RECORD PLANS

RESIDENT ENGINEER : KEVIN MCCLURE
CONTRACTOR : WINTERSET, INC.
PROJECT START DATE : 12-10-12
PROJECT COMPLETION DATE : 5-27-14

RECORD PLANS

CONTRACTOR: WINTERSET, INC.– LYNDONVILLE, VT

RESIDENT ENGINEER: KEVIN McCLURE

CONSTRUCTION BEGAN: APRIL 15, 2013

CONSTRUCTION COMPLETE: MAY 27, 2014

RECORD PLANS BY: KEVIN McCLURE & C. PIERCE

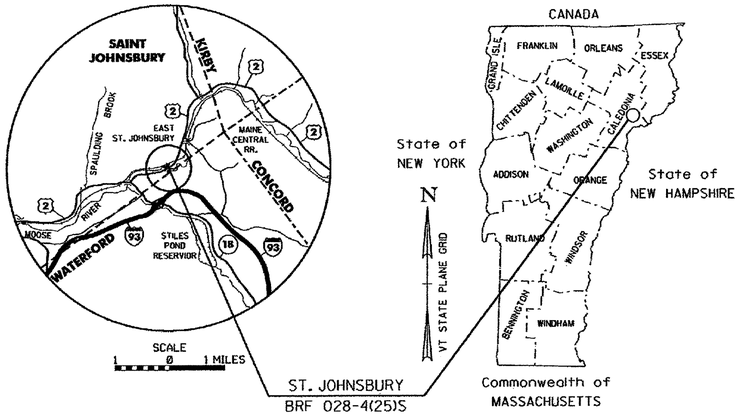
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY KEVIN McCLURE Kevin McClure RESIDENT ENGINEER

DATE 3/5/15

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.

STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF ST. JOHNSBURY
COUNTY OF CALEDONIA
US ROUTE 2 - PRINCIPAL ARTERIAL
BRIDGE NO. 108

PROJECT LOCATION

BEGINNING AT A POINT 0.579 MILES EAST OF THE INTERSECTION OF US ROUTE 2 AND VT ROUTE 18 AND EXTENDING EASTERLY ALONG U.S. ROUTE 2 FOR A DISTANCE OF 0.09 MILES.

PROJECT DESCRIPTION

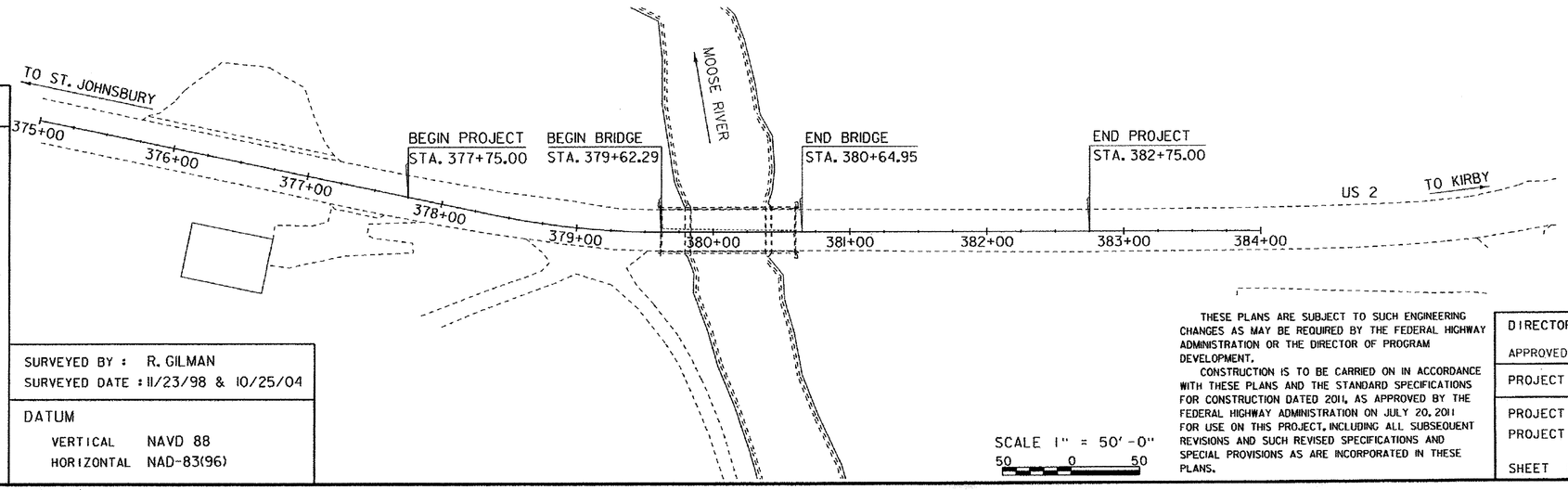
THIS PROJECT SHALL CONSIST OF THE REPLACEMENT OF THE EXISTING STRUCTURE WITH RELATED APPROACH AND CHANNEL WORK.

LENGTH OF BRIDGE: 102.66 FEET
LENGTH OF ROADWAY: 397.34 FEET
LENGTH OF PROJECT: 500.00 FEET

QUALITY ASSURANCE PROGRAM: LEVEL I

CONVENTIONAL SYMBOLS

COUNTY LINE
TOWN LINE
LIMITS OF ACCESS
POINT OF ACCESS
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
TOP OF CUT
TOE OF SLOPE



SCALE 1" = 50'-0"
50 0 50

SURVEYED BY : R. GILMAN
SURVEYED DATE : 11/23/98 & 10/25/04

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD-83(96)

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.

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED Kevin A. Sawhill DATE 8/27/12

PROJECT MANAGER : CAROLYN CARLSON

PROJECT NAME : ST. JOHNSBURY
PROJECT NUMBER : BRF 028-4(25)S

SHEET 1 OF 62 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 11.08.15

LRFD

INDEX OF SHEETS

PLAN SHEETS

STANDARDS LIST

B-71	STANDARD FOR RESIDENTIAL AND COMMERCIAL DRIVES	07-08-2005
D-6	REINFORCED CONCRETE DROP INLET W/GRATE (DITCHES)	06-01-1994
E-100	CONSTRUCTION APPROACH SIGNS	01-02-2004
E-100A	SIDE ROAD CONSTRUCTION - APPROACH SIGNS	01-02-2004
E-101	CONSTRUCTION SIGN DETAILS	05-30-2003
E-102	CONSTRUCTION SIGN DETAILS	06-30-2003
E-102A	CONSTRUCTION SIGN DETAILS	05-01-2004
E-106	TRAFFIC CONTROL- MISCELLANEOUS DETAILS	03-01-2004
E-107	DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS	06-30-2003
E-107A	BREAKAWAY BARRICADE DETAILS	06-08-2009
E-108	CONSTRUCTION ZONE LONGITUDINAL DROP OFFS	06-08-2009
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-134	BRIDGE NUMBER PLAQUE	08-08-1995
E-138	MILE MARKER DETAILS - STATE & TOWN HIGHWAYS	05-30-2003
E-153B	WARNING SIGN DETAILS	05-30-2003
E-160	FLANGED CHANNEL STEEL SIGN POST	05-20-1999
E-164	SQUARE STEEL SIGN POST	06-08-2009
G-1B	BOX BEAM GUARD RAIL	06-01-1994
S-364A	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364B	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364C	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364D	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012

STRUCTURAL DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES
SD-502.00	CONCRETE DETAILS AND NOTES
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG
SD-601.00	STRUCTURAL STEEL DETAILS & NOTES
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS & NOTES

TRAFFIC DATA

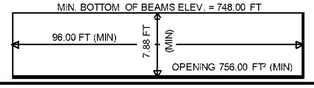
YEAR	ADT	DHV	% D	% T	ADTT
2013	4600	520	58	5.6	440
2033	5200	590	58	8.3	750

20 year ESAL for flexible pavement from 2013 to 2033 : 4401000

40 year ESAL for flexible pavement from 2013 to 2053 : 10806000

Design Speed : 40 mph

TEMPORARY BRIDGE PROFILE ALONG TEMP CL



FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: April 12, 2010

DRAINAGE AREA : 116.9 sq. mi.
CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested with some open areas
STREAM CHARACTERISTICS : Sinuous to meandering, incised and stable
NATURE OF STREAMBED : Mostly cobbles with some gravel, sand and a few boulders

PEAK FLOW DATA

Q 2.33 =	2500 cfs	Q 50 =	6700 cfs
Q 10 =	4500 cfs	Q 100 =	7600 cfs
Q 25 =	5700 cfs	Q 500 =	9700 cfs

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

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Three span steel beam bridge with concrete deck
YEAR BUILT: Built in 1929 and reconstructed in 1950
CLEAR SPAN(NORMAL TO STREAM): 17' + 54' + 17' = 88' total
VERTICAL CLEARANCE ABOVE STREAMBED: 11'
WATERWAY OF FULL OPENING: 810 sq. ft.
DISPOSITION OF STRUCTURE: Remove and replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs

WATER SURFACE ELEVATIONS AT:

Q2.33 =	744.3'	VELOCITY =	7.3 fps
Q10 =	747.1'	"	8.6 fps
Q25 =	748.3'	"	9.9 fps
Q50 =	749.2'	"	10.8 fps
Q100 =	750.0'	"	11.9 fps

LONG TERM STREAMBED CHANGES: There is a 2' - 3' deep scour hole through the bridge area. No other changes were noted, and the streambed appears stable.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 752.0'
DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: St. Johnsbury — DISTANCE: 4600'
HIGHWAY # : Railway — STRUCTURE #:
CLEAR SPAN: No information available. — CLEAR HEIGHT:
YEAR BUILT: — FULL WATERWAY:
STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: St. Johnsbury — DISTANCE: 3400'
HIGHWAY # : U.S. Route 2 — STRUCTURE #: 107
CLEAR SPAN: 62' — CLEAR HEIGHT: 13'
YEAR BUILT: Built 1929 rehab. 1950 & 1978 — FULL WATERWAY: 870 sq. ft.
STRUCTURE TYPE: Single span steel beam bridge with concrete deck

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.20	1.40	2.23	1.38	2.18	1.93	1.97
POSTING							
OPERATING	2.85	1.81	2.89	1.79	2.83	2.51	2.55
COMMENTS:							

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY — Rndr: 486.00 KIP
2. PILE TEST RESISTANCE FACTOR — ϕ: 0.65
3. REQUIRED PILE PENETRATION BELOW ABUTMENT STEM — 35.00 FT
4. PERFORM ONE DYNAMIC PILE LOADING TEST FOR EACH ABUTMENT. PILES MUST BE DRIVEN TO THE REQUIRED DEPTH REGARDLESS IF THE REQUIRED DRIVING RESISTANCE HAS BEEN MET.

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel plate girder bridge with concrete deck

CLEAR SPAN(NORMAL TO STREAM): 97.4' (99.0' along roadway)
VERTICAL CLEARANCE ABOVE STREAMBED: 11'
WATERWAY OF FULL OPENING: 898 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	743.9'	VELOCITY=	6.0 fps
Q10 =	746.6'	"	6.8 fps
Q25 =	747.6'	"	7.8 fps
Q50 =	748.4'	"	8.6 fps
Q100 =	749.0'	"	9.4 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 752.0'
DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 750.5' upstream, 748.7' dnstream
VERTICAL CLEARANCE: @ Q50 = 2.1' upstream girder, 1.2' downstream girder

SCOUR: Contraction scour = 3' up to Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	240 cfs	
ORDINARY LOW WATER:	110 cfs	DEPTH OR ELEVATION:
ORDINARY HIGH WATER:	1075 cfs	Elevation 739'
		Elevation 742'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single span bridge
CLEAR SPAN (NORMAL TO STREAM): 96' minimum
VERTICAL CLEARANCE ABOVE STREAMBED: Elevation 748.0' minimum
WATERWAY AREA OF FULL OPENING: 756 sq. ft. minimum

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TWO-WAY TRAFFIC ON A TEMPORARY BRIDGE.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY
4. THE APPROACHES FOR THE TEMPORARY BRIDGE SHALL BE PAVED.

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	3.0 INCH
3. DESIGN SPAN	L:	101.00 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:	4.0 KSI
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:	50 KSI
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	486.0 KIPS
20. PILE YIELD STRENGTH ASTM A572	f_y:	50 KSI
21. PILE SIZE		HP 12X 84
22. EST. PILE LENGTHS (TWO SUBSTRUCTURES) (ABUTMENT 1 = 55 AND ABUTMENT 2 = 54) FT	L_p:	
23. PILE RESISTANCE FACTOR	ϕ:	0.65
24. LATERAL PILE DEFLECTION	Δ:	0.41 INCH
25. BASIC WIND SPEED	V_{3s}:	---
26. MINIMUM GROUND SNOW LOAD	p_g:	---
27. SEISMIC DATA PGA: ---	S_s:	---
	S_1:	---

PROJECT NAME: **ST. JOHNSBURY**
PROJECT NUMBER: **BRF 028-4(25)S**

FILE NAME: **s98b320pi.xls**
PROJECT LEADER: **C. CARLSON**
DESIGNED BY: **H. SALLS**
PRELIMINARY INFORMATION SHEET

PLOT DATE: 8/28/2012
DRAWN BY: **R. PELLETT**
CHECKED BY: **C. CARLSON**

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AND ITS LATEST REVISIONS, THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FIFTH EDITION, DATED 2010 AND ITS LATEST REVISIONS AND THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS THIRD EDITION, DATED 2010 AND ITS LATEST REVISIONS.

2. THE BRIDGE WAS DESIGNED FOR THE HL-93 LIVE LOAD.

3. ITEM 529.20 "PARTIAL REMOVAL OF STRUCTURE" SHALL BE USED FOR REMOVAL OF THE EXISTING STRUCTURE INCLUDING THE SUPERSTRUCTURE, PIERS AND ANY PORTION OF THE ABUTMENTS OUTSIDE THE LIMITS OF STRUCTURE EXCAVATION OR UNCLASSIFIED CHANNEL EXCAVATION. THE PIERS SHALL BE REMOVED TO STREAMBED ELEVATION.

4. THERE ARE 3 DROP INLETS INSIDE THE PROJECT AREA; THEY WILL NEED TO BE PROTECTED DURING CONSTRUCTION. PAYMENT FOR THE ADJUSTMENT OF ELEVATION OF ANY DROP INLET TO MATCH THE NEW FINAL GRADE WILL BE MADE UNDER ITEM 604.40 "CHANGING ELEVATION OF DROP INLETS, CATCH BASINS, OR MANHOLES". THE DROP INLETS SHALL BE CLEANED AND FLUSHED AT THE END OF THE PROJECT. PAYMENT FOR CLEANING AND FLUSHING WILL BE CONSIDERED INCIDENTAL TO ALL OTHER CONTRACT ITEMS.

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

6. THE TEMPORARY BRIDGE APPROACHES SHALL BE PAVED.

EARTHWORK AND RELATED ITEMS

7. TEMPORARY CONSTRUCTION FILLS WITHIN THE WATERCOURSE FOR ANY PURPOSE SHALL CONSIST OF CLEAN STONE FILL ONLY. NO OTHER FILLING IN THE STREAM SHALL OCCUR WITHOUT THE APPROVAL OF THE STREAM ALTERATION ENGINEER. THE STONE FILL, TYPE III SHALL BE PLACED IN FRONT OF THE ABUTMENTS BEFORE THE STEEL GIRDERS ARE SET.

8. THE BACKFILL BEHIND THE ABUTMENTS SHALL NOT BE PLACED HIGHER THAN THE BRIDGE SEAT UNTIL THE ABUTMENT AND DECK CONSTRUCTION IS COMPLETED. THE DIFFERENCE IN ELEVATION OF FILL BEHIND THE TWO ABUTMENTS AT ANY TIME DURING BACKFILLING OPERATIONS SHALL NOT EXCEED 2 FEET.

STRUCTURAL STEEL

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

10. THE PILES SHALL BE HP 12 X 84.

11. PILE SHOES SHALL BE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04.

12. TO ENSURE THAT THE NOMINAL CAPACITY HAS BEEN ATTAINED AND TO PREVENT THE OVERSTRESSING OF THE PILES DURING DRIVING OPERATIONS, DYNAMIC TESTING SHALL BE PERFORMED IN ACCORDANCE WITH SUBSECTION 505.04 OF THE STANDARD SPECIFICATIONS. PAYMENT FOR PILE TESTING SHALL BE MADE UNDER ITEM 505.45 "DYNAMIC PILE LOADING TEST". A MINIMUM OF ONE DYNAMIC PILE TEST SHALL BE CONDUCTED ON THE FIRST PILE DRIVEN FOR EACH SUBSTRUCTURE UNIT, FOR A TOTAL OF 2 TESTS. MORE TESTS MAY BE REQUIRED BY THE RESIDENT ENGINEER.

13. THE PILES SHALL BE DRIVEN TO A NOMINAL RESISTANCE OF 486 KIPS, AS DETERMINED BY THE RESULTS OF DYNAMIC TESTING, AS INTERPRETED BY THE RESIDENT ENGINEER. HOWEVER, THE PILES SHALL BE DRIVEN TO A MINIMUM DEPTH OF 35 FEET BELOW THE BOTTOM OF STEM ELEVATION.

14. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED TO BE AS SHOWN ON THE BORING LOGS SHEET IN THE PLANS. THE ACTUAL IN PLACE LENGTH MAY VARY.

15. UNLESS OTHERWISE NOTED, ALL NEW STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270M/M 270 GRADE 50 AND SHALL BE PAID FOR UNDER ITEM 506.55 "STRUCTURAL STEEL, PLATE GIRDER". ALL NEW STRUCTURAL STEEL SHALL BE PAINTED BROWN (COLOR CHIP #20059)

16. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.

17. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF THE GIRDERS SHALL BE TAKEN AS DIRECTED BY THE RESIDENT ENGINEER FOR USE IN DETERMINING FINISHED GRADES.

18. FLEMING BRACKETS OR SIMILAR FALSEWORK SHALL BE SPACED AS REQUIRED BY DESIGN, BUT SHALL BE LIMITED TO A MAXIMUM SPACING OF 4 FEET. THE DESIGN OF FALSEWORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

19. ANY BOLT HOLES IN THE WEBS OF FASCIA GIRDERS NOT OTHERWISE FILLED SHALL BE FILLED WITH BUTTON HEAD OR HEX HEAD BOLTS. THE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.19 OF THE STANDARD SPECIFICATIONS.

20. ALL MATERIALS, LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY FOR PLACING THE PILES IN THEIR ACCEPTED FINAL POSITION SHALL BE CONSIDERED INCIDENTAL TO ITEM 505.165 "STEEL PILING, HP 12 X 84." THE CONTRACTOR MAY SUBMIT AN ALTERNATIVE METHOD OF DRIVING FOR APPROVAL BY THE RESIDENT ENGINEER.

21. THE PRE-EXCAVATION OF PILES MAY BE NEEDED ON THIS PROJECT. PAYMENT FOR THIS WORK WILL BE MADE UNDER ITEM 900.640 "SPECIAL PROVISION (OBSTRUCTION REMOVAL FOR DRIVING PILES)".

CONCRETE

22. APPROACH SLABS AND SUBSTRUCTURE CONCRETE BELOW CONSTRUCTION JOINT SHALL BE HIGH PERFORMANCE CLASS B AND SHALL BE PAID FOR UNDER ITEM 501.34 "CONCRETE, HIGH PERFORMANCE CLASS B". THE DECK, INCLUDING SUBSTRUCTURE CONCRETE ABOVE CONSTRUCTION JOINT, SHALL BE HIGH PERFORMANCE CLASS A AND SHALL BE PAID FOR UNDER ITEM 501.33 "CONCRETE, HIGH PERFORMANCE CLASS A".

23. CONCRETE PORTIONS OF ABUTMENTS AND WINGWALLS ABOVE ADJACENT BRIDGE SEAT ELEVATIONS SHALL NOT BE PLACED UNTIL FINISH GRADES HAVE BEEN DETERMINED BY THE RESIDENT ENGINEER.

24. LOADING ALLOWANCE ON THE NEW DECK SHALL BE IN ACCORDANCE WITH SUBSECTION 501.18(B) OF THE STANDARD SPECIFICATIONS.

25. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH X 1 INCH.

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

27. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS SHOWN IN THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.

28. THE TOP SURFACE OF THE PILE CAP SHALL BE GIVEN A FLOAT FINISH TO GRADE. THE CONCRETE WITHIN THE REINFORCING CAGE SHALL BE ROUGHENED BY RAKING PARALLEL TO THE FACE OF THE ABUTMENT TO AN AMPLITUDE OF 1/2 INCH. THE CONCRETE OUTSIDE THE REINFORCING CAGE SHALL REMAIN SMOOTH.

29. ALL REINFORCING STEEL ABOVE THE CONSTRUCTION JOINT WILL BE CORROSION PROTECTION LEVEL III AND ALL REINFORCING STEEL BELOW THE CONSTRUCTION JOINT AND IN APPROACH SLABS WILL BE CORROSION PROTECTION LEVEL I. PAYMENT WILL BE MADE UNDER THE APPROPRIATE SECTION 507 CONTRACT ITEM.

30. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE:
    SPACING: +/- 1 INCH
    CLEARANCE: +/- 1/4 INCH

31. INDIVIDUAL POUR SEGMENTS ARE TO BE PLACED IN ONE CONTINUOUS POUR WITH A MAXIMUM DURATION OF EIGHT HOURS. IF A POUR SEGMENT CANNOT BE PLACED IN THE EIGHT HOUR PERIOD, A CONSTRUCTION JOINT SHALL BE USED. A 96 HOUR DELAY BETWEEN THE COMPLETION OF ONE DAY'S POUR AND THE BEGINNING OF ANY OTHER ADJACENT POUR SHALL BE OBSERVED.

32. THE ABUTMENT AND WINGWALL CONCRETE ABOVE HORIZONTAL CONSTRUCTION JOINTS SHALL BE PLACED MONOLITHICALLY WITH DECK POURS.

TRAFFIC CONTROL

33. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A DETAILED TRAFFIC CONTROL PLAN TO THE ENGINEER FOR ALL STAGES OF CONSTRUCTION. NO WORK SHALL BEGIN UNTIL THE TRAFFIC CONTROL PLAN HAS BEEN APPROVED. SEE CONTRACT SPECIAL PROVISIONS FOR DETAILS. ALL COSTS SHALL BE INCLUDED IN ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

34. ALL WORK ASSOCIATED WITH THE INSTALLATION AND REMOVAL OF THE TEMPORARY BRIDGE AND ITS APPROACHES, INCLUDING TEMPORARY TRAFFIC BARRIER, PAVEMENT, AND PAVEMENT MARKINGS WILL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 528.11 "TWO-WAY TEMPORARY BRIDGE".

35. ANY TEMPORARY MEANS OF SUPPORTING FILL SHALL BE INCIDENTAL TO THE ITEM 528.11 "TWO-WAY TEMPORARY BRIDGE". CONSTRUCTION DRAWINGS SHALL BE REQUIRED AS PER SUBSECTION 105.03.

36. PAYMENT FOR ALL ON AND OFF-PROJECT CONSTRUCTION SIGNING AND TRAFFIC CONTROL DEVICES, INCLUDING DRUMS AND BARRICADES, WILL BE PAID FOR UNDER ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

37. THE CONTRACTOR SHALL ADD SIGN G20-5AP TO THE TOP OF ALL TEMPORARY SPEED LIMIT SIGNS AS DETAILED IN THE MUTCD.

38. TRAFFIC SHALL BE MAINTAINED DURING CONSTRUCTION ON A TWO-WAY TEMPORARY BRIDGE WITH PAVED APPROACHES CONSTRUCTED UPSTREAM OF THE EXISTING STRUCTURE. THE TWO-WAY TEMPORARY BRIDGE WILL BE PAID FOR UNDER ITEM 528.11 "TWO-WAY TEMPORARY BRIDGE".

39. MAINTAIN FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS AT ALL TIMES. IF THE CONTRACTOR MUST RESTRICT ACCESS, THEN THE CONTRACTOR SHALL NOTIFY THE PROPERTY OWNERS IN ADVANCE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

40. FLAGGERS AND UNIFORM TRAFFIC OFFICERS WILL BE PAID FOR SEPARATELY UNDER THEIR INDIVIDUAL PAY ITEM.

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320gen.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
PROJECT NOTES

PLOT DATE: 28-AUG-2012
DRAWN BY: R. PELLETT
CHECKED BY: C. CARLSON

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES							TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
1					1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	-			**EARTHWORKS SUMMARY**
3130					3130		CY	COMMON EXCAVATION	203.15	0.78			FILL AVALIBLE
			460		460		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	8.53	3130	CY	COMMON EXCAVATION (3130 x 1.0)
1200					1200		CY	SAND BORROW	203.31	8.6	138	CY	UNCLASSIFIED CHANNEL EXCAVATION (460 X 0.3)
		10			10		CY	TRENCH EXCAVATION OF EARTH	204.20	EST.	69	CY	STRUCTURE EXCAVATION (230 X 0.3)
1					1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	EST.	3	CY	ROUNDING
			230		230		CY	STRUCTURE EXCAVATION	204.25	8.45	**3340**	**CY**	**TOTAL FILL AVAILABLE**
			80		80		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	2.72			
350					350		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	4.56			FILL REQUIRED
2250					2250		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	5.71	360	CY	PLANMETERED FILL
90					90		CY	AGGREGATE SURFACE COURSE	401.10	9.54	414	CY	FACTORED FILL (360 X 1.15)
9			0.4		9.4		CWT	EMULSIFIED ASPHALT	404.65	0.19	6	CY	ROUNDING
1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	-	**420**	**CY**	**TOTAL FILL REQUIRED**
			171		171		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33	0.87	**2920**	**CY**	**TOTAL WASTE**
			99		99		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34	1.74			
			1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10	-			
			545		545		LF	STEEL PILING, HP 12 X 84	505.165	EST.			
			2		2		EACH	DYNAMIC PILE LOADING TEST	505.45	-			
			119500		119500		LB	STRUCTURAL STEEL, PLATE GIRDER	506.55	6.95			
			13370		13370		LB	REINFORCING STEEL, LEVEL I	507.11	32.65			
			29910		29910		LB	REINFORCING STEEL, LEVEL III	507.13	20.4			
			1		1		LS	SHEAR CONNECTORS (1740- 7/8" X 7")	508.15	-			
			370		370		SY	LONGITUDINAL DECK GROOVING	509.10	0.22			
			55		55		GAL	WATER REPELLENT, SILANE	514.10	1.54			
			64		64		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10	-			
			64		64		LF	JOINT SEALER, HOT POURED	524.11	-			
			212		212		LF	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	525.335	0.34			
1					1		LS	TWO-WAY TEMPORARY BRIDGE (2400 SF - EST.)	528.11	-			
			1		1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20	-			
1					1		EACH	CHANGING ELEVATION OF DROP INLETS, CATCH BASINS, OR MANHOLES	604.40	-			
10					10		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25	EST.			
90					90		CY	STONE FILL, TYPE I	613.10	0.09			
			450		450		CY	STONE FILL, TYPE III	613.12	8.97			
245					245		LF	BOX BEAM GUARDRAIL	621.30	0.17			
4					4		EACH	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	621.725	-			
290					290		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	3.04			
100					100		HR	UNIFORMED TRAFFIC OFFICERS	630.10	EST.			
1120					1120		HR	FLAGGERS	630.15	EST.			
				1	1		LS	FIELD OFFICE, ENGINEERS	631.10	-			
				1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16	-			

PROJECT NAME: **ST. JOHNSBURY**
PROJECT NUMBER: **BRF 028-4(25)S**

FILE NAME: **s98b320qs.dgn**
PROJECT LEADER: **C. CARLSON**
DESIGNED BY: **H. SALLS**
QUANTITY SHEET #1

PLOT DATE: **08/27/2012**
DRAWN BY: **R. PELLETT**
CHECKED BY: **G. ROY**
SHEET **4** OF **62**

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES							TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
				1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17	-			
				3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26	-			
	520				520		HR	EMPLOYEE TRAINEESHIP	634.10	-			
1					1		LS	MOBILIZATION/DEMOBILIZATION	635.11	-			
1550					1550		LF	DURABLE 4 INCH WHITE LINE	646.400	-			
1550					1550		LF	DURABLE 4 INCH YELLOW LINE	646.410	-			
300			680		980		SY	GEOTEXTILE UNDER STONE FILL	649.31	16.34			
		170			170		SY	GEOTEXTILE FOR SILT FENCE	649.51	5.99			
		80			80		SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515	8.3			
		330			330		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61	7.35			
		10			10		LB	SEED	651.15	5.8			
		10			10		LB	SEED, WINTER RYE	651.17	5.8			
		40			40		LB	FERTILIZER	651.18	5			
		1			1		TON	AGRICULTURAL LIMESTONE	651.20	0.86			
		1			1		TON	HAY MULCH	651.25	0.86			
		20			20		CY	TOPSOIL	651.35	0.22			
			140		140		SY	GRUBBING MATERIAL	651.40	4.21			
		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	-			
		400			400		SY	TEMPORARY EROSION MATTING	653.20	2.75			
		50			50		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25	8.18			
		20			20		CY	VEHICLE TRACKING PAD	653.35	EST.			
		3			3		EACH	INLET PROTECTION DEVICE, TYPE I	653.40	-			
		730			730		LF	BARRIER FENCE	653.50	7.72			
		700			700		LF	PROJECT DEMARCATION FENCE	653.55	5.1			
10.15					10.15		SF	TRAFFIC SIGNS, TYPE A	675.20	-			
30					30		LF	FLANGED CHANNEL SIGN POST	675.301	-			
30					30		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341	-			
5					5		EACH	REMOVING SIGNS	675.50	-			
1					1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50	-			
			150		150		LF	SPECIAL PROVISION (OBSTRUCTION REMOVAL FOR DRIVING PILES)	900.640	6.85			
			1		1		LS	SPECIAL PROVISION (QC/QA CLEANING AND PAINTING STRUCTURAL COMPONENTS)	900.645	-			
1					1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645	-			
1					1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650	-			
1					1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650	-			
890			24		914		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680	3.69			

PROJECT NAME: **ST. JOHNSBURY**
PROJECT NUMBER: **BRF 028-4(25)S**

FILE NAME: s98b320qs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
QUANTITY SHEET #2

PLOT DATE: 08/27/2012
DRAWN BY: R. PELLETT
CHECKED BY: G. ROY
SHEET 5 OF 62

STATE OF VERMONT
AGENCY OF TRANSPORTATION

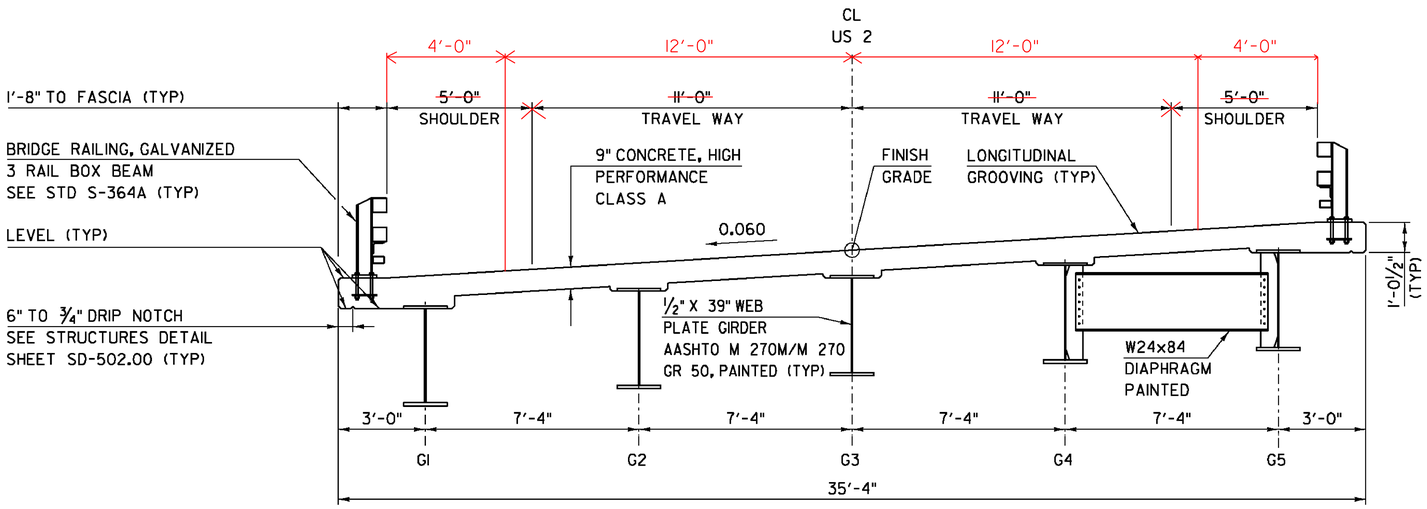
BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES					TOTALS	DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
SUPERSTRUC-TURE	APPROACH SLAB 1	APPROACH SLAB 2	ABUTMENT 1	ABUTMENT 2	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS
			210	250	460	CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27			
			100	130	230	CY	STRUCTURE EXCAVATION	204.25			
			40	40	80	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30			
	0.2	0.2			0.4	CWT	EMULSIFIED ASPHALT	404.65			
105			33	33	171	CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33			
	30	30	21	18	99	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34			
			0.5	0.5	1	LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10			
			275	270	545	LF	STEEL PILING, HP 12 X 84	505.165			
			1	1	2	EACH	DYNAMIC PILE LOADING TEST	505.45			
119500					119500	LB	STRUCTURAL STEEL, PLATE GIRDER	506.55			
	3620	3620	3190	2940	13370	LB	REINFORCING STEEL, LEVEL I	507.11			
26470	180	180	1540	1540	29910	LB	REINFORCING STEEL, LEVEL III	507.13			
1					1	LS	SHEAR CONNECTORS (1740- 7/8" X 7")	508.15			
370					370	SY	LONGITUDINAL DECK GROOVING	509.10			
42			7	6	55	GAL	WATER REPELLENT, SILANE	514.10			
	32	32			64	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10			
	32	32			64	LF	JOINT SEALER, HOT POURED	524.11			
212					212	LF	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	525.335			
1					1	EACH	PARTIAL REMOVAL OF STRUCTURE	529.20			
			190	260	450	CY	STONE FILL, TYPE III	613.12			
			280	400	680	SY	GEOTEXTILE UNDER STONE FILL	649.31			
			50	90	140	SY	GRUBBING MATERIAL	651.40			
			100	50	150	LF	SPECIAL PROVISION (OBSTRUCTION REMOVAL FOR DRIVING PILES)	900.640			
1					1	LS	SPECIAL PROVISION (QC/QA CLEANING AND PAINTING STRUCTURAL COMPONENTS)	900.645			
	12	12			24	TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680			

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

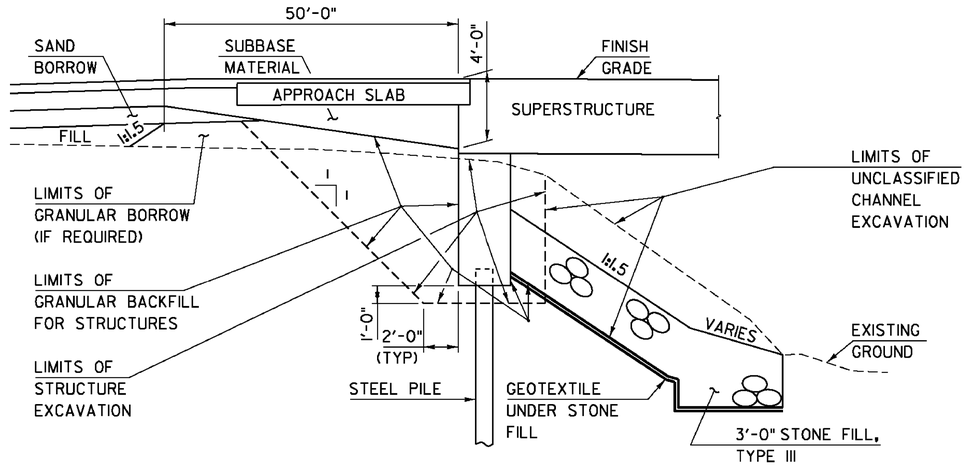
FILE NAME: s98b320qs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
BRIDGE QUANTITY SHEET #1

PLOT DATE: 08/27/2012
DRAWN BY: R. PELLETT
CHECKED BY: G. ROY



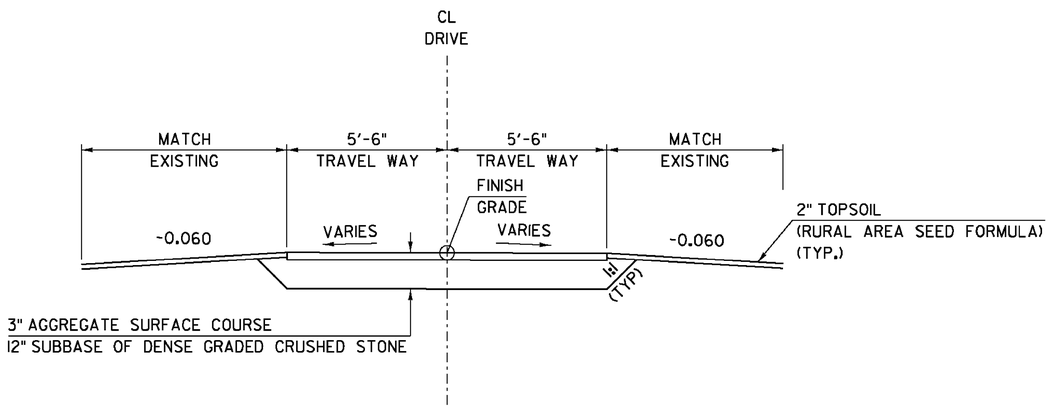
BRIDGE TYPICAL SECTION

SCALE 3/8" = 1'-0"



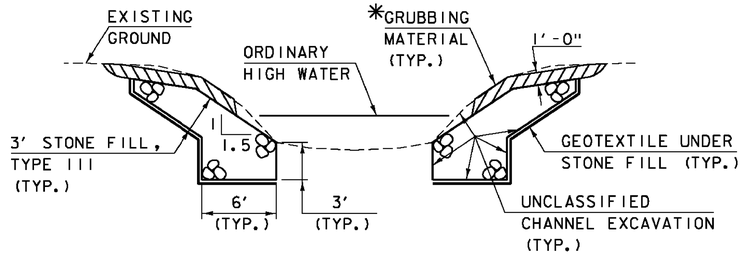
ABUTMENT EARTHWORK TYPICAL SECTION

NTS



DRIVE TYPICAL SECTION

SCALE 3/8" = 1'-0"

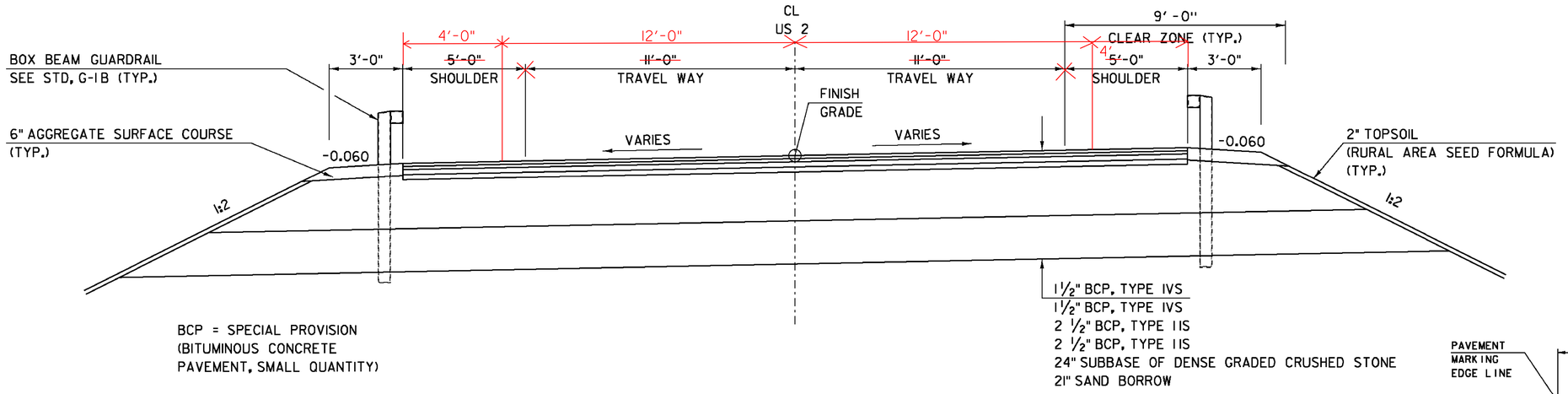


TYPICAL CHANNEL SECTION

NTS

*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.

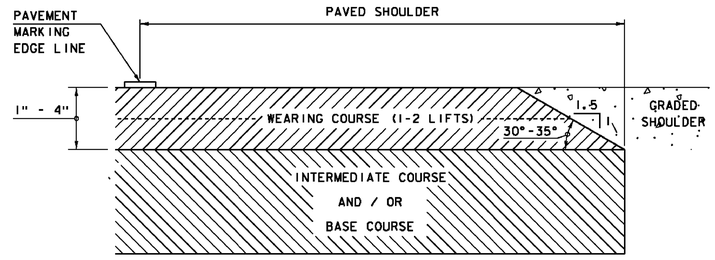
PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: s98b320typ.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
BRIDGE TYPICAL SECTION	SHEET 7 OF 62



BCP = SPECIAL PROVISION
(BITUMINOUS CONCRETE
PAVEMENT, SMALL QUANTITY)

ROADWAY
TYPICAL CROSS SECTION
(BRIDGE TO END PROJECT)

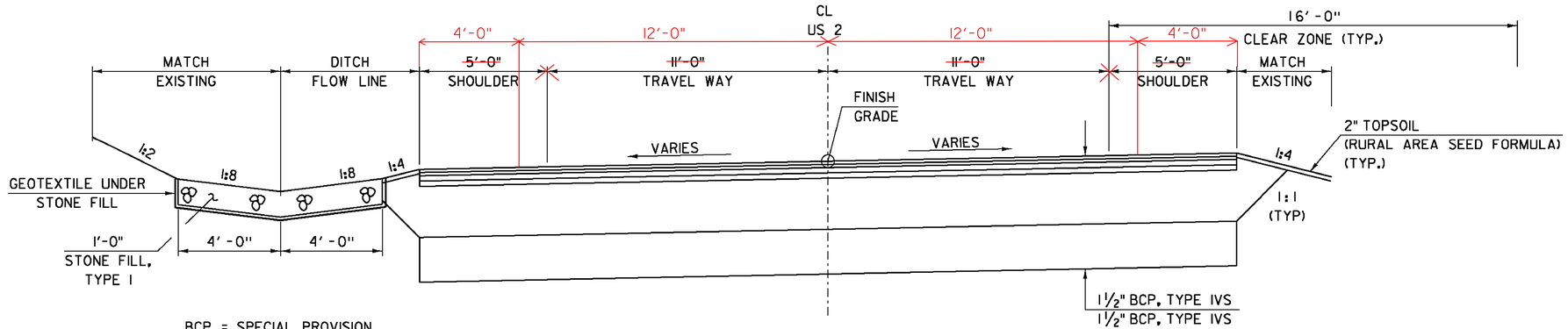
SCALE ⅜" = 1'-0"



SAFETY EDGE DETAIL

NOT TO SCALE

NOTE: LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.



BCP = SPECIAL PROVISION
(BITUMINOUS CONCRETE
PAVEMENT, SMALL QUANTITY)

TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT THE RATE OF 0.025 GAL/SY ON ALL COLD PLANED SURFACES AND BETWEEN SUCCESSIVE COURSES OF PAVEMENT AS DIRECTED BY THE ENGINEER.

ROADWAY
TYPICAL CROSS SECTION
(BEGIN PROJECT TO BRIDGE)

SCALE ⅜" = 1'-0"

MATERIAL TOLERANCES

(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

SCALE ⅜" = 1'-0"
1 0 1 2 3 4

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320typ.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
ROADWAY TYPICAL SECTION

PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 8 OF 62

GPS CONTROL POINTS

OLCOTT

NORTH = 711607.222
EAST = 1786695.475
ELEV. = 895.667

GENERAL LOCATION, EAST ST. JOHNSBURY, VT. OWNERSHIP, LEN OLCOTT, P.O. BOX 40, EAST ST. JOHNSBURY, VT 05838. PHONE (802) 748-9475.
TO REACH FROM THE INTERSECTION OF U.S. ROUTE 2 AND VT ROUTE 18 EAST OF ST. JOHNBURY GO EAST ALONG U.S. ROUTE 2 FOR 1.8 MI (2.9 KM) TO THE INTERSECTION OF SEVERANCE HILL ROAD LEFT. CONTINUE STRAIGHT AHEAD AND GO EAST ALONG U.S. ROUTE 2 FOR 0.1 MI (0.2 KM) TO THE INTERSECTION OF A GRAVEL DRIVE LEFT JUST WEST OF THE GROVE CEMETERY. TURN LEFT AND GO NORTH ALONG THE GRAVEL DRIVE FOR 0.1 MI (0.2 KM) TO THE OLCOTT RESIDENCE AND SITE OF MARK NORTH OF THE HOUSE AND JUST NORTH OF THE NORTH EDGE OF A LAWN. THE MARK IS SET IN THE TOP OF THE SOUTH END OF A MASSIVE ROCK OUTCROP. IT IS 22.8 M (74.8 FT) NORTH OF THE NORTHWEST CORNER OF THE PORCH, 27.4 M (89.9 FT) NORTHWEST OF THE NORTHEAST CORNER OF THE HOUSE, AND 36.7 M (120.4 FT) WEST OF A WIRE FENCE SEPERATING THE OLCOTT PROPERTY AND THE GROVE CEMETERY.

OLCOTT AZ MK

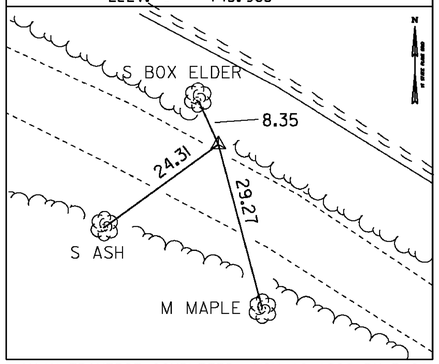
NORTH = 709931.612
EAST = 1785554.372
ELEV. = 800.425

GENERAL LOCATION, EAST ST. JOHNSBURY, VT.
TO REACH FROM THE INTERSECTION OF U.S. ROUTE 2 AND VT ROUTE 18 EAST OF ST. JOHNBURY GO EAST ALONG U.S. ROUTE 2 FOR 1.6 MI (2.6 KM) TO A SMALL ROCK CUT ON THE LEFT AND THE SITE OF THE MARK ON THE LEFT AT THE NORTHEAST END OF ROCK CUT. IT IS 0.2 MI (0.3 KM) SOUTHWEST ALONG U.S. ROUTE 2 FROM THE INTERSECTION OF U.S. ROUTE 2 AND SEVERANCE HILL ROAD. THE MARK IS 7.0 M (23.0 FT) NORTHWEST OF AND ABOUT 1.2 M (3.9 FT) HIGHER THAN THE CENTERLINE OF U.S. ROUTE 2, 51.1 M (167.7 FT) SOUTHWEST OF THE CENTERLINE OF A GATED GRAVEL ROAD, 29.8 M (97.8 FT) SOUTHWEST OF POLE NO. 139, 0.6 M (2.0 FT) NORTHWEST OF THE SOUTHEAST FACE OF THE ROCK CUT, AND 1.0 M (3.3 FT) SOUTHEAST OF A FIBERGLASS WITNESS POST.

TRAVERSE TIES

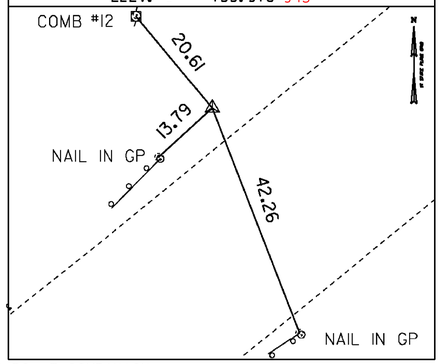
HVCTRL #1

NORTH = 704882.768
EAST = 1783906.399
ELEV. = 745.905



HVCTRL #2

NORTH = 705101.377
EAST = 1783935.544
ELEV. = 753.~~978~~ 943



HVCTRL #3

NORTH = 704522.883
EAST = 1783002.527
ELEV. = 751.900

NOT TIED

HVCTRL #4

S 47
NORTH = 704472.134
EAST = 1782078.965
ELEV. = 737.354

0.85 MILE SOUTHWEST ALONG U.S. HIGHWAY 2 FROM THE T-JUNCTION OF OLD CONCORD ROAD AT EAST ST JOHNSBURY, 0.45 MILE SOUTHWEST OF THE CROSSING OF THE MAINE CENTRAL RAILROAD, 0.35 MILE EAST OF THE Y-JUNCTION OF STATE HIGHWAY 18, AT THE WEST END OF A GRAVEL TURNOFF, 25.8 FT. NORTH OF THE CENTER LINE OF THE HIGHWAY, 70 FT. SOUTH OF THE SOUTH BANK OF THE MOOSE RIVER, 81 FT. SOUTHEAST OF THE NORTH END OF A 23-INCH CONCRETE PIPE CULVERT, 1.7 FT. WEST OF POWER POLE 102 94.

