STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version
LRFD

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REV	DATE	DESCRIPTION
1	10/13/15	SHEET ADDITIONS

AS BUILT "REBAR" DETAIL

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

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2015	4100	610	55	6.2	230
2035	4400	650	55	10.1	400

20 year ESAL for flexible pavement from 2015 to 2035 : 1143000

40 year ESAL for flexible pavement from 2015 to 2055 : 2684000

Design Speed : 40 mph

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: February 2015

DRAINAGE AREA : 56. 2 sq. mi.
CHARACTER OF TERRAIN : Mountainous, rural, mix of woods and meadow
STREAM CHARACTERISTICS : Sinuous, incised, alluvial
NATURE OF STREAMBED : Sand and gravel

PEAK FLOW DATA

Q 2.33 =	2975 cfs	Q 50 =	8550 cfs
Q 10 =	5250 cfs	Q 100 =	10,300 cfs
Q 25 =	6950 cfs	Q 500 =	15,450 cfs

DATE OF FLOOD OF RECORD: Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q50 = 8.0 fps
ICE CONDITIONS : Moderate
DEBRIS: Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes
IS ORDINARY RISE RAPID? Yes
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
IF YES, DESCRIBE:

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: 2-span continuous rolled beam bridge
YEAR BUILT: 1938
CLEAR SPAN(NORMAL TO STREAM): 122' - 6' pier = 116'
VERTICAL CLEARANCE ABOVE STREAMBED: ~16'
WATERWAY OF FULL OPENING: 1760 sq. ft.
DISPOSITION OF STRUCTURE: Remove and replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	713.6'	VELOCITY =	6.0 fps
Q10 =	716.5'	"	6.8 fps
Q25 =	717.8'	"	7.8 fps
Q50 =	719.0'	"	8.6 fps
Q100 =	720.1'	"	9.5 fps

LONG TERM STREAMBED CHANGES: Some undermining during high flows and scour hole through the bridge

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 725.9'
DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Waitsfield — DISTANCE: 8960'
HIGHWAY # : TH 29 — STRUCTURE #: 22
CLEAR SPAN: 57' — CLEAR HEIGHT:
YEAR BUILT: 1999 — FULL WATERWAY:
STRUCTURE TYPE: Welded pony truss

DOWNSTRUCTURE STRUCTURE

TOWN: Waitsfield — DISTANCE: 7970'
HIGHWAY # : TH 1 — STRUCTURE #: CB 4
CLEAR SPAN: 99' — CLEAR HEIGHT:
YEAR BUILT: 1833, reconstructed 1973 — FULL WATERWAY:
STRUCTURE TYPE: King post wooden covered bridge

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE	**20**	**36**	**36**	**66**	**30**	**34.5**	**38**
INVENTORY	1.94	1.46					
POSTING							
OPERATING	2.52	1.89	2.62	1.54	2.81	2.47	2.4
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge

CLEAR SPAN(NORMAL TO STREAM): 134'
VERTICAL CLEARANCE ABOVE STREAMBED: ~14'
WATERWAY OF FULL OPENING: 1575 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	713.5'	VELOCITY=	6.1 fps
Q10 =	716.5'	"	6.9 fps
Q25 =	717.7'	"	7.9 fps
Q50 =	718.9'	"	8.6 fps
Q100 =	720.0'	"	9.5 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 725.9'
DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 722.0'
VERTICAL CLEARANCE: @ Q50 = 3.1'

SCOUR: Contraction scour 0' up to Q200

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	115 cfs	
ORDINARY LOW WATER:	55 cfs	DEPTH OR ELEVATION: ~709'
ORDINARY HIGH WATER:	1280 cfs	~712'

TEMPORARY BRIDGE REQUIREMENTS

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

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

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

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	0.0 INCH
3. DESIGN SPAN	L:	172.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	---
5. PRESTRESSING STRAND	f_y:	---
6. PRECAST CONCRETE STRUCTURE	f'_c:	5.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	---
8. SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)	f'_c:	5.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11. SPECIAL PROVISION (ULTRA HIGH PERFORMANCE CONCRETE)(FPQ)	f'_c:	14.5 KSI
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)	f_y:	50 KSI
14. SOIL UNIT WEIGHT	γ:	0.140 KSI
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	70.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
19. PILE YIELD STRENGTH ASTM A572	f_y:	50 KSI
20. PILE SIZE		HP 14x89
20. ESTIMATED PILE LENGTH	L_p:	50 FT
21. NOMINAL AXIAL PILE RESISTANCE (SEE PROJECT NOTES)		---
22. LATERAL PILE DEFLECTION	Δ:	0.50 INCH
23. BASIC WIND SPEED	V_{3s}:	100 MPH
24. MINIMUM GROUND SNOW LOAD	p_g:	---
25. SEISMIC DATA PGA: ---	S_s:	---
26.		---
27.		---
28.		---

PROJECT NAME: **WAITSFIELD**
PROJECT NUMBER: **BF 013-4(39)**

FILE NAME: **z12b136quantity.xlsm**
PROJECT LEADER: **R.YOUNG**
DESIGNED BY: **VTRANS/D.KULL**
PRELIMINARY INFORMATION SHEET 1

PLOT DATE: 10/13/2015
DRAWN BY: **S. MERKWAN**
CHECKED BY: **T.KENDRICK**

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROJECT NOTES

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT, AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, LRFD SIXTH EDITION, DATED 2012 AND ITS LATEST REVISIONS.

2. THE BRIDGE IS DESIGNED FOR HL-93 LIVE LOADING.

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

4. ITEM 529.15, "REMOVAL OF STRUCTURE" WILL INCLUDE THE REMOVAL AND DISPOSAL OF THE EXISTING STRUCTURE INCLUDING THE ENTIRE SUPERSTRUCTURE, AND \THE EXISTING PIER TO THE TOP OF ITS FOOTING.

5. ABUTMENT 1 SHALL BE REMOVED TO ELEVATION 720. THE COST FOR REMOVAL OF ABUTMENT 1 SHALL BE INCLUDED IN ITEM 203.27 UNCLASSIFIED CHANNEL EXCAVATION.

6. ABUTMENT 2 SHALL BE REMOVED TO ELEVATION 711. THE COST FOR REMOVAL OF ABUTMENT 2 WILL BE INCLUDED IN ITEM 204.25 STRUCTURE EXCAVATION.

7. THE EXISTING STRUCTURAL STEEL IS PAINTED WITH A MATERIAL THAT MAY CONTAIN LEAD. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE REGULATIONS WHEN HANDLING AND WORKING WITH THIS STEEL. THE REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE, ITS OFFICERS, AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSAL OF THE REMOVED EXISTING STRUCTURAL STEEL.

8. ALL PRECAST CONCRETE ELEMENTS SHALL 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.

9. FOR TRAFFIC CONTROL NOTES, SEE SHEET 17.

EARTHWORK

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

11. THE STONE FILL TYPE III UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE STEEL GIRDERS ARE SET.

12. AT ABUTMENT NO. 1, THE FILL BEHIND THE ABUTMENTS SHALL NOT BE PLACED ABOVE THE LEVEL OF THE BRIDGE SEAT UNTIL THE GIRDERS ARE SET ON THE BRIDGE SEAT.

13. AT ABUTMENT NO. 2, THE MSE ABUTMENT BACKFILL SECTION SHALL BE PLACED TO THE UPPER PAY LIMIT OF THE ITEM PRIOR TO SETTING THE GIRDERS ON THE BRIDGE SEAT.

14. GUARDRAIL APPROACH RAIL AND STEEL BEAM GUARDRAIL SHALL BE CORED INTO ROCK WHERE REQUIRED AS DIRECTED BY AND TO THE SATISFACTION OF THE ENGINEER. ALL ASSOCIATED COSTS WILL BE INCLUDED IN THE UNIT BID PRICE FOR THE APPROPRIATE RAIL ITEM.

CONCRETE

15. ALL CONCRETE PLACED IN THE TRANSVERSE AND LONGITUDINAL CLOSURE POURS OF THE DECK AND END OF DECK PANELS AT EXPANSION JOINT WILL BE ITEM 900.608 SPECIAL PROVISION (ULTRA HIGH PERFORMANCE CONCRETE)(FPQ).

⚠ 16. ALL CONCRETE PLACED IN ABUTMENT BACKWALL HEADERS, APPROACH SLAB **CLOSURE POURS**, AND PILE VOIDS WILL BE PAID ITEM 900.608 (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ).

⚠ 17. ALL CONCRETE PLACED IN THE BRUSH CURBS, WINGWALL CURBS, **AND SUBFOOTING (WHERE REQUIRED)** WILL BE PAID UNDER ITEM 501.33, CONCRETE, HIGH PERFORMANCE CLASS A.

18. ALL PRECAST SUPERSTRUCTURE, SUBSTRUCTURE AND APPROACH SLAB CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 540 - PRECAST CONCRETE.

19. ALL REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR REINFORCING STEEL, LEVEL II. ALL REINFORCING STEEL PLACED IN THE BRUSH CURBS, END OF DECK, APPROACH SLAB CLOSURE POURS AND BACKWALL HEADERS WILL BE PAID FOR UNDER ITEM 507.12, "REINFORCING STEEL, LEVEL II". ALL REINFORCING STEEL IN THE PRECAST ELEMENTS WILL BE INCLUDED IN THE UNIT BID PRICE FOR THE APPROPRIATE PRECAST CONCRETE PAY ITEM.

20. ITEM 514.10, "WATER REPELLENT, SILANE", SHALL BE APPLIED TO ALL EXPOSED CONCRETE SUPERSTRUCTURE AND SUBSTRUCTURE SURFACES, EXCEPT THE UNDERSIDE OF THE DECK BETWEEN DRIP NOTCHES.

21. ALL PRECAST CONCRETE SURFACES LABELED WITH "EXPOSED COARSE AGGREGATE FINISH" SHALL BE TREATED TO PROVIDE A ROUGHENED/EXPOSED COARSE AGGREGATE SURFACE. THE AMPLITUDE OF THE EXPOSED AGGREGATE SHALL BE A MINIMUM OF 1/8" AND BE COMPLETED PRIOR TO FINAL PLACEMENT OF THE PRECAST COMPONENT. THE FABRICATOR SHALL INDICATE THE METHOD USED TO ACHIEVE THIS PROFILE AND THE METHOD USED TO PROTECT THE REINFORCING STEEL ON THE FABRICATION DRAWINGS.

22. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:
ALONG BACK FACES OF WALLS AGAINST EARTH 2.0 INCH
ALONG TOP SURFACE OF DECK SLAB 2.5 INCH
ALONG BOTTOM SURFACE OF DECK SLAB 1.5 INCH
ELSEWHERE UNLESS OTHERWISE NOTED 3.0 INCH

STRUCTURAL STEEL

23. ALL NEW STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270/M270M GRADE 50W AND WILL BE PAID FOR UNDER ITEM 506.55 "STRUCTURAL STEEL PLATE GIRDER" (FPQ) UNLESS NOTED OTHERWISE.

24. ALL MEMBERS MARKED CVN MUST MEET CHARPY V-NOTCH TESTING REQUIREMENTS AS INDICATED IN SUBSECTION 714.01.

25. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SECTION 506. ANY CONNECTION NOT DESIGNATED SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED WITH SHOP DRAWINGS.

26. TEMPORARY SUPPORTS FOR GIRDER ERECTION WILL BE INCLUDED IN ITEM 506.55 "STRUCTURAL STEEL, PLATE GIRDER" (FPQ). THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE TEMPORARY GIRDER SUPPORT SYSTEM. STABILITY OF THE GIRDERS UNTIL FULL DEAD LOAD IS APPLIED IS THE RESPONSIBILITY OF THE CONTRACTOR.

27. THE CROSSFRAMES SHALL BE DETAILED TO THE STEEL DEAD LOAD FIT CONDITION.

28. THE ENDS OF THE GIRDERS ARE EXPECTED TO BE OUT-OF-PLUMB UNDER FULL DEAD LOAD.

PRECAST CONCRETE DECK PANELS

29. THE PRECAST DECK PANEL LAYOUT SHOWN ON SHEET 25 MAY BE ALTERED BY THE CONTRACTOR PROVIDED THAT THE REINFORCING MEETS OR EXCEEDS THAT SHOWN.

30. ALL PRECAST DECK PANEL EDGES THAT ARE TO HAVE ULTRA HIGH PERFORMANCE CONCRETE CAST AGAINST THEM (EXCLUDING SHEAR CONNECTOR BLOCKOUTS) SHALL HAVE AN EXPOSED COARSE AGGREGATE FINISH.

31. ALL ULTRA HIGH PERFORMANCE CLOSURE POURS IN THE LONGITUDINAL AND TRANSVERSE JOINTS, AND DECK END JOINTS SHALL BE GROUND FLUSH WITH THE PRECAST DECK IN ACCORDANCE WITH ITEM 900.608 SPECIAL PROVISION (ULTRA HIGH PERFORMANCE CONCRETE)(FPQ).

32. SHEAR CONNECTOR BLOCKOUT GEOMETRY SHOWN ON SHEET 27 MAY BE ALTERED BY THE CONTRACTOR.

33. THE GIRDER BLOCKING DETAILS SHOWN ON SHEET 27 ARE CONCEPTUAL AND MAY BE ALTERED BY THE CONTRACTOR. ALL BLOCKING WILL BE INCLUDED IN THE UNIT BID PRICE FOR THE PRECAST CONCRETE STRUCTURE (8" DECK SLABS).

⚠ 34. **ALL BLOCKING AND SHIM STACK MATERIAL TO BE LEFT IN PLACE AFTER THE BRIDGE IS OPEN SHALL BE APPROVED BY THE ENGINEER.**

⚠ 35. THE CONTRACTOR SHALL PROVIDE STAMPED CALCULATIONS PREPARED BY A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF VERMONT THAT SHOW THAT TENSILE STRESSES ON BOTH FACES OF THE DECK PANELS DO NOT EXCEED THE MODULUS OF RUPTURE DURING THE HANDLING, FABRICATION, SHIPPING, **PRE-ASSEMBLY, AND FINAL** ERECTION OF THE PANEL.

PRECAST ABUTMENTS AND POST-TENSIONING

36. ABUTMENT FOOTINGS, STEMS AND BACKWALL SHALL BE PRECAST WITH PAYMENT INCLUDED IN THE APPROPRIATE PRECAST CONCRETE PAY ITEM. PAYMENT SHALL INCLUDE ALL WORK NECESSARY TO FABRICATE, DELIVER, AND ASSEMBLE EACH UNIT COMPLETE AND IN-PLACE AS SHOWN ON THE PLANS. ALL APPURTENANCES WILL BE INCIDENTAL TO THE APPROPRIATE PRECAST CONCRETE ABUTMENT PAY ITEM. STABILITY OF ALL PRECAST SUBSTRUCTURE UNITS IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL REQUIRED BACKFILLING IS COMPLETE.

37. ALL COSTS FOR GROUTING MATERIALS USED IN PRECAST MEMBERS WILL BE INCIDENTAL TO THE APPROPRIATE PRECAST PAY ITEMS UNLESS OTHERWISE NOTED.

⚠ 38. THE CONTRACTOR IS RESPONSIBLE FOR PROPER FIT-UP OF THE PRECAST AND CAST-IN-PLACE ELEMENTS, PER THE FABRICATORS RECOMMENDATIONS, APPROVED FABRICATION AND WORKING DRAWINGS AND TO THE SATISFACTION OF THE **ENGINEER.**

39. MECHANICAL GROUTED SPLICE COUPLERS SHALL BE USED TO PROVIDE MOMENT CONNECTIONS BETWEEN MEMBERS AS SHOWN IN THE PLANS. GROUTED SPLICES SHALL DEVELOP A MINIMUM OF 125% OF THE SPECIFIED YIELD STRENGTH OF THE REINFORCING BAR BEING SPLICED. ALL COSTS FOR THE GROUTED SPLICE COUPLERS WILL BE INCLUDED IN THE APPROPRIATE PRECAST PAY ITEM.

40. POST-TENSIONING STRANDS AND CONDUIT SHALL ADHERE TO THE REQUIREMENTS OF SECTION 510 - PRESTRESSED CONCRETE. GALVANIZED ANCHOR ASSEMBLIES, CONDUIT AND POST-TENSIONING STRANDS WILL BE INCLUDED UNDER THE APPROPRIATE PRECAST PAY 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.

⚠ 41. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND DETAILING OF POST TENSIONING ELEMENTS. THE POST TENSIONING DESIGN SHALL FOLLOW CURRENT LRFD AND PCI MANUAL GUIDELINES. **POST TENSIONING BLOCKOUT ELEMENTS SHALL BE ORIENTED PERPENDICULAR TO THE POST-TENSIONING STRANDS.**

42. GALVANIZE ANCHOR ASSEMBLIES (SUPPORT BOLTS , NUTS, WASHERS AND LEVELING PLATES) AFTER FABRICATION ACCORDING TO AASHTO M232M/M232.

43. DESIGN VALUES:
A. CONCRETE COMPRESSIVE STRENGTH: f'c = 5000 psi
B. POST-TENSIONING STRANDS: 0.6 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 = 44 KIPS.

44. THE GALVANIZED CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF SUBSECTION 711.01. ALL COSTS ASSOCIATED WITH PLACING THE CORRUGATED STEEL PIPE WILL BE INCLUDED IN THE BID PRICE FOR ITEM 540.10 "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)" OR ITEM 540.10 "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)" AS APPROPRIATE.

