STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROPOSED IMPROVEMENT
BRIDGE PROJECT

TOWN OF FAIRFIELD COUNTY OF FRANKLIN

WANZER ROAD (TH 30, CLASS 3) - BRIDGE NO. 48

PROJECT LOCATION: BEGINNING AT A POINT ON TH 30, IN THE TOWN OF FAIRFIELD, LOCATED APPROXIMATELY 1.3 MILES FROM ITS INTERSECTION WITH TH 14 AND EXTENDING 0.10 MILES ON TH 30.

PROJECT DESCRIPTION: REPLACEMENT OF THE EXISTING STRUCTURE WITH A NEW RIGIFIED FRP TUBE ARCH (RFTA) STRUCTURE WITH RELATED CHANNEL AND ROADWAY WORK.

LENGTH OF STRUCTURE: 36.18 FEET = 0.01 MILES
LENGTH OF ROADWAY: 488.82 FEET = 0.09 MILES
LENGTH OF PROJECT: 525.00 FEET = 0.10 MILES

RECORD PLANS

CONTRACTOR: A.L. ST. ONGE CONTRACTOR,INC.– MONTGOMERY, VT

RESIDENT ENGINEER: JOSH HULETT

CONSTRUCTION BEGAN: MAY 28, 2014

CONSTRUCTION COMPLETE: SEPTEMBER 30, 2014

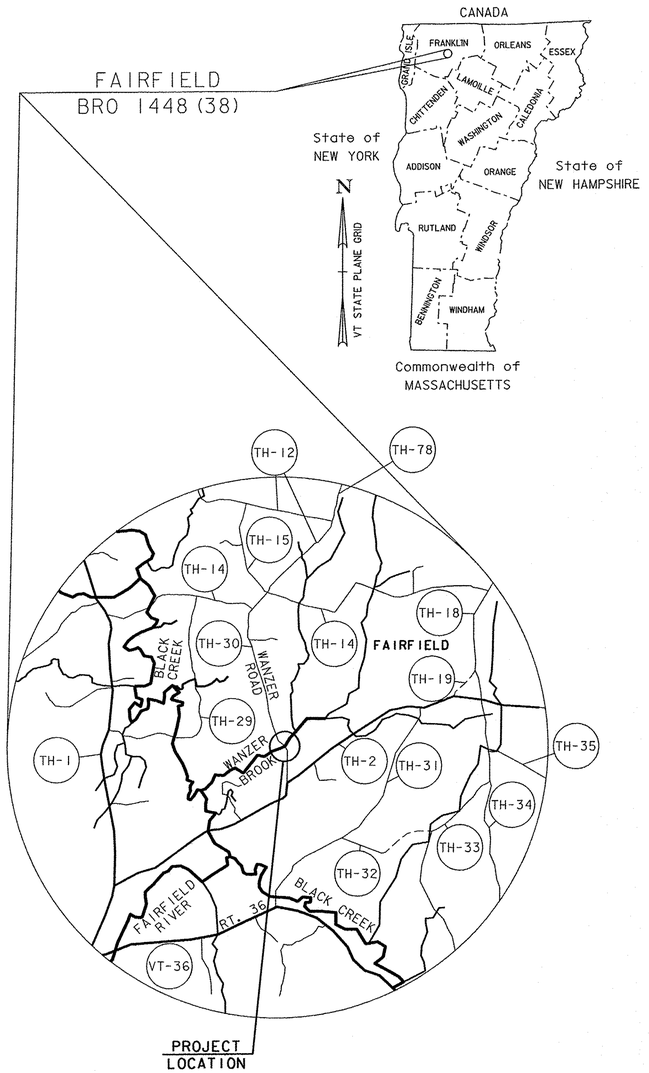
RECORD PLANS BY: JOSH HULETT & AARON JAMES

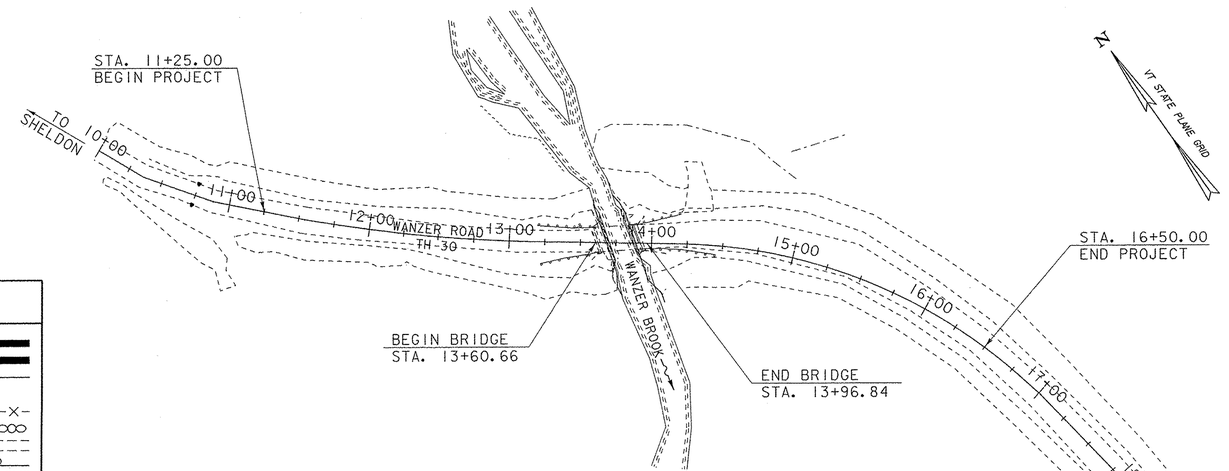
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY Josh Hulett RESIDENT ENGINEER

DATE August 23, 2016

NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.





PLAN
SCALE: 1" = 50'
0 50 100

QUALITY ASSURANCE PROGRAM: LEVEL 2

CONVENTIONAL SYMBOLS

COUNTY LINE	COUNTY LINE
TOWN LINE	TOWN LINE
LIMITS OF ACCESS	
POINT OF ACCESS	X
FENCE LINE	
STONE WALL	
TRAVELED WAY	
GUARD RAIL	
RAILROAD	
SURVEY LINE	
CULVERT	
POWER POLE	
TELEPHONE POLE	
TREES	
CONTROL OF ACCESS	
PROPERTY LINE	
R.O.W. TAKING LINE	
SLOPE RIGHTS	SR SR SR
TOP OF CUT	
TOE OF SLOPE	

SURVEYED BY : VERMONT SURVEY
SURVEYED DATE : MAY 2012

DATUM
VERTICAL NAVD 88 (GEOID09) FT
HORIZONTAL NAD 83 (CORS) sFT

STATE OF VERMONT
THOMAS T. KENDRICK
No. 63070
Civil
LICENSED
PROFESSIONAL ENGINEER
11-01-2013

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.

McFarland Johnson

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED _____ DATE 11-5-13

PROJECT MANAGER : DANNY R. LANDRY, P.E.

PROJECT NAME : FAIRFIELD
PROJECT NUMBER : BRO 1448(38)

SHEET 1 OF 41 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 11.06.15

LRFD

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STANDARDS LIST

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T-40	DELINEATORS AND MILEPOSTS	01-02-2013
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	01-03-2000
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	01-03-2000

STRUCTURES DETAILS

SD-501.00	CONCRETE DETAILS AND NOTES	05-07-2000

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: JUNE 2012

DRAINAGE AREA : 6.82 sq. mi.
CHARACTER OF TERRAIN : HILLY TO MOUNTAINOUS
STREAM CHARACTERISTICS : STRAIGHT WITH LARGE RADIUS BENDS
NATURE OF STREAMBED : RIVER COBBLES WITH BOULDERS

PEAK FLOW DATA

Q 2.33 =	250 cfs	Q 50 =	900
Q 10 =	560	Q 100 =	1,050
Q 25 =	750	Q 500 =	N/A

DATE OF FLOOD OF RECORD : UNKNOWN
ESTIMATED DISCHARGE: UNKNOWN
WATER SURFACE ELEV.: UNKNOWN
NATURAL STREAM VELOCITY : @ Q25 = 5.5 fps NEAR BRIDGE LOCATION
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: < 0.25% HEADWATERS:
UNIFORM: X
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: SINGLE SPAN ROLLED BEAM WITH TIMBER DECK
YEAR BUILT: 1919
CLEAR SPAN(NORMAL TO STREAM): 17'
VERTICAL CLEARANCE ABOVE STREAMBED: 12'
WATERWAY OF FULL OPENING: 250 sq. ft.
DISPOSITION OF STRUCTURE: STRUCTURE REPLACEMENT
TYPE OF MATERIAL UNDER SUBSTRUCTURE: UNKNOWN

WATER SURFACE ELEVATIONS AT:

Q2.33 =	463.8'	VELOCITY =	7.8 fps
Q10 =	465.8'	"	10.0 fps
Q25 =	466.7'	"	10.4 fps
Q50 =	467.4'	"	11.0 fps
Q100 =	468.0'	"	11.6 fps

LONG TERM STREAMBED CHANGES: NONE NOTED

IS THE ROADWAY OVERTOPPED BELOW Q100: NO
FREQUENCY: N/A
RELIEF ELEVATION: 476.6'
DISCHARGE OVER ROAD @Q100: 0

UPSTREAM STRUCTURE

TOWN: FAIRFIELD DISTANCE: 5,200' +/-
HIGHWAY # : S0792 - TH 2 STRUCTURE #: ----
CLEAR SPAN: UNKNOWN CLEAR HEIGHT: ----
YEAR BUILT: UNKNOWN FULL WATERWAY: ----
STRUCTURE TYPE: CULVERT

DOWNSTREAM STRUCTURE

TOWN: FAIRFIELD DISTANCE: 10,700' +/-
HIGHWAY # : TH 29 STRUCTURE #: BR 49
CLEAR SPAN: UNKNOWN CLEAR HEIGHT: UNKNOWN
YEAR BUILT: UNKNOWN FULL WATERWAY: UNKNOWN
STRUCTURE TYPE: UNKNOWN

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE							
INVENTORY							
POSTING							
OPERATING							
COMMENTS:	LOAD RATING TO BE COMPLETED BY FABRICATOR						

PROPOSED STRUCTURE

STRUCTURE TYPE: RIGIFIED FIBER REINFORCED POLYMER TUBULAR ARCH (RFTA)

CLEAR SPAN(NORMAL TO STREAM): 31.3'
VERTICAL CLEARANCE ABOVE STREAMBED: 15.5' AT CREST OF ARCH
WATERWAY OF FULL OPENING: 398 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	464.0'	VELOCITY=	3.2 fps
Q10 =	465.6'	"	4.8 fps
Q25 =	466.2'	"	5.5 fps
Q50 =	466.7'	"	6.1 fps
Q100 =	467.1'	"	6.6 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: NO
FREQUENCY: N/A
RELIEF ELEVATION: 480.7'
DISCHARGE OVER ROAD @Q100: 0

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 474.0' AT CREST OF ARCH
VERTICAL CLEARANCE: @ Q25 = 7.8' AT CREST OF ARCH

SCOUR: CONTRACTION SCOUR CALCULATED AS 0.0 FOR 100-YEAR STORM EVENT
REQUIRED CHANNEL PROTECTION: STONE FILL, TYPE II

PERMIT INFORMATION

AVERAGE DAILY FLOW:	14 cfs	
ORDINARY LOW WATER:	7 cfs	DEPTH = 0.5 FT
ORDINARY HIGH WATER:	107 cfs	DEPTH = 2.0 FT

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: NOT REQUIRED
CLEAR SPAN (NORMAL TO STREAM):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

SEE CHANNEL CROSS SECTIONS FOR ESTIMATED OHW

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:	---
3. DESIGN SPAN	L:	36.18 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	---
5. PRESTRESSING STRAND	f_y:	---
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	---
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11. CONCRETE, CLASS C	f'_c:	---
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	---
14. SOIL UNIT WEIGHT	γ:	0.125 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	22.2 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	---
20. PILE YIELD STRENGTH ASTM A572	f_y:	---
21. PILE SIZE		---
22. EST. PILE LENGTH	L_p:	---
23. PILE RESISTANCE FACTOR	ϕ:	---
24. LATERAL PILE DEFLECTION	Δ:	---
25. BASIC WIND SPEED	V_{3s}:	---
26. MINIMUM GROUND SNOW LOAD	p_g:	---
27. SEISMIC DATA PGA: ---	S_s:	---
	S_1:	---

AS BUILT "REBAR" DETAIL

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

TRAFFIC DATA

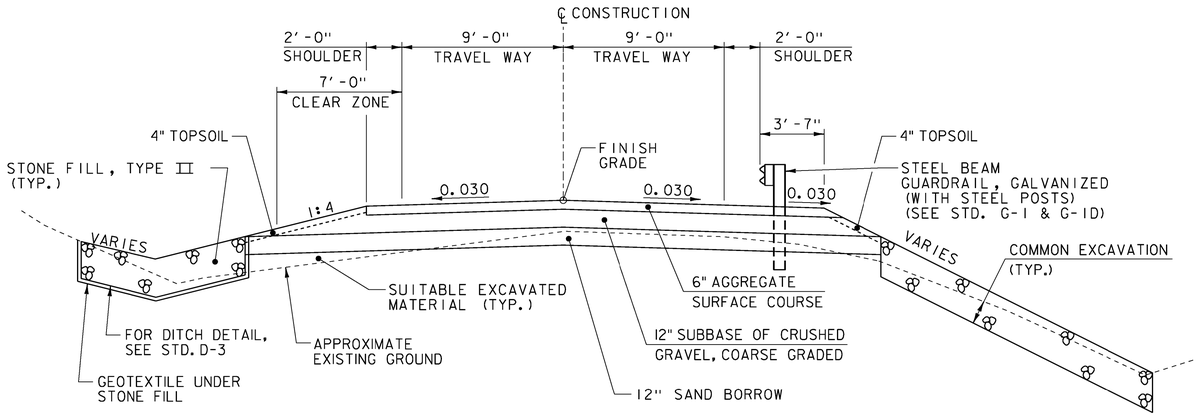
YEAR	ADT	DHV	% D	% T	ADTT
2013	110	25	55	26	25
2033	120	25	55	23	25

20 year ESAL for flexible pavement from 2015 to 2035 : 110000
40 year ESAL for flexible pavement from 2015 to 2055 : 211000
Design Speed : 35 mph

PROJECT NAME: **FAIRFIELD**
PROJECT NUMBER: **BRO 1448(38)**

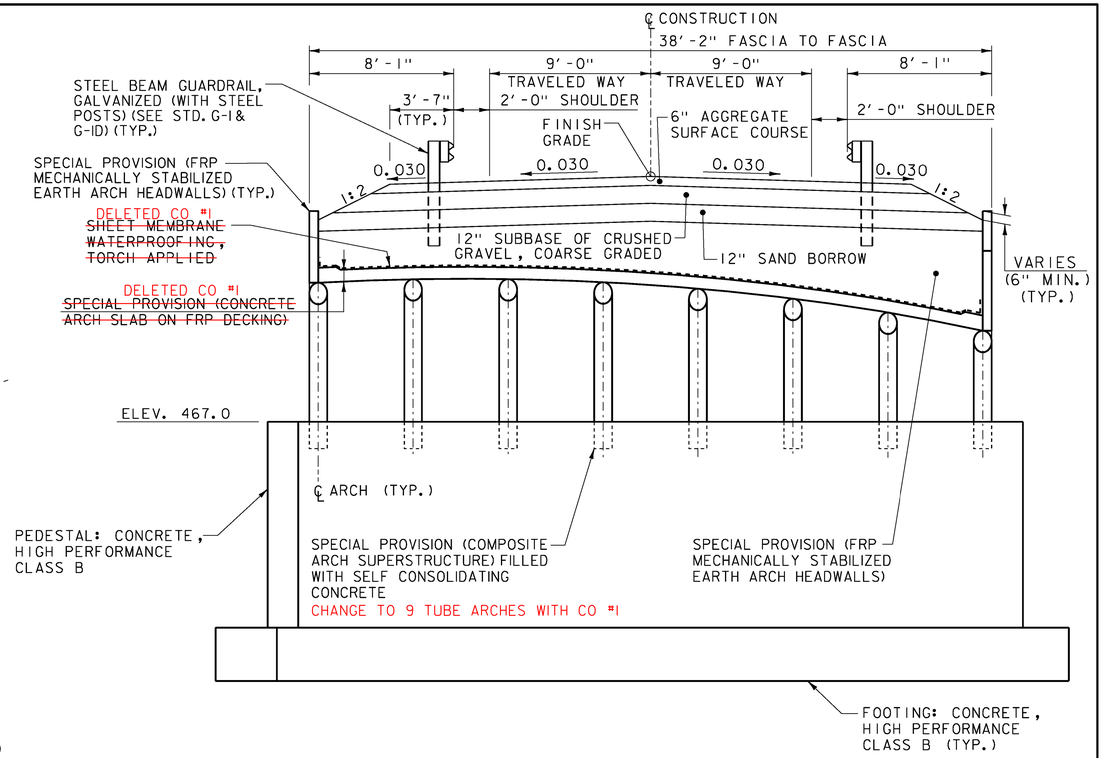
FILE NAME: **z11j072pi_01.xls**
PROJECT LEADER: **D. LANDRY**
DESIGNED BY: **E. ALEXOPOULOS**
PRELIMINARY INFORMATION SHEET

PLOT DATE: 10/30/2013
DRAWN BY: **W. GAYNOR**
CHECKED BY: **T. KENDRICK**



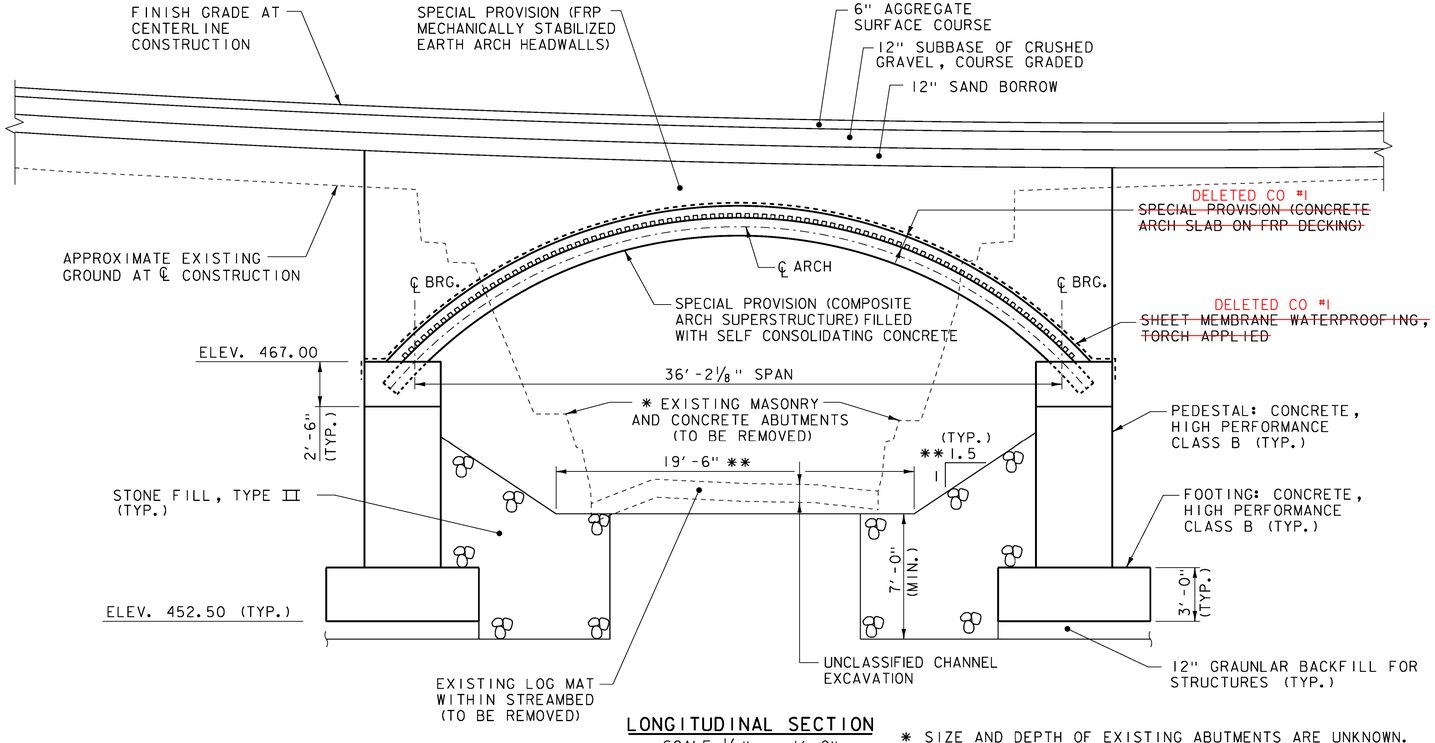
TYPICAL ROADWAY SECTION

SCALE 1/4" = 1'-0"



TYPICAL BRIDGE SECTION (NORMAL TO ℄ CONSTRUCTION)

SCALE 1/4" = 1'-0"



LONGITUDINAL SECTION

SCALE 1/4" = 1'-0"

* SIZE AND DEPTH OF EXISTING ABUTMENTS ARE UNKNOWN. REMOVAL COST INCLUDED IN COFFERDAM EXCAVATION, ROCK.

** DIMENSION AND SLOPE PERPENDICULAR TO CHANNEL BASELINE.

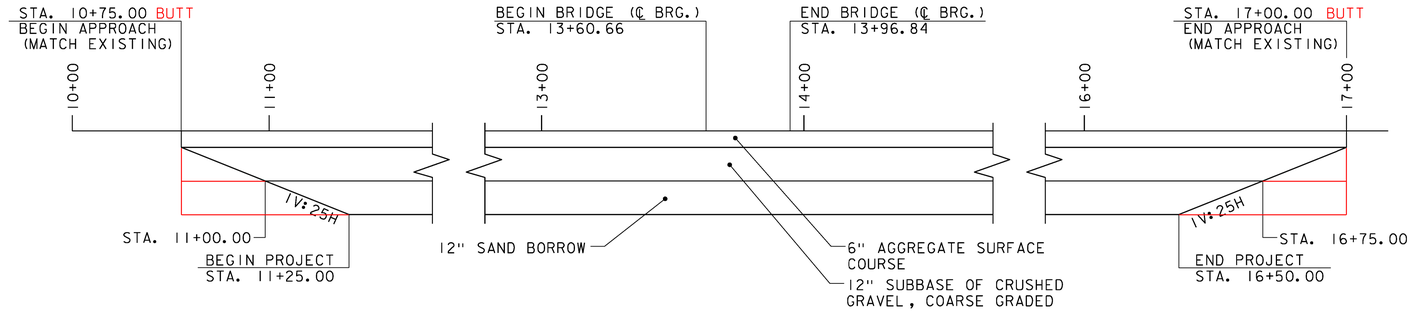
McFarland Johnson

PROJECT NAME: FAIRFIELD

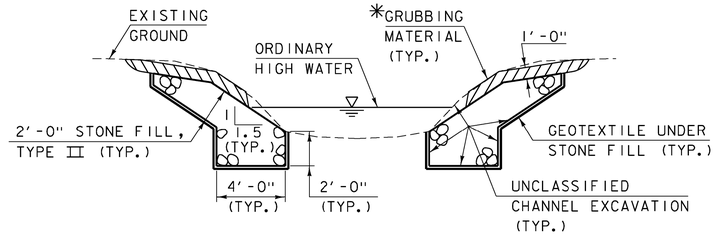
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z1ij072typ.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: E. ALEXOPOULOS
TYPICAL SECTIONS (1 OF 2)

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 3 OF 41

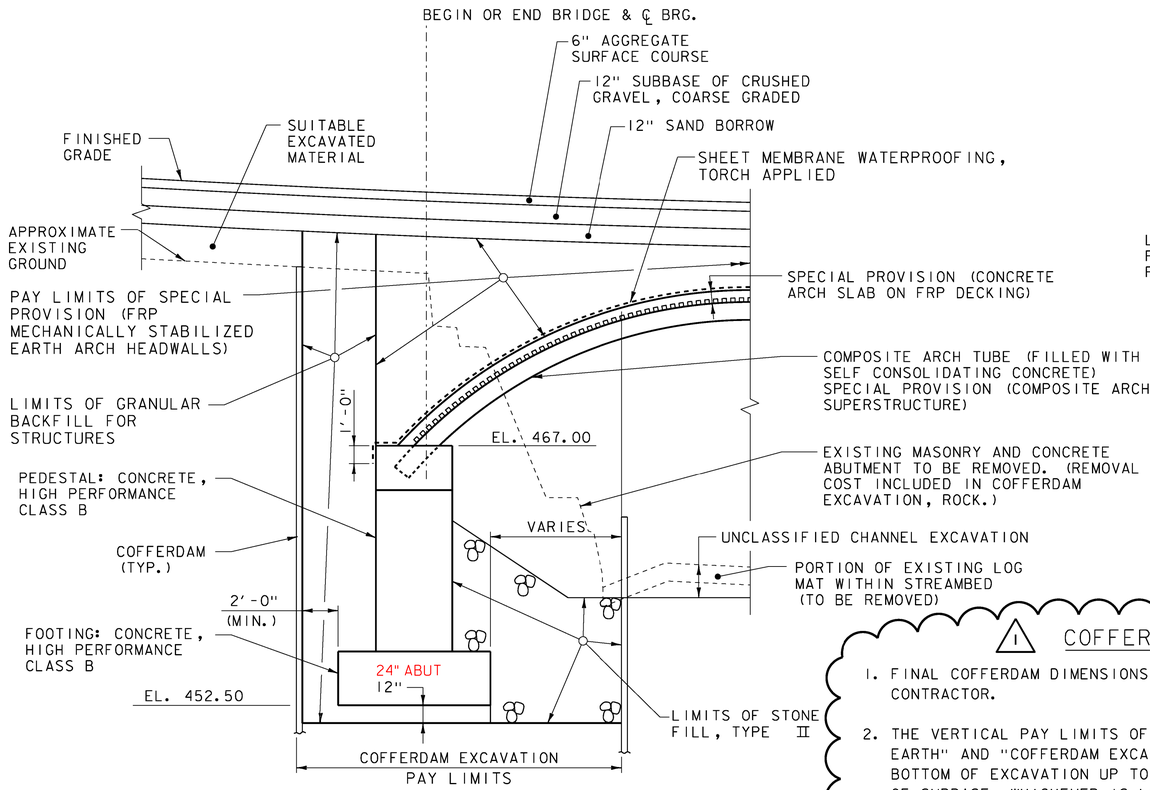


SUBBASE TRANSITION DETAIL
NOT TO SCALE

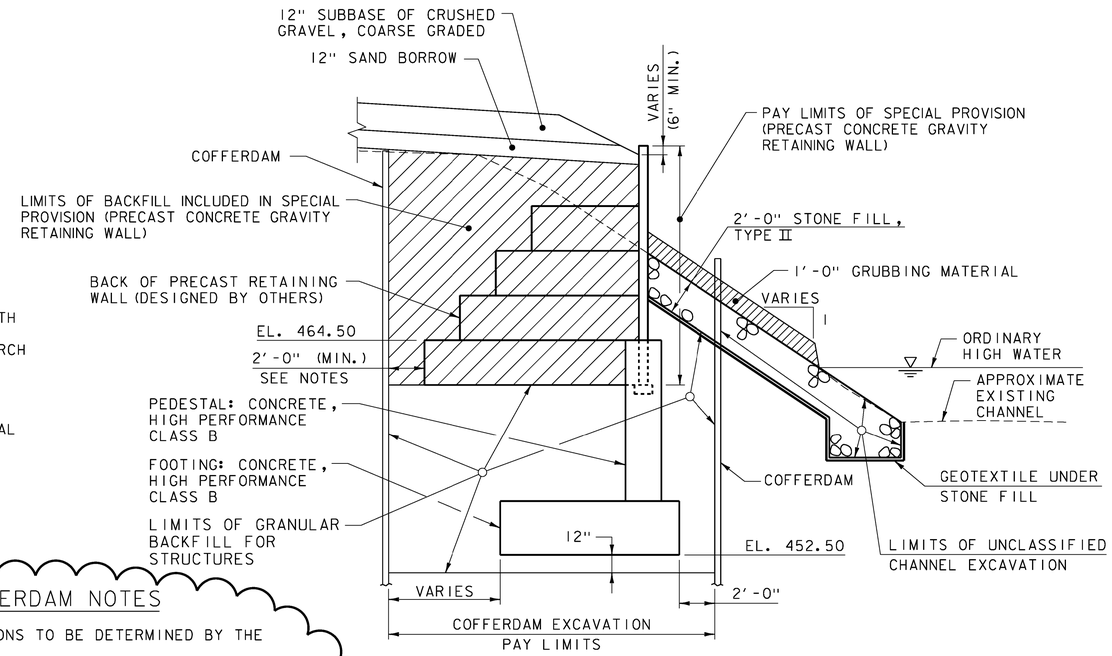


TYPICAL CHANNEL SECTION
NOT TO SCALE

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



TYPICAL ABUTMENT EARTHWORK SECTION
SCALE 1/4" = 1'-0"



TYPICAL WINGWALL EARTHWORK SECTION
SCALE 1/4" = 1'-0"

MATERIAL TOLERANCE TABLE

MATERIAL ITEM	TOLERANCE
AGGREGATE SURFACE COURSE	± 1/2"
SUBBASE	± 1"
SAND BORROW	± 1"

⚠1 COFFERDAM NOTES

1. FINAL COFFERDAM DIMENSIONS TO BE DETERMINED BY THE CONTRACTOR.
2. THE VERTICAL PAY LIMITS OF EITHER "COFFERDAM EXCAVATION, EARTH" AND "COFFERDAM EXCAVATION, ROCK" SHALL BE FROM BOTTOM OF EXCAVATION UP TO THE EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.
3. IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE INDICATED COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION. NO MEASUREMENT AND PAYMENT WILL BE MADE FOR COFFERDAM EXCAVATION AND GRANULAR BACKFILL FOR STRUCTURES OUTSIDE THE PAY LIMITS DETAILED ON SHEET 15.
4. FOR PAY LIMITS OF COFFERDAMS, SEE SHEET 15 AND SUBSTRUCTURE NOTE 4 ON SHEET 5.

REVISIONS AFTER PROPOSAL	
⚠1 COFFERDAM NOTES REVISED	12/13

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11j072exc_01.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: E. ALEXOPOULOS
TYPICAL SECTIONS (2 OF 2)

PLOT DATE: 05-DEC-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 4 OF 41

McFarland Johnson

STATE OF VERMONT
AGENCY OF TRANSPORTATION

GENERAL NOTES

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO 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 FIFTH EDITION, DATED 2010 AND ITS LATEST REVISIONS.
2. DESIGN IS FOR AN HL-93 LIVE LOADING.
3. ITEM 529.15 "REMOVAL OF STRUCTURE" SHALL BE USED FOR THE REMOVAL OF THE EXISTING STEEL GIRDER SUPERSTRUCTURE AND ANY PORTIONS OF THE SUBSTRUCTURE NOT REMOVED UNDER THE ITEM "COFFERDAM EXCAVATION, ROCK".
4. THE EXISTING STEEL GIRDERS TO BE REMOVED ARE PAINTED WITH A MATERIAL THAT MAY CONTAIN LEAD. ALL EXISTING STEEL REMOVED UNDER THIS PROJECT IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR MAY DISPOSE OF THE STEEL OR RETAIN IT FOR FUTURE REUSE. THE CONTRACTOR SHALL INFORM THE RESIDENT ENGINEER OF THE CONTRACTOR'S PLAN FOR THE STEEL PRIOR TO ITS REMOVAL.
5. RECORD PLANS FOR THE EXISTING BRIDGE ARE NOT AVAILABLE.
6. FOR TRAFFIC CONTROL NOTES, SEE SHEET 19.

REINFORCED CONCRETE NOTES

1. REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 507 FOR LEVEL 1 PLAIN REINFORCING AND SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING STEEL INSTITUTE" (CRSI).
2. THE MINIMUM CONCRETE COVER FOR REINFORCING STEEL SHALL BE TWO (2) INCHES ALONG WALL FACES AGAINST EARTH AND THREE (3) INCHES ELSEWHERE, UNLESS NOTED OTHERWISE.
3. REINFORCING PLACEMENT TOLERANCES SHALL BE:
   SPACING: +/- ONE INCH
   CLEARANCE: +/- ONE-QUARTER INCH
4. ALL ABUTMENT CONCRETE SHALL BE CONCRETE, HIGH PERFORMANCE CLASS B.
5. THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT.
6. JOINTS AND SCORE MARKS IN THE CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
7. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH BY 1 INCH UNLESS NOTED OTHERWISE.
8. "WATER REPELLANT, SILANE", SHALL BE APPLIED TO ALL EXPOSED NEW CONCRETE SURFACES.

SUPERSTRUCTURE NOTES

1. ITEM 900.645, SPECIAL PROVISION (COMPOSITE ARCH SUPERSTRUCTURE), SHALL INCLUDE, BUT IS NOT LIMITED TO:

   RIGIFIED FIBER REINFORCED POLYMER TUBULAR ARCHES (RFTA)
   EXPANSIVE SELF CONSOLIDATING CONCRETE (SCC) FILL INSIDE THE TUBES

2. ITEM 900.670, SPECIAL PROVISION (FRP MECHANICALLY STABILIZED EARTH ARCH HEADWALLS), SHALL INCLUDE, BUT IS NOT LIMITED TO:

   VOIDED FRP MSE HEADWALL PANELS
   FRP CURVED FASCIA PLATES
   FRP GEOGRID REINFORCEMENT
   SELECT BACKFILL MATERIAL
   UNDERDRAIN AND DRAINAGE ELEMENTS

3. ITEM 900.645 SPECIAL PROVISION (CONCRETE ARCH SLAB ON FRP DECKING), SHALL INCLUDE, BUT IS NOT LIMITED TO:

   CORRUGATED FRP DECKING
   SLAB REINFORCEMENT
   CONCRETE (ARCH) SLAB

4. THE MANUFACTURER SHALL DESIGN THE BRIDGE SUPERSTRUCTURE, INCLUDING (BUT NOT LIMITED TO) THE COMPOSITE ARCH TUBES, FIBER REINFORCED POLYMER FRP) DECKING, REINFORCED CONCRETE SLAB, AND VOIDED FRP MSE HEADWALLS. THE MANUFACTURER SHALL PROVIDE STAMPED DESIGN CALCULATIONS PREPARED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF VERMONT. THE MANUFACTURER SHALL CONSIDER STRENGTH, STIFFNESS, AND STABILITY OF THE PREFABRICATED ELEMENTS FOR LOADS GENERATED DURING FABRICATION, TRANSPORTATION, ERECTION, CONSTRUCTION OPERATIONS, AND ULTIMATE TRAFFIC CONDITIONS. THE MANUFACTURER SHALL OBTAIN WRITTEN APPROVAL OF THE FABRICATION DRAWINGS FROM THE STRUCTURES ENGINEER PRIOR TO FABRICATION.
5. THE MANUFACTURER SHALL SUPPLY LOAD RATINGS FOR THE SUPERSTRUCTURE BASED ON VERMONT'S SEVEN STANDARD TRUCKS. COMPLETED LOAD RATING TABLE AND CALCULATIONS SHALL BE INCLUDED WITH THE FABRICATION DRAWINGS AND SIGNED, STAMPED AND DATED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF VERMONT.
6. THE CONTRACTOR SHALL FURNISH DETAILS, PROCEDURES, AND CALCULATIONS FOR PLACEMENT OF THE SELF CONSOLIDATING CONCRETE (SCC), INCLUDING (BUT NOT LIMITED TO) STANDPIPES AND SUPPORT FRAMING, FOR APPROVAL BY THE RESIDENT ENGINEER PRIOR TO PLACEMENT OF THE ABUTMENT CLOSURE POUR.
7. FABRICATION DRAWINGS SHALL BE SUBMITTED (5 WEEKS PRIOR TO FABRICATION OF THE SUPERSTRUCTURE) TO THE ENGINEER IN ACCORDANCE WITH STANDARD SPECIFICATION SUBSECTION 105.03(B).
8. THE CONTRACTOR SHALL FOLLOW THE MANUFACTURER'S REQUIREMENTS REGARDING BACKFILL AND COMPACTION LIMITS, PROPERTIES, AND PROCEDURES, INCLUDING RESTRICTIONS OF CONSTRUCTION MACHINERY AND OPERATIONS.
9. LIVE LOAD DEFLECTION SHALL BE LIMITED TO L/1000.

SUBSTRUCTURE NOTES

1. ITEM 900.670, SPECIAL PROVISION (PRECAST CONCRETE GRAVITY RETAINING WALL) (PCGRW) SHALL INCLUDE, BUT IS NOT LIMITED TO:

   PRECAST MODULAR WALL UNITS
   CONCRETE BEARING PADS
   BACKFILL MATERIAL

2. BEARING RESISTANCE FOR PCGRW SHALL BE INVESTIGATED AT THE STRENGTH LIMIT STATE USING FACTORED LOADS AND A FACTORED BEARING RESISTANCE FO 10 KSF FOR WALL SYSTEM BASES FROM 8 TO 20 FEET WIDE. THE BEARING RESISTANCE FACTOR FOR SPREAD FOOTINGS ON SOIL IS 0.45. BASED ON PRESUMPTIVE BEARING RESISTANCE VALUES, A FACTORED BEARING RESISTANCE OF 3 KSF MAY BE USED TO CONTROL SETTLEMENT WHEN ANALYZING THE SERVICE LIMIT STATE ASSUMING A RESISTANCE FACTOR OF 1.0.
3. THE ABUTMENT WINGWALL PEDESTALS WERE DESIGNED TO ACT INDEPENDENTLY OF THE PRECAST CONCRETE GRAVITY RETAINING WALLS AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL SUBMIT RETAINING WALL DETAILS AND DESIGN CALCULATIONS FOR THE PRECAST CONCRETE GRAVITY RETAINING WALLS, STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT. CONSTRUCTION OF THE ABUTMENTS SHALL NOT BE PERMITTED UNTIL THE PRECAST CONCRETE GRAVITY RETAINING WALL STRUCTURAL DESIGN HAS BEEN APPROVED BY THE STRUCTURES ENGINEER.
4. THE COFFERDAM LAYOUT DEPICTED IN THE PLANS ON THE EPSC SHEETS INCLUDES ALL CHANNEL WORK, ABUTMENT REMOVAL, AS WELL AS ABUTMENT AND PRECAST CONCRETE GRAVITY RETAINING WALL CONSTRUCTION.
5. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT THE SPREAD FOOTING ABUTMENTS ARE FOUNDED ON SOILS THAT ARE HIGHLY SENSITIVE TO MOISTURE AND WILL REQUIRE LIMITING DISTURBANCE. COFFERDAMS SHALL BE INSTALLED DEEP ENOUGH BELOW THE BOTTOM OF EXCAVATION LEVEL TO CONTROL LATERAL SEEPAGE AND PIPING SO THAT FOUNDATION SUBGRADE IS STABLE, AS DETERMINED BY THE RESIDENT ENGINEER.

McFarland Johnson

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11j072gen.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: E. ALEXOPOULOS
GENERAL NOTES

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 5 OF 41

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES

EROSION CONTROL	ROADWAY	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
	1			1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	
	1600			1600		CY	COMMON EXCAVATION	203.15	
		180		180		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	
	820			820		CY	SAND BORROW	203.31	
	21			21		CY	TRENCH EXCAVATION OF EARTH	204.20	
	1			1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	
		1040		1040		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	
		1785		1785		CY	COFFERDAM EXCAVATION, EARTH	208.30	
		450		450		CY	COFFERDAM EXCAVATION, ROCK	208.35	
		1		1		LS	COFFERDAM (ABUTMENT NO. 1)	208.40	
		1		1		LS	COFFERDAM (ABUTMENT NO. 2)	208.40	
	900			900		CY	SUBBASE OF CRUSHED GRAVEL, COARSE GRADED	301.25	
	300			300		CY	AGGREGATE SURFACE COURSE	401.10	
		314		314		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34	
		29176		29176		LB	REINFORCING STEEL, LEVEL I	507.11	
		5		5		GAL	WATER REPELLENT, SILANE	514.10	
		225		225		~~SY~~	~~SHEET MEMBRANE WATERPROOFING, TORCH APPLIED~~ DELETED CO #1	519.20	
		1		1		EACH	REMOVAL OF STRUCTURE (575 SF - EST.)	529.15	
	31			31		LF	18" CPEP	601.0915	
	1			1		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25	
	800	440		1240		CY	STONE FILL, TYPE II	613.11	
	165			165		LF	REMOVING AND RESETTING FENCE	620.50	
	444			444		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20	
	4			4		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60	
	166			166		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	
	60			60		LF	TEMPORARY TRAFFIC BARRIER	621.90	
	32			32		HR	FLAGGERS	630.15	
			1	1		LS	FIELD OFFICE, ENGINEERS	631.10	
			1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16	
			3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26	
	1			1		LS	MOBILIZATION/DEMOBILIZATION	635.11	
	1			1		LS	TRAFFIC CONTROL	641.10	
	2050	750		2800		SY	GEOTEXTILE UNDER STONE FILL	649.31	
100				100		SY	GEOTEXTILE FOR SILT FENCE	649.51	
50				50		LB	SEED	651.15	
110				110		LB	FERTILIZER	651.18	
0.5				0.5		TON	AGRICULTURAL LIMESTONE	651.20	
0.5				0.5		TON	HAY MULCH	651.25	
10				10		CY	TOPSOIL	651.35	
		440		440		SY	GRUBBING MATERIAL	651.40	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		EARTHWORK SUMMARY
		FILL AVAILABLE
1600	CY	COMMON EXCAVATION (1600 x 1.0)
54	CY	UNCLASSIFIED CHANNEL EXCAVATION (180 x 0.3)
1339	CY	COFFERDAM EXCAVATION, EARTH (1785 x 0.75)
7	CY	ROUNDING
3000	**CY**	**TOTAL FILL AVAILABLE**
		FILL REQUIRED
640	CY	PLANIMETERED FILL
736	CY	FACTORED FILL (640 x 1.15)
14	CY	ROUNDING
750	**CY**	**TOTAL FILL REQUIRED**
2250	**CY**	**TOTAL WASTE**

McFarland Johnson

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11j072qty.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: T. TRAVER
QUANTITY SHEET (1 OF 2)

PLOT DATE: 12-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 6 OF 41

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
			EROSION CONTROL		ROADWAY		BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
			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				
			1055						1055		SY	TEMPORARY EROSION MATTING	653.20				
			80						80		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
			2						2		EACH	FILTER BAG	653.45				
			1225						1225		LF	PROJECT DEMARCATION FENCE	653.55				
					2				2		EACH	REMOVING SIGNS	675.50				
					6				6		EACH	DELINEATOR WITH FLEXIBLE POST	676.20				
							1		1		LS	SPECIAL PROVISION (COMPOSITE ARCH SUPERSTRUCTURE)	900.645				
							1		1		~~LS~~	~~SPECIAL PROVISION (CONCRETE ARCH SLAB ON FRP DECKING)~~ DELETED CO #1	900.645				
							530		530		SF	SPECIAL PROVISION (FRP MECHANICALLY STABILIZED EARTH ARCH HEADWALLS)	900.670				
							1075		1075		SF	SPECIAL PROVISION (PRECAST CONCRETE GRAVITY RETAINING WALL)	900.670				

McFarland Johnson

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11j072qty.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: T. TRAVER
QUANTITY SHEET (2 OF 2)

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 7 OF 41

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES			TOTALS	DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
SUPER-STRUCTURE	ABUTMENT NO. 1	ABUTMENT NO. 2	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS
	90	90	180	CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27			
	560	480	1040	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30			
	960	825	1785	CY	COFFERDAM EXCAVATION, EARTH	208.30			
	240	210	450	CY	COFFERDAM EXCAVATION, ROCK	208.35			
	1		1	LS	COFFERDAM (ABUTMENT NO. 1)	208.40			
		1	1	LS	COFFERDAM (ABUTMENT NO. 2)	208.40			
	166	148	314	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34			
	15167	14009	29176	LB	REINFORCING STEEL, LEVEL I	507.11			
	3	2	5	GAL	WATER REPELLENT, SILANE	514.10			
225			225	~~SY~~	~~SHEET MEMBRANE WATERPROOFING, TORCH APPLIED~~ DELETED CO #1	519.20			
1			1	EACH	REMOVAL OF STRUCTURE (575 SF - EST.)	529.15			
	220	220	440	CY	STONE FILL, TYPE II	613.11			
	350	400	750	SY	GEOTEXTILE UNDER STONE FILL	649.31			
	200	240	440	SY	GRUBBING MATERIAL	651.40			
1			1	LS	SPECIAL PROVISION (COMPOSITE ARCH SUPERSTRUCTURE)	900.645			
1			1	~~LS~~	~~SPECIAL PROVISION (CONCRETE ARCH SLAB ON FRP DECKING)~~ DELETED CO #1	900.645			
530			530	SF	SPECIAL PROVISION (FRP MECHANICALLY STABILIZED EARTH ARCH HEADWALLS)	900.670			
	603	472	1075	SF	SPECIAL PROVISION (PRECAST CONCRETE GRAVITY RETAINING WALL)	900.670			

McFarland Johnson

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11j072qty.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: T. TRAVER
BRIDGE QUANTITY SHEET

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 8 OF 41

GPS/NGS CONTROL POINTS

ST ALBANS CORS ARP

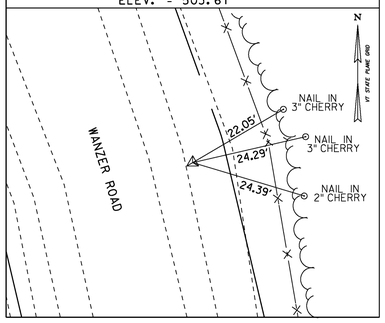
PID DJ8959
N = 842210.22
E = 1489218.53
ELLIP HEIGHT = 480.184

STATION IS A GPS CONTINOUSLY OPERATING REFERENCE STATION. STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA. LOCATED AT THE BELLOWS FREE ACADEMY IN ST. ALBANS, THE MONUMENT IS ATTACHED TO A TWO STORY CONCRETE/BRICK BUILDING WITH A 10 FT CONCRETE FOUNDATION BUILT IN THE MID 1960's. THE MAST IS A 1.75 INCH DIA. GALV. PIPE THAT IS 108 INCHES LONG. THE MAST IS ATTACHED TO A STEEL MOUNTING FRAME WITH THREE ATTACHMENTS CONSISTING OF 3/8 INCH SS THROUGH BOLTS. THE MOUNTING FRAME IS ATTACHED TO THE BUILDING USING 8 ATTACHMENT POINTS. THE TOP 4 ARE 1/2 INCH SS BOLTS SECURED TO THE BRICK OR CONC WITH LEAD ANCHORS. THE BOTTOM 4 ATTACHMENTS ARE TROUGH BOLTED AND CONSIST OF 1/2 INCH SS THREADED ROD AND NUTS.

TRAVERSE TIES

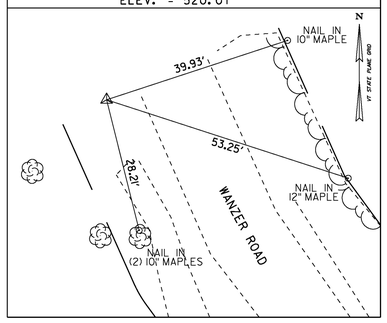
HVCTRL #1 5/8"REBAR SET FLUSH W/ YELLOW VSE CONTROL CAP

NORTH = 849663.47
EAST = 1534738.83
ELEV. = 503.61



HVCTRL #2 5/8"REBAR SET FLUSH W/ YELLOW VSE CONTROL CAP

NORTH = 850123.16
EAST = 1534278.32
ELEV. = 520.01



* MAIN TRAVERSE COMPLETED: MAY 2, 2012 BY VSE, T. CATTANEO-PC, T. COMSTOCK

ALIGNMENT COORD

ALIGNMENT COORDINATES

WANZER ROAD TH 30				CHANNEL - WANZER BROOK			
	STATION	NORTHING	EASTING		STATION	NORTHING	EASTING
POB	10+00.00	850128.0944	1534291.7556	POB	200+00.00	849783.2935	1534503.8874
PI	10+36.60	850094.6860	1534306.6978	POE	202+00.00	849975.2278	1534560.1124
BEGIN APPROACH	10+75.00	850063.3121	1534328.8431				
PI	10+88.54	850052.2463	1534336.6538				
PI	11+54.29	850004.7730	1534382.1436				
PC	11+60.15	850000.6590	1534386.3094				
PT	13+22.20	849895.6804	1534509.5659				
PC	14+19.88	849837.9889	1534588.3887				
PT	16+81.59	849624.3569	1534729.9779				
END APPROACH	17+00.00	849606.4424	1534734.2034				
PI	17+00.17	849605.6933	1534734.3801				
PI	17+72.26	849535.0652	1534745.4735				
POE	18+19.91	849487.6476	1534750.1072				

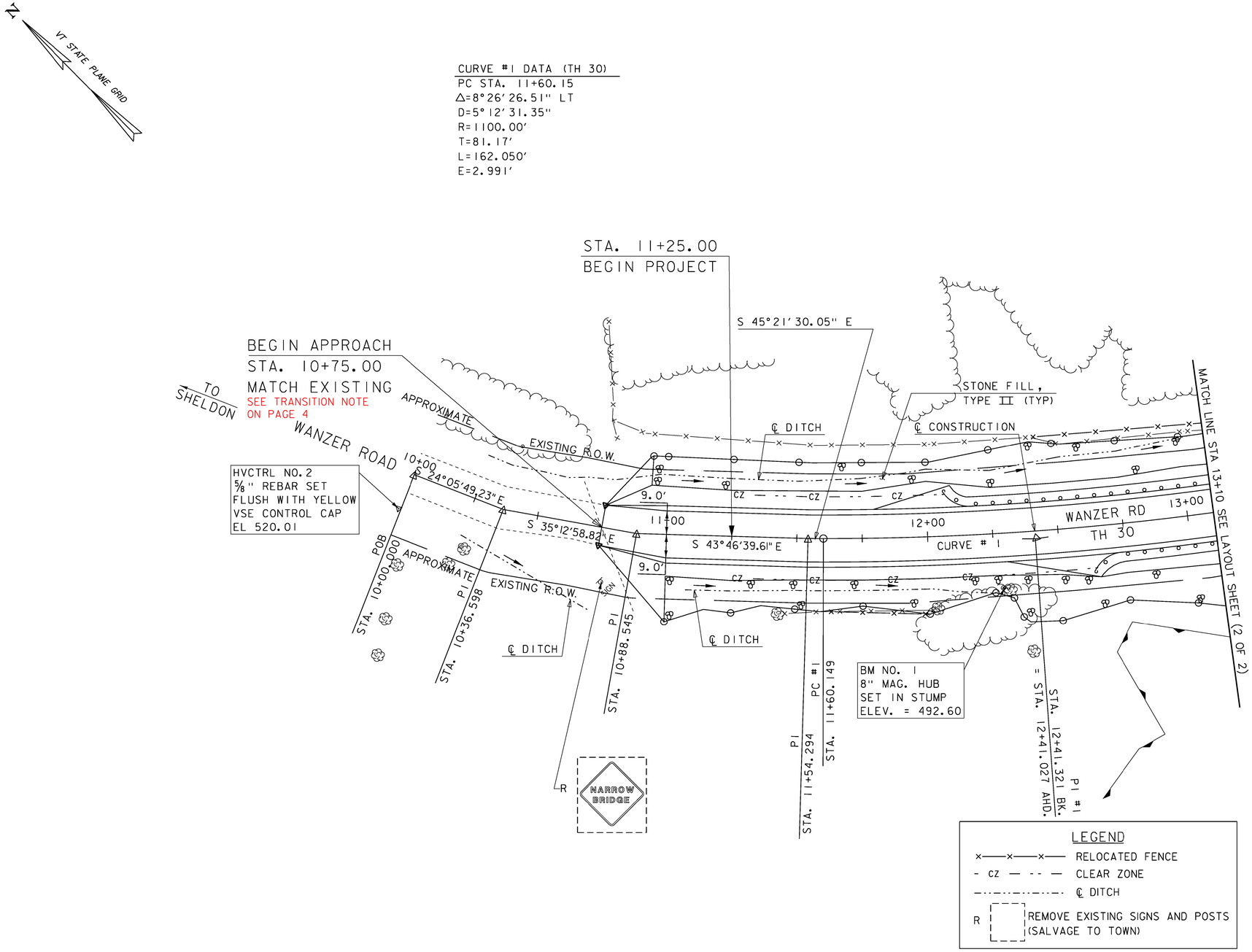
DATUM
VERTICAL NAVD 88(GEOID09) FT
HORIZONTAL NAD 83(CORS) sFT
ADJUSTMENT LSQ

VERMONT SURVEY AND ENGINEERING

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11J072tie_01.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: VSE
TIE SHEET

PLOT DATE: 01-NOV-2013
DRAWN BY: VSE
CHECKED BY: VSE
SHEET 9 OF 41



REMOVING AND RESETTING FENCE

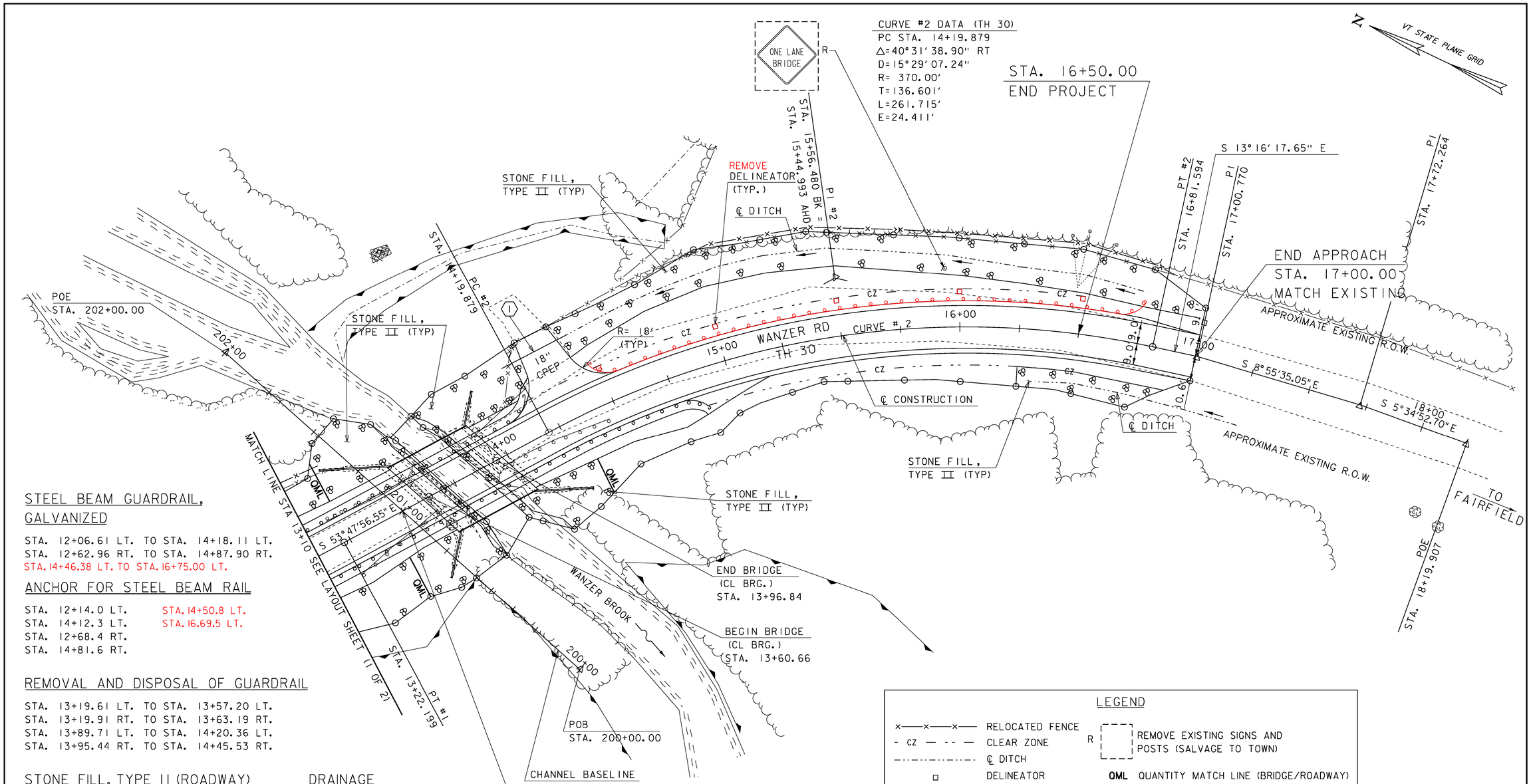
STA. 12+41.00 LT. TO STA. 13+68.00 LT.
STA. 11+61.00 RT. TO STA. 12+00.00 RT.

LAYOUT SHEET 1

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

McFarland Johnson

PROJECT NAME: FAIRFIELD	
PROJECT NUMBER: BRO 1448(38)	
FILE NAME: z11J072bdr_nu_01	PLOT DATE: 01-NOV-2013
PROJECT LEADER: D. LANDRY	DRAWN BY: M. VALLETTA
DESIGNED BY: M. VALLETTA	CHECKED BY: T. KENDRICK
LAYOUT SHEET (1 OF 2)	SHEET 10 OF 41



STEEL BEAM GUARDRAIL, GALVANIZED

STA. 12+06.61 LT. TO STA. 14+18.11 LT.
STA. 12+62.96 RT. TO STA. 14+87.90 RT.
STA. 14+46.38 LT. TO STA. 16+75.00 LT.

ANCHOR FOR STEEL BEAM RAIL

STA. 12+14.0 LT. STA. 14+50.8 LT.
STA. 14+12.3 LT. STA. 16.69.5 LT.
STA. 12+68.4 RT.
STA. 14+81.6 RT.

REMOVAL AND DISPOSAL OF GUARDRAIL

STA. 13+19.61 LT. TO STA. 13+57.20 LT.
STA. 13+19.91 RT. TO STA. 13+63.19 RT.
STA. 13+89.71 LT. TO STA. 14+20.36 LT.
STA. 13+95.44 RT. TO STA. 14+45.53 RT.