* MAIN TRAVERSE COMPLETED: NOV 10 1998 BY R. GILMAN PC, T. COMPANION

ALIGNMENT DATA

US 2

	STATION	NORTHING	EASTING
POB	374+86.12	704724.9597	1783378.9489
PC	378+37.84	704888.1126	1783690.5441
PI	379+00.03	704916.9560	1783745.6302

Radius:	600.00
Delta:	11°50'00" Left
Degree of Curvature (Arc):	9°32'57"
Length:	123.92
Tangent:	62.18
Chord:	123.70
Middle Ordinate:	3.20
External:	3.21

PT	379+61.76	704956.4826	1783793.6308
PC	384+11.77	705242.5425	1784141.0178
PI	385+34.18	705320.3555	1784235.5129

Radius:	1146.30
Delta:	12°11'26" Left
Degree of Curvature (Arc):	4°59'54"
Length:	243.90
Tangent:	122.41
Chord:	243.44
Middle Ordinate:	6.48
External:	6.52

PT	386+55.67	705416.3681	1784311.4456
POE	386+81.31	705436.4808	1784327.3520

DRIVE 1

	STATION	NORTHING	EASTING
POB	29+99.95	704921.3301	1783746.3975
PC	30+13.98	704909.6839	1783754.2073
PI	30+29.61	704896.6992	1783762.9147

Radius:	24.00
Delta:	66°09'42" Right
Degree of Curvature (Arc):	238°43'57"
Length:	27.71
Tangent:	15.63
Chord:	26.20
Middle Ordinate:	3.89
External:	4.64

PT	30+41.69	704883.4868	1783754.5569
POE	30+71.49	704858.3047	1783738.6275

DRIVE 2

	STATION	NORTHING	EASTING
POB	40+00.00	704921.3301	1783746.3975
PC	40+12.46	704910.9813	1783753.3373
PI	40+33.05	704893.8826	1783764.8035

Radius:	24.00
Delta:	81°14'47" Left
Degree of Curvature (Arc):	238°43'57"
Length:	34.03
Tangent:	20.59
Chord:	31.25
Middle Ordinate:	5.78
External:	7.62

PRC	40+46.49	704902.6131	1783783.4480
PI	40+66.25	704910.9908	1783801.3392

Radius:	60.00
Delta:	36°26'57" Right
Degree of Curvature (Arc):	95°29'35"
Length:	38.17
Tangent:	19.76
Chord:	37.53
Middle Ordinate:	3.01
External:	3.17

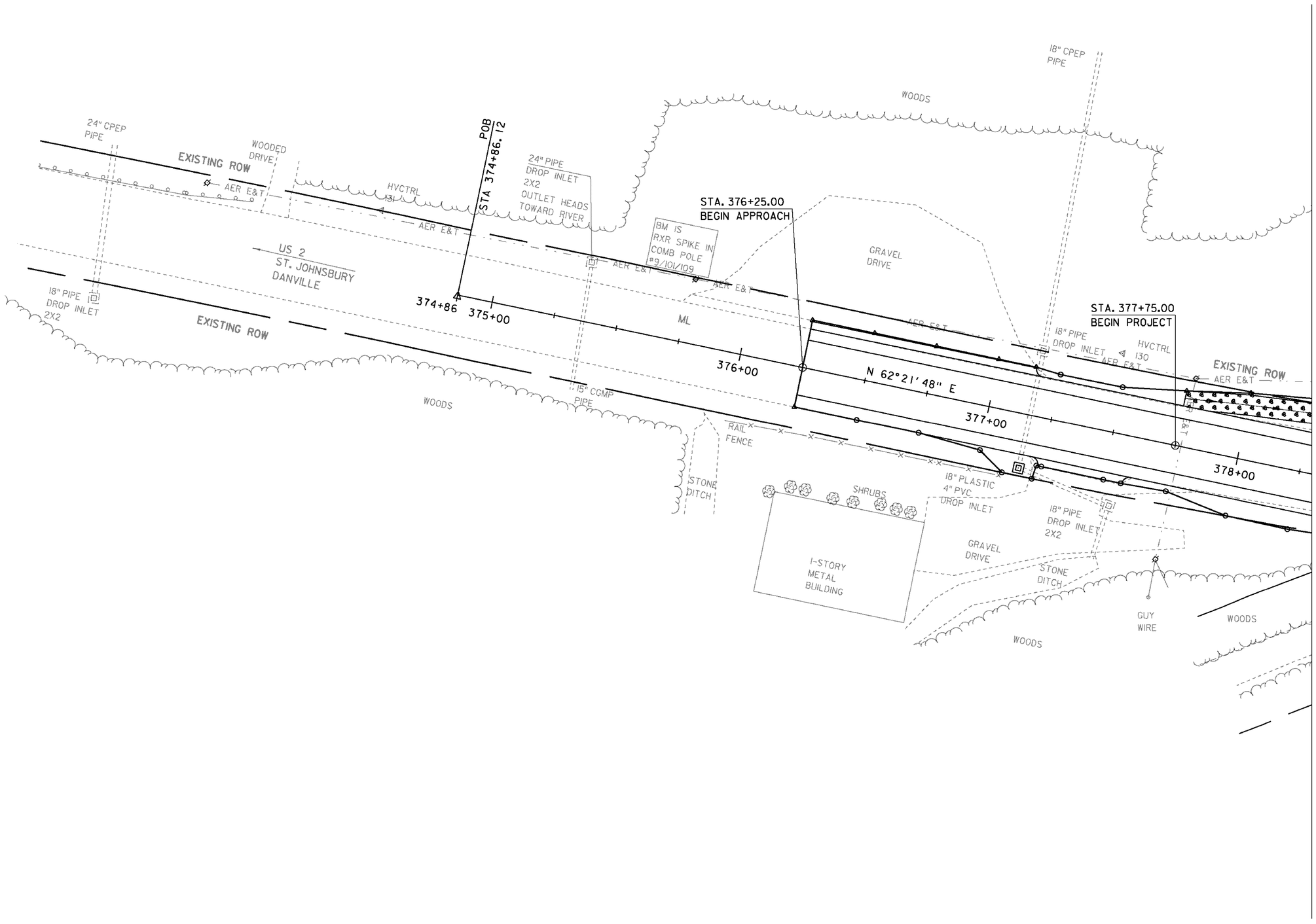
PT	40+84.66	704907.1004	1783820.7079
POE	41+13.82	704901.3588	1783849.2927

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD-83(96)
ADJUSTMENT COMPASS

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320tie.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
TIE SHEET

PLOT DATE: 28-AUG-2012
DRAWN BY: R. BULLOCK
CHECKED BY: C. CARLSON
SHEET 9 OF 62



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

PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: s98b320bdr.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
LAYOUT 1	SHEET 10 OF 62

US 2 - CURVE 1
DELTA = 11°50'00" LT
D = 9°32'57"
R = 600.00'
T = 62.18'
L = 123.92'
E = 3.21'
BANKING = 0.060

US 2 - CURVE 2
DELTA = 12°11'26" LT
D = 4°59'54"
R = 1146.30'
T = 122.41'
L = 243.90'
E = 6.52'
BANKING = MATCH EXISTING

VT STATE PLANE GRID

MATCH LINE - STA. 378+30.00

PC STA 378+37.84

PI STA 379+00.03 BK = STA 378+99.58 AHD

ML STA. 379+03.00
DRIVE 1 STA. 29+99.95
DRIVE 2 STA. 40+00.00
DELTA = 90° RT

PT STA 379+61.76

STA. 379+62.29
BEGIN BRIDGE
EL. 753.21

STA. 380+64.95
END BRIDGE
ELEV. 754.65

ML STA. 380+86.12=
CH STA. 21+00.00
DELTA = 100° LT

STA. 382+75.00
END PROJECT

STA. 384+00.00
END APPROACH

PC STA 384+11.77

BM
RXR SPIKE IN
COMB
#9/105/15T/53/113

BM ELEV 751.758
CHISEL SQ
ON ABUTMENT

STONE FILL,
TYPE I (TYP.)

STONE FILL,
TYPE III (TYP.)

CL TEMP.
DETOUR

TEMPORARY
CONSTRUCTION
LIMITS

END DRIVE 1
STA. 30+71.00

END DRIVE 2
STA. 41+14.00

DRIVE 2 - CURVE 1
STA. 40+33.05
DELTA = 81°14'47"LT
D =238°43'57"
R = 24.00'
T = 20.59'
L = 34.03'
E = 7.62'

DRIVE 2 - CURVE 2
STA. 40+66.25
DELTA = 36°26'57"RT
D = 95°29'35"
R = 60.00'
T = 19.76'
L = 38.17'
E = 3.17'

DRIVE 1 - CURVE 1
STA. 30+29.61
DELTA = 66°09'42" RT
D =238°43'57"
R = 24.00'
T = 15.63'
L = 27.71'
E = 4.64'

EXISTING BRIDGE DATA

3 SPAN STEEL BEAM
BUILT 1929
RECONSTRUCTED 1950
OVERALL LENGTH - 103'
SPAN LENGTH - 17'+54'+17'=88'
ROADWAY WIDTH - 31'
OUT TO OUT WIDTH - 34'
ABUTMENTS AND PIERS - CONCRETE

CONSTRUCT STONE-LINED DITCH, TYPE I
STA. 378+30 TO STA. 379+42 LT

CONSTRUCT DRIVE, PAVED APRON
STA. 378+88 TO STA. 379+20 RT

BRIDGE RAILING,
GALVANIZED 3 RAIL BOX BEAM
STA. 379+60.7 TO 380+66.5 LT
STA. 379+60.7 TO 380+66.5 RT

BOX BEAM GUARDRAIL
STA. 378+55.6 TO STA. 379+27.8 LT
DRIVE 2 STA. 40+57.3 LT TO STA. 379+29.6 RT
STA. 380+98.5 TO STA. 381+68.6 LT
STA. 380+98.5 TO STA. 381+68.6 RT

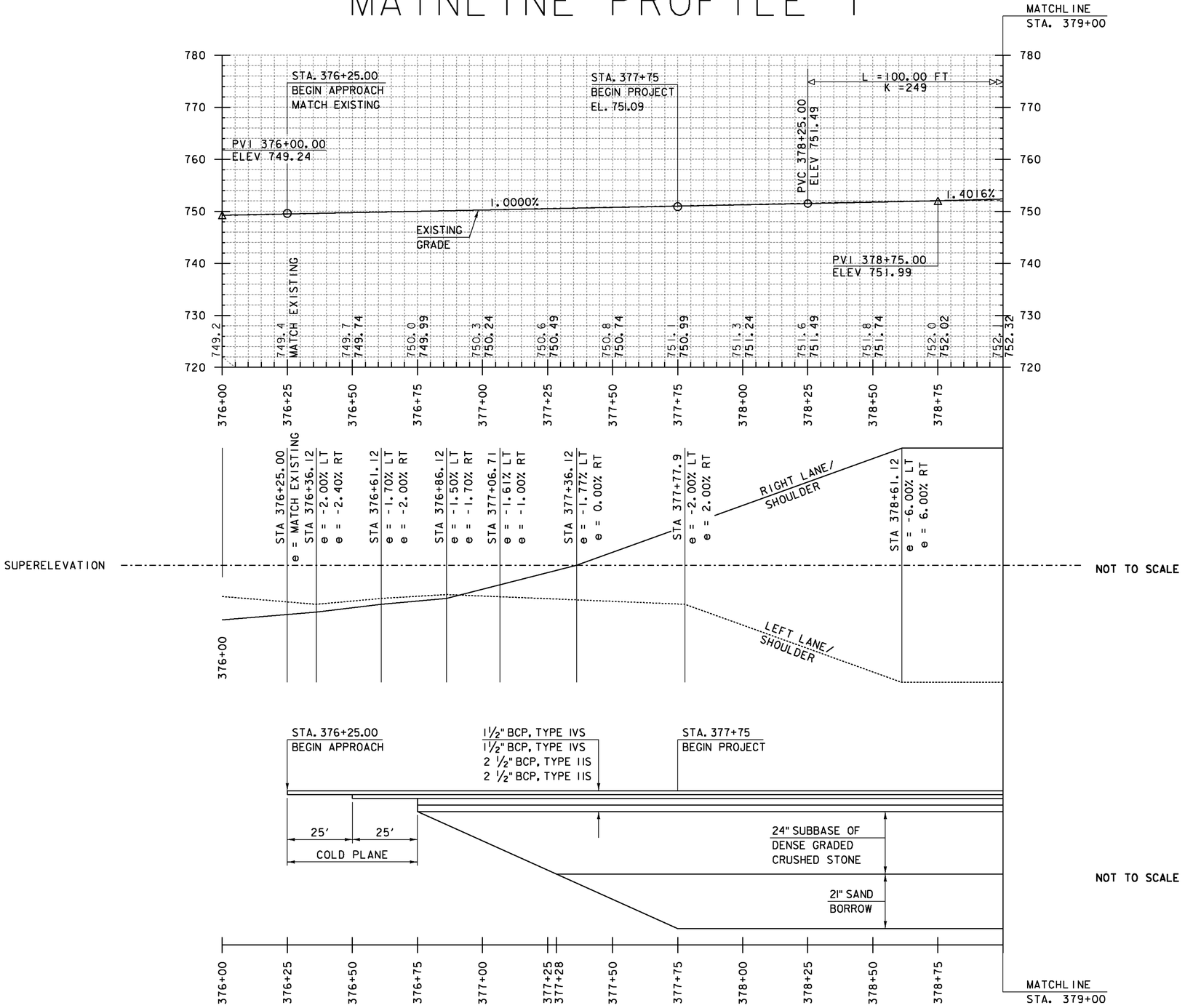
GUARDRAIL APPROACH SECTION,
GALVANIZED 3 RAIL BOX BEAM RAIL
379+25.8 STA. ~~379+27.8~~ TO STA. 379+60.7 LT
STA. 379+29.6 TO STA. 379+60.7 RT
STA. 380+66.5 TO STA. 380+98.5 LT
STA. 380+66.5 TO STA. 380+98.5 RT

REMOVAL AND DISPOSAL OF GUARDRAIL
72 STA. 378+71 TO STA. 379+60 LT
STA. 379+48 TO STA. 379+60 RT
STA. 380+62 TO STA. 381+51 LT
STA. 380+62 TO STA. 381+50 RT

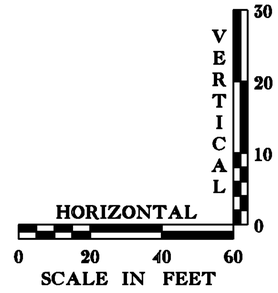
SCALE 1" = 20'-0"
20 0 20

PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: s98b320bdr.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
LAYOUT 2	SHEET 11 OF 62

MAINLINE PROFILE 1



MATERIAL TRANSITION DIAGRAM 1



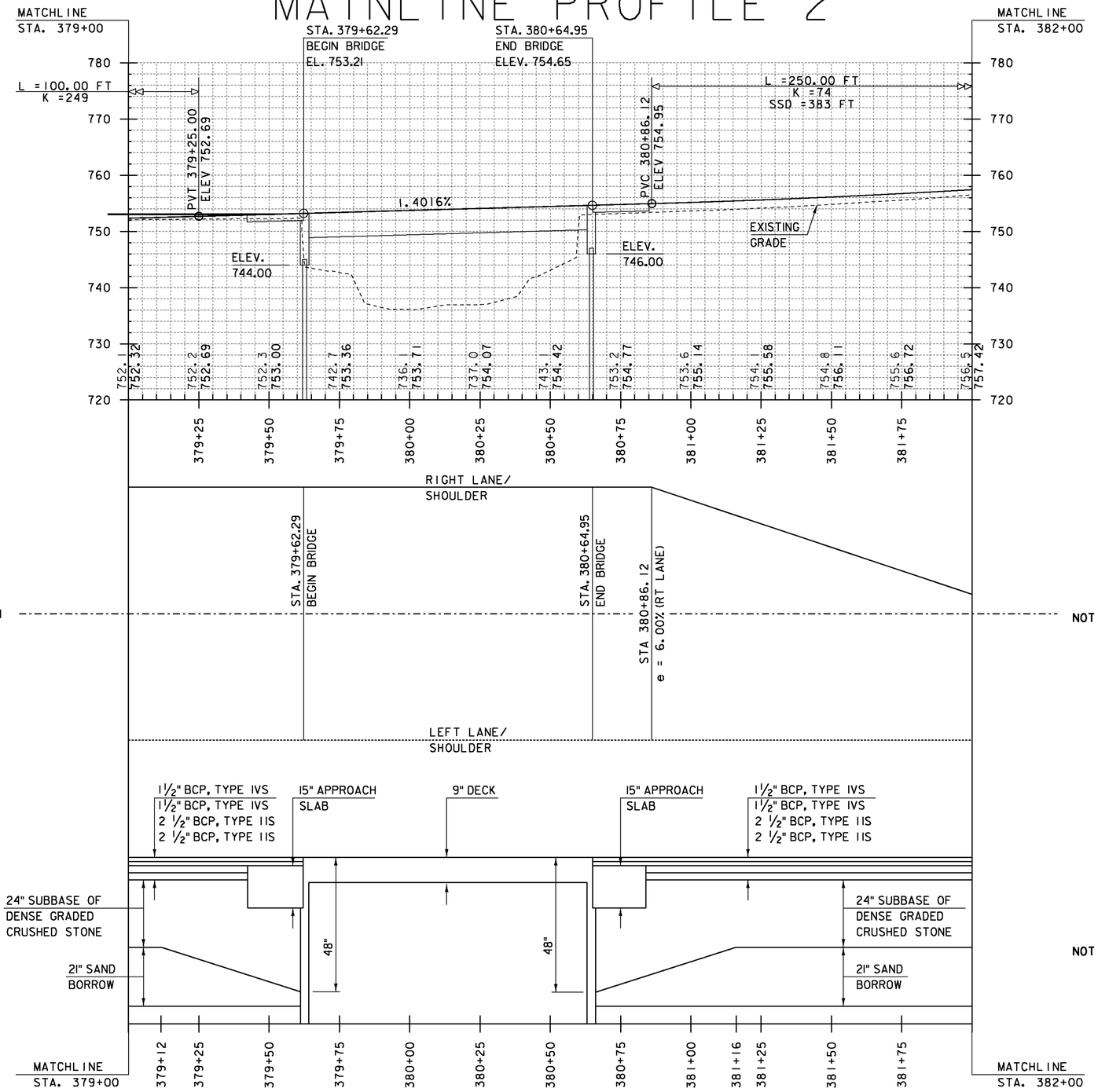
THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.

THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE FINISH GRADES ALONG THE PROPOSED ALIGNMENT.

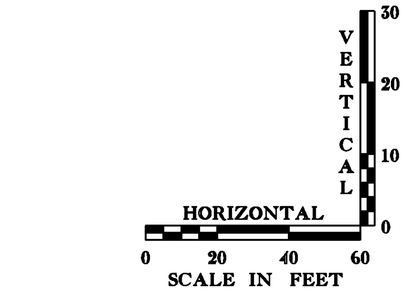
PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S

FILE NAME: s98b320xsl.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
ROADWAY PROFILE 1	SHEET 12 OF 62

MAINLINE PROFILE 2



MATERIAL TRANSITION DIAGRAM 2



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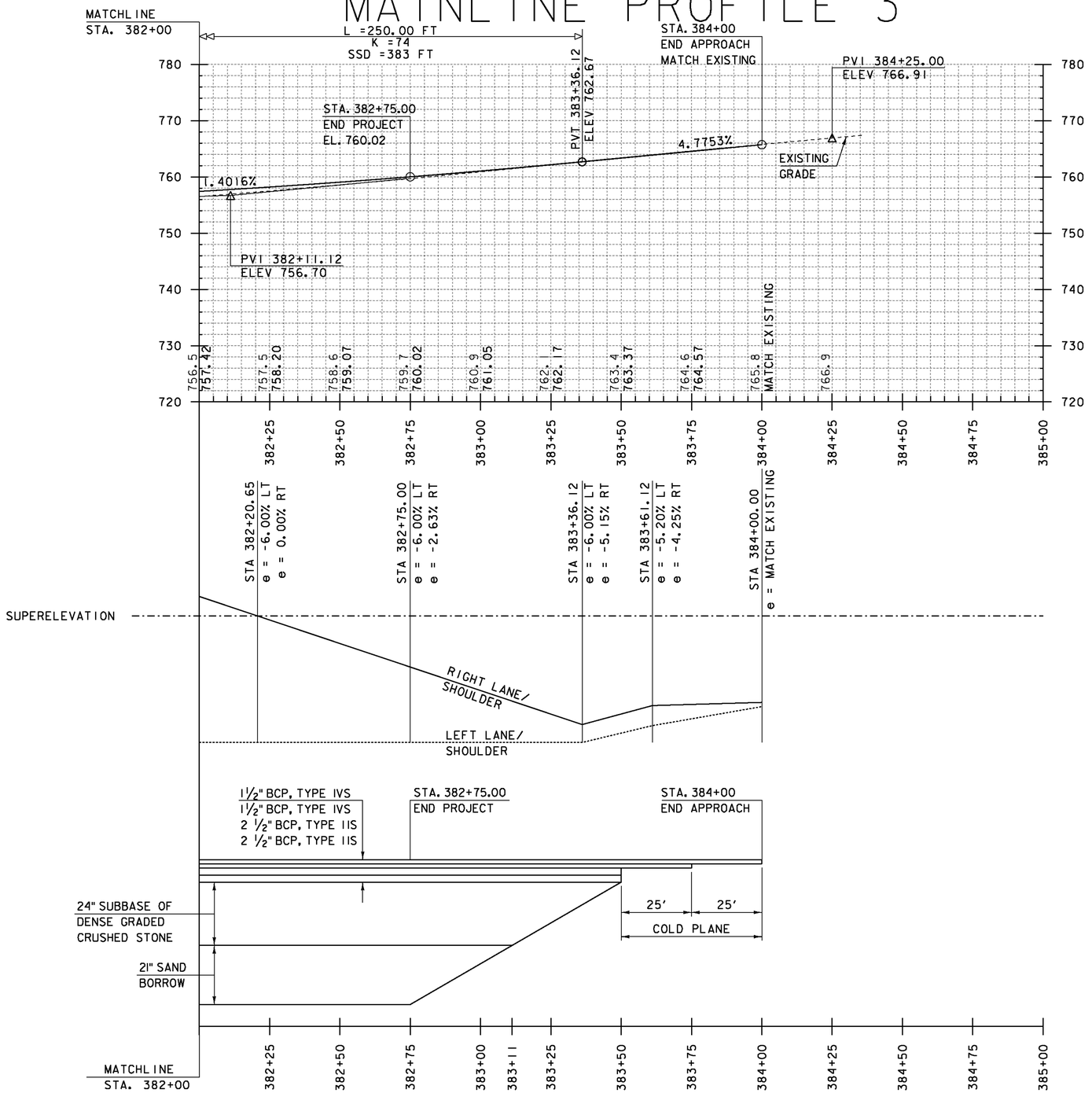
THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE FINISH GRADES ALONG THE PROPOSED ALIGNMENT.

PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S

FILE NAME: s98b320xsl.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
ROADWAY PROFILE 2	SHEET 13 OF 62

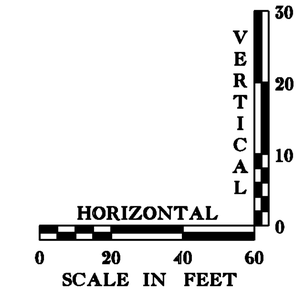
MAINLINE PROFILE 3



NOT TO SCALE

NOT TO SCALE

MATERIAL TRANSITION DIAGRAM 3



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

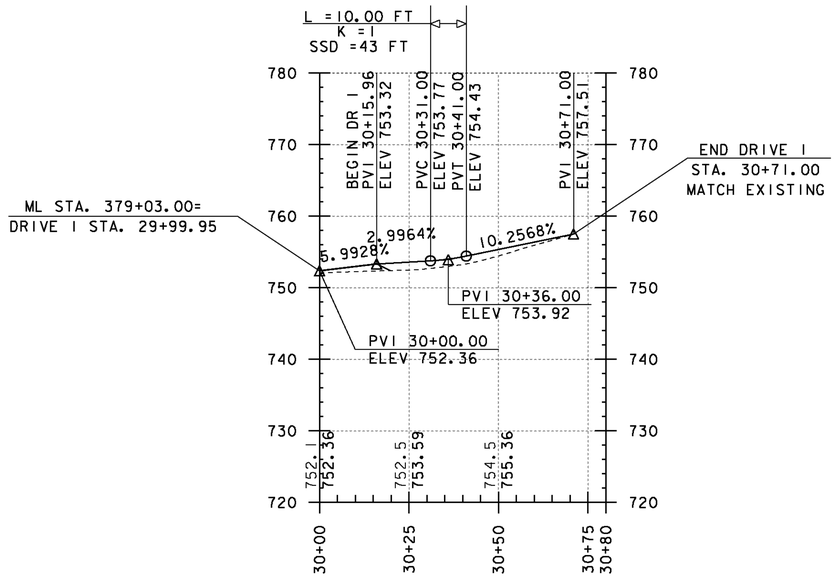
THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE FINISH GRADES ALONG THE PROPOSED ALIGNMENT.

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

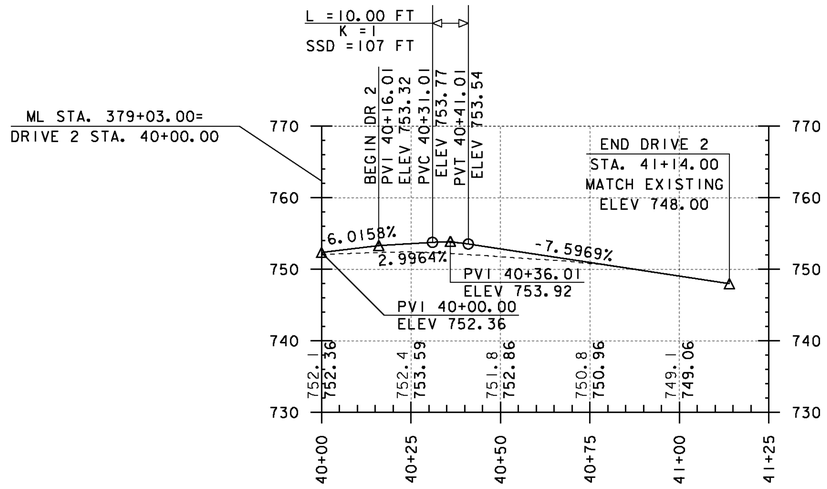
FILE NAME: s98b320xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
ROADWAY PROFILE 3

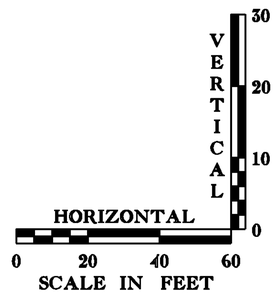
PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 14 OF 62

DRIVE 1 (TH #59)



DRIVE 2





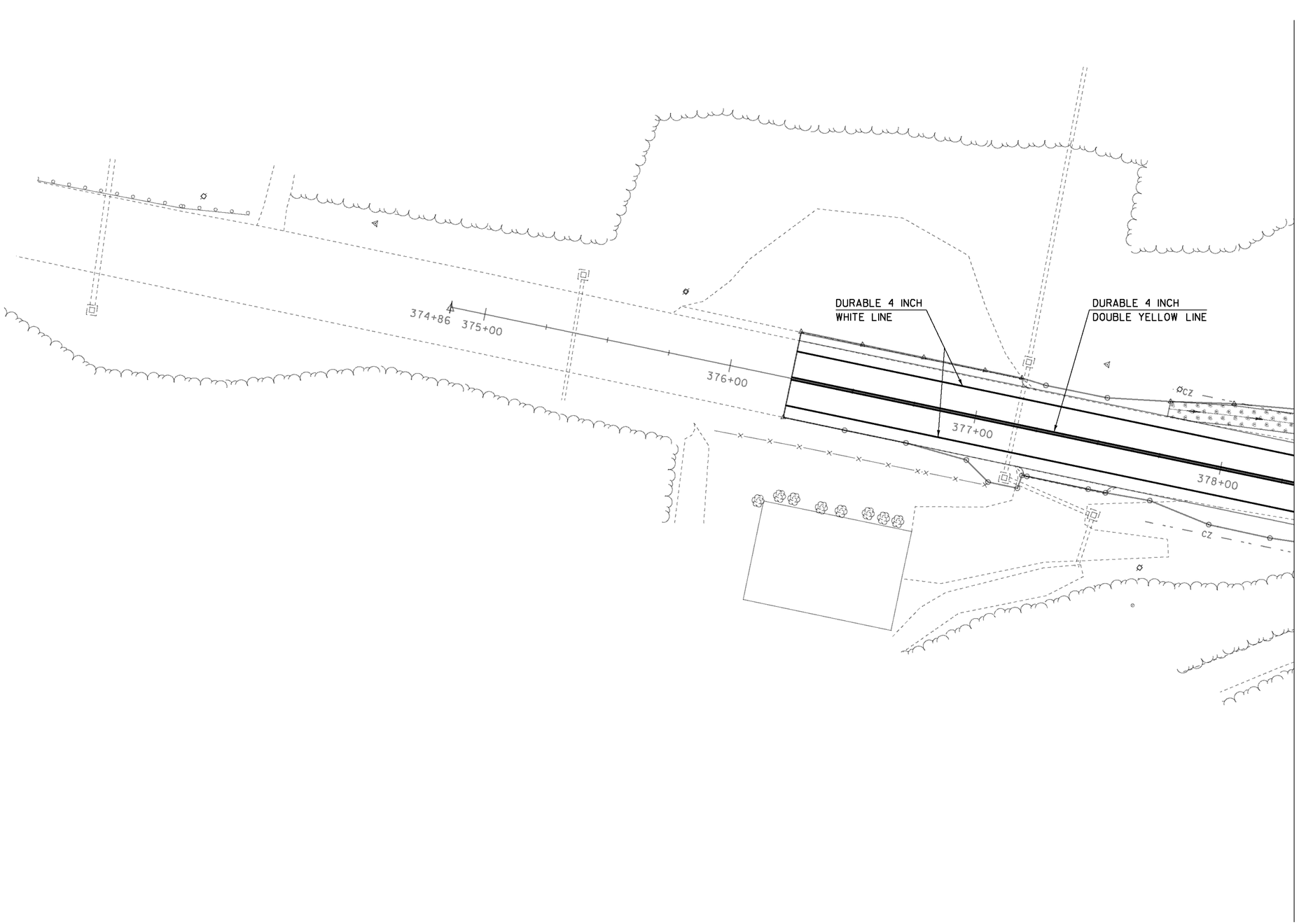
THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.

THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE FINISH GRADES ALONG THE PROPOSED ALIGNMENT.

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
DRIVE PROFILE

PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 15 OF 62



DURABLE 4 INCH YELLOW LINE
STA. 376+25 TO STA. 378+30 (DOUBLE ℄)

DURABLE 4 INCH WHITE LINE
STA. 376+25 TO STA. 378+30 LT
STA. 376+25 TO STA. 378+30 RT

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

PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: s98b320trf.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
SIGN AND STRIPING PLAN 1	SHEET 16 OF 62

MATCH LINE - STA. 378+30.00

STA. 379+47 LT
0020 0311 0720
N
N

STA. 379+47 LT
0020 0311 0720
R
R

STA. 380+70 LT
BRIDGE 108 US 2
R
R

STA. 380+78 LT
BRIDGE 108 US 2
N
N

DURABLE 4 INCH WHITE LINE

DURABLE 4 INCH DOUBLE YELLOW LINE

CZ

379+00

380+00

381+00

382+00

383+00

384+00

30+50

4T+00

TEMPORARY CONSTRUCTION LIMITS

STA. 379+50 RT
BRIDGE 108 US 2
N
N

STA. 379+58 RT
BRIDGE 108 US 2
R
R

STA. 382+90 RT
R R EXEMPT
R
R
R

STA. 382+90 RT
R R EXEMPT
N
N
N

DURABLE 4 INCH YELLOW LINE
STA. 378+30 TO STA. 384+00 (DOUBLE ℄)

DURABLE 4 INCH WHITE LINE
STA. 378+30 TO STA. 384+00 LT
STA. 378+30 TO STA. 384+00 RT

REMOVING SIGNS
5 - AS SHOWN

LEGEND
R - REMOVE
N - NEW

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

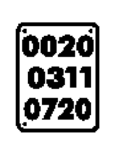
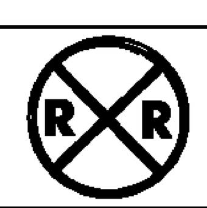
N

VT STATE PLANE GRID

PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: s98b320trf.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
SIGN AND STRIPING PLAN 2	SHEET 17 OF 62

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET

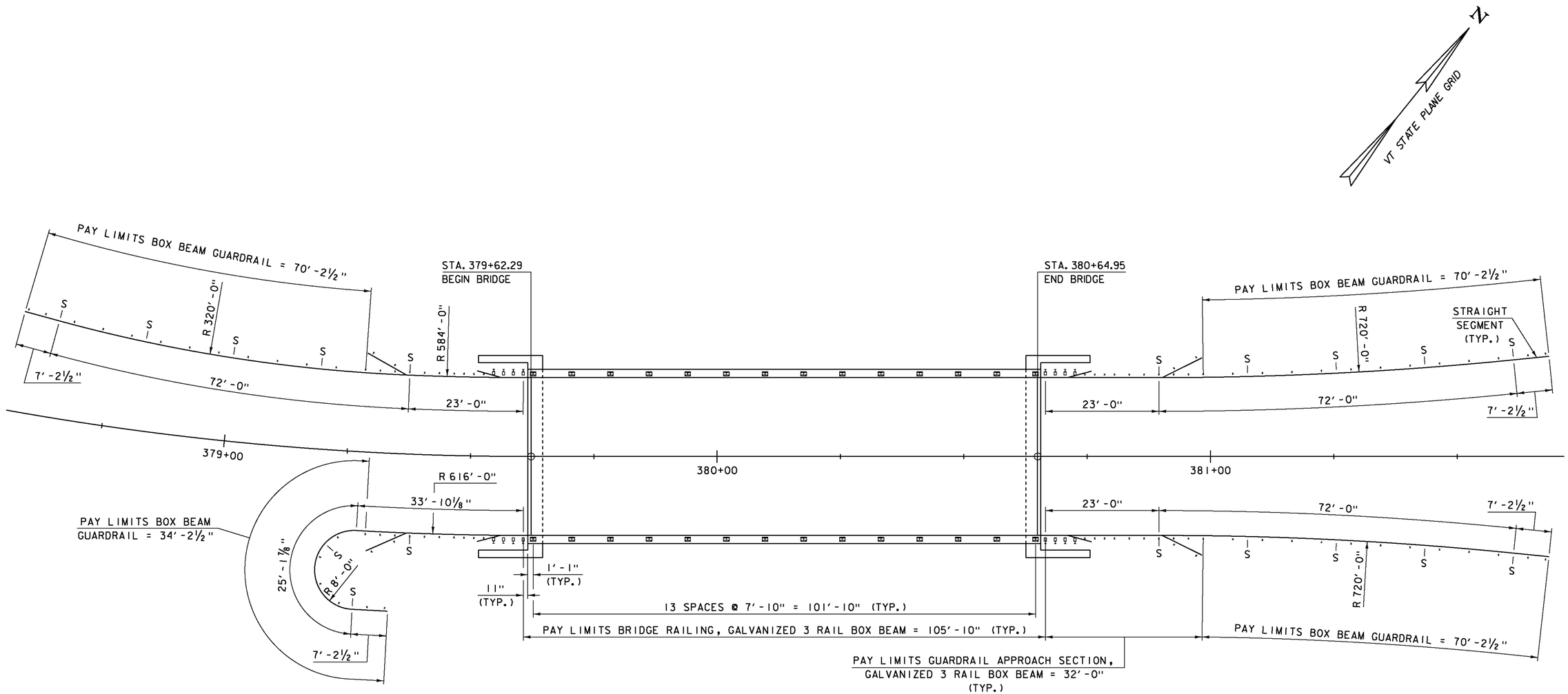
MILE MARKER, STATION OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS: EACH	SIGN DIMENSIONS: WIDTH (in)	SIGN DIMENSIONS: HEIGHT (in)	NEW & SALVAGED SIGNS: "A"	"B"	SALV SIGN	SALV TIS	EXIST POST: RETAIN	EXIST POST: SALVAGE	NEW SIGN POSTS: NO. OF POST	FLANGED CHANNEL (LB / FT) 1.12	FLANGED CHANNEL (LB / FT) 2.00	FLANGED CHANNEL (LB / FT) 3.00	SQUARE STEEL (in) 1.75 (LB / FT) 1.88	SQUARE STEEL (in) 2.00 (LB / FT) 2.42	SQUARE STEEL (in) 2.50 (LB / FT) 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (IN) 3.00 (LB / FT) 1.30	TUBULAR ALUMINUM Ø (IN) 4.00 (LB / FT) 1.70	TUBULAR ALUMINUM Ø (IN) 4.0 MOD (LB / FT) 1.70	FOUNDATION	TUBULAR STEEL Ø (IN) 3.00 (LB / FT) 7.60	TUBULAR STEEL Ø (IN) 3.50 (LB / FT) 9.00	TUBULAR STEEL Ø (IN) 4.00 (LB / FT) 10.80	TUBULAR STEEL Ø (IN) 5.00 (LB / FT) 14.60	W-SHAPE STEEL: FTG. SIZE 24"	W-SHAPE STEEL: FTG. SIZE 30"	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL: DETAIL ON SHEET NUMBER	SIGN DETAIL: STANDARD SHEET NUMBER
OPTION ITEMS																																			
STA. 379+47 LT	 0020 0311 0720	1	6.0	10.0	0.42						1.0		6.71′ X																				VD-700		E-138
STA. 379+50 RT	 BRIDGE 108 US 2	1	6.0	8.0	0.33						1.0		6.17′ X																				VD-701		E-134
STA. 380+78 LT	 BRIDGE 108 US 2	1	6.0	8.0	0.33						1.0		7.00′ X																				VD-701		E-134
STA. 382+90 RT	 R R	1	36 DIA.	N/A	7.07						2.0					X		X															MUTCD W10-1		
STA. 382+90 RT	 EXEMPT	1	24.0	12.0	2.00																												MUTCD W10-1a		
												FT .	FT 20 ~~30.~~	FT .	FT .	FT 29 ~~30.~~	FT .	XXXXX XXXXX XXXXX XXXXX	EA .	LB .	LB .	LB .		LB .	LB .	LB .	LB .								
		TOTALS			SF 10.15	SF .	EA. .	SF .	XXXXXXXXXXX	XXXXXXXXXXX	XXXXXXXXXXX		FT ~~30.~~ 20			FT ~~30.~~ 29					LB .		EA.		LB .			EA. .	EA. .	LB .					

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."

PROJECT NAME: **ST. JOHNSBURY**
PROJECT NUMBER: **BRF 028-4(25)S**

FILE NAME: **s98b320trf.dgn**
PROJECT MANAGER: **C. CARLSON**
DESIGNED BY: **H. SALLS**
TRAFFIC SIGN SUMMARY

PLOT DATE: 28-AUG-2012
DRAWN BY: **C. MOONEY**
CHECKED BY: **C. CARLSON**
SHEET 18 OF 62



S = SPLICE LOCATION
BOX BEAM GUARDRAIL

SEE STDS:
G-1B, S-364A, S-364B,
S-364C, S-364D
FOR DETAILS

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

PROJECT NAME: ST. JOHNSBURY	
PROJECT NUMBER: BRF 028-4(25)S	
FILE NAME: s98b320rail.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
GUARDRAIL LAYOUT	SHEET 19 OF 62

SOIL CLASSIFICATION

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

ROCK QUALITY DESIGNATION

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

SHEAR STRENGTH

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

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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

COMMONLY USED SYMBOLS

▼	Water Elevation
⊕	Standard Penetration Boring
⊕	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per Foot For: 2" O.D. Sampler 1 3/8" I.D. Sampler Hammer Weight Of 140 Lbs. Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1 1/8"
BX	Core Size 1 5/8"
NX	Core Size 2 1/8"
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Si	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	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	mltc	Multicolored
or	Orange		

DEFINITIONS (AASHTO)

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

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

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

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

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

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

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

VARVED - Alternate layers of silt and clay.

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

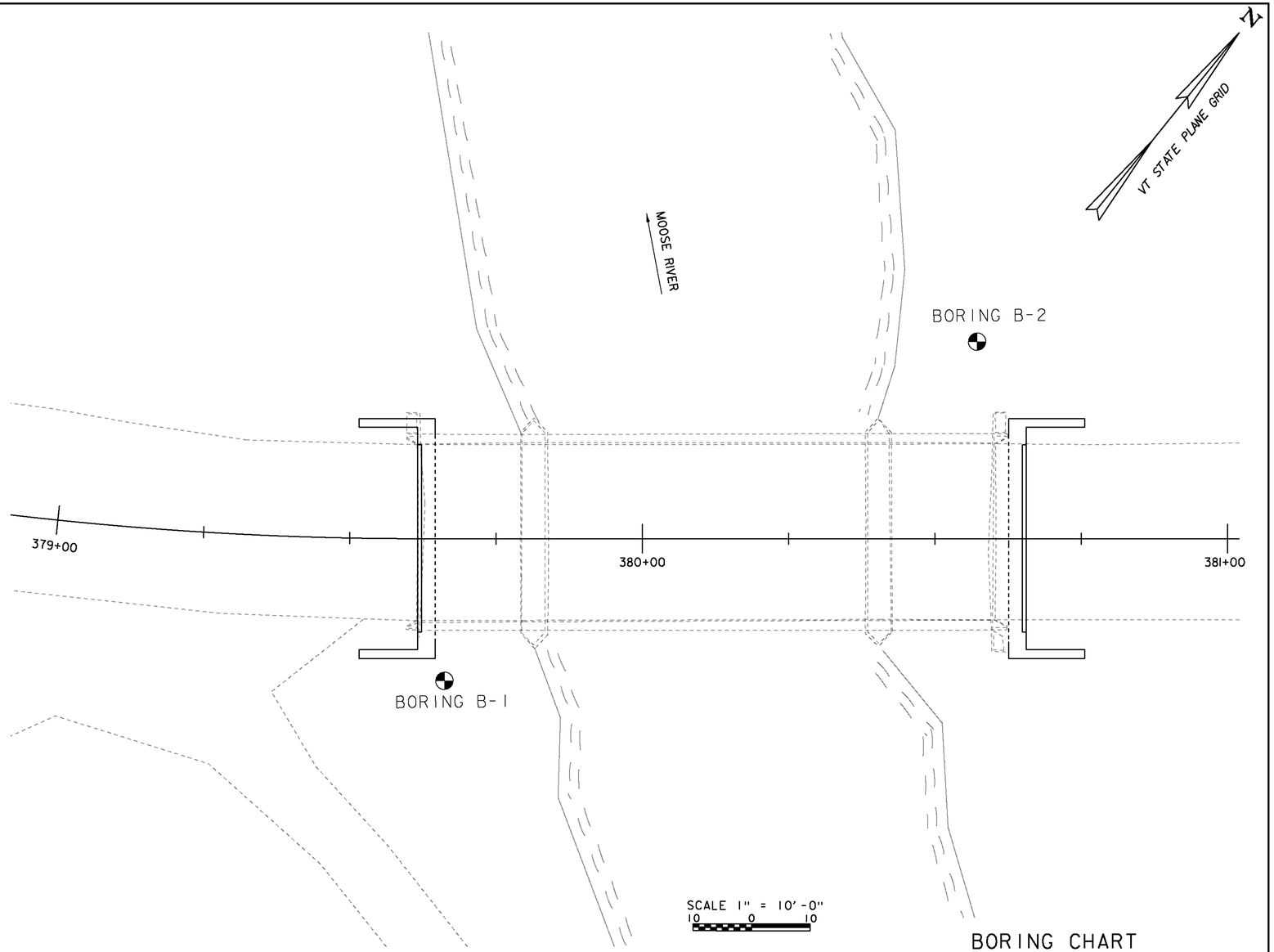
MUCK - Soft organic soil (containing > 10% organic material.

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

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

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

DIP - Inclination of bed with a horizontal plane.



GENERAL NOTES

1. The subsurface explorations shown herein were made between 10/13/05 and 11/02/05 by the Agency.

2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.

3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.

4. Engineering judgment was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.

5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.

6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

BORING CHART

HOLE NO.	ML STATION	OFFSET	GROUND ELEV.	ELEV. TLOB
B-1	379+66	25.00 RT	749.94	689.94
B-2	380+57	34.00 LT	744.19	693.19

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320bor.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
BORING LAYOUT

PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 20 OF 62

ML 379+66 RT 25'

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

BORING NUMBER: B-1
SHEET 1 of 1
DATE STARTED: 10/13/05
DATE COMPLETED: 10/25/05

PROJECT NAME: ST. JOHNSBURY
SITE NAME: US 2
STATION: 379+55 (OUT DATED STA.
OFFSET: 26.00 AND OFFSET)
VTSPG: N 704940.56 ft E 1783812.49 ft

PROJECT NUMBER: BHF 028-4(25)S
SITE NUMBER: BR 108
GROUND ELEVATION: 749.94 ft
GROUNDWATER DEPTH: 7.4 ft 10/25/05
PROJECT PIN NUMBER: 98B320

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: RUSSELL

BORING RIG: LARGE SKID RIG w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: DLG

ABUT. 1 BTM.
ELEV. 744.00

EST. 54'

EST. PILE TIP
ELEV. 690.00

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT RUN	M.C. (%) REC (%)	GRAVEL (%) ROD (%)	SAND (%) Dip (deg)	FINES (%) Drill Rate (min/ft)
		Fill material used for building drill rig foundation., brn, Moist, Rec. = 0.9 ft, 0.0 ft – 2.0 ft	4				
		Field Class:, Fill material used for building drill rig foundation., brn, Moist, Rec. = 1.0 ft	3				
		Field Class:, Boulder, No sample	12				
		Visual Class:, A-2-4, Gr Sa, brn, Moist, Rec. = 0.2 ft, Insufficient sample for testing	15	17.0	27.3	48.0	24.7
10		A-2-4, SiGrSa, brn, Moist, Rec. = 1.2 ft	R	14.4	22.7	57.9	19.4
		A-2-4, GrSa, gry, Moist, Rec. = 0.6 ft					
		Field Class:, Boulders and Cobbles					
		A-1-b, SaGr, gry, Moist, Rec. = 0.8 ft, Broken rock was within sample	R	10.4	48.6	37.6	13.8
		A-1-b, SiSaGr, gry, Moist, Rec. = 1.1 ft, Broken rock was within sample	R	9.2	46.4	33.2	20.4
20		A-1-b, SaGr, gry, Moist, Rec. = 1.4 ft, Broken rock was within sample	R	9.6	49.7	32.4	17.9
		A-1-b, GrSa, gry, Moist, Rec. = 0.5 ft, Broken rock was within sample	R	10.3	39.7	42.9	17.4
		A-2-4, SiSaGr, gry, Moist, Rec. = 1.4 ft, Broken rock was within sample	R	12.0	43.8	30.4	25.8
		A-4, SaGrSi, gry, Moist, Rec. = 1.6 ft, Broken rock was within sample	84	11.4	32.5	27.7	39.8
		A-4, GrSaSi, gry, Moist, Rec. = 1.9 ft, Broken rock was within sample	55	11.7	22.5	30.0	47.5
30		A-4, GrSaSi, gry, Moist, Rec. = 1.9 ft, Broken rock was within sample	59	11.2	25.0	29.8	45.2
		No Recovery, 32.0 ft – 34.0 ft	R				
		A-4, SaGrSi, gry, Moist, Rec. = 1.7 ft, Broken rock was within sample	R	10.5	31.4	30.2	38.4
		A-4, SaSi, gry, Moist, Rec. = 1.5 ft	R	14.4	17.4	36.8	45.8
		A-2-4, GrSiSa, gry, Moist, Rec. = 1.3 ft	R	13.8	29.2	36.3	34.5
40		Field Class:, Boulders, No recovery, Cored ahead					
		Field Class:, Boulders and Cobbles, No recovery, Cored ahead					
50		Field Class:, Boulders and Cobbles, No recovery, Cored ahead					
		Visual Class:, Possible saprolite material (weathered rock & silt), gry, Moist	R				
		Top of Bedrock @ 60.0 ft					
60		Gray, Phyllite, Numerous stained joint surfaces, Poor competency, Moderately hard, Moderately weathered, BXMDC, 60.0 ft – 61.0 ft, Rec. = 1.0 ft	1	100	0	80	12
			2	54	0	80	13
		Gray, Phyllite, Poor competency, Moderately hard, Moderately to severely weathered, BXMDC, 61.0 ft – 66.0 ft, Rec. = 2.7 ft	3	95	0	80	13 27 11
70		Gray, Phyllite, Poor competency, Core barrel plugged., Moderately hard, Slightly weathered, BXMDC, 66.0 ft – 69.7 ft, Rec. = 3.5 ft					10 8 18
		Hole stopped @ 69.7 ft					10

LOG OF BORING ST JOHNSBURY BHF028-4(25)S.GPJ VT_AGT.GDT 5/13/09

ML 380+57 LT 34'

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

BORING NUMBER: B-2
SHEET 1 of 1
DATE STARTED: 10/24/05
DATE COMPLETED: 11/02/05

PROJECT NAME: ST. JOHNSBURY
SITE NAME: US 2
STATION: 380+45 (OUT DATED STA.
OFFSET: -33.00 AND OFFSET)
VTSPG: N 705043.16 ft E 1783845.92 ft

PROJECT NUMBER: BHF 028-4(25)S
SITE NUMBER: BR 108
GROUND ELEVATION: 744.19 ft
GROUNDWATER DEPTH: 0.0 ft 11/03/05
PROJECT PIN NUMBER: 98B320

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: TALLMAN
LOGGER: PORTER

BORING RIG: LAG TRACK RIG w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: DLG

ABUT. 2 BTM.
ELEV. 746.00

EST. 53'

EST. PILE TIP
ELEV. 693.00

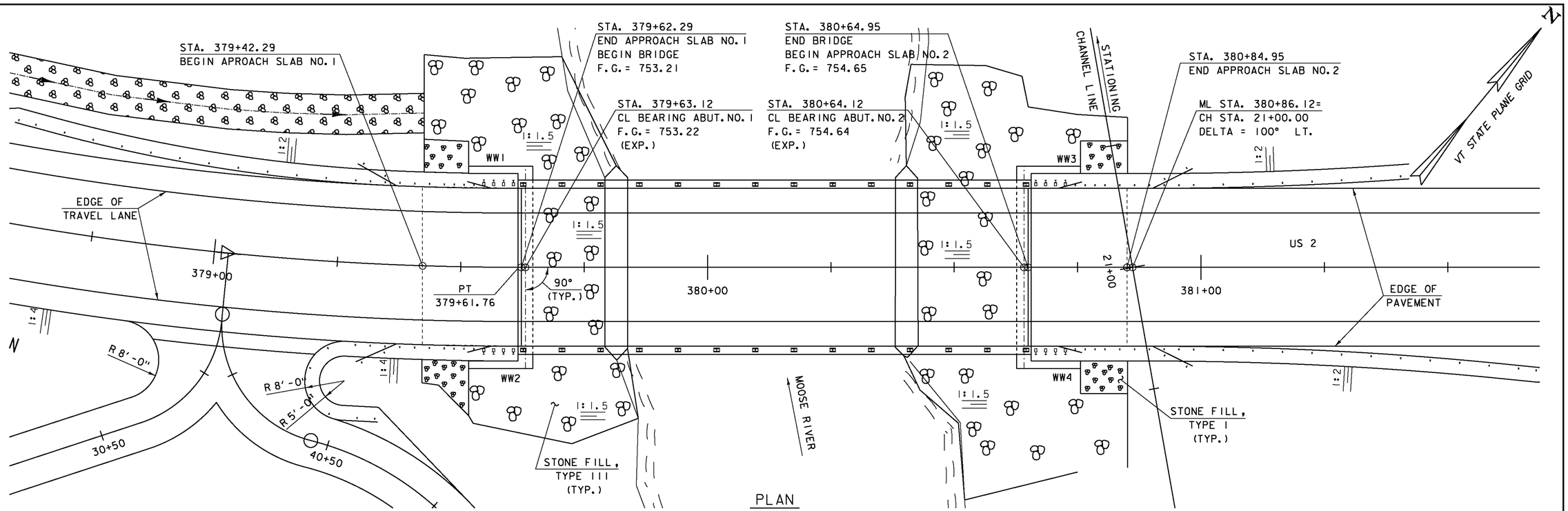
DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT RUN	M.C. (%) REC (%)	GRAVEL (%) ROD (%)	SAND (%) Dip (deg)	FINES (%) Drill Rate (min/ft)
		Field Class:, Granite Blocks, Cleaned out casing					
		Field Class:, Boulders & Cobbles, Cleaned out casing					
10		Visual Class:, A-2-4, Sl Sa Gr, gry, Wet, Rec. = 0.3 ft, Insufficient sample for testing.	20				
		A-4, SaGrSi, gry, Moist, Rec. = 1.4 ft	85	10.8	32.5	27.2	40.3
20		A-4, GrSaSi, gry, Moist, Rec. = 1.9 ft	66	11.0	23.4	30.0	46.6
		A-4, GrSaSi, gry, Moist, Rec. = 1.9 ft	89	11.2	20.9	32.3	46.8
30		A-4, GrSaSi, gry, Moist, Rec. = 0.5 ft	R	11.7	21.5	33.5	45.0
		A-4, GrSaSi, gry, Moist, Rec. = 0.7 ft	R	11.8	30.4	32.8	36.8
40		A-4, GrSaSi, gry, Moist, Rec. = 0.5 ft	R	11.8	32.4	32.4	35.2
		Field Class:, Cored ahead, No sample, Broke thru, Possible saprolite material (weathered rock & silt)	R				
50		Visual Class:, Possible saprolite material, gry, Moist, Rec. = 1.0 ft	R	Top of Bedrock @ 51.0 ft			
		Gray, Phyllite, Poor competency, Moderately hard, Moderately weathered, BXMDC, 51.0 ft – 54.0 ft, Rec. = 3.0 ft	1	100	0	50	8 8
		Gray, Phyllite, Poor competency, Moderately hard, Moderately weathered, BXMDC, 54.0 ft – 55.0 ft, Rec. = 0.9 ft	2	90	0	50	7
60		Gray, Phyllite, Competent, Moderately hard, Slightly weathered, BXMDC, 55.0 ft – 60.0 ft, Rec. = 4.5 ft	3	90	52	50	7 7 7
		Gray, Phyllite, Competent, Moderately hard, Slightly weathered, BXMDC, 60.0 ft – 61.0 ft, Rec. = 1.0 ft	4	100	90	50	8 7 8
		Hole stopped @ 61.0 ft					8
70							

