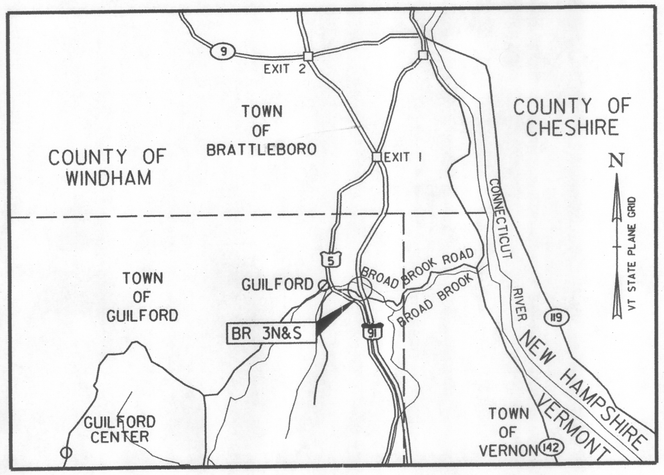
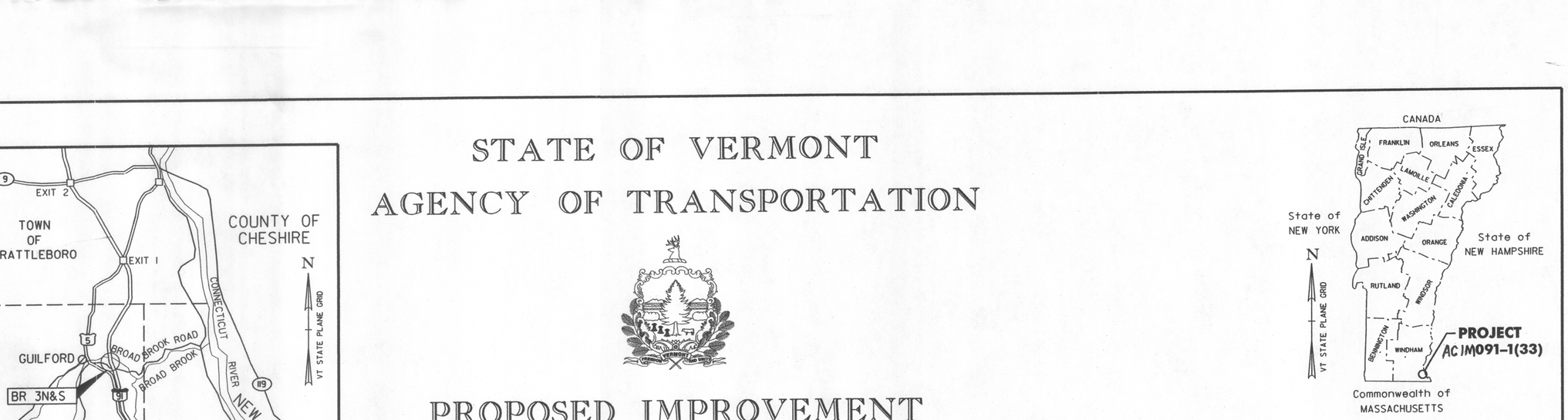


STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT

TOWN OF GUILFORD
COUNTY OF WINDHAM

ROUTE NO.: I-91

BRIDGE NO.: 3N&S

PROJECT LOCATION: BR 3N&S OVER BROAD BROOK AND BROAD BROOK ROAD (MM 6.00)

PROJECT DESCRIPTION: INSTALL TRAFFIC CONTROL, REHABILITATE AND WIDEN NORTHBOUND BRIDGE AND APPROACHES, REHABILITATE SOUTHBOUND BRIDGE, REMOVE TRAFFIC CONTROL

LENGTH OF ROADWAY: NORTHBOUND: 1686.78′ SOUTHBOUND: 191.78′
BROAD BROOK ROAD: 200.00′

LENGTH OF STRUCTURES: BR 3N 258.22′ BR 3S 258.22′

TOTAL LENGTH OF PROJECT: 1945.00′

RECORD PLANS

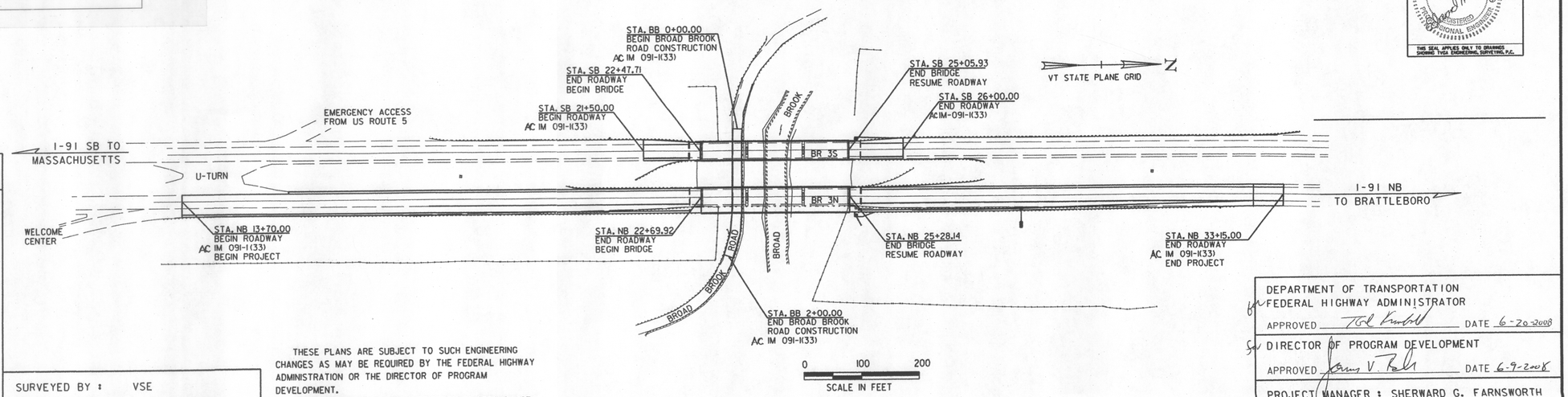
CONTRACTOR: J. A. MCDONALD INC. – LYNDON CENTER, VT
RESIDENT ENGINEER: CHAD GREENWOOD
CONSTRUCTION BEGAN: AUGUST 28, 2008
CONSTRUCTION COMPLETE: AUGUST 01, 2011
RECORD PLANS BY: CHAD GREENWOOD & J. HYDE

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

BY _____ RESIDENT ENGINEER

DATE 6/26/13

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.



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 (SR SR SR)
TOP OF CUT
TOE OF SLOPE

SURVEYED BY : VSE
SURVEYED DATE : AUGUST 2000

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83

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 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

STATE OF VERMONT
EDWARD M. SCHNEIDER
No. 018.0007
REGISTERED PROFESSIONAL ENGINEER
THIS SEAL APPLIES ONLY TO DRAWINGS SHOWING TVGA ENGINEERING, SURVEYING, P.C.

TVGA ENGINEERING, SURVEYING, P.C.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATOR
APPROVED _____ DATE 6-20-2008

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED _____ DATE 6-9-2008

PROJECT MANAGER : SHERWARD G. FARNSWORTH

PROJECT NAME : GUILFORD
PROJECT NUMBER : ACIM 091-1(33)

SHEET 1 OF 114 SHEETS

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2		INDEX OF SHEETS
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4		CONTROL POINT TIES
5		ROADWAY TYPICAL SECTIONS
5A		ROADWAY TYPICAL SECTION DETAILS
6		ROADWAY PLAN (1 OF 2)
7		ROADWAY PLAN (2 OF 2)
8		BROAD BROOK ROAD PLAN
9		ROADWAY CROSS SECTIONS
10		TRAFFIC CONTROL NOTES (1 OF 2)
11		TRAFFIC CONTROL NOTES (2 OF 2)
12		PHASE 1 TRAFFIC CONTROL PLANS (1 OF 6)
13		PHASE 1 TRAFFIC CONTROL PLANS (2 OF 6)
14		PHASE 1 TRAFFIC CONTROL PLANS (3 OF 6)
15		PHASE 1 TRAFFIC CONTROL PLANS (4 OF 6)
16		PHASE 1 TRAFFIC CONTROL PLANS (5 OF 6)
16A		PHASE 1 TRAFFIC CONTROL PLANS (6 OF 6)
17		PHASE 2 TRAFFIC CONTROL PLANS (1 OF 5)
18		PHASE 2 TRAFFIC CONTROL PLANS (2 OF 5)
19		PHASE 2 TRAFFIC CONTROL PLANS (3 OF 5)
20		PHASE 2 TRAFFIC CONTROL PLANS (4 OF 5)
21		PHASE 2 TRAFFIC CONTROL PLANS (5 OF 5)
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24		U-TURN & RUMBLE STRIP DETAILS
25		TRAFFIC CONTROL, DIVIDED HIGHWAY, ONE ROADWAY CLOSED
26	BRI00	PRELIMINARY INFORMATION SHEET
27	BRI01	GENERAL NOTES (1 OF 2)
28	BRI02	GENERAL NOTES (2 OF 2)
29	BRI03	BORING INFORMATION SHEET (1 OF 2)
30	BRI04	BORING INFORMATION SHEET (2 OF 2)
31	BRI05	BORING LOGS (1 OF 4)
32	BRI06	BORING LOGS (2 OF 4)
33	BRI07	BORING LOGS (3 OF 4)
34	BRI08	BORING LOGS (4 OF 4)
35	BRI09	GENERAL PLAN (3N&S)
36	BRI10	ELEVATION (3N&S)
37	BRI11	PROFILES (3N&S)
38	BRI12	STAGED CONSTRUCTION DETAILS (1 OF 2) (3N)
39	BRI13	STAGED CONSTRUCTION DETAILS (2 OF 2) (3N)
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42	BRI16	DECK REINFORCEMENT (3N)
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56A	BRI30A	EXP. BEARINGS - FABRIC PAD (3N&S)
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68	BRI42	ABUTMENT 1 MASONRY (3S)
69	BRI43	ABUTMENT 1 REINFORCEMENT (3S)
70	BRI44	ABUTMENT 2 MASONRY (3S)
71	BRI45	SHEET NOT USED
72	BRI46	ABUTMENT 2 CURTAINWALL DETAILS (3S)
73	BRI47	WINGWALL MASONRY AND REINFORCEMENT (3S)
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75	BRI49	PIER REINFORCEMENT (3S)
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78	BRI52	REINFORCING STEEL SCHEDULE (3N)
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80	BRI54	REINFORCING STEEL SCHEDULE (3S)
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84-86	BRI58-BRI60	EXISTING SUBSTRUCTURE CONDITION (3N) (3 SHEETS)
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I-001-1(6) REFERENCE PLANS

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102	STEEL PLAN & STEEL DETAILS
103	STEEL DETAILS
104	APPROACH SLAB, CURB ENDS, & TYPICAL CURB & RAIL SECTION
105	ABUTMENT NO. 1
106	DETAILS OF PIER #1
107	DETAILS OF PIER #2
108	DETAILS OF ABUT. #2
109	REINFORCING STEEL SCHEDULE

IM 091-1(30) REFERENCE PLANS

110	ROAD PLAN (C4)
111	ROAD PLAN (C5)
112	ROAD PLAN (C6)

IM 091-1(29) REFERENCE PLANS

113	SANITARY SEWER/WATER PLAN AND SANITARY SEWER PROFILE (RECORD)
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B-5	06/01/94
B-17	02/23/95
C-1	01/03/00
D-3	06/01/94
D-4	08/13/07
D-8	01/03/00
D-9	06/01/94
D-10	06/01/94
D-11	06/01/94
D-16	06/01/94
E-100	01/02/04
E-100A	01/02/04
E-101	05/30/03
E-102	06/30/03
E-102A	05/01/04
E-103	03/01/04
E-104	02/03/99
E-104A	12/27/96
E-105	05/01/04
E-106	03/01/04
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E-107A	08/08/95
E-109	08/08/95
E-119	03/01/04
E-120	08/08/95
E-134	08/08/95
E-138	05/30/03
E-139	05/01/04
E-143	06/15/04
E-151	05/01/04
E-160	05/20/99
E-164	05/20/99
E-191	02/01/99
E-192	10/12/00
E-193	08/18/95
E-198	04/01/05
E-199	04/01/05
F-1	06/01/94
G-1	01/03/00
G-1D	01/03/00
G-18	06/01/94
G-19	11/15/02

SCOPE OF WORK

THE REHABILITATION OF BRIDGES 3N AND 3S INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

- WIDEN NORTHBOUND PIERS
  - TEMPORARILY CLOSE BROAD BROOK ROAD.
  - INSTALL COFFERDAMS AND WIDEN PIERS.
  - REMOVE COFFERDAMS AND REOPEN BROAD BROOK ROAD.
- REMOVE AND INSTALL NEW STONE FILL IN BROAD BROOK CHANNEL.

PHASE 1- WORK ON BRIDGE 3N:

- CONSTRUCT PHASE 1 MEDIAN CROSSOVERS AND INSTALL TRAFFIC CONTROL.
- UNDER STAGED CONSTRUCTION (WHILE MAINTAINING ONE LANE OF TRAFFIC FROM WELCOME CENTER):
  - INSTALL TEMPORARY BRACING AND EXCAVATION SUPPORT.
  - REMOVE APPROACH SLABS AND BRIDGE SUPERSTRUCTURE.
  - INSTALL TEMPORARY SHORING FOR PIER CAPBEAMS.
  - COMPLETE PIER WIDENING.
  - EXTEND ABUTMENTS AND REPLACE WINGWALLS.
  - REPLACE SUPERSTRUCTURE.
  - WIDEN ROADWAY.
  - WIDEN BRIDGE APPROACHES AND REPLACE APPROACH SLABS.
  - REPAVE AND REOPEN TO NB TRAFFIC.
  - REMOVE CROSSOVERS

PHASE 2 - WORK ON BRIDGE 3S:

- CONSTRUCT PHASE 2 MEDIAN CROSSOVERS AND INSTALL TRAFFIC CONTROL.
- REMOVE APPROACH SLABS AND SUPERSTRUCTURE.
- REPLACE PIER CAPBEAMS.
- MODIFY ABUTMENTS AND REPLACE WINGWALLS.
- REPLACE SUPERSTRUCTURE.
- REPLACE APPROACH SLABS.
- REPAVE AND REOPEN TO SB TRAFFIC.
- REMOVE CROSSOVERS.

SEE SHEET 90A OF 114 FOR ASSUMED "EPSC GRADING PLAN AND TIME TABLE".

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.
I-91 OVER BROAD BROOK & BROAD BROOK ROAD	
INDEX OF SHEETS	
Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA ENGINEERING, SURVEYING, P.C.	TVGA CAD Drawing No. G GEN NOTES.dgn Date 06/11/08
	Bridge Sheet No. Sheet 2 of 114

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY (91_NB)	TRAINING	EROSION CONTROL	BRIDGE (BR3_NB)	BRIDGE (BR3_SB)	FULL C.E. ITEMS	ROADWAY (91_SB)	BROAD BROOK ROAD
0.5						0.5	
5170						1680	210
			1120	960			
			4040				
80							
1610							
100			210				
200						200	
320			5	5		40	10
							1
			210	110			
280			900	60		60	
			1290				
			100				
			1				
			1				
10010						1060	
7870						1260	
310						310	170
1600						600	
80						60	
20			2	2		2	0.5
3170			230	170		1010	60
0.5						0.5	
			355	268			
			445	174			
			1				
			1				
			560				
			1500				
			2				
			331130	258290			
			590	590			
			52630	17560			
			640	370			
			146730	114390			
			26				
			12				
			18				
			0.55	0.45			

TOTALS

GRAND TOTAL	FINAL
1	
7060	
2080	
4040	
80	
1610	
310	
400	
380	
1	
320	
1300	
1290	
100	
1	
1	
11070	
9130	
790	
2200	
140	
26.5	
4640	
1	
623	
619	
1	
1	
560	
1500	
2	
589420	
1180	
70190	
1010	
261120	
26	
12	
18	
1	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER	ROUND
LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	
CY	COMMON EXCAVATION	203.15	
CY	UNCLASSIFIED EXCAVATION	203.17	
CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	
CY	EARTH BORROW	203.30	
CY	SAND BORROW	203.31	
CY	GRANULAR BORROW	203.32	
LF	SHOULDER BERM REMOVAL	203.40	
CY	TRENCH EXCAVATION OF EARTH	204.20	
CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	
CY	STRUCTURE EXCAVATION	204.25	
CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	
CY	COFFERDAM EXCAVATION, EARTH	208.30	
CY	COFFERDAM EXCAVATION, ROCK	208.35	
LS	COFFERDAM (NB STA. 23+49)	208.40	
LS	COFFERDAM (NB STA. 24+47)	208.40	
SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	
LF	MILLED RUMBLE STRIPS	213.10	
TON	SUBBASE OF CRUSHED GRAVEL, FINE GRADED	301.28	
CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	
CY	AGGREGATE SHOULDERS, TRUCK MEASUREMENT	402.11	
CWT	EMULSIFIED ASPHALT	404.65	
TON	BITUMINOUS CONCRETE PAVEMENT (PG 64-28)	406.25	
LU	AIR VOIDS PAY ADJUSTMENT (N.A.B.I.)	406.28	
CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33	
CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34	
LS	SHORING SUPERSTRUCTURE	502.10	
LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10	
LF	STEEL PILING, HP 12 X 53	505.15	
SF	TEMPORARY STEEL SHEET PILING	505.36	
EACH	DYNAMIC PILE LOADING TEST	505.45	
LB	STRUCTURAL STEEL, PLATE GIRDER	506.55	
LB	STRUCTURAL STEEL	506.60	
LB	REINFORCING STEEL	507.15	
LF	DRILLING AND GROUTING DOWELS	507.16	
LB	EPOXY COATED REINFORCING STEEL	507.17	
EACH	MECHANICAL BAR CONNECTOR (#10)	507.19	
EACH	MECHANICAL BAR CONNECTOR (#5)	507.19	
EACH	MECHANICAL BAR CONNECTOR (#8)	507.19	
LS	SHEAR CONNECTORS (8568 - 7/8" x 7")	508.15	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		BITUMINOUS CONCRETE PAVEMENT (PG 64-28)
2490	TON	NORTH BOUND ROADWAY
310	TON	SOUTH BOUND ROADWAY
100	TON	U-TURN STATION 0+00
160	TON	U-TURN STATION 14+00
230	TON	NORTH BOUND BRIDGE 3
170	TON	SOUTH BOUND BRIDGE 3
60	TON	BROAD BROOK ROAD
580	TON	CROSS-OVER (NB TO SB)
540	TON	CROSS-OVER (SB TO NB)
4640	TON	TOTAL
		EARTHWORK SUMMARY
		FILL REQUIRED
110	CY	PLANIMETERED FILL
130	CY	FACTORED FILL (1.15)
		MATERIAL AVAILABLE FOR FILL
7050	CY	COMMON EXCAVATION (x 1.00)
2080	CY	UNCLASSIFIED EXCAVATION (x 1.00)
370	CY	TRENCH EXCAVATION OF EARTH (x 1.00)
1210	CY	UNCLASSIFIED CHANNEL EXCAVATION (x 0.3)
90	CY	STRUCTURE EXCAVATION (x 0.3)
390	CY	COFFERDAM EXCAVATION, EARTH (x 0.3)
11190	CY	TOTAL MATERIAL AVAILABLE FOR FILL
130	CY	LESS TOTAL FACTORED FILL
11060	CY	EXCESS MATERIAL

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)
SUMMARY

FILE NAME: 95a176quantity.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STR1
QUANTITY SHEET #1

PLOT DATE: 06/11/2008
DRAWN BY: Weeber
CHECKED Farnsworth

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY (I91_NB)	TRAINING	EROSION CONTROL	BRIDGE (BR3_NB)	BRIDGE (BR3_SB)	FULL C.E. ITEMS	ROADWAY (I91_SB)	BROAD BROOK ROAD	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
			0.55	0.45				1		LS	STRUCTURAL PAINTING, SHOP APPLIED (11 TONS)	513.25				
			0.55	0.45				1		LS	CONTAINMENT & ENVIRONMENTAL PROTECTION, SHOP (11 TONS)	513.35				
			0.55	0.45				1		LS	SURFACE PREPARATION, SHOP (11 TONS)	513.40				
			108	90				198		GAL	WATER REPELLENT, SILANE	514.10				
			44	32				76		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
			44	32				76		LF	BRIDGE EXPANSION JOINT, FINGER PLATE	516.12				
			1270	920				2190		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
			552	552				1104		LF	REMOVAL OF EXISTING RAILING	525.10				
			0.5	0.5				1		LS	MAINTENANCE OF STRUCTURES AND APPROACHES	527.10				
			1000	1000				2000		SY	REMOVAL OF BRIDGE PAVEMENT	529.10				
			1	1				2		EACH	PARTIAL REMOVAL OF STRUCTURE (DECK AND SUBSTRUCTURES)	529.20				
			1	1				2		EACH	PARTIAL REMOVAL OF STRUCTURE (STRUCTURAL STEEL)	529.20				
			12	10				22		EACH	BEARING DEVICE ASSEMBLY, PREFORMED FABRIC PAD	531.10				
			12	10				22		EACH	BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD	531.11				
			6	2				8		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	580.13				
			31	11				42		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14				
			2	2				4		CY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS III	580.15				
608						280		888		LF	18" CPEP	601.0915				
2						1		3		EACH	18" CPEP ELBOW	601.5814				
3						1		4		EACH	18" CPEPES	601.7015				
4						1		5		EACH	PRECAST REINFORCED CONCRETE CATCH BASIN WITH CAST IRON GRATE	604.20				
2100			1330	960				4390		CY	STONE FILL, TYPE II	613.11				
			4040					4040		CY	STONE FILL, TYPE IV	613.13				
1725						155		1880		LF	TREATED TIMBER CURB	616.35				
			200	50				250		LF	WOVEN WIRE FENCE WITH STEEL POSTS	620.25				
			200	50				250		LF	REMOVAL OF EXISTING FENCE	620.55				
1940						1440	200	3580		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21				
2						2		4		EACH	MANUFACTURED TERMINAL SECTION, FLARED	621.50				
						1		1		EACH	TERMINAL CONNECTOR FOR STEEL BEAM GUARDRAIL	621.53				
2						1		3		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60				
1680						1460		3140		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
4590						2040		6630		LF	TEMPORARY TRAFFIC BARRIER	621.90				
1430								1430		LF	REMOVE AND RESET TEMPORARY TRAFFIC BARRIER	621.95				
1240						1240		2480		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
			600	600				1200		HR	FLAGGERS	630.15 ⚠1				
					1			1		LS	FIELD OFFICE, ENGINEERS	631.10				
					1			1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
					1			1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
					1			1		LU	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.25				
	1040							1040		HR	EMPLOYEE TRAINEESHIP	634.10				
0.5						0.5		1		LS	MOBILIZATION/DEMOBILIZATION	635.11				

REVISION	DATE	BY	DESCRIPTION
⚠1	07/16/2008	VAOT	ADDED PAY ITEM.

PROJECT NAME: GUILFORD — SUMMARY
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95a176quantity.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STR1
QUANTITY SHEET #2

PLOT DATE: 06/11/2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
		ROADWAY (I91_NB)	TRAINING	EROSION CONTROL	BRIDGE (BR3_NB)	BRIDGE (BR3_SB)	FULL C.E. ITEMS	ROADWAY (I91_SB)	BROAD BROOK ROAD	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
		0.5						0.5		1		LS	TRAFFIC CONTROL	641.10				
		2						1		3		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
		1						1		2		EACH	PORTABLE ARROW BOARD	641.16				
		10								10		DAY	PORTABLE CHANGEABLE MESSAGE SIGN RENTAL	641.17				
		3000						820		3820		LF	6 INCH WHITE LINE	646.214				
		2640						1460		4100		LF	6 INCH YELLOW LINE	646.215				
		300								300		LF	12 INCH WHITE LINE	646.24				
		1170						1000		2170		LF	TEMPORARY 6 INCH WHITE LINE, TYPE II TAPE	646.621				
		8690						5370		14060		LF	TEMPORARY 6 INCH WHITE LINE, PAINT	646.622				
		1360						1370		2730		LF	TEMPORARY 6 INCH YELLOW LINE, TYPE II TAPE	646.631				
		12460						8270		20730		LF	TEMPORARY 6 INCH YELLOW LINE, PAINT	646.632				
		1430						810		2240		EACH	RAISED PAVEMENT MARKERS, TYPE II	646.75				
		1120								1120		SF	REMOVAL OF EXISTING PAVEMENT MARKINGS	646.85				
		4800						3900		8700		SF	PAVEMENT MARKING MASK	646.86				
		4170			4160	1440				9770		SY	GEOTEXTILE UNDER STONE FILL	649.31				
				1270						1270		SY	GEOTEXTILE FOR SILT FENCE	649.51				
				510						510		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61				
				100						100		LB	SEED	651.15				
				100						100		LB	SEED, WINTER RYE	651.17				
				840						840		LB	FERTILIZER	651.18				
				4						4		TON	AGRICULTURAL LIMESTONE	651.20				
				4						4		TON	HAY MULCH	651.25				
		2380			1980			50		4410		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				
				4610						4610		SY	TEMPORARY EROSION MATTING	653.20				
				1790						1790		SY	PERMANENT EROSION MATTING	653.21				
				20						20		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
				40						40		CY	VEHICLE TRACKING PAD	653.35				
				13						13		EACH	INLET PROTECTION DEVICE, TYPE I	653.40				
				4300						4300		LF	PROJECT DEMARCATION FENCE	653.55				
		20						20		40		SF	TRAFFIC SIGNS, TYPE A	675.20				
		60						60		120		LF	FLANGED CHANNEL SIGN POST	675.301				
		9						7		16		EACH	REMOVING SIGNS	675.50				
		9						7		16		EACH	ERECTING SALVAGED SIGNS	675.60				
		20								20		EACH	DELINEATOR WITH FLEXIBLE POST	676.20				
					100	100				200		CY	SPECIAL PROVISION (BRIDGE RAILING, F-SHAPE CONCRETE)	900.608				
		4						4		8		EACH	SPECIAL PROVISION (GUARDRAIL APPROACH SECTION TO F-SHAPE CONCRETE RAIL)	900.620				
					0.5	0.5				1		LS	SPECIAL PROVISION (PUBLIC PROTECTION FOR BRIDGE PROJECTS)	900.645				

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)
SUMMARY

FILE NAME: 95a176quantity.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STR1
QUANTITY SHEET #3

PLOT DATE: 06/11/2008
DRAWN BY: Weeber
CHECKED Farnsworth
DU
SHEET 3B OF 114

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 4

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
		ROADWAY (I91_NB)	TRAINING	EROSION CONTROL	BRIDGE (BR3_NB)	BRIDGE (BR3_SB)	FULL C.E. ITEMS	ROADWAY (I91_SB)	BROAD BROOK ROAD	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
									1	1		LU	SPECIAL PROVISION (INCENTIVE/DISINCENTIVE) (N.A.B.I.)	900.650				

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

SUMMARY

FILE NAME: 95a176quantity.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STR1
QUANTITY SHEET #4

PLOT DATE: 06/11/2008
DRAWN BY: Weeber
CHECKED Farnsworth

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES								TOTALS	DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
3S SUPER-STRUCTURE	3S ABUTMENT #1	3S ABUTMENT #2	3S PIER #1	3S PIER #2	3S APPROACH SLAB	CHANNEL	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER		QUANTITIES	UNIT	ITEMS
	240	240	240	240			960	CY	UNCLASSIFIED EXCAVATION	203.17				
			5				5	CY	TRENCH EXCAVATION OF EARTH	204.20				
	40	20			50		110	CY	STRUCTURE EXCAVATION	204.25				
	40	20					60	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
1.75					0.25		2	CWT	EMULSIFIED ASPHALT	404.65				
170							170	TON	BITUMINOUS CONCRETE PAVEMENT (PG 64-28)	406.25				
268							268	CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33				
	39	15	30	30	60		174	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
258290							258290	LB	STRUCTURAL STEEL, PLATE GIRDER	506.55				
590							590	LB	STRUCTURAL STEEL	506.60				
	6900	5190	2820	2650			17560	LB	REINFORCING STEEL	507.15				
	320	50					370	LF	DRILLING AND GROUTING DOWELS	507.16				
104200	2280	590			7320		114390	LB	EPOXY COATED REINFORCING STEEL	507.17				
0.45							0.45	LS	SHEAR CONNECTORS (8568 - 7/8" x 7")	508.15				
0.45							0.45	LS	STRUCTURAL PAINTING, SHOP APPLIED (11 TONS)	513.25				
0.45							0.45	LS	CONTAINMENT & ENVIRONMENTAL PROTECTION, SHOP (11 TONS)	513.35				
0.45							0.45	LS	SURFACE PREPARATION, SHOP (11 TONS)	513.40				
42	6	6	18	18			90	GAL	WATER REPELLENT, SILANE	514.10				
		32					32	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
32							32	LF	BRIDGE EXPANSION JOINT, FINGER PLATE	516.12				
920							920	SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
552							552	LF	REMOVAL OF EXISTING RAILING	525.10				
0.5							0.5	LS	MAINTENANCE OF STRUCTURES AND APPROACHES	527.10				
1000							1000	SY	REMOVAL OF BRIDGE PAVEMENT	529.10				
0.5	0.15	0.15	0.1	0.1			1	EACH	PARTIAL REMOVAL OF STRUCTURE (DECK & SUBSTRUCTURES)	529.20				
1							1	EACH	PARTIAL REMOVAL OF STRUCTURE (STRUCTURAL STEEL)	529.20				
	5	5					10	EACH	BEARING DEVICE ASSEMBLY, PREFORMED FABRIC PAD	531.10				
			5	5			10	EACH	BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD	531.11				
	0.75	0.75	0.25	0.25			2	SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	580.13				
	4.5	4.5	1	1			11	SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14				
	0.5	0.5	0.5	0.5			2	CY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS III	580.15				
	240	240	240	240			960	CY	STONE FILL, TYPE II	613.11				
50							50	LF	WOVEN WIRE FENCE WITH STEEL POSTS	620.25				
50							50	LF	REMOVAL OF EXISTING FENCE	620.55				
	360	360	360	360			1440	SY	GEOTEXTILE UNDER STONE FILL	649.31				
100							100	CY	SPECIAL PROVISION (BRIDGE RAILING, F-SHAPE CONCRETE)	900.608				
0.5							0.5	LS	SPECIAL PROVISION (PUBLIC PROTECTION FOR BRIDGE PROJECTS)	900.645				

PROJECT NAME: GUILFORD — BRIDGE 3S
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95a176quantity.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STR1
BRIDGE QUANTITY SHEET #1

PLOT DATE: 06/11/2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET 2

SUMMARY OF BRIDGE QUANTITIES								TOTALS	DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
3N SUPER-STRUCTURE	3N ABUTMENT #1	3N ABUTMENT #2	3N PIER #1	3N PIER #2	3N APPROACH SLAB	CHANNEL	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS
	280	280	280	280			1120	CY	UNCLASSIFIED EXCAVATION	203.17			
						4040	4040	CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27			
	210						210	CY	GRANULAR BORROW	203.32			
			5				5	CY	TRENCH EXCAVATION OF EARTH	204.20			
	50	110			50		210	CY	STRUCTURE EXCAVATION	204.25			
	50	78	386	386			900	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30			
			645	645			1290	CY	COFFERDAM EXCAVATION, EARTH	208.30			
			50	50			100	CY	COFFERDAM EXCAVATION, ROCK	208.35			
			1				1	LS	COFFERDAM (NB STA 23+49)	208.40			
				1			1	LS	COFFERDAM (NB STA 24+47)	208.40			
1.75					0.25		2	CWT	EMULSIFIED ASPHALT	404.65			
200					30		230	TON	BITUMINOUS CONCRETE PAVEMENT (PG 64-28)	406.25			
355							355	CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33			
	37	64	131	131	82		445	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34			
1							1	LS	SHORING SUPERSTRUCTURE	502.10			
	0.5	0.5					1	LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10			
	260	300					560	LF	STEEL PILING, HP 12 X 53	505.15			
					1500		1500	SF	TEMPORARY STEEL SHEET PILING	505.36			
	1	1					2	EACH	DYNAMIC PILE LOADING TEST	505.45			
331130							331130	LB	STRUCTURAL STEEL, PLATE GIRDER	506.55			
590							590	LB	STRUCTURAL STEEL	506.60			
	7240	9240	17930	18220			52630	LB	REINFORCING STEEL	507.15			
	148	332	80	80			640	LF	DRILLING AND GROUTING DOWELS	507.16			
132940	550	2940			10300		146730	LB	EPOXY COATED REINFORCING STEEL	507.17			
			13	13			26	EACH	MECHANICAL BAR CONNECTOR (#10 BARS)	507.19			
			6	6			12	EACH	MECHANICAL BAR CONNECTOR (#5 BARS)	507.19			
			9	9			18	EACH	MECHANICAL BAR CONNECTOR (#8 BARS)	507.19			
0.55							0.55	LS	SHEAR CONNECTORS (8568 - 7/8" x 7")	508.15			
0.55							0.55	LS	STRUCTURAL PAINTING, SHOP APPLIED (11 TONS)	513.25			
0.55							0.55	LS	CONTAINMENT & ENVIRONMENTAL PROTECTION, SHOP (11 TONS)	513.35			
0.55							0.55	LS	SURFACE PREPARATION, SHOP (11 TONS)	513.40			
42	7	7	26	26			108	GAL	WATER REPELLENT, SILANE	514.10			
	44						44	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10			
44							44	LF	BRIDGE EXPANSION JOINT, FINGER PLATE	516.12			
1270							1270	SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20			
552							552	LF	REMOVAL OF EXISTING RAILING	525.10			
0.5							0.5	LS	MAINTENANCE OF STRUCTURES AND APPROACHES	527.10			
1000							1000	SY	REMOVAL OF BRIDGE PAVEMENT	529.10			
0.5	0.15	0.15	0.1	0.1			1	EACH	PARTIAL REMOVAL OF STRUCTURE (DECK & SUBSTRUCTURES)	529.20			
1							1	EACH	PARTIAL REMOVAL OF STRUCTURE (STRUCTURAL STEEL)	529.20			

PROJECT NAME: GUILFORD BRIDGE 3N
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95a176quantity.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STR1
BRIDGE QUANTITY SHEET #2

PLOT DATE: 06/11/2008
DRAWN BY: Weeber
CHECKED Farnsworth

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET 3

SUMMARY OF BRIDGE QUANTITIES								TOTALS	DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
3N SUPER-STRUCTURE	3N ABUTMENT #1	3N ABUTMENT #2	3N PIER #1	3N PIER #2	3N APPROACH SLAB	CHANNEL	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS
			6	6			12	EACH	BEARING DEVICE ASSEMBLY, PREFORMED FABRIC PAD	531.10			
	6	6					12	EACH	BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD	531.11			
	1	4	0.5	0.5			6	SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	580.13			
	6	19	3	3			31	SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14			
	0.5	0.5	0.5	0.5			2	CY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS III	580.15			
	332	332	332	334			1330	CY	STONE FILL, TYPE II	613.11			
						4040	4040	CY	STONE FILL, TYPE IV	613.13			
200							200	LF	WOVEN WIRE FENCE WITH STEEL POSTS	620.25			
200							200	LF	REMOVAL OF EXISTING FENCE	620.55			
	498	498	498	498		2168	4160	SY	GEOTEXTILE UNDER STONE FILL	649.31			
			990	990			1980	SY	GRUBBING MATERIAL	651.40			
100							100	CY	SPECIAL PROVISION (BRIDGE RAILING, F-SHAPE CONCRETE)	900.608			
0.5							0.5	LS	SPECIAL PROVISION (PUBLIC PROTECTION FOR BRIDGE PROJECTS)	900.645			

PROJECT NAME: GUILFORD BRIDGE 3N
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95a176quantity.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STR1
BRIDGE QUANTITY SHEET #3

PLOT DATE: 06/11/2008
DRAWN BY: Weeber
CHECKED Farnsworth
SHEET 3F OF 114

GPS CONTROL POINTS

GUIL TEMP 1

VT PID - VT0022
METAL ROD, NOT MARKED

SPC VT (METERS)

N = 34111.193

E = 490459.033

Z = 0.000

STATION DESCRIPTION

TO REACH FROM THE I-91 BRIDGES OVER U.S. ROUTE 5 AT EXIT 1 (MOST SOUTHERLY BRATTLEBORO EXIT) GO SOUTH ALONG U.S. ROUTE 5 FOR 1.4 MI (2.3 KM) TO GUILFORD AND THE INTERSECTION OF THE GUILFORD CENTER ROAD. TURN RIGHT AND GO SOUTHWEST ALONG THE GUILFORD CENTER ROAD FOR 1.7 MI (2.7 KM) TO THE INTERSECTION OF WEATHERHEAD HOLLOW ROAD AND TURN LEFT. CONTINUE STRAIGHT AHEAD (WEST) ALONG THE GUILFORD CENTER ROAD FOR 1.2 MI (1.9 KM) TO THE INTERSECTION OF BONNYVALE ROAD RIGHT AND THE MARK IS ON THE RIGHT.

THE MARK IS A CENTERPUNCHED REBAR SET FLUSH WITH GROUND SURFACE.

IT IS 13.6 M (44.6 FT.) NORTHWEST OF AND ABOUT 1 M (3.3 FT.) LOWER THAN THE CENTERLINE OF THE GUILFORD CENTER ROAD, 7.2 M (23.6 FT.) SOUTH OF THE CENTERLINE OF BONNYVALE ROAD, 22.6 M (74.1 FT.) NORTHEAST OF POLE NO. 1/171/2-12/2/218, 1.8 M (5.9 FT.) SOUTHEAST OF "BONNYVALE ROAD" SIGN POST, AND 1.7 M (5.6 FT.) SOUTHWEST OF THE SOUTHWEST EDGE OF PAVEMENT (ON CURVE) OF BONNYVALE ROAD.

GUIL TEMP 2

VT PID - VT0023
METAL ROD, NOT MARKED

SPC VT (METERS)

N = 33839.878

E = 490304.186

Z = 0.000

STATION DESCRIPTION

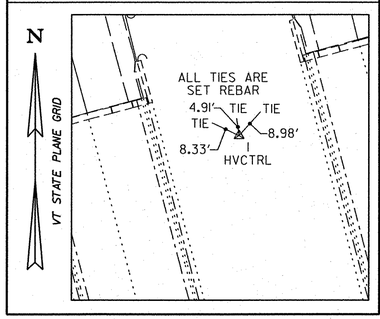
TO REACH FROM THE I-91 BRIDGES OVER U.S. ROUTE 5 AT EXIT 1 (MOST SOUTHERLY BRATTLEBORO EXIT) GO SOUTH ALONG U.S. ROUTE 5 FOR 1.4 MI (2.3 KM) TO GUILFORD AND THE INTERSECTION OF THE GUILFORD CENTER ROAD. TURN RIGHT AND GO SOUTHWEST ALONG THE GUILFORD CENTER ROAD FOR 1.7 MI (2.7 KM) TO THE INTERSECTION OF WEATHERHEAD HOLLOW ROAD AND TURN LEFT. CONTINUE STRAIGHT AHEAD (WEST) ALONG THE GUILFORD CENTER ROAD FOR 1.2 MI (1.9 KM) TO THE INTERSECTION OF BONNYVALE ROAD RIGHT. BEAR LEFT AND CONTINUE AROUND A CURVE ON GUILFORD CENTER ROAD FOR 0.2 MI (0.3 KM) TO THE MARK ON THE RIGHT ABOUT 15 M (49.2 FT.) SOUTH OF A GRAVEL DRIVE TO A MOBILE HOME.

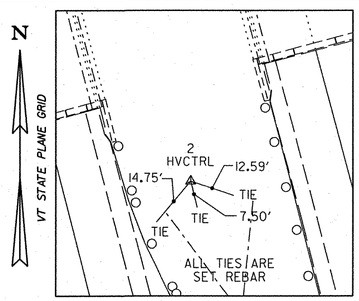
THE MARK IS A CENTERPUNCHED REBAR 2 CM BELOW GROUND SURFACE.

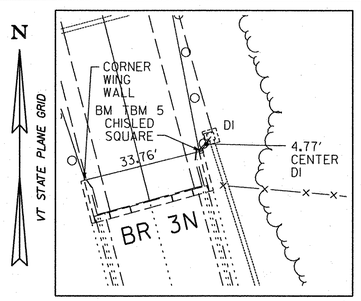
THE MARK IS 5.0 M (16.4 FT.) WEST OF AND ABOUT 0.1 M (0.3 FT.) LOWER THAN THE CENTERLINE OF THE GUILFORD CENTER ROAD, 5.8 M (19.0 FT.) EAST OT THE EAST EDGE OF A BRANCH OF BROAD BROOK, 3.6 M (11.8 FT.) SOUTH OF POLE NO. 222/1/176, 0.5 M (1.6 FT.) WEST OF A METAL GUARD RAIL, AND 32.7 M (107.3 FT.) SOUTH-SOUTHEAST OF THE SOUTHEAST CORNER OF THE MOBILE HOME.

TRAVERSE TIES

TRAV. 1	TRAV. 2	TRAV. 3
N = 15021.0910	N = 14764.3190	N = 15061.6470
E = 21838.2550	E = 21903.0030	E = 21886.0180
Z = 409.542	Z = 413.602	Z = 421.922







ALIGNMENT TIES

N =	N =	N =	N =	N =
E =	E =	E =	E =	E =

NOTES:

1. ALIGNMENT TIES TO BE PROVIDED DURING CONSTRUCTION.
2. GPS CONTROL POINT DESCRIPTIONS PROVIDED BY GEODETIC SURVEY.
3. TRAVERSE TIES COMPUTED AND SET ON 5/7/02 BY VERMONT SURVEY AND ENGINEERING, INC.

DATUM

VERTICAL NAVD 88

HORIZONTAL NAD 83

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

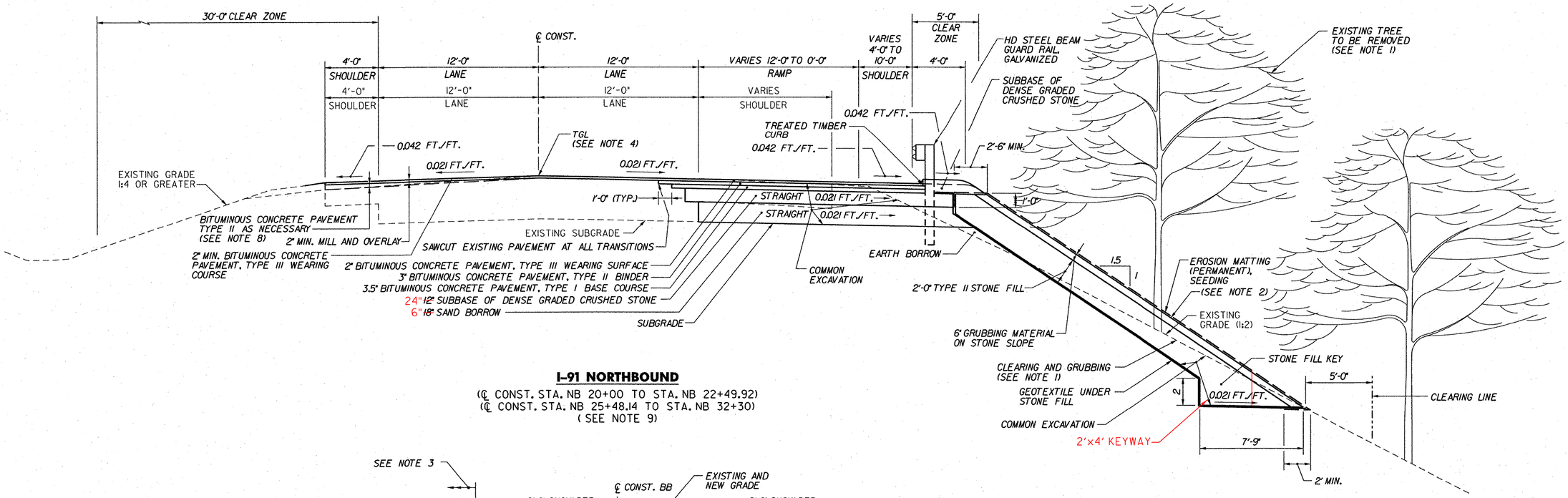
Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

CONTROL POINT TIES

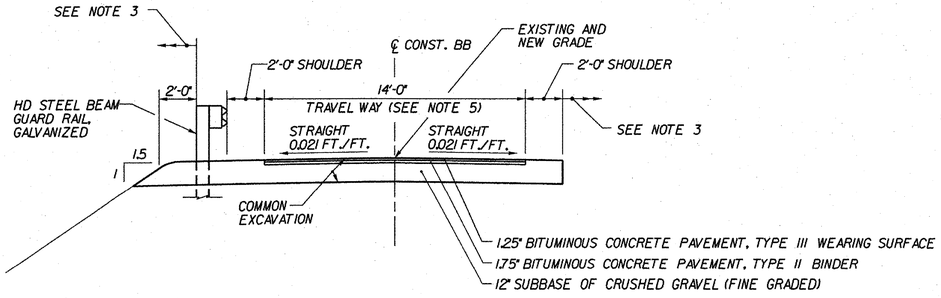
Designed By VSE	Drawn By R. BOTZENHART
Checked By R. BOTZENHART Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. tie_sheet.dgn	Date 04/25/08
Bridge Sheet No.	Sheet 4 of 114

TYPICAL SECTIONS



I-91 NORTHBOUND

(℄ CONST. STA. NB 20+00 TO STA. NB 22+49.92)
(℄ CONST. STA. NB 25+48.14 TO STA. NB 32+30)
(SEE NOTE 9)



BROAD BROOK ROAD

(℄ CONST. STA. BB 0+20 TO STA. BB 1+80)
(SEE NOTE 7)

NOTES:

1. THE CONTRACTOR SHALL REMOVE ALL VEGETATION AND TREES TO THE CLEARING LINE OR AS DIRECTED BY THE RESIDENT ENGINEER. COST FOR THIS WORK WILL BE PAID UNDER ITEM 201.10, CLEARING AND GRUBBING. NO PAYMENT WILL BE MADE FOR INDIVIDUAL TREE REMOVAL.
2. EXTEND 1 V:1.5H SLOPE UNTIL GRADE MATCHES EXISTING SLOPE. SEE ROADWAY PLAN (1 OF 2), SHEET 6, ROADWAY PLAN (2 OF 2), SHEET 7, AND ROADWAY CROSS SECTIONS, SHEET 9 FOR DETAILS OF MATCH LOCATIONS.
3. SEE GENERAL PLAN (3N&S), BRIDGE SHEET BRI09 AND ELEVATION, BRIDGE SHEET BRII0 FOR PROPOSED TREATMENT INFORMATION BEYOND BROAD BROOK ROAD LIMITS.
4. ALL TOP OF GRADE LINES (TGL) NOT SHOWN ON PROPOSED PROFILE ON BRIDGE SHEET BRIII, PROFILES (3N&S), SHALL MEET EXISTING HIGHWAY TGL GRADES.
5. EMULSIFIED ASPHALT IS TO BE APPLIED AT THE RATE OF 0.015 GAL/SY TO ALL COLD PLANED SURFACES, AND BETWEEN ALL COURSES OF NEW PAVEMENT, OR AS DIRECTED BY THE RESIDENT ENGINEER.
6. FOR ALL AREAS WHERE SLOPE MATCH POINT DEPTH DOES NOT DAYLIGHT TO ADJACENT SLOPE, EXTEND DENSE GRADED CRUSHED STONE TO DITCH LINE. FOR DETAILS, SEE ROADWAY CROSS SECTIONS, SHEET 9, PAYMENT WILL BE MADE UNDER CONTRACT ITEM 301.35.
7. FOR PAVEMENT TRANSITIONS ON BROAD BROOK ROAD, PROVIDE 3'-0" MINIMUM LONGITUDINAL STEP PER LAYER. SUBBASE OF DENSE GRAVEL SHALL BE SLOPED TO EXISTING SUBBASE LAYER AT 1 V:25H SLOPE.
8. IF BITUMINOUS CONCRETE PAVEMENT, TYPE III WEARING COURSE EXCEEDS 3" DEPTH (2 LAYERS), THEN BITUMINOUS CONCRETE PAVEMENT, TYPE II BINDER SHALL BE PLACED TO MILLED SURFACE. DEPTHS WILL VARY BASED ON FIELD LOCATIONS. ALL WORK MUST BE APPROVED BY THE RESIDENT ENGINEER.
9. SOUTHBOUND TYPICAL IS IDENTICAL TO NORTHBOUND TYPICAL SECTION LEFT OF CENTER LINE.

1 0 2 4 6
SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

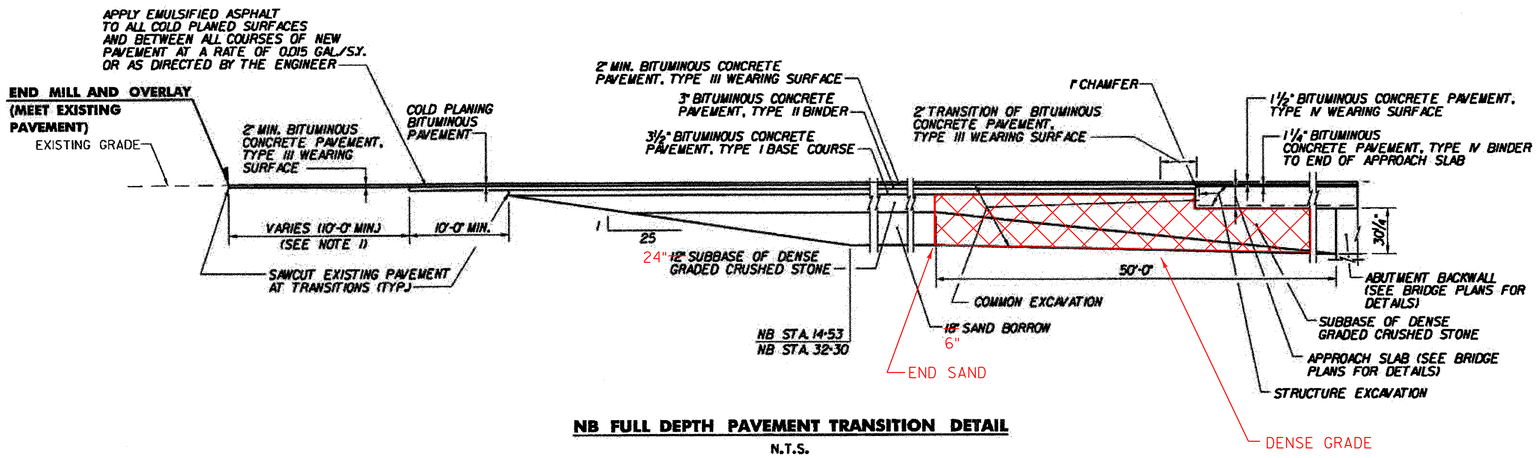
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

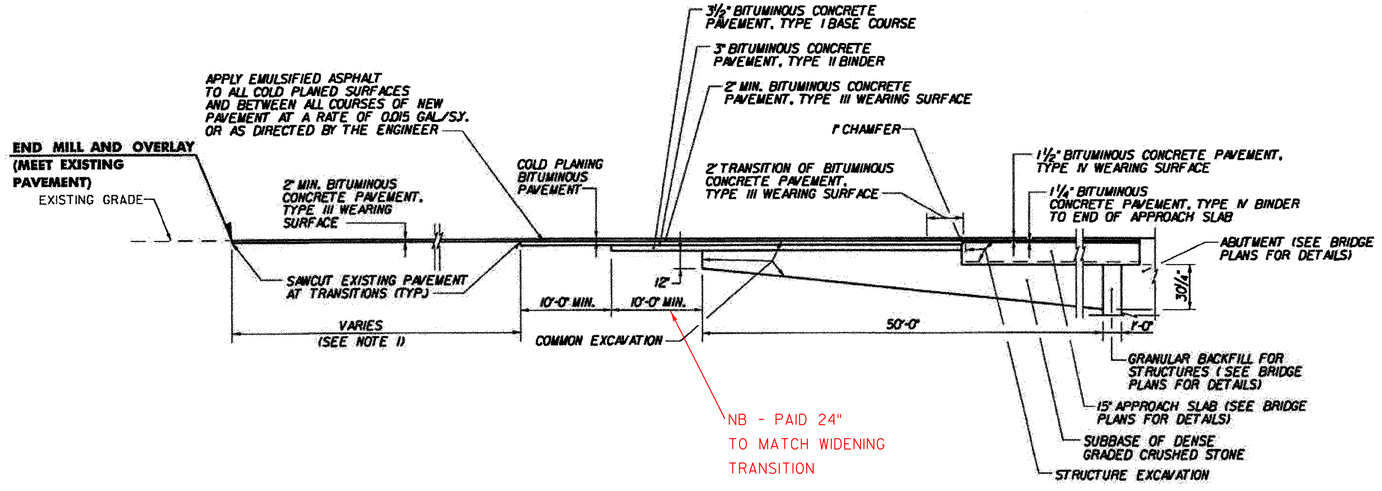
ROADWAY TYPICAL SECTIONS

Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. TS-1.dgn	Date 04/25/08
Bridge Sheet No.	Sheet 5 of 114



NB FULL DEPTH PAVEMENT TRANSITION DETAIL

N.T.S.



NB & SB MILL AND OVERLAY PAVEMENT TRANSITION DETAIL

N.T.S.

NOTES:

1. SEE ROADWAY PLAN (1 OF 2), SHEET 6, AND ROADWAY PLAN (2 OF 2), SHEET 7 FOR LIMITS OF MILL AND OVERLAY.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

ROADWAY TYPICAL SECTION DETAILS

Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By Date P.W. SZUSTAK 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. TS-2.dgn	Date 04/25/08
Bridge Sheet No.	Sheet 5A of 114

TVGA ENGINEERING, SURVEYING, P.C.

ITEM 646.214 6" WHITE LINE
STA. NB 15+00 TO STA. NB 21+00, DASHED, 12' RT.
STA. NB 12+70 TO STA. NB 21+00, SOLID, 24' RT.
STA. NB 12+70 TO STA. NB 21+00, DASHED, ℄ CONST.

ITEM 646.215 6" YELLOW LINE
STA. NB 11+73 TO STA. NB 21+00, SOLID, 12' LT.
STA. SB 12+90 TO STA. SB 15+00 SOLID, 12' RT.

ITEM 646.24 12" WHITE LINE
STA. NB 12+00 TO STA. NB 15+00, SOLID, 12' RT.

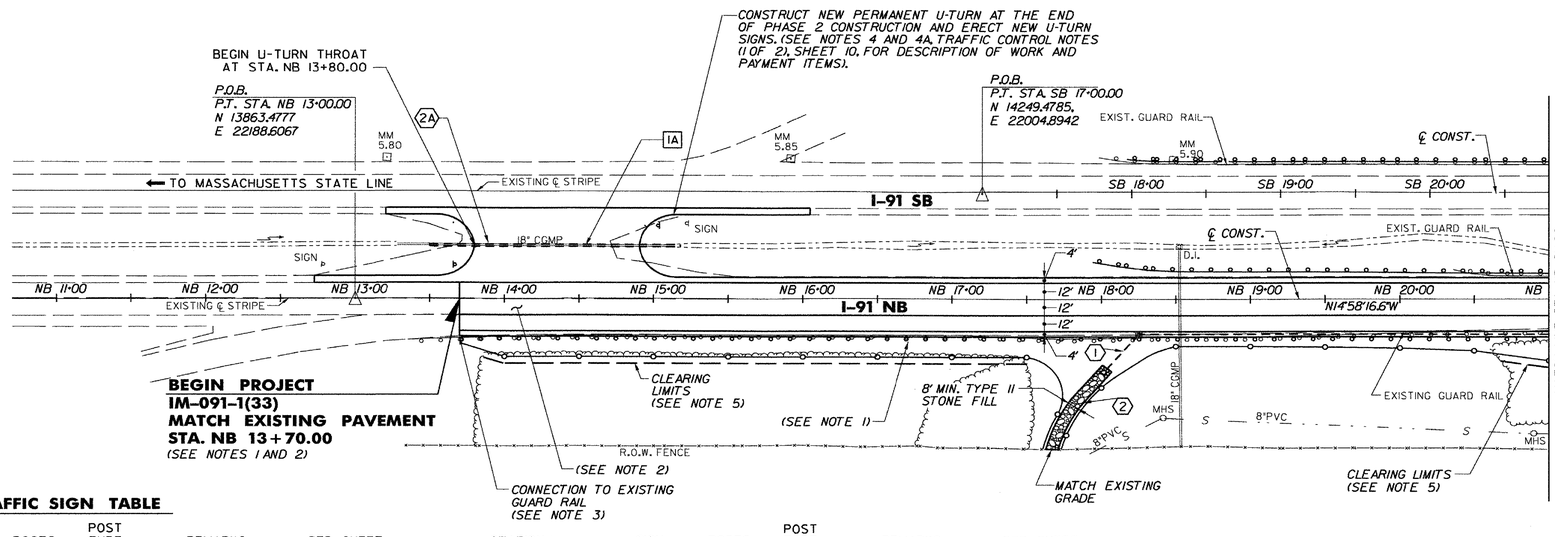
17+50
ITEM 616.35 TREATED TIMBER CURB
STA. NB ~~13+70~~ TO STA. NB 21+00, RT.
~~STA. NB 20+75 TO STA. NB 21+00, LT.~~

ITEM 621.21 HEAVY DUTY STEEL BEAM GUARD RAIL, GALVANIZED
STA. SB 17+96.94 TO STA. SB 20+80, 22' LT.
STA. NB 18+31.69 TO STA. NB 21+00, 16' LT.
STA. NB 13+69.19 TO STA. NB 21+00, 28' RT.

ITEM 621.50 MANUFACTURED TERMINAL SECTION, FLARED
STA. NB 17+94.19 TO STA. NB 18+31.69, 20' LT. TO 16' LT.

ITEM 621.60 ANCHOR FOR STEEL BEAM RAIL
STA. SB 18+09.44, 22' LT.

ITEM 621.80 REMOVAL AND DISPOSAL OF GUARD RAIL
STA. NB 13+70 TO STA. NB 21+00, 28' RT.
STA. NB 20+36 TO STA. NB 21+00, 16' LT.



TRAFFIC SIGN TABLE

STATION	SIGN	POSTS	POST TYPE	REMARKS	STD. SHEET
NB 12+79 LT.		1	FLANGED CHANNEL 3 LB/FT	SALVAGE SIGN TO NEW U-TURN STA. NB 0+00 (SEE NOTE 9)	N/A
NB 15+22 LT.		1	FLANGED CHANNEL 3 LB/FT	SALVAGE SIGN TO NEW U-TURN STA. NB 0+00 (SEE NOTE 9)	N/A
NB 13+76 LT.		1	FLANGED CHANNEL 3 LB/FT	20' LT.	E-143
NB 15+03 LT.		1	FLANGED CHANNEL 3 LB/FT	58' LT.	E-143
NB 22+25, RT.	BRIDGE 3-N I-91	1	FLANGED CHANNEL 3 LB/FT		E-134
SB 25+46, LT.	BRIDGE 3-S I-91	1	FLANGED CHANNEL 3 LB/FT		E-134
NB 22+67, RT.		1	FLANGED CHANNEL 3 LB/FT		E-107
NB 22+67, LT.		1	FLANGED CHANNEL 3 LB/FT		E-107
SB 25+09, RT.		1	FLANGED CHANNEL 3 LB/FT		E-107
SB 25+09, LT.		1	FLANGED CHANNEL 3 LB/FT		E-107
NB 21+50, RT.		1	FLANGED CHANNEL 3 LB/FT		E-151

EXISTING DRAINAGE

STRUCTURE	℄ CONST. STATION TO STATION	DESCRIPTION
1A	STA. NB 13+28, 40' LT. TO STA. NB 15+06, 40' LT.	REMOVE EXISTING PIPE. THIS WORK SHALL BE PAID UNDER ITEM 641.10.

LEFT EXISTING PIPE

NEW DRAINAGE

STRUCTURE	℄ CONST. STATION TO STATION	DESCRIPTION
1	STA. NB 18+25, 26' RT. TO STA. NB 18+02.5, 53' RT.	INSTALL NEW CONCRETE CATCH BASIN WITH TYPE A FRAME AND GRATE, RIM 406.44, INV IN ~~402.94~~, INV OUT ~~402.30~~ AND NEW 18" X 35' CPEP, CORRUGATED INTERIOR, WITH END SECTION. INV @ OUTLET 400.24
2	STA. NB 18+06.92, 54' RT. TO STA. NB 17+67.5, 112' RT.	PLACE 69 LF TYPE II STONE LINED DITCH AT 2.80% GRADE. BEGINNING OF DITCH, INV 400.93, OUTLET OF DITCH 399.00.
2A	STA. NB 13+51, 40' LT. TO STA. NB 15+19, 40' LT.	INSTALL 168 LF OF NEW 18" CPEP, MATCH EXISTING GRADE.

400.89
400.60
LEFT EXISTING PIPE 1A
ADDED PIPE AND END SECTIONS TO DAYLIGHT AT GRADE (1-8 SLOPES)

VT STATE PLANE GRID

NOTES:

1. THERE IS MINIMAL AMOUNT OF FILL ON THE NB RIGHT SHOULDER FROM STA. NB 13+70 TO STA. NB 19+00. THE CONTRACTOR SHALL PLACE ALL PAVEMENT MATERIALS TO THE BOTTOM OF SAND BORROW LAYER. THE EXISTING SLOPE CAN BE SHALLOWER THAN 1.5 HORIZONTAL ON 1 VERTICAL. SEE ROADWAY TYPICAL SECTIONS, SHEET 5, FOR DETAILS.
2. TRANSITION PAVEMENT CROSS SLOPES FROM NEW TYPICAL SECTION CROSS SLOPES TO EXISTING FROM STA. NB 13+70 TO STA. NB 14+30. FOR FULL DEPTH APPROACH TRANSITION DETAIL, SEE ROADWAY TYPICAL SECTION DETAILS SHEET 5A.
3. ATTACH NEW HEAVY DUTY STEEL BEAM GUARD RAIL TO EXISTING STEEL BEAM GUARD RAIL. COST OF CONNECTING TO EXISTING GUARD RAIL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 621.21, "HEAVY DUTY STEEL BEAM GUARD RAIL, GALVANIZED."
4. EXISTING MILE MARKERS SHALL BE REMOVED AND SALVAGED. THE COST OF THIS WORK SHALL BE PAID UNDER ITEM 675.50, "REMOVING SIGNS", AND ITEM 675.60, "ERECTING SALVAGED SIGNS."
5. CLEARING LIMITS ARE SHOWN ONLY IN LOCATIONS HAVING TREES. ALL CLEARING LIMITS SHALL BE 5' FROM THE TOE OF SLOPE, OR AS DIRECTED BY THE RESIDENT ENGINEER.
6. WHERE THE SLOPE OF THE DRAINAGE PIPE IS GREATER THAN 1:10, THE USE OF A CPEP CORRUGATED PIPE ELBOW WILL BE NECESSARY. A 2' LONG SECTION OF PIPE SHALL BE PLACED THROUGH THE DRAINAGE STRUCTURE WALL, TO WHICH THE CORRUGATED ELBOW SHALL BE ATTACHED. PAYMENT FOR CPEP PIPE ELBOW SHALL BE UNDER ITEM 601.5814, "18" CPEP ELBOW". SEE STANDARD SHEET D-4 FOR CONCEPTUAL LAYOUT.
7. TEMPORARY EROSION AND SEDIMENT CONTROL SHALL BE INSTALLED AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT, FOLLOWING THE GUIDELINES INDICATED ON SHEETS 90 THROUGH 95C AND DETAIL SHEETS 96 THROUGH 98.
8. A 1:10 SLOPE (MAX.) IS REQUIRED AROUND THE MANUFACTURED TERMINAL END SECTION UNITS. THIS SLOPE SHALL BE PLACED AS DIRECTED BY THE RESIDENT ENGINEER, AND PAID FOR UNDER ITEM 402.11, "AGGREGATE SHOULDERS, TRUCK MEASUREMENT". ALL GRADING REQUIRED FOR TURF ESTABLISHMENT SHALL BE INCIDENTAL TO ITEM 621.50, MANUFACTURED TERMINAL SECTION, FLARED".
9. A NEW PERMANENT U-TURN SHALL BE INSTALLED AT STA. NB 0+00 PRIOR TO PHASE 1 CONSTRUCTION. FOR A DESCRIPTION OF WORK AND PAYMENT ITEMS, SEE NOTES 4 AND 4A, TRAFFIC CONTROL NOTES (1 OF 2), SHEET 10, AND PHASE 1 TRAFFIC CONTROL PLANS (2 OF 6), SHEET 13.

50 0 50
SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

ROADWAY PLAN (1 OF 2)

Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. PL-1.dgn	Date 06/06/08
Bridge Sheet No.	Sheet 6 of 114

STA. NB 21+93 - 22+61 LT

ITEM 646.214 6" WHITE LINE
STA. NB 21+00 TO STA. NB 34+15, SOLID, 24' RT. TO 12' RT.
STA. NB 21+00 TO STA. NB 27+78, DASHED, 12' RT.
STA. NB 21+00 TO STA. NB 34+15, DASHED, ℄ CONST.
STA. SB 20+50 TO STA. SB 27+00, DASHED, ℄ CONST (SEE NOTE 3)
STA. SB 20+50 TO STA. SB 27+00, SOLID, 12' LT. (SEE NOTE 3)

ITEM 646.215 6" YELLOW LINE
STA. NB 21+00 TO STA. NB 34+15, SOLID, 12' LT. (SEE NOTE 3)
STA. SB 20+50 TO STA. SB 27+00, SOLID, 12' RT. (SEE NOTE 3)

ITEM 616.35 TREATED TIMBER CURB
STA. NB 21+00 TO STA. NB 22+49.92, RT. & ~~LT.~~
STA. NB 25+48.14 TO STA. NB 32+18, RT.
STA. SB 21+50 TO STA. SB 22+27.71, RT. & LT.
STA. SB 21+15 TO SB 25+73 LT

ITEM 621.21 HEAVY DUTY STEEL BEAM GUARD RAIL, GALVANIZED
21+39 STA. SB ~~20+80~~ TO STA. SB 22+09.44, 22' LT.
STA. SB 25+46.25 TO STA. SB ~~32+45.72,~~ 22' LT. 25+65
STA. SB 25+46.25 TO STA. SB 29+33.75, 16' RT.
STA. NB 21+00 TO STA. NB 22+19.19, 16' LT.
STA. NB 25+66.66 TO STA. NB 27+29.16, 16' LT.
STA. NB 21+00 TO STA. NB 22+19.19, 28' RT.
STA. NB 25+66.66 TO NB 32+29.16, 28' RT.
STA. NB 22+25, (SEE SHEET 35 & SHEET 76)
STA. NB 25+75, (SEE SHEET 35 & SHEET 76)

ITEM 621.50 MANUFACTURED TERMINAL SECTION, FLARED
~~STA. SB 21+71.94 TO STA. SB 22+09.44, 20 RT. TO 16' RT.~~
~~STA. SB 32+45.72 TO STA. SB 32+83.22, 22 LT. TO 26' LT.~~
STA. SB 29+33.75 TO STA. SB 29+71.25, 16 RT. TO 20' RT.
STA. NB 27+29.16 TO STA. NB 27+66.66, 16 LT. TO 20' LT.

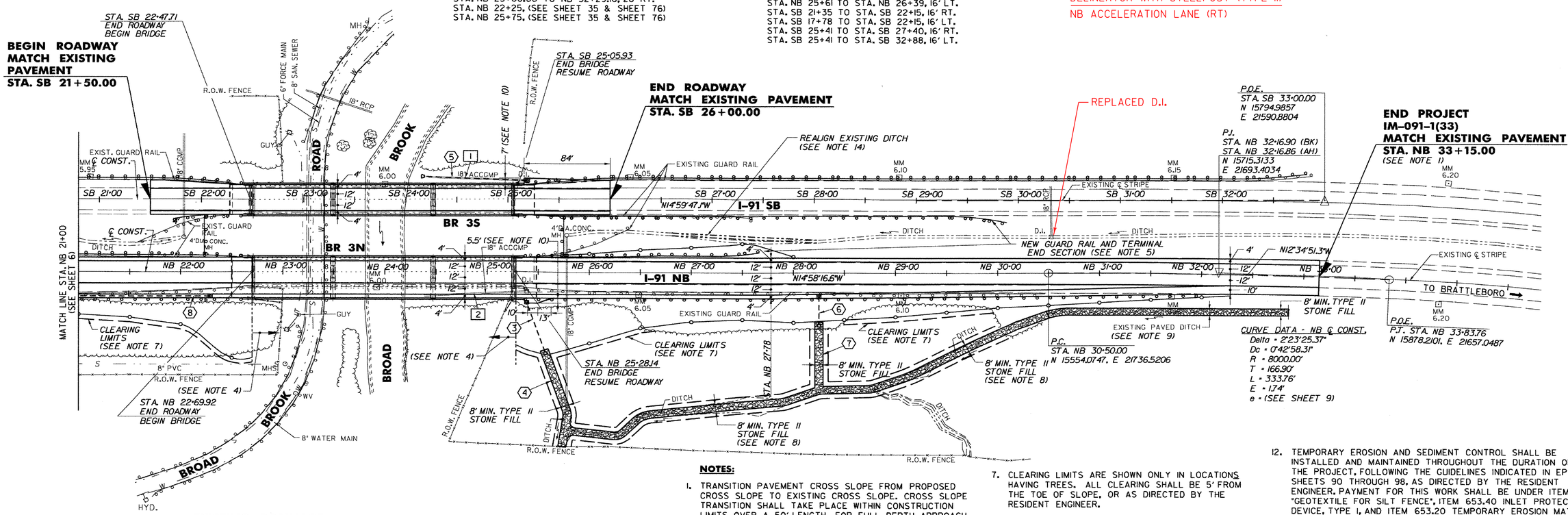
ITEM 621.60 ANCHOR FOR STEEL BEAM RAIL
STA. NB 32+16.66, 28' RT. STA. SB 21+71 16' RT

ITEM 621.80 REMOVAL AND DISPOSAL OF GUARD RAIL
STA. NB 21+00 TO STA. NB 22+35, 28' RT.
STA. NB 21+00 TO STA. NB 22+35, 16' LT.
STA. NB 25+61 TO STA. NB 30+47, 22' RT.
STA. NB 25+61 TO STA. NB 26+39, 16' LT.
STA. SB 21+35 TO STA. SB 22+15, 16' RT.
STA. SB 17+78 TO STA. SB 22+15, 16' LT.
STA. SB 25+41 TO STA. SB 27+40, 16' RT.
STA. SB 25+41 TO STA. SB 32+88, 16' LT.

ITEM 900.620 SPECIAL PROVISION (GUARDRAIL APPROACH SECTION TO F-SHAPE CONCRETE RAIL)
STA. SB 22+09.44 TO STA. SB 22+40.09, 22' LT. TO 16' LT.
STA. SB 22+09.44 TO STA. SB 22+40.09, 16' RT.
STA. NB 22+19.19 TO STA. NB 22+49.84, 16' LT.
STA. NB 22+19.19 TO STA. NB 22+49.84, 28' RT.
STA. SB 25+15.60 TO STA. SB 25+46.25, 16' LT. TO 22 LT.
STA. SB 25+15.60 TO STA. SB 25+46.25, 16' RT.
STA. NB 25+36.01 TO STA. NB 25+66.66, 16' LT.
STA. NB 25+36.01 TO STA. NB 25+66.66, 28' RT.

DELINEATOR WITH STEELPOST (TYPE II)
NB ACCELERATION LANE (RT)

VT STATE PLANE GRID N



EXISTING DRAINAGE

STRUCTURE	℄ CONST. STATION TO STATION	DESCRIPTION
1	STA. SB 24+22, TO STA. SB 25+18	REMOVE EXISTING PIPE AND DI. THIS WORK SHALL BE PAID UNDER ITEM 641.10.
2	STA. NB 24+38, TO STA. NB 25+39	REMOVE EXISTING PIPE AND DI. THIS WORK SHALL BE PAID UNDER ITEM 641.10.

NEW DRAINAGE

STRUCTURE	℄ CONST. STATION TO STATION	DESCRIPTION
3	STA. NB ~~25+38.6, 32.5' RT.~~ 25+53' 26' RT. TO STA. NB 25+56.5, 86' RT.	INSTALL NEW CONCRETE CATCH BASIN WITH TYPE A FRAME AND GRATE, RIM ~~420.63,~~ 421.16 AND NEW 18" X 63' (ALONG SLOPE) CPEP, CORRUGATED INTERIOR, WITH END SECTION TO TYPE II STONE FILL OUTLET. INV OUT ~~417.13.~~ 415.24
4	STA. NB 25+56, 84' RT. TO STA. NB 25+73, 188' RT.	PLACE 106 LF TYPE II STONE LINED DITCH AT 31.60% GRADE. BEGINNING OF DITCH ELEV. ~~389.13.~~ 386.75 OUTLET OF DITCH ELEV. 355.50.
5	STA. SB ~~25+19, 20.5'~~ 25+31 16.5' LT. TO STA. SB 24+18.2, 25' LT.	INSTALL NEW CONCRETE CATCH BASIN WITH TYPE A FRAME AND GRATE, RIM 421.02, INV OUT 417.52 AND NEW 18" X 119' (ALONG SLOPE) CPEP, CORRUGATED INTERIOR, WITH END SECTION TO TYPE IV STONE FILL OUTLET, INV. 355.14, BLEND INTO STONE FILL FROM BRIDGE (SEE BRIDGE PLANS)
6	STA. NB 28+25, 26' RT. TO STA. NB 28+25, 48' RT.	INSTALL NEW CONCRETE CATCH BASIN WITH TYPE A FRAME AND GRATE, RIM 430.53, INV. OUT 427.00 AND NEW 18" X 23' CPEP, CORRUGATED INTERIOR, WITH END SECTION TO TYPE II STONE FILL OUTLET.
7	STA. NB 28+25, 48' RT. TO STA. NB 28+25, 124' RT.	PLACE 76 LF TYPE II STONE LINED DITCH AT 30.00% GRADE. BEGINNING OF DITCH, ELEV. 414.00. OUTLET OF DITCH 391.00.
8	STA. NB 22+29, 26' RT. TO STA. NB 18+25, 26' RT.	INSTALL NEW CONCRETE CATCH BASIN WITH TYPE A FRAME AND GRATE, RIM 412.87, AND NEW 18" X 404' CPEP, CORRUGATED INTERIOR, TO CATCH BASIN NO. 1, INV. OUT ~~409.37.~~ 407.20

NOTES:

1. TRANSITION PAVEMENT CROSS SLOPE FROM PROPOSED CROSS SLOPE TO EXISTING CROSS SLOPE. CROSS SLOPE TRANSITION SHALL TAKE PLACE WITHIN CONSTRUCTION LIMITS OVER A 50' LENGTH. FOR FULL DEPTH APPROACH PAVEMENT TRANSITION DETAIL, SEE ROADWAY TYPICAL SECTION DETAILS, SHEET 5A.
2. FOR PROFILE INFORMATION, SEE PROFILES (3N&S), BRIDGE SHEET BRIII.
3. CONSTRUCTION ALIGNMENTS POSITIONED EQUIDISTANT BETWEEN EXISTING BRIDGE CURB LINES. IN SOME CASES THE ALIGNMENT DOES NOT MATCH THE HIGHWAY STRIPING. PROVIDE 100' TRANSITION TAPER FROM EXISTING STRIPING TO NEW STRIPING. TRANSITION WILL TAKE PLACE OUTSIDE OF CONSTRUCTION LIMITS. ALL EXISTING STRIPING MUST BE REMOVED ACCORDING TO CONTRACT DOCUMENTS. THE COST FOR THE REMOVAL OF EXISTING STRIPING TO BE INCLUDED UNDER ITEM 646.85, "REMOVAL OF EXISTING PAVEMENT MARKINGS".
4. SEE GENERAL PLAN, BRIDGE SHEET BRI09 FOR WORK BEYOND SHOWN LIMITS.
5. SEE NOTE 24, TRAFFIC CONTROL NOTES SHEET 11, FOR DESCRIPTION OF WORK AND PAYMENT.
6. EXISTING MILE MARKERS SHALL BE REMOVED AND SALVAGED. THE COST OF THIS WORK SHALL BE INCLUDED UNDER ITEM 675.50, "REMOVING SIGNS", AND ITEM 675.60, "ERECTING SALVAGED SIGNS."
7. CLEARING LIMITS ARE SHOWN ONLY IN LOCATIONS HAVING TREES. ALL CLEARING SHALL BE 5' FROM THE TOE OF SLOPE, OR AS DIRECTED BY THE RESIDENT ENGINEER.
8. EXCAVATE AND INSTALL TYPE II STONE FILL AT SAME GRADE AS EXISTING DITCH OR 2' FROM THE EDGE OF DITCH. WHERE 8' WIDTH IS IMPRACTICAL, A SMALLER WIDTH DITCH SHALL BE PLACED AS DIRECTED BY THE RESIDENT ENGINEER. PAYMENT FOR EXCAVATION SHALL BE UNDER ITEM 203.15, "COMMON EXCAVATION".
9. EXCAVATE THE PAVED DITCH TO LIMITS AND INSTALL TYPE II STONE FILL AT SAME GRADE AS EXISTING DITCH. LIMITS OF PAVED DITCH TO BE FIELD VERIFIED. PAYMENT FOR EXCAVATION SHALL BE UNDER ITEM 203.15, "COMMON EXCAVATION".
10. THE SHOULDER PADS AROUND DRAINAGE STRUCTURES AT STA. NB 25+38.6 AND STA. SB 25+19 SHALL BE CONSTRUCTED WITH A TYPICAL SHOULDER SECTION AS SHOWN ON SHEET 5, ROADWAY TYPICAL SECTIONS. CROSS SLOPE SHOULDER AT 0.042 FT./FT. OR AS DIRECTED BY THE RESIDENT ENGINEER TO PROVIDE POSITIVE DRAINAGE TO THE DROP INLETS.
11. WHERE THE SLOPE OF DRAINAGE PIPE IS GREATER THAN 1:10, THE USE OF A CPEP CORRUGATED PIPE ELBOW WILL BE NECESSARY. A 2' LONG SECTON OF PIPE SHALL BE PLACED THROUGH THE DRAINAGE STRUCTURE WALL, TO WHICH THE CORRUGATED ELBOW SHALL BE ATTACHED. PAYMENT FOR CPEP PIPE ELBOW SHALL BE UNDER ITEM 601.5814, "18" CPEP ELBOW". SEE STANDARD SHEET D-4 FOR CONCEPTUAL LAYOUT.
12. TEMPORARY EROSION AND SEDIMENT CONTROL SHALL BE INSTALLED AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. FOLLOWING THE GUIDELINES INDICATED IN EPSC SHEETS 90 THROUGH 98, AS DIRECTED BY THE RESIDENT ENGINEER. PAYMENT FOR THIS WORK SHALL BE UNDER ITEM 649.51, "GEOTEXTILE FOR SILT FENCE", ITEM 653.40 INLET PROTECTION DEVICE, TYPE I, AND ITEM 653.20 TEMPORARY EROSION MATTING. SEE NOTE 21, TRAFFIC CONTROL NOTES (2 OF 2), SHEET 11.
13. A 1:10 SLOPE (MAX.) IS REQUIRED AROUND THE MANUFACTURED TERMINAL END SECTION UNITS. THIS SLOPE SHALL BE PLACED AS DIRECTED BY THE RESIDENT ENGINEER, AND PAID FOR UNDER ITEM 402.11, "AGGREGATE SHOULDERS, TRUCK MEASUREMENT". ALL GRADING AND EROSION CONTROL ITEMS REQUIRED FOR TURF ESTABLISHMENT SHALL BE INCIDENTAL TO ITEM 621.50, "MANUFACTURED TERMINAL SECTION, FLARED".
14. REALIGNMENT OF EXISTING DITCH SHALL BE PAID FOR INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL".

50 0 50
SCALE

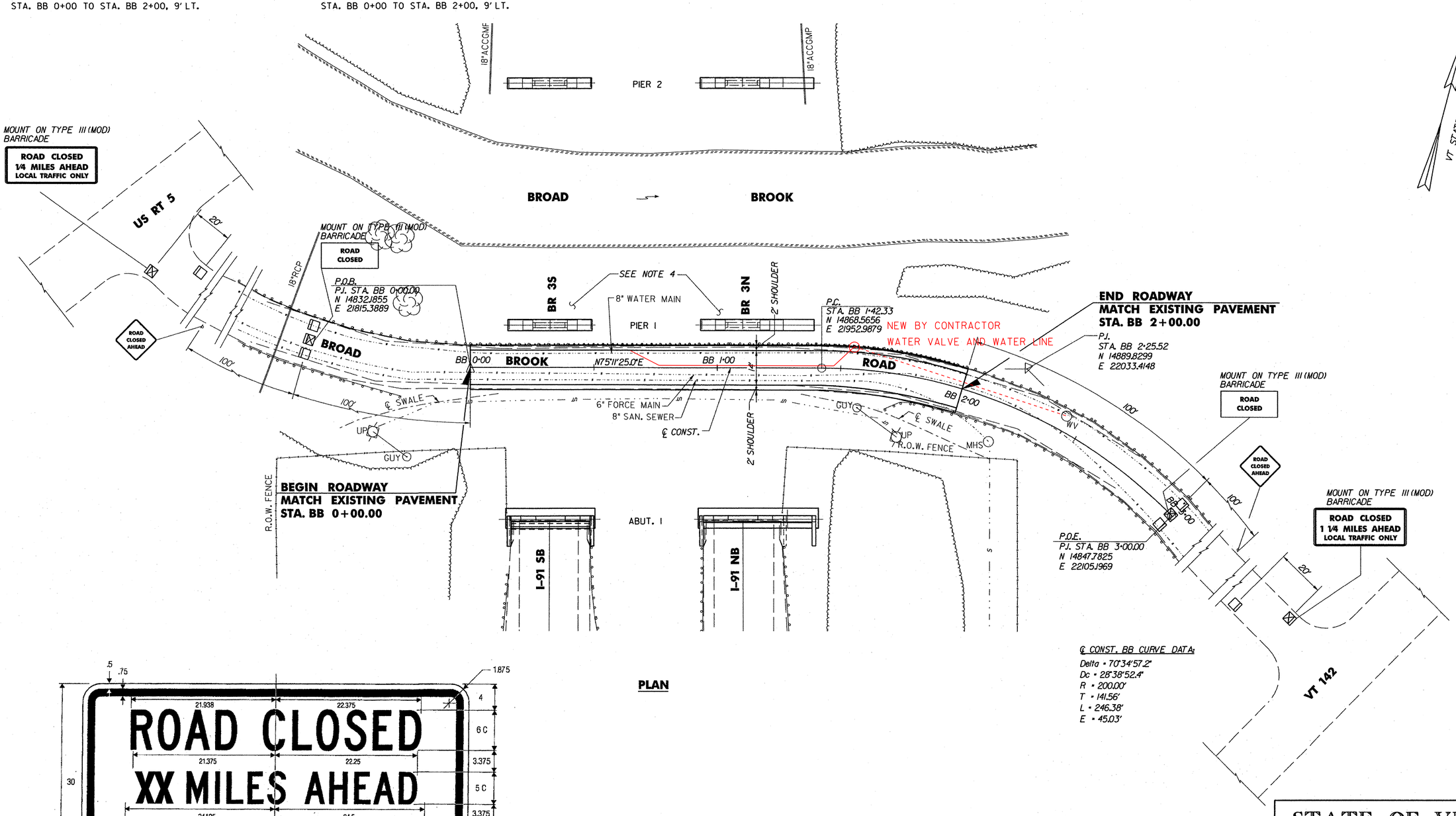
TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.
I-91 OVER BROAD BROOK & BROAD BROOK ROAD	
ROADWAY PLAN (2 OF 2)	
Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. PL-2.dgn	Date 06/11/08
Bridge Sheet No.	Sheet 7 of 114

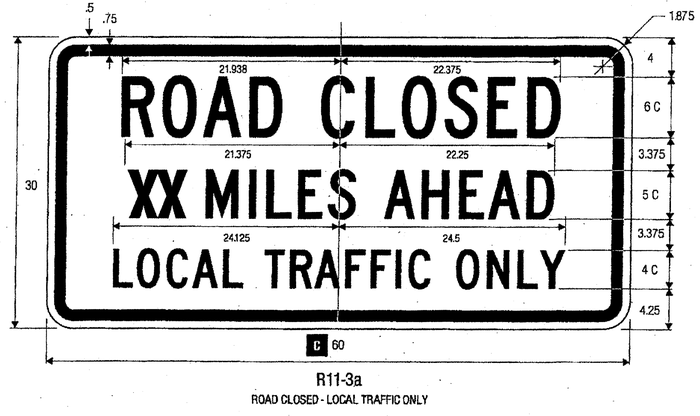
ITEM 621.21 HEAVY DUTY STEEL BEAM GUARD RAIL, GALVANIZED
STA. BB 0+00 TO STA. BB 2+00, 9' LT.

ITEM 621.80 REMOVAL AND DISPOSAL OF GUARD RAIL
STA. BB 0+00 TO STA. BB 2+00, 9' LT.



℄ CONST. BB CURVE DATA:
Delta = 70°34'57.2"
Dc = 28°38'52.4"
R = 200.00'
T = 141.56'
L = 246.38'
E = 45.03'

PLAN



R11-3a
ROAD CLOSED - LOCAL TRAFFIC ONLY

NOTES:

1. SEE ROADWAY PLANS, SHEETS 6 AND 7, AND ROADWAY TYPICAL SECTIONS, SHEET 5, FOR INFORMATION ON I-91 IMPROVEMENTS.
2. TEMPORARY ROAD CLOSURE FOR BROAD BROOK ROAD TO BE IMPLEMENTED ONLY IN FALL 2008.
3. PAYMENT FOR ALL CONSTRUCTION SIGNS AND TRAFFIC CONTROL DEVICES FOR BROAD BROOK ROAD SHALL BE PAID UNDER THE ITEM 641.10, "TRAFFIC CONTROL"
4. FOR BRIDGE REHABILITATION WORK IN THE VICINITY OF BROAD BROOK ROAD, SEE BRIDGE PLANS.

LEGEND

- ☐ TYPE III BARRICADE
- ☒ TYPE III (MOD) BARRICADE

20 0 20
SCALE

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

BROAD BROOK ROAD PLAN

Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. BB-1.dgn	Date 05/22/08
Bridge Sheet No.	Sheet 8 of 114

TRAFFIC CONTROL NOTES

1. ALL TRAFFIC CONTROL DEVICES AND PLANS SHALL CONFORM TO THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) "GREEN BOOK", THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND VERMONT AGENCY OF TRANSPORTATION (VAOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION 2006. THE RESIDENT ENGINEER SHALL HAVE THE AUTHORITY TO ALTER ALL TRAFFIC CONTROL PLANS IN THE FIELD AS NECESSARY.

2. TRAFFIC SHALL BE CONTROLLED AND MAINTAINED AT ALL TIMES THROUGHOUT ALL PHASES OF THIS PROJECT IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.

3. THE CONTRACTOR IS NOTIFIED THAT AN EMERGENCY ACCESS GATE IS LOCATED AT APPROXIMATELY MM 5.85 SOUTHBOUND. THE CONTRACTOR SHALL NOT AT ANY TIME THROUGHOUT THE CONSTRUCTION PERIOD BLOCK THE EXISTING EMERGENCY ACCESS GATE. THE CONTRACTOR SHALL NOTIFY AND COORDINATE ALL CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE EMERGENCY ACCESS GATE WITH ALL ASSOCIATED EMERGENCY SERVICES PRIOR TO ANY CONSTRUCTION ACTIVITY.

4. A NEW PERMANENT U-TURN SHALL BE CONSTRUCTED AT STA. NB 0+00 PRIOR TO PHASE I CONSTRUCTION. THE EXISTING U-TURN SIGNS SHALL BE REMOVED FROM THE U-TURN LOCATED AT STA. NB 13+80 AND ERECTED ON NEW POSTS AT THE NEW U-TURN AT STA. NB 0+00. PAYMENT FOR THIS WORK SHALL BE UNDER ITEM 675.50, "REMOVING SIGNS," ITEM 675.60 "ERECTING SALVAGED SIGNS",AND ITEM 675.301, "FLANGED CHANNEL SIGN POST". THE EXISTING U-TURN AT STA. NB 13+80 SHALL BE BARRICADED WITH TYPE III BARRICADES BETWEEN THE FIRST AND SECOND CONSTRUCTION SEASONS. THE COST FOR BARRICADING THE EXISTING U-TURN SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL". THE EXISTING U-TURN AT STA. NB 13+80 SHALL BE RECONSTRUCTED TO A NEW PERMANENT U-TURN WITH A CENTERLINE (THROAT) DIMENSION OF 110' AT THE END OF PHASE 2 CONSTRUCTION, AND NEW U-TURN SIGNS SHALL BE ERECTED TO NEW POSTS. PAYMENT FOR ERECTING THE NEW U-TURN SIGNS SHALL BE UNDER ITEM 675.20, "TRAFFIC SIGNS, TYPE A," AND ITEM 675.301, "FLANGED CHANNEL SIGN POST."

4A. THE NEW PERMANENT U-TURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD B-17. THE EXISTING SLOPES IN THE AREA OF THE NEW U-TURN AT STA. NB 0+00 SHALL BE STRIPPED OF ALL EXISTING TOPSOIL BEFORE PLACEMENT OF ITEM 301.28, "SUBBASE OF CRUSHED GRAVEL, FINE GRADED". PAYMENT FOR WORK NECESSARY TO REMOVE EXISTING TOPSOIL SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL". FOR THE RECONSTRUCTED U-TURN AT STA. NB 14+00, THE AREA SHALL BE EXCAVATED DOWN TO REQUIRED SLOPES, TO ALLOW FOR THE REQUIRED DEPTH OF ITEM 301.28, "SUBBASE OF CRUSHED GRAVEL, FINE GRADED", AND TO ALLOW PLACEMENT OF NEW 18" CPEP. PAYMENT FOR ALL EXCAVATION WORK SHALL BE UNDER ITEM 203.15, "COMMON EXCAVATION". FOR BOTH U-TURNS, ITEM 301.28, "SUBBASE OF ~~CRUSHED GRAVEL~~, DENSE GRADED CRUSHED STONE ~~FINE GRADED~~", SHALL BE PLACED TO A MINIMUM DEPTH OF ~~24 INCHES~~ 18" AND THE FINISH SURFACE SHALL BE ~~4 INCHES~~ 6" OF ITEM 406.25, "BITUMINOUS CONCRETE PAVEMENT, (PG 64-28)". AN 18" CPEP SHALL BE PLACED IN BOTH U-TURNS TO MAINTAIN POSITIVE DRAINAGE. PAYMENT FOR THE NEW 18" CPEP PIPE SHALL BE UNDER ITEM 601.0915, "18" CPEP". PAYMENT FOR WORK NECESSARY TO GRADE, THE FINISHED SLOPES SHALL BE UNDER ITEM 641.10, "TRAFFIC CONTROL".

5. TRAFFIC CONTROL MEASURES WILL NOT BE PERMITTED BETWEEN THE DATES OF NOVEMBER 15 AND APRIL 15 UNLESS OTHERWISE APPROVED BY THE RESIDENT ENGINEER. IN ADDITION, ONCE TRAFFIC CONTROL DEVICES HAVE BEEN INSTALLED, THE CONTRACTOR SHALL BEGIN ASSOCIATED BRIDGE WORK IMMEDIATELY AND PROCEED IN A TIMELY MANNER THROUGH COMPLETION IN ORDER TO MINIMIZE INCONVENIENCE TO THE TRAVELING PUBLIC.

6. THE CONTRACTOR SHALL SUBMIT TRAFFIC CONTROL PLANS AND SCHEDULES FOR ALL WORK ASSOCIATED WITH THIS PROJECT TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO ANY CONSTRUCTION ACTIVITY. PAYMENT FOR PREPARING AND SUBMITTING THE PLAN, AND MAKING MODIFICATIONS AS NECESSARY, WILL BE INCLUDED FOR PAYMENT UNDER CONTRACT ITEM 641.10.

7. THE NUMBER AND LOCATION OF REFLECTORIZED PLASTIC DRUMS, TYPE III BARRICADES, VERTICAL TUBE MARKERS, AND DELINEATORS SHOWN ON THESE PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS IN ACCORDANCE WITH THE APPLICABLE STANDARDS PRIOR TO PLACEMENT.

8. MILE MARKERS REFERENCED IN THE DRAWINGS SHALL NOT BE USED FOR LAYOUT PURPOSES; THEY ARE INTENDED FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL MILE MARKERS AND STATIONING NECESSARY TO DESIGN AND CONSTRUCT ALL TRAFFIC CONTROL RELATED ITEMS.

9. NO PRIVATE VEHICLES BELONGING TO THE CONTRACTOR'S EMPLOYEES SHALL BE STAGED OR PARKED ON THE INTERSTATE RIGHT-OF-WAY, THE TRAVELED WAY OF ANY PUBLIC THOROUGHFARE, THE WELCOME CENTER, OR THE WELCOME CENTER ACCESS ROAD AT ANY TIME THROUGHOUT THE CONSTRUCTION PERIOD.

10. ANY CLEARING AND GRUBBING DEEMED NECESSARY TO CONSTRUCT CROSSOVERS SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL".

11. OUTSIDE THE LIMITS OF WORK, ALL EXISTING PAVEMENT MARKINGS IN CONFLICT WITH TEMPORARY PAVEMENT MARKINGS AS SHOWN IN STANDARDS E-103, E-104 AND E-104A, SHALL BE COVERED WITH ITEM 646.86 "PAVEMENT MARKING MASK", THE PAVEMENT MARKING MASK SHALL BE CUT AT 100' INTERVALS TO PREVENT UNRAVELING. WITHIN THE LIMITS OF WORK, ALL MARKINGS IN CONFLICT SHALL BE REMOVED, UNDER ITEM 646.85, "REMOVAL OF EXISTING PAVEMENT MARKINGS".

12. TEMPORARY PAVEMENT MARKINGS ON THE CROSSOVERS IN THE MEDIAN SHALL BE PAID UNDER ITEM 646.622, "TEMPORARY 6 INCH WHITE LINE, PAINT" AND ITEM 646.632, "TEMPORARY 6 INCH YELLOW LINE, PAINT". TEMPORARY PAVEMENT MARKINGS THROUGHOUT THE REST OF THE TRAFFIC CONTROL PACKAGE SHALL BE PAID UNDER ITEM 646.621, "TEMPORARY 6 INCH WHITE LINE, TYPE II TAPE" AND ITEM 646.631 "TEMPORARY 6 INCH YELLOW LINE, TYPE II TAPE".

13. IN ACCORDANCE WITH STD E-103, ITEM 646.75 "RAISED PAVEMENT MARKERS, TYPE II" SHALL BE PLACED AT 20 FOOT INTERVALS.

14. PAYMENT FOR PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE UNDER ITEM 641.17 "PORTABLE CHANGEABLE MESSAGE SIGN RENTAL" AND PAYMENT FOR FLASHING ARROW PANELS SHALL BE UNDER ITEM 641.16 "PORTABLE ARROW BOARD". PAYMENT FOR TRAFFIC CONTROL SIGNS, PLASTIC DRUMS, DELINEATORS, FLEXIBLE TUBULAR MARKERS, TYPE III BARRICADES AND TYPE III (MOD.) BARRICADES SHALL BE UNDER ITEM 641.10 "TRAFFIC CONTROL". PAYMENT SHALL INCLUDE ALL NECESSARY MAINTENANCE AND REPAIRS TO THESE TRAFFIC CONTROL DEVICES ON A DAILY BASIS. THE ENGINEER MAY ADD TEMPORARY TRAFFIC CONTROL SIGNS AS NECESSARY. THESE ADDITIONAL SIGNS, INCLUDING POSTS, SHALL BE PAID FOR UNDER ITEM 675.20, "TRAFFIC SIGNS, TYPE A", AND SHALL BECOME THE PROPERTY OF THE CONTRACTOR AT PROJECT COMPLETION.

15. THREE PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE PAID UNDER 641.15 ARE REQUIRED FOR THE CONTRACT. THE RESIDENT ENGINEER SHALL DETERMINE THE LOCATION AND MESSAGE TO BE PLACED ON THE MESSAGE BOARDS. THE CONTRACTOR SHALL MOVE THE MESSAGE BOARDS AS MANY TIMES AS DIRECTED BY THE ENGINEER WITHOUT ADDITIONAL PAYMENT OR COMPENSATION.

16. FOR CLARITY, NOT ALL EXISTING SIGNS ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING SIGNS IN THE FIELD. PLACEMENT OF CONSTRUCTION SIGNS SHALL BE DIRECTED BY THE RESIDENT ENGINEER WHERE CONFLICTS WITH EXISTING SIGNS OCCUR.

17. ALL EXISTING 65 MILE PER HOUR SPEED LIMIT SIGNS LOCATED WITHIN LIMITS OF THE TRAFFIC CONTROL SHOWN ON THESE SHEETS SHALL BE COVERED DURING CONSTRUCTION. THE CONTRACTOR SHALL COVER OR REMOVE ANY SIGNS THAT CONTRADICT TEMPORARY TRAFFIC CONTROL SIGNS. ALL SIGNS REMOVED OR COVERED BY THE CONTRACTOR SHALL BE REPLACED OR UNCOVERED BY THE CONTRACTOR WHEN THE TRAFFIC CONTROL PLAN IS DISASSEMBLED. PAYMENT FOR REMOVAL AND REPLACEMENT, COVERING AND UNCOVERING OF SIGNS AND PLACEMENT AND REMOVAL OF TEMPORARY OVERLAYS SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL". EXISTING SIGNS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR WITH NO EXTRA COMPENSATION.

18. DURING BRIDGE REHABILITATION OPERATIONS, TRAVEL LANES UNDER THE BRIDGES SHALL BE PROTECTED BY ENCLOSING THE AREA BELOW THE DECK. THE CONTRACTOR SHALL SUBMIT DETAILS OF PROTECTIVE ENCLOSURES TO THE RESIDENT ENGINEER FOR APPROVAL. COSTS FOR PROVIDING PROTECTIVE ENCLOSURES SHALL BE PAID FOR UNDER ITEM 900.645, "SPECIAL PROVISION (PUBLIC PROTECTION FOR BRIDGE PROJECTS)".

19. THE DETOUR SHALL BE PAVED TO A MINIMUM DEPTH OF 4 INCHES AND A WIDTH OF 16 FEET. THE MATERIAL USED FOR FILL SHALL BE SUITABLE FOR THE ADEQUATE SUPPORT OF TRAFFIC AND SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING POT HOLES, RUTS, CRACKS, ETC. WHICH MAY OCCUR IN THE CROSSOVER SURFACE DURING ITS USE.

19A. THE FOLLOWING PLAN SHEETS HAVE BEEN DETAILED CALLING FOR "PAVEMENT MARKING REMOVAL". HOWEVER, BOTH NORTHBOUND AND SOUTHBOUND LANES HAVE BEEN PAVED WITHIN THE LAST TWO YEARS AND VTRANS DOES NOT LIKE TO GRIND NEW PAVEMENT. THEREFORE, UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER, THESE LINES ARE TO BE COVERED OVER WITH THE ITEM 646.86 "PAVEMENT MARKING MASK"

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta.
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I-91 OVER BROAD BROOK & BROAD BROOK ROAD

TRAFFIC CONTROL NOTES (1 OF 2)

Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
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TRAFFIC CONTROL NOTES (CONT.)

19. WHERE CROSSOVERS ARE TO BE PLACED, EXISTING SLOPES SHALL BE STRIPPED OF TOPSOIL AND BENCHED AS DIRECTED BY THE ENGINEER, PAID FOR INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL". FILL MATERIAL SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT AND SHALL BE FREE OF EXCESSIVE AMOUNTS OF MOISTURE, ORGANICS, AND SILTS. SUBBASE MATERIAL SHALL BE APPROVED BY THE RESIDENT ENGINEER PRIOR TO PLACEMENT AND SHALL BE PLACED TO A MAXIMUM DEPTH OF 12 INCHES. PAVING OF CROSSOVER DETOURS SHALL BE PAID FOR AS ITEM 406.25, "BITUMINOUS CONCRETE PAVEMENT, (PG 64-28)". THE TYPE II PAVEMENT SHALL BE PLACED TO A DEPTH OF 4" IN TWO (2) 2" COURSES. THE COST OF ALL OTHER WORK REQUIRED FOR THE DESIGN, CONSTRUCTION AND REMOVAL OF CROSSOVERS SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL".

20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING, MAINTAINING AND REMOVING TEMPORARY DRAINAGE STRUCTURES AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE TO EXISTING DRAINAGE STRUCTURES (IE, CATCH BASINS, CULVERTS) WHICH COULD BECOME BLOCKED FROM INSTALLATION OF THE CROSSOVERS. NO STAGNATION OF OR EROSION FROM STORMWATER SHALL BE PERMITTED ON ACCOUNT OF TEMPORARILY CONSTRUCTED TRAFFIC CONTROL STRUCTURES OR DEVICES. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING DRAINAGE STRUCTURES AND SUBMIT A TEMPORARY DRAINAGE PLAN FOR EACH CROSSOVER TO THE RESIDENT ENGINEER FOR APPROVAL. PAYMENT FOR DEVELOPMENT OF THIS PLAN AND ALL CONSTRUCTION ACTIVITIES ASSOCIATED WITH TEMPORARY DRAINAGE SHALL BE CONSIDERED INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL".

21. THE CONTRACTOR WILL BE REQUIRED TO INSTALL, MAINTAIN AND REMOVE TEMPORARY EROSION CONTROL MEASURES TO PREVENT EROSION OF FILL MATERIAL ASSOCIATED WITH THE CROSSOVERS AND FOR AREAS WHICH ARE DISTURBED DURING CONSTRUCTION.

22. WHERE CROSSOVERS TRAVERSE AN EXISTING U-TURN, THE CONTRACTOR SHALL MAINTAIN A SMOOTH TRANSITION THROUGHOUT THE CROSSOVER. ANY EXCAVATION OR FILL NECESSARY TO PROVIDE A SMOOTH TRANSITION DURING CONSTRUCTION, TO PREPARE FOR CONSTRUCTION OF NEW PERMANENT U-TURN, OR AS DIRECTED BY THE RESIDENT ENGINEER SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL".

23. ALL GUARDRAIL, BRIDGE APPROACH RAIL OR BRIDGE RAIL THAT IS LAPPED IN THE OPPOSITE DIRECTION OF TRAVEL SHALL BE TEMPORARILY RESET TO PROVIDE LAPS IN THE DIRECTION OF TRAVEL. ANY WORK REQUIRED TO CHANGE DIRECTION OF THE LAPS DURING CONSTRUCTION AND RESTORE TO ORIGINAL CONDITION AFTER CONSTRUCTION OR RESETING OF RAILING SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL".

24. APPROACH GUARD RAIL ASSEMBLY ITEM 900.620, SPECIAL PROVISION (GUARDRAIL APPROACH SECTION TO F-SHAPE CONCRETE RAIL, SEE SHEET 36) SHALL BE PLACED IN PHASE-I STAGE B CONSTRUCTION FOR THE I-91 NB BRIDGE, NORTHWEST CORNER. INSTALLATION OF THE MTES SHALL BE PAID FOR UNDER ITEM 621.50, "MANUFACTURED TERMINAL SECTION, FLARED". THE CONTRACTOR SHALL REMOVE AND STORE THE MTES FOR PICKUP BY THE VTRANS MAINTENANCE DISTRICT FOR SPARE PARTS. REMOVING AND STORING OF MTES SHALL BE PAID FOR UNDER ITEM 621.80, "REMOVAL AND DISPOSAL OF GUARD RAIL". FOLLOWING REMOVAL OF THE MTES, A NEW RAILING END TERMINAL SECTION WITH ANCHOR SHALL BE INSTALLED, PAID FOR UNDER ITEM 621.21, "HD STEEL BEAM GUARD RAIL, GALVANIZED", AND ITEM 621.60, "ANCHOR FOR STEEL BEAM RAIL."

25. THE CONTRACTOR SHALL REPLACE ALL DELINEATOR POSTS, DELINEATORS, GUARDRAIL, APPROACH RAIL AND BRIDGE RAIL THAT IS DAMAGED OR DESTROYED BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION.

26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF THE CROSSOVERS AND RE-ESTABLISHMENT OF TURF AND VEGETATION ON ALL PORTIONS OF THE SITE THAT HAVE BEEN DISTURBED DURING CONSTRUCTION. ALL COSTS FOR REMOVAL WORK SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL", AND THE COST FOR TURF ESTABLISHMENT WILL BE PAID FOR UNDER ITEMS SEED, FERTILIZER AND MULCH.

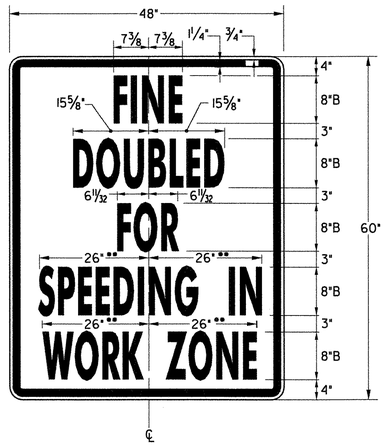
27. NOTE NOT USED.

28. NOTE NOT USED.

29. THERE ARE MILLED RUMBLE STRIPS ON THE SHOULDERS WITHIN THE PROJECT LIMITS. BEFORE PROGRESSING PHASE I, THE CONTRACTOR SHALL COLD MILL THE ENTIRE SHOULDER 2" DEEP AND REPLACE WITH TYPE III BITUMINOUS CONCRETE PAVEMENT. THIS WORK SHALL BE PAID UNDER ITEMS 210.10, "COLD PLANING, BITUMINOUS PAVEMENT", AND ITEM 406.25, "BITUMINOUS CONCRETE PAVEMENT (PG 64-28). AT THE COMPLETION OF THE PROJECT, THE RUMBLE STRIPS WILL BE REPLACED IN KIND AND PAID UNDER ITEM 213.10, "MILLED RUMBLE STRIPS".

30. VERTICAL TUBE MARKERS SHALL BE PLACED AT LANE MERGE AREAS AS IDENTIFIED ON PLANS AND SHALL BECOME THE PROPERTY OF THE CONTRACTOR AFTER CONSTRUCTION. THEY SHALL MEET REQUIREMENTS OF THE MUTCD SECTION 6C-3 AND AASHTO ROADSIDE DESIGN GUIDE. TUBE MARKERS SHALL USE A BALLAST BASE FOR STABILITY. PAYMENT FOR THE PLACEMENT OF VERTICAL TUBE MARKERS SHALL BE UNDER ITEM 641.10, "TRAFFIC CONTROL".

31. THE NORTHBOUND BRIDGE WILL REQUIRE TWO DECK POURS AND A CLOSURE POUR. DURING THE PLACEMENT OF EACH POUR A "PORTABLE CHANGEABLE MESSAGE SIGN RENTAL" SHALL BE USED WITH A 25 MPH ADVISORY SPEED LIMIT AND SHALL STAY IN-PLACE FOR 48 HOURS AFTER EACH POUR IS COMPLETED.



VR-355

EXPWY FWY 26"• REDUCE SPACING BY 12%
EXPWY FWY 26"•• REDUCE SPACING BY 7.7%

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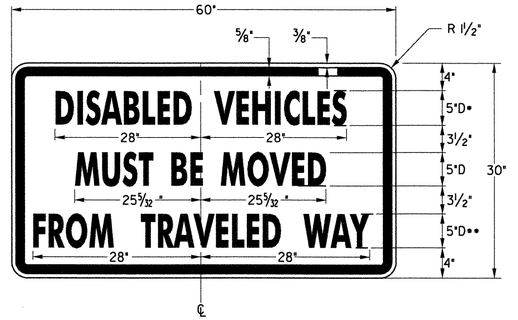
WITH WHITE REFLECTORIZED BACKGROUND



VC-838

• REDUCE SPACING BY 5%
•• REDUCE SPACING BY 13%

COLORS: BLACK TEXT AND BORDER
WITH REFLECTORIZED ORANGE BACKGROUND

STATE OF VERMONT
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Town Of GUILFORD	Bridge No. **3 N&S**
Highway No. I-91	Log Sta. / Surv. Sta.
I-91 OVER BROAD BROOK & BROAD BROOK ROAD	
TRAFFIC CONTROL NOTES (2 OF 2)	
Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. tcp-2.dgn	Date 06/11/08
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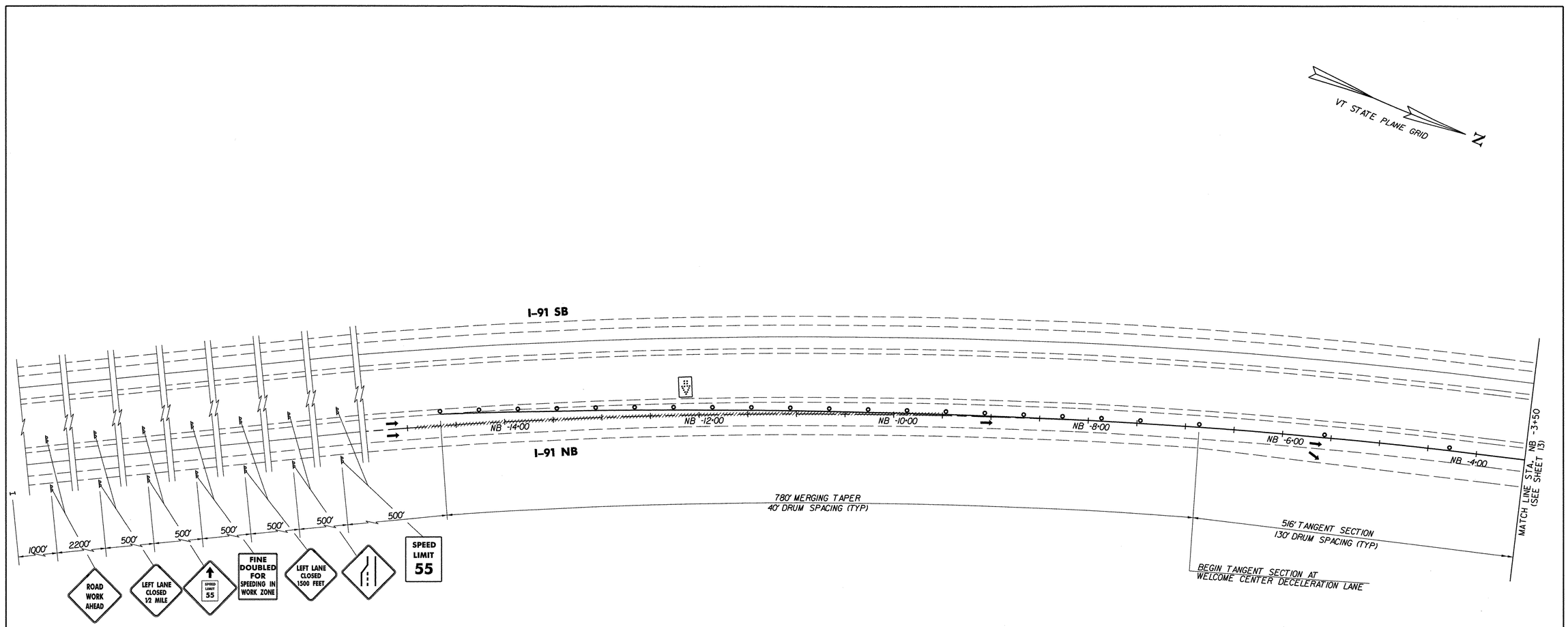

PHASE 1 – STAGE A TRAFFIC CONTROL PLAN

PORTABLE CHANGEABLE MESSAGE SIGN

PHASE 1	CROSSOVER IN PLACE 1 MILE
PHASE 2	REDUCE SPEED AHEAD

LEGEND

- PAVEMENT MARKING REMOVAL
- TEMPORARY TRAFFIC BARRIER
- DIRECTION OF TRAFFIC FLOW WITH DETOUR IN PLACE
- CROSSOVER ALIGNMENT
- EXISTING GUARD RAIL
- EXISTING DROP INLET
- APPROXIMATE CULVERT LOCATION
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- TUBE MARKER
- TYPE III BARRICADE
- TYPE III (MOD) BARRICADE
- SINGLE POST SIGN
- DOUBLE POST SIGN
- PORTABLE CHANGEABLE MESSAGE SIGN
- PORTABLE ARROW BOARD

50 0 50
SCALE IN FEET

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STATE OF VERMONT
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I-91 OVER BROAD BROOK & BROAD BROOK ROAD

PHASE 1 TRAFFIC CONTROL PLANS (1 OF 6)

Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By J.P. HALSTEAD Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. tcp-3.dgn	Date 05/29/08
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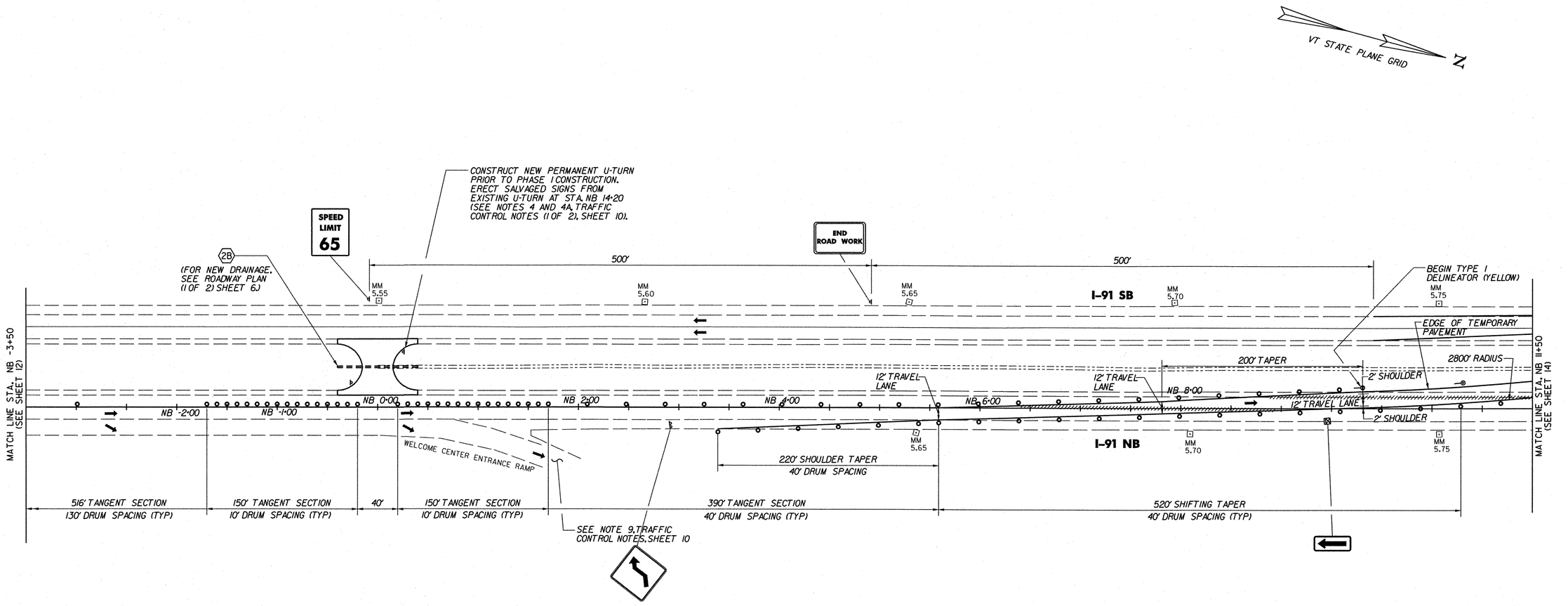

PHASE 1 – STAGE A TRAFFIC CONTROL PLAN

LEGEND

- PAVEMENT MARKING REMOVAL
- TEMPORARY TRAFFIC BARRIER
- DIRECTION OF TRAFFIC FLOW WITH DETOUR IN PLACE
- CROSSOVER ALIGNMENT
- EXISTING GUARD RAIL
- EXISTING DROP INLET
- APPROXIMATE CULVERT LOCATION
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- TUBE MARKER
- TYPE III BARRICADE
- TYPE III (MOD) BARRICADE
- SINGLE POST SIGN
- DOUBLE POST SIGN

50 0 50
SCALE IN FEET

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PHASE 1 TRAFFIC CONTROL PLANS (2 OF 6)

Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. tcp-4.dgn	Date 05/22/08
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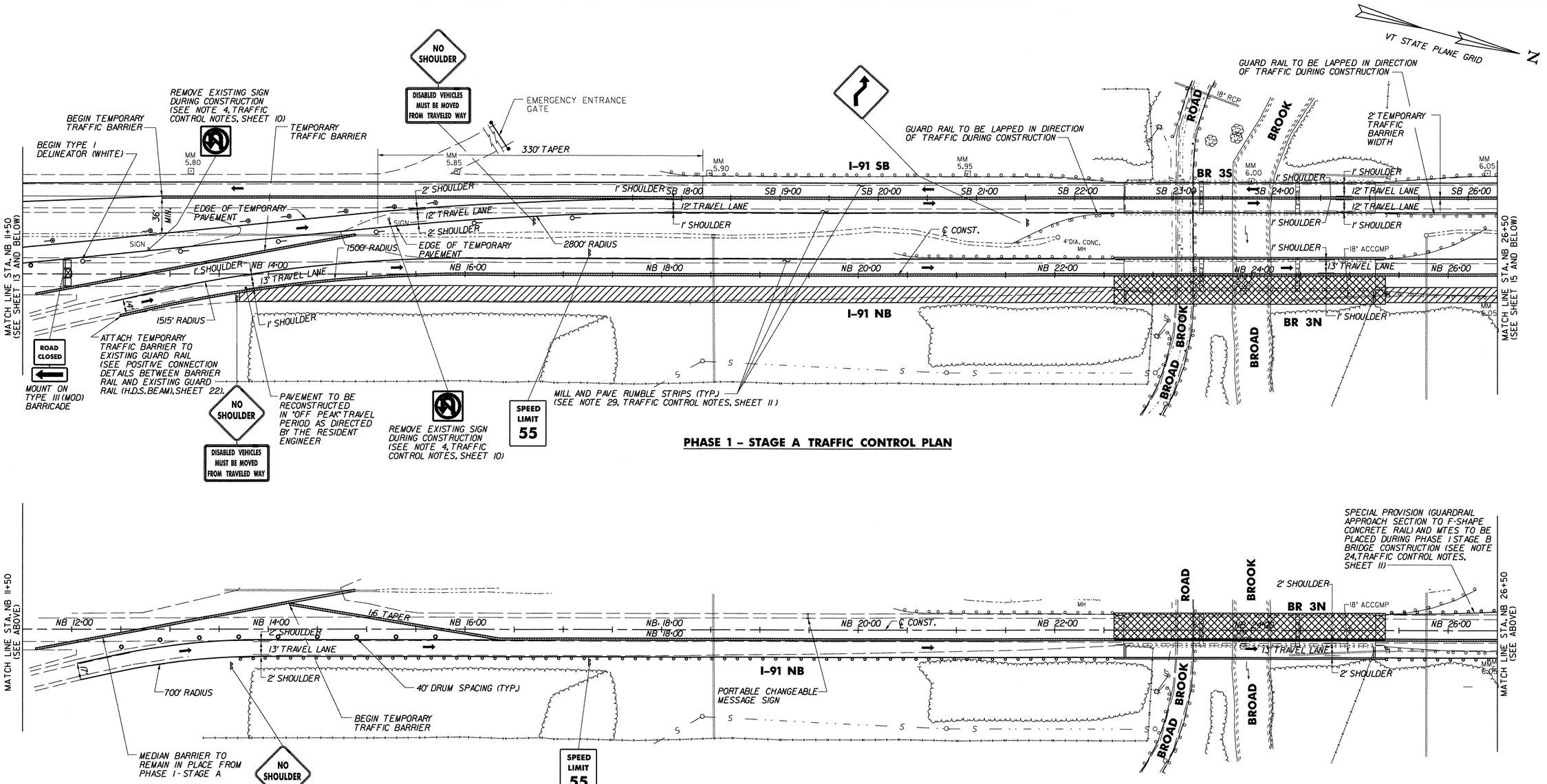

PHASE 1 – STAGE A TRAFFIC CONTROL PLAN

NOTE: 25 MPH ADVISORY SIGN WITH TWO (2) ORANGE FLAGS TO BE INSTALLED OVER 55 MPH SIGN DURING CLOSURE POUR ONLY. 55 MPH SIGN TO BE COMPLETELY COVERED UPON ADVISORY SIGN PLACEMENT.

PHASE 1 – STAGE B TRAFFIC CONTROL PLAN

* NB CROSSOVER CONFIGURATION IS THE SAME AS PHASE I - STAGE A

LEGEND

- TEMPORARY TRAFFIC BARRIER
- DIRECTION OF TRAFFIC FLOW WITH DETOUR IN PLACE
- CROSSOVER ALIGNMENT
- TEMPORARY/NEW GUARD RAIL
- EXISTING GUARD RAIL
- EXISTING DROP INLET
- APPROXIMATE CULVERT LOCATION
- APPROXIMATE AREA OF FULL DEPTH PAVEMENT CONSTRUCTION
- APPROXIMATE AREA OF BRIDGE CONSTRUCTION
- REFLECTORIZED PLASTIC DRUM
- PORTABLE ARROW BOARD
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- TUBE MARKER
- TYPE III BARRICADE
- TYPE III (MOD) BARRICADE
- SINGLE POST SIGN
- DOUBLE POST SIGN
- PORTABLE CHANGEABLE MESSAGE SIGN

50 0 50
SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.
I-91 OVER BROAD BROOK & BROAD BROOK ROAD	
PHASE 1 TRAFFIC CONTROL PLANS (3 OF 6)	
Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By J.P. HALSTEAD Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. tcp-5.dgn	Date 06/10/08
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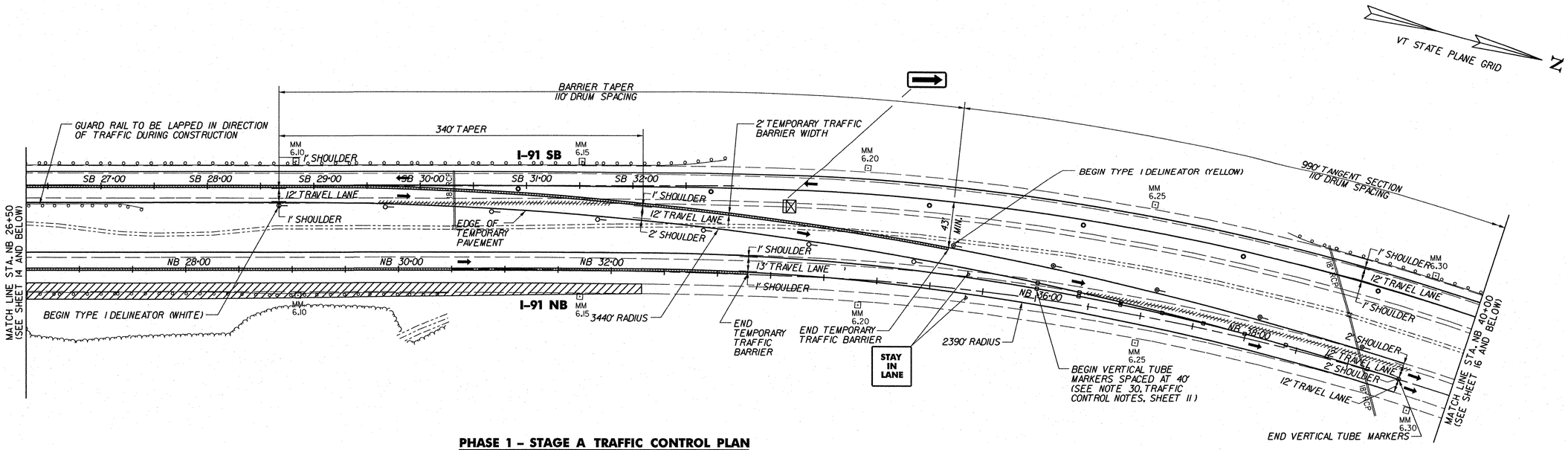
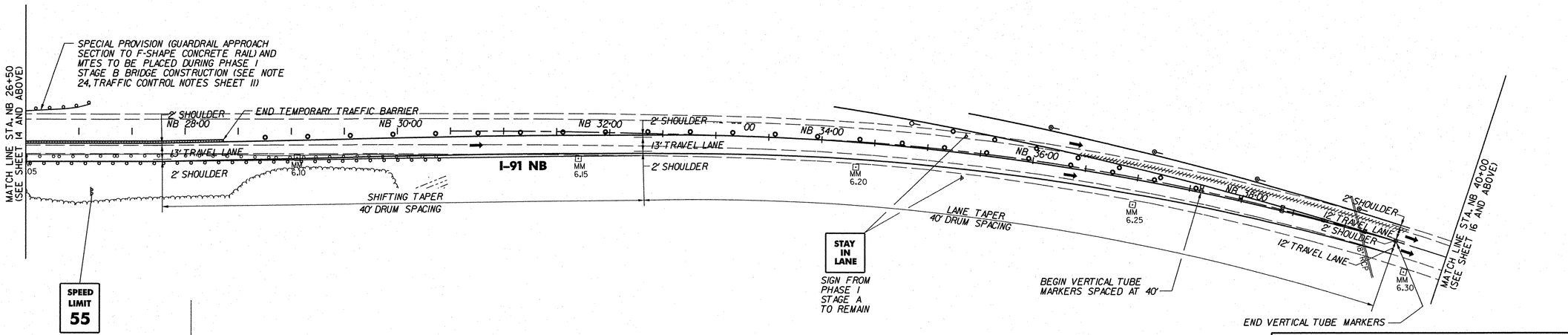


PHASE 1 – STAGE A TRAFFIC CONTROL PLAN



PHASE 1 – STAGE B TRAFFIC CONTROL PLAN

* NB CROSSOVER CONFIGURATION IS THE SAME AS PHASE I- STAGE A

LEGEND

- TEMPORARY TRAFFIC BARRIER
- DIRECTION OF TRAFFIC FLOW WITH DETOUR IN PLACE
- CROSSOVER ALIGNMENT
- TEMPORARY/NEW GUARD RAIL
- EXISTING GUARD RAIL
- EXISTING DROP INLET
- APPROXIMATE CULVERT LOCATION
- APPROXIMATE AREA OF FULL DEPTH PAVEMENT CONSTRUCTION
- APPROXIMATE AREA OF BRIDGE CONSTRUCTION
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- TUBE MARKER
- TYPE III BARRICADE
- TYPE III (MOD) BARRICADE
- SINGLE POST SIGN
- DOUBLE POST SIGN
- PAVEMENT MARKING REMOVAL

50 0 50
SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

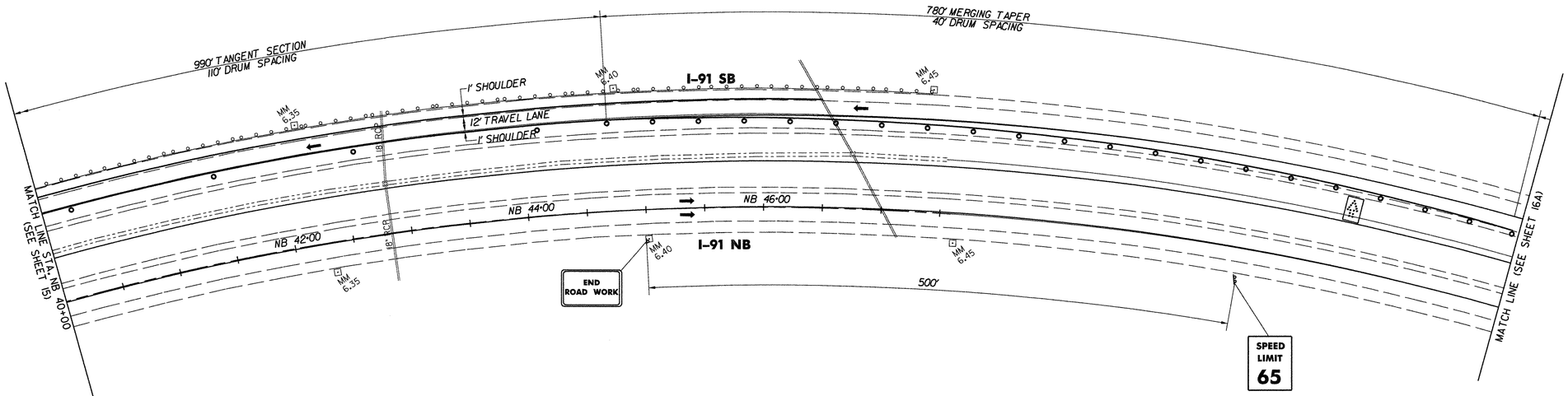
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

PHASE 1 TRAFFIC CONTROL PLANS (4 OF 6)

Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By J.P. HALSTEAD Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. tcp-6.dgn	Date 05/22/08
Bridge Sheet No.	Sheet 15 of 114



PHASE 1 – STAGE A TRAFFIC CONTROL PLAN

LEGEND

- TEMPORARY TRAFFIC BARRIER
- DIRECTION OF TRAFFIC FLOW WITH DETOUR IN PLACE
- CROSSOVER ALIGNMENT
- EXISTING GUARD RAIL
- EXISTING DROP INLET
- APPROXIMATE CULVERT LOCATION
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- TUBE MARKER
- TYPE III BARRICADE
- TYPE III (MOD) BARRICADE
- SINGLE POST SIGN
- DOUBLE POST SIGN
- PORTABLE ARROW BOARD

50 0 50
SCALE IN FEET

TVGA ENGINEERING. SURVEYING. P.C.

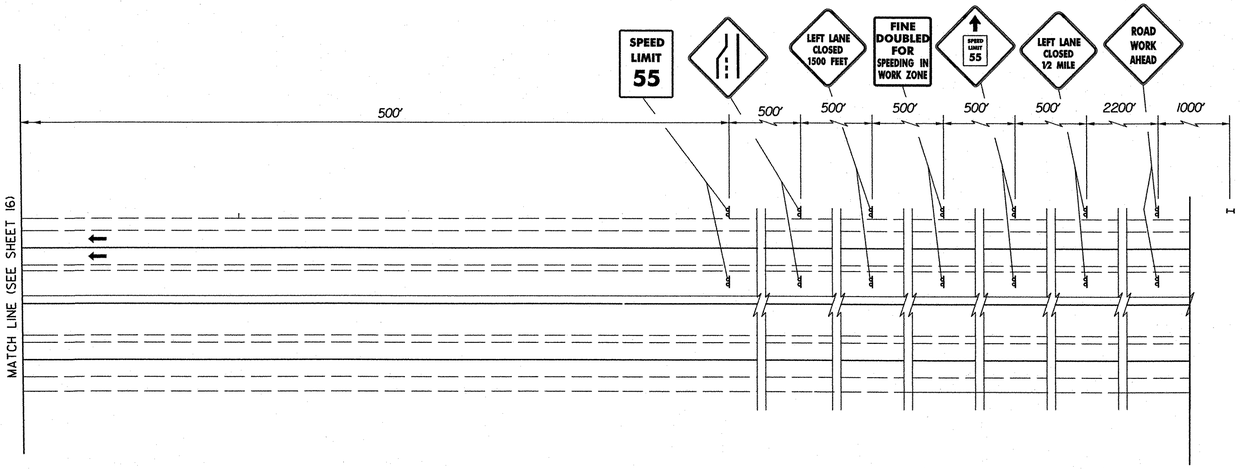
STATE OF VERMONT
AGENCY OF TRANSPORTATION

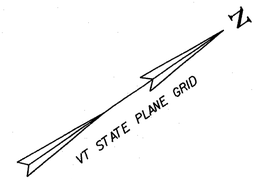
Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

PHASE 1 TRAFFIC CONTROL PLANS (5 OF 6)

Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By J.P. HALSTEAD Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. tcp-7.dgn	Date 05/29/08
Bridge Sheet No.	Sheet 16 of 114





PHASE 1 – STAGE A TRAFFIC CONTROL PLAN

PORTABLE CHANGEABLE MESSAGE BOARD

PHASE 1	CROSSOVER IN PLACE 1 MILE
PHASE 2	REDUCE SPEED AHEAD

LEGEND

- PAVEMENT MARKING REMOVAL
- TEMPORARY TRAFFIC BARRIER
- DIRECTION OF TRAFFIC FLOW WITH DETOUR IN PLACE
- CROSSOVER ALIGNMENT
- EXISTING GUARD RAIL
- EXISTING DROP INLET
- APPROXIMATE CULVERT LOCATION
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- TUBE MARKER
- TYPE III BARRICADE
- TYPE III (MOD) BARRICADE
- SINGLE POST SIGN
- DOUBLE POST SIGN
- PORTABLE CHANGEABLE MESSAGE SIGN

50 0 50
SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

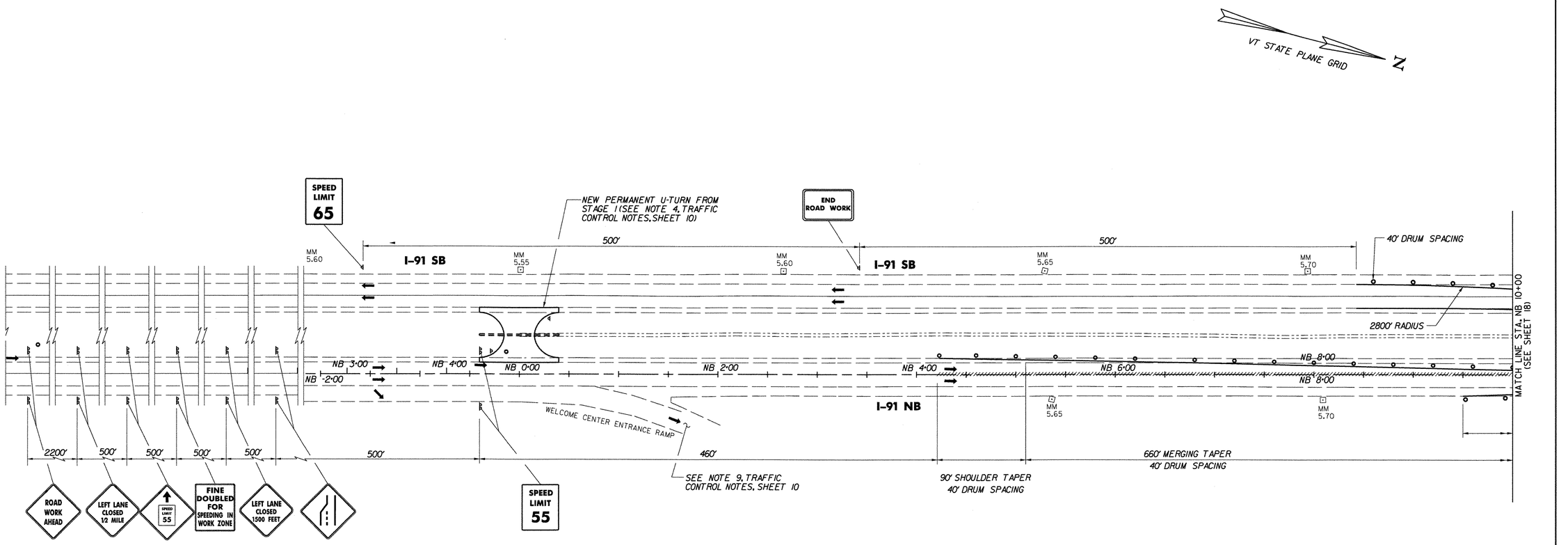
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

PHASE 1 TRAFFIC CONTROL PLANS (6 OF 6)

Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By J.P. HALSTEAD Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. tcp-7A.dgn	Date 05/22/08
Bridge Sheet No.	Sheet 16A of 114



PHASE 2 TRAFFIC CONTROL PLAN

LEGEND

- TEMPORARY TRAFFIC BARRIER
- DIRECTION OF TRAFFIC FLOW WITH DETOUR IN PLACE
- CROSSOVER ALIGNMENT
- EXISTING GUARD RAIL
- EXISTING DROP INLET
- APPROXIMATE CULVERT LOCATION
- APPROXIMATE AREA OF HIGHWAY CONSTRUCTION
- APPROXIMATE AREA OF BRIDGE CONSTRUCTION
- PAVEMENT MARKING REMOVAL
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- TUBE MARKER
- TYPE III BARRICADE
- TYPE III (MOD) BARRICADE
- SINGLE POST SIGN
- DOUBLE POST SIGN

50 0 50
SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

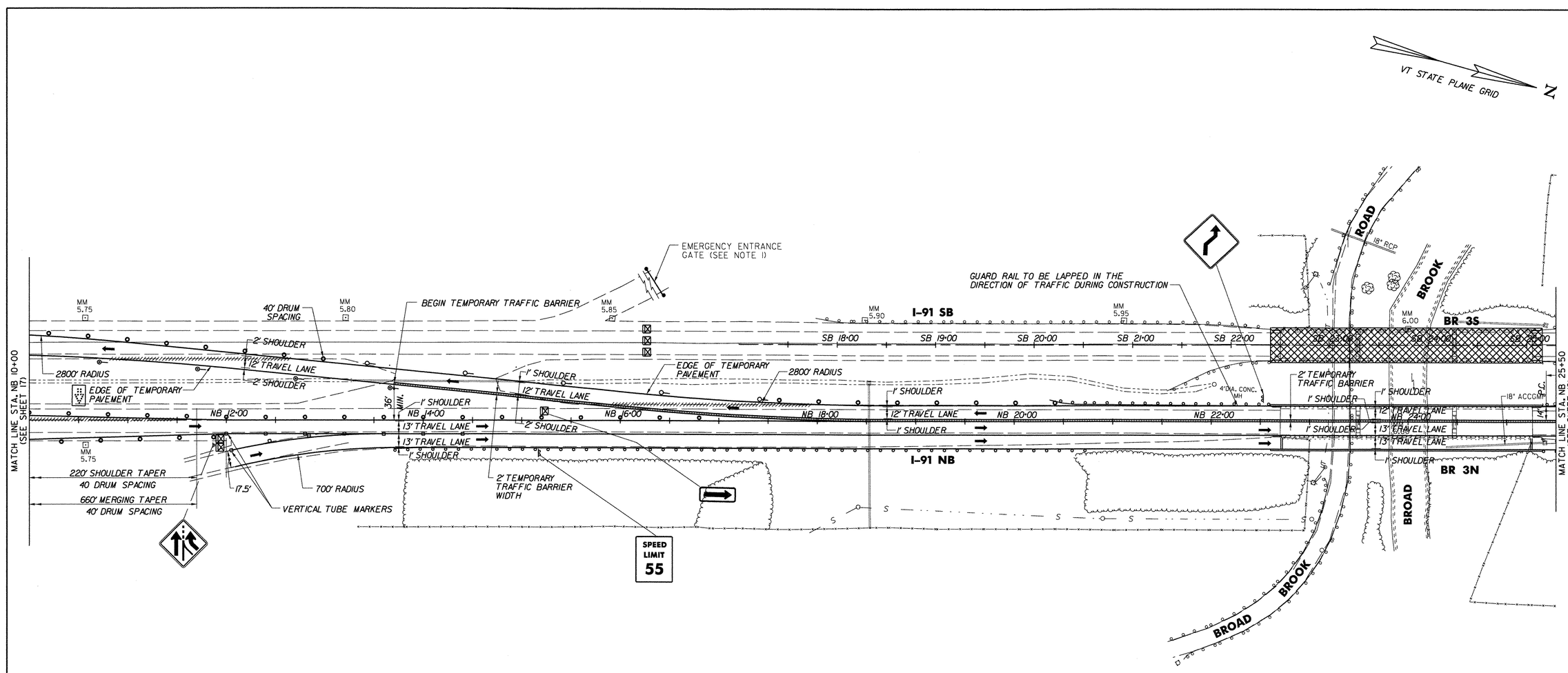
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

PHASE 2 TRAFFIC CONTROL PLANS (1 OF 5)

Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By J.P. HALSTEAD Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. tcp-8.dgn	Date 05/29/08
Bridge Sheet No.	Sheet 17 of 114



PHASE 2 TRAFFIC CONTROL PLAN

NOTES:

1. THE CONTRACTOR WILL BE ALLOWED TO ACCESS EMERGENCY ENTRANCE GATE AT MM 5.85. ACCESS WILL BE COORDINATED WITH VTRANS MAINTENANCE AND THE RESIDENT ENGINEER.
2. THE TEMPORARY TRAFFIC BARRIER, IN THE YEAR WHEN ALL SB TRAFFIC IS DIVERTED TO THE NB BRIDGE, SHALL BE PAID UNDER ITEM 621.90, "TEMPORARY TRAFFIC BARRIER".

LEGEND

- TEMPORARY TRAFFIC BARRIER
- DIRECTION OF TRAFFIC FLOW WITH DETOUR IN PLACE
- CROSSOVER ALIGNMENT
- TEMPORARY/NEW GUARD RAIL
- EXISTING GUARD RAIL
- EXISTING DROP INLET
- APPROXIMATE CULVERT LOCATION
- APPROXIMATE AREA OF HIGHWAY CONSTRUCTION
- APPROXIMATE AREA OF BRIDGE CONSTRUCTION
- PAVEMENT MARKING REMOVAL
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- TUBE MARKER
- TYPE III BARRICADE
- TYPE III (MOD) BARRICADE
- SINGLE POST SIGN
- DOUBLE POST SIGN
- PORTABLE ARROW BOARD

50 0 50
SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

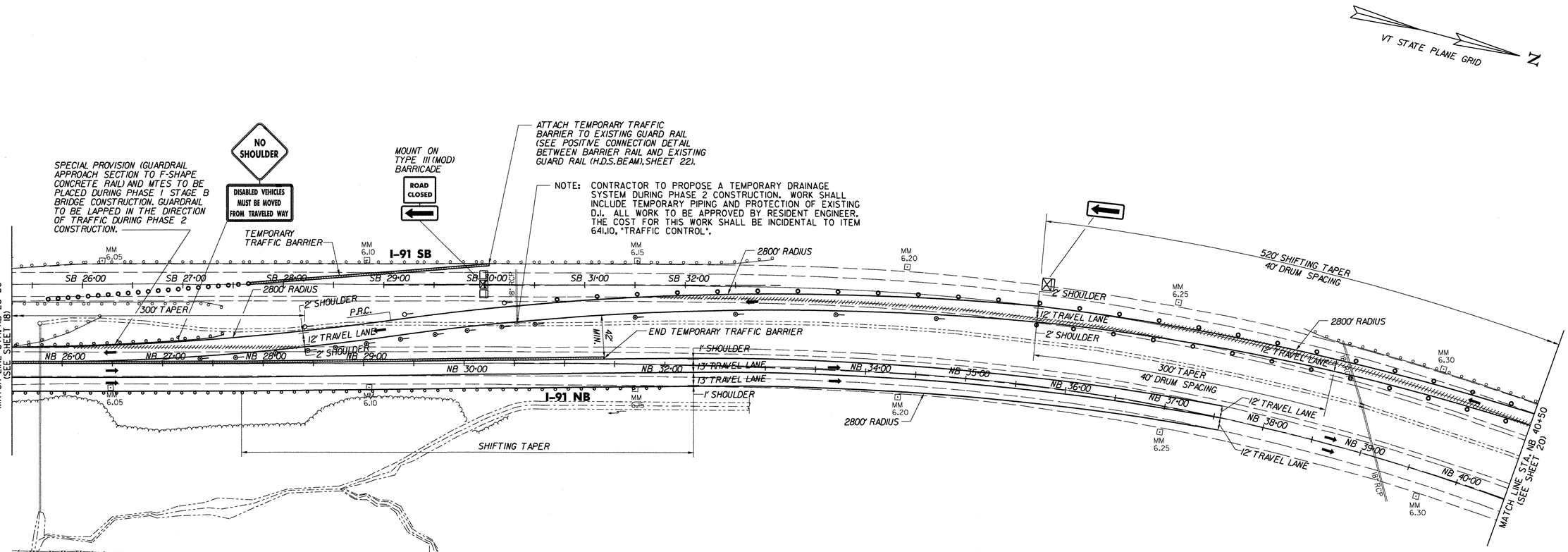
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

PHASE 2 TRAFFIC CONTROL PLANS (2 OF 5)

Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By J.P. HALSTEAD Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. tcp-9.dgn	Date 05/29/08
Bridge Sheet No.	Sheet 18 of 114



PHASE 2 TRAFFIC CONTROL PLAN

LEGEND

- TEMPORARY TRAFFIC BARRIER
- DIRECTION OF TRAFFIC FLOW WITH DETOUR IN PLACE
- CROSSOVER ALIGNMENT
- TEMPORARY/NEW GUARD RAIL
- EXISTING GUARD RAIL
- EXISTING DROP INLET
- APPROXIMATE CULVERT LOCATION
- APPROXIMATE AREA OF HIGHWAY CONSTRUCTION
- APPROXIMATE AREA OF BRIDGE CONSTRUCTION
- PAVEMENT MARKING REMOVAL
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- TUBE MARKER
- TYPE III BARRICADE
- TYPE III (MOD) BARRICADE
- SINGLE POST SIGN
- DOUBLE POST SIGN

50 0 50
SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

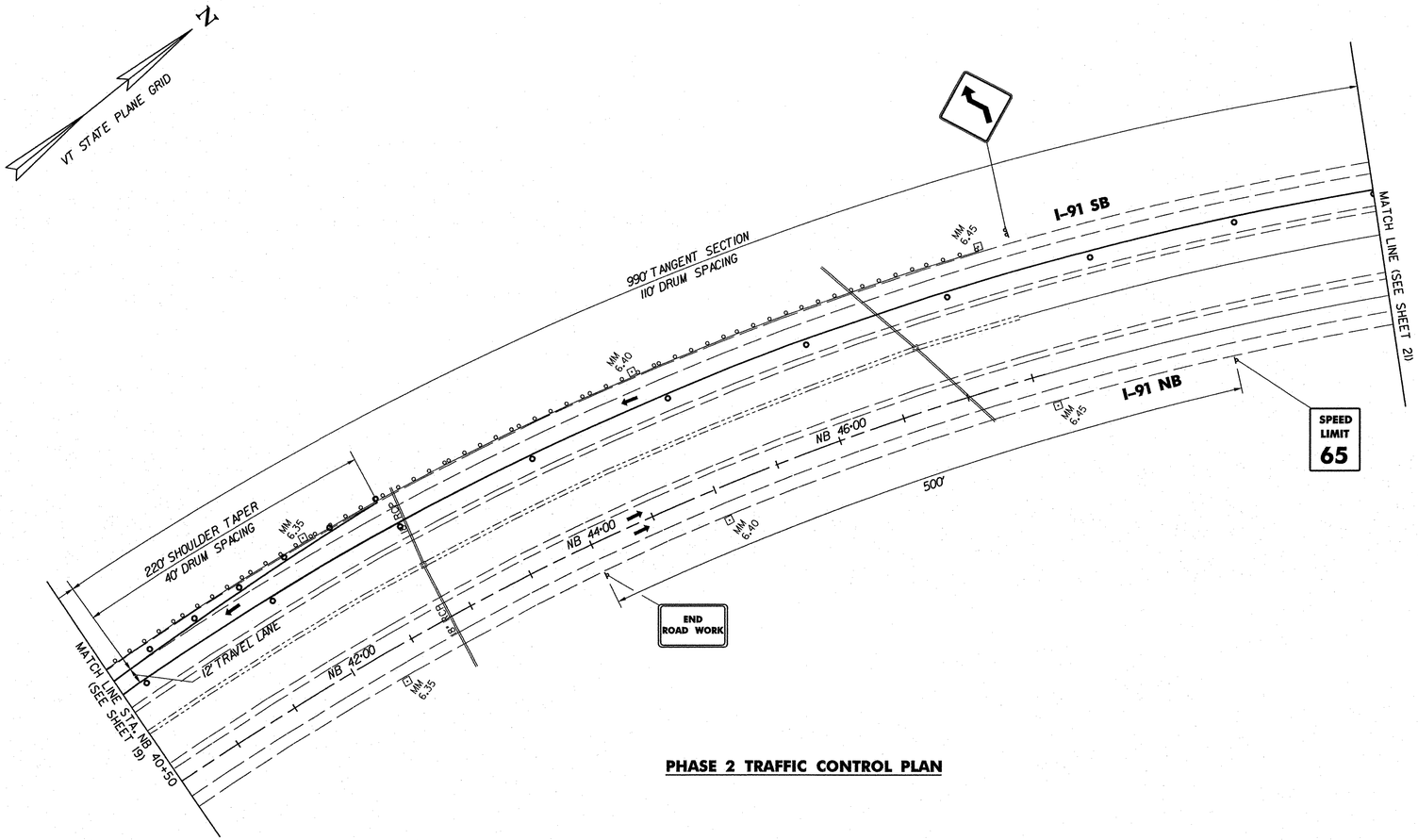
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

PHASE 2 TRAFFIC CONTROL PLANS (3 OF 5)

Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By J.P. HALSTEAD Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. tcp-10.dgn	Date 05/29/08
Bridge Sheet No.	Sheet 19 of 114



PHASE 2 TRAFFIC CONTROL PLAN

LEGEND

- TEMPORARY TRAFFIC BARRIER
- DIRECTION OF TRAFFIC FLOW WITH DETOUR IN PLACE
- CROSSOVER ALIGNMENT
- EXISTING GUARD RAIL
- EXISTING DROP INLET
- APPROXIMATE CULVERT LOCATION
- APPROXIMATE AREA OF HIGHWAY CONSTRUCTION
- APPROXIMATE AREA OF BRIDGE CONSTRUCTION
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- TUBE MARKER
- TYPE III BARRICADE
- TYPE III (MOD) BARRICADE
- SINGLE POST SIGN
- DOUBLE POST SIGN

50 0 50
SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

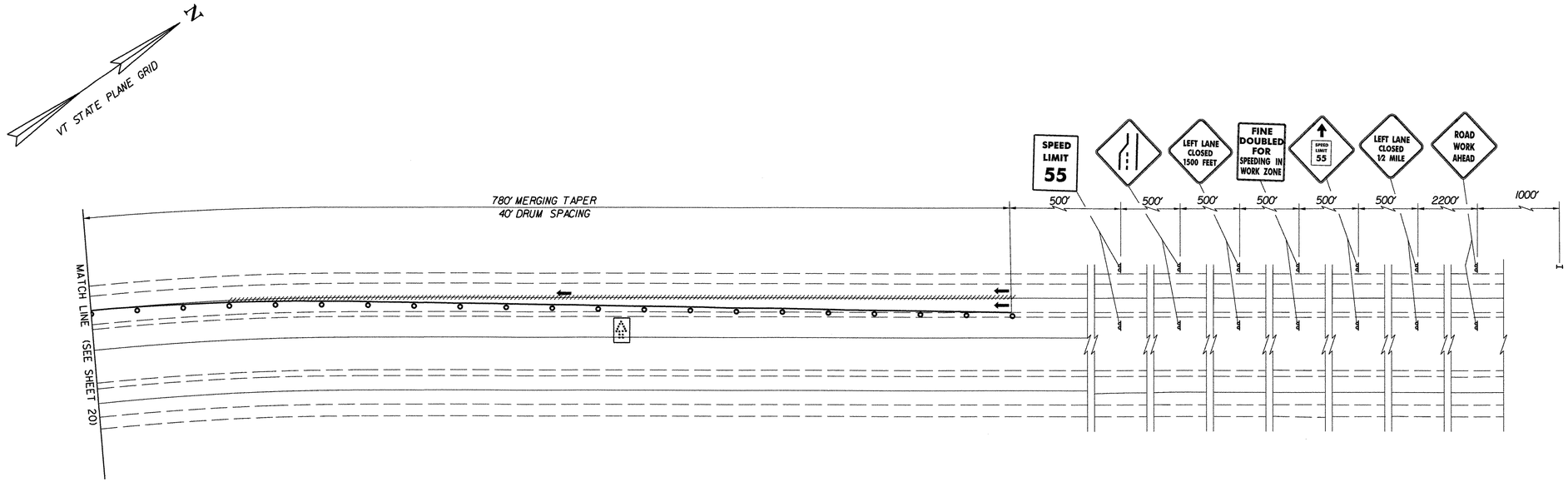
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

PHASE 2 TRAFFIC CONTROL PLANS (4 OF 5)

Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By J.P. HALSTEAD Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. tcp-11.dgn	Date 05/27/08
Bridge Sheet No.	Sheet 20 of 114



PHASE 2 TRAFFIC CONTROL PLAN

PORTABLE CHANGEABLE MESSAGE SIGN

PHASE 1	CROSSOVER IN PLACE 1 MILE
PHASE 2	REDUCE SPEED AHEAD

LEGEND

- TEMPORARY TRAFFIC BARRIER
- DIRECTION OF TRAFFIC FLOW WITH DETOUR IN PLACE
- CROSSOVER ALIGNMENT
- EXISTING GUARD RAIL
- EXISTING DROP INLET
- APPROXIMATE CULVERT LOCATION
- APPROXIMATE AREA OF HIGHWAY CONSTRUCTION
- APPROXIMATE AREA OF BRIDGE CONSTRUCTION
- PAVEMENT MARKING REMOVAL
- REFLECTORIZED PLASTIC DRUM
- TYPE I DELINEATOR (YELLOW)
- TYPE I DELINEATOR (WHITE)
- TUBE MARKER
- TYPE III BARRICADE
- TYPE III (MOD) BARRICADE
- SINGLE POST SIGN
- DOUBLE POST SIGN
- PORTABLE CHANGEABLE MESSAGE SIGN
- PORTABLE ARROW BOARD

50 0 50
SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

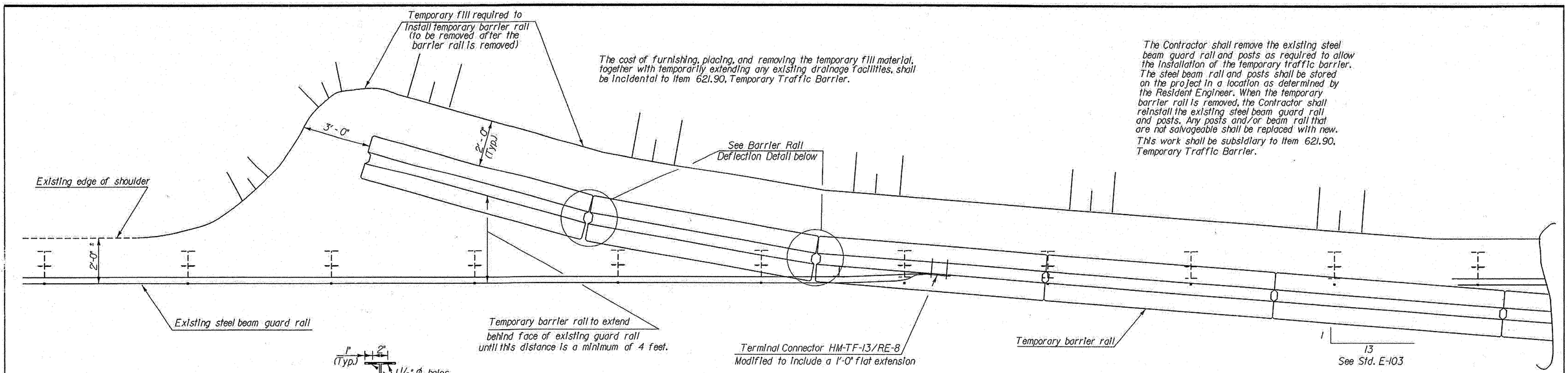
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

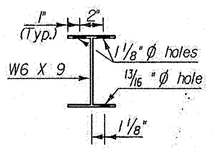
PHASE 2 TRAFFIC CONTROL PLANS (5 OF 5)

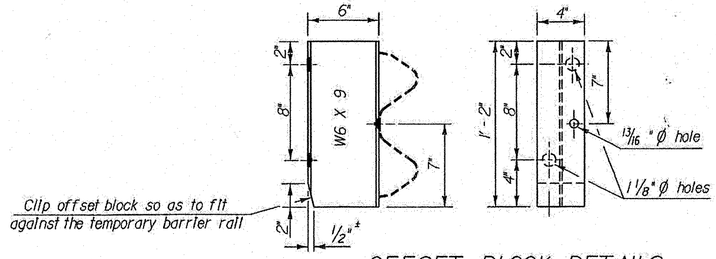
Designed By T.C. GAWENUS	Drawn By R.A. BOTZENHART
Checked By J.P. HALSTEAD Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. tcp-12.dgn	Date 05/29/08
Bridge Sheet No.	Sheet 21 of 114



PLAN VIEW SHOWING POSITIVE CONNECTION BETWEEN TEMPORARY BARRIER RAIL AND EXISTING GUARD RAIL

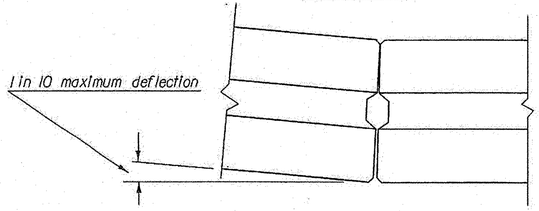
1/2" = 1'-0"





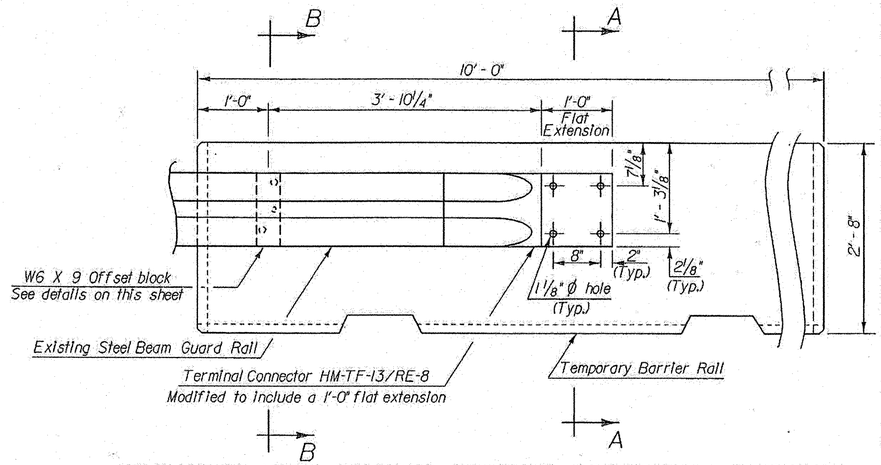
OFFSET BLOCK DETAILS

1" = 6"



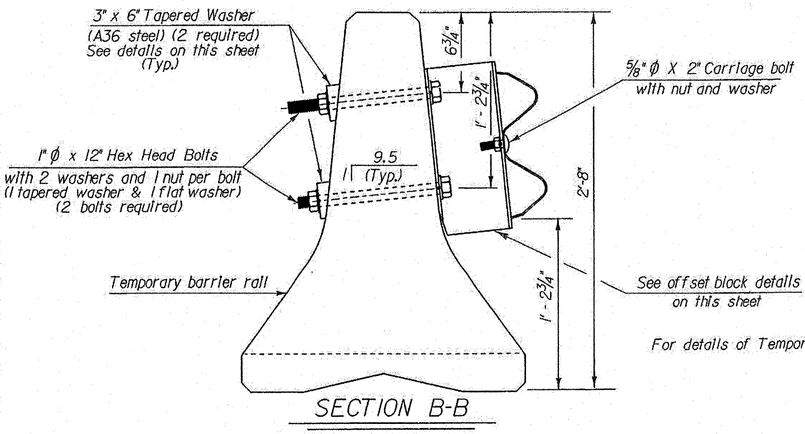
BARRIER RAIL DEFLECTION DETAIL

NTS



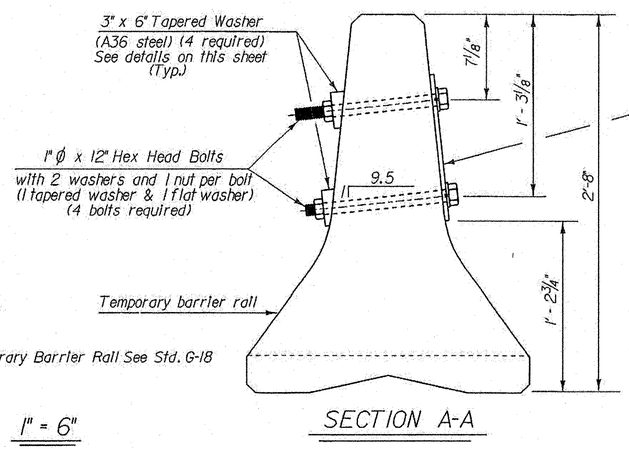
ELEVATION VIEW SHOWING POSITIVE CONNECTION BETWEEN TEMPORARY BARRIER RAIL AND EXISTING GUARD RAIL

1" = 1'-0"



SECTION B-B

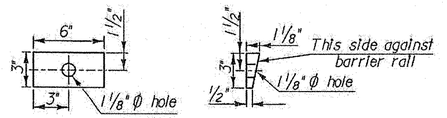
1" = 6"



SECTION A-A

For details of Temporary Barrier Rail See Std. G-18

Terminal Connector HM-TF-13/RE-8 Modified to include a 1'-0" flat extension



TAPERED WASHER DETAILS

1" = 6"

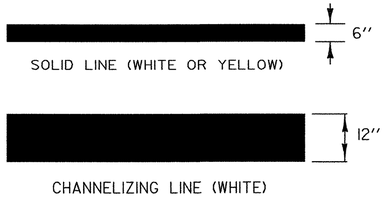
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	GUILFORD	Bridge No.	3N&S
Highway No.	I-91	Log Sta.	
		Surv. Sta.	

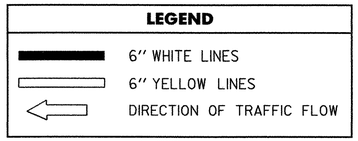
POSITIVE CONNECTION DETAILS BETWEEN BARRIER RAIL AND EXISTING GUARD RAIL (H.D.S. BEAM)

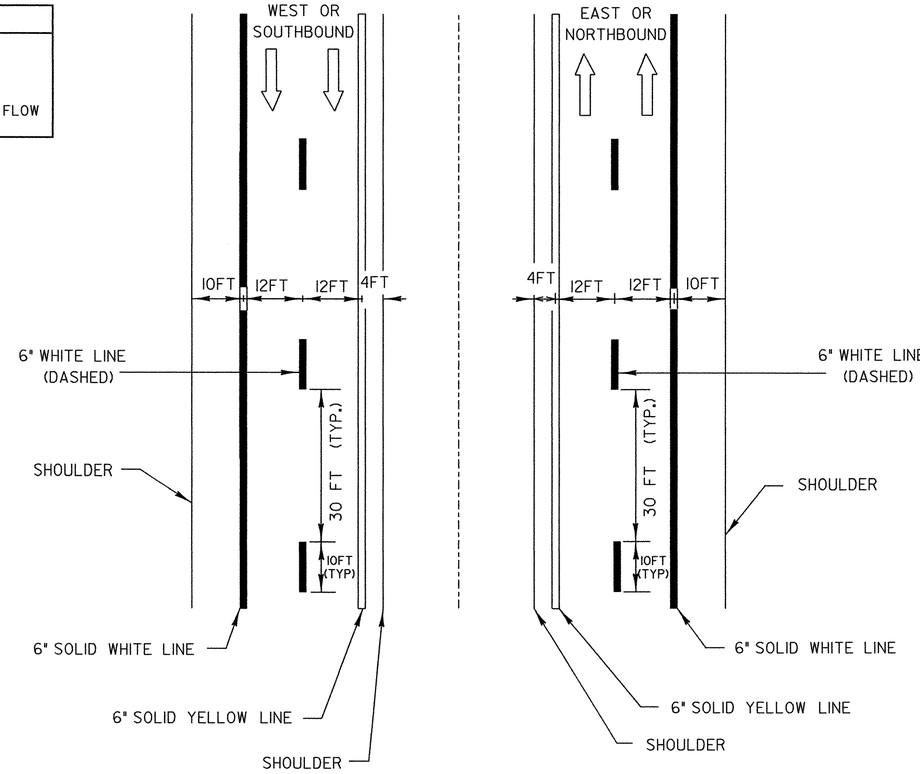
Designed By	VTRANS	Drawn By	VTRANS
Checked By	Date	Bridge Design Supervisor	
VTRANS		VTRANS	Date 01/03
PROJECT	GUILFORD	PROJECT NO.	IM 091-1(33)
TVGA CAD Drawing No.	grail-conn.dgn	Date	04/27/08
Bridge Sheet No.		Sheet	22 of 114

TVGA ENGINEERING, SURVEYING, P.C.



