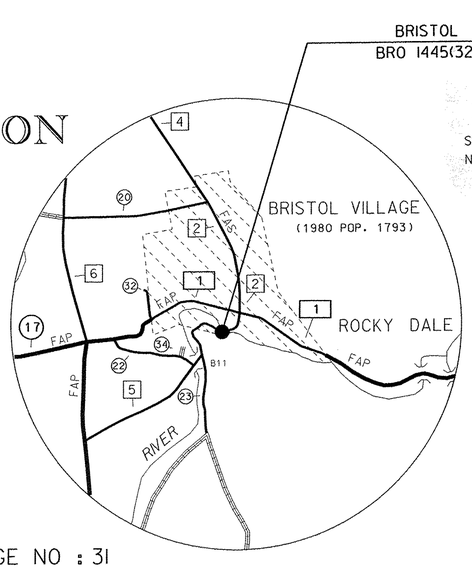
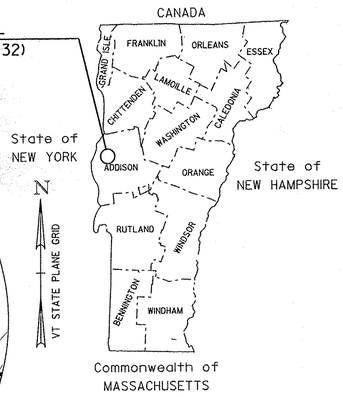
STATE OF VERMONT
AGENCY OF TRANSPORTATION





RECORD PLANS

CONTRACTOR: BLOW & COTE INC. – MORRISVILLE, VT

RESIDENT ENGINEER: JOE KNIPES

CONSTRUCTION BEGAN: SEPTEMBER 3, 2013

CONSTRUCTION COMPLETE: AUGUST 22, 2014

RECORD PLANS BY: JOE KNIPES & JESSE IVES

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

BY _____ RESIDENT ENGINEER

DATE 4-19-17

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.

PROPOSED IMPROVEMENT
BRIDGE PROJECT

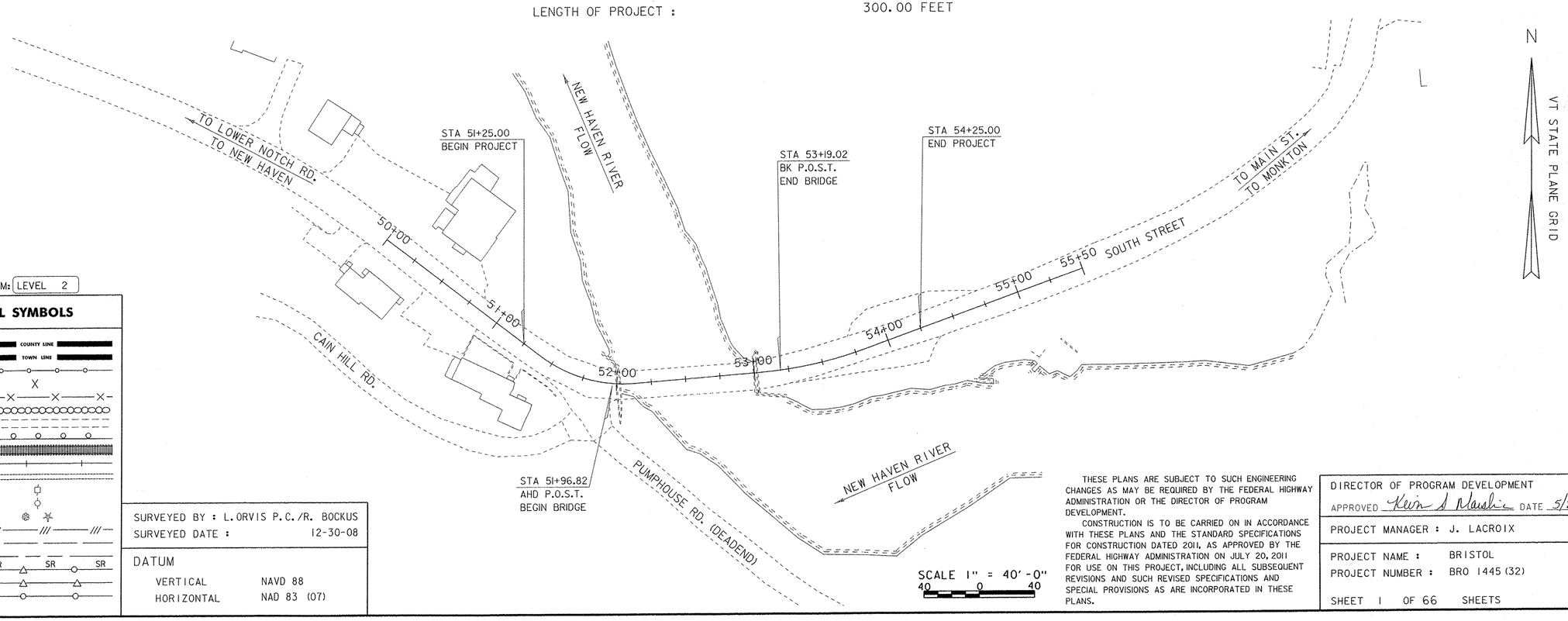
TOWN OF BRISTOL, ADDISON COUNTY

ROUTE NO : TH 5 CLASS II, LOCAL ROAD (SOUTH STREET) BRIDGE NO : 31

PROJECT LOCATION : THE BRIDGE IS LOCATED ON TOWN HIGHWAY 5 (SOUTH STREET) APPROXIMATELY 0.2 MILES SOUTHWEST OF THE INTERSECTION OF TOWN HIGHWAY 5 AND VT RTE 17.

PROJECT DESCRIPTION : REPLACEMENT OF EXISTING TRUSS BRIDGE WITH A NEW SINGLE SPAN BRIDGE, NEW ABUTMENTS AND NECESSARY APPROACH WORK.

LENGTH OF STRUCTURE :	122.20 FEET
LENGTH OF ROADWAY :	177.80 FEET
LENGTH OF PROJECT :	300.00 FEET



QUALITY ASSURANCE PROGRAM: LEVEL 2

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

SURVEYED BY : L. ORVIS P.C. / R. BOCKUS
SURVEYED DATE : 12-30-08

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (07)

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

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

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

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED Kevin J. Nadeau DATE 5/22/13

PROJECT MANAGER : J. LACROIX

PROJECT NAME : BRISTOL
PROJECT NUMBER : BRO 1445 (32)

SHEET 1 OF 66 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 09.02.03

LRFD

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STANDARDS LIST

B-71	STANDARD FOR RESIDENTIAL AND COMMERCIAL DRIVES	07-08-2005
D-1	PRECAST REINFORCED CONCRETE DROP INLET DETAILS	06-01-1994
D-16	DRAINAGE DETAILS INCLUDING DROP INLETS, IRON GRATE TYPE B&C, CONC END	06-01-1994
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-123	GUIDE SIGN PLACEMENT - MISCELLANEOUS DETAILS	03-16-2004
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

STRUCTURAL DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES
SD-502.00	CONCRETE DETAILS AND NOTES
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES

ADDITIONAL DETAIL SHEETS

WATERLINE DETAILS BY OTHERS - GREEN MOUNTAIN ENGINEERING

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2014	570	90	62	6.3	30
2034	640	100	62	6.6	40

20 year ESAL for flexible pavement from 2014 to 2034 : 99000

40 year ESAL for flexible pavement from 2014 to 2054 : 17800

Design Speed : 25 mph

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: April 2011

DRAINAGE AREA : 69.3 sq. mi.
CHARACTER OF TERRAIN : Hilly to mountanious drainage basin
STREAM CHARACTERISTICS : Steep, sinuous, alluvial and probably incised
NATURE OF STREAMBED : Mostly cobbles and boulders with some sand and gravel

PEAK FLOW DATA

Q 2.33 =	3,500 cfs	Q 50 =	10,800 cfs
Q 10 =	7,100 cfs	Q 100 =	12,570 cfs
Q 25 =	8,960 cfs	Q 500 =	17,500 cfs

DATE OF FLOOD OF RECORD: Unknown - Water overtopped the roadway in 1998
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY: @ Q25 = 15.5 fps
ICE CONDITIONS : Slight to moderate
DEBRIS: Slight to 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: Steel Pony Truss bridge
YEAR BUILT: 1928
CLEAR SPAN(NORMAL TO STREAM): 71' minimum effective clear span
VERTICAL CLEARANCE ABOVE STREAMBED: 18'
WATERWAY OF FULL OPENING: 932 sq. ft.
DISPOSITION OF STRUCTURE: Remove and replace with a new bridge
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs

WATER SURFACE ELEVATIONS AT:

Q2.33 =	481.5'	VELOCITY =	12.7 fps
Q10 =	485.0'	"	15.9 fps
Q25 =	486.7'	"	16.9 fps
Q50 =	488.2'	"	17.6 fps
Q100 =	490.8'	"	18.3 fps

LONG TERM STREAMBED CHANGES: None noted.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: At Q100
RELIEF ELEVATION: 490.6'
DISCHARGE OVER ROAD @Q100: None or minimal

UPSTREAM STRUCTURE

TOWN: Bristol — DISTANCE: 7,600'
HIGHWAY # : VT 116 — STRUCTURE #: 10
CLEAR SPAN: 112' — CLEAR HEIGHT: 14'
YEAR BUILT: 2000 — FULL WATERWAY: 1290 sq. ft.
STRUCTURE TYPE: Single span steel beam bridge

DOWNSTREAM STRUCTURE

TOWN: Bristol — DISTANCE: 3,600'
HIGHWAY # : T. H. 5 — STRUCTURE #: 11
CLEAR SPAN: 105' — CLEAR HEIGHT: 10'
YEAR BUILT: 1973 — FULL WATERWAY: 880 sq. ft.
STRUCTURE TYPE: Single span steel beam bridge

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEMI
TONNAGE	**20**	**36**	**36**	**66**	**30**	**34.5**	**38**
INVENTORY	1.88	1.02					
POSTING							
OPERATING	2.45	1.33	1.66	1.02	1.62	1.49	
COMMENTS:							

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY — R_{ndr}: **627.00 KIP**
2. PILE TEST RESISTANCE FACTOR — ϕ: **0.65**
3. MAXIMUM PILE TIP ELEVATION: **439.00 FT**
4. 0

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge

CLEAR SPAN(NORMAL TO STREAM): 89' minimum effective clear span
VERTICAL CLEARANCE ABOVE STREAMBED: 16'
WATERWAY OF FULL OPENING: 1239 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	481.5'	VELOCITY=	10.5 fps
Q10 =	484.0'	"	13.7 fps
Q25 =	485.6'	"	15.0 fps
Q50 =	486.9'	"	16.1 fps
Q100 =	488.1'	"	16.8 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 492.5'
DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 487.1'
VERTICAL CLEARANCE: @ Q25 = 1.5' average

SCOUR: Contraction scour = 3' at Q100 and 5' at Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW:	140 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	65 cfs	Depth = 1'
ORDINARY HIGH WATER:	1500 cfs	Depth = 6'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge required.
CLEAR SPAN (NORMAL TO STREAM):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

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

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_P:	2.5 INCH
3. DESIGN SPAN	L:	120.60 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:	4.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11. CONCRETE, CLASS C	f'_c:	3.0 KSI
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)	f_y:	60 KSI
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	4.0 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	10.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	---
20. PILE YIELD STRENGTH ASTM A572	f_y:	50 KSI
21. PILE SIZE		HP 14X 89
22. EST. PILE LENGTH	L_p:	102 FT
23. PILE RESISTANCE FACTOR	ϕ:	---
24. LATERAL PILE DEFLECTION	Δ:	---
25. BASIC WIND SPEED	V_{3s}:	---
26. MINIMUM GROUND SNOW LOAD	p_g:	---
27. SEISMIC DATA — PGA: ---	S_s:	---
	S_1:	---

PROJECT NAME: **BRISTOL**
PROJECT NUMBER: **BRO 1445(32)**

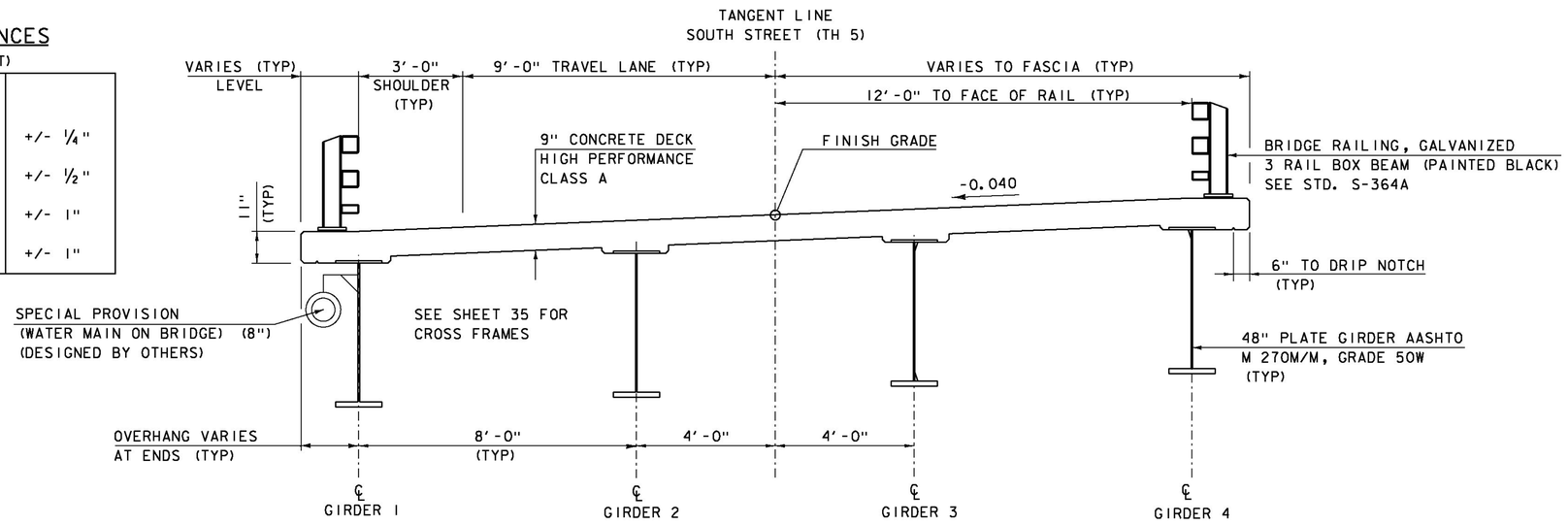
FILE NAME: **s05j052pi.xls**
PROJECT LEADER: **J. LACROIX**
DESIGNED BY: **G. LAROCHE**
PRELIMINARY INFORMATION SHEET

PLOT DATE: 8/7/2013
DRAWN BY: **R. PELLETT**
CHECKED BY: **T. FILLBACH**

MATERIAL TOLERANCES

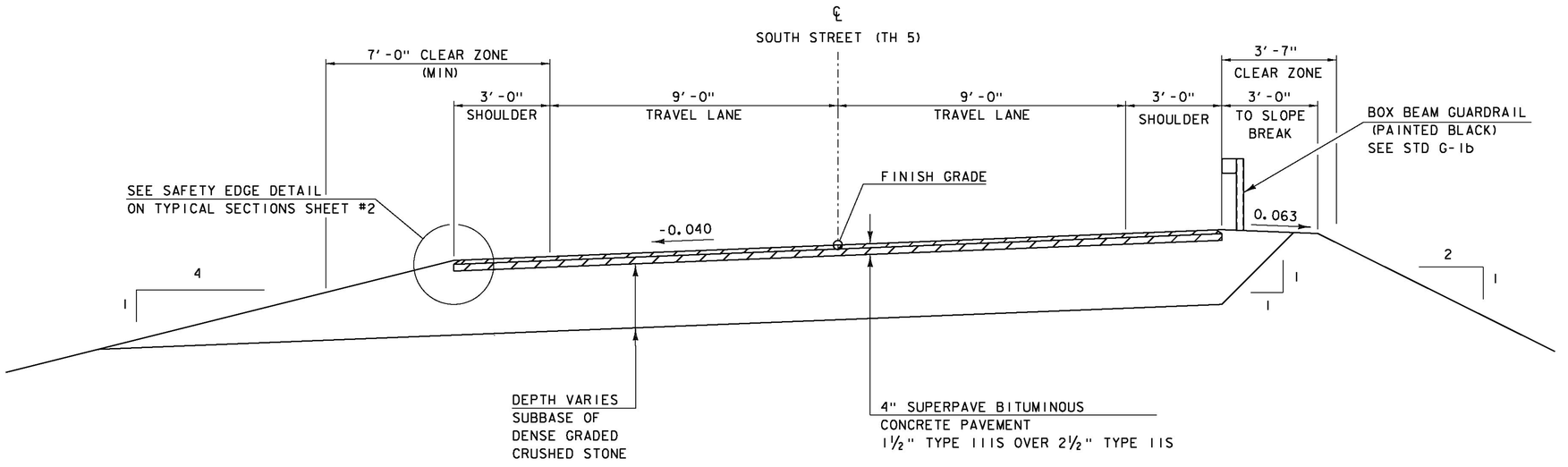
(IF USED ON PROJECT)

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



BRIDGE TYPICAL SECTION

SCALE 1/2" = 1'-0"

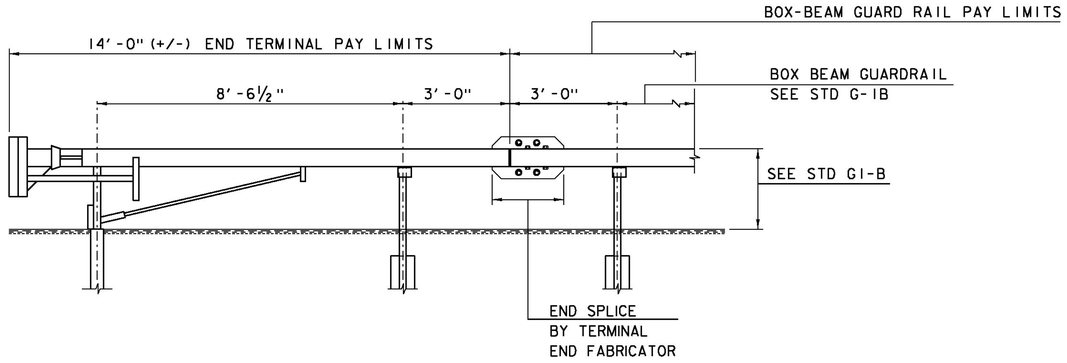


ROADWAY TYPICAL SECTION

SCALE 1/2" = 1'-0"

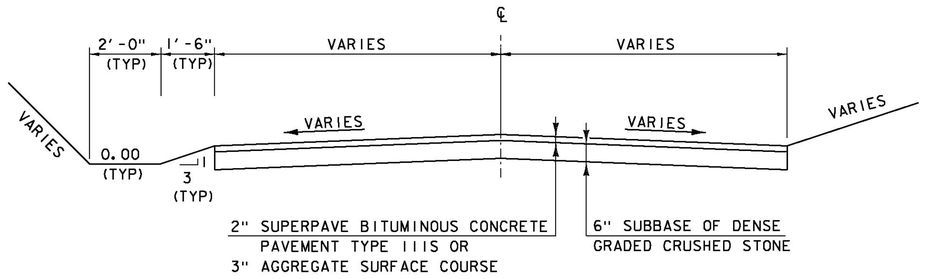
PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)

FILE NAME: s05j352typ.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
TYPICAL SECTIONS SHEET #1	SHEET 3 OF 66



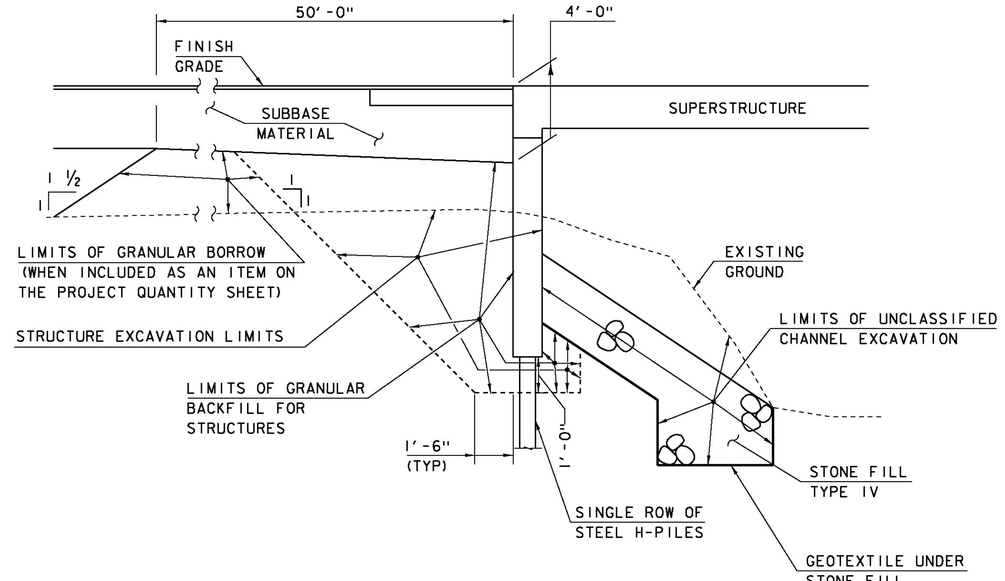
MANUFACTURED TERMINAL SECTION, TANGENT DETAIL

SCALE ½" = 1'-0"



SIDE ROAD TYPICAL SECTION

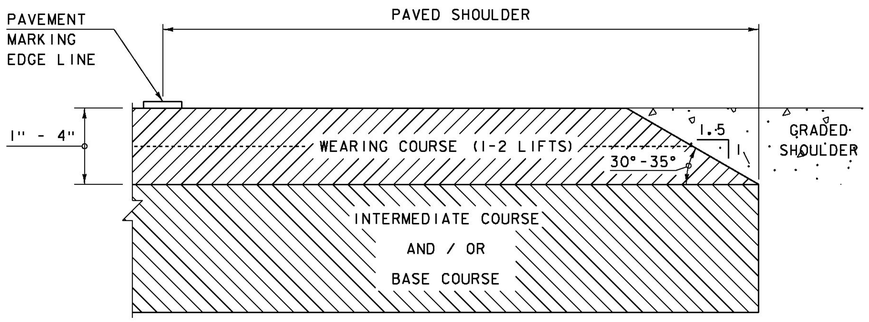
SCALE ½" = 1'-0"



TYPICAL INTEGRAL ABUTMENT SECTION

NOT TO SCALE

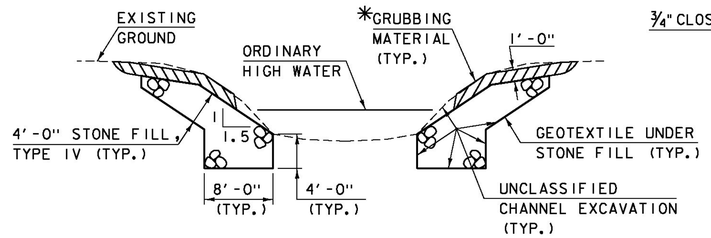
ACTUAL LIMITS OF STRUCTURE EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR. HOWEVER, ONLY THE EXCAVATION BETWEEN THE LIMITS SHOWN WILL BE PAID FOR UNDER THE ITEM 204.25 "STRUCTURE EXCAVATION". EXCAVATION BY THE CONTRACTOR OUTSIDE OF THESE LIMITS WILL BE AT THE EXPENSE OF THE CONTRACTOR.



SAFETY EDGE DETAIL

NOT TO SCALE

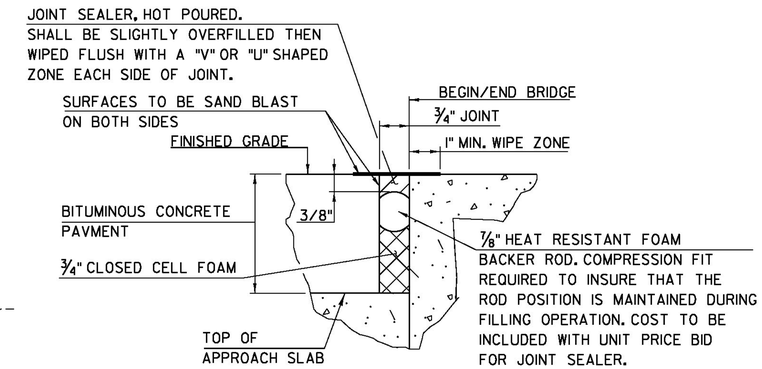
NOTE: LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.



TYPICAL CHANNEL SECTION

(NOT TO SCALE)

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



PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352typ.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
TYPICAL SECTIONS SHEET #2	SHEET 4 OF 66

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES				TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	FULL C.E. ITEMS	BRIDGE	EROSION CONTROL	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**
800				800		CY	COMMON EXCAVATION	203.15				FILL AVAILABLE
5				5		CY	SOLID ROCK EXCAVATION	203.16	EST.	800	CY	COMMON EXCAVATION (800 X 1)
										7	CY	SOLID ROCK EXCAVATION (5 X 1.3)
1140				1140		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27		342	CY	UNCLASSIFIED CHANNEL EXCAVATION (1140 X 0.3)
										88	CY	TRENCH EXCAVATION (88 X 1)
88				88		CY	TRENCH EXCAVATION OF EARTH	204.20		147	CY	STRUCTURE EXCAVATION (490 X 0.3)
1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22		**1384**	**CY**	**TOTAL FILL AVAILABLE**
		490		490		CY	STRUCTURE EXCAVATION	204.25				FILL REQUIRED
										58	**CY**	**FACTORED FILL (50 X 1.15)**
		340		340		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
										1326	**CY**	**TOTAL WASTE MATERIAL**
190				190		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
820				820		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
32				32		CY	AGGREGATE SURFACE COURSE	401.10				
4				4		CWT	EMULSIFIED ASPHALT	404.65				
1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
		160		160		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33				
		155		155		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
		1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10				
		820		820		LF	STEEL PILING, HP 14 X 89	505.18				
		2		2		EACH	DYNAMIC PILE LOADING TEST	505.45				
		127171		127171		LB	STRUCTURAL STEEL, PLATE GIRDER	506.55				
		25359		25359		LB	REINFORCING STEEL, LEVEL I	507.11				
		44005		44005		LB	REINFORCING STEEL, LEVEL II	507.12				
		1		1		LS	SHEAR CONNECTORS (968 - 7" X 7/8")	508.15				
		35		35		GAL	WATER REPELLENT, SILANE	514.10				
		71		71		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
		55		55		LF	JOINT SEALER, HOT POURED	524.11				
		255		255		LF	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM (PAINTED BLACK)	525.335				
		1		1		EACH	REMOVAL OF STRUCTURE (2369 SF - EST.)	529.15				
		8		8		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17				
							BEGIN OPTION AA					
80				80		LF	18" CAAP .060 (2-2/3 X 1/2)	601.0215				
80				80		LF	18" CSP .064 (2-2/3 X 1/2)	601.0015				
80				80		LF	18" CPEP	601.0915				
							END OPTION AA					
1				1		EACH	PRECAST REINFORCED CONCRETE DROP INLET WITH CAST IRON GRATE	604.18				
1				1		MGAL	DUST CONTROL WITH WATER	609.10				
5				5		CY	STONE FILL, TYPE I	613.10				
22				22		CY	STONE FILL, TYPE II	613.11				
950				950		CY	STONE FILL, TYPE IV	613.13				
1				1		EACH	RELOCATE MAILBOX, SINGLE SUPPORT	617.10				
63				63		LF	CHAIN-LINK FENCE, 6 FEET	620.12				

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j362QUANTITY SHEET.XLS
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
QUANTITY SHEET #1

PLOT DATE: 06/04/2013
DRAWN BY: R. PELLETT
CHECKED BY: J. GRIFFIN
SHEET 5 OF 68

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES					TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	FULL C.E. ITEMS	BRIDGE	EROSION CONTROL		GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
55					55		LF	REMOVAL OF EXISTING FENCE	620.55				
97.667					97.667		LF	BOX BEAM GUARDRAIL (PAINTED BLACK)	621.30				
3					3		EACH	MANUFACTURED TERMINAL SECTION, TANGENT	621.51				
4					4		EACH	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM (PAINTED BLACK)	621.725				
1					1		EACH	REMOVE HYDRANT	629.30				
500					500		HR	FLAGGERS	630.15				
	1				1		LS	FIELD OFFICE, ENGINEERS	631.10				
	1				1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
	1				1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
	3000				3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
1					1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
1000					1000		LF	4 INCH WHITE LINE	646.20				
1000					1000		LF	4 INCH YELLOW LINE	646.21				
870					870		SY	GEOTEXTILE UNDER STONE FILL	649.31				
			82		82		SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515				
			90		90		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61				
			20		20		LB	SEED	651.15				
			70		70		LB	FERTILIZER	651.18				
			0.25		0.25		TON	AGRICULTURAL LIMESTONE	651.20				
			0.25		0.25		TON	HAY MULCH	651.25				
			60		60		CY	TOPSOIL	651.35				
			360		360		SY	GRUBBING MATERIAL	651.40				
			1		1		LS	EPSC PLAN	652.10				
			50		50		HR	MONITORING EPSC PLAN	652.20				
			1		1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
			350		350		SY	TEMPORARY EROSION MATTING	653.20				
			30		30		CY	VEHICLE TRACKING PAD	653.35				
			350		350		LF	BARRIER FENCE	653.50				
			240		240		LF	PROJECT DEMARCATION FENCE	653.55				
25					25		SF	TRAFFIC SIGNS, TYPE A	675.20				
40					40		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
5					5		EACH	REMOVING SIGNS	675.50				
		1			1		LS	SPECIAL PROVISION (MAINTENANCE OF EXISTING WATER FLOWS)	900.645				
1					1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
		1			1		LS	SPECIAL PROVISION (WATER MAIN ON BRIDGE) (8")	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				
		35			35		SF	SPECIAL PROVISION (RETAINING WALL)	900.670				
220					220		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352QUANTITY SHEET.XLS
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
QUANTITY SHEET #2

PLOT DATE: 06/04/2013
DRAWN BY: R. PELLETT
CHECKED BY: J. GRIFFIN
SHEET 6 OF 68

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET 1

| SUMMARY OF BRIDGE QUANTITIES | | |

GPS CONTROL POINTS

HVCTRL #1

LATHROP AZ MK

NORTH = 596195.437
EAST = 1486663.832
ELEV. = 565.693

GENERAL LOCATION BRISTOL, VT.
TO REACH FROM THE INTERSECTION OF BURPEE ROAD, VT ROUTE 17 AND VT ROUTE 116 SOUTH, JUST WEST OF BRISTOL VILLAGE, GO EAST ALONG VT ROUTES 17/116 FOR 0.8 MI (1.3 KM) TO THE INTERSECTION OF MUNSILL AVENUE LEFT AND THE SITE OF THE MARK ON THE RIGHT. THE MARK IS SET IN THE TOP OF A 30 CM (12 INCHES) DIAMETER CONCRETE MONUMENT POURED 1.4 M (4.6 FT) DEEP. IT IS 6.5 M (21.3 FT) SOUTH OF AND ABOUT 0.3 M (1.0 FT) LOWER THAN THE CENTERLINE OF VT ROUTE 17/116, 1.8 M (5.9 FT) SOUTH OF A STEEL BEAM GUARD RAIL, 21.4 M (70.2 FT) EAST OF POLE NO 21/8/13, 10.7 M (35.1 FT) WEST OF POLE NO 20/12, 2.5 M (8.2 FT) NORTH OF THE TOP OF A STEEP BANK, AND 0.3 M (1.0 FT) NORTH OF A FIBERGLASS WITNESS POST.

HVCTRL #2

LATHROP

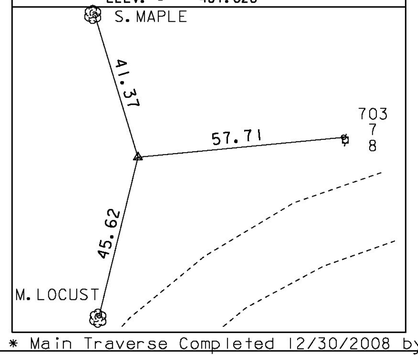
NORTH = 595029.754
EAST = 1487003.577
ELEV. = 461.658

GENERAL LOCATION BRISTOL, VT. OWNERSHIP-- LATHROP LTD, 62 WEST STREET, BRISTOL, VT 05443.
TO REACH FROM THE INTERSECTION OF BURPEE ROAD, VT ROUTE 17 AND VT ROUTE 116 SOUTH, JUST WEST OF BRISTOL VILLAGE, GO EAST ALONG VT ROUTES 17/116 FOR 1.1 MI (1.8 KM) TO THE INTERSECTION OF NORTH STREET LEFT AND SOUTH STREET RIGHT AT THE TRAFFIC LIGHT IN BRISTOL VILLAGE. TURN RIGHT AND GO SOUTH ALONG SOUTH STREET FOR 0.4 MI (0.6 KM) TO THE CLARE LATHROP LUMBER YARD ON THE RIGHT AND THE SITE OF THE MARK ON THE LEFT, ABOUT OPPOSITE THE MOST SOUTHERLY GATE TO THE LUMBER YARD. THE MARK IS SET IN THE TOP OF A 1.5 M (4.9 FT) X 1.2 M (3.9 FT) BOULDER WHICH PROJECTS ABOUT 0.8 M ABOVE GROUND SURFACE. IT IS 12.9 M (42.3 FT) EAST OF AND ABOUT 2.2 M (7.2 FT) HIGHER THAN THE CENTERLINE OF SOUTH STREET, 20.6 M (67.6 FT) EAST-NORTHEAST OF POLE NO 11, 22.8 M (74.8 FT) EAST-SOUTHEAST OF THE MOST SOUTHERLY GATE POST OF THE SOUTHERN GATE TO THE LATHROP LUMBER YARD, 41.2 M (135.2 FT) SOUTH-SOUTHWEST OF POLE NO 9, AND 1.7 M (5.6 FT) NORTHWEST OF A FIBERGLASS WITNESS POST.

TRAVERSE TIES

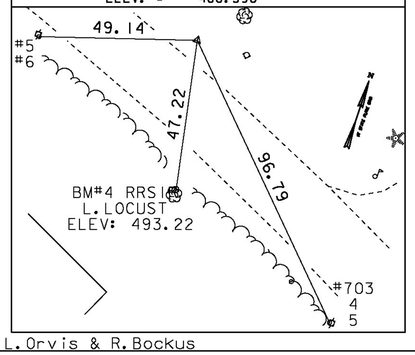
HVCTRL #3

NORTH = 595431.576
EAST = 1487230.649
ELEV. = 481.028



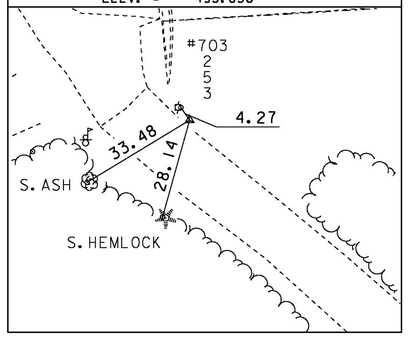
HVCTRL #4

NORTH = 595361.273
EAST = 1487589.444
ELEV. = 488.396



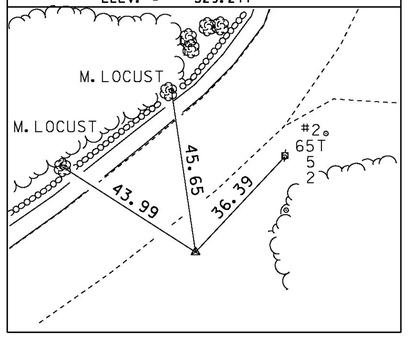
HVCTRL #5

NORTH = 595103.408
EAST = 1487927.976
ELEV. = 495.856



HVCTRL #6

NORTH = 595290.930
EAST = 1488415.521
ELEV. = 529.217



NORTH =
EAST =
ELEV. =

* Main Traverse Completed 12/30/2008 by L. Orvis & R. Bockus

ALIGNMENT TIES

NORTH =	NORTH =	NORTH =	NORTH =	NORTH =
EAST =	EAST =	EAST =	EAST =	EAST =
ELEV. =	ELEV. =	ELEV. =	ELEV. =	ELEV. =

DATUM

VERTICAL NAVD 88
HORIZONTAL NAD 83 (07)
ADJUSTMENT Compass

PROJECT NAME: Bristol
PROJECT NUMBER: BRO 1445 (32)

FILE NAME: 05j352\survey\x05j352ti.dg
PROJECT LEADER: Kristin Higgins
DESIGNED BY: G. LAROCHE
TIE SHEET

PLOT DATE: 04-JUN-2013
DRAWN BY: R. Bullock
CHECKED BY: T. FILLBACH
SHEET 8 OF 66

MAINLINE CURVE DATA #1

Δ = 42°-01'-18.93"
D = 57°-17'-44.81"
R = 100'-0"
T = 38.41'
L = 73.34'
E = 7.12'

MAINLINE CURVE DATA #2

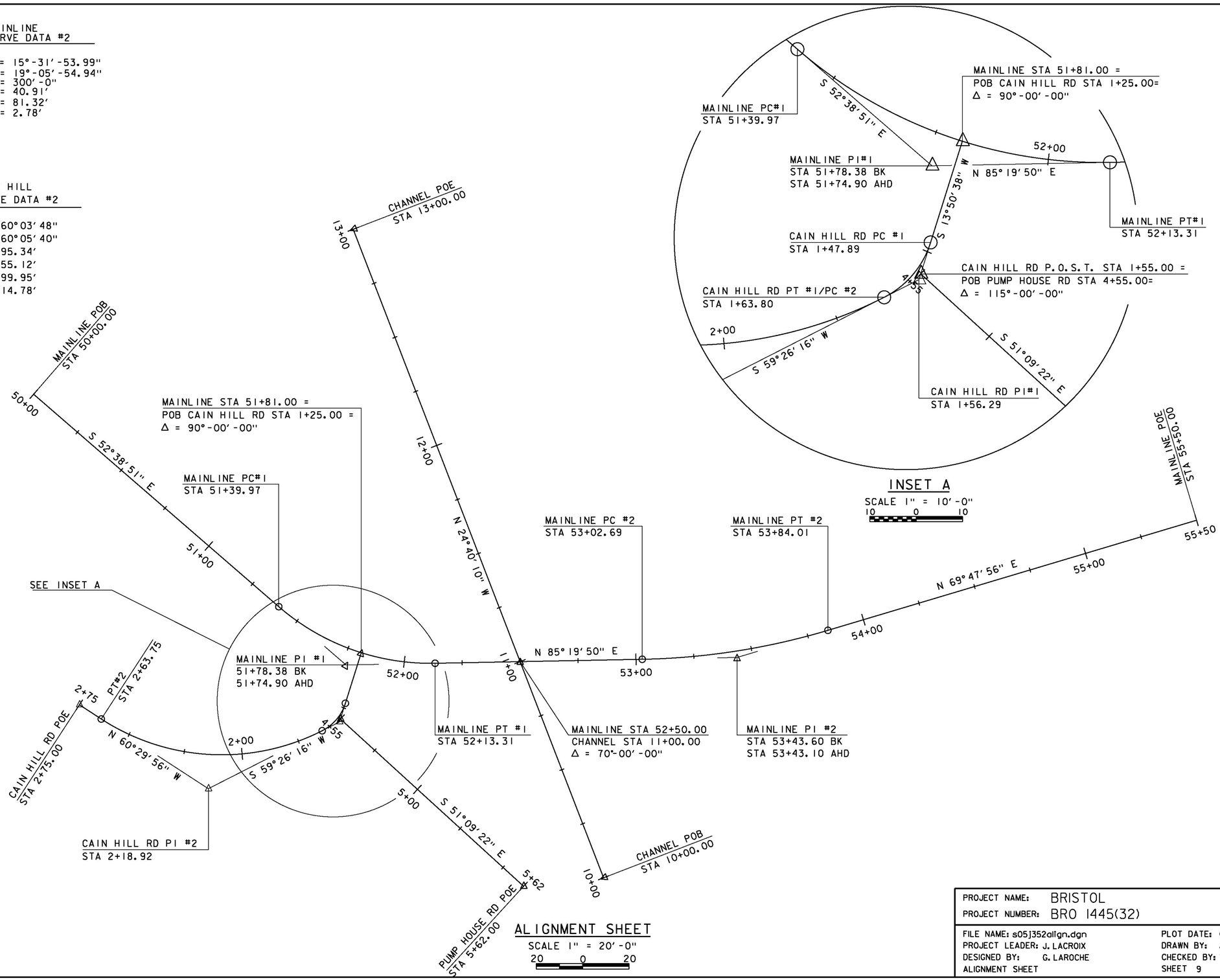
Δ = 15°-31'-53.99"
D = 19°-05'-54.94"
R = 300'-0"
T = 40.91'
L = 81.32'
E = 2.78'

CAIN HILL CURVE DATA #1

Δ = 45°35'39"
D =286°28'44"
R = 20.00'
T = 8.41'
L = 15.92'
E = 1.69'

CAIN HILL CURVE DATA #2

Δ = 60°03'48"
D = 60°05'40"
R = 95.34'
T = 55.12'
L = 99.95'
E = 14.78'



PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s051352align.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: J. SALVATORI
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
ALIGNMENT SHEET	SHEET 9 OF 66

SPECIAL PROVISION (RETAINING WALL)
STA 53+32.47 - STA 53+42.89 RT
SEE DETAIL "SPECIAL PROVISION (RETAINING WALL)" ON SHEET 56

BOX BEAM GUARDRAIL (PAINTED BLACK)
STA 51+46.38 - STA 51+53.48 LT
STA 53+50.03 - STA 53+59.39 LT
PUMPHOUSE RD STA 4+84.56 - STA 5+23.55 RT
STA 53+55.06 - STA 53+98.89 RT

STONE FILL, TYPE II
STA 53+32.40 - STA 53+61.60 RT
PUMPHOUSE STA 4+62.22 - STA 4+82.85 RT

REMOVAL OF EXISTING FENCE
STA 51+04.77 - STA 51+56.12 LT

CHAIN LINK FENCE, 6 FEET
STA 11+51.00 - STA 12+25.00 LT

BRIDGE RAILING,
GALVANIZED 3 RAIL BOX BEAM (PAINTED BLACK)
STA 51+85.46 - STA 53+16.65 LT
STA 52+01.37 - STA 53+24.29 RT

CONSTRUCT PAVED APRON
CAIN HILL ROAD STA 1+25.00 (STA 51+81.00 ML) - STA 1+86.00
PUMPHOUSE ROAD STA 4+55.00 - STA 4+70.00 LT

GUARDRAIL APPROACH SECTION,
GALVANIZED 3 RAIL BOX BEAM (PAINTED BLACK)
STA 51+53.48 - STA 51+85.46 LT
PUMPHOUSE RD STA 4+84.56 - (ML STA 52+01.37 RT)
STA 53+16.65 - STA 53+50.03 LT
STA 53+24.29 - STA 53+55.06 RT

RELOCATE MAILBOX, SINGLE SUPPORT
PUMPHOUSE STA 4+75.00 RT

REMOVE HYDRANT
STA 54+18.02 - OFFSET 28.03 RT

MANUFACTURED TERMINAL SECTION, TANGENT
STA 53+59.39 - STA 53+74.02 LT
STA 5+23.55 - STA 5+37.55 RT
STA 53+98.89 - STA 54+12.90 RT

N
VT STATE PLANE GRID

BENCHMARK
CH SQ ON ABUTMENT TOP
ELEV. 494.87

50+25.00
BEGIN APPROACH

51+25.00
BEGIN PROJECT

STA 51+96.82
AHD P.O.S.T.
BEGIN BRIDGE
F.G. = 493.93

STA 53+19.02
BK P.O.S.T.
END BRIDGE
F.G. = 492.55

54+25.00
END PROJECT

55+25.00
END APPROACH

STONE FILL, TYPE IV

STONE FILL, TYPE II

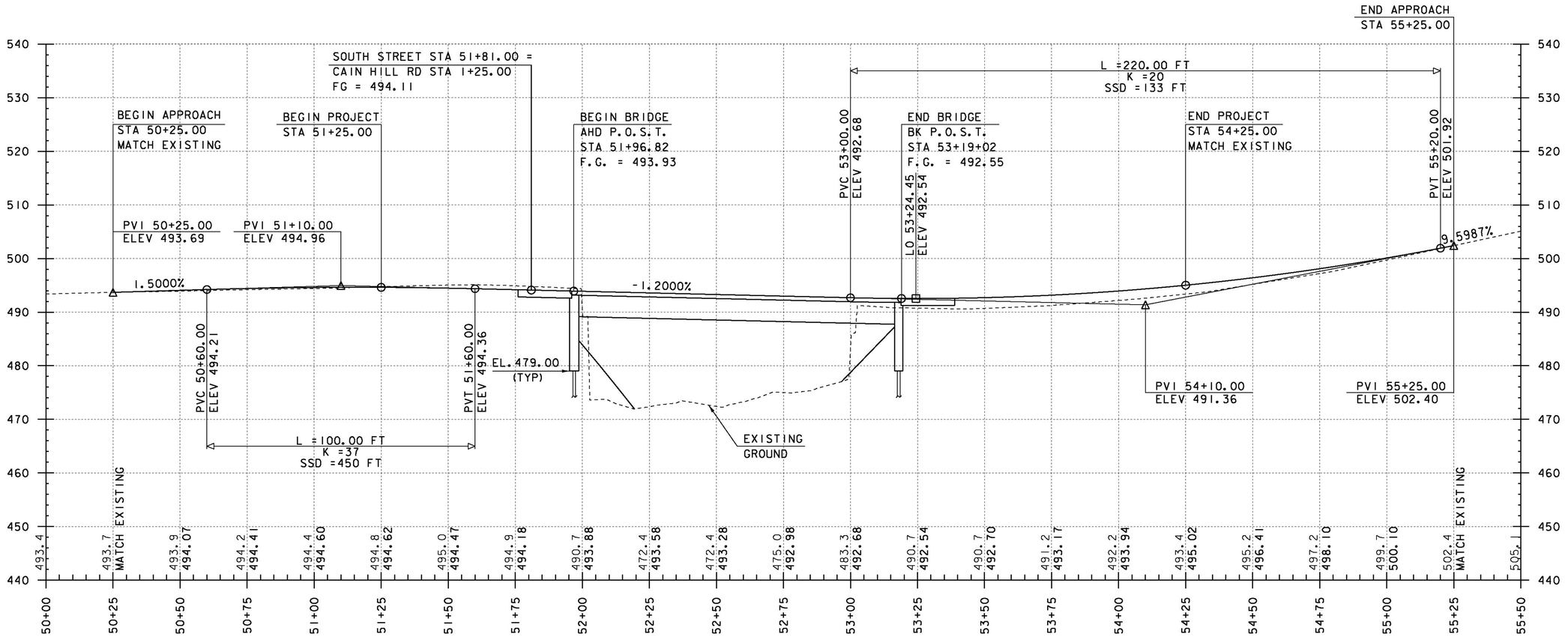
STONE FILL, TYPE II

EXISTING OVERHEAD UTILITIES

EXISTING BRIDGE DATA
STEEL PONY TRUSS
LENGTH = 105 FT
WIDTH = 19.9 FT CURB TO CURB
BUILT IN 1928

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

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352bdr.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: J. SALVATORI
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
LAYOUT SHEET	SHEET 10 OF 66

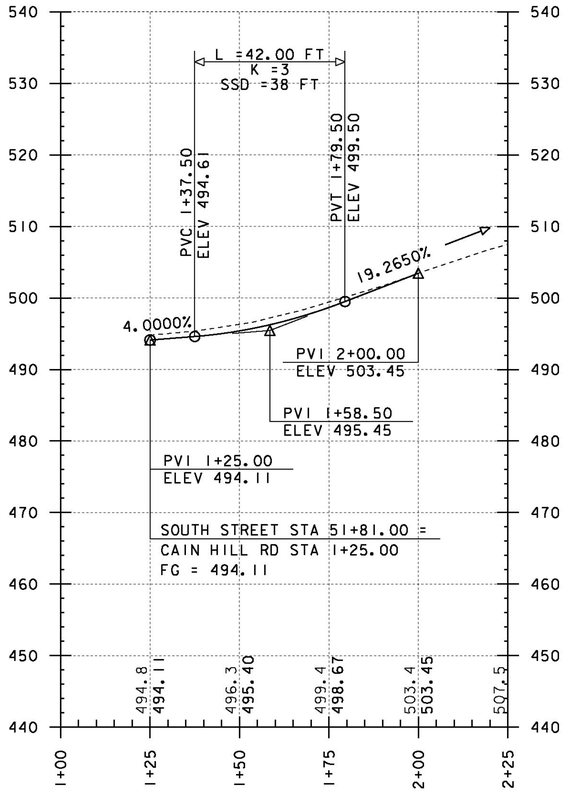


MAINLINE PROFILE

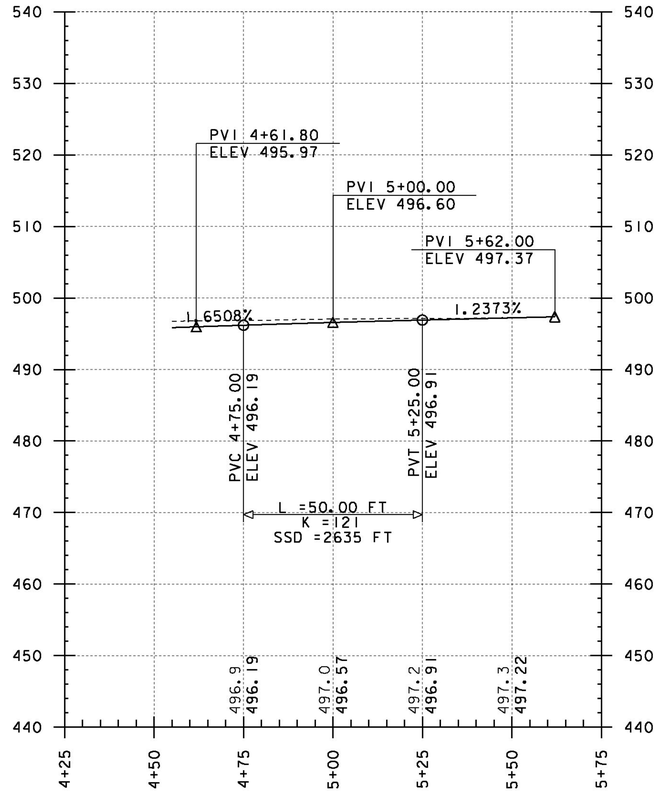
THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.

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

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352pro.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
MAINLINE PROFILE SHEET	SHEET 11 OF 66



CAIN HILL ROAD PROFILE



PUMPHOUSE ROAD PROFILE

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: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352pro.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
SIDELINE PROFILES SHEET

PLOT DATE: 04-JUN-2013
DRAWN BY: G. LAROCHE
CHECKED BY: T. FILLBACH
SHEET 12 OF 66

N

VT STATE PLANE GRID

NEW HAVEN RIVER FLOW

50+25.00
BEGIN APPROACH

TO LOWER NOTCH RD.
TO NEW HAVEN

50+00

COMB
703/475

GUY WIRE

GUY POLE

REMOVE & REPLACE(T)

CONST(T)
SR(T)

CHANNEL(P)

STA 51+96.82
AHD P.O.S.T.
BEGIN BRIDGE
F.G. = 493.93

STA 53+19.02
BK P.O.S.T.
END BRIDGE
F.G. = 492.55

54+25.00
END PROJECT

MONITORING WELL

55+25.00
END APPROACH

STREET LIGHT

TO MAIN STREET
BRISTOL

55+50

55+00

SOUTH STREET

54+00

COMB
1/2

GUY WIRE

51+00

52+00

53+00

CAIN HILL ROAD (DEAD END)
(PRIVATE)

INSTALL & MAINT(P)

EXISTING DRY HYDRANT

MAN HOLE

EXISTING 6" CASTIRON
WATER LINE ON BRIDGE

EXISTING OVERHEAD
UTILITIES

APPROACH(T)

CONC(T)

CHANNEL(P)

COMB
703/475/3

GUY WIRE

GUY WIRE

GUY POLE

GUY WIRE

51+25.00
BEGIN PROJECT

INSTALL & MAINT(P)

NEW HAVEN RIVER FLOW

PUMPHOUSE ROAD (DEAD END)
(PRIVATE)

UTIL(P)

COMB
2A/3A

EXISTING POLE
(APPROXIMATE LOCATION)

EXISTING UTILITY LAYOUT SHEET

SCALE 1" = 20'-0"

20 0 20

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: sj352utilbdr.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
EXISTING UTILITY LAYOUT SHEET	SHEET 13 OF 66

N

VT STATE PLANE GRID

EXISTING R.O.W.

EXISTING R.O.W.

50+25.00
BEGIN APPROACH

TO LOWER NOTCH RD.
TO NEW HAVEN

50+00

NEW HAVEN RIVER
FLOW

REMOVE & REPLACE(T)

CONST(T)

SR(T)

CHANNEL(P)

STA 51+96.82
AHD P.O.S.T.
BEGIN BRIDGE
F.G. = 493.93

STA 53+19.02
BK P.O.S.T.
END BRIDGE
F.G. = 492.55

NEW GUY POLE
W/ STREET LIGHT,
10' GUY WIRE
& 15' GUY WIRE
STA 53+65.00
OFFSET 22.00 LT

54+25.00
END PROJECT

MONITORING
WELL

55+25.00
END APPROACH

TO MAIN STREET
BRISTOL

55+50

55+00

SOUTH STREET

54+00

EXISTING POLE
TO REMAIN

51+00

EXISTING POLE
TO REMAIN

CAIN HILL ROAD (DEAD END)
(PRIVATE)

INSTALL &
MAINT(P)

52+00

53+00

EXISTING DRY
HYDRANT

MAN HOLE

EXISTING 6" CASTIRON
WATER LINE ON BRIDGE

EXISTING OVERHEAD
UTILITIES

NEW UTILITY POLE-X1
STA 53+70.00
OFFSET 24.00 RT

APPROACH(T)

CUL.DR(P)

CHANNEL(P)

CONST(T)

51+25.00
BEGIN PROJECT

INSTALL &
MAINT(P)

NEW UTILITY POLE-18XX
W/ 20' PUSH BRACE POLE
STA 51+60.00
OFFSET 16.00 RT

NEW HAVEN RIVER
FLOW

PUMPHOUSE ROAD (DEAD END)
(PRIVATE)

UTIL(P)

PROPOSED OVERHEAD
UTILITIES

EXISTING POLE
(APPROXIMATE LOCATION)

NOTES:

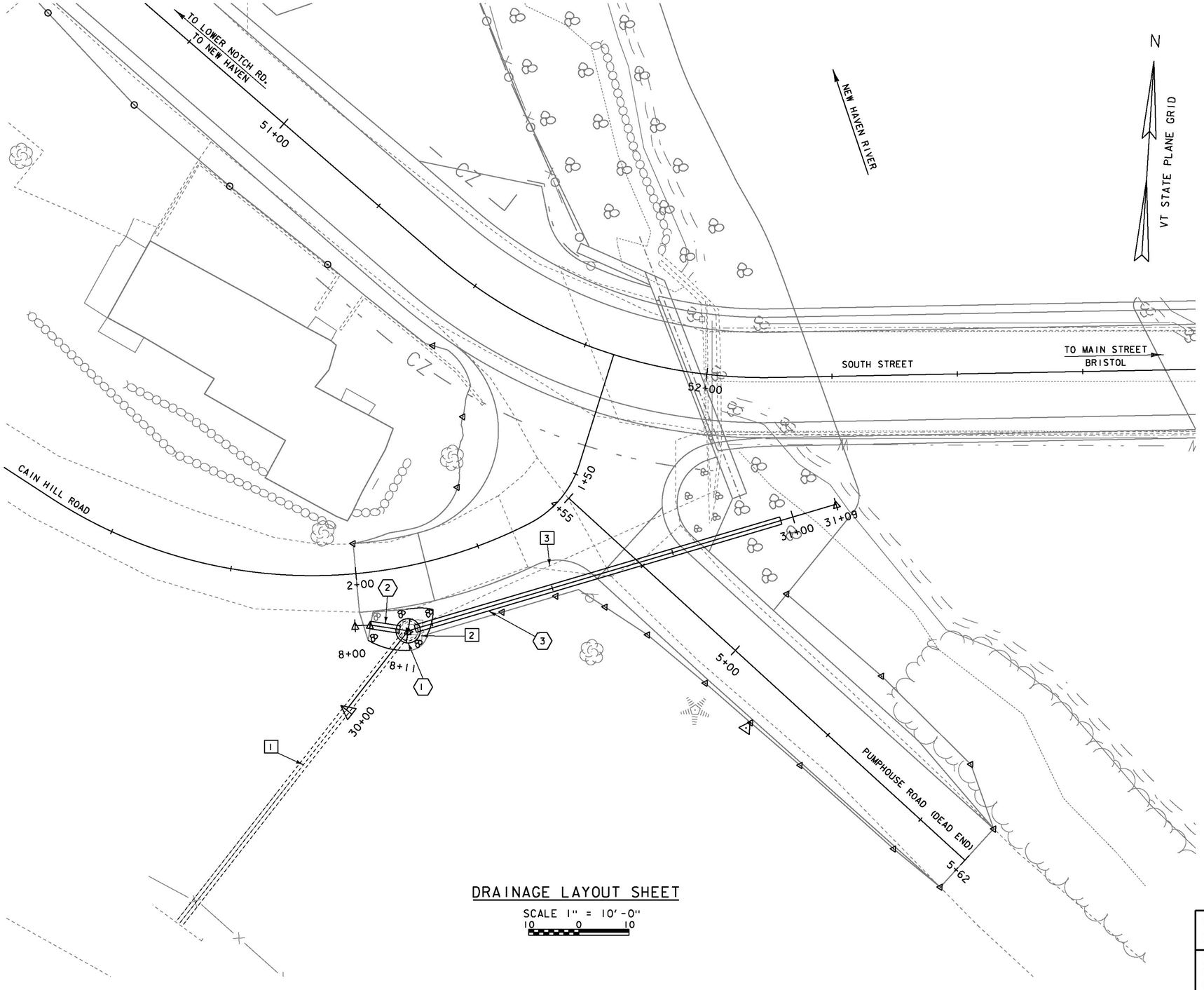
1. WATERLINE DESIGNED BY OTHERS, FOR PROPOSED LOCATION AND DETAILS SEE SHEET AT THE END OF THIS PLAN SET.

PROPOSED UTILITY LAYOUT SHEET

SCALE 1" = 20'-0"

20 0 20

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: sj352utilbdr.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
PROPOSED UTILITY LAYOUT SHEET	SHEET 14 OF 66



1 EXISTING 18" ACCGMP CULVERT (DO NOT REMOVE PLACE PIPE AS INDICATED INTO STUCTURE)

2 REMOVE EXISTING DROP INLET
STA. 30+20.90
CAIN HILL STA. 1+90.97 OFFSET 12'-8" LT

3 REMOVE EXISTING 18" ACCGMP CULVERT
STA. 1+44.80 TO 1+90.63 LT
LENGTH = 66'-93"

(1) NEW PRECAST REINFORCED CONCRETE DROP INLET WITH CAST IRON COVER W/FRAME.
STA. 30+20.00
CAIN HILL STA. 1+91.76 OFFSET 12'-8"

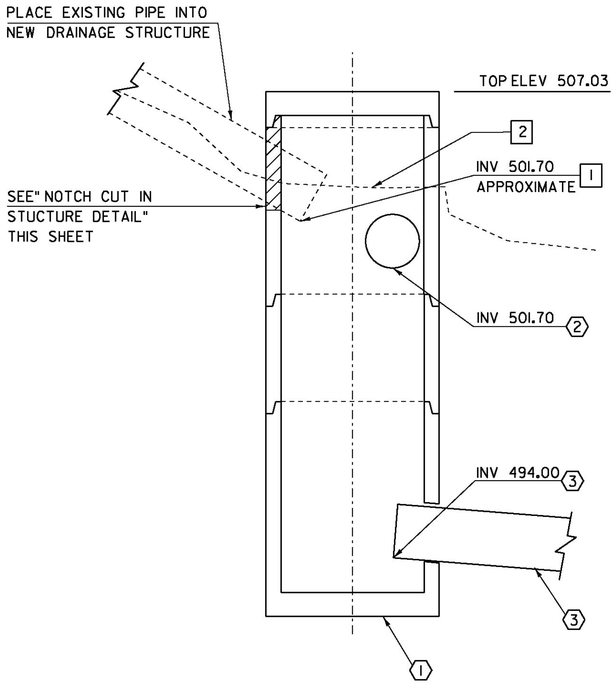
(2) PROPOSED 18" PIPE OPTION
STA. 1+93.16 TO 1+98.32 LT (CAIN HILL)
STA. 8+02.98 TO 8+08.98
LENGTH 6'-0"

(3) PROPOSED 18" PIPE OPTION
STA. 1+46.60 TO 1+90.45 LT (CAIN HILL)
STA. 30+21.49 TO 30+97.49
PIPE LENGTH 76'-0"

DRAINAGE LAYOUT SHEET

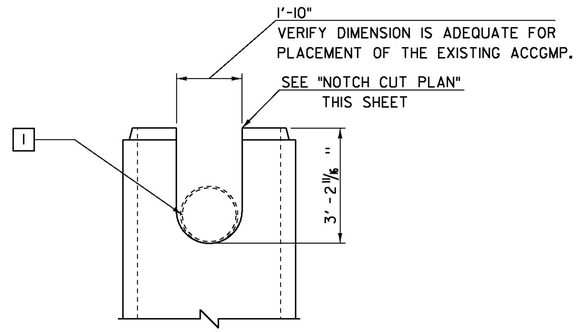
SCALE 1" = 10'-0"
10 0 10

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445 (32)
FILE NAME: s05j352drainage_10sca.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: G. LAROCHE
DESIGNED BY: G. LAROCHE	CHECKED BY: J. SALVATORI
DRAINAGE LAYOUT SHEET	SHEET 15 OF 66



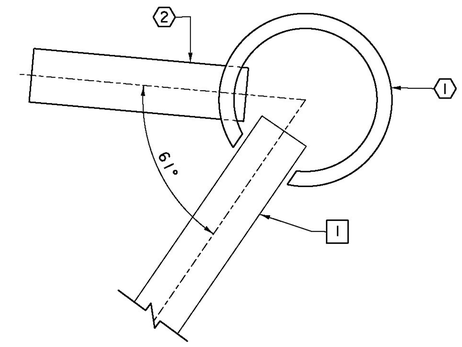
DRAINAGE STRUCTURE DETAIL

SCALE 1/2"= 1'-0"



NOTCH CUT IN STRUCTURE DETAIL

SCALE 1/2"= 1'-0"



NOTCH CUT PLAN

SCALE 1/2"= 1'-0"

1 EXISTING 18" ACCGMP CULVERT (DO NOT REMOVE PLACE PIPE AS INDICATED INTO STUCTURE)

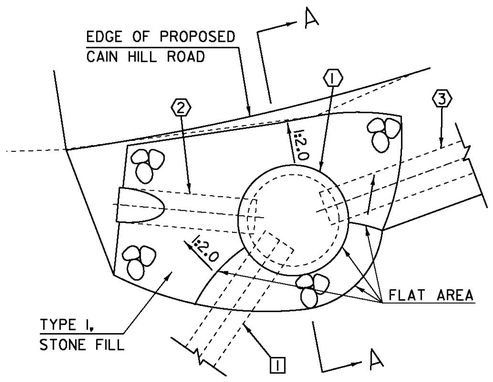
2 REMOVE EXISTING DROP INLET
STA. 30+20.90
CAIN HILL STA. 1+90.97 OFFSET 12'-8" LT

3 REMOVE EXISTING 18" ACCGMP CULVERT
STA. 1+44.80 TO 1+90.63 LT
LENGTH = 66'-93"

(1) NEW PRECAST REINFORCED CONCRETE DROP INLET WITH CAST IRON COVER W/FRAME.
STA. 30+20.00
CAIN HILL STA. 1+91.76 OFFSET 12'-8"

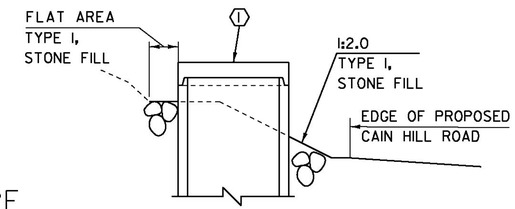
(2) PROPOSED 18" PIPE OPTION
STA. 1+93.16 TO 1+98.32 LT (CAIN HILL)
STA. 8+02.98 TO 8+08.98
LENGTH 6'-0"

(3) PROPOSED 18" PIPE OPTION
STA. 1+46.60 TO 1+90.45 LT (CAIN HILL)
STA. 30+21.49 TO 30+97.49
PIPE LENGTH 76'-0"



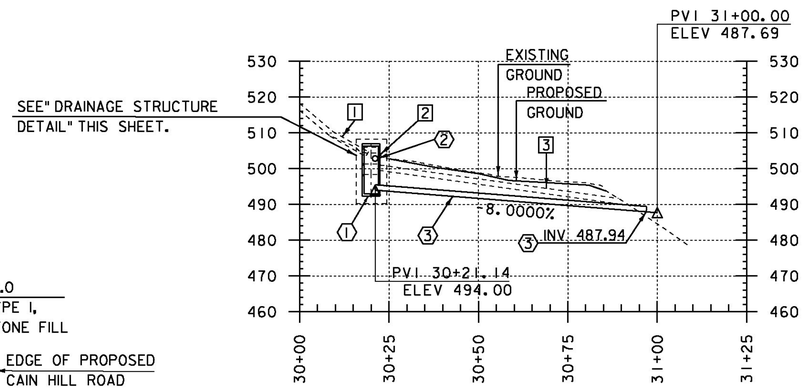
STONE FILL AROUND STRUCTURE

NTS



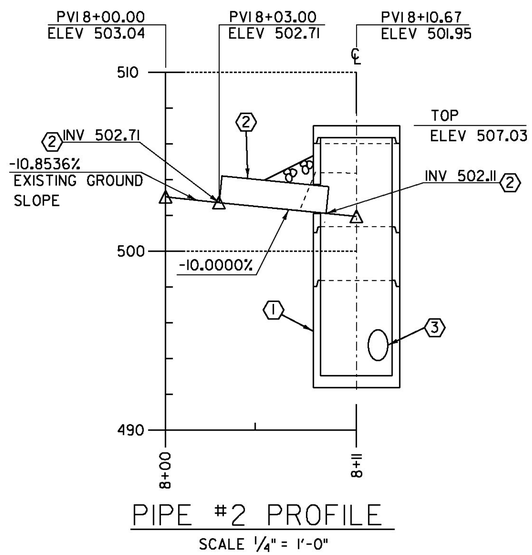
A-A

NTS



PIPE #3 PROFILE

NOTE: PLACE GEOTEXTILE UNDER THE STONE FILL AROUND STRUCTURE (1)



PIPE #2 PROFILE

SCALE 1/4" = 1'-0"

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352drainage.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: G. LAROCHE
DESIGNED BY: G. LAROCHE	CHECKED BY: J. SALVATORI
DRAINAGE PROFILE SHEET	SHEET 16 OF 66

STATE OF VERMONT
AGENCY OF TRANSPORTATION

DRAINAGE DETAIL SHEET

STATION	STATION	POS.	ASKEW	INLET/OUTLET TYPE		DITCH		PIPE ARCH			PIPE		ALLOWABLE OPTIONS						PIPE ELBOW	ES	CB	,	DEPTH DI	CONC CLASS B	REINF STEEL	DI GRATE	CHAN ELEV	CRM	TRENCH EXCAVATION		COMM EXC	UNC CHAN EXC	STRUCT EXCAV	GRAN BK/FILL STRUCT	GRAN BORR	EROS MATT	STONE FILL		MARKER POSTS				REMARKS
			NO. DEG.	INLET	OUTLET	IN	OUT	SPAN IN	RISE IN	L FT	D IN	L FT	PCCSP TH	CAAP TH	RCP CL	CSP TH	CPEP SL	PCCSP PI TH	NO. DEG.	EA	EA		FT	CY	LBS	TYPE	EA	CY	EARTH CY	ROCK CY	CY	CY	CY	CY	CY	SY	CY	TYPE	LT EA	RT EA			
	1+92.45	LT			DI																																					1	EXISTING 18" ACCGMP (DO NOT REMOVE)
	1+90.97	LT		ACCGMP	CPEP																											2.5									2	EXISTING CONCRETE DROP INLET (REMOVE)
1+44.80	1+90.63	LT		DI	SF							66'-10"																18													3	EXISTING ACCGMP CULVERT (TO BE REMOVED)
	1+91.76	LT																				1	12									35	21								1	NEW PRECAST REINFORCED CONCRETE DROP INLET W/ CAST IRON COVER WITH FRAME (CAIN HILL)
8+02.98	8+08.98			SF	DI							6'-0"		X		X	X																								2	PROPOSED 18" PIPE OPTION
30+21.49	30+97.49			DI	SF							76'-0"		X		X	X											25													3	PROPOSED 18" PIPE OPTION

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)

FILE NAME: s05j352drainage.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: G. LAROCHE
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
DRAINAGE DETAIL SHEET	SHEET 17 OF 66

TRAFFIC SIGNS, TYPE A
STA. 51+75.25 RT
STA. 52+02.00 RT - 3
STA. 4+80.00 LT
STA. 54+06.00 RT

REMOVING SIGNS
STA. 51+75.00 LT
STA. 51+75.25 RT - 2
STA. 53+18.00 LT
STA. 54+19.00 RT

4" YELLOW LINE
STA. 50+25.00 TO STA. 55+25.00 (DOUBLE)

4" WHITE LINE
STA. 50+25.00 TO STA. 55+25.00 LT & RT

N
VT STATE PLANE GRID

EXISTING R.O.W.
EXISTING R.O.W.
50+25.00
BEGIN APPROACH
TO LOWER NOTCH RD.
TO NEW HAVEN
50+00
51+00
NEW HAVEN RIVER FLOW
SOUTH ST R
R
51+75.00 LT
STA 51+96.82
AHD P.O.S.T.
BEGIN BRIDGE
F.G. = 493.93
STA 53+19.02
BK P.O.S.T.
END BRIDGE
F.G. = 492.55
N
N
54+06.00 LT
54+25.00
END PROJECT
BRIDGE CLOSED R
R
55+15 LT
(Placed by Town)
55+25.00
END APPROACH
TO MAIN STREET
BRISTOL
55+00
55+50
SOUTH STREET
54+00
53+00
52+00
CAIN HILL ROAD (DEAD END)
2+75
2+00
4+55
5+00
5+62
PUMPHOUSE ROAD (DEAD END)
WEIGHT LIMIT 3 TONS R
R
53+18 LT
NEW HAVEN RIVER FLOW
NO PARKING R
R
54+19 RT
SOUTH ST N
CAIN HILL RD PVT. N
51+25.00
BEGIN PROJECT
STOP N
N
52+02.00 RT
BRIDGE CLOSED R
R
51+52 RT
(Placed by Town)
PUMPHOUSE RD R
CAIN HILL RD R
R
51+75.25 RT
PUMPHOUSE RD PVT. N
N
51+75.25 RT
N
DEAD END
N
4+80.00 LT

SIGN LAYOUT SHEET
SCALE 1" = 20'-0"
20 0 20

SIGN LEGEND
N = NEW
R = REMOVE

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

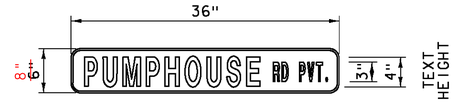
FILE NAME: s05j352sign.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
SIGNS AND PAVEMENT MARKINGS
PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 18 OF 66

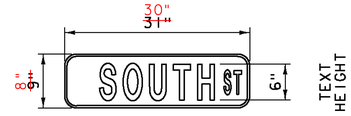
STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NO. OF POSTS	NEW SIGN POSTS: FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) lb/ft 1.75	2.0	2.5	1.88	2.42	3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) lb/ft 3.0	4.0	4.0 MOD	1.3	1.7	1.7	TUBULAR STEEL Ø (in) FOUNDATION	3.0	3.5	4.0	5.0 lb/ft 7.6	9.0	10.8	14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN REQUIRED	REMARKS	SIGN DETAIL: DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
												OPTION ITEMS																																	
51+75.25 RT.	PUMPHOUSE RD PVT.	1	36	~~6~~ 8	~~1.50~~ 2.00	-	-	-	-	-	1	-	-	-	-	10	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	STREET NAME SIGN	THIS SHEET	-
52+02.00 RT.	STOP	1	30	30	6.25	-	-	-	-	-	1	-	-	-	-	10	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	R1-1	SHS	-
52+02.00 RT.	SOUTH ST	1	~~31~~ 30	~~9~~ 8	~~1.94~~ 1.67	-	-	-	-	-	1	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	STREET NAME SIGN	THIS SHEET	-
52+02.00 RT.	CAIN HILL RD PVT.	1	36	~~6~~ 8	~~1.50~~ 2.00	-	-	-	-	-	1	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	STREET NAME SIGN	THIS SHEET	-
4+80.00 LT.	DEAD END	1	36	36	9.00	-	-	-	-	-	1	-	-	-	-	10	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	W14-1	SHS	-
54+06.00 LT.	R	1	24	24	4.00	-	-	-	-	-	1	-	-	-	-	10	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	R8-3A	SHS	-

NOTE: STREET SIGNS SHALL BE IN CONFORMANCE WITH TOWN STANDARDS





FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE TRAFFIC & SAFETY DIVISION'S "SIGN POST DESIGN GUIDELINE."

