. SEE ABUTMENT TYPICALS FOR MORE INFORMATION.

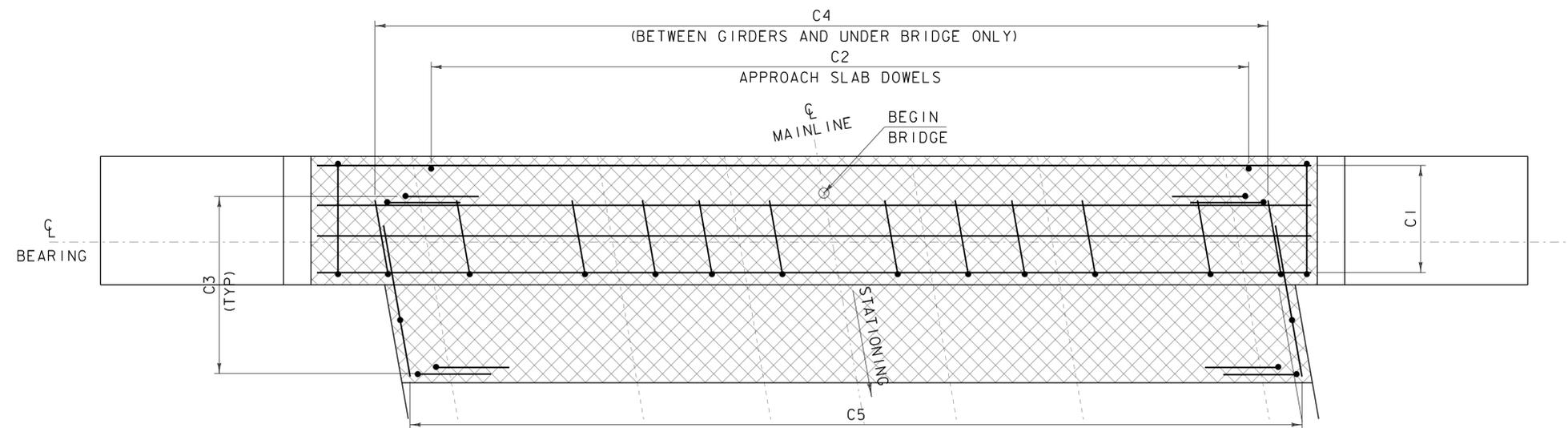
NOTE:

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

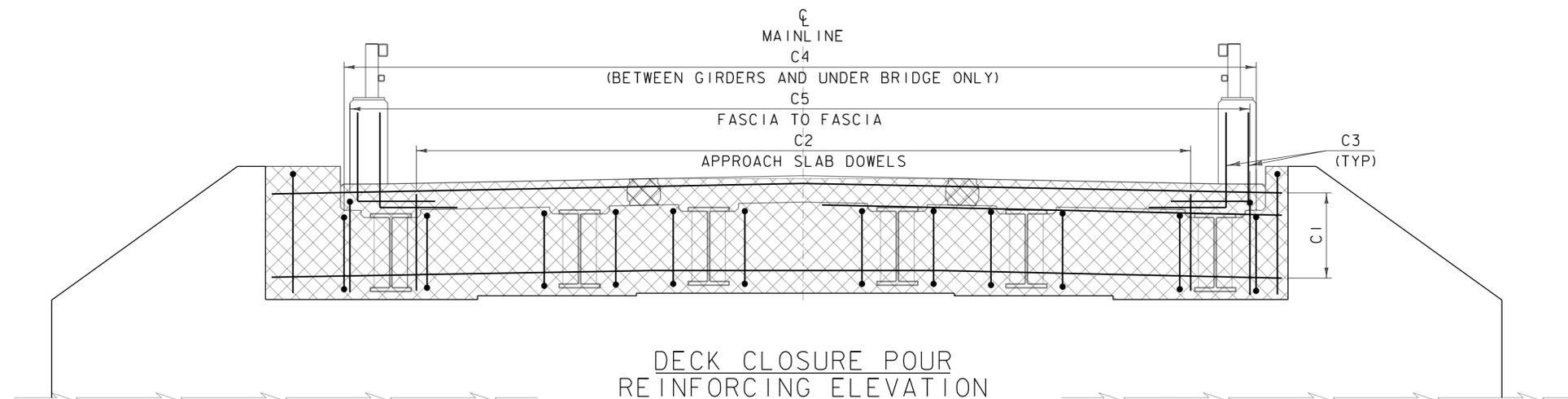
PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

FILE NAME: sl2j160sub2.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
PBU ABUTMENT REINFORCING

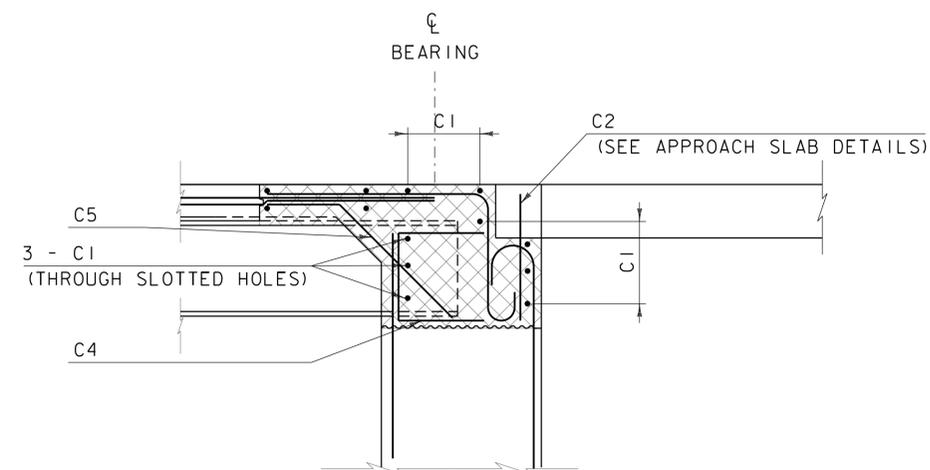
PLOT DATE: 24-JUN-2015  
DRAWN BY: J. GRIGAS  
CHECKED BY: G. LAROCHE  
SHEET 41 OF 58



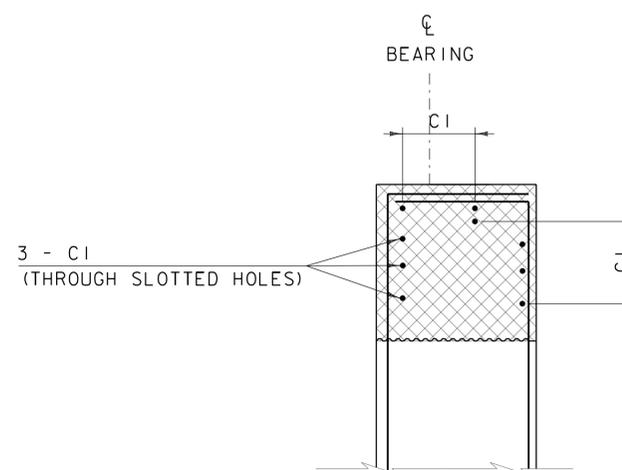
DECK CLOSURE POUR  
REINFORCING PLAN  
SCALE 1/2" = 1'-0"



DECK CLOSURE POUR  
REINFORCING ELEVATION  
SCALE 1/2" = 1'-0"



ABUTMENT ELEVATION AT BRIDGE  
SCALE 1/2" = 1'-0"



ABUTMENT ELEVATION AT CHEEKWALL  
SCALE 1/2" = 1'-0"

CLOSURE POUR REINFORCING

BAR	SIZE	SPACING	FACE	TYPE
C1	5	10"	AS SHOWN	STR
C2	6	12"	---	STR
C3	4	8"	---	20
C4	5	10"	---	S10
C5	5	10"	---	19

NOTES:

1. ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR.
2. SEE PBU DETAILS 2 FOR ADDITIONAL REINFORCING IN THE CLOSURE POUR.

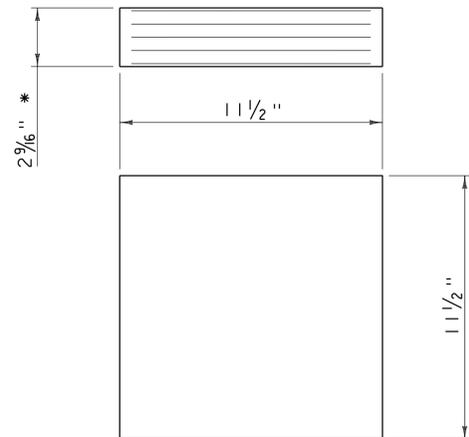
NOTE:

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

PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

FILE NAME: sl2j160sub2.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
PBU CLOSURE POUR

PLOT DATE: 24-JUN-2015  
DRAWN BY: J. GRIGAS  
CHECKED BY: G. LAROCHE  
SHEET 42 OF 58



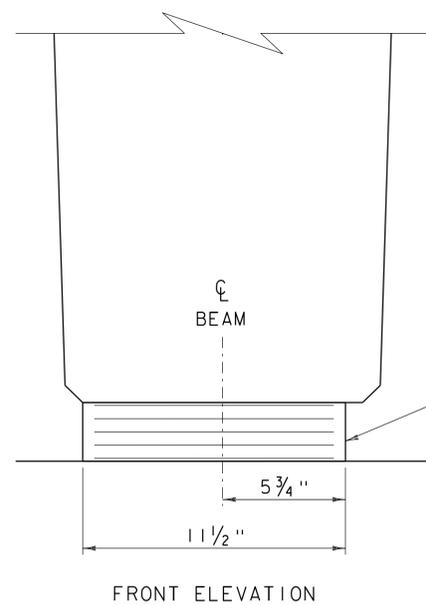
**ELASTOMERIC BEARING DETAIL**

SCALE 3" = 1'-0"

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

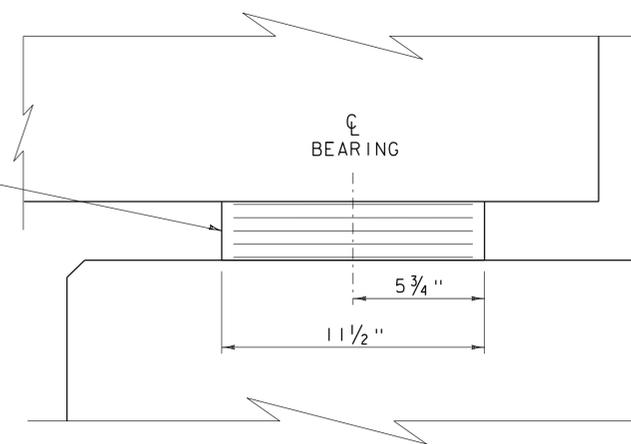
**BEARING NOTES:**

1. NEXT BEAM ALTERNATE SHOWN. BEARING APPLIES TO PBU ALTERNATE AS WELL.
2. BEARINGS SHALL CONFORM TO THE APPLICABLE SUBSECTIONS OF SECTIONS 531 AND 731.
3. ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMER SHALL BE STEEL MEETING THE REQUIREMENTS OF SUBSECTION 714.02. ALL INTERNAL STEEL SHEETS SHALL BE SAND BLASTED AND FREE OF COATINGS, RUST AND MILL SCALE. THE SHEETS SHALL BE FREE OF SHARP EDGES AND BURRS.
4. STEEL REINFORCED ELASTOMERIC BEARINGS SHALL HAVE A MINIMUM 1/8" EDGE SEAL OF ELASTOMER INTEGRAL WITH BEARING OVER ALL INTERNAL SHEETS.
5. THE ELASTOMER WAS DESIGNED WITH A SHEAR MODULUS OF 100 PSI +/- 15%.
6. THE CONTRACTOR IS ADVISED TO HAVE A MINIMUM OF 12 - 1/4"x12 1/2"x12 1/2" GALVANIZED STEEL SHIMS AVAILABLE FOR USE FOR ELEVATION ADJUSTMENTS UPON THE SETTING OF THE SUPERSTRUCTURE UNITS. THE SHIMS SHALL BE FABRICATED ACCORDING TO SECTION 531 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 531.17, "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD".



FRONT ELEVATION

2 9/16" X 11 1/2" X 11 1/2"  
ELASTOMERIC BEARING

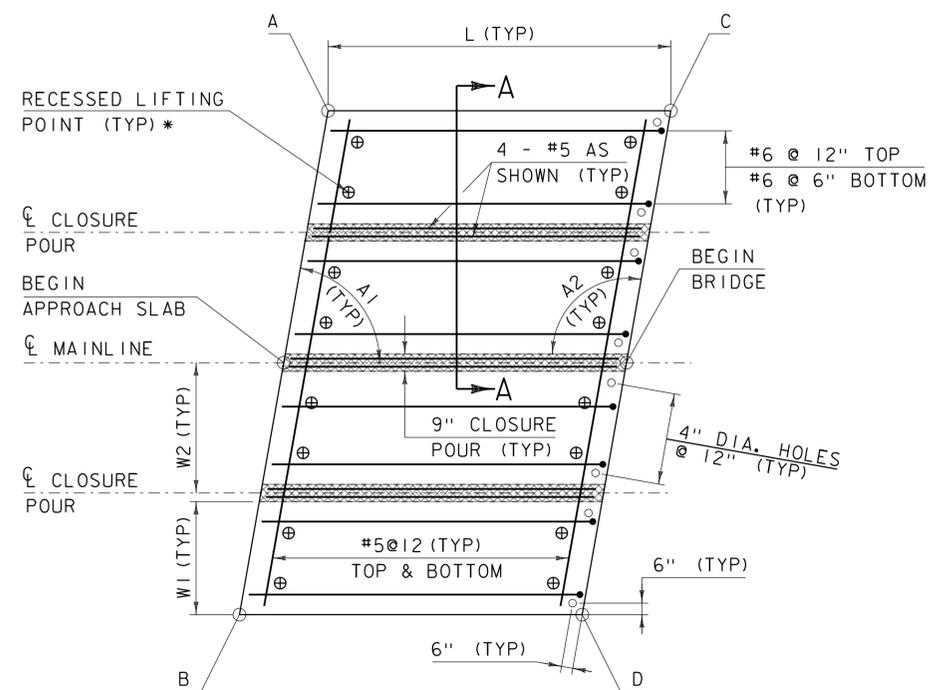


SIDE ELEVATION

**ELASTOMERIC BEARING DETAILS**

SCALE 3" = 1'-0"

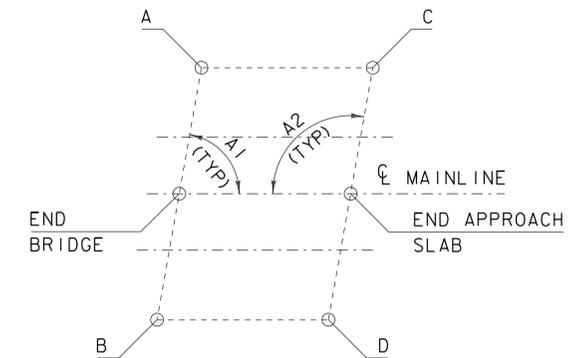
PROJECT NAME: CLARENDON	PLOT DATE: 24-JUN-2015
PROJECT NUMBER: BRO 1443(48)	DRAWN BY: G. DARGAN
FILE NAME: sl2j160brg.dgn	CHECKED BY: J. GRIGAS
PROJECT LEADER: K. HIGGINS	SHEET 43 OF 58
DESIGNED BY: J. GRIGAS	
BEARING DETAILS	



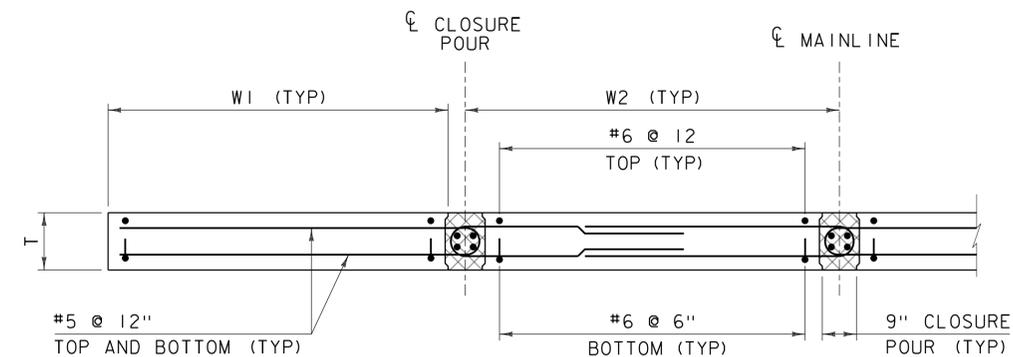
**APPROACH SLAB #1 PLAN VIEW**  
SCALE 1/4" = 1'-0"

**\*NOTES:**

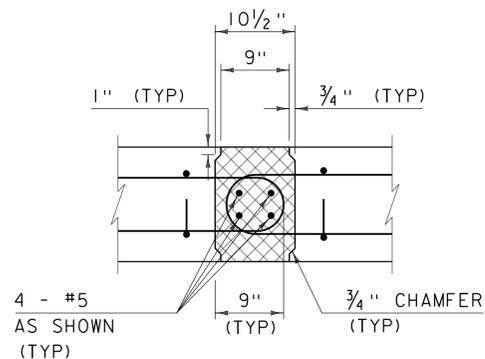
- LIFTING POINTS SHALL BE DESIGNED BY FABRICATOR AND SUBMITTED WITH CALCULATIONS.
- REINFORCING STEEL FOR APPROACH SLAB #1 SHOWN, APPROACH SLAB #2 SIMILAR.



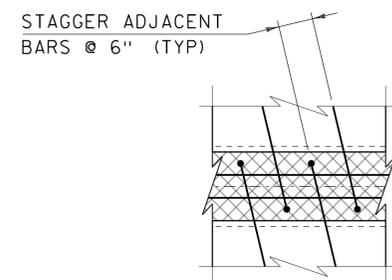
**APPROACH SLAB #2 PLAN VIEW**  
NOT TO SCALE



**SECTION A-A**  
SCALE 1/2" = 1'-0"



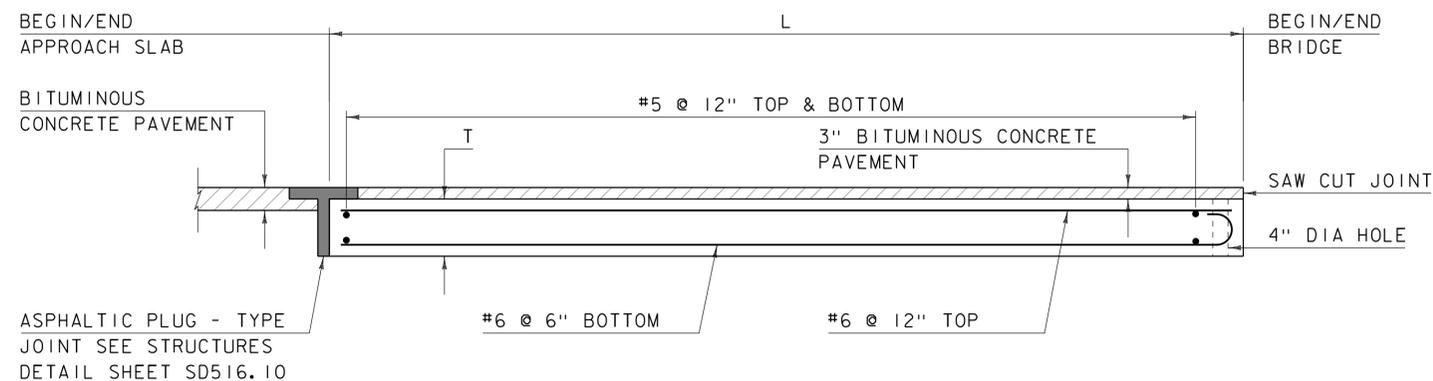
**CONNECTION DETAIL SECTION**  
SCALE 1" = 1'-0"



**CONNECTION DETAIL PLAN**  
SCALE 1" = 1'-0"

APPROACH SLAB #1			
	STATION	OFFSET	ELEVATION
IA	11+33.59	-10' - 11 1/2"	646.36
BEGIN AS #1	11+31.65	CL	646.57
IB	11+29.71	10' - 11 1/2"	646.35
IC	11+48.59	-10' - 11 1/2"	646.36
END AS #1	11+46.65	CL	646.58
ID	11+44.71	10' - 11 1/2"	646.36
APPROACH SLAB #2			
	STATION	OFFSET	ELEVATION
2A	12+25.29	-10' - 11 1/2"	645.50
BEGIN AS #2	12+23.35	CL	645.76
2B	12+21.41	10' - 11 1/2"	645.57
2C	12+40.29	-10' - 11 1/2"	645.20
END AS #2	12+38.35	CL	645.45
2D	12+36.41	10' - 11 1/2"	645.27

**APPROACH SLAB ELEVATIONS**  
ALL ELEVATIONS ARE TOP OF SLAB



**APPROACH SLAB ELEVATION VIEW**  
SCALE 1/2" = 1'-0"

T	1'-2"
L	15'-0"
W1	4'-11"
W2	5'-8"

APPROACH SLAB #1	ANGLE	VALUE
A1	80°	
A2	100°	

APPROACH SLAB #2	ANGLE	VALUE
A1	80°	
A2	100°	

**APPROACH SLAB DIMENSIONS**

**NOTE:**

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

PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

FILE NAME: sl2j160appslab.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
APPROACH SLAB DETAILS

PLOT DATE: 24-JUN-2015  
DRAWN BY: G. DARGAN  
CHECKED BY: J. GRIGAS  
SHEET 44 OF 58

# EPSC PLAN NARRATIVE

## 1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE 11 WITH RELATED APPROACH AND CHANNEL WORK. BRIDGE 11 WILL BE REPLACED WITH A PRECAST STRUCTURE. THE PROJECT IS LOCATED IN THE TOWN OF CLARENDON, VT ON TOWN HIGHWAY 3 (WALKER MOUNTAIN ROAD) 1.05 MILES SOUTH OF THE INTERSECTION WITH VT RT 133.