⚠ 45. **ERECTION OF THE STEEL GIRDERS SHALL NOT BE PERMITTED UNTIL THE ABUTMENT 1 FOOTING CLOSURE POUR CONCRETE HAS ACHIEVED A STRENGTH OF 1500 PSI.**

⚠ 46. BACKFILLING **ABUTMENT 1 & 2** SHALL NOT BE PERMITTED UNTIL THE GROUTED SPLICE SLEEVE CONNECTION GROUT HAS ACHIEVED A STRENGTH OF 4000 PSI.

⚠ 47. **ABUTMENT 2 POST TENSIONING SHALL OCCUR PRIOR TO PLACEMENT OF CONCRETE IN THE PILE VOIDS.**

⚠ 48. PLACEMENT OF THE PRECAST FOOTINGS WITH LEVELING BOLTS SHALL NOT BE PERMITTED UNTIL THE GROUT BED AND SUBFOOTING (WHERE REQUIRED) HAS ACHIEVED A STRENGTH OF **1500 PSI**.

⚠ 49. **THE CONCRETE CURING REQUIREMENTS PER SECTION 501.17 OF THE STANDARD SPECIFCATIONS FOR CONCRETE, HIGH PERFORMANCE CLASS A PLACED IN THE SUBFOOTING (WHERE REQUIRED) ARE ONLY REQUIRED UNTIL THE CONCRETE HAS ACHIEVED A STRENGTH OF 1500 PSI.**

SUBSTRUCTURE ON LEDGE

50. PRECAST FOOTINGS AT ABUTMENT 1 SHALL BE FOUNDED ON LEDGE WHICH HAS BEEN CLEANED OF ALL LOOSE ROCK AND DEBRIS TO ENSURE THAT THE SUBSTRUCTURE IS PLACED ON COMPETENT ROCK.

51. UPON COMPLETION OF THE EXCAVATION FOR ABUTMENT 1, AND PRIOR TO PLACING THE PRECAST ABUTMENTS AND PRIOR TO PLACING MATERIAL ON BEDROCK, THE ENGINEER SHALL NOTIFY THE VTRANS GEOLOGIST. THE GEOLOGIST WILL DETERMINE IF THE BEDROCK IS STABLE AND COMPETENT TO OBTAIN THE REQUIRED NOMINAL BEARING RESISTANCE. THE CONTRACTOR SHALL NOTIFY THE GEOLOGIST 24 HOURS IN ADVANCE OF WHEN THE ANALYSIS WILL BE NEEDED.

⚠ 52. LEDGE THAT IS EXCAVATED FOR PLACEMENT OF THE PRECAST FOOTING (OR SUB-FOOTING IF REQUIRED) SHALL BE EXCAVATED TO PROVIDE A LEVEL SURFACE OR AS DIRECTED BY THE ENGINEER. **THE SUBFOOTING (WHERE REQUIRED) SHALL HAVE A RAKED FINISH.**

⚠ 53. **ABUTMENT 1 HAS BEEN DESIGNED FOR THE TOP OF FOOTING ELEVATIONS SHOWN ON THE PLANS. LEDGE SHALL BE EXCAVATED DOWN TO THE INDICATED BOTTOM OF FOOTING, INCLUDING 3" MIN GROUT BED, FOR THE FULL WIDTH (TOE TO HEEL) OF THE CONFIGURATION. IF THE LEDGE ELEVATION IS GREATER THAN 6" BELOW THE DESIGN BOTTOM OF FOOTING, A SUBFOOTING SHALL BE POURED SO THAT THE DESIGN TOP OF FOOTING IS AT THE REQUIRED ELEVATION. THE GROUT BED WILL BE PAID UNDER THE APPROPRIATE SECTION 540 CONTRACT ITEM. THE SUBFOOTING, IF REQUIRED, WILL BE PAID UNDER ITEM 501.33 "CONCRETE, HIGH PERFORMANCE CLASS A."**

⚠ 54. ALL COSTS ASSOCIATED WITH PREVENTING ROCK FROM ENTERING THE MAD RIVER WILL BE INCLUDED IN ITEM **203.27.**

REV	DATE	DESCRIPTION
⚠	10/13/2015	NOTE REVISIONS

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12bl36frm.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
PROJECT NOTES (1 OF 2)

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROJECT NOTES

PILES

55. THE PILES SHALL BE HP 14X89 ORIENTED WITH THE STRONG AXIS NORMAL TO THE CENTERLINES OF GIRDERS. PILES SHALL HAVE THE FOLLOWING STRUCTURAL AND PILE DRIVING PROPERTIES:
A. PILE AXIAL PILE RESISTANCE = 1184 KIPS
B. PILE MONITORING METHOD = DYNAMIC PILE LOADING TEST
C. PILE TEST RESISTANCE FACTOR = ø=0.65
D. NOMINAL PILE DRIVING RESISTANCE (RNDR) = 375 KIPS
E. PILE DEFLECTION = 0.5 INCH

56. PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04(F).

57. TO ENSURE THAT THE NOMINAL RESISTANCE HAS BEEN OBTAINED AND TO PREVENT OVERSTRESSING OF THE PILES DURING DRIVING OPERATIONS, DYNAMIC TESTING SHALL BE PERFORMED IN ACCORDANCE WITH SUBSECTION 505.04(d)-2 PAYMENT FOR PILE TESTING WILL BE MADE UNDER ITEM 505.45 "DYNAMIC PILE LOADING TEST". A MINIMUM OF ONE DYNAMIC PILE TEST SHALL BE CONDUCTED ON THE FIRST PILE DRIVEN. MORE TESTS MAY BE ORDERED BY THE ENGINEER. ADDITIONAL TEST(S) ORDERED BY THE ENGINEER WILL BE PAID AT THE UNIT BID PRICE FOR CONTRACT ITEM 505.45.

△2 58. **RESTRIKING OF THE TEST PILE IS NOT REQUIRED.**

59. THE TOPS OF THE PILES AFTER DRIVING SHALL NOT VARY FROM THE LOCATION SHOWN ON THE PLANS BY MORE THAN 3 INCHES. THE PILE ORIENTATION SHALL NOT VARY BY MORE THAN 5 DEGREES. THE CONTRACTOR SHALL DEMONSTRATE HOW TOLERANCE WILL BE MET TO THE SATISFACTION OF THE ENGINEER REGARDLESS OF INSTALLATION METHOD.

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

61. THE PILES SHALL BE DRIVEN TO BEDROCK AND SHALL BE EMBEDDED IN THE GROUND A MINIMUM OF 46 FEET BELOW THE BOTTOM OF THE PILE CAP.

PRECAST APPROACH SLABS

62. PRECAST CONCRETE STRENGTH: f'c = 5,000 PSI.

63. SLAB EDGES IN CONTACT WITH HPC RAPID SET CONCRETE SHALL BE SANDBLASTED PRIOR TO DELIVERY AND POWER WASHED WITH WATER PRIOR TO INSTALLATION.

64. FILL APPROACH SLAB CLOSURE POURS WITH HPC RAPID SET CONCRETE IN ACCORDANCE WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)". CONCRETE SHALL HAVE A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI.

65. THE FABRICATOR MAY ALTER THE DESIGN DETAILED WITHIN THESE PLANS TO ACCOMMODATE THEIR SPECIFIC OPERATION. THIS ALTERATION SHALL BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT.

DOWNSPOUT NOTES

66. PAYMENT FOR ALL MATERIALS AND LABOR RELATED TO THE HOPPER AND DOWNSPOUT ASSEMBLY WILL BE INCLUDED IN ITEM 506.60, STRUCTURAL STEEL AND WILL CONFORM TO AASHTO M270M, GRADE 250.

67. BOLTS AND RELATED HARDWARE SHALL CONFORM TO ASTM A 307 GRADE A.

68. THE HOPPER AND DOWNSPOUT ASSEMBLY SHALL BE INSTALLED AFTER THE BRIDGE EXPANSION JOINT IS IN PLACE.

69. ALL HOPPER AND DOWNSPOUT COMPONENTS AND HARDWARE SHALL BE GALVANIZED UNLESS OTHERWISE NOTED.

RETAINING WALL NOTES

70. RETAINING WALLS SHALL BE SELECTED FROM THE LIST OF WALLS ON THE APPROVED VAOT EARTH RETAINING SYSTEM SELECTION CHART. SEE SPECIAL PROVISION. THE RETAINING WALL SHALL HAVE CONCRETE FACING.

71. THE WALL WILL BE PAID UNDER ITEM 900.670 SPECIAL PROVISION (RETAINING WALL).

△1 72. THE BOTTOM OF WALL SHALL BE A MINIMUM OF 4 FEET BELOW THE FINISHED GRADE IN FRONT OF THE WALL, SEE SHEET **49.**

73. THE RETAINING WALL SHALL BE DESIGNED IN ACCORDANCE WITH THE 2014 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND ITS LATEST REVISIONS. THE DESIGN SHALL INCLUDE THE EFFECTS OF ALL LOADS INCLUDING, BUT NOT LIMITED TO EARTH SURCHARGE AND HYDROSTATIC PRESSURE.

74. THE FOLLOWING SOIL PROPERTIES SHALL BE USED IN THE DESIGN OF THE RETAINING WALL:

a. FOUNDATION SOIL DESIGN VALUES
THE NOMINAL (UNFACTORED) BEARING RESISTANCE IS A FUNCTION OF THE EFFECTIVE FOOTING WIDTH AND VARIES LINEARLY FROM 7.5 KSF (EFFECTIVE WIDTH = 4') TO 17.5 KSF (EFFECTIVE WIDTH = 10')

b. FOUNDATION SOIL PARAMETERS
UNIT WEIGHT: 130 PCF
FRICTION ANGLE: 38 DEG

c. RETAINED SOIL PARAMETERS
UNIT WEIGHT: 140 PCF
FRICTION ANGLE: 34 DEG

d. RESISTANCE FACTORS (LRFD)
BEARING RESISTANCE: 0.45
SLIDING RESISTANCE: 0.80
SETTLEMENT RESISTANCE: 1.0
SCOUR RESISTANCE: 1.0

75. THE INTERFACE BETWEEN THE RETAINING WALL AND THE ABUTMENT STEM SHALL BE DESIGNED TO ALLOW 0.5 INCHES OF MOVEMENT. A JOINT DETAIL SHALL BE SUBMITTED TO THE PROJECT MANAGER FOR REVIEW AND APPROVAL. ALL COMPONENTS WILL BE INCLUDED IN THE UNIT PRICE FOR ITEM 900.670 SPECIAL PROVISION (RETAINING WALL).

REV	DATE	DESCRIPTION
△1	10/13/2015	NOTE REVISIONS
△2	10/13/2015	NOTE ADDED

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136frm.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
PROJECT NOTES (2 OF 2)

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 4 **OF** 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES									TOTALS			DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	EROSION CONTROL	FULL C.E. ITEMS	BRIDGE	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				
						2700				2700		CY	COMMON EXCAVATION	203.15				
						50			170	220		CY	SOLID ROCK EXCAVATION	203.16				**EARTHWORK SUMMARY**
									625	625		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				FILL AVAILABLE
						525				525		CY	SAND BORROW	203.31		250	CY	STRUCTURE EXCAVATION (50% ACCEPTABLE)
						10				10		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22		2700	CY	COMMON EXCAVATION
									500	500		CY	STRUCTURE EXCAVATION	204.25		312	CY	UNCLASSIFIED CHANNEL EXCAVATION (50% ACCEPTABLE)
									460	460		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		3262	CY	TOTAL FILL AVAILABLE
															2	600	CY	FILL REQUIRED
						360				360		SY	COLD PLANING, BITUMINOUS PAVEMENT COLD PLANING, BITUMINOUS PAVEMENT	210.10		2662	CY	TOTAL WASTE
						1450				1450		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
						70				70		CY	AGGREGATE SHOULDERS, IN PLACE	402.10				
						13				13		CWT	EMULSIFIED ASPHALT	404.65				
						1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
									35	35		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33	1			
									1	1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10				
									550	550		LF	STEEL PILING, HP 14 X 89	505.18				
									1	1		EACH	DYNAMIC PILE LOADING TEST	505.45				
									342000	342000		LB	STRUCTURAL STEEL, PLATE GIRDER (FPQ)	506.55				
									320	320		LB	STRUCTURAL STEEL (FPQ)	506.60				
									2568	2568		LB	REINFORCING STEEL, LEVEL II	507.12	1			
									1	1		LS	SHEAR CONNECTORS (2400 - 7/8" X 7")	508.15				
									20	20		GAL	WATER REPELLENT, SILANE	514.10				
									90	90		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
									44	44		LF	BRIDGE EXPANSION JOINT, VERMONT	516.11				
									800	800		SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10				
									391	391		LF	BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM	525.33				
									1	1		EACH	REMOVAL OF STRUCTURE (4000 SF)	529.15				
									10	10		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17				
									1	1		LS	PRECAST CONCRETE STRUCTURE (8" DECK SLABS)	540.10				
									1	1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)	540.10				
									1	1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)	540.10				
									1	1		LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 1)	540.10				
									1	1		LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO.2)	540.10				
						12				12		LF	15" RCP CLASS IV	601.0811				
						1				1		EACH	18" CPEPES	601.7015				
						70				70		LF	CLEANING CULV. PIPE, IN-PLACE [0 TO 24 IN., INCL.]	601.995				
						5				5		CY	STONE FILL, TYPE I	613.10				
						575				575		CY	STONE FILL, TYPE III	613.12				
						160				160		LF	VERTICAL GRANITE CURB	616.21				

REV	DATE	DESCRIPTION
1	10/13/2015	QUANTITY REVISION
2	10/13/2015	ITEM REMOVED

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12bl36frm.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
QUANTITY SHEET #1

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 5 **OF** 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES			TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	EROSION CONTROL	FULL C.E. ITEMS	BRIDGE	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
250				250		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20				
4				4		EACH	MANUFACTURED TERMINAL SECTION, TANGENT	621.51				
4				4		EACH	GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM	621.72				
570				570		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
250				250		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
168				168		HR	FLAGGERS	630.15				
		1		1		LS	FIELD OFFICE, ENGINEERS	631.10				
		1		1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
		1		1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
		3000		3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
		520		520		HR	EMPLOYEE TRAINEESHIP	634.10				
1				1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
4				4		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
1425				1425		LF	4 INCH WHITE LINE	646.20				
1500				1500		LF	4 INCH YELLOW LINE	646.21				
575				575		SY	GEOTEXTILE UNDER STONE FILL	649.31				
	375			375		SY	GEOTEXTILE FOR SILT FENCE	649.51				
	140			140		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61				
	20			20		LB	SEED	651.15				
	130			130		LB	FERTILIZER	651.18				
	0.5			0.5		TON	AGRICULTURAL LIMESTONE	651.20				
	0.5			0.5		TON	HAY MULCH	651.25				
	70			70		CY	TOPSOIL	651.35				
450				450		SY	GRUBBING MATERIAL	651.40				
	1			1		LS	EPSC PLAN	652.10				
	50			50		HR	MONITORING EPSC PLAN	652.20				
	1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
	1275			1275		SY	TEMPORARY EROSION MATTING	653.20				
	12			12		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
	30			30		CY	VEHICLE TRACKING PAD	653.35				
	1025			1025		LF	PROJECT DEMARCATION FENCE	653.55				
1				1		SF	TRAFFIC SIGNS, TYPE A	675.20				
16				16		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
4				4		EACH	REMOVING SIGNS	675.50				
1				1		EACH	ERECTING SALVAGED SIGNS	675.60				
1				1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
			25	25		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)	900.608	⚠1			
			425	425		CY	SPECIAL PROVISION (MECHANICALLY STABILIZED EARTH ABUTMENT BACKFILL SYSTEM) (FPQ)	900.608				
			35	35		CY	SPECIAL PROVISION (ULTRA HIGH PERFORMANCE CONCRETE) (FPQ)	900.608				
4				4		EACH	SPECIAL PROVISION (CPM SCHEDULE)	900.620	⚠1			

REV	DATE	DESCRIPTION
⚠1	10/13/2015	QUANTITY REVISION

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136frm.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
QUANTITY SHEET #2

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 6 **OF** 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES

APPROACH SLABS	ABUTMENT NO.1	ABUTMENT NO.2	SUPERSTRUCTURE	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER	
	170			170	CY	SOLID ROCK EXCAVATION	203.16	
	275	350		625	CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	
	100	400		500	CY	STRUCTURE EXCAVATION	204.25	
	80	380		460	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	
	10	1	24	35	CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33	2, 1
		1		1	LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10	
		550		550	LF	STEEL PILING, HP 14 X 89	505.18	
		1		1	EACH	DYNAMIC PILE LOADING TEST	505.45	
			342000	342000	LB	STRUCTURAL STEEL, PLATE GIRDER (FPQ)	506.55	
		320		320	LB	STRUCTURAL STEEL (FPQ)	506.60	
663	299	314	1292	2568	LB	REINFORCING STEEL, LEVEL II	507.12	1
			1	1	LS	SHEAR CONNECTORS (2400 - 7/8" X 7")	508.15	
	2	4	14	20	GAL	WATER REPELLENT, SILANE	514.10	
90				90	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10	
		44		44	LF	BRIDGE EXPANSION JOINT, VERMONT	516.11	
175			625	800	SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10	
			391	391	LF	BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM	525.33	
			1	1	EACH	REMOVAL OF STRUCTURE (4000 SF)	529.15	
	5	5		10	EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17	
			1	1	LS	PRECAST CONCRETE STRUCTURE (8" DECK SLABS)	540.10	
	1			1	LS	PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)	540.10	
		1		1	LS	PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)	540.10	
1				1	LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 1)	540.10	
1				1	LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO.2)	540.10	
6.5	9.5	9		25	CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)	900.608	1
		425		425	CY	SPECIAL PROVISION (MECHANICALLY STABILIZED EARTH ABUTMENT BACKFILL SYSTEM) (FPQ)	900.608	
			35	35	CY	SPECIAL PROVISION (ULTRA HIGH PERFORMANCE CONCRETE) (FPQ)	900.608	
			1	1	LS	SPECIAL PROVISION (PRE-ASSEMBLY)	900.645	
			1	1	LS	SPECIAL PROVISION (PRECAST MOCKUP)	900.645	
		35		35	SY	SPECIAL PROVISION (RETAINING WALL)	900.675	