							FT	FT	FT	FT	FT	FT		EA	LB	LB	LB		LB	LB	LB	LB				
							-	-	-	-	40	-		-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS	SF 24.19	SF -	EA. -	SF -		FT -				FT 40			LB -		EA. -	LB -			EA. -	EA. -	LB -					

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445 (32)

FILE NAME: s05j352sign.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
TRAFFIC SIGN SUMMARY

PLOT DATE: 04-JUN-2013
DRAWN BY: R.PELLETT
CHECKED BY: T. FILLBACH
SHEET 19 OF 66

SOIL CLASSIFICATION

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

ROCK QUALITY DESIGNATION

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

SHEAR STRENGTH

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

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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

COMMONLY USED SYMBOLS

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

COLOR

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

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.

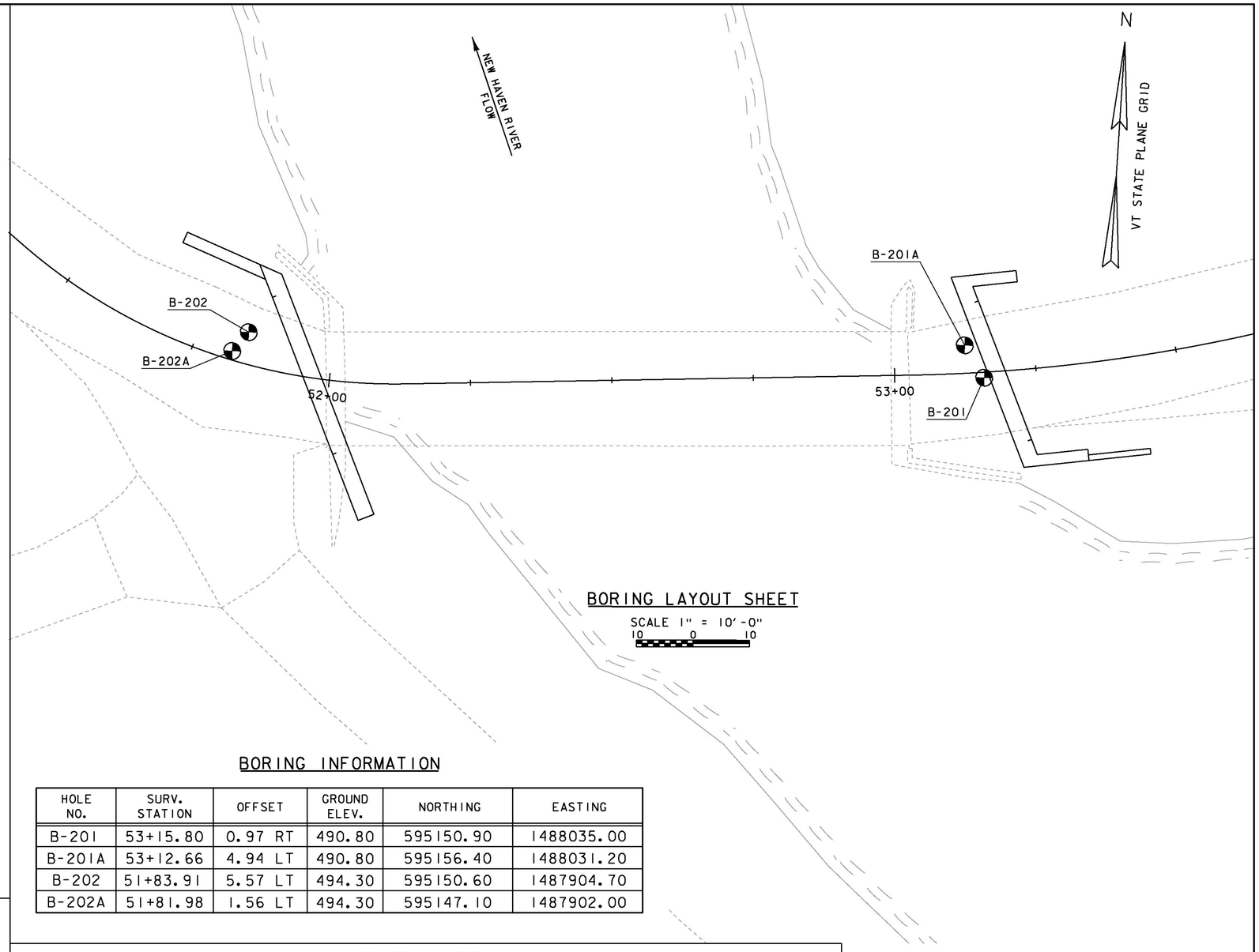
MUCK - Soft organic soil (containing > 10% organic material.

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.



BORING LAYOUT SHEET

SCALE 1" = 10'-0"

10 0 10

BORING INFORMATION

HOLE NO.	SURV. STATION	OFFSET	GROUND ELEV.	NORTHING	EASTING
B-201	53+15.80	0.97 RT	490.80	595150.90	1488035.00
B-201A	53+12.66	4.94 LT	490.80	595156.40	1488031.20
B-202	51+83.91	5.57 LT	494.30	595150.60	1487904.70
B-202A	51+81.98	1.56 LT	494.30	595147.10	1487902.00

1. The subsurface explorations shown herein were made between 3-17-2011 and 3-29-2011 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.

GENERAL NOTES

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

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

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

7. Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s051352boring.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: J. GRIFFIN
BORING LAYOUT SHEET

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 20 OF 66

South Street Bridge Replacement
SUBSURFACE LOG
HOLE NUMBER B-201

PROJECT NUMBER: 22718.1000.32000
LOCATION: Bristol, Vermont
CLIENT: VTrans
CONTRACTOR: New Hampshire Boring, Inc.
DRILLER: B. Thompson INSPECTOR: K. Owens
START DATE and TIME: 3/17/2011 9:25:00 AM
FINISH DATE and TIME: 3/17/2011 5:00:00 PM
SURFACE ELEV: 490.80 (ft; Estimated) CHECKED BY: K. Adnams
DRILL FLUID: Water @ 0' DRILLING METHOD: 5" FJC

WATER LEVEL OBSERVATIONS	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	3-17-11	5:00 PM	Casing Pulled	None	N/A	24

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT			
									490		
SS-1	2	0.5	5-7-10-7	17		2		f.m.c. SAND, little f.c. gravel, trace silt, brown, medium compact, wet (FILL)		Lab results are included for each sample. When insufficient sample mass was recovered for testing the description of the sample was based on field observations and denoted with " ** ". Groundwater conditions observed during drilling may not represent static conditions. Roller bit through asphalt 0-0.5'. Void observed under the asphalt 0.5'-1.0'. **(SS-1) Gravel: 63.3%, Sand: 30.1%, Fines: 6.5%. (SS-2) Gravel: 33.4%, Sand: 58.9%, Fines: 7.7%. **(SS-3) Gravel: 51.6%, Sand: 43.0%, Fines: 7.7%.	
SS-2	2	0.6	8-6-5-5	11		4		f.m.c. SAND, Some f.c. gravel, trace silt, brown, medium compact, moist (FILL)	488		
SS-3	2	1	5-3-2-3	5		6		f.m.c. SAND, Some f.c. gravel, trace silt, brown, loose, moist (FILL)	486		
						8			484		
SS-4	2	0.3	4-4-3-10	7		10		f.m.c. SAND, Some silt, trace c. gravel, trace organics/coal, loose, wet (FILL)	482	**Gravel: 37.7%, Sand: 29.9%, Fines: 32.3%.	
						12			480		
						14			478	Roller bit grinding 13.5'-15.5'.	
									476		
SS-5	2	0.4	19-8-6-5	14		16		f.m.c. SAND, trace silt, trace f. gravel, brown, medium compact, wet (SP)	474	**Gravel: 34.6%, Sand: 56.6%, Fines: 8.8%.	
						18			472		

BOTTOM OF PILE CAP
ELEV. 479.00

SUBSURFACE LOG BRIDGE REPLACEMENT LOGS.GPJ UPDATEDCHA.GDT 8/9/11

South Street Bridge Replacement
SUBSURFACE LOG
HOLE NUMBER B-201

PROJECT NUMBER: 22718.1000.32000

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
SS-6	1.3	0.4	14-29-100/3"	R		22		f.c. GRAVEL, Some f.m.c. Sand, little silt, brown, very compact, wet (GP)	470	**Gravel: 67.1%, Sand: 23.2%, Fines: 9.7%. Drill rig bouncing while advancing roller bit 21.0'-23.0'.	
						24		End of Boring at 24 ft	468	Casing and roller bit refusal at 24.0'. Cuttings from roller bit wash contain metal fragments, pull casing and roller bit to identify source. Boring terminated due to roller bit fragments remaining in the hole. B-201 offset to B-201A.	
						26			466		
						28			464	Borings made with a CME 550X ATV drill rig. Hammer Energy Correction Factor CE = 1.3 Coordinates: N 595150.9 ft, E 1488035.0 ft	
						30			462		
						32			460		
						34			458		
						36			456		
						38			454		
						40			452		
						42			450		
						44			448		

SUBSURFACE LOG BRIDGE REPLACEMENT LOGS.GPJ UPDATEDCHA.GDT 8/9/11

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352Boring_logs.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
BORING LOG SHEET #1	SHEET 21 OF 66

South Street Bridge Replacement
SUBSURFACE LOG
HOLE NUMBER B-201A

PROJECT NUMBER: 22718.1000.32000
LOCATION: Bristol, Vermont
CLIENT: VTrans
CONTRACTOR: New Hampshire Boring, Inc.
DRILLER: B. Thompson INSPECTOR: K. Owens
START DATE and TIME: 3/18/2011 8:00:00 AM
FINISH DATE and TIME: 3/22/2011 5:00:00 PM
SURFACE ELEV: 490.80 (ft; Estimated) CHECKED BY: K. Adnams
DRILL FLUID: Water @ 0' DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	3-21-11	9:45 AM	Start of Day	24.4	27.5	27.5
	3-22-11	4:45 PM	Casing Pulled	None	N/A	22

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
						0			490	B-201A offset from B-201 due to roller bit fragments remaining in B-201. Advance roller bit and casing to 25'.	
						2			488		
						4			486		
						6			484	Lab results are included for each sample. When insufficient sample mass was recovered for testing the description of the sample was based on field observations and denoted with " ** ".	
						8			482		
						10			480		
						12			478		
						14			476	Roller bit grinding 15.0'-17.0'.	
						16			474		
						18			472	Roller bit grinding 19.0'-19.3'. Roller bit grinding	

BOTTOM OF PILE CAP
ELEV. 479.00

SURFACE LOG BRIDGE REPLACEMENT LOGS.GPJ UPDATECHNA.GDT 8/9/11

South Street Bridge Replacement
SUBSURFACE LOG
HOLE NUMBER B-201A

PROJECT NUMBER: 22718.1000.32000

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
						22		(continued)	470	19.6'-20.3'.	
						24			468		
SS-1	2	0.4	9-11-24-12	35		26		f. SAND, Some Silt, little f.c. gravel, trace m.c. sand, light brown/gray, compact, moist (SM)	466	Groundwater observations made during drilling may not represent static conditions. **Gravel: 23.7%, Sand: 54.4%, Fines: 21.9%.	▽
						28			464	Roller bit grinding 27.0'-29.3'.	
SS-2	2	0.3	16-22-21-23	43		30		f.m.c. SAND, little silt, little f. gravel, brown, compact, wet (SM)	462	**Gravel: 44.5%, Sand: 39.5%, Fines: 16.0%.	
						32			460	End of 3/18/11 at 32.0'.	
						34			458		
SS-3	2	0.1	1-1-1-10	2		36		f.c. GRAVEL, trace silt, trace f.m.c. sand, brown/red, very loose, wet (GP)	456	Due to small recovery of sample SS-3 and high gravel content of sample, the 3" spoon was advanced after SS to obtain sample to determine in-situ material. **Gravel: 91.9%, Sand 3.9%, Fines: 4.2%.	
						38			454		
SS-4	0.8	0	40-100/4"	R		40		No recovery	452	Coarse gravel blocking shoe of sample SS-4. The 3" spoon was advanced after SS to obtain sample but no material was recovered. Hard roller bit 40.0'-41.0'. 4" FJC casing will not advance past 41.0'. Install 3" FJC casing.	
						42			450		
						44			448		

SURFACE LOG BRIDGE REPLACEMENT LOGS.GPJ UPDATECHNA.GDT 8/9/11

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352Boring_logs.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
BORING LOG SHEET #2

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 22 OF 66

South Street Bridge Replacement
SUBSURFACE LOG
HOLE NUMBER B-201A

PROJECT NUMBER: 22718.1000.32000

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
SS-5	2	0.5	14-14-15-19	29		46		f.c. GRAVEL, little silt, little f.m.c. sand, light brown, medium compact, wet (GP)	446	**Gravel: 72.2%, Sand: 16.3%, Fines: 11.5%.	
									444		
						48				Roller bit grinding 49.0'-49.5'.	
									442		
SS-6	1.2	0.3	23-39-50/2"	R		50		f.c. GRAVEL, little f.m.c. sand, trace silt, gray, very compact, wet (GP)		**Gravel: 71.9%, Sand: 20.1%, Fines: 8.0%.	
									440	Roller bit and casing grinding 51.0'-52.0'. End of 3/21/11 at 51.2'.	
						52					
									438	Roller bit and casing grinding 53.0'-54.0'.	
						54					
SS-7	0.2	0	50/2"	R				No recovery	436	Split spoon bouncing during blows. Roller bit grinding 55.0'-56.0'. 3" FJC did not advance past 55.5', drillers believe spln shoe to be stripped.	
						56					
								No recovery	434		
SS-8	2	0	18-14-21-32	35		58					
									432		
						60					
SS-9	1.1	0.5	28-62-50/1"	R				f.c. GRAVEL, Some f.m.c. SAND, little silt, light brown, very compact, wet (GP)	430	**Gravel: 56.0%, Sand: 26.8%, Fines: 17.2%.	
								End of Boring at 61.1 ft		Boring terminated due to casing refusal. High sand and gravel content did not allow for open hole roller bit and sampling past 60.0'.	
						62			428		
						64				Borings made with a CME 550X ATV drill rig. Hammer Energy Correction Factor CE = 1.3 Coordinates: N 595156.4 ft, E 1488031.2 ft	
									426		
						66					
									424		
						68					

SUBSURFACE LOG BRIDGE REPLACEMENT LOGS.GPJ UPDATETEMPLATE.GDT 8/6/11

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05J352Boring_logs.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
BORING LOG SHEET #3	SHEET 23 OF 66

PROJECT NUMBER: 22718.1000.32000

South Street Bridge Replacement
SUBSURFACE LOG
HOLE NUMBER B-202

LOCATION: Bristol, Vermont
CLIENT: VTrans
CONTRACTOR: New Hampshire Boring, Inc.
DRILLER: B. Thompson INSPECTOR: K. Owens
START DATE and TIME: 3/23/2011 7:45:00 AM
FINISH DATE and TIME: 3/24/2011 12:30:00 PM
SURFACE ELEV: 494.30 (ft; Estimated) CHECKED BY: K. Adnams

DRILL FLUID: Water @ 0' DRILLING METHOD: 5" FJC

WATER LEVEL OBSERVATIONS	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	3-24-11	7:45 AM	Start of Day	None	50	47

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or ROD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT	494	Lab results are included for each sample. When insufficient sample mass was recovered for testing the description of the sample was based on field observations and denoted with " ** ". Groundwater observations made during drilling may not represent static conditions. Roller bit through asphalt 0.0'-0.5'. Coarse gravel blocking shoe of sample SS-1. **(SS-1) Gravel: 68.8%, Sand: 21.9%, Fines: 9.3%. **(SS-2) Gravel: 67.0%, Sand: 22.8%, Fines: 10.2%. Due to lack of recovery of sample SS-3 and high gravel content of wash, the 3" spoon was advanced after SS to attempt to obtain sample to determine in-situ material. Due to lack of recovery of sample SS-4 and high gravel content of wash, the 3" spoon was advanced after SS to obtain sample to determine in-situ material. **Gravel: 69.7%, Sand: 24.3%, Fines: 6.0%. Roller bit grinding 14.5'-15.0'. Due to lack of recovery of sample SS-5 and high gravel content of wash, the 3" spoon was advanced after SS to attempt to obtain sample to determine in-situ material. **Gravel: 85.8%, Sand: 10.3%, Fines: 3.9%.	
SS-1	2	0.2	11-8-5-11	13		2		f.m.c. SAND, little silt, little f.c. gravel, light brown, medium compact, wet (SUBBASE)	492		
SS-2	2	0.4	8-6-6-9	12		4		f.m.c. SAND, little silt, little f.c. gravel, light brown, medium compact, moist (SM)	490		
SS-3	2	0	7-3-4-4	7		6		No recovery	488		
						8			486		
SS-4	2	0	6-5-4-6	9		10		f.c. GRAVEL, Some f.m.c. Sand, trace silt, brown, loose, wet (GP)	484		
						12			482		
						14			480		
SS-5	2	0	5-5-5-5	10		16		No recovery	478		
						18			476		

BOTTOM OF PILE CAP
ELEV. 479.00

SURSURFACE LOG BRIDGE REPLACEMENT LOGS.GPJ UPDATEMCHALGDT 6/6/11

PROJECT NUMBER: 22718.1000.32000

South Street Bridge Replacement
SUBSURFACE LOG
HOLE NUMBER B-202

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or ROD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
SS-6	2	0.3	9-9-12-19	21		22		f.c. GRAVEL, Some f.m.c. Sand, little silt, light brown, medium compact, wet (GP)	474	**Gravel: 65.1%, Sand: 12.7%, Fines: 22.2%.	
						24			472		
SS-7	1.8	0.2	9-9-12-50/4"	21		26		Similar Soil (GP)	470	**Gravel: 56.3%, Sand: 27.4%, Fines: 16.3%.	
						28			468	Roller bit grinding 26.5'-27.0'.	
SS-8	2	0.6	15-16-15-16	31		30		becomes compact (GP)	466	Roller bit grinding 28.0'-28.5'.	
						32			464	Slit and f. sand lens observed in sample SS-8, approximately 1" thick. **Gravel: 40.3%, Sand: 39.2%, Fines: 20.5%.	
						34			462		
SS-9	2	0.7	22-29-17-14	46		36		f.m.c. SAND, little silt, little f.c. gravel, brown/gray, compact, moist (SM)	460	**Gravel: 57.8%, Sand: 25.3%, Fines: 16.9%.	
						38			458		
						40			456		
SS-10	2	0	16-9-10-15	19		42		f.m.c. SAND, Some f.c. Gravel, trace silt, brown, medium compact, wet (SP)	454	Due to lack of recovery of sample SS-10 and high gravel content of wash, the 3" spoon was advanced after SS to attempt to obtain sample to determine in-situ material. **Gravel: 75.9%, Sand: 15.0%, Fines: 9.1%.	
						44			452		

SURSURFACE LOG BRIDGE REPLACEMENT LOGS.GPJ UPDATEMCHALGDT 6/6/11

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352Boring_logs.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
BORING LOG SHEET #4	SHEET 24 OF 66

South Street Bridge Replacement
SUBSURFACE LOG
HOLE NUMBER B-202

PROJECT NUMBER: 22718.1000.32000

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
SS-11	0.9	0.2	20-50/5"	R		46		f.m.c. SAND, little f.c. gravel, trace silt, light brown/gray, very compact, moist (SP)	448	**Gravel: 59.7%, Sand: 25.3%, Fines: 15.0%. Roller bit grinding 45.5'-46.0'.	
						48			446		
						50				End of 3/23/11 at 50.0'. Install 4" FJC at 50.0'.	
SS-12	2	0.6	15-12-13-16	25		52		f.m.c. SAND, Some f.c. gravel, trace silt, brown, medium compact, wet (SP)	444	**Gravel: 70.7%, Sand: 21.3%, Fines: 8.0%.	
						54			442		
SS-13	0.8	0	6-70/3"	R		56		No recovery	440	Spoon bouncing during blows of sample SS-13. Roller bit grinding 55.5'-56.5'.	
						58			438		
						60			436		
SS-14	2	1	9-7-13-16	20		62		f.m.c. SAND, Some f.c. Gravel, little silt, brown, medium compact, wet (SM)	434	**Gravel: 69.2%, Sand: 23.7%, Fines: 6.0%.	
						64			432	Drill rig bouncing and roller bit wash recovering metal shavings at 65.0'. Driller suspected the casing was bent around likely boulder at 55.5'. Casing and roller bit removed to confirm. One length of casing not recovered from boring. B-202 terminated and offset to B-202A.	
						66		End of Boring at 65 ft	430		
						68			428	Borings made with a CME 550X ATV drill rig. Hammer Energy Correction Factor CE = 1.3 Coordinates: N 595150.6 ft, E 1487904.7 ft	
									426		

SUBSURFACE LOG BRIDGE REPLACEMENT LOGS.PPJ UPDATEDCHA.GDT 6/9/11

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352Boring_logs.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
BORING LOG SHEET #5

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 25 OF 66

South Street Bridge Replacement
SUBSURFACE LOG
HOLE NUMBER B-202A

PROJECT NUMBER: 22718.1000.32000
LOCATION: Bristol, Vermont
CLIENT: VTrans
CONTRACTOR: New Hampshire Boring, Inc.
DRILLER: B. Thompson INSPECTOR: K. Owens
START DATE and TIME: 3/24/2011 3:00:00 PM
FINISH DATE and TIME: 3/29/2011 3:00:00 PM
SURFACE ELEV: 494.30 (ft; Estimated) CHECKED BY: K. Adnams
DRILL FLUID: Water @ 0' DRILLING METHOD: 5" FJC

WATER LEVEL OBSERVATIONS	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	3-28-11	10:00 AM	Start of Day	47	50	49

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
						0			494	B-202A offset from B-202 due to broken casing remaining in the hole.	
						2			492	Roller bit through pavement 0'-0.5'.	
						4			490		
						6			488	Lab results are included for each sample and when insufficient sample was recovered for testing the description of the sample was based on field observations and denoted with "**".	
						8			486		
						10			484		
						12			482		
						14			480		
						16			478		
						18			476		

BOTTOM OF PILE CAP
ELEV. 479.00

SUBSURFACE LOG BRIDGE REPLACEMENT LOGS.GPJ UPDATEDCHA.GST 8/9/11

South Street Bridge Replacement
SUBSURFACE LOG
HOLE NUMBER B-202A

PROJECT NUMBER: 22718.1000.32000

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
						22		(continued)	474		
						24			472		
						26			470	Roller bit grinding at 25.0'.	
						28			468		
						30			466		
						32			464	Roller bit grinding at 30.0'.	
						34			462		
						36			460		
						38			458		
						40			456		
						42			454		
						44			452		

SUBSURFACE LOG BRIDGE REPLACEMENT LOGS.GPJ UPDATEDCHA.GST 8/9/11

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352Boring_logs.dgn PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE CHECKED BY: T. FILLBACH
BORING LOG SHEET #6 SHEET 26 OF 66

South Street Bridge Replacement
SUBSURFACE LOG
HOLE NUMBER B-202A

PROJECT NUMBER: 22718.1000.32000

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								(continued)			
						46			448	Roller bit grinding at 46.0'.	
						48			446	Groundwater conditions observed during drilling may not represent static conditions.	
						50			444	End of 3/25/11 and bottom of 5" FJC casing at 50.0'. Install 4" FJC.	
						52			442		
						54			440	Roller bit grinding 53.5'-57.0'. Attempt coring to determine if it is bedrock, sample recovered indicates a boulder approximately 5.5' thick.	
R-1	5	2				56		GRANITE BOULDER, gray, hard	438		
						58			436		
						60			434		
						62			432		
						64			430	End of 3/28/11 at 65.0'.	
SS-1	2	0.6	13-10-9-9	19		66		f.m.c. SAND, little silt, little f.c. gravel, brown, medium compact, wet (SM)	428	**Gravel: 55.8%, Sand: 33.4%, Fines: 10.8%.	
						68			426		

SURFACE LOG BRIDGE REPLACEMENT JM FJC.GPJ UPDATED 6/9/11

South Street Bridge Replacement
SUBSURFACE LOG
HOLE NUMBER B-202A

PROJECT NUMBER: 22718.1000.32000

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
						70		Similar Soil (SM)	424	**Gravel: 55.9%, Sand: 32.0%, Fines: 12.1%.	
SS-2	2	0.7	15-15-11-11	26		72			422	Roller bit grinding 72.5'-73.0'.	
						74			420		
SS-3	2	0.7	3-3-4-7	7		76		f.m.c. SAND, little f. gravel, trace silt, brown, loost, wet (SP)	418	**Gravel: 60.3%, Sand: 33.5%, Fines: 6.2%.	
						78			416		
SS-4	2	0.7	9-7-7-10	14		80		f.m.c. SAND, Some f. Gravel, trace silt, brown, medium compact, wet (SP)	414	Gravel: 25.5%, Sand: 65.5%, Fines: 9.0%.	
						82			412		
						84			410		
SS-5	2	0.9	9-11-12-13	23		86		f.m.c. SAND, trace silt, trace f. gravel, brown, medium compact, wet (SP)	408	Gravel: 8.6%, Sand: 82.8%, Fines: 8.7%.	
						88			406		
SS-6	2	1.1	9-9-10-11	19		90		f.m.c. SAND, Some f. Gravel, trace silt, brown, medium compact, wet (SP)	404	Gravel: 29.9%, Sand: 60.2%, Fines: 9.9%.	
						92			402	Drilling mud introduced at 90.0', advanced casing to 95' then used only drilling mud for the remainder of the boring.	

SURFACE LOG BRIDGE REPLACEMENT JM FJC.GPJ UPDATED 6/9/11

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352Boring_logs.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
BORING LOG SHEET #7

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 27 OF 66

South Street Bridge Replacement
SUBSURFACE LOG
HOLE NUMBER B-202A

PROJECT NUMBER: 22718.1000.32000

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD/%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
						94				Roller bit resistance increased at 93.0'.	
SS-7	2	1.2	14-22-28-42	50		96		f.m.c. SAND, trace silt, trace f. gravel, brown, compact, wet (SP-TILL)	400	Gravel: 6.0%, Sand: 85.1%, Fines: 8.9%.	
						98			398		
						100			396		
SS-8	2	1.8	21-33-28-22	61		102		f.m.c. SAND, little silt, brown, very compact, wet (SM-TILL)	394	Gravel: 0.0%, Sand: 89.7%, Fines: 10.3%.	
						104			392		
						106			390		
						108			388		
						110			386		
SS-9	2	1.4	18-30-32-42	62		112		f.m. SAND, little silt, brown, very compact, wet (SM-TILL)	384	Gravel: 0.0%, Sand: 85.2%, Fines: 14.8%.	
						114			382		
						116			380	Drill rig chattering while advancing roller bit 114.0'-120.0' on probable gravel and cobbles.	
									378		

ESTIMATED PILE TIP
ELEV. 379.00

SUBSURFACE LOG BRIDGE REPLACEMENT LOGS.GPJ UPDATEDCHA.GDT 8/9/11

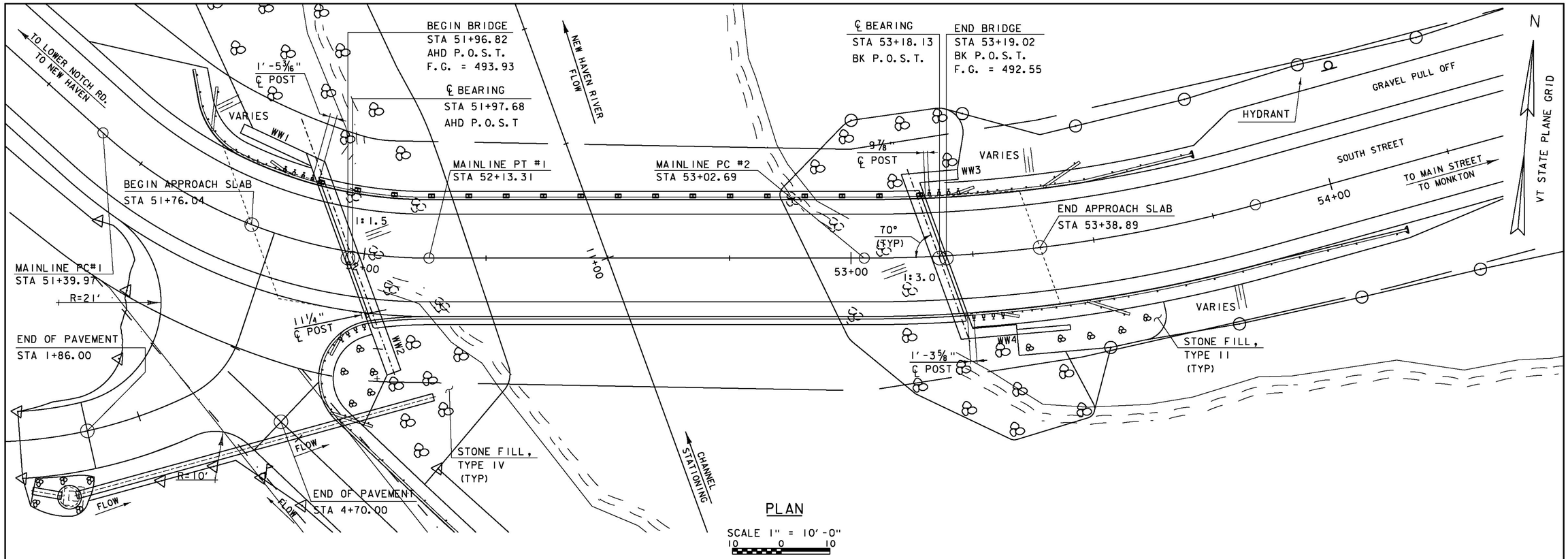
South Street Bridge Replacement
SUBSURFACE LOG
HOLE NUMBER B-202A

PROJECT NUMBER: 22718.1000.32000

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD/%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
						118			376		
SS-10	1.3	1	24-34-50/3"	R		120		f.m.c. SAND, Some Silt, Some f. Gravel, brown, very compact, moist (SM-TILL)	374	Gravel: 20.5%, Sand: 44.9%, Fines: 34.6%.	
						122		End of Boring at 121.3 ft	372	Borings made with a CME 550X ATV drill rig. Hammer Energy Correction Factor CE = 1.3 Coordinates: N 595147.1 ft, E 1487902.0 ft	
						124			370		
						126			368		
						128			366		
						130			364		
						132			362		
						134			360		
						136			358		
						138			356		
						140			354		

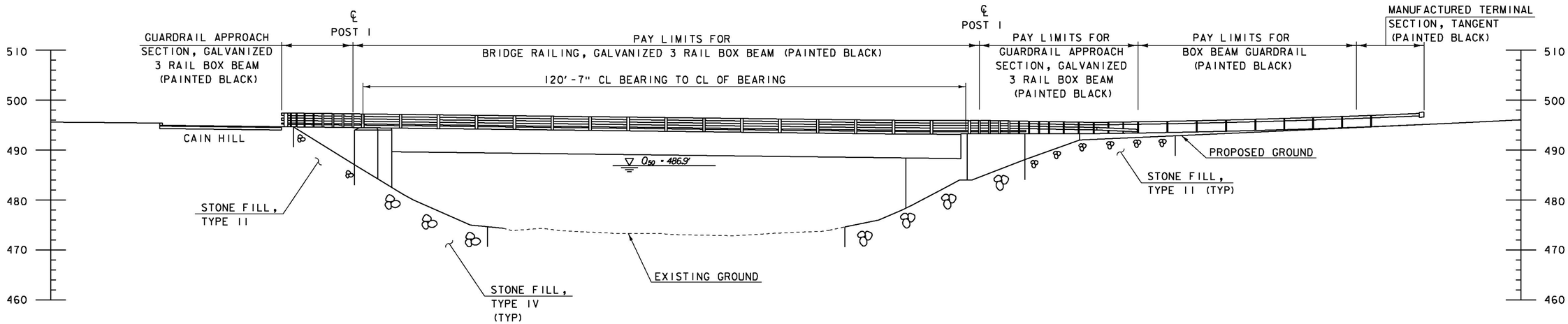
SUBSURFACE LOG BRIDGE REPLACEMENT LOGS.GPJ UPDATEDCHA.GDT 8/9/11

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352Boring_logs.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
BORING LOG SHEET #8	SHEET 28 OF 66



PLAN

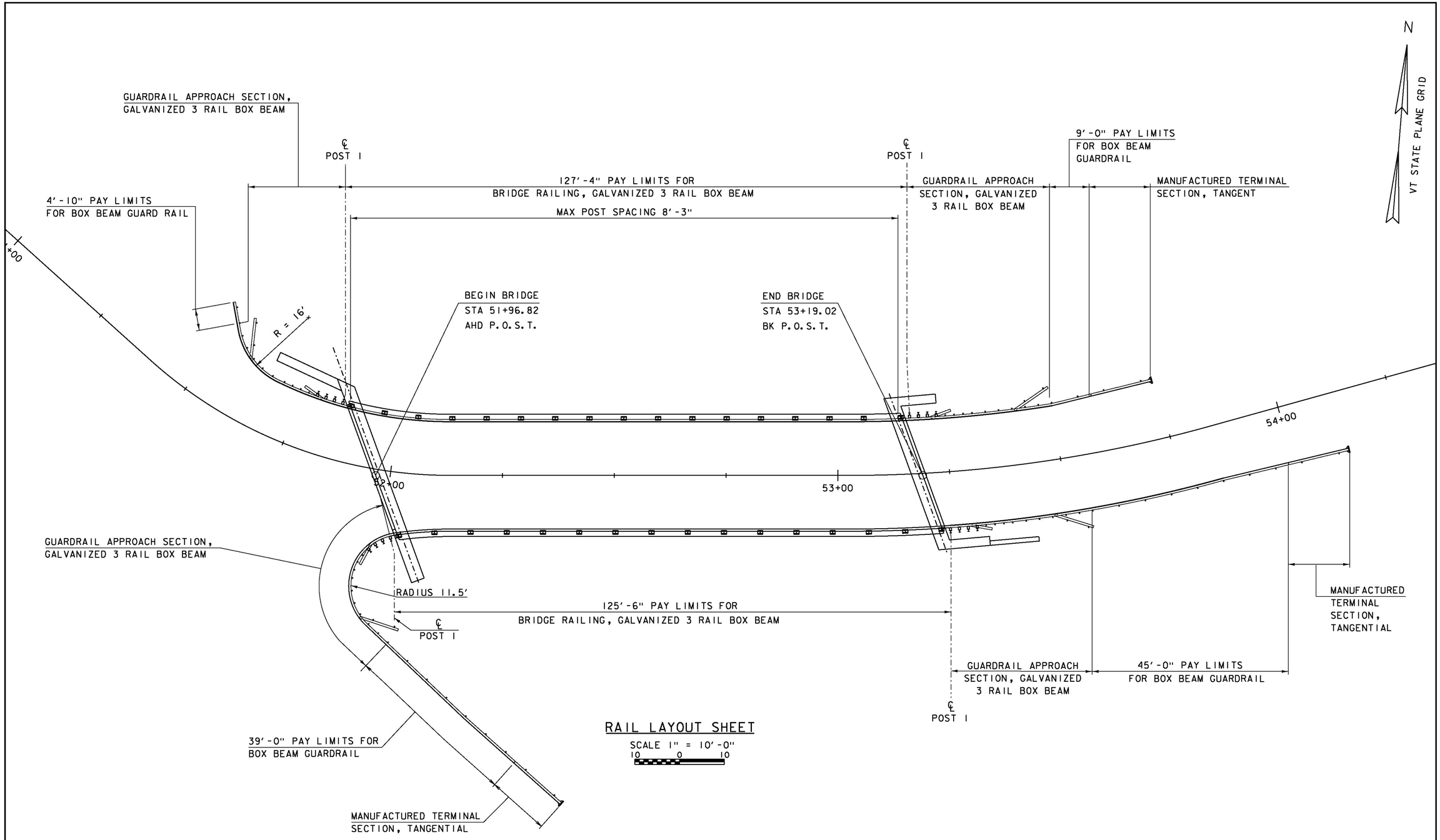
SCALE 1" = 10'-0"



ELEVATION AT UPSTREAM FASCIA

SCALE 1" = 10'-0"

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352pe.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: J. SALVATORI
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
PLAN AND ELEVATION SHEET	SHEET 29 OF 66



RAIL LAYOUT SHEET

SCALE 1" = 10'-0"

10 0 10

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352rail.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
RAIL LAYOUT SHEET	SHEET 30 OF 66

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATION FOR CONSTRUCTION, DATED 2011 WITH ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 2012 WITH INTERIMS.

2. DESIGN FOR HL-93 LIVE LOADING WITH FUTURE 2 ½" WEARING SURFACE.

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

4. ITEM 529.15 REMOVAL OF STRUCTURE IS FOR THE COMPLETE REMOVAL OF THE EXISTING BRIDGE, INCLUDING COMPLETE REMOVAL OF THE EXISTING SUPERSTRUCTURE AND ALL PORTIONS OF THE EXISTING ABUTMENTS NOT REMOVED UNDER STRUCTURE EXCAVATION.

5. 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.

6. FOR INFORMATION REGARDING THE WATER MAIN CHANGES AND RELOCATIONS, REFER TO SPECIAL PROVISIONS AND CONSULTANT WATER MAIN DRAWINGS, INCLUDED IN THIS PLAN SET.

7. ANY DAMAGE TO THE ROADWAY INCURRED DURING CONSTRUCTION OF THE TEMPORARY OR PERMANENT WATER MAIN SHALL BE REPAIRED TO THE ORIGINAL CONDITION. THIS WORK WILL BE INCIDENTAL TO THE CONTRACT ITEMS SPECIAL PROVISION (WATER MAIN ON BRIDGE)(8") AND SPECIAL PROVISION (MAINTENANCE OF EXISTING FLOWS).

8. THE DESIGN AND INSTALLATION OF THE TEMPORARY WATER MAIN SYSTEM SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DONE IN ACCORDANCE WITH THE PLANS AND SECTION 629. PAYMENT FOR THE TEMPORARY WATER MAIN TO BUILD A COMPLETE FUNCTIONAL SYSTEM TO THE SATISFACTION OF THE ENGINEER WILL BE PAID UNDER CONTRACT ITEM 900.645 SPECIAL PROVISION (MAINTENANCE OF EXISTING WATER FLOWS).

9. THE DETAILS AND DIMENSIONS SHOWN ON THE PROJECT SPECIFIC PLAN AND DETAIL SHEETS TAKE PRECEDENCE OVER THE MORE GENERAL "STRUCTURES DETAIL SHEETS" PROVIDED AFTER THE PLAN SHEETS AS LISTED IN THE INDEX.

10. ALL BRIDGE RAILING, APPROACH RAILING, AND GUARDRAIL SHALL BE PAINTED BLACK (COLOR CHIP #27038) EXCEPT HARDWARE AND ANCHORAGE CAST IN CONCRETE.

11. NESTING SWALLOWS HAVE BEEN NOTED ON THE PROJECT SITE. THE CONTRACTOR SHALL WORK WITH THE VTRANS ENVIRONMENTAL BIOLOGIST IN ORDER TO DETERMINE AN ADEQUATE METHOD FOR SAFELY REMOVING ANY EXISTING NESTS.

TRAFFIC CONTROL

12. CURRENTLY BRIDGE 31 ON SOUTH STREET IS CLOSED. DURING CONSTRUCTION, SOUTH STREET WILL REMAIN CLOSED TO THROUGH TRAFFIC UNTIL COMPLETION OF THE NEW STRUCTURE.

13. FOR ADDITIONAL CONSTRUCTION SIGNING INSTRUCTIONS SEE E-100 SERIES STANDARDS AND THE LATEST EDITION OF THE MUTCD. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN.

EARTHWORK

14. THE STONE FILL, TYPE IV SHALL BE PLACED IN FRONT OF THE ABUTMENTS BEFORE THE STRUCTURAL STEEL HAS BEEN SET.

15. THE HEIGHT OF THE FILL BEHIND THE NEW ABUTMENTS SHALL BE LIMITED TO THE CONSTRUCTION JOINT ELEVATION UNTIL THE DECK HAS BEEN POURED AND CURED.

16. BOTH ABUTMENTS SHALL BE BACKFILLED SIMULTANEOUSLY. NO MORE THAN 2 FEET OF DIFFERENTIAL BACKFILL HEIGHT SHALL BE PERMITTED. BACKFILLING SHALL NOT BEGIN UNTIL THE ABUTMENT AND DECK CONSTRUCTION IS COMPLETE.

CONCRETE

17. THE MINIMUM COVER FOR REINFORCING STEEL IN THE SUBSTRUCTURE SHALL BE TWO INCHES ALONG THE WALL FACES AND AGAINST EARTH, THREE INCHES ALONG SURFACES EXPOSED TO DEICING SALTS AND THREE INCHES ELSEWHERE UNLESS DETAILED OTHERWISE.

18. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE AS FOLLOWS:
    SPACING +/- 1"
    CLEARANCE +/- ¼"

19. ALL REINFORCING STEEL IN THE CONCRETE DECK AND INTEGRAL BACKWALL EXTENDING ABOVE THE BRIDGE SEAT SHALL BE LEVEL II CORROSION RESISTANCE. ALL OTHER REINFORCING STEEL SHALL BE LEVEL I CORROSION RESISTANCE. WHEN REINFORCING STEEL IS CUT, THE UNCOATED ENDS SHALL BE REPAIRED WITH MATERIALS AND PROCEDURES APPROVED BY THE COATING MANUFACTURER. FLAME CUTTING OF COATED REINFORCING STEEL WILL NOT BE PERMITTED.

20. JOINTS AND SCORE MARKS IN THE CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

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

22. THE CONCRETE IN THE WINGWALLS AND BACKWALLS ABOVE THE CONSTRUCTION JOINT ELEVATION SHALL BE POURED WITH THE DECK.

23. THE TOP SURFACE OF THE PILE CAP SHALL INITIALLY BE GIVEN A FLOAT FINISH TO GRADE. THE CONCRETE WITHIN THE REINFORCING CAGE SHALL THEN BE ROUGHENED BY RAKING PARALLEL TO THE FACE OF THE ABUTMENT TO AN AMPLITUDE OF ½". THE CONCRETE OUTSIDE THE REINFORCING CAGE AND UNDER THE BEARING PADS SHALL REMAIN SMOOTH.

24. FOR THE BRIDGE DECK POURS, THE MAXIMUM TIME LIMIT FOR ANY COMBINATION OF POURS DONE IN ANY ONE DAY SHALL BE EIGHT HOURS. THERE SHALL BE A MINIMUM OF 96 HOURS BETWEEN THE COMPLETION OF ONE DAY'S POUR AND THE BEGINNING OF OTHER ADJACENT POURS. ALL INDIVIDUAL DECK POURS SHALL START FROM THE LOW END OF THE BRIDGE.

25. ALL PORTIONS OF THE APPROACH SLABS AND SUBSTRUCTURE CONCRETE SHALL BE CONCRETE, HIGH PERFORMANCE CLASS B UNLESS OTHERWISE NOTED AND SHALL BE PAID FOR UNDER ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B". ALL PORTIONS OF THE SUPERSTRUCTURE SHALL BE CONCRETE, HIGH PERFORMANCE CLASS A AND SHALL BE PAID FOR UNDER ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A".

26. IN ACCORDANCE WITH SUBSECTION 506.23(A) AND AS DIRECTED BY THE RESIDENT ENGINEER, THE CONTRACTOR SHALL TAKE MEASURES NECESSARY TO PROTECT ALL SUBSTRUCTURE CONCRETE FROM STAINING DUE TO OXIDE FORMATION ON THE STRUCTURAL STEEL PRIOR TO PLACEMENT OF THE DECK. THESE MEASURES WILL NOT BE PAID FOR SEPARATELY BUT WILL BE CONSIDERED INCIDENTAL TO ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B". ANY SUCH STAINING THAT OCCURS PRIOR TO DECK PLACEMENT SHALL BE REMOVED AT NO ADDITIONAL COST TO THE STATE.

STRUCTURAL STEEL

27. ANY CONNECTIONS THAT ARE NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.

28. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.

29. ANY HOLES IN THE WEBS OF THE FASCIA GIRDERS THAT ARE NOT OTHERWISE FILLED SHALL BE FILLED WITH BUTTON HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTIONS 506.19.

30. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SECTION 506 UNLESS OTHERWISE NOTED.

31. THE FAYING SURFACE ON THE CONNECTION PLATES SHALL BE PREPARED AS CLASS "A". THESE SURFACES SHALL BE PROTECTED FROM DAMAGE AND CORROSION PRIOR TO THE CONNECTION.

32. FLEMING BRACKETS OR SIMILAR FALSE WORK SHALL BE PLACED AT A MAXIMUM SPACING OF 4 FEET. THE BRACKETS SHALL BEAR NEAR THE BOTTOM FLANGE AND IN NO CASE SHALL THEY BEAR ABOVE THE BOTTOM QUARTER OF THE WEB.

33. AFTER THE GIRDERS HAVE BEEN ERECTED, ELEVATIONS SHALL BE TAKEN ALONG THE TOP OF THE GIRDERS, AS DIRECTED BY THE RESIDENT ENGINEER, FOR USE IN DETERMINING THE FINISHED GRADE.

34. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN TENSION ZONE" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01.

35. ENDS OF GIRDERS ARE TO BE VERTICAL UNDER FULL DEAD LOAD.

36. CONNECTION PLATES FOR WATER MAIN SUPPORTS AND ASSOCIATED ATTACHMENT HARDWARE FOR WATER MAIN SHALL BE PAID FOR UNDER ITEM 900.645 SPECIAL PROVISION (WATER MAIN ON BRIDGE).

PILES

37. PROVIDE HP14X89 ASTM A572, GRADE 50 PILES AT ALL PILE LOCATIONS SHOWN ON PLANS. ALL PILES SHALL BE EQUIPPED WITH APPROVED REINFORCED TIPS. THE PILES SHALL BE DRIVEN TO A NOMINAL RESISTANCE OF 627 KIPS AND TO A MINIMUM OF 40 FEET BELOW THE BOTTOM OF THE PILE CAP.

38. A MINIMUM OF ONE DYNAMIC PILE TESTS SHALL BE CONDUCTED ON THE FIRST PILE DRIVEN FOR EACH SUBSTRUCTURE UNIT, FOR A TOTAL OF 2 TESTS. MORE TESTES MAY BE REQUIRED BY THE ENGINEER.

39. PILES SHALL BE DRIVEN WITHIN 3 INCHES OF THE LOCATION SHOWN ON THE PLANS. THE PILE ORIENTATION SHALL NOT VERY BY MORE THAN 5 DEGREES. THE CONTRACTOR SHALL DEMONSTRATE HOW THE TOLERANCE WILL BE MET TO THE SATISFACTION OF THE ENGINEER.

40. FOR ESTIMATING PURPOSES, THE PILE LENGTHS WERE ASSUMED TO BE 102 FEET. ACTUAL IN PLACE LENGTHS MAY VARY.

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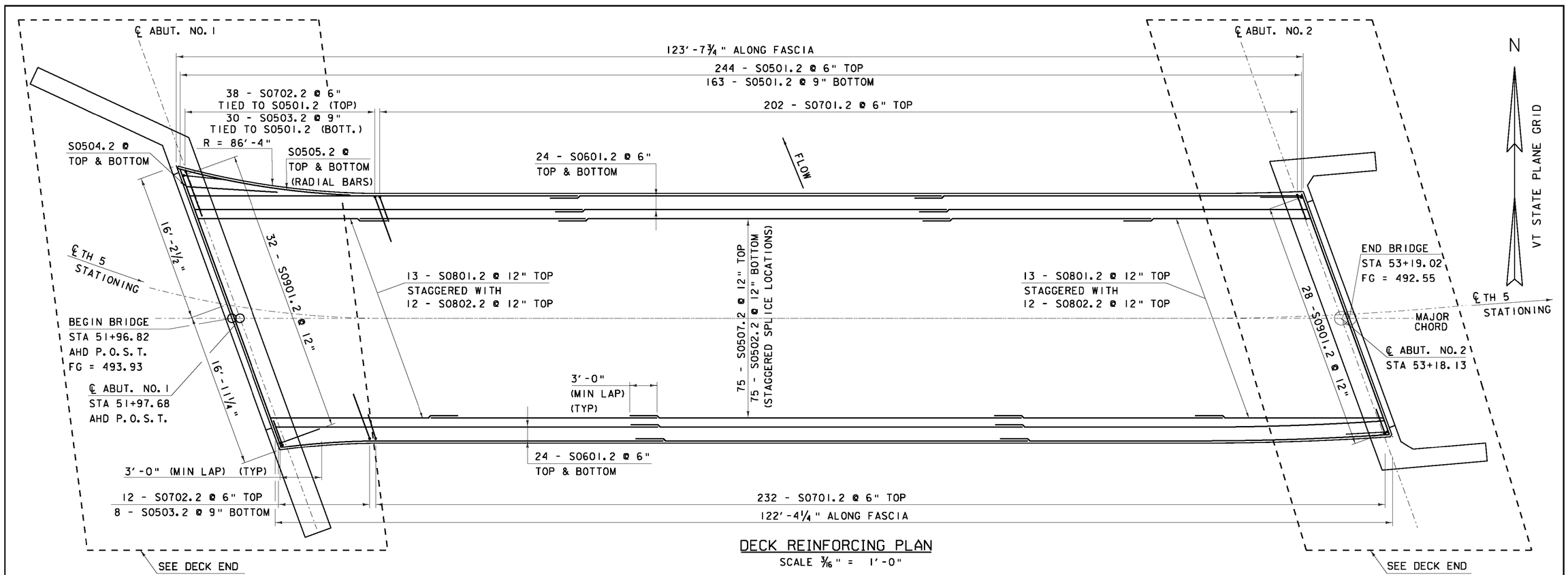
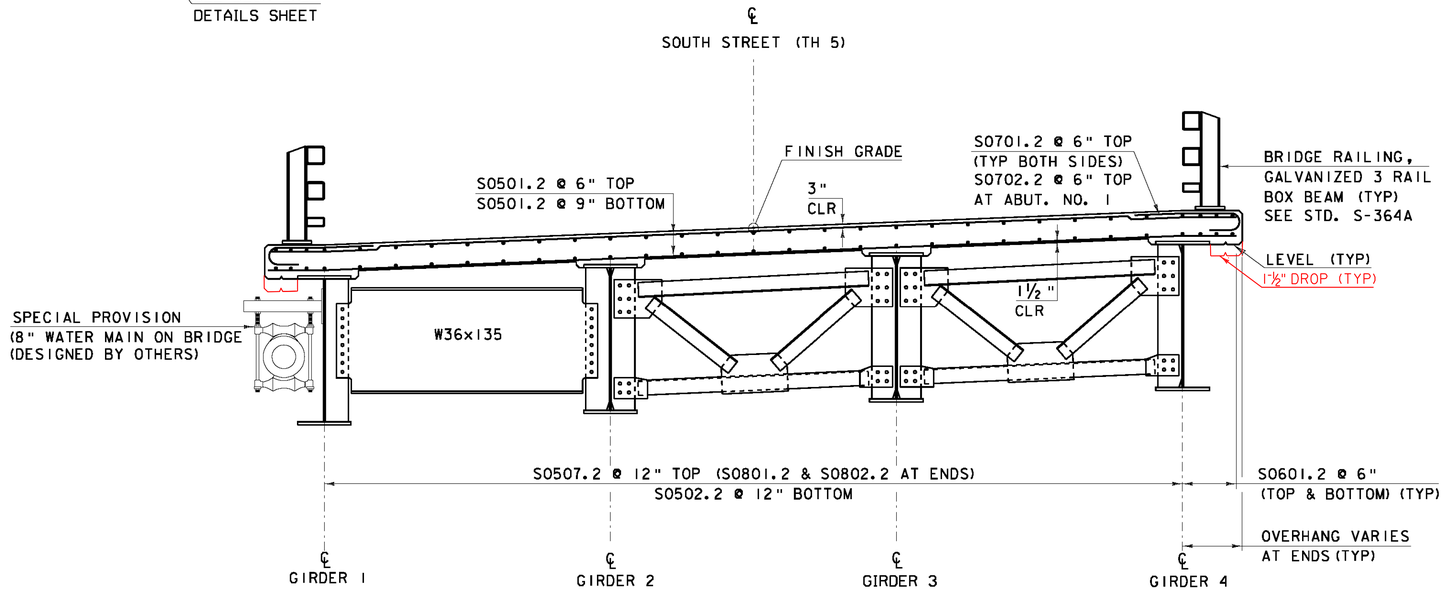
PROJECT NUMBER:	BRO 1445(32)

FILE NAME: 05J352/STR/s05J352form.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J.LACROIX	DRAWN BY: J.SALVATORI
DESIGNED BY: G.LAROCHE	CHECKED BY: J.GRIFFIN
GENERAL NOTES	SHEET 31 OF 66



DECK REINFORCING PLAN

SCALE 3/16" = 1′-0"



DECK REINFORCING TYPICAL

NOT TO SCALE

OVERHANG LENGTHS, MEASURED NORMAL TO THE CENTERLINE OF ADJACENT GIRDER											
	10TH POINT DISTANCE ALONG GIRDER, MEASURED FROM CENTERLINE ABUTMENT										
DISTANCE	0 FT	12.06 FT	24.12 FT	36.17 FT	48.23 FT	60.29 FT	72.35 FT	84.41 FT	96.46 FT	108.52 FT	120.58 FT
LEFT OVERHANG	3′-1 3/8"	1′-8 15/16"	1′-8"	1′-8"	1′-8"	1′-8"	1′-8"	1′-8"	1′-8"	1′-8 3/16"	1′-10 5/8"
RIGHT OVERHANG	2′-5 1/8"	1′-8 15/16"	1′-8"	1′-8"	1′-8"	1′-8"	1′-8"	1′-8"	1′-8"	1′-6 7/8"	1′-3 7/16"

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3′-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.
ALL REINFORCING STEEL TO BE CUT IN THE FIELD IS TO BE SAW CUT AND EXPOSED END TREATED AS PER SUBSECTION 507.04.

STATE OF VERMONT
JASON A. OLIN
No. 8262
STRUCTURAL
LICENSED
PROFESSIONAL ENGINEER
2/28/2013

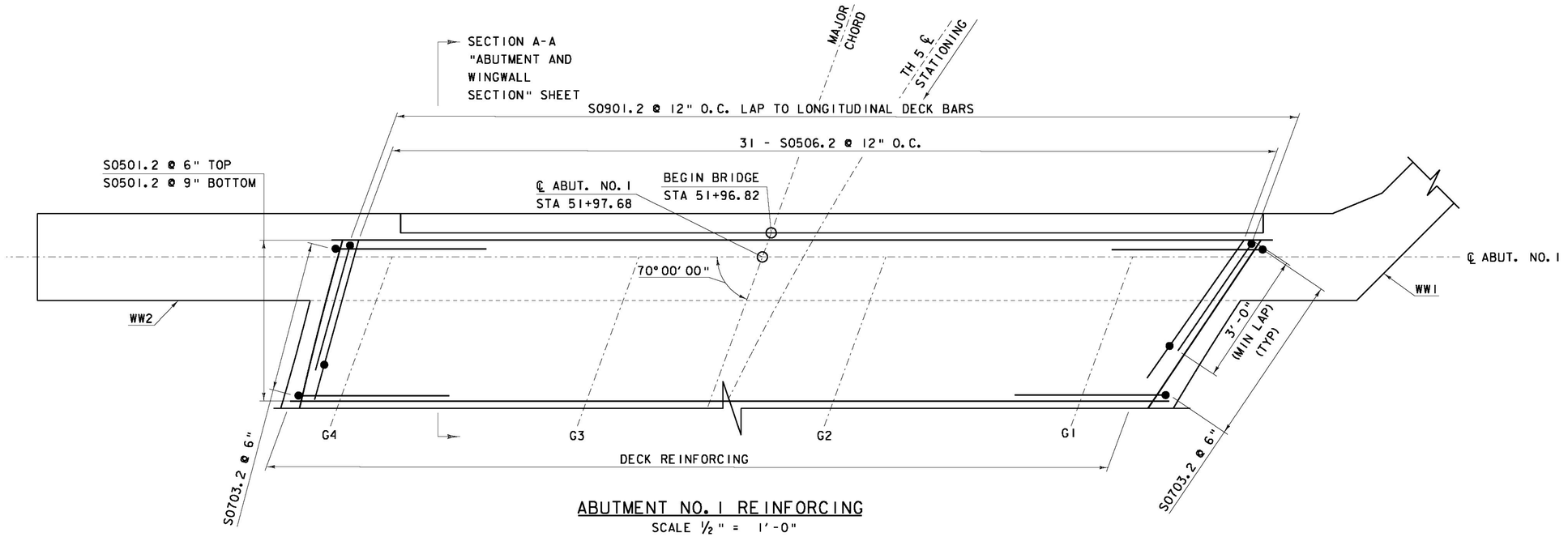
Hoyle, Tanner & Associates, Inc.

HTA PROJECT	MODEL
904226	z051352sup2

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

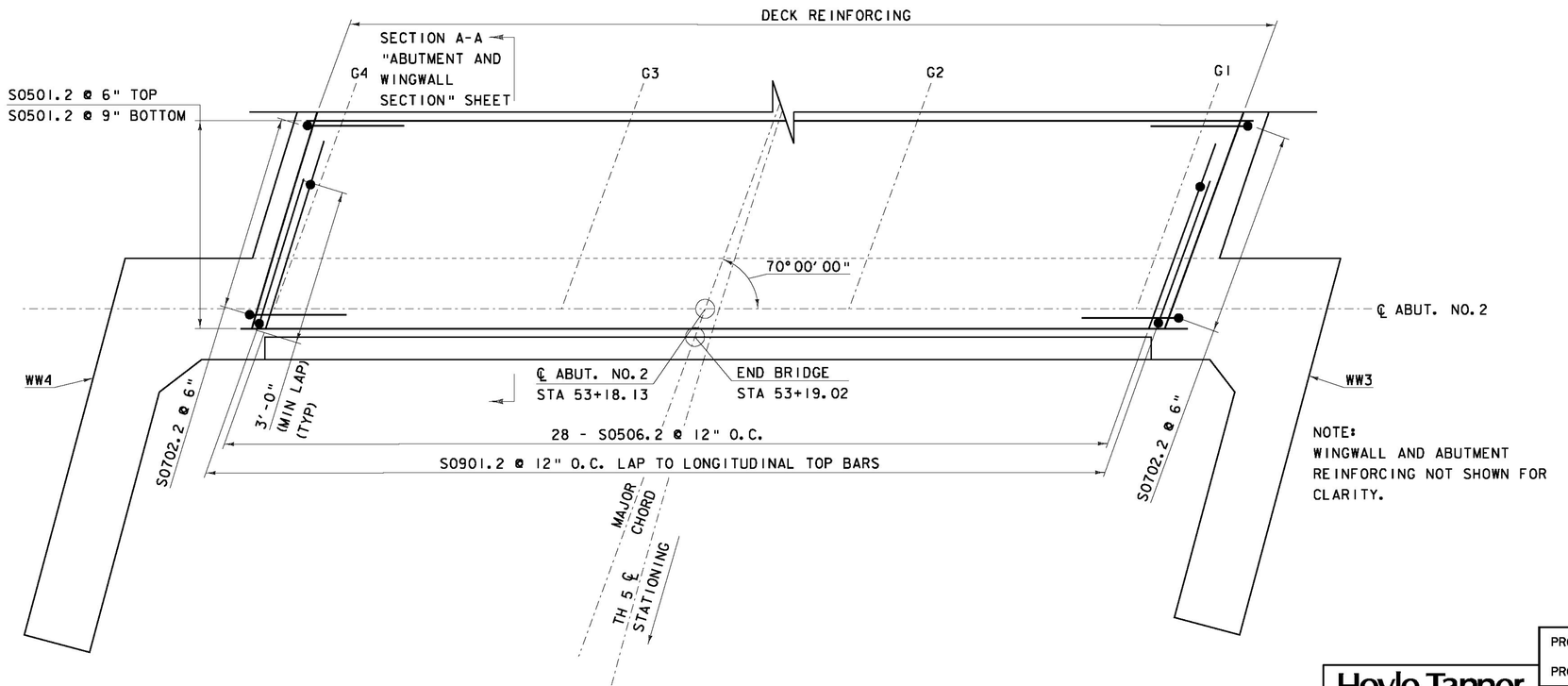
FILE NAME: z051352sup2.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
DECK DETAILS

PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 32 OF 66



ABUTMENT NO. 1 REINFORCING

SCALE ½" = 1'-0"



ABUTMENT NO. 2 REINFORCING

SCALE ½" = 1'-0"

NOTE:
WINGWALL AND ABUTMENT REINFORCING NOT SHOWN FOR CLARITY.

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

STATE OF VERMONT
JOSHUA A. OLIN
No. 8282
STRUCTURAL I
LICENSED PROFESSIONAL ENGINEER
2/28/2013

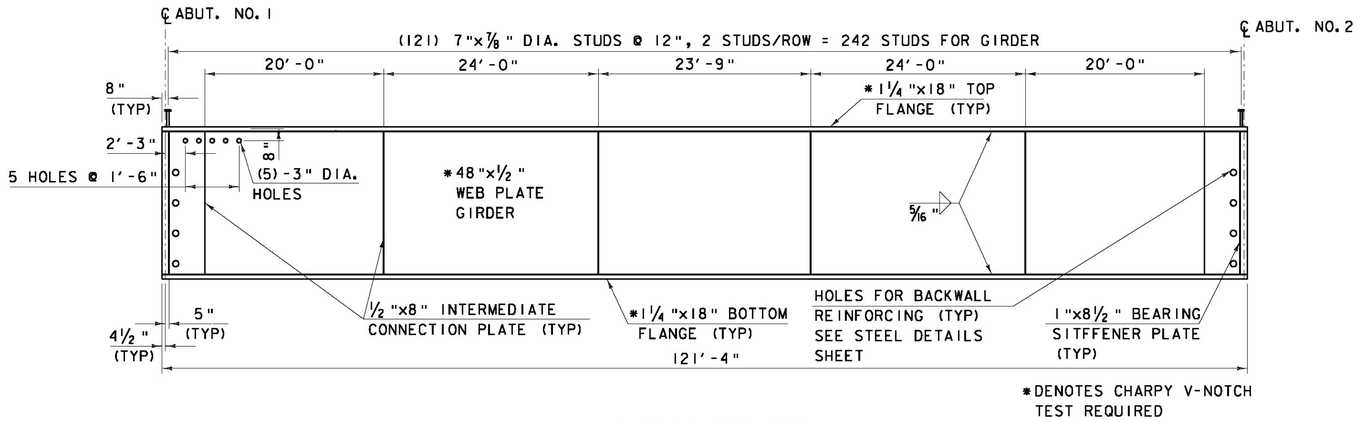
Hoyle, Tanner & Associates, Inc.

HTA PROJECT	MODEL
904226	z05j352sup4

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

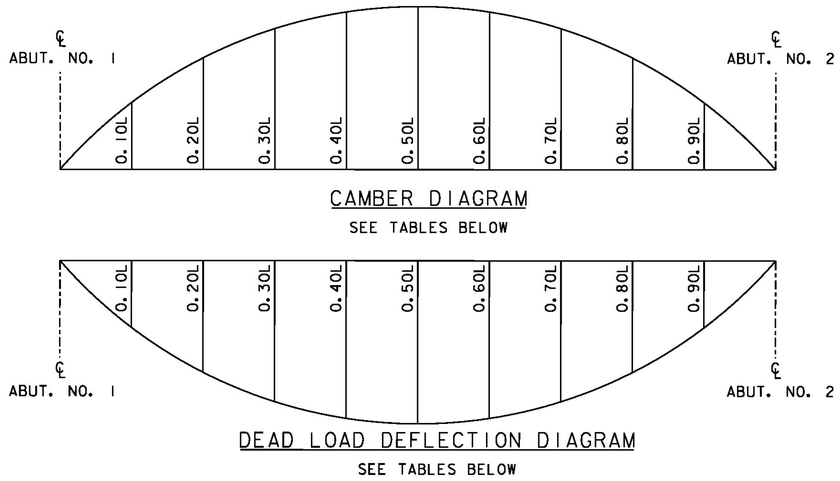
FILE NAME: z05j352sup4.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
DECK END DETAILS

PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 33 OF 66



BEAM ELEVATION

HORIZ. SCALE ⅛" = 1'-0"
VERT. SCALE ½" = 1'-0"



CAMBER DIAGRAM

SEE TABLES BELOW

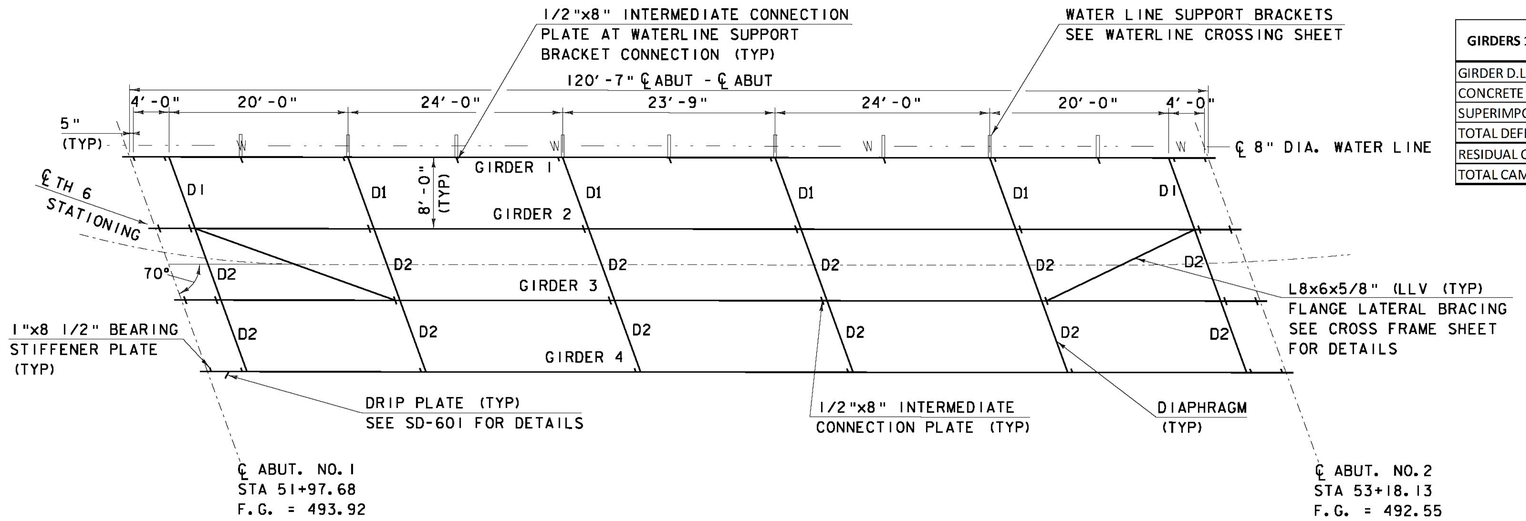
DEAD LOAD DEFLECTION DIAGRAM

SEE TABLES BELOW

GIRDERS 1 THRU 4	CAMBER TABLE IN INCHES								
	0.10L	0.20L	0.30L	0.40L	0.50L	0.60L	0.70L	0.80L	0.90L
GIRDER D.L.	-0.39	-0.73	-1.00	-1.17	-1.23	-1.17	-1.00	-0.73	-0.39
CONCRETE SLAB D.L.	-1.76	-3.32	-4.55	-5.32	-5.59	-5.32	-4.55	-3.32	-1.76
SUPERIMPOSED D.L.	-0.03	-0.08	-0.14	-0.18	-0.19	-0.18	-0.14	-0.08	-0.03
TOTAL DEFLECTION	-2.17	-4.14	-5.69	-6.67	-7.01	-6.67	-5.69	-4.14	-2.17
RESIDUAL CAMBER	0.30	0.60	0.90	1.20	1.50	1.20	0.90	0.60	0.30
TOTAL CAMBER	2.47	4.74	6.59	7.87	8.51	7.87	6.59	4.74	2.47

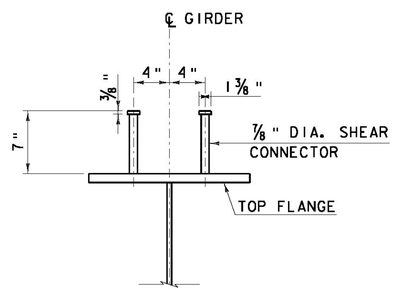
NOTES:

1. ENDS OF GIRDERS SHALL BE FABRICATED TO BE PLUMB UNDER FULL DEAD LOAD.
2. DEAD LOAD DEFLECTION INCLUDES GIRDER SELF-WEIGHT.
3. FOR DIAPHRAGM DETAILS SEE CROSS FRAME SHEET.



FRAMING PLAN

SCALE ⅛" = 1'-0"



SHEAR CONNECTOR DETAIL

SCALE: 1½" = 1'-0"

STATE OF VERMONT
JASON A. OLIN
No. 8282
STRUCTURAL
LICENSED PROFESSIONAL ENGINEER
2/28/2013

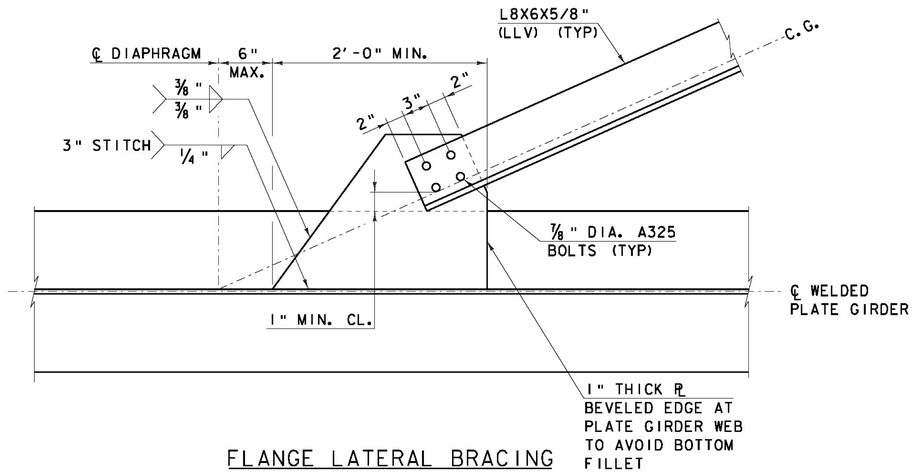
Hoyle, Tanner & Associates, Inc.