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

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.45 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 MOUNTAINOUS AND MOSTLY FORESTED WITH RIPARIAN VEGETATION AND TREES.

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

THE CLARENDON RIVER IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE RIVER IS CLASSIFIED AS SINUOUS AND ALLUVIAL WITH A CONFINED CHANNEL AT THE SITE. THE STREAM BED CONSISTS OF SAND AND GRAVEL.

### 1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF SMALL DIAMETER TREES. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING BRIDGE. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE III 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.

WINDSOR LOAMY SAND	20%-60% SLOPES	"K" FACTOR = 0.17
WINDSOR LOAMY SAND	8%-15% SLOPES	"K" FACTOR = 0.17
RAYNHAM SILT LOAM	0%-4% SLOPES	"K" FACTOR = 0.49
UDIFLUVENTS/ FLUVAQUENTS	0% SLOPES	"K" FACTOR = N/A
UDIPSAMMENTS	0% SLOPES	"K" FACTOR = 0.15

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

### 1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO  
HISTORICAL OR ARCHEOLOGICAL AREAS: YES  
PRIME AGRICULTURAL LAND: NO  
THREATENED AND ENDANGERED SPECIES: NO  
WATER RESOURCE: CLARENDON RIVER  
WETLANDS: YES (SEE PLANS)

## 1.3 RISK EVALUATION

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

## 1.4 EROSION PREVENTION AND SEDIMENT CONTROL

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

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

### 1.4.1 MARK SITE BOUNDARIES

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

BARRIER FENCE SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES.

### 1.4.2 LIMIT DISTURBANCE AREA

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

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

### 1.4.3 SITE ENTRANCE/EXIT STABILIZATION

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

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

### 1.4.4 INSTALL SEDIMENT BARRIERS

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

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

FILTER CURTAIN 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.

THE PROJECT AREA IS RELATIVELY FLAT. THEREFORE IT IS NOT ANTICIPATED THAT DIVERSION MEASURES WILL BE NECESSARY.

### 1.4.6 SLOW DOWN CHANNELIZED RUNOFF

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

IT IS NOT ANTICIPATED THAT CHECK STRUCTURES WILL BE NECESSARY.

### 1.4.7 CONSTRUCT PERMANENT CONTROLS

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

THERE ARE NO PERMANENT STORM WATER TREATMENT DEVICES ANTICIPATED ON THIS PROJECT.

### 1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

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

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

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

### 1.4.9 WINTER STABILIZATION

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

### 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 DISCHARGE 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

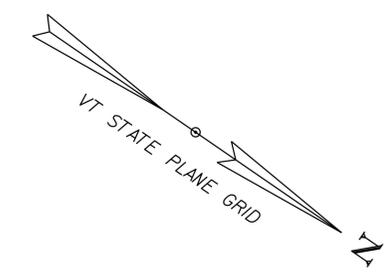
#### 1.5.2 OFF-SITE ACTIVITIES

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

PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

FILE NAME: sl2j160epsc\_nar  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
EPSC NARRATIVE

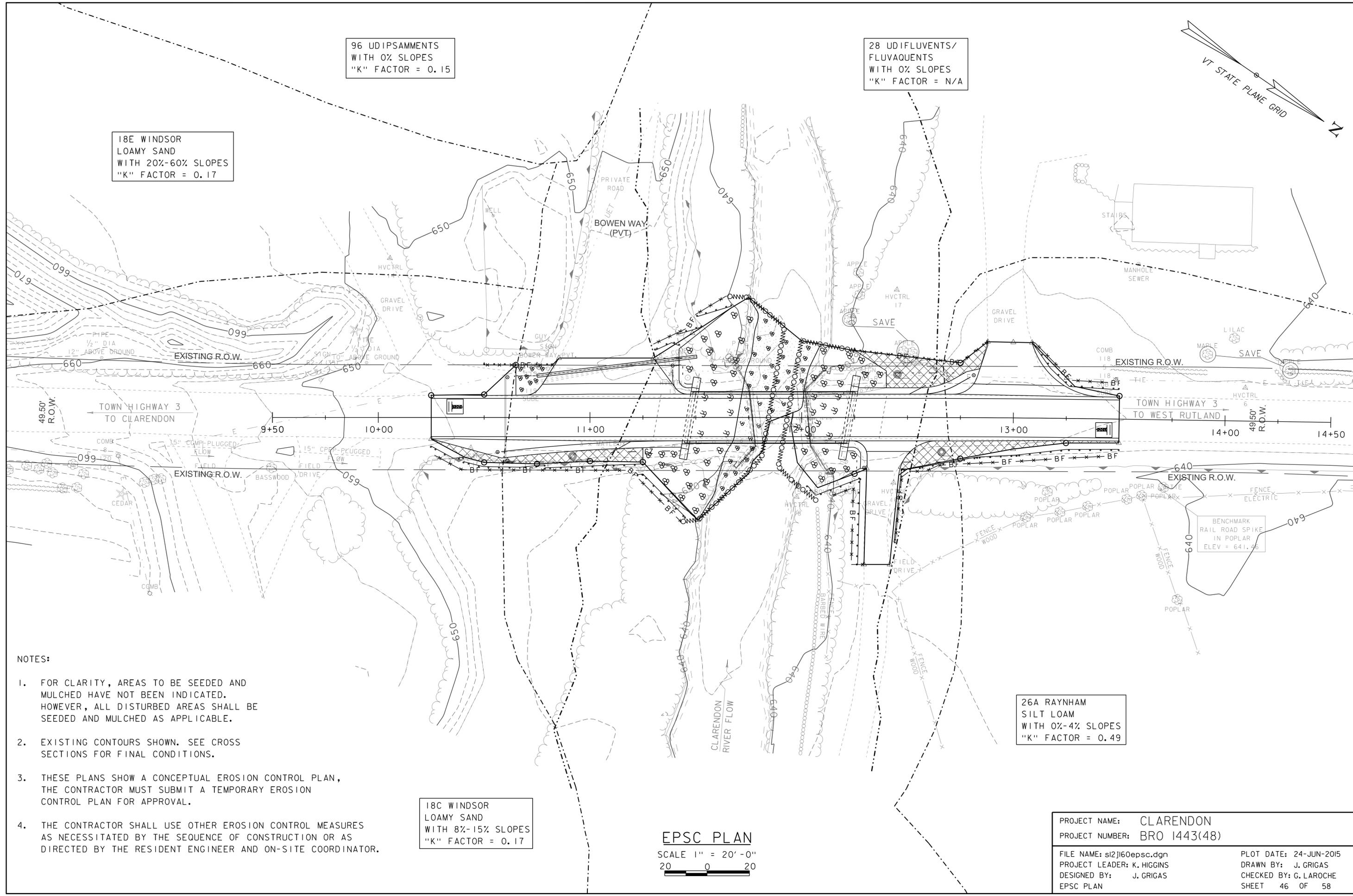
PLOT DATE: 24-JUN-2015  
DRAWN BY: J. GRIGAS  
CHECKED BY: G. LAROCHE  
SHEET 45 OF 58



96 UDIPSAMMENTS  
WITH 0% SLOPES  
"K" FACTOR = 0.15

28 UDIFLUENTS/  
FLUVAQUENTS  
WITH 0% SLOPES  
"K" FACTOR = N/A

18E WINDSOR  
LOAMY SAND  
WITH 20%-60% SLOPES  
"K" FACTOR = 0.17



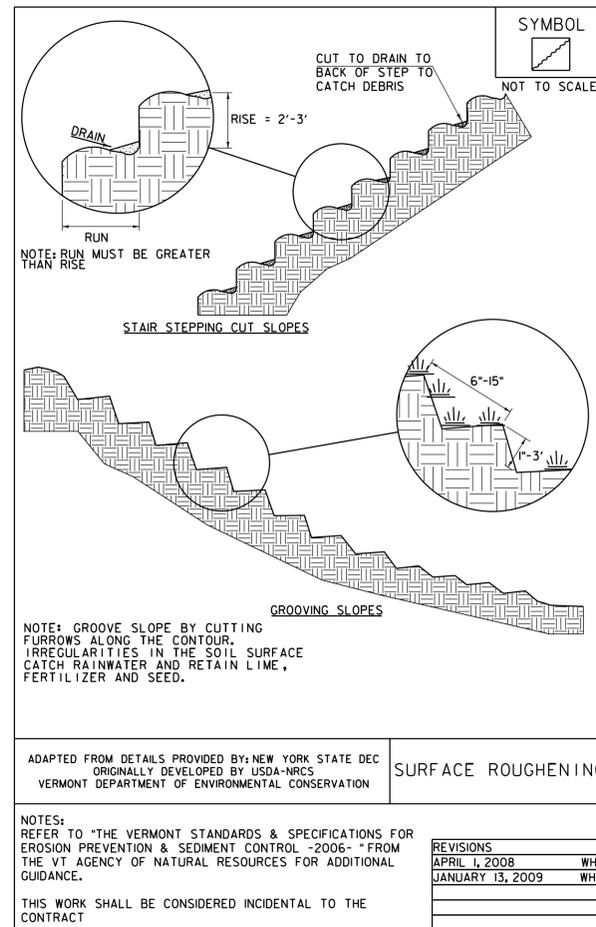
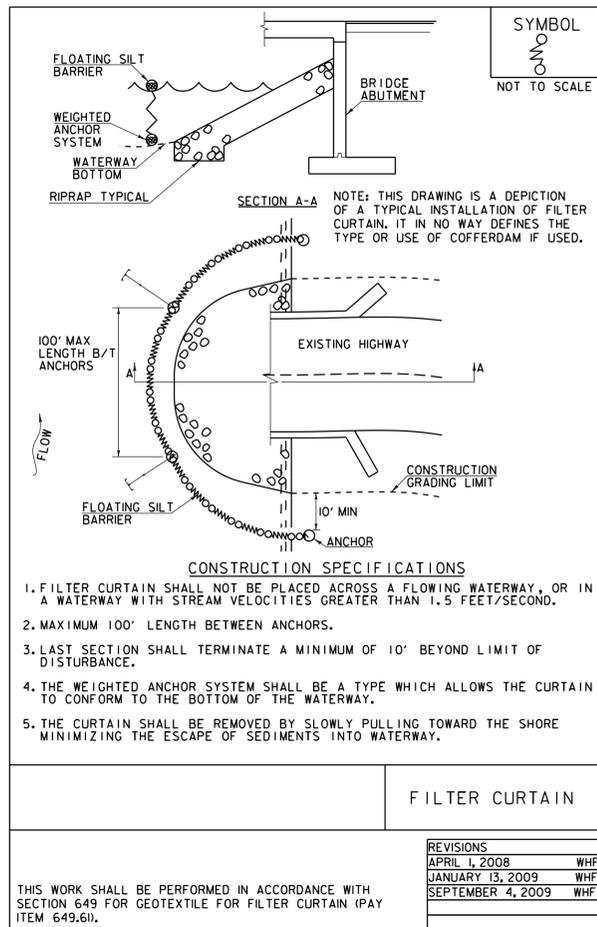
- NOTES:
- FOR CLARITY, AREAS TO BE SEEDED AND MULCHED HAVE NOT BEEN INDICATED. HOWEVER, ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED AS APPLICABLE.
  - EXISTING CONTOURS SHOWN. SEE CROSS SECTIONS FOR FINAL CONDITIONS.
  - THESE PLANS SHOW A CONCEPTUAL EROSION CONTROL PLAN, THE CONTRACTOR MUST SUBMIT A TEMPORARY EROSION CONTROL PLAN FOR APPROVAL.
  - THE CONTRACTOR SHALL USE OTHER EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION OR AS DIRECTED BY THE RESIDENT ENGINEER AND ON-SITE COORDINATOR.

18C WINDSOR  
LOAMY SAND  
WITH 8%-15% SLOPES  
"K" FACTOR = 0.17

26A RAYNHAM  
SILT LOAM  
WITH 0%-4% SLOPES  
"K" FACTOR = 0.49

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

PROJECT NAME:	CLARENDON	PLOT DATE:	24-JUN-2015
PROJECT NUMBER:	BRO 1443(48)	DRAWN BY:	J. GRIGAS
FILE NAME:	sl2j160epsc.dgn	CHECKED BY:	G. LAROCHE
PROJECT LEADER:	K. HIGGINS	SHEET	46 OF 58
DESIGNED BY:	J. GRIGAS		
EPSC PLAN			



VAOT LOW GROW/FINE FESCUE MIX						
WEIGHT	BROADCAST	HYDROSEED	NAME	LATIN NAME	GERM	PURITY
38%	57	95	CREeping RED FESCUE	FESTUCA RUBRA VAR. RUBRA	90%	98%
29%	43.5	72.5	HARD FESCUE	FESTUCA LONGIFOLIA	85%	95%
15%	22.5	37.5	CHEWINGS FESCUE	FESTUCA RUBRA VAR. COMMUTATA	87%	95%
15%	22.5	37.5	ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	90%	95%
3%	4.5	7.5	INERTS			
100%	150	250				

VAOT RURAL AREA MIX						
WEIGHT	BROADCAST	HYDROSEED	NAME	LATIN NAME	GERM	PURITY
37.5%	22.5	45	CREeping RED FESCUE	FESTUCA RUBRA VAR. RUBRA	85%	98%
37.5%	22.5	45	TALL FESCUE	FESTUCA ARUNDINACEA	90%	95%
5.0%	3	6	RED TOP	AGROSTIS GIGANTEA	90%	95%
15.0%	9	18	WHITE FIELD CLOVER	TRIFOLIUM REPENS	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	LOLIUM MULTIFLORUM	85%	95%
100%	60	120				

GENERAL AMENDMENT GUIDANCE		
FERTILIZER	LIME	
10/20/10	AG LIME	PELLITIZED
500 LBS/AC	2 TONS/AC	1 TONS/AC

**CONSTRUCTION GUIDANCE**

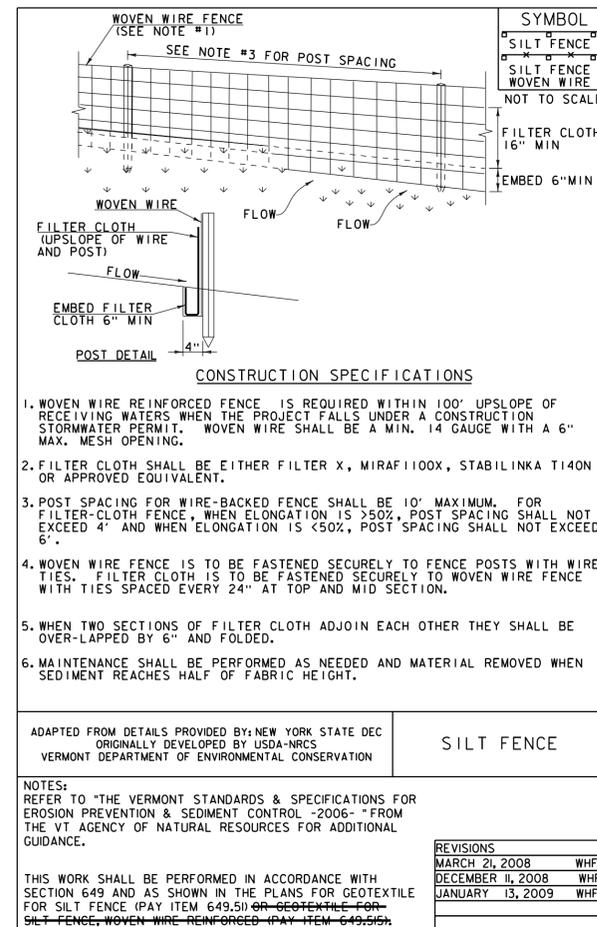
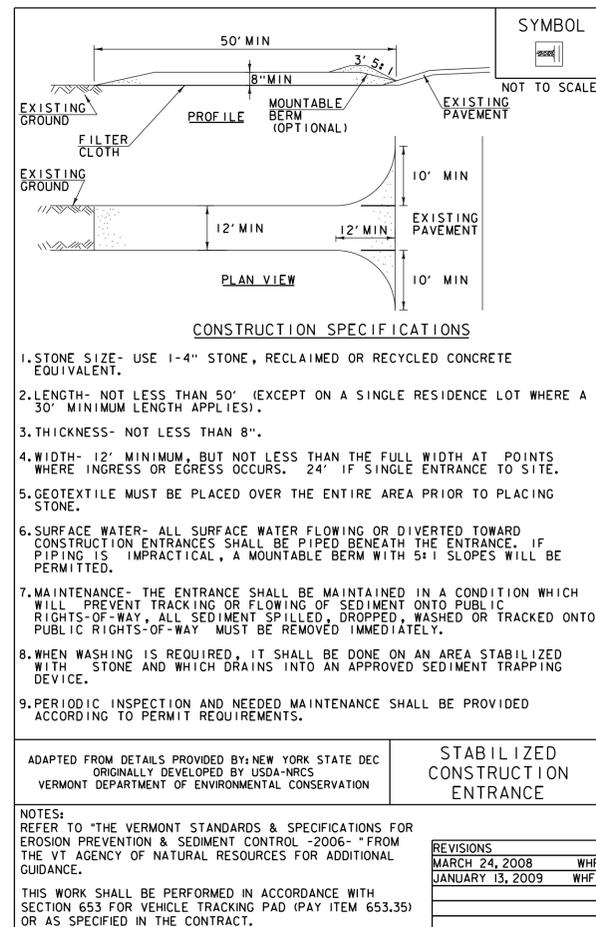
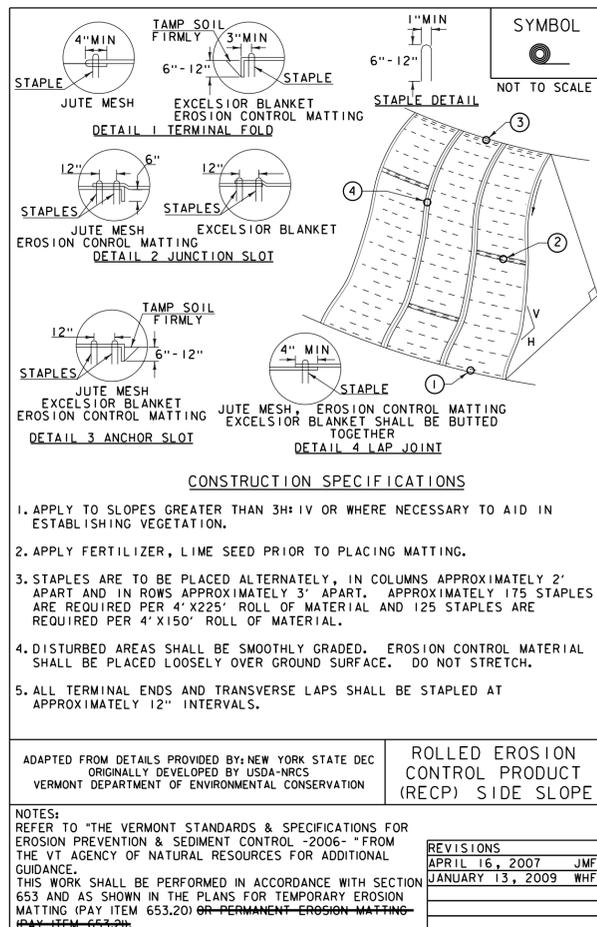
1. SEED MIX: THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER ON WHICH SEED MIX TO USE.
2. SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT 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. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED PROPOSED FOR USE WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED.
7. 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**

**SYMBOL**  
NOT TO SCALE

**CONSTRUCTION SPECIFICATIONS**

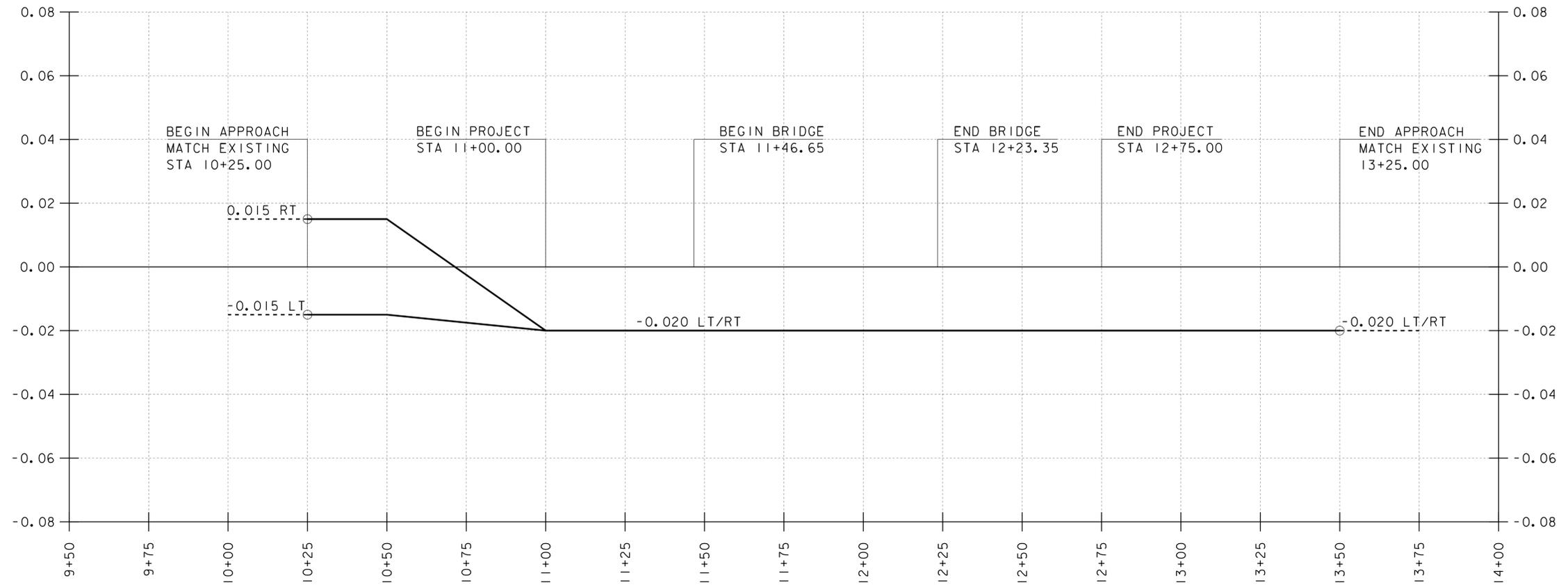
NOTE: REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.