STONE FILL, TYPE II (ROADWAY)

STA. 11+00.00 LT. TO STA. 13+25.00 LT.
STA. 11+00.00 RT. TO STA. 13+43.00 RT.
STA. 14+36.99 LT. TO STA. 17+00.00 LT
STA. 16+25.00 RT. TO STA. 16+90.00 RT.

STONE FILL, TYPE II (BRIDGE)

STA. 13+25.00 LT. TO STA. 14+25.00 LT
STA. 13+43.00 RT. TO STA. 14+34.00 RT.

REMOVING AND RESETTING FENCE

STA. 14+19.69 LT. TO STA. 14+25.00 LT.
STA. 14+96.00 LT. TO STA. 14+34.00 LT.

DRAINAGE

① STA. 14+15.1, 33.0' LT. TO
STA. 14+44.0, 33.4' LT.
CONSTRUCT 31 LF x 18" CPEP
INVERT IN = EL. 474.36
INVERT OUT = EL. 473.34

CONSTRUCT GRAVEL DRIVE

STA. 14+31 LT.

DELINEATOR WITH FLEXIBLE POST

~~STA. 14+50 LT. TO STA. 17+00 LT.~~
~~(SPACED AT 50 FEET)~~

REMOVAL AND DISPOSAL OF DELINEATOR

STA. 14+50 LT. TO STA. 17+00 LT.

LAYOUT SHEET 2

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

LEGEND

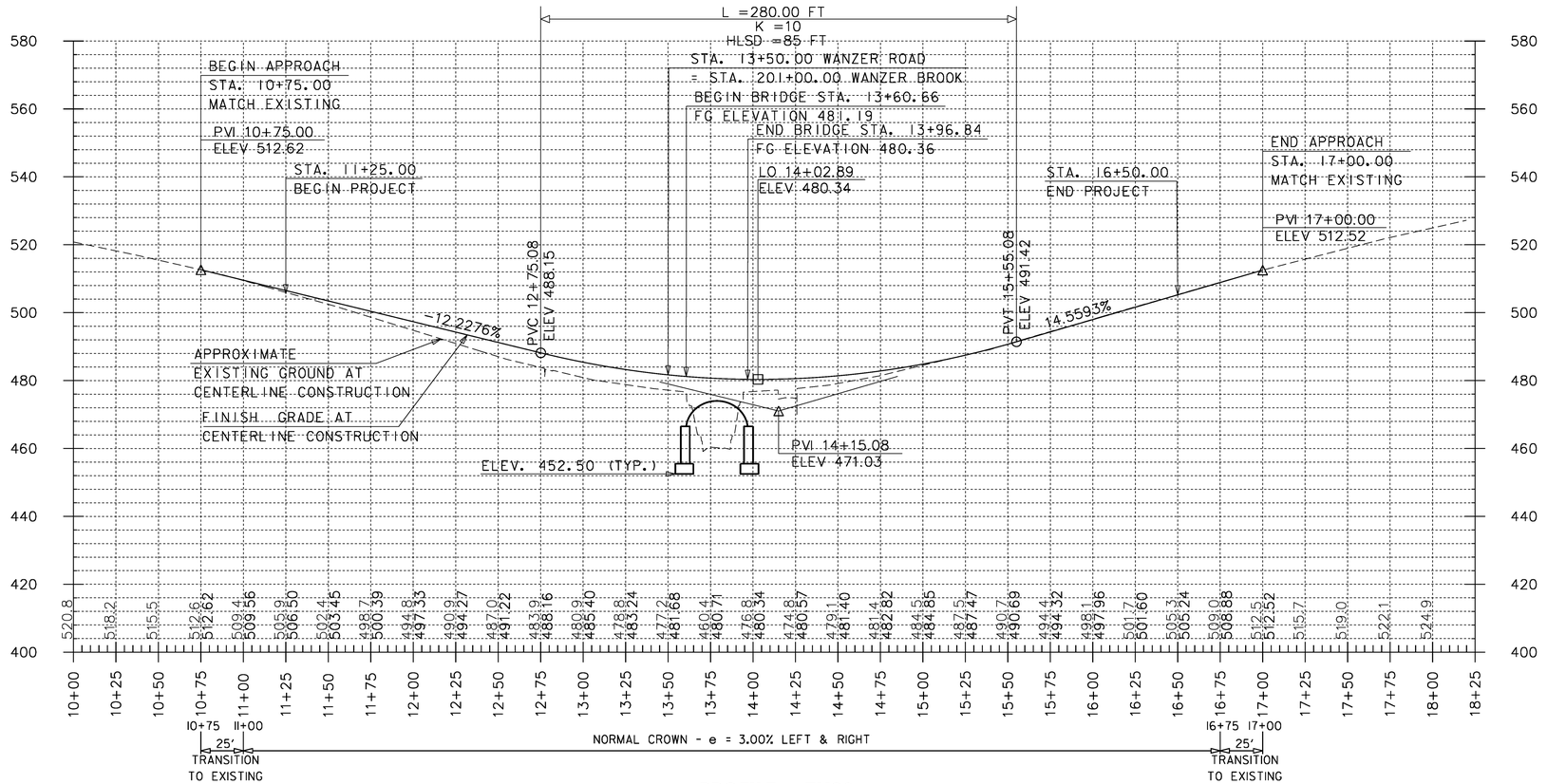
- RELOCATED FENCE
- CLEAR ZONE
- ℄ DITCH
- DELINEATOR
- REMOVE EXISTING SIGNS AND POSTS (SALVAGE TO TOWN)
- QML QUANTITY MATCH LINE (BRIDGE/ROADWAY) (STONE FILL, TYPE II)

EXISTING BRIDGE

SINGLE SPAN ROLLED BEAM
WITH TIMBER DECK ON
MASONRY/CONCRETE ABUTMENTS

McFarland Johnson

PROJECT NAME: FAIRFIELD	
PROJECT NUMBER: BRO 1448(38)	
FILE NAME: z11j072bdr_nu_01.dgn	PLOT DATE: 01-NOV-2013
PROJECT LEADER: D. LANDRY	DRAWN BY: M. VALLETTA
DESIGNED BY: M. VALLETTA	CHECKED BY: T. KENDRICK
LAYOUT SHEET (2 OF 2)	SHEET 11 OF 41



PROFILE – TH30

HORIZONTAL SCALE: 1" = 40'-0"
VERTICAL SCALE: 1" = 20'-0"

NOTES:

ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG THE PROPOSED ALIGNMENT.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE ELEVATIONS ALONG THE PROPOSED ALIGNMENT.

McFarland Johnson

PROJECT NAME: FAIRFIELD	
PROJECT NUMBER: BRO 1448(38)	
FILE NAME: z11j072pro_01.dgn	PLOT DATE: 01-NOV-2013
PROJECT LEADER: D. LANDRY	DRAWN BY: W. GAYNOR
DESIGNED BY: E. ALEXOPOULOS	CHECKED BY: T. KENDRICK
PROFILE SHEET	SHEET 12 OF 41

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL OF THE EXISTING ROLLED STEEL BEAM BRIDGE, WHICH WILL BE REPLACED WITH A RIGIFIED FIBER REINFORCED POLYMER TUBULAR ARCH (RFTA) BRIDGE, WITH CONCRETE OVERLAY. THE ARCH SUPERSTRUCTURE WILL HAVE A 7.5 FOOT RISE (FROM ITS BASE), SPANNING APPROXIMATELY 32 FEET OVER WANZER BROOK, ON NEW FOOTINGS ALONG A NEW ALIGNMENT. THE BRIDGE IS LOCATED IN THE TOWN OF FAIRFIELD, ON WANZER ROAD (TH 30). VERTICAL ALIGNMENT OF THE ROADWAY WITHIN THE PROJECT LIMITS WILL BE RAISED TO IMPROVE SIGHT DISTANCE.

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

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.91 ACRES.

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

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS HILLY TO MOUNTAINOUS, WITH MOSTLY WELL ESTABLISHED FOREST WITH OCCASIONAL OPEN AREAS. WANZER ROAD (TH 30) AND A GRAVEL DRIVEWAY IS WITHIN THE PROJECT SITE. THERE ARE NO RESIDENCES WITHIN THE PROJECT.

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

THE WANZER BROOK IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE BROOK IS CLASSIFIED AS STEEP, SINUOUS, NARROW, WITH A CONFINED CHANNEL AT THE SITE. THE STREAM BED CONSISTS OF GRAVEL, COBBLES AND BOULDERS. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF WATER FROM A FEW NEARBY SLOPES.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD 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 WANZER ROAD. UPON PROJECT COMPLETION, THE CHANNEL EMBANKMENTS WILL BE ARMORED WITH STONE FILL TYPE II AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE FOR THE COUNTY OF FRANKLIN, VERMONT. SOILS ON THE PROJECT SITE ARE RUMNEY VARIENT SILT LOAM, 8% TO 15% SLOPES, “K FACTOR” = 0.37. THE 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: YES - FISH
HISTORICAL OR ARCHEOLOGICAL AREAS: NO
PRIME AGRICULTURAL LAND: YES
THREATENED OR ENDANGERED SPECIES: NO
WATER RESOURCE: WANZER BROOK
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 SPECIFC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HAND BOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

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

1.4.1 MARK SITE BOUNDARIES

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

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

1.4.2 LIMIT DISTURBANCE AREA

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

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

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

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

STABILIZED CONSTRUCTION ENTRANCES WILL NOT BE INSTALLED.

1.4.4 INSTALL SEDIMENT BARRIERS

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

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN. INCORPORATE FILTER BAGS FOR COFFERDAM DEWATERING.

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 CONSTRUCITON SITE.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSIVE POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS. STONE CHECK DAMS WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN, AT A MINIMUM.

1.4.7 CONSTRUCT PERMANENT CONTROLS

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

MEASURES TO INCLUDE:

TYPE II STONE FOR SLOPE LINING, GUTTER AND CHANNEL PROTECTION.
SEED AND MULCH.

STREAM BANK VEGETATION WILL BE INTRODUCED IN THE GRUBBING MATERIAL THAT IS TO BE PLACED OVER THE STREAM BANK STONE FILL.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

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

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

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

ANTICIPATED MEASURES INCLUDE SEED AND MULCH, AND EROISION MATTING.

1.4.9 WINTER STABILIZATION

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

1.4.10 STABILIZE SOIL AT FINAL GRADE

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

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

1.4.11 DE-WATERING ACTIVITIES

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

TREATMENT OF DEWATERING COFFERDAM IS ANTICIPATED. A LOCATION FOR TREATMENT HAS BEEN PROPOSED AND IS SHOWN ON THE PLANS. HOWEVER THE SPECIFIC MEANS FOR TREATMENT OF DISCHARGE SHALL BE PROVIDED BY THE CONTRACTOR.

1.4.12 INSPECT YOUR SITE

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

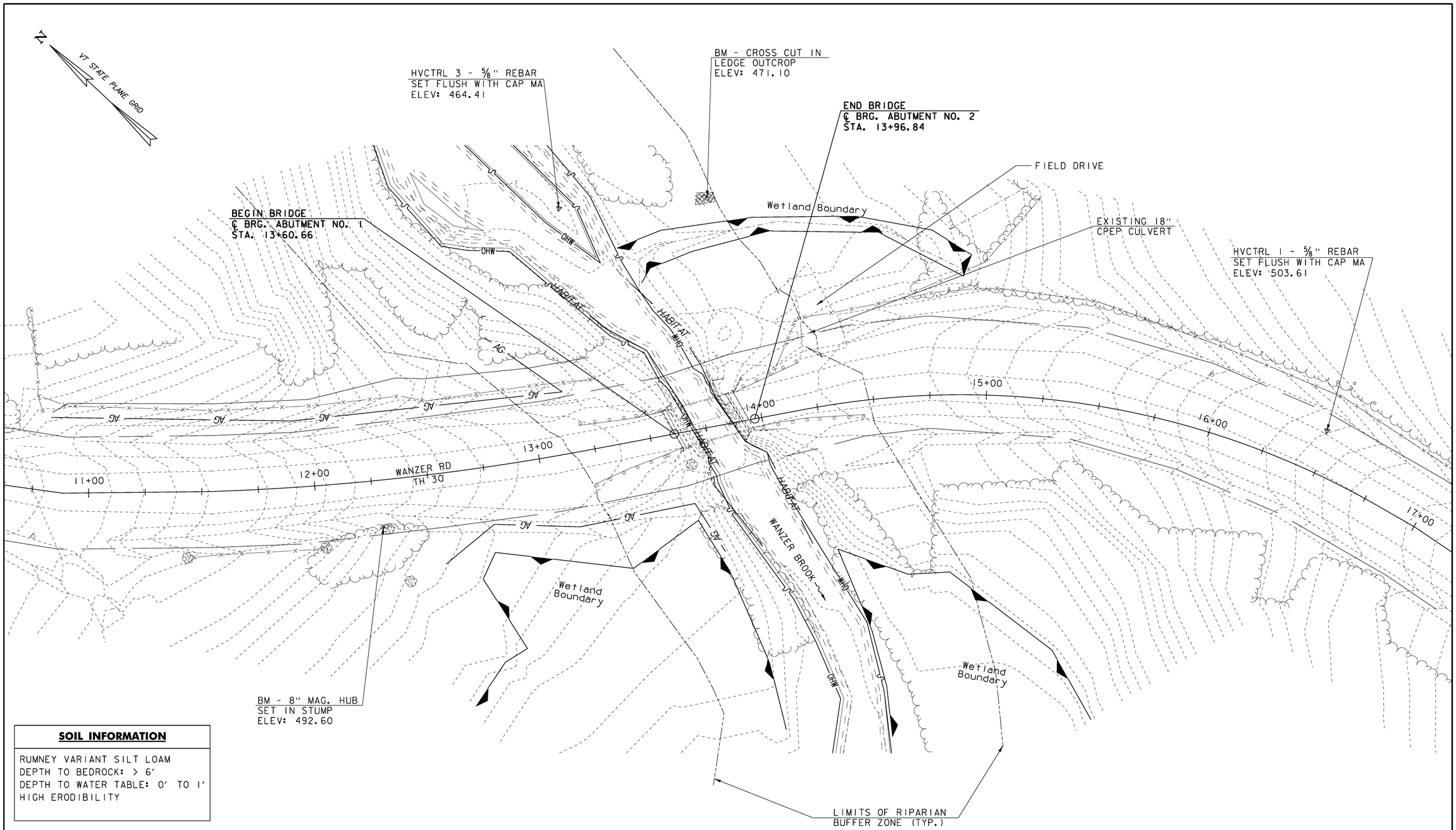
1.5 SEQUENCE AND STAGING

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

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES

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



SOIL INFORMATION

RUMNEY VARIANT SILT LOAM
DEPTH TO BEDROCK: > 6'
DEPTH TO WATER TABLE: 0' TO 1'
HIGH ERODIBILITY

LEGEND

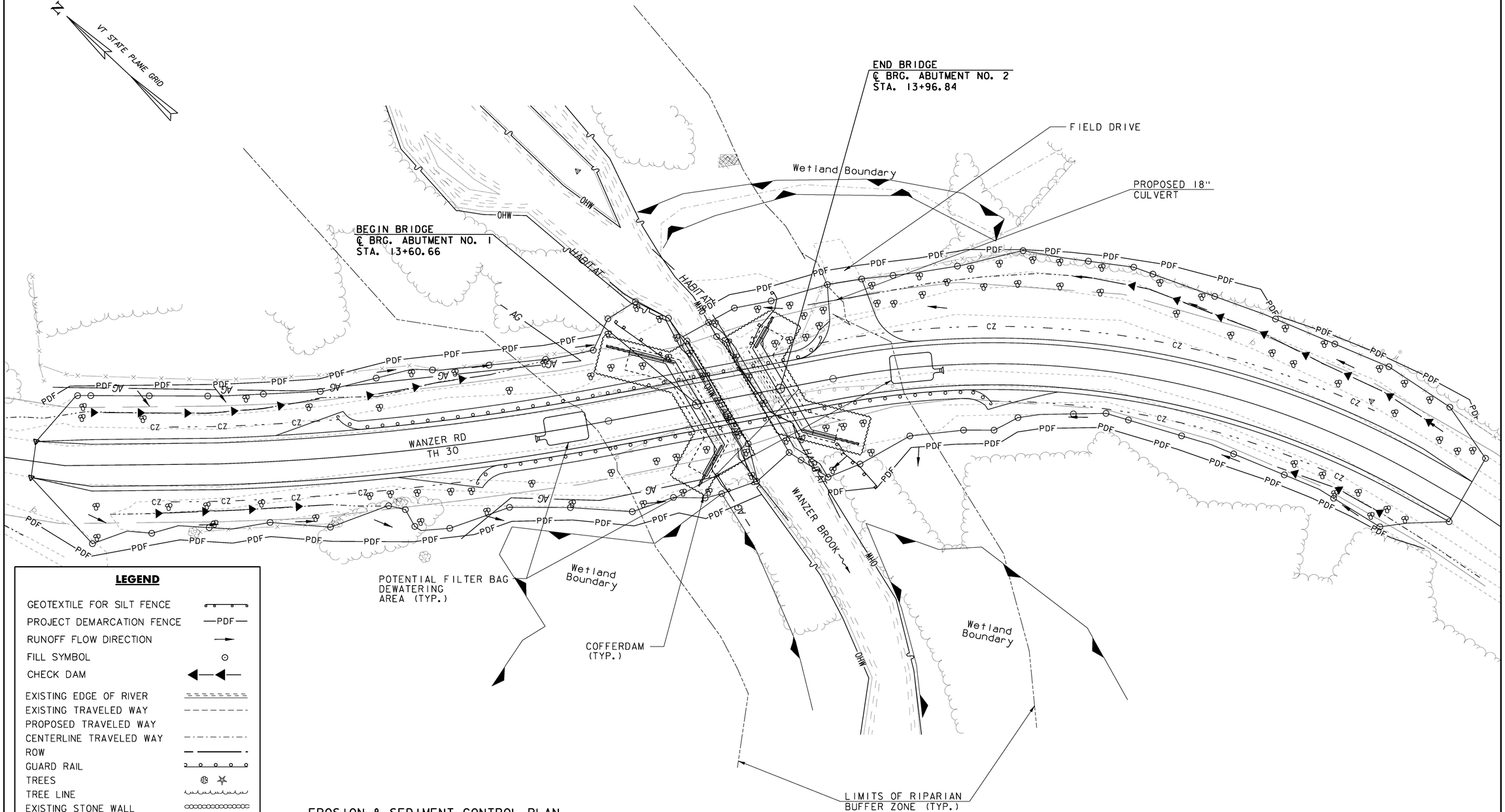
RIPARIAN BUFFER ZONE	
ORDINARY HIGH WATER	OHW
APPROX. WETLAND BOUNDARY	
CRITICAL HABITAT	HABITAT
AGRICULTURAL LAND	AG

EXISTING CONDITIONS SITE PLAN

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

McFarland Johnson

PROJECT NAME:	FAIRFIELD
PROJECT NUMBER:	BRO 1448(38)
FILE NAME: z11j072bdr_ero.dgn	PLOT DATE: 01-NOV-2013
PROJECT LEADER: D. LANDRY	DRAWN BY: M. VALLETTA
DESIGNED BY: M. VALLETTA	CHECKED BY: T. KENDRICK
EPSC EXISTING CONDITIONS SITE PLAN	SHEET 14 OF 41



LEGEND

- GEOTEXTILE FOR SILT FENCE
- PROJECT DEMARCATION FENCE — PDF —
- RUNOFF FLOW DIRECTION
- FILL SYMBOL
- CHECK DAM
- EXISTING EDGE OF RIVER
- EXISTING TRAVELED WAY
- PROPOSED TRAVELED WAY
- CENTERLINE TRAVELED WAY
- ROW
- GUARD RAIL
- TREES
- TREE LINE
- EXISTING STONE WALL
- SIGN POST
- TOE OF SLOPE
- RIPARIAN BUFFER ZONE
- ORDINARY HIGH WATER — OHW —
- COFFERDAM
- APPROX. WETLAND BOUNDARY
- CRITICAL HABITAT — HABITAT —
- AGRICULTURAL LAND — AG —

EROSION & SEDIMENT CONTROL PLAN

1. THE CONTRACTOR SHALL INSTALL SILT FENCE FOR EROSION CONTROL AS LOCATED ON THE PLANS, PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL LOAM, SEED FERTILIZE AND MULCH ALL DISTURBED AREAS, EXCEPT ROADWAY, SHOULDERS AND STONE FILL AREAS.

EPSC LAYOUT

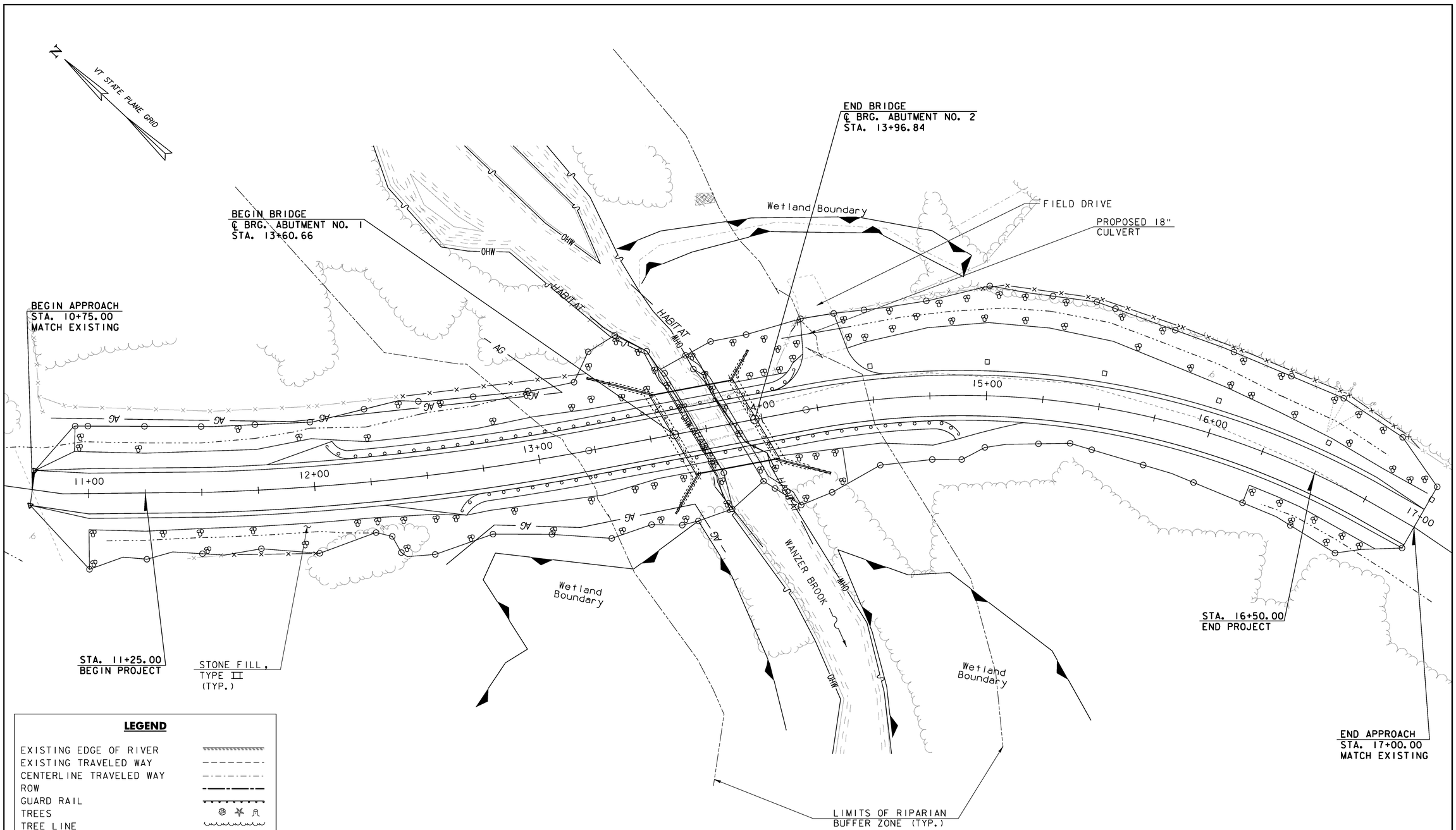
SCALE 1" = 20'-0"
20 0 20

McFarland Johnson

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11J072bdr_ero.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: M. VALLETTA
EPSC CONSTRUCTION SITE PLAN

PLOT DATE: 01-NOV-2013
DRAWN BY: M. VALLETTA
CHECKED BY: T. KENDRICK
SHEET 15 OF 41



LEGEND

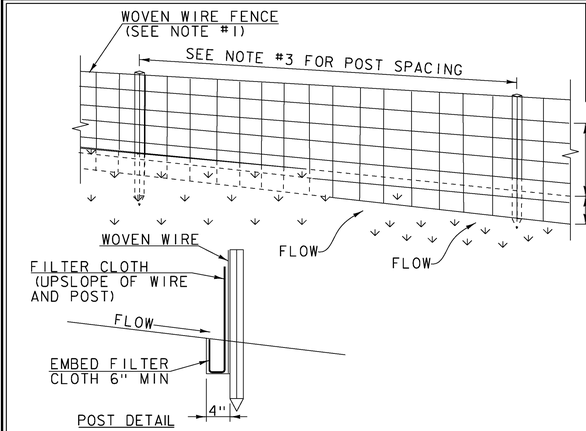
- EXISTING EDGE OF RIVER
- EXISTING TRAVELED WAY
- CENTERLINE TRAVELED WAY
- ROW
- GUARD RAIL
- TREES
- TREE LINE
- SOIL BORING
- EXISTING STONE WALL
- SIGN POST
- RIPARIAN BUFFER ZONE
- ORDINARY HIGH WATER — OHW —
- APPROX. WETLAND BOUNDARY
- CRITICAL HABITAT — *HABITAT* —
- AGRICULTURAL LAND — *AG* —

FINAL CONDITIONS SITE PLAN

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

McFarland Johnson

PROJECT NAME: FAIRFIELD	
PROJECT NUMBER: BRO 1448(38)	
FILE NAME: z11j072bdr_ero.dgn	PLOT DATE: 01-NOV-2013
PROJECT LEADER: D. LANDRY	DRAWN BY: M. VALLETTA
DESIGNED BY: M. VALLETTA	CHECKED BY: T. KENDRICK
EPSC FINAL CONDITIONS SITE PLAN	SHEET 16 OF 41



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.

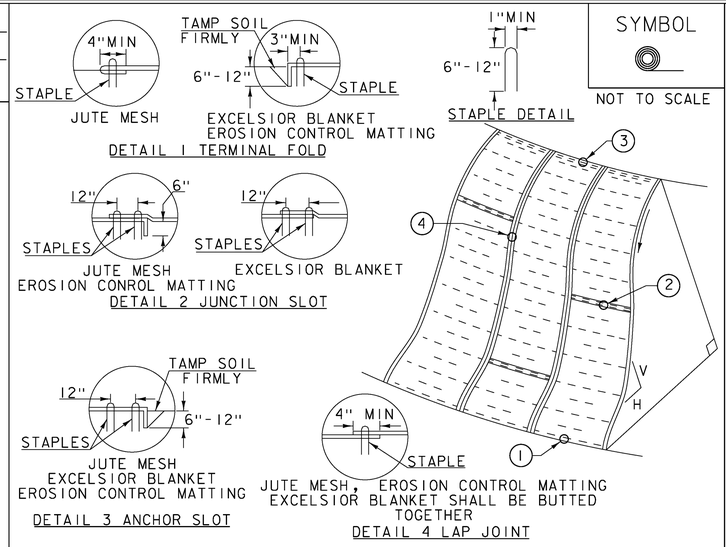
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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

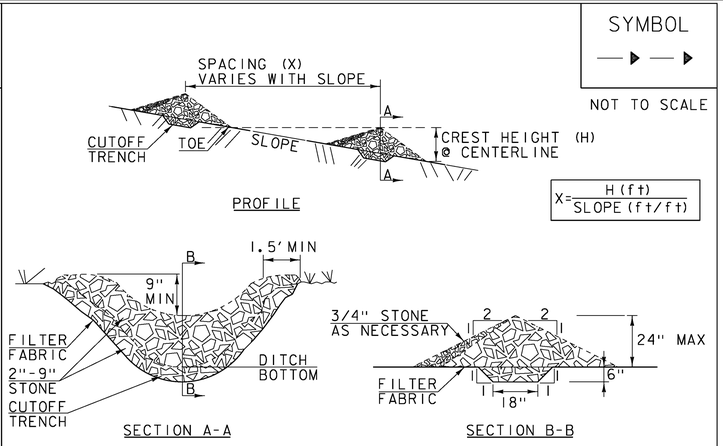
1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER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

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: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11J072epsc_det_01.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: E. ALEXOPOULOS
EPSC DETAILS (1 OF 2)

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 17 OF 41

VAOT RURAL AREA MIX

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

VAOT URBAN AREA MIX

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

SOIL AMENDMENT GUIDANCE

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

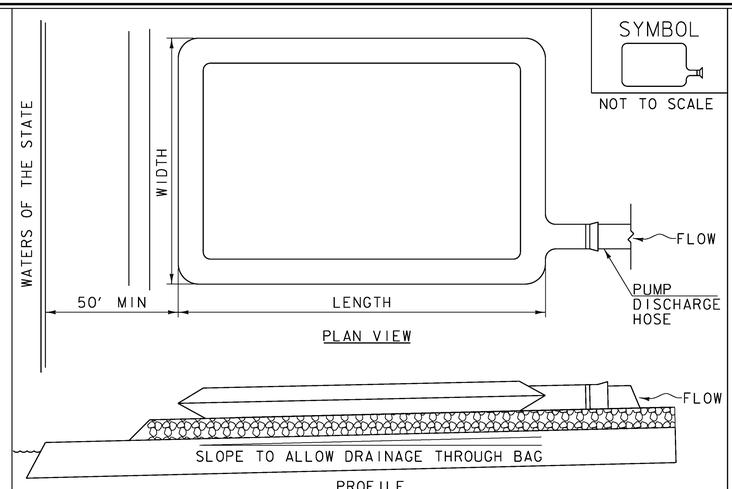
CONSTRUCTION GUIDANCE

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

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

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



CONSTRUCTION SPECIFICATIONS

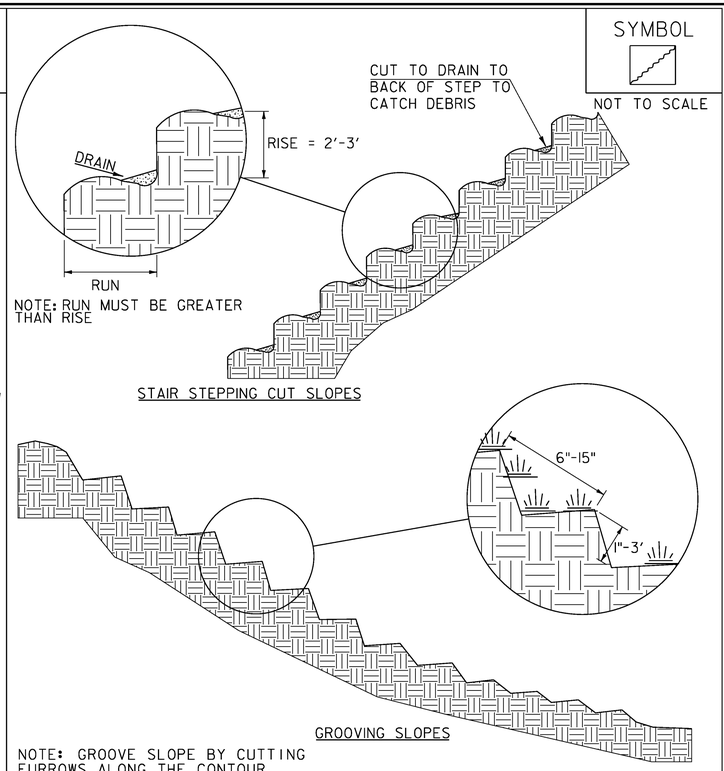
1. THE PRIMARY PURPOSE OF FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS.
2. FILTER BAGS SHALL BE INSTALLED ON A VEGETATED SLOPE GRADED TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.
3. FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION EFFICIENCY.
4. FILTER BAGS SHALL BE LOCATED A MINIMUM OF 50' FROM WATERS OF THE STATE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. THE NECK OF THE FILTER BAG SHALL BE STRAPPED TIGHTLY TO THE DISCHARGE HOSE.
6. A FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE.
7. FILTER BAG SHALL BE DISPOSED OF AS APPROVED IN THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

FILTER BAG

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 FILTER BAG (PAY ITEM 653.45) AND AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF



NOTE: GROOVE SLOPE BY CUTTING FURROWS ALONG THE CONTOUR. IRREGULARITIES IN THE SOIL SURFACE CATCH RAINWATER AND RETAIN LIME, FERTILIZER AND SEED.

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

SURFACE ROUGHENING

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 CONSIDERED INCIDENTAL TO THE CONTRACT

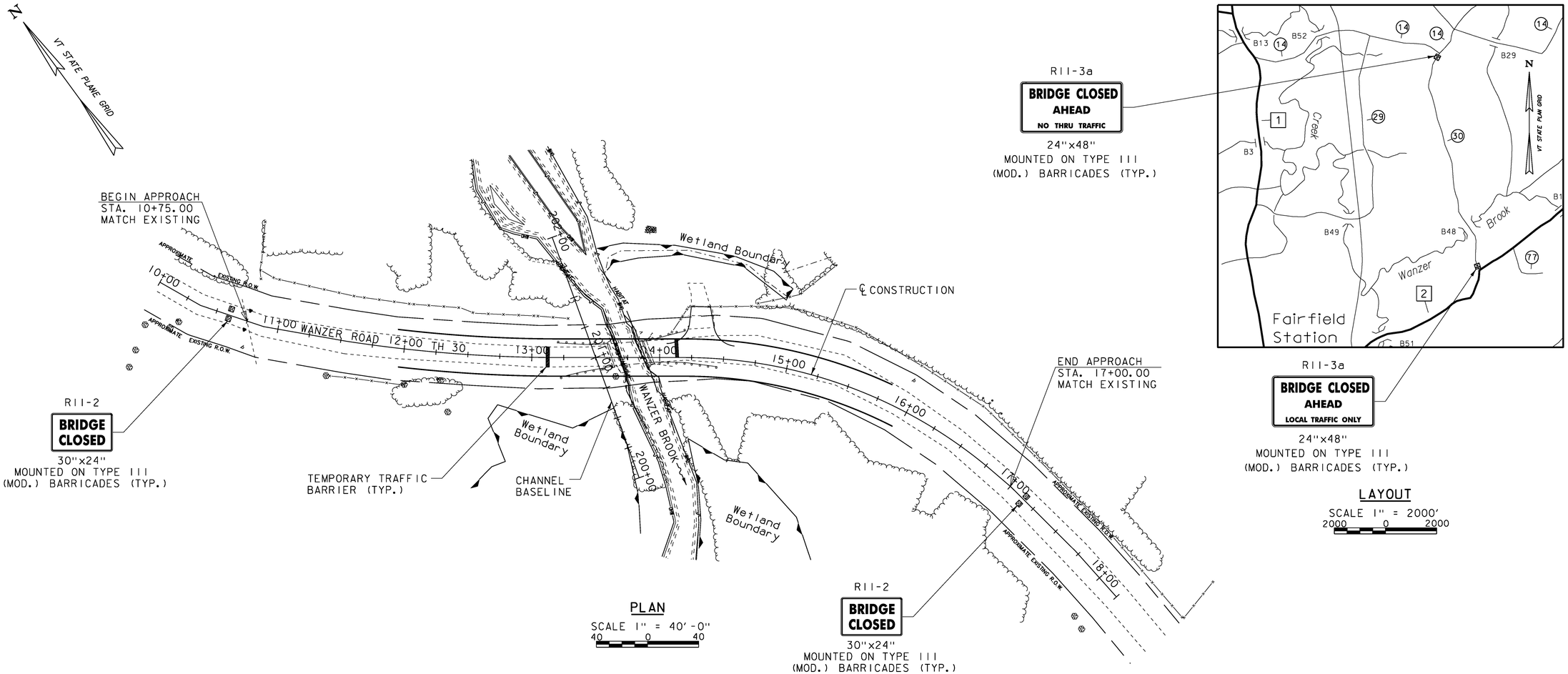
REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF

McFarland Johnson

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11j072epsc_det_02.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: E. ALEXOPOULOS
EPSC DETAILS (2 OF 2)

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 18 OF 41



PLAN

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

LAYOUT

SCALE 1" = 2000'
2000 0 2000

TRAFFIC CONTROL NOTES

1. BRIDGE NO. 48 WILL BE CLOSED TO ALL PEDESTRIAN AND VEHICULAR TRAFFIC. THE CONTRACTOR SHALL NOTIFY THE TOWN OF FAIRFIELD AT LEAST TWO (2) WEEKS PRIOR TO CLOSING THE BRIDGE AND COMMENCING CONSTRUCTION ACTIVITIES.
2. TRAFFIC SHALL BE TEMPORARILY REROUTED AROUND THE PROJECT SITE DURING CONSTRUCTION. THE TOWN OF FAIRFIELD WILL PROVIDE AND MAINTAIN THE NECESSARY OFF-PROJECT TRAFFIC CONTROL DEVICES, INCLUDING TEMPORARY DETOUR SIGNS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGNING, ERECTING AND MAINTAINING (AS WELL AS REMOVING AND RESETTING) ALL ON-PROJECT TEMPORARY TRAFFIC CONTROL ZONE DEVICES, INCLUDING BUT NOT LIMITED TO CONSTRUCTION SIGNS, BARRICADES, TEMPORARY TRAFFIC BARRIERS AND OTHER REQUIRED DEVICES USED TO REGULATE, WARN AND GUIDE TRAFFIC DURING CONSTRUCTION. TRAFFIC CONTROL DEVICES SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND PERTINENT T-SERIES STANDARDS, AND SHALL BE SUBMITTED TO THE RESIDENT ENGINEER FOR REVIEW AND APPROVAL. THE COST OF ALL ON-PROJECT TEMPORARY TRAFFIC CONTROL ZONE DEVICES (EXCEPT TEMPORARY TRAFFIC BARRIERS) SHALL BE PAID FOR UNDER ITEM 641.10, TRAFFIC CONTROL.
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 EXISTING STATE AND TOWN RIGHTS-OF-WAY.
7. TEMPORARY TRAFFIC BARRIERS SHALL BE PLACED ON WANZER ROAD TO LIMITS APPROVED BY THE ENGINEER TO PREVENT TRAFFIC FROM ENTERING THE BRIDGE WORK AREA. COST TO INCORPORATE THESE DURING NON-WORKING HOURS, AS WELL AS RELOCATING THESE DURING WORKING HOURS, SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 621.90, TEMPORARY TRAFFIC BARRIER.
8. NO CONSTRUCTION SIGNS SHALL BE INSTALLED AS TO INTERFERE OR OBSTRUCT THE VIEW OF THE EXISTING TRAFFIC CONTROL DEVICES, STOPPING SIGHT DISTANCE, AND CORNER SIGHT DISTANCE FROM DRIVES AND TOWN HIGHWAYS.

McFarland Johnson

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11j072tcpln_01.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: E. ALEXOPOULOS
TRAFFIC CONTROL SHEET

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 19 OF 41

SOIL CLASSIFICATION

AASHTO

A1	Clayey Soil - Low Compressibility
A3	Gravel and Sand
A2	Clayey Soil - Highly Compressible
A4	Fine Sand
A5	Silty or Clayey Gravel and Sand
A6	Silty Soil - Low Compressibility
A7	Silty 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) N	DESCRIPTIVE TERM	CONSISTENCY (COHESIVE SOILS) 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

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.

VARIED - 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.

LOG KEY

GZA
Geo Environmental, Inc.
Engineers and Scientists

BURMISTER SOIL CLASSIFICATION (INORGANIC)

COMPONENT	NAME	PROPORTIONAL TERM	PERCENT BY WEIGHT
MAJOR	GRAVEL, SAND, FINES*		>50
Minor	Gravel, Sand, Fines*	and	35 - 50
		some	20-35
		little	10-20
*See identification of fines table.		trace	0-10

IDENTIFICATION OF FINES Material	PI	Atterberg Thread Dia.
SILT	0	Cannot Roll
Clayey SILT	1-5	1/4"
SILT & CLAY	5-10	1/8"
CLAY & SILT	10-20	1/16"
Silty CLAY	20-40	1/32"
CLAY	>40	1/64"

GRADATION DESIGNATION	PROPORTION OF COMPONENT
Fine to coarse	All fractions > 10%
Medium to coarse	<10% fine
Fine to medium	<10% coarse
Coarse	<10% fine and medium
Medium	<10% coarse and fine
Fine	<10% coarse and medium

PLASTIC SOILS Consistency	Blows/Ft. SPT N-Value
Very Soft	< 2
Soft	2 - 4
Medium Stiff	4 - 8
Stiff	8 - 15
Very Stiff	15 - 30
Hard	>30

GRAVEL & SAND Density	Blows/Ft. SPT N-Value
Very Loose	< 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	> 50

BURMISTER SOIL CLASSIFICATION (ORGANIC)

Fibrous PEAT (Pt) - Lightweight, spongy, mostly visible organic matter, water squeezes readily from sample. Typically near top of deposit.
Fine Grained PEAT (Pt) - Lightweight, spongy, little visible organic matter, water squeezes readily from sample. Typically below fibrous peat.
Organic Silt (OL) - Typically gray to dark gray, often has strong H2S odor. Typically contains shells or shell fragments. Lightweight. Usually found near coastal regions. May contain wide range of sand fractions.
Organic Clay (OH) - Typically gray to dark gray, high plasticity. Usually found near coastal regions. May contain wide range of sand fractions. Need organic content test for final identification.

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) (ASTM D 2487)

MAJOR DIVISIONS			Group Symbols
Coarse Grained Soils More than 50% of material larger than No. 200 sieve	Gravel More than 50% larger than No. 4 sieve	Clean Gravels (Little or no fines)	GW
			GP
		Gravels with Fines (Appreciable amount of fines)	GM
			GC
	Sand More than 50% smaller than No. 4 sieve	Clean Sands (Little or no fines)	SW
			SP
		Sands with Fines (Appreciable amount of fines)	SM
			SC
Fine Grained Soils More than 50% of material smaller than No. 200 sieve		Silts and Clays Liquid Limit <50	ML
			CL
			OL
		Silts and Clays Liquid Limit >50	MH
			CH
			OH
		Highly Organic Soils	Pt

ABBREVIATIONS

MR = Mud Rotary
HSA = Hollow Stem Auger
SSA = Solid Stem Auger
SS = Split Spoon Sampler
U = Undisturbed Sample (Shelby Tube)
MC = Modified California Sampler
V = Vibracore
M = Macrocore
R = Refusal
USCS = Unified Soil Classification System (ASTM D2487)
NYCBC = New York City Building Code
WOR = Weight of Rods
WOH= Weight of Hammer
SPT = Standard Penetration Test (ASTM D1586)
N-Value = Cumulative number of uncorrected blows for the middle two 6-inch intervals (blows/foot).

Tv = Field Vane Shear Test (Torvane)
PP = Pocket Penetrometer
PI = Plasticity Index
MC = Moisture Content
CO = Consolidation
UC = Unconfined Compression Test
SI = Sieve Analysis
DS = Direct Shear
PID = Photoionization Detector
ppm = Parts Per Million
REC = Recovery
RQD = Rock Quality Designation
▼ = Measured Water Level

COMMONLY USED SYMBOLS

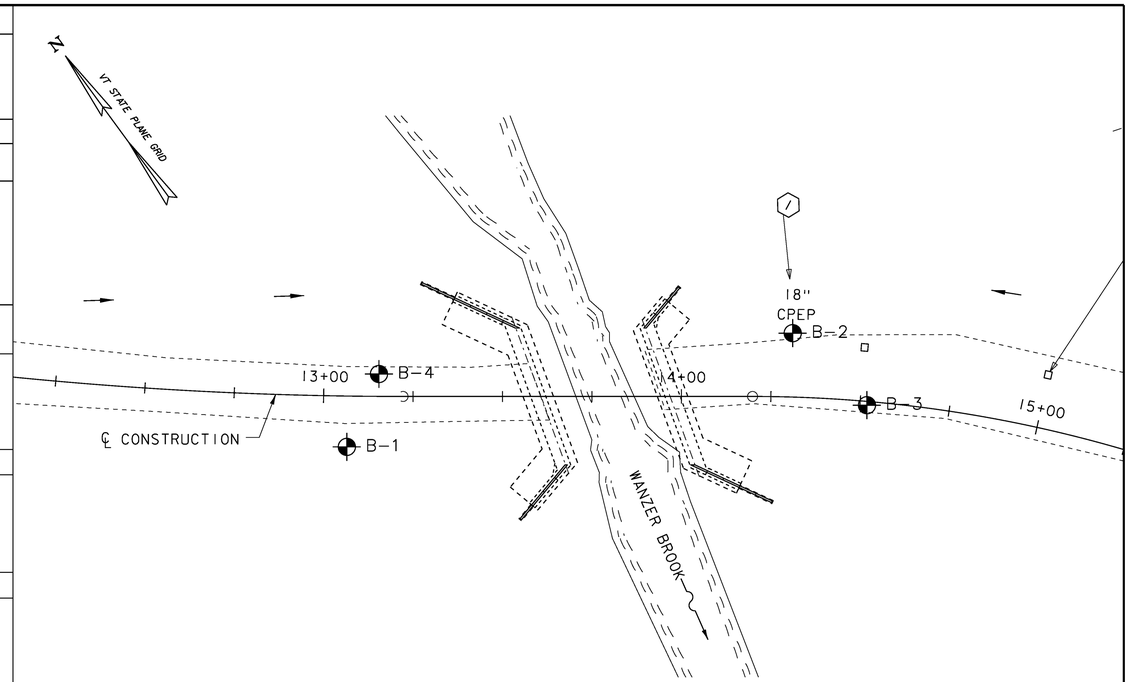
▽	Water Elevation
⊕	Standard Penetration Boring
⊕	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per Foot For: 2" O.D. Sampler 1 3/8 "I.D. Sampler Hammer Weight Of 140 Lbs. Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud 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	To 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)

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	mlte	Multicolored
or	Orange		



BORING LAYOUT

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

BORING CHART

BORING	STATION	OFFSET (FT)	NORTHING	EASTING	GROUND ELEV.	TLOB ELEV.
B-1	13+06.7	14.2 RT	849893.57	1534488.55	480.0	434.0
B-2	14+30.6	17.9 LT	849845.62	1534607.88	478.0	436.0
B-3	14+52.0	1.1 RT	849817.12	1534612.74	479.0	441.0
B-4	13+15.4	6.3 LT	849904.71	1534507.83	479.0	441.5

GENERAL NOTES

1. The subsurface explorations shown herein were made March 19 thru March 21, 2012 by GZA GeoEnvironmental, Inc.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information 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 judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for 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 Owner. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement 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.

McFarland Johnson

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11j072bor_01.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: GZA
BORING INFORMATION SHEET

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 20 OF 41

TEST BORING LOG

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Bridge #48 over Wanzer Brook
Fairfield BRO 1448 (22)
Fairfield, Vermont

EXPLORATION NO.: B-1
SHEET: 1 of 2
PROJECT NO: 04.0029571.00
REVIEWED BY: J. Baron

Logged By: J. Szmyt
Drilling Co.: New Hampshire Boring, Inc.
Foreman: Mark D'Ambrosio

Type of Rig: Acker
Rig Model: Truck
Drilling Method: Drive-and-Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 480
Final Boring Depth (ft.): 58.5
Date Start – Finish: 3/19/2012 – 3/20/2012

H. Datum: NAD83
V. Datum: NAVD88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: 1.875

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S1	0–2	24	16	6 11 9 9	20	S1: Medium dense, brown, fine to coarse SAND, little Gravel, little Silt.				FILL	
											2		478.0
5		S2	5–5.7	8	3	96 100/2"	R	S2: Very dense, brown, fine to coarse SAND and Silt, little Gravel.	1			SAND	
10		S3	10–12	24	14	65 63 54 40	>100	S3: Very dense, brown, GRAVEL, some Silt, little fine to medium Sand.			10		470.0
												TILL	
15		S4	15–17	24	15	23 26 35 34	61	S4: Very dense, gray, SILT.			15		465.0
20		S5	20–22	24	18	19 21 23 27	44	S5: Hard, gray, Clayey SILT.				CLAYEY SILT	
25		S6	25–27	24	20	21 21 29 27	50	S6: Hard, gray, Clayey SILT.					
30													

B.O.F. 452.50

REMARKS

1 – Rock in tip of split spoon.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-1

GZA TEMPLATE TEST BORING; 6/29/2012; 10:27:06 AM

TEST BORING LOG

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Bridge #48 over Wanzer Brook
Fairfield BRO 1448 (22)
Fairfield, Vermont

EXPLORATION NO.: B-1
SHEET: 2 of 2
PROJECT NO: 04.0029571.00
REVIEWED BY: J. Baron

Logged By: J. Szmyt
Drilling Co.: New Hampshire Boring, Inc.
Foreman: Mark D'Ambrosio

Type of Rig: Acker
Rig Model: Truck
Drilling Method: Drive-and-Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 480
Final Boring Depth (ft.): 58.5
Date Start – Finish: 3/19/2012 – 3/20/2012

H. Datum: NAD83
V. Datum: NAVD88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: 1.875

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S7	30–32	24	11	18 22 23 26	45	S7: Hard, gray, Clayey SILT.					
35		S8	35–37	24	14	31 45 31 46	76	S8: Hard, gray, Clayey SILT.				CLAYEY SILT	
40		S9	40–40.9	11	10	20 100/5"	R	S9: Hard, gray, Clayey SILT.	2		41		439.0
									3			TILL	
45		S10	45–45.1	1	1	100/1"	R	S10: Very dense, gray, fine SAND and Silt, little Gravel.	4		46		434.0
50	4:31 4:49 4:49 6:19 8:32	C1	48.5–53.5	60	60			C1: Hard, slightly weathered, gray and white, fine grained SCHIST; joints moderately dipping, close, rough, planar, fresh, tight. RQD: 22"/37%				SCHIST	
55	9:41 12:33 13:03 6:37 6:42	C2	53.5–58.5	60	58			C2: Hard, slightly weathered, gray, fine grained SCHIST; joints moderately dipping, close, rough, planar, fresh, open. RQD: 21"/35%					
60								End of exploration at 58.5 feet.			58.5		421.5

REMARKS

2 – Cobble at 41 feet below ground surface (approximately 1 foot thick).
3 – Rock pieces observed in wash water.
4 – Probable bedrock at approximately 46 feet. Advanced roller bit into probable bedrock from 46 to 48.5 feet below ground surface and began coring.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-1

GZA TEMPLATE TEST BORING; 6/29/2012; 10:27:06 AM

McFarland Johnson

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11j072bor_02.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: GZA
BORING LOGS (1 OF 4)

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 21 OF 41

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Bridge #48 over Wanzer Brook Fairfield BRO 1448 (22) Fairfield, Vermont	EXPLORATION NO.: B-2 SHEET: 1 of 2 PROJECT NO: 04.0029571.00 REVIEWED BY: J. Baron

Logged By: J. Szmyt Drilling Co.: New Hampshire Boring, Inc. Foreman: Mark D'Ambrosio	Type of Rig: Acker Rig Model: Truck Drilling Method: Drive-and-Wash	Boring Location: See Plan Ground Surface Elev. (ft.): 478 Final Boring Depth (ft.): 47 Date Start – Finish: 3/20/2012 – 3/21/2012	H. Datum: NAD83 V. Datum: NAVD88

Hammer Type: Safety Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4.0	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: 1.875	Groundwater Depth (ft.)			
		Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S1	0–2	24	14	12 23 33 29	56	S1: Very dense, brown, fine to medium SAND, trace Gravel, trace Silt.				FILL	
											2		476.0
5		S2	5–7	24	18	27 21 15 13	36	S2: Dense, brown, fine to medium SAND, little Gravel, little Silt.				SAND	
10		S3	10–11.3	16	0	19 79 100/4"	R	S3: No Recovery.	1				
15		S4	15–16.8	21	11	45 19 35 100/3"	54	S4: Very dense, brown, fine to coarse SAND and Gravel, little Silt.	2			TILL	
20		S5	20–20.4	5	4	100/5"	R	S5: Very dense, gray, fine to coarse SAND and Gravel, little Silt.			21		457.0
25		S6	26–28	24	16	26 36 40 49	76	S6: Hard, gray, varved SILT & CLAY with fine Sand partings.				SILT AND CLAY	
30													

B.O.F. 452.50

REMARKS

1 – Cobbles and boulders at approximately 11 feet to 14 feet below ground surface.
2 – Boulder at 16.8 feet (2.5 feet thick).