LOG OF BORING ST JOHNSBURY BHF028-4(25)S.GPJ VT_AGT.GDT 5/13/09

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320bor.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
BORING LOGS

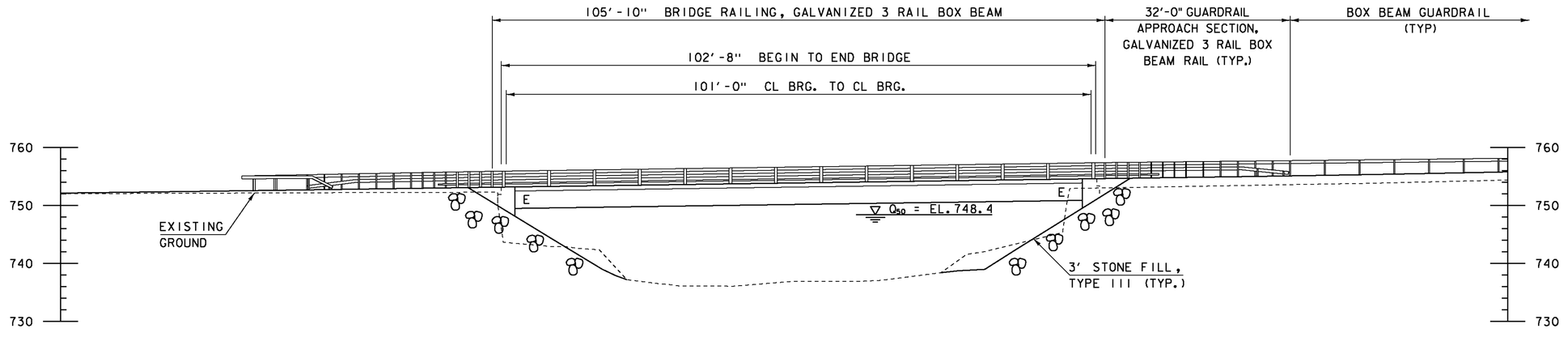
PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 21 OF 62



PLAN

SCALE 1" = 10'-0"

10 0 10

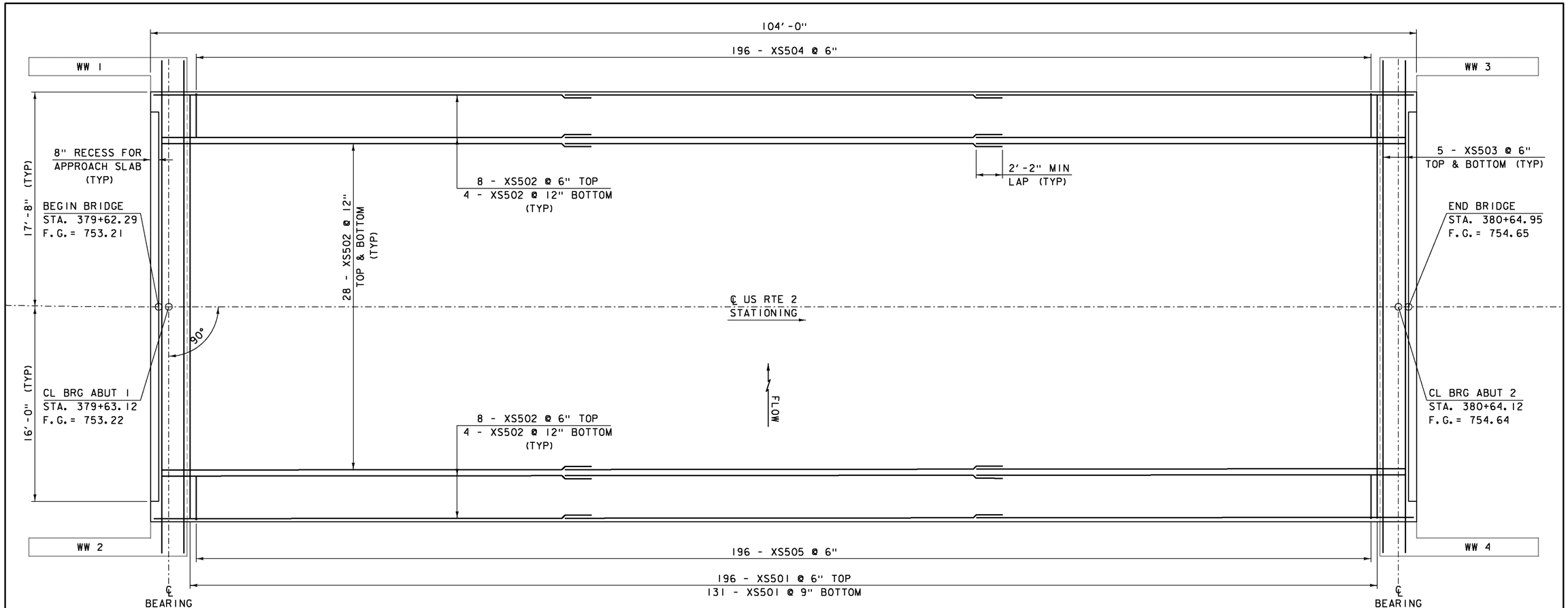


ELEVATION

SCALE 1" = 10'-0"

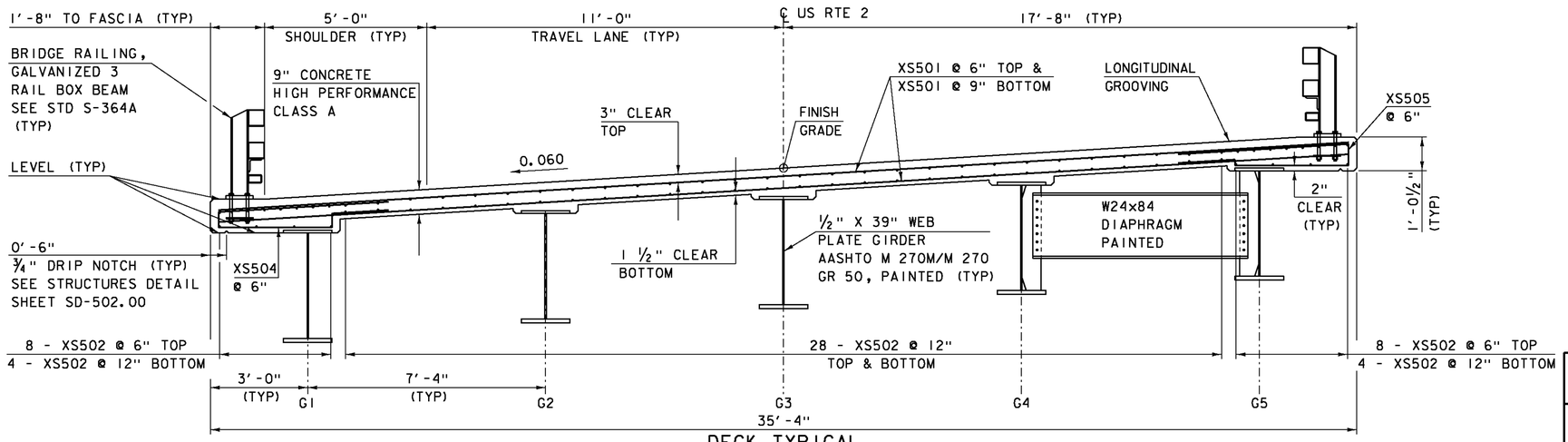
10 0 10

PROJECT NAME: ST. JOHNSBURY	
PROJECT NUMBER: BRF 028-4(25)S	
FILE NAME: s98b320pe.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
PLAN AND ELEVATION	SHEET 22 OF 62



DECK PLAN

SCALE 1/4" = 1'-0"



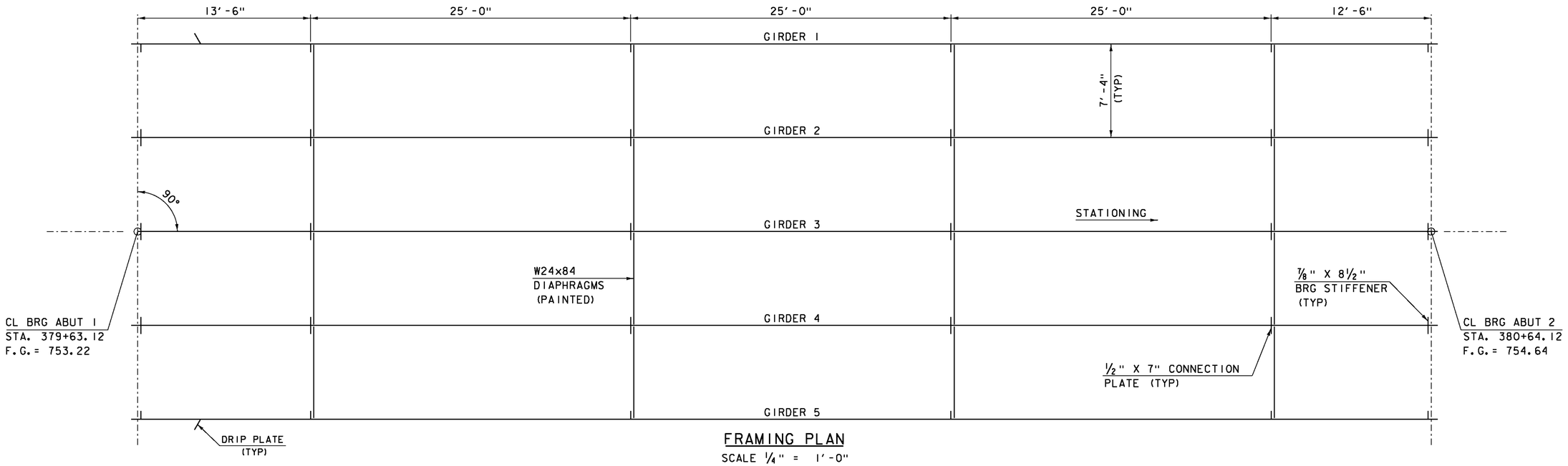
DECK TYPICAL

SCALE 1/2" = 1'-0"

NOTE:

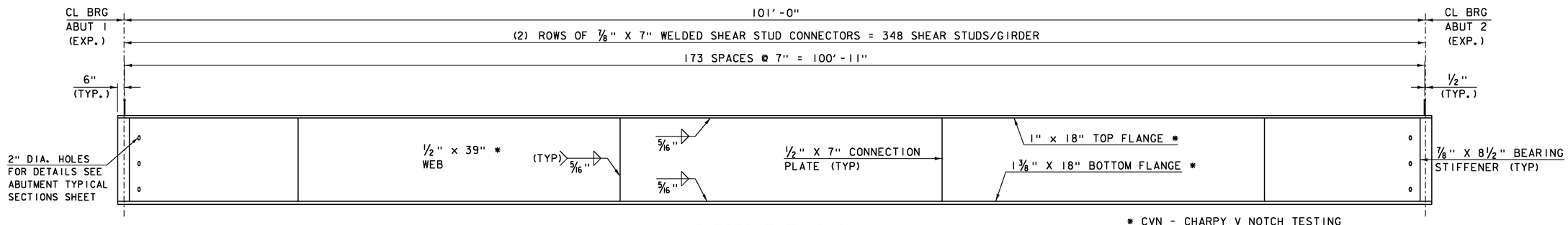
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: s98b320sup.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
DECK DETAILS	SHEET 23 OF 62



FRAMING PLAN

SCALE 1/4" = 1'-0"



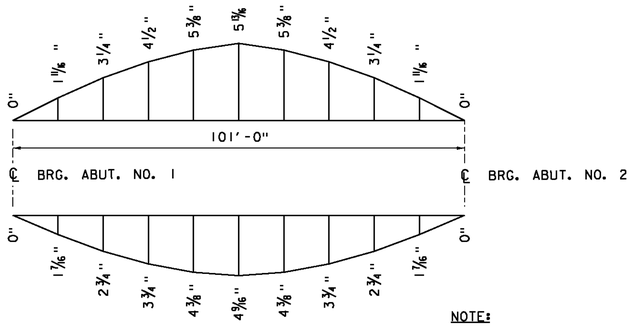
* CVN - CHARPY V NOTCH TESTING

GIRDER ELEVATION

HORIZONTAL SCALE 1/4" = 1'-0"
VERTICAL SCALE 1/2" = 1'-0"

CAMBER DIAGRAM

NOT TO SCALE



DEFLECTION DIAGRAM

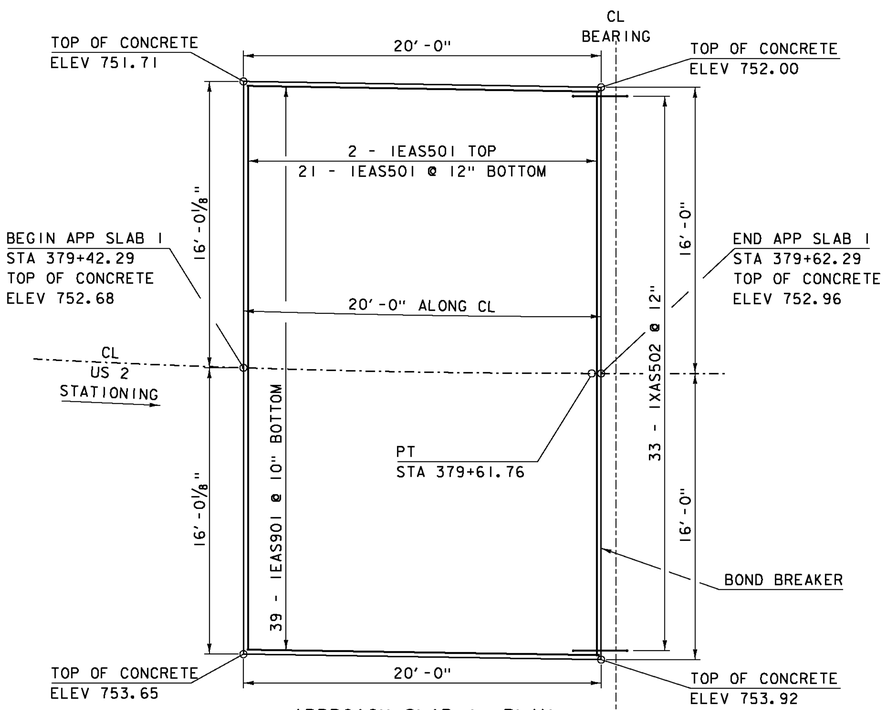
NOT TO SCALE

NOTE:
CAMBER AND DEFLECTION MEASUREMENTS ARE GIVEN IN INCHES AT TENTH POINTS. MEASUREMENTS INCLUDE GIRDER SELFWEIGHT.

NOTES:

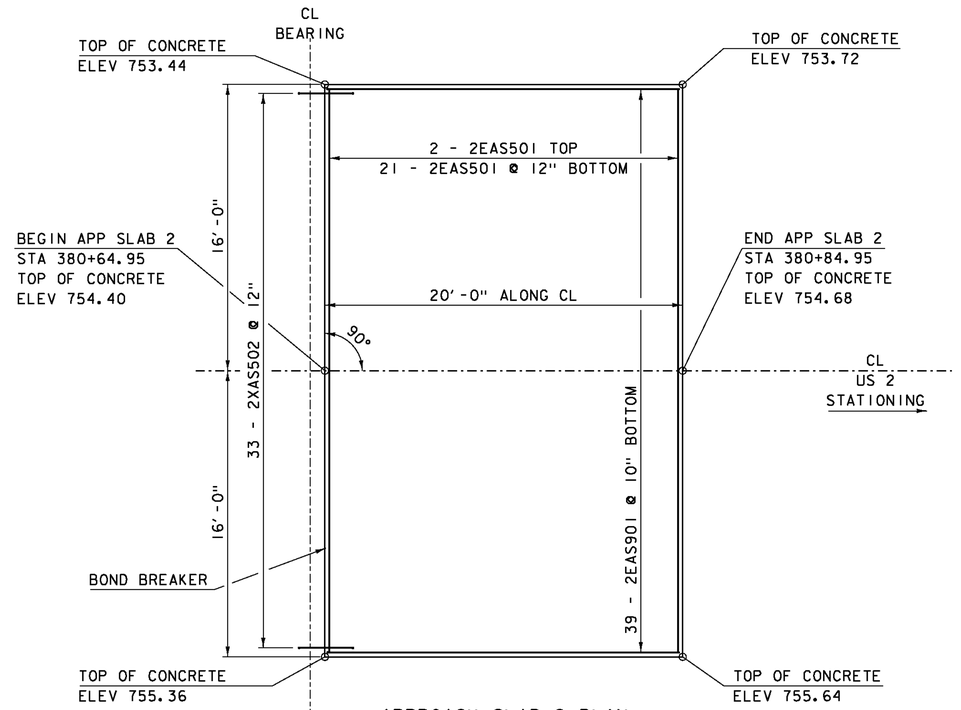
1. ALL STRUCTURAL STEEL SHALL BE AASHTO M 270M/ M 270 GRADE 50, PAINTED BROWN (COLOR CHIP #20059).
2. SEE STRUCTURE DETAIL SHEETS SD-601.00 AND SD-602.00 FOR ADDITIONAL DETAILING INFORMATION AND REQUIREMENTS.

PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: s98b320sup.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
FRAMING PLAN	SHEET 24 OF 62



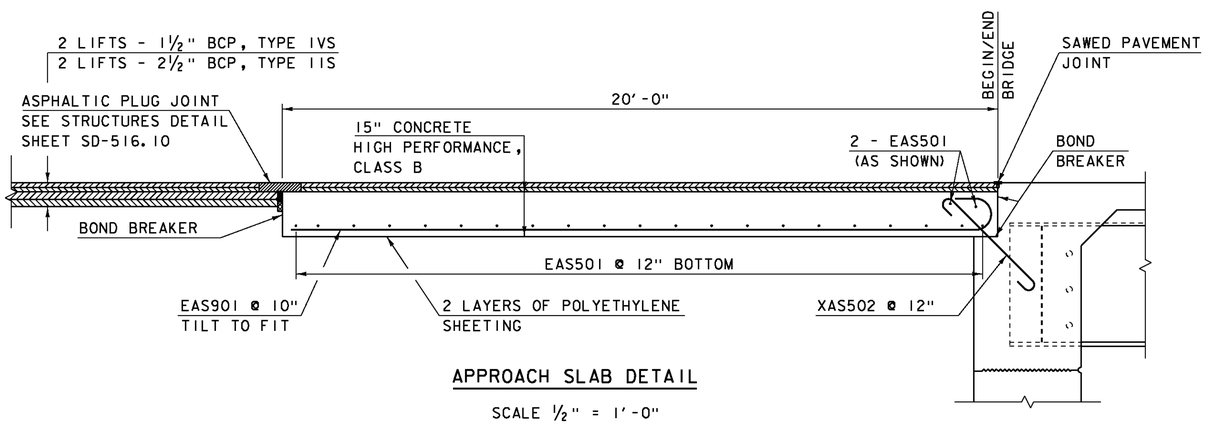
APPROACH SLAB 1 PLAN

SCALE 1/4" = 1'-0"



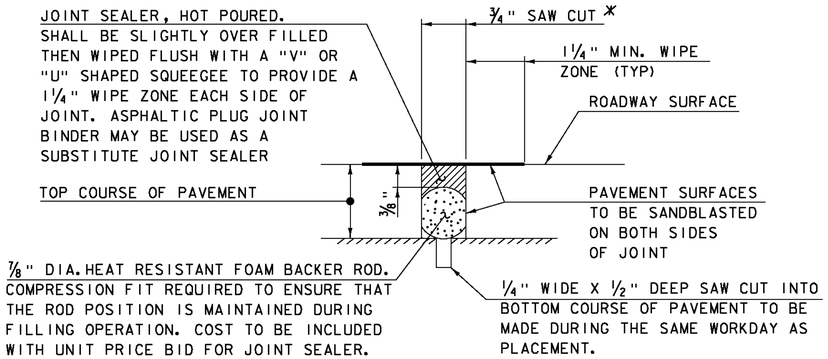
APPROACH SLAB 2 PLAN

SCALE 1/4" = 1'-0"



APPROACH SLAB DETAIL

SCALE 1/2" = 1'-0"



SAWED PAVEMENT JOINT DETAIL

(NOT TO SCALE)

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

NOTES:

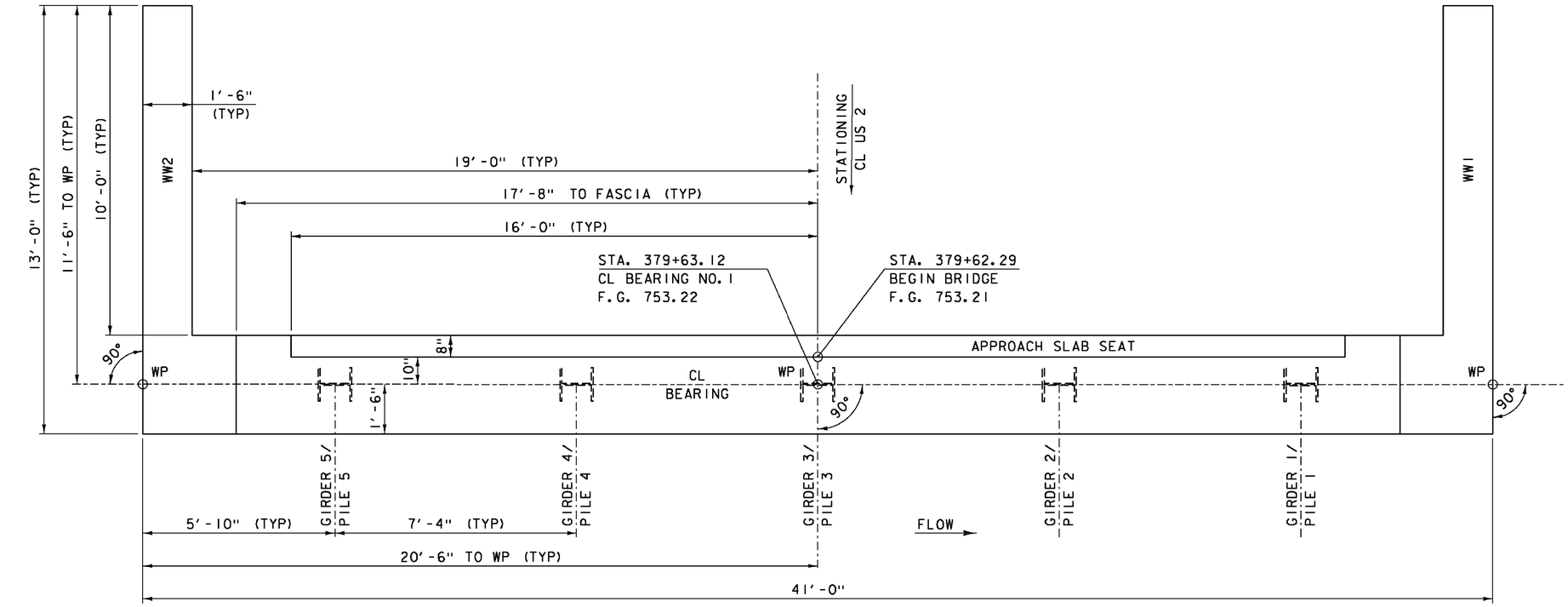
1. COMPACT THE SUBBASE IN THE AREA UNDER THE APPROACH SLAB TO A SMOOTH SURFACE.

2. MATERIAL FOR POLYETHYLENE SHEETING SHALL MEET THE REQUIREMENTS OF SUBSECTION 725.01(c) OF THE STANDARD SPECIFICATIONS. THE SHEETING THICKNESS SHALL BE 12 MIL. PLACE THE SHEETING ON TOP OF THE FINISHED SUBBASE FOR THE FULL LENGTH AND WIDTH OF THE APPROACH SLAB, EXCEPT IN THE BRACKET AREA AT THE ABUTMENT. LAP SHEETING AT LEAST 2'-0". PAYMENT FOR SHEETING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 501.34 "CONCRETE, HIGH PERFORMANCE CLASS B".

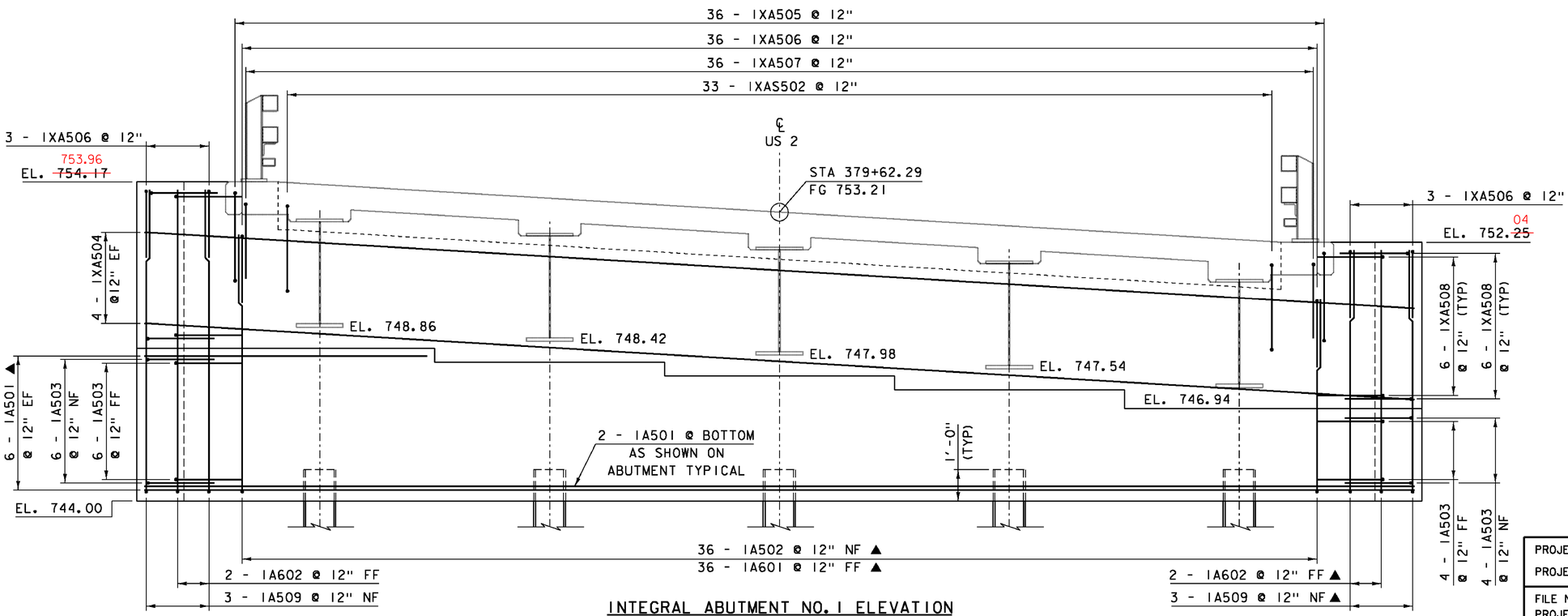
3. POUR APPROACH SLAB CONCRETE IN THE EARLY MORNING BEFORE THE SUPERSTRUCTURE EXPANDS.

4. PLACE HOOKED ENDS OF BOTTOM STEEL AT ABUTMENT END OF SLAB.

PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: s98b320sup.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
APPROACH SLABS	SHEET 25 OF 62



INTEGRAL ABUTMENT NO. 1 PLAN
SCALE 1/2" = 1'-0"



INTEGRAL ABUTMENT NO. 1 ELEVATION
SCALE 1/2" = 1'-0"

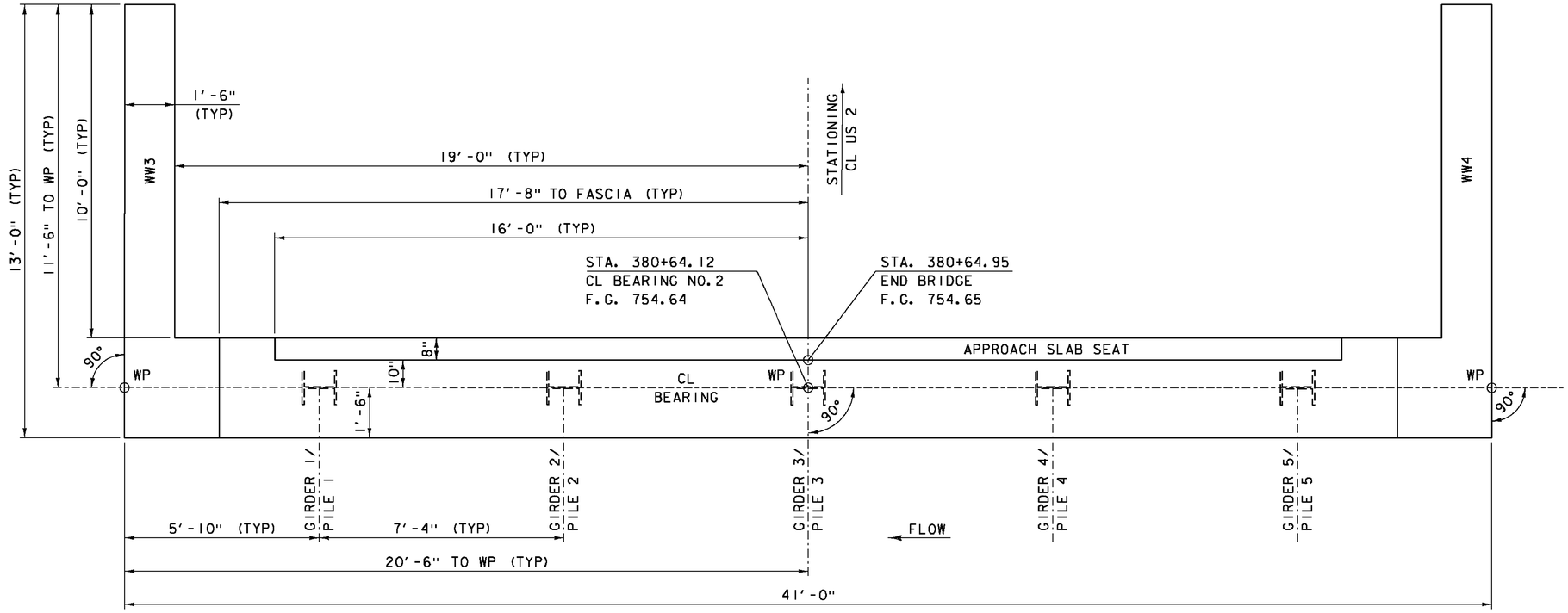
SEE STRUCTURES DETAIL SHEET SD-502.00 FOR BRIDGE PLAGUE DETAILS.

SEE ABUTMENT TYPICAL SECTIONS SHEET FOR ABUTMENT TYPICAL.

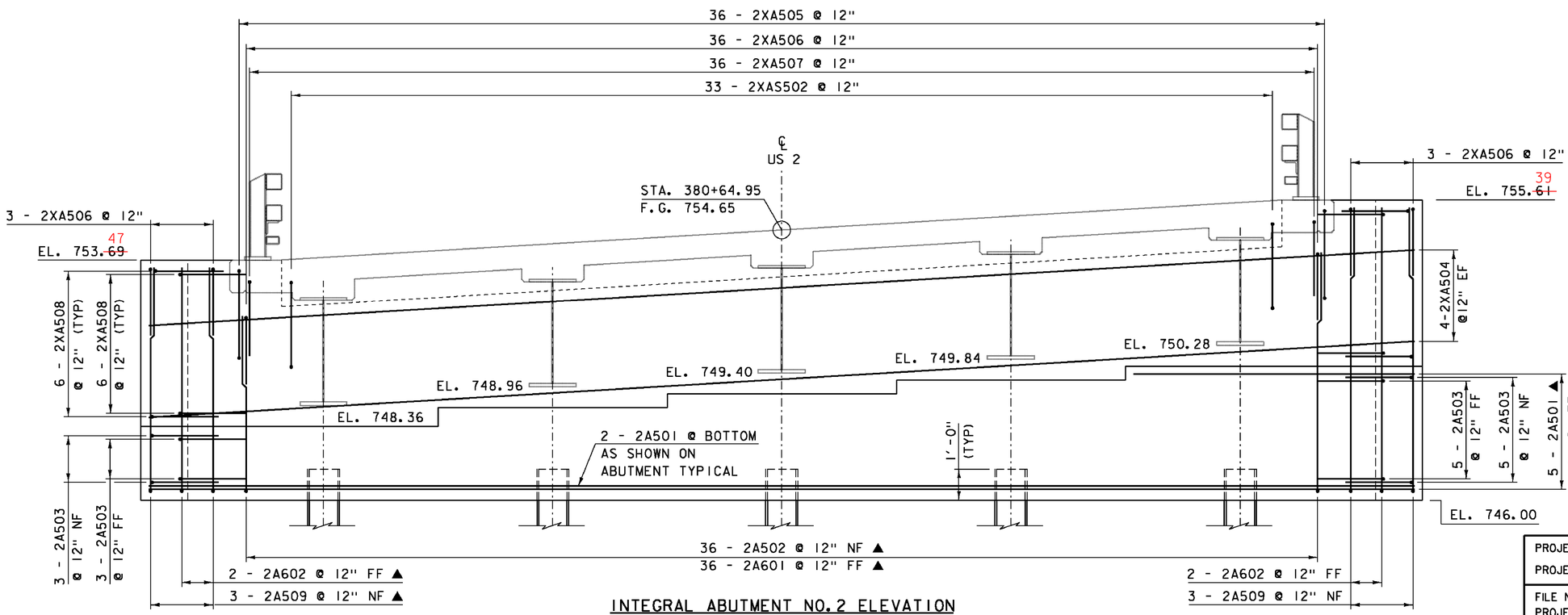
NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
ABUTMENT NO. 1 DETAILS
PLOT DATE: 28-AUG-2012
DRAWN BY: R. PELLETT
CHECKED BY: C. CARLSON
SHEET 26 OF 62



INTEGRAL ABUTMENT NO. 2 PLAN
SCALE ½" = 1'-0"



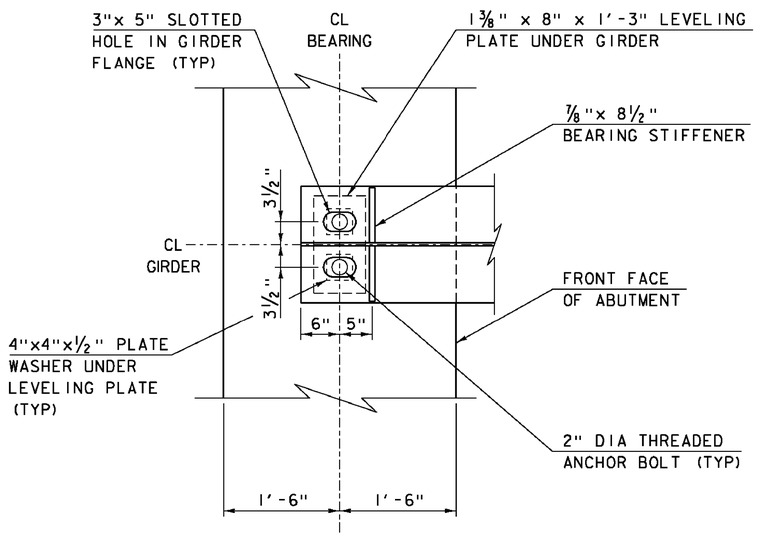
INTEGRAL ABUTMENT NO. 2 ELEVATION
SCALE ½" = 1'-0"

SEE ABUTMENT TYPICAL SECTIONS SHEET FOR ABUTMENT TYPICAL.

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.

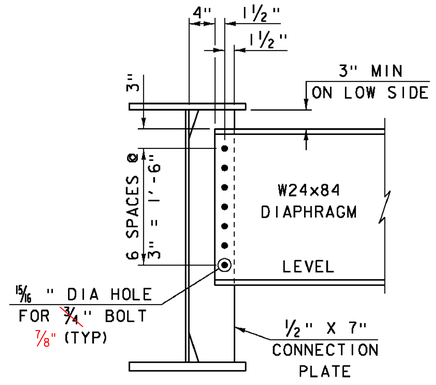
PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S

FILE NAME: s98b320sub.dgn		PLOT DATE:	28-AUG-2012
PROJECT LEADER:	C. CARLSON	DRAWN BY:	R. PELLETT
DESIGNED BY:	H. SALLS	CHECKED BY:	C. CARLSON
ABUTMENT NO. 2	DETAILS	SHEET	27 OF 62



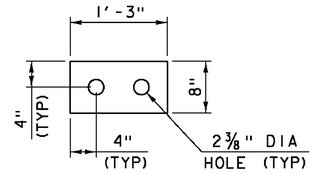
PLAN OF END GIRDER

SCALE 1"=1'-0"



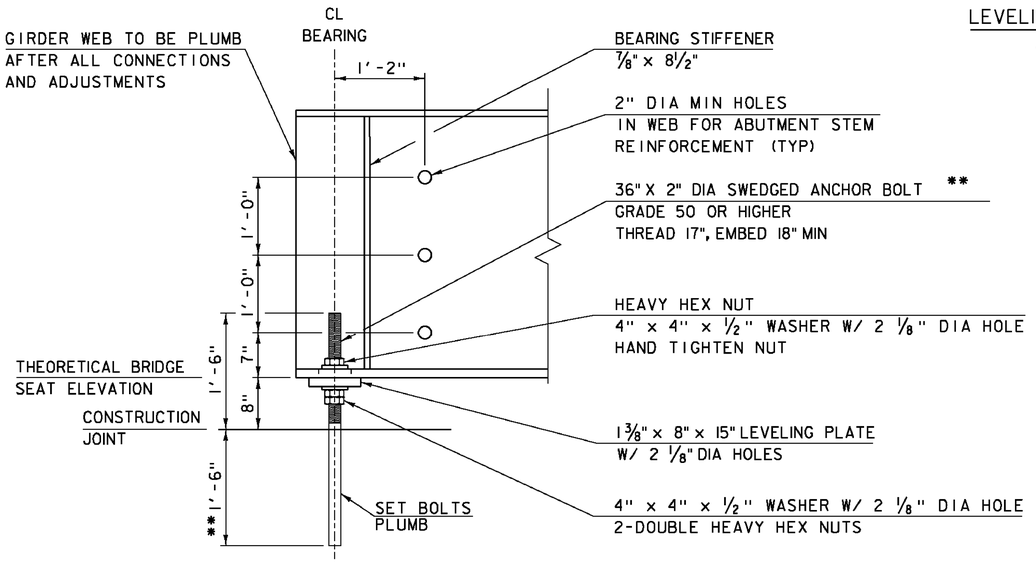
INTERMEDIATE DIAPHRAGM CONNECTION DETAIL

SEE STRUCTURES DETAIL SHEET SD-602.00 FOR ADDITIONAL INTERMEDIATE DIAPHRAGM DETAILS



LEVELING PLATE DETAIL

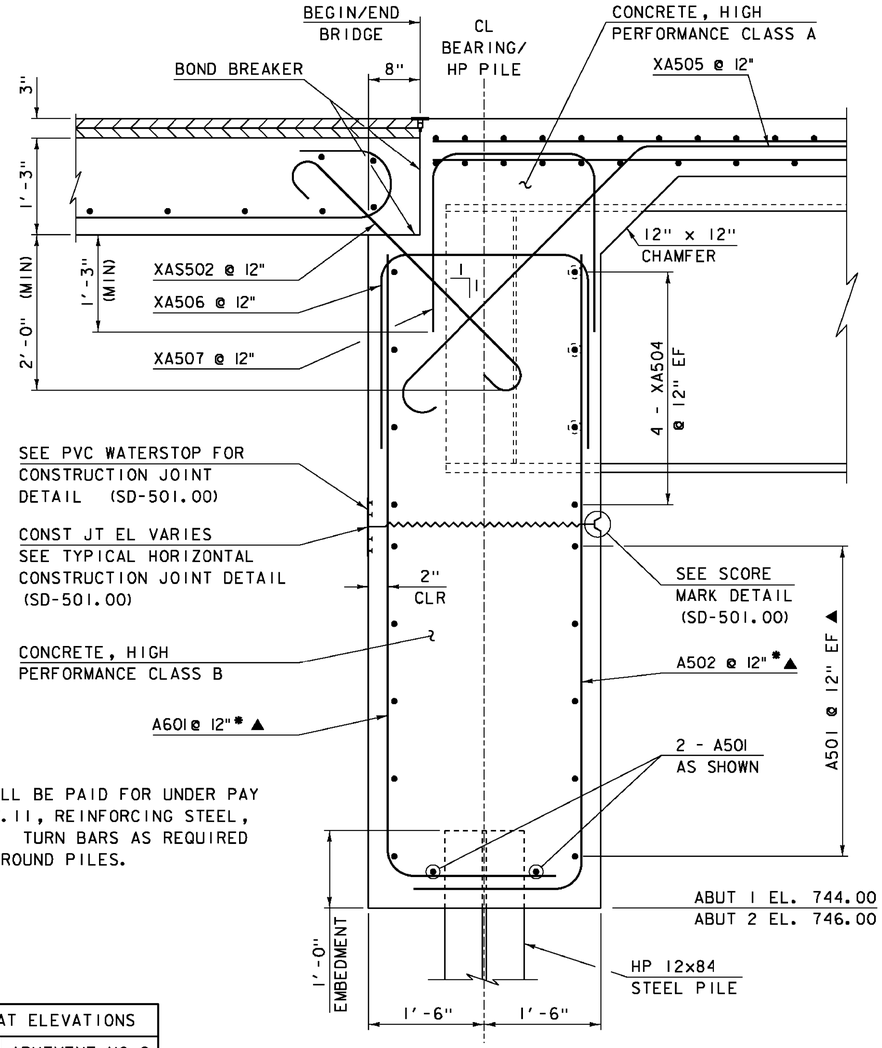
SCALE 1"=1'-0"



ELEVATION VIEW
END OF STEEL MEMBER AT ABUTMENT

SCALE 1"=1'-0"

**ANCHOR BOLTS FOR GIRDER 1 AT ABUTMENT 2 SHALL ONLY BE EMBEDDED 15" TO AVOID HITTING THE PILE.



ABUTMENT TYPICAL SECTION

SCALE 1"=1'-0"

*BARS SHALL BE PAID FOR UNDER PAY ITEM 507.11, REINFORCING STEEL, LEVEL 1. TURN BARS AS REQUIRED TO FIT AROUND PILES.

THEORETICAL BRIDGE SEAT ELEVATIONS		
GIRDER	ABUTMENT NO. 1	ABUTMENT NO. 2
1	747.61	749.03
2	748.21	749.63
3	748.65	750.07
4	749.09	750.51
5	749.53	750.95

BEARING ASSEMBLY NOTES:

1. ALL COMPONENTS OF BEARING ASSEMBLY, INCLUDING ANCHOR BOLTS, NUTS, WASHERS, AND LEVELING PLATES, SHALL BE PAID FOR UNDER ITEM 506.55 "STRUCTURAL STEEL, PLATE GIRDER".
2. ANCHOR BOLTS, NUTS, AND WASHERS SHALL CONFORM TO SUBSECTION 714.08.
3. COMPONENTS DO NOT HAVE TO BE GALVANIZED OR METALIZED.
4. SEE SUBSECTION 531.05(a) FOR INSTALLATION OF ANCHOR BOLTS.

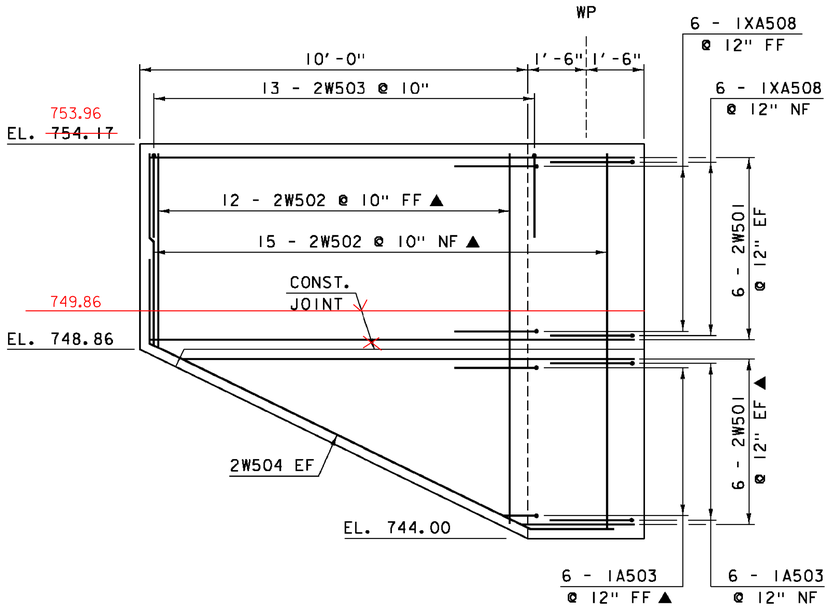
NOTE:

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.