PROJECT NAME: CLARENDON  
 PROJECT NUMBER: BRO 1443(48)

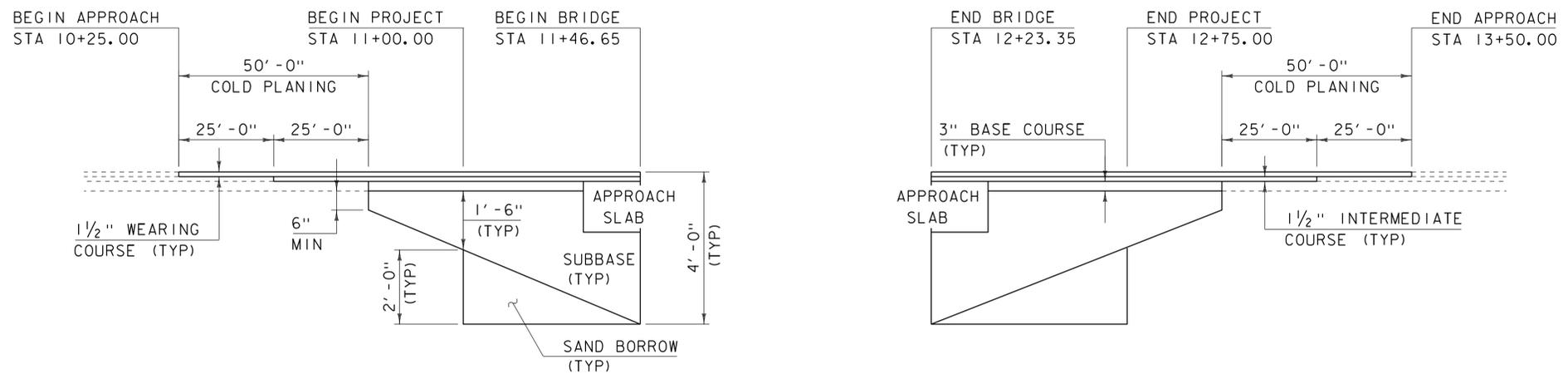
FILE NAME: sl2j16oero\_det.dgn  
 PROJECT LEADER: K. HIGGINS  
 DESIGNED BY: J. GRIGAS  
 EPSC DETAILS

PLOT DATE: 24-JUN-2015  
 DRAWN BY: J. GRIGAS  
 CHECKED BY: G. LAROCHE  
 SHEET 47 OF 58



**TH 3 BANKING DIAGRAM**

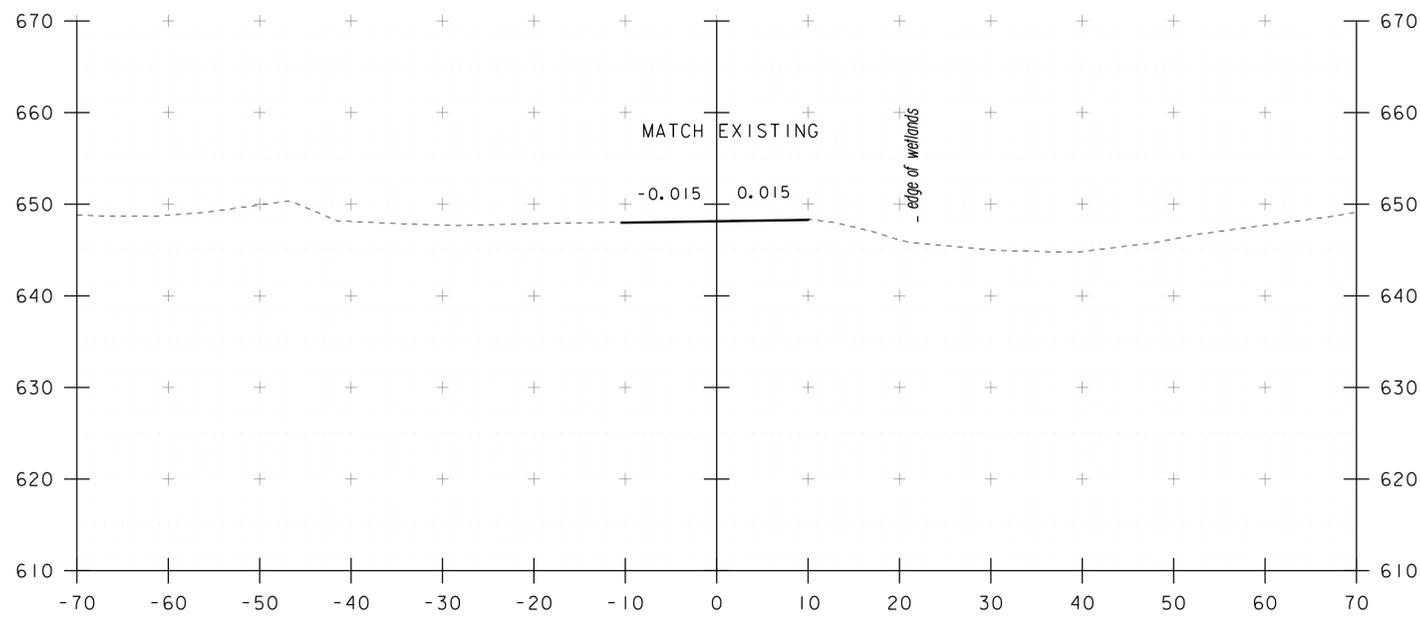
HORIZONTAL SCALE: 1" = 20' - 0"  
 VERTICAL SCALE: NOT TO SCALE



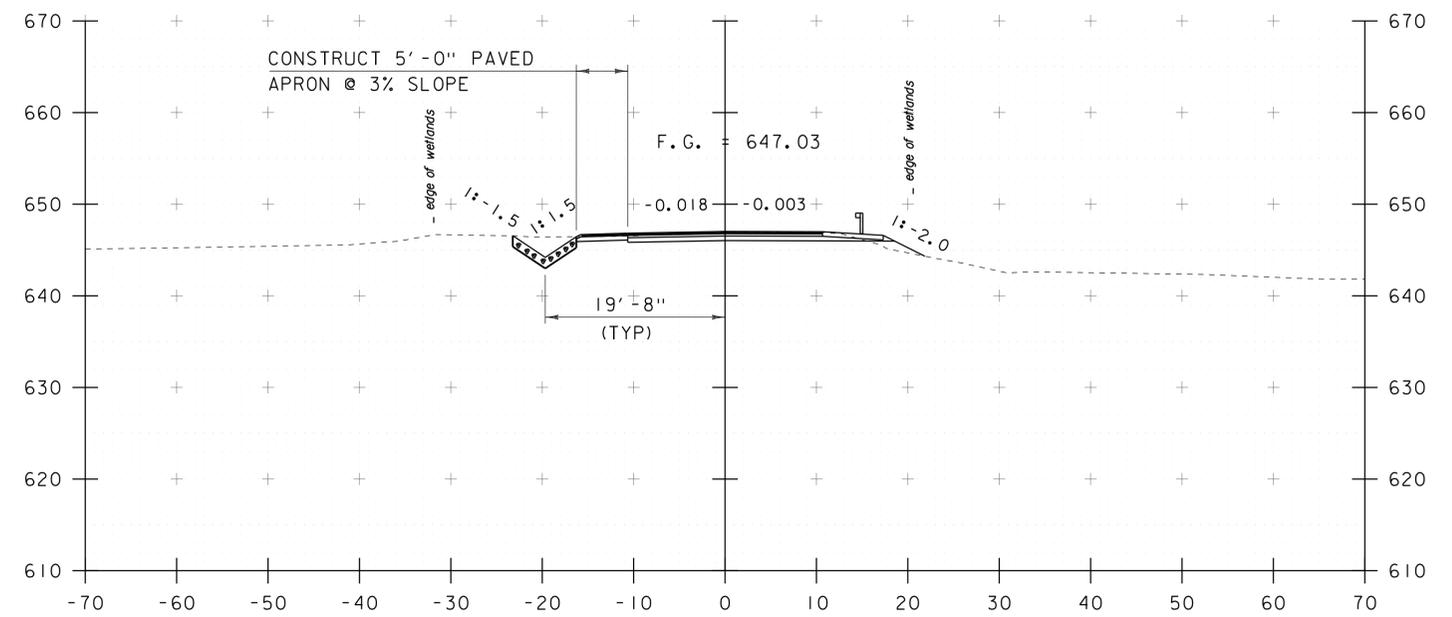
**TH 3 MATERIAL TRANSITION DETAIL**

HORIZONTAL SCALE: 1" = 20' - 0"  
 VERTICAL SCALE: 1" = 2' - 0"

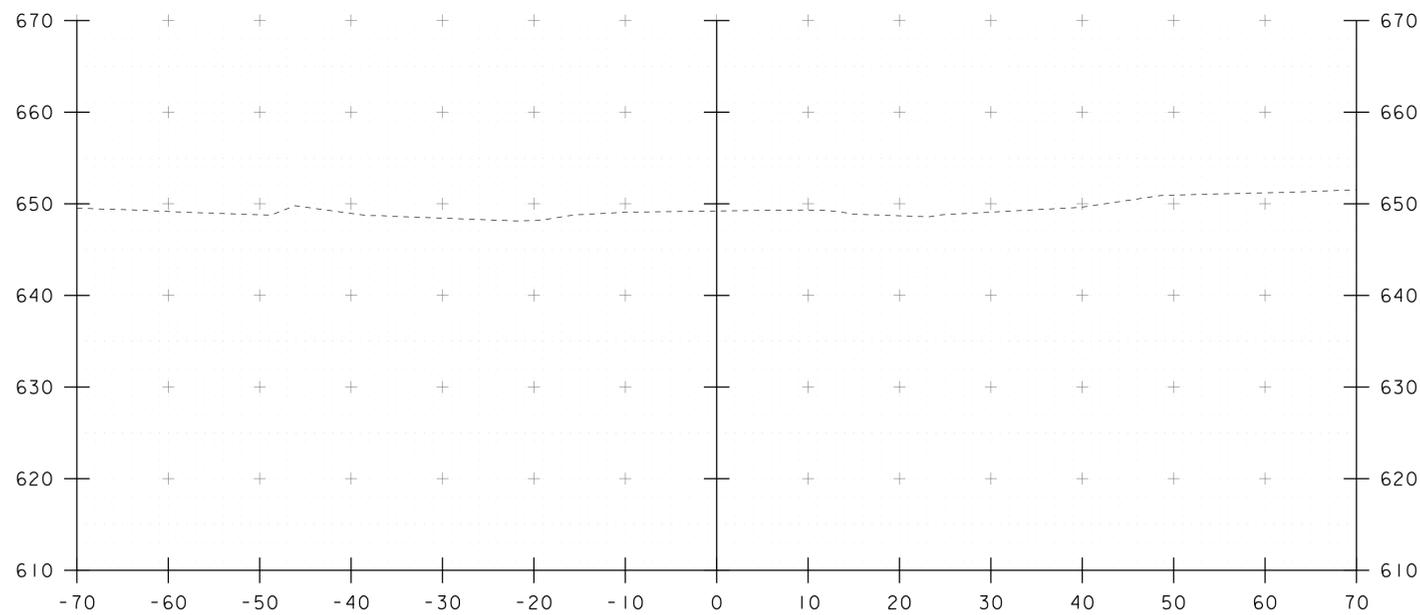
PROJECT NAME: CLARENDON	
PROJECT NUMBER: BRO 1443(48)	
FILE NAME: sl2j160profile.dgn	PLOT DATE: 24-JUN-2015
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. GRIGAS
DESIGNED BY: J. GRIGAS	CHECKED BY: G. LAROCHE
BANKING DIAGRAM AND MATERIAL TRANSITION SHEET 48 OF 58	



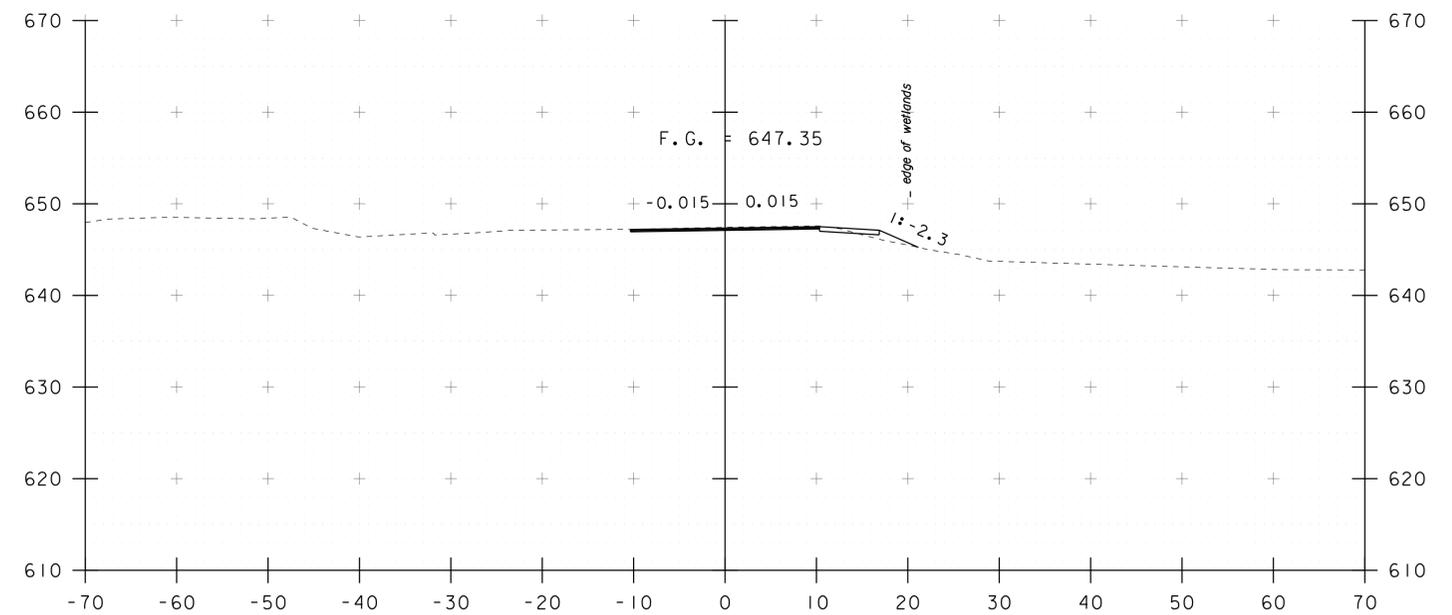
10+25  
BEGIN APPROACH



10+75



10+00

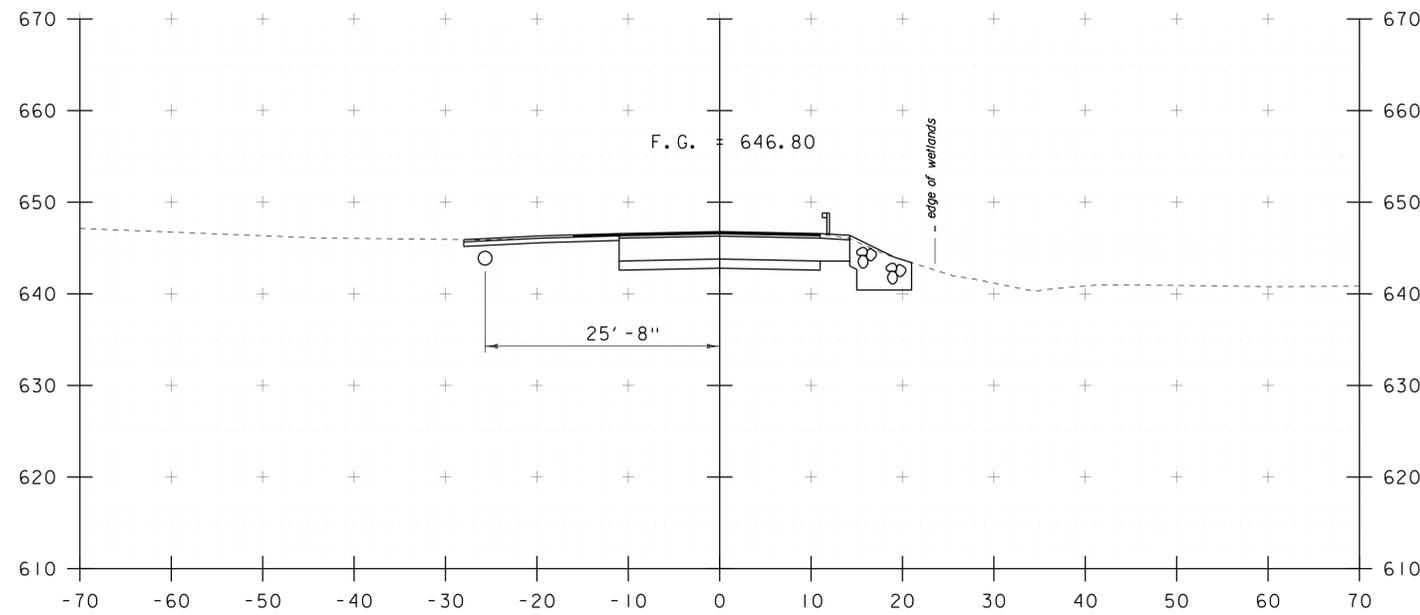


10+50

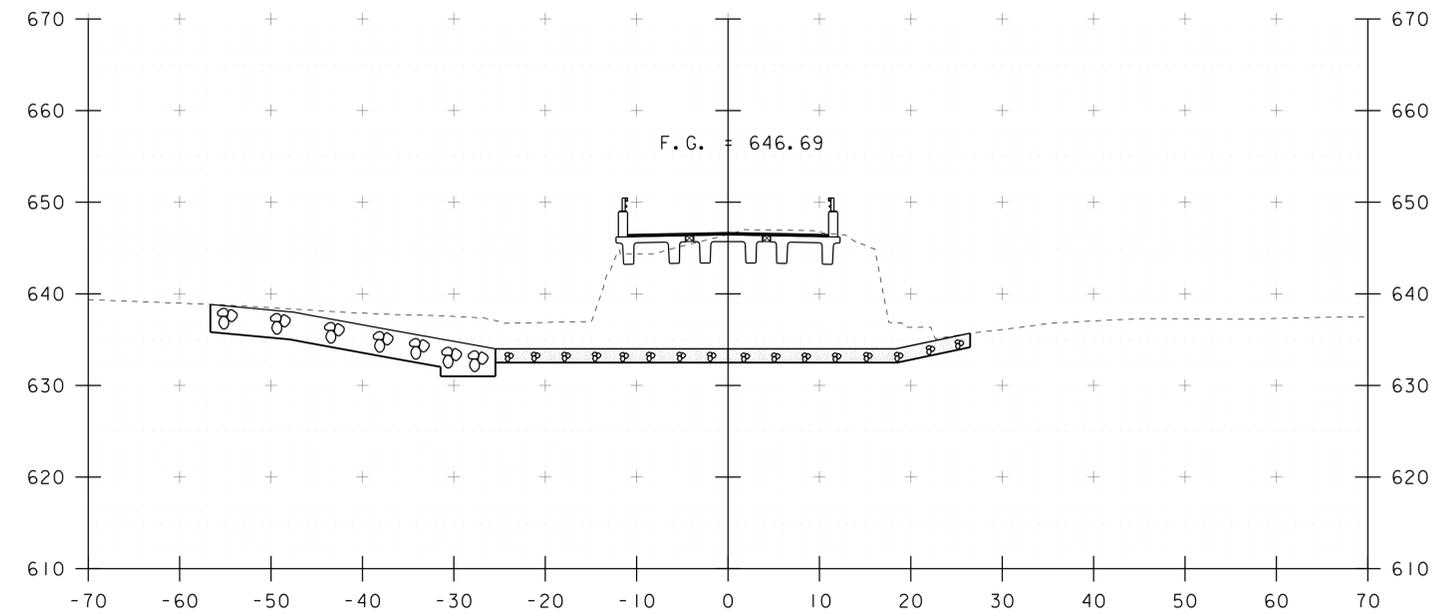
STA. 10+00 TO STA. 10+75

PROJECT NAME: CLARENDON	
PROJECT NUMBER: BRO 1443(48)	
FILE NAME: sl2j160xs.dgn	PLOT DATE: 24-JUN-2015
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. GRIGAS
DESIGNED BY: J. GRIGAS	CHECKED BY: G. LAROCHE
MAINLINE CROSS SECTIONS 1	SHEET 49 OF 58

NEXT BEAM ALTERNATE SHOWN. PBU ALTERNATE SIMILAR.