HTA PROJECT	MODEL
904226	z05j352sup3

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

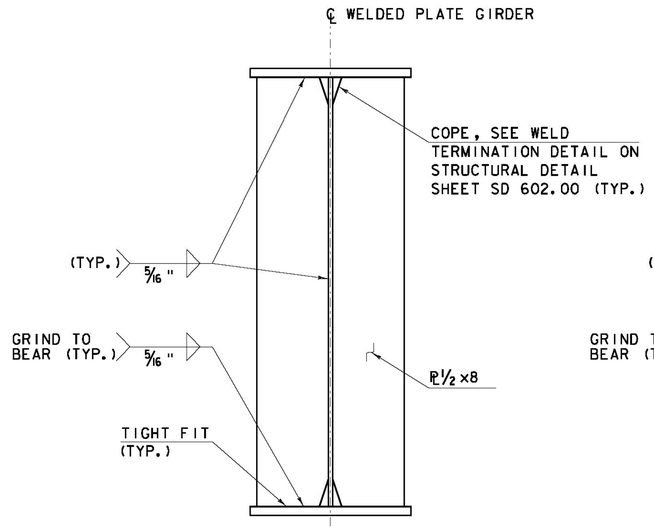
FILE NAME: z05j352sup3.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
FRAMING PLAN AND GIRDER ELEVATION

PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 34 OF 66



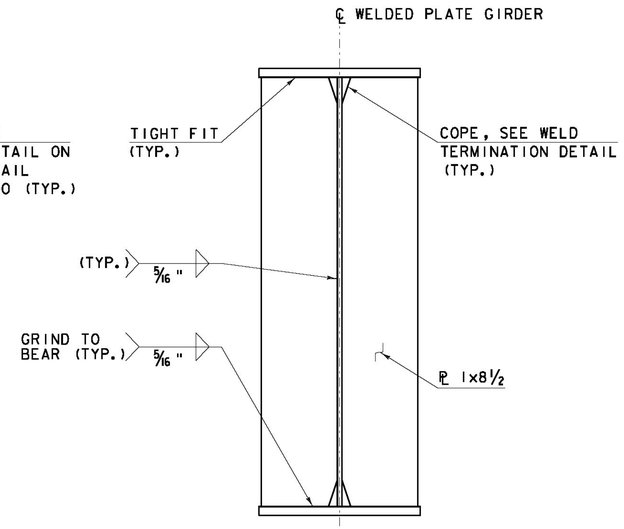
FLANGE LATERAL BRACING CONNECTION DETAIL

SCALE: 1½" = 1'-0"



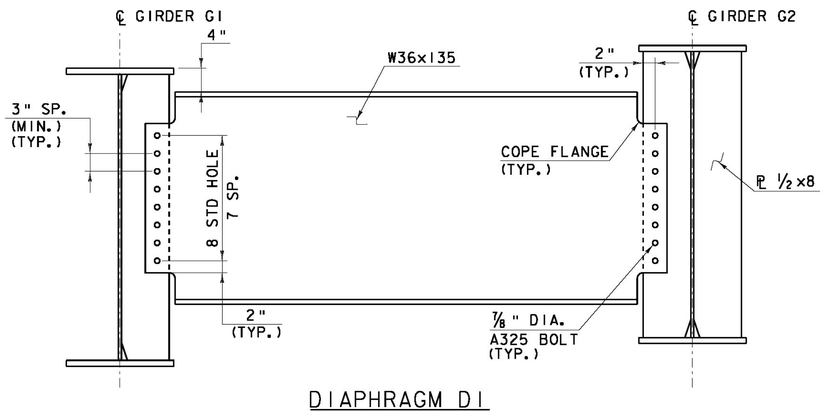
INTERMEDIATE CONNECTION PLATES

SCALE: 1½" = 1'-0"



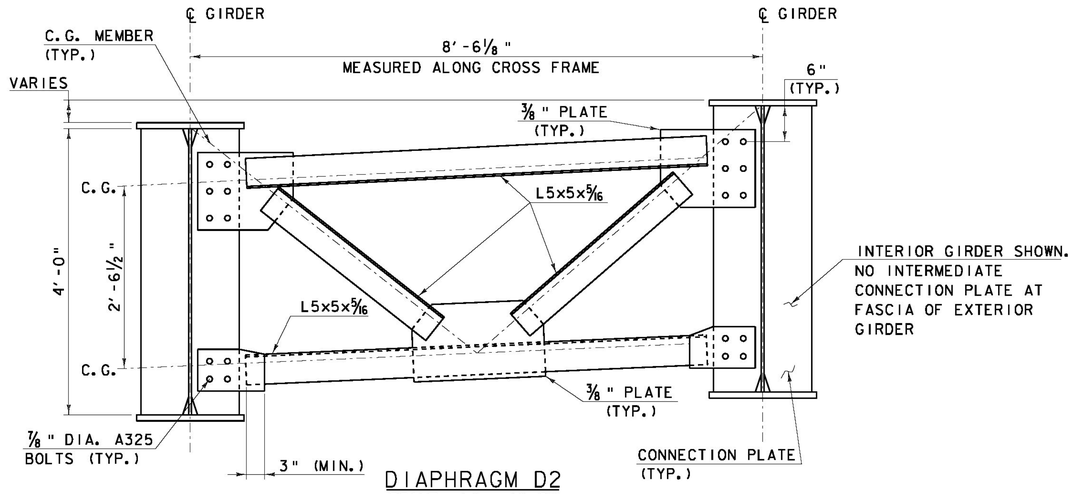
BEARING STIFFENER PLATES

SCALE: 1½" = 1'-0"



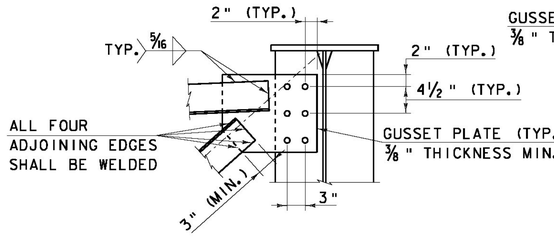
DIAPHRAGM D1

SCALE: 1" = 1'-0"



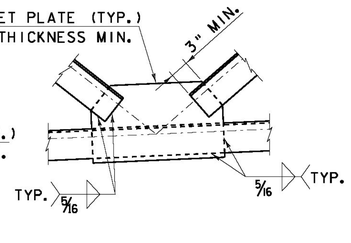
DIAPHRAGM D2

SCALE: 1" = 1'-0"



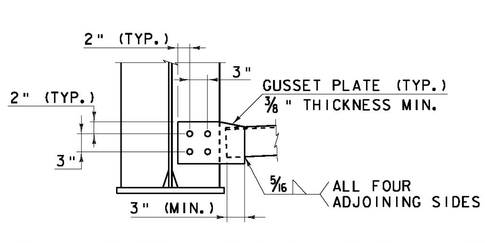
TYPICAL TOP WELD CONNECTION DETAILS

SCALE: 1" = 1'-0"



CENTER GUSSET PLATE

SCALE: 1" = 1'-0"



TYPICAL BOTTOM WELD CONNECTION DETAILS

SCALE: 1" = 1'-0"

STATE OF VERMONT JON A. OLIN No. 8262 STRUCTURAL I LICENSED PROFESSIONAL ENGINEER 2/28/2013

Hoyle, Tanner & Associates, Inc.

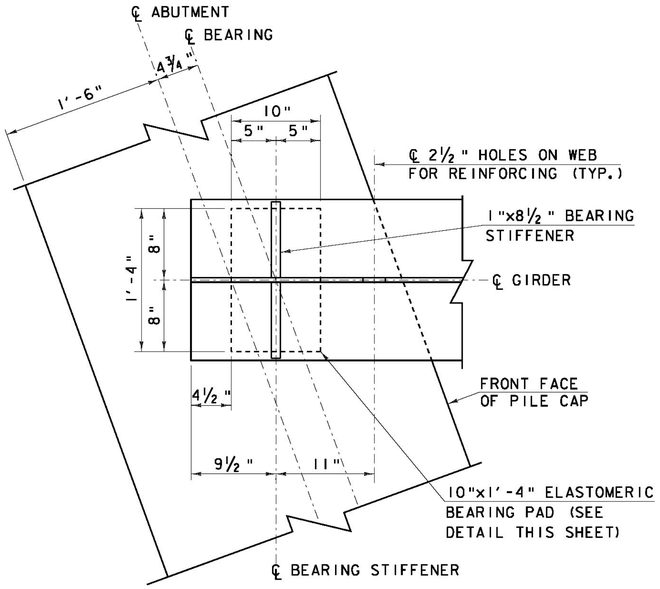
HTA PROJECT	MODEL
904226	z05j352ssdtll

PROJECT NAME: BRISTOL

PROJECT NUMBER: BRO 1445(32)

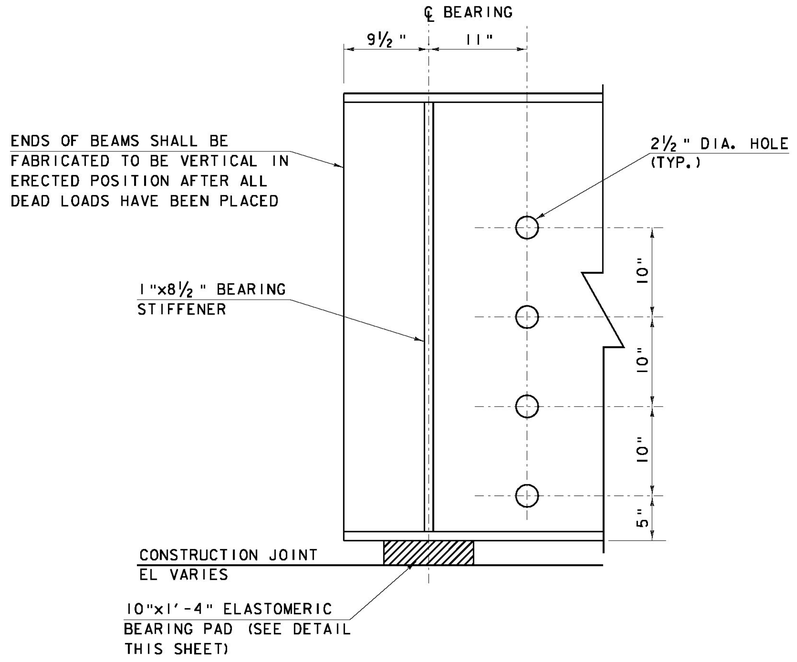
FILE NAME: z05j352ssdtll.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
CROSS FRAME

PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 35 OF 66



PLAN VIEW - END OF STEEL MEMBER AT ABUTMENT

SCALE: 1½" = 1'-0"



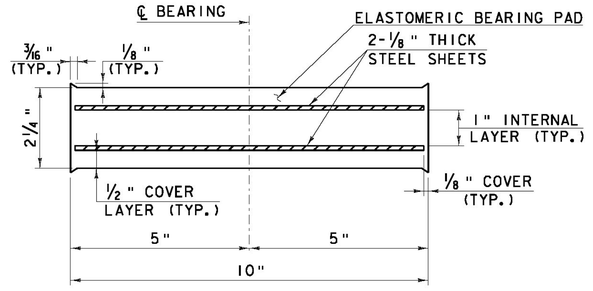
ELEVATION VIEW - END OF STEEL MEMBER AT ABUTMENT

SCALE: 1½" = 1'-0"

NOTES:

1. PRIOR TO PLACING GIRDERS THE ELEVATION OF TOP OF BEARING PADS SHALL BE CHECKED VERSUS THE TABLE BELOW.
2. THE CONCRETE SURFACE UNDER THE BEARING DEVICE SHALL BE LEVEL.
3. ELASTOMER SHALL HAVE A NOMINAL HARDNESS OF 60 ON SHORE 'A' SCALE. ELASTOMER SHALL HAVE A SHEAR MODULUS BETWEEN 130 PSI AND 200 PSI. THE RAW ELASTOMER SHALL BE TEMPERATURE GRADE 3 AS DEFINED IN TABLE 18.4.5.1-1a OF AASHTO, DIVISION II, SECTION 18.
4. ALL REINFORCING BETWEEN LAYERS OF ELASTOMER SHALL BE STEEL AASHTO M270M/M270 GRADE 36. ALL INTERNAL STEEL PLATES SHALL BE SAND BLASTED AND FREE OF COATINGS, RUST AND MILL SCALE. THE PLATES SHALL BE FREE OF SHARP EDGES AND BURRS.
5. STEEL REINFORCED ELASTOMERIC BEARINGS SHALL HAVE A MINIMUM ⅛" EDGE SEAL OF ELASTOMER INTEGRAL WITH BEARING OVER ALL INTERNAL PLATES.
6. THE CONTRACTOR IS ADVISED TO HAVE A MINUM OF 8-¼"x11"x1'-5" GALVANIZED STEEL SHIMS AVAILABLE FOR USE FOR ELEVATION ADJUSTMENTS UPON THE SETTING OF THE SUPERSTRUCTURE UNITS. THE SHIMS SHALL BE FABRICATED ACCORDING TO SECTION 531 AND SHALL BE INCLUDED UNDER ITEM 531.17, "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD".

THEORETICAL TOP OF BEARING ELEVATIONS		
GIRDER NO.	ABUTMENT NO. 1	ABUTMENT NO. 2
1	488.46	487.09
2	488.71	487.35
3	488.99	487.63
4	489.31	487.95



BEARING PAD DETAIL

NOT TO SCALE

SCALE: 1½" = 1'-0"

1 9 6 3 0 1

Hoyle, Tanner & Associates, Inc.

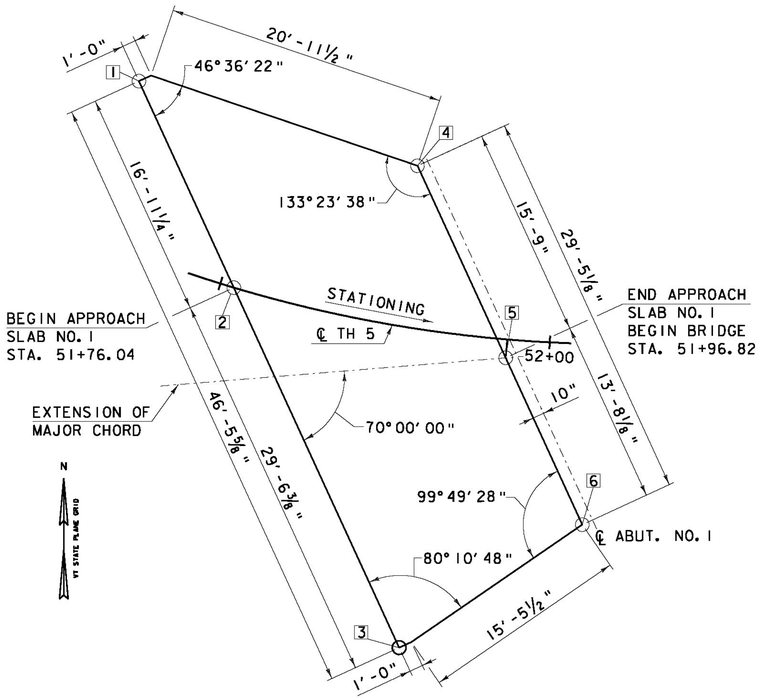
HTA PROJECT	MODEL
904226	904226d12

PROJECT NAME: BRISTOL

PROJECT NUMBER: BRO 1445(32)

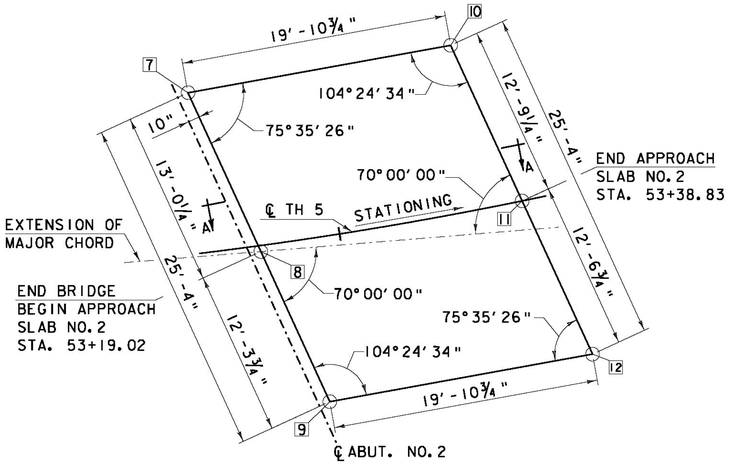
FILE NAME: z05j352DTL2.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
STEEL DETAILS

PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 36 OF 66



APPROACH SLAB NO. 1 MASONRY

SCALE: 3/16" = 1'-0"



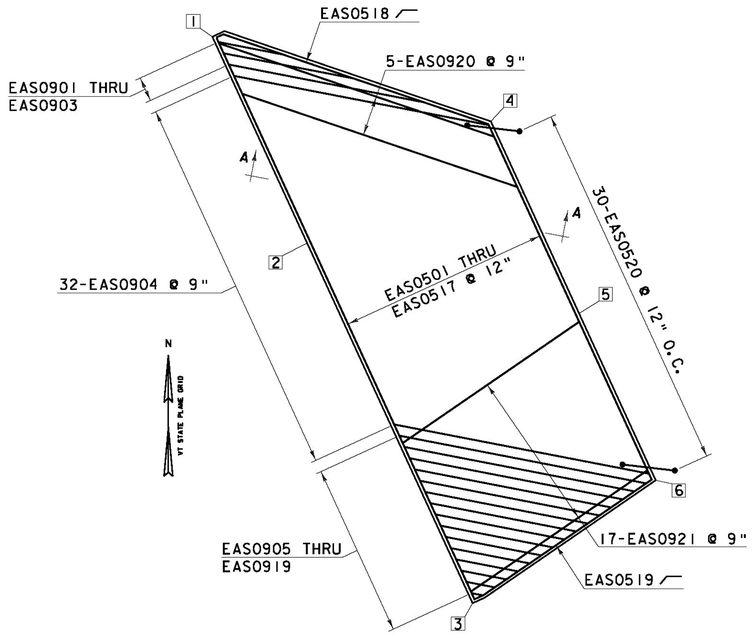
APPROACH SLAB NO. 2 MASONRY

SCALE: 3/16" = 1'-0"

APPROACH SLAB #1			
POINTS	STATION	OFFSET	TOP OF SLAB ELEV
1	51+63.29	12.00' LT.	493.27
2	51+76.04	0	493.84
3	51+91.88	23.71' RT.	494.82
4	51+88.01	12.00' LT.	493.04
5	51+96.82	1.38' RT.	493.60
6	52+02.75	13.49' RT.	494.05
APPROACH SLAB #2			
POINTS	STATION	OFFSET	TOP OF SLAB ELEV
7	53+15.08	12.00' LT.	491.79
8	53+19.01	0.44' RT.	492.22
9	53+22.44	12.25' RT.	492.64
10	53+35.81	12.42' LT.	491.79
11	53+38.83	0	492.20
12	53+41.56	12.25' RT.	492.64

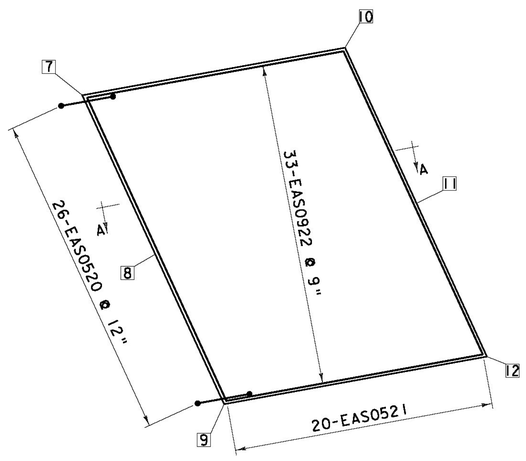
NOTE:

E = EPOXY COATED
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.



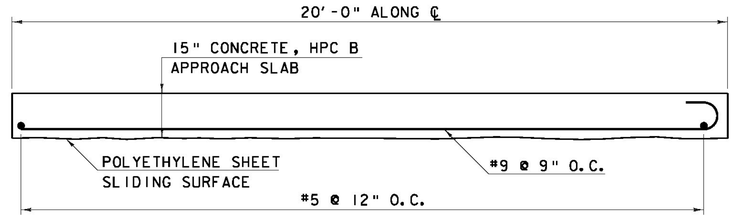
APPROACH SLAB NO. 1 REINFORCING

SCALE: 3/16" = 1'-0"



APPROACH SLAB NO. 2 REINFORCING

SCALE: 3/16" = 1'-0"



SECTION A-A

SCALE: ½" = 1'-0"

NOTE: PAYMENT FOR THE POYETHYLENE SHEET WILL BE INCIDENTAL TO THE APPROACH SLAB CONCRETE ITEM.

STATE OF VERMONT
JOLIN A. OLIN
No. 8262
STRUCTURAL
LICENSED PROFESSIONAL ENGINEER
2/28/2013

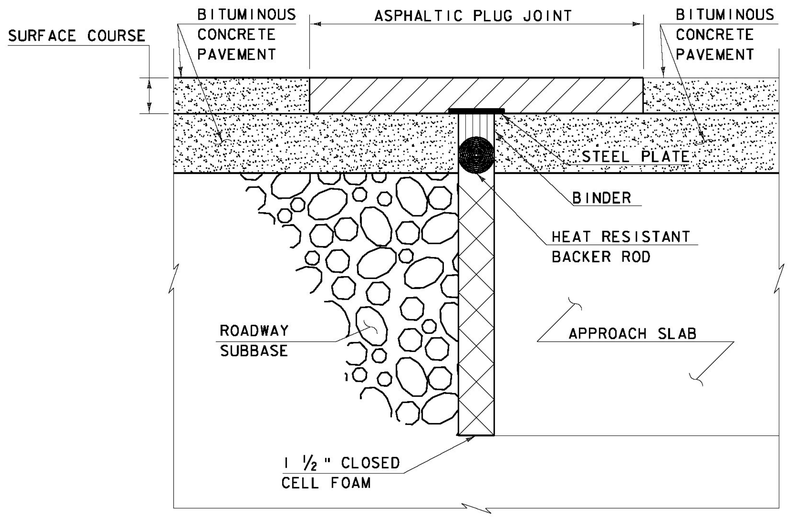
Hoyle, Tanner & Associates, Inc.

HTA PROJECT	MODEL
904226	z051352supl

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: z051352supl.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
APPROACH SLAB

PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 37 OF 66



ASPHALTIC PLUG-TYPE JOINT DETAIL - MODIFIED

(NOT TO SCALE)

ASPHALTIC PLUG JOINT NOTES

INSTALLATION:

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT, MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
3. REPAIR MATERIAL GREATER THAN 4 INCHES FROM FINISHED GRADE WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.
4. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
5. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
6. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.
7. HEAT AND MIX THE BINDER MATERIAL AND AGGREGATE AS RECOMMENDED BY THE MANUFACTURER.
8. INSTALLATION OF MATERIAL, COMPACTION, AND TOP COATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
9. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.
10. ONCE THE JOINT REACHES 82 DEG C (180 DEG F) +/-, WATER MAY BE USED TO EXPEDITE THE COOLING PROCESS.
11. PROTECT JOINT FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 51 DEG C (125 DEG F) +/-.

WEATHER LIMITATIONS

APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

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

STATE OF VERMONT
JON A. OLIN
No. 8262
STRUCTURAL I
LICENSED
PROFESSIONAL ENGINEER
2/28/2013

Hoyle, Tanner & Associates, Inc.

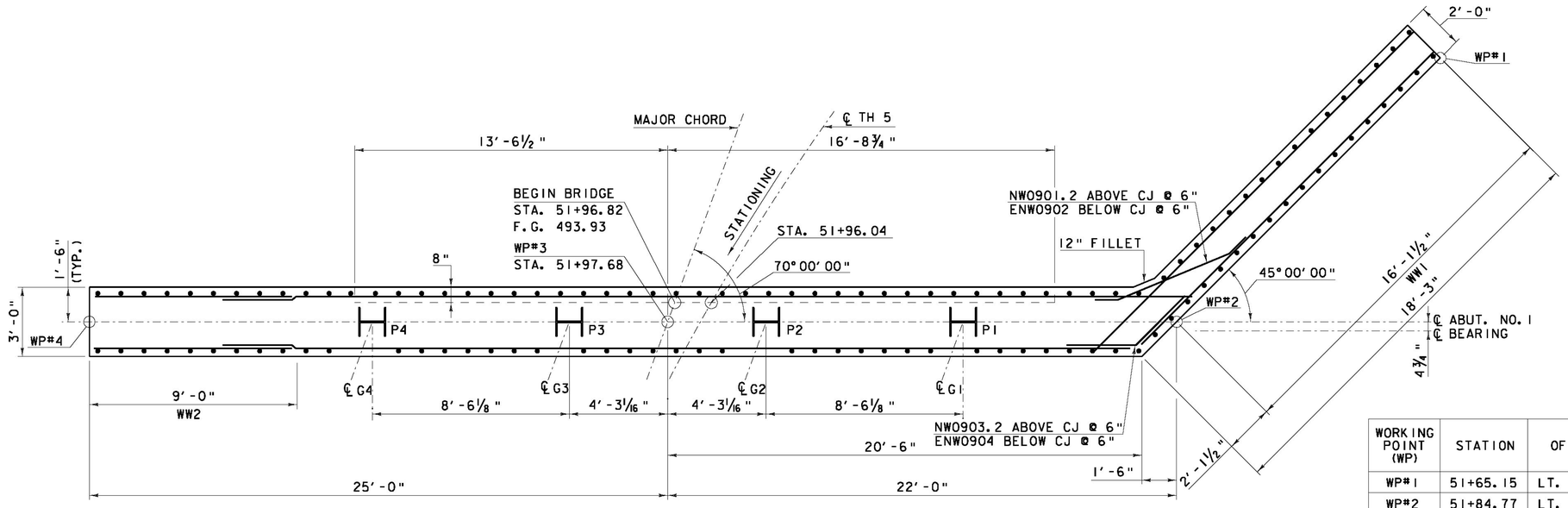
HTA PROJECT	MODEL
904226	904226dt13

PROJECT NAME: BRISTOL

PROJECT NUMBER: BRO 1445(32)

FILE NAME: z05j352DTL3.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
ASPHALTIC PLUG JOINT

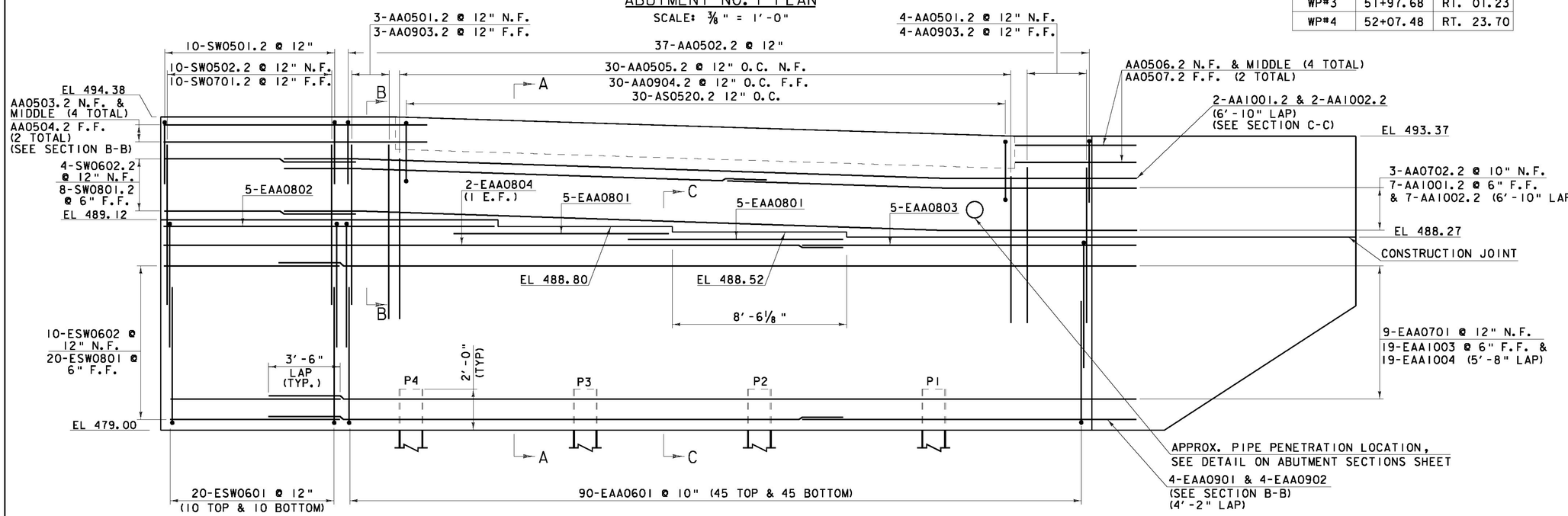
PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 38 OF 66



ABUTMENT NO. 1 PLAN

SCALE: ⅜" = 1'-0"

WORKING POINT (WP)	STATION	OFFSET
WP#1	51+65.15	LT. 18.18
WP#2	51+84.77	LT. 17.33
WP#3	51+97.68	RT. 01.23
WP#4	52+07.48	RT. 23.70



NOTE: DECK AND NORTHWEST WINGWALL REINFORCING NOT SHOWN FOR CLARITY.

ABUTMENT NO. 1 ELEVATION

SCALE: ⅜" = 1'-0"

NOTE:
E = EPOXY COATED REINFORCING
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
2" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

NOTE: WORK THIS SHEET WITH ABUTMENT SECTIONS SHEET.

SCALE: ⅜" = 1'-0"
1 0 1 2 3 4

STATE OF VERMONT
JASON A. OLIN
No. 8262
STRUCTURAL
LICENSED PROFESSIONAL ENGINEER
2/28/2013

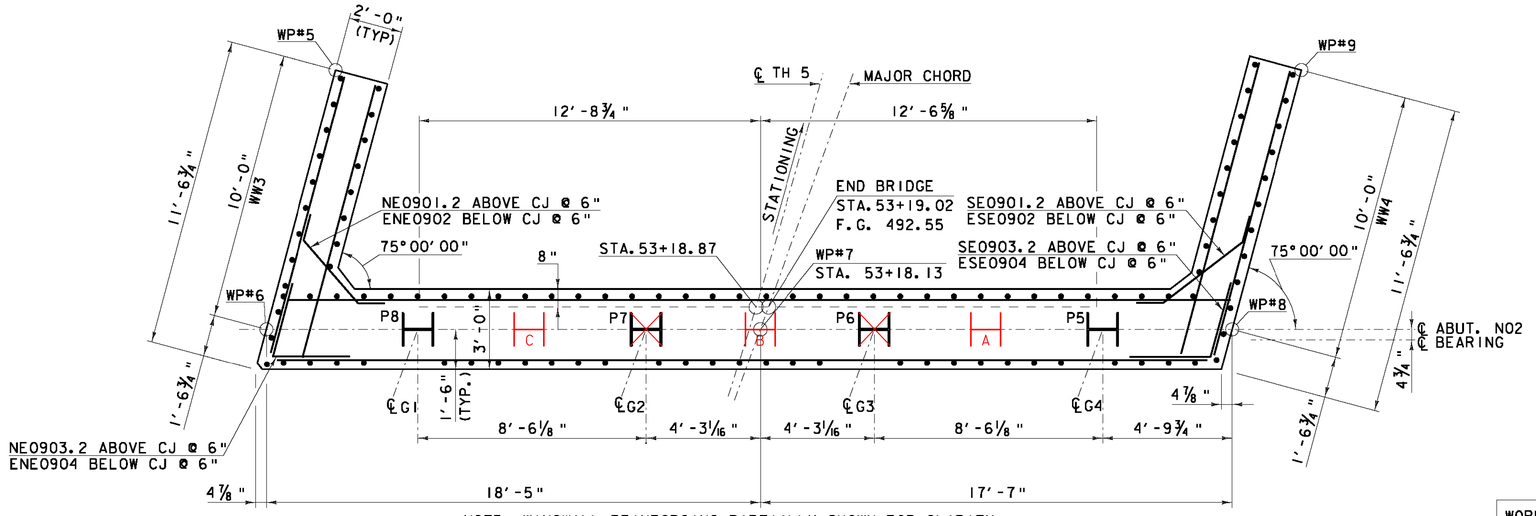
Hoyle, Tanner & Associates, Inc.

HTA PROJECT	MODEL
904226	z051352subl

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: z051352subl.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
ABUTMENT NO.1 PLAN AND ELEVATION

PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 39 OF 66

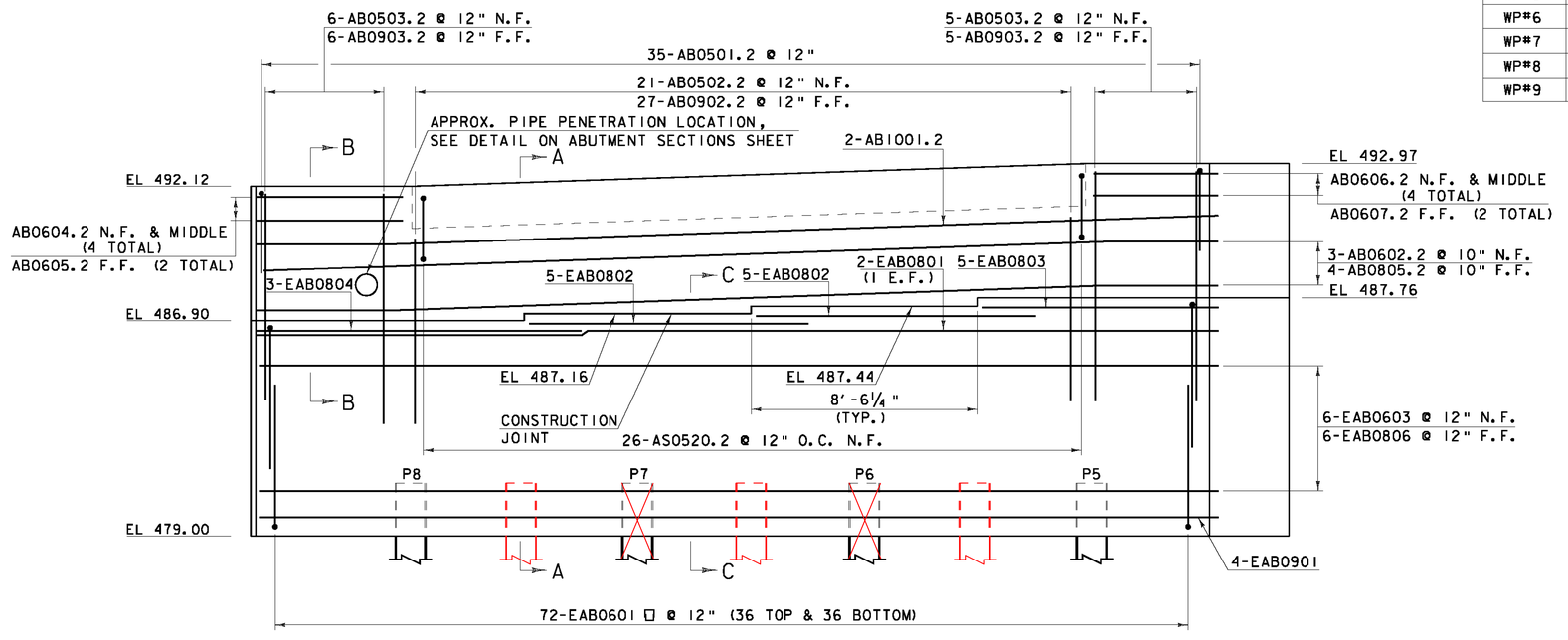


NOTE: WINGWALL REINFORCING PARTIALLY SHOWN FOR CLARITY.

ABUTMENT NO. 2 PLAN

SCALE: ⅜" = 1'-0"

WORKING POINT (WP)	STATION	OFFSET
WP#5	53+23.00	LT. 17.53
WP#6	53+12.39	LT. 17.16
WP#7	53+18.13	LT. 00.40
WP#8	53+23.00	RT. 17.25
WP#9	53+32.45	RT. 23.21



NOTE: DECK AND WINGWALL REINFORCING NOT SHOWN FOR CLARITY.

ABUTMENT NO. 2 ELEVATION

SCALE: ⅜" = 1'-0"

NOTE: WORK THIS SHEET WITH ABUTMENT SECTION SHEET.

NOTE:
E = EPOXY COATED REINFORCING
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
2" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

SCALE: ⅜" = 1'-0"
1 0 1 2 3 4

Hoyle, Tanner & Associates, Inc.

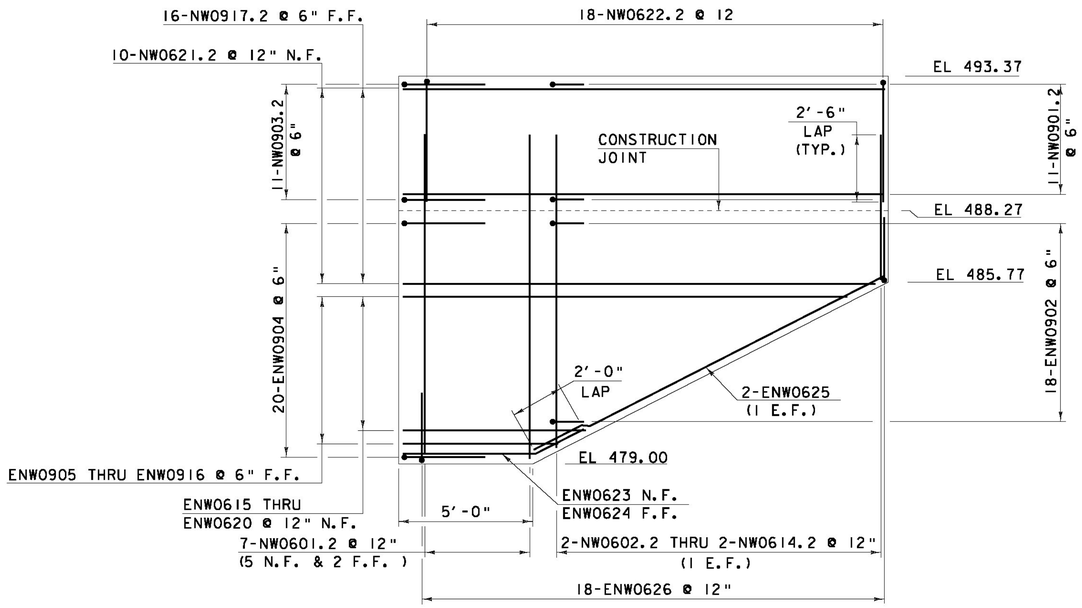
HTA PROJECT	MODEL
904226	z05j352sub2

STATE OF VERMONT
JOHN A. OLIN
No. 8262
STRUCTURAL I
LICENSED PROFESSIONAL ENGINEER
2/28/2013

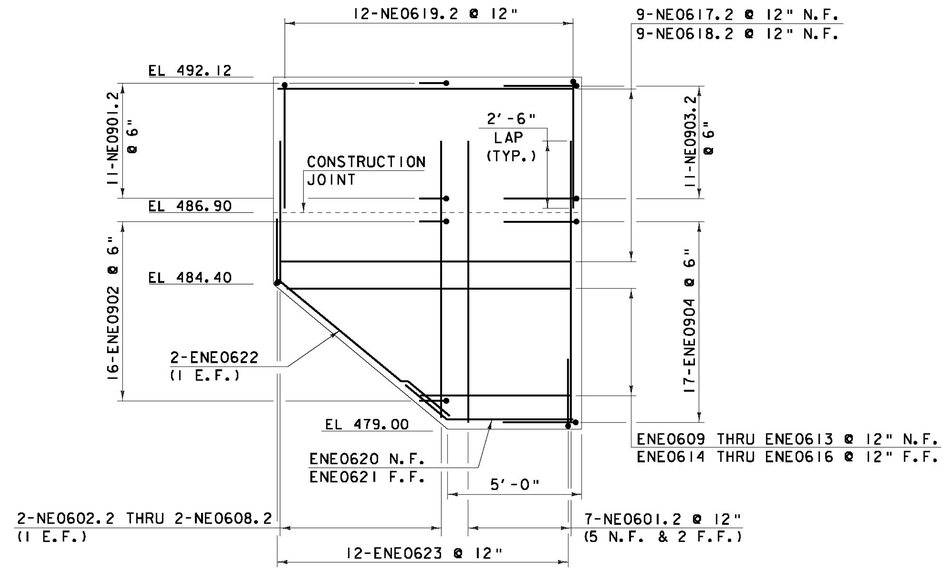
PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: z05j352sub2.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
ABUTMENT NO.2 PLAN AND ELEVATION

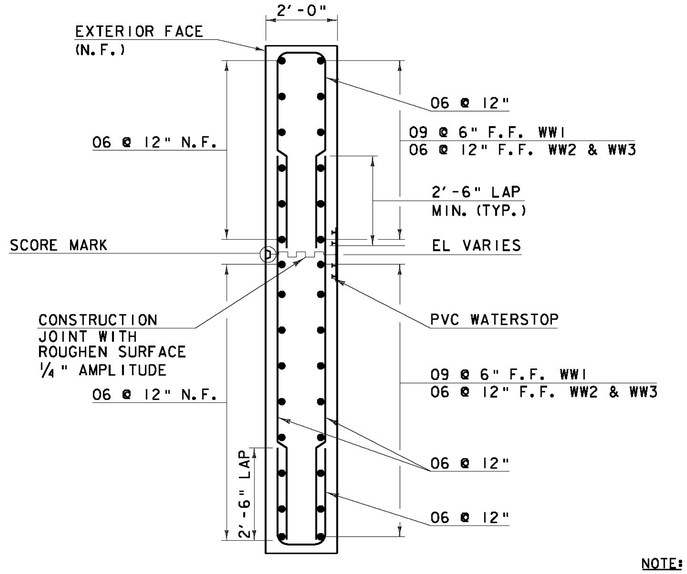
PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 40 OF 66



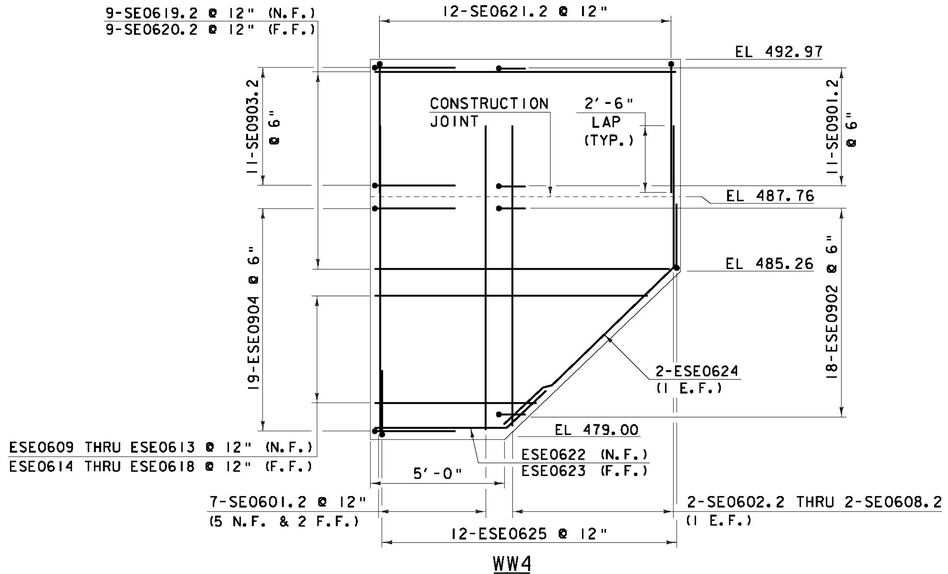
WW1
SCALE: 3/8" = 1'-0"



WW3
SCALE 3/8" = 1'-0"



WINGWALL TYPICAL
SCALE: 1/2" = 1'-0"



WW4
SCALE 3/8" = 1'-0"

NOTE:
E = EPOXY COATED
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
2" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

SCALE: 3/8" = 1'-0"
1 0 1 2 3 4

Hoyle, Tanner & Associates, Inc.

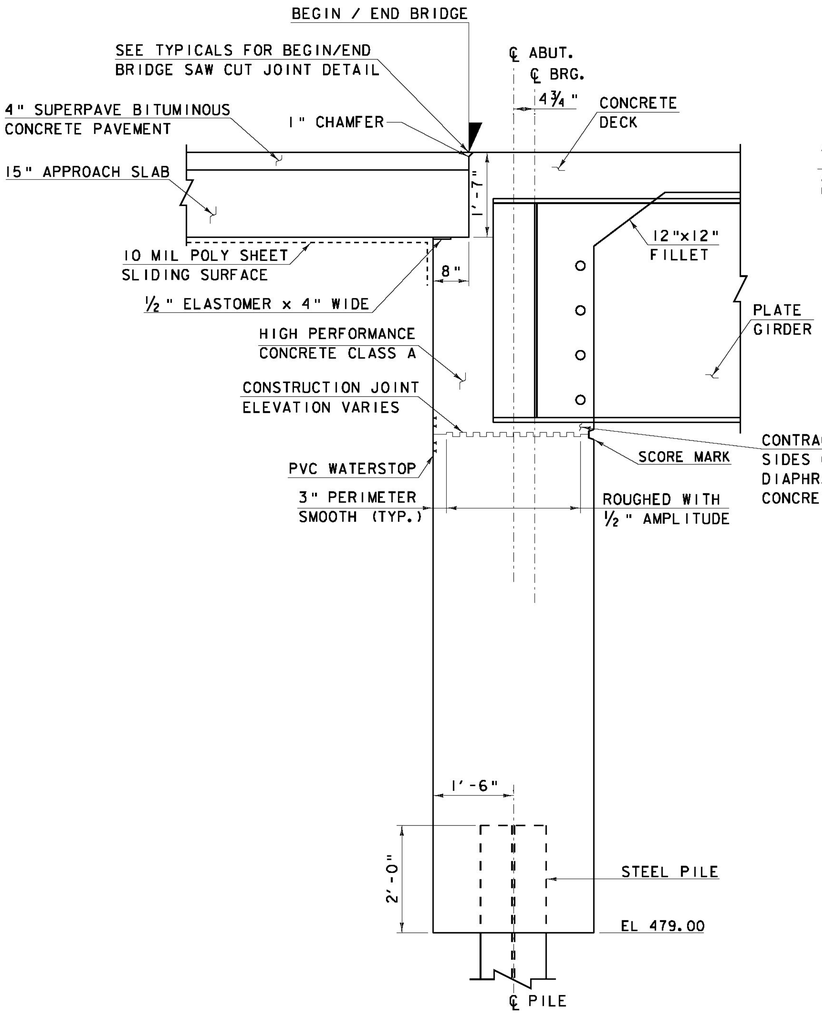
HTA PROJECT	MODEL
904226	z051352sub3

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

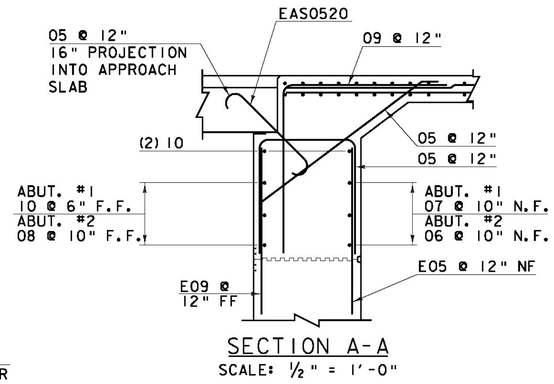
FILE NAME: z051352sub3.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
WINGWALL ELEVATIONS

PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 41 OF 66

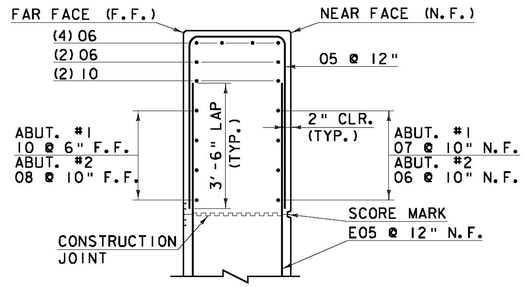
STATE OF VERMONT JON A. OLIN No. 8262 STRUCTURAL LICENSED PROFESSIONAL ENGINEER
2/28/2013



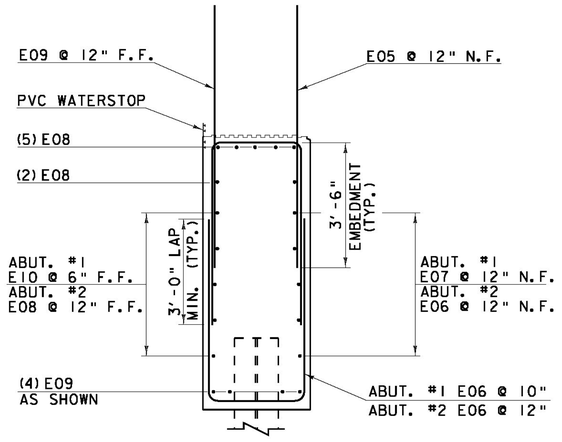
ABUTMENT TYPICAL SECTION
SCALE 3/4" = 1'-0"



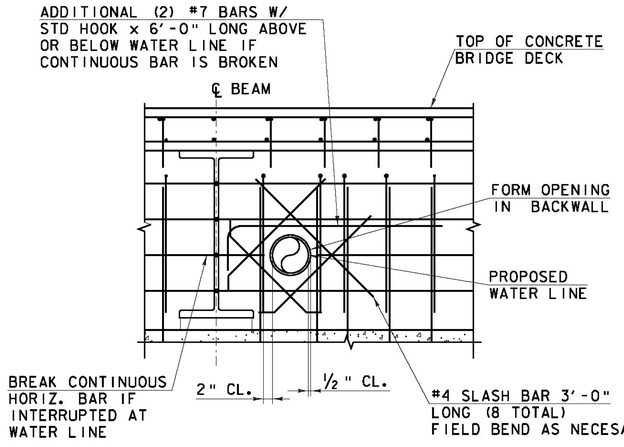
SECTION A-A
SCALE: 1/2" = 1'-0"



SECTION B-B
SCALE: 1/2" = 1'-0"



SECTION C-C
SCALE: 1/2" = 1'-0"



PIPE PENETRATION DETAIL
SCALE: 3/4" = 1'-0"

NOTE:
E = EPOXY COATED REINFORCING
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
2" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

SCALE: 1/2" = 1'-0
1 0 1 2

SCALE: 3/4" = 1'-0"
1 0 1 2

STATE OF VERMONT
JON A. OLIN
No. 8262
STRUCTURAL
LICENSED PROFESSIONAL ENGINEER
2/28/2013

Hoyle, Tanner & Associates, Inc.

HTA PROJECT	MODEL
904226	z0513520TL1

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: z0513520TL1.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
ABUTMENT SECTIONS

PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 42 OF 66

STATE OF VERMONT
AGENCY OF TRANSPORTATION

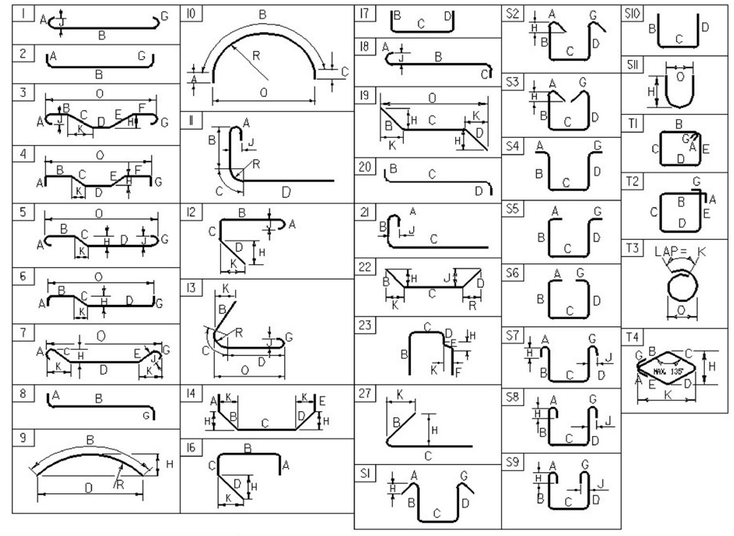
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	DECK																
	407	5	28'- 7"	S0501.2	STR												
	75	5	48'- 0"	S0502.2	STR			STAGGER SPLICES									
	38	5	5'- 4"	S0503.2	STR												
✳	2	5	10'- 0"	S0504.2	STR												
	2	5	19'- 3"	S0505.2	9		19'- 3"						0'- 6"			86'- 4"	19'- 1"
	59	5	7'- 8"	S0506.2	19		0'- 0"	6'- 11"	0'- 0"				0'- 9"		0'- 9"		7'- 8"
	75	5	40'- 0"	S0507.2	STR			STAGGER SPLICES									
✳	48	6	48'- 0"	S0601.2	STR												
✳	434	7	4'- 8"	S0701.2	1	0'- 5"	4'- 3"					0'- 0"		0'- 10"			
	50	7	6'- 7"	S0702.2	1	0'- 5"	5'- 4"					0'- 0"		0'- 10"			
✳	26	8	10'- 0"	S0801.2	STR												
	24	8	20'- 0"	S0802.2	STR												
✳	60	9	9'- 0"	S0901.2	17		4'- 6"	4'- 6"	0'- 0"								
	APPROACH SLAB #1																
	1	5	46'- 0"	EAS0501	STR												
	1	5	45'- 8"	EAS0502	STR												
	1	5	↑	EAS0503	STR												
	1	5		EAS0504	STR												
	1	5		EAS0505	STR												
	1	5		EAS0506	STR												
	1	5		EAS0507	STR												
	1	5		EAS0508	STR			VARIES AT EQUAL SPACING									
	1	5		EAS0509	STR												
	1	5		EAS0510	STR												
	1	5		EAS0511	STR												
	1	5		EAS0512	STR												
	1	5		EAS0513	STR												
	1	5		EAS0514	STR												
	1	5		EAS0515	STR												
	1	5	↓	EAS0516	STR												
✳	1	5	29'- 2"	EAS0517	STR												
	1	5	21'- 4"	EAS0518	22			20'- 10"	0'- 6"					0'- 4"		0'- 4"	
	1	5	16'- 0"	EAS0519	22		0'- 9"	15'- 3"					0'- 2"		0'- 8"		
	56	5	3'- 10"	EAS0520	1	0'- 7"	2'- 8"					0'- 7"		0'- 5"			
✳	1	9	6'- 2"	EAS0901	1	1'- 3"	4'- 11"					0'- 0"		1'- 0"			
	1	9	11'- 1"	EAS0902	1	1'- 3"	9'- 10"					0'- 0"		1'- 0"			
	1	9	16'- 1"	EAS0903	1	1'- 3"	14'- 10"					0'- 0"		1'- 0"			
	34	9	20'- 8"	EAS0904	1	1'- 3"	19'- 5"					0'- 0"		1'- 0"			
	1	9	20'- 0"	EAS0905	1	1'- 3"	18'- 9"					0'- 0"		1'- 0"			
	1	9	↑	EAS0906	1	1'- 3"	↑					0'- 0"		1'- 0"			
	1	9		EAS0907	1	1'- 3"						0'- 0"		1'- 0"			
	1	9		EAS0908	1	1'- 3"						0'- 0"		1'- 0"			
	1	9		EAS0909	1	1'- 3"						0'- 0"		1'- 0"			
	1	9		EAS0910	1	1'- 3"						0'- 0"		1'- 0"			
	1	9		EAS0911	1	1'- 3"						0'- 0"		1'- 0"			
	1	9		EAS0912	1	1'- 3"		VARIES AT EQUAL SPACING				0'- 0"		1'- 0"			
	1	9		EAS0913	1	1'- 3"						0'- 0"		1'- 0"			
	1	9		EAS0914	1	1'- 3"						0'- 0"		1'- 0"			
	1	9		EAS0915	1	1'- 3"						0'- 0"		1'- 0"			
	1	9		EAS0916	1	1'- 3"						0'- 0"		1'- 0"			
	1	9	↓	EAS0917	1	1'- 3"	↓					0'- 0"		1'- 0"			
	1	9	3'- 5"	EAS0918	1	1'- 3"	2'- 2"					0'- 0"		1'- 0"			
	1	9	0'- 10"	EAS0919	STR		0'- 10"										
	5	9	21'- 8"	EAS0920	STR												
	17	9	15'- 11"	EAS0921	STR												
	APPROACH SLAB #2																
✳	20	5	24'- 11"	EAS0521	STR												
✳	33	9	19'- 5"	EAS0922	1	1'- 3"	19'- 5"					0'- 0"		1'- 0"			

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	ABUTMENT #1 (AA)																
	ADDITIONAL STEEL FROM PIPE PENETRATION DETAIL NOT INCLUDED IN SCHEDULE																
✳	8	5	8'- 0"	AA0501.2	STR												
	37	5	9'- 4"	AA0502.2	2	3'- 4"	2'- 8"					3'- 4"					
	4	5	16'- 1"	AA0503.2	STR												
	2	5	12'- 11"	AA0504.2	STR												
	29	5	6'- 9"	AA0505.2	STR												
	4	5	7'- 5"	AA0506.2	STR												
	2	5	7'- 2"	AA0507.2	STR												
✳	90	6	15'- 8"	EAA0601	2	6'- 6"	2'- 8"					6'- 6"					
✳	9	7	39'- 9"	EAA0701	STR												
✳	3	7	39'- 9"	AA0702.2	19		29'- 11"	9'- 10"	0'- 0"					1'- 0"	28'- 8"		38'- 6"
✳	10	8	11'- 10"	EAA0801	STR												
	5	8	19'- 7"	EAA0802	STR												
▲	5	8	17'- 9"	EAA0803	STR												
	2	8	33'- 5"	EAA0804	STR												
	4	9	30'- 0"	EAA0901	STR												
✳	4	9	17'- 8"	EAA0902	STR												
✳	8	9	8'- 0"	AA0903.2	STR												
	29	9	6'- 9"	AA0904.2	STR												
	9	10	30'- 0"	AA1001.2	STR												
✳	9	10	20'- 4"	AA1002.2	19		10'- 6"	9'- 10"	0'- 0"					0'- 4"	10'- 6"		20'- 4"
	19	10	30'- 0"	EAA1003	STR												
✳	19	10	19'- 2"	EAA1004	STR												
	ABUTMENT #2 (AB)																
	ADDITIONAL STEEL FROM PIPE PENETRATION DETAIL NOT INCLUDED IN SCHEDULE																
	35	5	9'- 4"	AB0501.2	2	3'- 4"	2'- 8"					3'- 4"					
✳	21	5	6'- 10"	AB0502.2	STR												
	11	5	8'- 1"	AB0503.2	STR												
	72	6	14'- 4"	EAB0601	2	5'- 10"	2'- 8"					5'- 10"					
	3	6	35'- 8"	AB0602.2	6	0'- 0"	5'- 0"	26'- 8"	4'- 0"			0'- 0"	1'- 0"		26'- 7"		35'- 7"
	6	6	35'- 8"	EAB0603	STR												
✳	4	6	8'- 1"	AB0604.2	STR												
	2	6	4'- 11"	AB0605.2	STR												
	4	6	8'- 3"	AB0606.2	STR												
	2	6	5'- 1"	AB0607.2	STR												
	2	8	35'- 8"	EAB0801	STR												
	10	8	11'- 10"	EAB0802	STR												
	5	8	13'- 6"	EAB0803	STR												
✳	3	8	13'- 0"	EAB0804	STR												
✳	4	8	35'- 8"	AB0805.2	6	0'- 0"	5'- 0"	26'- 8"	4'- 0"			0'- 0"	1'- 0"		26'- 7"		35'- 7"
	6	8	35'- 8"	EAB0806	STR												
✳	4	9	35'- 8"	EAB0901	STR												
✳	27	9	6'- 10"	AB0902.2	STR												
	11	9	8'- 1"	AB0903.2	STR												
✳	2	10	35'- 8"	AB1001.2	STR												
	WINGWALL (WW2)																
	10	5	9'- 4"	SW0501.2	2	3'- 4"	2'- 8"					3'- 4"					
✳	10	5	8'- 0"	SW0502.2	STR												
	20	6	15'- 8"	ESW0601	2	6'- 6"	2'- 8"					6'- 6"					
	4	6	8'- 8"	SW0602.2	STR												
	10	6	8'- 8"	ESW0602	STR												
✳	10	7	8'- 0"	SW0701.2	STR												
✳	8	8	8'- 8"	SW0801.2	STR												
	20	8	8'- 8"	ESW0801	STR												

~ NOTES ~

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



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:	**BRISTOL**
PROJECT NUMBER:	**BRO 1445(32)**
FILE NAME: **s05j352reinf.dgn**	PLOT DATE: **2/28/2013**
PROJECT LEADER: **J. LACROIX**	DRAWN BY: **A. SAUNDERS**
DESIGNED BY: **J. OLIN/ A. SAUNDERS**	CHECKED BY: **J. OLIN**
REINFORCING STEEL SCHEDULE SHEET #1	SHEET **43** OF **66**

STATE OF VERMONT
AGENCY OF TRANSPORTATION

REINFORCING STEEL SCHEDULE

WINGWALL (WW1)

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	7	6	12'- 9"	NW0601.2	STR												
	2	6	12'- 7"	NW0602.2	STR												
	2	6	↑	NW0603.2	STR												
	2	6		NW0604.2	STR												
	2	6		NW0605.2	STR												
	2	6		NW0606.2	STR												
	2	6		NW0607.2	STR			VARIES AT EQUAL SPACING									
	2	6		NW0608.2	STR												
	2	6		NW0609.2	STR												
	2	6		NW0610.2	STR												
	2	6		NW0611.2	STR												
	2	6		NW0612.2	STR												
	2	6	↓	NW0613.2	STR												
	2	6	5'- 5"	NW0614.2	STR												
	1	6	16'- 6"	ENW0615	STR												
	1	6	↑	ENW0616	STR												
	1	6		ENW0617	STR												
	1	6		ENW0618	STR			VARIES AT EQUAL SPACING									
	1	6	↓	ENW0619	STR												
	1	6	6'- 10"	ENW0620	STR												
	10	6	18'- 0"	NW0621.2	STR												
	18	6	11'- 4"	NW0622.2	2	4'- 9"	1'- 10"					4'- 9"					
	1	6	6'- 11"	ENW0623	3	0'- 0"	0'- 0"	2'- 0"	4'- 11"	0'- 0"	0'- 0"	0'- 0"	0'- 10"	0'- 0"	1'- 10"		5'- 9"
	1	6	8'- 7"	ENW0624	3	0'- 0"	0'- 0"	2'- 0"	6'- 7"	0'- 0"	0'- 0"	0'- 0"	0'- 10"	0'- 0"	1'- 10"		7'- 6"
	2	6	14'- 3"	ENW0625	STR												
	18	6	6'- 10"	ENW0626	2	2'- 6"	1'- 10"					2'- 6"					
	11	9	14'- 10"	NW0901.2	3	0'- 0"	0'- 0"	1'- 0"	12'- 10"	1'- 0"	0'- 0"	0'- 0"	0'- 5"	0'- 0"	0'- 11"		14'- 8"
	18	9	14'- 10"	ENW0902	3	0'- 0"	0'- 0"	1'- 0"	12'- 10"	1'- 0"	0'- 0"	0'- 0"	0'- 5"	0'- 0"	0'- 11"		14'- 8"
	11	9	7'- 0"	NW0903.2	3	0'- 0"	0'- 0"	3'- 6"	3'- 6"	0'- 0"	0'- 0"	0'- 0"	2'- 6"	0'- 0"	0'- 0"		6'- 0"
	20	9	7'- 0"	ENW0904	3	0'- 0"	0'- 0"	3'- 6"	3'- 6"	0'- 0"	0'- 0"	0'- 0"	2'- 6"	0'- 0"	0'- 0"		6'- 0"
	1	9	16'- 6"	ENW0905	STR												
	1	9	↑	ENW0906	STR												
	1	9		ENW0907	STR												
	1	9		ENW0908	STR												
	1	9		ENW0909	STR												
	1	9		ENW0910	STR			VARIES AT EQUAL SPACING									
	1	9		ENW0911	STR												
	1	9		ENW0912	STR												
	1	9		ENW0913	STR												
	1	9		ENW0914	STR												
	1	9	↓	ENW0915	STR												
✳	1	9	5'- 10"	ENW0916	STR												
	16	9	18'- 0"	NW0917.2	STR												

WINGWALL (WW3)

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	7	6	10'- 7"	NE0601.2	STR												
	2	6	10'- 5"	NE0602.2	STR												
	2	6	↑	NE0603.2	STR												
	2	6		NE0604.2	STR												
	2	6		NE0605.2	STR			VARIES AT EQUAL SPACING									
	2	6		NE0606.2	STR												
	2	6	↓	NE0607.2	STR												
	2	6	5'- 4"	NE0608.2	STR												
	1	6	10'- 7"	ENE0609	STR												
	1	6	↑	ENE0610	STR												
	1	6	↓	ENE0611	STR			VARIES AT EQUAL SPACING									
	1	6	5'- 7"	ENE0612	STR												
	1	6	10'- 2"	ENE0613	STR												
	1	6	↑	ENE0614	STR												
	1	6	↓	ENE0615	STR			VARIES AT EQUAL SPACING									
	1	6	5'- 2"	ENE0616	STR												
	9	6	11'- 0"	NE0617.2	STR												
	9	6	10'- 7"	NE0618.2	STR												
	12	6	11'- 4"	NE0619.2	2	4'- 9"	1'- 10"					4'- 9"					
	1	6	6'- 7"	ENE0620	3	0'- 0"	0'- 0"	2'- 0"	4'- 7"	0'- 0"	0'- 0"	0'- 0"	1'- 2"	0'- 0"	1'- 7"		6'- 2"
	1	6	6'- 2"	ENE0621	3	0'- 0"	0'- 0"	2'- 0"	4'- 2"	0'- 0"	0'- 0"	0'- 0"	1'- 2"	0'- 0"	1'- 7"		5'- 9"
✳	2	6	7'- 11"	ENE0622	STR												
	12	6	6'- 10"	ENE0623	2	2'- 6"	1'- 10"					2'- 6"					
✳	11	9	5'- 4"	NE0901.2	3	0'- 0"	0'- 0"	1'- 0"	3'- 4"	1'- 0"	0'- 0"	0'- 0"	0'- 10"	0'- 0"	0'- 7"		4'- 6"
✳	16	9	5'- 4"	ENE0902	3	0'- 0"	0'- 0"	1'- 0"	3'- 4"	1'- 0"	0'- 0"	0'- 0"	0'- 10"	0'- 0"	0'- 7"		4'- 6"
	11	9	6'- 0"	NE0903.2	27		3'- 0"	3'- 0"					2'- 11"		0'- 10"		
	17	9	6'- 0"	ENE0904	27		3'- 0"	3'- 0"					2'- 11"		0'- 10"		

WINGWALL (WW4)

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	7	6	11'- 5"	SE0601.2	STR												
	2	6	11'- 2"	SE0602.2	STR												
	2	6	↑	SE0603.2	STR												
	2	6		SE0604.2	STR												
	2	6		SE0605.2	STR			VARIES AT EQUAL SPACING									
	2	6		SE0606.2	STR												
	2	6	↓	SE0607.2	STR												
	2	6	5'- 4"	SE0608.2	STR												
	1	6	10'- 2"	ESE0609	STR												
	1	6	↑	ESE0610	STR												
	1	6		ESE0611	STR			VARIES AT EQUAL SPACING									
	1	6	↓	ESE0612	STR												
	1	6	6'- 0"	ESE0613	STR												
	1	6	10'- 7"	ESE0614	STR												
	1	6	↑	ESE0615	STR												
	1	6		ESE0616	STR			VARIES AT EQUAL SPACING									
	1	6	↓	ESE0617	STR												
	1	6	6'- 5"	ESE0618	STR												
	9	6	11'- 3"	SE0619.2	STR												
	9	6	11'- 8"	SE0620.2	STR												
	12	6	11'- 4"	SE0621.2	2	4'- 9"	1'- 10"					4'- 9"					
	1	6	6'- 8"	ESE0622	3	0'- 0"	0'- 0"	2'- 0"	4'- 8"	0'- 0"	0'- 0"	0'- 0"	0'- 0"	1'- 4"	0'- 0"	1'- 6"	6'- 2"
	1	6	7'- 1"	ESE0623	3	0'- 0"	0'- 0"	2'- 0"	5'- 1"	0'- 0"	0'- 0"	0'- 0"	0'- 0"	1'- 4"	0'- 0"	1'- 6"	6'- 7"
	2	6	8'- 5"	ESE0624	STR												
	12	6	6'- 10"	ESE0625	2	2'- 6"	1'- 10"					2'- 6"					
	11	9	6'- 3"	SE0901.2	3	0'- 0"	0'- 0"	1'- 0"	4'- 3"	1'- 0"	0'- 0"	0'- 0"	0'- 0"	0'- 8"	0'- 0"	0'- 9"	5'- 9"
	18	9	6'- 3"	ESE0902	3	0'- 0"	0'- 0"	1'- 0"	4'- 3"	1'- 0"	0'- 0"	0'- 0"	0'- 0"	0'- 8"	0'- 0"	0'- 9"	5'- 9"
	11	9	5'- 2"	SE0903.2	3	0'- 0"	0'- 0"	2'- 7"	2'- 7"	0'- 0"	0'- 0"	0'- 0"	0'- 0"	1'- 4"	0'- 0"	1'- 6"	4'- 6"
	19	9	5'- 2"	ESE0904	3	0'- 0"	0'- 0"	2'- 7"	2'- 7"	0'- 0"	0'- 0"	0'- 0"	0'- 0"	1'- 4"	0'- 0"	1'- 6"	4'- 6"

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4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
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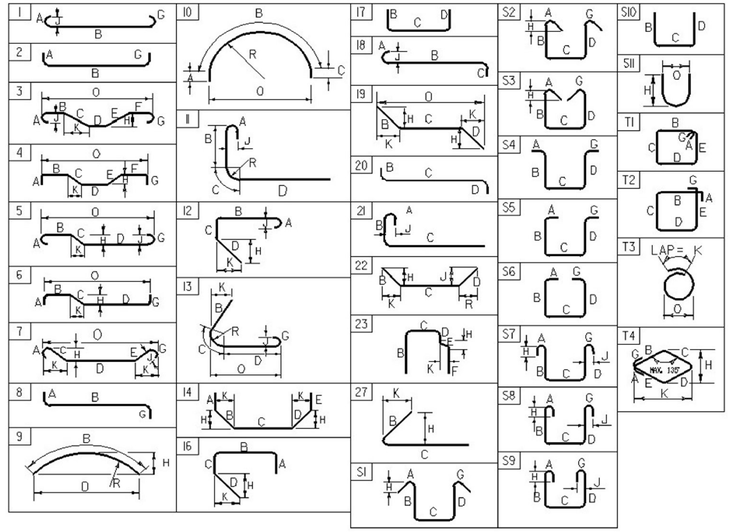
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E DENOTES EPOXY COATED REINFORCING STEEL.
12. .2 IN BAR MARK SUFFIX DENOTES LEVEL II CORROSION RESISTANCE.

