STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROPOSED IMPROVEMENT
BRIDGE PROJECT

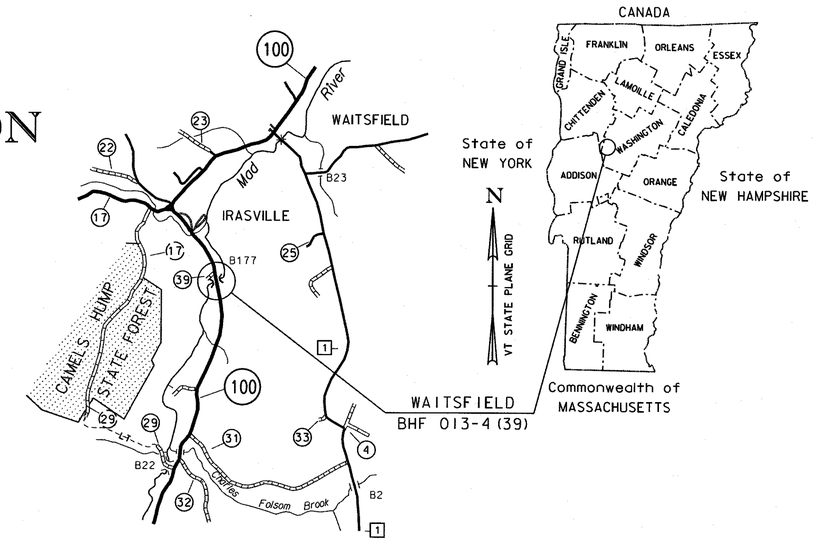
TOWN OF WAITSFIELD
COUNTY OF WASHINGTON

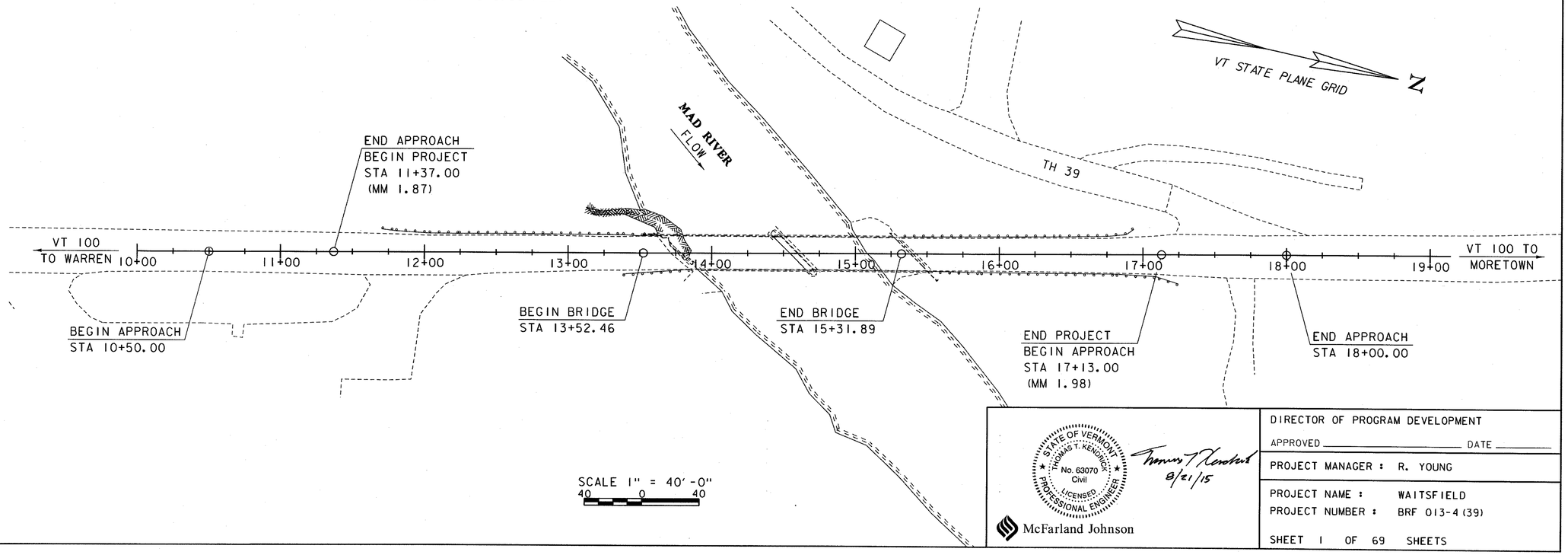
ROUTE NO : VT 100 (MINOR ARTERIAL) BRIDGE NO : 177

BEGINNING AT A POINT APPROXIMATLY 0.8 MILES SOUTH OF JUNCTION OF VT ROUTE 100 WITH VT ROUTE 17 AND EXTENDING NORTHERLY 576 FEET ALONG VT ROUTE 100

WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES REPLACEMENT OF THE EXISTING BRIDGE WITH A NEW BRIDGE ON THE EXISTING ALIGNMENT WITH NECESSARY ROADWAY AND CHANNEL WORK.

LENGTH OF STRUCTURE: 179.43 FEET
LENGTH OF ROADWAY: 396.57 FEET
LENGTH OF PROJECT: 576.00 FEET





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

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.

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

QUALITY ASSURANCE PROGRAM : LEVEL 2
SURVEYED BY : G. HITCHCOCK SURVEYED DATE : 5-23-2012
DATUM VERTICAL NAVD88 HORIZONTAL NAD83 (2007)

STATE OF VERMONT
THOMAS T. KENDRICK
No. 63070
Civil
LICENSED
PROFESSIONAL ENGINEER

8/21/15

McFarland Johnson

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED _____ DATE _____

PROJECT MANAGER : R. YOUNG

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

SHEET 1 OF 69 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version
LRFD

INDEX OF SHEETS

PLAN SHEETS

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S-360A	BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM	04-23-2012
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S-363	THRIE BEAM TO STANDARD STEEL BEAM TRANSITION SECTION	04-23-2012
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STRUCTURES DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	2/9/2012
SD-502.00	CONCRETE DETAILS AND NOTES	10/10/2012
SD-516.10	BRIDGE JOINT ASHPALTIC PLUG	8/29/2011
SD-516.11a	BRIDGE EXPANSION JOINT, VERMONT	2/24/2011
SD-516.11b	BRIDGE EXPANSION JOINT, VERMONT	2/24/2011
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES	6/4/2010
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES	5/2/2011

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

DOWNSTREAM 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.		---

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

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

FILE NAME: **z12b136enggeneral.xls**
PROJECT LEADER: **R.YOUNG**
DESIGNED BY: **VTRANS/D.KULL**
PRELIMINARY INFORMATION SHEET 1

PLOT DATE: 9/24/2015
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" SHALL 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 WILL 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 SHALL BE ITEM 900.608 SPECIAL PROVISION (ULTRA HIGH PERFORMANCE CONCRETE)(FPQ).

16. ALL CONCRETE PLACED IN ABUTMENT BACKWALL HEADERS, APPROACH SLABS AND PILE VOID CLOSURE POURS SHALL BE ITEM 900.608 (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ).

17. ALL CONCRETE PLACED IN THE BRUSH CURBS AND WINGWALL CURBS SHALL 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 SHALL 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 SHALL BE PAID FOR UNDER ITEM 506.55 STRUCTURAL STEEL PLATE GIRDER 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 SHALL BE INCLUDED IN ITEM 506.55 "STRUCTURAL STEEL, PLATE GIRDER". 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.

29. A CLASS B CONTACT SURFACE SHALL BE PREPARED AT ALL BOLTED SPLICE CONNECTIONS AND CONNECTION PLATE FAYING SURFACE.

PRECAST CONCRETE DECK PANELS

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

31. 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.

32. 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).

33. SHEAR CONNECTOR BLOCKOUTS SHOWN ON SHEET 28 MAY BE ALTERED BY THE CONTRCTOR

34. 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).

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 AND 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 WILL INCLUDE ALL WORK NECESSARY TO FABRICATE, DELIVER, AND ASSEMBLE EACH UNIT COMPLETE AND IN-PLACE AS SHOWN ON THE PLANS. ALL APPURTENANCES SHALL BE INCIDENTAL TO THE APPROPRIATE PRECAST CONCRETE 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 SHALL 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 SHALL 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 SHALL 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.

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 SHALL 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. BACKFILLING ABUTMENT 1 SHALL NOT BE PERMITTED UNTIL ERECTION OF THE STEEL GIRDERS HAS OCCURRED.

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

47. PLACEMENT OF THE PRECAST FOOTINGS WITH LEVELING BOLTS SHALL NOT BE PERMITTED UNTIL THE GROUT BED (WHERE REQUIRED) HAS ACHIEVED A STRENGTH OF 3000 PSI.

SUBSTRUCTURE ON LEDGE

48. 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.

49. 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.

50. 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.

51. ABUTMENT 1 HAS BEEN DESIGNED FOR THE BOTTOM OF FOOTING ELEVATION SHOWN ON THE PLANS. LEDGE SHALL BE EXCAVATED DOWN TO THE INDICATED BOTTOM OF THE 3" MINIMUM GROUT BED (WHERE REQUIRED), FOR THE FULL WIDTH AND LENGTH OF THE ABUTMENT. IF THE ACTUAL LEDGE ELEVATION IS GREATER THAN 6" BELOW THE BOTTOM OF FOOTING, ADDITIONAL ROCK EXCAVATION SHALL BE MADE TO SECURE A 12" MINIMUM SUBFOOTING. IF OVER EXCAVATION RESULTS IN THE NEED FOR A SUBFOOTING, THE SUBFOOTING SHALL MEET THE REQUIREMENTS OF CLASS C CONCRETE. THE COST FOR PREPARATION AND PLACEMENT OF ANY CONCRETE SUBFOOTING SHALL BE AT THE CONTRACTORS EXPENSE.

52. ALL COSTS ASSOCIATED WITH PREVENTING ROCK FROM ENTERING THE MAD RIVER SHALL BE INCLUDED IN ITEM 205.10.

PILES

53. 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

McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12b136frm.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R.YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D.KULL	CHECKED BY: T.KENDRICK
PROJECT NOTES (1 OF 2)	SHEET 3 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROJECT NOTES

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

55 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.

56. 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.

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

58. 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

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

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

61. 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.

62. 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

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

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

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

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

RETAINING WALL NOTES

67. 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.

68. THE WALL SHALL BE PAID UNDER ITEM 900.670 SPECIAL PROVISION (RETAINING WALL).

69. THE BOTTOM OF WALL SHALL BE A MINIMUM OF 4 FEET BELOW THE FINISHED GRADE IN FRONT OF THE WALL, SEE SHEET 48.

70. 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.

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

a. FOUNDATION SOIL DESIGN VALUES
THE NOMINAL (UNFACTORED) BEARIN 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

72 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 SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM 900.670 SPECIAL PROVISION (RETAINING WALL).

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: 8/24/2015
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
			175	175		LF	DRILLING AND BLASTING OF SOLID ROCK (EST)	205.10				
360				360		SY	COLD PLANING, BITUMINOUS PAVEMENT COLD PLANING, BITUMINOUS PAVEMENT	210.10		600	CY	FILL REQUIRED
1450				1450		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35		2662	CY	TOTAL WASTE
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				
			25	25		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33				
			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	506.55				
			320	320		LB	STRUCTURAL STEEL	506.60				
			2428	2428		LB	REINFORCING STEEL, LEVEL II	507.12				
			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				

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FILE NAME: z12b136frm.dgn
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DESIGNED BY: D.KULL
QUANTITY SHEET #1

PLOT DATE: 8/24/2015
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				
						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				
									22	22		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)	900.608				
									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				
						2				2		EACH	SPECIAL PROVISION (CPM SCHEDULE)	900.620				
						1				1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE)	900.645				

McFarland Johnson

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

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 3

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		LU	SPECIAL PROVISION (INCENTIVE/DISENCENTIVE) (N.A.B.I.)	900.650				
						1				1		LU	SPECIAL PROVISION (LOCAL ROAD MAINTENANCE)	900.650				
						1				1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY) (N.A.B.I.)	900.650				
						1				1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT) (N.A.B.I.)	900.650				
									1	1		LU	SPECIAL PROVISION (PRE-ASSEMBLY)	900.650				
									1	1		LU	SPECIAL PROVISION (PRECAST MOCKUP)	900.650				
						305				305		SY	SPECIAL PROVISION (HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES)	900.675				
									35	35		SY	SPECIAL PROVISION (RETAINING WALL)	900.675				
						805				805		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12b136frm.dgn	**PLOT DATE:** 8/24/2015
PROJECT LEADER: R.YOUNG	**DRAWN BY:** S.MERKWAN
DESIGNED BY: D.KULL	**CHECKED BY:** T.KENDRICK
QUANTITY SHEET #3	**SHEET** 7 **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	TOTALS 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
	175			175	LF	DRILLING AND BLASTING OF SOLID ROCK (EST)	205.10
			25	25	CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33
		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	506.55
		320		320	LB	STRUCTURAL STEEL	506.60
	488	648	1292	2428	LB	REINFORCING STEEL, LEVEL II	507.12
			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	6.5	9		22	CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)	900.608
		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	LU	SPECIAL PROVISION (PRE-ASSEMBLY)	900.650
			1	1	LU	SPECIAL PROVISION (PRECAST MOCKUP)	900.650
		35		35	SY	SPECIAL PROVISION (RETAINING WALL)	900.675

DETAILED SUMMARY OF QUANTITIES

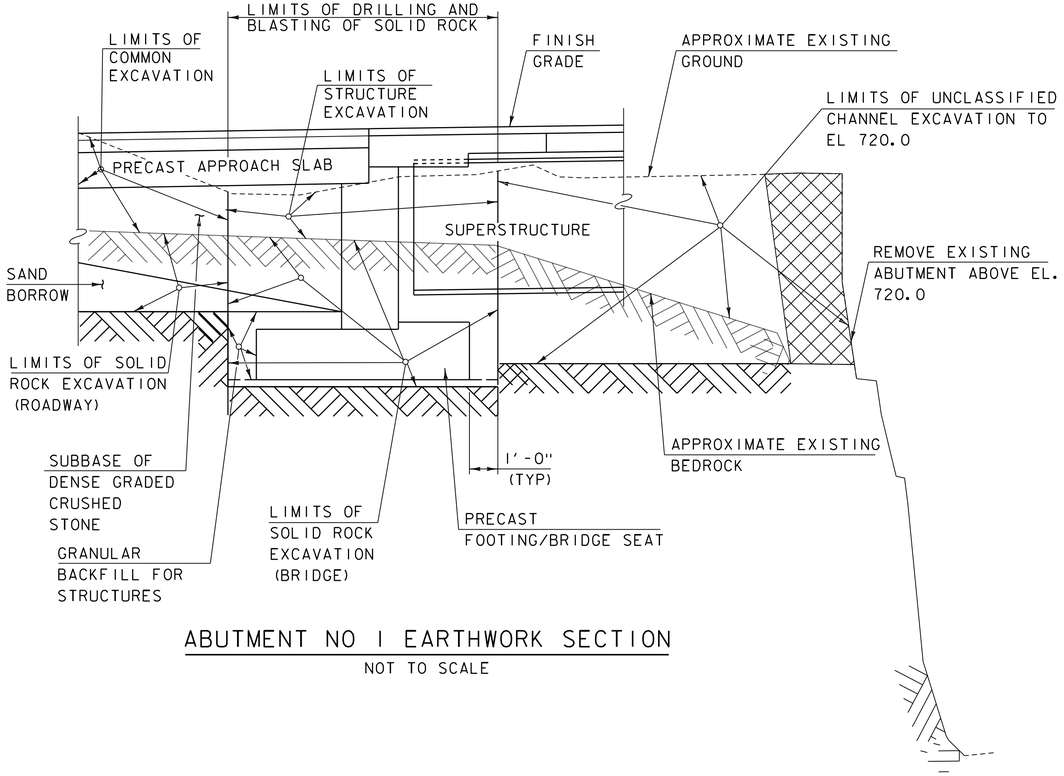
QUANTITIES	UNIT	ITEMS

McFarland Johnson

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

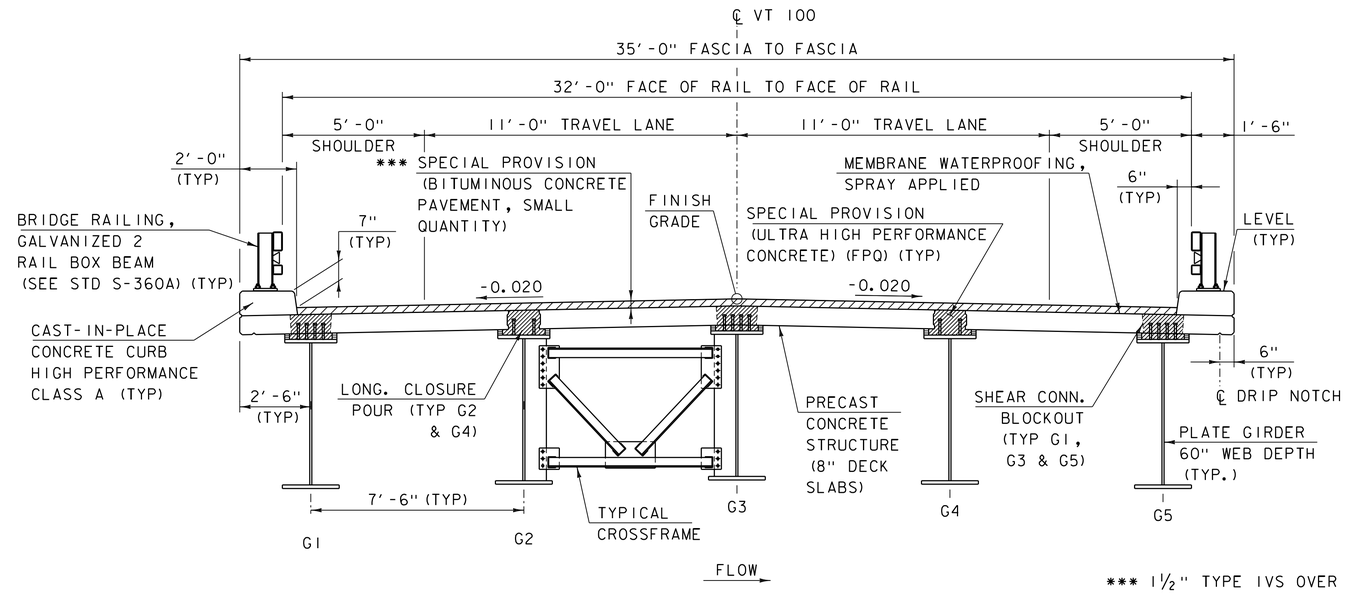
FILE NAME: z12bl36frm.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
BRIDGE QUANTITY SHEET #1

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 8 OF 69



ABUTMENT NO 1 EARTHWORK SECTION

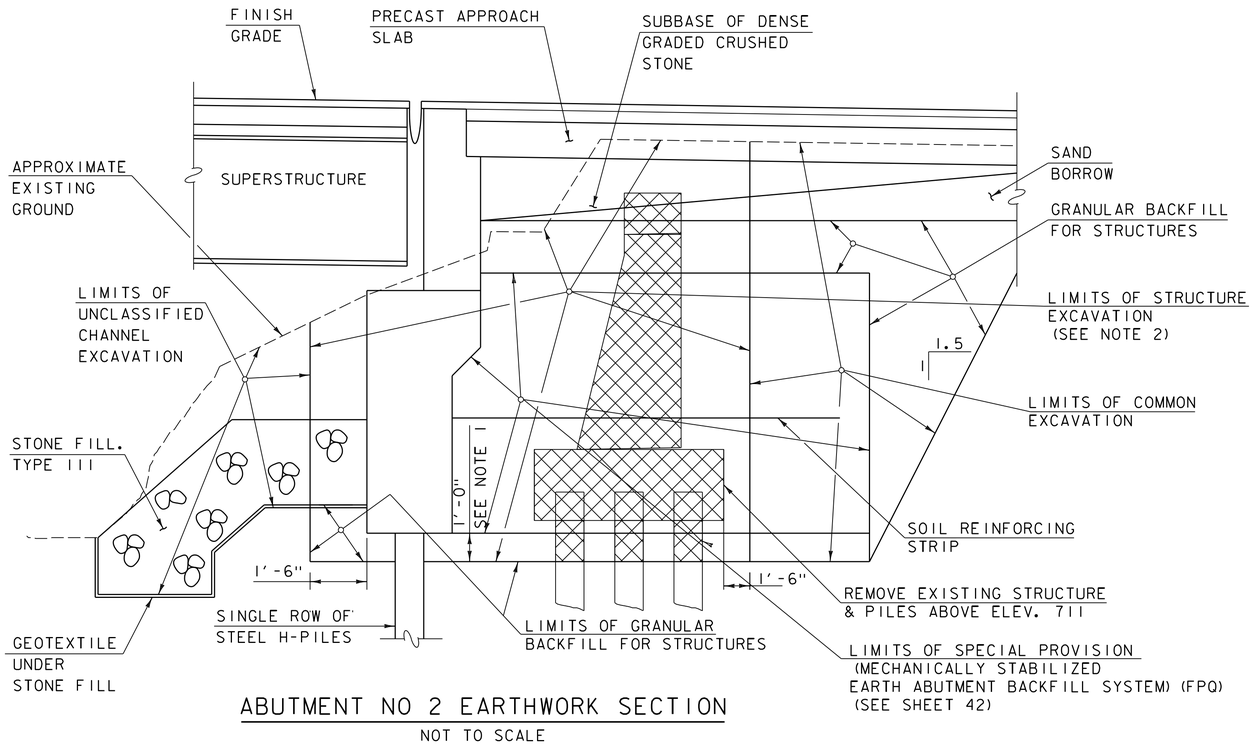
NOT TO SCALE



*** 1½" TYPE IVS OVER 1½" TYPE IVS

TYPICAL BRIDGE SECTION

SCALE ⅜" = 1'-0"



ABUTMENT NO 2 EARTHWORK SECTION

NOT TO SCALE

EARTHWORK SECTION NOTES

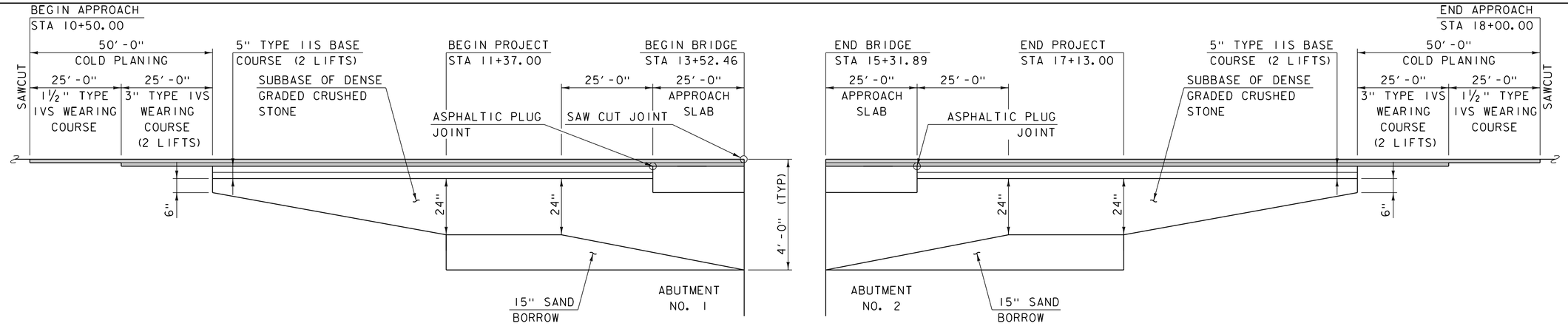
1. ONE FOOT MINIMUM UNDERCUT.
2. ACTUAL LIMITS OF STRUCTURE EXCAVATIONS SHALL BE DETERMINED BY THE CONTRACTOR. HOWEVER, ONLY THE STRUCTURE EXCAVATION BETWEEN THE LIMITS SHOWN WILL BE PAID FOR UNDER ITEM 204.25 "STRUCTURE EXCAVATION". STRUCTURE EXCAVATION BY THE CONTRACTOR OUTSIDE OF THESE LIMITS WILL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

LEGEND

EXISTING ABUTMENT REMOVAL LIMITS

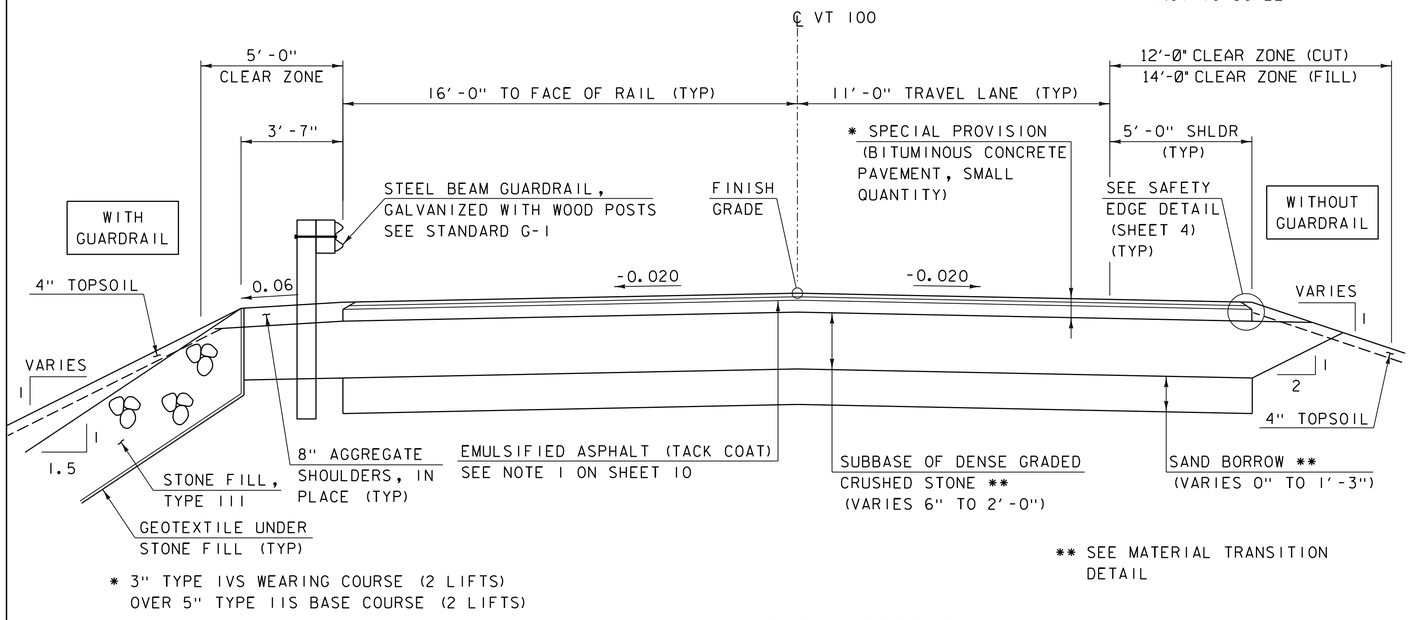
McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12b136typ.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
TYPICAL SECTIONS SHEET 1	SHEET 9 OF 69



MATERIAL TRANSITION DETAIL

NOT TO SCALE



* 3" TYPE IVS WEARING COURSE (2 LIFTS) OVER 5" TYPE IIS BASE COURSE (2 LIFTS)

** SEE MATERIAL TRANSITION DETAIL

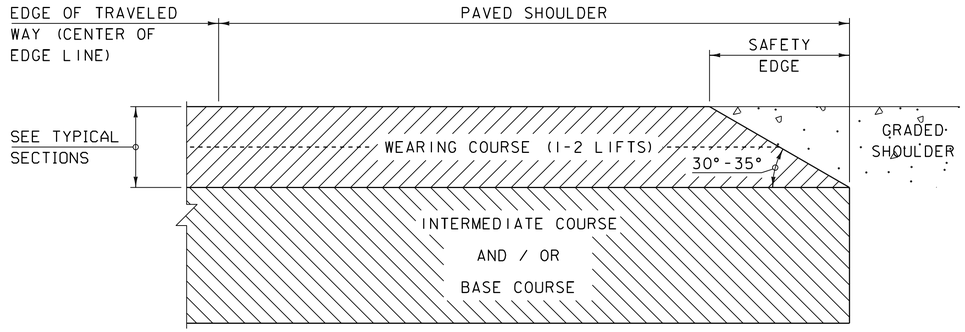
VT 100 TYPICAL SECTION

SCALE 3/8" = 1'-0"

MATERIAL TOLERANCES

(IF USED ON PROJECT)

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



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".

NOTES

1. EMULSIFIED ASPHALT SHALL BE APPLIED TO ALL COLD PLANED BITUMINOUS CONCRETE PAVEMENT SURFACES AT THE RATE OF 0.025 GAL/SY OR AS DIRECTED BY THE ENGINEER. EMULSIFIED ASPHALT SHALL ALSO BE APPLIED BETWEEN ALL LIFTS OF PAVEMENT AT THE RATE OF 0.025 GAL/SY . PAYMENT WILL BE MADE UNDER ITEM 404.65, "EMULSIFIED ASPHALT".

McFarland Johnson

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FILE NAME: z12b136typ.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
TYPICAL SECTIONS SHEET 2

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK
SHEET 10 OF 69

GENERAL INFORMATION

SYMBOLOGY LEGEND NOTE

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

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

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

COMMON TOPOGRAPHIC POINT SYMBOLS

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

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

PROPOSED GEOMETRY CODES

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

UTILITY SYMBOLOGY

UNDERGROUND UTILITIES

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

ABOVE GROUND UTILITIES (AERIAL)

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

PROJECT CONSTRUCTION SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

- CZ — CLEAR ZONE
- PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

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

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

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

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

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

ENVIRONMENTAL RESOURCES

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

ARCHEOLOGICAL & HISTORIC

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

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

EXISTING FEATURES

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

McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME:	I2bl36LegendSheet.dgn
PROJECT LEADER:	R. YOUNG
DESIGNED BY:	D. KULL
CONVENTIONAL SYMBOLOGY LEGEND	
PLOT DATE:	8/24/2015
DRAWN BY:	S. MERKWAN
CHECKED BY:	T. KENDRICK
SHEET	11 OF 69

GPS CONTROL POINTS

HVCTRL #1

IRASVILLE

NORTH = 608604.820
EAST = 1553434.080
ELEV. = 741.000

HVCTRL #2

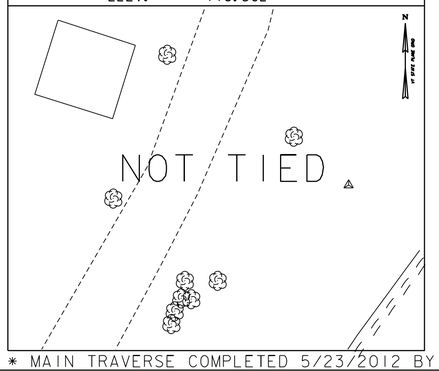
IRASVILLE AZ MK

NORTH = 610915.770
EAST = 1552896.780
ELEV. = 725.000

TRAVERSE TIES

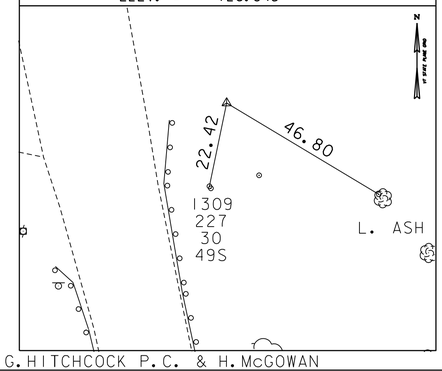
HVCTRL #3

NORTH = 609991.753
EAST = 1553027.095
ELEV. = 716.502



HVCTRL #4

NORTH = 610263.783
EAST = 1553092.163
ELEV. = 726.845



NORTH =	
EAST =	
ELEV. =	

NORTH =	
EAST =	
ELEV. =	

NORTH =	
EAST =	
ELEV. =	

* MAIN TRAVERSE COMPLETED 5/23/2012 BY G.HITCHCOCK P.C. & H.McGOWAN

ALIGNMENT COORDINATES

VT ROUTE 100			
	STATION	NORTHING	EASTING
POB	10+00.00	609547.8383	1553216.4086
POE	19+14.37	610439.9009	1553015.6516
MAD RIVER			
POB	50+00.00	609860.0926	1553037.4176
POE	53+00.00	610113.6236	1553197.7985

DATUM

VERTICAL NAVD 88
HORIZONTAL NAD 83 (07)
ADJUSTMENT COMPASS

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

FILE NAME: z12bl36tie.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: VTRANS
TIE SHEET

PLOT DATE: 8/24/2015
DRAWN BY: R. BULLOCK
CHECKED BY: T. KENDRICK
SHEET 12 OF 69

COLD PLANING, BITUMINOUS PAVEMENT

STA 10+50 - STA 11+00 LT
STA 10+50 - STA 11+00 RT

CLEANING CULVERT PIPE, IN PLACE

STA 11+85 - STA 11+93 RT
STA 11+93 - STA 12+00 LT

CONSTRUCT SWALE/DITCH

STA 12+05 - STA 12+37 LT

CONSTRUCT DRIVE (HAND PLACED)

STA 11+54 - STA 12+30 RT

VERTICAL GRANITE CURB

STA 12+94 - STA 13+33 LT
STA 13+19 - STA 13+59 RT
STA 15+26 - STA 15+67 LT
STA 15+58 - STA 16+00 RT

4" WHITE LINE (4" WL)

STA 10+50 - STA 16+25, LT
STA 10+50 - STA 16+25, RT

4" YELLOW LINE (4" DYCL)

STA 10+50 - 16+25
(CL DOUBLE)

REMOVAL AND DISPOSAL OF GUARDRAIL

STA 11+70 - STA 13+52 LT
STA 13+38 - STA 13+85 RT
STA 15+31 - STA 16+94 LT
STA 15+54 - STA 16+25 RT

STEEL BEAM GUARDRAIL GALVANIZED

STA 12+07 - STA 13+01 LT
STA 13+15 - STA 13+26 RT
STA 15+58 - STA 16+24 LT
STA 15+97 - STA 16+25 RT

GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM

STA 13+01 - STA 13+33 LT
STA 13+26 - STA 13+59 RT
STA 15+26- STA 15+59 LT
STA 15+58 - STA 15+92 RT

REMOVING SIGNS

STA 13+38 LT
STA 13+76 RT
STA 15+42 LT
STA 15+68 RT

NEW SIGNS

STA 13+46 RT
STA 15+40 LT

MANUFACTURED TERMINAL SECTION, TANGENT

STA 11+57 - STA 12+07 LT
STA 12+65 - STA 13+15 RT

SPECIAL PROVISION (RETAINING WALL)

STA 15+12 (17.5' LT) - STA 15+13 (34.4' LT)
STA 15+45 (19.5' RT) - STA 15+76 (40.3' LT)

STONE FILL, TYPE III

STA 13+00 - STA 13+33 LT
STA 13+59 - STA 13+98 RT
STA 14+87 - STA 15+26 LT
STA 15+00 - STA 15+62 RT

GRUBBING MATERIAL

STA 13+00 - STA 13+61 LT
STA 13+59 - STA 13+95 RT
STA 14+90 - STA 15+26 LT
STA 15+09 - STA 15+72 RT

STONE FILL, TYPE I

STA 12+00 - STA 12+06 LT

LEGEND

- R — REMOVE EXISTING SIGN AND POST (SALVAGE TO THE STATE)
- RES — RESET EXISTING SIGN AND POST
- N — NEW SIGN AND POST

EXISTING BRIDGE INFO
2 SPAN 168' LONG ROLLED BEAM
WITH CIP CONCRETE DECK BRIDGE
BRIDGE BUILT IN 1938
25' WIDE DECK

LAYOUT

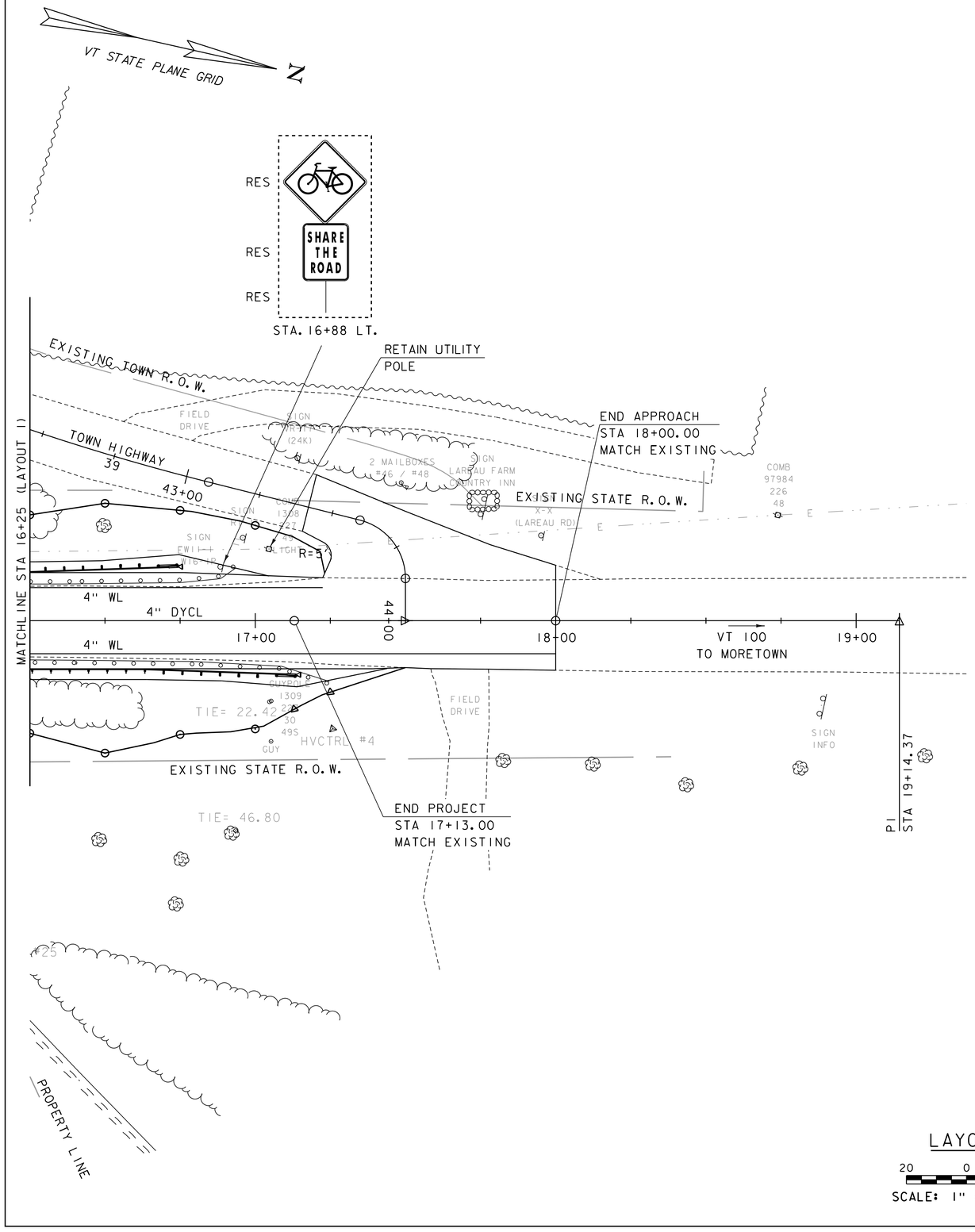
SCALE: 1" = 20'-0"

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

McFarland Johnson

FILE NAME: z12b136bdr.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
LAYOUT SHEET 1

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 13 OF 69



LAYOUT

20 0 20

SCALE: 1" = 20'-0"

COLD PLANING, BITUMINOUS PAVEMENT

STA 17+50 - STA 18+00 LT
STA 17+50 - STA 18+00 RT

CONSTRUCT DRIVE (HAND PLACED)

STA 17+16 - STA 18+00 LT

REMOVING SIGNS

STA 16+88 RT

ERECTING SALVAGED SIGNS

STA 16+88 RT

SETTING SALVAGED SIGN POSTS

STA 16+88 RT

4" WHITE LINE (4" WL)

STA 16+25 - STA 17+25, LT
STA 16+25 - STA 18+00, RT

4" YELLOW LINE (4" DYCL)

STA 16+25 - 18+00
(CL DOUBLE)

REMOVAL AND DISPOSAL OF GUARDRAIL

STA 16+25 - STA 17+25 RT

STEEL BEAM GUARDRAIL GALVANIZED

STA 16+25 - STA 16+63 RT

MANUFACTURED TERMINAL SECTION, TANGENT

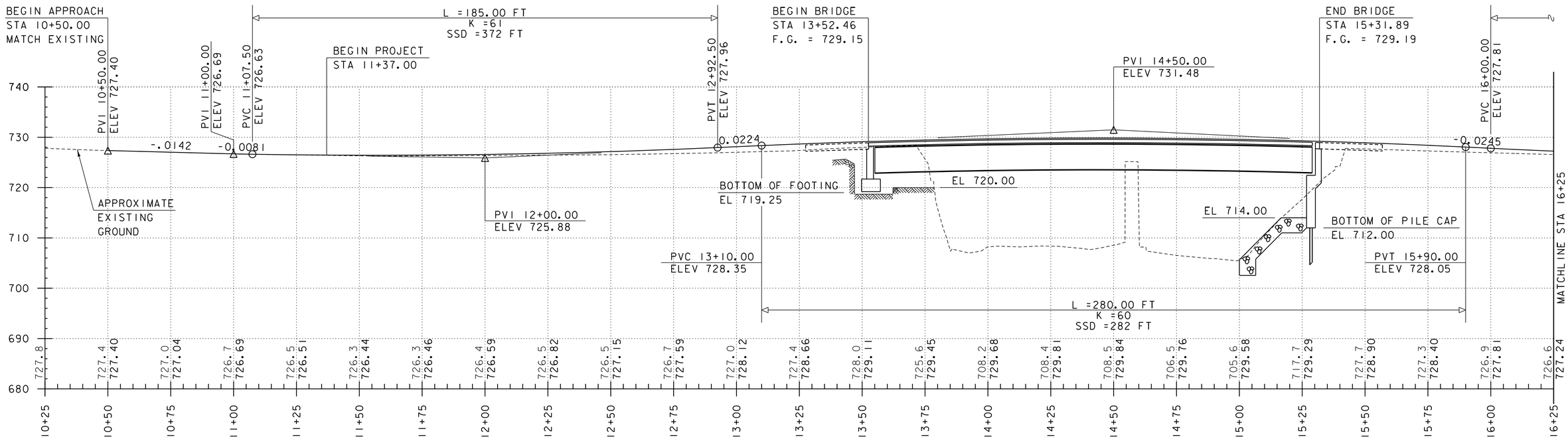
STA 16+24 - STA 16+74 LT
STA 16+63 - STA 17+13 RT

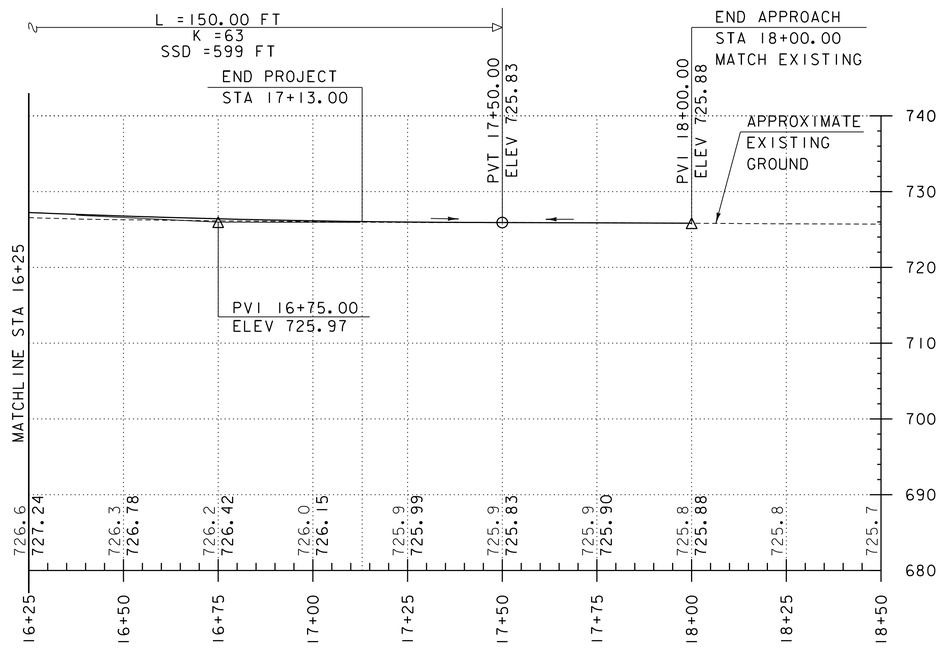
McFarland Johnson

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

FILE NAME: z12bl36bdr.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
LAYOUT SHEET 2

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK
SHEET 14 OF 69





VT 100 PROFILE

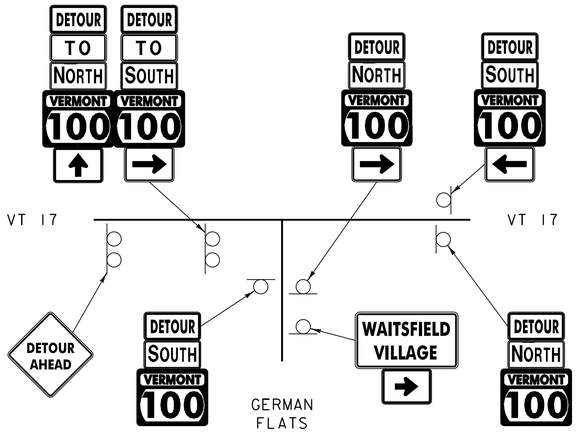
SCALE: HORIZONTAL 1"=20'-0"
VERTICAL 1"=10'-0"

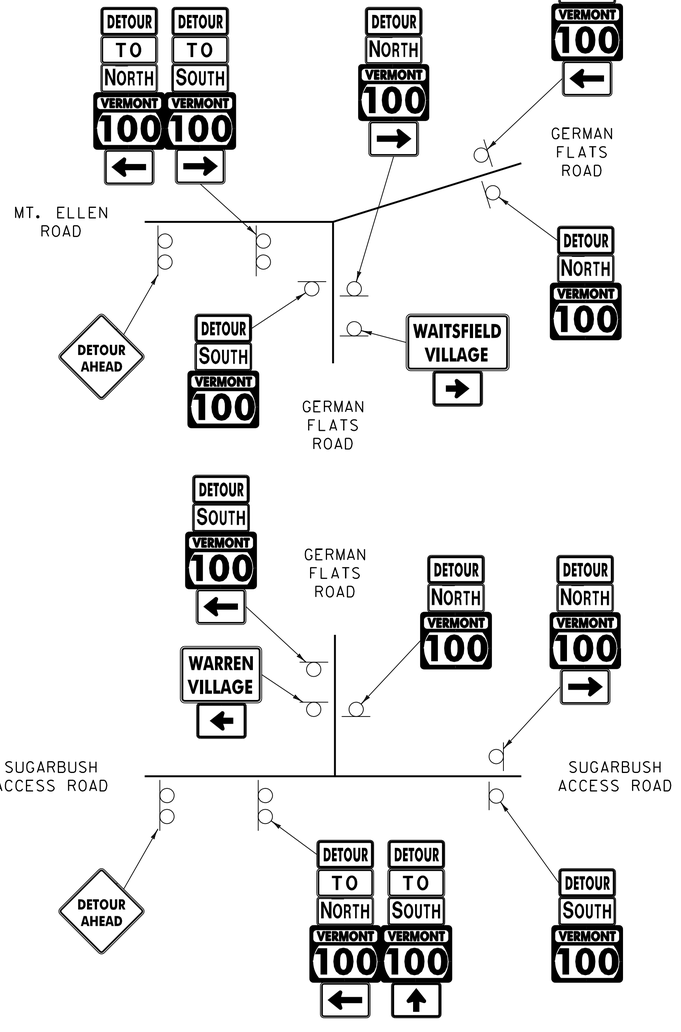
NOTES

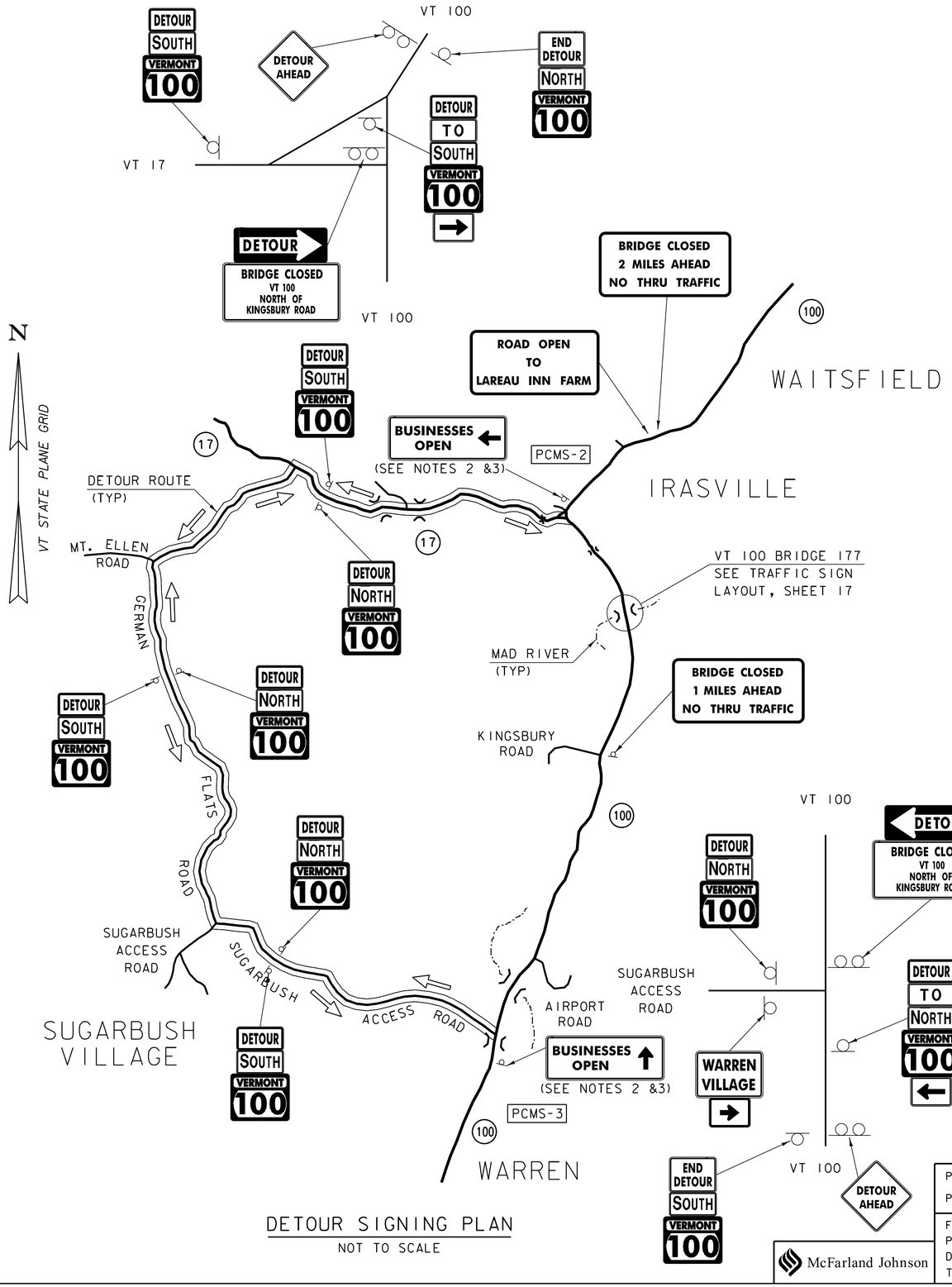
1. GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND.
2. GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE.

McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12b136pro.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: B. COLBURN	CHECKED BY: T. KENDRICK
VT 100 PROFILE SHEET	SHEET 15 OF 69







DETOUR SIGNING PLAN

NOT TO SCALE

MESSAGES FOR PORTABLE CHANGEABLE MESSAGE SIGNS

(PCMS-1)

MESSAGE 1	MESSAGE 2	
BRIDGE	MMMM DD	*
CLOSED	TO	
AHEAD	MMMM DD	*

PCMS-2

MESSAGE 1	MESSAGE 2	MESSAGE 3	
VT 100	1 MILE	MMMM DD	*
BRIDGE	AHEAD	TO	
CLOSED		MMMM DD	*

MESSAGE 1	MESSAGE 2
VT 100	1 MILE
BRIDGE	AHEAD
CLOSED	

PCMS-3

MESSAGE 1	MESSAGE 2	MESSAGE 3	
VT 100	3 MILES	MMMM DD	*
BRIDGE	AHEAD	TO	
CLOSED		MMMM DD	*

MESSAGE 1	MESSAGE 2
VT 100	3 MILES
BRIDGE	AHEAD
CLOSED	

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

NOTES

1. FOR TRAFFIC CONTROL NOTES SEE SHEET 17.
2. SIGNS SIMILAR TO VAOT STANDARD E-123.
3. SIGNS WILL HAVE BLUE BACKGROUND WITH WHITE LETTERING, AND WHITE BORDER LINE. AND SHALL BE 18"H X 48"W.

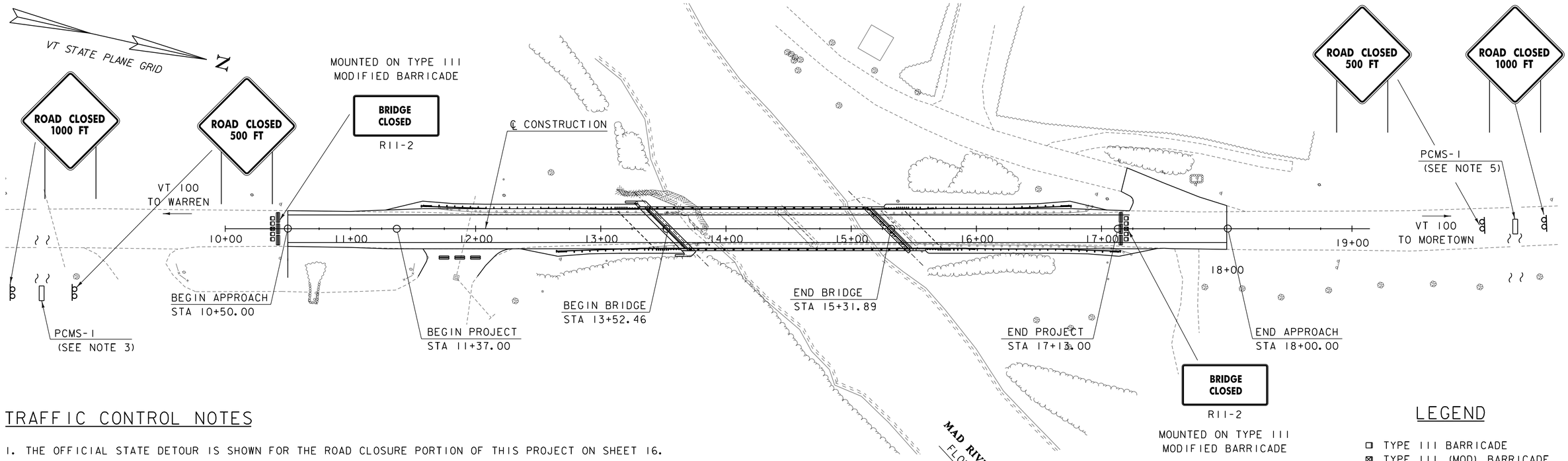
THRU LENGTH : 3.4 MILES
DETOUR LENGTH : 7.3 MILES
3 WEEK PROPOSED CLOSURE
ADDITIONAL LENGTH : 3.9 MILES
END TO END LENGTH : 10.7 MILES

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

FILE NAME: z12b136dtr.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
TRAFFIC CONTROL SHEET 1

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 16 OF 69

McFarland Johnson



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).

McFarland Johnson

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

FILE NAME: z12bl36dtr.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
TRAFFIC CONTROL SHEET 2

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 17 OF 69

SOIL CLASSIFICATION

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

ROCK QUALITY DESIGNATION

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

SHEAR STRENGTH

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

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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

COMMONLY USED SYMBOLS

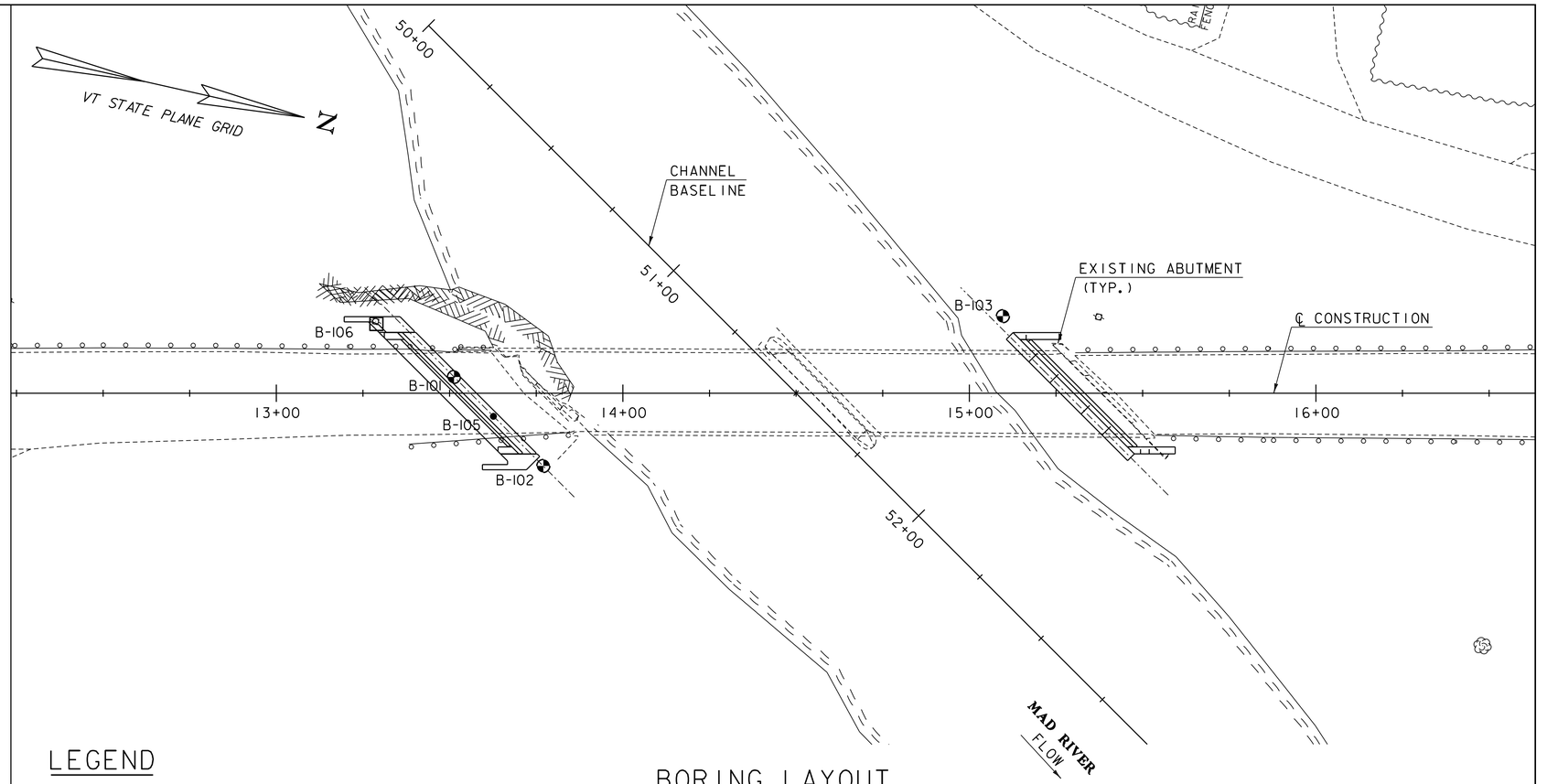
▼	Water Elevation
⊕	Standard Penetration Boring
⊕	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per Foot For: 2" O.D. Sampler 1 3/8" I.D. Sampler Hammer Weight Of 140 Lbs. Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1 1/8"
BX	Core Size 1 5/8"
NX	Core Size 2 1/8"
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Si	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	Top of Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)
VTSPG	NAD83 - See Note 7

COLOR

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

LEGEND

- BORING
- LEDGE PROBE (LP)
- TEST PIT (TP)



BORING LAYOUT

20 0 20

SCALE: 1" = 20'-0"

BORING CHART

HOLE NO.	SURV. STATION	OFFSET	GROUND ELEV.	ELEV TLOB (FT.)	NORTHING	EASTING
B-101	13+51	4.7 LT.	728.3	724.3	609889.5	1553134.7
B-102	13+77	21.1 RT.	731.0	727.0	609920.3	1553154.1
B-103	15+10	26.0 LT.	716.0	666.0	610040.2	1553082.8
B-105	13+63	6.7 RT.	728.4	724.7	609903.1	1553143.3
B-106	13+29	20.0 LT.	730.1	727.0	609864.3	1553124.7

DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.

BOULDER - A rock fragment with an average dimension > 12 inches.

COBBLE - Rock fragments with an average dimension between 3 and 12 inches.

GRAVEL - Rounded particles of rock < 3" and > 0.0787" (#10 sieve).

SAND - Particles of rock < 0.0787" (#10 sieve) and > 0.0029" (#200 sieve).

SILT - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.

CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.

VARVED - Alternate layers of silt and clay.

HARDPAN - Extremely dense soil, cemented layer, not softened when wet.

MUCK - Soft organic soil (containing > 10% organic material.

MOISTURE CONTENT - Weight of water divided by dry weight of soil.

FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.

STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.

DIP - Inclination of bed with a horizontal plane.

GENERAL NOTES

1. The subsurface explorations shown herein were made between October 21 and October 24, 2013 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.

McFarland Johnson

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

FILE NAME: zl2bl36bor.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: VTRANS/D. KULL
BORING INFORMATION SHEET

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 18 OF 69

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

BORING LOG

WAITSFIELD
BHF 013-4(39)
VT-100 BR-177

Boring No.: **B-101**
Page No.: 1 of 1
Pin No.: 12B136
Checked By: CEE

Boring Crew: JUDKINS, DAIGNEAULT
Date Started: 10/24/13 Date Finished: 10/24/13
VTSPG NAD83: N 609889.50 ft E 1553134.70 ft
Station: 13+51 Offset: -4.70
Ground Elevation: 728.3 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 55 TRACK	C. = 1.46

Groundwater Observations

Date	Depth (ft)	Notes
		No water to depth.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (ROD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 0.55 ft								
		A-1-b, SiSaGr, brn, Moist, Rec. = 0.7 ft				22-27-12-13 (39)	6.1	48.9	30.9	20.2
2.5		Visual Description:, Weathered Rock with silt & sand, brn, Moist, Rec. = 0.6 ft					11.7			
		Visual Description:, Weathered & Broken Rock with sand, brn-gry, Moist, Rec. = 0.2 ft				R@2.5"	11.3			
5.0		4.0 ft - 9.0 ft, Light gray, Phyllitic Schist, Moderately soft, Unweathered. Fair rock, NXMDC, RMR = 54	1 (65)	94 (70)	4 4 4 4 4	Top of Bedrock @ 4.0 ft				
7.5										
10.0		9.0 ft - 14.0 ft, Light gray, Phyllitic Schist, Moderately soft, Unweathered, Good rock, NXMDC, Quartz vein from 11.5-13.0 ft., RMR = 61	2 (65)	100 (96)	4 4 5 9 10					
12.5		Hole stopped @ 14.0 ft								
15.0										
17.5										
20.0										
22.5										

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

ABUTMENT NO 1
BOTTOM OF FOOTING
EL 719.25

BORING LOG 2 WAITSFIELD BHF 013-4(39).GPJ \ VERMONT AOT.GDT 11/7/13

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

BORING LOG

WAITSFIELD
BHF 013-4(39)
VT-100 BR-177

Boring No.: **B-102**
Page No.: 1 of 1
Pin No.: 12B136
Checked By: CEE

Boring Crew: JUDKINS, DAIGNEAULT
Date Started: 10/23/13 Date Finished: 10/23/13
VTSPG NAD83: N 609920.30 ft E 1553154.10 ft
Station: 13+77 Offset: 21.00
Ground Elevation: 731.0 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 55 TRACK	C. = 1.46

Groundwater Observations

Date	Depth (ft)	Notes
10/23/13	2.2	Casing removed.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (ROD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-1-b, SiGrSa, Dk/brn, Moist, Rec. = 1.1 ft				4-3-3-2 (6)	19.6	26.1	51.8	22.1
2.5		A-4, GrSaSi, Dk/brn, Moist, Rec. = 1.2 ft				2-1-3-R@5.0" (4)	19.5	23.6	34.9	41.5
5.0		4.0 ft - 9.0 ft, Light gray, Phyllitic Schist, Moderately soft, Unweathered. Fair rock, NXMDC, RMR = 58	1 (65)	100 (82)	6 6 5 6 5	Top of Bedrock @ 4.0 ft				
7.5										
10.0		9.0 ft - 14.0 ft, Light gray, Phyllitic Schist, Moderately soft, Unweathered, Good rock, NXMDC, RMR = 61	2 (65)	100 (90)	4 4 4 5 4					
12.5		Hole stopped @ 14.0 ft								
15.0		Remarks: Hole collasped at 6.1 ft.								
17.5										
20.0										
22.5										

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

ABUTMENT NO 1
BOTTOM OF FOOTING
EL 719.25

BORING LOG 2 WAITSFIELD BHF 013-4(39).GPJ \ VERMONT AOT.GDT 11/7/13

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

FILE NAME: z12b136bor_log.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
BORING LOG SHEET 1

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 19 OF 69

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

BORING LOG

WAITSFIELD
BHF 013-4(39)
VT-100 BR-177

Boring No.: **B-103**
Page No.: 1 of 2
Pin No.: 12B136
Checked By: CEE

Boring Crew: JUDKINS, DAIGNEAULT
Date Started: 10/21/13 Date Finished: 10/23/13
VTSPG NAD83: N 610040.20 ft E 1553078.80 ft
Station: 15+10 Offset: 26.20
Ground Elevation: 716.0 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 55 TRACK	C. = 1.46

Groundwater Observations

Date	Depth (ft)	Notes
10/23/13	6.2	While drilling.

ABUTMENT NO 2
BOTTOM OF PILE CAP
EL 712.00

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (ROD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-2-4, SiGrSa, brn, Moist, Rec. = 0.6 ft				WH-3-7-R@3.5" (10)	11.4	26.8	50.5	22.7
		Visual Description:, Broken Rock (Granite) with sand, brn-gry, Moist, Rec. = 0.3 ft					5.0			
5		Field Note:, NXDC, Boulder								
		Field Note:, NXDC, Cleaned out casing								
		A-2-4, SaSiGr, brn, Wet, Rec. = 0.7 ft				10-16-8-6 (24)	12.6	46.8	22.1	31.1
		Visual Description:, Broken Rock (Granite), gry, Moist, Rec. = 0.2 ft				22-24-30-24 (54)				
10		A-2-4, SaSiGr, brn, Wet, Rec. = 0.2 ft				10-7-6-5 (13)	10.0	47.5	24.6	27.9
		A-1-b, SiSaGr, brn, Wet, Rec. = 0.7 ft				6-5-4-7 (9)	11.7	48.1	26.6	25.3
		Visual Description:, Broken Rock with sand, gry, Wet, Rec. = 0.3 ft, Insufficient sample for testing.				5-4-4-5 (8)				
15		Visual Description:, Broken Rock with silty sand, Dk/gry, MTW, Rec. = 0.2 ft, Insufficient sample for testing.								
		A-2-4, SiSa, gry, Wet, Rec. = 1.3 ft				2-2-2-2 (4)	21.3	17.1	62.1	20.8
		A-4, SaSi, gry, Wet, Rec. = 0.8 ft				WH-1-2-3 (3)	26.2	1.4	31.6	67.0
20		A-4, SaSi, gry, Wet, Rec. = 0.8 ft				WH-2-1-1 (3)	26.1	1.2	42.1	56.7
		A-4, SaSi, gry, Wet, Rec. = 0.9 ft				2-1-1-2 (2)	27.1		46.6	53.4
		A-4, SaSi, gry, Wet, Rec. = 1.1 ft, Lab Note: A small layer of clay was noticeable, but not enough for testing.				3-1-1-1 (2)	30.7	0.9	21.1	78.0
25										
30		A-4, SaSi, gry, Wet, Rec. = 0.7 ft				1-1-3-2 (4)	28.8		35.0	65.0

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 WAITSFIELD BHF 013-4(39).GPJ VERMONT AOT.GDT 11/7/13

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

BORING LOG

WAITSFIELD
BHF 013-4(39)
VT-100 BR-177

Boring No.: **B-103**
Page No.: 2 of 2
Pin No.: 12B136
Checked By: CEE

Boring Crew: JUDKINS, DAIGNEAULT
Date Started: 10/21/13 Date Finished: 10/23/13
VTSPG NAD83: N 610040.20 ft E 1553078.80 ft
Station: 15+10 Offset: 26.20
Ground Elevation: 716.0 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 55 TRACK	C. = 1.46

Groundwater Observations

Date	Depth (ft)	Notes
10/23/13	6.2	While drilling.

ABUTMENT NO 2
ESTIMATED PILE TIP
EL 666.00

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (ROD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-4, SiSa, gry, Wet, Rec. = 0.7 ft				4-3-4-4 (7)	26.2	0.2	53.7	46.1
40		A-4, SaSi, gry, Wet, Rec. = 0.9 ft				2-5-4-2 (9)	28.9	0.3	30.1	69.6
45		A-4, SaSi, gry, MTW, Rec. = 0.4 ft				3-3-5-4 (8)	5.9	7.8	39.3	52.9
		Field Note:, NXDC, Cleaned out casing								
50		50.0 ft - 55.0 ft, Light gray, Phyllitic Schist, Moderately soft, Unweathered, Fair rock, NXGDC, RMR = 44	1 (65)	78 (18)	6 4 4 7 12	Top of Bedrock @ 50.0 ft				
55		55.0 ft - 60.0 ft, Light gray, Phyllitic Schist, Moderately soft, Unweathered, Good rock, NXGDC, RMR = 61	2 (65)	100 (92)	6 5 7 6 7					
60		Hole stopped @ 60.0 ft								
65		Remarks: Hole collasped at 9.2 ft.								

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 WAITSFIELD BHF 013-4(39).GPJ VERMONT AOT.GDT 11/7/13

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

FILE NAME: z12b136bor_log.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
BORING LOG SHEET 2

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 20 OF 69

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

BORING LOG

WAITSFIELD
BHF 013-4(39)
VT-100 BR-177

Boring No.: **B-105**
Page No.: 1 of 1
Pin No.: 12B136
Checked By: CEE

Boring Crew: JUDKINS, DAIGNEAULT
Date Started: 10/24/13 Date Finished: 10/24/13
VTSPG NAD83: N 609903.10 ft E 1553143.30 ft
Station: 13+63 Offset: 6.70
Ground Elevation: 728.4 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 55 TRACK	C. = 1.46

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
2.5		Field Note:, Probe to 3.7 ft., To ledge or boulder.					
		Hole stopped @ 3.7 ft TLOB					
5.0							
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

ABUTMENT NO 1
BOTTOM OF FOOTING
EL 719.25

BORING LOG 2 WAITSFIELD BHF 013-4(39).GPJ VERMONT AOT.GDT 11/7/13

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

BORING LOG

WAITSFIELD
BHF 013-4(39)
VT-100 BR-177

Boring No.: **B-106**
Page No.: 1 of 1
Pin No.: 12B136
Checked By: CEE

Boring Crew: JUDKINS, DAIGNEAULT
Date Started: 10/24/13 Date Finished: 10/24/13
VTSPG NAD83: N 609864.30 ft E 1553124.70 ft
Station: 13+29 Offset: -20.00
Ground Elevation: 730.1 ft

	Casing	Sampler
Type:	HAND STEEL	
I.D.:		
Hammer Wt:	N.A.	N.A.
Hammer Fall:	N.A.	N.A.
Hammer/Rod Type:		
Rig:		C. =

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
2.5		Field Note:, Drove hand steel to 3.1 ft., To ledge or boulder.					
		Hole stopped @ 3.1 ft TLOB					
5.0							
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

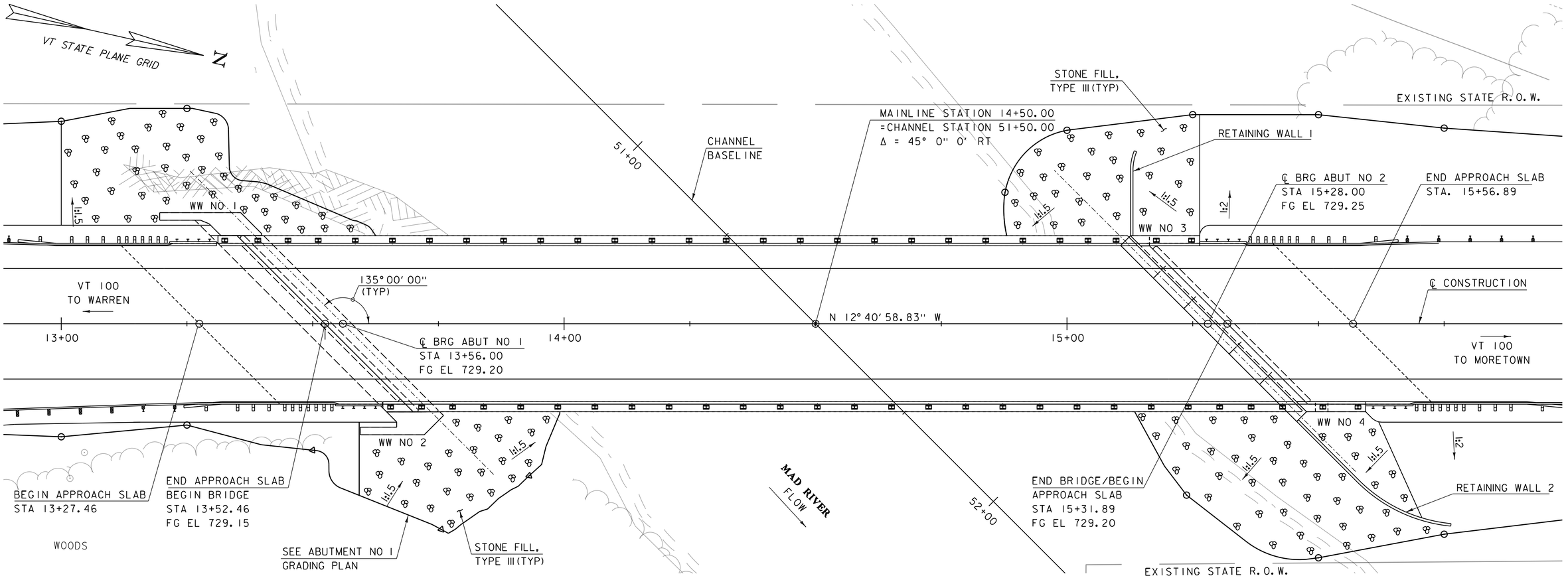
ABUTMENT NO 1
BOTTOM OF FOOTING
EL 719.25

BORING LOG 2 WAITSFIELD BHF 013-4(39).GPJ VERMONT AOT.GDT 11/7/13

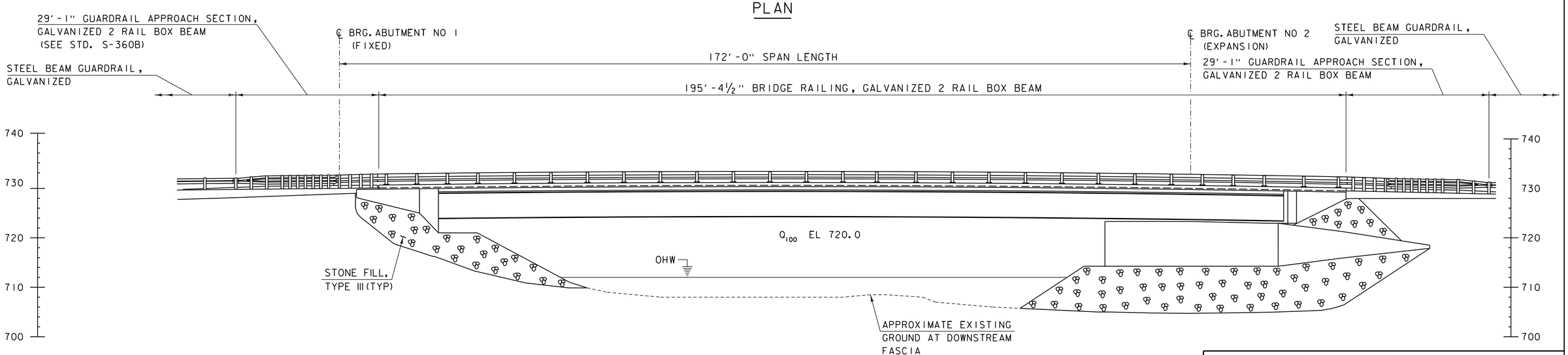
PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136bor_log.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
BORING LOG SHEET 3

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 21 OF 69



PLAN



ELEVATION

10 0 10

SCALE: 1" = 10'-0"

McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12b136pe.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
PLAN AND ELEVATION	SHEET 22 OF 69

N

VT STATE PLANE GRID

EXISTING R.O.W

STATIONING

14+00

BEGIN BRIDGE
STA. 13+52.46

℄ CONSTRUCTION

W.W. #1

W.W. #2

3'-7" GR BERM (TYP)

5'-0" SHLDR (TYP)

11'-0" LANE (TYP)

1:5

715

720

725

730

LEGEND:

APPROXIMATE LOCATION OF EXISTING ABUTMENT TO BE PARTIALLY REMOVED ABOVE EL. 720.0.

NOTE:
PROPOSED BRIDGE SUPERSTRUCTURE AND APPROACH SLABS NOT SHOWN FOR CLARITY.

ABUTMENT NO 1 GRADING PLAN

5 0 5

SCALE: 1" = 5'-0"

McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12bl36abut_grd.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
ABUTMENT NO 1 GRADING PLAN	SHEET 23 OF 69

N

VT STATE PLANE GRID

EXISTING R.O.W

720

725

715

710

2:1

1.5:1

3'-7" GR BERM (TYP)

5'-0" SHLDR (TYP)

℄ CONSTRUCTION

11'-0" LANE (TYP)

2%

END BRIDGE
STA. 15+31.89

W.W. #3

W.W. #4

1.5:1

5%

RETAINING WALL
NO. 1

RETAINING WALL
NO. 2

STONE FILL

15+00

STATIONING

LEGEND:

APPROXIMATE LOCATION OF EXISTING ABUTMENT AND PILES TO BE COMPLETELY REMOVED ABOVE EL. 711.0.

NOTE:
PROPOSED BRIDGE SUPERSTRUCTURE AND APPROACH SLABS NOT SHOWN FOR CLARITY.

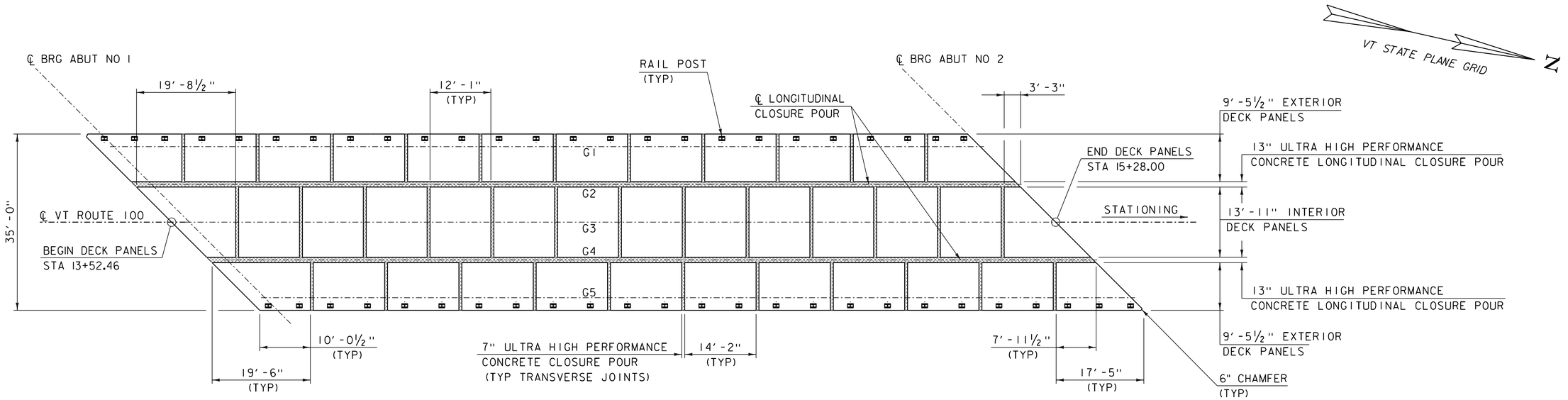
ABUTMENT NO 2 GRADING PLAN

5 0 5

SCALE: 1" = 5'-0"

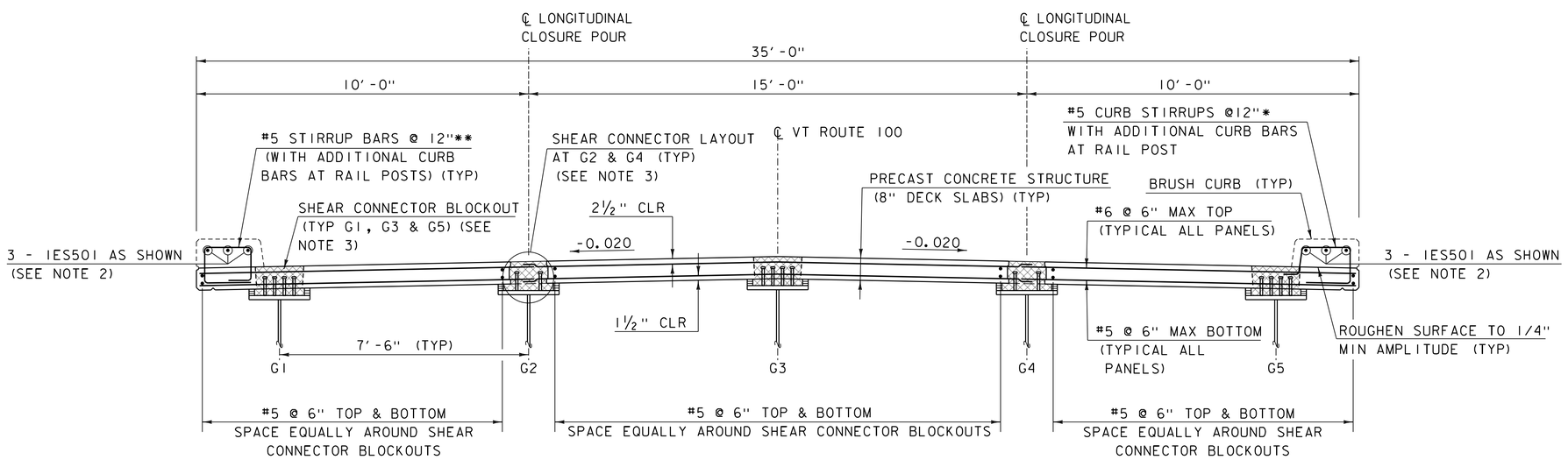
McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12bl36abut_grd.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
ABUTMENT NO 2 GRADING PLAN	SHEET 24 OF 69



PRECAST DECK PANEL LAYOUT

(NOTE: SHEAR CONNECTOR BLOCKOUTS AND BRUSHCURB NOT SHOWN FOR CLARITY)
SCALE: 3/32 " = 1′-0"



BRIDGE TYPICAL SECTION

SCALE: 3/8" = 1′-0"

* PROJECT STIRRUP LEGS INTO DECK OUTSIDE OF SHEAR CONNECTOR BLOCKOUTS AS SHOWN

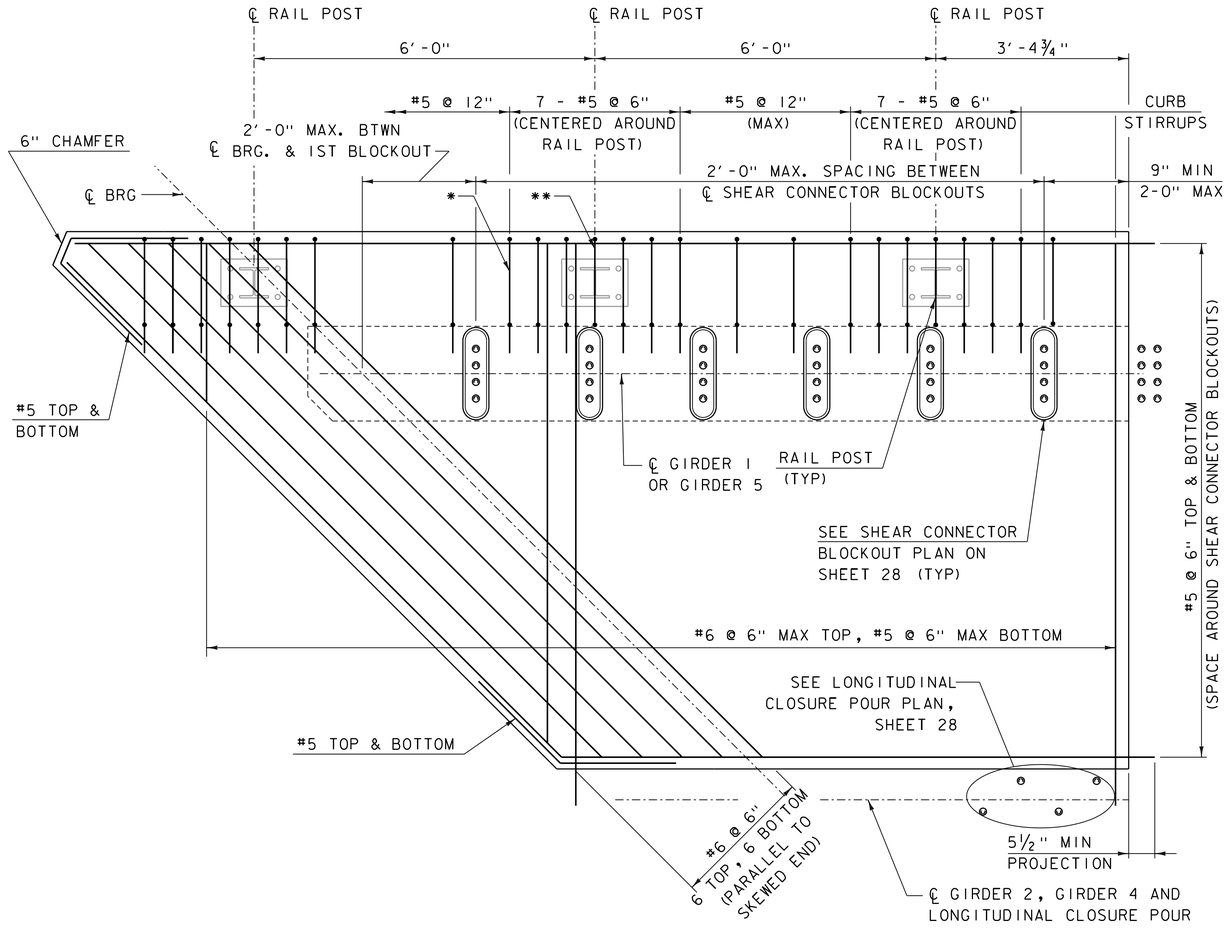
** PROJECT STIRRUP LEGS INTO CURB AT SHEAR CONNECTOR BLOCKOUTS AS SHOWN

LEGEND

SPECIAL PROVISION (ULTRA HIGH PERFORMANCE CONCRETE) (FPO)

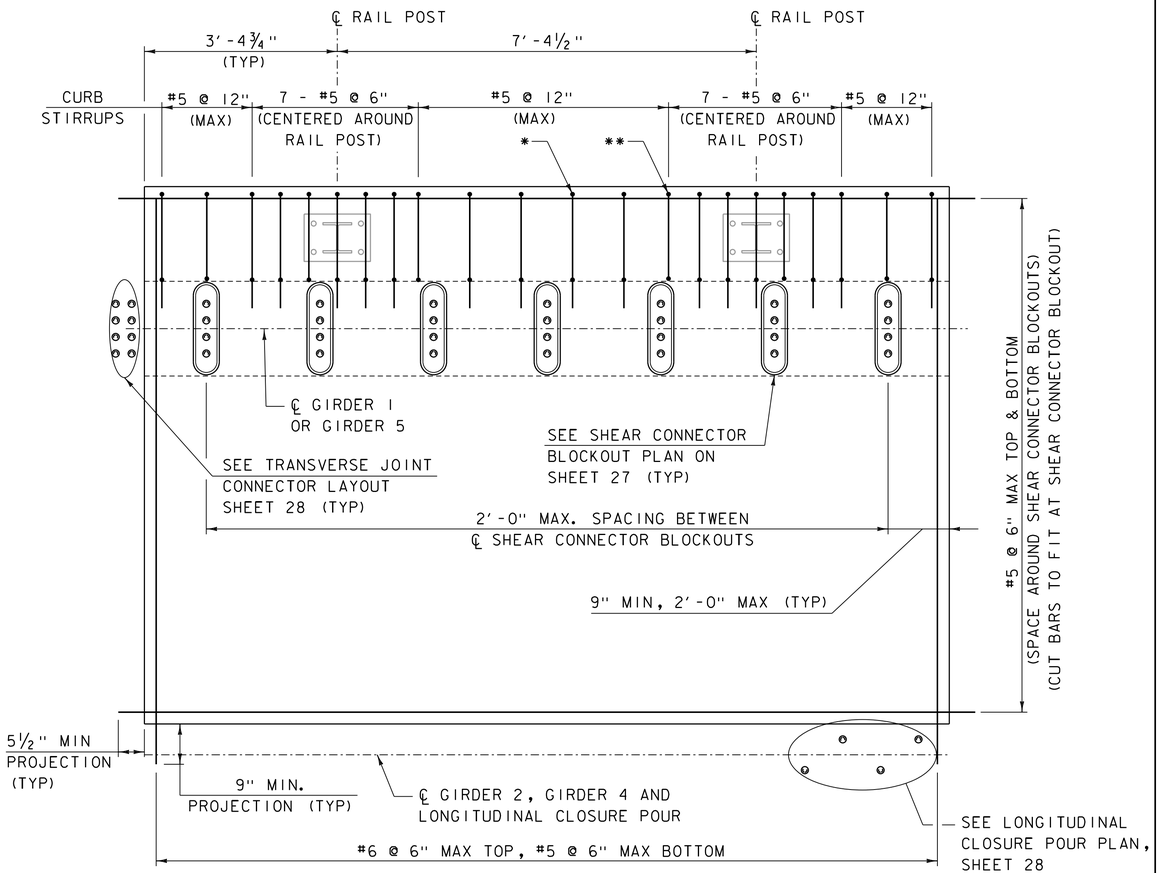
NOTES

1. ALL DECK PANEL DIMENSIONS ARE APPROXIMATE AND MAY BE REVISED BY THE CONTRACTOR.
2. SEE CONCRETE CURB JOINT NOTES ON STANDARD SHEET SD-502. MINIMUM LAP SHALL BE 2′-2". CUT BARS IN FIELD AS REQUIRED.
3. FOR ADDITIONAL SHEAR CONNECTOR LAYOUT INFORMATION SEE SHEETS 26 & 28.
4. IN ORDER TO REDUCE THE NUMBER OF COLD JOINTS IN THE UHPC CLOSURE JOINTS, IT IS PROPOSED TO PLACE UHPC IN THE END SPAN PORTIONS THE FIRST DAY TO APPROXIMATELY THE 1/3 POINT FROM EITHER END. IN THIS BATCHING AND CASTING, ALL TRANSVERSE JOINTS, LONGITUDINAL JOINTS AND SHEAR POCKETS WILL BE MONOLITHIC. ONLY FOUR JOINTS WILL EXIST AND THOSE WILL BE IN THE LONGITUDINAL HAUNCHES OVER GIRDERS 2 & 4.