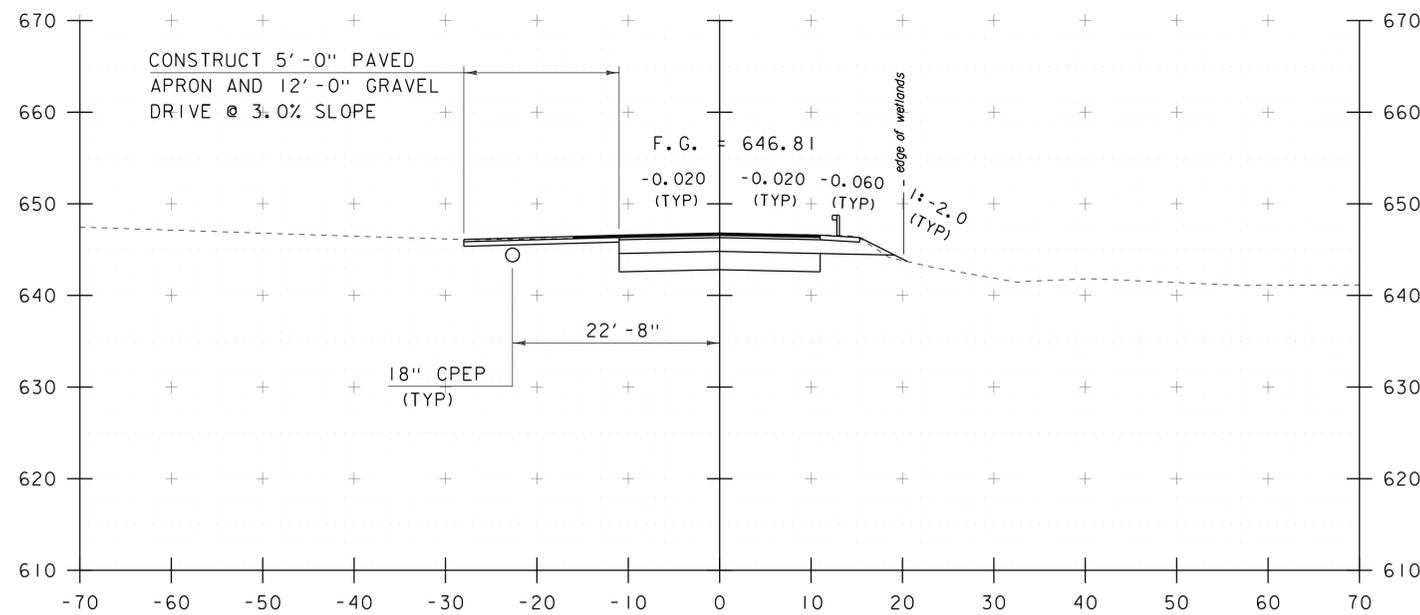


11+25

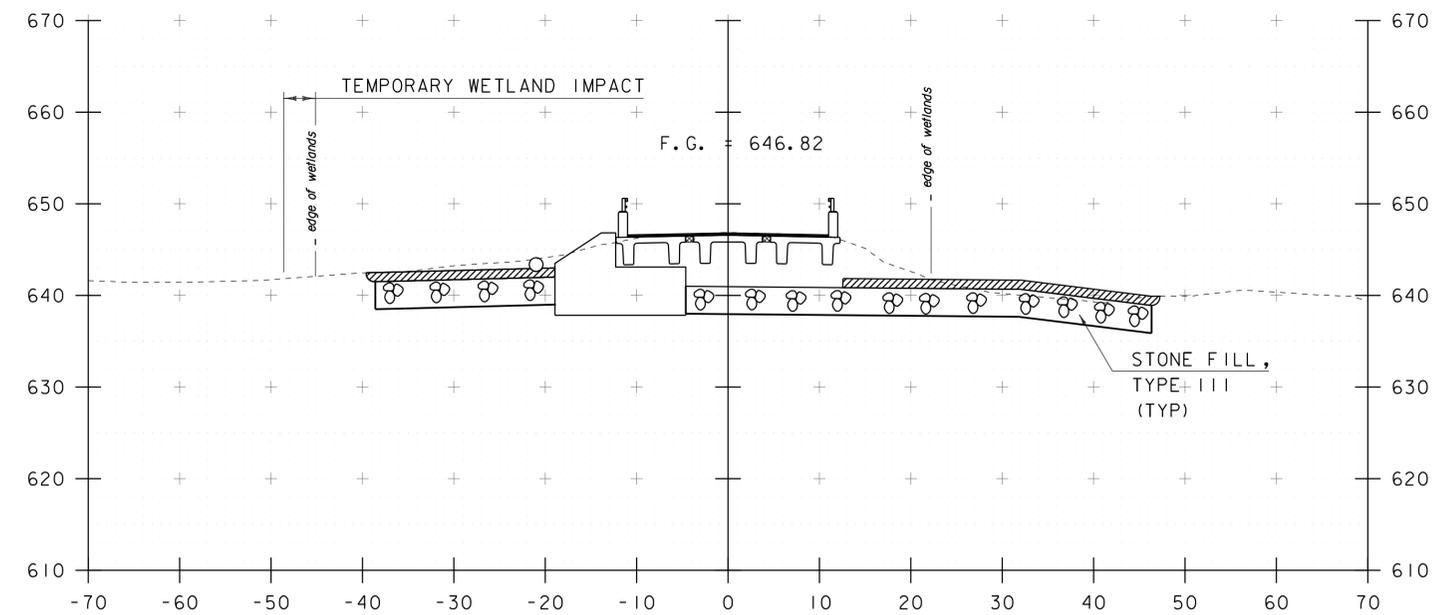


11+75

NEXT BEAM ALTERNATE SHOWN. PBU ALTERNATE SIMILAR.



11+00  
BEGIN PROJECT



11+50  
BEGIN BRIDGE 11+46.65

STA. 11+00 TO STA. 11+75

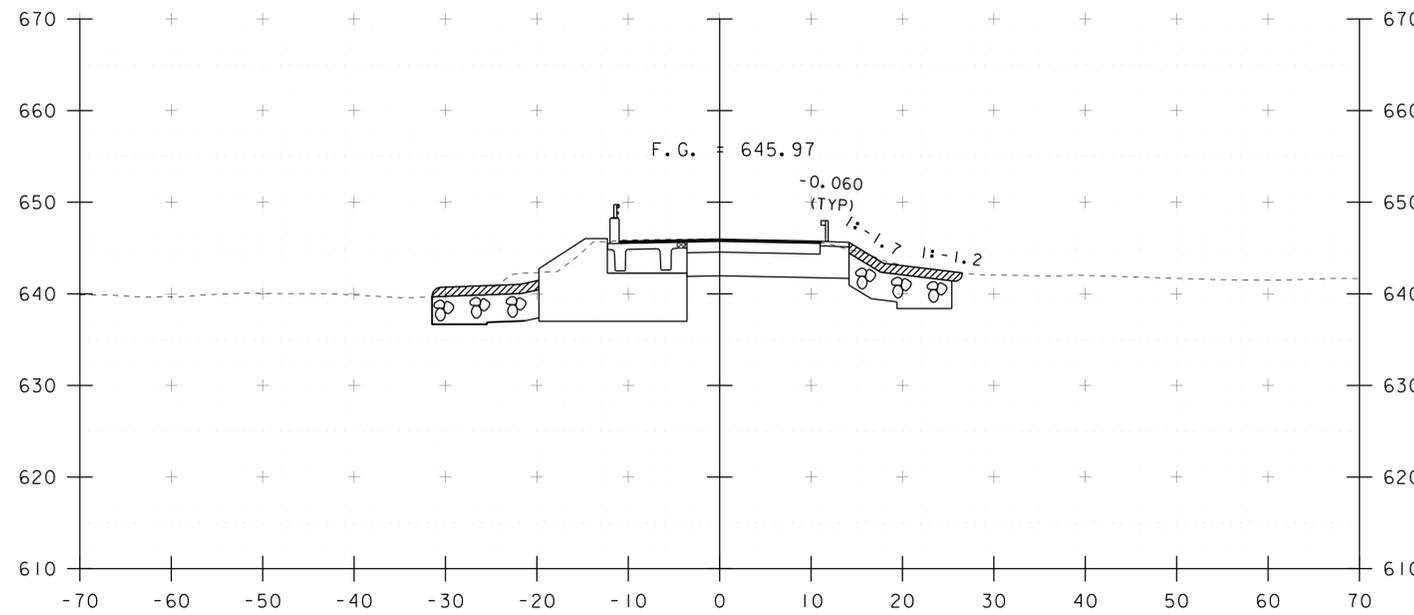
PROJECT NAME: CLARENDON  
PROJECT NUMBER: BRO 1443(48)

FILE NAME: sl2j160xs.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: J. GRIGAS  
MAINLINE CROSS SECTIONS 2

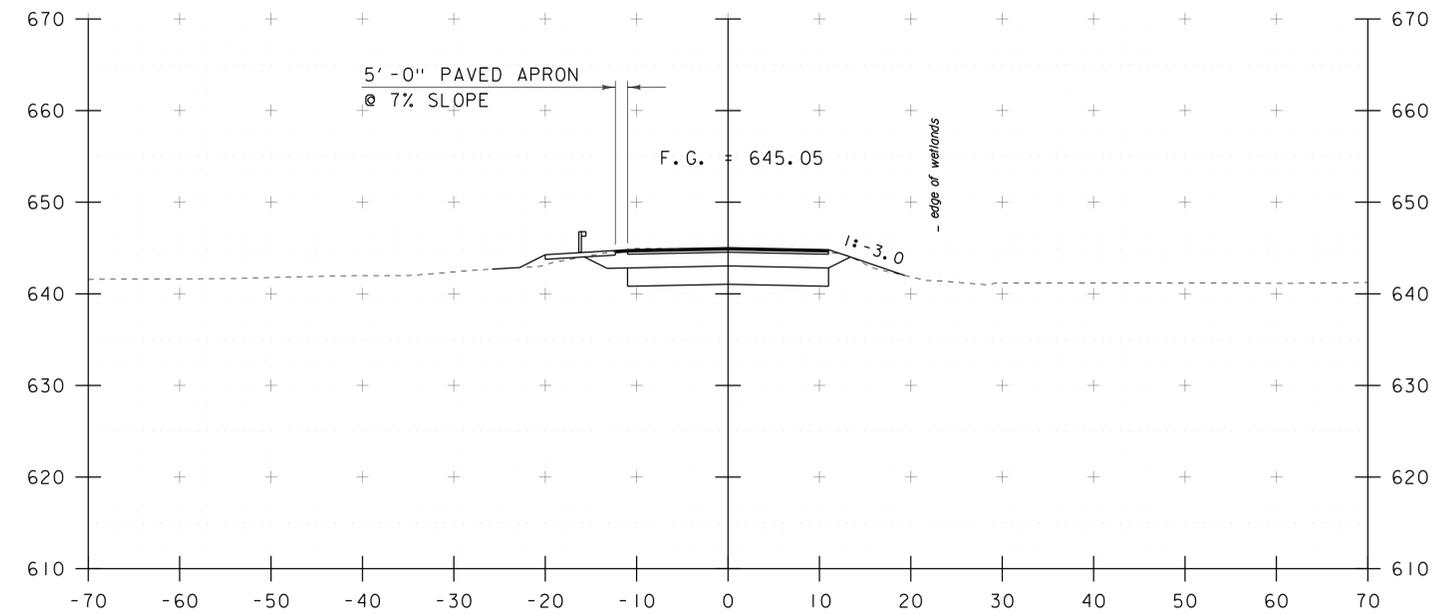
PLOT DATE: 24-JUN-2015  
DRAWN BY: J. GRIGAS  
CHECKED BY: G. LAROCHE  
SHEET 50 OF 58

# END BRIDGE 12+35.35

NEXT BEAM ALTERNATE SHOWN. PBU ALTERNATE SIMILAR.

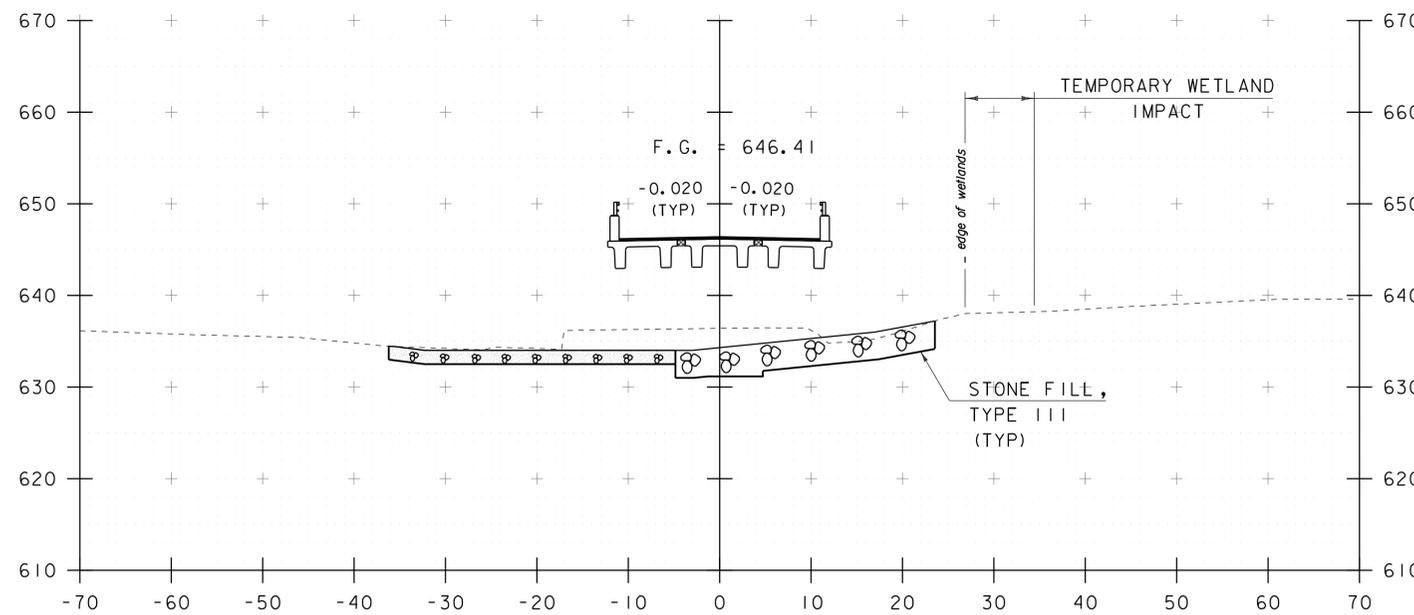


12+25

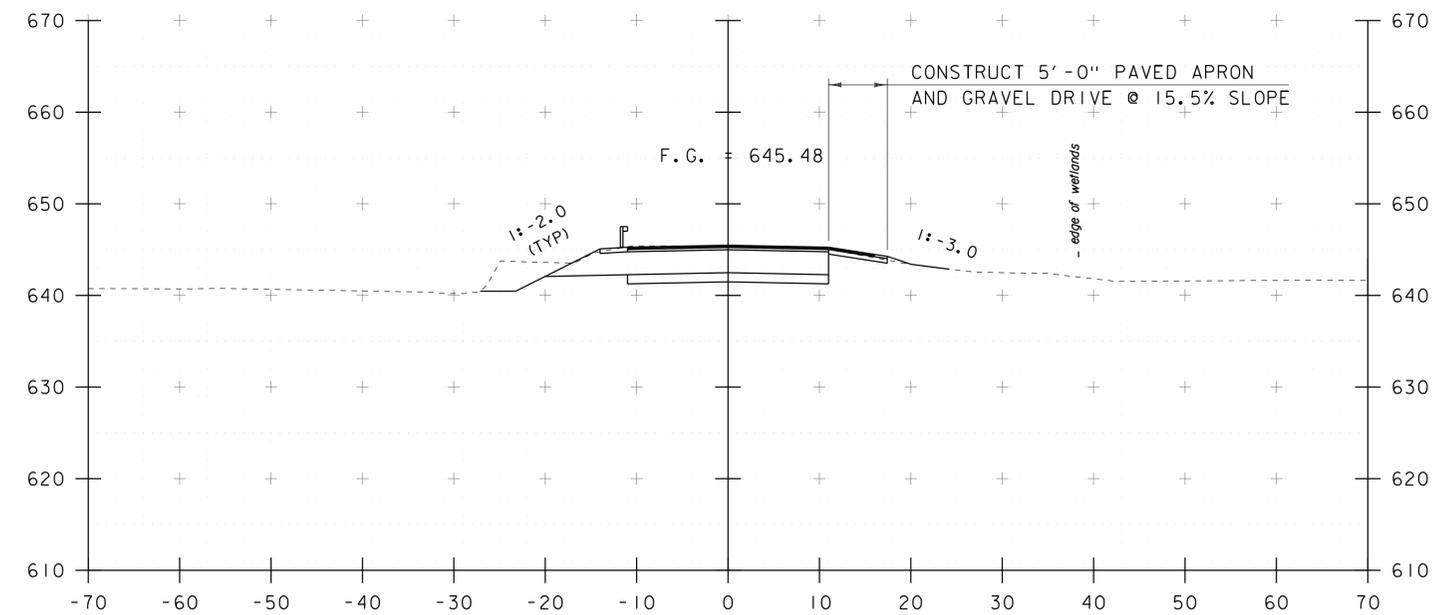


12+75  
END PROJECT

NEXT BEAM ALTERNATE SHOWN. PBU ALTERNATE SIMILAR.