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-2

GZA TEMPLATE TEST BORING; 6/29/2012; 10:27:06 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Bridge #48 over Wanzer Brook Fairfield BRO 1448 (22) Fairfield, Vermont	EXPLORATION NO.: B-2 SHEET: 2 of 2 PROJECT NO: 04.0029571.00 REVIEWED BY: J. Baron

Logged By: J. Szmyt Drilling Co.: New Hampshire Boring, Inc. Foreman: Mark D'Ambrosio	Type of Rig: Acker Rig Model: Truck Drilling Method: Drive-and-Wash	Boring Location: See Plan Ground Surface Elev. (ft.): 478 Final Boring Depth (ft.): 47 Date Start – Finish: 3/20/2012 – 3/21/2012	H. Datum: NAD83 V. Datum: NAVD88

Hammer Type: Safety Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4.0	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: 1.875	Groundwater Depth (ft.)			
		Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S7	30–32	24	12	11 10 16 26	26	S7: Very stiff, gray, varved SILT & CLAY with fine Sand partings.					
35		S8	35–37	24	13	22 43 60 76	>100	S8: Hard, gray, varved SILT & CLAY with fine Sand partings.				SILT AND CLAY	
40		S9	40–42	24	19	16 29 33 36	62	S9: Hard, gray, varved SILT & CLAY with fine Sand partings.	3		42		436.0
45												PROBABLE BEDROCK	
50								End of exploration at 47 feet.			47		431.0
55													
60													

REMARKS

3 – Advanced roller bit into probable bedrock from approximately 42 feet to 47 feet below ground surface.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-2

GZA TEMPLATE TEST BORING; 6/29/2012; 10:27:06 AM

McFarland Johnson

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11j072bor_02.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: GZA
BORING LOGS (2 OF 4)

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 22 OF 41

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Bridge #48 over Wanzer Brook Fairfield BRO 1448 (22) Fairfield, Vermont	EXPLORATION NO.: B-3 SHEET: 1 of 2 PROJECT NO: 04.0029571.00 REVIEWED BY: J. Baron

Logged By: J. Szmyt Drilling Co.: New Hampshire Boring, Inc. Foreman: Mark D'Ambrosio	Type of Rig: Acker Rig Model: Truck Drilling Method: Drive-and-Wash	Boring Location: See Plan Ground Surface Elev. (ft.): 479 Final Boring Depth (ft.): 50 Date Start – Finish: 3/21/2012 – 3/21/2012	H. Datum: NAD83 V. Datum: NAVD88

		Groundwater Depth (ft.)			
Hammer Type: Safety Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4.0	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: 1.875	Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S1	0–2	24	17	19 21 22 19	43	S1: Dense, light brown, fine to medium SAND, trace Gravel, trace Silt.				FILL	
											2		477.0
5		S2	5–7	24	19	1 3 5 6	8	S2: Loose, brown, SILT, some fine to medium Sand, little Gravel.					
												SILT	
10		S3	10–12	24	11	3 5 3 3	8	S3: Loose, brown, SILT, some fine to medium Sand, little Gravel.					
									1				
15		S4	15–17	24	0	7 7 4 7	11	S4: No Recovery.	2		15		464.0
20		S5	20–22	24	14	14 17 16 19	33	S5: Hard, gray, Clayey SILT.				SILT AND CLAY	
25		S6	25–27	24	20	20 23 27 33	50	S6: Hard, gray, varved SILT & CLAY with fine Sand partings.					
30													

B.O.F. 452.50

REMARKS

1 – Rock in tip of split spoon.
2 – Cobble or boulder encountered from approximately 17 feet to 19.5 feet below ground surface.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-3

GZA TEMPLATE TEST BORING: 6/29/2012; 10:27:07 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Bridge #48 over Wanzer Brook Fairfield BRO 1448 (22) Fairfield, Vermont	EXPLORATION NO.: B-3 SHEET: 2 of 2 PROJECT NO: 04.0029571.00 REVIEWED BY: J. Baron

Logged By: J. Szmyt Drilling Co.: New Hampshire Boring, Inc. Foreman: Mark D'Ambrosio	Type of Rig: Acker Rig Model: Truck Drilling Method: Drive-and-Wash	Boring Location: See Plan Ground Surface Elev. (ft.): 479 Final Boring Depth (ft.): 50 Date Start – Finish: 3/21/2012 – 3/21/2012	H. Datum: NAD83 V. Datum: NAVD88

		Groundwater Depth (ft.)			
Hammer Type: Safety Hammer Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.): 4.0	Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: 1.875	Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S7	30–32	24	18	14 16 20 24	36	S7: Hard, gray, varved SILT & CLAY with fine Sand partings.				SILT AND CLAY	
35		S8	35–35.3	4	4	100/4"	R	S8: Very dense, gray/green, fine SAND, little Silt, little Gravel.			35		444.0
												TILL	
									3		38		441.0
40	4:37	C1	40–45	60	58			C1: Hard, slightly weathered, gray, fine grained SCHIST; joints moderately dipping, moderately rough, planar, fresh, open. RQD: 22"/37%					
	4:23												
	3:13												
	3:33												
	3:49											SCHIST	
45	3:04	C2	45–50	60	58			C2: Hard, fresh, gray, fine grained SCHIST; joints high angle, wide, rough, stepped, fresh, tight. RQD: 50"/83%					
	3:08												
	3:20												
	3:10												
	3:14												
50								End of exploration at 50 feet.			50		429.0
55													
60													

REMARKS

3 – Advanced roller bit into probable bedrock from approximately 38 to 40 feet below ground surface and began coring.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-3

GZA TEMPLATE TEST BORING: 6/29/2012; 10:27:07 AM

McFarland Johnson

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11j072bor_02.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: GZA
BORING LOGS (3 OF 4)

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 23 OF 41

TEST BORING LOG

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Bridge #48 over Wanzer Brook
Fairfield BRO 1448 (22)
Fairfield, Vermont

EXPLORATION NO.: B-4
SHEET: 1 of 2
PROJECT NO: 04.0029571.00
REVIEWED BY: J. Baron

Logged By: J. Szmyt
Drilling Co.: New Hampshire Boring, Inc.
Foreman: Mark D'Ambrosio

Type of Rig: Acker
Rig Model: Truck
Drilling Method: Drive-and-Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 479
Final Boring Depth (ft.): 48.5
Date Start – Finish: 3/21/2012 – 3/21/2012

H. Datum: NAD83
V. Datum: NAVD88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: 1.875

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S1	0–2	24	17	18 24 23 18	47	S1: Dense, brown, fine to coarse SAND, little Gravel, trace Silt.				FILL	
											2		477.0
5		S2	5–7	24	16	19 9 6 7	15	S2: Top 12": Medium dense, brown, Clayey SILT, trace Gravel, trace fine Sand. Bottom 4": Stiff, gray, CLAY & SILT.	1				
10		S3	11–13	24	15	14 15 22 26	37	S3: Hard, gray, varved CLAY & SILT with fine Sand partings.					
15		S4	15–17	24	16	22 36 33 37	69	S4: Hard, gray, varved CLAY & SILT with fine Sand partings.				CLAY AND SILT	
20		S5	20–22	24	19	29 32 35 41	67	S5: Hard, gray, varved CLAY & SILT with fine Sand partings.					
25		S6	25–27	24	15	25 26 27 34	53	S6: Hard, gray, varved CLAY & SILT with fine Sand partings.					
30													

B.O.F. 452.50

REMARKS

1 – Boulder from approximately 8 feet to 11 feet below ground surface.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-4

GZA TEMPLATE TEST BORING: 6/29/2012; 10:27:07 AM

TEST BORING LOG

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Bridge #48 over Wanzer Brook
Fairfield BRO 1448 (22)
Fairfield, Vermont

EXPLORATION NO.: B-4
SHEET: 2 of 2
PROJECT NO: 04.0029571.00
REVIEWED BY: J. Baron

Logged By: J. Szmyt
Drilling Co.: New Hampshire Boring, Inc.
Foreman: Mark D'Ambrosio

Type of Rig: Acker
Rig Model: Truck
Drilling Method: Drive-and-Wash

Boring Location: See Plan
Ground Surface Elev. (ft.): 479
Final Boring Depth (ft.): 48.5
Date Start – Finish: 3/21/2012 – 3/21/2012

H. Datum: NAD83
V. Datum: NAVD88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: 1.875

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S7	30–32	24	18	29 25 27 36	52	S7: Hard, gray, varved CLAY & SILT with fine Sand partings.				CLAY AND SILT	
35		S8	35–37	24	19	18 31 41 45	72	S8: Top 10": Hard, gray, varved CLAY & SILT with fine Sand partings. Bottom 9": Very dense, gray, SILT and fine Sand, trace Gravel.	2		36		443.0
											37.5	TILL	441.5
40	4:13 2:03 2:22 3:10 5:51	C1	38.5–43.5	60	36			C1: Hard, slightly weathered, gray, fine grained SCHIST; primary joints low angle, moderately rough, planar, fresh and tight; secondary joints low angle, wide, decomposed and open. RQD: 14"/23%				SCHIST	
45	3:27 5:38 7:16 9:16 13:05	C2	43.5–48.5	60	36			C2: Hard, slightly weathered, gray, fine grained, SCHIST; joints low angle, wide, rough, stepped, decomposed, open. RQD: 7"/12%					
50								End of exploration at 48.5 feet.			48.5		430.5
55													
60													

REMARKS

2 – Advanced roller bit into probable bedrock from approximately 37.5 to 38.5 feet below ground surface and began coring.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-4

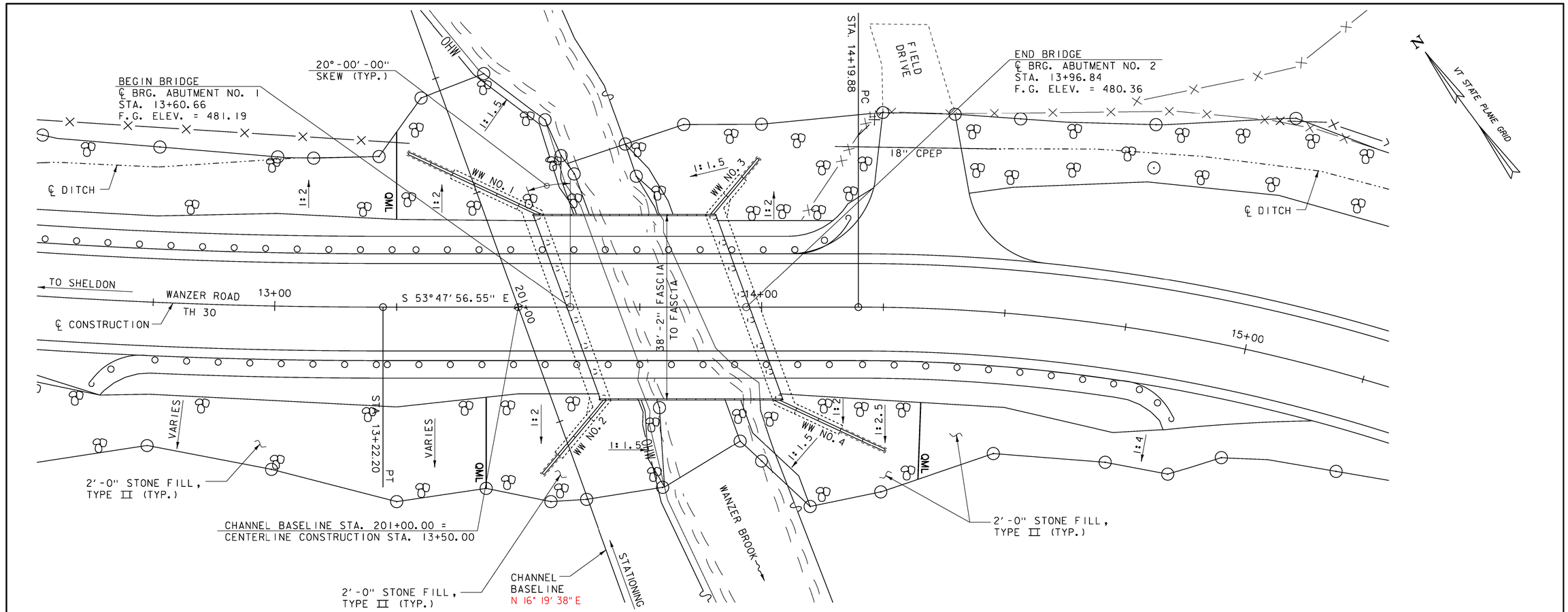
GZA TEMPLATE TEST BORING: 6/29/2012; 10:27:07 AM

McFarland Johnson

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11j072bor_02.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: GZA
BORING LOGS (4 OF 4)

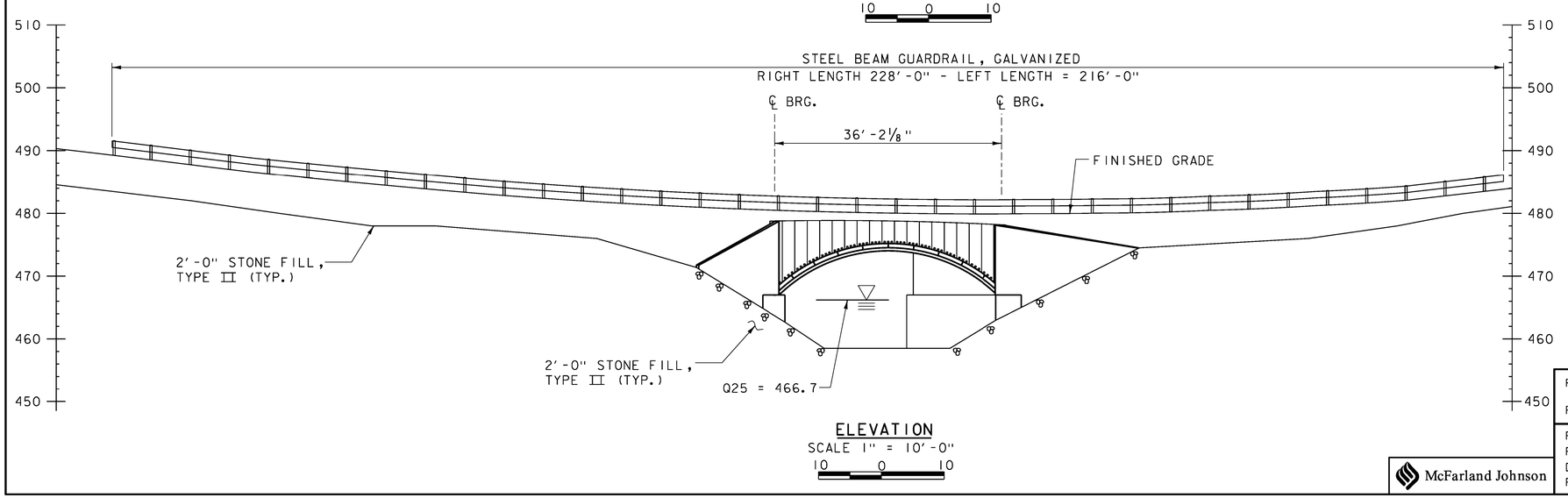
PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 24 OF 41



PLAN

SCALE 1" = 10'-0"

10 0 10



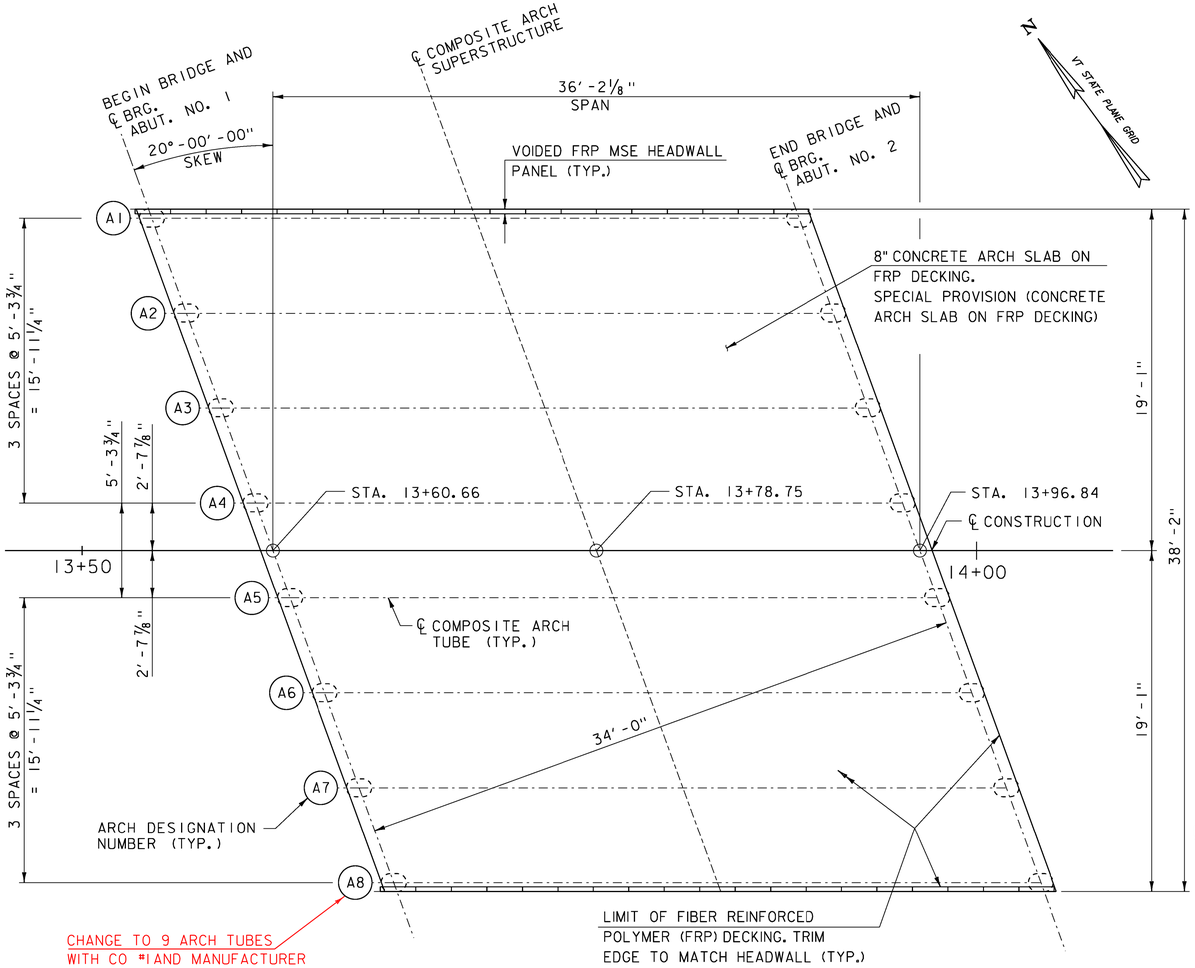
ELEVATION

SCALE 1" = 10'-0"

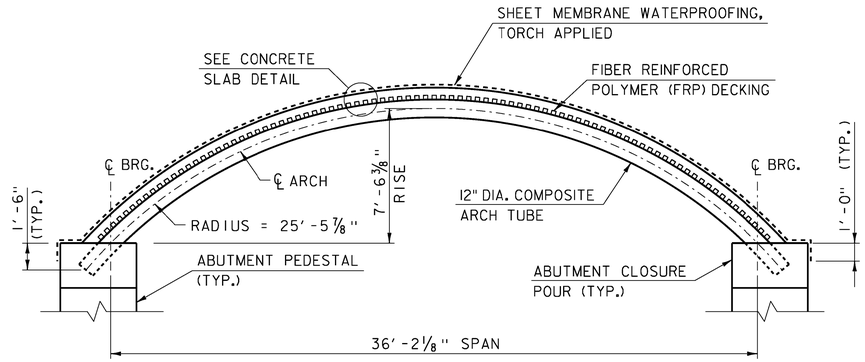
10 0 10

McFarland Johnson

PROJECT NAME: FAIRFIELD	
PROJECT NUMBER: BRO 1448(38)	
FILE NAME: z11j072pe_01.dgn	PLOT DATE: 01-NOV-2013
PROJECT LEADER: D. LANDRY	DRAWN BY: W. GAYNOR
DESIGNED BY: E. ALEXOPOULOS	CHECKED BY: T. KENDRICK
PLAN AND ELEVATION	SHEET 25 OF 41



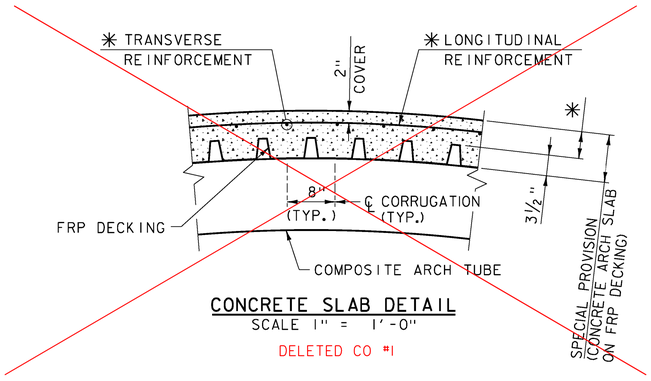
ARCH SUPERSTRUCTURE PLAN
SCALE ¼" = 1'-0"



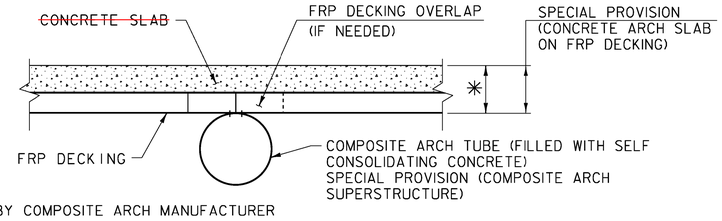
ARCH ELEVATION
SCALE ¼" = 1'-0"

HEADWALL ELEVATION
SCALE ¼" = 1'-0"

NOTE:
U.S. = UPSTREAM
D.S. = DOWNSTREAM



CONCRETE SLAB DETAIL
SCALE 1" = 1'-0"
DELETED CO #1

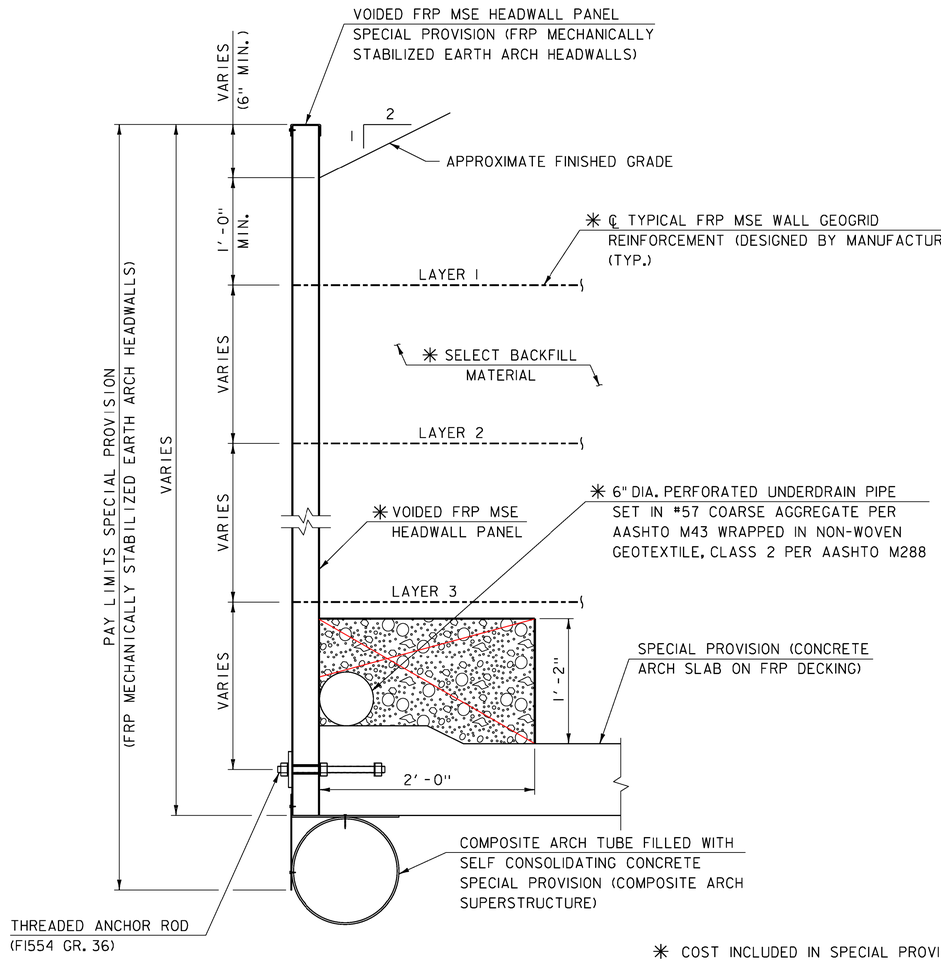


✳ AS REQUIRED BY COMPOSITE ARCH MANUFACTURER

DECKING SPLICE DETAIL
SCALE 1" = 1'-0"

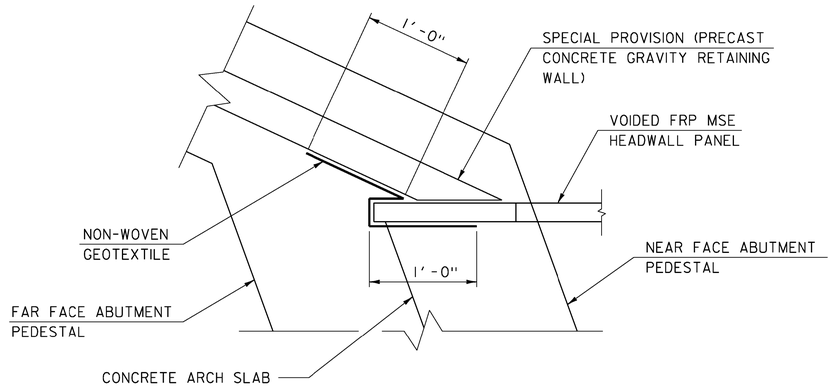
PROJECT NAME: FAIRFIELD	
PROJECT NUMBER: BRO 1448(38)	
FILE NAME: z11j072frm_01.dgn	PLOT DATE: 01-NOV-2013
PROJECT LEADER: D. LANDRY	DRAWN BY: W. GAYNOR
DESIGNED BY: E. ALEXOPOULOS	CHECKED BY: T. KENDRICK
COMPOSITE ARCH SUPERSTRUCTURE (1 OF 2)	SHEET 26 OF 41

McFarland Johnson

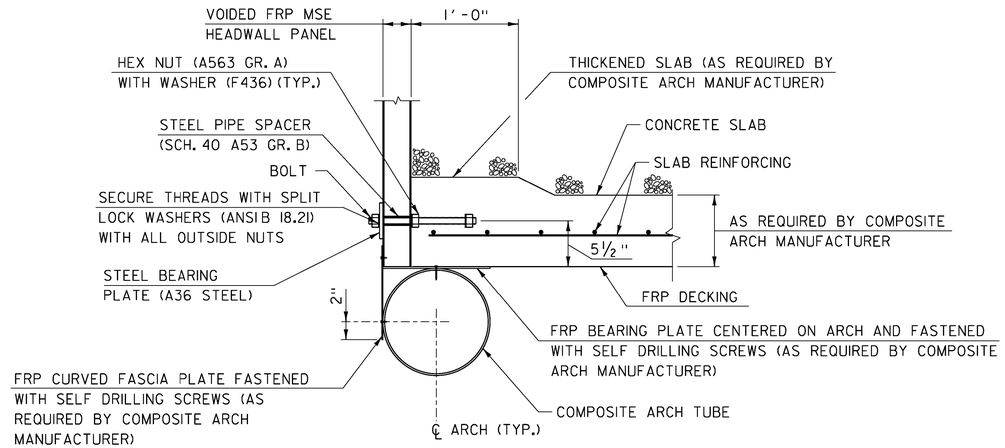


TYPICAL FRP MSE HEADWALL SECTION
SCALE 1½" = 1'-0

✳ COST INCLUDED IN SPECIAL PROVISION (FRP MECHANICALLY STABILIZED EARTH ARCH HEADWALLS)



FILTER FABRIC CORNER DETAIL
NOT TO SCALE



NOTE: UNDERDRAIN ITEMS NOT SHOWN FOR CLARITY

TYPICAL FASCIA DETAIL
SCALE 1½" = 1'-0

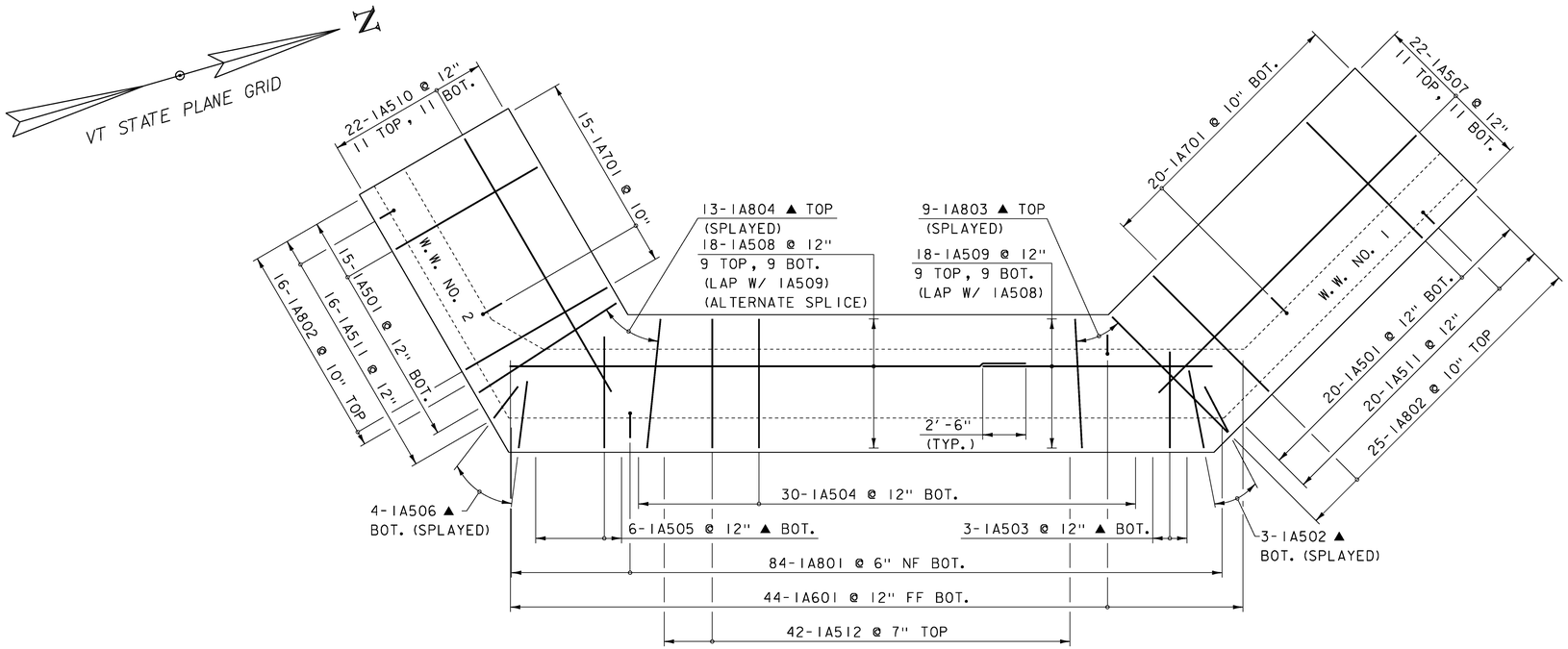
NOTES

1. DETAILS SHOWN ON THIS SHEET ARE CONCEPTUAL. FINAL DETAILS TO BE PROVIDED BY THE MANUFACTURER FOR VTRANS APPROVAL.

PROJECT NAME:	FAIRFIELD
PROJECT NUMBER:	BRO 1448(38)

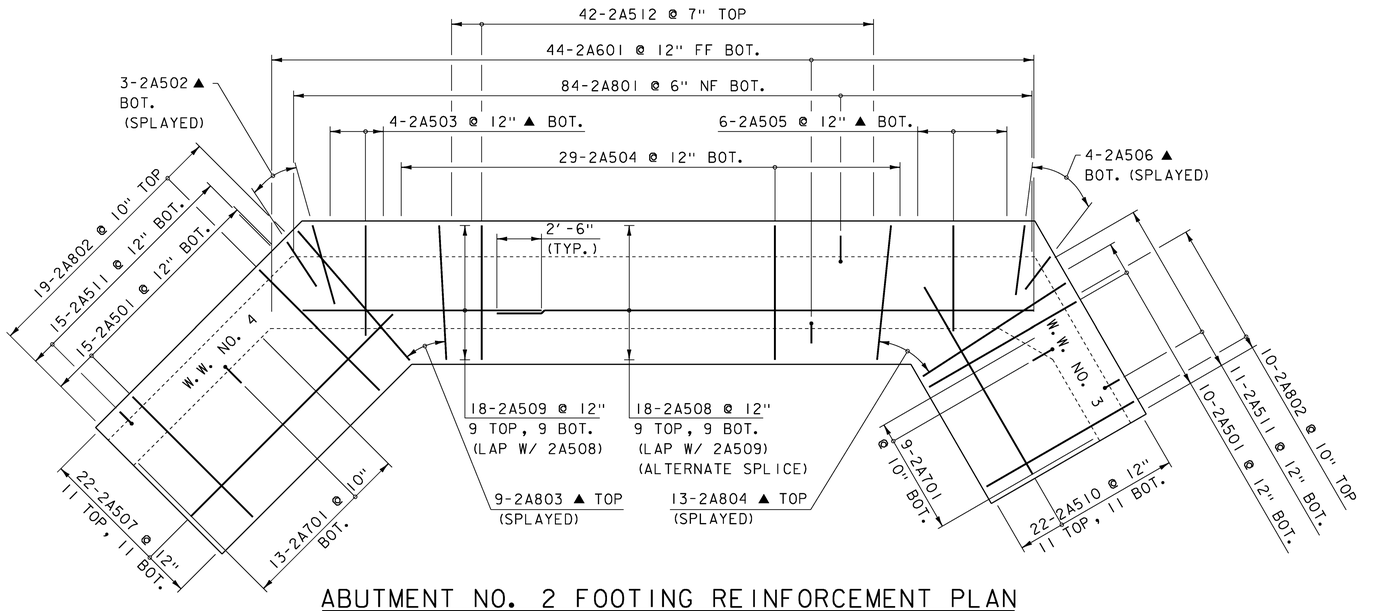
FILE NAME: z11J072supl.dgn	PLOT DATE: 01-NOV-2013
PROJECT LEADER: D. LANDRY	DRAWN BY: W. GAYNOR
DESIGNED BY: E. ALEXOPOULOS	CHECKED BY: T. KENDRICK
COMPOSITE ARCH SUPERSTURCTURE (2 OF 2)	SHEET 27 OF 41

McFarland Johnson



ABUTMENT NO. 1 FOOTING REINFORCEMENT PLAN

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



ABUTMENT NO. 2 FOOTING REINFORCEMENT PLAN

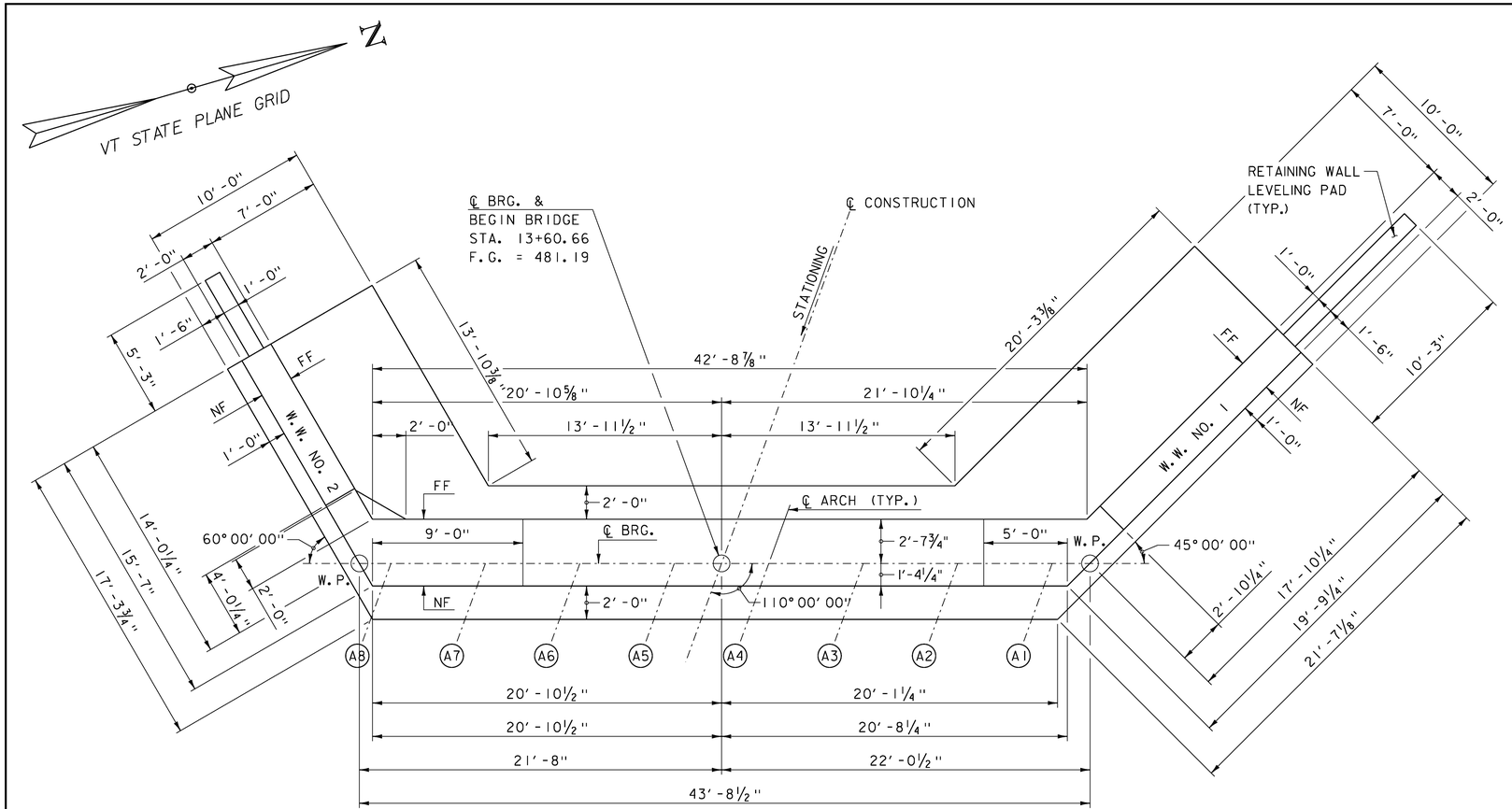
SCALE: 1/4" = 1'-0"

NOTE:

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

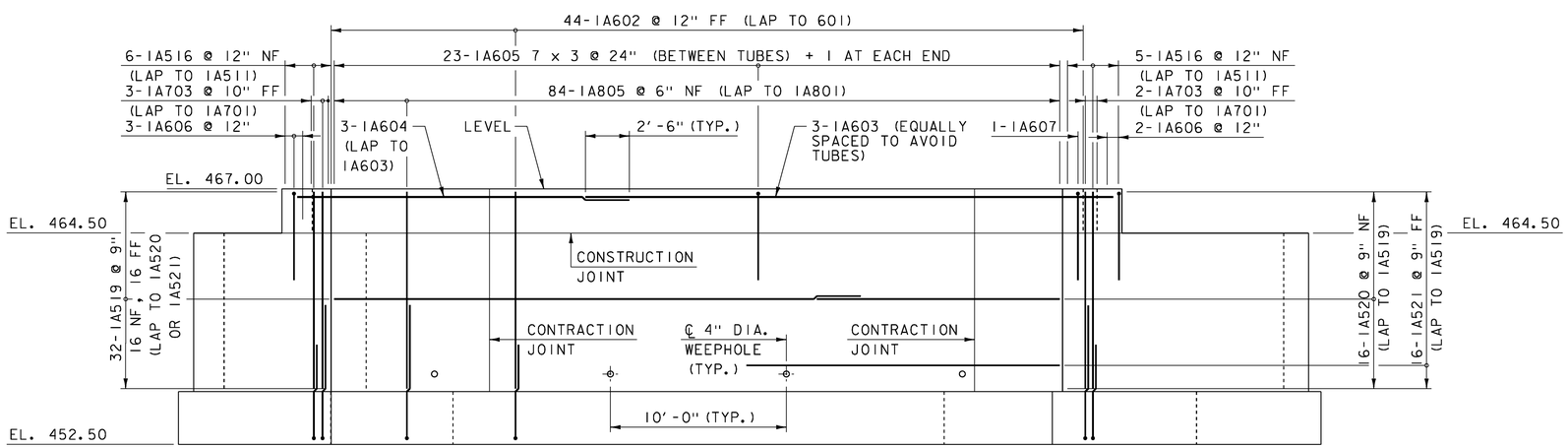
McFarland Johnson

PROJECT NAME:	FAIRFIELD
PROJECT NUMBER:	BRO 1448(38)
FILE NAME: z11J072subl.dgn	PLOT DATE: 01-NOV-2013
PROJECT LEADER: D. LANDRY	DRAWN BY: P. DUSTIN
DESIGNED BY: T. TRAVER	CHECKED BY: T. KENDRICK
ABUTMENT FOOTING DETAILS	SHEET 28 OF 41



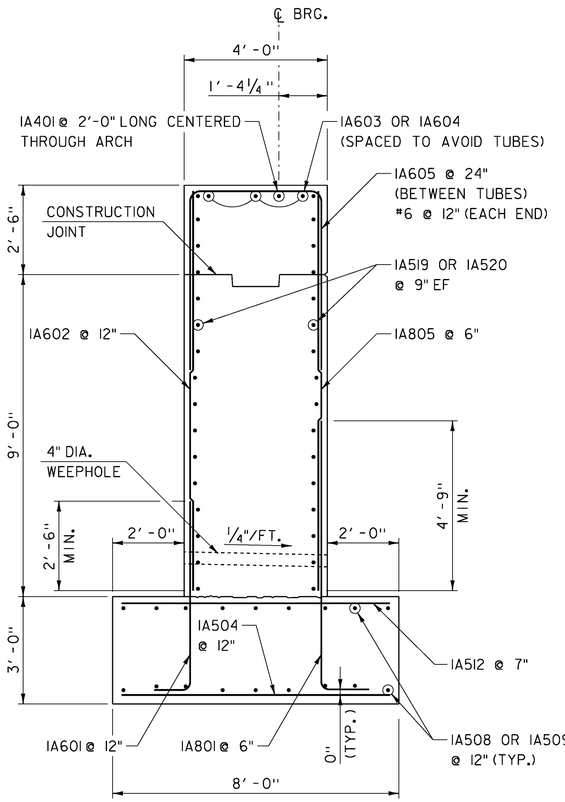
ABUTMENT NO. 1 PLAN

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



ABUTMENT NO. 1 ELEVATION

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



ABUTMENT NO. 1 TYPICAL SECTION

ABUTMENT NO. 2 SIMILAR
SCALE: 1/2" = 1'-0"

NOTE:

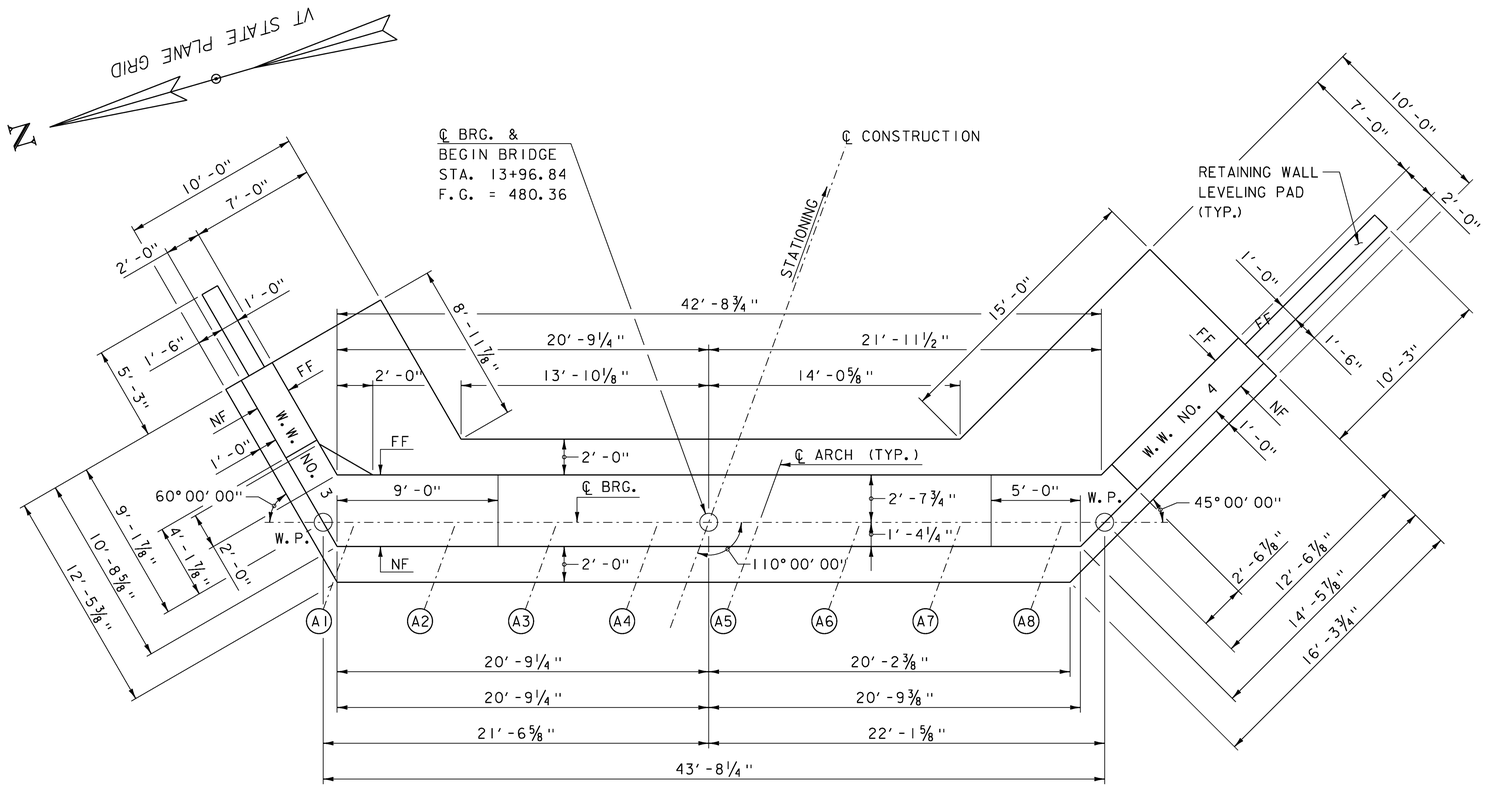
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

NOTES

1. FOR TYPICAL WINGWALL SECTION, SEE SHEET 30.

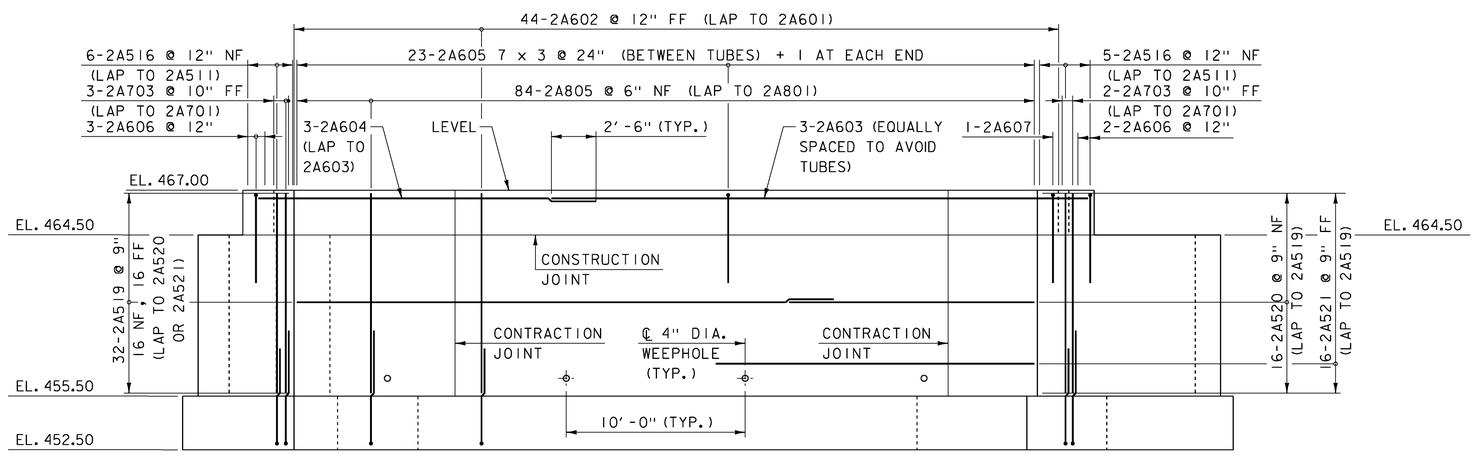
PROJECT NAME:	FAIRFIELD
PROJECT NUMBER:	BRO 1448(38)
FILE NAME: z11j072sub1.dgn	PLOT DATE: 01-NOV-2013
PROJECT LEADER: D. LANDRY	DRAWN BY: P. DUSTIN
DESIGNED BY: T. TRAVER	CHECKED BY: T. KENDRICK
ABUTMENT NO. 1 DETAILS	SHEET 29 OF 41

McFarland Johnson



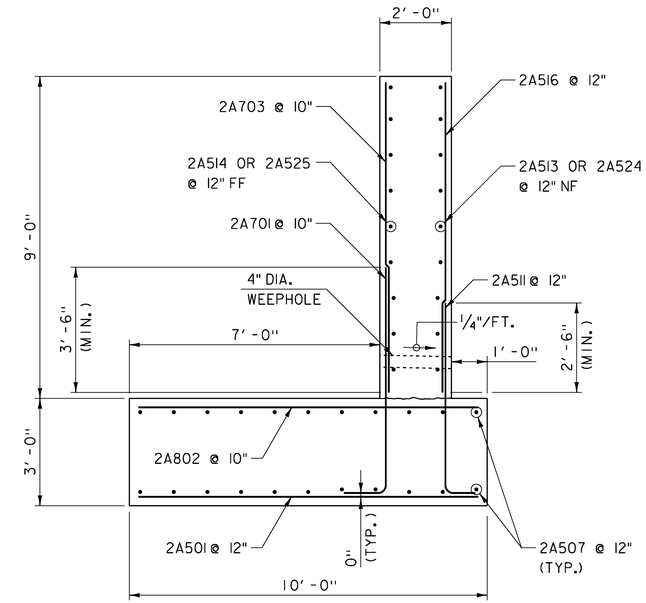
ABUTMENT NO. 2 PLAN

SCALE: ¼" = 1'-0"



ABUTMENT NO. 2 ELEVATION

SCALE: ¼" = 1'-0"



ABUTMENT NO. 2 WINGWALL TYPICAL SECTION

ABUTMENT NO. 1 WINGWALL TYPICAL SECTION SIMILAR

NOTE:

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

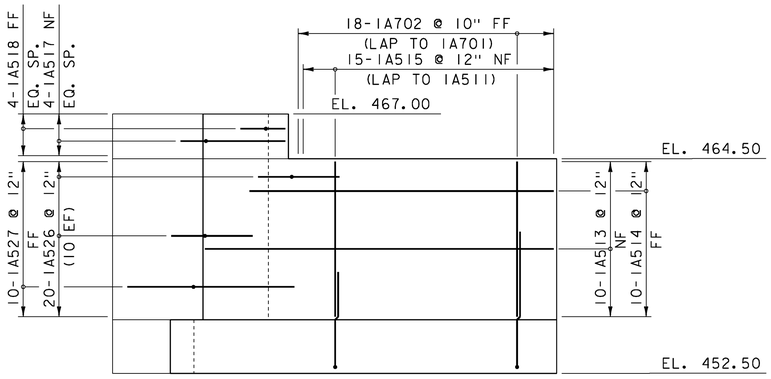
NOTES

1. FOR TYPICAL ABUTMENT SECTION, SEE SHEET 29.

PROJECT NAME:	FAIRFIELD
PROJECT NUMBER:	BRO 1448(38)

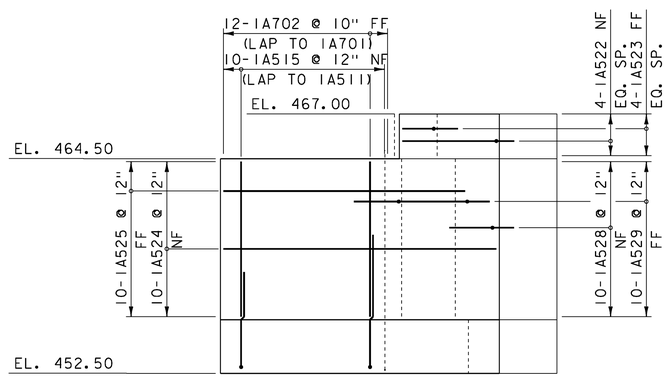
FILE NAME: z11J072sub2.dgn	PLOT DATE: 01-NOV-2013
PROJECT LEADER: D. LANDRY	DRAWN BY: P. DUSTIN
DESIGNED BY: T. TRAVER	CHECKED BY: T. KENDRICK
ABUTMENT NO. 2 DETAILS	SHEET 30 OF 41

McFarland Johnson



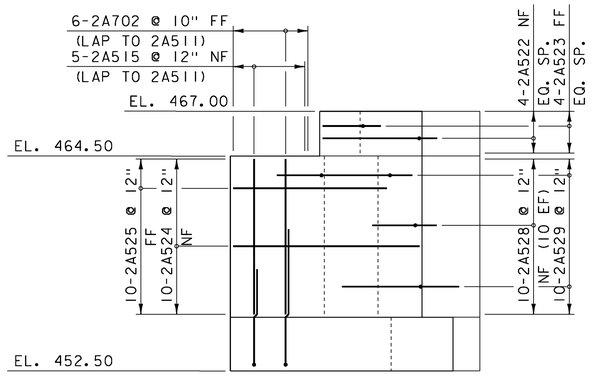
WINGWALL NO. 1 ELEVATION

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



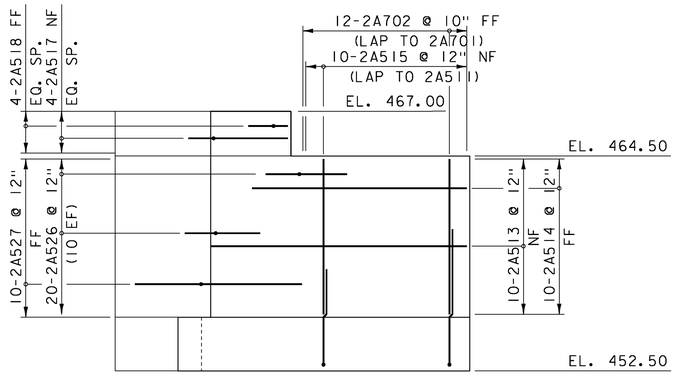
WINGWALL NO. 2 ELEVATION

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



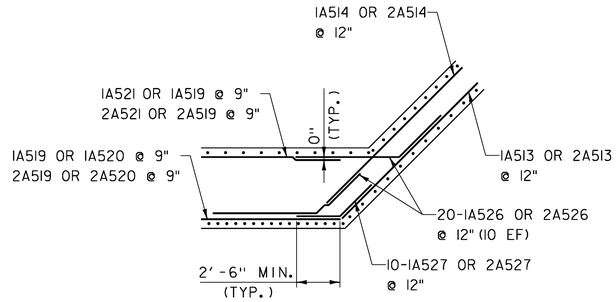
WINGWALL NO. 3 ELEVATION

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



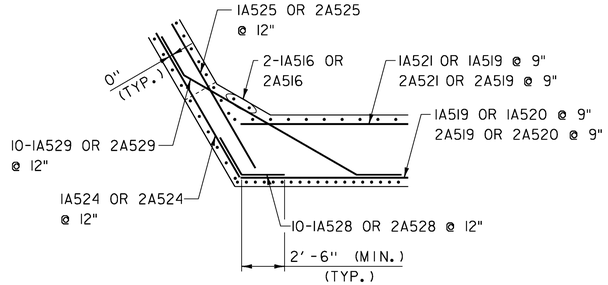
WINGWALL NO. 4 ELEVATION

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



WINGWALLS NO. 1 & NO. 4 CORNER DETAIL

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



WINGWALLS NO. 2 & NO. 3 CORNER DETAIL

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

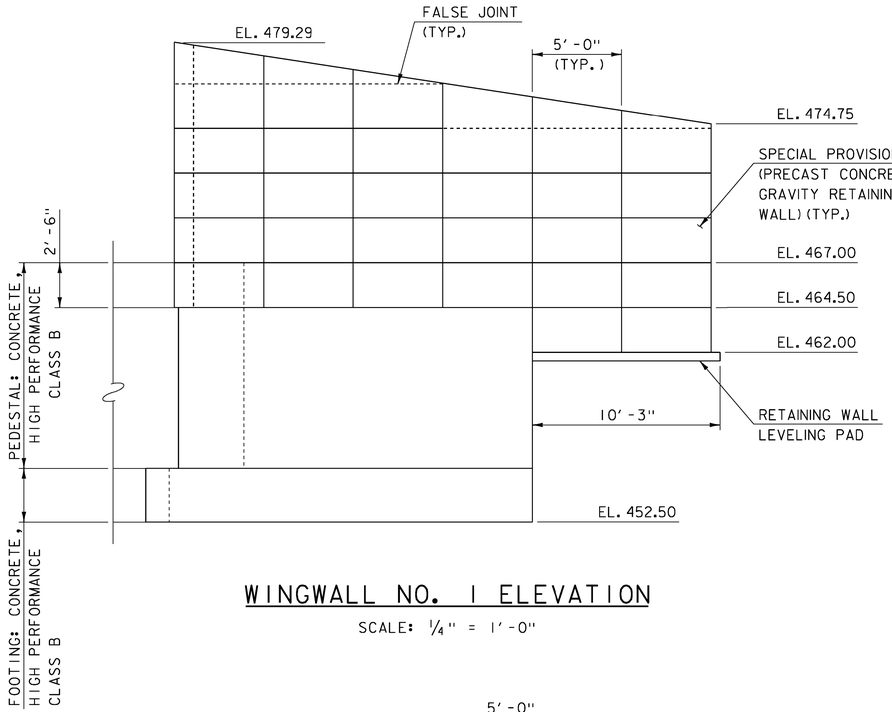
NOTE:

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

PROJECT NAME:	FAIRFIELD
PROJECT NUMBER:	BRO 1448(38)

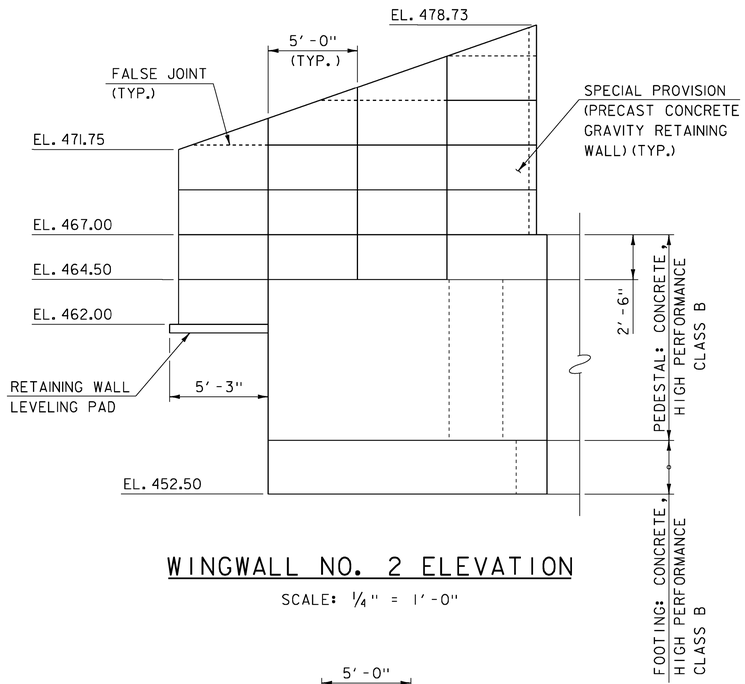
FILE NAME: z11j072sub1.dgn	PLOT DATE: 01-NOV-2013
PROJECT LEADER: D. LANDRY	DRAWN BY: P. DUSTIN
DESIGNED BY: T. TRAVER	CHECKED BY: T. KENDRICK
WINGWALL DETAILS	SHEET 31 OF 41

McFarland Johnson



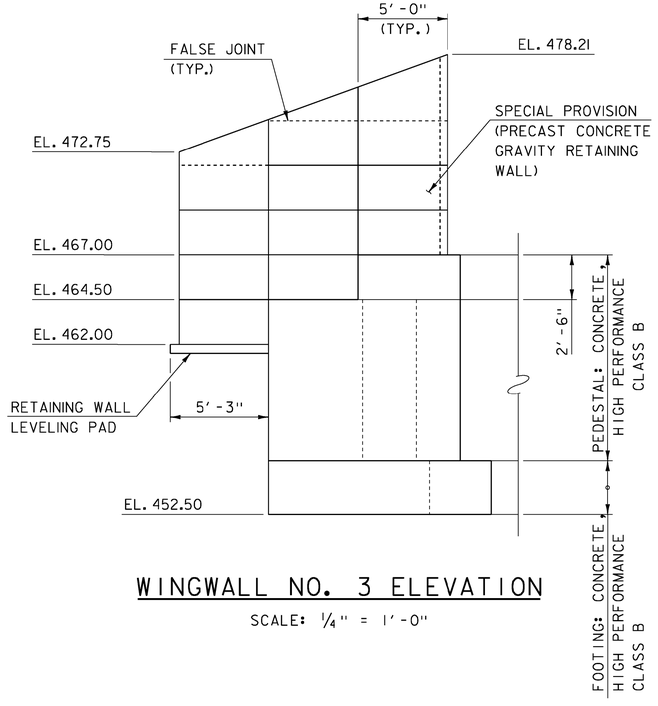
WINGWALL NO. 1 ELEVATION

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



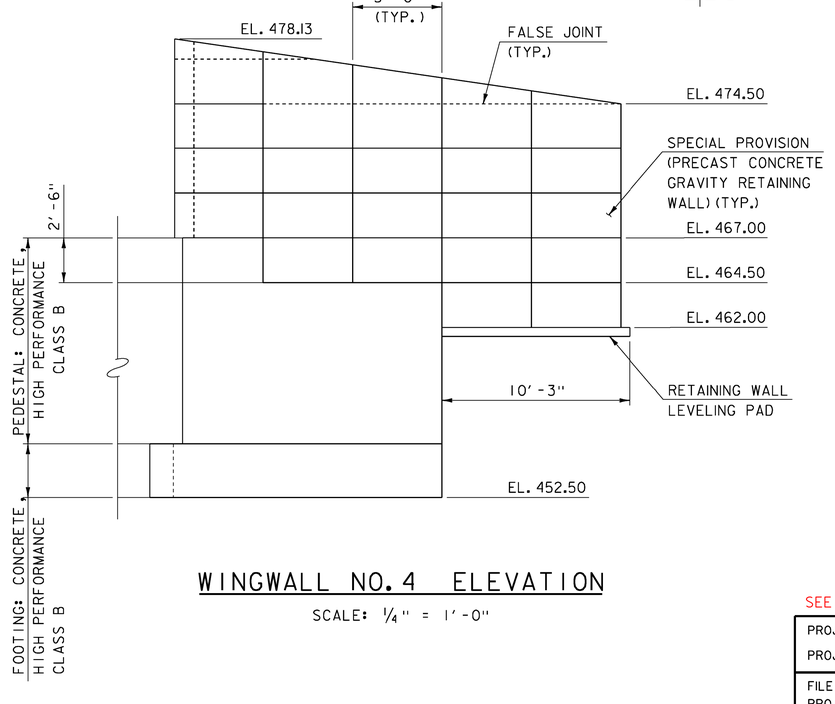
WINGWALL NO. 2 ELEVATION

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



WINGWALL NO. 3 ELEVATION

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



WINGWALL NO. 4 ELEVATION

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

SEE CONTRACTOR SUBMITTAL PLAN INCLUDED.