TYPICAL EXTERIOR END PANEL REINFORCEMENT PLAN

ACUTE FASCIA PANEL SHOWN, OBTUSE INTERIOR PANEL SIMILAR)
SCALE: ¾" = 1'-0"



TYPICAL EXTERIOR PANEL REINFORCEMENT PLAN

(FASCIA PANEL SHOWN, INTERIOR PANEL SIMILAR)
SCALE: ¾" = 1'-0"

* PROJECT STIRRUP LEGS AS SHOWN OUTSIDE OF SHEAR CONNECTOR BLOCKOUT (TYP)

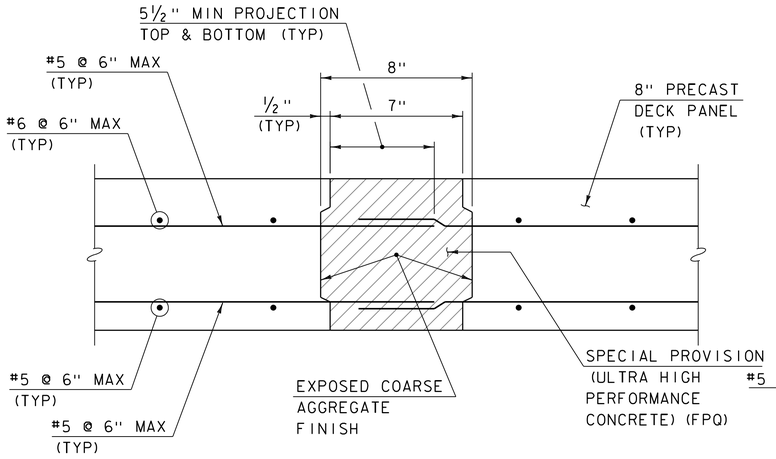
** PROJECT STIRRUP LEGS INTO CURB AT SHEAR CONNECTOR BLOCKOUT (TYP)

NOTE:

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

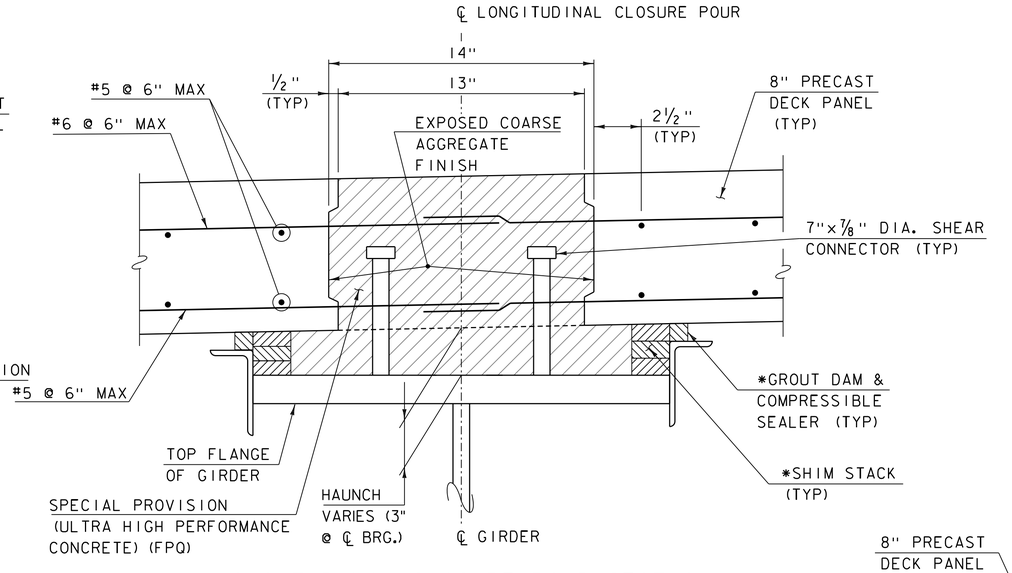
PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12b136sup_panl.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R.YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D.KULL	CHECKED BY: T.KENDRICK
PRECAST DECK DETAILS	SHEET 26 OF 69

McFarland Johnson



TRANSVERSE JOINT SECTION

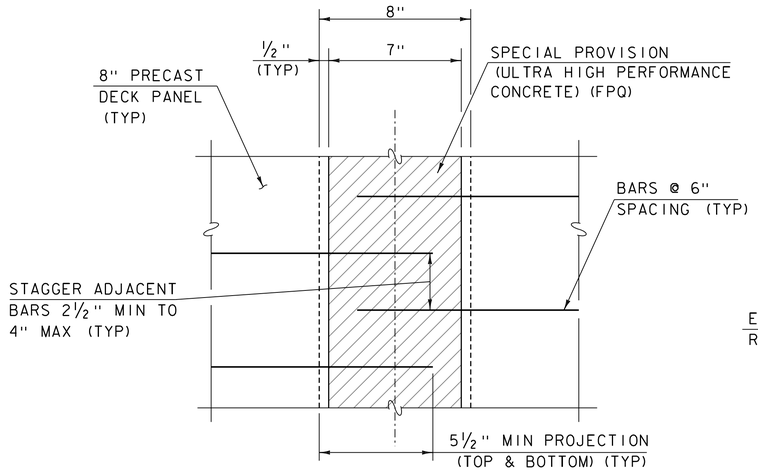
(BETWEEN PANELS)
SCALE: 3" = 1'-0"



LONGITUDINAL CLOSURE POUR SECTION

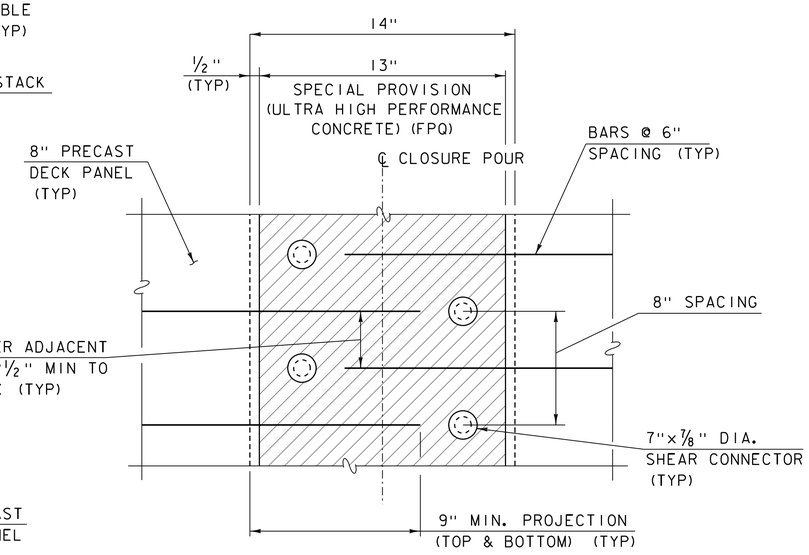
(OVER GIRDERS 2 & 4)
SCALE: 3" = 1'-0"

*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

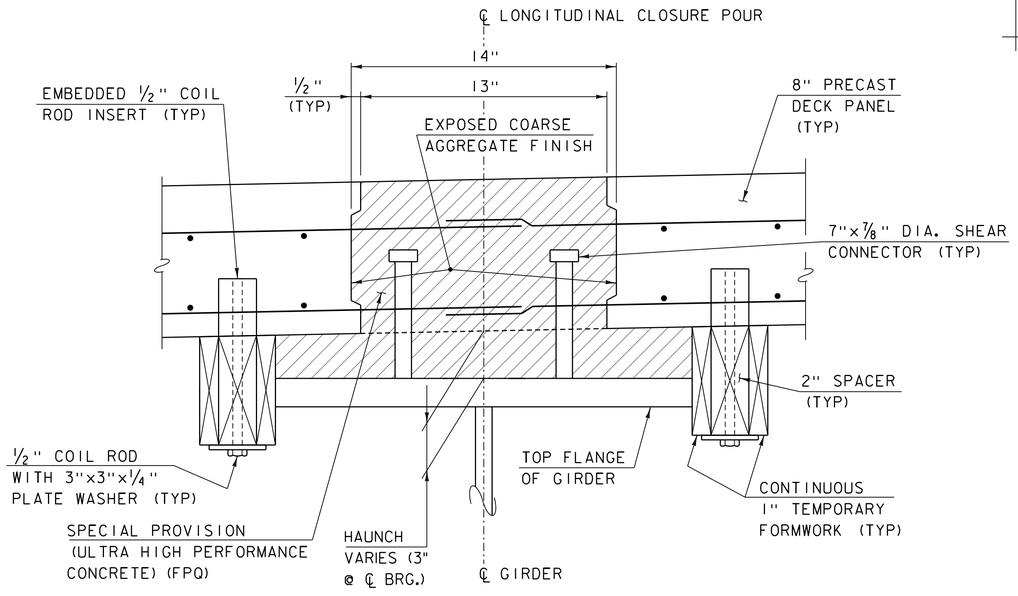
(OVER GIRDERS 2 & 4)
SCALE: 3" = 1'-0"

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.

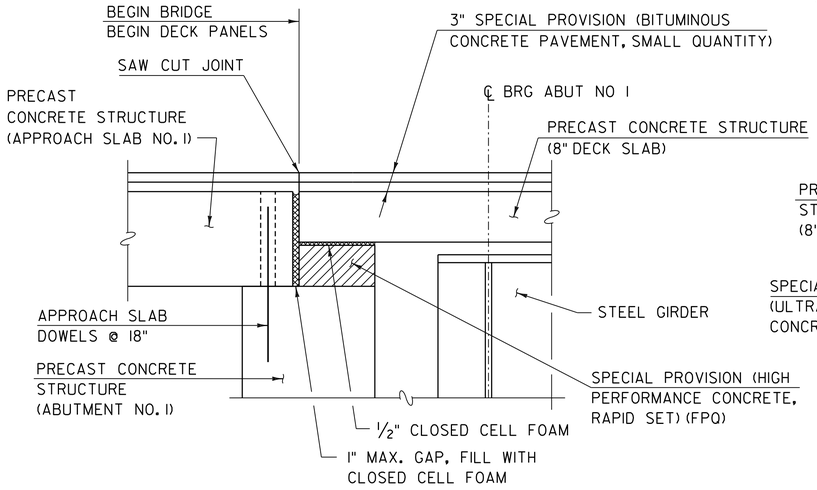


ALTERNATE LONGITUDINAL CLOSURE POUR SECTION

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

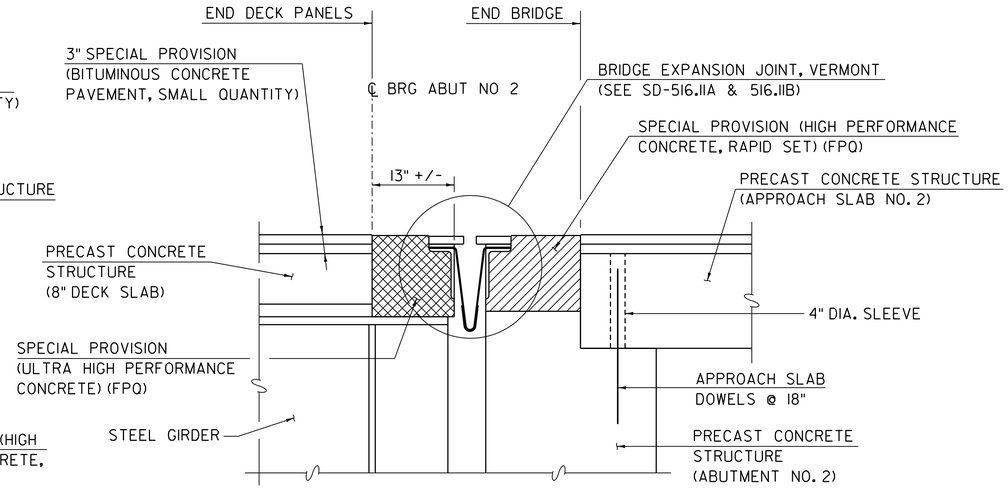
McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: zl2b136sup_dtls.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R.YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D.KULL	CHECKED BY: T.KENDRICK
MISCELLANEOUS DECK DETAILS I	SHEET 27 OF 69



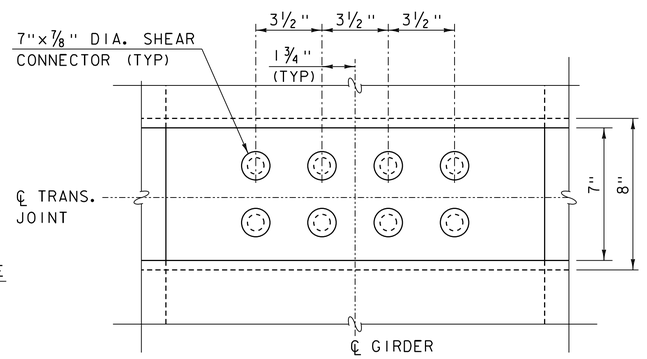
ABUT NO. 1 BRIDGE END DETAIL

SCALE: 1" = 1'-0"



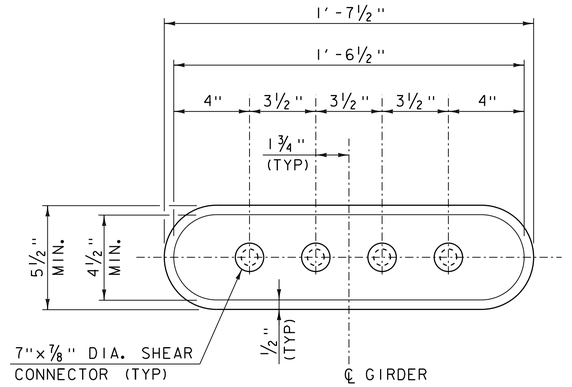
ABUT NO. 2 BRIDGE END DETAIL

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



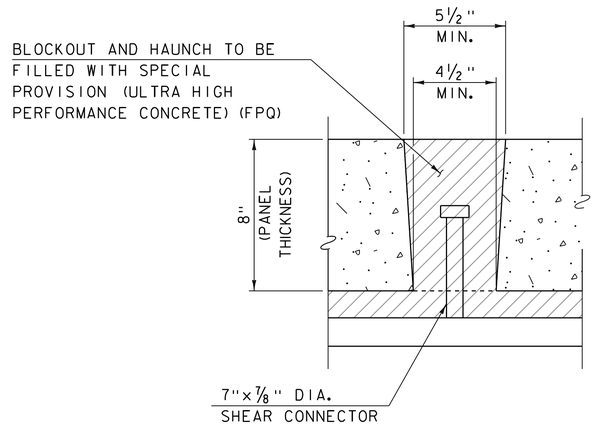
TRANSVERSE JOINT CONNECTOR LAYOUT

SCALE: 3" = 1'-0"



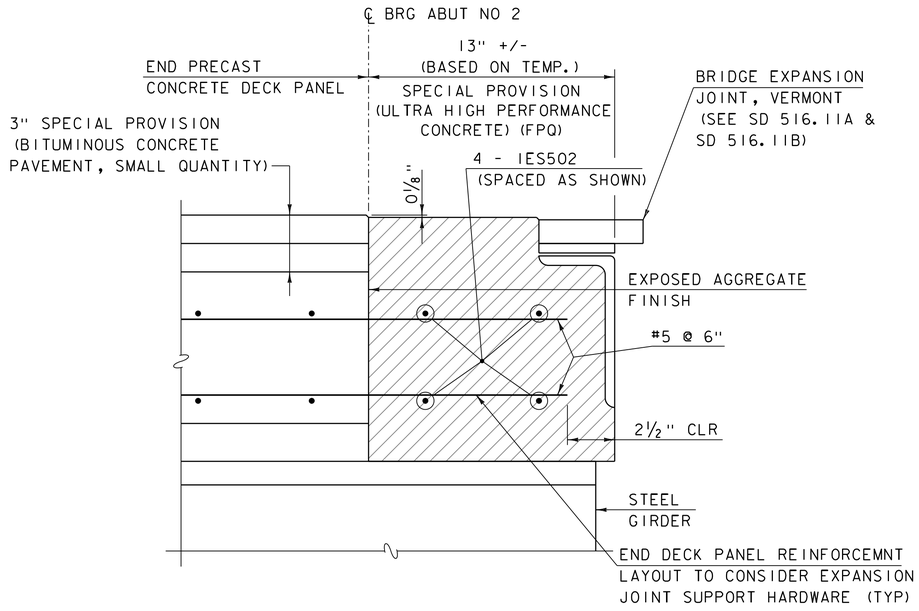
SHEAR CONNECTOR BLOCKOUT PLAN

SCALE: 3" = 1'-0"



SHEAR CONNECTOR BLOCKOUT SECTION

SCALE: 3" = 1'-0"



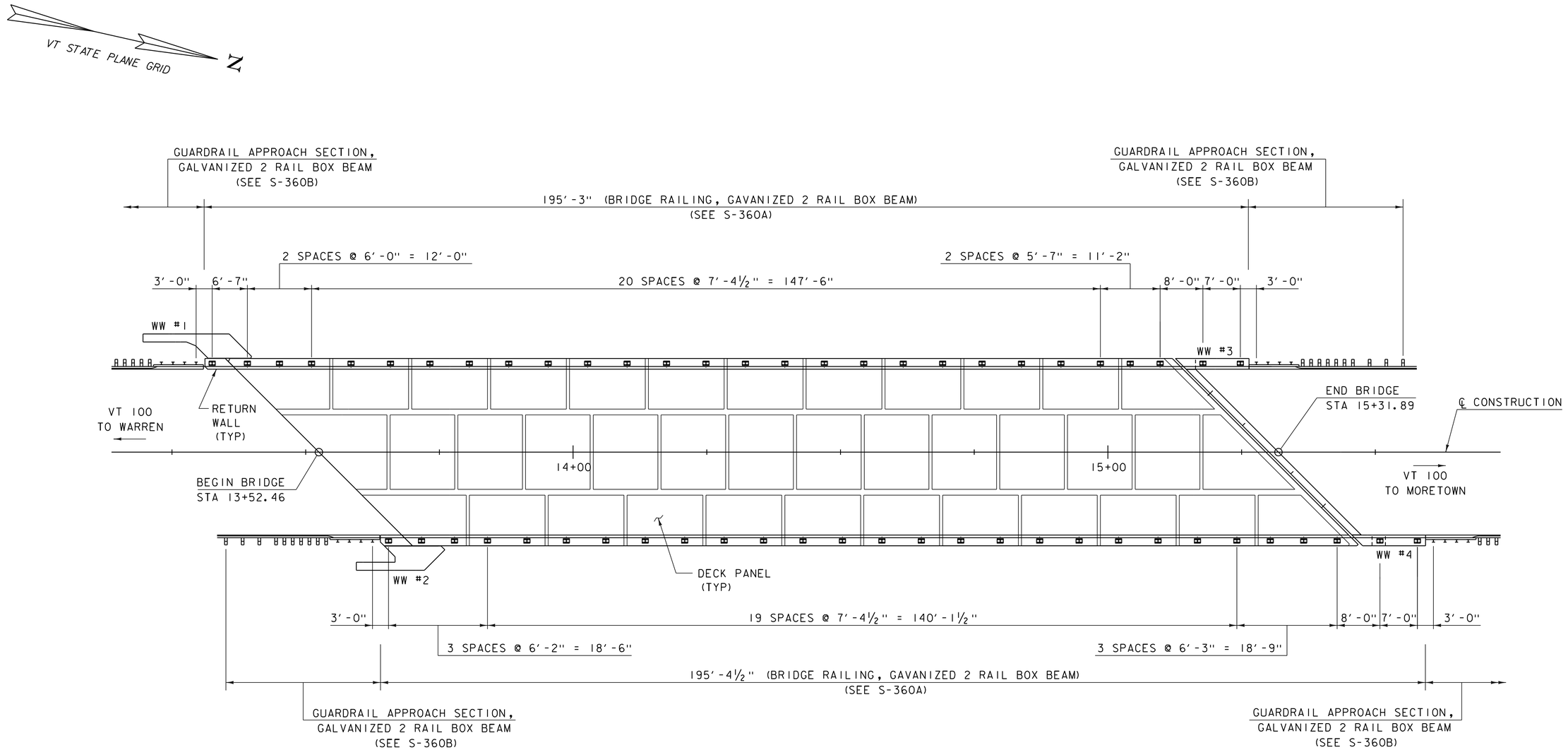
ABUTMENT NO 2 DECK END SECTION

SCALE: 3" = 1'-0"

NOTE: VERMONT EXPANSION JOINT
HARDWARD NOT SHOWN FOR CLARITY

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12bl36sup_dtls.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R.YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D.KULL	CHECKED BY: T.KENDRICK
MISCELLANEOUS DECK DETAILS 2	SHEET 28 OF 69

McFarland Johnson



BRIDGE RAIL LAYOUT

SCALE: 1" = 10'-0"

NOTE

1. RAIL DIMENSIONS HAVE BEEN PROVIDED FOR INFORMATION ONLY. ACTUAL RAIL DIMENSIONS MAY BE REVISED BY CONTRACTOR BASED ON FINAL DIMENSIONS OF DECK PANELS. REFER TO S-360A FOR DETAILS.

10 0 10

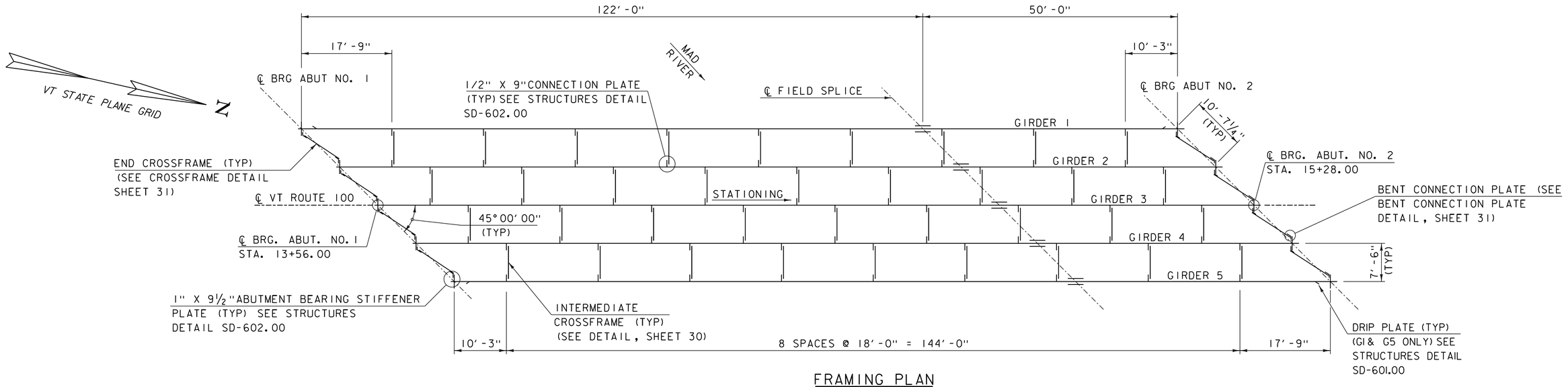
SCALE: 1" = 10'-0"

McFarland Johnson

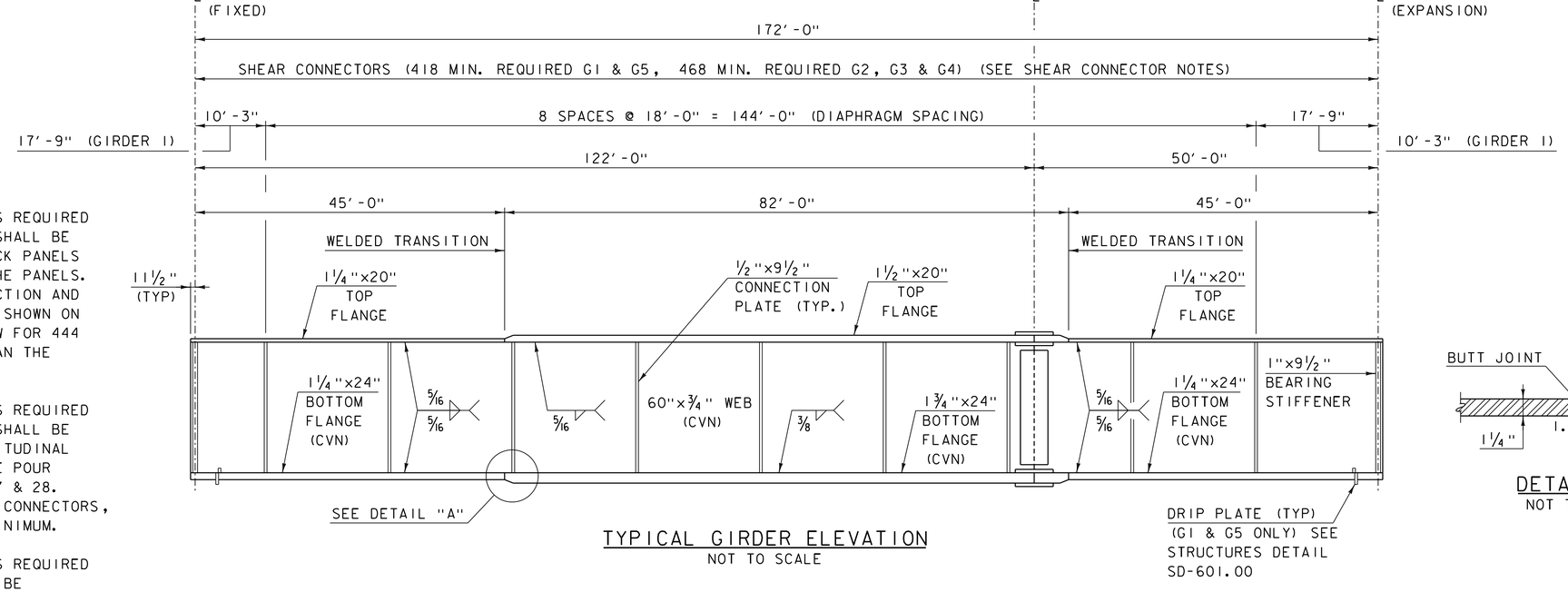
PROJECT NAME: WAITSFIELD
PROJECT NUMBER: BRF 013-4(39)

FILE NAME: z12b136bdr_raillay.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
BRIDGE RAIL LAYOUT SHEET

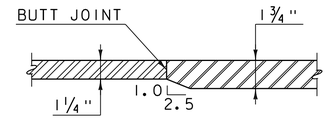
PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK
SHEET 29 OF 69



FRAMING PLAN
SCALE: 1" = 10′-0"



TYPICAL GIRDER ELEVATION
NOT TO SCALE



DETAIL "A"
NOT TO SCALE

SHEAR CONNECTOR NOTES:

1. THE MINIMUM NUMBER OF SHEAR CONNECTORS REQUIRED FOR G1 & G5 IS 418. SHEAR CONNECTORS SHALL BE PLACED IN BLOCKOUTS IN THE PRECAST DECK PANELS AND IN THE TRANSVERSE JOINT BETWEEN THE PANELS. THE SHEAR CONNECTOR BLOCKOUT PLAN, SECTION AND TRANSVERSE JOINT CONNECTOR LAYOUT ARE SHOWN ON SHEET 27 & 28. THE DETAILS SHOWN ALLOW FOR 444 SHEAR CONNECTORS, WHICH IS GREATER THAN THE SPECIFIED MINIMUM.

2. THE MINIMUM NUMBER OF SHEAR CONNECTORS REQUIRED FOR G2 & G4 IS 468. SHEAR CONNECTORS SHALL BE PLACED BETWEEN THE PANELS IN THE LONGITUDINAL CLOSURE POUR. THE LONGITUDINAL CLOSURE POUR PLAN AND SECTION ARE SHOWN ON SHEET 27 & 28. THE DETAILS SHOWN ALLOW FOR 517 SHEAR CONNECTORS, WHICH IS GREATER THAN THE SPECIFIED MINIMUM.

3. THE MINIMUM NUMBER OF SHEAR CONNECTORS REQUIRED FOR G3 IS 468. SHEAR CONNECTORS SHALL BE PLACED IN BLOCKOUTS IN THE PRECAST DECK PANELS AND IN THE TRANSVERSE JOINT BETWEEN THE PANELS. THE SHEAR CONNECTOR BLOCKOUT PLAN, SECTION AND TRANSVERSE JOINT CONNECTOR LAYOUT ARE SHOWN ON SHEET 27. THE DETAILS SHOWN ALLOW FOR 454 SHEAR CONNECTORS, WHICH IS GREATER THAN THE SPECIFIED MINIMUM.

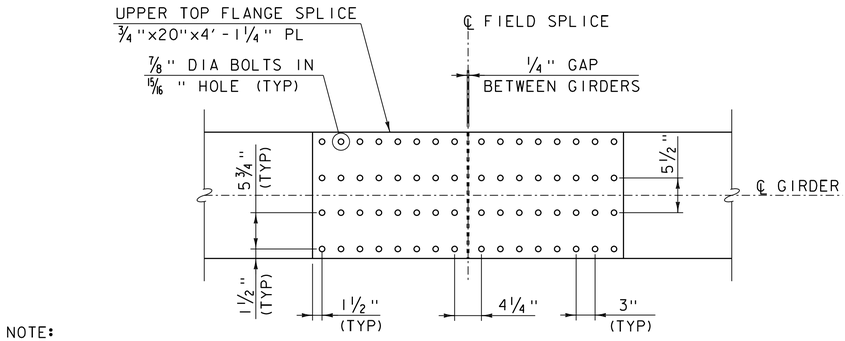
CVN = CHARPY V-NOTCH TEST IN ACCORDANCE WITH SUBSECTION 714.01

McFarland Johnson

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

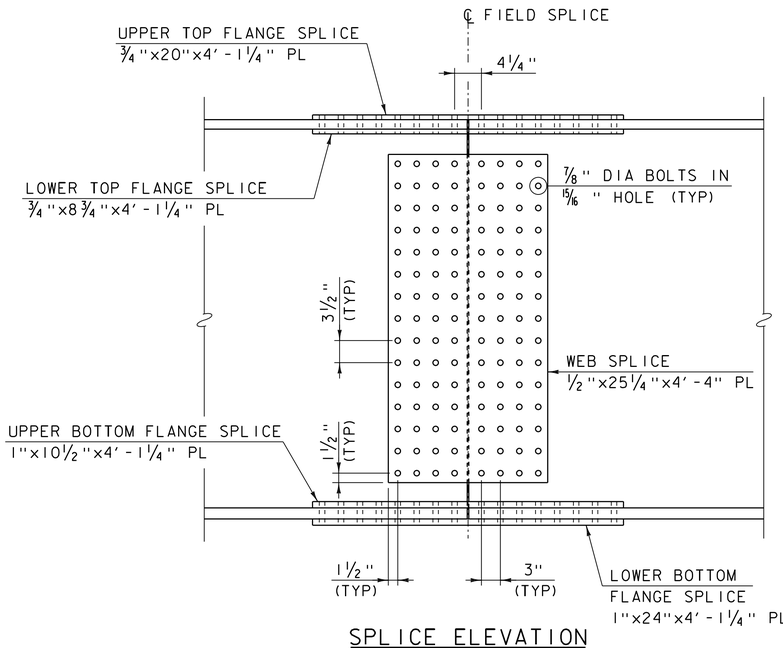
FILE NAME: 12b136sup_fram.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
FRAMING PLAN AND GIRDER ELEVATION

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 30 OF 69

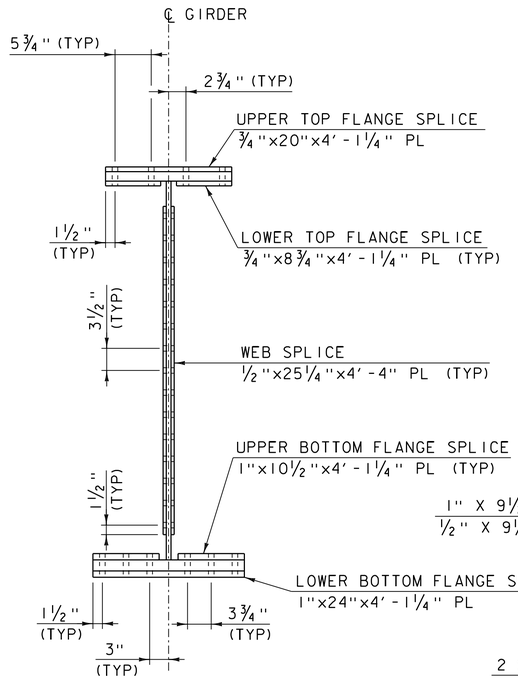


NOTE:
LOWER TOP FLANGE SPLICE
SHALL BE SIMILAR

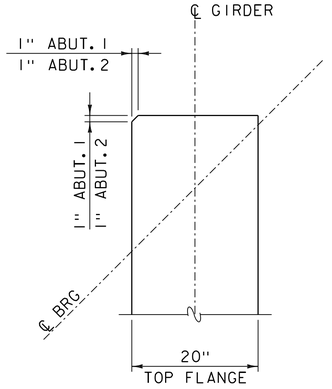
UPPER TOP FLANGE SPLICE
SCALE: 1" = 1'-0"



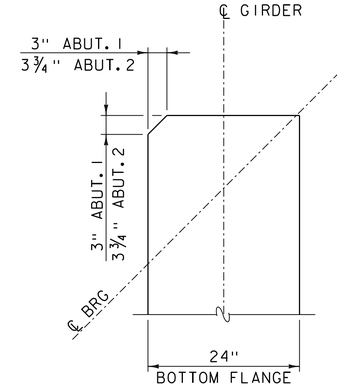
SPLICE ELEVATION
SCALE: 1" = 1'-0"



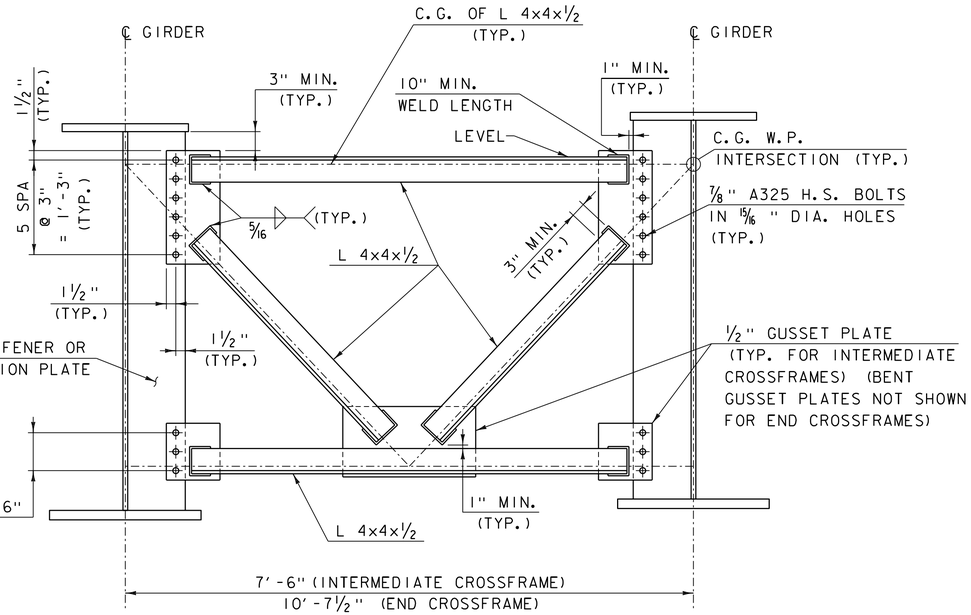
SPLICE SECTION
SCALE: 1" = 1'-0"



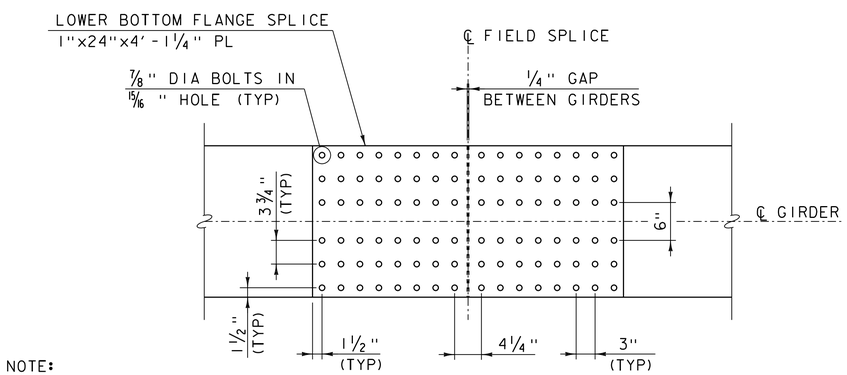
TOP FLANGE CLIP DETAIL
SCALE: 1" = 1'-0"



BOTTOM FLANGE CLIP DETAIL
SCALE: 1" = 1'-0"

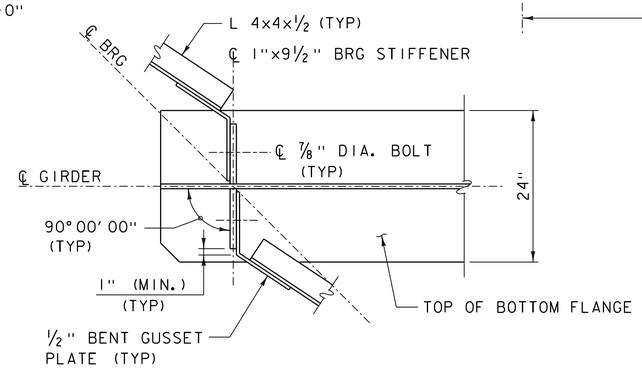


CROSSFRAME DETAIL
(INTERMEDIATE CROSSFRAME SHOWN)
SCALE: 1" = 1'-0"



NOTE:
UPPER BOTTOM FLANGE SPLICE
SHALL BE SIMILAR

LOWER BOTTOM FLANGE SPLICE
SCALE: 1" = 1'-0"



BENT CONNECTION PLATE DETAIL
SCALE: 1" = 1'-0"

McFarland Johnson

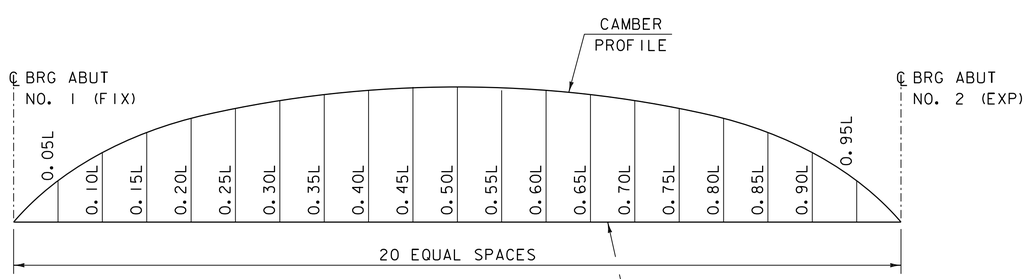
PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12b136sup_gird.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R.YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D.KULL	CHECKED BY: T.KENDRICK
MISCELLANEOUS GIRDER DETAILS	SHEET 31 OF 69

CAMBER TABLE - GIRDERS 1 & 5 (INCHES)

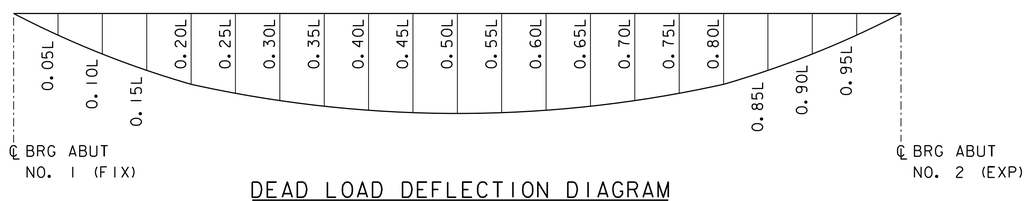
POINT ON GIRDER	CL BRG. ABUT 1	0.05 L	0.10 L	0.15 L	0.20 L	0.25 L	0.30 L	0.35 L	0.40 L	0.45 L	0.50 L	0.55 L	0.60 L	0.65 L	0.70 L	0.75 L	0.80 L	0.85 L	0.90 L	0.95 L	CL BRG. ABUT 2
STEEL DL	0.00	0.57	1.11	1.62	2.09	2.48	2.82	3.08	3.27	3.39	3.43	3.39	3.27	3.08	2.82	2.49	2.09	1.62	1.11	0.57	0.00
CONCRETE SLAB	0.00	1.07	2.11	3.08	3.96	4.72	5.34	5.84	6.21	6.43	6.51	6.43	6.21	5.84	5.34	4.72	3.96	3.08	2.11	1.07	0.00
SUPERIMPOSED DL	0.00	0.31	0.61	0.89	1.15	1.37	1.55	1.70	1.81	1.87	1.90	1.87	1.81	1.70	1.55	1.37	1.15	0.89	0.61	0.31	0.00
TOTAL DEFLECTION	0.00	1.95	3.83	5.60	7.19	8.57	9.71	10.62	11.29	11.69	11.83	11.69	11.29	10.62	9.71	8.57	7.19	5.60	3.83	1.95	0.00
VERTICAL ORDINATE	0.00	1.41	2.67	3.79	4.75	5.57	6.24	6.76	7.13	7.35	7.43	7.35	7.13	6.76	6.24	5.57	4.75	3.79	2.67	1.41	0.00
TOTAL CAMBER	0.00	3.36	6.51	9.39	11.95	14.14	15.95	17.38	18.42	19.05	19.26	19.05	18.42	17.38	15.95	14.14	11.95	9.39	6.51	3.36	0.00

CAMBER TABLE - GIRDERS 2, 3 & 4 (INCHES)

POINT ON GIRDER	CL BRG. ABUT 1	0.05 L	0.10 L	0.15 L	0.20 L	0.25 L	0.30 L	0.35 L	0.40 L	0.45 L	0.50 L	0.55 L	0.60 L	0.65 L	0.70 L	0.75 L	0.80 L	0.85 L	0.90 L	0.95 L	CL BRG. ABUT 2
STEEL DL	0.00	0.60	1.18	1.72	2.20	2.63	2.97	3.25	3.46	3.58	3.62	3.58	3.46	3.25	2.97	2.63	2.20	1.72	1.18	0.60	0.00
CONCRETE SLAB	0.00	1.23	2.42	3.53	4.54	5.40	6.12	6.70	7.12	7.37	7.46	7.37	7.12	6.70	6.12	5.40	4.54	3.53	2.42	1.23	0.00
SUPERIMPOSED DL	0.00	0.30	0.59	0.86	1.10	1.31	1.49	1.63	1.73	1.79	1.81	1.79	1.73	1.63	1.49	1.31	1.10	0.86	0.59	0.30	0.00
TOTAL DEFLECTION	0.00	2.12	4.18	6.10	7.84	9.34	10.58	11.58	12.30	12.74	12.89	12.74	12.30	11.58	10.58	9.34	7.84	6.10	4.18	2.12	0.00
VERTICAL ORDINATE	0.00	1.41	2.67	3.79	4.75	5.57	6.24	6.76	7.13	7.35	7.43	7.35	7.13	6.76	6.24	5.57	4.75	3.79	2.67	1.41	0.00
TOTAL CAMBER	0.00	3.53	6.85	9.89	12.59	14.91	16.82	18.34	19.43	20.10	20.32	20.10	19.43	18.34	16.82	14.91	12.59	9.89	6.85	3.53	0.00



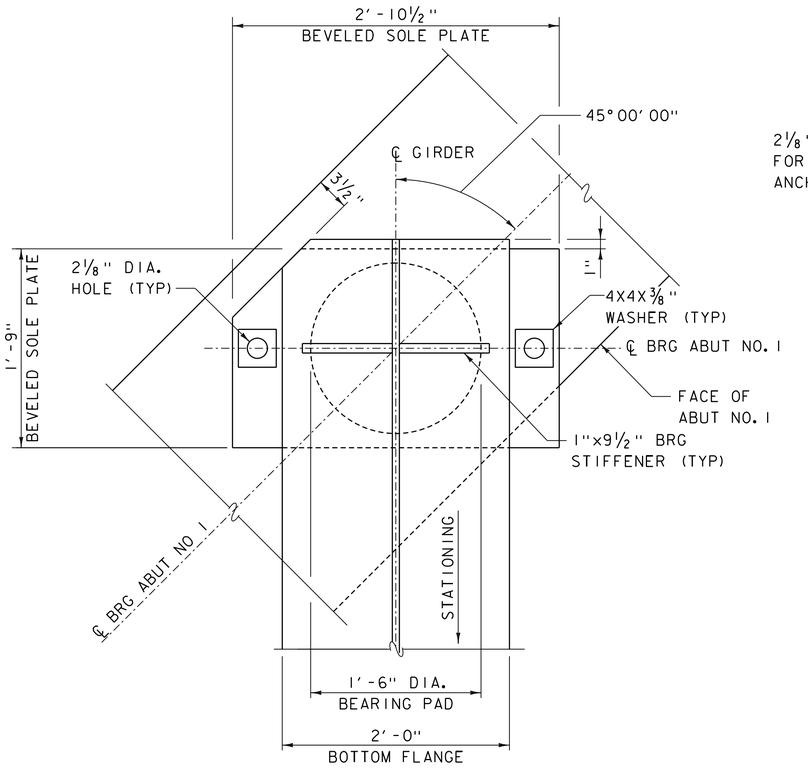
CAMBER DIAGRAM
SEE CAMBER TABLES



DEAD LOAD DEFLECTION DIAGRAM
SEE CAMBER TABLES

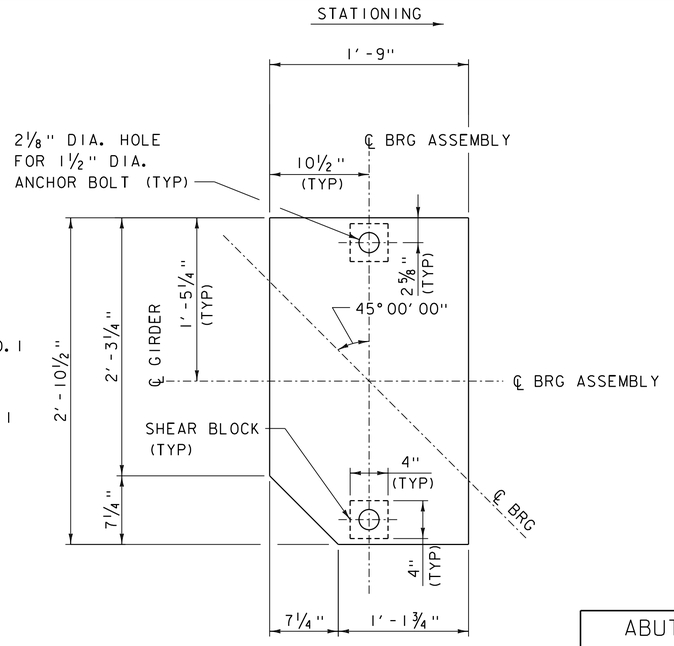
PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: 12b136sup_fram.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T.KENDRICK
CAMBER DETAILS	SHEET 32 OF 69

McFarland Johnson

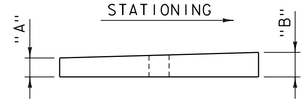


PLAN

SCALE: 1½" = 1'-0"



PLAN



ELEVATION

BEVELED SOLE PLATE

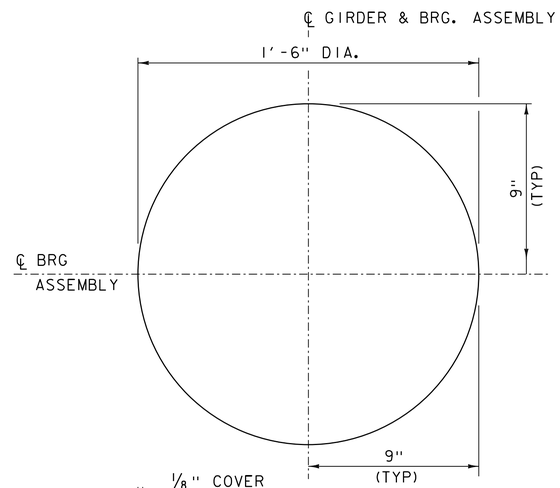
SCALE: 1½" = 1'-0"