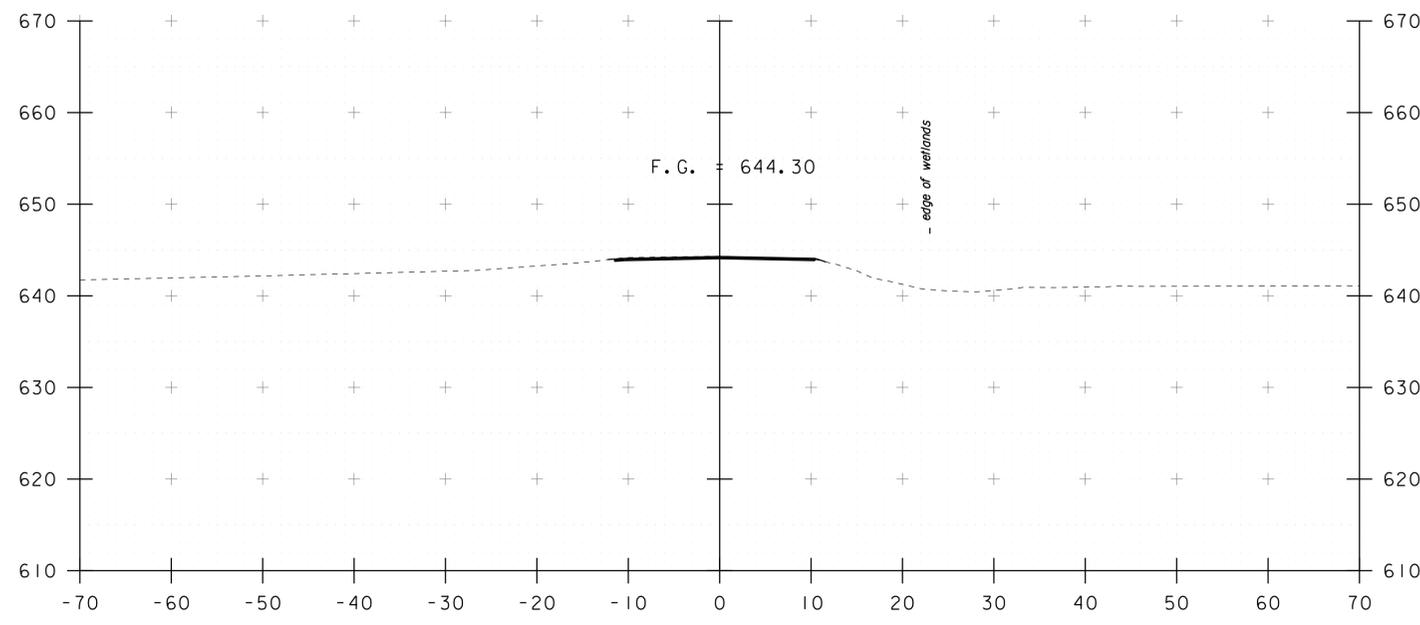
12+00



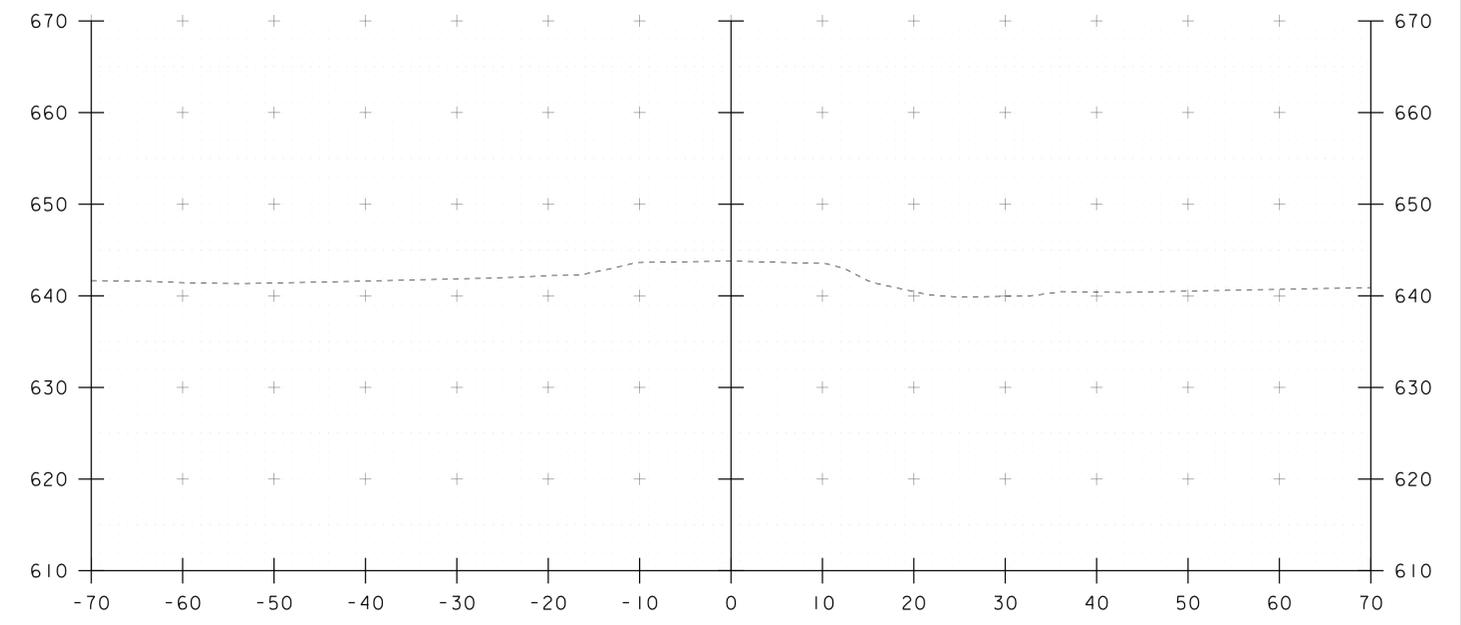
12+50

STA. 12+00 TO STA. 12+75

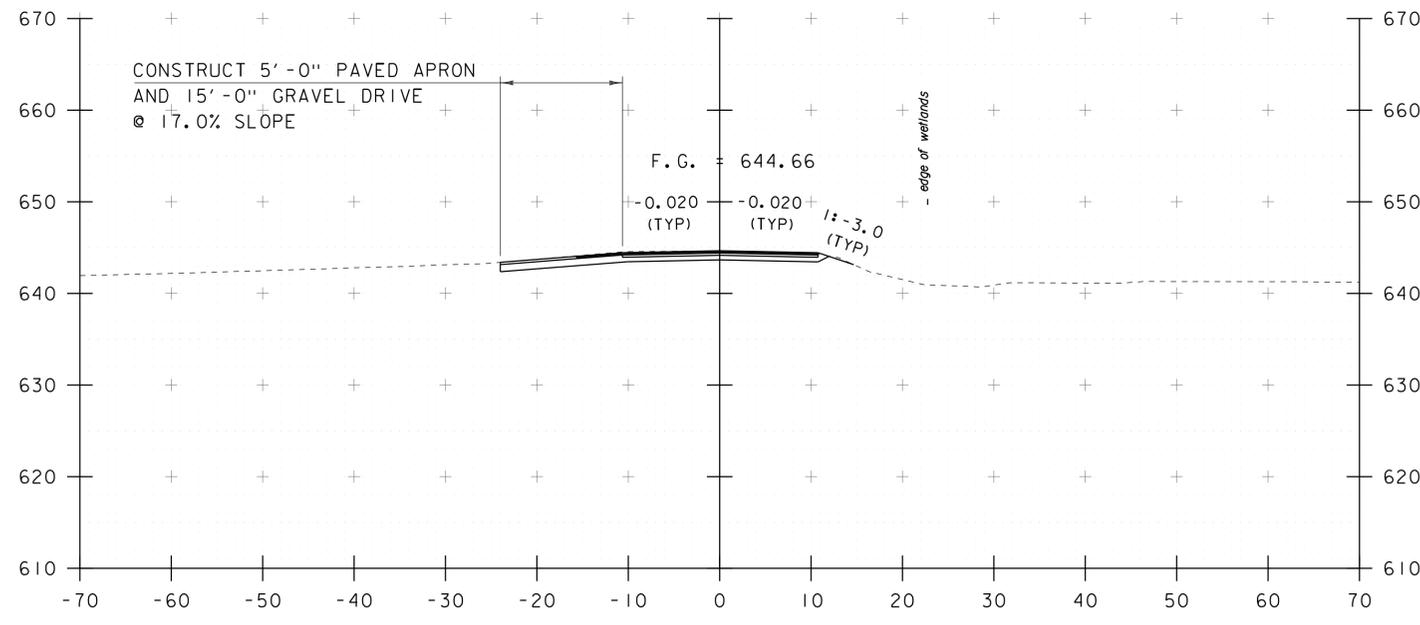
PROJECT NAME:	CLARENDON	PLOT DATE:	24-JUN-2015
PROJECT NUMBER:	BRO 1443(48)	DRAWN BY:	J. GRIGAS
FILE NAME:	sl2j160xs.dgn	DESIGNED BY:	J. GRIGAS
PROJECT LEADER:	K. HIGGINS	CHECKED BY:	G. LAROCHE
MAINLINE CROSS SECTIONS 3		SHEET	51 OF 58



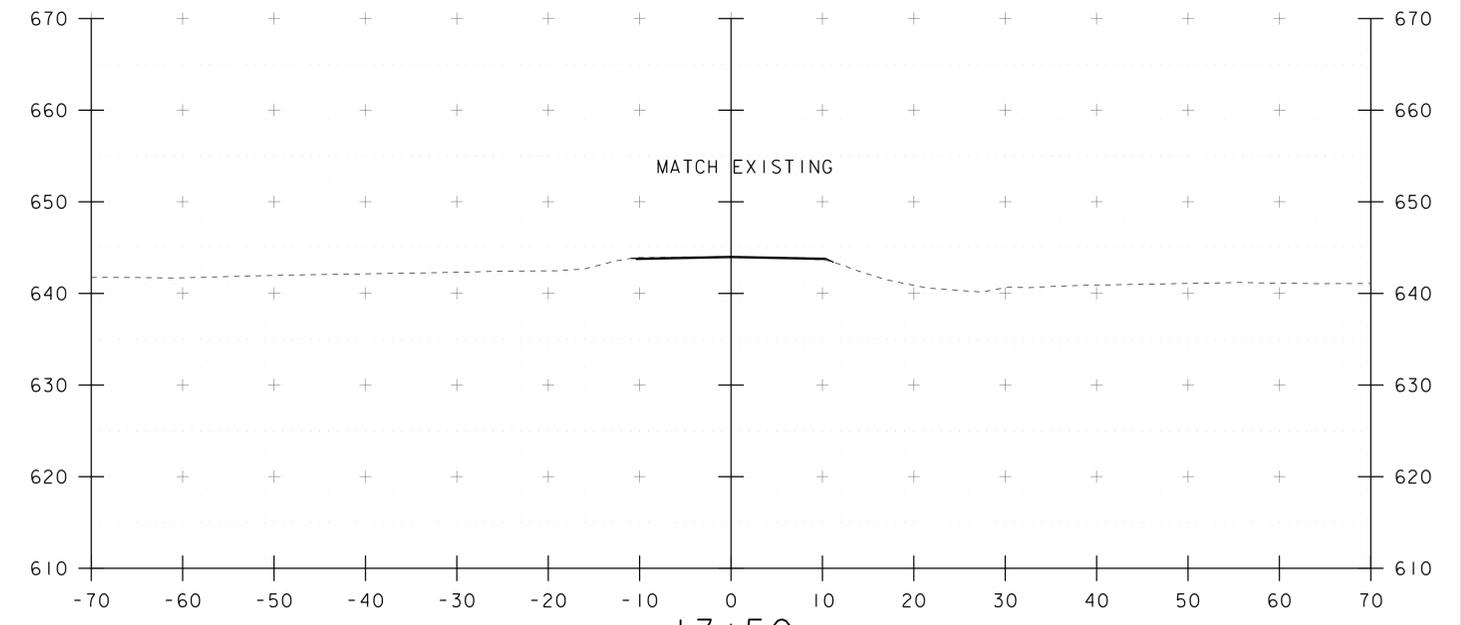
13+25



13+75



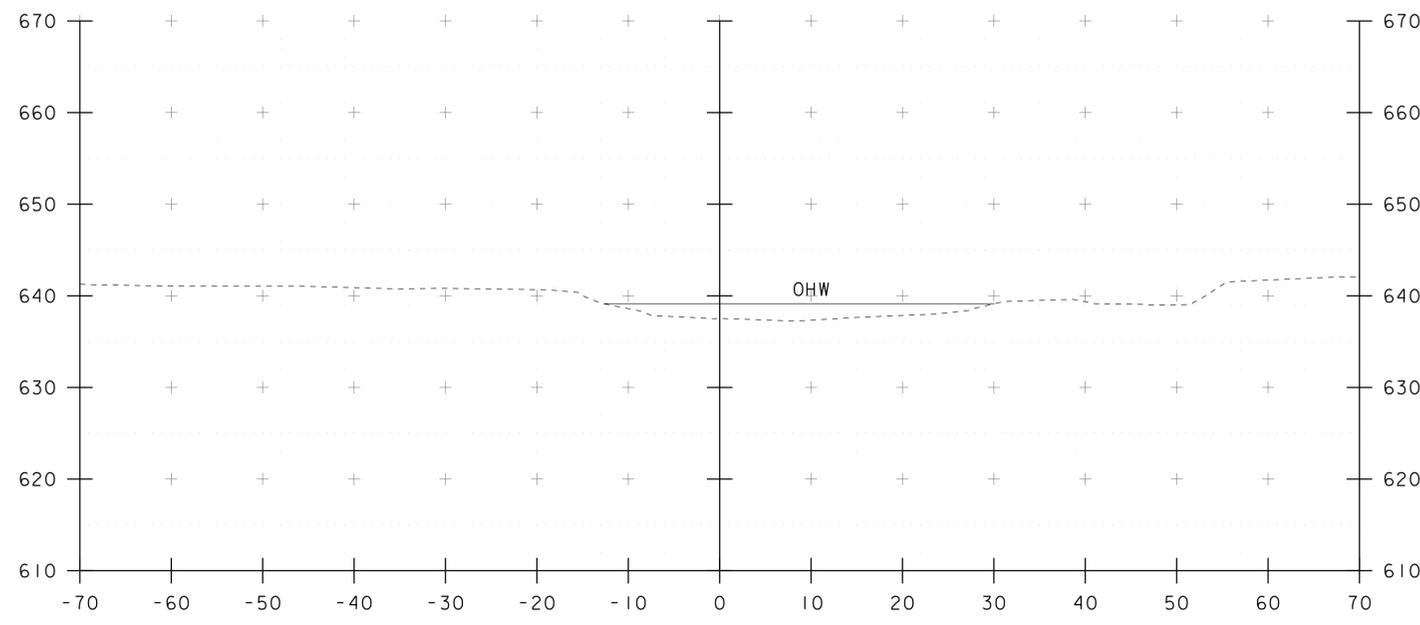
13+00



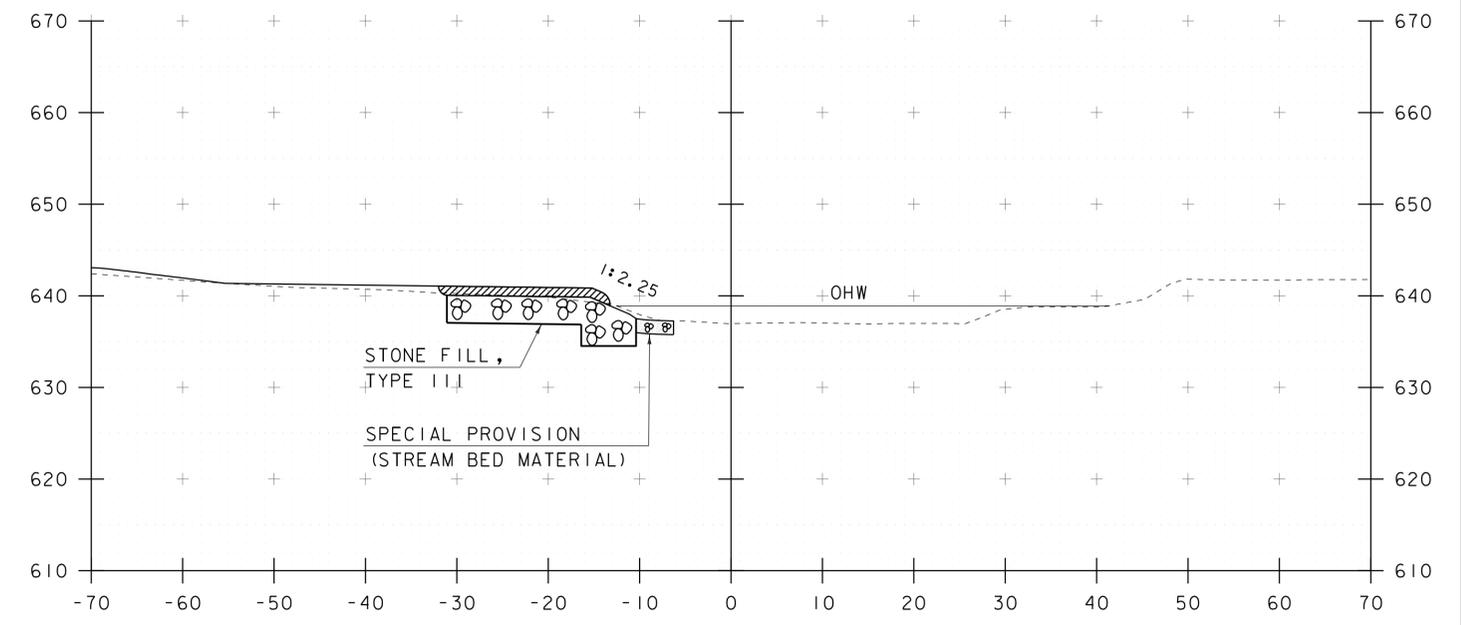
13+50  
END APPROACH

STA. 13+00 TO STA. 13+75

PROJECT NAME: CLARENDON	
PROJECT NUMBER: BRO 1443(48)	
FILE NAME: sl2j160xs.dgn	PLOT DATE: 24-JUN-2015
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. GRIGAS
DESIGNED BY: J. GRIGAS	CHECKED BY: G. LAROCHE
MAINLINE CROSS SECTIONS 4	SHEET 52 OF 58

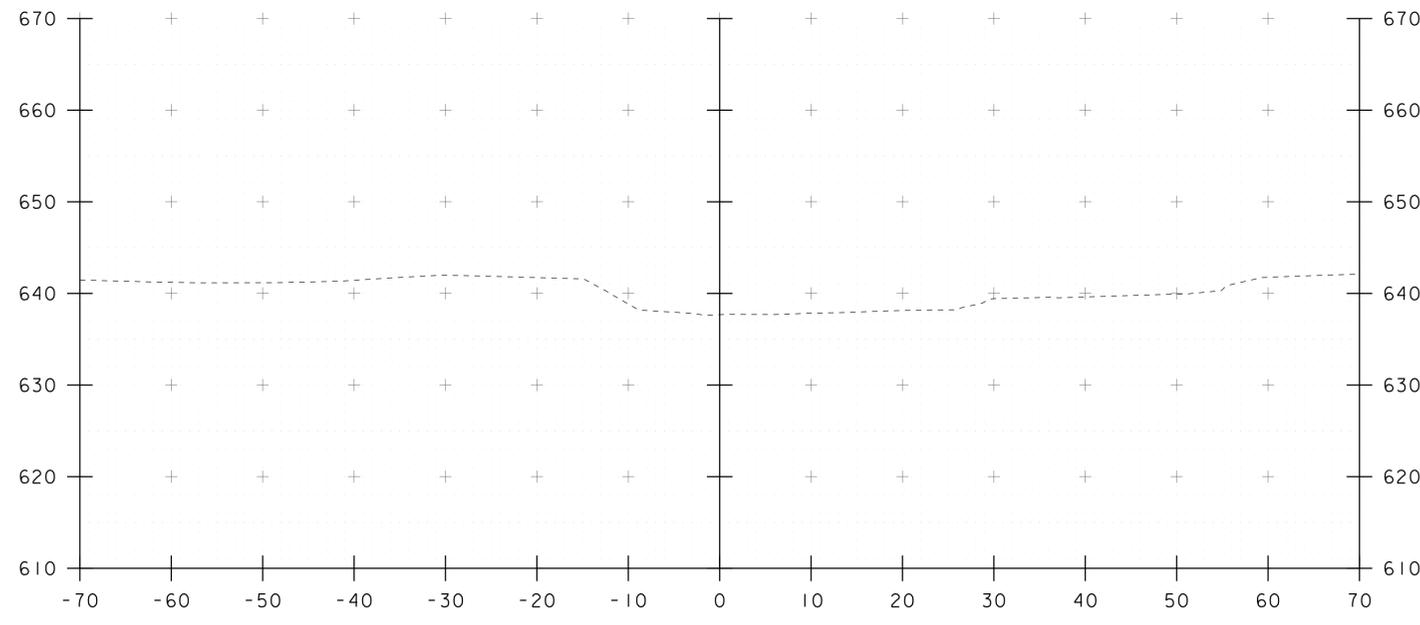


50+25

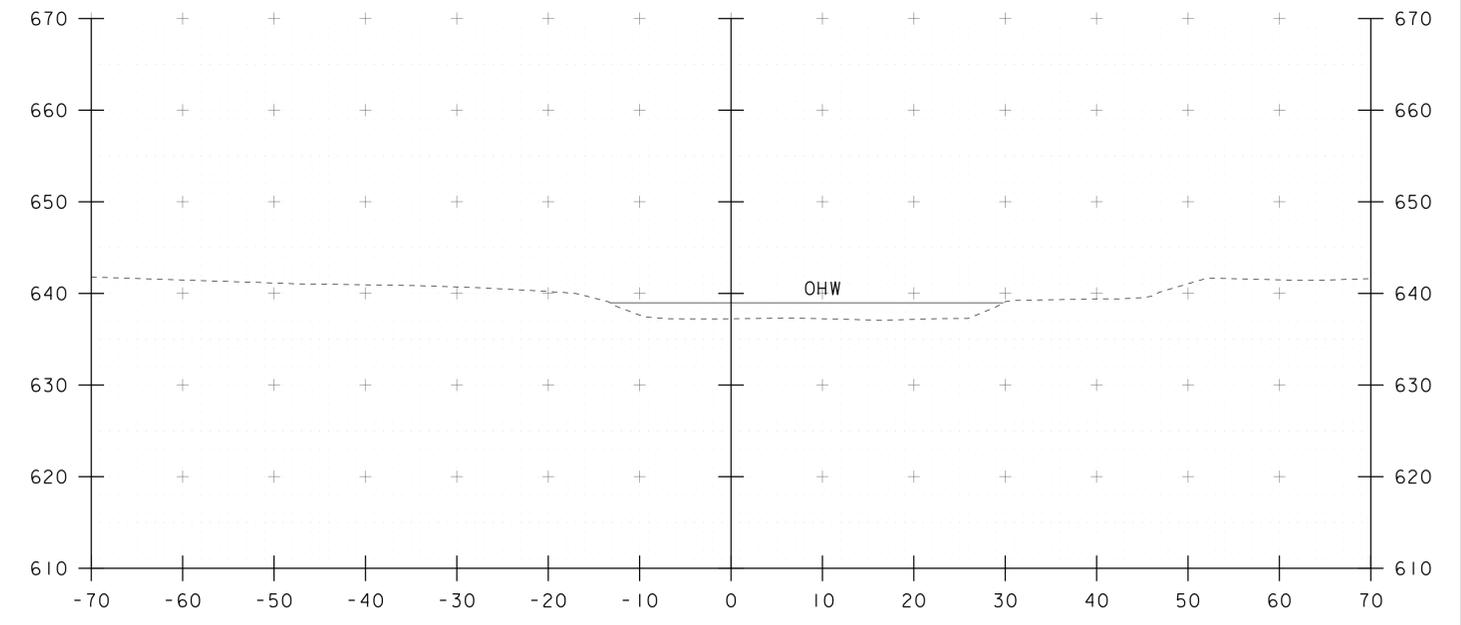


STA 50+50.00 LT  
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION  
 BEGIN GEOTEXTILE UNDER STONE FILL  
 BEGIN STONE FILL, TYPE III  
 BEGIN GRUBBING MATERIAL