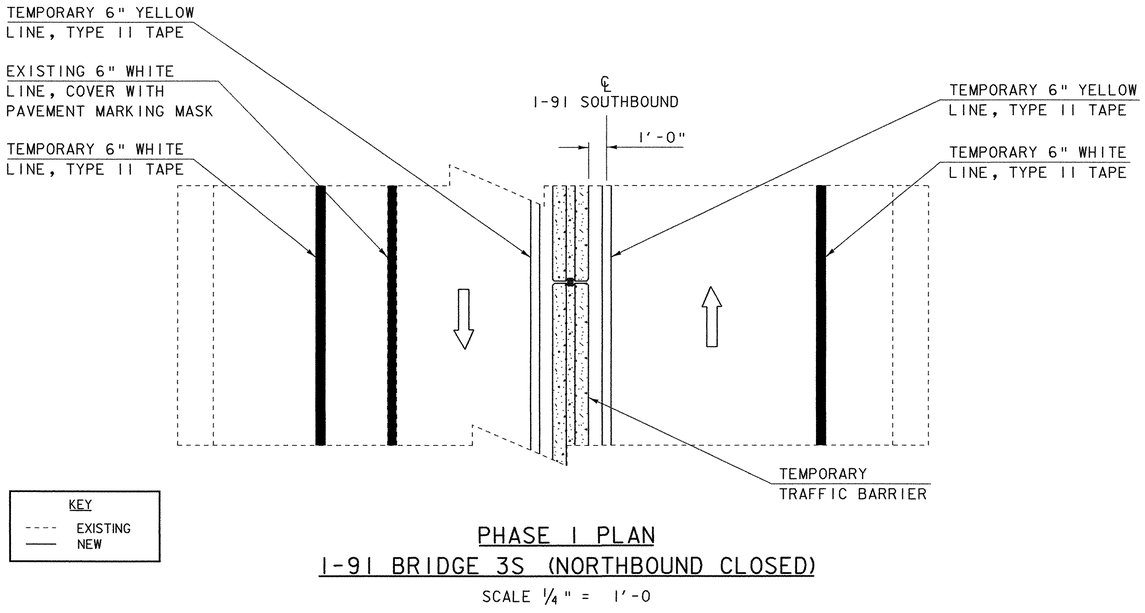
PAVEMENT MARKING LINE DETAILS





TYPICAL MAINLINE MARKING PLAN

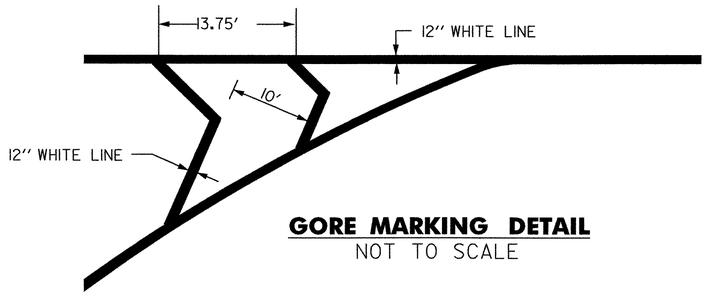
NOT TO SCALE



PHASE I PLAN

I-91 BRIDGE 3S (NORTHBOUND CLOSED)

SCALE 1/4" = 1'-0



GORE MARKING DETAIL

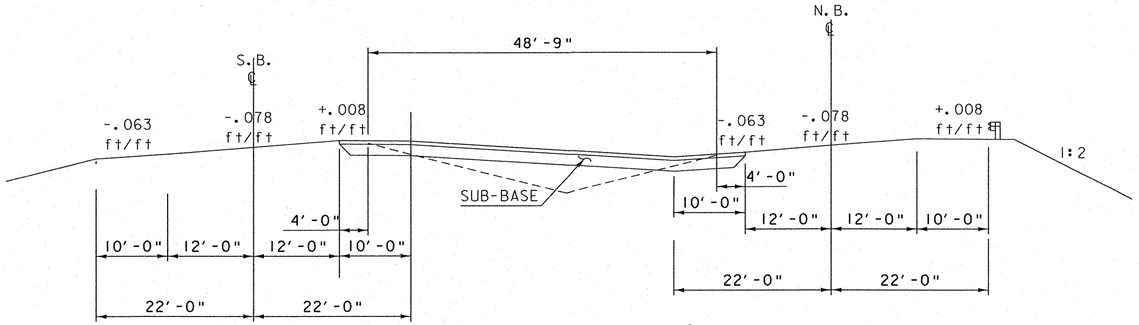
NOT TO SCALE

PAVEMENT MARKING DETAIL SHEET

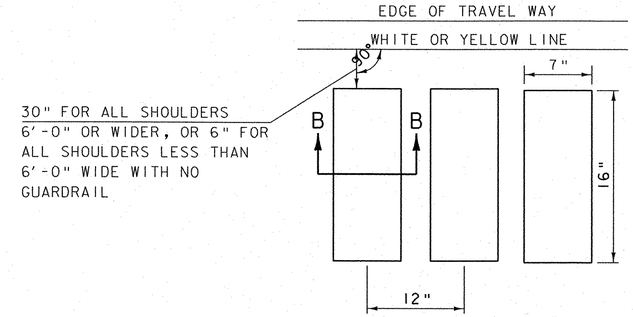
PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95al76\str\sal76miscdet.dgn
PROJECT LEADER: S. Farnsworth
DESIGNED BY: Vtrans
sal76pavedet.i

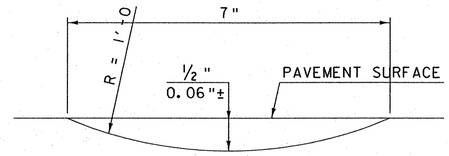
PLOT DATE: 11-JUN-2008
DRAWN BY: Vtrans
CHECKED BY:
SHEET 23 OF 114



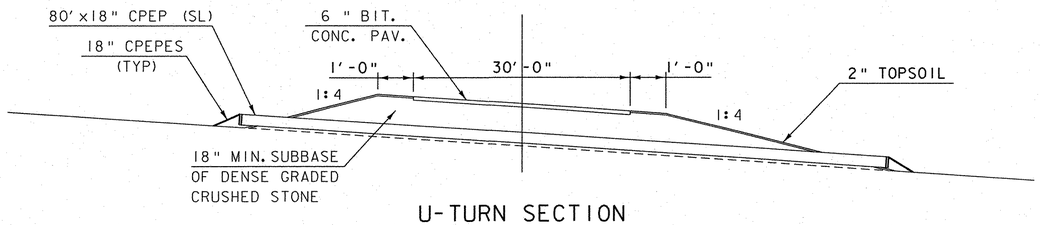
U-TURN @ NORTHBOUND ℄
STA 0+00
SCALE 1"=10'-0"



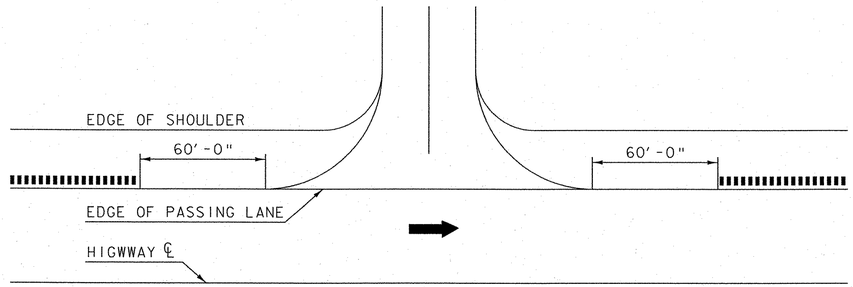
TYPICAL MILLING DETAIL
N.T.S.



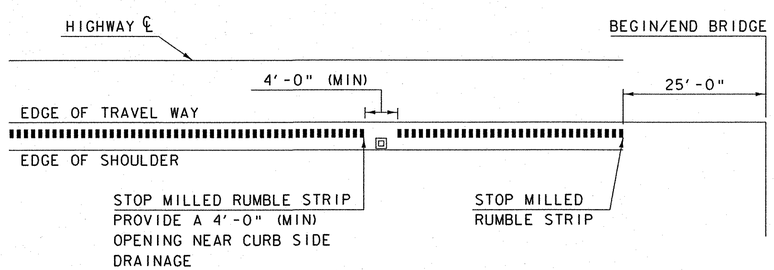
SECTION B-B
N.T.S.



U-TURN SECTION
ALONG ℄ NEW PIPE
SCALE 1"=10'-0"
SIMILAR FOR NB STA 14+00



U-TURN DETAIL
N.T.S.



DRAINAGE DETAIL
N.T.S.

NOTE:
THERE IS NO SURVEY FOR THIS SECTION OF THE PROJECT. AS SUCH NO ELEVATIONS ARE KNOWN AND THE EXISTING GROUND MAY DIFFER FROM THESE SECTIONS

SCALE 1" = 10'-0
10 0 10

TVGA ENGINEERING, SURVEYING, P.C.

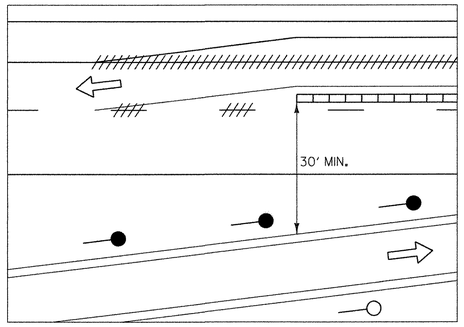
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

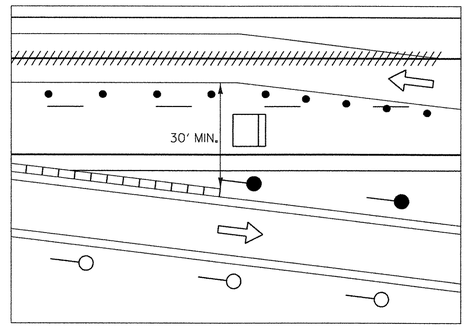
I-91 OVER BROAD BROOK & BROAD BROOK ROAD

U-TURN & RUMBLE STRIP DETAILS (3N&S)

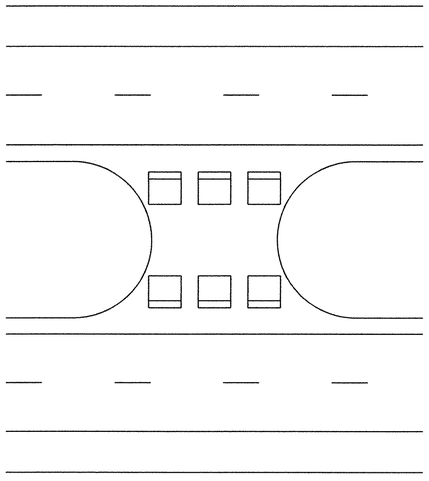
Designed By M.J. MOZER	Drawn By L.R. DELL
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. uturn details.dgn	Date 04/28/08
Bridge Sheet No.	Sheet 24 of 114



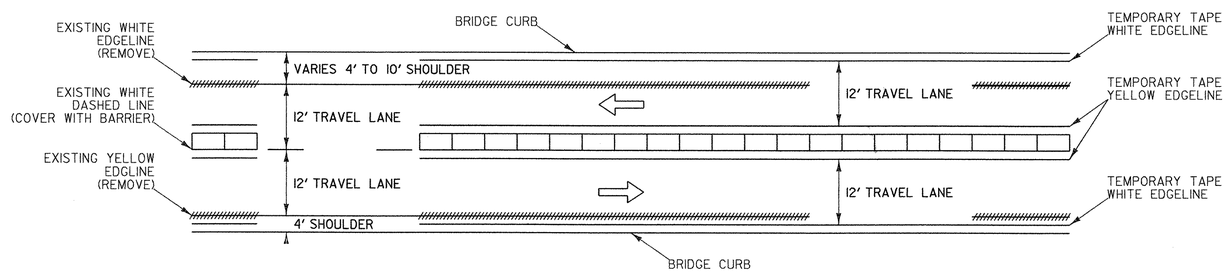
CROSSOVER ENTRANCE PLAN



CROSSOVER EXIT PLAN



CLOSING OFF U-TURN



PLAN VIEW – TEMPORARY TRAFFIC CONTROL FOR TWO WAY DIVIDED HIGHWAY ON A BRIDGE

LEGEND

- FLOW OF TRAFFIC
- RETROREFLECTIVE PLASTIC DRUM
- FLASHING ARROW PANEL
- TYPE III BARRICADE
- TYPE III (MOD.) BARRICADE
- PAVEMENT MARKING REMOVAL
- TEMPORARY BARRIER
- WORK AREA
- TYPE I DELINEATOR (WHITE)
- TYPE I DELINEATOR (YELLOW)

NOTES

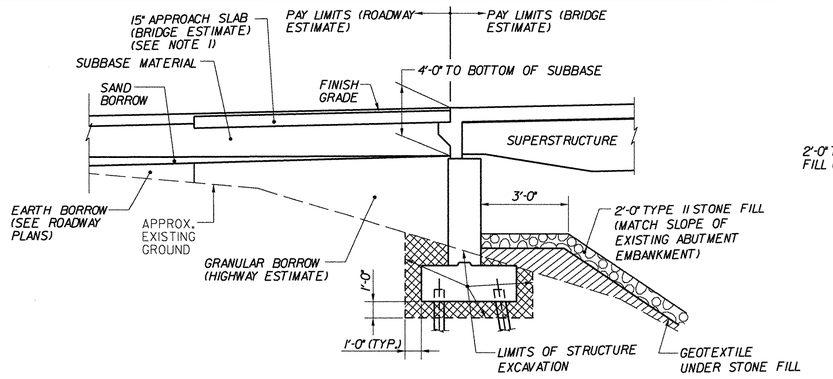
1. THE FOLLOWING PLANS SHEETS HAVE BEEN DETAILED CALLING FOR 'PAVEMENT MARKING REMOVAL'. HOWEVER, BOTH NORTHBOUND AND SOUTHBOUND LANES HAVE BEEN PAVED WITHIN THE PAST TWO YEARS AND VTRANS DOES NOT LIKE TO GRIND NEW PAVEMENT. THEREFORE, UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER, THESE LINES ARE TO BE COVERED WITH ITEM 646.86, 'PAVEMENT MARKING MASK'.

2. RUMBLE STRIPS SHALL BE FILLED AS NECESSARY, AS LANE SHIFTS NEAR OR ON TO RUMBLE STRIP. COST FOR FILLING RUMBLE STRIPS SHALL BE INCIDENTAL TO ITEM 641.10, 'TRAFFIC CONTROL'.

TRAFFIC CONTROL DIVIDED HIGHWAY ONE ROADWAY CLOSED

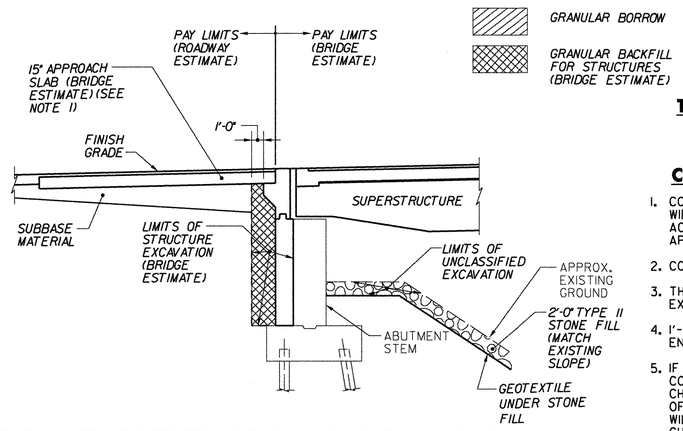
PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95al76\structures\sal76tcp.dgr PLOT DATE: 27-MAY-2008
PROJECT LEADER: Farnsworth DRAWN BY: Weeber
DESIGNED BY: Farnsworth CHECKED BY: Farnsworth
sal76tcp.1 SHEET 25 OF 114



TYPICAL WIDENED ABUTMENT SECTION (3N)

NOT TO SCALE
(FIXED ABUTMENT SHOWN, EXPANSION ABUTMENT SIMILAR)

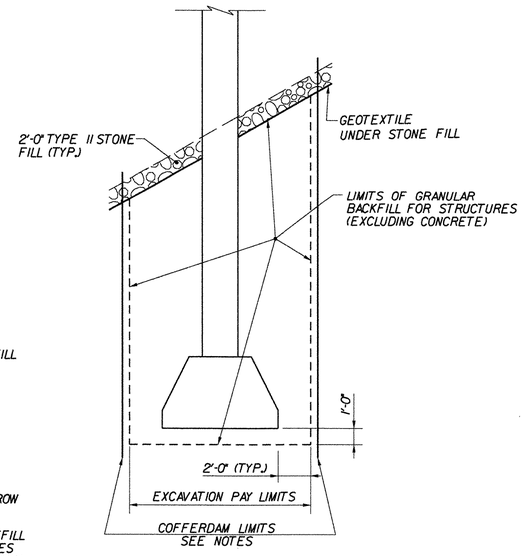


TYPICAL REHABILITATED ABUTMENT SECTION (3N&S)

NOT TO SCALE
(EXPANSION ABUTMENT SHOWN, FIXED ABUTMENT SIMILAR)

NOTES:

1. PAYMENT FOR REMOVAL OF EXISTING APPROACH SLAB AND ANY EXCAVATION REQUIRED FOR CONSTRUCTION OF NEW APPROACH SLAB SHALL BE MADE UNDER ITEM 204.25, "STRUCTURAL EXCAVATION".
2. STREAM BANK SLOPES UP TO ELEVATION 359.0 SHALL BE STABILIZED WITH TYPE IV STONE FILL. SLOPES ABOVE THIS ELEVATION SHALL BE STABILIZED WITH TYPE II STONE FILL.

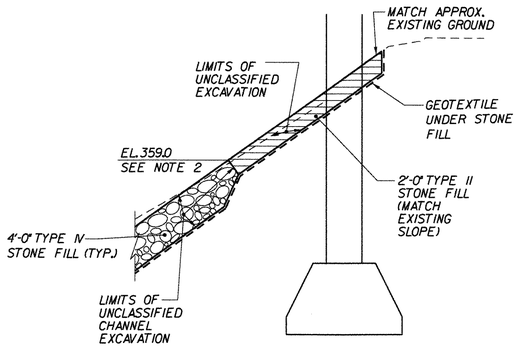


TYPICAL WIDENED PIER SECTION (3N)

NOT TO SCALE
(PIER 2 SHOWN, PIER 1 SIMILAR)

COFFERDAM NOTES:

1. COFFERDAMS ARE REQUIRED FOR THE CONSTRUCTION OF THE PIER WIDENINGS. THE CONTRACTOR SHALL PREPARE DETAILED PLANS IN ACCORDANCE WITH SUBSECTION 208.07 OF THE SPECIFICATIONS FOR APPROVAL BY THE STRUCTURES ENGINEER.
2. COFFERDAM SIZE TO BE DETERMINED BY THE CONTRACTOR.
3. THE PAY LIMITS OF "COFFERDAM EXCAVATION, EARTH" AND "COFFERDAM EXCAVATION, ROCK" SHALL BE 2'-0" OUTSIDE THE PERIMETER OF FOOTING.
4. 1'-0" UNDERCUT AS DETERMINED NECESSARY BY THE RESIDENT ENGINEER.
5. IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE OF COFFERDAM BUT OUTSIDE THE COFFERDAM EXCAVATION PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION.



TYPICAL PIER SECTION (3S)

NOT TO SCALE

FINAL HYDRAULICS REPORT

HYDROLOGIC DATA

DRAINAGE AREA= 20.6 sq. mi.
CHARACTER OF TERRAIN= Hilly
CHARACTER & TYPE OF STREAM= Sinuous, perennial in alluvium

NATURE OF STREAMBED= Cobble layer over glacial fill

Q2.33= 830 cfs Q50= 3100 cfs
Q10= 1800 cfs Q100= 3800 cfs
Q25= 2500 cfs Q500= 6500 cfs

DATE OF FLOOD OF RECORD= Unknown
WATER SURFACE ELEV.= Unknown ESTIMATED DISCHARGE= Unknown
NATURAL STREAM VELOCITY @ Q50 = 10.7 fps
ICE CONDITIONS= Unknown DEBRIS= Unknown
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEVATION RAPIDLY? Yes
IS ORDINARY RISE RAPID? Yes
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
IF YES, DESCRIBE.

WATERSHED STORAGE ____ HEADWATERS ____ UNIFORM THROUGHOUT WATERSHED ____
IMMEDIATELY ABOVE SITE ____

EXISTING STRUCTURE

STRUCTURE TYPE= Continuous three span rolled beam bridge
YEAR BUILT= 1956
CLEAR SPAN (NORMAL TO STREAM)= 252 ft.
VERTICAL CLEARANCE ABOVE STREAMBED= 7.1 ft.
WATERWAY OF FULL OPENING= 9,218 sq. ft.
DISPOSITION OF STRUCTURE= Rehabilitate and widen substructures. Replace superstructures.
TYPE OF MATERIAL UNDER SUBSTRUCTURE= Glacial till

WATER SURFACE ELEV. @ Q2.33= 347.7 ft VELOCITY=5.8 fps
Q10= 349.7 ft " 8.2 fps
Q25= 350.8 ft " 9.6 fps
Q50= 351.7 ft " 10.7 fps
Q100= 352.3 ft " 12.0 fps

LONG TERM STREAM BED CHANGES= None

IS THE ROADWAY OVERTOPPED BELOW THE Q100? No FREQUENCY= N/A
RELIEF ELEVATION= N/A DISCHARGE OVER ROAD @ Q100= None

UPSTREAM STRUCTURE: TOWN= Guilford DISTANCE= 0.4 mi.
HIGHWAY NO.= US 5 STRUCTURE NO.= Unknown
STRUCTURE TYPE= N/A
CLEAR SPAN= N/A CLEAR HEIGHT= N/A
YEAR BUILT= N/A FULL WATERWAY= N/A

DOWNSTREAM STRUCTURE: TOWN= Guilford DISTANCE= 0.2 mi.
HIGHWAY NO.= Broad Brook Road STRUCTURE NO.= Unknown
STRUCTURE TYPE= N/A
CLEAR SPAN= N/A CLEAR HEIGHT= N/A
YEAR BUILT= N/A FULL WATERWAY= N/A

PROPOSED STRUCTURE

STRUCTURE TYPE= Continuous three span plate girder bridge

CLEAR SPAN (NORMAL TO STREAM)= 252 ft.
VERTICAL CLEARANCE ABOVE STREAMBED= 7.1 ft.
WATERWAY OF FULL OPENING= 9,218 sq. ft.

WATER SURFACE ELEV. @ Q2.33= 347.8 ft VELOCITY= 5.8 fps
Q10= 349.8 ft " = 8.2 fps
Q25= 351.0 ft " = 9.6 fps
Q50= 351.8 ft " = 10.8 fps
Q100= 352.5 ft " = 12.1 fps

IS THE ROADWAY OVERTOPPED BELOW THE Q100? No FREQUENCY= N/A
RELIEF ELEVATION= N/A DISCHARGE OVER ROAD @ Q100= None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE= 413.2 ft.
VERTICAL CLEARANCE @ Q 100 60.7 ft.

SCOUR= 5.6 ft.
REQUIRED CHANNEL PROTECTION= Stone fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW= 42 cfs
ORDINARY LOW WATER= 20 cfs ELEV.= 344.0 ft
ORDINARY HIGH WATER= 356 cfs ELEV.= 346.2 ft

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE= N/A

CLEAR SPAN (NORMAL TO STREAM)= N/A

VERTICAL CLEARANCE ABOVE STREAMBED= N/A
WATERWAY OF FULL OPENING= N/A

NOTES:

- PHASE 1: NORTHBOUND INTERSTATE TRAFFIC SHALL BE MAINTAINED BY MEANS OF TEMPORARY MEDIAN CROSSOVERS. ONE LANE OF NORTHBOUND TRAFFIC FROM THE WELCOME CENTER SHALL BE MAINTAINED ON BRIDGE 3N BY UTILIZING STAGED CONSTRUCTION.
- PHASE 2: SOUTHBOUND INTERSTATE TRAFFIC SHALL BE MAINTAINED BY MEANS OF TEMPORARY MEDIAN CROSSOVERS.

DESIGN CRITERIA:
1. DESIGN LIVE LOAD AASHTO HS25 - 44
2. DESIGN SPAN 78.25 - 97.75 - 78.25
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL 12 KSF (PIERS 1 & 2 @ BR 3N) ON LEDGE N/A
4. ALLOWABLE LOAD FOR PILING 70 Tons TYPE HP12X53 ESTIMATED LENGTH 65 ft @ Abut. 1, 65 ft @ Abut. 2 (BR 3N)
5. STRUCTURAL STEEL AASHTO GRADE M270 GR50W
6. REINFORCING STEEL GRADE 60
7. CONCRETE, HIGH PERFORMANCE CLASS A f'_c = 4000 PSI
   CONCRETE, HIGH PERFORMANCE CLASS B f'_c = 3500 PSI
   CLASS A QC/QA CONCRETE f'_c = 4000 PSI

TRAFFIC MAINTENANCE:
1. IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE YES (3N) OR ON TEMPORARY BRIDGE NO
2. TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY N/A TRAFFIC CONTROL SIGNALS REQUIRED N/A
   MINIMUM CLEAR SPAN (NORMAL TO STREAM): N/A VERTICAL CLEARANCE ABOVE STREAMBED: N/A
   WATERWAY AT FULL OPENING: N/A
   ARE SIDEWALKS REQUIRED? N/A IF SO, ON WHAT SIDE? N/A

LOAD RATING (3N/3S) (TONS)

LOADING LEVELS (LOAD FACTOR)	TRUCK						
	H	HS	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY A=2.17 B=1.00	33*/32*	59*/57*					
POSTED A=1.55 B=1.40	46*/45*	83*/81*	125*/121*		104/103	106/105	120*/116*
OPERATING A=1.30 B=1.67		98*/96*	148*/144*	161*/156*	123/121	126/125	

STRENGTH RF = $\frac{\phi M_N - 1.3 M_{DL}}{A \times M_{LL+I}}$

* SERVICEABILITY RF = $B\left[\frac{0.95F_y S_{(LL+I)} - M_{DL}\frac{S_{LL+I}}{S_{DL}} - M_{SDL}\frac{S_{LL+I}}{S_{SDL}}}{1.67M_{(LL+I)}}\right]$

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I-91 OVER BROAD BROOK & BROAD BROOK ROAD

PRELIMINARY INFORMATION SHEET

Designed By D.R. GOODISON	Drawn By G.K. MORZE
Checked By P. BIJHOUWER Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G-pi-sheet.dgn	Date 06/06/08
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GENERAL ITEMS:

1. A FIELD SURVEY WAS CONDUCTED IN WHICH THE FACES OF ABUTMENTS AND PIER SURFACES OF THE EXISTING BRIDGES WERE LOCATED. THIS INFORMATION WAS THEN USED, IN COMBINATION WITH THE ORIGINAL BRIDGE DESIGN PLANS, TO DEVELOP THE APPROXIMATE EXISTING STRUCTURE INFORMATION SHOWN IN THESE PLANS. THE ORIGINAL BRIDGE DESIGN PLANS (I-001-1(6) CIRCA 1956) ARE INCLUDED IN THIS PLAN SET, AND ARE FOR INFORMATION ONLY. TRAFFIC CONTROL PLANS WERE DEVELOPED BASED ON BOTH SURVEY DATA AND THE ORIGINAL HIGHWAY DESIGN PLANS. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING ANY AND ALL DIMENSIONS APPLICABLE TO THIS PROJECT PRIOR TO BEGINNING WORK.

2. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" (2006) AND ITS LATEST REVISIONS, AND AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" (2002) AND ITS LATEST REVISIONS.

3. DESIGN OF NEW COMPONENTS IS FOR HS-25 LOADING APPLIED IN ACCORDANCE WITH THE PROVISIONS OF AASHTO STANDARD SPECIFICATIONS, WITH NO ALLOWANCE FOR FUTURE PAVEMENT.

4. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 °F, UNLESS SHOWN OTHERWISE.

5. ANY REFERENCE TO "LEFT" AND/OR "RIGHT" ON THE PLANS REFERS TO THE DIRECTION OF STATIONING AND NOT THE DIRECTION OF TRAFFIC.

6. THE FOLLOWING TABLE OF DESIGN STRENGTHS APPLIES TO THESE PLANS FOR DESIGN PURPOSES:
   - CONCRETE:
     - f'c = 4,000 PSI (BRIDGE DECKS AND BARRIERS)
     - f'c = 3,500 PSI (PIERS AND ABUTMENTS)
   - REINFORCING STEEL:
     - FY = 60,000 PSI (GRADE 60)
   - STRUCTURAL STEEL: AASHTO M270, GR50W
     - FY = 50,000 PSI
   - STEEL PILES: AASHTO M270, GR36
     - FY = 36,000 PSI

TRAFFIC CONTROL AND STAGED CONSTRUCTION:

7. TRAFFIC ON I-91 SHALL BE CONTROLLED AND MAINTAINED AT ALL TIMES IN ACCORDANCE WITH THE TRAFFIC CONTROL NOTES AND PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.

8. BRIDGE 3N SHALL BE REHABILITATED DURING PHASE I UNDER STAGED CONSTRUCTION. I-91 NORTHBOUND THROUGH-TRAFFIC SHALL BE CARRIED ON BRIDGE 3S VIA A MEDIAN CROSSOVER, AND ONE LANE OF NORTHBOUND TRAFFIC FROM THE WELCOME CENTER SHALL BE MAINTAINED ON BRIDGE 3N DURING BOTH STAGES OF CONSTRUCTION. SEE STAGED CONSTRUCTION DETAILS AND TRAFFIC CONTROL PLANS FOR FURTHER DETAILS.

9. DURING PHASE I CONSTRUCTION (BRIDGE 3N), THE CONTRACTOR SHALL HAVE THE OPTION TO CLOSE BROAD BROOK ROAD IN THE IMMEDIATE VICINITY OF THE BRIDGES FOR A SINGLE PERIOD OF FOUR (4) MONTHS (MAXIMUM) TO PERFORM NECESSARY REHABILITATION. ONCE BROAD BROOK ROAD HAS BEEN CLOSED, THE CONTRACTOR SHALL BEGIN WORK IMMEDIATELY AND PROCEED IN A TIMELY MANNER THROUGH COMPLETION IN ORDER TO MINIMIZE INCONVENIENCE TO THE TRAVELING PUBLIC. SEE TRAFFIC CONTROL PLANS FOR FURTHER DETAILS AND PROJECT SPECIAL PROVISIONS.

DEMOLITION AND REMOVAL:

10. COSTS FOR ALL WORK REQUIRED FOR REMOVAL OF EXISTING CONCRETE BRUSH CURBS, GRANITE CURBS, CONCRETE DECK, EXPANSION JOINT HARDWARE, WINGWALLS, ABUTMENT AND PIER CONCRETE, ACCORDING TO THE LIMITS OF WORK DEFINED IN THE PLANS, SHALL BE INCLUDED UNDER ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE (DECK & SUBSTRUCTURES)". PAYMENT FOR THIS ITEM SHALL INCLUDE ALL INCIDENTAL EXCAVATION NECESSARY TO PERFORM THE REQUIRED STRUCTURE REMOVAL WORK.

11. PAYMENT FOR REMOVAL OF EXISTING BRIDGE PAVEMENT SHALL BE MADE UNDER ITEM 529.10, "REMOVAL OF BRIDGE PAVEMENT".

12. PAYMENT FOR REMOVAL OF EXISTING APPROACH SLABS, AND EXCAVATION REQUIRED FOR NEW APPROACH SLAB CONSTRUCTION SHALL BE MADE UNDER ITEM 204.25, "STRUCTURE EXCAVATION".

13. EXISTING STRUCTURAL STEEL TO BE REMOVED SHALL BECOME PROPERTY OF THE CONTRACTOR. ALL COSTS ASSOCIATED WITH REMOVAL OF EXISTING STRUCTURAL STEEL SHALL BE INCLUDED IN THE BID PRICES FOR ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE (STRUCTURAL STEEL).

14. EXISTING BRIDGE AND APPROACH RAIL SHALL BE SALVAGED AND DELIVERED TO THE VTRANS DISTRICT 2 DUMMERSTON MAINTENANCE GARAGE PER SCHEDULE BELOW: VERMONT AGENCY OF TRANSPORTATION, 870 US RTE 5, DUMMERSTON, VT 05301, PHONE (802) 254-5011, FAX (802) 251-2000. CARE SHALL BE TAKEN NOT TO DAMAGE THE RAIL DURING REMOVAL OR TRANSPORTATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR UNLOADING THE RAIL AT THE GARAGE. ALL COSTS ASSOCIATED WITH REMOVAL, TRANSPORT AND UNLOADING OF THE BRIDGE RAIL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 525.10, "REMOVAL OF EXISTING RAILING" IN ACCORDANCE WITH THE SPECIAL PROVISIONS. ALL REMAINING RAIL AND APPURTENANCES SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

15. REMOVAL AND DISPOSAL OF ROADWAY GUARDRAIL AS INDICATED IN THE PLANS SHALL BE PAID FOR UNDER ITEM 621.80, "REMOVAL AND DISPOSAL OF GUARDRAIL".

16. THE CONTRACTOR SHALL REMOVE VEGETATION AROUND EXISTING SUBSTRUCTURE COMPONENTS AS ORDERED BY THE ENGINEER. COSTS FOR THIS WORK SHALL BE INCIDENTAL TO ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE (DECK AND SUBSTRUCTURES)".

16A. ALL WORK ASSOCIATED WITH THE SHORING OF NORTHBOUND PIER CAPS IN ORDER TO MAINTAIN TRAFFIC OVER THE BRIDGE FROM THE WELCOME CENTER WILL BE PAID FOR UNDER THE ITEM 502.10 "SHORING SUPERSTRUCTURE".

STRUCTURAL STEEL:

17. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO DESIGNATION M270, GRADE 50W, EXCEPT AS NOTED IN THE PLANS.

18. ALL CONNECTIONS OF UNPAINTED MEMBERS SHALL BE MADE WITH 7/8" DIAMETER AASHTO M-164, TYPE 3 BOLTS IN 15/16 " DIAMETER HOLES, EXCEPT AS NOTED IN THE PLANS. BOLTS THAT HAVE BEEN FULLY TIGHTENED SHALL NOT BE RE-USED.

19. CONNECTIONS NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.

20. ALL WELDING AND DIMENSIONAL TOLERANCES OF WELDED MEMBERS SHALL CONFORM TO THE LATEST ANSI/AASHTO/AWS BRIDGE WELDING CODE AND ITS LATEST REVISIONS.

21. WHERE GALVANIZING HAS BEEN REMOVED BY ANY MEANS FROM ANY BRIDGE COMPONENTS, IT SHALL BE REPAIRED IN ACCORDANCE WITH SPECIFICATION 513. COSTS FOR THIS WORK SHALL BE INCIDENTAL TO THE ITEM UNDER WHICH THE GALVANIZED COMPONENT IS PROVIDED.

22. ANY FORM BRACKET HOLES (IF REQUIRED) IN FASCIA GIRDERS OR GIRDER WEBS SHALL BE FILLED WITH BUTTONHEAD OR HEX-HEAD BOLTS, TYPE 3. IF REQUIRED, FORM BRACKETS SHALL BE DESIGNED BY THE CONTRACTOR. MAXIMUM SPACING SHALL NOT EXCEED 4'-0" (TYP.).

23. ALL NEW PILING AT BRIDGE 3N ABUTMENTS 1 AND 2 SHALL BE HP 12X53 STEEL PILING, WITH A MAXIMUM DESIGN LOAD OF 140 KIPS (ALLOWABLE LOAD). PILES SHALL BE DRIVEN TO AN ULTIMATE CAPACITY OF 315 Kips.

SALVAGE SCHEDULE

AMT	DESCRIPTION
250 FT	TOP RAIL WITH SPLICES
10 EA.	TOP RAIL SPLICES
10 EA.	MIDDLE OR BOTTOM RAIL SPLICES

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I-91 OVER BROAD BROOK & BROAD BROOK ROAD	
GENERAL NOTES (1 OF 2)	
Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
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REINFORCED CONCRETE:

24. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE CONCRETE REINFORCING STEEL INSTITUTE.

25. REINFORCEMENT PLACING TOLERANCES SHALL BE:
    SPACING +/- 1"
    CLEARANCE +/- 1/4"

26. MINIMUM COVER FOR REINFORCING STEEL (EXCEPT IN THE DECK) SHALL BE 2" IN BACK FACES OF SUBSTRUCTURES AGAINST EARTH, 4" IN PIER COLUMNS AND CAP BEAMS, AND 3" ELSEWHERE, UNLESS OTHERWISE SHOWN.

27. FLAME CUTTING OF EPOXY COATED REINFORCING STEEL SHALL NOT BE PERMITTED.

28. ALL DECK SLAB, CURTAINWALL, AND EXPANSION JOINT HEADER CONCRETE SHALL BE ITEM 501.33 CONCRETE HIGH PERFORMANCE CLASS A. ALL BARRIER CURB CONCRETE SHALL BE ITEM 900.608, "SPECIAL PROVISION (BRIDGE RAILING, F-SHAPE CONCRETE)". ALL SUBSTRUCTURE CONCRETE SHALL BE ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B", EXCEPT AS SHOWN IN THE PLANS.

29. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 1" x 1", UNLESS OTHERWISE SHOWN.

30. ABUTMENT CONCRETE ABOVE BRIDGE SEAT ELEVATIONS SHALL NOT BE PLACED UNTIL GIRDERS HAVE BEEN ERECTED, BEAM PROFILES HAVE BEEN TAKEN, AND FINAL FINISH GRADE OF DECK IS ESTABLISHED BY THE ENGINEER.

31. BRIDGE SEATS SHALL BE SLOPED 1/2" PER FOOT EXCEPT UNDER BEARING PLATES WHERE THE SURFACE SHALL BE LEVEL WITH A CONSTRUCTION TOLERANCE OF 0.005 RADIANS, UNLESS OTHERWISE SHOWN IN THE PLANS. THE ENTIRE BRIDGE SEAT SHALL BE SMOOTH MAGNESIUM STEEL TROWEL FINISHED.

32. IN ALL HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS, SHEAR KEYS SHALL BE FORMED AS SHOWN IN THE TYPICAL BRIDGE DETAILS (3N&S), BRIDGE SHEET BRI29, AND THEY SHALL BE CONTINUOUS UP TO 3" FROM EACH END OF THE JOINT. THE UPWARD KEY SHALL BE PLACED INTEGRALLY WITH THE CONCRETE BELOW THE JOINT.

33. POLYURETHANE JOINT SEALER SHALL BE USED IN BARRIER CONSTRUCTION JOINTS OR AT FIXED END BARRIER JOINTS AS DIRECTED BY THE ENGINEER, AND IN ACCORDANCE WITH THE DETAILS SHOWN IN THE TYPICAL BRIDGE DETAILS (3N&S), BRIDGE SHEET BRI29.

34. THE COST OF INSTALLING PVC WATERSTOPS SHALL BE INCIDENTAL TO ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B". THE TYPE OF PVC WATERSTOP TO BE USED SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL.

35. ITEM 514.10, "WATER REPELLENT, SILANE" SHALL BE APPLIED TO ALL EXPOSED CONCRETE ON THE SUPERSTRUCTURE, EXCEPT THE BOTTOM OF THE DECK BETWEEN THE DRIP BEADS. IT SHALL ALSO BE APPLIED TO ALL EXPOSED NEW AND EXISTING SUBSTRUCTURE CONCRETE.

36. ABUTMENT AND PIER CONCRETE REPAIRS SHALL BE PERFORMED AS REQUIRED BY THE SUBSTRUCTURE REPAIR DETAILS (3N&S), BRIDGE SHEET BRI51. THE SUBSTRUCTURE CONDITION SHEETS, BRIDGE SHEETS BRI58 THROUGH BRI63, WERE DEVELOPED FROM AN AUGUST, 2000 PRELIMINARY INSPECTION, AND SHALL BE USED ONLY AS AN INDICATION OF THE GENERAL CONDITION OF THE SUBSTRUCTURE. A THOROUGH INSPECTION BY THE RESIDENT ENGINEER WILL BE MADE OF ALL SUBSTRUCTURE AREAS AT THE TIME OF CONSTRUCTION, AND THOSE AREAS FOUND TO HAVE SPALLED, DELAMINATED OR OTHERWISE UNSOUND CONCRETE WILL BE REPAIRED. THE CONTRACTOR SHALL SUPPLY ANY STAGING AND LADDERS REQUIRED FOR THIS INSPECTION, THE COST FOR WHICH SHALL BE INCIDENTAL TO ITEM 635.11, "MOBILIZATION/DEMOBILIZATION".

37. WHEN PLANS CALL FOR REINFORCING STEEL OR DOWEL BARS TO BE WRAPPED WITH PIPE INSULATION THE COST OF PIPE INSULATION SHALL BE INCIDENTAL TO REBAR ITEM.

38. PIPE INSULATION THAT IS SHOWN WRAPPED AROUND REBAR SHALL BE INCIDENTAL TO THE REBAR ITEM.

MISCELLANEOUS:

39. ALL FABRIC TROUGHS AND DOWNSPOUTS SHALL BE THOROUGHLY FLUSHED BY THE CONTRACTOR AFTER ALL PAVING IS COMPLETED. ALL COSTS ASSOCIATED WITH THIS WORK SHALL BE INCIDENTAL TO ITEM 406.25, "BITUMINOUS CONCRETE PAVEMENT". FOLLOWING PAVING, ANY BITUMINOUS CONCRETE PAVEMENT THAT IS LODGED IN THE EXPANSION JOINTS, OR THAT ENTERS DRAIN TROUGHS, SCUPPERS, HOPPERS OR DOWNSPOUTS SHALL BE REMOVED BY THE CONTRACTOR AT NO COST TO THE STATE.

40. STONE FILL, TYPE II SHALL BE PLACED ON SLOPES ADJACENT TO WINGWALLS WHERE, IN THE JUDGEMENT OF THE ENGINEER, RUN-OFF MAY CAUSE POTENTIAL EROSION. IN ADDITION, SLOPES SHALL BE REPAIRED BY PLACING STONE FILL, TYPES II AND IV, AND RE-GRADING AS SHOWN. COSTS FOR RE-GRADING SLOPES SHALL BE INCIDENTAL TO ITEMS 613.11, "STONE FILL, TYPE II" AND 613.13, "STONE FILL, TYPE IV".

41. TEMPORARY EROSION CONTROL MEASURES SHALL INCLUDE PLACEMENT OF SILT FENCE, FILTER CURTAIN AND EROSION CONTROL MATTING AROUND WINGWALLS, ABUTMENTS AND PIERS WHERE EXCAVATION AND BACKFILL IS PERFORMED, AS INDICATED IN THE ROADWAY PLANS, OR AS DIRECTED BY THE ENGINEER.

42. THE CONTRACTOR SHALL NOT BE PERMITTED TO PARK VEHICLES OR STAGE EQUIPMENT OR MATERIALS AT THE WELCOME CENTER, THE WELCOME CENTER ACCESS ROAD, OR THE PUMP STATION ON BROAD BROOK ROAD.

43. ASPHALTIC PLUG JOINTS ARE TO BE PLACED AT BACK OF ABUTMENTS AT NORTHBOUND ABUTMENT #1 AND SOUTHBOUND ABUTMENT #2.

44. THE CONTRACTOR IS DIRECTED TO REVIEW SUBSECTION 301.06 OF THE SPECIFICATIONS FOR THE ITEM 301.35 "SUBBASE OF DENSE GRADED CRUSHED STONE" AS THE PROJECT QUANTITY IS OVER 1250 CY AND THIS REQUIRES SIGNIFICANT CONTRACTOR EFFORT IN PLANNING AND MATERIALS TESTING. THE CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE THE MAXIMUM DRY DENSITY OF SUBBASE MATERIAL.

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. **3N&S**
Highway No. I-91	Log Sta.
	Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

GENERAL NOTES (2 OF 2)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G GEN NOTES.dgn	Date 06/10/08
Bridge Sheet No. BRI02	Sheet 28 of 114

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

COMMONLY USED SYMBOLS

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

COLOR

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

DEFINITIONS (AASHTO)

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

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

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

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

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

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

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

VARVED - Alternate layers of silt and clay.

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

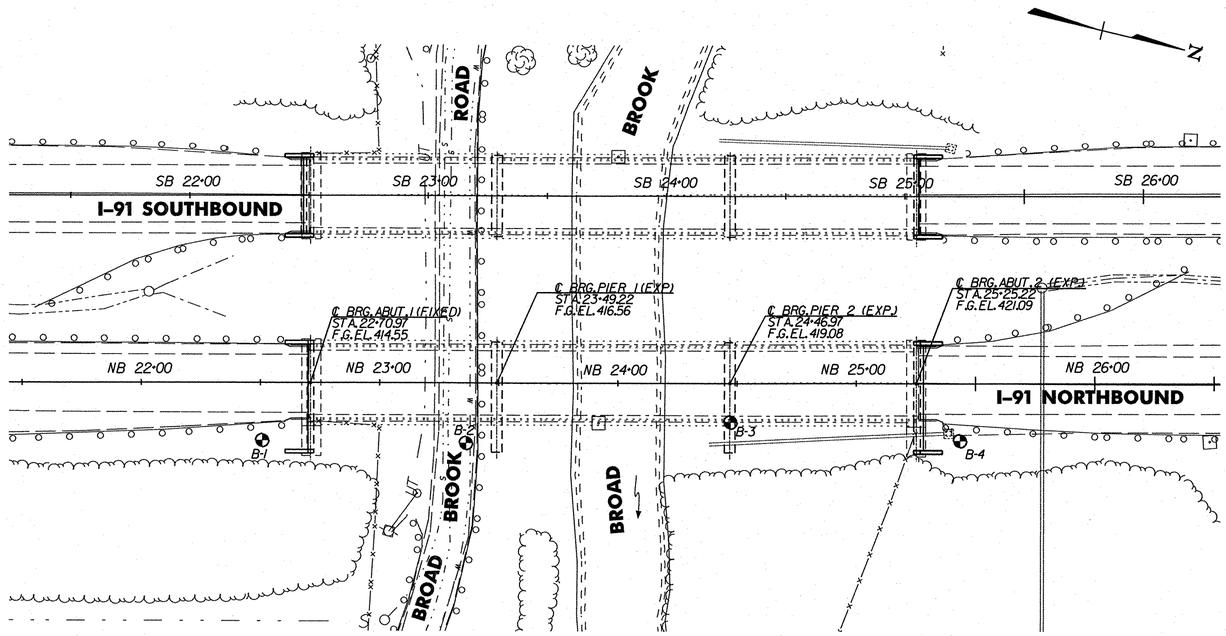
MUCK - Soft organic soil (containing > 10% organic material.

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

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

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

DIP - Inclination of bed with a horizontal plane.



PLAN
SCALE: 1"=30'

BORING CHART

BORING NO.	STATION	OFFSET	GROUND ELEV.
B-1	NB 22+50.75	24.2 RT	413
B-2	NB 23+36.26	25.2 RT	372
B-3	NB 24+47.24	16.2 RT	363
B-4	NB 25+43.55	24.0 RT	421

NOTES:

1. N/A.
2. IF THERE IS A CONFLICT IN THE INFORMATION ON THE BORING LOGS SHOWN ON BRIDGE SHEETS BRI05 THROUGH BRI08, THE INFORMATION ON BORING INFORMATION SHEET (2 OF 2), BRIDGE SHEET BRI04, SUPERCEDES THE GENERAL NOTES ON THIS SHEET.

GENERAL NOTES

1. The subsurface explorations shown herein were made between 11/27/00 and 12/11/00 by NH Boring, Inc.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering judgement 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 judgement by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta.
	Surv. Sta.

I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

BORING INFORMATION SHEET (1 OF 2)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By Date	Bridge Design Supervisor
P.W. SZUSTAK 01/03	J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G BOR INFI.dgn	Date 04/27/08
Bridge Sheet No. BRI03	Sheet 29 of 114

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Guilford Bridge Widening
Guilford, Vermont

Boring No.:
Page: of
File No.: 22718
Check:

Contractor: New Hampshire Boring
Foreman:
Logged by:
Date Start/Finish:
Boring Location: See Exploration Location Plan
GS Elev.: Datum: NGVD

	Auger/ Casing	Sampler
Type:		
I.D. (mm):		
Hammer Wt.:		
Hammer Fall:		
Rig Type:		

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (feet)	Casing blows	Sample Information: No.	Rec. (in.)	Depth (ft.)	Blows (/6 in.)	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.		Equipment Installed
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.

1. Numbers in this column are the depth in feet below ground surface.

2. Numbers in this column report the number of blows required to drive the casing 1 foot with a 300 lb hammer, free-falling 24 inches.

3. The sample number and type are designated in this column.
   e.g., S-1
   S = Sample type (S = Split Spoon Sample)
   1 = Sample number

4. The values shown are the length of the soil sample recovered, in inches.

5. The numbers in this column designate the depth, in feet, from the ground surface of the sample identified in column 3.

6. Numbers in this column report the number of blows required to drive a split spoon sampler (2-inch outside diameter) 6 inches with a 140 lb hammer free-falling 30 inches.

7. Numbers in this column report data from field screening soil samples using an organic vapor meter (OVM).

8. Description of soil samples include:

   - the relative density or consistency;
   - color;
   - a listing of the Major or Minor soil components based on particle size distribution and plasticity;
   - other pertinent characteristics; and
   - AASHTO classifications based on visual perception.

   For example:

   - Medium dense, brown, fine to medium SAND, trace Silt, stratified.

   A solid line indicates a boundary between geologic deposits.

   A dashed line indicates a gradation change within a geologic deposit.

9. Geologic deposit (e.g., Lacustrine).

10. Pertinent observations made while advancing the test boring are identified in this column opposite the depth the observation was made. The observation is explained at the bottom of the page under "Notes" next to the appropriate number.

11. Equipment installed within the borehole and graphically presented in this column. If no equipment was installed, this column is blank.

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BORING LOG LEGEND

DESCRIPTION OF SOIL SAMPLES

1. Density or Consistency:

   The density or consistency listed is determined from the Standard Penetration Test N-Value according to the following table:

Density of Granular Soils	SPT N-Value		Consistency of Cohesive Soils
Very Loose	0-4	0-2	Very Soft
Loose	4-10	2-4	Soft
Medium Dense	10-30	4-8	Medium
Dense	30-50	8-15	Stiff
Very Dense	50+	15-30	Very Stiff
		30+	Hard

WOR - indicates weight of rods
WOH - indicates weight of hammer

2. Color: Visual perception.

3. Soil Components:

   3.1 Description: The components of a soil sample are described by visually estimating the percentage of each component by weight of the total sample.

   a. Major Component: The major soil component (>50 Percent) is written with upper case letters for granular soil (e.g., SAND, GRAVEL) and a combination of the upper and lower case letters for fine grained soil (e.g., Silty CLAY, Clayey SILT).

   b. Minor Component: The minor soil components (<50 Percent) are written with the first letter of each soil type in upper case, and the remaining letters in the lower case (e.g., Gravel, Silt). The minor components are identified and prefaced in the description based on the following percentages:

Description	Percentage
and	35-50
some	20-35
little	10-20
trace	0-10

   c. Note: The actual percentage of gravel soils may differ from that measured when sampling with a standard split spoon sampler and/or auger type sampler because of the relatively small sampler diameter. Also, it is not possible to identify the presence of boulders and cobbles using a standard split spoon sampler and/or auger type sampler.

   d. Fill: Fill is a material placed by other than natural processes. It is described by its major component(s) and additional significant components are listed.

3.2 Definitions:

   a. Granular Soil: A granular soil sample is defined by the following particle sizes as referenced to a standard sieve.

Material		Standard Sieve Upper	Limit Lower
GRAVEL	-coarse	3 inch	3/4 inch
	-fine	3/4 inch	No. 4
SAND	-coarse	No. 4	No. 10
	-medium	No. 10	No. 40
	-fine	No. 40	No. 200

The Gravel/Sand portions of a granular soil are further divided based on the following visually estimated proportions:

Gravel/Sand	Proportion
fine to coarse	>10% all fractions
coarse	<10% fine and medium
medium to coarse	<10% fine
medium	<10% fine and coarse
fine to medium	<10% coarse
fine	<10% medium to coarse

   b. Cohesive: A cohesive soil is classified by visually estimating the degree of plasticity based upon the minimum diameter thread which a sample can be rolled with the finger in the palm of the hand.

Material	Degree of Plasticity	Smallest Diameter Thread (inches)
SILT	Non-plastic	None
Clayey SILT	Slight	1/4
SILT and CLAY	Low	1/8
CLAY and SILT	Medium	1/16
Silty CLAY	High	1/32
CLAY	Very High	1/64

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BORING LOG LEGEND

   c. Organic Soils: An organic soil sample is classified by observation of the sample structure.

Material	Description
Topsoil	• Typically well-graded fine granular soil with organic matter.
Fibrous Peat	• Can see vegetative structure • Spongy, water squeezes out
Fine Grained Peat	• Little vegetative matter • Spongy
Organic Silt	• H_2S odor • Shell fragments • Often contains Sand

4. Other Pertinent Characteristics:

   Soil Structure: Produced by deposition of sediments.

Stratified	-	Random soil deposits of varying components or color
Varved	-	Alternating soil deposits of varying thickness (i.e., clays or silts)
Stratum	-	Soil deposit >12 inches thick
Layer	-	Soil deposit 3 inches to 12 inches thick
Seam	-	Soil deposit 1/8 inch to 3 inches thick
Parting/Lens	-	Soil deposit <1/8 inch thick

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BORING LOG LEGEND

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. **3 N**
Highway No. I-91	Log Sta. / Surv. Sta.
I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD	
BORING INFORMATION SHEET (2 OF 2)	
Designed By GZA	Drawn By GZA
Checked By GZA Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. B-INF02.dgn	Date 04/27/08
Bridge Sheet No. BRI04	Sheet 30 of 114

TVGA ENGINEERING, SURVEYING, P.C.

PARTIAL BORING LOG B-1

BOTTOM OF ABUTMENT I FOOTING (3N)
EL 398.0

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Guilford Bridge Widening
Guilford, Vermont

Boring No.: B-1
Page: 1 of 3
File No.: 22718
Check: TAD

Contractor: New Hampshire Boring
Foreman: S. Clavette
Logged by: S. Currier
Date Start/Finish: 11-28-00 / 11-28-00
Boring Location: See Exploration Location Plan
GS Elev.: 413 Datum: NGVD

	Auger/ Casing	Sampler
Type:	HW	SS
O.D. / I.D.:	4"	2"
Hammer Wt.:	300#	140#
Hammer Fall:	24"	30"
Other:	Diedrich D50 Bombadier	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth	Casing Blows	Sample Info: No.	Pen/ Rec. (In.)	Depth (Ft.)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Rmks.	Equipment Installed
		S-1	24/4	0-2	5-12		Medium dense, dark brown, fine to coarse SAND, little Gravel, little Silt. (A-1)		1	
					10-21					
5'		S-2	24/13	5-7	8-8		Medium dense, brown, fine SAND, little Gravel, little Silt. (A-1)			
					10-25					
10'		S-3	24/8	10-12	9-6		Medium dense, brown, fine SAND, trace Gravel, little Silt. (A-1)			
					9-9			FILL		NO EQUIPMENT INSTALLED
15'		S-4	24/10	15-17	15-19		Dense, brown, fine to medium SAND, trace Gravel, little Silt. (A-1)			
					28-29					
20'		S-5	24/9	20-22	21-30		Very dense, brown, fine to medium SAND, trace Gravel, little Silt. (A-1)			
					31-29					
25'		S-6	24/7	25-27	24-24		Dense, brown, fine to medium SAND, trace Gravel, little Silt. (A-1)			
					20-23					

REMARKS
1. Spoon gravel jammed in tip.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-1

PARTIAL BORING LOG B-1 (CONT'D)

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Guilford Bridge Widening
Guilford, Vermont

Boring No.: B-1
Page: 2 of 3
File No.: 22718
Check: TAD

Contractor: New Hampshire Boring
Foreman: S. Clavette
Logged by: S. Currier
Date Start/Finish: 11-28-00 / 11-28-00
Boring Location: See Exploration Location Plan
GS Elev.: 413 Datum: NGVD

	Auger/ Casing	Sampler
Type:	HW	SS
O.D. / I.D.:	4"	2"
Hammer Wt.:	300#	140#
Hammer Fall:	24"	30"
Other:	Diedrich D50 Bombadier	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth	Casing Blows	Sample Info: No.	Pen/ Rec. (In.)	Depth (Ft.)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Rmks.	Equipment Installed
		S-7	24/6	30-32	40-46		Very dense, brown, fine to medium SAND, little Gravel, little Silt. (A-1)		2	
					93-100				3	
35'		S-8	24/10	35-37	23-60		Very dense, brown, fine to coarse SAND, some Gravel, trace Silt. (A-1b)		4	NO EQUIPMENT INSTALLED
					76-81					
40'		S-9	24/12	40-42	44-62		Very dense, brown, fine to medium SAND, trace Gravel, little Silt. (A-1)			
					50-39					
45'		S-10	24/8	45-47	19-42		Very dense, brown, fine SAND, some Silt, trace Gravel. (A-2)	FILL		
					100/4"					
50'		S-11	24/8	50-52	36-46		Very dense, brown, fine to medium SAND, some Silt, trace Gravel. (A-2)			
					60-45					
55'		S-12	24/9	55-57	30-33		Very dense, gray, SILT & SAND, little Gravel. (A-4)			
					43-33					

REMARKS
2. Layers of cobble and sand from 27 to 32 feet below ground surface.
3. Advanced rollerbit through a 10-inch-diameter boulder from 32 to 32.8 feet below ground surface.
4. Sieve analysis performed on S-8.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-1

PARTIAL BORING LOG B-1 (CONT'D)

EST. NEW PILE PENETRATION
(FROM BOTTOM OF FOOTING = 60')

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Guilford Bridge Widening
Guilford, Vermont

Boring No.: B-1
Page: 3 of 3
File No.: 22718
Check: TAD

Contractor: New Hampshire Boring
Foreman: S. Clavette
Logged by: S. Currier
Date Start/Finish: 11-28-00 / 11-28-00
Boring Location: See Exploration Location Plan
GS Elev.: 413 Datum: NGVD

	Auger/ Casing	Sampler
Type:	HW	SS
O.D. / I.D.:	4"	2"
Hammer Wt.:	300#	140#
Hammer Fall:	24"	30"
Other:	Diedrich D50 Bombadier	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth	Casing Blows	Sample Info: No.	Pen/ Rec. (In.)	Depth (Ft.)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Rmks.	Equipment Installed
		S-13	24/7	60-62	21-10		Medium dense, brown, fine SAND, some Gravel, trace Silt. (A-3)			
					8-12			FILL		
65'		S-14	24/3	65-69	23-17		Dense, gray, SILT, little Gravel, trace fine Sand. (A-4)	65'		NO EQUIPMENT INSTALLED
					25-30					
70'		S-15	10/5	72-72.8	114-		Very dense, gray, SILT, trace Gravel. (A-4)	GLACIAL TILL		
					100/4"					
75'										
80'		S-16	6/6	80-80.5	150/6"		Very dense, gray, SILT. (A-4)			
							Bottom of boring at 80.5 feet below ground surface. No refusal.	80.5'		
85'										

REMARKS

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-1

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. **3N**
	Log Sta.
Highway No. I-91	Surv. Sta.

I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

BORING LOGS (1 OF 4)

Designed By GZA	Drawn By GZA
Checked By GZA Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. B-1.dgn	Date 06/06/08
Bridge Sheet No. BR105	Sheet 31 of 114

TVGA ENGINEERING, SURVEYING, P.C.

PARTIAL BORING LOG B–2

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Guilford Bridge Widening
Guilford, Vermont

Boring No.: B-2
Page: 1 of 2
File No.: 22718
Check: TAD

Contractor: New Hampshire Boring
Foreman: S. Clavette
Logged by: S. Currier
Date Start/Finish: 11-27-00 / 11-28-00
Boring Location: See Exploration Location Plan
GS Elev.: 372 Datum: NGVD

	Auger/ Casing	Sampler
Type:	NH	SS
O.D. / I.D.:	4"	2"
Hammer Wt.:	300#	140#
Hammer Fall:	24"	30"
Other:	Diedrich D50 Bombadier	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth	Casing Blows	Sample No.	Pen/ Rec. (In.)	Depth (Ft.)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Remks	Equipment Installed
		S-1	24/15	0-2	46-32		Very dense, brown, fine to medium SAND, some Gravel, little Silt. (A-1)	ASPHALT 0.25'		NO EQUIPMENT INSTALLED
					26-41					
		S-2	24/12	2-4	30-19		Dense, brown, fine to medium SAND, some Gravel, little Silt. (A-1)			
					18-23					
5'		S-3	24/11	4-6	22-20		Dense, brown, fine to medium SAND, little Gravel, little Silt. (A-1)			
					26-29					
		S-4	24/17	6-8	24-26		Dense, brown, fine to medium SAND, little Gravel, little Silt. (A-1)			
					21-37					
10'		S-5	24/11	10-12	19-25		Very dense, brown, fine SAND, some Silt, trace medium Sand. (A-2)	FILL		
					27-24					
15'		S-6	24/14	15-17	17-20		Dense, brown, fine to medium SAND, little Silt, trace Gravel. (A-1)			
					16-23					
20'		S-7	24/1	20-22	8-5		Loose, gray, fine SAND and Silt. (A-4)	20' SAND		
					2-2					
25'		S-8	24/7	25-27	6-11		Medium dense, gray, fine SAND and Silt. (A-4)			
					7-5					

REMARKS

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-2

BOTTOM OF PIER I FOOTING (3N) EL.3389

PARTIAL BORING LOG B–2 (CONT'D)

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Guilford Bridge Widening
Guilford, Vermont

Boring No.: B-2
Page: 2 of 2
File No.: 22718
Check: TAD

Contractor: New Hampshire Boring
Foreman: S. Clavette
Logged by: S. Currier
Date Start/Finish: 11-27-00 / 11-28-00
Boring Location: See Exploration Location Plan
GS Elev.: 372 Datum: NGVD

	Auger/ Casing	Sampler
Type:	NH	SS
O.D. / I.D.:	4"	2"
Hammer Wt.:	300#	140#
Hammer Fall:	24"	30"
Other:	Diedrich D50 Bombadier	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth	Casing Blows	Sample No.	Pen/ Rec. (In.)	Depth (Ft.)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Remks	Equipment Installed
		S-9	24/8	30-32	5-1		Very loose, brown, fine SAND and Silt, trace Gravel. (A-4)	SAND	1	NO EQUIPMENT INSTALLED
					1-1					
35'		S-10	11/3	35-35.9	18-		Very dense, gray, SILT, trace Gravel, trace Sand. (A-4)	32.5'		
					120/5"					
40'		S-11	11/4	40-40.9	68-		Very dense, gray, SILT, trace Gravel, trace Sand. (A-4)	GLACIAL TILL		
					105/5"					
45'		S-12	24/18	45-47	66-59		Very dense, gray, SILT, trace fine Sand. (A-4)			
					50-48					
50'							Bottom of boring at 47 feet below ground surface. No refusal.	47'		
55'										

REMARKS

1. Assumed till at 32.5 feet, due to increase in drill resistance.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-2

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. **3N**
Highway No. I-91	Log Sta. / Surv. Sta.
I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD	
BORING LOGS (2 OF 4)	
Designed By GZA	Drawn By GZA
Checked By GZA Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. B-2.dgn	Date 06/06/08
Bridge Sheet No. BR106	Sheet 32 of 114

TVGA ENGINEERING, SURVEYING, P.C.

PARTIAL BORING LOG B-3

BOTTOM OF PIER 2 FOOTING (3N)
EL.338.9

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Guilford Bridge Widening
Guilford, Vermont

Boring No.: B-3
Page: 1 of 2
File No.: 22718
Check: TAD

Contractor: New Hampshire Boring
Foreman: S. Clavette
Logged by: S. Currier
Date Start/Finish: 12-8-00 / 12-8-00
Boring Location: See Exploration Location Plan
GS Elev.: 363 Datum: NGVD

	Auger/ Casing	Sampler
Type:	NH	SS
O.D. / I.D.:	4"	2"
Hammer Wt.:	300#	140#
Hammer Fall:	24"	30"
Other:	Simco	Skid Rig

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth	Casing Blows	Sample Info: No.	Pen/ Rec. (In.)	Depth (Ft.)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Rmks.	Equipment Installed
5'		S-1	24/9	5-7	5-6 8-8		Medium dense, brown, fine SAND, some Silt, trace Gravel. (A-2)			NO EQUIPMENT INSTALLED
10'		S-2	24/2	10-12	5-3 4-2		Loose, brown, fine SAND, little Gravel, little Silt. (A-1)	FILL		
15'		S-3	24/2	15-17	1-1 1-1		Very loose, brown, fine SAND, some Silt, some Gravel. (A-2)			
20'		S-4	30/0	20-22.5	2- 1/24"		No recovery.		1	
25'		S-5	10/6	25-25.8	95- 120/4"		Very dense, gray, SILT, trace Gravel. (A-4)	25' GLACIAL TILL	2	

REMARKS
1. The third blow from the hammer advanced the split spoon 24 inches, possible void.
2. Increase in drill resistance at 24 feet.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-3

PARTIAL BORING LOG B-3 (CONT'D)

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Guilford Bridge Widening
Guilford, Vermont

Boring No.: B-3
Page: 2 of 2
File No.: 22718
Check: TAD

Contractor: New Hampshire Boring
Foreman: S. Clavette
Logged by: S. Currier
Date Start/Finish: 12-8-00 / 12-8-00
Boring Location: See Exploration Location Plan
GS Elev.: 363 Datum: NGVD

	Auger/ Casing	Sampler
Type:	NH	SS
O.D. / I.D.:	4"	2"
Hammer Wt.:	300#	140#
Hammer Fall:	24"	30"
Other:	Simco	Skid Rig

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth	Casing Blows	Sample Info: No.	Pen/ Rec. (In.)	Depth (Ft.)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Rmks.	Equipment Installed
		S-6	11/8	30-30.9	97- 115/5"		Very dense, gray, SILT, little Gravel, little fine Sand. (A-5)			NO EQUIPMENT INSTALLED
35'		S-7	24/2	35-37	32-43 38-50		Very dense, gray, Clayey SILT, trace Gravel, trace fine Sand. (A-5)	GLACIAL TILL		
40'		S-8	24/20	40-42	33-96 65-100		Very dense, gray, Clayey SILT, trace Gravel. (A-5)			
45'							Bottom of boring at 42 feet below ground surface. No refusal.	42'		
50'										
55'										

REMARKS
1. Assumed till at 32.5 feet, due to increase in drill resistance.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-3

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta. / Surv. Sta.
I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD	
BORING LOGS (3 OF 4)	
Designed By GZA	Drawn By GZA
Checked By GZA Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. B-3.dgn	Date 06/06/08
Bridge Sheet No. BR107	Sheet 33 of 114

TVGA ENGINEERING, SURVEYING, P.C.

PARTIAL BORING LOG B-4

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Guilford Bridge Widening
Guilford, Vermont

Boring No.: B-4
Page: 1 of 3
File No.: 22718
Check: TAD

Contractor: New Hampshire Boring
Foreman: S. Clavette
Logged by: S. Currier
Date Start/Finish: 12-4-00 / 12-7-00
Boring Location: See Exploration Location Plan
GS Elev.: 421 Datum: NGVD

	Auger/ Casing	Sampler
Type:	HW	SS
O.D. / I.D.:	4"	2"
Hammer Wt.:	300#	140#
Hammer Fall:	24"	30"
Other:	Diedrich D50	
	Bombadier	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth	Casing Blows	Sample Information: No.	Pen/ Rec. (in.)	Depth (Ft.)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Rmks.	Equipment Installed
		S-1	24/4	0-2	4-3		Loose, dark brown, fine to medium SAND, trace Gravel, little Silt, trace Organics and Roots. (A-1)	TOPSOIL 0.3'		NO EQUIPMENT INSTALLED
					5-5					
5'		S-2	24/1	5-7	5-3		Loose, brown, fine to coarse SAND, trace Gravel, trace Silt. (A-1)			
					3-7					
10'		S-3	24/5	10-12	4-4		Loose, gray, fine SAND and Silt, trace Gravel. (A-4)	FILL		
					3-2					
15'		S-4	24/1	15-17	9-7		Medium dense, gray, fine SAND and Silt, trace Gravel. (A-4)			
					8-6					
20'		S-5	24/0	20-22	12-8		No recovery.			
					6-13					
25'		S-6	24/8	25-27	4-16		Dense, gray, fine SAND and Silt, trace Gravel, trace Organics and Roots. (A-4)			
					20-17					

REMARKS

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-4

PARTIAL BORING LOG B-4 (CONT'D)

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Guilford Bridge Widening
Guilford, Vermont

Boring No.: B-4
Page: 2 of 3
File No.: 22718
Check: TAD

Contractor: New Hampshire Boring
Foreman: S. Clavette
Logged by: S. Currier
Date Start/Finish: 12-4-00 / 12-7-00
Boring Location: See Exploration Location Plan
GS Elev.: 421 Datum: NGVD

	Auger/ Casing	Sampler
Type:	HW	SS
O.D. / I.D.:	4"	2"
Hammer Wt.:	300#	140#
Hammer Fall:	24"	30"
Other:	Diedrich D50	
	Bombadier	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth	Casing Blows	Sample Information: No.	Pen/ Rec. (in.)	Depth (Ft.)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Rmks.	Equipment Installed
		S-7	24/6	30-32	28-52		Very dense, gray, fine SAND and Silt, trace Gravel. (A-4)	FILL		NO EQUIPMENT INSTALLED
					19-11					
35'		S-8	24/11	35-37	40-25		Very dense, gray, fine to coarse SAND and Silt, trace Gravel. (A-4)		1	
					25-27					
40'		S-9	24/8	40-42	22-33		Very dense, gray, fine SAND and Silt, trace Gravel. (A-4)			
					49-36					
45'		S-10	24/11	45-47	23-15		Dense, gray, fine SAND and Silt, trace Gravel. (A-4)			
					19-17					
50'		S-11	24/4	50-52	16-13		Very dense, gray, fine to coarse SAND, little Gravel, trace Silt. (A-1)			
					46-93					
55'		S-12	22/5	55-56.8	38-61		Very dense, gray, fine SAND and Silt, trace Gravel. (A-4)			
					60-					
					100/4"					

REMARKS

1. Sieve anlaysis performed on S-8.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-4

PARTIAL BORING LOG B-4 (CONT'D)

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Guilford Bridge Widening
Guilford, Vermont

Boring No.: B-4
Page: 3 of 3
File No.: 22718
Check: TAD

Contractor: New Hampshire Boring
Foreman: S. Clavette
Logged by: S. Currier
Date Start/Finish: 12-4-00 / 12-7-00
Boring Location: See Exploration Location Plan
GS Elev.: 421 Datum: NGVD

	Auger/ Casing	Sampler
Type:	HW	SS
O.D. / I.D.:	4"	2"
Hammer Wt.:	300#	140#
Hammer Fall:	24"	30"
Other:	Diedrich D50	
	Bombadier	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth	Casing Blows	Sample Information: No.	Pen/ Rec. (in.)	Depth (Ft.)	Blows (/6")	Field Test Data (ppm)	Sample Description & Classification	Stratum Desc.	Rmks.	Equipment Installed
		S-13	24/2	60-62	11-21		Dense, gray, fine SAND and Silt, trace Gravel. (A-4)			NO EQUIPMENT INSTALLED
					20-18					
65'		S-14	24/3	65-67	11-11		Medium dense, gray, fine SAND and Silt, trace Gravel. (A-4)	FILL		
					6-8					
70'		S-15	24/3	70-72	16-24		Dense, gray, fine SAND, some Silt, trace Gravel. (A-2)		2	
					20-59					
								72'	3	
75'		S-16	10/0	75-	77-		No recovery.	SAND		
					75.8	100/4"				
		S-17A	16/7	77-	67-102		S-17A: Very dense, gray, fine to coarse SAND, little Silt, trace Gravel. (A-1)			
		S-17B		78.3	100/4"		S-17B: Very dense, gray, SILT, little Gravel, trace fine Sand. (A-4)	78'	4	
80'		S-18	10/4	80-	88-		S-18: Very dense, gray, SILT, trace Gravel. (A-4)	GLACIAL TILL		
					80.8	130/4"				
85'		S-19	24/6	85-87	89-70		Very dense, gray, SILT, trace Gravel. (A-4)			
					80-120					
							Bottom of boring at 87 feet below ground surface. No refusal.	87'		

REMARKS

2. Hole collapsed to 35 feet. Reopened hole to 70 feet for sample from 70 to 72 feet.
3. Encountered 12-inch-diameter boulder from 72 to 73 feet.
4. Advanced roller bit to 80 feet. Hole collapsed to approximately 40 feet. Installed 3-inch-diameter casing to 80 feet.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-4

BOTTOM OF ABUTMENT 2 FOOTING (3N) EL 4047

EST. NEW PILE PENETRATION (FROM BOTTOM OF FOOTING + 60')

STATE OF VERMONT
AGENCY OF TRANSPORTATION

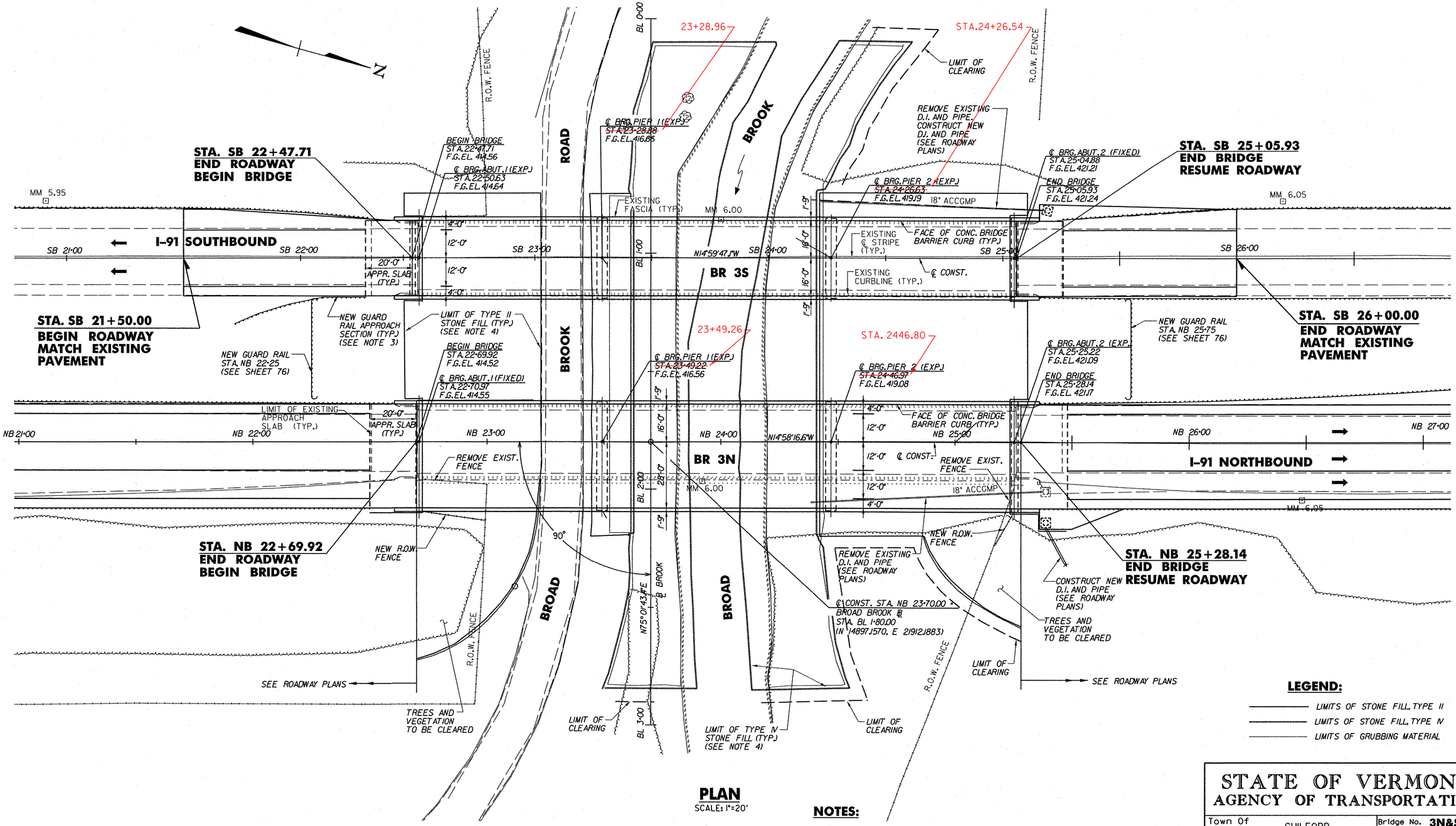
Town Of GUILFORD	Bridge No. **3N**
Highway No. I-91	Log Sta.
	Surv. Sta.

I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

BORING LOGS (4 OF 4)

Designed By GZA	Drawn By GZA
Checked By GZA Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. B-4.dgn	Date 06/06/08
Bridge Sheet No. BRI08	Sheet 34 of 114

TVGA ENGINEERING, SURVEYING, P.C.



PLAN
SCALE: 1"=20'

LEGEND:

- LIMITS OF STONE FILL, TYPE II
- LIMITS OF STONE FILL, TYPE IV
- LIMITS OF GRUBBING MATERIAL

NOTES:

1. EXISTING UTILITIES NOT SHOWN FOR CLARITY. SEE ROADWAY PLANS FOR DETAILS.
2. FOR ALIGNMENT CONTROL POINTS, SEE ROADWAY PLANS.
3. FOR LAYOUT OF GUARD RAIL APPROACH SECTIONS, SEE ELEVATION (3N&S), BRIDGE SHEET BRII0.
4. STREAM BANK SLOPES UP TO ELEVATION 359.0 SHALL BE STABILIZED WITH TYPE IV STONE FILL. SLOPES ABOVE THIS ELEVATION SHALL BE STABILIZED WITH TYPE II STONE FILL.

20 0 20
SCALE IN FEET

STATE OF VERMONT
AGENCY OF TRANSPORTATION

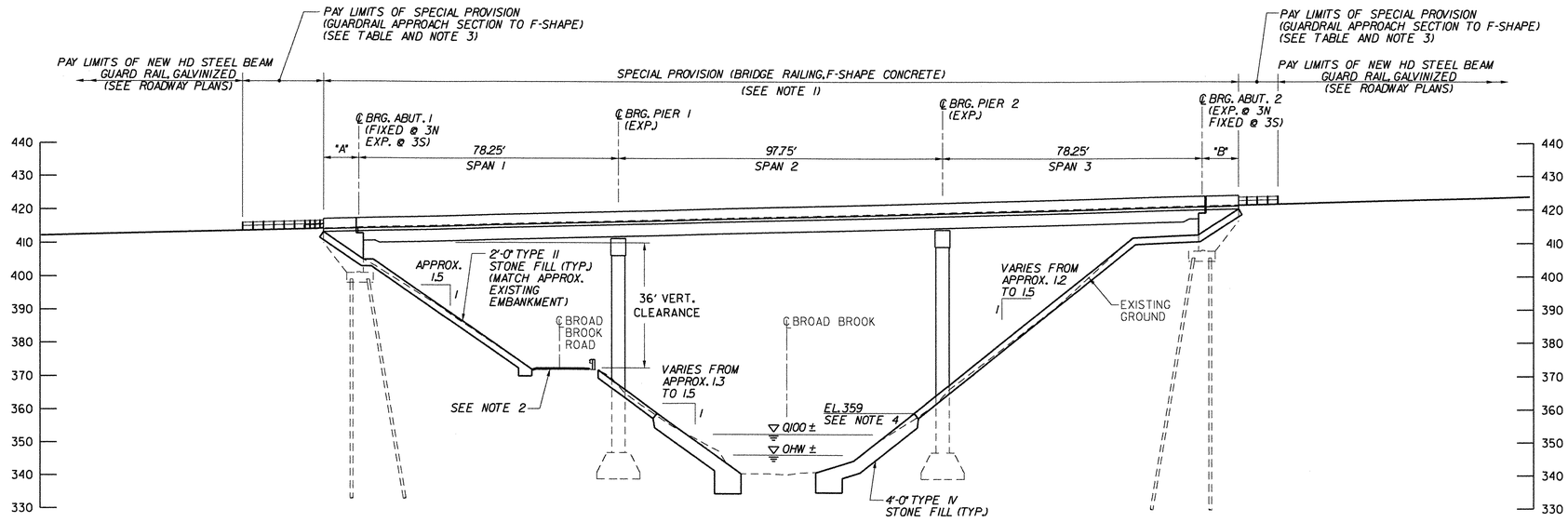
Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

GENERAL PLAN (3N&S)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G-BR-PL.DGN	Date 04/28/08
Bridge Sheet No. BRI09	Sheet 35 of 114

TVGA ENGINEERING, SURVEYING, P.C.



DOWNSTREAM ELEVATION

SCALE 1"= 20'
(BRIDGE 3N SHOWN, BRIDGE 3S SIMILAR)

BARRIER CURB LAYOUT TABLE			
LOCATION	"A"	"B"	SPECIAL PROVISION (BRIDGE RAILING, F-SHAPE CONCRETE)
3N	10.63'	10.92	275.80'
3S	10.67	10.85	275.77'

APPROACH RAIL LAYOUT TABLE				
BRIDGE	LOCATION	SIDE	PAY LIMITS	PAY ITEM
3N	ABUT. 1	E	850'	621.21
			30' - 7¾"	900.620
			-	621.50
		W	387' - 6"	621.21
			30' - 7¾"	900.620
			37' - 6"	621.50
	ABUT. 2	E	662' - 6"	621.21
			30' - 7¾"	900.620
			-	621.50
		W•	162' - 6"	621.21
			30' - 7¾"	900.620
			37' - 6"	621.50
3S	ABUT. 1	E	-	621.21
			30' - 7¾"	900.620
			37' - 6"	621.50
		W	412' - 6"	621.21
			30' - 7¾"	900.620
			-	621.50
	ABUT. 2	E	387'- 6"	621.21
			30' - 7¾"	900.620
			37' - 6"	621.50
		W	737' - 6"	621.21
			30' - 7¾"	900.620
			37' - 6"	621.50

• NOTE: BRIDGE 3N DEPARTURE END WEST SIDE, REQUIRES COMPLETE ASSEMBLY DUE TO TRAFFIC CONTROL.

WORKING POINTS											
	NORTH BOUND						SOUTH BOUND					
W.P.	STATION	OFFSET RT	OFFSET LT	COORDINATES Northing	COORDINATES Easting	SHEET REF.	STATION	OFFSET RT	OFFSET LT	COORDINATES Northing	COORDINATES Easting	SHEET REF.
ABUTMENT #1												
1	STA NB 22+70.97		17.75 ft	14796.9103	21920.6218	59	STA SB 22+50.63		17.75 ft	14776.7612	21845.2687	68
2	STA NB 22+70.97	29.75 ft		14809.1812	21966.5095		STA SB 22+50.63	17.75 ft		14785.9321	21879.5637	
3	STA NB 22+70.97	CL N75°01'43.4"E		14801.4957	21937.7693		STA SB 22+50.63	CL N75°00'12.9"E		14781.3467	21862.4162	
4	STA NB 22+60.35		17.75 ft	14786.6435	21923.3673		STA SB 22+39.96		17.75 ft	14766.4555	21848.0294	
5	STA NB 22+60.35	29.75 ft		14798.9145	21969.2549		STA SB 22+39.96	17.75 ft		14775.6415	21882.3204	
PIER # 1												
1	STA NB 23+49.22		17.01 ft	14872.7224	21901.1148	65	STA SB 23+28.88		17.00 ft	14852.5899	21825.7321	74
2	STA NB 23+49.22	28.99 ft		14884.4955	21945.5834		STA SB 23+28.88	17.00 ft		14861.2940	21858.5991	
3	STA NB 23+49.22	CL N75°01'43.4"E		14877.0758	21917.5583		STA SB 23+28.88	CL N75°00'12.9"E		14856.9420	21842.1656	
PIER # 2												
1	STA NB 24+46.97		17.00 ft	14967.1606	21875.8712	65	STA SB 24+26.63		17.00 ft	14947.0070	21800.4394	74
2	STA NB 24+46.97	29.00 ft		14978.9368	21920.3383		STA SB 24+26.63	17.00 ft		14955.7106	21833.3066	
3	STA NB 24+46.97	CL N75°01'43.4"E		14971.5127	21892.3047		STA SB 24+26.63	CL N75°00'12.9"E		14951.3588	21816.8730	
ABUTMENT #2												
1	STA NB 25+25.22		17.75 ft	15042.5291	21854.9404	62	STA SB 25+04.88		17.75 ft	15022.3551	21779.4785	70
2	STA NB 25+25.22	29.75 ft		15054.8001	21900.8280		STA SB 25+04.88	17.75 ft		15031.5260	21813.7735	
3	STA NB 25+25.22	CL N75°01'43.4"E		15047.1146	21872.0879		STA SB 25+04.88	CL N75°00'12.9"E		15026.9406	21796.6260	
4	STA NB 25+36.13		17.75 ft	15053.0623	21852.1370		STA SB 25+15.73		17.75 ft	15032.8334	21776.6716	
5	STA NB 25+36.13	29.75 ft		15065.3332	21898.0113		STA SB 25+15.73	17.75 ft		15042.0193	21810.9625	

NOTES:

1. FOR DETAILS OF CONCRETE BRIDGE BARRIER CURB, SEE CONCRETE BARRIER CURB DETAILS (3N&S), BRIDGE SHEET BRII8.
2. FOR TYPICAL SECTION AND LIMITS OF WORK FOR BROAD BROOK ROAD, SEE ROADWAY PLANS.
3. FOR DETAILS OF APPROACH GUARD RAIL, SEE APPROACH GUARD RAIL - BRIDGE SHEET BRI50.
4. STREAM SLOPES UP TO ELEVATION 359.0 SHALL BE STABILIZED WITH TYPE IV STONE FILL. SLOPE ABOVE THIS ELEVATION SHALL BE STABILIZED WITH TYPE II STONE FILL.

TVGA ENGINEERING, SURVEYING, P.C.

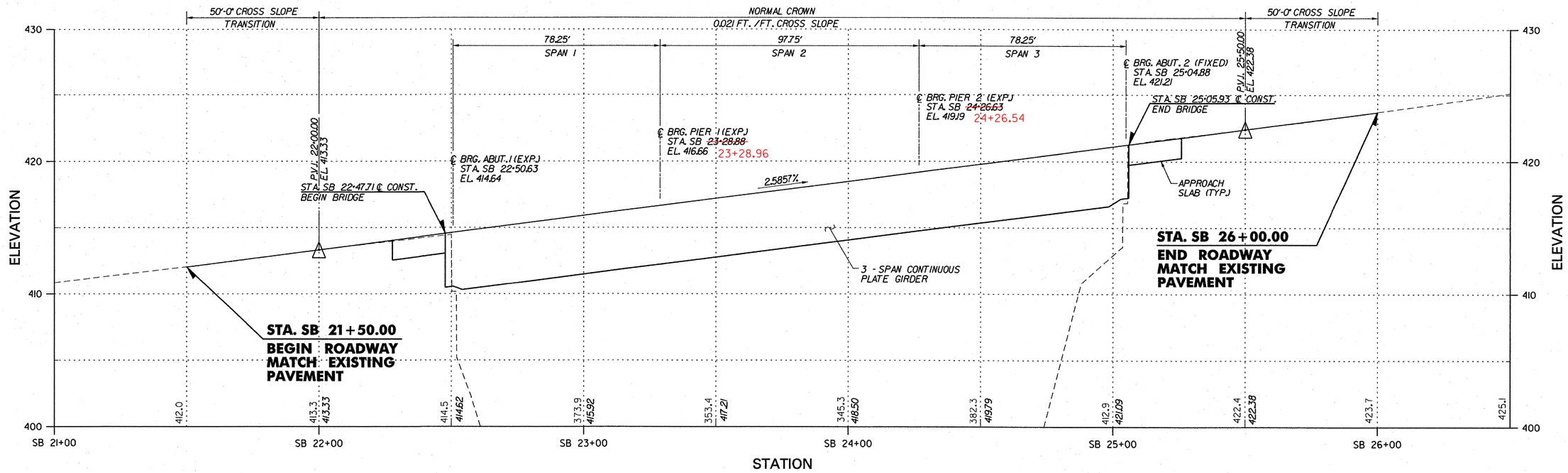
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

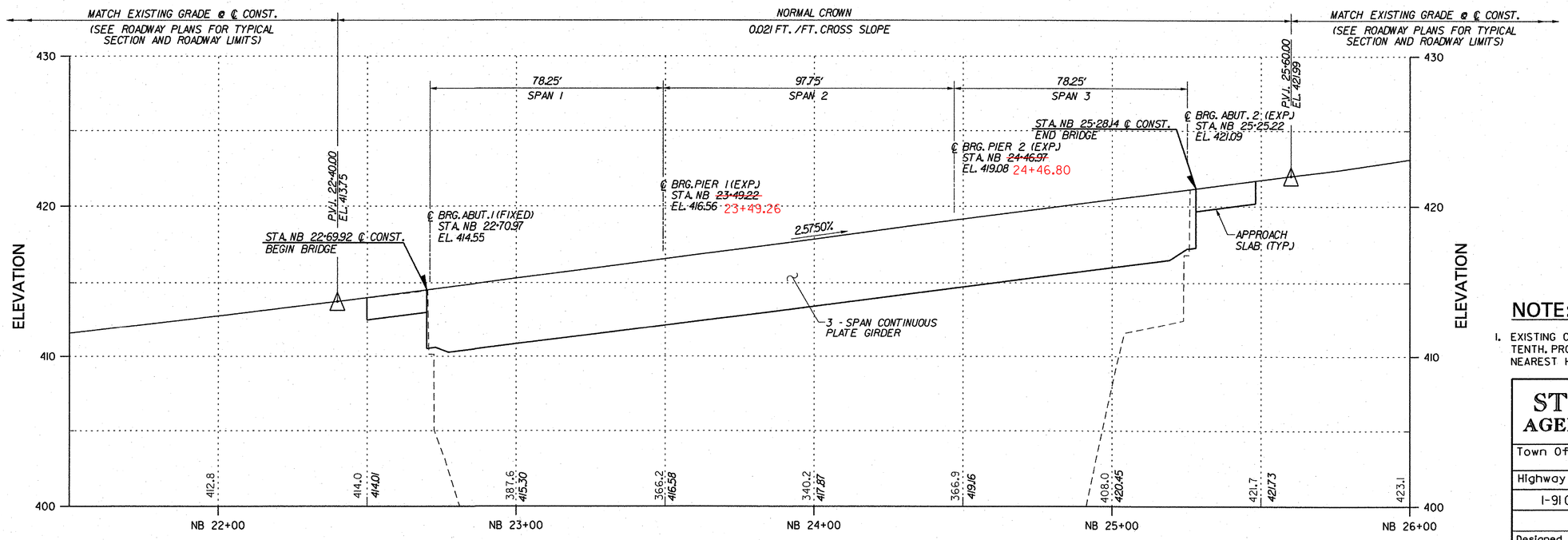
I-91 OVER BROAD BROOK & BROAD BROOK ROAD

ELEVATION (3N&S)

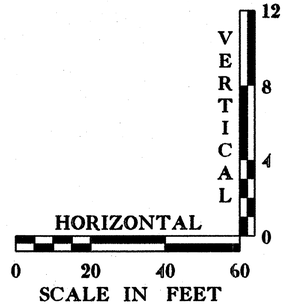
Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G BR ELEV.dgn	Date 06/06/08
Bridge Sheet No. BRII0	Sheet 36 of 114



PROFILE (3S)



PROFILE (3N)



NOTE:

1. EXISTING CENTERLINE ELEVATIONS ARE SHOWN TO THE NEAREST TENTH. PROPOSED CENTERLINE ELEVATIONS ARE SHOWN TO THE NEAREST HUNDREDTH.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

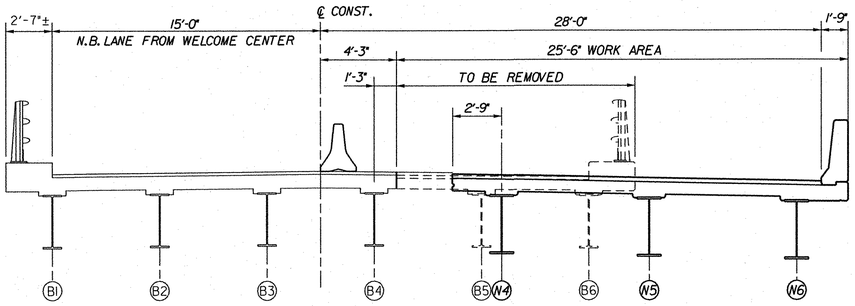
Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

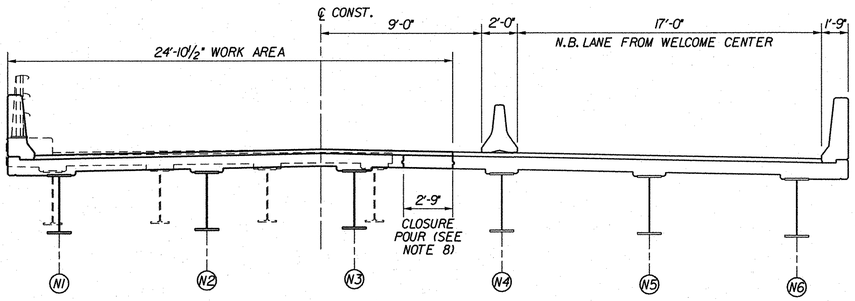
PROFILES (3N&S)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G NS PROF.DGN	Date 04/28/08
Bridge Sheet No. BRIII	Sheet 37 of 114

TVGA ENGINEERING, SURVEYING, P.C.



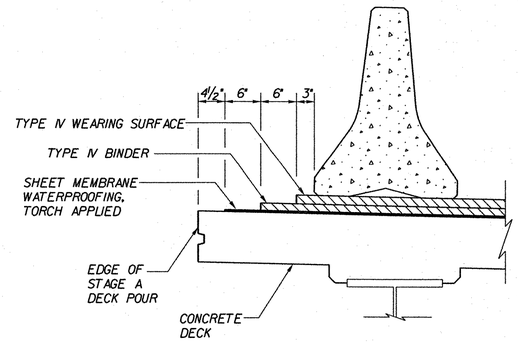
STAGE A



STAGE B

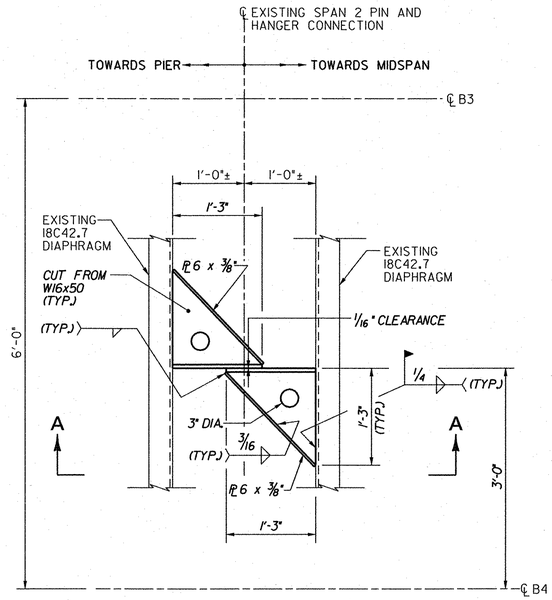
STAGED CONSTRUCTION SEQUENCING - PHASE I (3N)

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



PAVEMENT STAGING DETAIL

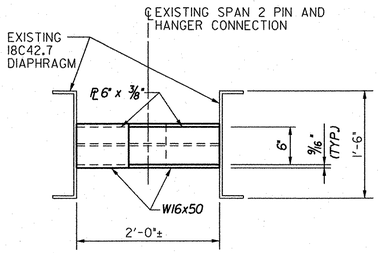
SCALE: 1"= 1'-0"



TEMPORARY WIND SHOE - PLAN

SCALE: 1"= 1'-0"

NOTE: WIND SHOE DETAIL ADJACENT TO PIER I SHOWN. DETAIL ADJACENT TO PIER 2 IS SIMILAR, BUT OPPOSITE HAND. (SEE NOTE 7)



SECTION A-A

SCALE: 1"= 1'-0"

NOTES:

1. FOR PHASE 2 TEMPORARY LANE AND BARRIER LAYOUT OF BRIDGE 3N, SEE TRAFFIC CONTROL PLANS.
2. THE CONTRACTOR SHALL ERECT A CHANGEABLE MESSAGE BOARD TO POST A REDUCED SPEED LIMIT TO 25 MPH DURING DECK AND CLOSURE POURS AND FOR 48 HOURS AFTER COMPLETION OF POUR.
3. THROUGHOUT THE DURATION OF THE CLOSURE POUR, SPEED OF VEHICULAR TRAFFIC SHALL BE REDUCED TO 25 MPH.
4. INTERMEDIATE DIAPHRAGMS BETWEEN GIRDERS N3 AND N4 SHALL NOT BE INSTALLED UNTIL THE STAGE B DECK, EXCLUDING CLOSURE POUR, HAS BEEN IN PLACE FOR AT LEAST 48 HOURS, OR THEY MAY BE INSTALLED BY CONNECTING AT ONE END ONLY.
5. INSTALL DIAPHRAGMS BETWEEN GIRDERS N3 AND N4 PRIOR TO PLACING CLOSURE POUR.
6. PRIOR TO REMOVAL OF SUPERSTRUCTURE IN STAGE A, THE CONTRACTOR SHALL INSTALL TEMPORARY WIND SHOES BETWEEN EXISTING BEAMS B3 AND B4 AT BOTH EXISTING EXPANSION JOINTS IN SPAN 2. ALL COSTS ASSOCIATED WITH THIS WORK, INCLUDING MATERIALS, FABRICATION AND INSTALLATION SHALL BE INCIDENTAL TO ITEM 502.10, "SHORING SUBSTRUCTURE
7. FOR FURTHER DETAILS OF EXISTING WIND SHOES, SEE I-001-I(6) REFERENCE PLANS.
8. FOR CLOSURE POUR DETAILS, SEE TRANSVERSE SECTION (3N), BRIDGE SHEET BRII4.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

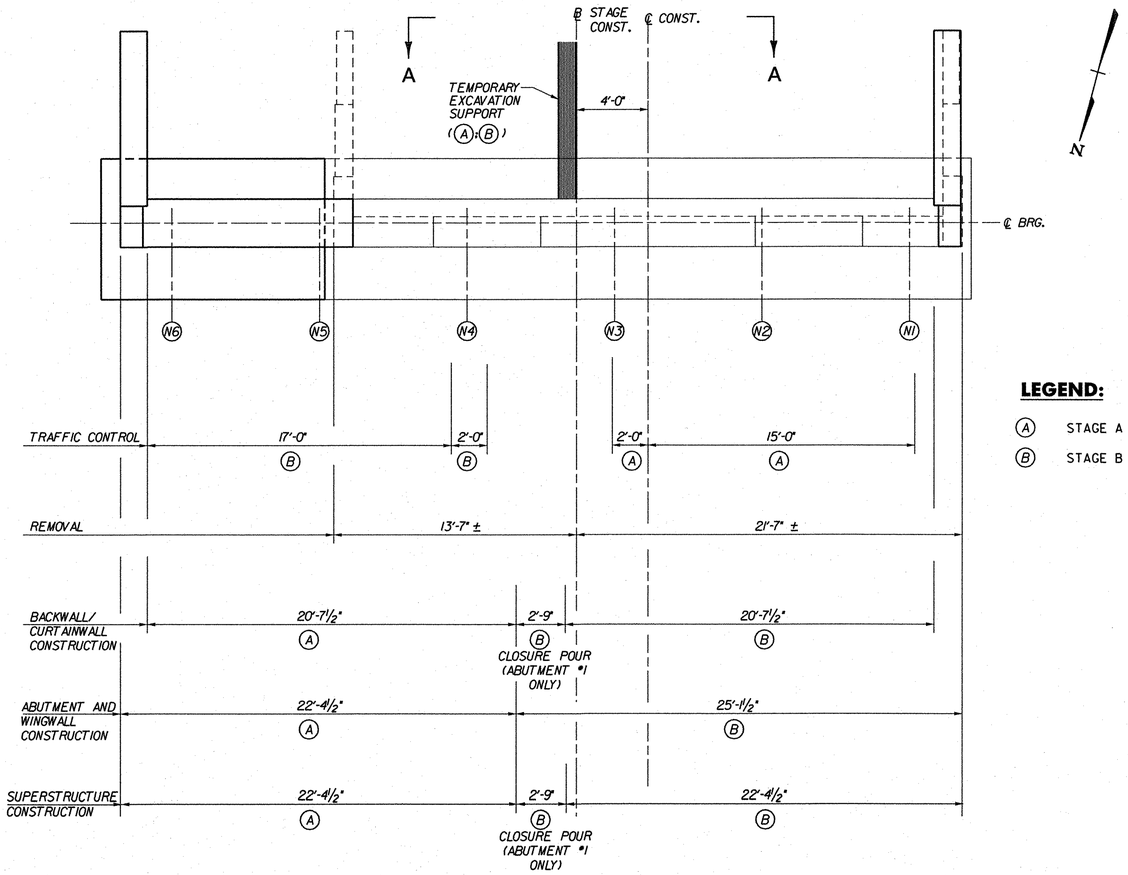
Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

STAGED CONSTRUCTION DETAILS (1 OF 2) (3N)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G BR STAGES	Date 04/28/08
Bridge Sheet No. BRII2	Sheet 38 of 114

TVGA ENGINEERING, SURVEYING, P.C.

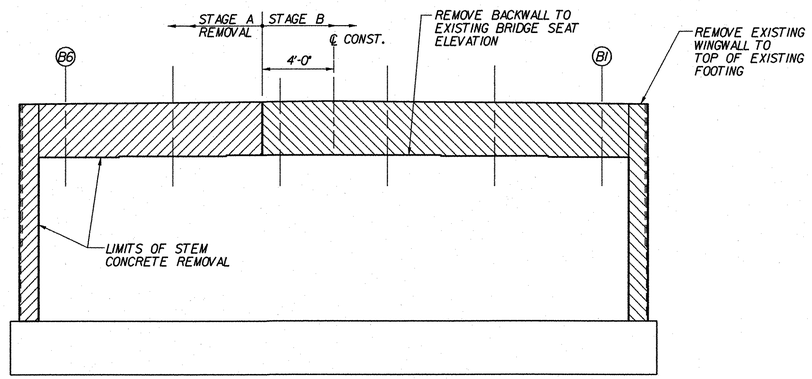


PLAN

LEGEND:

(A) STAGE A

(B) STAGE B

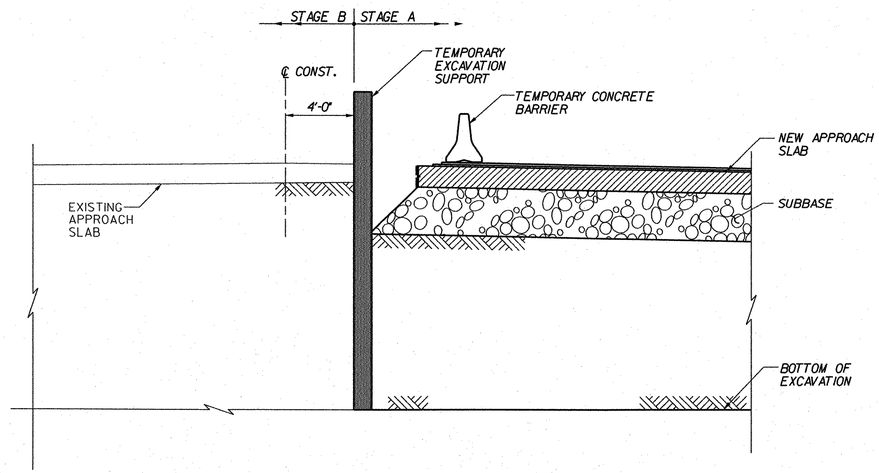


ELEVATION

ABUTMENT STAGED CONSTRUCTION (3N)

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

(ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR)



SECTION A–A

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

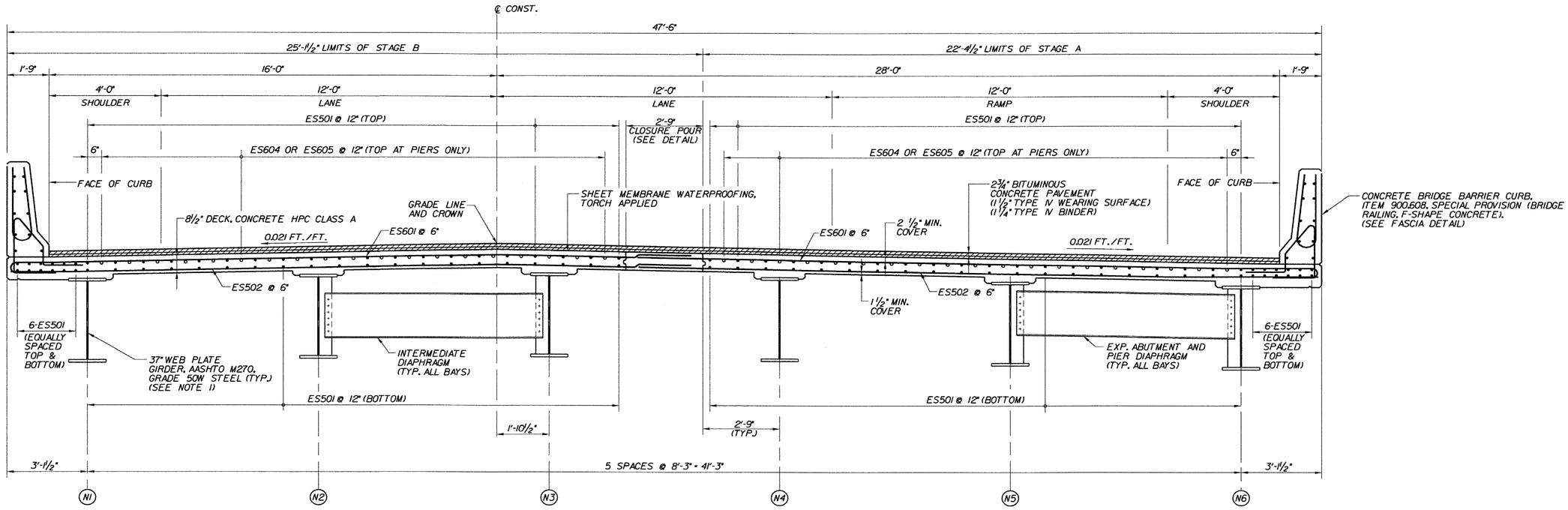
NOTES:

1. TEMPORARY EXCAVATION SUPPORT SHALL BE REQUIRED AT BRIDGE 3N ABUTMENTS 1 AND 2 TO SUPPORT EXCAVATION DURING STAGED CONSTRUCTION. THE TEMPORARY EXCAVATION SUPPORT SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER TO SUPPORT LATERAL EARTH LOADS, CONSTRUCTION LOADS AND HIGHWAY LIVE LOADS. THE CONTRACTOR SHALL SUBMIT CONSTRUCTION DRAWINGS IN ACCORDANCE WITH SECTIONS 105 AND 505. ALL COSTS FOR THE DESIGN, INSTALLATION, MAINTENANCE AND REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 505.36, "TEMPORARY STEEL SHEET PILING".

STATE OF VERMONT
AGENCY OF TRANSPORTATION

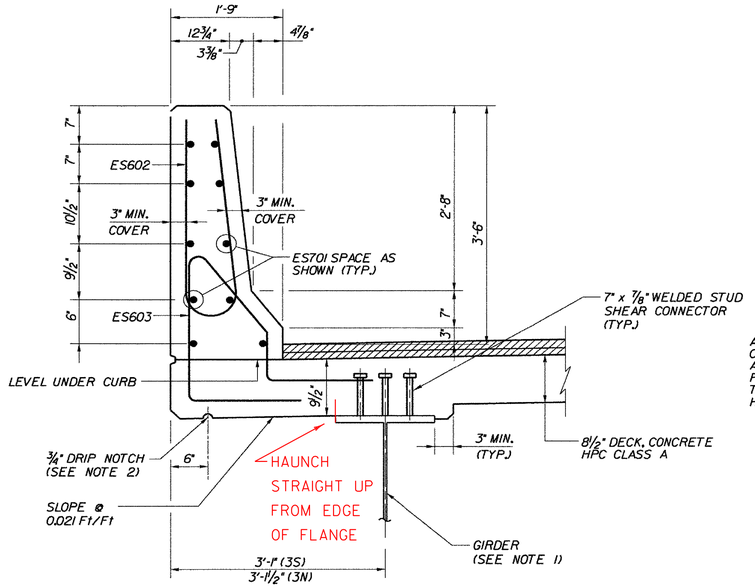
Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta. / Surv. Sta.
I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD	
STAGED CONSTRUCTION DETAILS (2 OF 2) (3N)	
Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G BR STAGES.dgn	Date 04/28/08
Bridge Sheet No. BR113	Sheet 39 of 114

TVGA ENGINEERING, SURVEYING, P.C.



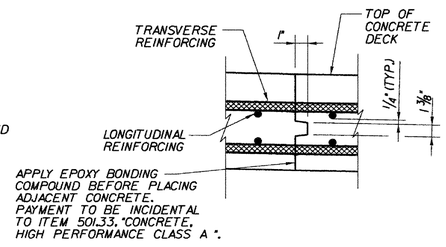
TRANSVERSE SECTION (3N)

SCALE: ½" = 1'-0"



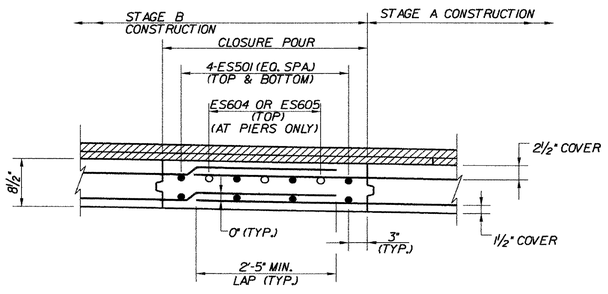
FASCIA DETAIL

NOT TO SCALE



CONSTRUCTION JOINT DETAIL

NOT TO SCALE



CLOSURE POUR DETAIL

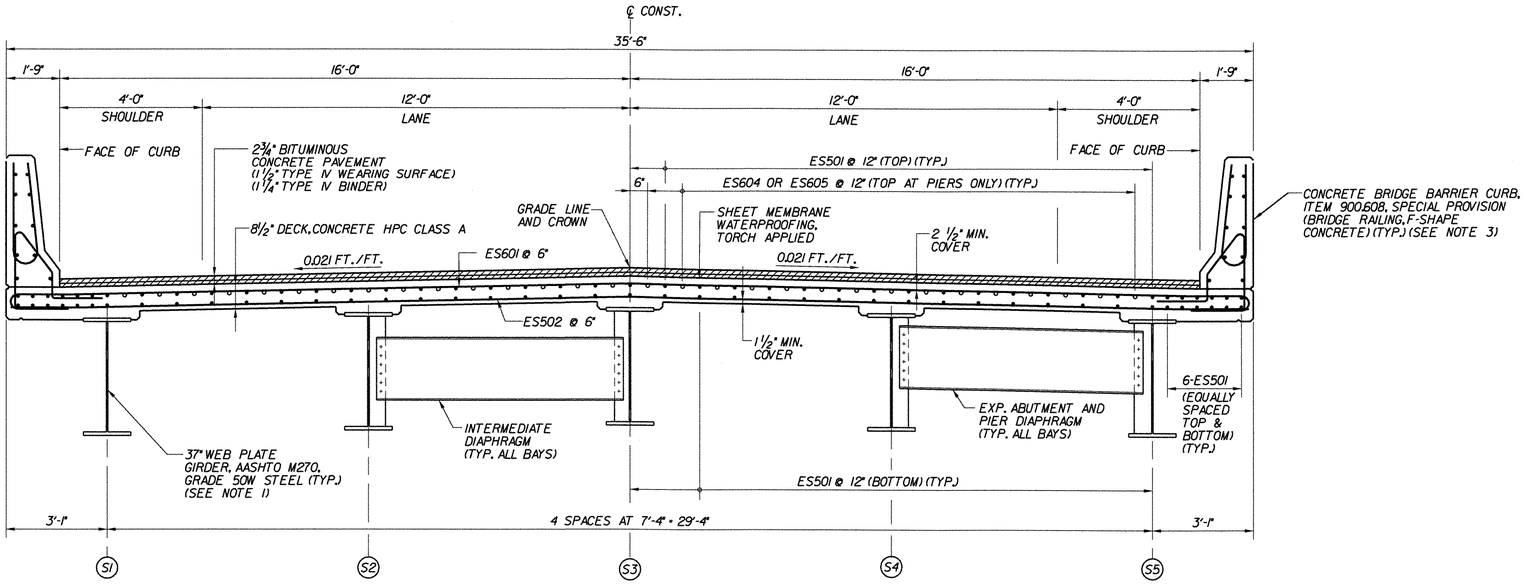
SCALE: 1"=1'-0"

NOTES:

1. FOR PLATE GIRDER SIZES, SEE GIRDER ELEVATION & DETAILS (3N), BRIDGE SHEET BRI22.
2. END DRIP NOTCH 5 FEET BEFORE END OF SLAB AT ABUTMENT I AT 45°.
3. FOR END OF DECK SLAB DETAILS, SEE TRANSVERSE SECTION (3S) BRIDGE SHEET BRII5.
4. FOR LIMITS OF STAGE A MEMBRANE AND PAVEMENT PLACEMENT, SEE STAGED CONSTRUCTION DETAILS (1 OF 2) (3N), BRIDGE SHEET BRII2.

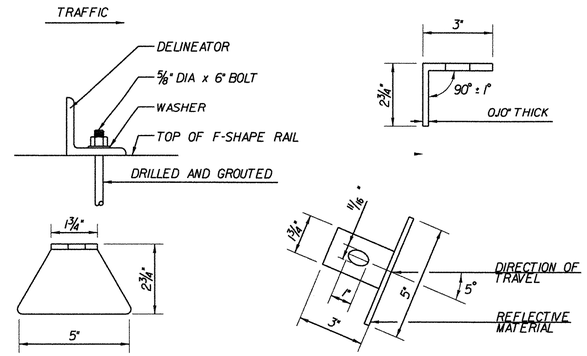
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta. / Surv. Sta.
I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD	
TRANSVERSE SECTION (3N)	
Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA ENGINEERING, SURVEYING, P.C.	TVGA CAD Drawing No. G TYP TRAN SEC.dgn Date 06/10/08
Bridge Sheet No. BRII4	Sheet 40 of 114



TRANSVERSE SECTION (3S)

SCALE: ½" = 1'-0"



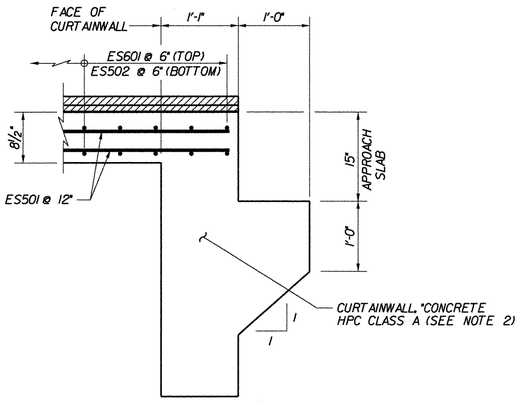
DELINEATOR NOTES

NTS

1. PAYMENT FOR DELINEATORS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM #900.608 SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, LOW SHRINKAGE).

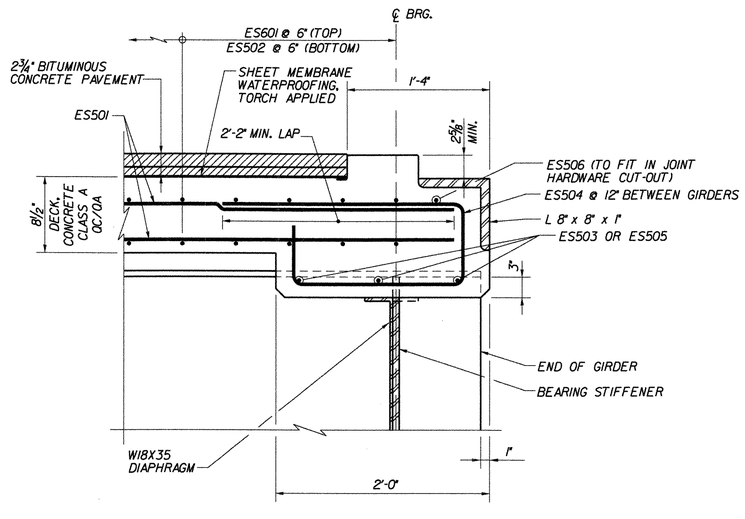
2. DELINEATORS SHALL BE EVENLY SPACED ACROSS THE ENTIRE LENGTH OF BRIDGE RAILING BUT NOT WITHIN 2' OF ANY JOINT OPENING NOR A SPACING OF MORE THAN 30'.

3. DELINEATORS SHALL BE AMBER OR WHITE WITH AMBER ON THE MEDIAN SIDE.



FIXED END

SCALE: 1" = 1'-0"



EXPANSION END

SCALE: 1½" = 1'-0"

TYPICAL END OF DECK SLAB DETAILS

NOTES:

1. FOR PLATE GIRDER SIZES, SEE GIRDER ELEVATION DETAILS (3S), BRIDGE SHEET BRI23.

2. FOR CURTAINWALL REINFORCEMENT AND DETAILS, SEE ABUTMENT 1 CURTAINWALL DETAILS (3N), BRIDGE SHEET BRI35, AND ABUTMENT 2 CURTAINWALL DETAILS (3S), BRIDGE SHEET BRI46.

3. FOR FASCIA DETAILS, SEE TRANSVERSE SECTION (3N), BRIDGE SHEET BRI14.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

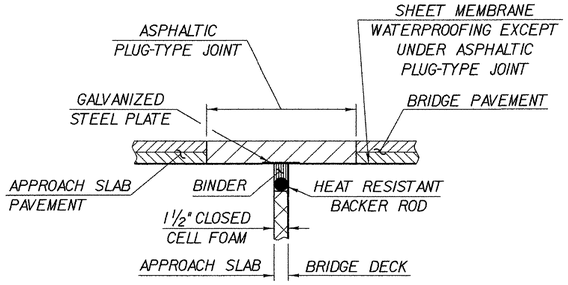
Town Of GUILFORD	Bridge No. 3S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

TRANSVERSE SECTION (3S)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G TYP TRAN SEC	Date 06/06/08
Bridge Sheet No. BRI15	Sheet 41 of 114

TVGA ENGINEERING, SURVEYING, P.C.



ASPHALTIC PLUG-TYPE JOINT DETAIL

NTS

ASPHALTIC PLUG JOINT NOTES

1. INSTALLATION

A. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.

B. EXCAVATE THE JOINT AS SHOWN ON THE PLANS WITH SAWS AND PNEUMATIC HAMMER OR A HAMMER AND CHISEL.

C. BLAST CLEAN THE JOINT AREA OF DEBRIS AND ASPHALT. THOROUGHLY DRY THE JOINT AREA WITH HOT COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.

D. REPAIR SPALLED AND DEFECTIVE CONCRETE WITH AN APPROVED MATERIAL AS AGREED UPON BY THE ENGINEER.

E. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.

F. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.

G. PLACE ¼" 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 PRESTAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE APPROACH SLAB IS COVERED WITH A STONE BASE OR BITUMINOUS PAVEMENT AND VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.

H. HEAT AND MIX THE BINDER MATERIAL AND AGGREGATE AS RECOMMENDED BY THE MANUFACTURER.

I. INSTALLATION OF MATERIAL, COMPACTION, AND TOP COATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.

J. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.

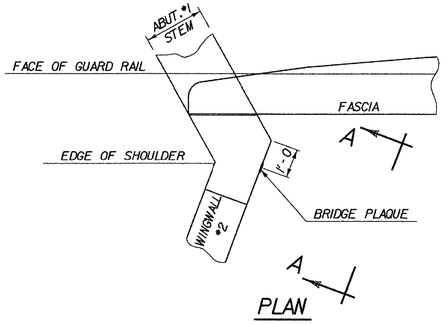
K. PROTECTED JOINT FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 51 DEG C (125 DEG F) +/-.

2. WEATHER LIMITATIONS. (APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL):

A. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.

B. THE ROAD SURFACE IS SUFFICIENTLY DRY.

C. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.

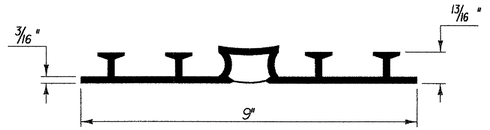


BRIDGE PLAQUE DETAIL

(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.

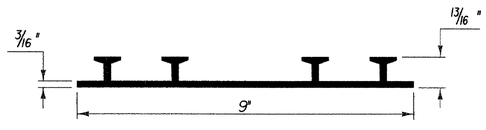


P.V.C. WATERSTOP FOR EXPANSION JOINTS

(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.

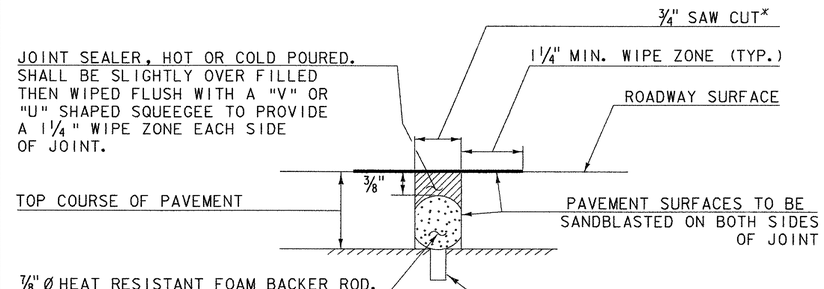


P.V.C. WATERSTOP FOR CONSTRUCTION JOINTS

(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.

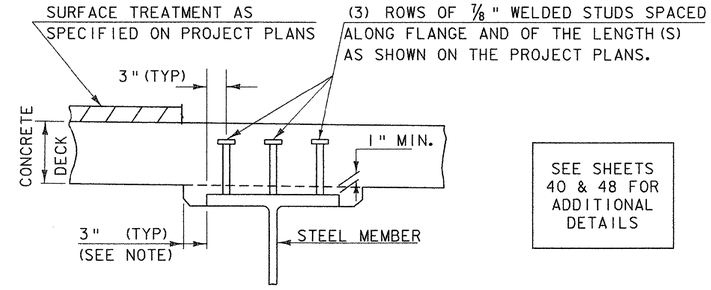


• NOT USED ON NB OR SB PER P.M.

SAWED PAVEMENT JOINT DETAIL

N. T. S.

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



SEE SHEETS 40 & 48 FOR ADDITIONAL DETAILS

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

(NOT TO SCALE)

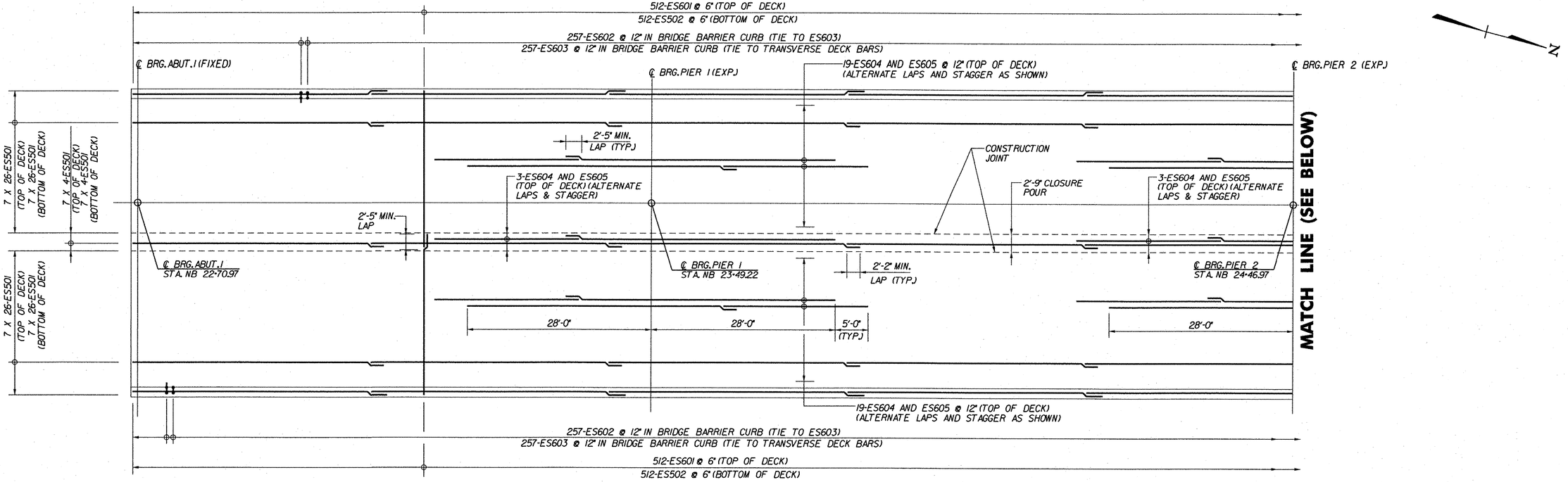
MISCELLANEOUS PAVEMENT & CONCRETE DETAILS

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95al76\str\sal76miscdet.dgn
PROJECT LEADER: S. Farnsworth
DESIGNED BY: VTrans
sal76concdet.1

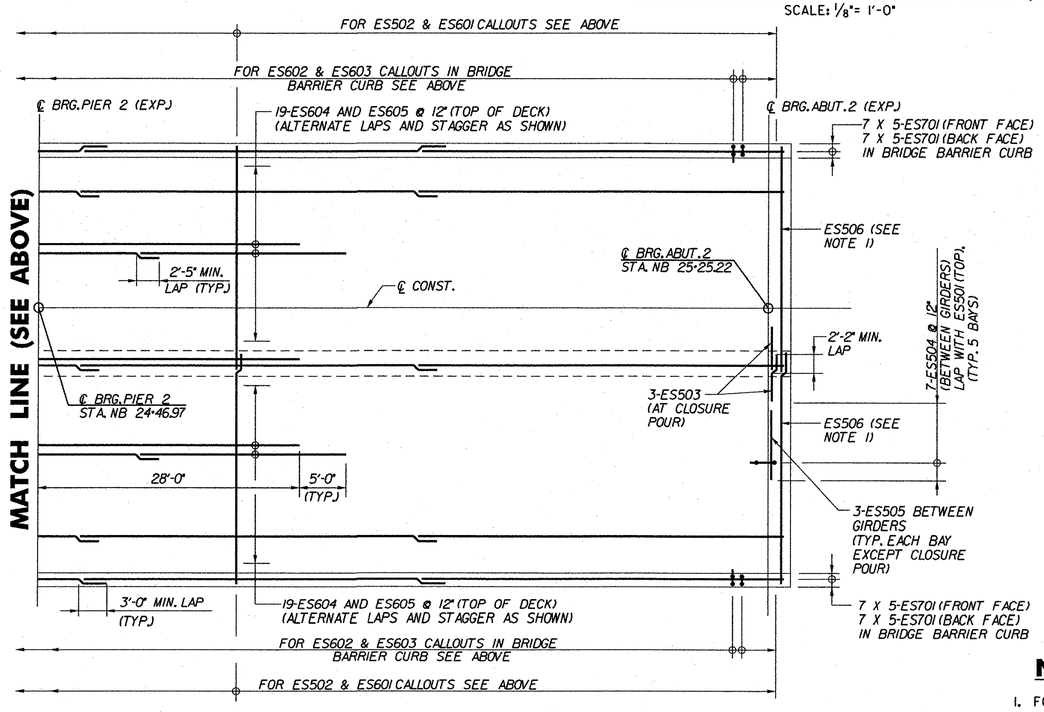
PLOT DATE: 20-MAY-2008
DRAWN BY: C. Weeber
CHECKED BY: S. Farnsworth

BRII5A SHEET 41A OF 114



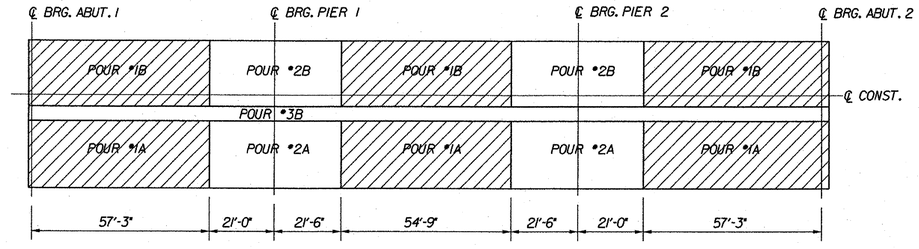
DECK REINFORCEMENT PLAN (3N)

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



DECK REINFORCEMENT PLAN (CONT.) (3N)

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



• SINGLE POUR

DECK POUR ~~SEQUENCE~~ (3N)

NOT TO SCALE

DECK SLAB PLACEMENT NOTES

1. EACH CONCRETE DECK POUR SHALL BE PLACED CONTINUOUSLY WITHIN ONE EIGHT HOUR WORKING DAY. THERE SHALL BE A MINIMUM DELAY PERIOD OF 96 HOURS AFTER COMPLETION OF EACH POUR BEFORE BEGINNING ANOTHER POUR. INDIVIDUAL POUR NUMBERS AS SHOWN MAY BE COMBINED INTO A SINGLE POUR IF APPROVED BY THE VTRANS STRUCTURES ENGINEER.
2. THE DECK CONCRETE SHALL BE RETARDED SUFFICIENTLY TO REMAIN WORKABLE UNTIL EACH POUR IS COMPLETE. THE QUANTITY OF RETARDANT SHALL BE APPROVED BY THE CONCRETE ENGINEER PRIOR TO PLACEMENT. ANY DEVIATIONS FROM THIS PROCEDURE MUST BE APPROVED BY THE VTRANS STRUCTURES ENGINEER IN WRITING BEFORE THE POUR BEGINS.

NOTES:

1. FOR END OF DECK SLAB DETAILS, SEE TRANSVERSE SECTION (3S), BRIDGE SHEET BRI15.
2. FOR CURTAINWALL REINFORCEMENT, SEE ABUTMENT 1 CURTAINWALL DETAILS (3N), BRIDGE SHEET BRI35.

TVGA ENGINEERING, SURVEYING, P.C.

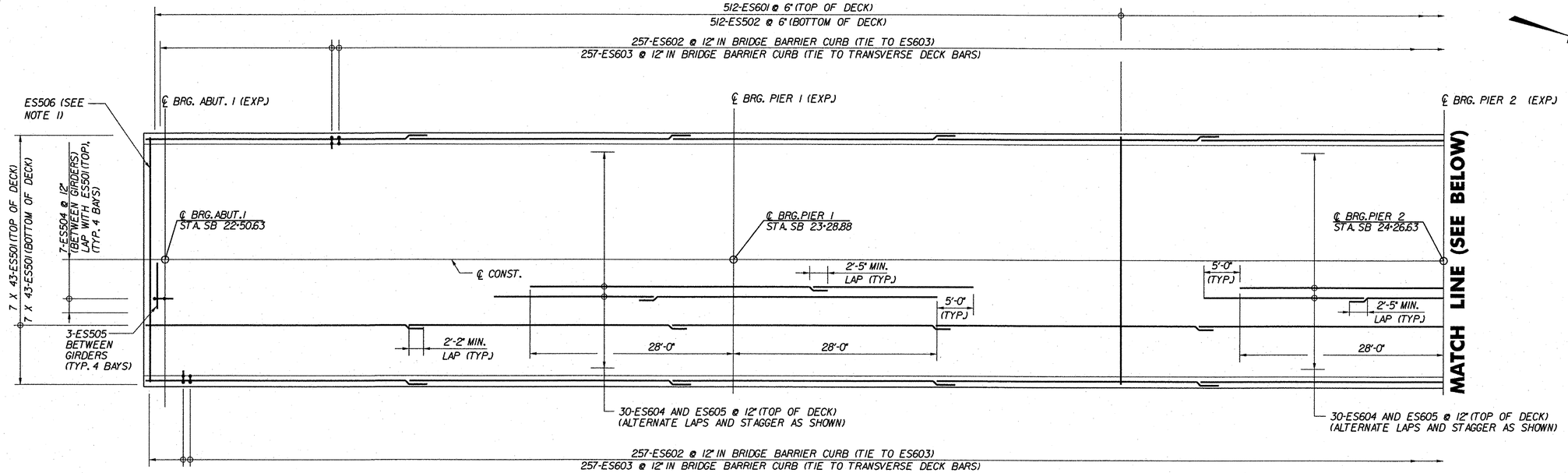
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

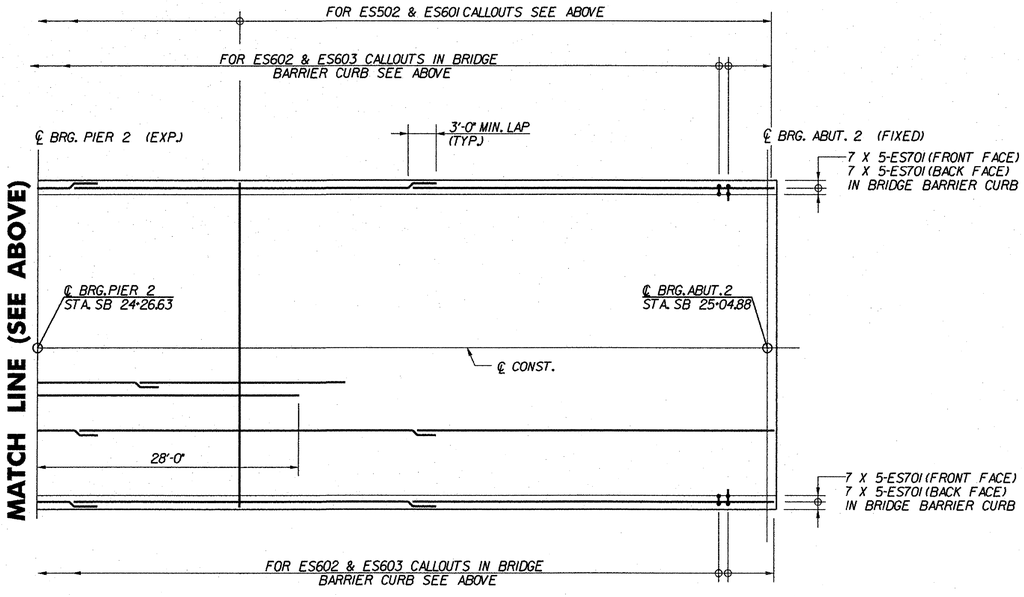
DECK REINFORCEMENT (3N)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G-NL-REINF.dgn	Date 05/22/08
Bridge Sheet No. BRI16	Sheet 42 of 114



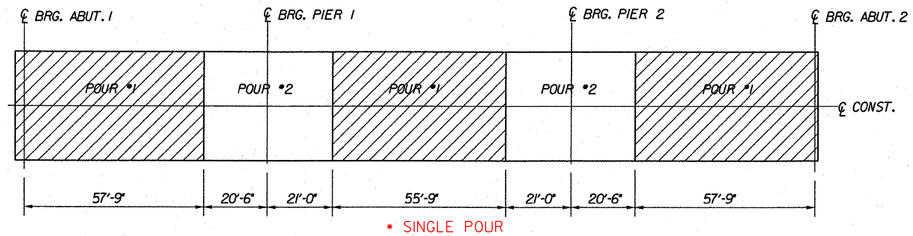
DECK REINFORCEMENT PLAN (3S)

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



DECK REINFORCEMENT PLAN (CONT.) (3S)

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



• SINGLE POUR

DECK POUR SEQUENCE (3S)

NOT TO SCALE

DECK SLAB PLACEMENT NOTES

1. EACH CONCRETE DECK POUR SHALL BE PLACED CONTINUOUSLY WITHIN ONE EIGHT HOUR WORKING DAY. THERE SHALL BE A MINIMUM DELAY PERIOD OF 96 HOURS AFTER COMPLETION OF EACH POUR BEFORE BEGINNING ANOTHER POUR. INDIVIDUAL POUR NUMBERS AS SHOWN MAY BE COMBINED INTO A SINGLE POUR IF APPROVED BY THE VTRANS STRUCTURES ENGINEER.

2. THE DECK CONCRETE SHALL BE RETARDED SUFFICIENTLY TO REMAIN WORKABLE UNTIL EACH POUR IS COMPLETE. THE QUANTITY OF RETARDANT SHALL BE APPROVED BY THE CONCRETE ENGINEER PRIOR TO PLACEMENT. ANY DEVIATIONS FROM THIS PROCEDURE MUST BE APPROVED BY THE VTRANS STRUCTURES ENGINEER IN WRITING BEFORE THE POUR BEGINS.

NOTES:

1. FOR END OF DECK SLAB DETAILS, SEE TRANSVERSE SECTION (3S), BRIDGE SHEET BRII5.

2. FOR CURTAINWALL REINFORCEMENT, SEE ABUTMENT 2 CURTAINWALL DETAILS (3S), BRIDGE SHEET BRI46.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

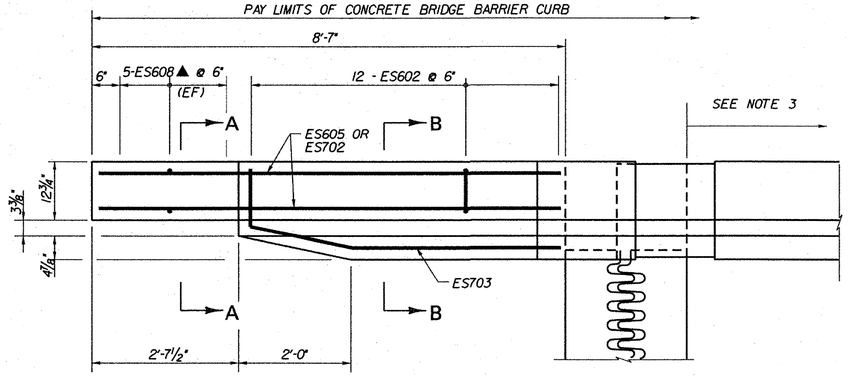
Town Of GUILFORD	Bridge No. 3S
Highway No. I-91	Log Sta.
	Surv. Sta.

I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

DECK REINFORCEMENT (3S)

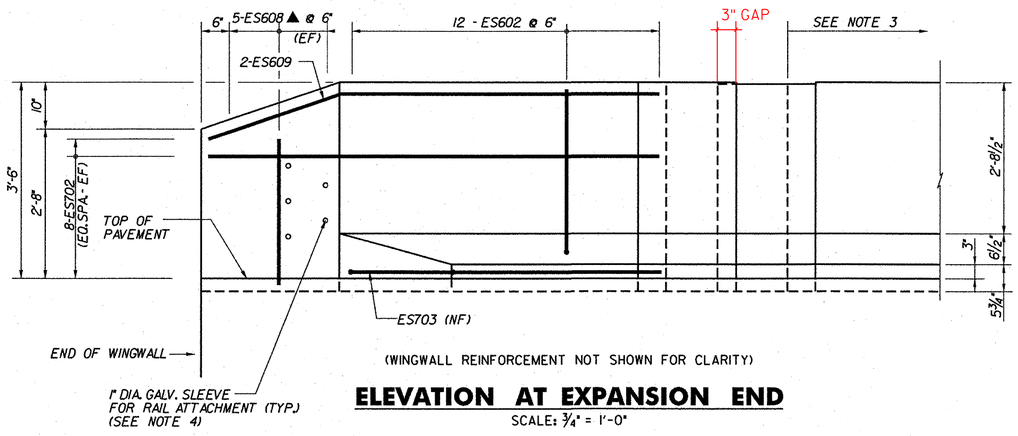
Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By Date P.W. SZUSTAK 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G-SL-REINF.dgn	Date 05/22/08
Bridge Sheet No. BRII7	Sheet 43 of 114

TVGA ENGINEERING, SURVEYING, P.C.



PLAN AT EXPANSION END

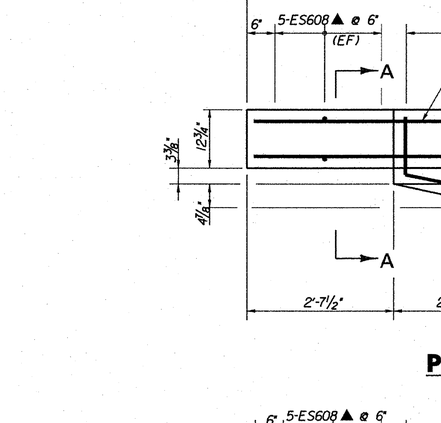
SCALE: ¾" = 1'-0"



(WINGWALL REINFORCEMENT NOT SHOWN FOR CLARITY)

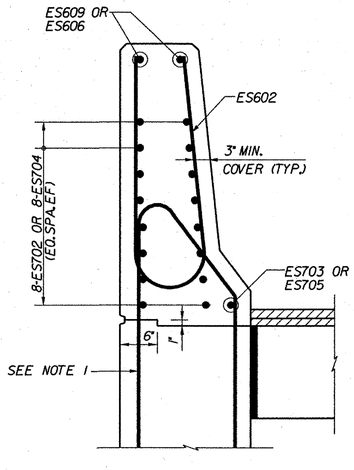
ELEVATION AT EXPANSION END

SCALE: ¾" = 1'-0"



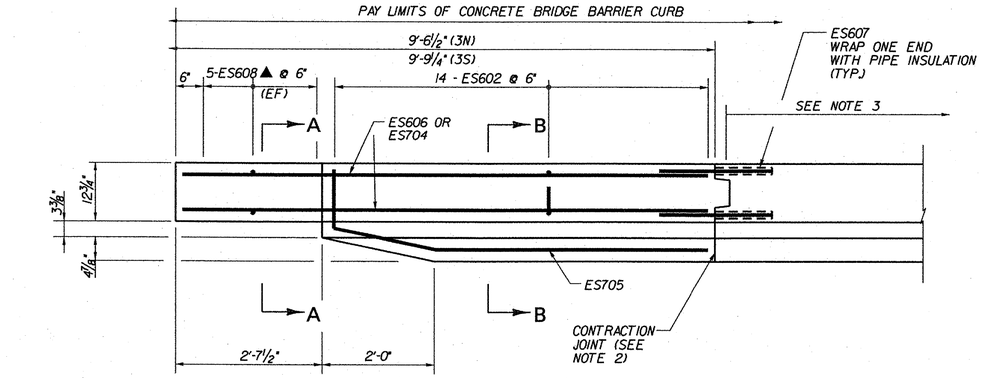
SECTION A–A

SCALE: 1" = 1'-0"



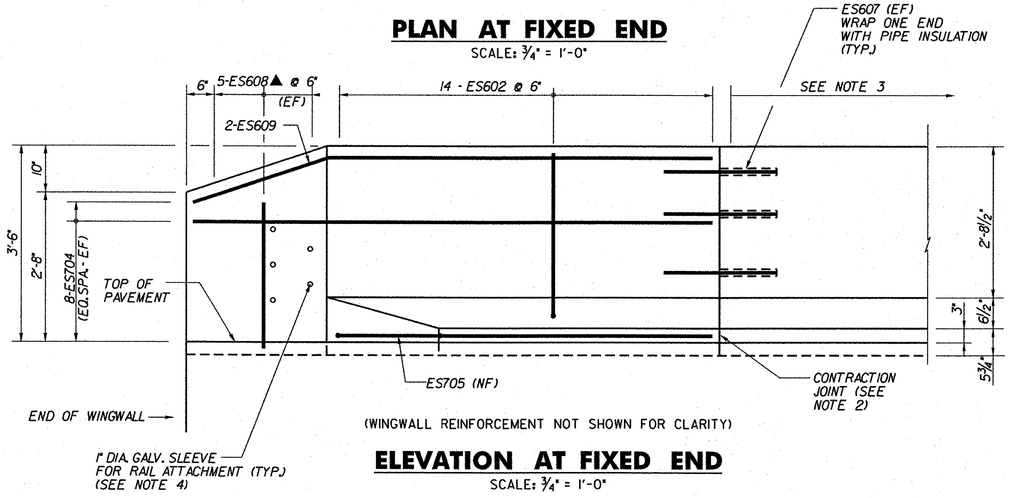
SECTION B–B

SCALE: 1" = 1'-0"



PLAN AT FIXED END

SCALE: ¾" = 1'-0"



(WINGWALL REINFORCEMENT NOT SHOWN FOR CLARITY)

ELEVATION AT FIXED END

SCALE: ¾" = 1'-0"

NOTES:

1. FOR WINGWALL DETAILS, SEE WINGWALL MASONRY & REINFORCEMENT (3N), BRIDGE SHEET BRI38, AND (3S), BRIDGE SHEET BRI47.
2. MAIN LONGITUDINAL REINFORCEMENT SHALL NOT EXTEND THROUGH THE CONTRACTION JOINT. PROVIDE A SHEAR KEY AND DOWELS AS SHOWN. ONE END OF THE DOWELS SHALL BE WRAPPED IN PIPE INSULATION TO ALLOW MOVEMENT. ALSO PROVIDE POLYURETHANE JOINT SEALER, PER TYPICAL BRIDGE DETAILS, BRIDGE SHEET BRI29.
3. FOR BARRIER CURB REINFORCING DETAILS ON BRIDGE, SEE DECK REINFORCEMENT (3N), BRIDGE SHEET BRI16, AND (3S) BRIDGE SHEET BRI17.
4. FOR LOCATION OF 1" DIAMETER SLEEVES, SEE APPROACH GUARD RAIL SHEETS, BRIDGE SHEETS BRI50.

KEY

NF	NEAR FACE
FF	FAR FACE
EF	EACH FACE
▲	REINFORCEMENT TO BE CUT TO FIT IN THE FIELD

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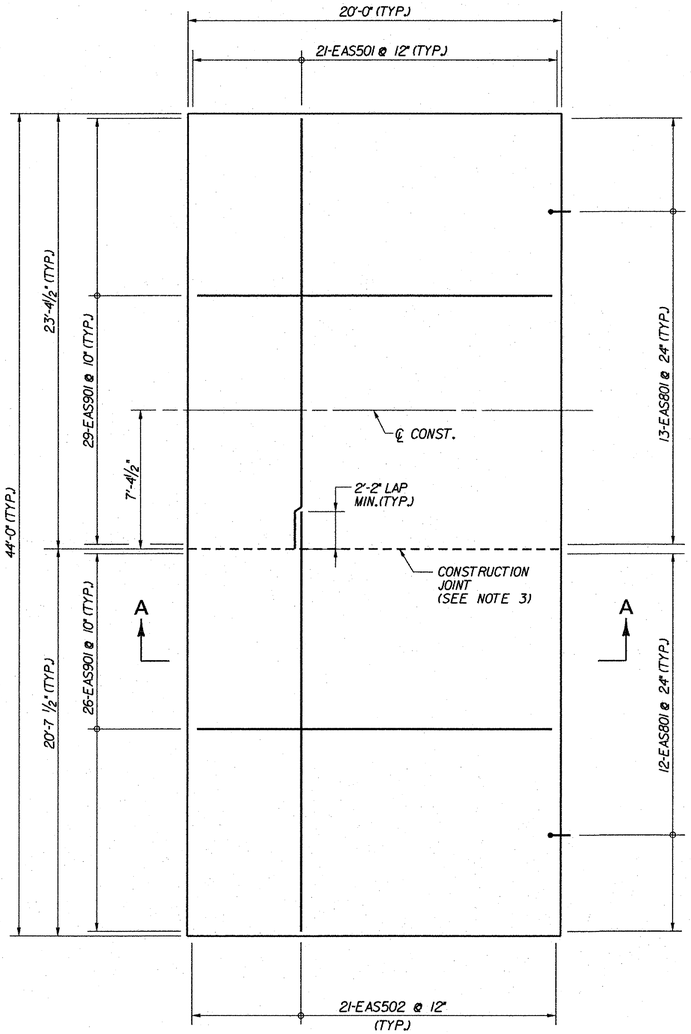
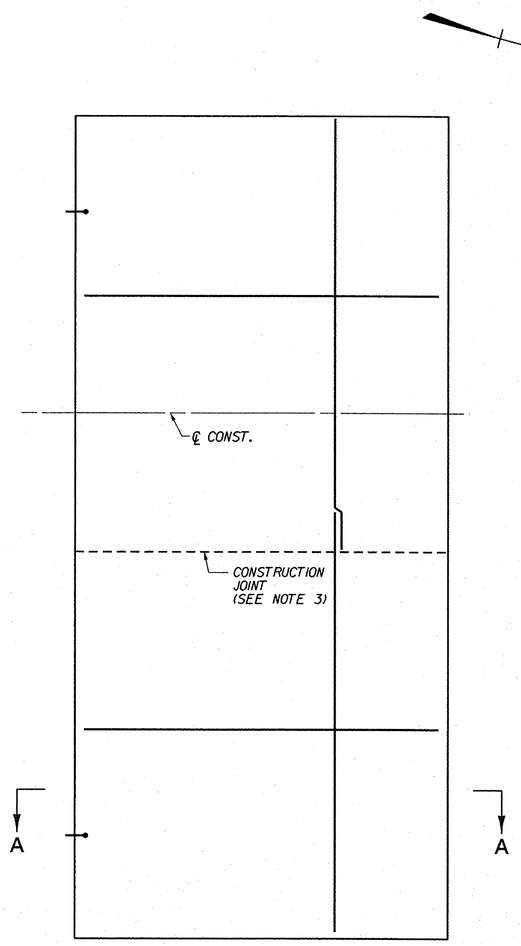
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.
I-91 OVER BROAD BROOK & BROAD BROOK ROAD	
CONCRETE BARRIER CURB DETAILS (3N&S)	
Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. RAIL1.dgn	Date 05/27/08
Bridge Sheet No. BRI18	Sheet 44 of 114



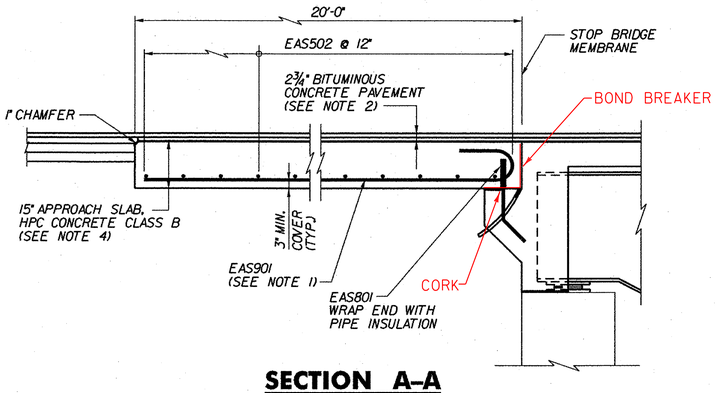
ABUTMENT 1 (3N)

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



ABUTMENT 2 (3N)

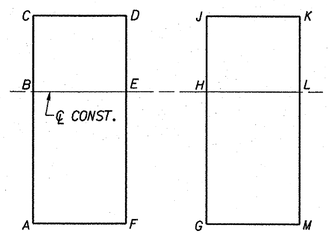
SCALE: 1/4" = 1'-0"



SECTION A–A

(APPROACH SLAB AT FIXED ABUT. SHOWN; SLAB AT EXPANSION ABUT. SIMILAR)

NOT TO SCALE



APPROACH SLAB ELEVATION KEY

NOT TO SCALE

TOP OF APPROACH SLAB ELEVATIONS		
3N		
LOCATION	STATION	ELEVATION
A	22+49.92	413.19
B	22+49.92	413.78
C	22+49.92	413.44
D	22+69.92	413.96
E	22+69.92	414.29
F	22+69.92	413.70
G	25+28.14	420.35
H	25+28.14	420.94
J	25+28.14	420.60
K	25+48.14	421.12
L	25+48.14	421.46
M	25+48.14	420.87

NOTES:

1. TIP HOOK END OF BAR AS REQUIRED TO ACHIEVE MINIMUM COVER.
2. FOR DETAILS OF APPROACH SLAB PAVEMENT AND TRANSITION TO EXISTING PAVEMENT, SEE ROADWAY PLANS.
3. FOR APPROACH SLAB STAGING DETAILS, SEE STAGED CONSTRUCTION DETAILS (2 OF 2) (3N), BRIDGE SHEET BRII3.
4. FOR LIMITS OF EXCAVATION AND BACKFILL, SEE DETAILS ON PRELIMINARY INFORMATION SHEET, BRIDGE SHEET BRIOO AND ALSO SEE ROADWAY PLANS.
5. SHEET MEMBRANE WATERPROOFING, TORCH APPLIED IS NOT TO BE INSTALLED ON APPROACH SLAB.

TVGA ENGINEERING, SURVEYING, P.C.

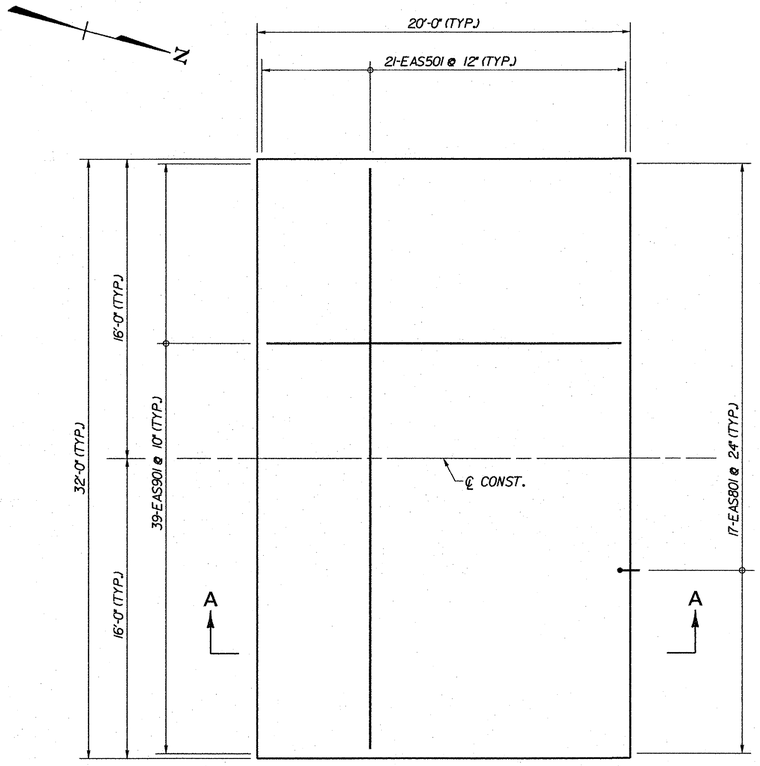
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta. / Surv. Sta.

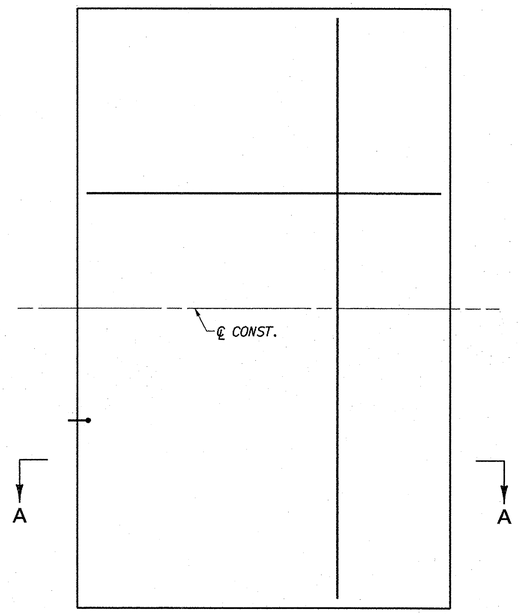
I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

APPROACH SLAB LAYOUT & DETAILS (3N)

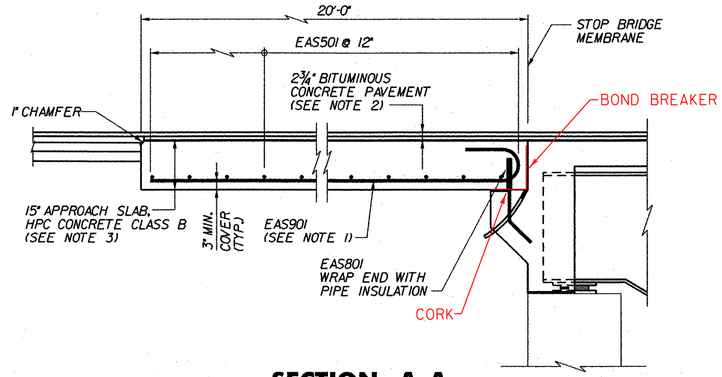
Designed By M. J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G NB APPR.dgn	Date 05/22/08
Bridge Sheet No. BRII9	Sheet 45 of 114



ABUTMENT 1 (3S)
SCALE: 1/4" = 1'-0"

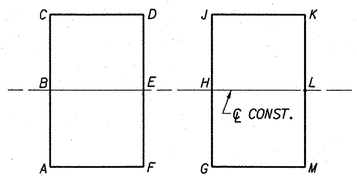


ABUTMENT 2 (3S)
SCALE: 1/4" = 1'-0"



SECTION A–A
(APPROACH SLAB AT FIXED ABUT. SHOWN; SLAB AT EXPANSION ABUT. SIMILAR)
NOT TO SCALE

TOP OF APPROACH SLAB ELEVATIONS		
3S		
LOCATION	STATION	ELEVATION
A	22+27.71	413.48
B	22+27.71	413.82
C	22+27.71	413.48
D	22+47.71	414.00
E	22+47.71	414.33
F	22+47.71	414.00
G	25+05.93	420.68
H	25+05.93	421.01
J	25+05.93	420.68
K	25+25.93	421.19
L	25+25.93	421.53
M	25+25.93	421.19



APPROACH SLAB ELEVATION KEY
NOT TO SCALE

NOTES:

1. TIP HOOK END OF BAR AS REQUIRED TO ACHIEVE MINIMUM COVER.
2. FOR DETAILS OF APPROACH SLAB PAVEMENT AND TRANSITION TO EXISTING PAVEMENT, SEE ROADWAY PLANS.
3. FOR LIMITS OF EXCAVATION AND BACKFILL, SEE DETAILS ON PRELIMINARY INFORMATION SHEET, BRIDGE SHEET BRIOO AND ALSO SEE ROADWAY PLANS.
4. SHEET MEMBRANE WATERPROOFING, TORCH APPLIED IS NOT TO BE INSTALLED ON APPROACH SLAB.

TVGA ENGINEERING, SURVEYING, P.C.

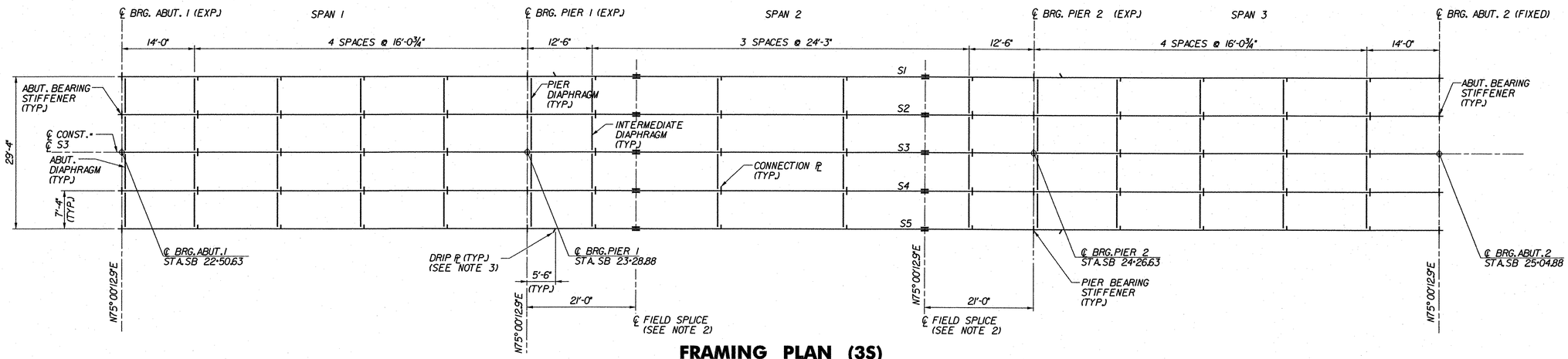
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

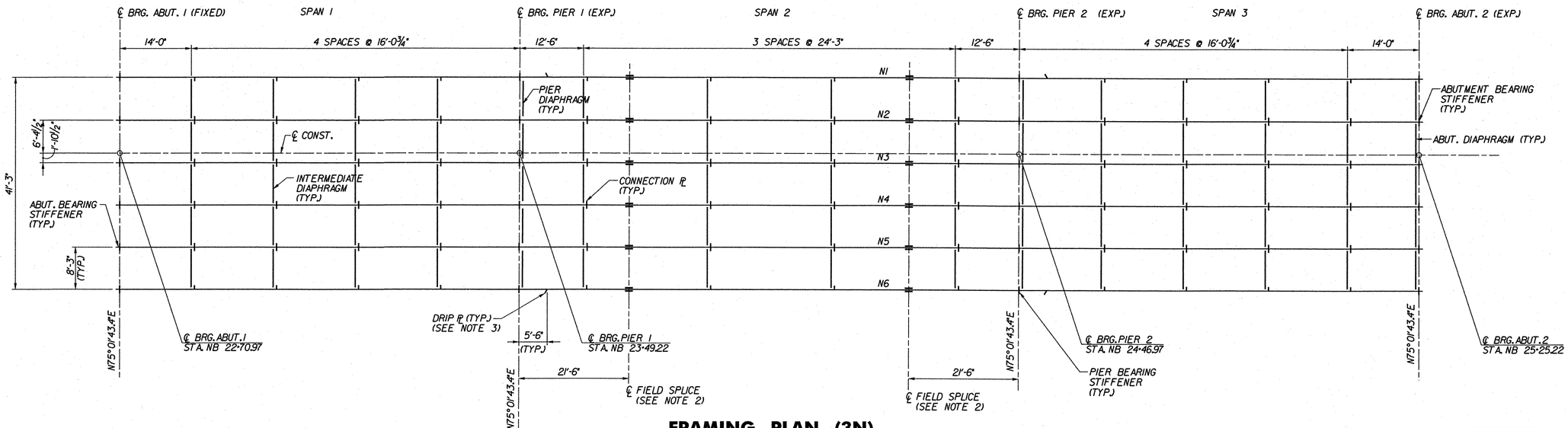
APPROACH SLAB LAYOUT & DETAILS (3S)

Designed By M. J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G SB APPR.dgn	Date 05/22/08
Bridge Sheet No. BRI20	Sheet 46 of 114



FRAMING PLAN (3S)

SCALE: 3/32 " = 1'-0"



FRAMING PLAN (3N)

SCALE: 3/32 " = 1'-0"

NOTES:

1. FOR PLATE GIRDER AND DIAPHRAGM DETAILS, SEE STEEL DETAILS (3N&S), BRIDGE SHEET BRI24.
2. FOR FIELD SPLICE DETAILS, SEE SPLICE DETAILS (3N&S), BRIDGE SHEET BRI25.
3. FOR DRIP PLATE DETAIL, SEE TYPICAL BRIDGE DETAILS (3N&S), BRIDGE SHEET BRI29.