TOTALS

DESCRIPTIONS

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

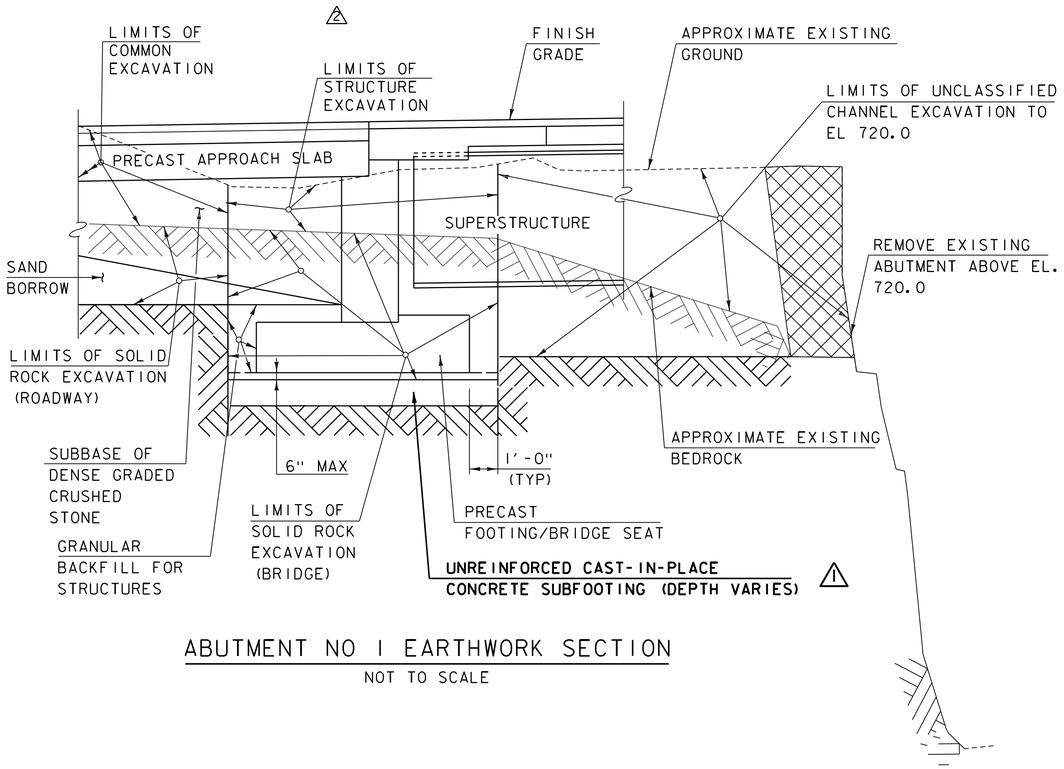
REV	DATE	DESCRIPTION
1	10/13/2015	QUANTITY REVISION
2	10/13/2015	ITEM REMOVED

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

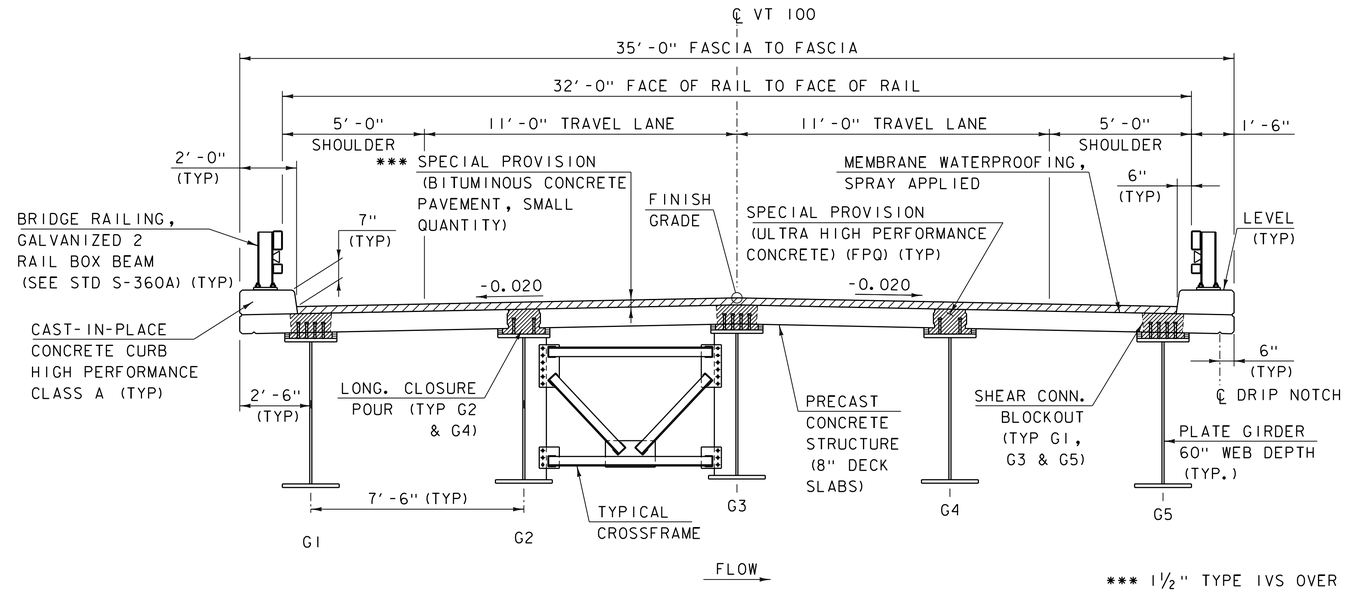
FILE NAME: z12bl36frm.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
BRIDGE QUANTITY SHEET #1

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 8 **OF** 69



ABUTMENT NO 1 EARTHWORK SECTION

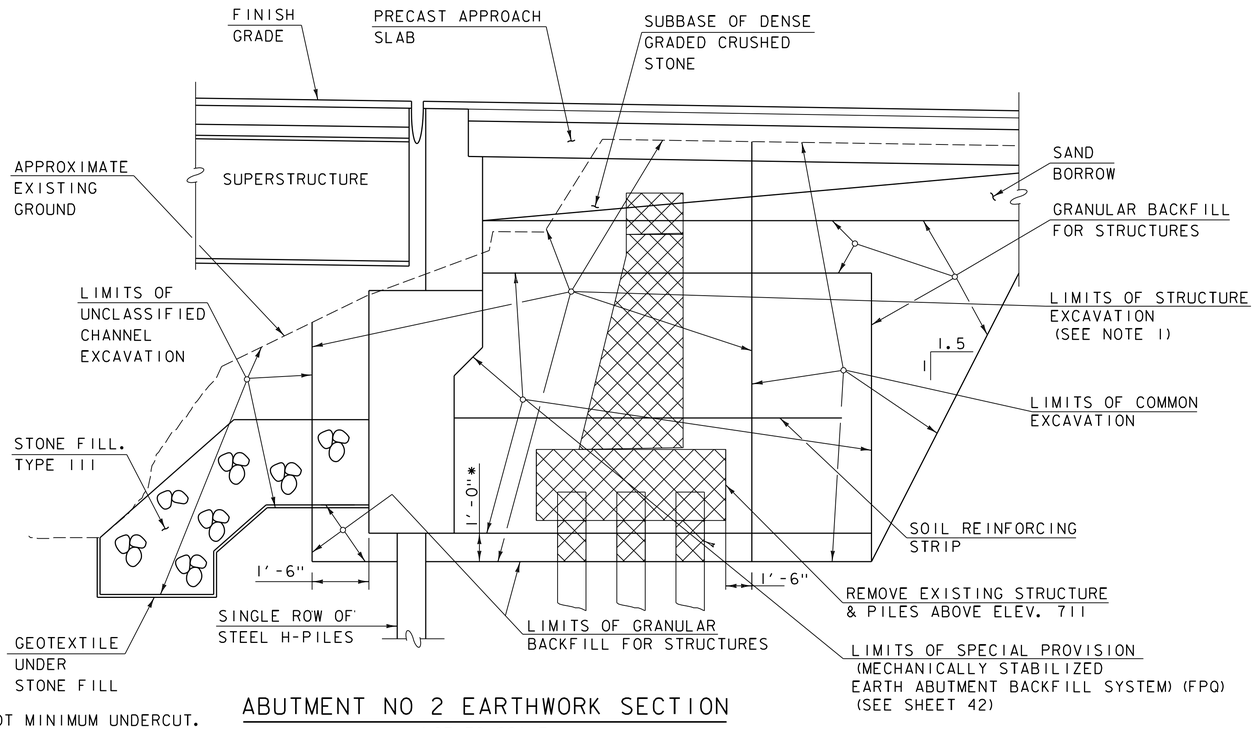
NOT TO SCALE



*** 1½" TYPE IVS OVER 1½" TYPE IVS

TYPICAL BRIDGE SECTION

SCALE ⅜" = 1'-0"



* ONE FOOT MINIMUM UNDERCUT.

ABUTMENT NO 2 EARTHWORK SECTION

NOT TO SCALE

EARTHWORK SECTION NOTES

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

LEGEND

EXISTING ABUTMENT REMOVAL LIMITS

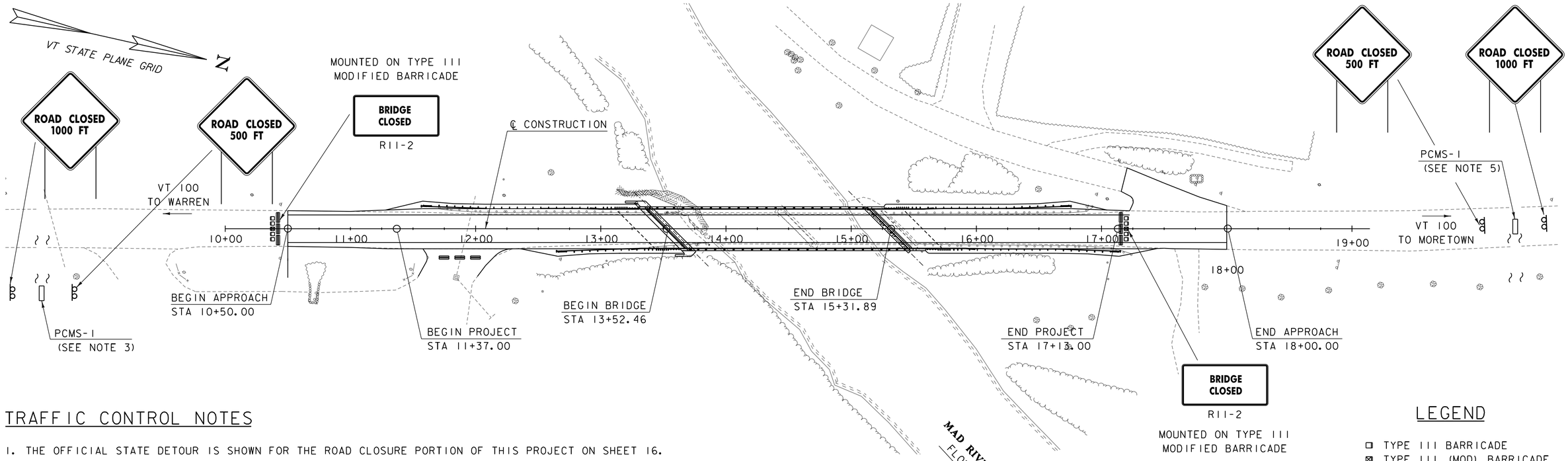
REV	DATE	DESCRIPTION
1	10/13/2015	SUBFOOTING REVISION
2	10/13/2015	DRILLING AND BLASTING NOTE REMOVED

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12bl36typ.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
TYPICAL SECTIONS SHEET 1

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK



TRAFFIC CONTROL PLAN

NOT TO SCALE

LEGEND

- TYPE III BARRICADE
- TYPE III (MOD) BARRICADE
- TEMPORARY TRAFFIC BARRIER

TRAFFIC CONTROL NOTES

1. THE OFFICIAL STATE DETOUR IS SHOWN FOR THE ROAD CLOSURE PORTION OF THIS PROJECT ON SHEET 16.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGNING, ERECTING AND MAINTAINING (AS WELL AS REMOVING AND RESETTING) ALL DETOUR AND ON-PROJECT TEMPORARY TRAFFIC CONTROL ZONE DEVICES, INCLUDING (BUT NOT LIMITED TO) CONSTRUCTION SIGNS, BARRICADES, TEMPORARY TRAFFIC BARRIERS, PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) AND OTHER REQUIRED DEVICES (AS ORDERED BY THE ENGINEER) USED TO REGULATE, WARN AND GUIDE TRAFFIC DURING CONSTRUCTION. TRAFFIC CONTROL DEVICES SHALL MEET THE REQUIREMENTS OF LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND PERTINENT E-SERIES AND T-SERIES STANDARDS. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN. EXACT LOCATIONS OF DEVICES SHALL BE COORDINATED WITH THE ENGINEER. ADDITIONAL PROJECT CONSTRUCTION SIGNS SHALL BE INSTALLED AS REQUIRED BY THE ENGINEER. THE COST OF ALL DETOUR AND ON-PROJECT TEMPORARY TRAFFIC CONTROL ZONE DEVICES (WITH THE EXCEPTION OF TEMPORARY TRAFFIC BARRIERS AND PCMS) WILL BE PAID FOR UNDER ITEM 900.645, SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE).

3. PORTABLE CHANGEABLE MESSAGE SIGNS "PCMS" SHALL BE PLACED AT THE APPROXIMATE LOCATIONS SHOWN ON THE PLANS OR WHERE DESIGNATED BY THE ENGINEER. TWO SIGNS SHALL BE PLACED AT THE BRIDGE 14 DAYS PRIOR TO THE START OF CONSTRUCTION TO WARN OF THE IMPENDING DETOURS. PAYMENT FOR THESE SIGNS SHALL BE INCLUDED IN ITEM 641.15 "PORTABLE CHANGEABLE MESSAGE SIGN".

4. THE STATE ROUTE MARKERS USED FOR THE DETOUR AS SHOWN ON THE PLANS SHALL FOLLOW STANDARDS E-127 AND E-136B. THESE SIGNS SHALL BE REMOVED AT THE END OF THE ROAD CLOSURE. THESE SIGNS AND THEIR REMOVAL SHALL BE PAID FOR UNDER ITEM 900.645, SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE).

5. ALL TRAFFIC CONTROL DEVICES SHALL BE KEPT IN THEIR PROPER POSITION AT ALL TIMES AND SHALL BE REPAIRED, REPLACED OR CLEANED AS NECESSARY TO PRESERVE THEIR APPEARANCE AND CONTINUITY.

6. ALL SIGNS SHALL BE PLACED WITHIN THE EXISTING STATE OR TOWN RIGHTS-OF-WAY. CONSTRUCTION SIGNS SHALL NOT BE INSTALLED AS TO INTERFERE WITH STOPPING SIGHT DISTANCE AND CORNER SIGHT DISTANCE FROM DRIVES AND TOWN HIGHWAYS.

7. ACCESS TO ALL EXISTING DRIVES AND SIDE ROADS SHALL BE MAINTAINED AT ALL TIMES DURING ALL PHASES OF CONSTRUCTION EXCEPT AS SHOWN.

8. INSTALLATION OF DETOUR AND ON-SITE SIGNS SHALL NOT BLOCK ANY EXISTING TRAFFIC CONTROL SIGN ASSEMBLIES AND SHALL NOT MODIFY OR BE PLACED ADJACENT TO EXISTING ROUTE MARKER SIGN ASSEMBLIES WHEN POSSIBLE. THE CONTRACTOR SHALL MAINTAIN AT LEAST 200 FEET BETWEEN SIGN ASSEMBLIES WHENEVER POSSIBLE.

9. EXISTING SIGNS THAT ARE IN CONFLICT WITH THE TRAFFIC FLOW OF THE DETOUR SHALL BE REMOVED OR COVERED BY THE CONTRACTOR. ALL SIGNS REMOVED OR COVERED SHALL BE REPLACED OR UNCOVERED WHEN THE TRAFFIC CONTROL PLAN IS DISASSEMBLED. PAYMENT FOR THIS WORK WILL BE PAID UNDER ITEM 900.645, SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE).

10. CONTACT DIG-SAFE AT 1-888-344-7233 PRIOR TO BREAKING GROUND TO INSTALL ANY SIGN POSTS.

11. AFTER THE IDENTIFIED WORK TO OPEN THE NEW BRIDGE TO TWO-WAY TRAFFIC IS COMPLETED, TEMPORARY TRAFFIC BARRIERS MAY BE INCORPORATED TO CONSTRUCT THE BRIDGE CURB AND BRIDGE RAILING. SEE SPECIAL PROVISIONS. ALL COSTS SHALL BE INCLUDED IN ITEM 900.645, SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE).