50+60



50+00

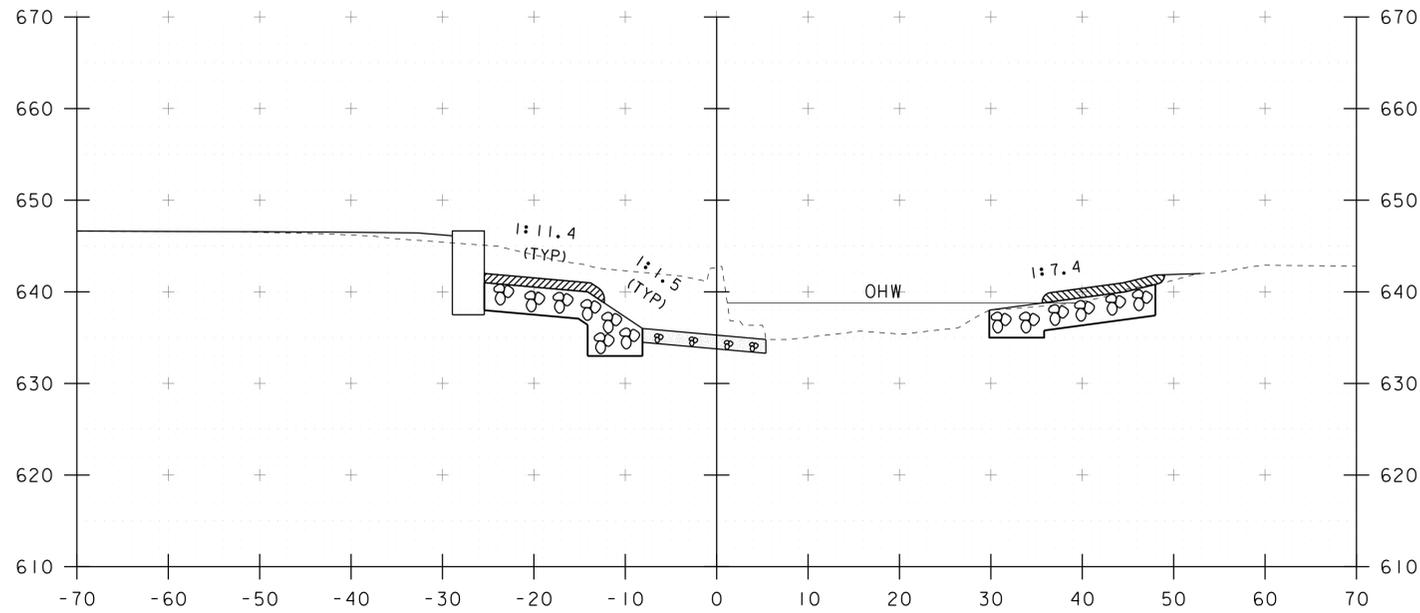


50+50

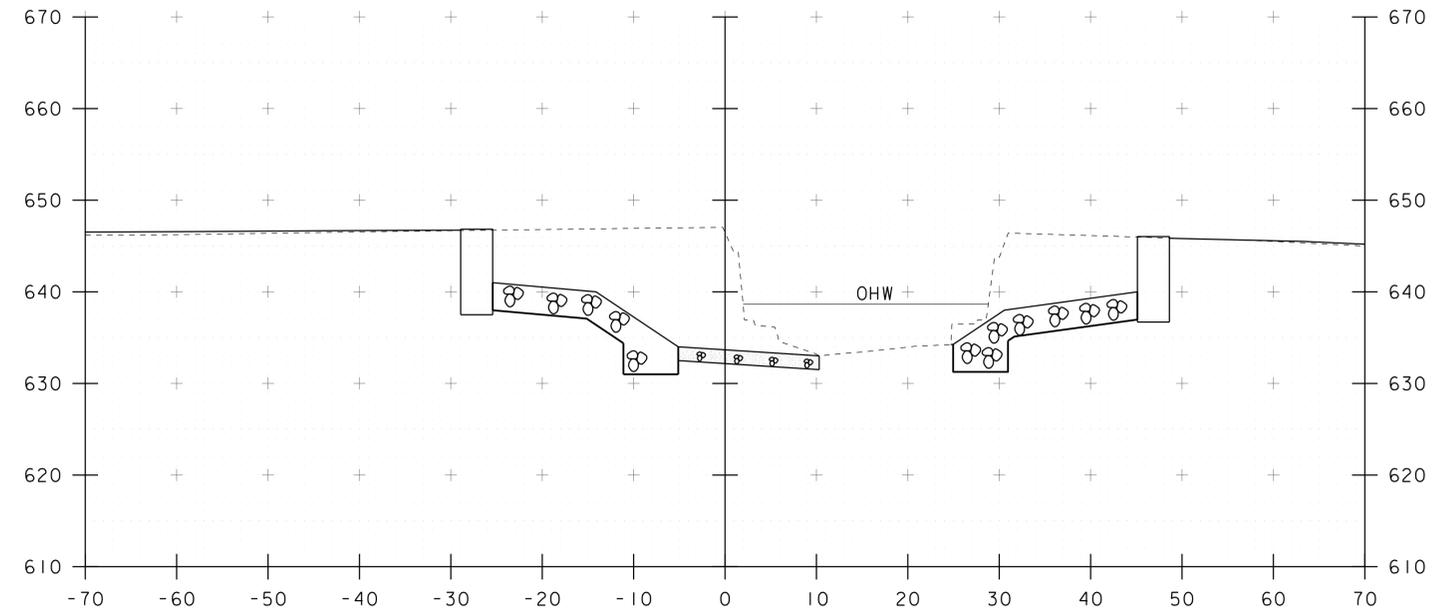
STA. 50+00 TO STA. 50+60

PROJECT NAME: CLARENDON	
PROJECT NUMBER: BRO 1443(48)	
FILE NAME: sl2j160xs.dgn	PLOT DATE: 24-JUN-2015
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. GRIGAS
DESIGNED BY: J. GRIGAS	CHECKED BY: G. LAROCHE
CHANNEL CROSS SECTIONS 1	SHEET 53 OF 58

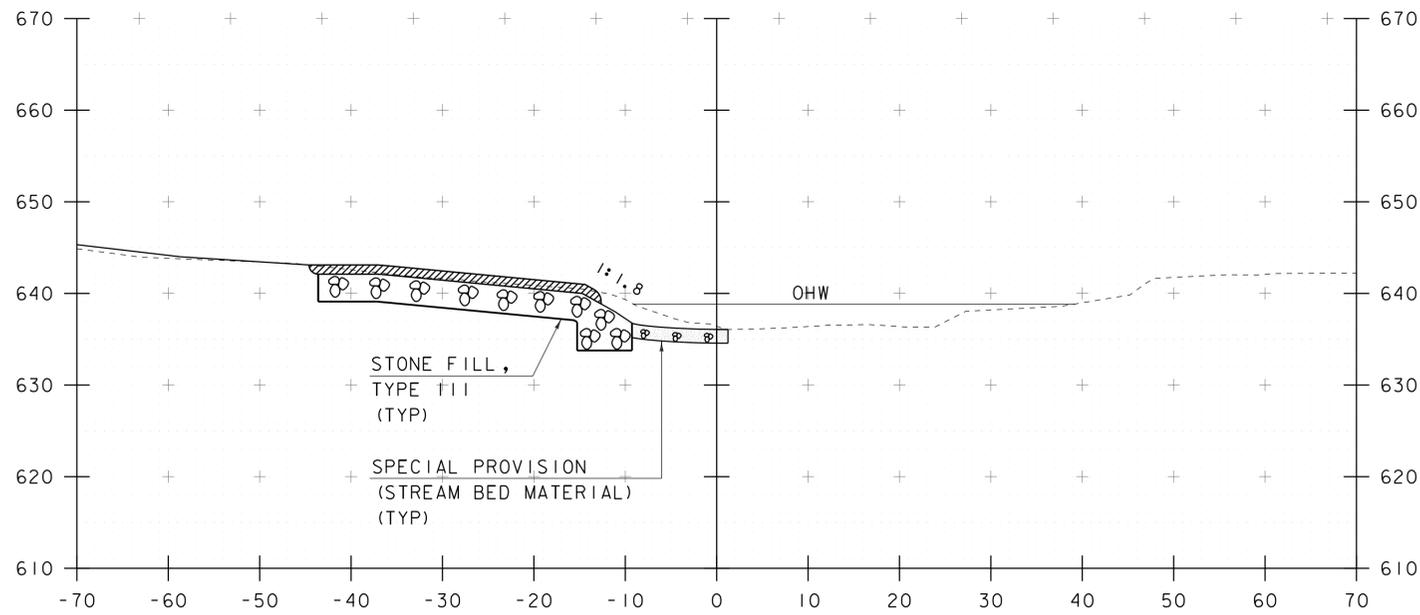
STA 50+82.00 LT  
END GRUBBING MATERIAL



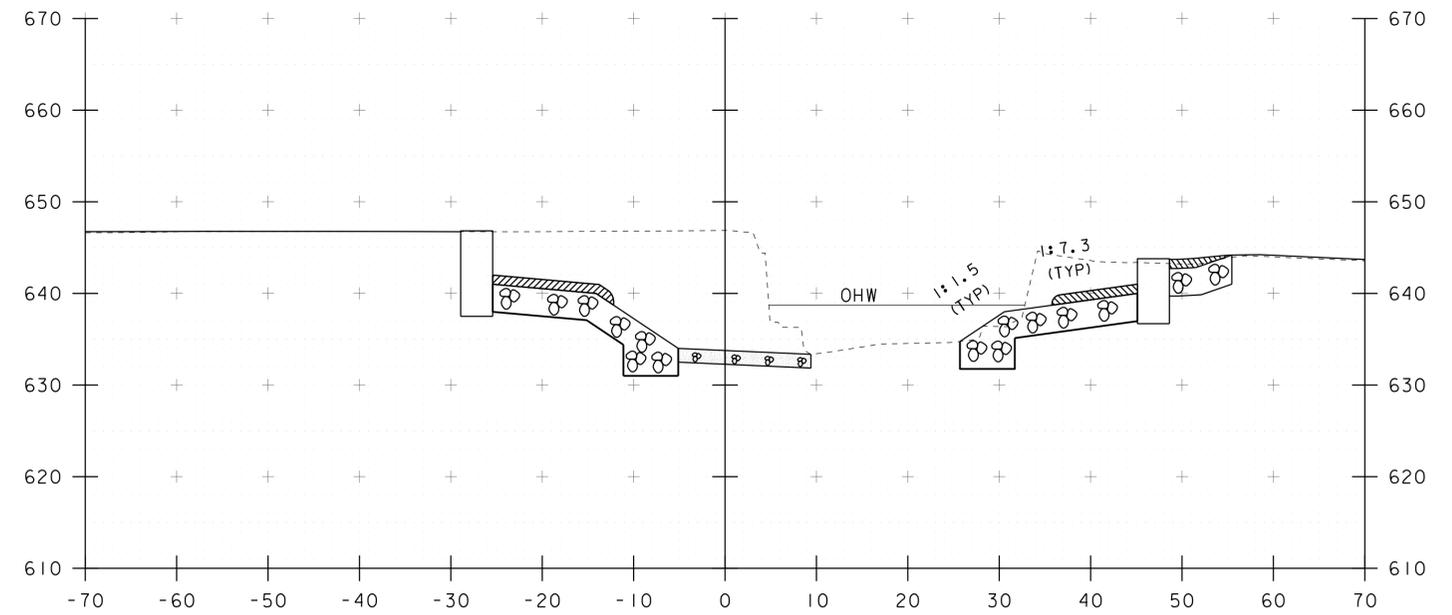
STA 51+07.70 LT  
BEGIN GRUBBING MATERIAL



50+80 STA 50+76.77 RT  
BEGIN UNCLASSIFIED CHANNEL EXCAVATION  
BEGIN GEOTEXTILE UNDER STONE FILL  
BEGIN STONE FILL, TYPE III  
BEGIN GRUBBING MATERIAL



51+00 STA 50+95.48 RT  
END GRUBBING MATERIAL

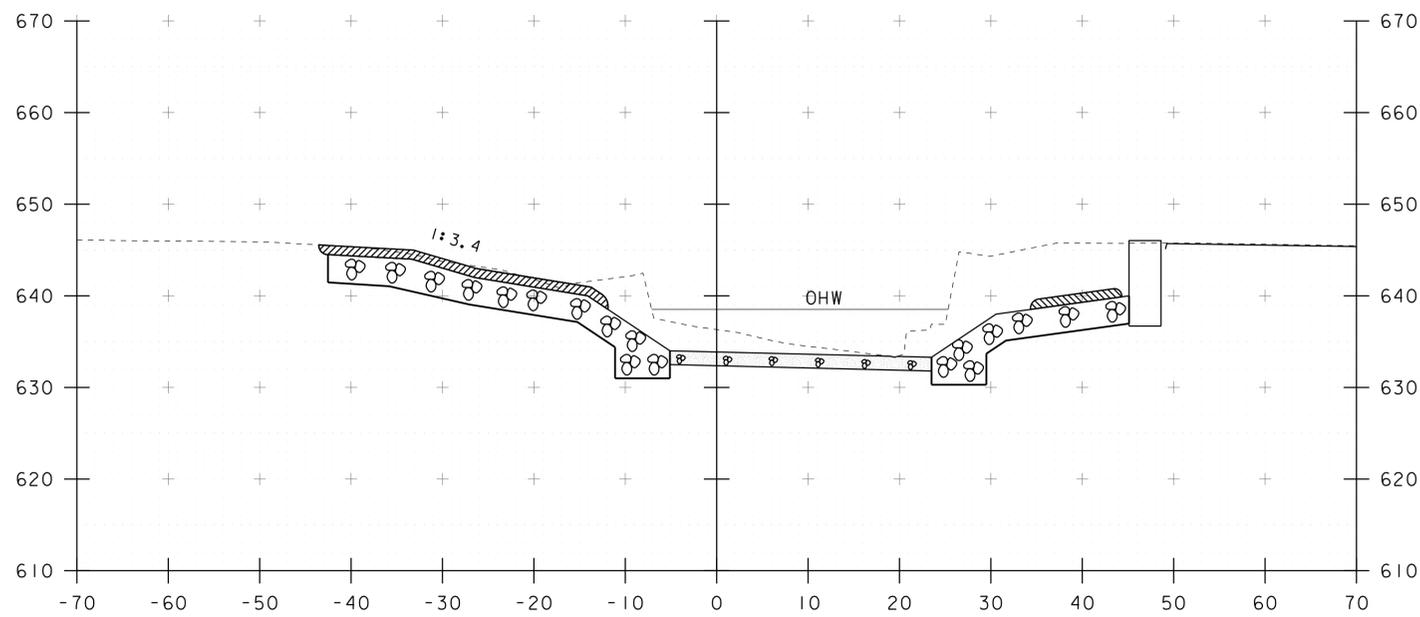


50+70

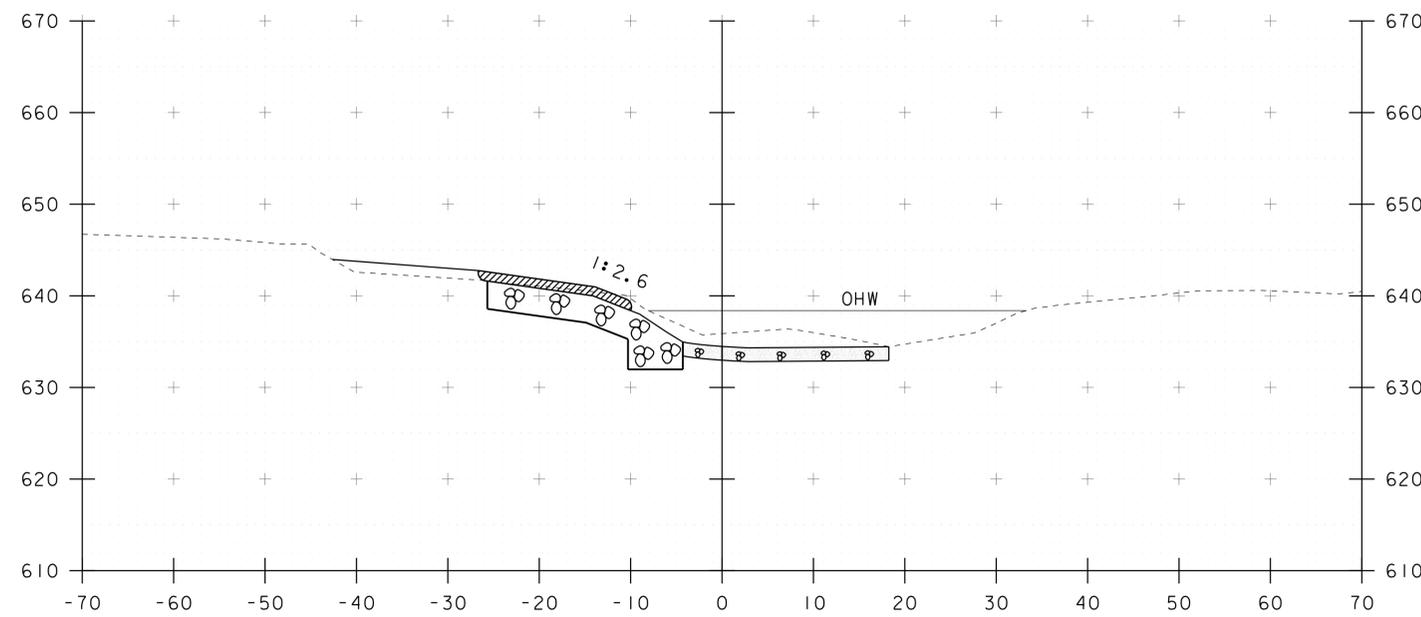
50+90

STA. 50+70 TO STA. 51+00

PROJECT NAME: CLARENDON	PLOT DATE: 24-JUN-2015
PROJECT NUMBER: BRO 1443(48)	DRAWN BY: J. GRIGAS
FILE NAME: sl2j160xs.dgn	CHECKED BY: G. LAROCHE
PROJECT LEADER: K. HIGGINS	SHEET 54 OF 58
DESIGNED BY: J. GRIGAS	
CHANNEL CROSS SECTIONS 2	

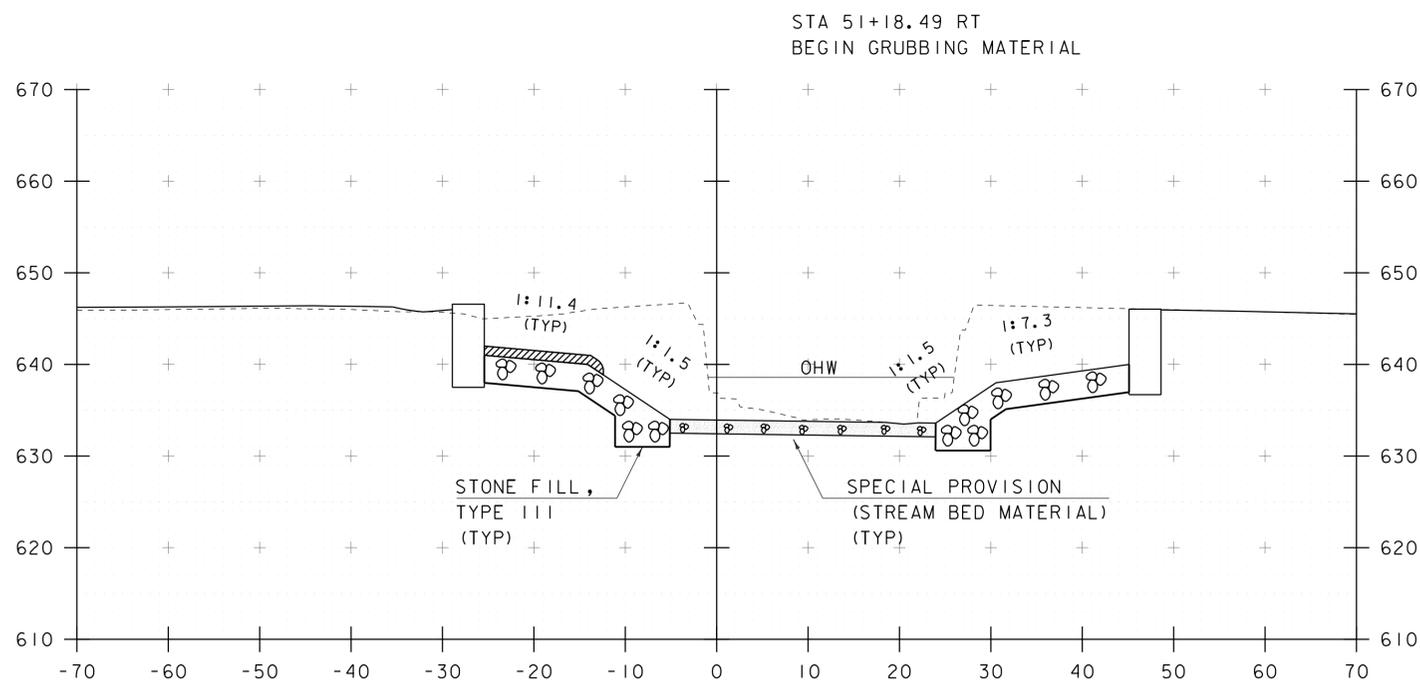


51+20

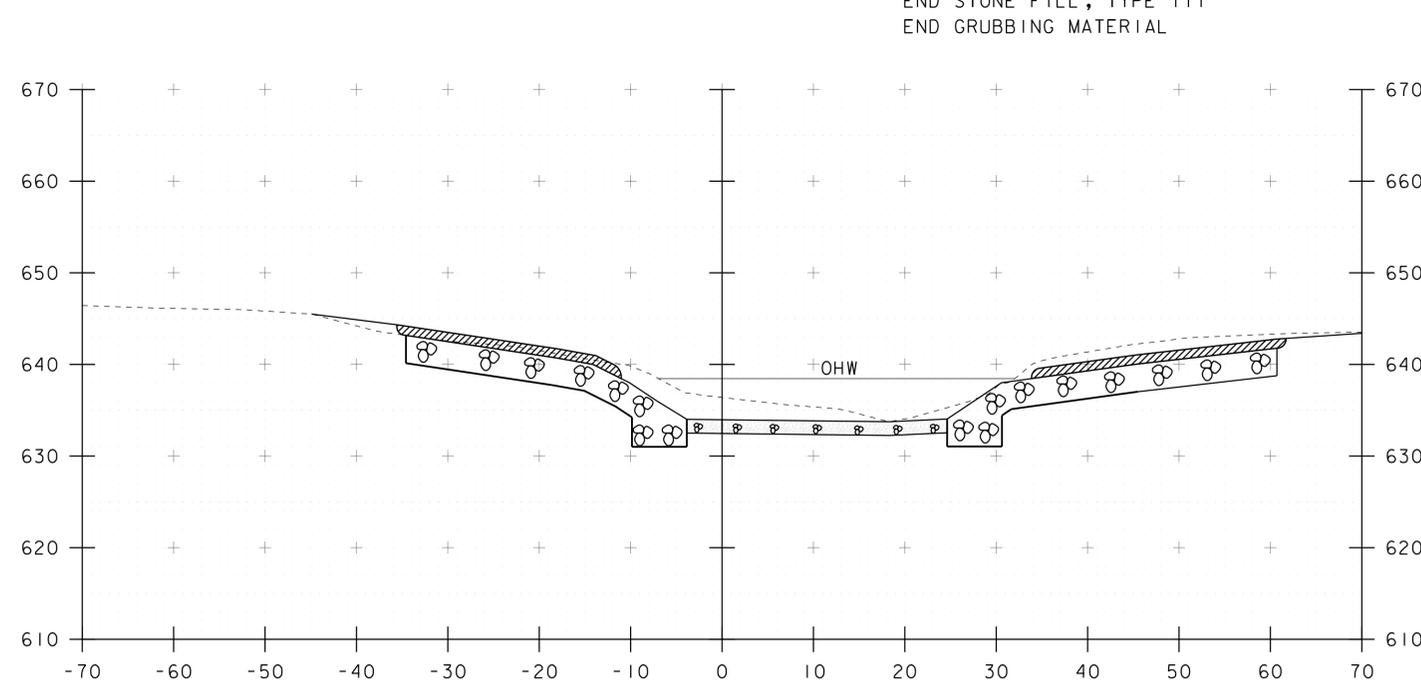


51+40

STA 51+39.73 RT  
 END UNCLASSIFIED CHANNEL EXCAVATION  
 END GEOTEXTILE UNDER STONE FILL  
 END STONE FILL, TYPE III  
 END GRUBBING MATERIAL