PROJECT NAME:	FAIRFIELD
PROJECT NUMBER:	BRO 1448(38)

FILE NAME: z11j072sub2.dgn	PLOT DATE: 01-NOV-2013
PROJECT LEADER: D. LANDRY	DRAWN BY: P. DUSTIN
DESIGNED BY: T. TRAVER	CHECKED BY: T. KENDRICK
RETAINING WALL DETAILS	SHEET 32 OF 41

McFarland Johnson

STATE OF VERMONT
AGENCY OF TRANSPORTATION

REINFORCING STEEL SCHEDULE

ABUTMENT NO. 1

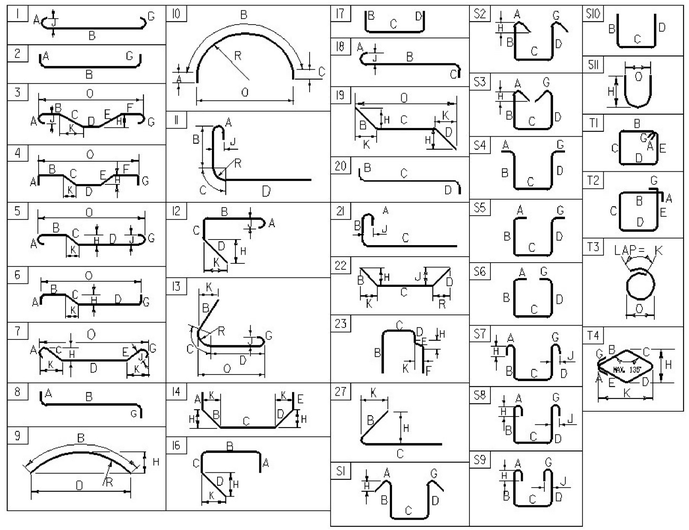
ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	16	4	2'- 0"	1A401	STR												
	35	5	9'- 6"	1A501	STR												
▲	3	5	4'- 7"	1A502	STR												
✳	3	5	6'- 8"	1A503	STR												
	30	5	7'- 6"	1A504	STR												
▲	6	5	7'- 1"	1A505	STR												
▲	4	5	3'- 11"	1A506	STR												
	22	5	21'- 2"	1A507	STR												
	18	5	30'- 0"	1A508	STR												
	18	5	13'- 5"	1A509	STR												
	22	5	17'- 0"	1A510	STR												
	36	5	5'- 10"	1A511	2	0'- 10"	5'- 0"					0'- 0"					
	42	5	7'- 6"	1A512	STR												
	10	5	19'- 6"	1A513	STR												
	10	5	19'- 6"	1A514	STR												
	25	5	8'- 8"	1A515	STR												
	11	5	11'- 4"	1A516	STR												
	4	5	6'- 6"	1A517	19		2'- 0"	4'- 6"					1'- 5"		1'- 5"		5'- 11"
	4	5	3'- 1"	1A518	19		1'- 1"	2'- 0"					0'- 9"		0'- 9"		2'- 9"
	32	5	30'- 0"	1A519	STR												
	16	5	13'- 6"	1A520	STR												
	16	5	17'- 6"	1A521	STR												
	4	5	7'- 4"	1A522	19		2'- 0"	5'- 4"					1'- 9"		1'- 0"		6'- 4"
	4	5	4'- 2"	1A523	19		2'- 2"	2'- 0"					1'- 11"		1'- 1"		3'- 1"
	10	5	15'- 3"	1A524	STR												
	10	5	13'- 6"	1A525	STR												
	20	5	5'- 0"	1A526	19		2'- 6"	2'- 6"					1'- 9"		1'- 9"		4'- 3"
	10	5	5'- 0"	1A527	19		2'- 6"	2'- 6"					1'- 9"		1'- 9"		4'- 3"
	20	5	5'- 0"	1A528	19		2'- 6"	2'- 6"					1'- 9"		1'- 9"		4'- 3"
	10	5	18'- 11"	1A529	22		2'- 6"	13'- 11"	2'- 6"				1'- 3"	1'- 3"	2'- 2"	2'- 2"	
	44	6	6'- 5"	1A601	2	0'- 12"	5'- 5"					0'- 0"					
✳	45	6	11'- 2"	1A602	STR												
	3	6	30'- 0"	1A603	STR												
	3	6	18'- 4"	1A604	STR												
	23	6	13'- 8"	1A605	17		5'- 0"	3'- 8"	5'- 0"								
	5	6	11'- 8"	1A606	17		5'- 0"	1'- 8"	5'- 0"								
	1	6	12'- 8"	1A607	17		5'- 0"	2'- 8"	5'- 0"								
	36	7	7'- 7"	1A701	2	1'- 2"	6'- 5"					0'- 0"					
✳	31	7	8'- 8"	1A702	STR												
	5	7	11'- 4"	1A703	STR												
	85	8	7'- 9"	1A801	2	1'- 4"	6'- 5"					0'- 0"					
✳	42	8	9'- 6"	1A802	STR												
▲	9	8	9'- 6"	1A803	STR												
▲	13	8	10'- 0"	1A804	STR												
	84	8	11'- 2"	1A805	STR												

ABUTMENT NO. 2

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	16	4	2'- 0"	2A401	STR												
	25	5	9'- 6"	2A501	STR												
▲	3	5	4'- 7"	2A502	STR												
✳	5	5	7'- 1"	2A503	STR												
	29	5	7'- 6"	2A504	STR												
▲	6	5	7'- 1"	2A505	STR												
▲	4	5	3'- 11"	2A506	STR												
	22	5	15'- 11"	2A507	STR												
	18	5	30'- 0"	2A508	STR												
	18	5	13'- 5"	2A509	STR												
	22	5	12'- 1"	2A510	STR												
	26	5	5'- 10"	2A511	2	0'- 10"	5'- 0"					0'- 0"					
	42	5	7'- 6"	2A512	STR												
	10	5	14'- 4"	2A513	STR												
	10	5	14'- 4"	2A514	STR												
	15	5	8'- 8"	2A515	STR												
	13	5	11'- 4"	2A516	STR												
	4	5	6'- 6"	2A517	19		2'- 0"	4'- 4"					1'- 5"		1'- 5"		5'- 8"
	4	5	3'- 0"	2A518	19		0'- 9"	2'- 0"					0'- 6"		0'- 6"		2'- 6"
	32	5	30'- 0"	2A519	STR												
	16	5	13'- 6"	2A520	STR												
	16	5	17'- 6"	2A521	STR												
	4	5	7'- 5"	2A522	19		2'- 0"	5'- 5"					1'- 9"		1'- 0"		6'- 5"
	4	5	4'- 4"	2A523	19		2'- 4"	2'- 0"					1'- 9"		1'- 0"		3'- 0"
	10	5	10'- 5"	2A524	STR												
	10	5	8'- 7"	2A525	STR												
	20	5	5'- 0"	2A526	19		2'- 6"	2'- 6"					1'- 9"		1'- 9"		4'- 3"
	10	5	5'- 0"	2A527	19		2'- 6"	2'- 6"					1'- 9"		1'- 9"		4'- 3"
	20	5	5'- 0"	2A528	19		2'- 6"	2'- 6"					1'- 9"		1'- 9"		4'- 3"
	10	5	18'- 11"	2A529	22		2'- 6"	13'- 11"	2'- 6"				1'- 3"	1'- 3"	2'- 2"	2'- 2"	
	44	6	6'- 5"	2A601	2	0'- 12"	5'- 5"					0'- 0"					
✳	44	6	11'- 4"	2A602	STR												
	3	6	30'- 0"	2A603	STR												
	3	6	18'- 4"	2A604	STR												
	23	6	13'- 8"	2A605	17		5'- 0"	3'- 8"	5'- 0"								
	5	6	11'- 8"	2A606	17		5'- 0"	1'- 8"	5'- 0"								
	1	6	12'- 8"	2A607	17		5'- 0"	2'- 8"	5'- 0"								
	22	7	7'- 7"	2A701	2	1'- 2"	6'- 5"					0'- 0"					
✳	19	7	8'- 8"	2A702	STR												
	5	7	11'- 4"	2A703	STR												
	84	8	8'- 9"	2A801	2	1'- 4"	7'- 5"										
✳	30	8	9'- 6"	2A802	STR												
▲	9	8	9'- 6"	2A803	STR												
▲	13	8	10'- 1"	2A804	STR												
	84	8	11'- 4"	2A805	STR												

~ 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.



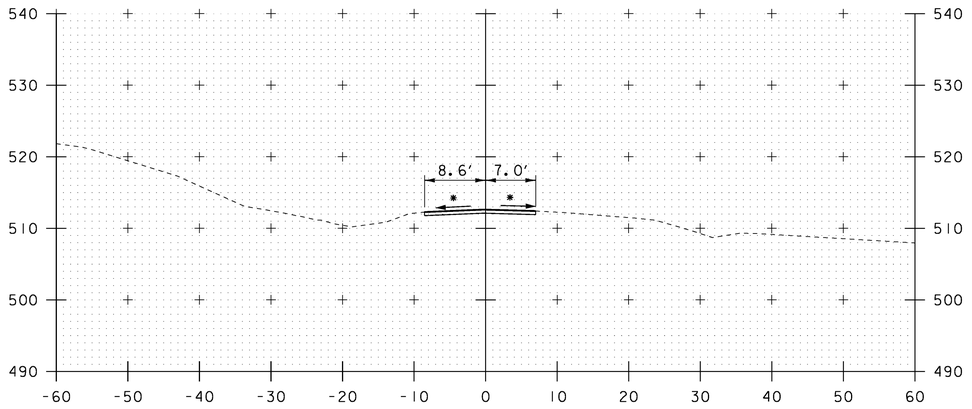
ASTM STANDARD REINFORCING BARS

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: **FAIRFIELD**
PROJECT NUMBER: **BRO 1448(38)**

FILE NAME: **z11j072reinf.xls**
PROJECT MANAGER: **D. LANDRY**
DESIGNED BY: **T. TRAVER**
REINFORCING STEEL SCHEDULE

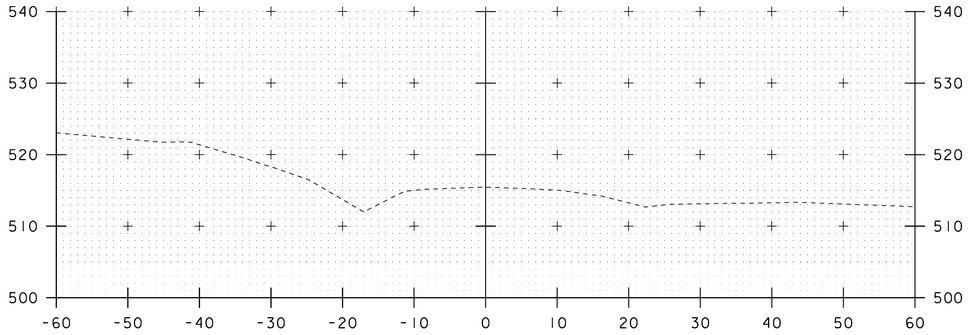
PLOT DATE: **11/01/2013**
DRAWN BY: **P. DUSTIN**
CHECKED BY: **T. KENDRICK**
SHEET **33** OF **41**



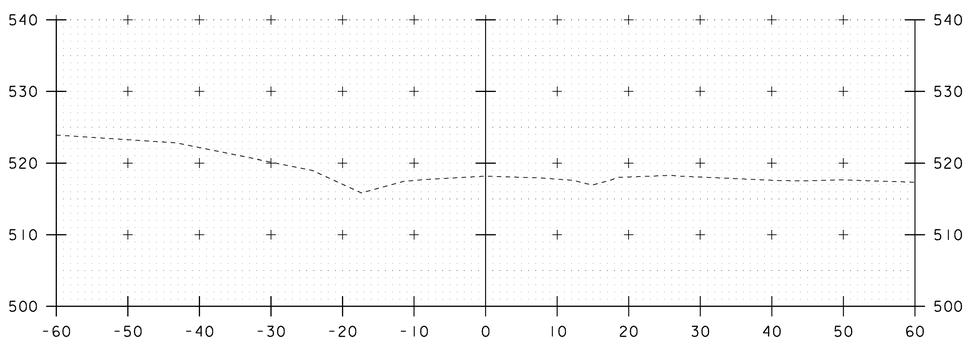
10+75

* MATCH EXISTING CROSS SLOPE (TYP)

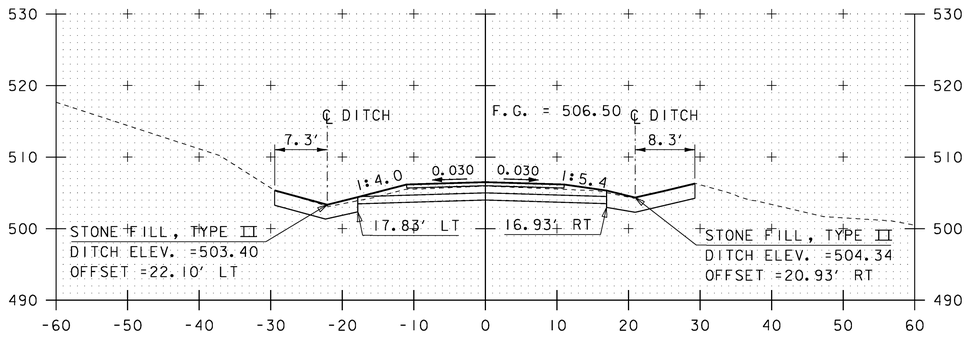
BEGIN APPROACH
STA 10+75.00
MATCH EXISTING



10+50

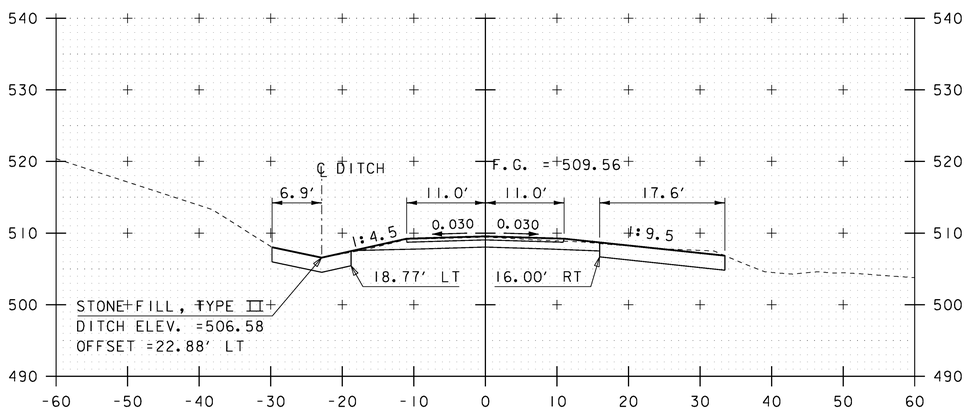


10+25



11+25

BEGIN PROJECT
STA 11+25.00



11+00

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

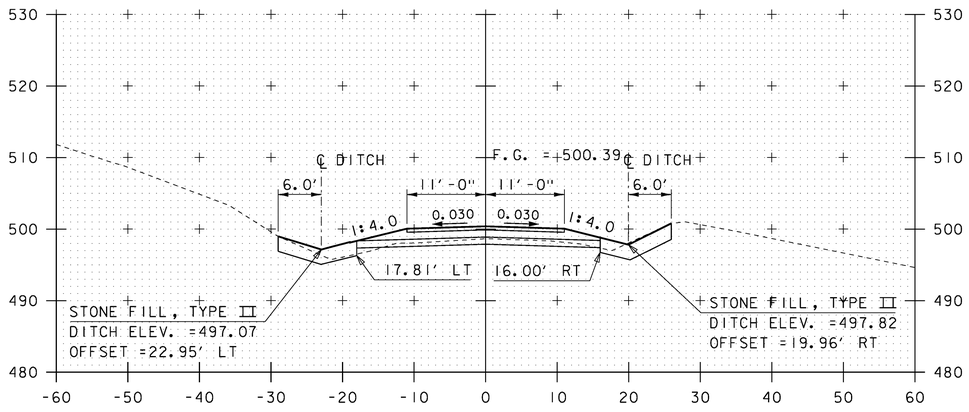
STA. 10+25 TO STA. 11+25

McFarland Johnson

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

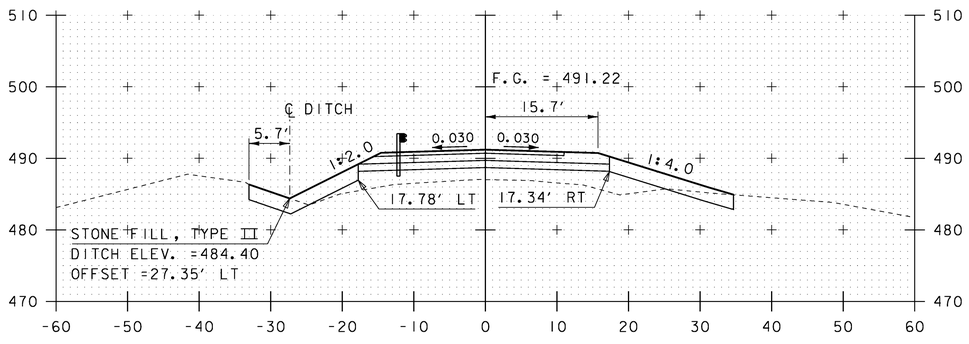
FILE NAME: z11j072_xsl.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: E. ALEXOPOULOS
ROADWAY CROSS SECTIONS (1 OF 6)

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 34 OF 41

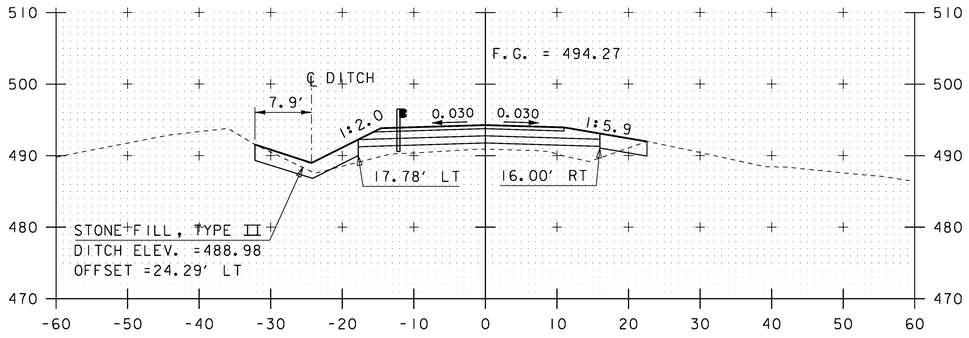


11+75

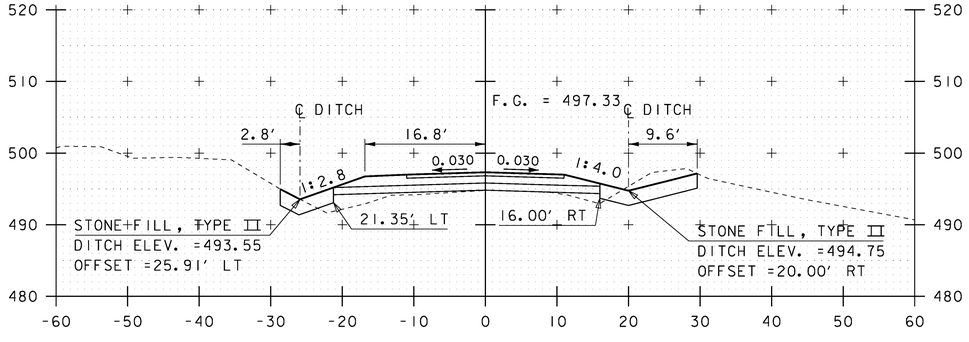
11+50



12+50



12+25



12+00

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

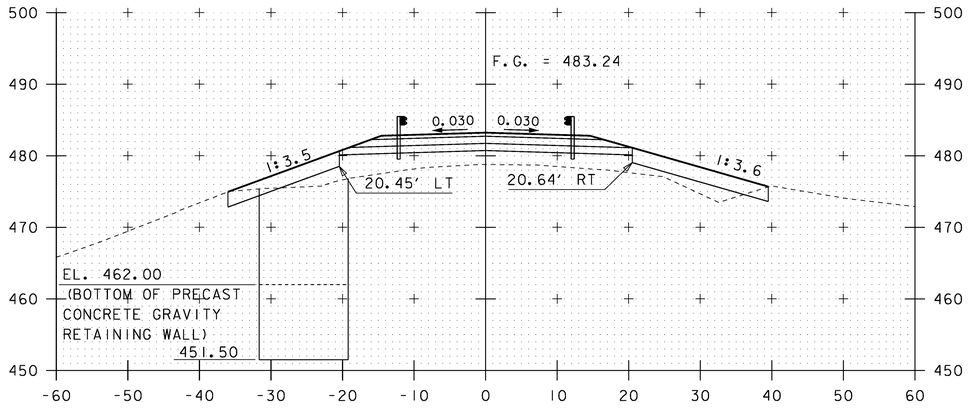
STA. 11+50 TO STA. 12+50

McFarland Johnson

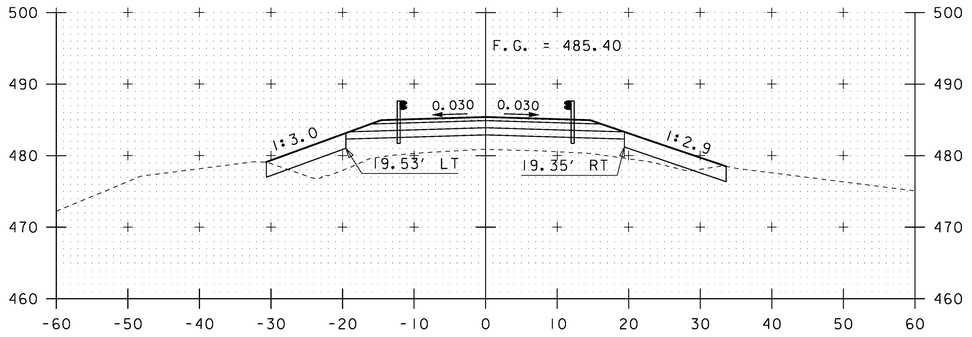
PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11J072_xsl.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: E. ALEXOPOULOS
ROADWAY CROSS SECTIONS (2 OF 6)

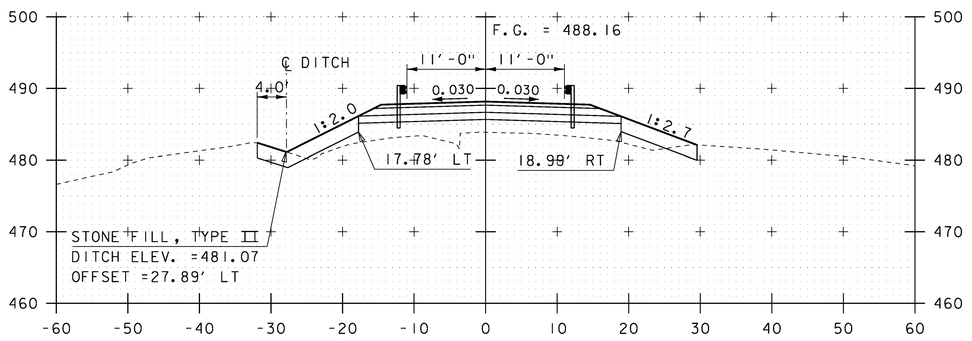
PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 35 OF 41



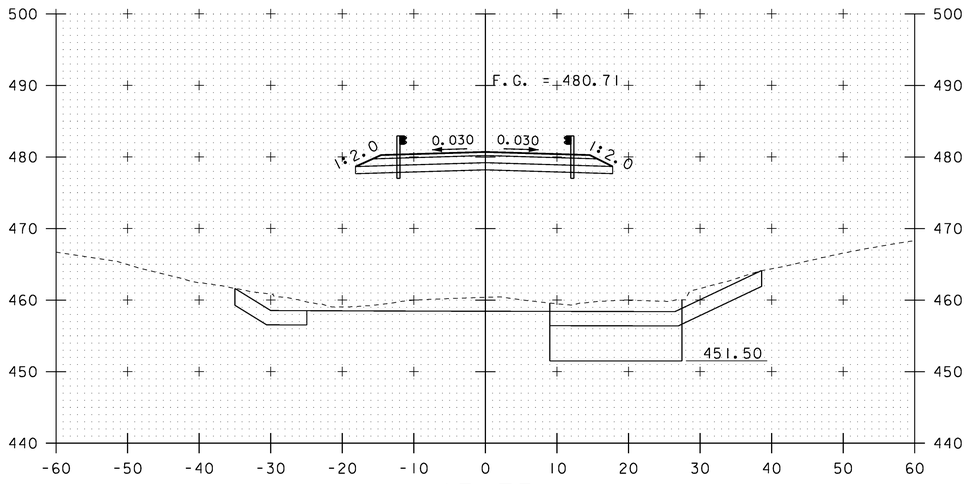
13+25



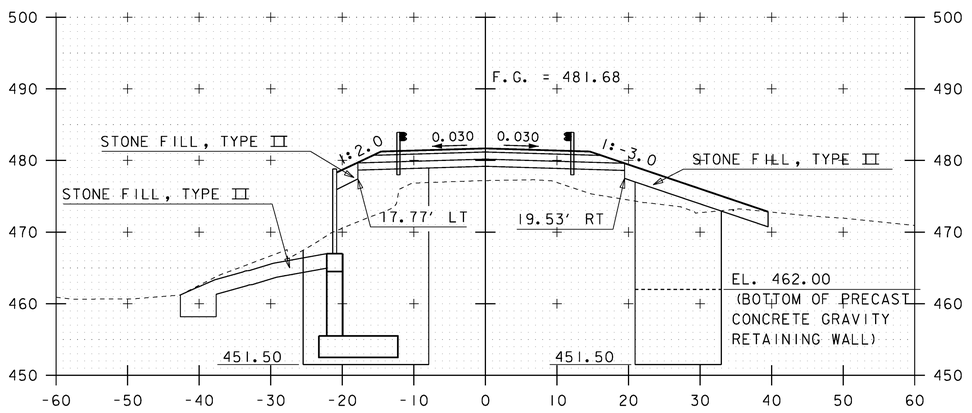
13+00



12+75



13+75
BEGIN BRIDGE
STA 13+60.66



13+50

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

STA. 12+75 TO STA. 13+75

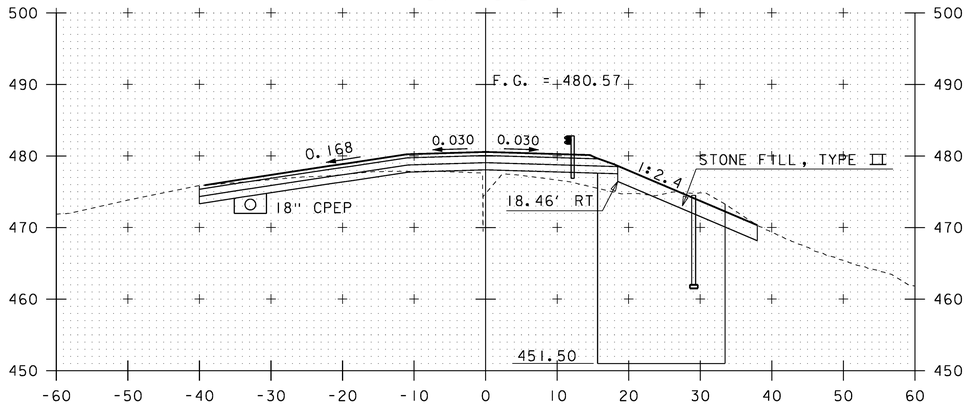
McFarland Johnson

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

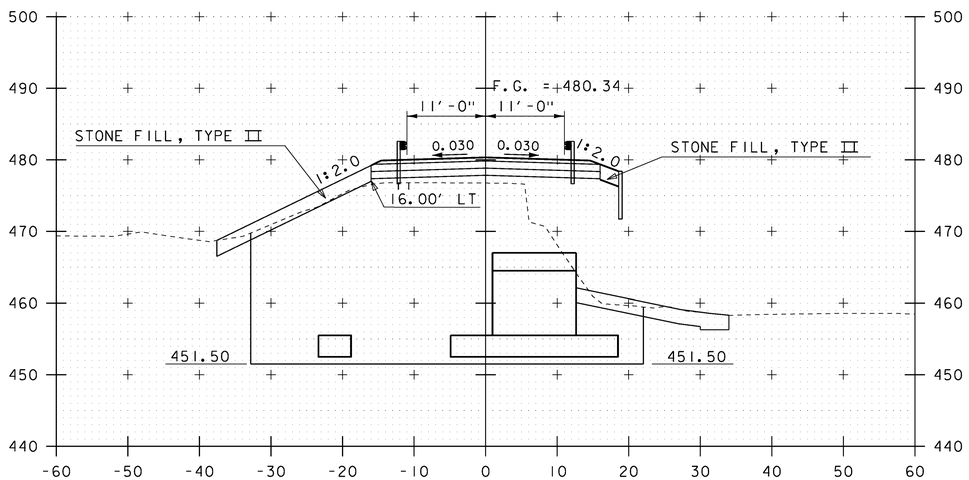
FILE NAME: z11J072_xsl.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: E. ALEXOPOULOS
ROADWAY CROSS SECTIONS (3 OF 6)

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 36 OF 41

CONSTRUCT GRAVEL DRIVE
STA 14+31 LT

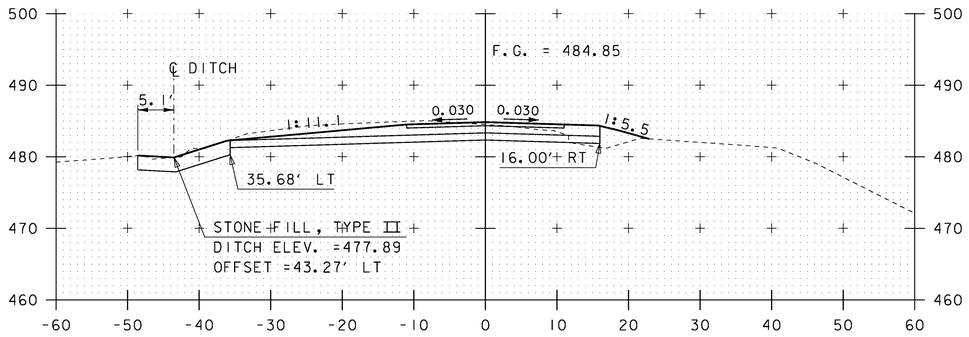


14+25

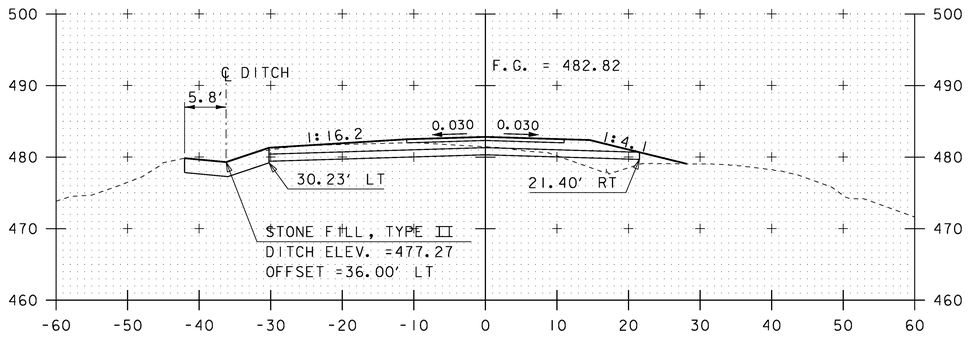


14+00

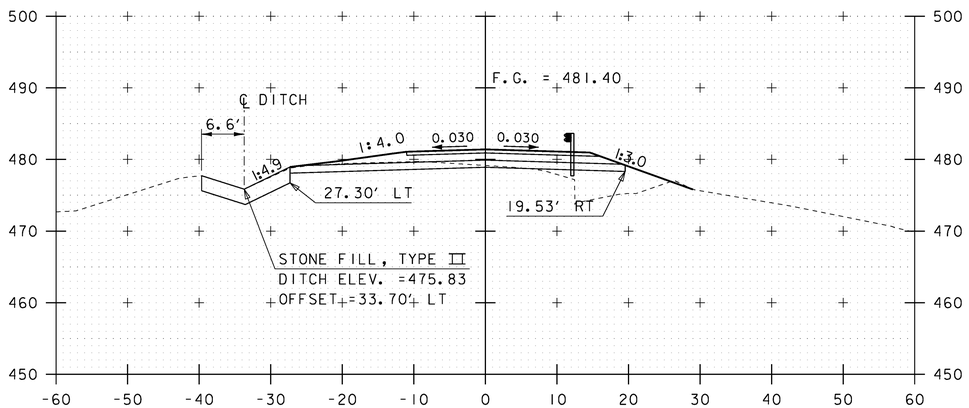
END BRIDGE
STA 13+96.84



15+00



14+75



14+50

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

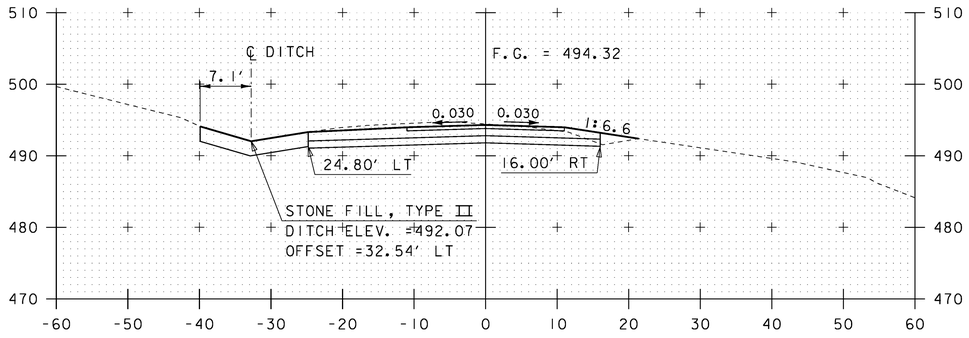
STA. 14+00 TO STA. 15+00

McFarland Johnson

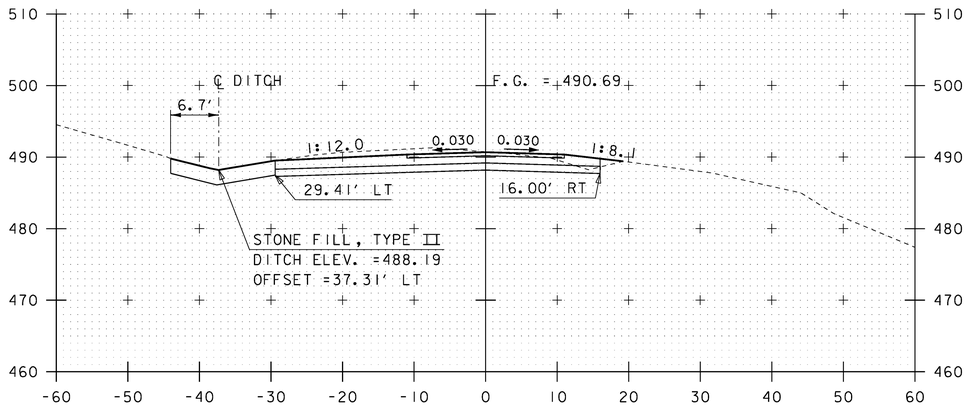
PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11j072_xsl.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: E. ALEXOPOULOS
ROADWAY CROSS SECTIONS (4 OF 6)

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 37 OF 41



15+75



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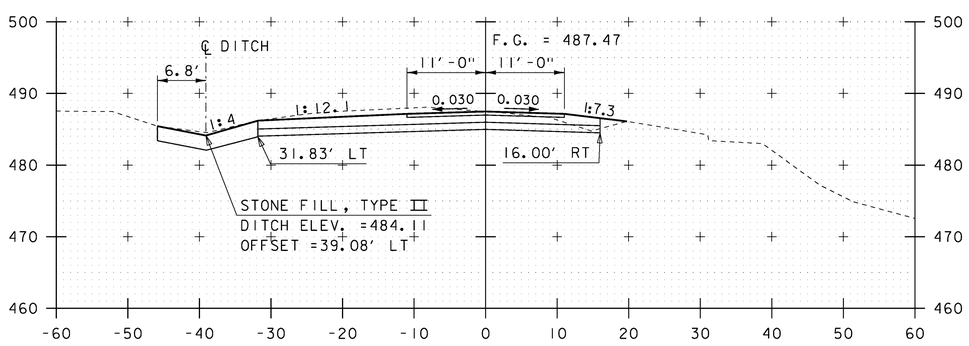
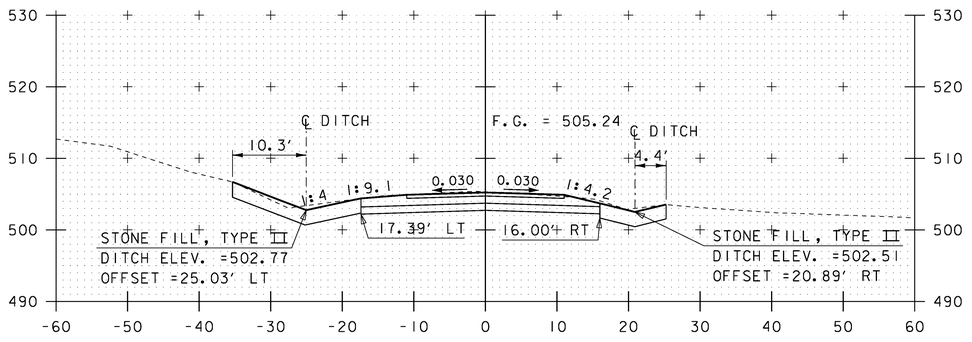
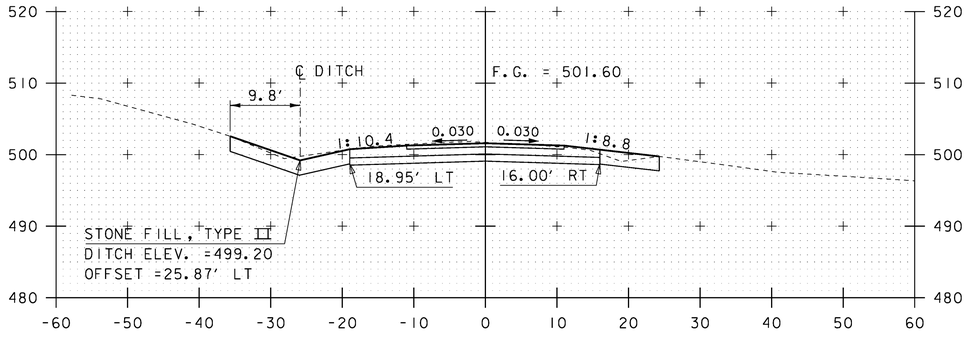


15+25

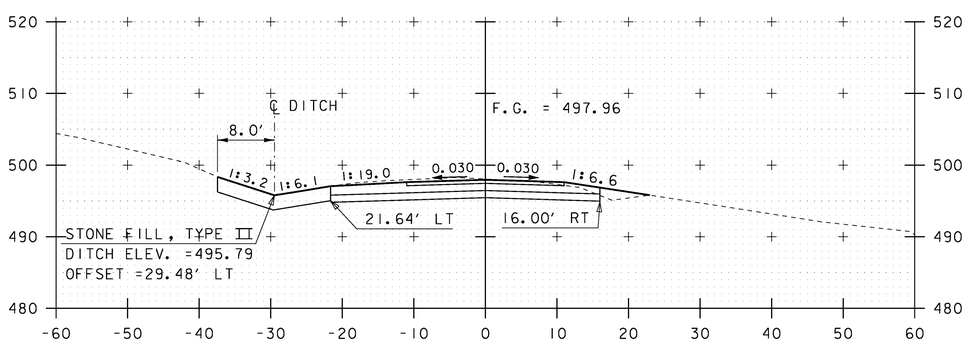


16+50

END PROJECT
STA 16+50.00



16+25



16+00

SCALE 1" = 10′-0"
10 0 10

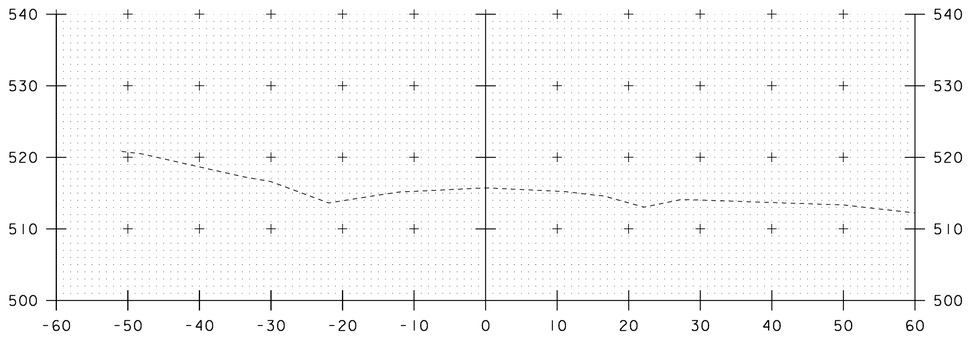
STA. 15+25 TO STA. 16+50

McFarland Johnson

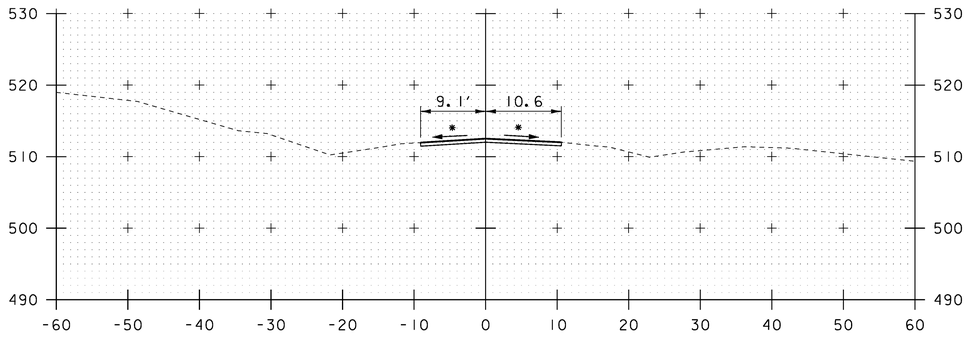
PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11j072_xsl.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: E. ALEXOPOULOS
ROADWAY CROSS SECTIONS (5 OF 6)

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 38 OF 41



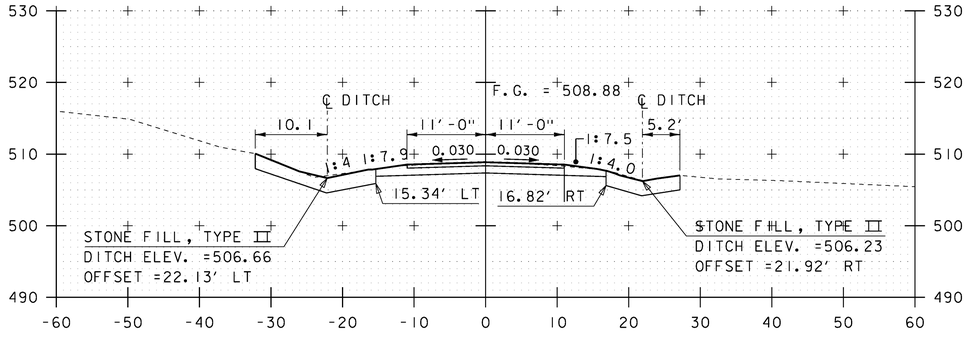
17+25



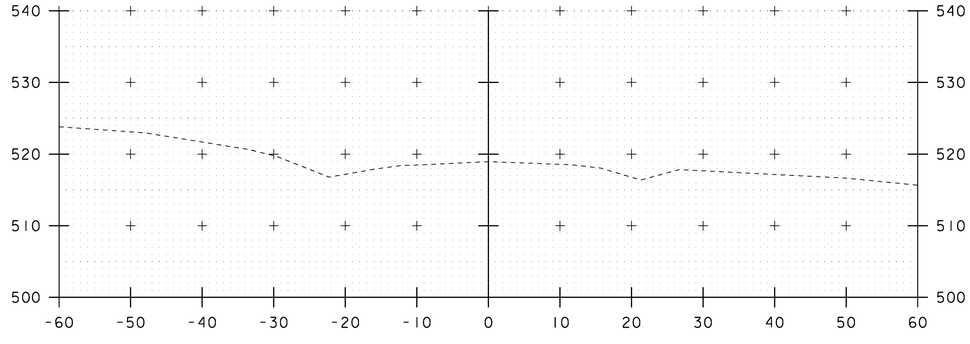
17+00

* MATCH EXISTING
CROSS SLOPE (TYP)

END APPROACH
STA 17+00.00
MATCH EXISTING



16+75



17+50

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

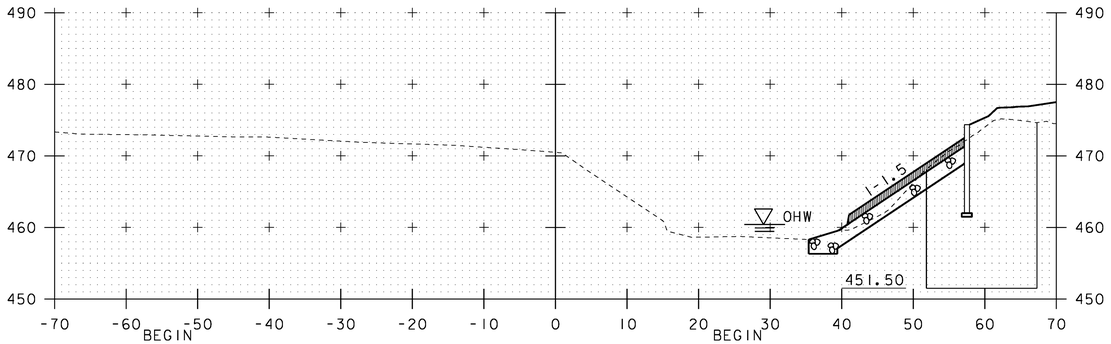
STA. 16+75 TO STA. 17+50

McFarland Johnson

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11J072_xsl.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: E. ALEXOPOULOS
ROADWAY CROSS SECTIONS (6 OF 6)

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 39 OF 41



BEGIN
UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL
STA 200+55 LT

BEGIN
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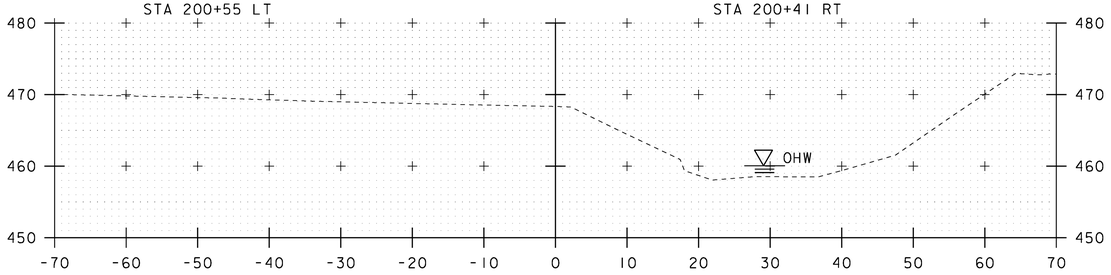
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL
STA 200+41 RT

200+50



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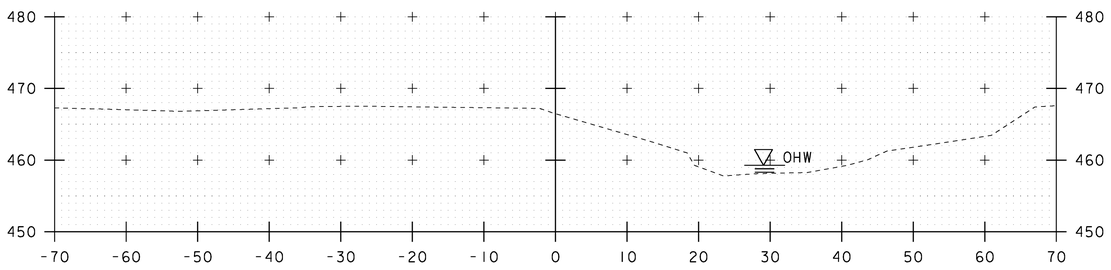

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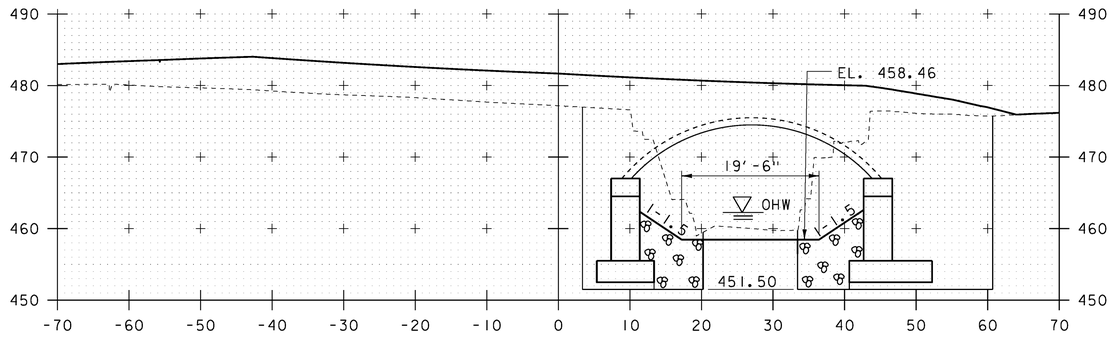
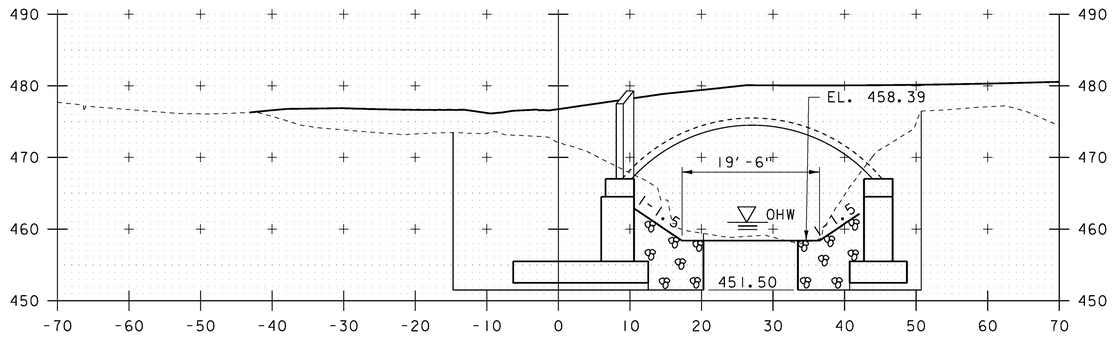


201+00



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GRUBBING MATERIAL
STA 200+72 LT

END
GRUBBING MATERIAL
STA 200+41 RT

200+75

STA. 200+00 TO STA. 201+00

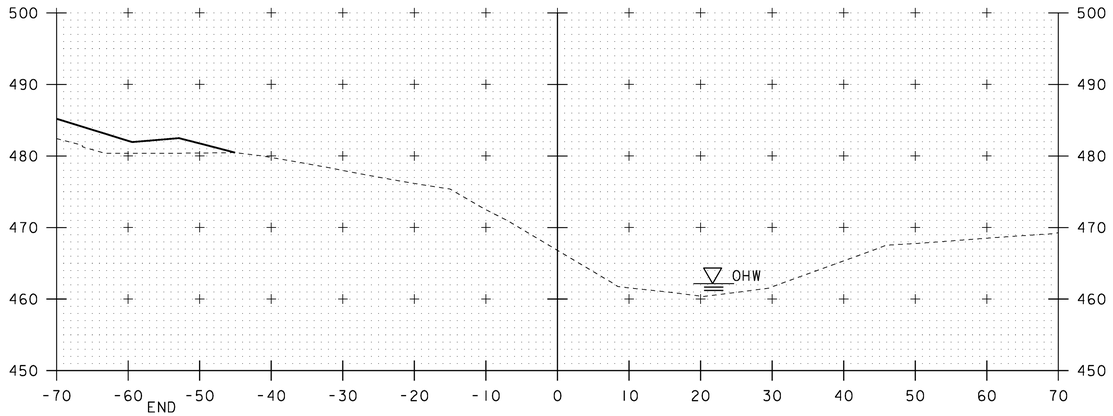
SCALE 1" = 10'-0"
10 0 10

McFarland Johnson

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11J072_xsl.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: E. ALEXOPOULOS
CHANNEL CROSS SECTIONS (1 OF 2)

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 40 OF 41



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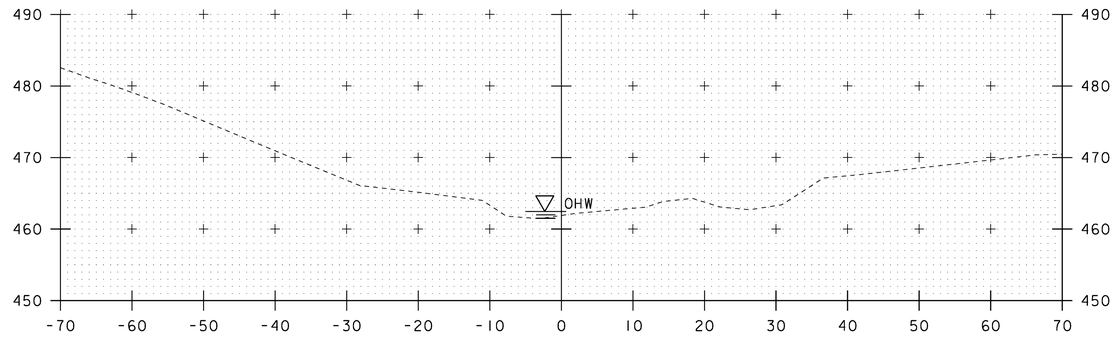
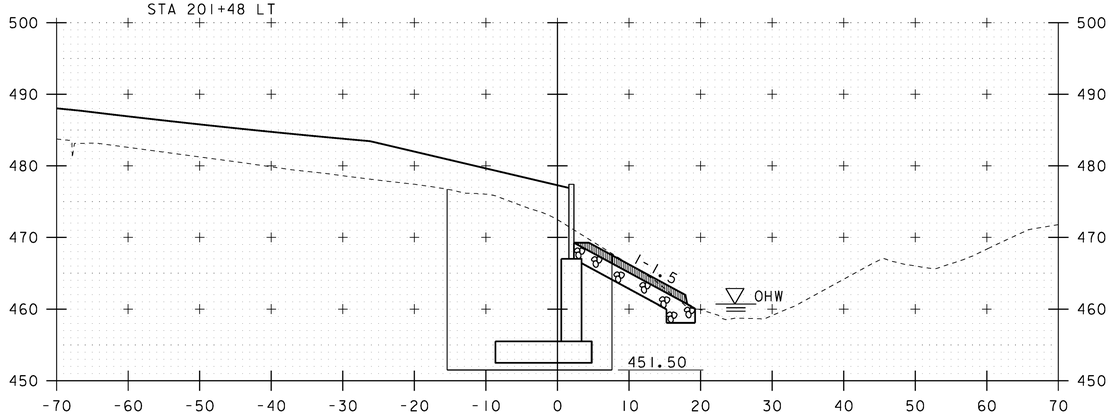


202+00



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STA 200+12 LT

201+25

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STONE FILL, TYPE II
GRUBBING MATERIAL
STA 201+24 RT

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GRUBBING MATERIAL
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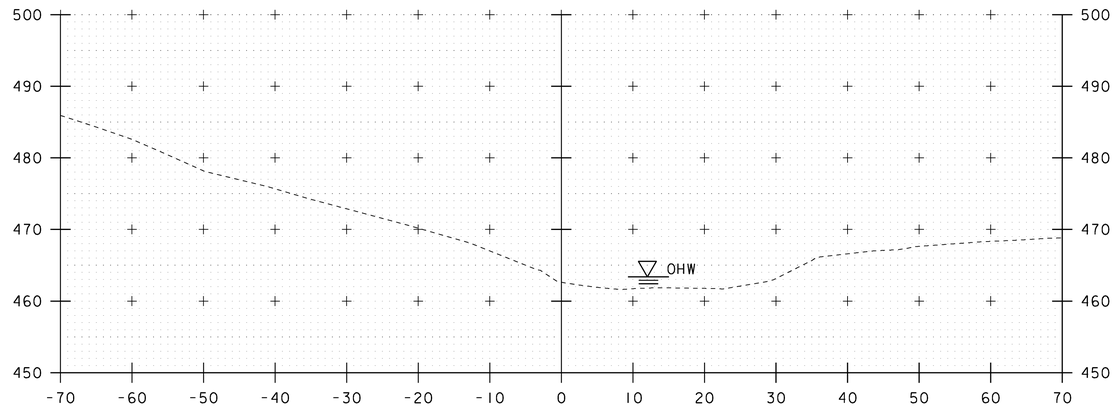


201+75

STA. 201+25 TO STA. 202+00

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

McFarland Johnson

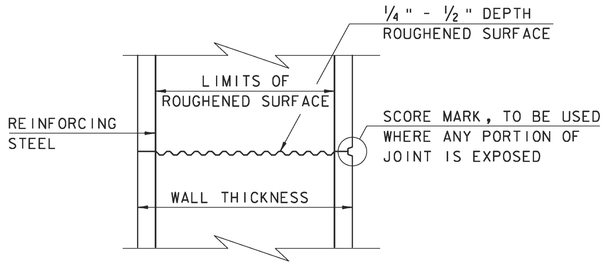
PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BRO 1448(38)

FILE NAME: z11j072_xsl.dgn
PROJECT LEADER: D. LANDRY
DESIGNED BY: E. ALEXOPOULOS
CHANNEL CROSS SECTIONS (2 OF 2)

PLOT DATE: 01-NOV-2013
DRAWN BY: W. GAYNOR
CHECKED BY: T. KENDRICK
SHEET 41 OF 41

CONCRETE GENERAL NOTES

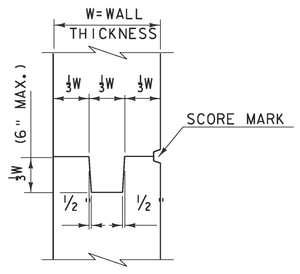
1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"



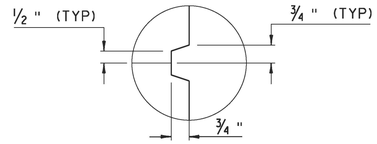
TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.