12. ANY TEMPORARY BITUMINOUS CONCRETE PAVEMENT REQUIRED TO PROVIDE A LEVEL DRIVING SURFACE DURING CONSTRUCTION TO BE INCLUDED IN ITEM 900.645, SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE).

⚠13. ATTACHMENT OF THE TEMPORARY TRAFFIC BARRIER TO THE PRECAST CONCRETE DECK PANELS IS NOT PERMITTED.

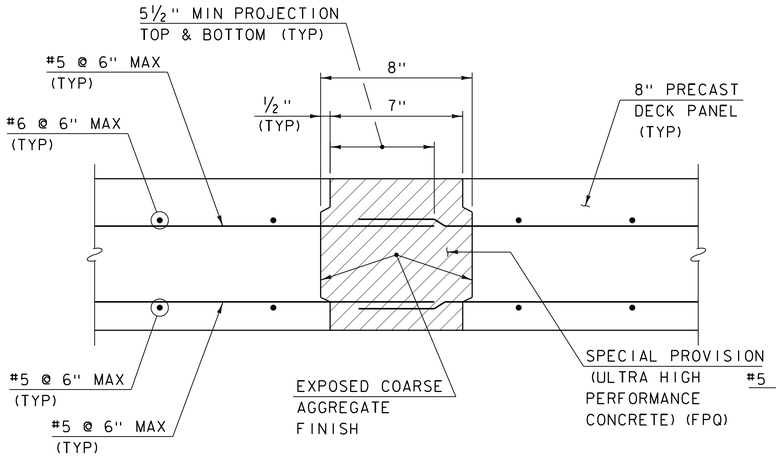
REV	DATE	DESCRIPTION
⚠	10/13/2015	TRAFFIC NOTE ADDED

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

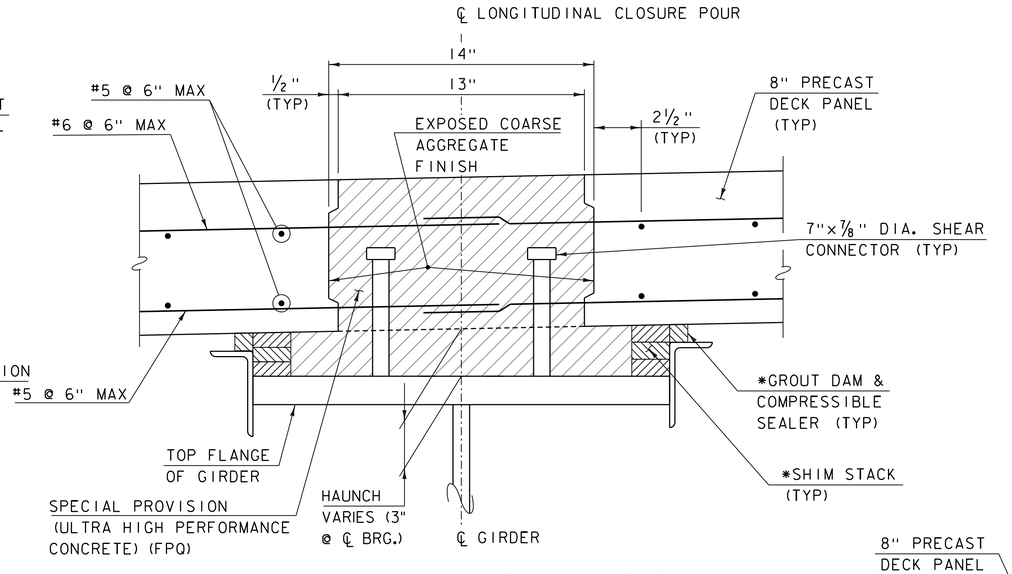
FILE NAME: z12b136dtr.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
TRAFFIC CONTROL SHEET 2

PLOT DATE: 10/13/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 17 OF 69



TRANSVERSE JOINT SECTION

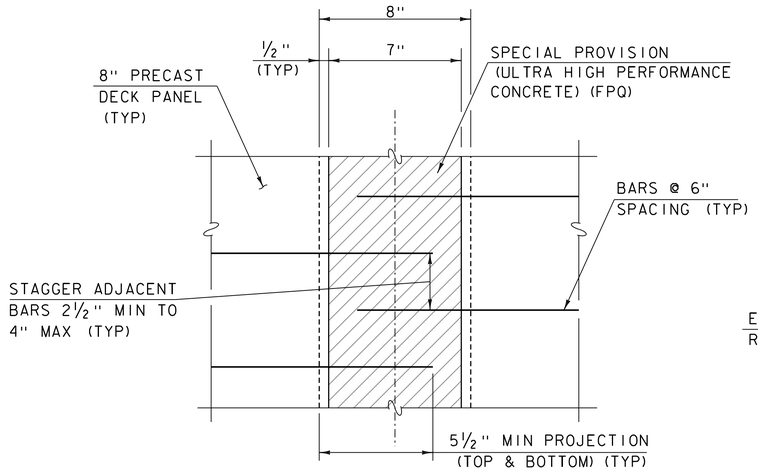
(BETWEEN PANELS)
SCALE: 3" = 1'-0"



LONGITUDINAL CLOSURE POUR SECTION

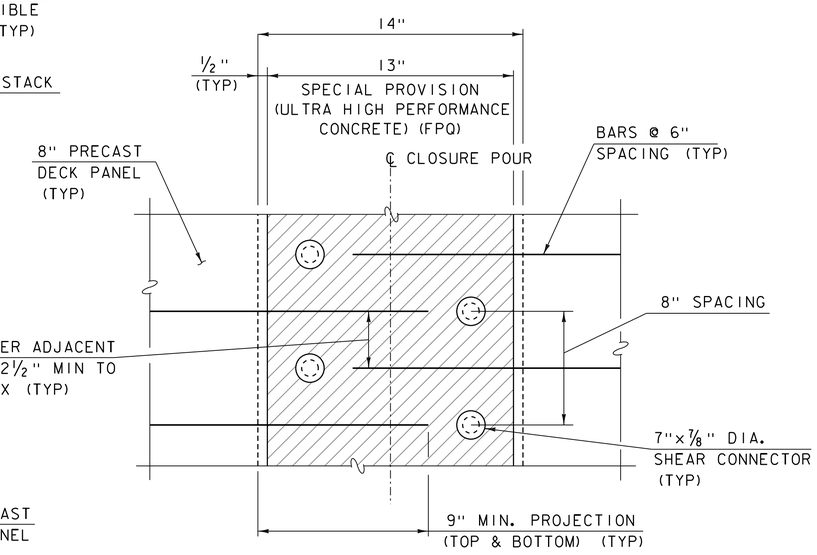
(OVER GIRDERS 2 & 4)
SCALE: 3" = 1'-0"

*THE SHIM STACK DECK SUPPORT SYSTEM & TEMPORARY GROUT DAM SHOWN IS CONCEPTUAL. THE CONTRACTOR'S PROPOSED SYSTEM SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PER SECTION 540. OF THE STANDARD SPECIFICATIONS



TRANSVERSE CLOSURE POUR PLAN

SCALE: 3" = 1'-0"



LONGITUDINAL CLOSURE POUR PLAN

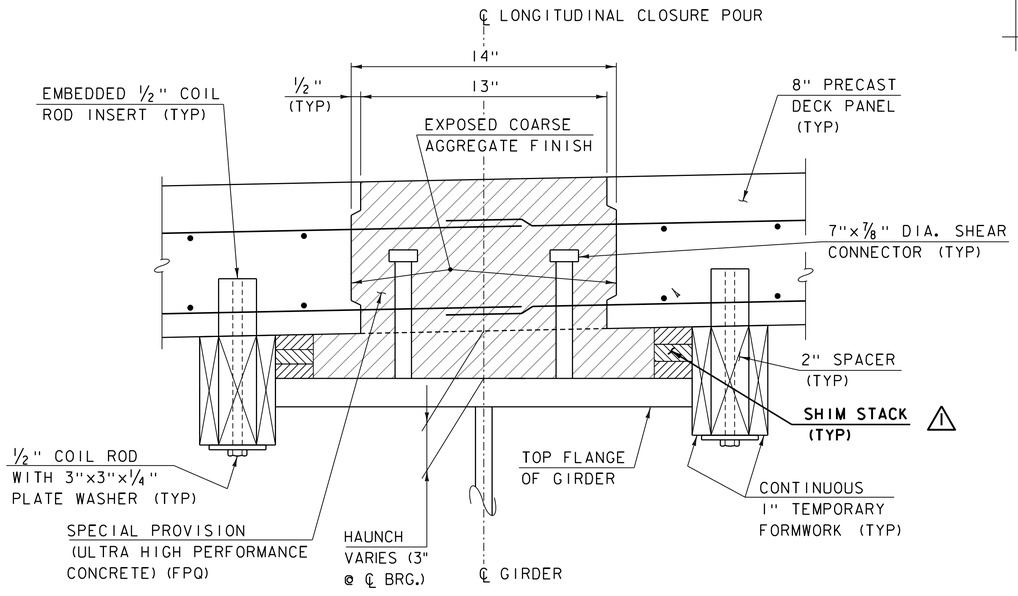
(OVER GIRDERS 2 & 4)
SCALE: 3" = 1'-0"

NOTE

1. ALTERNATE BLOCKOUT CONFIGURATIONS MAY BE PRESENTED TO THE ENGINEER FOR REVIEW AND APPROVAL USED AS LONG AS THE NUMBER OF SHEAR CONNECTORS PER GIRDER MEETS OR EXCEEDS THE AMOUNT SPECIFIED ON SHEET 31.

2. NOTE, TOP AND BOTTOM FORMS NOT SHOWN FOR CLARITY. THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL, DETAILS, MATERIALS, AND METHODS FOR INSTALLING FORMS THAT PREVENT LEAKAGE AND THAT RESIST THE HYDRAULIC HEAD PRESSURES THAT RESULTS WHEN PLACING UHPC. THE HEAD PRESSURE IS EQUAL TO ONE PSI PER VERTICAL FOOT OF JOINT. CONSULT WITH THE MANUFACTURERS RECOMMENDATIONS.

3. CHIMNEYS CONSISTING OF 5 GALLON PLASTIC PAILS SHALL BE PLACED AND SPACED ALONG THE JOINTS TO ADD HYDRAULIC PRESSURE TO PURGE ANY AIR POCKETS THAT MAY FORM WHILE CASTING THE UHPC. THIS SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.



ALTERNATE LONGITUDINAL CLOSURE POUR SECTION

(OVER GIRDERS 2 & 4)
SCALE: 3" = 1'-0"

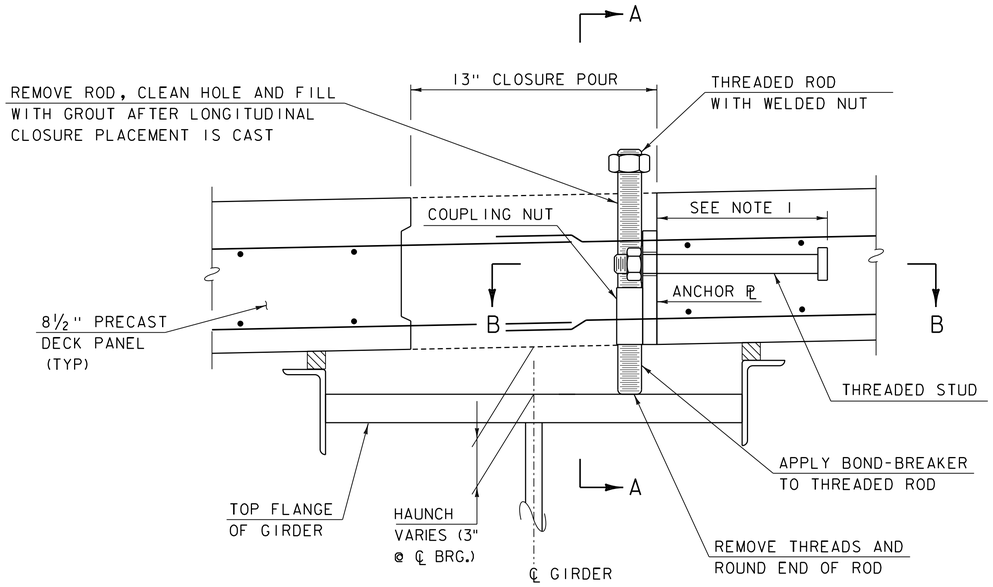
REV	DATE	DESCRIPTION
⚠1	10/13/2015	SHIM STACK NOTE REVISION

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

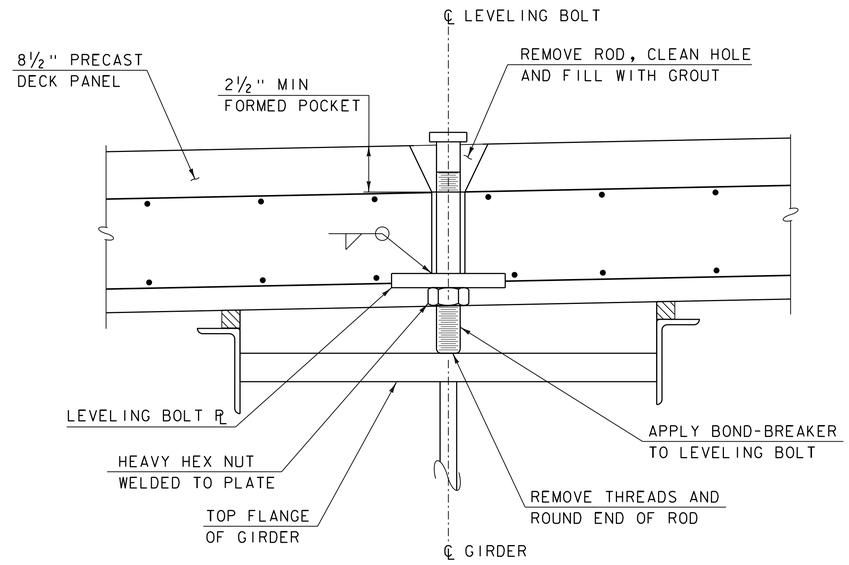
FILE NAME: z12b136sup_dtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
MISCELLANEOUS DECK DETAILS 1

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 27 OF 69



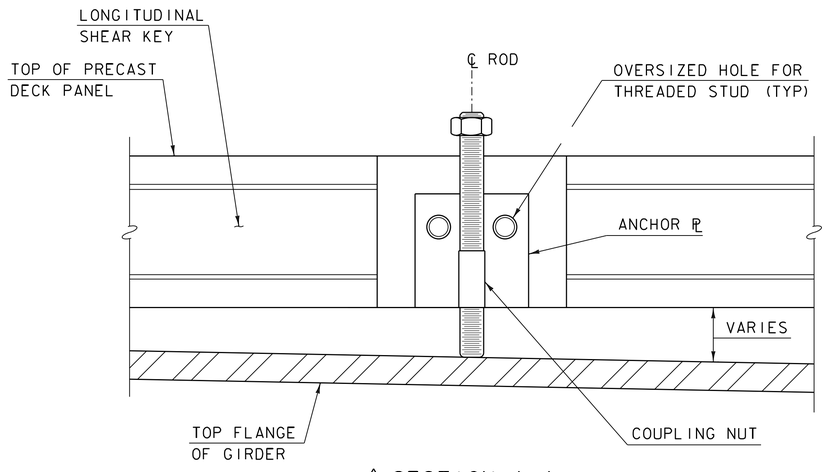
⚠ ALTERNATE LONGITUDINAL CLOSURE POUR SECTION

(OVER GIRDERS 2 & 4)
SCALE: 3" = 1'-0"
NOTE: UHPC NOT SHOWN FOR CLARITY



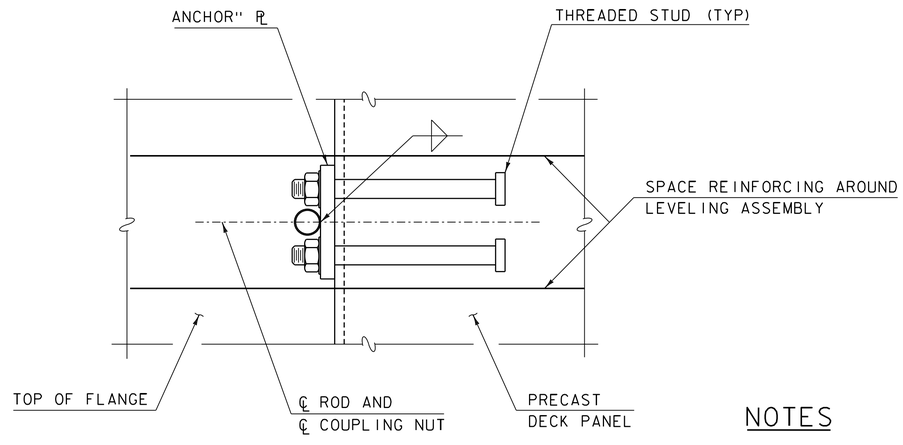
⚠ ALTERNATE INTERIOR VERTICAL ADJUSTMENT ASSEMBLY DETAIL

(OVER GIRDERS 1, 3 & 5)
SCALE: 3" = 1'-0"
NOTE: UHPC NOT SHOWN FOR CLARITY



⚠ SECTION A-A

SCALE: 3" = 1'-0"
NOTE: UHPC NOT SHOWN FOR CLARITY



⚠ SECTION B-B

SCALE: 3" = 1'-0"
NOTE: UHPC NOT SHOWN FOR CLARITY

NOTES

1. LEVELING BOLT DETAIL SHOWN IS CONCECPTUAL. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND DETAILING OF THE LEVELING DEVICE BASED ON THE WEIGHT OF THE PRECAST UNIT AND THE NUMBER OF DEVICES.