TVGA ENGINEERING, SURVEYING, P.C.

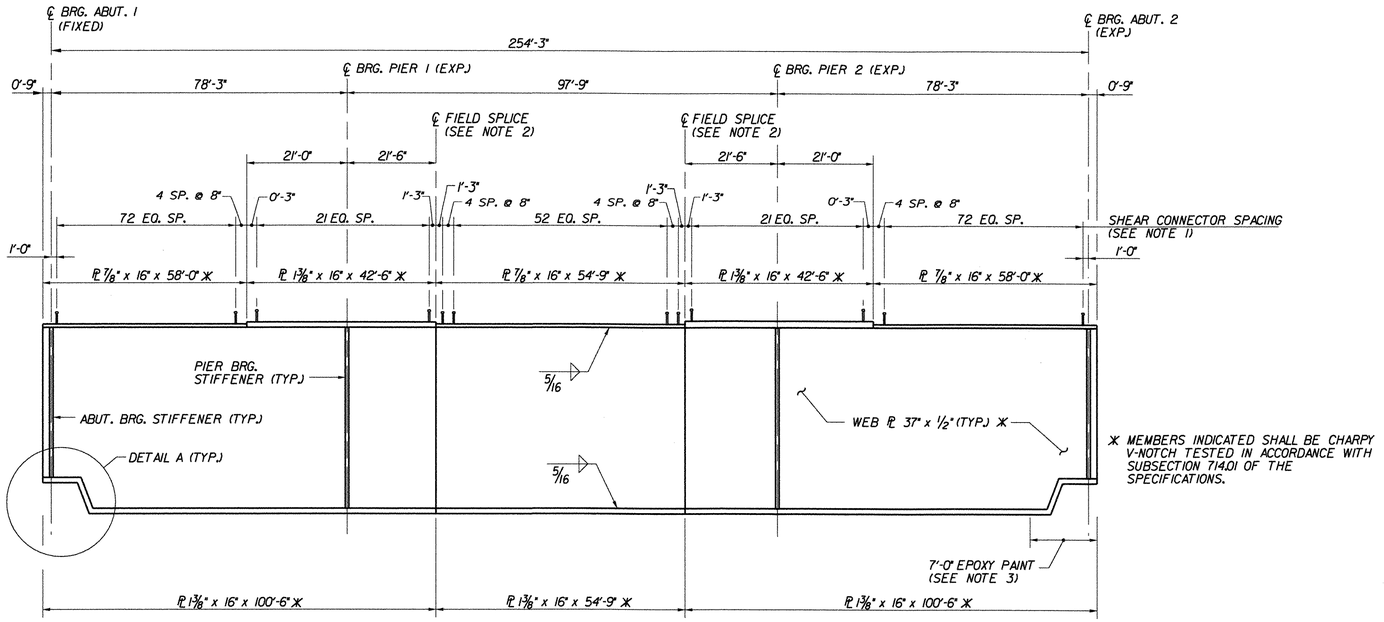
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

FRAMING PLANS (3N&S)

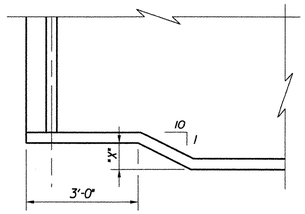
Designed By M. J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G FRPLAN	Date 04/28/08
Bridge Sheet No. BRI21	Sheet 47 of 114



* MEMBERS INDICATED SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE SPECIFICATIONS.

GIRDER ELEVATION (3N)

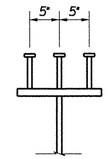
NOT TO SCALE



DETAIL A

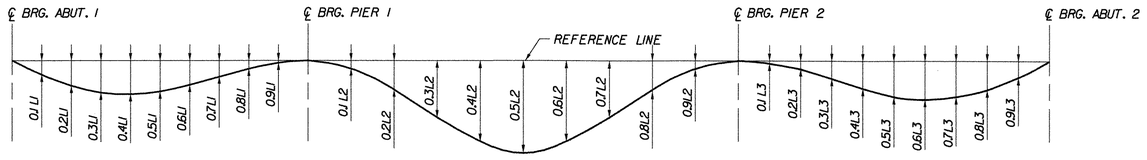
NOT TO SCALE

GIRDER TAPER		
BRIDGE	LOCATION	"X"
3N	ABUT. 1	5 1/4"
	ABUT. 2	7"
3S	ABUT. 1	4"
	ABUT. 2	5 3/8"



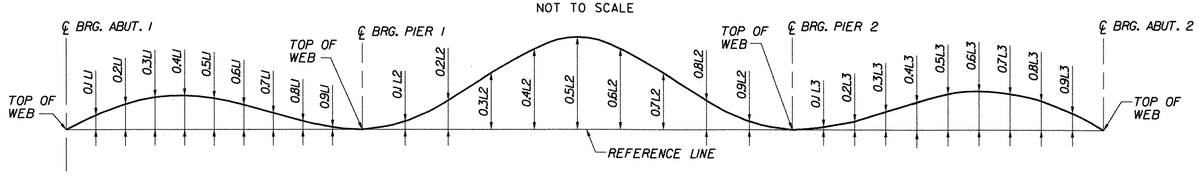
SHEAR STUD DETAIL

NOT TO SCALE



DEAD LOAD DEFLECTION DIAGRAM

NOT TO SCALE



CAMBER DIAGRAM

NOT TO SCALE

	DL DEFLECTION																														
BRIDGE	CL ABUT. 1	0.1 L1	0.2 L1	0.3 L1	0.4 L1	0.5 L1	0.6 L1	0.7 L1	0.8 L1	0.9 L1	CL PIER 1	0.1 L2	0.2 L2	0.3 L2	0.4 L2	0.5 L2	0.6 L2	0.7 L2	0.8 L2	0.9 L2	CL PIER 2	0.1 L3	0.2 L3	0.3 L3	0.4 L3	0.5 L3	0.6 L3	0.7 L3	0.8 L3	0.9 L3	CL ABUT. 2
3N	0"	0 3/8"	0 11/16"	0 15/16"	1"	0 15/16"	0 13/16"	0 9/16"	0 5/16"	0 1/16"	0"	0 3/16"	0 1/2"	0 7/8"	1 1/8"	1 1/4"	1 1/8"	0 7/8"	0 1/2"	0 3/16"	0"	0 1/16"	0 5/16"	0 9/16"	0 13/16"	0 15/16"	1"	0 15/16"	0 11/16"	0 3/8"	0"

	TOTAL CAMBER																														
BRIDGE	CL ABUT. 1	0.1 L1	0.2 L1	0.3 L1	0.4 L1	0.5 L1	0.6 L1	0.7 L1	0.8 L1	0.9 L1	CL PIER 1	0.1 L2	0.2 L2	0.3 L2	0.4 L2	0.5 L2	0.6 L2	0.7 L2	0.8 L2	0.9 L2	CL PIER 2	0.1 L3	0.2 L3	0.3 L3	0.4 L3	0.5 L3	0.6 L3	0.7 L3	0.8 L3	0.9 L3	CL ABUT. 2
3N	0"	0 13/16"	1 7/16"	1 7/8"	2"	1 7/8"	1 9/16"	1 1/16"	0 9/16"	0 1/8"	0"	0 5/16"	0 15/16"	1 11/16"	2 1/4"	2 1/2"	2 1/4"	1 11/16"	0 15/16"	0 5/16"	0"	0 1/8"	0 9/16"	1 1/16"	1 9/16"	1 7/8"	2"	1 7/8"	1 7/16"	0 13/16"	0"

NOTES:

1. EACH ROW OF SHEAR CONNECTORS SHALL CONSIST OF 3 STUDS.
2. FOR FIELD SPLICE DETAILS, SEE SPLICE DETAILS (3N&S), BRIDGE SHEET BRI25.
3. ALL STRUCTURAL STEEL WITHIN 7 FEET OF END OF GIRDER AT EXPANSION END SHALL BE COATED WITH A PROTECTIVE PAINT SYSTEM, WITH THE FINAL COAT TO BE DARK BROWN (COLOR CHIP #20059) TO BLEND WITH THE WEATHERING STEEL. THE COST OF PAINTING SHALL BE PAID FOR UNDER ITEM 513.25, "STRUCTURAL PAINTING, SHOP APPLIED (11 TONS)".
4. DEAD LOAD DEFLECTION DIAGRAM INCLUDES GIRDER SELF WEIGHT, CONCRETE SLAB, PAVEMENT, CURBS, AND RAILING WEIGHTS.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

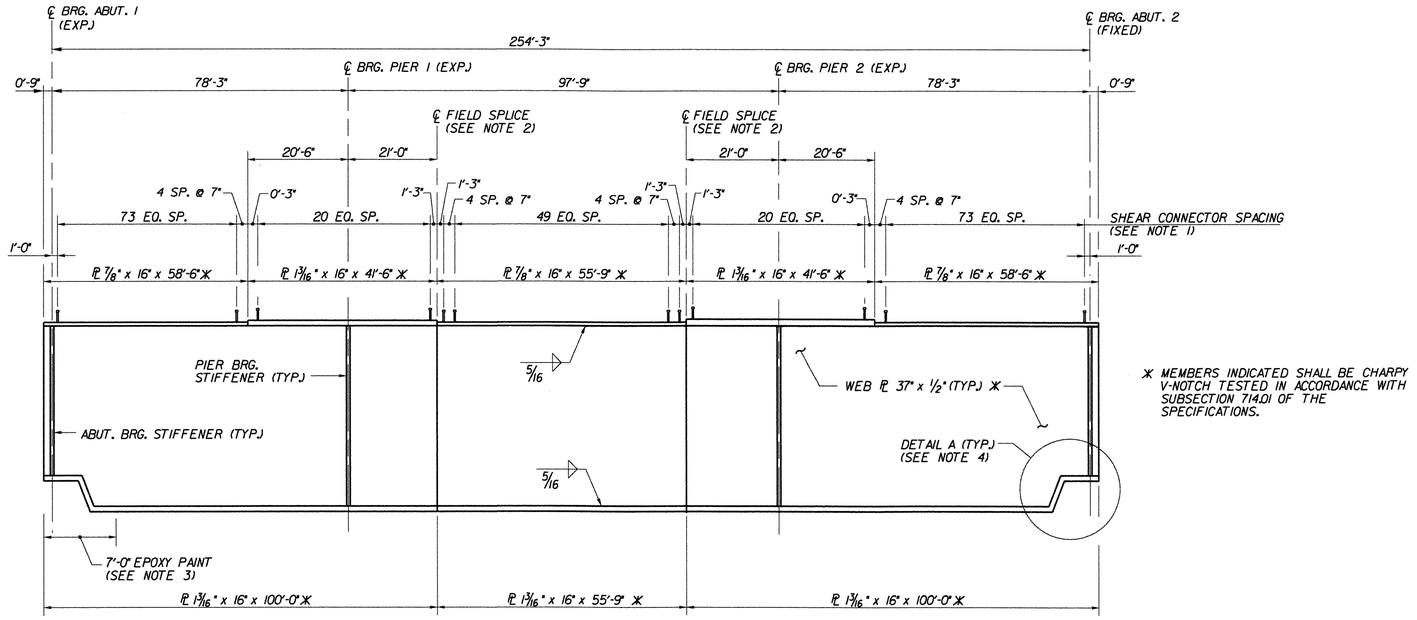
Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

GIRDER ELEVATION & DETAILS (3N)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G N GIR ELEV.dgn	Date 06/06/08
Bridge Sheet No. BRI22	Sheet 48 of 114

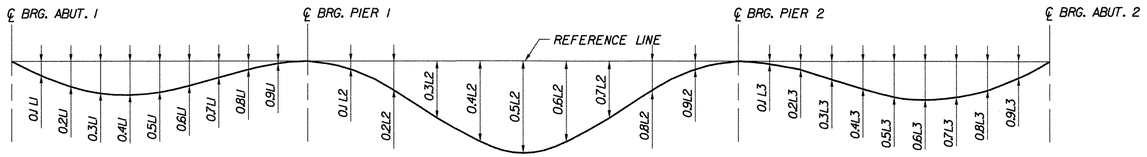
TVGA ENGINEERING, SURVEYING, P.C.



* MEMBERS INDICATED SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE SPECIFICATIONS.

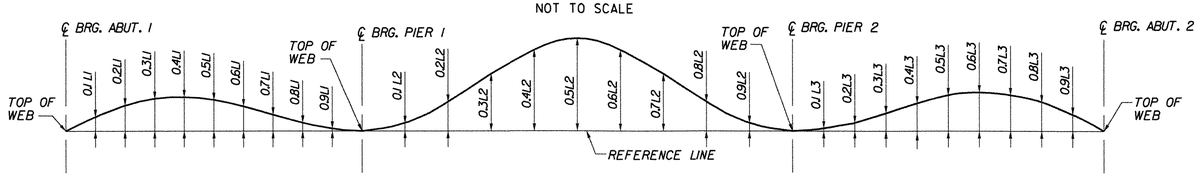
GIRDER ELEVATION (3S)

NOT TO SCALE



DEAD LOAD DEFLECTION DIAGRAM

NOT TO SCALE



CAMBER DIAGRAM

NOT TO SCALE

	DL DEFLECTION																														
BRIDGE	CL ABUT. 1	0.1 L1	0.2 L1	0.3 L1	0.4 L1	0.5 L1	0.6 L1	0.7 L1	0.8 L1	0.9 L1	CL PIER 1	0.1 L2	0.2 L2	0.3 L2	0.4 L2	0.5 L2	0.6 L2	0.7 L2	0.8 L2	0.9 L2	CL PIER 2	0.1 L3	0.2 L3	0.3 L3	0.4 L3	0.5 L3	0.6 L3	0.7 L3	0.8 L3	0.9 L3	CL ABUT. 2
3S	0"	0 3/8"	0 3/4"	0 15/16"	1 1/16"	1"	0 13/16"	0 9/16"	0 5/16"	0 1/16"	0"	0 3/16"	0 9/16"	0 15/16"	1 1/4"	1 5/16"	1 1/4"	0 15/16"	0 9/16"	0 3/16"	0"	0 1/16"	0 5/16"	0 9/16"	0 13/16"	1"	1 1/16"	0 15/16"	0 3/4"	0 3/8"	0"

	TOTAL CAMBER																														
BRIDGE	CL ABUT. 1	0.1 L1	0.2 L1	0.3 L1	0.4 L1	0.5 L1	0.6 L1	0.7 L1	0.8 L1	0.9 L1	CL PIER 1	0.1 L2	0.2 L2	0.3 L2	0.4 L2	0.5 L2	0.6 L2	0.7 L2	0.8 L2	0.9 L2	CL PIER 2	0.1 L3	0.2 L3	0.3 L3	0.4 L3	0.5 L3	0.6 L3	0.7 L3	0.8 L3	0.9 L3	CL ABUT. 2
3S	0"	0 13/16"	1 1/2"	1 7/8"	2 1/16"	1 15/16"	1 9/16"	1 1/16"	0 9/16"	0 1/8"	0"	0 5/16"	1"	1 3/4"	2 3/8"	2 9/16"	2 3/8"	1 3/4"	1"	0 5/16"	0"	0 1/8"	0 9/16"	1 1/16"	1 9/16"	1 15/16"	2 1/16"	1 7/8"	1 1/2"	0 13/16"	0"

NOTES:

1. EACH ROW OF SHEAR CONNECTORS SHALL CONSIST OF 3 STUDS. FOR LATERAL SPACING, SEE GIRDER ELEVATION & DETAILS (3N), BRIDGE SHEET BRI22.
2. FOR FIELD SPLICE DETAILS, SEE SPLICE DETAILS (3N&S), BRIDGE SHEET BRI25.
3. ALL STRUCTURAL STEEL WITHIN 7 FEET OF END OF GIRDER AT EXPANSION END SHALL BE COATED WITH A PROTECTIVE PAINT SYSTEM, WITH THE FINAL COAT TO BE DARK BROWN (COLOR CHIP "20059) TO BLEND WITH THE WEATHERING STEEL. THE COST OF PAINTING SHALL BE PAID FOR UNDER ITEM 513.25, "STRUCTURAL PAINTING, SHOP APPLIED (11 TONS)".
4. FOR DETAIL A, SEE GIRDER ELEVATION & DETAILS (3N), BRIDGE SHEET BRI22.
5. DEAD LOAD DEFLECTION DIAGRAM INCLUDES GIRDER SELF WEIGHT, CONCRETE SLAB, PAVEMENT, CURBS, AND RAILING WEIGHTS.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

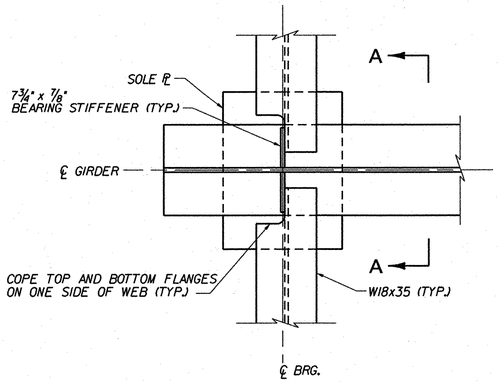
Town Of GUILFORD	Bridge No. 3S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

GIRDER ELEVATION & DETAILS (3S)

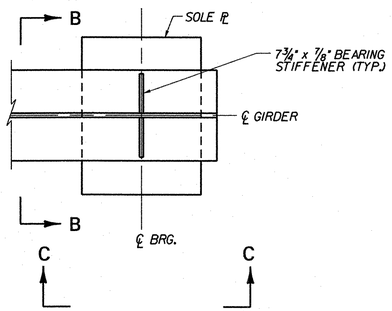
Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G S GIR ELEV.dgn	Date 06/06/08
Bridge Sheet No. BRI23	Sheet 49 of 114

TVGA ENGINEERING, SURVEYING, P.C.



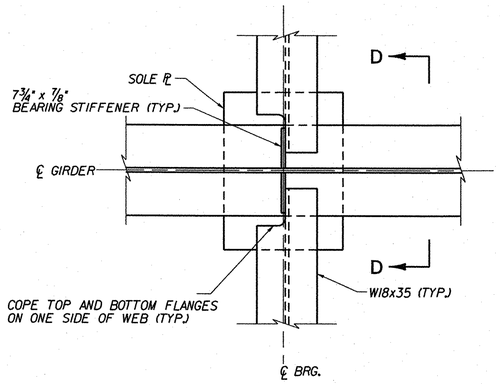
PLAN AT EXP. ABUTMENTS

NOT TO SCALE



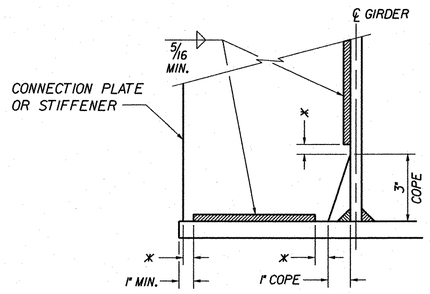
PLAN AT FIXED ABUTMENTS

NOT TO SCALE



PLAN AT PIERS

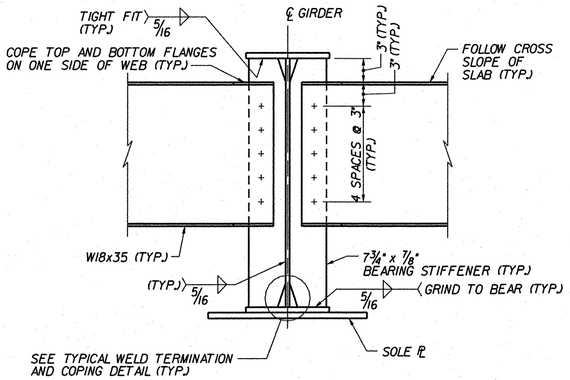
NOT TO SCALE



TYPICAL WELD TERMINATION AND COPING DETAIL

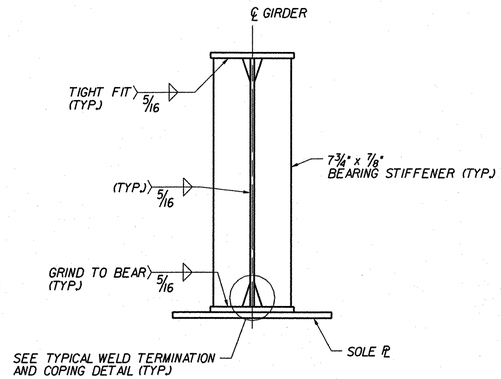
NOT TO SCALE

* NO WELD PLACED FOR ¼" MIN. ½" MAX. (EXCEPT MUST MAINTAIN 1" MINIMUM FROM EDGE OF FLANGE)



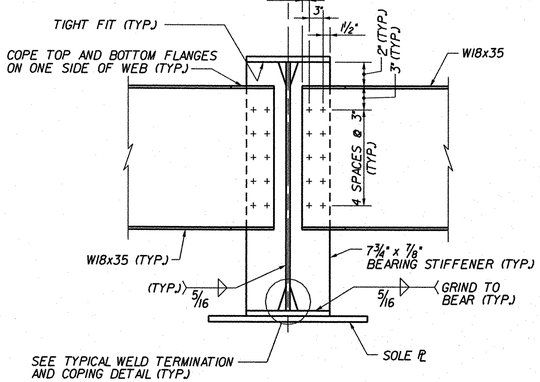
ELEVATION A–A

NOT TO SCALE



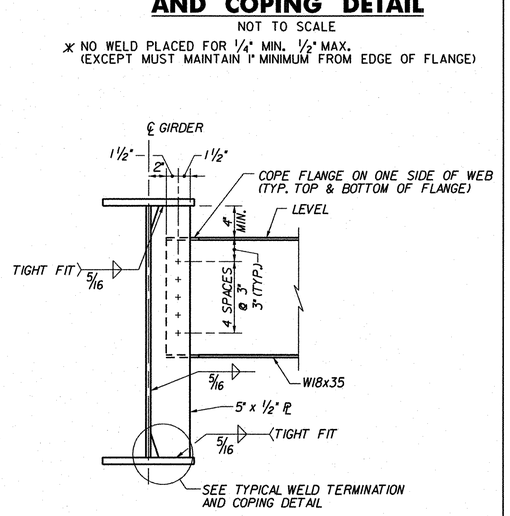
ELEVATION B–B

NOT TO SCALE



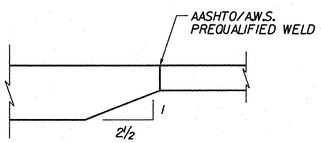
ELEVATION D–D

NOT TO SCALE



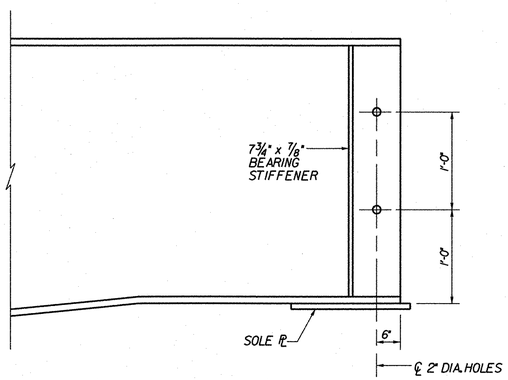
INTERMEDIATE DIAPHRAGM CONNECTION

NOT TO SCALE



FLANGE BUTT SPLICE DETAIL

NOT TO SCALE



ELEVATION C–C

NOT TO SCALE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

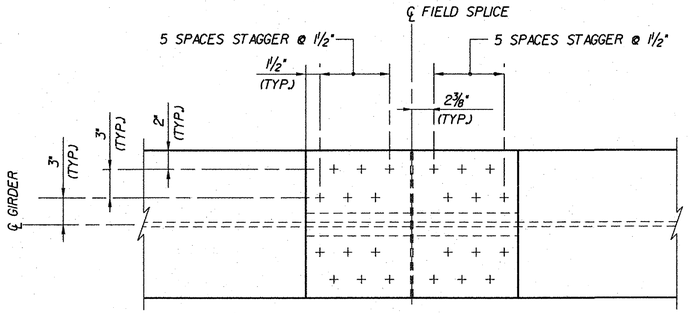
Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

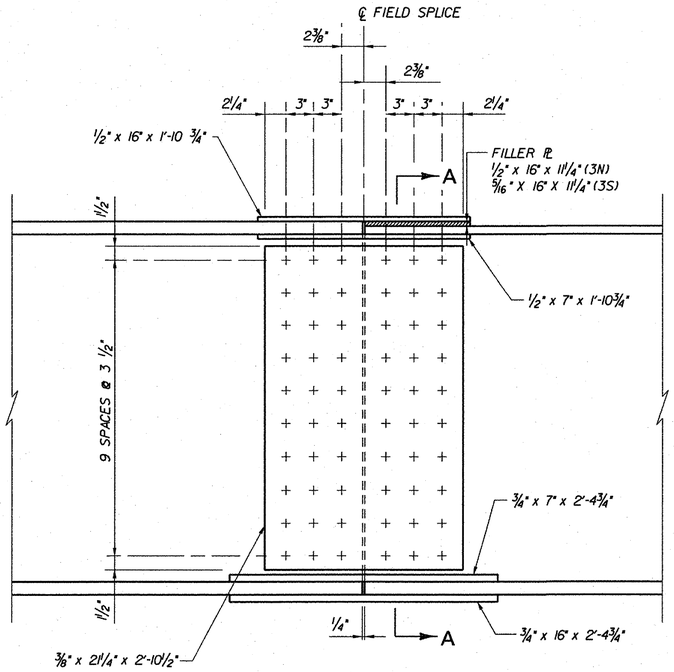
STEEL DETAILS (3N&S)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G girdrdet.dgn	Date 04/28/08
Bridge Sheet No. BRI24	Sheet 50 of 114

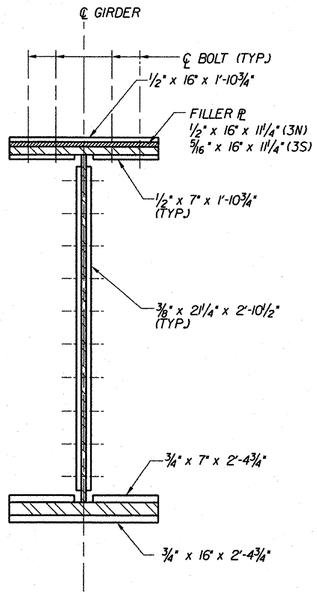
TVGA ENGINEERING, SURVEYING, P.C.



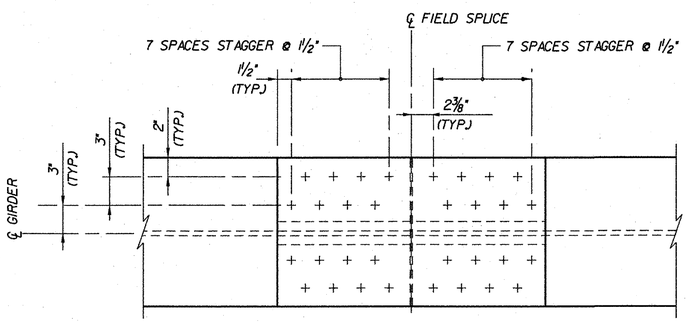
PLAN – TOP FLANGE



ELEVATION



SECTION A–A



PLAN – BOTTOM FLANGE

FIELD SPLICE DETAILS

SCALE: 1½" = 1'-0"

SB BRIDGE: DTI SQUIRTER WASHERS USED IN ADDITION TO THE FLAT WASHERS FOR PROPER TENSION INDICATION.

NOTES:

1. BOLTS SHALL BE ⅞" DIA. SUBSECTION 714.05 TYPE 3 HIGH STRENGTH BOLTS IN 15/16" DIA. HOLES. NUTS AND WASHERS SHALL ALSO CONFORM TO SUBSECTION 714.05. BOLT LENGTHS SHALL BE SUCH THAT THE BOLT THREADS ARE EXCLUDED FROM THE SHEAR PLANE.
2. ALL FIELD SPLICE CONNECTIONS SHALL BE "SLIP CRITICAL" WITH A CLASS B SURFACE (BLAST CLEAN SURFACE) FOR THE CONTACT SURFACES OF BOLTED PARTS.
3. STEEL FOR SPLICE & FILLER PLATES SHALL BE AASHTO M270 GRADE 50W (ASTM A709, GRADE 50W).
4. HOLES FOR FIELD SPLICES SHALL BE DRILLED IN THE SHOP WHILE GIRDERS ARE ASSEMBLED TO FIT BEARING ELEVATIONS.
5. ALL FLANGE AND WEB SPLICE PLATES SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SECTION 714.01 OF THE SPECIFICATIONS.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

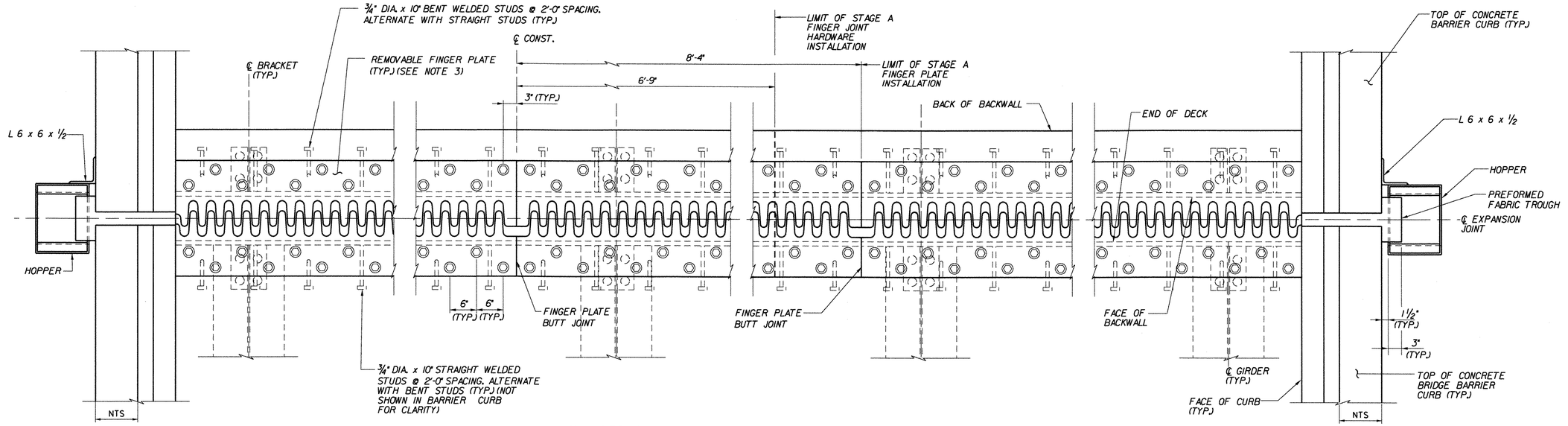
Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta.
	Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

SPLICE DETAILS (3N&S)

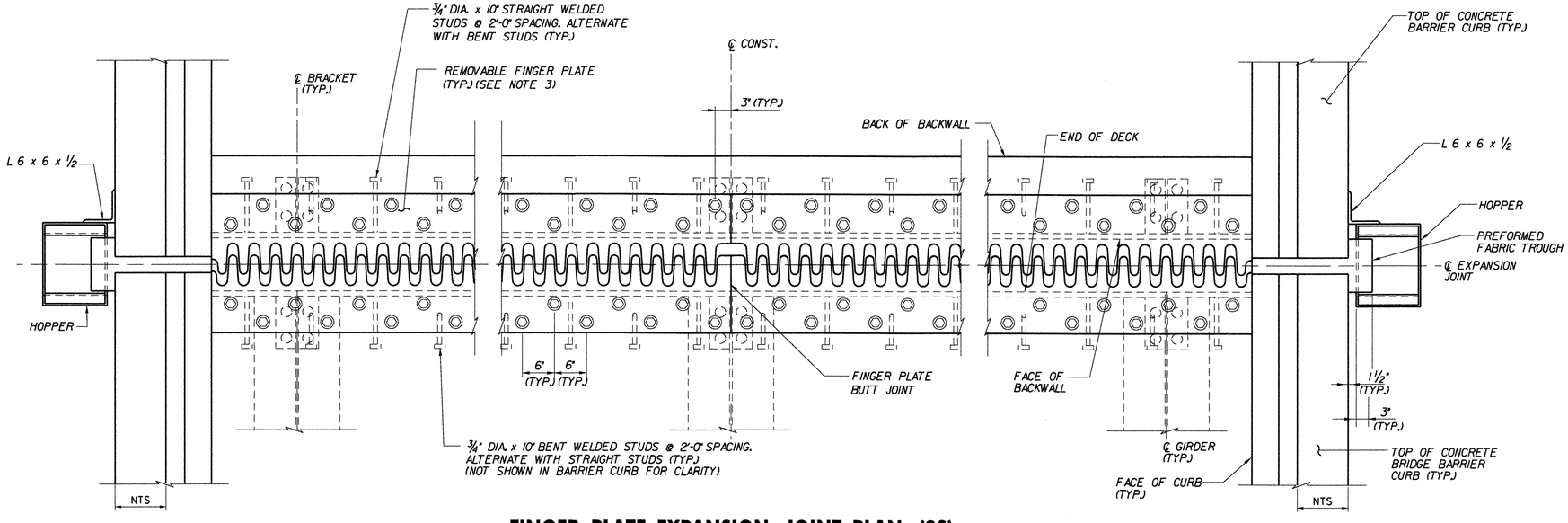
Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G NS SPILCE.dgn	Date 04/28/08
Bridge Sheet No. BR125	Sheet 51 of 114

TVGA ENGINEERING, SURVEYING, P.C.



FINGER PLATE EXPANSION JOINT PLAN (3N)

SCALE : 1" = 1'-0"



FINGER PLATE EXPANSION JOINT PLAN (3S)

SCALE : 1" = 1'-0"

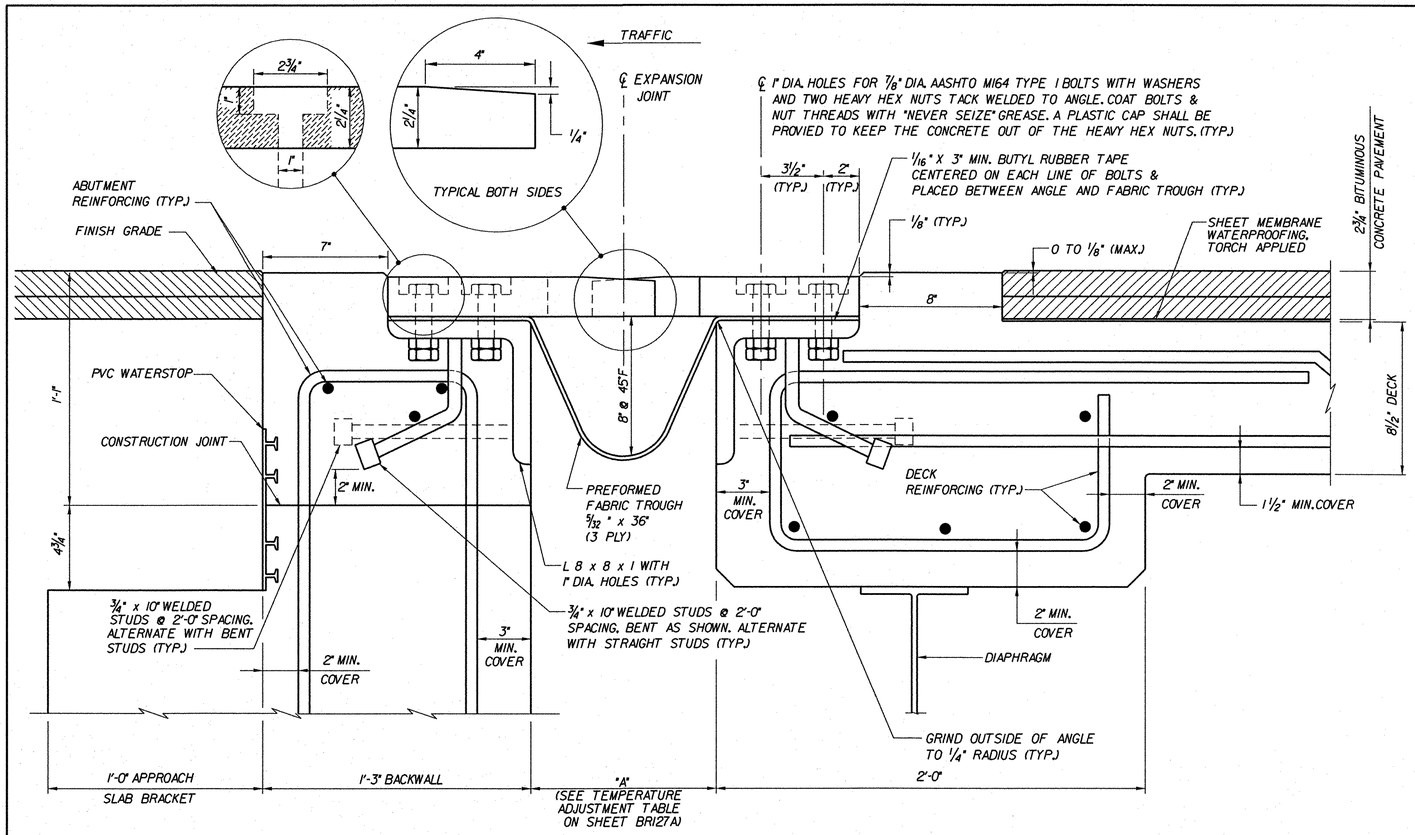
NOTES:

1. FINGER PLATES IN ROADWAY ARE REMOVABLE TO ALLOW CLEANING AND/OR REPLACEMENT OF FABRIC TROUGH.
2. FOR TEMPERATURE ADJUSTMENT TABLE, SEE FINGER JOINT DETAILS (2 OF 2) (3N&S) BRIDGE SHEET BRI27A.
3. NTS = NOT TO SCALE.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

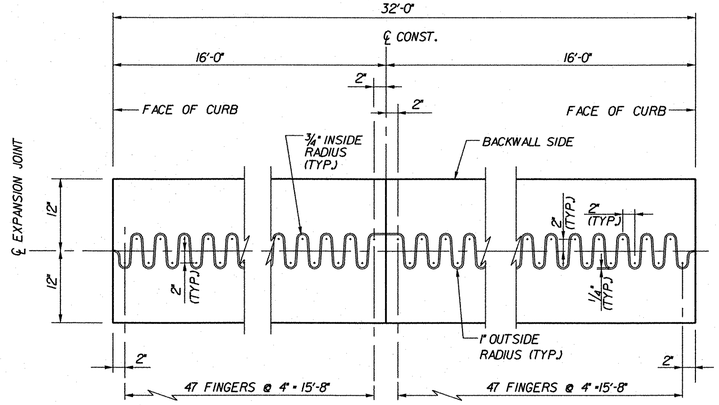
Town Of GUILFORD	Bridge No. **3N&S**
Highway No. I-91	Log Sta. / Surv. Sta.
I-91 OVER BROAD BROOK & BROAD BROOK ROAD	
FINGER JOINT PLANS (3N&S)	
Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G-FIJOIN.dgn	Date 06/06/08
Bridge Sheet No. BRI26	Sheet 52 of 114

TVGA ENGINEERING, SURVEYING, P.C.



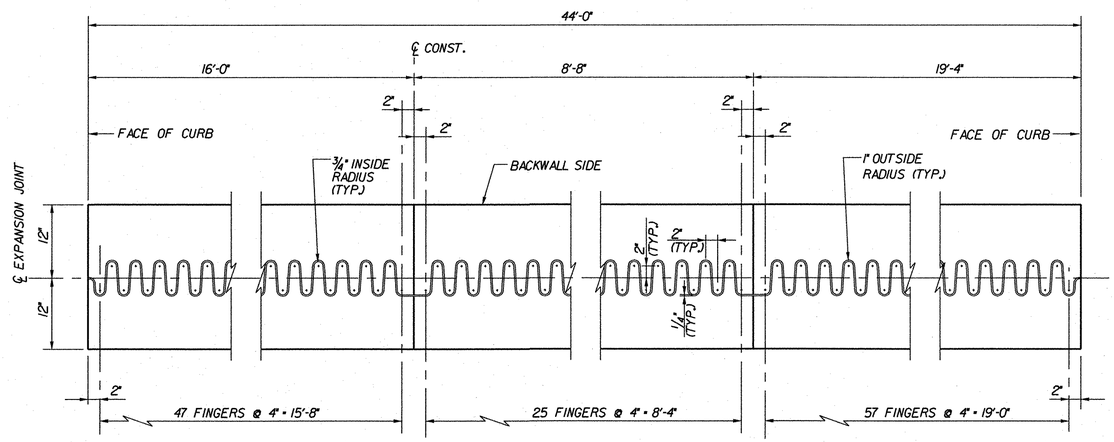
TYPICAL SECTION BETWEEN GIRDERS

SCALE : 3" = 1'-0"



CUTTING DETAIL (3S)

SCALE: 1"= 1'-0"



CUTTING DETAIL (3N)

SCALE: 1"= 1'-0"

NOTES:

1. FOR FINGER JOINT NOTES, SEE FINGER JOINT DETAILS (2 OF 2) BRIDGE SHEET BRI27A.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

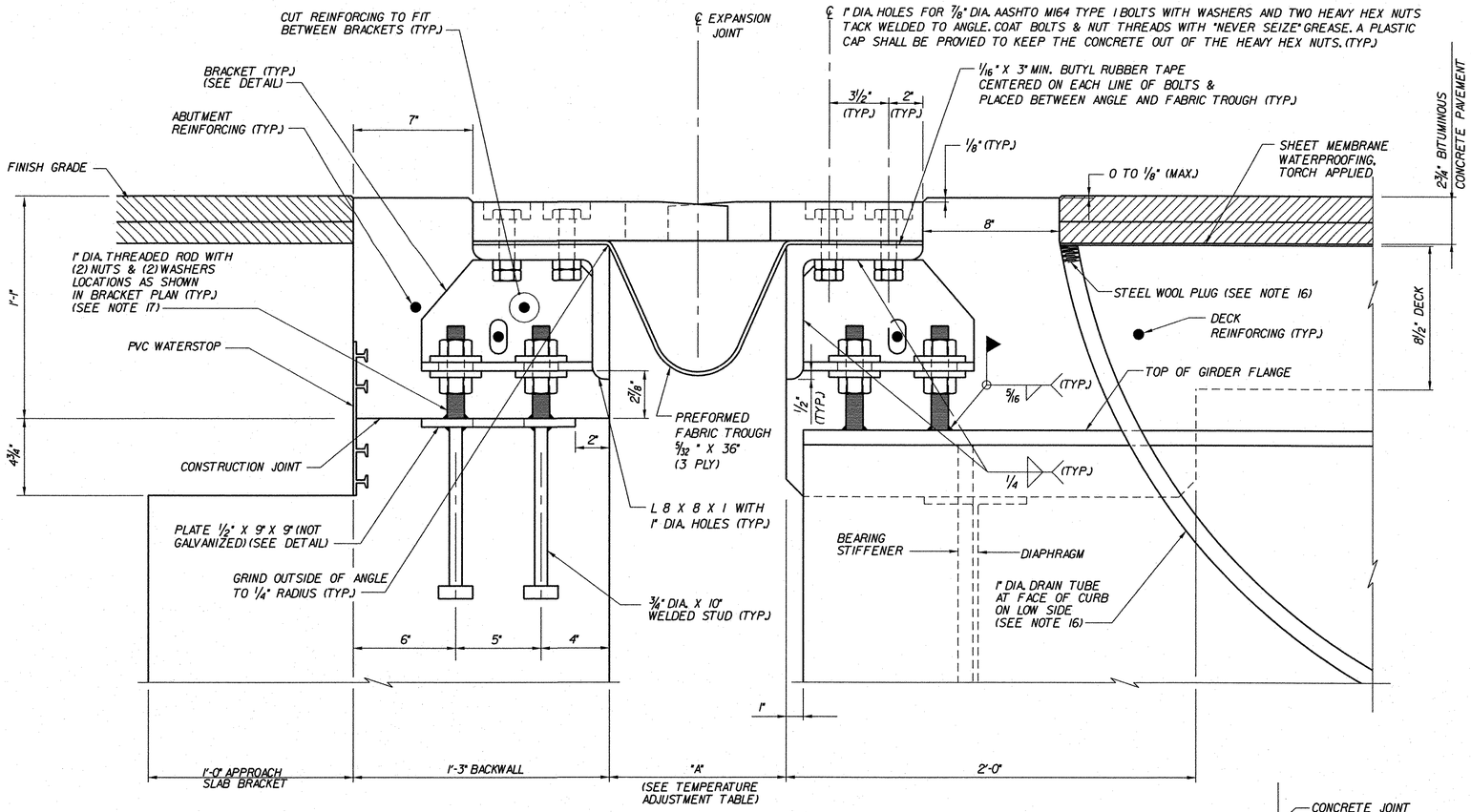
Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

FINGER JOINT DETAILS (1 OF 2) (3N&S)

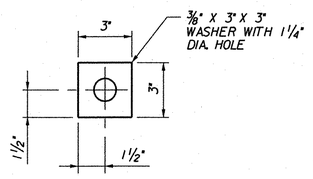
Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G-FJTDT.dgn	Date 05/22/08
Bridge Sheet No. BRI27	Sheet 53 of 114

TVGA ENGINEERING, SURVEYING, P.C.



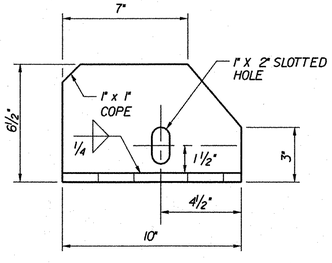
TYPICAL SECTION AT GIRDERS

SCALE : 3" = 1'-0"



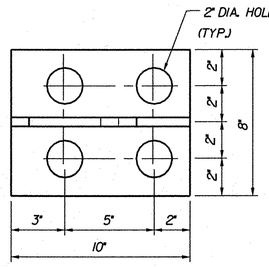
WASHER FOR BRACKET

SCALE: 3" = 1'- 0"



BRACKET ELEVATION

SCALE: 3" = 1'- 0"



BRACKET PLAN

SCALE: 3" = 1'- 0"

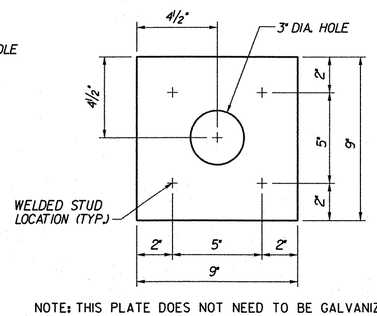
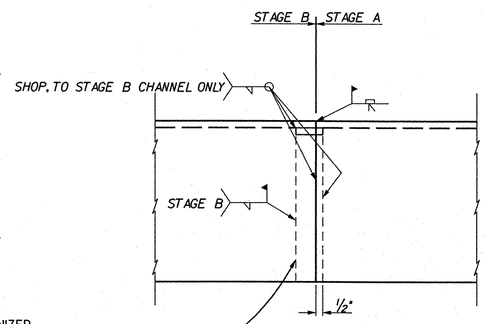


PLATE PLAN

SCALE: 3" = 1'- 0"

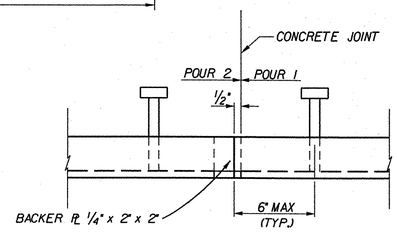
NOTE: THIS PLATE DOES NOT NEED TO BE GALVANIZED.

NOTE: ALL PLATES 1/2" THICK



SPLICE DETAIL

SCALE: 3" = 1'- 0"



NOTES:

1. DETAILS ON THIS SHEET ARE FOR ITEM 516.12, "BRIDGE EXPANSION JOINT, FINGER PLATE".
2. FOR BRIDGE 3S, PREFORMED FABRIC TROUGH SHALL BE CONTINUOUS. FOR BRIDGE 3N, TROUGH SHALL BE FURNISHED IN TWO PIECES, WITH A MINIMUM OVERLAP OF 2'-0". TROUGH MATERIAL SHALL CONFORM TO SUBSECTION 707.07.
3. BUTYL RUBBER TAPE SHALL CONFORM TO SUBSECTION 707.12.
4. THE FINAL FINISH OF THE EXPANSION DEVICE SHALL BE COVERED DURING THE PLACING OF BRIDGE DECK CONCRETE.
5. STEEL FINGER PLATES SHALL BE AASHTO M270 GRADE 50. ALL OTHER STEEL COMPONENTS SHALL BE AASHTO M270 GRADE 36 UNLESS NOTED OTHERWISE. BOLTS, NUTS & WASHERS SHALL CONFORM TO AASHTO M164 TYPE I, UNLESS NOTED OTHERWISE. ALL STEEL COMPONENTS SHALL BE GALVANIZED OR METALIZED PER SUBSECTION 506.15, UNLESS NOTED OTHERWISE.
6. PAYMENT FOR ITEM 516.12, "BRIDGE EXPANSION JOINT, FINGER JOINT" SHALL INCLUDE THE FABRICATION AND ERECTION OF THE COMPLETE JOINT ASSEMBLY INCLUDING ALL STEEL PLATES, BRACKETS, ANGLES, WELDED STUDS OR RODS, PREFORMED FABRIC DRAIN TROUGH MATERIAL AND PLASTIC DRAIN TUBES, BUTYL RUBBER TAPE, JOINT FILLER AND ANY OTHER MISCELLANEOUS MATERIAL NECESSARY TO INSTALL JOINT.
7. FOR BRIDGE 3N, EACH 8 x 8 x 1 ANGLE SHALL BE FURNISHED IN TWO PIECES. A BUTT JOINT IS REQUIRED AT THE LIMIT OF STAGE A FINGER JOINT HARDWARE. AS SHOWN IN THE FINGER PLATE EXPANSION JOINT PLAN ON BRIDGE SHEET BRI26. FOR BRIDGE 3S, EACH 8 x 8 x 1 ANGLE SHALL BE FURNISHED IN ONE CONTINUOUS PIECE.
8. EACH FINGER PLATE FOR BRIDGE 3N SHALL BE PROVIDED IN THREE PIECES. EACH FINGER PLATE FOR BRIDGE 3S SHALL BE PROVIDED IN TWO EQUAL LENGTHS. FOR CUTTING DETAILS, SEE FINGER JOINT DETAILS (1 OF 2), BRIDGE SHEET BRI27.
9. COAT CONCRETE CONTACT SURFACES WITH EPOXY BONDING COMPOUND MEETING THE REQUIREMENTS OF SUBSECTION 719.02.
10. A DRIP BEAD OF 1/4" X 7" STRIP OF PREFORMED MATERIAL SHALL BE CEMENTED TO THE BOTTOM OF THE FABRIC TROUGH USING AN ADHESIVE APPROVED BY THE MANUFACTURER. THE DRIP BEAD SHALL BE APPLIED 1" FROM THE DOWNSPOUT END OF THE TROUGH.
11. FILL COUNTERBORED HOLES WITH HOT POURED JOINT SEALER MEETING THE REQUIREMENTS OF SUBSECTION 707.04(a) AFTER BOLT INSTALLATION. COSTS FOR THE WORK SHALL BE INCIDENTAL TO ITEM 516.12.
12. PAYMENT FOR WATERSTOP SHALL BE INCIDENTAL TO ITEM 501.34, CONCRETE, HIGH PERFORMANCE CLASS B.
13. FABRIC TROUGHS SHALL BE INSTALLED SO THAT MINIMUM SLOPE IS 1% FOR POSITIVE DRAINAGE.
14. FABRIC TROUGH SHALL BE THOROUGHLY CLEANED AND FLUSHED AFTER PAVING OPERATION. PAYMENT INCLUDED UNDER CONTRACT ITEM 406.25.
15. EXPANSION JOINTS SHALL BE SHOP ASSEMBLED AND SHIPPED AS ONE UNIT FOR EACH BRIDGE JOINT.
16. A 1" DIAMETER PLASTIC DRAIN TUBE SHALL BE INSTALLED AS SHOWN AT THE FACE OF CURB. THE UPPER END IS TO BE PLUGGED WITH STEEL WOOL AND THE LOWER END IS TO EXTEND BELOW THE BOTTOM OF THE ADJACENT GIRDER. THE DRAIN TUBES SHALL BE FASTENED TO THE GIRDERS USING A METHOD APPROVED BY THE ENGINEER.
17. THREADED ROD AND ASSOCIATED NUTS AND WASHERS SHALL CONFORM TO SUBSECTION 714.04.

TEMPERATURE ADJUSTMENT TABLE	
TEMPERATURE	"A"
0°F	10 7/8"
15°F	10 9/16"
30°F	10 5/16"
45°F	10"
60°F	9 11/16"
75°F	9 3/8"
90°F	9 1/8"
105°F	8 13/16"

TVGA ENGINEERING, SURVEYING, P.C.

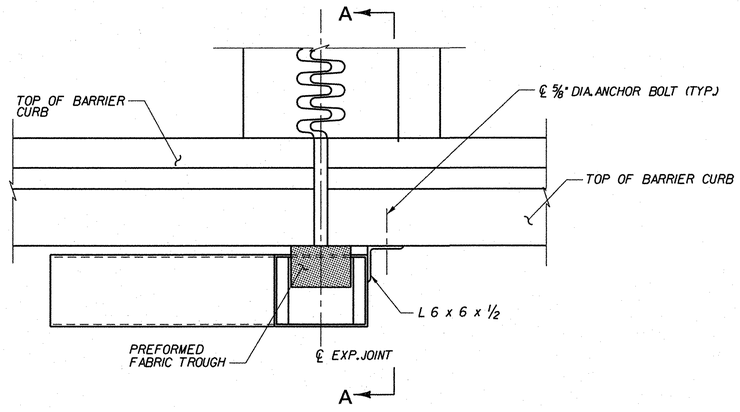
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

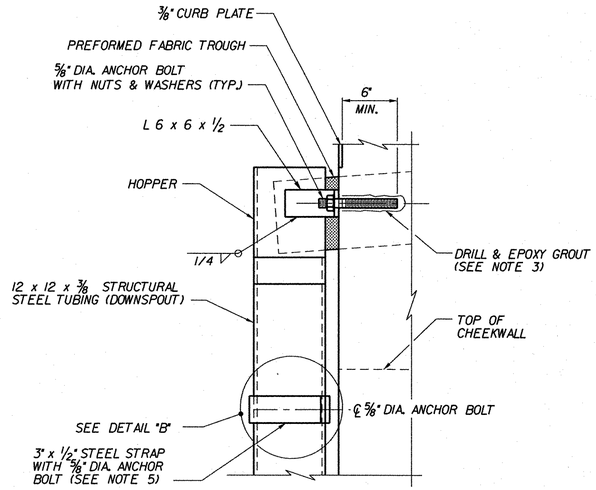
I-91 OVER BROAD BROOK & BROAD BROOK ROAD

FINGER JOINT DETAILS (2 OF 2) (3N&S)

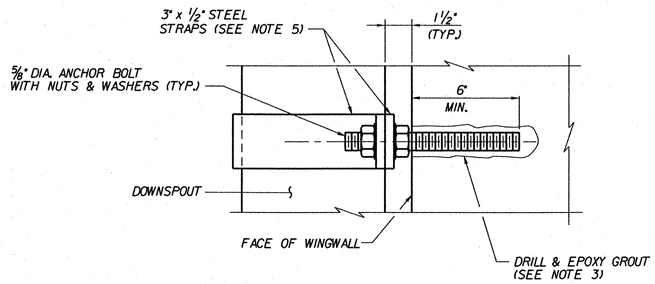
Designed By M. J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G-FJTDT.dgn	Date 05/21/08
Bridge Sheet No. BRI27A	Sheet 53A of 114



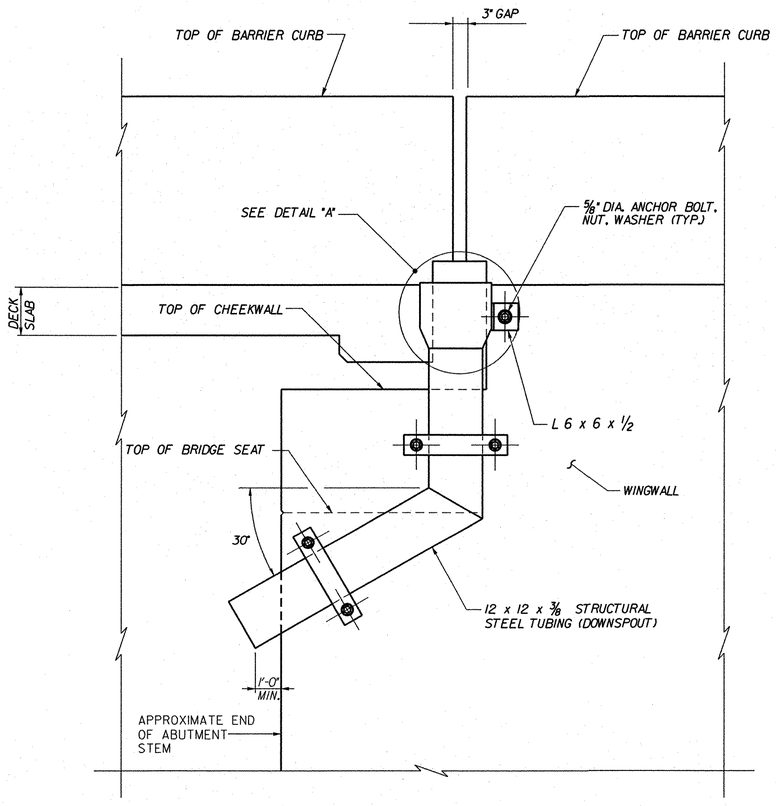
HOPPER LOCATION PLAN
NOT TO SCALE



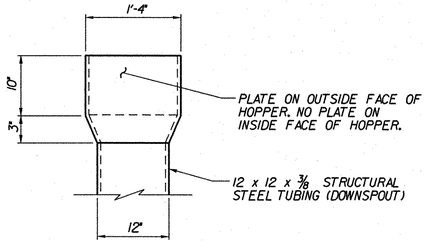
SECTION A-A
NOT TO SCALE



DETAIL "B"
NOT TO SCALE



ELEVATION
NOT TO SCALE



DETAIL "A"
NOT TO SCALE

NOTES:

1. ALL PLATES, BARS, AND ANGLES SHALL CONFORM TO SUBSECTION 714.02. STRUCTURAL TUBING (DOWNSPOUT) SHALL CONFORM TO SUBSECTION 714.11. ALL STEEL SHALL BE GALVANIZED OR METALIZED IN ACCORDANCE WITH SUBSECTION 506.15. ALL HOPPER AND DOWNSPOUT WORK SHALL BE PAID FOR UNDER ITEM 506.60, "STRUCTURAL STEEL".

2. HOPPERS SHALL BE FABRICATED FROM 3/8" STEEL PLATE. THE FABRICATION WELDS SHALL BE 1/4" FILLET WELDS ON THE INSIDE OF THE HOPPER AND SHALL BE FULL LENGTH TO ENSURE A WATERTIGHT CONTAINER.

3. ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO SUBSECTION 714.04 OF THE SPECIFICATIONS, AND BE GALVANIZED IN ACCORDANCE WITH SUBSECTION 506.15. ANCHOR BOLTS SHALL BE DRILLED AND EPOXY GROUTED 6" MINIMUM INTO THE CONCRETE. DRILL AND EPOXY GROUT SYSTEM SHALL BE:
   - DAYTON SUPERIOR SURE-ANCHOR J-51 SYSTEM
   - HILTI, INC. HIT HY-150 SYSTEM
   - UNITEX PRO-POXY 300 FAST SYSTEM

   OR EQUIVALENT APPROVED BY VAOT MATERIALS AND RESEARCH SECTION. ALL COSTS FOR DRILLING AND EPOXY GROUTING ANCHOR BOLTS SHALL BE INCIDENTAL TO ITEM 506.60, "STRUCTURAL STEEL".

4. THE HOPPERS SHALL BE PLACED AS SHOWN ON THIS SHEET. THIS WILL REQUIRE THAT THE HOPPER BE FORCED AS FAR AS POSSIBLE UP UNDER THE TROUGH. THE TROUGH SHOULD BE ENCLOSED AS MUCH AS POSSIBLE BY THE HOPPER BUT SHOULD NOT BE BENT OR BUCKLED TO RESTRICT THE FLOW OF WATER.

5. STRAPS SHALL NOT BE BENT IN THE FIELD.

6. AREAS WHERE THE GALVANIZING HAS BEEN REMOVED FROM THE DOWNSPOUT EITHER BY CUTTING, HANDLING, WELDING, PLACING OR ANY OTHER MEANS SHALL BE REPAIRED IN CONFORMANCE WITH SUBSECTION 513.06(f).

STATE OF VERMONT
AGENCY OF TRANSPORTATION

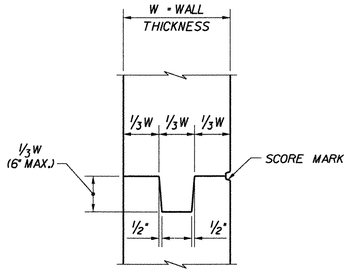
Town Of GUILFORD	Bridge No. **3N&S**
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

JOINT DOWNSPOUT DETAILS (3N&S)

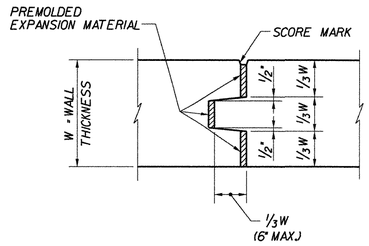
Designed By M.J. MOZER	Drawn By R.A. BOTZENHART
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G JTDNSP	Date 05/22/08
Bridge Sheet No. BRI28	Sheet 54 of 114

TVGA ENGINEERING, SURVEYING, P.C.



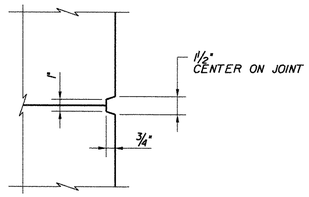
TYPICAL CONCRETE CONSTRUCTION JOINT

NOT TO SCLAE



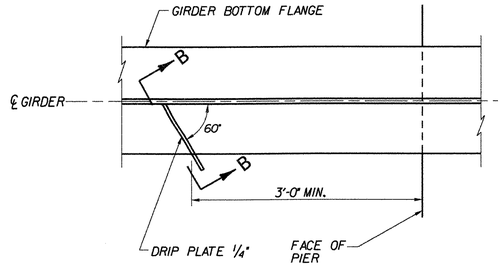
TYPICAL CONCRETE EXPANSION JOINT

NOT TO SCALE

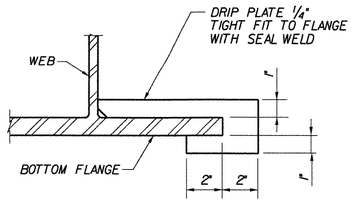


SCORE MARK DETAIL

NOT TO SCALE



PLAN

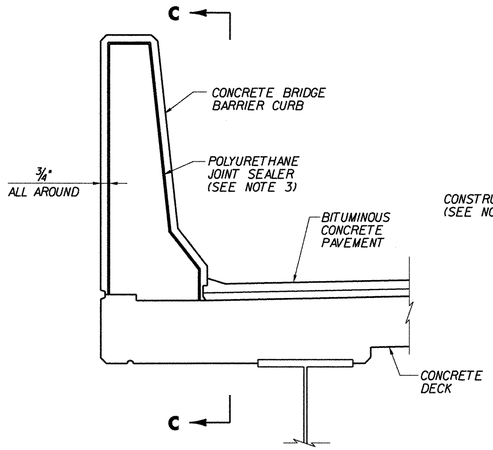


SECTION B–B

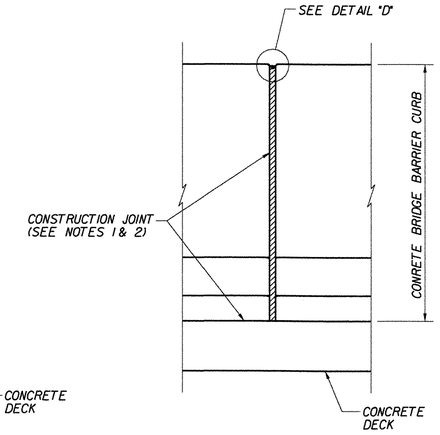
DRIP PLATE DETAIL

NOT TO SCALE

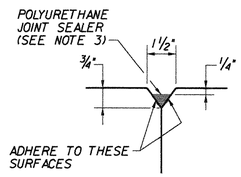
NOTE: DRIP PLATES SHALL BE PLACED ON OUTSIDE EDGE OF FASCIA GIRDERS ON THE HIGH SIDE OF ALL PIERS AND LOW ABUTMENTS OR AS INDICATED ON PROJECT PLANS.



TYPICAL SECTION THRU CONCRETE CURB CONSTRUCTION JOINT



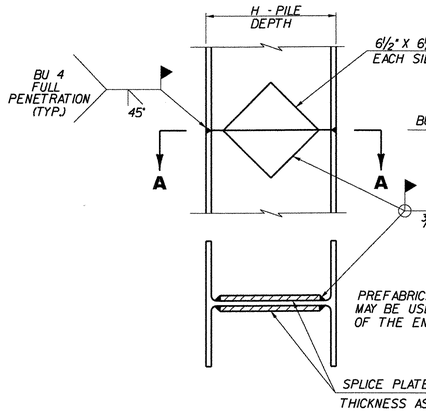
SECTION C–C



DETAIL "D"

CURB JOINT DETAILS

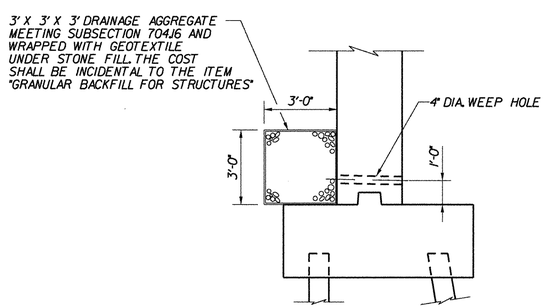
NOT TO SCALE



SECTION A–A

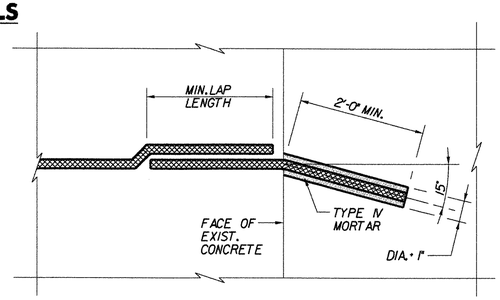
DETAIL OF PILE SPLICE

NOT TO SCALE



TYPICAL WEEP HOLE DETAIL

NOT TO SCALE



TYPICAL DRILL AND GROUT DETAIL

NOT TO SCALE

NOTES:

1. CONSTRUCTION JOINTS THROUGH CONCRETE BARRIER CURB SHALL BE SPACED MAXIMUM 20'-0" CENTER TO CENTER. CONCRETE SHALL BE PLACED IN ALTERNATING SECTIONS WITH A MINIMUM OF 48 HOURS DELAY BETWEEN ADJACENT POURS.
2. LONGITUDINAL REINFORCING SHALL PASS THROUGH CONCRETE CURB CONSTRUCTION JOINTS.
3. POLYURETHANE JOINT SEALER, PER SUBSECTION 524.06(c) OF THE SPECIFICATIONS, COLOR TO MATCH CONCRETE. COST SHALL BE INCIDENTAL TO ITEM 900.608, "SPECIAL PROVISION (BRIDGE RAILING, F-SHAPE CONCRETE).

STATE OF VERMONT
AGENCY OF TRANSPORTATION

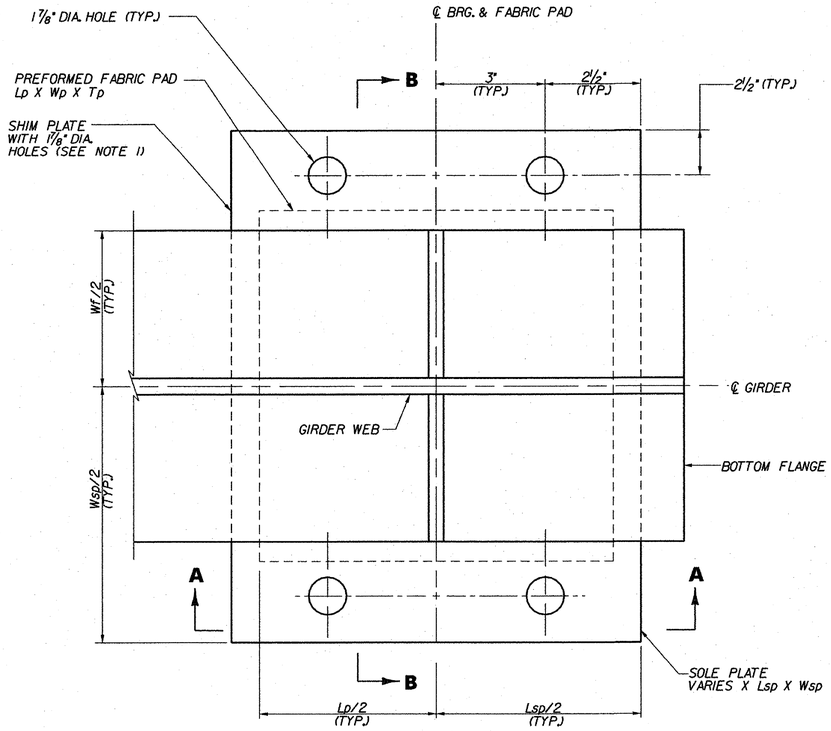
Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

TYPICAL BRIDGE DETAILS (3N&S)

Designed By M.J. MOZER	Drawn By G. K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G-BRDT.dgn	Date 06/10/08
Bridge Sheet No. BRI29	Sheet 55 of 114

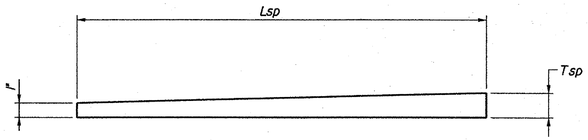
TVGA ENGINEERING, SURVEYING, P.C.



(ANCHOR BOLTS NOT SHOWN FOR CLARITY)

PLAN

NOT TO SCALE



SIDE VIEW SOLE PLATE

NOT TO SCALE

FIXED ABUTMENT BEARING GEOMETRY

BRIDGE NO.	SUB-STRUCTURE UNIT	BEARING PAD			SOLE PLATE			SHIM PLATE		BEAM FLANGE
		Lp	Wp	Tp	Lsp	Wsp	Tsp	Lsh	Wsh	Wf
3N	ABUT. 1	8"	18"	1 1/2"	11"	28"	1 7/16"	11"	28"	16"
3S	ABUT. 2	8"	18"	1 1/2"	11"	28"	1 5/16"	11"	28"	16"

Bottom of Preformed Fabric Pad Table	
Girder	ELEVATION
	3N-Abut. 1
N1	*
N2	410.21
N3	410.31
N4	410.13
N5	*
N6	*

* Shim Plate not Required

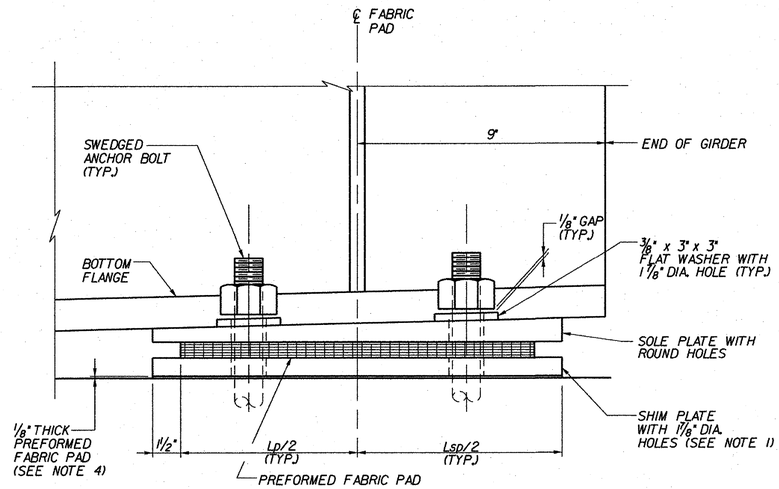
Bottom of Preformed Fabric Pad Table	
Girder	ELEVATION
	3S-Abut. 2
S1	*
S2	416.89
S3	417.04
S4	416.89
S5	*

* Shim Plate not Required

ABUTMENTS: WERE REPAIRED TO NEW BRIDGE SEAT ELEVATION ELIMINATING SHIM PLATES.

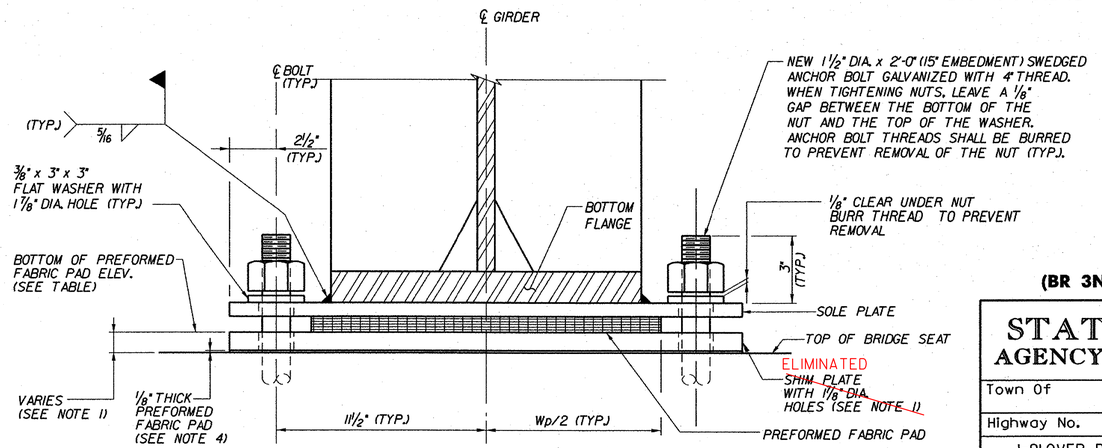
NOTES:

1. THE CONTRACTOR SHALL TAKE ELEVATIONS OF EACH EXISTING INTERIOR BEARING SEAT AND ORDER SHIM PLATES OF SUFFICIENT THICKNESS TO EQUAL THE DIFFERENCE BETWEEN THE EXISTING BEARING SEAT ELEVATION AND THE NEW BOTTOM OF PREFORMED FABRIC PAD ELEVATION. ALL COSTS SHALL BE INCLUDED IN ITEM 531.10, "BEARING DEVICE ASSEMBLY, PREFORMED FABRIC PAD". SHIM PLATE DETAILS SHALL BE SUBMITTED WITH THE BEARING DRAWINGS.
2. SOLE PLATES SHALL BE INSTALLED WITH LARGER THICKNESS ON THE SIDE OF INCREASING ROADWAY STATIONING.
3. FOR BEARING NOTES, SEE BEARING NOTES & TABLES (3N&S) BRIDGE SHEET BR132.
4. 1/8" THICK PREFORMED FABRIC PAD SHALL BE REQUIRED BETWEEN EXISTING BRIDGE SEAT AND NEW SHIM PLATES.



SECTION A-A

NOT TO SCALE



SECTION B-B

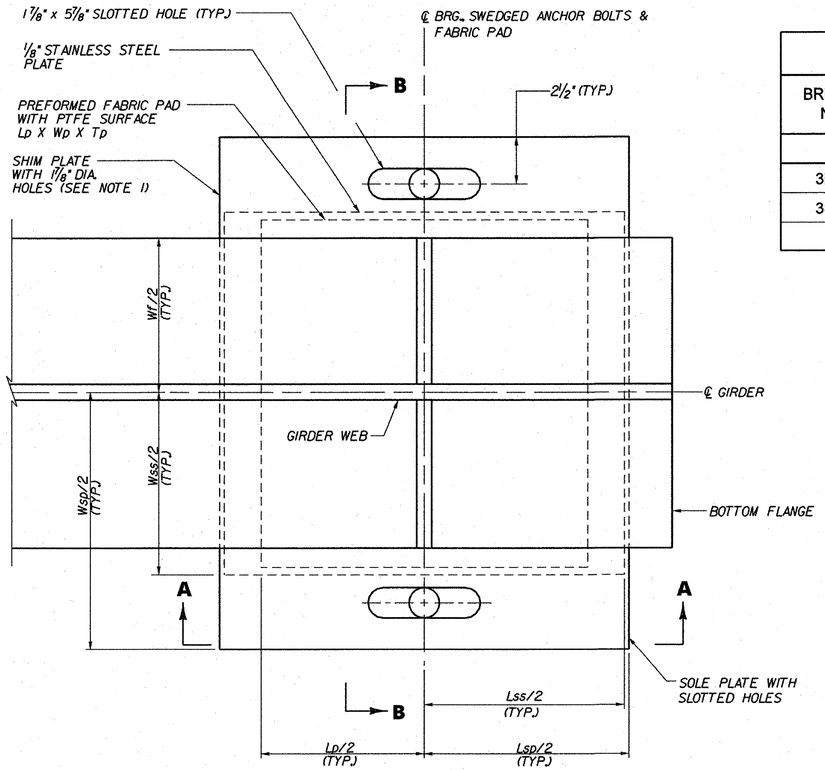
NOT TO SCALE

SHEET BR130 - FIXED (BR 3N, ABUT. 1 AND BR 3S, ABUT. 2)

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.
I-91 OVER BROAD BROOK & BROAD BROOK ROAD	
FIXED BEARINGS - FABRIC PAD (3N&S)	
Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G FIXB DT.dgn	Date 04/28/08
Bridge Sheet No. BRI30	Sheet 56 of 114

TVGA ENGINEERING, SURVEYING, P.C.



(ANCHOR BOLTS NOT SHOWN FOR CLARITY)

PLAN

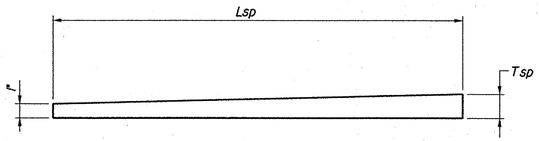
NOT TO SCALE

EXPANSION ABUTMENT BEARING GEOMETRY

BRIDGE NO.	SUB-STRUCTURE UNIT	BEARING PAD			SOLE PLATE			SHIM PLATE		S.S. PLATE		BEAM FLANGE	BEVELED WASHERS	
		Lp	Wp	Tp	Lsp	Wsp	Tsp	Lsh	Wsh	Lss	Wss	Wf	UPSTATION	DOWNSTATION
3N	ABUT. 2	8"	18"	1 1/2"	14"	28"	1 5/16"	14"	28"	13 1/2"	18 1/2"	16"	3/8"	9/16"
3S	ABUT. 1	8"	18"	1 1/2"	14"	28"	1 7/16"	14"	28"	13 1/2"	18 1/2"	16"	3/8"	5/8"

ABUTMENT "A" ADJUSTMENT TABLE

BRIDGE NO.	SUB-STRUCTURE UNIT	DISTANCE "A"						
		0°	15°	30°	45°	60°	75°	90°
3N	ABUT. 2	3 7/8"	3 5/8"	3 5/16"	3"	2 11/16"	2 3/8"	2 1/8"
3S	ABUT. 1	3 7/8"	3 5/8"	3 5/16"	3"	2 11/16"	2 3/8"	2 1/8"



SIDE VIEW SOLE PLATE

NOT TO SCALE

Bottom of Preformed Fabric Pad Table	
Girder	ELEVATION
	3N-Abut. 2
N1	*
N2	416.90
N3	417.00
N4	416.82
N5	*
N6	*

* Shim Plate not Required

Bottom of Preformed Fabric Pad Table	
Girder	ELEVATION
	3S-Abut. 1
S1	*
S2	410.20
S3	410.36
S4	410.20
S5	*

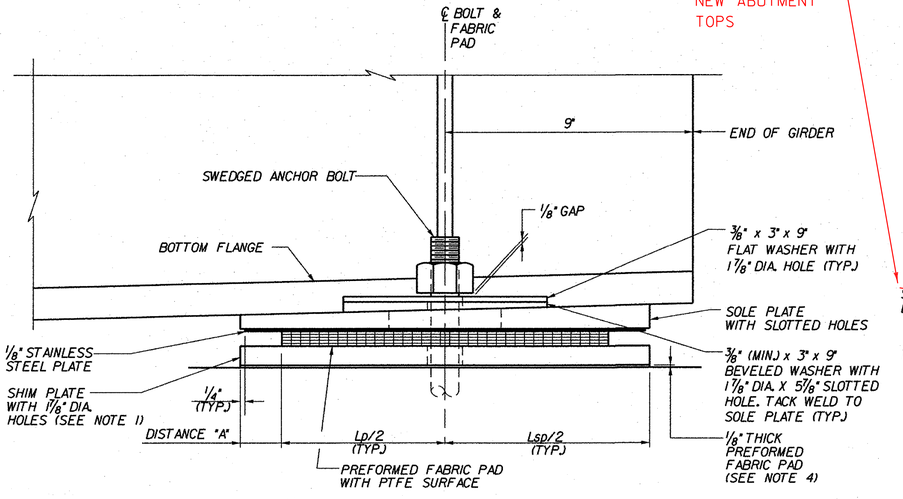
* Shim Plate not Required

ABUTMENTS: WERE REPAIRED TO PROPER BRIDGE SEAT ELEVATION ELIMINATING SHIM PLATES.

NOTES:

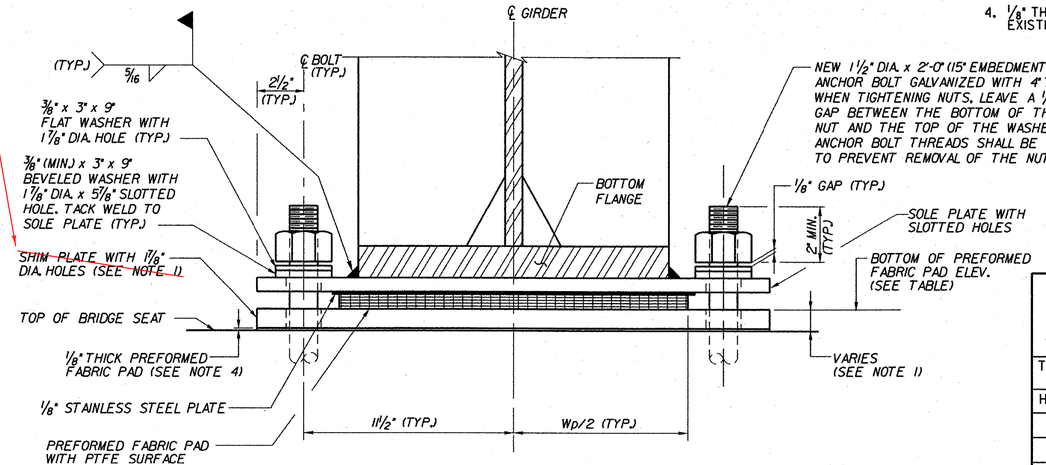
1. THE CONTRACTOR SHALL TAKE ELEVATIONS OF EACH EXISTING INTERIOR BEARING SEAT AND ORDER SHIM PLATES OF SUFFICIENT THICKNESS TO EQUAL THE DIFFERENCE BETWEEN THE EXISTING BEARING SEAT ELEVATION AND THE NEW BOTTOM OF PREFORMED FABRIC PAD ELEVATION. ALL COSTS SHALL BE INCLUDED IN ITEM 531.10, "BEARING DEVICE ASSEMBLY, PREFORMED FABRIC PAD". SHIM PLATE DETAILS SHALL BE SUBMITTED WITH THE BEARING DRAWINGS.
2. SOLE PLATES SHALL BE INSTALLED WITH LARGER THICKNESS ON THE SIDE OF INCREASING ROADWAY STATIONING.
3. FOR BEARING NOTES, SEE BEARING NOTES & TABLES (3N&S) BRIDGE SHEET BRI32.
4. 1/8" THICK PREFORMED FABRIC PAD SHALL BE REQUIRED BETWEEN EXISTING BRIDGE SEAT AND NEW SHIM PLATES.

ELIMINATED FOR NEW ABUTMENT TOPS



SECTION A-A

NOT TO SCALE



SECTION B-B

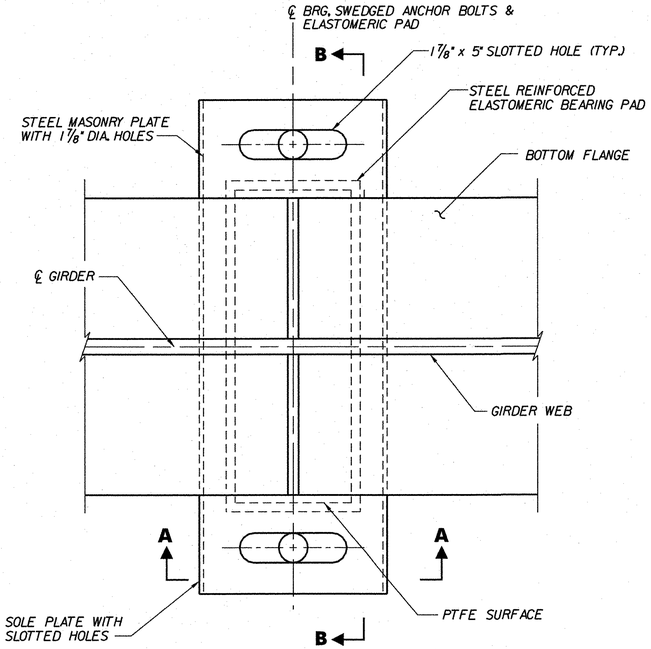
NOT TO SCALE

SHEET BR130A - EXPANSION (BR3N, ABUT. 2 AND BR3S, ABUT. 1)

STATE OF VERMONT
AGENCY OF TRANSPORTATION

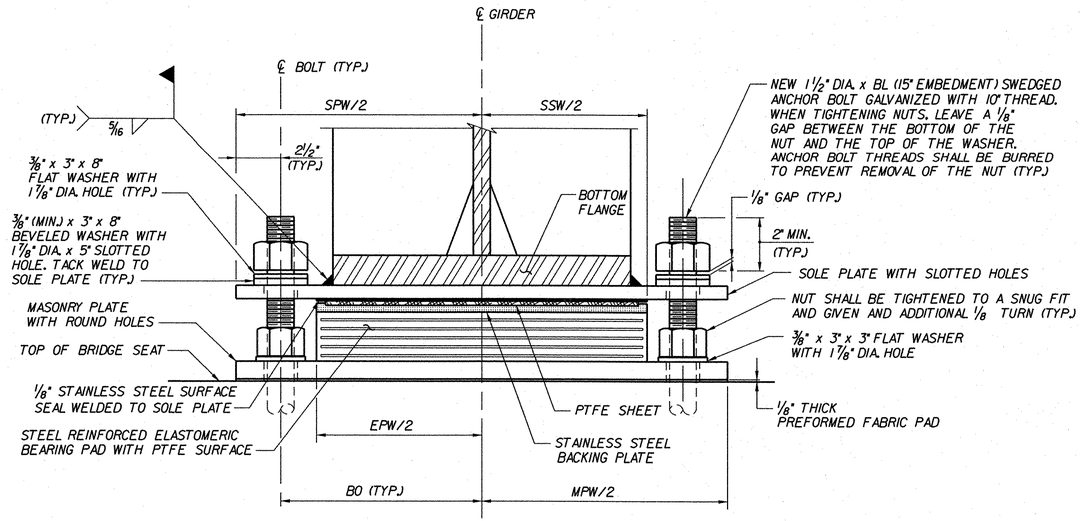
Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.
I-91 OVER BROAD BROOK & BROAD BROOK ROAD	
EXPANSION BEARINGS - FABRIC PAD (3N&S)	
Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G EXPB DT.dgn	Date 04/25/08
Bridge Sheet No. BRI30A	Sheet 56A of 114

TVGA ENGINEERING, SURVEYING, P.C.

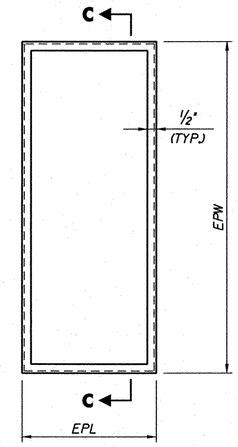


(ANCHOR BOLTS NOT SHOWN FOR CLARITY)

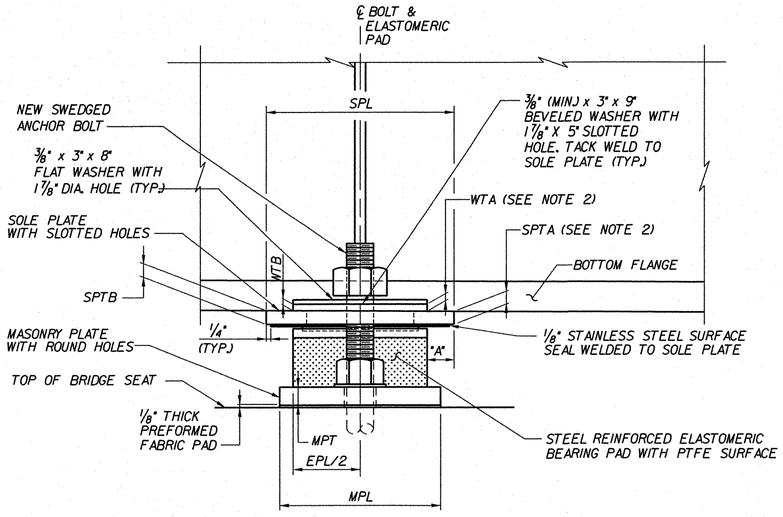
PLAN
NOT TO SCALE



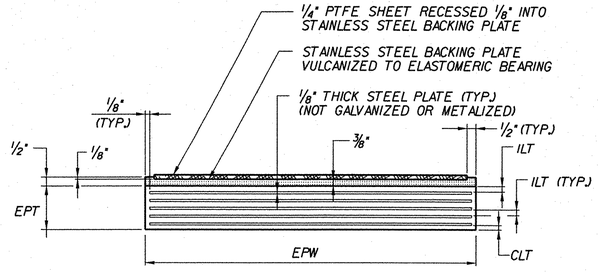
SECTION B-B
NOT TO SCALE



STEEL REINFORCED ELASTOMERIC PAD PLAN WITH PTFE SURFACE
NOT TO SCALE



SECTION A-A
NOT TO SCALE



SECTION C-C
NOT TO SCALE

NOTES:

1. SOLE PLATES SHALL BE INSTALLED WITH LARGER THICKNESS ON THE SIDE OF INCREASING ROADWAY STATIONING.
2. THE "A" DISTANCE, "SPTA" AND "WTA" DIMENSIONS SHALL BE MEASURED AND SET ON THE UPSTATION SIDE OF THE BEARING.
3. FOR BEARING NOTES AND ELASTOMERIC BEARING TABLES, SEE BEARING NOTES & TABLES (3N&S) BRIDGE SHEET BRI32.

SHEET BR131 - EXPANSION (PIERS)

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

EXPANSION BEARINGS - ELASTOMERIC (3N&S)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G EXPB DT2.dgn	Date 04/28/08
Bridge Sheet No. BR131	Sheet 57 of 114

TVGA ENGINEERING, SURVEYING, P.C.

EXPANSION PIER BEARING GEOMETRY

BRIDGE NO.	SUB-STRUCTURE UNIT	△ ASKEW ANGLE	EXPANSION BEARING TYPE	SOLE PLATE				STAINLESS STEEL		MASONRY PLATE			ANCHOR BOLT		BEVELED WASHER THICKNESS		"A" DISTANCE (UPSTATION SIDE OF BEARING) TEMPERATURE (°F)						
				LENGTH (SPL)	WIDTH (SPW)	THICKNESS SPTA (UPSTATION)	THICKNESS SPTB (DOWNSTATION)	LENGTH (SSL)	WIDTH (SSW)	LENGTH (MPL)	WIDTH (MPW)	THICKNESS (MPT)	OFFSET (B0)	LENGTH (BL)	WTA (UPSTATION)	WTB (DOWNSTATION)	0	15	30	45	60	75	90
3N	PIER 1	90°00'00"	A	15 3/4"	27 1/2"	1 3/8"	1"	15 1/4"	18 1/2"	12 1/2"	27 1/2"	1"	11 1/4"	25"	9/16"	3/8"	2 1/4"	2 3/16"	2 1/16"	2"	1 15/16"	1 13/16"	1 3/4"
3N	PIER 2																2 5/8"	2 7/16"	2 3/16"	2"	1 13/16"	1 9/16"	1 3/8"
3S	PIER 1					1 7/16"	1"										1 3/8"	1 9/16"	1 13/16"	2"	2 3/16"	2 7/16"	2 5/8"
3S	PIER 2																1 3/4"	1 13/16"	1 15/16"	2"	2 1/16"	2 3/16"	2 1/4"

EXPANSION BEARING TYPE DETAILS

EXPANSION BEARING TYPE	STEEL REINFORCED ELASTOMERIC PAD WITH PTFE SURFACE						
	LENGTH (EPL)	WIDTH (EPW)	THICKNESS (EPT)	COVER LAYER THICKNESS (CLT)	INTERNAL LAYER THICKNESS (ILT)	NUMBER OF INTERNAL ELASTOMER LAYERS	NUMBER OF INTERNAL STEEL PLATES
A	10 1/2"	18 1/2"	3 3/8"	1/4"	1/2"	4	5

BEARING NOTES:

1. THESE NOTES ARE APPLICABLE FOR THE BEARINGS AND THEIR COMPONENTS SHOWN ON BRIDGE SHEETS BRI30, BRI30A, AND BRI31, IN ADDITION TO THIS SHEET.
2. FOR FIXED BEARING FABRIC PAD, SEE BRIDGE SHEET BRI30.
   FOR EXPANSION BEARING FABRIC PAD, SEE BRIDGE SHEET BRI30A.
   FOR EXPANSION BEARING ELASTOMERIC PAD, SEE BRIDGE SHEET BRI31.
3. ALL BEARINGS SHALL CONFORM TO SECTIONS 531 AND 731.
4. BEARING ASSEMBLIES, INCLUDING ELASTOMERIC PADS, ANCHOR BOLTS, INTERNAL STEEL PLATES, PTFE SHEET, STAINLESS STEEL PLATES, SOLE PLATES, MASONRY PLATES, PREFORMED FABRIC PADS, BOLTS, NUTS, WASHERS AND ALL WORK REQUIRED TO FABRICATE AND INSTALL BEARINGS TO BE PAID UNDER ITEM 531.10, "BEARING DEVICE ASSEMBLY, PREFORMED FABRIC PAD". AND ITEM 531.11 "BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD."
5. THE FABRICATION, TESTING AND INSTALLATION OF THE BEARINGS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THESE CONTRACT PLANS, THE STANDARD SPECIFICATIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DIVISION I - SECTION 14 AND DIVISION II - SECTION 18.
6. STEEL REINFORCED ELASTOMERIC BEARINGS WERE DESIGNED USING METHOD B IN AASHTO DIVISION I - SECTION 14.6.5.
7. DESIGN CRITERIA
   A. MASONRY PLATE TO CONCRETE DESIGN PRESSURE = 1000 PSI - MAXIMUM
   B. MINIMUM PREFORMED FABRIC PAD ALLOWABLE DESIGN ROTATION = 0.015 RADIANS
   C. FABRIC PAD DESIGN LOAD PER BEARING AT ABUTMENTS 1 & 2 (UNFACTORED)
      R_{DL} = 49 KIPS
      R_{LL} = 79.7 KIPS (W/ IMPACT)
   D. ELASTOMERIC PAD DESIGN LOAD PER BEARING AT PIERS 1 & 2 (UNFACTORED)
      MAXIMUM
      R_{DL} = 164.3 KIPS
      R_{LL} = 89.6 KIPS (W/O IMPACT)
      ROTATION = 0.007 RADIANS
      MINIMUM
      R_{DL} = 139.7 KIPS
      R_{LL} = -4.4 KIPS (W/O IMPACT)
      ROTATION = 0.05 RADIANS
8. ELASTOMER SHALL BE GRADE 4, 60 DUROMETER NATURAL RUBBER CONFORMING TO AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION II, SECTION 18. THE AVERAGE SHEAR MODULUS (G) FOR THE ELASTOMER SHALL BE 150 PSI, WITH AN ALLOWABLE RANGE OF 127.5 PSI TO 172.5 PSI.
9. SOLE, MASONRY AND SHIM PLATES SHALL CONFORM TO AASHTO M270 GRADE 50. ALL OTHER STEEL SHALL BE AASHTO M270 GRADE 36, EXCEPT AS NOTED OTHERWISE. ANCHOR BOLTS, NUTS AND WASHERS FOR BEARINGS SHALL CONFORM TO SUBSECTION 714.08. UNLESS NOTED OTHERWISE, ALL STEEL PLATES AND ALL STEEL COMPONENTS (ANCHOR BOLTS, HIGH-STRENGTH BOLTS, NUTS, WASHERS, ETC.) SHALL BE GALVANIZED OR METALIZED PER SUBSECTION 506.15.
10. MINIMUM EMBEDMENT OF ALL ANCHOR BOLTS SHALL BE 1'-3".
11. THE 1/8" THICK PREFORMED FABRIC PAD BENEATH THE MASONRY OR SHIM PLATE SHALL HAVE THE SAME SIZE AND ANCHOR BOLT HOLE LAYOUT AS THE CORRESPONDING MASONRY OR SHIM PLATE.
12. FABRICATION DRAWINGS CONFORMING TO THE REQUIREMENTS OF SUBSECTION 531.03 SHALL INCLUDE WELDING AND BONDING PROCEDURES.
13. THE DESIGN COEFFICIENT OF FRICTION BETWEEN THE PTFE AND THE STAINLESS STEEL SHALL NOT EXCEED 0.06 AT 800 PSI COMPRESSIVE LOADING.
14. BEARING HEIGHTS AND DIMENSIONS SHOWN ARE BEFORE APPLICATION OF LOADS.
15. THE CONTRACTOR SHALL ENSURE THAT THE HEAT FROM WELDING THE SOLE PLATE TO THE GIRDER DOES NOT DAMAGE ANY PART OF THE BEARING.
16. THE "A" DISTANCE IS THE SOLE PLATE ADJUSTMENT TO BE USED BEFORE DEAD LOADS ARE ADDED TO THE GIRDERS.
17. THE CONCRETE SURFACE BENEATH THE BEARING DEVICE SHALL BE LEVEL.
18. STAINLESS STEEL BACKING PLATE SHALL CONFORM TO SUBSECTION 731.05.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

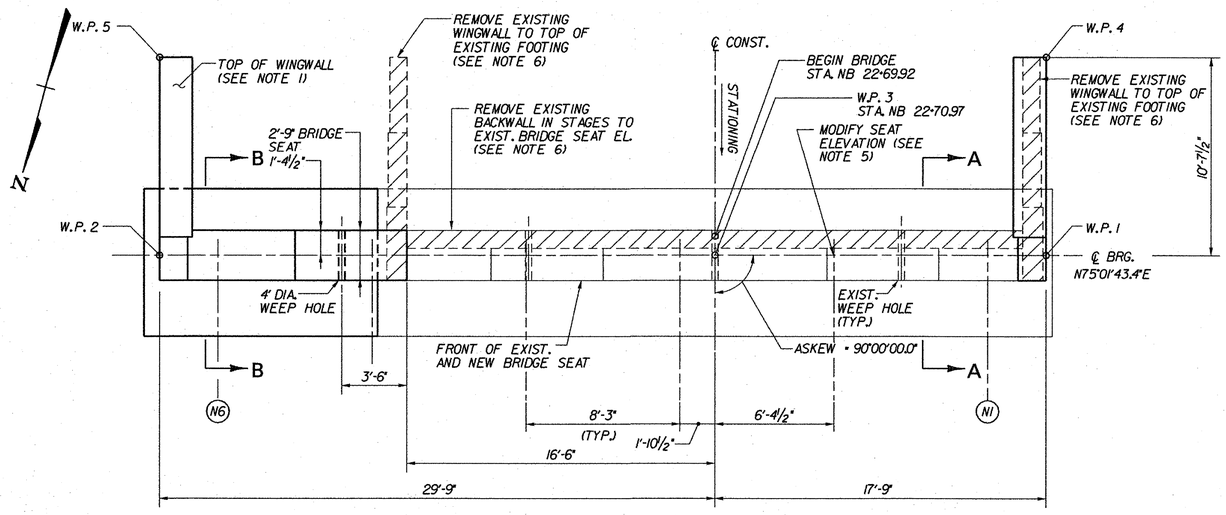
Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

BEARING NOTES & TABLES (3N&S)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G BRNOTE.dgn	Date 04/28/08
Bridge Sheet No. BRI32	Sheet 58 of 114

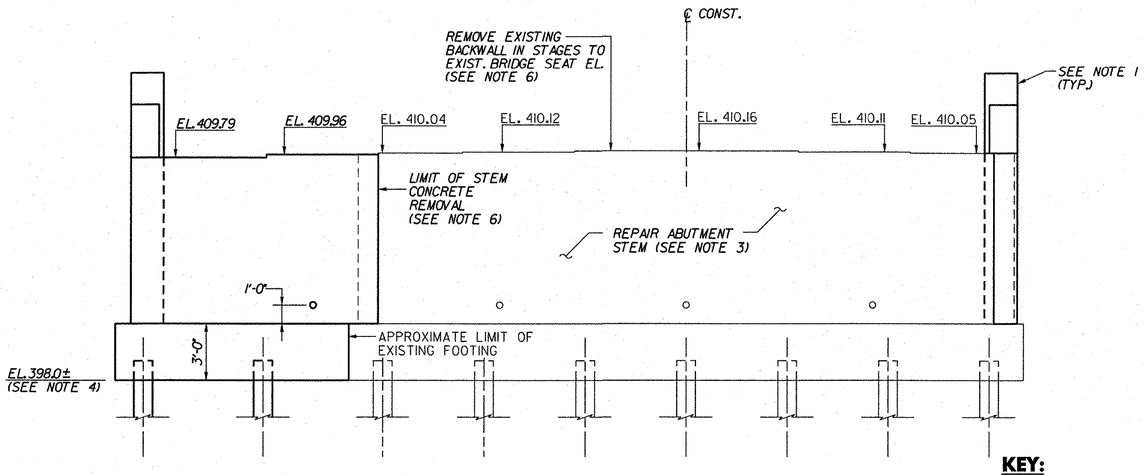
TVGA ENGINEERING, SURVEYING, P.C.



ABUTMENT 1 PLAN (FIXED) (3N)

SCALE: ¼" = 1'-0"

• SEE SHEET 70AR



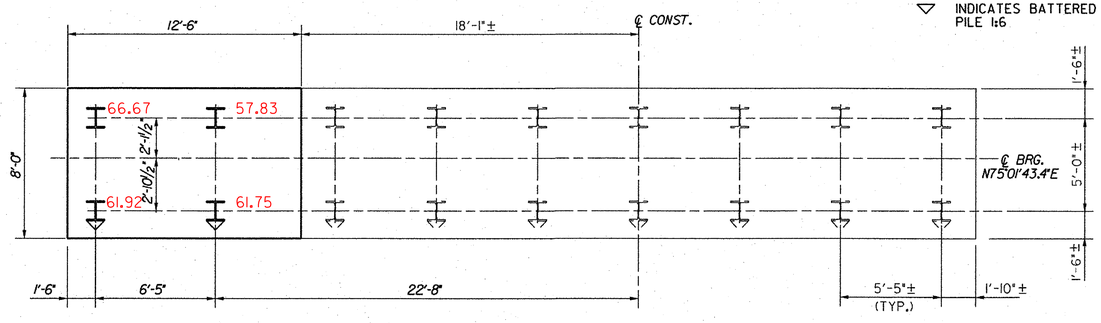
ABUTMENT 1 ELEVATION (3N)

(BACKWALL AND WINGWALL REMOVAL LIMITS NOT SHOWN FOR CLARITY)

SCALE: ¼" = 1'-0"

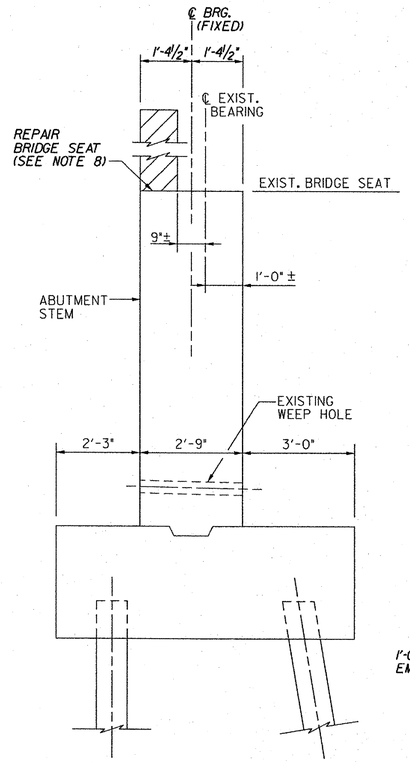
KEY:

- EXISTING 12BP53 PILE
- HP 12X53 PILE
- INDICATES BATTERED PILE 1:6



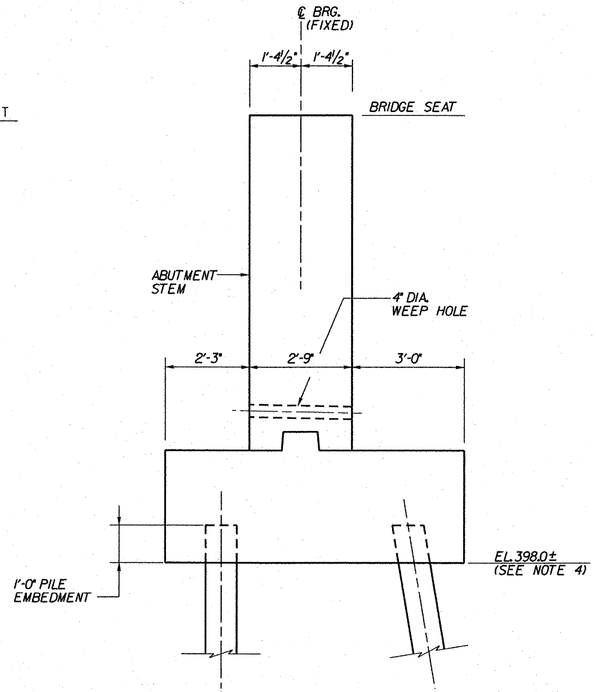
FOOTING PLAN (3N)

SCALE: ¼" = 1'-0"



SECTION A–A

SCALE: ½" = 1'-0"



SECTION B–B

SCALE: ½" = 1'-0"

NOTES:

1. FOR WINGWALL AND CHEEKWALL DIMENSIONS, DETAILS AND ELEVATIONS, SEE WINGWALL MASONRY & REINFORCEMENT BRIDGE SHEET BRI38.
2. FOR ABUTMENT REINFORCEMENT DETAILS, SEE ABUTMENT 1 REINFORCEMENT (3N) BRIDGE SHEET BRI34.
3. REPAIR ALL EXISTING SPALLED AND DELAMINATED AREAS ON ABUTMENT. SEE EXISTING SUBSTRUCTURE CONDITION (3N), BRIDGE SHEET BRI60. FOR APPROXIMATE CONDITION OF EXISTING SUBSTRUCTURE. FOR CONCRETE REPAIR DETAILS, SEE SUBSTRUCTURE REPAIR DETAILS (3N&S), BRIDGE SHEET BRI5I.
4. THE NEW BOTTOM OF FOOTING ELEVATION SHOWN IS APPROXIMATE AND SHALL BE CONSTRUCTED AT THE SAME ELEVATION AS THE EXISTING FOOTING. THE CONTRACTOR SHALL VERIFY THE EXISTING FOOTING LOCATION PRIOR TO ORDERING REINFORCING STEEL.
5. DUE TO THE PROXIMITY OF THE GIRDER TO THE STEP IN THE EXISTING BRIDGE SEAT, REMOVE 4" ± OF CONCRETE TO A MINIMUM OF 1" BELOW THE TOP MAT OF REINFORCING STEEL AND REPLACE WITH A LEVEL BED OF CONCRETE, CLASS AA TO THE HIGHER ELEVATION OF THE ADJACENT BRIDGE SEAT. LIMITS OF CONCRETE REMOVAL AND REPLACEMENT SHALL BE 18" EITHER SIDE OF ℄ OF GIRDER. THIS WORK SHALL BE PAID FOR AS ITEM 580.14, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II".
6. FOR LIMITS OF CONCRETE REMOVAL IN EACH STAGE, SEE STAGED CONSTRUCTION DETAILS (2 OF 2) (3N), BRIDGE SHEET BRII3.
7. BRIDGE SEATS SHALL BE SLOPED ½" PER FOOT EXCEPT UNDER BEARING PLATES WHERE THE SURFACE SHALL BE LEVEL. THE RESIDENT ENGINEER SHALL DETERMINE IF THE EXISTING CONCRETE AT PROPOSED BEARING LOCATION REQUIRES REPAIR. ANY WORK REQUIRED TO PROVIDE A SOUND, LEVEL SURFACE SHALL BE PERFORMED UNDER ITEM 580.14, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II", EXCEPT THAT ONLY CONCRETE, CLASS AA SHALL BE ALLOWED UNDER BEARINGS. ALL WORK AND MATERIALS REQUIRED SHALL BE PAID UNDER ITEM 580.14.
8. FOLLOWING REMOVAL OF EXISTING BACKWALL, THE CONTRACTOR SHALL GRIND AND/OR REPAIR THE CONCRETE, AS DIRECTED BY THE ENGINEER, TO PROVIDE A SMOOTH LEVEL SURFACE AT PROPOSED SEAT ELEVATION. ANY REPAIRS REQUIRED SHALL BE PERFORMED IN ACCORDANCE WITH SUBSTRUCTURE REPAIR DETAILS (3N&S), BRIDGE SHEET BRI5I. ALL COSTS FOR THIS WORK SHALL BE INCIDENTAL TO ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE (DECK & SUBSTRUCTURE)".

LEGEND:

- LIMIT OF CONCRETE REMOVAL

STATE OF VERMONT
AGENCY OF TRANSPORTATION

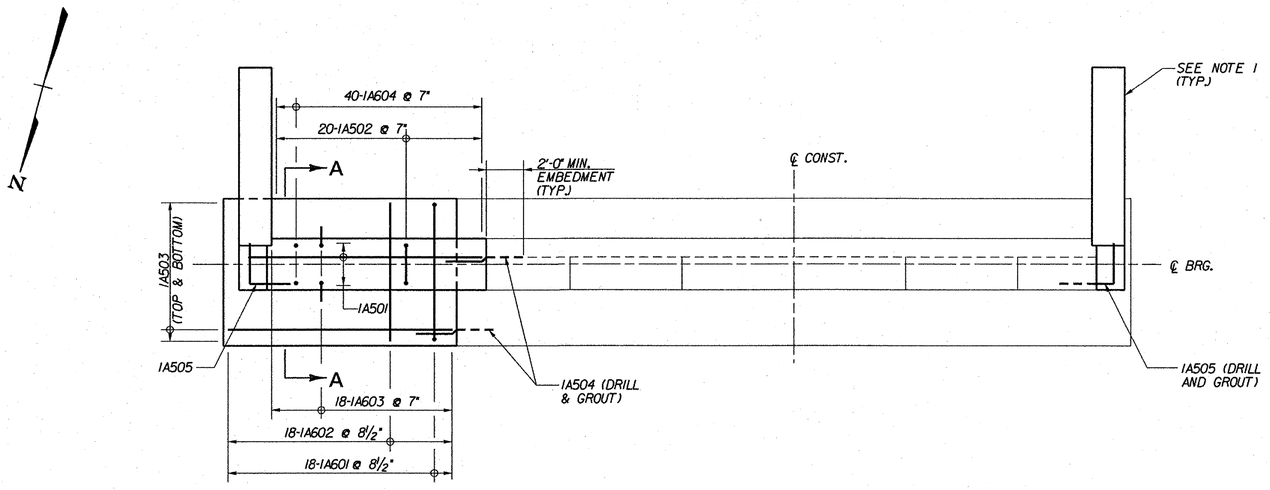
Town Of GUILFORD	Bridge No. 3N
Highway No. I-9I	Log Sta. / Surv. Sta.

I-9I NB OVER BROAD BROOK & BROAD BROOK ROAD

ABUTMENT 1 MASONRY (3N)

Designed By M. J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 0I/03	Bridge Design Supervisor J.P. HALSTEAD Date 0I/03
PROJECT GUILFORD	PROJECT NO. IM 09I-I(33)
TVGA CAD Drawing No. G NB ABUTI.dgn	Date 05/12/08
Bridge Sheet No. BRI33	Sheet 59 of II4

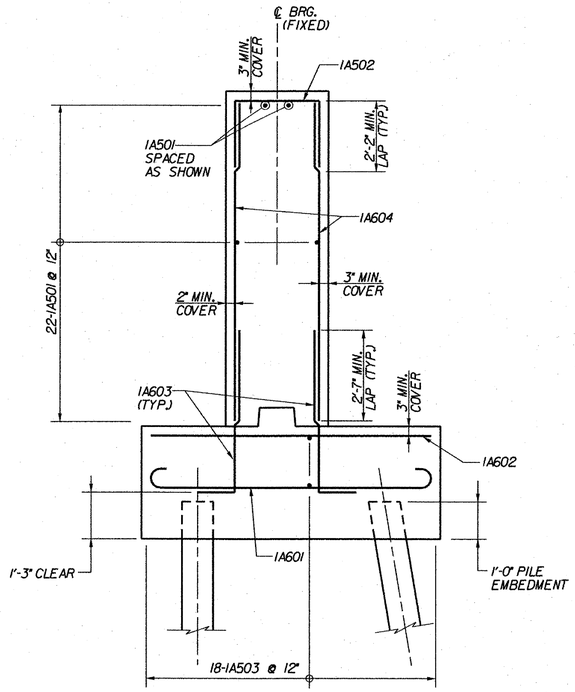
TVGA ENGINEERING, SURVEYING, P.C.



• SEE SHEET 70AR

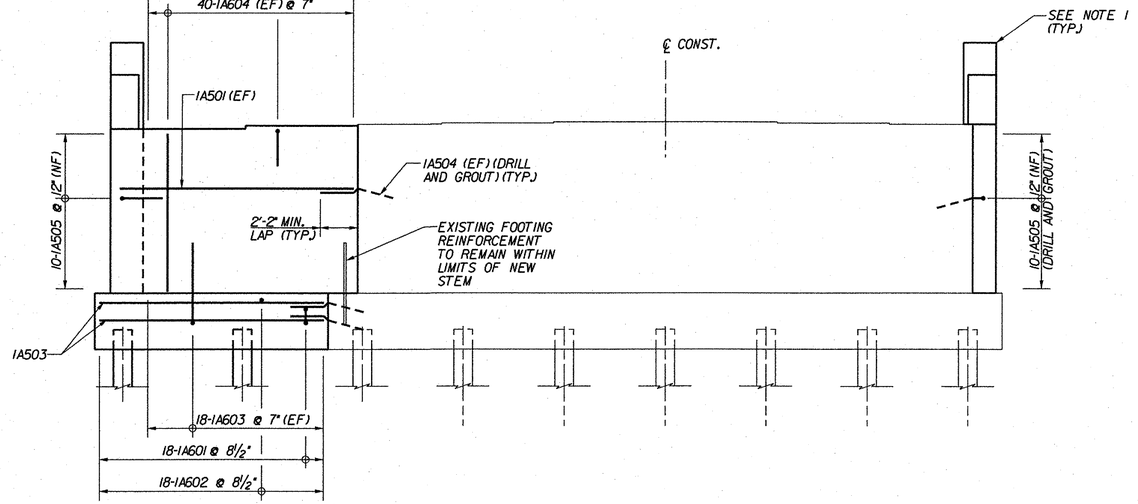
ABUTMENT 1 PLAN (FIXED) (3N)

SCALE: ¼" = 1'-0"



SECTION A–A

SCALE: ½" = 1'-0"



ABUTMENT 1 ELEVATION (3N)

SCALE: ¼" = 1'-0"

NOTES:

1. FOR WINGWALL AND CHEEKWALL REINFORCEMENT SEE WINGWALL MASONRY AND REINFORCEMENT (3N), BRIDGE SHEET BRI38.
2. DRILL AND GROUT BARS SHALL HAVE A MINIMUM 2'-0" EMBEDMENT UNLESS OTHERWISE NOTED.

KEY

NF	NEAR FACE
FF	FAR FACE
EF	EACH FACE
▲	REINFORCEMENT TO BE CUT TO FIT IN THE FIELD

TVGA ENGINEERING, SURVEYING, P.C.

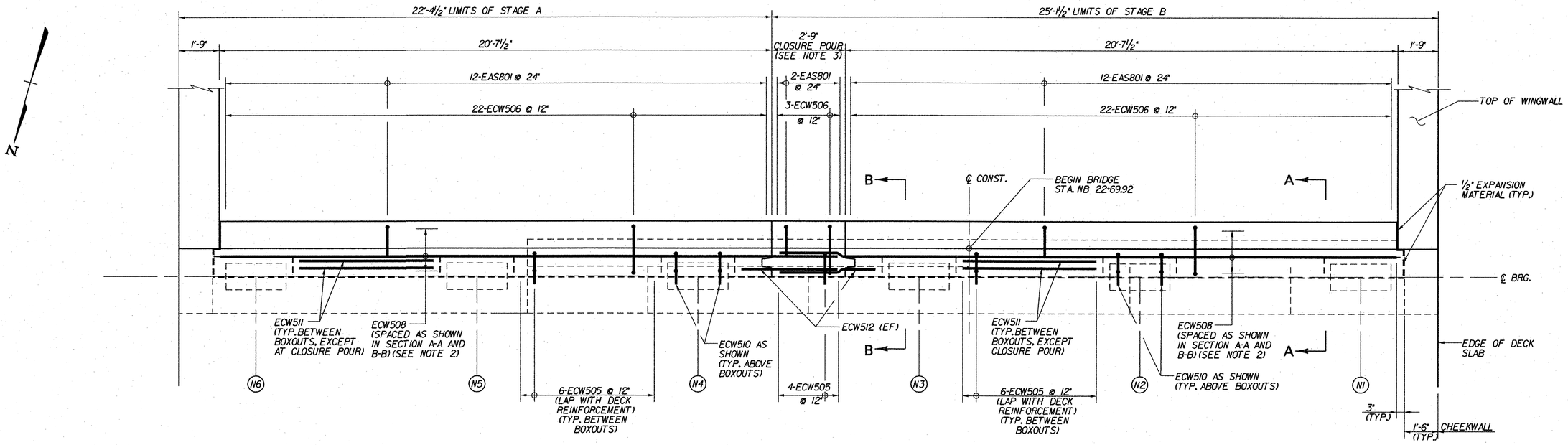
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

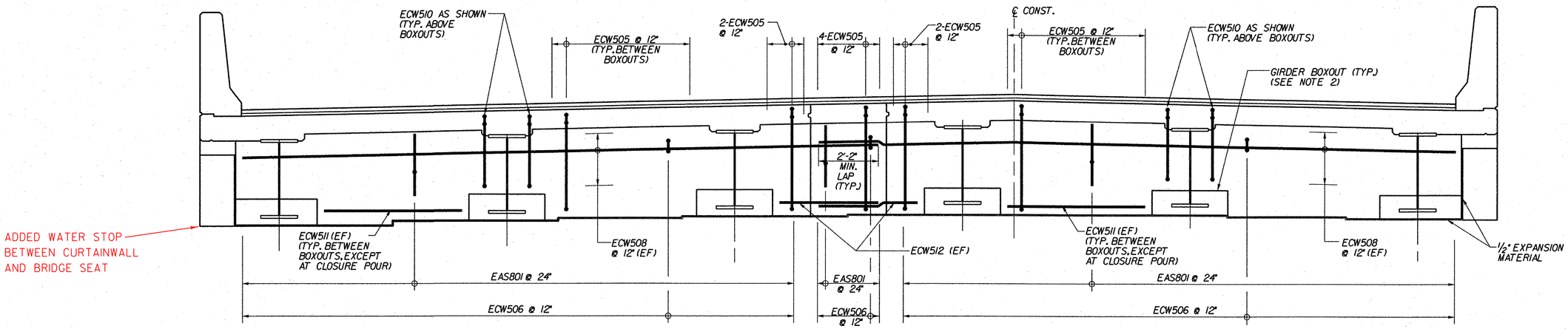
ABUTMENT 1 REINFORCEMENT (3N)

Designed By M. J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G NB ABRF1.dgn	Date 04/28/08
Bridge Sheet No. BRI34	Sheet 60 of 114



CURTAINWALL PLAN (FIXED) (3N)

SCALE: ½" = 1'-0"



CURTAINWALL ELEVATION (3N)

SCALE: ½" = 1'-0"

NOTES:

1. FOR DETAILS OF DECK REINFORCEMENT, SEE DECK REINFORCEMENT (3N), BRIDGE SHEET BRI16.
2. FOR SECTION A-A, B-B AND BOXOUT DETAILS, SEE ABUTMENT 2 CURTAINWALL DETAILS (3S), BRIDGE SHEET BRI46.
3. CURTAINWALL CLOSURE POUR SHALL BE POURED CONTINUOUSLY WITH DECK CLOSURE POUR. FOR FURTHER INFORMATION, SEE STAGED CONSTRUCTION DETAILS (1 OF 2) (3N), BRIDGE SHEET BRI12.

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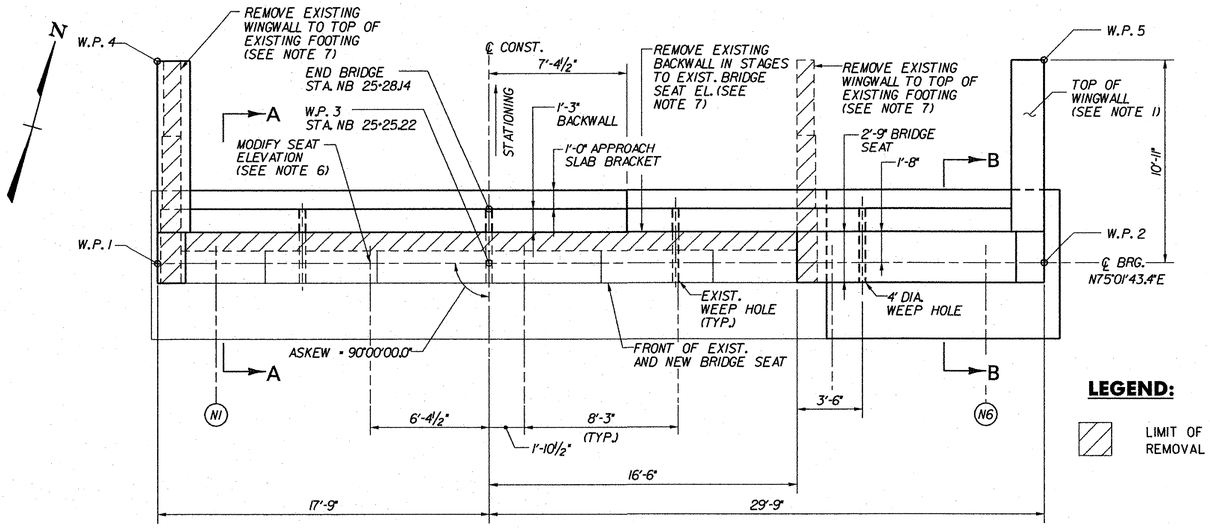
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

ABUTMENT 1 CURTAINWALL DETAILS (3N)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G NB ABICTWL.dgn	Date 04/28/08
Bridge Sheet No. BRI35	Sheet 61 of 114

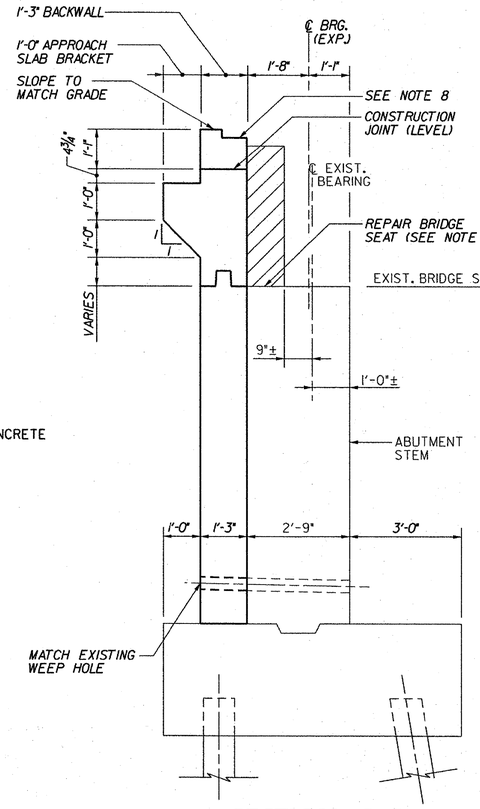


ABUTMENT 2 PLAN (EXP.) (3N)

SCALE: ¼" = 1'-0"

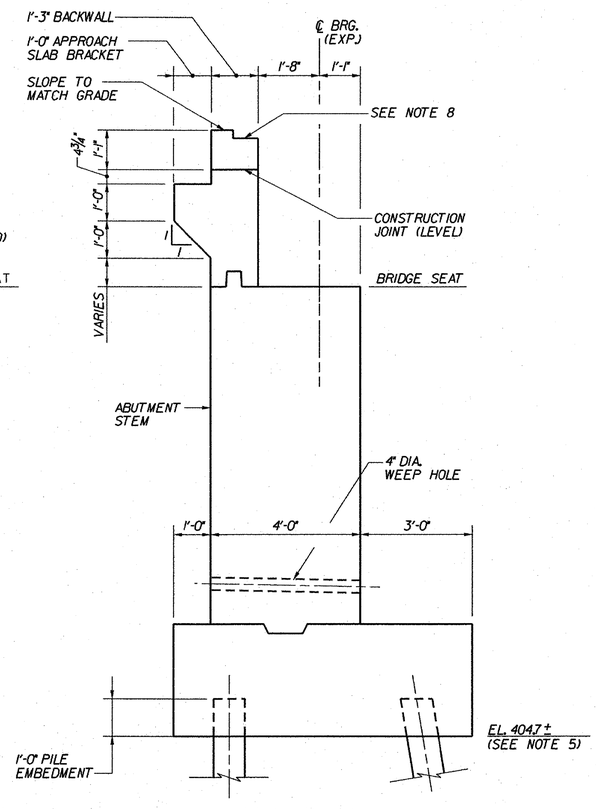
LEGEND:

LIMIT OF CONCRETE REMOVAL



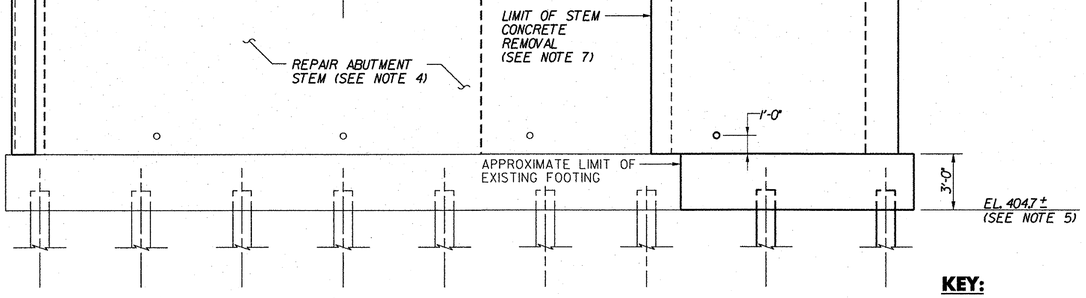
SECTION A–A

SCALE: ½" = 1'-0"



SECTION B–B

SCALE: ½" = 1'-0"



ABUTMENT 2 ELEVATION (3N)

(BACKWALL AND WINGWALL REMOVAL LIMITS NOT SHOWN FOR CLARITY)

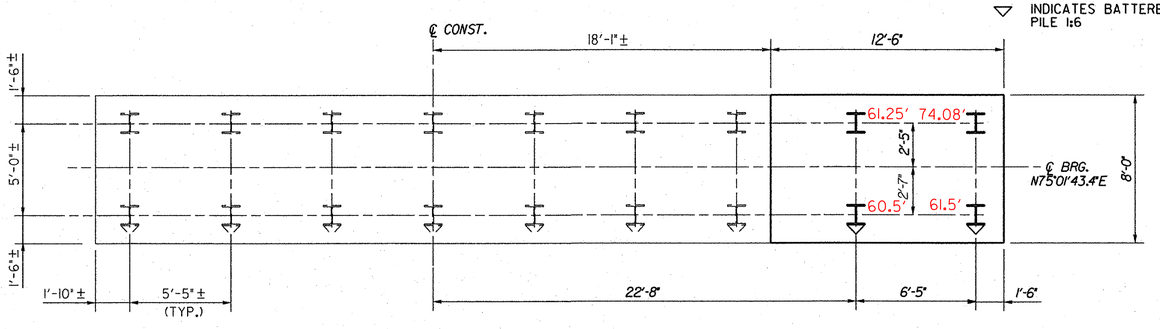
SCALE: ¼" = 1'-0"

KEY:

EXISTING 12BP53 PILE

HP 12X53 PILE

INDICATES BATTERED PILE 1:6



FOOTING PLAN (3N)

SCALE: ¼" = 1'-0"

NOTES:

1. FOR WINGWALL AND CHEEKWALL DIMENSIONS, DETAILS AND ELEVATIONS, SEE WINGWALL MASONRY & REINFORCEMENT (3N), BRIDGE SHEET BRI38.
2. BACKWALL ELEVATIONS SHOWN AT FRONT FACE OF BACKWALL.
3. FOR ABUTMENT REINFORCEMENT DETAILS, SEE ABUTMENT 2 REINFORCEMENT (3N) BRIDGE SHEET BRI37.
4. REPAIR ALL EXISTING SPALLED AND DELAMINATED AREAS ON ABUTMENT. SEE EXISTING SUBSTRUCTURE CONDITION (3N), BRIDGE SHEET BRI60, FOR APPROXIMATE CONDITION OF EXISTING SUBSTRUCTURE. FOR CONCRETE REPAIR DETAILS, SEE SUBSTRUCTURE REPAIR DETAILS (3N&S), BRIDGE SHEET BRI5I.
5. THE NEW BOTTOM OF FOOTING ELEVATION SHOWN IS APPROXIMATE AND SHALL BE CONSTRUCTED AT THE SAME ELEVATION AS THE EXISTING FOOTING. THE CONTRACTOR SHALL VERIFY THE EXISTING FOOTING LOCATION PRIOR TO ORDERING REINFORCING STEEL.
6. DUE TO THE PROXIMITY OF THE GIRDER TO THE STEP IN THE EXISTING BRIDGE SEAT, REMOVE 4" ± OF CONCRETE TO A MINIMUM OF 1" BELOW THE TOP MAT OF REINFORCING STEEL AND REPLACE WITH A LEVEL BED OF CONCRETE CLASS AA TO THE HIGHER ELEVATION OF THE ADJACENT BRIDGE SEAT. LIMITS OF CONCRETE REMOVAL AND REPLACEMENT SHALL BE 18" EITHER SIDE OF ℄ OF GIRDER. THIS WORK SHALL BE PAID FOR AS ITEM 580.14 "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II".
7. FOR LIMITS OF CONCRETE REMOVAL IN EACH STAGE, SEE STAGED CONSTRUCTION DETAILS (2 OF 2) (3N), BRIDGE SHEET BRII3.
8. FOR DETAILS OF EXPANSION JOINT HARDWARE, SEE FINGER JOINT DETAILS, BRIDGE SHEET BRI27.
9. BRIDGE SEAT SHALL BE SLOPED ½" PER FOOT EXCEPT UNDER BEARING PLATES WHERE THE SURFACE SHALL BE LEVEL. THE RESIDENT ENGINEER SHALL DETERMINE IF THE EXISTING CONCRETE AT PROPOSED BEARING LOCATIONS REQUIRES REPAIR. ANY WORK REQUIRED TO PROVIDE A SOUND, LEVEL SURFACE SHALL BE PERFORMED UNDER ITEM 580.14 "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II", EXCEPT THAT ONLY CONCRETE, CLASS AA SHALL BE ALLOWED UNDER BEARINGS. ALL WORK AND MATERIALS REQUIRED SHALL BE PAID UNDER ITEM 580.14.
10. FOLLOWING REMOVAL OF EXISTING BACKWALL, THE CONTRACTOR SHALL GRIND AND/OR REPAIR THE CONCRETE, AS DIRECTED BY THE ENGINEER, TO PROVIDE A SMOOTH LEVEL SURFACE AT PROPOSED SEAT ELEVATION. ANY REPAIRS REQUIRED SHALL BE PERFORMED IN ACCORDANCE WITH SUBSTRUCTURE REPAIR DETAILS (3N&S), BRIDGE SHEET BRI5I. ALL COSTS FOR THIS WORK SHALL BE INCIDENTAL TO ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE (DECK & SUBSTRUCTURE)".

STATE OF VERMONT
AGENCY OF TRANSPORTATION

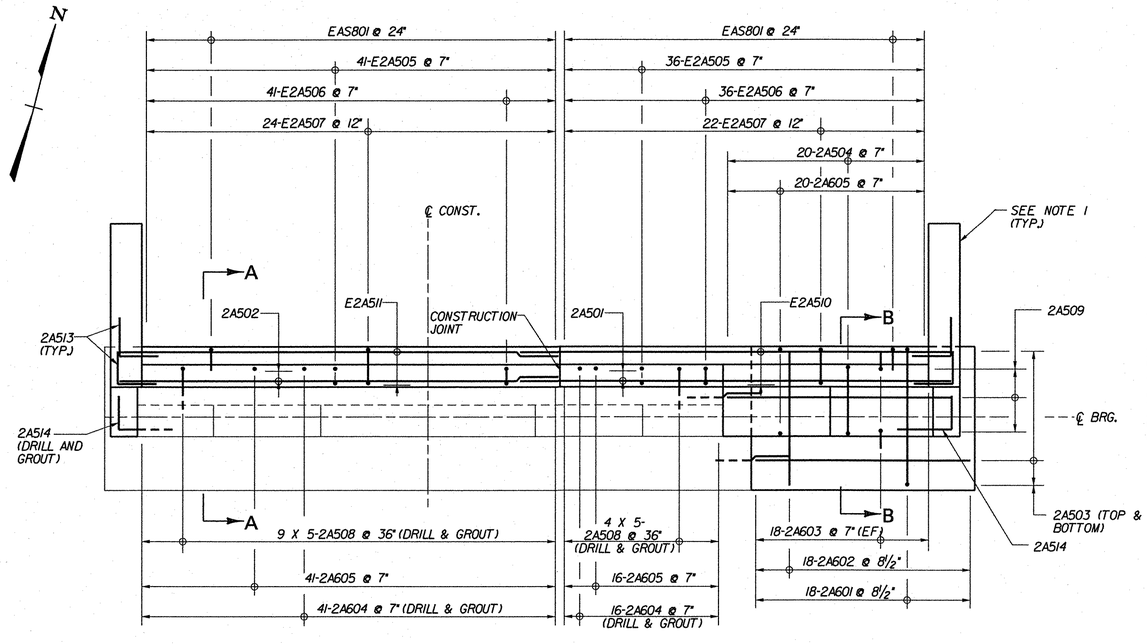
Town Of	GUILFORD	Bridge No.	3N
Highway No.	I-91	Log Sta. / Surv. Sta.	

I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

ABUTMENT 2 MASONRY (3N)

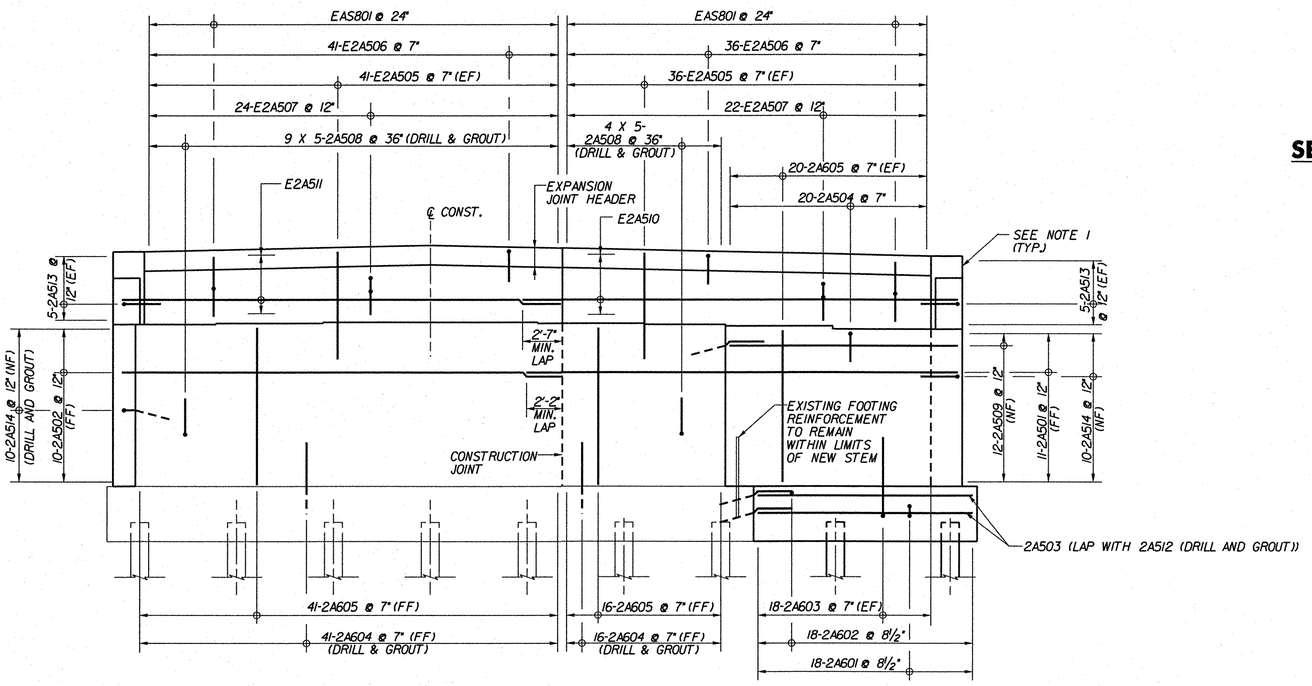
Designed By	M. J. MOZER	Drawn By	G.K. MORZE
Checked By	P.W. SZUSTAK Date 01/03	Bridge Design Supervisor	J.P. HALSTEAD Date 01/03
PROJECT	GUILFORD	PROJECT NO.	IM 091-1(33)
TVGA CAD Drawing No.	G NB ABUT2.dgn	Date	05/12/08
Bridge Sheet No.	BRI36	Sheet	62 of 114

TVGA ENGINEERING, SURVEYING, P.C.



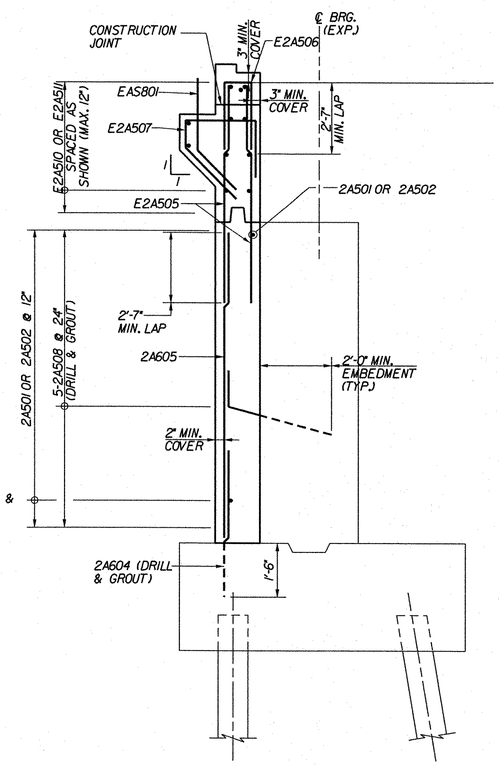
ABUTMENT 2 PLAN (3N)

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



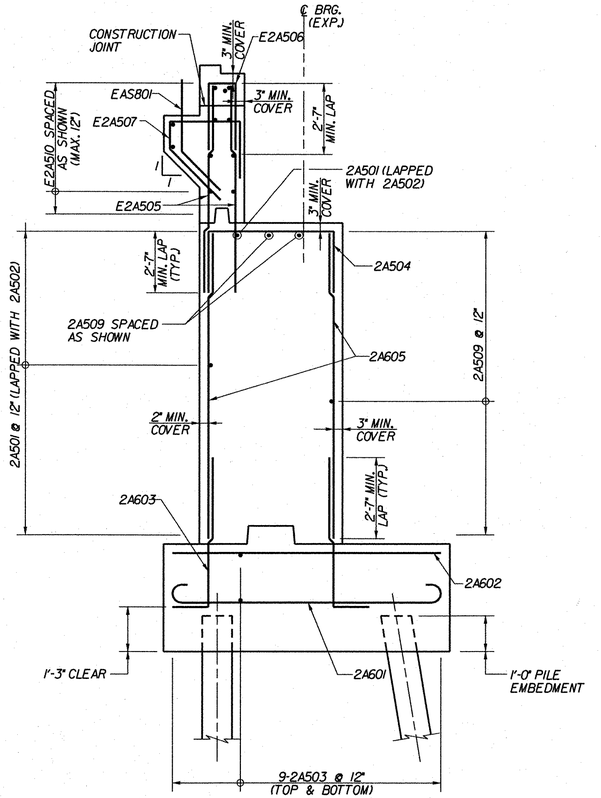
ABUTMENT 2 ELEVATION (3N)

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



SECTION A–A

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



SECTION B–B

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

NOTES:

1. FOR WINGWALL AND CHEEKWALL REINFORCEMENT SEE WINGWALL MASONRY AND REINFORCEMENT (3N), BRIDGE SHEET BRI38.
2. DRILL AND GROUT BARS SHALL HAVE A MINIMUM 2'-0" EMBEDMENT UNLESS OTHERWISE NOTED.

KEY

NF	NEAR FACE
FF	FAR FACE
EF	EACH FACE
▲	REINFORCEMENT TO BE CUT TO FIT IN THE FIELD

TVGA ENGINEERING, SURVEYING, P.C.

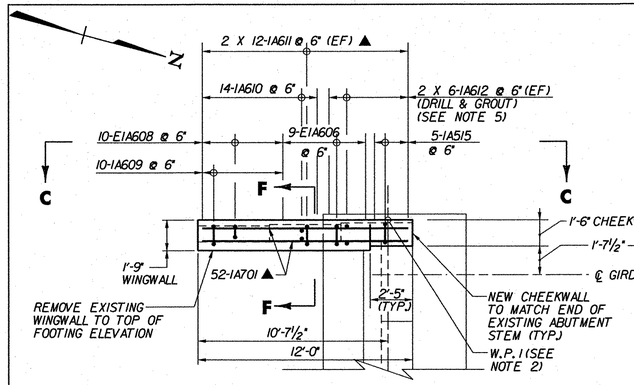
STATE OF VERMONT
AGENCY OF TRANSPORTATION

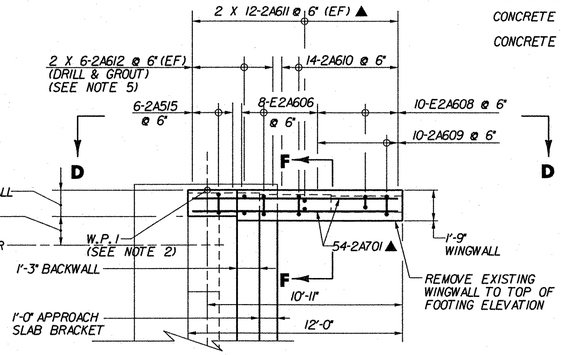
Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta. / Surv. Sta.

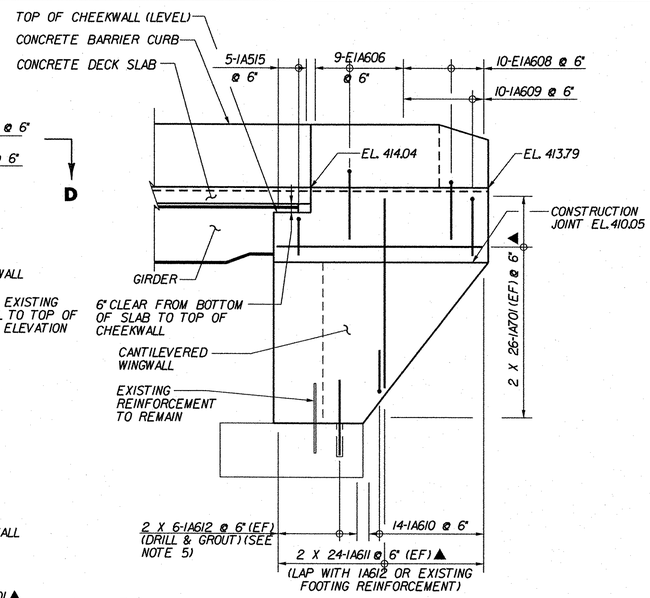
I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

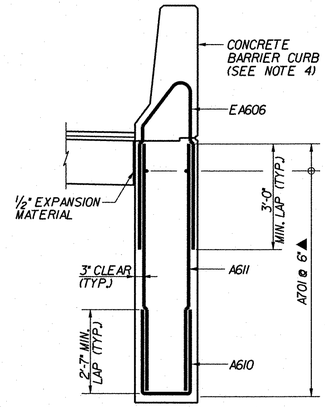
ABUTMENT 2 REINFORCEMENT (3N)

Designed By M. J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G NB ABRF2.dgn	Date 04/28/08
Bridge Sheet No. BRI37	Sheet 63 of 114



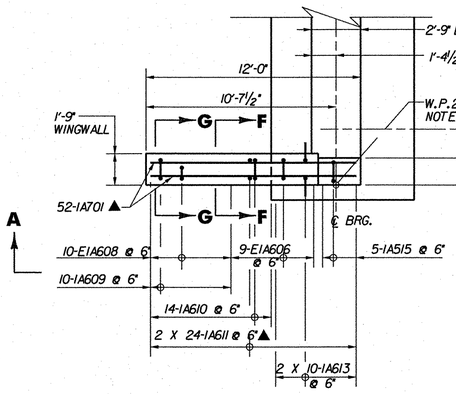






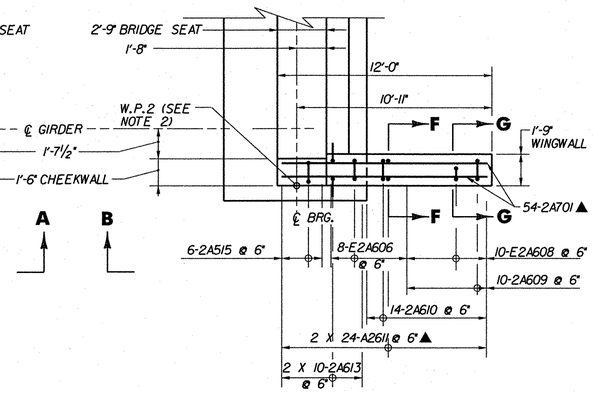
SECTION F–F

SCALE: ½"=1'-0"



ABUTMENT 1 (FIXED) (3N)

SCALE: ¼" = 1'-0"

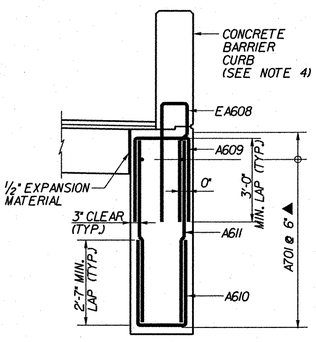


ABUTMENT 2 (EXP.) (3N)

SCALE: ¼" = 1'-0"

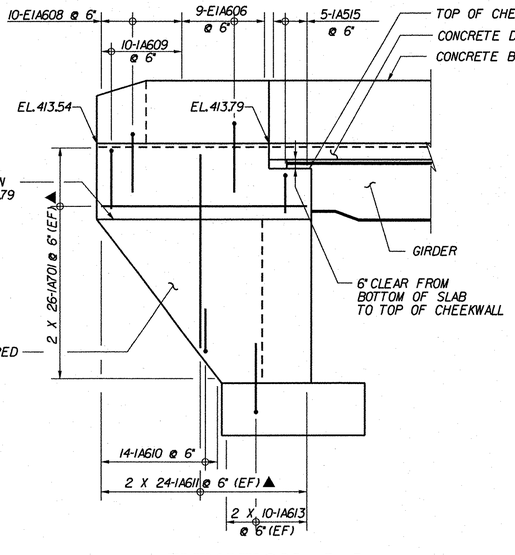
ELEVATION C–C

SCALE: ¼" = 1'-0"



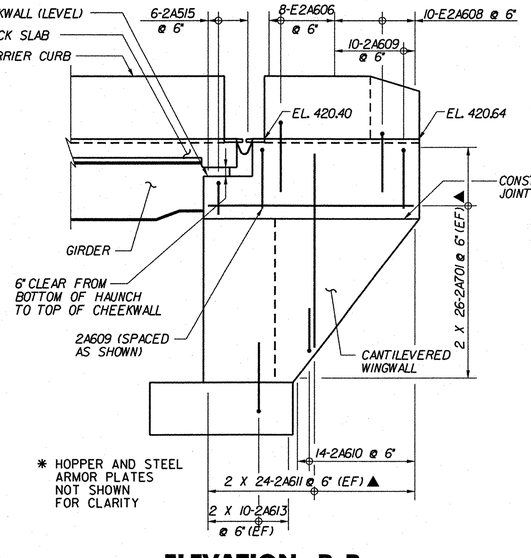
SECTION G–G

SCALE: ½"=1'-0"



ELEVATION A–A

SCALE: ¼" = 1'-0"



ELEVATION B–B

SCALE: ¼"=1'-0"

ELEVATION D–D

SCALE: ¼"=1'-0"

KEY

NF	NEAR FACE
FF	FAR FACE
EF	EACH FACE
▲	REINFORCEMENT TO BE CUT TO FIT IN THE FIELD

NOTES:

1. DECK SLAB NOT SHOWN IN WINGWALL PLANS FOR CLARITY.
2. WORKING POINT (W.P.) 1 AND 2 LOCATIONS ARE SHOWN ON MASONRY PLANS FOR EACH ABUTMENT.
3. FOR DIMENSIONS OF CONCRETE BARRIER CURB, SEE FASCIA DETAIL ON TRANSVERSE SECTION 3N BRIDGE SHEET BRII4.
4. FOR BARRIER CURB REINFORCING DETAILS, SEE CONCRETE BARRIER CURB DETAILS (3N&S), BRIDGE SHEET BRII8.
5. POSITION DRILL AND GROUT BARS BETWEEN EXISTING REINFORCING TO PROVIDE BARS AT 6" SPACING.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

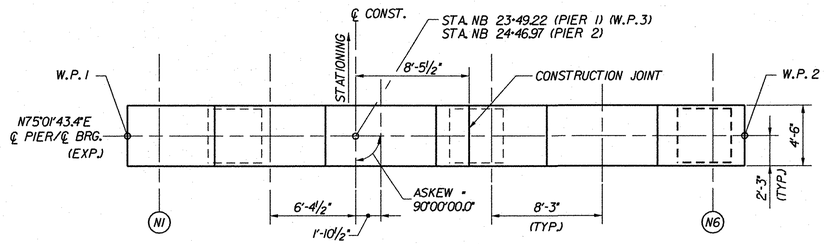
Town Of	GUILFORD	Bridge No.	3N
Highway No.	I-91	Log Sta.	
		Surv. Sta.	

I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

WINGWALL MASONRY & REINFORCEMENT (3N)

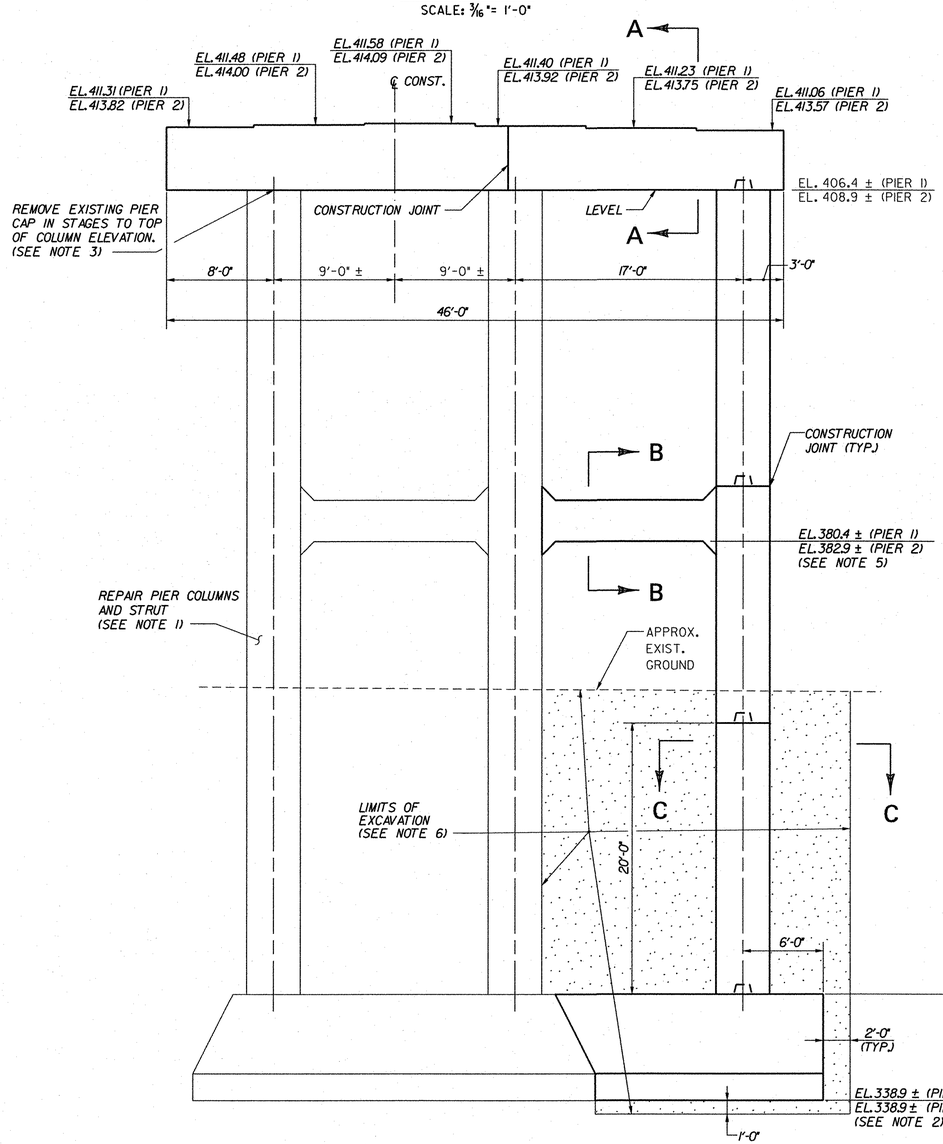
Designed By	M.J. MOZER	Drawn By	G.K. MORZE
Checked By	Date	Bridge Design Supervisor	
P.W. SZUSTAK	01/03	J.P. HALSTEAD	Date 01/03
PROJECT	GUILFORD	PROJECT NO.	IM 091-1(33)
TVGA CAD Drawing No. G NB WING.dgn		Date	04/28/08
Bridge Sheet No. BRI38		Sheet	64 of 114

TVGA ENGINEERING, SURVEYING, P.C.



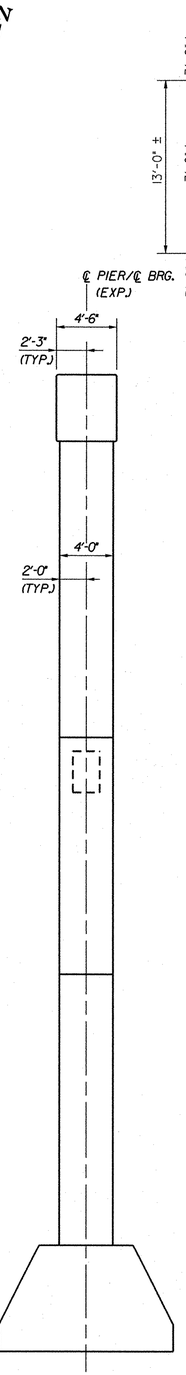
PLAN (3N)

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



PIER ELEVATION (3N)

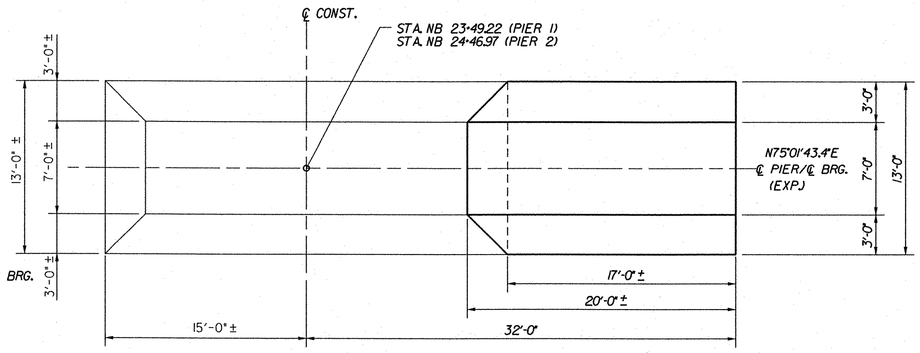
SCALE: 3/16"= 1'-0"



END ELEVATION (3N)

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

N



FOOTING PLAN (3N)

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

SECTION A–A

SCALE: ½"= 1'-0"

SECTION B–B

SCALE: ½"= 1'-0"

SECTION C–C

SCALE: ½"= 1'-0"

NOTES:

1. REPAIR ALL EXISTING SPALLED AND DELAMINATED AREAS ON PIERS. SEE EXISTING SUBSTRUCTURE CONDITION (3N), BRIDGE SHEETS BRI58 AND BRI59, FOR APPROXIMATE CONDITION OF EXISTING SUBSTRUCTURE. FOR CONCRETE REPAIR DETAILS, SEE SUBSTRUCTURE REPAIR DETAILS (3N&S), BRIDGE SHEET BRI51.
2. THE NEW BOTTOM OF FOOTING ELEVATION SHOWN IS APPROXIMATE. NEW FOOTINGS SHALL BE CONSTRUCTED AT THE SAME ELEVATION AS THE EXISTING FOOTING. THE CONTRACTOR SHALL VERIFY THE EXISTING FOOTING LOCATION PRIOR TO ORDERING REINFORCING STEEL.
3. SEE PIER STAGING DETAILS (3N), BRIDGE SHEET BRI41.
4. STEPS ON PIER CAP SEAT SHALL BE EQUIDISTANT BETWEEN GIRDERS.
5. THE NEW BOTTOM OF STRUT ELEVATION IS APPROXIMATE. NEW STRUT SHALL BE CONSTRUCTED AT THE SAME ELEVATION AS THE EXISTING STRUT. THE CONTRACTOR SHALL VERIFY THE EXISTING STRUT LOCATION PRIOR TO ORDERING REINFORCING STEEL.
6. FOR EXCAVATION PAY LIMITS AND COFFERDAM NOTES, SEE PRELIMINARY INFORMATION SHEET, BRIDGE SHEET BRI00.
7. BRIDGE SEATS SHALL BE SLOPED ½" PER FOOT EXCEPT UNDER BEARING PLATES WHERE THE SURFACE SHALL BE LEVEL.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

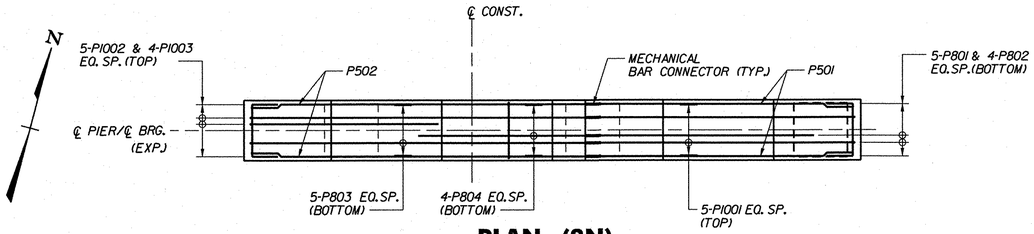
Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

PIER MASONRY (3N)

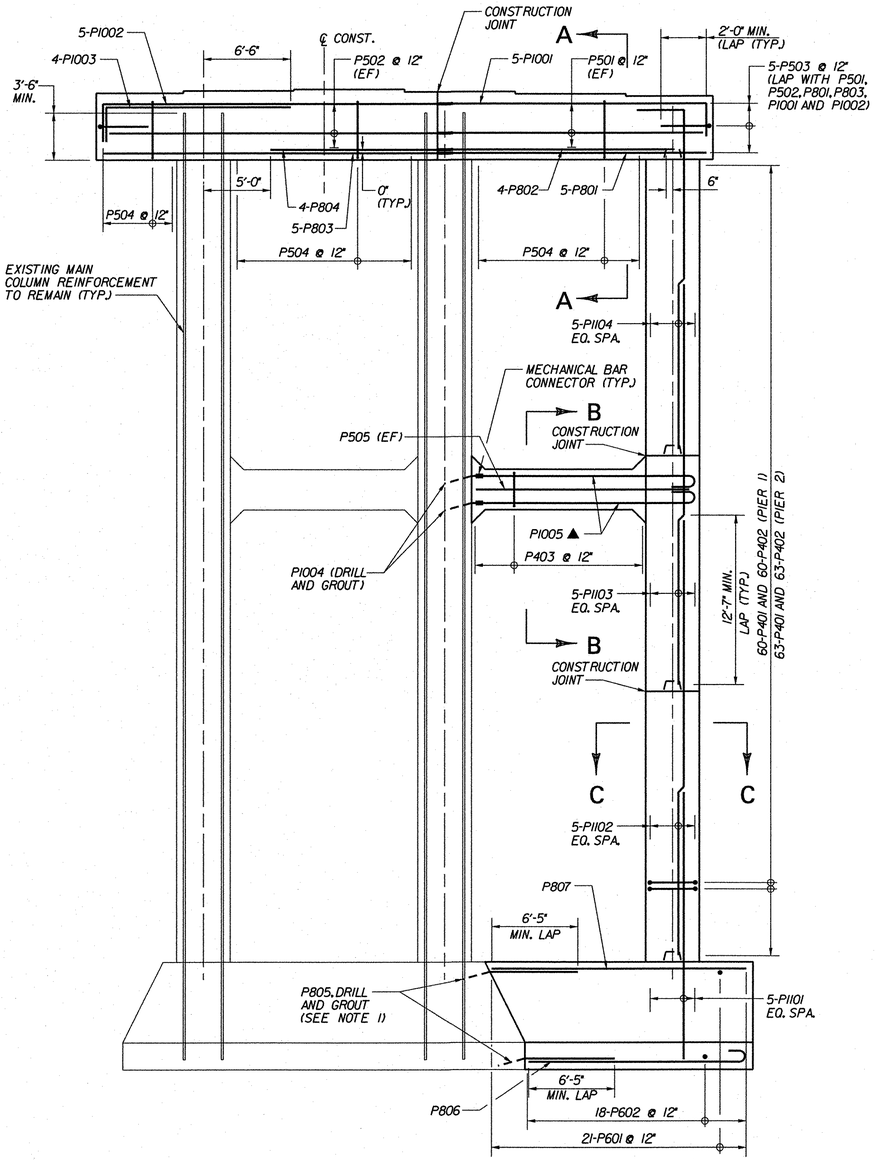
Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G NB PIER.dgn	Date 05/12/08
Bridge Sheet No. BRI39	Sheet 65 of 114

TVGA ENGINEERING, SURVEYING, P.C.