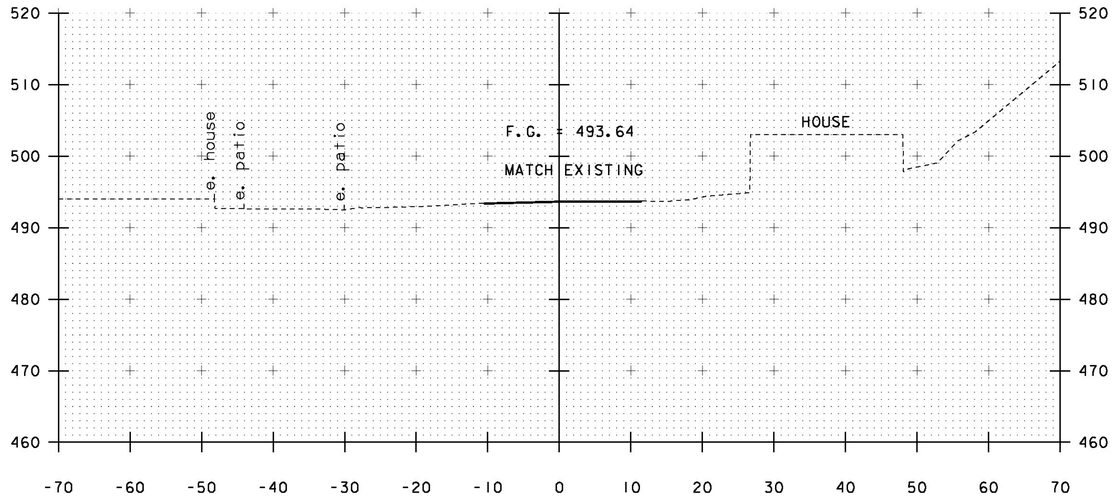


ASTM STANDARD REINFORCING BARS

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: **BRISTOL**
PROJECT NUMBER: **BRO 1445(32)**

FILE NAME: **s05j352reinf.dgn** PLOT DATE: **2/28/2013**
PROJECT LEADER: **J. LACROIX** DRAWN BY: **A. SAUNDERS**
DESIGNED BY: **J. OLIN/ A. SAUNDERS** CHECKED BY: **J. OLIN**
REINFORCING STEEL SCHEDULE SHEET #2 SHEET **44** OF **66**



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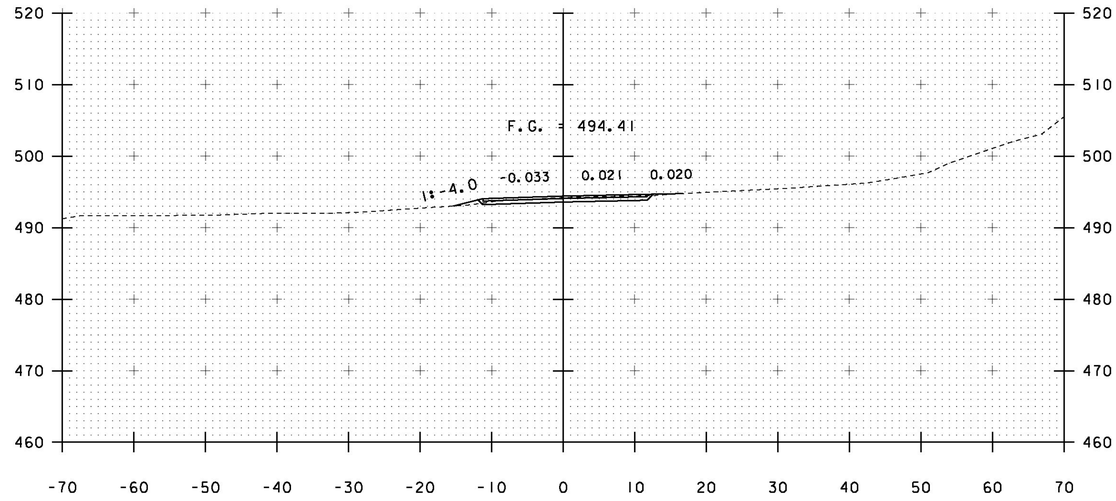
BEGIN APPROACH



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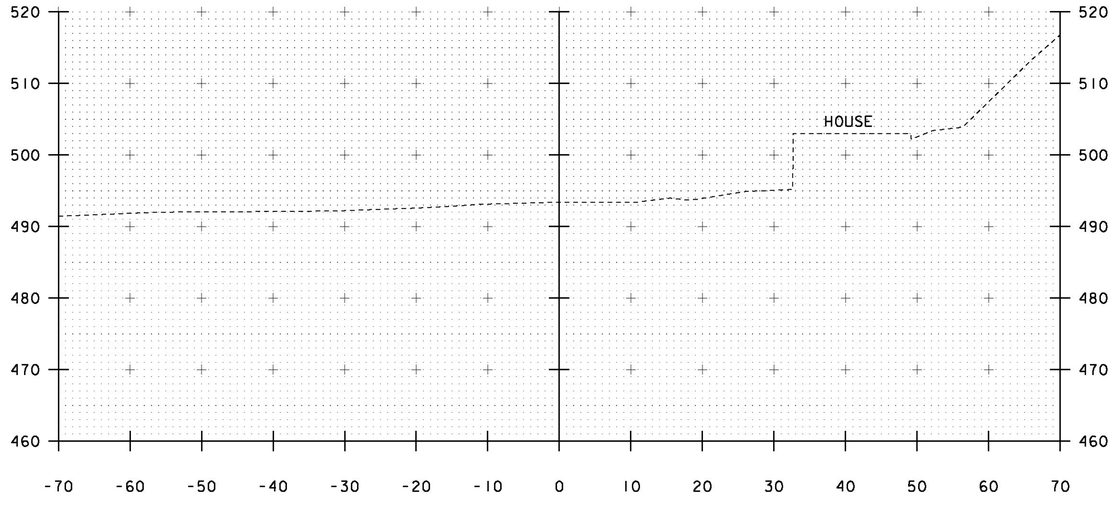

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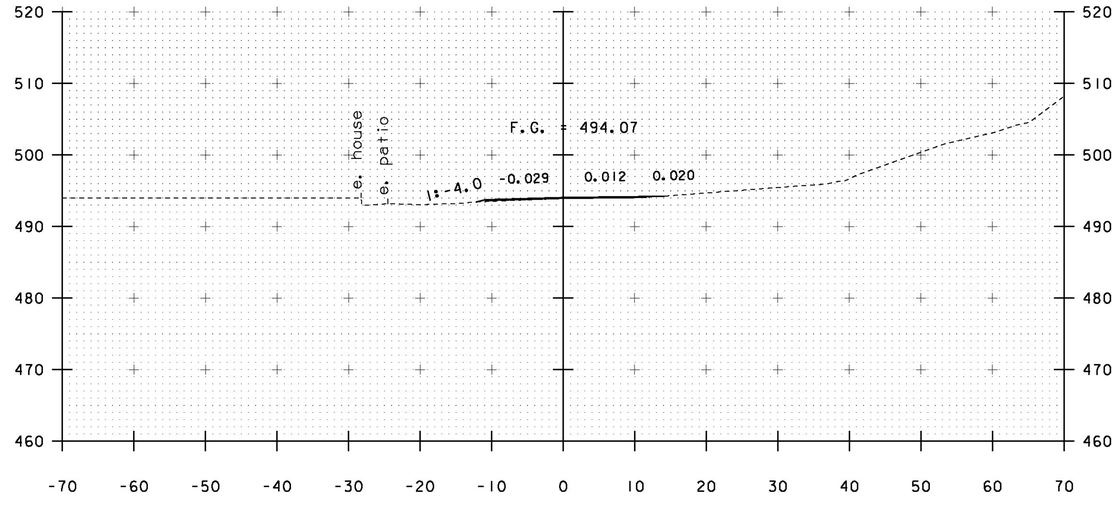
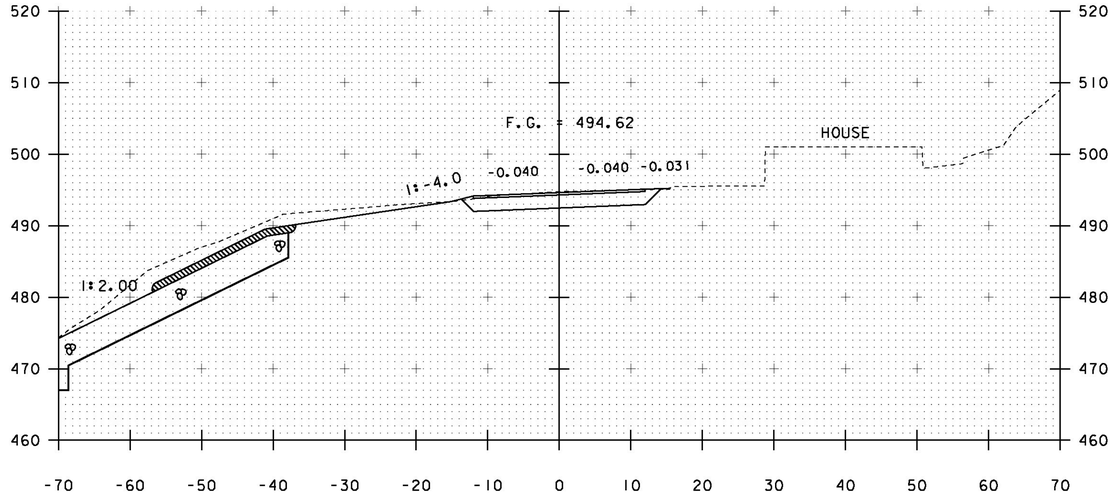


50+50

STA. 50+00 TO STA. 50+75

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352xs2.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
MAINLINE SECTIONS #1	SHEET 45 OF 66



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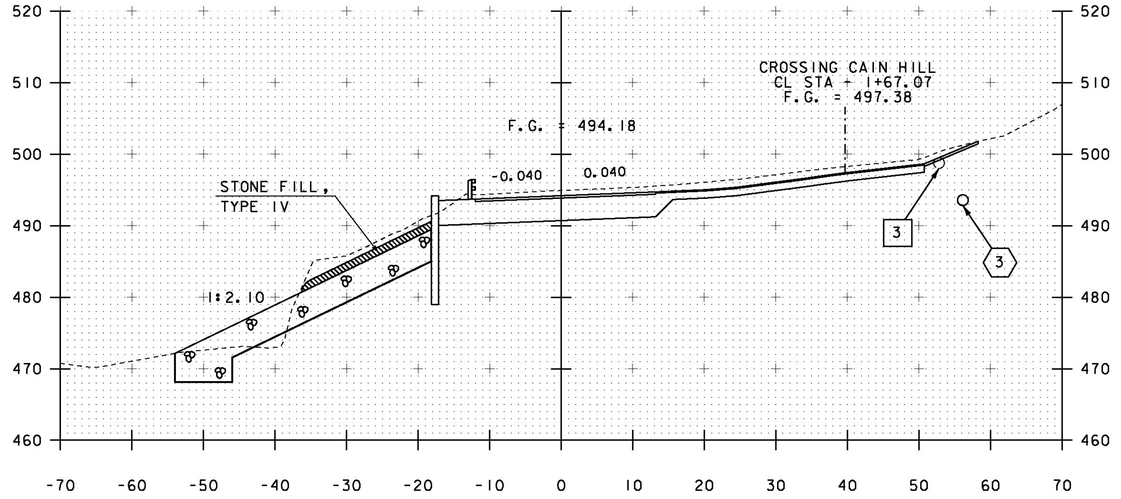
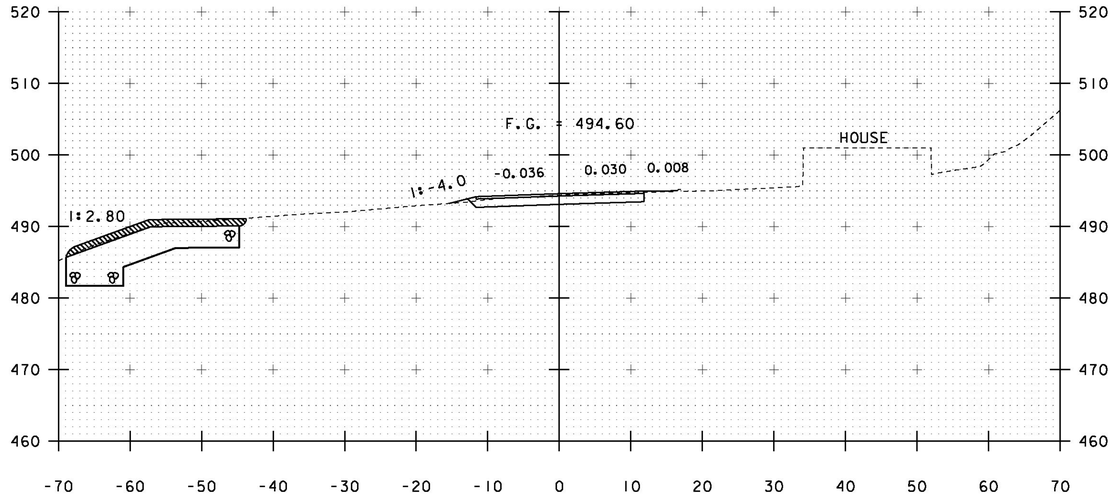
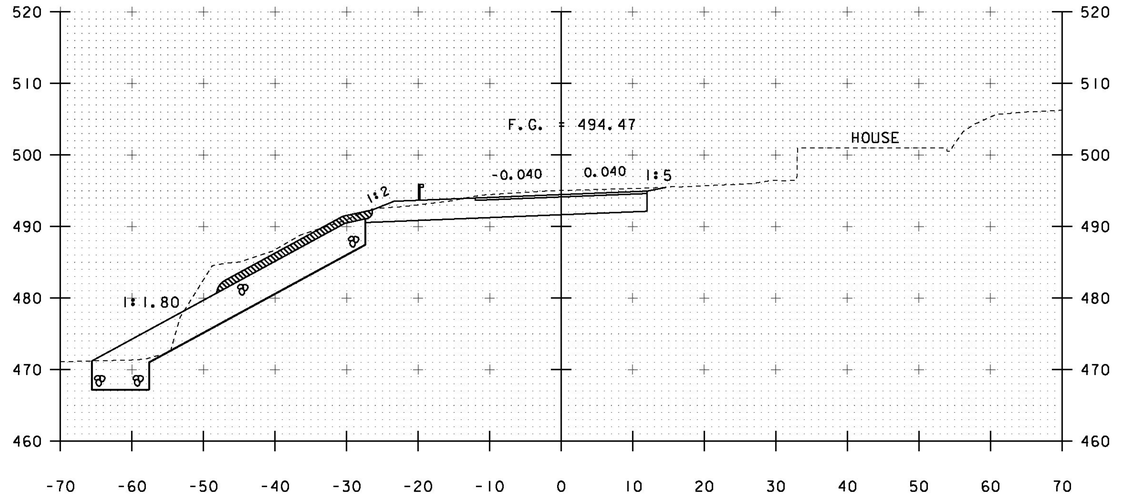
BEGIN PROJECT



51+75



51+00



51+50

3 EXISTING 18" ACCGMP CULVERT

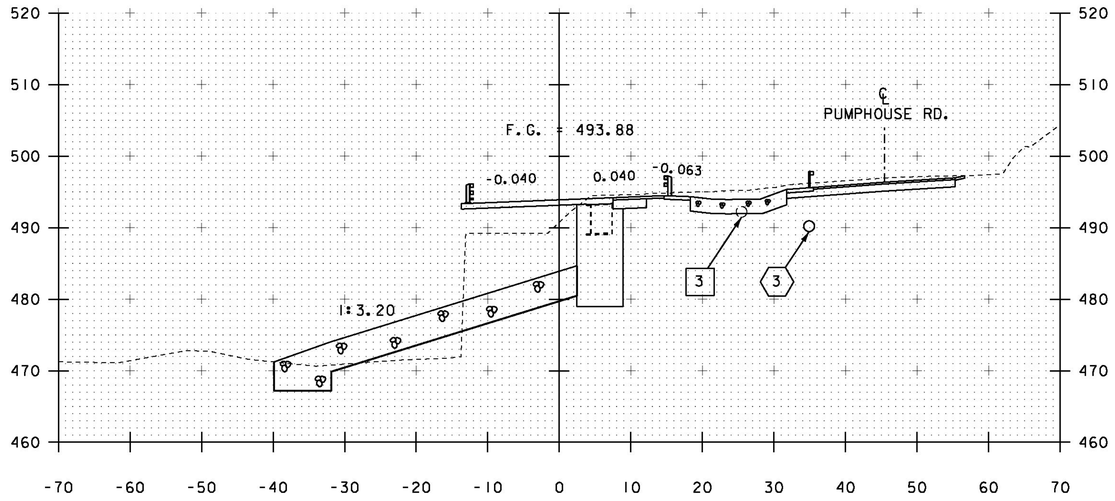
3 PROPOSED 18" PIPE OPTION
56'-2" RIGHT

STA. 51+00 TO STA. 51+75

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

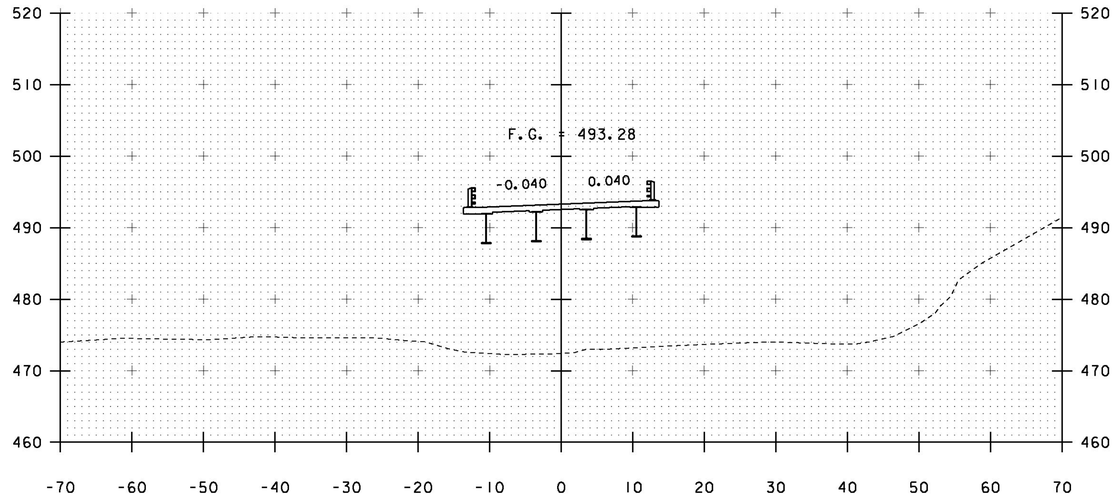
FILE NAME: s051352xs2.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
MAINLINE SECTIONS #2

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 46 OF 66

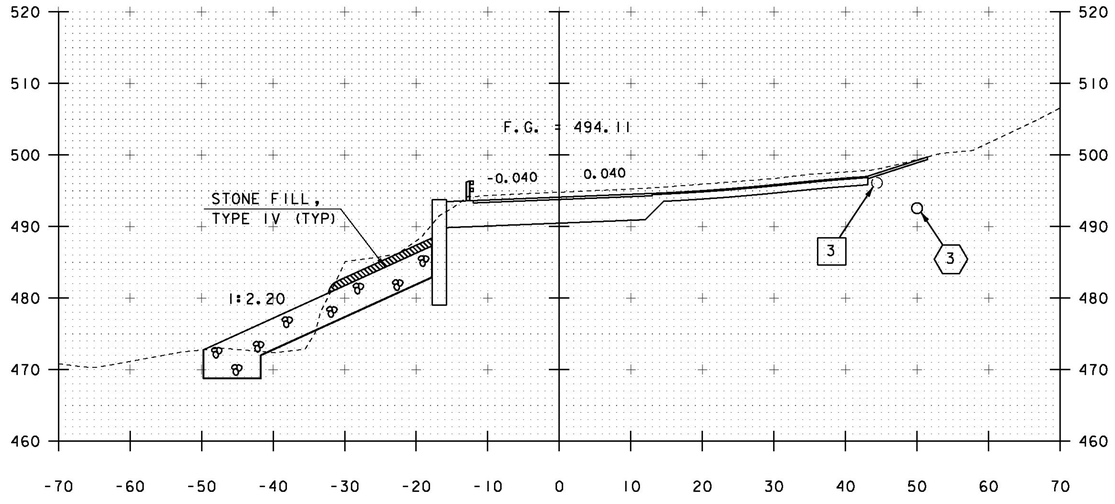


52+00

BEGIN BRIDGE
STA - 51+96.67

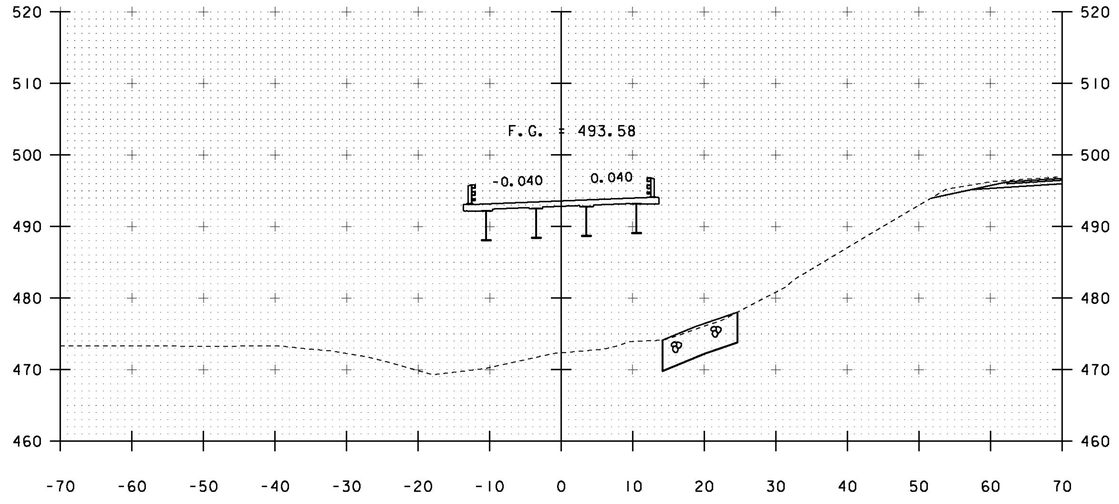


52+50



51+81

INTERSECTION
SOUTH STREET / CAIN HILL



52+25

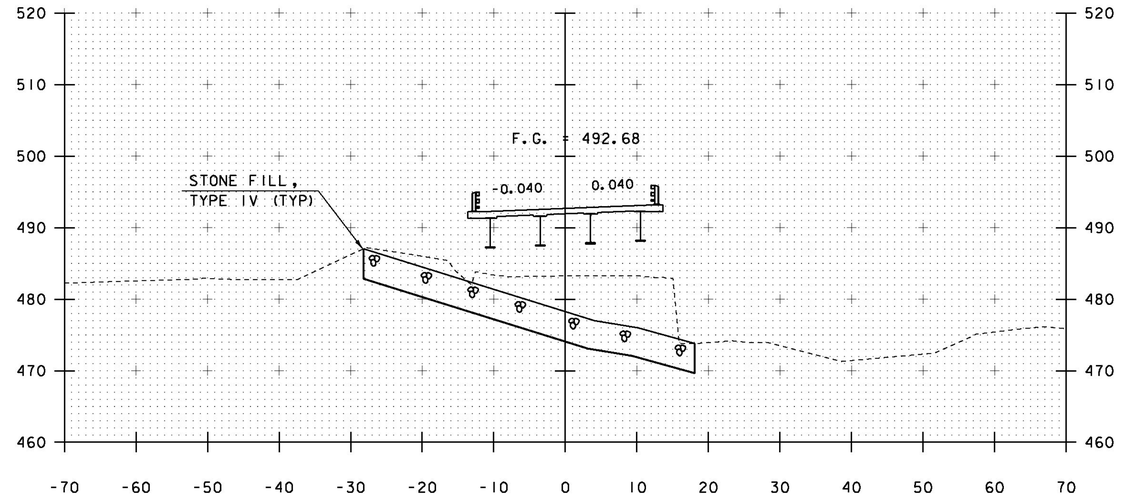
3 EXISTING 18" ACCGMP CULVERT

3 PROPOSED 18" PIPE OPTION
34'-11" RIGHT

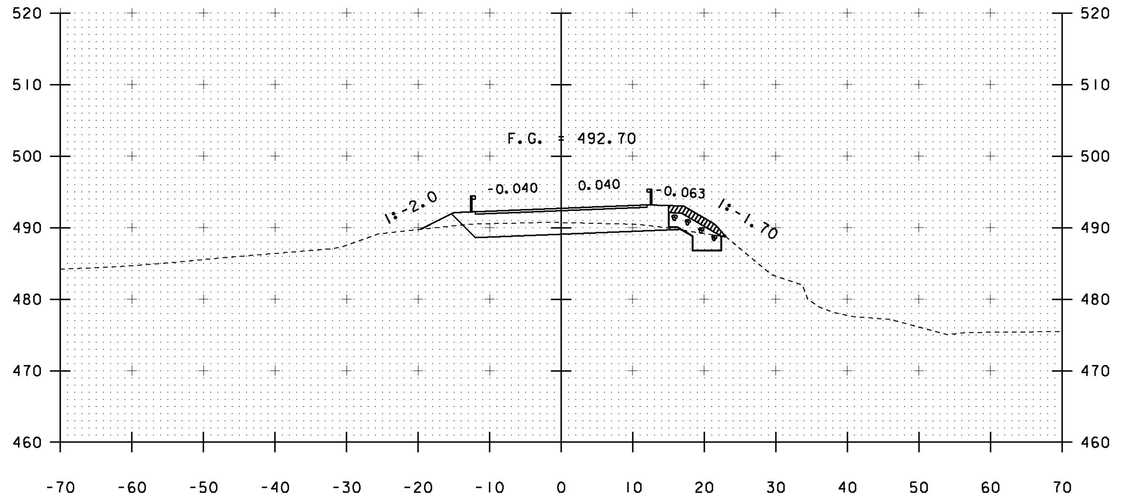
STA. 51+81 TO STA. 52+50

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)

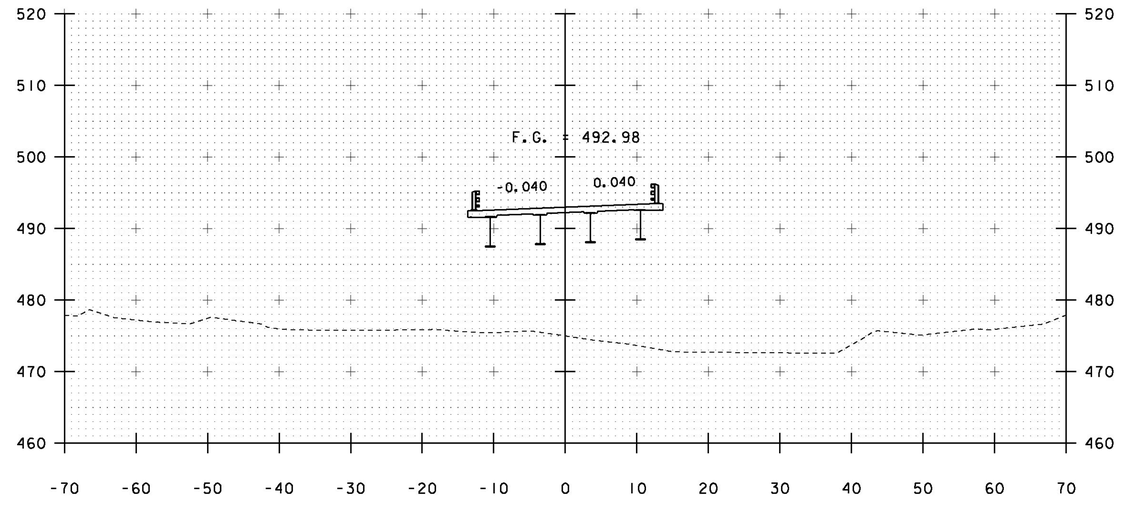
FILE NAME: s051352xs2.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
MAINLINE SECTIONS #3	SHEET 47 OF 66



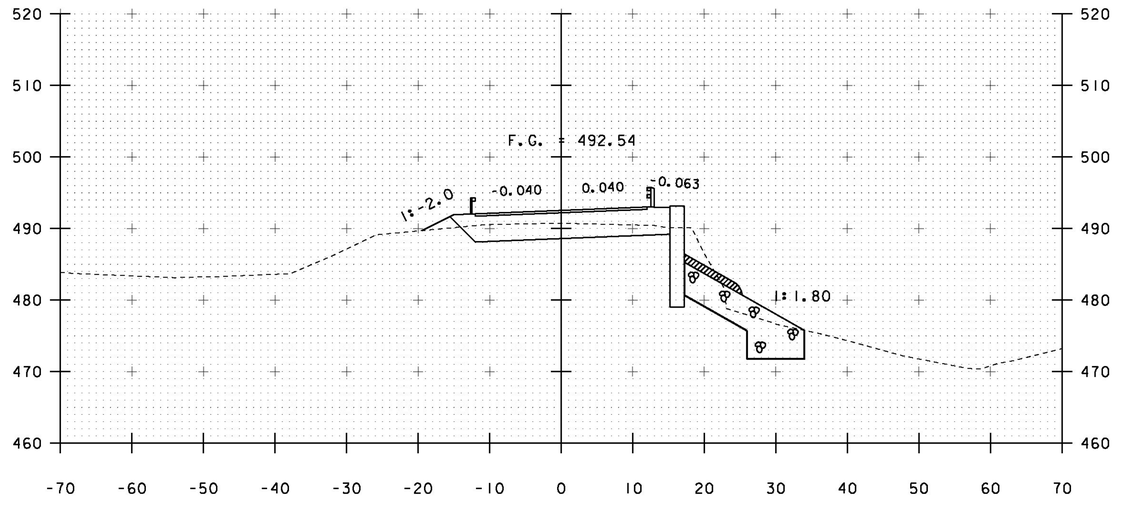
53+00



53+50



52+75



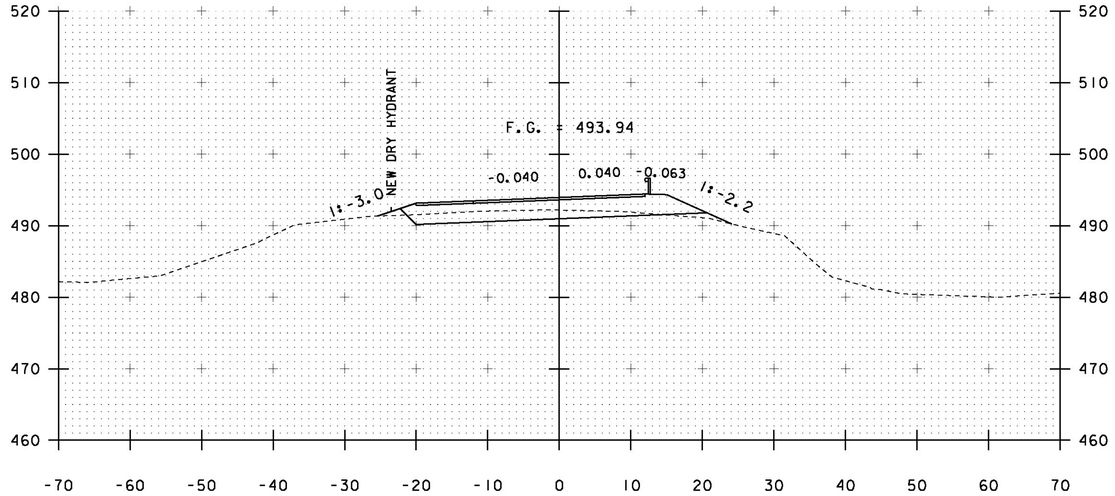
53+25

END BRIDGE
STA - 53+19.02

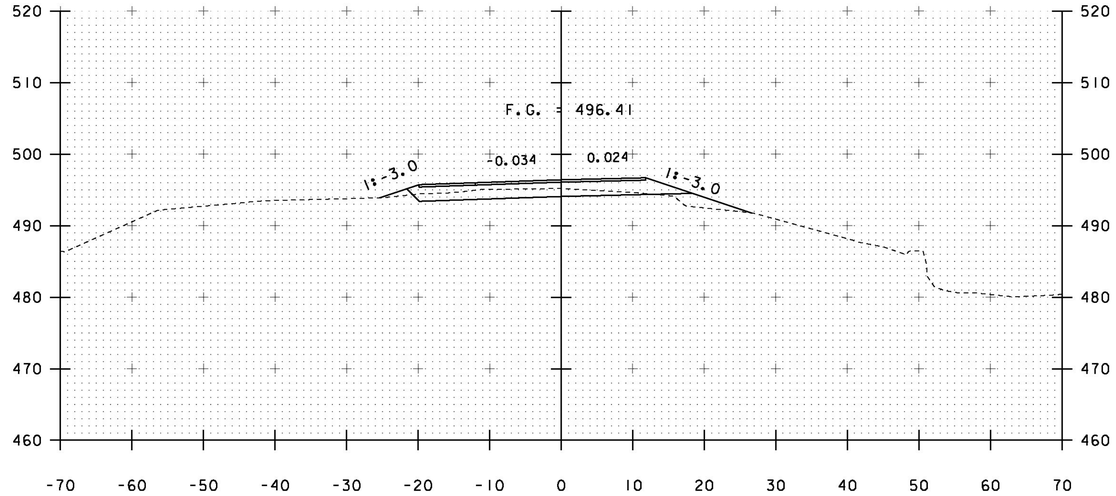
STA. 52+75 TO STA. 53+50

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)

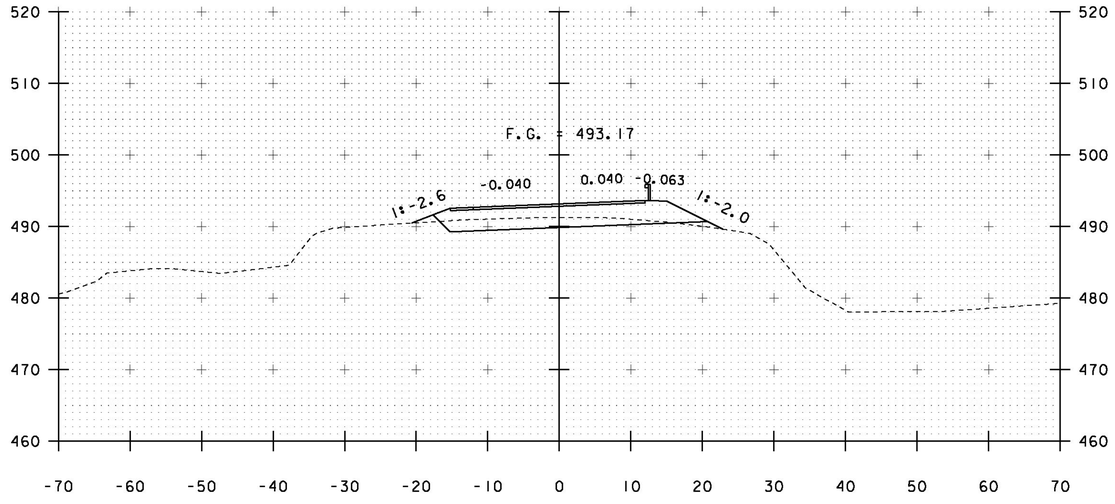
FILE NAME: s051352xs2.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
MAINLINE SECTIONS #4	SHEET 48 OF 66



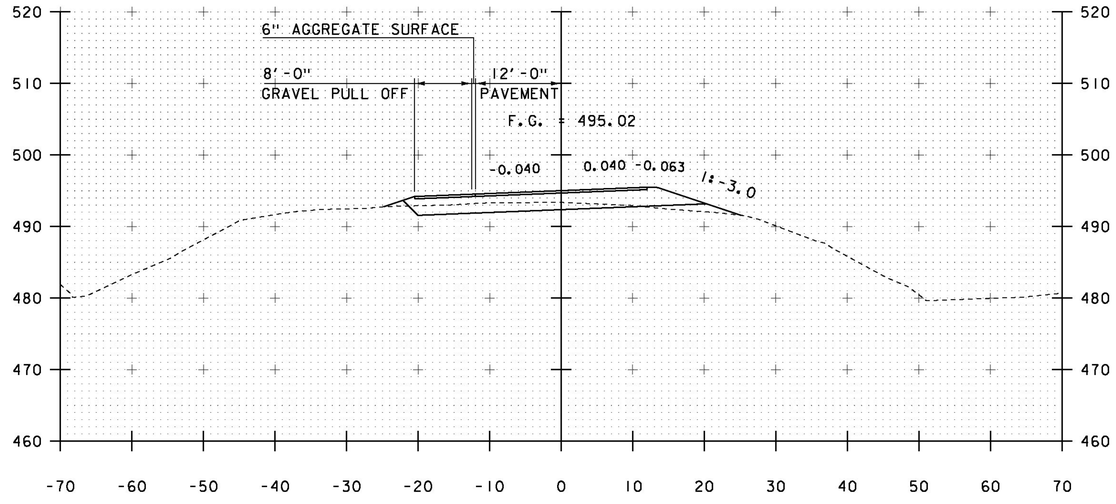
54+00



54+50



53+75

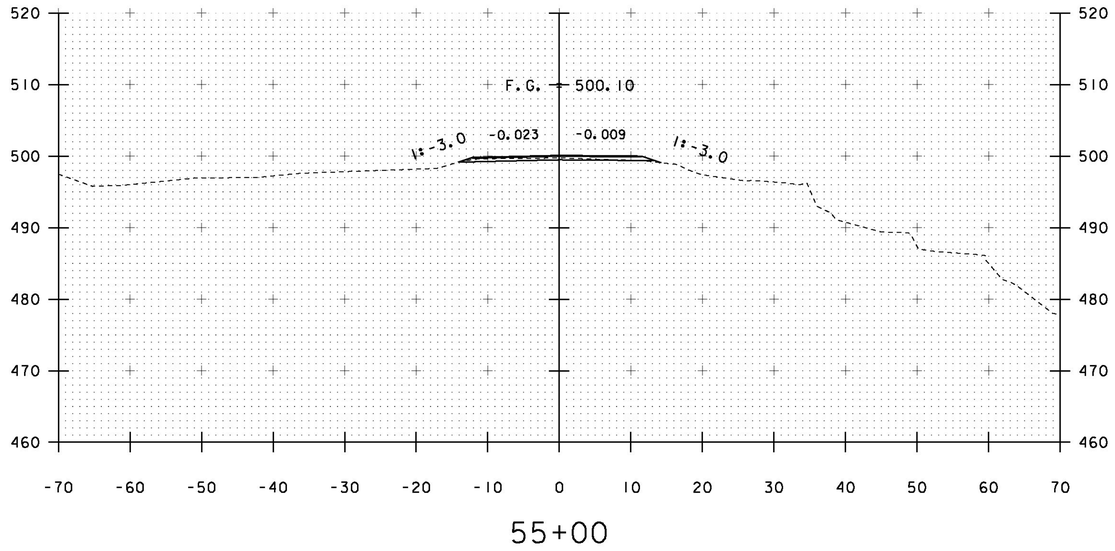


54+25
END PROJECT

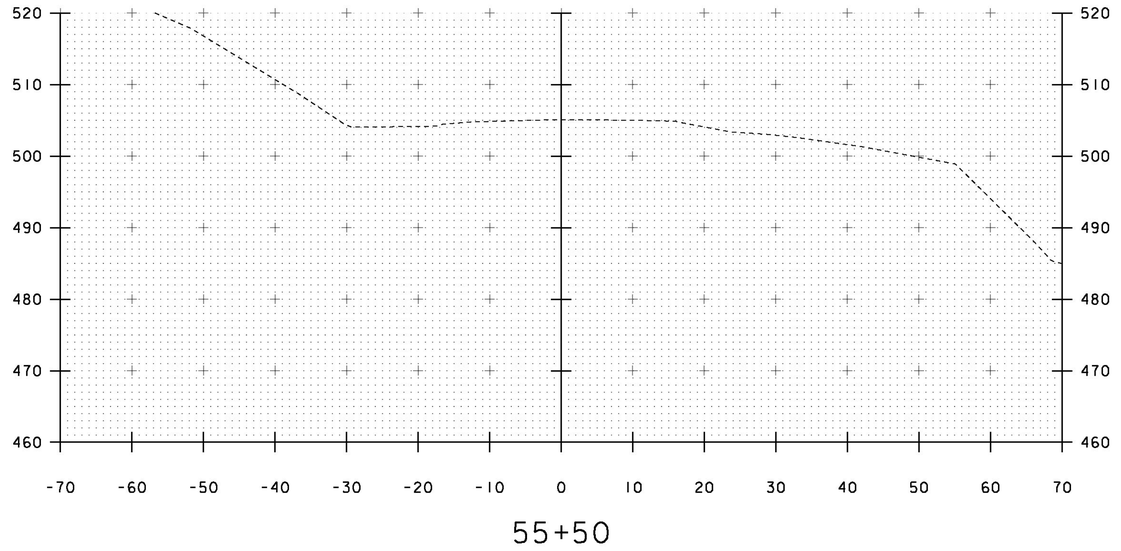
STA. 53+75 TO STA. 54+50

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)

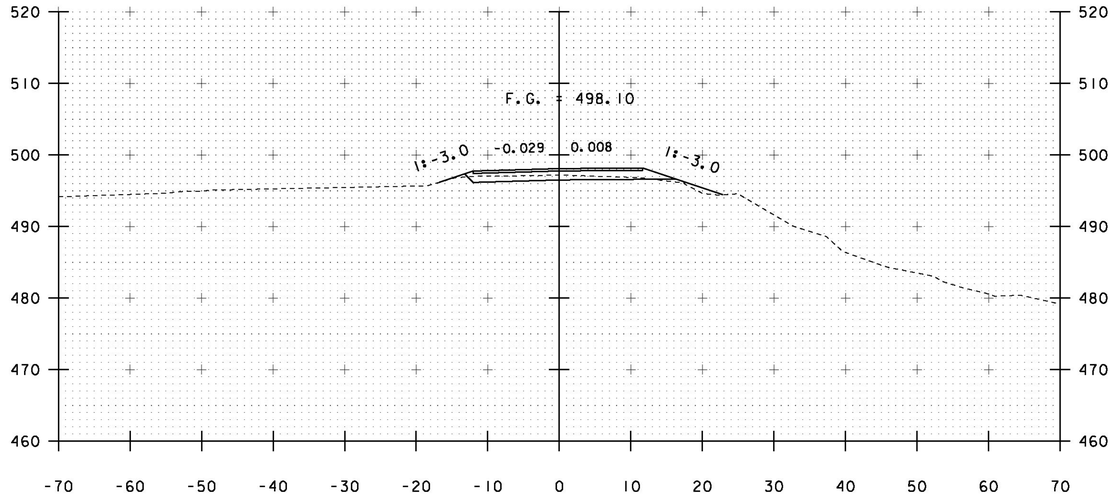
FILE NAME: s051352xs2.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
MAINLINE SECTIONS #5	SHEET 49 OF 66



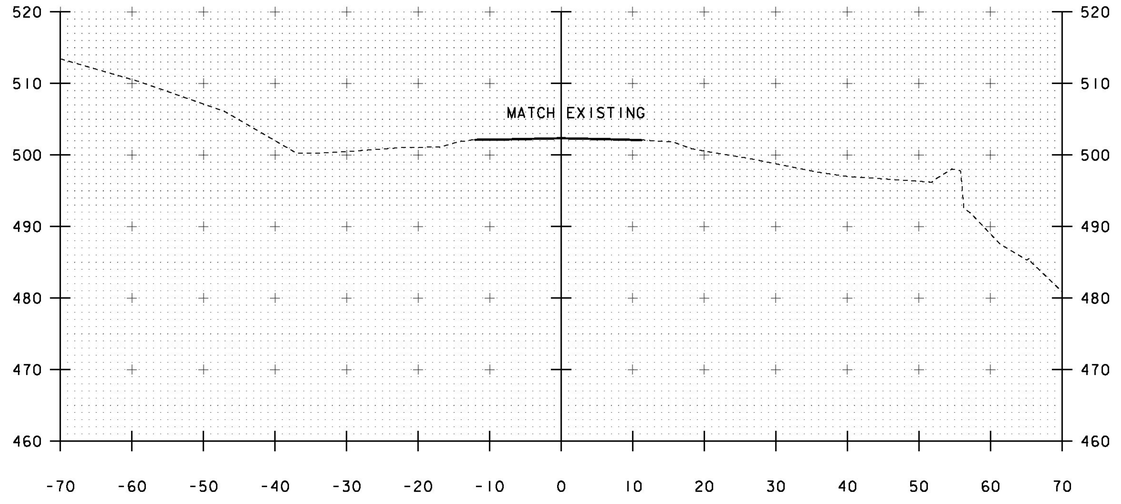
55+00



55+50



54+75

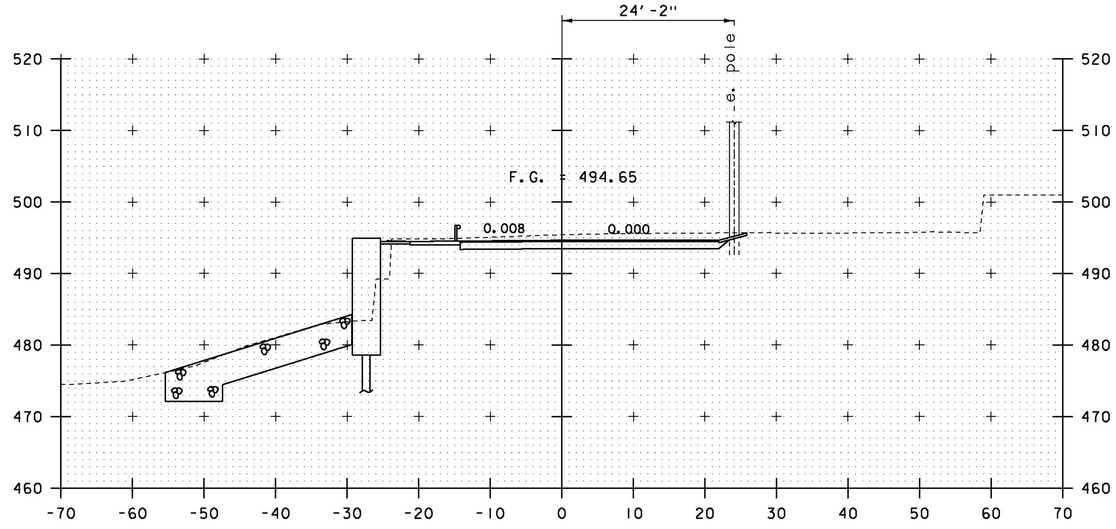


55+25
END APPROACH

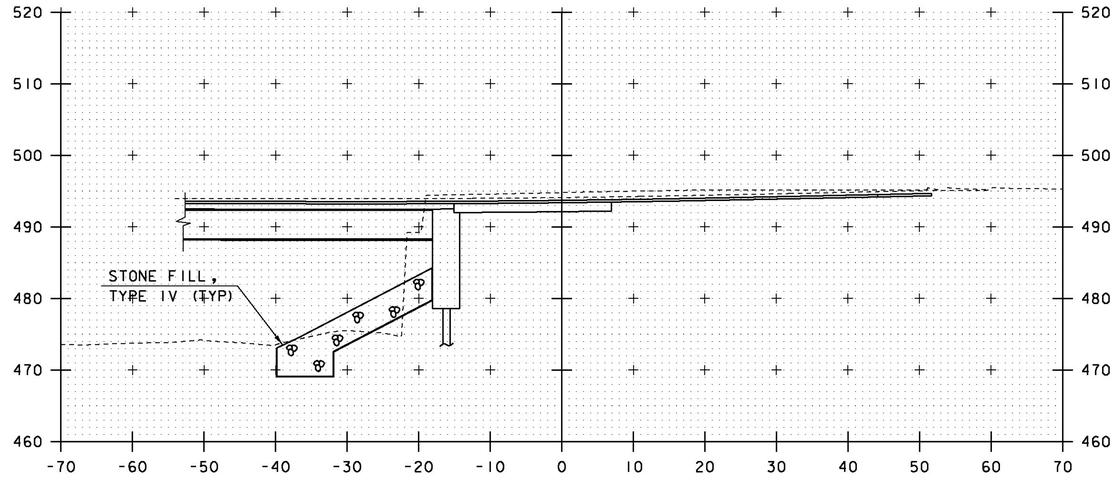
STA. 54+75 TO STA. 55+50

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)

FILE NAME: s051352xs2.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
MAINLINE SECTIONS #6	SHEET 50 OF 66

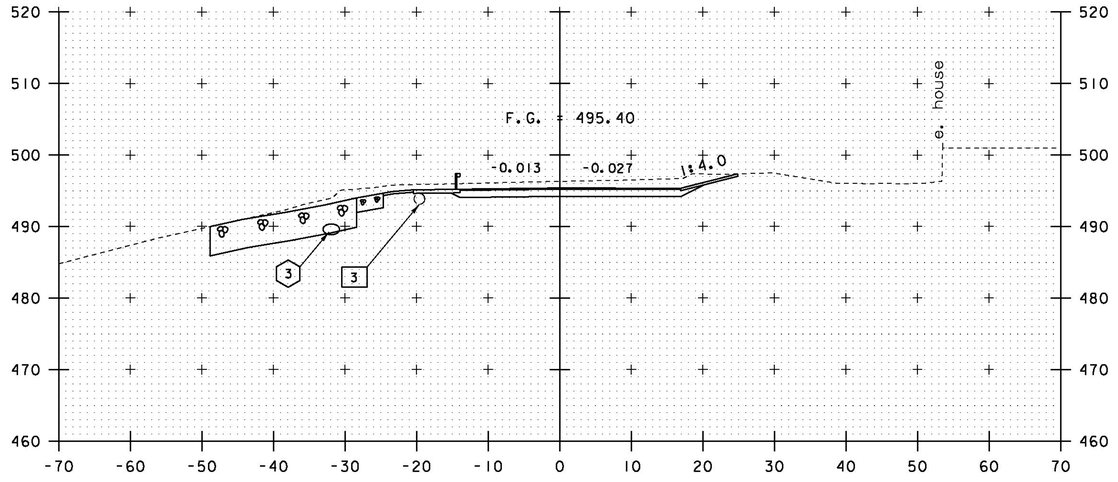


1+38



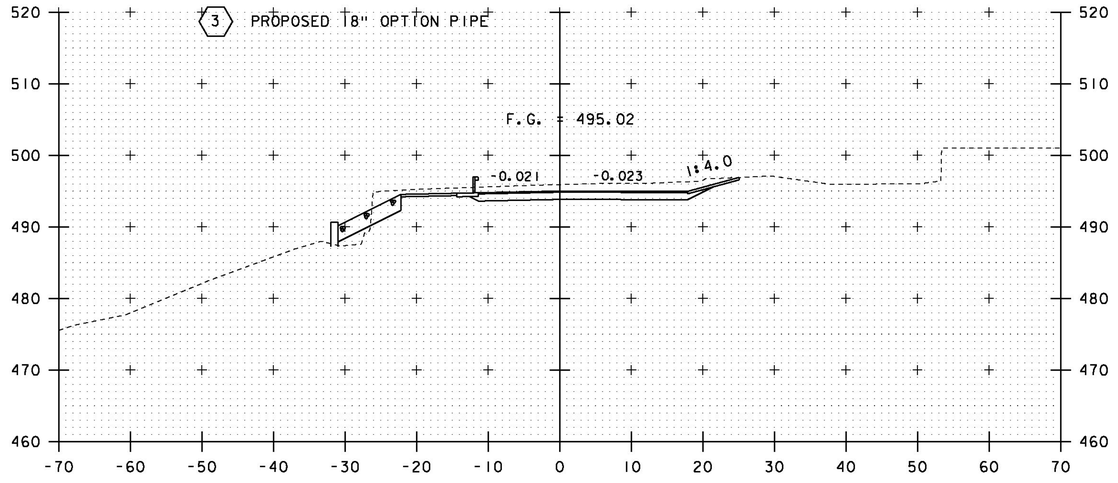
1+25

SOUTH STREET
STA - 51+81.00 @ CL



3 EXISTING 18" ACCGMP PIPE

1+50



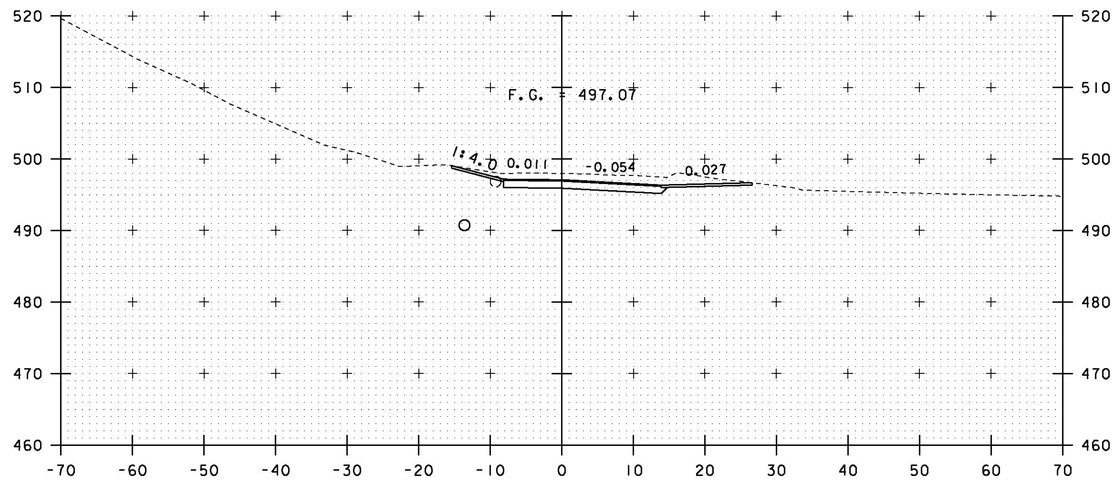
1+45

STA. 1+25 TO STA. 1+50

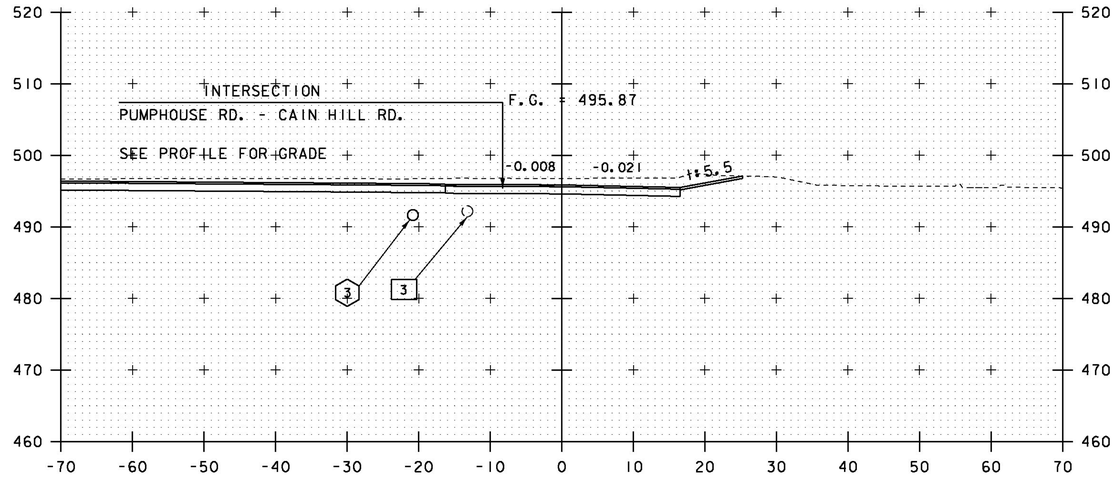
PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s051352xs2.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
CAIN HILL SECTIONS "1

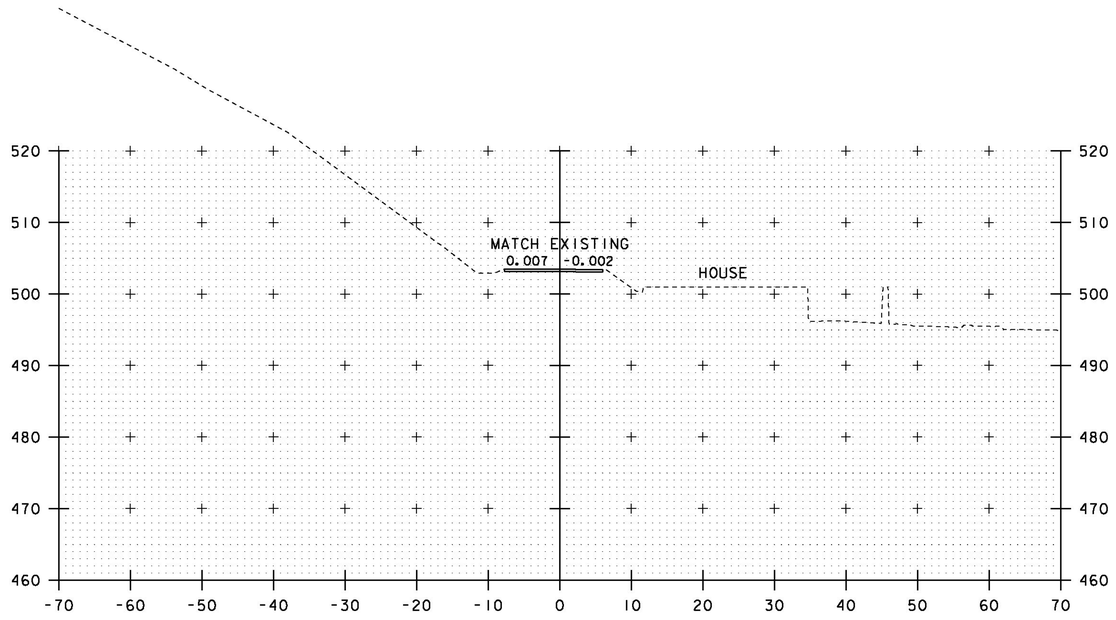
PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 51 OF 66



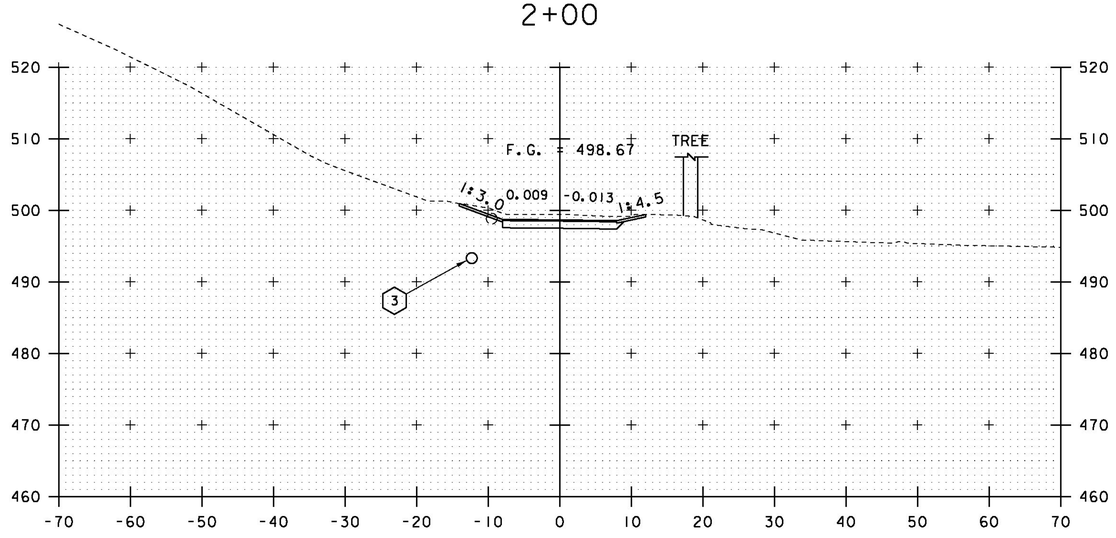
1+65



1+55



2+00



1+75

3 EXISTING 18" ACCGMP PIPE

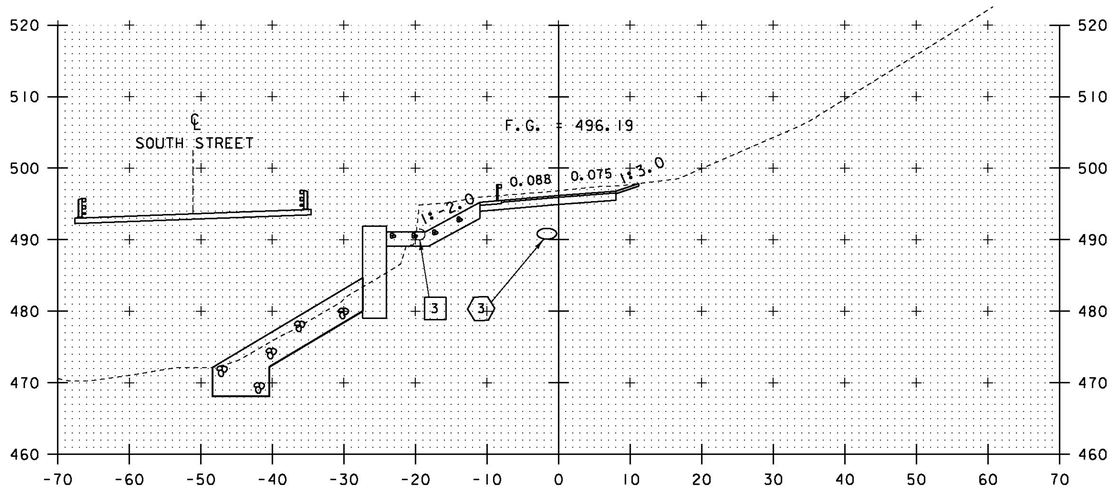
3 PROPOSED 18" OPTION PIPE

STA. 1+55 TO STA. 2+00

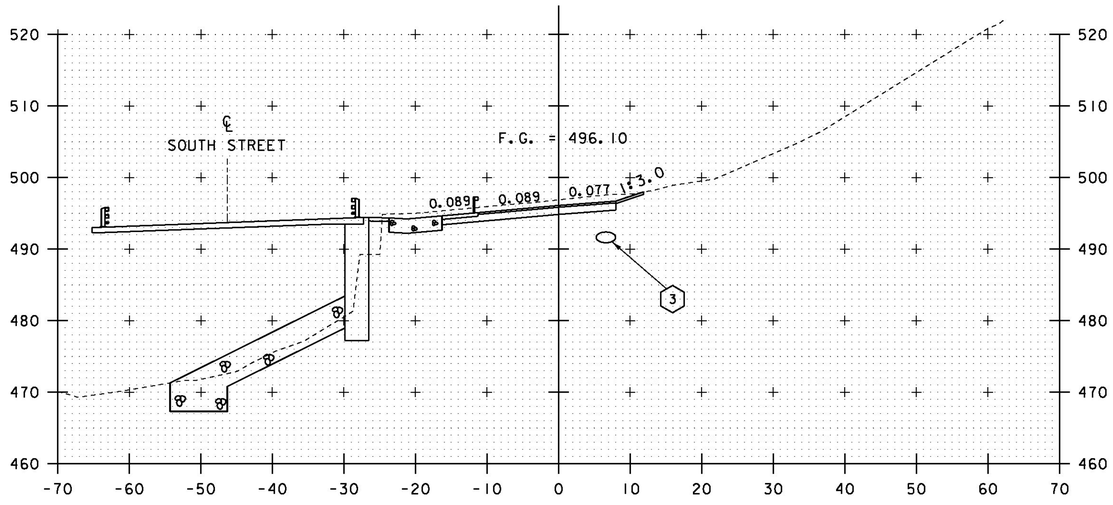
PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352xs2.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
CAIN HILL SECTIONS #2

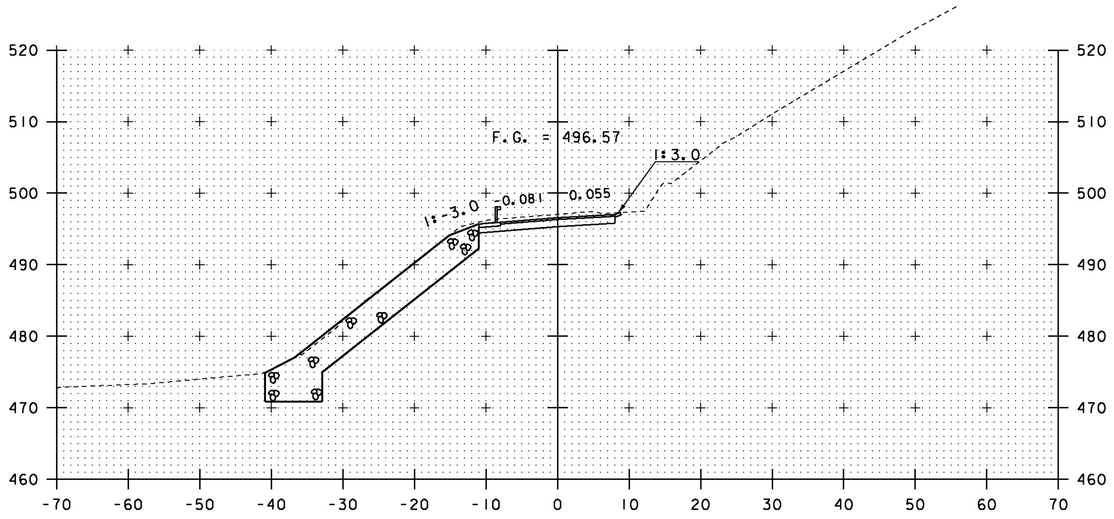
PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 52 OF 66



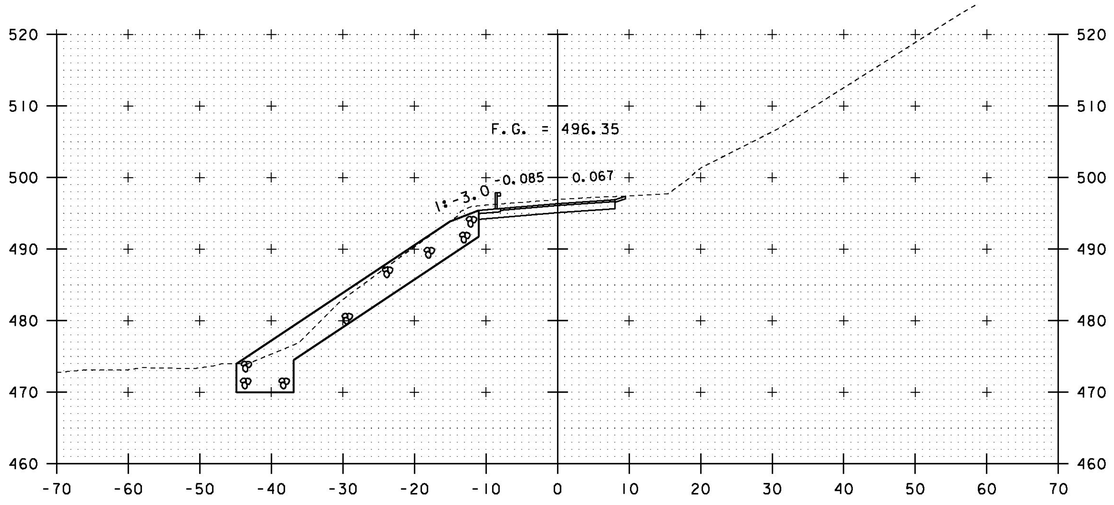
4+75



4+70



5+00



4+85

3 EXISTING 18" ACCGMP PIPE

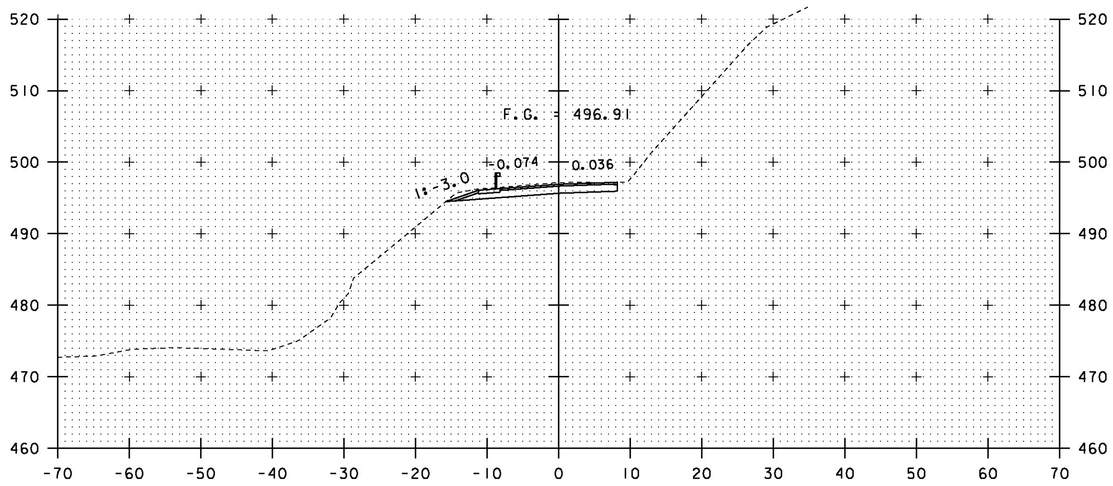
3 PROPOSED 18" OPTION PIPE

STA. 4+70 TO STA. 5+00

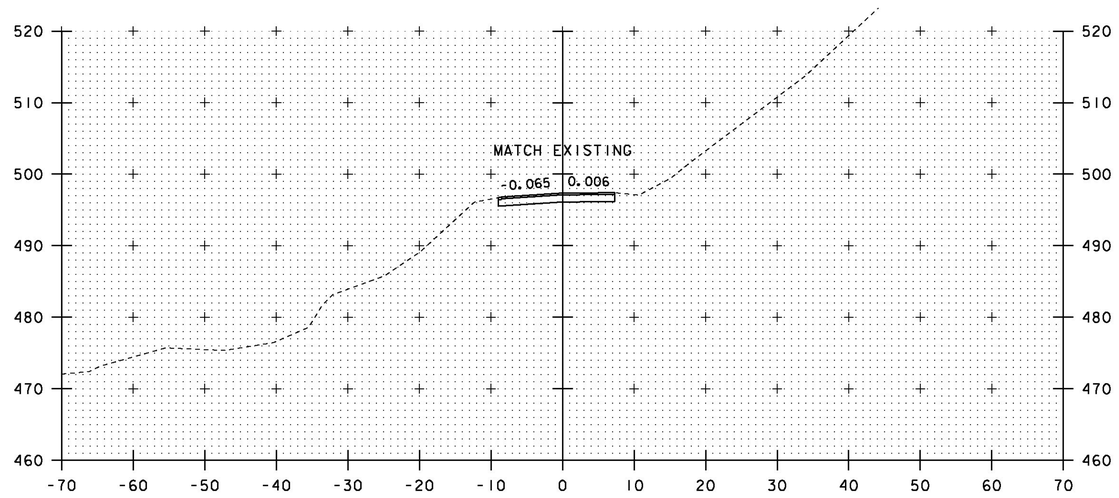
PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352xs2.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
PUMPHOUSE SECTIONS #1

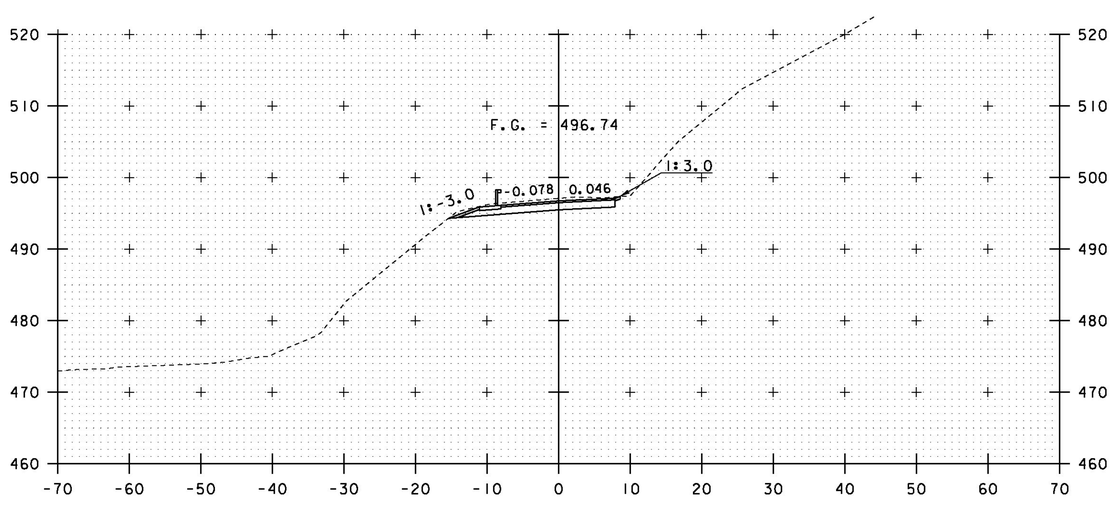
PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 53 OF 66



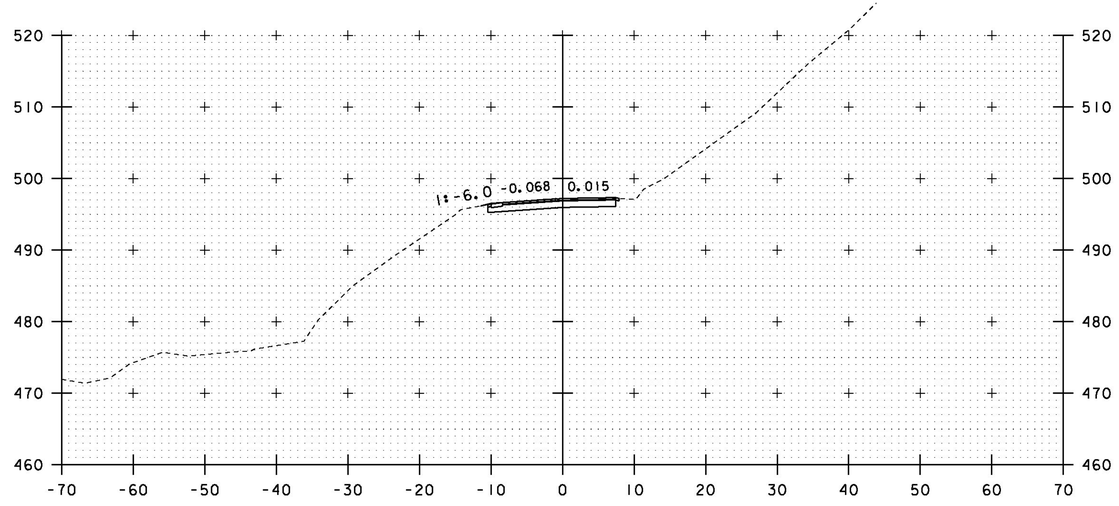
5+25



5+62



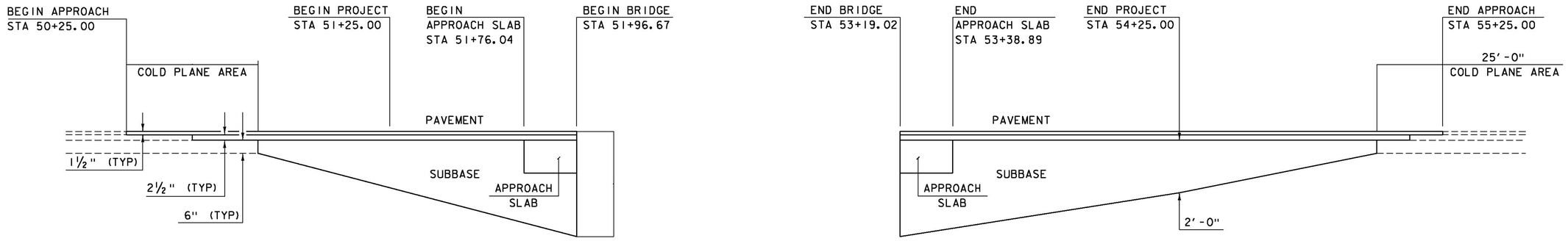
5+12



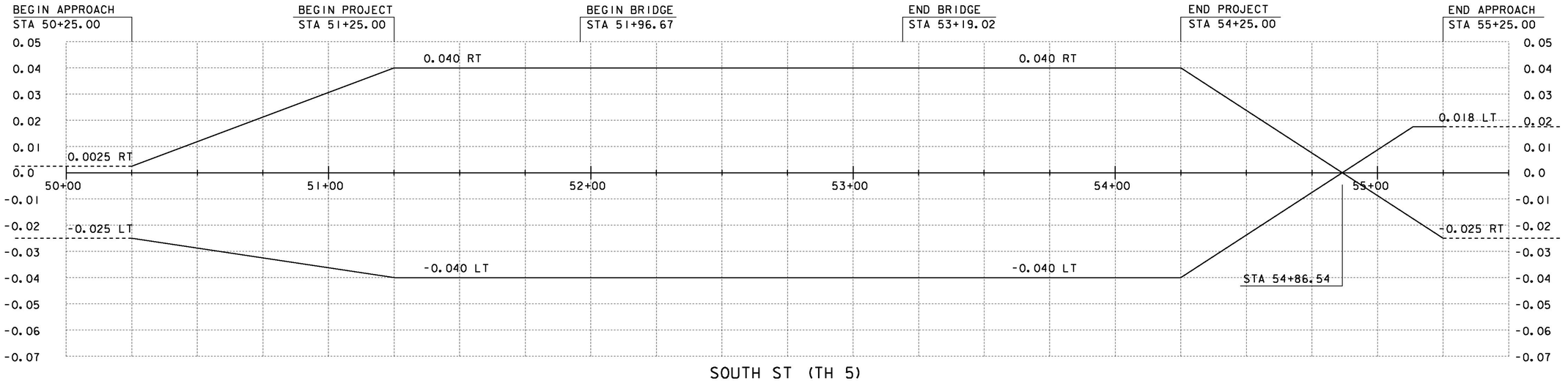
5+50

STA. 5+12 TO STA. 5+62

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352xs2.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
PUMPHOUSE SECTIONS #2	SHEET 54 OF 66

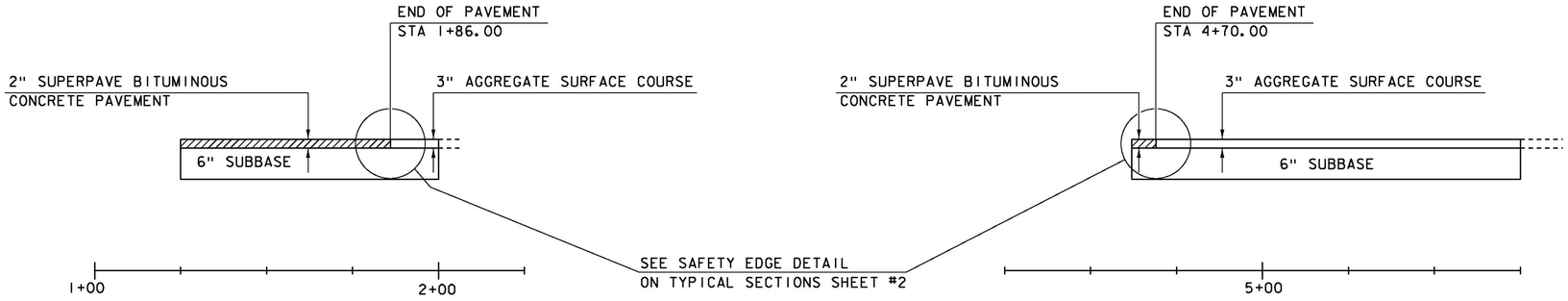


SOUTH ST (TH 5)
MATERIAL TRANSITION
HOR. SCALE 1" = 20'-0"
NO VERT. SCALE



SOUTH ST (TH 5)
BANKING DIAGRAM
HOR. SCALE 1" = 20'-0"
NO VERT. SCALE

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s051352pro.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
MATERIAL TRANSITION & BANKING DIAGRAM #1	SHEET 55 OF 66

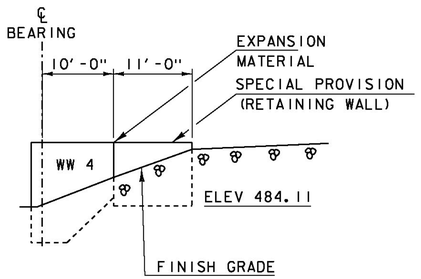


CAIN HILL ROAD
MATERIAL TRANSITION

HOR. SCALE 1" = 20'-0"
NO VERT. SCALE

PUMPHOUSE ROAD
MATERIAL TRANSITION

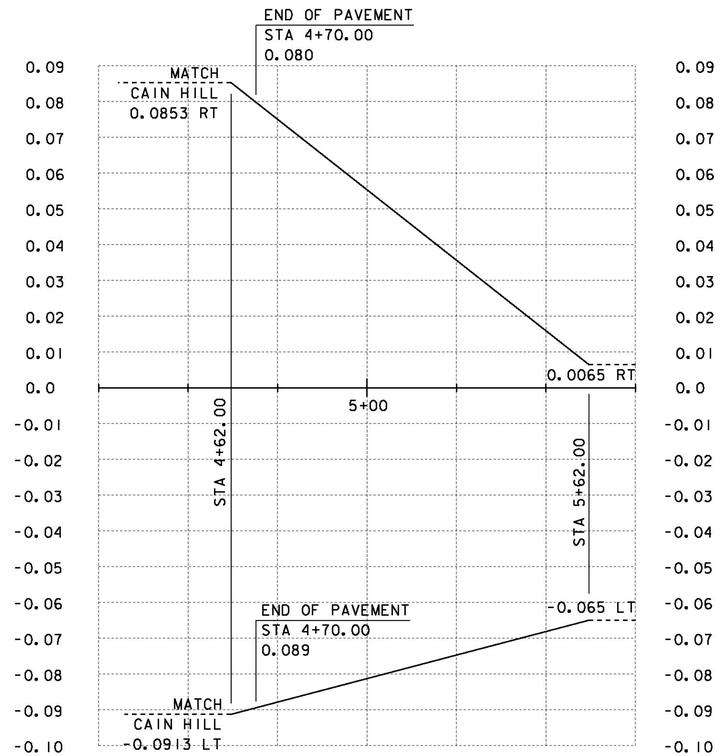
HOR. SCALE 1" = 20'-0"
NO VERT. SCALE



SPECIAL PROVISION (RETAINING WALL)
ELEVATION

NOT TO SCALE

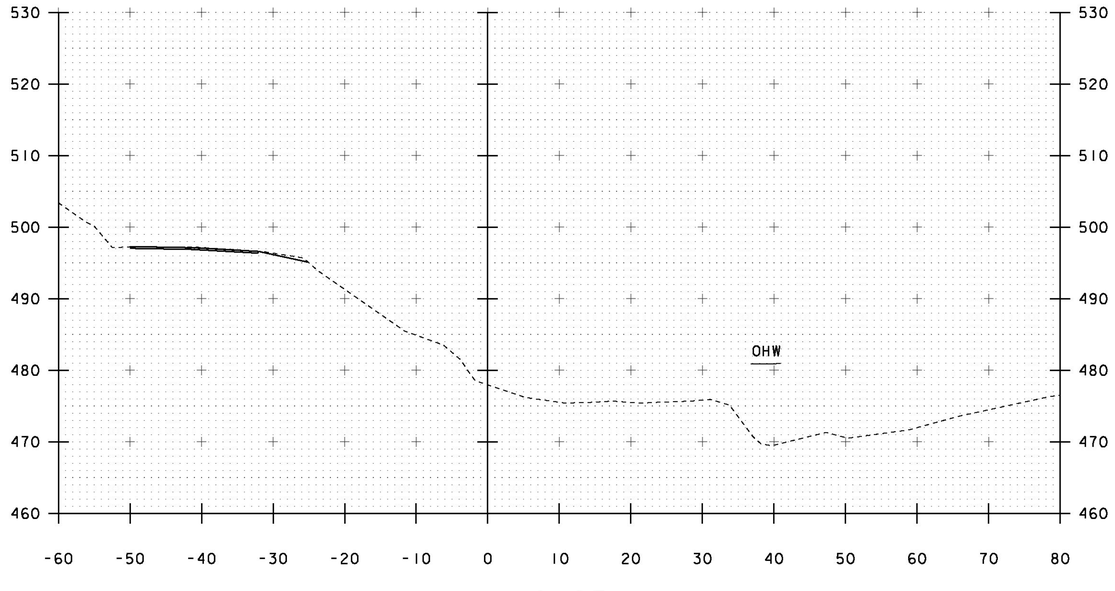
1. THE ELEVATION SHOWN AT THE BOTTOM OF WALL IS THE MAXIMUM ELEVATION TO ACCOUNT FOR FROST DEPTH.
2. THE WALL SHALL CONFORM TO ITEM 900.670 SPECIAL PROVISION (RETAINING WALL).
3. AN EXPANSION MATERIAL SHALL BE PROVIDED BETWEEN WW4 AND THE PROPOSED RETAINING WALL CAPABLE OF ACCOMODATING 1" OF EXPANSION.