51+10



51+30

STA 51+18.49 RT  
 BEGIN GRUBBING MATERIAL

STONE FILL,  
 TYPE III  
 (TYP)

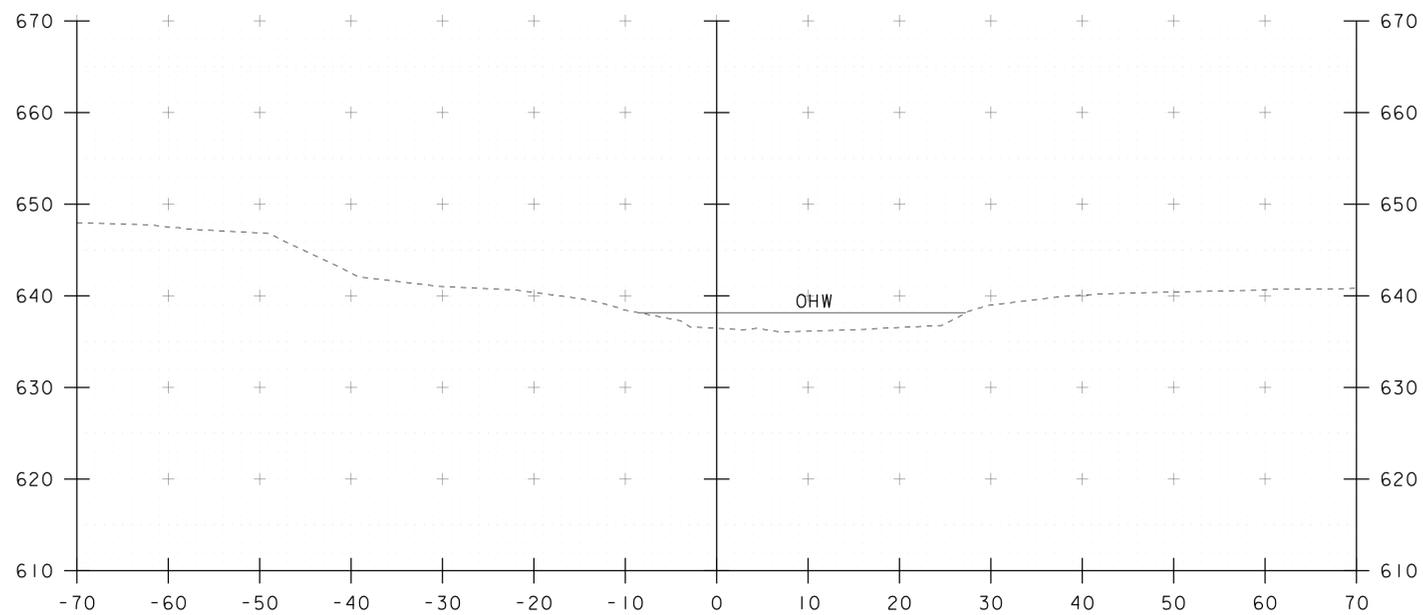
SPECIAL PROVISION  
 (STREAM BED MATERIAL)  
 (TYP)

STA. 51+10 TO STA. 51+40

PROJECT NAME: CLARENDON  
 PROJECT NUMBER: BRO 1443(48)

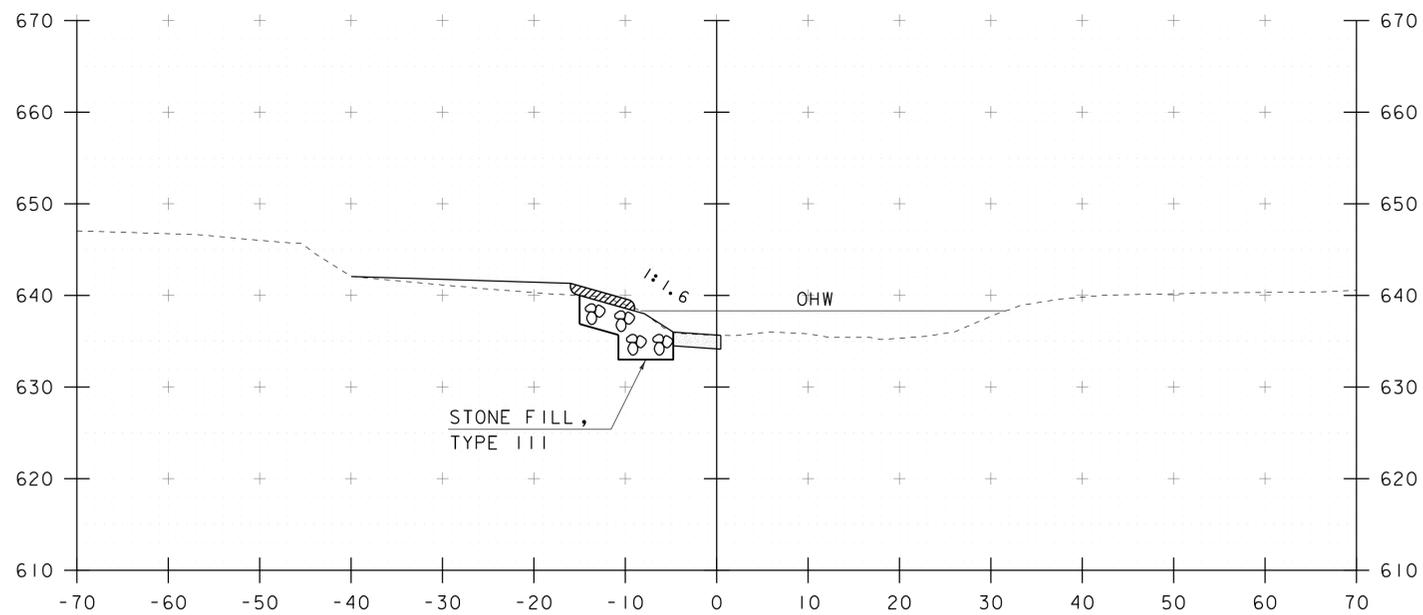
FILE NAME: sl2j160xs.dgn  
 PROJECT LEADER: K. HIGGINS  
 DESIGNED BY: J. GRIGAS  
 CHANNEL CROSS SECTIONS 3

PLOT DATE: 24-JUN-2015  
 DRAWN BY: J. GRIGAS  
 CHECKED BY: G. LAROCHE  
 SHEET 55 OF 58



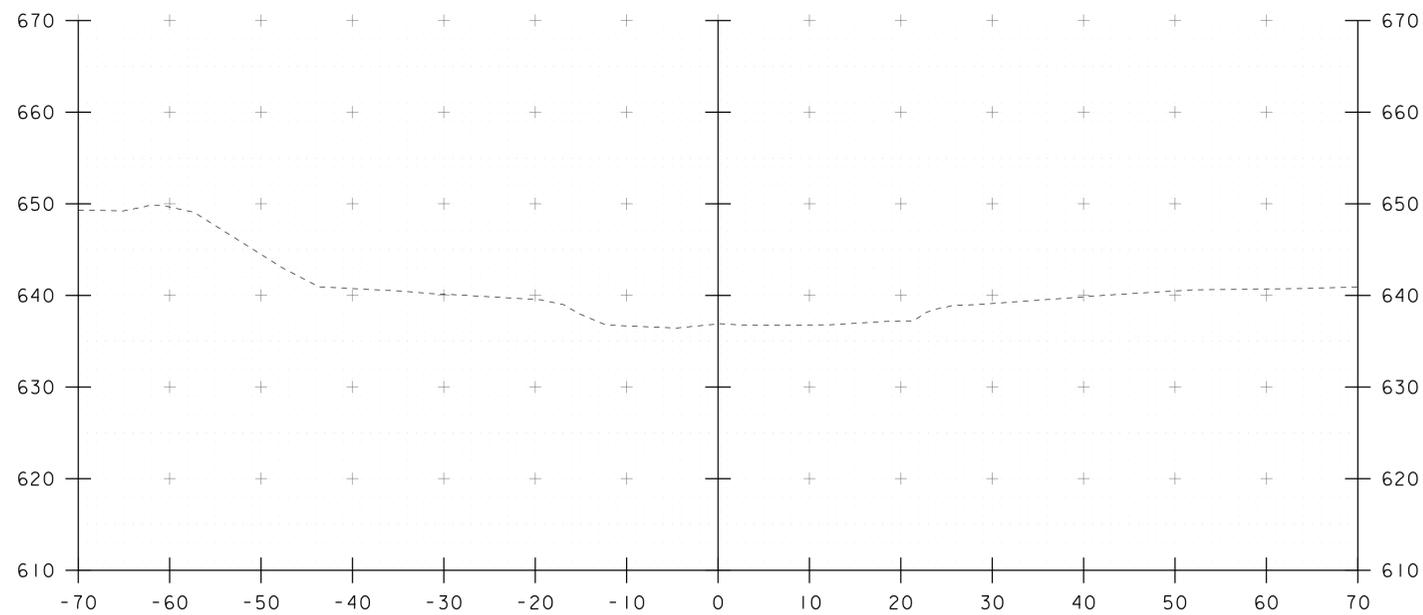
STA 51+51.35 LT  
 END UNCLASSIFIED CHANNEL EXCAVATION  
 END GEOTEXTILE UNDER STONE FILL  
 END STONE FILL, TYPE III  
 END GRUBBING MATERIAL

51+75



STONE FILL,  
 TYPE III

51+50



52+00

STA. 51+50 TO STA. 52+00

PROJECT NAME: CLARENDON  
 PROJECT NUMBER: BRO 1443(48)

FILE NAME: sl2j160xs.dgn  
 PROJECT LEADER: K. HIGGINS  
 DESIGNED BY: J. GRIGAS  
 CHANNEL CROSS SECTIONS 4

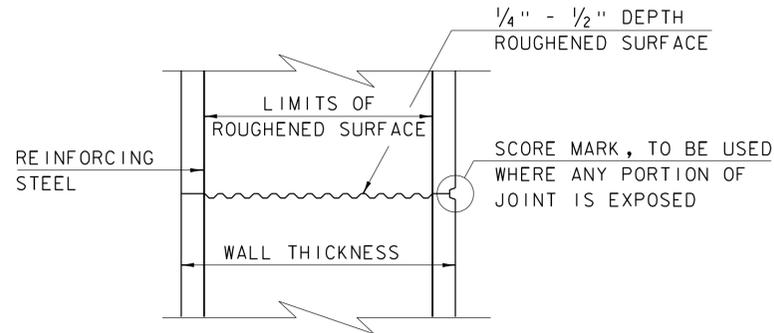
PLOT DATE: 24-JUN-2015  
 DRAWN BY: J. GRIGAS  
 CHECKED BY: G. LAROCHE  
 SHEET 56 OF 58





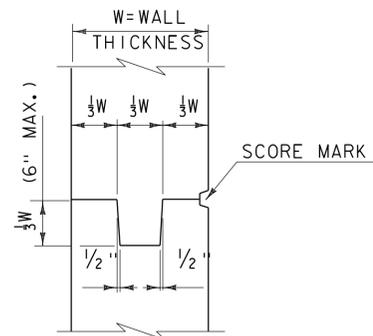
**CONCRETE GENERAL NOTES**

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.

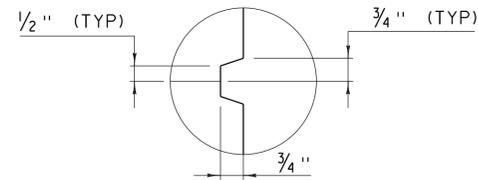


**TYPICAL HORIZONTAL CONSTRUCTION JOINT**  
(NOT TO SCALE)

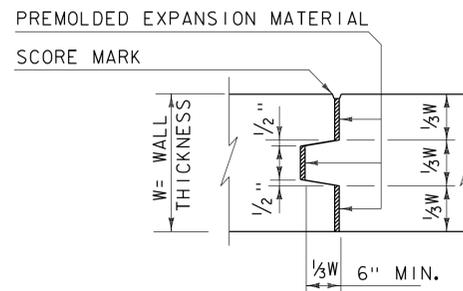
1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



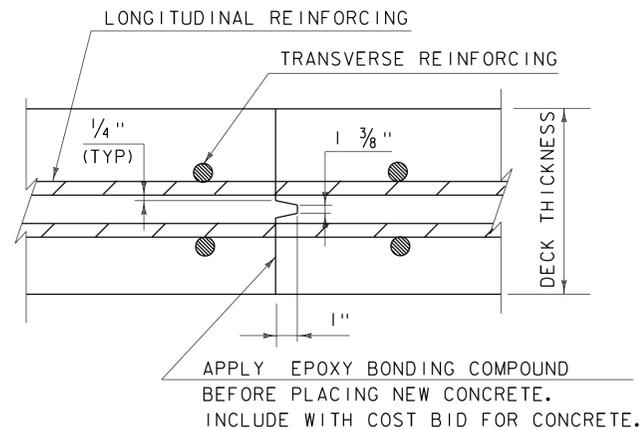
**TYPICAL CONCRETE CONSTRUCTION JOINT**  
(NOT TO SCALE)



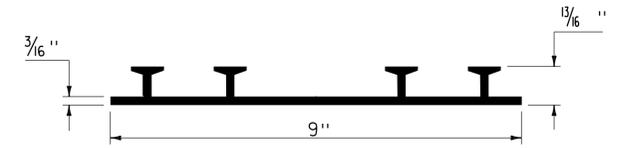
**SCORE MARK DETAIL**  
(NOT TO SCALE)



**TYPICAL CONCRETE EXPANSION JOINT**  
(NOT TO SCALE)



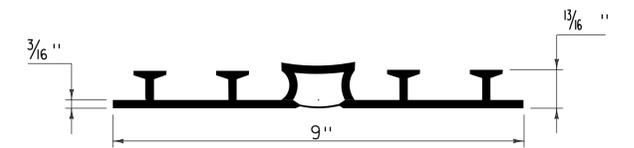
**TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS**  
(NOT TO SCALE)



**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.

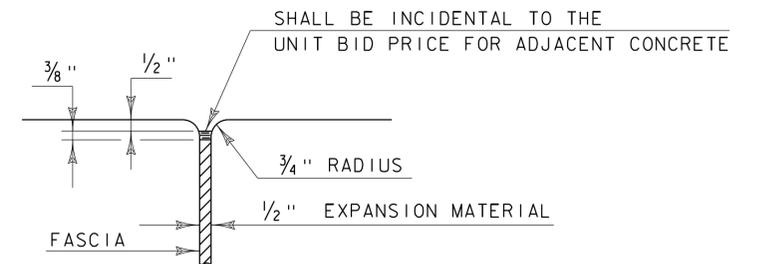
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



**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.

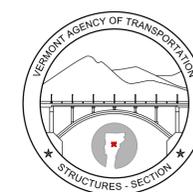
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



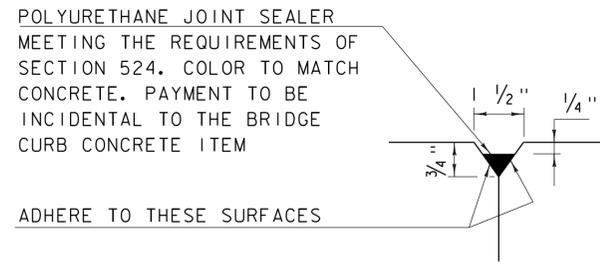
**JOINT BETWEEN FASCIA AND WINGWALL**  
(NOT TO SCALE)

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

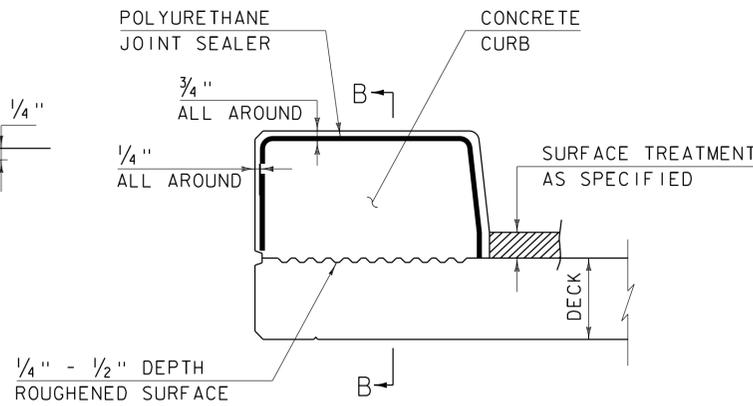
**CONCRETE  
DETAILS AND NOTES**



**STRUCTURES  
DETAIL  
SD-501.00**

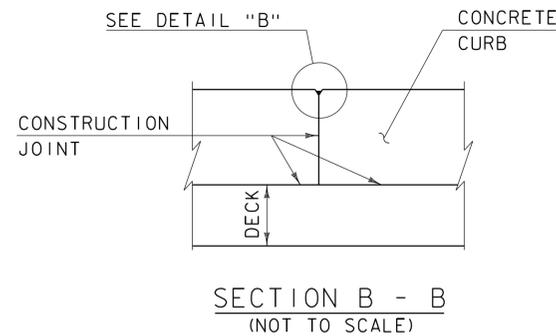


DETAIL "B"  
(NOT TO SCALE)

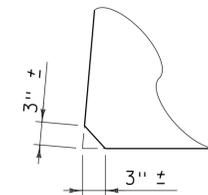


CONCRETE CURB JOINT SECTION  
(NOT TO SCALE)

1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



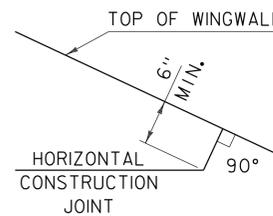
SECTION B - B  
(NOT TO SCALE)



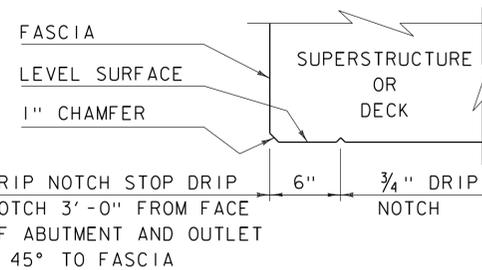
ACUTE ANGLE  
CLIP DETAIL  
(NOT TO SCALE)