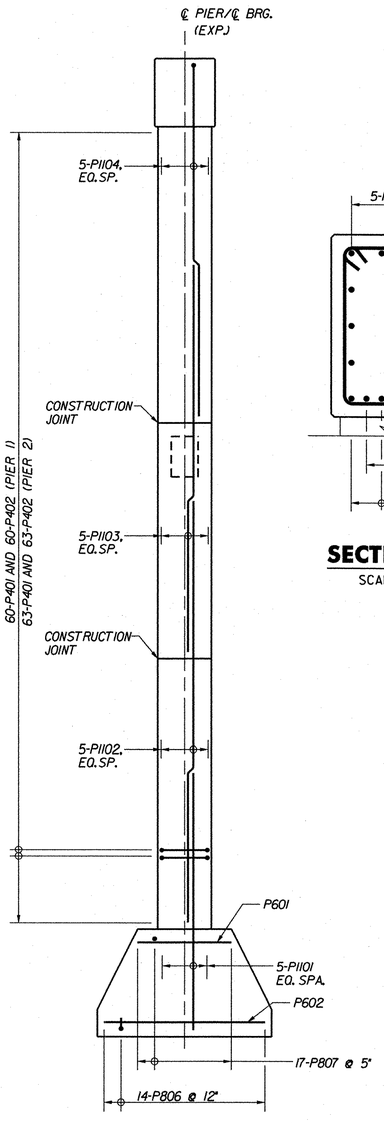
PLAN (3N)

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



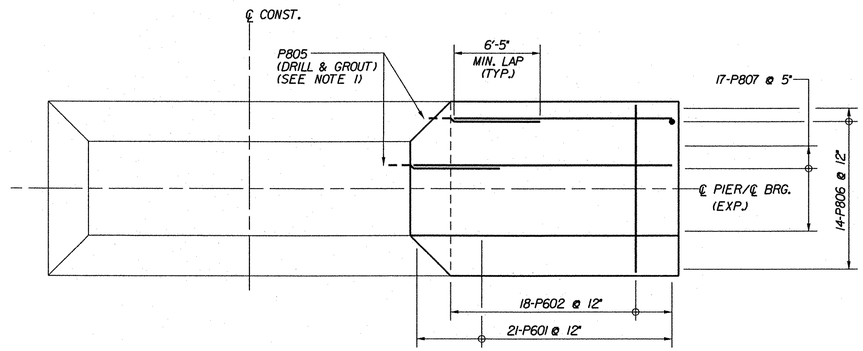
PIER ELEVATION (3N)

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



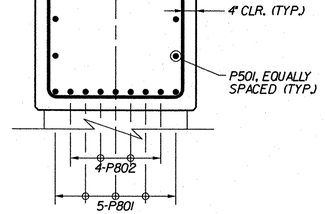
END ELEVATION (3N)

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



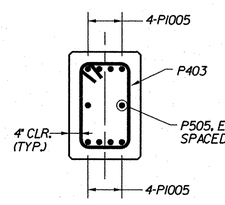
FOOTING PLAN (3N)

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



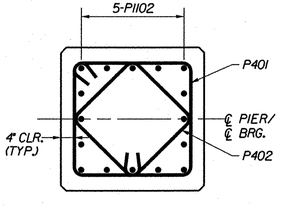
SECTION A–A

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



SECTION B–B

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



SECTION C–C

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

NOTES:

1. DRILL AND GROUT BARS SHALL BE DRILLED AND EPOXY GROUTED 2'-3" MINIMUM INTO THE CONCRETE. DRILL AND EPOXY GROUT SYSTEM SHALL BE:
   - DAYTON SUPERIOR SURE-ANCHOR J-51 SYSTEM
   - HILTI, INC. HIT HY-150 SYSTEM
   - UNITEX PRO-POXY 300 FAST SYSTEM

   OR EQUIVALENT APPROVED BY VAOT MATERIALS AND RESEARCH SECTION. ALL COSTS FOR DRILLING AND EPOXY GROUTING REINFORCING BARS SHALL BE PAID UNDER ITEM 507.16, "DRILLING AND GROUTING DOWELS".
2. FOR DRILL AND GROUT BAR DETAIL, SEE TYPICAL BRIDGE DETAILS, BRIDGE SHEET BRI29.

KEY

NF	NEAR FACE
FF	FAR FACE
EF	EACH FACE
▲	REINFORCEMENT TO BE CUT TO FIT IN THE FIELD

STATE OF VERMONT
AGENCY OF TRANSPORTATION

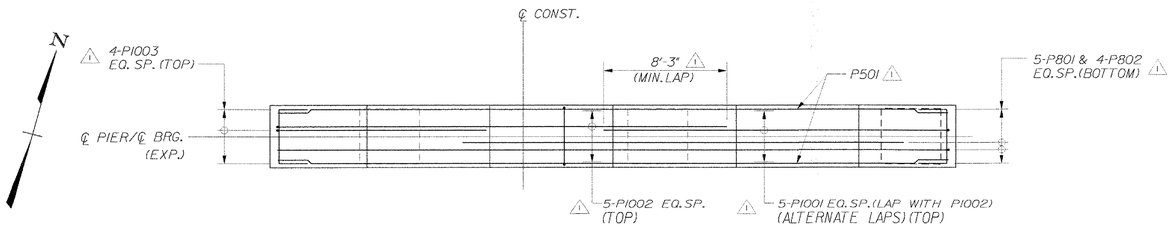
Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

PIER REINFORCEMENT (3N)

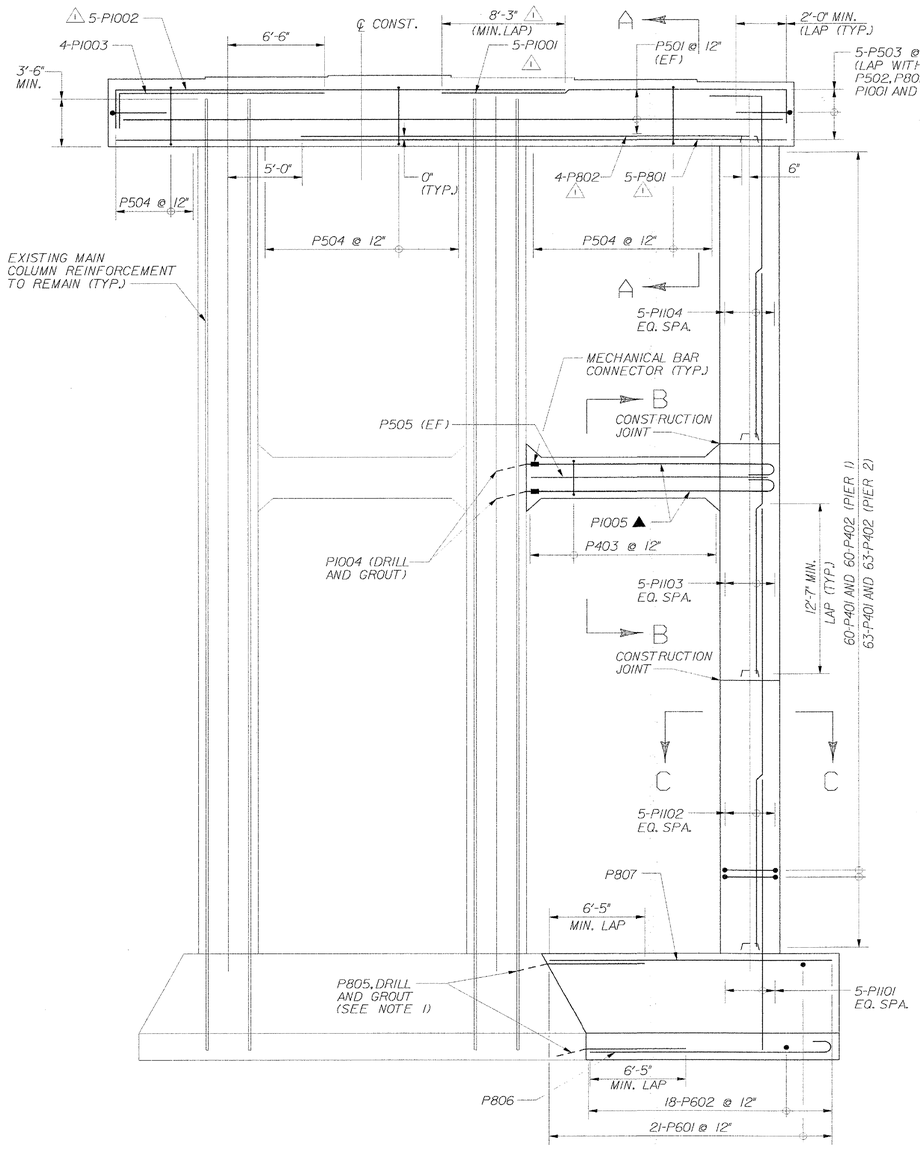
Designed By M.J. MOZER	Drawn By D.M. BOWEN
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G NB PRF.dgn	Date 04/28/08
Bridge Sheet No. BRI40	Sheet 66 of 114

TVGA ENGINEERING, SURVEYING, P.C.



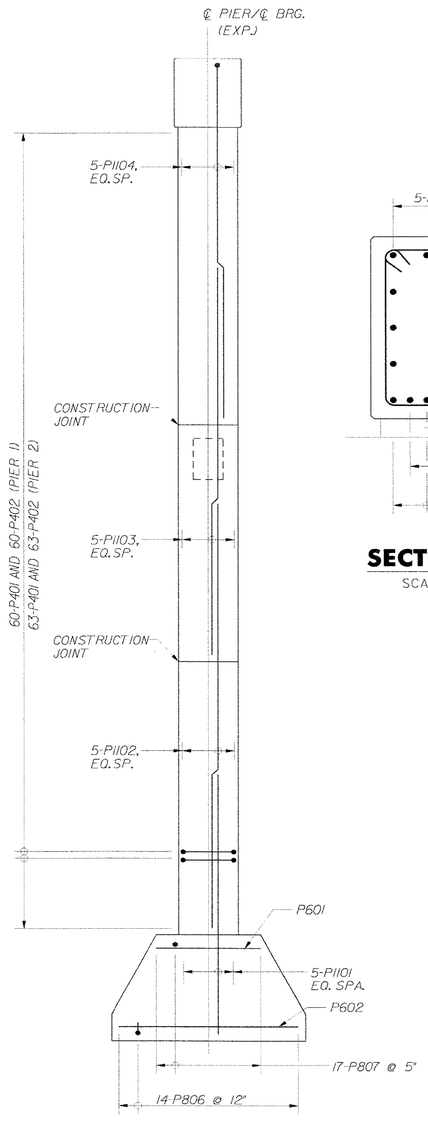
PLAN (3N)

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



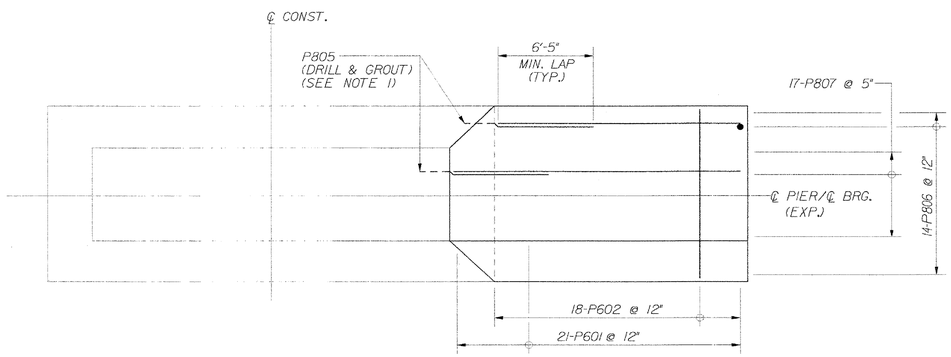
PIER ELEVATION (3N)

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



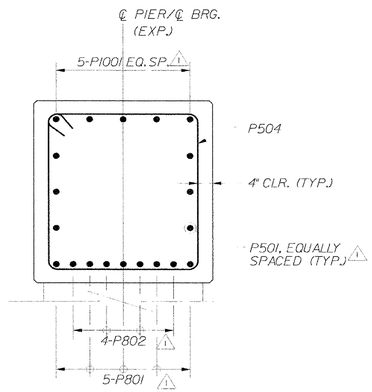
END ELEVATION (3N)

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



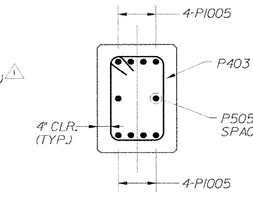
FOOTING PLAN (3N)

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



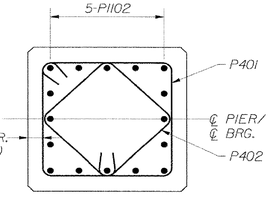
SECTION A–A

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



SECTION B–B

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



SECTION C–C

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

NOTES:

1. DRILL AND GROUT BARS SHALL BE DRILLED AND EPOXY GROUTED 2'-3" MINIMUM INTO THE CONCRETE. DRILL AND EPOXY GROUT SYSTEM SHALL BE:
   - DAYTON SUPERIOR SURE-ANCHOR J-5I SYSTEM
   - HILTI, INC. HIT HY-150 SYSTEM
   - UNITEX PRO-POXY 300 FAST SYSTEM

   OR EQUIVALENT APPROVED BY VAOT MATERIALS AND RESEARCH SECTION. ALL COSTS FOR DRILLING AND EPOXY GROUTING REINFORCING BARS SHALL BE PAID UNDER ITEM 507.16, "DRILLING AND GROUTING DOWELS".
2. FOR DRILL AND GROUT BAR DETAIL, SEE TYPICAL BRIDGE DETAILS, BRIDGE SHEET BRI29.

KEY

NF	NEAR FACE
FF	FAR FACE
EF	EACH FACE
▲	REINFORCEMENT TO BE CUT TO FIT IN THE FIELD

REV. NO.	DATE	COMMENT
1	02-02-09	REVISED DIMENSIONS AND QUANTITIES

THIS SHEET SUPERSEDES BR140

TVGA ENGINEERING, SURVEYING, P.C.

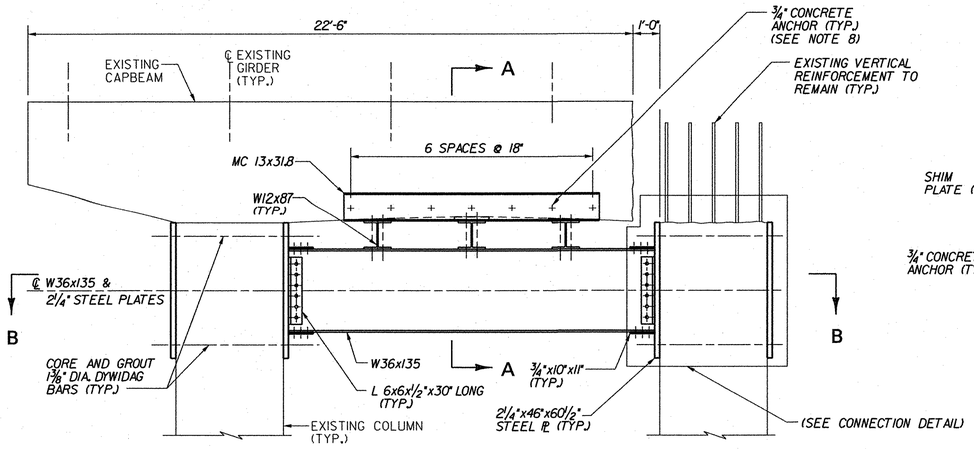
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

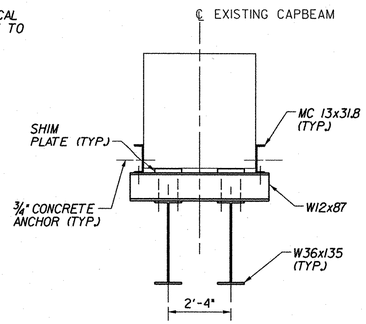
PIER REINFORCEMENT (3N)

Designed By M.J. MOZER	Drawn By D.M. BOWEN
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G NB PRF.dgn	Date 04/28/08
Bridge Sheet No. BR140R	Sheet 66R of 114



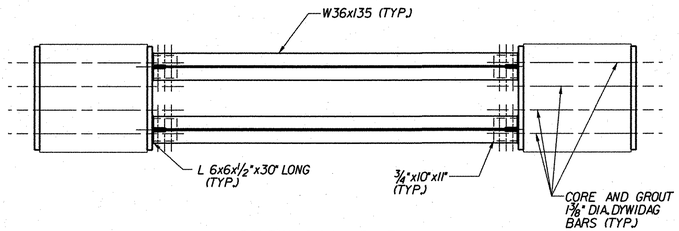
PIER STAGING ELEVATION (3N)

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



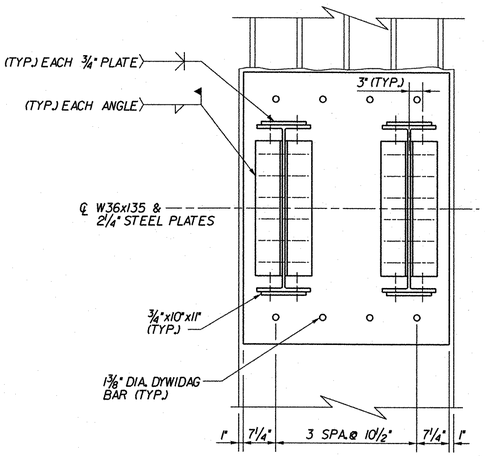
SECTION A–A

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



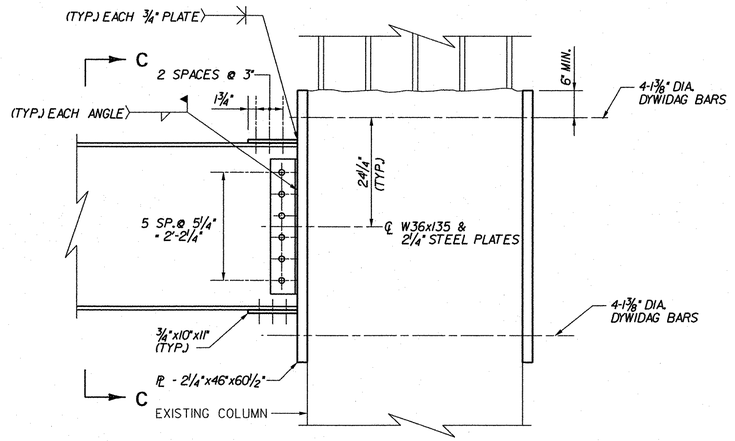
SECTION B–B

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



SECTION C–C

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



CONNECTION DETAIL

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

PIER STAGING SEQUENCE OF WORK

1. INSTALL PIER TEMPORARY SHORING AS SHOWN.
2. INSTALL PHASE I, STAGE A TRAFFIC CONTROL.
3. REMOVE PORTION OF EXISTING CAP BEAM AS SHOWN.
4. COMPLETE PHASE I, STAGE A CONSTRUCTION.
5. INSTALL PHASE I, STAGE B TRAFFIC CONTROL.
6. REMOVE REMAINDER OF EXISTING CAP BEAM & PORTION OF THE TEMPORARY SHORING.
7. COMPLETE PHASE I, STAGE B CONSTRUCTION.
8. REMOVE REMAINING PORTION OF TEMPORARY SHORING AND REPAIR COLUMNS AS NOTED.

NOTES:

1. BOLTS SHALL BE 1" DIAMETER AASHTO TYPE I, HIGH STRENGTH BOLTS IN 1 1/8" DIAMETER HOLES. NUTS AND WASHERS SHALL ALSO CONFORM TO AASHTO M164. BOLT LENGTH SHALL BE SUCH THAT THE BOLT THREADS ARE EXCLUDED FROM THE SHEAR PLANE.
2. STEEL FOR BEAMS AND CONNECTION PLATES SHALL BE AASHTO M270, GRADE 50.
3. COST OF ALL MATERIALS, FABRICATION AND INSTALLATION ASSOCIATED WITH TEMPORARY SHORING, NON-DESTRUCTIVE TESTING, AND CONCRETE REPAIRS OF THE CAPBEAM SHALL BE INCLUDED IN UNIT BID PRICE FOR ITEM 502.10, "SHORING SUPERSTRUCTURE".
4. EXISTING VERTICAL REINFORCEMENT IN THE COLUMN SHALL REMAIN.
5. W36x135 PORTION OF TEMPORARY SHORING SHALL REMAIN IN PLACE UNTIL ALL CAP BEAM CONSTRUCTION IS COMPLETED.
6. TEMPORARY SHORING CONNECTION DOWELS SHALL BE REMOVED 3" BEYOND THE COLUMN SURFACE AND THE CONCRETE REPAIRED IN ACCORDANCE WITH SECTION 580.
7. CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING COLUMN REINFORCEMENT TO ENSURE THAT CORING WILL NOT DAMAGE EXISTING REINFORCEMENT. FIELD LOCATION OF REINFORCEMENT SHALL BE ACCOMPLISHED USING NON-DESTRUCTIVE MEANS, WITHOUT DAMAGE TO THE EXISTING PIER.
8. CONCRETE ANCHORS SHALL BE WILLIAMS "S-7 REUSABLE SPIN-LOCK CONCRETE ANCHOR" OR EQUIVALENT.
9. FABRICATION DRAWINGS, INCLUDING SHOP AND FIELD WELDING PROCEDURES, CONFORMING TO SUBSECTION 105.03 OF THE SPECIFICATIONS SHALL BE SUBMITTED PRIOR TO FABRICATION OF TEMPORARY PIER SUPPORT.
10. SHOULD THE CONTRACTOR ELECT TO MODIFY OR USE A DIFFERENT SUPPORT SYSTEM, FIVE SETS OF DETAILED PLANS, INCLUDING ALL COMPUTATIONS, STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF VERMONT SHALL BE SUBMITTED TO THE VTRANS STRUCTURES ENGINEER FOR APPROVAL.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

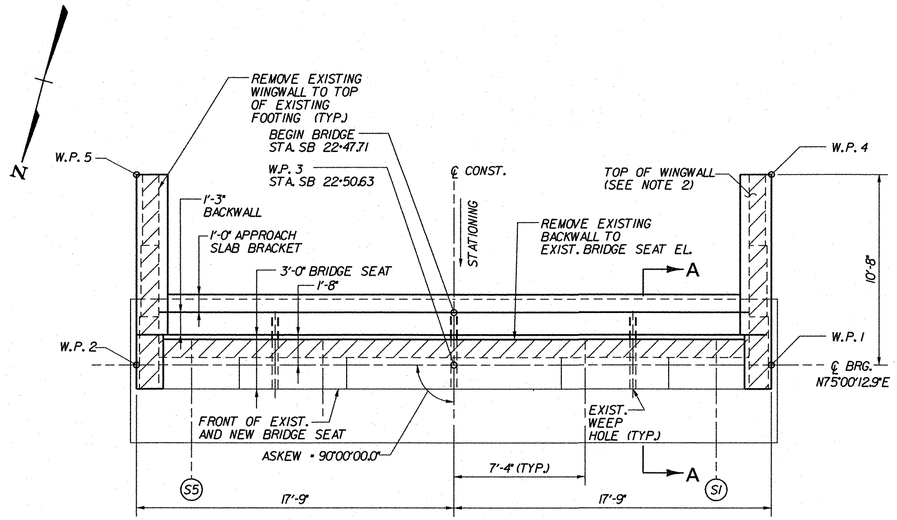
Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

PIER STAGING DETAILS (3N)

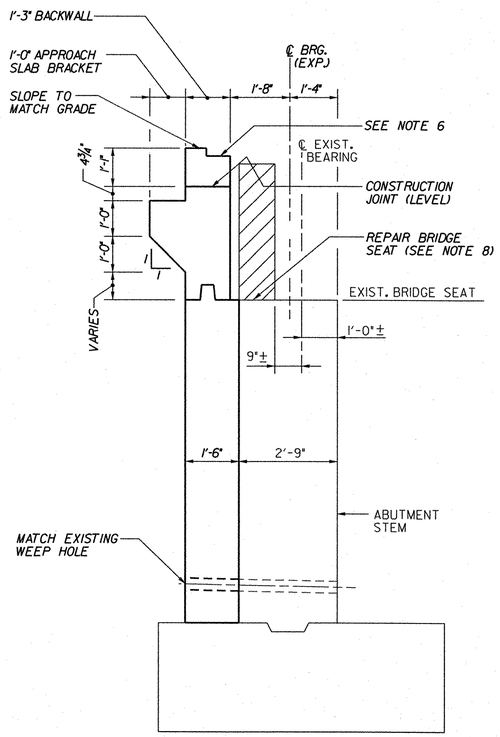
Designed By M. J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G NB PIER STAG.dgn	Date 04/28/08
Bridge Sheet No. BR141	Sheet 67 of 114

TVGA ENGINEERING, SURVEYING, P.C.



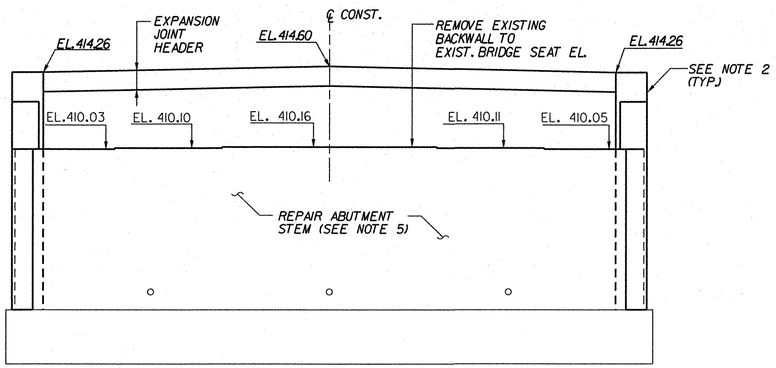
ABUTMENT 1 PLAN (EXP.) (3S)

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



SECTION A–A

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



ABUTMENT 1 ELEVATION (3S)

(REMOVAL LIMITS NOT SHOWN FOR CLARITY)

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

NOTES:

1. EXISTING 12BP53 PILES NOT SHOWN FOR CLARITY.
2. FOR WINGWALL AND CHEEKWALL DIMENSIONS, DETAILS AND ELEVATIONS, SEE WINGWALL MASONRY & REINFORCEMENT (3S) BRIDGE SHEET BRI47.
3. BACKWALL ELEVATIONS SHOWN AT FRONT FACE OF BACKWALL.
4. FOR ABUTMENT REINFORCEMENT DETAILS, SEE ABUTMENT 1 REINFORCEMENT (3S) BRIDGE SHEET BRI43.
5. REPAIR ALL EXISTING SPALLED AND DELAMINATED AREAS ON ABUTMENT. SEE EXISTING SUBSTRUCTURE CONDITION (3S), BRIDGE SHEET BRI63, FOR APPROXIMATE CONDITION OF EXISTING SUBSTRUCTURE. FOR CONCRETE REPAIR DETAILS, SEE SUBSTRUCTURE REPAIR DETAILS (3N&S), BRIDGE SHEET BRI51.
6. FOR DETAILS OF EXPANSION JOINT HARDWARE, SEE FINGER JOINT DETAILS (3N&S), BRIDGE SHEET BRI27.
7. BRIDGE SEAT SHALL BE SLOPED 1/2" PER FOOT EXCEPT UNDER BEARING PLATES WHERE THE SURFACE SHALL BE LEVEL.
8. FOLLOWING REMOVAL OF EXISTING BACKWALL, THE CONTRACTOR SHALL GRIND AND/OR REPAIR THE CONCRETE, AS DIRECTED BY THE ENGINEER, TO PROVIDE A SMOOTH LEVEL SURFACE AT PROPOSED SEAT ELEVATION. ANY REPAIRS REQUIRED SHALL BE PERFORMED IN ACCORDANCE WITH SUBSTRUCTURE REPAIR DETAILS (3N&S), BRIDGE SHEET BRI51. ALL COSTS FOR THIS WORK SHALL BE INCIDENTAL TO ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE (DECK & SUBSTRUCTURE).

LEGEND:

LIMIT OF CONCRETE REMOVAL

TVGA ENGINEERING, SURVEYING, P.C.

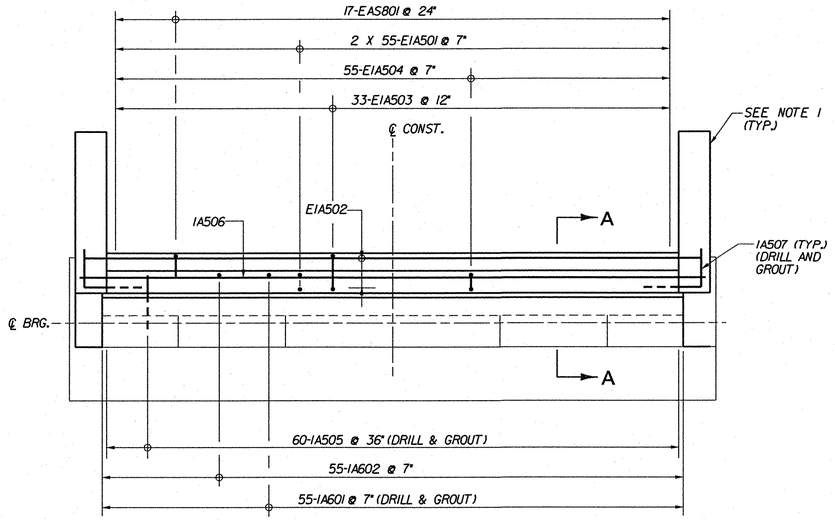
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

ABUTMENT 1 MASONRY (3S)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G SB ABUT1.dgn	Date 05/12/08
Bridge Sheet No. BRI42	Sheet 68 of 114

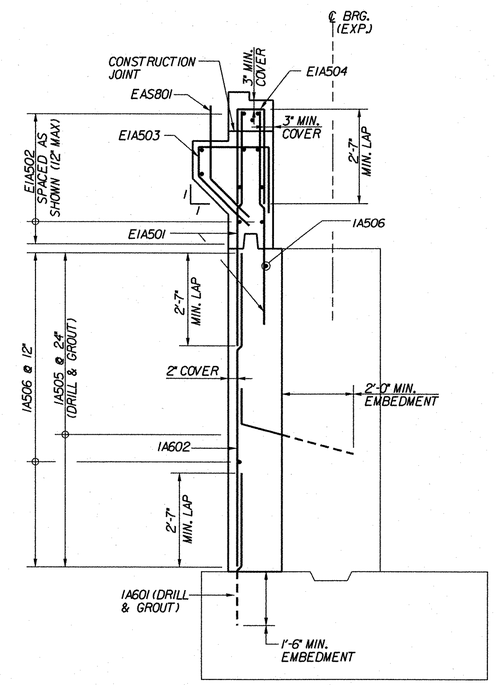


ABUTMENT 1 PLAN (EXP.) (3S)

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

ABUTMENT 1 ELEVATION (3S)

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



SECTION A-A

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

NOTES:

1. FOR WINGWALL AND CHEEKWALL REINFORCEMENT SEE WINGWALL MASONRY AND REINFORCEMENT (3S), BRIDGE SHEET BRI47.
2. DRILL AND GROUT BARS SHALL HAVE A MINIMUM 2'-0" EMBEDMENT UNLESS OTHERWISE NOTED.

KEY

NF	NEAR FACE
FF	FAR FACE
EF	EACH FACE
▲	REINFORCEMENT TO BE CUT TO FIT IN THE FIELD

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

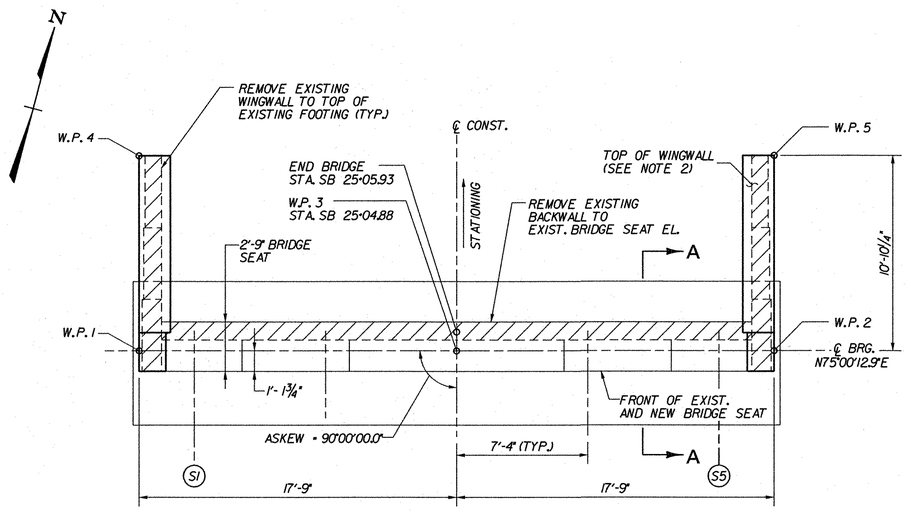
ABUTMENT 1 REINFORCEMENT (3S)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)

TVGA ENGINEERING, SURVEYING, P.C.

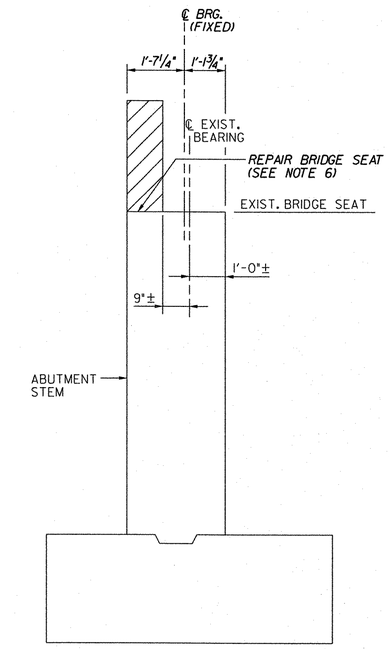
TVGA CAD Drawing No. G SB ABRFI.dgn Date 04/28/08

Bridge Sheet No. BRI43 Sheet 69 of 114



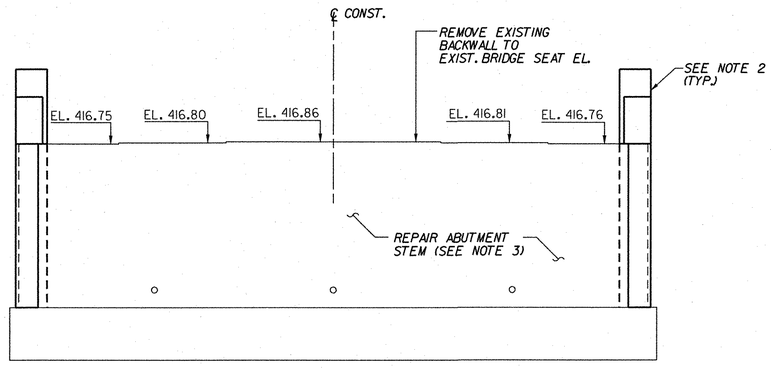
ABUTMENT 2 PLAN (FIXED) (3S)

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



SECTION A-A

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



ABUTMENT 2 ELEVATION (3S)

(REMOVAL LIMITS NOT SHOWN FOR CLARITY)
SCALE: 1/4" = 1'-0"

NOTES:

1. EXISTING 12BP53 PILES NOT SHOWN FOR CLARITY.
2. FOR WINGWALL AND CHEEKWALL DIMENSIONS, DETAILS AND ELEVATIONS, SEE WINGWALL MASONRY AND REINFORCEMENT (3S), BRIDGE SHEET BRI47.
3. REPAIR ALL EXISTING SPALLED AND DELAMINATED AREAS ON ABUTMENT. SEE EXISTING SUBSTRUCTURE CONDITION (3S), BRIDGE SHEET BRI63, FOR APPROXIMATE CONDITION OF EXISTING SUBSTRUCTURE. FOR CONCRETE REPAIR DETAILS, SEE SUBSTRUCTURE REPAIR DETAILS (3N&S), BRIDGE SHEET BRI5I.
4. FOR CURTAINWALL DETAILS, SEE ABUTMENT 2 CURTAINWALL DETAILS (3S), BRIDGE SHEET BRI46.
5. BRIDGE SEAT SHALL BE SLOPED 1/2" PER FOOT EXCEPT UNDER BEARING PLATES WHERE THE SURFACE SHALL BE LEVEL.
6. FOLLOWING REMOVAL OF EXISTING BACKWALL, THE CONTRACTOR SHALL GRIND AND/OR REPAIR THE CONCRETE, AS DIRECTED BY THE ENGINEER, TO PROVIDE A SMOOTH LEVEL SURFACE AT PROPOSED SEAT ELEVATION. ANY REPAIRS REQUIRED SHALL BE PERFORMED IN ACCORDANCE WITH SUBSTRUCTURE REPAIR DETAILS (3N&S), BRIDGE SHEET BRI5I. ALL COSTS FOR THIS WORK SHALL BE INCIDENTAL TO ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE (DECK & SUBSTRUCTURE)".

LEGEND:

▨ LIMIT OF CONCRETE REMOVAL

TVGA ENGINEERING, SURVEYING, P.C.

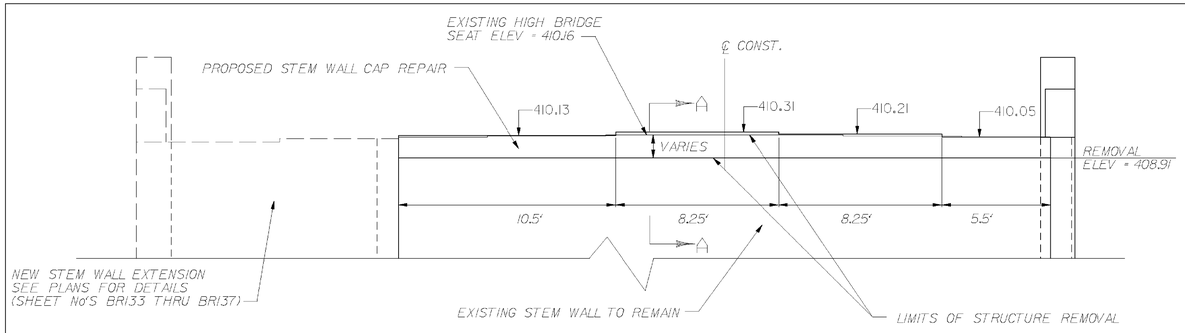
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	GUILFORD	Bridge No.	3S
Highway No.	I-9I	Log Sta. / Surv. Sta.	

I-9I SB OVER BROAD BROOK & BROAD BROOK ROAD

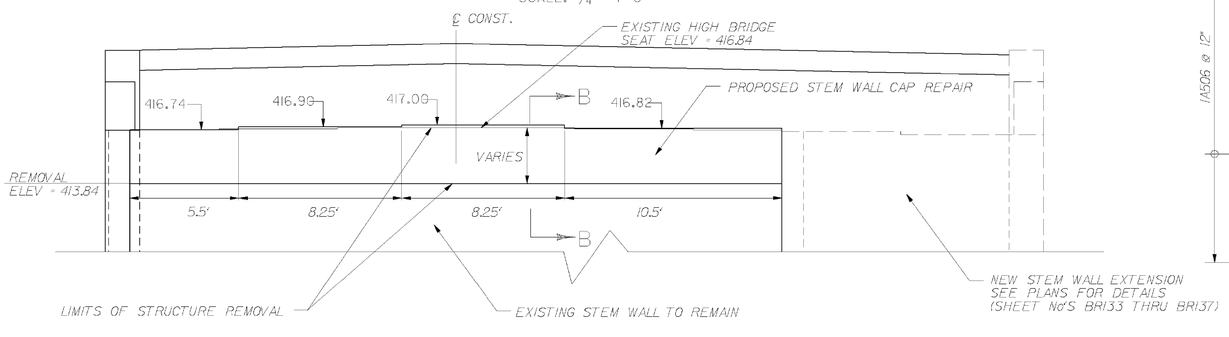
ABUTMENT 2 MASONRY (3S)

Designed By	M.J. MOZER	Drawn By	G.K. MORZE
Checked By	Date	Bridge Design Supervisor	
P.W. SZUSTAK	0I/03	J.P. HALSTEAD	Date 0I/03
PROJECT	GUILFORD	PROJECT NO.	IM 09I-I(33)
TVGA CAD Drawing No. G SB ABUT2.dgn		Date	05/12/08
Bridge Sheet No.	BRI44	Sheet	70 of 114



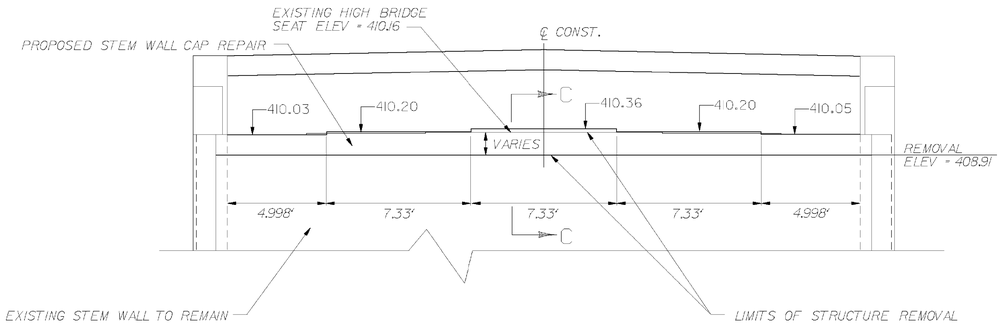
ABUTMENT 1 ELEVATION (3N)

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



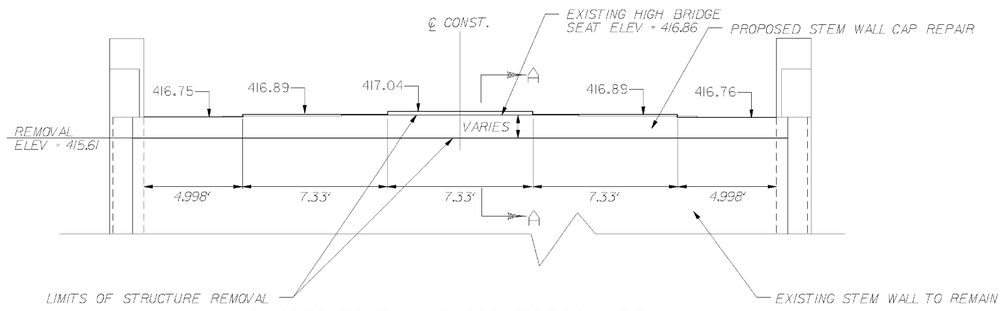
ABUTMENT 2 ELEVATION (3N)

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



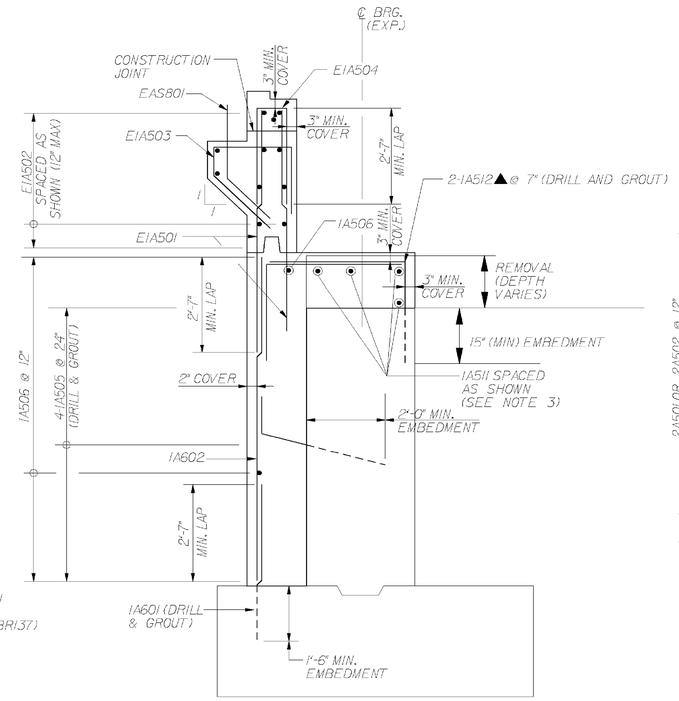
ABUTMENT 1 ELEVATION (3S)

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



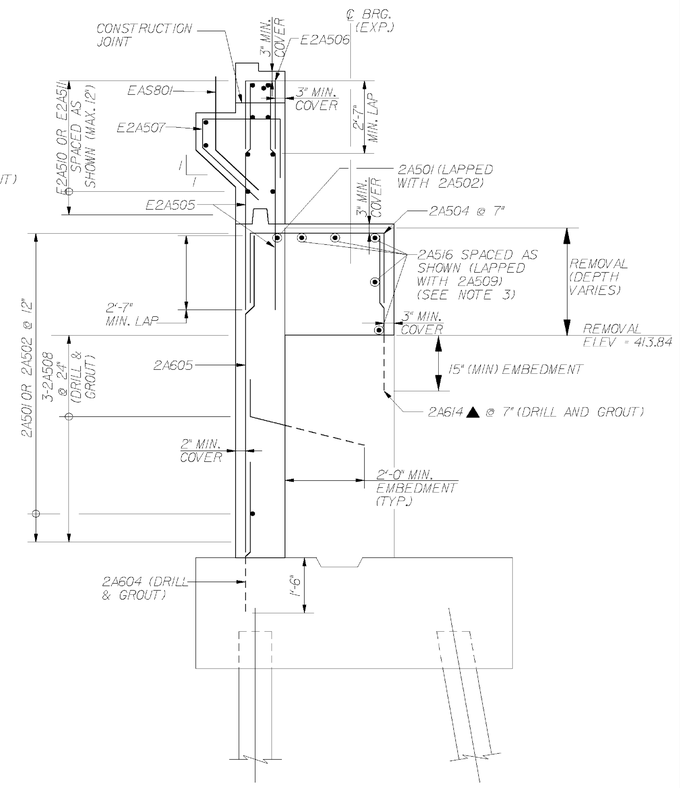
ABUTMENT 2 ELEVATION (3S)

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



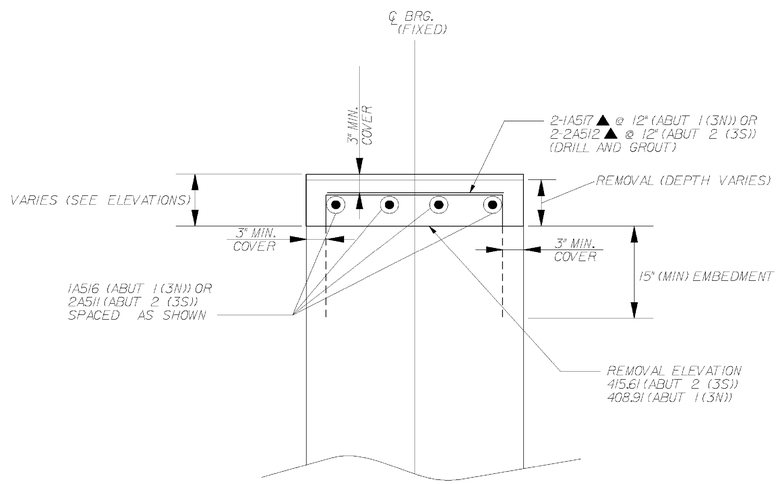
SECTION C–C

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



SECTION B–B

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



SECTION A–A

SCALE: 1" = 1'-0"

NOTES:

1. CONTRACTOR SHALL REMOVE ALL EXISTING CONCRETE STEM WALLS FROM THE TOP DOWN TO THE REMOVAL ELEVATIONS SHOWN ON THIS DRAWING. THE PROPOSED STEM WALL CAP REPAIR SHALL BE BUILT TO THE DIMENSIONS AND ELEVATIONS DETAILED. SEE REVISED REINFORCING STEEL SCHEDULE DRAWINGS FOR CHANGES AND ADDITIONS TO THE STEEL REINFORCMENT.
2. REFER TO ORIGINAL CONTRACT DRAWINGS FOR ADDITIONAL ABUTMENT PLANS AND DETAILS.
3. LONGITUDINAL AND TRANVERSE BRIDGE SEAT REINFORCING SPACING SHALL BE MODIFIED AS NECESSARY TO ASSURE THAT THERE IS NO CONFLICT WITH THE BEARING DEVICE ANCHOR BOLTS.

LEGEND

▲ DENOTES BARS TO BE CUT IN THE FIELD.

TVGA ENGINEERING, SURVEYING, P.C.

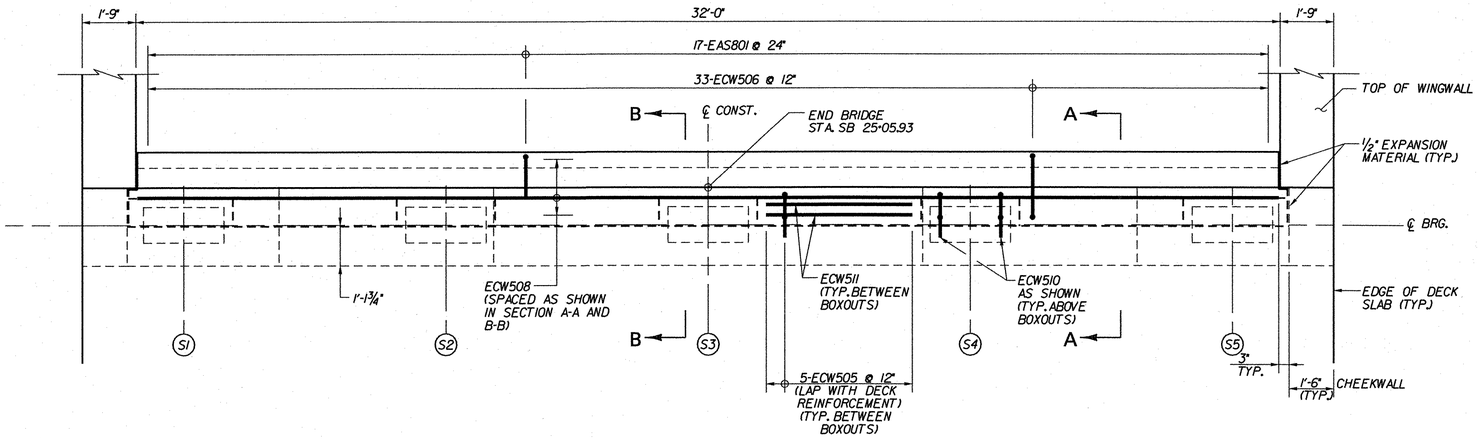
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N & 3S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

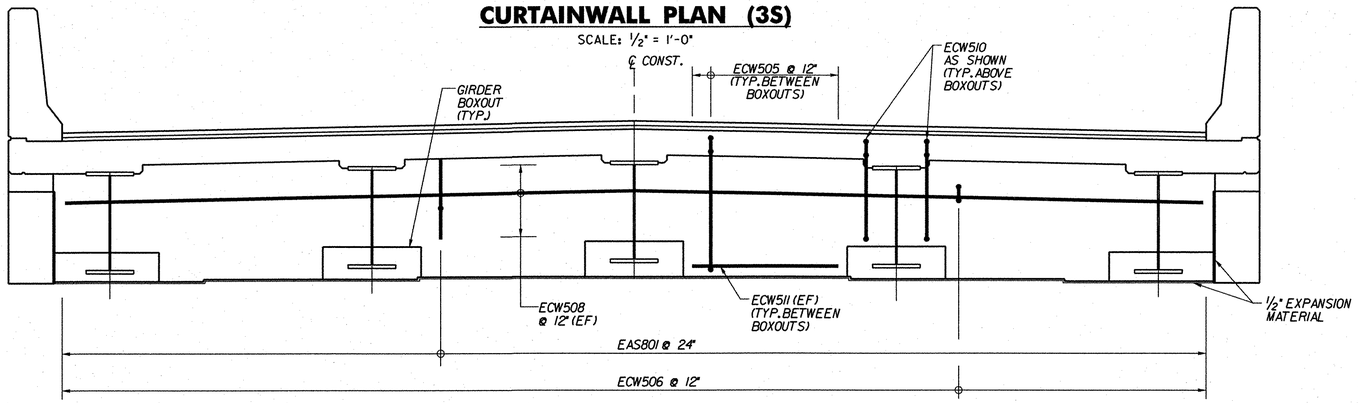
STEM WALL CAP REPAIRS

Designed By E. FISCHLEIN	Drawn By R. TIEDE
Checked By Date E. FISCHLEIN 11/08	Bridge Design Supervisor K. WOJTKOWSKI Date 11/08
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No.G ABUTS V8.dgn	Date 11/14/08
Bridge Sheet No. BRI44AR	Sheet 70AR of 114



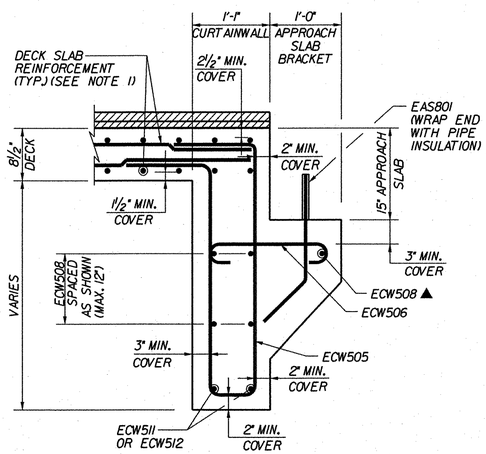
CURTAINWALL PLAN (3S)

SCALE: ½" = 1'-0"



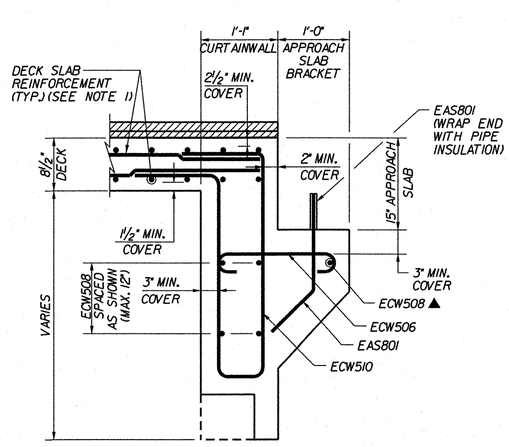
CURTAINWALL ELEVATION (3S)

SCALE: ½" = 1'-0"



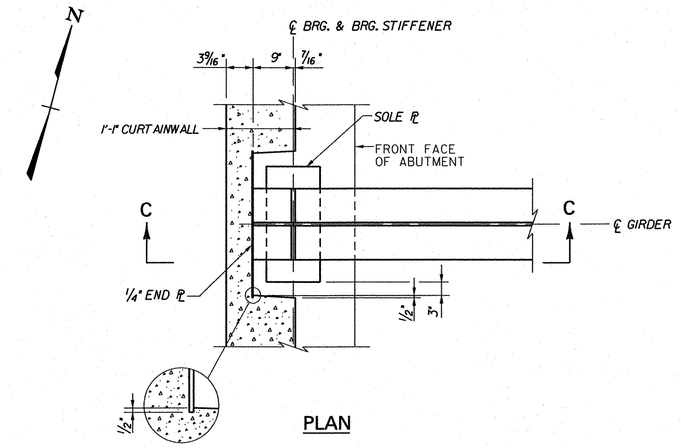
SECTION A–A

SCALE: 1" = 1'-0"

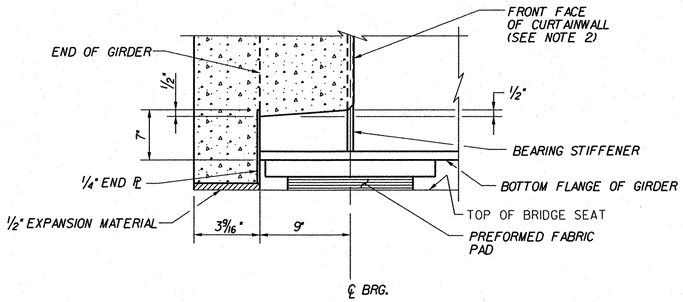


SECTION B–B

SCALE: 1" = 1'-0"



PLAN



SECTION C–C

GIRDER BOXOUT DETAILS

NOT TO SCALE

NOTES:

1. FOR DETAILS OF DECK REINFORCEMENT, SEE DECK REINFORCEMENT DRAWINGS FOR EACH BRIDGE.
2. FRONT FACE OF CURTAINWALL SHALL BE EQUAL WITH THE FRONT FACE OF BEARING STIFFENER.

KEY

NF	NEAR FACE
FF	FAR FACE
EF	EACH FACE
▲	REINFORCEMENT TO BE CUT TO FIT IN THE FIELD

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

ABUTMENT 2 CURTAINWALL DETAILS (3S)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G SB AB2CTWL	Date 04/28/08
Bridge Sheet No. BRI46	Sheet 72 of 114

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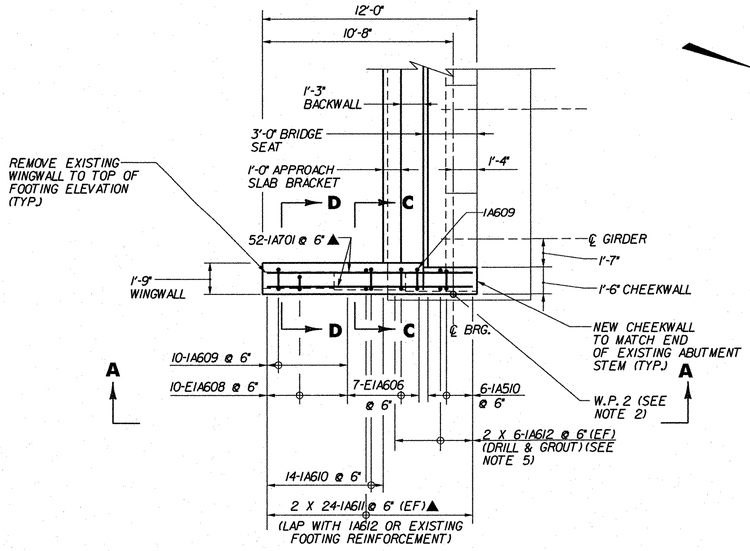
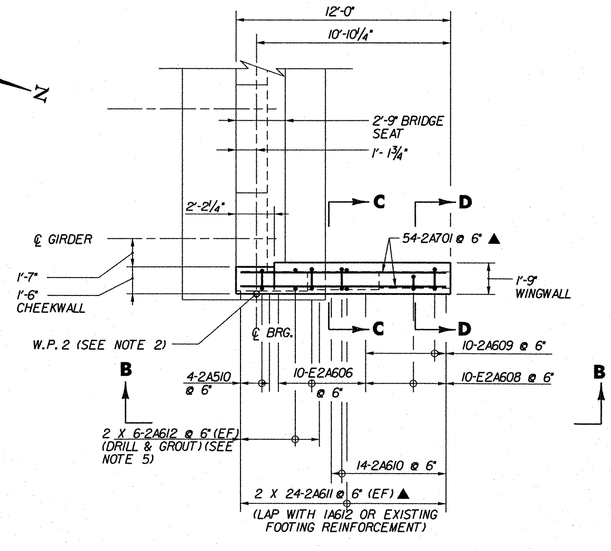


ABUTMENT 1 (EXP.) (3S)

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

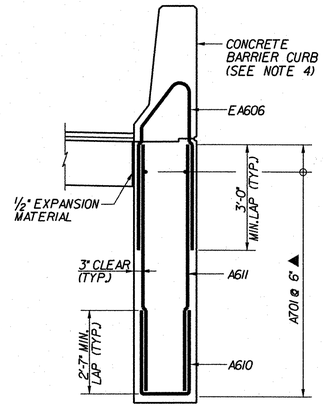
(RIGHT WINGWALL SHOWN, LEFT WINGWALL SIMILAR)



ABUTMENT 2 (FIXED) (3S)

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

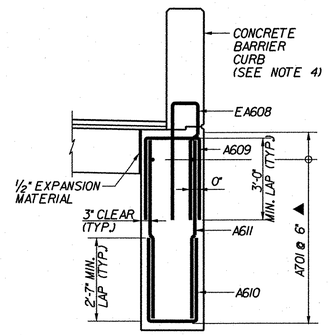
(RIGHT WINGWALL SHOWN, LEFT WINGWALL SIMILAR)



SECTION C–C

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

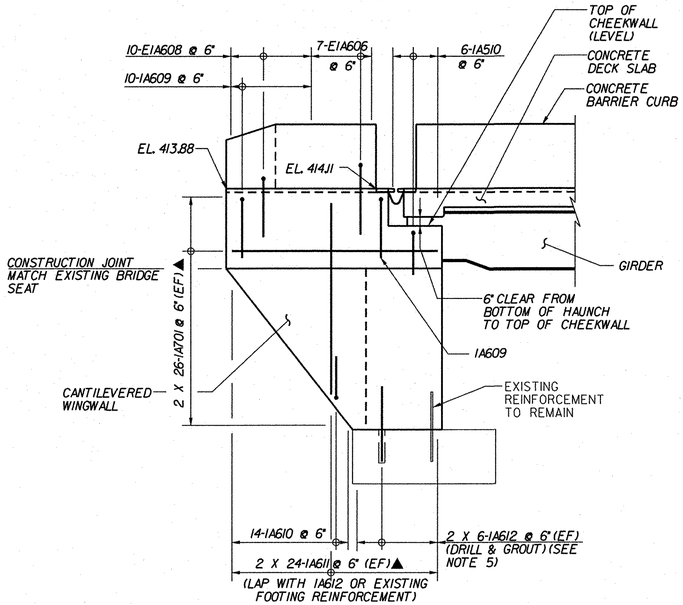
(ALL WINGWALLS SIMILAR)



SECTION D–D

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

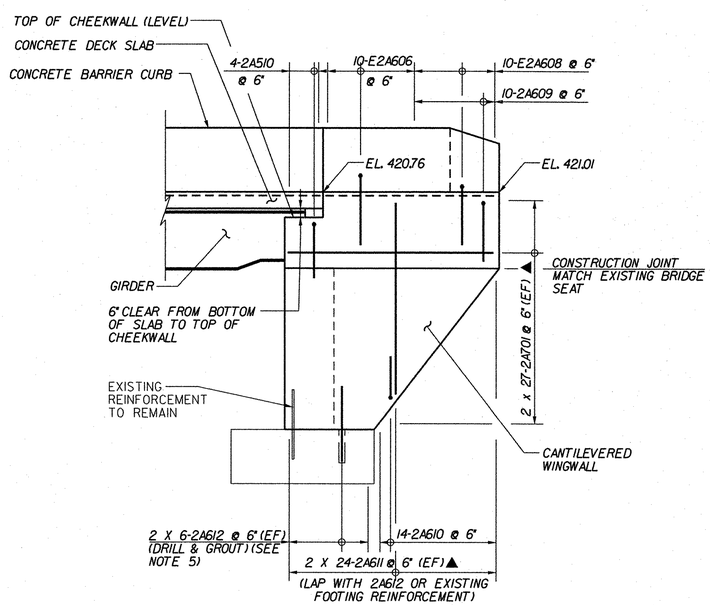
(ALL WINGWALLS SIMILAR)



ELEVATION A–A

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

* HOPPER AND STEEL ARMOR PLATES NOT SHOWN FOR CLARITY



ELEVATION B–B

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

NOTES:

1. DECK SLAB NOT SHOWN IN WINGWALL PLANS FOR CLARITY.
2. WORKING POINT (W.P.) 1 AND 2 LOCATIONS ARE SHOWN ON MASONRY PLANS FOR EACH ABUTMENT.
3. FOR DIMENSIONS OF CONCRETE BARRIER CURB, SEE FASCIA DETAIL ON TRANSVERSE SECTION (3N) BRIDGE SHEET BRII4.
4. FOR BARRIER CURB REINFORCING DETAILS, SEE CONCRETE BARRIER CURB DETAILS (3N&S), BRIDGE SHEET BRII8.
5. POSITION DRILL AND GROUT BARS BETWEEN EXISTING REINFORCING TO PROVIDE BARS AT 6" SPACING.

KEY

NF	NEAR FACE
FF	FAR FACE
EF	EACH FACE
▲	REINFORCEMENT TO BE CUT TO FIT IN THE FIELD

TVGA ENGINEERING, SURVEYING, P.C.

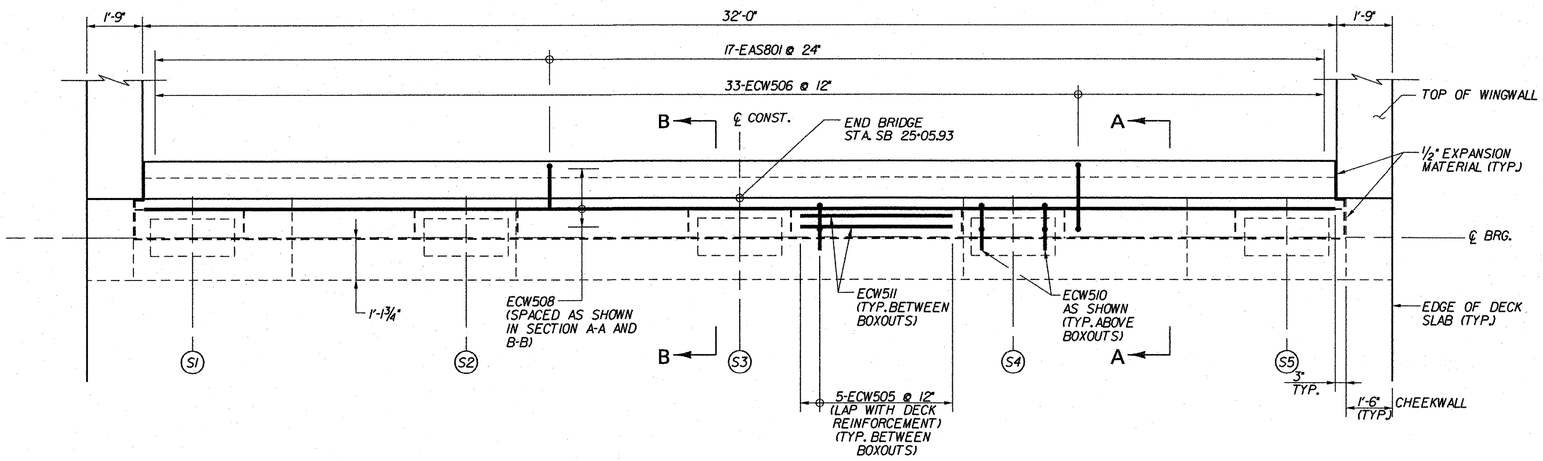
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

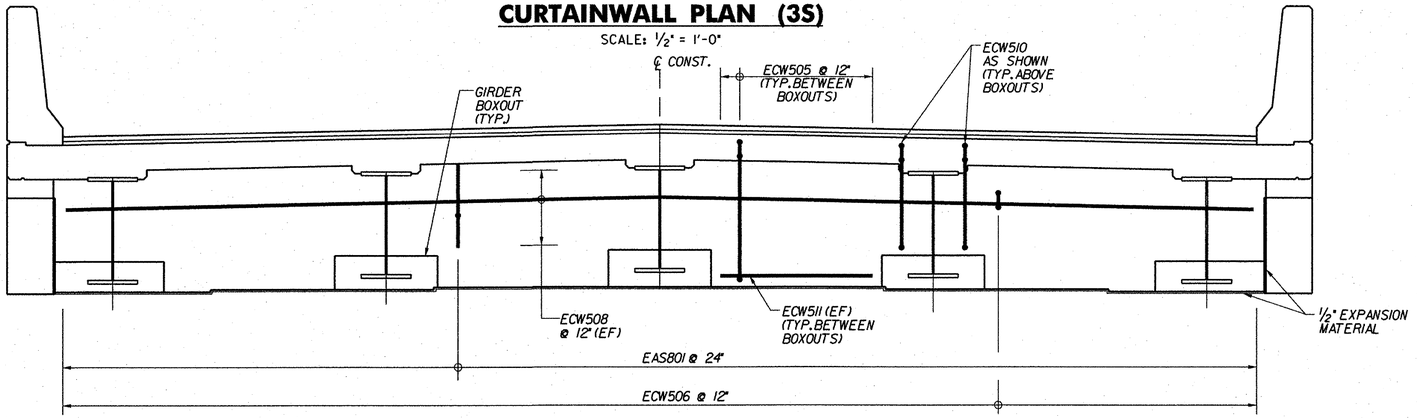
WINGWALL MASONRY & REINFORCEMENT (3S)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G SB WING.dgn	Date 04/28/08
Bridge Sheet No. BRI47	Sheet 73 of 114



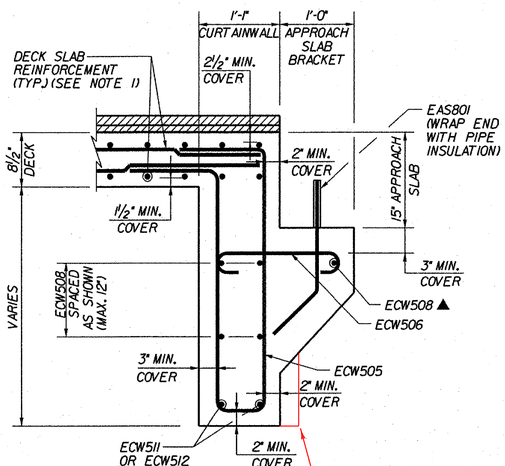
CURTAINWALL PLAN (3S)

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



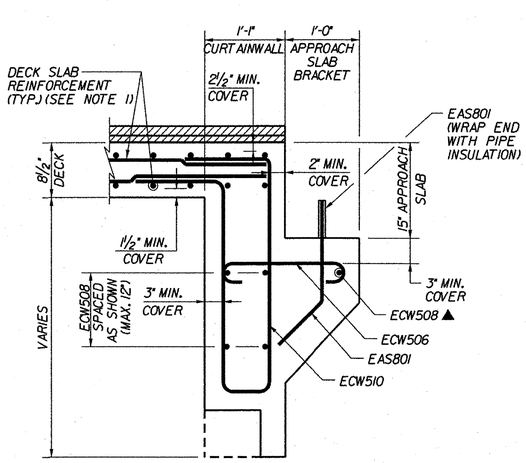
CURTAINWALL ELEVATION (3S)

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



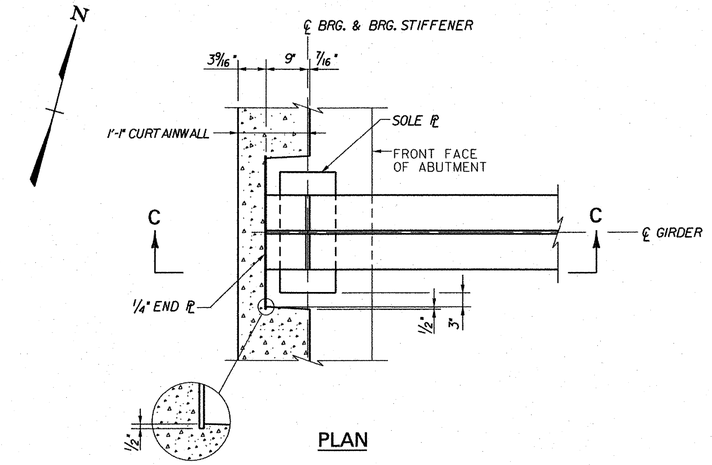
SECTION A–A

SCALE: 1"= 1'-0"

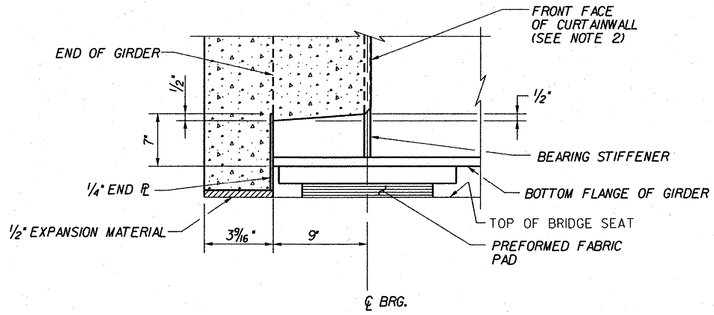


SECTION B–B

SCALE: 1"= 1'-0"



PLAN



SECTION C–C

GIRDER BOXOUT DETAILS

NOT TO SCALE

NOTES:

1. FOR DETAILS OF DECK REINFORCEMENT, SEE DECK REINFORCEMENT DRAWINGS FOR EACH BRIDGE.
2. FRONT FACE OF CURTAINWALL SHALL BE EQUAL WITH THE FRONT FACE OF BEARING STIFFENER.

KEY

NF	NEAR FACE
FF	FAR FACE
EF	EACH FACE
▲	REINFORCEMENT TO BE CUT TO FIT IN THE FIELD

TVGA ENGINEERING, SURVEYING, P.C.

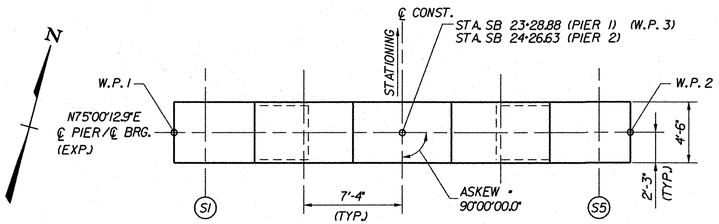
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 35
Highway No. I-91	Log Sta.
	Surv. Sta.

I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

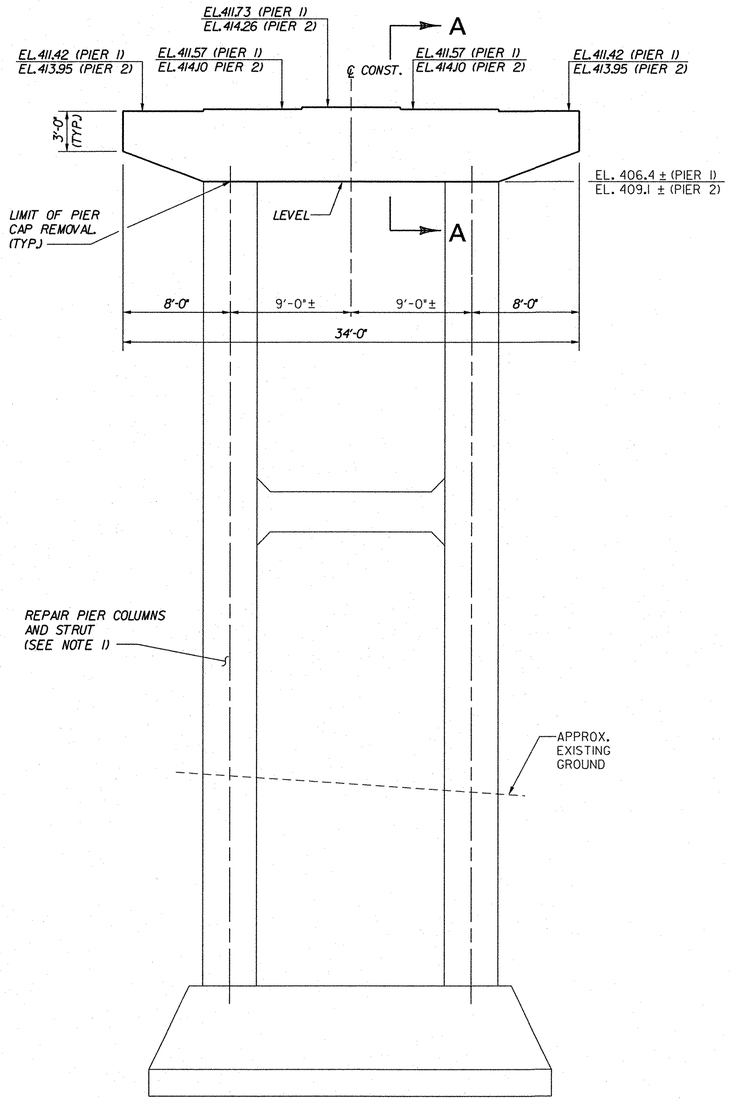
ABUTMENT 2 CURTAINWALL DETAILS (3S)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G SB AB2CTWL	Date 04/28/08
Bridge Sheet No. BRI46	Sheet 72 of 114



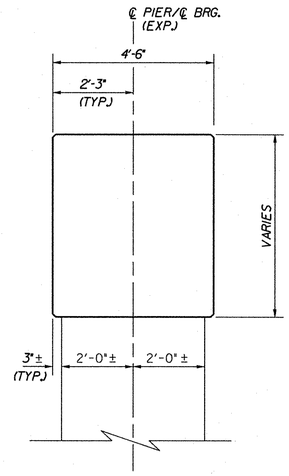
PLAN (3S)

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



PIER ELEVATION (3S)

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



SECTION A–A

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

NOTES:

1. REPAIR ALL EXISTING SPALLED AND DELAMINATED AREAS ON PIERS. SEE EXISTING SUBSTRUCTURE CONDITION (3S), BRIDGE SHEETS BRI6I AND BRI62, FOR APPROXIMATE CONDITION OF EXISTING SUBSTRUCTURE. FOR CONCRETE REPAIR DETAILS, SEE SUBSTRUCTURE REPAIR DETAILS (3N&S), BRIDGE SHEET BRI5I.
2. STEPS ON PIER CAP SEAT SHALL BE EQUIDISTANT BETWEEN GIRDERS.
3. BRIDGE SEATS SHALL BE SLOPED 1/2" PER FOOT EXCEPT UNDER BEARING PLATES WHERE THE SURFACE SHALL BE LEVEL.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

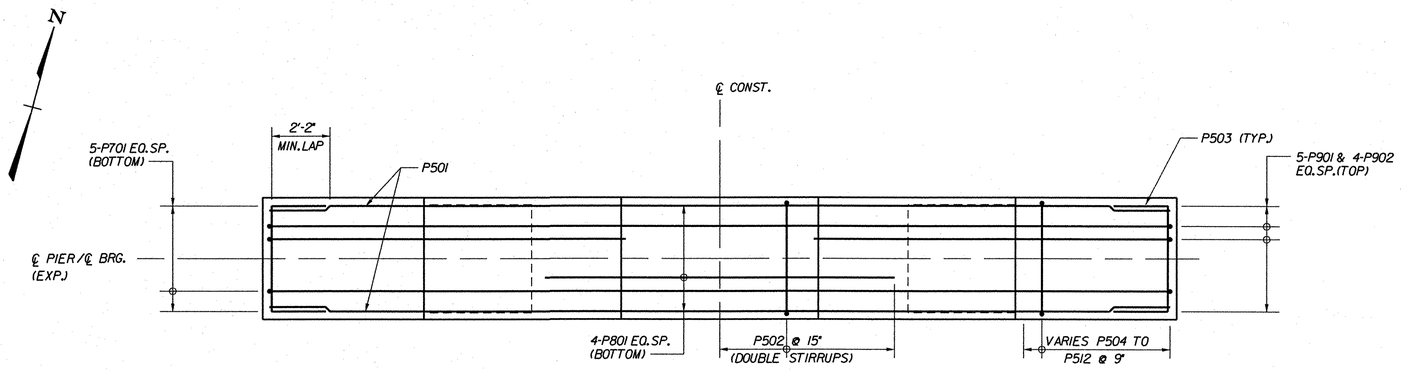
Town Of GUILFORD	Bridge No. 3S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

PIER MASONRY (3S)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G SB PIER.dgn	Date 05/12/08
Bridge Sheet No. BRI48	Sheet 74 of 114

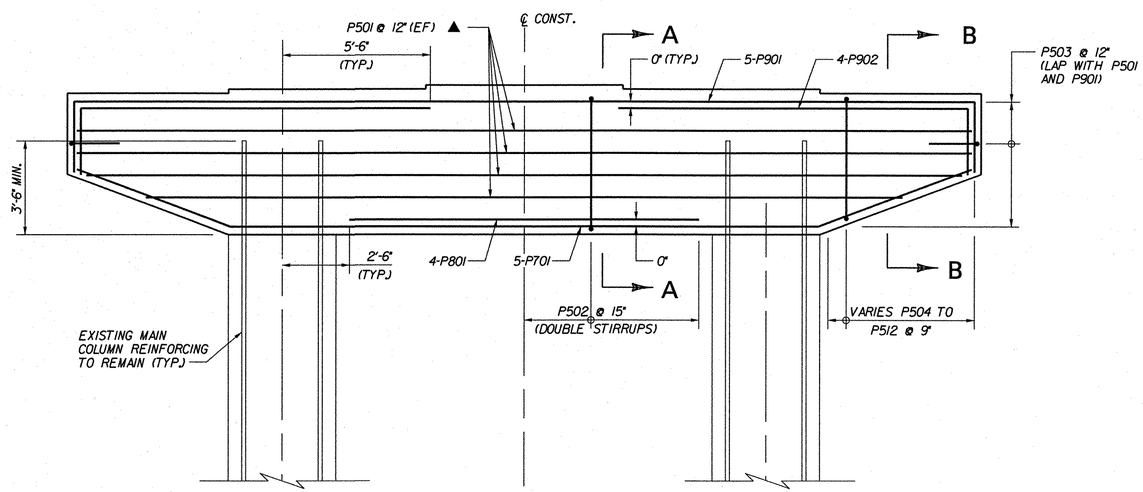
TVGA ENGINEERING, SURVEYING, P.C.



(REINFORCEMENT SYMMETRICAL ABOUT ℄ CONST.)

PLAN (3S)

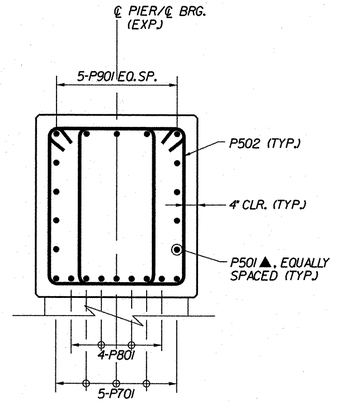
SCALE: 3/8" = 1'-0"



(REINFORCEMENT SYMMETRICAL ABOUT ℄ CONST.)

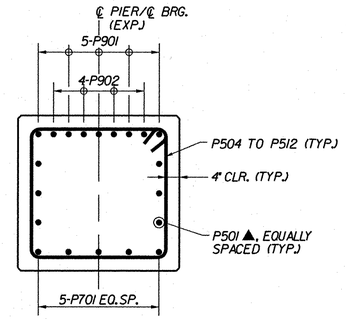
PIER ELEVATION (3S)

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



SECTION A–A

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



SECTION B–B

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

KEY

NF	NEAR FACE
FF	FAR FACE
EF	EACH FACE
▲	REINFORCEMENT TO BE CUT TO FIT IN THE FIELD

STATE OF VERMONT
AGENCY OF TRANSPORTATION

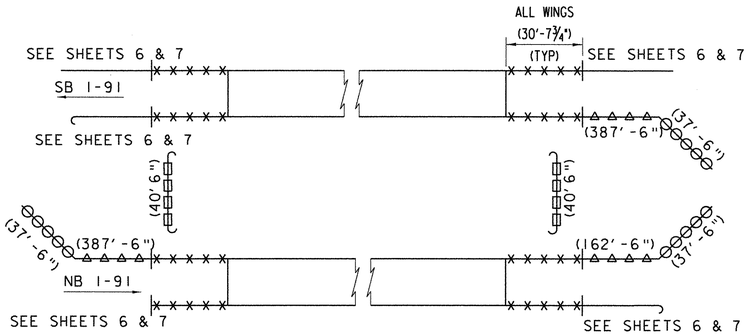
Town Of GUILFORD	Bridge No. 3S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

PIER REINFORCEMENT (3S)

Designed By M.J. MOZER	Drawn By D.M. BOWEN
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 91-1(33)
TVGA CAD Drawing No. G SB PRF.dgn	Date 04/28/08
Bridge Sheet No. BRI49	Sheet 75 of 114

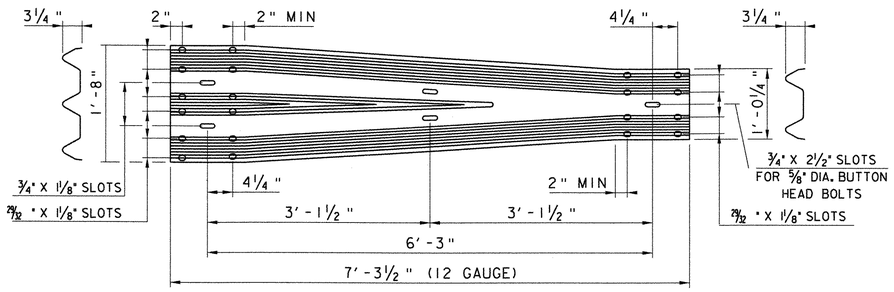
TVGA ENGINEERING, SURVEYING, P.C.



RAIL PAY ITEMS

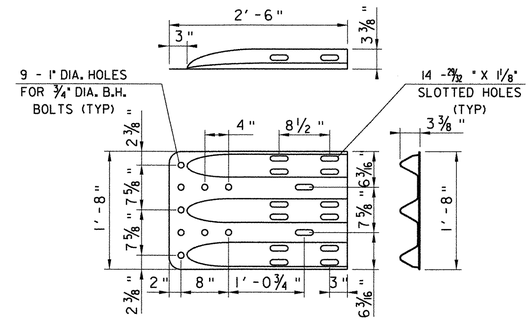
NTS

— SEE APPROACH SECTION BELOW
— MANUFACTURED TERMINAL SECTION, FLARED
— HD STEEL BEAM GUARD RAIL, GALVANIZED, TRAILING END TERMINAL. SEE STANDARD G-Id
— HD STEEL BEAM GUARD RAIL, GALVANIZED. SEE STANDARD G-I



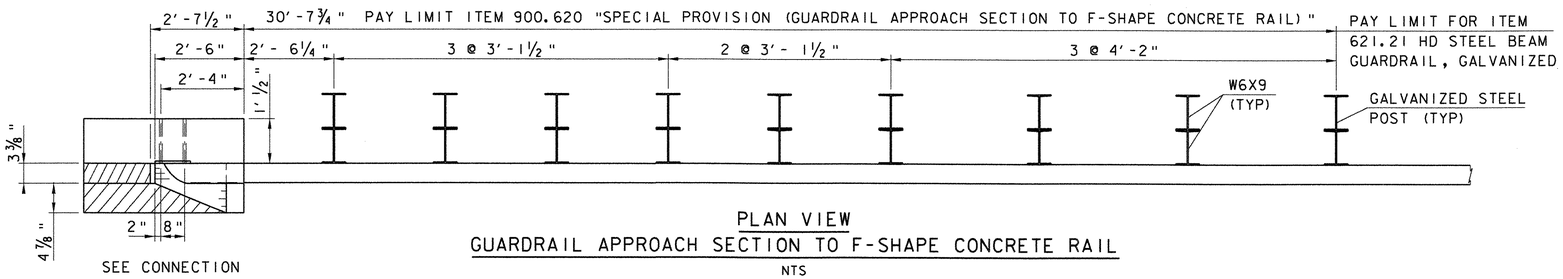
THRIE-BEAM TO HDSB TRANSITION SECTION

SCALE 1" = 1'-0"



THRIE-BEAM TERMINAL CONNECTOR BOLT TO CONCRETE BARRIER & THRIE-BEAM

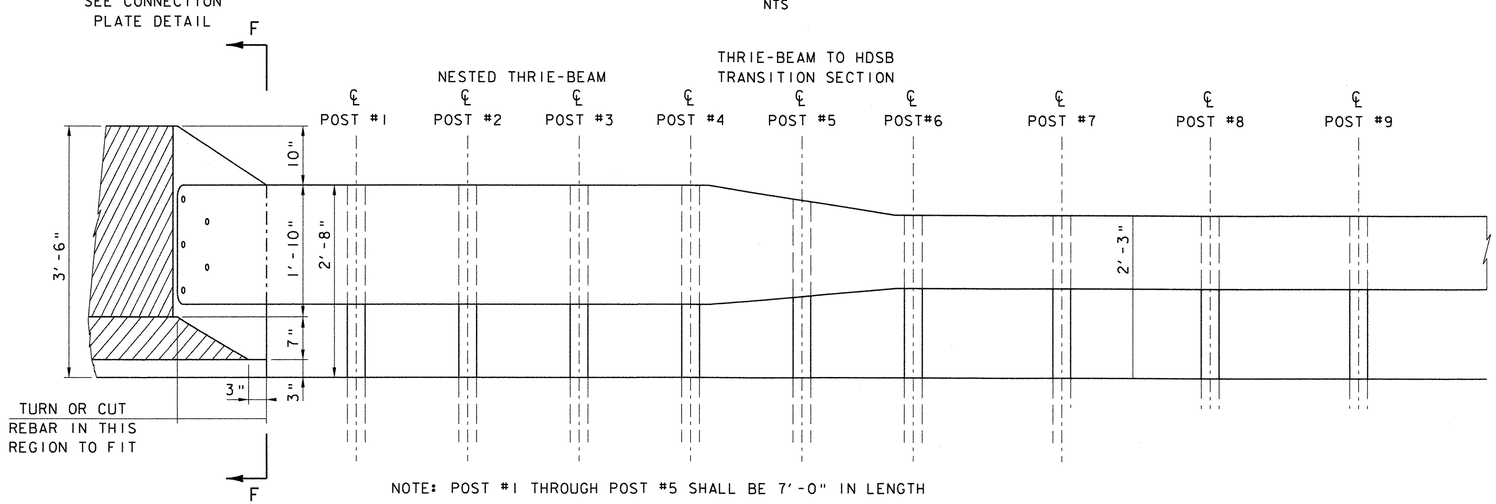
SCALE 1" = 1'-0"



PLAN VIEW

GUARDRAIL APPROACH SECTION TO F-SHAPE CONCRETE RAIL

NTS

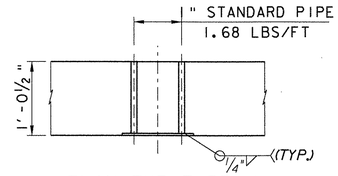


NOTE: POST #1 THROUGH POST #5 SHALL BE 7'-0" IN LENGTH

ELEVATION VIEW

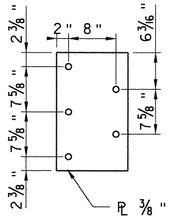
GUARDRAIL APPROACH SECTION TO F-SHAPE CONCRETE RAIL

NTS



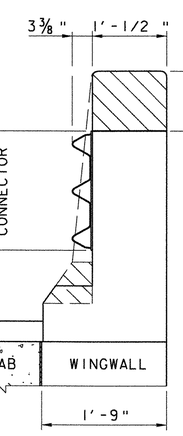
PLAN THRIE-BEAM CONNECTION PLATE DETAIL

SCALE 1" = 1'-0"



ELEVATION THRIE-BEAM CONNECTION PLATE DETAIL

SCALE 1" = 1'-0"



SECTION F-F

SCALE 1" = 1'-0"

NOTE: THRIE-BEAM TERMINAL CONNECTOR SHALL BE INCIDENTAL TO ITEM 900.620, SPECIAL PROVISION (GUARDRAIL APPROACH SECTION TO F-SHAPE). THRIE-BEAM CONNECTION PLATE AND ALL HARDWARE REQUIRED SHALL BE INCIDENTAL TO ITEM 900.608 "BRIDGE RAILING, F-SHAPE CONCRETE".

SCALE 1" = 1'-0

1 9 6 3 0 1 2

TVGA ENGINEERING, SURVEYING, P.C.

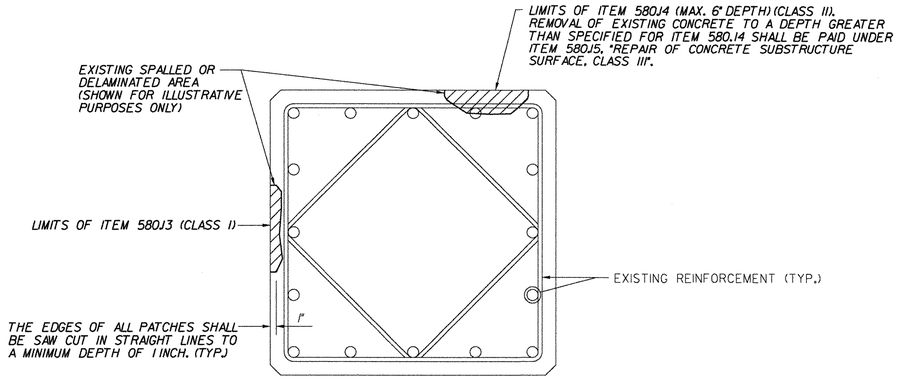
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

APPROACH GUARD RAIL (3N&S)

Designed By M.J. MOZER	Drawn By L.R. DELL
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. RAILDETAIL.dgn	Date 04/28/08
Bridge Sheet No. BRI50	Sheet 76 of 114



NOTE: PLAN VIEW OF EXISTING PIER COLUMN SHOWN. EXISTING ABUTMENTS TO BE TREATED IN THE SAME MANNER.

CONCRETE REPAIR DETAIL

NOT TO SCALE

SUBSTRUCTURE REPAIR NOTES:

1. ABUTMENTS & PIER COLUMNS SHALL BE REPAIRED USING THE FOLLOWING ITEMS:
   - 580.13 REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I
   - 580.14 REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II
   - 580.15 REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS III

2. THIS WORK SHALL INCLUDE REMOVAL AND DISPOSAL OF UNSOUND AND DELAMINATED CONCRETE FROM ALL PORTIONS OF ABUTMENTS AND PIERS TO REMAIN AS DIRECTED BY THE ENGINEER. THE PREPARED SURFACES SHALL BE THOROUGHLY BLAST CLEAN TO REMOVE ALL LOOSE MATERIAL AND ANY CONTAMINANTS OR EFFLORESCENCE. THE REINFORCING STEEL (IF EXPOSED) SHALL BE BLAST CLEAN. THE MATERIAL USED TO FILL A PATCH SHALL BE PLACED AND FINISHED OR FORMED SO THAT THE FINAL SURFACE WILL HAVE THE SAME SCORE MARKS AND EXTERIOR FACE APPEARANCE AS THE ORIGINAL SURFACES BEING REPAIRED. THE SURFACE SHALL BE THOROUGHLY WETTED PRIOR TO PLACEMENT OF PATCHING MATERIAL OR NEW CONCRETE. IMMEDIATELY PRIOR TO PLACEMENT, THE SURFACE SHALL BE COATED WITH NEAT CEMENT PASTE, MIXED TO THE CONSISTENCY OF THICK LATEX PAINT (THOROUGHLY BRUSHED INTO THE SURFACE). WHEN "OVERHEAD AND VERTICAL CONCRETE REPAIR MATERIAL" CONFORMING WITH SUBSECTION 780.02 IS USED, THE BONDING AGENT (IF ANY REQUIRED) AND ITS APPLICATION PROCEDURE SHALL COMPLY WITH THE REQUIREMENTS OF THE PATCHING MATERIAL MANUFACTURER. PAYMENT FOR BONDING AGENT SHALL BE INCIDENTAL TO ITEM 580.13, 580.14, OR 580.15.

3. THE LIMITS FOR REMOVAL OF CONCRETE UNDER ITEM 580.13, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I" SHALL BE FROM THE EXISTING CONCRETE SURFACE TO A MAXIMUM DEPTH OF THE OUTSIDE FACE OF THE REINFORCING STEEL. ALL WORK AND MATERIALS NECESSARY FOR PREPARING A PATCH AND FILLING IT SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 580.13. THE EDGES OF ALL PATCHES SHALL BE SAW CUT IN STRAIGHT LINES TO A MINIMUM DEPTH OF 1 INCH. IF MORE THAN 1/4 OF THE REBAR IS EXPOSED OR THE BOND BETWEEN THE REBAR AND THE CONCRETE IS BROKEN, THEN PROCEED TO ITEM 580.14.

4. THE LIMITS FOR REMOVAL OF CONCRETE UNDER ITEM 580.14, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II" SHALL BE FROM THE EXISTING CONCRETE SURFACE TO A MINIMUM DEPTH OF 3/4" ± 1/4" INSIDE THE INSIDE FACE OF REINFORCING STEEL AND TO A MAXIMUM DEPTH OF 6" FROM THE EXISTING CONCRETE SURFACE. ALL WORK AND MATERIALS NECESSARY FOR PREPARING A PATCH AND FILLING SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 580.14. THE EDGES OF ALL PATCHES SHALL BE SAW CUT IN STRAIGHT LINES TO A MINIMUM DEPTH OF 1 INCH.

5. THE LIMITS FOR REMOVAL OF CONCRETE UNDER THE ITEM 580.15, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS III" SHALL BE FROM THE EXISTING CONCRETE SURFACE TO A DEPTH OF GREATER THAN 6". ALL WORK AND MATERIALS NECESSARY FOR PREPARING A PATCH AND FILLING IT SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 580.15. THE FILLING MATERIAL MAY BE EITHER "CONCRETE HPC CLASS AA, HPC CLASS A, HPC CLASS B" OR AN ACCEPTABLE PNEUMATICALLY APPLIED CONCRETE. THE EDGES OF ALL PATCHES SHALL BE SAW CUT IN STRAIGHT LINES TO A MINIMUM DEPTH OF 1 INCH.

6. IF PNEUMATICALLY APPLIED CONCRETE IS SELECTED FOR REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II OR III, THEN THIS TYPE OF CONCRETE REPAIR SHALL BE CONFINED ONLY TO VERTICAL AND OVERHEAD SURFACES OF THE SUBSTRUCTURE. ALSO, THE BRIDGE BEARINGS AND BEAMS SHALL BE COMPLETELY PROTECTED FROM REBOUND MATERIAL DURING PNEUMATICALLY APPLIED CONCRETE APPLICATION PROCEDURES.

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

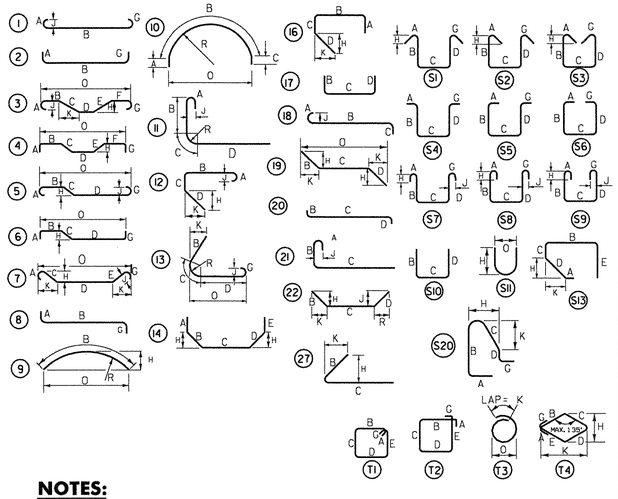
Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.
I-91 OVER BROAD BROOK & BROAD BROOK ROAD	
SUBSTRUCTURE REPAIR DETAILS (3N&S)	
Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G subrprdt.dgn	Date 06/10/08
Bridge Sheet No. BRI51	Sheet 77 of 114

BRIDGE 3 NORTH

	ITEM	NO. OF PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	1	APPROACH SLAB 1 (3N)																
*	2	22	5	22' - 10"	E1AS501	STR.												
	3	21	5	22' - 10"	E1AS502	STR.												
	4	26	8	2' - 6"	E1AS801	19		0' - 10"	1' - 8"	0' - 0"				0' - 7"		0' - 7"		2' - 3"
*	5	56	9	20' - 9"	E1AS901	1	1' - 3"	19' - 6"					0' - 0"		1' - 0"			
	6	APPROACH SLAB 2 (3N)																
	7	21	5	22' - 10"	E2AS501	STR.												
*	8	22	5	22' - 10"	E2AS502	STR.												
	9	26	8	2' - 6"	E2AS801	19		0' - 10"	1' - 8"	0' - 0"				0' - 7"		0' - 7"		2' - 3"
*	10	56	9	20' - 9"	E2AS901	1	1' - 3"	19' - 6"					0' - 0"		1' - 0"			
	11	SUPERSTRUCTURE (3N)																
*	12	785	5	38' - 9"	ES501	STR.												
△	13	1026	5	24' - 8"	ES502	STR.												
	14	6	5	5' - 0"	ES503	STR.												
*	15	37	5	5' - 3"	ES504	16	0' - 9"	1' - 6"	0' - 10"	2' - 2"				0' - 0"		2' - 2"		
	16	12	5	7' - 9"	ES505	STR.												
	17	4	5	24' - 8"	ES506	STR.												
△	18	1026	6	25' - 4"	ES601	1	0' - 8"	24' - 8"					0' - 0"					
*	19	567	6	6' - 6"	ES602	10	2' - 7"	1' - 4"	2' - 7"								0' - 5"	0' - 7"
	20	566	6	9' - 4"	ES603	S20	2' - 5"	2' - 2"	1' - 8"	0' - 8"			2' - 5"	1' - 3"		1' - 4"		
*	21	83	6	40' - 0"	ES604	STR.												
	22	82	6	23' - 5"	ES605	STR.												
	23	4	6	9' - 1"	ES606	22		2' - 7"	6' - 6"	0' - 0"				0' - 10"		2' - 6"		
	24	12	6	2' - 0"	ES607	STR.												
▲	25	20	6	2' - 4"	ES608	STR.												
	26	4	6	8' - 2"	ES609	22		2' - 7"	5' - 7"	0' - 0"				0' - 10"		2' - 6"		
△	27	142	7	40' - 0"	ES701	STR.												
*	28	33	7	8' - 1"	ES702	STR.												
	29	2	7	6' - 5"	ES703	14	0' - 10"	2' - 0"	3' - 7"	0' - 0"	0' - 0"			0' - 5"				
	30	32	7	9' - 0"	ES704	STR.												
*	31	3	7	7' - 4"	ES705	14	0' - 10"	2' - 0"	4' - 7"	0' - 0"	0' - 0"			0' - 5"				
	32	CURTAIN WALL (3N)																
*	33	33	5	11' - 9"	ECW505	S5	2' - 2"	3' - 6"	0' - 8"	3' - 4"			2' - 2"					
	34	44	5	2' - 9"	ECW506	1	0' - 7"	1' - 7"					0' - 7"		0' - 5"			
	35	10	5	22' - 9"	ECW508	STR.												
*	36	13	5	10' - 0"	ECW510	S5	2' - 2"	2' - 7"	0' - 8"	2' - 5"			2' - 2"					
*	37	9	5	4' - 11"	ECW511	STR.												
*	38	5	5	3' - 6"	ECW512	STR.												
	39	ABUTMENT 1 (3N)																
*	40	23	5	12' - 9"	1A501	STR.												
	41	20	5	6' - 7"	1A502	17		2' - 2"	2' - 4"	2' - 2"								
	42	18	5	12' - 0"	1A503	STR.												
	43	42	5	4' - 4"	1A504	22		2' - 0"	2' - 5"	0' - 0"				0' - 6"	0' - 0"	1' - 11"	0' - 0"	
	44	20	5	4' - 4"	1A505	2	2' - 2"	2' - 2"					0' - 0"					
	45	10	5	5' - 4"	1A515	S10		2' - 2"	1' - 0"	2' - 2"								
	46	18	6	8' - 1"	1A601	1	0' - 8"	7' - 6"										
*	47	19	6	7' - 6"	1A602	STR.												
	48	36	6	5' - 7"	1A603	2	1' - 0"	4' - 7"					0' - 0"					
	49	40	6	8' - 3"	1A604	STR.												
*	50	19	6	10' - 1"	E1A606	S13	3' - 8"	4' - 8"	0' - 6"	1' - 3"	0' - 0"			0' - 9"		1' - 0"		
	51	20	6	8' - 6 1/2"	E1A608	S10		4' - 0"	0' - 6 1/2"	4' - 0"								
	52	20	6	7' - 3"	1A609	S10		3' - 0"	1' - 3"	3' - 0"								
	53	28	6	6' - 5"	1A610	17		2' - 7"	1' - 3"	2' - 7"								
▲	54	96	6	12' - 3"	1A611	STR.												
	55	12	6	4' - 7"	1A612	STR.												
	56	20	6	5' - 7"	1A613	2	1' - 0"	4' - 7"					0' - 0"					
△ ▲	57	106	7	11' - 6"	1A701	STR.												
	58	ABUTMENT 2 (3N)																
	59	11	5	24' - 7"	2A501	STR.												
*	60	12	5	23' - 6"	2A502	STR.												
	61	18	5	12' - 0"	2A503	STR.												
*	62	21	5	8' - 9"	2A504	17		2' - 7"	3' - 7"	2' - 7"								
	63	154	5	6' - 6"	E2A505	STR.												
	64	77	5	7' - 4"	E2A506	17		3' - 3"	0' - 10"	3' - 3"								
	65	46	5	4' - 5"	E2A507	16	0' - 1"	1' - 10"	0' - 8"	1' - 10"				1' - 3"		1' - 3"		
	66	65	5	4' - 1"	2A508	19		0' - 10"	3' - 3"	0' - 0"				0' - 2 1/2"		0' - 10"		
	67	12	5	12' - 9"	2A509	STR.												
	68	11	5	25' - 0"	E2A510	STR.												
*	69	12	5	24' - 7"	E2A511	STR.												
	70	30	5	4' - 3"	2A512	22		2' - 0"	2' - 3"	0' - 0"				0' - 6"	0' - 0"	1' - 11"	0' - 0"	
	71	20	5	4' - 4"	2A513	2	2' - 2"	2' - 2"					0' - 0"					
	72	20	5	4' - 4"	2A514	2	2' - 2"	2' - 2"					0' - 0"					
	73	12	5	4' - 8"	2A515	S10		1' - 10"	1' - 0"	1' - 10"								
	74	18	6	8' - 9"	2A601	1	0' - 8"	7' - 6"					0' - 8"		0' - 6"			
	75	18	6	7' - 6"	2A602	STR.												
	76	36	6	5' - 7"	2A603	2	1' - 0"	4' - 7"					0' - 0"					
	77	57	6	4' - 4"	2A604	STR.												
	78	97	6	8' - 3"	2A605	STR.												
	79	16	6	10' - 1"	E2A606	S13	3' - 8"	4' - 8"	0' - 6"	1' - 3"	0' - 0"			0' - 9"		1' - 0"		
	80	20	6	8' - 6 1/2"	E2A608	S10		4' - 0"	0' - 6 1/2"	4' - 0"								
	81	22	6	7' - 3"	2A609	S10		3' - 0"	1' - 3"	3' - 0"								
	82	28	6	6' - 5"	2A610	17		2' - 7"	1' - 3"	2' - 7"								
* ▲	83	97	6	12' - 2"	2A611	STR.												
	84	12	6	4' - 7"	2A612	STR.												
	85	20	6	5' - 7"	2A613	2	1' - 0"	4' - 7"					0' - 0"					
△ ▲	86	110	7	11' - 6"	2A701	STR.												

BRIDGE 3 NORTH

	ITEM	NO. OF PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	87	PIER 1 (3N)																
*	88	61	4	14' - 1"	1P401	T1	0' - 4 1/2"	3' - 4"	3' - 4"	3' - 4"	3' - 4"		0' - 4 1/2"					
	89	60	4	10' - 1"	1P402	T1	0' - 4 1/2"	2' - 4"	2' - 4"	2' - 4"	2' - 4"		0' - 4 1/2"					
	90	14	4	8' - 0"	1P403	T1	0' - 4 1/2"	2' - 4"	1' - 4"	2' - 4"	1' - 4"		0' - 4 1/2"					
	91	6	5	20' - 2"	1P501	STR.												
*	92	7	5	25' - 1"	1P502	STR.												
	93	10	5	7' - 10"	1P503	17		2' - 0"	3' - 10"	2' - 0"								
*	94	37	5	16' - 6"	1P504	T1	0' - 5 1/2"	3' - 10"	4' - 0"	3' - 10"	4' - 0"		0' - 5 1/2"					
	95	2	5	16' - 4"	1P505	STR.												
△	96	23	6	6' - 6"	1P601	STR.												
	97	18	6	13' - 9"	1P602	1	0' - 8"	12' - 6"					0' - 8"		0' - 6"			
	98	5	8	20' - 2"	1P801	STR.												
*	99	5	8	17' - 1"	1P802	STR.												
	100	5	8	25' - 1"	1P803	STR.												
	101	4	8	12' - 6"	1P804	STR.												
	102	31	8	8' - 8"	1P805	22		2' - 3"	6' - 5"	0' - 0"				0' - 6"	0' - 0"	1' - 11"	0' - 0"	
*	103	15	8	17' - 5"	1P806	1	0' - 0"	16' - 6"					0' - 11"		0' - 8"			
	104	17	8	19' - 6"	1P807	STR.												
*	105	6	10	22' - 0"	1P1001	2	1' - 10"	20' - 2"					0' - 0"					
	106	5	10	26' - 11"	1P1002	2	1' - 10"	25' - 1"					0' - 0"					
*	107	5	10	16' - 0"	1P1003	2	1' - 10"	14' - 1"					0' - 0"					
	108	8	10	3' - 3"	1P1004	22		2' - 3"	1' - 0"	0' - 0"				0' - 6"	0' - 0"	1' - 11"	0' - 0"	
▲	109	8	10	17' - 9"	1P1005	1	1' - 5"	16' - 3"					0' - 0"		1' - 1 1/2"			
	110	16	11	20' - 7"	1P1101	STR.												
	111	16	11	32' - 7"	1P1102	STR.												
*	112	17	11	30' - 1"	1P1103	STR.												
*	113	17	11	27' - 9"	1P1104	2	2' - 0"	25' - 9"	0' - 0"									
	114	PIER 2 (3N)																
	115	63	4	14' - 1"	2P401	T1	0' - 4 1/2"	3' - 4"	3' - 4"	3' - 4"	3' - 4"		0' - 4 1/2"					
	116	63	4	10' - 1"	2P402	T1	0' - 4 1/2"	2' - 4"	2' - 4"	2' - 4"	2' - 4"		0' - 4 1/2"					
	117	14	4	8' - 0"	2P403	T1	0' - 4 1/2"	2' - 4"	1' - 4"	2' - 4"	1' - 4"		0' - 4 1/2"					
	118	6	5	20' - 2"	2P501	STR.												
	119	6	5	25' - 1"	2P502	STR.												
*	120	11	5	7' - 10"	2P503	17		2' - 0"	3' - 10"	2' - 0"								
	121	36	5	16' - 6"	2P504	T1	0' - 5 1/2"	3' - 10"	4' - 0"	3' - 10"	4' - 0"		0' - 5 1/2"					
*	122	3	5	16' - 4"	2P505	STR.												
	123	21	6	6' - 6"	2P601	STR.												
△	124	20	6	13' - 9"	2P602	1	0' - 8"	12' - 6"					0' - 8"		0' - 6"			
	125	5	8	20' - 2"	2P801	STR.												
	126	4	8	17' - 1"	2P802	STR.												
*	127	6	8	25' - 1"	2P803	STR.												
	128	4	8	12' - 6"	2P804	STR.												
	129	31	8	8' - 8"	2P805	22		2' - 3"	6' - 5"	0' - 0"				0' - 6"	0' - 0"	1' - 11"	0' - 0"	
*	130	15	8	17' - 5"	2P806	1	0' - 0"	16' - 6"					0' - 11"		0' - 8"			
	131	17	8	19' - 6"	2P807	STR.												
	132	5	10	22' - 0"	2P1001	2	1' - 10"	20' - 2"					0' - 0"					
*	133	6	10	26' - 11"	2P1002	2	1' - 10"	25' - 1"					0' - 0"					
	134	4	10	16' - 0"	2P1003	2	1' - 10"	14' - 1"					0' - 0"					
	135	8	10	3' - 3"	2P1004	22		2' - 3"	1' - 0"	0' - 0"				0' - 6"	0' - 0"	1' - 11"	0' - 0"	
* ▲	136	9	10	17' - 9"	2P1005	1	1' - 5"	16' - 3"					0' - 0"		1' - 1 1/2"			
*	137	17	11	20' - 7"	2P1101	STR.												
*	138	17	11	32' - 7"	2P1102	STR.												
	139	16	11	32' - 7"	2P1103	STR.												
	140	16	11	27' - 9"	2P1104	2	2' - 0"	25' - 9"	0' - 0"									



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 615-91). 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 WHEN NECESSARY TO MAINTAIN CLEARANCES.
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.

LEGEND

- ▲ DENOTES BARS TO BE CUT IN THE FIELD.
- ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- "E" IN PREFIX DENOTES EPOXY COATED REINFORCING STEEL.

ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT (POUNDS PER FOOT)	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER (INCHES)	CROSS SECTIONAL AREA (SQ. INCHES)	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

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta.
	Surv. Sta.

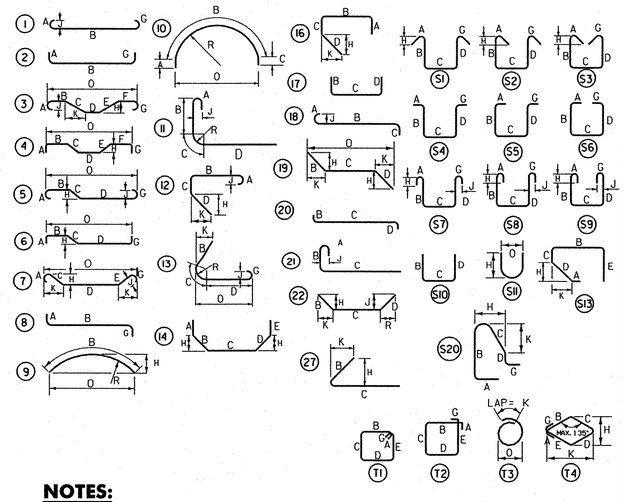
I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

REINFORCING STEEL SCHEDULE (3N)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By Date P.W. SZUSTAK 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G REINF STEEL.dgn	Date 06/06/08
Bridge Sheet No. BR152	Sheet 78 of 114

TVGA ENGINEERING, SURVEYING, P.C.

	ITEM	NO. OF PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	1	APPROACH SLAB 1 (3S)																
*	2	22	5	31' - 6"	E1AS501	STR.												
	3	17	8	2' - 6"	E1AS801	19		0' - 10"	1' - 8"	0' - 0"				0' - 7"		0' - 7"		2' - 3"
△	4	41	9	20' - 9"	E1AS901	1	1' - 3"	19' - 6"					0' - 0"		1' - 0"			
	5	APPROACH SLAB 2 (3S)																
*	6	22	5	31' - 6"	E2AS501	STR.												
	7	17	8	2' - 6"	E2AS801	19		0' - 10"	1' - 8"	0' - 0"				0' - 7"		0' - 7"		2' - 3"
	8	39	9	20' - 9"	E2AS901	1	1' - 3"	19' - 6"					0' - 0"		1' - 0"			
	9	SUPERSTRUCTURE (3S)																
*	10	603	5	38' - 6"	ES501	STR.												
*	11	513	5	35' - 0"	ES502	STR.												
*	12	29	5	5' - 3"	ES504	16	0' - 9"	1' - 6"	0' - 10"	2' - 2"				0' - 0"		2' - 2"		
	13	12	5	6' - 10"	ES505	STR.												
	14	2	5	35' - 0"	ES506	STR.												
	15	512	6	36' - 3"	ES601	1	0' - 8"	35' - 0"					0' - 8"		0' - 6"			
	16	566	6	6' - 6"	ES602	10	2' - 7"	1' - 4"	2' - 7"								0' - 5"	0' - 7"
	17	566	6	9' - 4"	ES603	S20	2' - 5"	2' - 2"	1' - 8"	0' - 8"			2' - 5"	1' - 3"		1' - 4"		
*	18	61	6	40' - 0"	ES604	STR.												
	19	60	6	23' - 5"	ES605	STR.												
	20	4	6	9' - 4"	ES606	22		2' - 7"	6' - 9"	0' - 0"				0' - 10"		2' - 6"		
	21	12	6	2' - 0"	ES607	STR.												
	22	20	6	2' - 4"	ES608	STR.												
*	23	5	6	8' - 2"	ES609	22		2' - 7"	5' - 7"	0' - 0"				0' - 10"		2' - 6"		
△	24	142	7	40' - 0"	ES701	STR.												
	25	32	7	8' - 1"	ES702	STR.												
*	26	3	7	6' - 5"	ES703	14	0' - 10"	2' - 0"	3' - 7"	0' - 0"	0' - 0"			0' - 5"				
*	27	33	7	9' - 3"	ES704	STR.												
	28	2	7	7' - 7"	ES705	14	0' - 10"	2' - 0"	4' - 9"	0' - 0"	0' - 0"			0' - 5"				
	29	CURTAIN WALL (3S)																
*	30	21	5	11' - 9 1/2"	ECW505	S5	2' - 2"	3' - 6"	0' - 8"	3' - 3 1/2"			2' - 2"					
	31	33	5	2' - 9"	ECW506	1	0' - 7"	1' - 7"					0' - 7"		0' - 5"			
*▲	32	6	5	31' - 6"	ECW508	STR.												
*	33	11	5	10' - 1 1/2"	ECW510	S5	2' - 2"	2' - 8"	0' - 8"	2' - 5 1/2"			2' - 2"					
	34	8	5	4' - 0"	ECW511	STR.												
	35	ABUTMENT 1 (3S)																
	36	110	5	6' - 9"	E1A501	STR.												
*	37	12	5	35' - 0"	E1A502	STR.												
	38	33	5	5' - 2"	E1A503	16	0' - 10"	1' - 10"	0' - 8"	1' - 10"				1' - 3"		1' - 3"		
*	39	56	5	6' - 8"	E1A504	17		2' - 11"	0' - 10"	2' - 11"								
	40	60	5	4' - 2"	1A505	19		0' - 10"	3' - 4"	0' - 0"				0' - 2 1/2"		0' - 10"		
*	41	12	5	35' - 0"	1A506	STR.												
*	42	9	5	5' - 2"	1A507	17		2' - 7"	2' - 7"									
	43	12	5	4' - 6"	1A510	S10		1' - 9"	1' - 0"	1' - 9"								
	44	55	6	4' - 4"	1A601	STR.												
	45	55	6	8' - 6"	1A602	STR.												
△	46	16	6	10' - 1"	E1A606	S13	3' - 8"	4' - 8"	0' - 6"	1' - 3"	0' - 0"			0' - 9"		1' - 0"		
	47	20	6	8' - 6 1/2"	E1A608	S10		4' - 0"	0' - 6 1/2"	4' - 0"								
	48	22	6	7' - 3"	1A609	S10		3' - 0"	1' - 3"	3' - 0"								
	49	28	6	7' - 5"	1A610	S10		3' - 1"	1' - 3"	3' - 1"								
▲	50	96	6	12' - 7"	1A611	STR.												
*	51	25	6	4' - 7"	1A612	STR.												
△ ▲	52	106	7	11' - 6"	1A701	STR.												
	53	ABUTMENT 2 (3S)																
*	54	7	5	5' - 4"	2A510	S10		2' - 2"	1' - 0"	2' - 2"								
	55	20	6	10' - 1"	E2A606	S13	3' - 8"	4' - 8"	0' - 6"	1' - 3"	0' - 0"			0' - 9"		1' - 0"		
△	56	22	6	8' - 6 1/2"	E2A608	S10		4' - 0"	0' - 6 1/2"	4' - 0"								
*	57	21	6	7' - 3"	2A609	S10		3' - 0"	1' - 3"	3' - 0"								
	58	28	6	7' - 5"	2A610	S10		3' - 1"	1' - 3"	3' - 1"								
*▲	59	97	6	12' - 9"	2A611	STR.												
	60	24	6	4' - 7"	2A612	STR.												
△ ▲	61	110	7	11' - 6"	2A701	STR.												
	62	PIER 1 (3S)																
*▲	63	9	5	33' - 4"	1P501	STR.												
	64	24	5	15' - 3"	1P502	T1	0' - 5 1/2"	2' - 11"	4' - 3"	2' - 11"	4' - 3"		0' - 5 1/2"					
*	65	11	5	8' - 1"	1P503	S10		2' - 2"	3' - 10"	2' - 2"								
	66	2	5	16' - 11"	1P504	T1	0' - 5 1/2"	3' - 10"	4' - 2"	3' - 10"	4' - 2"		0' - 5 1/2"					
	67						VARY IN EQUAL INCREMENTS											
	68	2	5	13' - 3"	1P512	T1	0' - 5 1/2"	3' - 10"	2' - 4"	3' - 10"	2' - 4"		0' - 5 1/2"					
△	69	7	7	34' - 0"	1P701	22	0' - 0"	6' - 0"	22' - 0"	6' - 0"	0' - 0"			2' - 0"		5' - 8"		
△	70	6	8	13' - 0"	1P801	STR.												
△	71	7	9	36' - 6"	1P901	2	1' - 7"	33' - 4"					1' - 7"					
	72	8	9	14' - 9"	1P902	2	1' - 7"	13' - 1"										
	73	PIER 2 (3S)																
▲	74	8	5	33' - 4"	2P501	STR.												
*	75	25	5	14' - 11"	2P502	T1	0' - 5 1/2"	2' - 11"	4' - 1"	2' - 11"	4' - 1"		0' - 5 1/2"					
	76	10	5	8' - 1"	2P503	S10		2' - 2"	3' - 10"	2' - 2"								
	77	2	5	16' - 6"	2P504	T1	0' - 5 1/2"	3' - 10"	4' - 0"	3' - 10"	4' - 0"		0' - 5 1/2"					
	78						VARY IN EQUAL INCREMENTS											
*	79	3	5	13' - 3"	2P512	T1	0' - 5 1/2"	3' - 10"	2' - 4"	3' - 10"	2' - 4"		0' - 5 1/2"					
△	80	7	7	33' - 10"	2P701	22	0' - 0"	5' - 11"	22' - 0"	5' - 11"	0' - 0"			1' - 10"		5' - 8"		
△	81	6	8	13' - 0"	2P801	STR.												
	82	5	9	36' - 6"	2P901	2	1' - 7"	33' - 4"					1' - 7"					
△	83	10	9	14' - 9"	2P902	2	1' - 7"	13' - 1"										



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 615-91). 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".
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7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.

LEGEND

- ▲ DENOTES BARS TO BE CUT IN THE FIELD.
- ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- "E" IN PREFIX DENOTES EPOXY COATED REINFORCING STEEL.

ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT (POUNDS PER FOOT)	NOMINAL DIMENSIONS ROUND SECTION: DIAMETER (INCHES)	CROSS SECTIONAL AREA (SQ. INCHES)	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

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

REINFORCING STEEL SCHEDULE (3S)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G REINF STEEL.dgn	Date 04/28/08
Bridge Sheet No. BRI54	Sheet 80 of 114

TVGA ENGINEERING, SURVEYING, P.C.

BRIDGE 3 NORTH

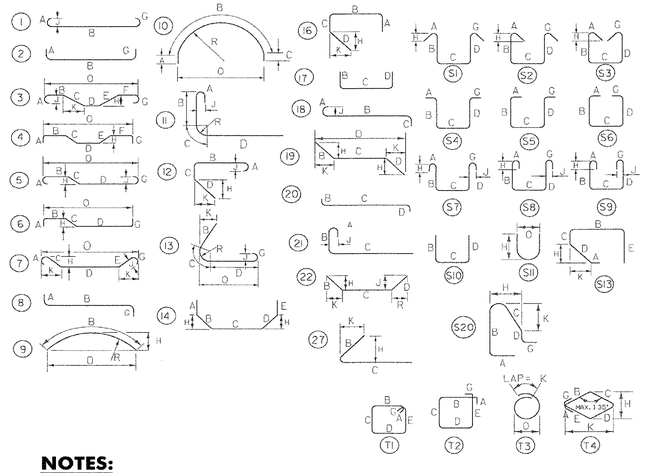
	ITEM	NO. OF PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	1	APPROACH SLAB 1 (3N)																
*	2	22	5	22' - 10"	E1AS501	STR.												
	3	21	5	22' - 10"	E1AS502	STR.												
	4	26	8	2' - 6"	E1AS801	19		0' - 10"	1' - 8"	0' - 0"				0' - 7"		0' - 7"		2' - 3"
*	5	56	9	20' - 9"	E1AS901	1	1' - 3"	19' - 6"					0' - 0"		1' - 0"			
	6	APPROACH SLAB 2 (3N)																
	7	21	5	22' - 10"	E2AS501	STR.												
*	8	22	5	22' - 10"	E2AS502	STR.												
	9	26	8	2' - 6"	E2AS801	19		0' - 10"	1' - 8"	0' - 0"				0' - 7"		0' - 7"		2' - 3"
*	10	56	9	20' - 9"	E2AS901	1	1' - 3"	19' - 6"					0' - 0"		1' - 0"			
	11	SUPERSTRUCTURE (3N)																
*	12	785	5	38' - 9"	ES501	STR.												
△	13	1026	5	24' - 8"	ES502	STR.												
	14	6	5	5' - 0"	ES503	STR.												
*	15	37	5	5' - 3"	ES504	16	0' - 9"	1' - 6"	0' - 10"	2' - 2"				0' - 0"		2' - 2"		
	16	12	5	7' - 9"	ES505	STR.												
	17	4	5	24' - 8"	ES506	STR.												
△	18	1026	6	25' - 4"	ES601	1	0' - 8"	24' - 8"										
*	19	567	6	6' - 6"	ES602	10	2' - 7"	1' - 4"	2' - 7"								0' - 5"	0' - 7"
	20	566	6	9' - 4"	ES603	S20	2' - 5"	2' - 2"	1' - 8"	0' - 8"				2' - 5"	1' - 3"		1' - 4"	
*	21	83	6	40' - 0"	ES604	STR.												
	22	82	6	23' - 5"	ES605	STR.												
	23	4	6	9' - 1"	ES606	22		2' - 7"	6' - 6"	0' - 0"				0' - 10"		2' - 6"		
	24	12	6	2' - 0"	ES607	STR.												
▲	25	20	6	2' - 4"	ES608	STR.												
	26	4	6	8' - 2"	ES609	22		2' - 7"	5' - 7"	0' - 0"				0' - 10"		2' - 6"		
△	27	142	7	40' - 0"	ES701	STR.												
*	28	33	7	8' - 1"	ES702	STR.												
	29	2	7	6' - 5"	ES703	14	0' - 10"	2' - 0"	3' - 7"	0' - 0"	0' - 0"			0' - 5"				
	30	32	7	9' - 0"	ES704	STR.												
*	31	3	7	7' - 4"	ES705	14	0' - 10"	2' - 0"	4' - 7"	0' - 0"	0' - 0"			0' - 5"				
	32	CURTAIN WALL (3N)																
*	33	33	5	11' - 9"	ECW505	S5	2' - 2"	3' - 6"	0' - 8"	3' - 4"			2' - 2"					
	34	44	5	2' - 9"	ECW506	1	0' - 7"	1' - 7"					0' - 7"		0' - 5"			
	35	10	5	22' - 9"	ECW508	STR.												
*	36	13	5	10' - 0"	ECW510	S5	2' - 2"	2' - 7"	0' - 8"	2' - 5"			2' - 2"					
*	37	9	5	4' - 11"	ECW511	STR.												
*	38	5	5	3' - 6"	ECW512	STR.												
	39	ABUTMENT 1 (3N)																
*	40	23	5	12' - 9"	1A501	STR.												
	41	20	5	6' - 7"	1A502	17		2' - 2"	2' - 4"	2' - 2"								
	42	18	5	12' - 0"	1A503	STR.												
	43	42	5	4' - 4"	1A504	22		2' - 0"	2' - 5"	0' - 0"				0' - 6"	0' - 0"	1' - 11"	0' - 0"	
	44	20	5	4' - 4"	1A505	2	2' - 2"	2' - 2"					0' - 0"					
	45	10	5	5' - 4"	1A515	S10		2' - 2"	1' - 0"	2' - 2"								
	46	18	6	8' - 1"	1A601	1	0' - 8"	7' - 6"										
*	47	19	6	7' - 6"	1A602	STR.												
	48	36	6	5' - 7"	1A603	2	1' - 0"	4' - 7"					0' - 0"					
	49	40	6	8' - 3"	1A604	STR.												
*	50	19	6	10' - 1"	E1A606	S13	3' - 8"	4' - 8"	0' - 6"	1' - 3"	0' - 0"			0' - 9"		1' - 0"		
	51	20	6	8' - 6 1/2"	E1A608	S10		4' - 0"	0' - 6 1/2"	4' - 0"								
	52	20	6	7' - 3"	1A609	S10		3' - 0"	1' - 3"	3' - 0"								
	53	28	6	6' - 5"	1A610	17		2' - 7"	1' - 3"	2' - 7"								
▲	54	96	6	12' - 3"	1A611	STR.												
	55	12	6	4' - 7"	1A612	STR.												
	56	20	6	5' - 7"	1A613	2	1' - 0"	4' - 7"					0' - 0"					
△ ▲	57	106	7	11' - 6"	1A701	STR.												
	58	ABUTMENT 2 (3N)																
	59	11	5	24' - 7"	2A501	STR.												
*	60	12	5	23' - 6"	2A502	STR.												
	61	18	5	12' - 0"	2A503	STR.												
*	62	21	5	8' - 9"	2A504	17		2' - 7"	3' - 7"	2' - 7"								
	63	154	5	6' - 6"	E2A505	STR.												
	64	77	5	7' - 4"	E2A506	17		3' - 3"	0' - 10"	3' - 3"								
	65	46	5	4' - 5"	E2A507	16	0' - 1"	1' - 10"	0' - 8"	1' - 10"				1' - 3"		1' - 3"		
⚠1	66	39	5	4' - 1"	2A508	19		0' - 10"	3' - 3"	0' - 0"				0' - 2 1/2"		0' - 10"		
	67	12	5	12' - 9"	2A509	STR.												
	68	11	5	25' - 0"	E2A510	STR.												
*	69	12	5	24' - 7"	E2A511	STR.												
	70	30	5	4' - 3"	2A512	22		2' - 0"	2' - 3"	0' - 0"				0' - 6"	0' - 0"	1' - 11"	0' - 0"	
	71	20	5	4' - 4"	2A513	2	2' - 2"	2' - 2"					0' - 0"					
	72	20	5	4' - 4"	2A514	2	2' - 2"	2' - 2"					0' - 0"					
	73	12	5	4' - 8"	2A515	S10		1' - 10"	1' - 0"	1' - 10"								
	74	18	6	8' - 9"	2A601	1	0' - 8"	7' - 6"					0' - 8"		0' - 6"			
	75	18	6	7' - 6"	2A602	STR.												
	76	36	6	5' - 7"	2A603	2	1' - 0"	4' - 7"					0' - 0"					
	77	67	6	4' - 4"	2A604	STR.												
	78	97	6	8' - 3"	2A605	STR.												
	79	16	6	10' - 1"	E2A606	S13	3' - 8"	4' - 8"	0' - 6"	1' - 3"	0' - 0"			0' - 9"		1' - 0"		
	80	20	6	8' - 6 1/2"	E2A608	S10		4' - 0"	0' - 6 1/2"	4' - 0"								
	81	22	6	7' - 3"	2A609	S10		3' - 0"	1' - 3"	3' - 0"								
	82	28	6	6' - 5"	2A610	17		2' - 7"	1' - 3"	2' - 7"								
*▲	83	97	6	12' - 2"	2A611	STR.												
	84	12	6	4' - 7"	2A612	STR.												
	85	20	6	5' - 7"	2A613	2	1' - 0"	4' - 7"					0' - 0"					
△ ▲	86	110	7	11' - 6"	2A701	STR.												

BRIDGE 3 NORTH

	ITEM	NO. OF PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	87	PIER 1 (3N)																
*	88	61	4	14' - 1"	1P401	T1	0' - 4 1/2"	3' - 4"	3' - 4"	3' - 4"	3' - 4"		0' - 4 1/2"					
	89	60	4	10' - 1"	1P402	T1	0' - 4 1/2"	2' - 4"	2' - 4"	2' - 4"	2' - 4"		0' - 4 1/2"					
	90	14	4	8' - 0"	1P403	T1	0' - 4 1/2"	2' - 4"	1' - 4"	2' - 4"	1' - 4"		0' - 4 1/2"					
	91	6	5	45' - 3"	1P501	STR.												
⚠3	92				1P502													
	93	10	5	7' - 10"	1P503	17		2' - 0"	3' - 10"	2' - 0"								
*	94	37	5	16' - 6"	1P504	T1	0' - 5 1/2"	3' - 10"	4' - 0"	3' - 10"	4' - 0"		0' - 5 1/2"					
	95	2	5	16' - 4"	1P505	STR.												
△	96	23	6	6' - 6"	1P601	STR.												
	97	18	6	13' - 9"	1P602	1	0' - 8"	12' - 6"					0' - 8"		0' - 6"			
⚠3	98	5	8	45' - 3"	1P801	STR.												
⚠3 ✱	99	5	8	29' - 7"	1P802	STR.												
⚠3	100				1P803													
⚠3	101				1P804													
	102	31	8	8' - 8"	1P805	22		2' - 3"	6' - 5"	0' - 0"				0' - 6"	0' - 0"	1' - 11"	0' - 0"	
*	103	15	8	17' - 5"	1P806	1	0' - 0"	16' - 6"					0' - 11"		0' - 8"			
	104	17	8	19' - 6"	1P807	STR.												
⚠3 ✱	105	6	10	25' - 4"	1P1001	2	1' - 10"	23' - 6"					0' - 0"					
⚠3	106	5	10	31' - 10"	1P1002	2	1' - 10"	30' - 0"					0' - 0"					
*	107	5	10	16' - 0"	1P1003	2	1' - 10"	14' - 1"					0' - 0"					
	108	8	10	3' - 3"	1P1004	22		2' - 3"	1' - 0"	0' - 0"				0' - 6"	0' - 0"	1' - 11"	0' - 0"	
▲	109	8	10	17' - 9"	1P1005	1	1' - 5"	16' - 3"					0' - 0"		1' - 1 1/2"			
	110	16	11	20' - 7"	1P1101	STR.												
	111	16	11	32' - 7"	1P1102	STR.												
*	112	17	11	30' - 1"	1P1103	STR.												
*	113	17	11	27' - 9"	1P1104	2	2' - 0"	25' - 9"	0' - 0"									
	114	PIER 2 (3N)																
	115	63	4	14' - 1"	2P401	T1	0' - 4 1/2"	3' - 4"	3' - 4"	3' - 4"	3' - 4"		0' - 4 1/2"					
	116	63	4	10' - 1"	2P402	T1	0' - 4 1/2"	2' - 4"	2' - 4"	2' - 4"	2' - 4"		0' - 4 1/2"					
	117	14	4	8' - 0"	2P403	T1	0' - 4 1/2"	2' - 4"	1' - 4"	2' - 4"	1' - 4"		0' - 4 1/2"					
	118	6	5	45' - 3"	2P501	STR.												
⚠3	119				2P502													
*	120	11	5	7' - 10"	2P503	17		2' - 0"	3' - 10"	2' - 0"								
	121	36	5	16' - 6"	2P504	T1	0' - 5 1/2"	3' - 10"	4' - 0"	3' - 10"	4' - 0"		0' - 5 1/2"					
*	122	3	5	16' - 4"	2P505	STR.												
	123	21	6	6' - 6"	2P601	STR.												
△	124	20	6	13' - 9"	2P602	1	0' - 8"	12' - 6"					0' - 8"		0' - 6"			
⚠3	125	5	8	45' - 3"	2P801	STR.												
⚠3	126	4	8	29' - 7"	2P802	STR.												
⚠3	127				2P803													
⚠3	128				2P804													
	129	31	8	8' - 8"	2P805	22		2' - 3"	6' - 5"	0' - 0"				0' - 6"	0' - 0"	1' - 11"	0' - 0"	
*	130	15	8	17' - 5"	2P806	1	0' - 0"	16' - 6"					0' - 11"		0' - 8"			
	131	17	8	19' - 6"	2P807	STR.												
⚠3	132	5	10	25' - 4"	2P1001	2	1' - 10"	23' - 6"					0' - 0"					
⚠3 ✱	133	6	10	31' - 10"	2P1002	2	1' - 10"	30' - 0"					0' - 0"					
	134	4	10	16' - 0"	2P1003	2	1' - 10"	14' - 1"					0' - 0"					
	135	8	10	3' - 3"	2P1004	22		2' - 3"	1' - 0"	0' - 0"				0' - 6"	0' - 0"	1' - 11"	0' - 0"	
*▲	136	9	10	17' - 9"	2P1005	1	1' - 5"	16' - 3"					0' - 0"		1' - 1 1/2"			
*	137	17	11	20' - 7"	2P1101	STR.												
*	138	17	11	32' - 7"	2P1102	STR.												
	139	16	11	32' - 7"	2P1103	STR.												
	140	16	11	27' - 9"	2P1104	2	2' - 0"	25' - 9"	0' - 0"									

⚠2

ITEM	NO. OF PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	I	J	K	R	O
	ABUTMENT 1 (3N)																	
1	4	5	32'-2"	1A516	STR.													
▲ 2	68	5	4'-8"	1A517	17		2'-5"	2'-3"										
	ABUTMENT 2 (3N)																	
3	5	5	32'-2"	2A516	STR.													
4	57	5	8'-9"	2A504	17		2'-7"	3'-7"	2'-7"									
▲ 5	57	6	4'-2"	2A614	STR.													



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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 WHEN NECESSARY TO MAINTAIN CLEARANCES.
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.

LEGEND

- ▲ DENOTES BARS TO BE CUT IN THE FIELD.
- ✱ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- "E" IN PREFIX DENOTES EPOXY COATED REINFORCING STEEL.

ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT (POUNDS PER FOOT)	NOMINAL DIMENSIONS ROUND SECTION DIAMETER (INCHES)	CROSS SECTIONAL AREA (SQ. INCHES)	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

REV. NO.	DATE	COMMENT
⚠1	11-14-08	REVISED STEEL QUANTITY
⚠2	11-14-08	ADDED NEW STEEL SCHEDULE
⚠3	02-02-09	REVISED DIMENSIONS AND QUANTITIES

THIS SHEET SUPERSEDES BR152R1

TVGA ENGINEERING, SURVEYING, P.C.

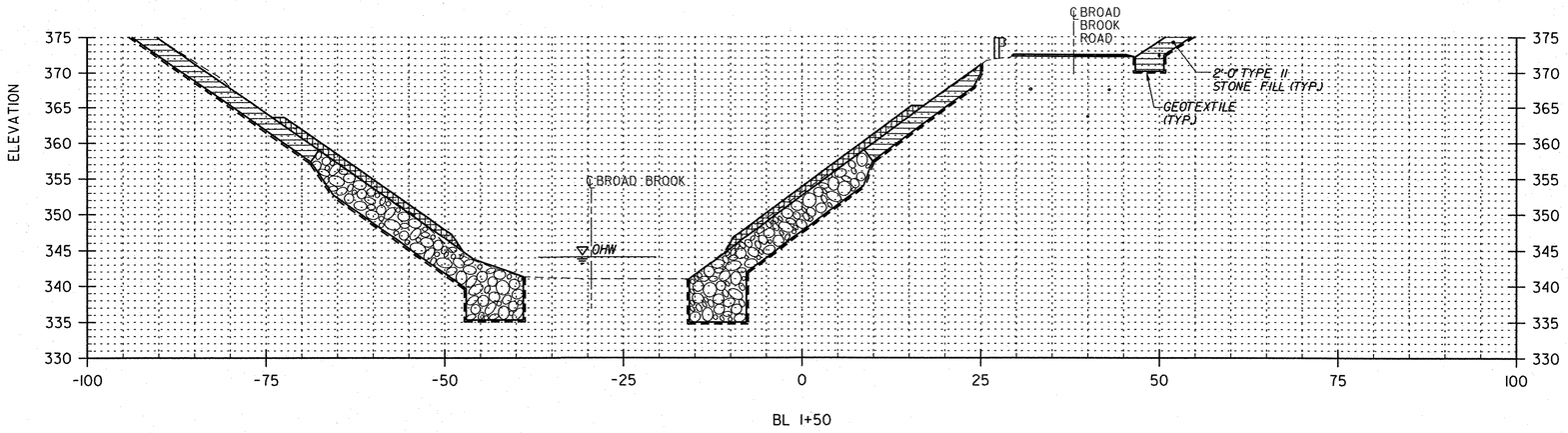
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta. / Surv. Sta.

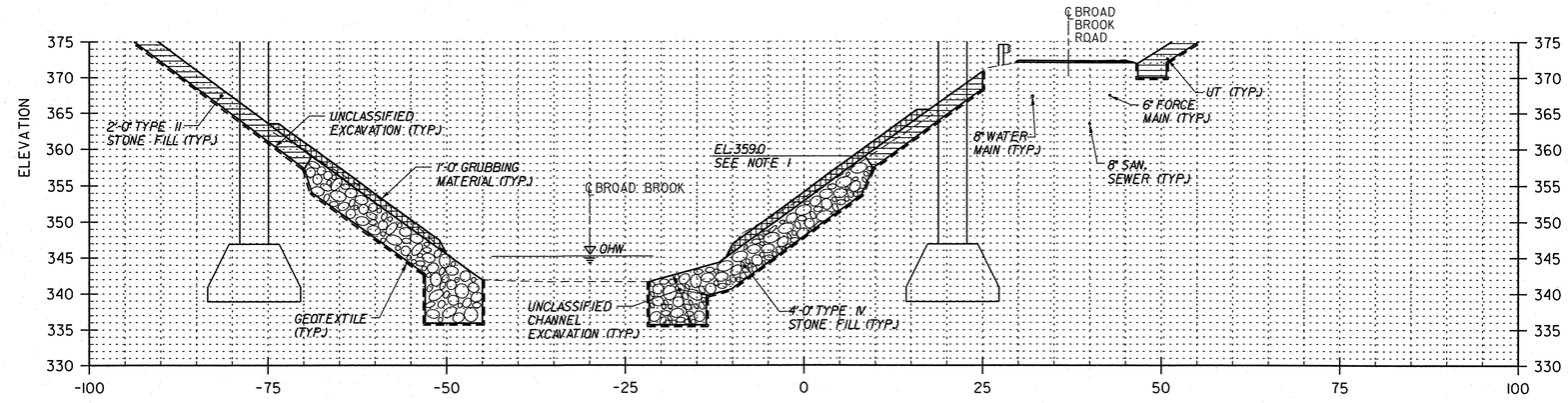
I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

REINFORCING STEEL SCHEDULE (3N)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G REINF STEEL.dgn	Date 04/28/08
Bridge Sheet No. BR152R2	Sheet 78R2 of 114

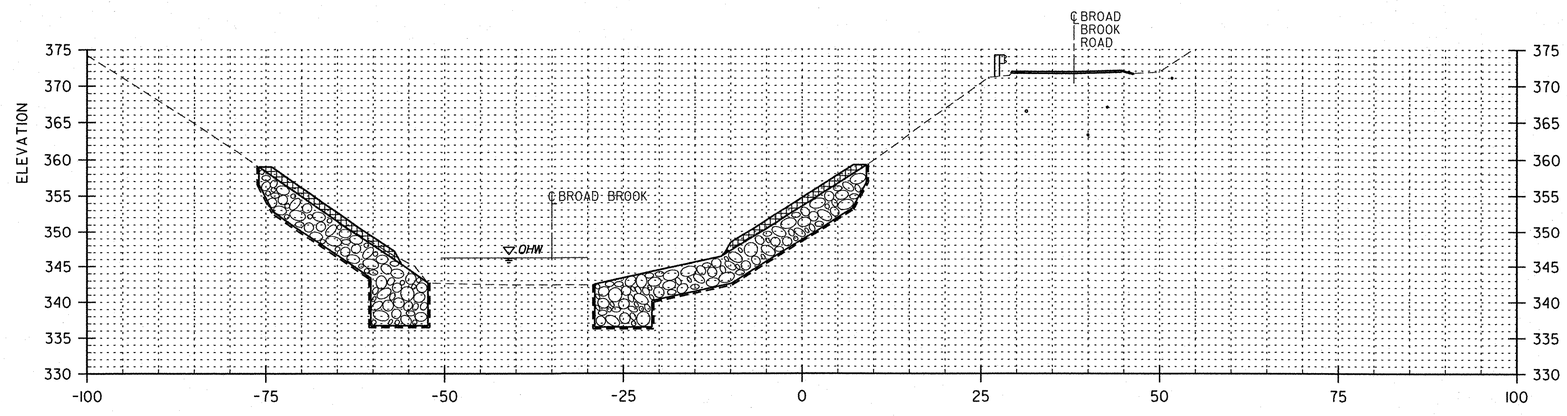


BL 1+50



BL 1+10

BEGIN STA. BL 0+76
STONE FILL, TYPE II
UNCLASSIFIED EXCAVATION



BL 0+70

BEGIN STA. BL 0+10
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE IV
GRUBBING MATERIAL
UNCLASSIFIED CHANNEL EXCAVATION

NOTES:

1. STREAM BANK SLOPES UP TO ELEVATION 359.0 SHALL BE STABILIZED WITH TYPE IV STONE FILL. SLOPE ABOVE THIS ELEVATION SHALL BE STABILIZED WITH TYPE II STONE FILL.
2. UTILITY LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO EXCAVATION. FOR UTILITY NOTES, SEE GENERAL NOTES, BRIDGE SHEET BRI01 AND BRI02, AND THE SPECIAL PROVISIONS.
3. PAY LIMITS FOR "UNCLASSIFIED CHANNEL EXCAVATION" SHALL EXTEND TO EL. 359.0. ANY EXCAVATION ABOVE THIS ELEVATION SHALL BE PAID FOR UNDER ITEM 203.17, "UNCLASSIFIED EXCAVATION".

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. **3N&S**
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

CHANNEL CROSS SECTIONS (1 OF 2)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA ENGINEERING, SURVEYING, P.C.	TVGA CAD Drawing No. G XS STR.dgn Date 04/28/08
	Bridge Sheet No. BRI55 Sheet 81 of 114

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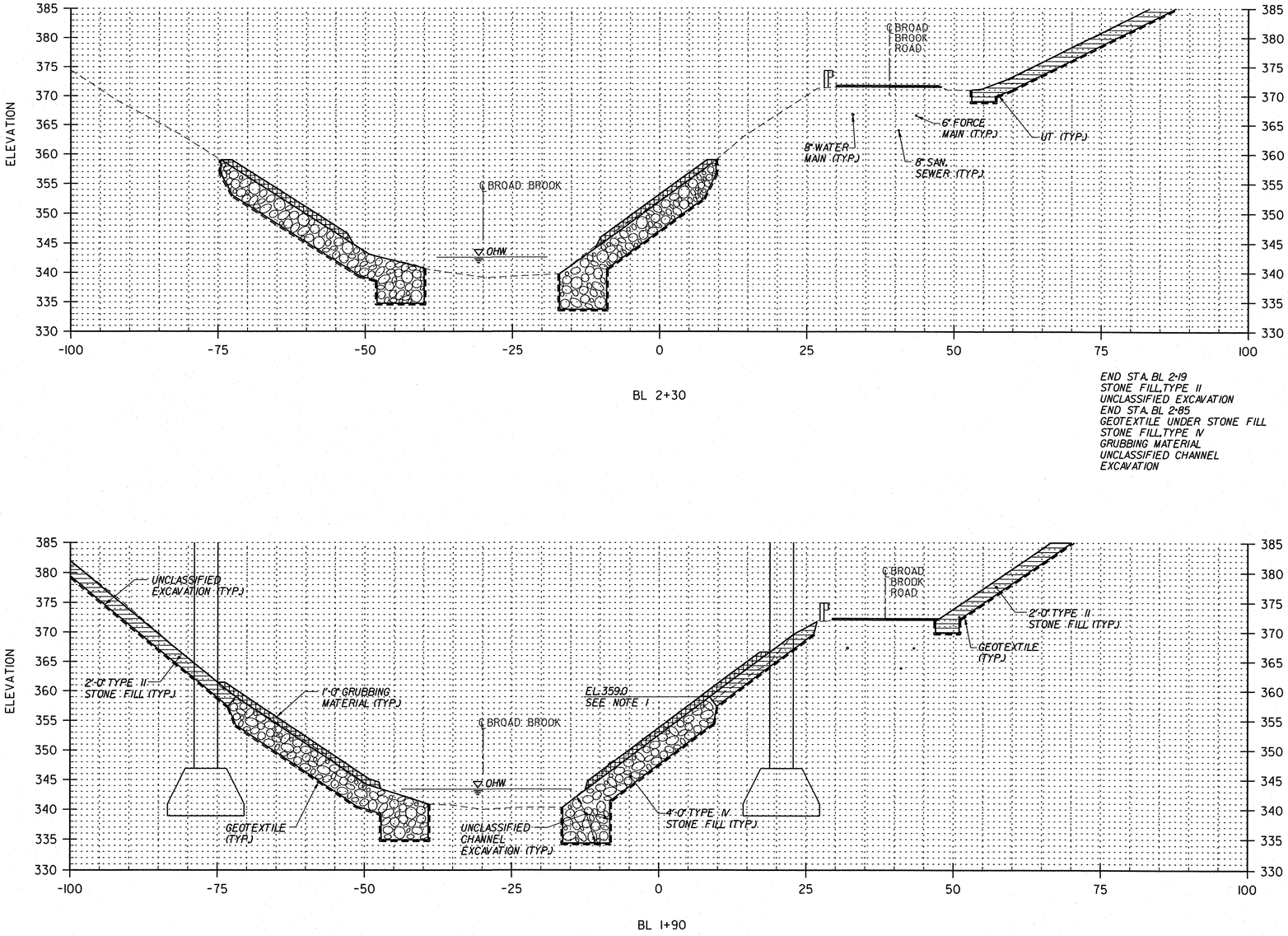


BL 2+30

BL 1+90

END STA. BL 2+19
STONE FILL, TYPE II
UNCLASSIFIED EXCAVATION
END STA. BL 2+85
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE IV
GRUBBING MATERIAL
UNCLASSIFIED CHANNEL EXCAVATION

NOTES:

1. STREAM BANK SLOPES UP TO ELEVATION 359.0 SHALL BE STABILIZED WITH TYPE IV STONE FILL. SLOPE ABOVE THIS ELEVATION SHALL BE STABILIZED WITH TYPE II STONE FILL.
2. UTILITY LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO EXCAVATION. FOR UTILITY NOTES, SEE GENERAL NOTES, BRIDGE SHEET BRI01 AND BRI02, AND THE SPECIAL PROVISIONS.
3. PAY LIMITS FOR "UNCLASSIFIED CHANNEL EXCAVATION" SHALL EXTEND TO EL. 359.0. ANY EXCAVATION ABOVE THIS ELEVATION SHALL BE PAID FOR UNDER ITEM 203.17, "UNCLASSIFIED EXCAVATION".

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 OVER BROAD BROOK & BROAD BROOK ROAD

CHANNEL CROSS SECTIONS (2 OF 2)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P. W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G XS STR.dgn	Date 04/28/08
Bridge Sheet No. BRI56	Sheet 82 of 114

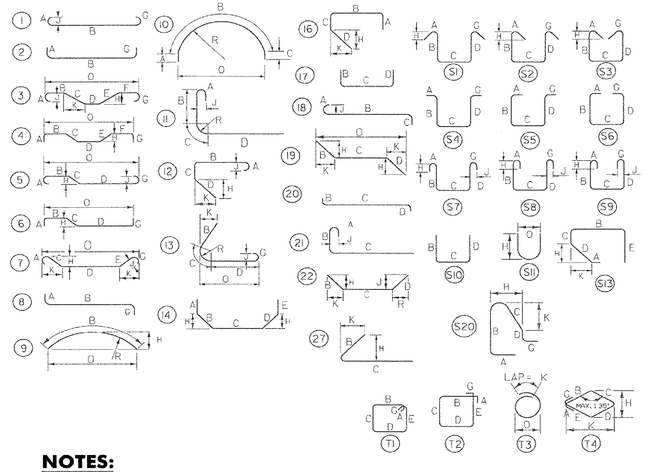
TVGA ENGINEERING, SURVEYING, P.C.

BRIDGE 3 SOUTH

	ITEM	NO. OF PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	1	APPROACH SLAB 1 (3S)																
*	2	22	5	31' - 6"	E1AS501	STR.												
	3	17	8	2' - 6"	E1AS801	19		0' - 10"	1' - 8"	0' - 0"				0' - 7"		0' - 7"		2' - 3"
△	4	41	9	20' - 9"	E1AS901	1	1' - 3"	19' - 6"					0' - 0"		1' - 0"			
	5	APPROACH SLAB 2 (3S)																
*	6	22	5	31' - 6"	E2AS501	STR.												
	7	17	8	2' - 6"	E2AS801	19		0' - 10"	1' - 8"	0' - 0"				0' - 7"		0' - 7"		2' - 3"
	8	39	9	20' - 9"	E2AS901	1	1' - 3"	19' - 6"					0' - 0"		1' - 0"			
	9	SUPERSTRUCTURE (3S)																
*	10	603	5	38' - 6"	ES501	STR.												
*	11	513	5	35' - 0"	ES502	STR.												
*	12	29	5	5' - 3"	ES504	16	0' - 9"	1' - 6"	0' - 10"	2' - 2"				0' - 0"		2' - 2"		
	13	12	5	6' - 10"	ES505	STR.												
*	14	2	5	35' - 0"	ES506	STR.												
*	15	512	6	36' - 3"	ES601	1	0' - 8"	35' - 0"					0' - 8"		0' - 6"			
*	16	566	6	6' - 6"	ES602	10	2' - 7"	1' - 4"	2' - 7"								0' - 5"	0' - 7"
	17	566	6	9' - 4"	ES603	S20	2' - 5"	2' - 2"	1' - 8"	0' - 8"			2' - 5"	1' - 3"		1' - 4"		
*	18	61	6	40' - 0"	ES604	STR.												
	19	60	6	23' - 5"	ES605	STR.												
	20	4	6	9' - 4"	ES606	22		2' - 7"	6' - 9"	0' - 0"				0' - 10"		2' - 6"		
	21	12	6	2' - 0"	ES607	STR.												
	22	20	6	2' - 4"	ES608	STR.												
*	23	5	6	8' - 2"	ES609	22		2' - 7"	5' - 7"	0' - 0"				0' - 10"		2' - 6"		
△	24	142	7	40' - 0"	ES701	STR.												
	25	32	7	8' - 1"	ES702	STR.												
*	26	3	7	6' - 5"	ES703	14	0' - 10"	2' - 0"	3' - 7"	0' - 0"	0' - 0"			0' - 5"				
*	27	33	7	9' - 3"	ES704	STR.												
	28	2	7	7' - 7"	ES705	14	0' - 10"	2' - 0"	4' - 9"	0' - 0"	0' - 0"			0' - 5"				
	29	CURTAIN WALL (3S)																
*	30	21	5	11' - 9 1/2"	ECW505	S5	2' - 2"	3' - 6"	0' - 8"	3' - 3 1/2"			2' - 2"					
	31	33	5	2' - 9"	ECW506	1	0' - 7"	1' - 7"					0' - 7"		0' - 5"			
* ▲	32	6	5	31' - 6"	ECW508	STR.												
*	33	11	5	10' - 1 1/2"	ECW510	S5	2' - 2"	2' - 8"	0' - 8"	2' - 5 1/2"			2' - 2"					
	34	8	5	4' - 0"	ECW511	STR.												
	35	ABUTMENT 1 (3S)																
	36	110	5	6' - 9"	E1A501	STR.												
*	37	12	5	35' - 0"	E1A502	STR.												
	38	33	5	5' - 2"	E1A503	16	0' - 10"	1' - 10"	0' - 8"	1' - 10"				1' - 3"		1' - 3"		
*	39	56	5	6' - 8"	E1A504	17		2' - 11"	0' - 10"	2' - 11"								
⚠1	40	48	5	4' - 2"	1A505	19		0' - 10"	3' - 4"	0' - 0"				0' - 2 1/2"		0' - 10"		
*	41	12	5	35' - 0"	1A506	STR.												
*	42	9	5	5' - 2"	1A507	17		2' - 7"	2' - 7"									
	43	12	5	4' - 6"	1A510	S10		1' - 9"	1' - 0"	1' - 9"								
	44	55	6	4' - 4"	1A601	STR.												
	45	55	6	8' - 6"	1A602	STR.												
△	46	16	6	10' - 1"	E1A606	S13	3' - 8"	4' - 8"	0' - 6"	1' - 3"	0' - 0"			0' - 9"		1' - 0"		
	47	20	6	8' - 6 1/2"	E1A808	S10		4' - 0"	0' - 6 1/2"	4' - 0"								
	48	22	6	7' - 3"	1A609	S10		3' - 0"	1' - 3"	3' - 0"								
	49	28	6	7' - 5"	1A610	S10		3' - 1"	1' - 3"	3' - 1"								
▲	50	96	6	12' - 7"	1A611	STR.												
*	51	25	6	4' - 7"	1A612	STR.												
△ ▲	52	106	7	11' - 6"	1A701	STR.												
	53	ABUTMENT 2 (3S)																
*	54	7	5	5' - 4"	2A510	S10		2' - 2"	1' - 0"	2' - 2"								
	55	20	6	10' - 1"	E2A606	S13	3' - 8"	4' - 8"	0' - 6"	1' - 3"	0' - 0"			0' - 9"		1' - 0"		
△	56	22	6	8' - 6 1/2"	E2A608	S10		4' - 0"	0' - 6 1/2"	4' - 0"								
*	57	21	6	7' - 3"	2A609	S10		3' - 0"	1' - 3"	3' - 0"								
	58	28	6	7' - 5"	2A610	S10		3' - 1"	1' - 3"	3' - 1"								
* ▲	59	97	6	12' - 9"	2A611	STR.												
	60	24	6	4' - 7"	2A612	STR.												
△ ▲	61	110	7	11' - 6"	2A701	STR.												
	62	PIER 1 (3S)																
* ▲	63	9	5	33' - 4"	1P501	STR.												
	64	24	5	15' - 3"	1P502	T1	0' - 5 1/2"	2' - 11"	4' - 3"	2' - 11"	4' - 3"		0' - 5 1/2"					
*	65	11	5	8' - 1"	1P503	S10		2' - 2"	3' - 10"	2' - 2"								
	66	2	5	16' - 11"	1P504	T1	0' - 5 1/2"	3' - 10"	4' - 2"	3' - 10"	4' - 2"		0' - 5 1/2"					
	67						VARY IN EQUAL INCREMENTS											
	68	2	5	13' - 3"	1P512	T1	0' - 5 1/2"	3' - 10"	2' - 4"	3' - 10"	2' - 4"		0' - 5 1/2"					
△	69	7	7	34' - 0"	1P701	22	0' - 0"	6' - 0"	22' - 0"	6' - 0"	0' - 0"			2' - 0"		5' - 8"		
△	70	6	8	13' - 0"	1P801	STR.												
△	71	7	9	36' - 6"	1P901	2	1' - 7"	33' - 4"					1' - 7"					
	72	8	9	14' - 9"	1P902	2	1' - 7"	13' - 1"										
	73	PIER 2 (3S)																
▲	74	8	5	33' - 4"	2P501	STR.												
*	75	25	5	14' - 11"	2P502	T1	0' - 5 1/2"	2' - 11"	4' - 1"	2' - 11"	4' - 1"		0' - 5 1/2"					
	76	10	5	8' - 1"	2P503	S10		2' - 2"	3' - 10"	2' - 2"								
	77	2	5	16' - 6"	2P504	T1	0' - 5 1/2"	3' - 10"	4' - 0"	3' - 10"	4' - 0"		0' - 5 1/2"					
*	78						VARY IN EQUAL INCREMENTS											
△	79	3	5	13' - 3"	2P512	T1	0' - 5 1/2"	3' - 10"	2' - 4"	3' - 10"	2' - 4"		0' - 5 1/2"					
△	80	7	7	33' - 10"	2P701	22	0' - 0"	5' - 11"	22' - 0"	5' - 11"	0' - 0"			1' - 10"		5' - 8"		
	81	6	8	13' - 0"	2P801	STR.												
△	82	5	9	36' - 6"	2P901	2	1' - 7"	33' - 4"					1' - 7"					
	83	10	9	14' - 9"	2P902	2	1' - 7"	13' - 1"										

⚠2

ITEM	NO. OF PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	I	J	K	R	O
	ABUTMENT 1 (3S)																	
6	4	5	31'-8"	1A511	STR.													
▲ 7	112	5	6'-4"	1A512	17		2'-6"	3'-10"										
	ABUTMENT 2 (3S)																	
8	4	5	31'-8"	2A511	STR.													
▲ 9	66	5	4'-9"	2A512	17		2'-5"	2'-4"										



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 615-91). 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 WHEN NECESSARY TO MAINTAIN CLEARANCES.
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.

LEGEND

- ▲ DENOTES BARS TO BE CUT IN THE FIELD.
- ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- "E" IN PREFIX DENOTES EPOXY COATED REINFORCING STEEL.

ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT (POUNDS PER FOOT)	NOMINAL DIMENSIONS ROUND SECTION: DIAMETER (INCHES)	CROSS SECTIONAL AREA (SQ. INCHES)	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
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#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

REV. NO.	DATE	COMMENT
⚠1	11-14-08	REVISED STEEL QUANTITY
⚠2	11-14-08	ADDED NEW STEEL SCHEDULE

TVGA ENGINEERING, SURVEYING, P.C.

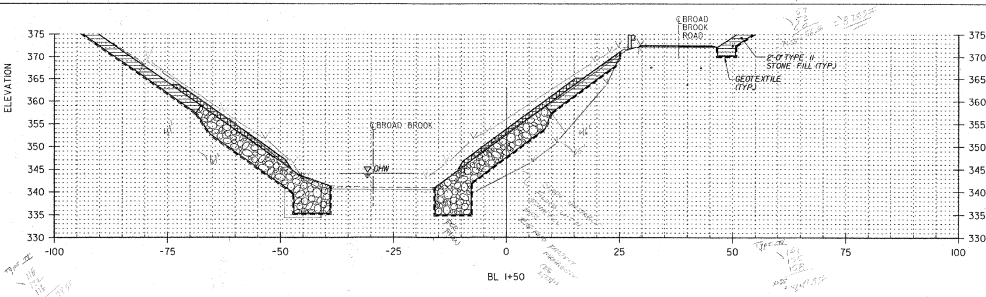
STATE OF VERMONT
AGENCY OF TRANSPORTATION

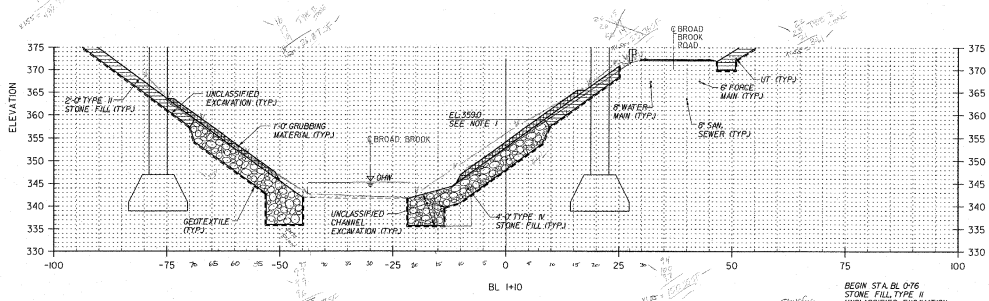
Town Of GUILFORD	Bridge No. 3S
Highway No. I-91	Log Sta. / Surv. Sta.