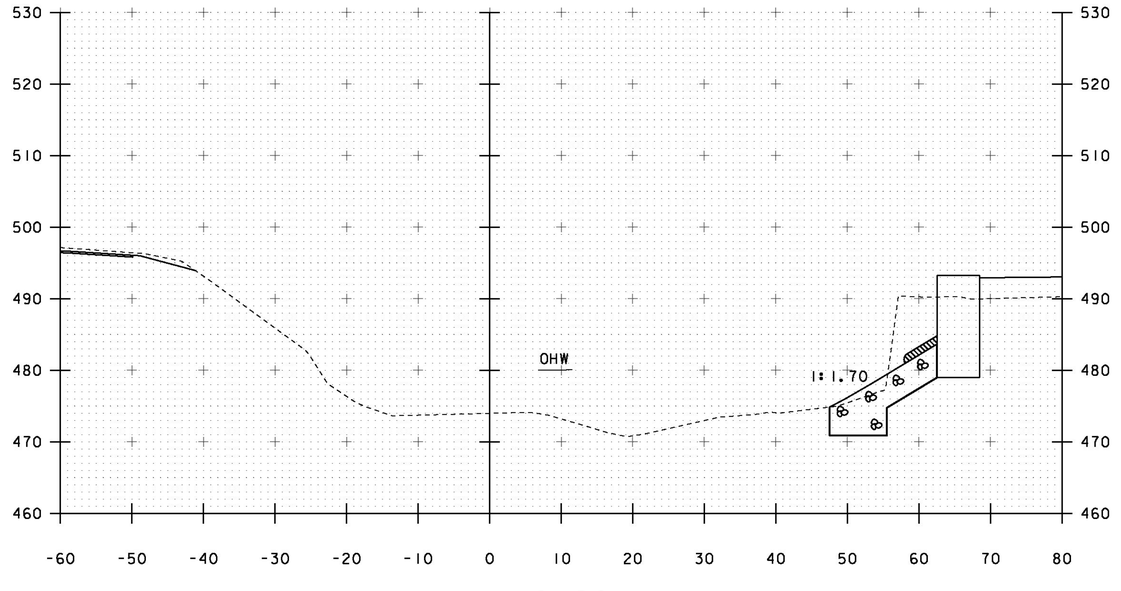
PUMPHOUSE ROAD
BANKING DIAGRAM

HOR. SCALE 1" = 20'-0"
NO VERT. SCALE

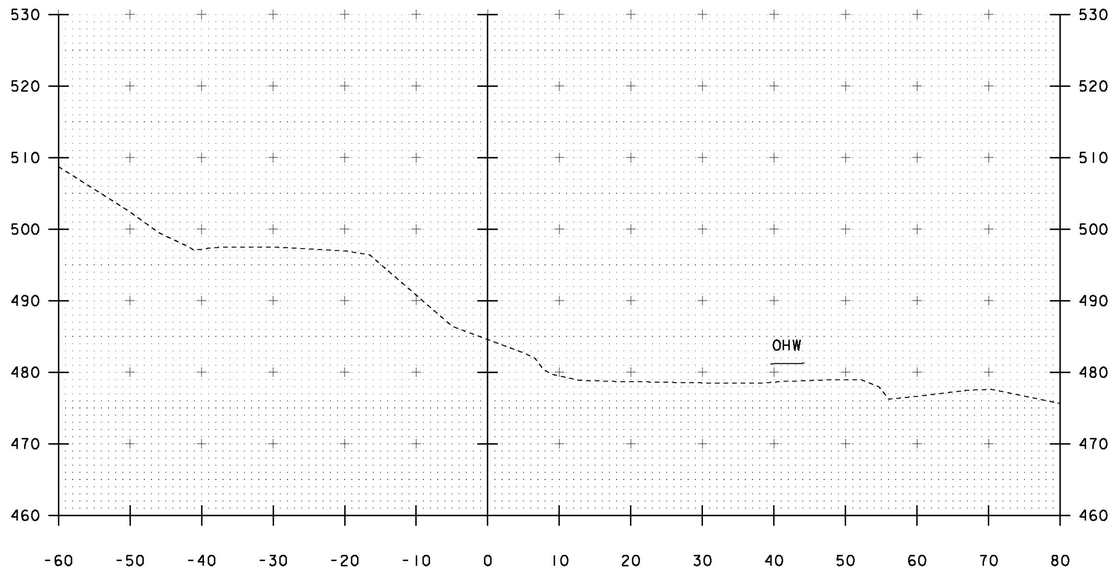
PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352pro.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: G. LAROCHE
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
MATERIAL TRANSITION & BANKING DIAGRAM #2	SHEET 56 OF 66



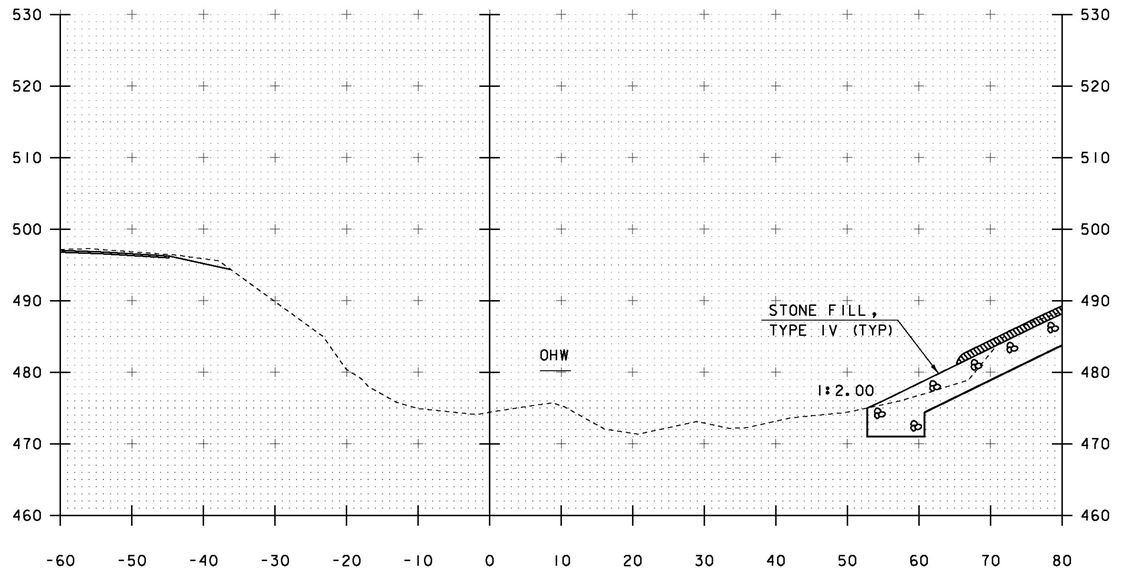
10+25



10+60



10+00



10+50

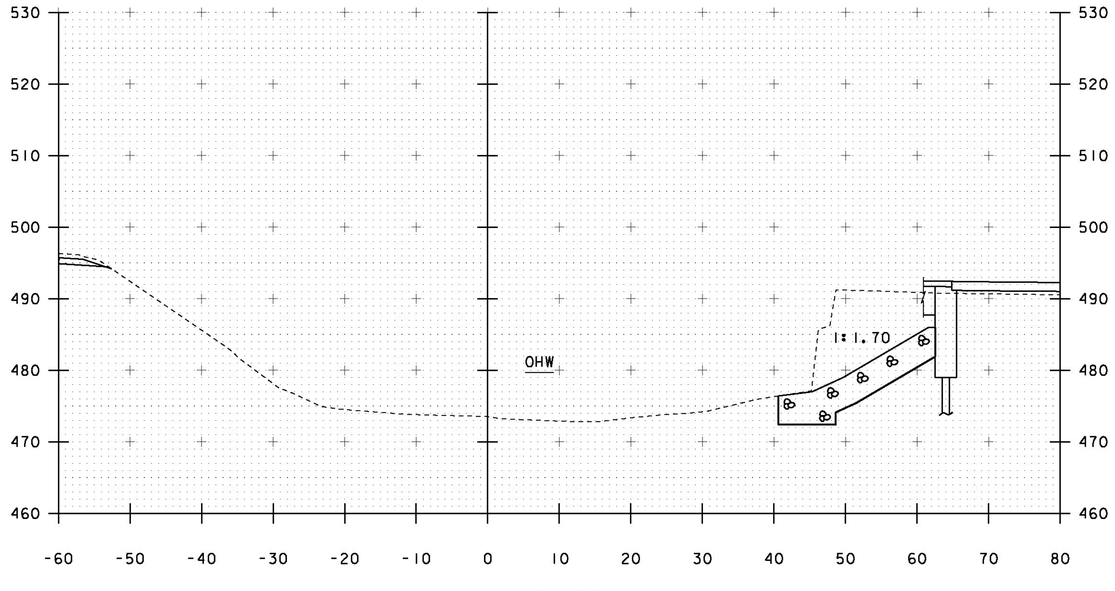
STA 10+46 RT. (ABUT #2)
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
BEGIN STONE FILL, TYPE IV
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN GRUBBING MATERIAL

STA. 10+00 TO STA. 10+60

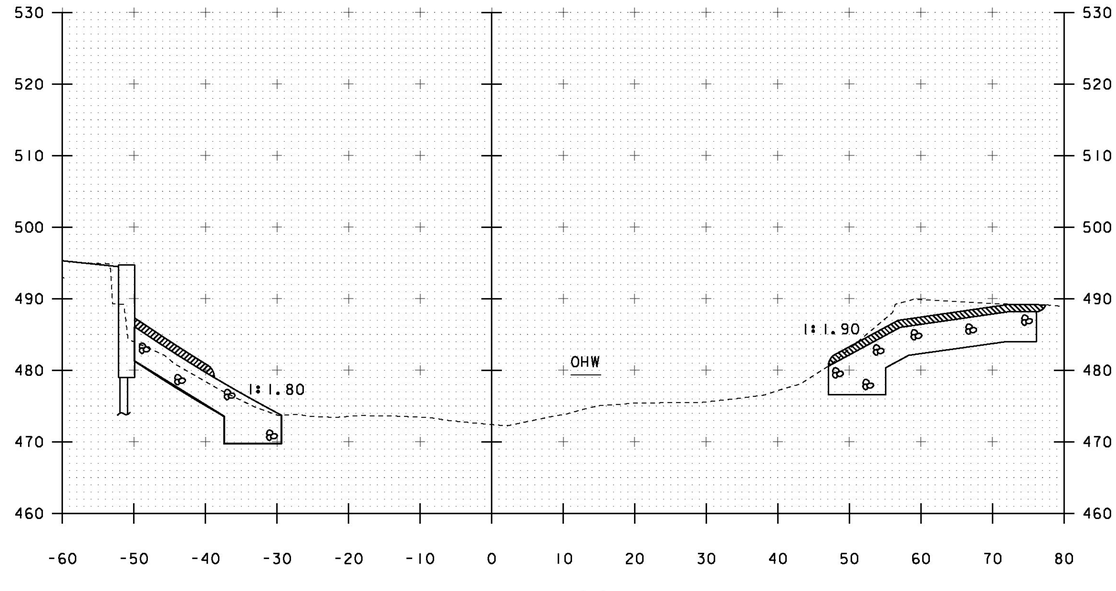
PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352xs2.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
CHANNEL SECTIONS #1

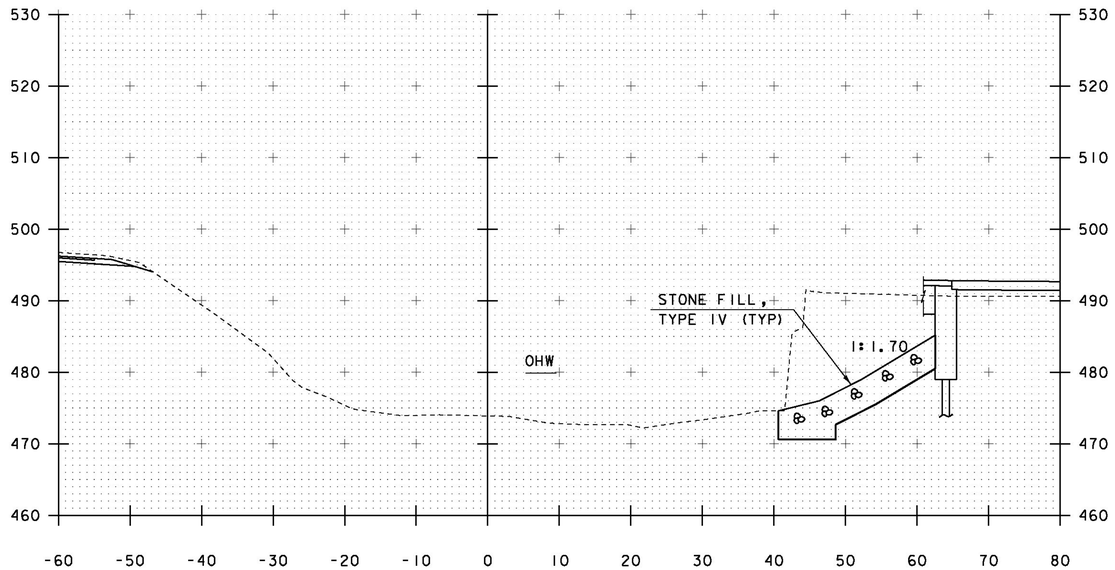
PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 57 OF 66



10+80

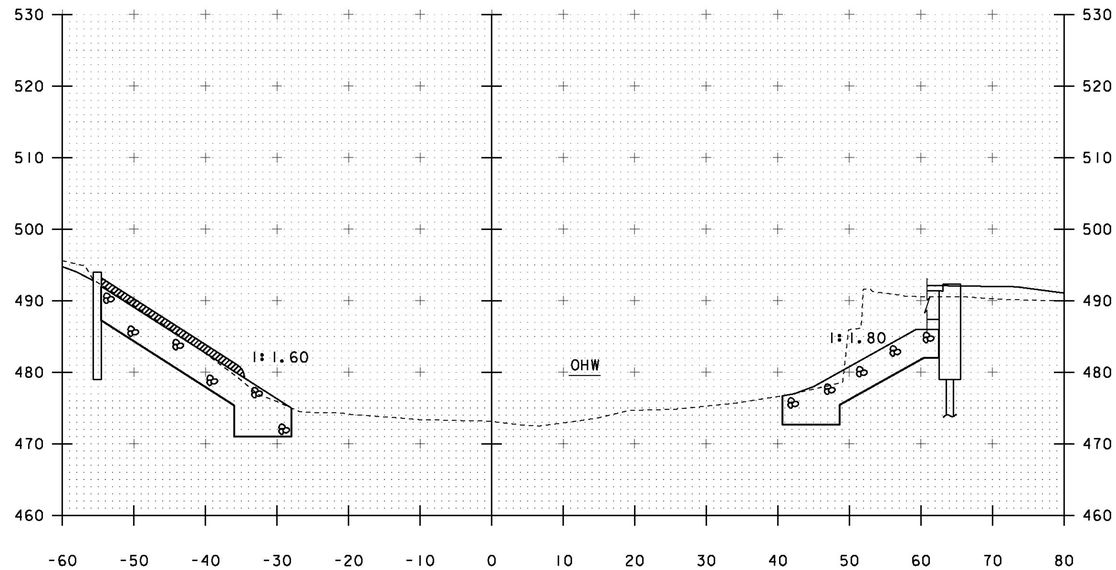


11+00



10+70

RT. (ABUT #2)
END GRUBBING MATERIAL 10+71 RT.



10+90

RT. (ABUT #2)
BEGIN GRUBBING MATERIAL 10+92 RT.

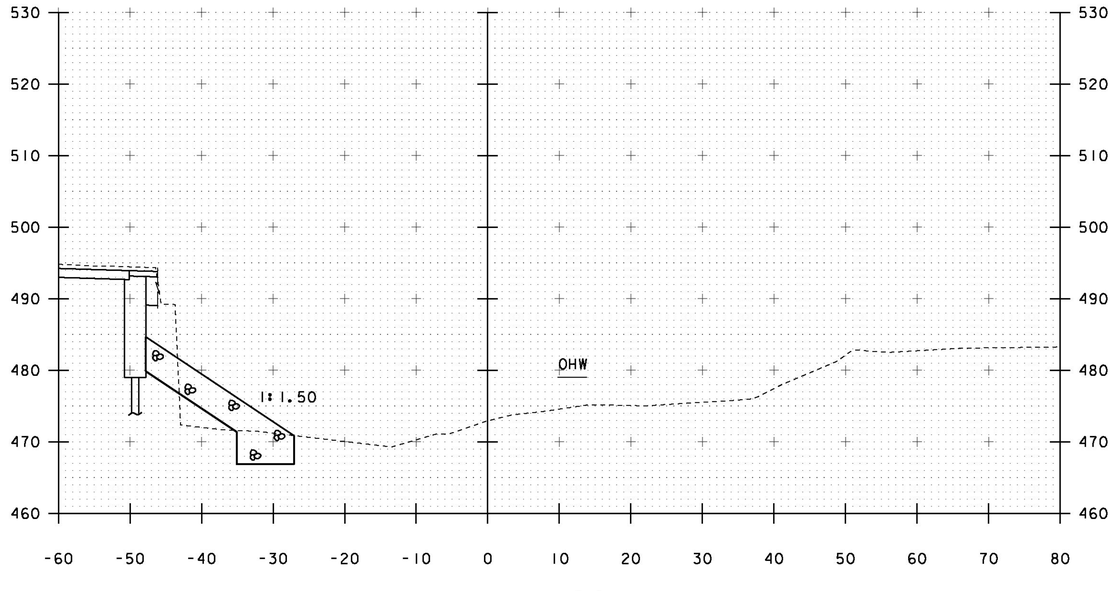
STA 10+82 RT. (ABUT #1)
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
BEGIN STONE FILL, TYPE IV
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN GRUBBING MATERIAL
END GRUBBING MATERIAL 11+03 LT.

STA. 10+70 TO STA. 11+00

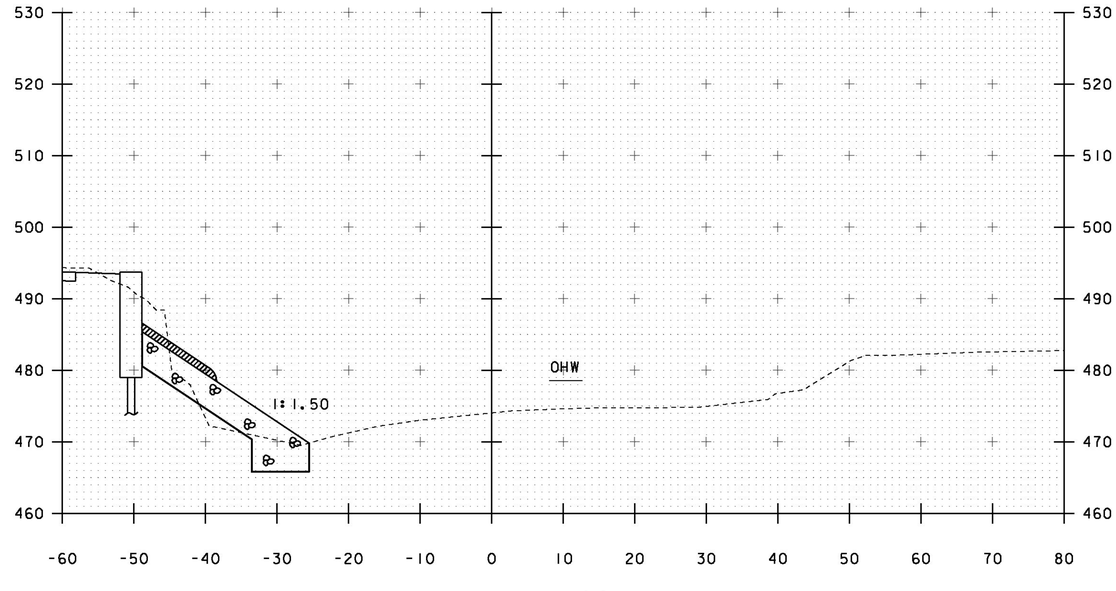
PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352xs2.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
CHANNEL SECTIONS #2

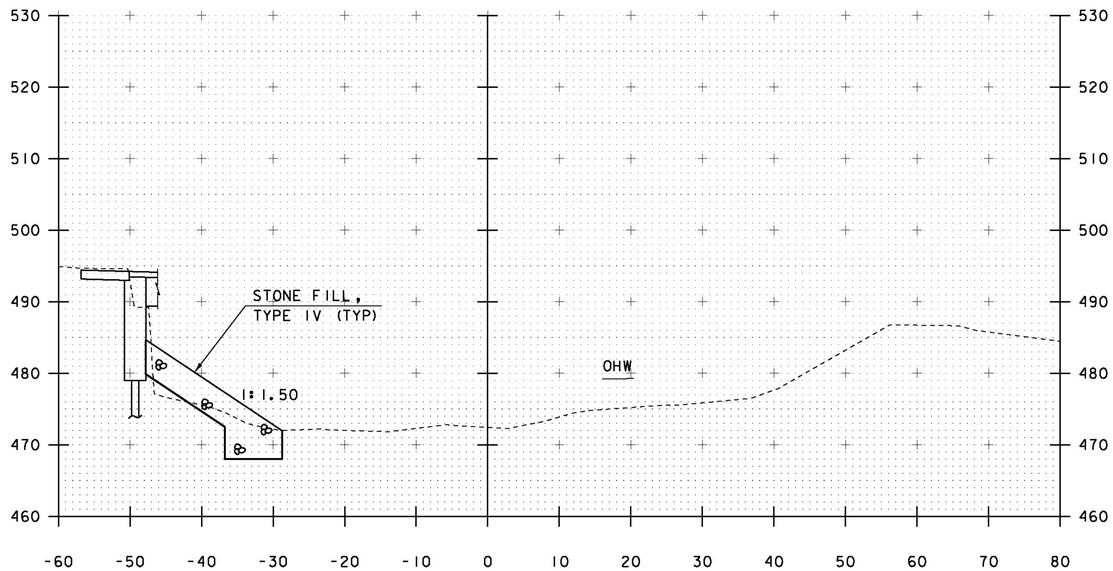
PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 58 OF 66



11+20



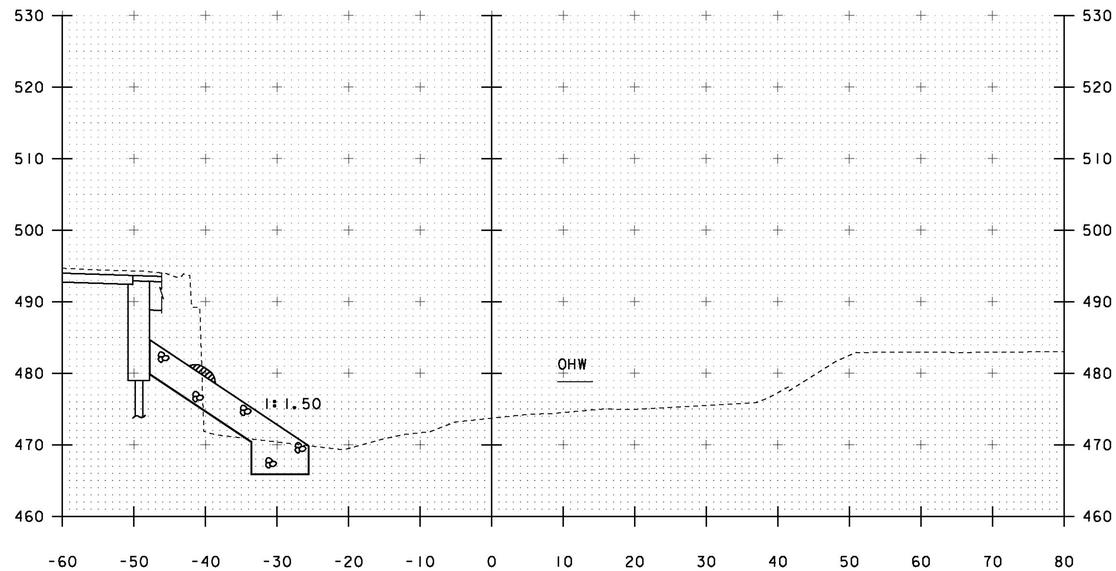
11+40



11+10

STA 11+09 RT. (ABUT #2)
END UNCLASSIFIED CHANNEL EXCAVATION
END STONE FILL, TYPE IV
END GEOTEXTILE UNDER STONE FILL
END GRUBBING MATERIAL

LT. (ABUT #1)
BEGIN GRUBBING MATERIAL 11+23 LT.



11+30

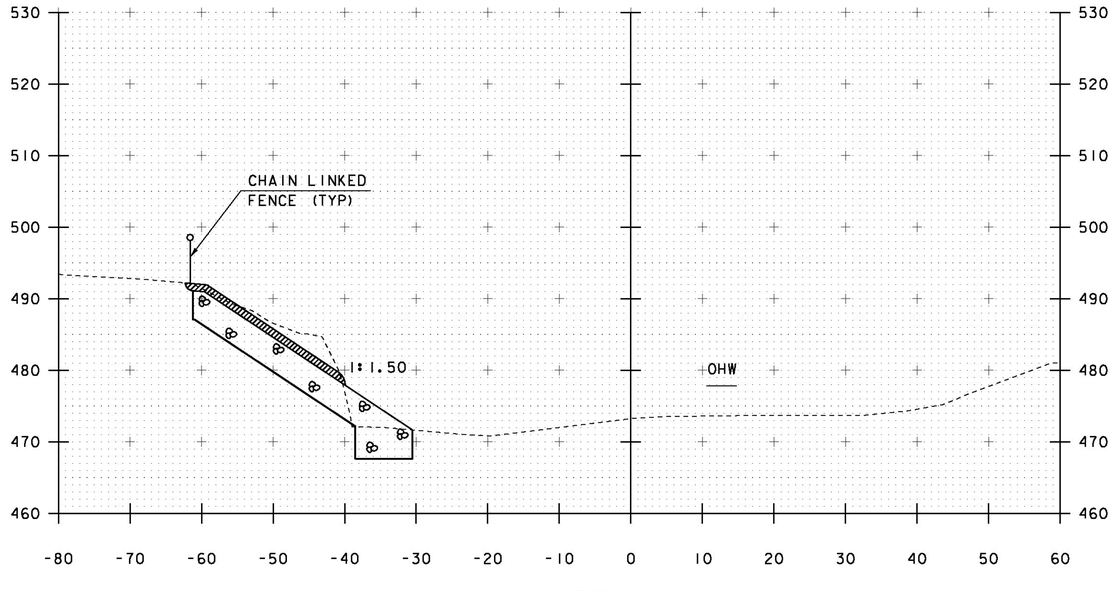
STA. 11+10 TO STA. 11+40

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

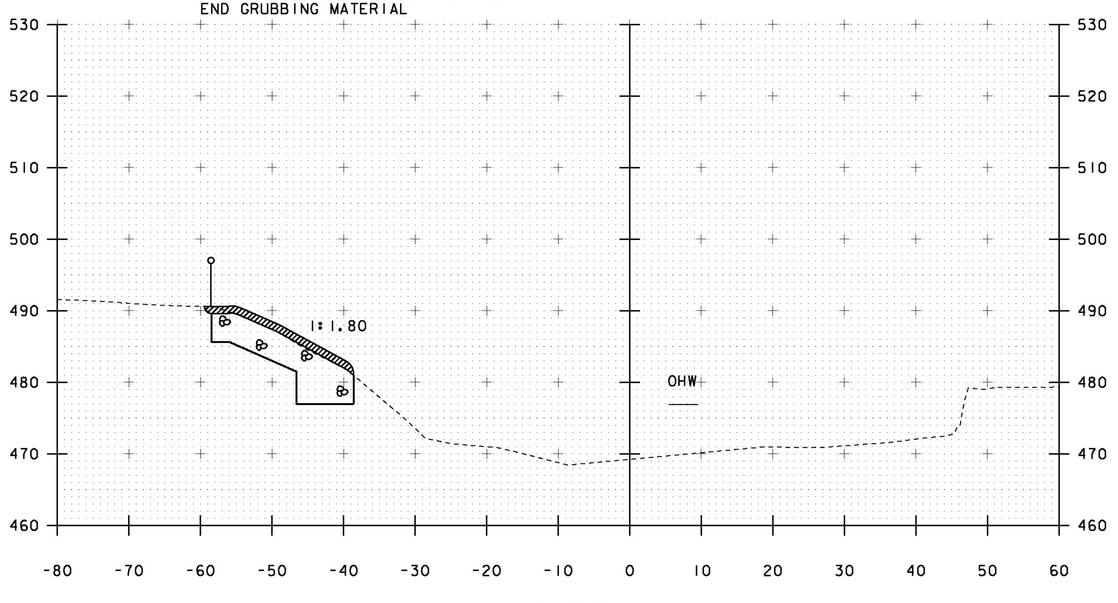
FILE NAME: s05j352xs2.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
CHANNEL SECTIONS *3

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 59 OF 66

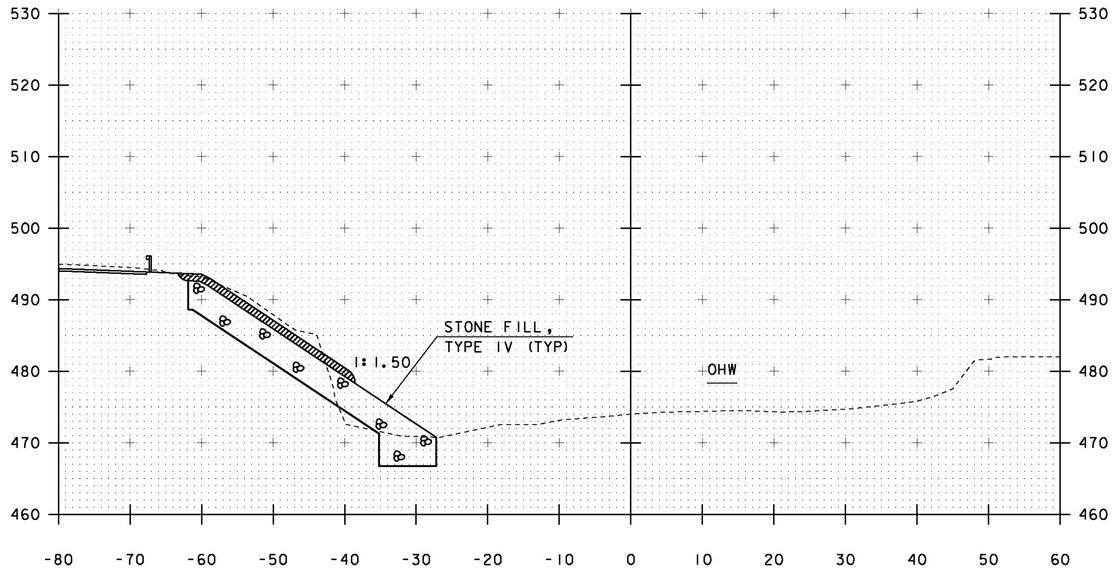
STA 12+27 LT. (ABUT #1)
END UNCLASSIFIED CHANNEL EXCAVATION
END STONE FILL, TYPE IV
END GEOTEXTILE UNDER STONE FILL
END GRUBBING MATERIAL



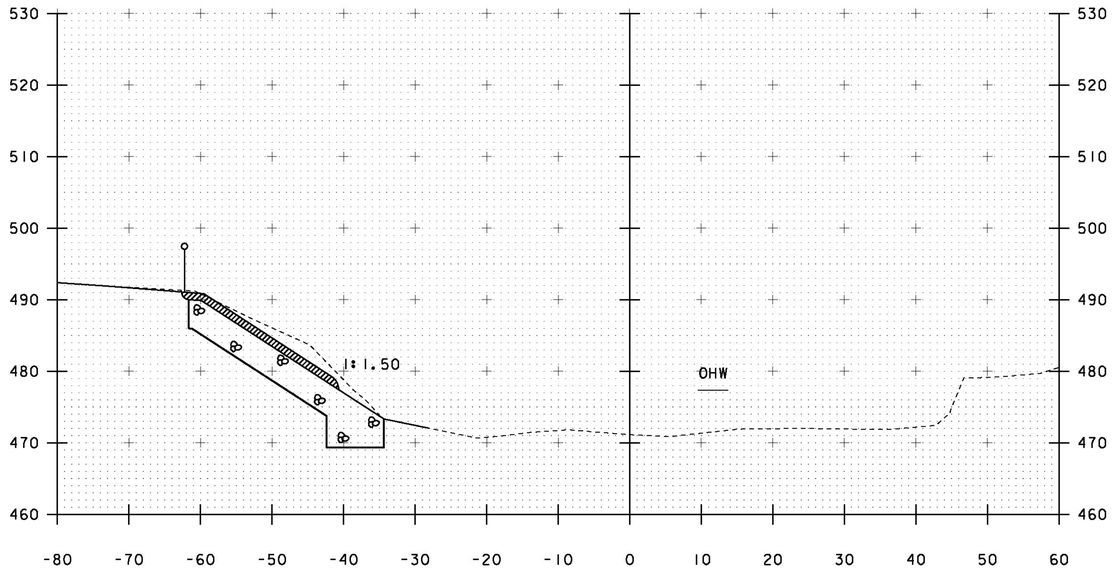
11+75



12+25



11+50



12+00

STA. 11+50 TO STA. 12+25

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352xs2.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
CHANNEL SECTIONS #4	SHEET 60 OF 66

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE 31 ON TH 5 (SOUTH STREET), APPROXIMATELY 0.2 MILES SOUTHWEST OF THE INTERSECTION OF TOWN HIGHWAY 5 AND VT RTE. 17 IN THE TOWN OF BRISTOL, VERMONT. THE REPLACEMENT WILL BE ON THE EXISTING ALIGNMENT AND INCLUDE RELATED CHANNEL AND APPROACH WORK. THE NEW STRUCTURE WILL BE 122.20 FEET IN LENGTH OVER THE NEW HAVEN RIVER.

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

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.57 ACRES.

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

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS MOSTLY A RESIDENTIAL AREA WITH SOME FORESTED AREAS AND STEEP SLOPES DOWN TO THE RIVER. THERE ARE RESIDENCES ON THE WEST SIDE OF THE PROJECT.

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

THE NEW HAVEN RIVER AND STORM DRAINS ARE THE ONLY WATER SOURCES ON THE PROJECT SITE. THE RIVER IS CLASSIFIED AS INCISED WITH STEEP UNSTABLE BANKS. THE STREAM BEDS ARE ROCK, SAND AND COBBLES.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING BRIDGE. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE IV 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 ADDISON, VERMONT. SOILS ON THE PROJECT SITE ARE THE FOLLOWING:

COLTON GRAVELLY SANDY LOAM 0% TO 5% SLOPES

COLTON GRAVELLY SANDY LOAM 30% TO 50% SLOPES

K-VALUES FACTOR FOR:

COLTON GRAVELLY SANDY LOAM IS 0.24

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

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: YES
HISTORICAL OR ARCHEOLOGICAL AREAS: YES
THE HISTORIC HOUSE WILL NOT BE DISTURBED
THE HISTORIC BRIDGE WILL BE REMOVED
THERE ARE ARCHEOLOGICAL AREAS WITHIN THE PROJECT LIMITS; THESE AREAS SHALL NOT BE DISTURBED, INCLUDING FILL OVER ANY PART OF THE SITE, DURING CONSTRUCTION. TEMPORARY FENCING WILL BE USED TO PROTECT THE SITE DURING CONSTRUCTION.
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: NEW HAVEN RIVER & STORM DRAINS
WETLANDS: NO

1.3 RISK EVALUATION

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

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

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

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

1.4.1 MARK SITE BOUNDARIES

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

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES AS SHOWN ON EPSC PLANS.

BARRIER FENCE SHALL BE USED TO MARK HISTORICAL AND ARCHEOLOGICAL AREAS NOT TO BE DISTURBED AS SHOWN ON EPSC PLANS.

1.4.2 LIMIT DISTURBANCE AREA

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

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

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

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

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

1.4.4 INSTALL SEDIMENT BARRIERS

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

INSTALL SILT FENCE AS PROPOSED ON THE EPSC PLAN.

INSTALL FILTER CURTAIN AS PROPOSED ON THE EPSC PLAN.

INSTALL FILTER FABRIC DROP INLET PROTECTION AS PROPOSED ON THE EPSC PLAN.

1.4.5 DIVERT UPLAND RUNOFF

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

THE PROJECT AREA IS REALTIVELY FLAT. THERFORE IT IS NOT ANTICPIATED THAT DIVERSION MEASURES WILL BE NECESSARY.

1.4.6 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH PERMIT CONDITIONS.

INSTALL DROP INLET(S), STONE PAD(S) AND CARRIER PIPES AS PROPOSED ON THE DRAINAGE LAYOUT SHEET.

INSTALL STONE FILL AS PROPOSED ON THE EPSC PLAN.

1.4.7 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.

1.4.8 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.

1.4.9 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.

1.4.10 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.

1.4.11 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.

1.5.3 UPDATES

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445 (32)

FILE NAME: s05j352epsc_nar.dgn		PLOT DATE:	04-JUN-2013
PROJECT LEADER:	K. HIGGINS	DRAWN BY:	R. PELLETT
DESIGNED BY:	G. LAROCHE	CHECKED BY:	J. SALVATORI
EPSC NARRATIVE		SHEET	61 OF 66

C+A - COLTON GRAVELLY SANDY LOAM
WITH 0% TO 5% SLOPES
"K FACTOR" = 0.24

STREAM BED MATERIAL

C+A - COLTON GRAVELLY SANDY LOAM
WITH 0% TO 5% SLOPES
"K FACTOR" = 0.24

N

VT STATE PLANE GRID

EXISTING R.O.W.

EXISTING R.O.W.

TO LOWER NOTCH RD.
TO NEW HAVEN

50+00

NEW HAVEN RIVER FLOW

FLOOD PLAIN

HABITAT

ARCH

REMOVE & REPLACE(T)

CONST(T)

SR(T)

CHANNEL(P)

51+00

C+E - COLTON GRAVELLY SANDY LOAM
WITH 30% TO 50% SLOPES
"K FACTOR" = 0.24

HISTORIC

INSTALL & MAINT(P)

MAIN HILL ROAD (DEAD END)
(PRIVATE)

2+75

2+00

APPROACH(T)

4:55

CUL.DR(P)

CHANNEL(P)

52+00

53+00

5+00

APPROACH(T)

INSTALL & MAINT(P)

5+62

PUMPHOUSE ROAD (DEAD END)
(PRIVATE)

UTIL(P)

C+A - COLTON GRAVELLY SANDY LOAM
WITH 0% TO 5% SLOPES
"K FACTOR" = 0.24

TO MAIN STREET
BRISTOL

55+00

55+50

SOUTH STREET

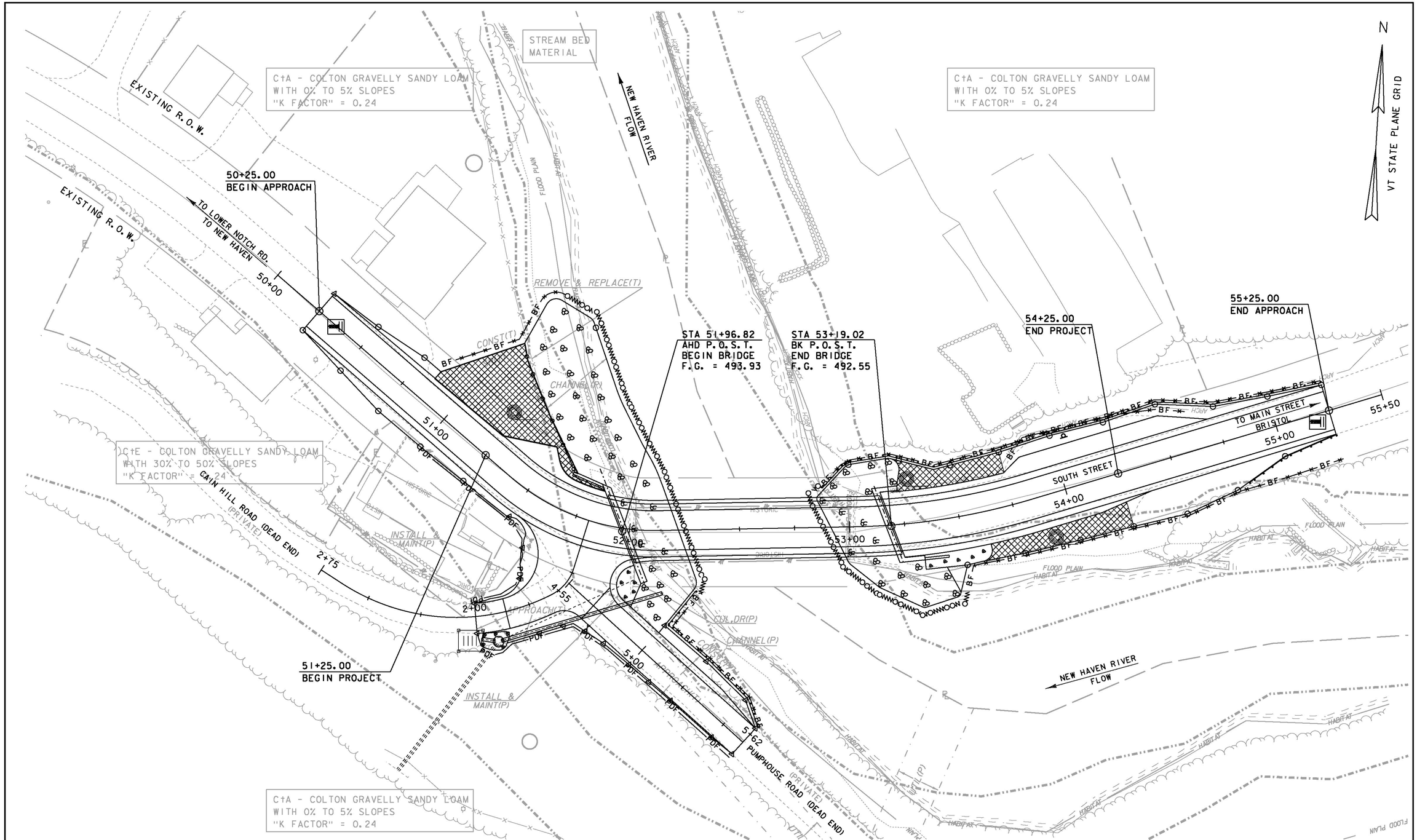
54+00

EPSC - EXISTING CONDITIONS

SCALE 1" = 20'-0"

20 0 20

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352epsc-ex.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: J. SALVATORI
EPSC - EXISTING CONDITIONS	SHEET 62 OF 66

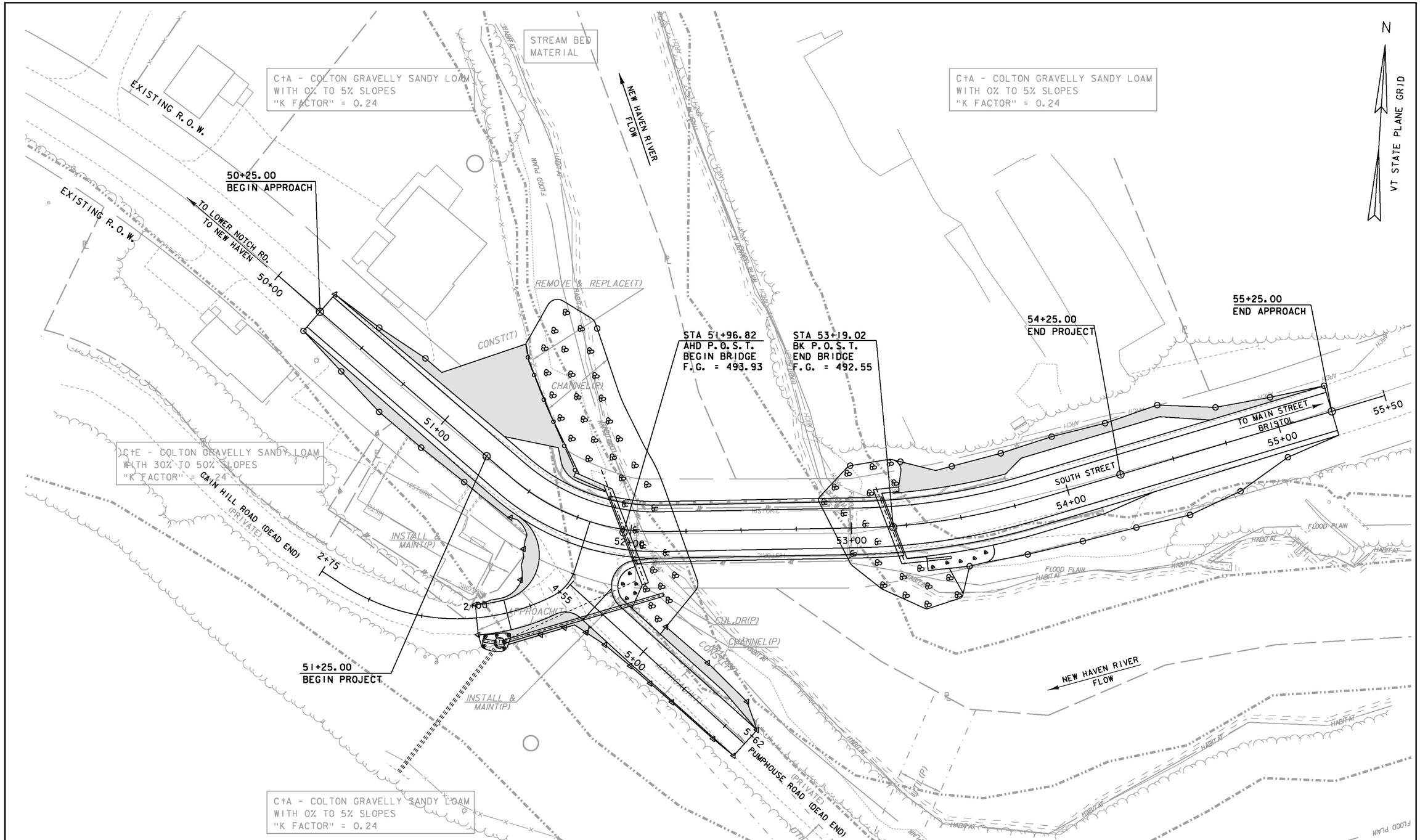


EPSC - DURING CONSTRUCTION

SCALE 1" = 20'-0"

20 0 20

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352epsc-dur.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: J. SALVATORI
EPSC - DURING CONSTRUCTION	SHEET 63 OF 66

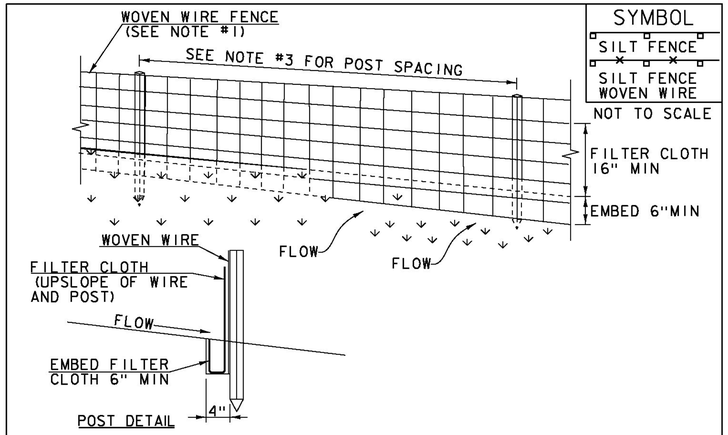


EPSC - FINAL CONDITIONS

SCALE 1" = 20'-0"

20 0 20

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352epsc-fin.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: J. SALVATORI
EPSC - FINAL CONDITIONS	SHEET 64 OF 66



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.

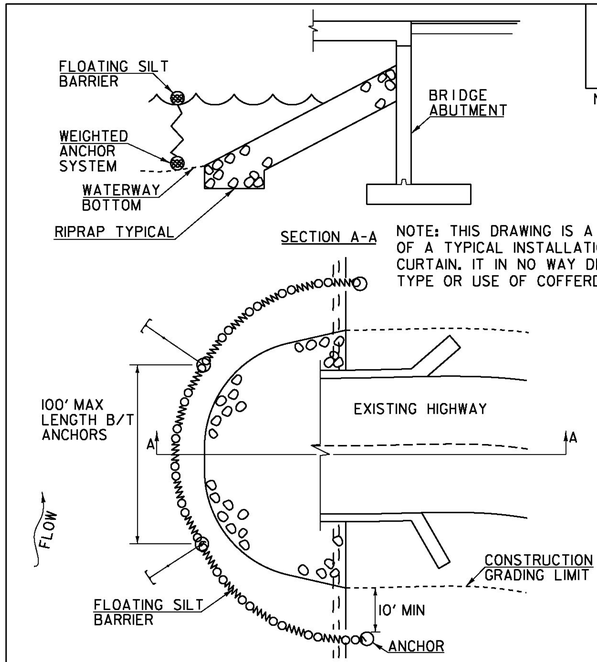
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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

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

CONSTRUCTION SPECIFICATIONS

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

FILTER CURTAIN

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

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

EPSC LAYOUT PLAN SYMBOLOGY LEGEND

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

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

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

ARCHEOLOGICAL & HISTORIC
- ARCH ARCHEOLOGICAL BOUNDARY
- HISTORIC DIST HISTORIC DISTRICT BOUNDARY
- HISTORIC HISTORIC AREA
- (H) HISTORIC STRUCTURE

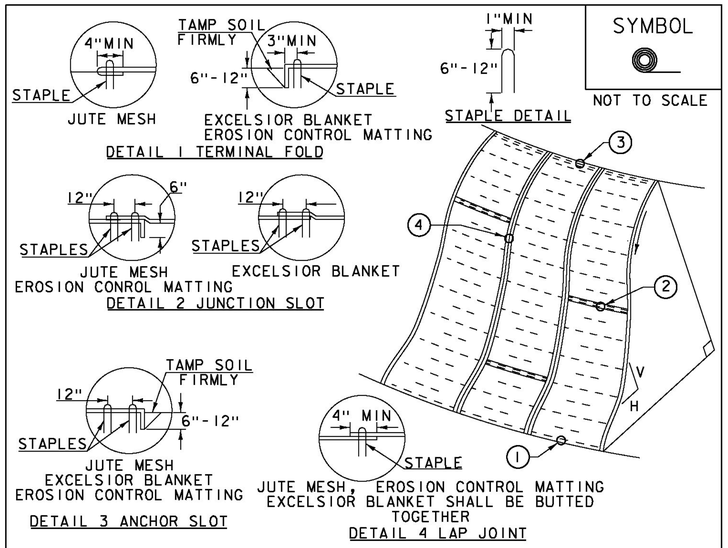
UTILITY SYMBOLOGY
- AER E&T — AREAL ELECTRIC & TELEPHONE
- E — AREAL ELECTRIC
- UE — UNDERGROUND ELECTRIC
- UT — UNDERGROUND TELEPHONE
- UC — UNDER GROUND TV
- G — GAS LINE
- W — WATER LINE

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

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352EPSC_details.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
EPSC DETAILS - #1

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: J. SALVATORI
SHEET 65 OF 66



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

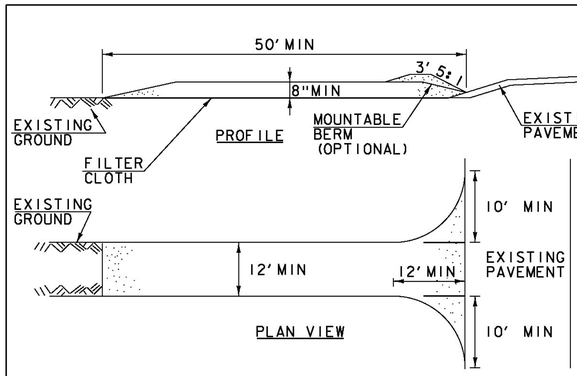
1. APPLY TO SLOPES GREATER THAN 3H: IV OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER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

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

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

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

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE 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

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

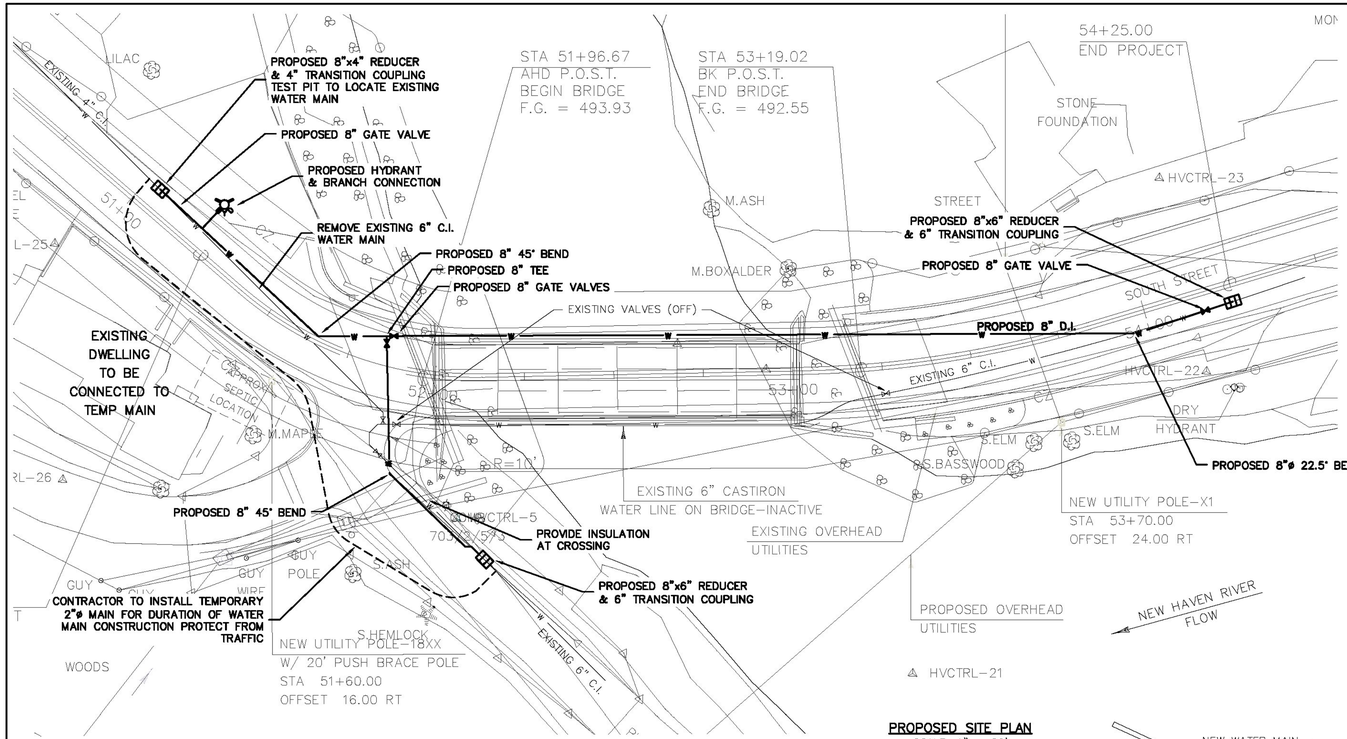
TURF ESTABLISHMENT

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

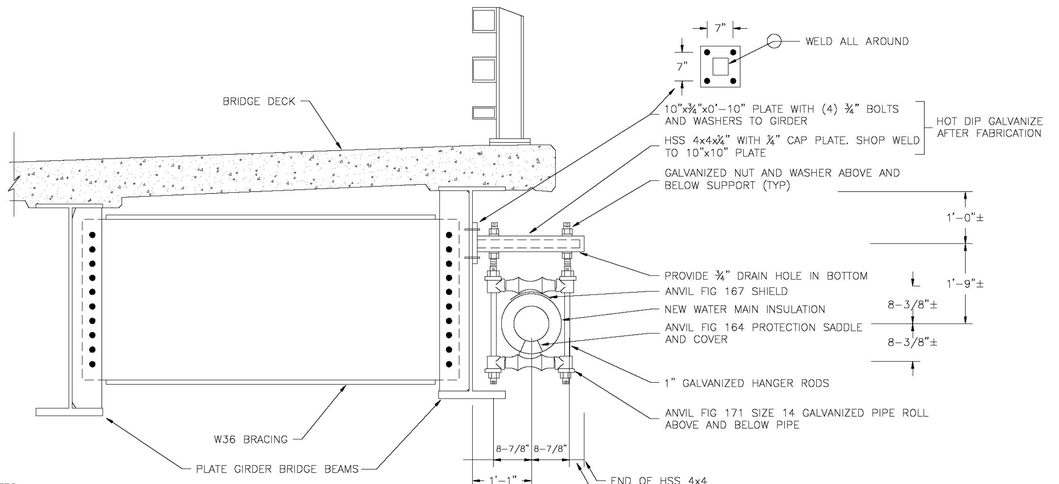
PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352EPSC_details.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
EPSC DETAILS - #2

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: J. SALVATORI
SHEET 66 OF 66



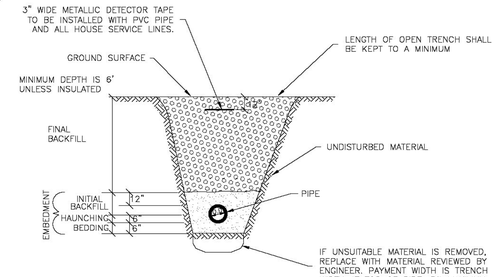
PROPOSED SITE PLAN
SCALE: 1" = 20'



NOTES:

1. ALL BOLTS, NUTS, WASHERS, AND OTHER HARDWARE RELATED TO THE WATER MAIN SUPPORT SHALL BE HOT DIPPED GALVANIZED.
2. STEEL PLATES SHALL BE ASTM A36 STEEL
3. STEEL TUBES SHALL BE ASTM A500, GRADE B, Fy = 46ksi

SECTION (1/32)
SCALE: ¾" = 1'-0"±



TYPICAL TRENCH DETAIL BURIED WATER PIPE
SCALE: NONE

TRENCH NOTES

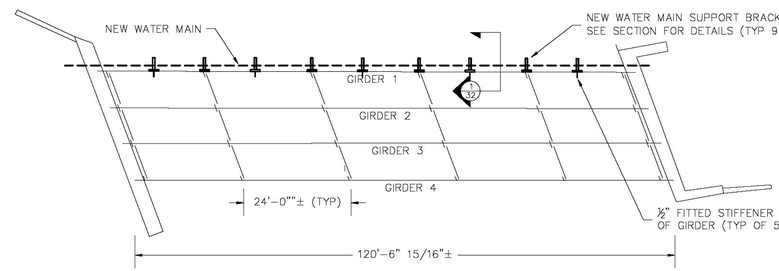
1. NO MECHANICAL TAMPERS SHALL BE USED DIRECTLY OVER PIPE TO INSURE THE PIPE IS NOT DAMAGED.
2. ROCK EXCAVATION PAY LIMITS:
   ROCK EXCAVATION PAYMENT IS INCLUDED IN ITEM 203.16
3. EMBEDMENT MATERIALS SHALL BE TESTED AND SHOWN BY THE CONTRACTOR TO MEET THE REQUIREMENTS OF SPEC. SECTION 203.
4. MATERIALS SHALL BE PLACED IN MAXIMUM 6in LAYERS AND COMPACTED TO ACHIEVE NOT LESS THAN 90% (95% IN ROADS) OF MAXIMUM DENSITY (STANDARD PROCTOR DENSITY).
5. FINAL BACKFILL (SUITABLE MATERIALS) SHALL NOT CONTAIN ANY STONES MORE THAN 12in IN LARGEST DIMENSION, BE GREATER THAN 50lbs, OR CONTAIN ANY FROZEN, WET, OR ORGANIC MATERIALS.
6. WIDTH OF TRENCH AT SURFACE SHALL BE KEPT AS NARROW AS PRACTICAL.
7. PAYMENT UNDER THE ITEMS OF WORK SPECIFIED IN THE CONTRACT DOCUMENTS IS TO THE LIMITS SHOWN.
8. TRENCHES SHALL BE COMPLETELY DEWATERED PRIOR TO PLACEMENT OF PIPE BEDDING MATERIAL AND BE KEPT DEWATERED DURING INSTALLATION OF PIPE, EMBEDMENT MATERIALS, AND INITIAL BACKFILL.
9. PERMANENT SHEETING SHALL BE INSTALLED ONLY IF REQUIRED BY JOB CONDITIONS.
10. SEE SPECIFICATIONS SECTION 200 EARTHWORK FOR MORE COMPLETE MATERIALS SPECIFICATION.

THE FOLLOWING EMBEDMENT MATERIALS MAY BE USED FOR D.I.

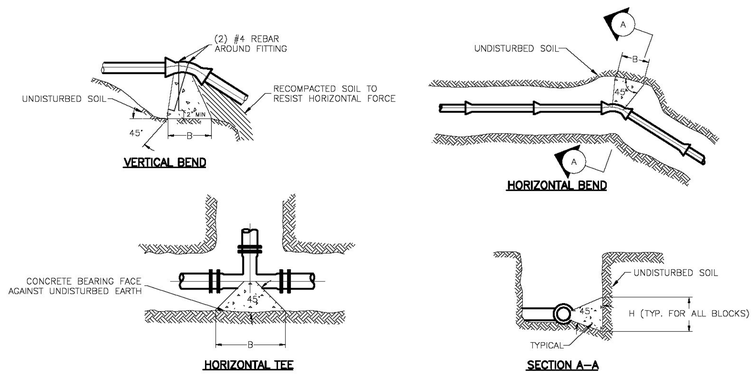
MANUFACTURED GRANULAR MATERIAL, MAXIMUM PARTICLE SIZE = 1½"

COARSE SANDS AND GRAVELS, MAXIMUM PARTICLE SIZE OF 1½", GENERALLY GRANULAR AND NON-COHESIVE.

MIXED GRAIN SOILS: FINE SAND AND CLAYEY GRAVELS, INCLUDING FINE SANDS, SANDY-CLAY MIXTURES AND GRAVEL-CLAY MIXTURES. MAXIMUM PARTICLE SIZE = 1½".



WATER MAIN SUPPORT LOCATION PLAN (1/32)
SCALE: 1/8" = 1'-0" ±



TYPICAL BEARING THRUST BLOCK DETAILS AND SECTION
SCALE: NONE

NOTES:
1. ALL THRUST BLOCKS SHALL BE CLASS "B" CONCRETE, SEE SPEC. SECTION 541
2. CONCRETE SHALL BE PLACED SO AS NOT TO HAMPER THE FUTURE REMOVAL OF A FITTING.
3. WRAP FITTINGS IN (2) LAYERS POLYETHYLENE PLASTIC SHEET PRIOR TO FORMING AND POURING THRUST BLOCK.

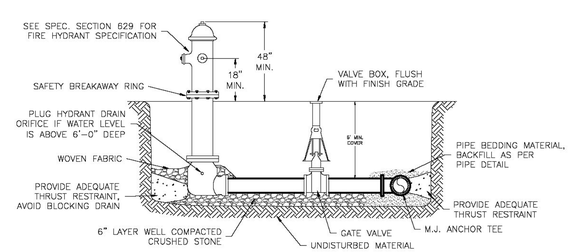
MINIMUM BEARING FACE "HEIGHTS AND WIDTHS" FOR CONCRETE THRUST BLOCKS (TEST PRESSURE = 250 PSI)[1]

BEARING FACE MATERIALS[2]	PIPE/INC SIZE	HEIGHT (H) AND WIDTH (B) OF BEARING FACE FOR FITTING TO BE RESTRAINED [3] 11-1/4° BEND H	B	22-1/2° BEND H	B	45° BEND H	B	90° BEND H	B	TEES & PLUGS H	B	WYES H	B
WELL GRADED SANDS AND GRAVEL	4"ø & 6"ø	1.30	1.30	1.30	1.30	1.30	1.95	1.65	2.60	1.30	2.30	1.30	1.95
	8"ø	1.30	1.30	1.30	1.25	1.65	2.60	1.95	3.55	1.95	2.60	1.65	2.60
	10"ø	1.30	1.30	1.65	1.95	1.95	3.25	2.60	4.20	2.60	2.90	1.95	3.25
	12"ø	1.30	1.95	1.65	2.60	2.60	3.25	2.90	5.20	2.90	3.90	2.60	3.25
	16"ø	1.95	1.95	2.30	2.60	4.20	3.90	5.20	3.25	4.55	2.60	4.20	
SILT	4"ø & 6"ø	1.30	1.30	1.30	1.30	1.30	2.30	1.65	3.25	1.95	1.95	1.30	2.30
	8"ø	1.30	1.30	1.30	1.95	1.95	2.60	2.30	4.20	2.30	2.90	1.95	2.60
	10"ø	1.30	1.65	1.65	2.60	2.30	3.55	3.25	4.55	2.30	4.55	2.30	3.55
	12"ø	1.30	2.30	2.30	2.60	2.30	5.20	3.25	6.45	3.25	4.55	2.30	5.20
	16"ø	1.95	1.95	2.30	3.55	2.90	5.20	4.20	6.45	3.55	5.50	2.65	5.20
COHESIVE GRANULAR	4"ø & 6"ø	1.30	1.30	1.30	1.30	1.30	2.60	1.95	3.25	1.95	2.30	1.30	2.60
	8"ø	1.30	1.30	1.30	2.30	1.95	2.90	2.60	4.20	1.95	3.90	1.95	2.90
	10"ø	1.30	1.95	1.65	2.90	2.60	3.55	3.25	5.20	2.60	4.55	2.60	3.55
	12"ø	1.30	2.60	2.30	2.90	2.60	5.20	3.90	6.15	3.25	5.20	2.60	5.20
	16"ø	1.95	2.30	2.30	3.90	3.25	5.50	4.55	7.10	3.90	5.85	3.25	5.50
CLAY	4"ø & 6"ø	1.30	1.30	1.30	1.30	1.30	2.60	2.30	2.60	1.65	2.60	1.30	2.60
	8"ø	1.30	1.30	1.30	2.30	1.95	2.90	2.30	4.55	1.95	3.90	1.95	2.90
	10"ø	1.30	1.95	1.60	2.90	2.30	3.90	2.90	5.50	2.90	3.90	2.30	3.90
	12"ø	1.30	2.60	1.95	3.25	2.60	4.85	3.55	6.45	2.90	5.50	2.60	4.85
	16"ø	1.95	2.30	2.30	3.90	3.25	5.20	4.20	7.45	3.90	5.85	3.25	5.20

1. HYDROSTATIC AND LEAKAGE TEST PRESSURE PER SPECIFICATIONS.
2. UNDISTURBED EARTH: SIDE OF TRENCH OR OTHER EXCAVATION.
3. SEE DIAGRAM FOR H AND B LOCATION REFERENCE. MEASURED IN FEET.