ABUTMENT NO. 1 BEVELED SOLE PLATE THICKNESS TABLE		
	"A"	"B"
G1	1 13/16"	2 3/16"
G2	2 3/16"	2 9/16"
G3	2 3/8"	2 5/8"
G4	1 7/8"	2 1/8"
G5	2 1/8"	2 3/8"

BEARING NOTES:

1. BEARINGS SHALL CONFORM TO THE APPLICABLE SUBSECTIONS OF SECTIONS 531 AND 731.
2. ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMER SHALL BE STEEL MEETING THE REQUIREMENTS OF SUBSECTION 714.02. ALL INTERNAL STEEL SHEETS SHALL BE SAND BLASTED AND FREE OF COATINGS, RUST, AND MILL SCALE. THE PLATES SHALL BE FREE OF SHARP EDGES AND BURRS.
3. STEEL REINFORCED ELASTOMERIC BEARINGS SHALL HAVE A MINIMUM ⅛" EDGE SEAL OF ELASTOMER INTEGRAL WITH BEARING OVER ALL INTERNAL PLATES.
4. THE ELASTOMER SHALL BE GRADE 60 SHORE A DUROMETER.
5. THE ELASTOMER SHALL MEET THE REQUIREMENTS OF LOW TEMPERATURE ZONE D, GRADE 4.
6. DESIGN CRITERIA (AASHTO METHOD A):

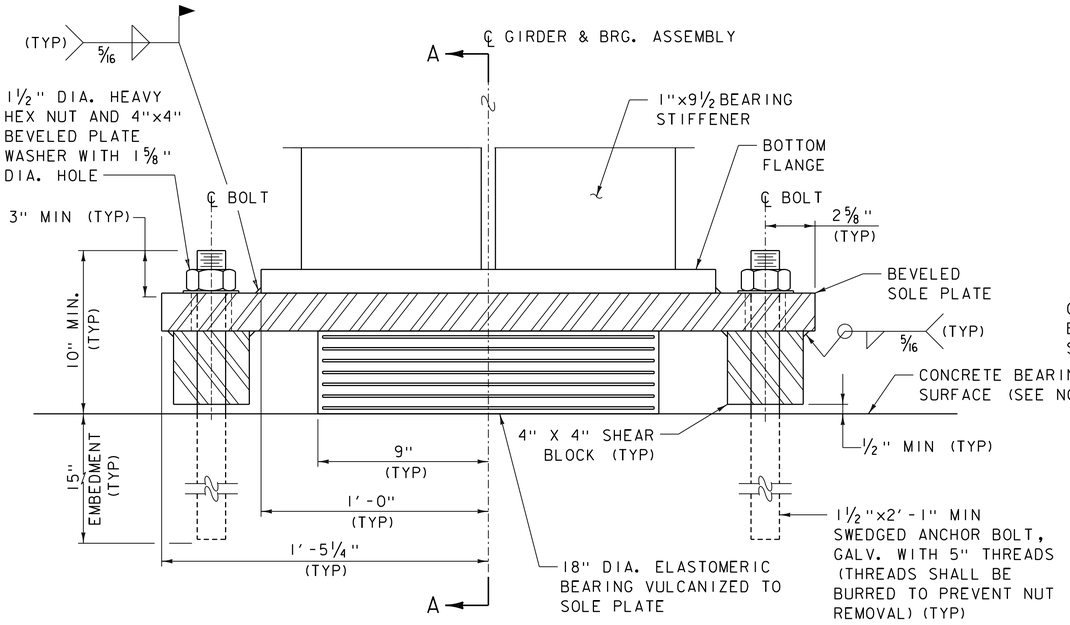
DESIGN SHEAR MODULUS:	130 PSI TO 200 PSI
MAXIMUM BEARING STRESS:	1100 PSI
DESIGN DEAD LOAD (UNFACTORED):	140 KIPS
DESIGN LIVE LOAD (UNFACTORED):	140 KIPS
DESIGN LONGITUDINAL MOVEMENT:	1.57 IN (ABUTMENT 2)



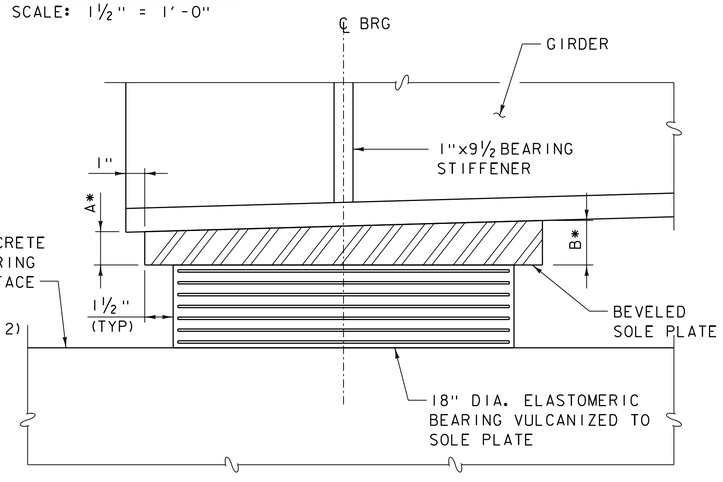
** 2 - ¼" EXTERIOR ELASTOMER LAYERS
6 - ½" INTERIOR ELASTOMER LAYERS
7 - ⅛" STEEL REINFORCING PLATES

ELASTOMERIC BEARING PAD DETAIL
(FIXED AND EXPANSION)

SCALE: 3" = 1'-0"



FRONT ELEVATION



SECTION A-A

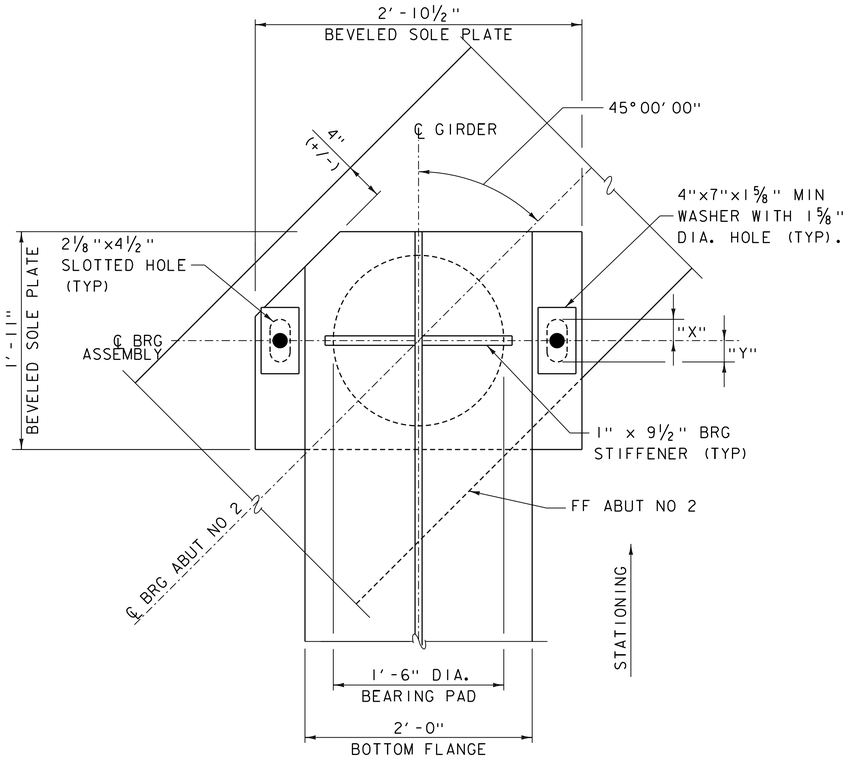
ABUTMENT NO 1 - FIXED BEARING DETAILS

SCALE: 3" = 1'-0"

*SEE ABUTMENT NO. 1 BEVELED SOLE PLATE DIMENSIONS TABLE

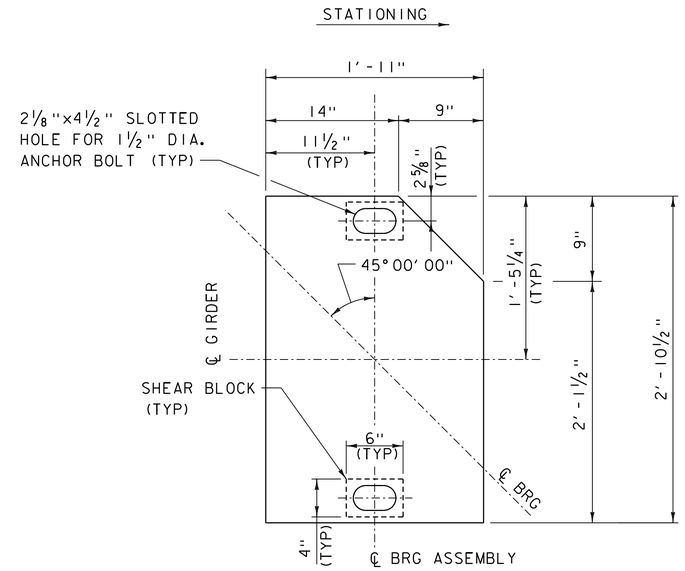
McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12b136brg.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R.YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D.KULL	CHECKED BY: T.KENDRICK
BEARING DETAILS (1 OF 2)	SHEET 33 OF 69

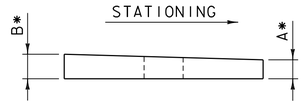


PLAN

SCALE: 1½" = 1'-0"



PLAN



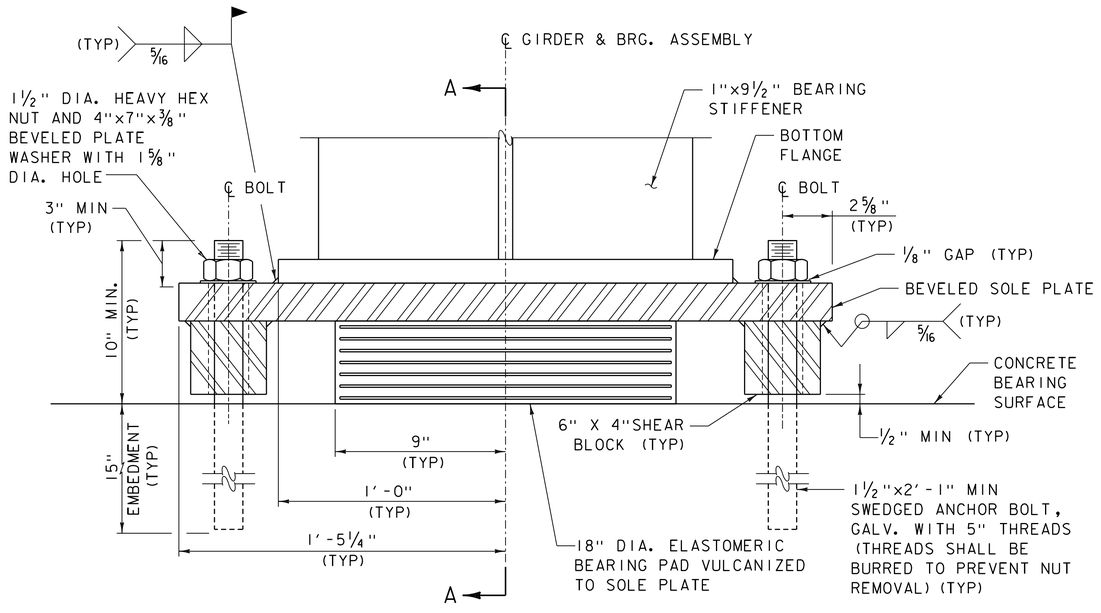
ELEVATION

BEVELED SOLE PLATE

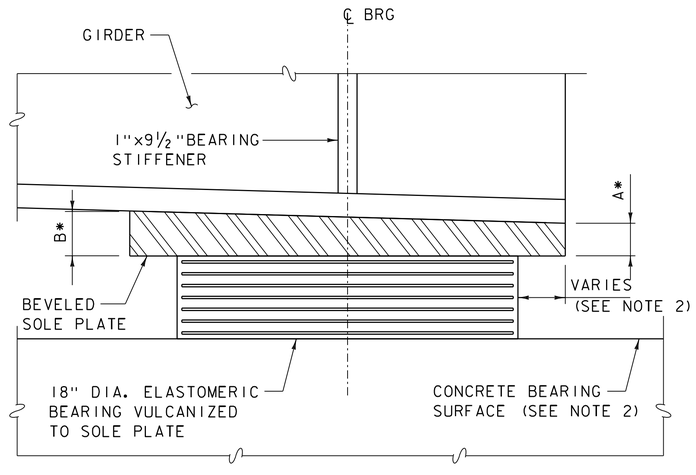
SCALE: 1½" = 1'-0"

TEMPERATURE ADJUSTMENT TABLE		
TEMP.	"X"	"Y"
0° F	2⅞"	1⅝"
15° F	2⅝"	1⅞"
30° F	2½"	2"
45° F	2¼"	2¼"
60° F	2"	2½"
75° F	1⅞"	2⅝"
90° F	1⅝"	2⅞"
105° F	1½"	3"

ABUTMENT NO. 2 BEVELED SOLE PLATE THICKNESS TABLE		
	"A"	"B"
G1	1¾"	2"
G2	2¼"	2½"
G3	1 15/16"	2 5/16"
G4	1 13/16"	2 3/16"
G5	1 11/16"	2 1/16"



FRONT ELEVATION



SECTION A-A

BEARING NOTES:

1. FOR BEARING NOTES AND DESIGN CRITERIA, SEE BEARING DETAILS SHEET 1.
2. THE CONTRACTOR SHALL INCLUDE THE BEARING INSTALLATION PROCEDURE WITH THE FABRICATION DRAWING PACKAGE REQUIRED UNDER SUBSECTION 531.03. PROCEDURE SHALL INCLUDE BEARING ADJUSTMENT SETTING DEPENDING UPON TEMPERATURE AT TIME OF ERECTION.

ABUTMENT NO 2 - EXPANSION BEARING DETAILS

SCALE: 3" = 1'-0"

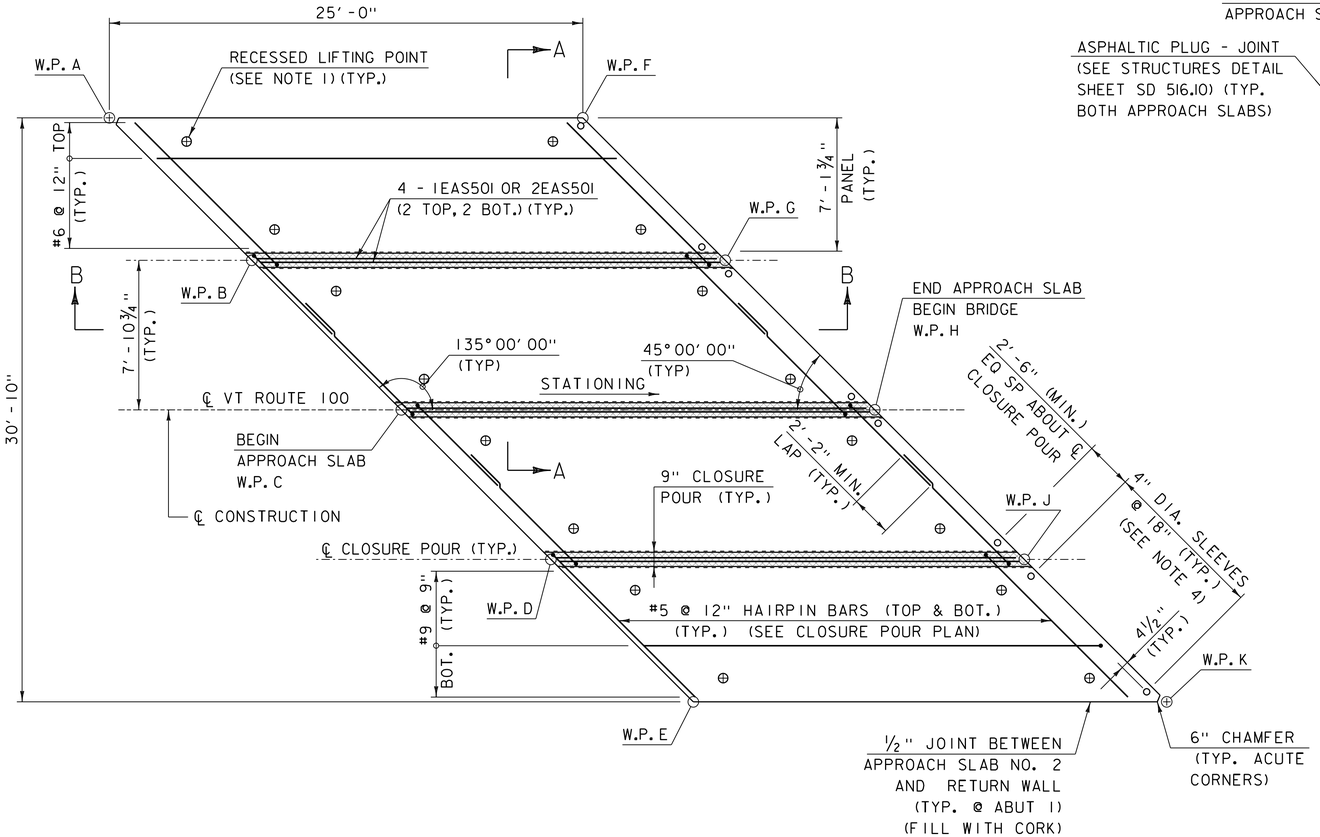
*SEE ABUTMENT NO. 2 BEVELED SOLE PLATE THICKNESS TABLE

McFarland Johnson

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

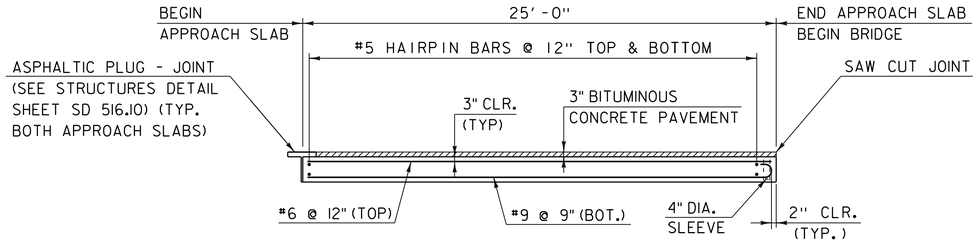
FILE NAME: zl2bl36brg.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
BEARING DETAILS (2 OF 2)

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 34 OF 69



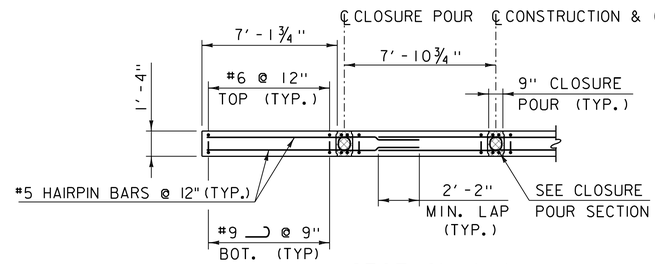
APPROACH SLAB NO. 1 PLAN

(APPROACH SLAB NO 1 SHOWN, APPROACH SLAB NO 2 SIMILAR)
SCALE: ¼" = 1'-0"



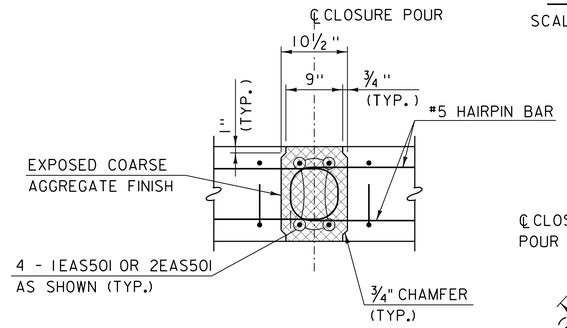
SECTION B-B

SCALE: ¼" = 1'-0"



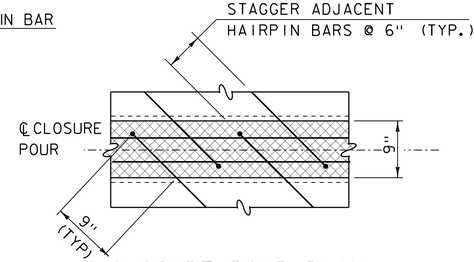
SECTION A-A

SCALE: ¼" = 1'-0"



CLOSURE POUR SECTION

SCALE: 1" = 1'-0"



CLOSURE POUR PLAN

SCALE: 1" = 1'-0"

LEGEND

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

APPROACH SLAB ELEVATION TABLE

WORKING POINT	APPROACH SLAB NO. 1			APPROACH SLAB NO. 2		
	STATION	OFFSET	ELEVATION	STATION	OFFSET	ELEVATION
A	13+12.05	15.42' LT.	727.83	15+16.47	15.42' LT.	728.84
B	13+19.57	7.90' LT.	728.15	15+23.99	7.90' LT.	728.90
C	13+27.46	℄	728.46	15+31.89	℄	728.94
D	13+35.36	7.90' RT.	728.45	15+39.78	7.90' RT.	728.66
E	13+42.88	15.42' RT.	728.43	15+47.31	15.42' RT.	728.39
F	13+37.05	15.42' LT.	728.33	15+41.47	15.42' LT.	728.48
G	13+44.57	7.90' LT.	728.61	15+48.99	7.90' LT.	728.51
H	13.52.46	℄	728.90	15+56.89	℄	728.52
J	13+60.36	7.90' RT.	728.85	15+64.78	7.90' RT.	728.21
K	13+67.88	15.42' RT.	728.80	15+72.31	15.42' RT.	727.90

ALL ELEVATIONS ARE AT TOP OF APPROACH SLAB

NOTE:

▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

NOTES

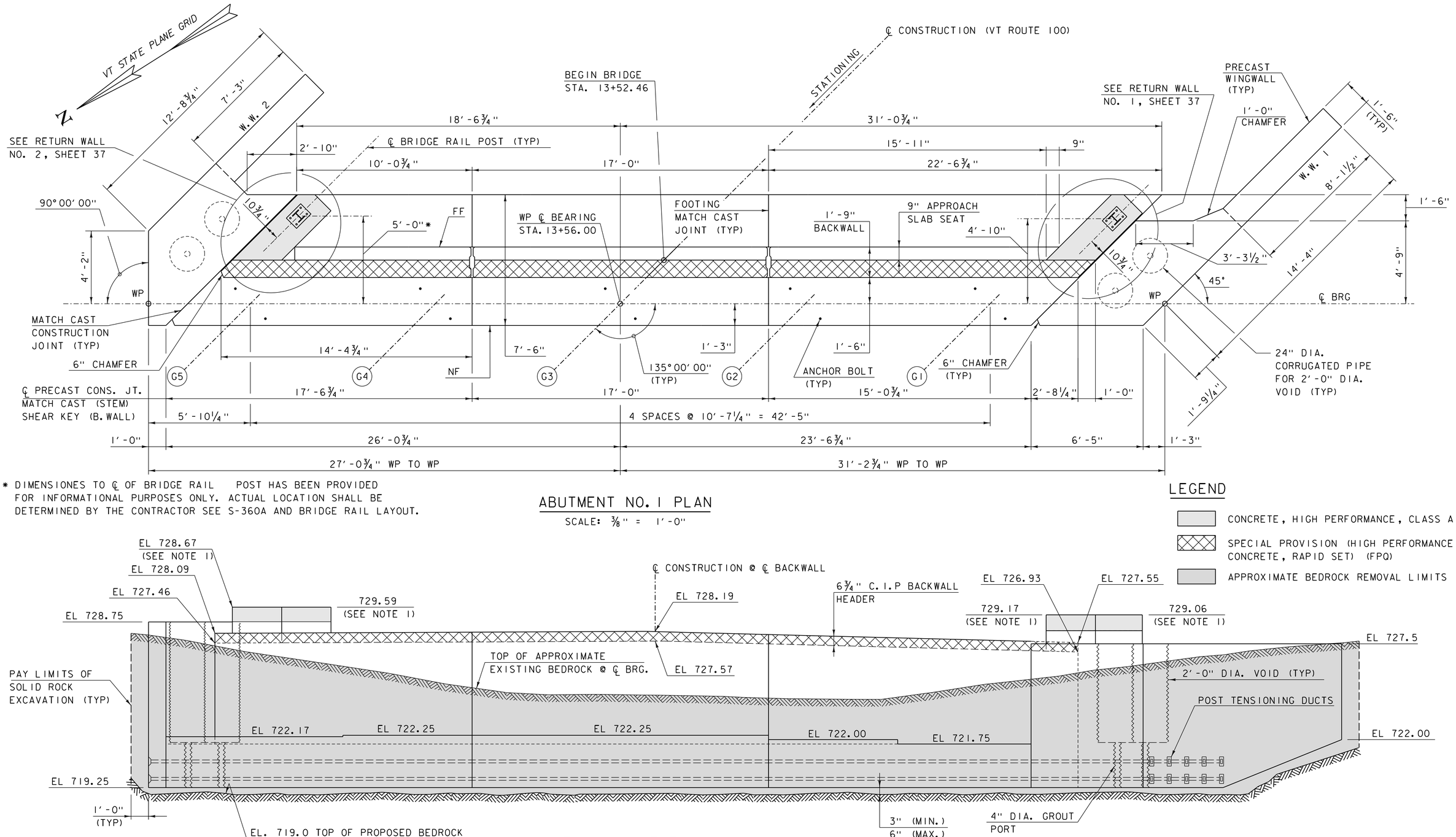
1. LIFTING POINTS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. ACTUAL LIFTING LOCATIONS SHALL BE DETERMINED BY THE FABRICATOR AND INDICATED ON THE FABRICATION DRAWINGS WITH CALCULATIONS.
2. THE TOP SURFACE OF THE PRECAST APPROACH SLAB PANELS SHALL HAVE A BROOM FINISH PARALLEL TO THE CENTERLINE OF CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING UNIFORM CONTACT BETWEEN THE APPROACH SLAB AND THE SUBBASE MATERIAL TO THE SATISFACTION OF THE ENGINEER. THE FABRICATION DRAWINGS SHALL INDICATE THE MEANS AND METHODS NECESSARY TO INSTALL THE APPROACH SLABS TO THE ELEVATIONS SPECIFIED.
4. SLEEVE LOCATIONS TO BE COORDINATED WITH CONSTRUCTION JOINTS AND DOWELS IN PRECAST BACKWALL.

McFarland Johnson

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

FILE NAME: z12bl36sub_appr.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
APPROACH SLAB DETAILS

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 35 OF 69



* DIMENSIONES TO ℄ OF BRIDGE RAIL POST HAS 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"

ABUTMENT NO. 1 ELEVATION

SCALE: ⅜" = 1'-0"

LEGEND

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

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

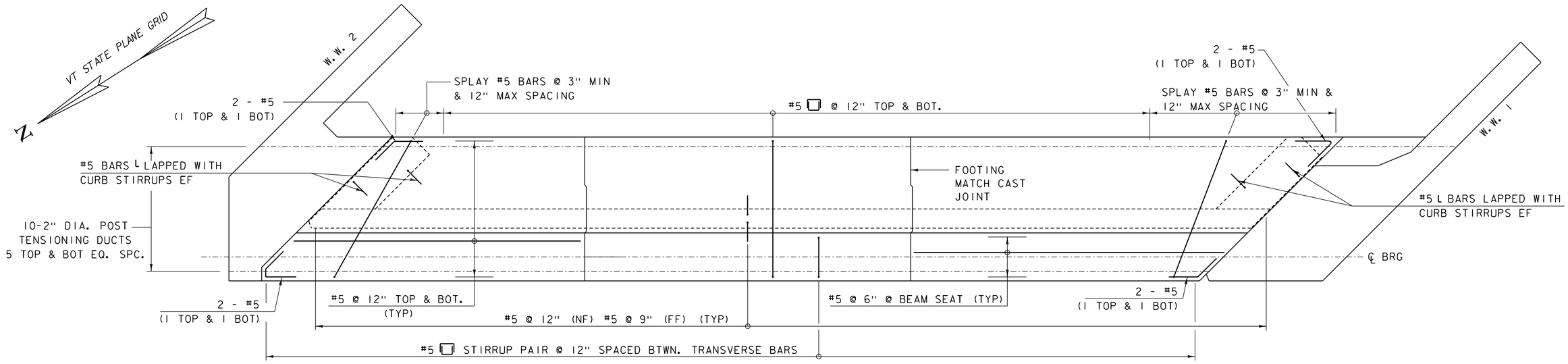
1. TOP OF RETURN WALL ELEVATIONS ARE THEORETICAL AND SHALL MATCH TOP OF CAST-IN-PLACE CURB ELEVATIONS ON DECK.
2. BACKWALL ELEVATIONS GIVEN AT CENTERLINE OF BACKWALL.

McFarland Johnson

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

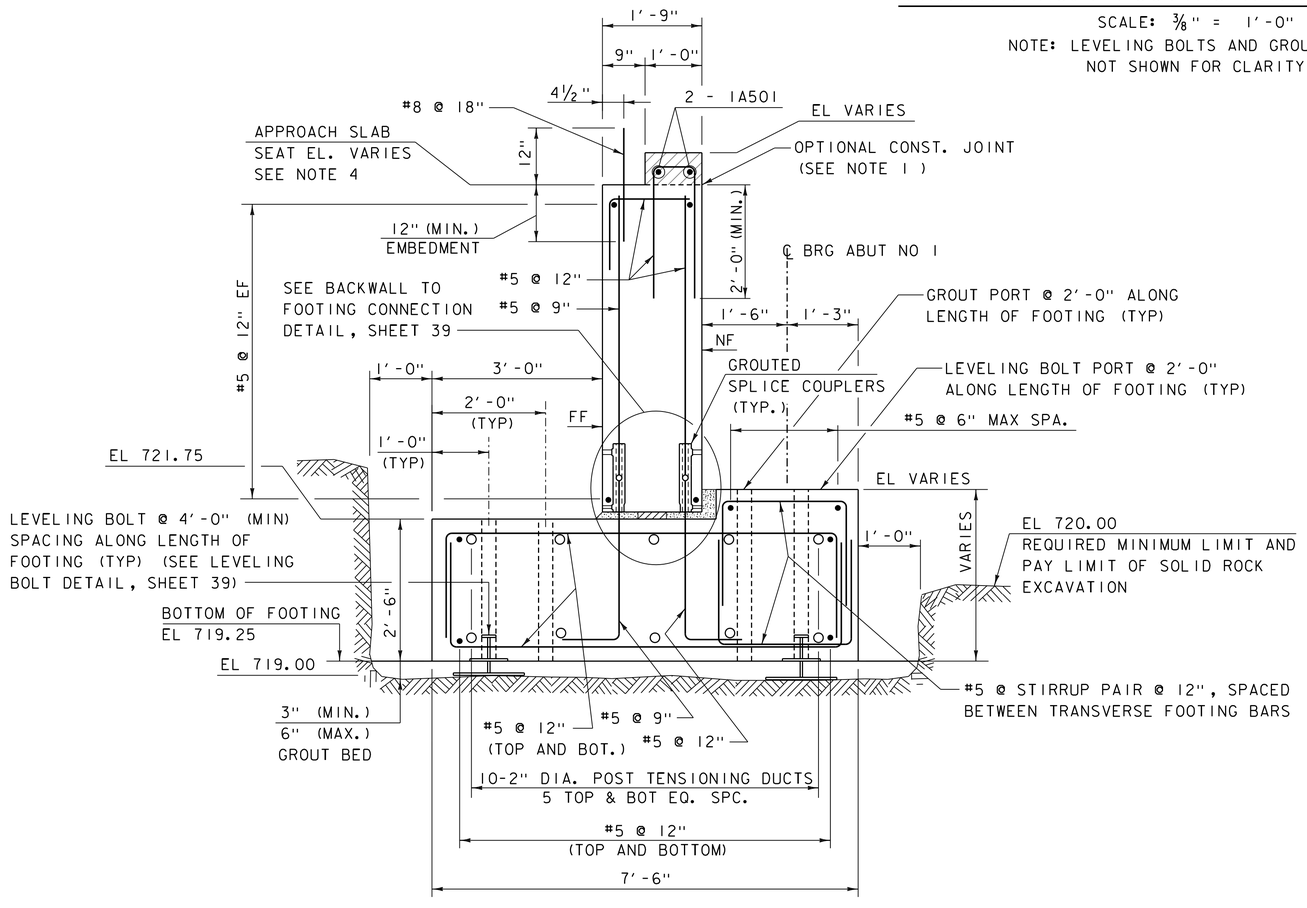
FILE NAME: z12bl36abut.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO. 1 PLAN AND ELEVATION

PLOT DATE: 8/24/2015
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"

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 34.

LEGEND

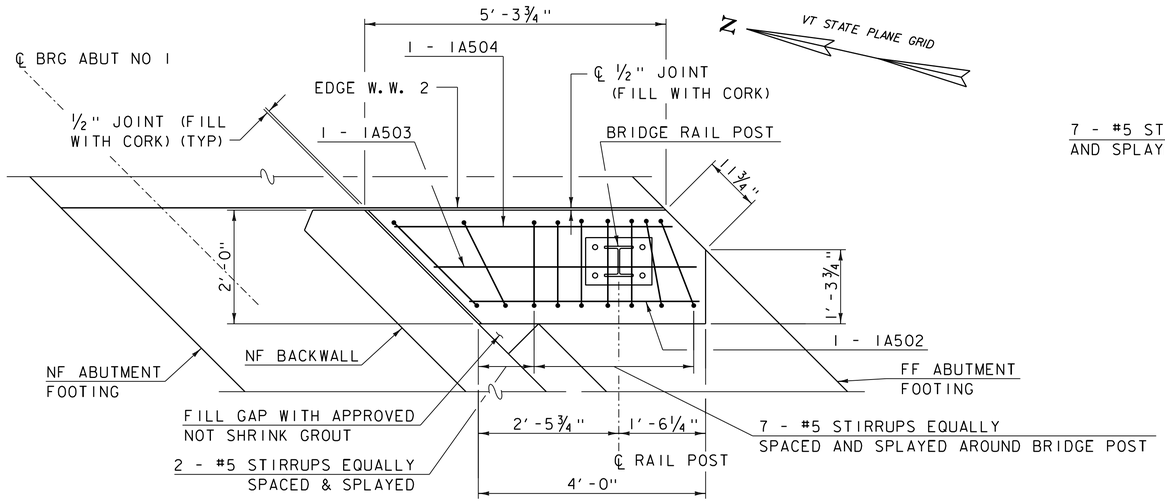
SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)

McFarland Johnson

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

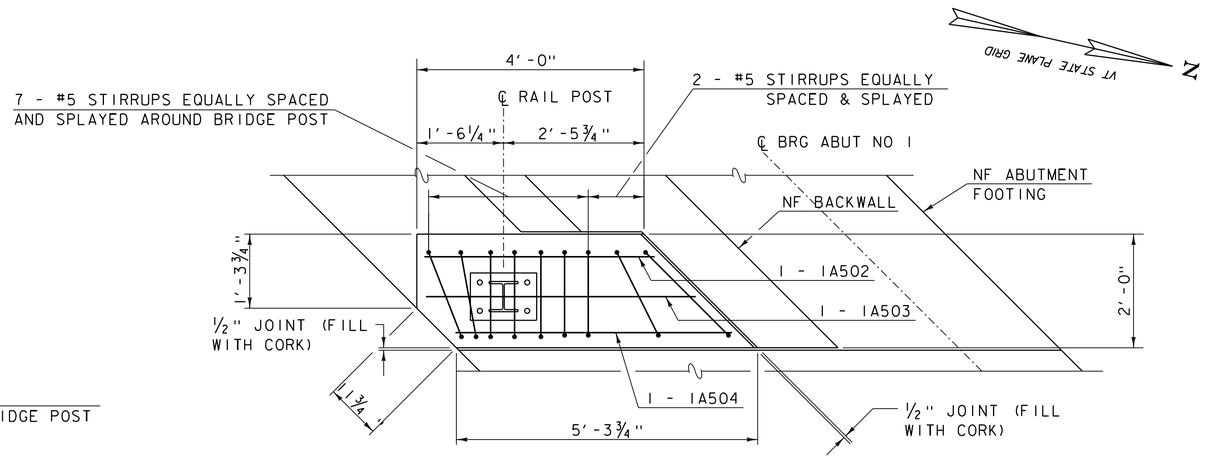
FILE NAME: z12b136abutdtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO 1 DETAILS (1 OF 3)

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 37 OF 69



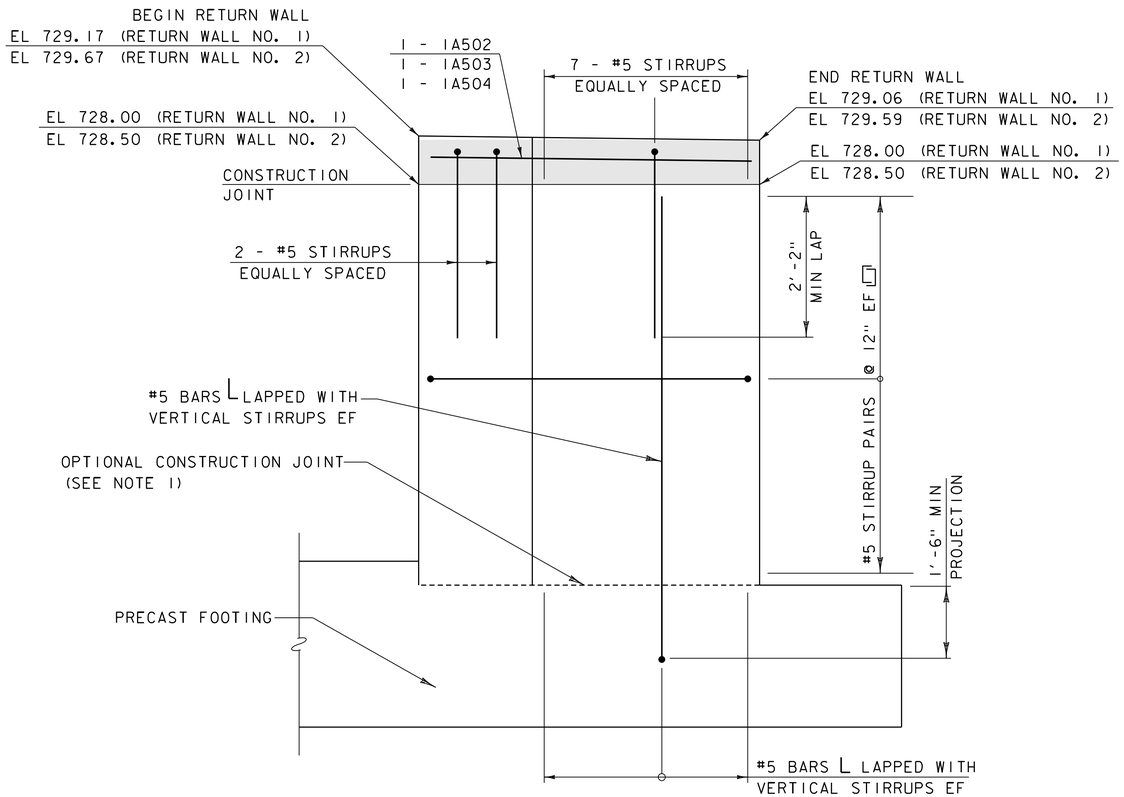
RETURN WALL NO. 2 PLAN

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

NOTES

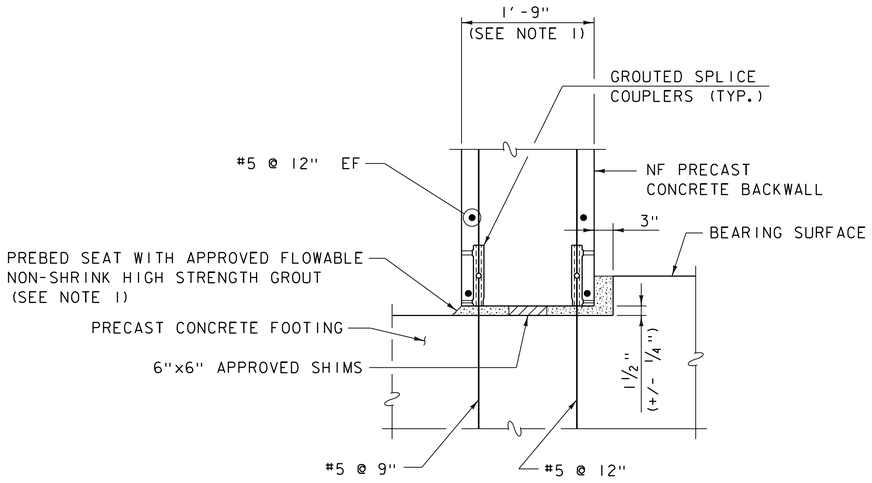
1. THE CONSTRUCTION JOING ABOVE THE FOOTING IS OPTIONAL.
2. TOP OF RETURN WALL ELEVATIONS ARE THEORETICAL AND SHALL MATCH CAST-IN-PLACE CURB ELEVATIONS ON DECK.
3. RAIL POST LOCATIONS TO BE DEVELOPED BY FABRICATOR AND RAIL POST MANUFACTURER.

McFarland Johnson

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

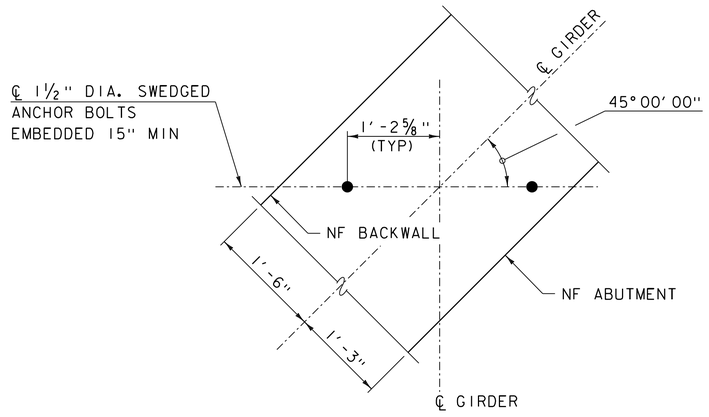
FILE NAME: z12b136abutdtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO 1 DETAILS (2 OF 3)

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 38 OF 69



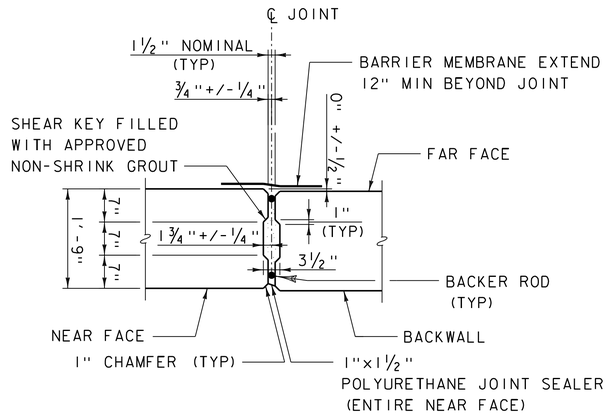
BACKWALL TO FOOTING CONNECTION DETAIL

SCALE: 1" = 1'-0"



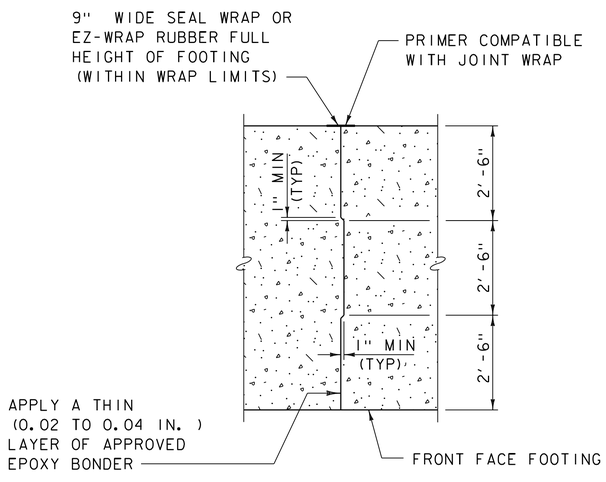
ANCHOR BOLT LAYOUT

SCALE: 1" = 1'-0"



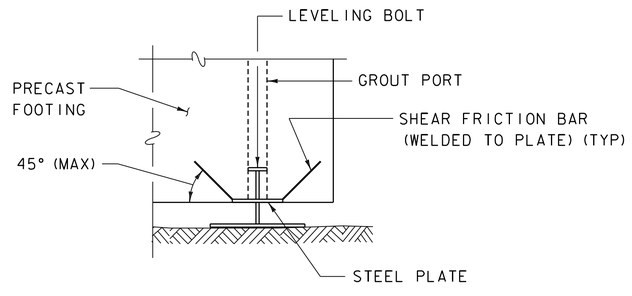
BACKWALL VERTICAL JOINT

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



FOOTING MATCH CAST JOINT

SCALE: ½" = 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

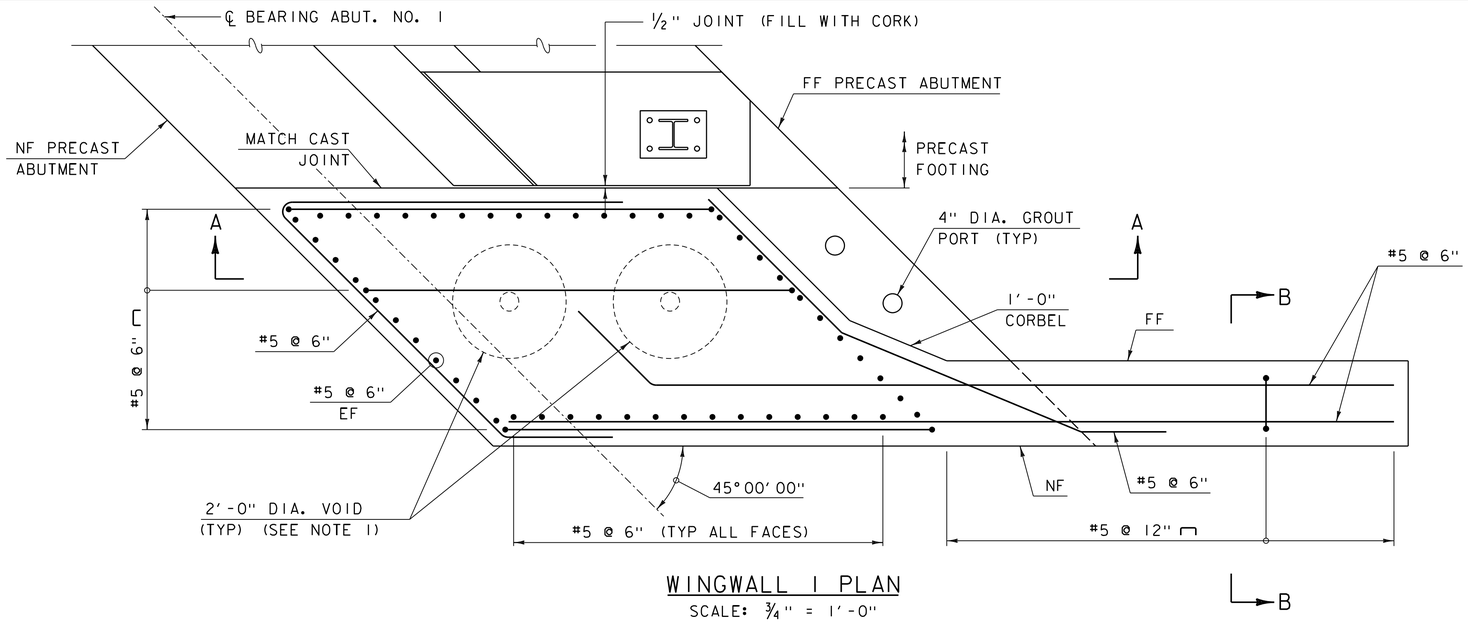
1. THE BACKWALL MAY BE PRECAST WITH THE FOOTING.
2. THE LEVELING BOLT DETAIL SHOWN IS CONCEPTUAL. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND DETAILING OF THE LEVELING DEVICE BASED ON THE WEIGHT OF THE PRECAST UNIT AND NUMBER OF DEVICES.