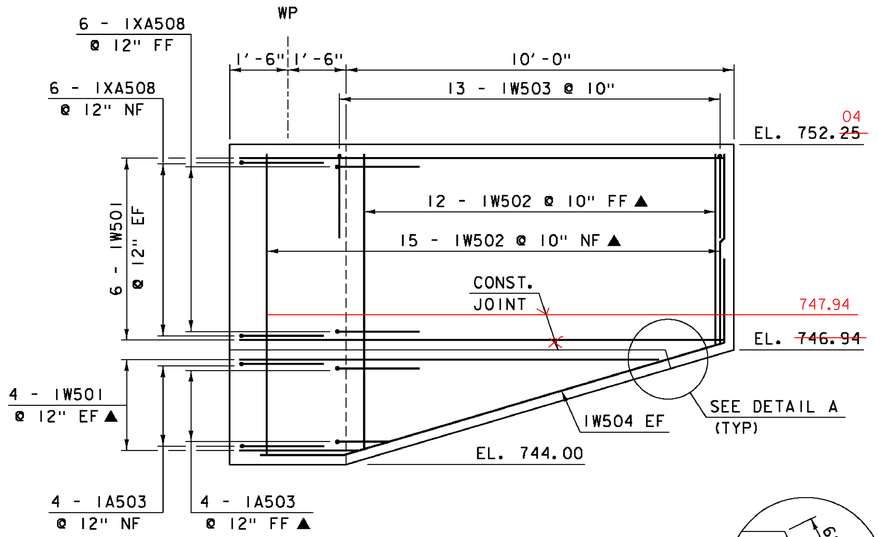
PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
ABUTMENT TYPICAL SECTIONS

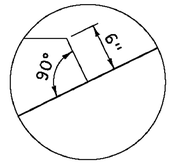
PLOT DATE: 28-AUG-2012
DRAWN BY: R. PELLETT
CHECKED BY: C. CARLSON
SHEET 28 OF 62



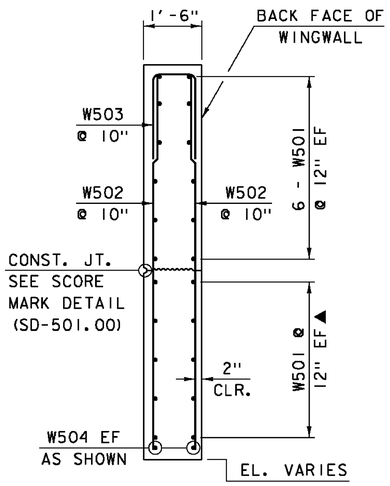
WINGWALL 2 ELEVATION
SCALE ½" = 1'-0"



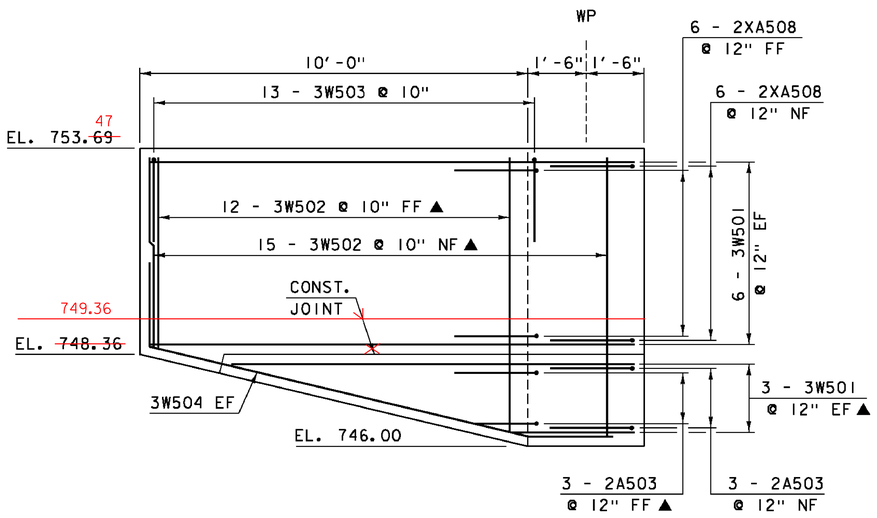
WINGWALL 1 ELEVATION
SCALE ½" = 1'-0"



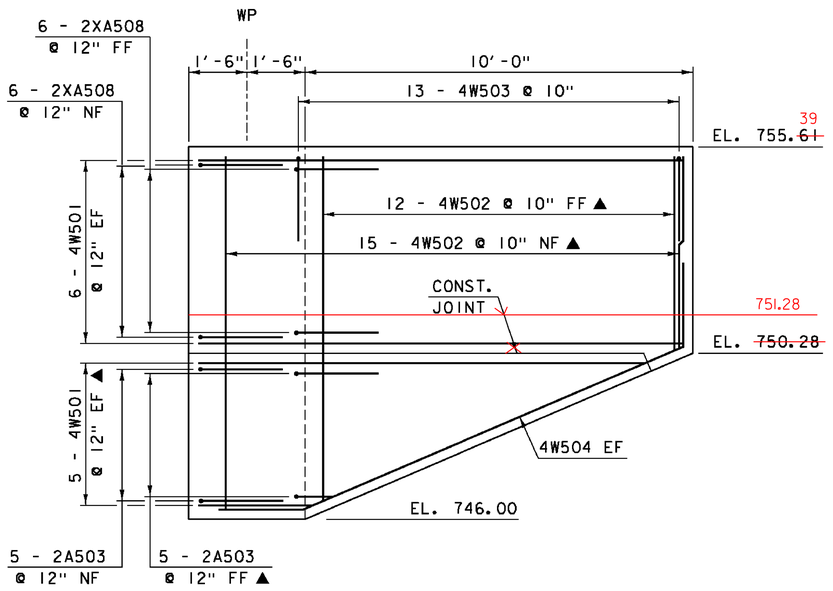
DETAIL A
NTS



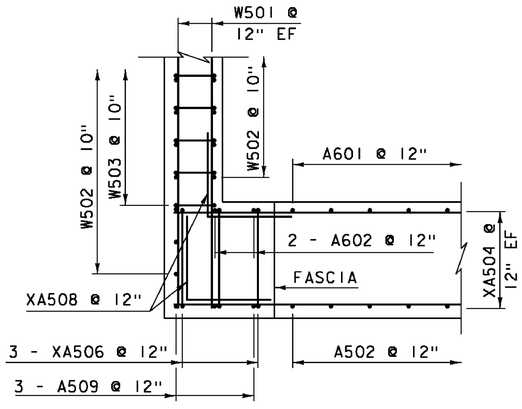
WINGWALL TYPICAL SECTION
SCALE ½" = 1'-0"



WINGWALL 3 ELEVATION
SCALE ½" = 1'-0"



WINGWALL 4 ELEVATION
SCALE ½" = 1'-0"



TYPICAL CORNER DETAIL
SCALE ½" = 1'-0"

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
WINGWALL DETAILS

PLOT DATE: 28-AUG-2012
DRAWN BY: R. PELLETT
CHECKED BY: C. CARLSON
SHEET 29 OF 62

STATE OF VERMONT
AGENCY OF TRANSPORTATION

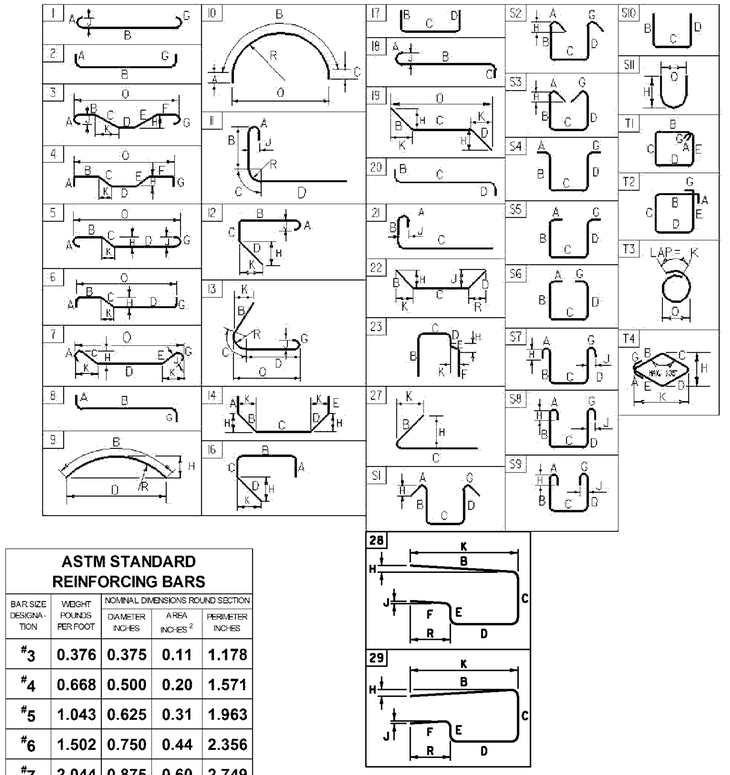
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
DECK																	
✳	328	5	34'- 10"	XS501	STR												
✳	241	5	36'- 0"	XS502	STR												
	20	5	40'- 6"	XS503	STR												
	196	5	11'- 5"	XS504	28		5'- 3"	0'- 6"	3'- 6"	0'- 5"	1'- 9"		0'- 4"	0'- 1"	5'- 3"	1'- 9"	
	196	5	11'- 4"	XS505	29		5'- 3"	0'- 8"	3'- 6"	0'- 2"	1'- 9"		0'- 4"	0'- 1"	5'- 3"	1'- 9"	
APPROACH SLAB 1																	
✳	24	5	31'- 6"	1EAS501	STR												
	33	5	5'- 2"	1XAS502	1	0'- 7"	4'- 0"					0'- 7"		0'- 5"			
✳	40	9	20'- 9"	1EAS901	1	1'- 3"	19'- 6"					---		1'- 0"			
ABUTMENT 1																	
✳ ▲	15	5	40'- 6"	1A501	STR												
▲	36	5	10'- 10"	1A502	17		2'- 7"	8'- 3"	---								
▲	20	5	4'- 4"	1A503	17		2'- 2"	2'- 2"	---								
▲	6	5	12'- 3"	1A509	17		2'- 7"	9'- 8"	---								
✳ ▲	37	6	10'- 10"	1A601	17		2'- 7"	8'- 3"	---								
✳ ▲	5	6	12'- 3"	1A602	17		2'- 7"	9'- 8"	---								
✳ ▲	9	5	40'- 6"	1XA504	STR												
	36	5	13'- 1"	1XA505	3	0'- 7"	4'- 6"	8'- 0"	---	---	---	---	1'- 6"	0'- 5"	1'- 6"		
	42	5	6'- 11"	1XA506	17		2'- 2"	2'- 7"	2'- 2"								
	36	5	6'- 9"	1XA507	17		2'- 5"	1'- 11"	2'- 5"								
	24	5	4'- 4"	1XA508	17		2'- 2"	2'- 2"	---								
WINGWALL 1																	
▲	20	5	12'- 6"	1W501	STR												
✳ ▲	28	5	7'- 9"	1W502	STR												
	13	5	5'- 5"	1W503	S10		2'- 2"	1'- 1"	2'- 2"								
	2	5	14'- 6"	1W504	22		2'- 2"	10'- 2"	2'- 2"				0'- 7"	2'- 1"	2'- 1"	0'- 7"	
WINGWALL 2																	
▲	24	5	12'- 6"	2W501	STR												
▲	27	5	9'- 8"	2W502	STR												
	13	5	5'- 5"	2W503	S10		2'- 2"	1'- 1"	2'- 2"								
	2	5	15'- 3"	2W504	22		2'- 2"	10'- 11"	2'- 2"				0'- 11"	1'- 11"	1'- 11"	0'- 11"	
APPROACH SLAB 2																	
✳	24	5	31'- 6"	2EAS501	STR												
	33	5	5'- 2"	2XAS502	1	0'- 7"	4'- 0"					0'- 7"		0'- 5"			
✳	40	9	20'- 9"	2EAS901	1	1'- 3"	19'- 6"					---		1'- 0"			
ABUTMENT 2																	
✳ ▲	13	5	40'- 6"	2A501	STR												
▲	36	5	10'- 3"	2A502	17		2'- 7"	7'- 8"	---								
▲	16	5	4'- 4"	2A503	17		2'- 2"	2'- 2"	---								
▲	6	5	11'- 8"	2A509	17		2'- 7"	9'- 1"	---								
✳ ▲	37	6	10'- 3"	2A601	17		2'- 7"	7'- 8"	---								
✳ ▲	5	6	11'- 8"	2A602	17		2'- 7"	9'- 1"	---								
✳ ▲	9	5	40'- 6"	2XA504	STR												
	36	5	13'- 1"	2XA505	3	0'- 7"	4'- 6"	8'- 0"	---	---	---	---	1'- 6"	0'- 5"	1'- 6"		
	42	5	6'- 11"	2XA506	17		2'- 2"	2'- 7"	2'- 2"								
	36	5	6'- 9"	2XA507	17		2'- 5"	1'- 11"	2'- 5"								
	24	5	4'- 4"	2XA508	17		2'- 2"	2'- 2"	---								
WINGWALL 3																	
▲	18	5	12'- 6"	3W501	STR												
✳ ▲	28	5	7'- 2"	3W502	STR												
	13	5	5'- 5"	3W503	S10		2'- 2"	1'- 1"	2'- 2"								
	2	5	15'- 3"	3W504	22		2'- 2"	10'- 11"	2'- 2"				0'- 6"	2'- 1"	2'- 1"	0'- 6"	

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
WINGWALL 4																	
▲	22	5	12'- 6"	4W501	STR												
▲	27	5	9'- 1"	4W502	STR												
	13	5	5'- 5"	4W503	S10		2'- 2"	1'- 1"	2'- 2"								
	2	5	15'- 3"	4W504	22		2'- 2"	10'- 11"	2'- 2"				0'- 10"	2'- 0"	2'- 0"	0'- 10"	

~ NOTES ~

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



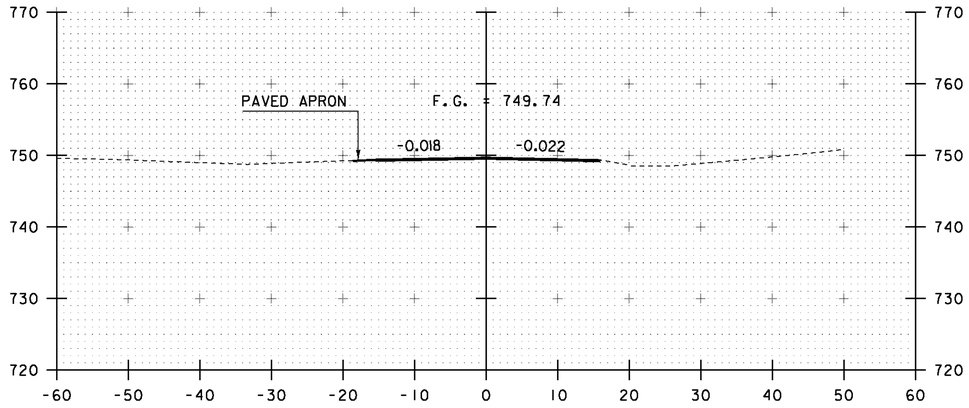
ASTM STANDARD REINFORCING BARS

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

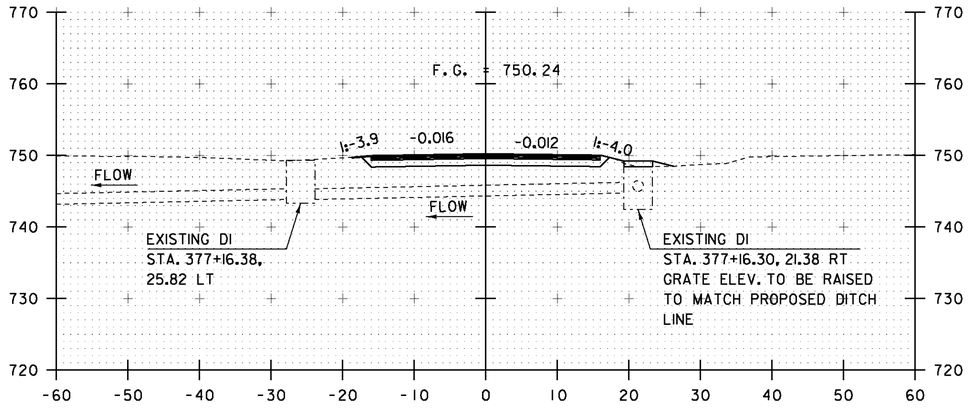
PROJECT NAME: **ST. JOHNSBURY**
PROJECT NUMBER: **BRF 028-4(25)S**

FILE NAME: **s98b320rss.xls**
PROJECT MANAGER: **C. CARLSON**
DESIGNED BY: **H. SALLS**
REINFORCING STEEL SCHEDULE

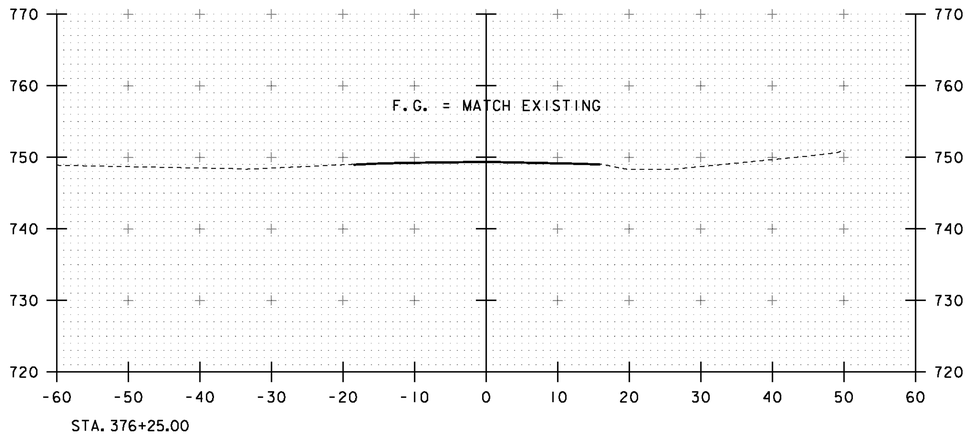
PLOT DATE: **8/27/2012**
DRAWN BY: **R. PELLETT**
CHECKED BY: **C. CARLSON**
SHEET **30** OF **62**



376+50



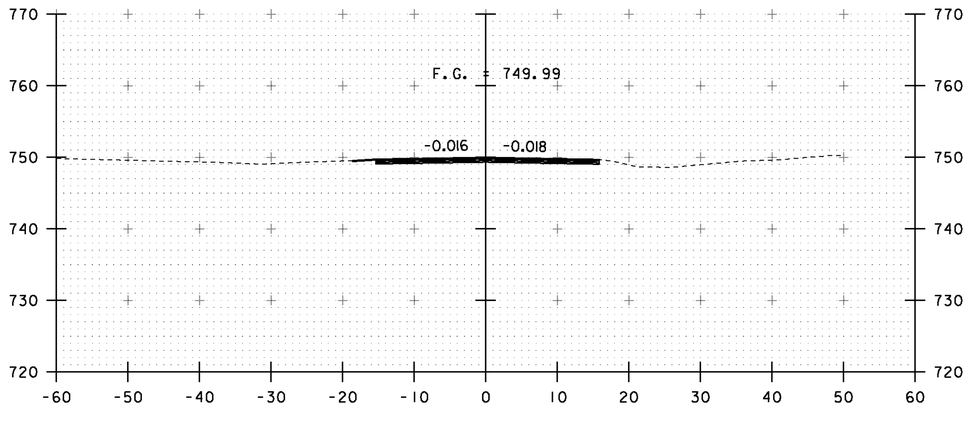
377+00



STA. 376+25.00
BEGIN APPROACH

STA. 376+25 TO STA. 377+18 LT
CONSTRUCT 3'-0" PAVED APRON

376+25



376+75

10 0 10

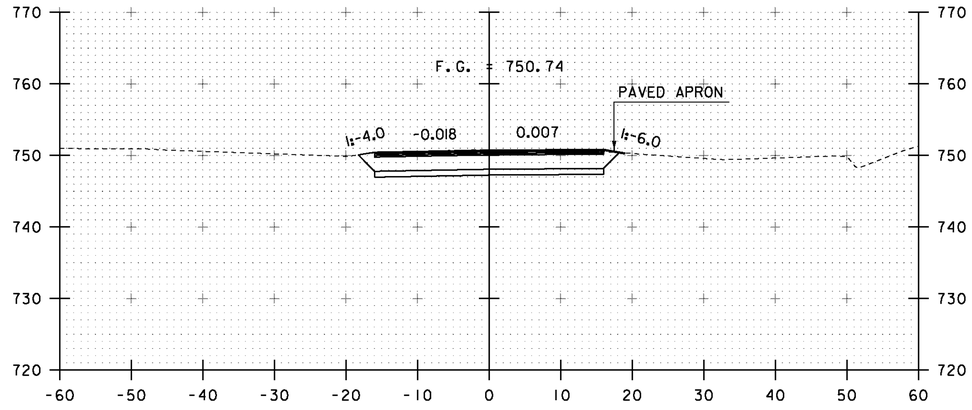
SCALE: 1" = 10'-0"

STA. 376+25 TO STA. 377+00

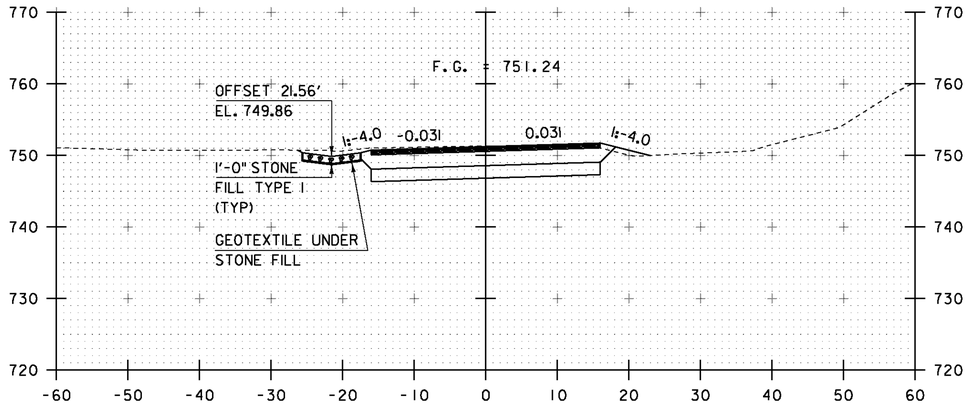
PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
ROADWAY CROSS SECTIONS 1

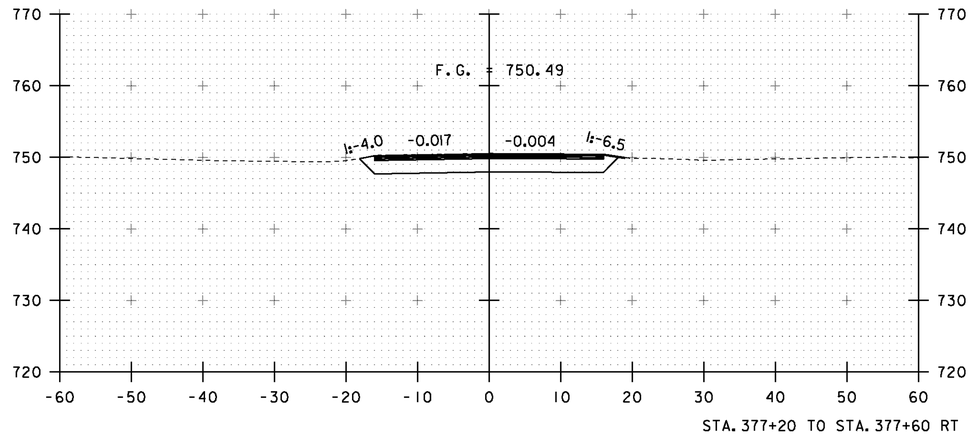
PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 31 OF 62



377+50

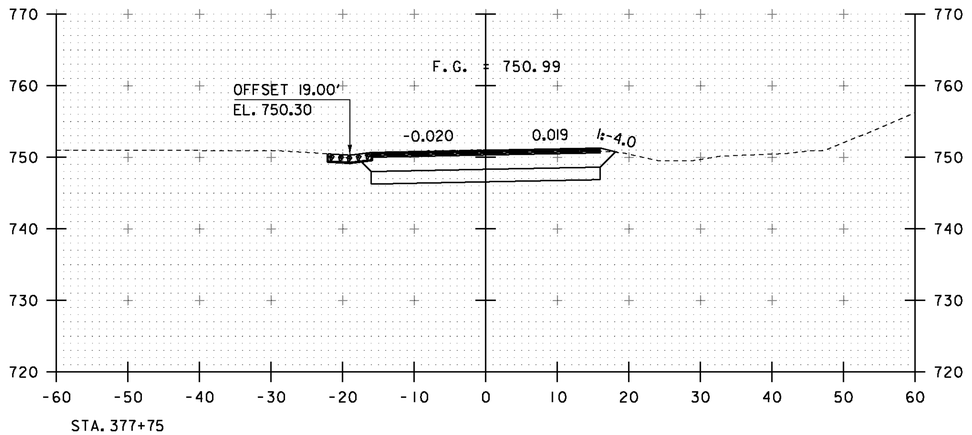


378+00



377+25

STA. 377+20 TO STA. 377+60 RT
CONSTRUCT 3'-0" PAVED APRON



377+75

STA. 377+75
END APPROACH
BEGIN PROJECT

STA. 377+75 TO STA. 379+42 LT
CONSTRUCT STONE-LINED DITCH, TYPE I

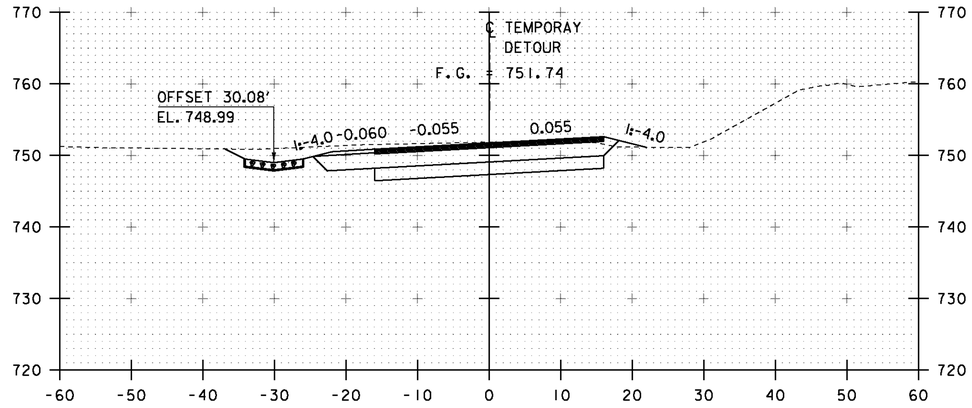
10 0 10
SCALE: 1" = 10'-0"

STA. 377+25 TO STA. 378+00

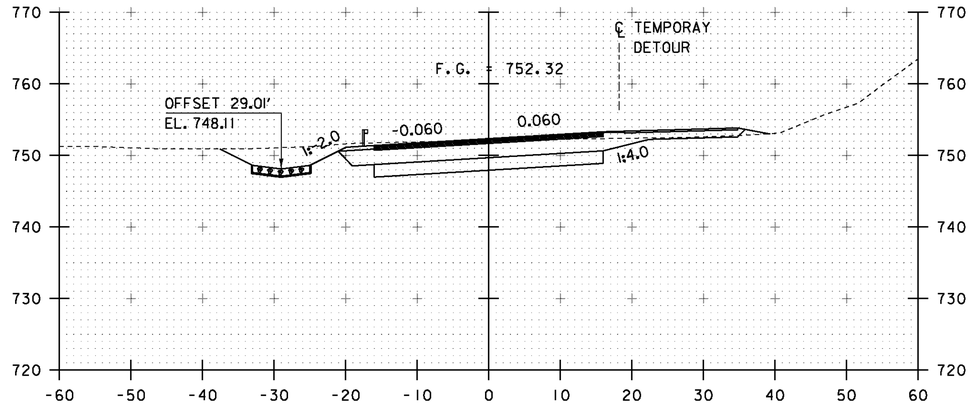
PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
ROADWAY CROSS SECTIONS 2

PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 32 OF 62

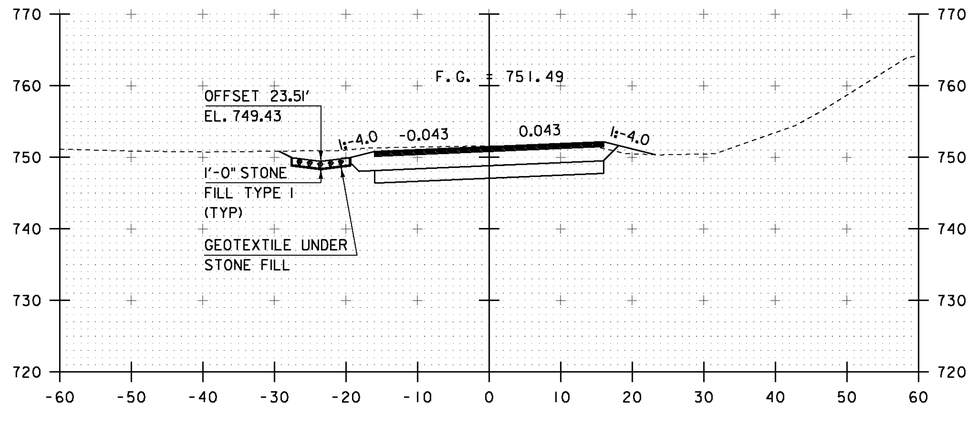


378+50

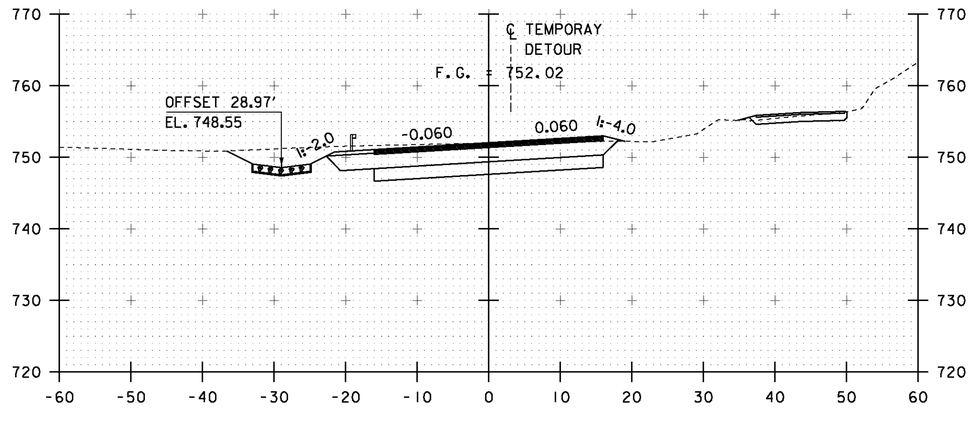


379+00

STA. 378+88 TO 379+20 RT
CONSTRUCT 3'-0" PAVED APRON



378+25



378+75

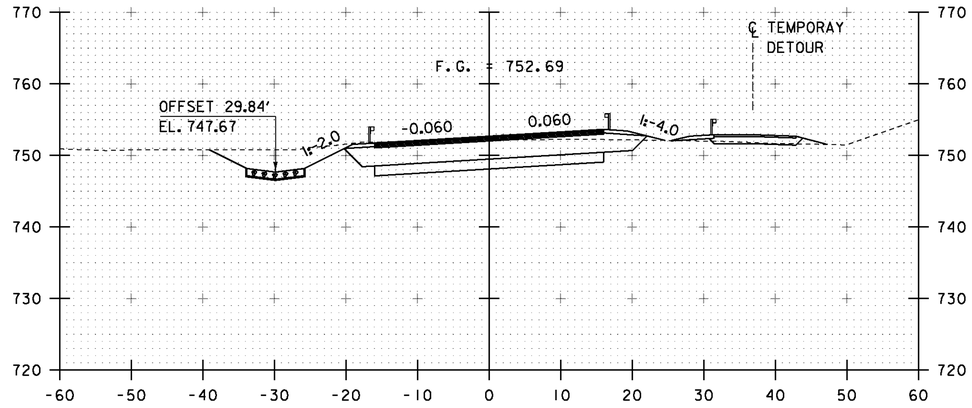
10 0 10
SCALE: 1" = 10'-0"

STA. 378+25 TO STA. 379+00

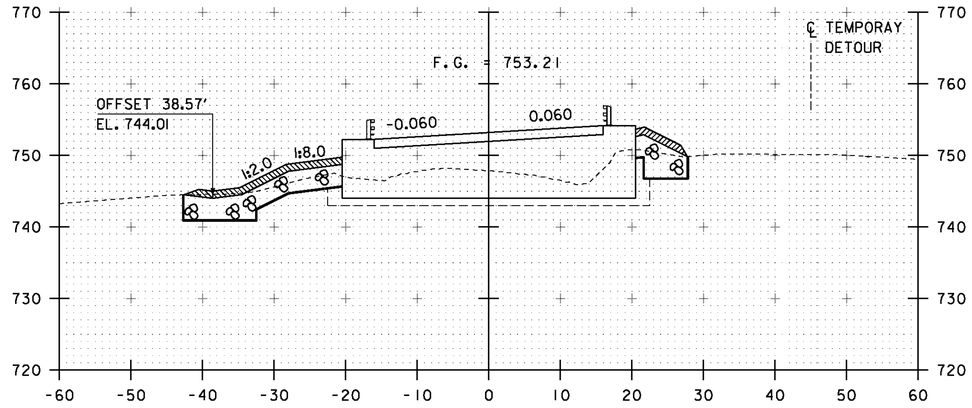
PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
ROADWAY CROSS SECTIONS 3

PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 33 OF 62

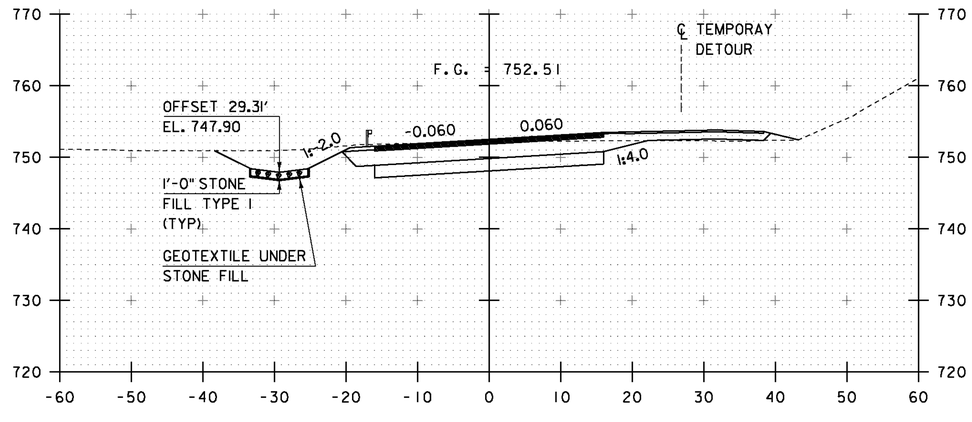


379+25

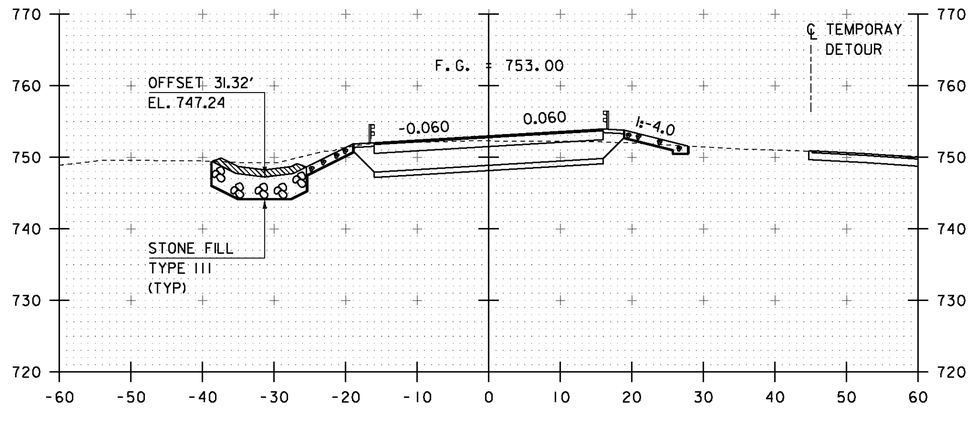


STA. 379+62.29
BEGIN BRIDGE

379+62



379+12

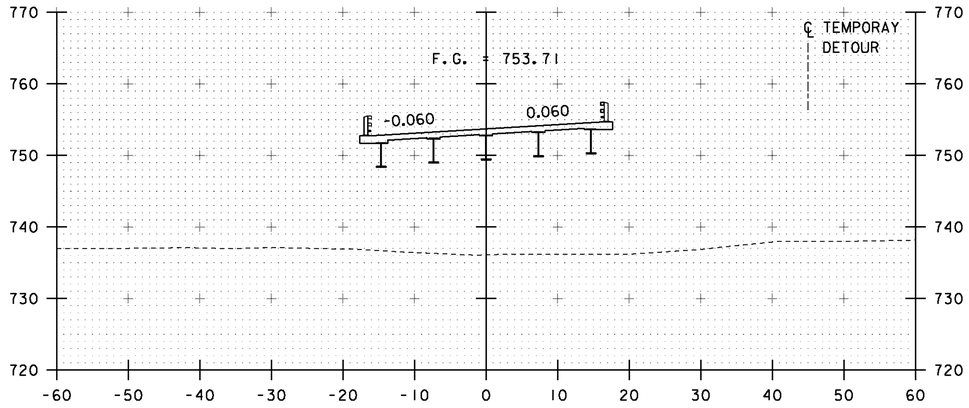


379+50

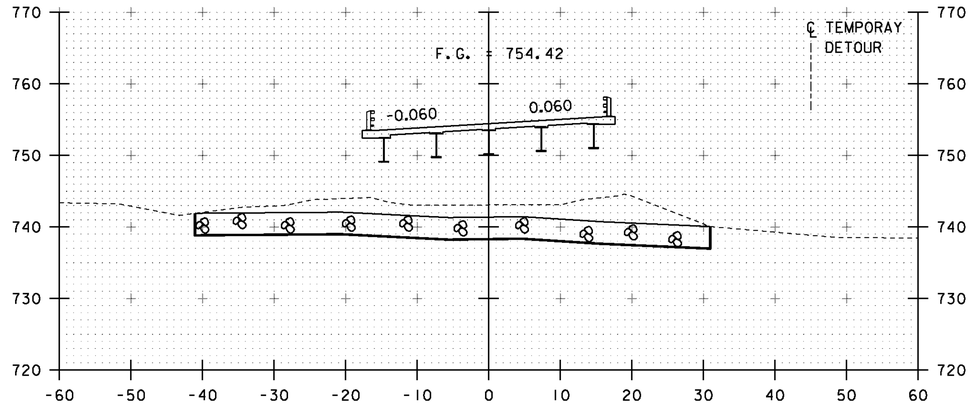
10 0 10
SCALE: 1" = 10'-0"

STA. 379+12 TO STA. 379+62

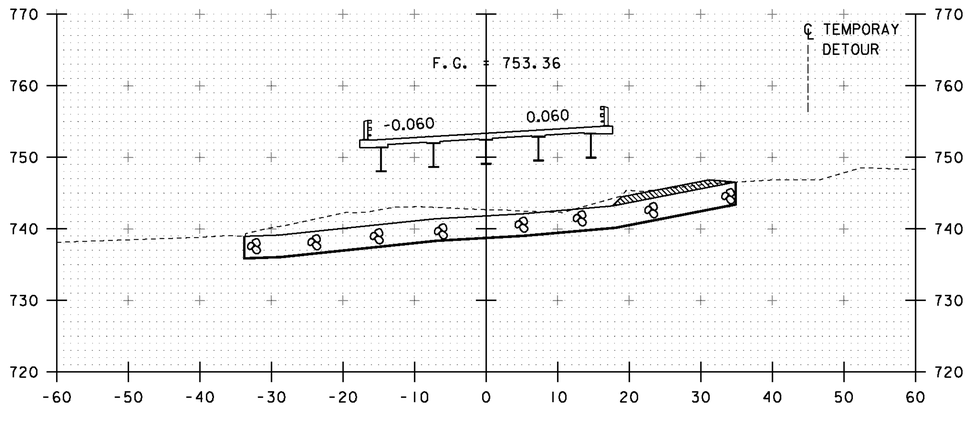
PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: s98b320xsl.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
ROADWAY CROSS SECTIONS 4	SHEET 34 OF 62



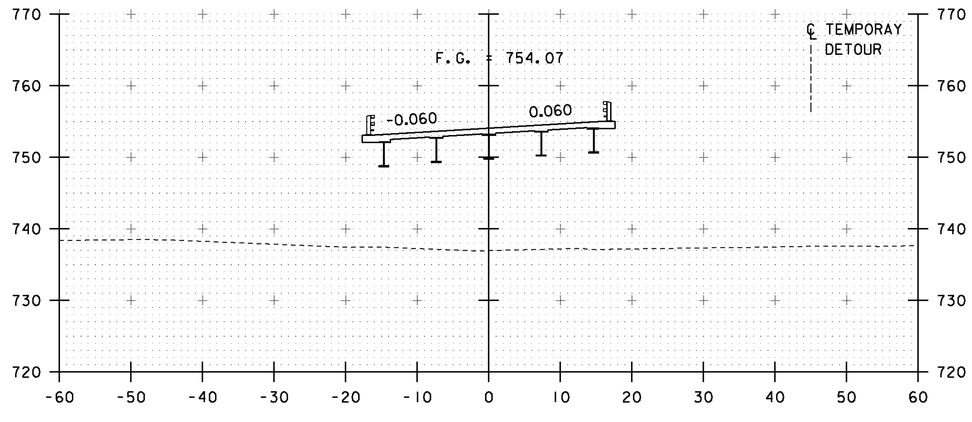
380+00



380+50



379+75



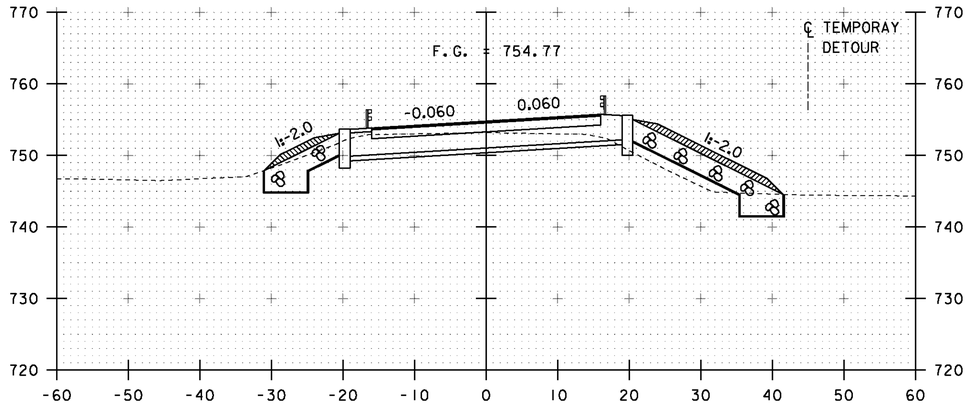
380+25

10 0 10

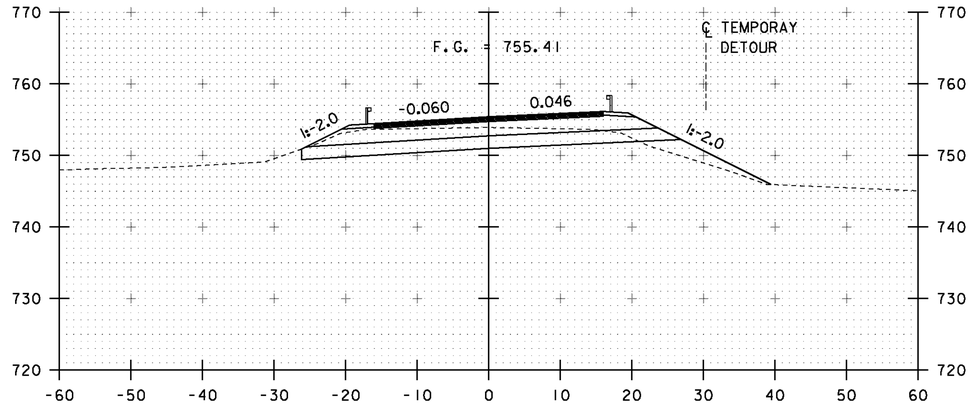
SCALE: 1" = 10'-0"

STA. 379+75 TO STA. 380+50

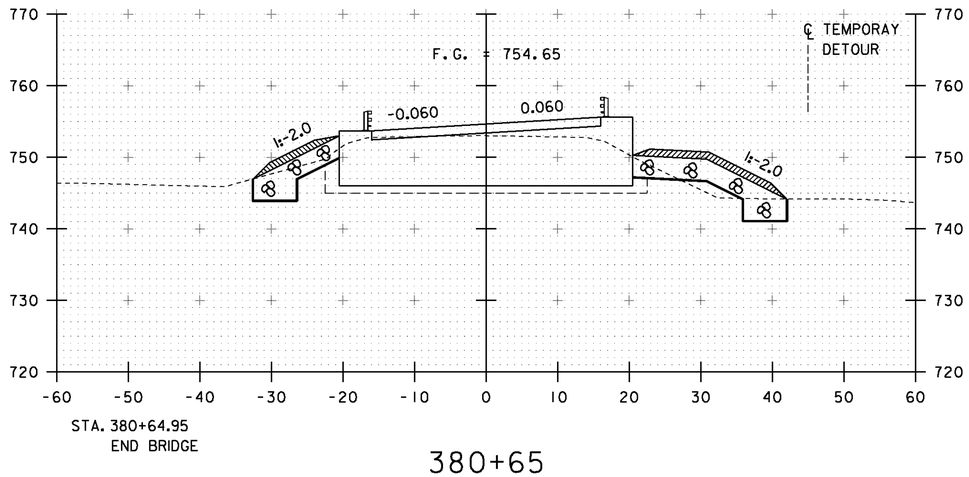
PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: s98b320xsl.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
ROADWAY CROSS SECTIONS 5	SHEET 35 OF 62



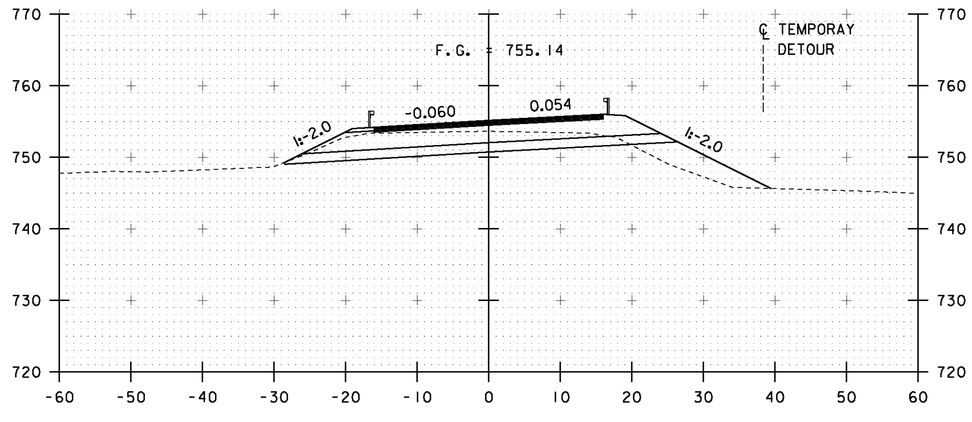
380+75



381+15



380+65



381+00

10 0 10

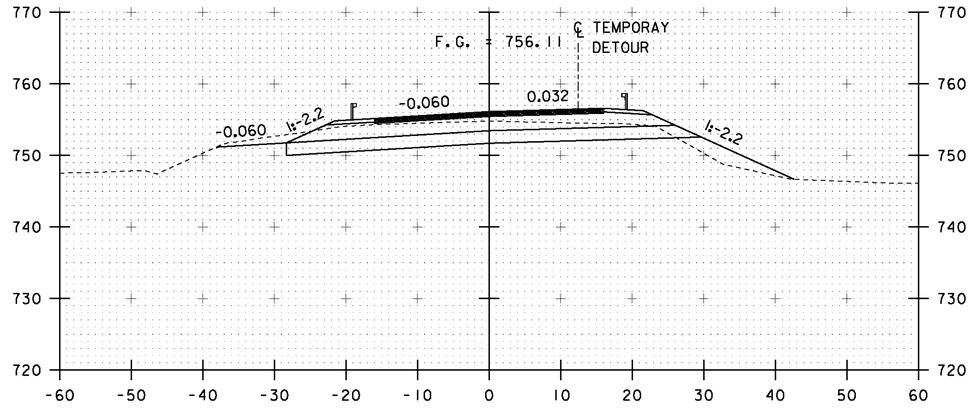
SCALE: 1" = 10'-0"

STA. 380+65 TO STA. 381+15

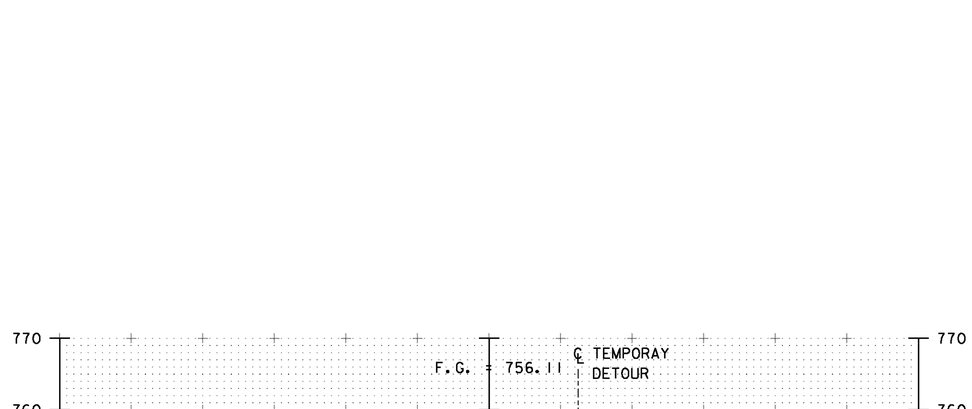
PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
ROADWAY CROSS SECTIONS 6

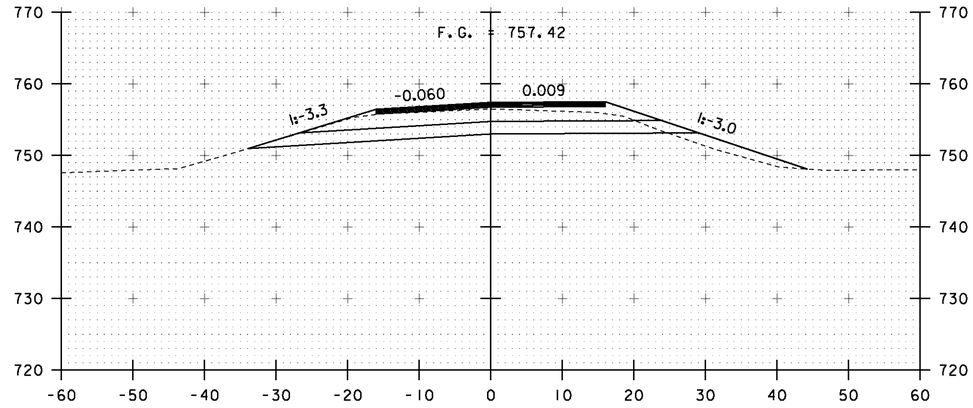
PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 36 OF 62



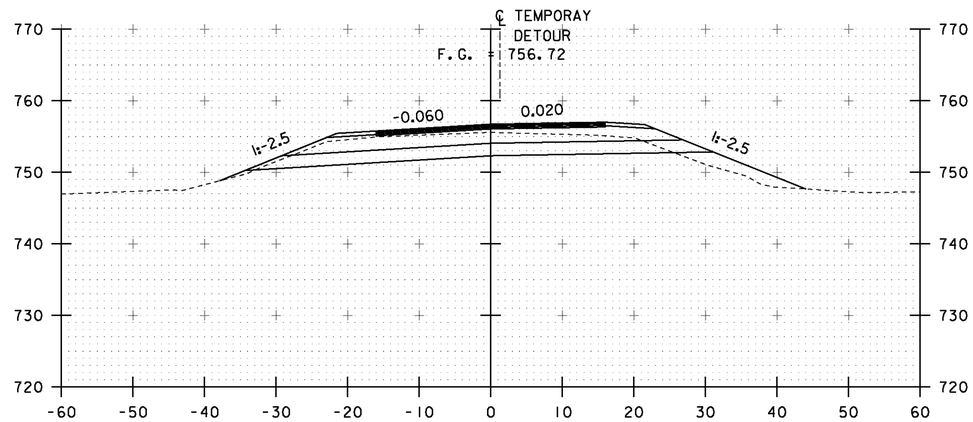
381+50



381+25



382+00



381+75

10 0 10

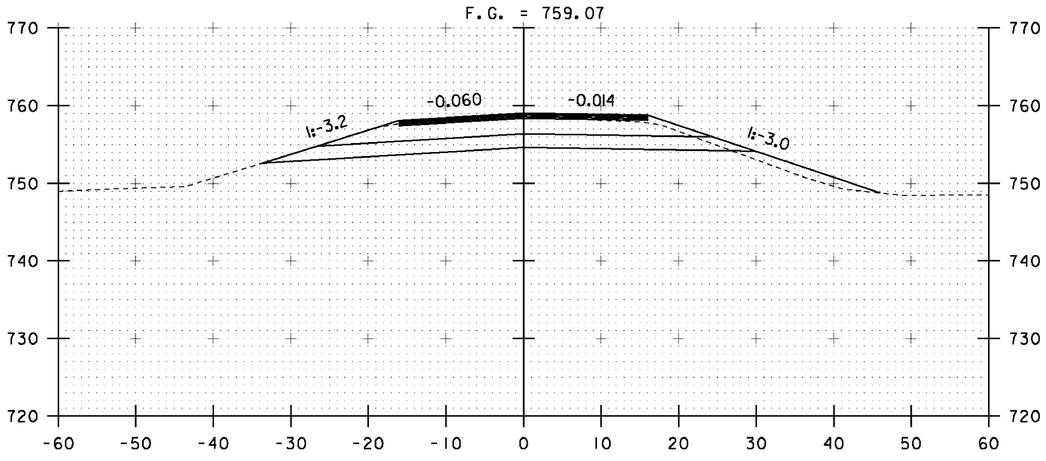
SCALE: 1" = 10'-0"

STA. 381+25 TO STA. 382+00

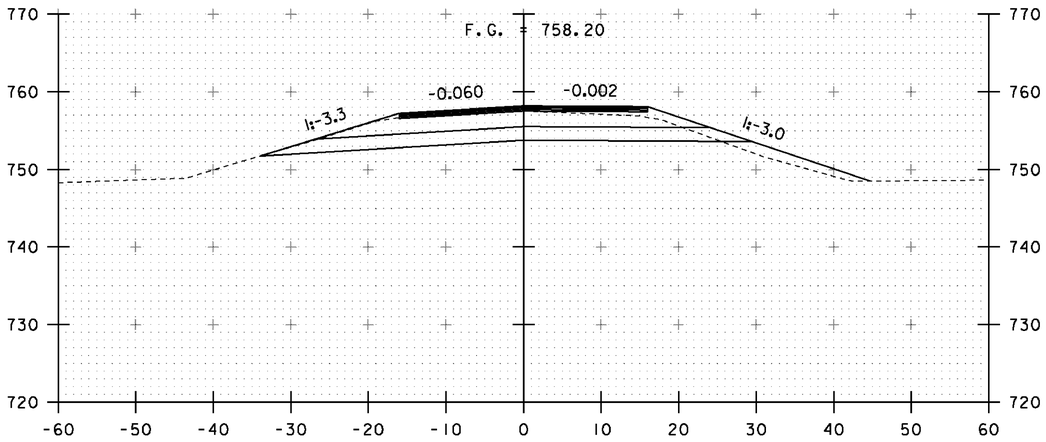
PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
ROADWAY CROSS SECTIONS 7

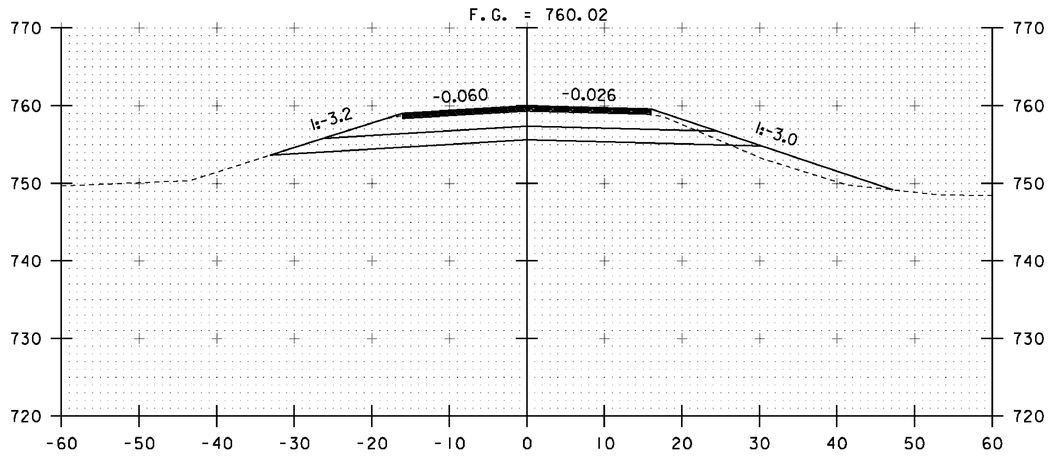
PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 37 OF 62