NOTE: CONTRACTOR SHALL PROVIDE THRUST RESTRAINT DEVICES, SUCH AS "GRIPPER RINGS" OR RETAINER GLANDS, IN THE THRUST BLOCK DETAILS SHOWN ABOVE.

GRAPHIC SCALE
-20 0 10 20 40
(IN FEET)
1 inch = 20 ft.



TYPICAL HYDRANT DETAIL
SCALE: NONE

NOTES:

1) HYDRANT SHALL BE FULLY EXPOSED, OPEN LEFT, AND HAVE (2) 2½" NTS HOSE CONNECTIONS AND (1) 4" PUMPER CONNECTION. HYDRANT SHALL BE 5½" PACER BY AMERICAN FLOW CONTROL, OR EQUAL. BRANCH PIPING SHALL BE 6"ø D.I. CL-52 AND GATE VALVE TO BE MODEL AFC-2500 BY AMERICAN FLOW CONTROL, OR EQUAL.
2) ALL BRANCH PIPING AND FITTINGS SHALL BE MECHANICAL JOINT.
3) HYDRANTS WHICH ARE INSTALLED WHERE THE NATURAL GROUND WATER TABLE IS ABOVE THE HYDRANT DRAIN ORIFICE SHALL HAVE THE DRAIN PLUGGED. HYDRANTS WITH PLUGGED DRAINS SHALL BE LABELED "ND" (FOR NON-DRAINING) IN 3" HIGH ORANGE PAINT LETTERS ON THE BONNET FACING THE ROAD.
4) THE SHORT BRANCH = 4'-0"

NOTES:

1. BRIDGE CROSSING IS TO BE CONSTRUCTED UTILIZING 8" TR-FLEX DUCTILE IRON PIPE OR EQUAL, AND IS TO BE INSULATED WITH 3" TRYMER 2000 XP PIPE INSULATION, PABCO-CHILDERS METALS 0.20" THICK ALUMINUM JACKET WITH STAINLESS STEEL BANDS AND ANVIL INT FIGURE #167 SHIELDS OR EQUIVALENT, APPROVED PRODUCTS. REFER TO THE WATER MAIN SUPPORT LOCATION PLAN AND SECTION FOR FURTHER INFORMATION. PIPE JOINTS TO BE PROPERLY INSULATED AND JACKETED AS PER MANUFACTURERS RECOMMENDATIONS.
2. THE PROPERTY LINES, EASEMENTS, AND OTHER REAL PROPERTY DESCRIPTIONS PROVIDED ARE APPROXIMATE. THEY DO NOT DEFINE LEGAL RIGHTS OR MEET LEGAL REQUIREMENTS FOR A LAND SURVEY AS DESCRIBED IN 26.V.S.A(4). AND SHALL NOT BE USED IN LIEU OF A SURVEY AS THE BASIS OF ANY LAND TRANSFER OR ESTABLISHMENT OF ANY PROPERTY RIGHT.
3. THE BASE MAP FOR THIS PLAN WAS PROVIDED BY VAOT FROM DRAWING "s05j352utilbrd"
4. WATER MAINS (INCLUDING TEMPORARY MAINS) ARE TO BE FULLY DISINFECTED AND PRESSURE TESTED PRIOR TO CONNECTION TO THE EXISTING WATER SYSTEM.
5. STATIC PRESSURE IN EXISTING SYSTEM AT THIS LOCATION IS APPROX. 160psi

"I hereby certify in the exercise of my reasonable professional judgment, the design-related information submitted with this application is true and correct, and the design included in this application for a permit complies with the Vermont Water Supply Rules."

Alan Huizenga, P.E.

REV.#	DATE	DESCRIPTION	BY	CHK
1	02/20/13	AS PER VTRANS COMMENTS	RHW	

STATE OF VERMONT ALAN HUIZENGA NO. 6905 REGISTERED PROFESSIONAL ENGINEER

FILENAME: Bristol Bridge Crossing

GREEN MOUNTAIN ENGINEERING
CIVIL WATER WASTEWATER
WILLISTON, VERMONT 05495
PHONE: (802)862-5590
FAX: (802)862-7598

South Street Watermain Bridge Crossing

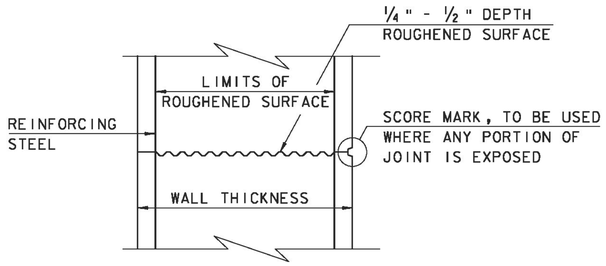
TOWN OF BRISTOL

BRISTOL, VERMONT

DESIGNED	AH
DRAWN	RHW
CHECKED	-
PLOT DATE	09/13/12
SCALE	AS SHOWN
DATE	SEPT. 2012
PROJECT NO.	22-001
DRAWING NO.	32

CONCRETE GENERAL NOTES

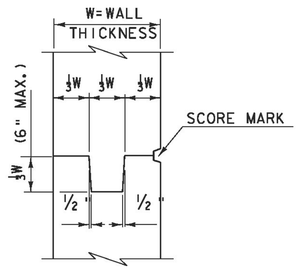
1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"



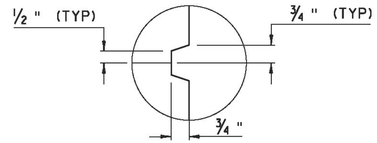
TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

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

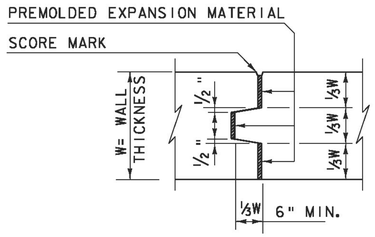
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



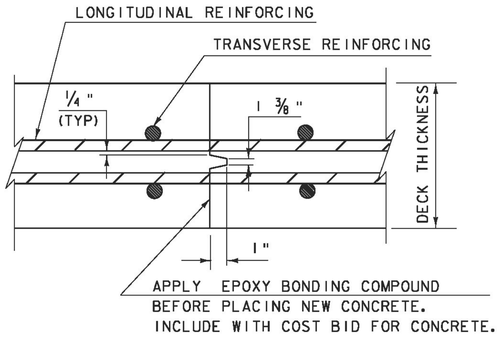
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



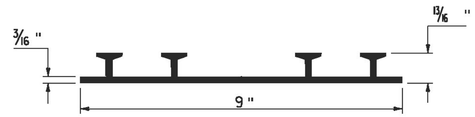
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



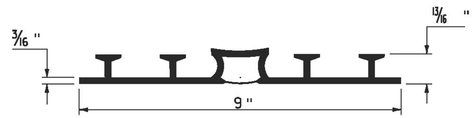
TRANSVERSE BRIDGE SLAB
CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



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

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

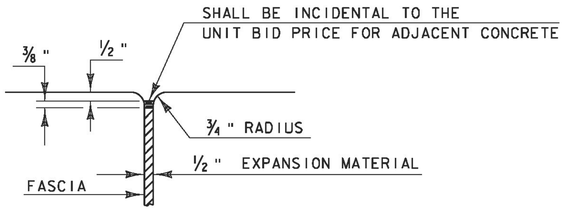
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



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

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

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



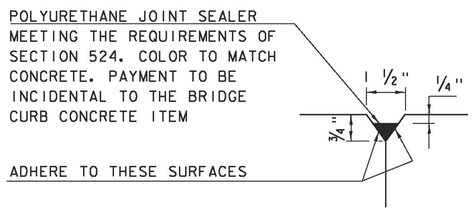
JOINT BETWEEN FASCIA
AND WINGWALL
(NOT TO SCALE)

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

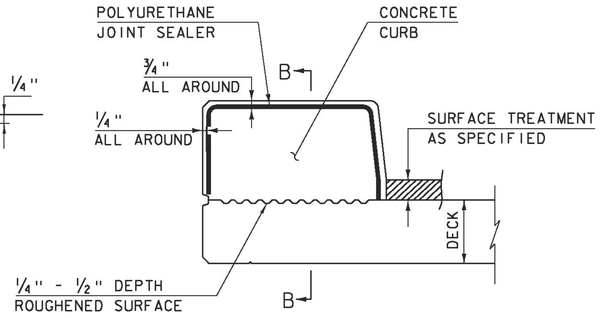
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

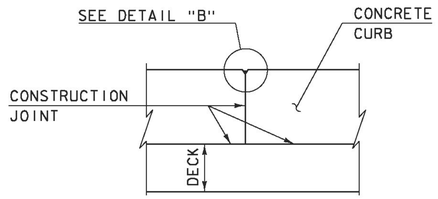
STRUCTURES
DETAIL
SD-501.00



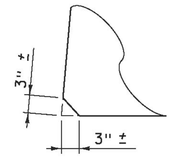
DETAIL "B"
(NOT TO SCALE)



CONCRETE CURB JOINT SECTION
(NOT TO SCALE)

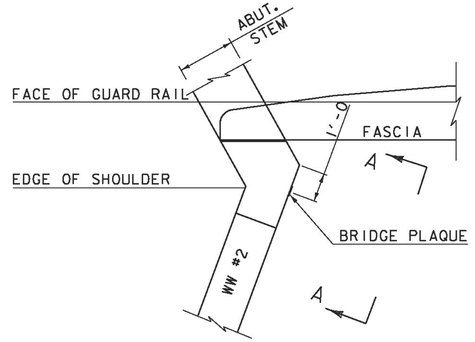


SECTION B - B
(NOT TO SCALE)



ACUTE ANGLE CLIP DETAIL
(NOT TO SCALE)

1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



PLAN

CONCRETE CURB JOINT NOTES

1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.

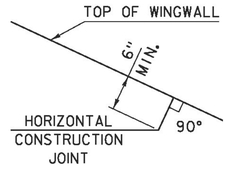
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.

3. ON MULTI-SPAN CONTINUOUS SUPERSTRUCTURES, REGARDLESS OF WHETHER APPROVED SHRINKAGE REDUCING ADMIXTURE IS USED, CURB JOINTS SHALL BE LOCATED OVER THE CENTERLINE OF PIERS AND 7'-0" EACH SIDE OF THE CENTERLINE OF EACH PIER.

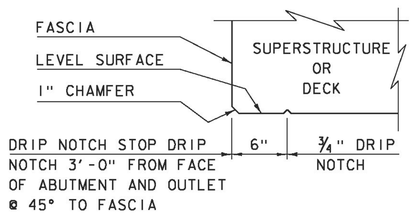
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.

5. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THROUGH CURB CONSTRUCTION JOINTS. CURB STIRRUP BARS SHALL BE TURNED AS NECESSARY TO MAINTAIN COVER IN THE FLARED CURB ENDS.

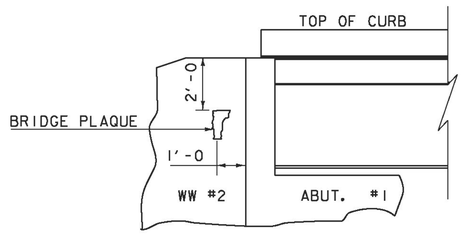
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



HORIZONTAL WINGWALL CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



VIEW "A - A"

BRIDGE PLAQUE
(NOT TO SCALE)

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

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

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

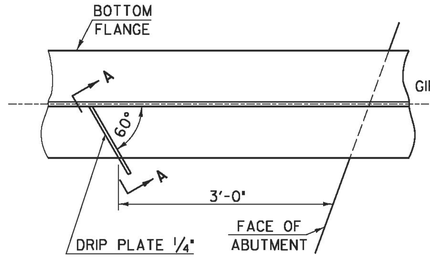
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

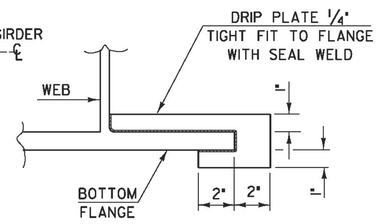
STRUCTURES DETAIL
SD-502.00

STRUCTURAL STEEL GENERAL NOTES:

1. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH-STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SUBSECTION 506.19, UNLESS OTHERWISE SPECIFIED.
2. ALL HOLES IN THE WEBS OF THE FASCIA GIRDERS THAT ARE NOT OTHERWISE FILLED, SHALL BE FILLED WITH EITHER BUTTON HEAD OR HEX HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.19.
3. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.
4. ANY CONNECTIONS THAT ARE NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
5. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.
6. ENDS OF GIRDERS ARE TO BE VERTICAL IN THEIR FINAL POSITION.
7. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF THE GIRDERS SHALL BE TAKEN AS DIRECTED BY THE RESIDENT ENGINEER FOR USE IN DETERMINING FINISHED GRADES.

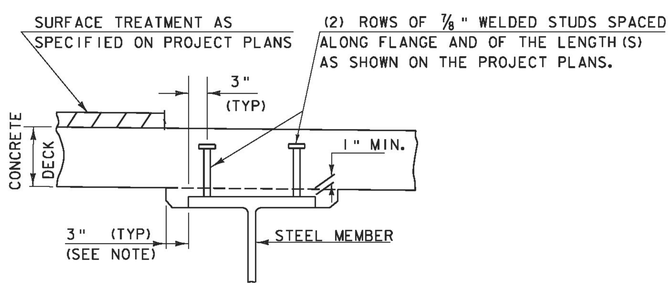


PLAN DRIP PLATE



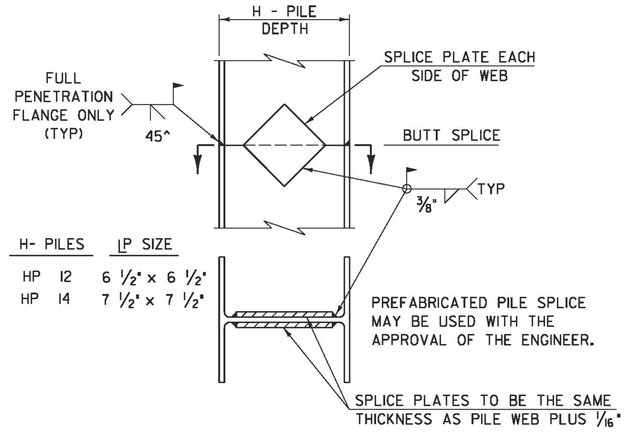
SECTION A - A

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



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

HAUNCH AND SHEAR CONNECTOR DETAIL



H- PILES	LP SIZE
HP 12	6 1/2" x 6 1/2"
HP 14	7 1/2" x 7 1/2"

DETAIL OF PILE SPLICE

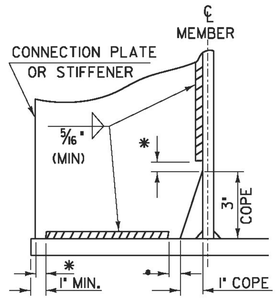
DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

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

STRUCTURAL STEEL DETAILS & NOTES

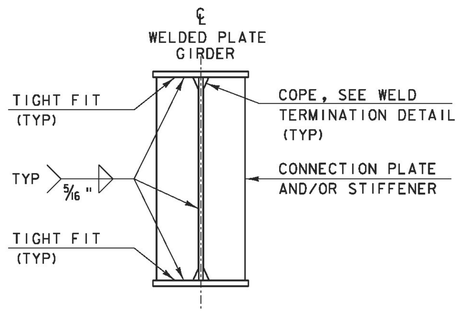
VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-601.00



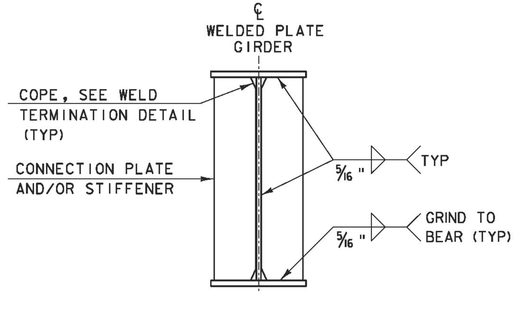
WELD TERMINATION AND COPING DETAILS FOR STEEL MEMBERS

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

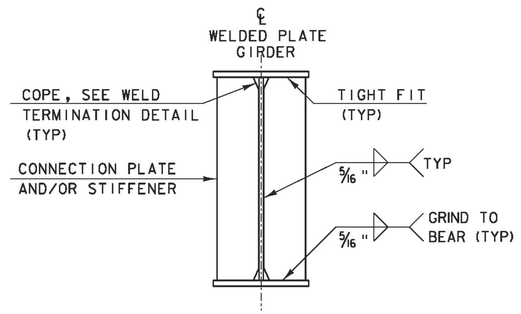


INTERMEDIATE CONNECTION PLATES AND/OR STIFFENERS FOR WELDED PLATE GIRDERS

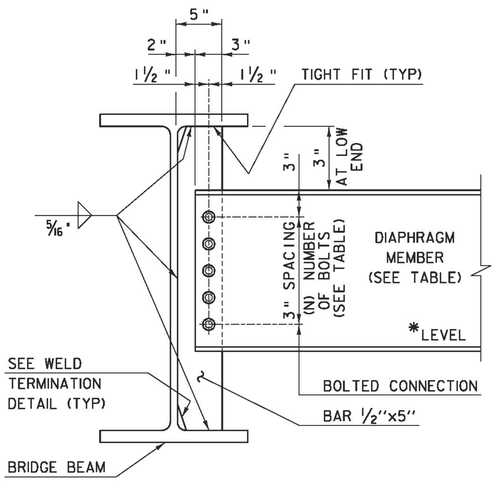
INTERMEDIATE DETAIL IS ONLY USED WHEN PLATE DOES NOT OCCUR AT AN ABUTMENT OR PIER.



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



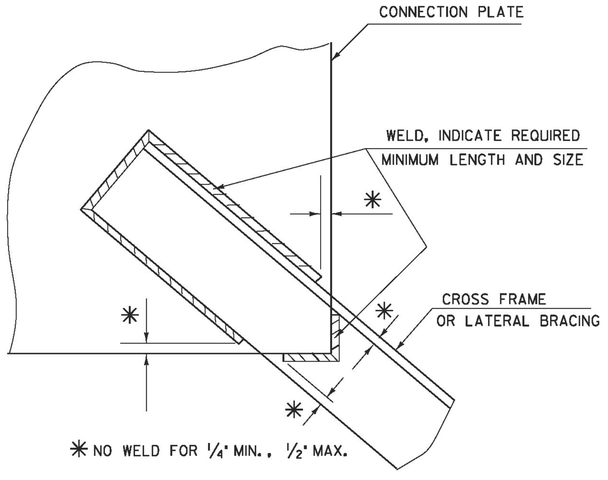
PIER BEARING STIFFENERS AND/OR CONNECTION PLATES FOR WELDED PLATE GIRDERS



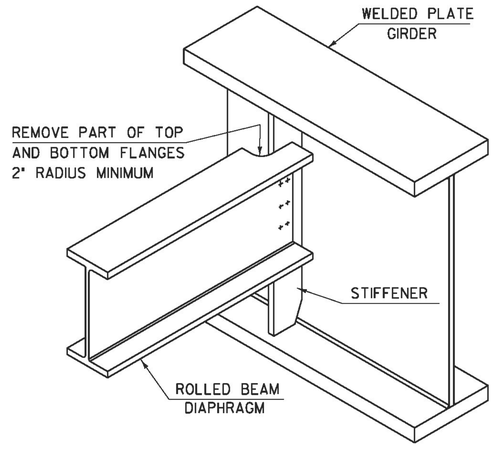
DEPTH		DIAPHRAGM MEMBER	(N) BOLTS
ROLLED BEAM	24" 30"	C15x33.9	4
	31" 36"	MC18x42.7	5
	37" 42"	W21x44	6
PLATE GIRDER WEB	31" 36"	W27x84	7
	37" 42"	W33x118	9
	43" 48"	W36x135	10

INTERMEDIATE DIAPHRAGMS FOR 24" TO 48" BRIDGE BEAMS

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



WELD LOCATION DETAIL AT CROSS FRAMES AND LATERAL BRACING



SEE CONTRACT DRAWINGS FOR SIZES OF MEMBERS AND CONNECTION DETAILS

ROLLED BEAM USED AS DIAPHRAGM

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

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

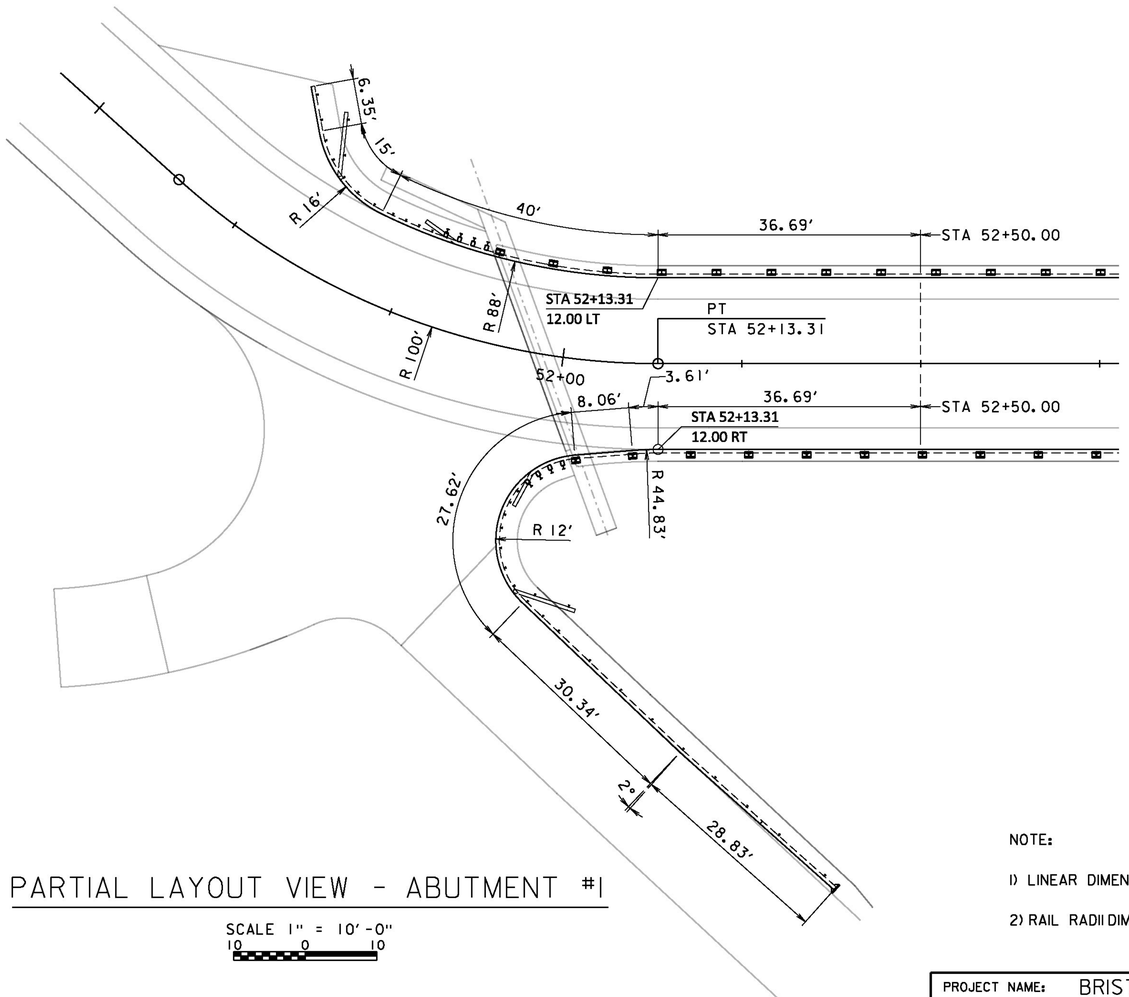
STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-602.00

N

VT STATE PLANE GRID



PARTIAL LAYOUT VIEW - ABUTMENT #1

SCALE 1" = 10'-0"

10 0 10

NOTE:

1) LINEAR DIMENSIONS ARE TO FACE OF RAIL.

2) RAIL RADII DIMENSIONS ARE TO FAC EOF RAIL.

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME: s05j352rail.dgn	PLOT DATE: 23-JAN-2014
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
ABUTMENT #1 APPROACH RAIL LAYOUT	SHEET 1 OF 1

Vermont Agency of Transportation

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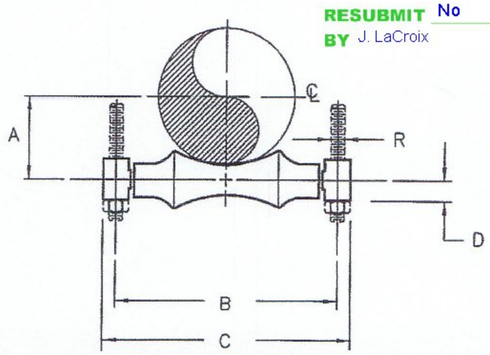
November 11, 2013

RESUBMIT No Approved

BY J. LaCroix DATE 11/15/2013

DWG NO 142 SH 1 REV 3

DESCRIPTION



PIPE SIZE	A	B	C	D	R	MAX LOAD	UNIT WGT
1	1	3	4 1/8	5/8	3/8	600	0.45
1 1/4	1 1/4	3 3/8	4 1/2	5/8	3/8	600	0.48
1 1/2	1 3/8	3 5/8	4 3/4	5/8	3/8	600	0.51
2	1 5/8	4 1/8	5 1/4	5/8	3/8	600	0.57
2 1/2	2	5 1/2	7	7/8	1/2	660	1.50
3	2 1/4	6 1/8	7 5/8	7/8	1/2	700	1.50
3 1/2	2 1/2	6 5/8	8 1/8	7/8	1/2	750	1.70
4	2 7/8	7 1/8	8 5/8	7/8	5/8	750	1.80
5	3 1/2	8 3/8	9 7/8	7/8	5/8	750	2.40
6	4	9 5/8	11 3/8	1	3/4	1070	4.00
7	4 3/4	10 3/4	12 1/2	1	3/4	1200	6.00
8	5 1/8	12	14	1 1/8	3/4	1350	6.40
10	6 1/4	14 1/8	16	1 1/8	7/8	1730	8.50
12	7 1/2	16 1/8	18	1 1/8	7/8	2400	10.30
14	8 3/8	17 3/4	20	1 3/8	1	3130	20.90
16	9 1/2	20 1/2	22 1/8	1 3/8	1	3970	26.10
18	10 1/2	22 1/8	24 3/8	1 3/8	1	4200	36.60
20	11 5/8	24 1/8	26 5/8	1 1/2	1 1/4	4550	39.00
24	14	28 7/8	32 1/8	1 3/4	1 1/2	6160	66.90
30	17 1/2	35 1/2	39 7/8	2 1/8	1 1/2	7290	134.00

LOAD (LBS) - DIMENSIONS (INCHES) - WEIGHT (LBS)

MAXIMUM TEMPERATURE AT ROLLER 450° F

REVISED LOADS — 3/28/11 — APP

REVISED "D" DIMENSION FOR 16" PIPE SIZE — 7/19/07 — APP

REV | DATE | DESCRIPTION

6 | 5 | 4 | 3 | 2 | 1

ANVIL 171 EQUIV.

CARPENTER AND PATERSON INC

WOBURN, MA 01801 / SADDLE BROOK, NJ 07662

SUBMITTAL DRAWING

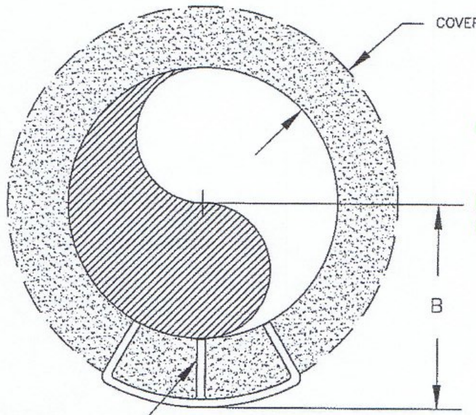
MATERIAL: CARBON STEEL

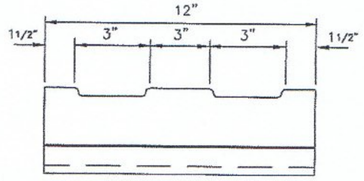
FINISH: ☒ GALVANIZED ☐ PAINTED ☐ PLAIN

DESCRIPTION: TWO ROD ROLL HANGER

DRAWN	CHKD.	APPVD.	DATE	SCALE	SHEET
BM	RP	UB	12/93	N/A	1

DWG/FIGURE NO. 142 REV 3





Vermont Agency of Transportation

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November 11, 2013

RESUBMIT No Approved

BY J. LaCroix DATE 11/15/2013

PIPE SIZE	B	SIZE OF PIPE ROLL				MAX LOAD	UNIT WGT
		FIG. No		FIG. No			
		140	142	17	53		
2	4 5/8	7	7	2	2	1800	4.50
2 1/2	4 7/8	8	7	2	2	1800	4.50
3	5 1/8	10	8	2	2	1800	4.90
3 1/2	5 3/8	10	8	2	2	1800	4.90
4	5 3/4	10	10	2	2	1800	4.90
5	6 1/4	12	10	2	2	1800	4.90
6	6 1/2	12	12	2	2	1800	7.70
8	7	16	12	3	3	1800	7.70
10	8 5/8	16	16	4	4	1800	8.80
12	9 5/8	18	18	4	4	5000	11.40
14	10 3/8	18	18	4	4	5000	11.40
16	11 1/4	24	24	5	5	7200	13.30
18	12 1/4	24	24	5	5	7200	13.30
20	13 1/4	24	24	6	6	7200	13.40
24	15 1/4	30	30	6	6	7200	20.30

LOAD (LBS) · DIMENSIONS (INCHES) · WEIGHT (LBS)

ANVIL 164 EQUIV.

REV	DATE	APP	DESCRIPTION
0			
1			
2			
3			
4			
5			
6			

DWG NO 355 SH 1 REV 0

CARPENTER AND PATERSON INC
WOBURN, MA 01801 / SADDLE BROOK, NJ 07662

SUBMITTAL DRAWING

MATERIAL: CARBON STEEL

FINISH: ~~PLAIN~~ HOT DIPPED GALV.

DESCRIPTION PIPE COVERING PROTECTION SADDLE

DRAWN	CHKD.	APPVD.	DATE	SCALE	SHEET
BM	RP	UB	2/94	N/A	1

DWG/FIGURE NO. 355

REV 0

Vermont Agency of Transportation

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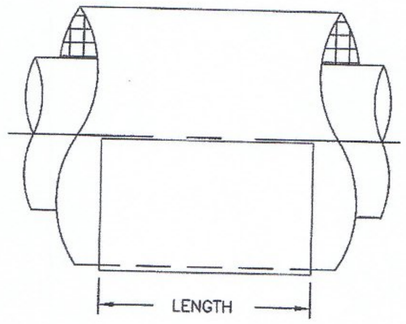
November 11, 2013

RESUBMIT No Approved

BY J. LaCroix DATE 11/15/2013

SHIELD TO BE CUSTOM SIZED TO 15" 9.05" O.D + 6" INSULATION



SIZE (I.D.)	HANGER SIZE	LENGTH	GA.	UNIT WGT
2.375	2	12	18	0.70
2.875	2 1/2	12	18	0.80
3.500	3	12	18	1.00
4.000	3 1/2	12	18	1.10
4.500	4	12	18	1.30
5.000	5	12	18	1.40
5.563	5	12	18	1.60
6.000	6	12	18	1.90
6.625	6	12	18	1.90
7.000	7	12	18	2.70
7.625	7	12	18	4.00
8.625	8	12	18	4.30
9.625	10	12	18	5.10
10.750	10	12	18	5.60
11.750	12	12	18	10.20
12.750	12	12	18	11.10
14.000	14	12	16	11.90
15.000	16	12	16	12.70
16.000	16	12	16	13.60
17.000	18	12	16	14.50
18.000	18	12	16	21.20
19.000	20	12	16	22.40
21.000	24	12	16	23.60

LOAD (LBS) • DIMENSIONS (INCHES) • WEIGHT (LBS)

REV	DATE	DESCRIPTION	APP
6			
5			
4			
3			
2			
1			

CARPENTER AND PATERSON INC
WOBURN, MA 01801 / SADDLE BROOK, NJ 07663

SUBMITTAL DRAWING

MATERIAL: CARBON STEEL

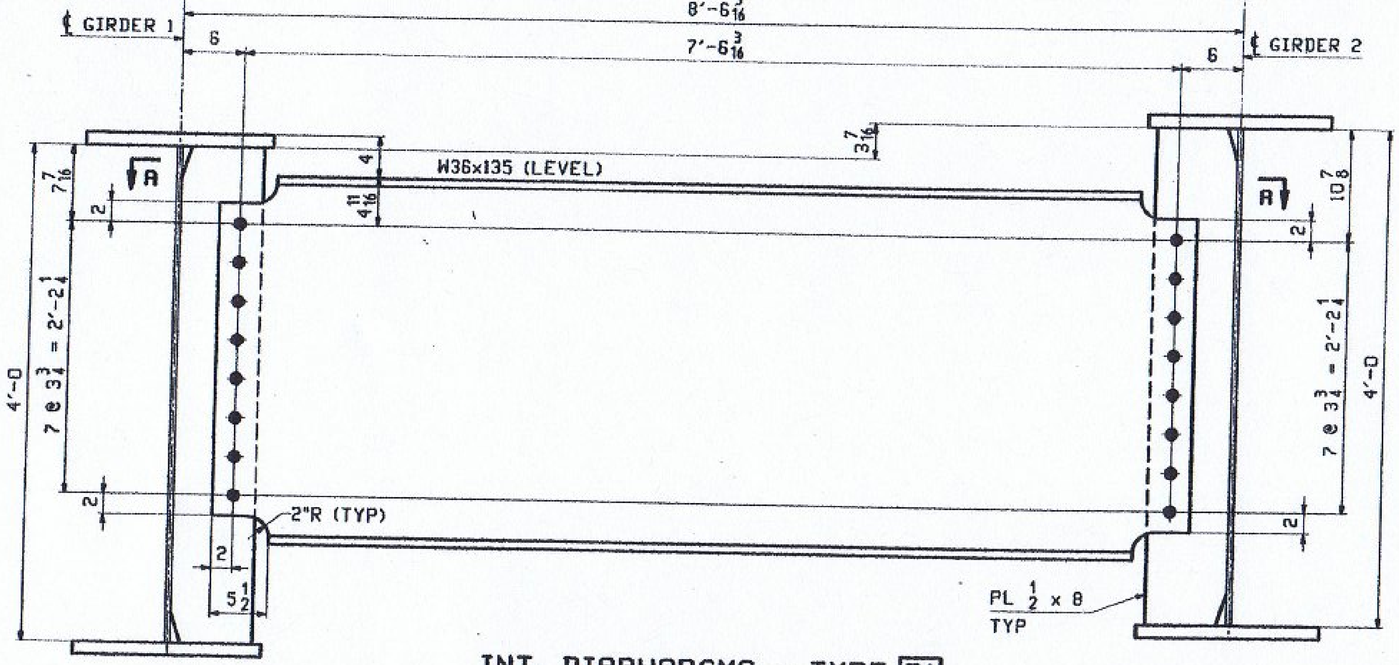
FINISH: PRE-GALV.

DESCRIPTION: INSULATION SHIELD

DRAWN	CHKD.	APPVD.	DATE	SCALE	SHEET
BM	RP	UB	12/93	N/A	1

DWG/FIGURE NO. 265P

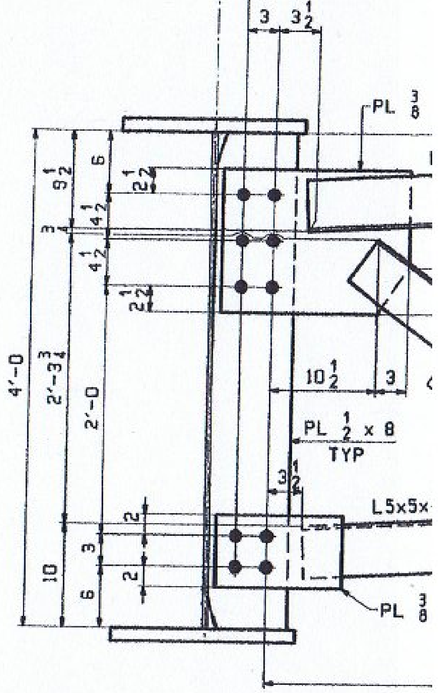
REV 0

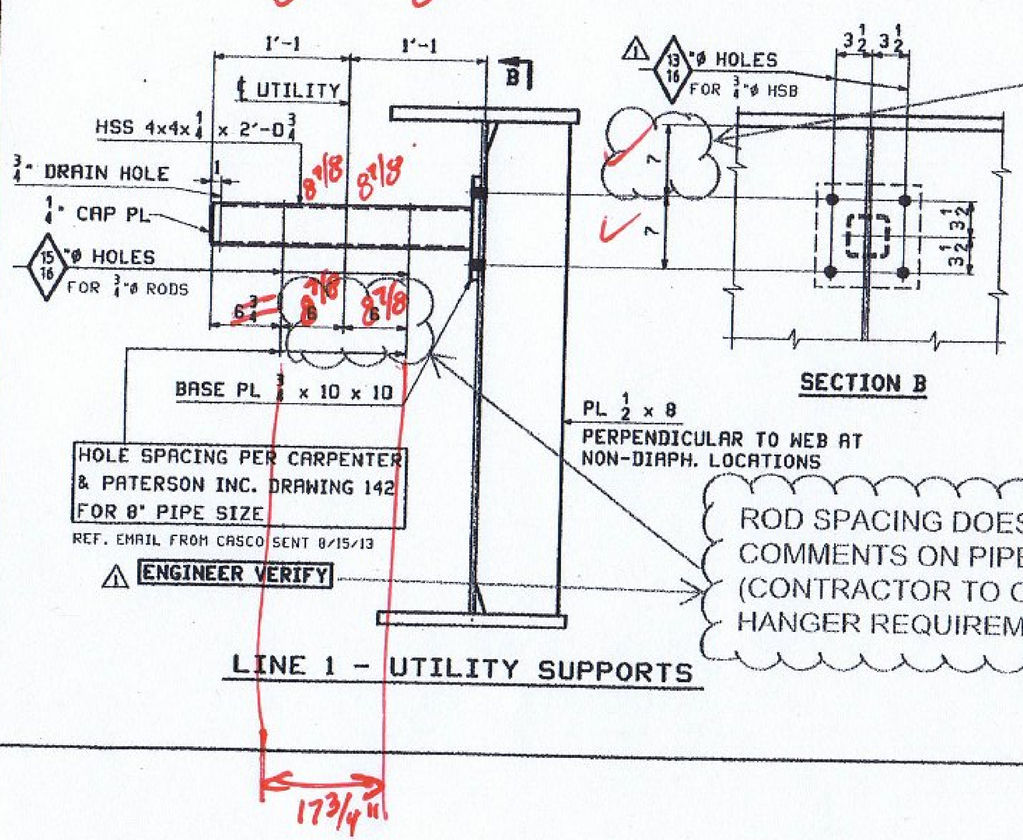


INT. DIAPHARGMS - TYPE D1

(DEVELOPED)

FRAMES NS OR FS OF STIFFENERS - SEE WS1





LINE 1 - UTILITY SUPPORTS

SECTION B

PL 1/2 x 8
PERPENDICULAR TO WEB AT
NON-DIAPH. LOCATIONS

*CONTRACTOR VERIFY THIS DIMENSION (COORDINATE WITH FIELD DIMENSIONS AND PIPE HANGER SUBMITTAL).

ROD SPACING DOES NOT MATCH PLANS SEE COMMENTS ON PIPE HANGER SUBMITTAL (CONTRACTOR TO COORDINATE PIPE HANGER REQUIREMENTS TO FABRICATOR)

Vermont Agency of Transportation
RECEIVED
CK'D BY J. LaCroix OK'D BY
November 11, 2013
RESUBMIT No Approved
BY J. LaCroix DATE 11/15/2013

NOTES:
1. MATERIAL IS M270-50
2. ALL HOLES SHALL BE
3. BOLTS SHALL BE 7/8ø (
⚠ 4. BOLTS SHALL BE 7/8ø (
5. BOLTS AT UTILITY CO

** NOTE **
THE PURPOSE OF THIS DRAW
CONTROL INFORMATION AND
IS SUBMITTED FOR INFORMA
FOR SHOP FABRICATION. DE
WELDING AND DIMENSIONS R

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS

1) ALL MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011 WITH LATEST REVISIONS AND THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS FOR HIGHWAY BRIDGES, 2012 AND ITS LATEST REVISIONS.

MATERIAL SPECIFICATIONS

1) UNLESS OTHERWISE NOTED, ALL STEEL TO BE UNPAINTED AASHTO M270 (ASTM A709) GRADE 50W.

2) MATERIAL NOTED "CVN" OR "T2" ON DETAIL DRAWINGS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF VERMONT STANDARD SPECIFICATIONS SECTION 714.01.

3) HIGH STRENGTH BOLTS: ASTM A325 (AASHTO M164) 7/8" DIAMETER, TYPE 3, IN 15/16" DIAMETER HOLES, UNLESS NOTED OTHERWISE. NUTS SHALL BE A563 (TYPE 3) GRADE C3.

   BOLTS & NUTS SHALL BE ROTATIONAL CAPACITY TESTED. DO NOT MIX NUTS & BOLTS FROM DIFFERENT CONTAINERS UNLESS ALL BOLTS & NUTS HAVE THE SAME LOT NUMBER.

FABRICATION

1) ALL HOLES SHALL BE PUNCHED OR DRILLED FULL SIZE (UN).

WELDING

1) THE CONFIGURATION OF THE WELD JOINTS AND ALL WELDING PROCEDURES SHALL BE IN ACCORDANCE WITH AASHTO/AWS D1.5-08 BRIDGE WELDING CODE AND IN ADDITION TO SPECIFICATIONS SHOWN ABOVE. ALL WELDING WILL BE DETAILED TO PRE-QUALIFIED JOINTS, UNLESS PROHIBITED BY THE DESIGNER.

2) WELDING OF MAIN LOAD CARRYING MEMBERS AND ATTACHMENTS SHALL BE PERFORMED USING THE AUTOMATIC SUBMERGED ARC & SHIELDED METAL ARC PROCESSES. ALL WELDS ARE CONTINUOUS U.N.

3) NON DESTRUCTIVE TESTING OF WELDS SHALL BE IN ACCORDANCE WITH THE REFERENCED SPECIFICATION.

4) SEE DETAILS "WS1" & "WS2" ON THIS DRAWING FOR WELD TERMINATION DETAIL.

CLEANING

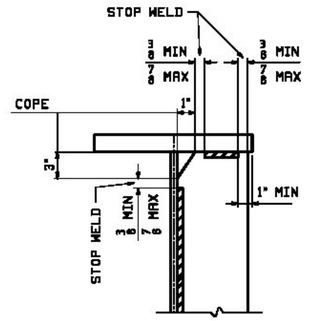
1. ALL STEEL SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP-10.
2. STRUCTURAL STEEL SHALL NOT BE PAINTED.

FIELD CONNECTIONS

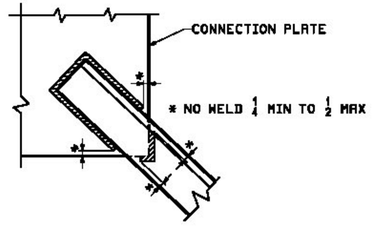
1). ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH STRENGTH A-325 TYPE 3 BOLTS (UN), INSTALLED PER SECTION 506.19(c). SEE DWG E1 FOR FIELD BOLT SIZES.

2). BOLTS SHALL HAVE HEAVY HEX NUT, HEAVY HEX HEAD, AND AT LEAST ONE FLAT WASHER EACH. WASHER TO BE PLACED UNDER TURNED ELEMENT.

3). PIECE MARKS WILL BE LOCATED AS SHOWN ON ERECTION DRAWINGS.



DETAIL "WS1"
STIFFENER WELD TERMINATION



DETAIL "WS2"
TYP. WELD TERMINATION

NOTE TO ENGINEER:
THESE NOTES ARE NOT INTENDED TO BE ALL INCLUSIVE AND COMPLIANCE WITH RELEVANT SPECIFICATIONS REMAIN UNCHANGED.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:

DESCRIPTION: GENERAL NOTES

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726
TEMBOR 3159

STRUCTURE: BRISTOL - BRIDGE NO. 31 VT ROUTE NO. TH 5 (SOUTH STREET) OVER NEW HAVEN RIVER		DRAWN: JTB	DATE: 08/13
		CHKD: DBH	DATE: 09/07
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)		JOB NO.	DWG NO.
PROJ NO. BRO 1445 (32)		534	GN1
CUSTOMER: BLOW AND COTE			REV. 0

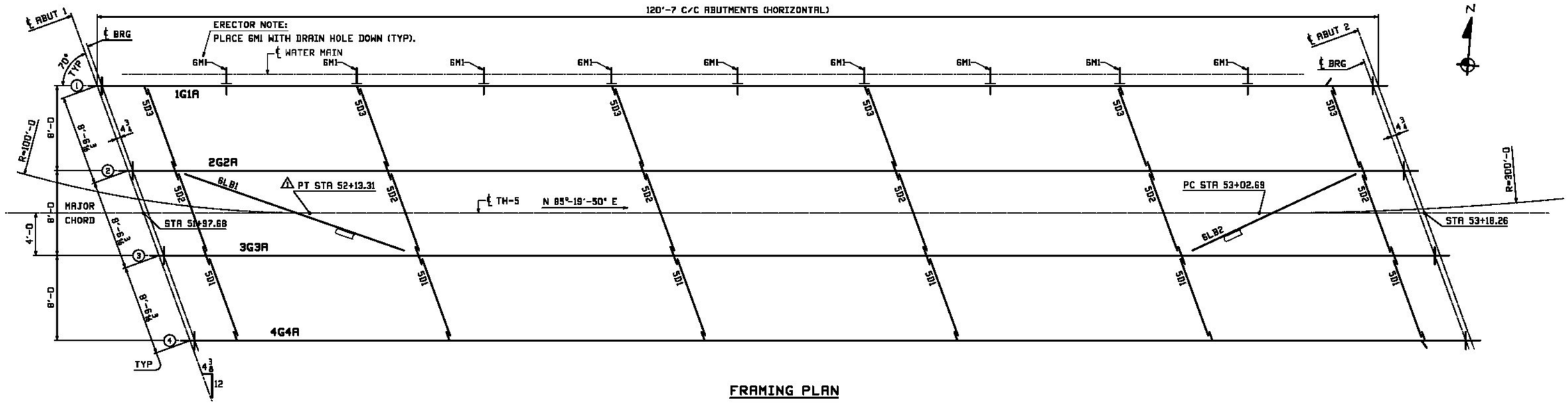
Approved
Revise and Resubmit
X Approved as Noted (resubmittal not required)
Rejected (See comments below)

Hoyle, Tanner & Associates, Inc.
Project No. 904226

Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; fabrication, that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. This approval does not relieve Contractor's duty of compliance Contract.

Reviewed By: AAS Date: 11/1/13
Approved By: JSD Date: 11/1/13

Thu, Nov 14, 2013 09:08:08 PM J:\work\904226\E1.dgn



FRAMING PLAN

FIELD BOLT LIST							A325 Type 3 BOLTS							
LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS /CONN.	# OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED						WASH CODE	PIECES CONNECTED AND REMARKS
1														**INT. DIAPHRAGMS - 5D1 & 5D2**
2	144	7/8	2 1/4	8	24	7/8	3/8	1/2					1	TOP GUSSET TO GIRDER CONNECTION PLATE
3	96	7/8	2 1/4	4	24	7/8	3/8	1/2					1	BOTTOM GUSSET TO GIRDER CONNECTION PLATE
4														
5														**INT. DIAPHRAGMS - 5D3**
6	98	7/8	2 1/2	8	12	1 1/8	5/8	1/2					1	DIAPHRAGM WEB TO GIRDER CONNECTION PLATE
7														
8														**LATERAL BRACING - 6LB1 & 6LB2**
⚠ 9	16	7/8	3 3/4	4	4	2 3/8	3/4	7/8	1				2	BRACE WITH BEVELED FILL TO GUSSET PLATE
10														
11														**UTILITY SUPPORT - 6MI**
⚠ 12	36	3/4	2 1/2	4	8	1 1/4	3/4	1/2					1	CONNECTION PLATE TO GIRDER WEB

WASHER CODES
1: 1 Hard Flat Washer
2: 2 Hard Flat Washers

FIELD BOLT SUMMARY	EXACT COUNT - NONE EXTRA					
	LINE	NO. OF BOLTS	BOLT DIAM.	TYPE	BOLT LEN.	ACTUAL COUNT	REMARKS
⚠	1	36	3/4	A325 Type 3	2 1/2	36	
	2						
⚠	3	36	Hard Flat Washers for 3/4"ø BOLT				F436-3
	4						
	5						
	6	240	7/8	A325 Type 3	2 1/4	240	
	7	96	7/8		2 1/2	96	
⚠	8	16	7/8	A325 Type 3	3 3/4	16	
	9						
	10	368	Hard Flat Washers for 7/8"ø BOLT				F436-3
	11						
	12						
	13						
	14						

☐ Approved ☐ Revise and Resubmit
☒ Approved as Noted ☐ Rejected

Hoyle, Tanner & Associates, Inc. Project No. 90-1126

Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site, information that pertains solely to the fabrication process or to the means and methods of construction, coordination of the work of all trades and performing all work in a safe and satisfactory manner. The approval does not relieve Contractor's duty of compliance with Contract.

Reviewed by: ABS Date: 11/1/13

Approved By: MD Date: 11/1/13

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
⚠ 1	10/17	APPROVAL COMMENTS	JTB	DBH		
0						

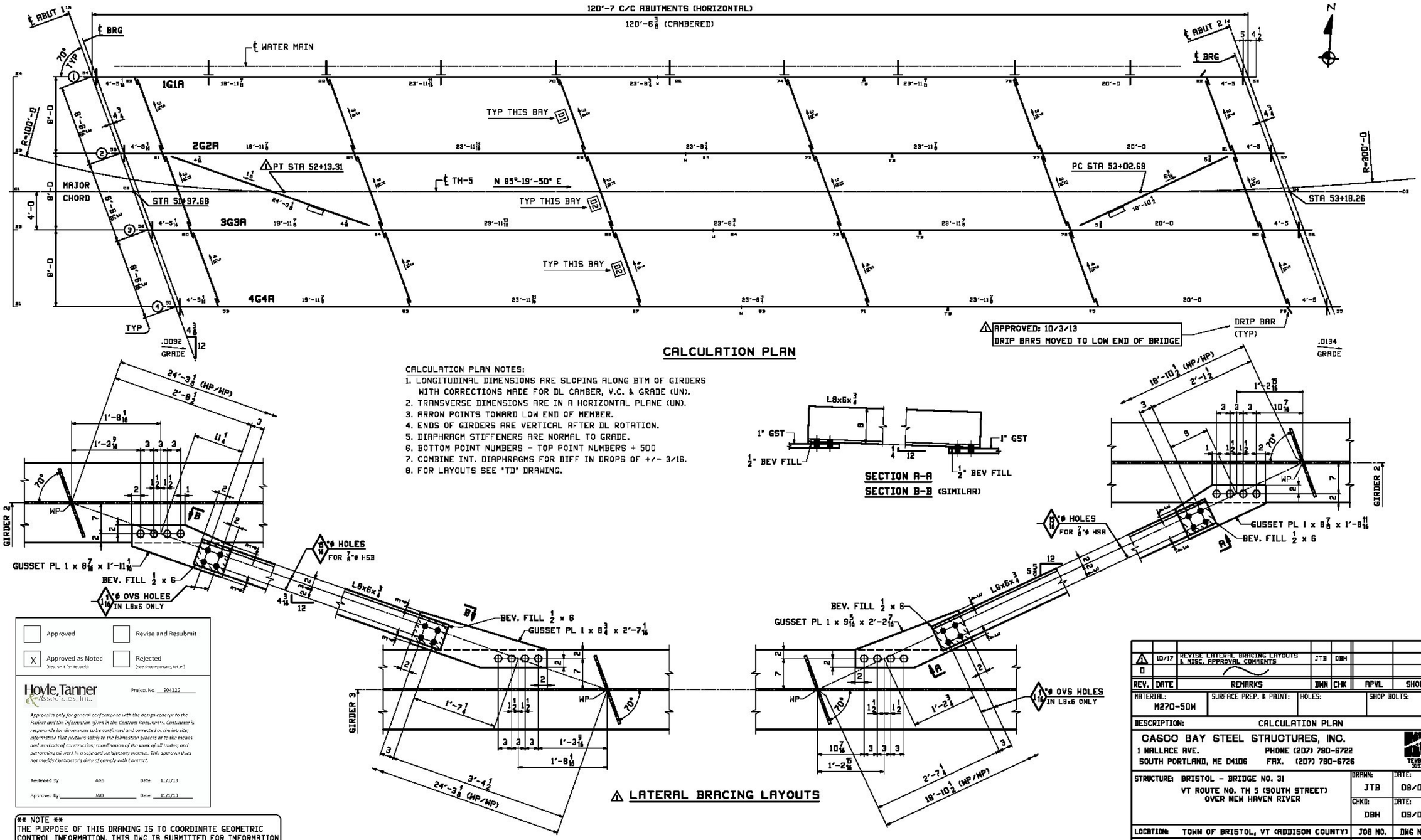
MATERIAL: | SURFACE PREP. & PAINT: | HOLES: | SHOP BOLTS:

DESCRIPTION: FRAMING PLAN & FIELD BOLTS

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726
TEMBOR 3659

STRUCTURE: BRISTOL - BRIDGE NO. 31 VT ROUTE NO. TH 5 (SOUTH STREET) OVER NEW HAVEN RIVER	DRAWN: JTB	DATE: 08/14
	CHKD: DBH	DATE: 09/07
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)	JOB NO. 534	DWG NO. E1
PROJ NO. BRO 1445 (32)		REV. ⚠
CUSTOMER: BLOW AND COTE		

JTB Mon, Oct 14, 2013 11:40:01 PM J:\work\jobs\1300\02\E1.dwg



Approved | Revise and Resubmit
X Approved as Noted | Rejected

Hoyle, Tanner & Associates, Inc. Project No: 304235

Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and corrected on the job site; information that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trading and performing all work in a safe and satisfactory manner. This approval does not relieve Contractor's duty of comply with Contract.

Reviewed By: AAS Date: 12/2/13
Approved By: MO Date: 12/2/13

** NOTE **
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	10/17	REVISE LATERAL BRACING LAYOUTS & MISC. APPROVAL COMMENTS	JTB	DBH		
0						

MATERIAL: M270-50W | SURFACE PREP. & PAINT: | HOLES: | SHOP BOLTS:

DESCRIPTION: CALCULATION PLAN

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726

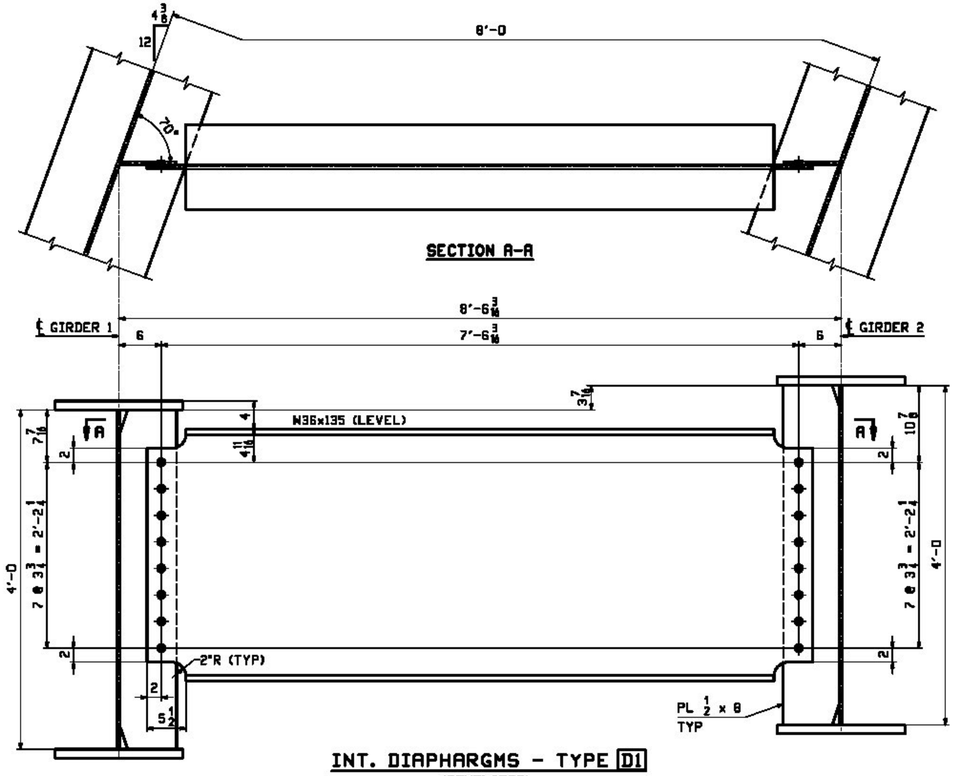
TEKLA 2013

STRUCTURE: BRISTOL - BRIDGE NO. 31
VT ROUTE NO. TH 5 (SOUTH STREET)
OVER NEW HAVEN RIVER

DRAWN: JTB DATE: 08/09
CHKD: DBH DATE: 09/07

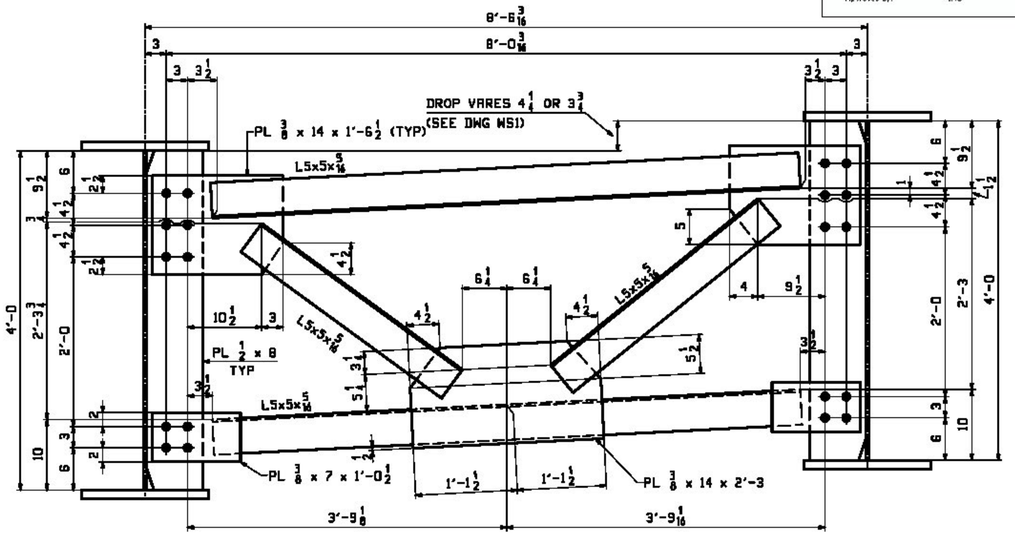
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)
PROJ NO. BRO 1445 (32)
CUSTOMER: BLOW AND COTE

JOB NO. 534
DWG NO. WS1
REV. 1



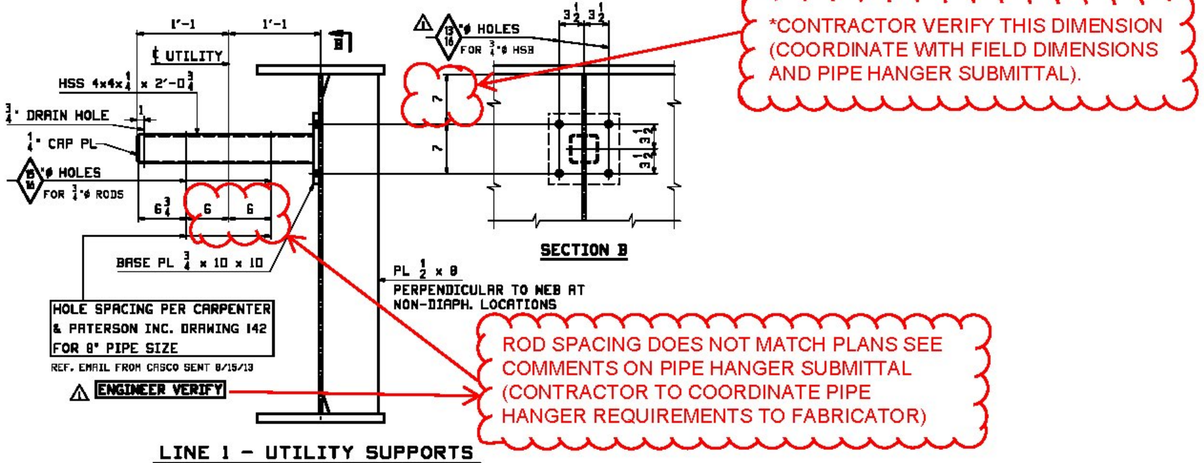
INT. DIAPHARGMS - TYPE D1

(DEVELOPED)
FRAMES NS OR FS OF STIFFENERS - SEE WS1



INT. DIAPHARGMS - TYPE D2

(DEVELOPED)
FRAMES NS OR FS OF STIFFENERS - SEE WS1



LINE 1 - UTILITY SUPPORTS

*CONTRACTOR VERIFY THIS DIMENSION (COORDINATE WITH FIELD DIMENSIONS AND PIPE HANGER SUBMITTAL).

ROD SPACING DOES NOT MATCH PLANS SEE COMMENTS ON PIPE HANGER SUBMITTAL (CONTRACTOR TO COORDINATE PIPE HANGER REQUIREMENTS TO FABRICATOR)

NOTES:

1. MATERIAL IS M270-50W (UN).
2. ALL HOLES SHALL BE 13/16ø (UN).
3. BOLTS SHALL BE 7/8ø (UN) A325 TYPE 3 IN UNPAINTED AREAS.
4. ⚠ BOLTS SHALL BE 7/8ø (UN) A325-1 GALV. IN PAINTED AREAS (SEE GN1.)
5. BOLTS AT UTILITY CONNECTIONS ARE 3/4"ø.

** NOTE **
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION AND CONNECTION SPACING. THIS DWG IS SUBMITTED FOR INFORMATION ONLY & IS NOT INTENDED FOR SHOP FABRICATION. DETAIL DWGS WILL SHOW ALL WELDING AND DIMENSIONS REQ'D FOR FABRICATION.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
⚠ 0	10/17	APPROVAL COMMENTS	JTB	DBH		

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W	SEE DWG GN1	15/16"ø (UN)	NONE

DESCRIPTION: TYPICAL LAYOUTS

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726
TEMBOR 3033

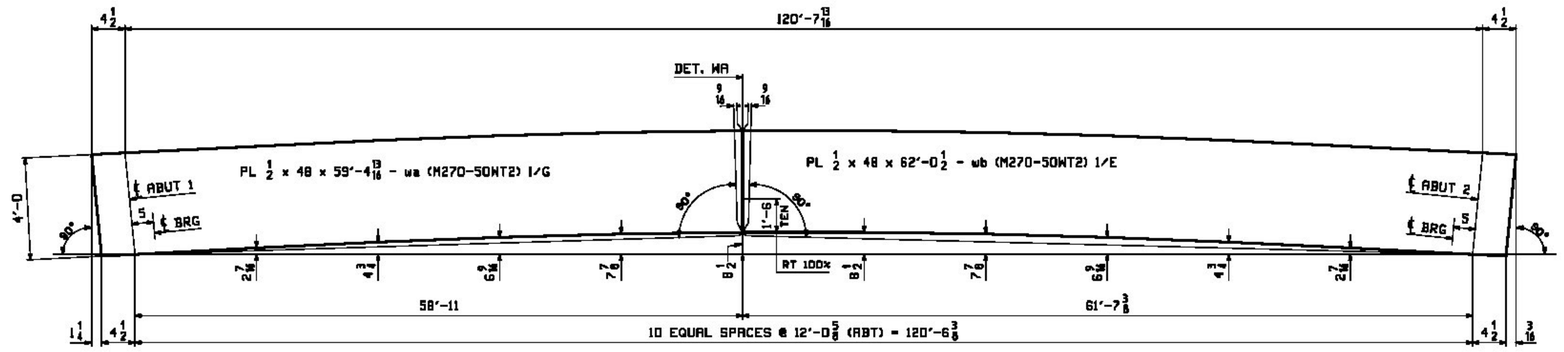
STRUCTURE: BRISTOL - BRIDGE NO. 31 VT ROUTE NO. TH 5 (SOUTH STREET) OVER NEW HAVEN RIVER	DRAWN: JTB	DATE: 08/09
	CHKD: DBH	DATE: 09/07
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)	JOB NO. 534	DWG NO. TD1
PROJ NO. BRO 1445 (32)		REV. ⚠
CUSTOMER: BLOW AND COTE		

Approved
Revise and Resubmit
X Approved as Noted
Rejected

Hoyle, Tanner & Associates, Inc.
Project No: 2014235

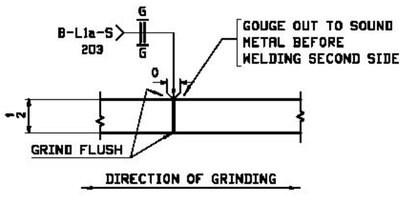
Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. The approval does not relieve Contractor's duty of comply with Contract.

Reviewed By: AAS Date: 12/2/13
Approved By: JMO Date: 12/2/13

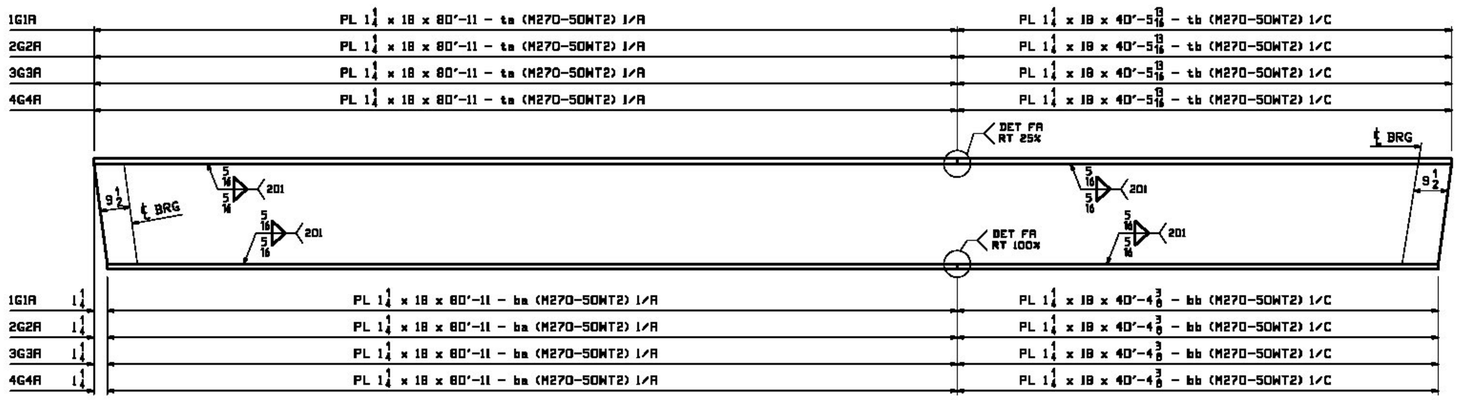


CAMBER DIAGRAM FOR 1G1A, 2G2A, 3G3A & 4G4A

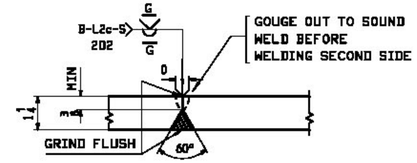
4 REQ'D



WEB PLATE SPLICE DETAIL "WA"



FLANGE DIAGRAM FOR 1G1A, 2G2A, 3G3A & 4G4A



FLANGE PLATE SPLICE DETAIL "FA"

NOTES:

1. FOR GENERAL NOTES SEE DRAWING GN1.
2. "T2" DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TEST AT H FREQ. FOR ZONE 2

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270M-50WT2	SEE DWG GN1		

DESCRIPTION: CAMBER & FLANGE DIAGRAM

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726
TEMBOR 3133

STRUCTURE: BRISTOL - BRIDGE NO. 31 VT ROUTE NO. TH 5 (SOUTH STREET) OVER NEW HAVEN RIVER	DRAWN: JTB	DATE: 08/09
	CHKD: DBH	DATE: 09/07
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)	JOB NO. 534	DWG NO. C1
PROJ NO. BRO 1445 (32)		REV. △
CUSTOMER: BLOW AND COTE		

Approved — Revise and Resubmit
X Approved as Noted — Rejected

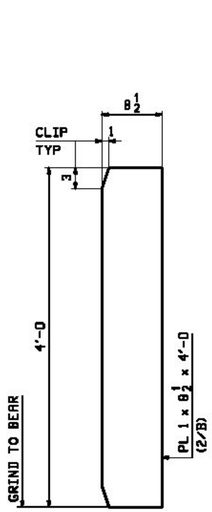
Hoyle, Tanner & Associates, Inc. Project No. 99126

Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correct at the job site; information that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. Any approval does not modify Contractor's duty of strictly with Contract.