McFarland Johnson

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

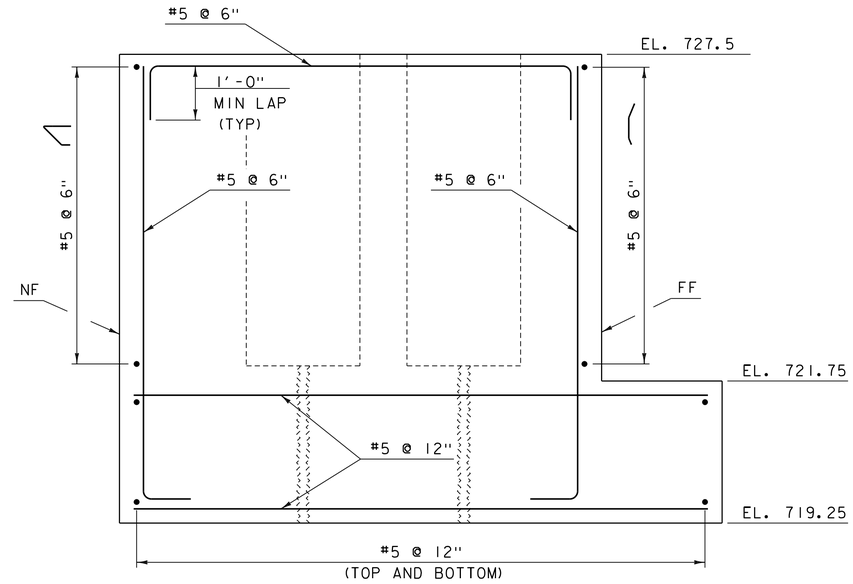
FILE NAME: z12bl36abutdtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO 1 DETAILS (3 OF 3)

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 39 OF 69



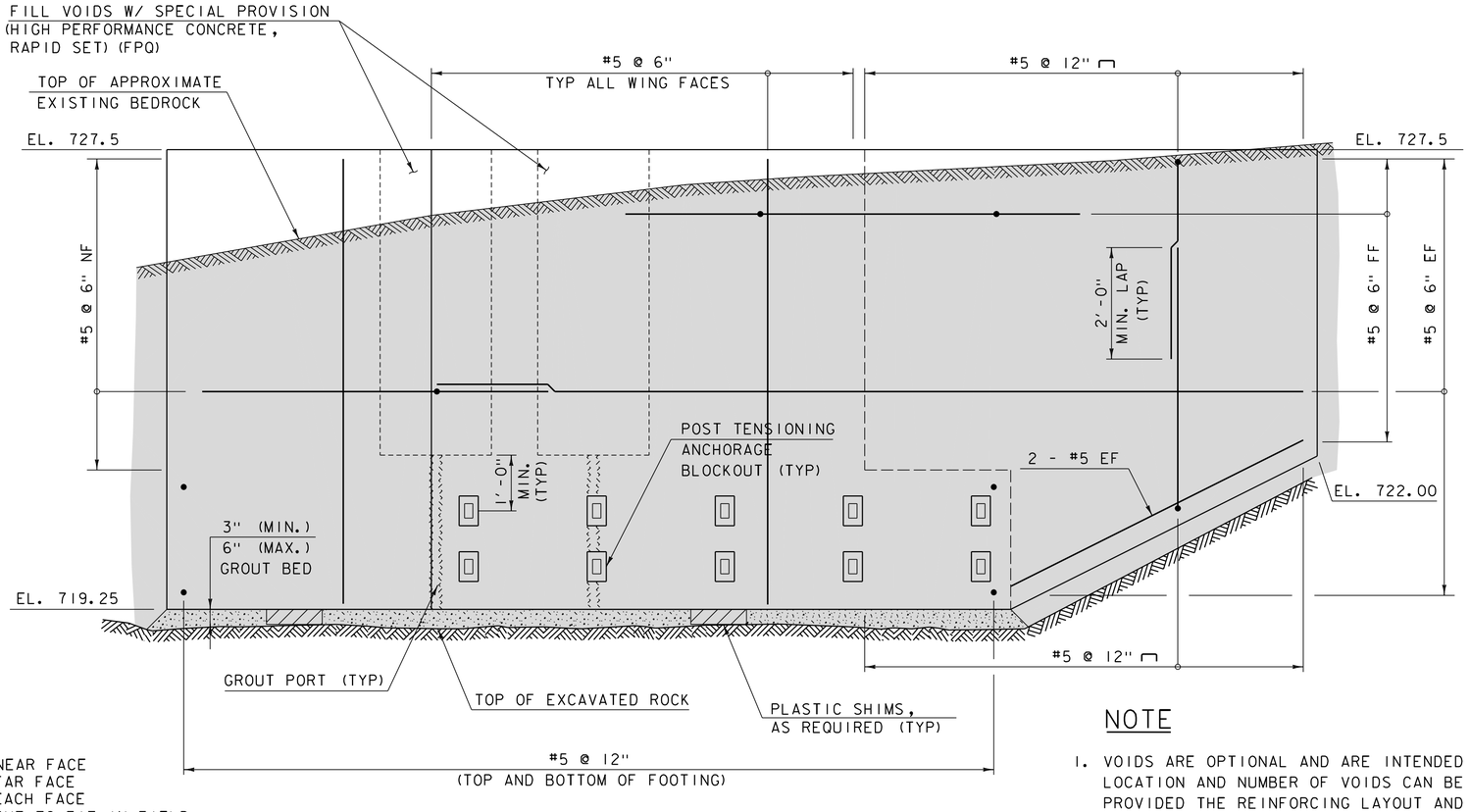
WINGWALL 1 PLAN

SCALE: ¾" = 1'-0"



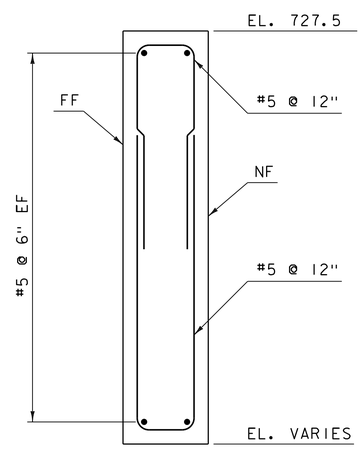
SECTION A-A

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).

LEGEND

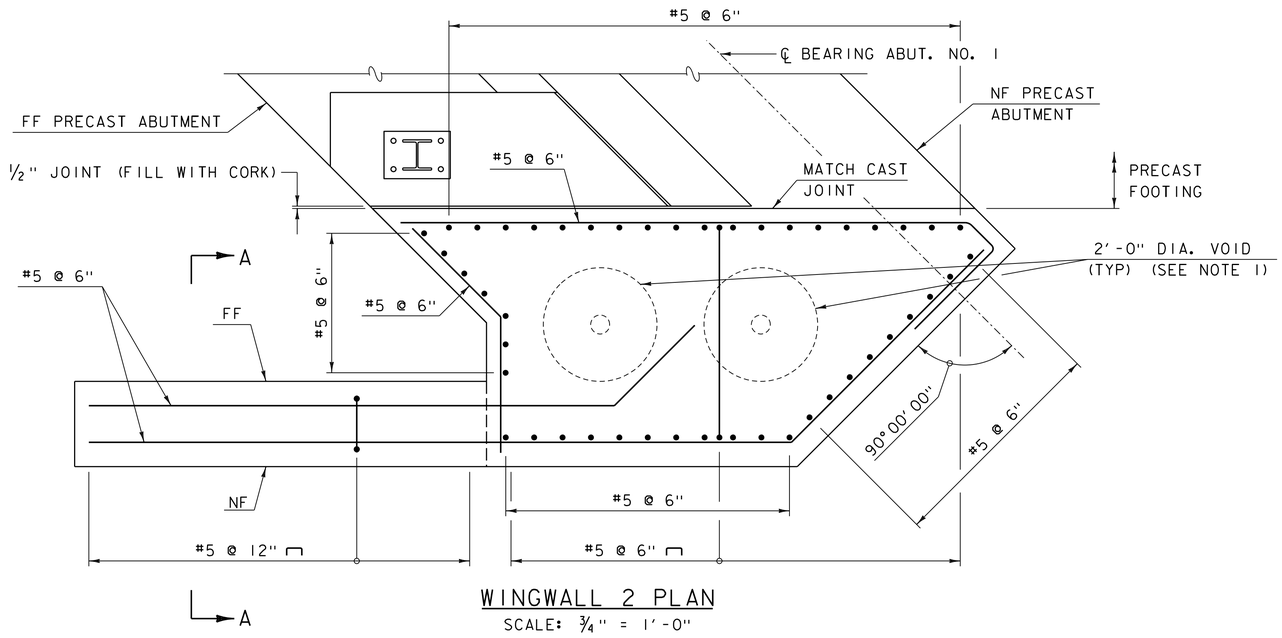
APPROXIMATE BEDROCK REMOVAL LIMITS

McFarland Johnson

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

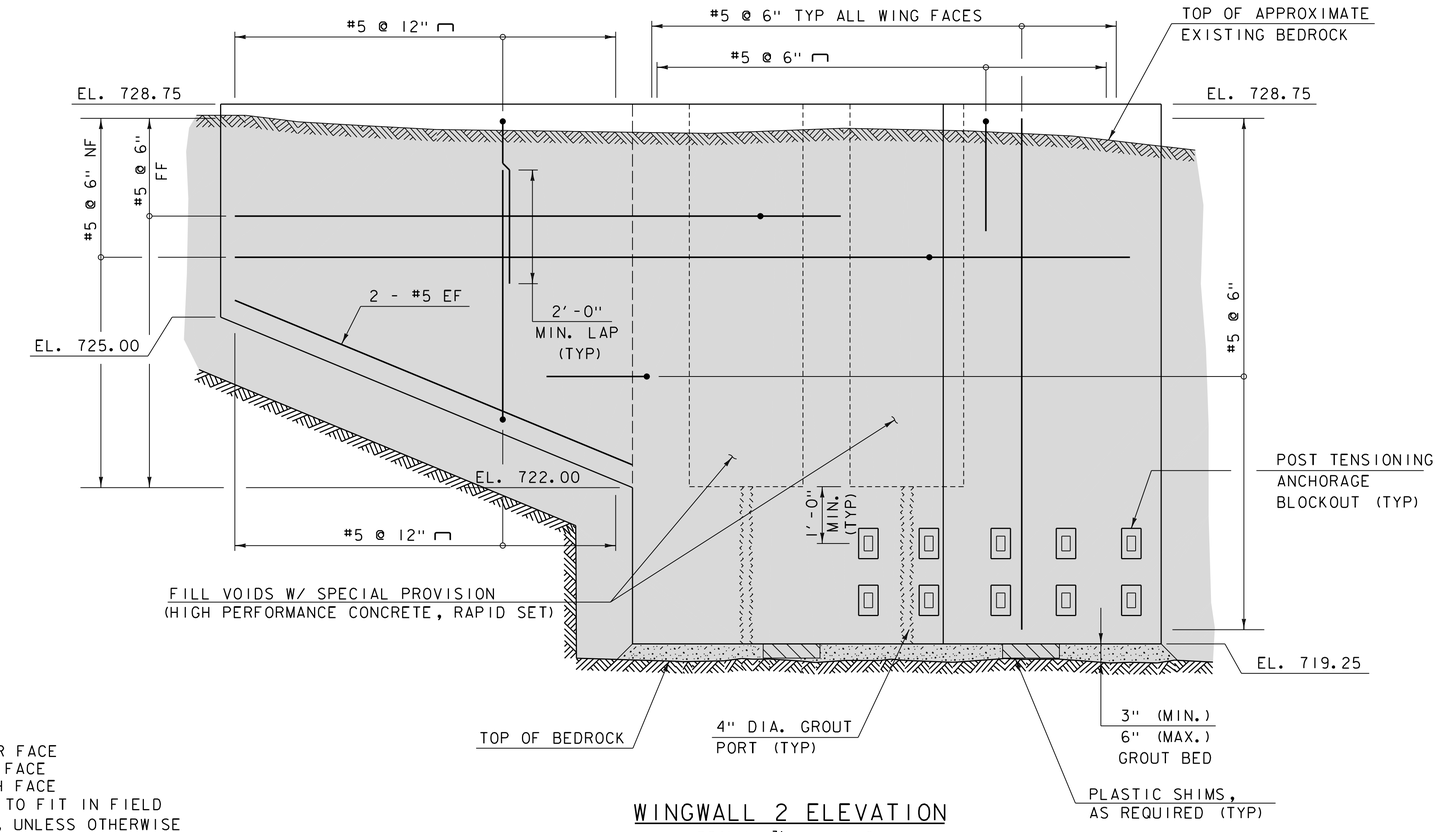
FILE NAME: z12bl36wingdtls.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
ABUTMENT NO 1 WINGWALL DETAILS (1 OF 2)

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK
SHEET 40 OF 69



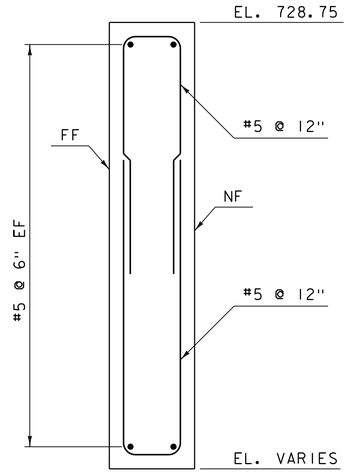
WINGWALL 2 PLAN

SCALE: ¾" = 1'-0"



WINGWALL 2 ELEVATION

SCALE: ¾" = 1'-0"



SECTION A-A

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

KEY

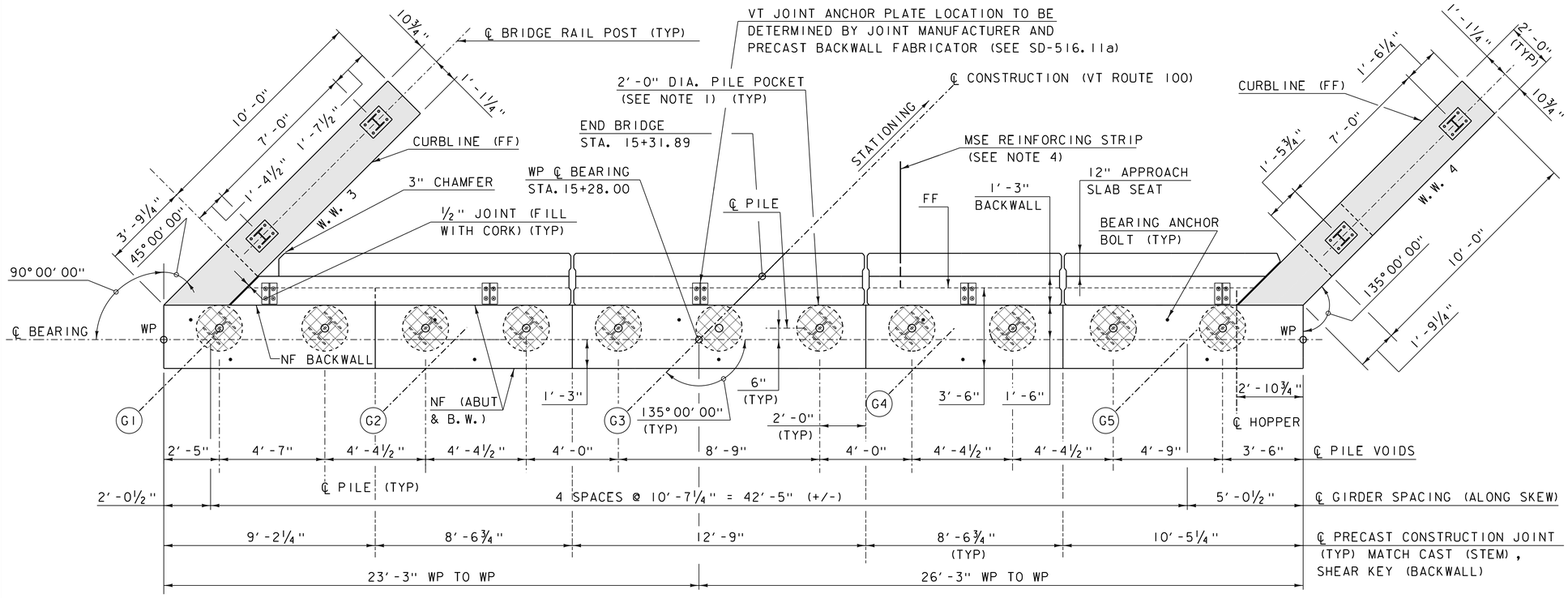
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

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).

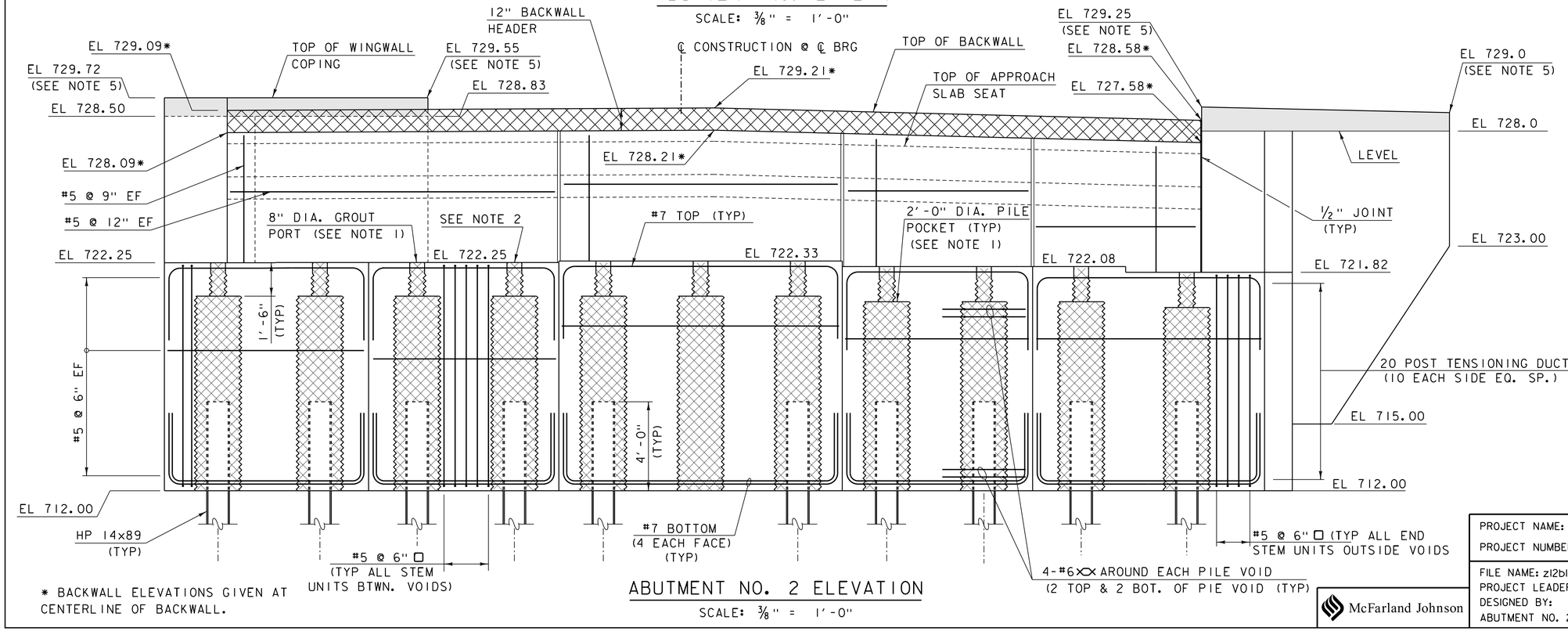
McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12bl36wingdtls.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
ABUTMENT NO 1 WINGWALL DETAILS (2 OF 2)	SHEET 41 OF 69



ABUTMENT NO. 2 PLAN

SCALE: ⅜" = 1'-0"



ABUTMENT NO. 2 ELEVATION

SCALE: ⅜" = 1'-0"

* BACKWALL ELEVATIONS GIVEN AT CENTERLINE OF BACKWALL.

NOTES

1. USE GALVANIZED CORRUGATED STEEL PIPE THAT CONFORMS TO SUBSECTION 711.01 FOR PILE POCKETS, STEM VOIDS AND GROUT PORTS.
2. FORM TOP 6" WITH REMOVABLE FORM TO ELIMINATE EXPOSED CORRUGATED STEEL ON THE TOP OF THE BRIDGE SEAT.
3. SET PILES PARALLEL TO THE CENTERLINE OF GIRDERS AS SHOWN.
4. FOR MSE REINFORCING STRIP DETAILS, SEE SHEET 44.
5. ELEVATION IS THEORETICAL AND SHALL MATCH TOP OF C.I.P BRIDGE CURB.

LEGEND

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

KEY:

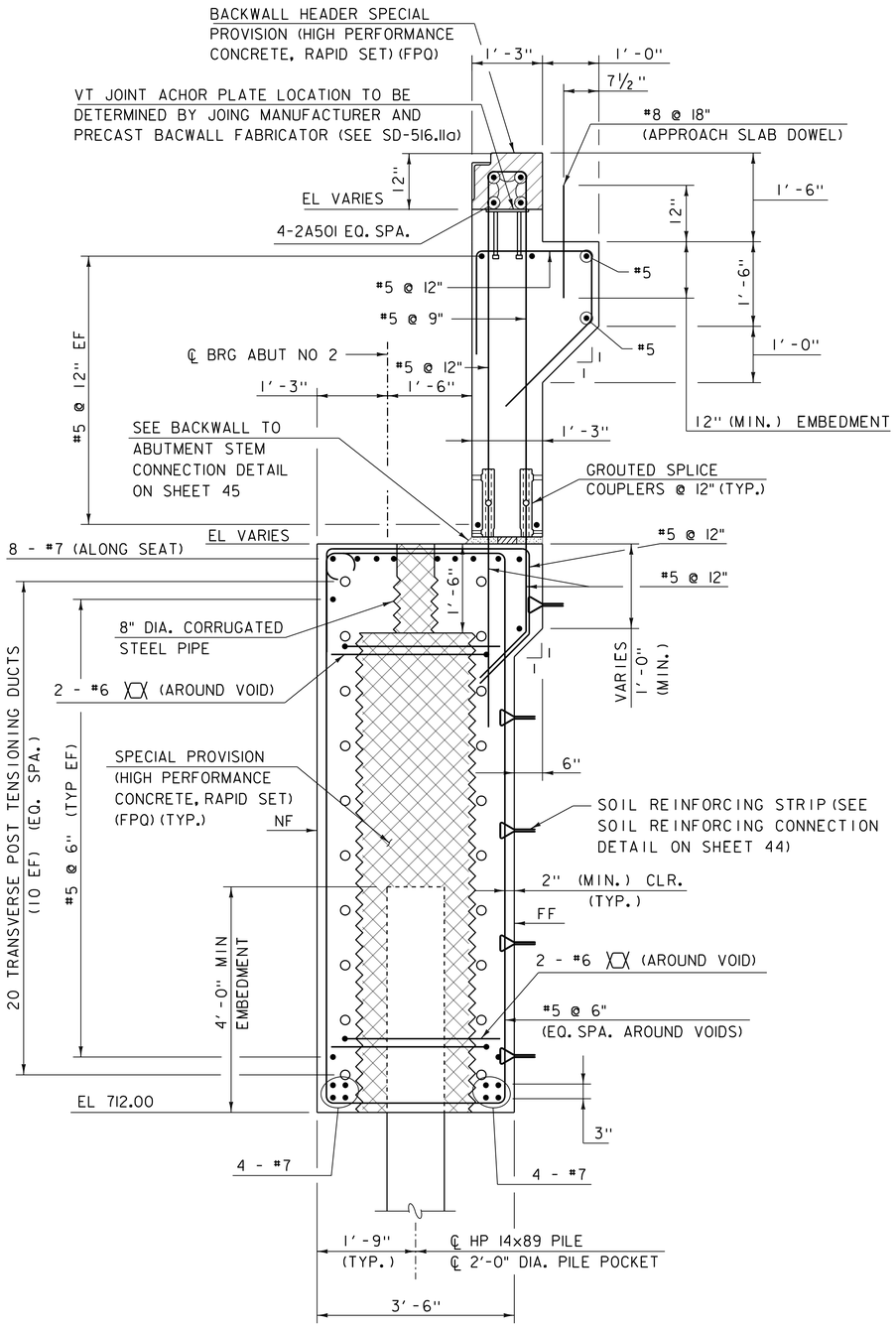
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

McFarland Johnson

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

FILE NAME: zl2bl36abut.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO. 2 PLAN AND ELEVATION

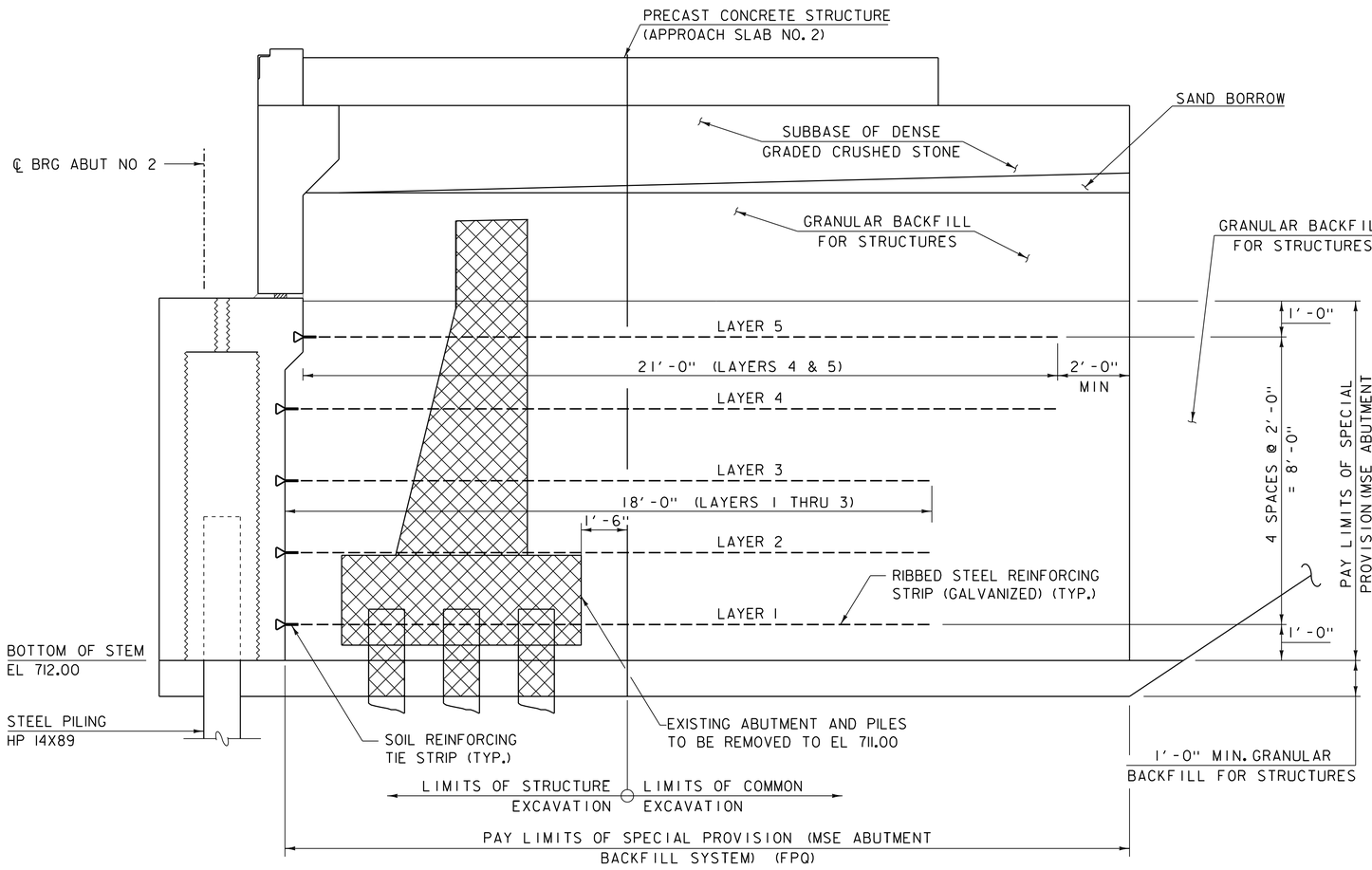
PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 42 OF 69



TYPICAL ABUTMENT NO. 2 SECTION

SCALE: ¾" = 1'-0"

NOTE: SOIL REINFORCING STRIPS AND THREADED INSERTS FOR DOWNSPOUT NOT SHOWN FOR CLARITY

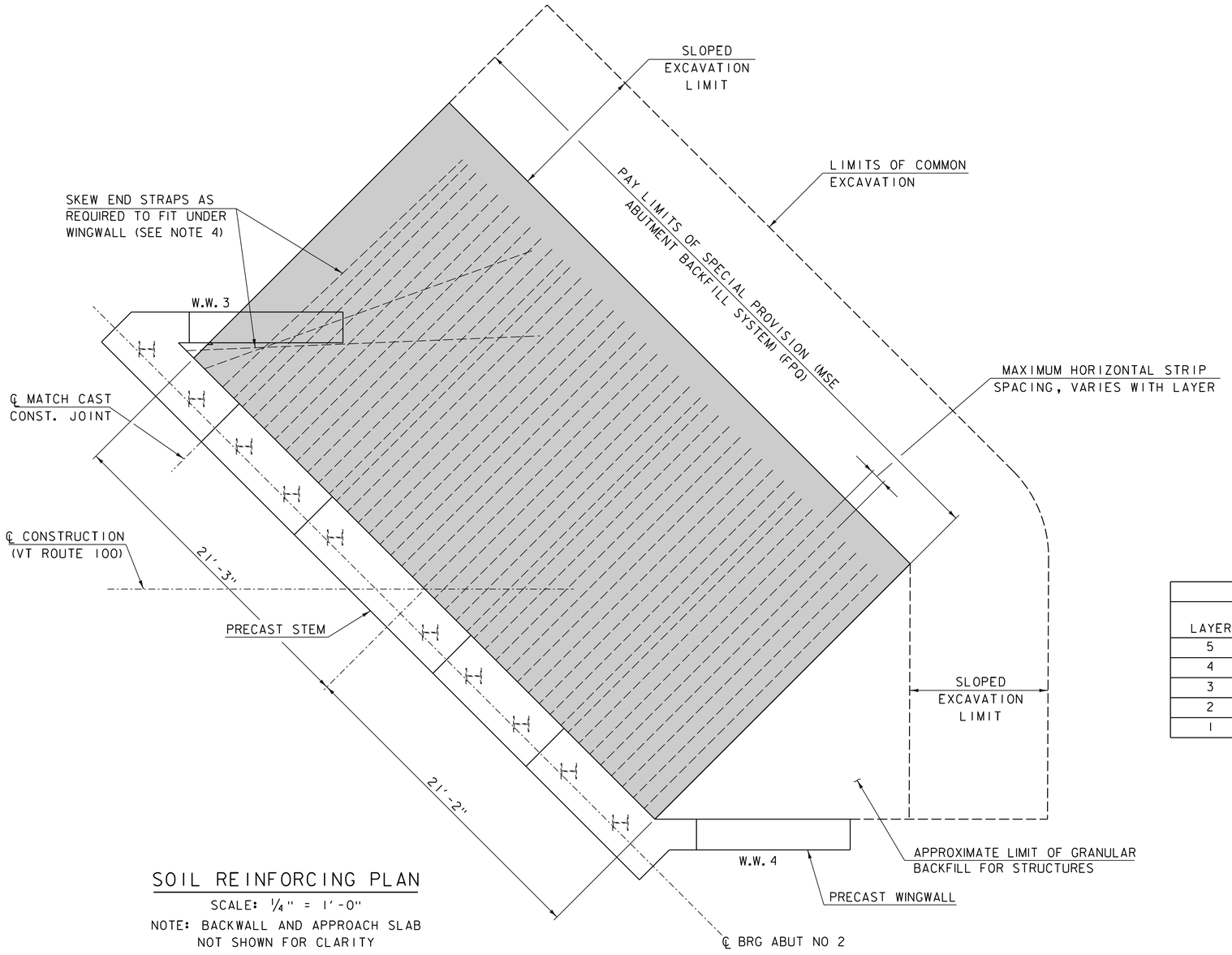


SOIL REINFORCING SECTION

SCALE: ½" = 1'-0"

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12bl36abutdtls.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R.YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D.KULL	CHECKED BY: T.KENDRICK
ABUTMENT NO 2 DETAILS (1 OF 3)	SHEET 43 OF 69

McFarland Johnson

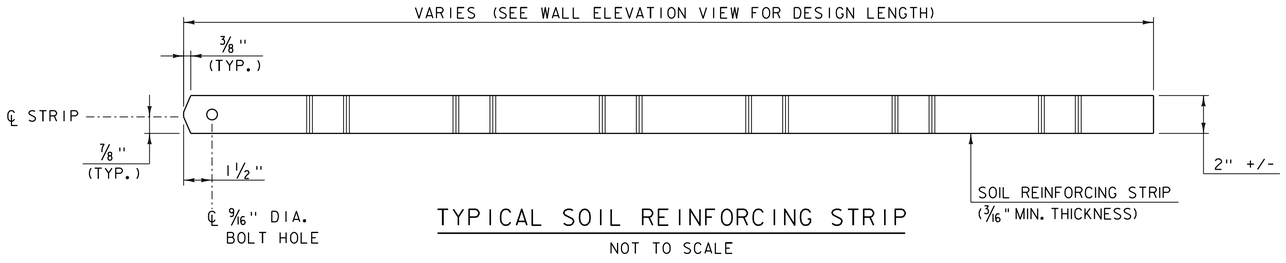


SOIL REINFORCING PLAN

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

NOTE: BACKWALL AND APPROACH SLAB NOT SHOWN FOR CLARITY

STRIP SPACING TABLE				
LAYER	DISTANCE FROM BOT. OF STEM (FT)	REINF. STRIP LENGTH (FT)	MAX HORIZ. STRIP SPACING (FT)	NO. OF STRIPS REQ.
5	9	21	1	44
4	7	21	1	44
3	5	18	2	22
2	3	18	2	22
1	1	18	2	22



TYPICAL SOIL REINFORCING STRIP

NOT TO SCALE

NOTES

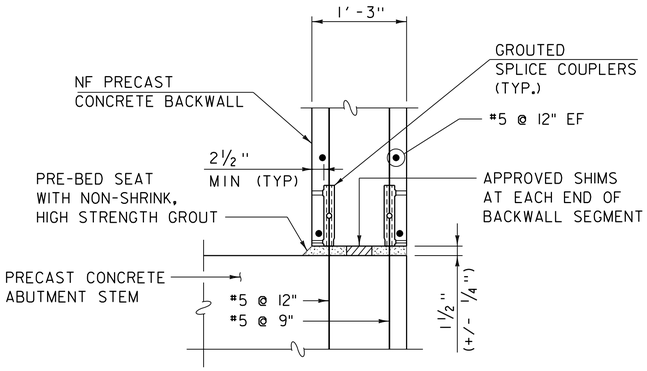
1. FOR SEQUENCE OF CONSTRUCTION, SEE PROJECT NOTES.
2. REFER TO ITEM 900.608 SPECIAL PROVISON (MECHANICALLY STABILIZED EARTH ABUTMENT BACKFILL SYSTEM) (FPO). FOR ADDITIONAL INFORMATION.
3. REINFORCING STRIPS SHALL BE SET A MINIMUM OF 6" FROM MATCH CAST CONSTRUCTION JOINTS.
4. HORIZONTAL STRIP SPACING AT STEM PANEL END ADJACENT TO W.W. 3 SHALL BE ONE FOOT AT ALL LAYERS.
5. SEE EARTHWORK NOTES FOR ADDITIONAL INFORMATION AND BACKFILLING REQUIREMENTS.

McFarland Johnson

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

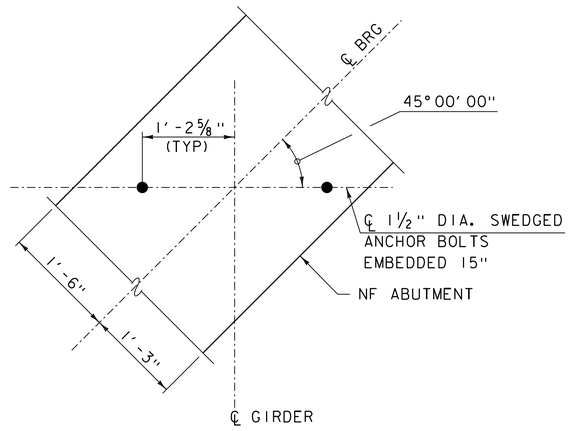
FILE NAME: z12b136abutdtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO 2 DETAILS (2 OF 3)

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK
SHEET 44 OF 69



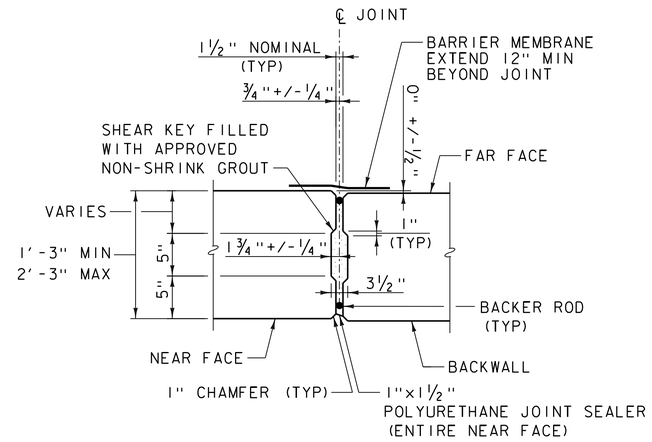
BACKWALL TO ABUTMENT STEM CONNECTION DETAIL

SCALE: 1" = 1'-0"



ANCHOR BOLT LAYOUT

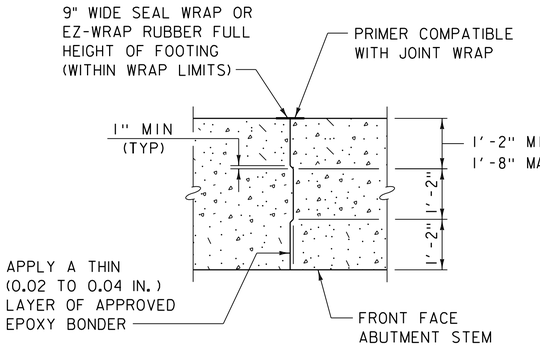
SCALE: 1" = 1'-0"



BACKWALL VERTICAL JOINT

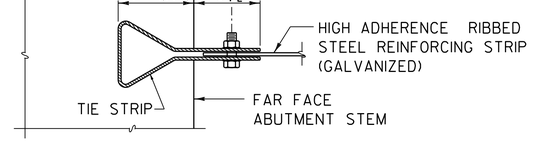
(BELOW APPROACH SLAB SEAT)

SCALE: ¾" = 1'-0"



ABUTMENT STEM MATCH CAST JOINT

SCALE: ½" = 1'-0"



SOIL REINFORCING CONNECTION DETAIL

NOT TO SCALE

NOTES

1. FOR APPROACH SLAB SEAT ELEVATIONS, SEE SHEET 34
2. FOR TIE STRIP LOCATIONS, SEE SHEET 43

NOTE:

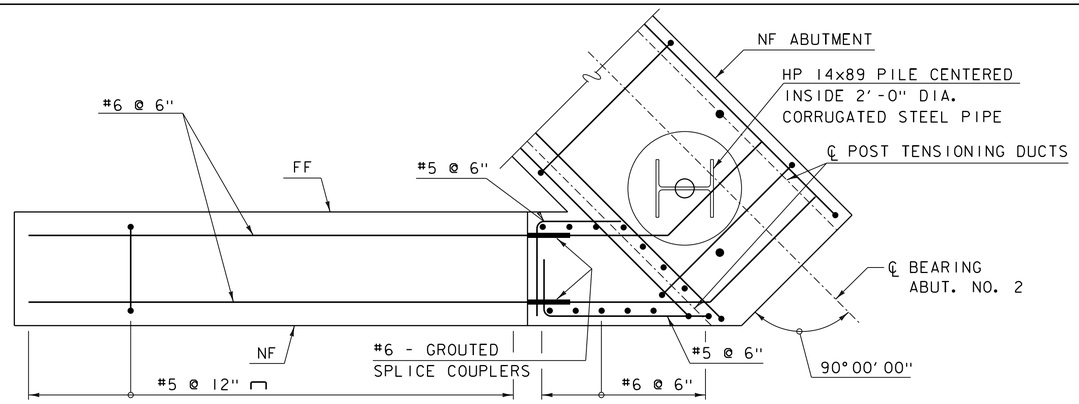
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

McFarland Johnson

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

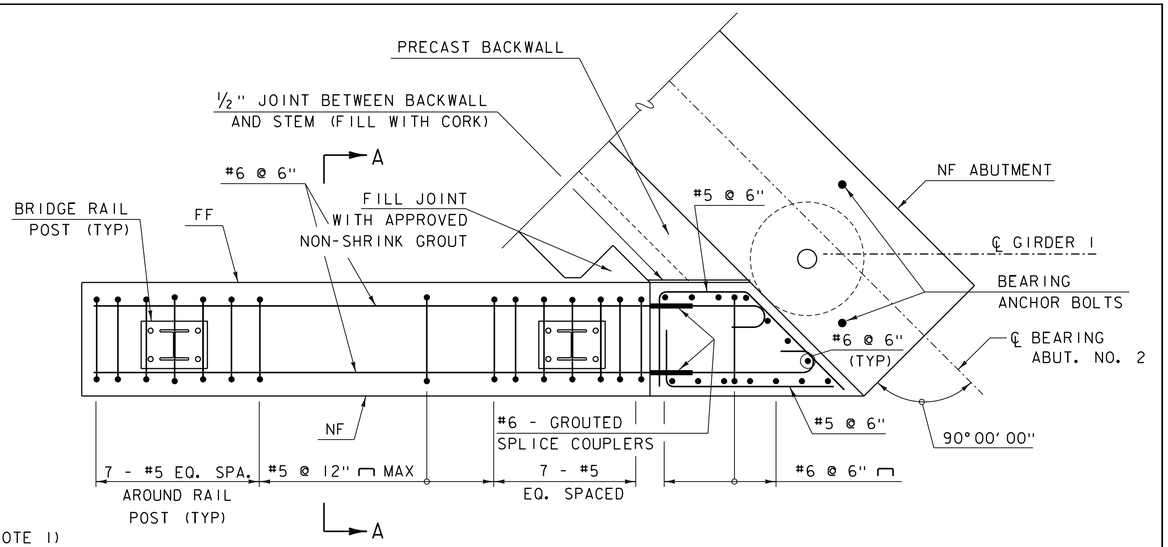
FILE NAME: z12b136abutdtls.dgn
PROJECT LEADER: R.YOUNG
DESIGNED BY: D.KULL
ABUTMENT NO 2 DETAILS (3 OF 3)

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T.KENDRICK



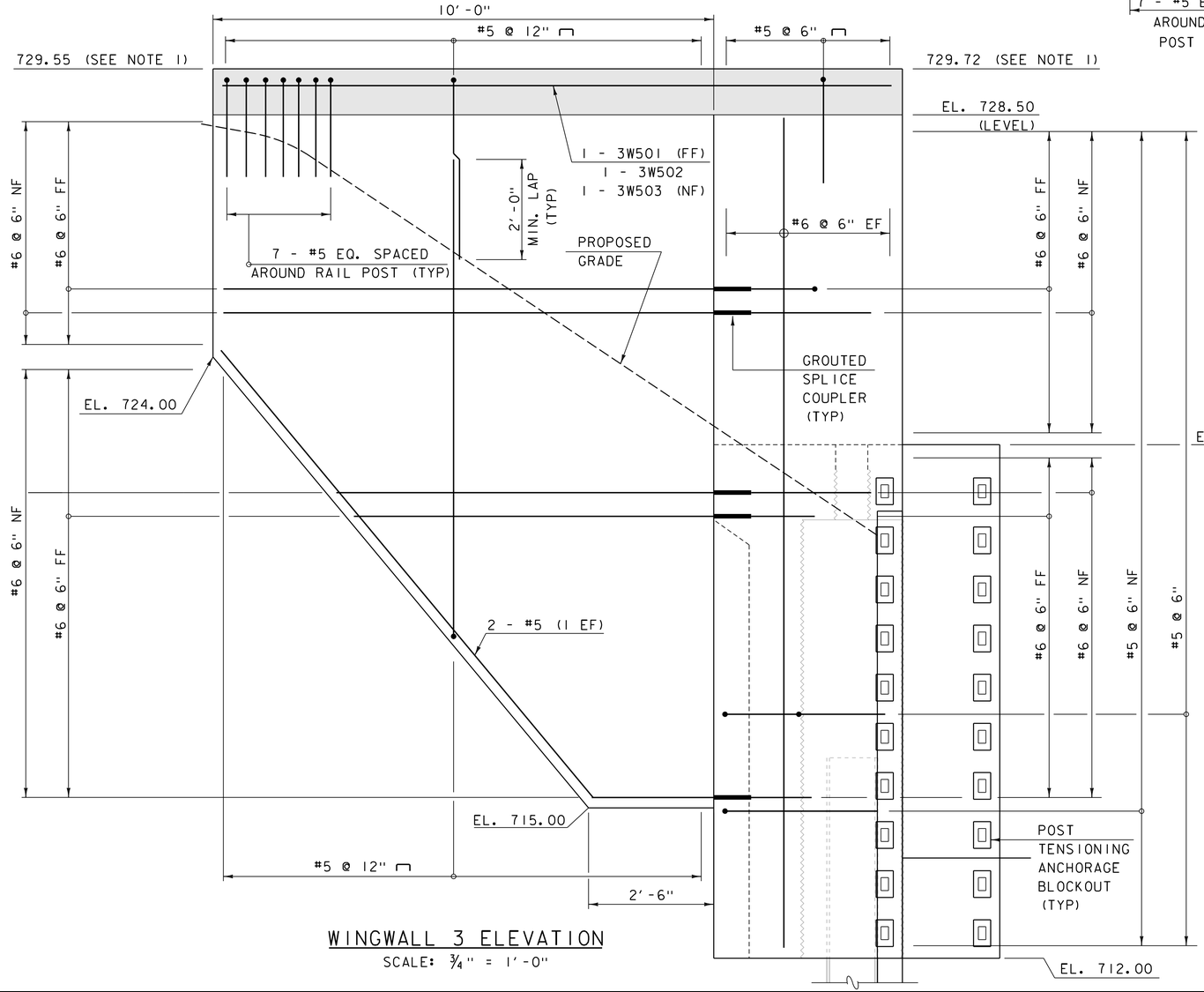
WINGWALL 3 PLAN BELOW BRIDGE SEAT

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



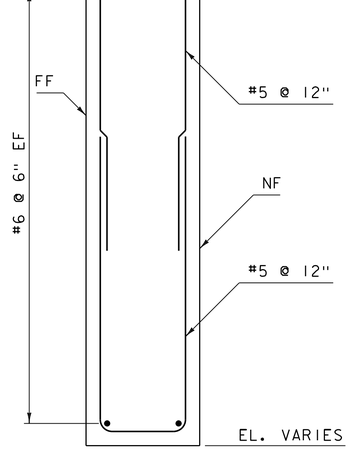
WINGWALL 3 PLAN ABOVE BRIDGE SEAT

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



WINGWALL 3 ELEVATION

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



SECTION A-A

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

NOTES

1. TOP OF WINGWALL CURB ELEVATIONS ARE THEORETICAL AND SHALL MATCH CAST-IN-PLACE CURB ELEVATIONS ON DECK.

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.