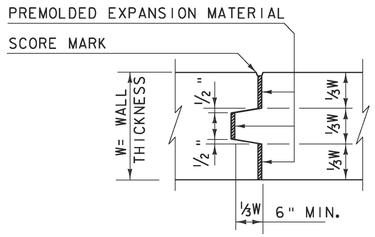
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



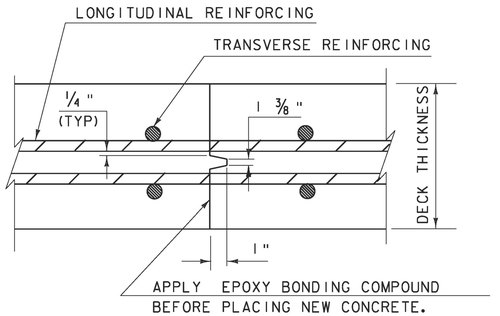
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



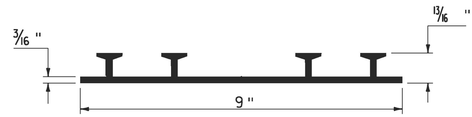
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



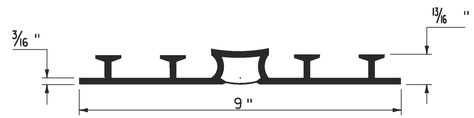
TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



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

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

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



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

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

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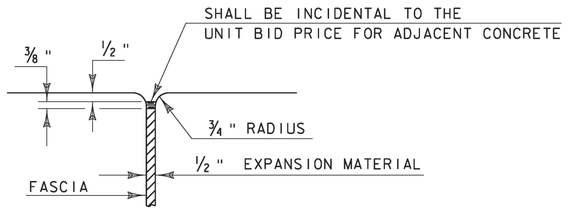


JOINT BETWEEN FASCIA AND WINGWALL
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION

CONCRETE DETAILS AND NOTES

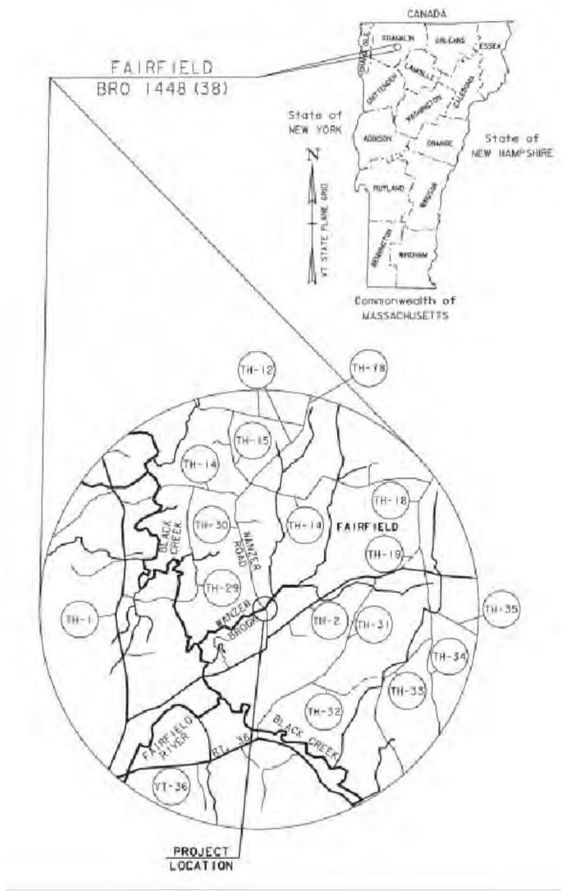
VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL SD-501.00

WANZER ROAD OVER WANZER BROOK: BRO 1448(38)
(BRIDGE NO. 48)
FAIRFIELD
FRANKLIN COUNTY
VERMONT

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET AND INDEX
2	CONSTRUCTION NOTES
3	PLAN VIEW
4	SOUTH ELEVATION
5	NORTH ELEVATION
6	ARCH DETAILS
7	DECK DETAILS
8	HEADWALL LAYOUT
9	HEADWALL DETAILS
10	FASCIA PLATE LAYOUT AND DETAILS



X Approved _____ Approved As Noted
_____ Rejected

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McFarland Johnson

Date 6/6/2014

By T. Traver

"I HEREBY CERTIFY THAT ALL DESIGN ASSUMPTIONS HAVE BEEN VALIDATED EITHER THROUGH CONSTRUCTION DETAILS OR NOTES ON THESE DRAWINGS OR THROUGH THE CONTRACT PLANS AND PROVISIONS."

STATE OF VERMONT
ZEYN BURHAN UZMAN
No. 73284
Structural
LICENSED
PROFESSIONAL ENGINEER

PREPARED BY:
AIT BRIDGES
20 GODFREY DRIVE
ORONO, ME 04473

ENGINEER

5/20/14
DATE

ADVANCED INFRASTRUCTURE TECHNOLOGIES

20 Godfrey Drive
Orono, Maine 04473
Tel 207.866.6526
Fax 207.866.6501
www.aitbridges.com

PROJECT: Wanzer Road Bridge No. 48

LOCATION: Fairfield, VT JN: 12018

DRAWING STATUS: Approved for Construction

Correct scale on size B paper (11x17 Ledger)

TITLE: TITLE SHEET AND INDEX

	INITIALS	DATE
DRAWN BY:	JEK	4-9-2014
DESIGNED BY:	JEK	4-9-2014
CHECKED BY:	ZU	5-20-2014

SHEET NUMBER: 1 OF 10

REV: 05-20-2014

SUGGESTED CONSTRUCTION SEQUENCE:

1. FORM ABUTMENTS AND PLACE REBAR
2. ATTACH BEARING PLATE TO SPINE OF TWO OUTSIDE ARCHES (SEE SHEET 9 DETAIL A)
3. INSERT END REINFORCEMENT CAGES INTO ARCH ENDS AND INSTALL ARCHES IN ABUTMENTS
4. PLACE DECKING - CUT TO FIT SKEW - SCREW TO ARCHES - DRILL SHEAR BOLT HOLES AND INSTALL SHEAR BOLTS - INSTALL HEADWALL CLIPS ON OUTER ARCHES
5. CAST ARCHES IN ABUTMENTS
6. DRILL 3" HOLE AT APEX OF ARCH AND FILL ARCHES WITH SELF-CONSOLIDATING CONCRETE - INSTALL CLOSURE STRIP OF DECKING AT APEX OF ARCH TO COVER FILL HOLES
7. INSTALL HEADWALL HARDWARE - ERECT AND TEMPORARILY BRACE HEADWALLS
8. BACKFILL STRUCTURE ATTACHING PRIMARY GEOTEXTILE AT 32" LIFTS TO HEADWALL AND PLACING SECONDARY GEOTEXTILE HALFWAY BETWEEN PRIMARY GEOTEXTILE LIFTS (SEE SHEET 8 FOR DETAILS)
9. INSTALL HEADWALL CAP AND FASCIA PLATES

ARCH FILLING NOTES:

1. SELF-CONSOLIDATING CONCRETE MAY BE PLACED BY PUMP OR WITH A CONCRETE BUCKET AND FUNNEL
2. EACH ARCH WILL TAKE AN ESTIMATED 1.3 CUBIC YARDS OF CONCRETE
3. NO CONCRETE SHALL BE PLACED IN THE ARCH IF IT DOES NOT MEET THE SLUMP FLOW REQUIREMENTS OF 24" - 30" SPREAD
4. DRILL THE 3" FILL HOLE IN THE ARCH AT THE APEX BETWEEN THE GAP IN THE DECKING. LEAVE THE SHEAR BOLTS OUT OF THE ADJACENT CORRUGATIONS TO ALLOW AIR VENTING DURING FILLING. INSERT SHEAR BOLTS AND PLACE CLOSURE STRIP AFTER FILLING IS COMPLETE.
5. ARCHES CAN BE INSPECTED FOR VOIDS AFTER FILLING BY TAPPING THE ARCH AND LISTENING FOR A HOLLOW SOUND. REPAIR IN ACCORDANCE WITH THE SPECIFICATIONS.

HEADWALL CONSTRUCTION NOTES:

1. THE CENTER PANEL SHOULD BE CENTERED OVER THE APEX OF THE ARCH
2. PANELS MUST BE JOINED BY INSERTING THE BUTTERFLY TOGGLE IN THE KEY WAY. THE TOGGLE MAY BE CUT AND INSERTED WITH THE AID OF A PALM HAMMER
3. HEADWALL BACK BATTER OF 1:32 IS TYPICAL TO RESULT IN A VERTICAL INSTALLATION AFTER BACKFILL. ADJUST IN FIELD AS NECESSARY
4. USE ONLY WALK BEHIND COMPACTORS WITHIN 3 FEET OF HEADWALL WITH A MINIMUM OF THREE PASSES
5. BACKFILL ARCH IN MAXIMUM 8" LOOSE LIFTS, ALTERNATING LIFTS ON EACH SIDE OF THE ARCH TO MAINTAIN BALANCED LOADING. THE MAXIMUM DEVIATION FROM EQUAL BACKFILLING WILL BE 24 INCHES.

MATERIAL NOTES:

1. SELECT BACKFILL SHALL CONTAIN NOT MORE THAN 5% FINES (US NO. 200 SIEVE)
2. ALL STRUCTURAL FASTENERS SHALL CONFORM TO AASHTO M232 HOT DIP GALV.
3. ALL SCREWS SHALL BE 410 STAINLESS STEEL
4. STRUCTURAL ADHESIVE SHALL BE PILOGRIP 7770 OR APPROVED EQUAL

SUPPLIED PARTS LIST:

1.	9 UNITS	COMPOSITE ARCHES
2.	25 UNITS	ATLAS DECK PANELS, 42' x 20.9" x3.7" - FIELD FITTING REQUIRED
3.	1 UNIT	DECK CLOSURE STRIP, 42' LONG $\frac{1}{4}$"x8" FRP PLATE
4.	1 LUMP SUM	STRUCTURAL ADHESIVE FOR DECK TO DECK CONNECTION, PLIOGRIP 7770
5.	1 LUMP SUM	DECKING SCREWS, $\frac{1}{4}$"x2" ZINC PLATED
6.	1 LUMP SUM	DECK-TO-ARCH SHEAR BOLTS, $\frac{1}{2}$"x6"
7.	1 LUMP SUM	HEADWALL TO DECK BASE ANGLES, (A36 GALV.) 2" WIDE L7"x4"x $\frac{3}{8}$"
8.	38 UNITS	HEADWALL PANELS - PRE-CUT AND PRE-DRILLED
9.	1 LUMP SUM	HEADWALL BUTTERFLY TOGGLE CONNECTION, 20' SECTIONS
10.	1 LUMP SUM	HEADWALL WALER, 23-$\frac{1}{2}$" SECTIONS
11.	1 LUMP SUM	HEADWALL CHANNEL CAP, 20' SECTIONS
12.	1 LUMP SUM	HEADED BOLTS FOR HEADWALL ATTACHMENT (A307 GR.A), $\frac{1}{2}$"x10"
13.	1 LUMP SUM	$\frac{1}{2}$" x3-3/16" SCH.40 SPACER PIPE (A53 GR. B)
14.	1 LUMP SUM	$\frac{1}{2}$" HEAVY HEX NUT (A564DH GR. A)
15.	1 LUMP SUM	$\frac{1}{2}$" GALVANIZED ROUND WASHER
16.	1 LUMP SUM	$\frac{3}{8}$"x4-$\frac{1}{4}$" OD x 9/16" ID GALVANIZED PLATE WASHER
17.	1 LUMP SUM	PRIMARY GEOGRID REINFORCEMENT, 6'x150' ROLLS
18.	1 LUMP SUM	SECONDARY GEOGRID REINFORCEMENT, 6' x150' ROLLS
19.	1 LUMP SUM	BEARING PLATES FOR OUTSIDE ARCHES, $\frac{3}{16}$"x8"
20.	1 LUMP SUM	#6 1" SCREWS FOR BEARING PLATE-TO-ARCH CONNECTION AND HEADWALL CAP
21.	22 UNITS	FASCIA PLATES, $\frac{1}{10}$"x8"x48"

X **Approved** _____ **Approved As Noted**

_____ **Rejected**

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McFarland Johnson

Date 6/6/2014

By T. Traver

STATE OF VERMONT ... 73284 ... Structural ... ENGINEER 5/20/14

ADVANCED INFRASTRUCTURE TECHNOLOGIES

20 Godfrey Drive
Orono, Maine 04473
Tel 207.866.6526
Fax 207.866.6501
www.aitbridges.com

PROJECT: Wanzer Road Bridge No. 48

LOCATION: Fairfield, VT JN: 12018

DRAWING STATUS: Approved for Construction

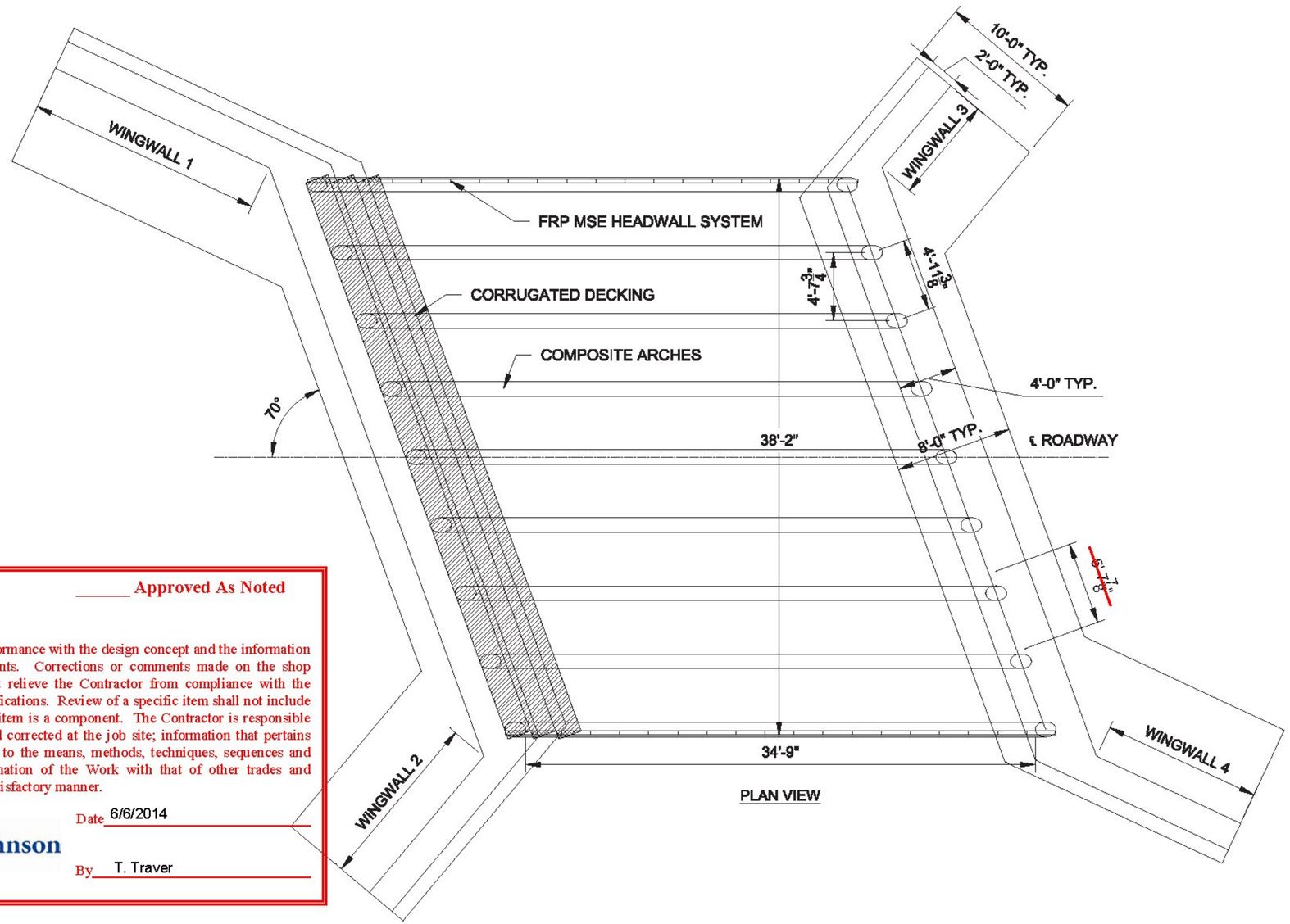
Correct scale on size B paper (11x17 Ledger)

TITLE: CONSTRUCTION NOTES

	INITIALS	DATE
DRAWN BY:	JEK	4-9-2014
DESIGNED BY:	JEK	4-9-2014
CHECKED BY:	ZU	5-20-2014

SHEET NUMBER: 2 OF 10

REV: 05-20-2014



PLAN VIEW

X Approved _____ Approved As Noted
_____ Rejected

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McFarland Johnson

Date 6/6/2014

By T. Traver

STATE OF VERMONT — Structural — PROFESSIONAL ENGINEER — 5/20/14

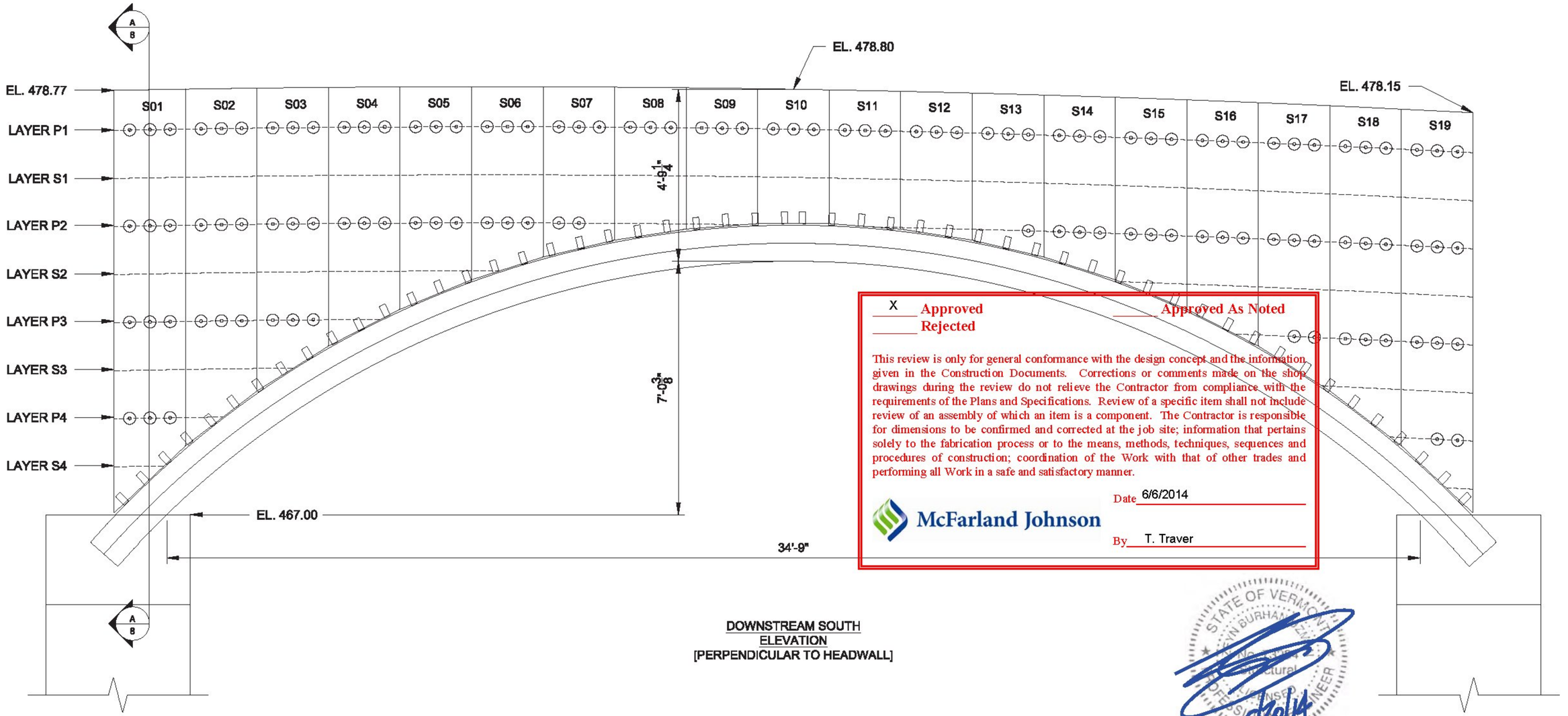
ADVANCED INFRASTRUCTURE TECHNOLOGIES

20 Godfrey Drive
Orono, Maine 04473
Tel 207.866.6526
Fax 207.866.6501
www.aitbridges.com

PROJECT: Wanzer Road Bridge No. 48	TITLE: PLAN		
LOCATION: Fairfield, VT JN: 12018		INITIALS	DATE
DRAWING STATUS: Approved for Construction	DRAWN BY:	JEK	4-9-2014
	DESIGNED BY:	JEK	4-9-2014
Correct scale on size B paper (11x17 Ledger)	CHECKED BY:	ZU	5-20-2014

SHEET NUMBER: 3 OF 10

REV: 05-20-2014



DOWNSTREAM SOUTH
ELEVATION
[PERPENDICULAR TO HEADWALL]

X Approved
Approved As Noted
Rejected

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McFarland Johnson

Date 6/6/2014

By T. Traver

STATE OF VERMONT
KEVIN BURHANS
No. 2
Structural
PROFESSIONAL ENGINEER
5/20/14

ADVANCED INFRASTRUCTURE TECHNOLOGIES

20 Godfrey Drive
Orono, Maine 04473
Tel 207.866.6526
Fax 207.866.6501
www.aitbridges.com

PROJECT: Wanzer Road Bridge No. 48

LOCATION: Fairfield, VT JN: 12018

DRAWING STATUS: Approved for Construction

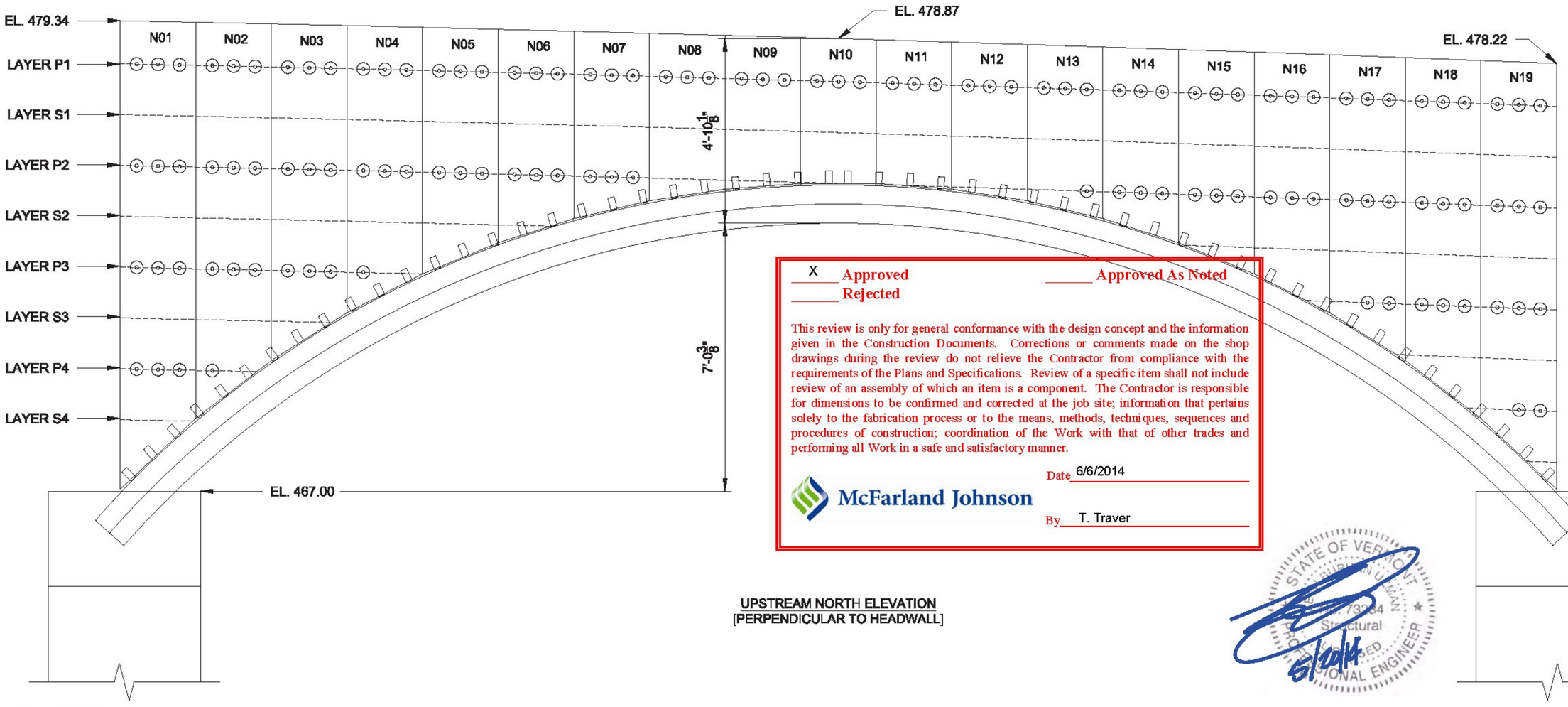
Correct scale on size B paper (11x17 Ledger)

TITLE: SOUTH ELEVATION

	INITIALS	DATE
DRAWN BY:	JEK	4-9-2014
DESIGNED BY:	JEK	4-9-2014
CHECKED BY:	ZU	5-20-2014

SHEET NUMBER: 4 OF 10

REV: 05-20-2014



UPSTREAM NORTH ELEVATION
[PERPENDICULAR TO HEADWALL]

X Approved ____ Approved As Noted
____ Rejected

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McFarland Johnson

Date 6/6/2014

By T. Traver

STATE OF VERMONT
Structural
ENGINEER
5/20/14

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Orono, Maine 04473
Tel 207.866.6526
Fax 207.866.6501
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PROJECT: Wanzer Road Bridge No. 48

LOCATION: Fairfield, VT JN: 12018

DRAWING STATUS: Approved for Construction

Correct scale on size B paper (11x17 Ledger)

TITLE: NORTH ELEVATION

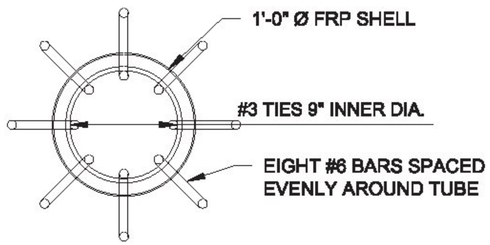
	INITIALS	DATE
DRAWN BY:	JEK	4-9-2014
DESIGNED BY:	JEK	4-9-2014
CHECKED BY:	ZU	5-20-2014

SHEET NUMBER: 5 OF 10

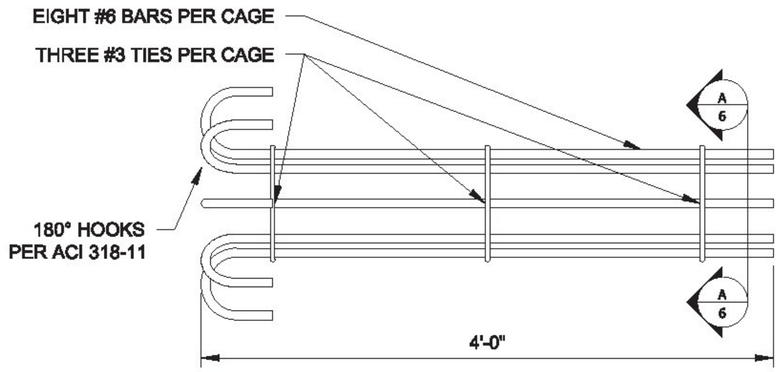
REV: 05-20-2014

FINISHING NOTES:

1. ARCH MATERIALS SHALL CONFORM TO SECTION 3 OF "AASHTO LRFD GUIDE SPECIFICATIONS FOR DESIGN OF CONCRETE-FILLED FRP TUBES FOR FLEXURAL AND AXIAL MEMBERS"
2. PROJECT SHALL INCLUDE NINE (9) COMPOSITE ARCHES. ONE (1) LAYER OF AIT12GNP, THREE (3) LAYERS OF AIT12GS, AND DEREKANE 610C VINYL ESTER RESIN.
3. PROJECT SHALL INCLUDE EIGHTEEN (18) END REINFORCEMENT CAGES - SUPPLIED BY ERECTION CONTRACTOR
4. ARCH FINISH COAT SHALL BE SHERWIN-WILLIAMS FLUOROKEM FLUOROPOLYMER URETHANE MCSO SW4028 GYPSUM COLORED PAINT
5. ARCHES SHALL BE MANUFACTURED FOLLOWING AIT QUALITY ASSURANCE PLAN REV. 3.0
6. 3"Ø FILL HOLE AND SHEAR BOLT HOLES SHALL BE DRILLED IN THE FIELD BY ERECTION CONTRACTOR



END REINFORCEMENT CAGE
END VIEW SECTION A-A



END REINFORCEMENT CAGE
ELEVATION VIEW

X Approved
Approved As Noted
Rejected

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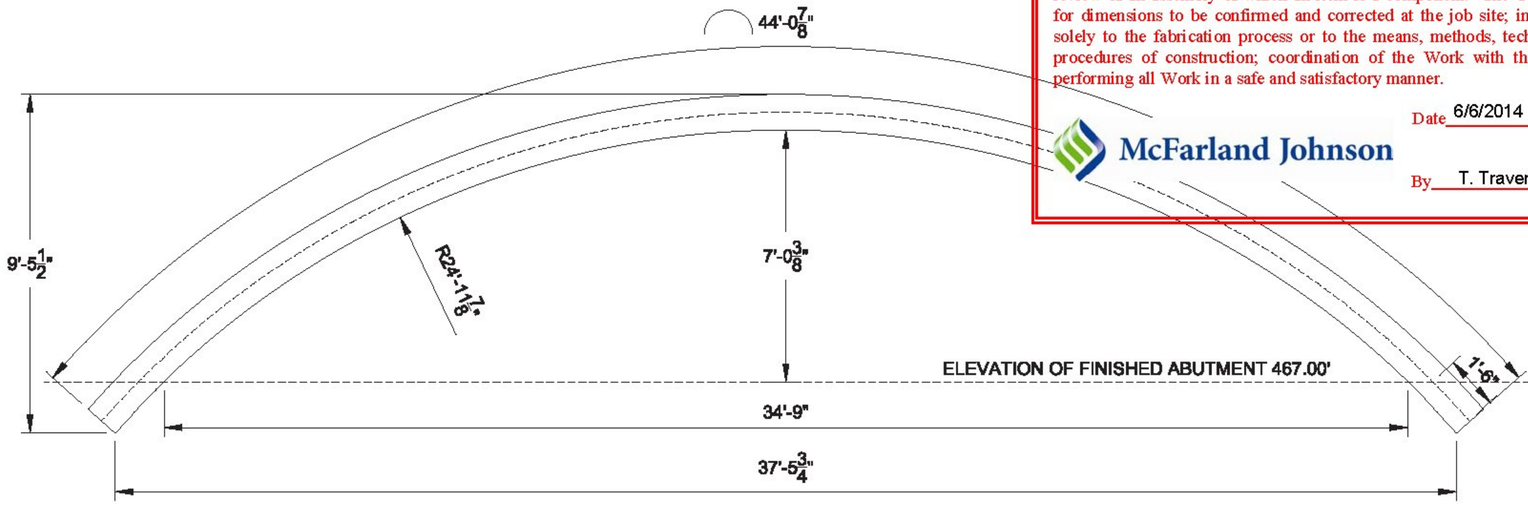
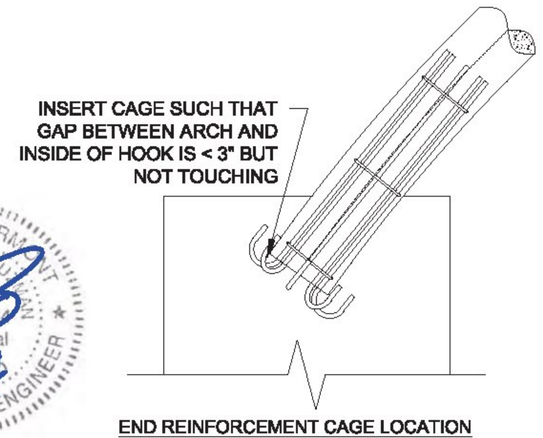
McFarland Johnson

Date 6/6/2014

By T. Traver



ARCH FINISH DIMENSIONS



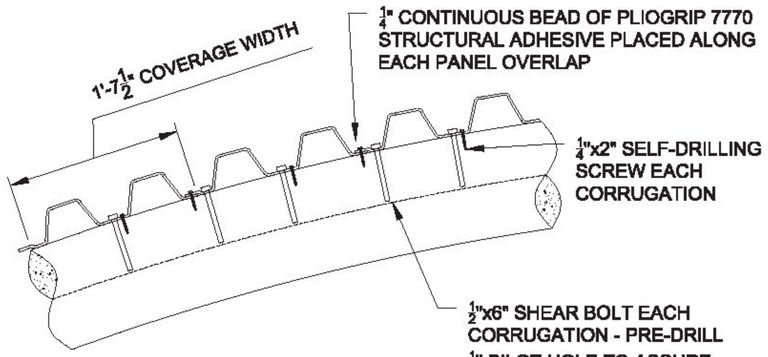
END REINFORCEMENT CAGE LOCATION

ADVANCED INFRASTRUCTURE TECHNOLOGIES
20 Godfrey Drive
Orono, Maine 04473
Tel 207.866.6526
Fax 207.866.6501
www.aitbridges.com

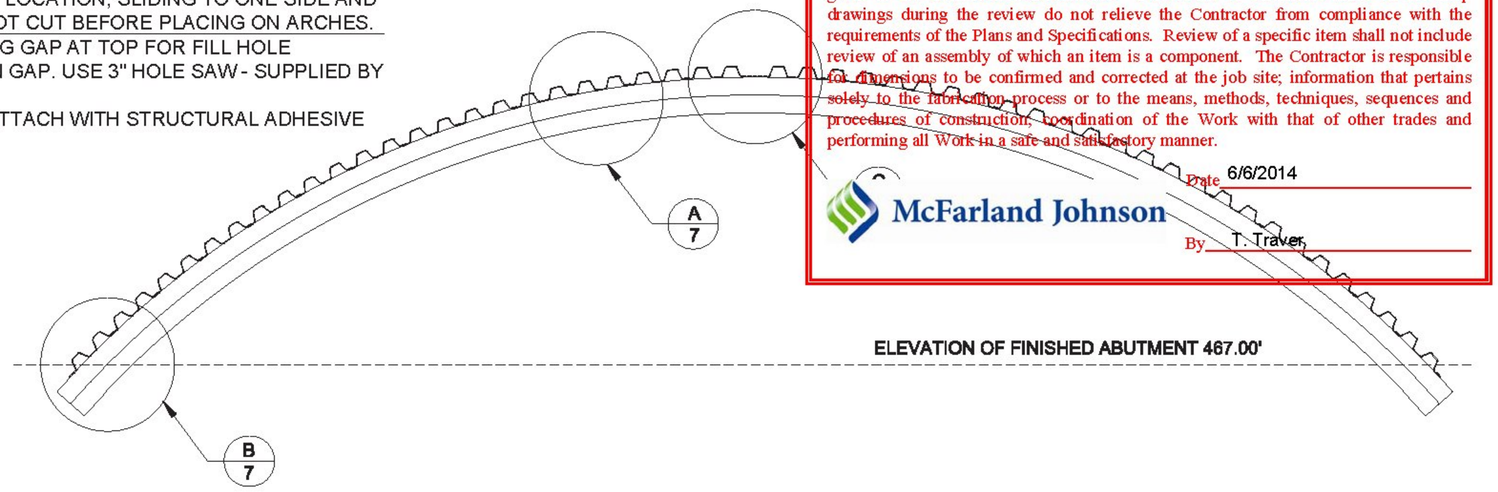
PROJECT: Wanzer Road Bridge No. 48	TITLE: ARCH DETAILS		SHEET NUMBER:
LOCATION: Fairfield, VT JN: 12018		INITIALS / DATE	6 OF 10
DRAWING STATUS: Approved for Construction	DRAWN BY:	JEK 4-9-2014	
	DESIGNED BY:	JEK 4-9-2014	
Correct scale on size B paper (11x17 Ledger)	CHECKED BY:	ZU 5-20-2014	REV: 05-20-2014

DECK NOTES:

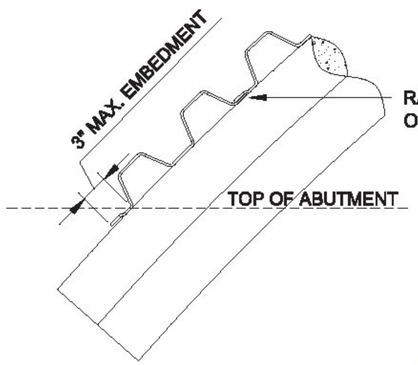
1. PROJECT TO INCLUDE TWENTY-FIVE (25) ATLAS FRP DECK PANELS 42' LONG x 20.9" WIDE (19.5" COVERAGE WIDTH) x 3.7" DEEP
2. BRIDGE WIDTH TO BE SPANNED BY ONE PANEL - NO SPLICING
3. FIELD CUT PANELS TO PROPER LENGTH BY PLACING ON ARCHES, MARKING CUT LOCATION, SLIDING TO ONE SIDE AND CUTTING. IMPORTANT NOTE: EACH PANEL IS CUT AT A DIFFERENT ANGLE. DO NOT CUT BEFORE PLACING ON ARCHES.
4. ATTACH PANELS EACH SIDE OF ABUTMENT AND WORK TOWARD CROWN LEAVING GAP AT TOP FOR FILL HOLE
5. DRILL 3" DIAMETER ARCH CONCRETE FILLING HOLE ON SPINE AT CROWN WITHIN GAP. USE 3" HOLE SAW - SUPPLIED BY OTHER
6. FIELD CUT CLOSURE STRIP TO FILL GAP BETWEEN DECK PANELS AT CROWN - ATTACH WITH STRUCTURAL ADHESIVE AND SCREWS



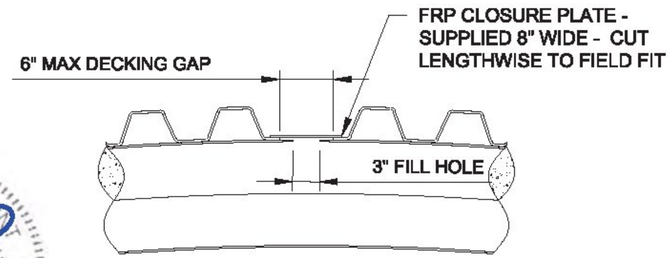
TYPICAL DECK DETAIL ALONG ARCH
DETAIL A



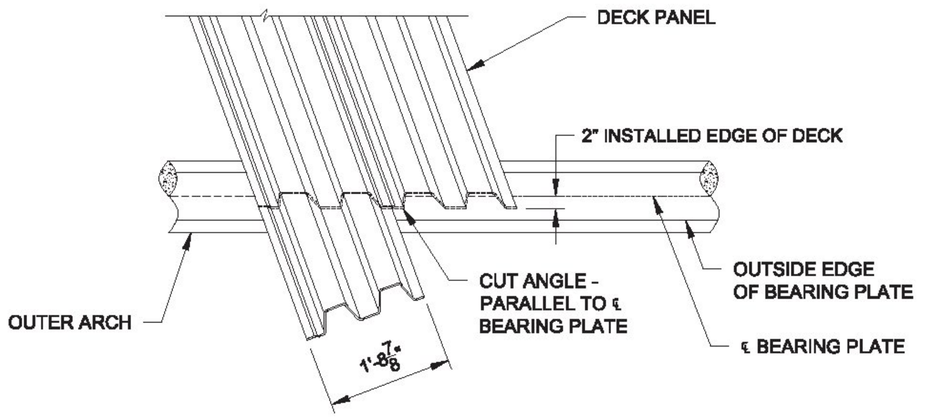
DECK ELEVATION VIEW



DECK DETAIL AT BASE OF ARCH
DETAIL B



DECK DETAIL AT CROWN OF ARCH
DETAIL C



DECK CUTTING DETAIL
PLAN PERSPECTIVE VIEW

X Approved
Approved As Noted
Rejected

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Date 6/6/2014

McFarland Johnson

By T. Traver

STATE OF VERMONT — BURHA — 3284 — Structural — PROFESSIONAL ENGINEER — 5/20/14

ADVANCED INFRASTRUCTURE TECHNOLOGIES

20 Godfrey Drive
Orono, Maine 04473
Tel 207.866.6526
Fax 207.866.6501
www.aitbridges.com

PROJECT: Wanzer Road Bridge No. 48	TITLE: DECK DETAILS		SHEET NUMBER: 7 OF 10
LOCATION: Fairfield, VT JN: 12018		INITIALS	DATE
DRAWING STATUS: Approved for Construction	DRAWN BY:	JEK	4-9-2014
	DESIGNED BY:	JEK	4-9-2014
Correct scale on size B paper (11x17 Ledger)	CHECKED BY:	ZU	5-20-2014
			REV: 05-20-2014

GEOGRID NOTES:

PRIMARY REINFORCEMENT
- LAYERS WITH "P" INDICATE PRIMARY REINFORCEMENT WITH TWO TAILS
- PRIMARY REINFORCEMENT IS ATTACHED TO HEADWALL BY WRAPPING CONTINUOUS EQUAL LENGTH TAILS AROUND FRP WALER

SECONDARY REINFORCEMENT
- LAYERS WITH "S" INDICATE SECONDARY REINFORCEMENT WITH ONE TAIL
- SECONDARY REINFORCEMENT EXTENDS TO THE HEADWALL, BUT IS NOT ATTACHED

INSTALLATION
- FOLLOW ALL WRITTEN SPECIFICATION WHEN INSTALLING GEOGRID
- INSTALL ALL LAYERS TO THE EXTENTS INDICATED BY DASHED LINES IN ELEVATION DRAWINGS
- ADJACENT LAYERS MUST BE BUTTED TO ONE ANOTHER TO ACHIEVE 100% COVERAGE
- MACHINE DIRECTION OF GEOGRID MUST BE ORIENTED PERPENDICULAR TO WALL
- GEOGRID ROLLS ARE 6' WIDE - EXTRA WIDTH CAN BE BURIED IN BACKFILL OR CUT TO FIT
- GEOGRID IS CUT TO LENGTH - NO SPLICING IN THE MACHINE DIRECTION
- SUGGESTED HEADWALL BATTER IS 1:32 BACK FROM VERTICAL (BETWEEN
- BACKFILL PLACEMENT SHOULD BE PLACED TO PREVENT DAMAGE AND WRINKLES

X Approved ____ Approved As Noted
____ Rejected

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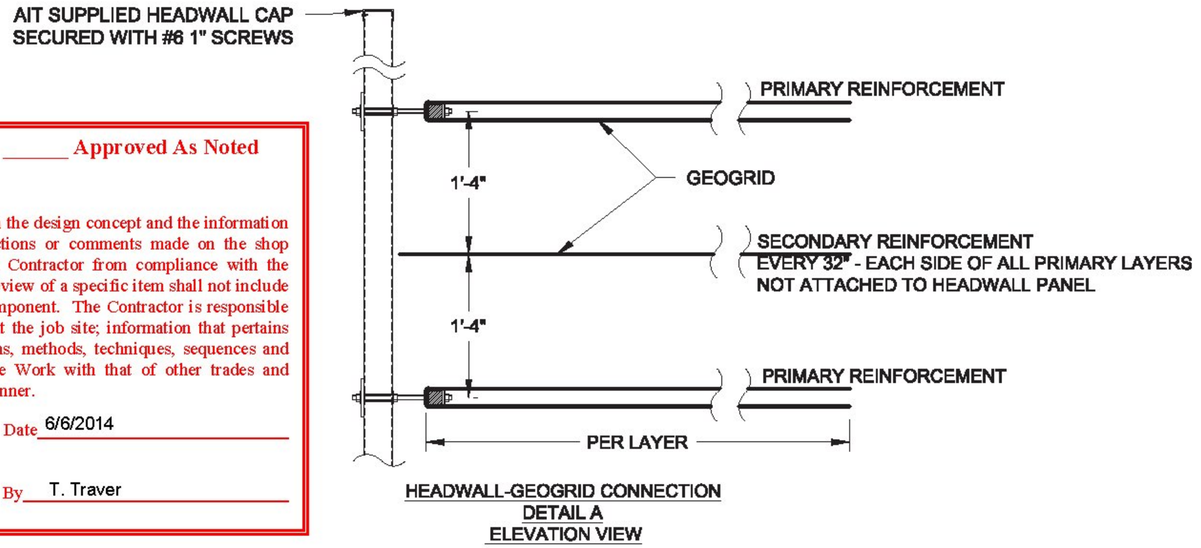
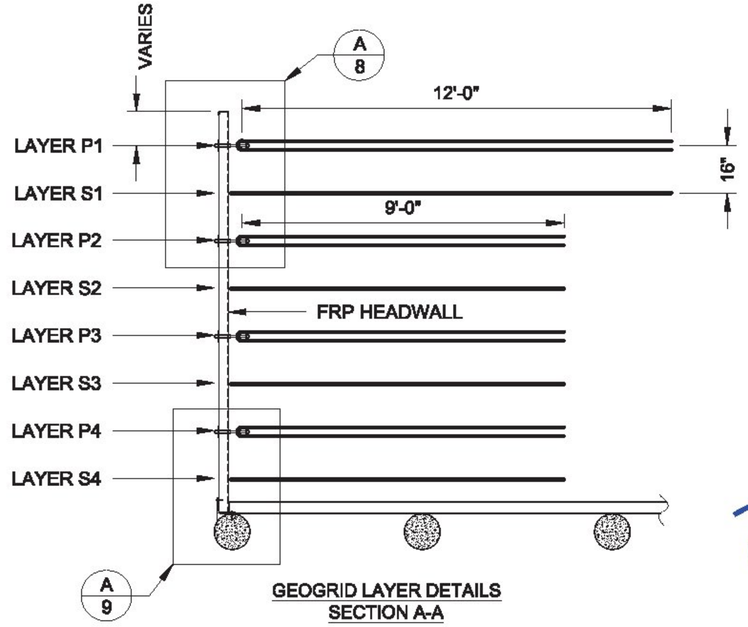
Date 6/6/2014

By T. Traver

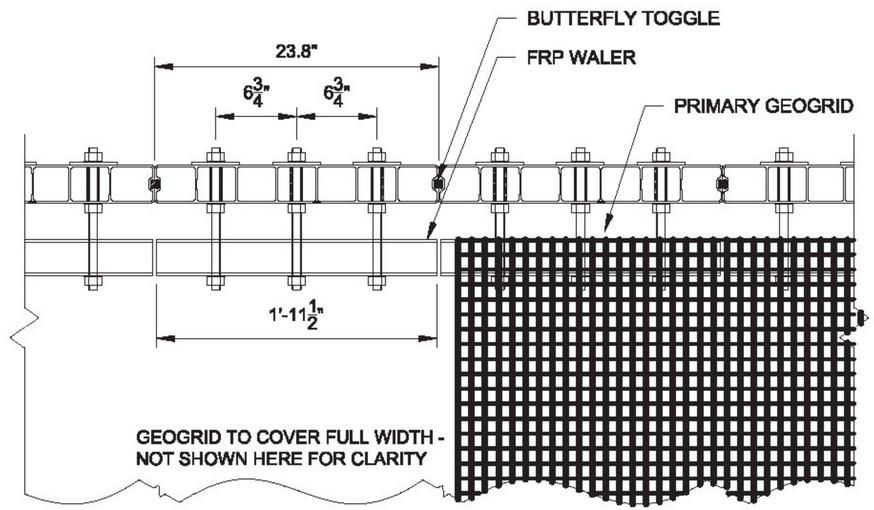
McFarland Johnson



HEADWALL-GEOGRID CONNECTION
DETAIL A
ELEVATION VIEW



GEOGRID LAYER DETAILS
SECTION A-A



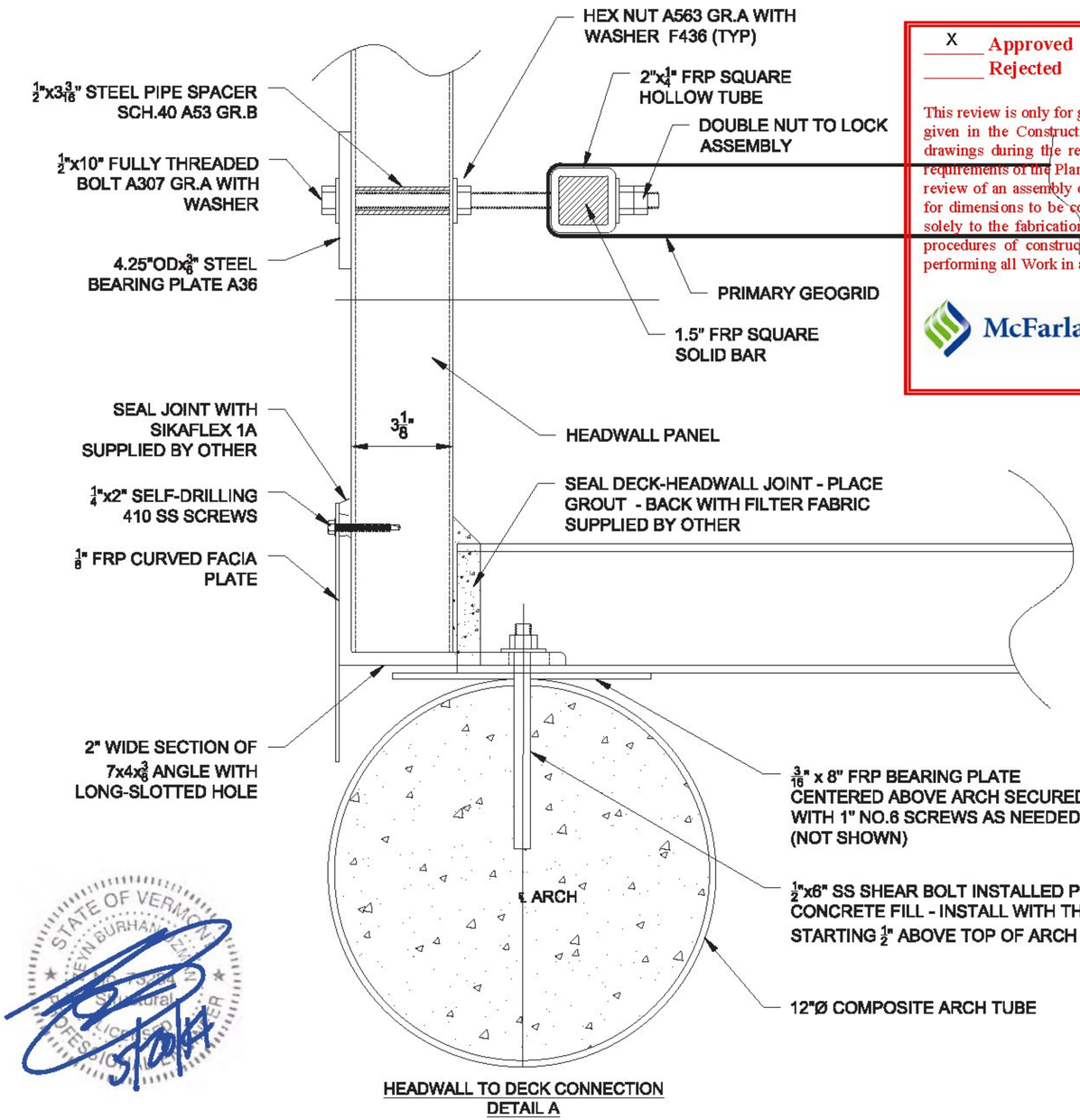
HEADWALL - GEOGRID CONNECTION
PLAN VIEW

ADVANCED INFRASTRUCTURE TECHNOLOGIES
20 Godfrey Drive
Orono, Maine 04473
Tel 207.866.6526
Fax 207.866.6501
www.aitbridges.com

PROJECT: Wanzer Road Bridge No. 48	TITLE: HEADWALL LAYOUT		SHEET NUMBER:
LOCATION: Fairfield, VT JN: 12018		INITIALS	DATE
DRAWING STATUS: Approved for Construction	DRAWN BY:	JEK	4-9-2014
	DESIGNED BY:	JEK	4-9-2014
Correct scale on size B paper (11x17 Ledger)	CHECKED BY:	ZU	5-20-2014

8 OF 10

REV: 05-20-2014



HEADWALL TO DECK CONNECTION
DETAIL A

X Approved _____ Approved As Noted
_____ Rejected

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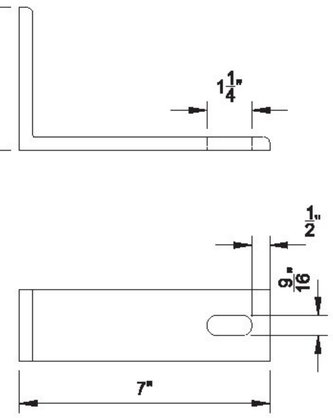
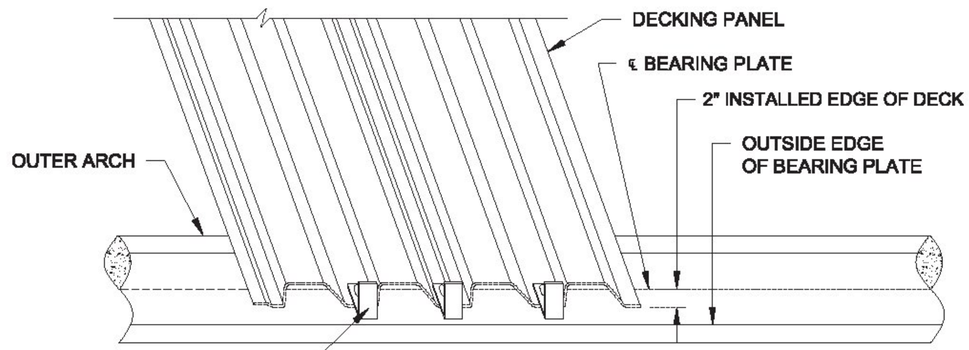
McFarland Johnson

Date 6/6/2014

By T. Traver



BASE ANGLE DETAIL



DECKING-HEADWALL CONNECTION DETAIL
PLAN PERSPECTIVE VIEW

ADVANCED INFRASTRUCTURE TECHNOLOGIES

20 Godfrey Drive
Orono, Maine 04473
Tel 207.866.6526
Fax 207.866.6501
www.aitbridges.com

PROJECT: Wanzer Road Bridge No. 48	TITLE: HEADWALL DETAILS		SHEET NUMBER:
LOCATION: Fairfield, VT JN: 12018		INITIALS / DATE	9 OF 10
DRAWING STATUS: Approved for Construction	DRAWN BY:	JEK	4-9-2014
	DESIGNED BY:	JEK	4-9-2014
Correct scale on size B paper (11x17 Ledger)	CHECKED BY:	ZU	5-20-2014
			REV: 05-20-2014

FASCIA PLATE NOTES:

- PROJECT SHALL INCLUDE TWENTY-TWO (22) TOTAL $\frac{1}{10}$" BI-DIRECTIONAL E-GLASS CURVED FASCIA PLATES
- FASCIA PLATES SHALL BE PROVIDED CUT TO DIMENSIONS SHOWN ON PLANS
- FASCIA PLATES WILL NOT BE PRE-DRILLED OR MARKED AT SCREW LOCATIONS
- FASCIA PLATES SHALL BE FINISHED WITH SHERWIN-WILLIAMS FLUOROKEM FLUOROPOLYMER URETHANE MCSO SW4028 GYPSUM COLORED PAINT

X Approved
_____ Approved As Noted
_____ Rejected

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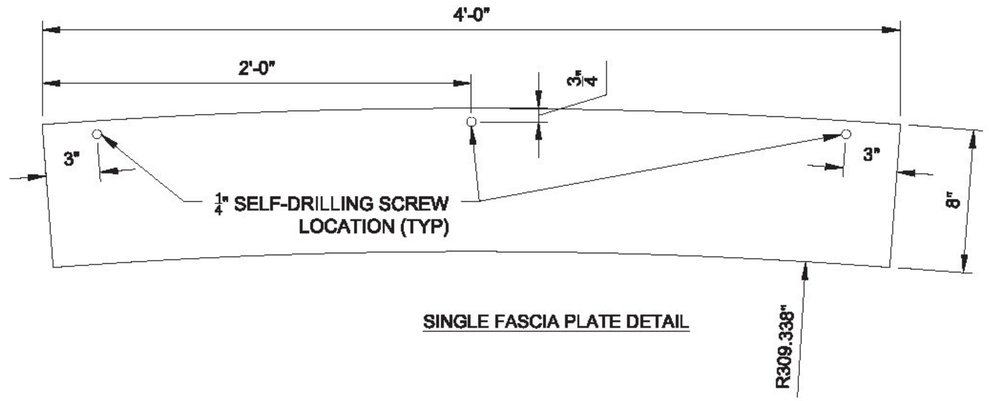
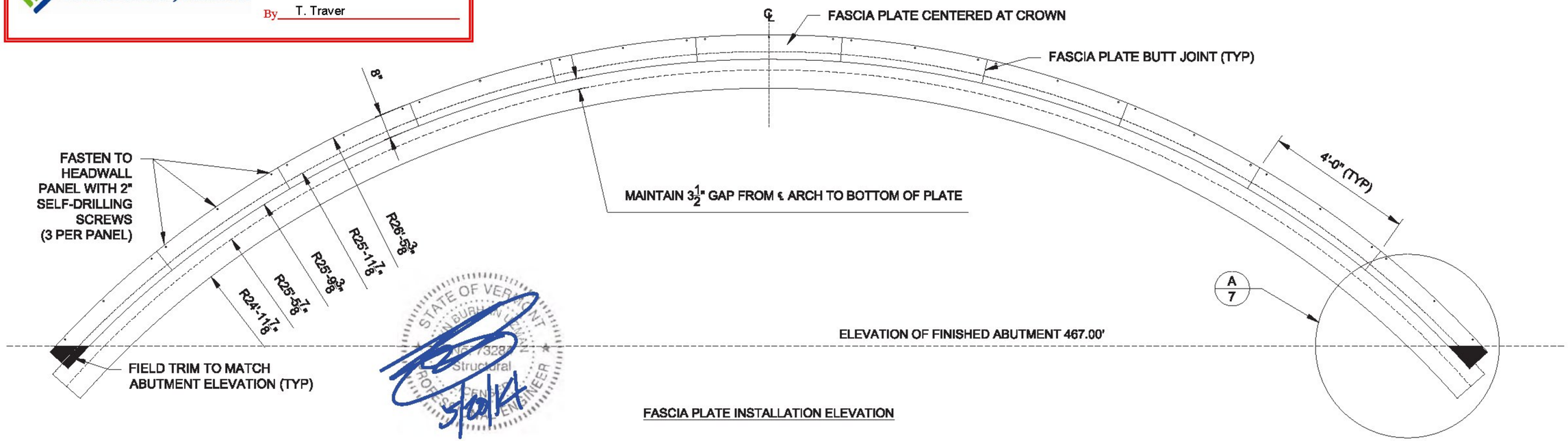
McFarland Johnson

Date 6/6/2014

By T. Traver



SINGLE FASCIA PLATE DETAIL



FASCIA PLATE INSTALLATION ELEVATION

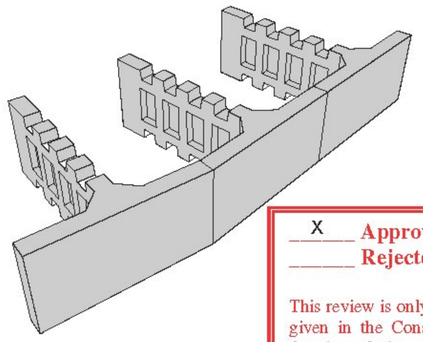
ADVANCED INFRASTRUCTURE TECHNOLOGIES

20 Godfrey Drive
Orono, Maine 04473
Tel 207.866.6526
Fax 207.866.6501
www.aitbridges.com

PROJECT: Wanzer Road Bridge No. 48	TITLE: FASCIA PLATE LAYOUT AND DETAILS		
LOCATION: Fairfield, VT JN: 12018		INITIALS	DATE
DRAWING STATUS: Approved for Construction	DRAWN BY:	JEK	4-9-2014
	DESIGNED BY:	JEK	4-9-2014
Correct scale on size B paper (11x17 Ledger)	CHECKED BY:	ZU	5-20-2014

SHEET NUMBER: 10 OF 10

REV: 05-20-2014



_X_ Approved
_____ Approved As Noted
_____ Rejected

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McFarland Johnson

Date 8/8/2014

By T. Traver

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

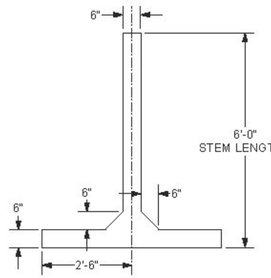
T-WALL®
RETAINING WALL SYSTEM

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PRECASTER

Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4163
Fax 603-889-2417
Web www.csigroup.biz

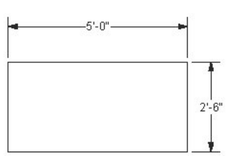


TOP VIEW

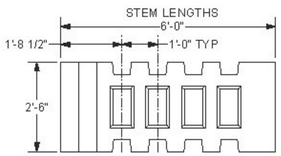
NOTES:
- UNIT STEM LENGTHS RANGE FROM 4'-0" TO 20'-0", IN 2'-0" INCREMENTS

T-WALL® UNIT WEIGHTS

PANEL TYPES	WEIGHTS
2.5x5.0x08 Std	2088 lbs
2.5x5.0x10 Std	2349 lbs
2.5x5.0x12 Std	2610 lbs
SLOPED-TOP (MIN)	2198 lbs
SLOPED-TOP (MAX)	3164 lbs



FRONT VIEW



SIDE VIEW

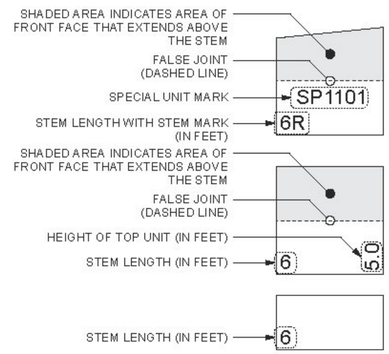
TYPICAL 2'-6" x 5'-0" x 6'-0" STEM T-WALL® UNIT

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

INDEX OF DRAWINGS

SHEET	TITLE	REV #	DATE
1	COVER SHEET	1	8/6/14
2	TYPICAL T-WALL® NOMENCLATURE	0	4/21/14
3	NOTES	0	4/21/14
4	PLAN VIEW	0	4/21/14
5	ELEVATIONS	1	8/6/14
6	SECTION, DETAILS & QUANTITIES	1	8/6/14
7	REBAR - STANDARD UNITS	0	4/21/14
8	REBAR - SLOPED TOP UNITS	1	8/6/14
9	REBAR - NARROW SLOPED TOP LEFT BEVELED UNITS	1	8/6/14
10	REBAR - NARROW SLOPED TOP RIGHT BEVELED UNITS	1	8/6/14
11	REBAR - NARROW LEFT BEVELED UNITS	1	8/6/14
12	REBAR - NARROW RIGHT BEVELED UNITS	0	4/21/14

LEGEND



SPECIAL TOP T-WALL® UNIT
(FRONT FACE HEIGHT VARIES)

STANDARD TOP T-WALL® UNIT
(FRONT FACE HEIGHT VARIES)

STANDARD 2'-6" T-WALL® UNIT

TYPICAL PANEL NOTATION
NO SCALE

PRECASTER: CONCRETE SYSTEMS, INC. CSI
PROJECT #: T21882

CONTRACTOR: AL. ST. ONGE CONTRACTORS
PROJECT #:

DESIGNER
THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

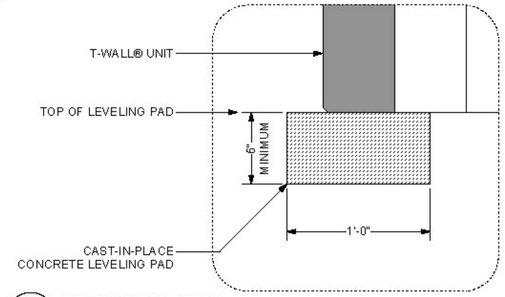
CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY
STATE OF VERMONT · THOMAS C. NEEL · 8594 · PROFESSIONAL ENGINEER

REVISIONS

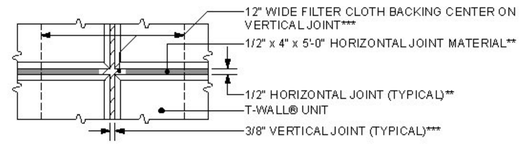
1	REVIEWER COMMENTS	ABC	8-6-14

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT
FAIRFIELD, VT
SHOP DRAWINGS
COVER SHEET
T-WALL® RETAINING WALL SYSTEM

SCALE:	NO SCALE
DATE:	4/21/14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	CCG
SHEET:	1



4 LEVELING PAD DETAIL
Scale: 2" = 1'-0"



3 HORIZONTAL AND VERTICAL JOINT DETAIL
Scale: 2" = 1'-0"
** SEE GENERAL NOTE 4 ON SHEET 3 FOR ADDITIONAL DETAILS
*** SEE GENERAL NOTE 5 ON SHEET 3 FOR ADDITIONAL DETAILS

NOMENCLATURE NOTE:

THIS SHEET IS PROVIDED FOR GENERAL INFORMATION PURPOSES ONLY, REFERENCING STANDARD DETAILS APPLICABLE TO ANY T-WALL® STRUCTURE. THIS SHEET IS NOT INTENDED TO PROVIDE DETAILS SPECIFIC TO THE WALL STRUCTURES CONTAINED IN THIS DRAWING PACKAGE. FOR INFORMATION SPECIFIC TO THESE WALLS, SEE THE APPLICABLE DRAWING SHEETS.