CONCRETE CURB JOINT NOTES

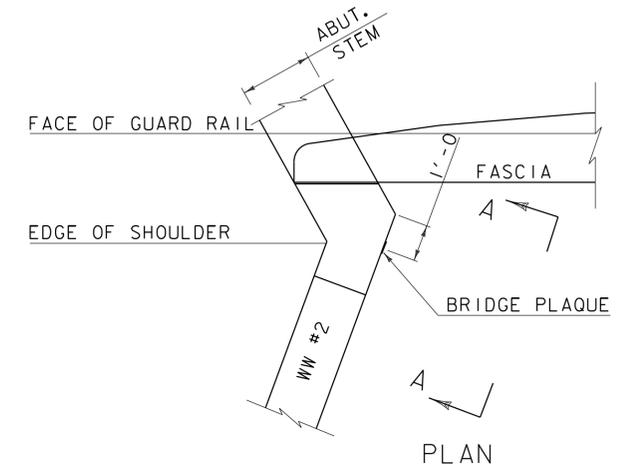
1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.
3. ON MULTI-SPAN CONTINUOUS SUPERSTRUCTURES, REGARDLESS OF WHETHER APPROVED SHRINKAGE REDUCING ADMIXTURE IS USED, CURB JOINTS SHALL BE LOCATED OVER THE CENTERLINE OF PIERS AND 7'-0" EACH SIDE OF THE CENTERLINE OF EACH PIER.
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.
5. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THROUGH CURB CONSTRUCTION JOINTS. CURB STIRRUP BARS SHALL BE TURNED AS NECESSARY TO MAINTAIN COVER IN THE FLARED CURB ENDS.
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



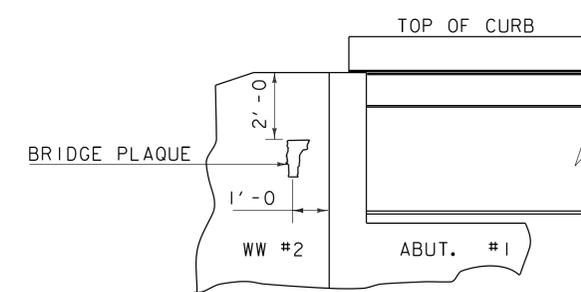
HORIZONTAL WINGWALL  
CONSTRUCTION JOINT  
(NOT TO SCALE)



DRIP NOTCH DETAIL  
(NOT TO SCALE)



PLAN



VIEW "A - A"

BRIDGE PLAQUE  
(NOT TO SCALE)

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

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

REVISIONS

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

CONCRETE  
DETAILS AND NOTES



STRUCTURES  
DETAIL  
SD-502.00

ASPHALTIC PLUG JOINT NOTES

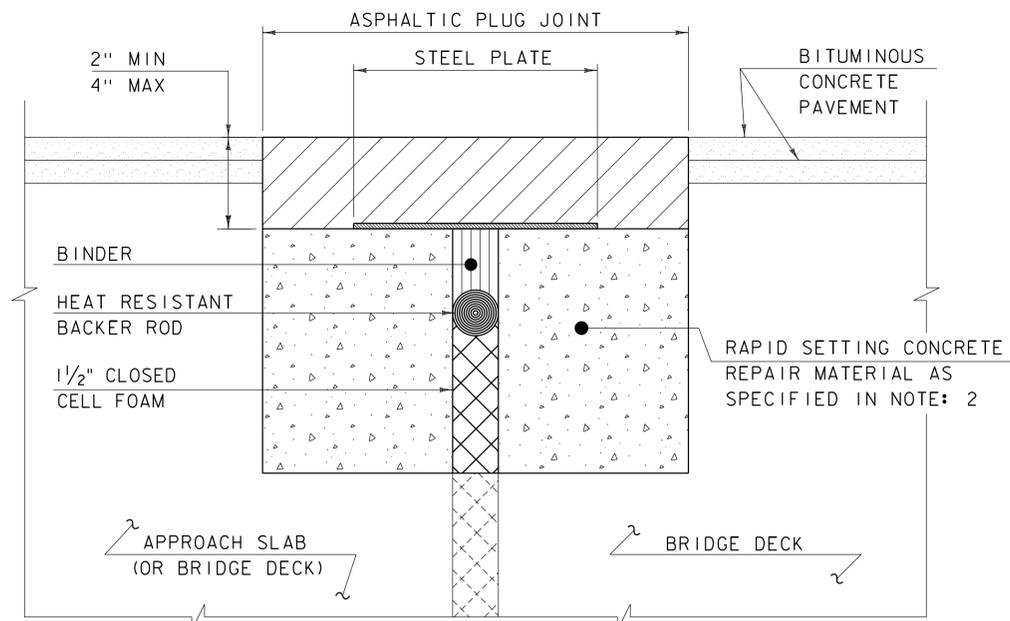
INSTALLATION:

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:

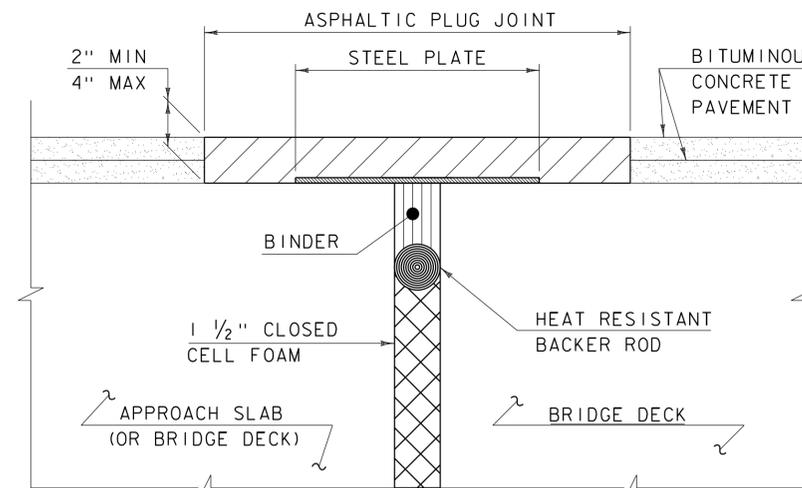
1. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.
2. THE ROAD SURFACE IS DRY.
3. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.



ASPHALTIC PLUG JOINT DETAIL - REHAB

NOTES:

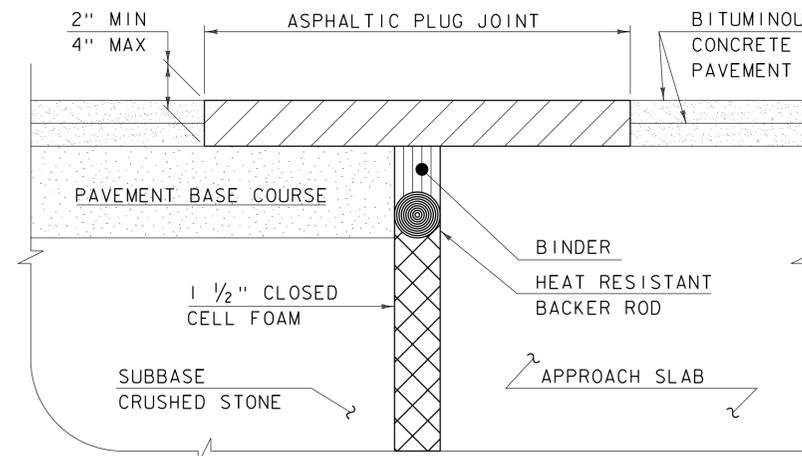
1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL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

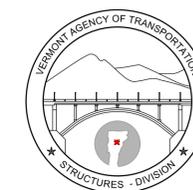


ASPHALTIC PLUG JOINT DETAIL "B" - NEW

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

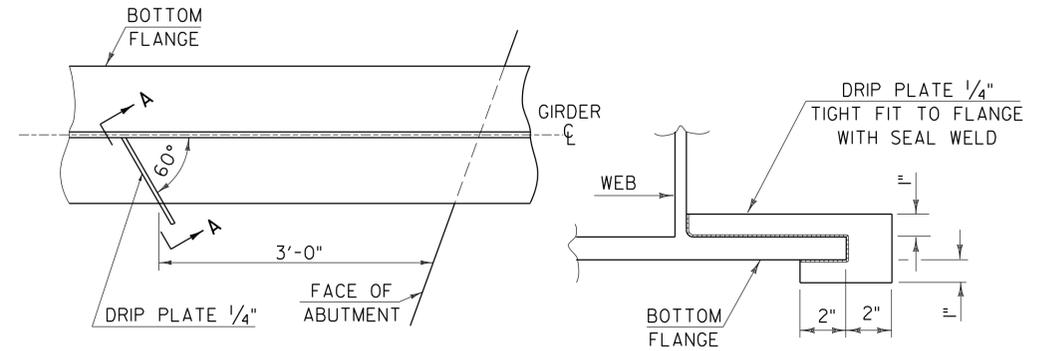
BRIDGE JOINT  
ASPHALTIC PLUG



STRUCTURES  
DETAIL  
SD-516.10

STRUCTURAL STEEL GENERAL NOTES:

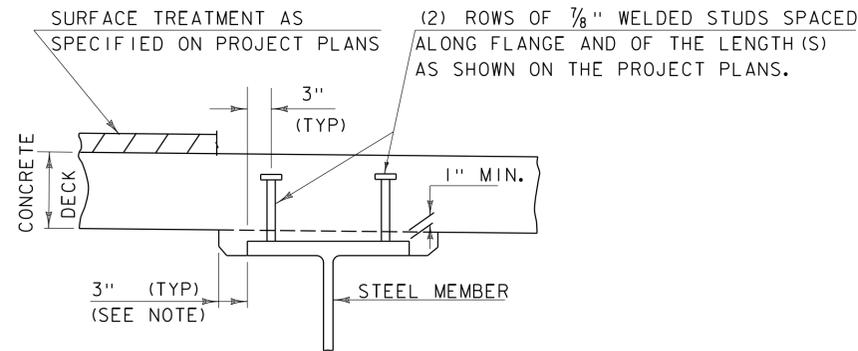
1. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH-STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SUBSECTION 506.I9, UNLESS OTHERWISE SPECIFIED.
2. ALL HOLES IN THE WEBS OF THE FASCIA GIRDERS THAT ARE NOT OTHERWISE FILLED, SHALL BE FILLED WITH EITHER BUTTON HEAD OR HEX HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.I9.
3. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.I0.
4. ANY CONNECTIONS THAT ARE NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
5. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.
6. ENDS OF GIRDERS ARE TO BE VERTICAL IN THEIR FINAL POSITION.
7. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF THE GIRDERS SHALL BE TAKEN AS DIRECTED BY THE RESIDENT ENGINEER FOR USE IN DETERMINING FINISHED GRADES.



PLAN DRIP PLATE

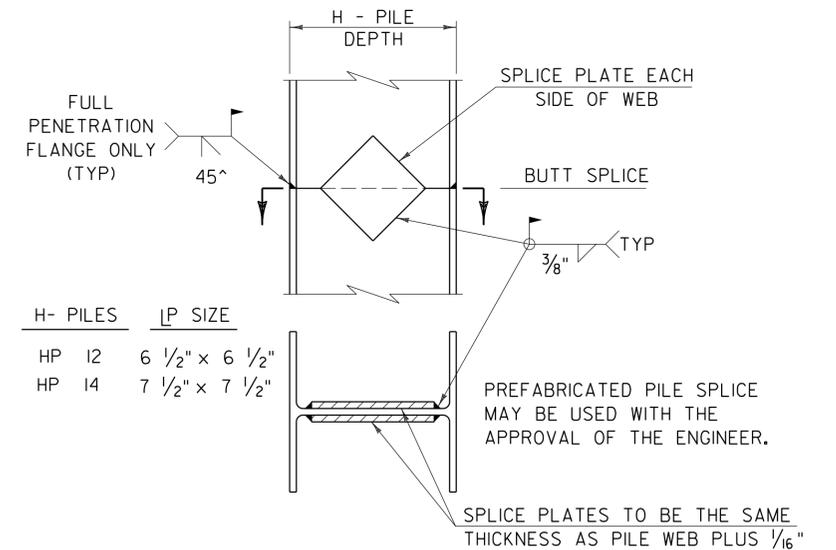
SECTION A - A

NOTE: DRIP PLATES SHALL BE PLACED ON OUTSIDE EDGE OF FASCIA GIRDERS ON THE HIGH SIDE OF ALL PIERS AND ABUTMENTS OR AS INDICATED ON PROJECT PLANS.



NOTE:  
THE 3" HORIZONTAL SECTION MAY BE ELIMINATED FOR FORMING SYSTEMS DESIGNED FOR THE CONSTRUCTION OF VERTICAL HAUNCHES. ANY VOIDS RESULTING FROM FORMING SYSTEM ELEMENTS SHALL BE FILLED WITH JOINT SEALER, POLYURETHANE MEETING THE REQUIREMENTS OF SECTION 524. THE COST OF THE JOINT SEALER, POLYURETHANE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

HAUNCH AND SHEAR CONNECTOR DETAIL

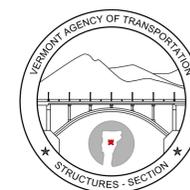


DETAIL OF PILE SPLICE

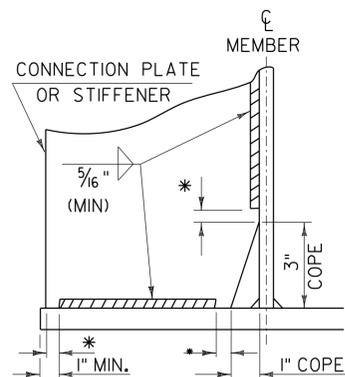
DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED NOTES

**STRUCTURAL STEEL  
DETAILS & NOTES**

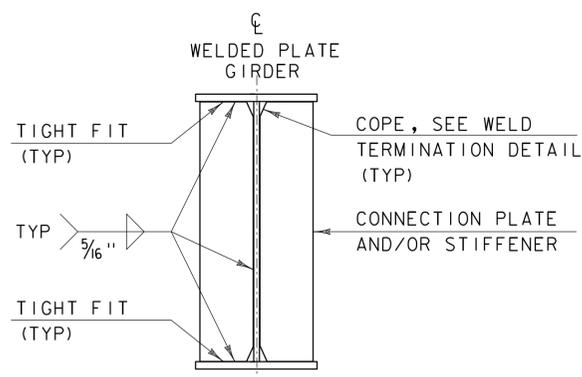


**STRUCTURES  
DETAIL  
SD-601.00**



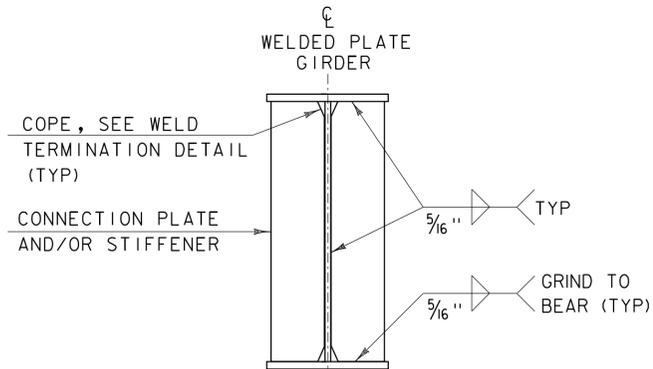
WELD TERMINATION AND COPING  
DETAILS FOR STEEL MEMBERS

\*NO WELD FOR 3/8" MIN. 7/8" MAX. (EXCEPT MUST MAINTAIN 1" MINIMUM FROM EDGE OF FLANGE)

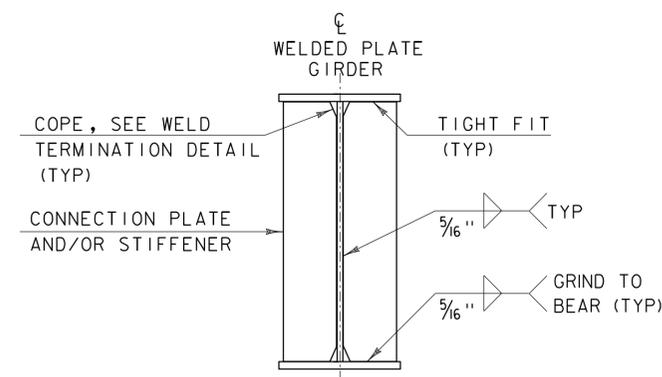


INTERMEDIATE CONNECTION PLATES  
AND/OR STIFFENERS FOR WELDED  
PLATE GIRDERS

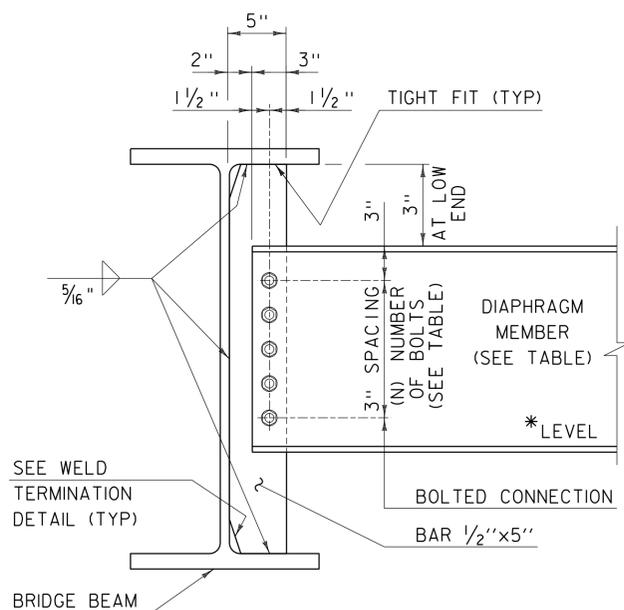
INTERMEDIATE DETAIL IS ONLY USED WHEN PLATE DOES NOT OCCUR AT AN ABUTMENT OR PIER.



ABUTMENT BEARING STIFFENERS  
AND/OR CONNECTION PLATES  
FOR WELDED PLATE GIRDERS



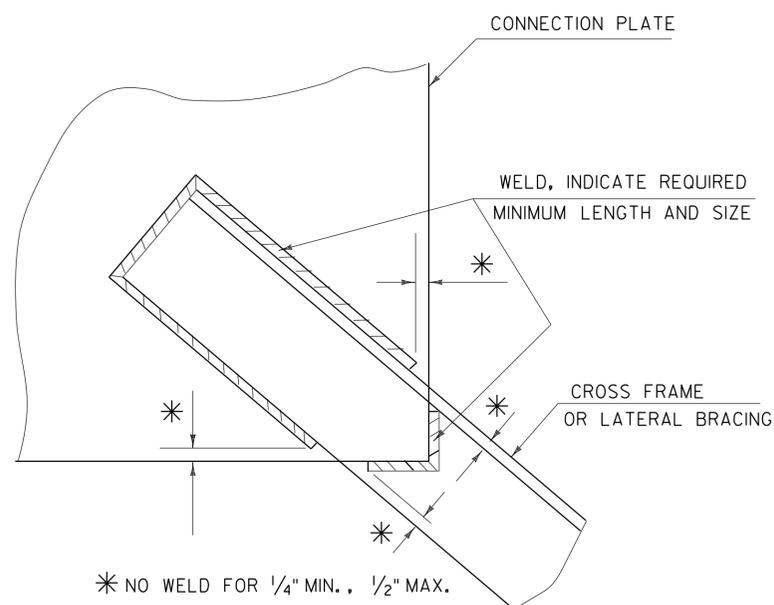
PIER BEARING STIFFENERS  
AND/OR CONNECTION PLATES  
FOR WELDED PLATE GIRDERS



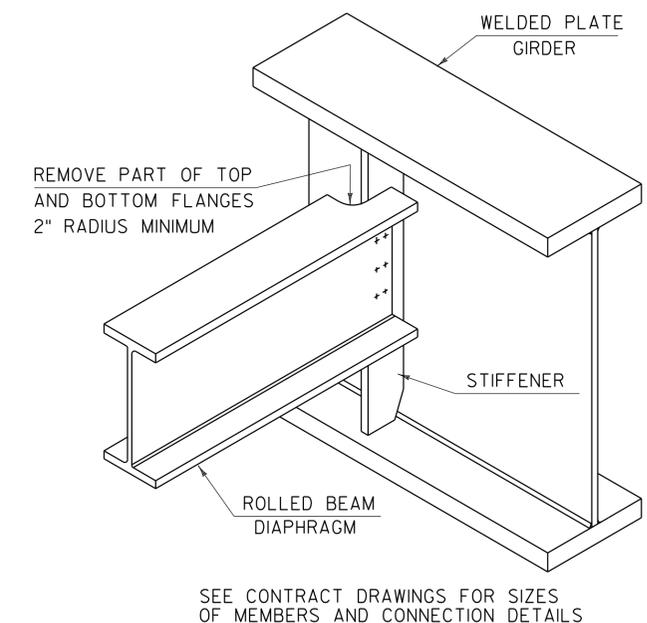
INTERMEDIATE DIAPHRAGMS  
FOR 24" TO 48" BRIDGE BEAMS

\* IF CLEARANCE CANNOT BE MET, DIAPHRAGM MAY BE SLOPED.

	DEPTH	DIAPHRAGM MEMBER	(N) BOLTS
ROLLED BEAM	24"	C15x33.9	4
	30"		
	31"	MC18x42.7	5
	36"		
PLATE GIRDER WEB	37"	W21x44	6
	42"		
	31"	W27x84	7
	36"		
37"	W33x118	9	
42"			
	43"	W36x135	10
	48"		



WELD LOCATION DETAIL AT CROSS  
FRAMES AND LATERAL BRACING

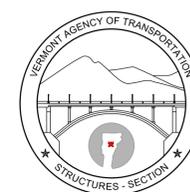


ROLLED BEAM USED AS DIAPHRAGM

DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
MAY 2, 2011	ADD INTERMEDIATE DIAPHRAGMS DETAIL & ADD NOT TO SCALE NOTE

# STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES



STRUCTURES  
DETAIL  
SD-602.00