LEGEND

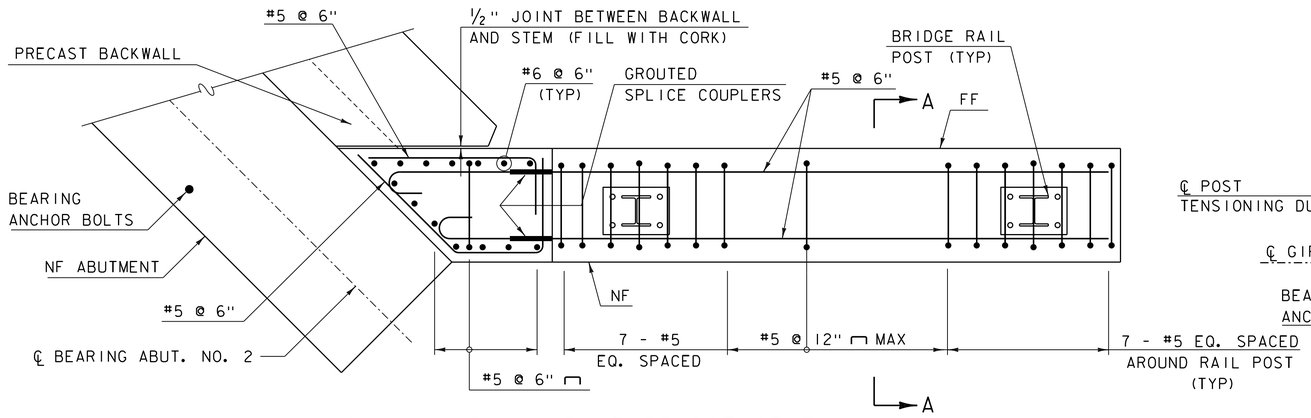
CONCRETE, HIGH PERFORMANCE, CLASS A

McFarland Johnson

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

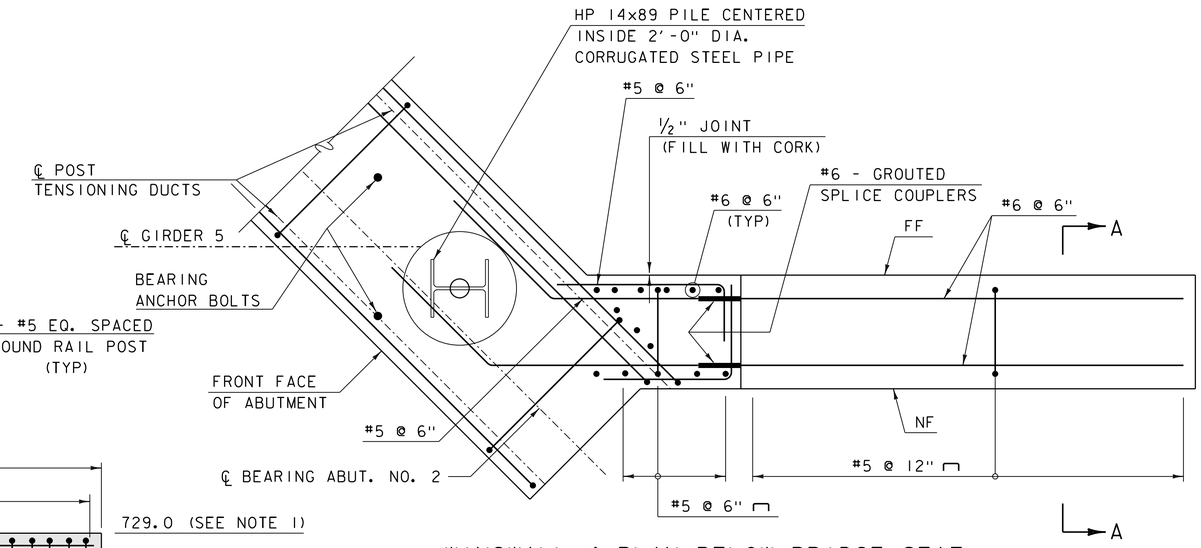
FILE NAME: z12bl36wingdtls.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
ABUTMENT NO 2 WINGWALL DETAILS (1 OF 2)

PLOT DATE: 8/24/2015
DRAWN BY: S.MERKWAN
CHECKED BY: T. KENDRICK
SHEET 46 OF 69



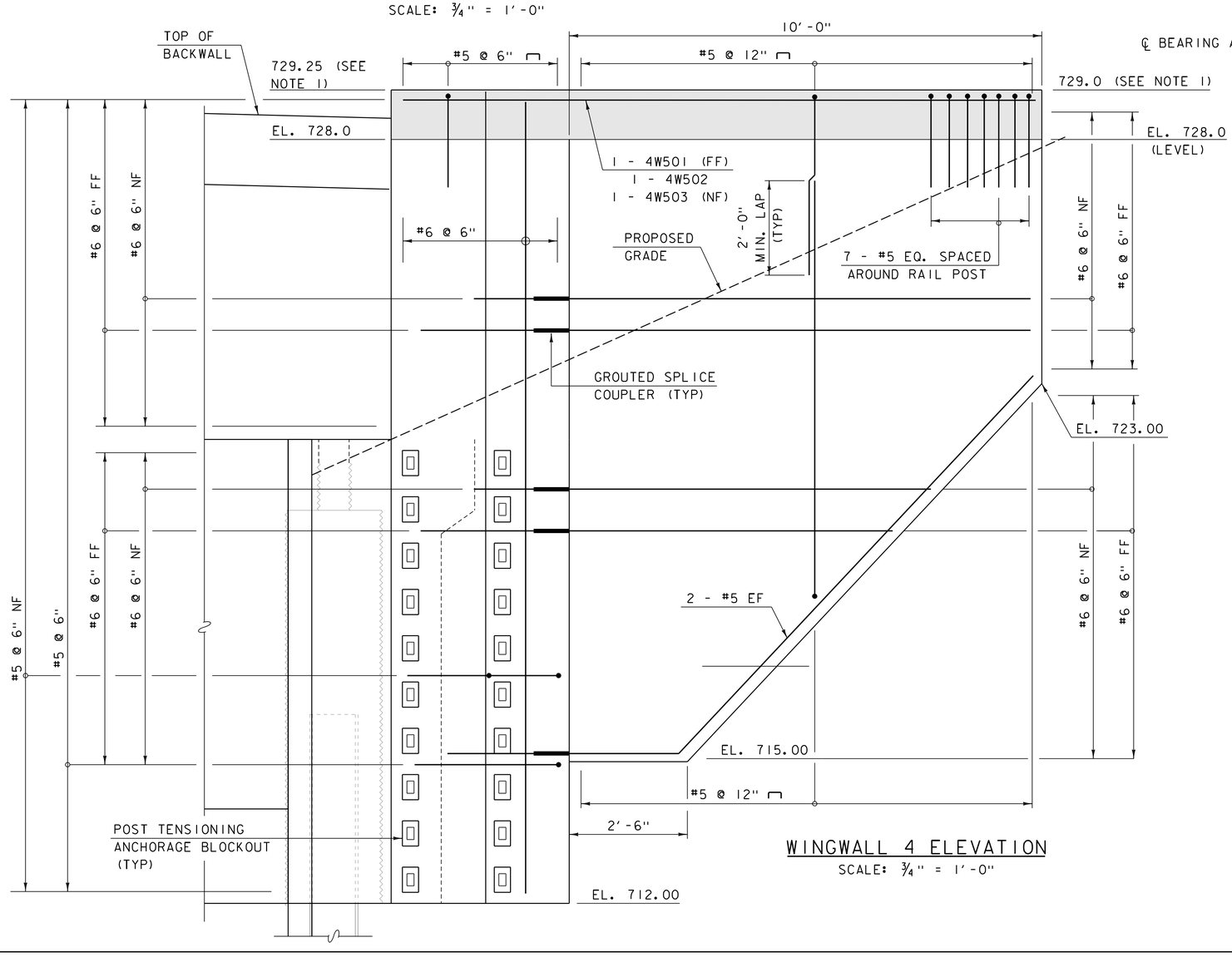
WINGWALL 4 PLAN ABOVE BRIDGE SEAT

SCALE: ¾" = 1'-0"



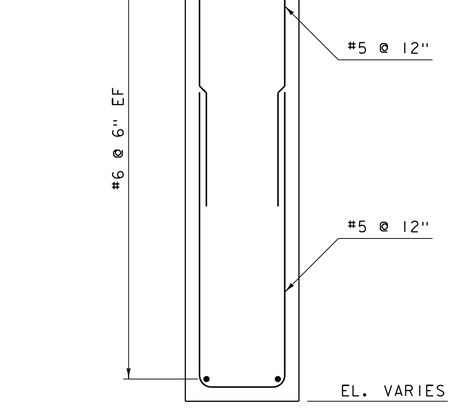
WINGWALL 4 PLAN BELOW BRIDGE SEAT

SCALE: ¾" = 1'-0"



WINGWALL 4 ELEVATION

SCALE: ¾" = 1'-0"



SECTION A-A

SCALE: ¾" = 1'-0"

NOTES

1. TOP OF WINGWALL CURB ELEVATIONS ARE THEORETICAL AND SHALL MATCH CAST-IN-PLACE CURB ELEVATIONS ON DECK.

KEY:

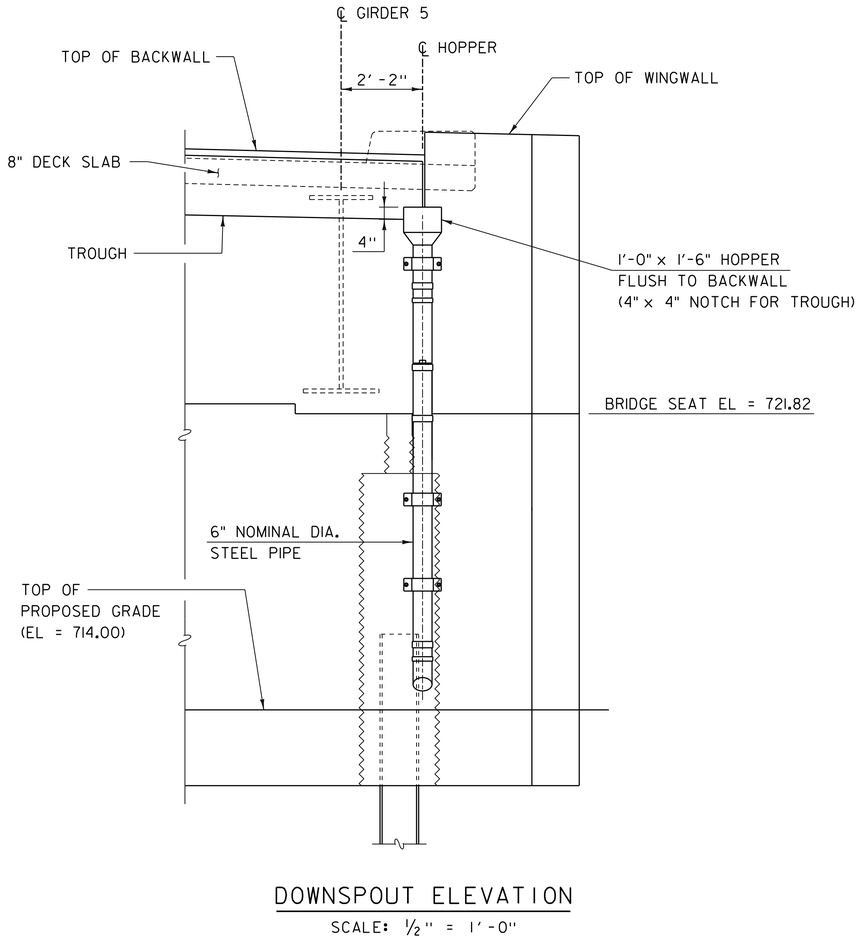
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

LEGEND

CONCRETE, HIGH PERFORMANCE, CLASS A

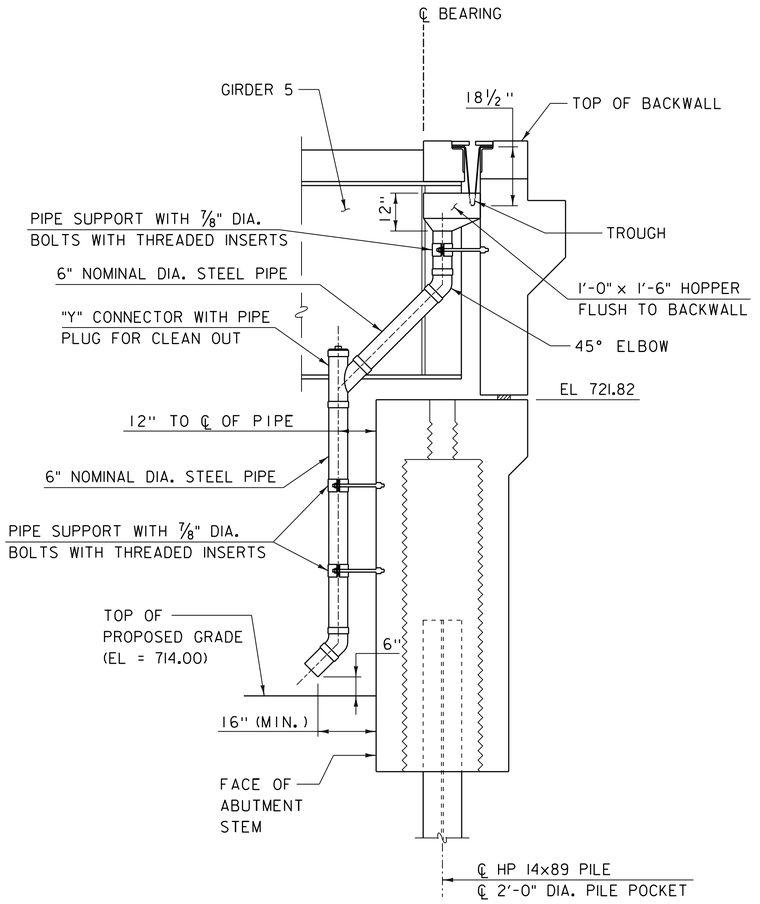
McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12bl36wingdtls.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
ABUTMENT NO 2 WINGWALL DETAILS (2 OF 2)	SHEET 47 OF 69



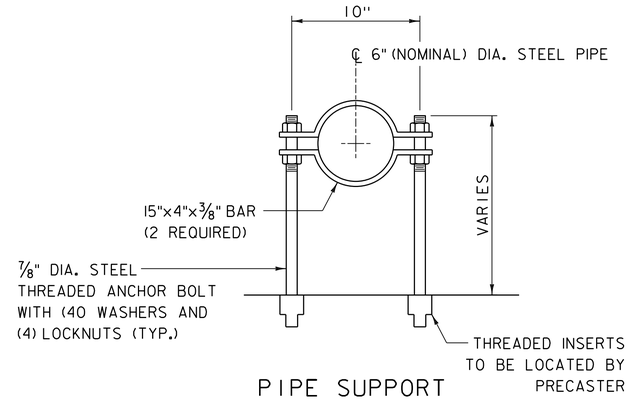
DOWNSPOUT ELEVATION

SCALE: ½" = 1'-0"



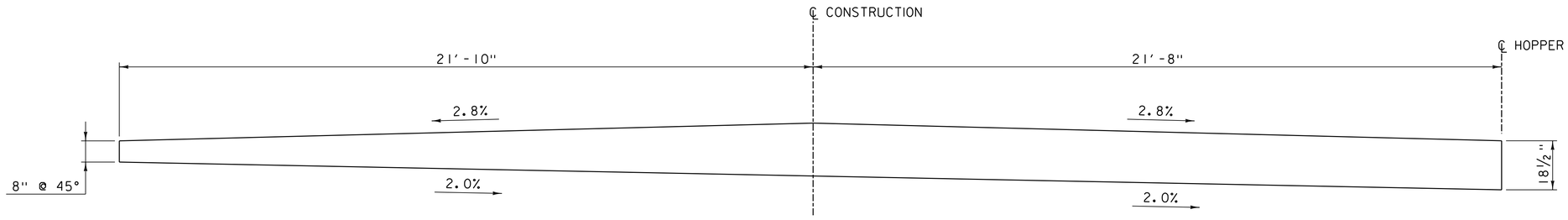
END SECTION

SCALE: ½" = 1'-0"



PIPE SUPPORT
EXTENDED ATTACHMENT

SCALE: 2" = 1'-0"

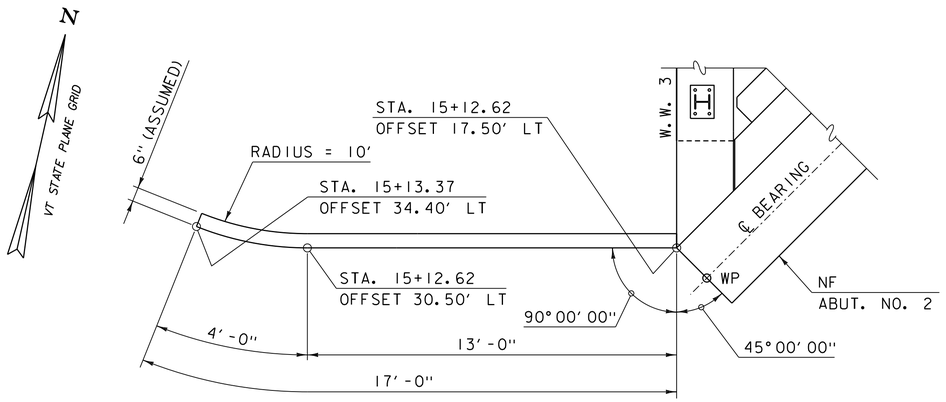


FABRIC DRAIN TROUGH PROFILE

SCALE: ½" = 1'-0"

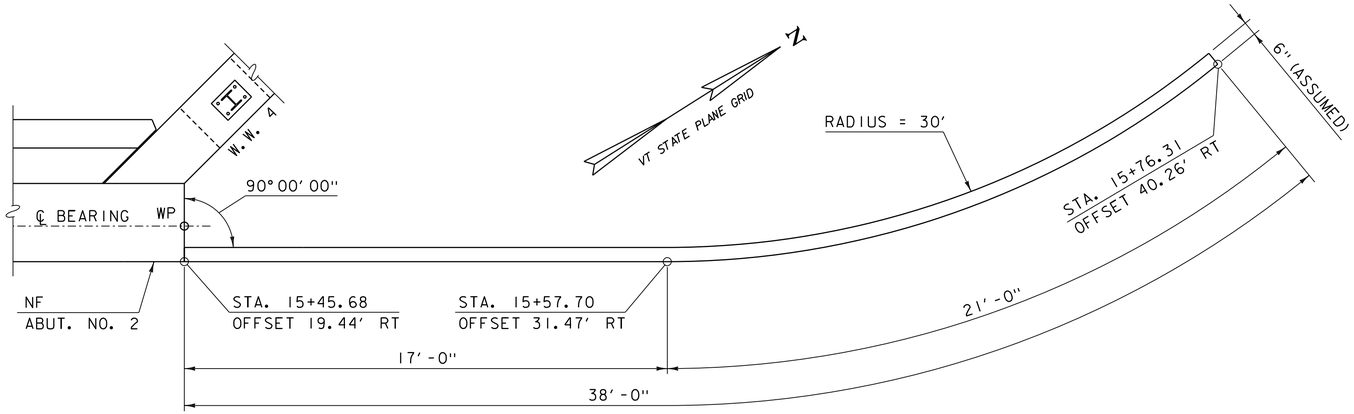
PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12bl36abutdtls.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R.YOUNG	DRAWN BY: S.MERKWAN
DESIGNED BY: D.KULL	CHECKED BY: T.KENDRICK
ABUTMENT NO. 2 HOPPER DETAILS	SHEET 48 OF 69

McFarland Johnson



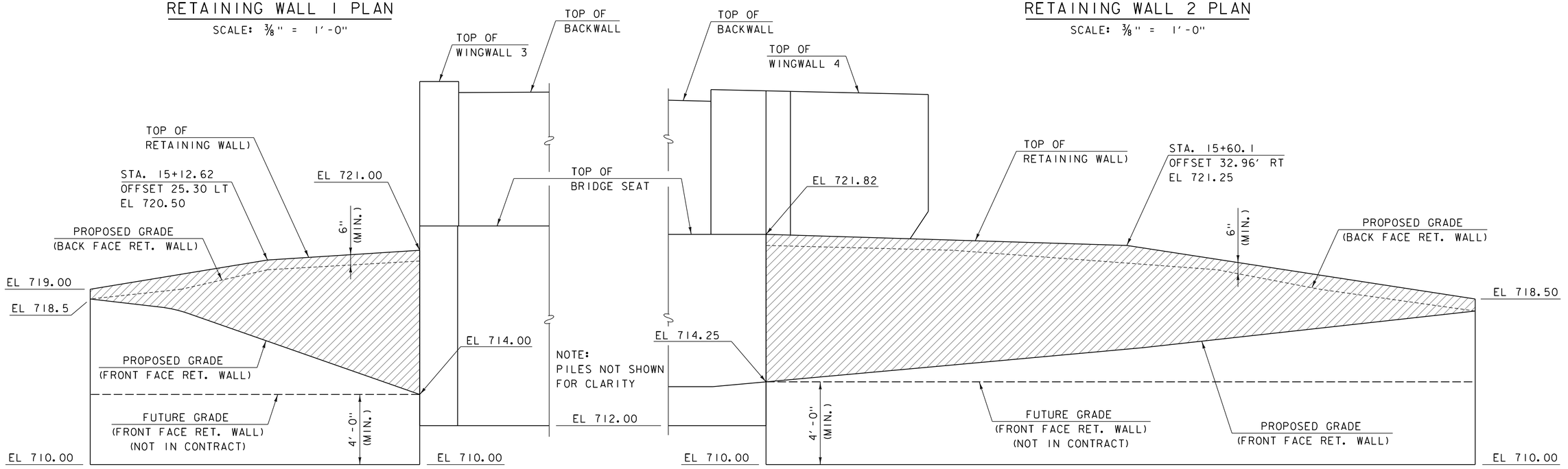
RETAINING WALL 1 PLAN

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



RETAINING WALL 2 PLAN

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

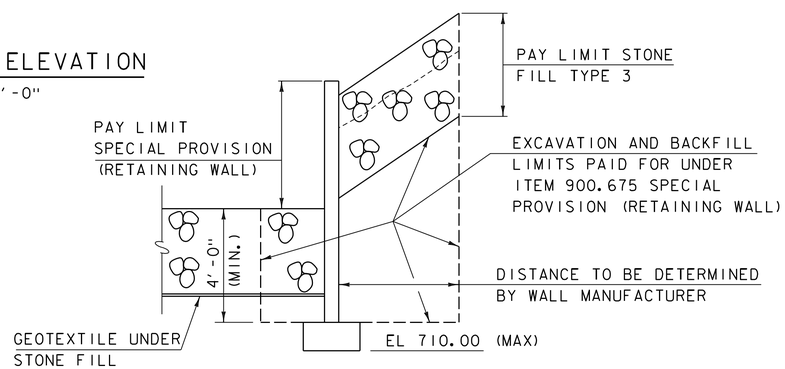


RETAINING WALL 1 ELEVATION

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.

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: zl2bl36sub_retwall.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
RETAINING WALL DETAILS	SHEET 49 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

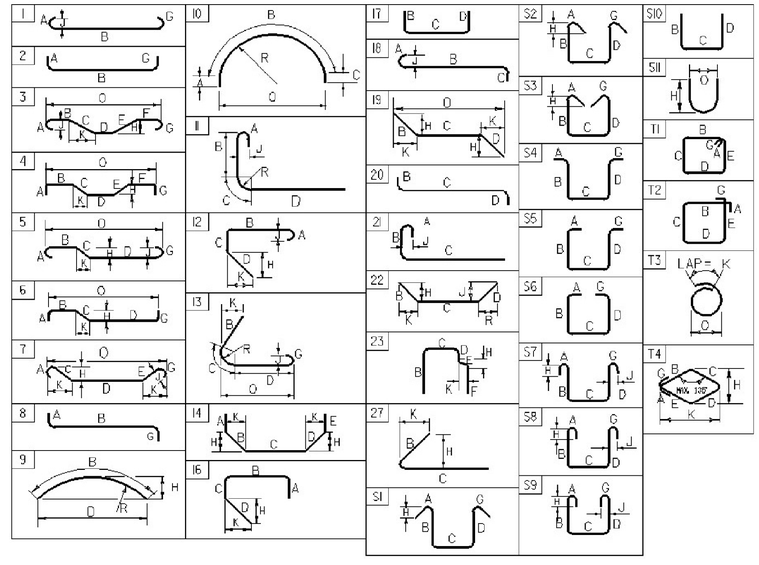
REINFORCING STEEL SCHEDULE

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												
	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.



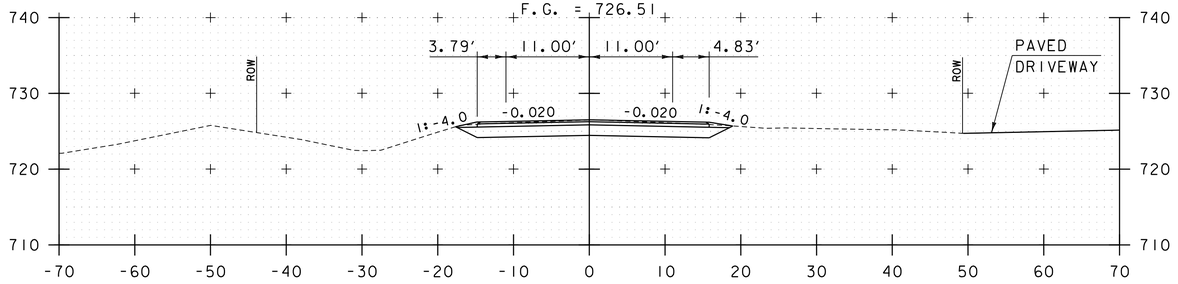
ASTM STANDARD REINFORCING BARS

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

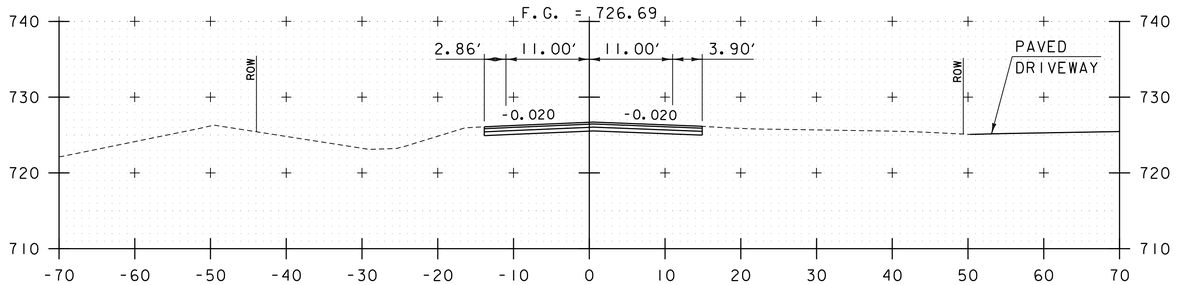
PROJECT NAME: **WAITSFIELD**
PROJECT NUMBER: **BRF 013-4(39)**

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

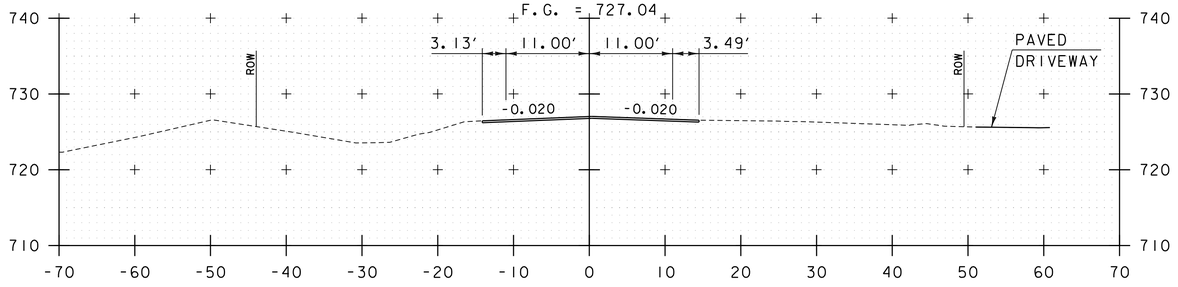
PLOT DATE: **8/17/2015**
DRAWN BY: **S. MERKWAN**
CHECKED BY: **T. KENDRICK**
SHEET **50** OF **69**



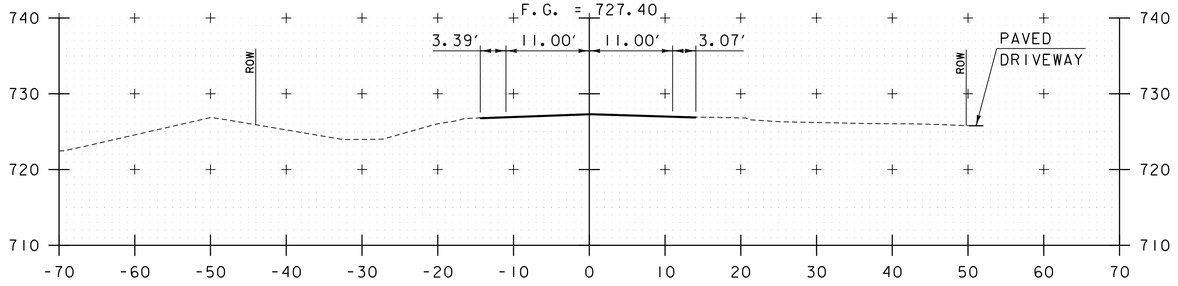
11+25



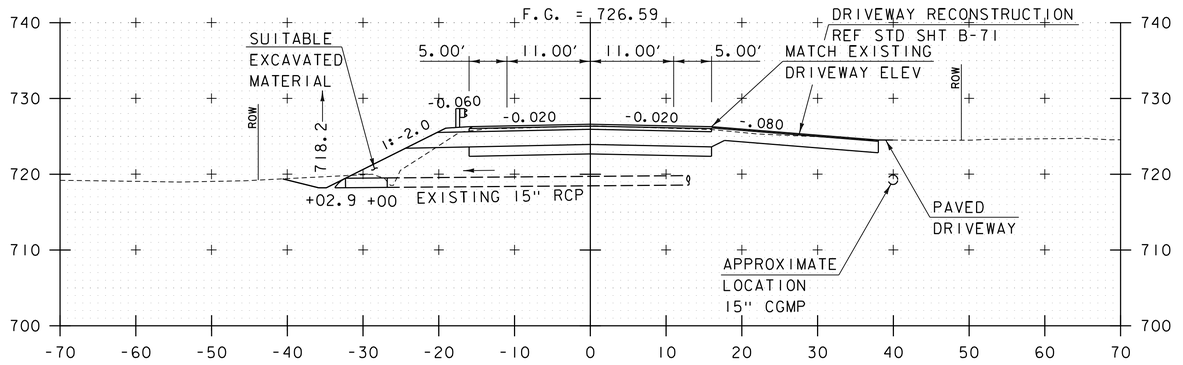
11+00



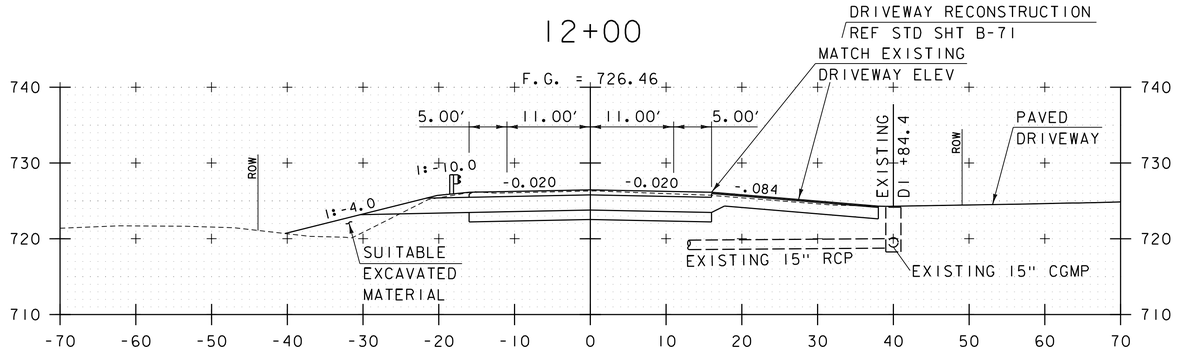
10+75



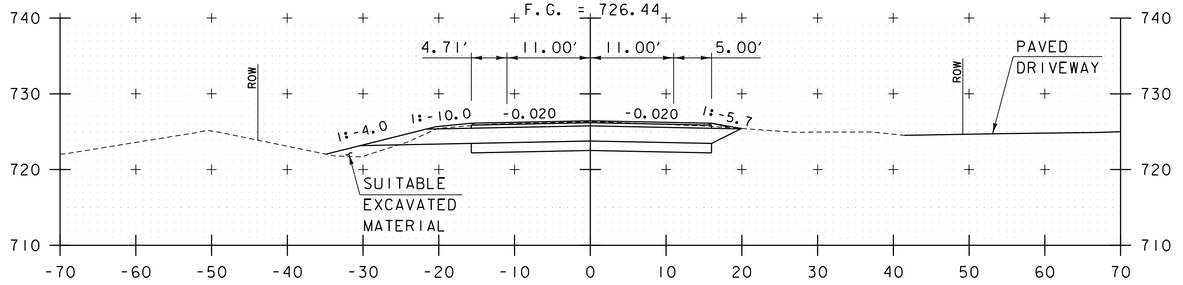
10+50
BEGIN APPROACH - MATCH EXISTING



12+00



11+75



11+50
END APPROACH - BEGIN PROJECT STA 11+37.00

SCALE 1" = 10'-0"
10 0 10

STA. 10+50 TO STA. 12+00

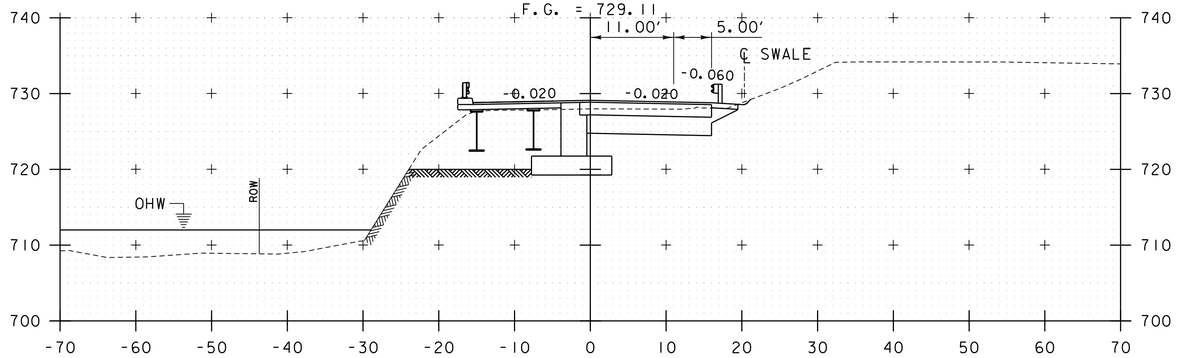
McFarland Johnson

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

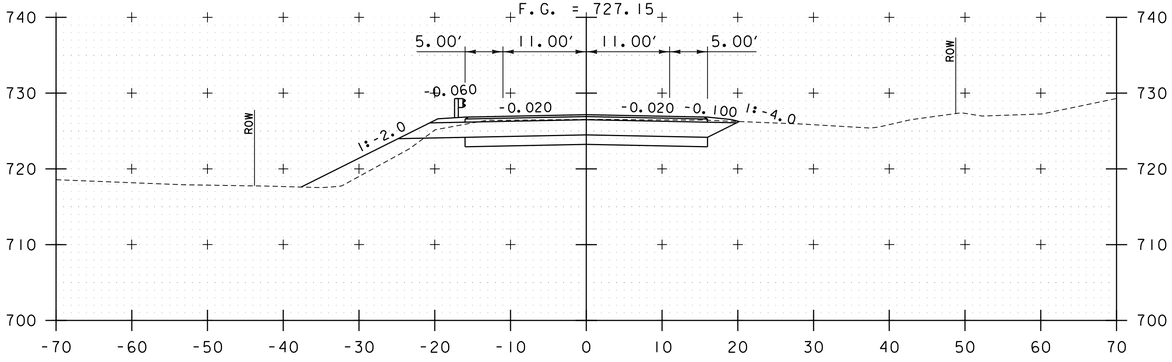
FILE NAME: z12b136xsl.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
VT 100 CROSS SECTION SHEET 1

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 51 OF 69

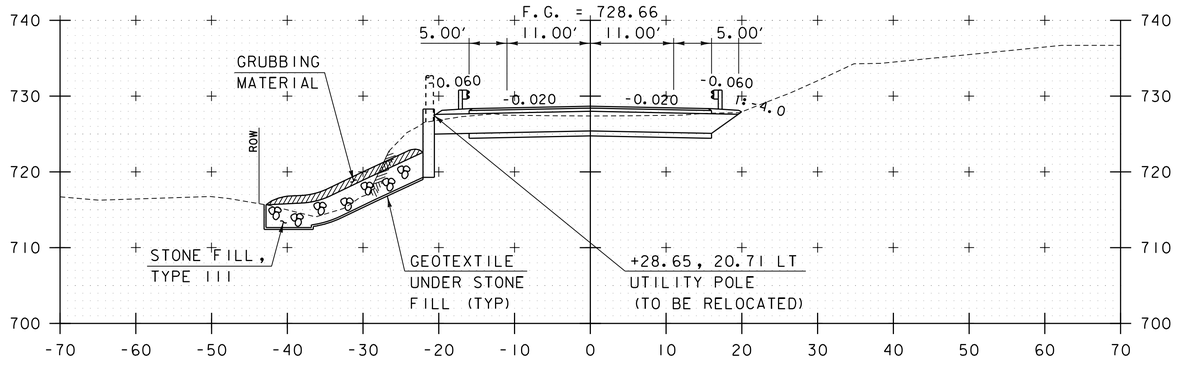
BEGIN BRIDGE STA 13+52.46



12+75



13+50



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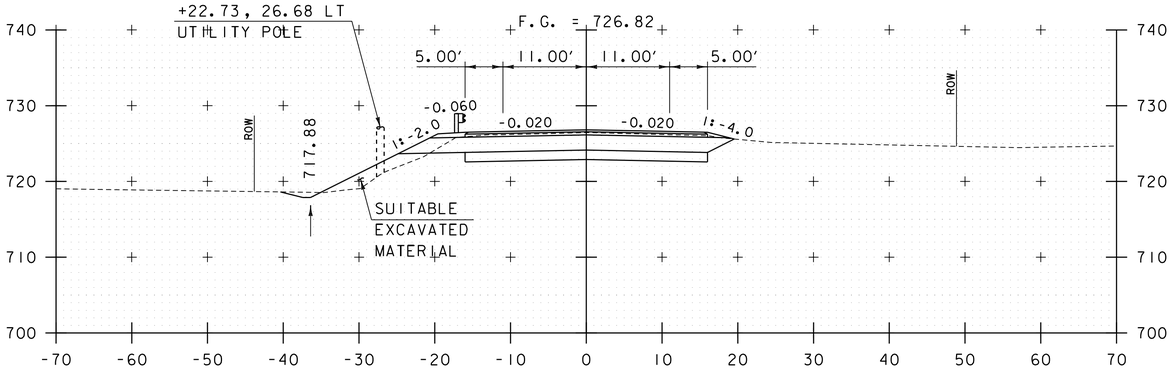
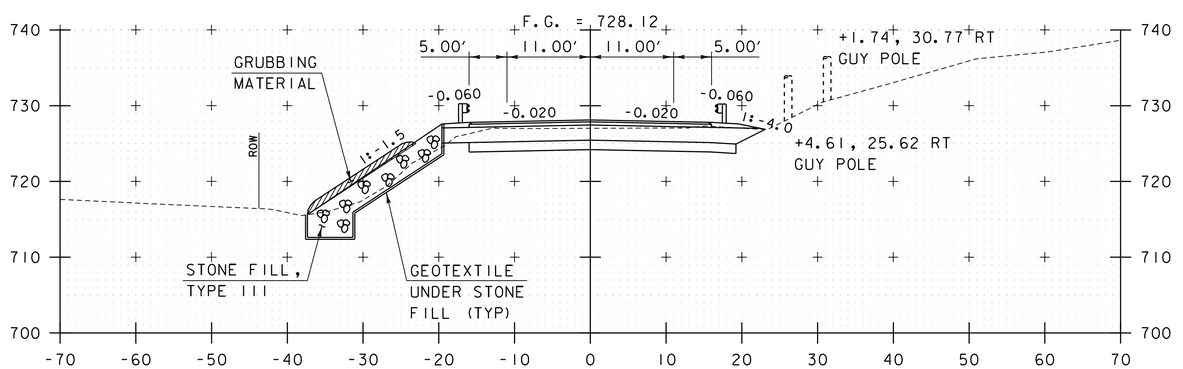


13+25



12+25

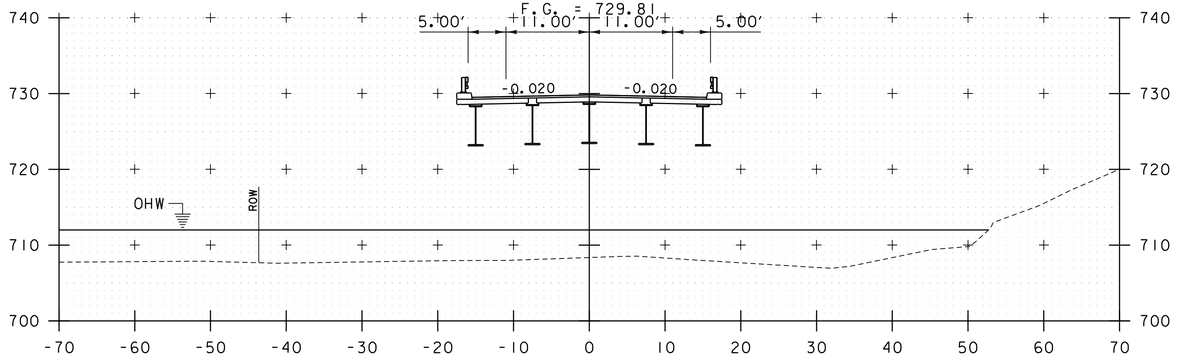
13+00

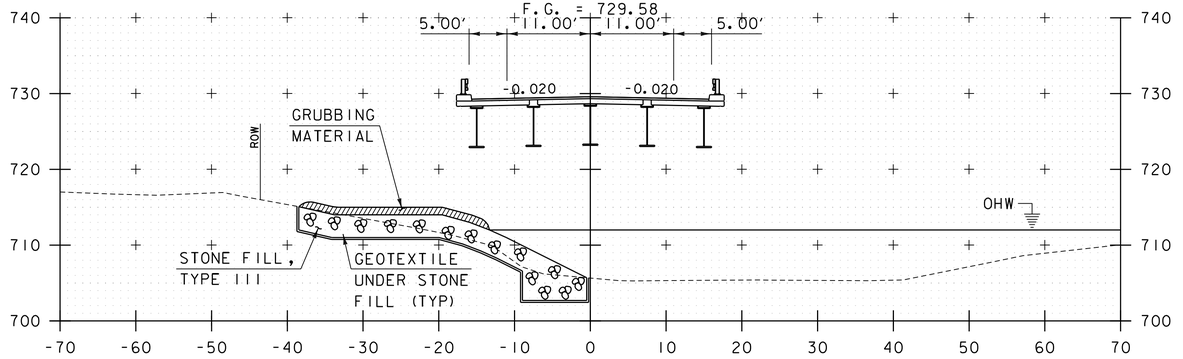
SCALE 1" = 10'-0"
10 0 10

STA. 12+25 TO STA. 13+50

McFarland Johnson

PROJECT NAME: WAITSFIELD	
PROJECT NUMBER: BRF 013-4(39)	
FILE NAME: z12bl36xsl.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
VT 100 CROSS SECTION SHEET 2	SHEET 52 OF 69