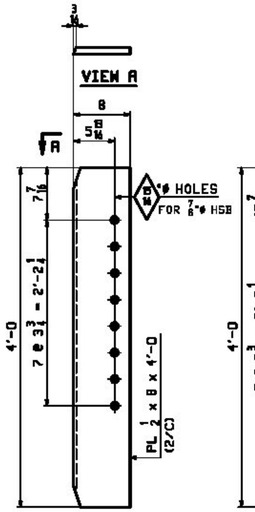
Rev'owed by: _____ Date: 11/3/15

Approved By: JKO Date: 11/1/15

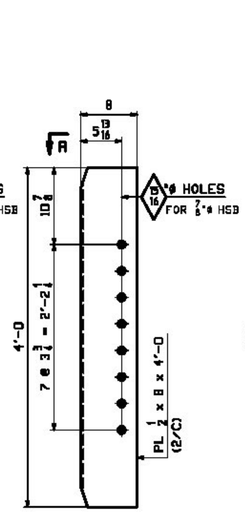
JTB Mon, Sep 14, 2015 08:08:08 PM J:\Projects\Bristol\TH5\C1.dwg



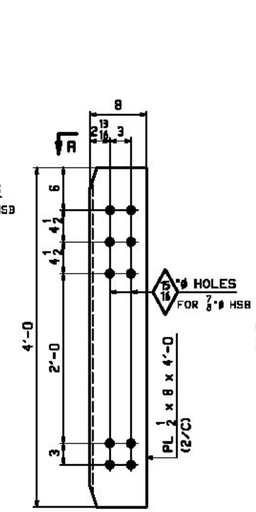
16 ~ x1a
ABUT BRG STIFFENER
(PERPENDICULAR TO WEB)



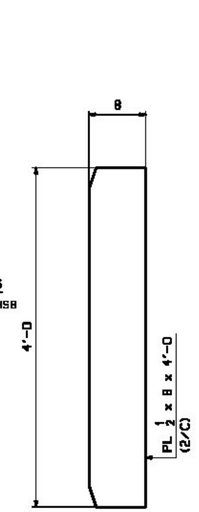
6 ~ x1b
TYPE D1 - CONN PLATE
(LOW END)



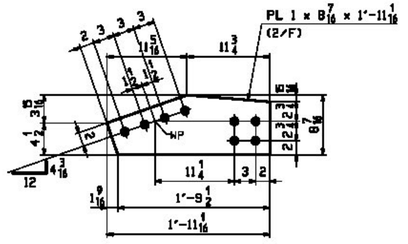
6 ~ x1c
TYPE D1 - CONN PLATE
(HIGH END)



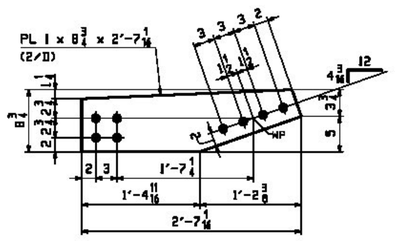
24 ~ x1d
TYPE D2 - CONN PLATE



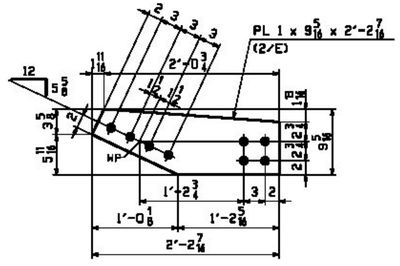
5 ~ x1f
INT STIFF OPP UTILITY SUPPORT
(PERPENDICULAR TO WEB)



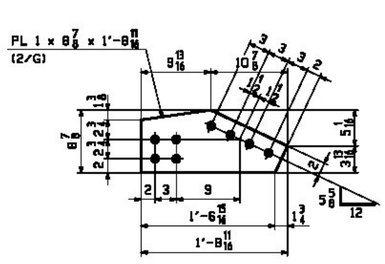
⚠1 **1 ~ x1m**
LATERAL GUSSET
NEAR ABUT 1 / LINE 2



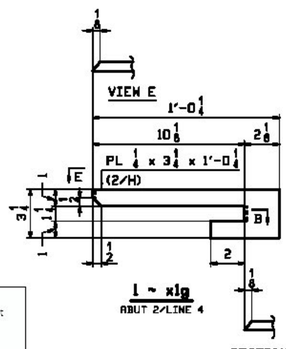
⚠1 **1 ~ x1n**
LATERAL GUSSET
NEAR ABUT 1 / LINE 3



⚠1 **1 ~ x1p**
LATERAL GUSSET
NEAR ABUT 2 / LINE 3

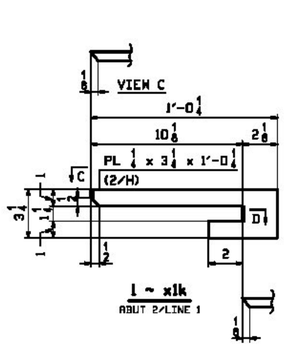


⚠1 **1 ~ x1t**
LATERAL GUSSET
NEAR ABUT 2 / LINE 2



1 ~ x1g
ABUT 2/LINE 4

SECTION B



1 ~ x1k
ABUT 2/LINE 1

SECTION D

NOTE:
1. FOR GENERAL NOTES SEE DRAWING GN1.
⚠2. ALL HOLES THIS DRAWING SHALL BE 15/16"ø FOR 7/8"ø HSB.

⚠	10/17	REVISE LATERAL GUSSET DETAILS	JTB	DBH		
0						
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W	SEE DWG GN1	15/16"ø ⚠	NONE

DESCRIPTION: GIRDER STANDARD DETAILS

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726

TENSOR 3159

STRUCTURE: BRISTOL - BRIDGE NO. 31 VT ROUTE NO. TH 5 (SOUTH STREET) OVER NEW HAVEN RIVER	DRAWN: JTB	DATE: 08/13
	CHKD: DBH	DATE: 09/07
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)	JOB NO. 534	DWG NO. X1
PROJ NO. BRO 1445 (32)		REV. ⚠
CUSTOMER: BLOW AND COTE		

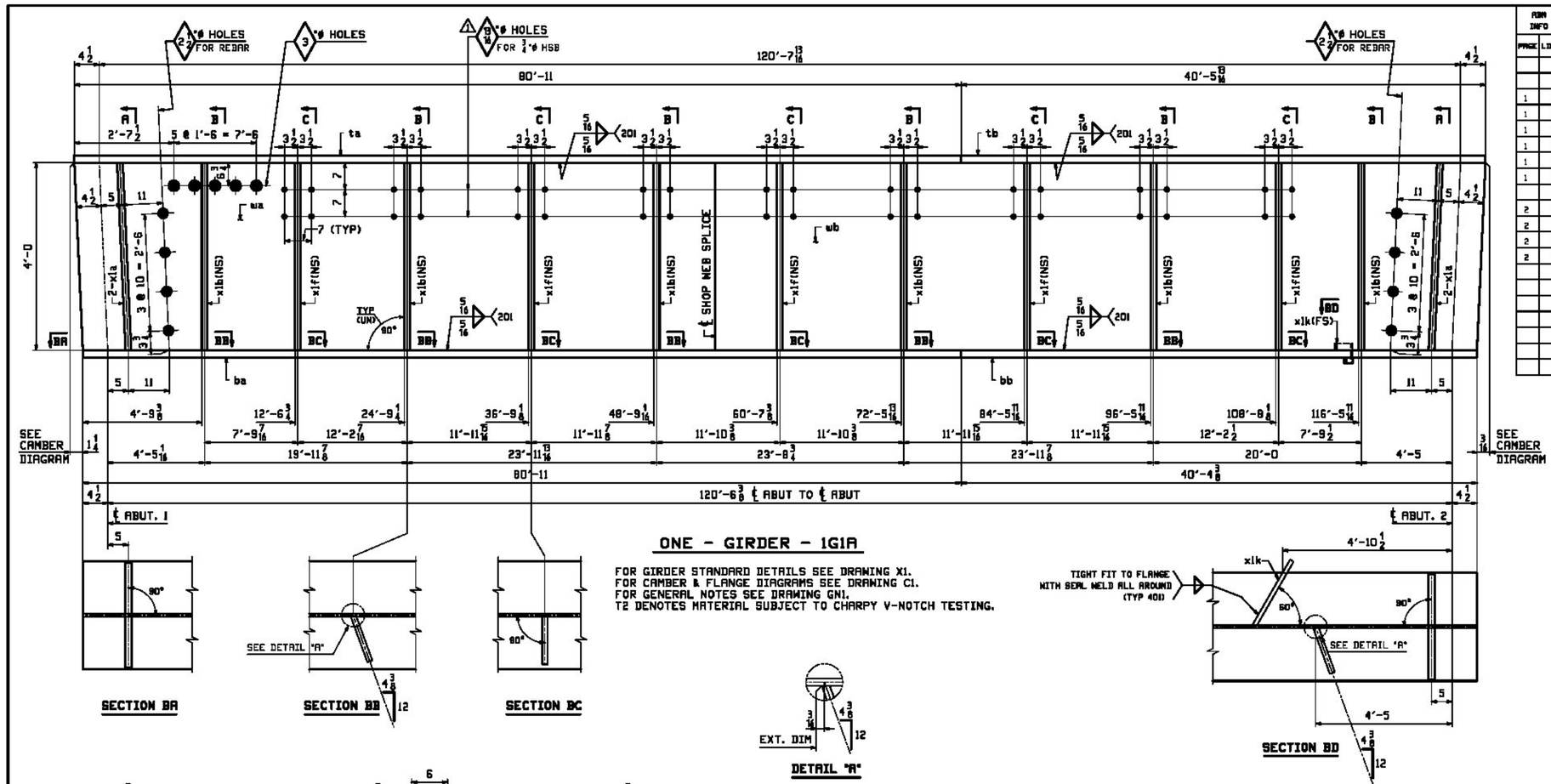
☐ Approved ☐ Revise and Resubmit
☒ Approved as Noted ☐ Rejected
(Resubmittal Required) (See accompanying letter)

Hoyle, Tanner & Associates, Inc. Project No. 98B226

Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication process or to the means and methods of construction, coordination of the work of all trades, and performing all work in a safe and satisfactory manner. The approval does not relieve Contractor's duty of compliance with Contract.

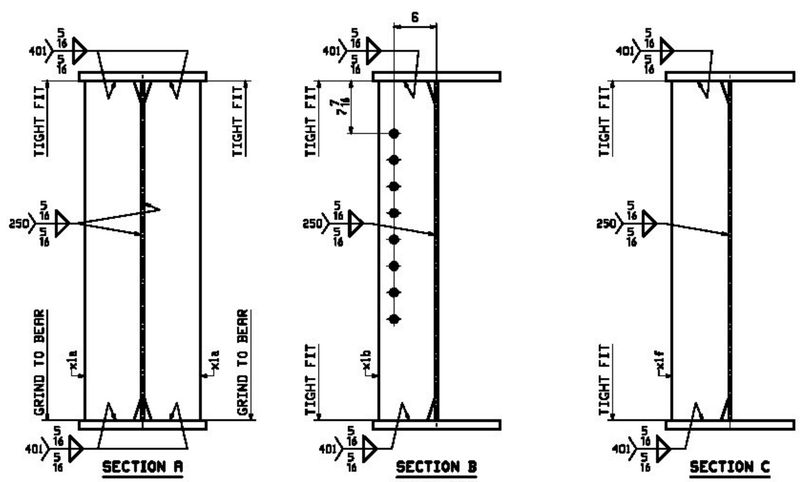
Reviewed By: AAS Date: 11/21/13
Approved By: JAD Date: 11/21/13

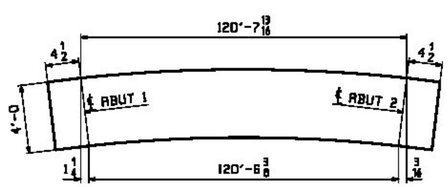
Thu, Oct 10, 2013 08:55:55 AM - J:\work\jobs\1445\2\1 Brist



ONE - GIRDER - 1G1A

FOR GIRDER STANDARD DETAILS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GN1.
T2 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.





ORIENTATION DIAGRAM
FOR CAMBER SEE DWG C1

FAB INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	534	1	⚠
		1G1A	1		GIRDER			REMARKS	WT	PROCUREMENT NOTES
									29563	
1	G		1	wa	PL ½x48	59	4 13/16	M270-50WT2	4851	
1	E		1	wb	PL ½x48	62	0 1/2	M270-50WT2	5067	
1	A		1	ta	PL 1¼x18	60	11	M270-50WT2	5195	
1	C		1	tb	PL 1¼x18	40	5 5/16	M270-50WT2	3100	
1	A		1	ba	PL 1¼x18	60	11	M270-50WT2	5195	
1	C		1	bb	PL 1¼x18	40	4 3/8	M270-50WT2	3090	
2	B		4	x1a	PL 1x8 1/2	4	0	M1E	116	
2	C		5	x1b	PL ½x8	4	0		54	
2	C		5	x1f	PL ½x8	4	0		54	
2	H		1	x1k	PL ½x3¼	1	0 1/4		3	

Approved
Revise and Resubmit
X Approved as Noted (Resubmit Records)
Rejected (See Accompanying Letter)

Hoyle, Tanner & Associates, Inc. Project No. 9161226

Approval is only for general conformance with the design concept of the Project and the information given in the Contract documents. Contractor is responsible for determining to be performed and connected at the jobsite. Information that pertains solely to the fabrication processes or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. This approval does not modify Contractor's duty of comply with Contract.

Reviewed By: MAS Date: 12/31/13
Approved By: MAS Date: 1/21/14

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
⚠	10/17	APPROVAL COMMENT	JTB	DBH		
0						

MATERIAL:	SURFACE PREP. & PRIME:	HOLES:	SHOP BOLTS:
M270-50W	SEE DWG GN1	15/16"ø (UN)	NONE

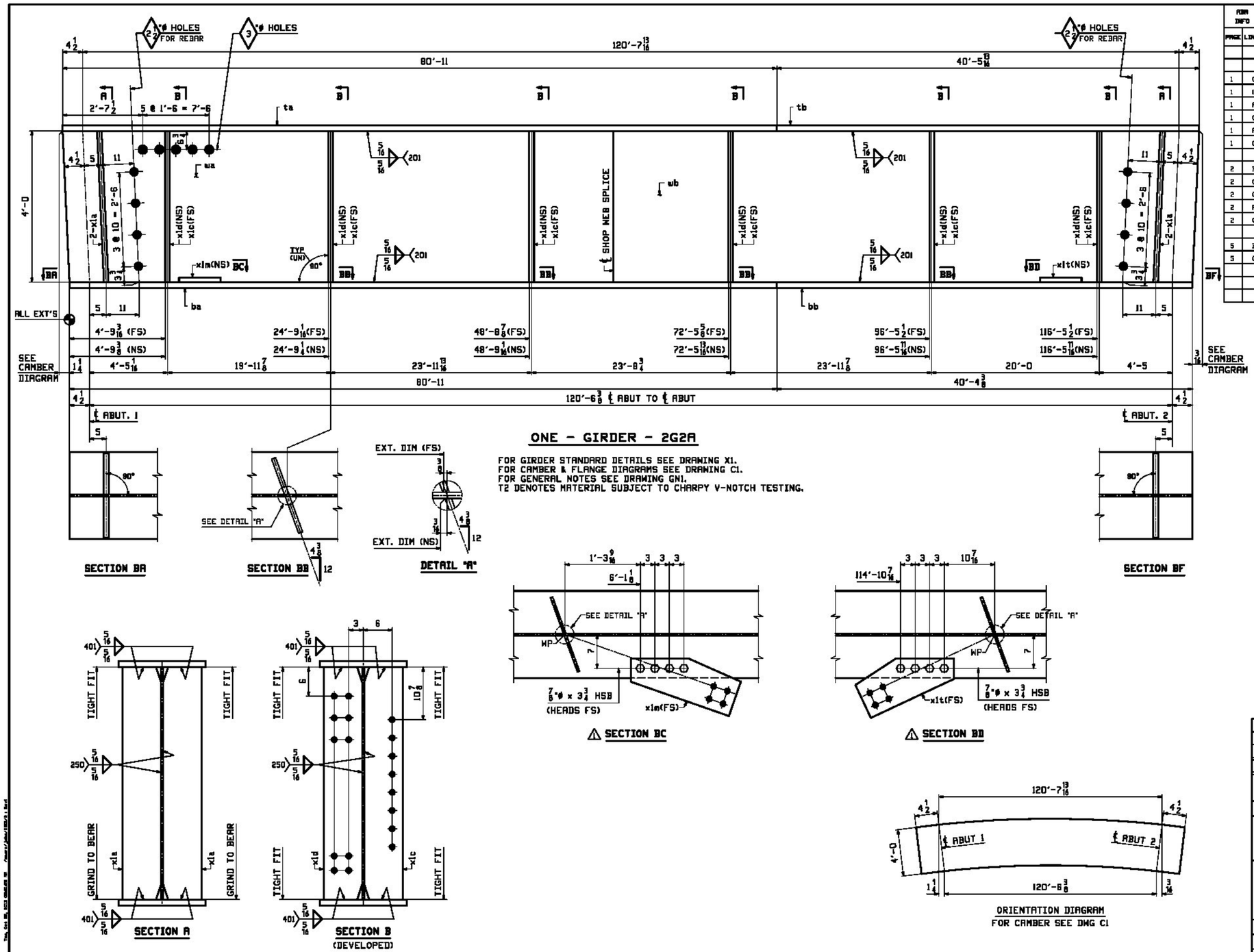
DESCRIPTION: GIRDER - 1G1A

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726

TEKLA WORLD 2019

STRUCTURE: BRISTOL - BRIDGE NO. 31 VT ROUTE NO. TH 5 (SOUTH STREET) OVER NEW HAVEN RIVER	DRAWN: JTB	DATE: 08/14
	CHKD: DBH	DATE: 09/07
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)	JOB NO.	DWG NO.
PROJ NO. BRO 1445 (32)	534	1
CUSTOMER: BLOM AND COTE		REV. ⚠

Tue, Oct 15, 2013 07:09:08 PM J:\Projects\BRO1445\1 Bridge\1 Girder\1G1A\1 Girder 1G1A.dwg



ONE - GIRDER - 2G2A

FOR GIRDER STANDARD DETAILS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GN1.
T2 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.

SECTION BA | SECTION BB

DETAIL "A"

⚠ SECTION BC

⚠ SECTION BD

SECTION BF

SECTION A

SECTION B
(DEVELOPED)

ORIENTATION DIAGRAM
FOR CAMBER SEE DWG C1

RUN INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	534	2	⚠
		2G2A	1		GIRDER			REMARKS	WT	PROCUREMENT NOTES
1	G		1	wa	PL 7/16x48	59	4 13/16	M270-50WT2	4851	
1	E		1	wb	PL 7/16x48	62	0 1/2	M270-50WT2	5067	
1	A		1	ta	PL 1 1/4x16	60	11	M270-50WT2	5195	
1	C		1	tb	PL 1 1/4x16	40	5 7/16	M270-50WT2	3100	
1	A		1	ba	PL 1 1/4x16	60	11	M270-50WT2	5195	
1	C		1	bb	PL 1 1/4x16	40	4 3/8	M270-50WT2	3090	
2	B		4	x1a	PL 1x8 1/2	4	0	M1E	116	
2	C		6	x1c	PL 7/16x8	4	0		54	
2	C		6	x1d	PL 7/16x8	4	0		54	
2	F		1	x1m	PL 1x8 7/16	1	11 11/16	⚠	55	
2	G		1	x1t	PL 1x8 7/8	1	8 11/16	⚠	52	
5	B		8		7/8 ø HSB	0	3 3/4	⚠ M253-2	.80	
5	C		8		3/4 ø HSW			⚠ M164-2	.07	

Approved
Revise and Resubmit
X Approved as Noted (resubmit for record)
Rejected (see comments below)

Hoyle, Tanner & Associates, Inc.

Project No. 90A126

Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication processes or to the means and methods of construction, coordination of the work of all trades; and performing all work in a safe and satisfactory manner. This approval does not relieve Contractor's duty of compliance Contract.

Reviewed By: AAS Date: 11/1/13
Approved By: JAO Date: 11/1/13

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
⚠ 0	10/17	REVISE LATERAL GUSSETS	JTB	DBH		

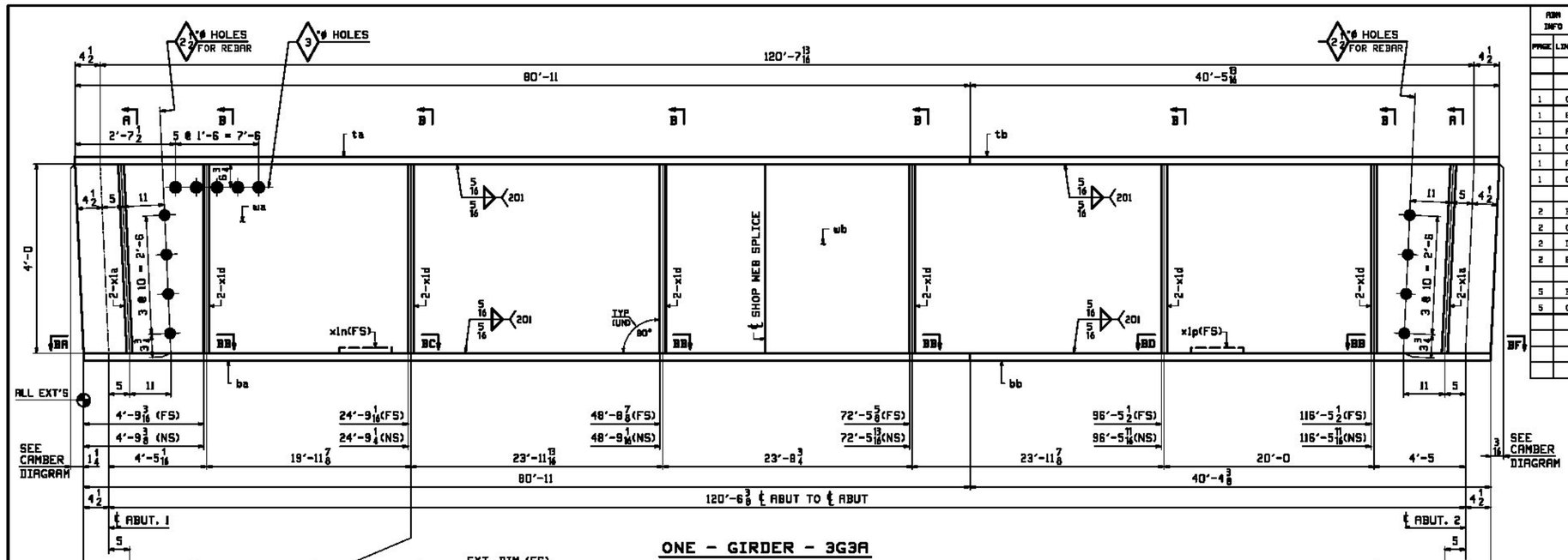
MATERIAL:	SURFACE PREP. & PRINT:	HOLES:	SHOP BOLTS:
M270-50W	SEE DWG GN1	15/16"ø (UN)	AS NOTED

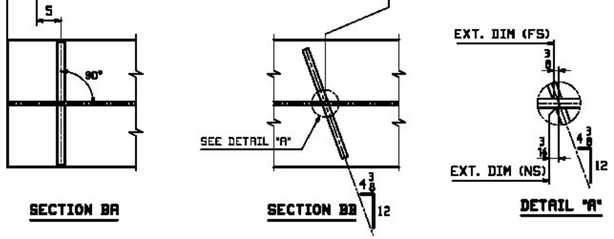
DESCRIPTION: GIRDER - 2G2A

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726
TEKLA 3659

STRUCTURE: BRISTOL - BRIDGE NO. 31 VT ROUTE NO. TH 5 (SOUTH STREET) OVER NEW HAVEN RIVER	DRAWN: JTB	DATE: 08/14
	CHKD: DBH	DATE: 09/07
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)	JOB NO.	DWG NO.
PROJ NO. BRO 1445 (32)	534	2
CUSTOMER: BLOM AND COTE		REV. ⚠

Thu Oct 31, 2013 08:08:38 M:\Projects\BRO1445\2 s.dwg





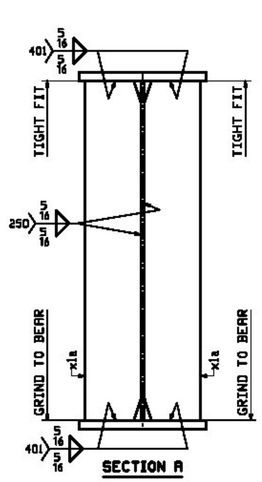
SECTION BA

SECTION BB

DETAIL "A"

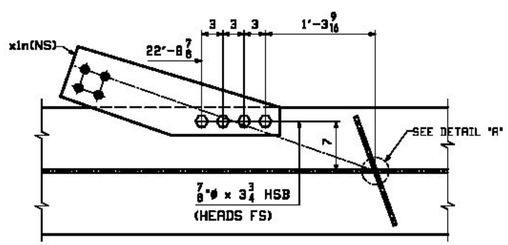
ONE - GIRDER - 3G3A

FOR GIRDER STANDARD DETAILS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GN1.
T2 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.

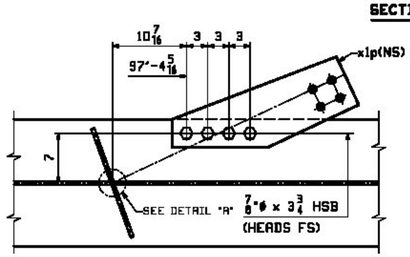


SECTION A

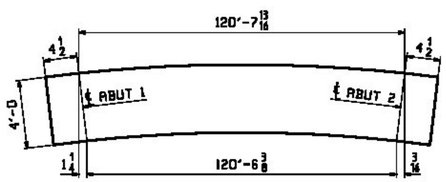
SECTION B
(DEVELOPED)



⚠ SECTION BC



⚠ SECTION BD



ORIENTATION DIAGRAM
FOR CAMBER SEE DWG C1

SECTION BF

RUN INFO		SHOP MARK	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
								534	3	⚠
PAGE	LINE		QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		3G3A	1		GIRDER				29758	
1	G		1	wa	PL 1/2x48	59	4 13/16	M270-50MT2	4851	
1	E		1	wb	PL 1/2x48	62	0 1/2	M270-50MT2	5067	
1	A		1	ta	PL 1 1/4x16	60	11	M270-50MT2	5195	
1	C		1	tb	PL 1 1/4x16	40	5 11/16	M270-50MT2	3100	
1	A		1	ba	PL 1 1/4x16	60	11	M270-50MT2	5195	
1	C		1	bb	PL 1 1/4x16	40	4 3/8	M270-50MT2	3090	
2	B		4	x1a	PL 1x8 1/2	4	0	M1E	116	
2	C		12	x1d	PL 1/2x8	4	0		54	
2	D		1	x1n	PL 1x8 1/2	2	7 1/16	⚠	77	
2	E		1	x1p	PL 1x9 5/16	2	2 7/16	⚠	70	
5	B		8		7/8 ø HSB	0	9 3/4	D3853-3 ⚠	.60	
5	C		8		7/8 ø HSW			A325-3 ⚠	.07	

⚠	10/17	REVISE LATERAL GUSSETS	JTB	DBH		
0						
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP

MATERIAL:	SURFACE PREP. & PRINT:	HOLES:	SHOP BOLTS:
M270-50W	SEE DWG GN1	15⁄16"ø (UN)	NONE

DESCRIPTION: GIRDER - 3G3A

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726
TEKLA 3.0 SP3

STRUCTURE: BRISTOL - BRIDGE NO. 31 VT ROUTE NO. TH 5 (SOUTH STREET) OVER NEW HAVEN RIVER	DRAWN: JTB	DATE: 08/14	
	CHKD: DBH	DATE: 09/07	
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)	JOB NO.	DWG NO.	
PROJ NO. BRO 1445 (32)	534	3	
CUSTOMER: BLOM AND COTE		REV. ⚠	

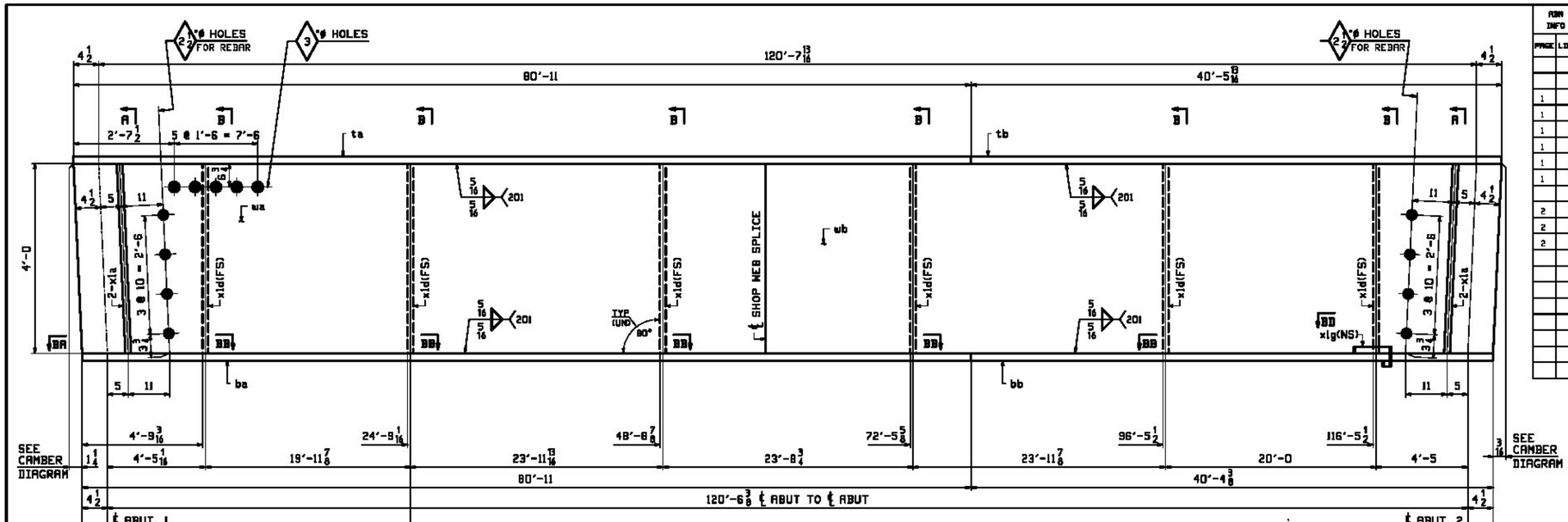
Approved
Revise and Resubmit
X Approved as Noted
Rejected

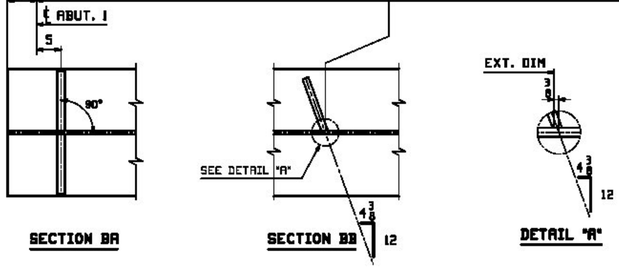
Hoyle, Tanner & Associates, Inc.
Project No. 904226

Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication processes or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. This approval does not modify Contractor's duty of comply with Contract.

Reviewed By: ____ Date: 11/1/17
Approved By: ____ Date: 11/1/17

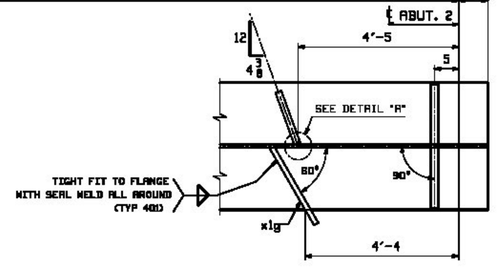
Thu Oct 26, 2017 08:08:08 PM /Users/jtb/Desktop/3.dwg

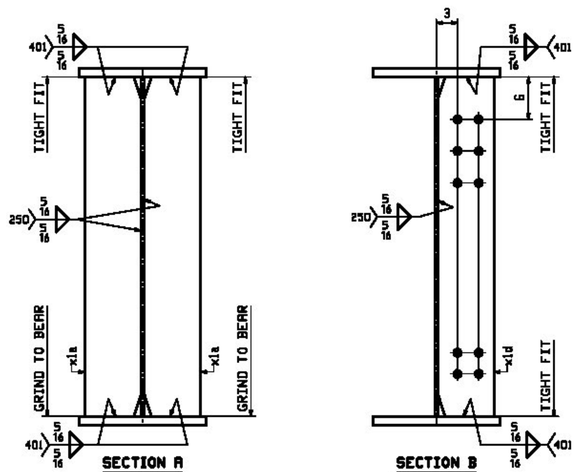


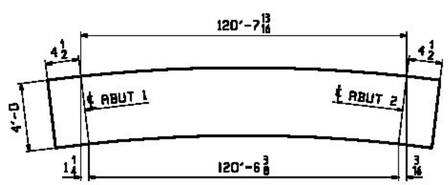


ONE - GIRDER - 4G4A

FOR GIRDER STANDARD DETAILS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GN1.
T2 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.







ADM INFO		SHOP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
								534	4	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		4G4A	1		GIRDER				29290	
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1	E		1	wb	PL ½x48	62	0 ½	M270-50WT2	5067	
1	A		1	ta	PL 1¼x16	60	11	M270-50WT2	6195	
1	C		1	tb	PL 1¼x16	40	5 7/16	M270-50WT2	3100	
1	A		1	ba	PL 1¼x16	60	11	M270-50WT2	6195	
1	C		1	bb	PL 1¼x16	40	4 3/8	M270-50WT2	3090	
2	B		4	x1a	PL 1x8 ½	4	0	MTE	116	
2	C		6	x1d	PL ½x8	4	0		54	
2	H		1	x1g	PL ½x3 ¼	1	0 ¼		3	

Approved
Revise and Resubmit
X Approved as Noted (Resubmission Required)
Rejected (See Accompanying Letter)

Hoyle, Tanner & Associates, Inc.

Project No: 8114.01

Approval is only for general conformance with the design concept of the project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated on the job site; information that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. The approval does not relieve Contractor's duty of strictly with Contract.

Reviewed By: MAS Date: 12/2/13

Approved By: MAS Date: 12/2/13

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						

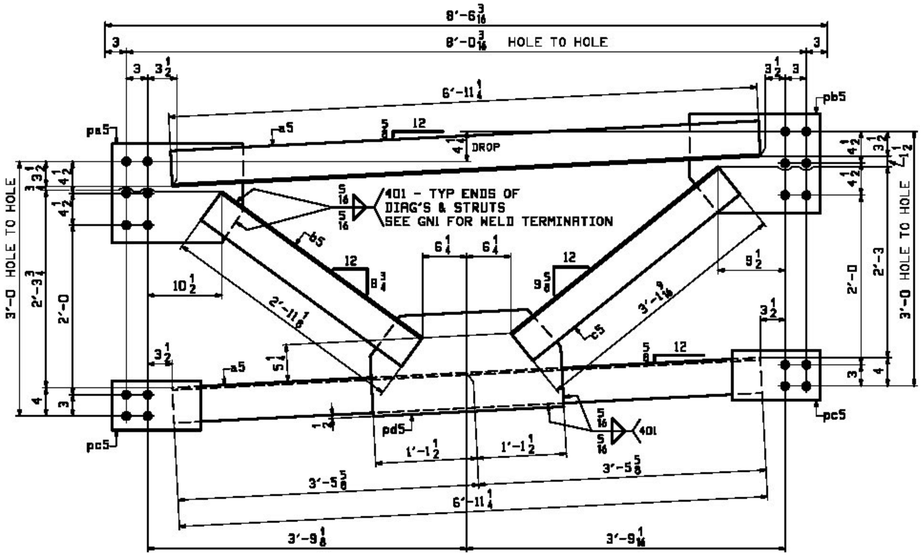
MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W	SEE DWG GN1	15/16"ø (UN)	NONE

DESCRIPTION: GIRDER - 4G4A

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726

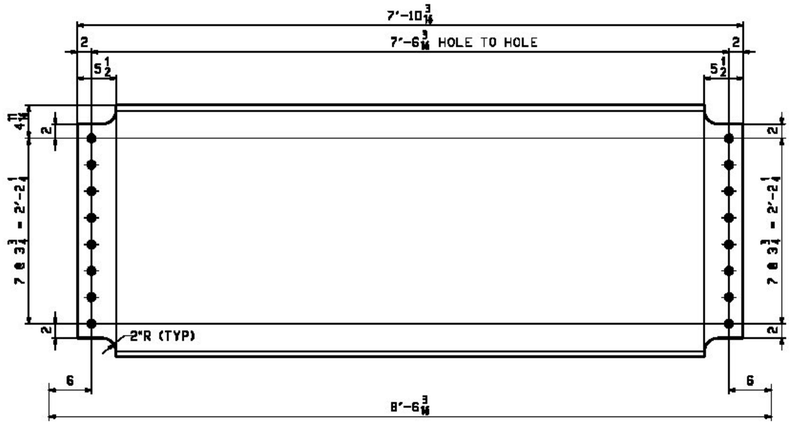
TEKLA 3.0 SP3

STRUCTURE: BRISTOL - BRIDGE NO. 31 VT ROUTE NO. TH 5 (SOUTH STREET) OVER NEW HAVEN RIVER	DRAWN: JTB	DATE: 08/14	
	CHKD: DBH	DATE: 09/07	
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)	JOB NO.	DWG NO.	
PROJ NO. BRO 1445 (32)	534	4	
CUSTOMER: BLOM AND COTE		REV. △	



6 ~ INT. DIAPHRAGMS - 5D1

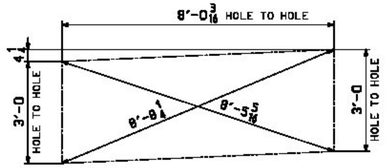
LINES 3 TO 4



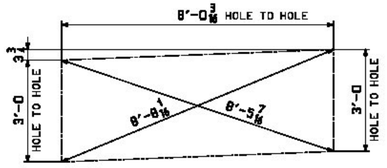
6 ~ INT. DIAPHRAGMS - 5D3

LINES 1 TO 2

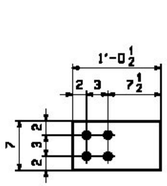
RUN INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
								534	5	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		5D1	6		INT. DIAPHRAGMS				319	
3	C		12	a5	L 5x5x5/16	6	11 1/4		71	
3	D		6	b5	L 5x5x5/16	2	11 1/4		30	
3	D		6	c5	L 5x3x5/16	3	1 9/16		32	
3	E		6	pa5	PL 3/8x14	1	5 1/2		28	
3	E		6	pb5	PL 3/8x14	1	5 1/2		28	
3	F		12	pc5	PL 3/8x7	1	0 1/2		9	
3	G		6	pd5	PL 3/8x14	2	3		40	
		5D2	6		INT. DIAPHRAGMS				319	
3	C		12	a5	L 5x5x5/16	6	11 1/4		71	
3	D		6	d5	L 5x3x5/16	2	11 1/4		30	
3	D		6	f5	L 5x3x5/16	3	1 7/16		32	
3	E		6	pa5	PL 3/8x14	1	5 1/2		28	
3	E		6	pb5	PL 3/8x14	1	5 1/2		28	
3	F		12	pc5	PL 3/8x7	1	0 1/2		9	
3	G		6	pd5	PL 3/8x14	2	3		40	
					INT DIAPHRAGMS					
3	B	5D3	6		W 36x135	7	10 3/16		1080	



CROSSCHECK - 5D1

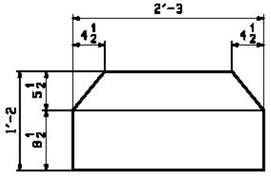


CROSSCHECK - 5D2



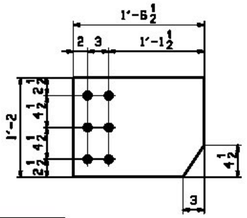
DETAIL - pc5

BTM GUSSET
24 REQ'D



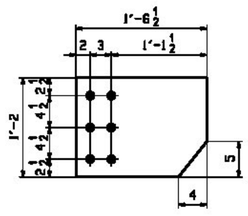
DETAIL - pd5

CTR GUSSET
12 REQ'D



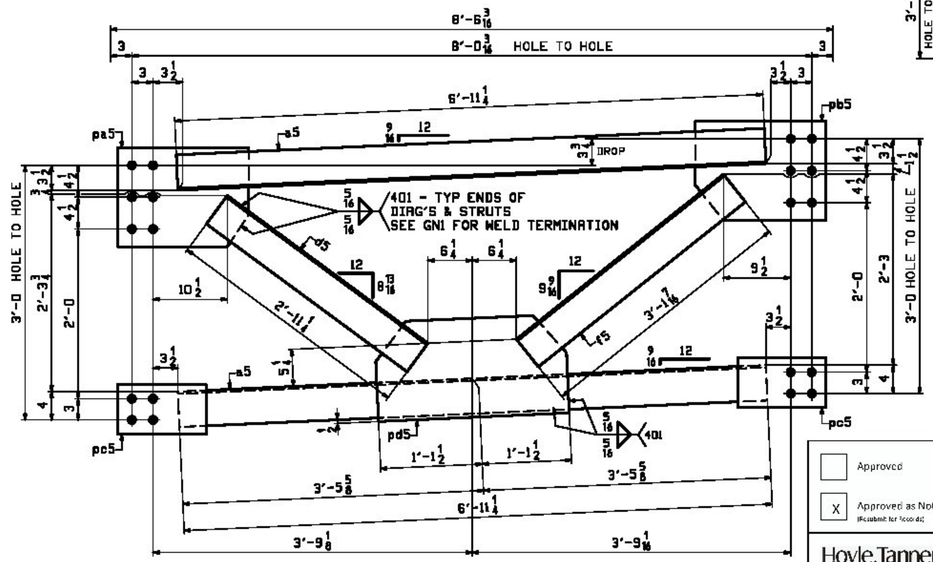
DETAIL - pa5

TOP GUSSET (LOW END)
12 REQ'D



DETAIL - pb5

TOP GUSSET (HIGH END)
12 REQ'D



6 ~ INT. DIAPHRAGMS - 5D2

LINES 2 TO 3

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W	SEE DWG GN1	15/16" ø	NONE

DESCRIPTION: DIAPHRAGMS

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726

TENSOR 2019

STRUCTURE: BRISTOL - BRIDGE NO. 31 VT ROUTE NO. TH 5 (SOUTH STREET) OVER NEW HAVEN RIVER		DRAWN: JTB	DATE: 08/14
		CHKD: DBH	DATE: 09/07
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)		JOB NO. 534	DWG NO. 5
PROJ NO. BRO 1445 (32)			REV.
CUSTOMER: BLOM AND COTE			

[ ] Approved	[ ] Revise and Resubmit
[X] Approved as Noted (Resubmit for Records)	[ ] Rejected (See Accompanying Letter)

Hoyle, Tanner & Associates, Inc. Project No. 102276

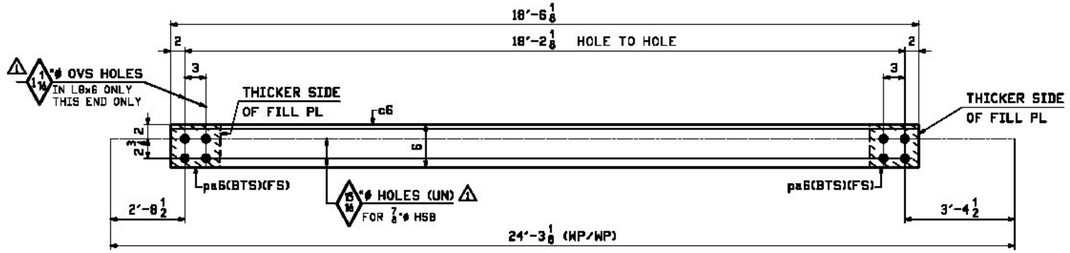
Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correct at the job site; information that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. This approval does not modify Contractor's duty of comply with Contract.

Reviewed By: AAS Date: 11/1/13

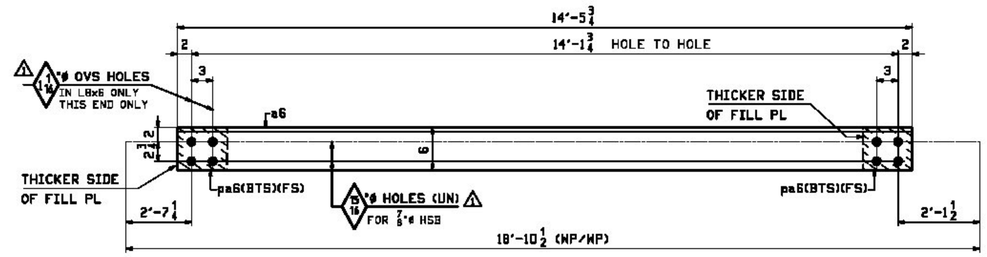
Approved By: MG Date: 11/1/13

NOTE:
FOR GENERAL NOTES SEE DRAWING GN1.

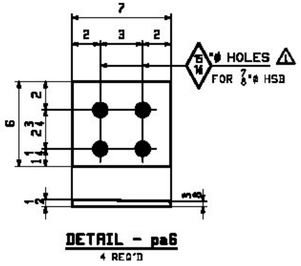
Thu, Sep 5, 2013 8:05:05 PM //nas1/Jobs/1534/5.1.dwg



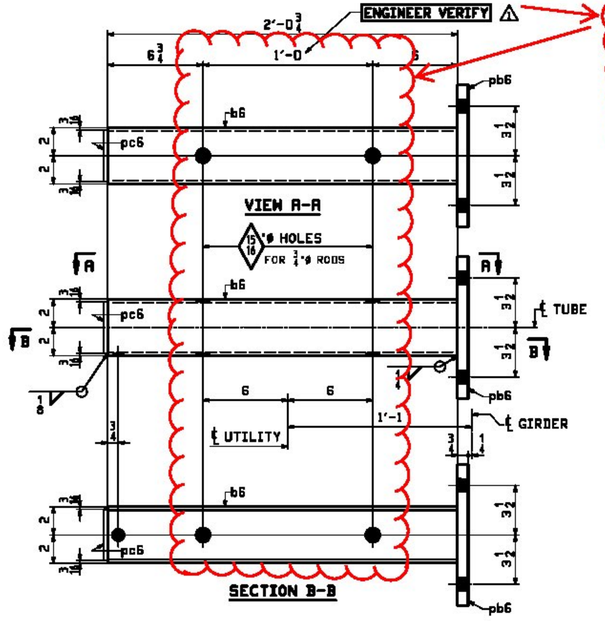
ONE ~ LATERAL BRACING - GLB1



ONE ~ LATERAL BRACING - GLB2



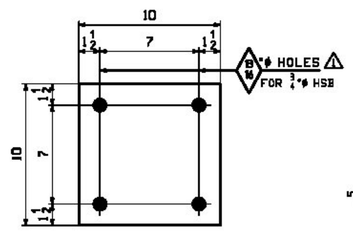
DETAIL - pa6
4 REQ'D



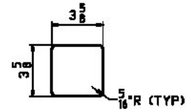
ROD SPACING DOES NOT MATCH PLANS SEE COMMENTS ON PIPE HANGER SUBMITTAL (CONTRACTOR TO COORDINATE PIPE HANGER REQUIREMENTS TO FABRICATOR)

9 ~ UTILITY SUPPORTS - GM1

HOT-DIP GALVANIZE AFTER FABRICATION



DETAIL - pb6
9 REQ'D



DETAIL - pc6
9 REQ'D

NOTES:
1. FOR GENERAL NOTES SEE DRAWING GN1.
2. BTS - DENOTES BOLT TO SHIP.

ADM INFO		SHOP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
								534	6	⚠
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		GLB1	1		LATERAL BRACING				638	
3	K		1	c6	L 8x8x3/4 ⚠	18	8 1/8		628	
3	M		2	pa6	PL 1/2x6	0	7	BEV. FILL (FIF)	6	
		GLB2	1		LATERAL BRACING				502	
3	L		1	c6	L 8x6x3/4 ⚠	14	5 3/4		490	
3	M		2	pa6	PL 1/2x6	0	7	BEV. FILL (FIF)	6	
		GM1	9		UTILITY SUPPORTS			HOT-DIP. GALV AFTER FAB	47	
3	Q		9	b6	HSS 4x4x1/4	2	0 1/4	HSSC-B	25	
3	R		9	pb6	PL 3/4x10	0	10	M270-36	21	
3	S		9	pc6	PL 1/4x3 3/8	0	3 3/8	M270-36	.93	

Approved | Revise and Resubmit
X Approved as Noted | Rejected

Hoyle, Tanner & Associates, Inc.

Project No. 906326

Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. This approval does not modify Contractor's duty of complete work Contract.

Reviewed By: AAS Date: 11/1/13
Approved By: JAD Date: 11/1/13

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
⚠	10/17	REVISE LATERAL BRACE SIZE & MISC. APPROVAL COMMENTS	JTB	DBH		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE DWG GN1	AS NOTED	NONE

DESCRIPTION: LATERAL BRACING & UTILITY SUPPORT

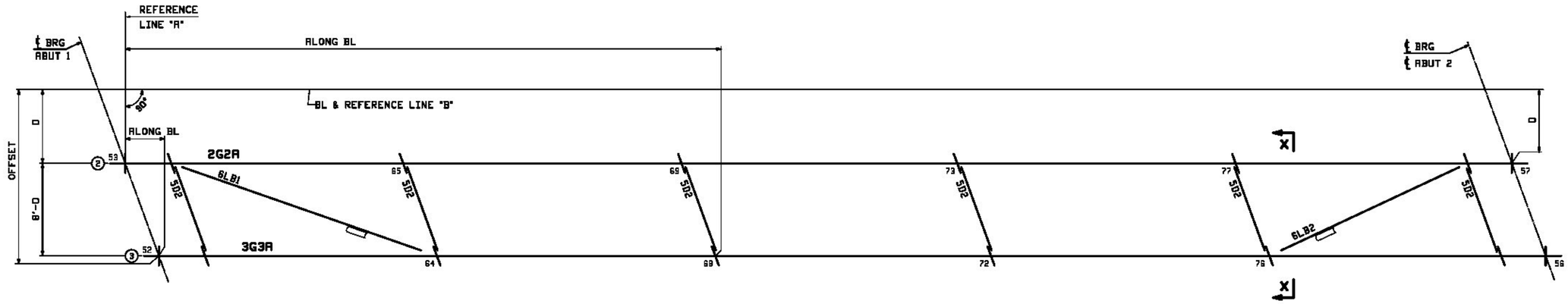
CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726

TEMBOR 3053

STRUCTURE: BRISTOL - BRIDGE NO. 31
VT ROUTE NO. TH 5 (SOUTH STREET)
OVER NEW HAVEN RIVER

DRAWN:	DATE:
JTB	08/14
CHKD:	DATE:
DBH	09/07

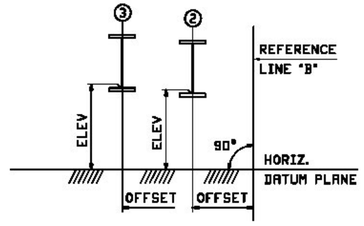
LOCATION:	TOWN OF BRISTOL, VT (ADDISON COUNTY)	JOB NO.	DWG NO.
PROJ NO.	BRO 1445 (32)	534	6
CUSTOMER:	BLOW AND COTE		REV. ⚠



PLAN VIEW OF ASSEMBLY
ABUT 1 TO ABUT 2 - LINES 2 & 3

	LINE 2			
	POINT	OFFSET	ALONG BL	ELEV
ABUT 1	53	0	0	1'-4 5/16
	65	0	24'-4 15/16	1'-5 13/16
	69	0	48'-4 3/4	1'-5 11/16
	73	0	72'-1 1/2	1'-2 7/16
	77	0	96'-1 5/16	8 1/8
ABUT 2	57	0	120'-6 1/4	0

LINE 3			
POINT	OFFSET	ALONG BL	ELEV
52	8'-0	2'-10 5/16	1'-7 11/16
64	8'-0	27'-3 7/8	1'-9 3/16
68	8'-0	51'-3 11/16	1'-9
72	8'-0	75'-0 7/16	1'-5 13/16
76	8'-0	99'-0 1/4	11 7/16
56	8'-0	123'-5 3/16	3 3/8



SECTION X-X
CROSSFRAMES NOT SHOWN

PLAN VIEW ASSEMBLY NOTES:
1. FOR GENERAL NOTES SEE DRAWING GN1.
2. ALL LONGITUDINAL EXTENSION DIMENSIONS (ALONG BL) ARE GIVEN FROM REFERENCE LINE "A".
3. ALL TRANSVERSE EXTENSION DIMENSIONS (OFFSET) ARE GIVEN FROM REFERENCE LINE "B".
4. ALL ELEVATIONS (ELEV) ARE GIVEN TO THE BOTTOM OF WEB TO A HORIZONTAL DATUM PLANE.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:

DESCRIPTION: SHOP ASSEMBLY

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726
TEMBOR 2033

STRUCTURE: BRISTOL - BRIDGE NO. 31 VT ROUTE NO. TH 5 (SOUTH STREET) OVER NEW HAVEN RIVER		DRAWN: JTB	DATE: 10/19
		CHKD: DBH	DATE: 10/21
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)		JOB NO.	DWG NO.
PROJ NO. BRO 1445 (32)		534	SA1
CUSTOMER: BLOW AND COTE			REV. 0

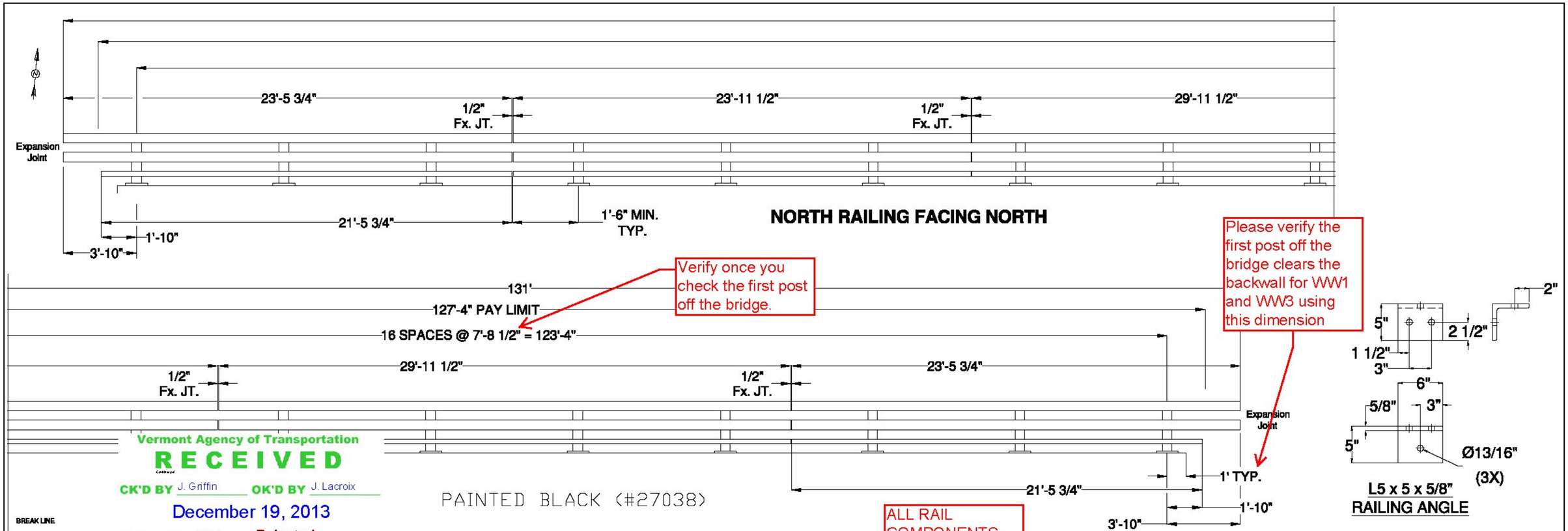
Approved
Revise and Resubmit
X Approved as Noted (product for record)
Rejected (see remarks)

Hoyle, Tanner & Associates, INC.
Project No. 954226

Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the Job site, information that pertains solely to the fabrication process or to the means and methods of construction, coordination of the work of all trades and performing all work in a safe and satisfactory manner. This approval does not modify Contractor's duty of compliance with Contract.

Reviewed By: AAS Date 11/1/13
Approved By: JAD Date: 11/1/13

Thu, Oct 31, 2013 09:08:47 PM J:\projects\954226\SA1.1.dwg



Vermont Agency of Transportation

RECEIVED

CK'D BY J. Griffin OK'D BY J. Lacroix

December 19, 2013

RESUBMIT YES Rejected

BY J. Lacroix DATE 1/7/2014

BREAK LINE

PAINTED BLACK (#27038)

ALL RAIL COMPONENTS

GENERAL NOTES:

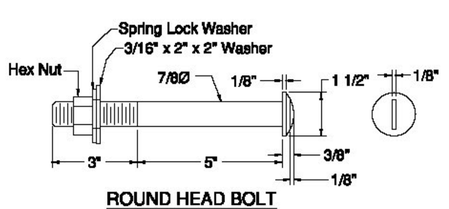
1) ALL RAILING IS TO BE FABRICATED AND ERECTED ACCORDING TO SECTION 525 OF THE STANDARD SPECIFICATIONS.
2) PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
3) BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
4) RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPER STRUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4"@ 68°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
5) RETROREFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 750.08 AND SHALL BE A .063" ALUMINUM BACKING WHITE OR YELLOW REFLECTOR. WHITE IS TO BE INSTALLED ON THE DRIVERS RIGHT. FOR ONE WAY BRIDGES , YELLOW IS TO BE INSTALLED ON THE DRIVERS LEFT.
6) PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
7) THE MINIMUM DISTANCE FROM THE POST TO AN EXPANSION JOINT SHALL BE DETERMINED BY THE MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHOR STUD TO THE END OF THE SLAB, OR THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
8) ALL POST SHALL BE SET NORMAL TO GRADE. THE MAXIMUM CENTER TO CENTER SPACING OF BRIDGE RAIL POST IS 8' 3".
9) ANY BENDING OF RAIL SHALL BE DONE AT THE FABRICATION PLANT ACCORDING TO A PROCEDURE PROVIDED BY THE FABRICATOR.
10) STD. SPLICE HOLES ONLY IN BRIDGE RAIL TUBES. REST TO BE DRILLED BY CUSTOMER. FIELD DRILLED HOLES TO BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
11) THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.
12) ALL BRIDGE RAILINGS, APPROACH RAILINGS, AND GUARDRAIL SHALL BE PAINTED BLACK (COLOR CHIP #27038) EXCEPT HARDWARE AND ANCHORAGE CAST IN CONCRETE.

Very significant bending at WW2, where is the procedure?

Please advise where painting will be done.

BILL OF MATERIAL - NORTH RAIL

ITEM #	QTY	PART #	DESCRIPTION	ASTM DESIGNATION
1	17	0033.03610	W6x25, THREE RAIL POST @ 2'-9" OA ON 1 1/4x10x1'-2" B.P.	A572 Gr. 50
2	2	0033.91046	HSS 3" X 5" X 1/4" RAIL @ 21'-5 3/4"	A500 Gr. B
3	1	0033.91047	HSS 3" X 5" X 1/4" RAIL @ 23'-11 1/2"	A500 Gr. B
4	2	0033.91048	HSS 3" X 5" X 1/4" RAIL @ 29'-11 1/2"	A500 Gr. B
5	4	0033.91049	HSS 6" X 6" X 3/16" RAIL @ 23'-5 3/4"	A500 Gr. B
6	2	0033.91050	HSS 6" X 6" X 3/16" RAIL @ 23'-11 1/2"	A500 Gr. B
7	4	0033.91051	HSS 6" X 6" X 3/16" RAIL @ 29'-11 1/2"	A500 Gr. B
8	4	0033.00840	2-1/8" X 4-1/4" FIX. SPLICE BAR @ 2'-3"	A572 Gr. 50
9	8	0033.00640	HSS 5" X 5" X 5/16" FIX. SPLICE TUBE @ 2'-3"	A500 Gr. B, A572 Gr. 50
10	17	0033.00220	3/8" X 10" X 14" ANCHOR PLATES (END POST)	A572 Gr. 50
11	17	0033.90050	1/8" X 10" X 14" FABRIC PAD	AASHTO M251
12	68	0042.21013	Ø 1" X 13" ANCHOR STUDS, W/ 2 1/4" THD. EACH END	A449 Gr. 1, CLASS 8.8
13	136	0080.18901	Ø 1" HEAVY HEX NUTS	A563
14	136	0080.18911	Ø 1" FLAT WASHERS	F436
15	68	0080.18905	Ø 1" HEX JAM NUTS	A563
16	68	0080.07500	Ø 7/8" X 8" ROUND HEAD BOLT, NUT, SQ. WASHER, L.W.	A449, A563, F436, ASME B18.21.1
17	17	0080.06400	Ø 3/4" X 8" HEX BOLT, NUT, (2) F.W., & L.W.	A325, A563, F436, & ASME B18.21.1
18	34	0080.06140	Ø 3/4" X 2-3/4" HEX BOLT, NUT, (2) F.W., & L.W.	A325, A563, F436, & ASME B18.21.1
19	32	0080.06340	Ø 3/4" X 7-1/2" HEX BOLT, NUT, & (2) F.W.	A325, A563, & F436
20	16	0080.06255	Ø 3/4" X 4-1/2" HEX BOLT, NUT, & (2) F.W.	A325, A563, & F436
21	17	0033.00500	L5" X 5" X 5/8" RAILING ANGLE @ 6'	A572 Gr. 50
22	N/A		DELINEATORS	(SUPPLIED BY CUSTOMER)



ROUND HEAD BOLT

ITEM #: 525.335

F.R. LAFAYETTE, BRISTOL

SHEET 1 OF 3

APPROVED BY:

BRIDGE RAIL DETAILS SHEET

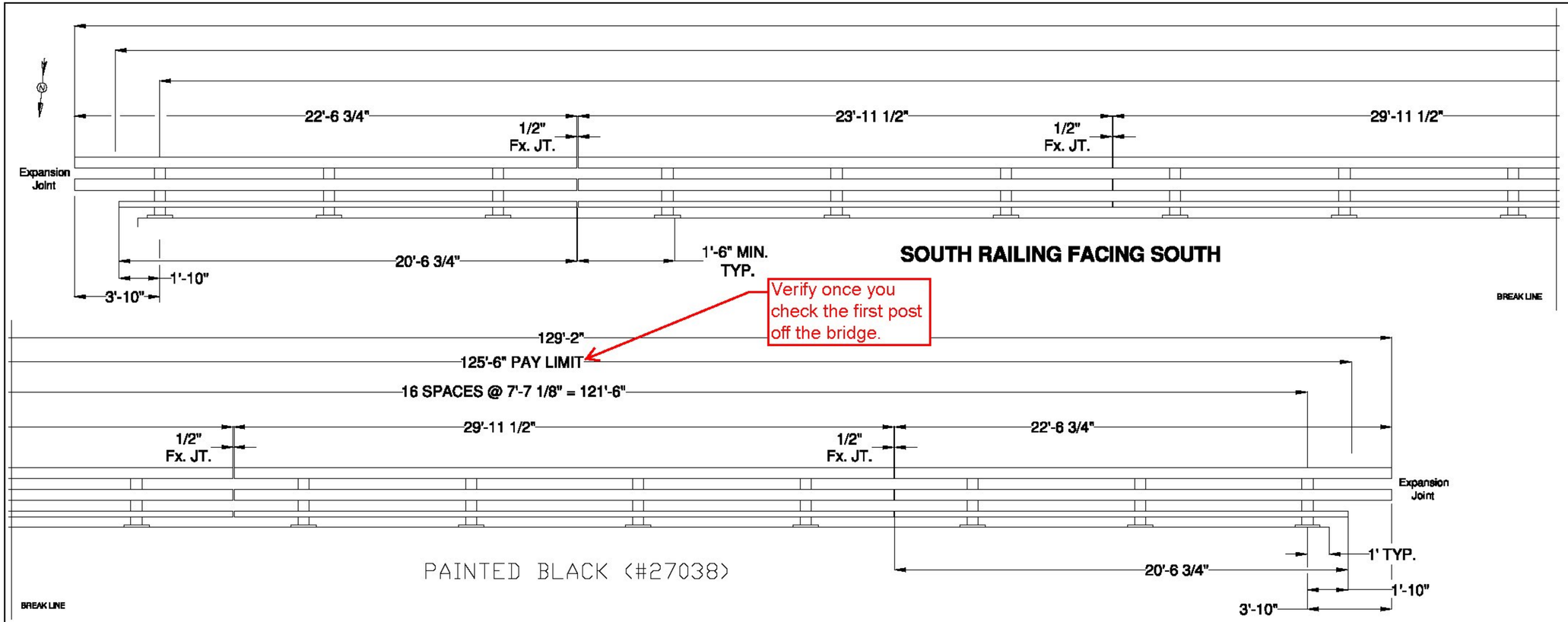
BRISTOL, BRO 1445 (32), SOUTH STREET, BRIDGE #31
TOWN OF BRISTOL, ADDISON COUNTY, VERMONT

R	NO.	DATE	DESCRIPTION	BY	R	NO.	DATE	DESCRIPTION	BY
E				E.P.	E				
V					V				

ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

AISC CERTIFIED FABRICATOR

DRAWN	E.P.	11/13/13
CHECKED	D.L.	11/20/13
APPROVED	.	.
SCALE	SCHEMATIC	
DRAWING NO.	F.R. LAFAYETTE, BRISTOL	



BILL OF MATERIAL - SOUTH RAIL				
ITEM #	QTY	PART #	DESCRIPTION	ASTM DESIGNATION
1	17	0033.03610	W6x25, THREE RAIL POST @ 2'-9" OA ON 1 1/4x10x1'-2" B.P.	A572 Gr. 50
2	2	0033.91058	HSS 3" X 5" X 1/4" RAIL @ 20'-6 3/4"	A500 Gr. B
3	1	0033.91059	HSS 3" X 5" X 1/4" RAIL @ 23'-11 1/2"	A500 Gr. B
4	2	0033.91060	HSS 3" X 5" X 1/4" RAIL @ 29'-11 1/2"	A500 Gr. B
5	4	0033.91061	HSS 6" X 6" X 3/16" RAIL @ 22'-6 3/4"	A500 Gr. B
6	2	0033.91062	HSS 6" X 6" X 3/16" RAIL @ 23'-11 1/2"	A500 Gr. B
7	4	0033.91063	HSS 6" X 6" X 3/16" RAIL @ 29'-11 1/2"	A500 Gr. B
8	4	0033.00840	2-1/8" X 4-1/4" FIX. SPLICE BAR @ 2'-3"	A572 Gr. 50
9	8	0033.00640	HSS 5" X 5" X 5/16" FIX. SPLICE TUBE @ 2'-3"	A500 Gr. B, A572 Gr. 50
10	17	0033.00220	3/8" X 10" X 14" ANCHOR PLATES (END POST)	A572 Gr. 50
11	17	0033.90050	1/8" X 10" X 14" FABRIC PAD	AASHTO M251
12	68	0042.21013	Ø 1" X 13" ANCHOR STUDS, W/ 2 1/4" THD. EACH END	A449 Gr. 1, CLASS 8.8
13	136	0080.18901	Ø 1" HEAVY HEX NUTS	A563
14	136	0080.18911	Ø 1" FLAT WASHERS	F436
15	68	0080.18905	Ø 1" HEX JAM NUTS	A563
16	68	0080.07500	Ø 7/8" X 8" ROUND HEAD BOLT, NUT, SQ. WASHER, L.W.	A449, A563, F436, ASME B18.21.1
17	17	0080.06400	Ø 3/4" X 8" HEX BOLT, NUT, (2) F.W., & L.W.	A325, A563, F436, & ASME B18.21.1
18	34	0080.06140	Ø 3/4" X 2-3/4" HEX BOLT, NUT, (2) F.W., & L.W.	A325, A563, F436, & ASME B18.21.1
19	32	0080.06340	Ø 3/4" X 7-1/2" HEX BOLT, NUT, & (2) F.W.	A325, A563, & F436
20	16	0080.06255	Ø 3/4" X 4-1/2" HEX BOLT, NUT, & (2) F.W.	A325, A563, & F436
21	17	0033.00500	L5" X 5" X 5/8" RAILING ANGLE @ 6"	A572 Gr. 50
22	N/A		DELINEATORS - NOT SHOWN	(SUPPLIED BY CUSTOMER)

Vermont Agency of Transportation

RECEIVED

CK'D BY J. Griffin OK'D BY J. Lacroix

December 19, 2013

RESUBMIT YES Rejected

BY J. Lacroix DATE 1/7/2014

ITEM #: 525.335 F.R. LAFAYETTE, BRISTOL SHEET 2 OF 3

APPROVED BY:

BRIDGE RAIL DETAILS SHEET

BRISTOL, BRO 1445 (32), SOUTH STREET, BRIDGE #31

TOWN OF BRISTOL, ADDISON COUNTY, VERMONT

R E V	NO.	DATE	DESCRIPTION	BY
				E.P.