SHEAR KEY NOTES:

1. WALL IS DESIGNED FOR SPECIFIC NUMBER OF SHEAR KEYS AS SHOWN IN "TYPICAL SECTION AT MAXIMUM HEIGHT" ON SHEET 4. LOCATION OF SHEAR KEYS CAN BE ADJUSTED IF NECESSARY AT A SPECIFIC LEVEL.

_X_ Approved _____ Approved As Noted
_____ Rejected

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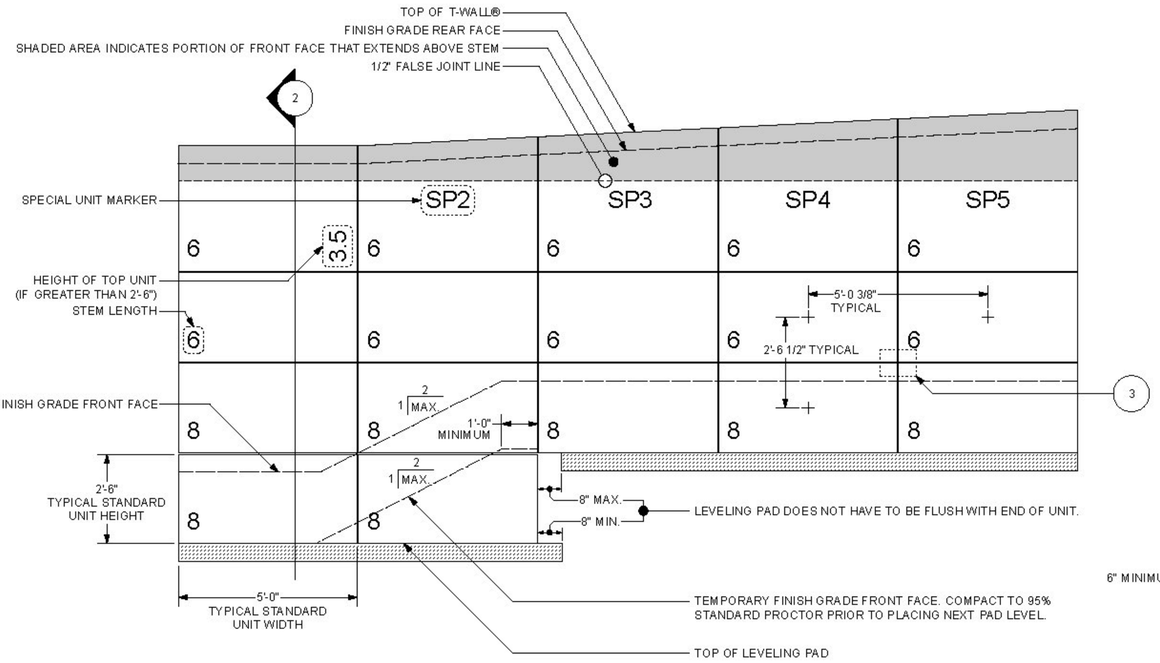
McFarland Johnson

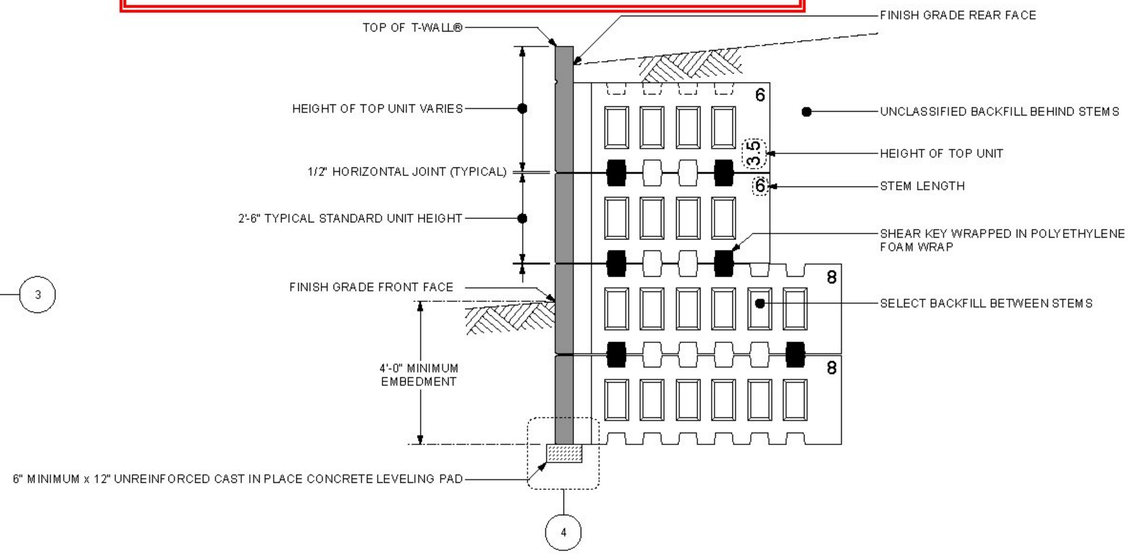
Date 8/8/2014

By T. Traver



1 PARTIAL ELEVATION SHOWN - TYPICAL DETAILS
Scale: 1/2" = 1'-0"

NOT ALL DETAILS APPLY. SEE SPECIFIC WALL ELEVATIONS



2 PARTIAL ELEVATION SHOWN - TYPICAL DETAILS
Scale: 1/2" = 1'-0"

NOT ALL DETAILS APPLY. SEE SPECIFIC WALL ELEVATIONS

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC. CSI
PROJECT #: T21882

CONTRACTOR: AL. ST. ONGE CONTRACTORS
PROJECT #:

DESIGNER
THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM
PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY
STATE OF VERMONT
THOMAS G. NEEL
6554
PROFESSIONAL ENGINEER

REVISIONS

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

SHOP DRAWINGS
TYPICAL T-WALL® NOMENCLATURE

T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	4/21/14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	CCG
SHEET:	2

X Approved _____ Approved As Noted
_____ Rejected

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Date 8/8/2014

McFarland Johnson

By T. Traver

SPECIAL NOTES:

1. THESE DRAWINGS WERE PREPARED BASED ON INFORMATION GIVEN IN THE FOLLOWING:
   - **CONTRACT DRAWINGS:**
     - STATE OF VERMONT AGENCY OF TRANSPORTATION CONTRACT PLANS DATED 10/30/2013. PREPARED BY MCFARLAND JOHNSON.
2. REPORT DISCREPANCIES BETWEEN CONTRACT INFORMATION AND ACTUAL CONDITIONS AS SITE WORK PROGRESSES TO THE NEEL COMPANY FOR REDESIGN. NO LIABILITY IS ACCEPTED FOR INACCURATE INFORMATION SUPPLIED BY OTHERS.
3. THE FOLLOWING ASSUMPTIONS WERE MADE:
   - FOUNDATION IS ABLE TO SUPPORT BEARING PRESSURE SHOWN IN SPECIAL NOTES 4 WITH AN ACCEPTABLE FACTOR OF SAFETY.
4. APPLIED BEARING PRESSURE AT MAXIMUM HEIGHT:
   - WINGWALL MAXIMUM PRESSURE: 4,475 psf STR I MAX
   - DESIGN IS BASED ON AASHTO LRFD METHOD.
5. **THE DESIGN CONTAINED ON THESE DRAWINGS IS BASED UPON INFORMATION PROVIDED BY THE OWNER. ON THE BASIS OF THIS INFORMATION, THE NEEL COMPANY HAS DESIGNED, AND IS RESPONSIBLE FOR, THE INTERNAL STABILITY OF THE STRUCTURE ONLY. EXTERNAL STABILITY, INCLUDING FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER.**
6. **THE NEEL COMPANY HAS NOT PERFORMED GLOBAL STABILITY SETTLEMENT AND BEARING CAPACITY ANALYSIS FOR THE WALL FOUNDATION. THESE ANALYSES WILL BE THE RESPONSIBILITY OF OTHERS.**
7. **DRAINAGE:**
   - **THE NEEL COMPANY HAS NOT PERFORMED A DRAINAGE ANALYSIS FOR THIS WALL SITE. IT IS THE OWNER'S RESPONSIBILITY TO ASSURE THAT SURFACE RUN-OFF IS DIVERTED AWAY FROM THE WALL.**
8. **SELECT BACKFILL GRADATION AND COMPACTION:**
   - **BACKFILL GRADATION AND COMPACTION BETWEEN STEMS AND AROUND PIPES ARE IMPORTANT TO THE WALL STABILITY. THE OWNER'S GEOTECHNICAL ENGINEER SHOULD PROVIDE SUFFICIENT TESTING TO INSURE COMPLIANCE WITH THE SELECT BACKFILL GRADATION AND COMPACTION SPECIFICATIONS NOTED ON THIS SHEET. PLACEMENT OF LOOSE LIFT OF BACKFILL SHALL NOT EXCEED 12 INCHES.**
9. T-WALL® FACE FORM FINISH:
   - PLAIN STEEL FORM FINISH

GENERAL NOTES:

1. PRIMARY REFERENCE:
   - AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 5TH EDITION 2010 AND INTERIMS.
2. SELECT BACKFILL BETWEEN STEMS:
   - ANGLE OF INTERNAL FRICTION - 34°
   - DENSITY - 120 pcf
   - 10% MAXIMUM PASSING #200 SIEVE
   - 100% PASSING 3" SIEVE
   - 95% STANDARD COMPACTION (ASTM D-698)
3. UNCLASSIFIED BACKFILL BEHIND STEMS:
   - ANGLE OF INTERNAL FRICTION - 30°
   - DENSITY - 120 pcf
   - 95% STANDARD COMPACTION (ASTM D-698)
4. HORIZONTAL JOINT:
   - 1/2 INCH ASPHALT JOINT MATERIAL PER ASTM D-994 AS SHOWN ON DEVELOPED ELEVATIONS.
5. VERTICAL JOINT:
   - 3/8 INCH SPACE
   - 12 INCHES WIDE FILTER CLOTH BACKING CENTERED AT JOINT, UNLESS OTHERWISE NOTED.
   - FILTER CLOTH BACKING: MIRAFI 160N OR EQUAL
6. OVERALL DIMENSIONAL TOLERANCES FOR FINISHED WALL:
   - VERTICAL ALIGNMENT (PLUMPNESS) - 3/4 INCH IN 10 FEET
   - HORIZONTAL ALIGNMENT (LINE) - 3/4 INCH IN 10 FEET
7. FOUNDATION:
   - PROOF-ROLL THE FOUNDATION SUBGRADE ALONG THE ENTIRE WALL LENGTH PRIOR TO CONSTRUCTION OF THE T-WALL®. A GEOTECHNICAL ENGINEER MUST INSPECT THE EXCAVATED FOUNDATION SUBGRADE AND PROOF-ROLLING ACTIVITIES. ANY SOFT OR UNSUITABLE MATERIALS IDENTIFIED BY INSPECTION SHALL BE REMOVED AND REPLACED WITH COMPACTED STRUCTURAL BACKFILL AS DIRECTED BY THE ENGINEER. CONTRACTOR TO PROVIDE SUFFICIENT DEWATERING SO THAT THE EXCAVATIONS ARE DRY ENOUGH FOR INSPECTION, TESTING AND CONSTRUCTION.
8. CAST-IN-PLACE CONCRETE LEVELING PAD:
   - 6 INCHES MINIMUM x 12 INCHES
   - CONCRETE STRENGTH: 2500 psi (MINIMUM) @ 28 DAYS
   - NO REBAR
   - GRADE TOLERANCE - 1/4 INCH IN 10 FEET
9. T-WALL® UNIT REBAR:
   - ASTM A615/ASTM A185
   - Fy = 60 ksi (GRADE 60)
   - BLACK
   - **WELDING IS NOT PERMITTED**
10. T-WALL® UNIT CONCRETE :
    - 5000 psi (MINIMUM) @ 28 DAYS
11. SHEAR KEYS:
    - NO REBAR
    - CONCRETE STRENGTH: 4000 psi (MINIMUM) @ 28 DAYS
    - WALL IS DESIGNED FOR SPECIFIC NUMBER OF SHEAR KEYS AS SHOWN IN TYPICAL SECTION ON SHEET 4. LOCATION OF SHEAR KEYS CAN BE ADJUSTED IF NECESSARY AT A SPECIFIC LEVEL.
    - SHEAR KEY WRAP:
      - 1/4 INCH POLYETHYLENE FOAM WRAP TWO TIMES AROUND THE SHEAR KEY.
      - SHEAR KEY WRAP: AF250 POLYETHYLENE FOAM
12. CONSTRUCTION:
    - TO BE IN ACCORDANCE WITH T-WALL® CONSTRUCTION MANUAL (v07.04) AND TYPICAL T-WALL® NOMENCLATURE ON SHEET 2.
    - T-WALL® CONSTRUCTION MANUAL (v07.04) CAN BE DOWNLOADED FROM OUR WEB SITE AT www.neelco.com, UNDER "Downloads".
    - CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF ALL EXCAVATED SLOPES. DESIGN AND CONSTRUCTION OF ANY REQUIRED TEMPORARY SUPPORT OF EXCAVATION SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR.
    - ALL SURFACE RUNOFF IS TO BE DIVERTED AWAY FROM EXCAVATIONS TO AVOID THE DETERIORATION OF THE SUBGRADE SOILS DUE TO EXPOSURE TO MOISTURE.

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC. CSI
PROJECT #: T21882

CONTRACTOR: AL. ST. ONGE CONTRACTORS
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

STATE OF VERMONT — THOMAS G. NEEL — 8594 — PROFESSIONAL ENGINEER

REVISIONS

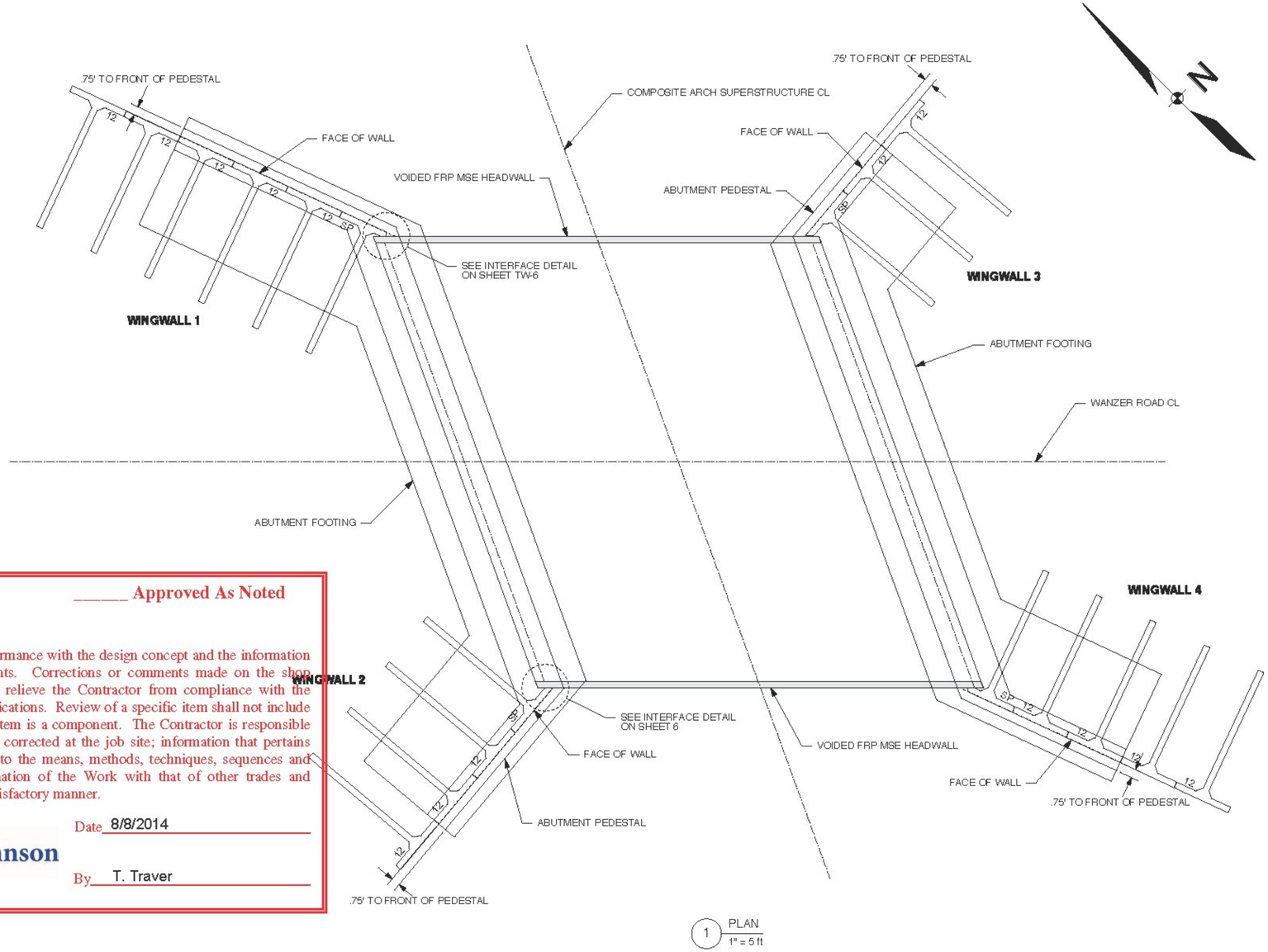
RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

SHOP DRAWINGS
NOTES

T-WALL® RETAINING WALL SYSTEM

SCALE:	NO SCALE
DATE:	4/21/14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	CCG
SHEET:	3



1 PLAN
1" = 5 ft

X Approved
Approved As Noted
Rejected

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McFarland Johnson

Date 8/8/2014

By T. Traver

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC. CSI

PROJECT #: T21882

CONTRACTOR: AL. ST. ONGE CONTRACTORS

PROJECT #:

DESIGNER

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8328-D TRAFORD LANE
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STATE OF VERMONT
THOMAS C. NEEL
6594
PROFESSIONAL ENGINEER

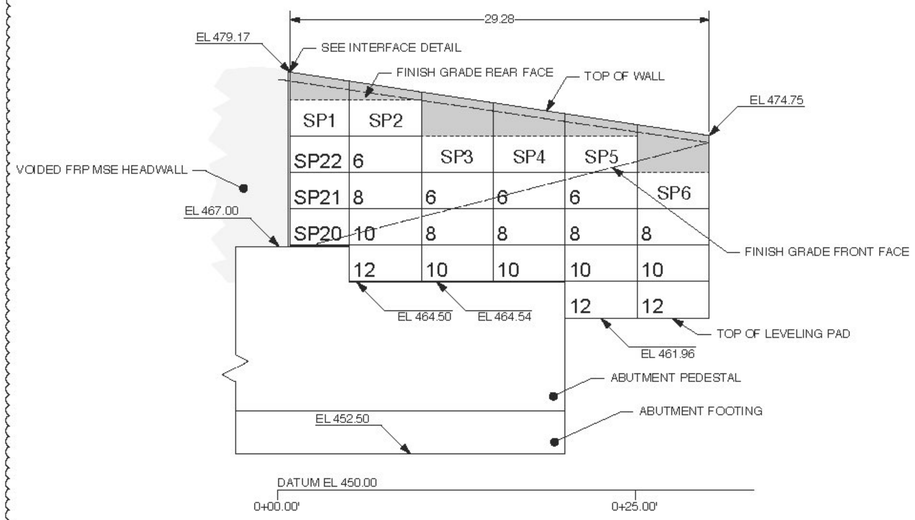
REVISIONS

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

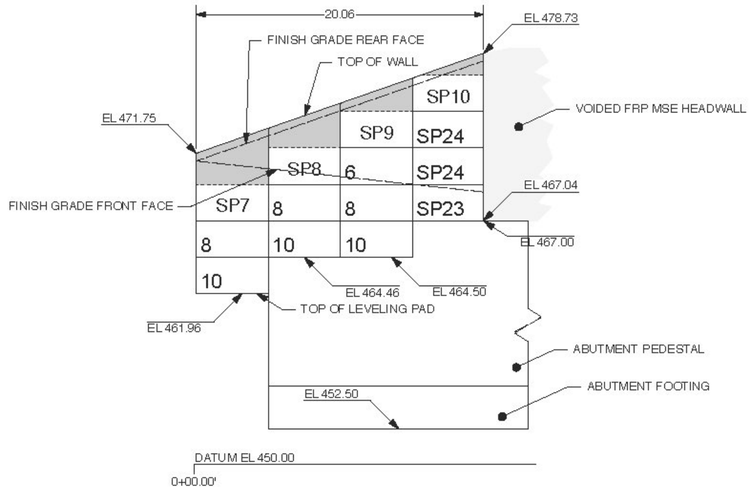
SHOP DRAWINGS
WALL DRAWINGS
PLAN VIEW
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	4/21/14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	CCG
SHEET:	4



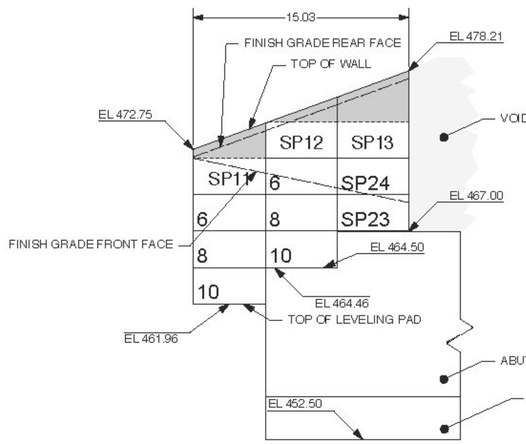
1 WINGWALL 1 DEVELOPED ELEVATION (FRONT FACE)
1" = 5 ft

NOTE: SEE ELEVATION DETAIL ON NEXT SHEET



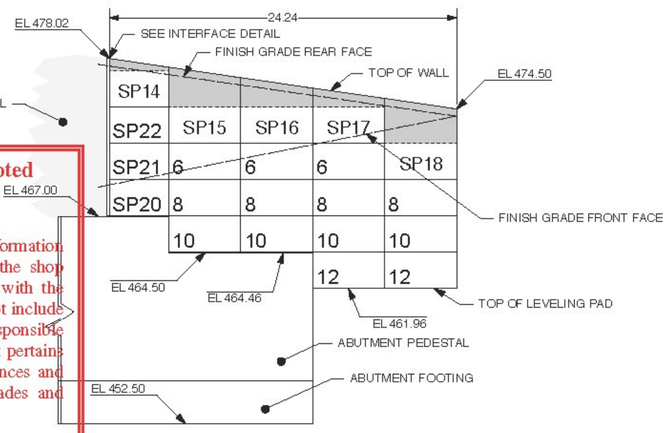
2 WINGWALL 2 DEVELOPED ELEVATION (FRONT FACE)
1" = 5 ft

NOTE: SEE ELEVATION DETAIL ON NEXT SHEET



3 WINGWALL 3 DEVELOPED ELEVATION (FRONT FACE)
1" = 5 ft

NOTE: SEE ELEVATION DETAIL ON NEXT SHEET



4 WINGWALL 4 DEVELOPED ELEVATION (FRONT FACE)
1" = 5 ft

NOTE: SEE ELEVATION DETAIL ON NEXT SHEET

1

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

_____X_____ **Approved** _____ **Approved As Noted**
_____ **Rejected**

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Date 8/8/2014

McFarland Johnson

By T. Traver

PRECASTER: CONCRETE SYSTEMS, INC. CSI
PROJECT #: T21882

CONTRACTOR: AL. ST. ONGE CONTRACTORS
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
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WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

STATE OF VERMONT
THOMAS C. NEEL
6574
PROFESSIONAL ENGINEER

REVISIONS

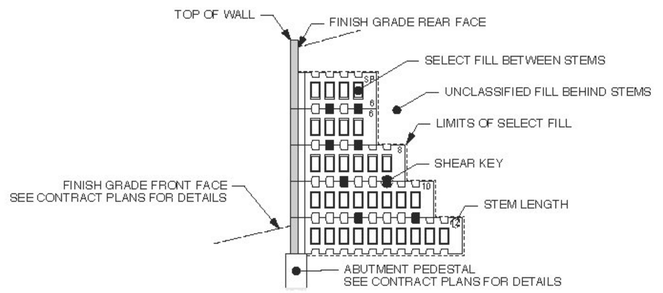
1	REVIEWER COMMENTS	ABC	8-6-14

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

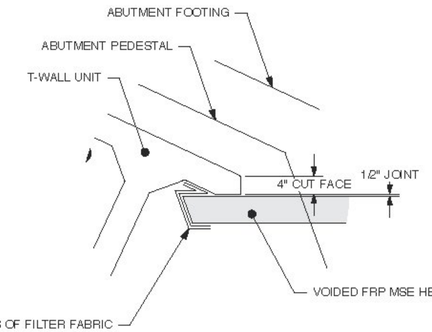
FAIRFIELD, VT

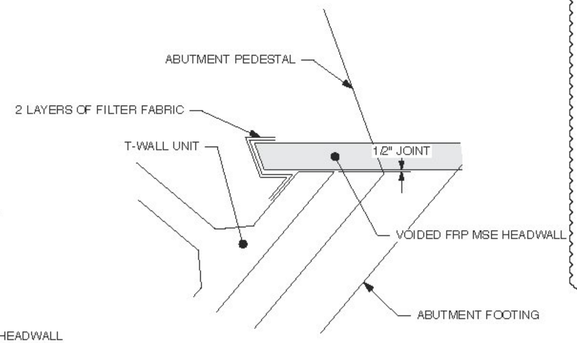
SHOP DRAWINGS
WALL DRAWINGS
DEVELOPED ELEVATIONS
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	4/21/14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	CCG
SHEET:	5



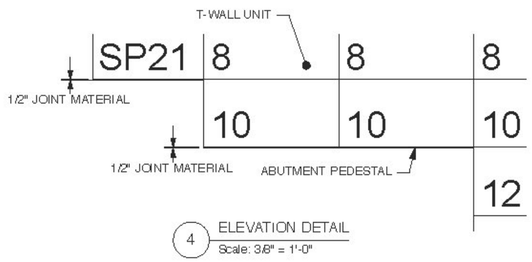
1 TYPICAL SECTION AT MAXIMUM HEIGHT
1" = 5 ft





2 WINGWALLS 1 & 4 INTERFACE DETAIL
Scale: 3/4" = 1'-0"

3 WINGWALLS 2 & 3 INTERFACE DETAIL
Scale: 3/4" = 1'-0"



4 ELEVATION DETAIL
Scale: 3/8" = 1'-0"

NOTE: CONTRACTOR TO CONFIRM REVISED PEDESTAL ELEVATIONS FOR 2'6 1/2" SPACING.

T-WALL Unit Count for Wingwall 1 — 8/8/14 10:55:48 AM

PANEL TYPE	QNTY (ea)	AREA (sf)	SELECT FILL (cy)
2.5 x 5.0 x 06 Std	4	50.00	9
2.5 x 5.0 x 08 Std	5	62.50	16
2.5 x 5.0 x 10 Std	5	62.50	20
2.5 x 5.0 x 12 Std	3	37.50	15
Special Units	9	160.70	21
TOTALS:	**26 ea**	**373.20 sf**	**82 cy**

NOTE: Select backfill quantities are between stems only.

T-WALL Unit Count for Wingwall 2 — 8/8/14 10:56:14 AM

PANEL TYPE	QNTY (ea)	AREA (sf)	SELECT FILL (cy)
2.5 x 5.0 x 06 Std	1	12.50	2
2.5 x 5.0 x 08 Std	3	37.50	10
2.5 x 5.0 x 10 Std	3	37.50	12
Special Units	7	124.78	17
TOTALS:	**14 ea**	**212.28 sf**	**41 cy**

NOTE: Select backfill quantities are between stems only.

T-WALL Unit Count for Wingwall 3 — 8/8/14 10:58:26 AM

PANEL TYPE	QNTY (ea)	AREA (sf)	SELECT FILL (cy)
2.5 x 5.0 x 06 Std	2	25.00	5
2.5 x 5.0 x 08 Std	2	25.00	6
2.5 x 5.0 x 10 Std	2	25.00	8
Special Units	5	87.49	12
TOTALS:	**11 ea**	**162.49 sf**	**31 cy**

NOTE: Select backfill quantities are between stems only.

T-WALL Unit Count for Wingwall 4 — 8/8/14 11:17:17 AM

PANEL TYPE	QNTY (ea)	AREA (sf)	SELECT FILL (cy)
2.5 x 5.0 x 06 Std	3	37.50	7
2.5 x 5.0 x 08 Std	4	50.00	13
2.5 x 5.0 x 10 Std	4	50.00	16
2.5 x 5.0 x 12 Std	2	25.00	10
Special Units	8	133.45	19
TOTALS:	**21 ea**	**295.95 sf**	**65 cy**

NOTE: Select backfill quantities are between stems only.

SHIP LOOSE LIST FOR WINGWALLS

ITEM	QNTY
T-Wall Lifting Device	1 ea
Shear Keys	108 ea
Mirafi 160N Filter Fabric (12" wide)	287 lf
1/2" x 4" x 5' Horizontal Joint Material	295 lf

△1

_X_ Approved _____ Approved As Noted
_____ Rejected

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Date 8/8/2014

McFarland Johnson

By T. Traver

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC. CSI
PROJECT #: T21882

CONTRACTOR: AL. ST. ONGE CONTRACTORS
PROJECT #:

DESIGNER

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STATE OF VERMONT
THOMAS C. NEEL
6574
PROFESSIONAL ENGINEER

REVISIONS

1	REVIEWER COMMENTS	ABC	8-6-14

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

SHOP DRAWINGS
WALL DRAWINGS
SECTION, DETAILS & QUANTITIES
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	4/21/14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	CCG
SHEET:	6

T-WALL UNIT PROPERTIES

UNIT TYPE	H	W	S	Tf*	Ts	SH	VOLUME*	WEIGHT*
2.5x5.0x06 Std	2'6"	5'0"	6'4 1/2"	6"	6"	2'6"	0.45 cy	1,827 lbs
2.5x5.0x08 Std	2'6"	5'0"	8'4 1/2"	6"	6"	2'6"	0.52 cy	2,088 lbs
2.5x5.0x10 Std	2'6"	5'0"	10'4 1/2"	6"	6"	2'6"	0.58 cy	2,349 lbs
2.5x5.0x12 Std	2'6"	5'0"	12'4 1/2"	6"	6"	2'6"	0.64 cy	2,610 lbs

*VOLUMES AND WEIGHTS ON THIS TABLE ARE BASED ON 6" FACE THICKNESS (Tf)

REBAR SCHEDULES

2.5x5.0x06 Std — HIGHWAY REBAR

Unit Dims	Bar Mark	Qnty	Size	Length	Dim "A"	Bar Weight	Bend Dia	Remarks
H=2'6"	H-1	3 ea	#4	4'8"		9.35 lbs		
W=5'0"	V-1	12 ea	#4	2'2"		17.37 lbs		
S=6'4 1/2"	V-2	6 ea	#4	2'2"		8.68 lbs		
SH=2'6"	S-1	4 ea	#4	3'4 1/2"		9.02 lbs	D= 3"	
	TB-1	4 ea	#4	8'2"	5'11"	21.81 lbs	D= 3"	
						66.23 lbs		

2.5x5.0x08 Std — HIGHWAY REBAR

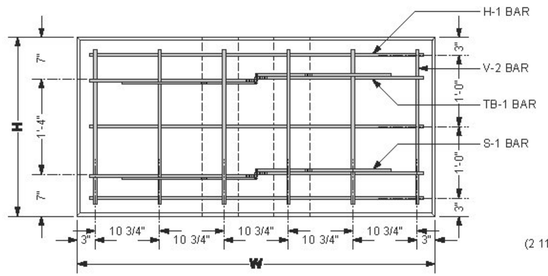
Unit Dims	Bar Mark	Qnty	Size	Length	Dim "A"	Bar Weight	Bend Dia	Remarks
H=2'6"	H-1	3 ea	#4	4'8"		9.35 lbs		
W=5'0"	V-1	16 ea	#4	2'2"		23.16 lbs		
S=8'4 1/2"	V-2	6 ea	#4	2'2"		8.68 lbs		
SH=2'6"	S-1	4 ea	#4	3'4 1/2"		9.02 lbs	D= 3"	
	TB-1	4 ea	#4	10'2"	7'11"	27.16 lbs	D= 3"	
						77.37 lbs		

2.5x5.0x10 Std — HIGHWAY REBAR

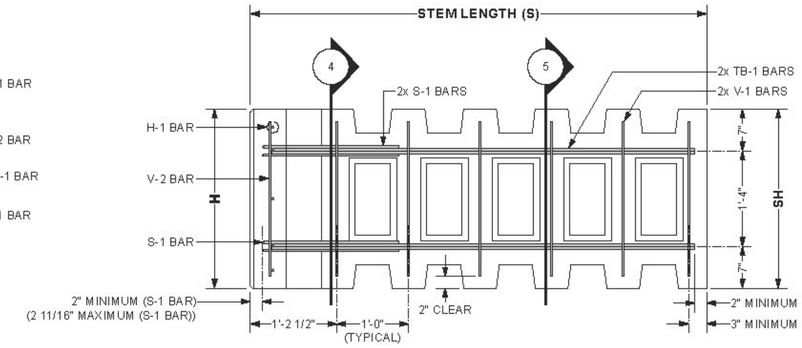
Unit Dims	Bar Mark	Qnty	Size	Length	Dim "A"	Bar Weight	Bend Dia	Remarks
H=2'6"	H-1	3 ea	#4	4'8"		9.35 lbs		
W=5'0"	V-1	20 ea	#4	2'2"		16.29 lbs		
S=10'4 1/2"	V-2	6 ea	#4	2'2"		4.89 lbs		
SH=2'6"	S-1	4 ea	#4	3'4 1/2"		5.08 lbs	D= 2 1/4"	
	TB-1	4 ea	#4	12'2"	9'11"	32.50 lbs	D= 3"	
						68.11 lbs		

2.5x5.0x12 Std — HIGHWAY REBAR

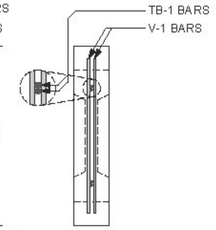
Unit Dims	Bar Mark	Qnty	Size	Length	Dim "A"	Bar Weight	Bend Dia	Remarks
H=2'6"	H-1	3 ea	#4	4'8"		9.35 lbs		
W=5'0"	V-1	20 ea	#4	2'2"		16.29 lbs		
S=12'4 1/2"	V-2	6 ea	#4	2'2"		4.89 lbs		
SH=2'6"	S-1	4 ea	#4	3'4 1/2"		5.08 lbs	D= 2 1/4"	
	TB-1	4 ea	#4	12'2"	9'11"	32.50 lbs	D= 3"	
						68.11 lbs		



3 **FRONT VIEW - 2.5 x 5.0 x 06 Std SHOWN**
Scale: 1" = 1'-0" *(V-1 BARS IN STEM OMITTED FOR CLARITY)*



2 **SIDE VIEW - 2.5 x 5.0 x 06 Std SHOWN**
Scale: 1" = 1'-0"



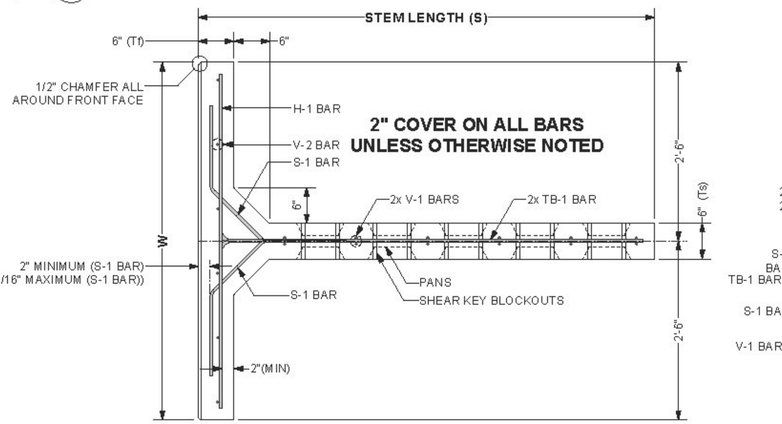
5 **SECTION THROUGH STEM**
Scale: 1" = 1'-0"

SPECIAL NOTES:

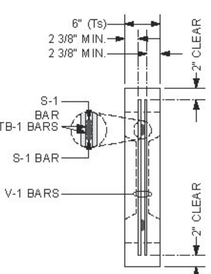
1. FRONT FACE OF T-WALL® UNITS FINISH TREATMENT:
   - PLAIN STEEL FORM FINISH

GENERAL NOTES:

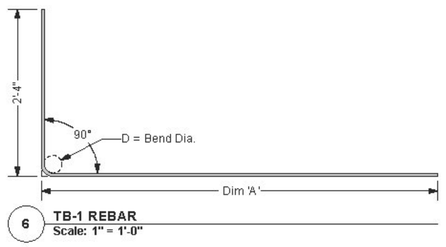
1. PRIMARY REFERENCE:
   - AASHTO, LRFD BRIDGE DESIGN SPECIFICATION, 5TH EDITION 2010 (WITH INTERIMS)
2. T-WALL® CONCRETE:
   - F'c = 5000 psi (MINIMUM) @ 28 DAYS
   - MINIMUM STRIPPING STRENGTH: 2500 psi
3. T-WALL® REINFORCING STEEL:
   - BLACK
   - Fy = 60 ksi (GRADE 60)
   - **WELDING IS NOT PERMITTED**
4. MARKING OF PRECAST UNITS:
   - CLEARLY MARK EACH PRECAST UNIT ON THE BUTT END OF THE STEM WITH THE UNIT TYPE (i.e. 2.5x5.0x06 STD), THE DATE OF MANUFACTURE, THE LOT NUMBER (IF APPLICABLE), AND THE TRADEMARK "T-WALL®".
5. REINFORCING FABRICATION AND PLACEMENT TOLERANCES:
   - THE STRUCTURAL DESIGN OF PRECAST UNITS ASSUMES 2 INCHES OF CONCRETE COVER OVER ALL REINFORCING BARS.
   - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON CONCRETE COVER SHALL BE ± 3/8 INCHES.
   - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON BAR PLACEMENT SHALL BE:
     - VERTICAL LOCATION OF TB-1 BARS: ± 3/8 INCHES
     - LOCATION / SPACING OF H-1, V-1 & V-2 BARS: ± 1 INCH
   - REGARDLESS OF THE SPECIFIED PLACEMENT TOLERANCES, CONCRETE COVER SHALL BE MAINTAINED WITHIN ± 3/8 INCHES AS PREVIOUSLY NOTED.
   - ALL REINFORCING BARS SHALL BE CUT AND BENT FOLLOWING REQUIREMENTS OF THE CRSI MANUAL OF STANDARD PRACTICE.
   - UNLESS NOTED OTHERWISE, TOLERANCES FOR BAR FABRICATION SHALL MEET REQUIREMENTS OF STANDARD ACI 318 AND THE CRSI MANUAL OF STANDARD PRACTICE.



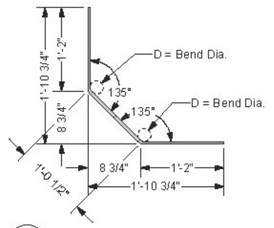
1 **PLAN VIEW - 2.5 x 5.0 x 06 Std SHOWN**
Scale: 1" = 1'-0"



4 **SECTION THROUGH STEM**
Scale: 1" = 1'-0"



6 **TB-1 REBAR**
Scale: 1" = 1'-0"



7 **S-1 REBAR**
Scale: 1" = 1'-0"

_X_ Approved _____ Approved As Noted
_____ Rejected

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Date 8/8/2014

0 1/2" 1" 1 1/2" 2"
SHEET NO: 7

McFarland Johnson

PRECASTER: CONCRETE SYSTEMS, INC. CSI
PROJECT #: 121882

CONTRACTOR: AL Trawse CONTRACTORS
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY
STATE OF VERMONT — THOMAS C. NEEL — 6984 — PROFESSIONAL ENGINEER

REVISIONS

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

SHOP DRAWINGS
STANDARD UNITS
REBAR AND DIMENSIONS
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	4/21/14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	CCG
SHEET:	7

BORDER-TNC T-WALL HWY v 4.1

GENERAL NOTES:

1. PRIMARY REFERENCE:
   - AASHTO, LRFD BRIDGE DESIGN SPECIFICATION, 5TH EDITION 2010 (WITH INTERIMS)
2. T-WALL® CONCRETE:
   - F'c = 5000 psi (MINIMUM) @ 28 DAYS
   - MINIMUM STRIPPING STRENGTH: 2500 psi
3. T-WALL® REINFORCING STEEL:
   - BLACK
   - Fy = 60 ksi (GRADE 60)
   - **WELDING IS NOT PERMITTED**
4. MARKING OF PRECAST UNITS:
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   - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON BAR PLACEMENT SHALL BE:
     - VERTICAL LOCATION OF TB-1 BARS: ± 3/8 INCHES
     - LOCATION / SPACING OF H-1, V-1 & V-2 BARS: ± 1 INCH
   - REGARDLESS OF THE SPECIFIED PLACEMENT TOLERANCES, CONCRETE COVER SHALL BE MAINTAINED WITHIN ± 3/8 INCHES AS PREVIOUSLY NOTED.
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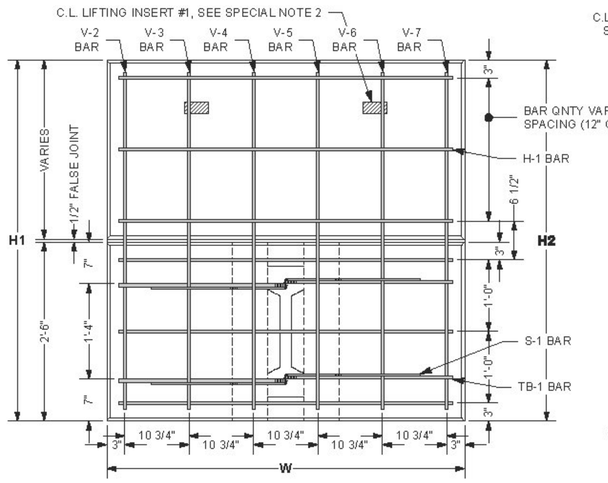
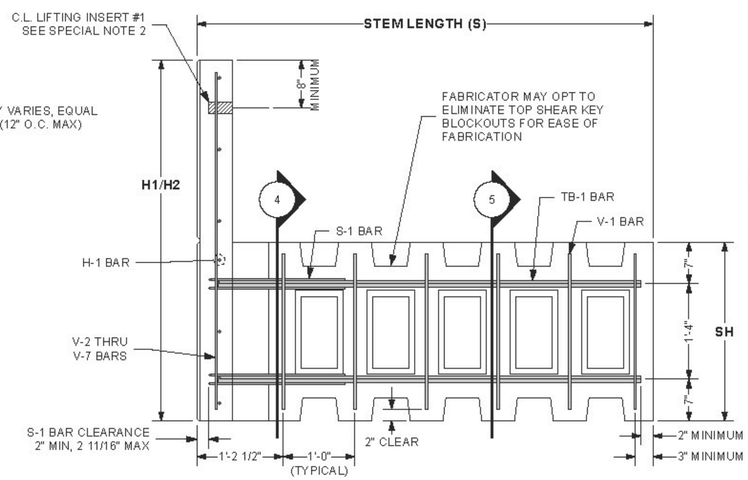
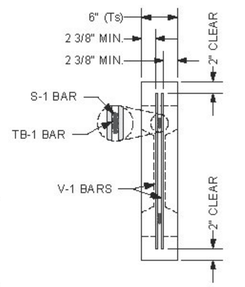
   - UNLESS NOTED OTHERWISE, TOLERANCES FOR BAR FABRICATION SHALL MEET REQUIREMENTS OF STANDARD ACI 318 AND THE CRSI MANUAL OF STANDARD PRACTICE.



3 FRONT VIEW - 6' STEM UNIT SHOWN
Scale: 1" = 1'-0" *(V-1 BARS IN STEM OMITTED FOR CLARITY)*



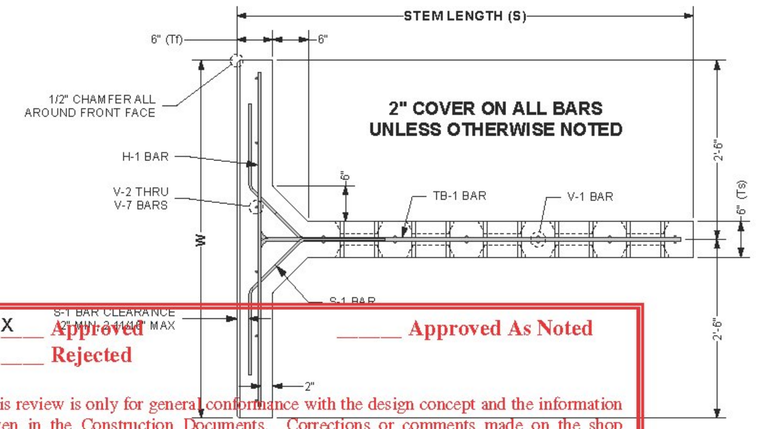
2 SIDE VIEW - 6' STEM UNIT SHOWN
Scale: 1" = 1'-0"



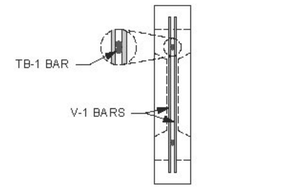
4 SECTION AT STEM
Scale: 1" = 1'-0"

SPECIAL NOTES:

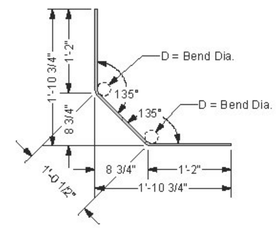
1. FRONT FACE OF T-WALL® UNITS FINISH TREATMENT:
   - PLAIN STEEL FORM FINISH
2. LIFTING INSERTS CAPACITY:
   - TWO QUICKLIFT 'QL0500' LIFTING INSERTS OR EQUAL, SPACED AT LEAST 30" APART.
   - 2000 LBS (1 TON) MINIMUM RATED WORKING LOAD CAPACITY.
   - MINIMUM CONCRETE STRENGTH SHALL BE 3,500 psi PRIOR TO STRIPPING AND LIFTING OPERATIONS.
3. 1/2" FALSE JOINT LOCATION:
   - IF **H-1** IS GREATER THEN 2'-6", THEN FIRST FALSE JOINT WILL BE 2'-6" FROM THE BOTTOM OF THE UNIT.
   - IF **H-1** IS GREATER THEN 5'-0", THEN SECOND FALSE JOINT WILL BE 2'-6" ABOVE THE FIRST FALSE JOINT.
   - THE FALSE JOINT WILL 1/2" HIGH AND 1/2" DEEP.