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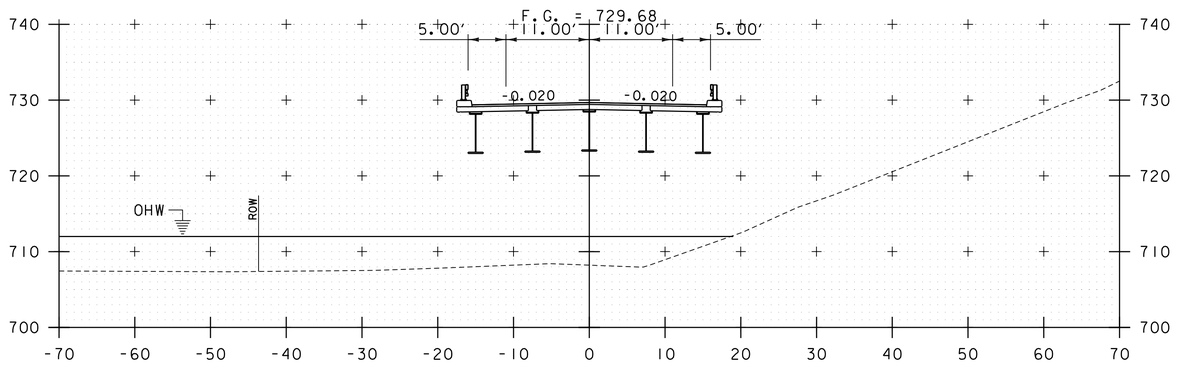
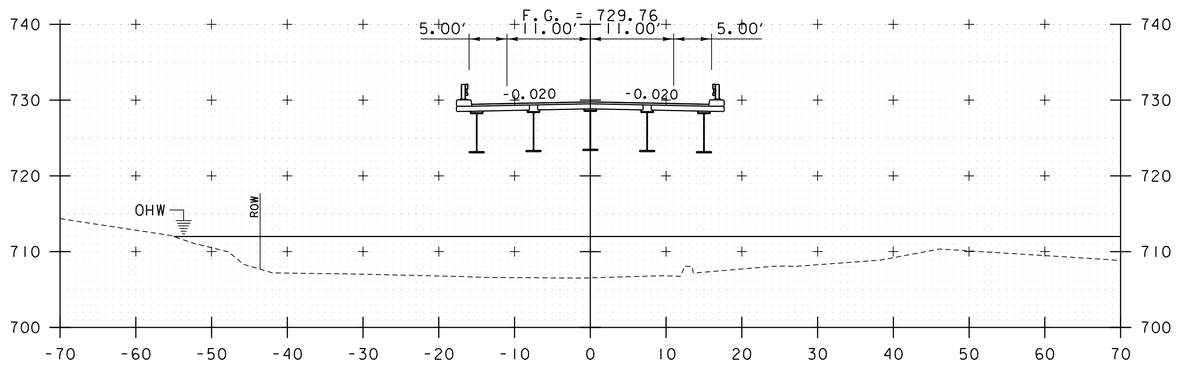
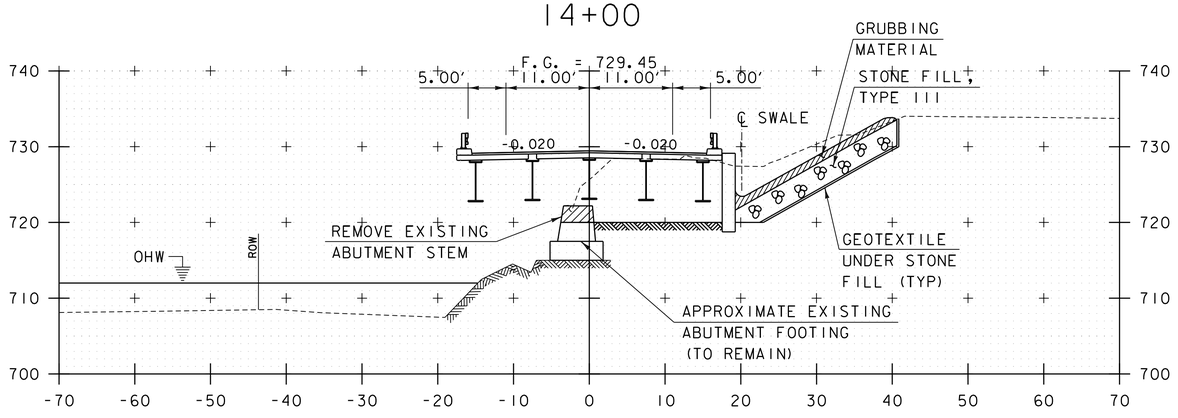


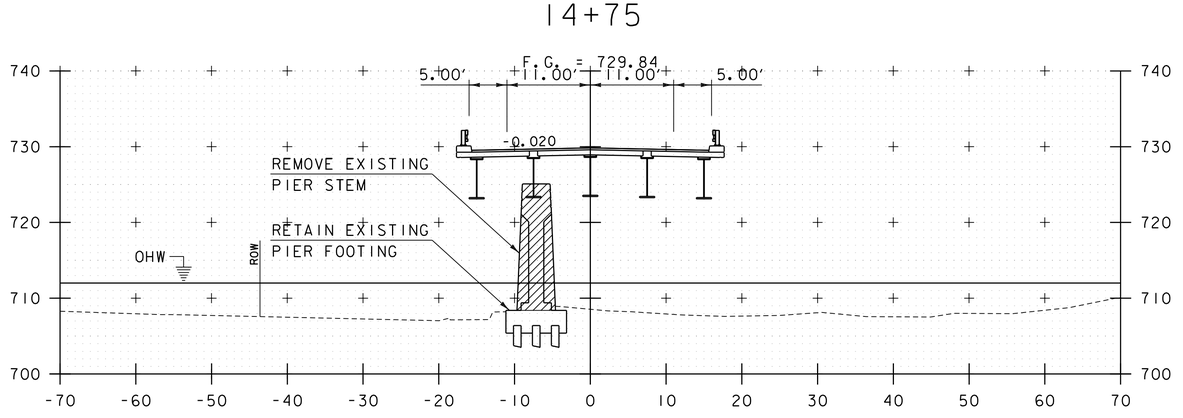
15+00



14+00



14+75



13+75

14+50

SCALE 1" = 10'-0"
10 0 10

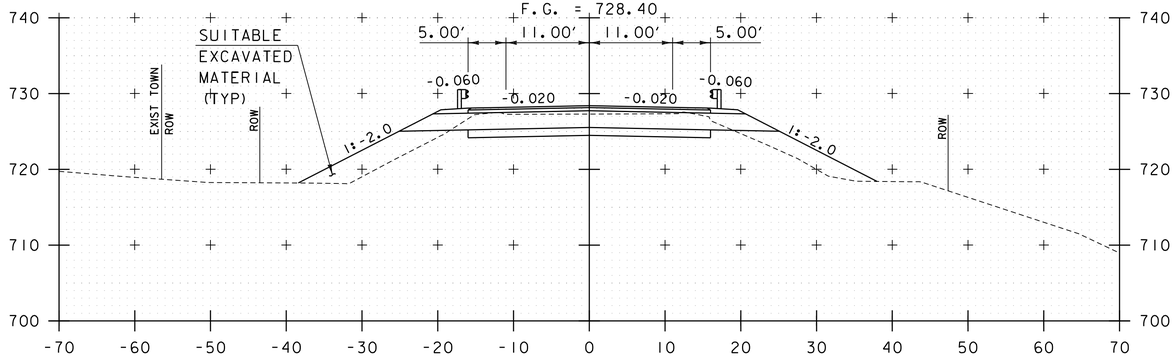
STA. 13+75 TO STA. 15+00

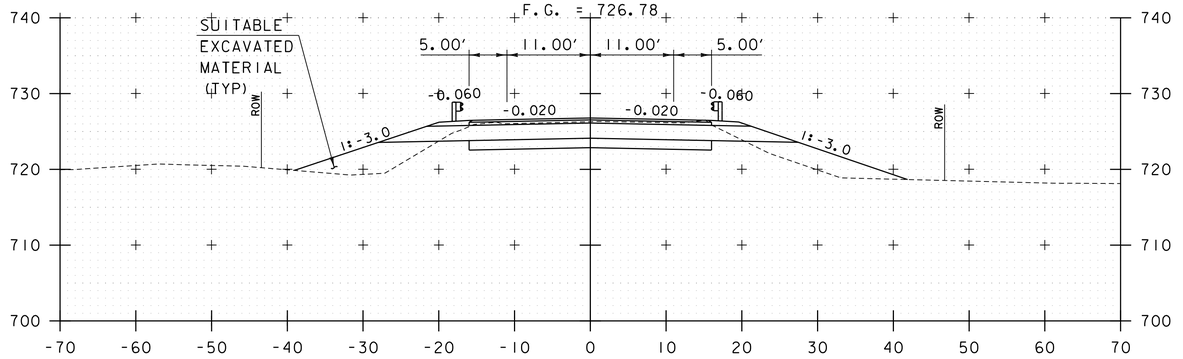
McFarland Johnson

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

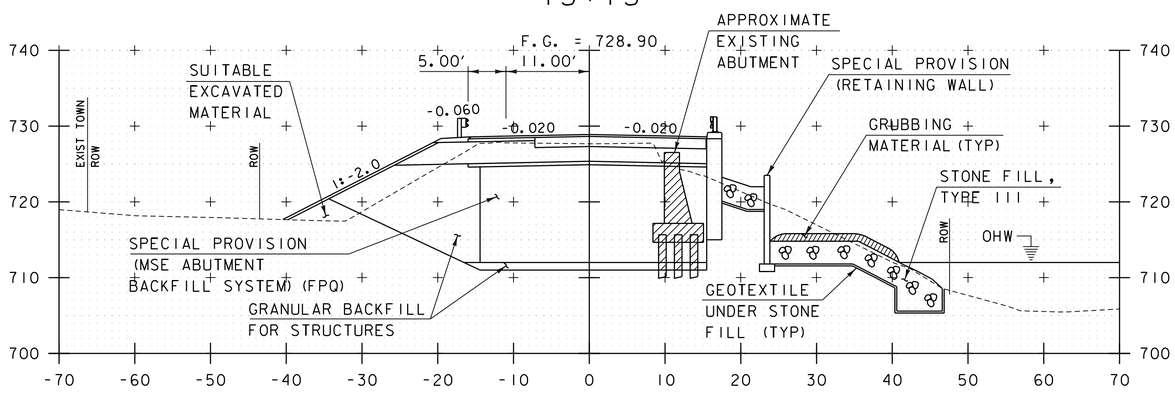
FILE NAME: z12b136xsl.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
VT 100 CROSS SECTION SHEET 3

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 53 OF 69

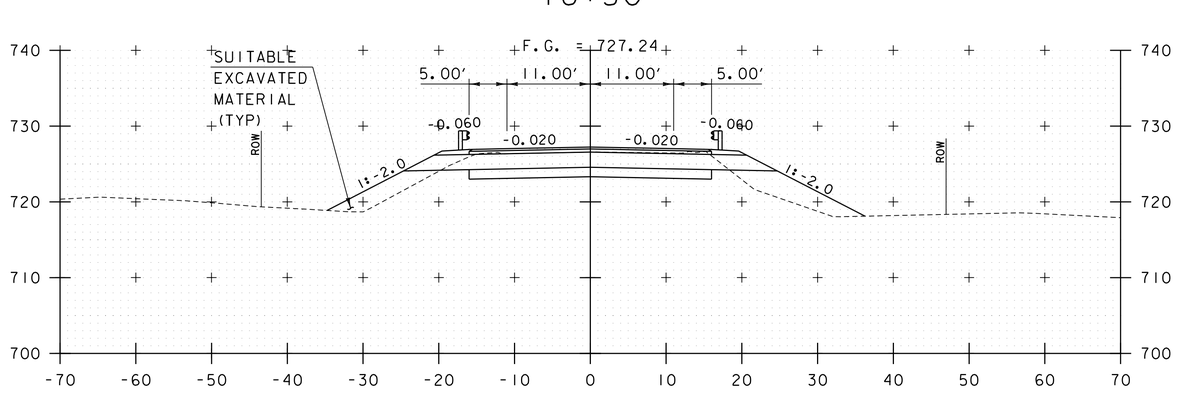




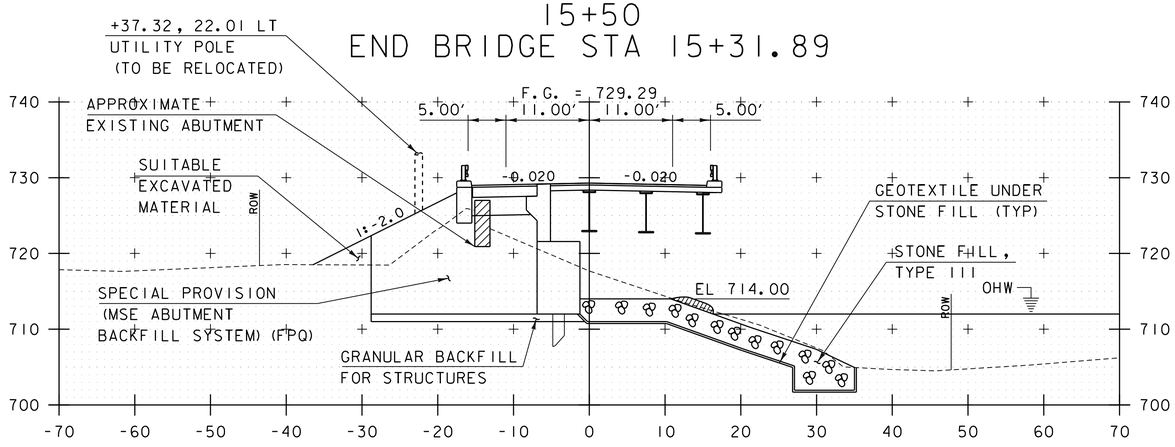
15+75



16+50

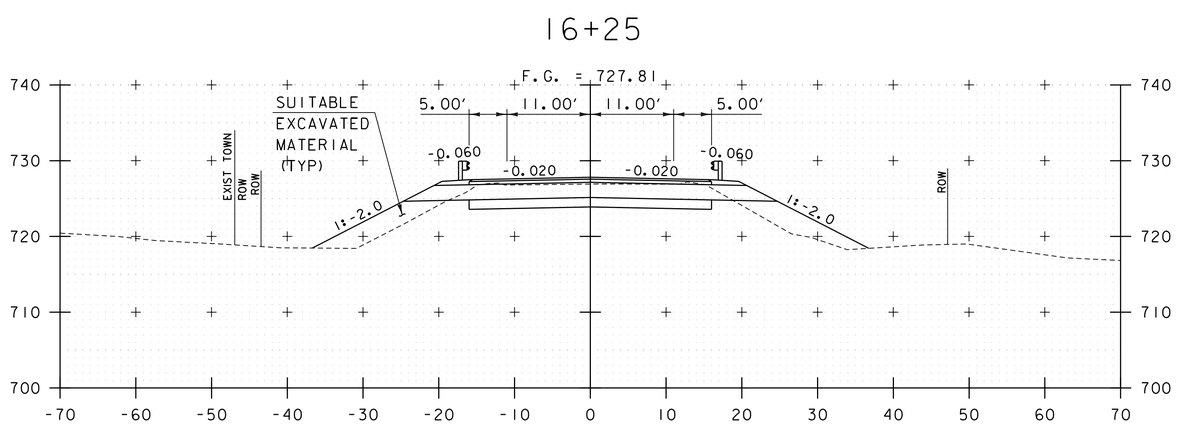


15+50
END BRIDGE STA 15+31.89



15+25

16+25



16+00

SCALE 1" = 10′-0"
10 0 10

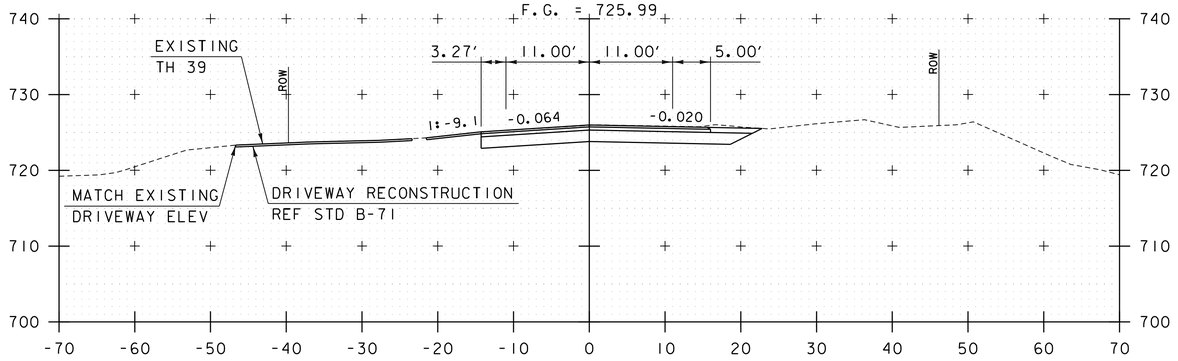
STA. 15+25 TO STA. 16+50

McFarland Johnson

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

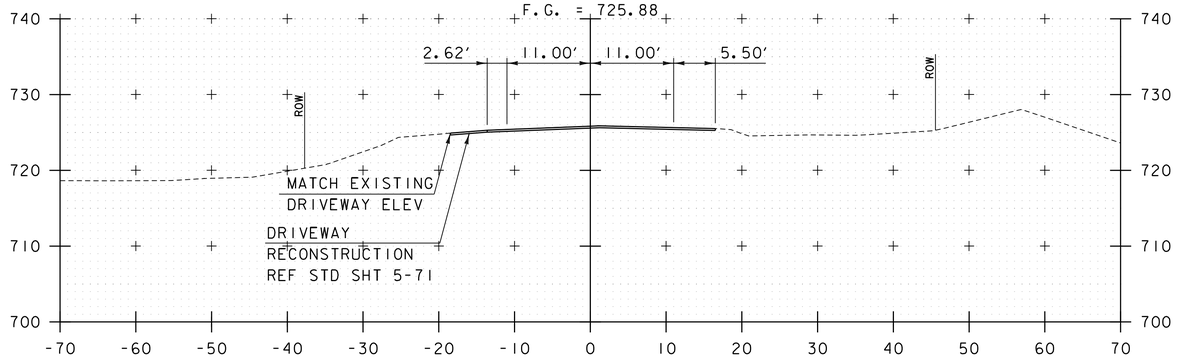
FILE NAME: z12bl36xsl.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
VT 100 CROSS SECTION SHEET 4

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 54 OF 69

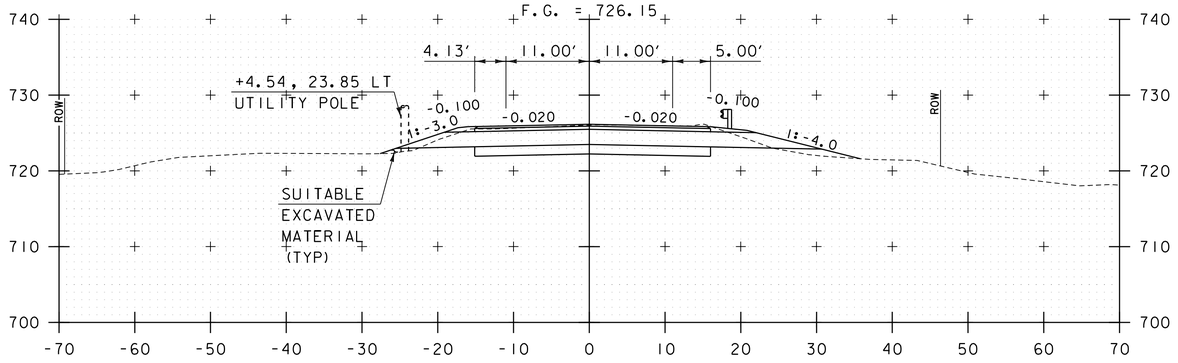


17+25

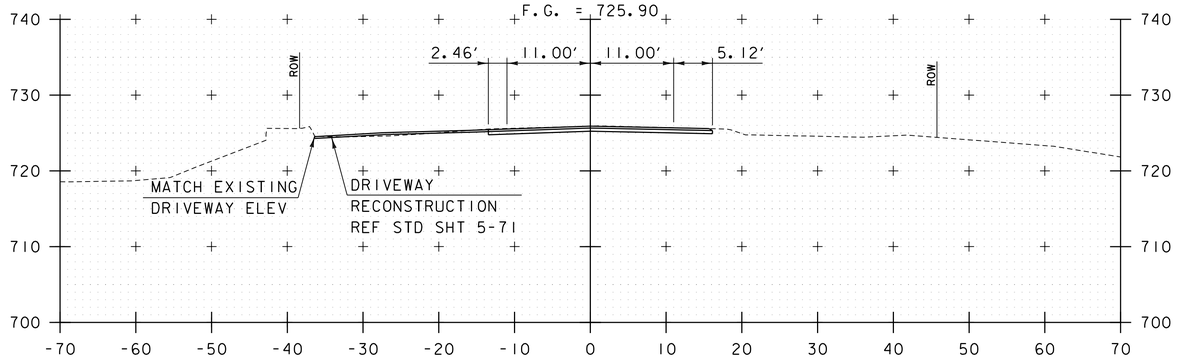
END PROJECT STA 17+13



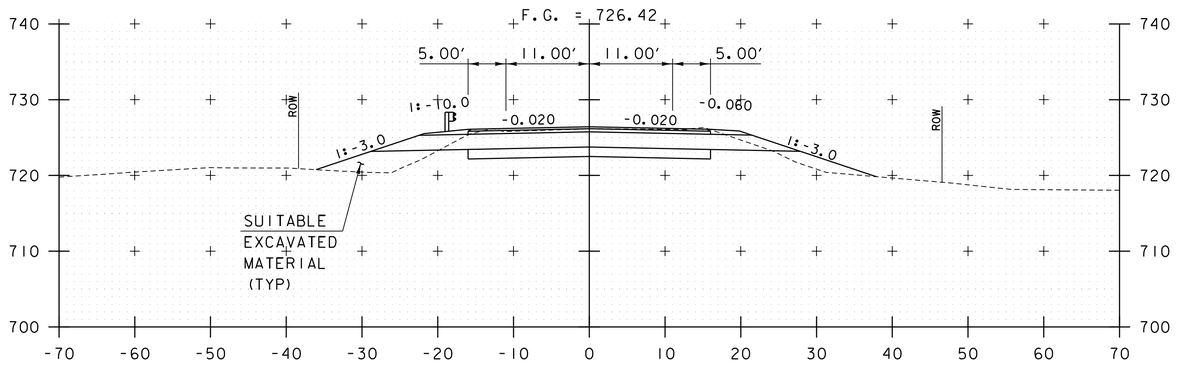
18+00



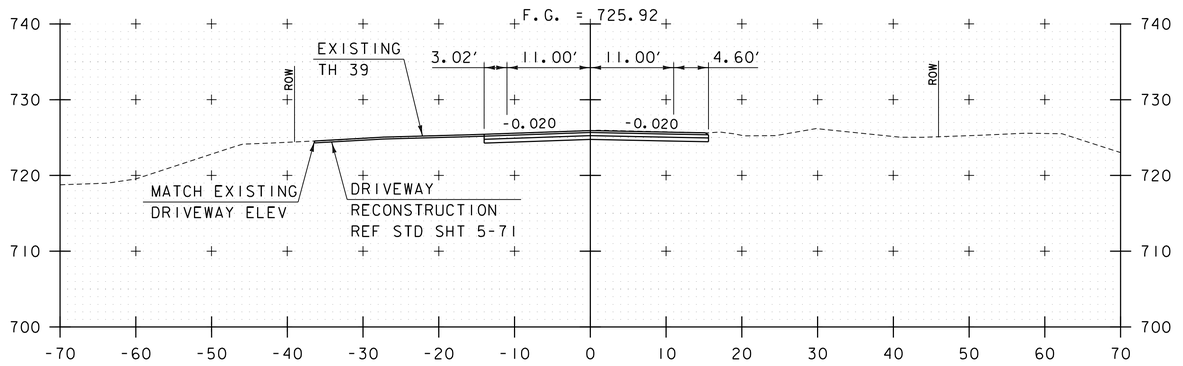
17+00



17+75



16+75



17+50

SCALE 1" = 10'-0"
10 0 10

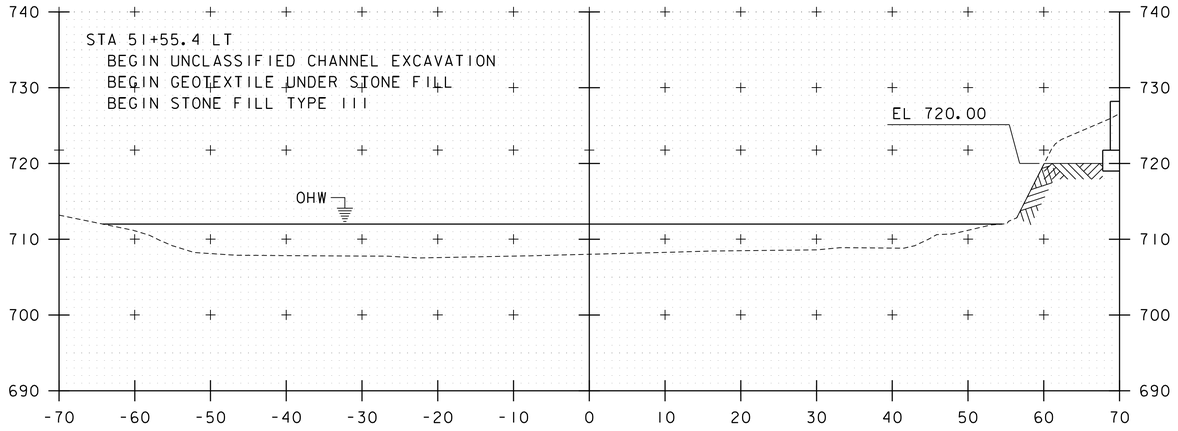
STA. 16+75 TO STA. 18+00

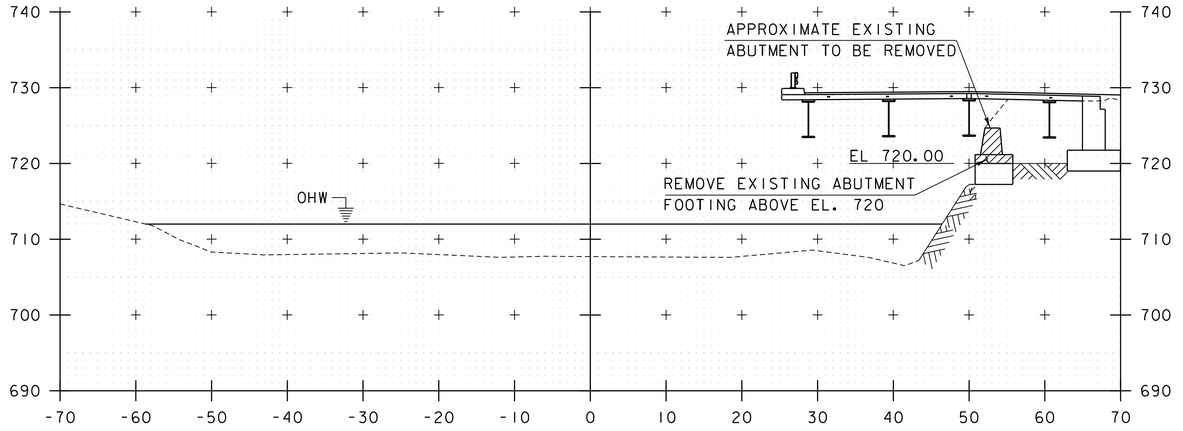
McFarland Johnson

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

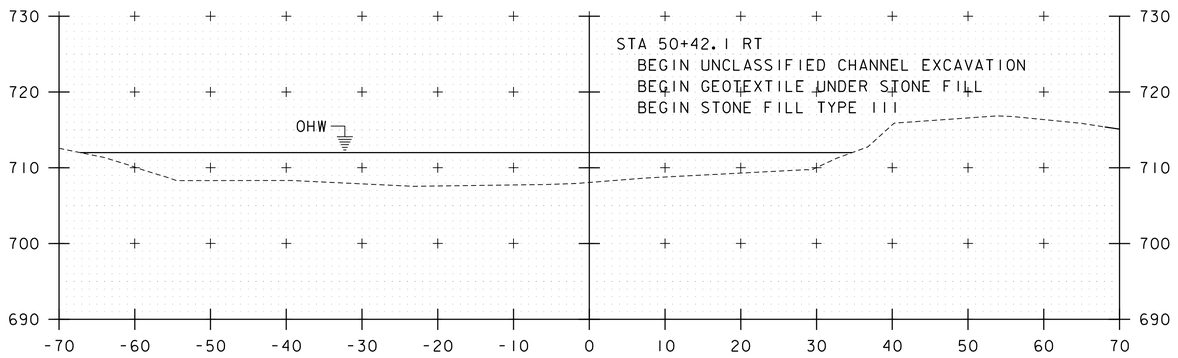
FILE NAME: z12b136xsl.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
VT 100 CROSS SECTION SHEET 5

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 55 OF 69

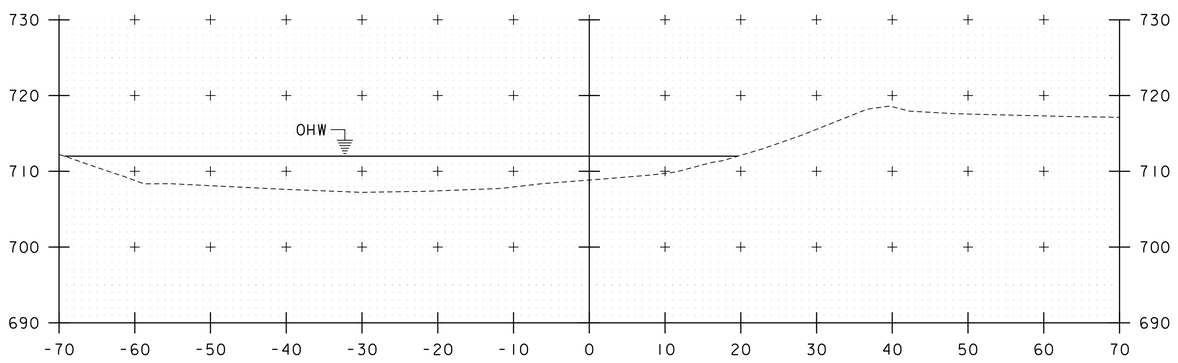




50+50

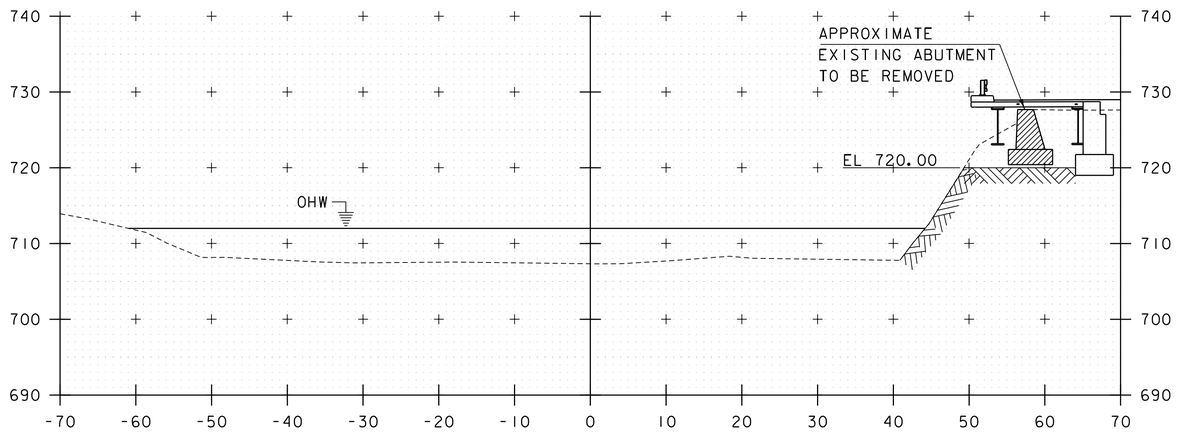


50+25



50+00

51+00



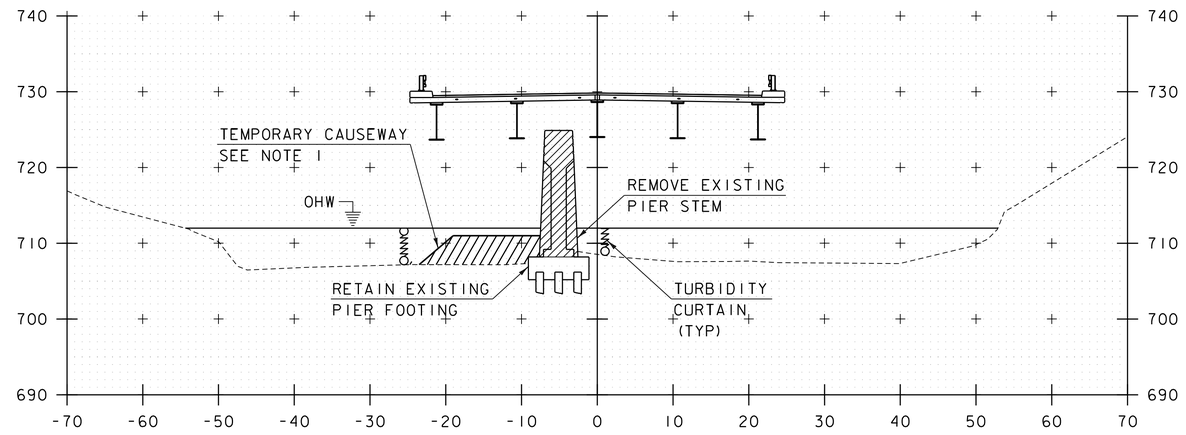
50+75

SCALE 1" = 10'-0"
10 0 10

STA. 50+00 TO STA. 51+00

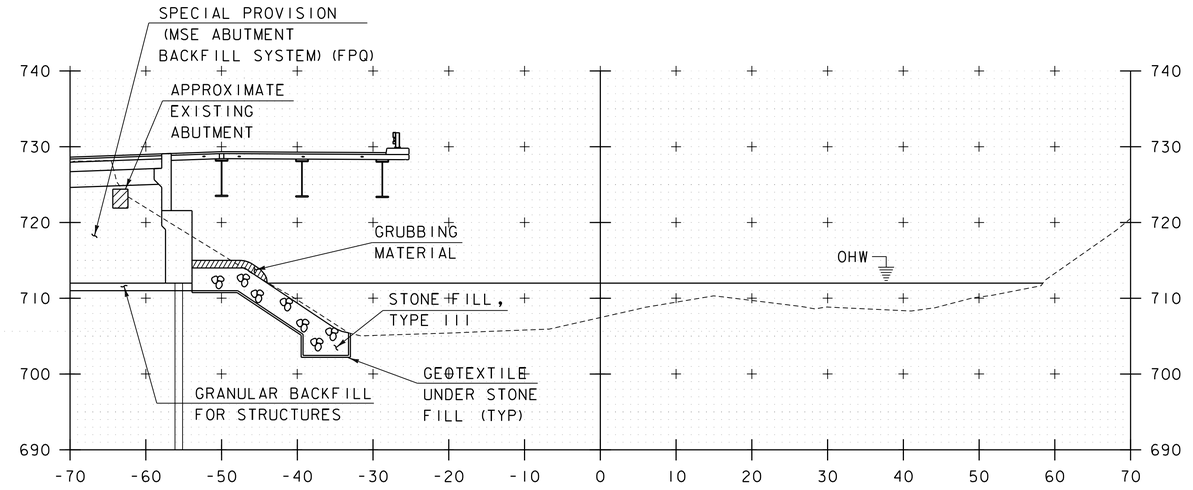
McFarland Johnson

PROJECT NAME: WAITSFIELD	
PROJECT NUMBER: BRF 013-4(39)	
FILE NAME: z12b136xs2.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
CHANNEL CROSS SECTION SHEET 1	SHEET 56 OF 69

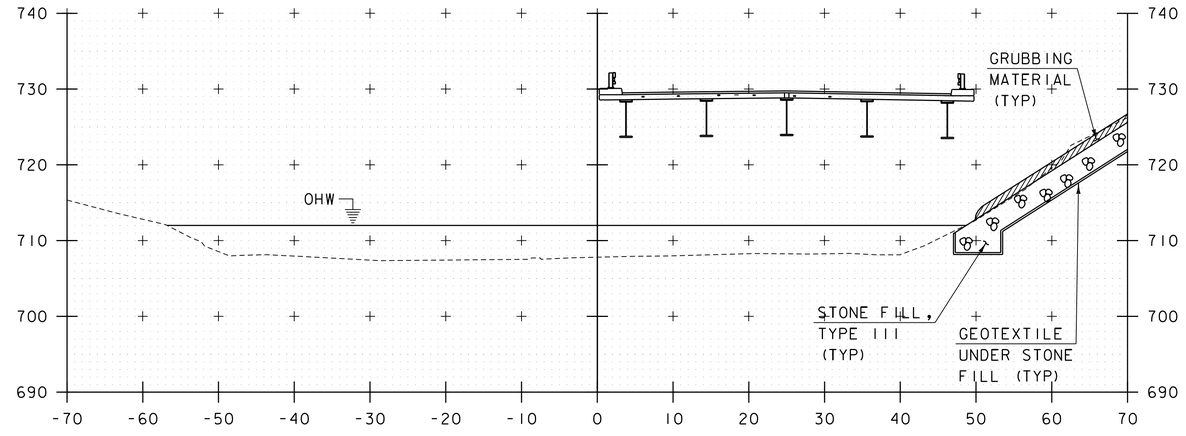


51+50

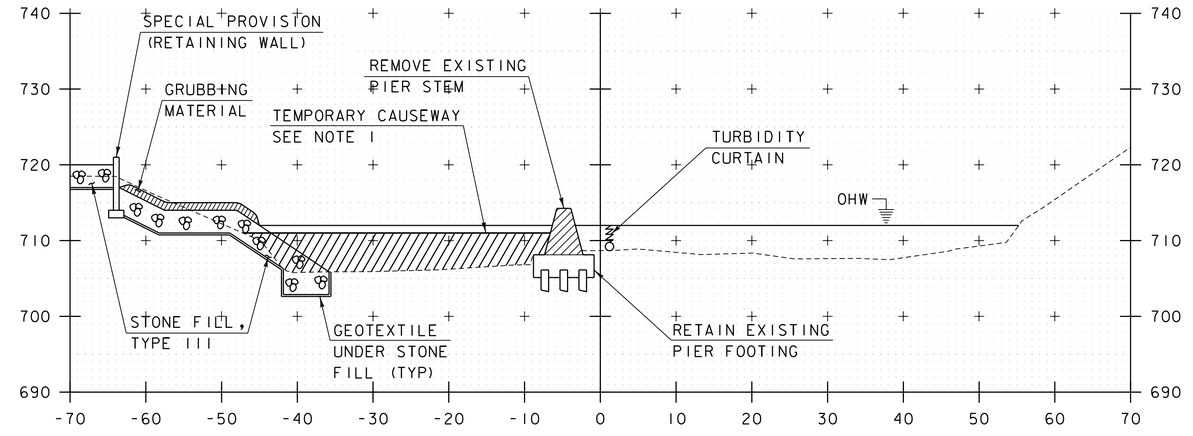
STA 51+35.2 RT
END UNCLASSIFIED CHANNEL EXCAVATION
END GEOTEXTILE UNDER STONE FILL
END STONE FILL TYPE III



52+00



51+25



51+75

NOTES

1. TEMPORARY CAUSEWAY, NO FILL ABOVE EL 711 (1' BELOW OHW). PAYMENT FOR FURNISHING, INSTALLING AND REMOVING TEMPORARY CAUSEWAY SHALL BE INCLUDED IN THE COST FOR ITEM 529.15, REMOVAL OF STRUCTURE.

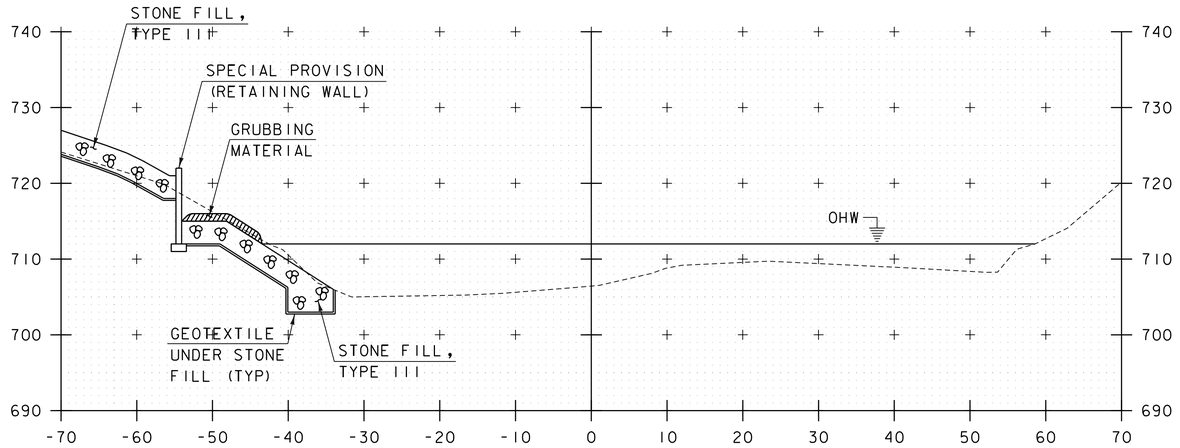
SCALE 1" = 10'-0"
10 0 10

STA. 51+16 TO STA. 52+00

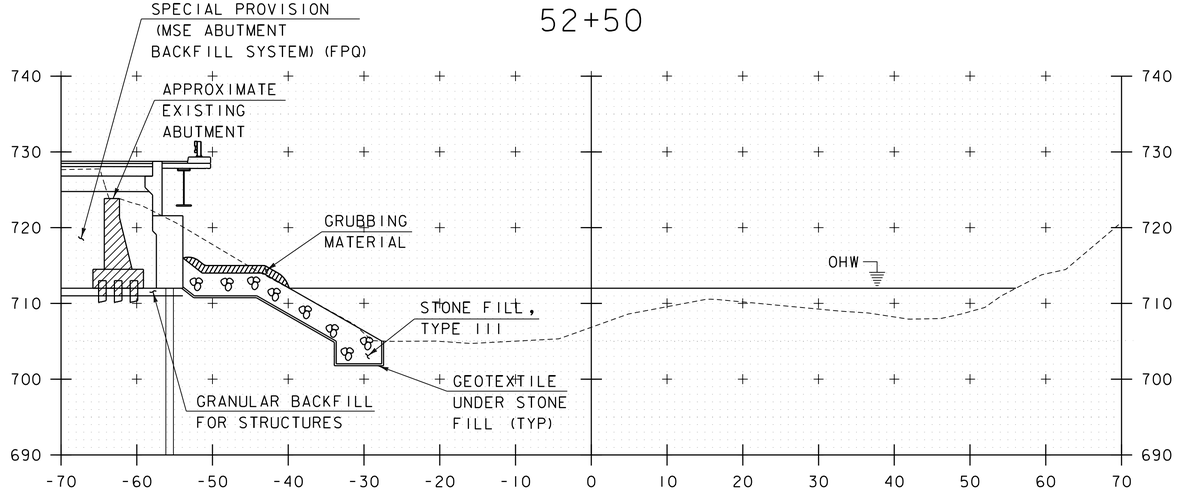
McFarland Johnson

PROJECT NAME: WAITSFIELD	
PROJECT NUMBER: BRF 013-4(39)	
FILE NAME: zl2bl36xs2.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
CHANNEL CROSS SECTION SHEET 2	SHEET 57 OF 69

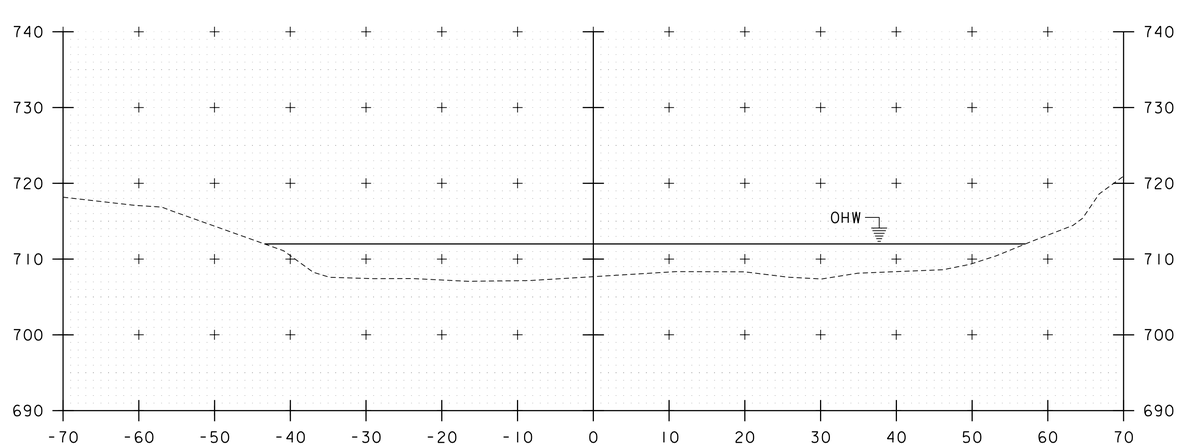
STA 52+57.9 LT
END UNCLASSIFIED CHANNEL EXCAVATION
END GEOTEXTILE UNDER STONE FILL
END STONE FILL TYPE III



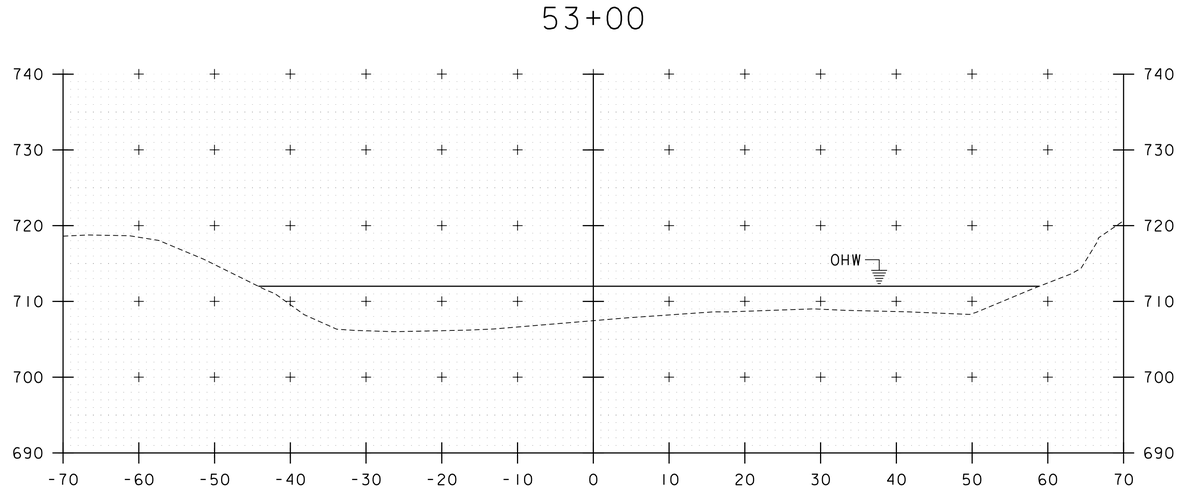
52+50



52+25



53+00



52+75

SCALE 1" = 10'-0"
10 0 10

STA. 52+25 TO STA. 53+00

McFarland Johnson

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

FILE NAME: z12b136xs2.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
CHANNEL CROSS SECTION SHEET 3

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 58 OF 69

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL OF BRIDGE #177 WHICH IS A 168 FOOT LONG ROLLED STEEL BEAM BRIDGE. BRIDGE #177 WILL BE REPLACED BY A 175.00 FOOT SIMPLE SPAN STRUCTURE FOUNDED ON PRECAST ABUTMENTS FOUNDED ON STEEL BEARING PILES AND PRECAST SPREAD FOOTINGS ALONG THE EXISTING VT 100 ALIGNMENT. BRIDGE #177 IS LOCATED IN THE TOWN OF WAITSFIELD, ON VT ROUTE 100, APPROXIMATELY 0.8 MILES SOUTH OF THE INTERSECTION OF VT 17 AND VT 100. THIS PROJECT WILL UTILIZE ACCELERATED BRIDGE CONSTRUCTION METHODS SO THE BRIDGE WILL BE CLOSED TO TRAFFIC FOR APPROXIMATELY 21 DAYS.