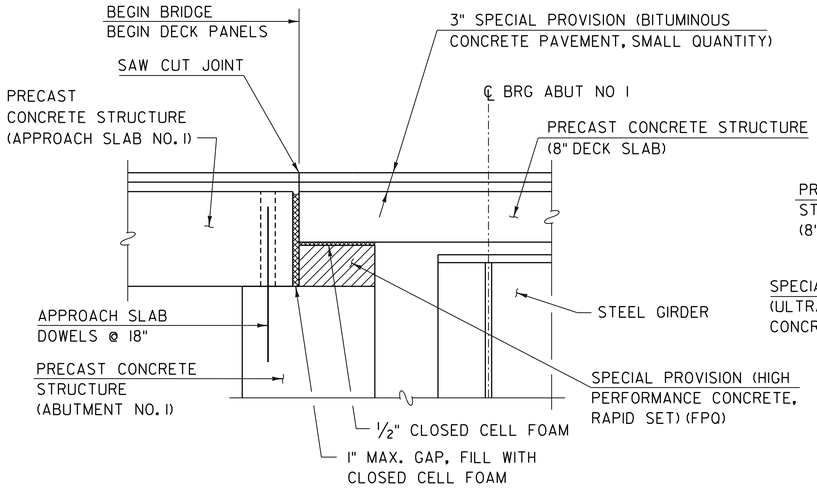
REV	DATE	DESCRIPTION
⚠1	10/13/2015	ALTERNATE CLOSURE POUR ADDITION
⚠2	10/13/2015	SHEET ADDITION

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

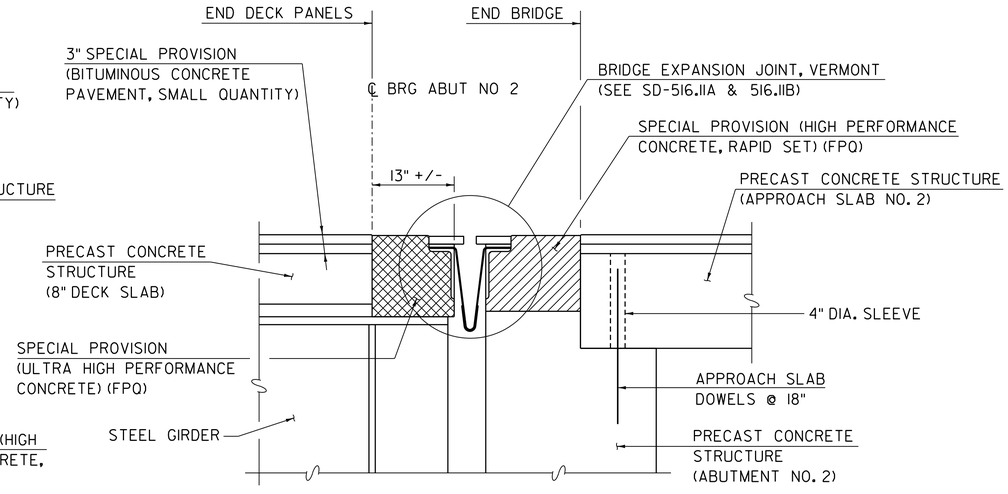
FILE NAME: z12b136sup_dtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
MISCELLANEOUS DECK DETAILS 2

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET ⚠2 28 OF 69



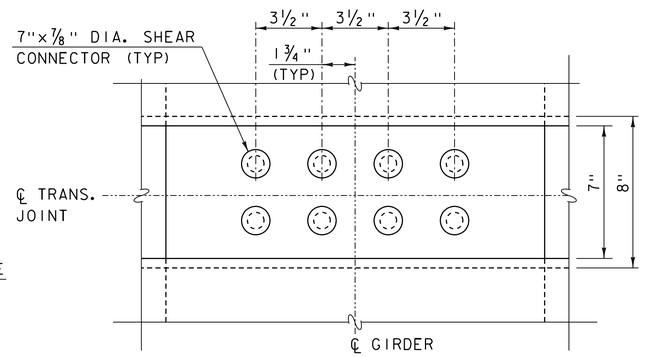
ABUT NO. 1 BRIDGE END DETAIL

SCALE: 1" = 1'-0"



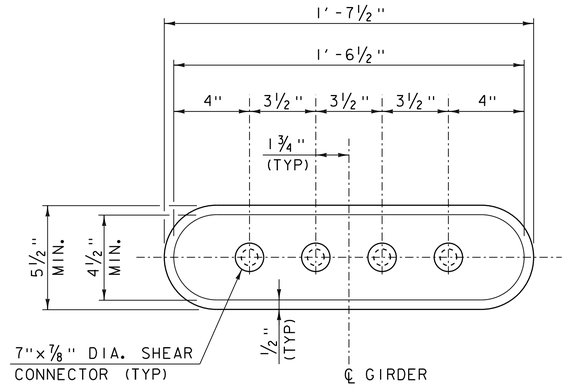
ABUT NO. 2 BRIDGE END DETAIL

SCALE: 1" = 1'-0"
(VT JOINT HARDWARE NOT SHOWN FOR CLARITY)



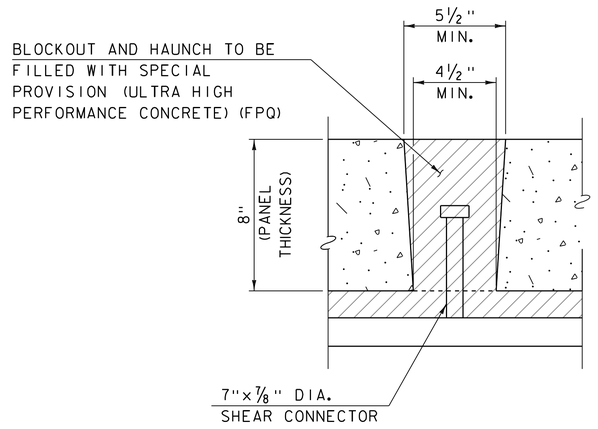
TRANSVERSE JOINT CONNECTOR LAYOUT

SCALE: 3" = 1'-0"



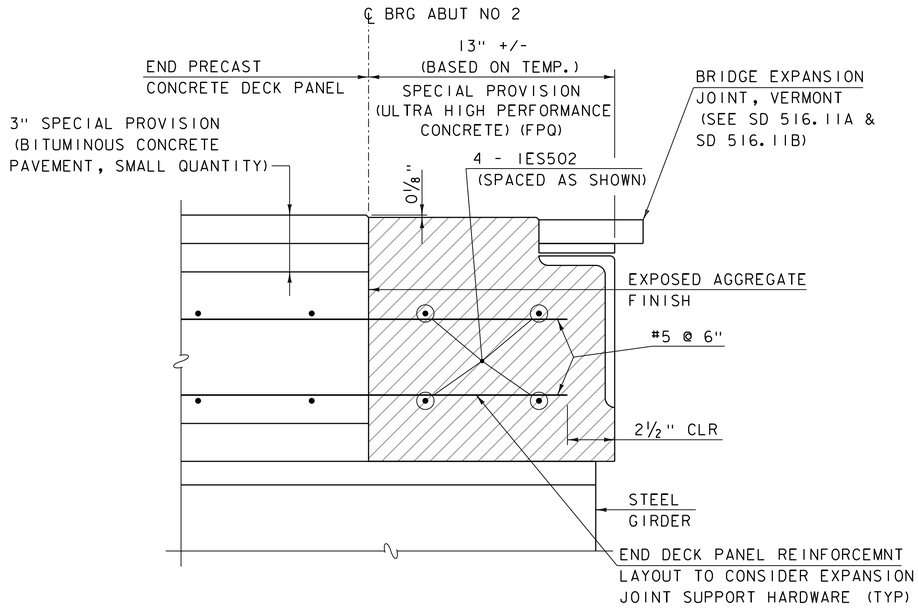
SHEAR CONNECTOR BLOCKOUT PLAN

SCALE: 3" = 1'-0"



SHEAR CONNECTOR BLOCKOUT SECTION

SCALE: 3" = 1'-0"



ABUTMENT NO 2 DECK END SECTION

SCALE: 3" = 1'-0"

NOTE: VERMONT EXPANSION JOINT
HARDWARD NOT SHOWN FOR CLARITY

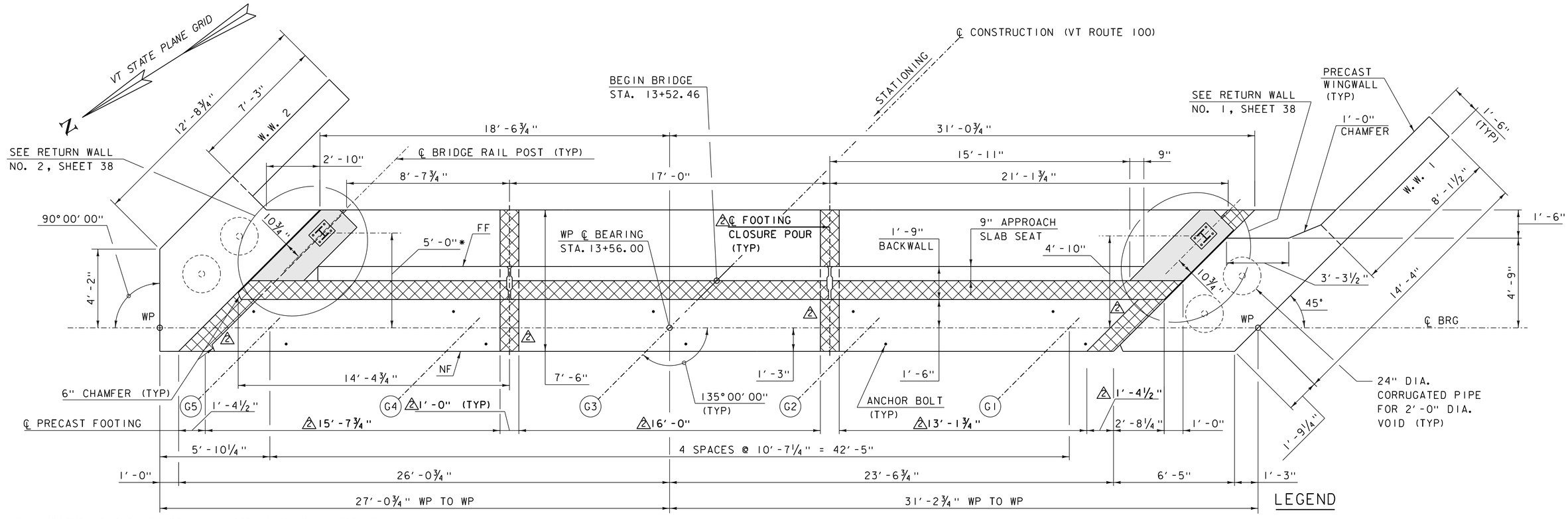
REV	DATE	DESCRIPTION
1	10/13/2015	SHEET NUMBER REVISION

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12bl36sup_dtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
MISCELLANEOUS DECK DETAILS 3

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 1 28A OF 69



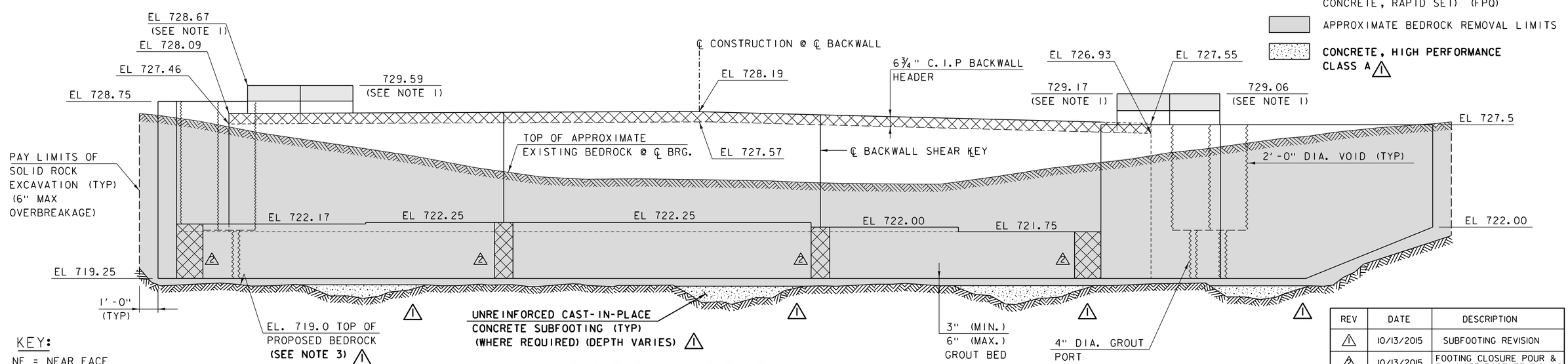
* DIMENSIONS TO ℄ OF BRIDGE RAIL POST HAVE BEEN PROVIDED FOR INFORMATIONAL PURPOSES ONLY. ACTUAL LOCATION SHALL BE DETERMINED BY THE CONTRACTOR. SEE S-360A AND BRIDGE RAIL LAYOUT.

ABUTMENT NO. 1 PLAN

SCALE: ⅜" = 1'-0"

LEGEND

- CONCRETE, HIGH PERFORMANCE, CLASS A
- SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)
- APPROXIMATE BEDROCK REMOVAL LIMITS
- **CONCRETE, HIGH PERFORMANCE CLASS A** ⚠1



ABUTMENT NO. 1 ELEVATION

SCALE: ⅜" = 1'-0"

KEY:

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

NOTES

1. TOP OF RETURN WALL ELEVATIONS ARE THEORETICAL AND SHALL MATCH TOP OF CAST-IN-PLACE CURB ELEVATIONS ON DECK.
2. BACKWALL ELEVATIONS GIVEN AT CENTERLINE OF BACKWALL.
⚠1 **3. TOP OF PROPOSED BEDROCK PROFILE SHOWN IS CONCEPTUAL.**

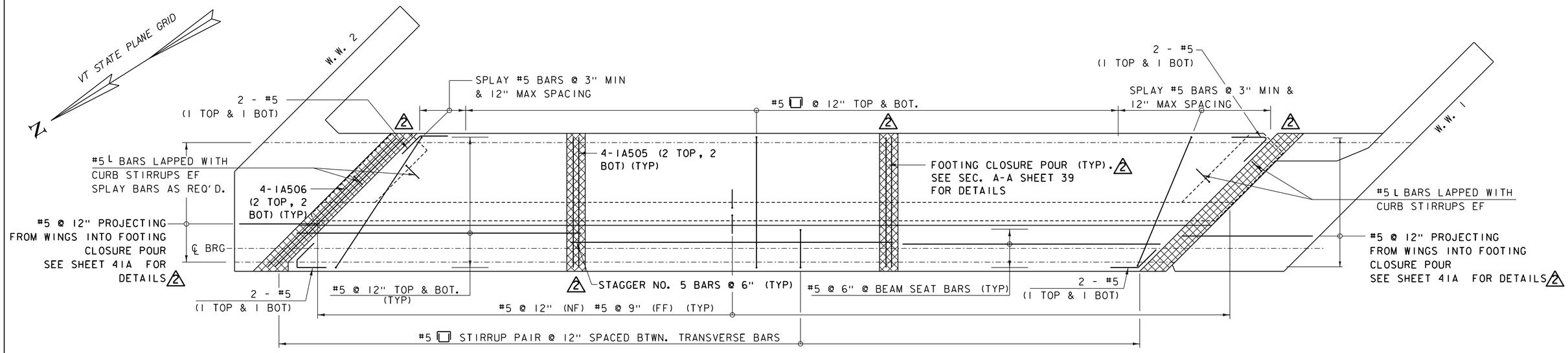
REV	DATE	DESCRIPTION
⚠1	10/13/2015	SUBFOOTING REVISION
⚠2	10/13/2015	FOOTING CLOSURE POUR & ELIMINATE POST TENSIONING