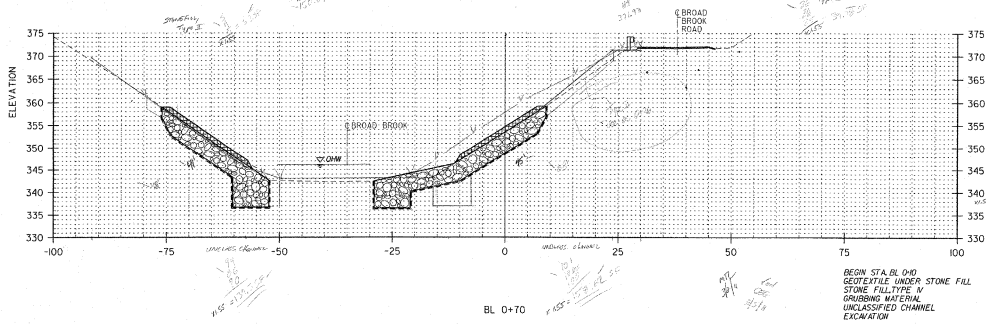
I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

REINFORCING STEEL SCHEDULE (3S)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G REINF STEEL.dgn	Date 11/14/08
Bridge Sheet No. BRI54R	Sheet 80R of 114







To Calc. Folder, Page 203.27-1

To Calc. Folder, Page 613.13-1

To Calc. Folder, Page 613.11-6

To Calc. Folder Page 203.27-1

To Calc. Folder, Page 613.13-1

To Calc. Folder Page 203.27-1

To Calc. Folder, Page 613.13-1

NOTES:

1. STREAM BANK SLOPES UP TO ELEVATION 359.0 SHALL BE STABILIZED WITH TYPE IV STONE FILL. SLOPE ABOVE THIS ELEVATION SHALL BE STABILIZED WITH TYPE II STONE FILL.
2. UTILITY LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO EXCAVATION. FOR UTILITY NOTES, SEE GENERAL NOTES, BRIDGE SHEET BR10 AND BR102, AND THE SPECIAL PROVISIONS.
3. PAY LIMITS FOR "UNCLASSIFIED CHANNEL EXCAVATION" SHALL EXTEND TO EL. 359.0. ANY EXCAVATION ABOVE THIS ELEVATION SHALL BE PAID FOR UNDER ITEM 203J7, "UNCLASSIFIED EXCAVATION".

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	GUILFORD	Bridge No.	3N&S
Highway No.	I-91	Log Sta.	
		Surv. Sta.	

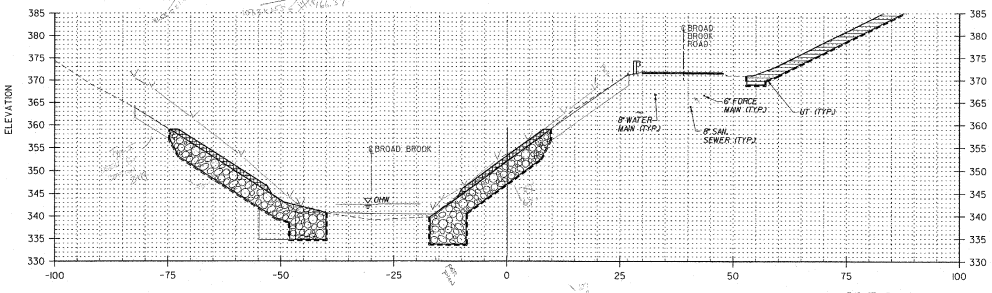
I-91 OVER BROAD BROOK & BROAD BROOK ROAD

CHANNEL CROSS SECTIONS (1 OF 2)

Designed By	M.J. MOZER	Drawn By	G.K. MORZE
Checked By	Date	Bridge Design Supervisor	
P.W. SZUSTAK	01/03	J.P. HALSTEAD	Date 01/03
PROJECT		PROJECT NO.	
GUILFORD		BM 091-1(33)	

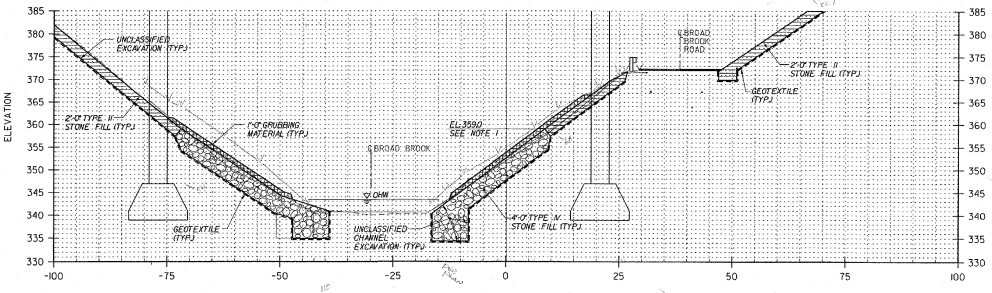
TVGA ENGINEERING, SURVEYING, P.C.

TVGA CAD Drawing No. G XS STR.dgn	Date 04/28/08
Bridge Sheet No. BR55	Sheet 81 of 114



BL 2+30

END STA. BL 2+19
STONE FILL TYPE II
UNCLASSIFIED EXCAVATION
END STA. BL 2+85
GEOTEXTILE UNDER STONE FILL
STONE FILL TYPE IV
GRUBBING MATERIAL
UNCLASSIFIED CHANNEL EXCAVATION



BL I+90

To Calc. Folder, Page 203.27-1

To Calc. Folder, Page G13.13-1

To Calc. Folder, Pg. G13.11-6 @ Sta. 2+30

To Calc. Folder, Page 203.27-1

To Calc. Folder, Page G13.13-1

To Calc. Folder, Pg. G13.11-6

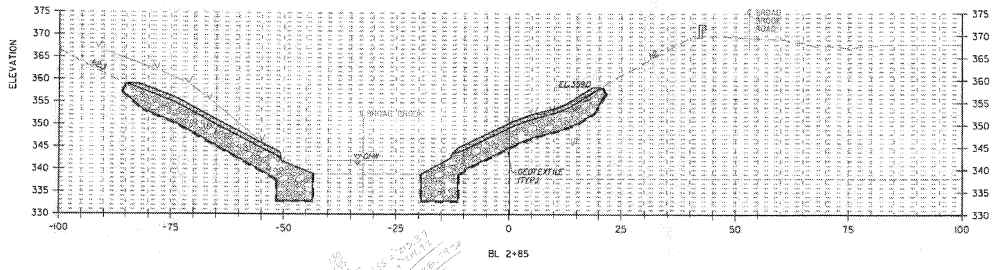
NOTES:

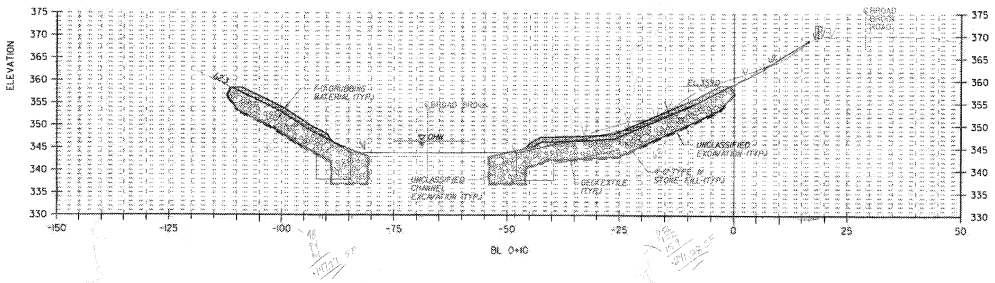
1. STREAM BANK SLOPES UP TO ELEVATION 359.0 SHALL BE STABILIZED WITH TYPE IV STONE FILL. SLOPE ABOVE THIS ELEVATION SHALL BE STABILIZED WITH TYPE II STONE FILL.
2. UTILITY LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO EXCAVATION. FOR UTILITY NOTES, SEE GENERAL NOTES, BRIDGE SHEET BRI01 AND BRI02, AND THE SPECIAL PROVISIONS.
3. PAY LIMITS FOR "UNCLASSIFIED CHANNEL EXCAVATION" SHALL EXTEND TO EL. 359.0. ANY EXCAVATION ABOVE THIS ELEVATION SHALL BE PAID FOR UNDER ITEM 203.17, "UNCLASSIFIED EXCAVATION".

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Surv. Sta.
I-91 OVER BROAD BROOK & BROAD BROOK ROAD	
CHANNEL CROSS SECTIONS (2 OF 2)	
Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By Date P.W. SZUSTAK 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G XS STR.dgn	Date 04/28/08
Bridge Sheet No. BR56	Sheet 82 of 84

TVGA ENGINEERING, SURVEYING, P.C.





THIS SHEET WAS ISSUED ON AUG 28, 2008 AT THE REQUEST OF THE RESIDENT ENGINEER AND WAS NOT PART OF THE CONTRACT PLANS THAT WAS BID ON JULY 18, 2008.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of: GUILFORD	Bridge No. 3N&S
Highway No. I-91	Log Sta. / Sta.

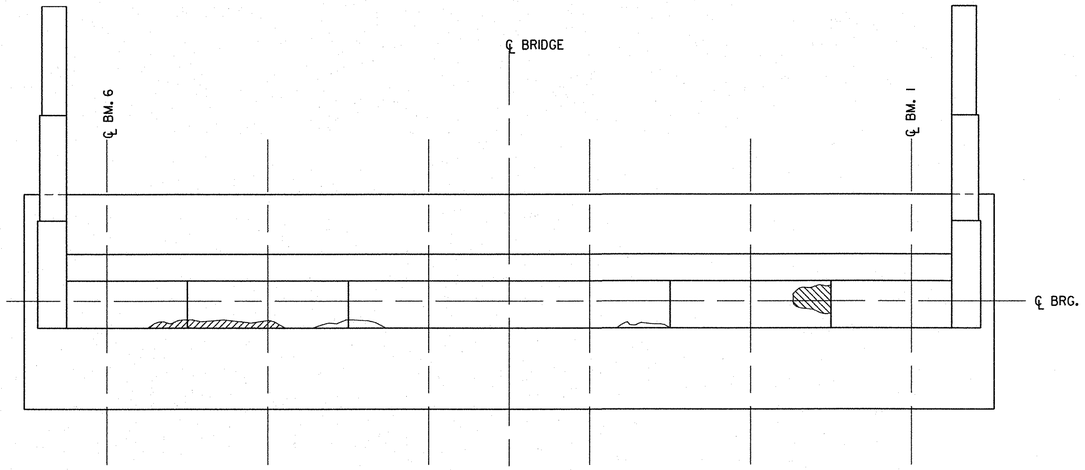
I-91 OVER BROAD BROOK & BROAD BROOK ROAD

CHANNEL CROSS SECTIONS (3 OF 3)

Designed By N.J. MOZER	Drawn By G.K. MORZE
Checked By P. W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)

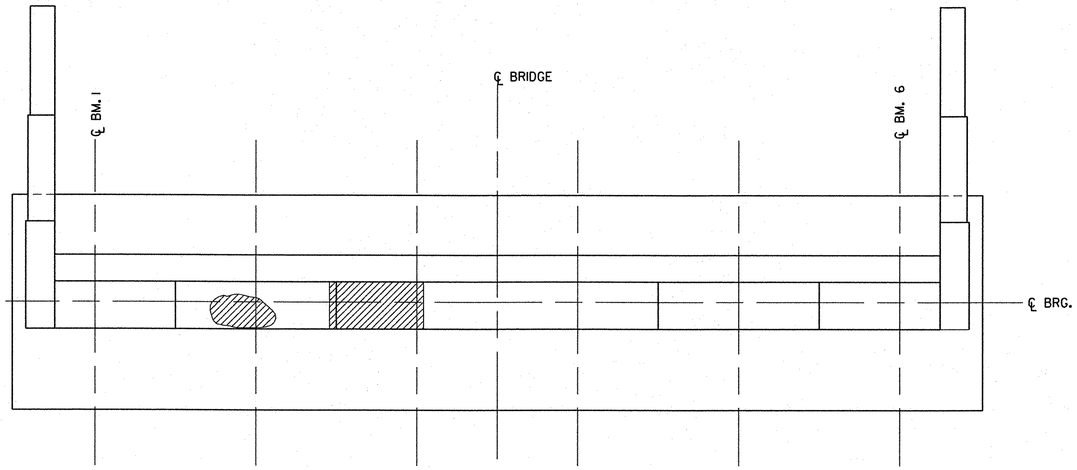
TVGA ENGINEERING, SURVEYING, P.C.

TVGA CAD Drawing No. C XS STR.dgn	Date 04/28/08
Bridge Sheet No. BH56	Sheet 82A of 84



ABUTMENT 1 PLAN (3N)

SCALE: ⅜"=1'-0"



ABUTMENT 2 PLAN (3N)

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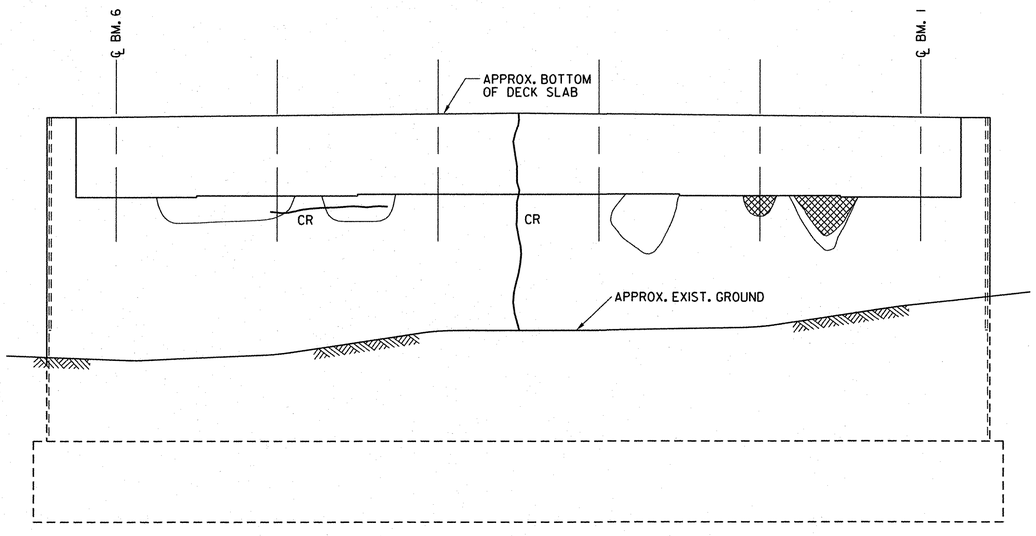
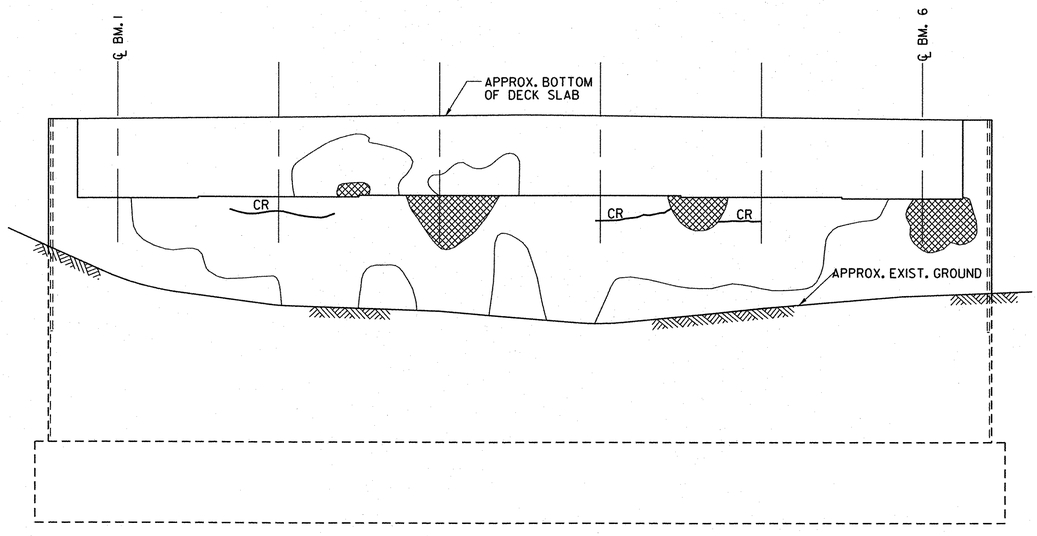


ABUTMENT 1 ELEVATION (3N)

SCALE: ⅜"=1'-0"



ABUTMENT 2 ELEVATION (3N)

SCALE: ⅜"=1'-0"

ABBREVIATIONS

CR	CRACK
PA	PREVIOUSLY PATCHED AREA

LEGEND

- CRACK
- DELAMINATED AREA
- SPALLED AREA
- DEEPLY SPALLED WITH EXPOSED REBAR
- UNDERGROUND TELEPHONE — UT —
- EXISTING GROUND

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3N
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 NB OVER BROAD BROOK & BROAD BROOK ROAD

EXIST. SUBSTRUCTURE CONDITION (3N) (3 OF 3)

Designed By M.J. MOZER	Drawn By G. K. MORZE
Checked By Date P.W. SZUSTAK 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)

TVGA ENGINEERING, SURVEYING, P.C.

TVGA CAD Drawing No. G EXIS NB AB12.dgn Date 04/28/08

Bridge Sheet No. BR160 Sheet 86 of 114

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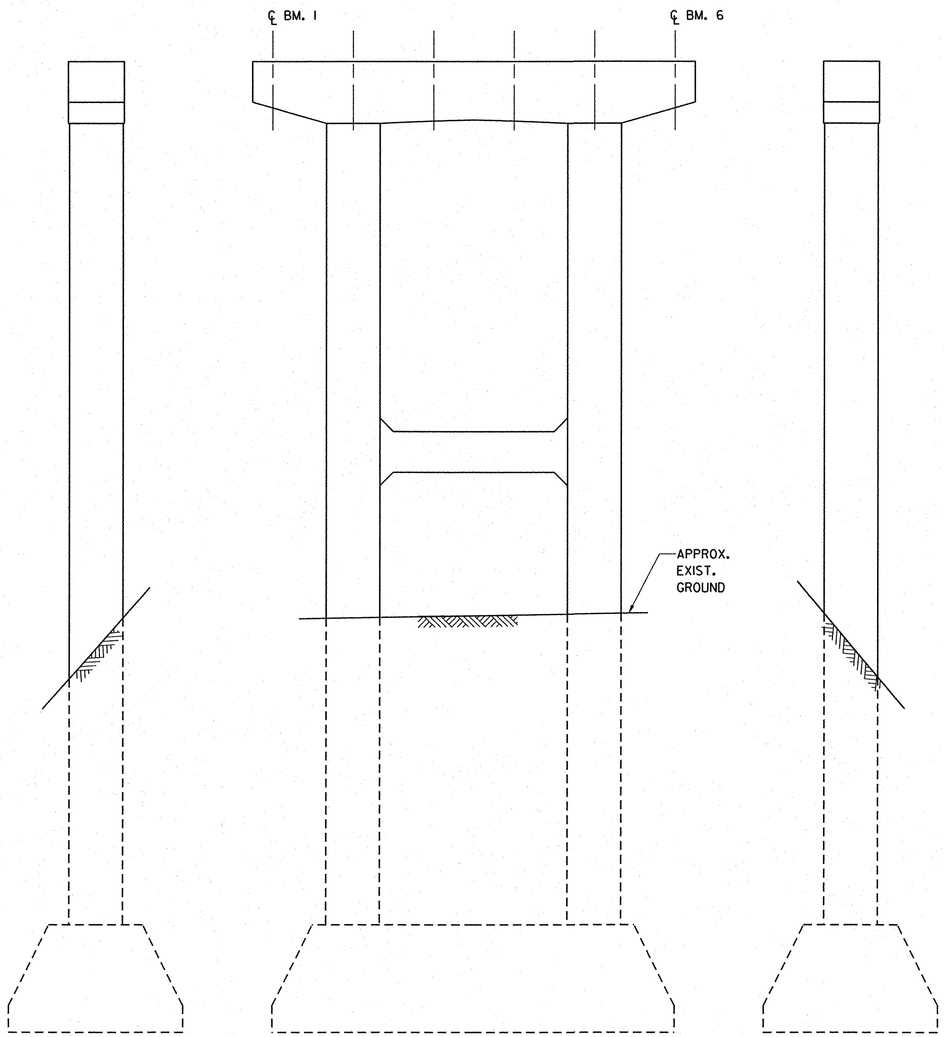
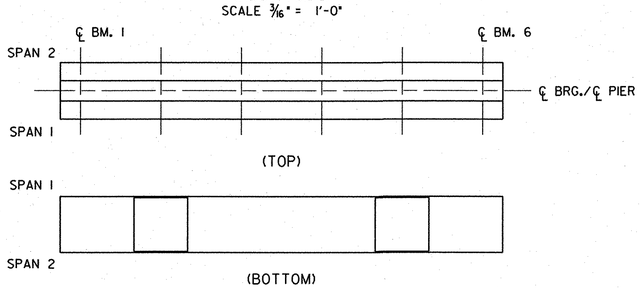
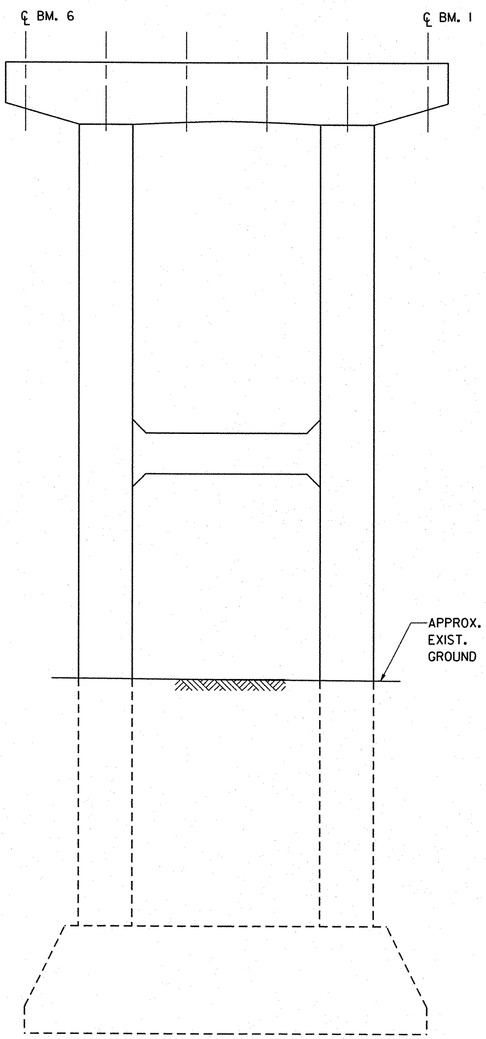


PIER 1 ELEVATION (3S)
(ABUT. 1 SIDE)
SCALE 3/16" = 1'-0"



PIER 1 CAP
SCALE 3/16" = 1'-0"



PIER 1 ELEVATION (3S)
(PIER 2 SIDE)
SCALE 3/16" = 1'-0"

ABBREVIATIONS

CR	CRACK
PA	PREVIOUSLY PATCHED AREA

LEGEND

- CRACK
- DELAMINATED AREA
- SPALLED AREA
- DEEPLY SPALLED WITH EXPOSED REBAR
- UNDERGROUND TELEPHONE — UT —
- EXISTING GROUND

STATE OF VERMONT
AGENCY OF TRANSPORTATION

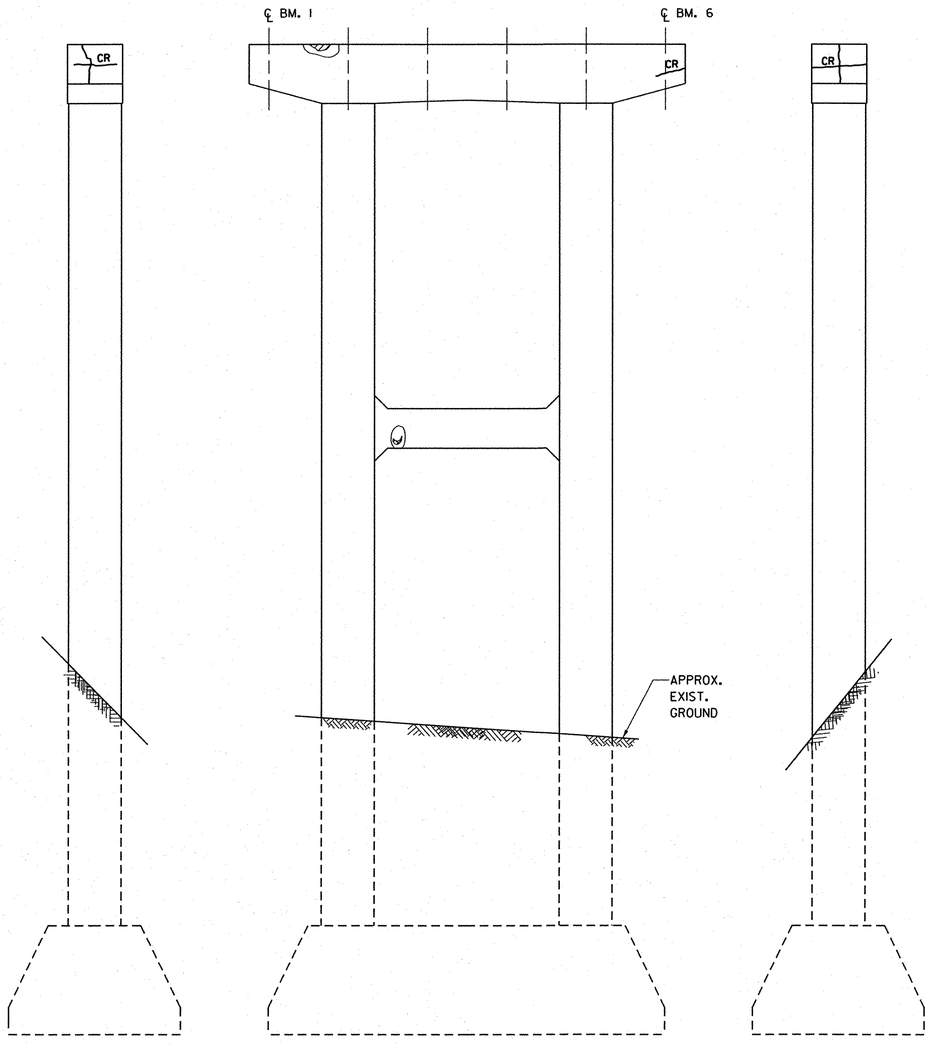
Town Of GUILFORD	Bridge No. 3S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

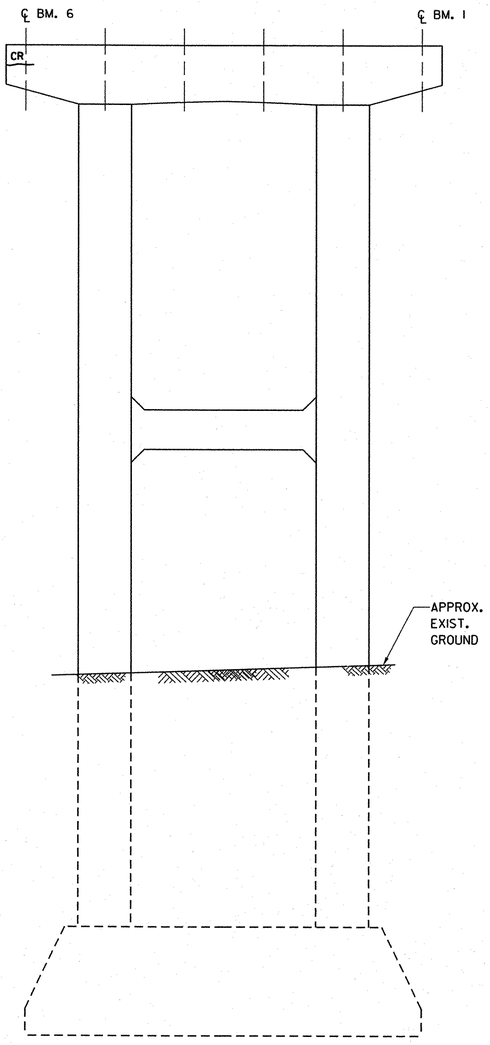
EXIST. SUBSTRUCTURE CONDITION (3S) (1 OF 3)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G EXIS SB PRI.dgn	Date 04/28/08
Bridge Sheet No. BRI61	Sheet 87 of 114

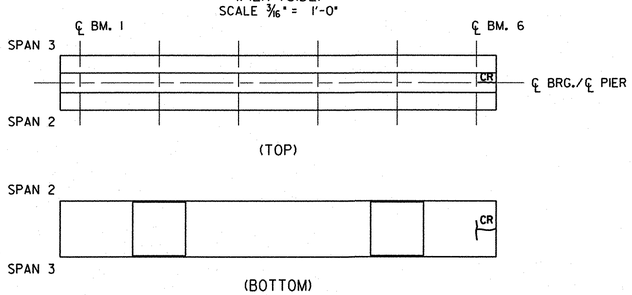
TVGA ENGINEERING, SURVEYING, P.C.



PIER 2 ELEVATION (3S)
(PIER 1 SIDE)
SCALE 3/16" = 1'-0"



PIER 2 ELEVATION (3S)
(ABUT. 2 SIDE)
SCALE 3/16" = 1'-0"



PIER 2 CAP
SCALE 3/16" = 1'-0"

ABBREVIATIONS

CR	CRACK
PA	PREVIOUSLY PATCHED AREA

LEGEND

CRACK
DELAMINATED AREA
SPALLED AREA
DEEPLY SPALLED WITH EXPOSED REBAR
UNDERGROUND TELEPHONE
EXISTING GROUND

STATE OF VERMONT
AGENCY OF TRANSPORTATION

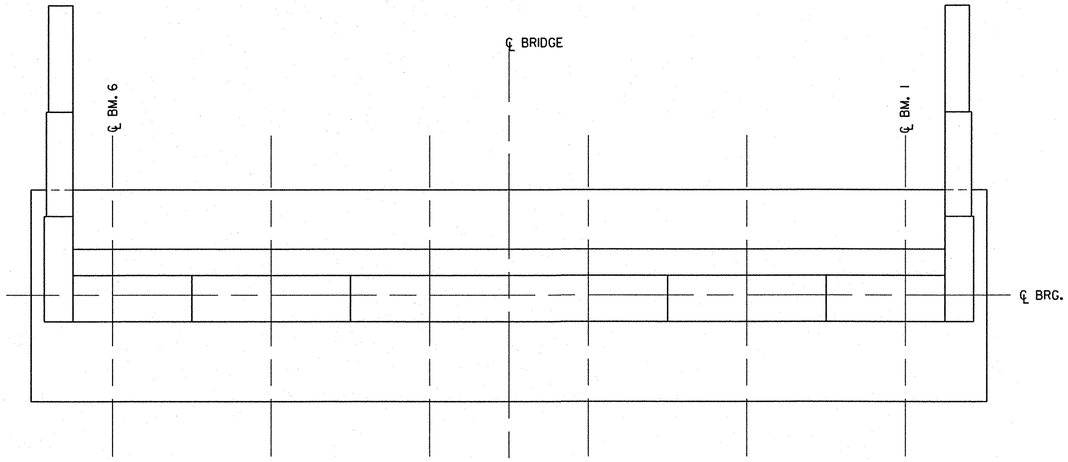
Town Of GUILFORD	Bridge No. 3S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

EXIST. SUBSTRUCTURE CONDITION (3S) (2 OF 3)

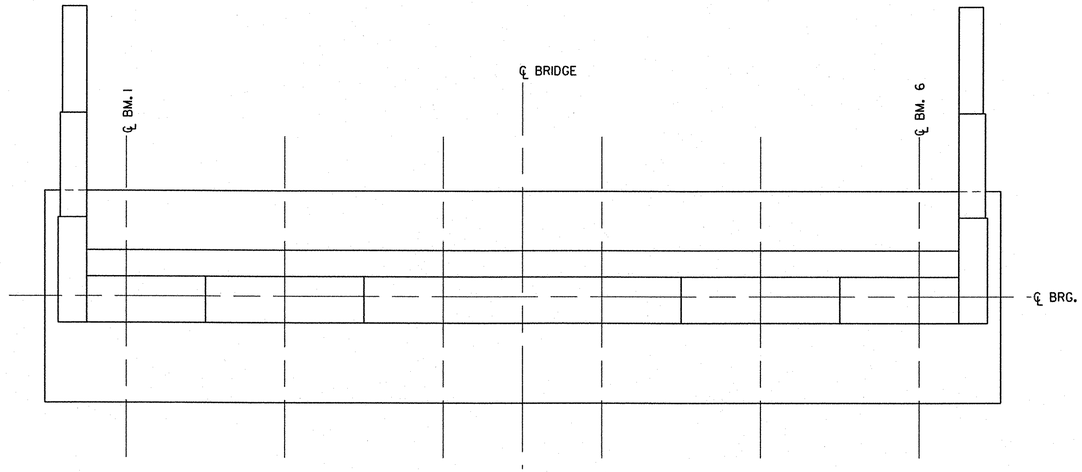
Designed By M.J. MOZER	Drawn By G. K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G EXIS SB PR2.dgn	Date 04/28/08
Bridge Sheet No. BRI62	Sheet 88 of 114

TVGA ENGINEERING, SURVEYING, P.C.



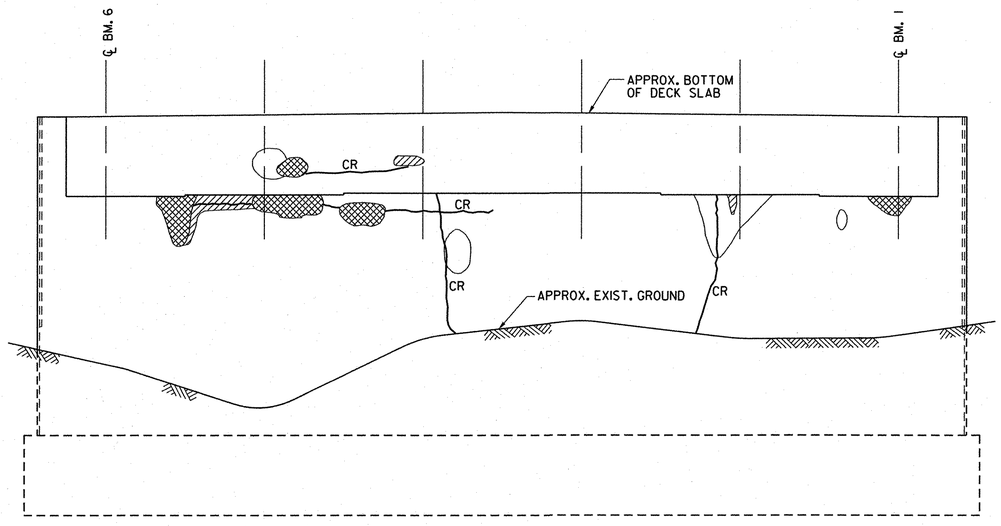
ABUTMENT 1 PLAN (3S)

SCALE: ⅜"=1'-0"



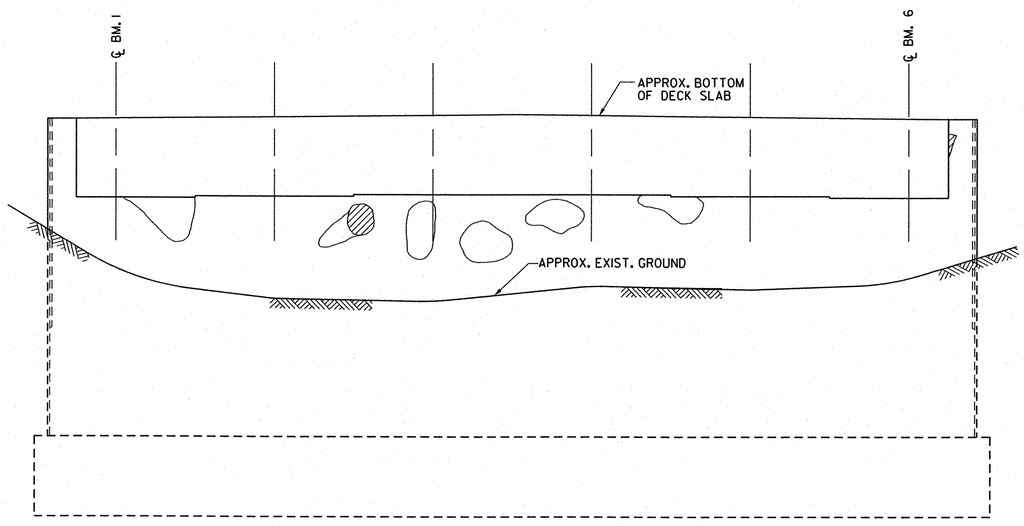
ABUTMENT 2 PLAN (3S)

SCALE: ⅜"=1'-0"



ABUTMENT 1 ELEVATION (3S)

SCALE: ⅜"=1'-0"



ABUTMENT 2 ELEVATION (3S)

SCALE: ⅜"=1'-0"

ABBREVIATIONS

CR	CRACK
PA	PREVIOUSLY PATCHED AREA

LEGEND

CRACK

DELAMINATED AREA

SPALLED AREA

DEEPLY SPALLED WITH EXPOSED REBAR

UNDERGROUND TELEPHONE — UT —

EXISTING GROUND

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of GUILFORD	Bridge No. 3S
Highway No. I-91	Log Sta. / Surv. Sta.

I-91 SB OVER BROAD BROOK & BROAD BROOK ROAD

EXIST. SUBSTRUCTURE CONDITION (3S) (3 OF 3)

Designed By M.J. MOZER	Drawn By G.K. MORZE
Checked By P.W. SZUSTAK Date 01/03	Bridge Design Supervisor J.P. HALSTEAD Date 01/03
PROJECT GUILFORD	PROJECT NO. IM 091-1(33)
TVGA CAD Drawing No. G EXIS SB AB12.dgn	Date 04/28/08
Bridge Sheet No. BRI63	Sheet 89 of 114

STATE OF VERMONT
AGENCY OF TRANSPORTATION

EROSION PREVENTION & SEDIMENT CONTROL NARRATIVE

1.1 PROJECT DESCRIPTION

This project involves Bridges 3N and 3S, Interstate 91, over Broad Brook and Broad Brook Road in the town of Guilford. Work to be performed on both bridges includes: new approach slabs, new superstructure, new wingwalls, replacement of pier capbeams, and abutment modifications. Bridge 3N will be widened to create a longer acceleration lane from the Welcome Center. In addition to the bridge construction, a new u-turn will be built at NB 14+00. Traffic will be detoured onto the adjoining bridge with the use of crossovers creating 2 way traffic.

Total disturbed area, excluding waste, borrow, and contractors' off-site staging areas equals 6.76 acres.

Disturbed Area Breakdown: New U-Turn - 0.14 Acre
Areas Around & Under Bridges - 2.10 Acres
Bridge 3N Lane Widening - 1.55 Acres
Median Crossovers - 2.97 Acres (Phase A - 1.94 AC, Phase B - 1.90 AC, with some shared areas)

1.2 SITE INVENTORY

1.2.1 OFF SITE DRAINAGE CHARACTERISTICS (UP AND DOWN GRADIENT)
The property surrounding the project site consists of well established vegetation, moderate to steeply sloping, mixed softwood and hardwood trees with well defined drainage. Due to the nature of the surrounding terrain, runoff water entering the project site will be primarily limited to that which is conveyed through the I-91 median, and ditches along Broad Brook Rd.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER
Broad Brook is the only river located in the project area. It outlets into The Connecticut River, approximately 2 miles to the east of the project area. There are no other waterways or bodies of water within the project area. Much of the runoff water will exit the project area via drop inlets (some new, some existing), located in the median and in the roadway shoulders.

1.2.3 TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES
The existing topography of the project site is rolling and wooded. This project does not encroach upon any buildings or privately held properties. The banks of Broad Brook are stone lined on both sides of the river. Stone fill extends approximately 80' to the east of BR 3N, and 80' to the west of BR 3S. Broad Brook Road parallels Broad Brook, and is the only other road located within the project area. No utilities will be affected by this project.

1.2.4 VEGETATION
A mix of hardwood trees, softwood trees, and various sizes of shrubs exist within the project boundaries, and just beyond the project limits. As many as possible will be spared during construction. The median is made up mostly of coarse grass. Impacts to the median will be substantial where the crossovers are constructed. Scattered brush and small trees exist between the stone fill on either side of Broad Brook Road underneath the bridge. Site disturbance in this area will be limited to that which is affected by construction equipment accessing the bridge piers. Following construction, vegetation will be reestablished using standard seed and mulch practices.

1.2.5 SOILS
The two main types of soil found within the project area are Brayton Silt Loam, and Quonset & Warwick.

Brayton Silt Loam, 2 to 8% slopes, very stony, is a very deep, gently sloping and poorly drained soil in depressions and drainageways in upland areas. Stones cover up to 3% of the surface. Permeability in this Brayton soil is moderate in the subsoil and slow in the substratum, and potential frost action is high. It has a soil erodibiltiy coefficient (K-Value) of 0.20.

Quonset soils in the surveyed area were mapped only in an undifferentiated group with Warwick soils. Quonset soils have a coarser textured subsoil than the somewhat excessively drained Warwick soils. Quonset and Warwick soils are found on stream terraces and other outwash areas. The ratio of Quonset to Warwick changes as the slope changes: At 2 - 8% slopes, the total acreage of the map unit is about 50% Quonset, 30% Warwick, and 20% other soils; At 15 - 25% slopes it is 60% Quonset, 25% Warwick, and 15% other; At 25 - 70% slopes, it is 55% Quonset, 30% Warwick, and 15% other. The K-Value for Quonset & Warwick soil ranges from 0.10 to 0.24.

*Generally, K-Values indicate the following: 0.23 & lower - low erodibility
0.24 to 0.36 - moderate erodibility
0.37 and higher - high erodibility

1.2.6 SENSITIVE RESOURCE AREAS
No 'Threatened & Endangered Species' have been identified within the project limits and there will be no adverse effect to agricultural or archaeological features. Broad Brook is the only identified resource and there are no mapped wetlands within the vicinity of the project.

1.2.7 PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES
Soil disturbance near Broad Brook will be limited to that which is necessary to place Stone Fill, Type IV on river banks, and to rehabilitate piers 1 & 2 NB, and piers 1 & 2 SB. Coffердams will be required for Bridge 3N's piers so that they may be lengthened to support the new acceleration lane.

1.3 RISK EVALUATION

This project falls under the jurisdiction of construction general permit 3-9020, based on the project impact area of 6.76 acres. The project has been determined to be low risk, and as such the Low Risk Site Handbook must be on site and complied with at all times. Any modifications to the project shall result in a re-evaluation of the risk, and that the contractor is responsible for re-filing should the risk change.

1.4 EROSION PREVENTION & SEDIMENT CONTROL

The erosion control plans are meant as a guideline for preventing erosion and controlling sediment transport. The work outlined in this narrative consists of applying measures throughout the life of the project minimizing sediment transport to the receiving waters. The measures include stabilization and structural practices, storm water controls and other pollution prevention controls.

Preventing initial soil erosion is much more effective than treating eroded sediment. Maintaining vegetated buffers along stream banks, wetlands or other sensitive areas is a crucial EPSC measure that should be established wherever possible.

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. Refer to the low risk site handbook and appropriate detail sheets for each practice required on the project to include, but not limited to, the following:

1.4.1 MARK SITE BOUNDARIES
Project demarcation fencing, denoted -PDF- on the plans, is used to delineate the limits the contractor can access with construction equipment. This measure limits the area that can be disturbed and exposed to erosion.

1.4.2 LIMIT DISTURBANCE AREA
Employ temporary stabilization practices in incremental stages (phasing) as construction proceeds. Additional measures will be needed due to the phasing of the project and as directed by the engineer.

1.4.3 STABILIZE CONSTRUCTION ENTRANCE
Stabilized construction entrances shall be used where necessary.

1.4.4 INSTALL SILT FENCE

Prior to any upslope work, silt fence shall be installed, as shown on the plans or as necessary.

1.4.5 DIVERT UPLAND RUNOFF
Not applicable.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF
Check dams shall be used as necessary.

1.4.7 CONSTRUCT PERMANENT EPSC CONTROLS
Type II & Type IV stone for slope lining and channel protection.
Seeding and mulching.
Drainage inlets and piping.

Stream bank vegetation will be introduced in the grubbing material that is to be placed over the stream bank stone fill.

1.4.8 STABILIZE EXPOSED SOILS
Seeding and mulching.
Temporary & permanent erosion matting.

Tracking of all exposed slopes, combined with temporary mulching, will be utilized on a regular basis. Slopes shall be stabilized within 48 hours of forecasted rain. Seeding, mulching and biodegradeable erosion control matting (or an equivalent) shall be used to stabilize all slopes steeper than 1:3. These slopes shall be stabilized within 48 hours of reaching intermittent phases of construction.

1.4.9 WINTER STABILIZATION
Various measures specific to winter (see low risk handbook).

1.4.10 STABILIZE SOIL AT FINAL GRADE
Seeding and mulching.
Temporary & permanent erosion matting.

Seeding, mulching and biodegradeable erosion control matting (or an equivalent) shall be used to stabilize all slopes steeper than 1:3. These slopes shall be stabilized within 48 hours of reaching final grade.

1.4.11 DE-WATERING ACTIVITIES
Sediment basins for pier work shall be used as necessary. See sediment settling basin sizing criteria chart on this sheet.

1.4.12 INSPECT YOUR SITE
Inspect site based on permit authorization or special provision requirements.

GRADING PLAN & CONSTRUCTION TIME TABLE APPEARS ON SHEET 90A OF 114.

SIZING REQUIREMENT FOR SEDIMENT SETTLING BASIN

PUMP FLOW RATE		REQUIRED SURFACE AREA		LENGTH / WIDTH = 2:1			
Q(gpm)	Q(m^3/s)	(ft^2)	(m^2)	L (ft)	W (ft)	L (m)	W (m)
50	0.0032	595	55	35.0	17.0	10.6	5.3
100	0.0063	1200	111	49.0	24.5	15.0	7.5
150	0.0095	1776	165	59.6	29.8	18.2	9.1
200	0.0126	2368	220	68.8	34.4	21.0	10.5
250	0.0158	2970	276	77.0	38.5	23.4	11.7
300	0.0189	3560	330	84.4	42.2	25.8	12.9
350	0.0221	4155	386	91.2	45.6	27.8	13.9

EPSC NARRATIVE

PROJECT NAME:	GUILFORD		
PROJECT NUMBER:	IM 091-1(33)		
FILE NAME:	95a176/STR/sa176nar.dgn	PLOT DATE:	04/29/08
PROJECT LEADER:	FARNSWORTH	DRAWN BY:	WEEBER
DESIGNED BY:	STR6	CHECKED BY:	FARNSWORTH
EPSC NARRATIVE		SHEET	90 OF 114

PROPOSED GRADING PLAN AND TIME TABLE

The following is an assumed time table for the "Erosion Prevention and Sediment Control Plans" as presented in the following plan sheets.

This is a three year project where VTrans is proposing that the contractor widen the Northbound piers and construct the first crossovers (Northbound Traffic crossovers to Southbound Bridge 3S) in the first construction season. This will allow the general contractor to have the first crossovers constructed prior to diverting traffic to said crossovers in the spring of the second construction season. Near the end of the second construction season, after Bridge 3N has been reconstructed and open to traffic, Vtrans is proposing that the contractor will remove the first crossovers and construct the second set of crossovers. Again, traffic will not be allowed to use the second set of crossovers (Southbound Traffic crossovers to Northbound Bridge 3N) until the third construction season. At the end of the third full construction season, after Bridge 3S has been reconstructed and opened to traffic, Vtrans is proposing that the contractor will remove the second set of crossovers and regrade the median back to the existing shape prior to the first construction season.

First Summer:

1. Install Project Demarcation Fence (PDF), Silt Fences, Drop Inlet Protections, Crushed Stone Berms, Temporary Check Dams as needed next to Broad Brook Road, Broad Brook, toe of Northbound right slopes, Northbound right side for reconstructed ditch area, temporary sediment settling basin area, and, if the contractor utilizes a temporary work bridge, around the contractor's temporary work bridge crossing Broad Brook.
2. Construct temporary access road and temporary work bridge.
3. Construct temporary sediment settling basin for cofferdams.
4. Close Broad Brook Road to thru traffic.
5. Place cofferdams around northbound piers, excavate piers, and construct piers then backfill inside of cofferdam to protect foundation material from freezing.
6. Open Broad Brook Road to thru traffic, with road open to two-way traffic at night, and traffic maintained during the day through the use of flaggers.
7. Install Project Demarcation Fence (PDF), Silt Fences, Drop Inlet Protections, and Temporary Check Dams as needed in median areas for first set of crossovers, and at new U-Turn at station NB 0+00.
8. Construct new U-Turn at station NB 0+00.
9. Construct first crossovers, Northbound traffic to Southbound Bridge 3S. This includes paving crossovers between stations 8+00 to 18+00 and 29+00 to 39+00.
10. Install any remaining Temporary Check Dams in median and down slope of temporary access roads. Place Erosion Matting on all slopes as per time guide lines in Item 652.30 "Maintenance of Erosion Prevention & Sediment Control Plan". All slopes and ditches are to be stabilized for the winter.

First Full Construction Season:

1. Install traffic control package to divert Northbound main line traffic to Southbound Bridge 3S and then maintain ramp traffic from Welcome Center across bridge 3N under phased construction.
2. Install Project Demarcation Fence (PDF), Silt Fences, Drop Inlet Protections, and Temporary Check Dams as needed around Bridge 3N and any new access roads to Bridge 3N. This includes Stabilized Construction Entrances.
3. While maintaining ramp traffic on left side of Bridge 3N, remove the right side half of Bridge 3N superstructure, part of existing pier caps, and existing abutment stems. Widen northbound slopes on right side of northbound lane, grade, seed, fertilize, and place erosion matting. Construct new pier caps, drive H-piles for abutments, construct widened abutments; place new structural steel, form and pour deck, form and pour approach slabs & curbs, and install roadway approach guard rail.
4. Remove cofferdams around northbound piers.
5. Temporarily divert Broad Brook to north side, excavate south stream bank for new stone fill. Place new stone fill.
6. Temporarily divert Broad Brook to south side, excavate north stream bank for new stone fill. Place new stone fill, and return Broad Brook back to full channel width.
7. Switch ramp traffic to right side of bridge 3N, remove the left side half of Bridge 3N superstructure, part of existing pier caps, existing abutment stems, and wingwalls. Construct new pier caps, abutment stems, and left wingwalls. Place new structural steel, form and pour deck, form and pour approach slabs & curbs; install roadway approach guard rail.
8. Remove temporary concrete barrier across bridge 3N, and pave bridge 3N including approaches.
9. Place pavement markings and open Northbound Bridge 3N to northbound traffic.
10. Remove temporary concrete barrier and temporary pavement from crossover.
11. Reconstruct median crossovers (Southbound Traffic crossovers to Northbound Bridge 3N) and pave crossovers. There will be no traffic on second crossover set until second full construction season.
12. Install any remaining Drop Inlet Protections, and Temporary Check Dams as needed in median and down slope of temporary access roads. Place Erosion Matting on all slopes as per time guide lines in Item 652.30 "Maintenance of Erosion Prevention & Sediment Control Plan". All slopes and ditches are to be stabilized for winter.

Second Full Construction Season:

1. Install traffic control package to divert Southbound traffic to Northbound Bridge 3N, and then divert Southbound Traffic across Bridge 3N.
2. Install Project Demarcation Fence (PDF), Silt Fences, Drop Inlet Protections, and Temporary Check Dams as needed around Bridge 3S.
3. Remove Bridge 3S superstructure. Sediment settling basin for southbound pier work is not anticipated.
4. Modify existing Bridge 3S abutments and wingwalls, and patch existing abutments.
5. Erect structural steel, form and pour decks, form and pour approach slabs and bridge curbs, install roadway guard rail, place membrane, and pave Bridge 3S and its approaches.
6. Place pavement markings, and open Southbound bridge to Southbound traffic.
7. Remove second set of median crossovers, and remove access roads to southbound lanes. Reshape medians and temporary access roads.
8. Place Erosion Matting on all slopes as per time guide lines in Item 652.30 "Maintenance of Erosion Prevention & Sediment Control Plan". All slopes and ditches are to be stabilized. Only remove silt fences from established slope area.
9. The median U-Turn at Station NB 0+00 is to remain at this location.
10. After all temporary slopes have established grass cover (as per contract specifications), the remaining Silt Fences and Temporary Check Dams are to be removed. Temporary Check Dams may be leveled and blended into existing swales, slopes, and ditches providing the final shape will not cause problems with drainage, mowing of swales and/or slopes.

TEMPORARY WORK BRIDGE

An optional Temporary Work Bridge has been shown on EPSC sheets 92B & 93B. If the contractor chooses to install a Temporary Work Bridge, then this bridge must span the river with bottom of beams / girders no lower than elevation 353.50 feet, and a minimum clear span normal to stream of 63 feet. All costs associated with the Temporary Work Bridge shall be incidental to other items within the contract.

EPSC GRADING PLAN & TIME TABLE

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: s95a176GradingPlan.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: Farnsworth
lparm sal76gradeplan.l

PLOT DATE: 20-MAY-2008
DRAWN BY: Weeber
CHECKED BY:
SHEET 90A OF 114

CONVENTIONAL SYMBOLS

- Wooded Area
- Edge of Roadway
- Fence
- 395 Existing Contour
- Guard Rail
- Drainage Pipe
- Ditch
- Edge of River
- Runoff Flow Direction
- Soil Boundary
- S Sewer Line

VT STATE PLANE GRID N

Quonset & Warwick
2% - 8% Slopes

MM 5.75

MM 5.80

MM 5.85

MM 5.90

SB 10+00 SB 11+00 SB 12+00 SB 13+00 SB 14+00 **SB I-91** SB 15+00 SB 16+00 SB 17+00 SB 18+00 SB 19+00

NB 10+00 NB 11+00 NB 12+00 NB 13+00 NB 14+00 **NB I-91** NB 15+00 NB 16+00 NB 17+00 NB 18+00 NB 19+00 NB 20+00

D.I.

405

MM 5.75

BRUSH

405
410
415

BRUSH

WOODS

SEWER MANHOLE

S

405
400
395
390
385
380
375

R.O.W. FENCE

R.O.W. FENCE

Quonset & Warwick
2% - 8% Slopes

Quonset & Warwick
15% - 25% Slopes

0 50 100
SCALE: 1" = 30'

EPSC - EXISTING CONDITIONS

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95a176/str/sa176epscex.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STRI
sa176epscexL1.1

PLOT DATE: 30-APR-2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 91A OF 114

CONVENTIONAL SYMBOLS

- Wooded Area
- Edge of Roadway
- Fence
- 395 Existing Contour
- Guard Rail
- Drainage Pipe
- Ditch
- Edge of River
- Runoff Flow Direction
- Soil Boundary
- W Water Line
- S Sewer Line
- UT Underground Telephone Line

VT STATE PLANE GRID N

Quonset & Warwick
15% - 25% Slopes

Quonset & Warwick
25% - 70% Slopes

SEWER MANHOLE

50' RIPARIAN BUFFER

R.O.W. FENCE

I3/ I-2/ OT/ 2-3/ II-2 COMB

WOODS

GUY

MM 5.95

MM 6.00

MM 6.05

MM 6.10

D.I.

SB 20+00 SB 21+00 SB 22+00 SB 23+00 SB 24+00 SB 25+00 SB 26+00 SB 27+00 **SB I-91** SB 28+00 SB 29+00

MANHOLE

DITCH

NB 20+00 NB 21+00 NB 22+00 NB 23+00 NB 24+00 NB 25+00 NB 26+00 NB 27+00 NB 28+00 NB 29+00 NB 30+00

NB I-91

I3/ II-3/ 2-3/ II-3 COMB

SEWER MANHOLE

GATE VALVE

HYDRANT

Brayton Silt Loam

SCALE: 1" = 30'

EPSC - EXISTING CONDITIONS

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95al76/str/sal76epscex.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STRI
sal76epscexL2.1

PLOT DATE: 30-APR-2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 91B OF 114

Quonset & Warwick
25% - 70% Slopes

Quonset & Warwick
2% - 8% Slopes

Quonset & Warwick
25% - 70% Slopes

Dummerston Silt Loam

VT. STATE PLANE GRID N

MM 6.15

MM 6.15

SB 30+00

SB 31+00

SB I-91

D.I.

MM 6.20

MM 6.25

NB 30+00

NB 31+00

NB 32+00

NB 33+00

NB 34+00

NB 35+00

NB 36+00

NB 37+00

NB 38+00

NB 39+00

NB 40+00

NB I-91

MM 6.15

MM 6.15

MM 6.20

D.I.

MM 6.25

DITCH

WOODS

Dummerston Silt Loam

Quonset & Warwick
25% - 70% Slopes

CONVENTIONAL SYMBOLS

- Wooded Area
- Roadway Edge
- Fence
- 395 Existing Contour
- Guard Rail
- Drainage Pipe
- Ditch
- Edge of River
- Runoff Flow Direction
- Soil Boundary

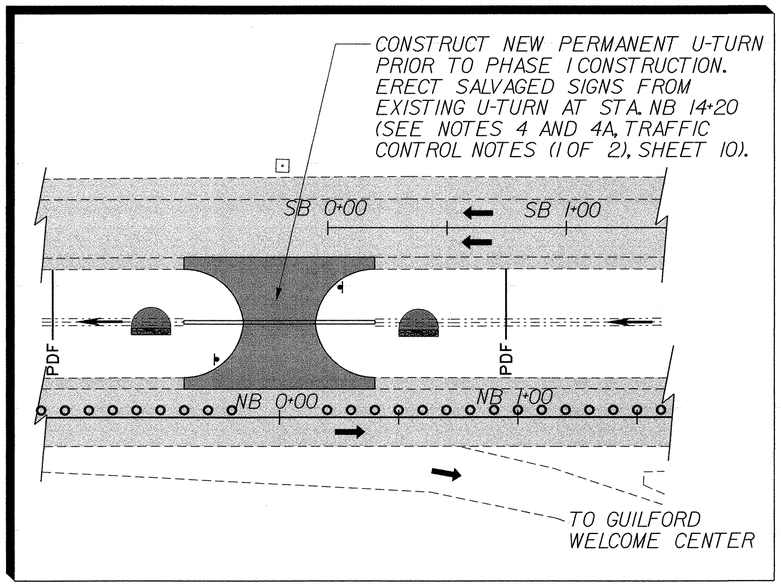
0 50 100
SCALE: 1" = 30'

EPSC – EXISTING CONDITIONS

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95a176/str/sa176epscex.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STRI
sa176epscexL3.1

PLOT DATE: 30-APR-2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 9IC OF 114



EROSION PREVENTION & SEDIMENT CONTROL LEGEND

- 400 — Proposed Contour
- PDF — Project Demarcation Fence
- Silt Fence
- Runoff Flow Direction
- Inlet Protection Device, Type I
- Stone Check Dam, Type I
- Temporary Erosion Matting
- Surface Roughening

VT STATE PLANE GRID N

EMERGENCY ENTRANCE GATE

PDF PDF PDF PDF

TO MASSACHUSETTS STATE LINE

SB 10+00 SB 11+00 SB 12+00 SB 13+00 SB 14+00 SB 15+00 SB 16+00 SB 17+00 **I-91 SB** SB 18+00 SB 19+00

NB 10+00 NB 11+00 NB 12+00 NB 13+00 NB 14+00 NB 15+00 NB 16+00 NB 17+00 NB 18+00 NB 19+00 NB 2

I-91 NB

405 410 415 405 395 390 385 380 375

PDF PDF PDF PDF PDF PDF PDF PDF PDF PDF PDF PDF PDF PDF PDF PDF PDF PDF PDF PDF PDF PDF PDF PDF

BEGIN CONSTRUCTION
MATCH EXISTING BCP
STA. 13+70

R.O.W. FENCE

R.O.W. FENCE

CONVENTIONAL SYMBOLS

- S — Sewer Line
- Construction Limits (Cut)
- Construction Limits (Fill)
- Fence
- 395 Existing Contour
- Guard Rail
- Stone Fill
- Traffic Flow

0 50 100
SCALE: 1" = 30'

EPSC – PHASE 1 /STAGE A

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95a176\str\sal76epsclA.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STRI
sal76epsclALl.l

PLOT DATE: 11-JUN-2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 92A OF 114

CONVENTIONAL SYMBOLS

- W — Water Line
- S — Sewer Line
- UT — Underground Telephone Line
- Construction Limits (Cut)
- Construction Limits (Fill)
- Fence
- 395 — Existing Contour
- Guard Rail
- Stone Fill
- Traffic Flow
- Temporary Work Bridge

EROSION PREVENTION & SEDIMENT CONTROL LEGEND

- 400 — Proposed Contour
- PDF — Project Demarcation Fence
- Silt Fence
- Filter Curtain
- Runoff Flow Direction
- Inlet Protection Device, Type I
- Stone Check Dam, Type I
- Temporary Erosion Matting
- Vehicle Tracking Pad
- Sediment Settling Basin
- Surface Roughening

VT STATE PLANE GRID N

BEGIN CONSTRUCTION
MATCH EXISTING BCP
STA. SB 21+50.00

END CONSTRUCTION
MATCH EXISTING BCP
STA. SB 26+00.00

R.O.W. FENCE

FILTER CURTAIN

REMOVE EXISTING D.I.& PIPE. CONSTRUCT NEW D.I.& PIPE. (SEE ROADWAY PLANS)

SB 20+00 SB 21+00 SB 22+00 SB 23+00 SB 24+00 SB 25+00 SB 26+00 SB 27+00 SB 28+00 SB 29+00

I-91 SB

BR 3S

LIMIT OF TYPE N STONE FILL (TYP.) (SEE NOTE 4)

NB 20+00 NB 21+00 NB 22+00 NB 23+00 NB 24+00 NB 25+00 NB 26+00 NB 27+00 NB 28+00 NB 29+00

BR 3N

I-91 NB

NEW R.O.W. FENCE

REMOVE EXISTING D.I. AND PIPE (SEE ROADWAY PLANS)

NEW R.O.W. FENCE

LIMIT OF TYPE N STONE FILL (TYP.) (SEE NOTE 4)

R.O.W. FENCE

R.O.W. LINE

R.O.W. LINE FROM GUILFORD-BRATTLEBORO RECORD PLANS

VT. DEPARTMENT OF FORESTS & PARKS

0 50 100
SCALE: 1" = 30'

EPSC - PHASE 1 /STAGE A

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95al76/str/sal76epsclA.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STRI
sal76epsclAL2.I

PLOT DATE: 11-JUN-2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 92B OF 114

VT STATE PLANE GRID

N

END CONSTRUCTION
MATCH EXISTING BCP
STA. NB 33+15.00

SB 30+00 SB 31+00 I-91 SB

NB 31+00 NB 32+00 NB 33+00 I-91 NB NB 34+00 NB 35+00 NB 36+00 NB 37+00 NB 38+00 NB 39+00 NB 40+00

TO BRATTLEBORO

PDF

CONVENTIONAL SYMBOLS

- Construction Limits (Cut)
- Construction Limits (Fill)
- Fence
- 395 Existing Contour
- Guard Rail
- Stone Fill
- Traffic Flow

EROSION PREVENTION & SEDIMENT CONTROL LEGEND

- 400 Proposed Contour
- PDF Project Demarcation Fence
- Silt Fence
- Runoff Flow Direction
- Inlet Protection Device, Type I
- Stone Check Dam, Type I
- Temporary Erosion Matting
- Surface Roughening

0 50 100
SCALE: 1'' = 30'

EPSC - PHASE 1 /STAGE A

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95al76/str/sal76epsclA.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STRI
sal76epsclAL3.I

PLOT DATE: 11-JUN-2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 92C OF 114

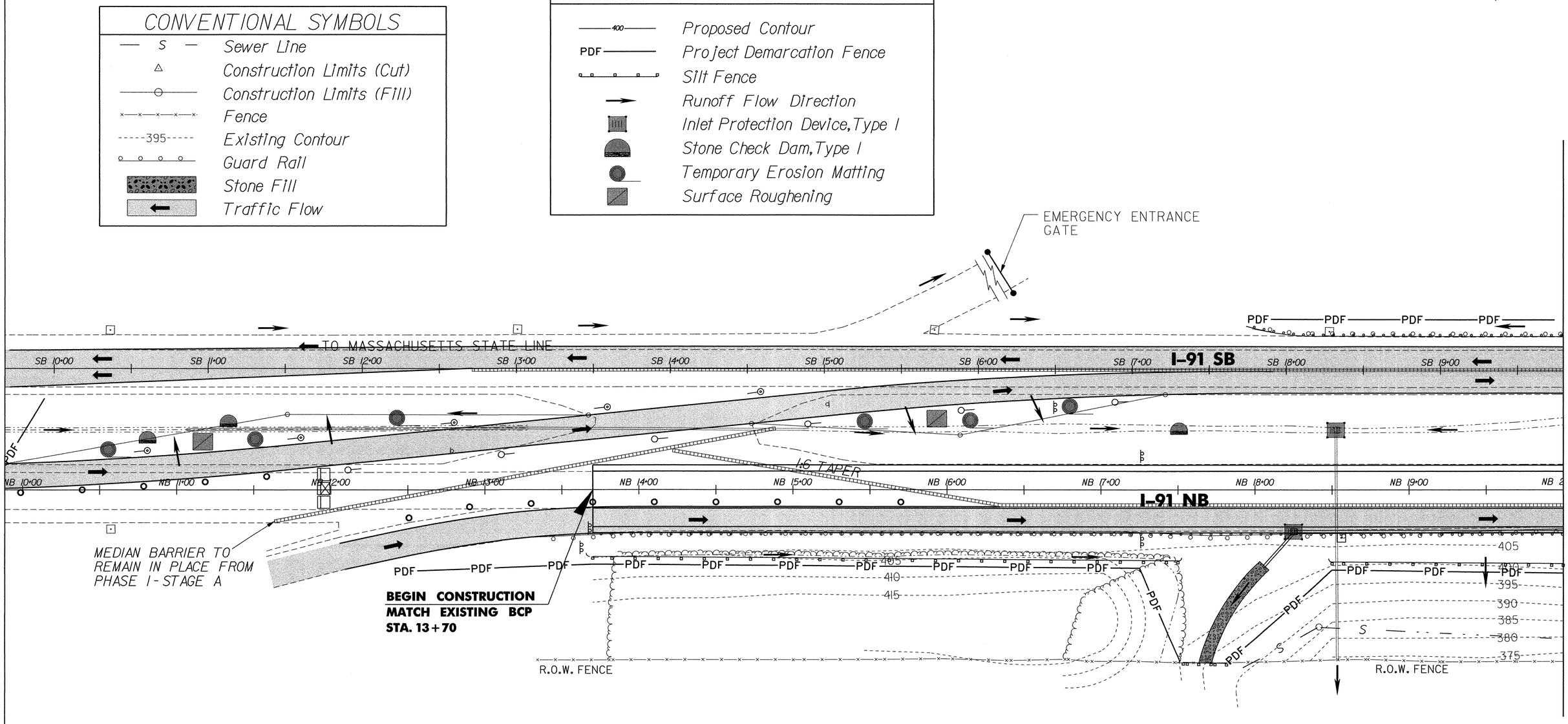
CONVENTIONAL SYMBOLS

- Sewer Line
- Construction Limits (Cut)
- Construction Limits (Fill)
- Fence
- Existing Contour
- Guard Rail
- Stone Fill
- Traffic Flow

EROSION PREVENTION & SEDIMENT CONTROL LEGEND

- Proposed Contour
- Project Demarcation Fence
- Silt Fence
- Runoff Flow Direction
- Inlet Protection Device, Type I
- Stone Check Dam, Type I
- Temporary Erosion Matting
- Surface Roughening

VT STATE PLANE GRID N



0 50 100
SCALE: 1" = 30'

EPSC – PHASE 1 /STAGE B

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95a176/str/sa176epsclB.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STRI
sa176epsclBLI.1

PLOT DATE: 11-JUN-2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 93A OF 114

CONVENTIONAL SYMBOLS

- W — Water Line
- S — Sewer Line
- UT — Underground Telephone Line
- Construction Limits (Cut)
- Construction Limits (Fill)
- Fence
- 395 Existing Contour
- Guard Rail
- Stone Fill
- Traffic Flow
- Temporary Work Bridge

VT STATE PLANE GRID N

EROSION PREVENTION & SEDIMENT CONTROL LEGEND

- 400 Proposed Contour
- PDF Project Demarcation Fence
- Silt Fence
- Filter Curtain
- Runoff Flow Direction
- Inlet Protection Device, Type I
- Stone Check Dam, Type I
- Temporary Erosion Matting
- Vehicle Tracking Pad
- Sediment Settling Basin
- Surface Roughening

BEGIN CONSTRUCTION
MATCH EXISTING BCP
STA. SB 21+50.00

END CONSTRUCTION
MATCH EXISTING BCP
STA. SB 26+00.00

R.O.W. FENCE

FILTER CURTAIN

REMOVE EXISTING D.I.& PIPE. CONSTRUCT NEW D.I.& PIPE. (SEE ROADWAY PLANS)

SB 20+00 SB 21+00 SB 22+00 SB 23+00 SB 24+00 SB 25+00 SB 26+00 I-91 SB SB 27+00 SB 28+00 SB 29+00

BR 3S

LIMIT OF TYPE N STONE FILL (TYP) (SEE NOTE 4)

NB 20+00 NB 21+00 NB 22+00 NB 23+00 NB 24+00 NB 25+00 NB 26+00 NB 27+00 NB 28+00 NB 29+00

BR 3N I-91 NB

NEW R.O.W. FENCE

REMOVE EXISTING SOIL AND PIPE (SEE ROADWAY PLANS)

LIMIT OF TYPE N STONE FILL (TYP) (SEE NOTE 4)

R.O.W. FENCE

R.O.W. LINE

R.O.W. LINE FROM GUILFORD-BRATTLEBORO RECORD PLANS

VT. DEPARTMENT OF FORESTS & PARKS

0 50 100
SCALE: 1" = 30'

EPSC - PHASE 1 /STAGE B

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95al76/str/sal76epsclB.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STRI
sal76epsclBL2.1

PLOT DATE: 11-JUN-2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 93B OF 114

VT STATE PLANE GRID

N

END CONSTRUCTION
MATCH EXISTING BCP
STA. NB 33+15.00

SB 30+00 SB 31+00 I-91 SB

NB 31+00 NB 32+00 NB 33+00 I-91 NB NB 34+00 NB 35+00 NB 36+00 NB 37+00 NB 38+00 NB 39+00 NB 40+00

TO BRATTLEBORO

435 440 445

PDF

CONVENTIONAL SYMBOLS

- Construction Limits (Cut)
- Construction Limits (Fill)
- Fence
- 395 Existing Contour
- Guard Rail
- Stone Fill
- Traffic Flow

EROSION PREVENTION & SEDIMENT CONTROL LEGEND

- 400 Proposed Contour
- PDF Project Demarcation Fence
- Silt Fence
- Runoff Flow Direction
- Inlet Protection Device, Type I
- Stone Check Dam, Type I
- Temporary Erosion Matting
- Surface Roughening

0 50 100
SCALE: 1" = 30'

EPSC – PHASE 1 /STAGE B

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95a176/str/sa176epsclB.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STRI
sa176epsclBL3.1

PLOT DATE: 11-JUN-2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 93C OF 114

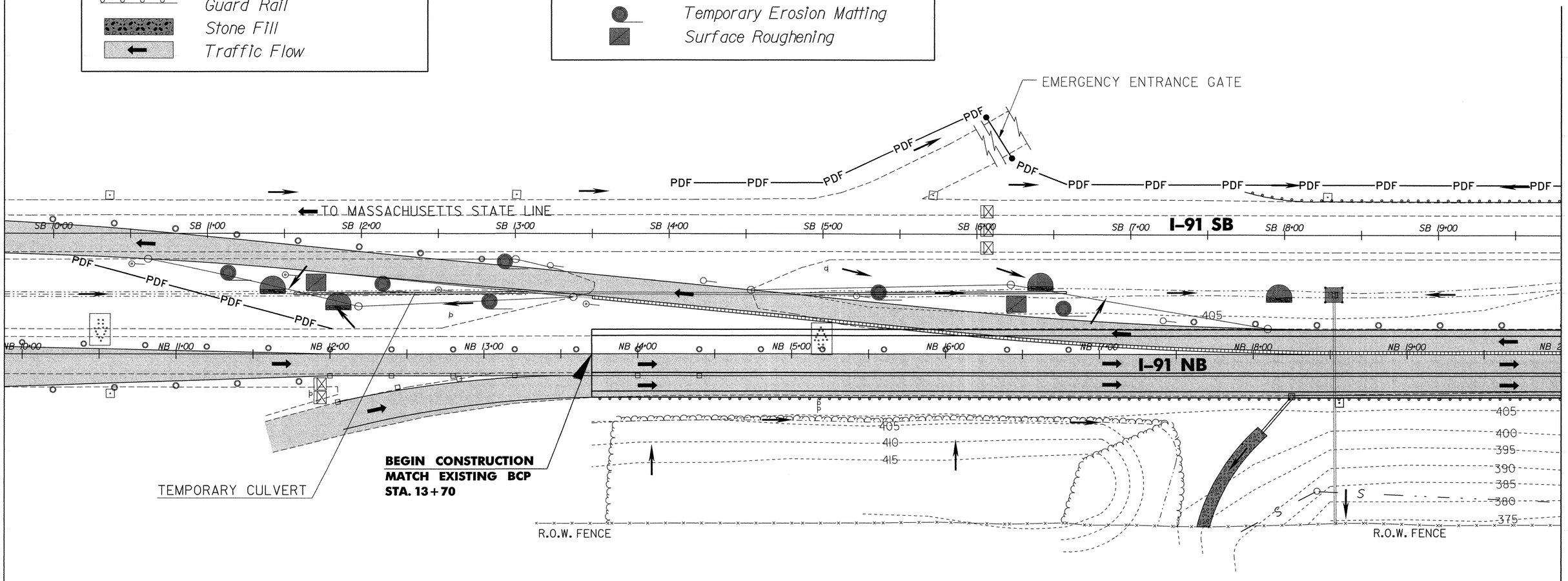
CONVENTIONAL SYMBOLS

- S — Sewer Line
- Construction Limits (Cut)
- Construction Limits (Fill)
- Fence
- 395 Existing Contour
- Guard Rail
- Stone Fill
- Traffic Flow

EROSION PREVENTION & SEDIMENT CONTROL LEGEND

- 400 Proposed Contour
- PDF Project Demarcation Fence
- Silt Fence
- Runoff Flow Direction
- Inlet Protection Device, Type I
- Stone Check Dam, Type I
- Temporary Erosion Matting
- Surface Roughening

VT STATE PLANE GRID N



SCALE: 1" = 30'

EPSC – PHASE 2

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95a176/str/sal76epsc2.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STRI
sal76epsc2LI.1

PLOT DATE: 11-JUN-2008
DRAWN BY: Weeber
CHECKED BY:
SHEET 94A OF 114

CONVENTIONAL SYMBOLS

- W — Water Line
- S — Sewer Line
- UT — Underground Telephone Line
- Construction Limits (Cut)
- Construction Limits (Fill)
- Fence
- 395 Existing Contour
- Guard Rail
- Stone Fill
- Traffic Flow
- Temporary Work Bridge

EROSION PREVENTION & SEDIMENT CONTROL LEGEND

- 400 Proposed Contour
- PDF Project Demarcation Fence
- Silt Fence
- Filter Curtain
- Runoff Flow Direction
- Inlet Protection Device, Type I
- Stone Check Dam, Type I
- Temporary Erosion Matting
- Vehicle Tracking Pad
- Sediment Settling Basin
- Surface Roughening

VT STATE PLANE GRID N

BEGIN CONSTRUCTION
MATCH EXISTING BCP
STA. SB 21+50.00

END CONSTRUCTION
MATCH EXISTING BCP
STA. SB 26+00.00

PDF — PDF — PDF — PDF — PDF — PDF — PDF — PDF — PDF — PDF — PDF — PDF — PDF — PDF — PDF

R.O.W. FENCE

FILTER CURTAIN

REMOVE EXISTING D.I.& PIPE. CONSTRUCT NEW D.I.& PIPE. (SEE ROADWAY PLANS)

I.E. ACCMP

SB 20+00 SB 21+00 SB 22+00 SB 23+00 SB 24+00 SB 25+00 SB 26+00 **I-91 SB** SB 27+00 SB 28+00 SB 29+00

BR 3S

LIMIT OF TYPE N STONE FILL (TYP.) (SEE NOTE 4)

NB 20+00 NB 21+00 NB 22+00 NB 23+00 NB 24+00 NB 25+00 NB 26+00 NB 27+00 NB 28+00 NB 29+00 NB

BR 3N

I-91 NB

NEW R.O.W. FENCE

REMOVE EXISTING D.I. AND PIPE (SEE ROADWAY PLANS)

LIMIT OF TYPE N STONE FILL (TYP.) (SEE NOTE 4)

R.O.W. FENCE

R.O.W. LINE

VT. DEPARTMENT OF FORESTS & PARKS

R.O.W. LINE

0 50 100
SCALE: 1" = 30'

EPSC - PHASE 2

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95al76/str/sal76epsc2.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STRI
sal76epsc2L2.1

PLOT DATE: 11-JUN-2008
DRAWN BY: Weeber
CHECKED BY:
SHEET 94B OF 114

VT STATE PLANE GRID

N

NOTE:
CONTRACTOR TO PROPOSE A TEMPORARY DRAINAGE SYSTEM DURING PHASE 2 CONSTRUCTION. WORK SHALL INCLUDE TEMPORARY PIPING AND PROTECTION OF EXISTING D.I.

TEMPORARY CULVERT

END CONSTRUCTION
MATCH EXISTING BCP
STA. NB 33+15.00

SB 30+00 SB 31+00 **I-91 SB**

NB 31+00 NB 32+00 NB 33+00 **I-91 NB** NB 34+00 NB 35+00 NB 36+00 NB 37+00 NB 38+00 NB 39+00 NB 40+00

TO BRATTLEBORO

440 445

PDF PDF PDF PDF PDF

CONVENTIONAL SYMBOLS

- Construction Limits (Cut)
- Construction Limits (Fill)
- Fence
- 395 Existing Contour
- Guard Rail
- Stone Fill
- Traffic Flow

EROSION PREVENTION & SEDIMENT CONTROL LEGEND

- 400 Proposed Contour
- PDF Project Demarcation Fence
- Silt Fence
- Runoff Flow Direction
- Inlet Protection Device, Type I
- Stone Check Dam, Type I
- Temporary Erosion Matting
- Surface Roughening

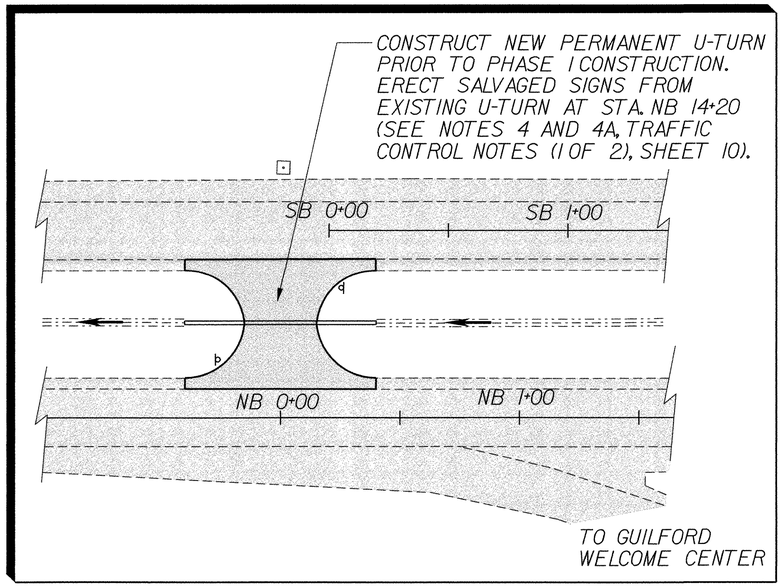
0 50 100
SCALE: 1" = 30'

EPSC – PHASE 2

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95al76/str/sal76epsc2.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STRI
sal76epsc2L3.1

PLOT DATE: 11-JUN-2008
DRAWN BY: Weeber
CHECKED BY:
SHEET 94C OF 114



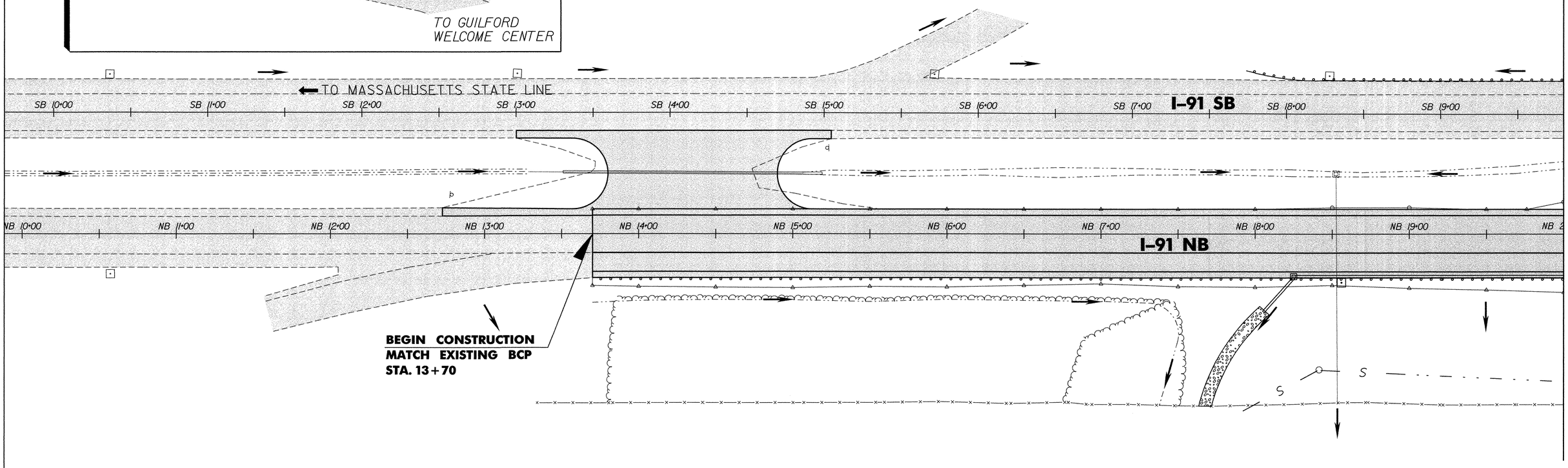
LEGEND

- Existing Pavement
- New Pavement

CONVENTIONAL SYMBOLS

- Wooded Area
- Edge of Roadway
- Fence
- Guard Rail
- Drainage Pipe
- Ditch
- Edge of River
- Runoff Flow Direction
- Sewer Line

VT STATE PLANE GRID N



0 50 100
SCALE: 1" = 30'

EPSC – FINAL CONDITIONS

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95a176/str/sa176epscfinal.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STRI
sa176epscfinalll.l

PLOT DATE: 28-MAY-2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 95A OF 114

LEGEND

- Existing Pavement
- New Pavement

CONVENTIONAL SYMBOLS

- Wooded Area
- Edge of Roadway
- Fence
- Guard Rail
- Drainage Pipe
- Ditch
- Edge of River
- Runoff Flow Direction
- W — Water Line
- S — Sewer Line
- UT — Underground Telephone Line

VT STATE PLANE GRID N

BEGIN CONSTRUCTION
MATCH EXISTING BCP
STA. SB 21+50.00

END CONSTRUCTION
MATCH EXISTING BCP
STA. SB 26+00.00

SB 20+00 SB 21+00 SB 22+00 SB 23+00 SB 24+00 SB 25+00 SB 26+00 **I-91 SB** SB 27+00 SB 28+00 SB 29+00

NB 20+00 NB 21+00 NB 22+00 NB 23+00 NB 24+00 NB 25+00 NB 26+00 NB 27+00 NB 28+00 NB 29+00 NB

I-91 NB

UT S D

SCALE: 1" = 30'

EPSC – FINAL CONDITIONS

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95a176/str/sa176epscfinal.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STRI
sa176epscfinal2.i

PLOT DATE: 30-APR-2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 95B OF 114

VT STATE PLANE GRID

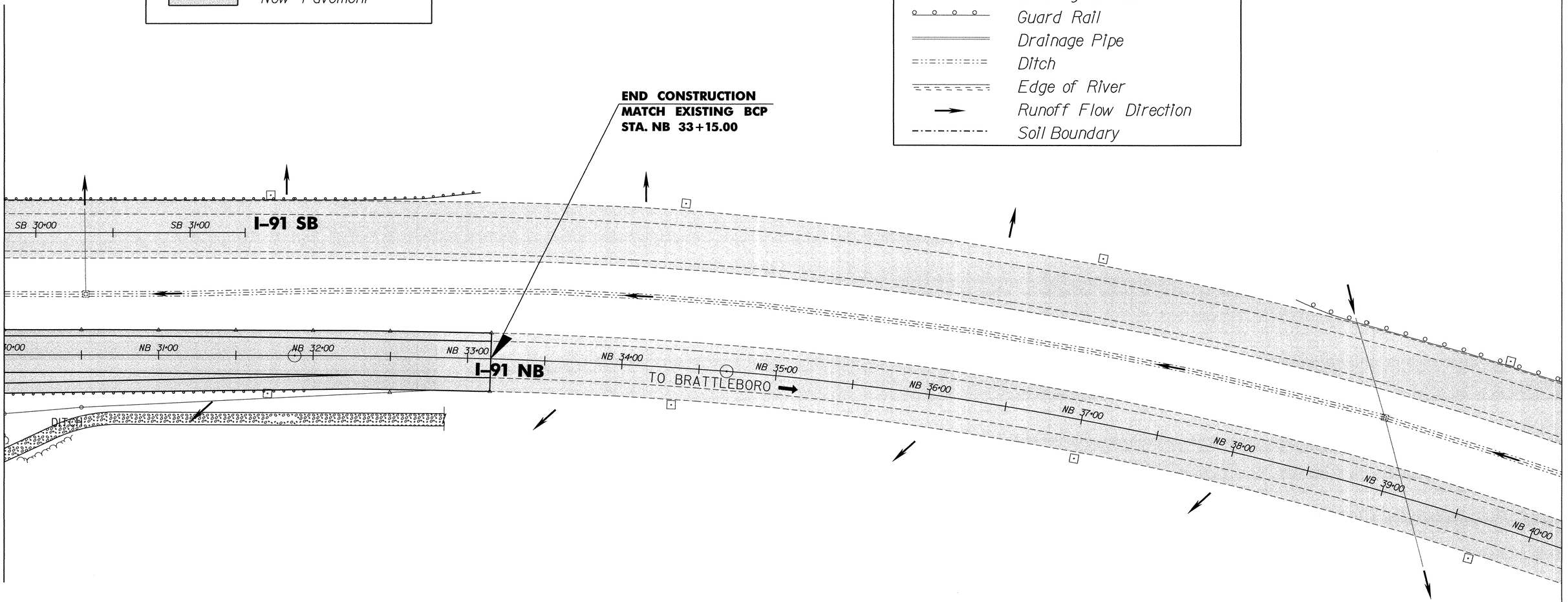
N

LEGEND

- Existing Pavement
- New Pavement

CONVENTIONAL SYMBOLS

- Wooded Area
- Roadway Edge
- Fence
- -----395----- Existing Contour
- Guard Rail
- Drainage Pipe
- Ditch
- Edge of River
- Runoff Flow Direction
- Soil Boundary



0 50 100

SCALE: 1'' = 30'

EPSC – FINAL CONDITIONS

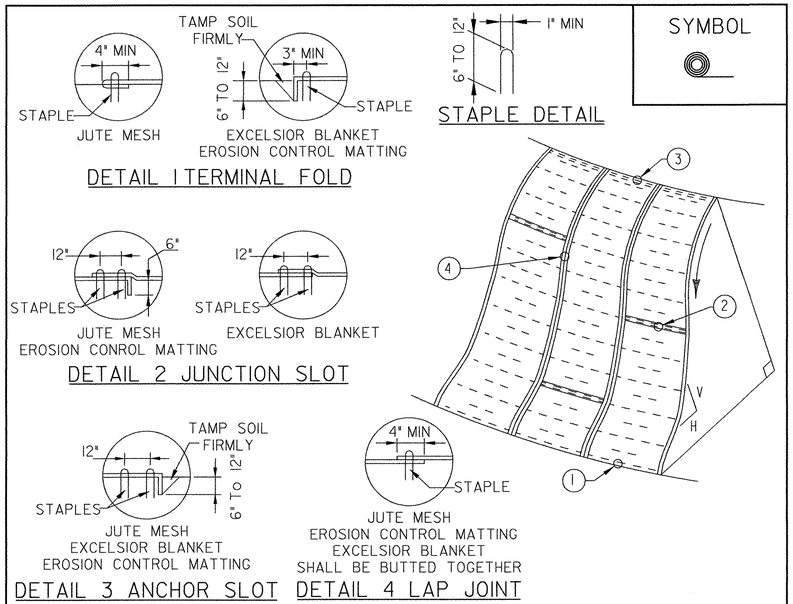
PROJECT NAME: GUILFORD

PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95al76/str/sal76epscfinal.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STRI
sal76epscfinalL3.1

PLOT DATE: 30-APR-2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 95C OF 114

SYMBOL



DETAIL 1 TERMINAL FOLD

DETAIL 2 JUNCTION SLOT

DETAIL 3 ANCHOR SLOT

DETAIL 4 LAP JOINT

STAPLE DETAIL

CONSTRUCTION SPECIFICATIONS

1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.

2. APPLY FERTILIZER, LIME AND 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: ILLINOIS USDA-NRCS
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

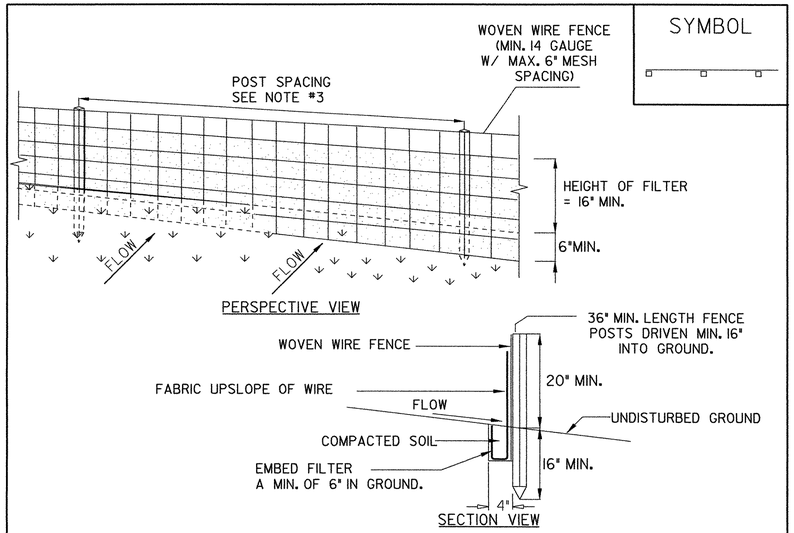
ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

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

THIS ITEM SHALL BE PAID FOR UNDER ITEM
653.20 TEMPORARY EROSION MATTING OR
653.21 PERMANENT EROSION MATTING

NEW	
APRIL 16, 2007	WHF
REVISIONS	

SYMBOL



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE REINFORCEMENT IS ONLY REQUIRED WITHIN 100 FT UPSLOPE OF RECEIVING WATERS.

2. WHERE REQUIRED FENCE SHALL BE WOVEN WIRE, MIN. 14 GAUGE WITH A 6" MAXIMUM MESH OPENING. 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'. FOR FILTER-CLOTH FENCE, 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 SIX INCHES AND FOLDED.

6. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.

7. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

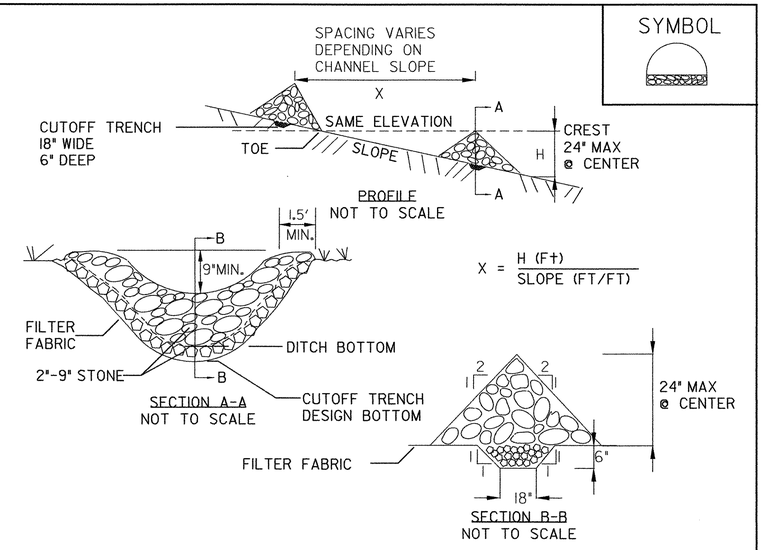
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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 ITEM SHALL BE PAID FOR UNDER ITEM
STANDARD SPECIFICIATION 649.51 GEOTEXTILE FOR SILT FENCE OR
~~SPECIAL PROVISION 900.675 (GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED)~~

SYMBOL



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.

2. SET SPACING OF CHECK DAMS SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.

3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.

4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.

5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

MAXIMUM DRAINAGE AREA 2 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DECORIGINALLY DEVELOPED BY USDA-NRCSVERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

CHECK DAM

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

THIS ITEM SHALL BE PAID FOR UNDER ITEM
653.25 TEMPORARY STONE CHECK DAM, TYPE I

NOTE: WHERE CHANNEL SLOPES OF LESS THAN 3% EXIST, STONE CHECK DAM, TYPE II MATERIAL SHALL BE USED. SEE SUB SECTION 704.17(c) FOR MORE INFORMATION.

REVISIONS	
MARCH 8, 2007	JMF

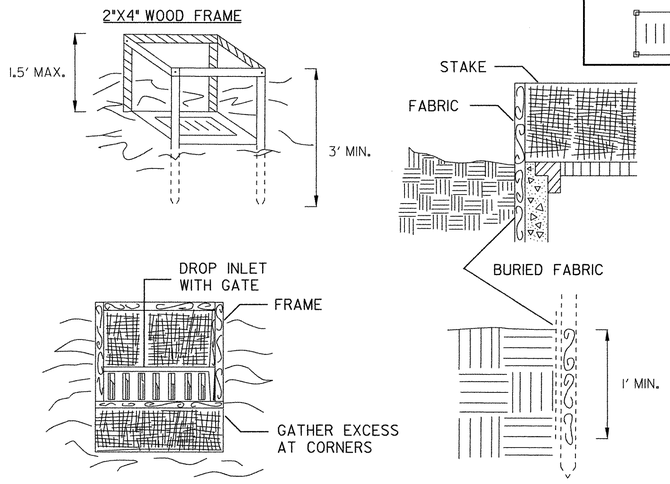
EPSC DETAIL SHEET #1

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95al76/st/sal76epscdet.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STR6
sal76epscdet1.1

PLOT DATE: 30-APR-2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 96 OF 114

SYMBOL



CONSTRUCTION SPECIFICATIONS

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

   MAXIMUM DRAINAGE AREA 1 ACRE

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

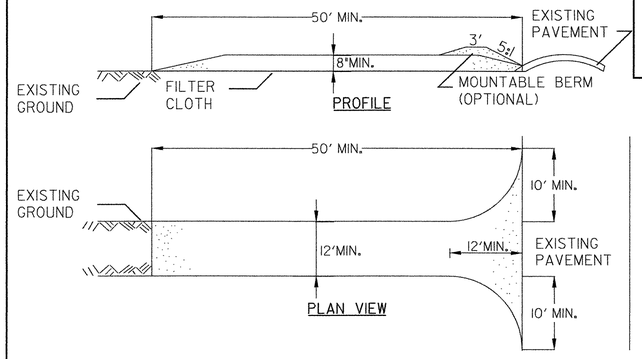
FILTER FABRIC DROP INLET PROTECTION

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

THIS ITEM SHALL BE PAID FOR UNDER ITEM
653.40 INLET PROTECTION DEVICE, TYPE I

REVISIONS	
MARCH 8, 2007	JMF

SYMBOL



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 1-4" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH APPLIES).
3. THICKNESS - NOT LESS THAN EIGHT (8) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT 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

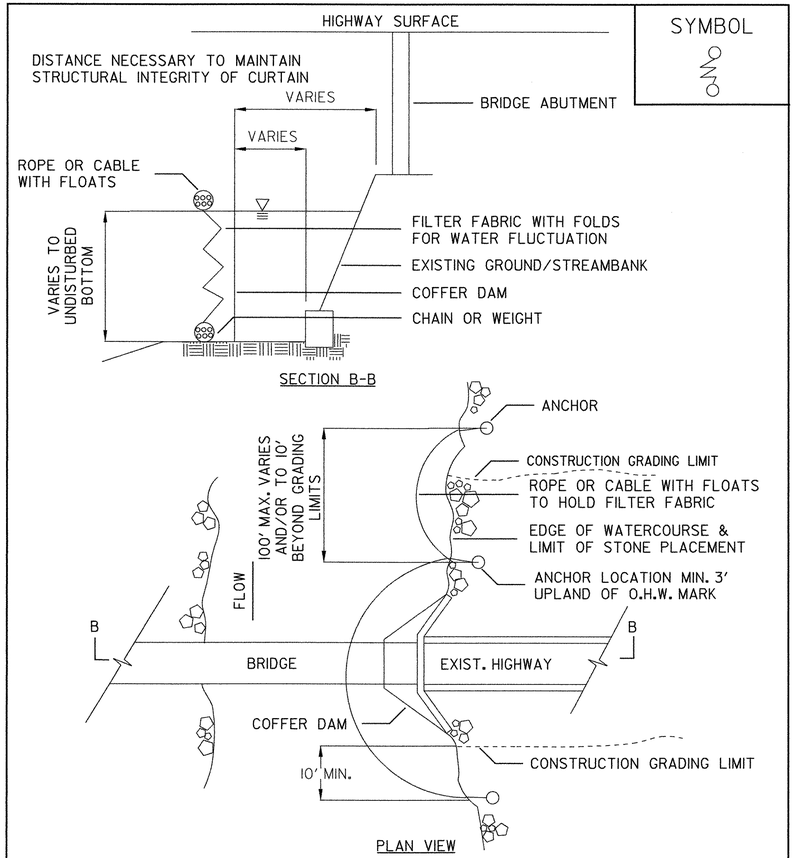
STABILIZED CONSTRUCTION ENTRANCE

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

THIS ITEM SHALL BE PAID FOR UNDER ITEM
653.35 VEHICLE TRACKING PAD

REVISIONS	
FEBRUARY 9, 2007	WHF
MARCH 8, 2007	JMF

SYMBOL



ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT AGENCY OF TRANSPORTATION

TURBIDITY CURTAIN

NOTES:
THIS ITEM SHALL BE PAID FOR UNDER ITEM
649.61 GEOTEXTILE FOR FILTER CURTAIN

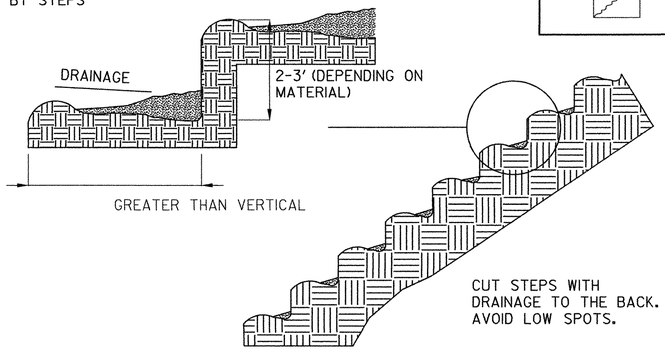
EPSC DETAIL SHEET #2

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

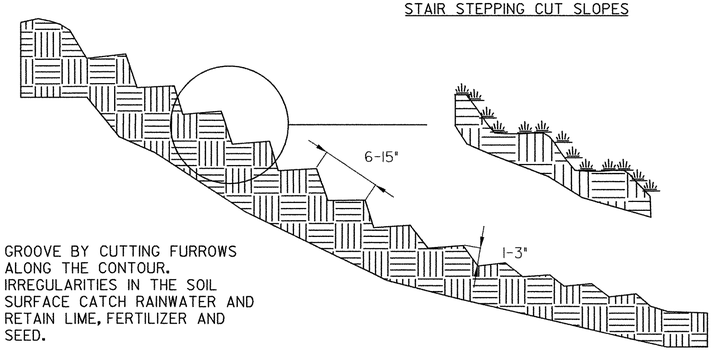
FILE NAME: 95al76/st/sal76epscdet.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STR6
sal76epscdet2.1

PLOT DATE: 30-APR-2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth

SYMBOL



STAIR STEPPING CUT SLOPES



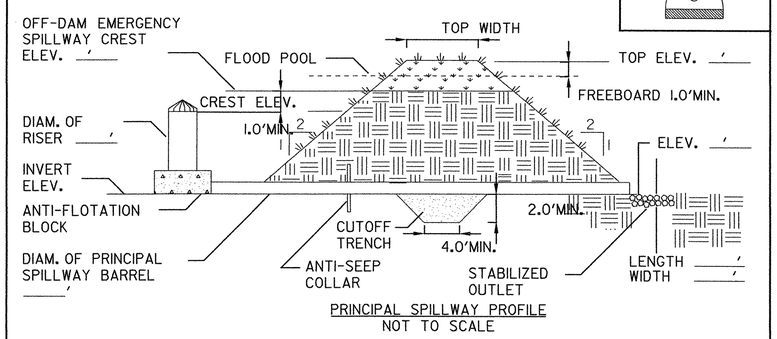
GROOVING SLOPES

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

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

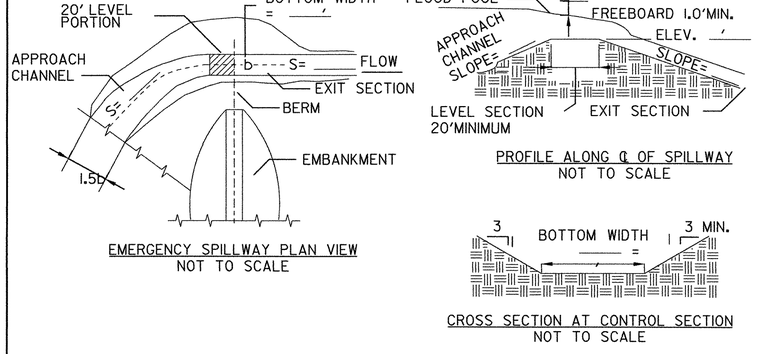
THIS WORK SHALL BE CONSIDERED INCIDENTAL TO OTHER CONTRACT ITEMS.

SYMBOL



PRINCIPAL SPILLWAY PROFILE
NOT TO SCALE

MAXIMUM DRAINAGE AREA = 100 ACRES



EMERGENCY SPILLWAY PLAN VIEW
NOT TO SCALE

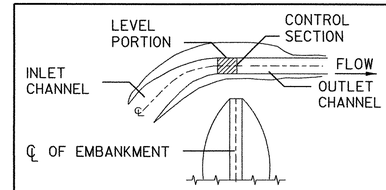
PROFILE ALONG ℄ OF SPILLWAY
NOT TO SCALE

CROSS SECTION AT CONTROL SECTION
NOT TO SCALE

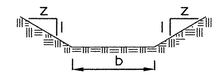
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION	SEDIMENT BASIN DETAILS

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

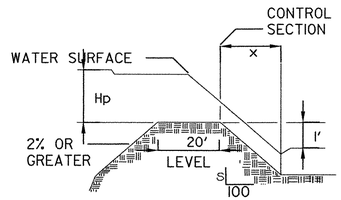
THIS ITEM SHALL BE PAID FOR UNDER ITEM 208.40 COFFERDAM, IF IT IS USED AS A DEWATERING DEVICE FOR A COFFERDAM. IF THIS ITEM IS NOT USED AS A DEWATERING DEVICE IT SHALL BE PAID FOR UNDER A 900 SERIES SPECIAL PROVISION.



PLAN OF EARTH SPILLWAY



CROSS SECTION OF EARTH SPILLWAY AT CONTROL SECTION



PROFILE ALONG CENTERLINE OF EARTH SPILLWAY

LEGEND

n = MANNING'S COEFFICIENT OF ROUGHNESS.

Hp = DIFFERENCE IN ELEVATION BETWEEN CREST OF EARTH SPILLWAY AT THE CONTROL SECTION AND WATER SURFACE IN RESERVOIR, IN FEET.

b = BOTTOM WIDTH OF EARTH SPILLWAY AT THE CONTROL SECTION, IN FEET.

Q = TOTAL DISCHARGE, IN cfs.

V = VELOCITY. IN FEET PER SECOND, THAT WILL EXIST IN CHANNEL BELOW CONTROL SECTION, AT DESIGN Q, IF CONSTRUCTED TO SLOPE (S) THAT IS SHOWN.

S = FLATTEST SLOPE (S), IN %, ALLOWABLE FOR CHANNEL BELOW CONTROL SECTION.

X = MINIMUM LENGTH OF CHANNEL BELOW CONTROL SECTION, IN FEET.

z = SIDE SLOPE RATIO.

NOTES:

1) FOR A GIVEN Hp A DECREASE IN THE EXIT SLOPE FROM S AS GIVEN IN THE TABLE DECREASES SPILLWAY DISCHARGE BUT INCREASING THE EXIT SLOPE FROM S DOES NOT INCREASE DISCHARGE. IF AN EXIT SLOPE (Se) STEEPER THAN S IS USED, THEN VELOCITY (Ve) IN THE EXIT CHANNEL WILL INCREASE ACCORDING TO THE FOLLOWING RELATIONSHIP:

$$Ve = V\ 0.3\left(\frac{Se}{S}\right)$$

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

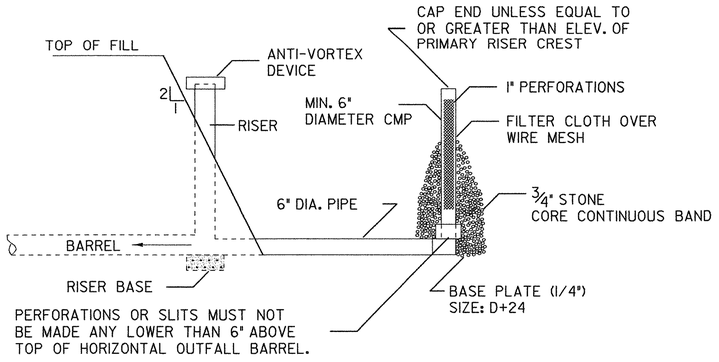
EPSC DETAIL SHEET #3

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95al76/st/sal76epscdet.dgn	PLOT DATE: 11-JUN-2008
PROJECT LEADER: Farnsworth	DRAWN BY: Weeber
DESIGNED BY: STR6	CHECKED BY: Farnsworth
sal76epscdet3.1	SHEET 98 OF 114

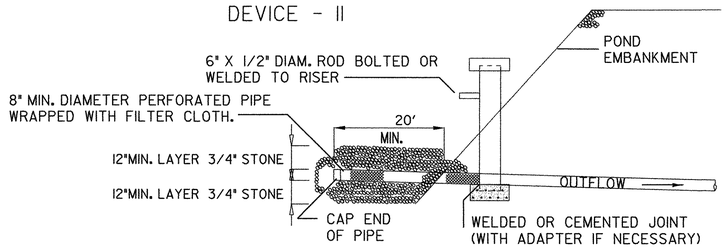
OPTIONAL SEDIMENT BASIN DEWATERING DEVICE - I WITH 6" PERFORATED RISER

SYMBOL



PERFORATIONS - 6" SPACING HORIZONTAL & VERTICAL LOCATED IN CONCAVE.

OPTIONAL SEDIMENT BASIN DEWATERING DEVICE - II

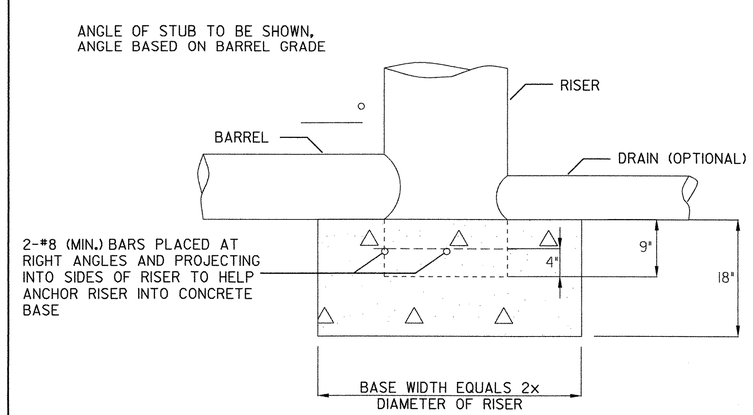


ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

OPTIONAL SEDIMENT BASIN DEWATERING DEVICES

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

THIS ITEM SHALL BE PAID FOR UNDER ITEM 208.40 COFFERDAM. IF IT IS USED AS A DEWATERING DEVICE FOR A COFFERDAM. IF THIS ITEM IS NOT USED AS A DEWATERING DEVICE IT SHALL BE PAID FOR UNDER A 900 SERIES SPECIAL PROVISION.



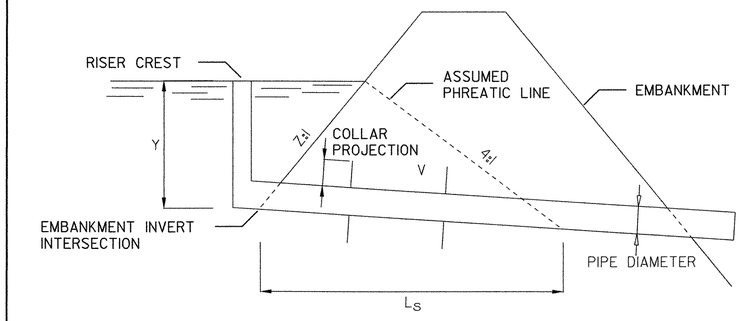
CONSTRUCTION SPECIFICATIONS

NOTES:

1. THE CONCRETE BASE SHALL BE POURED IN SUCH A MANNER TO INSURE THAT THE CONCRETE FILLS THE BOTTOM OF THE RISER TO THE INVERT OF THE OUTLET PIPE TO PREVENT THE RISER FROM BREAKING AWAY FROM THE BASE.
2. WITH ALUMINUM OR ALUMINIZED PIPE, THE EMBEDDED SECTION MUST BE PAINTED WITH CHROMATE OR EQUIVALENT.
3. RISER BASE MAY BE SIZED AS COMPUTED USING FLOATATION WITH A FACTOR OF SAFETY OF 1.2.

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

RISER BASE DETAIL SEDIMENT BASIN



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

ANTI-SEEP COLLAR DESIGN

ANTI-SEEP COLLAR DESIGN CONTINUED ON SHEET 100 OF 114.

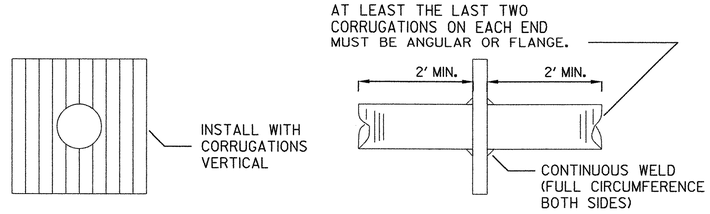
EPSC DETAIL SHEET #4

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95al76/st/sal76epscdet.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STR6
sal76epscdet4.1

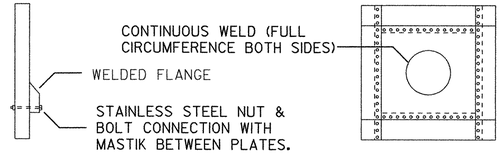
PLOT DATE: 28-MAY-2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 99 OF 114

TYPICAL ANTISEEP COLLARS
NOT TO SCALE

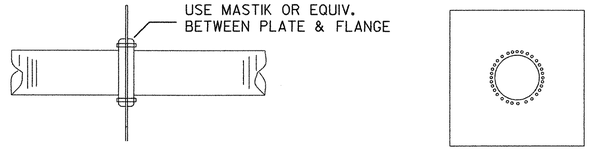


COLLAR WELDED IN PLACE ON BARREL SECTION

1. PLATES TO BE PRE-CUT CLAMPED TOGETHER & PRE-DRILLED & LABELED TO FACILITATE WATER TIGHT FIELD ASSEMBLY.



MULTI-PIECE COLLAR FOR LARGE PIPES



COLLAR FOR FLANGE JOINT PIPE

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

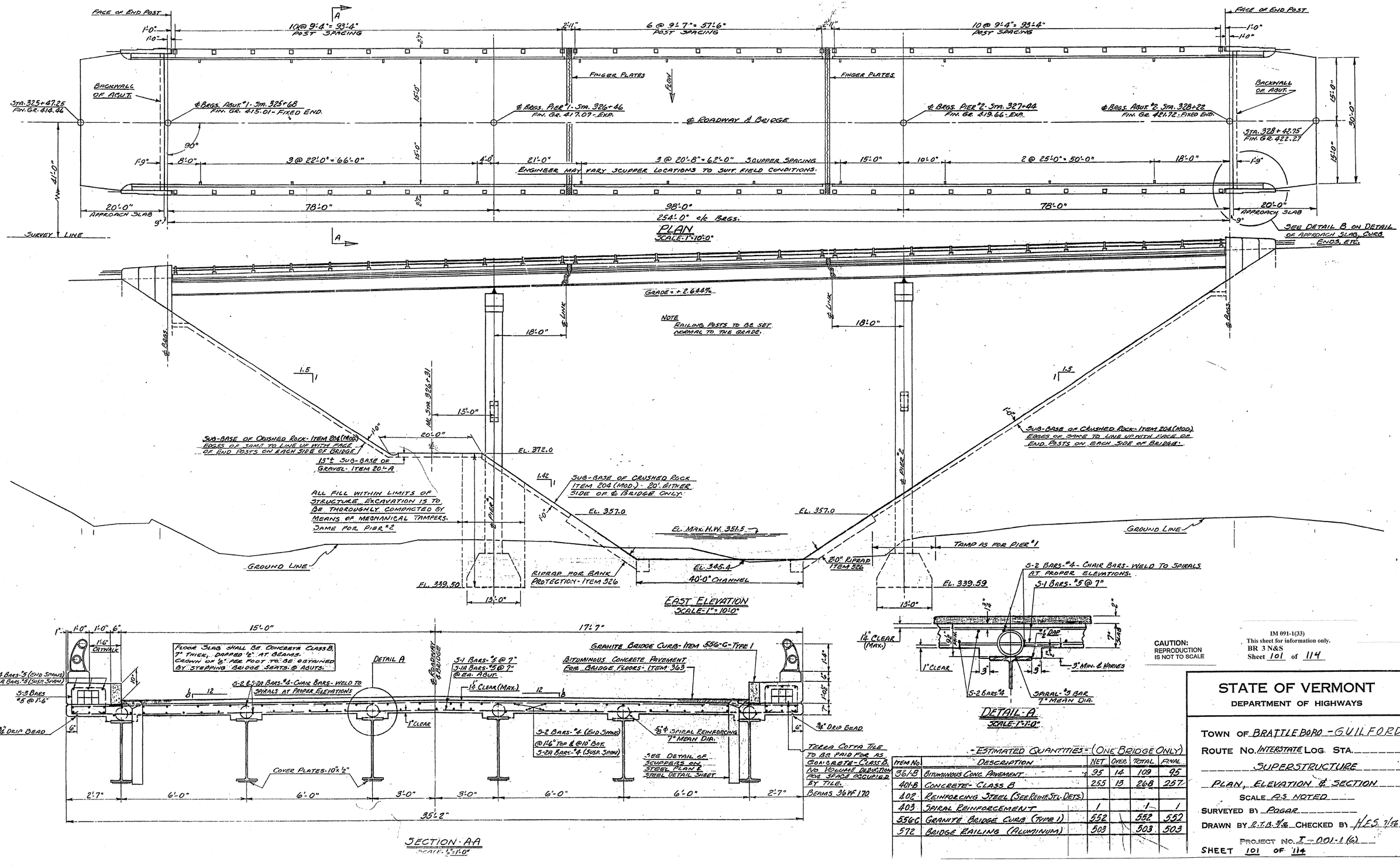
ANTISEEP COLLAR

EPSC DETAIL SHEET #5

PROJECT NAME: GUILFORD
PROJECT NUMBER: IM 091-1(33)

FILE NAME: 95al76/str/sal76epscdet.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: STR6
sal76epscdet5.1

PLOT DATE: 28-MAY-2008
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 100 OF 114



- ESTIMATED QUANTITIES - (ONE BRIDGE ONLY)

ITEM No.	DESCRIPTION	NET	OVER.	TOTAL	FINAL
361-B	BITUMINOUS CONC. PAVEMENT	95	14	109	95
401-B	CONCRETE - CLASS B	255	13	268	257
402	REINFORCING STEEL (SEE REINF. STL. DETS.)				
403	SPIRAL REINFORCEMENT	1		1	1
556 G	GRANITE BRIDGE CURB (TYPE I)	552		552	552
572	BRIDGE RAILING (ALUMINUM)	503		503	503

CAUTION: REPRODUCTION IS NOT TO SCALE

IM 091-1(33)
This sheet for information only.
BR 3 N&S
Sheet 101 of 114

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF BRATTLEBORO - GUILFORD
ROUTE NO. INTERSTATE LOG. STA.
SUPERSTRUCTURE
PLAN, ELEVATION & SECTION
SCALE AS NOTED
SURVEYED BY POGAR
DRAWN BY R.T.B. 9/76 CHECKED BY H.E.S. 7/76
PROJECT NO. I-091-1(6)
SHEET 101 OF 114

127'-0"
78'-0"
18'-0"
31'-0"
6"
36WF170
℄ Brg.
℄ Bm.
Do
DIAPHRAGM SPACING- 4 @ 19'-5⅛" = 77'-10"
17'-0"
1½"
20'-0"
10'-0"
2"
18WF427
℄ Brgs. Abut #1
℄ Roadway & Bridge
℄ Brgs. Pier #2
℄ Links
SYMMETRICAL ABOUT ℄ OF BRIDGE EXCEPT THAT DIAPHRAGMS NEAR TOE CONN. SHOE AT ABUTMENTS AND LINK PLATES.
6'-0"
3'-0"
6'-0"
6'-0"
D
REFER TO STD. DWG. SB-20-56, DETS. FOR G (X = 5) FOR ALL DIAPHRAGMS EXCEPT THOSE AT ABUT. #1, ℄s OF LINKS & ABUT #2
G
10 x 25.4
4" BETWEEN BM. FLANGES
F
COVER PLATE - 10" x ½" - BOT. FLANGE ONLY
COVER PLATES - 14" x 1" TOP & BOT.
5/16
4"
1'-6"
3'-0"
21'-6"
24'-0"
16'-4" NTS
11'-2" NTS
27'-6" NTS
8"
2" OPENING BETWEEN STRINGER ENDS
Z
Pour Rubber
Granite Bridge Curb
3/4" x 7" Mastic Bed
3-1 Bars - #5
8½"
4"
12
2"
8½"
Bit. Pvt.
℄ Bridge
3/16
Weld Scuppers to 3-2 Bars As Shown.
36WF170
Two 6 x 3½ x 10.5
1" x 2" Bar Welded To Channels
VIEW Z-Z
SCUPPER DETAIL
SCALE-1½"=1'-0"
CAUTION: REPRODUCTION IS NOT TO SCALE
116" ϕ Holes For 1" ϕ Bolts
36WF170
Cov. PL-14" x 1"
1'-4⅝"
9⅜"
1½" Holes For 1¼" ϕ Anchor Bolts, Spaced 2'-2" ℄s, Set In Sleeves & Grouted
1'-4"
1'-0"
6½"
2⅝"
1½"
5"
5"
Antles
1'-8"
2'-0"
2'-9"
Thread
Top of Pier
2½"
2½"
3/8
PL 8" x 2" x 12⅛"
PL 4" x 5⅛" x 6"
PL 12" x 22" x 10⅞"
PL 7" x ½" x 6½"
PL 8" x 2½" x 16"
PL 10" x 1¾" x 24"
R. Sole R - 17⅛"
R. Web R - 13⅜"
Shims - 11" x 1½" x 2'-1" for 2 center beams.
" 11" x 3⅛" x 2'-1" for 2 adjacent beams.
None for 2 outside beams.
EXPANSION ROCKERS AT PIERS
SCALE-1½"=1'-0"
1¼" ϕ Anchor Bolts with 3½" x ⅜" Washer & Hex. Nut. 2 for ea. Beam.
NOTE: FOR FIXED END BEARING DEVICES AT ABUTMENTS, SEE STD. DWG. SB-20-56, DETAIL C.
1⅛" ϕ
3¼" ϕ
2½" Rocker R
1¾" Masonry R
R-11⅛"
1" ϕ - Driving Fit In Masonry R
PINTLE DETAIL
SCALE-3"=1'-0"
STEEL HALF-PLAN
SCALE-¼"=1'-0"
2'-7"
15'-0" To ℄ Bridge
39 SPACES @ 9"-2⅜"-3"
A
B
C
4"
9"
1"
½"
℄ Opening
Cut From PL 14" x 1"
PLAN
SCALE-1½"=1'-0"
½" Checkered PL
L5 x 3½ x ½
Straps - ¼" x 1½" Weld To Ls
Straps - ¼" x 1½" Weld To 10 I 25.4 @ 18" c℄
10 I 25.4
1'-10"
36WF170
SECTION B-B
SCALE-1½"=1'-0"
1"@60°
12½" NTS
L 5 x 3½ x ½
4" NTS
SECTION C-C
SCALE-1½"=1'-0"
Suspended Span
1'-3"
Granite Bridge Curb - Item 550-C
2" Bit Conc. Pvt. For Bridge Floors.
Mastic Bed
9"
14"
6"
Shim - ⅝" t Beveled
℄ Link
2"
SECTION A-A
SCALE-1½"=1'-0"
DETAILS OF EXPANSION DAMS AT SAFETY CURB
(ONE BRIDGE ONLY)
ESTIMATED QUANTITIES

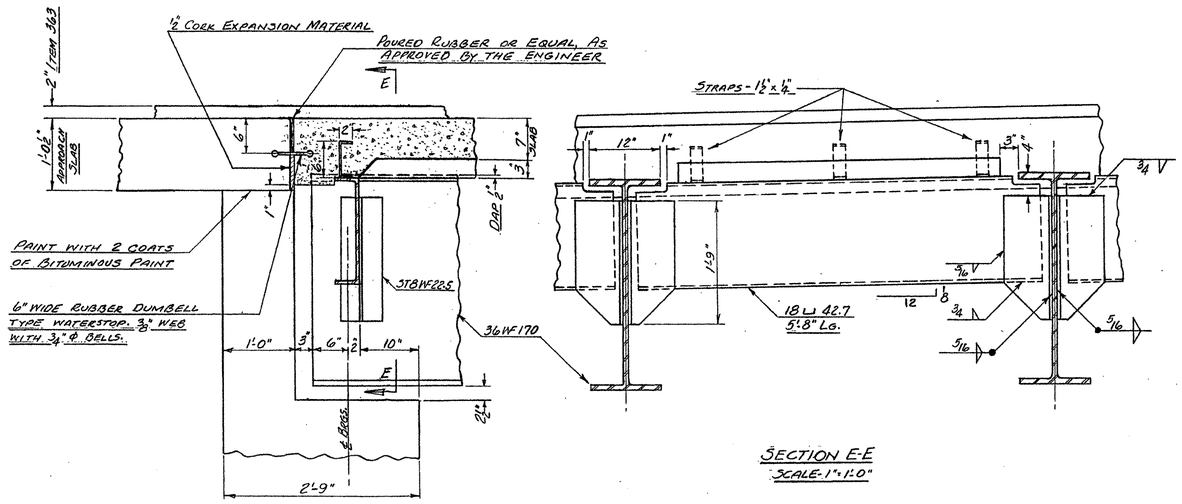
Item No.	Description	Net	Over	Total	Final
404-A	Structural Steel	350,000	7000	357,000	356,346 (N. Bound) 356,343 (S. Bound)

IM 091-1(33)
This sheet for information only.
BR 3 N&S
Sheet 102 of 114

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

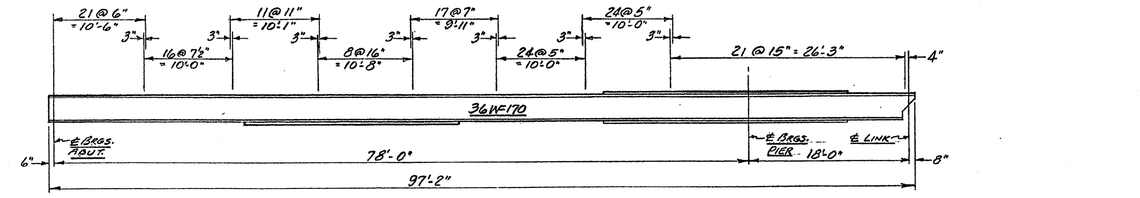
TOWN OF GUILFORD
ROUTE NO. INTERSTATE LOG STA.
STEEL PLAN & STEEL DETAILS
SCALE AS NOTED
SURVEYED BY PGAR
DRAWN BY RTB 9/56 CHECKED BY HES 9/56
PROJECT NO. I-001-1(6)
SHEET 102 OF 114

PHOENIX MFG. INC.



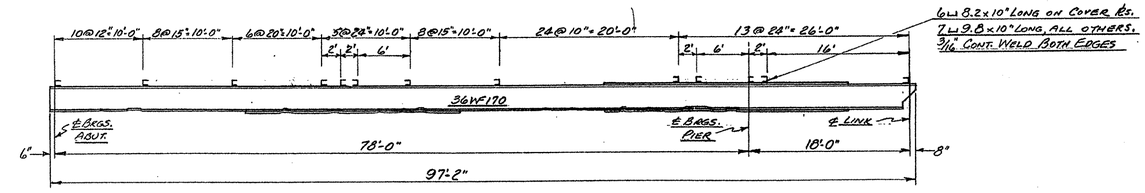
SECTION E-E
SCALE-1"=1'-0"

SECTION D-D. (SEE STEEL PLAN SHEET)
SCALE-1"=1'-0"

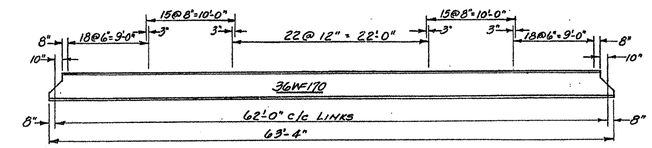


TYPICAL SPIRAL DETAIL
SCALE- ⅜"=1'-0"

ALTERNATES:
(1) ¾"x 7" WELDING STUDS (2 STUDS PER PITCH OF SPIRAL) (⅞"x 6" WELDING STUDS ON COVER ℔s)
(2) SEE DETAIL BELOW FOR CHANNEL SHEAR CONNECTORS

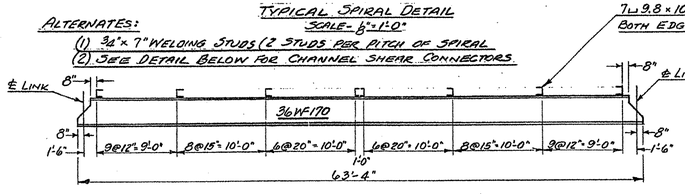


TYPICAL CHANNEL SHEAR CONNECTOR DETAIL
SCALE- ⅜"=1'-0"

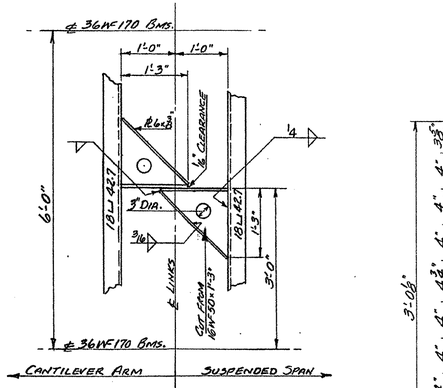


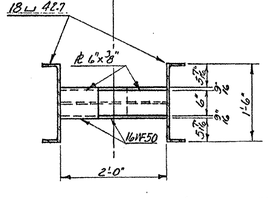
TYPICAL SPIRAL DETAIL
SCALE- ⅜"=1'-0"

ALTERNATES:
(1) ¾"x 7" WELDING STUDS (2 STUDS PER PITCH OF SPIRAL
(2) SEE DETAIL BELOW FOR CHANNEL SHEAR CONNECTORS

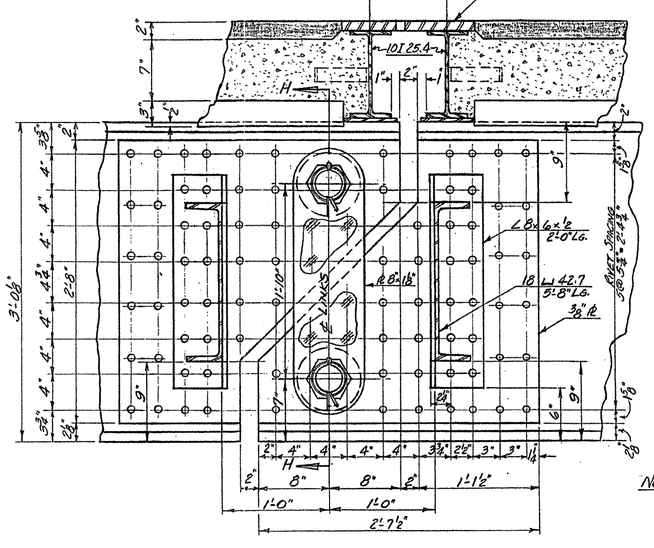


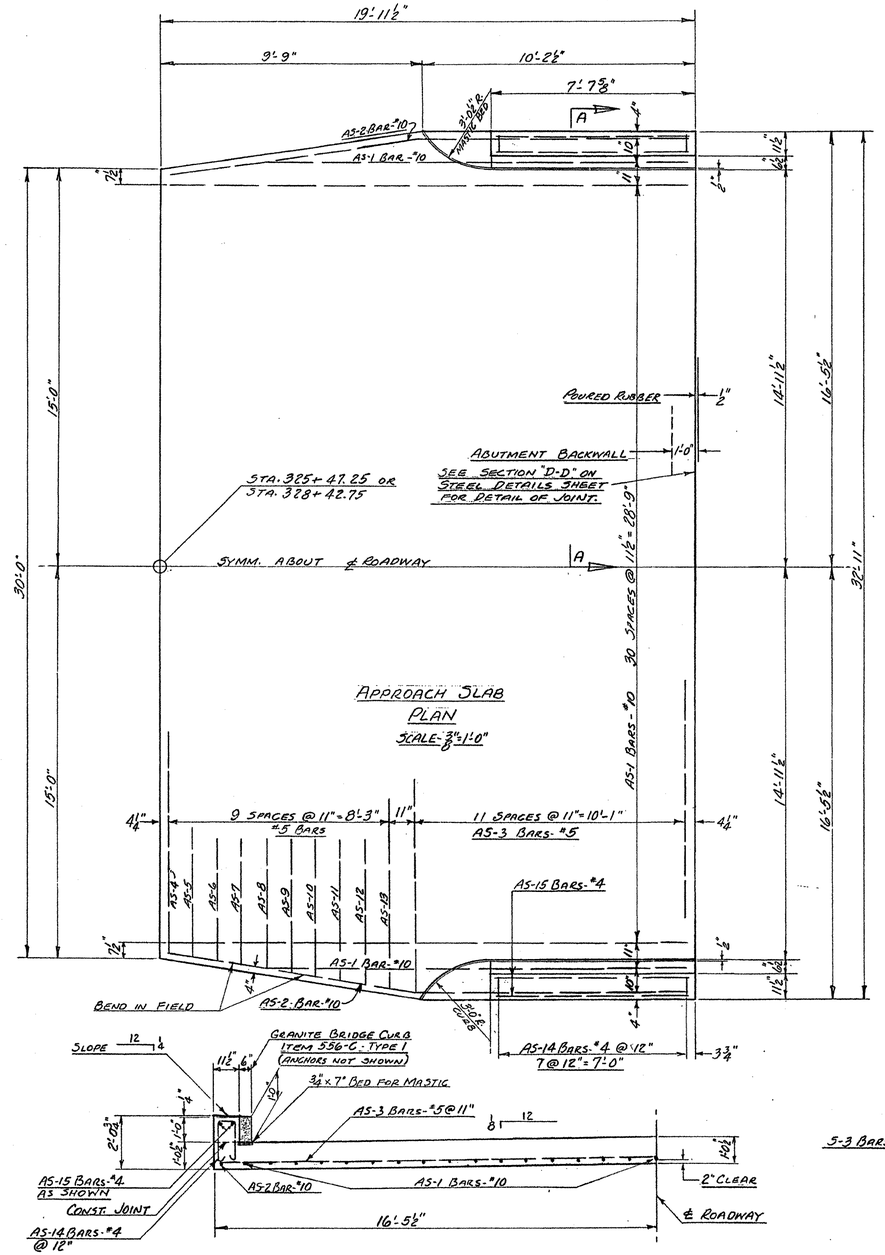
TYPICAL CHANNEL SHEAR CONNECTOR DETAIL
SCALE- ⅜"=1'-0"

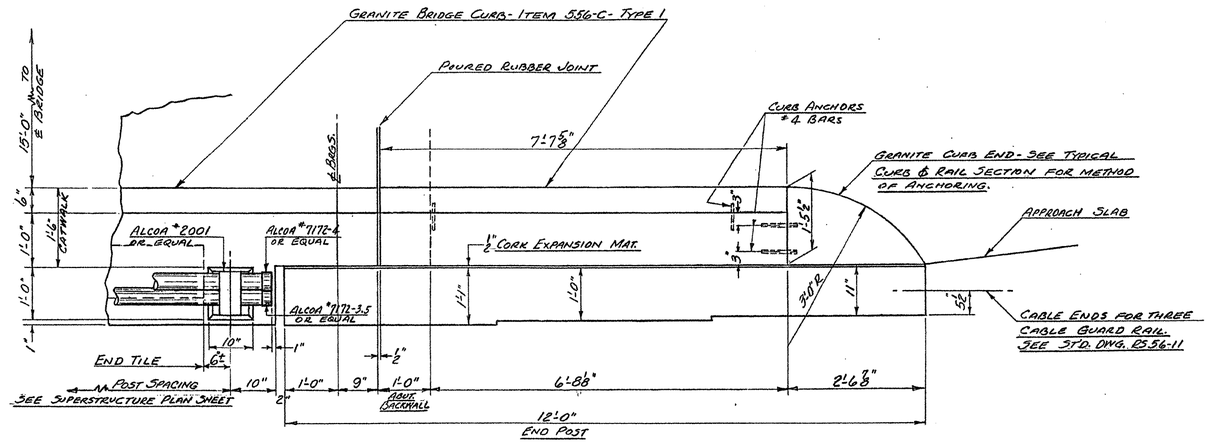




WIND SHOES (SEE STEEL PLAN SHEET)
SECTION F-F
SCALE- ¾"=1'-0"


8⅜"
FINGER ℔s
2"
7"
3"
2"
10I 25.4
1"
2"
1"
H
2"
2"
4"
4"
4



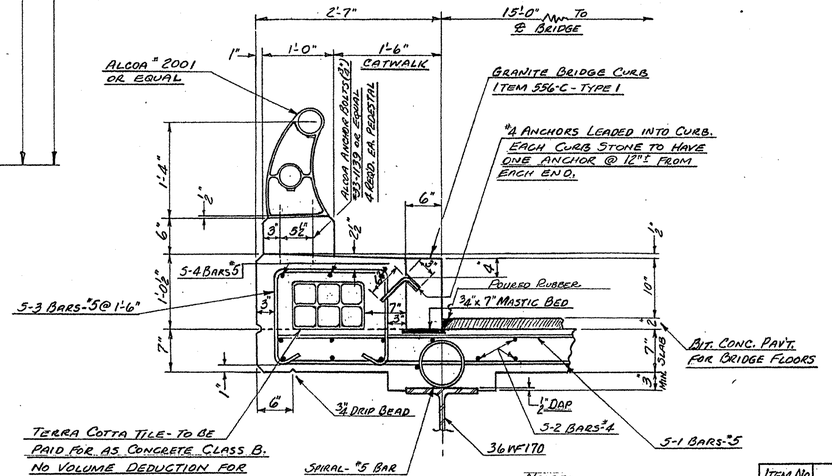


(FOR LOCATION SEE SUPERSTRUCTURE PLAN)

DETAIL B

SCALE: 3"=1'-0"

NOTE:
TOP RAIL - 4" O.D. x ⅜" WALL
BOTTOM RAIL: 3½" O.D. x ⅜ WALL



NOTE:
ALL "5" BARS SHOWN, ARE BILLED WITH SUPERSTRUCTURE

TYPICAL CURB & RAIL SECTION ON BRIDGE

SCALE - 1" = 1'-0"

Thickness of wall bottom rail revised 8/7/57 BMB

— ESTIMATED QUANTITIES —

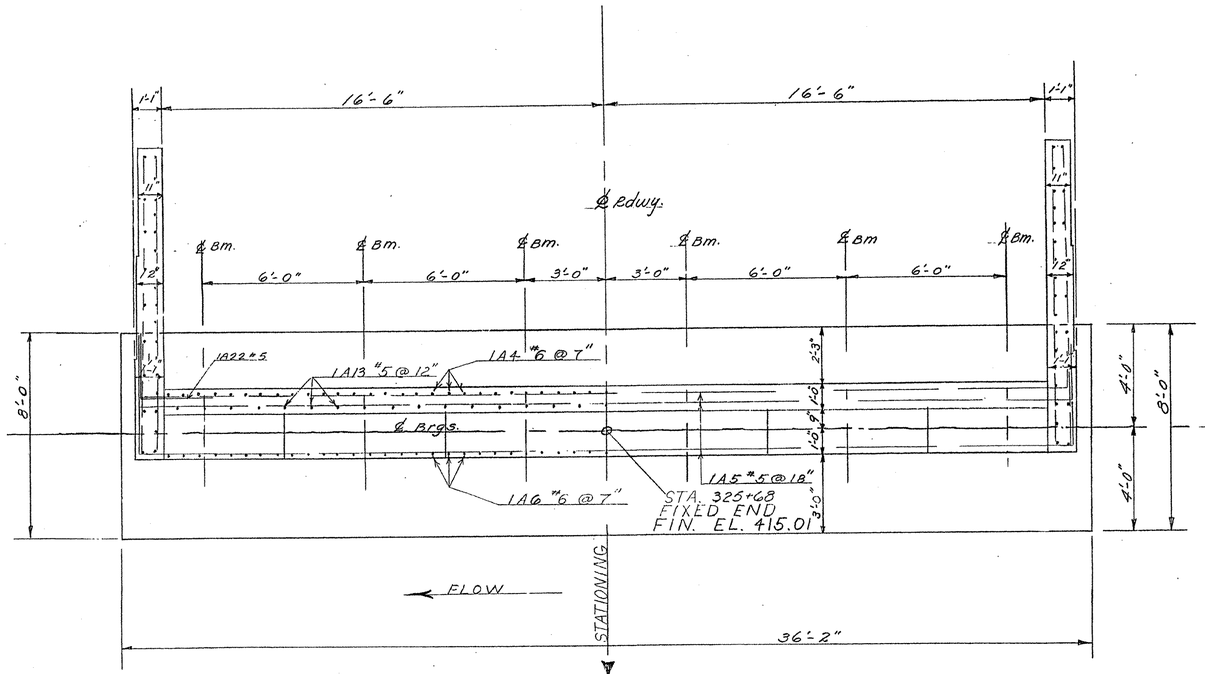
ITEM NO.	DESCRIPTION	NET	OVER.	TOTAL	FINAL
361.B	BIT. CONC. PV'T.	15.5	2.5	18	15.5
201-B	CONCRETE - CLASS B	51	3	54	50.6
402	REINF. STEEL (SEE REINF. STL. DETS.)				

CAUTION: REPRODUCTION IS NOT TO SCALE

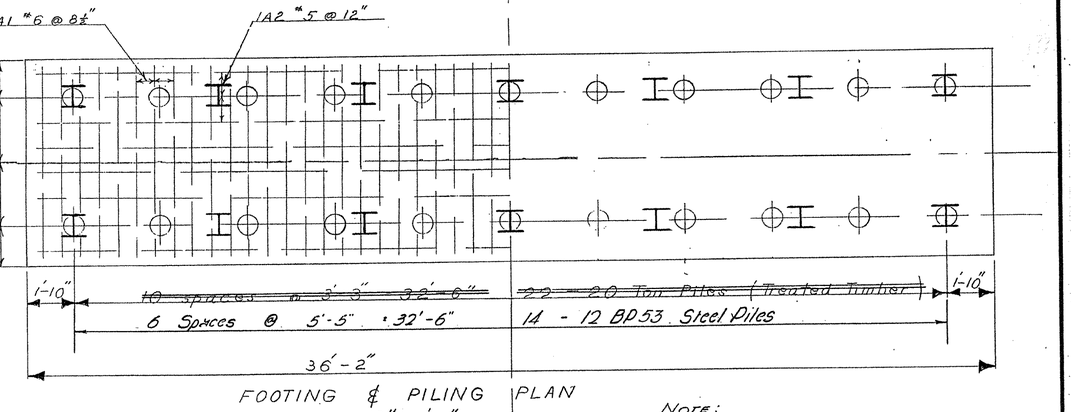
IM 091-1(33)
This sheet for information only.
BR 3 N&S
Sheet 104 of 114

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

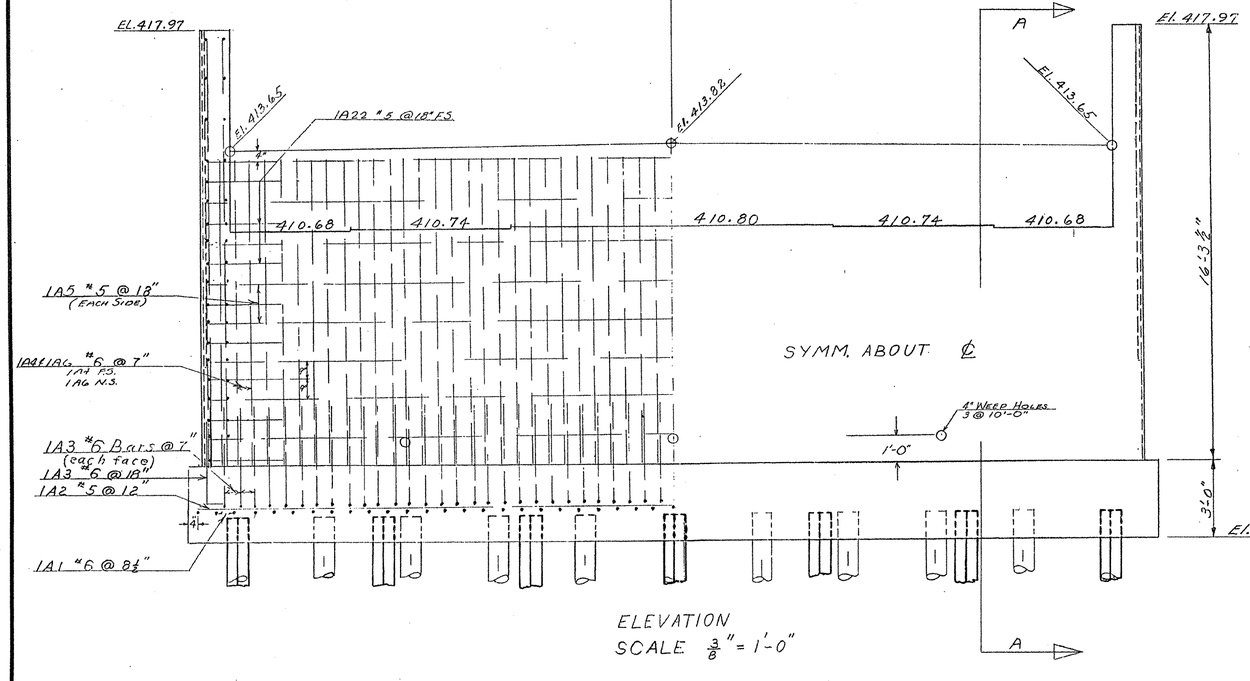
TOWN OF GUILFORD
ROUTE NO. INTERSTATE LOG STA.
APPROACH SLAB, CURB ENDS, & TYPICAL CURB & RAIL SECTION
SCALE AS NOTED
SURVEYED BY POGAR
DRAWN BY R.T.B. 7/56 CHECKED BY H.F.S. 8/56
PROJECT NO. I-001-1(6)
SHEET 104 OF 114



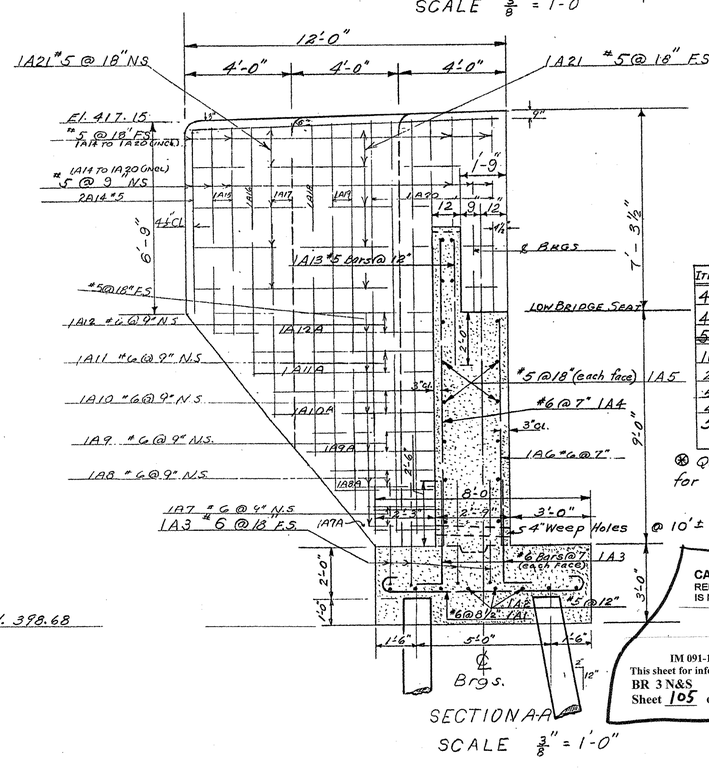
PLAN
SCALE $\frac{3}{8}$" = 1'-0"



FOOTING & PILING PLAN
SCALE $\frac{3}{8}$" = 1'-0"



ELEVATION
SCALE $\frac{3}{8}$" = 1'-0"



SECTION A-A
SCALE $\frac{3}{8}$" = 1'-0"

Note:

For estimating purposes the length of piles is assumed to be 60'. All exposed edges shall be chamfered ¾". Fill under the abutment to be 60' to approximate elev 400.00, piles driven through it then excavation made to bottom of footing elevation. Fill through which piles are to be driven, shall contain no rocks.

All piles shall be driven to the lengths called for on the plans, except as approved by the Engineer, but under all circumstances at least into hardpan. The carrying capacity developed shall not be less than 20 tons.

QUANTITIES (ONE BRIDGE ONLY)

Item No.	Description	Net	Over-run	Total	Final
401-B	Concrete Class B	78 cy	4 cy	82 cy	78.5
402	Reinforcing Steel (See Reinf. Steel Dets)				
~~502-B~~	~~Treated Timber Piling~~	~~132 c.m.~~		~~132 c.m.~~	
107	Structure Excavation	15 c.y.	2 cy	17 cy	19
204	Subbase of Crushed Rock (M100)	136 c.y.	20 cy	156 c.y.	139
526	Riprap for Bank Protection ⊗	751 c.y.	75 cy	826 c.y.	924
407	Asphaltic Asbestos Coating	7 s.y.		7 s.y.	6
504	Steel Piling (Supp. Agree. 5-6-58)		N. Bound S. Bound		193 801.5

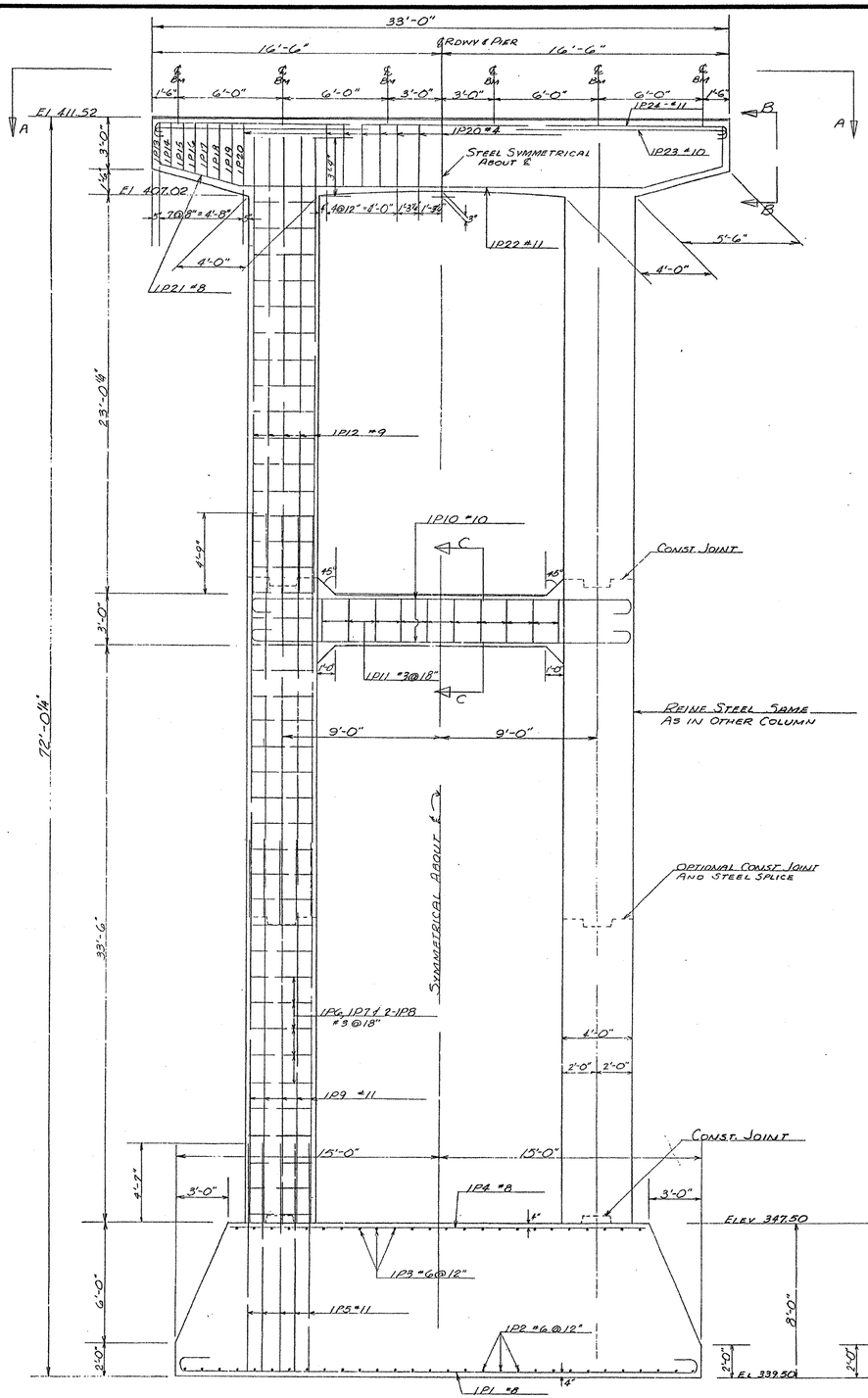
⊗ Quantity is for two bridges.

CAUTION: REPRODUCTION IS NOT TO SCALE

IM 091-1(33)
This sheet for information only.
BR 3 N&S
Sheet 105 of 114

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF GUILFORD
ROUTE NO. INTERSTATE LOG. STA.
ABUTMENT NO. 1
@ STATION 325+68
SCALE $\frac{3}{8}$" = 1'-0"
SURVEYED BY P.O.G.A.R.
DRAWN BY H.R.C. & L.H. CHECKED BY H.E.S.
PROJECT NO. I-091-1(6)
SHEET 105 OF 114



NOTES:
WITH THE EXCEPTION OF COLUMNS, CHAMFER FOR ALL EDGES TO BE ¾".

DESIGN BEARING = 8 KIPS PER SQ. FT. OF AS MODIFIED BY AASHO SPECIFICATIONS (1953).

IM 091-1(33)
This sheet for information only.
BR 3 N&S
Sheet 106 of 114

CAUTION:
REPRODUCTION IS NOT TO SCALE

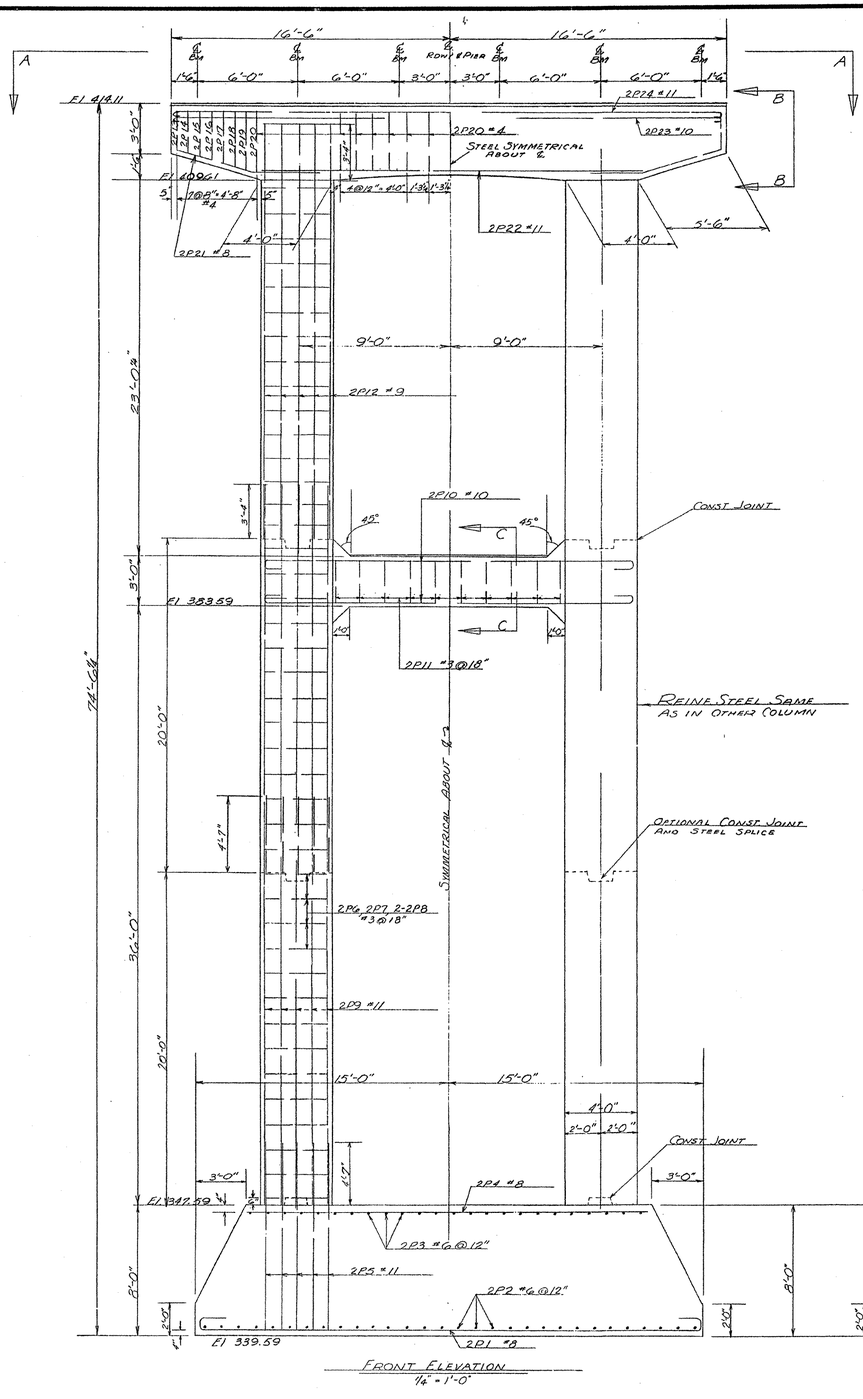
IM 091-1(33)
This sheet for information only
BR 3 N&S

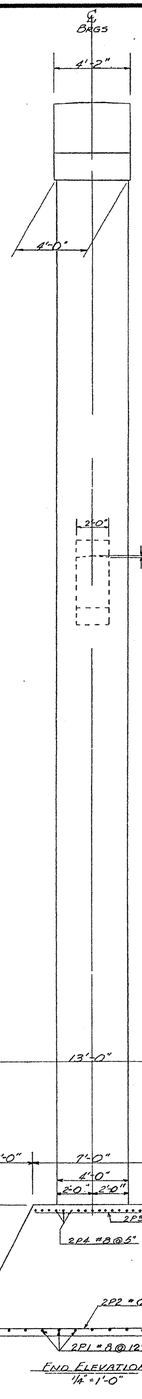
QUANTITIES (ONE BRIDGE ONLY)

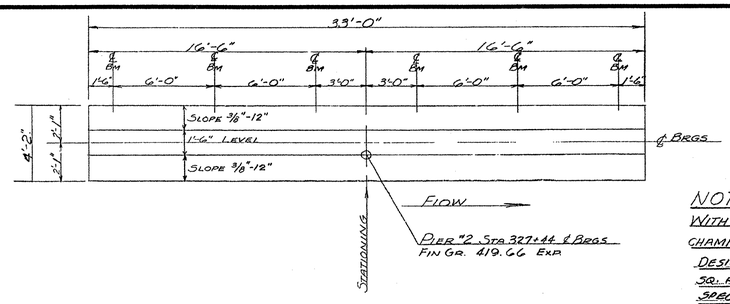
No.	Item	Net	Over-run	Est. Total	Final
107	Structure Exc.	198 cu	20 cu	218 cu	183
401-B	Concrete Class "B"	184 cu	9 cu	193 cu	186
402	Reinforcing Steel (See Reinforc. Steel Sheet)				
407	Asphaltic Asbestos Coating	16.5 sy	—	16.5 sy	14

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF Guilford
ROUTE NO. Interstate LOG STA.
Details of Pier #1
At Sta 326+86
SCALE As Shown
SURVEYED BY Pogar
DRAWN BY RLB CHECKED BY HES
PROJECT NO. I-001-1(6)
SHEET 106 OF 114



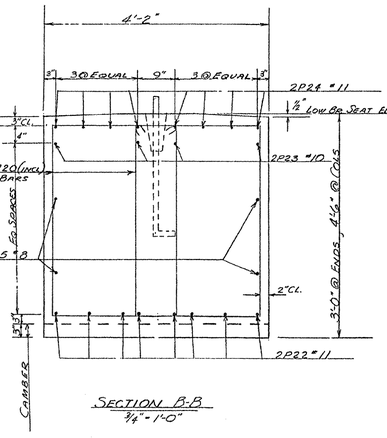


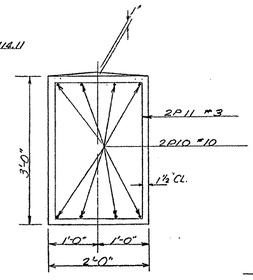


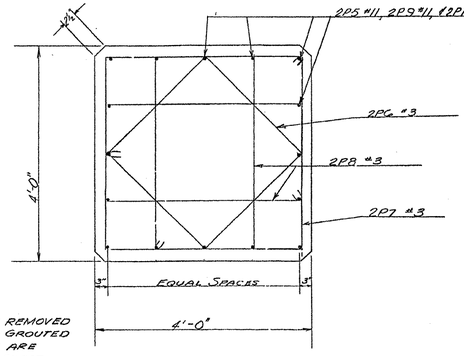
NOTES

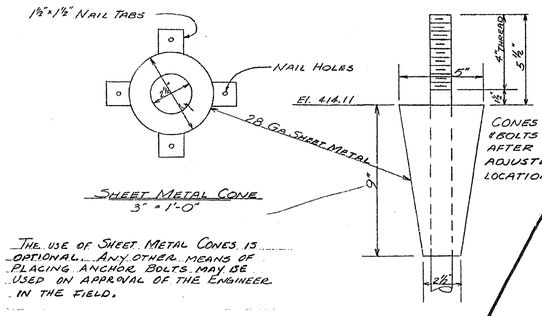
With the exception of columns chamfer for all edges to be 3/4".

Design bearing = 8 kips per sq. ft. or as modified by AASHO specifications (1959).









This use of sheet metal cones is optional. Any other means of placing anchor bolts may be used on approval of the Engineer in the field.