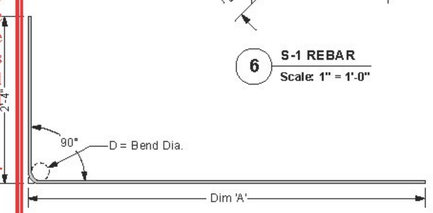
1 PLAN VIEW - 6' STEM UNIT SHOWN
Scale: 1" = 1'-0"



5 SECTION AT STEM
Scale: 1" = 1'-0"



6 S-1 REBAR
Scale: 1" = 1'-0"



7 TB-1 REBAR
Scale: 1" = 1'-0"

REBAR SCHEDULES
6' STEM SPECIAL UNITS — HIGHWAY REBAR

Unit Dims	Bar Mark	Qnty	Size	Length	Dim "A"	Bar Weight	Bend Dia	Remarks
H=VARIES	H-1	VARIES	#4	4'8"				SEE SLOPED TOP UNIT SCHEDULE
W=5'0"	V-1	12 ea	#4	2'2"		17.37 lbs		
S=6'4 1/2"	V-2 THRU V-7	1 ea	#5	VARIES				SEE SLOPED TOP UNIT SCHEDULE
SH=2'6"	S-1	4 ea	#4	3'4 1/2"		9.02 lbs	D= 3"	
	TB-1	4 ea	#4	8'3"	5'11"	22.04 lbs	D= 3"	

SLOPED TOP UNIT SCHEDULE:

MARK No.	QNTY	STEM	WIDTH	H1	H2	H-1 BAR	V-2 BAR	V-3 BAR	V-4 BAR	V-5 BAR	V-6 BAR	V-7 BAR	VOL	WEIGHT	AREA
SP2	1 ea	6'4 1/2"	5'0"	3'10 1/8"	3'1"	5 ea	3'5 5/8"	3'3 3/4"	3'2"	3'1 1/8"	2'11 1/4"	2'9 1/2"	0.56 cy	2,266 lbs	17.30 sf
SP3	1 ea	6'4 1/2"	5'0"	5'7 1/2"	4'10 3/8"	7 ea	5'3"	5'1 1/8"	4'11 3/8"	4'10 3/8"	4'8 5/8"	4'6 7/8"	0.72 cy	2,934 lbs	26.20 sf
SP4	1 ea	6'4 1/2"	5'0"	4'10 3/8"	4'1 1/4"	6 ea	4'5 7/8"	4'4"	4'2 1/4"	4'1 1/4"	3'11 1/2"	3'9 3/4"	0.65 cy	2,649 lbs	22.40 sf
SP5	1 ea	6'4 1/2"	5'0"	4'1 1/4"	3'4 1/8"	5 ea	3'8 3/4"	3'6 7/8"	3'5 1/8"	3'4 1/8"	3'2 3/8"	3'0 5/8"	0.58 cy	2,364 lbs	18.60 sf
SP6	1 ea	6'4 1/2"	5'0"	5'10 5/8"	5'1 1/2"	7 ea	5'6 1/8"	5'4 1/4"	5'2 1/2"	5'1 1/2"	4'11 3/4"	4'10"	0.75 cy	3,032 lbs	27.50 sf
SP7	1 ea	6'4 1/2"	5'0"	4'8 1/2"	6'5 1/2"	7 ea	4'5 5/8"	4'9 7/8"	5'2"	5'4 1/8"	5'8 1/4"	6'0 3/8"	0.76 cy	3,063 lbs	27.93 sf
SP8	1 ea	6'4 1/2"	5'0"	3'11"	6'8"	7 ea	3'8 1/8"	4'0 3/8"	4'4 1/2"	4'6 5/8"	4'10 3/4"	5'2 7/8"	0.68 cy	2,767 lbs	23.98 sf
SP9	1 ea	6'4 1/2"	5'0"	3'1 1/2"	4'10 1/2"	6 ea	2'10 3/4"	3'2 7/8"	3'7"	3'9 1/8"	4'1 1/4"	4'5 3/8"	0.61 cy	2,471 lbs	20.02 sf
SP11	1 ea	6'4 1/2"	5'0"	3'1 7/8"	4'11 7/8"	6 ea	2'11 1/8"	3'3 1/2"	3'7 3/4"	3'10"	4'2 3/8"	4'6 3/4"	0.62 cy	2,497 lbs	20.38 sf
SP12	1 ea	6'4 1/2"	5'0"	2'5 3/8"	4'3 3/8"	5 ea	2'2 5/8"	2'7"	2'11 1/4"	3'1 1/2"	3'5 7/8"	3'10 1/8"	0.55 cy	2,231 lbs	16.82 sf
SP15	1 ea	6'4 1/2"	5'0"	5'3 1/2"	4'6 3/4"	6 ea	4'1 1/"	4'9 1/4"	4'7 1/2"	4'6 5/8"	4'4 7/8"	4'3 1/4"	0.70 cy	2,816 lbs	24.62 sf
SP16	1 ea	6'4 1/2"	5'0"	4'6 3/4"	3'10"	6 ea	4'2 1/4"	4'0 1/2"	3'10 3/4"	3'9 7/8"	3'8 1/8"	3'6 1/2"	0.63 cy	2,542 lbs	20.97 sf
SP17	1 ea	6'4 1/2"	5'0"	3'10"	3'1 1/4"	5 ea	3'5 1/2"	3'3 3/4"	3'2"	3'1 1/8"	2'11 3/8"	2'9 5/8"	0.56 cy	2,268 lbs	17.32 sf
SP18	1 ea	6'4 1/2"	5'0"	5'7 3/4"	4'11"	7 ea	5'3 3/8"	5'1 5/8"	4'11 7/8"	4'11"	4'9 1/4"	4'7 1/2"	0.73 cy	2,951 lbs	26.43 sf

1

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

X _____ Approved _____ Approved As Noted
_____ Rejected

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McFarland Johnson

Date 8/8/2014

By T. Traver

PRECASTER: CONCRETE SYSTEMS, INC. CSI
PROJECT #: T21882
CONTRACTOR: AL. ST. ONGE CONTRACTORS
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY
STATE OF VERMONT — THOMAS G. NEEL — 6584 — PROFESSIONAL ENGINEER

REVISIONS

1	REVIEWER COMMENTS	ABC	8-6-14

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT
FAIRFIELD, VT
SHOP DRAWINGS
SLOPED TOP UNITS
REBAR AND DIMENSIONS
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	4/21/14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	CCG
SHEET:	8

PLOT DATE & TIME: Wednesday, August 6, 2014 11:26:23 AM
CAD FILE NAME: 08 Rebar - Sloped Top Units.vwx
VW SHEET NAME: TW-08

USER NAME: N/A
VECTORWORKS 2011

GENERAL NOTES:

1. PRIMARY REFERENCE:
   - AASHTO, LRFD BRIDGE DESIGN SPECIFICATION, 5TH EDITION 2010 (WITH INTERIMS)
2. T-WALL® CONCRETE:
   - F'c = 5000 psi (MINIMUM) @ 28 DAYS
   - MINIMUM STRIPPING STRENGTH: 2500 psi
3. T-WALL® REINFORCING STEEL:
   - BLACK
   - Fy = 60 ksi (GRADE 60)
   - **WELDING IS NOT PERMITTED**
4. MARKING OF PRECAST UNITS:
   - CLEARLY MARK EACH PRECAST UNIT ON THE BUTT END OF THE STEM WITH THE UNIT TYPE (i.e. 2.5x5.0x06 STD), THE DATE OF MANUFACTURE, THE LOT NUMBER (IF APPLICABLE), AND THE TRADEMARK "T-WALL®".
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SPECIAL NOTES:

1. FRONT FACE OF T-WALL® UNITS FINISH TREATMENT:
   - PLAIN STEEL FORM FINISH
2. LIFTING INSERTS CAPACITY:
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   - THE FALSE JOINT WILL 1/2" HIGH AND 1/2" DEEP.

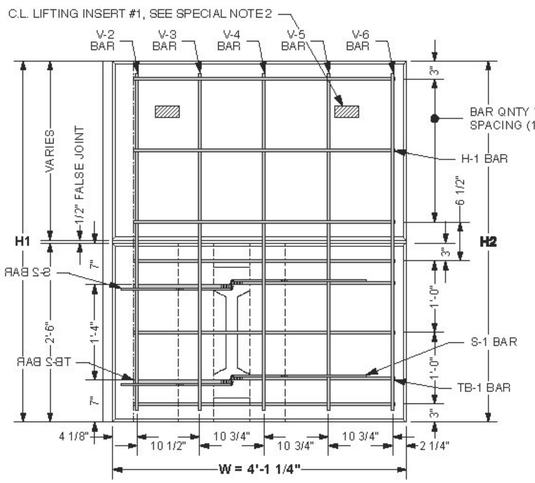
REBAR SCHEDULES

6' STEM SPECIAL UNITS — **HIGHWAY REBAR**

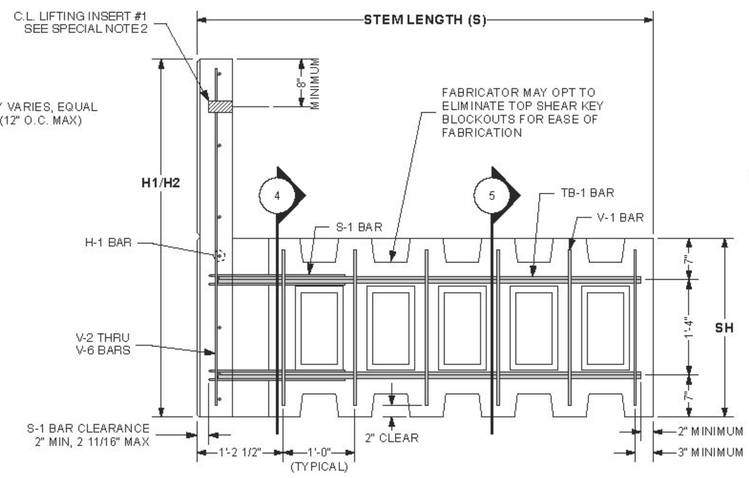
Unit Dims	Bar Mark	Qnty	Size	Length	Dim "A"	Bar Weight	Bend Dia	Remarks
H=VARIES	H-1	VARIES	#4	4'1 1/4"				SEE SLOPED TOP UNIT SCHEDULE
W=4'1 1/4"	V-1	12 ea	#4	2'2"		17.37 lbs		
S=6'4 1/2"	V-2 THRU V-6	1 ea	#4	VARIES				SEE SLOPED TOP UNIT SCHEDULE
SH=2'6"	S-1	2 ea	#4	3'4 1/2"		4.51 lbs	D= 3"	
	S-2	2 ea	#4	3'0 1/2"		4.06 lbs	D= 3"	
	TB-1	2 ea	#4	4'4"	2'0 1/2"	5.79 lbs	D= 3"	
	TB-2	2 ea	#4	3'5 1/4"	2'0 1/2"	4.59 lbs	D= 3"	

SLOPED TOP UNIT SCHEDULE:

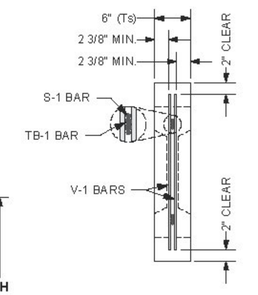
MARK No.	QNTY	STEM	WIDTH	H1	H2	H-1 BAR	V-2 BAR	V-3 BAR	V-4 BAR	V-5 BAR	V-6 BAR	VOL	WEIGHT	AREA
SP1	1 ea	6'4 1/2"	4'1 1/4"	4'5 1/2"	3'10 1/8"	5 ea	4'0 7/8"	4'0"	3'9 3/4"	3'8 1/8"	3'6 3/8"	0.55 cy	2,247 lbs	17.04 sf
SP14	1 ea	6'4 1/2"	4'1 1/4"	3'4 1/4"	2'9"	4 ea	2'11 5/8"	2'10 5/8"	2'8 1/2"	2'6 7/8"	2'5 3/8"	0.47 cy	1,908 lbs	12.52 sf



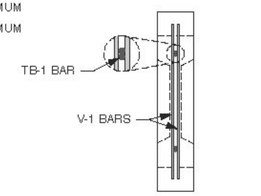
3 FRONT VIEW - 6' STEM UNIT SHOWN
Scale: 1" = 1'-0"
(V-1 BARS IN STEM OMITTED FOR CLARITY)



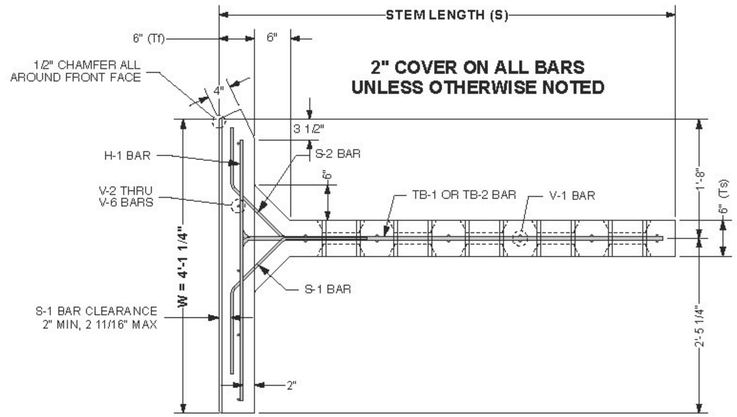
2 SIDE VIEW - 6' STEM UNIT SHOWN
Scale: 1" = 1'-0"



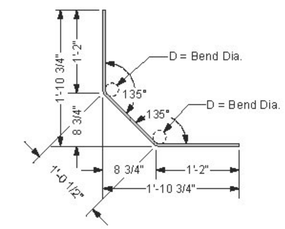
4 SECTION AT STEM
Scale: 1" = 1'-0"



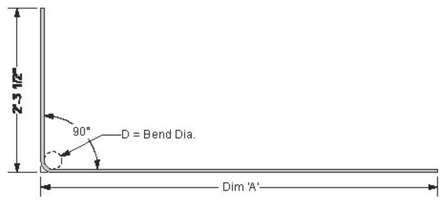
5 SECTION AT STEM
Scale: 1" = 1'-0"



1 PLAN VIEW - 6' STEM UNIT SHOWN
Scale: 1" = 1'-0"



6 S-1 REBAR
Scale: 1" = 1'-0"



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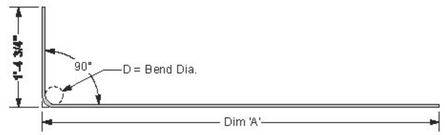
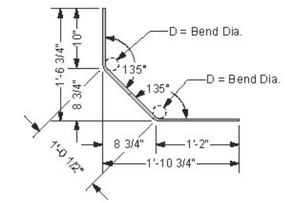
Scale: 1" = 1'-0"



8 TB-2 REBAR
Scale: 1" = 1'-0"



9 S-2 REBAR
Scale: 1" = 1'-0"

1

X Approved — Approved As Noted
Rejected

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Date 8/8/2014
By J. Traver

0 1/2" 1 2" SHEET SCALE

The design contained on these drawings is based upon information provided by the owner Company has design the structure only. E: stability, is the respor

McFarland Johnson

This drawing contains information proprietary to The Neel Company. T-WALL® is a re

PRECASTER: CONCRETE PRODUCTS, INC. CSI
#: T21882
CONTRACTOR: AL ST. ONGE CONTRACTORS
PROJECT #:

DESIGNER
THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM
PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY
STATE OF VERMONT — THOMAS G. NEEL — 6554 — PROFESSIONAL ENGINEER

REVISIONS

1	REVIEWER COMMENTS	ABC	8-6-14

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

SHOP DRAWINGS
NARROW SLOPED TOP LEFT BEVELED UNITS
REBAR AND DIMENSIONS
T-WALL® RETAINING WALL SYSTEM

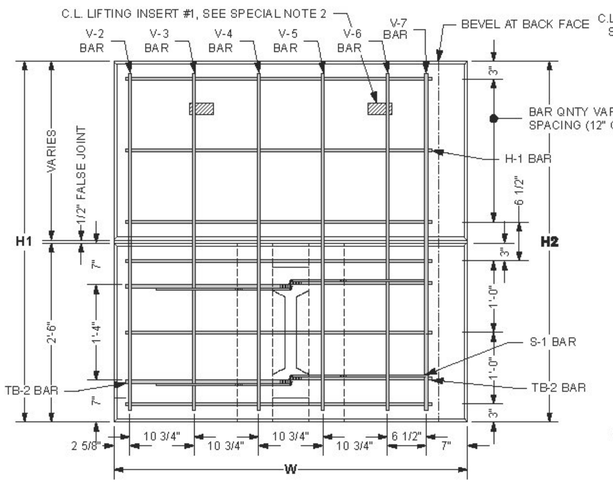
SCALE:	AS NOTED
DATE:	4/21/14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	CCG
SHEET:	9

GENERAL NOTES:

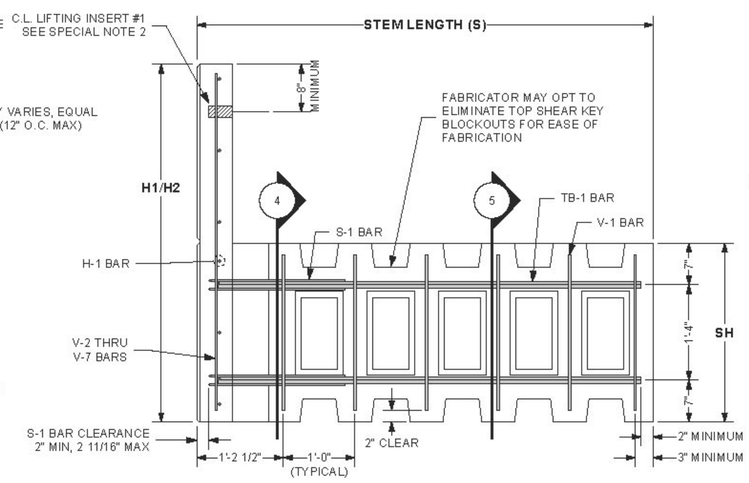
1. PRIMARY REFERENCE:
   - AASHTO, LRFD BRIDGE DESIGN SPECIFICATION, 5TH EDITION 2010 (WITH INTERIMS)
2. T-WALL® CONCRETE:
   - F'c = 5000 psi (MINIMUM) @ 28 DAYS
   - MINIMUM STRIPPING STRENGTH: 2500 psi
3. T-WALL® REINFORCING STEEL:
   - BLACK
   - Fy = 60 ksi (GRADE 60)
   - **WELDING IS NOT PERMITTED**
4. MARKING OF PRECAST UNITS:
   - CLEARLY MARK EACH PRECAST UNIT ON THE BUTT END OF THE STEM WITH THE UNIT TYPE (i.e. 2.5x5.0x06 STD), THE DATE OF MANUFACTURE, THE LOT NUMBER (IF APPLICABLE), AND THE TRADEMARK "T-WALL®".
5. REINFORCING FABRICATION AND PLACEMENT TOLERANCES:
   - THE STRUCTURAL DESIGN OF PRECAST UNITS ASSUMES 2 INCHES OF CONCRETE COVER OVER ALL REINFORCING BARS.
   - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON CONCRETE COVER SHALL BE ± 3/8 INCHES.
   - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON BAR PLACEMENT SHALL BE:
     - VERTICAL LOCATION OF TB-1 BARS: ± 3/8 INCHES
     - LOCATION / SPACING OF H-1, V-1 & V-2 BARS: ± 1 INCH
   - REGARDLESS OF THE SPECIFIED PLACEMENT TOLERANCES, CONCRETE COVER SHALL BE MAINTAINED WITHIN ± 3/8 INCHES AS PREVIOUSLY NOTED.
   - ALL REINFORCING BARS SHALL BE CUT AND BENT FOLLOWING REQUIREMENTS OF THE CRSI MANUAL OF STANDARD PRACTICE.
   - UNLESS NOTED OTHERWISE, TOLERANCES FOR BAR FABRICATION SHALL MEET REQUIREMENTS OF STANDARD ACI 318 AND THE CRSI MANUAL OF STANDARD PRACTICE.

SPECIAL NOTES:

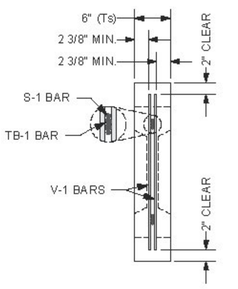
1. FRONT FACE OF T-WALL® UNITS FINISH TREATMENT:
   - PLAIN STEEL FORM FINISH
2. LIFTING INSERTS CAPACITY:
   - TWO QUICKLIFT 'QL050G' LIFTING INSERTS OR EQUAL, SPACED AT LEAST 30" APART.
   - 2000 LBS (1 TON) MINIMUM RATED WORKING LOAD CAPACITY.
   - MINIMUM CONCRETE STRENGTH SHALL BE 3,500 psi PRIOR TO STRIPPING AND LIFTING OPERATIONS.
3. 1/2" FALSE JOINT LOCATION:
   - IF **H-1** IS GREATER THEN 2'-6", THEN FIRST FALSE JOINT WILL BE 2'-6" FROM THE BOTTOM OF THE UNIT.
   - IF **H-1** IS GREATER THEN 5'-0", THEN SECOND FALSE JOINT WILL BE 2'-6" ABOVE THE FIRST FALSE JOINT.
   - THE FALSE JOINT WILL 1/2" HIGH AND 1/2" DEEP.



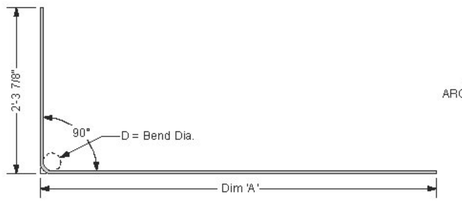
3 FRONT VIEW - 6' STEM UNIT SHOWN
Scale: 1" = 1'-0"
(V-1 BARS IN STEM OMITTED FOR CLARITY)



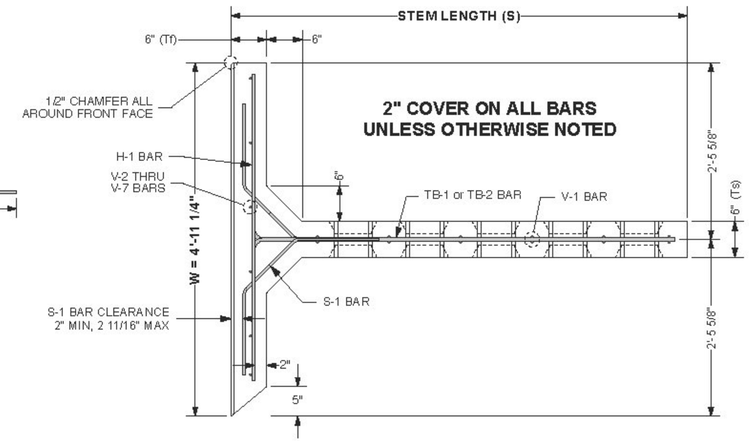
2 SIDE VIEW - 6' STEM UNIT SHOWN
Scale: 1" = 1'-0"



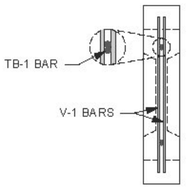
4 SECTION AT STEM
Scale: 1" = 1'-0"



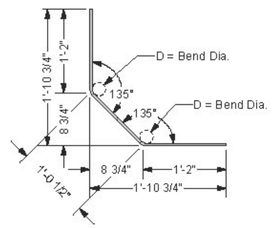
7 TB-1 REBAR
Scale: 1" = 1'-0"



1 PLAN VIEW -6' STEM UNIT SHOWN
Scale: 1" = 1'-0"



5 SECTION AT STEM
Scale: 1" = 1'-0"

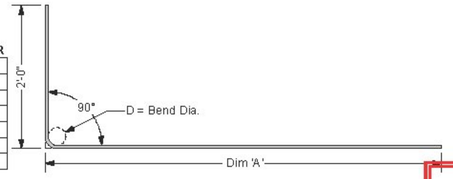


6 S-1 REBAR
Scale: 1" = 1'-0"

REBAR SCHEDULES

6' STEM SPECIAL UNITS — **HIGHWAY REBAR**

Unit Dims	Bar Mark	Qnty	Size	Length	Dim "A"	Bar Weight	Bend Dia	Remarks
H=VARIES	H-1	VARIES	#4	4'3 3/8"				SEE SLOPED TOP UNIT SCHEDULE
W=4'11 1/4"	V-1	12 ea	#4	2'2"		17.37 lbs		
S=6'4 1/2"	V-2 THRU V-7	1 ea	#5	VARIES				SEE SLOPED TOP UNIT SCHEDULE
SH=2'6"	S-1	4 ea	#4	3'4 1/2"		9.02 lbs	D= 3"	
	TB-1	2 ea	#4	8'2 7/8"	5'11"	11.01 lbs	D= 3"	
	TB-2	2 ea	#4	7'11"	5'11"	10.58 lbs	D= 3"	



7 TB-1 REBAR
Scale: 1" = 1'-0"

1

SLOPED TOP UNIT SCHEDULE:

MARK No.	QNTY	STEM	WIDTH	H1	H2	H-1 BAR	V-2 BAR	V-3 BAR	V-4 BAR	V-5 BAR	V-6 BAR	V-7 BAR	VOL	WEIGHT	AREA
SP10	1 ea	6'4 1/2"	4'11 1/4"	2'4"	4'0 3/4"	5 ea	2'1 1/4"	2'5 3/8"	2'9 1/2"	2'11 5/8"	3'3 3/4"	3'6 3/8"	0.53 cy	2,155 lbs	15.81 sf
SP13	1 ea	6'4 1/2"	4'11 1/4"	4'3 3/8"	6'1"	7 ea	4'0 1/2"	4'4 7/8"	4'9 1/4"	4'11 3/8"	5'3 3/4"	5'6 3/8"	0.71 cy	2,887 lbs	25.58 sf

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

X Approved
_____ Rejected

Approved As Noted

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PRECASTER: CONCRETE SYSTEMS, INC. CSI
PROJECT #: T21882
CONTRACTOR: AL. ST. ONGE CONTRACTORS
PROJECT #:

DESIGNER
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8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
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WEB: WWW.NEELCO.COM
PROJECT #: TW4301

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STATE OF VERMONT — THOMAS C. NEEL — 6584 — PROFESSIONAL ENGINEER

REVISIONS

1	REVIEWER COMMENTS	ABC	8.5.14

McFarland Johnson

Date 8/8/2014
By T. Traver

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT
FAIRFIELD, VT
SHOP DRAWINGS
NARROW SLOPED TOP RIGHT BEVELED UNITS
REBAR AND DIMENSIONS
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	4/21/14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	CCG
SHEET:	10

BORDER-TNC T-WALL HWY v4.1

REBAR SCHEDULES

SP22 — HIGHWAY REBAR

Unit Dims	Bar Mark	Qnty	Size	Length	Dim "A"	Bar Weight	Bend Dia	Remarks
H=2'6"	H-1	3 ea	#4	3'7 3/4"		7.31 lbs		
W=4'1 1/4"	V-1	12 ea	#4	2'2"		17.37 lbs		
S=6'4 1/2"	V-2	4 ea	#4	2'2"		5.79 lbs		
SH=2'6"	S-1	2 ea	#4	3'4 1/2"		4.51 lbs	D= 3"	
	TB-1	2 ea	#4	8'2 1/2"	5'11"	10.97 lbs	D= 3"	
	S-2	2 ea	#4	3'4 1/2"		4.51 lbs	D= 3"	
	TB-2	2 ea	#4	7'3 3/4"	5'11"	9.77 lbs	D= 3"	
						35.54 lbs		

SP21 — HIGHWAY REBAR

Unit Dims	Bar Mark	Qnty	Size	Length	Dim "A"	Bar Weight	Bend Dia	Remarks
H=2'6"	H-1	3 ea	#4	3'7 3/4"		7.31 lbs		
W=4'1 1/4"	V-1	16 ea	#4	2'2"		23.16 lbs		
S=8'4 1/2"	V-2	4 ea	#4	2'2"		5.79 lbs		
SH=2'6"	S-1	2 ea	#4	3'4 1/2"		4.51 lbs	D= 3"	
	TB-1	2 ea	#4	10'2 1/2"	7'11"	13.64 lbs	D= 3"	
	S-2	2 ea	#4	3'4 1/2"		4.51 lbs	D= 3"	
	TB-2	2 ea	#4	9'3 3/4"	7'11"	12.44 lbs	D= 3"	
						40.89 lbs		

SP20 — HIGHWAY REBAR

Unit Dims	Bar Mark	Qnty	Size	Length	Dim "A"	Bar Weight	Bend Dia	Remarks
H=2'6"	H-1	3 ea	#4	3'7 3/4"		9.35 lbs		
W=4'1 1/4"	V-1	20 ea	#4	2'2"		16.29 lbs		
S=10'4 1/2"	V-2	4 ea	#4	2'2"		4.89 lbs		
SH=2'6"	S-1	2 ea	#4	3'4 1/2"		5.08 lbs	D= 2 1/4"	
	TB-1	2 ea	#4	12'2 1/2"	9'11"	32.50 lbs	D= 3"	
	S-2	2 ea	#4	3'4 1/2"		5.08 lbs	D= 2 1/4"	
	TB-2	2 ea	#4	11'3 3/4"	9'11"	32.50 lbs	D= 3"	
						68.11 lbs		

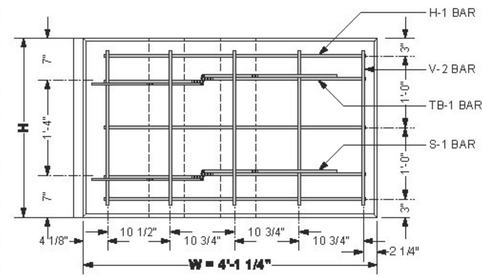
1

T-WALL UNIT PROPERTIES

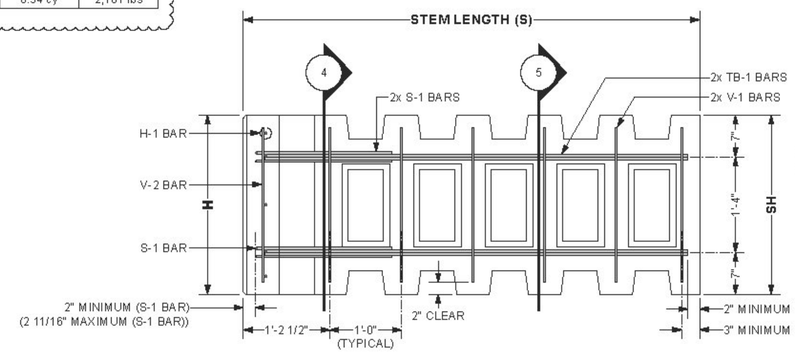
UNIT TYPE	H	W	S	Tf*	Ts	SH	VOLUME*	WEIGHT*
SP22	2'6"	4'1 1/4"	6'4 1/2"	6"	6"	2'6"	0.41 cy	1,659 lbs
SP21	2'6"	4'1 1/4"	8'4 1/2"	6"	6"	2'6"	0.47 cy	1,920 lbs
SP20	2'6"	4'1 1/4"	10'4 1/2"	6"	6"	2'6"	0.54 cy	2,181 lbs

* VOLUMES AND WEIGHTS ON THIS TABLE ARE BASED ON 6" FACE THICKNESS (Tf)

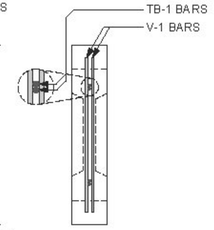
1



3 **FRONT VIEW - 2.5 x 5.0 x 06 Std SHOWN**
Scale: 1" = 1'-0" *(V-1 BARS IN STEM OMITTED FOR CLARITY)*



2 **SIDE VIEW - 2.5 x 5.0 x 06 Std SHOWN**
Scale: 1" = 1'-0"



5 **SECTION THROUGH STEM**
Scale: 1" = 1'-0"

SPECIAL NOTES:

1. FRONT FACE OF T-WALL® UNITS FINISH TREATMENT:
   - PLAIN STEEL FORM FINISH

GENERAL NOTES:

1. PRIMARY REFERENCE:
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2. T-WALL® CONCRETE:
   - F'c = 5000 psi (MINIMUM) @ 28 DAYS
   - MINIMUM STRIPPING STRENGTH:
3. T-WALL® REINFORCING STEEL:
   - BLACK
   - Fy = 60 ksi (GRADE 60)
   - **WELDING IS NOT PERMITTED**
4. MARKING OF PRECAST UNITS:
   - CLEARLY MARK EACH PRECAST UNIT ON THE BUTT END OF THE STEM WITH THE UNIT TYPE (i.e. 2.5x5.0x06 STD), THE DATE OF MANUFACTURE, THE LOT NUMBER (IF APPLICABLE), AND THE TRADEMARK "T-WALL®".
5. REINFORCING FABRICATION AND PLACEMENT TOLERANCES:
   - THE STRUCTURAL DESIGN OF PRECAST UNITS ASSUMES 2 INCHES OF CONCRETE COVER OVER ALL REINFORCING BARS.
   - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON CONCRETE COVER SHALL BE ± 3/8 INCHES.
   - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON BAR PLACEMENT SHALL BE:
     - VERTICAL LOCATION OF TB-1 BARS: ± 3/8 INCHES
     - LOCATION / SPACING OF H-1, V-1 & V-2 BARS: ± 1 INCH
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   - ALL REINFORCING BARS SHALL BE CUT AND BENT FOLLOWING REQUIREMENTS OF THE CRSI MANUAL OF STANDARD PRACTICE.
   - UNLESS NOTED OTHERWISE, TOLERANCES FOR BAR FABRICATION SHALL MEET REQUIREMENTS OF STANDARD ACI 318 AND THE CRSI MANUAL OF STANDARD PRACTICE.

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

_X_ Approved _____ Approved As Noted
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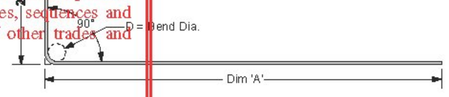
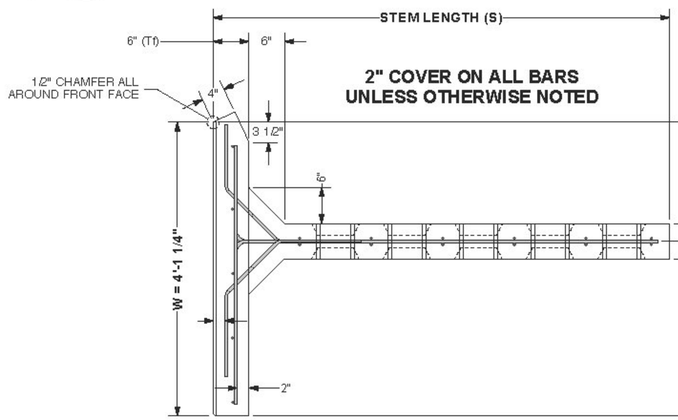
Date 8/8/2014

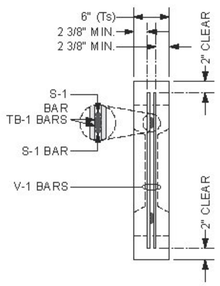
By T. Traver



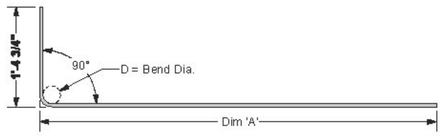
7 **TB-1 REBAR**
Scale: 1" = 1'-0"



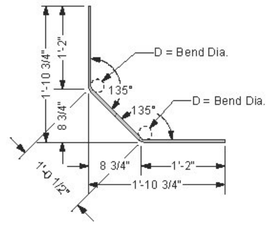
1 **PLAN VIEW - 2.5 x 5.0 x 06 Std SHOWN**
Scale: 1" = 1'-0"



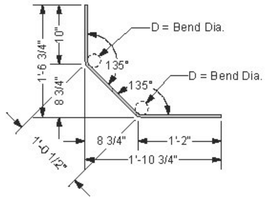
4 **SECTION THROUGH STEM**
Scale: 1" = 1'-0"



8 **TB-2 REBAR**
Scale: 1" = 1'-0"



6 **S-1 REBAR**
Scale: 1" = 1'-0"



9 **S-2 REBAR**
Scale: 1" = 1'-0"

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REVISIONS

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FAIRFIELD, VT

SHOP DRAWINGS
NARROW LEFT BEVELED UNITS
REBAR AND DIMENSIONS
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	4/21/14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	CCG
SHEET:	11

PLOT DATE & TIME: Wednesday, August 6, 2014 11:30:27 AM
CAD FILE NAME: 11 Rebar - Narrow Left Beveled Units.vwx
VW SHEET NAME: TW-08

USER NAME: N/A
VECTORWORKS 2011

T-WALL UNIT PROPERTIES

UNIT TYPE	H	W	S	Tf*	Ts	SH	VOLUME*	WEIGHT*
SP24	2'6"	4'11 1/4"	6'4 1/2"	6"	6"	2'6"	0.45 cy	1,815 lbs
SP23	2'6"	4'11 1/4"	8'4 1/2"	6"	6"	2'6"	0.51 cy	2,076 lbs

*VOLUMES AND WEIGHTS ON THIS TABLE ARE BASED ON 6" FACE THICKNESS (Tf)

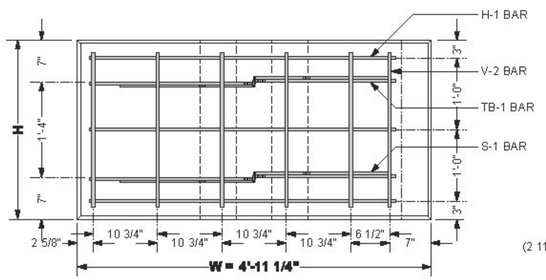
REBAR SCHEDULES

SP24 — HIGHWAY REBAR

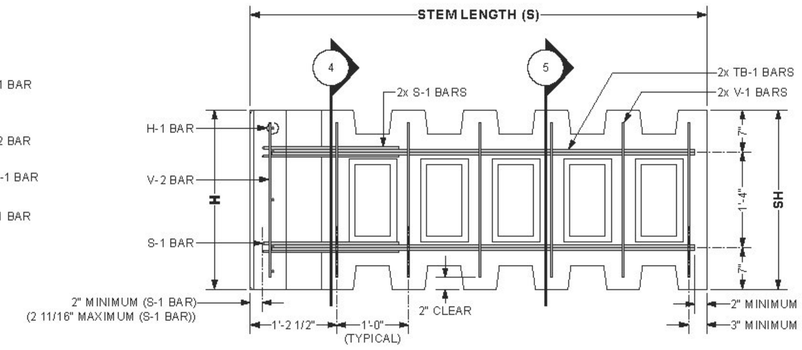
Unit Dims	Bar Mark	Qnty	Size	Length	Dim "A"	Bar Weight	Bend Dia	Remarks
H= 2'6"	H-1	3 ea	#4	4'3 3/8"		8.57 lbs		
W= 4'11 1/4"	V-1	12 ea	#4	2'2"		17.37 lbs		
S=6'4 1/2"	V-2	3 ea	#4	2'2"		4.34 lbs		
SH= 2'6"	S-1	4 ea	#4	3'4 1/2"		9.02 lbs	D= 3"	
	TB-1	2 ea	#4	8'2 7/8"	5'11"	11.01 lbs	D= 3"	
	TB-2	2 ea	#4	7'11"	5'11"	10.58 lbs	D= 3"	
						52.31 lbs		

SP23 — HIGHWAY REBAR

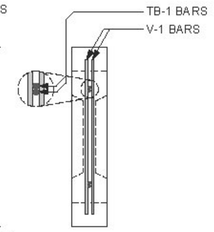
Unit Dims	Bar Mark	Qnty	Size	Length	Dim "A"	Bar Weight	Bend Dia	Remarks
H= 2'6"	H-1	3 ea	#4	4'3 3/8"		8.57 lbs		
W= 4'11 1/4"	V-1	16 ea	#4	2'2"		23.16 lbs		
S=8'4 1/2"	V-2	3 ea	#4	2'2"		4.34 lbs		
SH= 2'6"	S-1	4 ea	#4	3'4 1/2"		9.02 lbs	D= 3"	
	TB-1	2 ea	#4	10'2 7/8"	7'11"	13.68 lbs	D= 3"	
	TB-2	2 ea	#4	9'11"	7'11"	13.25 lbs	D= 3"	
						63.45 lbs		



3 **FRONT VIEW - 2.5 x 5.0 x 06 Std SHOWN**
Scale: 1" = 1'-0" *(V-1 BARS IN STEM OMITTED FOR CLARITY)*



2 **SIDE VIEW - 2.5 x 5.0 x 06 Std SHOWN**
Scale: 1" = 1'-0"



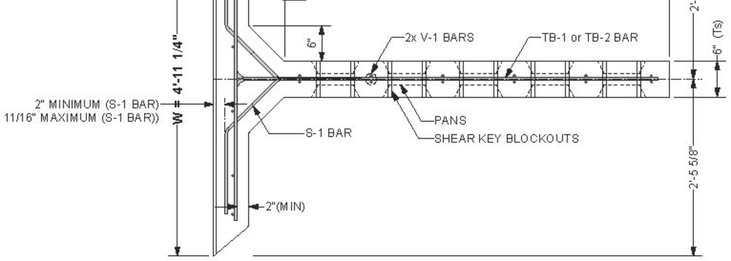
5 **SECTION THROUGH STEM**
Scale: 1" = 1'-0"

SPECIAL NOTES:

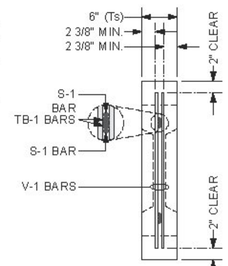
1. FRONT FACE OF T-WALL® UNITS FINISH TREATMENT:
   - PLAIN STEEL FORM FINISH

GENERAL NOTES:

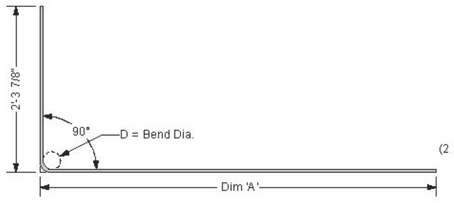
1. PRIMARY REFERENCE:
   - AASHTO, LRFD BRIDGE DESIGN SPECIFICATION, 5TH EDITION 2010 (WITH INTERIMS)
2. T-WALL® CONCRETE:
   - F'c = 5000 psi (MINIMUM) @ 28 DAYS
   - MINIMUM STRIPPING STRENGTH: 2500 psi
3. T-WALL® REINFORCING STEEL:
   - BLACK
   - Fy = 60 ksi (GRADE 60)
   - **WELDING IS NOT PERMITTED**
4. MARKING OF PRECAST UNITS:
   - CLEARLY MARK EACH PRECAST UNIT ON THE BUTT END OF THE STEM WITH THE UNIT TYPE (i.e. 2.5x5.0x06 STD), THE DATE OF MANUFACTURE, THE LOT NUMBER (IF APPLICABLE), AND THE TRADEMARK "T-WALL®".
5. REINFORCING FABRICATION AND PLACEMENT TOLERANCES:
   - THE STRUCTURAL DESIGN OF PRECAST UNITS ASSUMES 2 INCHES OF CONCRETE COVER OVER ALL REINFORCING BARS.
   - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON CONCRETE COVER SHALL BE ± 3/8 INCHES.
   - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON BAR PLACEMENT SHALL BE:
     - VERTICAL LOCATION OF TB-1 BARS: ± 3/8 INCHES
     - LOCATION / SPACING OF H-1, V-1 & V-2 BARS: ± 1 INCH
   - REGARDLESS OF THE SPECIFIED PLACEMENT TOLERANCES, CONCRETE COVER SHALL BE MAINTAINED WITHIN ± 3/8 INCHES AS PREVIOUSLY NOTED.
   - ALL REINFORCING BARS SHALL BE CUT AND BENT FOLLOWING REQUIREMENTS OF THE CRSI MANUAL OF STANDARD PRACTICE.
   - UNLESS NOTED OTHERWISE, TOLERANCES FOR BAR FABRICATION SHALL MEET REQUIREMENTS OF STANDARD ACI 318 AND THE CRSI MANUAL OF STANDARD PRACTICE.



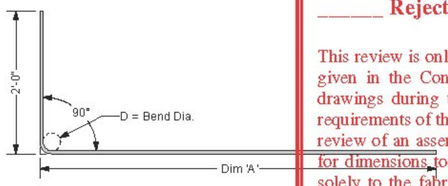
1 **PLAN VIEW - 2.5 x 5.0 x 06 Std SHOWN**
Scale: 1" = 1'-0"



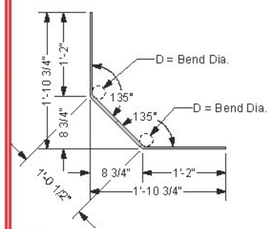
4 **SECTION THROUGH STEM**
Scale: 1" = 1'-0"



7 **TB-1 REBAR**
Scale: 1" = 1'-0"



8 **TB-2 REBAR**
Scale: 1" = 1'-0"



6 **S-1 REBAR**
Scale: 1" = 1'-0"

X **Approved** _____ **Approved As Noted**
_____ **Rejected**

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Date 8/8/2014

McFarland Johnson

By T. Traver

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

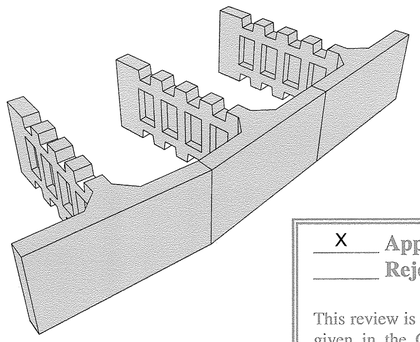
PRECASTER: CONCRETE SYSTEMS, INC. CSI
PROJECT #: T21882
CONTRACTOR: AL. ST. ONGE CONTRACTORS
PROJECT #:

DESIGNER
THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM
PROJECT #: TW4301

CERTIFIED WITH R... TO INTERNAL STATE... T-WALL® STRUCTU...
THOMAS ... JOHNSON
6564
PROFESSIONAL ENGINEER

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT
FAIRFIELD, VT
SHOP DRAWINGS
NARROW RIGHT BEVELED UNITS
REBAR AND DIMENSIONS
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	4/21/14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	CCG
SHEET:	12



RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

FABRICATION DRAWINGS
T-WALL®
RETAINING WALL SYSTEM

X Approved	_____ Approved As Noted
_____ Rejected	

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McFarland Johnson

Date 8/8/2014

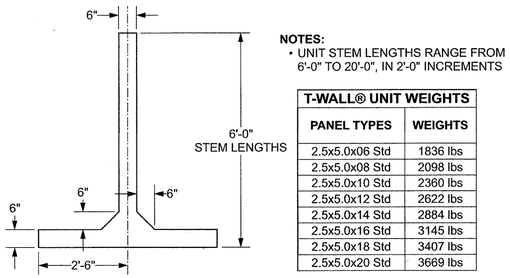
By T. Traver

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PRECASTER

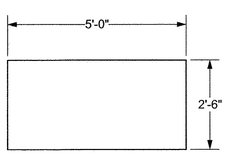
Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4163
Fax 603-889-2417
Web www.csigroup.biz



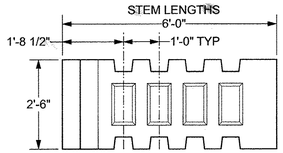
NOTES:
- UNIT STEM LENGTHS RANGE FROM 6'-0" TO 20'-0", IN 2'-0" INCREMENTS

TOP VIEW

T-WALL® UNIT WEIGHTS	
PANEL TYPES	WEIGHTS
2.5x5.0x06 Std	1836 lbs
2.5x5.0x08 Std	2098 lbs
2.5x5.0x10 Std	2360 lbs
2.5x5.0x12 Std	2622 lbs
2.5x5.0x14 Std	2884 lbs
2.5x5.0x16 Std	3145 lbs
2.5x5.0x18 Std	3407 lbs
2.5x5.0x20 Std	3669 lbs



FRONT VIEW



SIDE VIEW

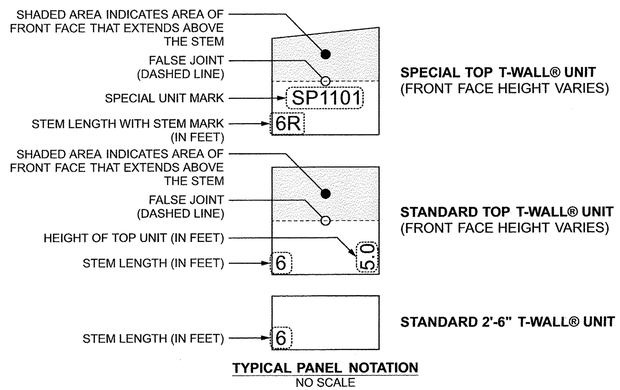
TYPICAL 2'-6" x 5'-0" x 6'-0" STEM T-WALL® UNIT

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

INDEX OF DRAWINGS

SHEET	TITLE	REV	DATE
TW-FB1	COVER SHEET		8-6-14
TW-FB2	SPECIAL UNIT SP1		8-6-14
TW-FB3	SPECIAL UNIT SP2		8-6-14
TW-FB4	SPECIAL UNIT SP3		8-6-14
TW-FB5	SPECIAL UNIT SP4		8-6-14
TW-FB6	SPECIAL UNIT SP5		8-6-14
TW-FB7	SPECIAL UNIT SP6		8-6-14
TW-FB8	SPECIAL UNIT SP7		8-6-14
TW-FB9	SPECIAL UNIT SP8		8-6-14
TW-FB10	SPECIAL UNIT SP9		8-6-14
TW-FB11	SPECIAL UNIT SP10		8-6-14
TW-FB12	SPECIAL UNIT SP11		8-6-14
TW-FB13	SPECIAL UNIT SP12		8-6-14
TW-FB14	SPECIAL UNIT SP13		8-6-14
TW-FB15	SPECIAL UNIT SP14		8-6-14
TW-FB16	SPECIAL UNIT SP15		8-6-14
TW-FB17	SPECIAL UNIT SP16		8-6-14
TW-FB18	SPECIAL UNIT SP17		8-6-14
TW-FB19	SPECIAL UNIT SP18		8-6-14
TW-FB20	SPECIAL UNIT SP20		8-6-14
TW-FB21	SPECIAL UNIT SP21		8-6-14
TW-FB22	SPECIAL UNIT SP22		8-6-14
TW-FB23	SPECIAL UNIT SP23		8-6-14
TW-FB24	SPECIAL UNIT SP24		8-6-14

LEGEND



TYPICAL PANEL NOTATION
NO SCALE

FABRICATION DRAWING
8-6-14

PRECASTER: CONCRETE SYSTEMS, INC. HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

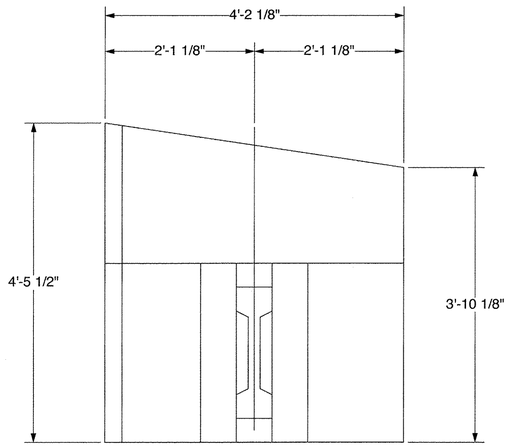
DESIGNER
THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM
PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

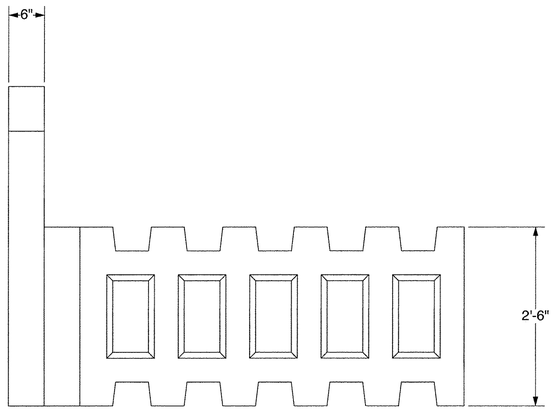
REVISIONS

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT
FAIRFIELD, VT
FABRICATION DRAWING
COVER SHEET
T-WALL® RETAINING WALL SYSTEM

SCALE:	NO SCALE
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB1



SP1 - FRONT VIEW



SP1 - SIDE VIEW

X Approved
Approved As Noted
Rejected

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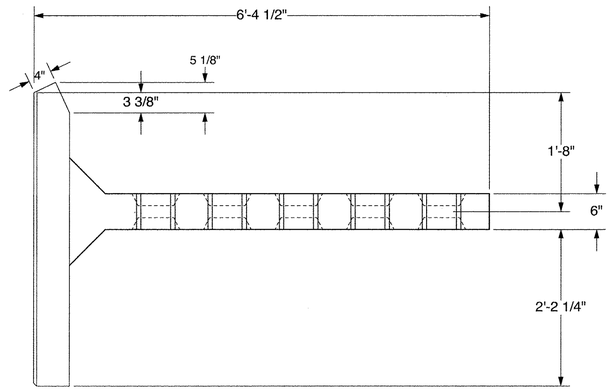
McFarland Johnson

Date 8/8/2014

By T. Traver



SP1 - PLAN VIEW

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

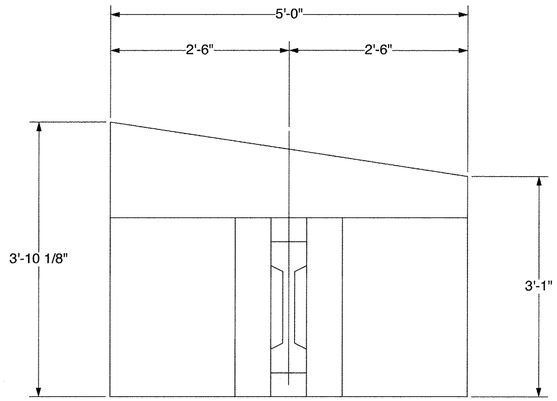
RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

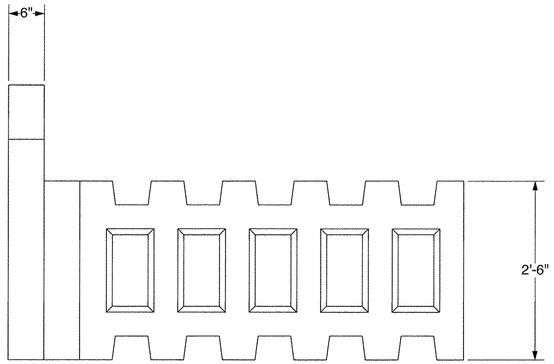
FABRICATION DRAWING
SPECIAL UNIT SP1

T-WALL® RETAINING WALL SYSTEM

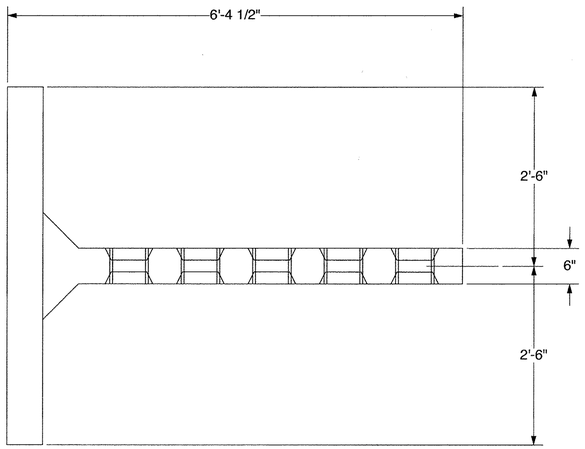
SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB2



SP2 - FRONT VIEW



SP2 - SIDE VIEW



SP2 - PLAN VIEW

_X_ Approved
_____ Approved As Noted
_____ Rejected

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McFarland Johnson

Date 8/8/2014

By T. Traver

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

FABRICATION DRAWING
8-6-14

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

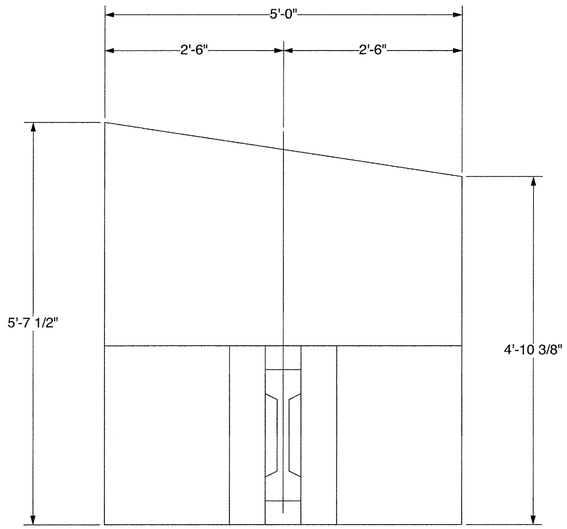
RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

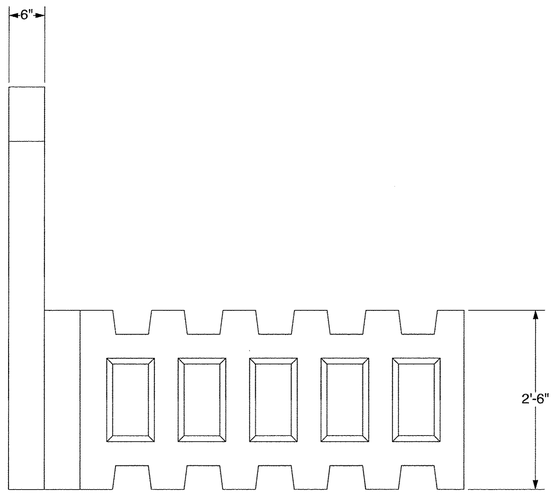
FABRICATION DRAWING
SPECIAL UNIT SP2

T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB3



SP3 - FRONT VIEW



SP3 - SIDE VIEW

X Approved
Approved As Noted
Rejected

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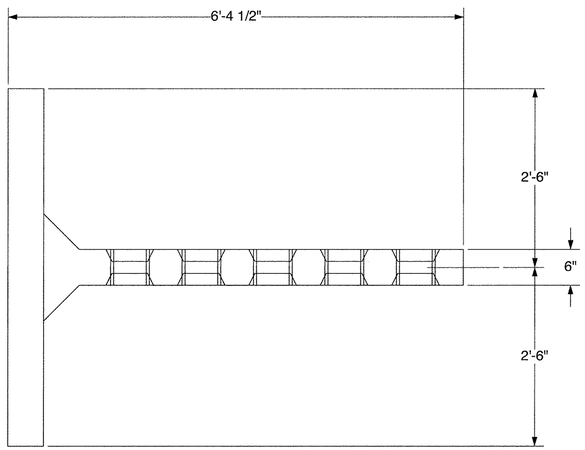
McFarland Johnson

Date 8/8/2014

By T. Traver



SP3 - PLAN VIEW

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

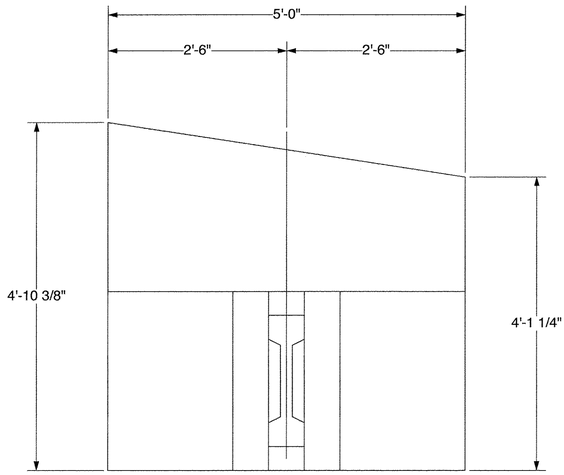
RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

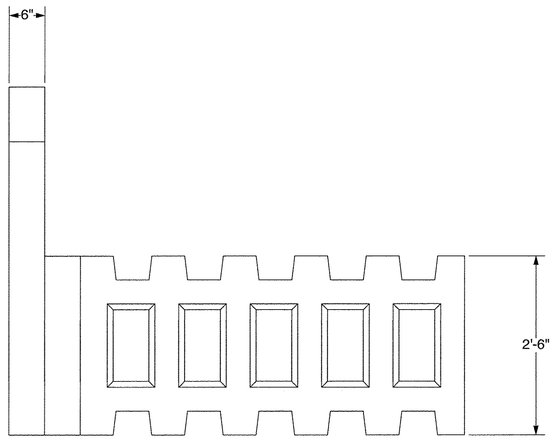
FABRICATION DRAWING
SPECIAL UNIT SP3

T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB4



SP4 - FRONT VIEW



SP4 - SIDE VIEW

X Approved
Approved As Noted
Rejected

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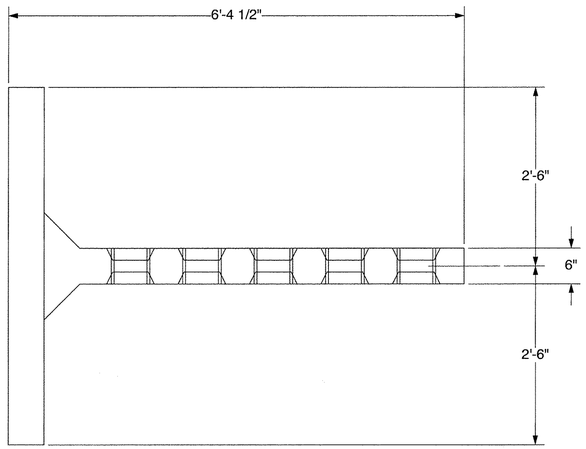
McFarland Johnson

Date 8/8/2014

By T. Traver



SP4 - PLAN VIEW

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

The design contained on these drawings is based upon information provided by the owner. On the basis of this information, The Neel Company has designed, and is responsible for, the internal stability of the structure only. External stability, including foundation and slope stability, is the responsibility of the owner.