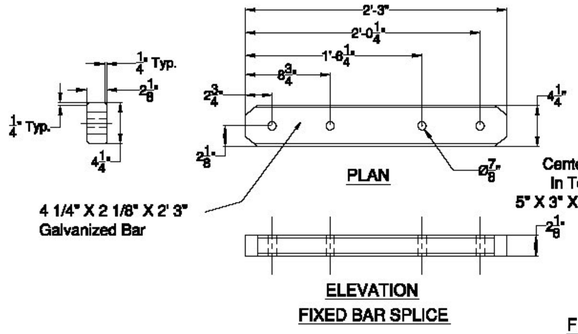
R E V	NO.	DATE	DESCRIPTION	BY

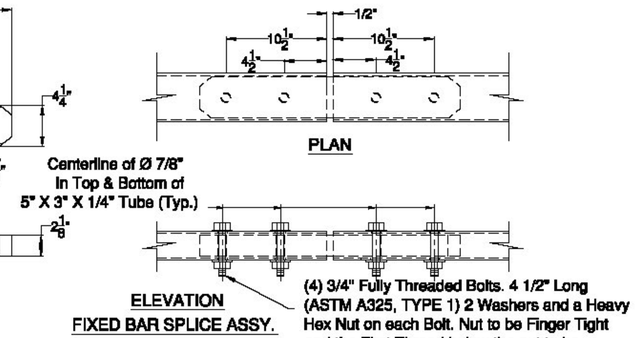
ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

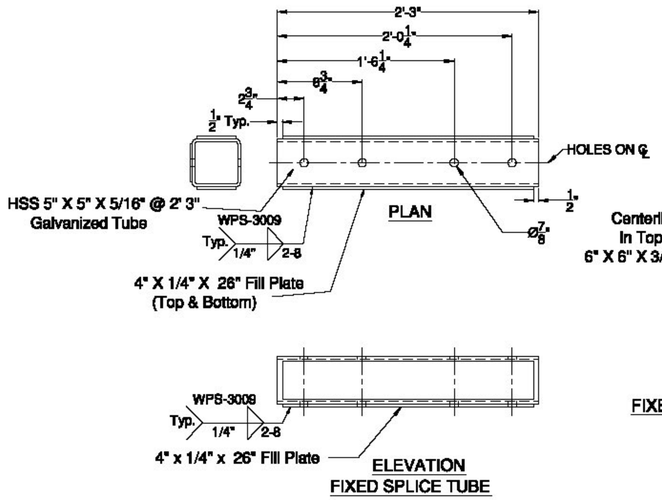
CERTIFIED FABRICATOR

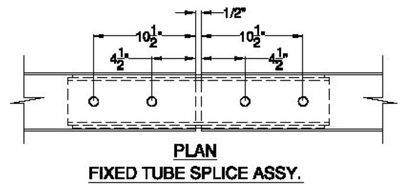
DRAWN	E.P.	11/13/13
CHECKED	D.L.	11/20/13
APPROVED	.	-
SCALE	SCHEMATIC	
DRAWING NO. F.R. LAFAYETTE, BRISTOL		

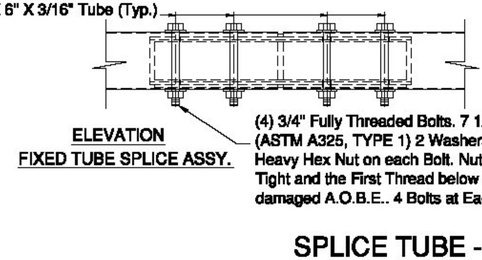
SPLICE BAR - FIXED



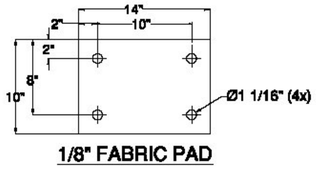




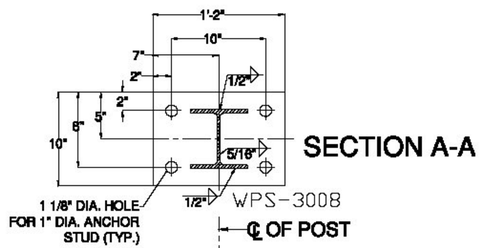




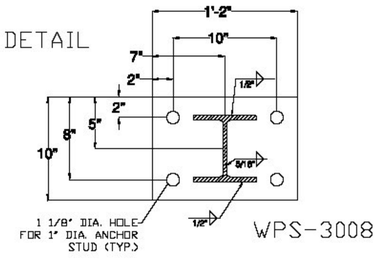
SPLICE TUBE - FIXED

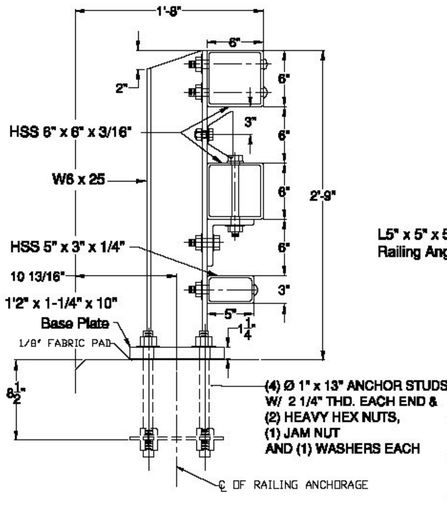


1/8" FABRIC PAD

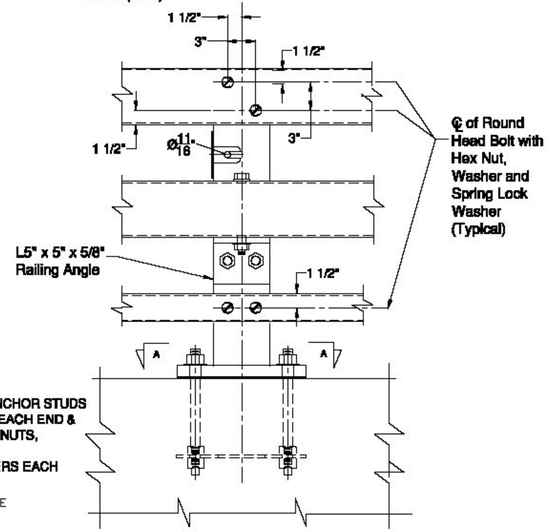


BRIDGE POST DETAIL



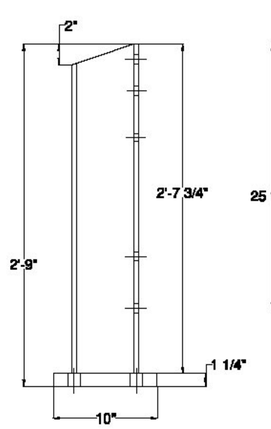


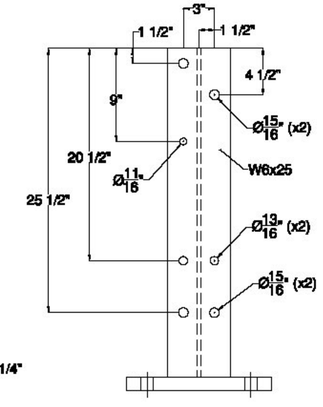
SECTION



ELEVATION

STEEL BRIDGE RAILING





Vermont Agency of Transportation

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CK'D BY J. Griffin OK'D BY J. Lacroix

December 19, 2013

RESUBMIT NO Approved

BY J. Lacroix DATE 1/7/2014

ITEM #: 525.335 F.R. LAFAYETTE, BRISTOL SHEET 3 OF 3

APPROVED BY:

BRIDGE RAIL DETAILS SHEET

BRISTOL, BRO 1445 (32), SOUTH STREET, BRIDGE #31

TOWN OF BRISTOL, ADDISON COUNTY, VERMONT

R E V	NO.	DATE	DESCRIPTION	BY	R E V	NO.	DATE	DESCRIPTION	BY

ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

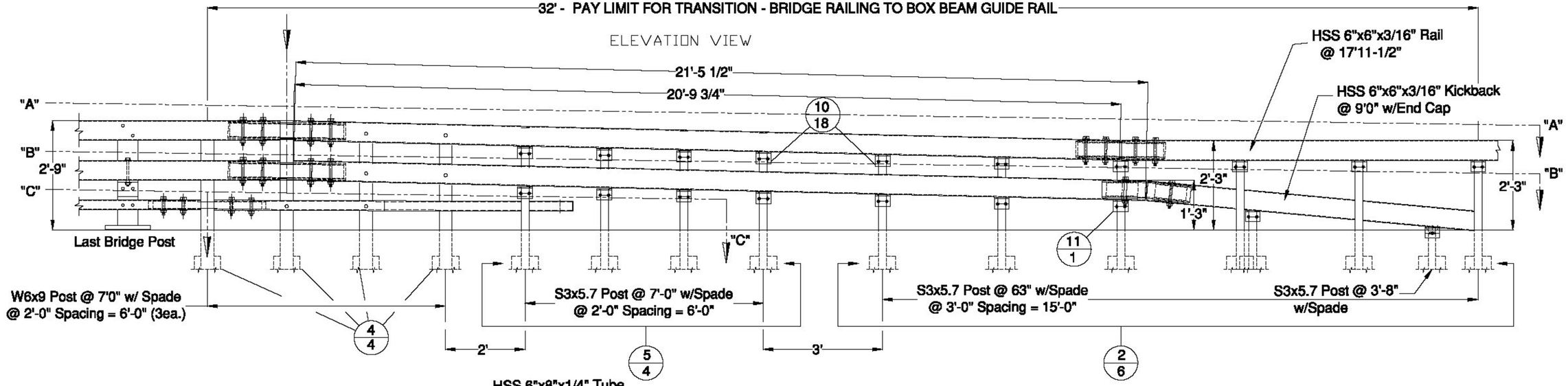
AISC CERTIFIED FABRICATOR

DRAWN	E.P.	11/13/13
CHECKED	D.L.	11/20/13
APPROVED	.	.
SCALE	SCHEMATIC	

DRAWING NO. F.R. LAFAYETTE, BRISTOL

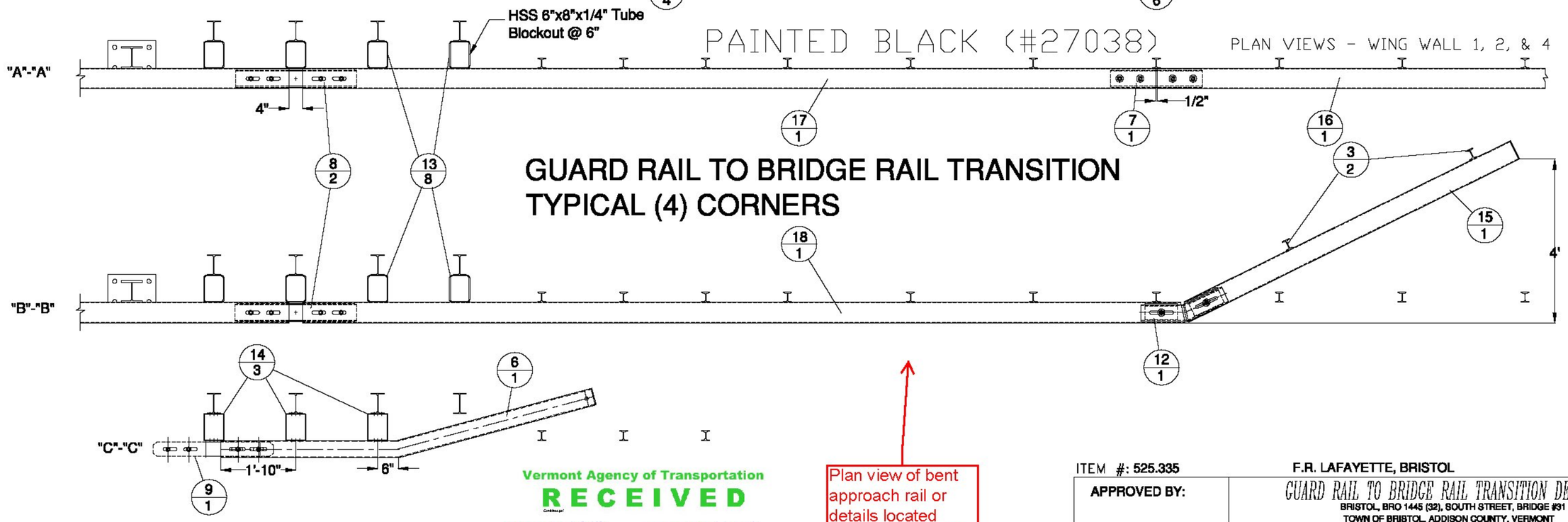
32' - PAY LIMIT FOR TRANSITION - BRIDGE RAILING TO BOX BEAM GUIDE RAIL

ELEVATION VIEW



PAINTED BLACK (#27038)

PLAN VIEWS - WING WALL 1, 2, & 4



GUARD RAIL TO BRIDGE RAIL TRANSITION
TYPICAL (4) CORNERS

Plan view of bent approach rail or details located somewhere else?

Vermont Agency of Transportation
RECEIVED
CK'D BY J. Griffin OK'D BY J. Lacroix
December 19, 2013
RESUBMIT YES Rejected
BY J. Lacroix DATE 1/7/2014

ITEM #: 525.335

F.R. LAFAYETTE, BRISTOL

SHEET 1 OF 4

APPROVED BY:

GUARD RAIL TO BRIDGE RAIL TRANSITION DETAILS SHEET
BRISTOL, BRO 1445 (32), SOUTH STREET, BRIDGE #31
TOWN OF BRISTOL, ADDISON COUNTY, VERMONT

REV	NO.	DATE	DESCRIPTION	BY	REV	NO.	DATE	DESCRIPTION	BY

ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

AISC CERTIFIED FABRICATOR

DRAWN	E.P.	11/13/13
CHECKED	D.L.	11/20/13
APPROVED	.	-
SCALE	SCHEMATIC	
DRAWING NO. F.R. LAFAYETTE, BRISTOL		

Vermont Agency of Transportation

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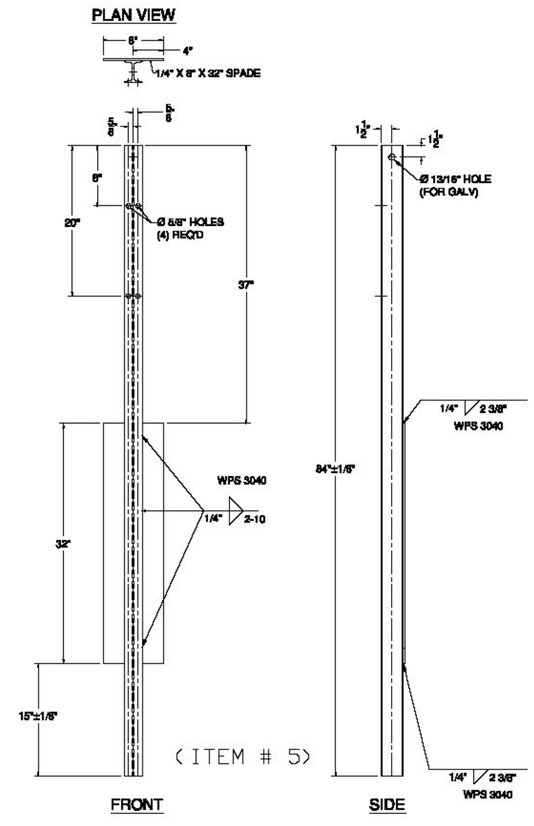
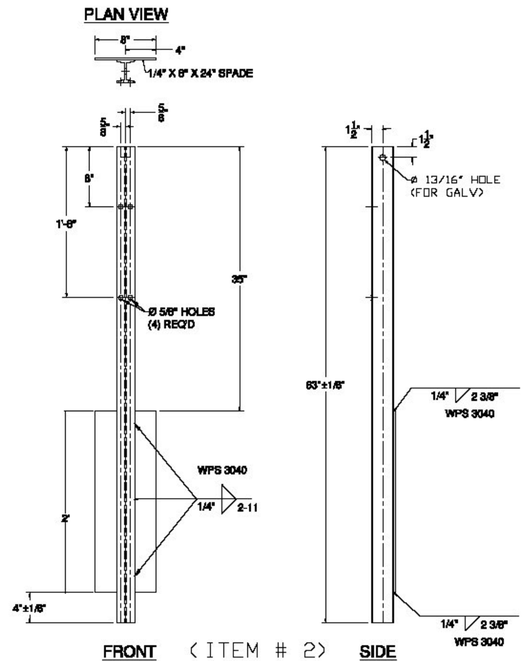
CK'D BY J. Griffin OK'D BY J. Lacroix

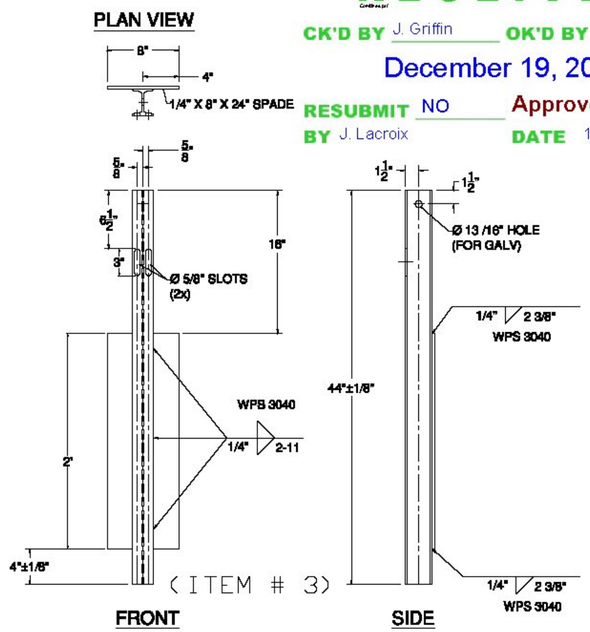
December 19, 2013

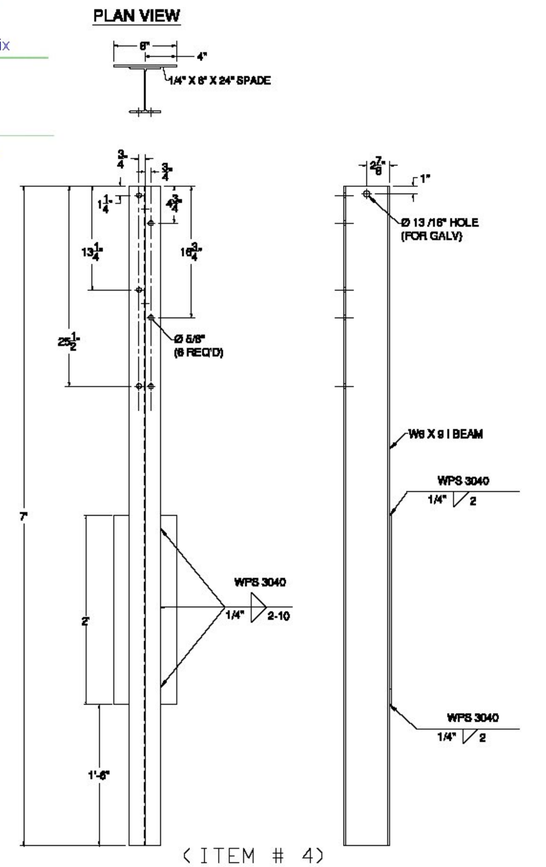
RESUBMIT NO Approved

BY J. Lacroix DATE 1/7/2014









BILL OF MATERIALS, (WW1)

ITEM #	QTY.	COMPONENT #	DESCRIPTION	MATERIAL (ASTM)
2	6	0013.02712	3" I-POST, PUNCH 8', & 20" W/SPD @ 63" LG	AASHTO M 270M Gr.250 OR ASTM A36
3	2	0013.57060	3" I-END POST W/SPD @ 3'-8" LG	AASHTO M 270M Gr.250 OR ASTM A36
4	4	0013.09001	W6X9 POST @ 7' W/SPD & 5/8" HOLES	AASHTO M 270M Gr.250 OR ASTM A36
5	4	0013.57010	3" I-POST, PUNCH 8' & 20', W/8X32" SPADE @7'	AASHTO M 270M Gr.250 OR ASTM A36
6	1	0033.80403	3X5" BTM TRANS RAIL W/5'-0" KB, EXP END	A500 Gr. B
7	1	0033.00640	HSS 5X5 TUBE SPLICE @27" LG W/ 1/4" SHIMS	A500 Gr. B / A572 Gr 50
8	2	0033.00730	HSS 5x5 EXP TUBE SPLICE @ 36" LG W/ 1/4" SHIMS	A500 Gr. B / A572 Gr 50
9	1	0033.00930	BR EXP BAR SPLICE 2-1/8" X 4-1/4" @ 36" LG	AASHTO M 270M Gr.250 OR ASTM A36
10	18	0054.00050	REG BB SHELF ANGLES @ 4-1/2"	AASHTO M 270M Gr.250 OR ASTM A36
11	1	0054.00052	DWY BB SHELF ANGLES @ 4-1/2"	AASHTO M 270M Gr.250 OR ASTM A36
12	1	0054.00074	HSS 5X5 DBL BEND TUBE SPL @ 27" LG	A500 Gr. B / A572 Gr 50
13	8	0054.00563	6X8" TRANS. TUBE B/O @ 6" LG	A500 Gr. B
14	3	0054.00565	6X8" TRANS. TUBE B/O @ 3" LG	A500 Gr. B
15	1	0054.09000	6X6" BB @ 9'-0" KICKBACK, W/ CAP	A500 Gr. B / A36
16✱	0.5	0054.X	6X6" BB @ 17'-11 1/2", DRILL 3" CC	A500 Gr. B
17✱	1	0054.90092	6X6" BB TOP TRANS @ 20'-9 5/8" LG W/EXP END	A500 Gr. B
18✱	1	0054.90093	6X6" BB BTM TRANS @ 21'-4 5/8" LG W/EXP END	A500 Gr. B
19	17	0080.03355	3/8" X 7 1/2" BOLT, NUT, & 2 FW	A307, A563, F436
20	19	0080.04100	1/2" x 1-1/2" BOLT, NUT, & FW	A307, A563, F436
21	22	0080.04120	1/2" x 1-1/2" BOLT, NUT, 2 FW & LW	A307, A563, F436
22	4	0080.06255	3/4" X 4-1/2" BOLT, NUT, 2 FW	A325, A563, F436
23	12	0080.06340	3/4" X 7-1/2" BOLT, NUT, 2 FW	A325, A563, F436
24	6	0080.06370	3/4" X 8" CARR BOLT, NUT, FW & LW	A307, A563, F436
25	2	0080.06400	3/4" X 8" BOLT, NUT, 2 FW, & LW	A325, A563, F436

✱ - @ NORTH WEST CORNER (WW1), ITEMS 17 & 18 - PARTIAL 16'-0" RAD.
ITEM #16 - 7'-6 W/ DROP END W/ 16' RAD. (NO 18')

HARDWARE NOTES

ITEM #	FUNCTION
19	BOLT RAIL TO SHELF ANGLE (ITEM #10)
20	BOLT SHELF ANGLE (ITEM #'S 10 & 11) TO POST
21	BOLT BLOCK-OUTS (ITEM #'S 13 & 14) TO HEAVY POST
22	(4) PER SPLICE BAR (ITEM #9)
23	(4) PER SPLICE TUBING (ITEM #'S 7 & 8)
24	BOLT RAIL (ITEMS #'S 6,17, & 18 TO BLOCK-OUTS (ITEM #'S 13 & 14) (WHERE FASTENED)
25	BOLT DOUBLE BEND SPLICE TUBE (ITEM #12) TO RAIL (ITEM #18) & KICKBACK (ITEM #15) & ITEM #11)

BILL OF MATERIALS, (WW2)

ITEM #	QTY.	COMPONENT #	DESCRIPTION	MATERIAL (ASTM)
2	6	0013.02712	3" I-POST, PUNCH 8', & 20" W/SPD @ 63" LG	AASHTO M 270M Gr.250 OR ASTM A36
3	2	0013.57060	3" I-END POST W/SPD @ 3'-8" LG	AASHTO M 270M Gr.250 OR ASTM A36
4	4	0013.09001	W6X9 POST @ 7' W/SPD & 5/8" HOLES	AASHTO M 270M Gr.250 OR ASTM A36
5	4	0013.57010	3" I-POST, PUNCH 8' & 20', W/8X32" SPADE @7'	AASHTO M 270M Gr.250 OR ASTM A36
6	1	0033.80403	3X5" BTM TRANS RAIL W/5'-0" KB, EXP END	A500 Gr. B
7	1	0033.00640	HSS 5X5 TUBE SPLICE @27" LG W/ 1/4" SHIMS	A500 Gr. B / A572 Gr 50
8	2	0033.00730	HSS 5x5 EXP TUBE SPLICE @ 36" LG W/ 1/4" SHIMS	A500 Gr. B / A572 Gr 50
9	1	0033.00930	BR EXP BAR SPLICE 2-1/8" X 4-1/4" @ 36" LG	AASHTO M 270M Gr.250 OR ASTM A36
10	18	0054.00050	REG BB SHELF ANGLES @ 4-1/2"	AASHTO M 270M Gr.250 OR ASTM A36
11	1	0054.00052	DWY BB SHELF ANGLES @ 4-1/2"	AASHTO M 270M Gr.250 OR ASTM A36
12	1	0054.00074	HSS 5X5 DBL BEND TUBE SPL @ 27" LG	A500 Gr. B / A572 Gr 50
13	8	0054.00563	6X8" TRANS. TUBE B/O @ 6" LG	A500 Gr. B
14	3	0054.00565	6X8" TRANS. TUBE B/O @ 3" LG	A500 Gr. B
15	1	0054.09000	6X6" BB @ 9'-0" KICKBACK, W/ CAP	A500 Gr. B / A36
16	0.5	0054.X	6X6" BB @ 17'-11 1/2", DRILL 3" CC, W/ (TBD") BEND	A500 Gr. B
17	1	0054.90092	6X6" BB TOP TRANS @ 20'-9 5/8" LG W/EXP END	A500 Gr. B
18	1	0054.90093	6X6" BB BTM TRANS @ 21'-4 5/8" LG W/EXP END	A500 Gr. B
19	17	0080.03355	3/8" X 7 1/2" BOLT, NUT, & 2 FW	A307, A563, F436
20	19	0080.04100	1/2" x 1-1/2" BOLT, NUT, & FW	A307, A563, F436
21	22	0080.04120	1/2" x 1-1/2" BOLT, NUT, 2 FW & LW	A307, A563, F436
22	4	0080.06255	3/4" X 4-1/2" BOLT, NUT, 2 FW	A325, A563, F436
23	12	0080.06340	3/4" X 7-1/2" BOLT, NUT, 2 FW	A325, A563, F436
24	6	0080.06370	3/4" X 8" CARR BOLT, NUT, FW & LW	A307, A563, F436
25	2	0080.06400	3/4" X 8" BOLT, NUT, 2 FW, & LW	A325, A563, F436

✱ - @ SOUTH WEST CORNER (WW2), ITEMS 17 & 18 - 11'-6" RAD.
ITEM #16 - 9' W/ 11'6" RADIUS, BALANCE STRAIGHT.

BILL OF MATERIALS, (WW3)

ITEM #	QTY.	COMPONENT #	DESCRIPTION	MATERIAL (ASTM)
2	6	0013.02712	3" I-POST, PUNCH 8', & 20" W/SPD @ 63" LG	AASHTO M 270M Gr.250 OR ASTM A36
3	2	0013.57060	3" I-END POST W/SPD @ 3'-8" LG	AASHTO M 270M Gr.250 OR ASTM A36
4	4	0013.09001	W6X9 POST @ 7' W/SPD & 5/8" HOLES	AASHTO M 270M Gr.250 OR ASTM A36
5	4	0013.57010	3" I-POST, PUNCH 8' & 20', W/8X32" SPADE @7'	AASHTO M 270M Gr.250 OR ASTM A36
6	1	0033.80403	3X5" BTM TRANS RAIL W/5'-0" KB, EXP END	A500 Gr. B
7	1	0033.00640	HSS 5X5 TUBE SPLICE @27" LG W/ 1/4" SHIMS	A500 Gr. B / A572 Gr 50
8	2	0033.00730	HSS 5x5 EXP TUBE SPLICE @ 36" LG W/ 1/4" SHIMS	A500 Gr. B / A572 Gr 50
9	1	0033.00930	BR EXP BAR SPLICE 2-1/8" X 4-1/4" @ 36" LG	AASHTO M 270M Gr.250 OR ASTM A36
10	18	0054.00050	REG BB SHELF ANGLES @ 4-1/2"	AASHTO M 270M Gr.250 OR ASTM A36
11	1	0054.00052	DWY BB SHELF ANGLES @ 4-1/2"	AASHTO M 270M Gr.250 OR ASTM A36
12	1	0054.00074	HSS 5X5 DBL BEND TUBE SPL @ 27" LG	A500 Gr. B / A572 Gr 50
13	8	0054.00563	6X8" TRANS. TUBE B/O @ 6" LG	A500 Gr. B
14	3	0054.00565	6X8" TRANS. TUBE B/O @ 3" LG	A500 Gr. B
15	1	0054.09000	6X6" BB @ 9'-0" KICKBACK, W/ CAP	A500 Gr. B / A36
16	0.5	0054.X	6X6" BB @ 17'-11 1/2", DRILL 3" CC	A500 Gr. B
17	1	0054.90092	6X6" BB TOP TRANS @ 20'-9 5/8" LG W/EXP END	A500 Gr. B
18	1	0054.90093	6X6" BB BTM TRANS @ 21'-4 5/8" LG W/EXP END	A500 Gr. B
19	17	0080.03355	3/8" X 7 1/2" BOLT, NUT, & 2 FW	A307, A563, F436
20	19	0080.04100	1/2" x 1-1/2" BOLT, NUT, & FW	A307, A563, F436
21	22	0080.04120	1/2" x 1-1/2" BOLT, NUT, 2 FW & LW	A307, A563, F436
22	4	0080.06255	3/4" X 4-1/2" BOLT, NUT, 2 FW	A325, A563, F436
23	12	0080.06340	3/4" X 7-1/2" BOLT, NUT, 2 FW	A325, A563, F436
24	6	0080.06370	3/4" X 8" CARR BOLT, NUT, FW & LW	A307, A563, F436
25	2	0080.06400	3/4" X 8" BOLT, NUT, 2 FW, & LW	A325, A563, F436

BILL OF MATERIALS, (WW4)

ITEM #	QTY.	COMPONENT #	DESCRIPTION	MATERIAL (ASTM)
2	6	0013.02712	3" I-POST, PUNCH 8', & 20" W/SPD @ 63" LG	AASHTO M 270M Gr.250 OR ASTM A36
3	2	0013.57060	3" I-END POST W/SPD @ 3'-8" LG	AASHTO M 270M Gr.250 OR ASTM A36
4	4	0013.09001	W6X9 POST @ 7' W/SPD & 5/8" HOLES	AASHTO M 270M Gr.250 OR ASTM A36
5	4	0013.57010	3" I-POST, PUNCH 8' & 20', W/8X32" SPADE @7'	AASHTO M 270M Gr.250 OR ASTM A36
6	1	0033.80403	3X5" BTM TRANS RAIL W/5'-0" KB, EXP END	A500 Gr. B
7	1	0033.00640	HSS 5X5 TUBE SPLICE @27" LG W/ 1/4" SHIMS	A500 Gr. B / A572 Gr 50
8	2	0033.00730	HSS 5x5 EXP TUBE SPLICE @ 36" LG W/ 1/4" SHIMS	A500 Gr. B / A572 Gr 50
9	1	0033.00930	BR EXP BAR SPLICE 2-1/8" X 4-1/4" @ 36" LG	AASHTO M 270M Gr.250 OR ASTM A36
10	18	0054.00050	REG BB SHELF ANGLES @ 4-1/2"	AASHTO M 270M Gr.250 OR ASTM A36
11	1	0054.00052	DWY BB SHELF ANGLES @ 4-1/2"	AASHTO M 270M Gr.250 OR ASTM A36
12	1	0054.00074	HSS 5X5 DBL BEND TUBE SPL @ 27" LG	A500 Gr. B / A572 Gr 50
13	8	0054.00563	6X8" TRANS. TUBE B/O @ 6" LG	A500 Gr. B
14	3	0054.00565	6X8" TRANS. TUBE B/O @ 3" LG	A500 Gr. B
15	1	0054.09000	6X6" BB @ 9'-0" KICKBACK, W/ CAP	A500 Gr. B / A36
16	0.5	0054.18000	6X6" BB @ 17'-11 1/2", DRILL 3" CC	A500 Gr. B
17	1	0054.90092	6X6" BB TOP TRANS @ 20'-9 5/8" LG W/EXP END	A500 Gr. B
18	1	0054.90093	6X6" BB BTM TRANS @ 21'-4 5/8" LG W/EXP END	A500 Gr. B
19	17	0080.03355	3/8" X 7 1/2" BOLT, NUT, & 2 FW	A307, A563, F436
20	19	0080.04100	1/2" x 1-1/2" BOLT, NUT, & FW	A307, A563, F436
21	22	0080.04120	1/2" x 1-1/2" BOLT, NUT, 2 FW & LW	A307, A563, F436
22	4	0080.06255	3/4" X 4-1/2" BOLT, NUT, 2 FW	A325, A563, F436
23	12	0080.06340	3/4" X 7-1/2" BOLT, NUT, 2 FW	A325, A563, F436
24	6	0080.06370	3/4" X 8" CARR BOLT, NUT, FW & LW	A307, A563, F436
25	2	0080.06400	3/4" X 8" BOLT, NUT, 2 FW, & LW	A325, A563, F436

ITEM #: 525.335

F.R. LAFAYETTE, BRISTOL

SHEET 2 OF 4

APPROVED BY:

GUARD RAIL TO BRIDGE RAIL TRANSITION DETAILS SHEET

BRISTOL, BRO 1445 (32), SOUTH STREET, BRIDGE #31

TOWN OF BRISTOL, ADDISON COUNTY, VERMONT

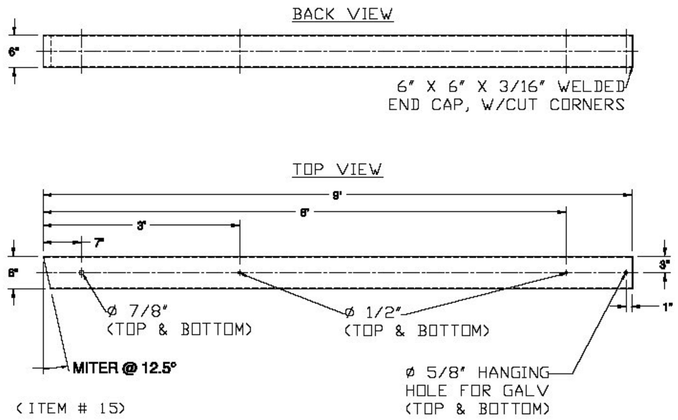
R E V	NO.	DATE	DESCRIPTION	BY

R E V	NO.	DATE	DESCRIPTION	BY

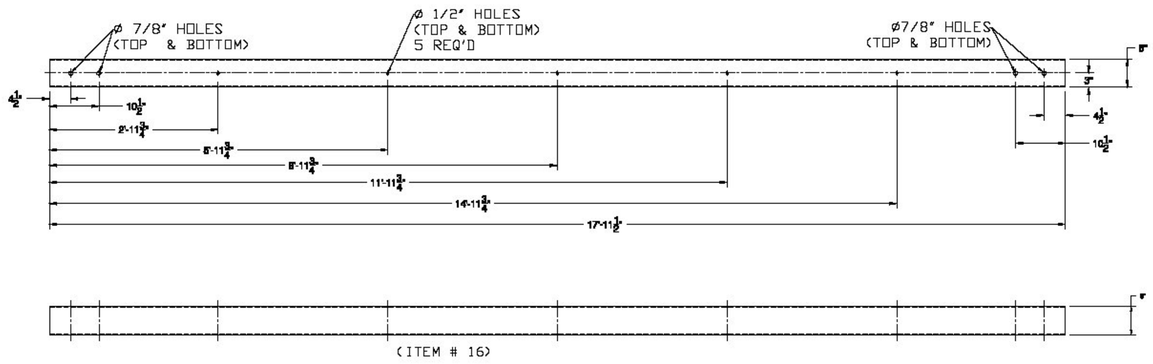
ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

CERTIFIED FABRICATOR

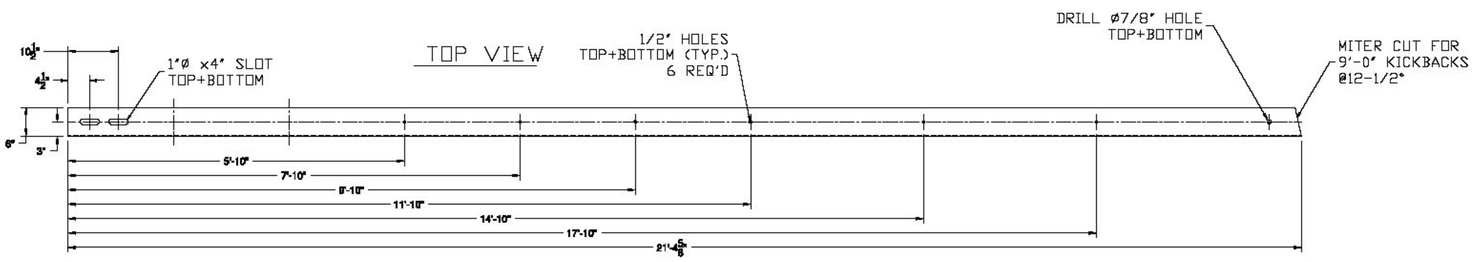
DRAWN	E.P.	11/13/13
CHECKED	D.L.	11/20/13
APPROVED	.	-
SCALE	SCHEMATIC	
DRAWING NO. F.R. LAFAYETTE, BRISTOL		

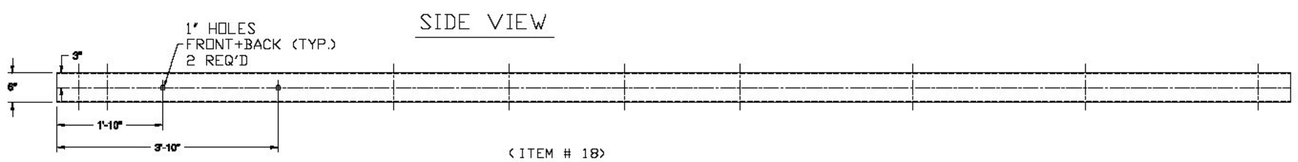


(ITEM # 15)

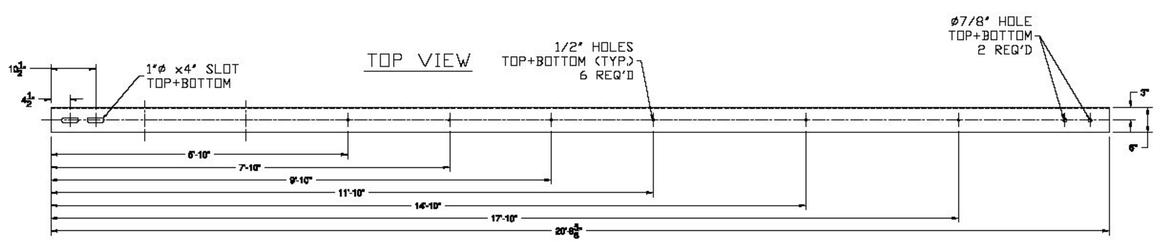


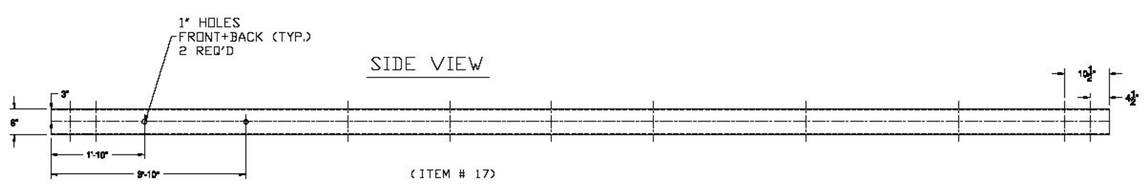
(ITEM # 16)



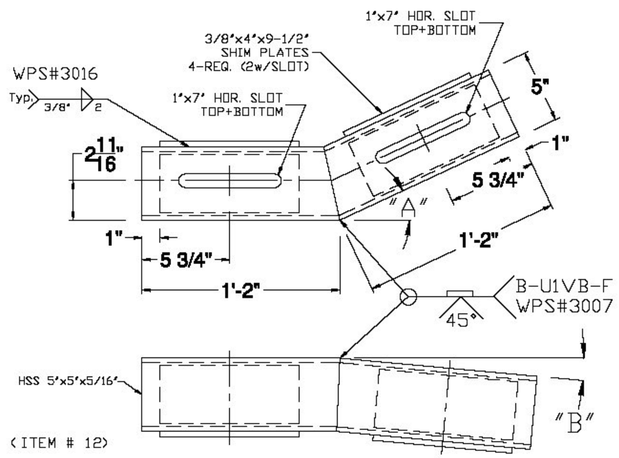


(ITEM # 18)





(ITEM # 17)



(ITEM # 12)

"A" - SEE PLAN FOR TURN BACK DISTANCE, SET ANGLE ACCORDINGLY.
"B" - TURN DOWN ANGLE SET BY THE 9' MEASURMENT AT THE END OF THE BOX BEAM.

What are the values fore 'A' and 'B' for each approach section?

GENERAL NOTES:

1) ALL RAILING IS TO BE FABRICATED AND ERECTED ACCORDING TO SECTION 525 OF THE STANDARD SPECIFICATIONS.
2) BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
3) PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
4) BOX BEAM TUBE AND STEEL POST MATERIALS, DIMENSION SIZES AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGE RAIL, UNLESS OTHERWISE NOTED.
5) ALL BRIDGE RAILINGS, APPROACH RAILINGS, AND GUARDRAIL SHALL BE PAINTED BLACK (COLOR CHIP #27038) EXCEPT HARDWARE AND ANCHORAGE CAST IN CONCRETE.

Vermont Agency of Transportation
RECEIVED
CK'D BY J. Griffin OK'D BY J. Lacroix
December 19, 2013
RESUBMIT YES Rejected
BY J. Lacroix DATE 1/7/2014

ITEM #: 525.335 F.R. LAFAYETTE, BRISTOL SHEET 3 OF 4

APPROVED BY:

GUARD RAIL TO BRIDGE RAIL TRANSITION DETAILS SHEET

BRISTOL, BRO 1445 (32), SOUTH STREET, BRIDGE #31
TOWN OF BRISTOL, ADDISON COUNTY, VERMONT

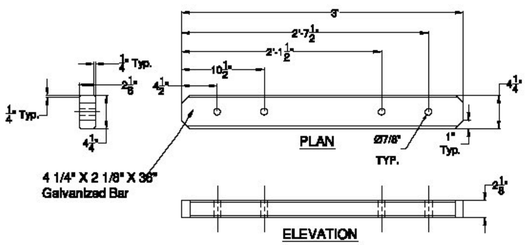
R E V	NO.	DATE	DESCRIPTION	BY	R E V	NO.	DATE	DESCRIPTION	BY

ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

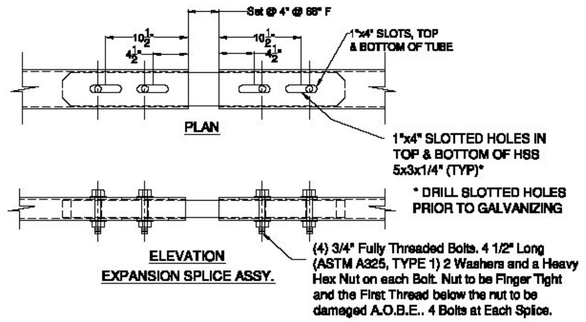
AISC CERTIFIED FABRICATOR

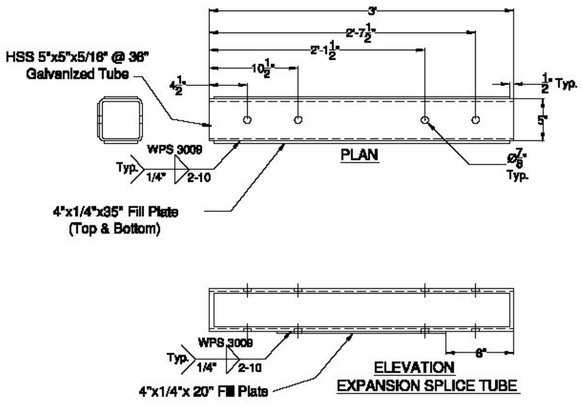
DRAWN	E.P.	11/13/13
CHECKED	D.L.	11/20/13
APPROVED	.	.
SCALE	SCHEMATIC	
DRAWING NO. F.R. LAFAYETTE, BRISTOL		

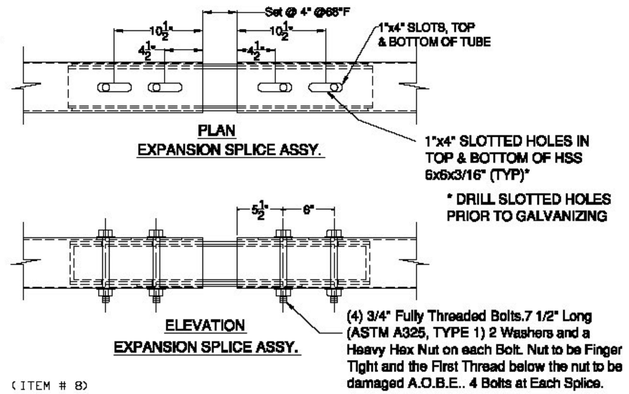
SPLICE BAR - EXPANSION



(ITEM # 9)

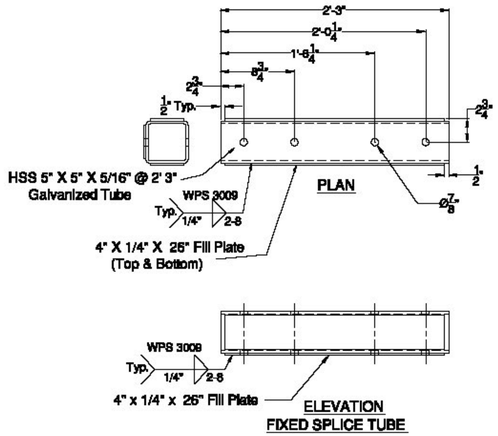


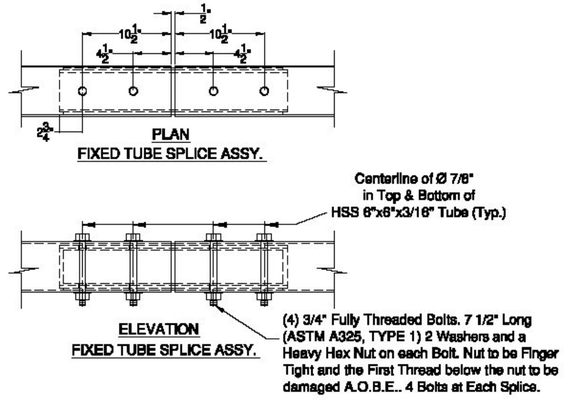




(ITEM # 8)

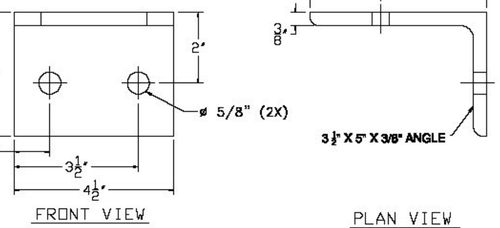
SPLICE TUBE - EXPANSION

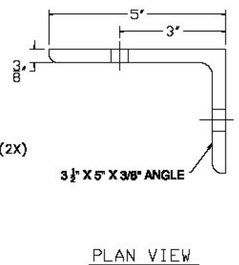




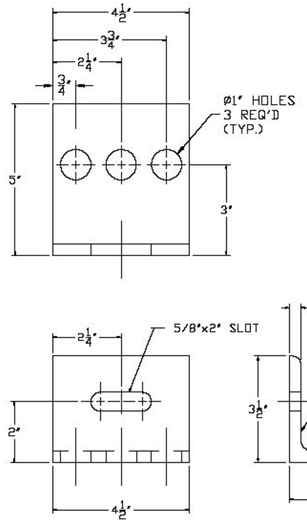
(ITEM # 7)

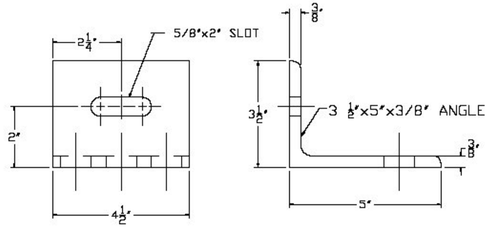
SPLICE TUBE - FIXED



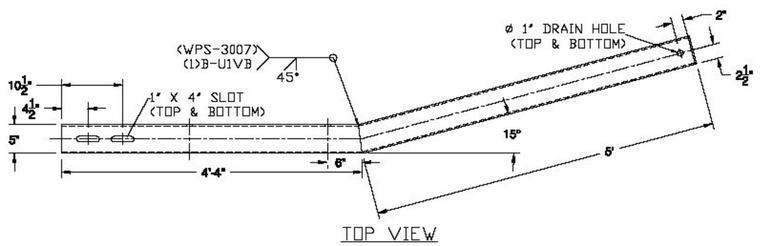


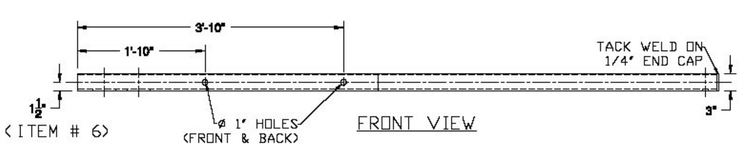
(ITEM # 10)



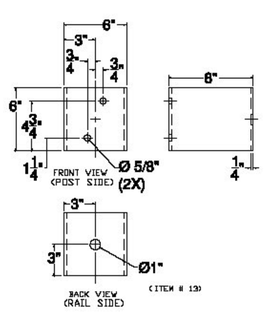


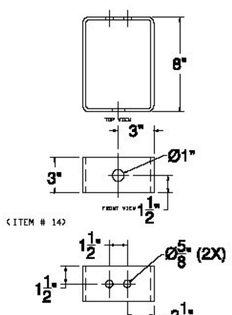
(ITEM # 11)

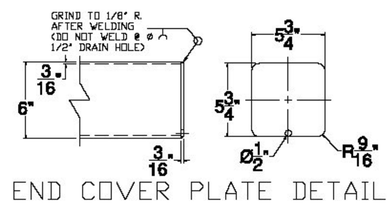




(ITEM # 6)







Vermont Agency of Transportation

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CK'D BY J. Griffin OK'D BY J. Lacroix

December 19, 2013

RESUBMIT NO Approved

BY J. Lacroix DATE 1/7/2014

ITEM #: 525.335 F.R. LAFAYETTE, BRISTOL SHEET 4 OF 4

APPROVED BY:

GUARD RAIL TO BRIDGE RAIL TRANSITION DETAILS SHEET

BRISTOL, BRO 1445 (32), SOUTH STREET, BRIDGE #31

TOWN OF BRISTOL, ADDISON COUNTY, VERMONT

R E V	NO.	DATE	DESCRIPTION	BY	R E V	NO.	DATE	DESCRIPTION	BY

ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail:dlong@elderlee.com
Tel:315-789-6670 Fax:315-789-6615

CERTIFIED FABRICATOR

DRAWN	E.P.	11/13/13
CHECKED	D.L.	11/20/13
APPROVED	.	-
SCALE	SCHEMATIC	
DRAWING NO. F.R. LAFAYETTE, BRISTOL		

Vermont Agency of Transportation

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December 19, 2013

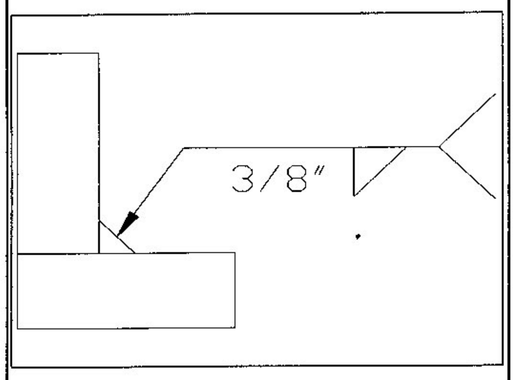
RESUBMIT NO Approved

BY J. Lacroix DATE 1/7/2014

WELDING PROCEDURE SPECIFICATION

Material Specification	ASTM-A36 A709 GR 36 CVN		
Welding Process	FCAW		
Manual or Machine	SEMAUTOMATIC		
Position of Welding	FLAT		
Filler Metal Specification	A5.20- 95		
Filler Metal Classification	E71T-1H8 E71T-9H8 LINCOLN ULTRACORE		
Flux	N/A		
Shielding Gas	CO 2	Dew Point -40DEG F Flow Rate 50CFH	
Single or Multiple Pass	SINGLE		
Single or Multiple Arc	SINGLE		
Welding Current	DC		
Polarity	REVERSE		
Welding Progression	STRINGER		
Root Treatment	PER D1.5		
Preheat and Interpass Temperature	PER D1.5		
Postheat Temperature	NONE		
Heat Input	Min	Max	

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current Amperes	Welding Current Volts	Travel speed	Joint detail
1	1/16	300	26	14	
Variable	LIMITS	270 TO 330	24 TO 28	12.6 TO 15.4	

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

Procedure No. 3016

Revision No.

Contractor Elderlee, Inc.

Authorized By RANDY SCOTT

Date 1/3/2013

Form III-2

Form III-2-Sample Welding Procedure Specification

Vermont Agency of Transportation

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December 19, 2013

WELDING PROCEDURE SPECIFICATION

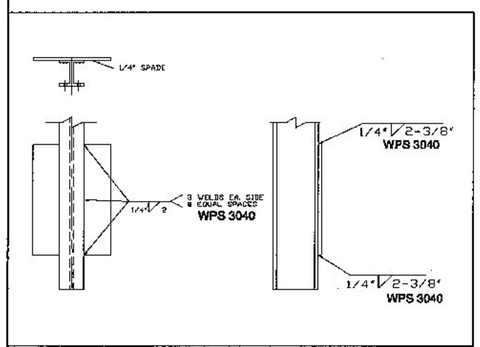
RESUBMIT NO Approved

BY J. Lacroix DATE 1/7/2014

Material Specification	A36		
Welding Process	GMAW		
Manual or Machine	SEMAUTOMATIC		
Position of Welding	FLAT		
Filler Metal Specification	A5.18		
Filler Metal Classification	L-50 .052 LINCOLN		
Flux	N/A		
Shielding Gas	90% ARGON /10% CO2	Dew Point -40DEG F Flow Rate	50 CFM
Single or Multiple Pass	SINGLE		
Single or Multiple Arc	SINGLE		
Welding Current	DC		
Polarity	REVERSE		
Welding Progression	STRINGER		
Root Treatment	PER D1.5		
Preheat and Interpass Temperature	PER D1.5		
Postheat Temperature	NONE		
Heat Input	Min	Max	

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current Amperes	Welding Current Volts	Travel speed	Joint detail
	.052	430	32	13	
Variable	LIMITS	387 TO 473	29 TO 34	12 TO 14	



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

Procedure No. 3040

Revision No.

Contractor Elderlee, Inc.

Authorized By RANDY SCOTT

Date 12/20/2011

Form III-2

Form III-2-Sample Welding Procedure Specification

Vermont Agency of Transportation

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CK'D BY JWC OK'D BY

December 19, 2013

RESUBMIT NO Approved

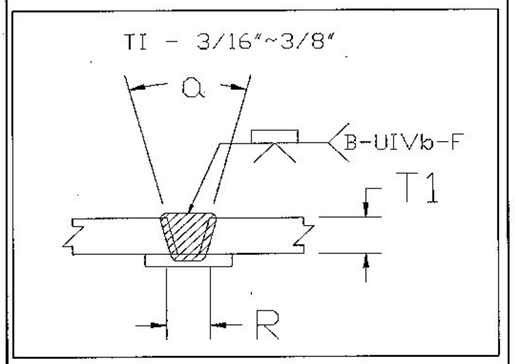
BY J. Lacroix DATE 1/7/2014

WELDING PROCEDURE SPECIFICATION

Material Specification	A500 GR B
Welding Process	FCAW
Manual or Machine	SEMAUTOMATIC
Position of Welding	FLAT
Filler Metal Specification	A5.20 - 95
Filler Metal Classification	E71T-1H8 E71T-9H8 LINCOLN ULTRACORE
Flux	N/A
Shielding Gas	CO 2 Dew Point -40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE
Single or Multiple Arc	SINGLE
Welding Current	DC
Polarity	REVERSE ELECTRODE POSITIVE
Welding Progression	STRINGER
Root Treatment	PER D1.5
Preheat and Interpass Temperature	PER D1.5
Postheat Temperature	NONE
Heat Input	Min Max

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current Amperes	Welding Current Volts	Travel speed	Joint detail
1	1/16	300	26	14	
Variable	LIMITS	270 TO 330	24 TO 28	12.6 TO 15.4	



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

Procedure No. 3007

Revision No.

Contractor Elderlee, Inc.

Authorized By RANDY SCOTT

Date 5/29/2013

Form III-2

Form III-2-Sample Welding Procedure Specification

Vermont Agency of Transportation

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CK'D BY JWC OK'D BY

December 19, 2013

RESUBMIT NO Approved

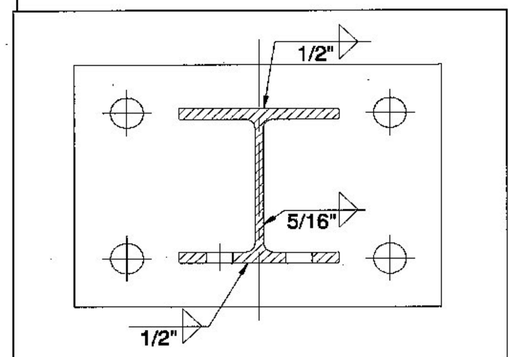
BY J. Lacroix DATE 1/7/2014

WELDING PROCEDURE SPECIFICATION

Material Specification	A572 GRD. 50 /A992-06a		
Welding Process	FCAW		
Manual or Machine	SEMAUTOMATIC		
Position of Welding	FLAT		
Filler Metal Specification	A5.20		
Filler Metal Classification	E70 LINCOLN OUTERSHEILD		
Flux	N/A		
Shielding Gas	CO 2	Dew Point -40DEG F Flow Rate 50 CFM (45 TO 63 CFM)	
Single or Multiple Pass	SINGLE		
Single or Multiple Arc	N/A		
Welding Current	DC		
Polarity	DCEP		
Welding Progression	STRINGER		
Root Treatment	PER D1.5		
Preheat and Interpass Temperature	PER D1.5		
Postheat Temperature	NONE		
Heat Input	Min	Max	

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current Amperes	Welding Current Volts	Travel speed	Joint detail
1	3/32	390	27	12	
Variable	LIMITS	351 TO 429	25 TO 29	11 TO 13	



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

Procedure No. 3008

Revision No.

Contractor Elderlee, Inc.

Authorized By RANDY SCOTT

Date 5/29/2013

Vermont Agency of Transportation

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CK'D BY JWC OK'D BY

December 19, 2013

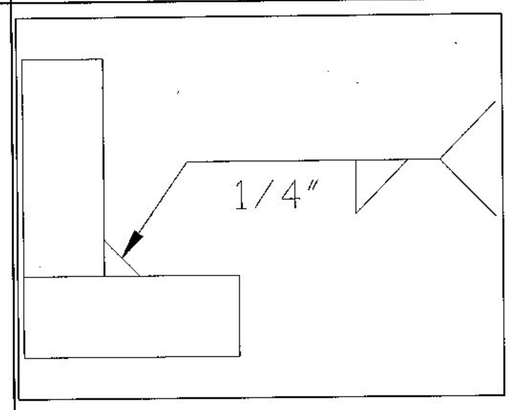
RESUBMIT NO Approved

BY J. Lacroix DATE 1/7/2014

WELDING PROCEDURE SPECIFICATION

Material Specification	A709 TO A500 GR B
Welding Process	FCAW
Manual or Machine	SEMAUTOMATIC
Position of Welding	FLAT
Filler Metal Specification	A5.20 - 95
Filler Metal Classification	E71T-1H8 E71T-9H8 LINCOLN ULTRACORE
Flux	N/A
Shielding Gas	CO 2 Dew Point -40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE
Single or Multiple Arc	SINGLE
Welding Current	DC
Polarity	REVERSE ELECTRODE POSITIVE
Welding Progression	STRINGER
Root Treatment	D1.5
Preheat and Interpass Temperature	D1.5
Postheat Temperature	NONE
Heat Input	Min Max

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current Amperes	Welding Current Volts	Travel speed	Joint detail
1	1/16	300	26	14	
Variable	LIMITS	270 TO 330	24 TO 28	12.6 TO 15.4	

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

Procedure No. 3009

Revision No.

Contractor Elderlee, Inc.

Authorized By RANDY SCOTT

Date 5/22/2013

Form III-2

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM Gr 50 + 50W
Welding process Submerged ARC Welding
Manual or machine Machine
Position of welding Flat + Horizontal
Filler metal specification AWS A-5-23
Filler metal classification F8A2-EN1K-N1-H8
Flux Lincoln 960-Elec LA-75
Shielding gas NA Flow rate NA
Single or multiple pass Single & Multiple
Single or multiple arc Single
Welding current DC
Polarity DCEP
Welding progression See Detail
Root treatment Grind-wire Brush-Area Free of Slag-Rust & Moisture
Preheat and interpass temperature See Table
Postheat temperature NA
Heat Input Min 51.3 KJ/in Max 73.4 KJ/in PGR-1 = 64.1 KJ/in

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BY James Lacroix DATE 11/08/13

VT-AOT; Bristol
Bridge No. 31
Proj No. BRO 1445(31)
CBSS No. 534

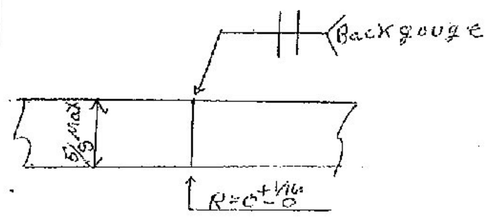
Minimum Preheat and Interpass Temperature, °C [°F]

Welding Process (Base Metal)	Thickness of Thickest Part at Point of Welding, mm [in] To 20 mm [3/4 in] incl.	Over 20 mm [3/4 in] to 40 mm [1-1/2 in] incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 in] incl.	Over 65 mm [2-1/2 in]
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Gr. 250 [36], 345 [50], 345W [50W], HPS 345W [HPS 50W])	10 [50]	20 [70]	65 [150]	110 [225]
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Gr. HPS 485W [HPS 70W], 690 [100], 690W [100W])[a]	10 [50]	50 [125]	80 [175]	110 [225]

WELDING PROCEDURE Max InTerpass - 430°F

Pass no.	Electrode size	Welding current Amperes	Welding current Volts	Travel speed
5/32		620	31	18 IPM
		570 To 650	29 To 33	15 To 20

See 5.13
AWS D1-5 Joint detail BL1a-S



This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. 202A ST of VT
Revision no

Contractor Casco Bay Steel
Authorized By Paul E. Gerald
Date April-13-2012

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM Gr 50 + 50W
Welding process Submerged ARC Welding
Manual or machine Machine
Position of welding Flat + Horizontal
Filler metal specification AWS A-5-23
Filler metal classification F8A2-EN1K-N1L-H8
Flux Lincoln 960-Elec LA-75
Shielding gas NA Flow rate NA
Single or multiple pass Single & Multiple
Single or multiple arc Single
Welding current DC
Polarity DCEP
Welding progression See Detail
Root treatment Grind-Wire Brush-Area Free of Slag-Rust & Moisture
Preheat and interpass temperature See Table
Postheat temperature NA
Heat Input Min 51.3 KJ/in Max 73.4 KJ/in PGR-1-64.1 KJ/in

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BY James Lacroix DATE 11/08/2013
VT-ACT, Bristol
Bridge NO. 31
Proj No. BRO 1445(32)
CBSS NO. 534

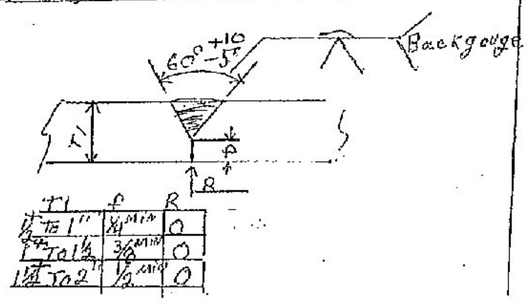
Minimum Preheat and Interpass Temperature, °C [°F]

Welding Process (Base Metal)	Thickness of Thickest Part at Point of Welding, mm [in] To 20 mm [3/4 in] Incl.	Over 20 mm [3/4 in] to 40 mm [1-1/2 in] Incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 in] Incl.	Over 65 mm [2-1/2 in]
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Gr. 250 [36], 345 [50], 345W [50W], HPS 345W [HPS 50W])	10 [50]	20 [70]	65 [150]	110 [225]
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Gr. HPS 485W [HPS 70W], 690 [100], 690W [100W])	10 [50]	50 [125]	80 [175]	110 [225]

WELDING PROCEDURE Max InterPass - 430°F

Pass no.	Electrode size	Welding current Amperes	Welding current Volts	Travel speed
		620	31	18IPM
		570	29	15
	5/32	TO	TO	TO
		650	33	20

See 5.13
AWS D1-5 Joint detail BL2a-S



This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no 202B ST of VT
Revision no

Contractor Casco Bay Steel
Authorized By Paul E. Gerkula
Date April-13-2012

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM Gr 50 + 50W
Welding process Submerged ARC Welding
Manual or machine Machine
Position of welding Flat & Horizontal
Filler metal specification AWS A5-23
Filler metal classification F8A2-EN1K-N11-H8
Flux Lincoln 960-Elec LA-75
Shielding gas N/A Flow rate N/A
Single or multiple pass Single & Multiple
Single or multiple arc Single
Welding current DC
Polarity DCEP
Welding progression See Detail
Root treatment Grind-Wire Brush-Area Free of Slag-Rust & Moisture
Preheat and interpass temperature See Table
Posfheat temperature N/A
Heat Input Min 51.3 KJ/in Max 73.4 KJ/in PQR-1 = 64.1 KJ/in

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BY James Lacroix DATE 11/08/2013

Minimum Preheat and Interpass Temperature, °C [°F]

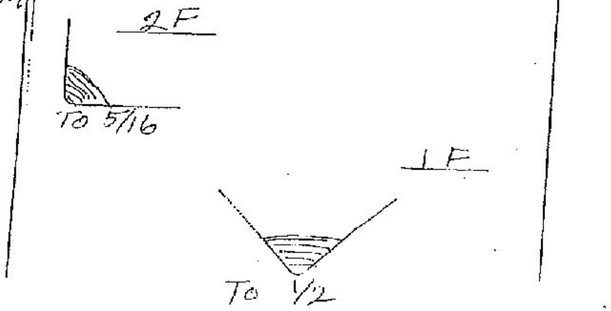
Welding Process (Base Metal)	To 20 mm [3/4 in] incl.	Thickness of Thickest Part at Point of Welding, mm [in]: Over 20 mm [3/4 in] to 40 mm [1-1/2 in] incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 in] incl.	Over 65 mm [2-1/2 in]
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Gr. 250 [36], 345 [50], 345W [50W], HPS 345W [HPS 50W])	10 [50]	20 [70]	65 [150]	110 [225]
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Gr. HPS 485W [HPS 70W], 690 [100], 690W [100W])*	10 [50]	50 [125]	80 [175]	110 [225]

VT-ACT; Bristol
Bridge No. 31
Proj No. BRO 1445(20)
CBSS No. 534

WELDING PROCEDURE

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed
	5/32	620	31	18IPM
		570 To 650	29 To 33	15 To 20

See 5.13
AWS D1-5 Joint detail Fillet



This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no 201 - ST of VT 1
Revision no
Contractor Casco Bay Steel
Authorized By Paul E. Gordon
Date April-13-2012

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM - Gr 50 - 5cw
Welding process Submerged Arc welding Powerwave
Manual or machine Machine
Position of welding Flat + Horizontal
Filler metal specification A 5 - 23
Filler metal classification F8A2-EN1-N1-H8
Flux Lincoln 960 - Elec. LA 75
Shielding gas NA Flow rate NA
Single or multiple pass Single or multiple
Single or multiple arc Single
Welding current Alternating
Polarity AC
Welding progression See Details
Root treatment Grind - wire brush - Area Free of Slag - RUST - MOISTURE
Preheat and interpass temperature See Table
Posfheat temperature NA
Heat Input Min 47.1 KJ/in Max 94.0 KJ/in PQR - PW1 - 67.3 KJ/in

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BY James Lacroix DATE 11/08/2013

Minimum Preheat and Interpass Temperature, °C [°F]

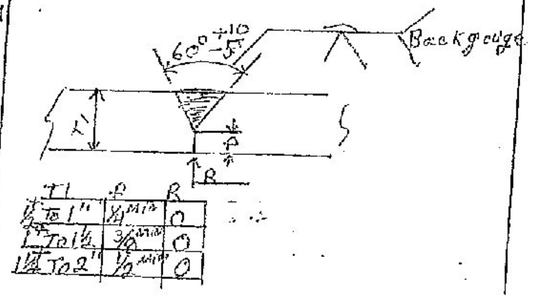
Welding Process (Base Metal)	Thickness of Thickest Part at Point of Welding, mm [in] To 20 mm [3/4 in] Incl.	Over 20 mm [3/4 in] to 40 mm [1-1/2 in] Incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 in] Incl.	Over 65 mm [2-1/2 in]
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Gr. 250 [36], 345 [50], 345W [50W], HPS 345W (HPS 50W))	10 [50]	20 [70]	65 [150]	110 [225]
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M [A 709)] Gr. HPS 485W (HPS 70W), 690 [100], 690W [100W])*	10 [50]	50 [125]	80 [175]	110 [225]

VT-ACT, Bristol
Bridge No. 31
Proj No. BRO 1445(33)
CBSS No. 534

WELDING PROCEDURE Max Interpass - 460°F

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed
AS	5/32	827	38	28IPM
		744	35	24
Req.		TO	TO	TO
		910	41	32

See 5.13
AWS D1-5 Joint detail BL2c-S



This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. PW202B ST of VT
Revision no.

Contractor Casco Bay Steel
Authorized By Mark E. Woodard
Date April-13-2012

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM - Gr 50 - SCW
Welding process Submerged Arc welding Power-wave
Manual or machine Machine
Position of welding Flat + Horizontal
Filler metal specification A5 - 23
Filler metal classification F8A2-EN1-Ni1-H8
Flux Lincoln 960 - Elec. LA 75
Shielding gas N/A Flow rate N/A
Single or multiple pass Single - multiple
Single or multiple arc Single
Welding current Alternating
Polarity AC
Welding progression See Detail
Root treatment Grind - wire brush - Area Free of Slag - Rust - Moisture
Preheat and interpass temperature See Table
Postheat temperature N/A
Heat Input Min 47.1 KJ/in Max 94.0 KJ/in PQR - PW1 - 67.3 KJ/in

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VT-A07; Bristol
Bridge No. 31
Proj No. BRO 1446(3)
CBSS No. 534

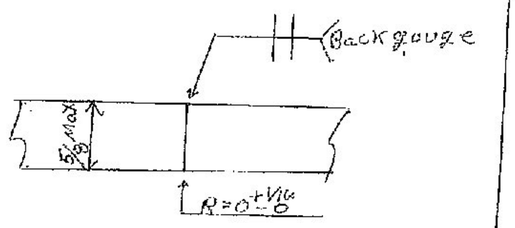
Minimum Preheat and Interpass Temperature, °C [°F]

Welding Process (Base Metal)	Thickness of Thickest Part at Point of Welding, mm [in]: To 20 mm [3/4 in] incl.	Over 20 mm [3/4 in] to 40 mm [1-1/2 in] incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 in] incl.	Over 65 mm [2-1/2 in]
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Gr. 250 [36], 345 [50], 345W [50W], HPS 345W [HPS 50W])	10 [50]	20 [70]	65 [150]	110 [225]
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Gr. HPS 485W [HPS 70W], 690 [100], 690W [100W])[a]	10 [50]	50 [125]	80 [175]	110 [225]

WELDING PROCEDURE Max Interpass 450°F

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed
		827	38	28IPM
AS	5/32	744	35	24
Req.		To	To	To
		910	41	32

See 5.13
AWS D1-5 Joint detail B L1a-5



This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. PW2020-ST of VT
Revision no.

Contractor Casco Bay Steel
Authorized By Paul E. Woodale
Date April-13-2012

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification: ASTM Gr 50-50W
Welding process: Shielded Metal ARC
Manual or machine: Manual
Position of welding: Flat, Horizontal
Filler metal specification: ANSI/AWS A5.1-A5-5
Filler metal classification: E 7018 - E8018 C1 C3
Flux: NA
Shielding gas: NA Flow rate: NA
Single or multiple pass: Single & Multiple
Single or multiple arc: Single
Welding current: AC / DC
Polarity: STraight & Reverse
Welding progression: See Detail
Root treatment: Grind-wire brush-Area Free of Slag-RUST-Moisture
Preheat and interpass temperature:
Posfheat temperature: NA
Heat Input Min: NA Max: NA

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Minimum Preheat and Interpass Temperature, °C (°F)

Welding Process (Base Metal)	To 20 mm [3/4 in] Incl.	Over 20 mm [3/4 in] to 40 mm [1-1/2 in] Incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 in] Incl.	Over 65 mm [2-1/2 in]
		Thickness of Thicker Part at Point of Welding, mm [in]		
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M [A 709]] Gr. 250 [36], 345 [50], 345W [50W], HPS 345W (HPS 50W))	10 [50]	20 [70]	65 [150]	110 [225]

VT-AOT: Bristol
Bridge NO. 31
Proj No. BRO 1445(39)
CBSS NO. 534

WELDING PROCEDURE

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed
	7018			
AS	1/8	70 To 190	22-26	
	5/32	120 To 225	22-26	AS
Req	3/16	170 To 300	24-27	
	8018			Req
	1/8	90 To 160	22-26	
	5/32	120 To 225	22-26	
	3/16	180 To 290	24-27	

AWS D1-5 Joint detail Fillet

2F

1F

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. 401
Revision no

Contractor Casco Bay Steel
Authorized By Robert E. Goodrich
Date April 13-2012

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification AST M - Gr 50 - 50W NOTE - 1
Welding process Submerged ARC Welding
Manual or machine Machine
Position of welding Flat - Horizontal
Filler metal specification AWS A5-23
Filler metal classification F8A2-EN1K-N1-H8
Flux Lincoln 960-, Elec-LA 75
Shielding gas N A Flow rate N A
Single or multiple pass Single & Multiple
Single or multiple arc Single
Welding current DC
Polarity DCEN
Welding progression See Detail
Root treatment Grind - Wire Brush - Area Free of Slag - RUST Moisture
Preheat and interpass temperature See Table
Posfheat temperature N A
Heat Input Min 40.9 KJ/m Max 64.2 KJ/m P.Q.R #2 - 58.4 KJ/m

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BY James Lacroix DATE 11/08/2013

VT AOT, Bristol
Bridge NO. 31
Proj No. BRO 1445(32)
CBSS NO. 534

Minimum Preheat and Interpass Temperature, °C [°F]

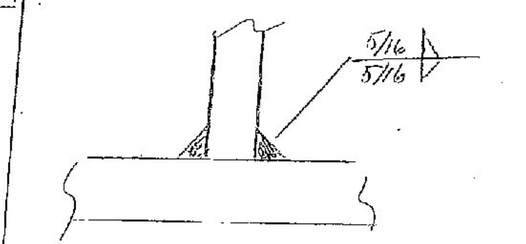
Welding Process (Base Metal)	Thickness of Thickest Part at Point of Welding, mm [in] To 20 mm [3/4 in] Incl.	Over 20 mm [3/4 in] to 40 mm [1-1/2 in] Incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 in] Incl.	Over 65 mm [2-1/2 in]
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Gr. 250 [36], 345 [50], 345W [50W], HPS 345W [HPS 50W])	10 [50]	20 [70]	65 [150]	110 [225]
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Gr. HPS 485W [HPS 70W], 690 [100], 690W [100W])*	10 [50]	50 [125]	80 [175]	110 [225]

WELDING PROCEDURE

Max. Inter pass - 450°

Sec 5-13
AWS D1-5 Joint detail Fillet

Pass no.	Electrode size	Welding current Amperes	Welding current Volts	Travel speed
		365	32	12IPM
	3/32	320 TO 350	30 TO 33	11 TO 14



NOTE-1
use For Welding Gr 5-50W To C-HHPS)

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no 250 ST of VT
Revision no

Contractor Casco Bay Steel
Authorized By Paul L. Eastdale
Date April 13 - 2012

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM Gr 50 (345)
Welding process Flux Core Arc Welding (FCAW)
Manual or machine Semi AUTO
Position of welding Flat & Horizontal
Filler metal specification AWS 5.5-21
Filler metal classification E71T-1 - Lincoln UltraCore 71AD5 DUAL
Flux NA
Shielding gas 75% AR / 25% CO2 Flow rate 35 CFH +8/-4, Elec. stickout 5/8+-
Single or multiple pass Single & Multiple
Single or multiple arc Single
Welding current DC
Polarity DC EP
Welding progression See Detail
Root treatment blast Clean - wirebrush - area Free of Slag - Rust & Moisture
Preheat and interpass temperature See Table
Postheat temperature AS Req.
Heat Input Min 22.4 KJ/in Max 35.2 KJ/in PQR # FCM-SP2, 32 KJ/in

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BY James Lacroix DATE 11/08/2013

VT-AOT; Bristol
Bridge NO. 31
Proj No. BRO 1445(3)
CASS NO. 534

Minimum Preheat and Interpass Temperature, °C [°F]

Welding Process (Base Metal)	Thickness of Thicker Part at Point of Welding, mm [in]			
	To 20 mm [3/4 in] Incl.	Over 20 mm [3/4 in] to 40 mm [1-1/2 in] Incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 In] Incl.	Over 65 mm [2-1/2 In]
SAW; GMAW; FCAW; SMAW (M27DM [M270] [709]) (A 709) Gr. 250 [36], 345 [50], 345W GW3 HPS 345W [HPS 50W])	10 [50]	20 [70]	63 [130]	110 [225]
FCM Gr 50	150°F	200°F	225°F	325°F - HB

Max Interpass 400°F

WELDING PROCEDURE

Sec. 5.12.4.2
AWS D1.5 Joint detail Fillet

Pass no.	Electrode size	Welding current Amperes	Welding current Volts	Travel speed
		297	29	16.4
1 To 4	1/16	326 To 267.3	31 To 27	18.9 To 13.9

2F: 5/16 To 5/8*

1F: 5/16 To 5/8*

* Weld Size may use Multiple Pass

This procedure may vary due to fabrication sequence fit up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no 101-C, ST VT AOT
Revision no REV"1

Contractor Casco Bay Steel
Authorized By Paul E. Goodale
Date 1-11-2013