Sheet Metal Cone
3" = 1'-0"

Quantities (One Bridge Only)

No.	Item	Net	Over-run	Est. Total	Final
102	Structure Exc.	170 cy	17 cy	187 cy	176
401-A	Concrete Class "B"	187 cy	9 cy	196 cy	188
402	Reinforcing Steel (See Reinf Steel Sheet)	163 kg	–	163 kg	14
407	Asphaltic Asbestos Coating	163 sy	–	163 sy	14

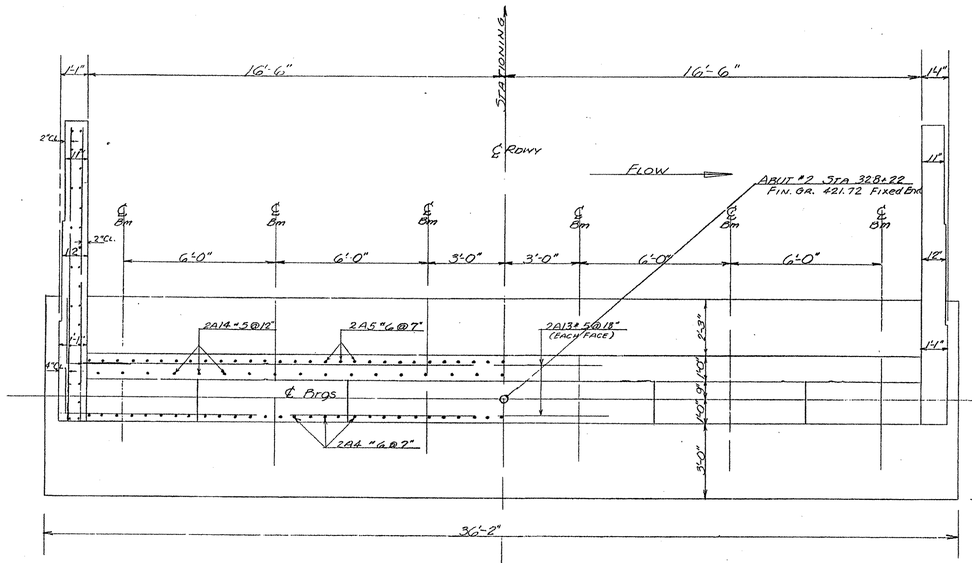
IM 091-1(33)
This sheet for information only
BR 3 N&S

IM 091-1(33)
This sheet for information only.
BR 3 N&S
Sheet 107 of 114

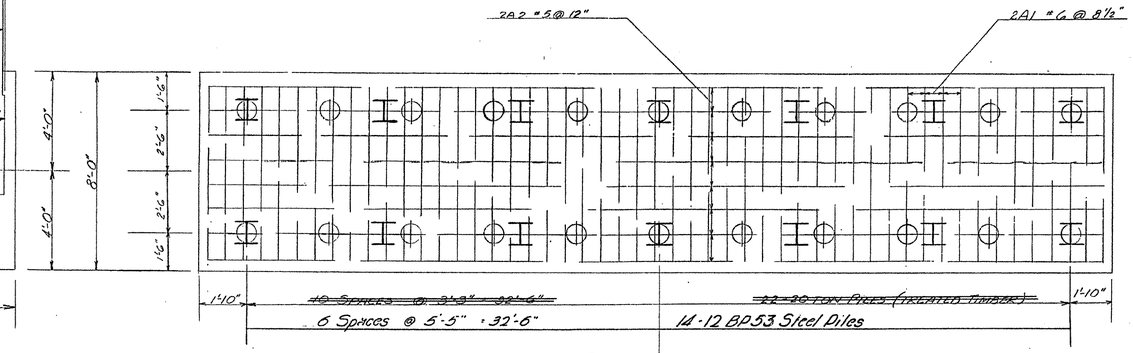
CAUTION:
REPRODUCTION
IS NOT TO SCALE

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF Guilford
ROUTE NO. Interstate LOG STA.
Details of Pier #2
@ Station 327+44
SCALE As Shown
SURVEYED BY Pogar
DRAWN BY RLB CHECKED BY H.F.S.
PROJECT NO. I-091-1(6)
SHEET 107 OF 114



PLAN

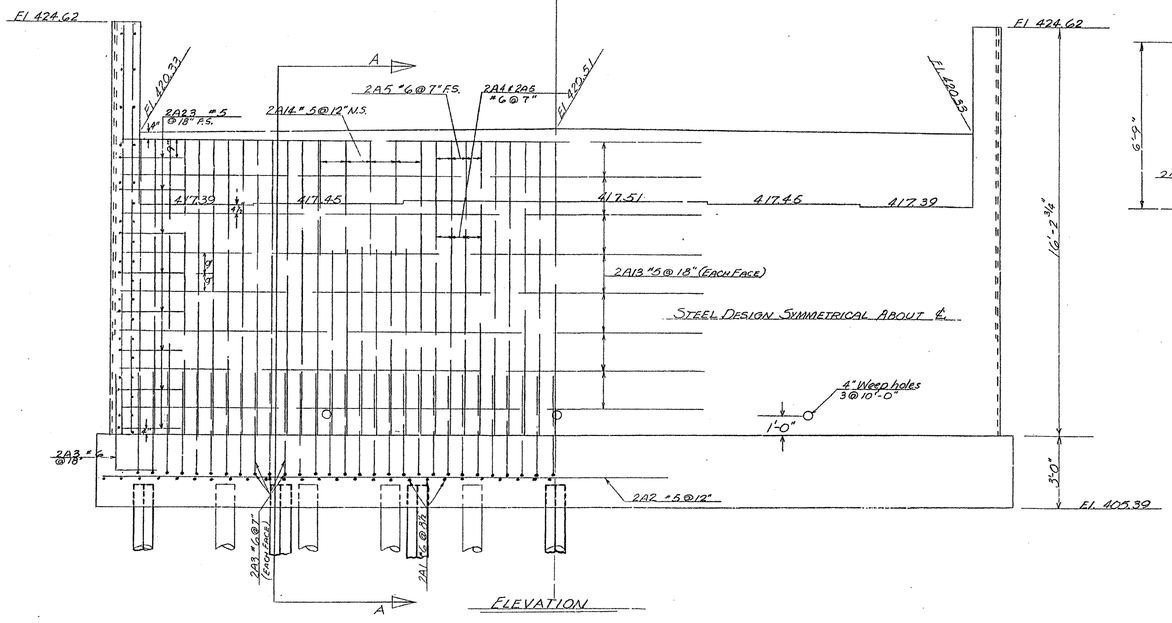


PLAN OF FOOTING

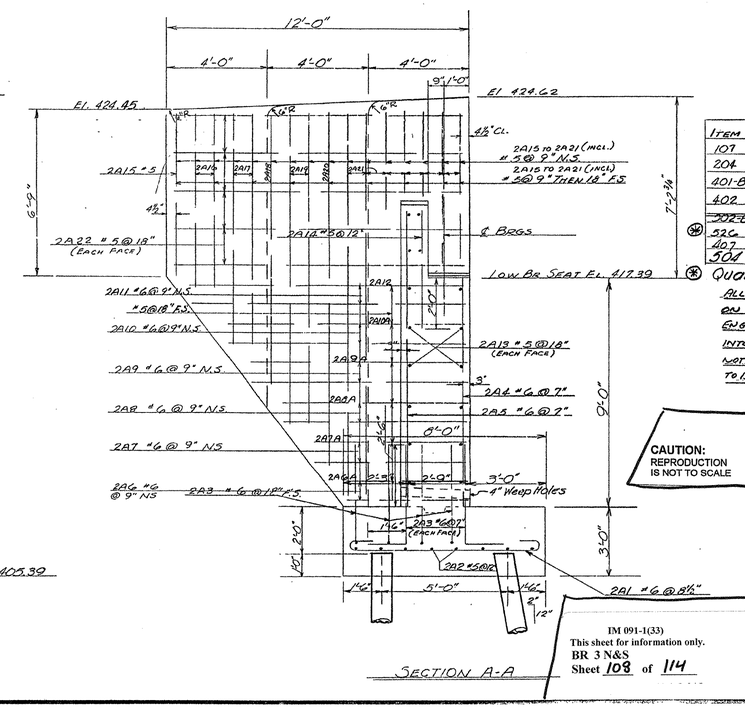
NOTES:

FOR ESTIMATING PURPOSES THE LENGTH OF PILES IS ASSUMED TO BE 60'. FILL UNDER THE ABUTMENT TO BE MADE TO APPROXIMATE ELEV. 406.50, PILES DRIVEN THROUGH IT, THEN EXCAVATION MADE TO BOTTOM OF FOOTING ELEVATION.

ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".



ELEVATION



SECTION A-A

LIST OF QUANTITIES (ONE BRIDGE ONLY)

ITEM	DESCRIPTION	NET	OVER-RUN	PAY TOTAL	FINAL
107	STRUCTURE EXCAVATION	32	3	35	16
204	SUB-BASE OF CRUSHED ROCK (1000)	151	23	174	212
401-B	CONCRETE CLASS "B"	78	4	82	78.5
402	REINF. STEEL (SEE RE-STEEL SHEET)				
~~202-8~~	~~TREATED TIMBER PILING~~	~~1320~~	~~-~~	~~1320~~	
526	RIPRAP FOR BANK PROTECTION	610	67	737	780
407	ASPHALTIC ASSECTOS COATING	7 SY		T.Y.	0
304	STEEL PILING (SUPP. APPR. 5-6-58)			N. Bound: S. Bound:	0/0 8.39

(*) Quantity is for two bridges.

ALL PILES SHALL BE DRIVEN TO THE LENGTHS CALLED FOR ON THE PLANS, EXCEPT AS APPROVED IN WRITING BY THE ENGINEER, BUT, UNDER ALL CIRCUMSTANCES, AT LEAST INTO HARDPAN. THE CARRYING CAPACITY DEVELOPED SHALL NOT BE LESS THAN 20 TONS. FILL, THROUGH WHICH PILES ARE TO BE DRIVEN, SHALL CONTAIN NO ROCKS.

CAUTION: REPRODUCTION IS NOT TO SCALE

IM 091-1(33)
This sheet for information only.
BR 3 N&S
Sheet 108 of 114

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF GUILFORD

ROUTE NO. INTERSTATE LOG. STA.

DETAILS OF ABUT #2

@ STATION 328+22

SCALE ¾" = 1'-0"

SURVEYED BY BOGAR

DRAWN BY RLB CHECKED BY HES. 7/52

PROJECT NO. I-001-1(6)

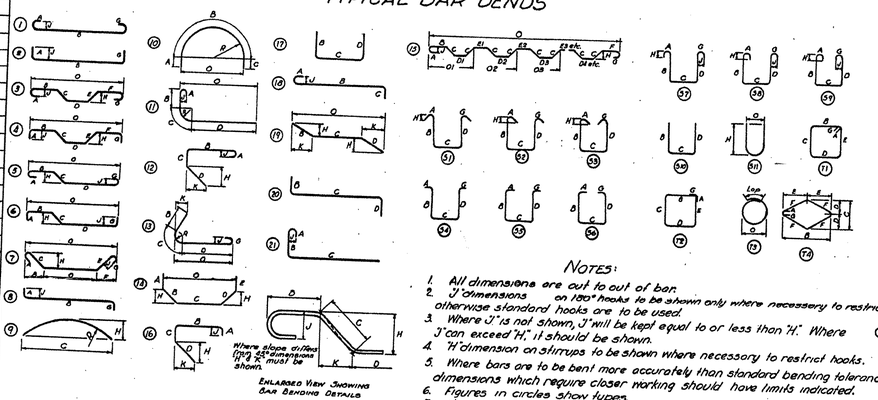
SHEET 108 OF 114

10-2 VERMONT PRINT CO. R. L. W., INC.

Item	No. Pieces	Size	Length	Mark	Type	A	B	C	D	E	F	G	H	J	K	R	O
1																	
2						ABUTMENT #1											
3	51	6	8'-10"	1A1	1	8"	7'-6"										
4	8	5	35'-8"	1A2	STR							8"		6"			
5	124	6	5'-6"	1A3	2	1'-6"	4'-0"										
6	58	6	11'-9"	1A4	STR							0					
7	16	5	38'-10"	1A5	2	2'-0"	34'-10										
8	58	6	8'-10"	1A6	STR							2'-0"					
9	4	6	4'-9"	1A7	STR												
10	2	5	4'-9"	1A7A	STR												
11	4	6	6'-8"	1A8	STR												
12	2	5	6'-8"	1A8A	STR												
13	4	6	7'-2"	1A9	STR												
14	2	5	7'-2"	1A9A	STR												
15	4	6	8'-4"	1A10	STR												
16	2	5	8'-4"	1A10A	STR												
17	4	6	9'-9"	1A11	STR												
18	2	5	9'-9"	1A11A	STR												
19	4	6	10'-8"	1A12	STR												
20	2	5	10'-8"	1A12A	STR												
21	33	5	4'-9"	1A13	STR												
22	4	6	6'-6"	1A14	STR												
23	6	5	7'-6"	1A15	STR												
24	4	5	9'-0"	1A16	STR												
25	6	5	10'-6"	1A17	STR												
26	4	5	12'-8"	1A18	STR												
27	6	5	13'-9"	1A19	STR												
28	22	5	15'-9	1A20	STR												
29	20	5	11'-6"	1A21	STR												
30	16	5	5'-0"	1A22	2	2'-6"	2'-6"										
31																	
32																	
33																	
34						PIER #1											
35	13	8	31'-6"	1P1	1	1'-1"	29'-4"										
36	30	6	12'-6"	1P2	STR							1'-1"		10"			
37	* 25	6	6'-6"	1P3	STR												
38	17	8	23'-4"	1P4	STR												
39	* 33	11	12'-8"	1P5	STR												
40	80	3	11'-0"	1P6	T1	4"	2'-7"	2'-7"	2'-7"	2'-7"		4"					
41	80	3	15'-4"	1P7	T1	4"	3'-8"	3'-8"	3'-8"	3'-8"		4"					
42	* 161	3	11'-10"	1P8	T1	4"	1'-11"	3'-8"	1'-11"	3'-8"		4"					
43	32	11	41'-3"	1P9	STR												
44	8	10	24'-0"	1P10	1	1'-9"	21'-6"										
45	10	3	9'-8"	1P11	T1	4"	1'-9"	2'-9"	1'-9"	2'-9"		1'-3"					
46	* 39	9	25'-4"	1P12	STR							4"					
47	4	4	11'-2"	1P13	T1	4½"	2'-5"	2'-9½"	2'-5"	2'-9½"		4½"					
48	4	4	11'-5	1P14	T1	4½"	2'-5"	2'-11"	2'-5"	2'-11"		4½"					
49	4	4	11'-10"	1P15	T1	4½"	2'-5"	3'-1⅝"	2'-5"	3'-1⅝"		4½"					
50	4	4	12'-3"	1P16	T1	4½"	2'-5"	3'-4"	2'-5"	3'-4"		4½"					
51	4	4	12'-7"	1P17	T1	4½"	2'-5"	3'-6"	2'-5"	3'-6"		4½"					
52	4	4	12'-11"	1P18	T1	4½"	2'-5"	3'-8"	2'-5"	3'-8"		4½"					
53	4	4	13'-4"	1P19	T1	4½"	2'-5"	3'-10⅛"	2'-5"	3'-10⅛"		4½"					
54	* 31	4	13'-5"	1P20	T1	4½"	2'-5"	3'-11"	2'-5"	3'-11"		4½"					
55	* 17	8	8'-0"	1P21	10		0	3'-6"	4'-6"				1'-0"		1'-0"		
56	8	11	22'-0"	1P22	STR							0					
57	* 9	10	13'-9"	1P23	1	1'-9"	12'-0"										
58	8	11	35'-4"	1P24	1	1'-5"	32'-6"					1'-5"					
59	4	8	32'-6"	1P25	STR		BEND IN FIELD IF NECESSARY										32'-6"
60																	
61																	
62																	
63																	
64																	
65																	
66																	
67																	
68																	
69																	
70																	
71																	
72																	
73																	
74																	
75																	
76																	
77																	
78																	
79																	
80																	
81																	

Item	No. Pieces	Size	Length	Mark	Type	A	B	C	D	E	F	G	H	J	K	R	O
82																	
83							PIER #2										
84	13	8	31'-6"	2P1	1	1'-1"	29'-4"										
85	30	6	12'-6"	2P2	STR							1'-1"		0'-10"			
86	24	6	6'-6"	2P3	STR												
87	17	8	23'-4"	2P4	STR												
88	32	11	12'-3"	2P5	STR												
89	84	3	11'-0"	2P6	T1	4"	2'-7"	2'-7"	2'-7"	2'-7"		4"					
90	84	3	15'-4"	2P7	T1	4"	3'-8"	3'-8"	3'-8"	3'-8"		4"					
91	168	3	11'-10"	2P8	T1	4"	1'-11"	3'-8"	1'-11"	3'-8"		4"					
92	32	11	43'-4"	2P9	STR												
93	8	10	24'-0"	2P10	1	1'-3"	21'-6"										
94	10	3	9'-8"	2P11	T1	4"	1'-9"	2'-9"	1'-9"	2'-9"		1'-3"					
95	32	9	25'-4"	2P12	STR							4"					
96	4	4	11'-2"	2P13	T1	4½"	2'-5"	2'-9½"	2'-5"	2'-9½"		4½"					
97	4	4	11'-5"	2P14	T1	4½"	2'-5"	2'-11"	2'-5"	2'-11"		4½"					
98	4	4	11'-10"	2P15	T1	4½"	2'-5"	3'-1⅝"	2'-5"	3'-1⅝"		4½"					
99	4	4	12'-3"	2P16	T1	4½"	2'-5"	3'-4"	2'-5"	3'-4"		4½"					
100	4	4	12'-7"	2P17	T1	4½"	2'-5"	3'-6"	2'-5"	3'-6"		4½"					
101	4	4	12'-11"	2P18	T1	4½"	2'-5"	3'-8"	2'-5"	3'-8"		4½"					
102	4	4	13'-4"	2P19	T1	4½"	2'-5"	3'-10⅛"	2'-5"	3'-10⅛"		4½"					
103	30	4	13'-5"	2P20	T1	4½"	2'-5"	3'-11"	2'-5"	3'-11"		4½"					
104	16	8	8'-0"	2P21	19		0	3'-6"	4'-6"				1'-8"		1'-8"		
105	8	11	22'-0"	2P22	STR							0					
106	8	10	13'-3"	2P23	1	1'-3"	12'-0"										
107	8	11	35'-4"	2P24	1	1'-5"	32'-6"					1'-5"					
108	4	8	32'-6"	2P25	STR		BEND IN FIELD IF NECESSARY										32'-6"
109																	
110																	
111	51	6	8'-10"	2A1	1	ABUT #2	8"	7'-6"									
112	8	5	35'-8"	2A2	STR							8"		6"			
113	124	6	5'-6"	2A3	2	1'-6"	4'-0"										
114	57	6	6'-8"	2A4	STR							0					
115	57	6	11'-8"	2A5	STR												
116	4	6	4'-6"	2A6	STR												
117	2	5	4'-6"	2A6A	STR												
118	4	6	6'-0"	2A7	STR												
119	2	5	6'-0"	2A7A	STR												
120	4	6	7'-2"	2A8	STR												
121	2	5	7'-2"	2A8A	STR												
122	4	6	8'-4"	2A9	STR												
123	2	5	8'-4"	2A9A	STR												
124	4	6	9'-6"	2A10	STR												
125	2	5	9'-6"	2A10A	STR												
126	4	6	10'-8"	2A11	STR												
127	2	5	10'-8"	2A12	STR												
128	16	5	38'-10"	2A13	2	2'-0"	34'-10										
129	* 34	5	4'-9"	2A14	STR							2'-0"					
130	4	5	6'-6"	2A15	STR												
131	6	5	7'-0"	2A16	STR												
132	6	5	9'-9"	2A17	STR												
133	2	5	10'-9"	2A18	STR												
134	6	5	12'-6"	2A19	STR												
135	4	5	14'-0"	2A20	STR												
136	22	5	15'-9"	2A21	STR												
137	20	5	11'-6"	2A22	STR												
138	16	5	5'-0"	2A23	2	2'-6"	2'-6"										
139																	
140																	
141																	
142						SUPERSTRUCTURE											
143	862	5	34'-10"	51	STR												
144	16	5	32'-7"	51A	STR	(AT EACH ABUTMENT)											
145	426	4	33'-7"	52	STR	(END SPANS)											
146	142	4	30'-8"	52A	STR	(SUSPENDED SPAN)											
147	388	5	5'-1"	53	53	0'-5"	1'-4"	1'-7"	1'-4"			0'-5"	0'-2⅞"				
148	96	5	33'-7"	54	STR	(END SPANS)											
149	12	5	30'-8	54A	STR	(SUSPENDED SPAN)											
150																	
151																	
152																	
153																	
154																	
155																	
156																	
157																	
158																	
159																	
160																	
161																	
162																	

TYPICAL BAR BENDS



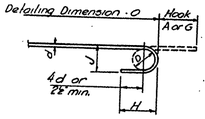
NOTES:

1. All dimensions are out to out of bar.
2. "J" dimensions on 180° hooks to be shown only where necessary to restrict hook size, otherwise standard hooks are to be used.
3. Where "J" is not shown, "J" will be kept equal to or less than "H." Where "J" can exceed "H," it should be shown.
4. "H" dimension on stirrups to be shown where necessary to restrict hooks.
5. Where bars are to be bent more accurately than standard bending tolerances, bending dimensions which require closer working should have limits indicated.
6. Figures in circles show types.
7. No allowance for bend curvature is to be made except for standard hook & radii in excess of same.

Item	No. Pieces	Size	Length	Mark	Type	A	B	C	D	E	F	G	H	J	K	R	O
163																	
164																	
165						APPROACH SLABS											
166	66	10	19'-6"	A51	STR												
167	* 5	10	15'-9"	A52	STR	(BEND IN FIELD)											
168	24	5	32'-5"	A53	STR												
169	* 3	5	29'-6"	A54	STR												
170	2	5	29'-9"	A55	STR												
171	2	5	30'-0"	A56	STR												
172	2	5	30'-3"	A57	STR												
173	2	5	30'-6"	A58	STR												
174	2	5	30'-9"	A59	STR												
175	2	5	31'-0"	A510	STR												
176	2	5	31'-5"	A511	STR												
177	2	5	31'-9"	A512	STR												
178	2	5	32'-0"	A513	STR												
179	32	4	4'-6"	A514	53	0'-4⅞"	1'-7"	0'-7"	1'-7"			0'-4⅞"	0'-2⅞"				
180	* 9	4	7'-2"	A515	STR												
181																	
182																	
183																	
184																	
185																	
186																	
187																	
188																	
189																	
190																	

* SIGNIFIES ONE BAR ADDED FOR TESTING PURPOSES.

Detailing Dimension - O



STANDARD HOOK DETAIL

BAR SIZES

Equivalent Size	Present (Numbers)
⅛" ϕ	#2
⅜" ϕ	#3
½" ϕ	#4
⅝" ϕ	#5
¾" ϕ	#6
⅞" ϕ	#7
1" ϕ	#8
1 ⅛" ϕ	#9
1 ⅜" ϕ	#10
1 ½" ϕ	#11

8. Bar reinforcement metal shall conform to the requirements of the Standard Specifications for new Billet-Steel Concrete Reinforcement Bars (Intermediate Grade) Serial Designation A.A.S.H.O. M31-49 or its latest revision. All bars shall be deformed to conform with A.S.T.M. Specifications A305-49.

ESTIMATED QUANTITIES

Location	Pounds	
ABUTMENT #1	6,000	6,076
PIER #1	21,300 V	
PIER #2	21,700 V	
ABUTMENT #2	5,910	5,984
SUPERSTRUCTURE	42,260 V	
APPROACH SLABS	7,490 V	

CAUTION: REPRODUCTION IS NOT TO SCALE

IM 091-1(33)
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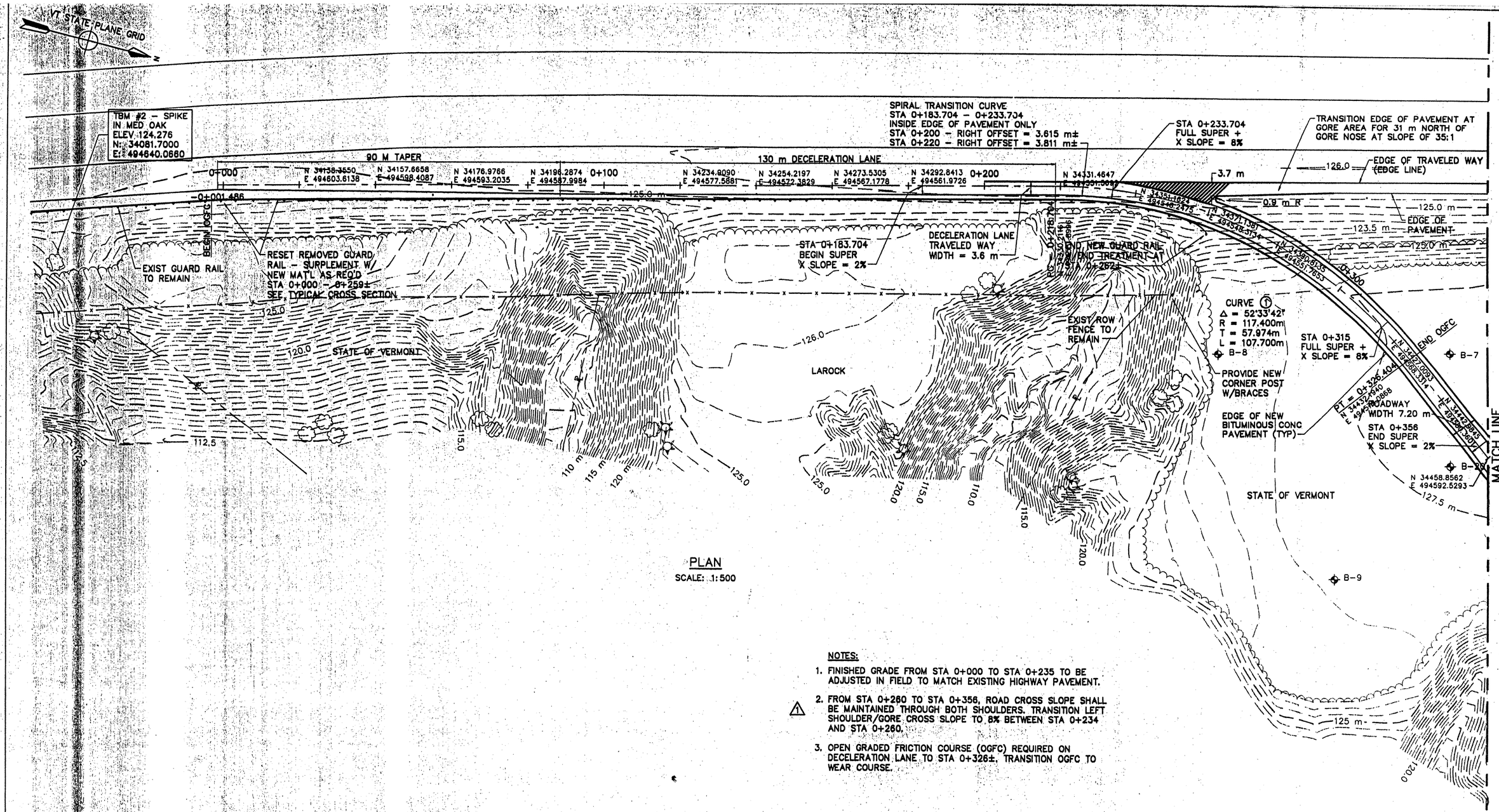
BR 3 N&S
Sheet 109 of 114

GUILFORD

Surveyed by
Designed by RLB & RTB
Drawn by RLB
Traced by RLB
Checked by H.E.C.
Socios (IM) No. 001-1(6) Filed

I-001-1(6)

SHEET 109 OF 114



PLAN

SCALE: 1:500

NOTES:

1. FINISHED GRADE FROM STA 0+000 TO STA 0+235 TO BE ADJUSTED IN FIELD TO MATCH EXISTING HIGHWAY PAVEMENT.
2. ⚠ FROM STA 0+260 TO STA 0+356, ROAD CROSS SLOPE SHALL BE MAINTAINED THROUGH BOTH SHOULDERS. TRANSITION LEFT SHOULDER/GORE CROSS SLOPE TO 8% BETWEEN STA 0+234 AND STA 0+260.
3. OPEN GRADED FRICTION COURSE (OGFC) REQUIRED ON DECELERATION LANE TO STA 0+326±. TRANSITION OGFC TO WEAR COURSE.

GUILFORD
IM 091-1(33)
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BR 3 N&S
Sheet 110 of 114

Metric

NO.	DATE	REVISIONS	DRWN	CHKD
2	5/6/98	ADDED COORDINATES		
1	2/18/98	REVISIONS PER BGS/FHwA REVIEW	DSM	KAS

TIMOTHY D. SMITH & ASSOCIATES, PC ARCHITECTS
OLD RAILROAD STATION, NORTH BENNINGTON, VERMONT 05257
802-442-8184 FAX 802-442-5241

WRIGHT ENGINEERING, LTD. — CIVIL ENGINEERS — 188 MERCHANTS ROW – P.O. BOX 178, RUTLAND, VERMONT 05702-0178, 802-775-8611, FAX 775-8916
ROBT. W. HALL, CONSULTING ENGINEERS, INC. — 640 MEADOW STREET EXTENSION, STE. 2, AGAWAM, MASSACHUSETTS 01001-0002, 413-789-0980, FAX 789-3295
T.J. BOYLE AND ASSOCIATES — LANDSCAPE ARCHITECTS — 301 COLLEGE STREET, BURLINGTON, VERMONT 05401, 802-658-3555, FAX 863-1582

PROJECT NO.IM 091-1 (30)
SOUTHEAST VERMONT WELCOME CENTER
GUILFORD, VERMONT
PRELIMINARY DRAWINGS

DSGN BY: JAC
DRWN BY: DSM
CHKD BY: JAC

SHEET TITLE: ROAD PLAN
CHKD BY: JCO
DATE: 1-16-98
SHEET NO. 110 OF 114 SHEETS

STATE OF VERMONT
AGENCY OF ADMINISTRATION
DEPARTMENT OF
BUILDINGS & GENERAL SERVICES

C4

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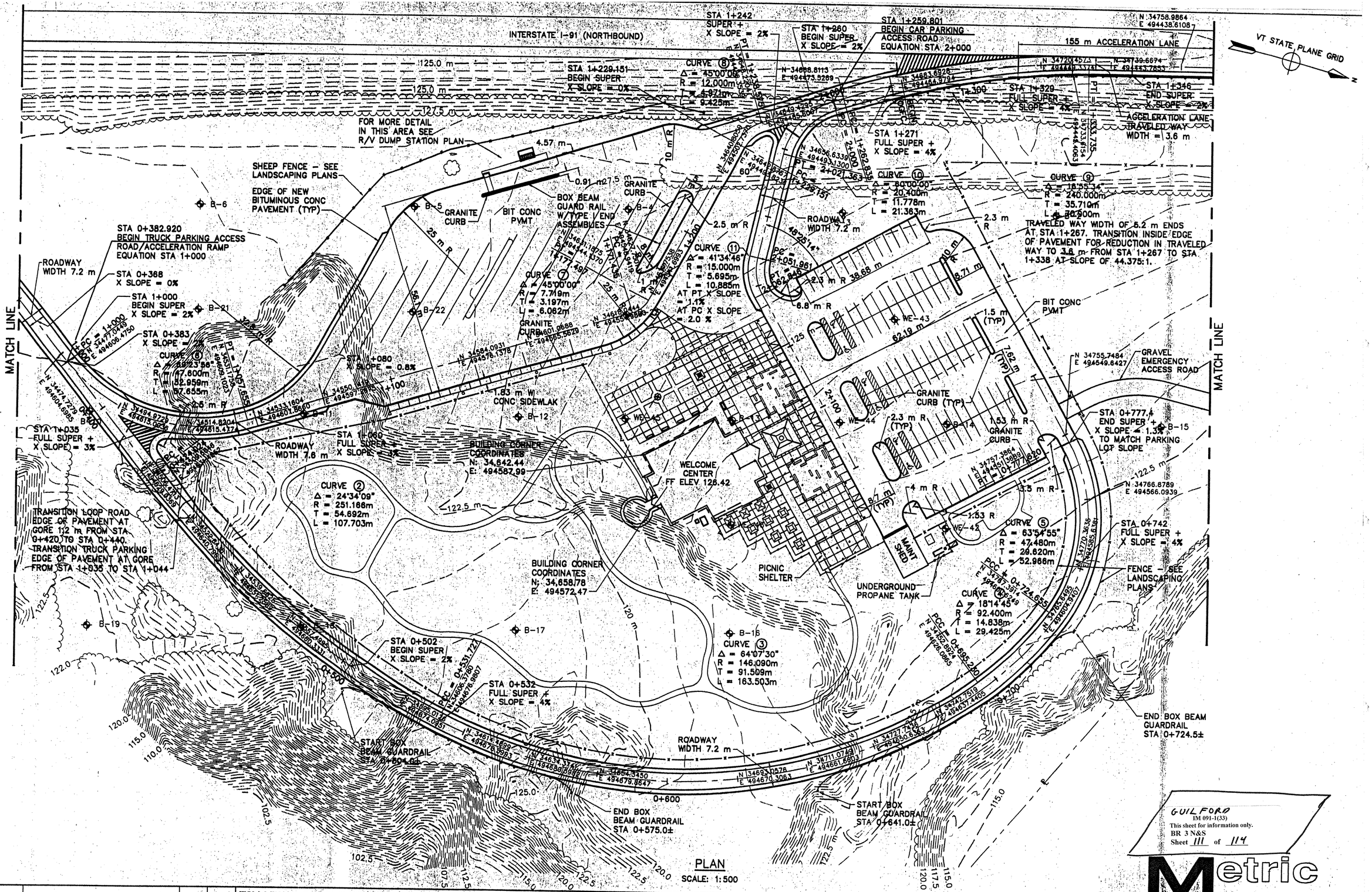

GUILFORD
IM 091-1(33)
This sheet for information only.
BR 3 N&S
Sheet 111 of 114

Metric

NO.	DATE	REVISIONS	DRWN	CHKD
2	5/6/98	ADDED COORDINATES		
1	2/18/98	REVISIONS PER BGS/FHwA REVIEW	DSM	KAS

TIMOTHY D. SMITH & ASSOCIATES, PC ARCHITECTS
OLD RAILROAD STATION, NORTH BENNINGTON, VERMONT 05257
802-442-8184 FAX 802-442-5241

WRIGHT ENGINEERING, LTD. CIVIL ENGINEERS
188 MERCHANTS ROW - P.O. BOX 178, RUTLAND, VERMONT 05702-0178
802-775-5911 FAX 775-8915

ROBT. W. HALL CONSULTING ENGINEERS, INC.
640 MEADOW STREET EXTENSION, STE. 8, AGAWAM, MASSACHUSETTS 01001-0068
413-789-0900 FAX 789-8258

T.J. BOYLE AND ASSOCIATES LANDSCAPE ARCHITECTS
301 COLLEGE STREET, BURLINGTON, VERMONT 05401
802-658-3855 FAX 865-1868

PROJECT NO. IM 091-1 (30)
SOUTHEAST VERMONT WELCOME CENTER
GUILFORD, VERMONT
PRELIMINARY DRAWINGS

SHEET TITLE: ROAD PLAN

DSGN BY: JAC
DRWN BY: DSM
CHKD BY: JAC
CHKD BY: JCO
DATE: -13-98

STATE OF VERMONT
AGENCY OF ADMINISTRATION
DEPARTMENT OF BUILDINGS & GENERAL SERVICES

SHEET NO. 111 OF 114 SHEETS

C5

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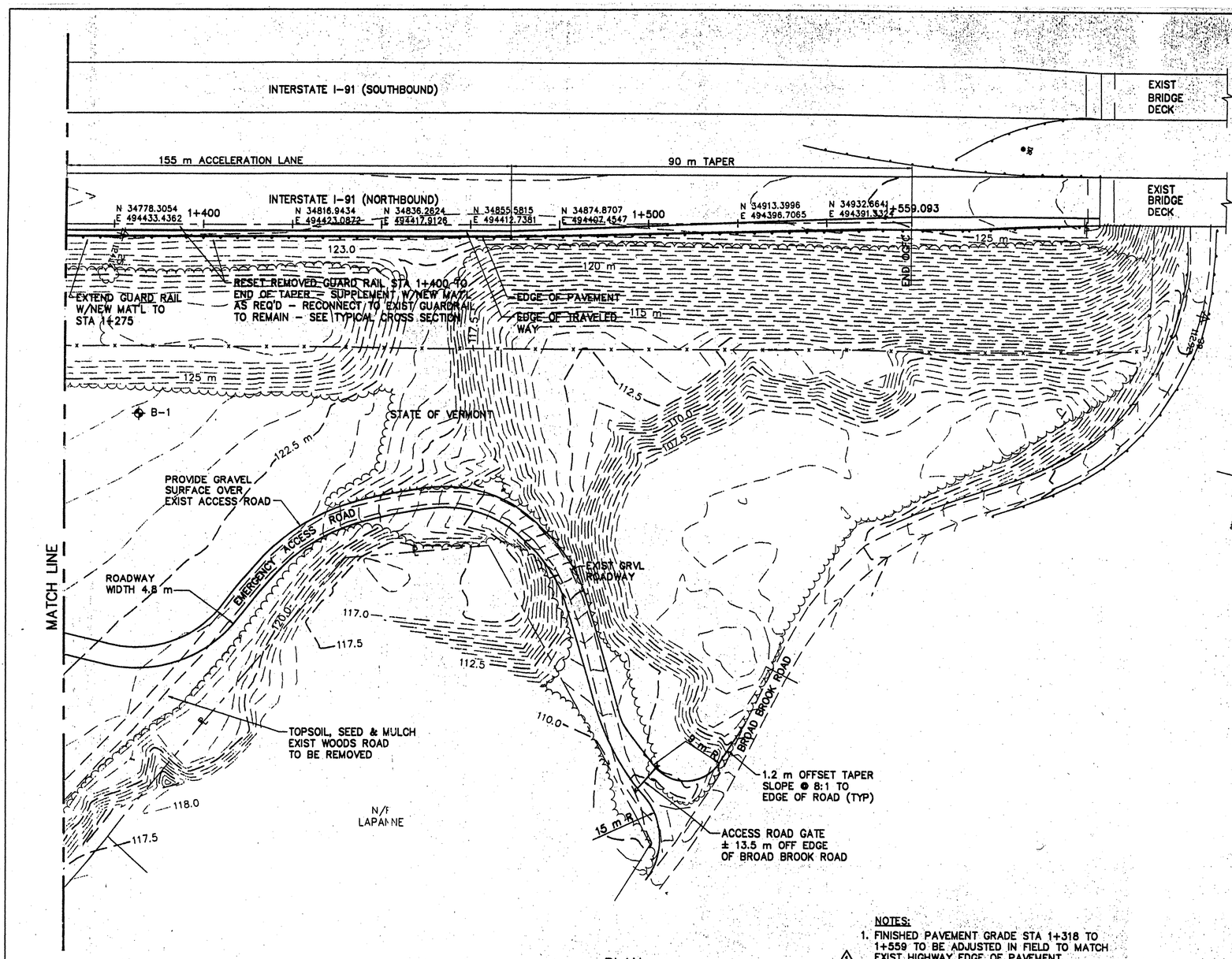
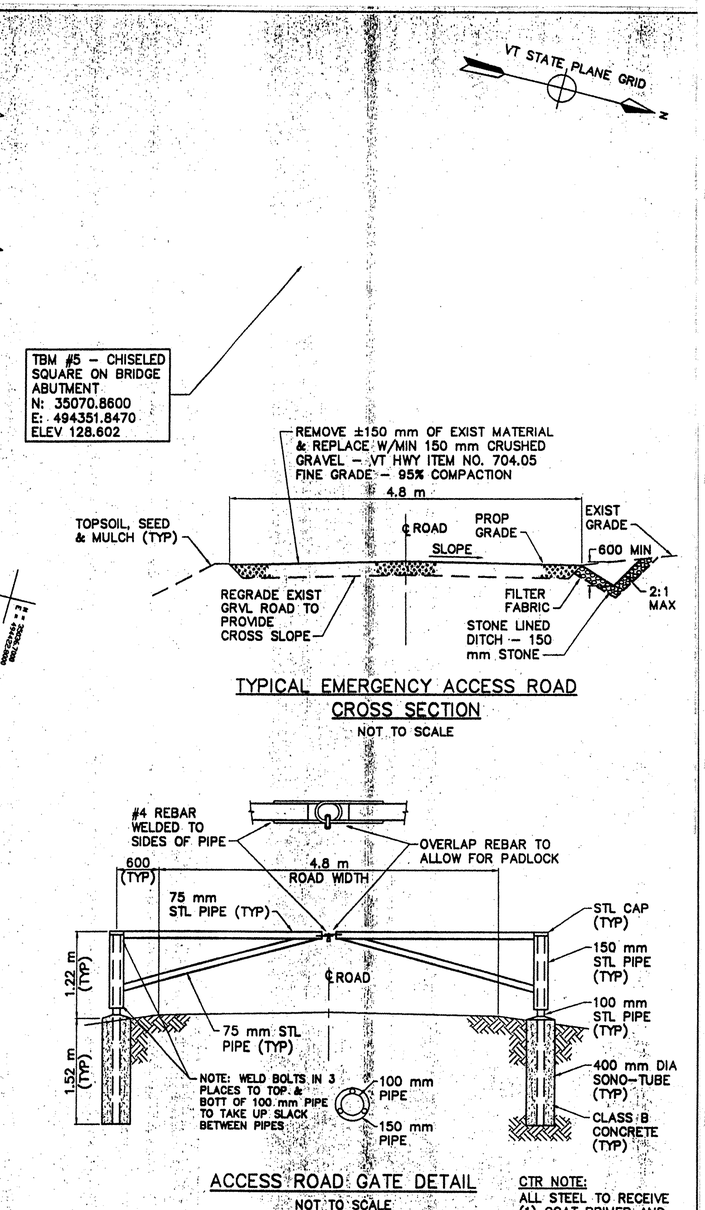


PLAN

SCALE: 1:500

NOTES:

1. FINISHED PAVEMENT GRADE STA 1+318 TO 1+559 TO BE ADJUSTED IN FIELD TO MATCH EXIST HIGHWAY EDGE OF PAVEMENT.
2. OPEN GRADE FRICTION COURSE (OGFC) REQUIRED ON ACCELERATION LANE FROM STA 1+280 TO STA 1+559±. TRANSITION WEAR COURSE TO OGFC.



TYPICAL EMERGENCY ACCESS ROAD CROSS SECTION

NOT TO SCALE

ACCESS ROAD GATE DETAIL

NOT TO SCALE

CTR NOTE:
ALL STEEL TO RECEIVE (1) COAT PRIMER AND (2) COATS EPOXY PAINT - ORANGE

GUILFORD
IM 091-1(33)
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BR 3 N&S
Sheet 112 of 114

Metric

NO.	DATE	REVISIONS	DRWN	CHKD
2	5/6/98	ADDED COORDINATES		
1	2/18/98	REVISIONS PER BGS/FHwA REVIEW	DSM	KAS

TIMOTHY D. SMITH & ASSOCIATES, PC ARCHITECTS
OLD RAILROAD STATION — NORTH BENNINGTON, VERMONT 05257
802-442-8184 — FAX 802-442-5241
WRIGHT ENGINEERING, LTD. — CIVIL ENGINEERS — 188 MERCHANTS ROW - P.O. BOX 176 RUTLAND, VERMONT 05702-0176 802-775-2 FAX 775-6915
ROBT. W. HALL CONSULTING ENGINEERS, INC. — 840 MEADOW STREET EXTENSION, STE. 2 AGAWAM, MASSACHUSETTS 01001-9008 413-789-0960 FAX 789-3395
T.J. BOYLE AND ASSOCIATES LANDSCAPE ARCHITECTS — 201 COLLEGE STREET BURLINGTON, VERMONT 05401 802-658-3555 FAX 863-1868

PROJECT NO.IM 091-1 (30)
SOUTHEAST VERMONT WELCOME CENTER
GUILFORD, VERMONT
PRELIMINARY DRAWINGS

DSGN BY: JAC
DRWN BY: DSM
CHKD BY: JAC
CHKD BY: JCO

SHEET TITLE: ROAD PLAN

STATE OF VERMONT
AGENCY OF ADMINISTRATION
DEPARTMENT OF
BUILDINGS & GENERAL SERVICES

DATE: 1-16-98 SHEET NO. 112 OF 114 SHEETS

C6

V:\CAD\2GS01W\02A03 Fri May 1 10:44:15 1998

VT STATE PLANE GRID

--DENSE TREES--
GROUND OBSCURED

PERMANENT EASEMENT

APPROX EXIST PROPERTY LINE PER VAOT

20 m OF 150 mm CL 55 DI BALL & SOCKET PIPE - SEE DET, SHT 20

16 m CLASS III WETLANDS CROSSING

150 mm GATE VALVE W/BOX TO GRADE

200 mm GATE VALVE W/BOX TO GRADE

BEND
STA ~~3+029.183~~

20 m CLASS III WETLANDS CROSSING

SB-51

SB-52

SB-53

SB-54

TYPE IV STONE FILL

BROAD BROOK

BEGIN WATER SOUTHEAST BRANCH WATER STA ~~2+729.328~~ EQUATION STA ~~10+000~~

BROAD BROOK ROAD

20 m OF 200 mm CL 55 DI BALL & SOCKET PIPE - SEE DET, SHT 20

SEWER STA ~~3+183.739~~
END WATER MAIN PROFILE REFERENCE
WATER STA ~~2+124.68~~
BEGIN WATER MAIN PROFILE TO PUMP STATION

FIRE HYDRANT ASSEMBLY (TYP)

200 mm GATE VALVE W/BOX TO GRADE

200 mm CL 52 DI WATER MAIN TO PUMP STATION

END WATER MAIN (SOUTHEAST BRANCH)
STA ~~10+819.000~~

10 m OF 200 mm CL 52 DI W/200 mm GATE VALVE W/BOX TO GRADE AND END CAP (FOR FUTURE CONNECTION TO WELCOME CENTER)

BEND
STA ~~3+173.809~~

BEND
STA ~~3+197.778~~

BEND
STA ~~3+209.114~~

BEND
STA ~~3+221.787~~

200 mm SDR 35 PVC SEWER STUB W/CAP (FROM MH #26)

MATCH LINE
SEWER STA ~~3+248~~
WATER STA ~~2+205.846~~

MATCH LINE
SEWER STA ~~2+980~~
WATER STA ~~1+945.161~~

200 mm OF 52 DI WATER MAIN

FOR WATER MAIN GROUND PROFILE
STA ~~0+536.0~~ TO STA ~~2+124.680~~
REFER TO SEWER PROFILE
STA ~~1+577.0~~ TO ~~3+163.739~~

WE-29

GRVL

CONTRACTOR NOTE:
JUTE EROSION CONTROL MATTING REQUIRED ON ALL DISTURBED AREAS
STA ~~2+985~~ TO STA ~~3+040~~

PLAN
SCALE: 1:500

PROFILE
SCALE: 1:500 H
1:100 V

TRENCH DAMS ON WATER LINE

EXIST GRADE

FOR DETAIL AT BROOK CROSSING SEE SHT 20

20 m CLASS III WETLANDS CROSSING

BROAD BRK

16 m CLASS III WETLANDS CROSSING

1.5 m MIN COVER (TYP)

REFUSAL OR LIMIT OF EXPLORATION

1.7 m MIN

460 mm MIN

APPROX LEDGE OR LIMIT OF EXPLORATION

PROPOSED 200 mm CL 52 DI WATER MAIN @ STA ~~3+169.6~~

150 mm GATE VALVE W/BOX TO GRADE @ STA ~~3+035~~

150 mm GATE VALVE W/BOX TO GRADE @ STA ~~3+060~~

20 m OF 150 mm CL 55 DI BALL & SOCKET

150 mm CL 200 HDPE FORCE MAIN

150 mm CL 200 HDPE FORCE MAIN

DATUM ELEV 97.00

118.6	110.8	105.4	103.8	104.4	104.7	106.1	106.7	107.3	107.3	108.9	110.0	111.3	112.2	112.7

+980 3+000 3+040 3+080 3+120 3+160 3+200 3+240 +248

BROAD BROOK ROAD (GRVL)

115 110 105 100

RECORD DRAWING

SHOWN PICTORALLY
MAY NOT BE TO SCALE

THESE AS-BUILT OR RECORD DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION COMPILED AND FURNISHED BY OTHERS. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH HAVE BEEN INCORPORATED INTO THIS DOCUMENT AS A RESULT OF INFORMATION BY OTHERS.

GUILFORD
IM 091-1(33)
This sheet for information only.
BR 3 N&S
Sheet 113 of 114

VAOT Metric

NO.	DATE	REVISIONS	DRWN	CHKD
5	9/30/96	AS-BUILT INFORMATION ADDED	DSM	KAS
4	12/26/96	CONTRACT PLANS	DSM	MPY
3	11/11/96	FINAL REVIEW REVISIONS	DSM	MPY
2	6/4/96	REVISIONS PER REVIEW COMMENTS	DSM	MPY
1	4/8/96	REVISIONS PER REVIEW COMMENTS	DSM	MPY

TIMOTHY D. SMITH & ASSOCIATES, PC ARCHITECTS
OLD RAILROAD STATION, NORTH BENNINGTON, VERMONT 05257
802-442-8184 FAX 802-442-5241

WRIGHT ENGINEERING, LTD. CIVIL ENGINEERS
128 MERCHANTS ROW - P.O. BOX 176, RUTLAND, VERMONT 05702-0176
802-775-2511 FAX 802-775-8915

STATE OF VERMONT
TIMOTHY D. SMITH
No 5854
REGISTERED PROFESSIONAL ENGINEER

PROJECT NO.IM 091-1 (29)
WATER & SEWER EXTENSION PROJECT
TOWN OF GUILFORD
TOWN OF BRATTLEBORO

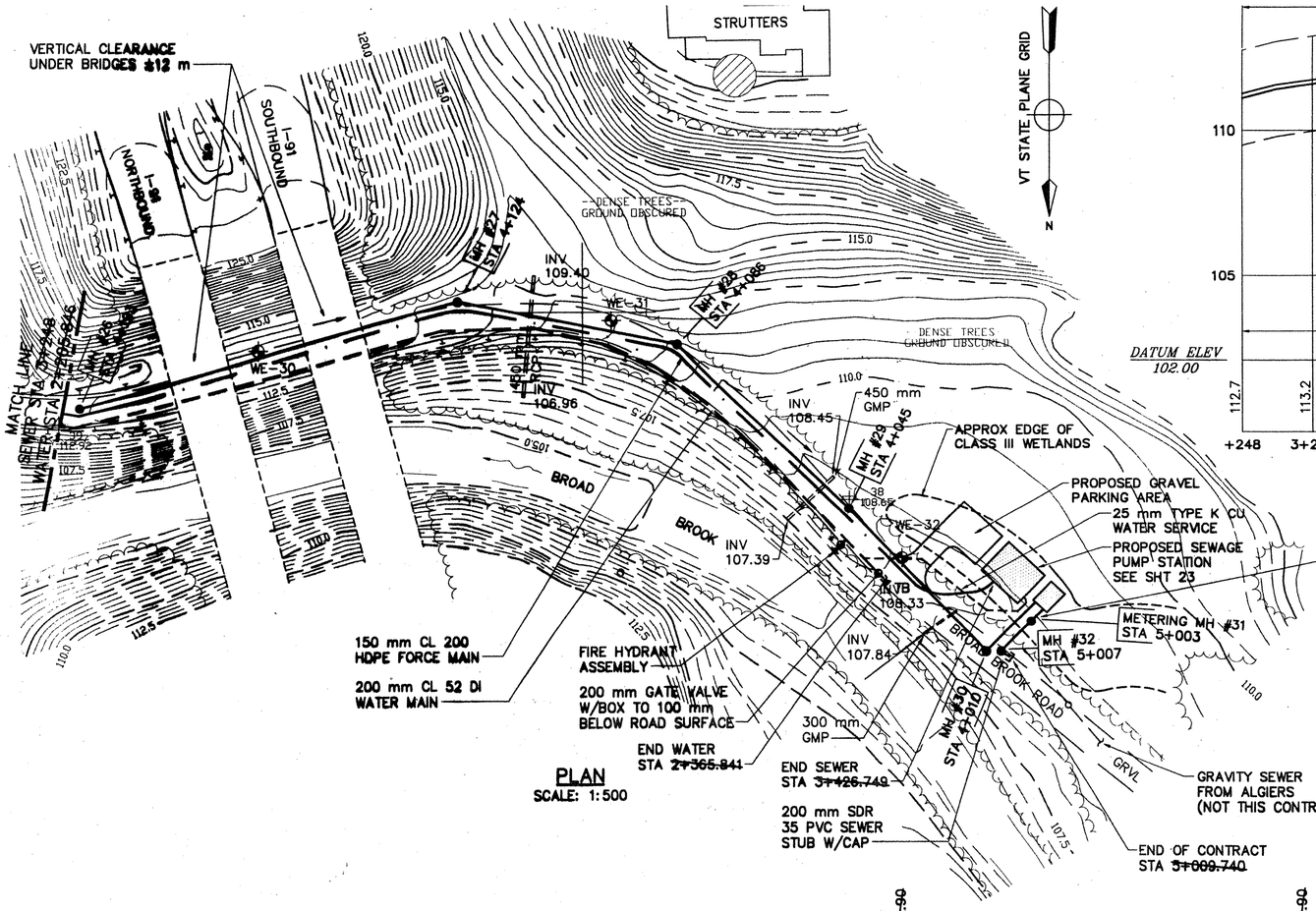
SHEET TITLE: SANITARY SEWER/WATER PLAN AND SANITARY SEWER PROFILE

DSGN BY: JAC
DRWN BY: DSM
CHKD BY: JAC
CHKD BY: MPY

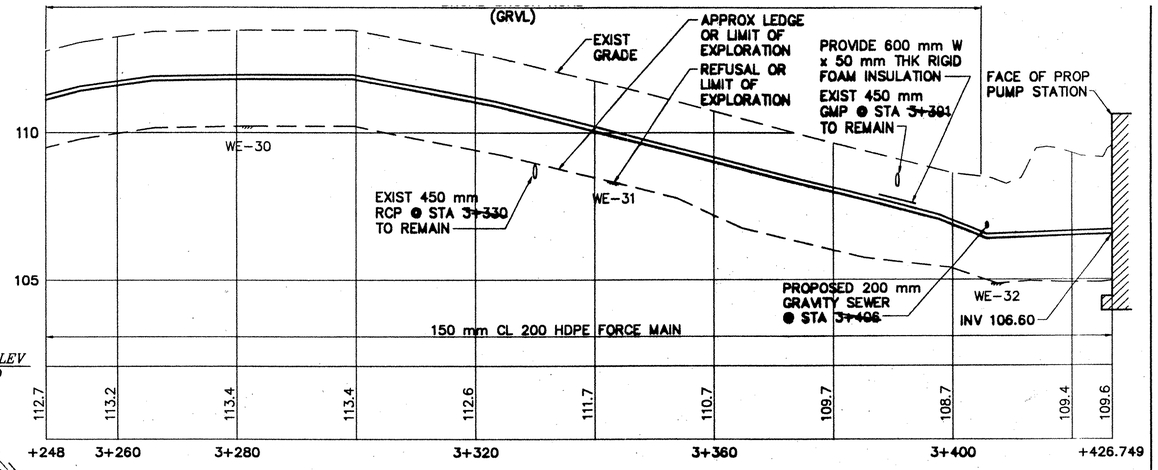
STATE OF VERMONT
AGENCY OF TRANSPORTATION
SOUTHEAST VERMONT WELCOME CENTER
GUILFORD, VERMONT

DATE: 1-2-96 SHEET NO. 113 OF 114 SHEETS

ACAD12\5011\5011SAB Thu Oct 8 15:02:25 1998

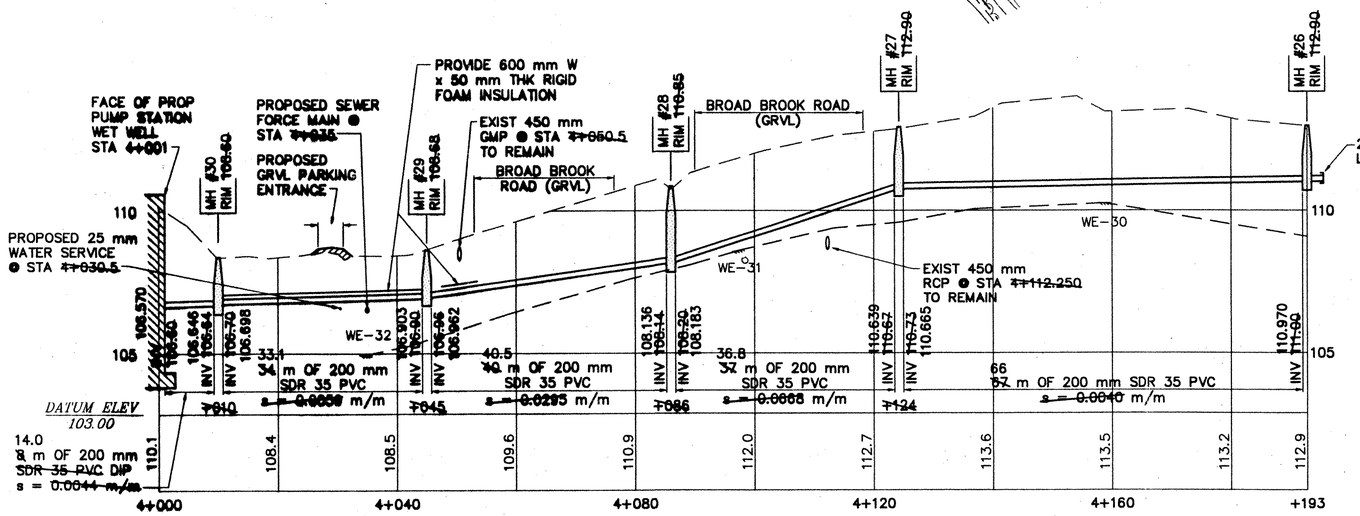


PLAN
SCALE: 1:500

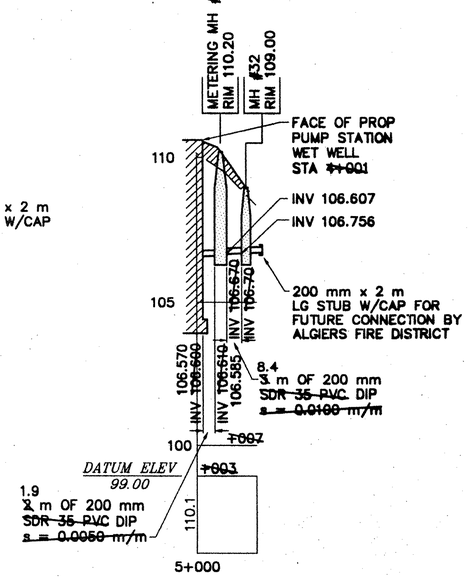


FORCE MAIN PROFILE
SCALE: 1:500 H
1:100 V

NOTE:
FOR WATER MAIN PROFILE SEE SHT 19



GRAVITY SEWER PROFILE
SCALE: 1:500 H
1:100 V



GRAVITY SEWER PROFILE
SCALE: 1:500 H
1:100 V

RECORD DRAWING

SHOWN PICTORALLY
MAY NOT BE TO SCALE

THESE AS-BUILT OR RECORD DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION COMPILED AND FURNISHED BY OTHERS. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH HAVE BEEN INCORPORATED INTO THIS DOCUMENT AS A RESULT OF INFORMATION BY OTHERS.

GUILFORD
IM 091-1(33)
This sheet for information only.
BR 3 N&S
Sheet 114 of 114

VAOT Metric

NO.	DATE	REVISIONS	DRWN	CHKD
5	9/30/98	AS-BUILT INFORMATION ADDED	DSM	KAS
4	12/26/96	CONTRACT PLANS	DSM	MPY
3	11/11/96	FINAL REVIEW REVISIONS	DSM	MPY
2	6/4/96	REVISIONS PER REVIEW COMMENTS	DSM	MPY
1	4/8/96	REVISIONS PER REVIEW COMMENTS	DSM	MPY

TIMOTHY D. SMITH & ASSOCIATES, PC ARCHITECTS
OLD RAILROAD STATION — NORTH BENNINGTON, VERMONT 05257
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WRIGHT ENGINEERING, LTD. CIVIL ENGINEERS
128 MERCHANTS ROW - P.O. BOX 176 — RUTLAND, VERMONT 05702-0176
802-775-2511 — FAX 802-775-8915

STATE OF VERMONT — KEVIN A. SMITH NO. 5864 — 10/98 — REGISTERED PROFESSIONAL ENGINEER

PROJECT NO.IM 091-1 (29)
WATER & SEWER EXTENSION PROJECT
TOWN OF GUILFORD
TOWN OF BRATTLEBORO

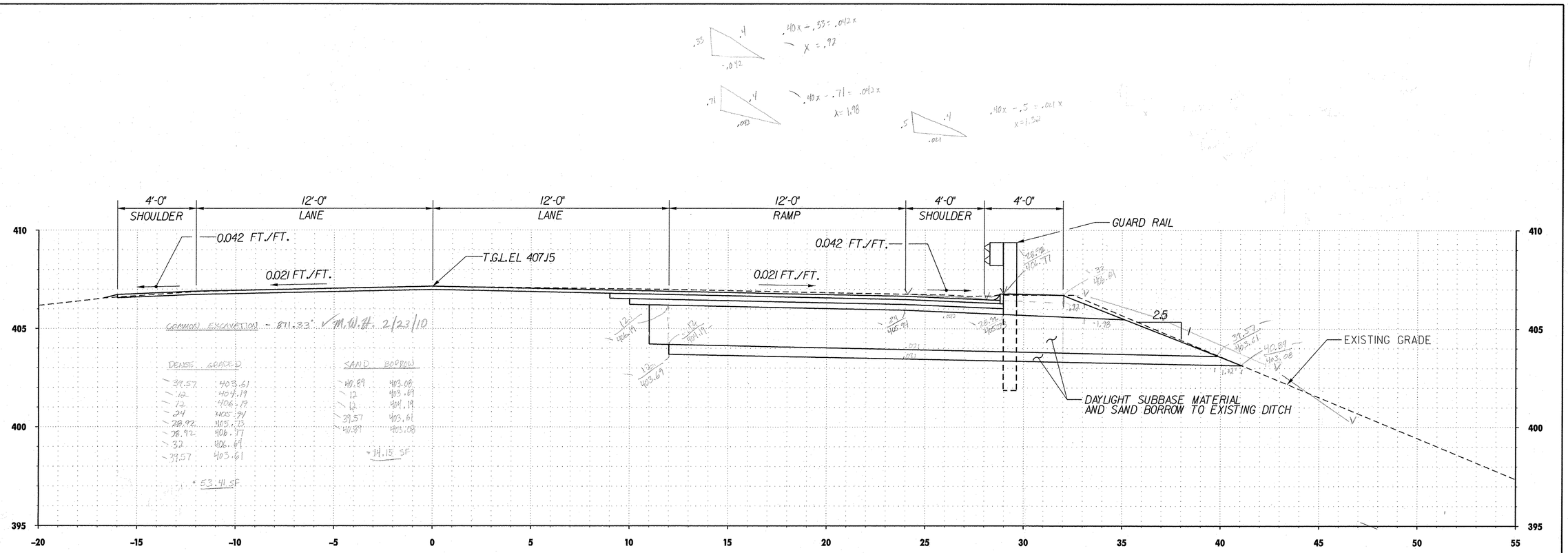
DSGN BY: JAC
DRWN BY: DSM
CHKD BY: JAC
CHKD BY: MPY

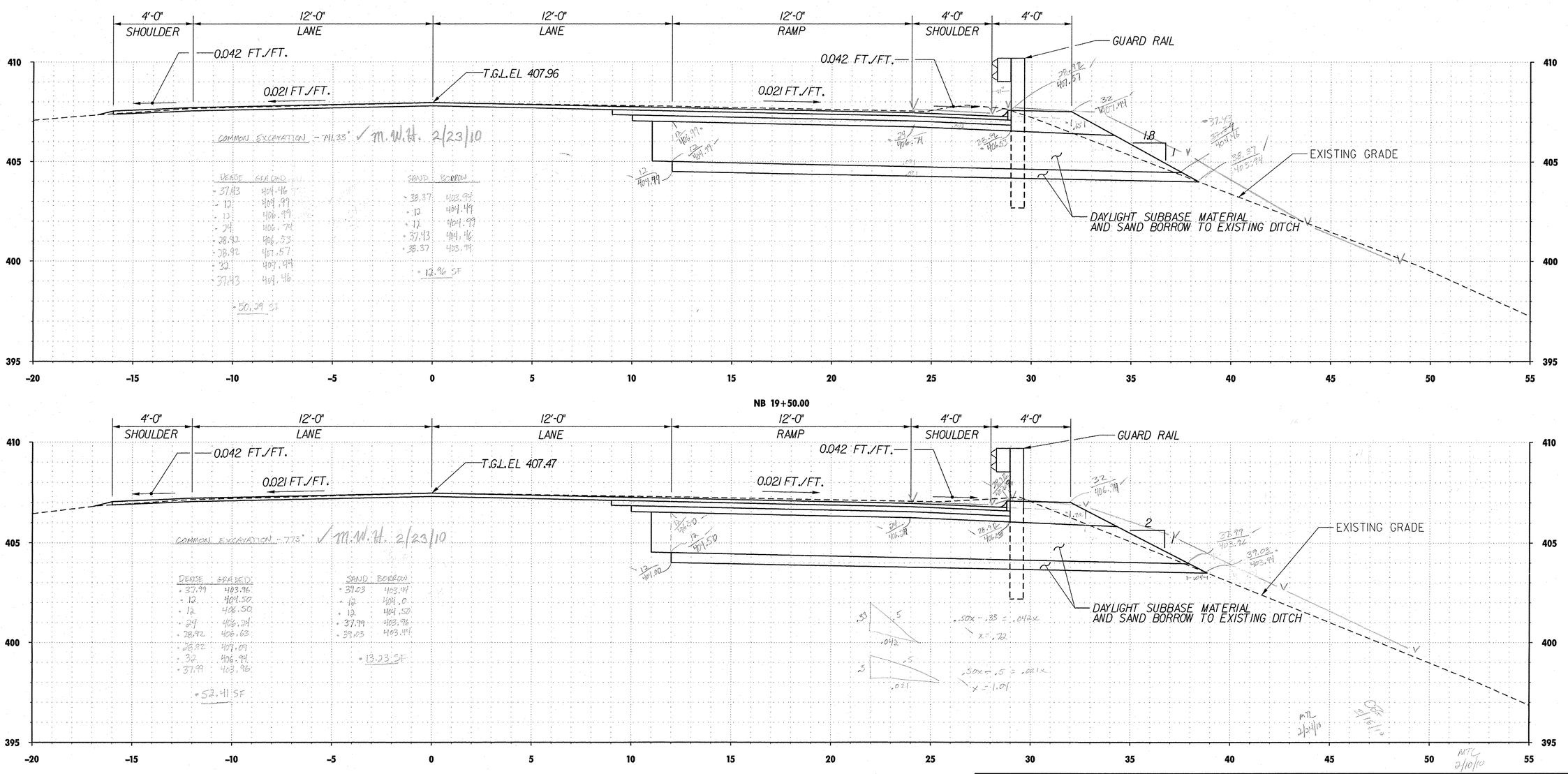
SHEET TITLE: SANITARY SEWER/WATER PLAN AND SANITARY SEWER PROFILE

STATE OF VERMONT
AGENCY OF TRANSPORTATION
SOUTHEAST VERMONT WELCOME CENTER
GUILFORD, VERMONT

DATE: 1-2-96 — SHEET NO. 114 OF 114 SHEETS

C:\CAD\2\95\01\95011648 Thu Oct 8 15:15:48 1998


4'-0" SHOULDER
12'-0" LANE
12'-0" LANE
12'-0" RAMP
4'-0" SHOULDER
4'-0"
GUARD RAIL
0.042 FT./FT.
0.021 FT./FT.
T.G.L.EL 407.15
0.042 FT./FT.
0.021 FT./FT.
2.5
EXISTING GRADE
DAYLIGHT SUBBASE MATERIAL AND SAND BORROW TO EXISTING DITCH
COMMON EXCAVATION - 871.33 M.W.H. 2/23/10
DENSE GRADED
SAND BORROW
* 53.41 SF
* 14.15 SF
410
405
400
395
-20
-15
-10
-5
0
5
10
15
20
25
30
35
40
45
50
55
NB 18+50.00
4'-0" SHOULDER
12'-0" LANE
12'-0" LANE
12'-0" RAMP
4'-0" SHOULDER
4'-0"
GUARD RAIL
0.042 FT./FT.
0.021 FT./FT.
T.G.L.EL 407.09
0.042 FT./FT.
0.021 FT./FT.
3.3
EXISTING GRADE
DAYLIGHT SUBBASE MATERIAL AND SAND BORROW TO EXISTING DITCH
COMMON EXCAVATION - 840 M.W.H. 2/23/10
DENSE GRADED
SAND BORROW
* 15.63 SF
* 57.24 SF
No. 76 Pay limit for Sand & Dense Graded & Common Exc.
12' RT o/s Typ.
415
410
405
400
-20
-15
-10
-5
0
5
10
15
20
25
30
35
40
45
50
55
NB 18+00.00
1 0 2 4 6
SCALE IN FEET
TVGA ENGINEERING, SURVEYING, P.C.
STATE OF VERMONT
AGENCY OF TRANSPORTATION
Town Of
Highway No.
Bridge No.
Log Sta.
Surv. Sta.
Designed By
Drawn By
Checked By
Date
Bridge Design Supervisor
Date
PROJECT
GUILFORD
PROJECT NO.
ACIM091-1(33)
TVGA CAD Drawing No.
Date
Bridge Sheet No.
Sheet 1 of 17



COMMON EXCAVATION - 741.33 ✓ M.W.H. 2/23/10

DENSE	GRADED
37.83	404.46
12	404.99
12	406.99
24	406.74
28.92	406.53
28.92	407.57
32	407.99
37.43	404.46

= 50.29 SF

SAND	BORROW
38.37	403.99
12	404.49
12	404.99
37.43	404.46
38.37	403.99

= 12.96 SF

COMMON EXCAVATION - 773 ✓ M.W.H. 2/23/10

DENSE	GRADED
37.99	403.96
12	404.50
12	406.50
24	406.24
28.92	406.63
28.92	407.09
32	406.99
37.99	403.96

= 52.41 SF

SAND	BORROW
39.03	403.99
12	404.50
12	404.50
37.99	403.96
39.03	403.99

= 13.23 SF

.33 / .55 / .042 — .55x = .33z = .042x, x = .65

.33 / .5 / .042 — .50x = .33 = .042x, x = .72

.5 / .5 / .021 — .50x = .5 = .021x, x = 1.01

MTL 2/24/10

MTL 2/10/10

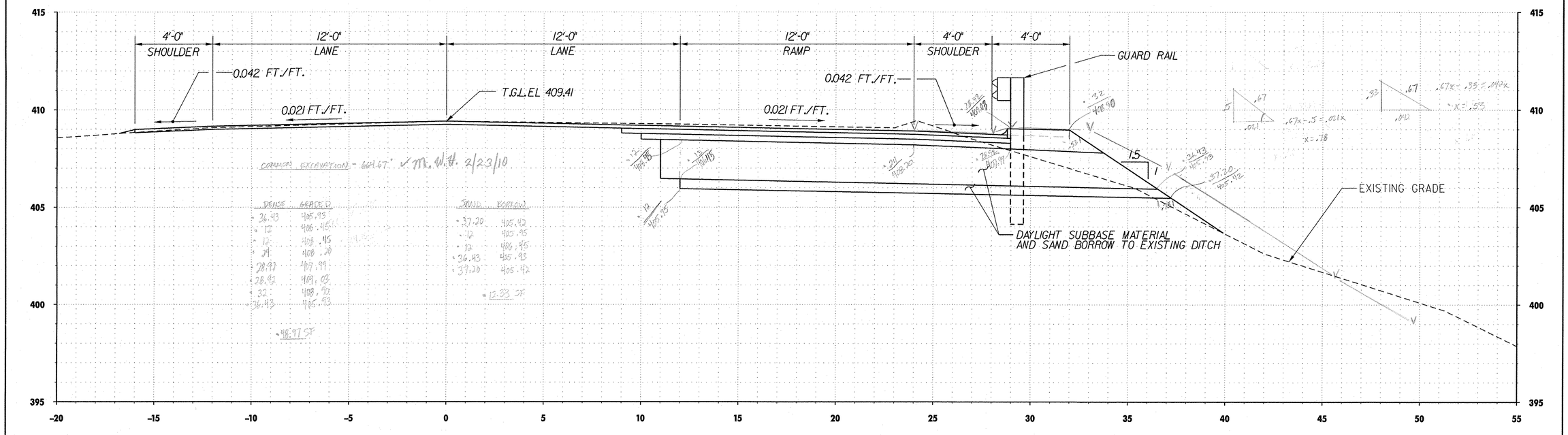
0 2 4 6

SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Designed By		Drawn By	
Checked By	Date	Bridge Design Supervisor	Date
Town Of	Bridge No.	PROJECT GUILFORD	PROJECT NO. AC TM091-1(33)
Highway No.	Log Sta. / Surv. Sta.	TVGA CAD Drawing No.	Date
		Bridge Sheet No.	Sheet 2 of 17



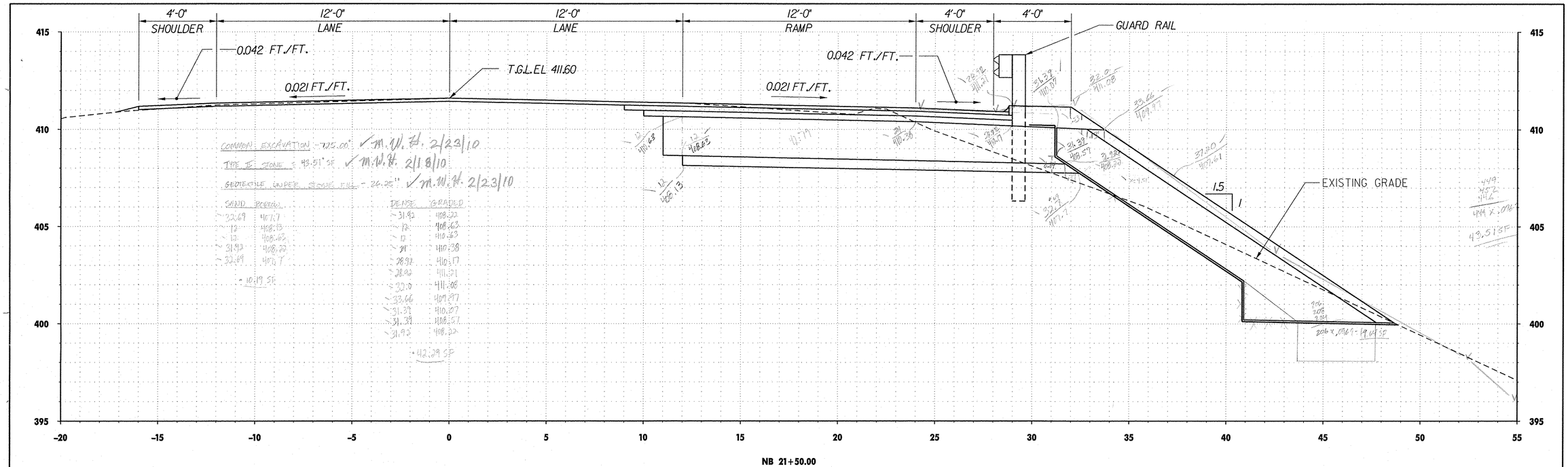
1 0 2 4 6

SCALE IN FEET

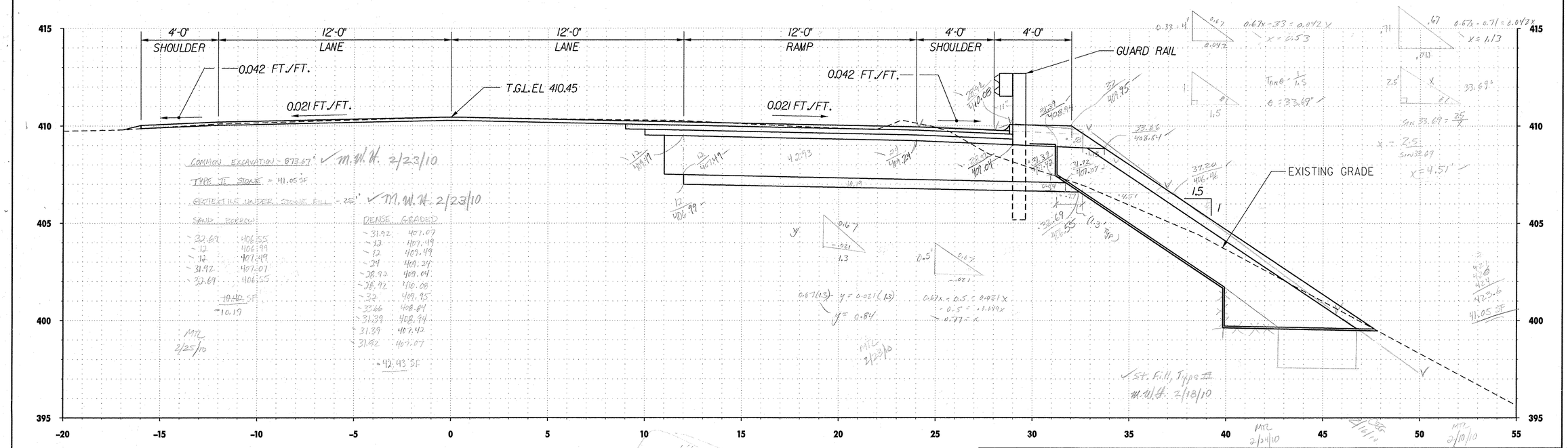
TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	Bridge No.	Designed By	Drawn By
Highway No.	Log Sta. / Surv. Sta.	Checked By Date	Bridge Design Supervisor Date
PROJECT GUILFORD	PROJECT NO. ACIM091-1(33)		
TVGA CAD Drawing No.	Date		
Bridge Sheet No.	Sheet 3 of 17		



NB 21+50.00



NB 21+00.00

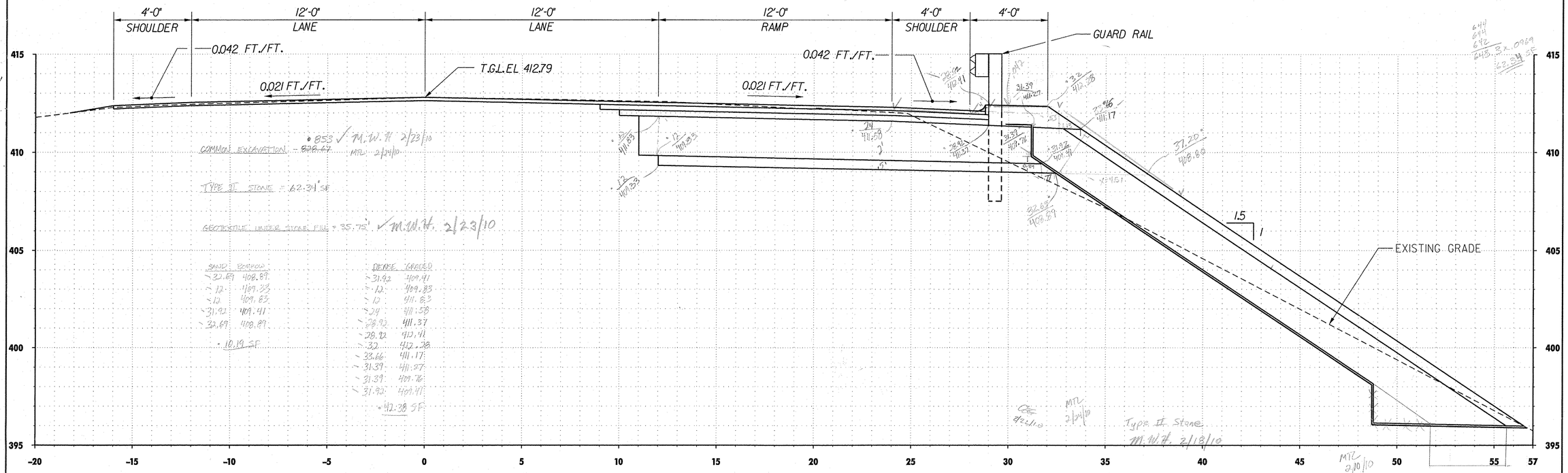
1 0 2 4 6

SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	Bridge No.
Highway No.	Log Sta. / Surv. Sta.
Designed By	Drawn By
Checked By Date	Bridge Design Supervisor Date
PROJECT GUILFORD	PROJECT NO. ACTM091-1(33)
TVGA CAD Drawing No.	Date
Bridge Sheet No.	Sheet 4 of 17



NB 22+00.00

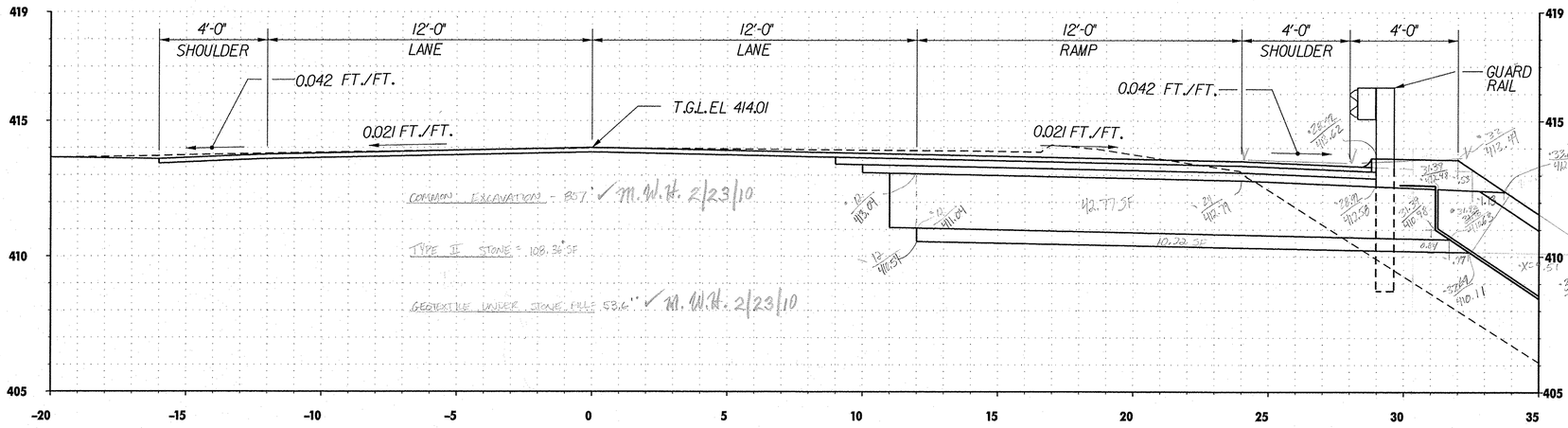
1 0 2 4 6

SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Designed By		Drawn By	
Checked By	Date	Bridge Design Supervisor	Date
Town Of	Bridge No.	PROJECT	PROJECT NO.
Highway No.	Log Sta. / Surv. Sta.	GUILFORD	ABZM091-1(33)
		TVGA CAD Drawing No.	Date
		Bridge Sheet No.	Sheet 5 of 17



NB 22+50.00

MATCHLINE (THIS DWG.)

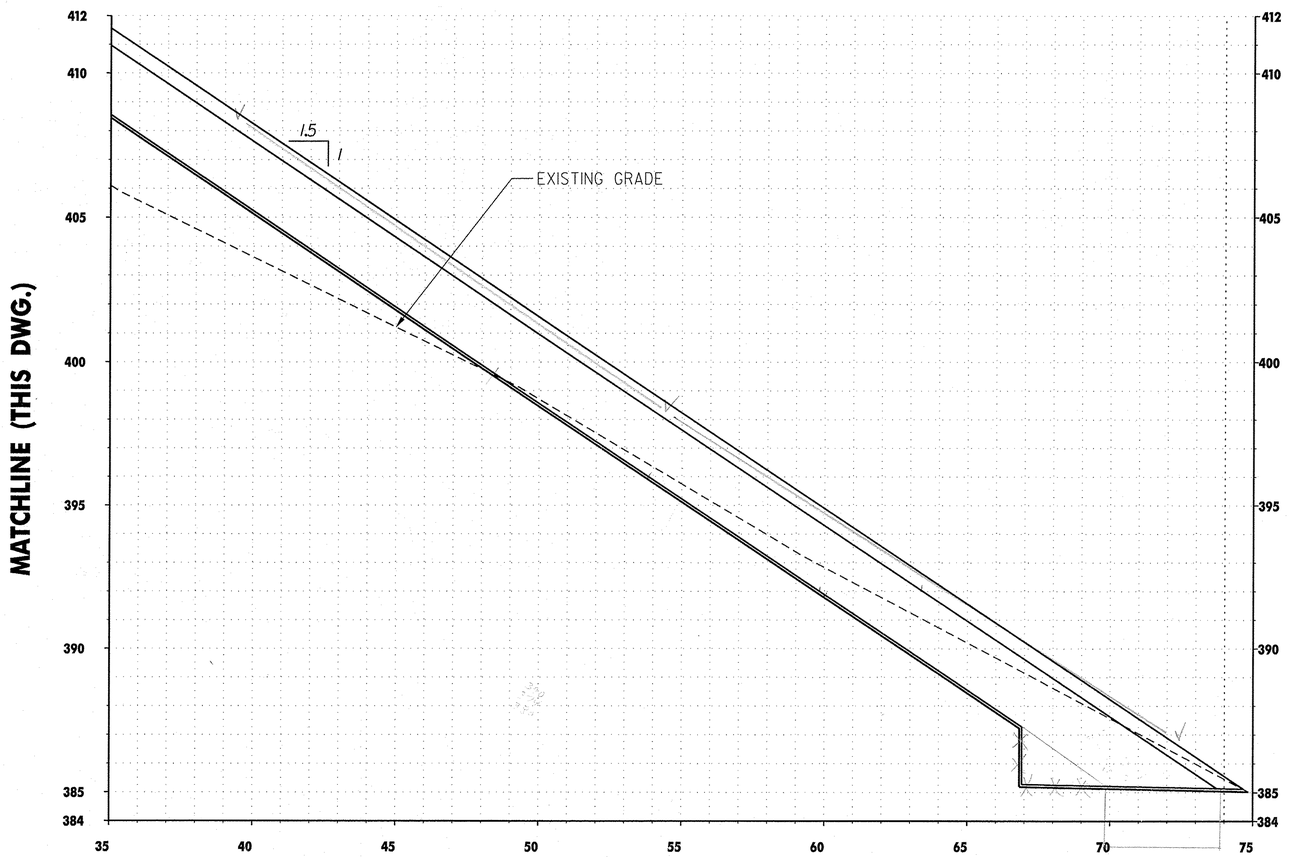
SAND BORROW	
32.69	410.11
12	410.31
12	411.04
31.92	410.63
32.69	410.11

10.19 SF

MATCHLINE (THIS DWG.)

DENSE	GRADED
31.92	410.63
12	411.04
12	413.04
.24	412.79
28.92	412.58
28.92	413.62
32	413.49
33.66	413.38
31.39	412.48
31.39	410.58
31.92	410.63

42.29 SF



NB 22+50.00

MATCHLINE (THIS DWG.)

TVGA ENGINEERING, SURVEYING, P.C.

Common Excavation start @ 31.25 R ⊢

Stone Fill, Type II M.W.H. 2/18/10

MTL 2/24/10

CBF 2/22/10

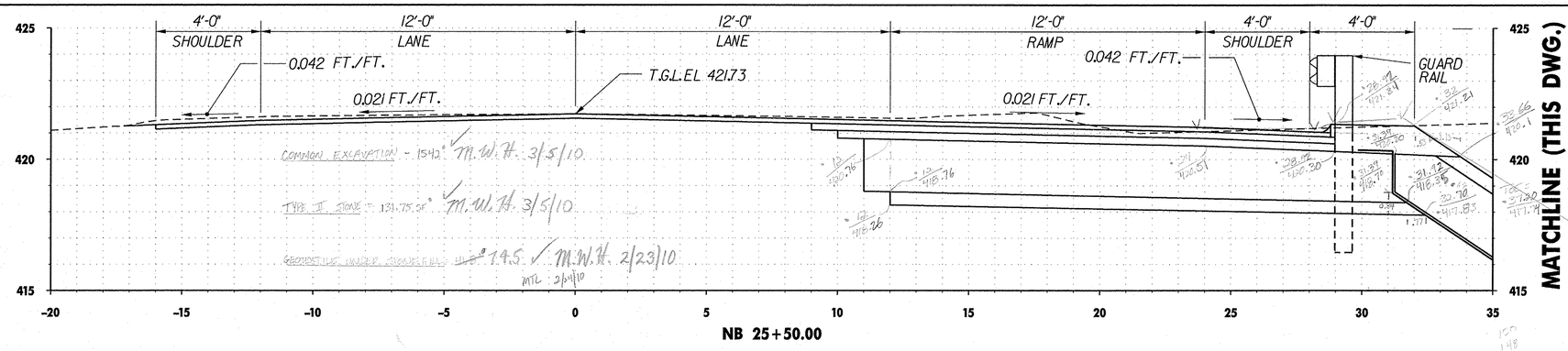
MTL 2/19/10

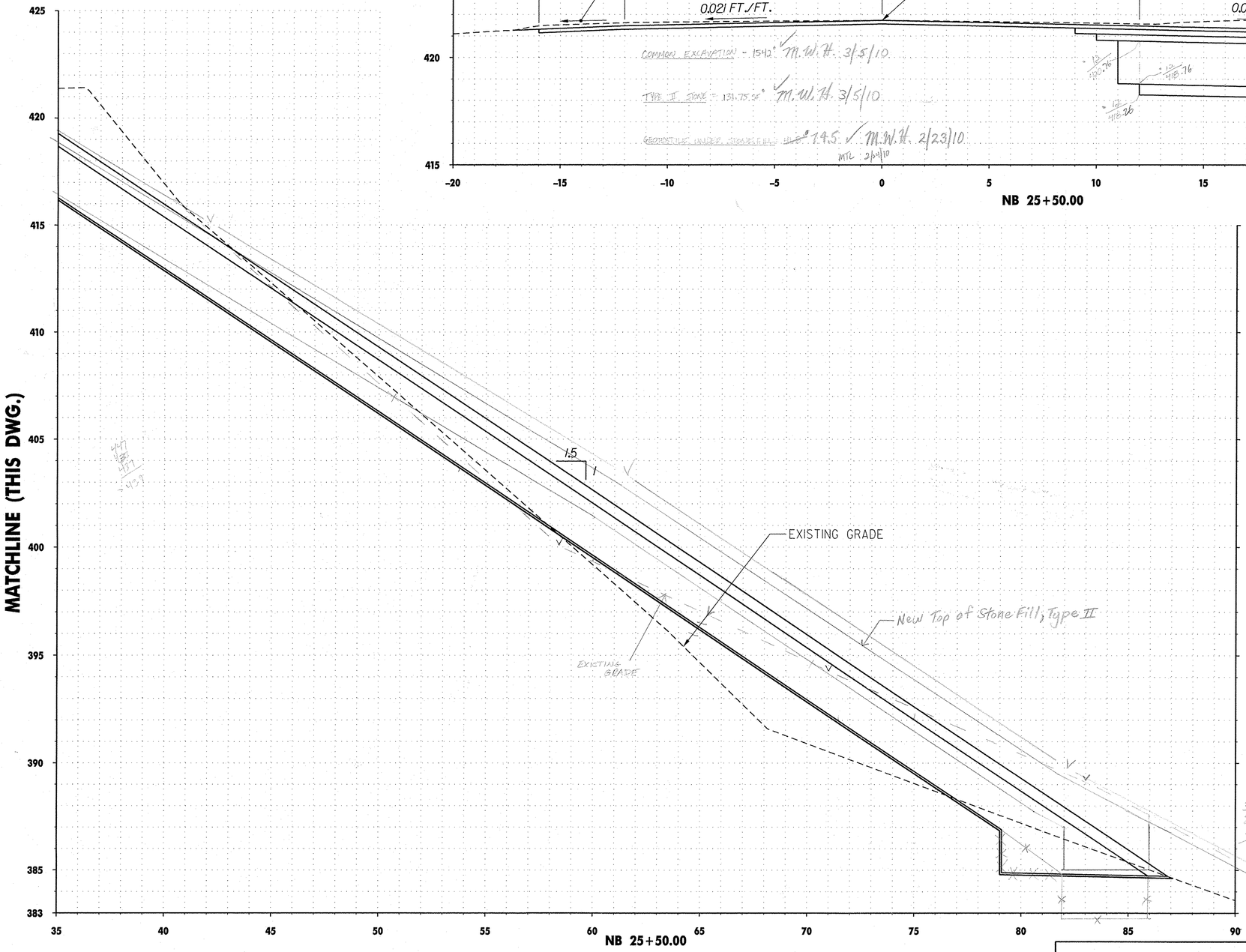
1 0 2 4 6

SCALE IN FEET

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	Bridge No.	Designed By	Drawn By
Highway No.	Log Sta. / Surv. Sta.	Checked By Date	Bridge Design Supervisor Date
		PROJECT Guilford	PROJECT NO. BRM091-1(33)
		TVGA CAD Drawing No.	Date
		Bridge Sheet No.	Sheet 6 of 17





SAND	BORROW
32.69	417.83
12	418.26
12	418.76
31.93	418.35
32.69	417.83

10.19 SF

DENSE	GRADED
31.92	418.35
12	418.76
12	400.76
29	400.51
28.92	420.30
28.92	421.34
32	421.21
33.66	420.1
31.39	420.70
31.39	418.70
31.92	418.35

42.29 SF

This section was re-sectioned and re-plotted due to the original section not matching the existing old ground.

✓Type II Stone M.W.H. 2/18/10

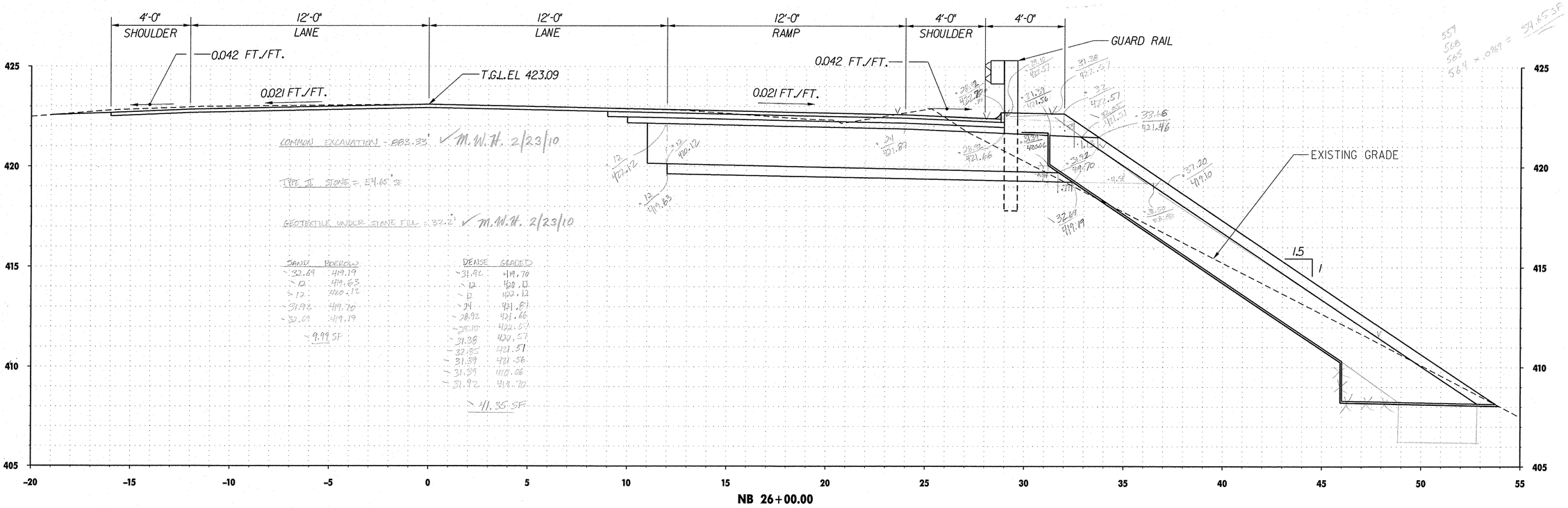
CEG 2/22/10 MTL 2/10/10

1 0 2 4 6
SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Designed By	Drawn By
Checked By Date	Bridge Design Supervisor Date
Town Of	Bridge No.
Highway No.	Log Sta. / Surv. Sta.
PROJECT GRAFTON	PROJECT NO. NCIN091-1(33)
TVGA CAD Drawing No.	Date
Bridge Sheet No.	Sheet 7 of 17



1 0 2 4 6

SCALE IN FEET

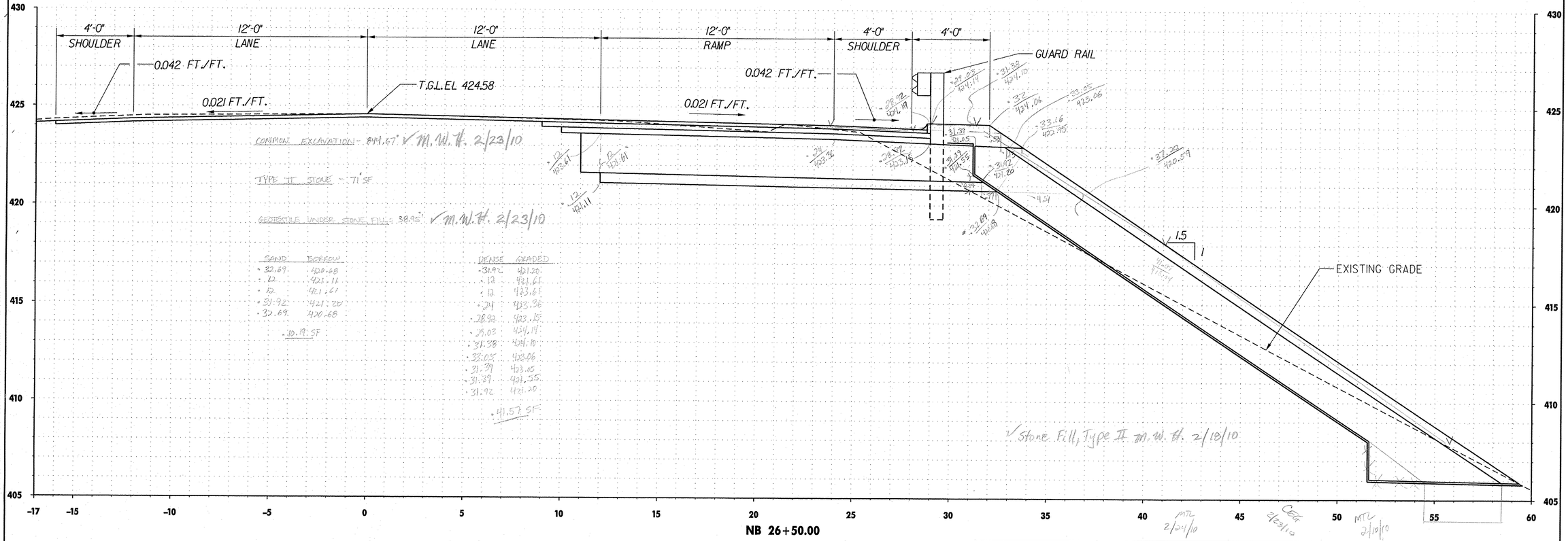
TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	Bridge No.
Highway No.	Log Sta.
	Surv. Sta.

Designed By	Drawn By
Checked By Date	Bridge Design Supervisor Date
PROJECT (GUILFORD)	PROJECT NO. (BCM09-1833)
TVGA CAD Drawing No.	Date
Bridge Sheet No.	Sheet 8 of 17

729
735
734
732.67 x .0969 = 71.0 SF



430 425 420 415 410 405

-17 -15 -10 -5 0 5 10 15 20 25 30 35 40 45 50 55 60

1 0 2 4 6
SCALE IN FEET

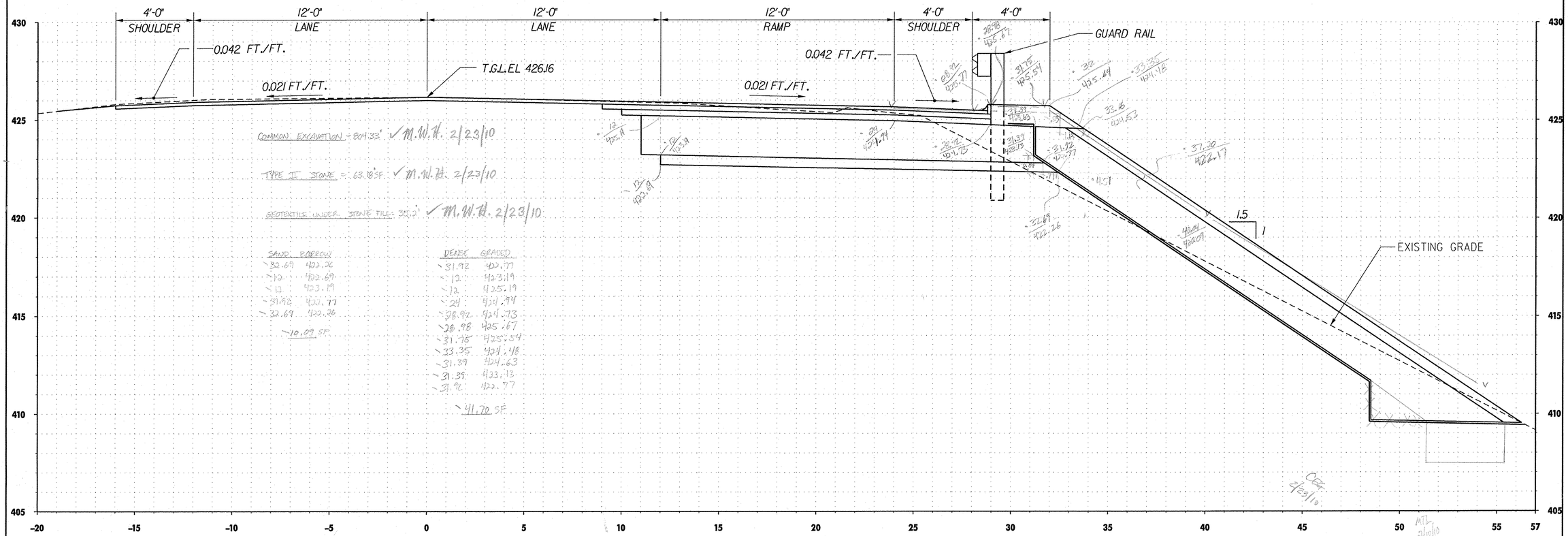
TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	Bridge No.
Highway No.	Log Sta.
	Surv. Sta.

Designed By	Drawn By
Checked By Date	Bridge Design Supervisor Date
PROJECT GUILFORD	PROJECT NO. BRM0091-1(33)
TVGA CAD Drawing No.	Date
Bridge Sheet No.	Sheet 9 of 17

653
650
653
652 x .0969
63.185F



NB 27+00.00

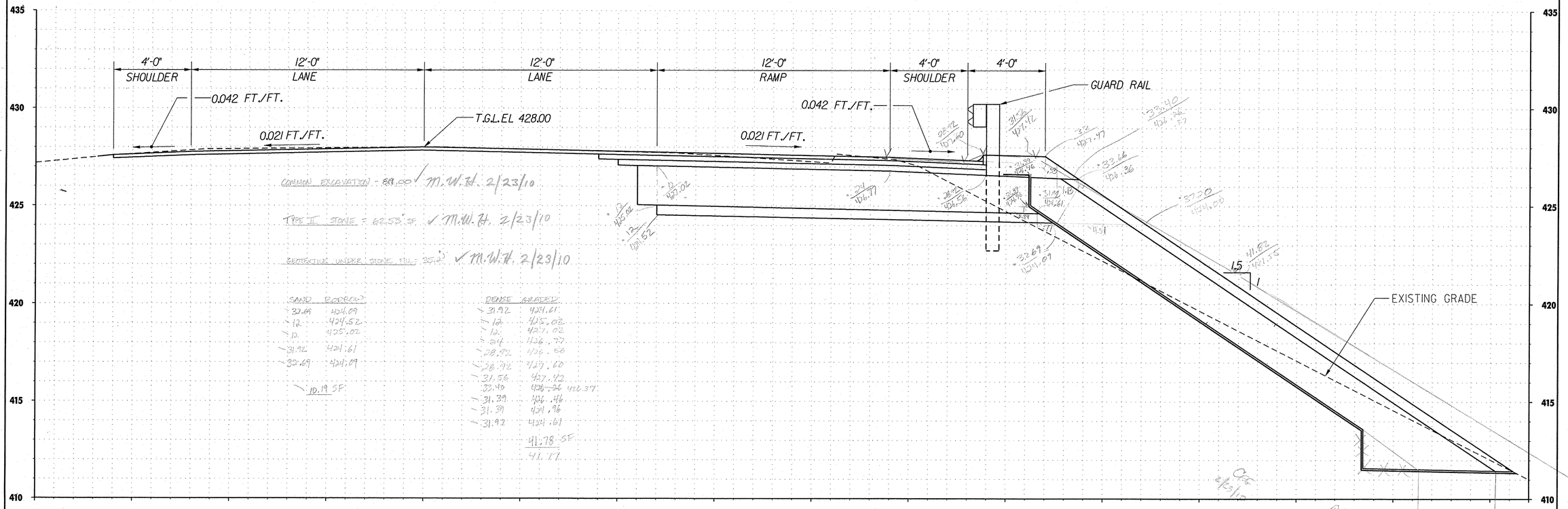
1 0 2 4 6
SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Designed By		Drawn By	
Checked By	Date	Bridge Design Supervisor	Date
Town Of	Bridge No.	PROJECT (ADDISON)	PROJECT NO. ACSM0091-1(33)
Highway No.	Log Sta. / Surv. Sta.	TVGA CAD Drawing No.	Date
		Bridge Sheet No.	Sheet 10 of 17

642
645
647
645.33 × .0139
62.53 SF



CHANNEL EXCAVATION = 89.00 ✓ M.W.H. 2/23/10

TYPE II STONE = 62.53 SF ✓ M.W.H. 2/23/10

GEOTEXTILE UNDER STONE INC. 35.2 ✓ M.W.H. 2/23/10

SAND	ELEVATION
32.66	424.09
12	424.52
10	425.02
31.92	424.61
32.69	424.09

10.19 SF

DENSE	GRADED
31.92	424.61
12	425.02
12	427.02
2.04	426.77
28.92	426.66
28.92	427.60
31.56	427.42
33.40	426.34 428.37
31.39	426.46
31.39	424.96
31.92	424.61

41.78 SF
41.17

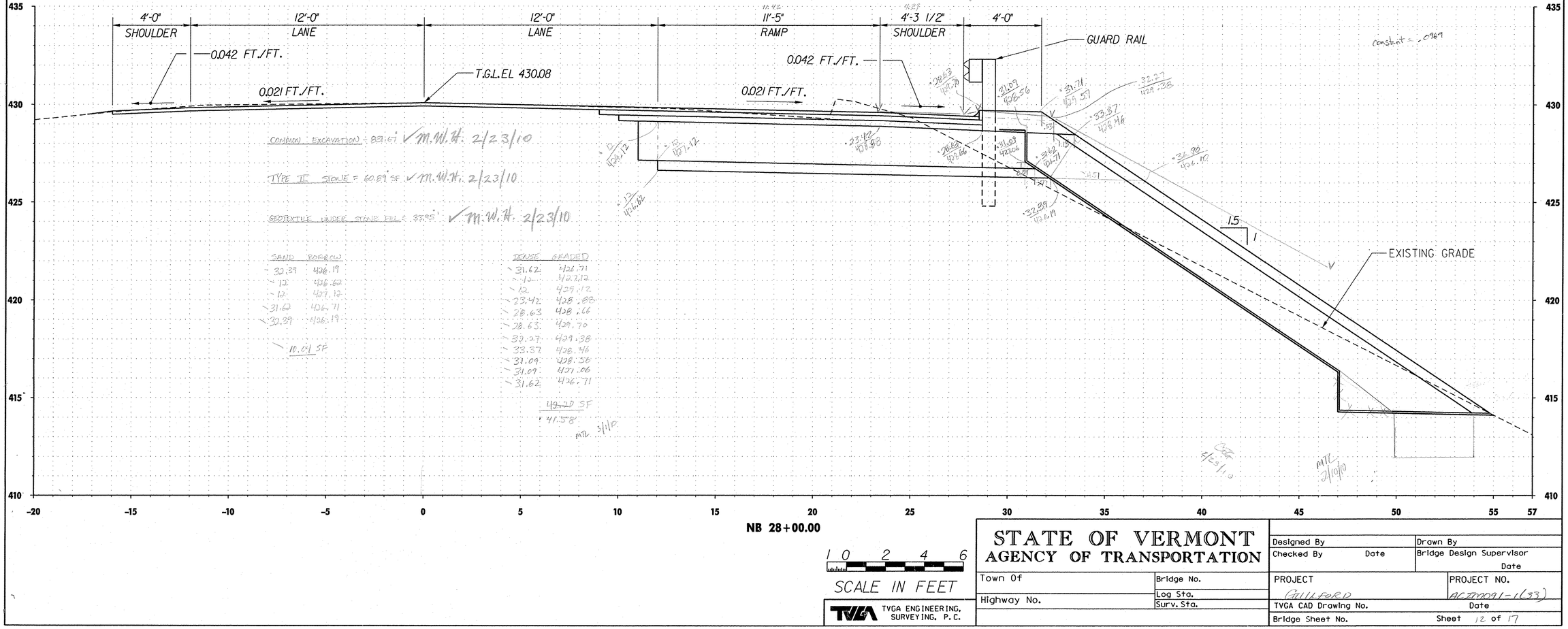
1 0 2 4 6
SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Designed By		Drawn By	
Checked By	Date	Bridge Design Supervisor	Date
Town Of	Bridge No.	PROJECT: GUILFORD	PROJECT NO.: ACTM091-1633
Highway No.	Log Sta. / Surv. Sta.	TVGA CAD Drawing No.	Date
		Bridge Sheet No.	Sheet 11 of 17

* NOTE Sta 28+0 ~ 30+0 used as waste site. Slopes made 2:1 due to this. Stone quantities paid per plan

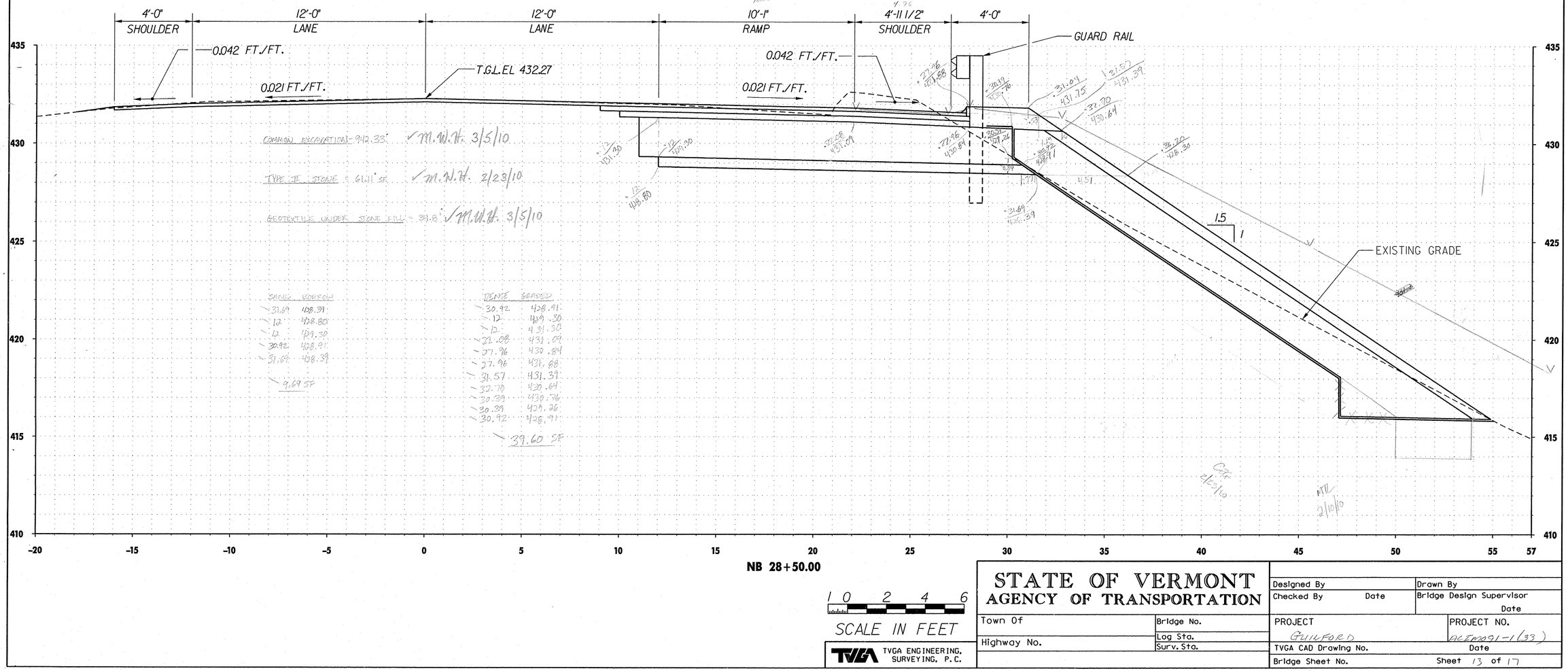


SCALE IN FEET 1 0 2 4 6

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	Bridge No.
Highway No.	Log Sta. / Surv. Sta.
Designed By	Drawn By
Checked By Date	Bridge Design Supervisor Date
PROJECT GUILFORD	PROJECT NO. AGTM091-1(33)
TVGA CAD Drawing No.	Date
Bridge Sheet No.	Sheet 12 of 17



COMMON EXCAVATION = 942.33 ✓ M.W.H. 3/5/10

TYPE II STONE = 611.11 SF ✓ M.W.H. 2/23/10

GEOTEXTILE UNDER STONE FILL = 39.6 ✓ M.W.H. 3/5/10

SAND	VOLUME
31.69	428.39
12	428.80
12	429.30
30.92	428.91
31.69	428.39

9.69 SF

DENTE	GRADED
30.92	428.91
12	429.30
12	431.30
21.08	431.09
27.96	430.84
27.96	431.88
31.57	431.39
32.70	430.64
32.39	430.96
30.39	429.26
30.92	428.91

39.60 SF

1 0 2 4 6

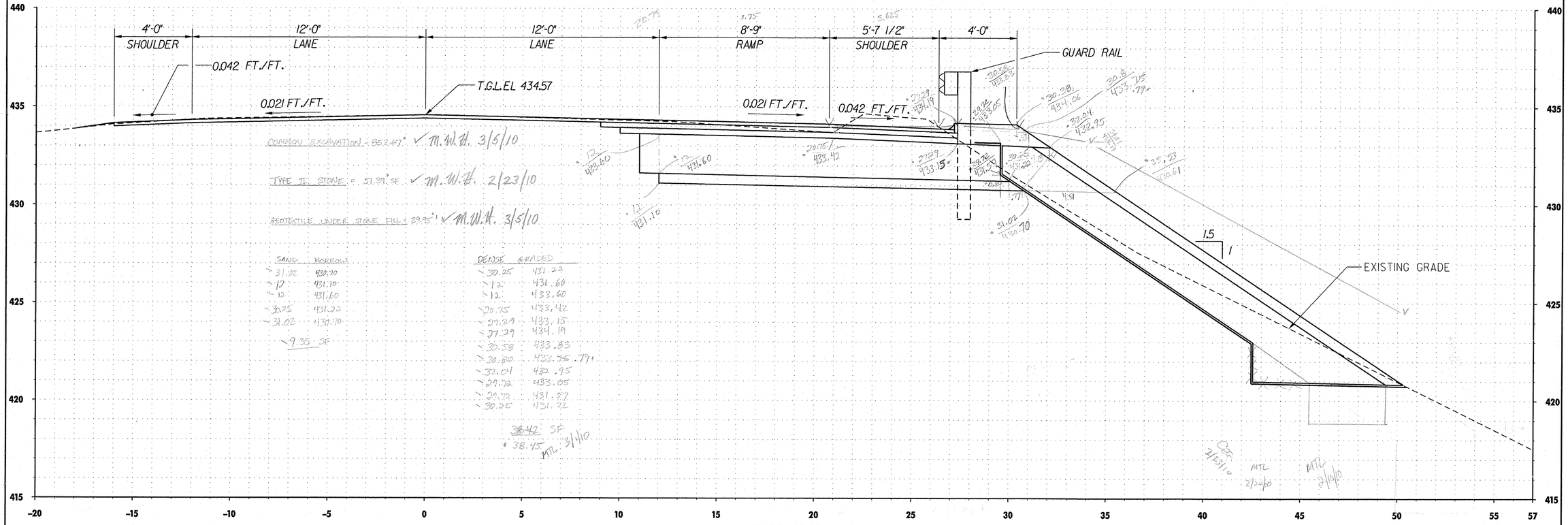
SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Designed By		Drawn By	
Checked By	Date	Bridge Design Supervisor	Date
Town Of	Bridge No.	PROJECT GUILFORD	PROJECT NO. ACEM0091-1(33)
Highway No.	Log Sta. / Surv. Sta.	TVGA CAD Drawing No.	Date
		Bridge Sheet No.	Sheet 13 of 17

530
530
531
530.33 x .0769 =
51.395SF



NB 29+00.00

1 0 2 4 6

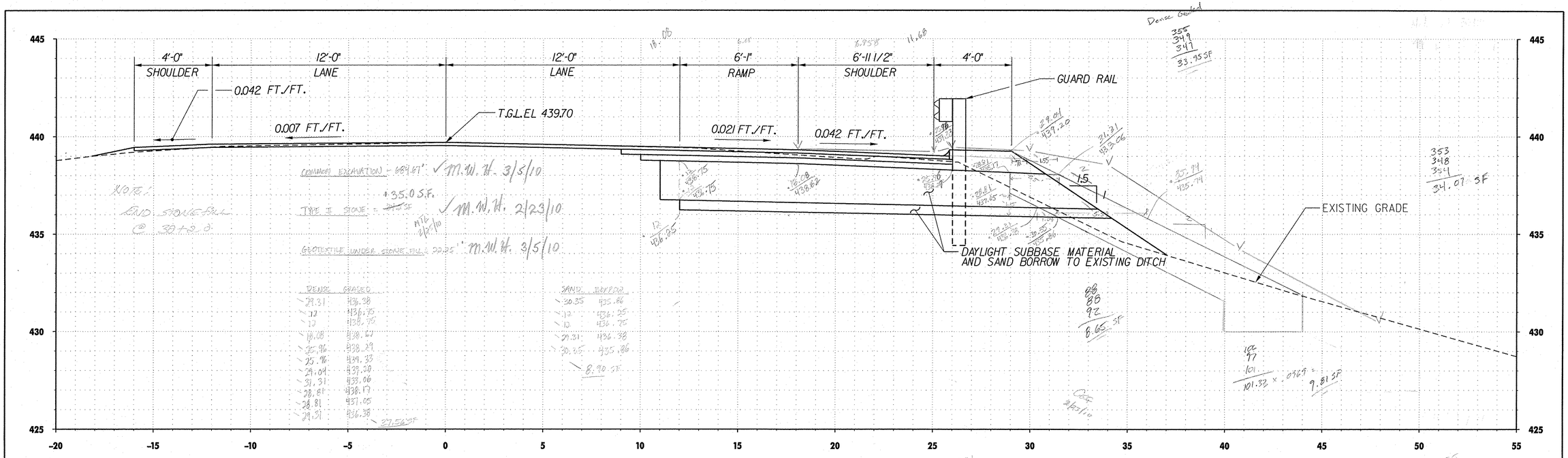
SCALE IN FEET

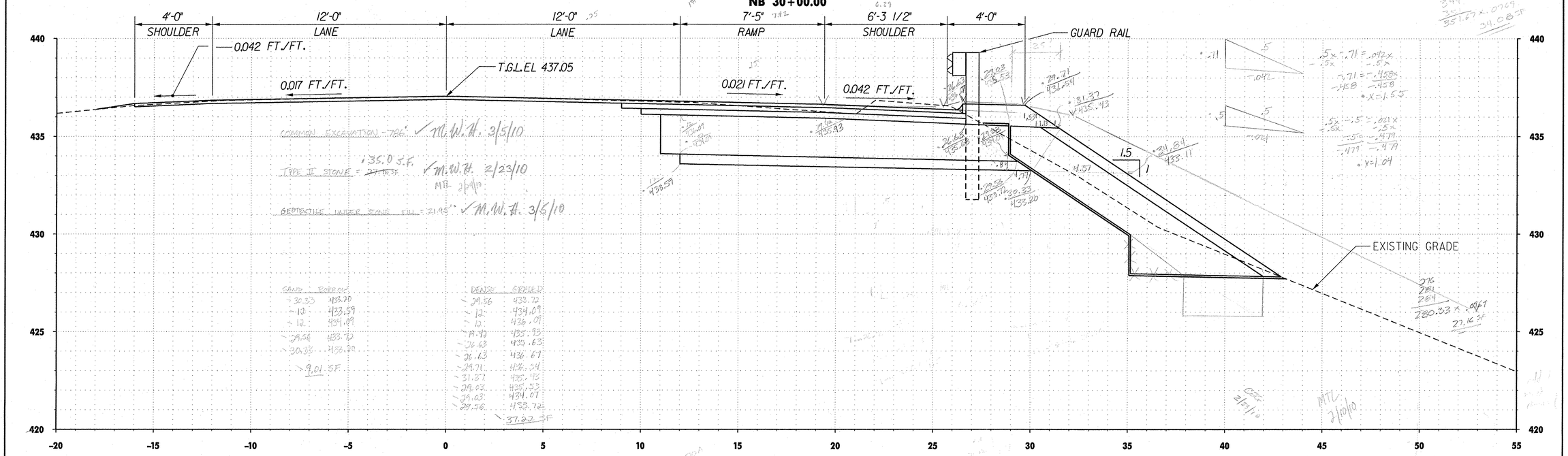
TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	Bridge No.
Highway No.	Log Sta.
	Surv. Sta.

Designed By	Drawn By
Checked By Date	Bridge Design Supervisor Date
PROJECT GUILFORD	PROJECT NO. ACZM091-(33)
TVGA CAD Drawing No.	Date
Bridge Sheet No.	Sheet 14 of 17





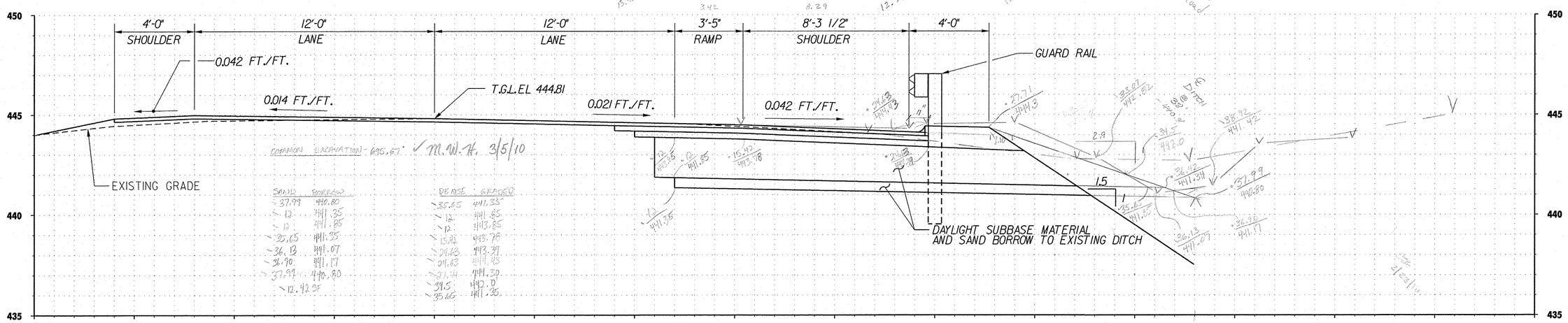
1 0 2 4 6

SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Designed By		Drawn By	
Checked By	Date	Bridge Design Supervisor	Date
Town Of	Bridge No.	PROJECT	PROJECT NO.
	Log Sta.	CASTLETON	ACTM091-1(53)
Highway No.	Surv. Sta.	TVGA CAD Drawing No.	Date
		Bridge Sheet No.	Sheet 15 of 17



NB 31+00.00

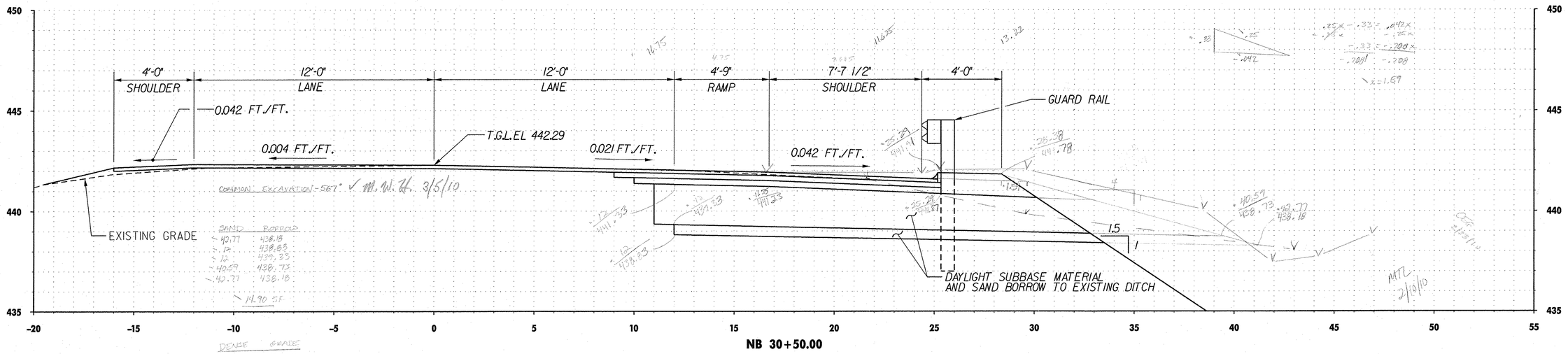
COMMON EXCAVATION - 695.67 ✓ M.W.H. 3/5/10

SAND	BORROW
37.99	440.80
12	441.35
12	441.85
35.65	441.35
36.12	441.07
36.70	441.17
37.99	440.80

12.42 SF

DENSE	GRADED
35.65	441.33
12	441.85
12	443.85
15.42	443.78
24.63	443.39
24.63	444.93
27.34	441.30
31.5	442.0
35.65	441.35

41.98 SF



NB 30+50.00

COMMON EXCAVATION - 567 ✓ M.W.H. 3/5/10

SAND	BORROW
40.77	438.18
12	438.83
12	439.83
40.59	438.73
40.77	438.18

14.90 SF

DENSE	GRADE
40.59	438.73
12	439.33
12	441.33
16.75	441.03
25.09	440.87
25.09	441.91
28.38	441.78
40.59	438.73

51.59 SF

1 0 2 4 6

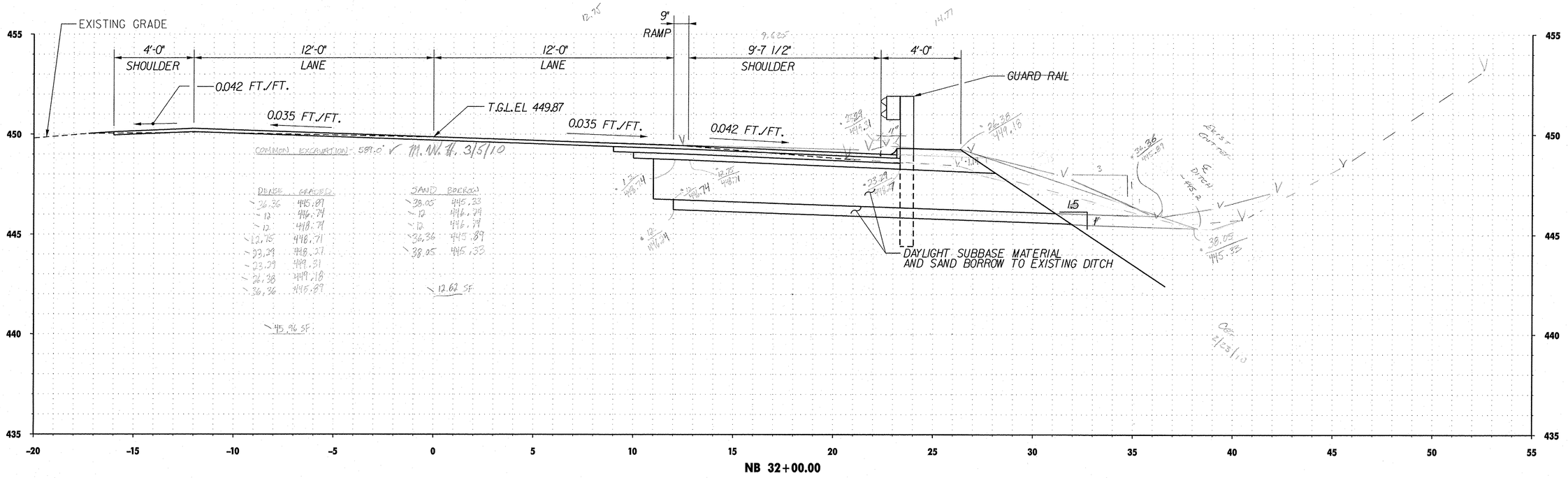
SCALE IN FEET

TVGA ENGINEERING, SURVEYING, P.C.

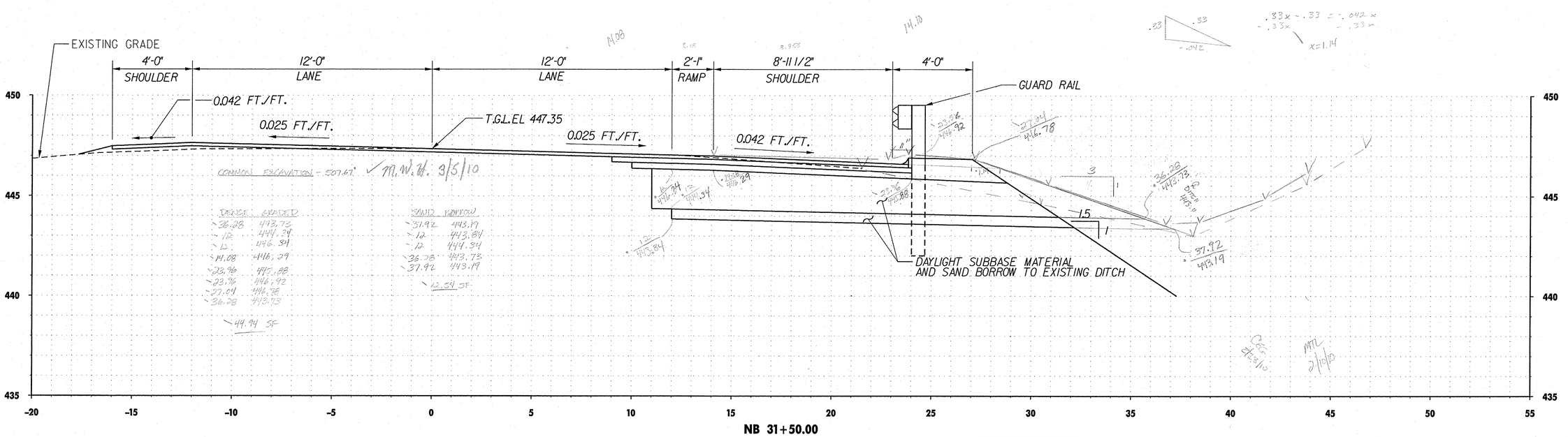
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of		Bridge No.	
Highway No.		Log Sta.	
		Surv. Sta.	

Designed By	Drawn By
Checked By Date	Bridge Design Supervisor Date
PROJECT GUILFORD	PROJECT NO. NEIM041-1(63)
TVGA CAD Drawing No.	Date
Bridge Sheet No.	Sheet 16 of 17



NB 32+00.00



NB 31+50.00

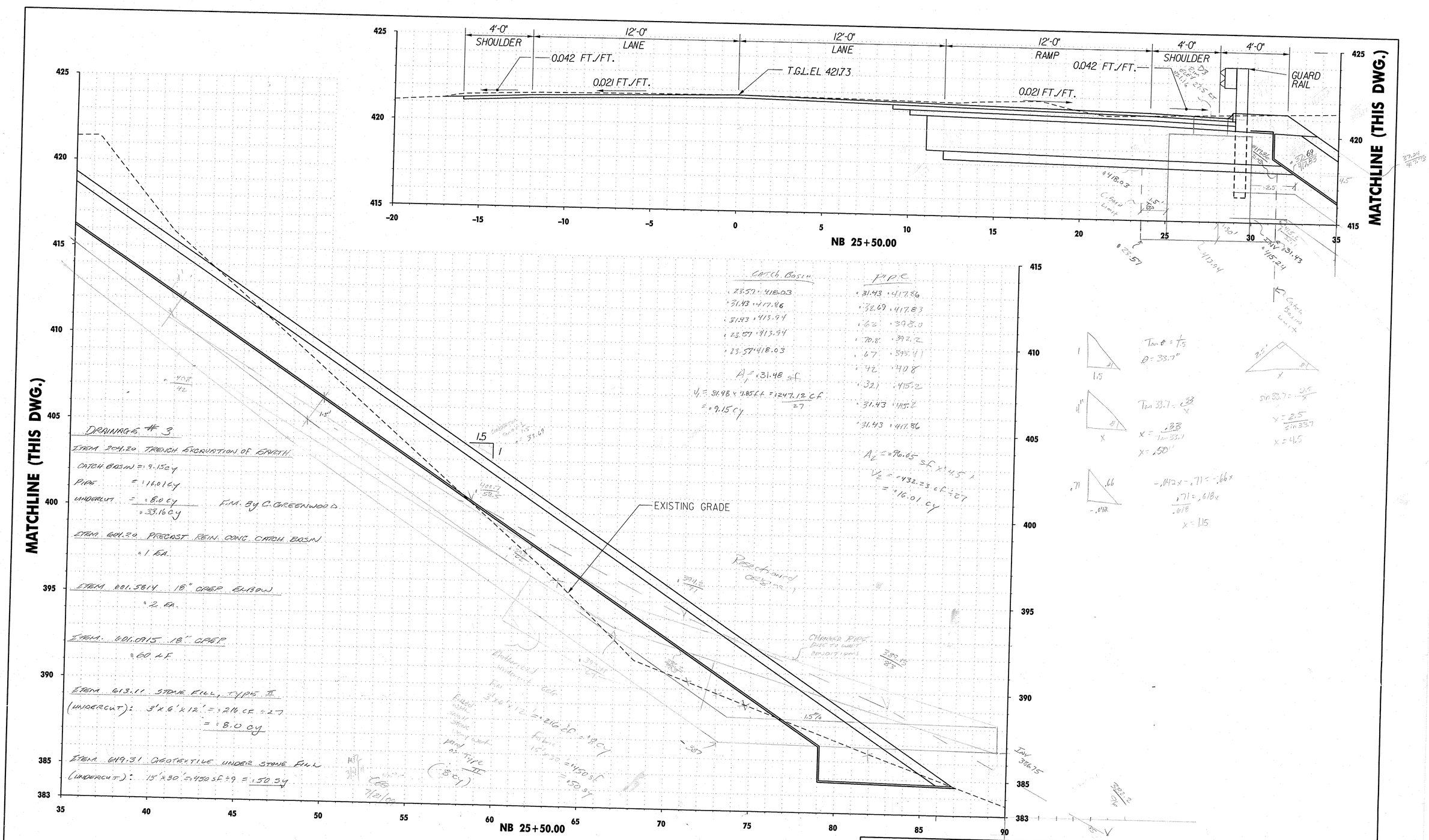
1 0 2 4 6

SCALE IN FEET

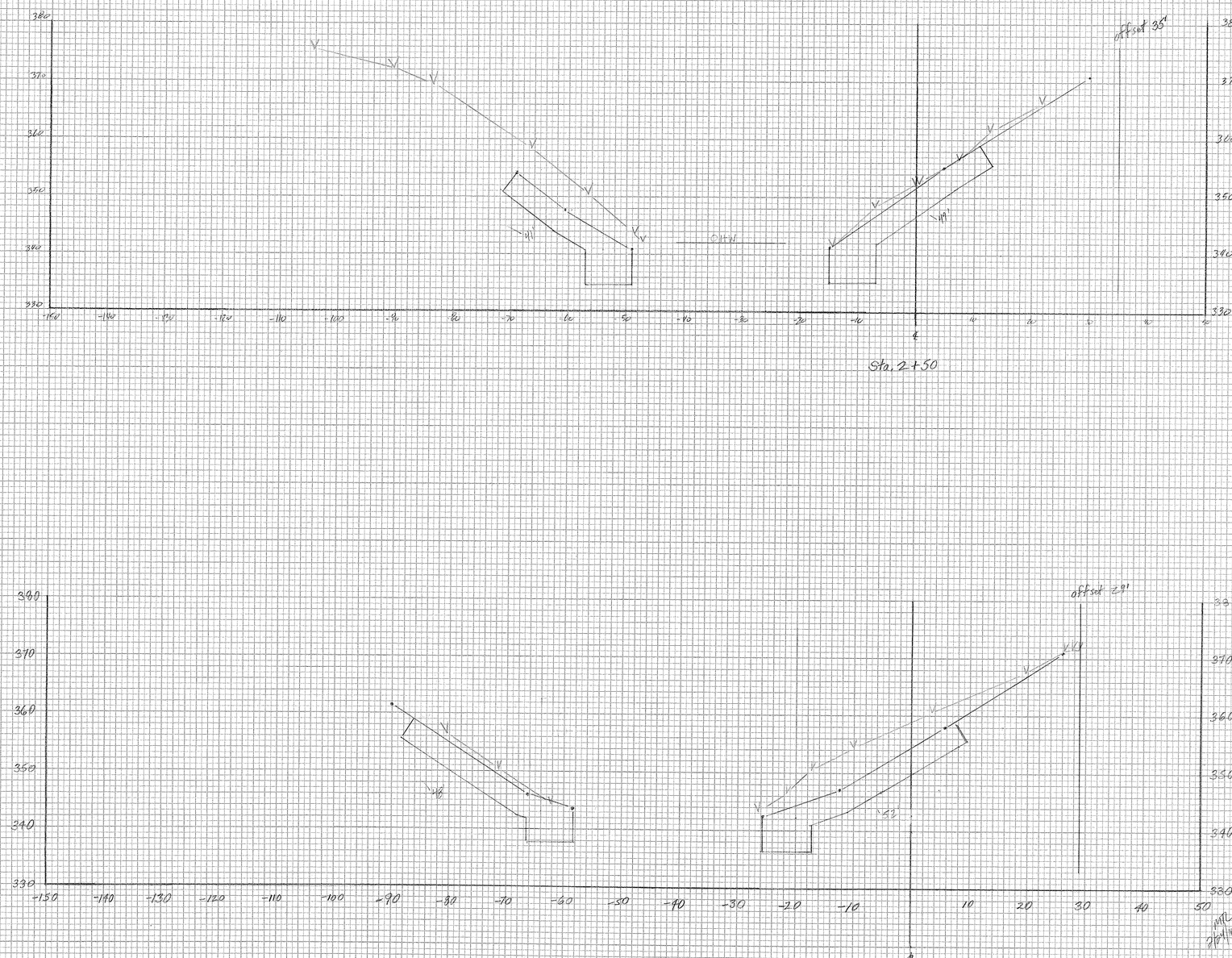
TVGA ENGINEERING, SURVEYING, P.C.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	Bridge No.	Designed By	Drawn By
Highway No.	Log Sta. / Surv. Sta.	Checked By Date	Bridge Design Supervisor Date
PROJECT: GUILFORD		PROJECT NO.: ACTM091-1(33)	
TVGA CAD Drawing No.		Date	
Bridge Sheet No.		Sheet 17 of 17	


4'-0" SHOULDER
12'-0" LANE
12'-0" LANE
12'-0" RAMP
4'-0" SHOULDER
4'-0"
0.042 FT./FT.
0.021 FT./FT.
T.G.L. EL 421.73
0.042 FT./FT.
0.021 FT./FT.
GUARD RAIL
EX. GROUND
425
420
415
-20
-15
-10
-5
0
5
10
15
20
25
30
35
NB 25+50.00
MATCHLINE (THIS DWG.)
MATCHLINE (THIS DWG.)
EXISTING GRADE
1.5
1
425
420
415
410
405
400
395
390
385
383
35
40
45
50
55
60
65
70
75
80
85
90
NB 25+50.00
DRAINAGE # 3
ITEM 204.20 TRENCH EXCAVATION OF EARTH
CATCH BASIN = 9.15 cy
PIPE = 16.01 cy
UNDERCUT = 8.0 cy
= 33.16 cy
F.M. By C. GREENWOOD
ITEM 604.20 PRECAST REIN. CONC. CATCH BASIN
1 EA.
ITEM 601.5814 18" CRCP ELBOW
2 EA.
ITEM 601.0915 18" CRCP
60. L.F.
ITEM 613.11 STONE FILL, TYPE II
(UNDERCUT): 3'x6'x12' = 216 CF ÷ 27
= 8.0 cy
ITEM 619.31 GEOTEXTILE UNDER STONE FILL
(UNDERCUT): 15'x30' = 450 SF ÷ 9 = 50 SY
Catch Basin
• 23.57 • 418.03
• 31.43 • 417.86
• 31.43 • 413.94
• 23.57 • 413.94
• 23.57 • 418.03
A1 = 31.48 sf
V1 = 31.48 x 4.85 FT = 1247.12 CF / 27 = 9.15 CY
Pipe
• 31.43 • 417.86
• 38.69 • 417.83
• 62 • 398.0
• 70.8 • 392.2
• 67 • 393.41
• 42 • 408
• 32.1 • 415.2
• 31.43 • 415.2
• 31.43 • 417.86
A2 = 96.05 sf x 4.5'
V2 = 432.23 CF ÷ 27 = 16.01 CY
Tan θ = 1/1.5
θ = 33.7°
Tan 33.7 = .33/X
X = .33/Tan 33.7
X = .60'
Sin 33.7 = .45/X
X = 2.5/Sin 33.7
X = 4.5
-.042X = .71 = -.66X
.71 = .618X
X = 1.15
SCALE IN FEET
0 2 4 6
TVGA ENGINEERING, SURVEYING, P.C.
STATE OF VERMONT
AGENCY OF TRANSPORTATION
Town Of
Highway No.
Bridge No.
Log Sta.
Surv. Sta.
Designed By
Drawn By C. GREENWOOD
Checked By Date
Bridge Design Supervisor
Date
PROJECT
GUILFORD
PROJECT NO.
ACEM091-1(33)
TVGA CAD Drawing No.
Date

PRINTED BY DLD
WATERMAST TRANSPORTATION
HIGHWAY FEDERAL AID SHEET
PLATE 3-1: LOW CHORD SECTION-LOW LINE



99
85
89
275.88 SF

111
103
105
167.4 SF

UNCLASSIFIED CHANNEL
303.28 SF
To Calc. Folder Page 203.27-1

TYPE II STONE
303.28 SF
To Calc. Folder, Page 613.13-1

GEOTEXTILE UNDER STONE FILL
90

114
115
118
119.28 SF

103
102
104
160.32 SF

UNCLASSIFIED CHANNEL
339.96 SF
To Calc. Folder Page 203.27-1

TYPE II STONE
339.96 SF
To Calc. Folder, Page 613.13-1

GEOTEXTILE UNDER STONE FILL
100

GUILFORD IM 091-1(33) Web Sheet 9/8/08
CHANNEL CROSS SECTIONS
STA 0+50 & 2+50 M

ORIGINAL SURVEY
NO. | STATE BOOK | PAGE
DATE | PARTY CHIEF | PAGE CHECKED
NO. | INSTRUMENTMAN | NOTE BOOK
DATE | CHECKED | PAGE
DATE | | PAGE
STATE | | PAGE

FINAL SURVEY
NO. | STATE BOOK | PAGE
DATE | PARTY CHIEF | PAGE CHECKED
NO. | INSTRUMENTMAN | NOTE BOOK
DATE | CHECKED | PAGE
DATE | | PAGE
STATE | | PAGE

PROJECT NAME Guilford

PROJECT NUMBER ACIM 091-1(53)

PREQUALIFIED JOINT WELDING PROCEDURE
PROCEDURE SPECIFICATION

Material specification A36:A572:A588

Welding process FCAW

Manual or machine SEMI-AUTOMATIC

Position of welding FLAT OR HORIZONTAL

Filler metal specification AWS 5.20

Filler metal classification ALLOY RODS DUAL SHIELD II 71 ULTRA (E71T-1)

Flux N/A

Shielding gas CO_2 Flow rate 35 CFH

Single or multiple pass SINGLE AND MULTIPLE

Single or multiple arc SINGLE ELECTRICAL STICK-OUT 3/8"-3/4"

Welding current DC

Polarity REVERSE

Welding progression N/A

Root treatment NONE

Preheat and interpass temperature 50° to 3/4" INCL.; 70° to 1 3/4" INCL.; 150° to 2 3/4" INCL.

Postheat treatment NONE

Supported by WPS 007 and 008

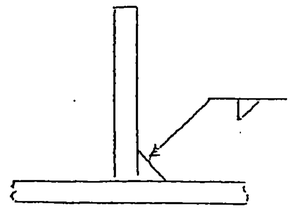
WELDING PROCEDURE

VTRANS RECEIVED JAN 28 2009

CK'D BY _____ OK'D BY JWL

RESUBMIT ____ ____ APPROVED ✓

BY _____ DATE 3/10/09

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed (T.P.M.)	Weld Size (e)	Joint detail
1	.045	220-240	26-28	16-18	3/16"	
1	.045	220-240	26-28	12-13	1/4"	
All	.045	210-230	25-27	9-10	5/16"	
1	.045	220-240	26-28	16-18	3/8" (3 passes)	
2	.045	220-240	26-28	16-18		
3	.045	220-240	26-28	16-18		
1	.045	210-230	25-27	9-11	7/16" (3 passes)	
2	.045	210-230	25-27	9-11		
3	.045	210-230	25-27	9-11		

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

Procedure no. DS-16

Revision

Contractor Merrimack Sheet Metal, Inc.

Authorized by Scott Blanchette

J. A. McDONALD, INC.
P. O. BOX 132
LYNDON CENTER, VT 05850-0132
(802) 626-5201 FAX (802) 626-8011

LETTER OF TRANSMITTAL

DATE 3-31-2009	JOB NO.
ATTENTION Ken Wojtkowski P.E.	
RE: Permanent Metal Bridge Deck	
Proj NO. IM 091-1(33)	

TO **Ken Wojtkowski, P.E.**
TVGA Consultants
1000 Maple Road
Elma, NY 14059-9530

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☑ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
7	3-31-2009		I-91 O/Broad Brook & Broad Brook Road Bridge
			NO. 34+5
			Proj NO IM 091-1(33) Guilford, VT & Rev 1

THESE ARE TRANSMITTED as checked below:

☑ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS _____

RECEIVED
APR 02 2009
TVGA

COPY TO _____

SIGNED: Marc Boudreau

If enclosures are not as noted, kindly notify us at once.

WELDING PROCEDURE SPECIFICATION

MATERIAL SPECIFICATION _____

WELDING PROCESS SMAW

MANUAL, SEMIAUTOMATIC OR AUTOMATIC MANUAL

POSITION OF WELDING HORIZONTAL

FILLER METAL SPECIFICATION AWS A5.1

FILLER METAL CLASSIFICATION E7018

ELECTRODE AND MANUFACTURER JETWELD LH-73 LINCOLN ELECTRIC (Conforms to AWS5.1, ASME SFA-5.1)

FLUX AND MANUFACTURE N/A

SHIELDING GAS N/A DEW POINT N/A FLOW RATE N/A

SINGLE OR MULTIPLE PASS SINGLE PASS

SINGLE OR MULTIPLE ARC SINGLE ARC

WELDING CURRENT DC

POLARITY REVERSED

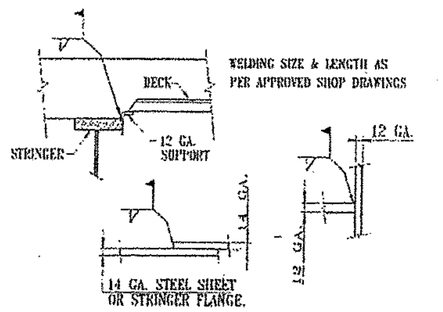
WELDING PROGRESSION N/A

ROOT TREATMENT REMOVE RUST, SLAG, MOISTURE, GREASE & ANY FOREIGN MATERIAL

PREHEAT AND INTERPASS TEMPERATURE N/A

POSTHEAT TEMPERATURE N/A

WELDING PROCEDURE

PASS NO.	ELECTRODE SIZE	WELDING PARAMETERS AMPERES	VOLTS	TRAVEL SPEED	JOINT DETAIL
1	1/8	200 RECOMMENDED 90-150	N/A	12" PER MINUTE	

THIS PROCEDURE MAY VARY DUE TO FABRICATION SEQUENCE, FIT-UP,PASS SIZE, ETC., WITHIN THE LIMITATION OF VARIABLES VARIABLES GIVEN IN SECTION 8A.

PROCEDURE NO.: 711.2

REVISION NO.: _____

FABRICATOR OR ERECTOR: J & B WELDING

AUTHORIZED BY: _____

DATE: _____

COMMONWEALTH OF MASSACHUSETTS PAUL H. ROBERTS No. 40131 REGISTERED PROFESSIONAL ENGINEER

MAY 10 2004

VT KANS

RECEIVED

CK'D BY _____ OK'D BY JWC

MAR 06 2009

RESUBMIT _____ APPROVED ✓ AS NOTED

BY _____ DATE 3/10/09

WELDING PROCEDURE REVISED AC-IM 091-1C53)

U.T.S. Of Massachusetts Inc.
"The Construction Testing People"

WELDER QUALIFICATION TEST RECORD

Welder or welding operator's name GARY TARDIFF Identification no. 005-68-5513
Welding process SMAW Manual XXXX Semiautomatic _____ Machine _____
Position 3G(vertical upward)
(Flat, horizontal, overhead or vertical - If vertical, state whether upward or downward)
In accordance with procedure specification no _____
Material specification ASTM A 36
Diameter and wall thickness (if pipe) - otherwise, joint thickness 3/8" PLATE
Thickness range this qualifies LIMITED THICKNESS

FILLER METAL

Specification no. AWS A5.1 Classification E7018 F no. F4
Describe filler metal (if not covered by AWS specification) _____
Is backing strip used? YES
Filler metal diameter and trade name MUREX 1/8" DIA. Flux for submerged arc or gas for gas metal arc or flux cored arc welding _____

VISUAL INSPECTION

Appearance ACCEPTABLE Undercut NONE Piping porosity NONE

Guided Bend Test Results

Type	Result	Type	Result
3G SB - 1	ACCEPTABLE		
3G SB - 2	ACCEPTABLE		

Test conducted by MICHAEL A SCULLY Laboratory test no. 99031208
per CWI # 98070121 Test date MARCH 15,1999

Fillet Test Results

Appearance _____ Fillet size _____
Fracture test root penetration _____ Macroetch _____
(Describe the location, nature, and size of any crack or tearing of the specimen.)
Test conducted by _____ Laboratory test no. _____
per _____ Test date _____

RADIOGRAPHIC TEST RESULTS

Film Identification	Results	Remarks	Film Identification	Results	Remarks

Test witnessed by _____ Test no. _____

We, the undersigned, certify that the statements in this record are correct and that the welds were prepared and tested in accordance with the requirements of AWS D1.1 - 98 Structural Welding Code - Steel.

Contractor CONTRACTORS CRANE SERVICE, INC.
Authorized by DAVID HOLTON
Date MARCH 15,1999

WELDING PROCEDURE SPECIFICATION

MATERIAL SPECIFICATION _____

WELDING PROCESS SMAW

MANUAL, SEMIAUTOMATIC OR AUTOMATIC MANUAL

POSITION OF WELDING HORIZONTAL

FILLER METAL SPECIFICATION AWS A5.1

FILLER METAL CLASSIFICATION E7018

ELECTRODE AND MANUFACTURER JETWELD LH-73 LINCOLN ELECTRIC (Conforms to AWS5.1, ASME SFA-5.1)

FLUX AND MANUFACTURE N/A

SHIELDING GAS N/A DEW POINT N/A FLOW RATE N/A

SINGLE OR MULTIPLE PASS SINGLE PASS

SINGLE OR MULTIPLE ARC SINGLE ARC

WELDING CURRENT DC

POLARITY REVERSED

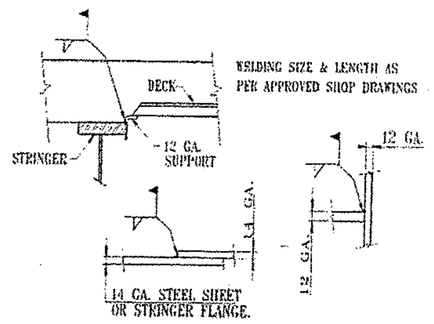
WELDING PROGRESSION N/A

ROOT TREATMENT REMOVE RUST, SLAG, MOISTURE, GREASE & ANY FOREIGN MATERIAL

PREHEAT AND INTERPASS TEMPERATURE N/A

POSTHEAT TEMPERATURE N/A

WELDING PROCEDURE

PASS NO.	ELECTRODE SIZE	WELDING PARAMETERS AMPERES	WELDING PARAMETERS VOLTS	TRAVEL SPEED	JOINT DETAIL
1	1/8	200 RECOMMENDED 90-150	N/A	12" PER MINUTE	

THIS PROCEDURE MAY VARY DUE TO FABRICATION SEQUENCE, FIT-UP,PASS SIZE, ETC., WITHIN THE LIMITATION OF VARIABLES VARIABLES GIVEN IN SECTION 8A.

PROCEDURE NO.: 711.2

REVISION NO.: _____

FABRICATOR OR ERECTOR: J & B WELDING

AUTHORIZED BY: _____

DATE: _____

COMMONWEALTH OF MASSACHUSETTS PAUL H. RUSKIS No. 40751 REGISTERED PROFESSIONAL ENGINEER

MAY 10 2004

VTRANS
RECEIVED
OK'D BY _____ OK'D BY JWC
MAR 06 2009
RESUBMIT ___ ___ APPROVED ✓ AS NOTED
BY DATE 3/10/09

TVGA
CONSULTANTS

Date: 3/31/2009

TO: Merrimack Sheet Metal
119 Hall St.
Concord, NH 03301

Attn: Jim Dussault

Project Name: I-91 over Broad Brook and Broad Brook Road, Town of Guilford

Project No. AC IM 091-1(33)

Structure Identification:
The following finger joint details [Item 516.10, Bridge Expansion Joint, Finger Joint] for the above project (Job No. 2353) received on 3/30/2009, have been reviewed and are being returned herewith.

Sheets: **F1, F2, F4, F5, F6, F7** **are approved [X]** **F3** **approved "as noted" [X]**

Upon receipt of these "as noted" or "approved" plans, please make appropriate changes and submit white prints for our use in the record plans for this project.

You must provide written notice to Vermont Agency of Transportation (VTRANS) Structures Section office as to the date fabrication represented by these drawings will begin. **That notice must be received at least seven days prior to that date, as per Specifications 506.03. Any material fabricated prior to the notification date is subject to rejection without further cause.**

Very truly yours,

TVGA Consultants

Kenneth M. Wojtkowski, P.E.
Senior Project Manager

Attachments: One set of prints (w/ approved welding procedure specification)

cc: [X] VTRANS Resident Engineer: Chad Greenwood, w/prints and wps (2 sets)
[X] Contractor: J.A. McDonald, Attn: Marc Boudreau, w/prints and wps
[ ] Subcontractor -_____ letter only (if railing details then include prints)
[X] VTRANS Construction Section - letter only
(To: Const. Eng. David Hoyne, Attn: Reg. Const. Eng. Ann Gammell)
[X] VTRANS Consultant Project Manager – Sherward G. Farnsworth – w/prints and wps
[ ] VTRANS Materials & Research Section (C&IA Unit) - Letter only
[X] VTRANS Structures Section - Shop Inspector Jeff Clark w/prints and wps

ELMA
NEW YORK

BUFFALO
NEW YORK

COOPERSTOWN
NEW YORK

JAMESTOWN
NEW YORK

NIAGARA FALLS
NEW YORK

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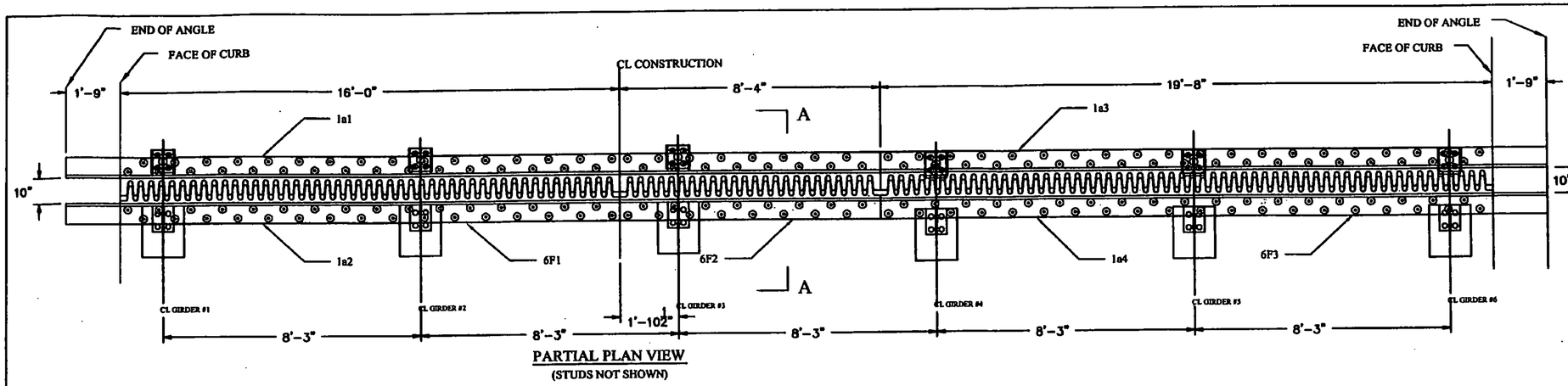
WESTERN NY FIRMS DESIGNING PROJECTS

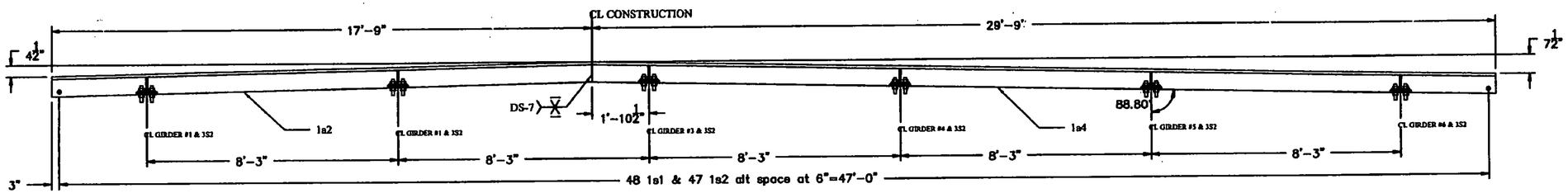
Member
ACEC New York
American Council of Engineering Companies of New York

s:\dept001\301301 guilford\letters\090331_finger jnt approval.doc

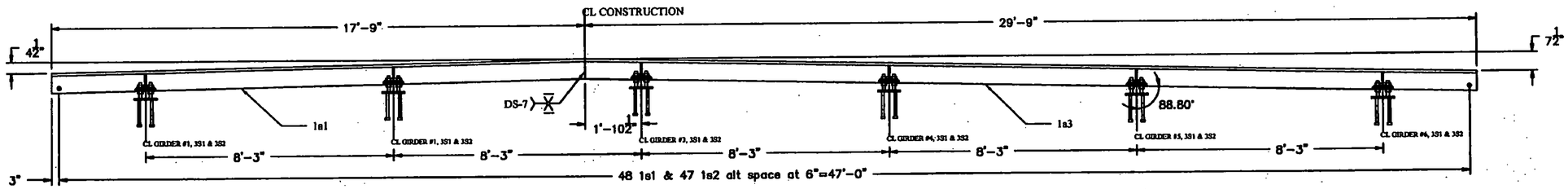
1000 MAPLE ROAD
ELMA, NY 14059
P.716.655.8842
F.716.655.0937
WWW.TVGA.COM



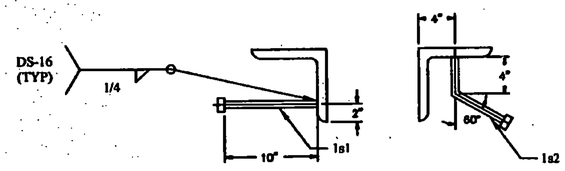
PARTIAL PLAN VIEW
(STUDS NOT SHOWN)



DECK SIDE ANGLES
(NEARSIDE)



BACKWALL ANGLES
(FARSIDE)



STUD ANCHOR DETAILS

BILL OF MATERIALS

QTY	MARK	SHAPE	LENGTH	REMARKS
1	1J1	FINGER JOINT ASSEMBLY		
1	1a1	L 8" x 8" x 1"	17'-9"	
1	1a2	L 8" x 8" x 1"	17'-9"	
1	1a3	L 8" x 8" x 1"	29'-9"	
1	1a4	L 8" x 8" x 1"	29'-9"	
96	1s1	3/4" x 10" Welded Stud		
94	1s2	3/4" x 10" Bent Welded Stud		
4	1r1	1/16" x 3" Butyl Rubber x 22'-9"		
4	1r2	1/16" x 3" Butyl Rubber x 21'-3"		
6	3S1	BACKWALL SUPPORT PLATES		
12	3S2	GIRDER SUPPORT PLATES		
1	4T1	TROUGH		
1	6F1	FINGER		
1	6F2	FINGER		
1	6F3	FINGER		

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 3/31/2009

		DATE SUBMITTED
2	3-23-2009	REVISED PER APPROVAL COMMENTS
1	1-16-2009	REVISED PER APPROVAL COMMENTS
0	11-24-2008	SUBMITTED FOR APPROVAL
REV NO.	DATE	DESCRIPTION

HOLES AS NOTED
MATERIAL: AASHTO M 270 GRADE 50 GALV

DRAWING COVERS
FINGER JOINT LAYOUT (3N)

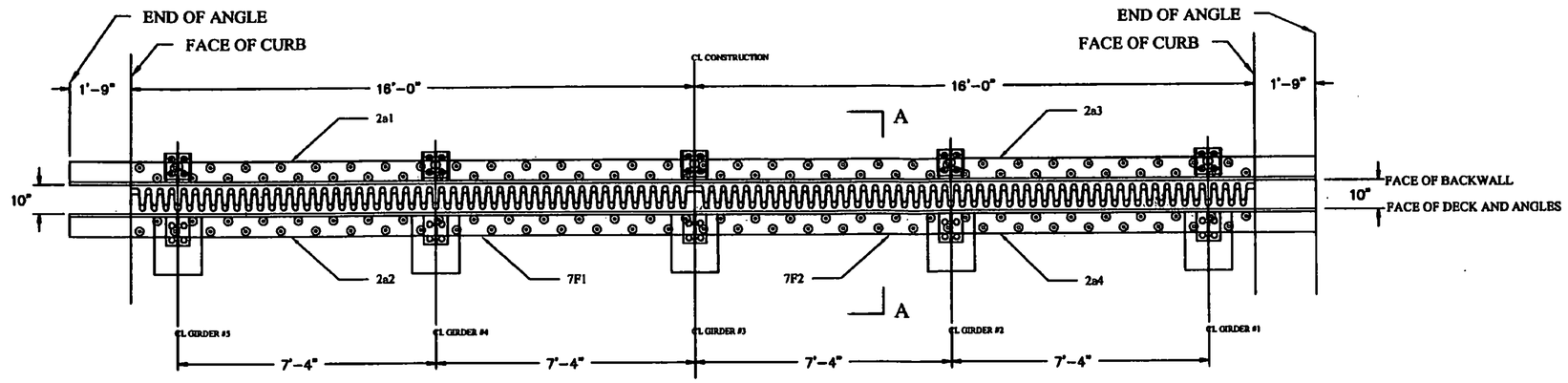
	PROJECT	GUILFORD IM 091-1(33)
	LOCATION	I-91 OVER BROAD BROOK & BROAD BROOK ROAD
	ENGINEER	VERMONT AGENCY OF TRANSPORTATION
	CUSTOMER	J.A. MCDONALD, INC.