382+50

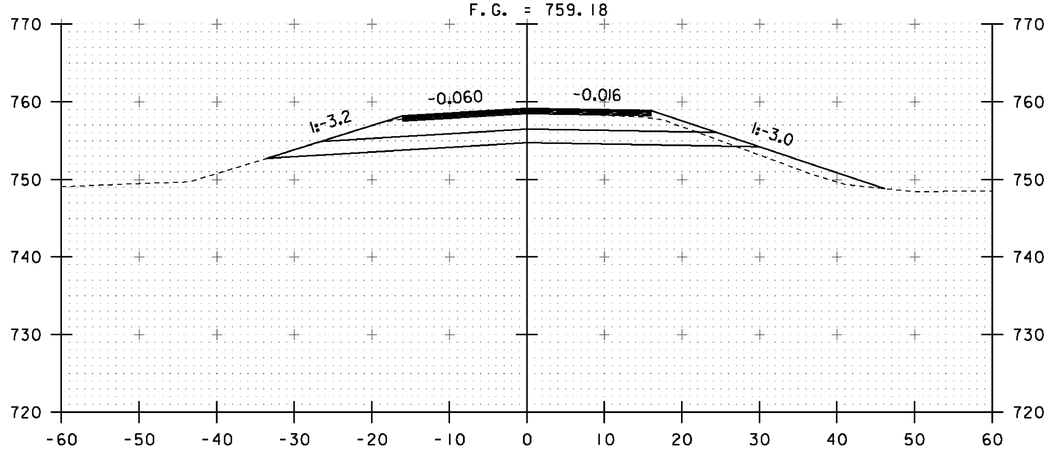


382+25



STA. 382+75.00
END PROJECT

382+75



382+53

10 0 10

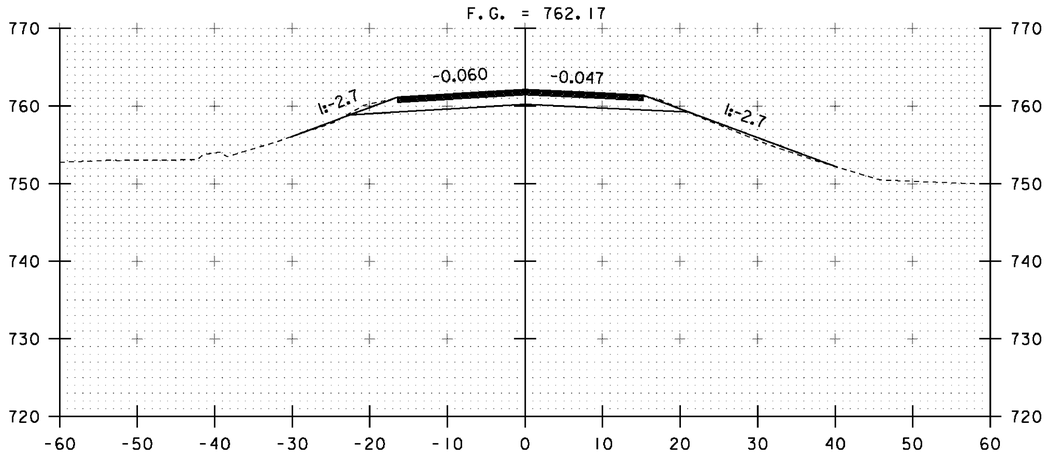
SCALE: 1" = 10'-0"

STA. 382+25 TO STA. 382+75

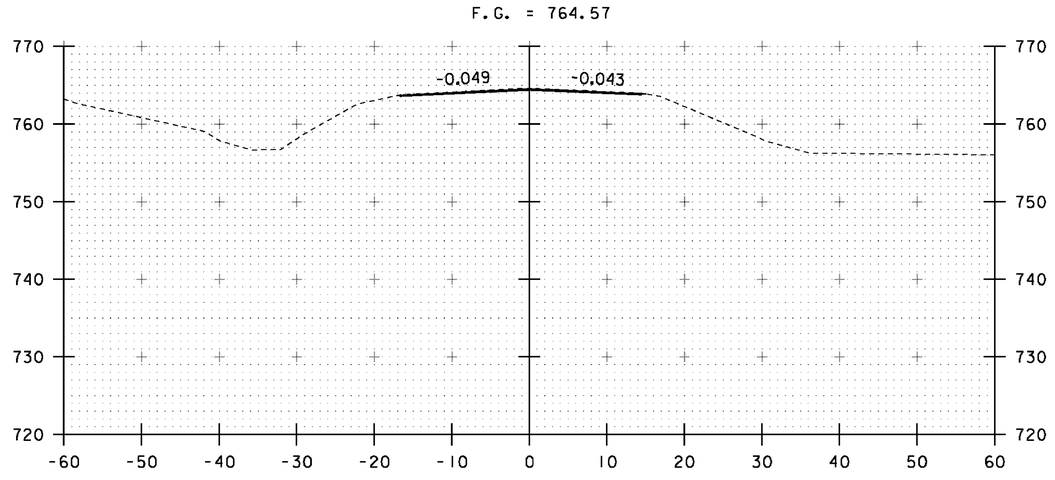
PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
ROADWAY CROSS SECTIONS 8

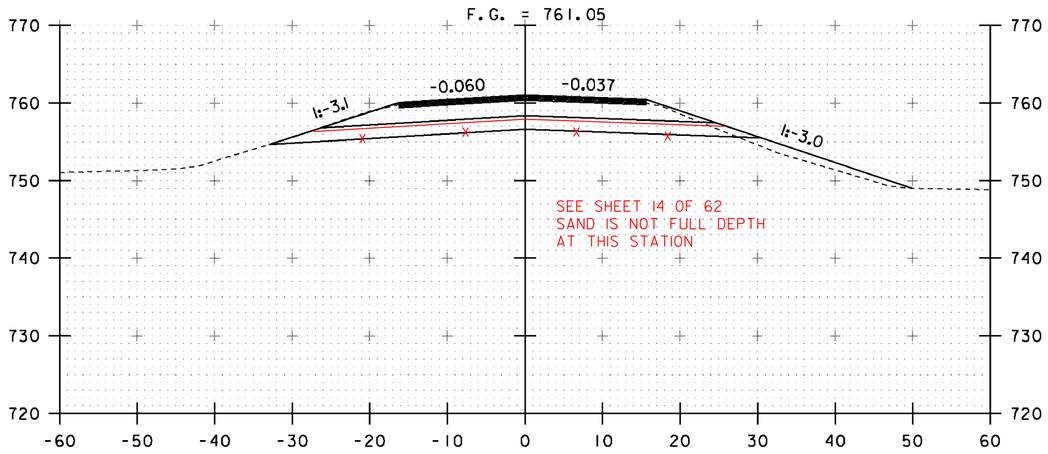
PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 38 OF 62

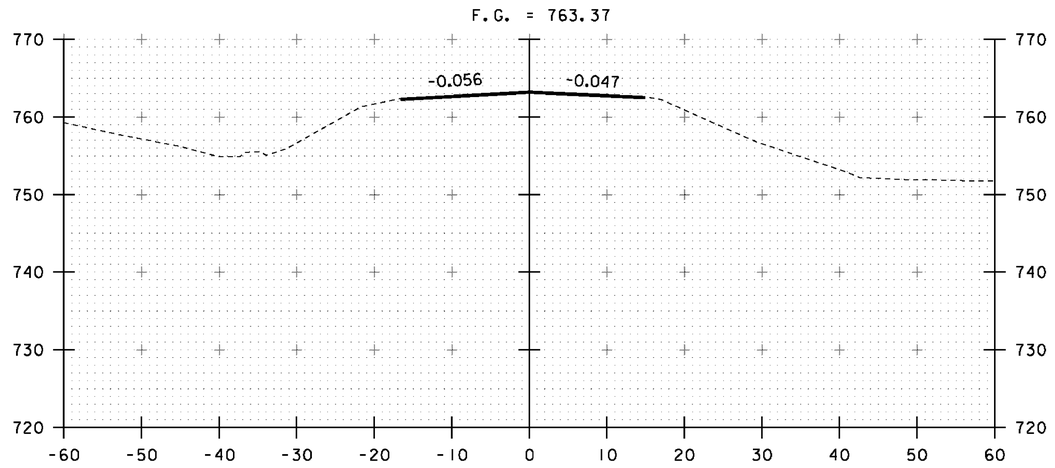


383+00



383+50





10 0 10

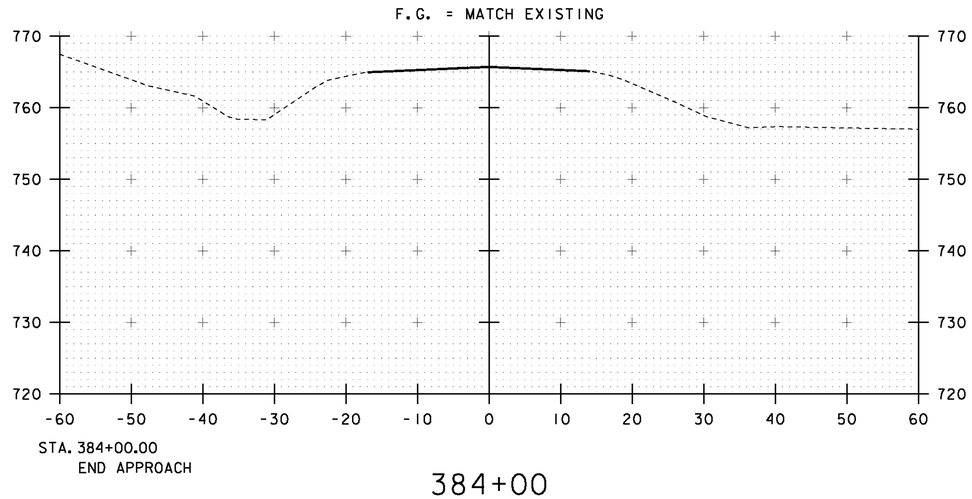
SCALE: 1" = 10'-0"

STA. 383+00 TO STA. 383+75

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
ROADWAY CROSS SECTIONS 9

PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 39 OF 62



384+00

10 0 10

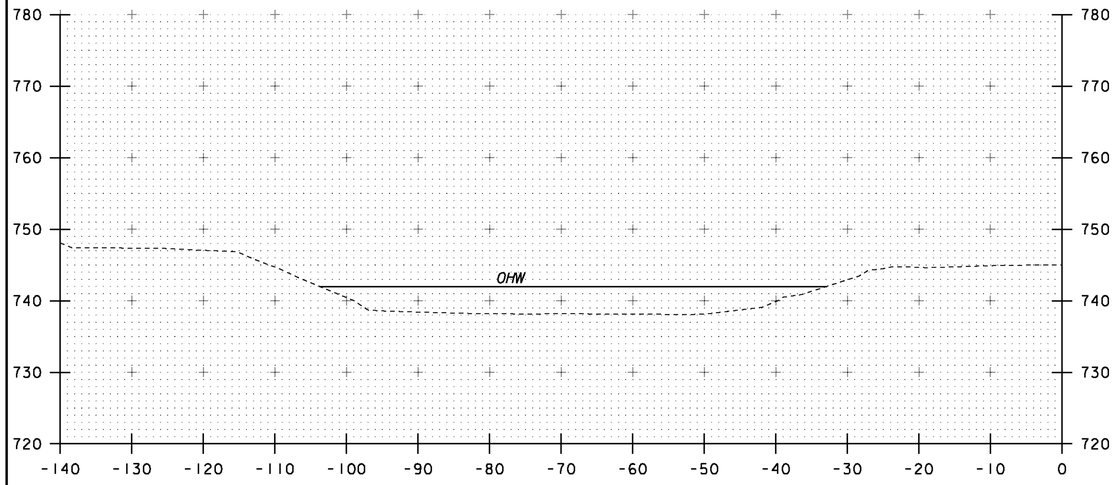
SCALE: 1" = 10'-0"

STA. 384+00

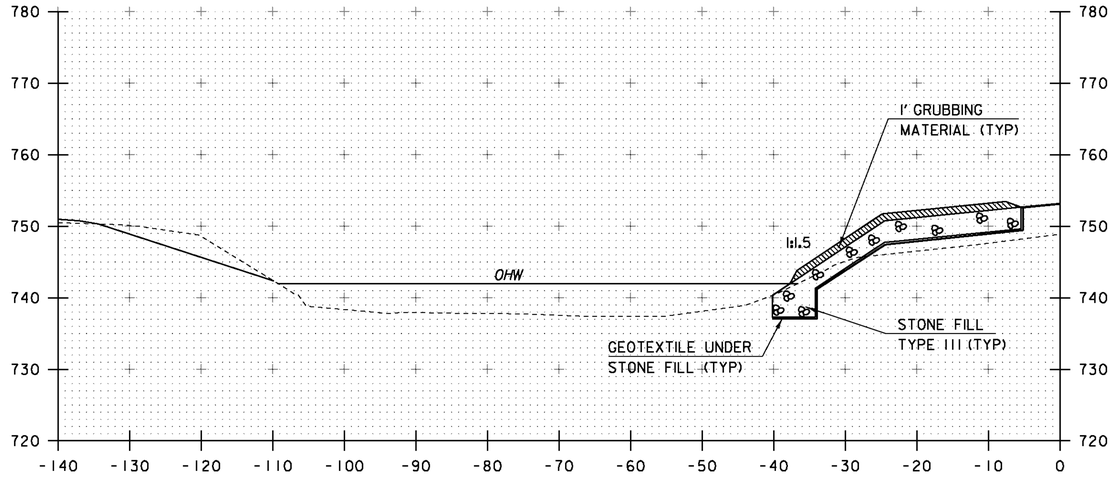
PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
ROADWAY CROSS SECTIONS 10

PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 40 OF 62

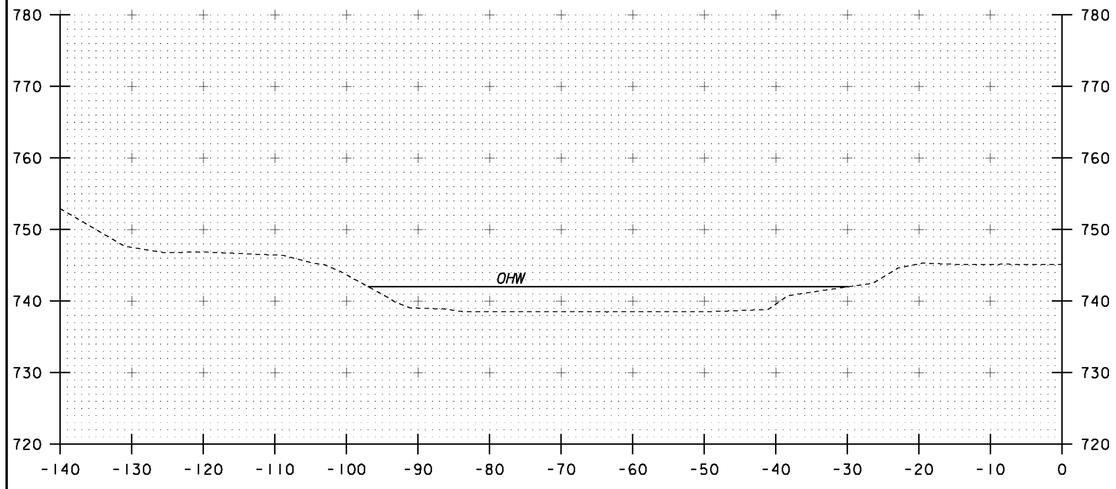


20+25

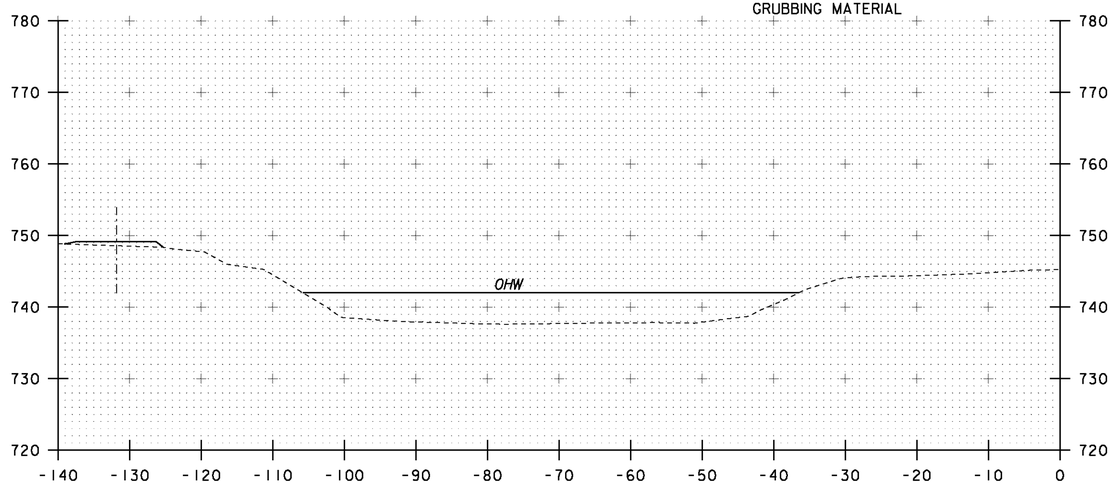


20+75

STA. 20+59 LT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL



20+00



20+50

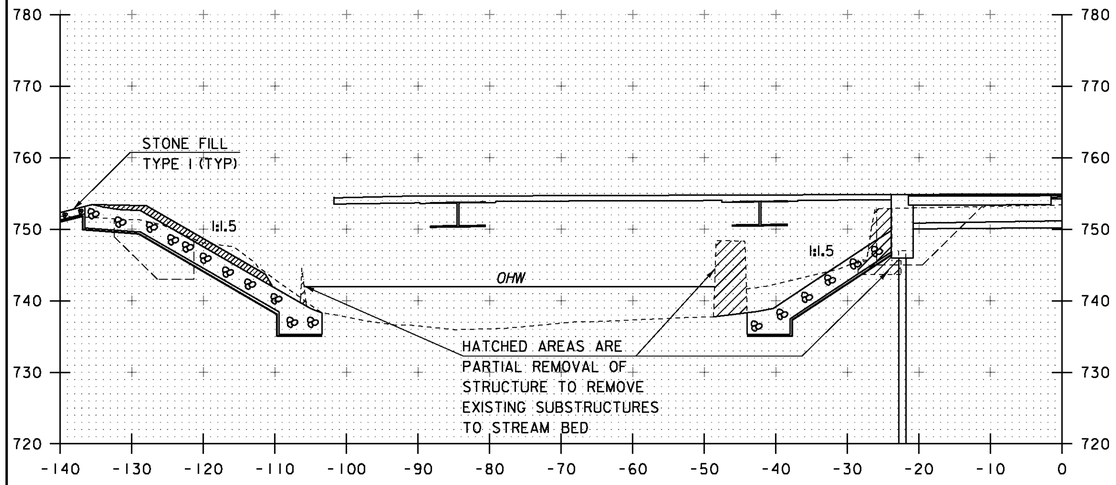
10 0 10
SCALE: 1" = 10'-0"

STA. 20+00 TO STA. 20+75

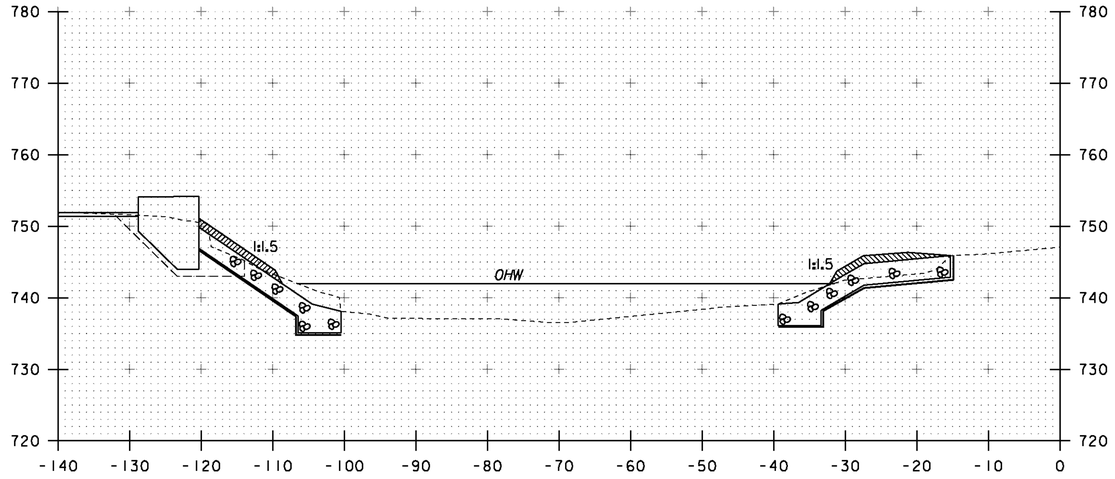
PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
CHANNEL CROSS SECTIONS 1

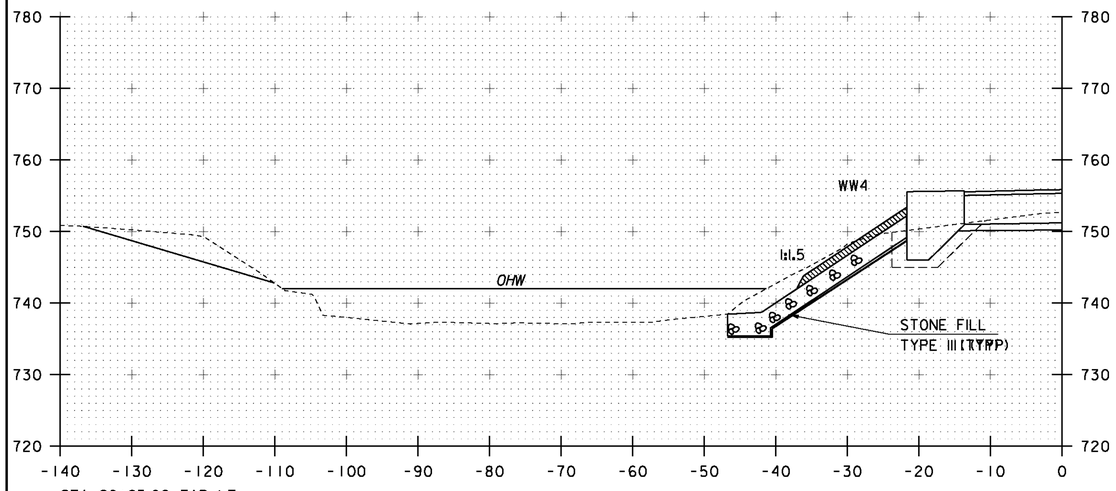
PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 41 OF 62



21+00

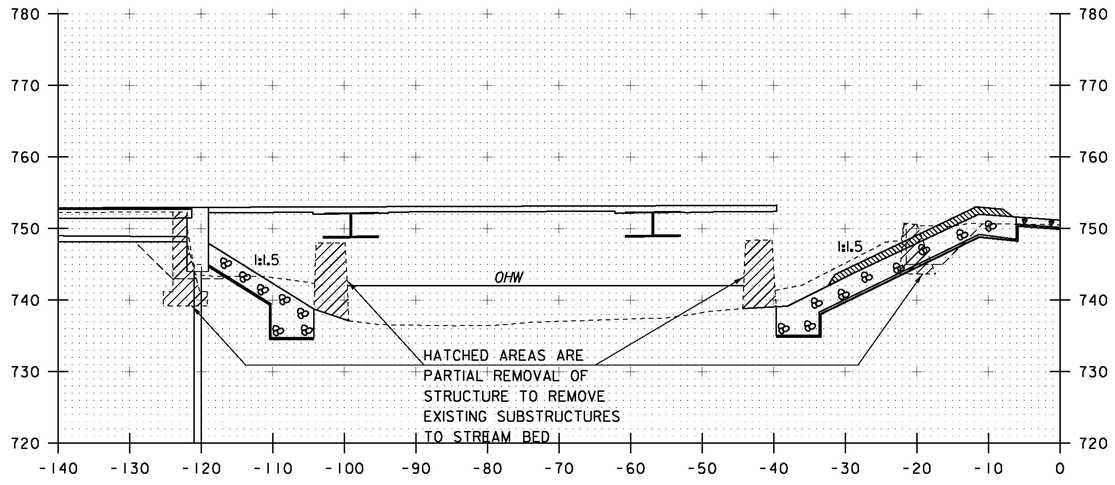


21+42



STA. 20+85.00 FAR LT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

20+83

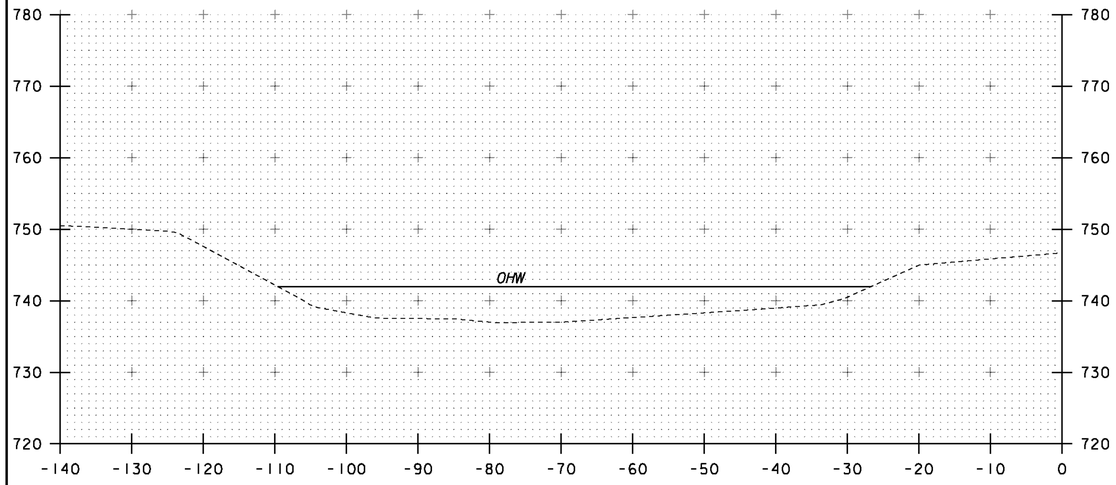


21+25

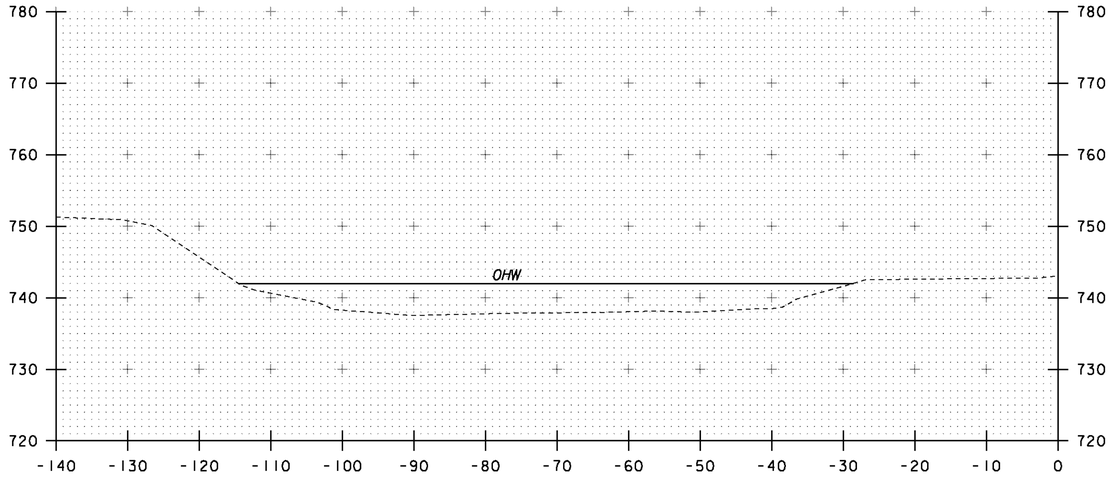
10 0 10
SCALE: 1" = 10'-0"

STA. 20+83 TO STA. 21+42

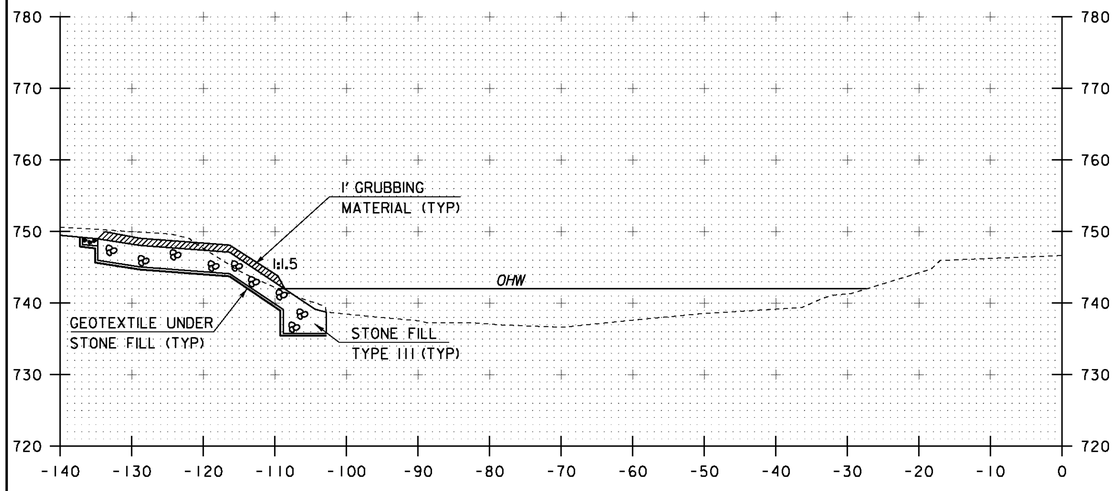
PROJECT NAME: ST. JOHNSBURY	
PROJECT NUMBER: BRF 028-4(25)S	
FILE NAME: s98b320xsl.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
CHANNEL CROSS SECTIONS 2	SHEET 42 OF 62



21+75



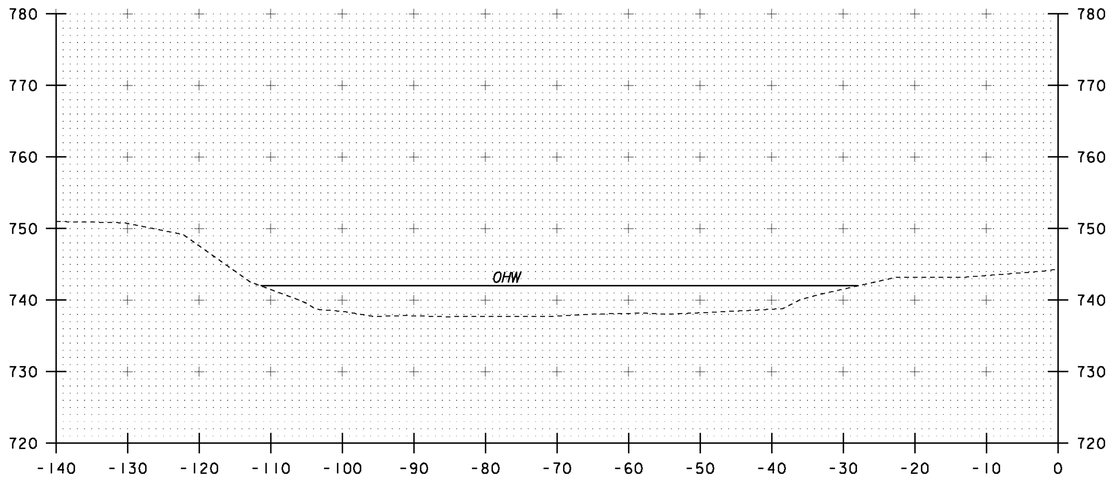
22+25



21+50

STA. 21+67 FAR LT
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL TYPE III
GRUBBING MATERIAL

STA. 21+52 LT
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL TYPE III
GRUBBING MATERIAL



22+00

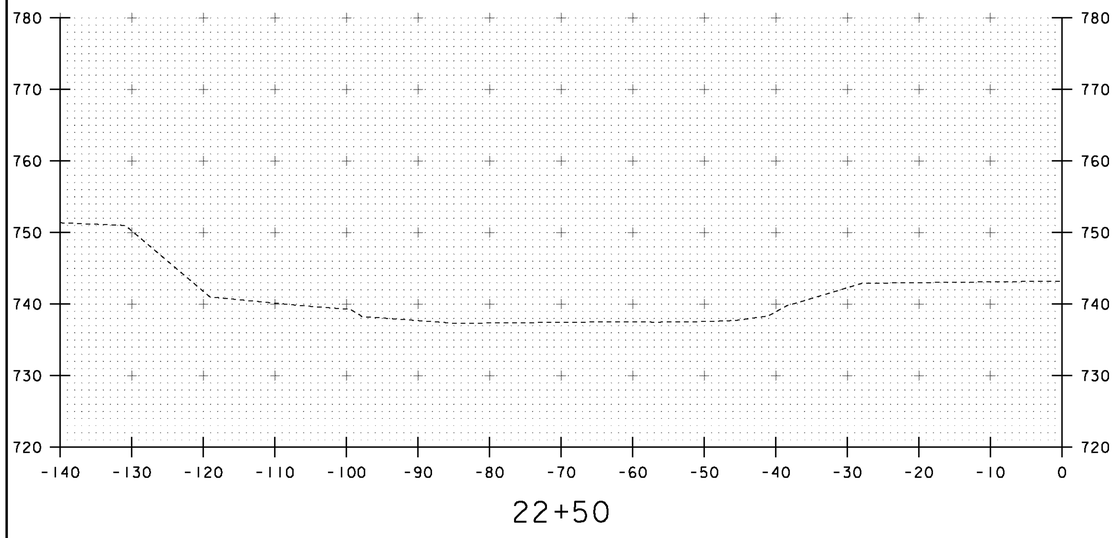
10 0 10
SCALE: 1" = 10'-0"

STA. 21+50 TO STA. 22+25

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
CHANNEL CROSS SECTIONS 3

PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 43 OF 62



22+50

10 0 10

SCALE: 1" = 10'-0"

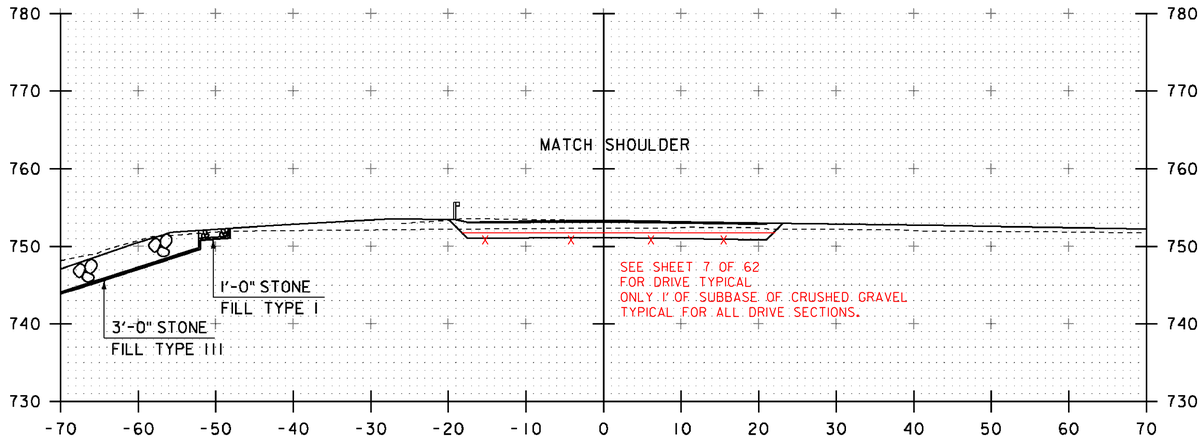
STA. 22+50

PROJECT NAME: ST. JOHNSBURY

PROJECT NUMBER: BRF 028-4(25)S

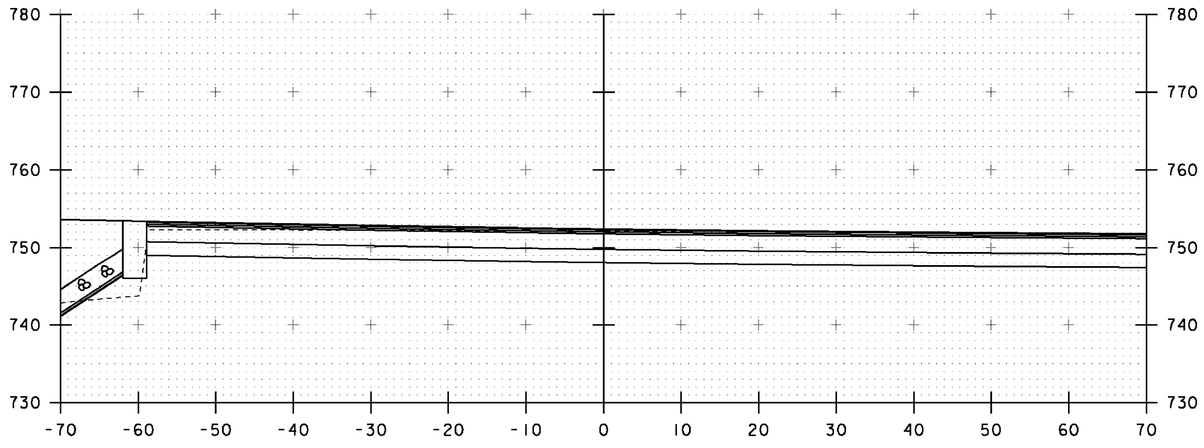
FILE NAME: s98b320xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
CHANNEL CROSS SECTIONS 4

PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 44 OF 62

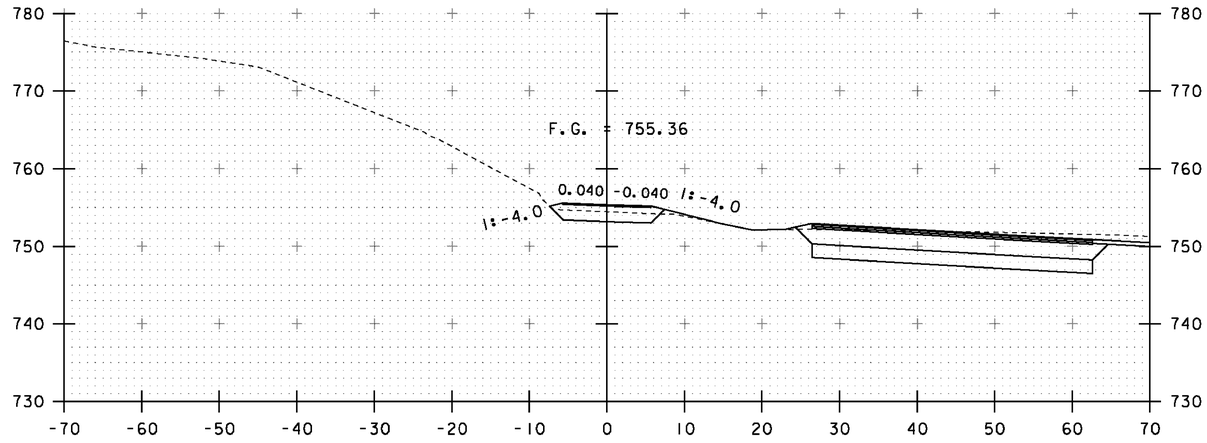


STA. 30+15.96
BEGIN DRIVE I

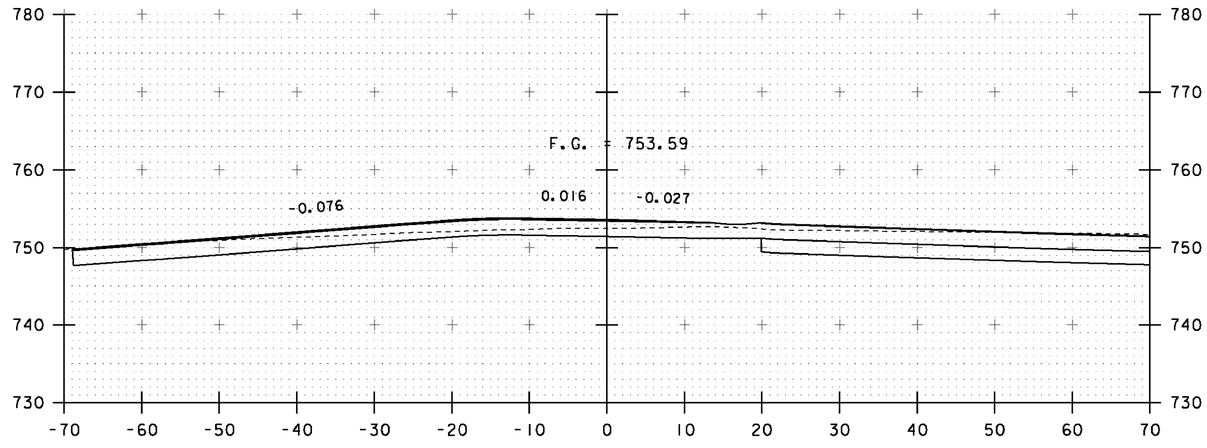
30+16



30+00



30+50

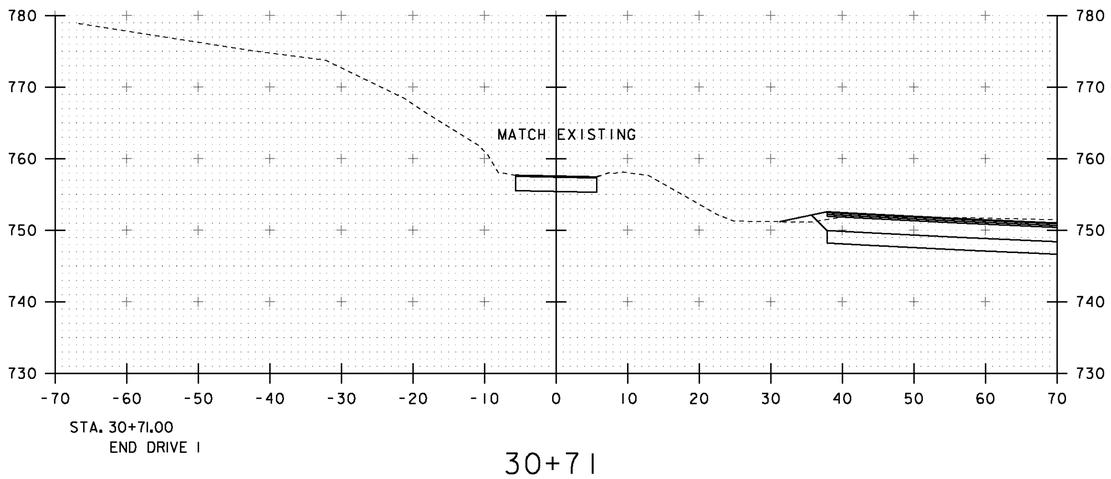


30+25

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

STA. 30+00 TO STA. 30+50

PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: s98b320xsl.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
DRIVE I CROSS SECTIONS I	SHEET 45 OF 62



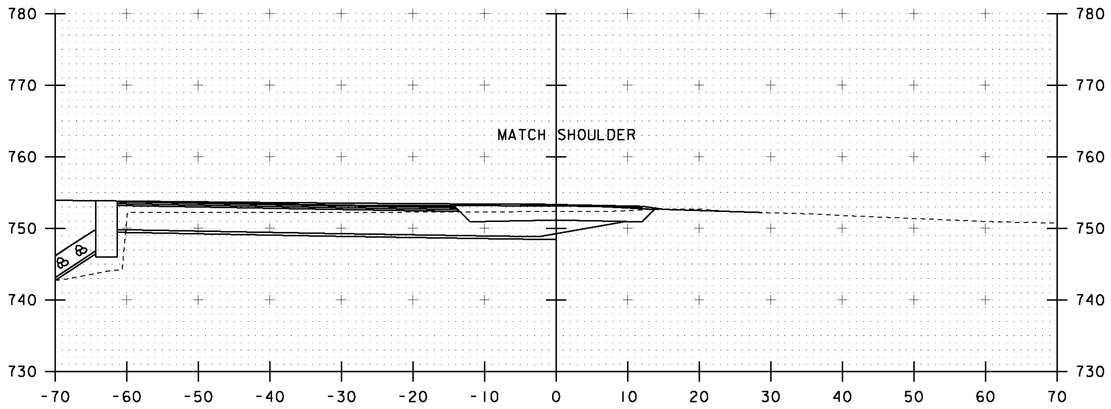
30+71

10 0 10

SCALE: 1" = 10'-0"

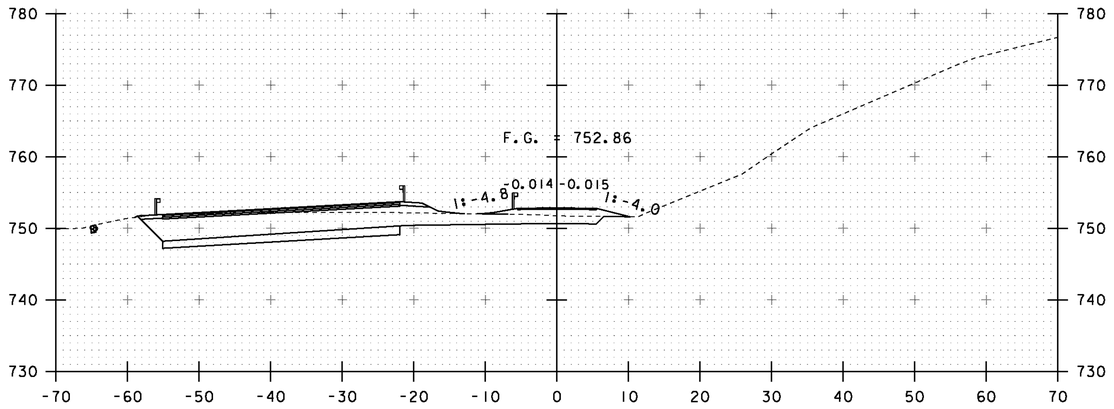
STA. 30+71 TO STA. 30+71

PROJECT NAME: ST. JOHNSBURY	
PROJECT NUMBER: BRF 028-4(25)S	
FILE NAME: s98b320xsl.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
DRIVE 1 CROSS SECTIONS 2	SHEET 46 OF 62

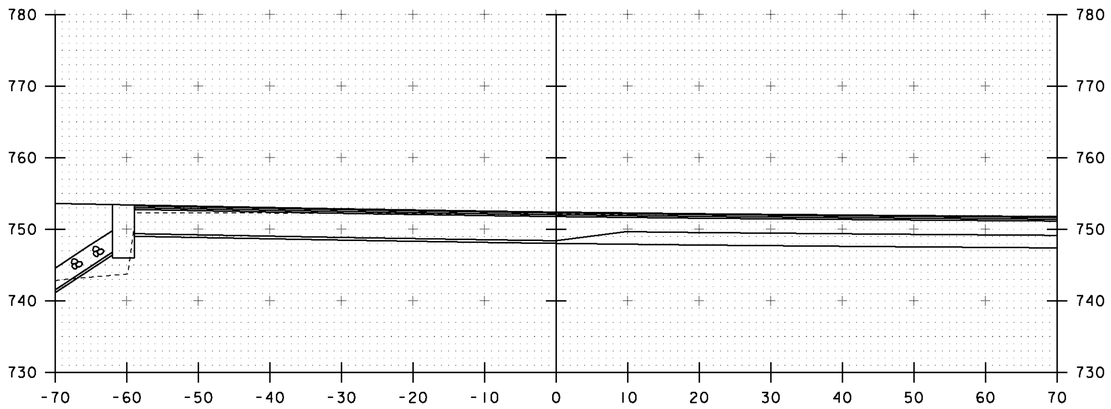


STA. 40+16.01
BEGIN DRIVE 2

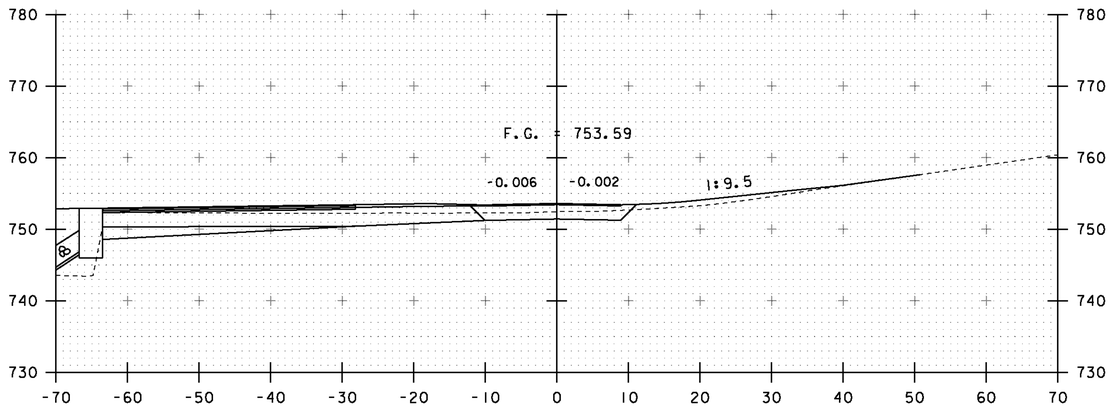
40+16



40+50



40+00



40+25

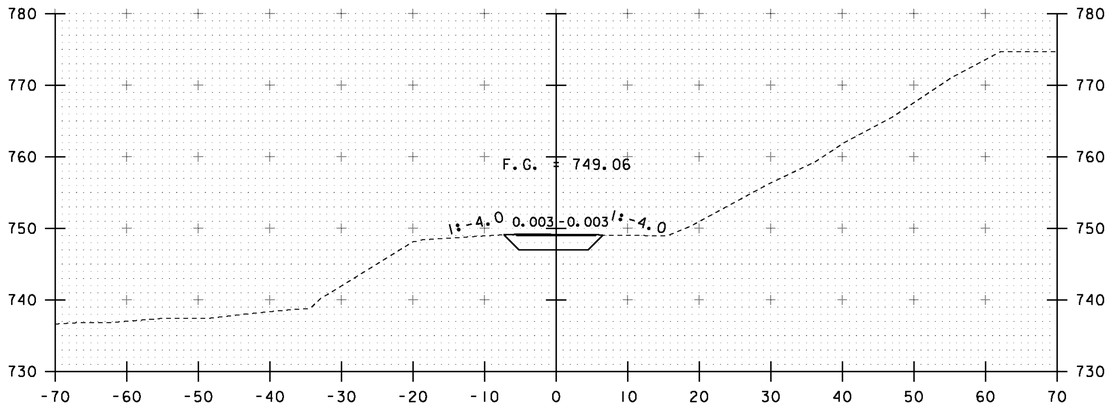
10 0 10
SCALE: 1" = 10'-0"

STA. 40+00 TO STA. 40+50

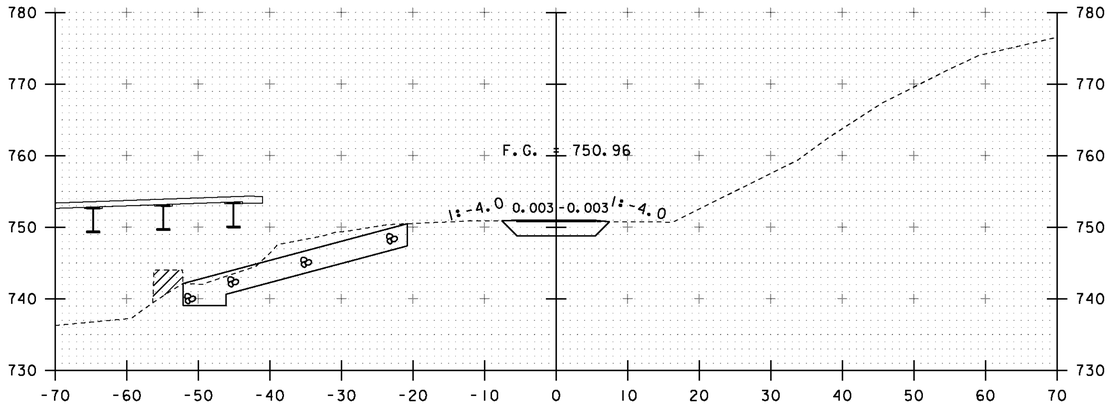
PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
DRIVE 2 CROSS SECTIONS 1

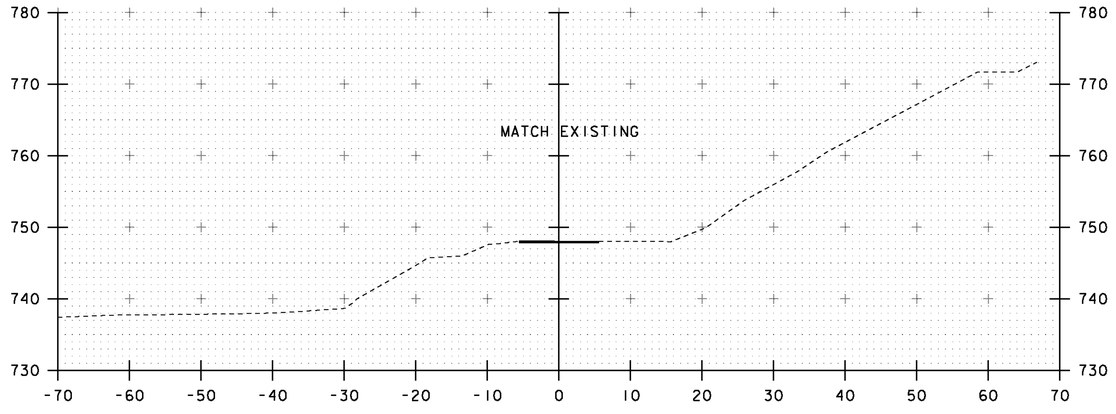
PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 47 OF 62



41+00



40+75



STA. 41+14.00
END DRIVE 2

41+14

10 0 10

SCALE: 1" = 10'-0"

STA. 40+75 TO STA. 41+14

PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: s98b320xsl.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
DRIVE 2 CROSS SECTIONS 2	SHEET 48 OF 62

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF THE EXISTING BRIDGE. A NEW STEEL GIRDER BRIDGE WILL BE CONSTRUCTED ALONG THE SAME ALIGNMENT AS THE EXISTING ON NEW INTEGRAL PILE ABUTMENTS. THE SPAN OF THE NEW BRIDGE WILL BE 103 FT. THE PROJECT SITE IS LOCATED IN THE TOWN OF ST. JOHNSBURY, ON US ROUTE 2, APPROXIMATELY 0.6 MILES EAST OF THE INTERSECTION OF US ROUTE 2 AND VT ROUTE 18.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 1.49 ACRES.