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

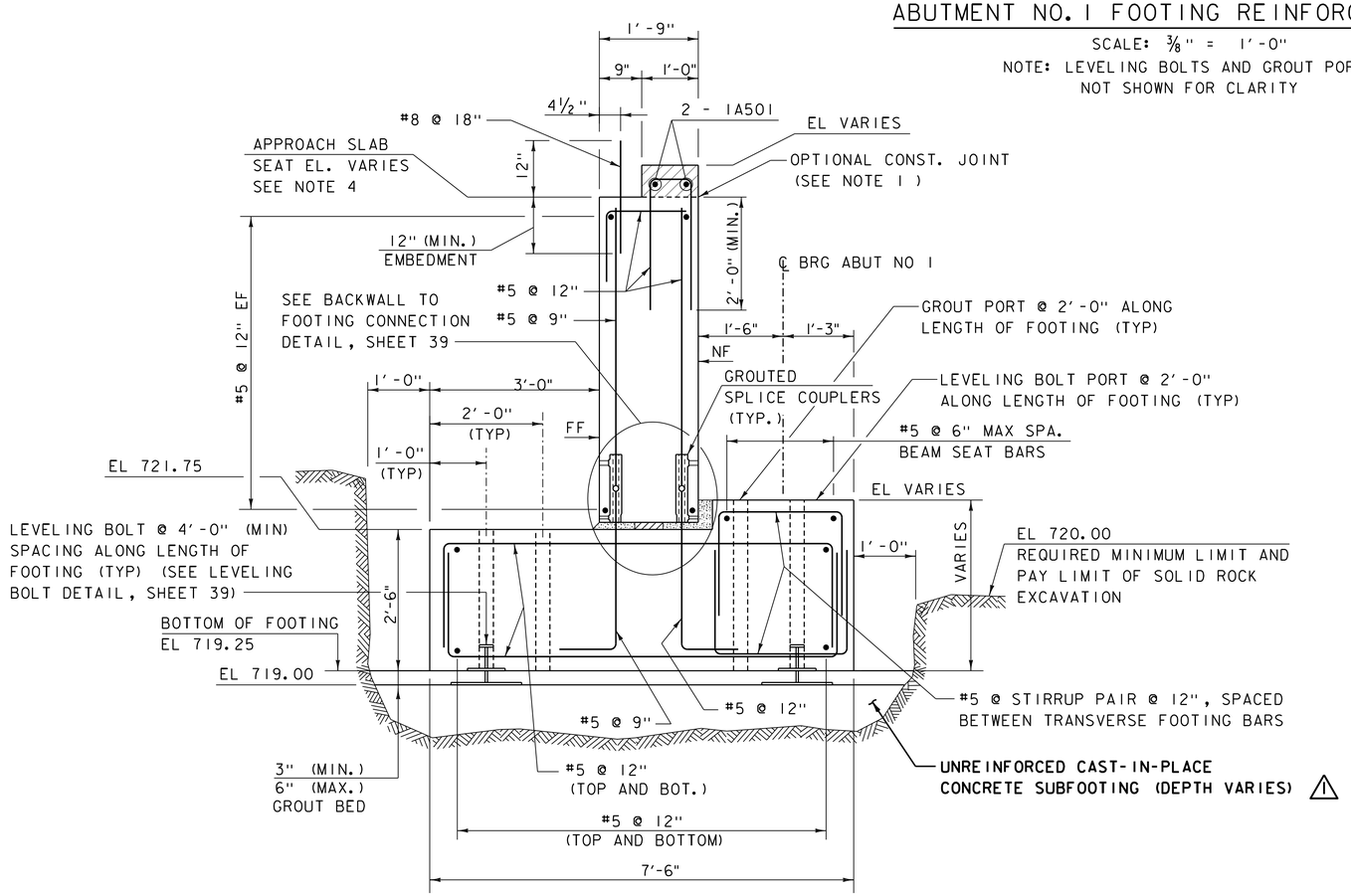
FILE NAME: z12bl36abut.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO. 1 PLAN AND ELEVATION

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 36 OF 69



ABUTMENT NO. 1 FOOTING REINFORCING PLAN

SCALE: 3/8" = 1'-0"
NOTE: LEVELING BOLTS AND GROUT PORTS
NOT SHOWN FOR CLARITY



TYPICAL ABUTMENT NO. 1 SECTION

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

LEGEND

SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)

NOTES

1. THE CONSTRUCTION JOINTS ABOVE THE APPROACH SLAB SEAT AND BEAM SEATS ARE OPTIONAL AND MAY BE INCLUDED WITH THE PRECAST BACKWALL. THE BACKWALL MAY ALSO BE PRECAST WITH THE FOOTING.
2. FOR APPROACH SLAB SEAT ELEVATIONS, SEE SHEET 35.

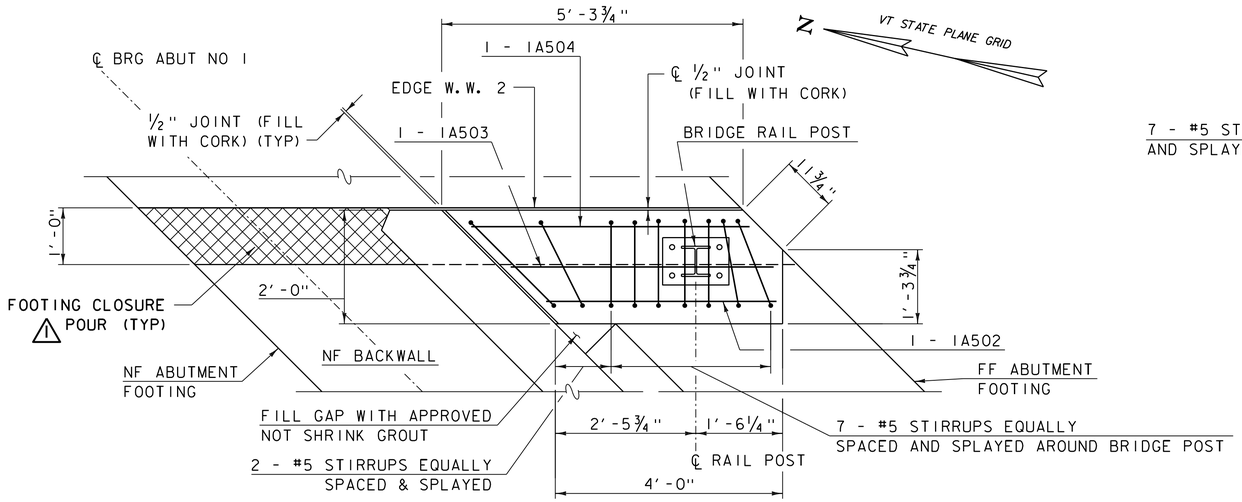
REV	DATE	DESCRIPTION
1	10/13/2015	SUBFOOTING REVISION
2	10/13/2015	CLOSURE POUR ADDITION

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

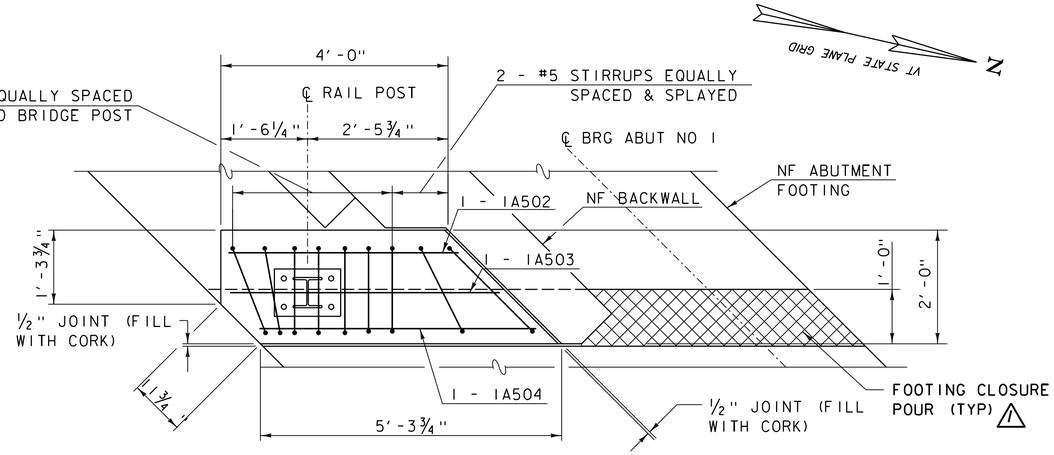
FILE NAME: z12bl36abutdtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO 1 DETAILS (1 OF 3)

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 37 OF 69



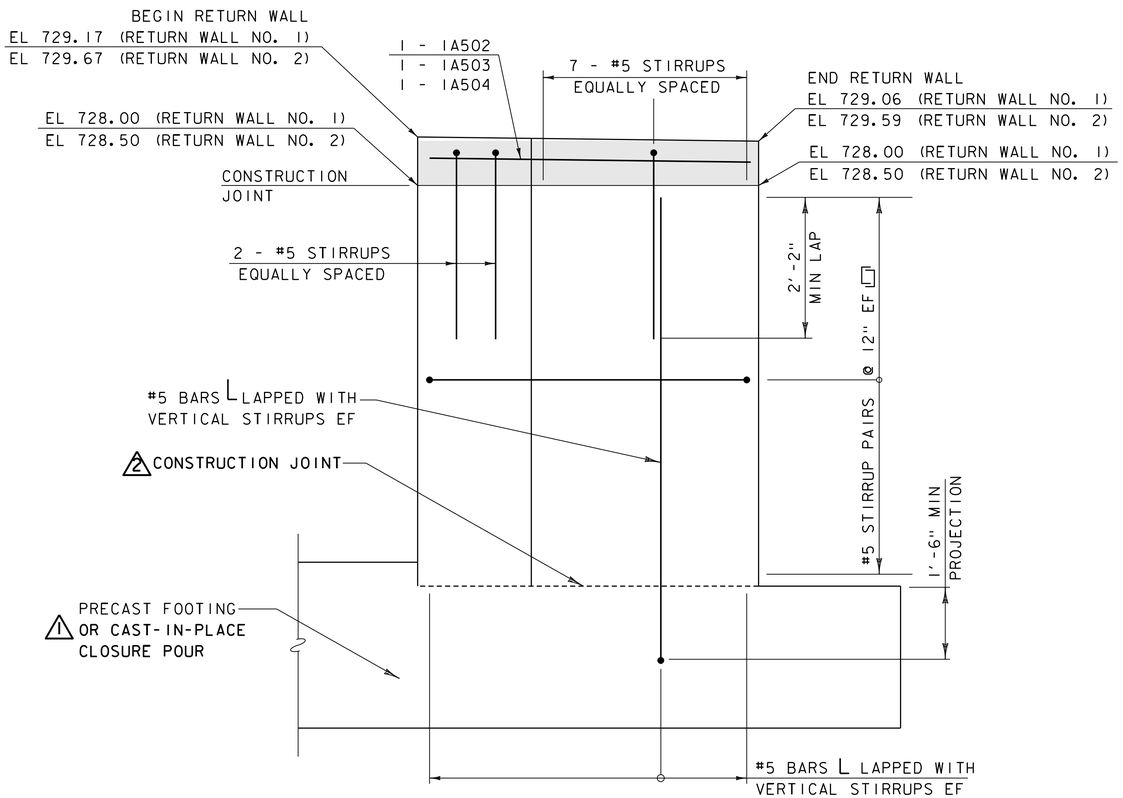
RETURN WALL NO. 2 PLAN

SCALE: ¾" = 1'-0"



RETURN WALL NO. 1 PLAN

SCALE: ¾" = 1'-0"



RETURN WALL ELEVATION

SCALE: ¾" = 1'-0"

NOTE: PRECAST WINGWALL AND BACKWALL NOT SHOWN FOR CLARITY

LEGEND

- CONCRETE, HIGH PERFORMANCE, CLASS A
- 1 SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)

NOTES

2 1.

2. TOP OF RETURN WALL ELEVATIONS ARE THEORETICAL AND SHALL MATCH CAST-IN-PLACE CURB ELEVATIONS ON DECK.

3. RAIL POST LOCATIONS TO BE DEVELOPED BY FABRICATOR AND RAIL POST MANUFACTURER.

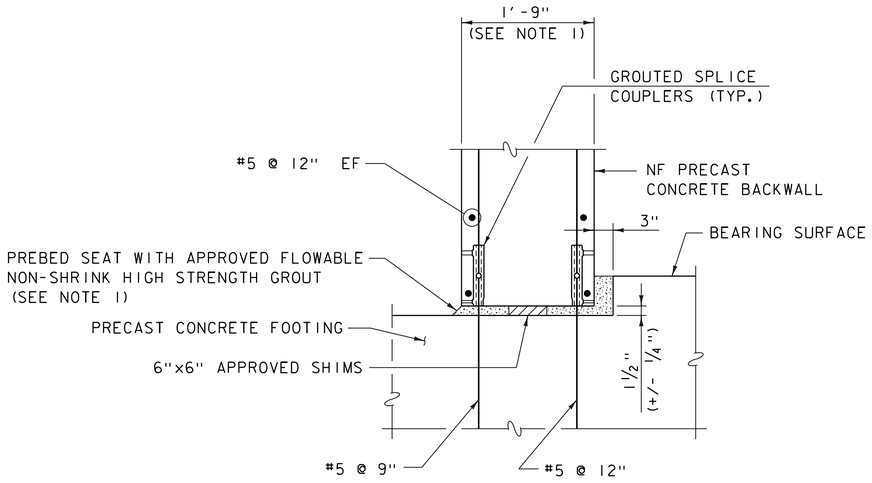
REV	DATE	DESCRIPTION
1	10/13/2015	CLOSURE POUR ADDITION
2	10/13/2015	CONSTRUCTION JOINT REV.

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

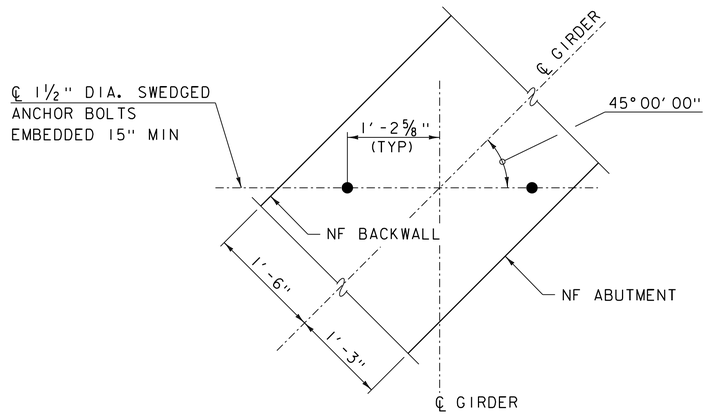
FILE NAME: z12b136abutdtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO 1 DETAILS (2 OF 3)

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 38 OF 69



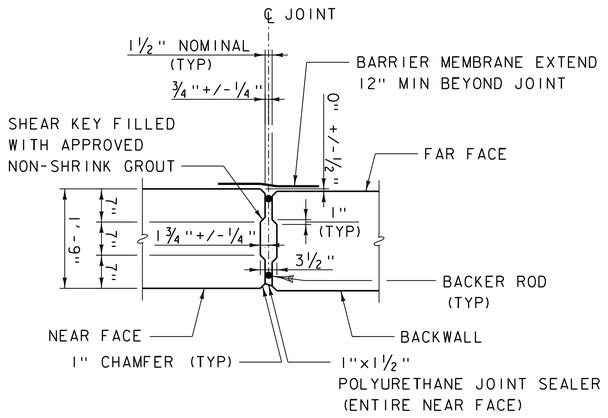
BACKWALL TO FOOTING CONNECTION DETAIL

SCALE: 1" = 1'-0"



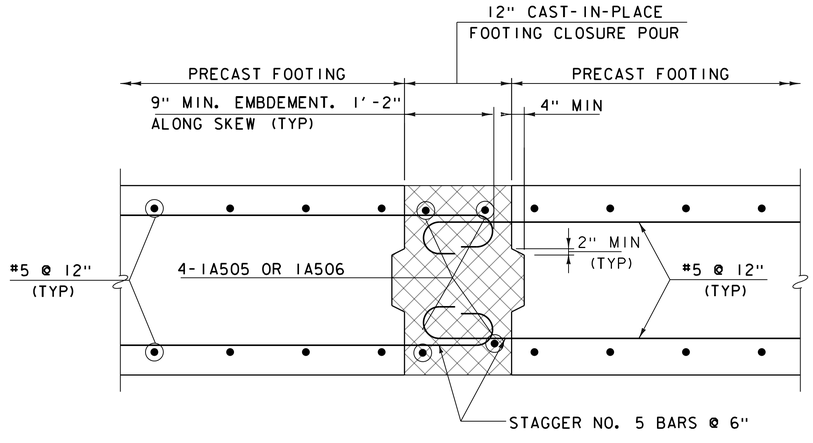
ANCHOR BOLT LAYOUT

SCALE: 1" = 1'-0"



BACKWALL VERTICAL JOINT

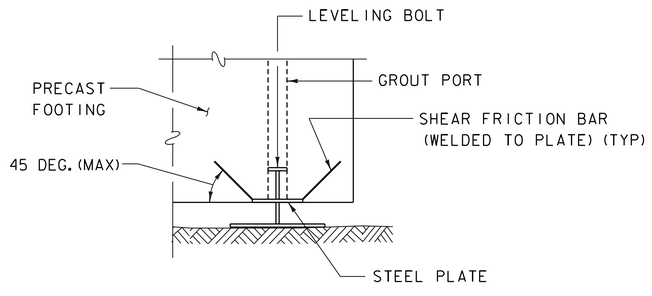
(BELOW APPROACH SLAB SEAT)
SCALE: ¾" = 1'-0"



⚠ PRECAST FOOTING CLOSURE POUR DETAIL

(SECTION A-A)

SCALE: 1" = 1'-0"



LEVELING BOLT DETAIL

SCALE: 1" = 1'-0"

NOTE: LEVELING BOLT DETAIL SHOWN IS CONCECPTUAL. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND DETAILING OF THE LEVELING DEVICE BASED ON THE WEIGHT OF THE PRECAST UNIT AND THE NUMBER OF DEVICES.