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

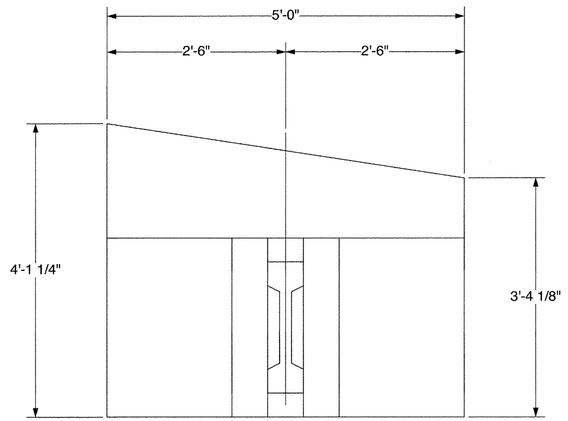
RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

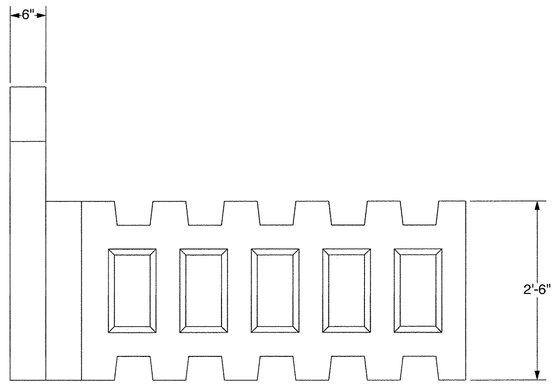
FABRICATION DRAWING
SPECIAL UNIT SP4

T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB5



SP5 - FRONT VIEW



SP5 - SIDE VIEW

X Approved _____ Approved As Noted
_____ Rejected

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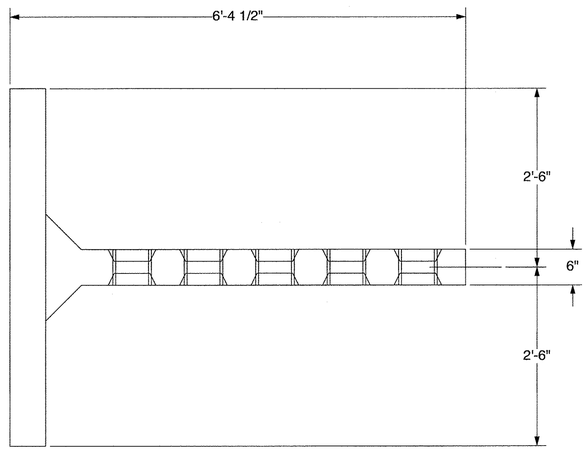
McFarland Johnson

Date 8/8/2014

By T. Traver



SP5 - PLAN VIEW

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

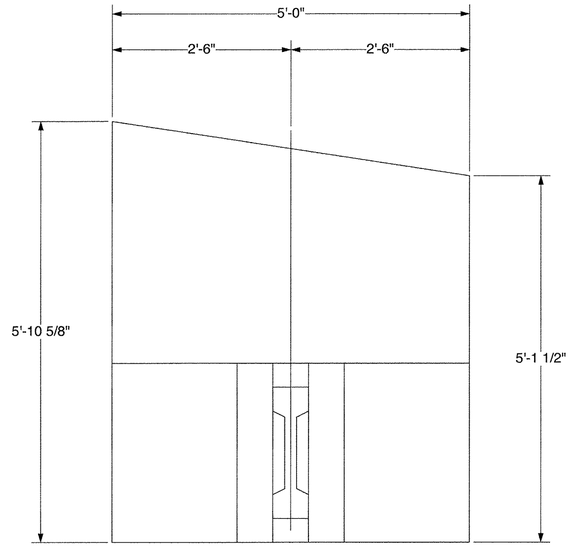
RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

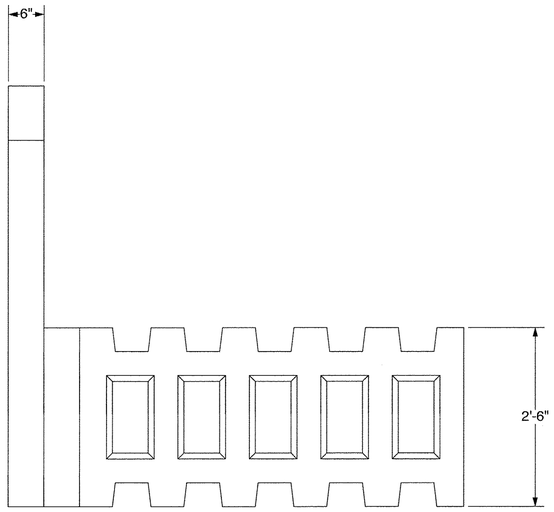
FABRICATION DRAWING
SPECIAL UNIT SP5

T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB6



SP6 - FRONT VIEW



SP6 - SIDE VIEW

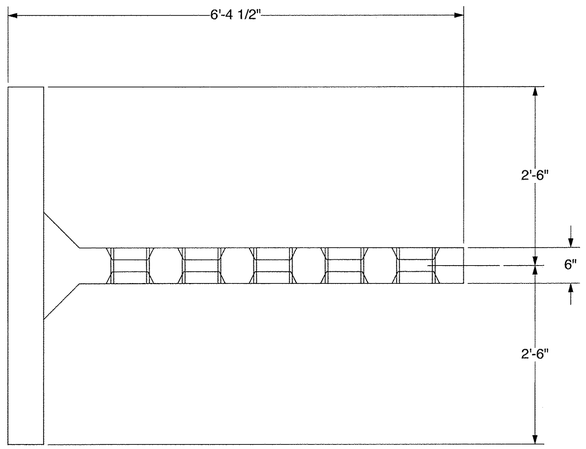
X Approved
Approved As Noted
Rejected

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during the review do not relieve the Contractor from compliance with the requirements of the Plans and Specifications. Review of a specific item shall not include review of an assembly of which an item is a component. The Contractor is responsible for dimensions to be confirmed and corrected at the job site; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of other trades and performing all Work in a safe and satisfactory manner.

McFarland Johnson

Date 8/8/2014

By T. Traver



SP6 - PLAN VIEW

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

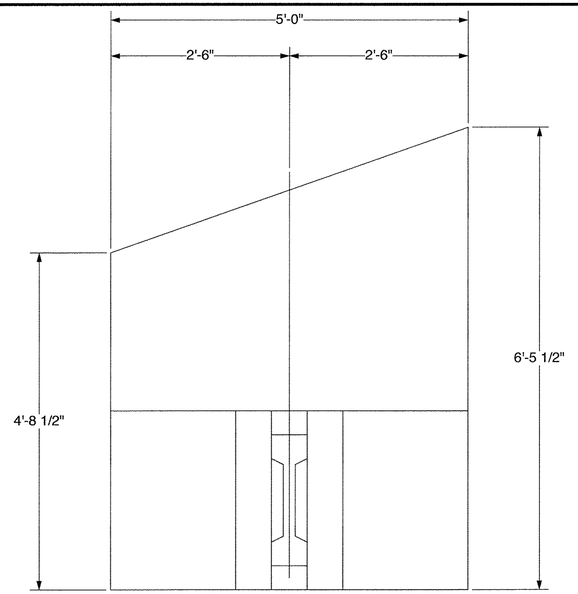
RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

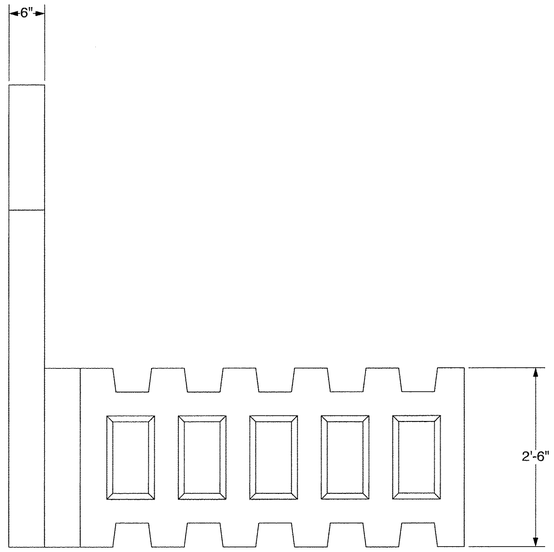
FABRICATION DRAWING
SPECIAL UNIT SP6

T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB7



SP7 - FRONT VIEW



SP7 - SIDE VIEW

X Approved _____ Approved As Noted
_____ Rejected

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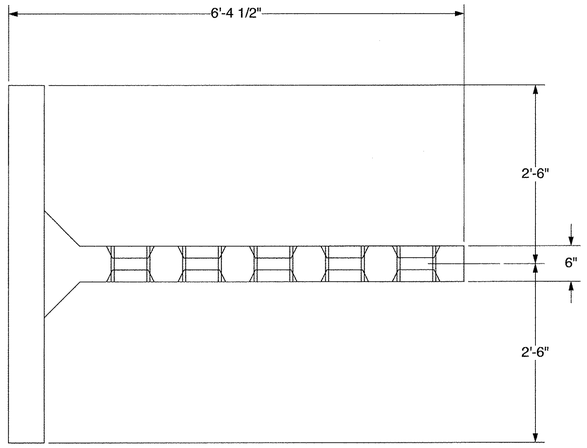
McFarland Johnson

Date 8/8/2014

By T. Traver



SP7 - PLAN VIEW

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

FABRICATION DRAWING
SPECIAL UNIT SP7

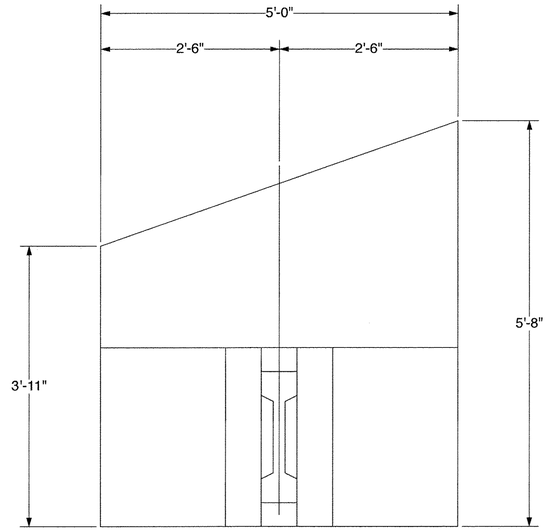
T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB8

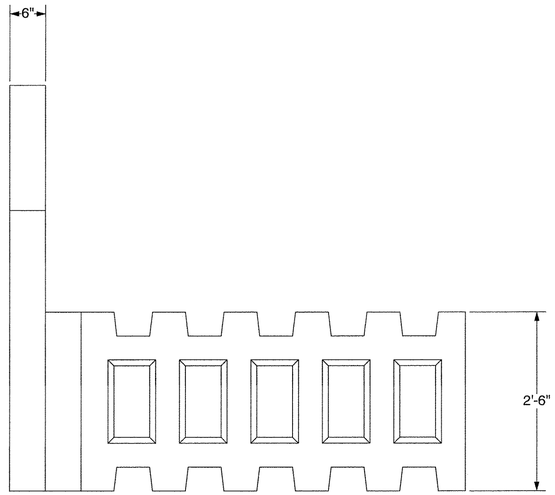
BORDER-TNC T-WALL HWY v4.1

USER NAME: N/A
VECTORWORKS 2011

PLOT DATE & TIME: Wednesday, August 6, 2014 1:41:43 PM
CAD FILE NAME: 02 TW4301 Fab-SP Unit r0.vwx
VW SHEET NAME: TW-FB02



SP8 - FRONT VIEW



SP8 - SIDE VIEW

X Approved _____ Approved As Noted
_____ Rejected

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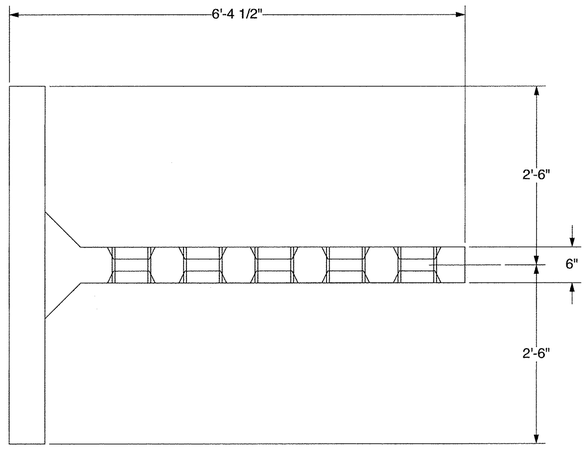
McFarland Johnson

Date 8/8/2014

By T. Traver



SP8 - PLAN VIEW

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

FABRICATION DRAWING
8-6-14

The design contained on these drawings is based upon information provided by the owner. On the basis of this information, The Neel Company has designed, and is responsible for, the internal stability of the structure only. External stability, including foundation and slope stability, is the responsibility of the owner.

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

FABRICATION DRAWING
SPECIAL UNIT SP8

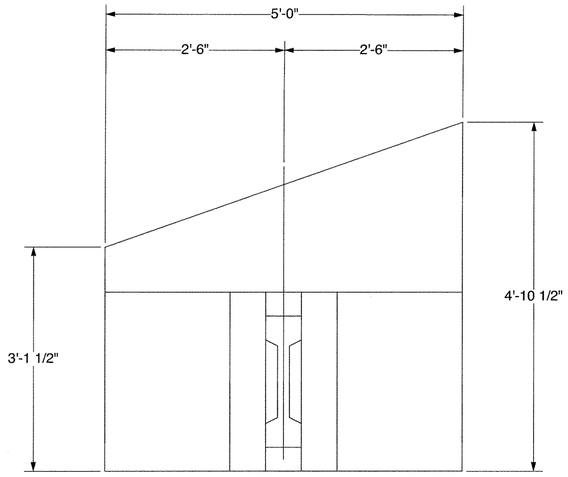
T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB9

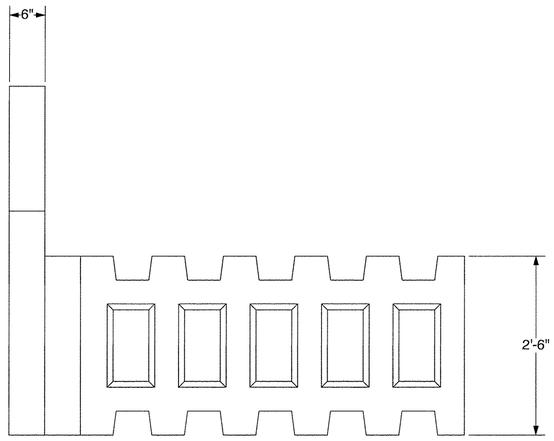
BORDER-TNC T-WALL HWY v4.1

USER NAME: N/A
VECTORWORKS 2011

PLOT DATE & TIME: Wednesday, August 6, 2014 1:41:43 PM
CAD FILE NAME: 02 TW4301 Fair-SP Unit r0.vwx
VW SHEET NAME: TW-FB02



SP9 - FRONT VIEW



SP9 - SIDE VIEW

X Approved _____ Approved As Noted
_____ Rejected

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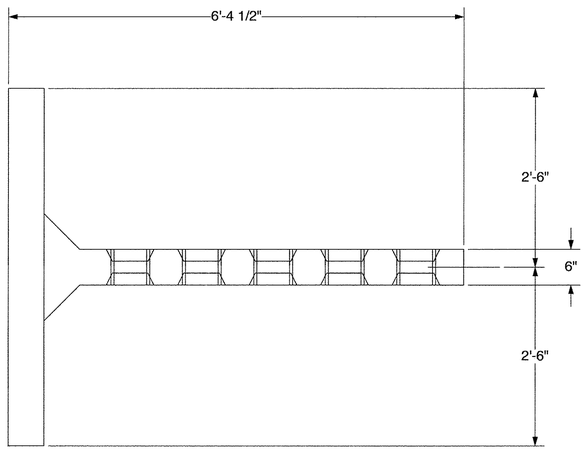
McFarland Johnson

Date 8/8/2014

By T. Traver



SP9 - PLAN VIEW

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

FABRICATION DRAWING
SPECIAL UNIT SP9

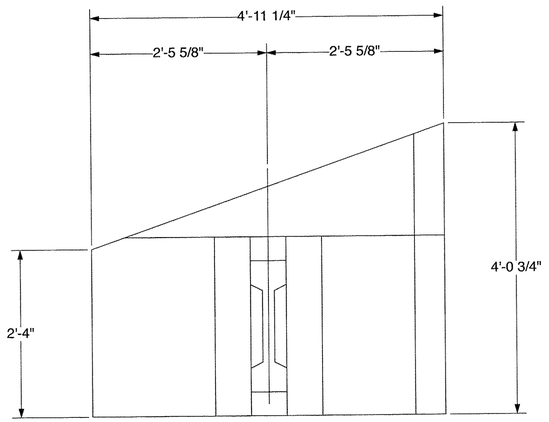
T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB10

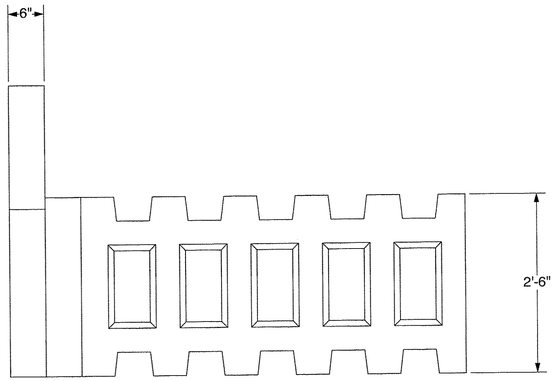
BORDER-TNC T-WALL HWY v4.1

PLOT DATE & TIME: Wednesday, August 6, 2014 1:41:43 PM
CAD FILE NAME: 02 TW4301 Fab-SP Unit 10.vwx
VW SHEET NAME: TW-FB02

USER NAME: N/A
VECTORWORKS 2011



SP10 - FRONT VIEW



SP10 - SIDE VIEW

SP10 - PLAN VIEW

X Approved _____ Approved As Noted
_____ Rejected

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McFarland Johnson

Date 8/8/2014

By T. Traver

FABRICATION DRAWING
8-6-14

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

FABRICATION DRAWING
SPECIAL UNIT SP10

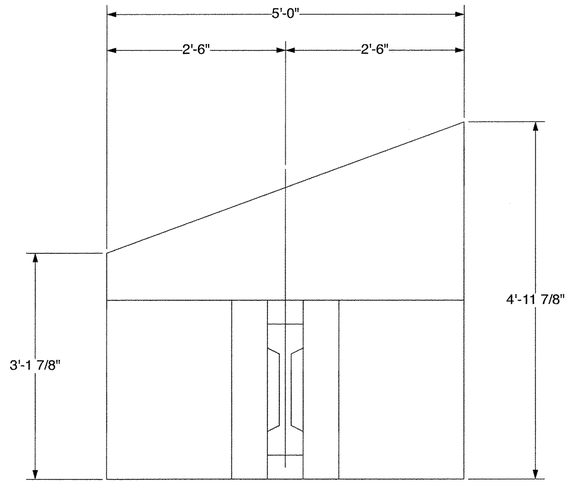
T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB11

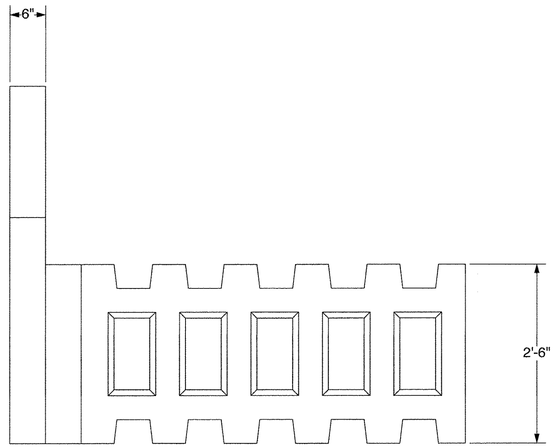
BORDER-TNC T-WALL HWY v4.1

USER NAME: N/A
VECTORWORKS 2011

PLOT DATE & TIME: Wednesday, August 6, 2014 1:41:43 PM
CAD FILE NAME: 02 TW4301 Fab-SP Unit r0.vwx
VW SHEET NAME: TW-FB02



SP11 - FRONT VIEW



SP11 - SIDE VIEW

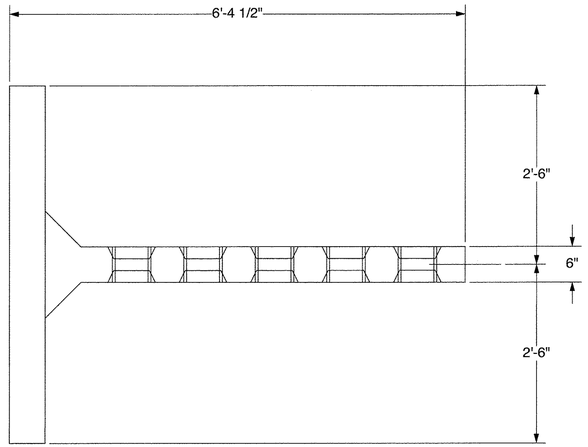
X Approved	Approved As Noted
Rejected	

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during the review do not relieve the Contractor from compliance with the requirements of the Plans and Specifications. Review of a specific item shall not include review of an assembly of which an item is a component. The Contractor is responsible for dimensions to be confirmed and corrected at the job site; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of other trades and performing all Work in a safe and satisfactory manner.

McFarland Johnson

Date 8/8/2014

By T. Traver



SP11 - PLAN VIEW

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

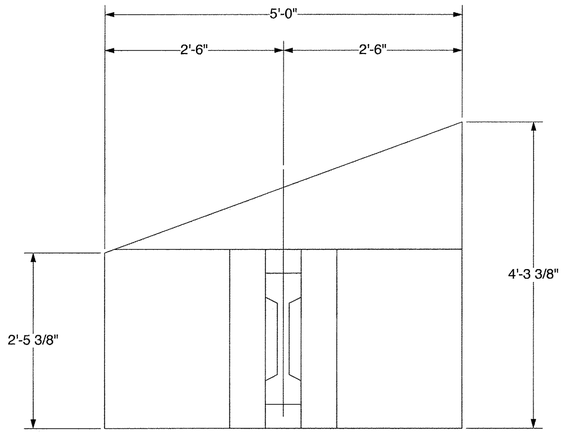
RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

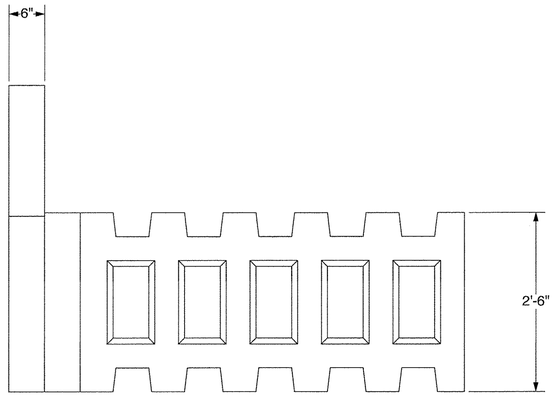
FABRICATION DRAWING
SPECIAL UNIT SP11

T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB12



SP12 - FRONT VIEW



SP12 - SIDE VIEW

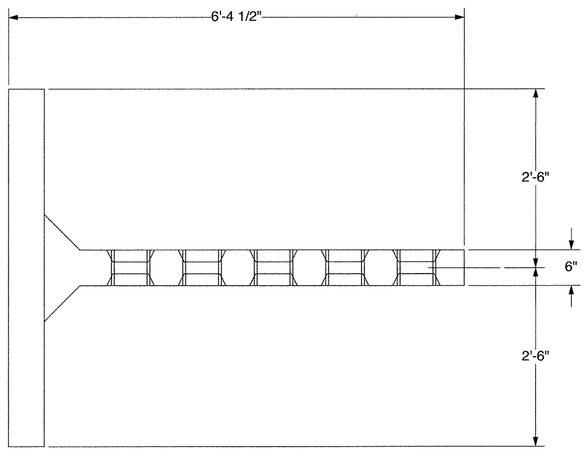
X Approved
Rejected
Approved As Noted

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during the review do not relieve the Contractor from compliance with the requirements of the Plans and Specifications. Review of a specific item shall not include review of an assembly of which an item is a component. The Contractor is responsible for dimensions to be confirmed and corrected at the job site; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of other trades and performing all Work in a safe and satisfactory manner.

McFarland Johnson

Date 8/8/2014

By T. Traver



SP12 - PLAN VIEW

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

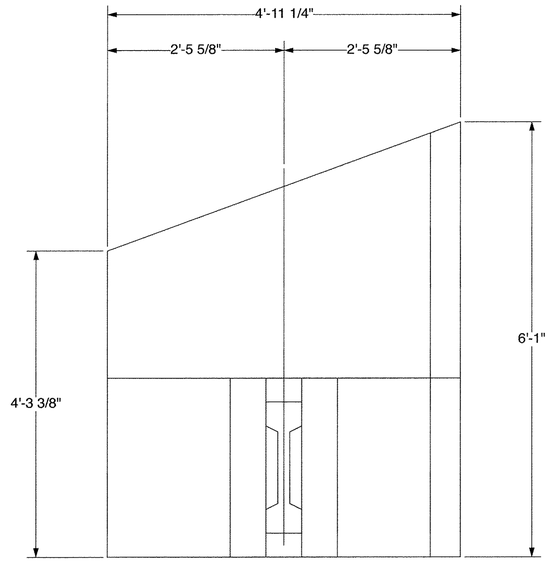
RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

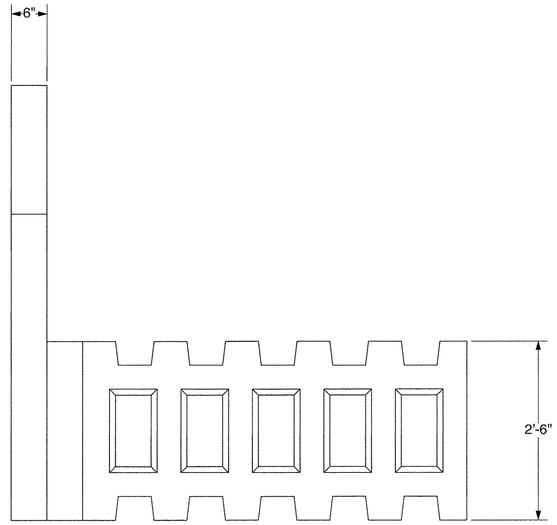
FABRICATION DRAWING
SPECIAL UNIT SP12

T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB13



SP13 - FRONT VIEW



SP13 - SIDE VIEW

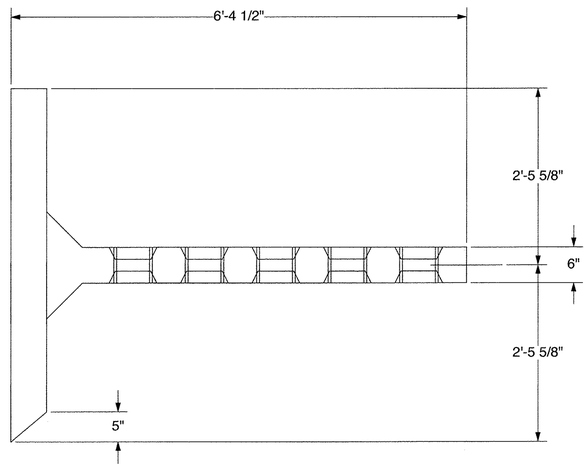
X Approved _____ Approved As Noted
_____ Rejected

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during the review do not relieve the Contractor from compliance with the requirements of the Plans and Specifications. Review of a specific item shall not include review of an assembly of which an item is a component. The Contractor is responsible for dimensions to be confirmed and corrected at the job site; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of other trades and performing all Work in a safe and satisfactory manner.

McFarland Johnson

Date 8/8/2014

By T. Traver



SP13 - PLAN VIEW

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

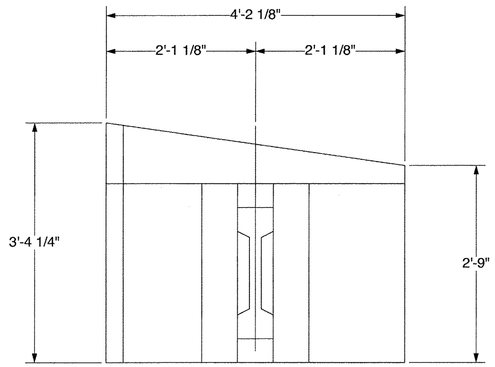
RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

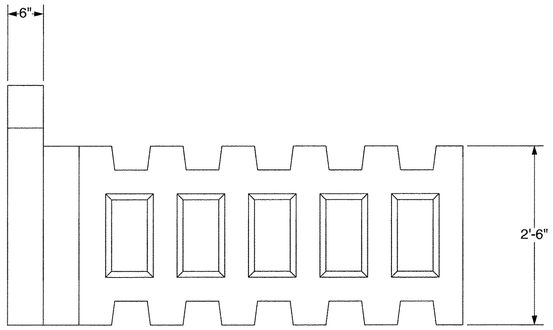
FABRICATION DRAWING
SPECIAL UNIT SP13

T-WALL® RETAINING WALL SYSTEM

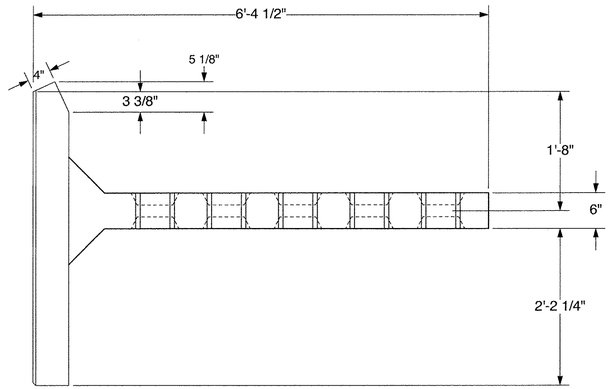
SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB14



SP14 - FRONT VIEW



SP14 - SIDE VIEW



SP14 - PLAN VIEW

X Approved
Approved As Noted
Rejected

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during the review do not relieve the Contractor from compliance with the requirements of the Plans and Specifications. Review of a specific item shall not include review of an assembly of which an item is a component. The Contractor is responsible for dimensions to be confirmed and corrected at the job site; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of other trades and performing all Work in a safe and satisfactory manner.

McFarland Johnson

Date 8/8/2014

By T. Traver

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

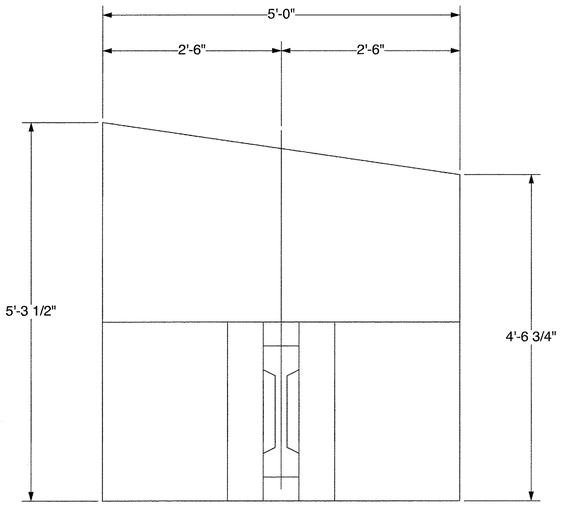
RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

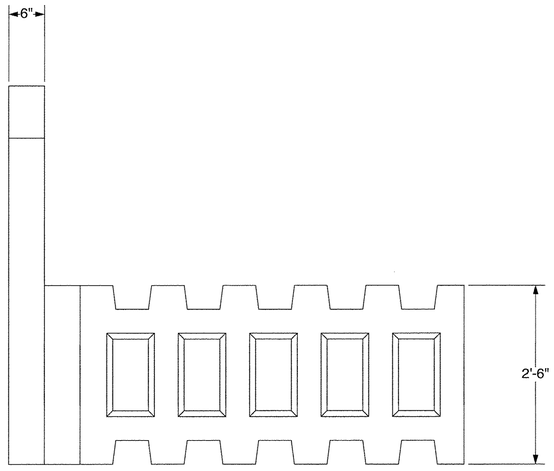
FABRICATION DRAWING
SPECIAL UNIT SP14

T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB15



SP15 - FRONT VIEW



SP15 - SIDE VIEW

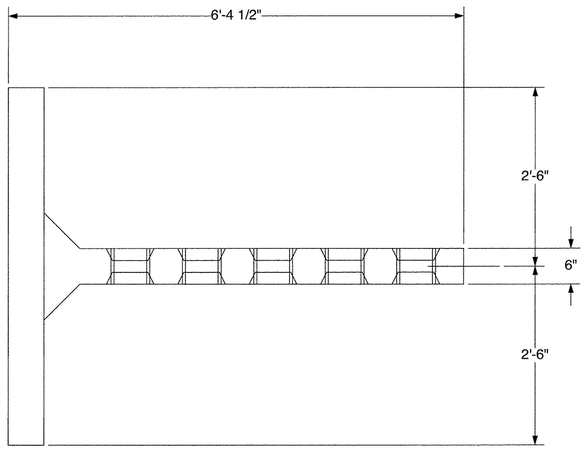
X Approved _____ Approved As Noted
_____ Rejected

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during the review do not relieve the Contractor from compliance with the requirements of the Plans and Specifications. Review of a specific item shall not include review of an assembly of which an item is a component. The Contractor is responsible for dimensions to be confirmed and corrected at the job site; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of other trades and performing all Work in a safe and satisfactory manner.

McFarland Johnson

Date 8/8/2014

By T. Traver



SP15 - PLAN VIEW

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

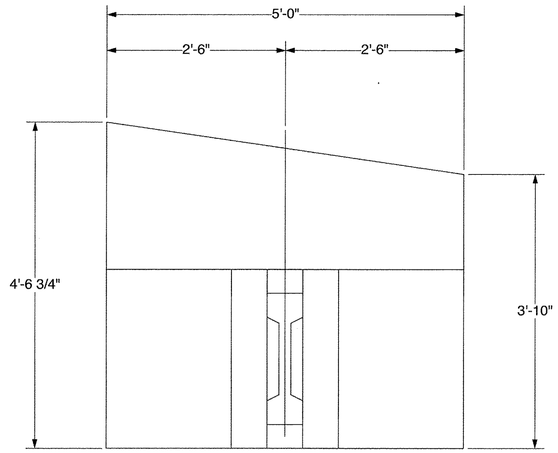
RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

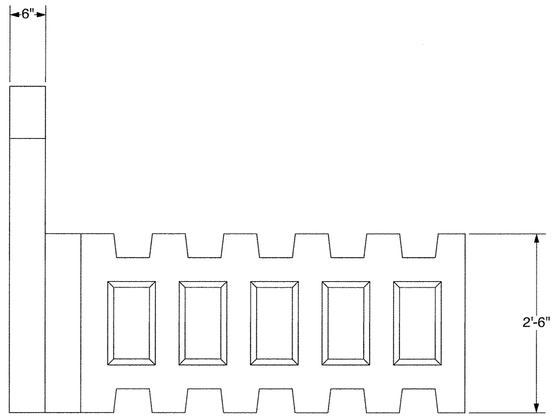
FABRICATION DRAWING
SPECIAL UNIT SP15

T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB16



SP16 - FRONT VIEW



SP16 - SIDE VIEW

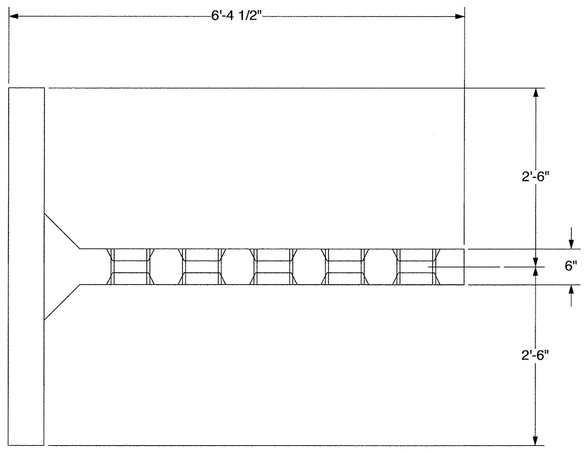
X Approved _____ Approved As Noted
_____ Rejected

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during the review do not relieve the Contractor from compliance with the requirements of the Plans and Specifications. Review of a specific item shall not include review of an assembly of which an item is a component. The Contractor is responsible for dimensions to be confirmed and corrected at the job site; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of other trades and performing all Work in a safe and satisfactory manner.

McFarland Johnson

Date 8/8/2014

By T. Traver



SP16 - PLAN VIEW

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

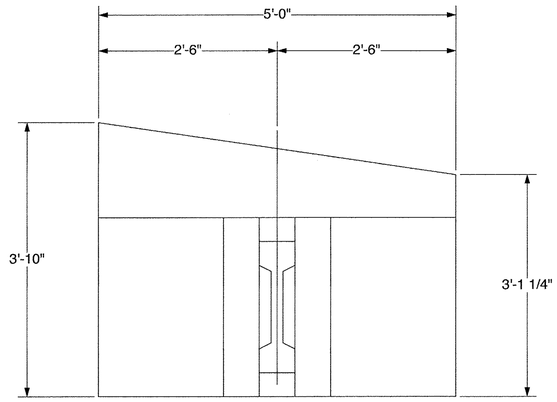
RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

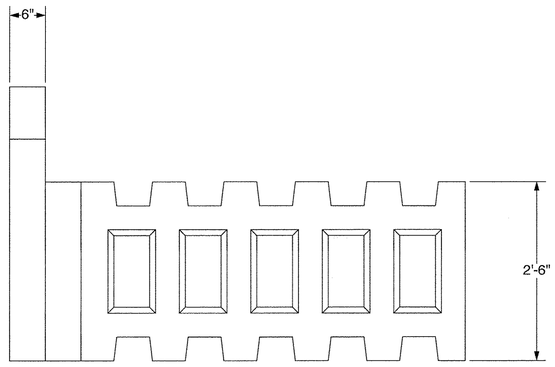
FABRICATION DRAWING
SPECIAL UNIT SP16

T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB17



SP17 - FRONT VIEW



SP17 - SIDE VIEW

X Approved _____ Approved As Noted
_____ Rejected

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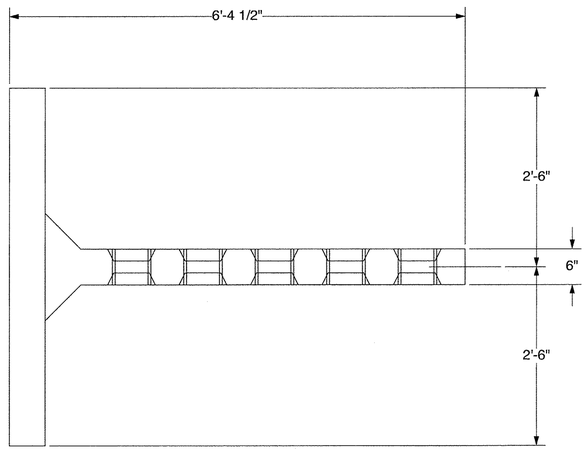
McFarland Johnson

Date 8/8/2014

By T. Traver



SP17 - PLAN VIEW

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

FABRICATION DRAWING
SPECIAL UNIT SP17

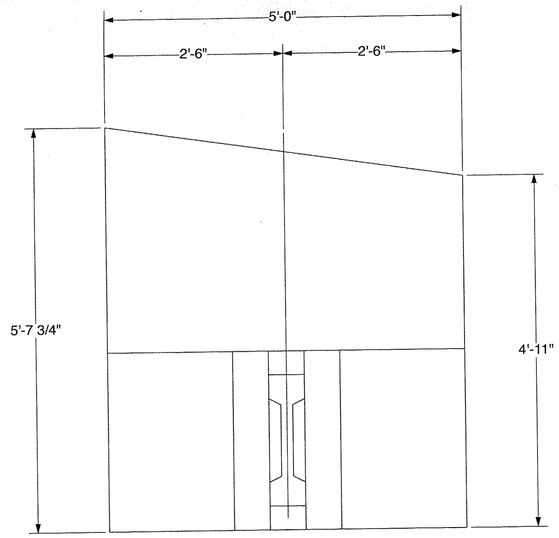
T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB18

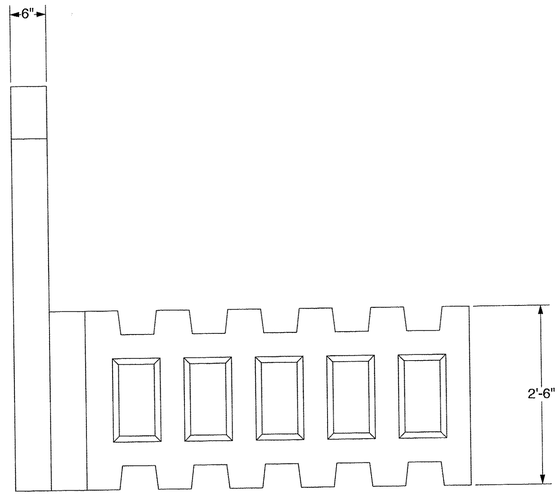
BORDER-TNC T-WALL HWY v4.1

USER NAME: N/A
VECTORWORKS 2011

PLOT DATE & TIME: Wednesday, August 6, 2014 1:41:43 PM
CAD FILE NAME: 02 TW4301 Fab-SP Unit r0.vwx
VW SHEET NAME: TW-FB02



SP18 - FRONT VIEW



SP18 - SIDE VIEW

X Approved
Rejected
Approved As Noted

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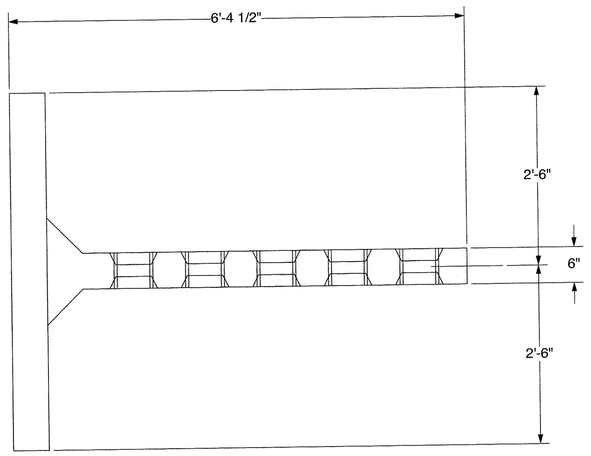
McFarland Johnson

Date 8/8/2014

By T. Traver



SP18 - PLAN VIEW

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

FABRICATION DRAWING
SPECIAL UNIT SP18

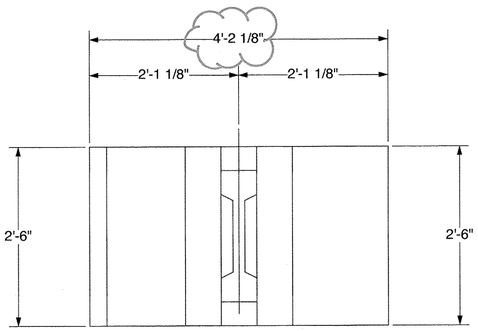
T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB19

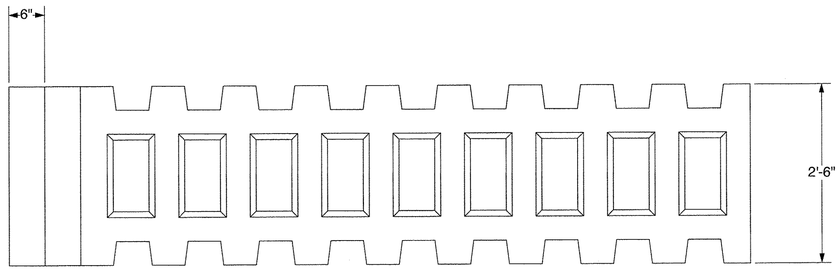
BORDER-TNC T-WALL HWY v4.1

USER NAME: N/A
VECTORWORKS 2011

PLOT DATE & TIME: Wednesday, August 6, 2014 1:41:43 PM
CAD FILE NAME: 02 TW4301 Fab-SP Unit r0.vwx
VW SHEET NAME: TW-FB02

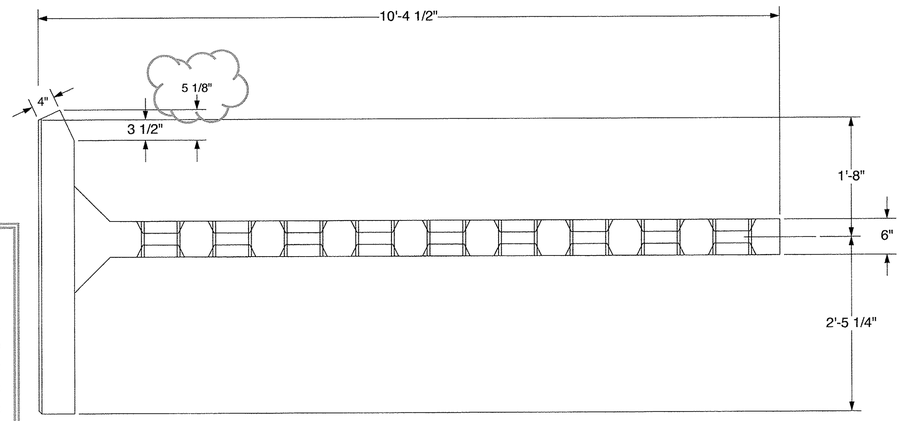


SP20 - FRONT VIEW



SP20 - SIDE VIEW

check dimensions:
2'-5 1/4"+1'-8"-3 1/2"+5 1/8" does equals 4'-2 7/8" not 4'-2 1/8".



SP20 - PLAN VIEW

_____ Approved _____ Approved As Noted
__X__ Rejected

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during the review do not relieve the Contractor from compliance with the requirements of the Plans and Specifications. Review of a specific item shall not include review of an assembly of which an item is a component. The Contractor is responsible for dimensions to be confirmed and corrected at the job site; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of other trades and performing all Work in a safe and satisfactory manner.

McFarland Johnson

Date 8/8/2014

By T. Traver

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

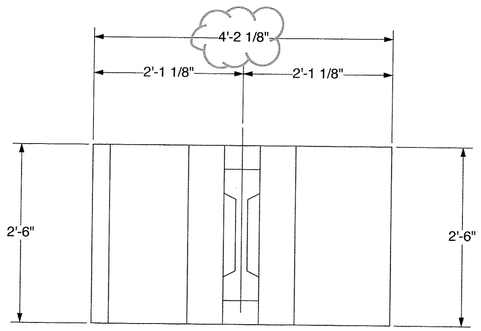
RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

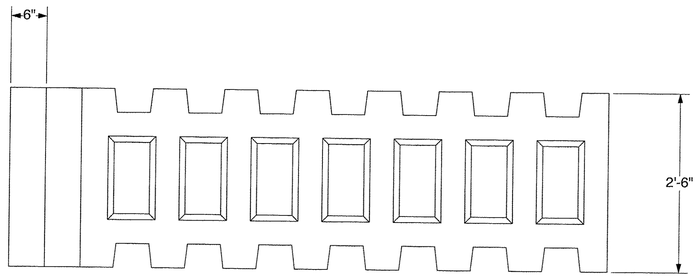
FABRICATION DRAWING
SPECIAL UNIT SP20

T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB20

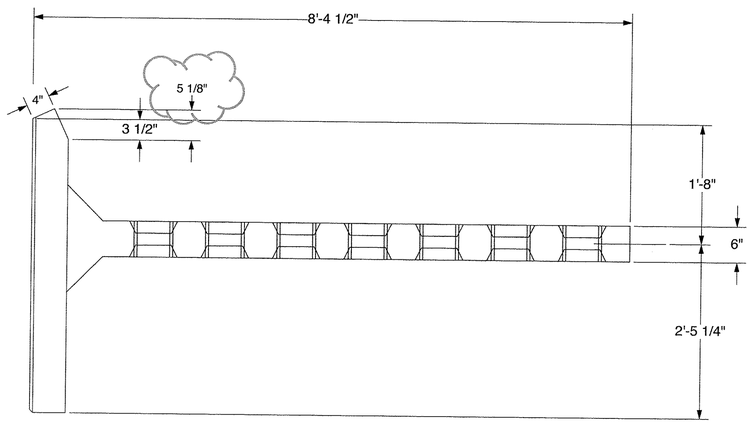


SP21 - FRONT VIEW



SP21 - SIDE VIEW

check dimensions:
2'-5 1/4"+1'-8"-3 1/2"+5 1/8" does equals 4'-2 7/8" not 4'-2 1/8".



SP21 - PLAN VIEW

_____ Approved
__X__ Rejected

_____ Approved As Noted

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during the review do not relieve the Contractor from compliance with the requirements of the Plans and Specifications. Review of a specific item shall not include review of an assembly of which an item is a component. The Contractor is responsible for dimensions to be confirmed and corrected at the job site; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of other trades and performing all Work in a safe and satisfactory manner.

McFarland Johnson

Date 8/8/2014

By T. Traver

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

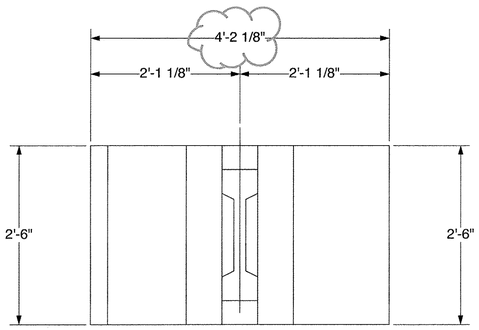
RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

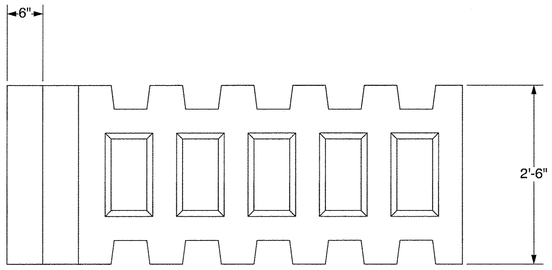
FABRICATION DRAWING
SPECIAL UNIT SP21

T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB21

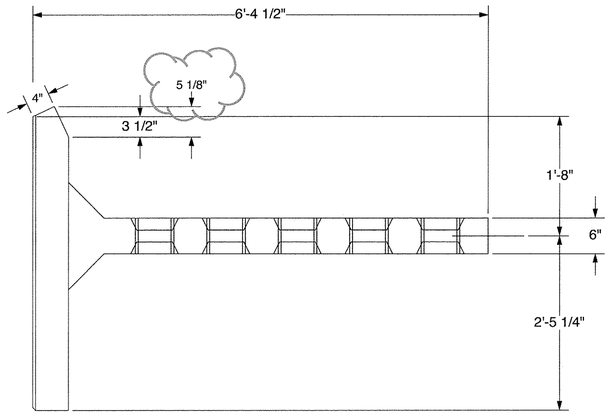


SP22 - FRONT VIEW



SP22 - SIDE VIEW

check dimensions:
2'-5 1/4"+1'-8"-3 1/2"+5 1/8" does equals 4'-2 7/8" not 4'-2 1/8".



SP22 - PLAN VIEW

_____ Approved
X Rejected

_____ Approved As Noted

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during the review do not relieve the Contractor from compliance with the requirements of the Plans and Specifications. Review of a specific item shall not include review of an assembly of which an item is a component. The Contractor is responsible for dimensions to be confirmed and corrected at the job site; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of other trades and performing all Work in a safe and satisfactory manner.

McFarland Johnson

Date 8/8/2014

By T. Traver

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

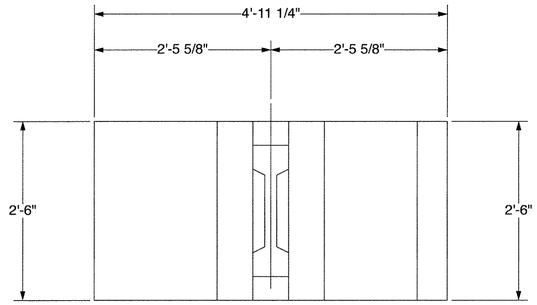
RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

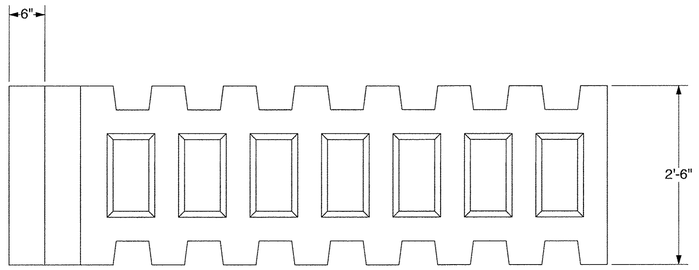
FABRICATION DRAWING
SPECIAL UNIT SP22

T-WALL® RETAINING WALL SYSTEM

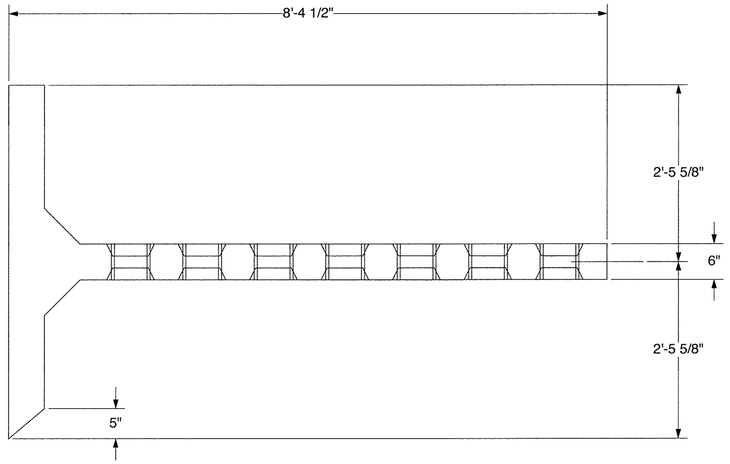
SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB22



SP23 - FRONT VIEW



SP23 - SIDE VIEW



SP23 - PLAN VIEW

X Approved
Approved As Noted
Rejected

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during the review do not relieve the Contractor from compliance with the requirements of the Plans and Specifications. Review of a specific item shall not include review of an assembly of which an item is a component. The Contractor is responsible for dimensions to be confirmed and corrected at the job site; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of other trades and performing all Work in a safe and satisfactory manner.

McFarland Johnson

Date 8/8/2014

By T. Traver

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

The design contained on these drawings is based upon information provided by the owner. On the basis of this information, The Neel Company has designed, and is responsible for, the internal stability of the structure only. External stability, including foundation and slope stability, is the responsibility of the owner.

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

CONTRACTOR:

PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4301

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

FABRICATION DRAWING
8-6-14

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

FABRICATION DRAWING
SPECIAL UNIT SP23

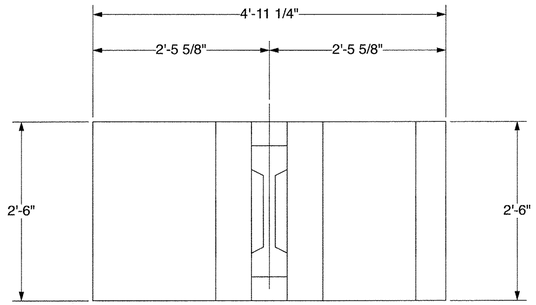
T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB23

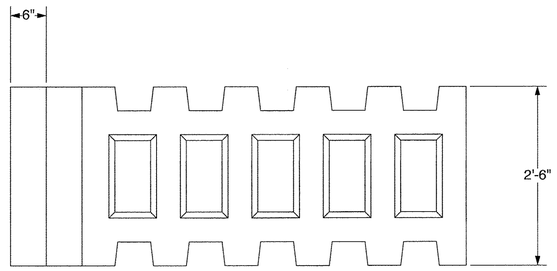
BORDER-TNC T-WALL HWY v4.1

USER NAME: N/A
VECTORWORKS 2011

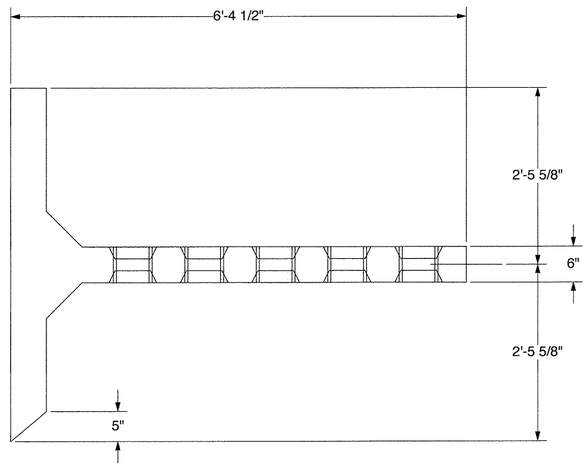
PLOT DATE & TIME: Wednesday, August 6, 2014 1:41:43 PM
CAD FILE NAME: 02 TW4301 Fab-SP Unit r0.vwx
VW SHEET NAME: TW-FB02



SP24 - FRONT VIEW



SP24 - SIDE VIEW



SP24 - PLAN VIEW

X Approved _____ Approved As Noted
_____ Rejected

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McFarland Johnson

Date 8/8/2014

By T. Traver

0 1/2" 1" 1 1/2" 2"
SHEET SCALE

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T21882

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PROJECT #:

DESIGNER

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8328-D TRAFORD LANE
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REVISIONS

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8-6-14

RIGIDIFIED TUBE FRP ARCH (RTFA) PROJECT

FAIRFIELD, VT

FABRICATION DRAWING
SPECIAL UNIT SP24

T-WALL® RETAINING WALL SYSTEM

SCALE:	1" = 1'-0"
DATE:	8-6-14
DESIGNED BY:	KD
DRAWN BY:	ABC
CHECKED BY:	KD
SHEET:	TW-FB24