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.

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, MOSTLY FORESTED WITH SOME OPEN AREAS SURROUNDING THE PROJECT SITE. THERE ARE AREAS OF VEGETATION ALONG THE BANKS OF THE MOOSE RIVER. US ROUTE 2 IS THE ONLY ROAD WIITHIN THE SITE. THERE IS A COMMERCIAL BUSINESS IMMEDIATELY NORTHEAST OF THE PROJECT SITE.

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

THE MOOSE RIVER IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THIS WATERWAY IS CLASSIFIED AS SINUOUS TO MEANDERING, INCISED AND STABLE. THE NATURE OF THE STREAM BED IS CHARACTERIZED AS MOSTLY COBBLES WITH SOME GRAVEL, SAND, AND A FEW BOULDERS. THE TRIBUTARY AREA AT THE PROJECT SITE IS 116.9 MILES^2. A CLASS II WETLAND EXISTS TO THE NORTHEAST OF THE EXISTING STRUCTURE.

THERE ARE SEVERAL DROP INLETS NEAR THE PROJECT THAT DRAIN INTO THE MOOSE RIVER. DISTURBANCE IN THE VICINITY OF THESE DRAINS IS EXPECTED TO BE MINIMAL AND DOWNSLOPE.

1.2.3 VEGETATION

THE VEGETATION IN THE IMMEDIATE PROJECT AREA CONSISTS OF SMALL HARDWOOD TREES AND UNDERGROWTH. THERE ARE OPEN FIELDS USED FOR HAY PRODUCTION IN AREAS AWAY FROM THE PROJECT AREA.

THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY THE CONSTRUCTION PROJECT. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE III AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF CALEDONIA, VERMONT. SOILS ON THE SITE ARE PODUNK AND BUCKLAND, FINE SANDY LOAM. AT THE PROJECT SITE, NEAR THE RIVER, PODUNK SOILS SLOPE AT 0% TO 2%, WITH A "K FACTOR" = 0.24. THE BUCKLAND SOILS OCCUR SLIGHTLY FURTHER AWAY FROM THE RIVER AND CAN SLOPE FROM 8% TO 35%, WITH "K FACTOR"= 0.32. ATTENTION TO EROSION POTENTIAL MAY BE A BIGGER CONSIDERATION IN THE VICINITY OF THE TEMPORARY BRIDGE.

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: ALTHOUGH THERE ARE NO PROTECTED HABITATS IN THE PROJECT AREA, THE MOOSE RIVER CONTAINS COLD WATER FISHERIES.

HISTORICAL OR ARCHAEOLOGICAL AREAS: ARCHAEOLGICALLY SENSITIVE AREAS HAVE BEEN DELINEATED ON THE PLANS.

PRIME AGRICULTURAL LAND: THE AREA TO THE SOUTHEAST OF THE PROJECT IS CURRENTLY USED FOR HAY PRODUCTION.

THREATENED AND ENDANGERED SPECIES: A STATE-LISTED THREATENED SPECIES (EASTERN PEARLSHELL MUSSEL) IS KNOWN TO INHABIT THE RIVER NEAR THE PROJECT SITE.

WATER RESOURCE: MOOSE RIVER

WETLANDS: A CLASS II WETLAND EXISTS TO THE NORTHEAST OF THE EXISTING STRUCTURE.

1.3 RISK EVALUATION

THIS PROJECT FALLS UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES FOR LOW RISK PROJECTS. ANY MODIFICATIONS TO THE PROJECT THAT INCREASE THE RISK TO ENVIRONMENTAL RESOURCES SHALL BE EVALUATED IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

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

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

1.4.1 MARK SITE BOUNDARIES

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

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

BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, BARRIER FENCE SHALL BE USED INSTEAD OF PROJECT DEMARCATION FENCE WITHIN 100 FEET OF A WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC.)

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. ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

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

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

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

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

1.4.4 INSTALL SEDIMENT BARRIERS

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

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

BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS.

FILTER FABRIC DROP INLET PROTECTION SHALL BE INSTALLED AS INDICATED.

FILTER CURTAIN SHALL BE INSTALLED TO MINIMIZE SEDIMENT TRANSPORT IN THE MOOSE RIVER.

1.4.5 DIVERT UPLAND RUNOFF

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

RUNOFF FROM ABOVE THE DISTURBED AREAS IS NOT EXPECTED TO ENTER THE PROJECT SITE; THEREFORE, DIVERSION OF UPLAND RUNOFF IS NOT EXPECTED TO BE NEEDED.

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.

CHANNELIZED RUNOFF MAY OR MAY NOT OCCUR. METHODS OF STABILIZATION OF CHANNELS INCLUDE STONE CHECK DAMS, FIBER ROLLS, AND SAND BAGS.

1.4.7 CONSTRUCT PERMANENT CONTROLS

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

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

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

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

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

1.4.9 WINTER STABILIZATION

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

1.4.10 STABILIZE SOIL AT FINAL GRADE

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

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

1.4.11 DE-WATERING ACTIVITIES

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

DEWATERING ACTIVITIES ARE NOT ANTICIPATED.

1.4.12 INSPECT YOUR SITE

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

1.5 SEQUENCE AND STAGING

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

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES

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

PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: s98b320epscNar.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
EPSC NARRATIVE	SHEET 49 OF 62

HUDSON, SPENCER K.

DARRAH, RALPH A. & NANCY J

ST. TOWN OF JOHNSBURY

US 2
US ROUTE 2
ST. JOHNSBURY
DANVILLE

24" CPEP PIPE
WOODED DRIVE
COMB #100 AER E&T
HVCTRL 130
24" PIPE DROP INLET 2X2 OUTLET HEADS TOWARD RIVER
BM IS RXR SPIKE IN COMB POLE #9/101/109
AER E&T
18" PIPE DROP INLET 2X2
15" COMP PIPE
WOODS
RAIL FENCE
STONE DITCH
SHRUBS
18" PLASTIC 4" PVC DROP INLET
18" PIPE DROP INLET 2X2
GRAVEL DRIVE
1-STORY METAL BUILDING
18" CPEP PIPE
GRAVEL DRIVE
18" PIPE DROP INLET 4
HVCTRL 130
COMB 102/110 AER E&T
STONE DITCH
COMB #97/102A
GUY WIRE
WOODS

ML

374+86
375+00
376+00
377+00
378+00

745
750
755
760
765

MATCH LINE - STA. 378+30.00

PODUNK FINE SANDY LOAM
WITH 0% TO 2% SLOPES
"K FACTOR" = 0.24

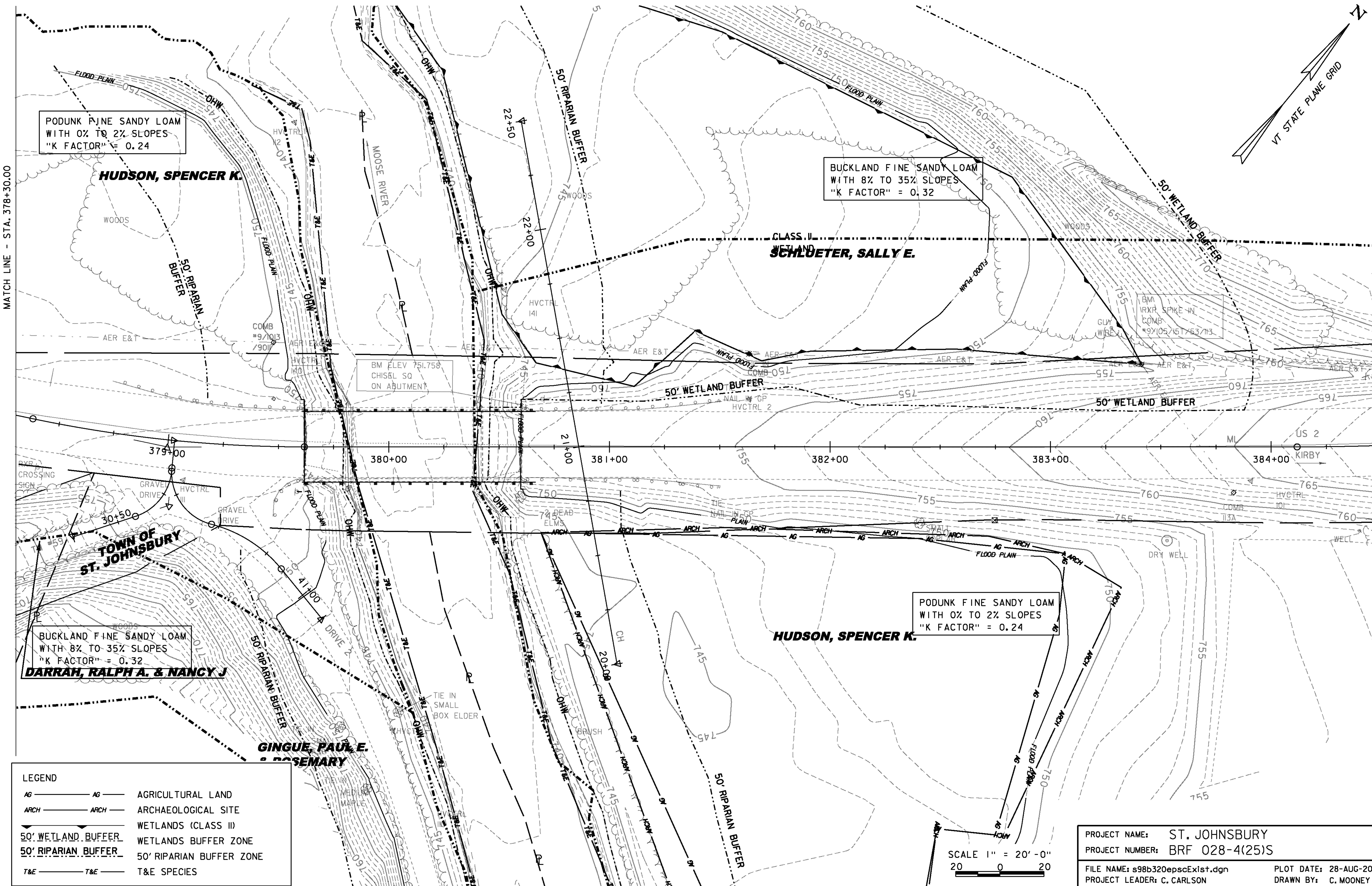
BUCKLAND FINE SANDY LOAM
WITH 8% TO 35% SLOPES
"K FACTOR" = 0.32

LEGEND

AG ——— AG	AGRICULTURAL LAND
ARCH ——— ARCH	ARCHAEOLOGICAL SITE
	WETLANDS (CLASS II)
50' WETLAND BUFFER	WETLANDS BUFFER ZONE
50' RIPARIAN BUFFER	50' RIPARIAN BUFFER ZONE
T&E ——— T&E	T&E SPECIES

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

PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: s98b320epscExist.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
EPSC EXISTING CONDITION PLAN 1	SHEET 50 OF 62



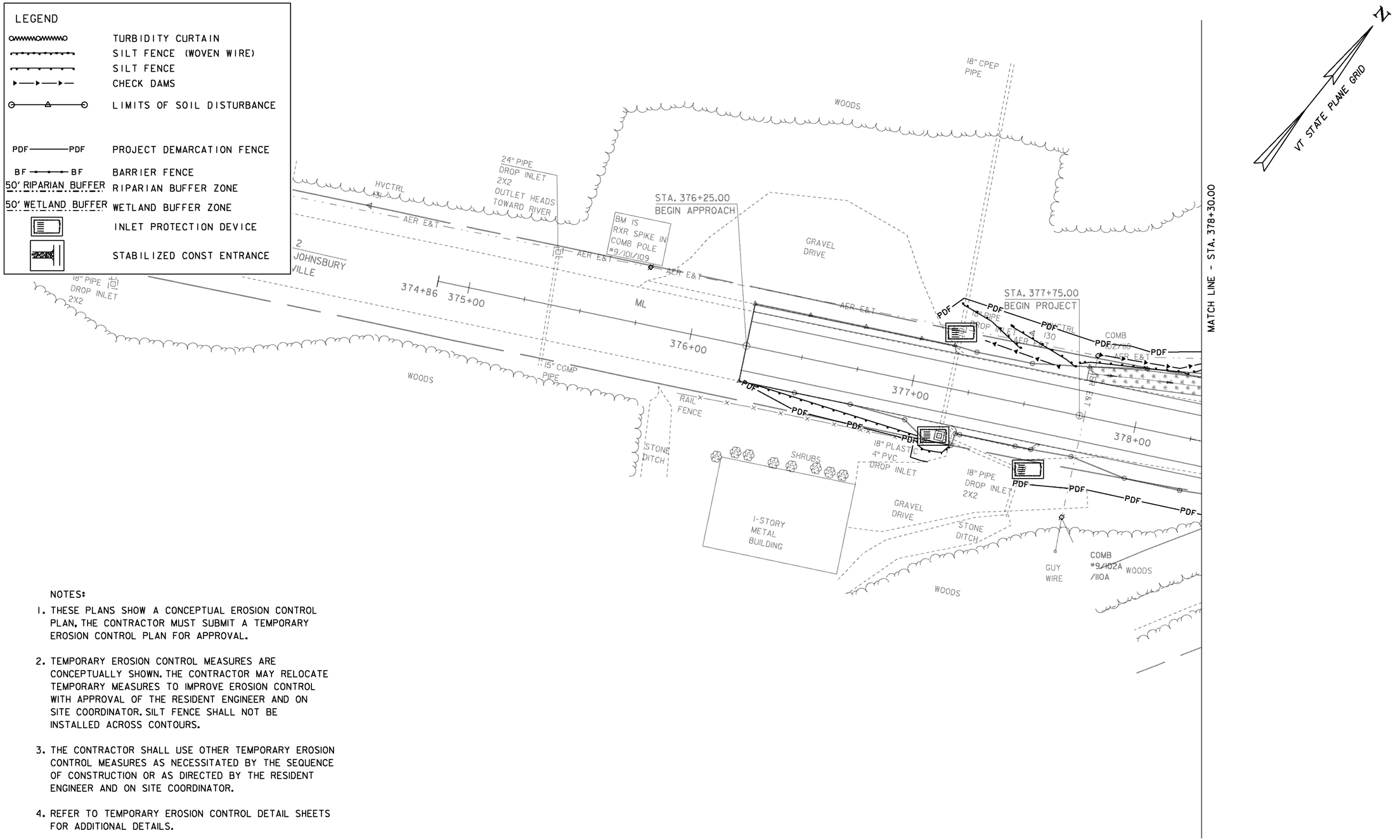
PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S

FILE NAME: s98b320epscExist.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
EPSC EXISTING CONDITION PLAN 2

PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 51 OF 62

LEGEND

- TURBIDITY CURTAIN
- SILT FENCE (WOVEN WIRE)
- SILT FENCE
- CHECK DAMS
- LIMITS OF SOIL DISTURBANCE
- PDF——PDF PROJECT DEMARCATION FENCE
- BF——BF BARRIER FENCE
- 50' RIPARIAN BUFFER RIPARIAN BUFFER ZONE
- 50' WETLAND BUFFER WETLAND BUFFER ZONE
- INLET PROTECTION DEVICE
- STABILIZED CONST ENTRANCE



NOTES:

1. THESE PLANS SHOW A CONCEPTUAL EROSION CONTROL PLAN. THE CONTRACTOR MUST SUBMIT A TEMPORARY EROSION CONTROL PLAN FOR APPROVAL.
2. TEMPORARY EROSION CONTROL MEASURES ARE CONCEPTUALLY SHOWN. THE CONTRACTOR MAY RELOCATE TEMPORARY MEASURES TO IMPROVE EROSION CONTROL WITH APPROVAL OF THE RESIDENT ENGINEER AND ON SITE COORDINATOR. SILT FENCE SHALL NOT BE INSTALLED ACROSS CONTOURS.
3. THE CONTRACTOR SHALL USE OTHER TEMPORARY EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION OR AS DIRECTED BY THE RESIDENT ENGINEER AND ON SITE COORDINATOR.
4. REFER TO TEMPORARY EROSION CONTROL DETAIL SHEETS FOR ADDITIONAL DETAILS.
5. WHERE LEDGE IS EXPOSED, GRAVEL BAGS MAY BE USED INSTEAD OF FILTER CURTAIN. PAYMENT FOR GRAVEL BAGS WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 649.61 "GEOTEXTILE FOR FILTER CURTAIN".

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

PROJECT NAME: ST. JOHNSBURY	
PROJECT NUMBER: BRF 028-4(25)S	
FILE NAME: s98b320epscCon.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
EPSC CONSTRUCTION CONDITION PLAN 1	SHEET 52 OF 62

LEGEND

- TURBIDITY CURTAIN
- SILT FENCE (WOVEN WIRE)
- SILT FENCE
- CHECK DAMS
- LIMITS OF SOIL DISTURBANCE
- PDF——PDF PROJECT DEMARCATION FENCE
- BF — BF BARRIER FENCE
- 50' RIPARIAN BUFFER RIPARIAN BUFFER ZONE
- 50' WETLAND BUFFER WETLAND BUFFER ZONE
- WETLAND BOUNDARY
- INLET PROTECTION DEVICE
- STABILIZED CONST ENTRANCE

MATCH LINE - STA. 378+30.00

ML STA. 379+03.00
DRIVE 1 STA. 29+99.95
DRIVE 2 STA. 40+00.00
DELTA = 90° RT

STA. 379+62.29
BEGIN BRIDGE
EL. 753.21

STA. 380+64.95
END BRIDGE
ELEV. 754.65

ML STA. 380+86.12=
CH STA. 21+00.00
DELTA = 100° LT

PLACE BARRIER FENCE ON ROW STA. 381+25LT TO STA. 383+25LT. PLACE SILT FENCE JUST INSIDE TO ALLOW FOR SLOPE CONSTRUCTION.

CLASS II WETLAND

STA. 382+75.00
END PROJECT

STA. 384+00.00
END APPROACH

BM
RXR SPIKE IN
COMB
#9/105/15T/53/113

BM ELEV 751.758
CHISEL SQ
ON ABUTMENT

STONE FILL, TYPE I (TYP.)

STONE FILL, TYPE III (TYP.)

CL TEMP. DETOUR

TEMPORARY CONSTRUCTION LIMITS

50' WETLAND BUFFER

50' RIPARIAN BUFFER

END DRIVE 1
STA. 30+71.00

END DRIVE 2
STA. 41+14.00

TH #59

RXR CROSSING SIGN

GRAVEL DRIVE

WOODS

MOOSE RIVER

TIE IN SMALL BOX ELDER

TIE IN SMALL ASH

TIE IN MEDIUM MAPLE

TIE NAIL IN GP

2 DEAD ELMS

SMALL POPLAR

DRY WELL

WELL

BRUSH

GUY WIRE

COMB 113A

HVCTRL 101

HVCTRL 110

HVCTRL 141

HVCTRL 140

HVCTRL 2

HVCTRL 1

ML

US 2

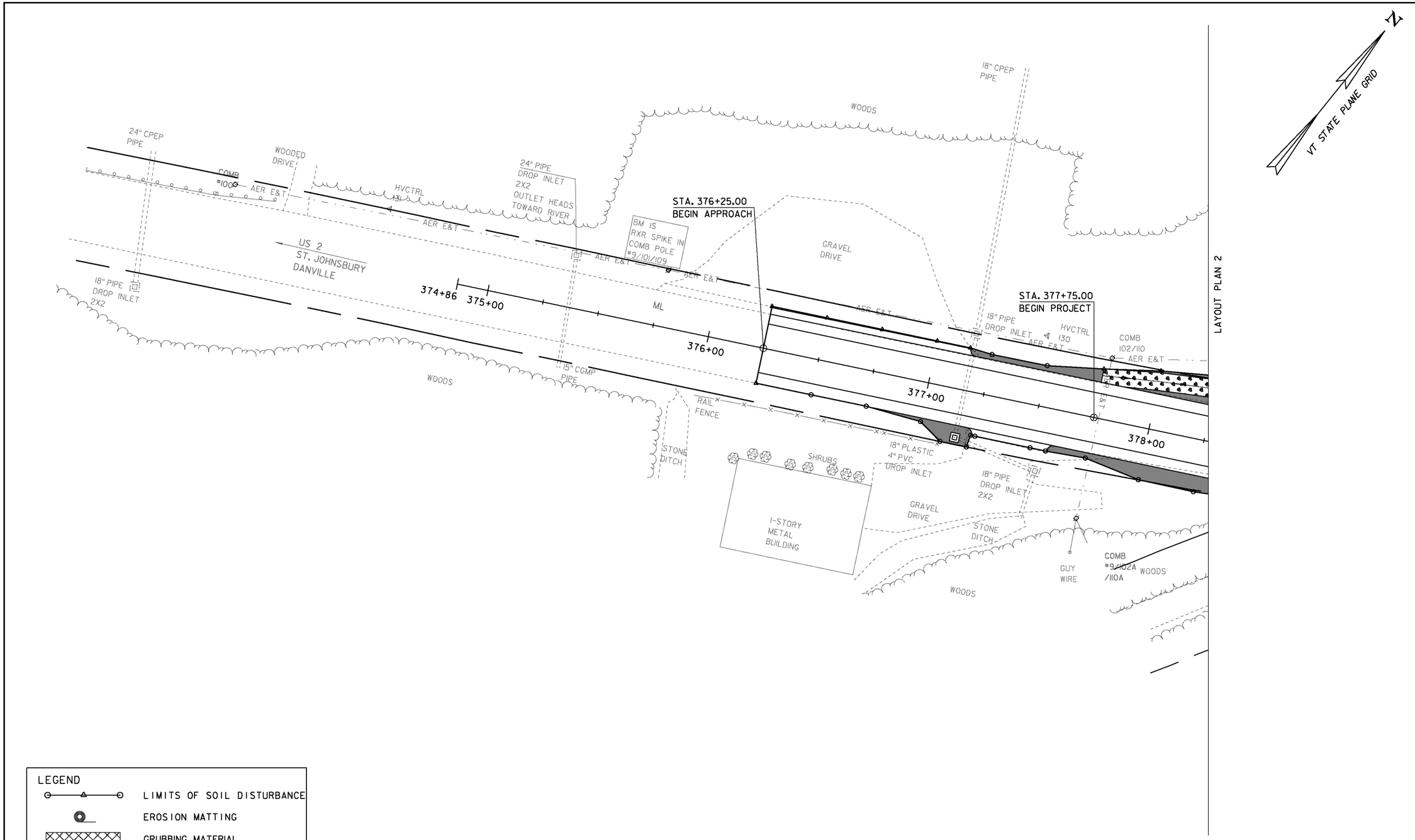
KIRBY

VT STATE PLANE GRID

N

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

PROJECT NAME: ST. JOHNSBURY	
PROJECT NUMBER: BRF 028-4(25)S	
FILE NAME: s98b320epscCon.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
EPSC CONSTRUCTION CONDITION PLAN 2	SHEET 53 OF 62



LEGEND

- LIMITS OF SOIL DISTURBANCE
- EROSION MATTING
- GRUBBING MATERIAL
- SEED & MULCH AREAS
- 50' RIPARIAN BUFFER — RIPARIAN BUFFER ZONE
- 50' WETLAND BUFFER — WETLAND BUFFER ZONE
- WETLAND LIMITS

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

PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: s98b320epscFinal.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
EPSC FINAL CONDITION PLAN 1	SHEET 54 OF 62

LAYOUT PLAN I

N

VT STATE PLANE GRID

ML STA. 379+03.00
DRIVE 1 STA. 29+99.95
DRIVE 2 STA. 40+00.00
DELTA = 90° RT

STA. 379+62.29
BEGIN BRIDGE
EL. 753.21

STA. 380+64.95
END BRIDGE
ELEV. 754.65

ML STA. 380+86.12=
CH STA. 21+00.00
DELTA = 100° LT

CLASS II
WETLAND

STA. 382+75.00
END PROJECT

STA. 384+00.00
END APPROACH

BM
RXR SPIKE IN
COMB
#9/105/15T/53/113

BM ELEV 751.758
CHISEL SQ
ON ABUTMENT

STONE FILL,
TYPE I (TYP.)

50' WETLAND BUFFER

50' RIPARIAN BUFFER

OHW

WOODS

MOOSE RIVER

HVCTRL 112

HVCTRL 141

HVCTRL 2

COMB #9/103/30II

AER E&T

GUY WIRE

22+50

22+00

21+00

379+00

380+00

381+00

382+00

383+00

384+00

ML

US 2

KIRBY

RXR CROSSING SIGN

GRAVEL DRIVE

TH #59

STONE FILL,
TYPE III (TYP.)

CL TEMP.
DETOUR

TIE NAIL IN CP

SMALL POPLAR

COMB 113A

HVCTRL 101

DRY WELL

WELL

TEMPORARY
CONSTRUCTION
LIMITS

END DRIVE 1
STA. 30+71.00

END DRIVE 2
STA. 41+14.00

DRIVE 2

CH

20+00

TIE IN SMALL BOX ELDER

TIE IN SMALL ASH

TIE IN MEDIUM MAPLE

HVCTRL 1

HVCTRL 110

BRUSH

LEGEND

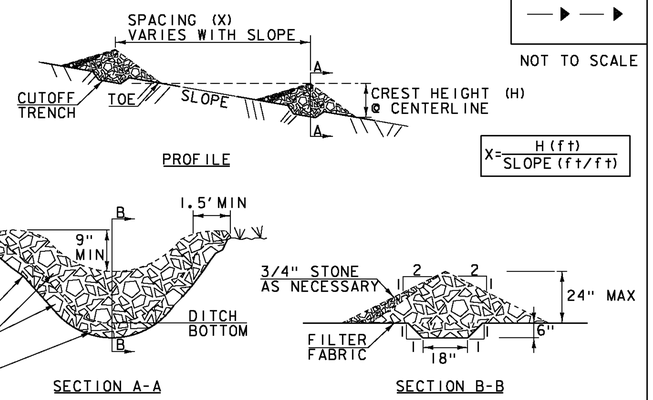
- LIMITS OF SOIL DISTURBANCE
- EROSION MATTING
- GRUBBING MATERIAL
- SEED & MULCH AREAS
- 50' RIPARIAN BUFFER — RIPARIAN BUFFER ZONE
- 50' WETLAND BUFFER — WETLAND BUFFER ZONE
- WETLAND LIMITS

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

PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: s98b320epscFinal.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: H. SALLS	CHECKED BY: C. CARLSON
EPSC FINAL CONDITION PLAN 2	SHEET 55 OF 62

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 OFTHE 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

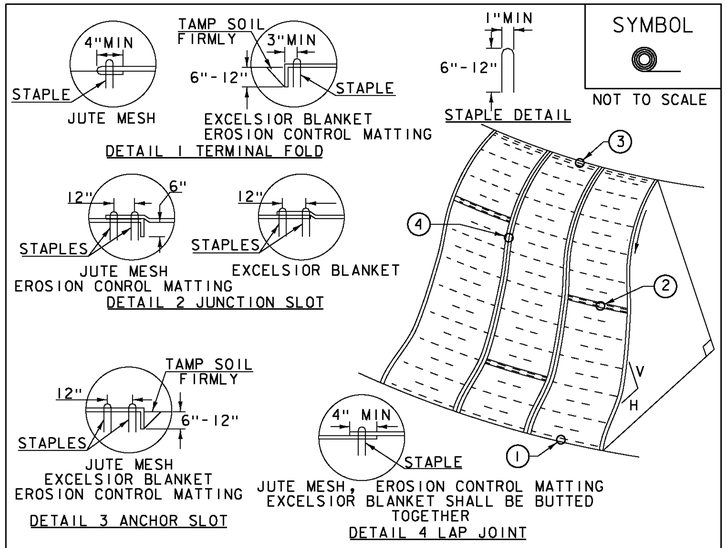
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

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

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

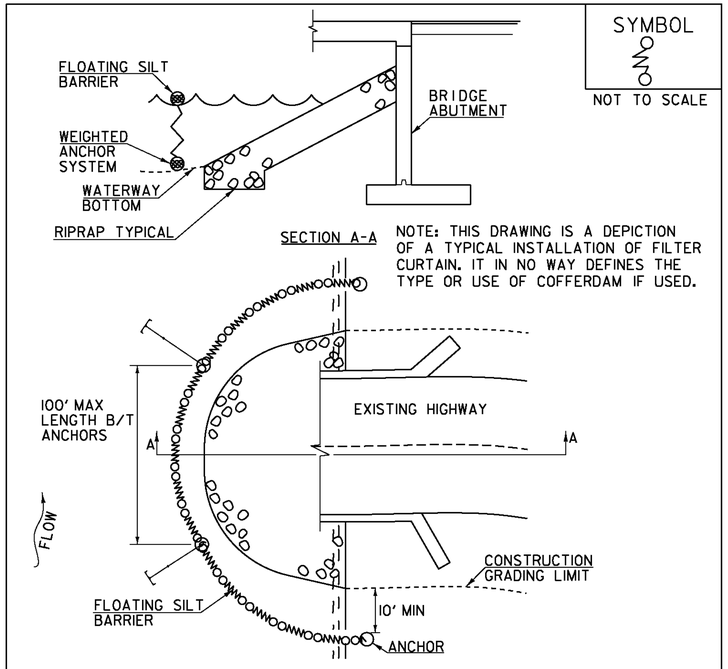
ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

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

FILTER CURTAIN

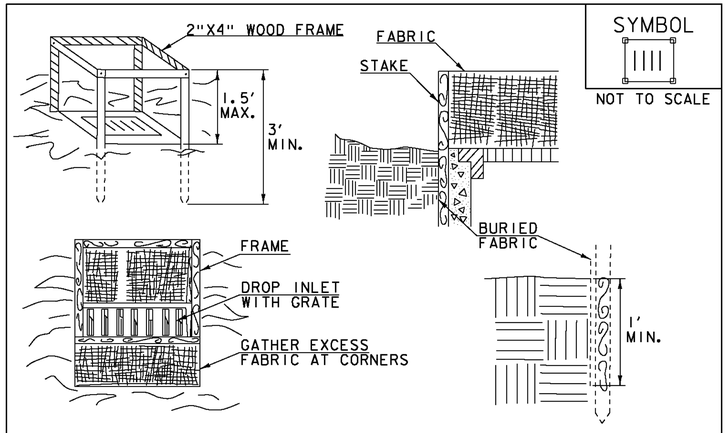
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 FOR GEOTEXTILE FOR FILTER CURTAIN (PAY ITEM 649.61).

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

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320epscDet.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
EPSC DETAILS 1

PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 56 OF 62



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN APPARENT OPENING SIZE OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2"x 4" WOOD OR EQUIVALENT METAL WITH A MINIMUM LENGTH OF 3'.
4. SPACE STAKES EVENLY AROUND INLET 3' APART AND DRIVE A MINIMUM 18" DEEP. SPANS GREATER THAN 3' MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1' MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.
7. MAXIMUM DRAINAGE AREA 1 ACRE

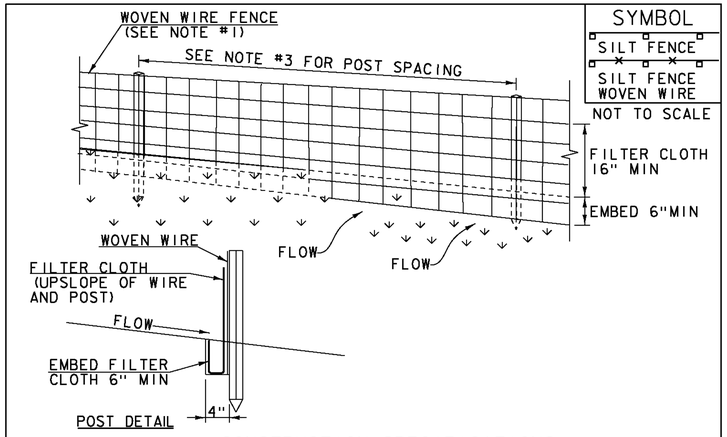
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

FILTER FABRIC DROP INLET PROTECTION

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 INLET PROTECTION DEVICE, TYPE I (PAY ITEM 653.40).

REVISIONS	
MARCH 7, 2008	WHF
JANUARY 13, 2009	WHF



SYMBOL

SILT FENCE

SILT FENCE WOVEN WIRE

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

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

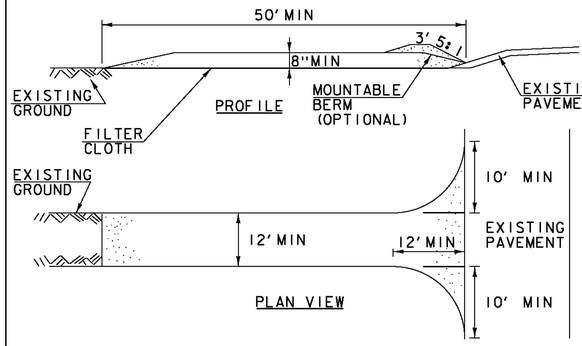
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SILT FENCE

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

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

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



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

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

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

STABILIZED CONSTRUCTION ENTRANCE

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

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

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

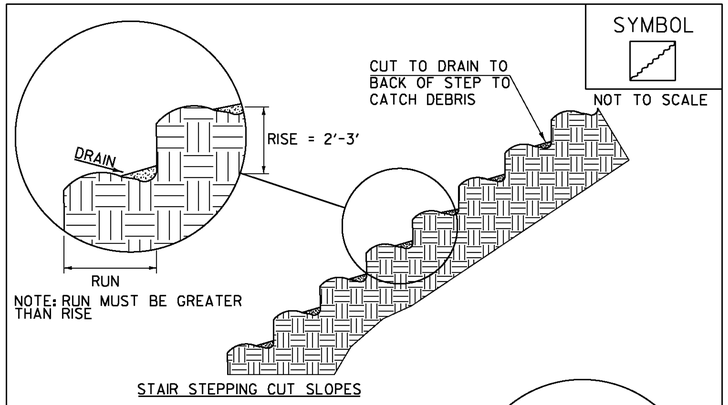
PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320epscDet.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
EPSC DETAILS 2

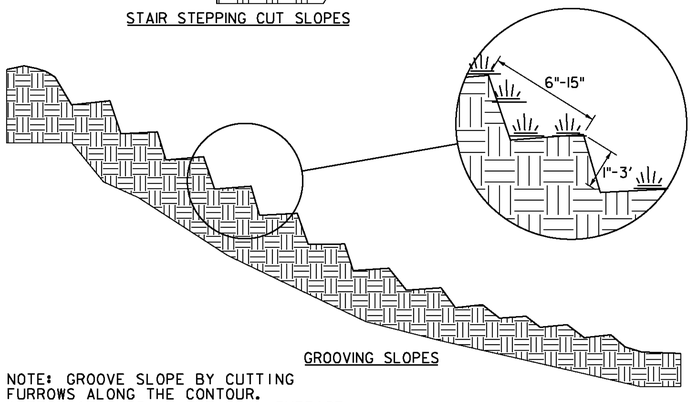
PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 57 OF 62

SYMBOL

NOT TO SCALE



STAIR STEPPING CUT SLOPES



GROOVING SLOPES

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

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

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: s98b320epscDet.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
EPSC DETAILS 3

PLOT DATE: 28-AUG-2012
DRAWN BY: C. MOONEY
CHECKED BY: C. CARLSON
SHEET 58 OF 62

STATE OF VERMONT
AGENCY OF TRANSPORTATION

RIGHT - OF - WAY DETAIL SHEET

TABLE OF PROPERTY ACQUISITION

PARCEL NO.	PROPERTY OWNER	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKE	REMAINDER	RIGHT			RECORDING DATA					REMARKS
					AREA±	AREA±	TYPE	(T)/(P)	AREA ±	TITLE	DATE	TOWN / CITY	BOOK	PAGE	
1A	HUDSON, SPENCER K.	3, 4	375+90.38 LT	380+14.78 CL	0.31 A		ALL R. T. & I.								US RT 2 HIGHWAY EASE.; 13,406 SF±
1B		3, 4	377+01.41 LT	379+70.64 LT			CONST.	(T)	2,534 SF						INCL. PDF & EC
			378+19.83 LT	379+50.53 LT			SLOPE	(T)	208 SF						
			378+26.49 LT	378+68.00 LT			DITCH & DRAIN	(P)	94 SF						
2A	GINGUE, PAUL E. & ROSEMARY H.	4	378+69.10 RT	381+96.18 RT			DETOUR	(T)	0.11A						4,917 SF±
			379+04.03 RT	379+65.41 RT			CONST.	(T)	512 SF						INCL. PDF & EC
			379+11.13 RT	379+65.41 RT			SLOPE	(T)	534 SF						
			379+18.70 RT	379+25.47 RT			INST. & MAINT.	(P)							GUARDRAIL
			379+43.78 RT	379+91.86 RT			SLOPE	(T)	1,060 SF						
			379+69.69 RT				ACCESS	(T)							FROM US RT 2 & DETOUR
			379+84.12 RT	380+05.96 RT			CONST.	(T)	278 SF						INCL. PDF & EC
2B		4	378+69.10 RT	380+18.54 RT	0.10 A		ALL R. T. & I.								US RT 2 HIGHWAY EASE.; 4,529 SF±
3A	DARRAH, RALPH A. & NANCY J.	3, 4	376+70.21 RT	378+66.63 RT			CONST.	(T)	1,611 SF						INCL PDF & EC
			378+00.18 RT	378+69.04 RT			SLOPE	(T)	57 SF						
3B		3, 4	375+90.38 CL	378+69.16 CL	0.15 A		ALL R. T & I.								US RT 2 HIGHWAY EASEMENT; 6,542 SF±
4	TOWN OF ST. JOHNSBURY	3, 4	379+02.86 CL	TH 59 30+00.00 CL			APPROACH	(T)							TH 59 4th CLASS ROAD, INCL. DETOUR
5	SCHLUETER, SALLY E.	4, 5	380+10.71 LT	385+59.71 CL	0.47 A		ALL R. T. & I.		0.47 A	WDIF	07/02/12	ST. JOHNSBURY	361	393-394	US RT 2 HWY. EASE.; 20,490 SF±
6	CENTRAL VERMONT PUBLIC SERVICE CORPORATION	3, 4, 5	375+90.38 LT	386+30.65 RT											UTILITY EASEMENTS
7	CHARTER ONE COMMUNICATIONS	3, 4, 5	375+90.38 LT	386+30.65 RT											UTILITY EASEMENTS
8	TELEPHONE OPERATING COMPANY	3, 4, 5	375+90.38 LT	386+30.65 RT											UTILITY EASEMENTS
9A	HUDSON, SPENCER K.	4	380+29.28 RT	381+96.18 RT			DETOUR	(T)	3,648 SF						
			380+52.13 RT	383+30.30 RT			SLOPE	(T)	3,038 SF						
			380+64.54 RT	383+37.01 RT			CONST.	(T)	2,846 SF						INCL. PDF, EC & BF
9B		4, 5	380+14.78 CL	386+30.65 RT	0.48 A		ALL R. T. & I.								US RT 2 HIGHWAY EASE.; 20,820 SF±

TABLE OF REVISIONS

REVISION NO.	SHEET NO.	DESCRIPTION	DATE
1	2, 4, 5	PARCEL 1 HUDSON - ELIMINATE PARCELS C & D	05/01/12
		COMPLETED BY: MT C.O. 9766 APPROVED BY: HP	
2	2	PARCELS 6, 7 & 8 UTILITIES - REMOVE ALL R. T. & I.	05/01/12
		COMPLETED BY: MT C.O. 9767 APPROVED BY: HP	
3	2, 4, 5	PARCEL 9 HUDSON - ADD NEW PARCELS 9A & 9B THAT	05/01/12
		WERE PREVIOUSLY 1C & 1D.	
		COMPLETED BY: MT C.O. 9768 APPROVED BY: HP	

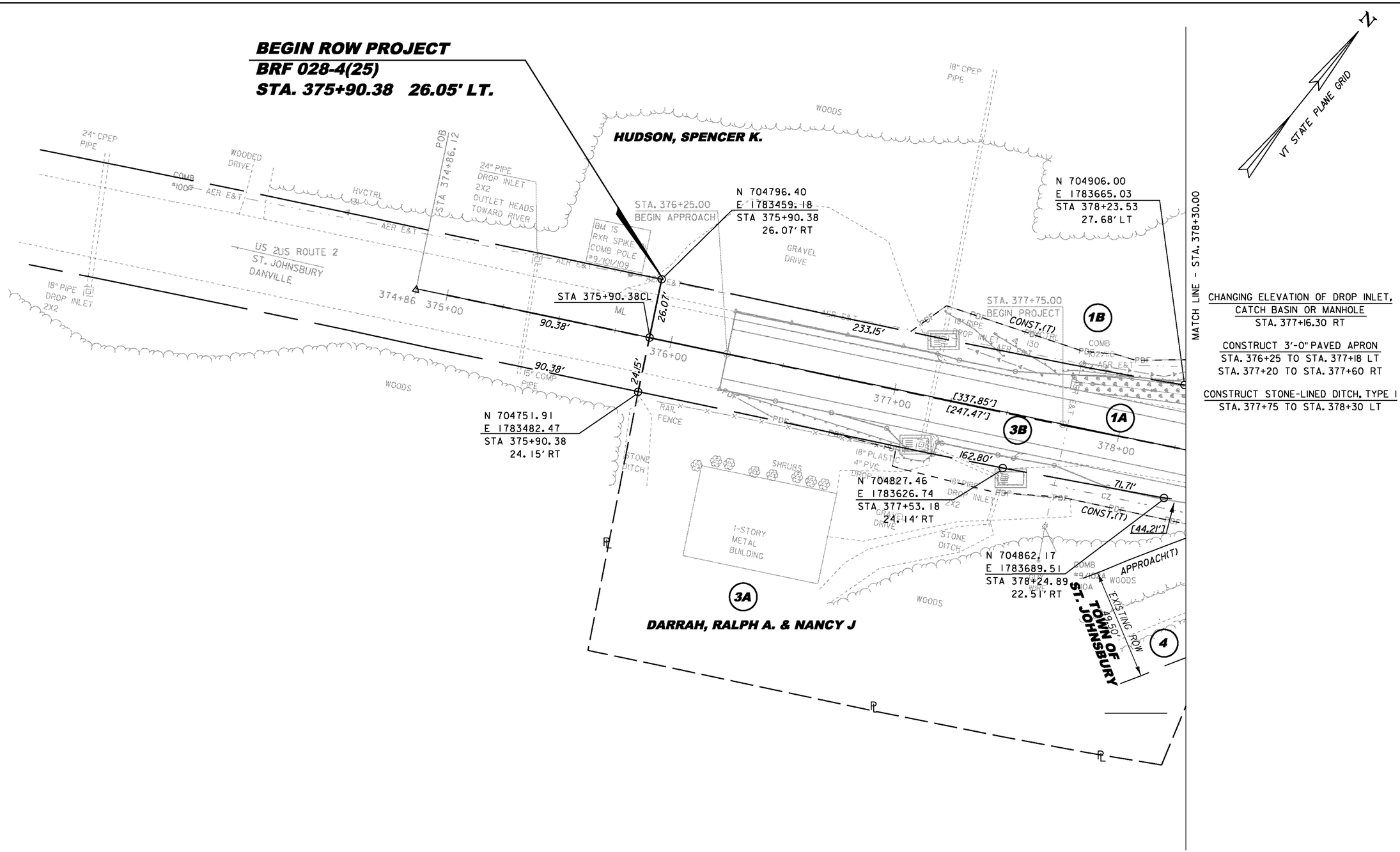
PLAN LEGEND

- EXISTING RIGHT-OF-WAY
- TAKING WITH ACCESS
- TAKING WITHOUT ACCESS
- CLEAR ZONE (CZ)
- PROPERTY LINE (P / L)
- TOE OF SLOPE
- TOP OF CUT
- SLOPE RIGHT (SR (P))
- CONSTRUCTION RIGHT (CONST. (T))
- PROJECT DEMARCATION FENCE (PDF)

EC	-EROSION CONTROL
(P)	-PERMANENT
(T)	-TEMPORARY
DR.	-DRAINAGE RIGHT
DIT.	-DITCHING RIGHT
CH.	-CHANNEL RIGHT
DRIVE	-DRIVE RIGHT
CUL.	-CULVERT RIGHT
C&T	-CLEARING & TRIMMING RIGHT
SR	-SLOPE RIGHT
UE	-UTILITY EASEMENT

APPROVED: HARRY PETROVS DATE: 04-09-12
CHIEF, PLANS & TITLES

PROJECT NAME:	ST. JOHNSBURY		
PROJECT NUMBER:	BRF 028-4(25)S		
FILE NAME:	r98b320_DetailSheet.xls	PLOT DATE:	28-AUG-2012
PROJECT LEADER:	C. CARLSON	DRAWN BY:	M. TROTTIER
DESIGNED BY:	T. LACKEY	CHECKED BY:	B. FERLAZO
R.O.W. DETAIL SHEET #1		SHEET	59 OF 62