KEY:

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

NOTES

1. THE BACKWALL MAY BE PRECAST WITH THE FOOTING.
2. THE LEVELING BOLT DETAIL SHOWN IS CONCEPTUAL. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND DETAILING OF THE LEVELING DEVICE BASED ON THE WEIGHT OF THE PRECAST UNIT AND NUMBER OF DEVICES.

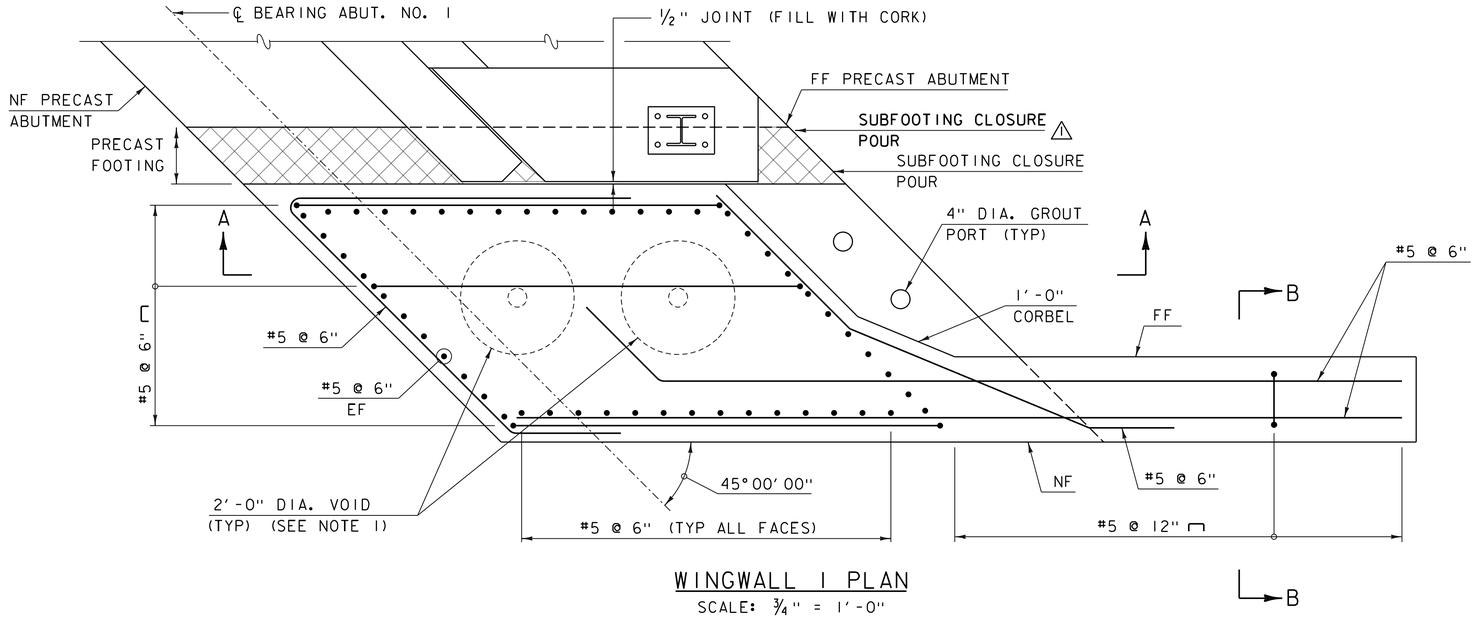
REV	DATE	DESCRIPTION
⚠	10/13/2015	FOOTING MATCH CAST JOINT REMOVAL & CLOSURE POUR ADDITION

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

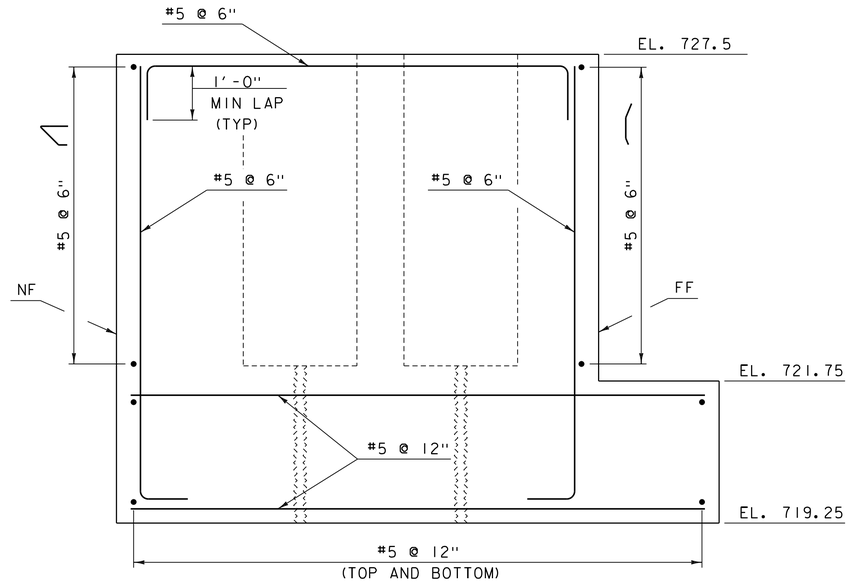
FILE NAME: z12b136abutdtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO 1 DETAILS (3 OF 3)

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 39 OF 69



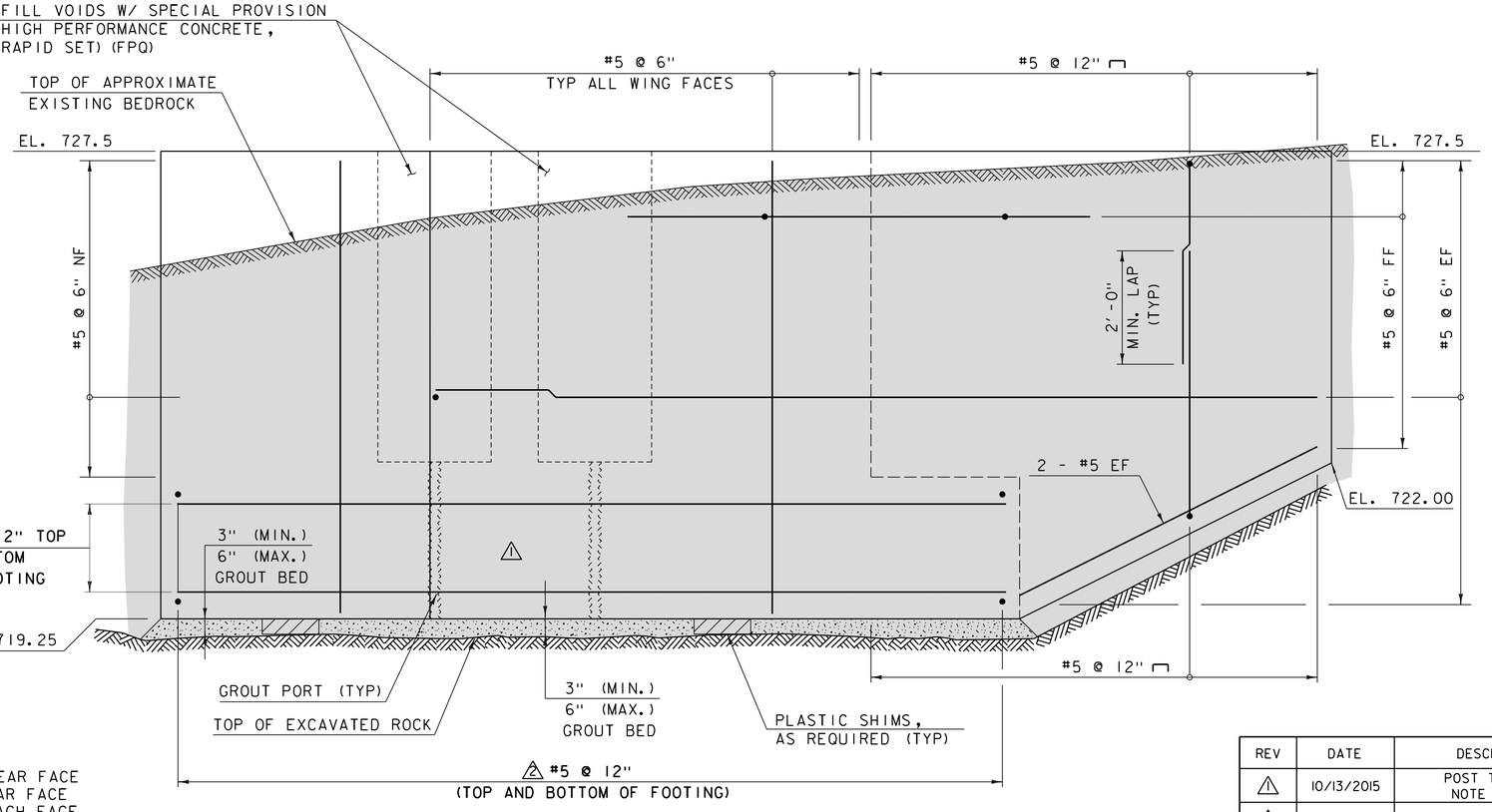
WINGWALL 1 PLAN

SCALE: ¾" = 1'-0"



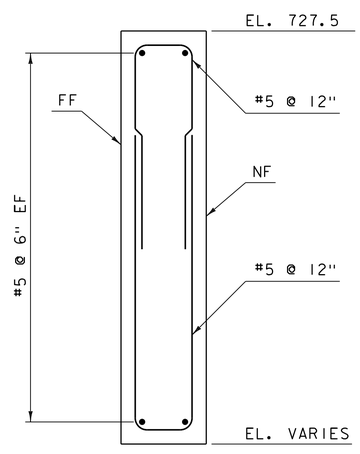
SECTION A-A

SCALE: ¾" = 1'-0"



WINGWALL 1 ELEVATION

SCALE: ¾" = 1'-0"



SECTION B-B

(CORNER BARS NOT SHOWN)
SCALE: ¾" = 1'-0"

KEY

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

NOTE

1. VOIDS ARE OPTIONAL AND ARE INTENDED TO REDUCE PRECAST WEIGHT. LOCATION AND NUMBER OF VOIDS CAN BE VARIED BY THE CONTRACTOR PROVIDED THE REINFORCING LAYOUT AND REQUIRED CLEARANCES ARE MAINTAINED. VOIDS TO BE FILLED WITH SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ).

REV	DATE	DESCRIPTION
⚠1	10/13/2015	POST TENSIONING NOTE REMOVAL
⚠2	10/13/2015	FOOTING REBAR CALLOUT

LEGEND

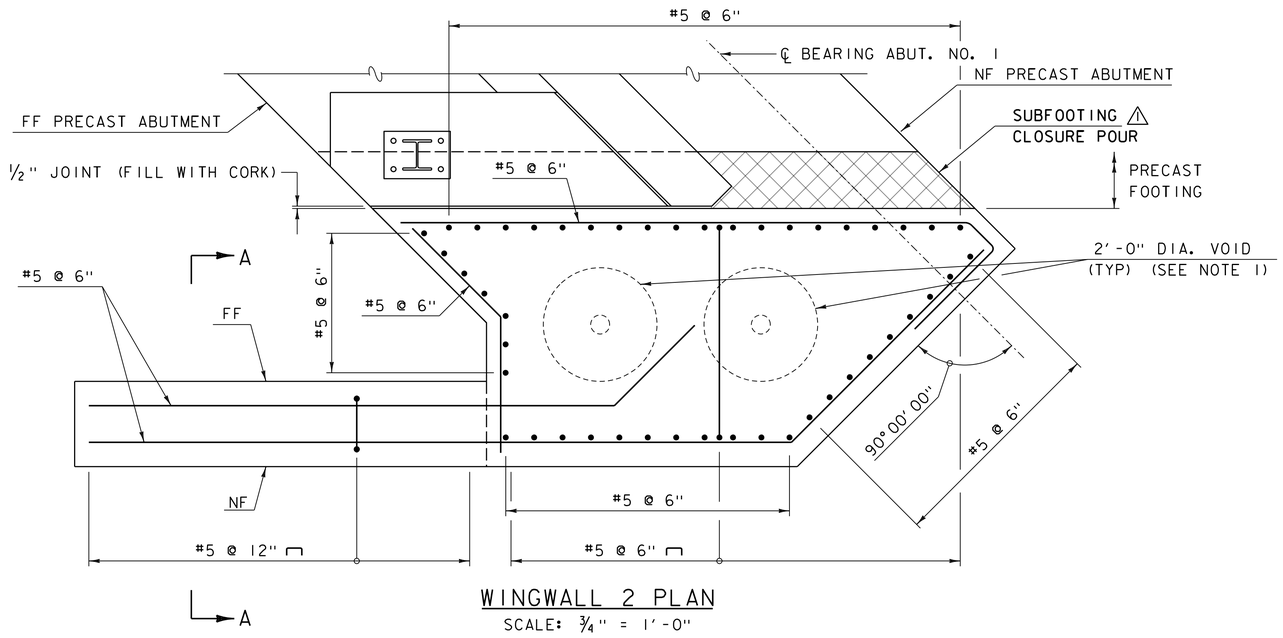
APPROXIMATE BEDROCK REMOVAL LIMITS

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

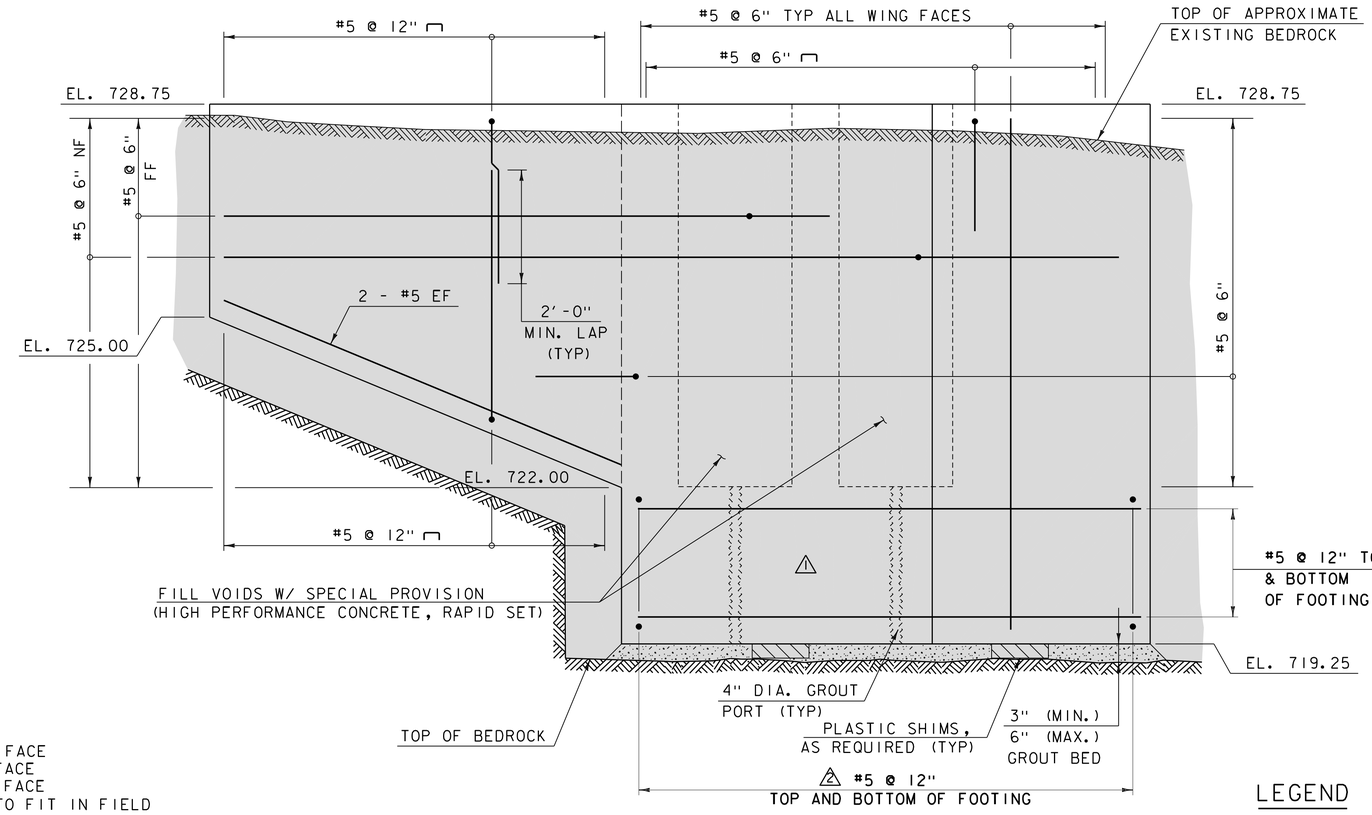
FILE NAME: z12b136wingdtls.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
ABUTMENT NO 1 WINGWALL DETAILS (1 OF 3)

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK
SHEET 40 OF 69



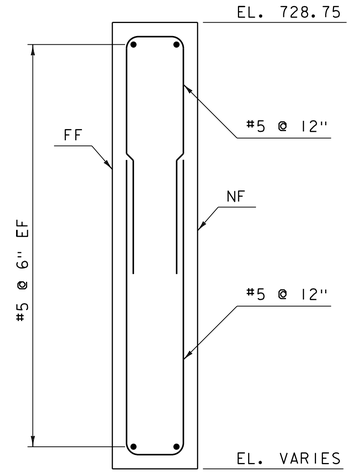
WINGWALL 2 PLAN

SCALE: ¾" = 1'-0"



WINGWALL 2 ELEVATION

SCALE: ¾" = 1'-0"



SECTION A-A

(CORNER BARS NOT SHOWN)
SCALE: ¾" = 1'-0"

KEY

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

NOTE

1. VOIDS ARE OPTIONAL AND ARE INTENDED TO REDUCE PRECAST WEIGHT. LOCATION AND NUMBER OF VOIDS CAN BE VARIED BY THE CONTRACTOR PROVIDED THE REINFORCING LAYOUT AND REQUIRED CLEARANCES ARE MAINTAINED. VOIDS TO BE FILLED WITH SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ).