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 X.XX ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL BE COMPLETED IN LESS THAN ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS HILLY WITH MOSTLY WELL ESTABLISHED FOREST AND OCCASIONAL OPEN AREAS WITHIN THE GREEN MOUNTAIN NATIONAL FOREST. ROADWAY SIDE SLOPES CONSIST OF VEGETATED UNDERGROWTH WITH SEVERAL EXPOSED LEDGE FACES.

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

THE MAD RIVER IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE MAD RIVER IS CLASSIFIED AS FLAT, WITH WIDE EARTH LINED CHANNEL UPSTREAM AND A WIDE EARTH LINED CHANNEL DOWNSTREAM OF THE SITE. THE STREAM BED CONSISTS OF GRAVEL AND SAND.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF MIXED HARDWOOD AND SOFTWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING BRIDGE AND RECONSTRUCTION OF THE ROADWAY AND SIDE SLOPES WITHIN THE PROJECT LIMITS. UPON PROJECT COMPLETION, THE CHANNEL SIDE SLOPES ADJACENT TO THE BRIDGE WILL BE ARMORED WITH STONE FILL TYPE III AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES. CLEARING SHALL BE KEPT TO A MINIMUM.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF WASHINGTON, VERMONT. SOILS ON THE PROJECT SITE ARE:
MACHIAS FINE SANDY LOAM, 3% TO 8% SLOPES, "K FACTOR" = 0.17. THIS SOIL IS CONSIDERED NOT HIGHLY ERODIBLE,
WEIDER FINE SANDY LOAM, 0% TO 3% SLOPES, "K FACTOR" = 0.32. THIS SOIL IS CONSIDERED NOT HIGHLY ERODIBLE,
COLTON GRAVELY LOAMY SAND, 25% TO 60% SLOPES, "K FACTOR" = 0.17. THIS SOIL IS CONSIDERED HIGHLY ERODIBLE,
WAITSFIELD SILT LOAM, 0% TO 3% SLOPES, "K FACTOR" = 0.37. THIS SOIL IS CONSIDERED HIGHLY ERODIBLE.

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: HISTORIC DISTRICT NORTHWEST END OF PROJECT NOT IMPACTED BY PROPOSED WORK
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: MAD RIVER
WETLANDS: YES

1.3 RISK EVALUATION

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

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

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

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

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.
PROJECT DEMARCATION FENCING (PDF) SHALL BE PLACED 5 FEET FROM THE TOE OF SLOPE TO PHYSICALLY MARK SITE BOUNDARIES. PDF CAN BE LOCATED CLOSER TO THE PROPOSED SLOPE LIMITS IN SENSITIVE AREAS OR AS DIRECTED BY THE ENGINEER. PDF SHALL BE INSTALLED PRIOR TO THE BEGINNING OF ANY EARTHWORK ON THE PROJECT.

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 CONSTRUCTION CHANGES.

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

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

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

STABILIZED CONSTRUCTION ENTRANCES SHOULD 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 EARTHWORK IN ACCORDANCE WITH THE EROSION PREVENTION AND CONTROL PLANS.

SILT FENCE WILL BE INSTALLED AT THE TOE OF SLOPE AS PROPOSED ON THE EPSC PLAN.

AT LOCATIONS WHERE CONSTRUCTION IS IN OR NEAR WATERCOURSES OF THE STATE OF VERMONT, GEOTEXTILE FOR FILTER CURTAIN SHALL BE USED TO MINIMIZE SEDIMENT FROM ENTERING THESE WATERCOURSES. THE FILTER CURTAIN SHALL EXTEND FROM THE BOTTOM OF THE WATERCOURSE TO THE TOP OF THE WATER SURFACE. GEOTEXTILE SHALL ALSO BE PLACED ALONG THE BOTTOM OF THE WATERCOURSE WITHIN THE LIMITS OF THE FILTER CURTAIN TO FACILITATE THE REMOVAL OF SEDIMENT AND PROTECT THE EXISTING WATERCOURSE BOTTOM. IF THE CONTRACTOR CHOOSES TO USE A DIFFERENT METHOD FOR CONTAINING SEDIMENT IN THE WATERCOURSES, THE CONTRACTOR SHALL SUBMIT THE ALTERNATE METHOD TO THE ENGINEERFOR APPROVAL AT LEAST 14 DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING. FILTER CURTAIN SHALL BE INSTALLED AS SHOWN ON THE EROSION PREVENTION AND SEDIMENT CONTROL PLANS PRIOR TO ANY CONSTRUCTION WITHIN 50 FEET OF WATERS OF THE STATE.

1.4.5 DIVERT UPLAND RUNOFF

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

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

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

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

TEMPORARY STONE CHECK DAMS, TYPE I WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN, AT A MINIMUM.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES, SUCH AS STONE SLOPES, PERMANENT ROLLED EROSION CONTROL PRODUCTS AND FIBER ROLLS SHALL BE INSTALLED AS SHOWN ON THE PLANS.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE.

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. SEEDING AND MULCHING SHALL BE USED TO STABILIZE SOIL. SEE THE EROSION CONTROL DETAILS FOR SEED TYPES AND APPLICATION RATES.

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

1.4.11 DE-WATERING ACTIVITIES

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

TREATMENT OF DEWATERING COFFERDAM IS NOT ANTICIPATED ON THIS PROJECT.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR AFTER ANY RAINFALL EVENT THAT RESULTS IN DISCHARGE FROM THE SITE.

1.5 SEQUENCE AND STAGING

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

1.5.2 OFF-SITE ACTIVITIES

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

McFarland Johnson

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

FILE NAME: z12b136ero_nar.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: J. SANTACRUCE
EPSC NARRATIVE

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 59 OF 69


VT STATE PLANE GRID
N
SOIL CLASSIFICATION:
MACHIAS FINE SANDY LOAM
3%-8% SLOPES
NOT HIGHLY ERODIBLE
K=0.17
SOIL CLASSIFICATION:
WEIDER VERY FINE SANDY LOAM
0%-3% SLOPES
NOT HIGHLY ERODIBLE
K=0.32
FIELD
PROPERTY LINE
EXISTING TOWN R.O.W.
TOWN HIGHWAY 39
SHED
M MAPLE
HISTORIC
CHANNEL BASELINE
BEGIN APPROACH
STA 10+50.00
MATCH EXISTING
BEGIN PROJECT
STA 11+37.00
EXISTING STATE R.O.W.
CLASS III
MIXED HARDWOODS
WOODS
VT 100
TO WARREN
10+00
11+00
12+00
13+00
14+00
15+00
16+00
50+00
51+00
52+00
53+00
40+49
41+00
42+00
MATCHLINE STA 16+25 (EXISTING LAYOUT 2)
℄ CONSTRUCTION
SIGN
EASY STREET CAFE
PAVED DRIVE
CEDARS
L ASH
BOUNDARY MARKER
BEGIN BRIDGE
STA 13+52.46
FG EL 729.15
END BRIDGE
STA 15+31.89
FG EL 729.20
MIXED SOFTWOODS
AND HARDWOODS
MAD RIVER
FLOW
OHW
HABITAT
LAYOUT
SCALE: 1" = 20'-0"

NOTE:
FOR EPSC PLAN SYMBOLOGY LEGEND SEE SHEET 11.

SOIL CLASSIFICATION:
COLTON GRAVELLY LOAMY SAND
25%-60% SLOPES
HIGHLY ERODIBLE
K=0.17

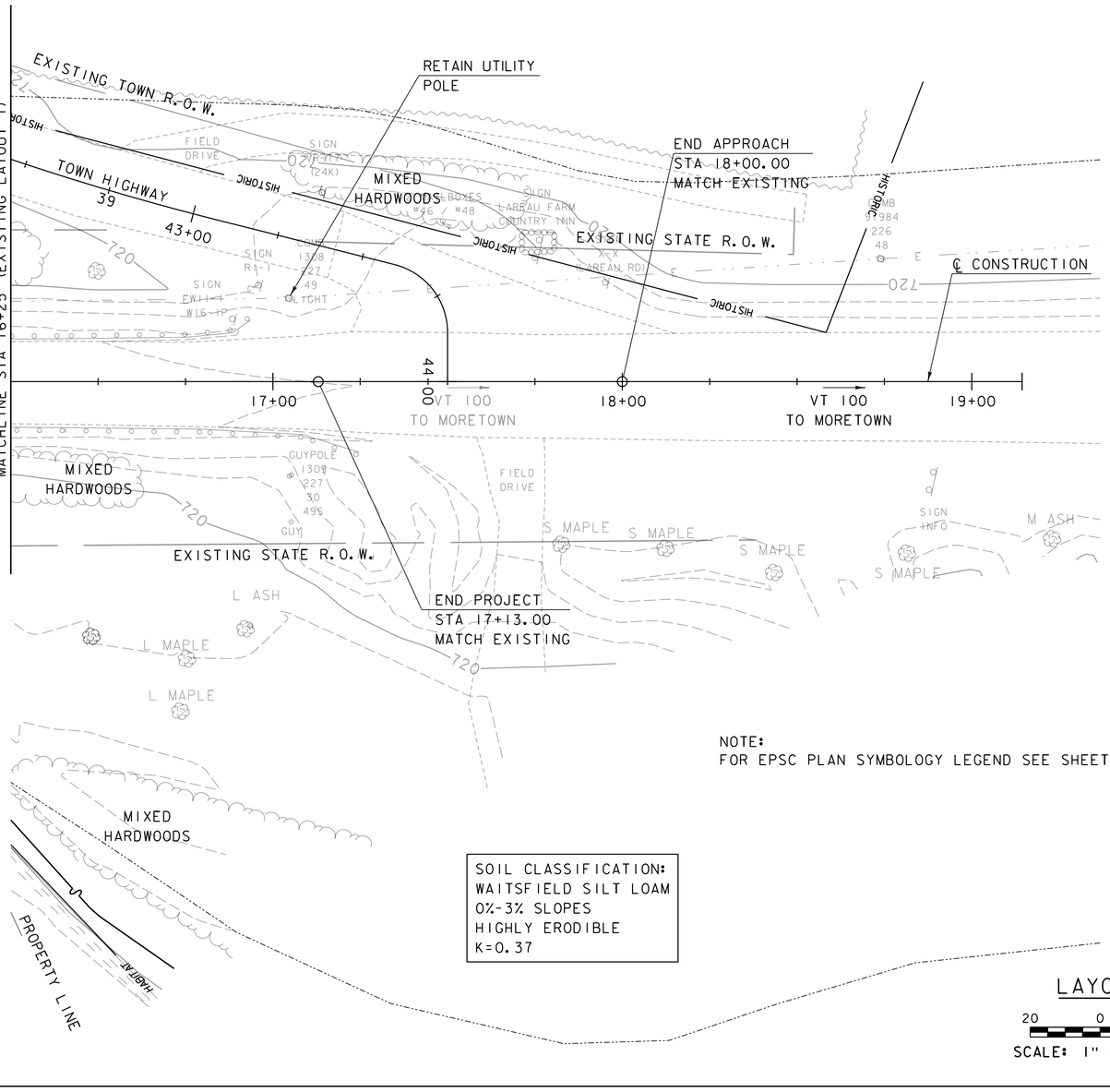
PROJECT NAME: WAITSFIELD	
PROJECT NUMBER: BRF 013-4(39)	
FILE NAME: z12b136bdr_ero.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: J. SANTACRUCE	CHECKED BY: T. KENDRICK
EPSC EXISTING LAYOUT SHEET 1	SHEET 60 OF 69

McFarland Johnson

VT STATE PLANE GRID

N

SOIL CLASSIFICATION:
WEIDER VERY FINE SANDY LOAM
0%-3% SLOPES
NOT HIGHLY ERODIBLE
K=0.32



NOTE:
FOR EPSC PLAN SYMBOLOGY LEGEND SEE SHEET 11.

SOIL CLASSIFICATION:
WAITSFIELD SILT LOAM
0%-3% SLOPES
HIGHLY ERODIBLE
K=0.37

LAYOUT

20 0 20

SCALE: 1" = 20'-0"

McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BF 013-4(39)
FILE NAME: z12bl36bdr_ero.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
EPSC EXISTING LAYOUT SHEET 2	SHEET 61 OF 69

VT STATE PLANE GRID

N

SOIL CLASSIFICATION:
MACHIAS FINE SANDY LOAM
3%-8% SLOPES
NOT HIGHLY ERODIBLE
K=0.17

SOIL CLASSIFICATION:
WEIDER VERY FINE SANDY LOAM
0%-3% SLOPES
NOT HIGHLY ERODIBLE
K=0.32

BEGIN APPROACH
STA 10+50.00
MATCH EXISTING

BEGIN PROJECT
STA 11+37.00

CONSTRUCT 12.0LF x 15" RCP
CONNECT TO EXISTING 15" RCP
CONSTRUCT 18" CPEP END SECTION
CONSTRUCT STONE FILL, TYPE I
AT OUTLET

EXISTING STATE R.O.W.

VT 100
TO WARREN

℄ CONSTRUCTION

CLEAN CULVERT
PIPES

STABILIZED CONSTRUCTION
ACCESS (SOUTH ACCESS)

PROPERTY LINE

CHANNEL
BASELINE

TEMPORARY
CAUSEWAY

EXISTING TOWN R.O.W.

TOWN HIGHWAY
39

BEGIN BRIDGE
STA 13+52.46
FG EL 729.15

END BRIDGE
STA 15+31.89
FG EL 729.20

STONE FILL,
TYPE III

STONE FILL,
TYPE III

MAD RIVER
FLOW

MATCH LINE STA 16+25 (CONSTRUCTION LAYOUT 2)

NOTE:
FOR EPSC PLAN SYMBOLOGY LEGEND SEE SHEET 11.

SOIL CLASSIFICATION:
COLTON GRAVELLY LOAMY SAND
25%-60% SLOPES
HIGHLY ERODIBLE
K=0.17

LAYOUT

20 0 20

SCALE: 1" = 20'-0"

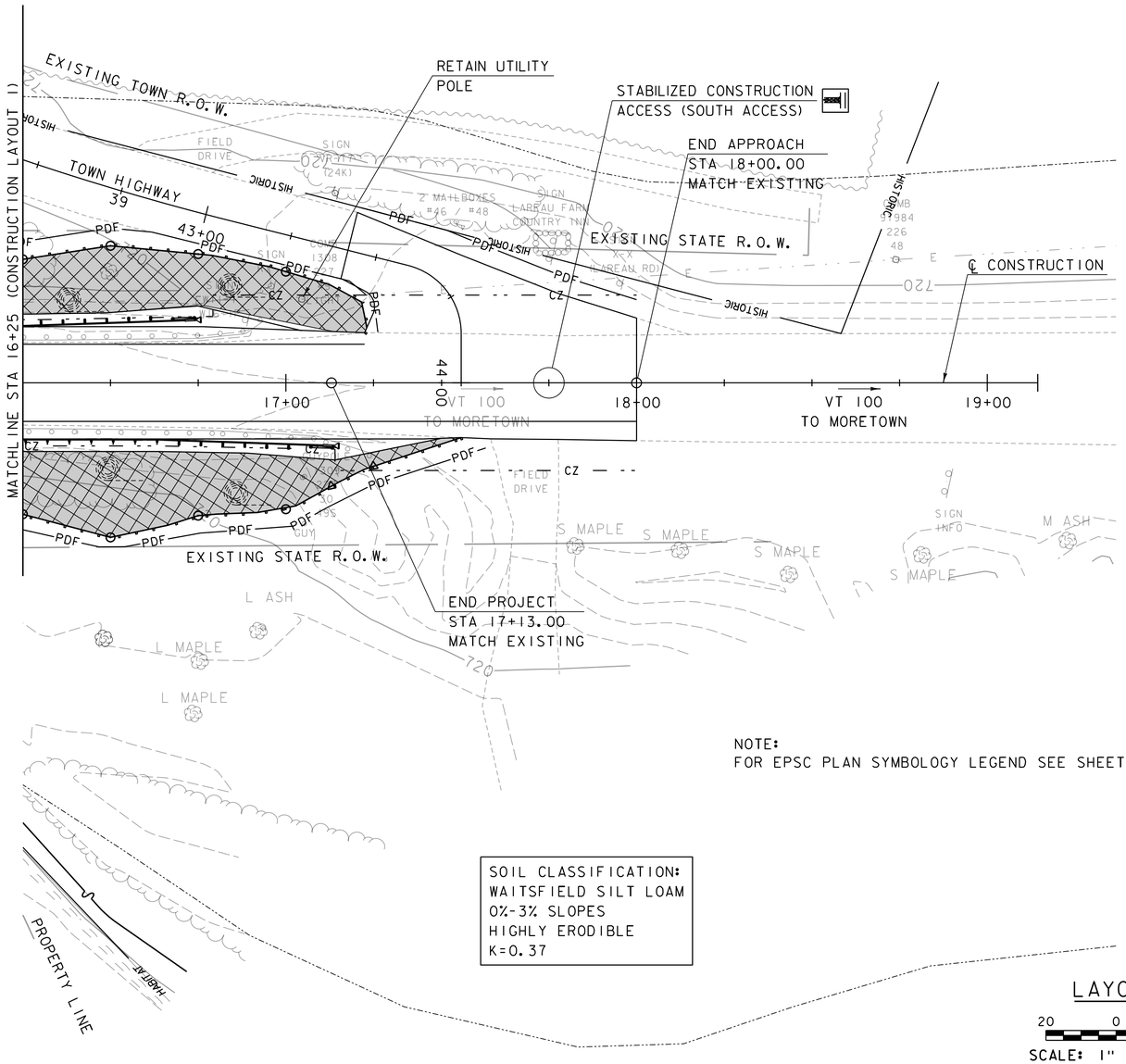
McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12b136bdr_ero.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: J. SANTACRUCE	CHECKED BY: T. KENDRICK
EPSC CONSTRUCTION LAYOUT SHEET 1	SHEET 62 OF 69

VT STATE PLANE GRID

N

SOIL CLASSIFICATION:
WEIDER VERY FINE SANDY LOAM
0%-3% SLOPES
NOT HIGHLY ERODIBLE
K=0.32



NOTE:
FOR EPSC PLAN SYMBOLOGY LEGEND SEE SHEET 11.

SOIL CLASSIFICATION:
WAITSFIELD SILT LOAM
0%-3% SLOPES
HIGHLY ERODIBLE
K=0.37

LAYOUT

20 0 20

SCALE: 1" = 20'-0"

NOTES

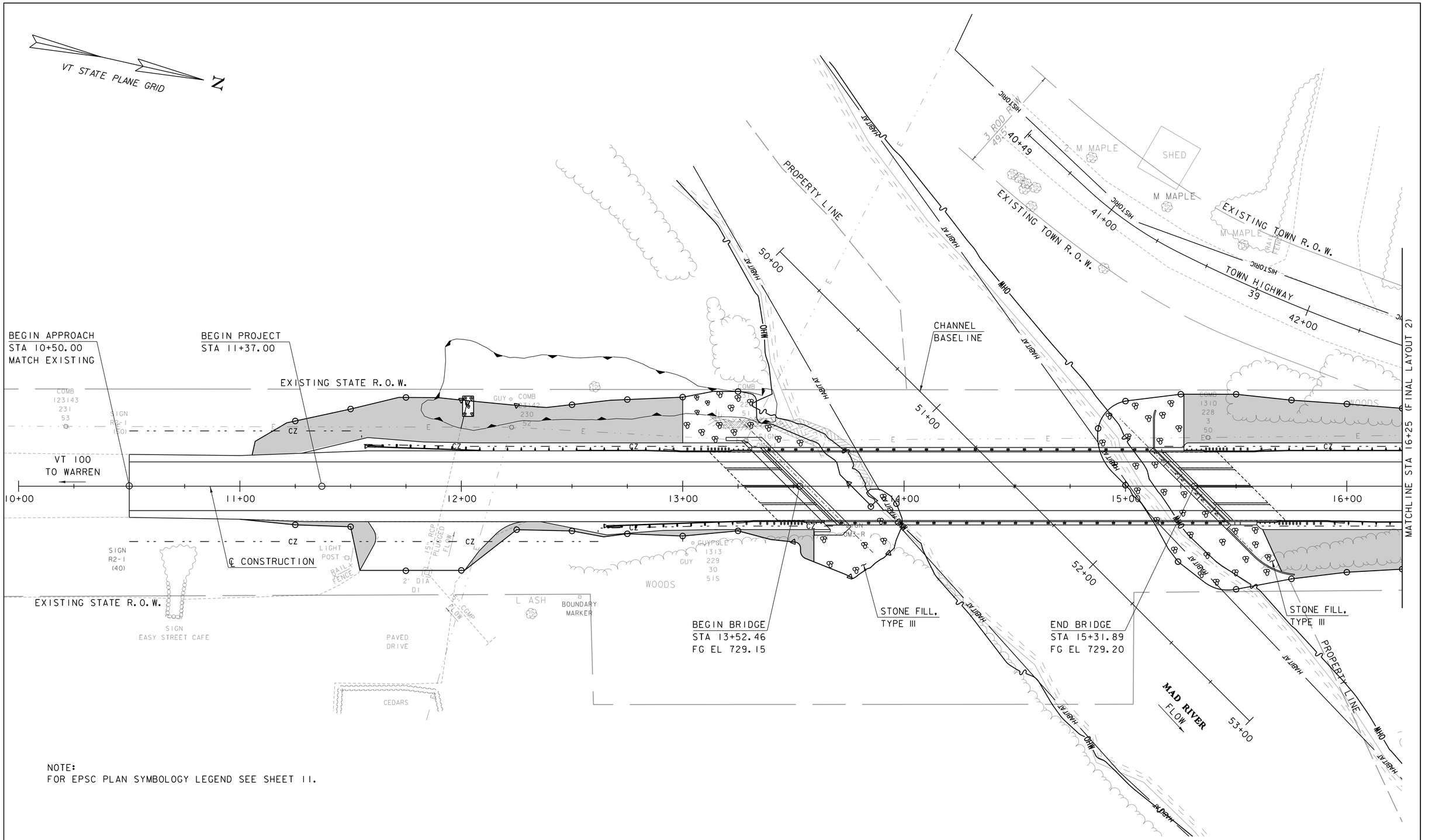
1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBANCE.
2. THESE PLANS SHOW A CONCEPTUAL EROSION CONTROL PLAN, THE CONTRACTOR SHALL SUBMIT A TEMPORARY EROSION CONTROL PLAN FOR APPROVAL. PAYMENT FOR DEVELOPMENT AND MODIFICATIONS TO THE EPSC SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 652.10.
3. TEMPORARY EROSION CONTROL MEASURES ARE CONCEPTUALLY SHOWN. THE CONTRACTOR MAY RELOCATE TEMPORARY MEASURES TO IMPROVE EROSION CONTROL WITH APPROVAL OF THE ENGINEER AND ON SITE COORDINATOR.
4. SILT FENCE SHALL NOT BE INSTALLED ACROSS CONTOURS.
5. THE CONTRACTOR SHALL USE OTHER TEMPORARY EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION OR AS DIRECTED BY THE ENGINEER AND ON SITE COORDINATOR.
6. REFER TO TEMPORARY EROSION CONTROL DETAIL SHEETS FOR ADDITIONAL DETAILS.
7. WHERE LEDGE IS EXPOSED, GRAVEL BAGS MAY BE USED INSTEAD OF FILTER CURTAIN. PAYMENT FOR GRAVEL BAGS WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 649.61 "GEOTEXTILE FOR FILTER CURTAIN".
8. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED. SEE SEEDING FORMULA AND SEEDING NOTES FOR TURF REESTABLISHMENT REQUIREMENTS.
9. MONITORING AND MAINTAINING THE EROSION AND SEDIMENT CONTROL PLAN SHALL BE PER ITEM 652.20, MONITORING EPSC PLAN AND ITEM 652.30, MAINTENANCE OF EPSC PLAN.

McFarland Johnson

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

FILE NAME: z12bl36bdr_ero.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: J. SANTACRUCE
EPSC CONSTRUCTION LAYOUT SHEET 2

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK



NOTE:
FOR EPSC PLAN SYMBOLOGY LEGEND SEE SHEET 11.

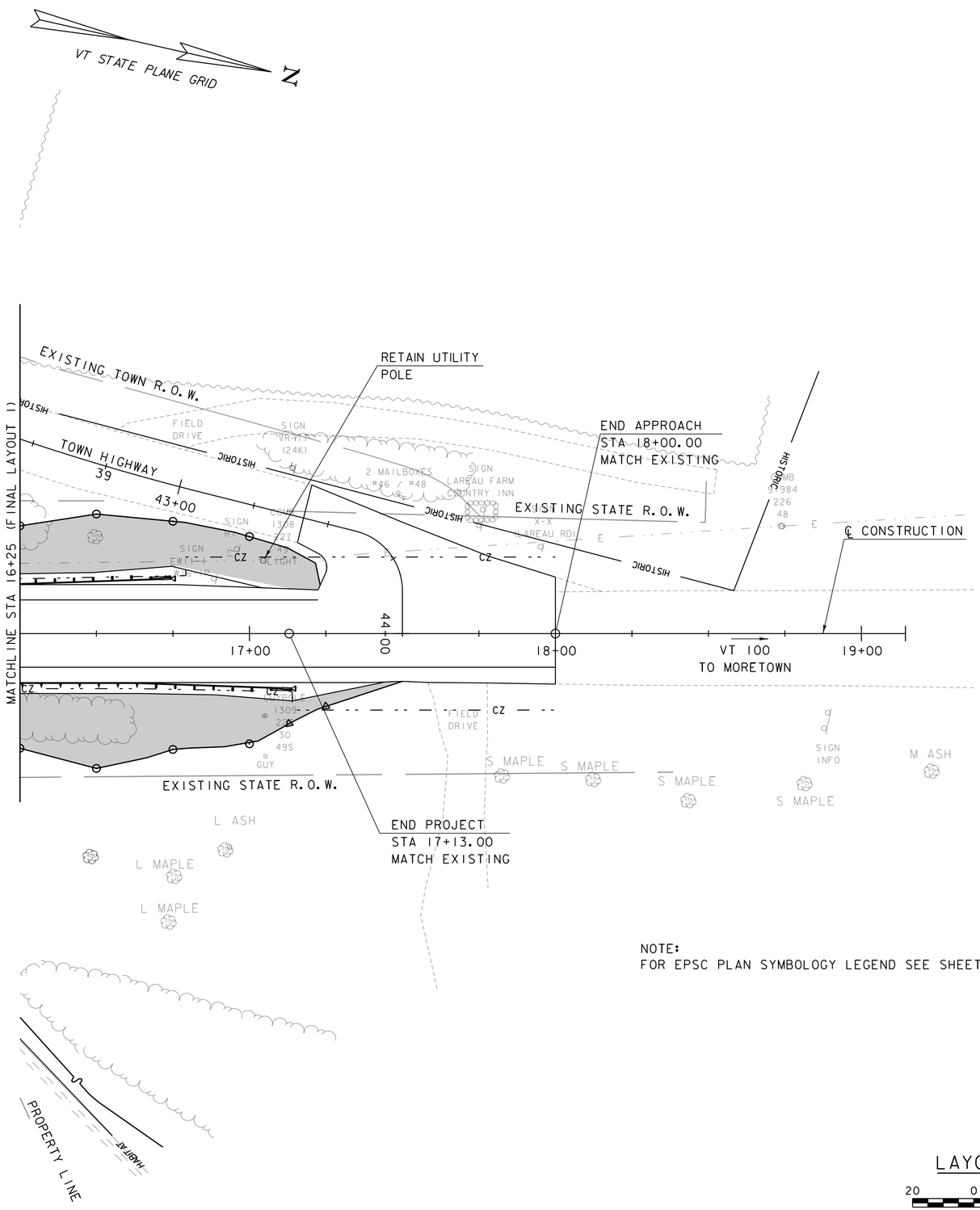
LAYOUT

20 0 20

SCALE: 1" = 20'-0"

McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12bl36bdr_ero.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: P. DUSTIN
DESIGNED BY: D. KULL	CHECKED BY: T. KENDRICK
EPSC FINAL LAYOUT SHEET 1	SHEET 64 OF 69



NOTE:
FOR EPSC PLAN SYMBOLOGY LEGEND SEE SHEET 11.

LAYOUT

20 0 20

SCALE: 1" = 20'-0"

McFarland Johnson

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EPSC FINAL LAYOUT SHEET 2	SHEET 65 OF 69

EPSC LAYOUT PLAN SYMBOLOGY LEGEND

PROJECT BOUNDARY FENCE

- PDF ——— PDF PROJECT DEMARCATION FENCE
- BF —×—×—×— BF BARRIER FENCE

EPSC MEASURES

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

ENVIRONMENTAL RESOURCES

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

ARCHEOLOGICAL & HISTORIC

- ARCHEOLOGICAL BOUNDARY
- HISTORIC DISTRICT BOUNDARY
- HISTORIC AREA
- (H) HISTORIC STRUCTURE

UTILITY SYMBOLOGY

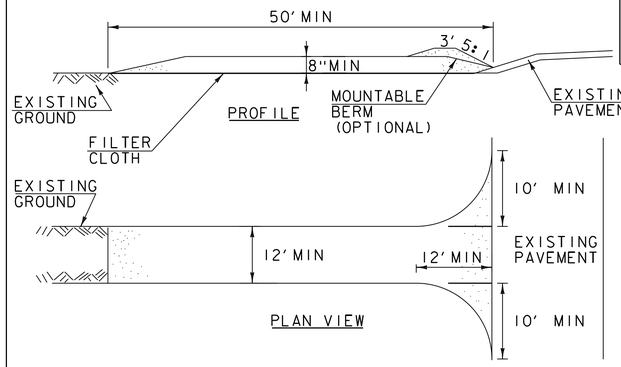
- AER E&T AREAL ELECTRIC & TELEPHONE
- E AREAL ELECTRIC
- UE UNDERGROUND ELECTRIC
- UT UNDERGROUND TELEPHONE
- UC UNDER GROUND TV
- G GAS LINE
- W WATER LINE

CONSTRUCTION FEATURES

- TOE OF SLOPE CUT OR FILL
- STONE FILL, TYPE III
- STONE FILL, TYPE II
- STONE FILL, TYPE I

SYMBOL

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

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

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

STABILIZED CONSTRUCTION ENTRANCE

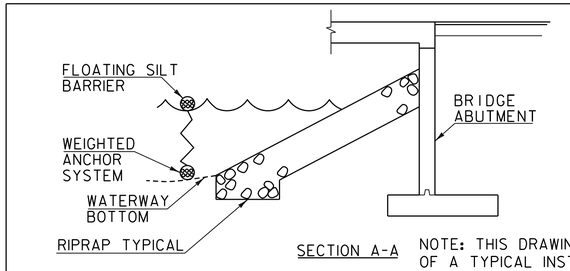
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

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

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

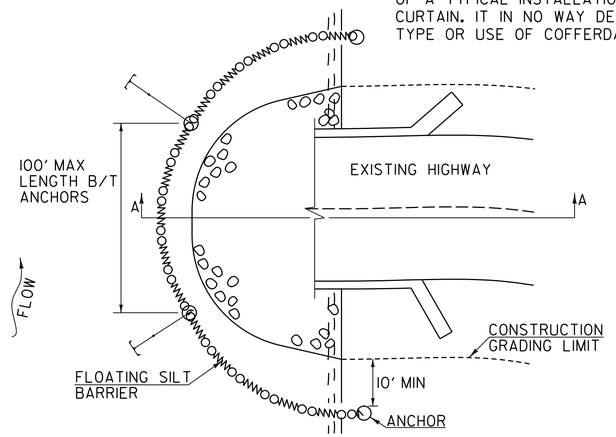
SYMBOL

NOT TO SCALE



SECTION A-A

NOTE: THIS DRAWING IS A DEPICTION OF A TYPICAL INSTALLATION OF FILTER CURTAIN. IT IN NO WAY DEFINES THE TYPE OR USE OF COFFERDAM IF USED.



CONSTRUCTION SPECIFICATIONS

1. FILTER CURTAIN SHALL NOT BE PLACED ACROSS A FLOWING WATERWAY, OR IN A WATERWAY WITH STREAM VELOCITIES GREATER THAN 1.5 FEET/SECOND.
2. MAXIMUM 100' LENGTH BETWEEN ANCHORS.
3. LAST SECTION SHALL TERMINATE A MINIMUM OF 10' BEYOND LIMIT OF DISTURBANCE.
4. THE WEIGHTED ANCHOR SYSTEM SHALL BE A TYPE WHICH ALLOWS THE CURTAIN TO CONFORM TO THE BOTTOM OF THE WATERWAY.
5. THE CURTAIN SHALL BE REMOVED BY SLOWLY PULLING TOWARD THE SHORE MINIMIZING THE ESCAPE OF SEDIMENTS INTO WATERWAY.

FILTER CURTAIN

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 FOR GEOTEXTILE FOR FILTER CURTAIN (PAY ITEM 649.61).

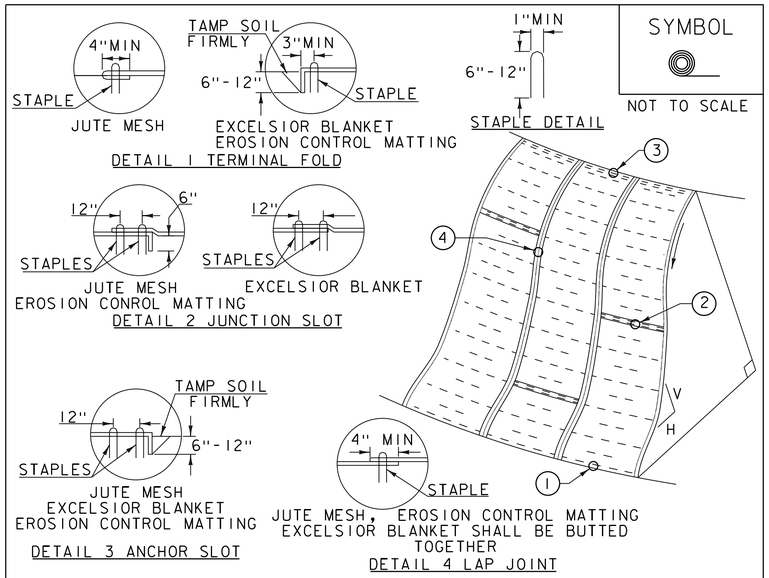
REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF
SEPTEMBER 4, 2009	WHF

McFarland Johnson

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

FILE NAME: z12b136ero_det.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: J. SANTACRUCE
EPSC DETAILS SHEET 1

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 66 OF 69



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

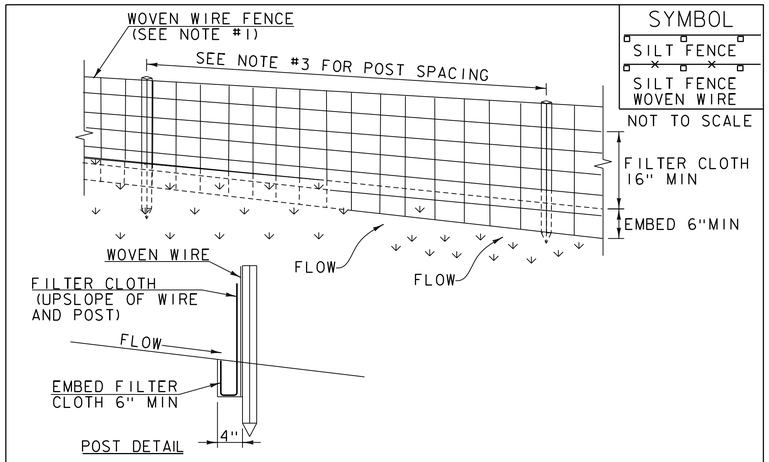
1. APPLY TO SLOPES GREATER THAN 3H: 1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER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

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

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

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

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF



SYMBOL

SILT FENCE

SILT FENCE WOVEN WIRE

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

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

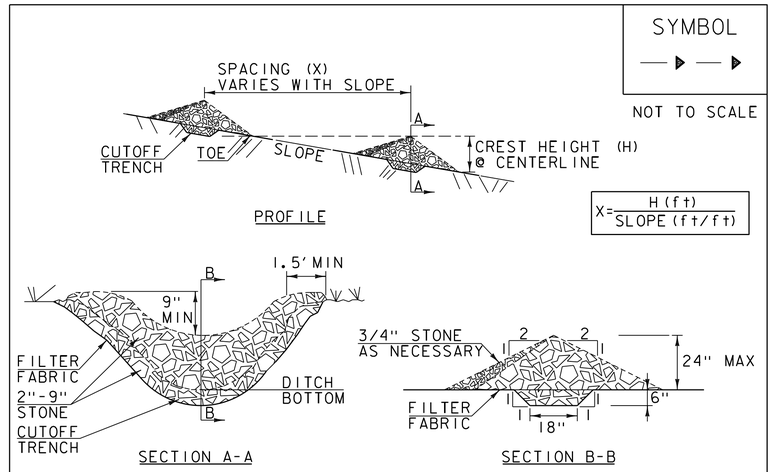
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SILT FENCE

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

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

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



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
7. MAXIMUM DRAINAGE AREA 2 ACRES.

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

CHECK DAM

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

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE I (PAY ITEM 653.25)

REVISIONS	
MARCH 21, 2008	WHF
JANUARY 8, 2009	WHF

McFarland Johnson

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

FILE NAME: z12bl36ero_det.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: J. SANTACRUCE
EPSC DETAILS SHEET 2

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 67 OF 69

VAOT RURAL AREA MIX

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

VAOT URBAN AREA MIX

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

SOIL AMENDMENT GUIDANCE

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

CONSTRUCTION GUIDANCE

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

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

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

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

VAOT LOW GROW/FINE FESCUE MIX

	LBS/AC				
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
38.0%	57.0	95.0	CREEPING RED FESCUE	90%	98%
29.0%	43.5	72.5	SPARTAN HARD FESCUE	85%	95%
15.0%	22.5	37.5	AZAY SHEEP'S FESCUE	87%	95%
15.0%	22.5	37.5	ANNUAL RYEGRASS	90%	95%
3.0%	4.5	7.5	INERTS		
100%	150.0	250.0			

WET AREA MIX

	LBS/AC		NAME	
WEIGHT	BROADCAST	HYDROSEED	COMMON	LATIN
20%	2.0	3.0	VIGINIA WILD RYE GRASS	ELYMUS VIRGINICUS
10%	1.0	1.5	FOX SEDGE	CAREX VULPINOIDEA
20%	2.0	3.0	AMERICAN MANNAGRASS	GLYCERIA GRANDIS
10%	1.0	1.5	GIANT BUR-REED	SPARGANIUM EURYCARPUM
20%	2.0	3.0	COMMON THREE-SQUARE	SCIRPRUS AMERICANUS
10%	1.0	1.5	SOFT-STEM BULRUSH	SCIRPRUS VALIDUS
10%	1.0	1.5	CANADA RUSH	JUNCUS CANADENSIS
100%	10	15		

SOIL AMENDMENT GUIDANCE

FERTILIZER		LIME
BROADCAST	HYDROSEED	BROADCAST
5-10-5	10-20-10	PELLETIZED
500 LBS/AC		2 TONS/AC

CONSTRUCTION GUIDANCE

1. LOW GROW/FINE FESCUE SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LOW GROW AREAS DISTURBED BY THE CONTRACTOR.
2. WET AREA MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED 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. TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
7. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED
8. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

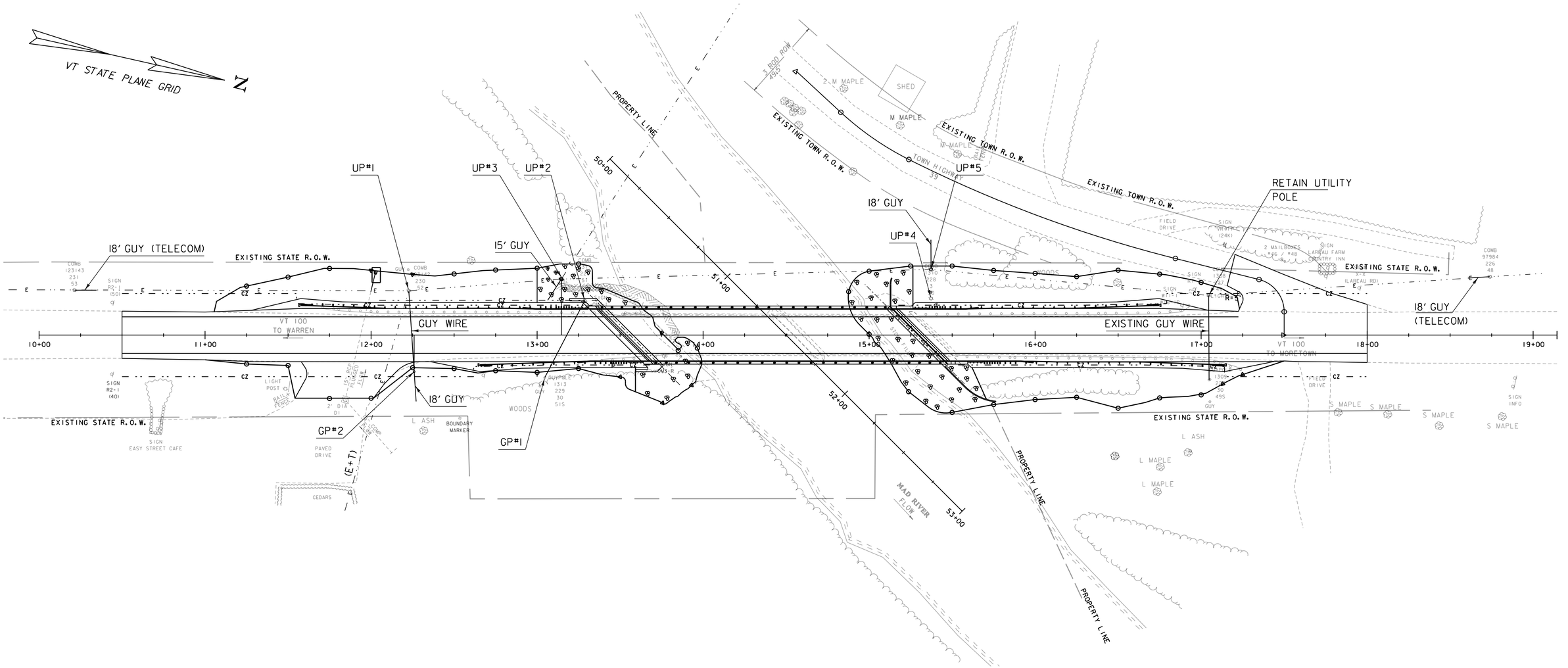
TURF ESTABLISHMENT

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

REVISIONS:	
DEC. 24, 2013	PLB
JAN. 22, 2014	PLB

McFarland Johnson

PROJECT NAME:	WAITSFIELD
PROJECT NUMBER:	BRF 013-4(39)
FILE NAME: z12bl36ero_det.dgn	PLOT DATE: 8/24/2015
PROJECT LEADER: R. YOUNG	DRAWN BY: S. MERKWAN
DESIGNED BY: J. SANTACRUCE	CHECKED BY: T. KENDRICK
EPSC DETAILS SHEET 3	SHEET 68 OF 69



LAYOUT

30 0 30

SCALE: 1" = 30'-0"

MARK	STATION	OFFSET	PHASING	NORTHING	EASTING	REMARKS	POLE NUMBER
UP#1	12+23	26' LT	PRE-CONSTRUCTION	1553141.47	609759.27	REMOVE EXISTING GUYS. ADD SPAN GUY AND DEAD END GUY.	123142/230/52
UP#2	13+28	21' LT	PRE-CONSTRUCTION	1553124.05	609863.93	REMOVE EXISTING UTILITY POLE AND LINES.	1311/229/51
UP#3	13+14	33' LT	PRE-CONSTRUCTION	1553114.43	609847.37	INSTALL NEW UTILITY POLE. ADD NEW GUY. RELOCATE ALL LINES FROM UP#2 to UP#3.	NEW POLE
UP#4	15+37	22' LT	PRE-CONSTRUCTION	1553076.96	610067.21	REMOVE EXISTING UTILITY POLE AND LINES.	1310/228/3/50
UP#5	15+37	40' LT	PRE-CONSTRUCTION	1553059.87	610063.37	INSTALL NEW UTILITY POLE WITH NEW 18' GUY WIRE. RELOCATE ALL LINES FROM UP#4 TO UP#5.	NEW POLE
GP#1	13+04	25' RT	PRE-CONSTRUCTION	1553174.52	609850.64	REMOVE EXISTING GUY POLE AND GUYS.	1313/229/30/51S
GP#2	12+16	22' RT	PRE-CONSTRUCTION	1553188.27	609773.09	INSTALL NEW GUY POLE WITH NEW GUY WIRE TO UP#1, AND NEW 18' SLOPE GUY.	NEW POLE

RIGHT OF WAY NEEDS

1. PERMANENT 12.5' AERIAL TRIM RIGHTS FOR RELOCATED ELECTRICAL LINES.
2. PERMANENT EASEMENT FOR GUY WIRE ATTACHED TO UP#5.
3. PERMANENT ACCESS EASEMENT TO UP#5.
4. PERMANENT AERIAL TRIM RIGHTS FOR RELOCATED ELECTRICAL ACROSS MAD RIVER

McFarland Johnson

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

FILE NAME: z12b136utl.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: D. KULL
UTILITY RELOCATION PLAN

PLOT DATE: 8/24/2015
DRAWN BY: S. MERKWAN
CHECKED BY: T. KENDRICK
SHEET 69 OF 69