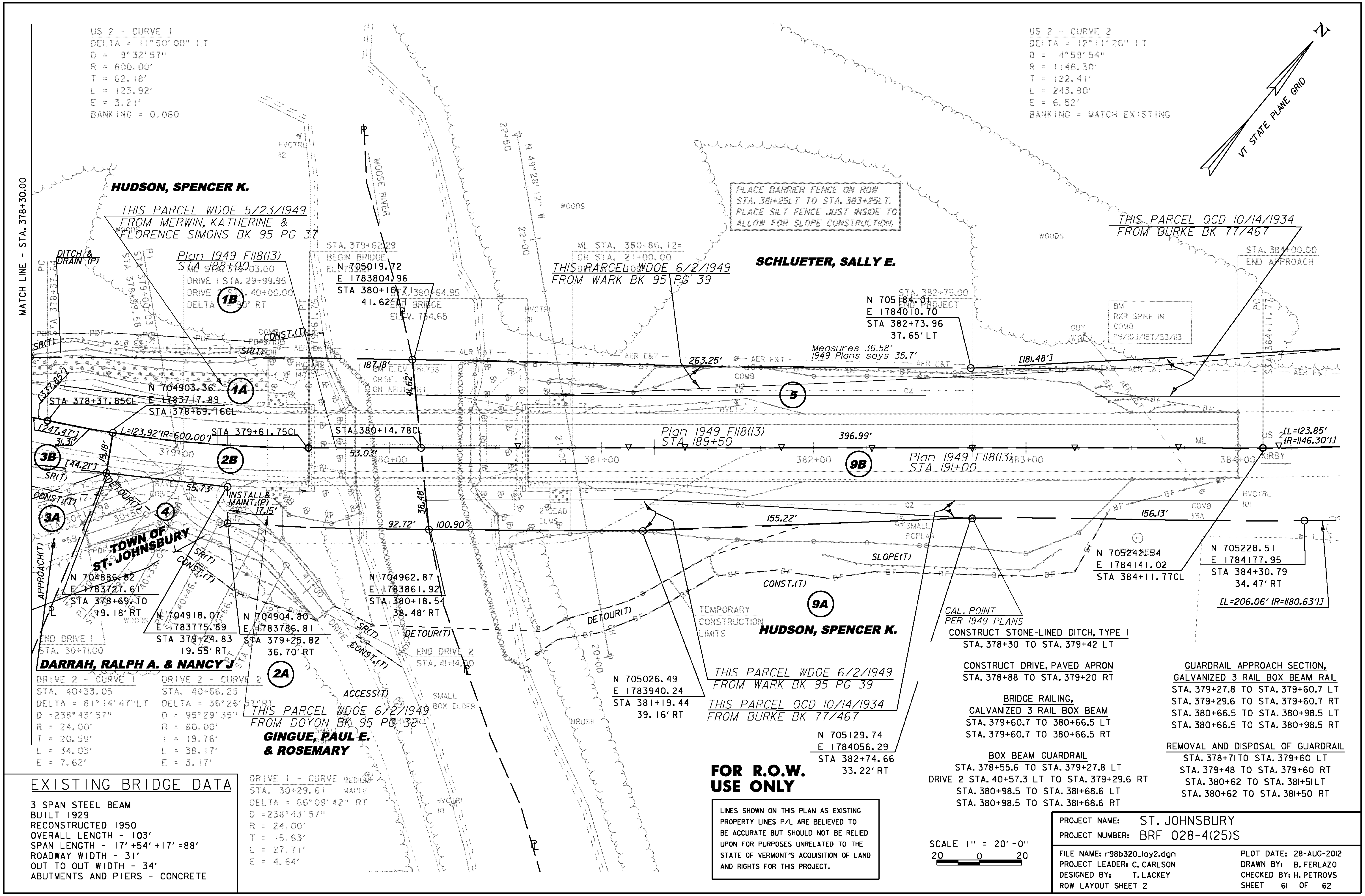


LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

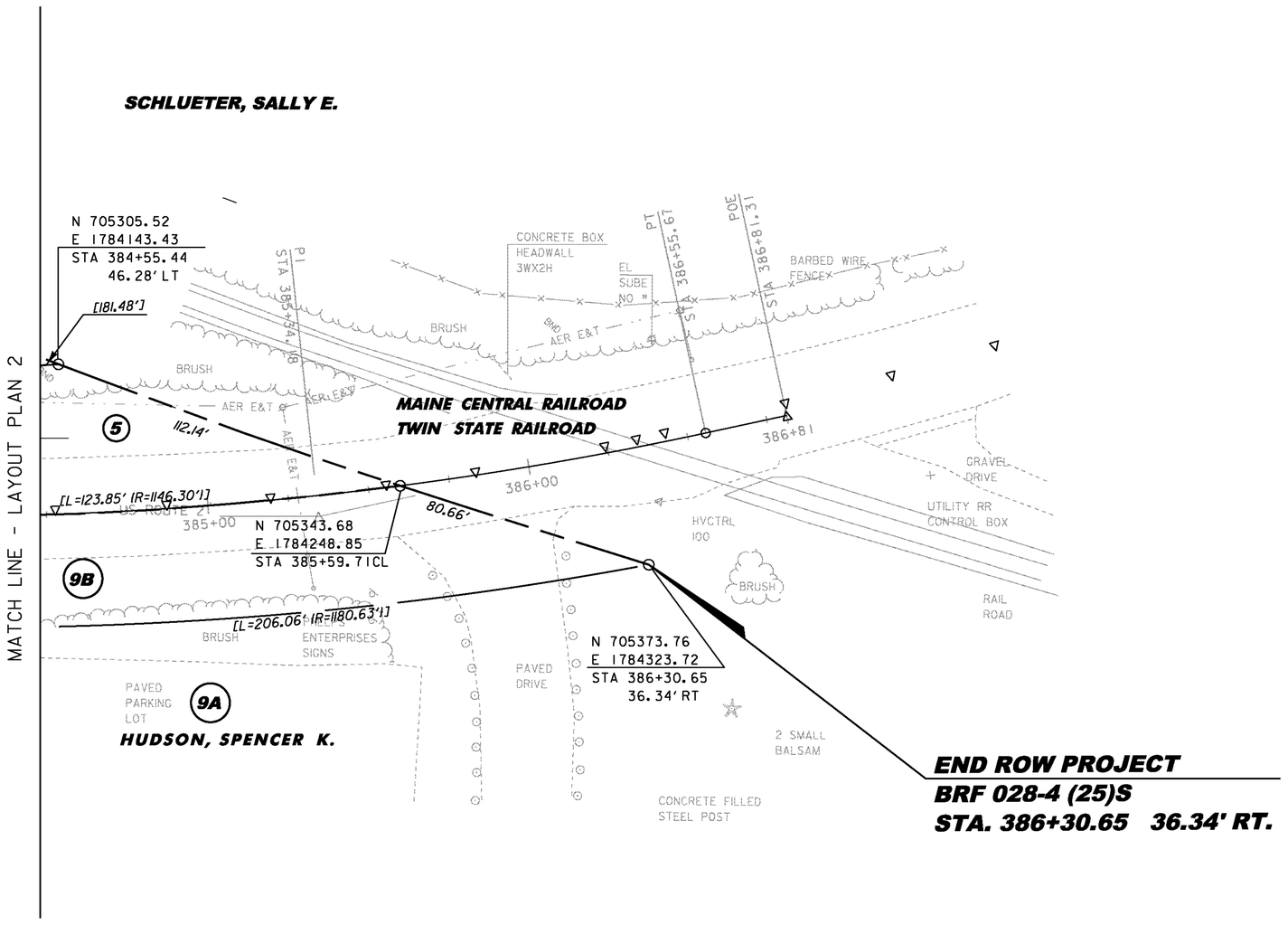
FOR R.O.W. USE ONLY

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

PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BRF 028-4(25)S
FILE NAME: r98b320_layl.dgn	PLOT DATE: 28-AUG-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: B. FERLAZO
DESIGNED BY: T. LACKEY	CHECKED BY: H. PETROVS
ROW LAYOUT SHEET 1	SHEET 60 OF 62



MATCH LINE - STA. 378+30.00
US 2 - CURVE 1
DELTA = 11°50'00" LT
D = 9°32'57"
R = 600.00'
T = 62.18'
L = 123.92'
E = 3.21'
BANKING = 0.060
US 2 - CURVE 2
DELTA = 12°11'26" LT
D = 4°59'54"
R = 1146.30'
T = 122.41'
L = 243.90'
E = 6.52'
BANKING = MATCH EXISTING
VT STATE PLANE GRID
N
HUDSON, SPENCER K.
THIS PARCEL WDOE 5/23/1949
FROM MERWIN, KATHERINE &
FLORENCE SIMONS BK 95 PG 37
PLACE BARRIER FENCE ON ROW
STA. 381+25LT TO STA. 383+25LT.
PLACE SILT FENCE JUST INSIDE TO
ALLOW FOR SLOPE CONSTRUCTION.
THIS PARCEL QCD 10/14/1934
FROM BURKE BK 77/467
SCHLUETER, SALLY E.
THIS PARCEL WDOE 6/2/1949
FROM WARK BK 95 PG 39
ML STA. 380+86.12=
CH STA. 21+00.00
STA. 379+62.29
BEGIN BRIDGE
N 705019.72
E 1783804.96
STA 380+10.71
41.62' LT
STA. 384+00.00
END APPROACH
STA. 382+75.00
END PROJECT
N 705184.01
E 1784010.70
STA 382+73.96
37.65' LT
BM
RXR SPIKE IN
COMB
#9/105/15T/53/113
Measures 36.58'
1949 Plans says 35.7'
Plan 1949 F118(13)
STA 188+00
Plan 1949 F118(13)
STA 189+50
Plan 1949 F118(13)
STA 191+00
N 704903.36
E 1783717.89
STA 378+69.16CL
STA 378+37.85CL
STA 379+61.75CL
STA 380+14.78CL
[L=123.92' (R=600.00')]
[L=123.85' (R=1146.30')]
[L=206.06' (R=1180.63')]
TOWN OF ST. JOHNSBURY
N 704886.82
E 1783727.61
STA 378+69.10
19.18' RT
N 704918.07
E 1783775.89
STA 379+24.83
19.55' RT
N 704904.80
E 1783786.81
STA 379+25.82
36.70' RT
N 704962.87
E 1783861.92
STA 380+18.54
38.48' RT
N 705026.49
E 1783940.24
STA 381+19.44
39.16' RT
N 705129.74
E 1784056.29
STA 382+74.66
33.22' RT
N 705242.54
E 1784141.02
STA 384+11.77CL
N 705228.51
E 1784177.95
STA 384+30.79
34.47' RT
CAL. POINT
PER 1949 PLANS
HUDSON, SPENCER K.
TEMPORARY CONSTRUCTION LIMITS
THIS PARCEL WDOE 6/2/1949
FROM WARK BK 95 PG 39
THIS PARCEL QCD 10/14/1934
FROM BURKE BK 77/467
DARRAH, RALPH A. & NANCY J.
THIS PARCEL WDOE 6/2/1949
FROM DOYON BK 95 PG 38
GINGUE, PAUL E.
& ROSEMARY
END DRIVE 1
STA. 30+71.00
END DRIVE 2
STA. 41+14.80
DRIVE 2 - CURVE 1
STA. 40+33.05
DELTA = 81°14'47"LT
D =238°43'57"
R = 24.00'
T = 20.59'
L = 34.03'
E = 7.62'
DRIVE 2 - CURVE 2
STA. 40+66.25
DELTA = 36°26'57"RT
D = 95°29'35"
R = 60.00'
T = 19.76'
L = 38.17'
E = 3.17'
DRIVE 1 - CURVE
STA. 30+29.61
DELTA = 66°09'42" RT
D =238°43'57"
R = 24.00'
T = 15.63'
L = 27.71'
E = 4.64'
EXISTING BRIDGE DATA
3 SPAN STEEL BEAM
BUILT 1929
RECONSTRUCTED 1950
OVERALL LENGTH - 103'
SPAN LENGTH - 17'+54'+17'=88'
ROADWAY WIDTH - 31'
OUT TO OUT WIDTH - 34'
ABUTMENTS AND PIERS - CONCRETE
FOR R.O.W.
USE ONLY
LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.
SCALE 1" = 20'-0"
CONSTRUCT STONE-LINED DITCH, TYPE I
STA. 378+30 TO STA. 379+42 LT
CONSTRUCT DRIVE, PAVED APRON
STA. 378+88 TO STA. 379+20 RT
BRIDGE RAILING,
GALVANIZED 3 RAIL BOX BEAM
STA. 379+60.7 TO 380+66.5 LT
STA. 379+60.7 TO 380+66.5 RT
BOX BEAM GUARDRAIL
STA. 378+55.6 TO STA. 379+27.8 LT
DRIVE 2 STA. 40+57.3 LT TO STA. 379+29.6 RT
STA. 380+98.5 TO STA. 381+68.6 LT
STA. 380+98.5 TO STA. 381+68.6 RT
GUARDRAIL APPROACH SECTION,
GALVANIZED 3 RAIL BOX BEAM RAIL
STA. 379+27.8 TO STA. 379+60.7 LT
STA. 379+29.6 TO STA. 379+60.7 RT
STA. 380+66.5 TO STA. 380+98.5 LT
STA. 380+66.5 TO STA. 380+98.5 RT
REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 378+71 TO STA. 379+60 LT
STA. 379+48 TO STA. 379+60 RT
STA. 380+62 TO STA. 381+51LT
STA. 380+62 TO STA. 381+50 RT
PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S
FILE NAME: r98b320_lay2.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: T. LACKEY
ROW LAYOUT SHEET 2
PLOT DATE: 28-AUG-2012
DRAWN BY: B. FERLAZO
CHECKED BY: H. PETROVS
SHEET 61 OF 62



LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

FOR R.O.W. USE ONLY

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

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 028-4(25)S

FILE NAME: r98b320_lay3.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: T. LACKEY
ROW LAYOUT SHEET 3

PLOT DATE: 28-AUG-2012
DRAWN BY: B. FERLAZO
CHECKED BY: H. PETROVS
SHEET 62 OF 62

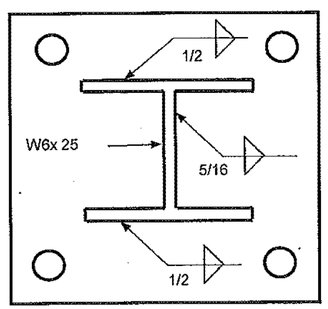
Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification: **A572 gr 50, A709 Gr 50**
Welding process: **Gas Metal Arc Welding (GMAW) Spray Transfer**
Manual, semi-automatic, or automatic: **Semi-Automatic**
Position of welding: **Flat (1F) or Horizontal (2F)**
Filler metal specification: **AWS A5.18**
Filler metal classification: **ER70S-6**
Electrode and manufacturer: **Lincoln Electric Lincoln Weld L-56**
Flux and manufacturer: **N/A**
Shielding gas: **86% Argon / 14% CO2** Flow rate: **35-45 CFM**
Single or multiple pass: **Single or Multiple**
Single or multiple arc: **Single**
Welding current: **DCEP**
Polarity: **Reverse - electrode positive**
Welding progression: **Stringers**
Root treatment: **clean base metal**
Preheat and interpass temperature: **base metal up to 3/4" (50°F) ; over 3/4 thru 1-1/2" (150°F) : over 1-1/2" thru 2-1/2" (225°F)**
Postheat treatment: **None**
Electrode extension: **3/4" ± 1/4"**

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters Amperes	Welding parameters Volts	Travel speed	Joint detail
5/16"	1	0.062"	300 A ± 30	29 V ± 2	15 ipm ± 2	
1/2"	1 & 2	0.062"	↓	↓	15 ipm ± 2	

VTrans Received
CK'D ____ OK'd BY JWC
JUN 07 2013
Resubmit ____ APPROVED ✓
BY ____ DATE 6/11/13

This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.5

WPS no. **W-VTPEDPOST2**
Revision no. **0**
Supporting PQR no. **Pre-Qualified**
Project Name **St. Johnsbury, VT**

Fabricator **Highway Safety Corporation**
Prepared By: **Paul Radice**
Date **06-04-13**
Project Number **BRF 028-4(25)S**

Paul A Radice
CWI 98070221
QC1 EXP. 7/1/2013

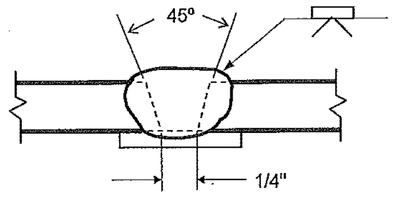
Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification: **ASTM A500 gr B**
Welding process: **Gas Metal Arc Welding (GMAW)**
Manual, semi-automatic, or automatic: **Semi-Automatic**
Position of welding: **Flat (1F) or Horizontal (2F)**
Filler metal specification: **AWS A5.18**
Filler metal classification: **ER70S-6**
Electrode and manufacturer: **Lincoln Electric Lincoln Weld L-56**
Flux and manufacturer: **N/A**
Shielding gas: **86% Argon / 14% CO2** Flow rate: **35-45 CFM**
Single or multiple pass: **Single**
Single or multiple arc: **Single**
Welding current: **DCEP**
Polarity: **Reverse - electrode positive**
Welding progression: **Stringers**
Root treatment: **clean base metal**
Preheat and interpass temperature: **base metal up to 3/4" (50°F)**
Postheat treatment: **None**
Electrode extension: **3/4" ± 1/4"**

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters Amperes	Welding parameters Volts	Travel speed	Joint detail
	1	0.063"	300 A ± 30	29 V ± 2	15 ipm ± 2	B-U2a-GF 

This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.1

WPS no. **W-VGwBCK**
Revision no. **0**
Supporting PQR no. **Pre-Qualified**
Project Name **St. Johnsbury, VT**

Fabricator **Highway Safety Corporation**
Prepared By: **Paul Radice**
Date **06-04-13**
Project Number **BRF 028-4(25)S**

Paul A Radice
CWI 98070221
QC1 EXP. 7/1/2013

Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification **ASTM A36, A709 Gr 36, A500 gr B, A709 gr 50, A572 gr 50, A992**

Welding process **Gas Metal Arc Welding (GMAW) Spray Transfer**

Manual, semi-automatic, or automatic **Semi-Automatic**

Position of welding **Flat (1F) or Horizontal (2F)**

Filler metal specification **AWS A5.18**

Filler metal classification **ER70S-6**

Electrode and manufacturer **Lincoln Electric Lincoln Weld L-56**

Flux and manufacturer **N/A**

Shielding gas **86% Argon / 14% CO2** Flow rate **35-45 CFM**

Single or multiple pass **Single or Multiple**

Single or multiple arc **Single**

Welding current **DCEP**

Polarity **Reverse - electrode positive**

Welding progression **Stringers**

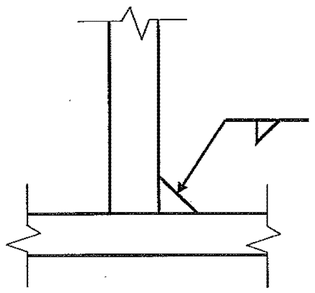
Root treatment **clean base metal**

Preheat and interpass temperature **base metal up to 3/4" (50°F) ; over 3/4 thru 1-1/2" (150°F) : over 1-1/2" thru 2-1/2" (225°F)**

Postheat treatment **None**

Electrode extension **3/4" ± 1/4"**

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters Amperes	Welding parameters Volts	Travel speed	Joint detail
1/4"	1	0.062"	300 A ± 30	29 V ± 2	15 lpm ± 2	TYPICAL ALL FILLET WELDS 

VTrans Received JWC
CK'D OK'd BY
JUN 07 2013
Resubmit APPROVED
BY DATE 6/11/13

This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.1 / D1.5

WPS no. **W-1911A**

Revision no. **0**

Supporting PQR no. **Pre-Qualified**

Project Name **St. Johnsbury, VT**

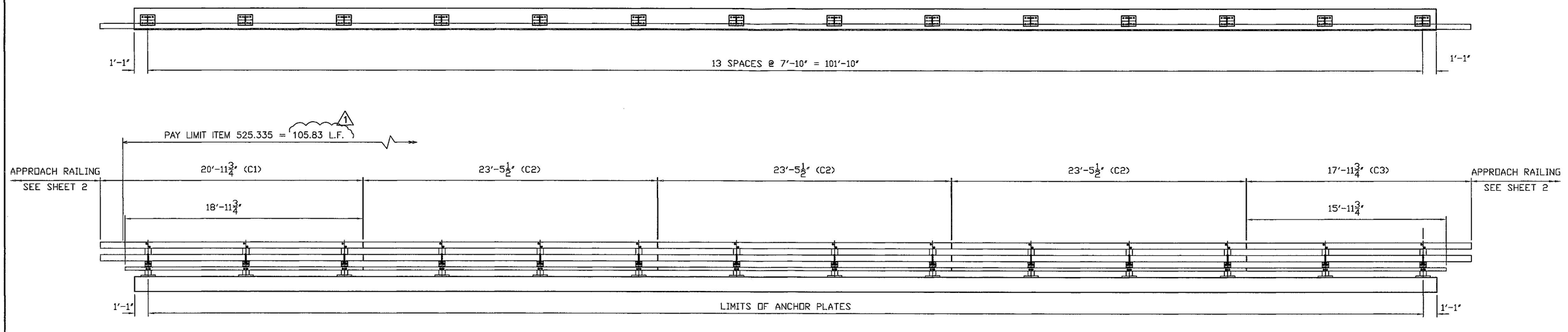
Fabricator **Highway Safety Corporation**

Prepared By: **Paul Radice**

Paul A Radice
CWI 98070221
QC1 EXP. 7/1/2013

Date **06-04-13**

Project Number **BRF 028-4(25)S**



BRIDGE NO. 108

NORTH RAIL ELEVATION
looking at face of rail from center of road
SOUTH ELEVATION SIMILAR

BILL OF MATERIAL – BRIDGE NO. 108 (NORTH & SOUTH SIDES)

Qty	mk	Description	Spec.
28		PED POST W6x25 2'-9.000" OAH (GALV) w/ 1.250" x 10" x 14" B.P	A572 gr 50
16		FIXED SPLICE TUBE (6x6) GALV TS 5x5x5/16 x 2'-3" OAL w/ (3) 1/4" fill plates	A500 gr B
8		FIXED SPLICE BAR (5x3) GALV 2.125 x 4.25 x 27.00"	A500 gr B
28		BRIDGE RAIL SHELF ANGLE (GALV) L 5 x 5 x 5/8 x 6" LONG	A572 gr 50
4	C1	TUBE 6 x 6 x 3/16 x 20 ft - 11.750 in LG (GALV) fixed splice 1 end, exp splice 1 end	A500 gr B
12	C2	TUBE 6 x 6 x 3/16 x 23 ft - 5.500 in LG (GALV) fixed splice both ends	A500 gr B
4	C3	TUBE 6 x 6 x 3/16 x 17 ft - 11.750 in LG (GALV) fixed splice 1 end, exp splice 1 end	A500 gr B
2	C1	TUBE 5 x 3 x 1/4 x 18 ft - 11.750 in LG (GALV) fixed splice 1 end, exp splice 1 end	A500 gr B
6	C2	TUBE 5 x 3 x 1/4 x 23 ft - 5.500 in LG (GALV) fixed splice both ends	A500 gr B
2	C3	TUBE 5 x 3 x 1/4 x 15 ft - 11.750 in LG (GALV) fixed splice 1 end, exp splice 1 end	A500 gr B
28		ANCHOR PLATE (GALV) PL 3/8" x 10.000" x 14.000"	A36
112		THREADED STUD (2 1/4" THREAD EACH SIDE) 1.000-08 x 13.000 HDG A449	A449
224		NUT HEX HEAVY (2) HI-STRENGTH 1.000-08 GALV	A563 DH
224		WASHER ROUND SMALL (2) F436 1.000 SAE GALV	F436
112		JAM NUT (1) 1.000-08 GALV	A563 DH
112		7/8 x 8 slotted head bolt w/ HN & LW SQW	A449
28		3/4 x 8 hex bolt w/ HN & LW (A325)	A325
56		3/4 x 2.5 hex bolt w/ HN & LW (A325)	A325
32		3/4 x 4.5 hex bolt w/ HN & 2 FW (A325)	A325
64		3/4 x 7.5 hex bolt w/ HN & 2 FW (A325)	A325

ITEM 525.335 3 RAIL BOX BEAM BRIDGE RAILING = 212 L.F.

No.	Remarks	Date
1	revised per approver	7/2/13
0	initial submittal	6/21/13

REVISIONS

Vermont Agency of Transportation
RECEIVED
CK'D BY M. Umberger OK'D BY C. Carlson
July 2, 2013
RESUBMIT ____ Approved ____
BY C. Carlson DATE 07/03/13

HIGHWAY SAFETY CORP
GLASTONBURY, CT
860-633-9445

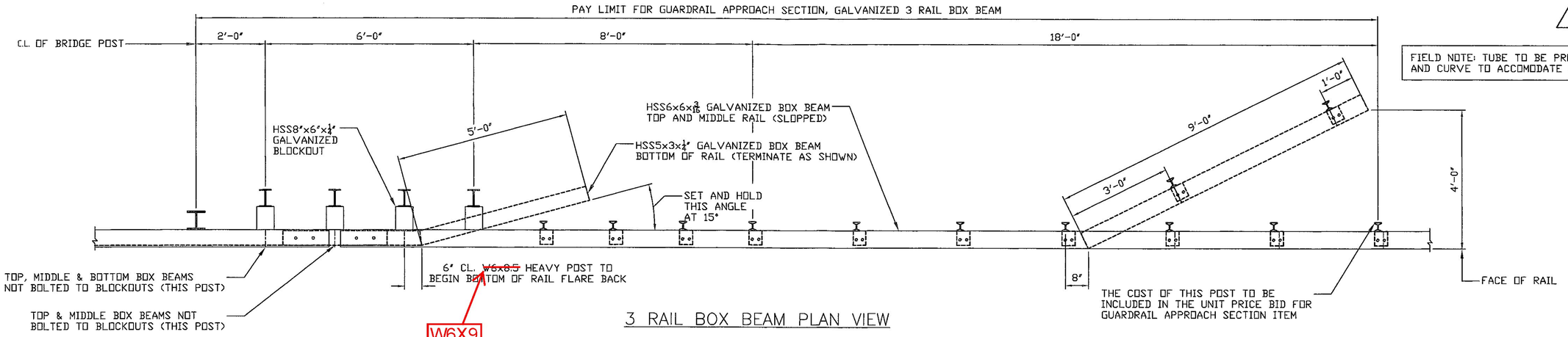
ITEM 525.335 3-RAIL BOX BEAM
TOWN OF ST. JOHNSBURY
COUNTY OF CALEDONIA
US ROUTE 2 – PRINCIPAL ARTERIAL
BRIDGE NO. 108
PROJECT NO. BRF 028-4(25)S

AISC CERTIFIED FABRICATOR

HSC JOB NO. 1911
SHEET NO. 1 of 4

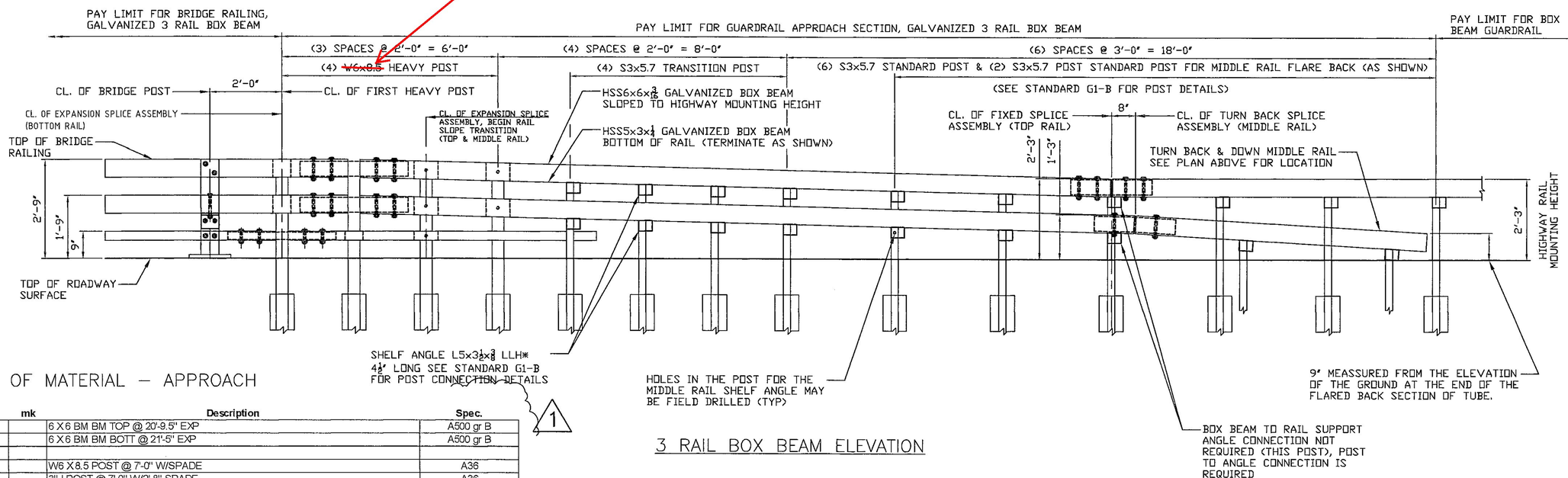
GENERAL CONTRACTOR
SUB CONTRACTOR LAFAYETTE

DRAWN	CHECKED	DATE	SCALE	SIZE
BJB		06-01-13	NONE	D



3 RAIL BOX BEAM PLAN VIEW

1. FIELD NOTE: TUBE TO BE PROVIDED STRAIGHT AND CURVE TO ACCOMODATE SLIGHT CURVE



3 RAIL BOX BEAM ELEVATION

BILL OF MATERIAL – APPROACH

Qty	mk	Description	Spec.
4		6 X 6 BM BM TOP @ 20'-9.5" EXP	A500 gr B
4		6 X 6 BM BM BOTT @ 21'-5" EXP	A500 gr B
16		W6 X 8.5 POST @ 7'-0" W/SPADE	A36
12		3" I POST @ 7'-0" W/2'-8" SPADE	A36
24		3" I POST @ 5'-3" W/SPADE STD	A36
8		3" I POST @ 3'-11" W/SPADE	A36
32		TUBE BLOCKOUT 6" X 8"-6" LONG	A500 gr B
8		TUBE BLOCKOUT 6" X 8"-3" LONG	A500 gr B
4		9' BX BM TRANS FLAREBACK END	A500 gr B
4		5 X 5 DOUBLE BEND SPLICE TUBE	A500 gr B
4		5 X 5 FIXED TUBE SPLICE 27"	A500 gr B
8		5 X 5 EXP TUBE SPLICE 36"	A500 gr B
68		BOX BEAM CLIP ANGLE STD	A36
4		BOX BEAM END ANGLE STD	A36
32		3/4 X 8 CARR BOLT - N FW LW (2 per heavy post)	A307
4		3/4 X 8 HEX BOLT - N 2FW (1 per 9'-0" flareback)	A307
72		1/2 X 1 1/2 HEX BOLT - N FW (1 per shelf / end angle)	A307
80		1/2 X 1 1/2 HEX BOLT - N 2FW LW (2 per tube block)	A307
72		3/8 X 7 1/2 HEX BOLT - N 2FW (1 per shelf angle)	A307
48		3/4 x 7 1/2 HEX BOLT W/ HN & 2 FW (A325) (4 per 6x6 splice)	A325
8		3/4 x 7 1/2 HEX BOLT W/HN & 2 FW & LW (A325) (2 per angled turnback splice)	A325

ITEM 621.725 GUARDRAIL APPR. SECTION 3 RAIL = 4 EA.

Vermont Agency of Transportation
RECEIVED
1911 shipping next (2)off
CK'D BY M. Umberger OK'D BY C. Carlson
July 2, 2013
RESUBMIT _____ Approved AsNoted
BY C. Carlson DATE 07/03/13

HIGHWAY SAFETY CORP
GLASTONBURY, CT
860-633-9445

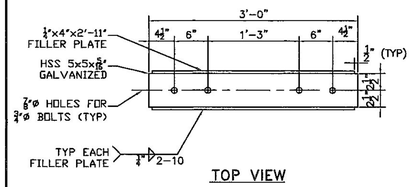
ITEM 621.725 APPROACH SECTION
TOWN OF ST. JOHNSBURY
COUNTY OF CALEDONIA
US ROUTE 2 – PRINCIPAL ARTERIAL
BRIDGE NO. 108
PROJECT NO. BRF 028-4(25)S

AISC CERTIFIED FABRICATOR

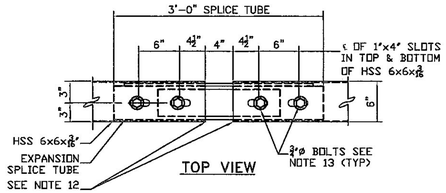
GENERAL CONTRACTOR
SUB CONTRACTOR LAFAYETTE

DRAWN	CHECKED	DATE	SCALE	SIZE
BJB		06-01-13	NONE	D

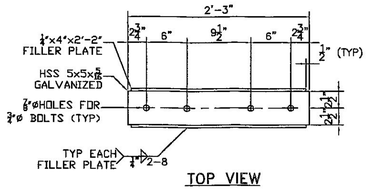
HSC JOB NO. 1911
SHEET NO. 2 of 4



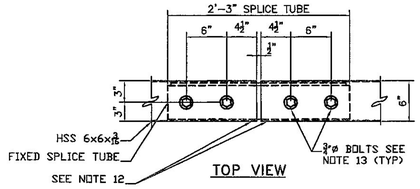
TOP VIEW



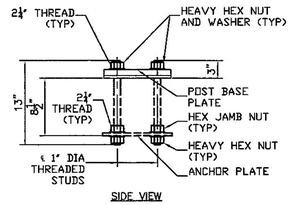
TOP VIEW



TOP VIEW

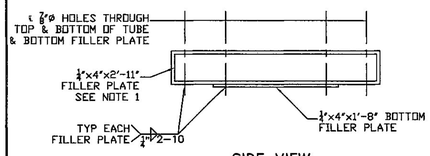


TOP VIEW



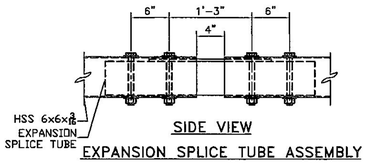
SIDE VIEW

RAILING POST ANCHORAGE



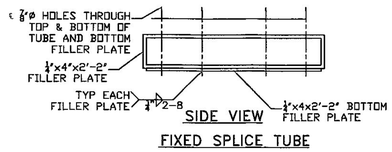
SIDE VIEW

EXPANSION SPLICE TUBE



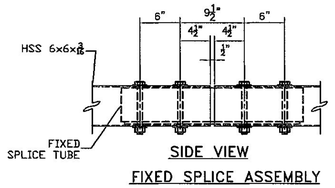
SIDE VIEW

EXPANSION SPLICE TUBE ASSEMBLY



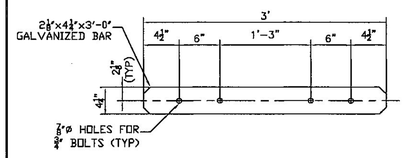
SIDE VIEW

FIXED SPLICE TUBE

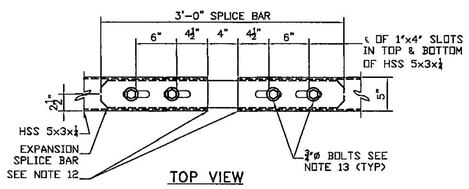


SIDE VIEW

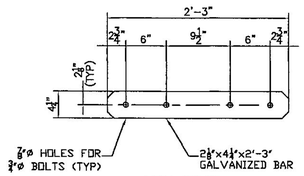
FIXED SPLICE ASSEMBLY



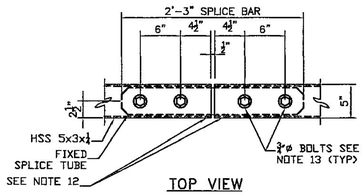
TOP VIEW



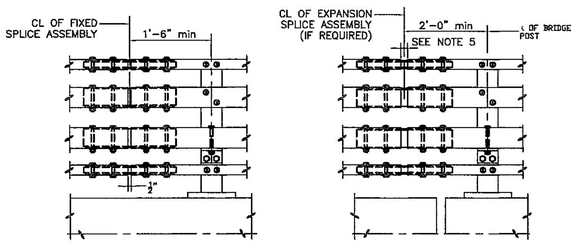
TOP VIEW



TOP VIEW



TOP VIEW

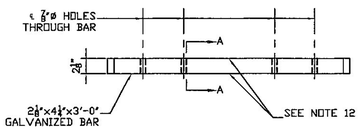


FIXED SPLICE

EXPANSION SPLICE

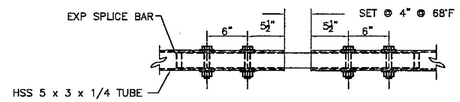
RAILING SPLICE DETAIL ELEVATION

A RAILING EXPANSION SPLICE IS REQUIRED IN ANY POST SPACING THAT CONTAINS A SUPERSTRUCTURE EXPANSION JOINT.



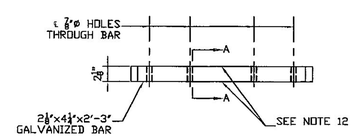
SIDE VIEW

EXPANSION SPLICE BAR



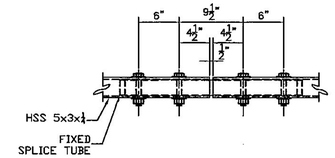
SIDE VIEW

EXPANSION SPLICE ASSEMBLY



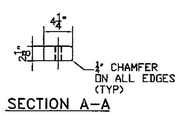
SIDE VIEW

FIXED SPLICE BAR



SIDE VIEW

FIXED SPLICE ASSEMBLY



SECTION A-A

NOTES:

1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TOA MINIMUM RADIUS OF 1/16".
3. ALL POSTS SHALL BE SET NORMAL TO GRADE. THE MAXIMUM CENTER TO CENTER SPACING OF BRIDGE RAIL POSTS IS 8'-3".
4. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POST AND PREFERABLY TO AT LEAST 4 POSTS.
5. RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4" @ 68°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
6. HOLES IN RAILS FOR TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
7. BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
8. SEE STANDARD DRAWING G-1B FOR DETAILS OF DELINEARTORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING FOR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON TEH DRIVER'S LEFT. PAYMENT SHALL BE INCIDENTAL TO OTHER ITEMS.
9. ANY BENDING OF RAIL SHALL BE DONE AT THE FABRICATION PLANT ACCORDING TOA PROCEDURE PROVIDED BY THE FABRICATOR.
10. THE MIMIMUM DISTANCE FROM THE POST TO AN EXPANSION JOINT SHALL BE DETERMINED BY THE MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHORS STUD TO THE END OF THE SLAB, OR TO THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
11. THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.

NOTES:

12. PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
13. FOUR (4) 3/4" DIAMETER BOLTS, 7 1/2" LONG WITH TWO (2) WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT AND THE FIRST THREAD BELOW THE NUT TO BE BURRED TO PREVENT DISLODGING. FOUR (4) BOLTS AT EACH SPLICE.

Vermont Agency of Transportation

RECEIVED

1911 shopdrg rev1 (2).pdf

CK'D BY M. Umberger OK'D BY C. Carlson

July 2, 2013

RESUBMIT _____ Approved _____

BY C. Carlson DATE 07/03/13

HIGHWAY SAFETY CORP

GLASTONBURY, CT

860-633-9445

ITEM 525.335 3-RAIL BOX BEAM
TOWN OF ST. JOHNSBURY
COUNTY OF CALEDONIA
US ROUTE 2 - PRINCIPAL ARTERIAL
BRIDGE NO. 108
PROJECT NO. BRF 028-4(25)S

AISC CERTIFIED FABRICATOR

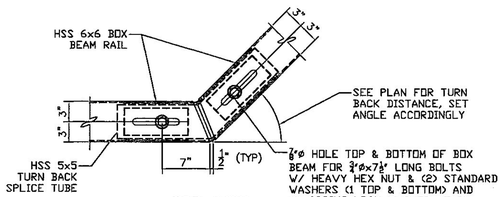
GENERAL CONTRACTOR

HSC JOB NO. 1911

SUB CONTRACTOR LAFAYETTE

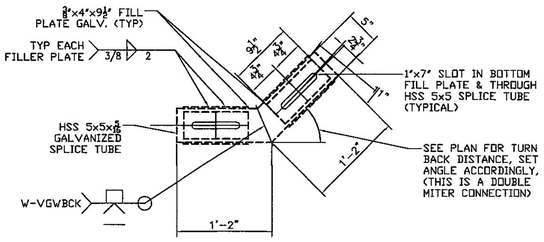
SHEET NO. 3 of 4

DRAWN	CHECKED	DATE	SCALE	SIZE
BJB		06-01-13	NONE	D

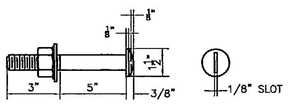


TOP VIEW

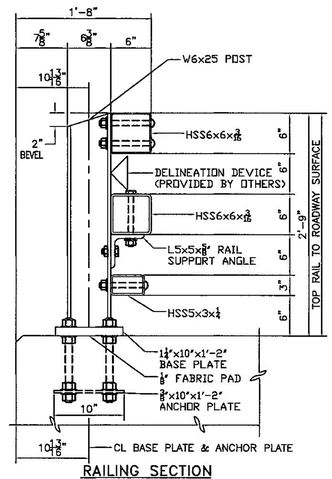
TURN BACK SPLICE TUBE ASSEMBLY



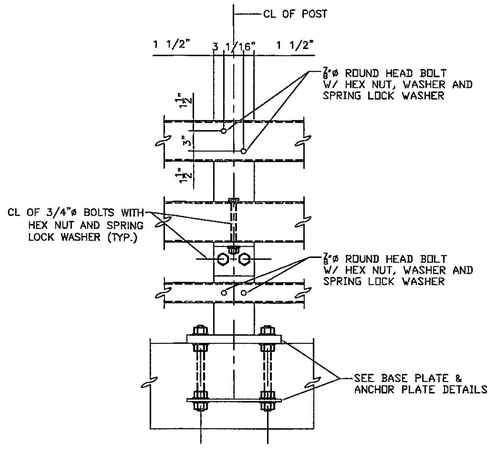
TOP VIEW



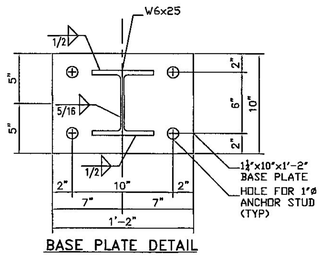
ROUND HEAD BOLT DETAIL



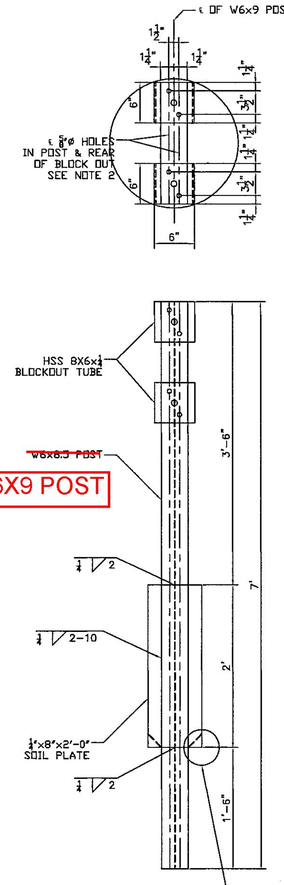
RAILING SECTION



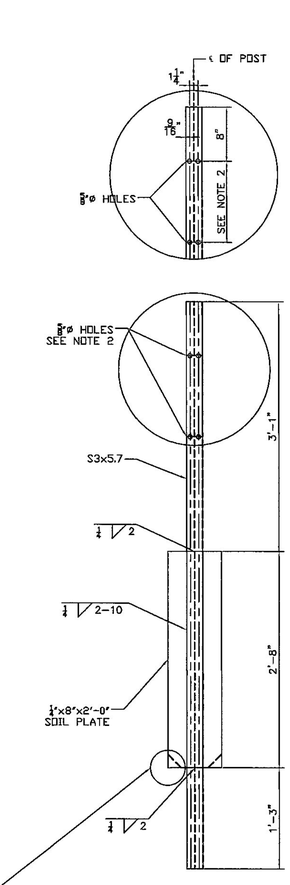
RAILING ELEVATION



BASE PLATE DETAIL



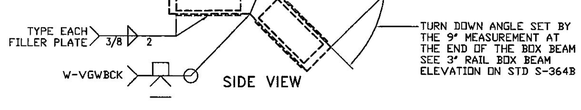
HEAVY POST DETAIL



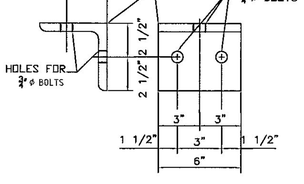
TRANSITION POST DETAIL

TURN BACK SPLICE TUBE DETAIL

TURN BACK & TURN TUBE JOINT

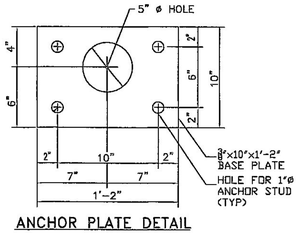


SIDE VIEW



RAILING ANGLE DETAIL

L 5 x 5 x 5/8



ANCHOR PLATE DETAIL

NOTES:

1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TOA MINIMUM RADIUS OF 1/16".
3. ALL POSTS SHALL BE SET NORMAL TO GRADE. THE MAXIMUM CENTER TO CENTER SPACING OF BRIDGE RAIL POSTS IS 8'-3".
4. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POST AND PREFERABLY TO AT LEAST 4 POSTS.
5. RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4" @ 68°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
6. HOLES IN RAILS FOR TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
7. BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
8. SEE STANDARD DRAWING G-1B FOR DETAILS OF DELINEARTORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING FOR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON TEH DRIVER'S LEFT. PAYMENT SHALL BE INCIDENTAL TO OTHER ITEMS.
9. ANY BENDING OF RAIL SHALL BE DONE AT THE FABRICATION PLANT ACCORDING TOA PROCEDURE PROVIDED BY THE FABRICATOR.
10. THE MIMIMUM DISTANCE FROM THE POST TO AN EXPANSION JOINT SHALL BE DETERMINED BY THE MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHORS STUD TO THE END OF THE SLAB, OR TO THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
11. THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.
12. PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
13. FOUR (4) 3/4" DIAMETER BOLTS, 7 1/2" LONG WITH TWO (2) WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT AND THE FIRST THREAD BELOW THE NUT TO BE BURRED TO PREVENT DISLODGING. FOUR (4) BOLTS AT EACH SPLICE.

Vermont Agency of Transportation

RECEIVED

CK'D BY M. Umberger OK'D BY C. Carlson

July 2, 2013

RESUBMIT _____ Approved AsNoted

BY C. Carlson DATE 07/03/13

HIGHWAY SAFETY CORP
GLASTONBURY, CT
860-633-9445

ITEM 525.335 3-RAIL BOX BEAM
TOWN OF ST. JOHNSBURY
COUNTY OF CALEDONIA
US ROUTE 2 - PRINCIPAL ARTERIAL
BRIDGE NO. 108
PROJECT NO. BRF 028-4(25)S

AISC CERTIFIED FABRICATOR

HSC JOB NO. 1911

SHEET NO. 4 of 4

GENERAL CONTRACTOR

SUB CONTRACTOR LAFAYETTE

DRAWN	CHECKED	DATE	SCALE	SIZE
BJB		06-01-13	NONE	D

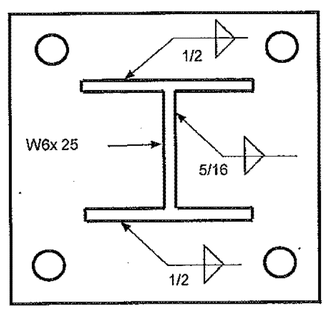
Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification: **A572 gr 50, A709 Gr 50**
Welding process: **Gas Metal Arc Welding (GMAW) Spray Transfer**
Manual, semi-automatic, or automatic: **Semi-Automatic**
Position of welding: **Flat (1F) or Horizontal (2F)**
Filler metal specification: **AWS A5.18**
Filler metal classification: **ER70S-6**
Electrode and manufacturer: **Lincoln Electric Lincoln Weld L-56**
Flux and manufacturer: **N/A**
Shielding gas: **86% Argon / 14% CO2** Flow rate: **35-45 CFM**
Single or multiple pass: **Single or Multiple**
Single or multiple arc: **Single**
Welding current: **DCEP**
Polarity: **Reverse - electrode positive**
Welding progression: **Stringers**
Root treatment: **clean base metal**
Preheat and interpass temperature: **base metal up to 3/4" (50°F) ; over 3/4 thru 1-1/2" (150°F) : over 1-1/2" thru 2-1/2" (225°F)**
Postheat treatment: **None**
Electrode extension: **3/4" ± 1/4"**

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters Amperes	Welding parameters Volts	Travel speed	Joint detail
5/16"	1	0.062"	300 A ± 30	29 V ± 2	15 ipm ± 2	
1/2"	1 & 2	0.062"	↓	↓	15 ipm ± 2	

VTrans Received
CK'D ____ OK'd BY JWC
JUN 07 2013
Resubmit ____ APPROVED ✓
BY ____ DATE 6/11/13

This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.5

WPS no. **W-VTPEDPOST2**
Revision no. **0**
Supporting PQR no. **Pre-Qualified**
Project Name **St. Johnsbury, VT**

Fabricator **Highway Safety Corporation**
Prepared By: **Paul Radice**
Date **06-04-13**
Project Number **BRF 028-4(25)S**

Paul A Radice
CWI 98070221
QC1 EXP. 7/1/2013

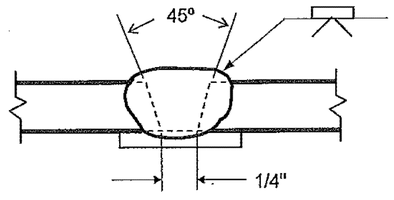
Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification: **ASTM A500 gr B**
Welding process: **Gas Metal Arc Welding (GMAW)**
Manual, semi-automatic, or automatic: **Semi-Automatic**
Position of welding: **Flat (1F) or Horizontal (2F)**
Filler metal specification: **AWS A5.18**
Filler metal classification: **ER70S-6**
Electrode and manufacturer: **Lincoln Electric Lincoln Weld L-56**
Flux and manufacturer: **N/A**
Shielding gas: **86% Argon / 14% CO2** Flow rate: **35-45 CFM**
Single or multiple pass: **Single**
Single or multiple arc: **Single**
Welding current: **DCEP**
Polarity: **Reverse - electrode positive**
Welding progression: **Stringers**
Root treatment: **clean base metal**
Preheat and interpass temperature: **base metal up to 3/4" (50°F)**
Postheat treatment: **None**
Electrode extension: **3/4" ± 1/4"**

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters Amperes	Welding parameters Volts	Travel speed	Joint detail
	1	0.063"	300 A ± 30	29 V ± 2	15 ipm ± 2	B-U2a-GF 

This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.1

WPS no. **W-VGwBCK**
Revision no. **0**
Supporting PQR no. **Pre-Qualified**
Project Name **St. Johnsbury, VT**

Fabricator **Highway Safety Corporation**
Prepared By: **Paul Radice**
Date **06-04-13**
Project Number **BRF 028-4(25)S**

Paul A Radice
CWI 98070221
QC1 EXP. 7/1/2013

Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification **ASTM A36, A709 Gr 36, A500 gr B, A709 gr 50, A572 gr 50, A992**

Welding process **Gas Metal Arc Welding (GMAW) Spray Transfer**

Manual, semi-automatic, or automatic **Semi-Automatic**

Position of welding **Flat (1F) or Horizontal (2F)**

Filler metal specification **AWS A5.18**

Filler metal classification **ER70S-6**

Electrode and manufacturer **Lincoln Electric Lincoln Weld L-56**

Flux and manufacturer **N/A**

Shielding gas **86% Argon / 14% CO2** Flow rate **35-45 CFM**

Single or multiple pass **Single or Multiple**

Single or multiple arc **Single**

Welding current **DCEP**

Polarity **Reverse - electrode positive**

Welding progression **Stringers**

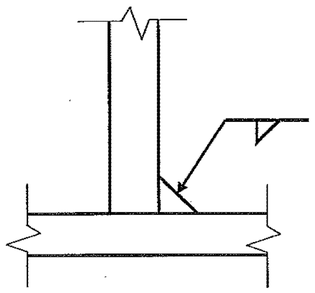
Root treatment **clean base metal**

Preheat and interpass temperature **base metal up to 3/4" (50°F) ; over 3/4 thru 1-1/2" (150°F) : over 1-1/2" thru 2-1/2" (225°F)**

Postheat treatment **None**

Electrode extension **3/4" ± 1/4"**

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters Amperes	Welding parameters Volts	Travel speed	Joint detail
1/4"	1	0.062"	300 A ± 30	29 V ± 2	15 lpm ± 2	TYPICAL ALL FILLET WELDS 

VTrans Received JWC
CK'D OK'd BY
JUN 07 2013
Resubmit APPROVED
BY DATE 6/11/13

This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.1 / D1.5

WPS no. **W-1911A**

Revision no. **0**

Supporting PQR no. **Pre-Qualified**

Project Name **St. Johnsbury, VT**

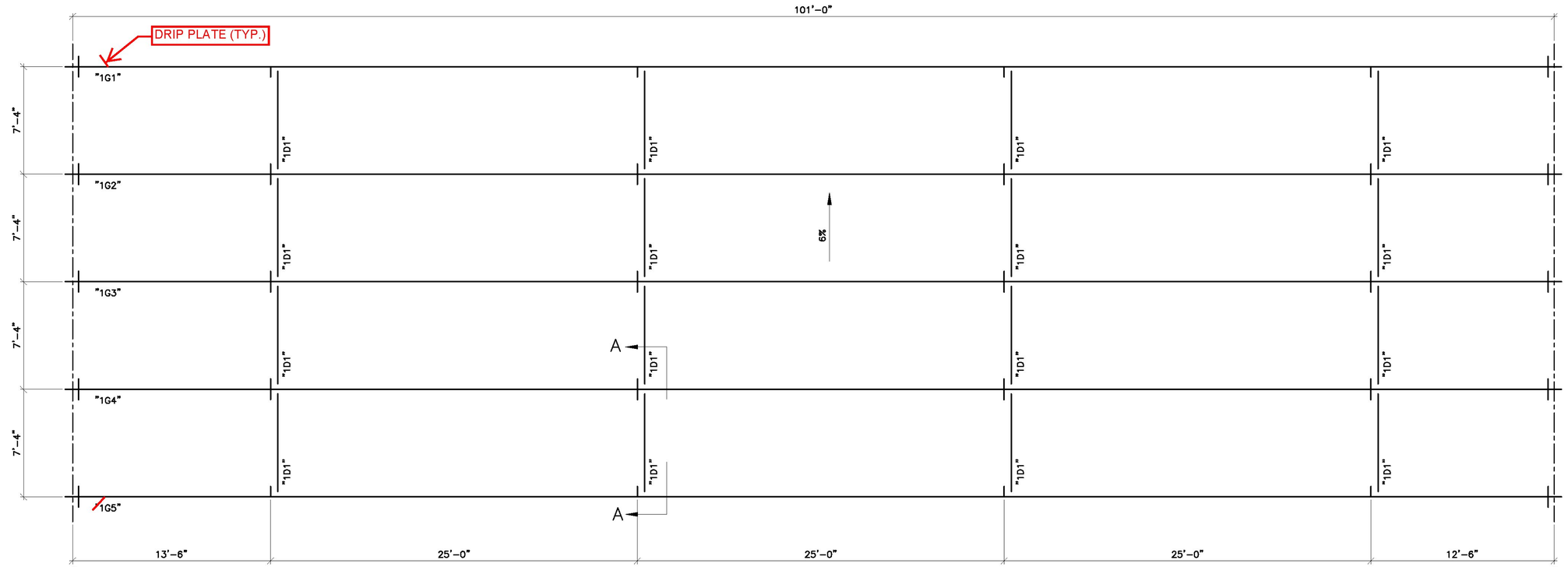
Fabricator **Highway Safety Corporation**

Prepared By: **Paul Radice**

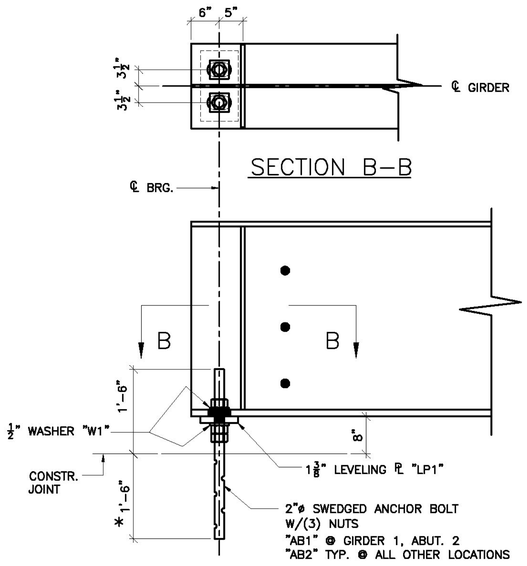
Paul A Radice
CWI 98070221
QC1 EXP. 7/1/2013

Date **06-04-13**

Project Number **BRF 028-4(25)S**

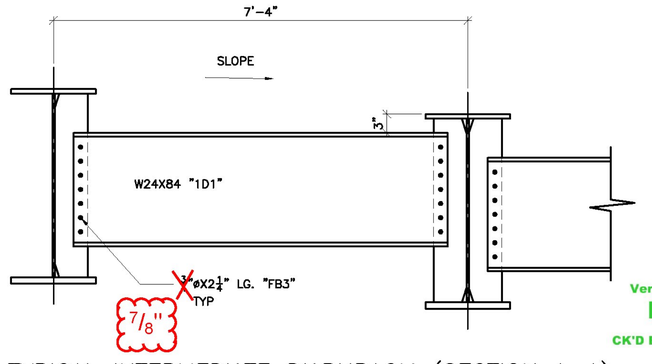


FRAMING PLAN



TYPICAL GIRDER END ELEVATION

* 15" @ GIRDER 1, ABUT. 2



TYPICAL INTERMEDIATE DIAPHRAGM (SECTION A–A)

COATING SYSTEM: NEPCOAT LIST "A"

PRIMER – CARBOZINC 11HS INORGANIC ZINC PRIMER, 2–6 MILS DFT
INTERMEDIATE – CARBOGUARD 893 EPOXY INTERMEDIATE, 3–6 MILS DFT
TOP COAT – CARBOTHANE 133 LH ALIPHATIC POLYURETHANE, 3–6 MILS DFT
COLOR CHIP #20059 (BROWN)

GENERAL NOTES:

ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011, AND IT'S LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION AND IT'S LATEST REVISIONS.