MERRIMACK SHEET METAL

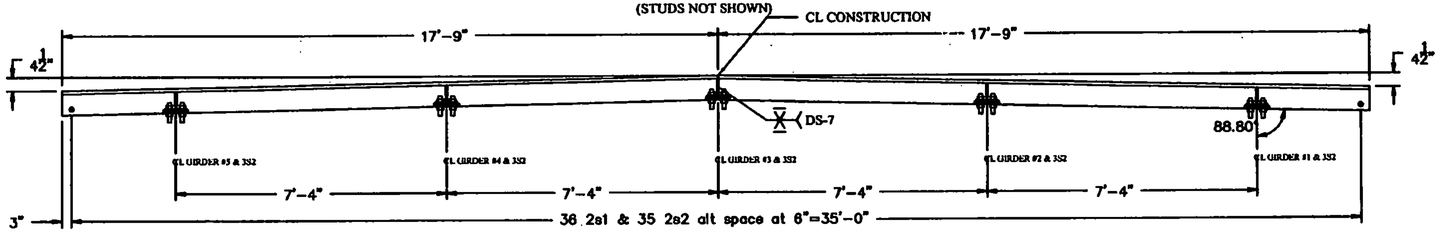
119 HALL STREET
CONCORD NH 03301

Tel. 603.224.7766
Fax 603.224.7925

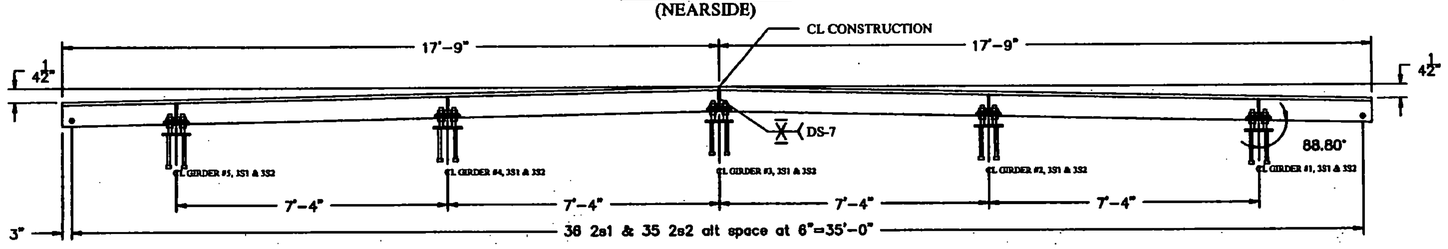
DRAWN BY: RL
CHECKED BY: JD
JOB NO: #2353
DWG: F1



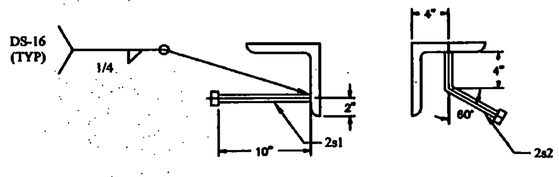
PARTIAL PLAN VIEW
(STUDS NOT SHOWN)



DECK SIDE ANGLES
(NEARSIDE)



BACKWALL ANGLES
(FARSIDE)



STUD ANCHOR DETAILS

BILL OF MATERIALS

QTY	MARK	SHAPE	LENGTH	REMARKS
1	2J1	FINGER JOINT ASSEMBLY		
1	2a1	L 8" x 8" x 1"	17'-9"	
1	2a2	L 8" x 8" x 1"	17'-9"	
1	2a3	L 8" x 8" x 1"	17'-9"	
1	2a4	L 8" x 8" x 1"	17'-9"	
72	2s1	3/4" x 10" Welded Stud		
70	2s2	3/4" x 10" Bent Welded Stud		
4	2r1	1/16" x 3" Butyl Rubber x 32'-0"		
5	3S1	BACKWALL SUPPORT PLATES		
10	3S2	GIRDER SUPPORT PLATES		
1	5T1	TROUGH		
1	7F1	FINGER		
1	7F2	FINGER		

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Andy Edd
DATE: 3/31/2009

		DATE SUBMITTED
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0	11-24-2008	SUBMITTED FOR APPROVAL
REV NO.	DATE	DESCRIPTION

HOLES AS NOTED
MATERIAL: AASHTO M 270 GRADE 50 GALV

DRAWING COVERS
FINGER JOINT LAYOUT (3S)

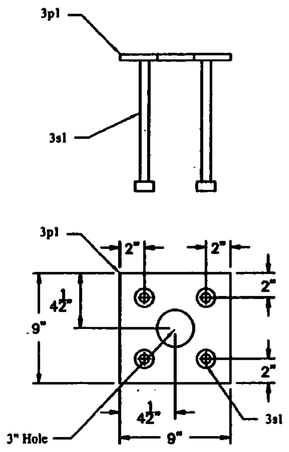
	PROJECT	GUILFORD IM 091-1(33)
	LOCATION	I-91 OVER BROAD BROOK & BROAD BROOK ROAD
	ENGINEER	VERMONT AGENCY OF TRANSPORTATION
	CUSTOMER	J.A. MCDONALD, INC.

MERRIMACK SHEET METAL

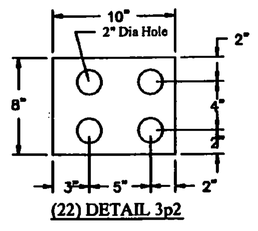
119 HALL STREET
CONCORD NH 03301

Tel. 603.224.7766
Fax 603.224.7925

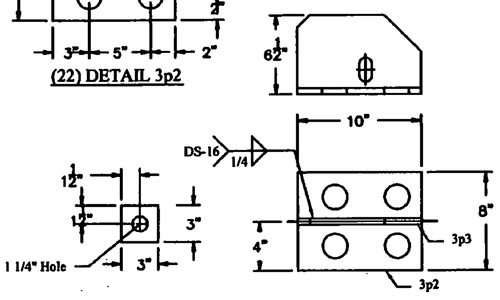
DRAWN BY:	RL
CHECKED BY:	JD
JOB NO:	#2353
DWG:	F2



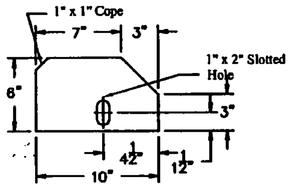
(11) DETAIL 3S1



(22) DETAIL 3p2

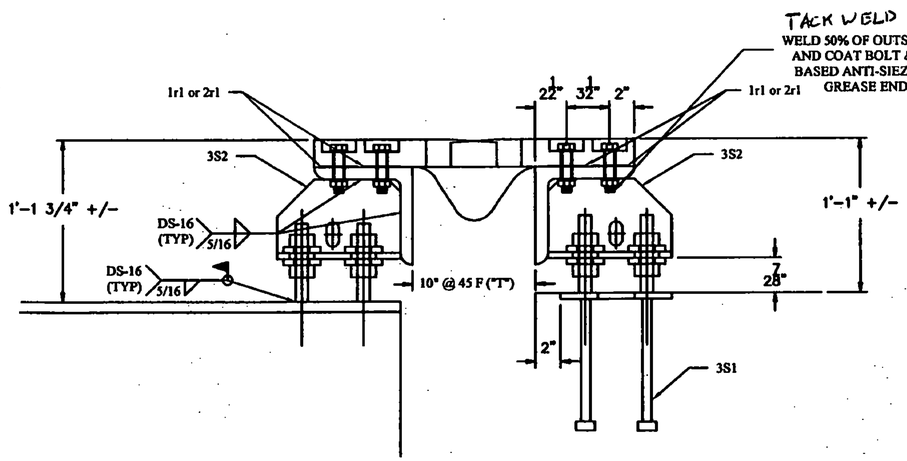


(88) DETAIL 3b1 (22) DETAIL 3S2



(22) DETAIL 3p3

DETAIL OF GIRDER PLATES



SECTION A-A

TEMPERATURE ADJUSTMENT TABLE	
TEMPERATURE	"T"
15 °F	10 9/16"
30 °F	10 5/16"
45 °F	10"
60 °F	9 11/16"
75 °F	9 3/8"
90 °F	9 1/8"

TVGA CONSULTANTS

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☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Andrew Cadin
DATE: 3/31/2009

BILL OF MATERIALS

QTY	MARK	SHAPE	LENGTH	REMARKS
11	3S1	BACKWALL SUPPORT PLATE		
11	3p1	Plate 1/2" x 9"	0'-9"	NO GLAV
44	3s1	3/4" Stud x 10"		
22	3S2	BRACKET SUPPORT ASSY		
22	3p2	Plate 1/2" x 8"	0'-10"	
22	3p3	Plate 1/2" x 6"	0'-10"	
88	3b1	Bar 3/8" x 3"	0'-3"	
88		1" Dia Threaded Rod x 6" with 2 Nuts		

EXPANSION JOINT NOTES:

1. FOR BRIDGE 3N AND 3S, PREFORMED FABRIC TROUGH SHALL BE CONTINUOUS. TROUGH MATERIAL SHALL CONFORM TO SUBSECTION 707.07.
2. FABRIC TROUGH SHALL BE INSTALLED SO THAT MINIMUM SLOPE IS 1%.
3. BUTYL RUBBER TAPE SHALL CONFORM TO SUBSECTION 707.12.
4. STEEL FINGER PLATES SHALL BE AASHTO M270 GRADE 50. ALL OTHER STEEL COMPONENETS SHALL BE AASHTO M270 GRADE 36.
5. BOLTS, NUTS & WASHERS SHALL CONFORM TO AASHTO M164 TYPE 1 UNO.
6. ALL STEEL COMPONENTS SHALL BE GALVANIZED OR METALIZED PER SUBSECTION 506.15, UNO.
7. A DRIP BEAD 1/4" X 7" STRIP OF PREFORMED MATERIAL SHALL BE CEMENTED TO THE BOTTOM OF THE FABRIC TROUGH USING AN ADHESIVE APPROVED BY THE MANUFACTURER. THE DRIP BEAD SHALL BE APPLIED 1" FROM THE DOWNSPROUT END OF THE TROUGH.
8. THREADED ROD AND ASSOCIATED NUTS SHALL CONFROM TO SUBSECTION 714.04.

REV NO.	DATE	DESCRIPTION
		DATE SUBMITTED
2	3-23-2009	REVISED PER APPROVAL COMMENTS
1	1-16-2009	REVISED PER APPROVAL COMMENTS
0	12-1-2008	SUBMITTED FOR APPROVAL

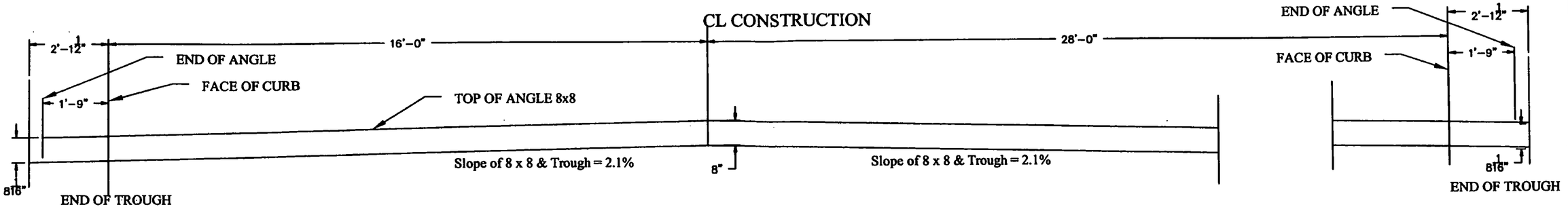
HOLES AS NOTED
MATERIAL: AASHTO M 270 GRADE 50 GALV

DRAWING COVERS
FINGER JOINT SUPPORT DETAILS (3N & 3S)

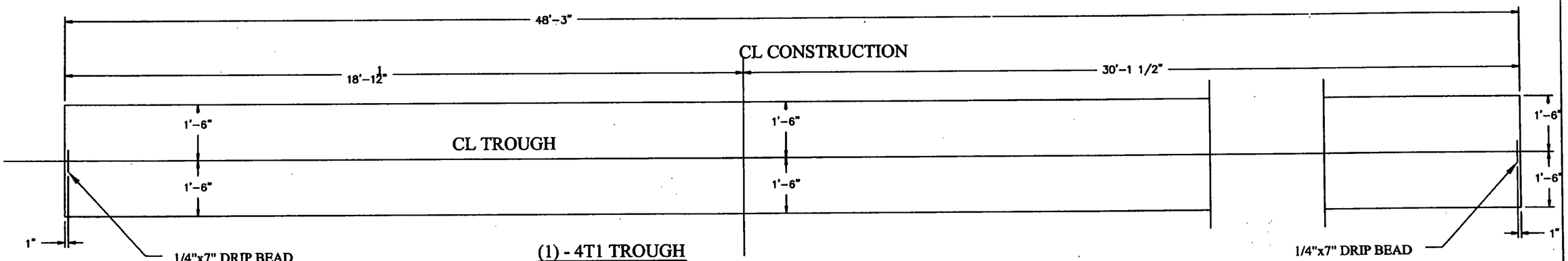
PROJECT	GUILFORD BM 091-1(33)
LOCATION	I-91 OVER BROAD BROOK & BROAD BROOK ROAD
ENGINEER	VERMONT AGENCY OF TRANSPORTATION
CUSTOMER	J.A. MCDONALD, INC.

MERRIMACK SHEET METAL
119 HALL STREET
CONCORD NH 03301
Tel. 603.224.7766
Fax 603.224.7925

DRAWN BY: RL
CHECKED BY: JD
JOB NO: #2353
DWG: F3



FABRIC TROUGH PROFILE



(1) - 4T1 TROUGH

BILL OF MATERIALS				
QTY	MARK	SHAPE	LENGTH	REMARKS
1	4T1	TROUGH		
1		Preformed Fabric Material 3 Ply x 36" x 48'-3"		

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 3/31/2009

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1	1-16-2009	REVISED PER APPROVAL COMMENTS
0	11-24-2008	SUBMITTED FOR APPROVAL

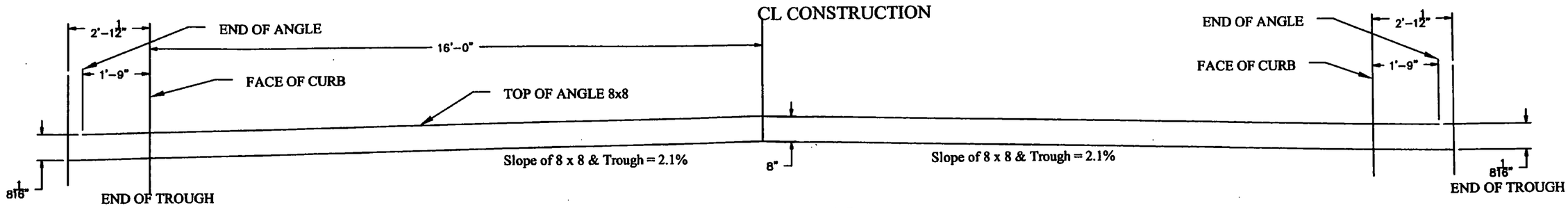
HOLES AS NOTED
MATERIAL: AASHTO M 270 GRADE 50 GALV

DRAWING COVERS
TROUGH LAYOUT (3N)

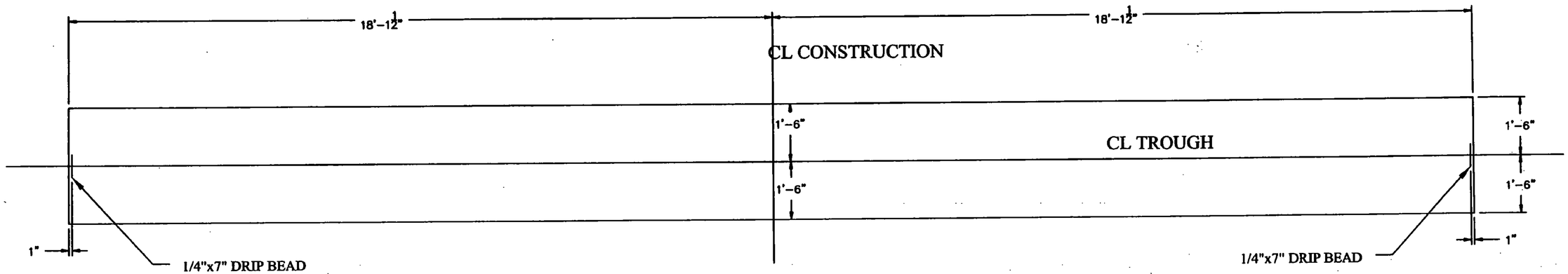
PROJECT	GUILFORD IM 091-1(33)
LOCATION	I-91 OVER BROAD BROOK & BROAD BROOK ROAD
ENGINEER	VERMONT AGENCY OF TRANSPORTATION
CUSTOMER	J.A. MCDONALD, INC.

MERRIMACK SHEET METAL
119 HALL STREET
CONCORD NH 03301
Tel. 603.224.7766
Fax 603.224.7925

DRAWN BY: RL
CHECKED BY: JD
JOB NO: #2353
DWG: F4



FABRIC TROUGH PROFILE



(1) - 5T1 TROUGH

BILL OF MATERIALS				
QTY	MARK	SHAPE	LENGTH	REMARKS
1	5T1	TROUGH		
1	Preformed Fabric Material 3 Ply x 36" x 36'-3"			

TVGA CONSULTANTS

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HOLES AS NOTED
MATERIAL: AASHTO M 270 GRADE 50 GALV

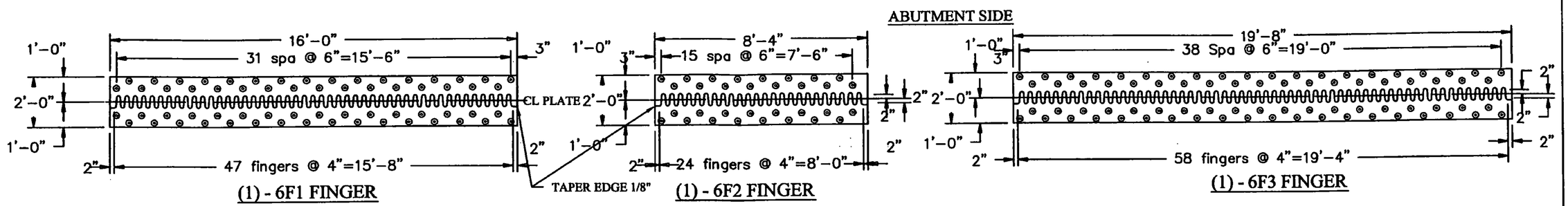
DRAWING COVERS
TROUGH LAYOUT (3S)

PROJECT	GUILFORD IM 091-1(33)
LOCATION	I-91 OVER BROAD BROOK & BROAD BROOK ROAD
ENGINEER	VERMONT AGENCY OF TRANSPORTATION
CUSTOMER	J.A. MCDONALD, INC.

MERRIMACK SHEET METAL
119 HALL STREET
CONCORD NH 03301
Tel. 603.224.7766
Fax 603.224.7925

DRAWN BY: RL
CHECKED BY: JD
JOB NO: #2353
DWG: F5

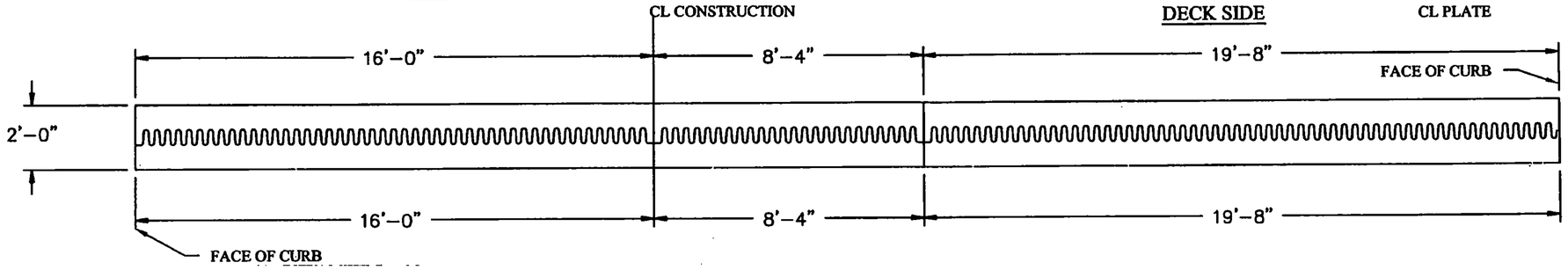
ABUTMENT SIDE



(1) - 6F1 FINGER

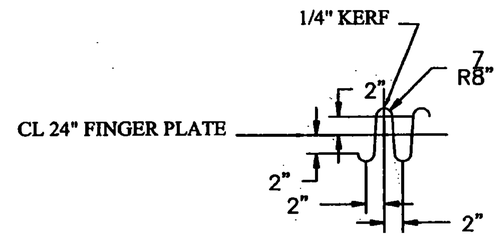
(1) - 6F2 FINGER

(1) - 6F3 FINGER

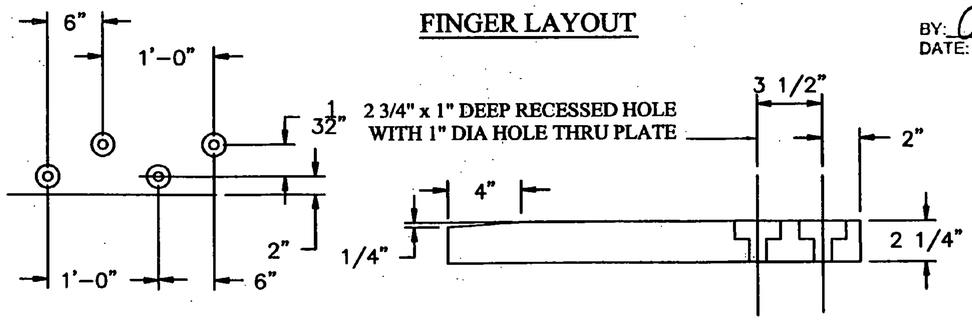


FINGER PLATE LAYOUT

BILL OF MATERIALS				
QTY	MARK	SHAPE	LENGTH	REMARKS
1	6F1	FINGER		
1	6p1	Plate 2 1/4 x 24"	16'-0"	
64	7/8" Hexhead Bolts x 3 1/2" lg with nut			
1	6F2	FINGER		
1	6p2	Plate 2 1/4 x 24"	8'-4"	
32	7/8" Hexhead Bolts x 3 1/2" lg with nut			
1	6F3	FINGER		
1	6p3	Plate 2 1/4 x 24"	19'-8"	
78	7/8" Hexhead Bolts x 3 1/2" lg with nut			



FINGER LAYOUT



HOLE LAYOUT

DETAIL FINGERS

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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0	11-24-2008	SUBMITTED FOR APPROVAL
REV NO.	DATE	DESCRIPTION

HOLES AS NOTED
MATERIAL: AASHTO M 270 GRADE 50 GALV.

DRAWING COVERS
FINGERS DETAIL (3N)

PROJECT	GUILFORD IM 091-1(33)
LOCATION	I-91 OVER BROAD BROOK & BROAD BROOK ROAD
ENGINEER	VERMONT AGENCY OF TRANSPORTATION
CUSTOMER	J.A. MCDONALD

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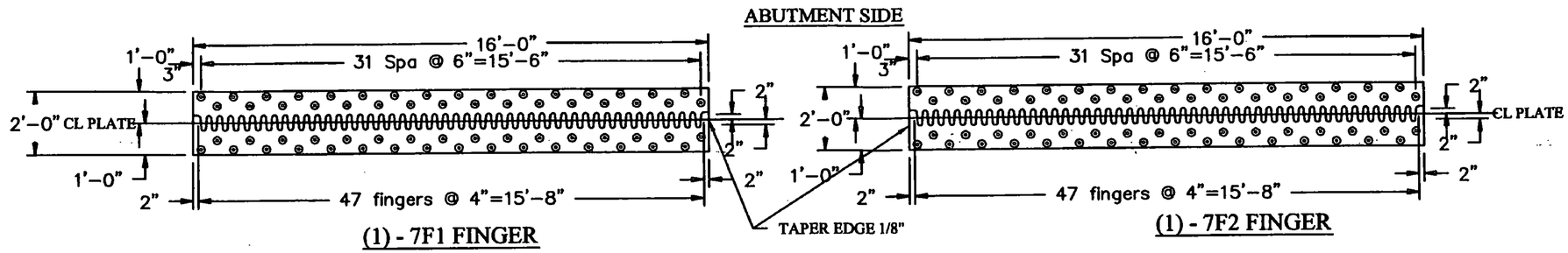
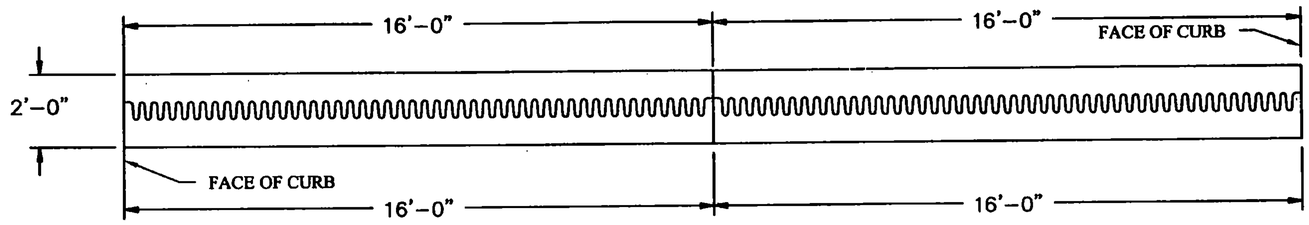
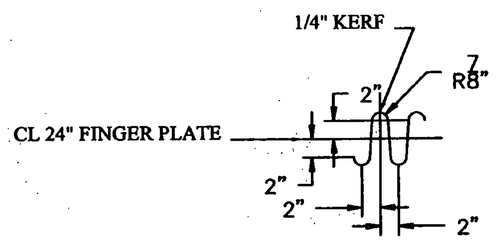
CONCORD NH 03301
Tel. 603.224.7766
Fax 603.224.7925

DRAWN BY: RL
CHECKED BY: JD
JOB NO: #2353
DWG: F6

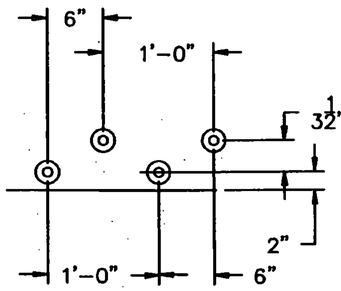




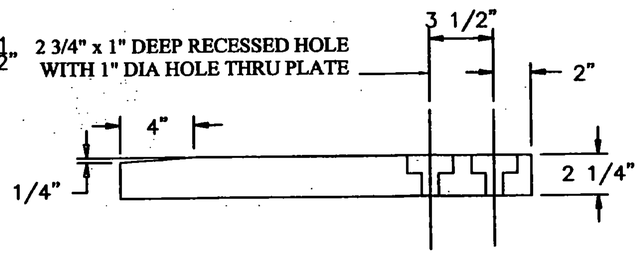
FINGER PLATE LAYOUT



FINGER LAYOUT



HOLE LAYOUT



DETAIL FINGERS

BILL OF MATERIALS

QTY	MARK	SHAPE	LENGTH	REMARKS
1	7F1	FINGER		
1	7p1	Plate 2 1/4 x 24"	16'-0"	
64	7/8" Hexhead Bolts x 3 1/2" lg with nut			
1	7F2	FINGER		
1	7p2	Plate 2 1/4 x 24"	16'-0"	
64	7/8" Hexhead Bolts x 3 1/2" lg with nut			

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 5/31/2009

DRAWING COVERS
FINGERS DETAIL (3S)

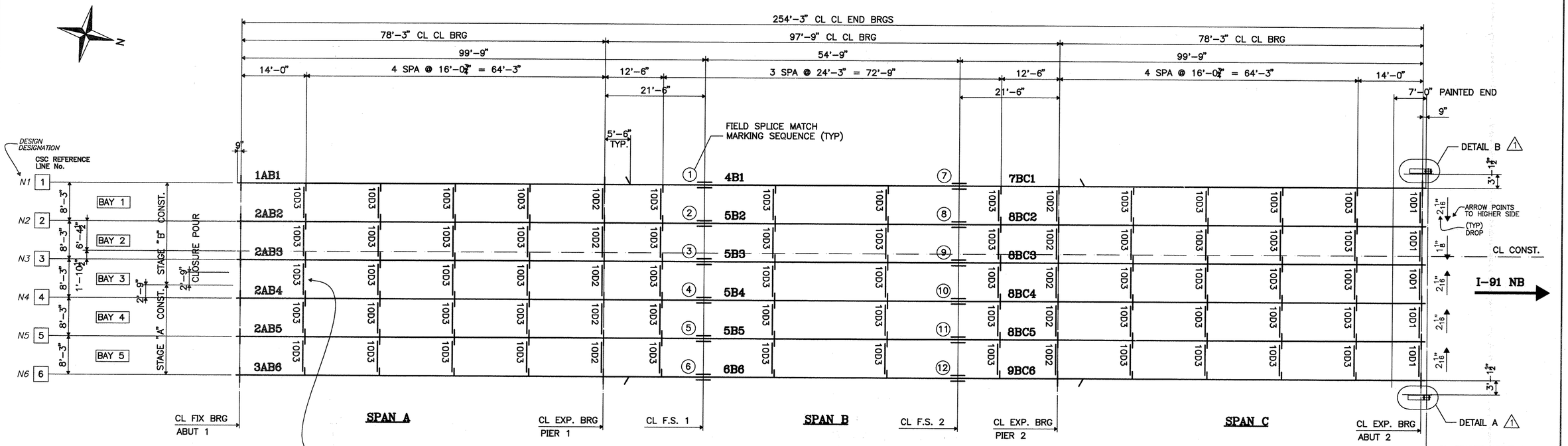
PROJECT	GUILFORD BM 091-1(33)
LOCATION	I-91 OVER BROAD BROOK & BROAD BROOK ROAD
ENGINEER	VERMONT AGENCY OF TRANSPORTATION
CUSTOMER	J.A. MCDONALD

		DATE SUBMITTED
1	3-23-2009	REVISED PER APPROVAL COMMENTS
0	11-24-2008	SUBMITTED FOR APPROVAL
REV NO.	DATE	DESCRIPTION

HOLES AS NOTED
MATERIAL: AASHTO M 270 GRADE 50 GALV

MERRIMACK SHEET METAL
119 HALL STREET
CONCORD NH 03301
Tel. 603.224.7766
Fax 603.224.7925

DRAWN BY: RL
CHECKED BY: JD
JOB NO: #2353
DWG: F7



ERECTOR'S NOTE
FOR BAY 3 INT. DIAPHRAGMS

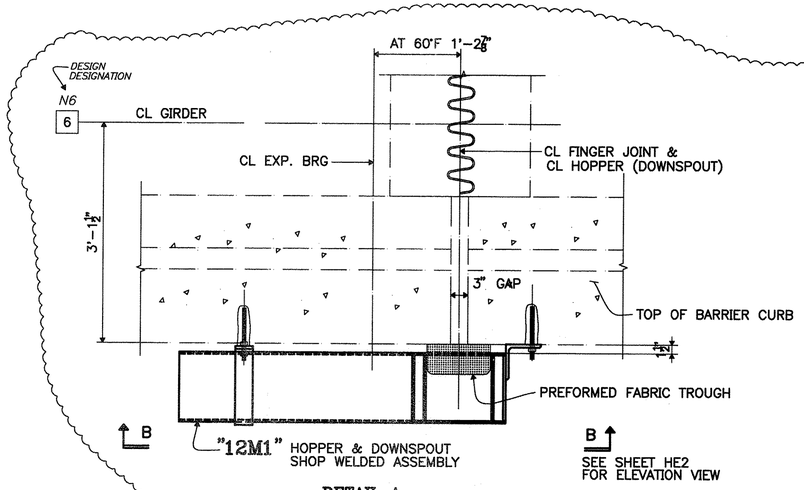
1. INTERMEDIATE DIAPHRAGMS BETWEEN GIRDERS N3 & N4 SHALL NOT BE INSTALLED UNTIL THE STAGE B DECK, EXCLUDING CLOSURE POUR, HAS BEEN IN PLACE FOR AT LEAST 48 HOURS, OR THEY MAY BE INSTALLED BY CONNECTING ONE END ONLY.

2. INSTALL DIAPHRAGMS BETWEEN GIRDERS N3 & N4 PRIOR TO PLACING CLOSURE POUR.

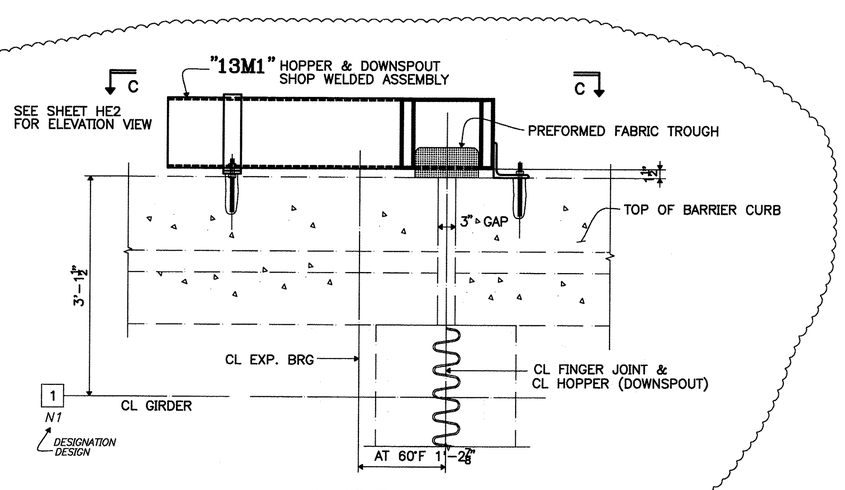
STEEL ERECTION PLAN ~ BRIDGE 3N

((BEARING & ANCHOR BOLT DETAILS BY OTHERS)

-ALL GIRDERS ARE 37" WEB DEPTH WELDED PL GIRDERS (U.N.)
-WEB DEPTH VARIES AT ABUTS, (31 3/4" AT ABUT. 1 & 30" AT ABUT. 2)
-SEE SHEET "HE2" FOR TYPICAL ELEVATION AT DIAPHRAGMS.
-SEE SHEET "HE3" FOR GRADE & CAMBER DIAGRAMS.
-SEE SHEET "HW1" FOR PROGRESSIVE CAMBER DIAGRAM.
-SEE SHEET "HN1" FOR GENERAL NOTES.



DETAIL A
DOWNSPOUT HOPPER PLAN AT GIRDER "N6" -LINE 6



DETAIL B
DOWNSPOUT HOPPER PLAN AT GIRDER "N1" -LINE 1

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 4/24/2009

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

Field Use
Approval

NOTICE TO ERECTOR

NO CREDIT WILL BE ALLOWED, BACK-CHARGE ACCEPTED OR LIABILITY ASSUMED BY CAROLINA STEEL TO ANYONE FOR WORK PERFORMED IN REPLACING OR CORRECTING MATERIALS OR WORKMANSHIP FOR THE MATERIALS SHOWN ON THIS DRAWING UNLESS THESE DIFFICULTIES HAVE BEEN BROUGHT TO THE ATTENTION OF CAROLINA STEEL GROUP, LLC. AND PROPER CORRECTIVE WORK HAS BEEN EXPRESSLY AUTHORIZED BY CAROLINA STEEL GROUP, LLC.

FABRICATED BY COLFAX
HOLES ____ SHOP FASTENERS ____
SHOP PAINT ____
SHOP INSPECTION ____
GENERAL NOTES ____

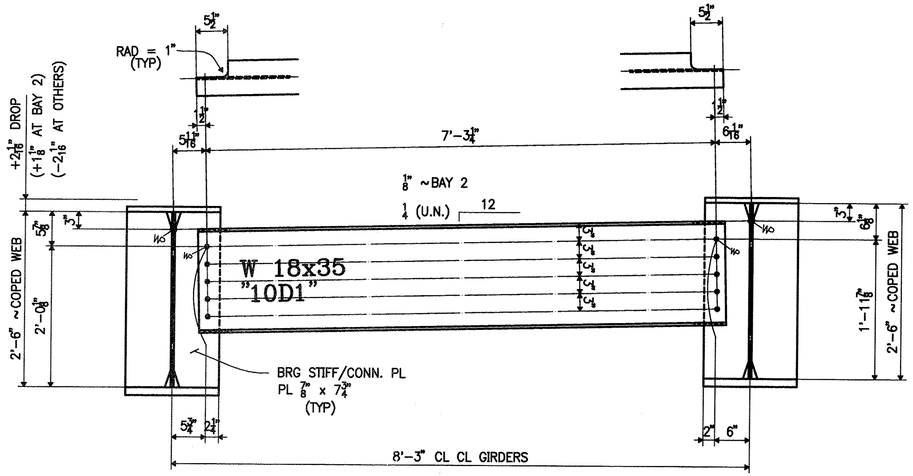
ORDER NO. 08-18537H22
DETAILS OF ERECTION PLAN
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

REVISIONS			
DATE	NO.	BY	
03/22/09	R1	PDC/SB	ADDED DOWNSPOUT LOCATION & PLAN

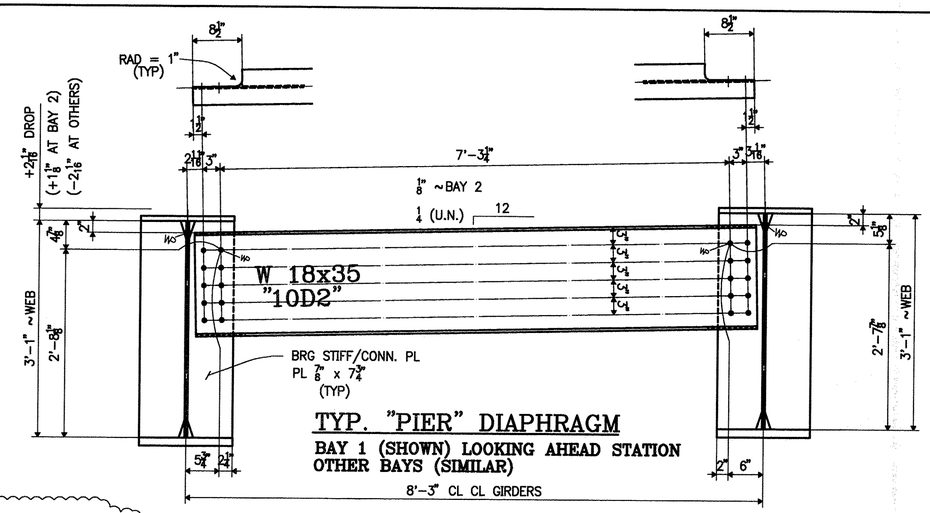
MADE BY WS
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

SHEET HE1



TYP. "ABUT 2" DIAPHRAGM

BAY 1 (SHOWN) LOOKING AHEAD STATION
OTHER BAYS (SIMILAR)



TYP. "PIER" DIAPHRAGM

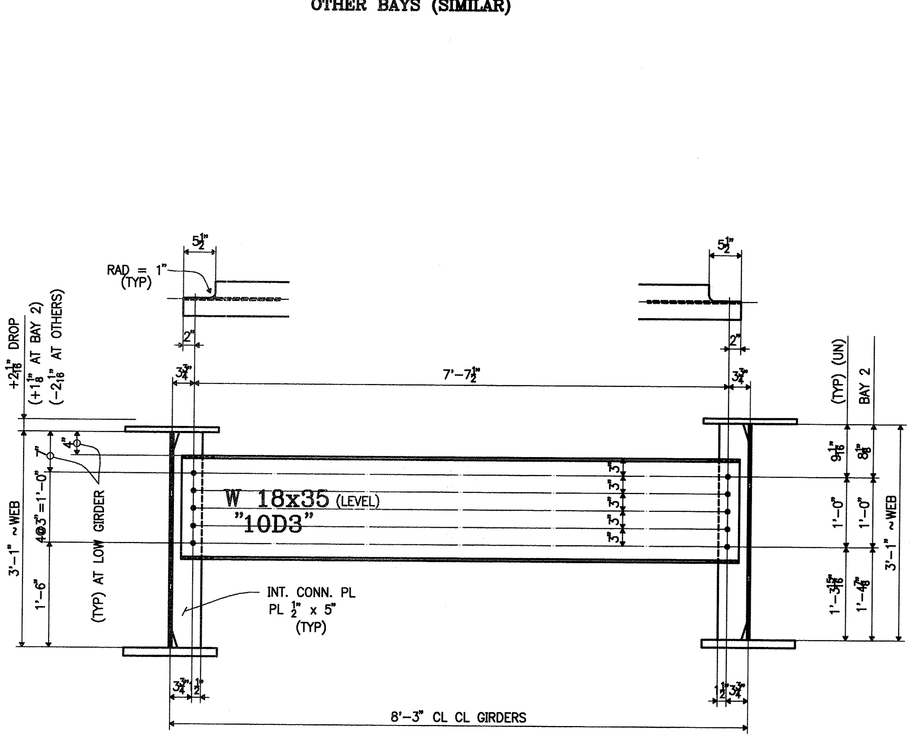
BAY 1 (SHOWN) LOOKING AHEAD STATION
OTHER BAYS (SIMILAR)

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

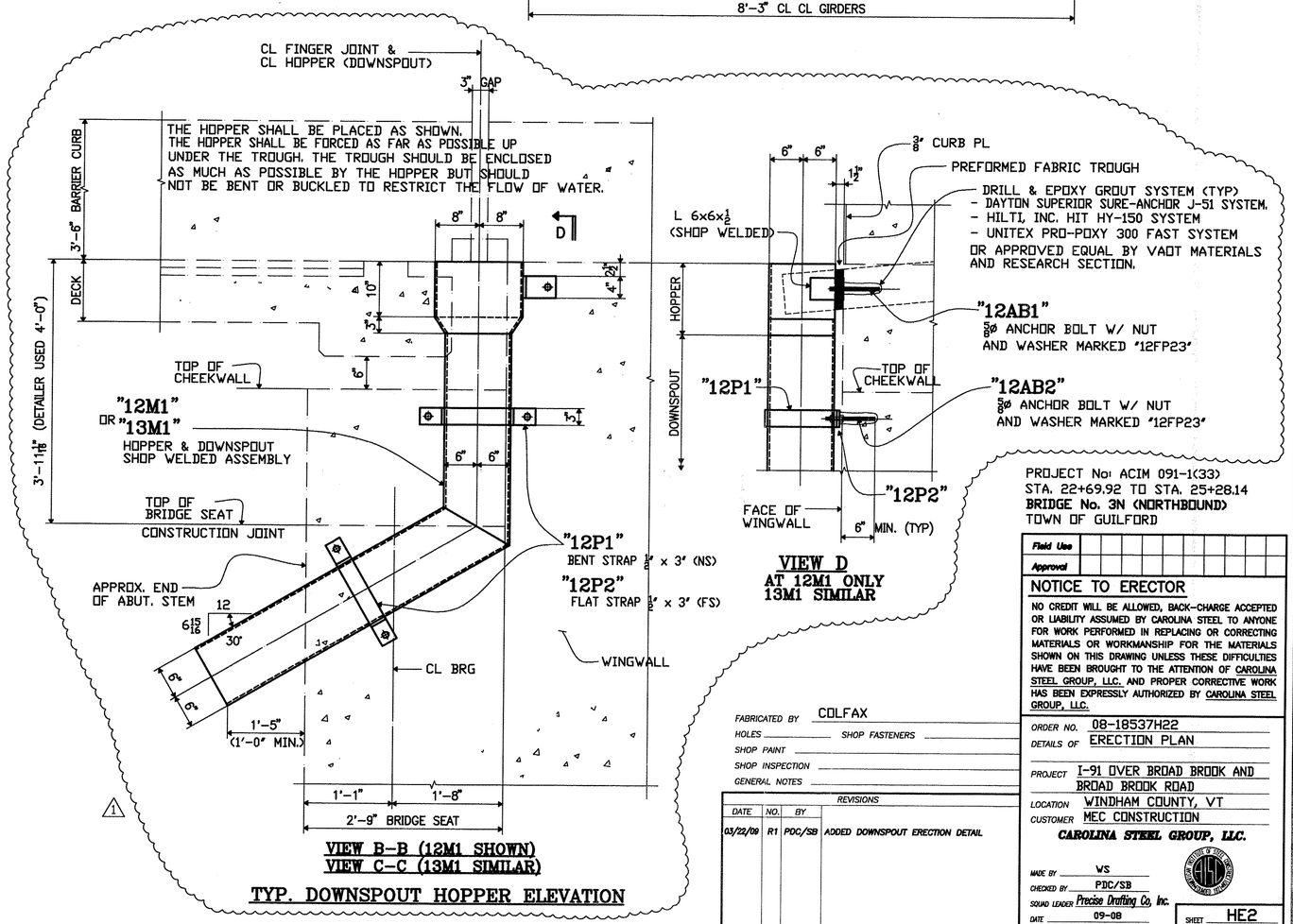
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Shop reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: [signature]
DATE: 01/24/2009



TYP. "INT." DIAPHRAGM

BAY 1 (SHOWN) LOOKING AHEAD STATION
OTHER BAYS (SIMILAR)



PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES ____ SHOP FASTENERS ____
SHOP PAINT ____
SHOP INSPECTION ____
GENERAL NOTES ____

REVISIONS			
DATE	NO.	BY	
03/22/09	R1	PDC/SB	ADDED DOWNSPOUT ERECTION DETAIL

Field Use ____ Approval ____

NOTICE TO ERECTOR

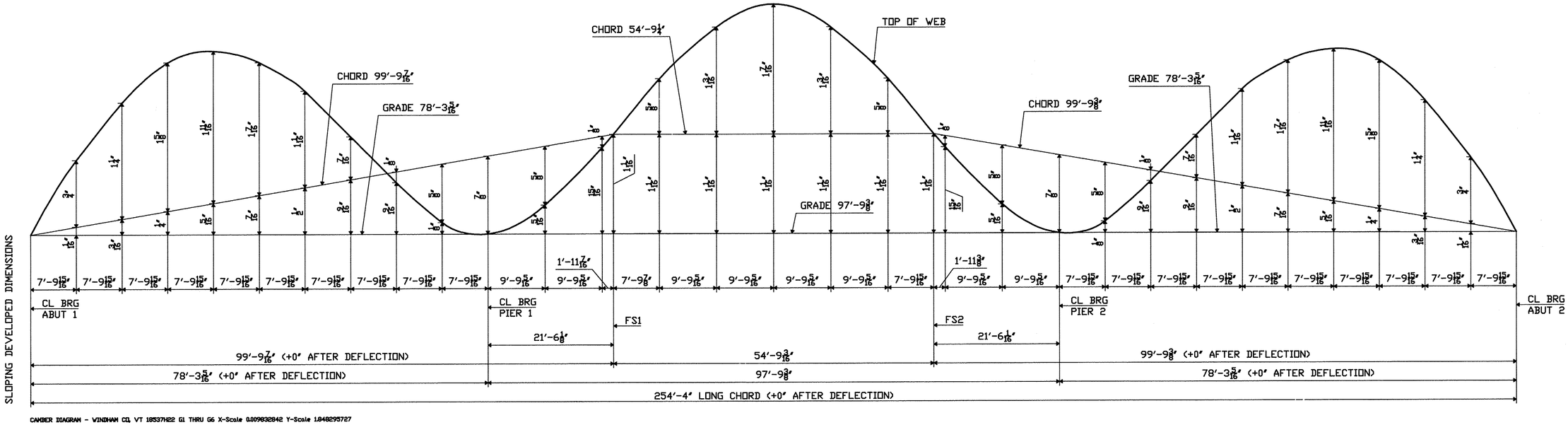
NO CREDIT WILL BE ALLOWED, BACK-CHARGE ACCEPTED OR LIABILITY ASSUMED BY CAROLINA STEEL TO ANYONE FOR WORK PERFORMED IN REPLACING OR CORRECTING MATERIALS OR WORKMANSHIP FOR THE MATERIALS SHOWN ON THIS DRAWING UNLESS THESE DIFFICULTIES HAVE BEEN BROUGHT TO THE ATTENTION OF CAROLINA STEEL GROUP, LLC. AND PROPER CORRECTIVE WORK HAS BEEN EXPRESSLY AUTHORIZED BY CAROLINA STEEL GROUP, LLC.

ORDER NO. 08-18537H22
DETAILS OF ERECTION PLAN
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

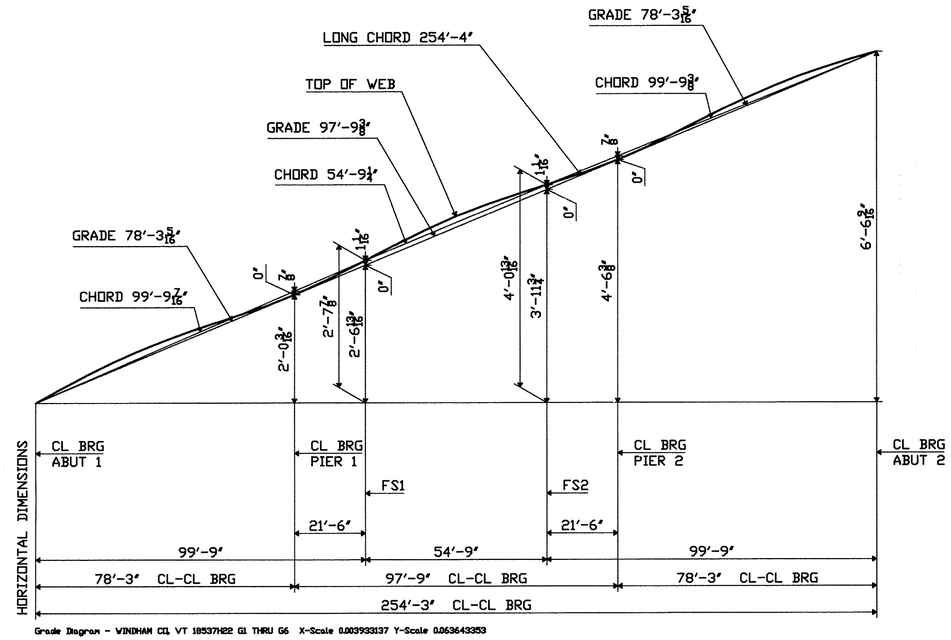
MADE BY WS
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

SHEET HE2



CAMBER DIAGRAM - WINDHAM CO, VT 18537H22 G1 THRU G6 X-Scale 0.009632842 Y-Scale 1.848295727

CAMBER DIAGRAM - LINES 1 THRU 6



Grade Diagram - WINDHAM CO, VT 18537H22 G1 THRU G6 X-Scale 0.003933137 Y-Scale 0.063643353

GRADE DIAGRAM - LINES 1 THRU 6

BLOCKING NOTE

-GIRDERS SHALL BE SHOP ASSEMBLED IN THE CAMBERED POSITION, WITH THE BEARINGS & SPLICES BLOCKED TO THE DIMENSIONS SHOWN, WITHOUT INDUCING STRESS INTO THE MEMBERS. FULLY ASSEMBLE AND CHECK ALL BLOCKING AND CAMBER ORDINATES IN THE SHOP, MAKING ADJUSTMENTS WHERE NECESSARY. HOLES SHALL BE DRILLED FROM THE SOLID, AND MATCH MARKED WITH THE SPLICE MATERIAL ASSEMBLED TO GIRDERS.
-FOR FIELD ERECTION, GIRDERS SHALL BE PINNED AND BOLTED, AND SPLICE ELEVATIONS SHALL BE CHECKED BEFORE BOLTS ARE TIGHTENED.
-SHIPPING BOLTS SHALL BE MACHINE BOLTS.
-ALL SHIPPING BOLTS SHALL BE REMOVED AND DISCARDED.

DEFINITION OF TERMS

-ALL DIMENSIONS IN THE GRADE AND CAMBER DIAGRAMS EXCEPT THOSE IDENTIFIED OTHERWISE, ARE ALONG THE LONG CHORD. THOSE IDENTIFIED BELOW ARE ALONG THE PLANES THROUGH THE ACTUAL ELEVATIONS.
-LONG CHORD - FROM CL END BRG TO CL END BRG.
-GRADE AND CAMBER DIAGRAMS
GRADE LINE - FROM CL BRG TO CL BRG.
CHORD LINE - FROM CL BRG TO CL NEAREST FIELD SPLICE, OR FROM CL F. SPLICE TO CL F. SPLICE.

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 1/23/2009

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES _____ SHOP FASTENERS _____
SHOP PAINT _____
SHOP INSPECTION _____
GENERAL NOTES _____

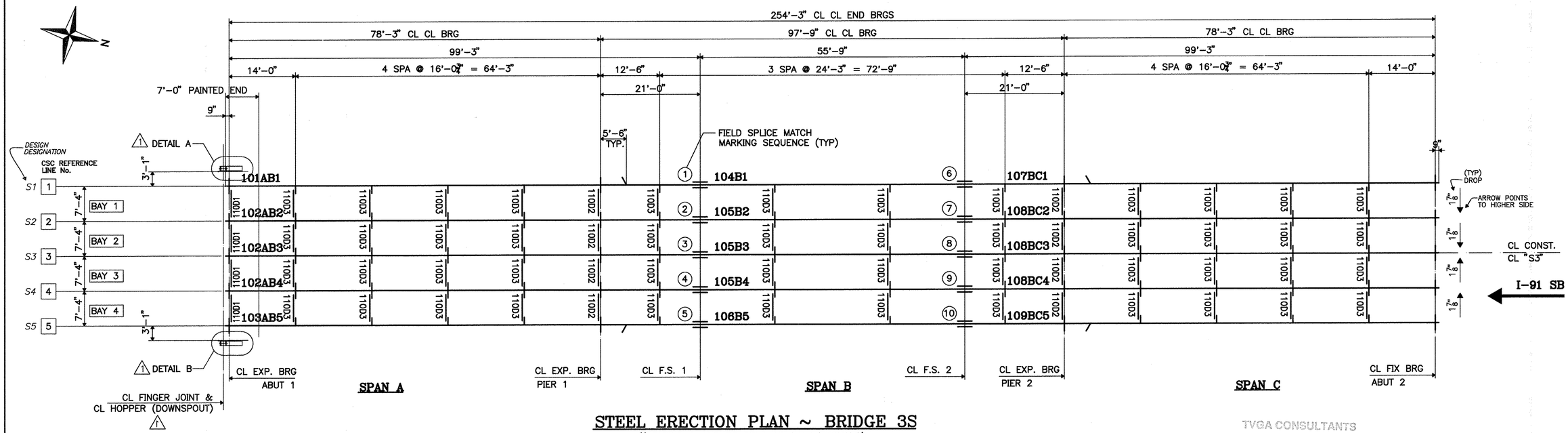
REVISIONS		
DATE	NO.	BY
	R1	

ORDER NO. 08-18537H22
DETAILS OF GRADE & CAMBER DIAGRAMS - LINES 1 THRU 6
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY WS
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

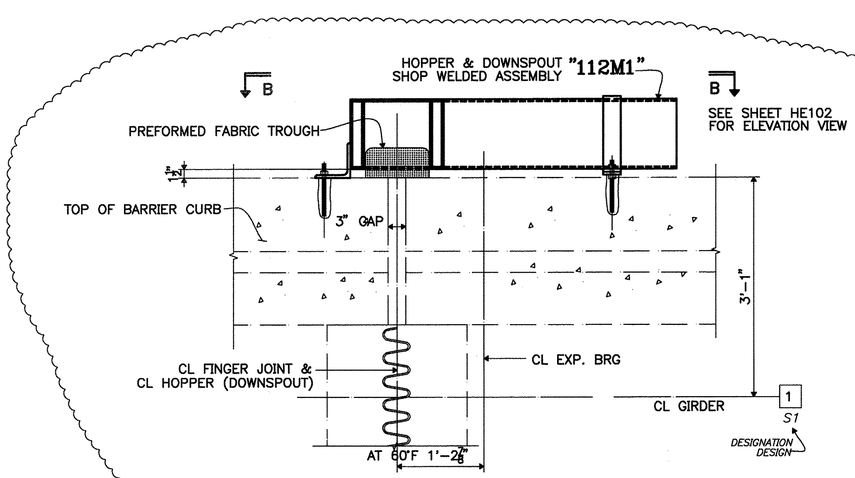
SHEET HE3



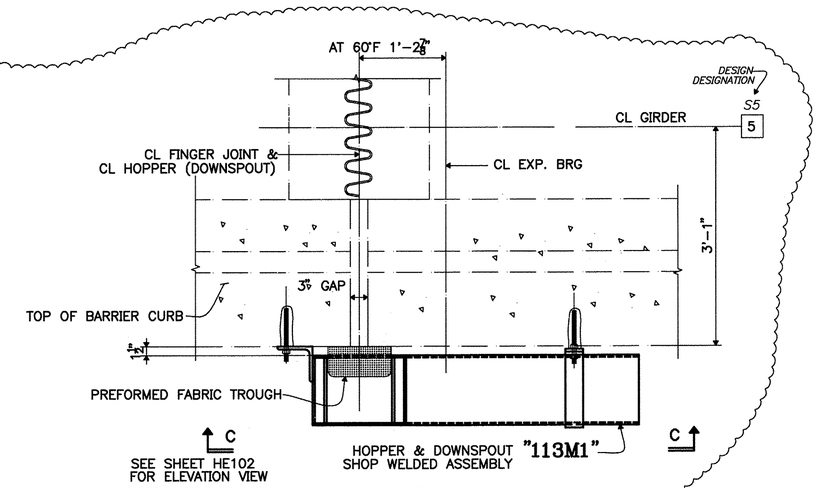
STEEL ERECTION PLAN ~ BRIDGE 3S

((BEARING & ANCHOR BOLT DETAILS BY OTHERS)

- –ALL GIRDERS ARE 37" WEB DEPTH WELDED PL GIRDERS (U.N.)
- –WEB DEPTH VARIES AT ABUTS, (33" AT ABUT. 1 & 31 5/8" AT ABUT. 2)
- –SEE SHEET "HE102" FOR TYPICAL ELEVATION AT DIAPHRAGMS.
- –SEE SHEET "HE103" FOR GRADE & CAMBER DIAGRAMS.
- –SEE SHEET "HW101" FOR PROGRESSIVE CAMBER DIAGRAM.
- –SEE SHEET "HN101" FOR GENERAL NOTES.



DETAIL A
DOWNSPOUT HOPPER PLAN AT GIRDER "S1" –LINE 1



DETAIL B
DOWNSPOUT HOPPER PLAN AT GIRDER "S5" –LINE 5

TVGA CONSULTANTS

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☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Ond CA
DATE: 7/6/2009

PROJECT No: ACIM 091–1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

Field Use										
Approval										

NOTICE TO ERECTOR

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FABRICATED BY NASH
HOLES ____ SHOP FASTENERS ____
SHOP PAINT ____
SHOP INSPECTION ____
GENERAL NOTES ____

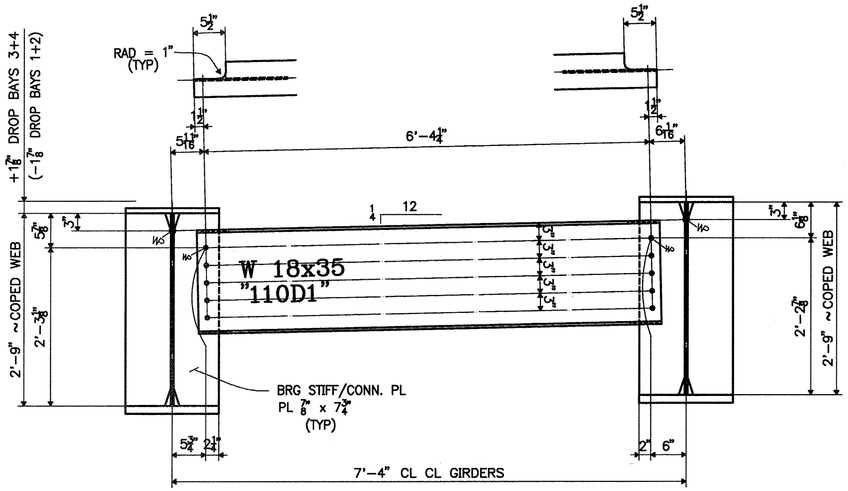
REVISIONS			
DATE	NO.	BY	
03/22/09	R1	PDC/SB	ADDED DOWNSPOUT LOCATION & PLAN

ORDER NO. 08–18537H32
DETAILS OF ERECTION PLAN
PROJECT I–91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

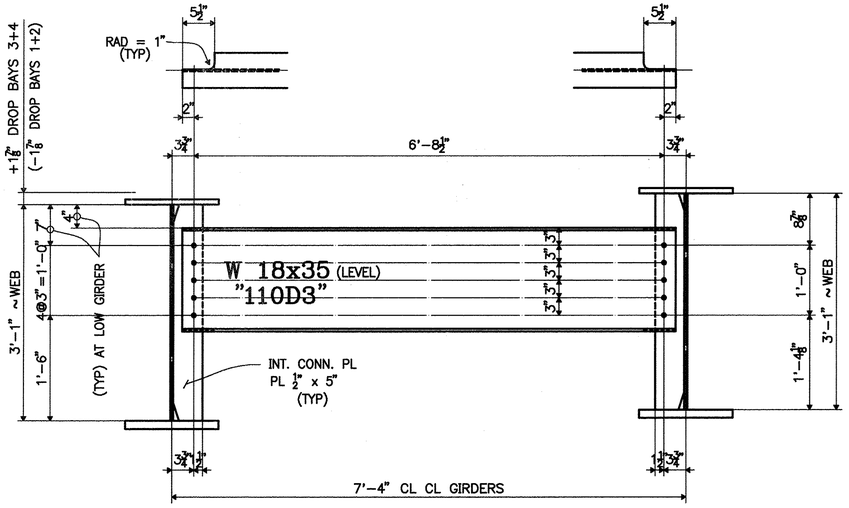
MADE BY WS
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09–08

SHEET HE101



TYP. "ABUT 1" DIAPHRAGM

BAY 4 (SHOWN) LOOKING BACK STATION
OTHER BAYS (SIMILAR)



TYP. "INT." DIAPHRAGM

BAY 1 (SHOWN) LOOKING AHEAD STATION
OTHER BAYS (SIMILAR)

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
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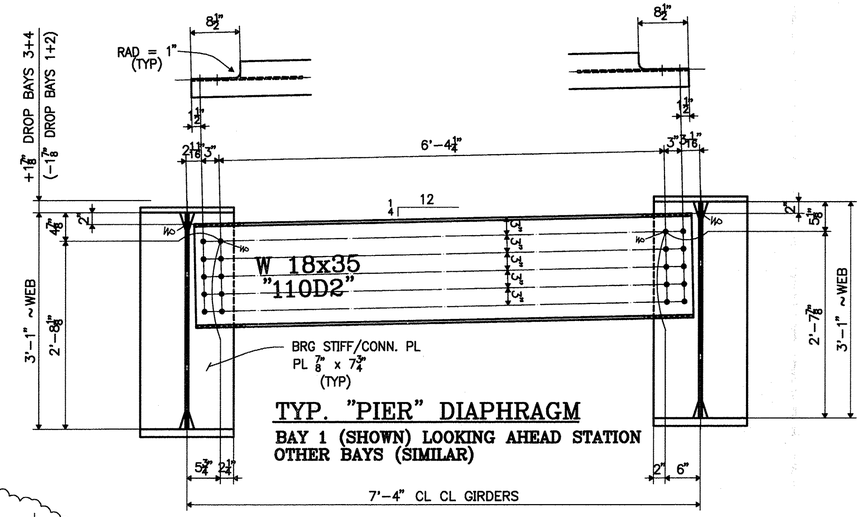
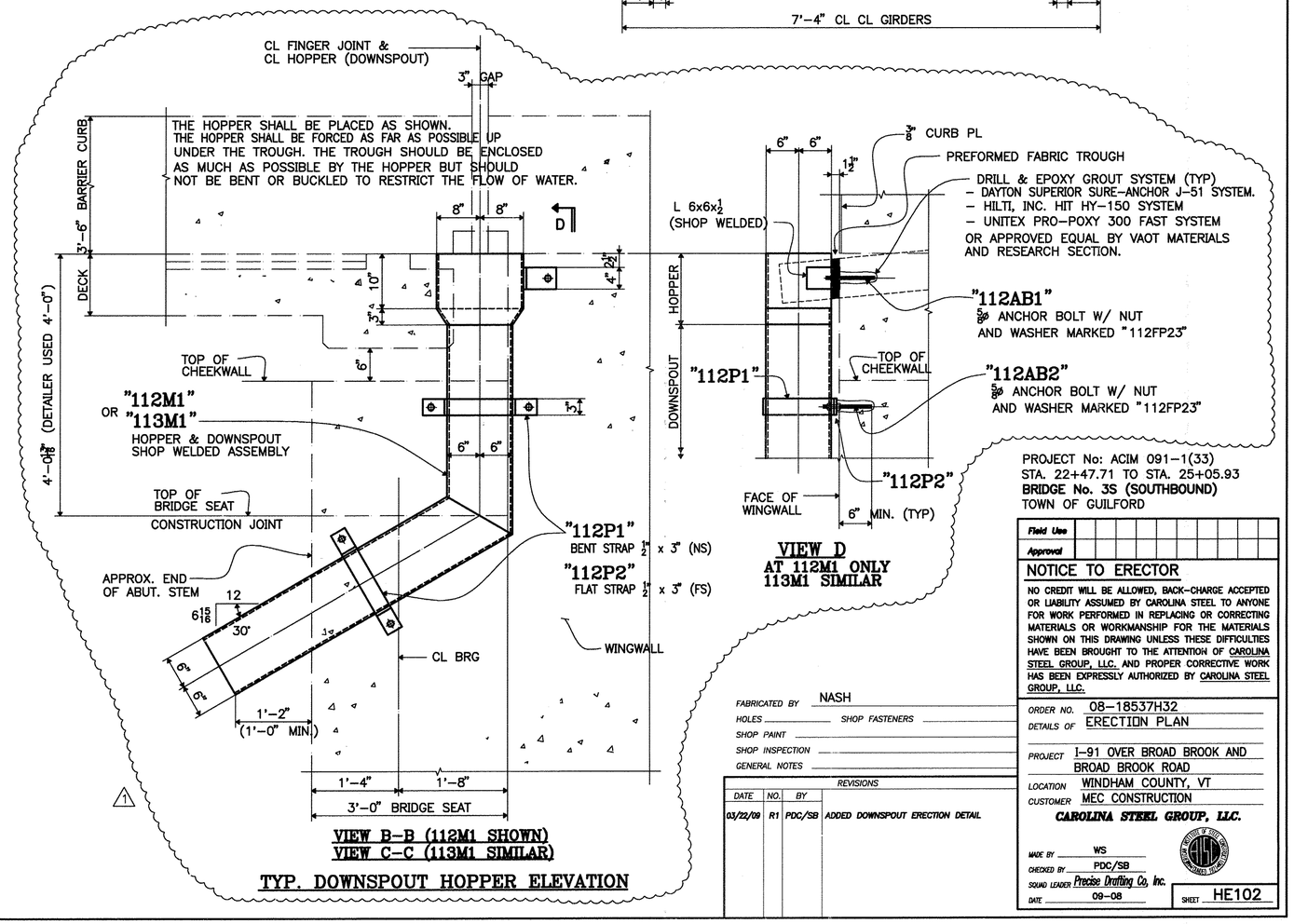
BY: [signature]
DATE: 7/6/2009



TYP. "PIER" DIAPHRAGM

BAY 1 (SHOWN) LOOKING AHEAD STATION
OTHER BAYS (SIMILAR)



FABRICATED BY NASH
HOLES ____ SHOP FASTENERS ____
SHOP PAINT ____
SHOP INSPECTION ____
GENERAL NOTES ____

REVISIONS			
DATE	NO.	BY	
03/22/09	R1	PDC/SB	ADDED DOWNSPOUT ERECTION DETAIL

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

Field Use
Approval

NOTICE TO ERECTOR

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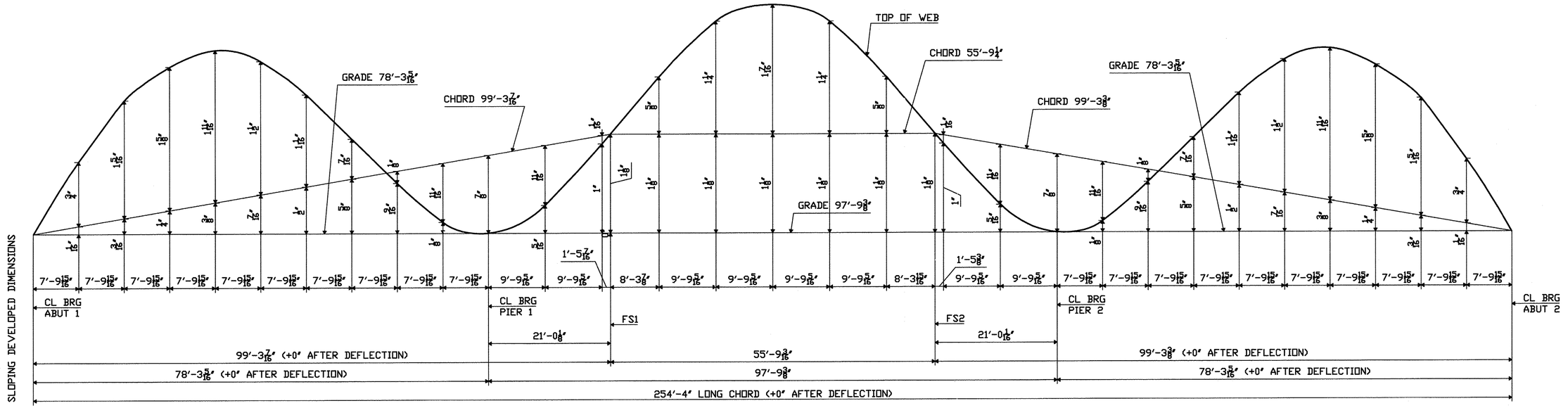
ORDER NO. 08-18537H32
DETAILS OF ERECTION PLAN
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

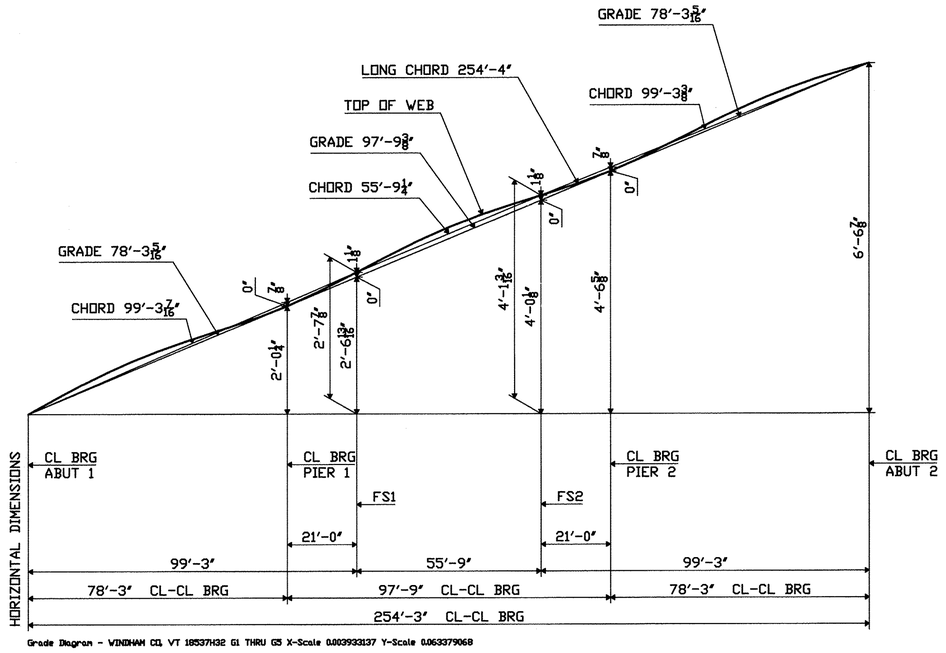
MADE BY WS
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

SHEET HE102



CAMBER DIAGRAM - WINDHAM CO1 VT 18537H32 G1 THRU G5 X-Scale 0.009832842 Y-Scale 1.802856474

CAMBER DIAGRAM - LINES 1 THRU 5



Grade Diagram - WINDHAM CO1 VT 18537H32 G1 THRU G5 X-Scale 0.003933137 Y-Scale 0.063379068

GRADE DIAGRAM - LINES 1 THRU 5

BLOCKING NOTE

-GIRDERS SHALL BE SHOP ASSEMBLED IN THE CAMBERED POSITION, WITH THE BEARINGS & SPLICES BLOCKED TO THE DIMENSIONS SHOWN, WITHOUT INDUCING STRESS INTO THE MEMBERS. FULLY ASSEMBLE AND CHECK ALL BLOCKING AND CAMBER ORDINATES IN THE SHOP, MAKING ADJUSTMENTS WHERE NECESSARY. HOLES SHALL BE DRILLED FROM THE SOLID, AND MATCH MARKED WITH THE SPLICE MATERIAL ASSEMBLED TO GIRDERS.
-FOR FIELD ERECTION, GIRDERS SHALL BE PINNED AND BOLTED, AND SPLICE ELEVATIONS SHALL BE CHECKED BEFORE BOLTS ARE TIGHTENED.
-SHIPPING BOLTS SHALL BE MACHINE BOLTS.
-ALL SHIPPING BOLTS SHALL BE REMOVED AND DISCARDED.

DEFINITION OF TERMS

-ALL DIMENSIONS IN THE GRADE AND CAMBER DIAGRAMS EXCEPT THOSE IDENTIFIED OTHERWISE, ARE ALONG THE LONG CHORD. THOSE IDENTIFIED BELOW ARE ALONG THE PLANES THROUGH THE ACTUAL ELEVATIONS.
-LONG CHORD - FROM CL END BRG TO CL END BRG.
-GRADE AND CAMBER DIAGRAMS
GRADE LINE - FROM CL BRG TO CL BRG.
CHORD LINE - FROM CL BRG TO CL NEAREST FIELD SPLICE, OR FROM CL F. SPLICE TO CL F. SPLICE.

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: [signature]
DATE: 7/7/2009

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES ____ SHOP FASTENERS ____
SHOP PAINT ____
SHOP INSPECTION ____
GENERAL NOTES ____

REVISIONS		
DATE	NO.	BY
	R1	

ORDER NO. 08-18537H32
DETAILS OF GRADE & CAMBER DIAGRAMS - LINES 1 THRU 5
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION
CAROLINA STEEL GROUP, LLC.
MADE BY WS
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08
SHEET HE103

ABUT 1 PIER 1 FS1

100′-7 3/16

WEB PL 1/2″ x 37 x 34′-4 3/16 ~V

WEB PL 1/2″ x 37 x 66′-3″ ~V

100′-6 5/16

7/8″

TOP FLG PL 7/8 x 16 x 58′-0 7/16 ~V

TOP FLG PL 1 3/8 x 16 x 42′-5 7/8 ~V

(-1/8)

5@ 1 1/2″ =7 1/2″ (STAGG.)

2 1/4″

DOR (TYP)

2″ 3″ 6″ 3″ 2″ 1′-4″

9″

99′-9 5/16

78′-3 5/16 ~CL CL BRG

21′-6″

14′-0 5/16 | 16′-0 3/4 | 16′-0 3/4 | 16′-0 3/4 | 16′-0 3/4 | 12′-6 1/8 | 8′-11 7/8

14′-9 5/16 | 30′-10 1/16 | 46′-10 13/16 | 62′-11 9/16 | 79′-0 5/16 | 91′-6 7/16

2″ Ø HOLES

3C47 B-L1a-S G/G

R T TOP & BOT

4 13/16 12

1″

5/16 5/16 3C43 CONT.

3″ 3″ 2 1/4″

2′-7 3/4″ ~WEB

7 3/4″

1′-0″

1′-0″

2- A1

WT 10.0 TONS
Lifting weight rounded up to the nearest 1/2 ton

E1 (NS) | E1 (NS) | E1 (NS) | E1 (NS) | C1 (FS) D1 (NS) | E1 (NS)

DOR (TYP)

9 SPA @ 3 1/2″ = 2′-7 1/2″

2 1/4″

3′-1″ ~WEB

5 1/4″

6″ 3″

WP

12 1 3/16

1′-1″ BRG AREA

4′-4 3/4″

BF PL 1 3/8 x 16 x 58′-1 9/16 ~V (BENT)

3C48 B-L2c-S G/G (TYP) AT FLG SPLICE

R T

5/16 5/16 3C43 CONT.

1′-10″ BRG AREA

WP DETAIL A

1AB1

2′-3″

9″

3′-0″

78′-3 3/16 ~CL CL BRG

99′-10 3/16

4′-4 1/2″

50′-8 13/16

21′-7″

BOT FLG PL 1 3/8 x 16 x 42′-5 7/8 ~V

7@ 1 1/2″ =10 1/2″ (STAGG.)

2 1/4″

DOR (TYP)

2″ 3″ 6″ 3″ 2″ 1′-4″

DOR ~ DENOTES DIRECTION OF ROLLING

TVGA CONSULTANTS

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BY: _____
DATE: 1/23/2009

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 15/16 Ø (UN) SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF1B

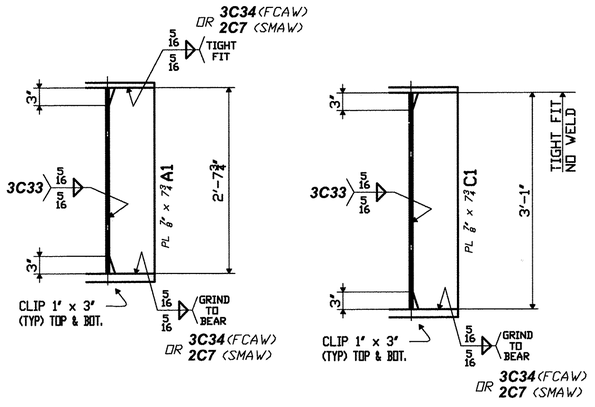
REVISIONS		
DATE	NO.	BY
	R1	

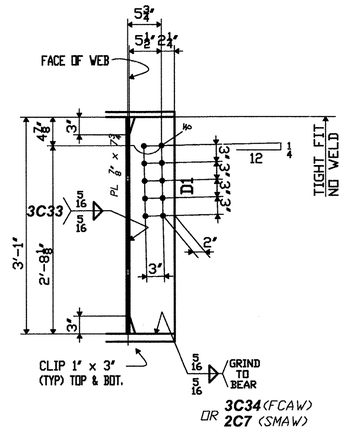
ORDER NO. 08-18537H22
DETAILS OF PL GIRDER ~ SPAN AB LINE 1
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

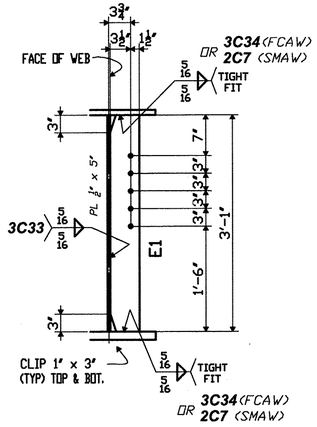
CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

SHEET HF1A



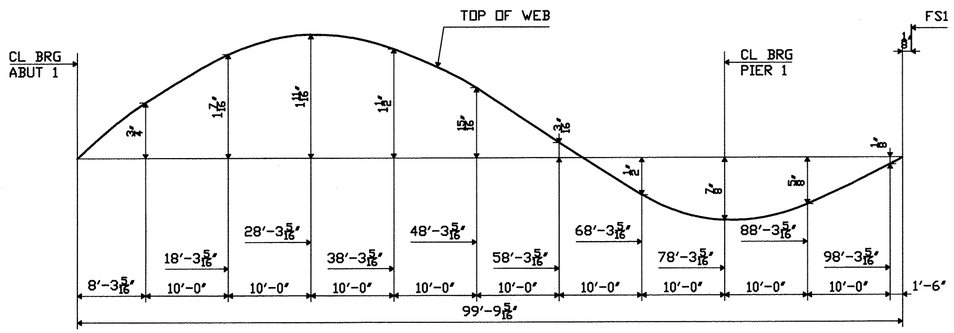




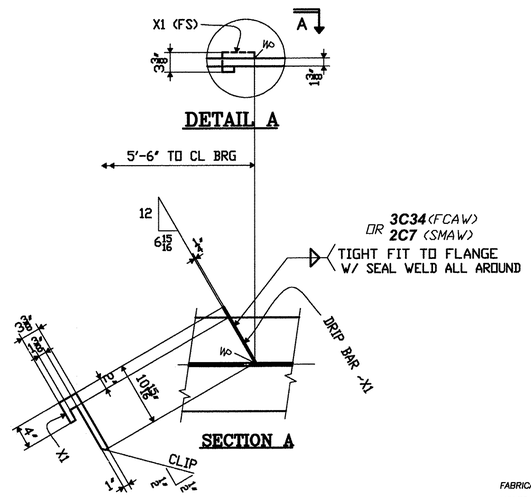
SHOP BILL

LINE ITEM	SHIPPING LIST NO. POS	SHIPPING LIST MARK	POS REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	MATERIAL APPLICATION LINE ITEM	MATERIAL APPLICATION NO. POS.	MATERIAL APPLICATION LENGTH
1															
2	1	1AB1			PLATE GIRDER										
3			1		PL	⅞ x 16	58	0 7/16	TFAB1	V	M270-50W	6014NH	4		
4			1		PL	1⅜ x 16	42	5⅞	TFAB2	V	M270-50W	6014NH	3		
5			1		PL	1⅜ x 16	58	1 9/16	BFAB1	V	M270-50W	6014NH	1		
6			1		PL	1⅜ x 16	42	5⅞	BFAB2	V	M270-50W	6014NH	3		
7			1		PL	½ x 37	34	4 3/16	WAB1	V	M270-50W	6014NH	8		
8			1		PL	½ x 37	66	3	WAB2	V	M270-50W	6014NH	6		
9															
10			2		PL	⅞ x 7¾	2	7¾	A1	FIN-2E	M270-50W	6016NH	1		
11			1		PL	⅞ x 7¾	3	1	C1	FIN-2E	M270-50W	6016NH	1		
12			1		PL	⅞ x 7¾	3	1	D1	FIN-2E	M270-50W	6016NH	1		
13			5		PL	½ x 5	3	1	E1	TF-2E	M270-50W	6016NH	4		
14															
15			1		BAR	¼ x 3⅜	0	10 15/16	X1		M270-50W	SHN			
16															
17															
18															
19															
20															
21															
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN1 FOR FABRICATION NOTES



CAMBER DIAGRAM



TVGA CONSULTANTS

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Approved
DATE: 1/23/2020

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 15/16 Ø (UN) SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF1A

REVISIONS DATE	NO.	BY
	R1	

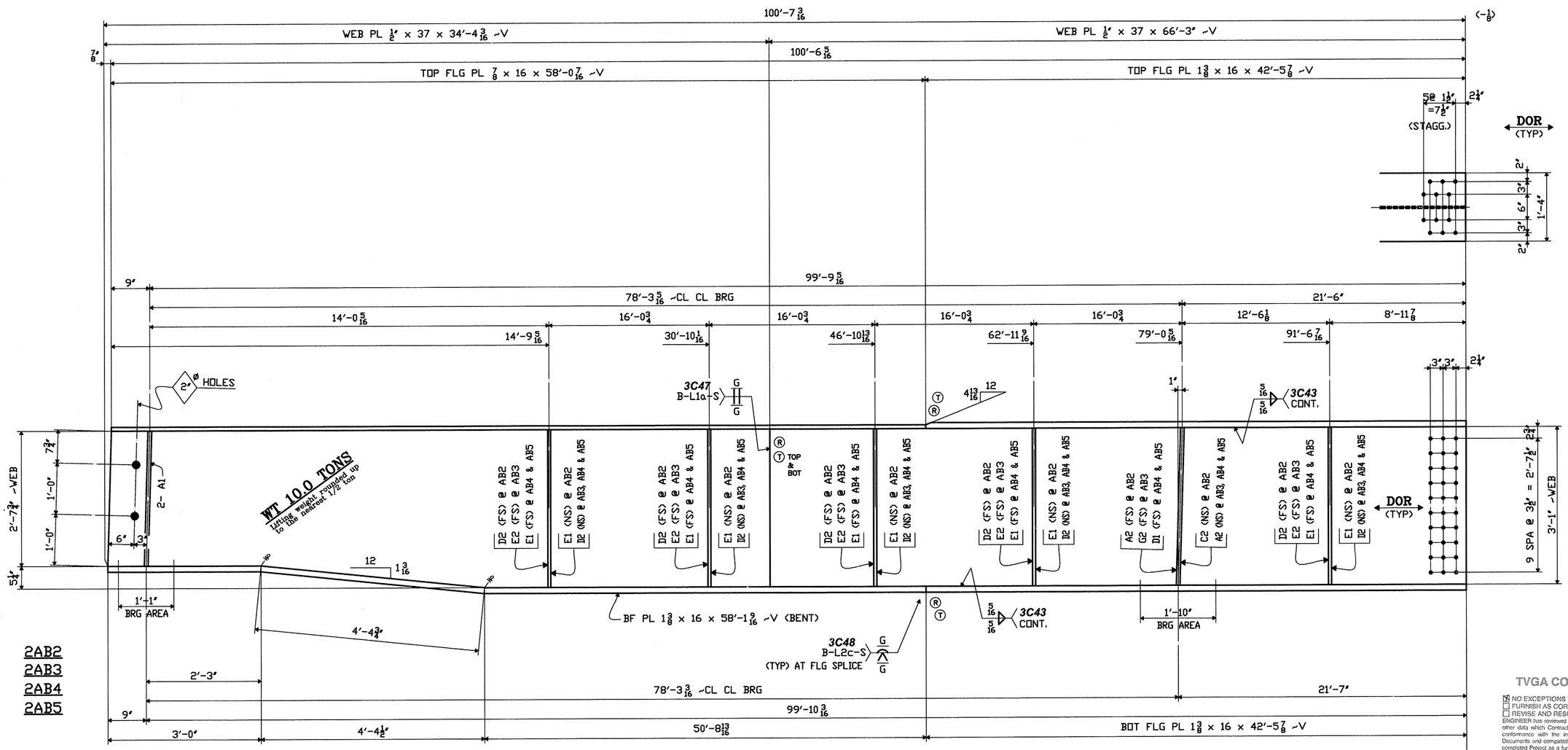
ORDER NO. 08-18537H22
DETAILS OF PL GIRDER - SPAN AB LINE 1
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

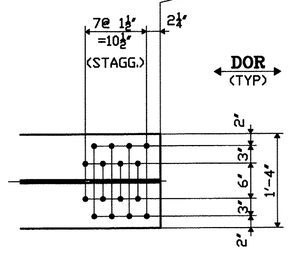
CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

SHEET HF1B

ABUT 1 PIER 1 FS1





DOR ~ DENOTES DIRECTION OF ROLLING

TVGA CONSULTANTS

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BY: _____
DATE: 1/23/2009

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 15/16 ø (UN) SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF2B

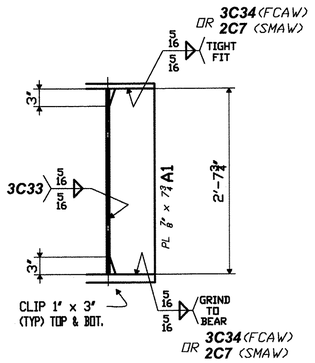
REVISIONS		
DATE	NO.	BY
	R1	

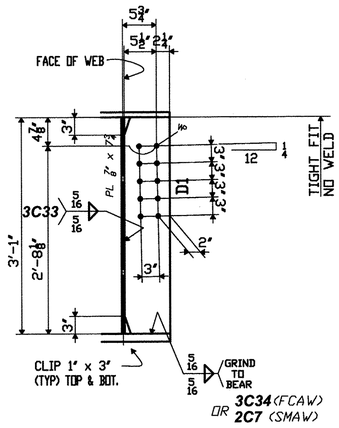
ORDER NO. 08-18537H22
DETAILS OF PL GIRDER ~ SPAN AB LINES 2, 3, 4 & 5
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

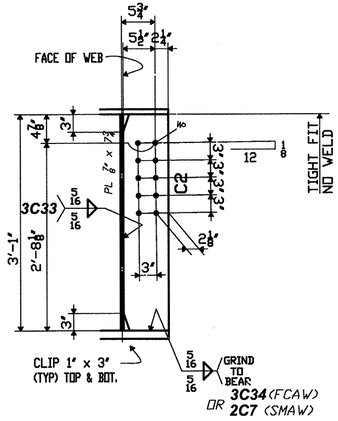
CAROLINA STEEL GROUP, LLC.

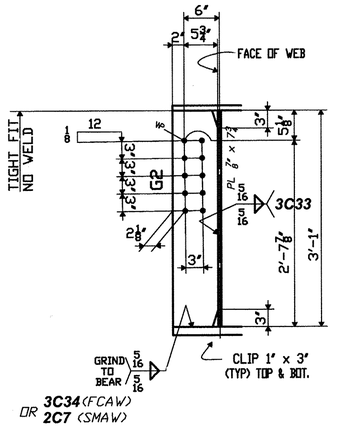
MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

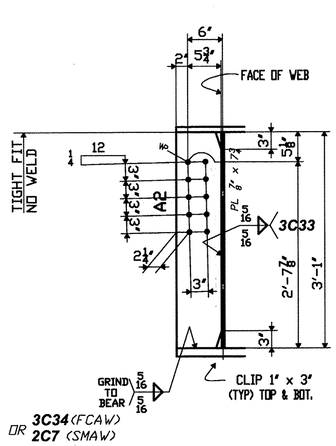
SHEET HF2A

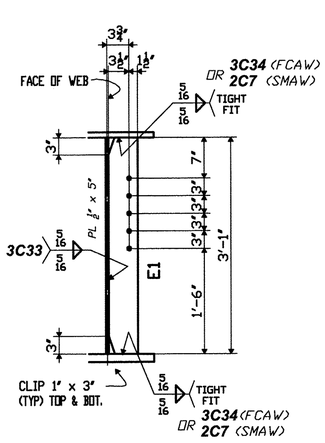


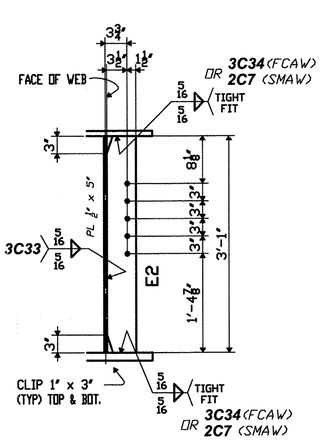


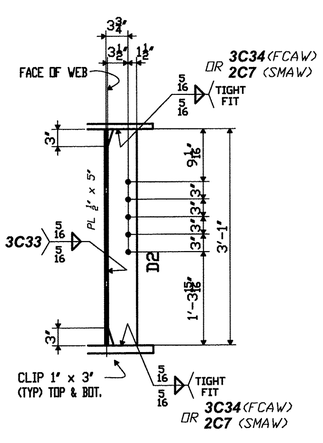


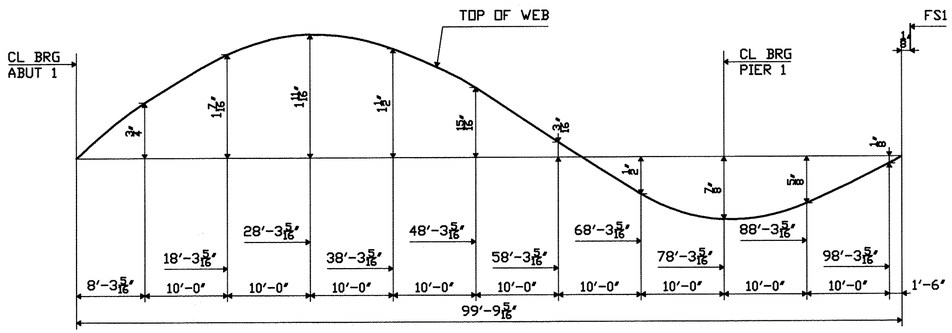












CAMBER DIAGRAM

SHOP BILL

LINE ITEM	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	SYMBOL	SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	LINE ITEM	NO. PCS.	LENGTH
1															
2	1	2AB2			PLATE GIRDER										
3	1	2AB3			PLATE GIRDER										
4	1	2AB4			PLATE GIRDER										
5	1	2AB5			PLATE GIRDER										
6			4		PL	⅞ x 16	58	0 7/16	TFAB1	V	M270-50W	6014NH	4		
7			4		PL	1⅜ x 16	42	5 7/8	TFAB2	V	M270-50W	6014NH	3		
8			4		PL	1⅜ x 16	58	1 9/16	BFAB1	V	M270-50W	6014NH	1		
9			4		PL	1⅜ x 16	42	5 7/8	BFAB2	V	M270-50W	6014NH	3		
10			4		PL	½ x 37	34	4 3/16	WAB1	V	M270-50W	6014NH	8		
11			4		PL	½ x 37	66	3	WAB2	V	M270-50W	6014NH	6		
12															
13			8		PL	⅞ x 7¾	2	7¾	A1	FIN-2E	M270-50W	6016NH	1		
14			2		PL	⅞ x 7¾	3	1	D1	FIN-2E	M270-50W	6016NH	1		
15			4		PL	⅞ x 7¾	3	1	A2	FIN-2E	M270-50W	6016NH	1		
16			1		PL	⅞ x 7¾	3	1	C2	FIN-2E	M270-50W	6016NH	1		
17			1		PL	⅞ x 7¾	3	1	G2	FIN-2E	M270-50W	6016NH	1		
18			15		PL	½ x 5	3	1	E1	TF-2E	M270-50W	6016NH	4		
19			5		PL	½ x 5	3	1	E2	TF-2E	M270-50W	6016NH	4		
20			20		PL	½ x 5	3	1	D2	TF-2E	M270-50W	6016NH	4		
21															
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN1 FOR FABRICATION NOTES

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 12/23/2009

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 15/16 Ø (UN) SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF2A

REVISIONS		
DATE	NO.	BY
	R1	

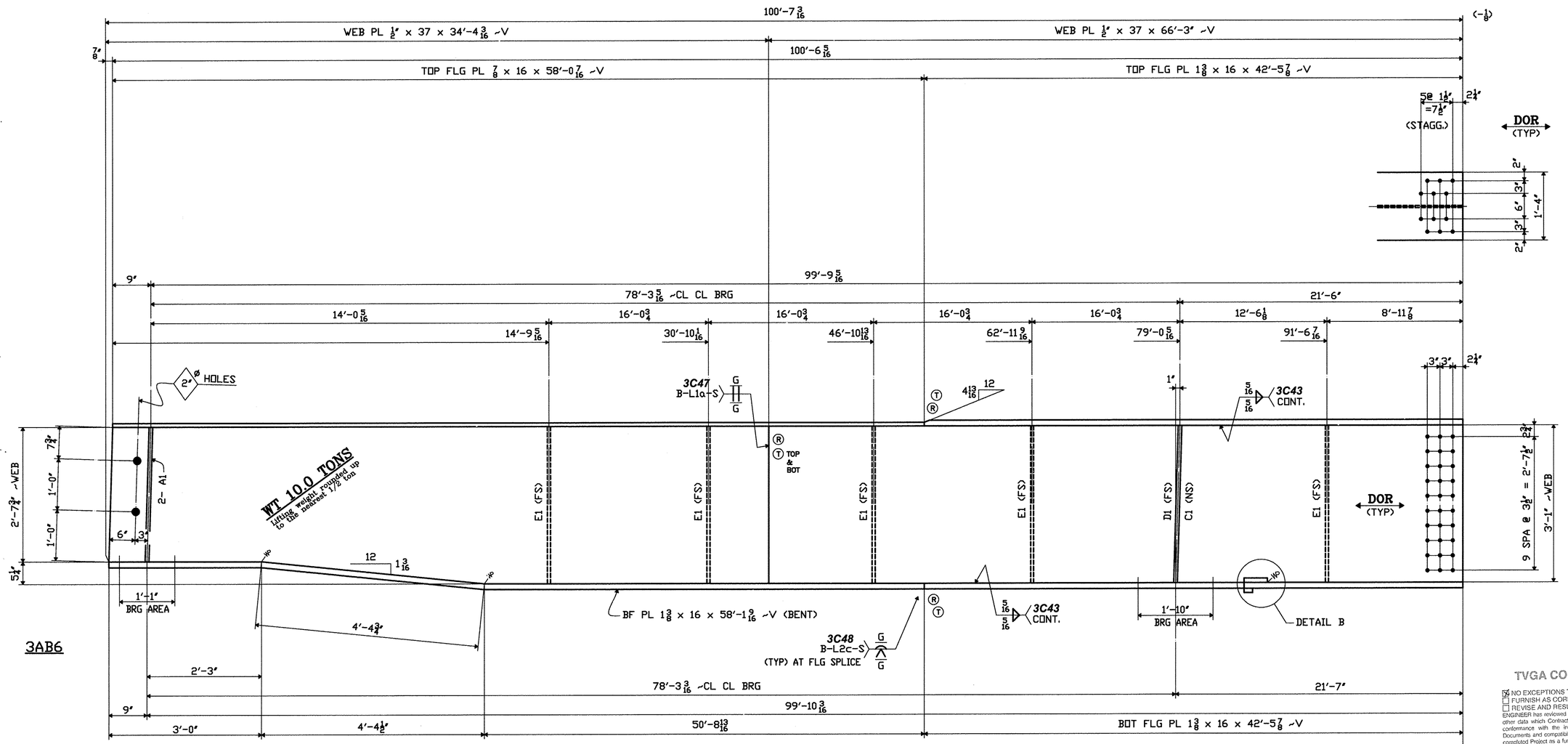
ORDER NO. 08-18537H22
DETAILS OF PL GIRDER - SPAN AB LINES 2, 3, 4 & 5
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

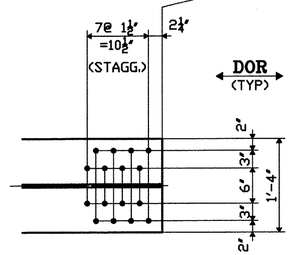
CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF2B

ABUT 1 PIER 1 FS1





DOR - DENOTES DIRECTION OF ROLLING

TVGA CONSULTANTS

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☐ FURNISH AS CORRECTED
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BY: _____
DATE: 12/3/2007

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 15/16ø (UN) SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF3B

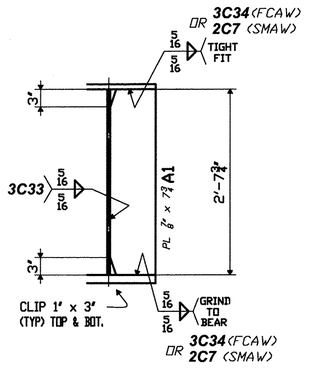
REVISIONS		
DATE	NO.	BY
	R1	

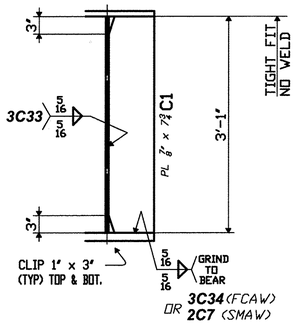
ORDER NO. 08-18537H22
DETAILS OF PL GIRDER - SPAN AB LINE 6
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

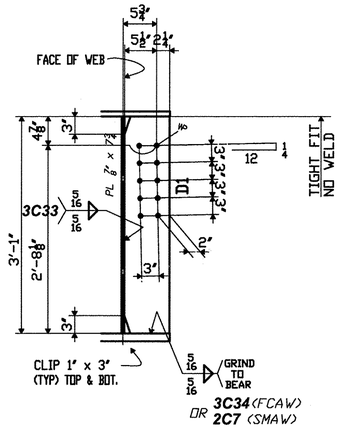
CAROLINA STEEL GROUP, LLC.

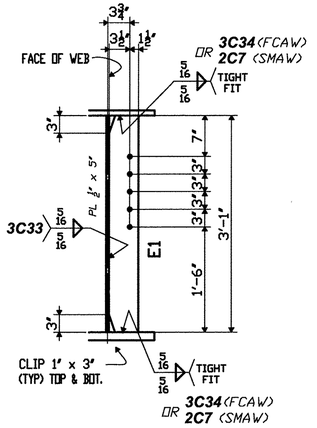
MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

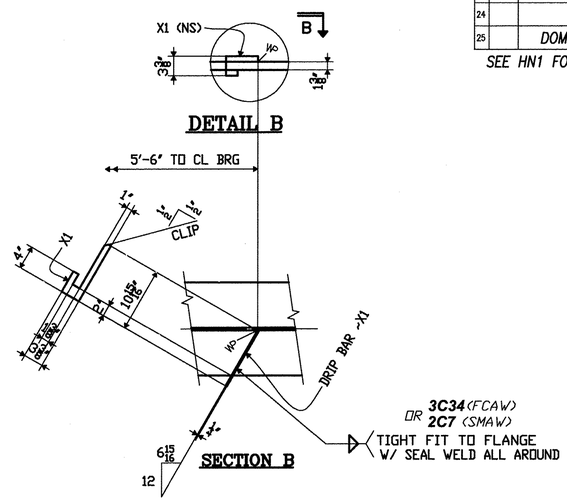
SHEET HF3A

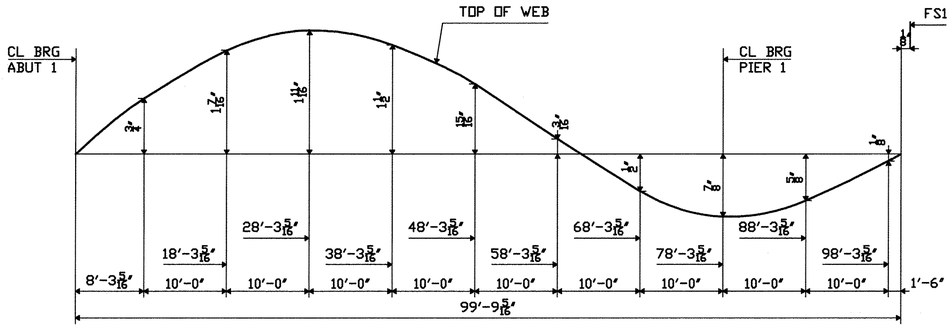












CAMBER DIAGRAM

SHOP BILL

LINE ITEM	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	PCS RECD	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	MATERIAL APPLICATION LINE ITEM	MATERIAL APPLICATION NO. PCS.	MATERIAL APPLICATION LENGTH
1															
2	1	3AB6			PLATE GIRDER										
3			1		PL	7/8 x 16	58	0 7/16	TFAB1	V	M270-50W	6014NH	4		
4			1		PL	1 3/8 x 16	42	5 7/8	TFAB2	V	M270-50W	6014NH	3		
5			1		PL	1 3/8 x 16	58	1 9/16	BFAB1	V	M270-50W	6014NH	1		
6			1		PL	1 3/8 x 16	42	5 7/8	BFAB2	V	M270-50W	6014NH	3		
7			1		PL	1/2 x 37	34	4 3/16	WAB1	V	M270-50W	6014NH	8		
8			1		PL	1/2 x 37	66	3	WAB2	V	M270-50W	6014NH	6		
9															
10			2		PL	7/8 x 7 3/4	2	7 3/4	A1	FIN-2E	M270-50W	6016NH	1		
11			1		PL	7/8 x 7 3/4	3	1	C1	FIN-2E	M270-50W	6016NH	1		
12			1		PL	7/8 x 7 3/4	3	1	D1	FIN-2E	M270-50W	6016NH	1		
13			5		PL	1/2 x 5	3	1	E1	TF-2E	M270-50W	6016NH	4		
14															
15			1		BAR	1/4 x 3 3/8	0	10 15/16	X1		M270-50W	SHN			
16															
17															
18															
19															
20															
21															
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN1 FOR FABRICATION NOTES

TVGA CONSULTANTS

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and conclated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 12/2007

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 15/16Ø (UN) SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF3A

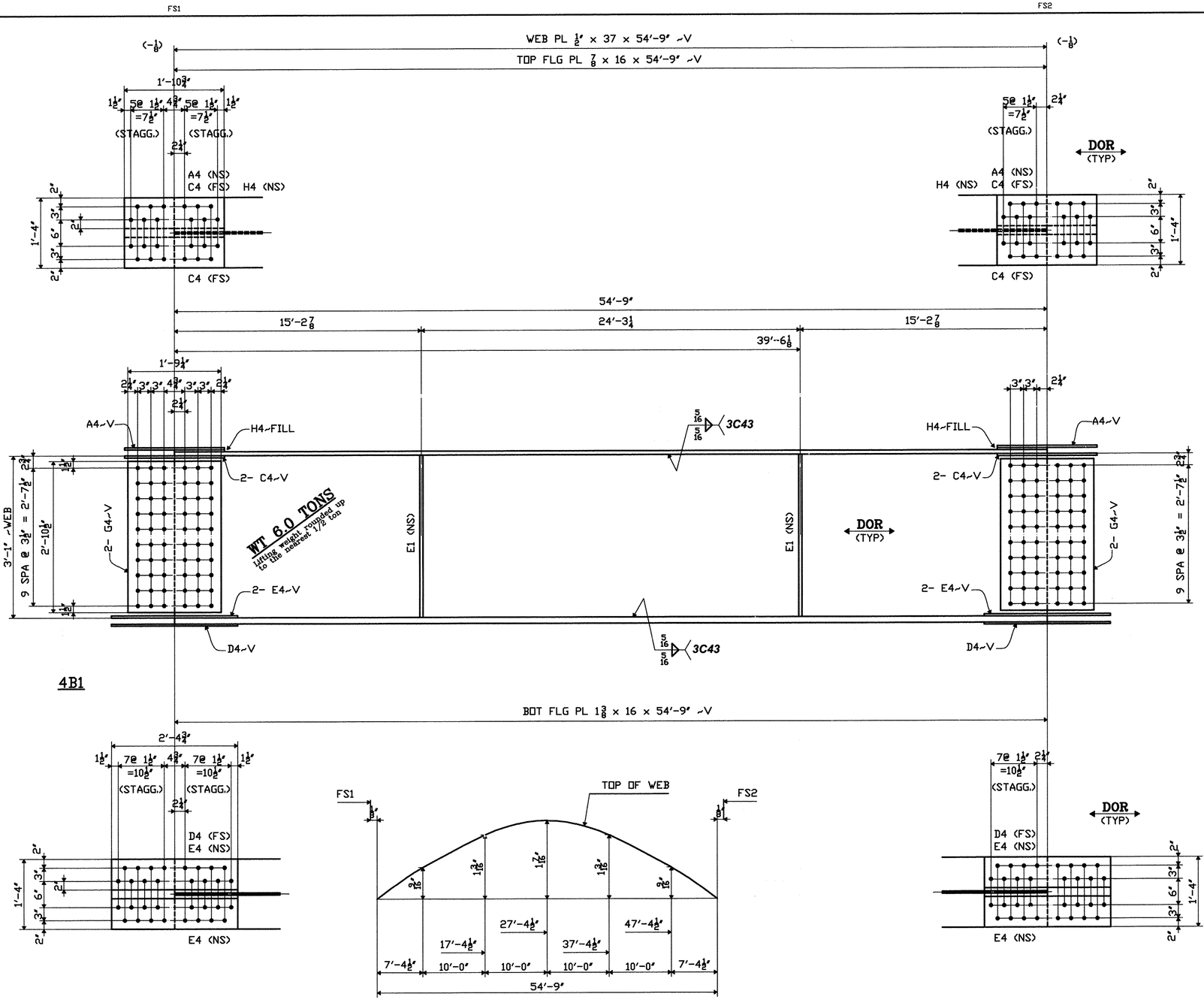
REVISIONS		
DATE	NO.	BY
	R1	

ORDER NO. 08-18537H22
DETAILS OF PL GIRDER - SPAN AB
LINE 6
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF3B



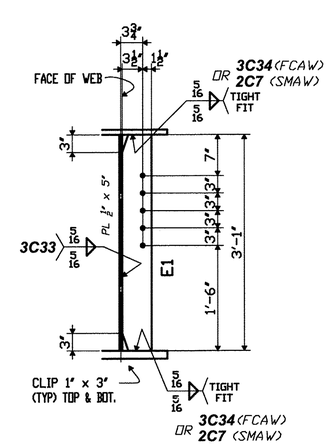
CAMBER DIAGRAM

DOR ~ DENOTES DIRECTION OF ROLLING

SHOP BILL

LINE ITEM	SHIPPING LIST NO. POS.	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	SYMBOL	SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	LINE ITEM	NO. POS.	LENGTH
1															
2	1	4B1			PLATE GIRDER										
3			1		PL	⅞ x 16	54	9	TFB1	V	M270-50W	6014NH	5		
4			1		PL	1⅜ x 16	54	9	BFB1	V	M270-50W	6014NH	2		
5			1		PL	½ x 37	54	9	WB1	V	M270-50W	6014NH	7		
6															
7			2		PL	½ x 16	1	10¾	A4	V	M270-50W	6016NH	4		
8			4		PL	½ x 7	1	10¾	C4	V	M270-50W	6016NH	4		
9			2		PL	¾ x 16	2	4¾	D4	V	M270-50W	6016NH	2		
10			4		PL	¾ x 7	2	4¾	E4	V	M270-50W	6016NH	2		
11			4		PL	5/16 x 34½	1	9¼	G4	V	M270-50W	SHN			
12			2		PL	½ x 16	0	11¼	H4		M270-50W	6016NH	4		
13															
14			8	F	BOLT	⅞	0	3½		SHIPPING BOLTS	A307	PS6329	2		
15			8	F	BOLT	⅞	0	4		SHIPPING BOLTS	A307	PS6329	3		
16			4	F	BOLT	⅞	0	2½		SHIPPING BOLTS	A307	PS6329	1		
17															
18			2		PL	½ x 5	3	1	E1	TF-2E	M270-50W	6016NH	4		
19															
20															
21															
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN1 FOR FABRICATION NOTES



TVGA CONSULTANTS

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 12/22/20

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 15/16ø SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES

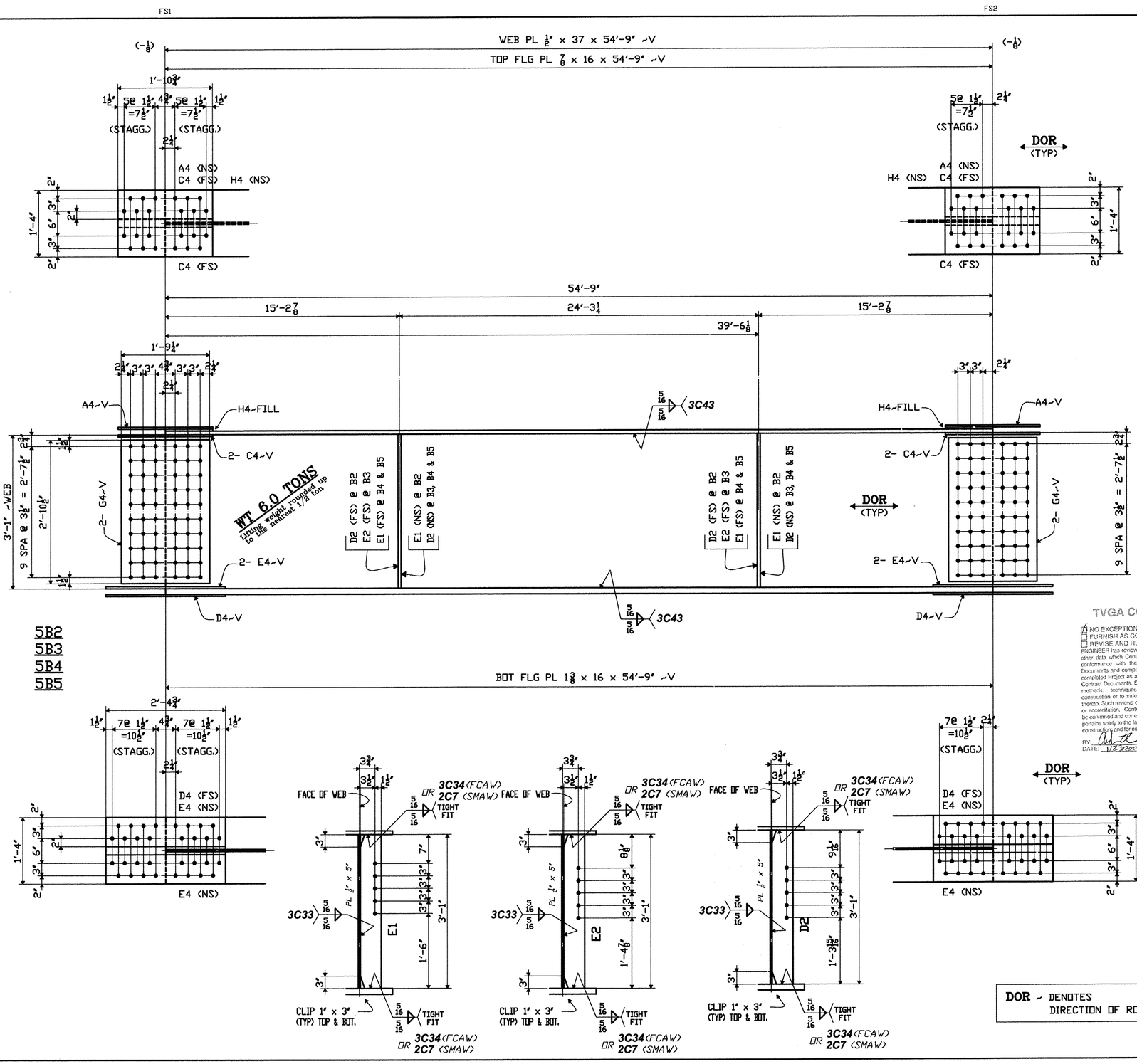
REVISIONS		
DATE	NO.	BY
	R1	

ORDER NO. 08-18537H22
DETAILS OF PL GIRDER ~ SPAN B LINE 1
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

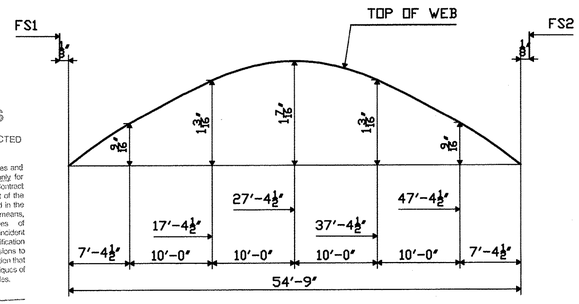
SHEET HF4



SHOP BILL

MARK SHEET	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	SYMBOL	SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	LINE ITEM	NO. PCS.	LENGTH
1															
2	1	5B2			PLATE GIRDER										
3	1	5B3			PLATE GIRDER										
4	1	5B4			PLATE GIRDER										
5	1	5B5			PLATE GIRDER										
6			4		PL	⅞ x 16	54	9	TFB1	V	M270-50W	6014NH	5		
7			4		PL	1⅜ x 16	54	9	BFB1	V	M270-50W	6014NH	2		
8			4		PL	½ x 37	54	9	WB1	V	M270-50W	6014NH	7		
9															
10			8		PL	½ x 16	1	10¾	A4	V	M270-50W	6016NH	4		
11			16		PL	½ x 7	1	10¾	C4	V	M270-50W	6016NH	4		
12			8		PL	¾ x 16	2	4¾	D4	V	M270-50W	6016NH	2		
13			16		PL	¾ x 7	2	4¾	E4	V	M270-50W	6016NH	2		
14			16		PL	⅜ x 34½	1	9¼	G4	V	M270-50W	SHN			
15			8		PL	½ x 16	0	11¼	H4		M270-50W	6016NH	4		
16															
17			32	F	BOLT	⅞	0	3½		SHIPPING BOLTS	A307	PS6329	2		
18			32	F	BOLT	⅞	0	4		SHIPPING BOLTS	A307	PS6329	3		
19			16	F	BOLT	⅞	0	2½		SHIPPING BOLTS	A307	PS6329	1		
20															
21			6		PL	½ x 5	3	1	E1	TF-2E	M270-50W	6016NH	4		
22			2		PL	½ x 5	3	1	E2	TF-2E	M270-50W	6016NH	4		
23			8		PL	½ x 5	3	1	D2	TF-2E	M270-50W	6016NH	4		
24															
25		DOMESTIC MATERIAL													

SEE HN1 FOR FABRICATION NOTES



CAMBER DIAGRAM

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: _____
DATE: 12/27/2007

DOR ~ DENOTES DIRECTION OF ROLLING

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 15/16 SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES

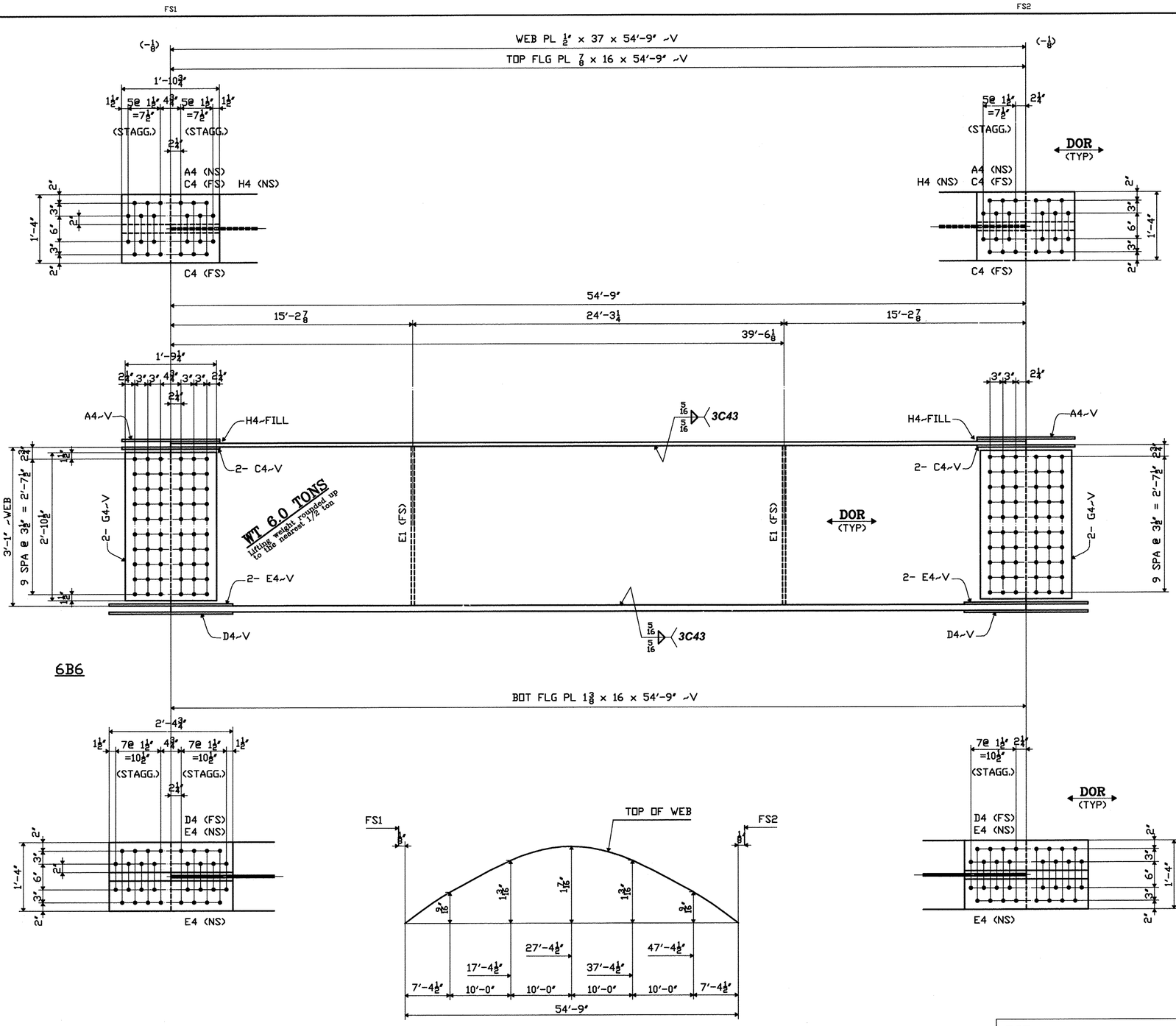
REVISIONS		
DATE	NO.	BY
	R1	

ORDER NO. 08-18537H22
DETAILS OF PL GIRDER ~ SPAN B LINES 2, 3, 4 & 5
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

SHEET HF5



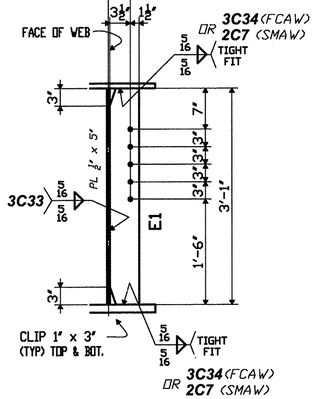
CAMBER DIAGRAM

DOR - DENOTES DIRECTION OF ROLLING

SHOP BILL

LINE ITEM	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	POS. REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	MATERIAL APPLICATION LINE ITEM	MATERIAL APPLICATION NO. PCS.	MATERIAL APPLICATION LENGTH
1															
2	1	6B6			PLATE GIRDER										
3			1		PL	⅞ x 16	54	9	TFB1	V	M270-50W	6014NH	5		
4			1		PL	1⅜ x 16	54	9	BFB1	V	M270-50W	6014NH	2		
5			1		PL	½ x 37	54	9	WB1	V	M270-50W	6014NH	7		
6															
7			2		PL	½ x 16	1	10¾	A4	V	M270-50W	6016NH	4		
8			4		PL	½ x 7	1	10¾	C4	V	M270-50W	6016NH	4		
9			2		PL	¾ x 16	2	4¾	D4	V	M270-50W	6016NH	2		
10			4		PL	¾ x 7	2	4¾	E4	V	M270-50W	6016NH	2		
11			4		PL	⅜ x 34½	1	9¼	G4	V	M270-50W	SHN			
12			2		PL	½ x 16	0	11¼	H4		M270-50W	6016NH	4		
13															
14			8	F	BOLT	⅞	0	3½		SHIPPING BOLTS	A307	PS6329	2		
15			8	F	BOLT	⅞	0	4		SHIPPING BOLTS	A307	PS6329	3		
16			4	F	BOLT	⅞	0	2½		SHIPPING BOLTS	A307	PS6329	1		
17															
18			2		PL	½ x 5	3	1	E1	TF-2E	M270-50W	6016NH	4		
19															
20															
21															
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN1 FOR FABRICATION NOTES



TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 1/23/2009

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 15/16Ø SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES

REVISIONS		
DATE	NO.	BY
	R1	

ORDER NO. 08-18537H22
DETAILS OF PL GIRDER - SPAN B LINE 6
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF6

FS2 PIER 2 ABUT 2

100′-6¼

WEB PL ½″ x 37 x 66′-3″ ~V | WEB PL ½″ x 37 x 34′-3¼ ~V

TOP FLG PL 1⅜ x 16 x 42′-5⅞ ~V | TOP FLG PL ⅞ x 16 x 58′-0⅜ ~V

2¼″ 5@ 1½″ =7½″ (STAGG.)

DOR (TYP)

1′-4″ | 2″ 3″ 6″ 3″ 2″

99′-9¼

21′-5 15/16 | 78′-3 5/16 ~CL CL BRG | 9″

8′-11⅞ | 12′-6 1/16 | 16′-0¾ | 16′-0¾ | 16′-0¾ | 16′-0¾ | 14′-0 5/16

37′-6 11/16 | 53′-7 7/16 | 69′-8 3/16 | 85′-8 15/16 | 7′-0″ ~ PAINTED AREA

2¼″ 3″ 3″ | 15/16

12 4 13/16 (T) (R)

G G 3C47 B-L1a-S

5/16 5/16 3C43 CONT. PAINT NOTE "A"

Y

R T TOP & BOT

3′-1″ ~WEB | 9 SPA @ 3½″ = 2′-7½″ | 2¼″

DOR (TYP)

E1 (NS) | C1 (FS) | D1 (NS) | E1 (NS) | E1 (NS) | E1 (NS) | E1 (NS) | A7 (FS) | C7 (NS)

WT 10.0 TONS
Lifting weight rounded up to the nearest 1/2 ton

1 CONTACT SURFACE

2′-6″ ~WEB | 7″

1 3/16 12

WP

5/16 5/16 3C43 CONT.

1′-10″ BRG AREA

DETAIL A

R T

BF PL 1⅜ x 16 x 58′-0″ ~V (BENT)

G G 3C48 B-L2c-S (TYP) AT FLG SPLICE

1′-4″ BRG AREA

X

5′-10⅜″

2′-3″

7BC1

21′-5″ | 78′-3½ ~CL CL BRG

99′-8½

9″

BOT FLG PL 1⅜ x 16 x 42′-5⅞ ~V | 49′-1⅝ | 5′-10″ | 3′-0″

100′-5½ | 3¼

2¼″ 7@ 1½″ =10½″ (STAGG.)

DOR (TYP)

1′-4″ | 2″ 3″ 6″ 3″ 2″

PAINT NOTE "A"
(MIST COAT OF PRIMER ONLY ~1.5 MILS DFT)

SECTION Y
AT 7′-0″ PAINTED AREA

PAINT NOTE "B"
~~(NO PAINT)~~ 1 (MIST COAT OF PRIMER ONLY ~1.5 MILS DFT)

SECTION X
AT BRG AREA

DOR ~ DENOTES DIRECTION OF ROLLING

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 7/21/2009

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 15/16Ø SHOP FASTENERS
SHOP PAINT PARTIAL PAINT PER HN1 & AS NOTED
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF7B

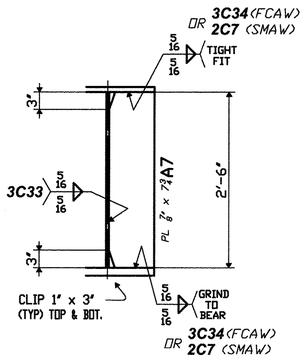
REVISIONS			
DATE	NO.	BY	
07/08/09	R1	PDC/SB	REMOVED HATCHED AREA & ADDED NOTES

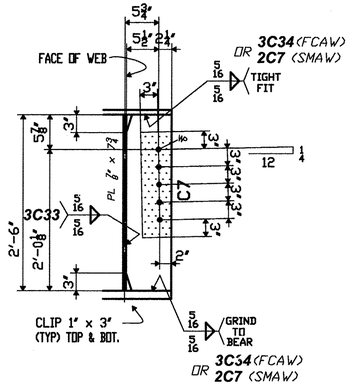
ORDER NO. 08-18537H22
DETAILS OF PL GIRDER ~ SPAN BC LINE 1
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

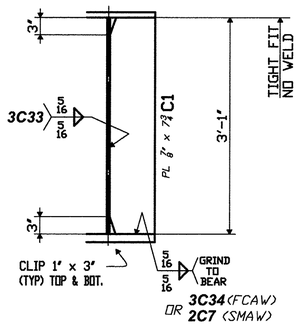
CAROLINA STEEL GROUP, LLC.

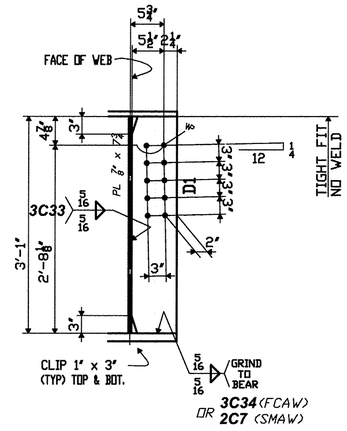
MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF7A



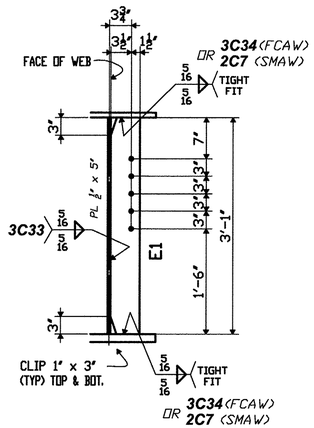


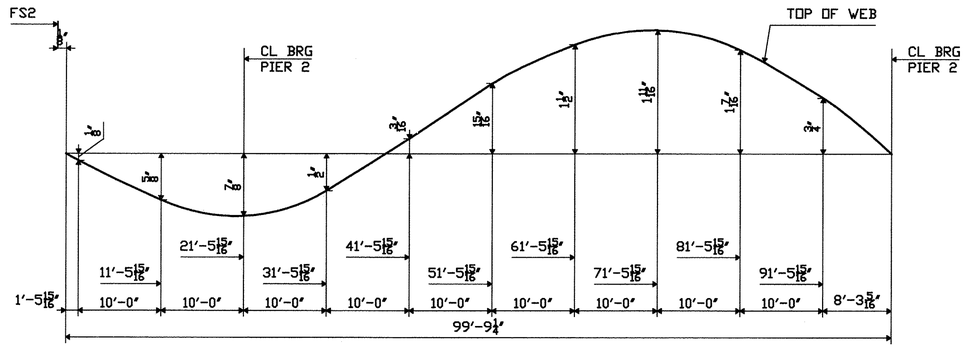




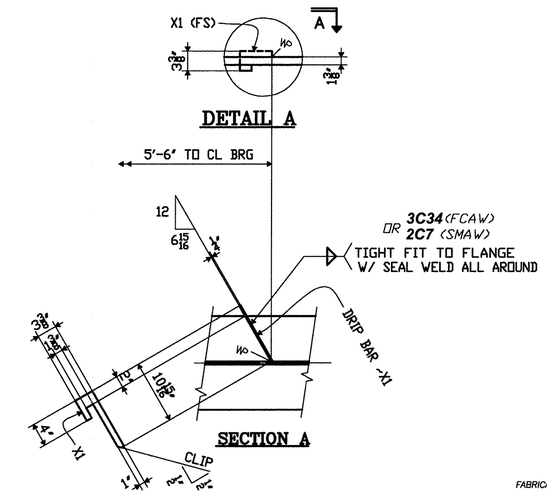
PAINT NOTE "C"
AREA SHOWN THUS
DENOTES FAYING SURFACE.
APPLY PRIMER ONLY (BS) (CS)

(1) (CS) DENOTES "CONTACT SURFACE"





CAMBER DIAGRAM



SHOP BILL

LINE ITEM	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	SYMBOL	SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	LINE ITEM	NO. PCS	LENGTH
1															
2	1	7BC1			PLATE GIRDER										
3			1		PL	1⅜ x 16	42	5⅞	TFBC1	V	M270-50W	6014NH	3		
4			1		PL	⅞ x 16	58	0⅜	TFBC2	V	M270-50W	6014NH	4		
5			1		PL	1⅜ x 16	42	5⅞	BFBC1	V	M270-50W	6014NH	3		
6			1		PL	1⅜ x 16	58	0	BFBC2	V	M270-50W	6014NH	1		
7			1		PL	½ x 37	66	3	WBC1	V	M270-50W	6014NH	6		
8			1		PL	½ x 37	34	3¼	WBC2	V	M270-50W	6014NH	8		
9															
10			1		PL	⅞ x 7¾	2	6	A7	FIN-2E	M270-50W	6016NH	1		
11			1		PL	⅞ x 7¾	2	6	C7	FIN-2E	M270-50W	6016NH	1		
12			1		PL	⅞ x 7¾	3	1	C1	FIN-2E	M270-50W	6016NH	1		
13			1		PL	⅞ x 7¾	3	1	D1	FIN-2E	M270-50W	6016NH	1		
14			5		PL	½ x 5	3	1	E1	TF-2E	M270-50W	6016NH	4		
15															
16			1		BAR	¼ x 3⅜	0	10¹⁵⁄₁₆	X1		M270-50W	SHN			
17															
18															
19															
20															
21															
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN1 FOR FABRICATION NOTES

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Andrew Ed
DATE: 7/21/2009

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 15/16 SHOP FASTENERS
SHOP PAINT PARTIAL PAINT PER HN1 & AS NOTED
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF7A

REVISIONS			
DATE	NO.	BY	
07/08/09	R1	PDC/SB	ADDED CONTACT SURFACE

ORDER NO. 08-18537H22
DETAILS OF PL GIRDER - SPAN BC LINE 1
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF7B

FS2 PIER 2 ABUT 2

100'-6¼

WEB PL ½" x 37 x 66'-3" ~V | WEB PL ½" x 37 x 34'-3¼ ~V

TOP FLG PL 1⅜ x 16 x 42'-5⅞ ~V | TOP FLG PL ⅞ x 16 x 58'-0⅜ ~V

99'-9¼ | 9"

21'-5 15/16 | 78'-3 5/16 ~CL CL BRG

8'-11⅞ | 12'-6 1/16 | 16'-0¾ | 16'-0¾ | 16'-0¾ | 16'-0¾ | 14'-0 5/16

37'-6 11/16 | 53'-7 7/16 | 69'-8 3/16 | 85'-8 15/16 | 7'-0" ~ PAINTED AREA

DOR (TYP)

2¼" 5@ 1'-6" =7½" (STAGG.)

1'-4" : 2" 3" 6" 3" 2"

2¼" 3" 3" 15/16"

3'-1" ~WEB = 9 SPA @ 3'-0" = 2'-7½" 2¾"

D2 (FS) @ BC2, E2 (FS) @ BC3, E1 (FS) @ BC4 & BC5

E1 (NS) @ BC2, D2 (NS) @ BC3, BC4 & BC5

A2 (FS) @ BC2, G2 (FS) @ BC3, D1 (FS) @ BC4 & BC5

C2 (NS) @ BC2, A2 (NS) @ BC3, BC4 & BC5

D2 (FS) @ BC2, E2 (FS) @ BC3, E1 (FS) @ BC4 & BC5

E1 (NS) @ BC2, D2 (NS) @ BC3, BC4 & BC5

D2 (FS) @ BC2, E2 (FS) @ BC3, E1 (FS) @ BC4 & BC5

E1 (NS) @ BC2, D2 (NS) @ BC3, BC4 & BC5

D2 (FS) @ BC2, E2 (FS) @ BC3, E1 (FS) @ BC4 & BC5

E1 (NS) @ BC2, D2 (NS) @ BC3, BC4 & BC5

D2 (FS) @ BC2, E2 (FS) @ BC3, E1 (FS) @ BC4 & BC5

E1 (NS) @ BC2, D2 (NS) @ BC3, BC4 & BC5

A8 (FS) @ BC2, D8 (FS) @ BC3, C7 (FS) @ BC4 & BC5

C8 (NS) @ BC2, A8 (NS) @ BC3, BC4 & BC5

2'-6" ~WEB

7"

12 4 13/16 (T) (R)

G G 3C47 B-L1a-S

TOP (T) * BOT (R)

5/16 5/16 3C43 CONT.

PAINT NOTE "A"

1 CONTACT SURFACE

1 3/16 12

1'-4" BRG AREA

5'-10 3/8"

2'-3"

1'-10" BRG AREA

5/16 5/16 3C43 CONT.

(R) (T) G G 3C48 B-L2c-S (TYP) AT FLG SPLICE

BF PL 1⅜ x 16 x 58'-0" ~V (BENT)

8BC2
8BC3
8BC4
8BC5

WT 10.0 TONS
lifting weight rounded up to the nearest 1/2 ton

21'-5" | 78'-3½ ~CL CL BRG

99'-8½" | 9"

BOT FLG PL 1⅜ x 16 x 42'-5⅞ ~V | 49'-1 5/8" | 5'-10" | 3'-0"

100'-5½" | 3/4"

2¼" 7@ 1'-6" =10½" (STAGG.)

DOR (TYP)

1'-4" : 2" 3" 6" 3" 2"

DOR ~ DENOTES DIRECTION OF ROLLING

PAINT NOTE "A"
(MIST COAT OF PRIMER ONLY ~1.5 MILS DFT)

SECTION Y
AT 7'-0" PAINTED AREA

PAINT NOTE "B"
~~(NO PAINT)~~
1 (MIST COAT OF PRIMER ONLY ~1.5 MILS DFT)

SECTION X
AT BRG AREA

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: Ashtad
DATE: 11/12/09

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 15/16Ø SHOP FASTENERS
SHOP PAINT PARTIAL PAINT PER HN1 & AS NOTED
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF8B

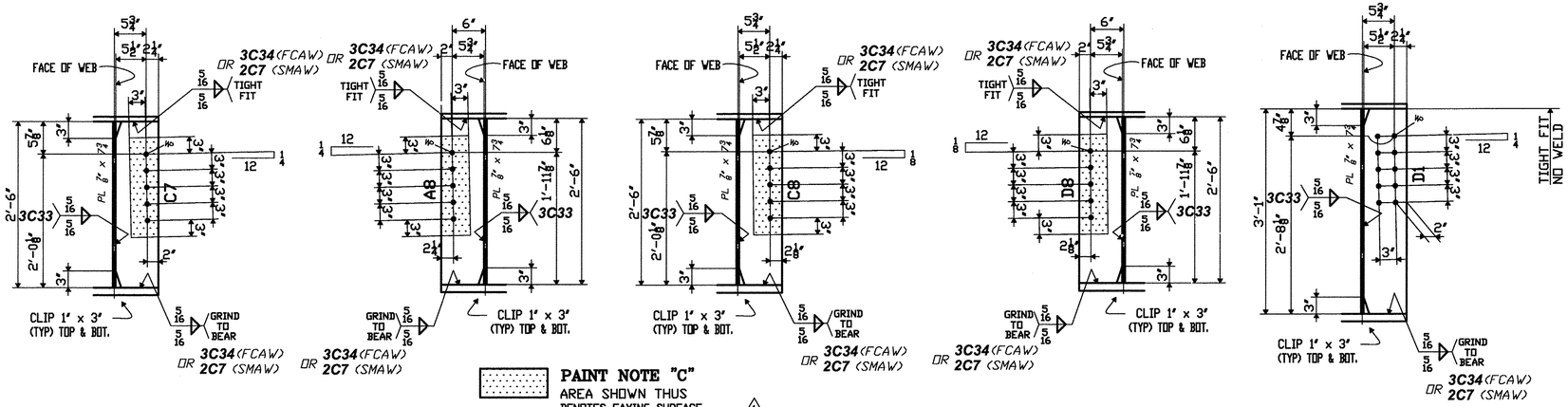
REVISIONS			
DATE	NO.	BY	
07/08/09	R1	PDC/SB	REMOVED HATCHED AREA & ADDED NOTES

ORDER NO. 08-18537H22
DETAILS OF PL GIRDER ~ SPAN BC LINES 2, 3, 4 & 5
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

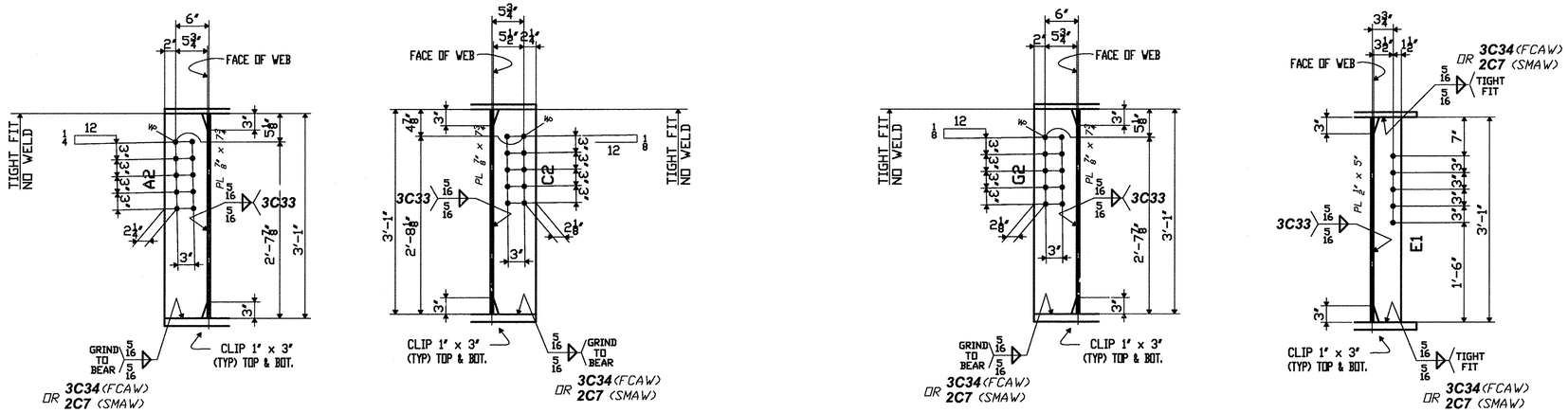
MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

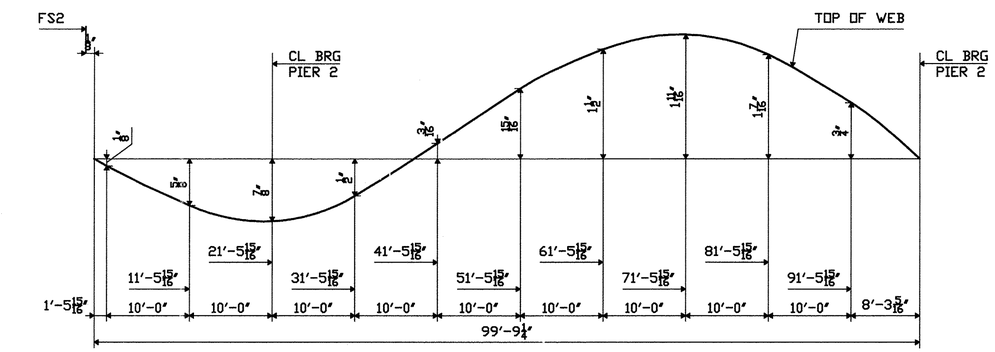
SHEET HF8A



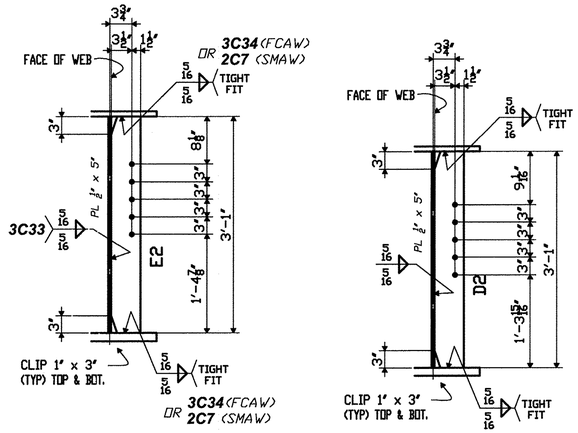
PAINT NOTE "C"
AREA SHOWN THUS
DENOTES FAYING SURFACE.
APPLY PRIMER ONLY (BS) (CS)

(CS) DENOTES "CONTACT SURFACE"





CAMBER DIAGRAM



SHOP BILL

LINE ITEM	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	LINE ITEM	NO. PCS.	LENGTH
1															
2	1	8BC2			PLATE GIRDER										
3	1	8BC3			PLATE GIRDER										
4	1	8BC4			PLATE GIRDER										
5	1	8BC5			PLATE GIRDER										
6			4		PL	1 3/8 x 16	42	5 7/8	TFBC1	V	M270-50W	6014NH	3		
7			4		PL	7/8 x 16	58	0 3/8	TFBC2	V	M270-50W	6014NH	4		
8			4		PL	1 3/8 x 16	42	5 7/8	BFBC1	V	M270-50W	6014NH	3		
9			4		PL	1 3/8 x 16	58	0	BFBC2	V	M270-50W	6014NH	1		
10			4		PL	1/2 x 37	66	3	WBC1	V	M270-50W	6014NH	6		
11			4		PL	1/2 x 37	34	3 1/4	WBC2	V	M270-50W	6014NH	8		
12															
13			2		PL	7/8 x 7 3/4	2	6	C7	FIN-2E	M270-50W	6016NH	1		
14			4		PL	7/8 x 7 3/4	2	6	A8	FIN-2E	M270-50W	6016NH	1		
15			1		PL	7/8 x 7 3/4	2	6	C8	FIN-2E	M270-50W	6016NH	1		
16			1		PL	7/8 x 7 3/4	2	6	D8	FIN-2E	M270-50W	6016NH	1		
17			2		PL	7/8 x 7 3/4	3	1	D1	FIN-2E	M270-50W	6016NH	1		
18			4		PL	7/8 x 7 3/4	3	1	A2	FIN-2E	M270-50W	6016NH	1		
19			1		PL	7/8 x 7 3/4	3	1	C2	FIN-2E	M270-50W	6016NH	1		
20			1		PL	7/8 x 7 3/4	3	1	G2	FIN-2E	M270-50W	6016NH	1		
21			15		PL	1/2 x 5	3	1	E1	TF-2E	M270-50W	6016NH	4		
22			5		PL	1/2 x 5	3	1	E2	TF-2E	M270-50W	6016NH	4		
23			20		PL	1/2 x 5	3	1	D2	TF-2E	M270-50W	6016NH	4		
24															
25		DOMESTIC MATERIAL													

SEE HN1 FOR FABRICATION NOTES

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: [signature]
DATE:

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 15/16 SHOP FASTENERS
SHOP PAINT PARTIAL PAINT PER HN1 & AS NOTED
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF8A

REVISIONS			
DATE	NO.	BY	
07/06/09	R1	PDC/SB	ADDED CONTACT SURFACE

ORDER NO. 08-18537H22
DETAILS OF PL GIRDER - SPAN BC LINES 2, 3, 4 & 5
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF8B

FS2 PIER 2 ABUT 2

100′-6¼

WEB PL ½″ x 37 x 66′-3″ ~V | WEB PL ½″ x 37 x 34′-3¼ ~V

TOP FLG PL 1⅜ x 16 x 42′-5⅞ ~V | TOP FLG PL ⅞ x 16 x 58′-0⅜ ~V

99′-9¼ | 9″

21′-5 15/16 | 78′-3 5/16 ~CL CL BRG

8′-11⅞ | 12′-6 1/16 | 16′-0¾ | 16′-0¾ | 16′-0¾ | 16′-0¾ | 14′-0 5/16

37′-6 11/16 | 53′-7 7/16 | 69′-8 3/16 | 85′-8 15/16 | 7′-0″ ~ PAINTED AREA

DOR (TYP)

2¼″ 5@ 1½″ =7½″ (STAGG.)

1′-4″ | 2″ 3″ 6″ 3″ 2″

2¼″ 3″ 3″

15/16″

12 4 13/16

G 3C47 B-L1a-S G

R T TOP & BOT

5/16 5/16 3C43 CONT.

PAINT NOTE "A"

Y

3′-1″ ~WEB | 9 SPA @ 3½″ = 2′-7½″ | 2¾″

DOR (TYP)

WT 10.0 TONS
Lifting weight rounded up to the nearest 1/2 ton

E1 (FS) | D1 (FS) | C1 (NS) | E1 (FS) | E1 (FS) | E1 (FS) | E1 (FS) | C7 (FS) | A7 (NS)

1 CONTACT SURFACE

2′-6″ ~WEB | 7″

5/16 5/16 3C43 CONT.

1′-10″ BRG AREA

WP

DETAIL B

1 3/16 12

1′-4″ BRG AREA

X

R T

BF PL 1⅜ x 16 x 58′-0″ ~V (BENT)

G 3C48 B-L2c-S G (TYP) AT FLG SPLICE

5′-10⅜″

2′-3″

9BC6

21′-5″ | 78′-3½ ~CL CL BRG

99′-8½ | 9″

BOT FLG PL 1⅜ x 16 x 42′-5⅞ ~V | 49′-1⅝ | 5′-10″ | 3′-0″

100′-5½ | 3/4″

2¼″ 7@ 1½″ =10½″ (STAGG.)

DOR (TYP)

1′-4″ | 2″ 3″ 6″ 3″ 2″

SECTION Y
AT 7′-0″ PAINTED AREA

PAINT NOTE "A"
(MIST COAT OF PRIMER ONLY ~1.5 MILS DFT)

PAINT NOTE "B"
~~(NO PAINT)~~
1 (MIST COAT OF PRIMER ONLY ~1.5 MILS DFT)

SECTION X
AT BRG AREA

DOR ~ DENOTES DIRECTION OF ROLLING

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: [signature]
DATE: 7/27/2009

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 15/16Ø SHOP FASTENERS
SHOP PAINT PARTIAL PAINT PER HN1 & AS NOTED
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF9B

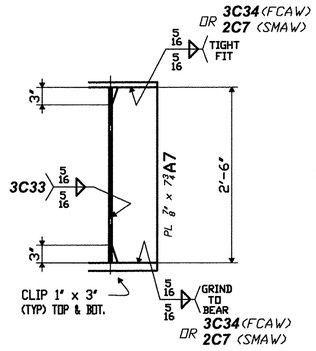
REVISIONS			
DATE	NO.	BY	
07/06/09	R1	PDC/SB	REMOVED HATCHED AREA & ADDED NOTES

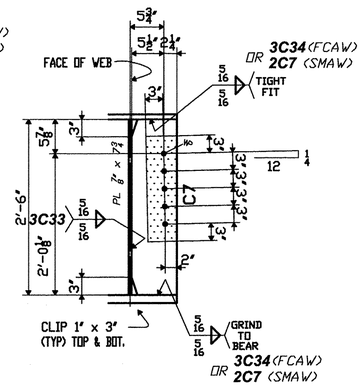
ORDER NO. 08-18537H22
DETAILS OF PL GIRDER ~ SPAN BC LINE 6
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

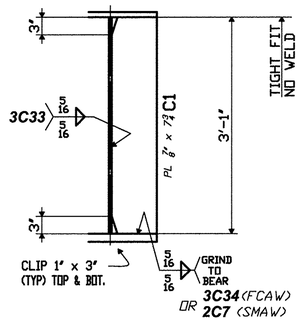
CAROLINA STEEL GROUP, LLC.

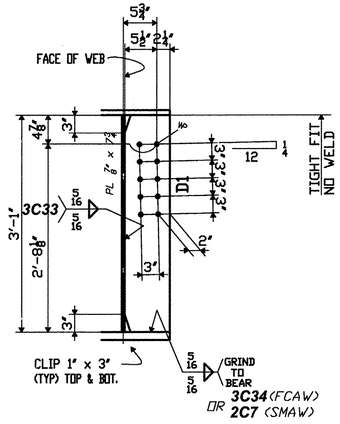
MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF9A



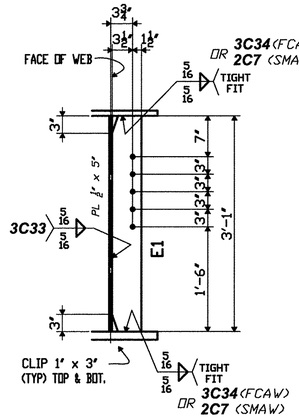


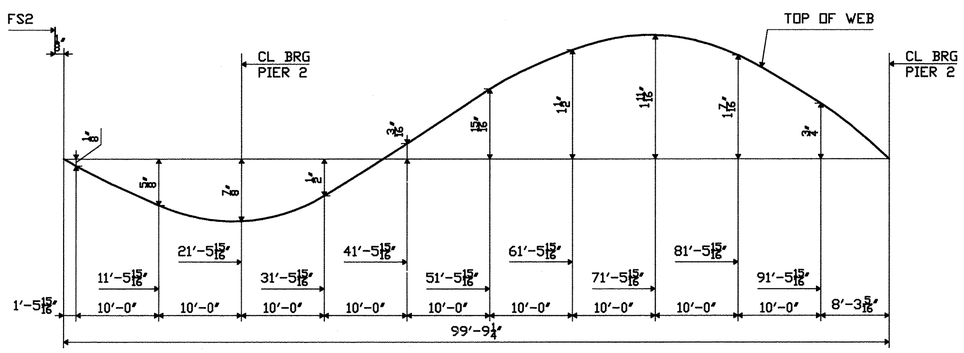




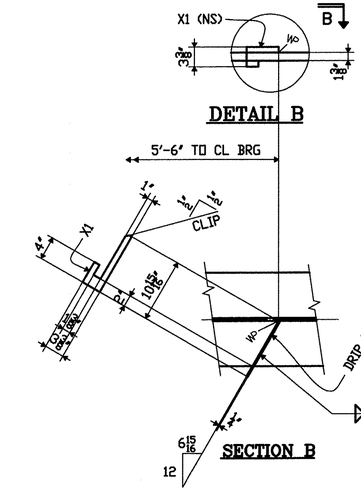
PAINT NOTE "C"
AREA SHOWN THUS
DENOTES FAYING SURFACE.
APPLY PRIMER ONLY (BS) (1) (CS)

(1) (CS) DENOTES 'CONTACT SURFACE'





CAMBER DIAGRAM



SHOP BILL

MK ITEM	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	LINE ITEM	NO. PCS.	LENGTH
1															
2	1	9BC6			PLATE GIRDER										
3			1		PL	1 3/8 x 16	42	5 7/8	TFBC1	V	M270-50W	6014NH	3		
4			1		PL	7/8 x 16	58	0 3/8	TFBC2	V	M270-50W	6014NH	4		
5			1		PL	1 3/8 x 16	42	5 7/8	BFBC1	V	M270-50W	6014NH	3		
6			1		PL	1 3/8 x 16	58	0	BFBC2	V	M270-50W	6014NH	1		
7			1		PL	1/2 x 37	66	3	WBC1	V	M270-50W	6014NH	6		
8			1		PL	1/2 x 37	34	3 1/4	WBC2	V	M270-50W	6014NH	8		
9															
10			1		PL	7/8 x 7 3/4	2	6	A7	FIN-2E	M270-50W	6016NH	1		
11			1		PL	7/8 x 7 3/4	2	6	C7	FIN-2E	M270-50W	6016NH	1		
12			1		PL	7/8 x 7 3/4	3	1	C1	FIN-2E	M270-50W	6016NH	1		
13			1		PL	7/8 x 7 3/4	3	1	D1	FIN-2E	M270-50W	6016NH	1		
14			5		PL	1/2 x 5	3	1	E1	TF-2E	M270-50W	6016NH	4		
15															
16			1		BAR	1/4 x 3 3/8	0	10 15/16	X1		M270-50W	SHN			
17															
18															
19															
20															
21															
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN1 FOR FABRICATION NOTES

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.

BY: AWadd
DATE: 9/21/2009

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 15/16Ø SHOP FASTENERS
SHOP PAINT PARTIAL PAINT PER HN1 & AS NOTED
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF9A

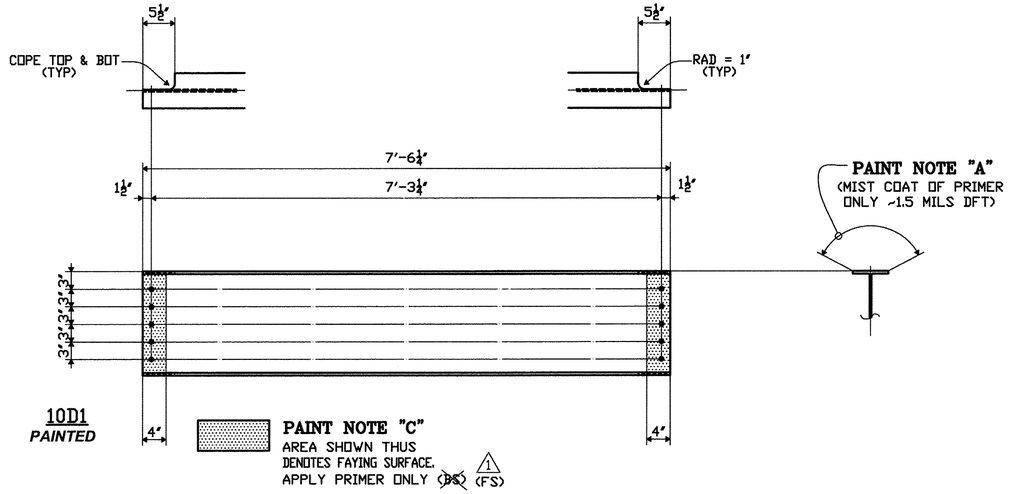
REVISIONS			
DATE	NO.	BY	
07/08/09	R1	PDC/SB	ADDED CONTACT SURFACE

ORDER NO. 08-18537H22
DETAILS OF PL GIRDER - SPAN BC LINE 6
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

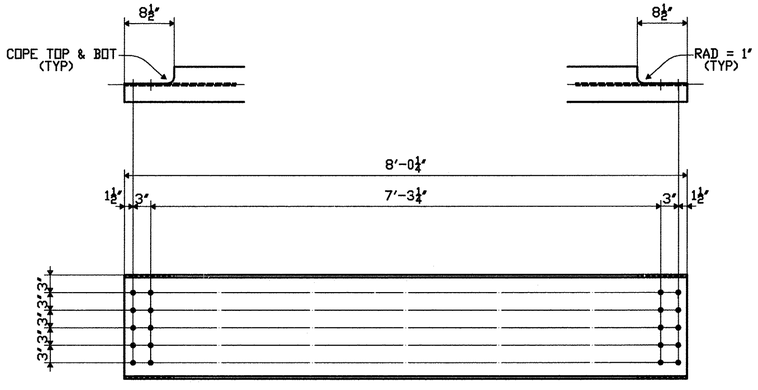
CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

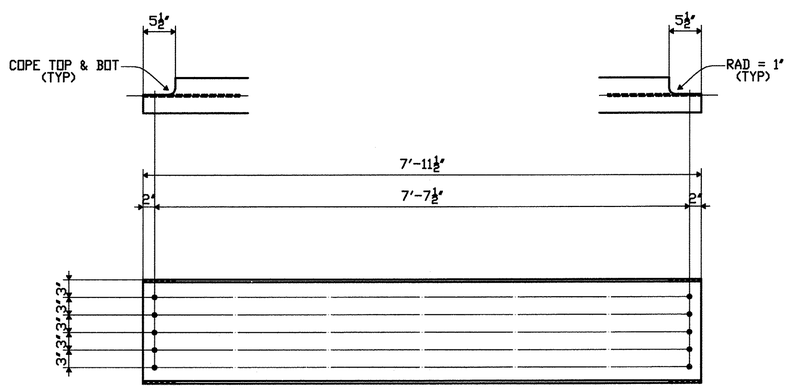
SHEET HF9B



10D1
PAINTED



10D2
UN-PAINTED



10D3
UN-PAINTED

SHOP BILL

	STAGE A	STAGE B	LINE ITEM	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	MATERIAL APPLICATION LINE ITEM	MATERIAL APPLICATION NO. PCS.	MATERIAL APPLICATION LENGTH
			1															
			2															
			3															
PAINTED	2	3	4	5	10D1	5		W	18x35	7	6¼			M270-50W	6004NY	2		
			5															
			6															
NO PAINT	4	6	7	10	10D2	10		W	18x35	8	0¼			M270-50W	6004NY	2		
			8															
			9															
NO PAINT	24	26	10	50	10D3	50		W	18x35	7	11½			M270-50W	6004NY	3		
NO PAINT	--	10	11	10	10D3	10		W	18x35	7	11½			M270-50W	6004NY	2		
			12															
			13															
			14															
			15															
			16															
			17															
			18															
			19															
			20															
			21															
			22															
			23															
			24															
			25		DOMESTIC MATERIAL													

SEE HN1 FOR FABRICATION NOTES

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 7/21/2009

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 15/16Ø SHOP FASTENERS
SHOP PAINT PAINTED PER HN1 FOR ITEMS NOTED
SHOP INSPECTION
GENERAL NOTES

REVISIONS			
DATE	NO.	BY	
07/08/09	R1	PDC/SB	REVISED NOTATION (BS) TO (FS)

ORDER NO. 08-18537H22
DETAILS OF DIAPHRAGMS
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF10

DRIVING LIST

STAGE A	STAGE B	MACH BOLTS	HS BOLTS	* = ADD WASHER	DIA	GRIP	LENGTH	MEMBER SUPPORTED	CONNECTED TO	
								FIELD SPLICE #1 & 2		
144	144		288		7/8	2 3/8	3 3/4	TOP FLG SPLICE PLATES	GIRDER TOP FLANGE	
192	192		384		7/8	2 7/8	4 1/4	BOT FLG SPLICE PLATES	GIRDER BOT FLANGE	
360	360		720		7/8	1 1/4	2 3/4	WEB SPLICE PLATES	GIRDER WEB	
								ABUT 2 DIAPHRAGMS		
20	30		50		7/8	1 3/16	2 1/2	W 18x35	7/8" BRG STIFF./CONN. PL	(MECH. GALV)
								PIER DIAPHRAGMS		
80	120		200		7/8	1 3/16	2 1/2	W 18x35	7/8" BRG STIFF./CONN. PL	
								INTERMEDIATE DIAPHRAGMS		
240	360		600		7/8	13/16	2 1/4	W 18x35	1/2" CONN. PL	

ALL TYPE 3 BOLTS, NUTS & WASHERS SHALL MEET THE AASHTO SPECS AS FOLLOWS:

HIGH STRENGTH BOLTS ASTM A325 TYPE 3 = AASHTO M164 TYPE 3
HEAVY HEX NUTS ASTM A563-DH3 = AASHTO M291-DH3
HARDENED WASHERS ASTM F436 = AASHTO M293 WEATHERING

ALL TYPE 1 BOLTS, NUTS & WASHERS SHALL MEET THE AASHTO SPECS AS FOLLOWS:

HIGH STRENGTH BOLTS ASTM A325 TYPE 1 = AASHTO M164 TYPE 1
HEAVY HEX NUTS ASTM A563-DH = AASHTO M291-DH
HARDENED WASHERS ASTM F436 = AASHTO M293

ALL TYPE 1 BOLTS, NUTS AND WASHERS SHALL BE MECHANICALLY GALVANIZED (ASTM B695 CLASS 50).

SHOP BILL

LINE ITEM	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	MATERIAL APPLICATION LINE ITEM	MATERIAL APPLICATION NO. PCS.	MATERIAL APPLICATION LENGTH
1															
2						FIELD BOLTS - STAGE A									
3	245	11FP3	245	F	HSBT	7/8	0	2 1/4		TYPE 3	A325	JS6328	1		
4	85	11FP4	85	F	HSBT	7/8	0	2 1/2		TYPE 3	A325	JS6328	2		
5	370	11FP5	370	F	HSBT	7/8	0	2 3/4		TYPE 3	A325	JS6328	3		
6	150	11FP6	150	F	HSBT	7/8	0	3 3/4		TYPE 3	A325	JS6328	4		
7	200	11FP7	200	F	HSBT	7/8	0	4 1/4		TYPE 3	A325	JS6328	5		
8	1050	11FP8	1050	F	HWASH	7/8				TYPE 3	F436	JS6328	6		
9															
10	25	11FP10	25	F	HSBT	7/8	0	2 1/2		MGV	A325	JS6328	7		
11	25	11FP11	25	F	HWASH	7/8				MGV	F436	JS6328	8		
12															
13															
14						FIELD BOLTS - STAGE B									
15	370	11FP15	370	F	HSBT	7/8	0	2 1/4		TYPE 3	A325	JS6328	9		
16	125	11FP16	125	F	HSBT	7/8	0	2 1/2		TYPE 3	A325	JS6328	10		
17	370	11FP17	370	F	HSBT	7/8	0	2 3/4		TYPE 3	A325	JS6328	11		
18	150	11FP18	150	F	HSBT	7/8	0	3 3/4		TYPE 3	A325	JS6328	12		
19	200	11FP19	200	F	HSBT	7/8	0	4 1/4		TYPE 3	A325	JS6328	13		
20	1215	11FP20	1215	F	HWASH	7/8				TYPE 3	F436	JS6328	14		
21															
22	35	11FP22	35	F	HSBT	7/8	0	2 1/2		MGV	A325	JS6328	15		
23	35	11FP23	35	F	HWASH	7/8				MGV	F436	JS6328	16		
24															
25															
26															
27															
28															
29															
30															
31															
32															
33															
34															
35															
36															
37		DOMESTIC MATERIAL													

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY _____
DATE 12/7/2020

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES _____ SHOP FASTENERS _____
SHOP PAINT _____
SHOP INSPECTION _____
GENERAL NOTES _____

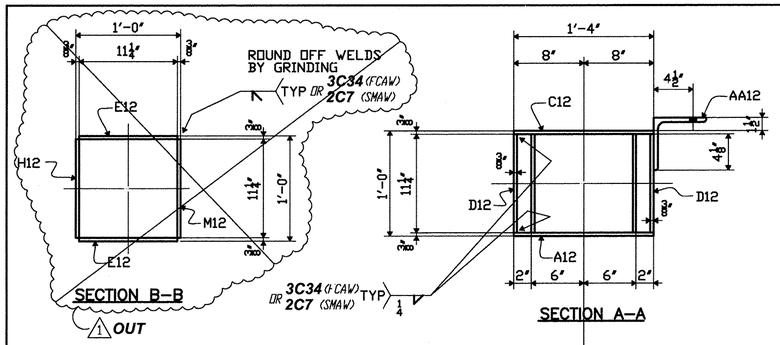
REVISIONS		
DATE	NO.	BY
	R1	

ORDER NO. 08-18537H22
DETAILS OF FIELD BOLTS
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF11



SHOP NOTE

HOPPERS SHALL BE FABRICATED FROM $\frac{3}{8}$" STEEL PL'S.

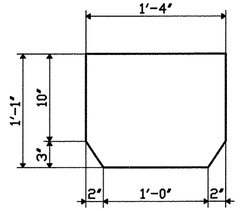
THE FABRICATION WELDS SHALL BE $\frac{1}{4}$" FILLET WELDS ON THE INSIDE OF THE HOPPER AND SHALL BE FULL LENGTH TO ENSURE A WATERTIGHT CONTAINER.

TVGA CONSULTANTS

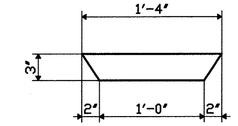
☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such review does not extend to any FED certification or classification. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to the techniques of construction, and for coordination of the work of all trades.