LEGEND

APPROXIMATE BEDROCK REMOVAL LIMITS

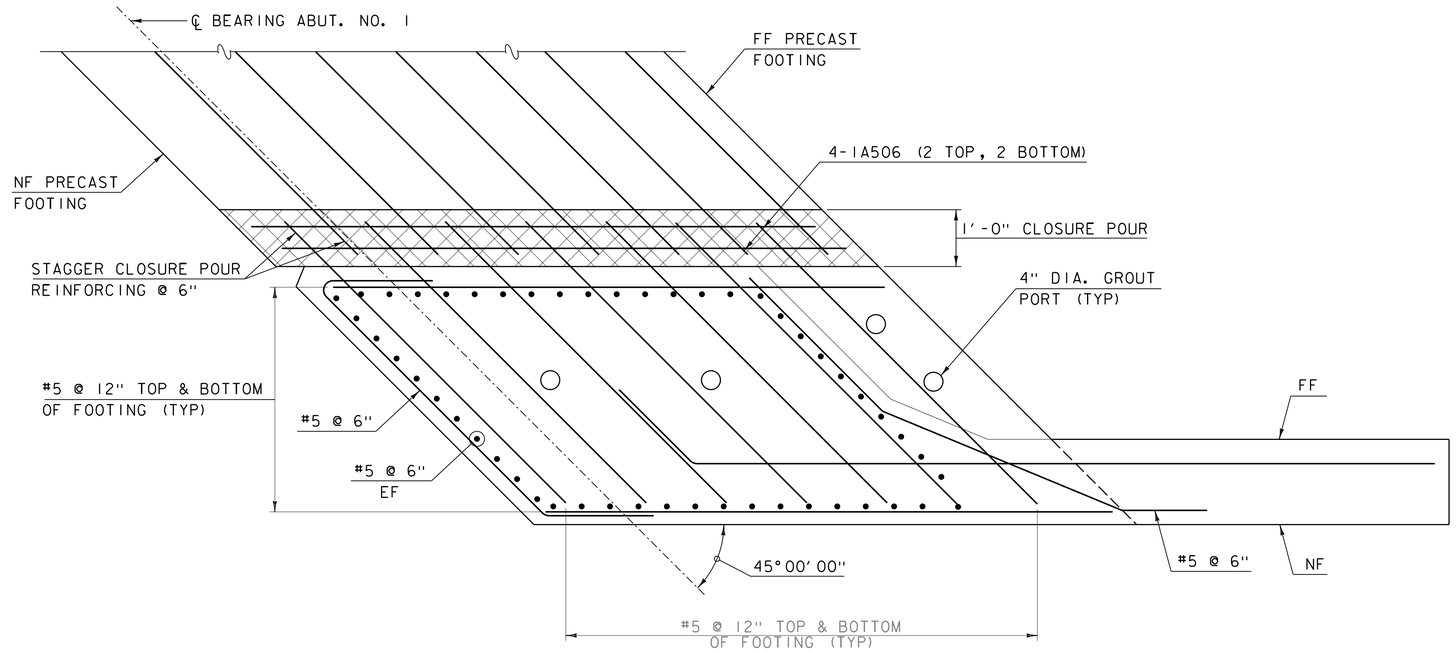
REV	DATE	DESCRIPTION
⚠1	10/13/2015	POST TENSIONING NOTE REMOVAL
⚠2	10/13/2015	FOOTING REBAR CALLOUT

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

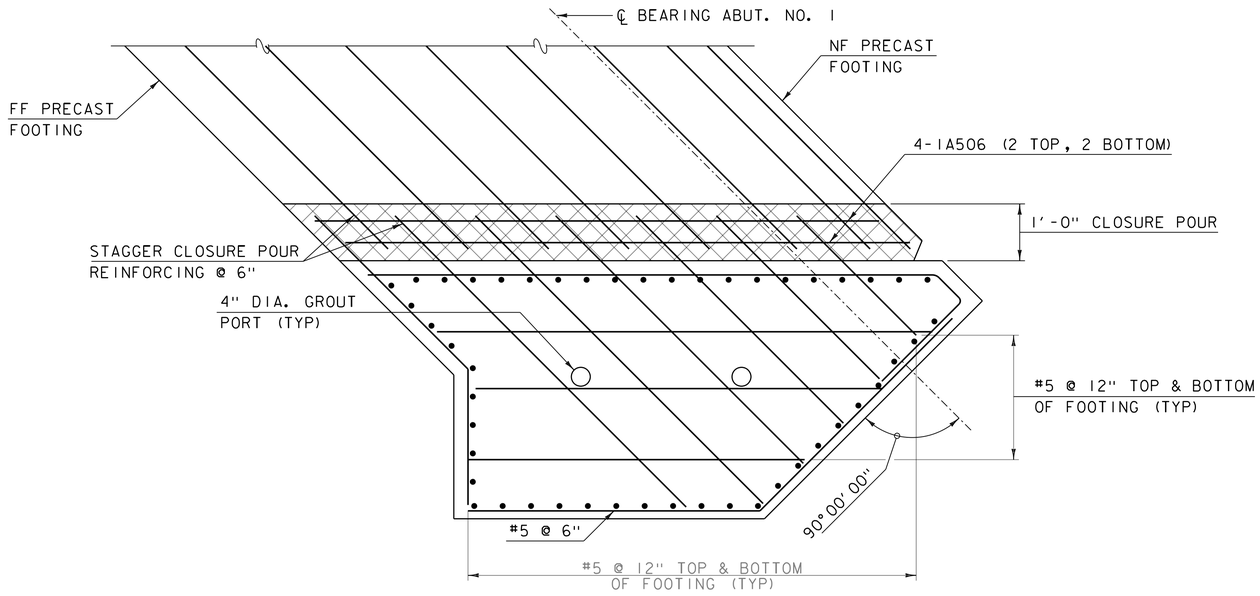
FILE NAME: z12bl36wingdtls.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK

ABUTMENT NO 1 WINGWALL DETAILS (2 OF 3) SHEET 41 OF 69



⚠ ABUTMENT NO. 1 FOOTING / WINGWALL 1 - FOOTING PLAN

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



⚠ ABUTMENT NO. 1 FOOTING / WINGWALL 2 - FOOTING PLAN

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

SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)

KEY

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

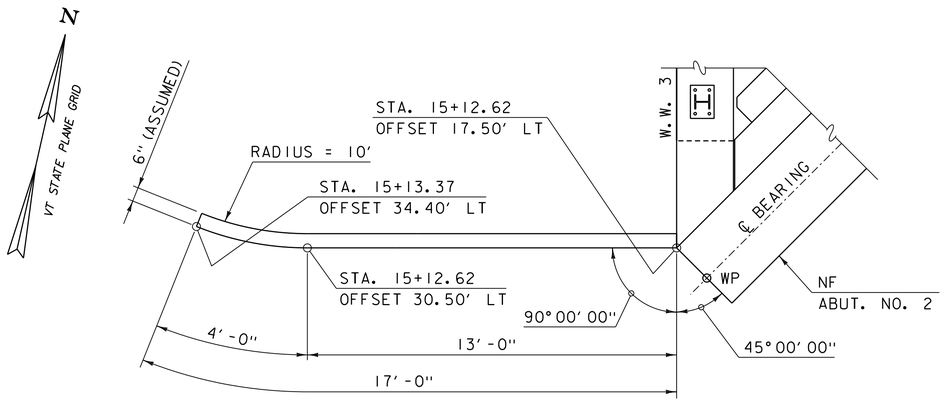
REV	DATE	DESCRIPTION
⚠1	10/13/2015	CLOSURE POUR ADDITION
⚠2	10/13/2015	SHEET ADDITION

McFarland Johnson

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

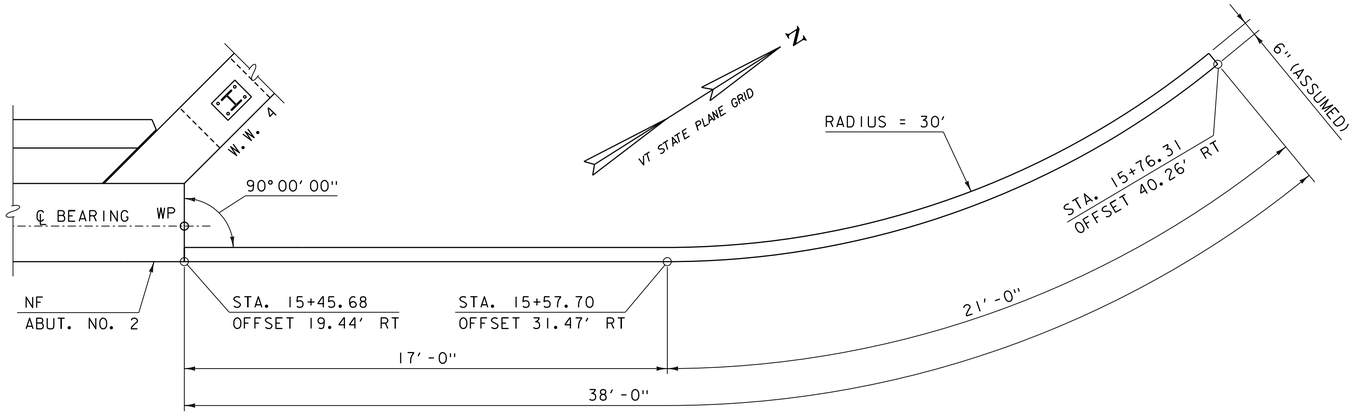
FILE NAME: z12b136wingdtls.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
ABUTMENT NO 1 WINGWALL DETAILS (3 OF 3)

PLOT DATE: 10/13/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK
SHEET ⚠2 41A OF 69



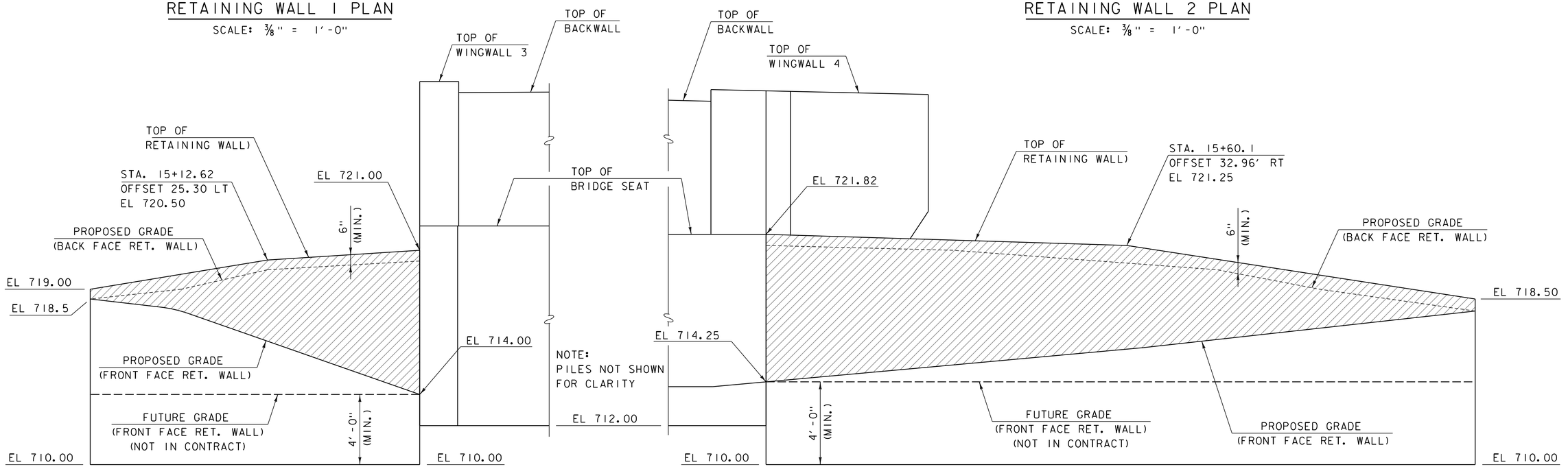
RETAINING WALL 1 PLAN

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



RETAINING WALL 2 PLAN

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

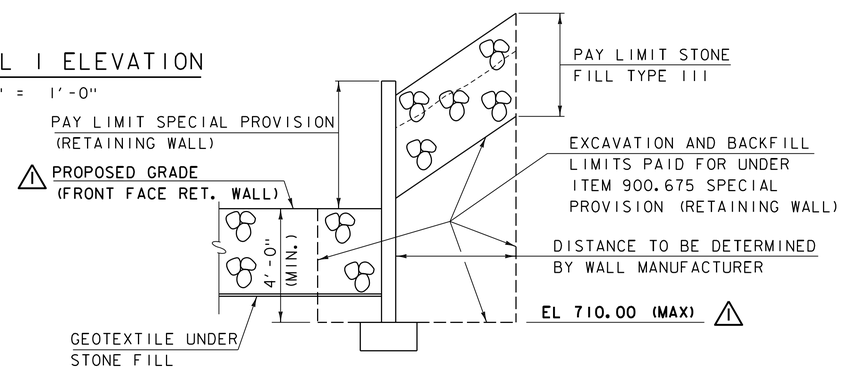


RETAINING WALL 1 ELEVATION

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

RETAINING WALL 2 ELEVATION

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



TYPICAL SECTION

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

PAY LIMITS OF ITEM 900.675
SPECIAL PROVISION (RETAINING WALL)

NOTES

1. FOR RETAINING WALL NOTES, SEE SHEET 3.

REV	DATE	DESCRIPTION
⚠	10/13/2015	BOTTOM OF WALL REVISION

PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136sub_retwall.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
RETAINING WALL DETAILS

PLOT DATE: 10/13/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 49 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

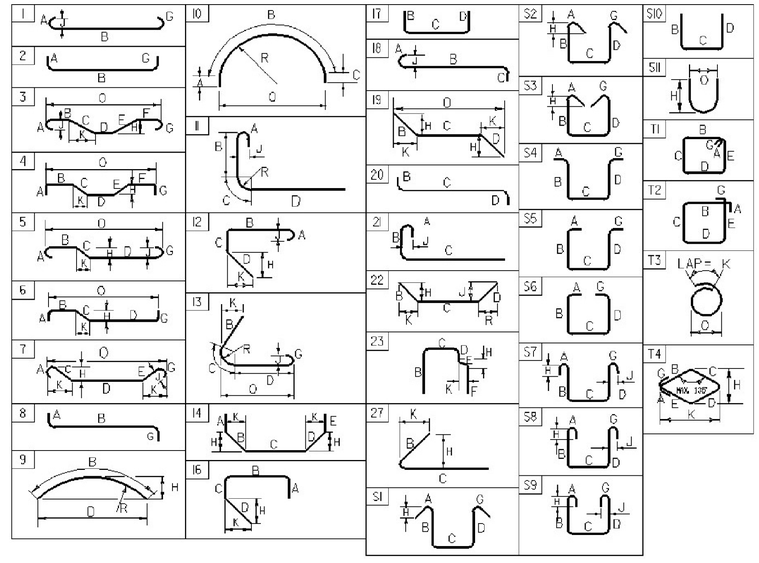
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	SPAN 1																
	30	5	33'- 8"	1ES501	STR												
✳	9	5	25'- 6"	1ES502	STR												
	APPROACH SLAB 1																
✳	13	5	24'- 3"	1EAS501	STR												
	APPROACH SLAB 2																
✳	13	5	24'- 8"	2EAS501	STR												
	ABUTMENT NO. 1																
✳	5	5	25'- 8"	1A501	STR												
	2	5	3'- 6"	1A502	STR												
	2	5	4'- 1"	1A503	STR												
	2	5	4'- 9"	1A504	STR												
	8	5	7'- 0"	1A505	STR	1											
	8	5	10'- 0"	1A506	STR	1											
	ABUTMENT NO. 2																
✳	9	5	22'- 9"	2A501	STR												
	WINGWALL 3																
✳	2	5	11'- 2"	3W501	STR												
	1	5	12'- 1"	3W502	STR												
	1	5	13'- 0"	3W503	STR												
	WINGWALL 4																
✳	2	5	13'- 0"	4W501	STR												
	1	5	12'- 1"	4W502	STR												
	1	5	11'- 2"	4W503	STR												

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

~ NOTES ~

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-SI). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.
12. ⬡ **DENOTES 10/13/2015 REVISION HISTORY**



ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER INCHES	AREA INCHES ^{2}	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

PROJECT NAME: **WAITSFIELD**
PROJECT NUMBER: **BRF 013-4(39)**

FILE NAME: **z12b136reinf.xls**
PROJECT MANAGER: **R. YOUNG**
DESIGNED BY: **D. KULL**
REINFORCING STEEL SCHEDULE

PLOT DATE: **10/12/2015**
DRAWN BY: **S. MERKWAN**
CHECKED BY: **T. KENDRICK**
SHEET **50** OF **69**