ALL MATERIAL SHALL CONFORM TO AASHTO M270 (ASTM A709) GRADE 50.
ALL MATERIAL NOTED * SHALL MEET THE CHARPY V–NOTCH TESTING REQUIREMENTS OF ZONE 2, H FREQUENCY: 15 FT.–LB AT 40° F.
NDT MUST BE ACCORDING TO ANSI/AASHTO/AWS D1.5, SECTION 6

ALL BOLTS SHALL BE ~~X~~ø CONFORMING TO ASTM A325 WITH RO–CAP TESTING AND MECHANICALLY GALVANIZED.

7/8" Ø BOLTS IN 15/16" Ø HOLES.

, TYPE 1

Vermont Agency of Transportation
RECEIVED
CK'D BY D. PETERSON OK'D BY C. CARLSON
08/20/2012
RESUBMIT _____ APPROVED AS NOTED
BY C. CARLSON DATE 12/14/2012

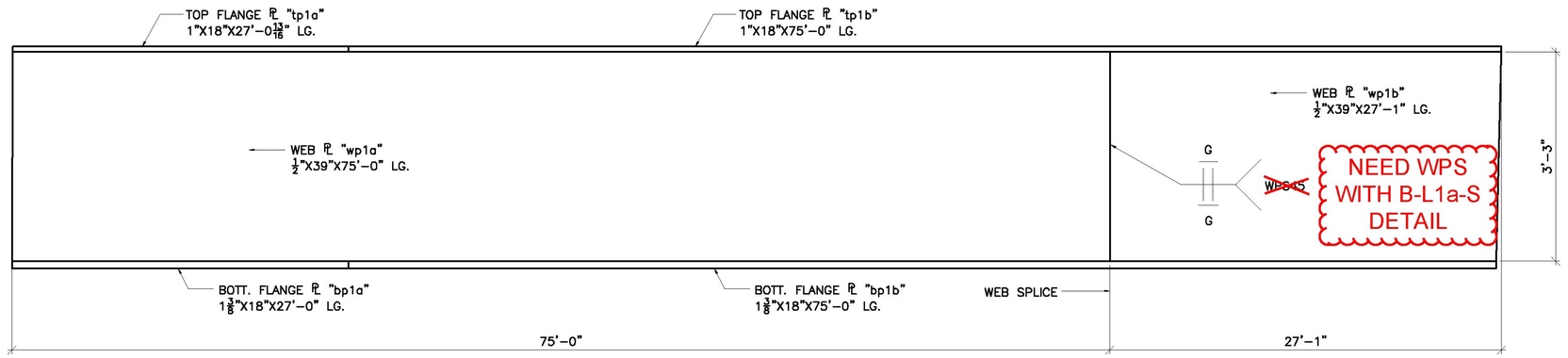
FINISH					
MATERIAL	SEE DETAIL SHEETS				
HOLES					
ELECTRODES					
WELDS	PER WPS				
SURFACE PREP					
		NO	DATE	DESCRIPTION	BY
		REVISIONS			

ARC ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265–2646 – FAX: (207) 265–4054

DRAFTER	JAC	FRAMING PLAN	PROJECT NO. BRF 028–4(25)S
DATE	11/12/12	STATE OF VERMONT, TOWN OF JOHNSBURY, BRIDGE NO. 108 COUNTY OF CALEDONIA, US ROUTE 2 – PRINCIPAL ARTERIAL	DWG. NO. E1
CHECKED	MTD		
JOB#	12–175	SC: WINTERSET, INC.	

J.A.C. DRAFTING/S95B12/1

TOP VIEW



ELEVATION VIEW

BOTTOM VIEW

Vermont Agency of Transportation
RECEIVED
CK'D BY D. PETERSON OK'D BY C. CARLSON
08/20/2012
RESUBMIT _____ APPROVED AS NOTED
BY C. CARLSON DATE 12/14/2012

FINISH				
MATERIAL AASHTO M270 (ASTM A709) GRADE 50				
HOLES 15/16"ø U.O.N.				
ELECTRODES				
WELDS PER WPS				
SURFACE PREP				
	NO	DATE	DESCRIPTION	BY

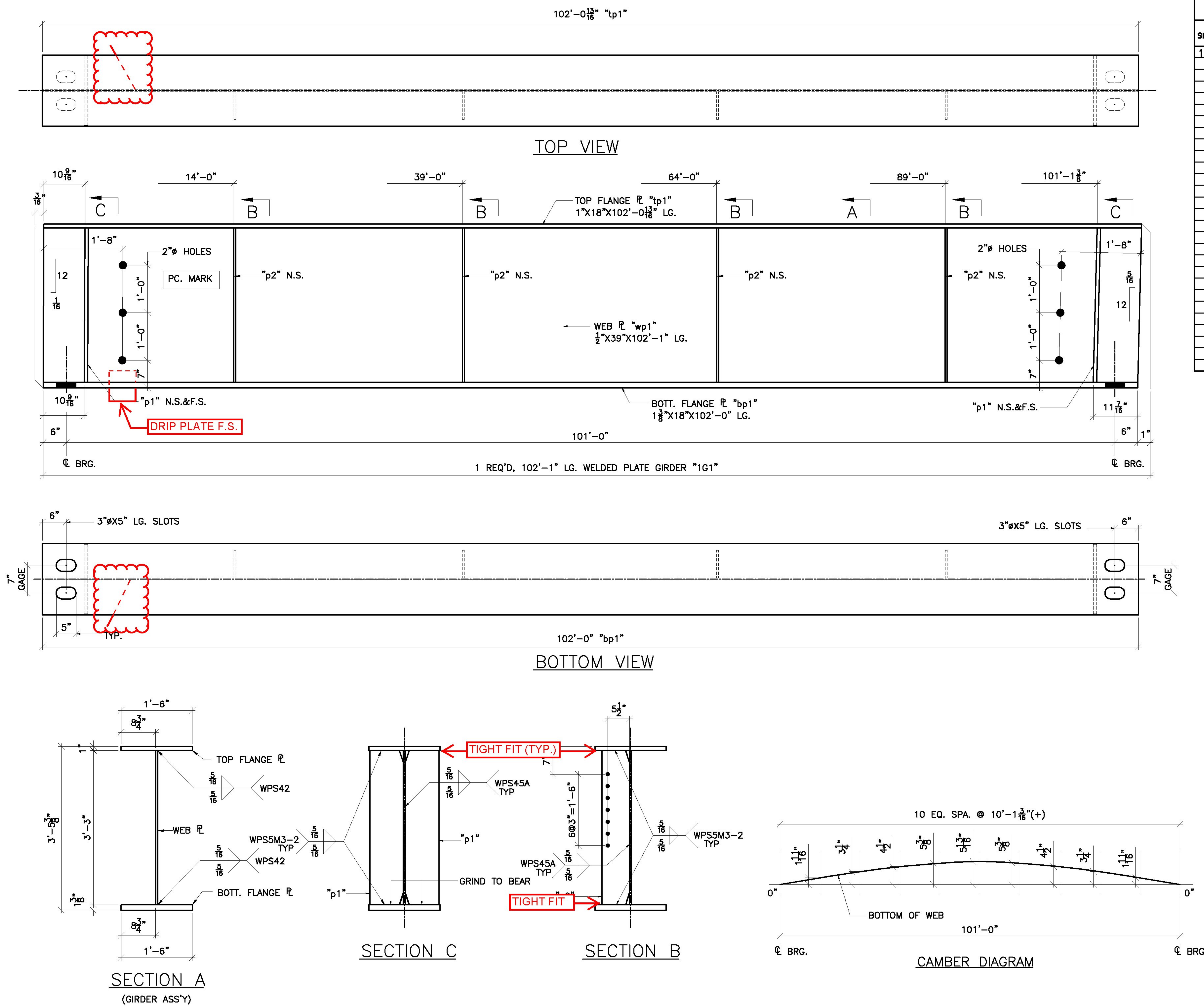
REVISIONS

ARC ENTERPRISES, INC.

ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

DRAFTER JAC	FLANGE & WEB SHOP SPLICES		PROJECT NO. BRF 028-4(25)S
DATE 11/12/12	STATE OF VERMONT, TOWN OF JOHNSBURY. BRIDGE NO. 108		
CHECKED JS	COUNTY OF CALEDONIA, US ROUTE 2 – PRINCIPAL ARTERIAL		DWG. NO. S1
JOB # 12-175	G.C. WINTERSET, INC.		

J:A.C. DRAWING/SHEETS/S1



BILL OF MATERIAL

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	WT.
1	1G1			BRIDGE GIRDER			
		1	wp1	PL 1/2X39	102'-1	*	6769
		1	tp1	PL 1X18	102'-0 13/16	*	6252
		1	bp1	PL 1 3/8X18	102'-0	*	8591
		4	p1	SEE SHT. 6			
		4	p2	SEE SHT. 6			

GIRDER WT: 22,091

* CVN (SEE NOTES ON DWG. NO. E1)

Vermont Agency of Transportation
RECEIVED
CK'D BY D. PETERSON OK'D BY C. CARLSON
08/20/2012
RESUBMIT ______ APPROVED AS NOTED
BY C. CARLSON DATE 12/14/2012

SEE SHEET 6 FOR DETAILS NOT SHOWN

		NO	DATE	DESCRIPTION	BY
FINISH					
MATERIAL	AASHTO M270 (ASTM A709) GRADE 50				
HOLES	15/16"ø U.O.N.				
ELECTRODES					
WELDS	PER WPS				
SURFACE PREP					

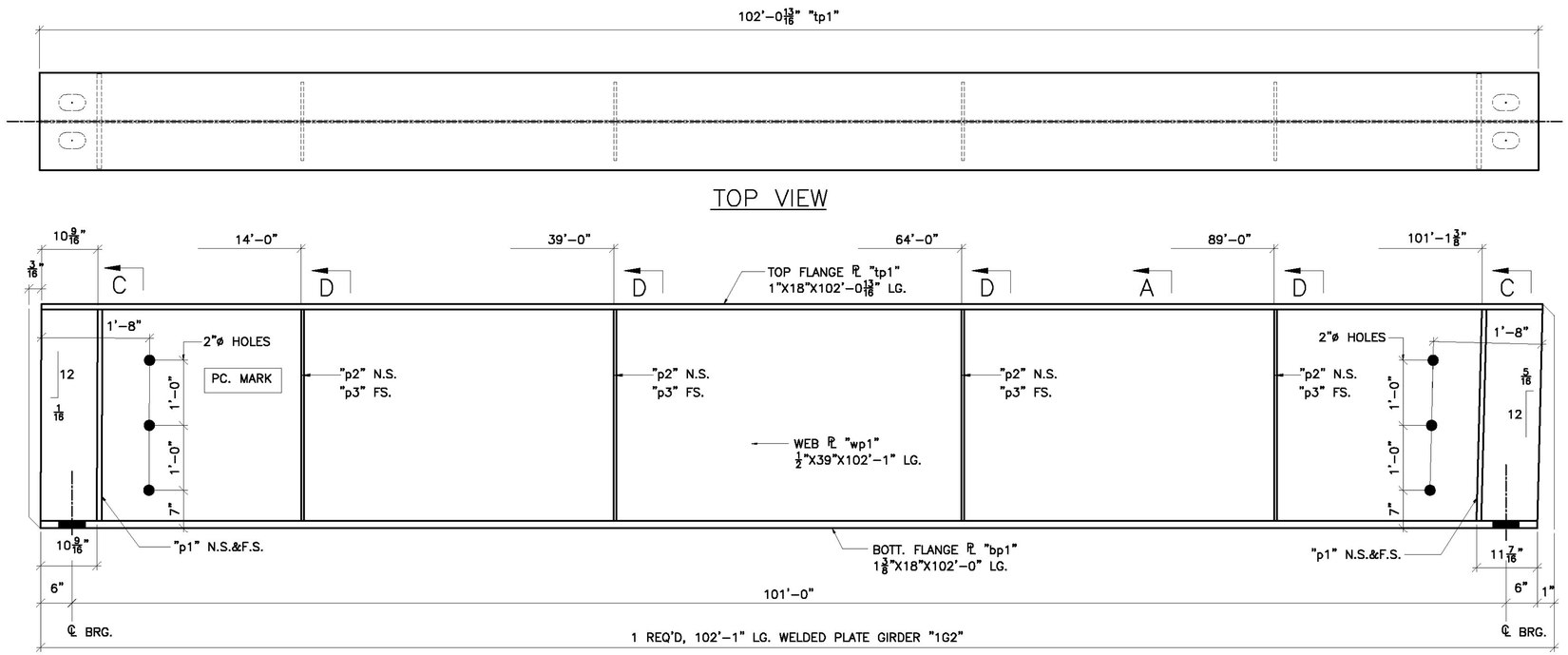
REVISIONS

ARC ENTERPRISES, INC.

ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

DRAFTER JAC	GIRDER DETAILS		PROJECT NO. BRF 028-4(25)S
DATE 11/12/12	STATE OF VERMONT, TOWN OF JOHNSBURY. BRIDGE NO. 108 COUNTY OF CALEDONIA, US ROUTE 2 – PRINCIPAL ARTERIAL		
CHECKED JS	G.C.	WINTERSET, INC.	DWG. NO. 1
JOB # 12-175			

J.A.C. DRAFTING/SRS812/D1

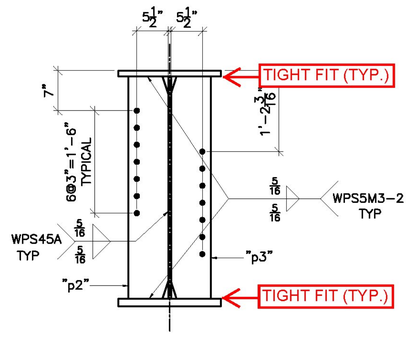


BILL OF MATERIAL

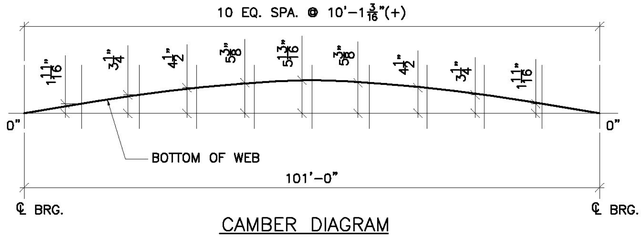
SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	WT.
1	1G2			BRIDGE GIRDER			
		1	wp1	℄ 1/2X39	102'–1	*	6769
		1	tp1	℄ 1X18	102'–0 13/16	*	6252
		1	bp1	℄ 1 3/8X18	102'–0	*	8591
		4	p1	SEE SHT. 6			
		4	p2	SEE SHT. 6			
		4	p3	SEE SHT. 6			

GIRDER WT: 22,244

* CVN (SEE NOTES ON DWG. NO. E1)



SECTION D



CAMBER DIAGRAM

Vermont Agency of Transportation

RECEIVED

CK'D BY D. PETERSON OK'D BY C. CARLSON

08/20/2012

RESUBMIT _____ APPROVED AS NOTED

BY C. CARLSON DATE 12/14/2012

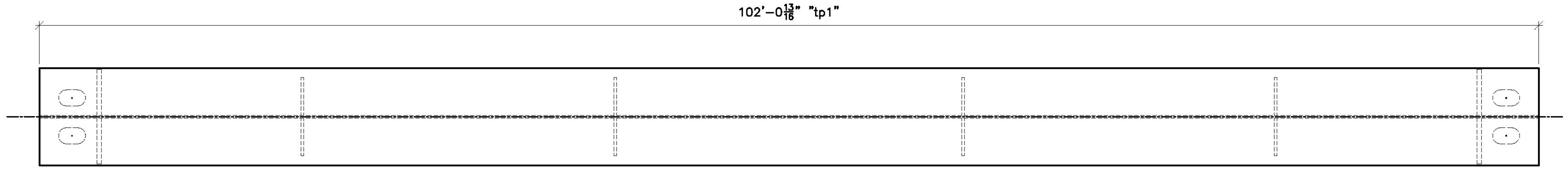
SEE SHEET 1 FOR SECTION A & C
SEE SHEET 6 FOR DETAILS NOT SHOWN

FINISH				
MATERIAL AASHTO M270 (ASTM A709) GRADE 50				
HOLES 15/16"ø U.O.N.				
ELECTRODES				
WELDS PER WPS				
SURFACE PREP				
	NO	DATE	DESCRIPTION	BY
	REVISIONS			

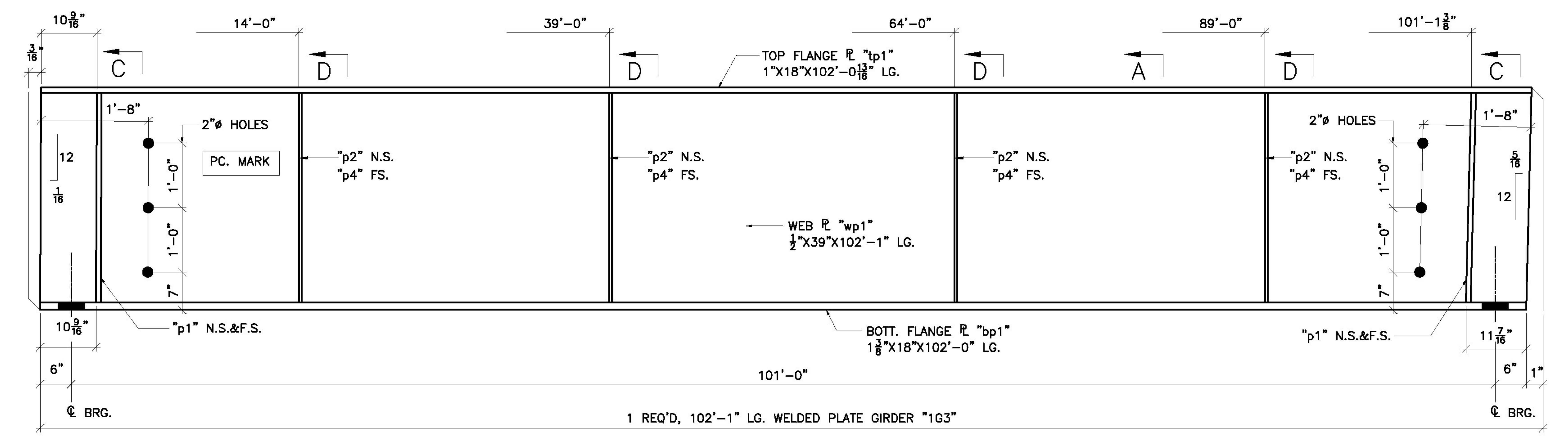
ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265–2646 – FAX: (207) 265–4054

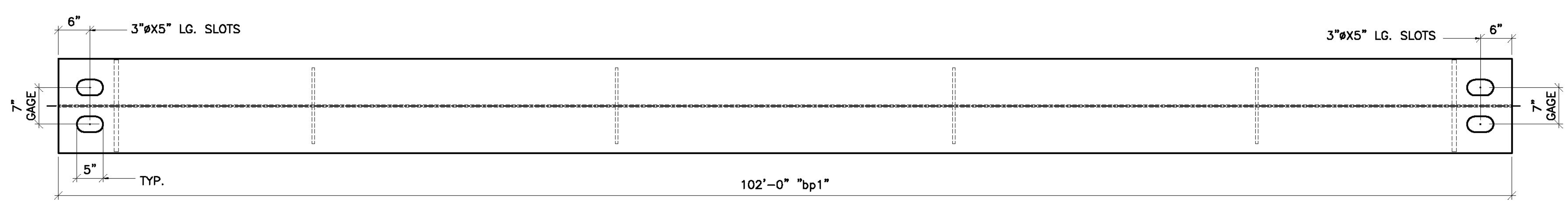
DRAFTER JAC	GIRDER DETAILS	PROJECT NO.	BRF 028-4(25)S
DATE 11/12/12	STATE OF VERMONT, TOWN OF JOHNSBURY. BRIDGE NO. 108		
CHECKED JS	COUNTY OF CALEDONIA, US ROUTE 2 – PRINCIPAL ARTERIAL	DWG. NO.	2
JOB # 12-175	G.C. WINTERSET, INC.		

J:\ALL DRAWINGS\025812\02



TOP VIEW





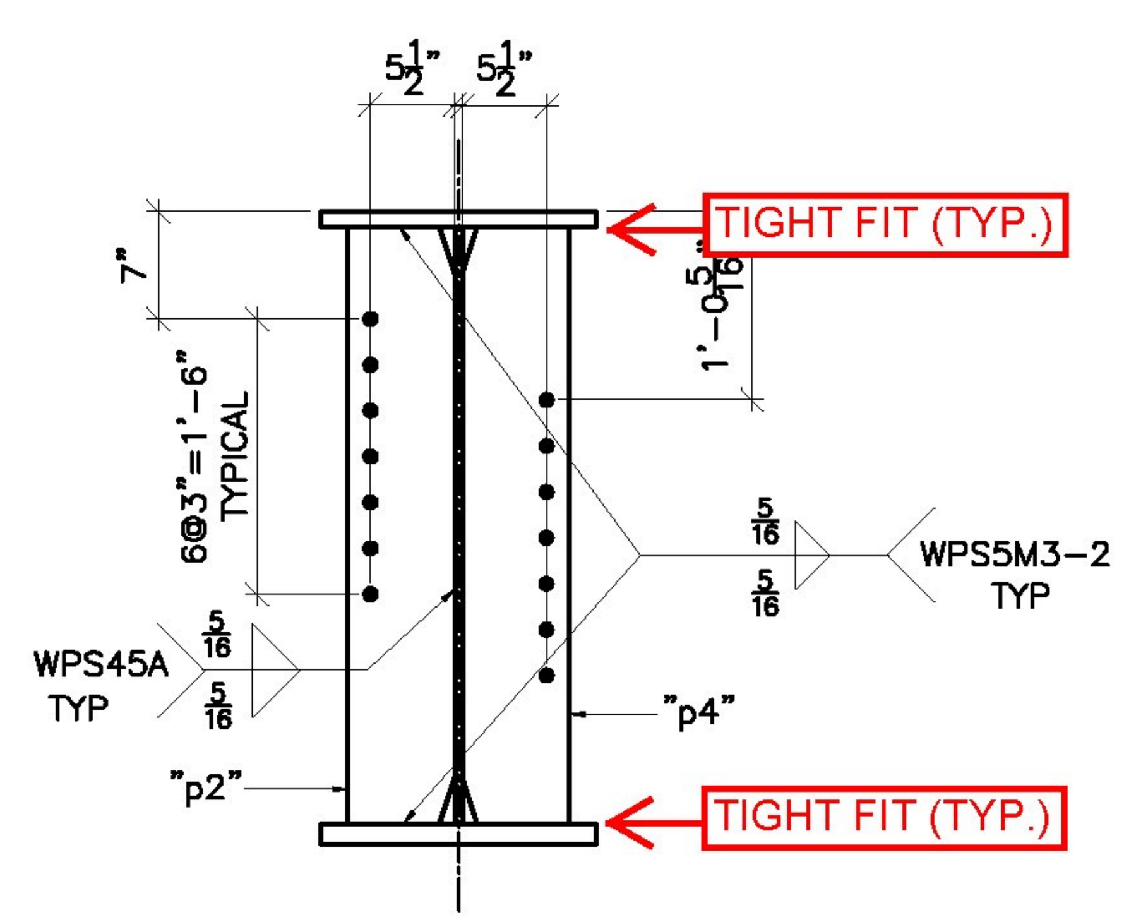
BOTTOM VIEW

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	WT.	
1	1G3			BRIDGE GIRDER				
		1	wp1	PL 1/2X39	102'-1	*	6769	
		1	tp1	PL 1X18	102'-0 13/16	*	6252	
		1	bp1	PL 1 3/8X18	102'-0	*	8591	
		4	p1	SEE SHT. 6				
		4	p2	SEE SHT. 6				
		4	p4	SEE SHT. 6				

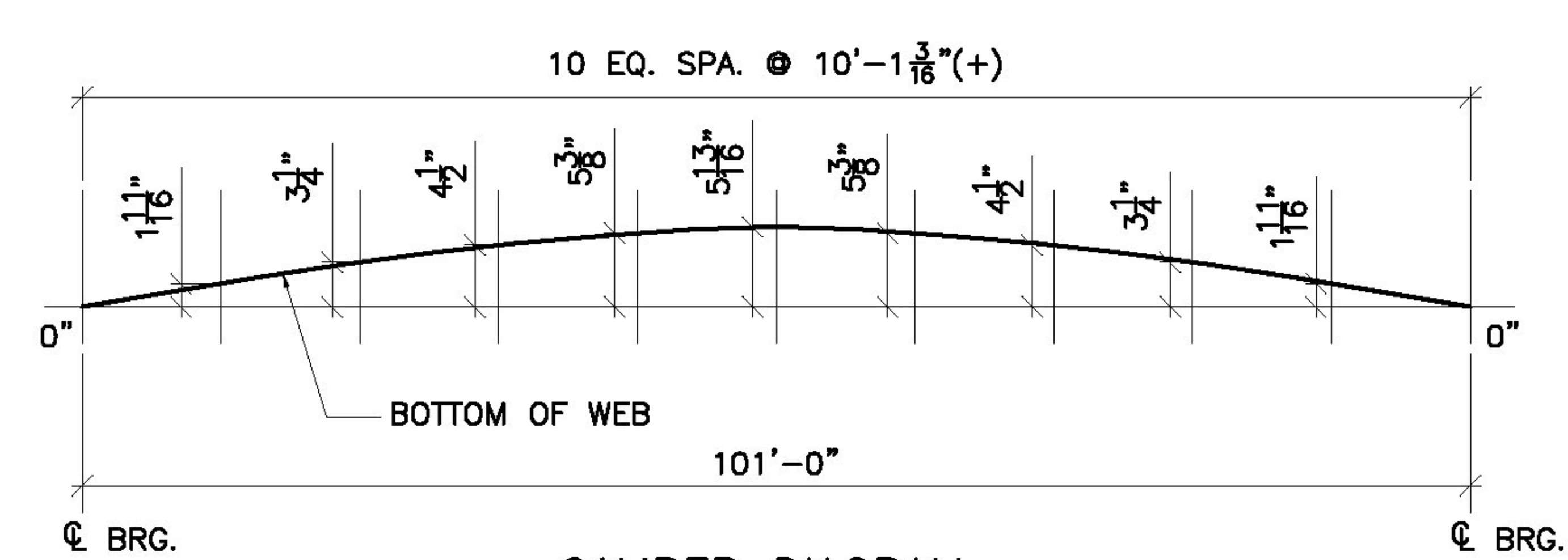
GIRDER WT: 22,244

* CVN (SEE NOTES ON DWG. NO. E1)

Vermont Agency of Transportation
RECEIVED
CK'D BY D. PETERSON OK'D BY C. CARLSON
08/20/2012
RESUBMIT ______ APPROVED AS NOTED
BY C. CARLSON DATE 12/14/2012



SECTION D



CAMBER DIAGRAM

SEE SHEET 1 FOR SECTION A & C
SEE SHEET 6 FOR DETAILS NOT SHOWN

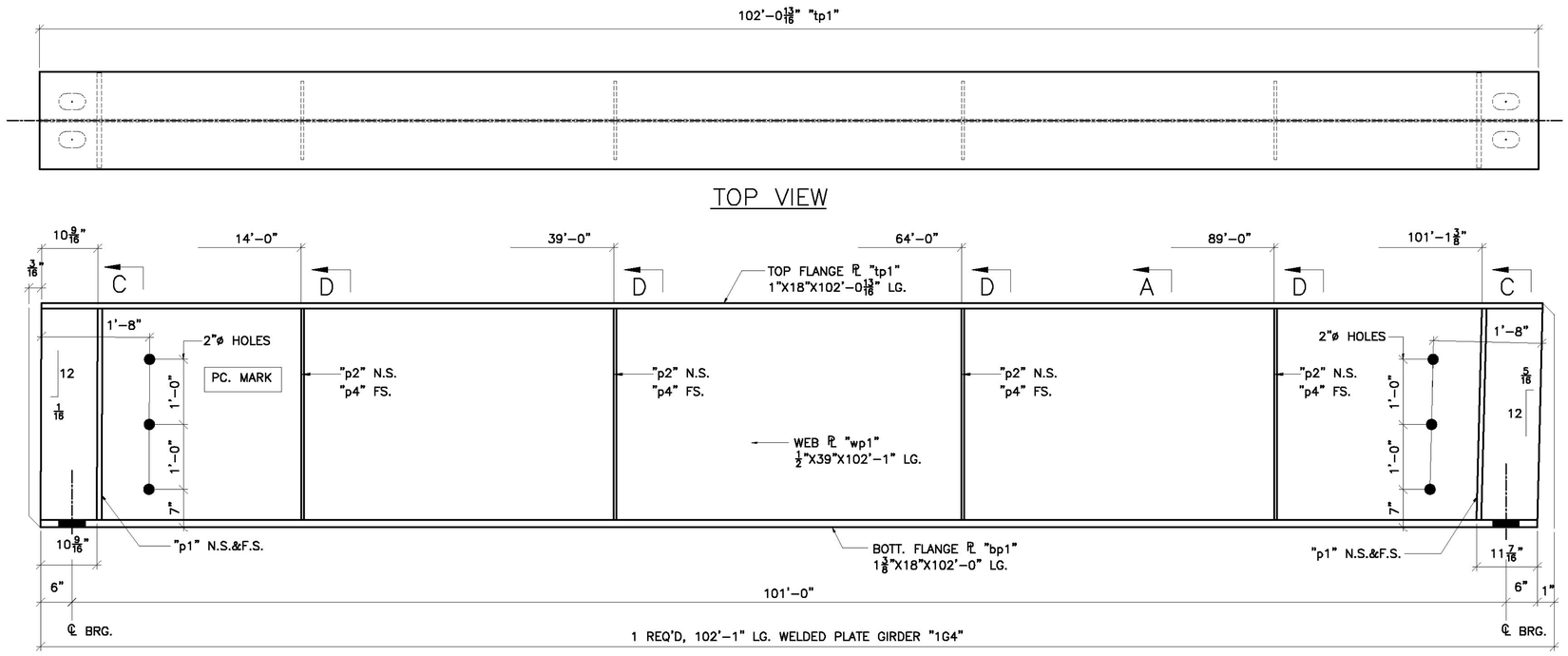
FINISH				
MATERIAL AASHTO M270 (ASTM A709) GRADE 50				
HOLES 15/16"ø U.O.N.				
ELECTRODES				
WELDS PER WPS				
SURFACE PREP				
	NO	DATE	DESCRIPTION	BY
	REVISIONS			

ARC ENTERPRISES, INC.

ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

DRAFTER JAC	GIRDER DETAILS		PROJECT NO. BRF 028-4(25)S
DATE 11/12/12	STATE OF VERMONT, TOWN OF JOHNSBURY. BRIDGE NO. 108 COUNTY OF CALEDONIA, US ROUTE 2 – PRINCIPAL ARTERIAL		
CHECKED JS			DWG. NO. 3
JOB # 12-175	G.C. WINTERSET, INC.		

J.A.C. DRAFTING/SHS812/D3



BILL OF MATERIAL

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	WT.
1	1G4			BRIDGE GIRDER			
		1	wp1	℄ 1/2X39	102'–1	*	6769
		1	tp1	℄ 1X18	102'–0 13/16	*	6252
		1	bp1	℄ 1 3/8X18	102'–0	*	8591
		4	p1	SEE SHT. 6			
		4	p2	SEE SHT. 6			
		4	p4	SEE SHT. 6			

GIRDER WT: 22,244

* CVN (SEE NOTES ON DWG. NO. E1)

Vermont Agency of Transportation
RECEIVED
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BY C. CARLSON DATE 12/14/2012

SEE SHEET 1 FOR SECTION A & C
SEE SHEET 6 FOR DETAILS NOT SHOWN

FINISH				
MATERIAL AASHTO M270 (ASTM A709) GRADE 50				
HOLES 15/16"ø U.O.N.				
ELECTRODES				
WELDS PER WPS				
SURFACE PREP				
	NO	DATE	DESCRIPTION	BY
	REVISIONS			

ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
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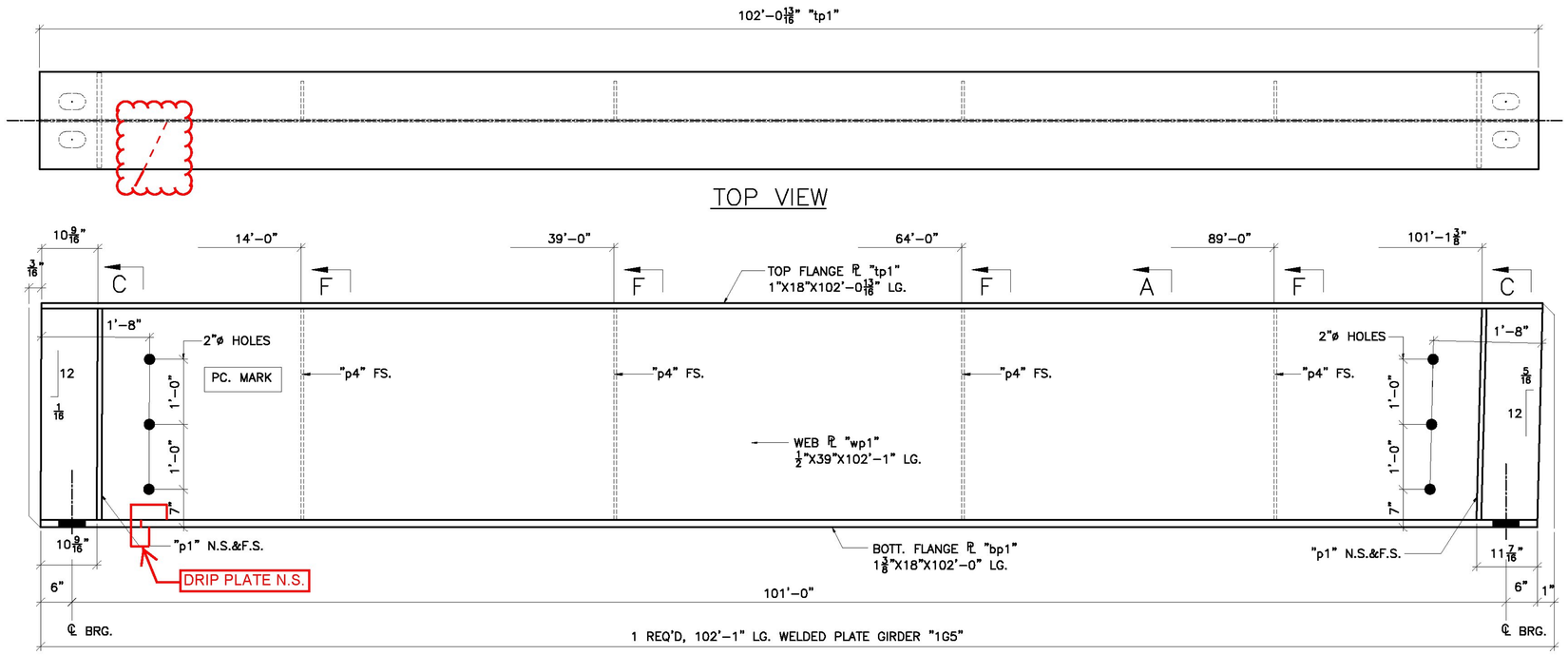
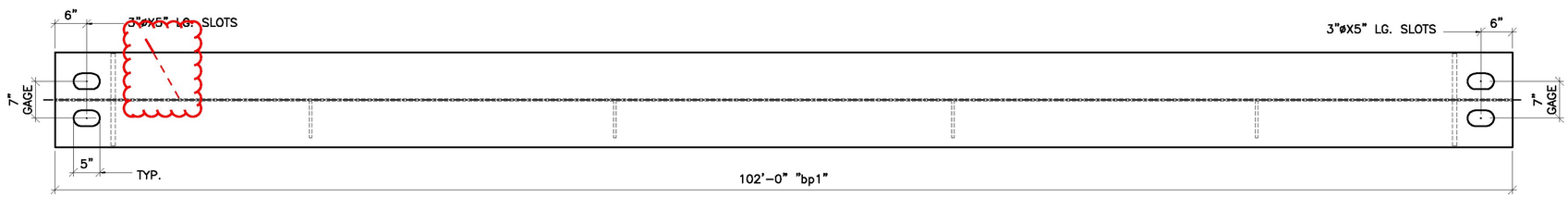
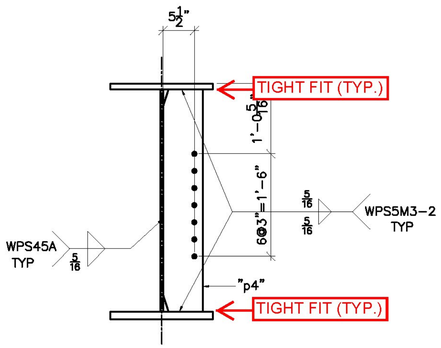
DRAFTER JAC	GIRDER DETAILS		PROJECT NO.
DATE 11/12/12	STATE OF VERMONT, TOWN OF JOHNSBURY. BRIDGE NO. 108		BRF 028-4(25)S
CHECKED JS	COUNTY OF CALEDONIA, US ROUTE 2 – PRINCIPAL ARTERIAL		DWG. NO.
JOB # 12-175	G.C. WINTERSET, INC.		4

J:\ALL DRAWINGS\595812\04

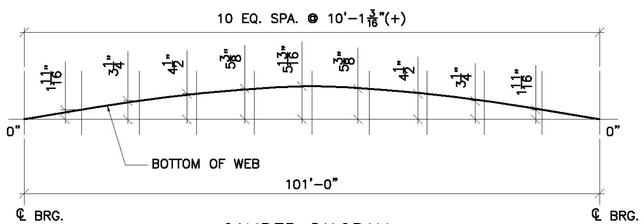




BOTTOM VIEW



SECTION F



CAMBER DIAGRAM

BILL OF MATERIAL

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	WT.
1	1G5			BRIDGE GIRDER			
		1	wp1	PL 1/2X39	102'–1	*	6769
		1	tp1	PL 1X18	102'–0 13/16	*	6252
		1	bp1	PL 1 3/8X18	102'–0	*	8591
		4	p1	SEE SHT. 6			
		4	p4	SEE SHT. 6			

GIRDER WT: 22,091

* CVN (SEE NOTES ON DWG. NO. E1)

Vermont Agency of Transportation
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08/20/2012
RESUBMIT _____ APPROVED AS NOTED
BY C. CARLSON DATE 12/14/2012

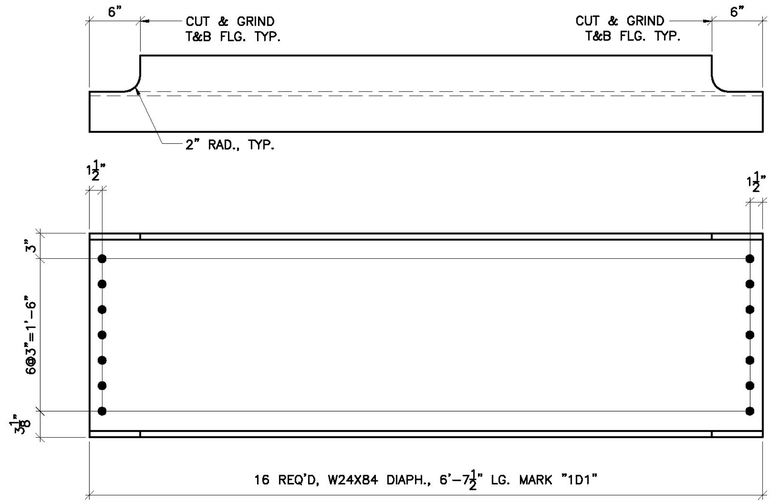
SEE SHEET 1 FOR SECTION A & C
SEE SHEET 6 FOR DETAILS NOT SHOWN

FINISH				
MATERIAL AASHTO M270 (ASTM A709) GRADE 50				
HOLES 15/16"ø U.O.N.				
ELECTRODES				
WELDS PER WPS				
SURFACE PREP				
	NO	DATE	DESCRIPTION	BY
	REVISIONS			

ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

DRAFTER JAC	GIRDER DETAILS	PROJECT NO.	
DATE 11/12/12	STATE OF VERMONT, TOWN OF JOHNSBURY. BRIDGE NO. 108 COUNTY OF CALEDONIA, US ROUTE 2 – PRINCIPAL ARTERIAL	BRF 028-4(25)S	
CHECKED JS	G.C. WINTERSET, INC.	DWG. NO.	5
JOB # 12-175			

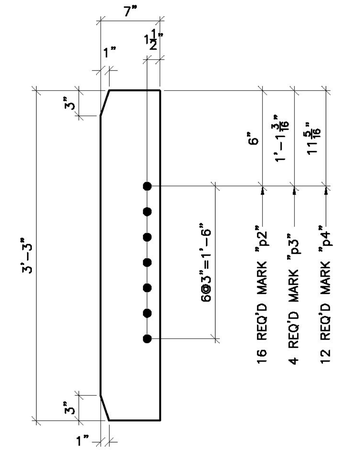
J.A.C. DRAFTING/5/2012/05



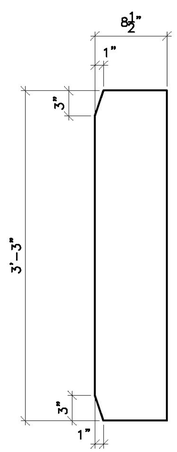
SHOW DRIP PLATE DETAIL.

BILL OF MATERIAL

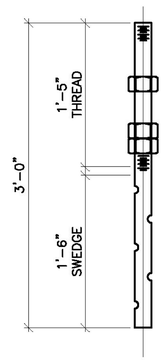
SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	WT.
	1D1	16		W24X84	6'-7½		8904
	LP1	10		PL 1⅜X8	1'-3		468
	W1	40		PL ½X4	0'-4		91
	AB1	2		2"ø SWEDGED ANCHOR W/(3) NUTS EA.	2'-9	GR. 50	59
	AB2	18		2"ø SWEDGED ANCHOR W/(3) NUTS EA.	3'-0	GR. 50	577
		20	p1	PL ⅞X8½	3'-3		1630
		16	p2	PL ½X7	3'-3		613
		4	p3	PL ½X7	3'-3		153
		12	p4	PL ½X7	3'-3		460
				FIELD BOLTS			
	FB3	224		¾"ø BOLTS	0'-2½	W/N&W	



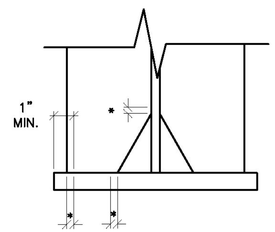
32 REQ'D, ½" CONN. PL



20 REQ'D, ⅞" STIFF. PL, MARK "p1"



18 REQ'D, 2"ø ANCHOR BOLT, MARK "AB2"
W/(3) NUTS EA.



WELD TERMINATION DETAIL

* NO WELD FOR ⅜" MIN. ⅞" MAX.

Vermont Agency of Transportation
RECEIVED
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08/20/2012
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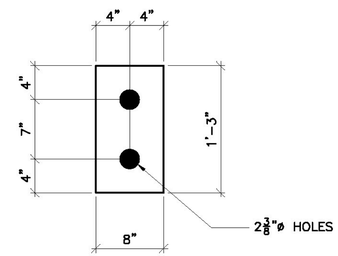
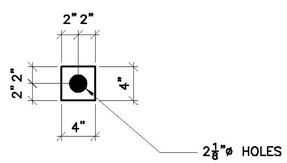
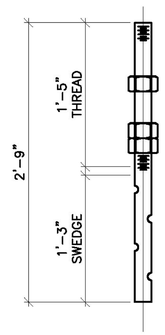


10 REQ'D, 1⅜" LEVELING PL, MARK "LP1"



40 REQ'D, ½" WASHERS, MARK "W1"



2 REQ'D, 2"ø ANCHOR BOLT, MARK "AB1"
W/(3) NUTS EA.

FINISH					
MATERIAL	ASTM A709 GRADE 50				
HOLES	15/16"ø U.O.N.				
ELECTRODES					
WELDS	PER WPS				
SURFACE PREP					
		NO	DATE	DESCRIPTION	BY
		REVISIONS			

ARC ENTERPRISES, INC.

ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

DRAFTER	JAC	MISC. DETAILS	CONTRACT NO.
DATE	11/13/12	STATE OF VERMONT, TOWN OF JOHNSBURY, BRIDGE NO. 108	BRF 028-4(25)S
CHECKED	MTD	COUNTY OF CALEDONIA, US ROUTE 2 – PRINCIPAL ARTERIAL	DWG. NO.
JOB #	12-175	CUSTOMER: WINTERSET, INC.	6

Welding Procedure Specification (wps) Yes (X)
PREQUALIFIED ____ QUALIFIED BY TESTING ___X___
or PROCEDURE QUALIFICATION RECORD (PQR) YES ( )

Company Name A.R.C. Enterprises, Inc.
Welding Process(es) SAW
Supporting PQR No.(s) ARC PQR # 45

Identification # ARC WPS #45 b
Revision 5 Date 11/21/2012 By SVH
Authorized by STEVE HOWARD Date 11/21/2012
Type - Manual Semi - Automatic ( )
Machine ( ) Automatic x

JOINT DESIGN USED
Type B-L1a-S
Single Double Weld (X)
Backing ( ) NO (X)
Backing Material
Root Opening 0" Root Face Dimension
Groove Angle O Radius (J-U)
Back Gouging (YES) Method open

BASE METALS
Material Spec A709
Type or Grade 50 50W
Thickness Groove 5/8" max Fillet
Diameter (Pipe)

FILLER METALS
Lincoln LA-75
AWS Specification A5.23
AWS Classification ENi1K-Ni1-H8

SHIELDING
Flux 960 Lincoln Gas
Composition
Electrode - Flux (Class) Flow Rate
F8A2-ENi1K-Ni1-H8 Gas Cup Size

Preheat 3/4" = 50 degrees 3/4" - 1 1/2" = 70 degrees.
1 1/2" - 2 1/2" = 150 degrees Over 2 1/2" = 225 degrees F.

POSITION
Position of Groove 1G Fillet
Vertical Progression ( )

ELECTRICAL CHARACTERISTICS
Transfer Mode (FCAW) Short Circuiting ( )
Globular ( ) Spray (X)
Current : AC ( ) DCEP (X) DCEN ( )
Pulsed ( )
OTHER :

TECHNIQUE
Stringer or Weave Bead STRINGER
Multi-pass or Single Pass (per side) MULTI
Number of Electrodes ONE
Electrode Spacing Longitudinal
Lateral
Angle
Contact Tube to Work Distance 1"1/4 stickout +/-1/4"
Peening none
Interpass Cleaning : Hand or Power tools

POSTWELD HEAT TREATMENT
Temp

WELDING PROCEDURE Min. heat input=37.3 Kj/in. Max heat input= 70.4 Kj/in.

Pass or Weld Layer(s)	S	Filler Metals		Current		Volts	Travel Speed	Joint Details	
		Class	Diameter	Type & Polarity	Amps or Wire Feed Speed				
	SAW	ENi1K	3/32"	DCEP	360-440	28-32	14-16.2 ipm	ROOT = 0	Tolerance + 1/16"

Square-groove weld (1)
Butt joint (B)