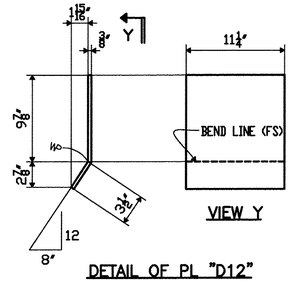
BY: Andrew Clark
DATE: 7/21/2009



DETAIL OF PL "A12"

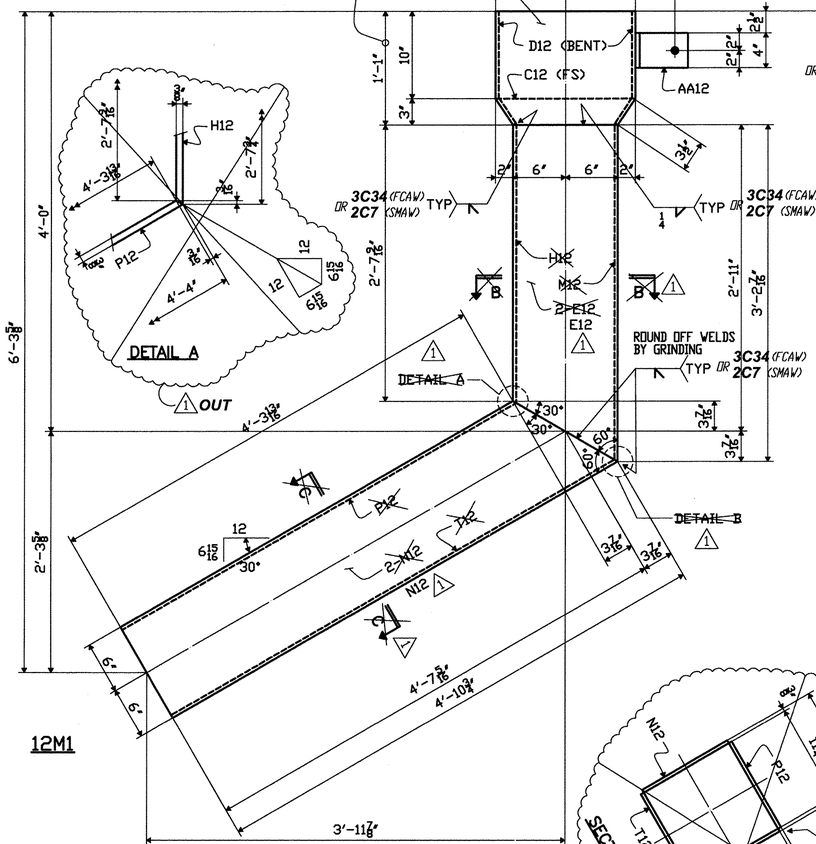


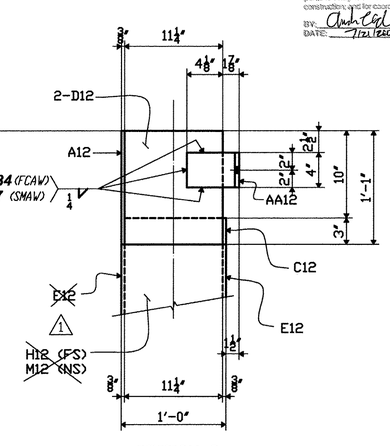
DETAIL OF PL "C12"

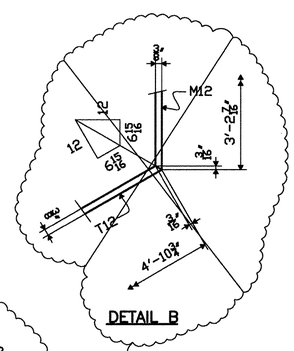


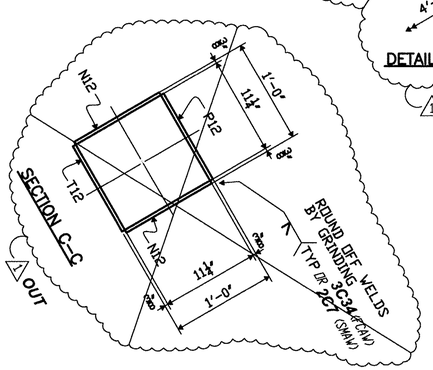
VIEW Y

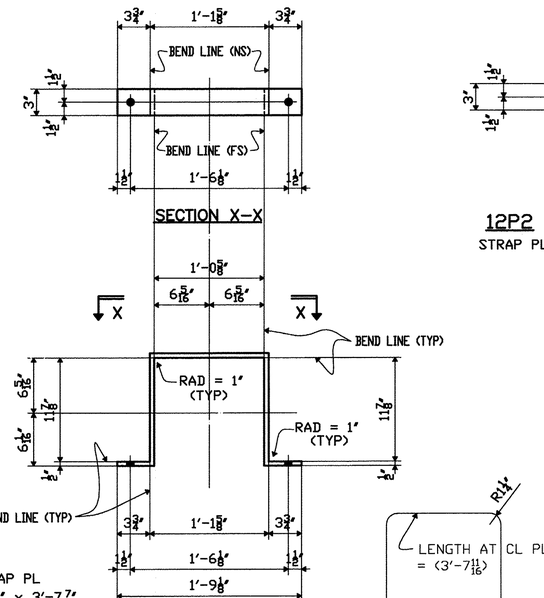
DETAIL OF PL "D12"



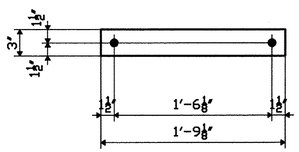




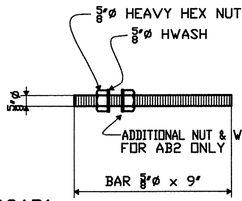




12P1
BENT STRAP PL
PL ½" x 3" x 3'-7⅞"



12P2
STRAP PL ½" x 3" x 1'-9⅛"



12AB1
12AB2

SHOP BILL

STAGE A	STAGE B	LINE ITEM	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	PCS. REQ'D	DESCRIPTION CODE	SYMBOL	SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	LINE ITEM	NO. PCS.	LENGTH
		1															
1	--	2	1	12M1				DOWNSPOUT HOPPER									
		3			1		PL	⅜ x 16	1	1	A12		M270-36	SHN			
		4			1		PL	⅜ x 3	1	4	C12		M270-36	SHN			
		5			2		PL	⅜ x 11¼	1	1⅜	D12	BEND	M270-36	SHN			
		6		1	1		TS	12x12x⅜	3	2 7/16	E12	BEV-1E	A500 GR B	3727SA	1		
		7		~~1~~	~~1~~		~~PL~~	~~⅜ x 11¼~~	~~2~~	~~7¾~~	~~H12~~	~~BEV-1E~~	~~M270-36~~	~~SHN~~			
		8		~~1~~	~~1~~		~~PL~~	~~⅜ x 11¼~~	~~3~~	~~2 7/16~~	~~M12~~	~~BEV-1E~~	~~M270-36~~	~~SHN~~			
		9		1	1		TS	12x12x⅜	4	10¾	N12	BEV-1E	A500 GR B	3727SA	1		
		10		~~1~~	~~1~~		~~PL~~	~~⅜ x 11¼~~	~~4~~	~~4~~	~~P12~~	~~BEV-1E~~	~~M270-36~~	~~SHN~~			
		11		~~1~~	~~1~~		~~PL~~	~~⅜ x 11¼~~	~~4~~	~~10¾~~	~~T12~~	~~BEV-1E~~	~~M270-36~~	~~SHN~~			
		12			1		L	6x6x½	0	4	AA12		M270-36	SHN			
		13															
		14															
2	2	15	4	12P1	4		PL	½ x 3	3	7⅞		BEND	M270-36	SHN			
		16															
2	2	17	4	12P2	4		PL	½ x 3	1	9⅛			M270-36	SHN			
		18															
1	1	19	2	12AB1	2		BAR	⅝	0	9		THREADED	A307	JS6501	1		
4	4	20	8	12AB2	8		BAR	⅝	0	9		THREADED	A307	JS6501	2		
		21			18	F	NUT	⅝ HEX				GV	M291	JS6501	1		
		22															
9	9	23	18	12FP23	18	F	HWASH	⅝				GV	F436	JS6501	1		
		24															
		25		DOMESTIC MATERIAL													

SEE HN1 FOR FABRICATION NOTES

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 11/16ø SHOP FASTENERS
SHOP PAINT HOT DIP GALV. PER A123 AFTER FAB.
SHOP INSPECTION GALV. PER A153 FOR BOLTS, NUTS & WASHERS
GENERAL NOTES

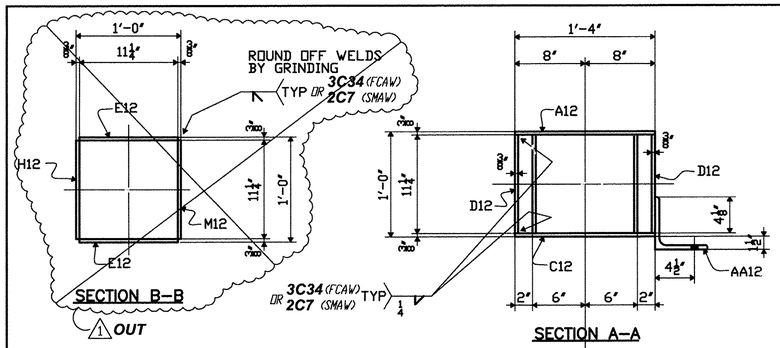
REVISIONS			
DATE	NO.	BY	
07/06/09	R1	PDC/SB	CHANGED FROM PL'S TO TS

ORDER NO. 08-18537H22
DETAILS OF DOWNSPOUT HOPPER CONN.
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise DraftING Co. Inc.
DATE 03-09

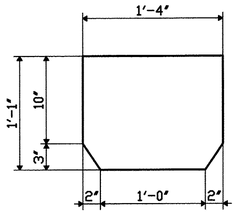
SHEET HF12



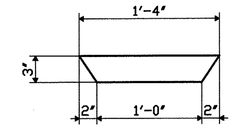
SHOP NOTE

HOPPERS SHALL BE FABRICATED FROM ⅜" STEEL PL'S.

THE FABRICATION WELDS SHALL BE ¼" FILLET WELDS ON THE INSIDE OF THE HOPPER AND SHALL BE FULL LENGTH TO ENSURE A WATERTIGHT CONTAINER.



DETAIL OF PL "A12"



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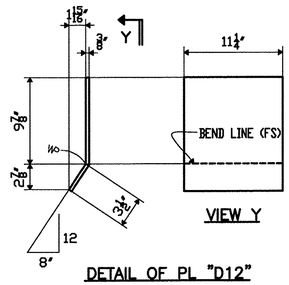
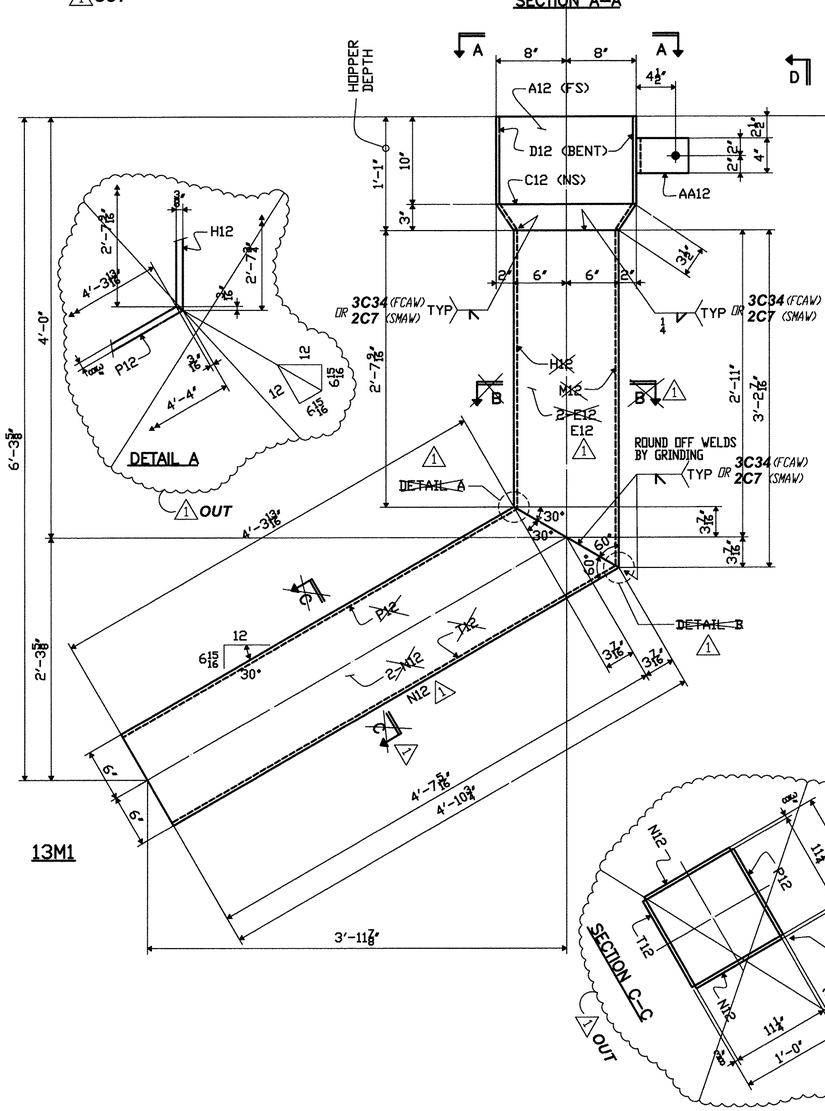
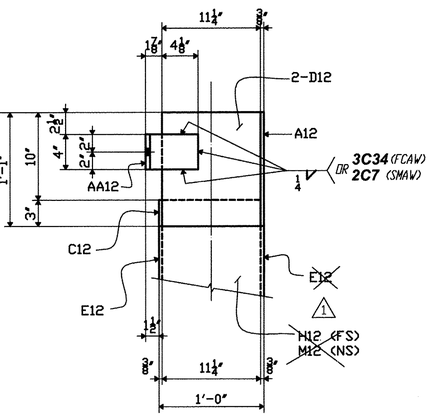


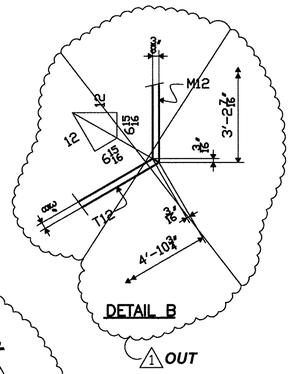
VIEW Y

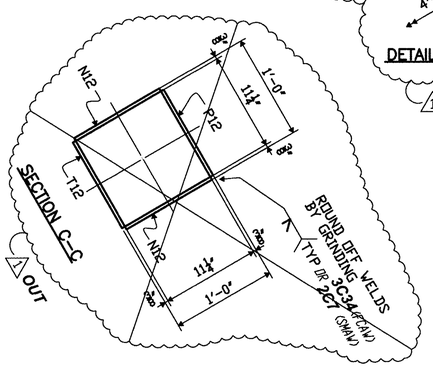
DETAIL OF PL "D12"





SECTION D





SHOP BILL

STAGE A	STAGE B	LINE ITEM	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	MATERIAL APPLICATION LINE ITEM	MATERIAL APPLICATION NO. PCS.	MATERIAL APPLICATION LENGTH
		1															
--	1	2	1	13M1			DOWNSPOUT HOPPER										
		3			1		PL	⅜ × 16	1	1	A12		M270-36	SHN			
		4			1		PL	⅜ × 3	1	4	C12		M270-36	SHN			
		5			2		PL	⅜ × 11¼	1	1⅜	D12	BEND	M270-36	SHN			
		6		1	1		TS	12×12×⅜	3	2 7/16	E12	BEV-1E	A500 GR B	3727SA	1		
		7		1	~~1~~		~~PL~~	~~⅜ × 11¼~~	~~2~~	~~7¾~~	~~H12~~	~~BEV-1E~~	~~M270-36~~	~~SHN~~			
		8		1	~~1~~		~~PL~~	~~⅜ × 11¼~~	~~3~~	~~2 7/16~~	~~M12~~	~~BEV-1E~~	~~M270-36~~	~~SHN~~			
		9		1	1		TS	12×12×⅜	4	10¾	N12	BEV-1E	A500 GR B	3727SA	1		
		10		1	~~1~~		~~PL~~	~~⅜ × 11¼~~	~~4~~	~~4~~	~~P12~~	~~BEV-1E~~	~~M270-36~~	~~SHN~~			
		11		1	~~1~~		~~PL~~	~~⅜ × 11¼~~	~~4~~	~~10¾~~	~~T12~~	~~BEV-1E~~	~~M270-36~~	~~SHN~~			
		12			1		L	6x6x½	0	4	AA12		M270-36	SHN			
		13															
		14															
		15															
		16															
		17															
		18															
		19															
		20															
		21															
		22															
		23															
		24															
		25		DOMESTIC MATERIAL													

SEE HN1 FOR FABRICATION NOTES

TVGA CONSULTANTS

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review should extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the jobsite; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Charles Ford
DATE 7/24/2009

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES 11/16ø SHOP FASTENERS
SHOP PAINT HOT DIP GALV. PER A123 AFTER FAB.
SHOP INSPECTION GALV. PER A153 FOR BOLTS, NUTS & WASHERS
GENERAL NOTES

REVISIONS			
DATE	NO.	BY	
07/06/09	R1	PDC/SB	CHANGED FROM PL'S TO TS

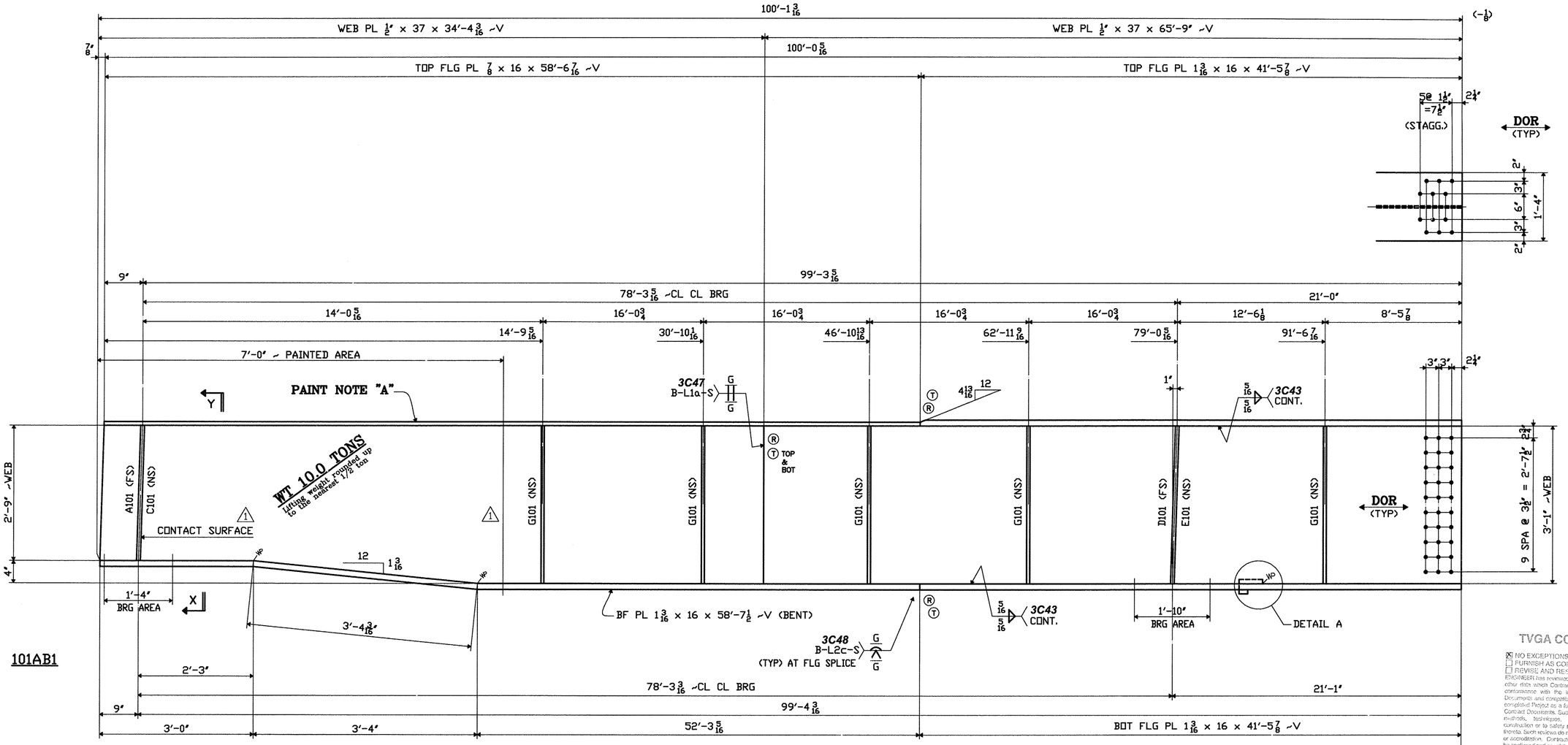
ORDER NO. 08-18537H22
DETAILS OF DOWNSPOUT HOPPER CONN.
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SOUND LEADER Precise Drafting Co. Inc.
DATE 03-09

SHEET HF13

ABUT 1 PIER 1 FS1



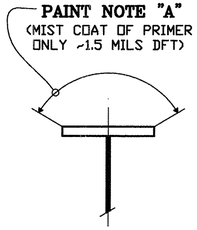
TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such review does not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

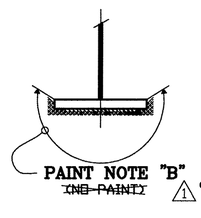
BY: _____
DATE: 7/27/2009

PAINT NOTE "A"
(MIST COAT OF PRIMER ONLY ~1.5 MILS DFT)



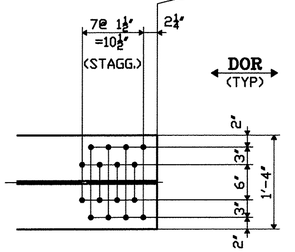
SECTION Y
AT 7'-0" PAINTED AREA

PAINT NOTE "B"
~~(NO PAINT)~~
1 (MIST COAT OF PRIMER ONLY ~1.5 MILS DFT)



SECTION X
AT BRG AREA

DOR ~ DENOTES DIRECTION OF ROLLING



PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES 15/16 Ø SHOP FASTENERS
SHOP PAINT PARTIAL PAINT PER HN101 & AS NOTED
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF101B

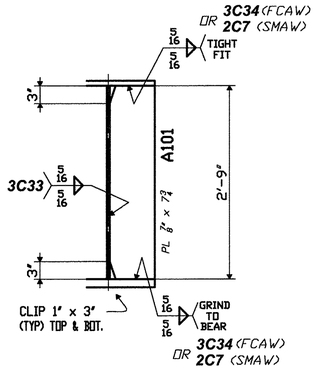
REVISIONS			
DATE	NO.	BY	
07/06/09	R1	PDC/SB	REMOVED HATCHED AREA & ADDED NOTES

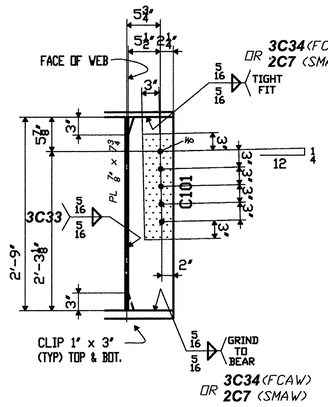
ORDER NO. 08-18537H32
DETAILS OF PL GIRDER ~ SPAN AB LINE 1
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

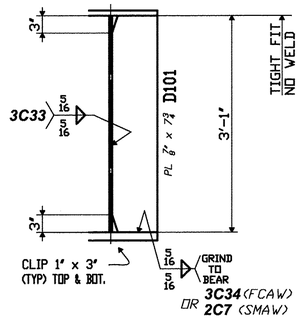
CAROLINA STEEL GROUP, LLC.

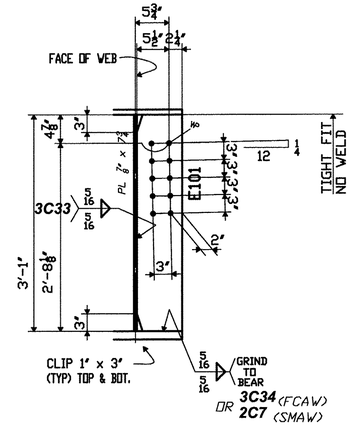
MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF101A





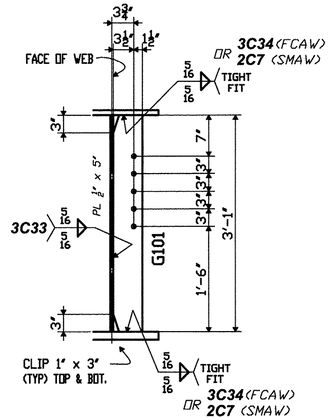


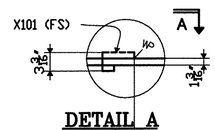


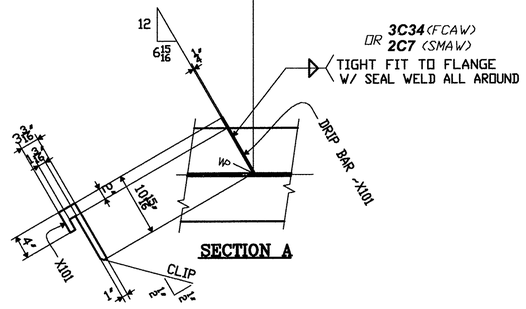
PAINT NOTE "C"

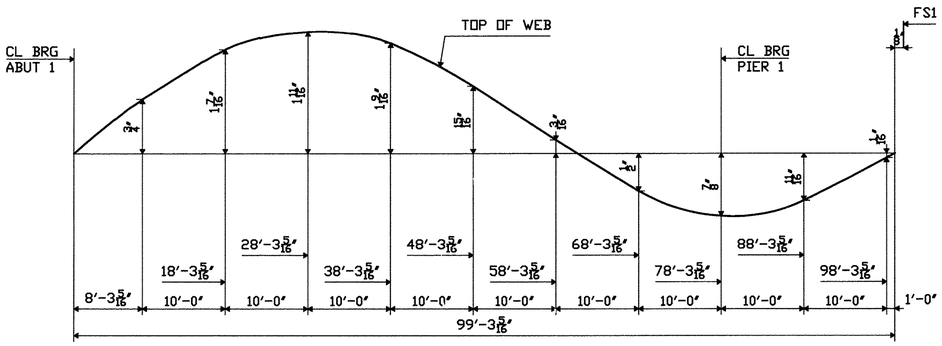
AREA SHOWN THUS
DENOTES FAYING SURFACE.
APPLY PRIMER ONLY (BS) (CS)

(1) (CS) DENOTES "CONTACT SURFACE"









CAMBER DIAGRAM

SHOP BILL

LINE ITEM	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	MATERIAL APPLICATION LINE ITEM	MATERIAL APPLICATION NO. PCS.	MATERIAL APPLICATION LENGTH
1															
2	1	101AB1			PLATE GIRDER										
3			1		PL	7/8 x 16	58	6 7/16	TFAB1	V	M270-50W	6015NH	4		
4			1		PL	1 3/16 x 16	41	5 7/8	TFAB2	V	M270-50W	6015NH	3		
5			1		PL	1 3/16 x 16	58	7 1/2	BFAB1	V	M270-50W	6015NH	1		
6			1		PL	1 3/16 x 16	41	5 7/8	BFAB2	V	M270-50W	6015NH	3		
7			1		PL	1/2 x 37	34	4 3/16	WAB1	V	M270-50W	6015NH	9		
8			1		PL	1/2 x 37	65	9	WAB2	V	M270-50W	6015NH	7		
9															
10			1		PL	7/8 x 7 3/4	2	9	A101	FIN-2E	M270-50W	6016NH	1		
11			1		PL	7/8 x 7 3/4	2	9	C101	FIN-2E	M270-50W	6016NH	1		
12			1		PL	7/8 x 7 3/4	3	1	D101	FIN-2E	M270-50W	6016NH	1		
13			1		PL	7/8 x 7 3/4	3	1	E101	FIN-2E	M270-50W	6016NH	1		
14			5		PL	1/2 x 5	3	1	G101	TF-2E	M270-50W	6016NH	4		
15															
16			1		BAR	1/4 x 3 3/16	0	10 15/16	X101		M270-50W	SHN			
17															
18															
19															
20															
21															
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN101 FOR FABRICATION NOTES

TVGA CONSULTANTS

[X] NO EXCEPTIONS TAKEN [ ] REJECTED
[ ] FURNISH AS CORRECTED
[ ] REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: [signature]
DATE 7/23/2009

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES 15/16 Ø SHOP FASTENERS
SHOP PAINT PARTIAL PAINT PER HN101 & AS NOTED
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF101A

REVISIONS			
DATE	NO.	BY	
07/08/09	R1	PDC/SB	ADDED CONTACT SURFACE

ORDER NO. 08-18537H32
DETAILS OF PL GIRDER - SPAN AB LINE 1
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF101B

ABUT 1 — PIER 1 — FS1

100′-1 3/16

WEB PL 1/2″ x 37 x 34′-4 3/16 ~V — WEB PL 1/2″ x 37 x 65′-9″ ~V

100′-0 5/16

7/8″ — TOP FLG PL 7/8 x 16 x 58′-6 7/16 ~V — TOP FLG PL 1 3/16 x 16 x 41′-5 7/8 ~V

(-1/8)

5@ 1 1/2″ =7 1/2″ (STAGG.) — 2 1/4″ — DOR (TYP)

2″ / 3″ / 6″ / 3″ / 2″ — 1′-4″

9″ — 99′-3 5/16

78′-3 5/16 ~CL CL BRG — 21′-0″

14′-0 5/16 — 16′-0 3/4 — 16′-0 3/4 — 16′-0 3/4 — 16′-0 3/4 — 12′-6 1/8 — 8′-5 7/8

14′-9 5/16 — 30′-10 1/16 — 46′-10 13/16 — 62′-11 9/16 — 79′-0 5/16 — 91′-6 7/16

7′-0″ ~ PAINTED AREA

PAINT NOTE "A"

Y

3C47 B-L1a-S — G / G

4 13/16 12 — (T) (R) TOP & BOT

1″ — 5/16 — 3C43 CONT.

3″ 3″ — 2 1/4″

2′-9″ ~WEB

A102 (FS) @ AB2 & AB3 / C101 (FS) @ AB4

C101 (NS) @ AB2 / A102 (NS) @ AB3 & AB4

1 CONTACT SURFACE

WT 10.0 TONS
Lifting weight rounded up to the nearest 1/2 ton

D102 (FS) @ AB2 & AB3 / G101 (FS) @ AB4

G101 (NS) @ AB2 / D102 (NS) @ AB3 & AB4

C102 (FS) @ AB2 & AB3 / E101 (FS) @ AB4

E101 (NS) @ AB2 / C102 (NS) @ AB3 & AB4

DOR (TYP)

9 SPA @ 3 1/2″ = 2′-7 1/2″ — 3′-1″ ~WEB

4′

12 — 1 3/16

HP — HP

1′-4″ BRG AREA — X

3′-4 3/16″

BF PL 1 3/16 x 16 x 58′-7 1/2 ~V (BENT)

3C48 B-L2c-S — G / G (TYP) AT FLG SPLICE

5/16 — 3C43 CONT.

1′-10″ BRG AREA

102AB2
102AB3
102AB4

2′-3″

9″ — 78′-3 3/16 ~CL CL BRG — 21′-1″

99′-4 3/16

3′-0″ — 3′-4″ — 52′-3 5/16

BOT FLG PL 1 3/16 x 16 x 41′-5 7/8 ~V

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Charles Ted
DATE: 7/23/2009

PAINT NOTE "A"
(MIST COAT OF PRIMER ONLY ~1.5 MILS DFT)

SECTION Y
AT 7′-0″ PAINTED AREA

PAINT NOTE "B"
~~(NO PAINT)~~ 1 (MIST COAT OF PRIMER ONLY ~1.5 MILS DFT)

SECTION X
AT BRG AREA

DOR ~ DENOTES DIRECTION OF ROLLING

7@ 1 1/2″ =10 1/2″ (STAGG.) — 2 1/4″ — DOR (TYP)

2″ / 3″ / 6″ / 3″ / 2″ — 1′-4″

FABRICATED BY NASH
HOLES 15/16Ø SHOP FASTENERS
SHOP PAINT PARTIAL PAINT PER HN101 & AS NOTED
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF102B

REVISIONS			
DATE	NO.	BY	
07/06/09	R1	PDC/SB	REMOVED HATCHED AREA & ADDED NOTES

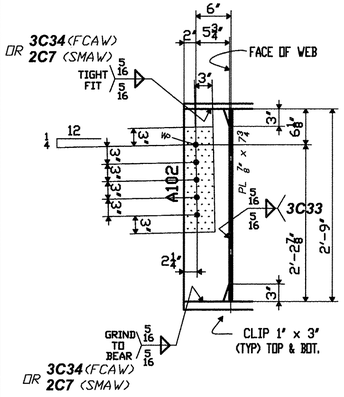
PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

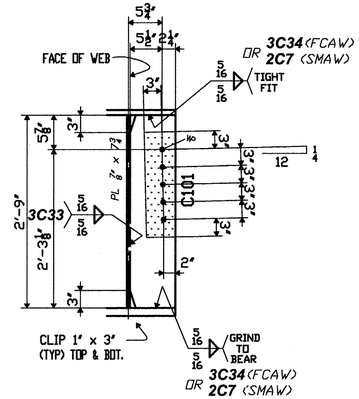
ORDER NO. 08-18537H32
DETAILS OF PL GIRDER ~ SPAN AB LINES 2, 3 & 4
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

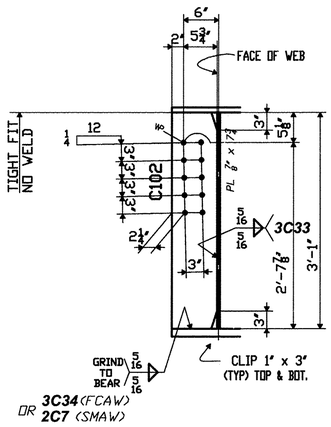
CAROLINA STEEL GROUP, LLC.

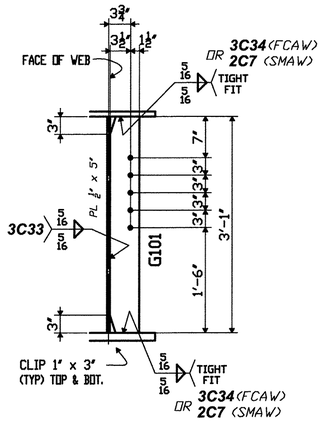
MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

SHEET HF102A

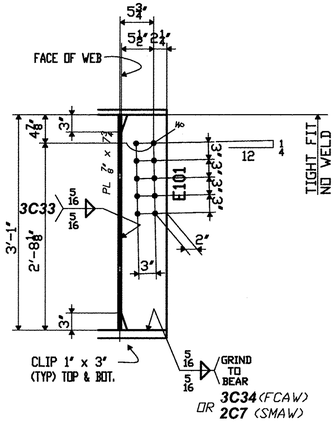


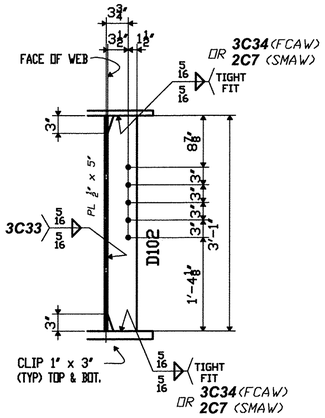


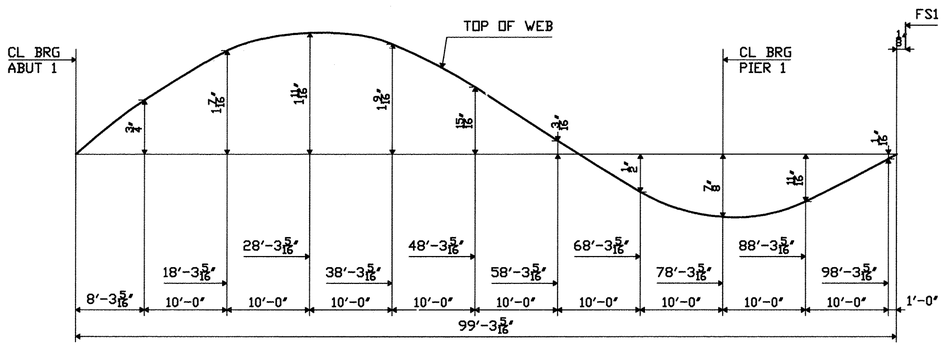




PAINT NOTE "C"
AREA SHOWN THUS
DENOTES FAYING SURFACE.
APPLY PRIMER ONLY (BS) (1)(CS)
(1)(CS) DENOTES "CONTACT SURFACE"







CAMBER DIAGRAM

SHOP BILL

LINE ITEM	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	SYMBOL	SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	LINE ITEM	NO. PCS.	LENGTH
1															
2	1	102AB2			PLATE GIRDER										
3	1	102AB3			PLATE GIRDER										
4	1	102AB4			PLATE GIRDER										
5			3		PL	7/8 x 16	58	6 7/16	TFAB1	V	M270-50W	6015NH	4		
6			3		PL	1 3/16 x 16	41	5 7/8	TFAB2	V	M270-50W	6015NH	3		
7			3		PL	1 3/16 x 16	58	7 1/2	BFAB1	V	M270-50W	6015NH	1		
8			3		PL	1 3/16 x 16	41	5 7/8	BFAB2	V	M270-50W	6015NH	3		
9			3		PL	1/2 x 37	34	4 3/16	WAB1	V	M270-50W	6015NH	9		
10			3		PL	1/2 x 37	65	9	WAB2	V	M270-50W	6015NH	7		
11															
12			4		PL	7/8 x 7 3/4	2	9	A102	FIN-2E	M270-50W	6016NH	1		
13			2		PL	7/8 x 7 3/4	2	9	C101	FIN-2E	M270-50W	6016NH	1		
14			4		PL	7/8 x 7 3/4	3	1	C102	FIN-2E	M270-50W	6016NH	1		
15			2		PL	7/8 x 7 3/4	3	1	E101	FIN-2E	M270-50W	6016NH	1		
16			20		PL	1/2 x 5	3	1	D102	TF-2E	M270-50W	6016NH	4		
17			10		PL	1/2 x 5	3	1	G101	TF-2E	M270-50W	6016NH	4		
18															
19															
20															
21															
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN101 FOR FABRICATION NOTES

TVGA CONSULTANTS

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.
BY: Chris Tait
DATE: 12/22/09

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES 15/16Ø SHOP FASTENERS
SHOP PAINT PARTIAL PAINT PER HN101 & AS NOTED
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF102A

REVISIONS			
DATE	NO.	BY	
07/08/09	R1	PDC/SB	ADDED CONTACT SURFACE

ORDER NO. 08-18537H32
DETAILS OF PL GIRDER - SPAN AB LINE 2, 3 & 4
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF102B

ABUT 1 PIER 1 FS1

100′-1 3/16

WEB PL 1/2″ x 37 x 34′-4 3/16 ~V

WEB PL 1/2″ x 37 x 65′-9″ ~V

7/8″

100′-0 5/16

TOP FLG PL 7/8 x 16 x 58′-6 7/16 ~V

TOP FLG PL 1 3/16 x 16 x 41′-5 7/8 ~V

(-1/8)

5@ 1 1/2″ =7 1/2″ (STAGG.)

2 1/4″

DOR (TYP)

2″ 3″ 6″ 3″ 2″ 1′-4″

9″

99′-3 5/16

78′-3 5/16 ~CL CL BRG

21′-0″

14′-0 5/16 | 16′-0 3/4 | 16′-0 3/4 | 16′-0 3/4 | 16′-0 3/4 | 12′-6 1/8 | 8′-5 7/8

14′-9 5/16 | 30′-10 1/16 | 46′-10 13/16 | 62′-11 9/16 | 79′-0 5/16 | 91′-6 7/16

7′-0″ ~ PAINTED AREA

PAINT NOTE "A"

Y

3C47 B-L1a-S G G

4 13/16 12

1″

5/16 5/16 3C43 CONT.

3″ 3″ 2 1/4″

2′-9″ ~WEB

C101 (FS) A101 (NS) G101 (FS) G101 (FS) G101 (FS) G101 (FS) E101 (FS) D101 (NS) G101 (FS)

WT 10.0 TONS
Lifting weight rounded up to the nearest 1/2 ton

CONTACT SURFACE

TOP & BOT

DOR (TYP)

9 SPA @ 3″ = 2′-7 1/2″

3′-1″ ~WEB

4″

12 1 3/16

1′-4″ BRG AREA

X

3′-4 3/16″

BF PL 1 3/16 x 16 x 58′-7 1/2 ~V (BENT)

3C48 B-L2c-S G G (TYP) AT FLG SPLICE

5/16 5/16 3C43 CONT.

1′-10″ BRG AREA

DETAIL B

103AB5

2′-3″

9″ 3′-0″ 3′-4″

78′-3 3/16 ~CL CL BRG

99′-4 3/16

52′-3 5/16

21′-1″

BOT FLG PL 1 3/16 x 16 x 41′-5 7/8 ~V

TVGA CONSULTANTS

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 7/21/2009

PAINT NOTE "A"
(MIST COAT OF PRIMER ONLY ~1.5 MILS DFT)

SECTION Y
AT 7′-0″ PAINTED AREA

PAINT NOTE "B"
~~(NO PAINT)~~ (MIST COAT OF PRIMER ONLY ~1.5 MILS DFT)

SECTION X
AT BRG AREA

DOR ~ DENOTES DIRECTION OF ROLLING

7@ 1 1/2″ =10 1/2″ (STAGG.) 2 1/4″ DOR (TYP)

2″ 3″ 6″ 3″ 2″ 1′-4″

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES 15/16ø SHOP FASTENERS
SHOP PAINT PARTIAL PAINT PER HN101 & AS NOTED
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF103B

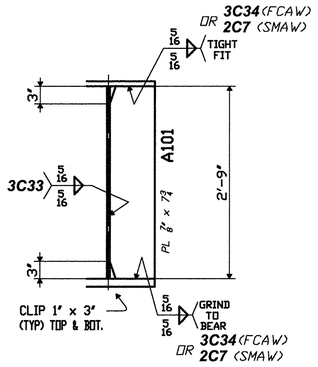
REVISIONS			
DATE	NO.	BY	
07/06/09	R1	PDC/SB	REMOVED HATCHED AREA & ADDED NOTES

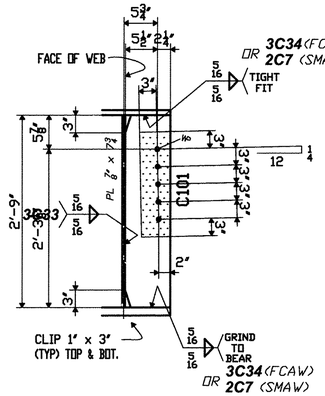
ORDER NO. 08-18537H32
DETAILS OF PL GIRDER ~ SPAN AB LINE 5
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

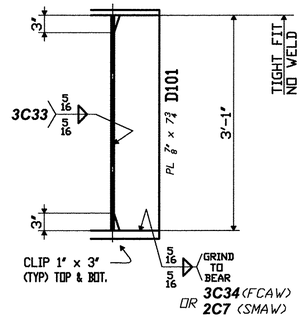
CAROLINA STEEL GROUP, LLC.

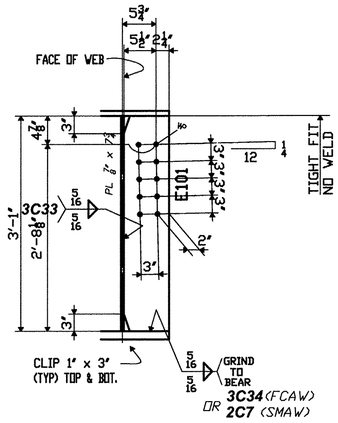
MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF103A





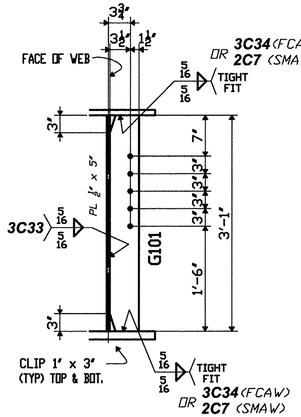


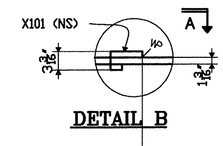


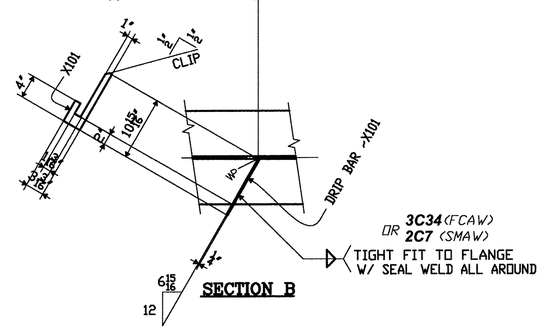
PAINT NOTE "C"

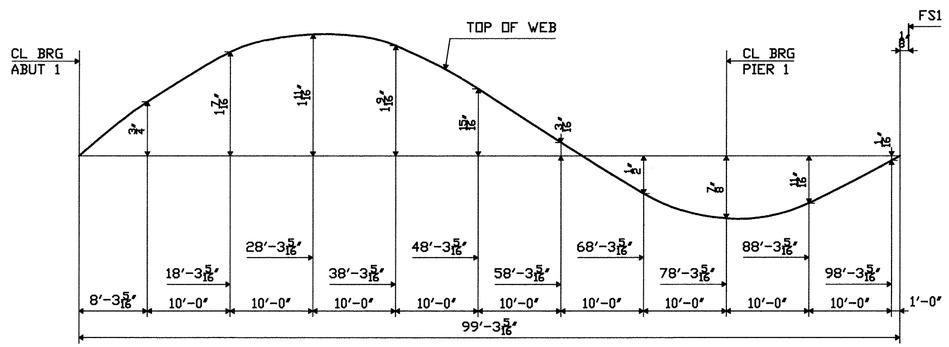
AREA SHOWN THUS
DENOTES FAYING SURFACE.
APPLY PRIMER ONLY ~~(BS)~~ (CS)

(1) (CS) DENOTES 'CONTACT SURFACE'









CAMBER DIAGRAM

SHOP BILL

LINE NO.	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	MATERIAL APPLICATION LINE ITEM	MATERIAL APPLICATION NO. PCS	MATERIAL APPLICATION LENGTH
1															
2	1	103AB5			PLATE GIRDER										
3			1		PL	7/8 x 16	58	6 7/16	TFAB1	V	M270-50W	6015NH	4		
4			1		PL	1 3/16 x 16	41	5 7/8	TFAB2	V	M270-50W	6015NH	3		
5			1		PL	1 3/16 x 16	58	7 1/2	BFAB1	V	M270-50W	6015NH	1		
6			1		PL	1 3/16 x 16	41	5 7/8	BFAB2	V	M270-50W	6015NH	3		
7			1		PL	1/2 x 37	34	4 3/16	WAB1	V	M270-50W	6015NH	9		
8			1		PL	1/2 x 37	65	9	WAB2	V	M270-50W	6015NH	7		
9															
10			1		PL	7/8 x 7 3/4	2	9	A101	FIN-2E	M270-50W	6016NH	1		
11			1		PL	7/8 x 7 3/4	2	9	C101	FIN-2E	M270-50W	6016NH	1		
12			1		PL	7/8 x 7 3/4	3	1	D101	FIN-2E	M270-50W	6016NH	1		
13			1		PL	7/8 x 7 3/4	3	1	E101	FIN-2E	M270-50W	6016NH	1		
14			5		PL	1/2 x 5	3	1	G101	TF-2E	M270-50W	6016NH	4		
15															
16			1		BAR	1/4 x 3 3/16	0	10 15/16	X101		M270-50W	SHN			
17															
18															
19															
20															
21															
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN101 FOR FABRICATION NOTES

TVGA CONSULTANTS

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY Dwd
DATE 7/21/2009

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES 15/16Ø SHOP FASTENERS
SHOP PAINT PARTIAL PAINT PER HN101 & AS NOTED
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF103A

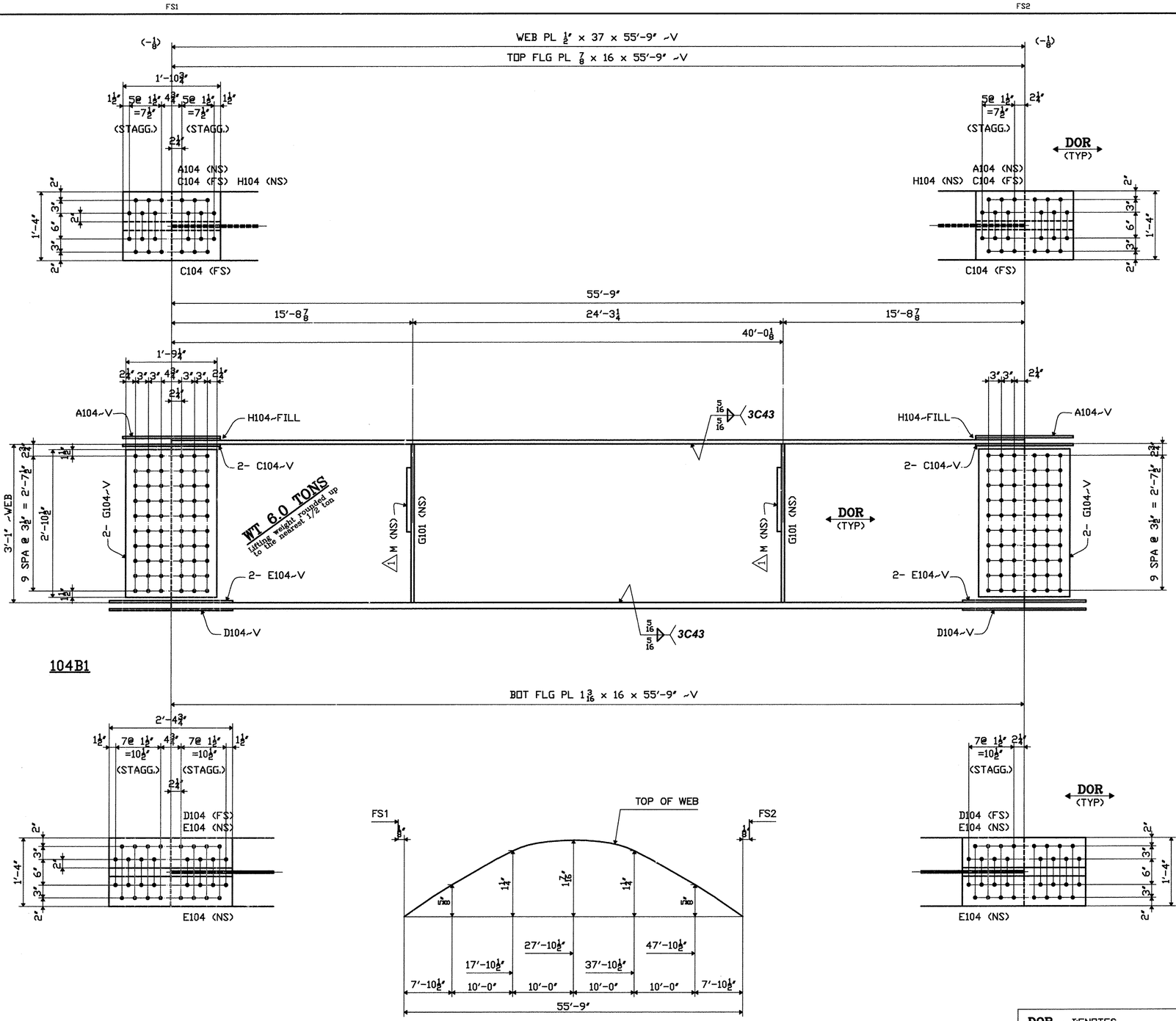
REVISIONS			
DATE	NO.	BY	
07/06/09	R1	PDC/SB	ADDED CONTACT SURFACE

ORDER NO. 08-18537H32
DETAILS OF PL GIRDER - SPAN AB LINE 5
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

SHEET HF103B



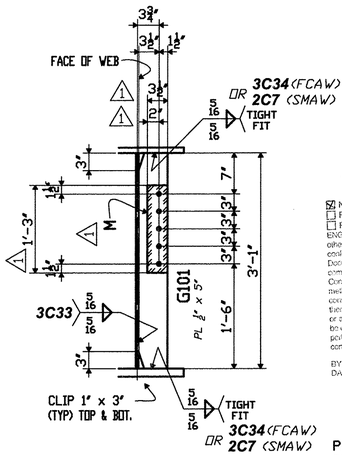
CAMBER DIAGRAM

DOR - DENOTES DIRECTION OF ROLLING

SHOP BILL

MARK SIZE	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	LINE ITEM	NO. PCS	LENGTH
1															
2	1	104B1			PLATE GIRDER										
3			1		PL	7/8 x 16	55	9	TFB1	V	M270-50W	6015NH	5		
4			1		PL	1 3/16 x 16	55	9	BFB1	V	M270-50W	6015NH	2		
5			1		PL	1/2 x 37	55	9	WB1	V	M270-50W	6015NH	8		
6															
7			2		PL	1/2 x 16	1	10 3/4	A104	V	M270-50W	6016NH	4		
8			4		PL	1/2 x 7	1	10 3/4	C104	V	M270-50W	6016NH	4		
9			2		PL	3/4 x 16	2	4 3/4	D104	V	M270-50W	6016NH	2		
10			4		PL	3/4 x 7	2	4 3/4	E104	V	M270-50W	6016NH	2		
11			4		PL	3/8 x 34 1/2	1	9 1/4	G104	V	M270-50W	SHN			
12			2		PL	5/16 x 16	0	11 1/4	H104		M270-50W	SHN			
13															
14			8	F	BOLT	7/8	0	3 1/2		SHIPPING BOLTS	A307	PS6331	2		
15			8	F	BOLT	7/8	0	4		SHIPPING BOLTS	A307	PS6331	3		
16			4	F	BOLT	7/8	0	2 1/2		SHIPPING BOLTS	A307	PS6331	1		
17															
18			2		PL	1/2 x 5	3	1	G101	TF-2E	M270-50W	6016NH	4		
19															
20		1	2		PL	1 x 3 1/2	1	3	M	TF-2E	M270-50W	SHN			
21		1	4	F	BOLT	7/8	0	2 3/4		SHIPPING BOLTS	A307	REQ			
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN101 FOR FABRICATION NOTES



TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviewed concepts extend to means, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED evaluation or credits. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabricators processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 5/6/2010

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES 15/16ø SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES

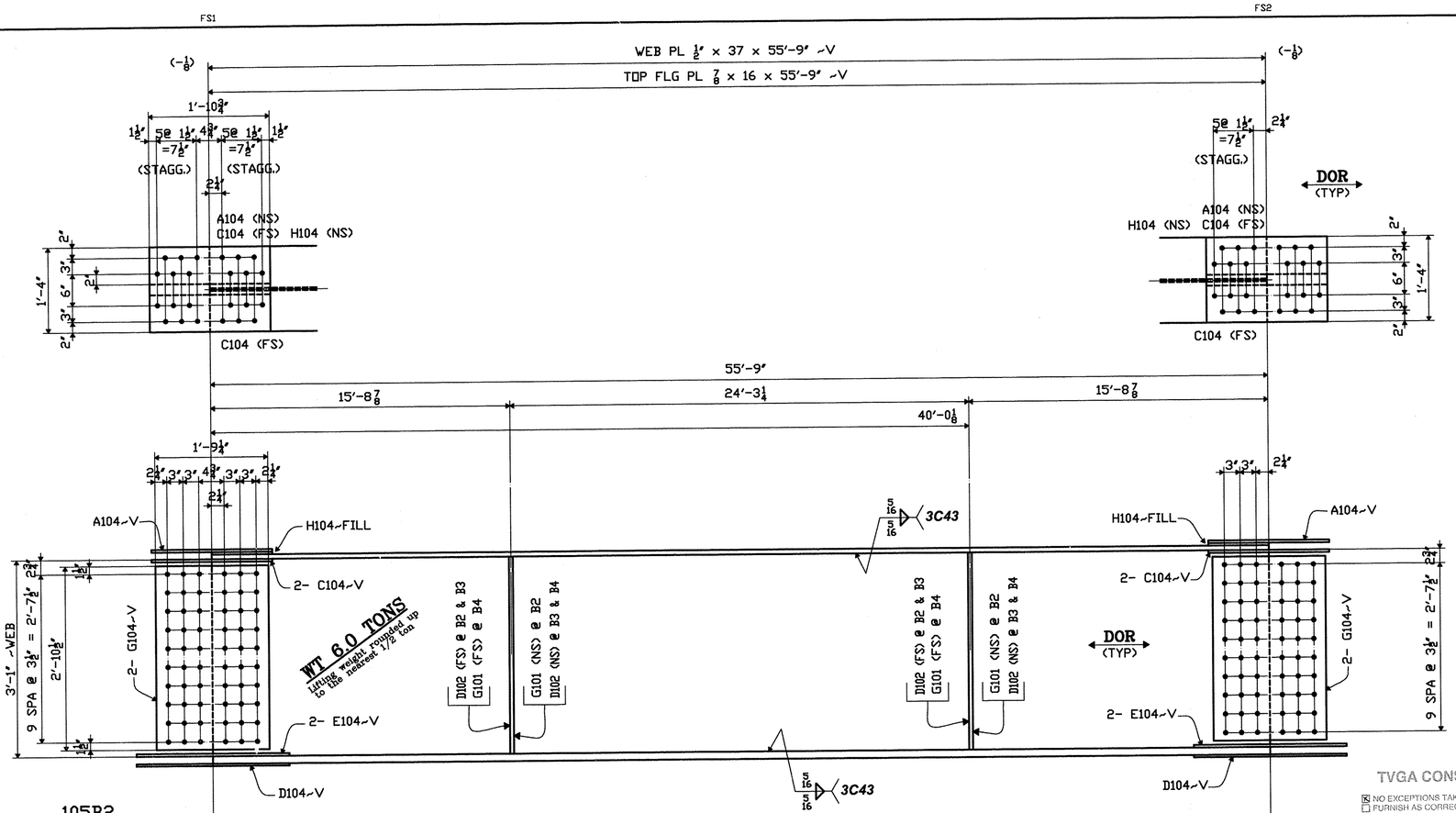
REVISIONS			
DATE	NO.	BY	
04/26/10	R1	PDC/SB	REVISED TO AS-BUILT. ADDED PL "M"

ORDER NO. 08-18537H32
DETAILS OF PL GIRDER - SPAN B
LINE 1
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF104



SHOP BILL

LINE ITEM	SHIPPING LIST NO. POS	SHIPPING LIST MARK	POS. REQ'D	DESCRIPTION CODE	SYMBOL	SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	LINE ITEM	NO. POS.	LENGTH
1															
2	1	105B2			PLATE GIRDER										
3	1	105B3			PLATE GIRDER										
4	1	105B4			PLATE GIRDER										
5			3		PL	⅞ x 16	55	9	TFB1	V	M270-50W	6015NH	5		
6			3		PL	1 3/16 x 16	55	9	BFB1	V	M270-50W	6015NH	2		
1 7			3		PL	½ x 37	55	9	WB1	V	M270-50W	6015NH	X	6	
8															
9			6		PL	½ x 16	1	10¾	A104	V	M270-50W	6016NH	4		
10			12		PL	½ x 7	1	10¾	C104	V	M270-50W	6016NH	4		
11			6		PL	¾ x 16	2	4¾	D104	V	M270-50W	6016NH	2		
12			12		PL	¾ x 7	2	4¾	E104	V	M270-50W	6016NH	2		
13			12		PL	⅜ x 34½	1	9¼	G104	V	M270-50W	SHN			
14			6		PL	5/16 x 16	0	11¼	H104		M270-50W	SHN			
15															
16			24	F	BOLT	⅞	0	3½		SHIPPING BOLTS	A307	PS6331	2		
17			24	F	BOLT	⅞	0	4		SHIPPING BOLTS	A307	PS6331	3		
18			12	F	BOLT	⅞	0	2½		SHIPPING BOLTS	A307	PS6331	1		
19															
20			4		PL	½ x 5	3	1	G101	TF-2E	M270-50W	6016NH	4		
21			8		PL	½ x 5	3	1	D102	TF-2E	M270-50W	6016NH	4		
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN101 FOR FABRICATION NOTES

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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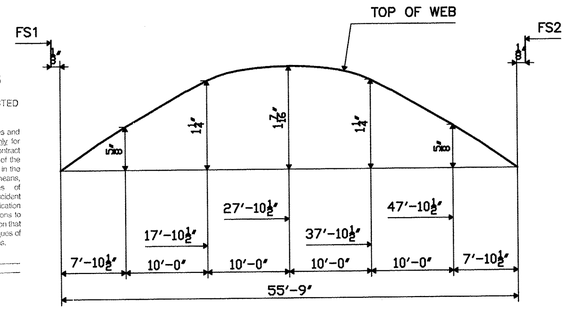
BY: _____
DATE: 7/16/2009

DOR - DENOTES DIRECTION OF ROLLING



CAMBER DIAGRAM

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES 15/16Ø SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES

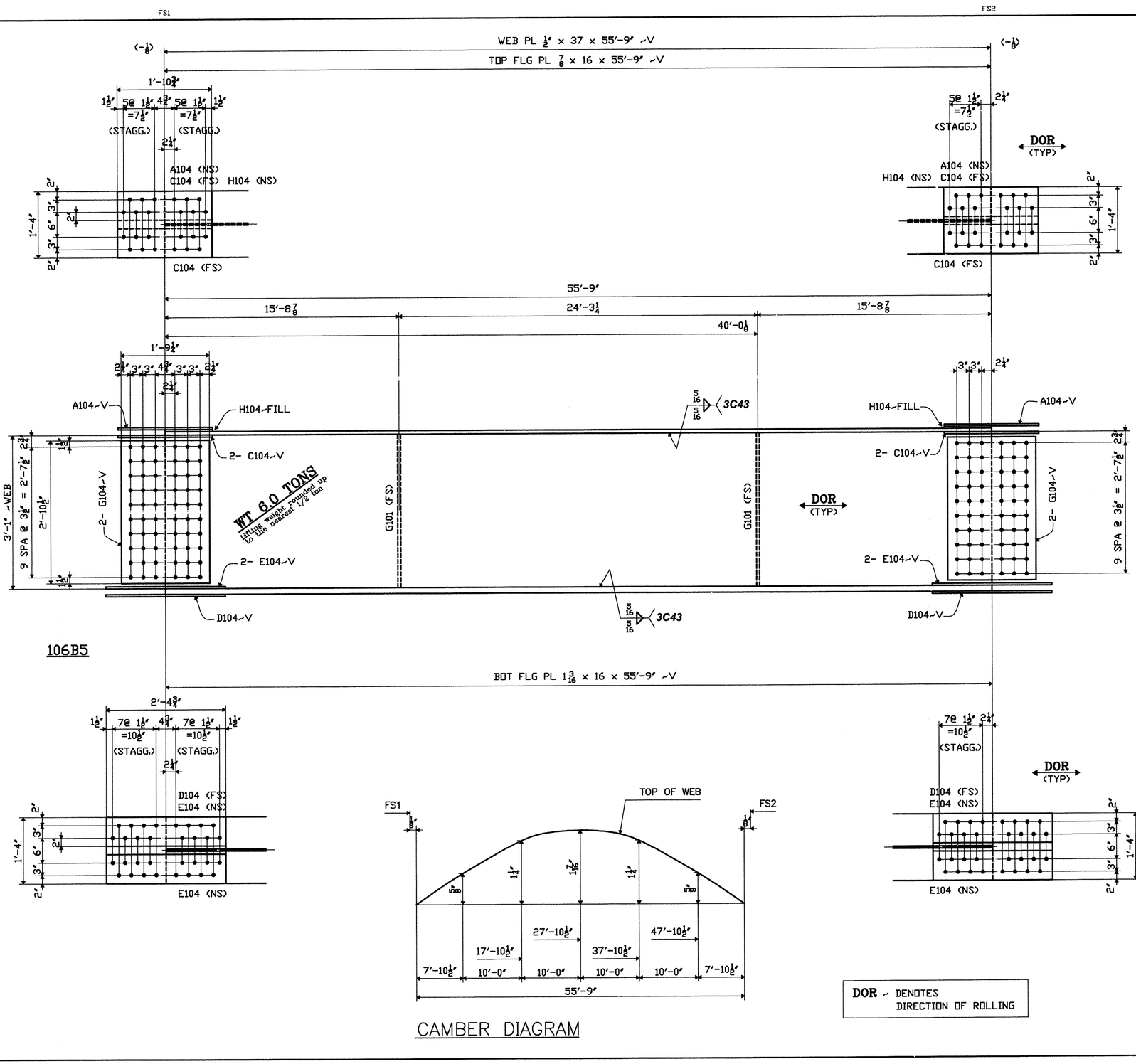
REVISIONS			
DATE	NO.	BY	
08/18/09	R1	PDC/WS	REVISED LINE ITEM

ORDER NO. 08-18537H32
DETAILS OF PL GIRDER - SPAN B LINES 2, 3 & 4
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

SHEET HF105



SHOP BILL

LINE	SHIPPING LIST NO. PCS.	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	MATERIAL APPLICATION LINE ITEM	MATERIAL APPLICATION NO. PCS.	MATERIAL APPLICATION LENGTH
1															
2	1	106B5			PLATE GIRDER										
3			1		PL	⅞ x 16	55	9	TFB1	V	M270-50W	6015NH	5		
4			1		PL	1 3/16 x 16	55	9	BFB1	V	M270-50W	6015NH	2		
5			1		PL	½ x 37	55	9	WB1	V	M270-50W	6015NH	8		
6															
7			2		PL	½ x 16	1	10¾	A104	V	M270-50W	6016NH	4		
8			4		PL	½ x 7	1	10¾	C104	V	M270-50W	6016NH	4		
9			2		PL	¾ x 16	2	4¾	D104	V	M270-50W	6016NH	2		
10			4		PL	¾ x 7	2	4¾	E104	V	M270-50W	6016NH	2		
11			4		PL	6⅜ x 34½	1	9¼	G104	V	M270-50W	SHN			
12			2		PL	5/16 x 16	0	11¼	H104		M270-50W	SHN			
13															
14			8	F	BOLT	⅞	0	3½		SHIPPING BOLTS	A307	PS6331	2		
15			8	F	BOLT	⅞	0	4		SHIPPING BOLTS	A307	PS6331	3		
16			4	F	BOLT	⅞	0	2½		SHIPPING BOLTS	A307	PS6331	1		
17															
18			2		PL	½ x 5	3	1	G101	TF-2E	M270-50W	6016NH	4		
19															
20															
21															
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN101 FOR FABRICATION NOTES

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for fabrication that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: David Tedesco
DATE:

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES 15/16Ø SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES

REVISIONS		
DATE	NO.	BY
	R1	

ORDER NO. 08-18537H32
DETAILS OF PL GIRDER ~ SPAN B
LINE 5
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF106

FS2 PIER 2 ABUT 2

100'-0¼

WEB PL ½" x 37 x 65'-9" ~V

WEB PL ½" x 37 x 34'-3¼ ~V

TOP FLG PL 1 3/16 x 16 x 41'-5⅞ ~V

TOP FLG PL ⅞ x 16 x 58'-6⅜ ~V

2¼" 5@ 1⅛" =7½" (STAGG.)

DOR (TYP)

1'-4" 2" 3" 6" 3" 2"

99'-3¼

9"

20'-11 15/16

78'-3 5/16 ~CL CL BRG

8'-5⅞ 12'-6 1/16 16'-0¾ 16'-0¾ 16'-0¾ 16'-0¾ 14'-0 5/16

37'-0 11/16 53'-1 7/16 69'-2 3/16 85'-2 15/16

2¼" 3" 3"

15/16"

12 4 13/16

G B-L1a-S G 3C47

5/16 5/16 3C43 CONT.

2" Ø HOLES

TOP & BOT

3'-1" ~WEB 9 SPA @ 3¼" = 2'-7¼" 2¾"

DOR (TYP)

G101 (NS) D101 (FS) E101 (NS) G101 (NS) G101 (NS) G101 (NS) G101 (NS)

WT 10.0 TONS
Lifting weight rounded up to the nearest ½ ton

2- A107

7/8" RND

1'-0" 1'-0"

2'-7⅞" ~WEB

3" 6"

5/8" RND

1 3/16 12

1'-4" BRG AREA

4'-6"

2'-3"

9"

3'-0"

3/4"

99'-11½

DETAIL A

BF PL 1 3/16 x 16 x 58'-5⅞ ~V (BENT)

G B-L2c-S G 3C48 (TYP) AT FLG SPLICE

5/16 5/16 3C43 CONT.

1'-10" BRG AREA

107BC1

20'-11" 78'-3½ ~CL CL BRG

99'-2½

BOT FLG PL 1 3/16 x 16 x 41'-5⅞ ~V 50'-11⅞ 4'-5¾" 3'-0"

2¼" 7@ 1½" =10½" (STAGG.)

DOR (TYP)

1'-4" 2" 3" 6" 3" 2"

DOR ~ DENOTES DIRECTION OF ROLLING

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such review also not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and corrected at the job site; for information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.

BY: [signature] DATE: 7/6/2009

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES 15/16Ø (UN) SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF107B

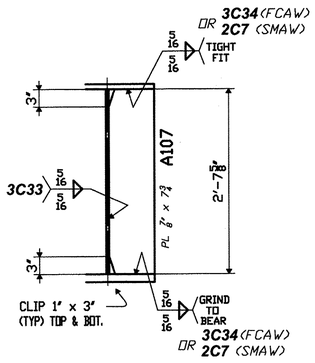
REVISIONS		
DATE	NO.	BY
	R1	

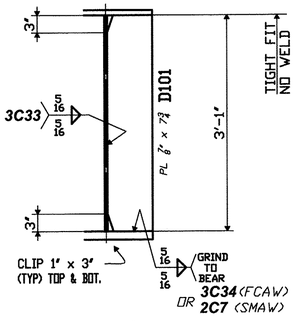
ORDER NO. 08-18537H32
DETAILS OF PL GIRDER ~ SPAN BC LINE 1
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

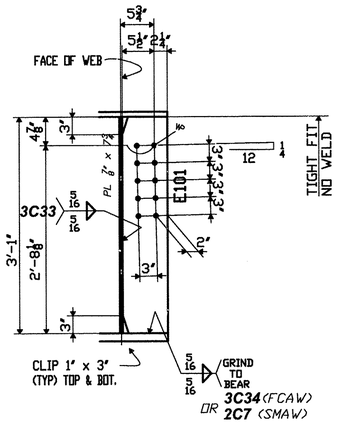
CAROLINA STEEL GROUP, LLC.

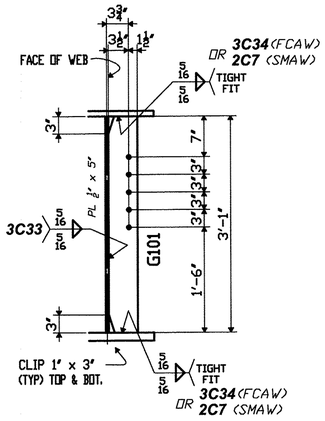
MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

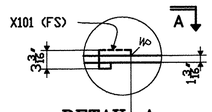
SHEET HF107A

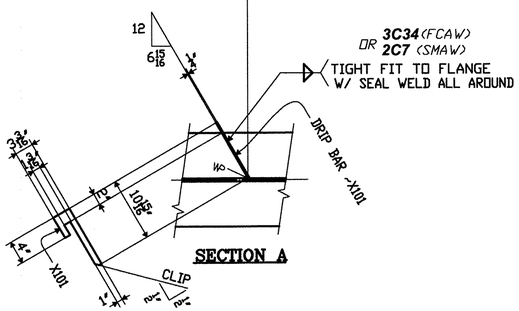


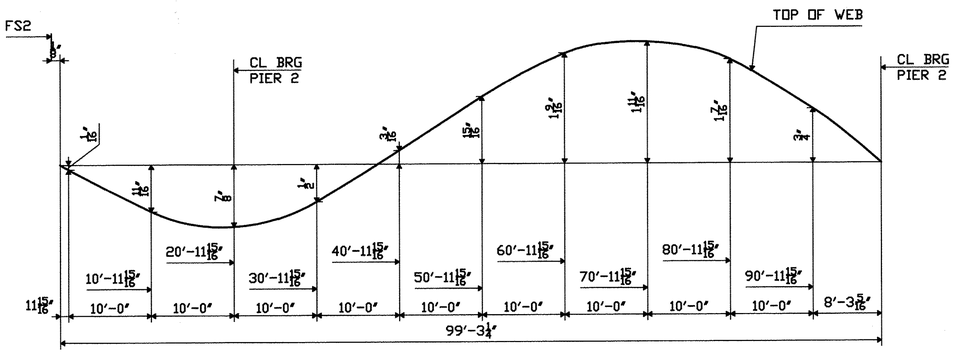












CAMBER DIAGRAM

SHOP BILL

LINE ITEM	SHIPPING LIST NO. POS	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	MATERIAL APPLICATION LINE ITEM	MATERIAL APPLICATION NO. PCS.	MATERIAL APPLICATION LENGTH
1															
2	1	107BC1			PLATE GIRDER										
3			1		PL	1 3/16 x 16	41	5 7/8	TFBC1	V	M270-50W	6015NH	3		
4			1		PL	7/8 x 16	58	6 3/8	TFBC2	V	M270-50W	6015NH	4		
5			1		PL	1 3/16 x 16	41	5 7/8	BFBC1	V	M270-50W	6015NH	3		
6			1		PL	1 3/16 x 16	58	5 7/8	BFBC2	V	M270-50W	6015NH	1		
7			1		PL	½ x 37	65	9	WBC1	V	M270-50W	6015NH	7		
8			1		PL	½ x 37	34	3¼	WBC2	V	M270-50W	6015NH	9		
9															
10			2		PL	7/8 x 7¾	2	7 5/8	A107	FIN-2E	M270-50W	6016NH	1		
11			1		PL	7/8 x 7¾	3	1	D101	FIN-2E	M270-50W	6016NH	1		
12			1		PL	7/8 x 7¾	3	1	E101	FIN-2E	M270-50W	6016NH	1		
13			5		PL	½ x 5	3	1	G101	TF-2E	M270-50W	6016NH	4		
14															
15			1		BAR	¼ x 3 3/16	0	10 15/16	X101		M270-50W	SHN			
16															
17															
18															
19															
20															
21															
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN101 FOR FABRICATION NOTES

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: Ashley
DATE: 11/10/2010

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES 13/16Ø (UN) SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF107A

REVISIONS		
DATE	NO.	BY
	R1	

ORDER NO. 08-18537H32
DETAILS OF PL GIRDER - SPAN BC LINE 1
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SOLID LEDGER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF107B

FS2 PIER 2 ABUT 2

100'-0¼

WEB PL ½" x 37 x 65'-9" ~V

WEB PL ½" x 37 x 34'-3¼ ~V

TOP FLG PL 1 3/16 x 16 x 41'-5 7/8 ~V

TOP FLG PL ⅞ x 16 x 58'-6 3/8 ~V

2¼" 5@ 1⅛" =7½" (STAGG.)

DOR (TYP)

1'-4" 2" 3" 6" 3" 3" 2"

99'-3¼ 9"

20'-11 15/16 78'-3 5/16 ~CL CL BRG

8'-5 7/8 12'-6 1/16 16'-0¾ 16'-0¾ 16'-0¾ 16'-0¾ 14'-0 5/16

37'-0 11/16 53'-1 7/16 69'-2 3/16 85'-2 15/16

2¼" 3" 3"

15/16"

12 4 13/16 (T) (R)

G 3C47 B-L1a-S G

5/16 5/16 3C43 CONT.

2" Ø HOLES

DOR (TYP)

3'-1" ~WEB 9 SPA @ 3¼" = 2'-7½" 2¾"

D102 (FS) @ BC2 & BC3 G101 (FS) @ BC4

G101 (NS) @ BC2 D102 (NS) @ BC3 & BC4

C102 (FS) @ BC2 & BC3 E101 (FS) @ BC4

E101 (NS) @ BC2 C102 (NS) @ BC3 & BC4

TOP 5/16 BOT

2- A107

7⅝" 1'-0" 1'-0" 3" 6" 2'-7⅞" ~WEB 5⅜"

1 3/16 12 WP

1'-4" BRG AREA

1'-10" BRG AREA

5/16 5/16 3C43 CONT.

(R) (T)

G 3C48 B-L2c-S G (TYP) AT FLG SPLICE

BF PL 1 3/16 x 16 x 58'-5 7/8 ~V (BENT)

4'-6"

2'-3"

108BC2
108BC3
108BC4

WT 10.0 TONS
Lifting weight rounded up to the nearest 1/2 ton

20'-11" 78'-3½ ~CL CL BRG

99'-2½ 9"

BOT FLG PL 1 3/16 x 16 x 41'-5 7/8 ~V 50'-11 7/8 4'-5¾" 3'-0" 3"

99'-11½

2¼" 7@ 1½" =10½" (STAGG.)

DOR (TYP)

1'-4" 2" 3" 6" 3" 3" 2"

DOR ~ DENOTES DIRECTION OF ROLLING

TVGA CONSULTANTS

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☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Andrew Tilghman
DATE: 9/10/2008

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES 15/16Ø (UN) SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF108B

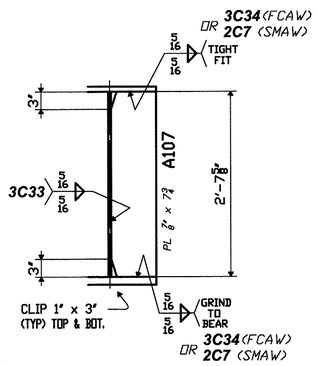
REVISIONS		
DATE	NO.	BY
	R1	

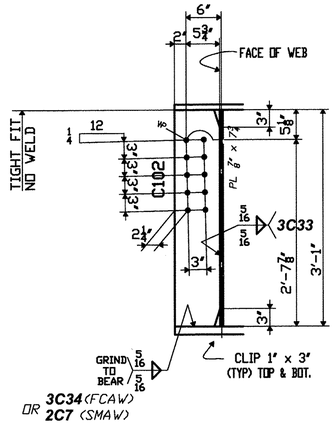
ORDER NO. 08-18537H32
DETAILS OF PL GIRDER ~ SPAN BC LINES 2, 3 & 4
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

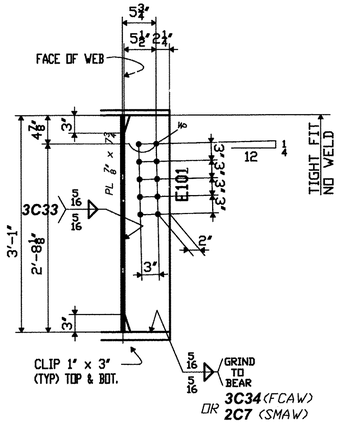
CAROLINA STEEL GROUP, LLC.

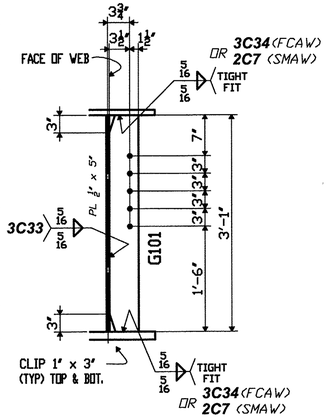
MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

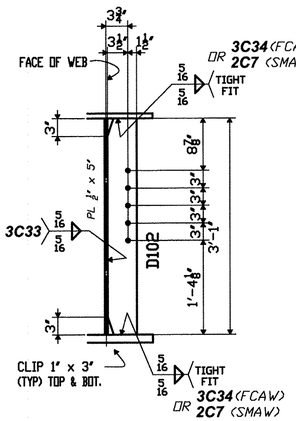
SHEET HF108A

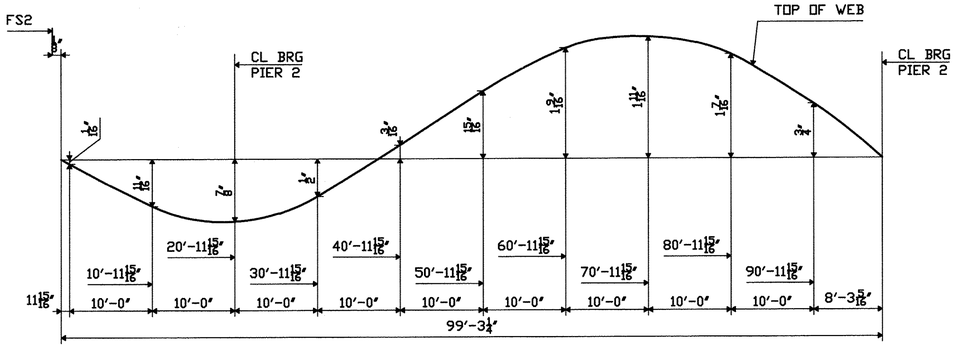












CAMBER DIAGRAM

SHOP BILL

LINE ITEM	SHIPPING LIST NO. POS	SHIPPING LIST MARK	PCS. REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	MATERIAL APPLICATION LINE ITEM	MATERIAL APPLICATION NO. PCS.	MATERIAL APPLICATION LENGTH
1															
2	1	108BC2			PLATE GIRDER										
3	1	108BC3			PLATE GIRDER										
4	1	108BC4			PLATE GIRDER										
5			3		PL	1 3/16 x 16	41	5 7/8	TFBC1	V	M270-50W	6015NH	3		
6			3		PL	7/8 x 16	58	6 3/8	TFBC2	V	M270-50W	6015NH	4		
7			3		PL	1 3/16 x 16	41	5 7/8	BFBC1	V	M270-50W	6015NH	3		
8			3		PL	1 3/16 x 16	58	5 7/8	BFBC2	V	M270-50W	6015NH	1		
9			3		PL	1/2 x 37	65	9	WBC1	V	M270-50W	6015NH	7		
10			3		PL	1/2 x 37	34	3 1/4	WBC2	V	M270-50W	6015NH	9		
11															
12			6		PL	7/8 x 7 3/4	2	7 5/8	A107	FIN-2E	M270-50W	6016NH	1		
13			4		PL	7/8 x 7 3/4	3	1	C102	FIN-2E	M270-50W	6016NH	1		
14			2		PL	7/8 x 7 3/4	3	1	E101	FIN-2E	M270-50W	6016NH	1		
15			20		PL	1/2 x 5	3	1	D102	TF-2E	M270-50W	6016NH	4		
16			10		PL	1/2 x 5	3	1	G101	TF-2E	M270-50W	6016NH	4		
17															
18															
19															
20															
21															
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN101 FOR FABRICATION NOTES

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such review does not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to fabrication processes or to techniques of construction and for the coordination of the work of all trades.

BY: Ashtid McKeon
DATE:

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES 15/16Ø (UN) SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF108A

REVISIONS		
DATE	NO.	BY
	R1	

ORDER NO. 08-18537H32
DETAILS OF PL GIRDER - SPAN BC LINES 2, 3 & 4
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

SHEET HF108B

FS2 PIER 2 ABUT 2

100'-0¼

WEB PL ½" x 37 x 65'-9" ~V

WEB PL ½" x 37 x 34'-3¼ ~V

TOP FLG PL 1 3/16 x 16 x 41'-5⅞ ~V

TOP FLG PL ⅞ x 16 x 58'-6⅜ ~V

2¼" 5@ 1'-1" =7½" (STAGG.)

DOR (TYP)

1'-4" 2" 3" 6" 3" 2"

99'-3¼

9"

20'-11 15/16

78'-3 5/16 ~CL CL BRG

8'-5⅞ 12'-6 1/16 16'-0¾ 16'-0¾ 16'-0¾ 16'-0¾ 14'-0 5/16

37'-0 11/16 53'-1 7/16 69'-2 3/16 85'-2 15/16

2¼" 3" 3"

15/16"

12 4 13/16 (T) (R)

G B-L1a-S G 3C47

TOP (T) & BOT (R)

5/16 5/16 3C43 CONT.

2" Ø HOLES

3'-1" ~WEB

9 SPA @ 3½" = 2'-7½" 23¾"

DOR (TYP)

G101 (FS) E101 (FS) D101 (NS) G101 (FS) G101 (FS) G101 (FS) G101 (FS)

WT 10.0 TONS
Lifting weight rounded up to the nearest ½ ton

2- A107

7⅝" 1'-0" 1'-0" 3" 6"

2'-7⅝" ~WEB

5⅜"

12 1 3/16

WP

1'-4" BRG AREA

4'-6"

2'-3"

9"

3'-0"

3¼"

5/16 5/16 3C43 CONT.

1'-10" BRG AREA

DETAIL B

(R) (T)

G G 3C48 B-L2c-S (TYP) AT FLG SPLICE

BF PL 1 3/16 x 16 x 58'-5⅞ ~V (BENT)

109BC5

20'-11" 78'-3½ ~CL CL BRG

99'-2½"

BOT FLG PL 1 3/16 x 16 x 41'-5⅞ ~V 50'-11⅞ 4'-5¾" 3'-0"

99'-11½"

2¼" 7@ 1'-1" =10½" (STAGG.)

DOR (TYP)

1'-4" 2" 3" 6" 3" 2"

DOR ~ DENOTES DIRECTION OF ROLLING

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY _____
DATE 7/16/2008

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES 15/16Ø (UN) SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF109B

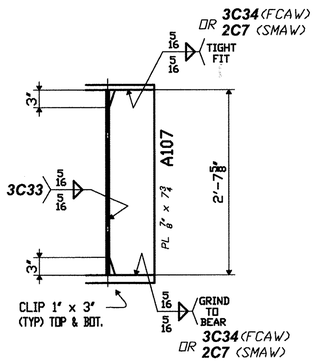
REVISIONS		
DATE	NO.	BY
	R1	

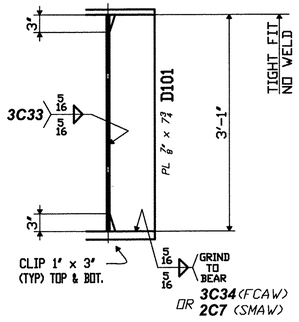
ORDER NO. 08-18537H32
DETAILS OF PL GIRDER ~ SPAN BC LINE 5
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

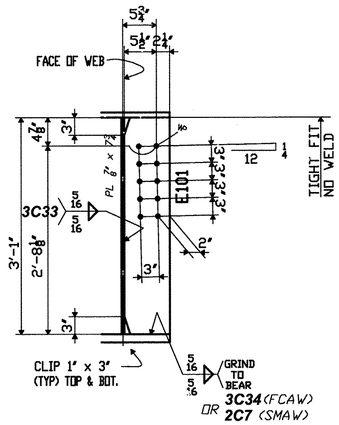
CAROLINA STEEL GROUP, LLC.

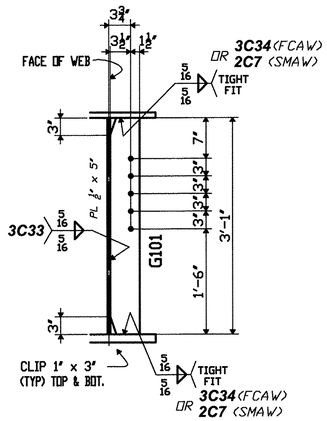
MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

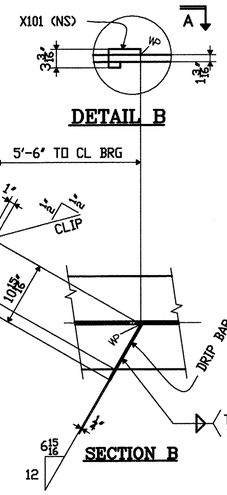
SHEET HF109A

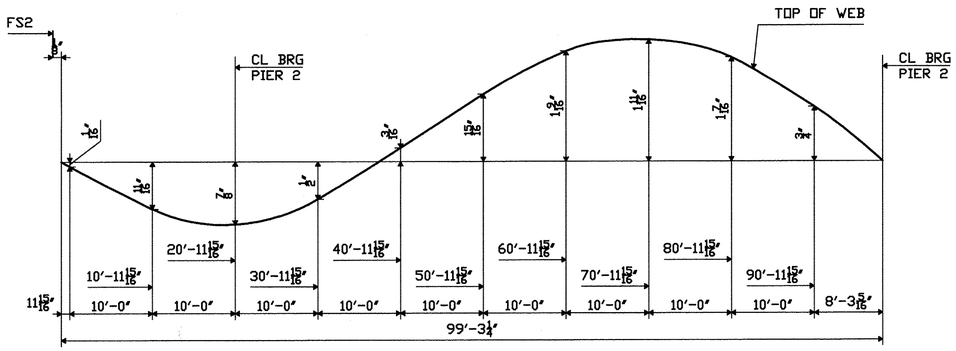












CAMBER DIAGRAM

SHOP BILL

LINE	SHIPPING LIST NO. POS	SHIPPING LIST MARK	POS. REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	MATERIAL APPLICATION LINE ITEM	MATERIAL APPLICATION NO. PCS.	MATERIAL APPLICATION LENGTH
1															
2	1	109BC5			PLATE GIRDER										
3			1		PL	1 3/16 x 16	41	5 7/8	TFBC1	V	M270-50W	6015NH	3		
4			1		PL	7/8 x 16	58	6 3/8	TFBC2	V	M270-50W	6015NH	4		
5			1		PL	1 3/16 x 16	41	5 7/8	BFBC1	V	M270-50W	6015NH	3		
6			1		PL	1 3/16 x 16	58	5 7/8	BFBC2	V	M270-50W	6015NH	1		
7			1		PL	1/2 x 37	65	9	WBC1	V	M270-50W	6015NH	7		
8			1		PL	1/2 x 37	34	3 1/4	WBC2	V	M270-50W	6015NH	9		
9															
10			2		PL	7/8 x 7 3/4	2	7 5/8	A107	FIN-2E	M270-50W	6016NH	1		
11			1		PL	7/8 x 7 3/4	3	1	D101	FIN-2E	M270-50W	6016NH	1		
12			1		PL	7/8 x 7 3/4	3	1	E101	FIN-2E	M270-50W	6016NH	1		
13			5		PL	1/2 x 5	3	1	G101	TF-2E	M270-50W	6016NH	4		
14															
15			1		BAR	1/4 x 3 3/16	0	10 15/16	X101		M270-50W	SHN			
16															
17															
18															
19															
20															
21															
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN101 FOR FABRICATION NOTES

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or representation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 7/6/2020

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES 15/16Ø (UN) SHOP FASTENERS
SHOP PAINT NONE
SHOP INSPECTION
GENERAL NOTES WORK THIS SHEET w/HF109A

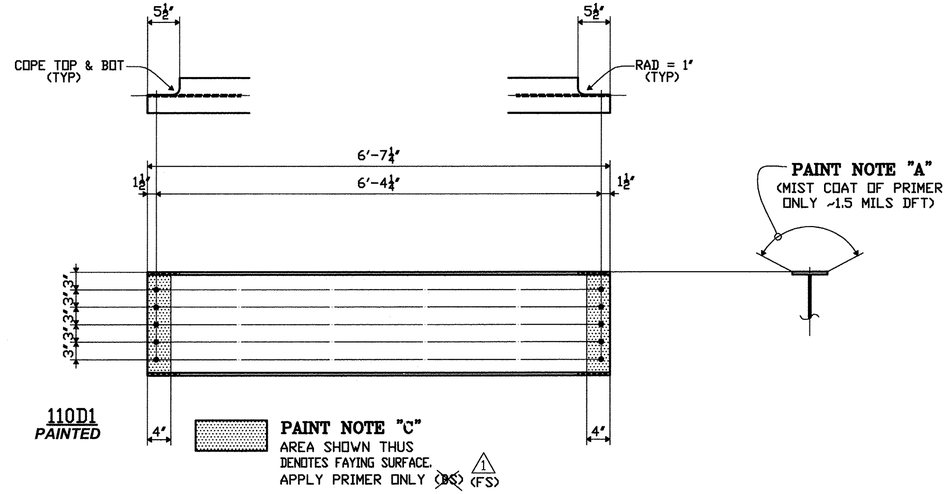
REVISIONS		
DATE	NO.	BY
	R1	

ORDER NO. 08-18537H32
DETAILS OF PL GIRDER - SPAN BC LINE 5
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

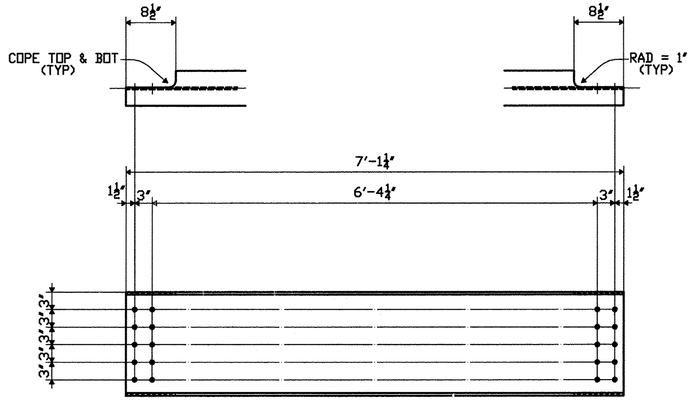
CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

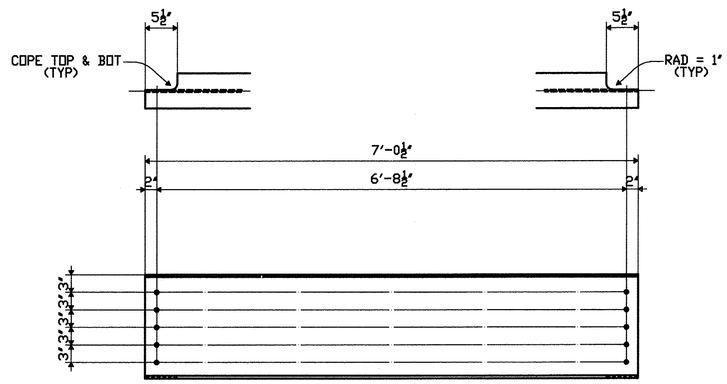
SHEET HF109B



110D1
PAINTED



110D2
UN-PAINTED



110D3
UN-PAINTED

SHOP BILL

LINE		SHIPPING LIST NO. POS.	SHIPPING LIST MARK	POS REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	MATERIAL APPLICATION LINE ITEM	MATERIAL APPLICATION NO. POS.	MATERIAL APPLICATION LENGTH
	1															
	2															
	3															
PAINTED	4	4	110D1	4		W	18x35	6	7¼			M270-50W	6004NY	1		
	5															
	6															
NO PAINT	7	8	110D2	8		W	18x35	7	1¼			M270-50W	6004NY	1		
	8															
	9															
NO PAINT	10	48	110D3	48		W	18x35	7	0½			M270-50W	6004NY	1		
	11															
	12															
	13															
	14															
	15															
	16															
	17															
	18															
	19															
	20															
	21															
	22															
	23															
	24															
	25		DOMESTIC MATERIAL													

SEE HN101 FOR FABRICATION NOTES

TVGA CONSULTANTS

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Greg Ted
DATE: 7/27/2009

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES 15/16ø SHOP FASTENERS
SHOP PAINT PAINTED PER HN101 FOR ITEMS NOTED
SHOP INSPECTION
GENERAL NOTES

REVISIONS			
DATE	NO.	BY	
07/08/09	R1	PDC/SB	REVISED NOTATION (BS) TO (FS)

ORDER NO. 08-18537H32
DETAILS OF DIAPHRAGMS
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HF110

DRIVING LIST

MACH BOLTS	HS BOLTS	* = ADD WASHER	DIA	GRIP	LENGTH	MEMBER SUPPORTED	CONNECTED TO	
					FIELD SPLICE #1 & 2			
	240		7/8	2 3/16	3 1/2	TOP FLG SPLICE PLATES	GIRDER TOP FLANGE	
	320		7/8	2 11/16	4	BOT FLG SPLICE PLATES	GIRDER BOT FLANGE	
	600		7/8	1 1/4	2 3/4	WEB SPLICE PLATES	GIRDER WEB	
					ABUT 1 DIAPHRAGMS			
	40		7/8	1 3/16	2 1/2	W 18x35	7/8" BRG STIFF./CONN. PL	(MECH. GALV)
					PIER DIAPHRAGMS			
	160		7/8	1 3/16	2 1/2	W 18x35	7/8" BRG STIFF./CONN. PL	
					INTERMEDIATE DIAPHRAGMS			
1	470 ~~480~~		7/8	13/16"	2 1/4	W 18x35	1/2" CONN. PL	
	1 10		7/8	1 13/16"	3 1/4	W 18x35	1/2" CONN. PL + 1" FILL ~GDR 104B1	

ALL TYPE 3 BOLTS, NUTS & WASHERS SHALL MEET THE AASHTO SPECS AS FOLLOWS:

HIGH STRENGTH BOLTS ASTM A325 TYPE 3 = AASHTO M164 TYPE 3
HEAVY HEX NUTS ASTM A563-DH3 = AASHTO M291-DH3
HARDENED WASHERS ASTM F436 = AASHTO M293 WEATHERING

ALL TYPE 1 BOLTS, NUTS & WASHERS SHALL MEET THE AASHTO SPECS AS FOLLOWS:

HIGH STRENGTH BOLTS ASTM A325 TYPE 1 = AASHTO M164 TYPE 1
HEAVY HEX NUTS ASTM A563-DH = AASHTO M291-DH
HARDENED WASHERS ASTM F436 = AASHTO M293

ALL TYPE 1 BOLTS, NUTS AND WASHERS SHALL BE MECHANICALLY GALVANIZED (ASTM B695 CLASS 50).

SHOP BILL

LINE ITEM	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	POS REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	MATERIAL APPLICATION LINE ITEM	MATERIAL APPLICATION NO. PCS	MATERIAL APPLICATION LENGTH
1															
2															
3	~~480~~	111FP3	~~480~~	F	HSBT	7/8	0	2 1/4		TYPE 3	A325	JS6330	1		
4	170	111FP4	170	F	HSBT	7/8	0	2 1/2		TYPE 3	A325	JS6330	2		
5	620	111FP5	620	F	HSBT	7/8	0	2 3/4		TYPE 3	A325	JS6330	3		
6	250	111FP6	250	F	HSBT	7/8	0	3 1/2		TYPE 3	A325	JS6330	4		
7	330	111FP7	330	F	HSBT	7/8	0	4		TYPE 3	A325	JS6330	5		
8	1860	111FP8	1860	F	HWASH	7/8				TYPE 3	F436	JS6330	6		
9															
10															
11															
12	45	111FP12	45	F	HSBT	7/8	0	2 1/2		MGV	A325	JS6330	7		
13	45	111FP13	45	F	HWASH	7/8				MGV	F436	JS6330	8		
14															
15															
16															
1 17	10	111FP17	10	F	HSBT	7/8	0	3 1/4		TYPE 3	A325	REQ			
18															
19															
20															
21															
22															
23															
24															
25															
26															
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33															
34															
35															
36															
37		DOMESTIC MATERIAL													

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Shop reviews do not relate to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Shop reviews do not relate to any quantities or accurateness. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.

BY: _____
DATE: 5/6/2010

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES _____ SHOP FASTENERS _____
SHOP PAINT _____
SHOP INSPECTION _____
GENERAL NOTES _____

REVISIONS			
DATE	NO.	BY	
04/26/10	R1	PDC/SB	REVISED TO AS-BUILT. ADDED FILL PL

ORDER NO. 08-18537H32
DETAILS OF FIELD BOLTS
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

SHEET HF111

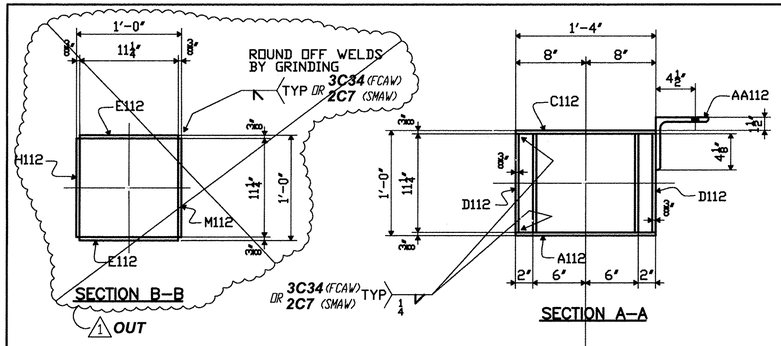
SHOP NOTE

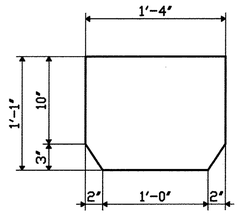
HOPPERS SHALL BE FABRICATED FROM $\frac{3}{8}$" STEEL PL'S.
THE FABRICATION WELDS SHALL BE $\frac{1}{4}$" FILLET WELDS ON THE INSIDE OF THE HOPPER AND SHALL BE FULL LENGTH TO ENSURE A WATERTIGHT CONTAINER.

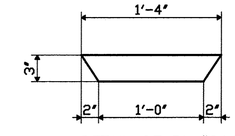
TVGA CONSULTANTS

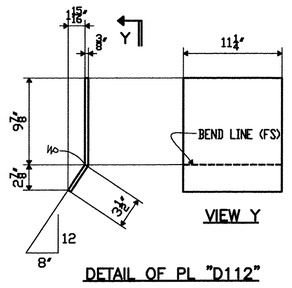
☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the jobsite; for information that pertains solely to the fabricators processes or to techniques of construction; and for coordination of the work of all trades.

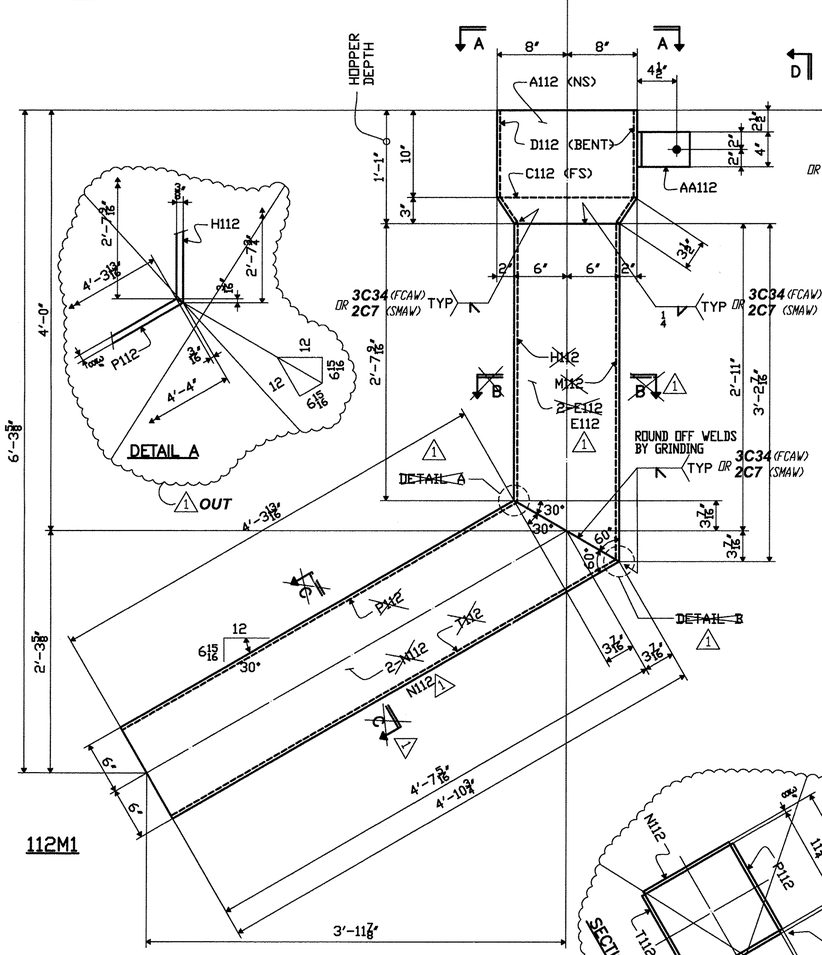
BY: [signature] 7/21/2009
DATE:

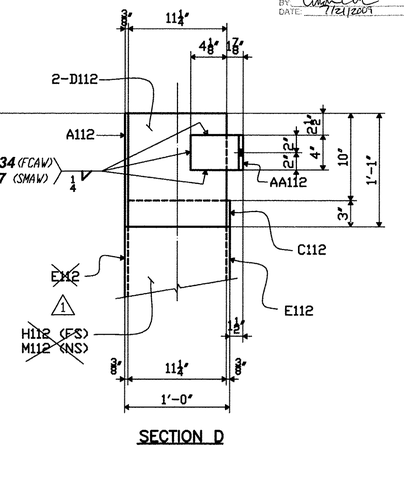


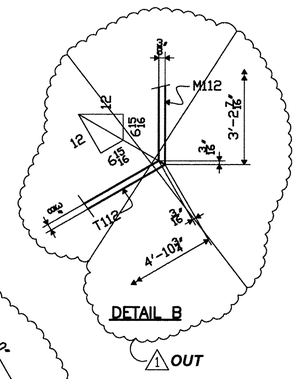


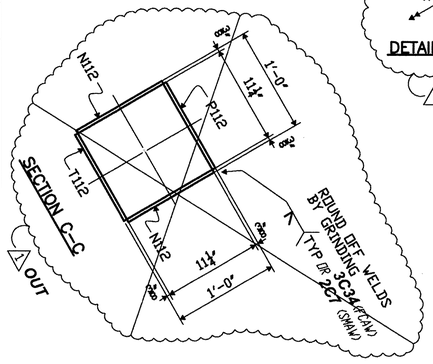


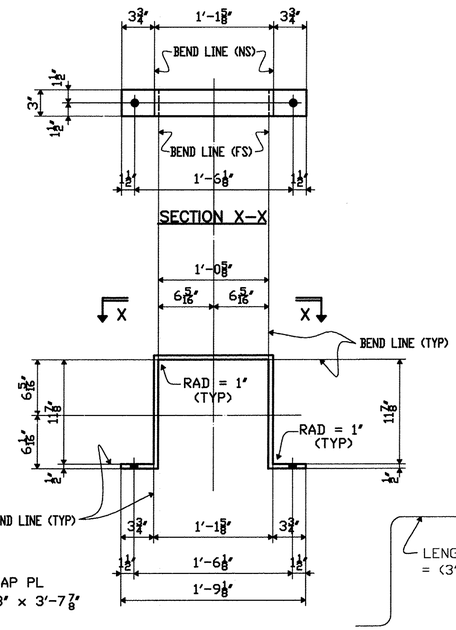


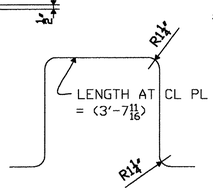


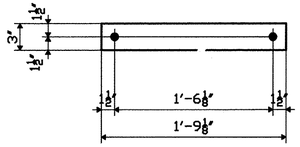


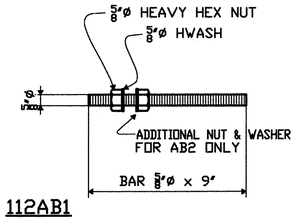












SHOP BILL

LINE ITEM	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	MATERIAL APPLICATION LINE ITEM	MATERIAL APPLICATION NO. PCS.	MATERIAL APPLICATION LENGTH
1															
2	1	112M1			DOWNSPOUT HOPPER										
3			1		PL	⅜ x 16	1	1	A112		M270-36	SHN			
4			1		PL	⅜ x 3	1	4	C112		M270-36	SHN			
5			2		PL	⅜ x 11¼	1	1⅜	D112	BEND	M270-36	SHN			
6		1	1		TS	12x12x⅜	3	2 7/16	E112	BEV-1E	A500 GR B	3728SA	1		
7		~~1~~	~~1~~		~~PL~~	~~⅜ x 11¼~~	~~2~~	~~7¾~~	~~H112~~	~~BEV-1E~~	~~M270-36~~	~~SHN~~			
8		~~1~~	~~1~~		~~PL~~	~~⅜ x 11¼~~	~~3~~	~~2 7/16~~	~~M112~~	~~BEV-1E~~	~~M270-36~~	~~SHN~~			
9		1	1		TS	12x12x⅜	4	10¾	N112	BEV-1E	A500 GR B	3728SA	1		
10		~~1~~	~~1~~		~~PL~~	~~⅜ x 11¼~~	~~4~~	~~4~~	~~P112~~	~~BEV-1E~~	~~M270-36~~	~~SHN~~			
11		~~1~~	~~1~~		~~PL~~	~~⅜ x 11¼~~	~~4~~	~~10¾~~	~~T112~~	~~BEV-1E~~	~~M270-36~~	~~SHN~~			
12			1		L	6x6x½	0	4	AA112		M270-36	SHN			
13															
14															
15	4	112P1	4		PL	½ x 3	3	7⅞		BEND	M270-36	SHN			
16															
17	4	112P2	4		PL	½ x 3	1	9⅛			M270-36	SHN			
18															
19	2	112AB1	2		BAR	⅝	0	9		THREADED	A307	JS6502	1		
20	8	112AB2	8		BAR	⅝	0	9		THREADED	A307	JS6502	2		
21			18	F	NUT	⅝ HEX				GV	M291	JS6502	1		
22															
23	18	112FP23	18	F	HWASH	⅝				GV	F436	JS6502	1		
24															
25		DOMESTIC MATERIAL													

SEE HN101 FOR FABRICATION NOTES

COLFAX 1
~~NASH~~
FABRICATED BY
HOLES 11/16ø SHOP FASTENERS
SHOP PAINT HOT DIP GALV. PER A123 AFTER FAB.
SHOP INSPECTION GALV. PER A153 FOR BOLTS, NUTS & WASHERS
GENERAL NOTES

REVISIONS			
DATE	NO.	BY	
07/06/09	R1	PDC/SB	CHANGED FROM PL'S TO TS

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

ORDER NO. 08-18537H32
DETAILS OF DOWNSPOUT HOPPER CONN.
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

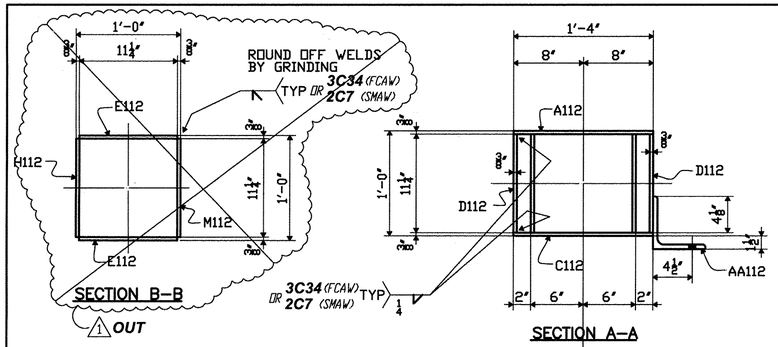
CAROLINA STEEL GROUP, LLC.

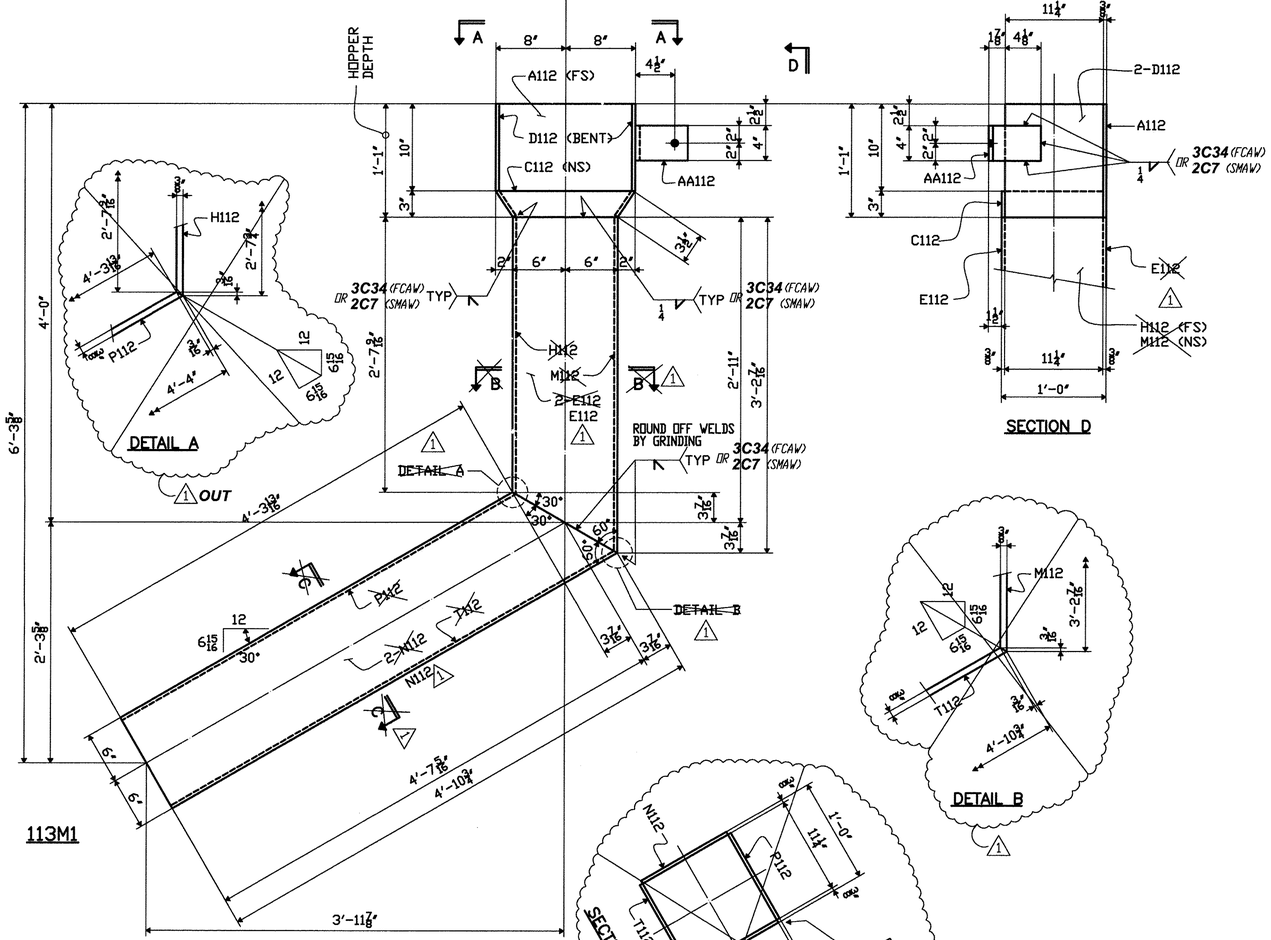
MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 03-09

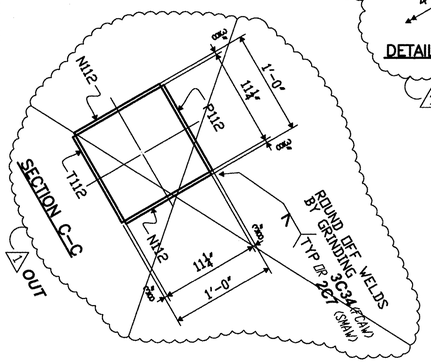
SHEET HF112

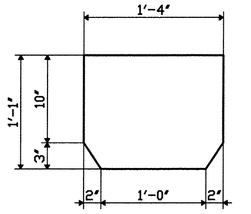
SHOP NOTE

HOPPERS SHALL BE FABRICATED FROM $\frac{3}{8}$" STEEL PL'S.
THE FABRICATION WELDS SHALL BE $\frac{1}{4}$" FILLET WELDS ON THE INSIDE OF THE HOPPER AND SHALL BE FULL LENGTH TO ENSURE A WATERTIGHT CONTAINER.

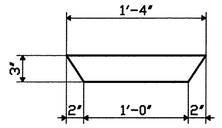




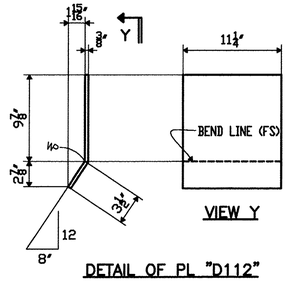




DETAIL OF PL "A112"



DETAIL OF PL "C112"



VIEW Y

DETAIL OF PL "D112"

SHOP BILL

LINE ITEM	SHIPPING LIST NO. PCS	SHIPPING LIST MARK	PCS REQ'D	DESCRIPTION CODE	DESCRIPTION SYMBOL	DESCRIPTION SECTION DIM'S	LENGTH FEET	LENGTH INCHES	ASSEMBLY MARK	REMARKS	MTRL. SPEC.	MATERIAL APPLICATION P.O. NO.	MATERIAL APPLICATION LINE ITEM	MATERIAL APPLICATION NO. PCS.	MATERIAL APPLICATION LENGTH
1															
2	1	113M1			DOWNSPOUT HOPPER										
3			1		PL	⅜ x 16	1	1	A112		M270-36	SHN			
4			1		PL	⅜ x 3	1	4	C112		M270-36	SHN			
5			2		PL	⅜ x 11¼	1	1⅜	D112	BEND	M270-36	SHN			
6		1	1		TS	12x12x⅜	3	2 7/16	E112	BEV-1E	A500 GR B	3728SA	1		
7		~~1~~	~~1~~		~~PL~~	~~⅜ x 11¼~~	~~2~~	~~7¾~~	~~H112~~	~~BEV-1E~~	~~M270-36~~	~~SHN~~			
8		~~1~~	~~1~~		~~PL~~	~~⅜ x 11¼~~	~~3~~	~~2 7/16~~	~~M112~~	~~BEV-1E~~	~~M270-36~~	~~SHN~~			
9		1	1		TS	12x12x⅜	4	10¾	N112	BEV-1E	A500 GR B	3728SA	1		
10		~~1~~	~~1~~		~~PL~~	~~⅜ x 11¼~~	~~4~~	~~4~~	~~P112~~	~~BEV-1E~~	~~M270-36~~	~~SHN~~			
11		~~1~~	~~1~~		~~PL~~	~~⅜ x 11¼~~	~~4~~	~~10¾~~	~~T112~~	~~BEV-1E~~	~~M270-36~~	~~SHN~~			
12			1		L	6x6x½	0	4	AA112		M270-36	SHN			
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25		DOMESTIC MATERIAL													

SEE HN101 FOR FABRICATION NOTES

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such review does not relieve any LSRD certification thereof. Such review does not relieve any LSRD certification thereof. Contractor is responsible for dimensions to be confirmed and correlated as the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: _____
DATE: 7/21/2009

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

COLFAX 1
~~NASH~~

FABRICATED BY
HOLES — 11/16 Ø SHOP FASTENERS
SHOP PAINT HOT DIP GALV. PER A123 AFTER FAB.
SHOP INSPECTION GALV. PER A153 FOR BOLTS, NUTS & WASHERS
GENERAL NOTES

REVISIONS			
DATE	NO.	BY	
07/06/09	R1	PDC/SB	CHANGED FROM PL'S TO TS

ORDER NO. 08-18537H32
DETAILS OF DOWNSPOUT HOPPER CONN.
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 03-09

SHEET HF113

GENERAL NOTES

SPECIFICATIONS

CONSTRUCTION:

- VERMONT AGENCY OF TRANSPORTATION 2006 STANDARD SPECIFICATION FOR HIGHWAY AND BRIDGE CONSTRUCTION & LATEST REVISION.
- AASHTO STANDARD BRIDGE DESIGN SPECIFICATIONS FOR HIGHWAY BRIDGES, 2002 EDITION, WITH LATEST REVISIONS.
- WELDING - ANSI/AASHTO/AWS BRIDGE WELDING CODE D1.5 (LATEST EDITION)

MATERIALS

ALL STRUCTURAL STEEL SHALL COMPLY WITH AASHTO M270, GRADE 50W, UNPAINTED WEATHERING REQUIREMENTS UNLESS NOTED OTHERWISE.

ALL MATERIAL SHALL BE DOMESTIC.

FABRICATION

V- INDICATES CHARPY V-NOTCH TESTED (ZONE 2) PER STD. SPECS. SUBSECTION 714.01

HEAT NUMBERS SHALL BE PRESERVED AND VISIBLE TO THE INSPECTOR.

BEARING AREAS IDENTIFIED ON SHOP DRAWINGS:
THE BOTTOM FLANGE OF GIRDERS AT THE BEARINGS SHALL BE SHOP STRAIGHTENED AS REQUIRED TO PROVIDE UNIFORM CONTACT BETWEEN THE GIRDER FLANGE AND THE BEARINGS AT THE BRIDGE SEAT.

THERE SHALL BE NO PAINT, CRAYON, OR CHALK MARKS ON THE STEEL EXCEPT WHERE NOTED "PAINTED".

FIELD SPLICES SHALL BE SHOP ASSEMBLED, AND THE HOLES IN THE WEB & FLANGES SHALL BE DRILLED FROM THE SOLID USING THE OUTSIDE SPLICE PLATES AS TEMPLATES.

(R) DENOTES RADIOGRAPHIC INSPECTION REQUIRED AT BUTT SPLICE WELDS.

(T) DENOTES WELD SUBJECT TO TENSION STRESSES.

IDENTIFICATION MARKING STEEL MEMBERS
SUBSECTION 506.16
IDENTIFICATION MARKS MAY BE PAINTED ON MEMBERS THAT WILL RECEIVE FIELD COATS OF PAINT. IDENTIFICATION MARKS ON UN-PAINTED STEEL SHALL BE IMPRESSED INTO THE MEMBER (WITH A LOW STRESS STAMP) IN A NON-STRESSED OR LOW STRESSED AREA OF THE MEMBER.

ERECTION NOTES

UN-PAINTED AREAS:
7/8ø HEAVY HEX HEAD HIGH STRENGTH BOLTS (A325-3) WITH ONE HARDENED WASHER (F436-3) ARE PROVIDED FOR THIS PROJECT. NUTS SHALL BE A563, GR DH3.

PAINTED AREAS:
7/8ø HEAVY HEX HEAD HIGH STRENGTH BOLTS (A325-1) MECH GALV WITH ONE HARDENED WASHER (F436-1) ARE PROVIDED FOR THIS PROJECT. NUTS SHALL BE A563, GR DH.

PLACE WASHER UNDER THE TURNED ELEMENT.

FIELD WELDS ARE NOT BY CAROLINA STEEL GROUP, LLC.

SHOP PAINTING

SURFACE PREPARATION
SSPC-SP10 (NEAR WHITE BLAST CLEANING).
PRIOR TO BLAST CLEANING, ALL OIL, GREASE OR OTHER FOREIGN MATTER SHALL BE REMOVED BY SOLVENT CLEANING (SSPC-SP1).

PAINT APPLICATION
SHOP PAINTING SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, SUBSECTION 513.

ALL STRUCTURAL STEEL WITHIN 7 FEET OF END OF GIRDER AT EXPANSION END OF THE BRIDGE, SHALL BE COATED WITH A (3) COAT PROTECTIVE PAINT SYSTEM, UNLESS OTHERWISE SHOWN ON SHOP DRAWINGS AND/OR AS ILLUSTRATED IN THE PAINT SKETCH BELOW.

SHOP APPLICATION OF PAINT SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.

△E ~~INTERMEDIATE AND TOP COATS TO BE STAGGERED A MINIMUM OF 1/2" FROM THE FAYING SURFACES AND EACH OTHER.~~

(3) COAT SHOP APPLIED PROTECTIVE PAINT SYSYTEM:
PER STANDARD SPECIFICATIONS, SUBSECTION 708

EPOXY PAINT SHALL BE ONE OF THE EPOXY PAINT ON THE APPROVED PRODUCTS LIST ON FILE WITH THE AGENCY'S MATERIALS AND RESEARCH SECTION.

PRIMER COAT	- EPOXY PRIMER - ~~CARBOZINC II HS~~	CARBOZINC 859 ZR △1
INTERMEDIATE COAT	- EPOXY - ~~CARBOGUARD 893~~	CARBOGUARD 888 △1
TOP COAT	- ALIPHATIC POLYURETHANE -	CARBOTHANE 133 HB

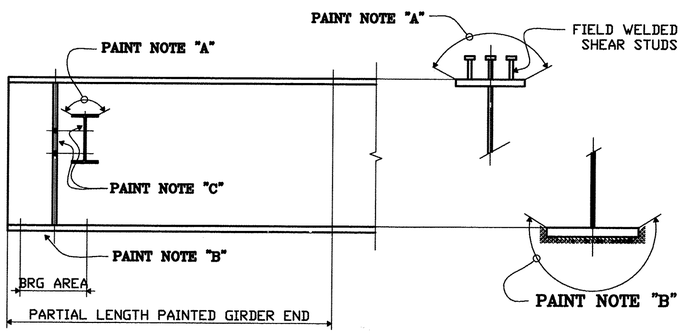
COLOR TO BE DARK BROWN, FEDERAL COLOR CHIP No .20059 TO BLEND WITH THE WEATHERING STEEL.

PAINT MANUFACTURER: CARBOLINE

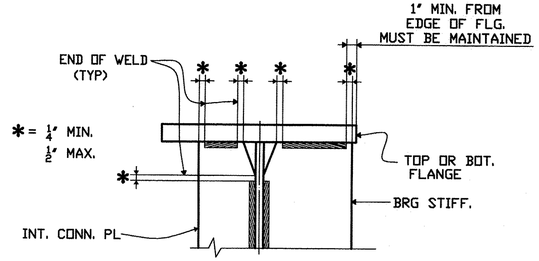
PAINT NOTE "A"
MIST COAT OF PRIMER (1.5 MILS DFT) FOR THE TOP SURFACE OF GIRDERS TOP FLANGE AND END DIAPHRAGMS.

PAINT NOTE "B"
MIST COAT OF PRIMER ON EDGES AND THE BOTTOM SURFACE OF BOTTOM FLANGE FOR BEARING AREAS DIMENSIONED ON SHOP DRAWINGS.

PAINT NOTE "C"
HATCHED AREAS SHOWN ON DETAIL DRAWINGS ARE BOUNDARIES OF THE FIELD BOLTED CONTACT SURFACES AND SHALL BE GIVEN THE PRIME COAT ONLY.



PAINT ILLUSTRATION SKETCH



STIFFENER WELD TERMINATION DETAIL

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 7/27/09

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES _____ SHOP FASTENERS _____
SHOP PAINT _____
SHOP INSPECTION _____
GENERAL NOTES _____

REVISIONS			
DATE	NO.	BY	
04/07/09	R1	PDC/SB	REVISED PAINT SYSTEM.
07/06/09	R2	PDC/SB	DELETED PAINT STAGGERING NOTE

ORDER NO. 08-18537H22
DETAILS OF GENERAL NOTES
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08

SHEET HN1

GENERAL NOTES

SPECIFICATIONS

CONSTRUCTION:

- VERMONT AGENCY OF TRANSPORTATION 2006 STANDARD SPECIFICATION FOR HIGHWAY AND BRIDGE CONSTRUCTION & LATEST REVISION.
- AASHTO STANDARD BRIDGE DESIGN SPECIFICATIONS FOR HIGHWAY BRIDGES, 2002 EDITION, WITH LATEST REVISIONS.
- WELDING - ANSI/AASHTO/AWS BRIDGE WELDING CODE D1.5 (LATEST EDITION)

MATERIALS

ALL STRUCTURAL STEEL SHALL COMPLY WITH AASHTO M270, GRADE 50W, UNPAINTED WEATHERING REQUIREMENTS UNLESS NOTED OTHERWISE.

ALL MATERIAL SHALL BE DOMESTIC.

FABRICATION

V- INDICATES CHARPY V-NOTCH TESTED (ZONE 2) PER STD. SPECS. SUBSECTION 714.01

HEAT NUMBERS SHALL BE PRESERVED AND VISIBLE TO THE INSPECTOR.

BEARING AREAS IDENTIFIED ON SHOP DRAWINGS:

THE BOTTOM FLANGE OF GIRDERS AT THE BEARINGS SHALL BE SHOP STRAIGHTENED AS REQUIRED TO PROVIDE UNIFORM CONTACT BETWEEN THE GIRDER FLANGE AND THE BEARINGS AT THE BRIDGE SEAT.

THERE SHALL BE NO PAINT, CRAYON, OR CHALK MARKS ON THE STEEL EXCEPT WHERE NOTED "PAINTED".

FIELD SPLICES SHALL BE SHOP ASSEMBLED, AND THE HOLES IN THE WEB & FLANGES SHALL BE DRILLED FROM THE SOLID USING THE OUTSIDE SPLICE PLATES AS TEMPLATES.

(R) DENOTES RADIOGRAPHIC INSPECTION REQUIRED AT BUTT SPLICE WELDS.

(T) DENOTES WELD SUBJECT TO TENSION STRESSES.

IDENTIFICATION MARKING STEEL MEMBERS
SUBSECTION 506.16

IDENTIFICATION MARKS MAY BE PAINTED ON MEMBERS THAT WILL RECEIVE FIELD COATS OF PAINT. IDENTIFICATION MARKS ON UN-PAINTED STEEL SHALL BE IMPRESSED INTO THE MEMBER (WITH A LOW STRESS STAMP) IN A NON-STRESSED OR LOW STRESSED AREA OF THE MEMBER.

ERECTION NOTES

UN-PAINTED AREAS:

⅞ø HEAVY HEX HEAD HIGH STRENGTH BOLTS (A325-3) WITH ONE HARDENED WASHER (F436-3) ARE PROVIDED FOR THIS PROJECT. NUTS SHALL BE A563, GR DH3.

PAINTED AREAS:

⅞ø HEAVY HEX HEAD HIGH STRENGTH BOLTS (A325-1) MECH GALV WITH ONE HARDENED WASHER (F436-1) ARE PROVIDED FOR THIS PROJECT. NUTS SHALL BE A563, GR DH.

PLACE WASHER UNDER THE TURNED ELEMENT.

FIELD WELDS ARE NOT BY CAROLINA STEEL GROUP, LLC.

SHOP PAINTING

SURFACE PREPARATION
SSPC-SP10 (NEAR WHITE BLAST CLEANING).
PRIOR TO BLAST CLEANING, ALL OIL, GREASE OR OTHER FOREIGN MATTER SHALL BE REMOVED BY SOLVENT CLEANING (SSPC-SP1).

PAINT APPLICATION
SHOP PAINTING SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, SUBSECTION 513.

ALL STRUCTURAL STEEL WITHIN 7 FEET OF END OF GIRDER AT EXPANSION END OF THE BRIDGE, SHALL BE COATED WITH A (3) COAT PROTECTIVE PAINT SYSTEM, UNLESS OTHERWISE SHOWN ON SHOP DRAWINGS AND/OR AS ILLUSTRATED IN THE PAINT SKETCH BELOW.

SHOP APPLICATION OF PAINT SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.

~~INTERMEDIATE AND TOP COATS TO BE STAGGERED A MINIMUM OF ½" FROM THE FAYING SURFACES AND EACH OTHER.~~

(3) COAT SHOP APPLIED PROTECTIVE PAINT SYSYTEM:
PER STANDARD SPECIFICATIONS, SUBSECTION 708

EPOXY PAINT SHALL BE ONE OF THE EPOXY PAINT ON THE APPROVED PRODUCTS LIST ON FILE WITH THE AGENCY'S MATERIALS AND RESEARCH SECTION.

PRIMER COAT	- EPOXY PRIMER - ~~CARBOZINC 11 HS~~	CARBOZINC 859 ZR (1)
INTERMEDIATE COAT	- EPOXY - ~~CARBOGUARD 893~~	CARBOGUARD 888 (1)
TOP COAT	- ALIPHATIC POLYURETHANE	- CARBOTHANE 133 HB

COLOR TO BE DARK BROWN, FEDERAL COLOR CHIP No .20059 TO BLEND WITH THE WEATHERING STEEL.

PAINT MANUFACTURER: CARBOLINE

PAINT NOTE "A"

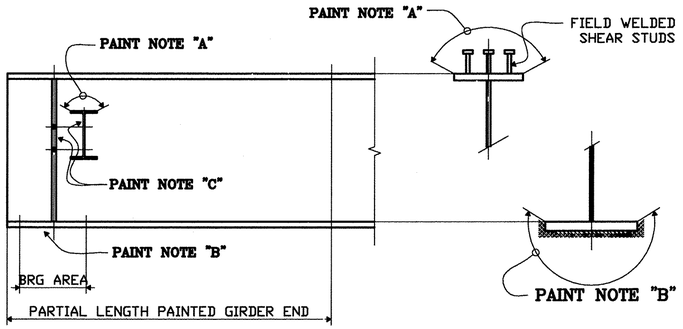
MIST COAT OF PRIMER (1.5 MILS DFT) FOR THE TOP SURFACE OF GIRDERS TOP FLANGE AND END DIAPHRAGMS.

PAINT NOTE "B"

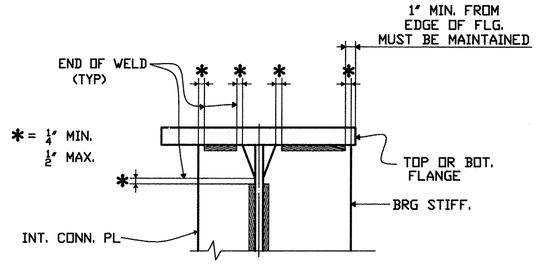
MIST COAT OF PRIMER ON EDGES AND THE BOTTOM SURFACE OF BOTTOM FLANGE FOR BEARING AREAS DIMENSIONED ON SHOP DRAWINGS.

PAINT NOTE "C"

HATCHED AREAS SHOWN ON DETAIL DRAWINGS ARE BOUNDARIES OF THE FIELD BOLTED CONTACT SURFACES AND SHALL BE GIVEN THE PRIME COAT ONLY.



PAINT ILLUSTRATION SKETCH



STIFFENER WELD TERMINATION DETAIL

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such review does not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

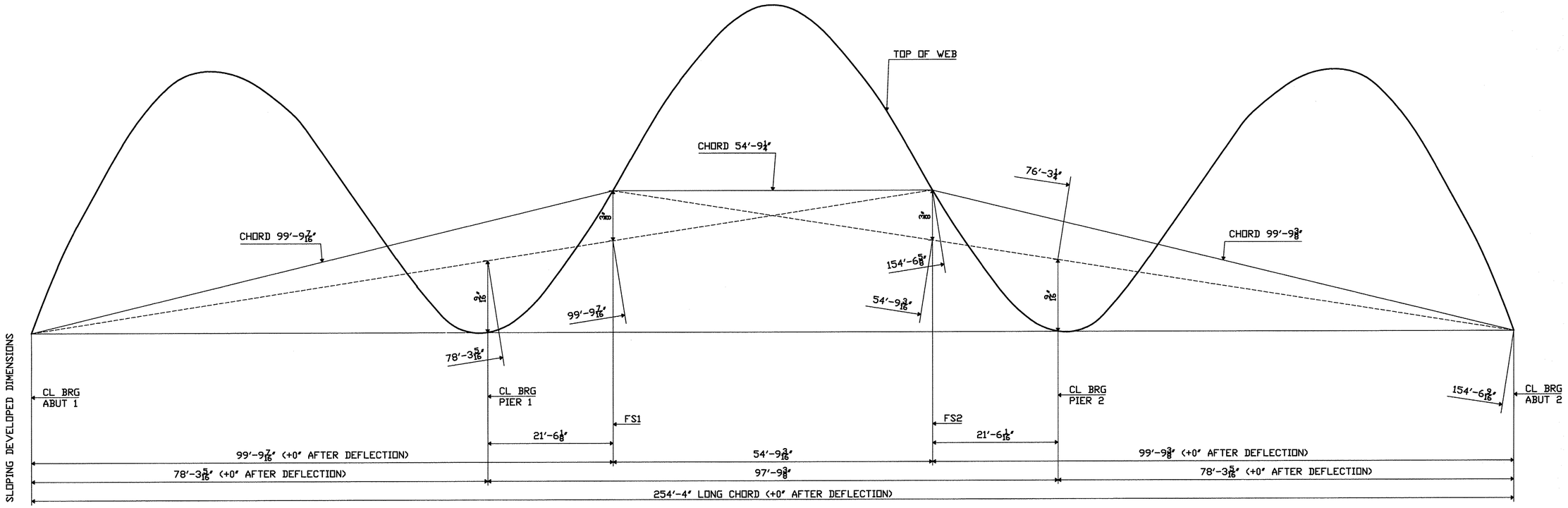
BY _____
DATE 11/21/2009

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES _____ SHOP FASTENERS _____
SHOP PAINT _____
SHOP INSPECTION _____
GENERAL NOTES _____

REVISIONS			
DATE	NO.	BY	
04/07/09	R1	PDC/SB	REVISED PAINT SYSTEM.
07/06/09	R2	PDC/SB	DELETED PAINT STAGGERING NOTE

ORDER NO. 08-18537H32
DETAILS OF GENERAL NOTES
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION
CAROLINA STEEL GROUP, LLC.
MADE BY GM
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co. Inc.
DATE 09-08
SHEET HN101



PROGRESSIVE CAMBER DIAGRAM - LINE WINDHAM C01 VT 18537H22 G1 THRU G6 X-Scale 0.009832842 Y-Scale 2.648423748

PROGRESSIVE CAMBER DIAGRAM - LINES 1 THRU 6

BLOCKING NOTE

-GIRDERS SHALL BE SHOP ASSEMBLED IN THE CAMBERED POSITION, WITH THE BEARINGS & SPLICES BLOCKED TO THE DIMENSIONS SHOWN, WITHOUT INDUCING STRESS INTO THE MEMBERS. FULLY ASSEMBLE AND CHECK ALL BLOCKING AND CAMBER ORDINATES IN THE SHOP, MAKING ADJUSTMENTS WHERE NECESSARY. HOLES SHALL BE DRILLED FROM THE SOLID, AND MATCH MARKED WITH THE SPLICE MATERIAL ASSEMBLED TO GIRDERS.
-FOR FIELD ERECTION, GIRDERS SHALL BE PINNED AND BOLTED, AND SPLICE ELEVATIONS SHALL BE CHECKED BEFORE BOLTS ARE TIGHTENED.
-SHIPPING BOLTS SHALL BE MACHINE BOLTS.
-ALL SHIPPING BOLTS SHALL BE REMOVED AND DISCARDED.

DEFINITION OF TERMS

-ALL DIMENSIONS IN THE GRADE AND CAMBER DIAGRAMS EXCEPT THOSE IDENTIFIED OTHERWISE, ARE ALONG THE LONG CHORD. THOSE IDENTIFIED BELOW ARE ALONG THE PLANES THROUGH THE ACTUAL ELEVATIONS.
-LONG CHORD - FROM CL END BRG TO CL END BRG.
-GRADE AND CAMBER DIAGRAMS
GRADE LINE - FROM CL BRG TO CL BRG.
CHORD LINE - FROM CL BRG TO CL NEAREST FIELD SPLICE, OR FROM CL F. SPLICE TO CL F. SPLICE.

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance, with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such reviews do not extend to any LEED certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 1/27/2009

PROJECT No: ACIM 091-1(33)
STA. 22+69.92 TO STA. 25+28.14
BRIDGE No. 3N (NORTHBOUND)
TOWN OF GUILFORD

FABRICATED BY COLFAX
HOLES _____ SHOP FASTENERS _____
SHOP PAINT _____
SHOP INSPECTION _____
GENERAL NOTES _____

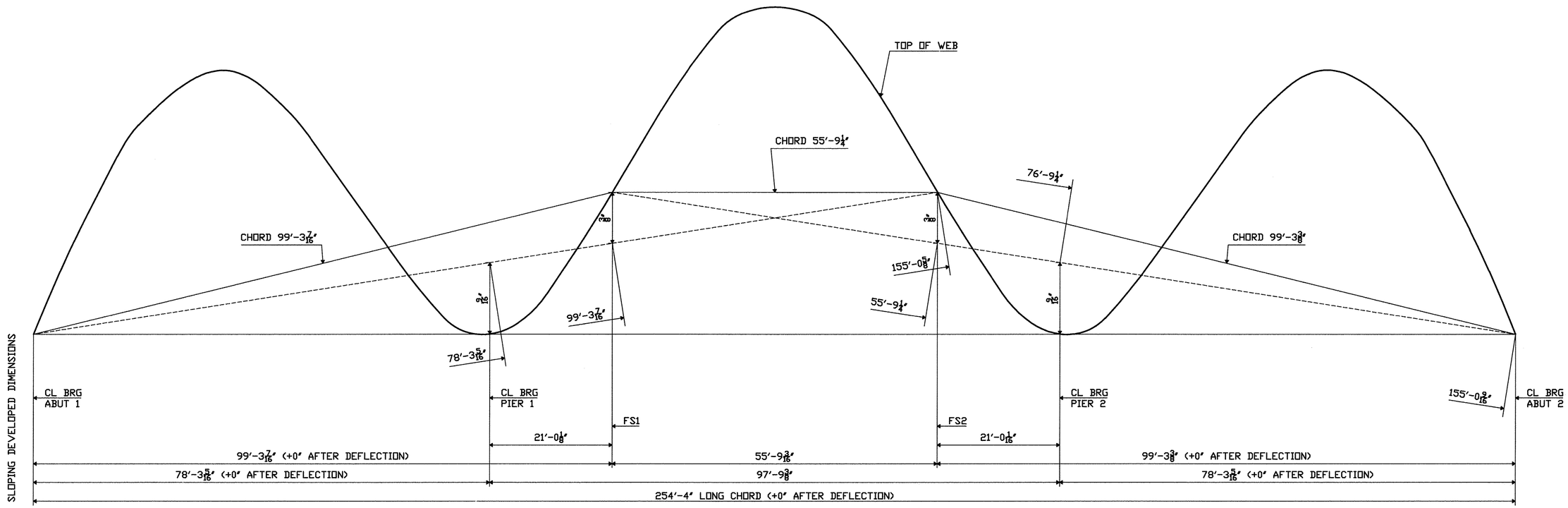
REVISIONS		
DATE	NO.	BY
	R1	

ORDER NO. 08-18537H22
DETAILS OF PROGRESSIVE CAMBER DIAGRAM - LINES 1 THRU 6
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY WS
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

SHEET HW1



PROGRESSIVE CAMBER DIAGRAM - LINE WINDHAM CO, VT 18537H32 G1 THRU G5 X-Scale 0.009832842 Y-Scale 2.583313822

PROGRESSIVE CAMBER DIAGRAM - LINES 1 THRU 5

BLOCKING NOTE

-GIRDERS SHALL BE SHOP ASSEMBLED IN THE CAMBERED POSITION, WITH THE BEARINGS & SPLICES BLOCKED TO THE DIMENSIONS SHOWN, WITHOUT INDUCING STRESS INTO THE MEMBERS. FULLY ASSEMBLE AND CHECK ALL BLOCKING AND CAMBER ORDINATES IN THE SHOP, MAKING ADJUSTMENTS WHERE NECESSARY. HOLES SHALL BE DRILLED FROM THE SOLID, AND MATCH MARKED WITH THE SPLICE MATERIAL ASSEMBLED TO GIRDERS.
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-SHIPPING BOLTS SHALL BE MACHINE BOLTS.
-ALL SHIPPING BOLTS SHALL BE REMOVED AND DISCARDED.

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-LONG CHORD - FROM CL END BRG TO CL END BRG.
-GRADE AND CAMBER DIAGRAMS
GRADE LINE - FROM CL BRG TO CL BRG.
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TVGA CONSULTANTS

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☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 11/6/2020

PROJECT No: ACIM 091-1(33)
STA. 22+47.71 TO STA. 25+05.93
BRIDGE No. 3S (SOUTHBOUND)
TOWN OF GUILFORD

FABRICATED BY NASH
HOLES _____ SHOP FASTENERS _____
SHOP PAINT _____
SHOP INSPECTION _____
GENERAL NOTES _____

REVISIONS		
DATE	NO.	BY
	R1	

ORDER NO. 08-18537H32
DETAILS OF PROGRESSIVE CAMBER DIAGRAM - LINES 1 THRU 5
PROJECT I-91 OVER BROAD BROOK AND BROAD BROOK ROAD
LOCATION WINDHAM COUNTY, VT
CUSTOMER MEC CONSTRUCTION

CAROLINA STEEL GROUP, LLC.

MADE BY WS
CHECKED BY PDC/SB
SQUAD LEADER Precise Drafting Co, Inc.
DATE 09-08

SHEET HW101

Vermont AOT
I-91 o/ Broad Brook & BB Road
Bridge No. 3N&S

BRIDGE DECK DESIGN CALCULATIONS — **DATE:** 2/17/09

TERMS	
d=	Dead-load deflection, inches.
E=	29,500,000 psi
Fs=	Form stress, psi
I =	Moment of inertia, in 4/ft of width
L =	Design span ft.
S =	Section modulus, in. 3/ft of width
W =	Total uniform load, psf
Wd=	Total uniform load - 55 psf construction load
	Min. value per FHWA 120 psf
Alow. Fs=	36,000 psi Grade 50&80 Steel; 29,000 psi Grade 40 Steel
Alow. d=	L/180 or 1/2" which ever is less

LOADING
Weight of Slab = Slab Thick. x 12.5#/inch of slab
Extra Concrete Valleys = xtra inches x 12#/inch of slab
Construction load = 50 psf
Form Wt. = per form chosen

DESIGN SPAN
Girder spacing - flange width - 2"

PROJECT:

CONTR:	*JA McDonald*	***STATE:***	*VT*	
STRUCT.	*3N&S*	***COUNTY:***	*Guilford*	

SLAB & GIRDER INFORMATION:

Slab Thick:	8.50	***Girder Spacing:*** ***(inches)***	Varies	***FLG. WDTH.:***	16.00

	Gdr Sp In	**Fl Wd In**	***2"***	**Dsgn Sp**
Design span =	99.00	16.00	***2"***	81.00
	88.00	16.00	***2"***	70.00

LENGTH FROM DRAWINGS ORDERED 1/2" LONGER THAN DESIGN LENGTH

	Slb Th. In.	**12.5#/in th**	**55 psf**	**Frm. Wt.**	**Load**	**Def Ld.**
Loading=	8.50	***12.5***	***55***	1.9		
	8.50	***12.5***	***55***	1.78		
	Inches X	**12#/in**				
	1	***12.0***				
	0.727	***12.0***				
					175.15	125.15
					171.754	121.754

Deck Producer	**Grade Stl.**	**Type**	**Gauge**	**S**	**I**	**Dsgn Span**	**Ft.**	**Wt/Frm**	***xtra " Con***
Wheeling	50 or 80	SW	22	0.382	0.518	81.00	6.75	1.9	1
Wheeling	50 or 80	2x8.5	22	0.276	0.328	70.00	5.83	1.78	0.727

Stress Calculations

Fs=1.5xWxLxL/S

Fs	**1.5**	**W**	**L^2**	**S**
31336.1461	1.500	175.15	6.75	0.382
31763.0812	1.500	171.754	5.83	0.276

Deflection Calculation

d=(5*Wd*L^4/384*E*I)*1728 — All = L/180 or =< 1/2"

							Allow.
							0.45
							0.3888889
	CONST.			CONST.		E	
Deflection	5	Wd=>120	L^4	384	1728	29.5*10^6	I
0.38254	5	125.15	6.75	384	1728	29.5	0.518
0.32782	5	121.754	5.83	384	1728	29.5	0.328

Weld Calculation

	Terms:			
		Fu = 55,000 psi weld yield		
		Fv = .27 x 55,000 psi all. /AASHTO	14850	
		t = weld thickness 1/8" standard (.125")	0.125	
		L1 = length of weld 1 1/2" Min AASHTO	2	USED
		l = weld spacing in inches	12	
		R = Ws x l/12 x Dsgn. Lgth'/2	591.13	
	L1 (min.) =	Sq. Root R^2+2R^2/.707xtxFv	1.01	

COMMONWEALTH OF MASSACHUSETTS
PAUL M. REMER, JR.
CIVIL
No. 33161
REGISTERED PROFESSIONAL ENGINEER
FEB 20 2009

Vermont AOT						PG 2/2
I-91 o/ Broad Brook & BB Road						
Bridge No. 3N&S						
SUPPORT ANGLE DESIGN: (Grade 40 Steel)						
GAGE:	12	GAGE:	12		Fy:	40ksi
SIZE:	3x2	Ta:	0.1046		f/s=0.725Fy:	29ksi
	MOMENT ARM (e):	1" MIN BRG.- ANGLE THICKNESS (Ta)				
	e:	0.8954				
DESIGN SPAN /ANGLE:		GIRDER SPACING-FLG. WDTH. - 2Ta				
	D:	99.00	16.000	0.2092	82.7908	
	LOAD:	Ws X D/12/2				
	P:	175.15	3.45		604.20	
	MOMENT:	LOAD (P) X MOMENT ARM (e)				
	M:	604.20	0.8954		541.00	
	SECTION MODULUS	b (12)X Ta2 X/6				
	S:	12	0.010941	6	0.02188232	
	ACTUAL STRESS:	M/S				
		541.00	0.021882		24,723.20	

TVGA CONSULTANTS

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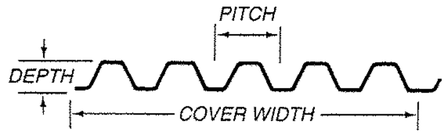
BY: _____
DATE: 9/8/2008

WHEELING
BRIDGE DECKING



CONVENTIONAL FORM

All deck forms are roll formed from various grades (see table) of Structural Quality Galvanized Sheet Steel conforming to ASTM Designation A-653. Finish is Hot Dipped Galvanized conforming to ASTM Designation A-924. Standard coating weight is G165. In highly corrosive environments, G235 is recommended

Section Properties (per ft. of width)

GAGE	FORM TYPE	8.5P	Strongweb	Super 8
	DEPTH	2"	2-1/2"	3"
	PITCH	8-1/2"	8"	8"
	COVER WIDTH	34"	32"	24"
22 .0299	Section Modulus In.³	.276	.382	.453
	Moment of inertia In.⁴	.328	.518	.814
	Weight PSF	1.780	1.900	2.310
21 .0329	Section Modulus In.³	.305	.420	.504
	Moment of inertia In.⁴	.367	.571	.923
	Weight PSF	1.950	2.080	2.530
20 .0359	Section Modulus In.³	.334	.457	.554
	Moment of inertia In.⁴	.403	.623	1.026
	Weight PSF	2.110	2.250	2.740
19 .0418	Section Modulus In.³	.390	.532	.652
	Moment of inertia In.⁴	.469	.726	1.230
	Weight PSF	2.440	2.600	3.170
18 .0478	Section Modulus In.³	.446	.606	.754
	Moment of inertia In.⁴	.537	.831	1.413
	Weight PSF	2.810	2.950	3.670
17 .0538	Section Modulus In.³	.501	.681	.848
	Moment of inertia In.⁴	.605	.936	1.592
	Weight PSF	3.150	3.300	4.110
16 .0598	Section Modulus In.³	.556	.756	.942
	Moment of inertia In.⁴	.673	1.041	1.772
	Weight PSF	3.480	3.660	4.540
15 .0673	Section Modulus In.³	.625	.849	
	Moment of inertia In.⁴	.758	1.182	
	Weight PSF	3.900	4.090	
14 .0747	Section Modulus In.³	.692	.949	
	Moment of inertia In.⁴	.842	1.319	
	Weight PSF	4.320	4.530	

Allowable bending stress (Fb) = 0.725 Fy (19 Ga and thinner are formed from Grade 80 Steel Greater thicknesses utilize Grade 40 Steel.)

Other Wheeling Products for the Construction Industry

Steel Roof Deck • Form Deck • Composite Floor Deck

Wheeling Corrugating Company
A DIVISION OF WHEELING-PITTSBURGH STEEL CORPORATION
Since 1890

EXECUTIVE OFFICES - 1134 MARKET ST., WHEELING WV 26003 304-234-2326

J & B WELDING, INC.

229 N. MAIN STREET COOPERSBURG, PA 18036
PHONE: (610) 282-3461 MAIN FAX: (610)282-3014

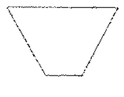
Guilford IM 091-1(33)
I-91 over Broad Brook & Road

STYROFOAM FILLER FOR STAY-IN-PLACE PANS
"STRONGWEB"

NORTHBOUND:

Wheeling Corrugated 2 ½" Deep X 8" Pitch
Four (4) pieces of foam required per pan
For quantity & size of pans required see
"Bridge Deck Material List" Sht 2 of 2
Length of foam is 5" less than pan size for end taper

3 ¾" top W



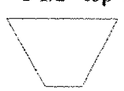
2 3/8" H

2" bottom W

SOUTHBOUND:

Wheeling Corrugated 2" Deep X 8 1/2" Pitch
Four (4) pieces of foam required per pan
For quantity & size of pans required see
"Bridge Deck Material List" Sht 2 of 2
Length of foam is 5" less than pan size for end taper

3 1/2" top W



2" H

2 1/4" bottom W

TVGA CONSULTANTS

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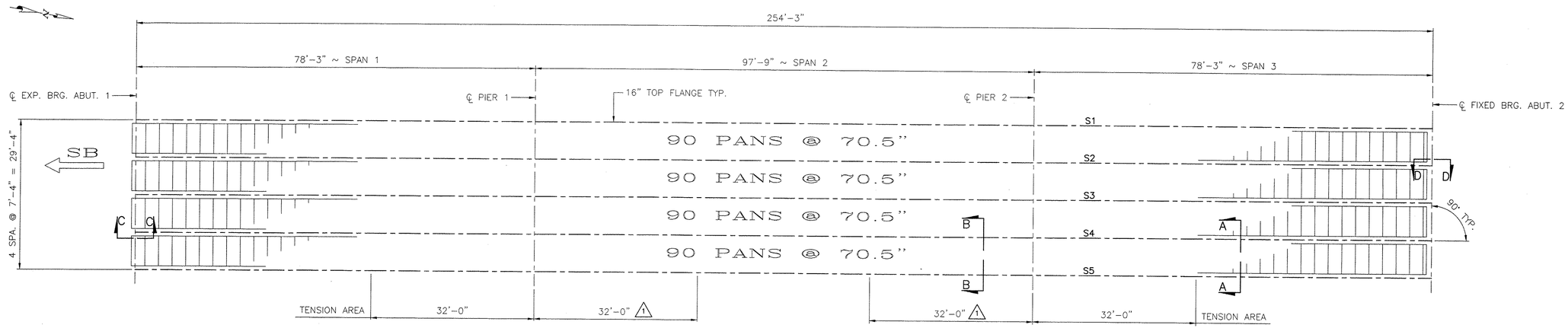
BY: _____
DATE: 4/8/2009



BRIDGE DECK PLAN

BRIDGE 3S

SCALE: 3/32" = 1'-0"

TVGA CONSULTANTS

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☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
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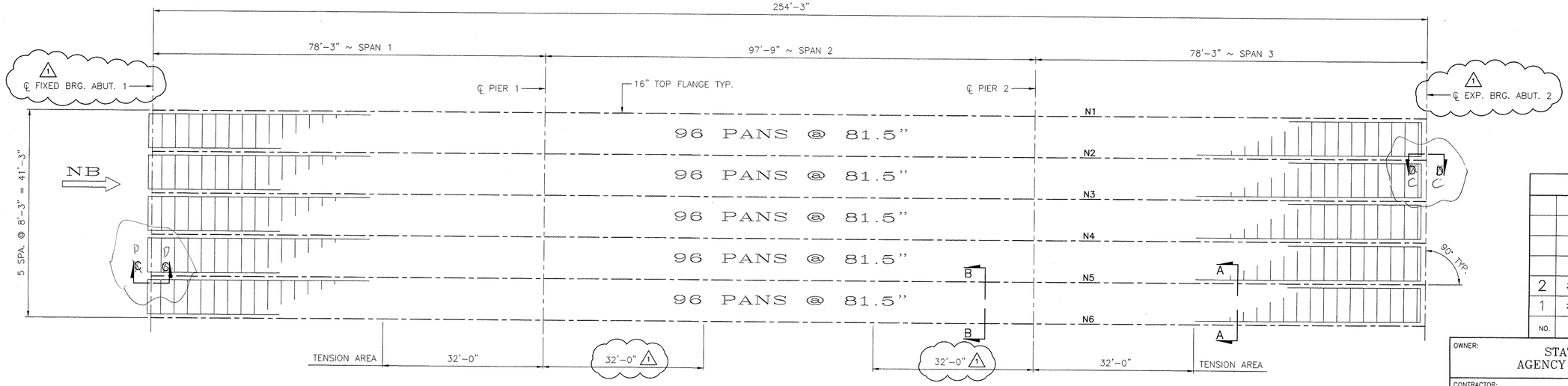
BY:
DATE: 4/8/2009

WARNING:
EACH BRIDGE DECK FORM SHEET MUST BE FASTENED IMMEDIATELY UPON PLACEMENT TO AVOID HAZARD THAT CAN RESULT FROM LATERAL MOVEMENT OR SUDDEN UPLIFT.



BRIDGE DECK PLAN

BRIDGE 3N

SCALE: 3/32" = 1'-0"

TRANSMITTAL RECORD		
2	3/25/09	APPROVAL
1	2/20/09	APPROVAL
NO.	DATE	SENT FOR

OWNER: STATE OF VERMONT
AGENCY OF TRANSPORTATION

CONTRACTOR: J.A. McDONALD, INC.

PROJECT: I-91 OVER BROAD BROOK
& BROAD BROOK ROAD
BRIDGE NO. 3N&S

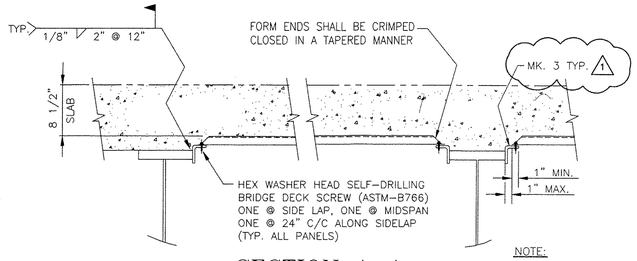
LOCATION: GUILFORD, VERMONT

J & B WELDING, INC.
229 N. MAIN ST.
COOPERSBURG, PA 18036
(610) 282-3461
FAX. (610) 282-3014

PAUL M. REMER, JR. CIVIL No. 33131 REGISTERED PROFESSIONAL ENGINEER
FEB 20 2009
SEAL

RECORD OF REVISIONS		
1	3/25/09	ENGINEER'S REVISIONS
REV.	DATE	DESCRIPTION

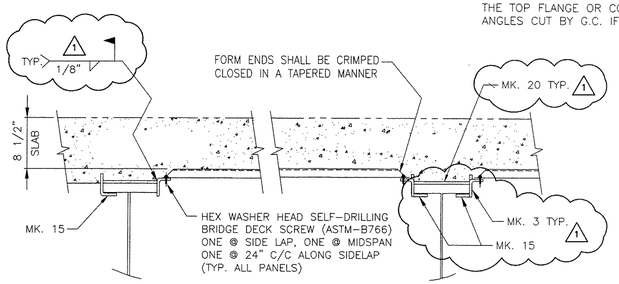
DATE: 2/13/09	APPROVED BY:	CHECKED BY:	DRAWN BY: JJJ
SCALE: 3/32" = 1'-0"	J&B PROJECT No: 920		
PG. 1 OF 2	PROJECT No: IM 091-1(33)		



SECTION A-A

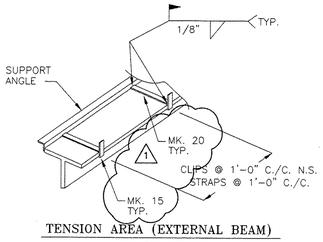
COMPRESSION AREA CONNECTION
NO SCALE

NOTE:
SUPPORT ANGLES SHALL BE PLACED IN THE "LEG DOWN" POSITION WHERE EVER POSIBLE. WHERE "LEG UP" POSITION IS NECESSARY, THE UPPER MOST PORTION OF THE ANGLE SHALL NOT PROJECT MORE THAN 1" ABOVE THE TOP FLANGE OR COVER PLATE. ANGLES CUT BY G.C. IF REQUIRED.

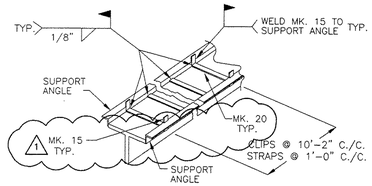


SECTION B-B

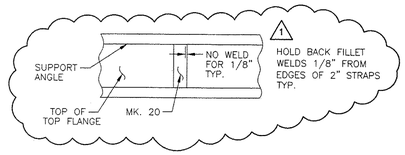
TENSION AREA CONNECTION
NO SCALE

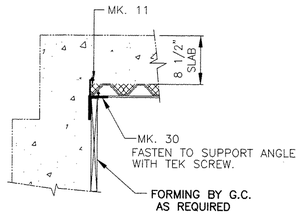


TENSION AREA (EXTERNAL BEAM)
NO SCALE



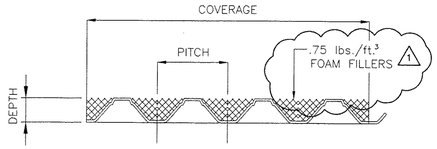
TENSION AREA (INTERNAL BEAM)
NO SCALE





SECTION D-D

@ FIXED END ABUT
NO SCALE



BRIDGE DECK SECTION

DEPTH	PITCH	COVERAGE	GAGE	I	S
2"	8 1/2"	34"	22	.328 in⁴/ft.	.276 in³/ft.
2 1/2"	8"	32"	22	.518 in⁴/ft.	.382 in³/ft.

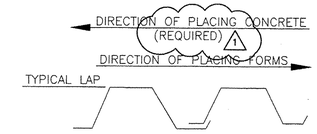
NOTE:
1 NO ARC STRIKERS WILL BE ALLOWED ANYWHERE ON THE TOP OF THE TOP FLANGES.

DESIGN NOTES:

1. MATERIAL IS PRODUCED BY WHEELING CORRUGATING CO., 1134 MARKET ST. WHEELING, WV 26003, PHONE: (304) 234-2326
2. BRIDGE DECK FORM AND ACCESSORIES SHALL BE FABRICATED FROM STRUCTURAL QUALITY STEEL CONFORMING TO ASTM A-653/A653M AND TO THE GRADES AS LISTED:
   DECK FORMS GA. 19 THRU 22 = GRADE 50 or 80
   DECK FORMS GA. 14 THRU 18 = GRADE 40
   ALL ACCESSORIES = GRADE 40
3. GALVANIZED COATING CONFORMS TO LATEST REVISION OF ASTM SPECIFICATION A924, COATING CLASS G165.
4. ALL FASTENERS TO BE .0005 CADMIUM PLATED COATINGS.

ERECTION NOTES:

1. BRIDGE DECK FORM AND ACCESSORY MATERIALS NOT PROMPTLY ERECTED SHALL BE STORED OFF THE GROUND WITH ONE END ELEVATED FOR DRAINAGE.
2. GENERAL CONTRACTOR SHALL TAKE GRADES ON BOTH SIDES OF BEAMS AT MAXIMUM OF 10'-0" INTERVALS SO THAT DECK ERECTOR CAN ADJUST ELEVATION OF SUPPORTS TO FOLLOW FINISHED ROADWAY PROFILE (PLUS OR MINUS 1/4").
3. PRIOR TO PLACEMENT OF FORMS, THE ENGINEER OR CONTRACTOR SHALL ADVISE ERECTOR OF DIRECTION OF POUR. ERECTOR WILL PLACE FORM SHEETS IN OPPOSITE DIRECTION TO MINIMIZE DIFFERENTIAL DEFLECTION.



4. UNLESS OTHERWISE NOTED, ALL SUPPORT ANGLES ARE TO BE WELDED TO STRINGER FLANGES USING 1/8" X 2" FILLET WELDS SPACED AT 12" ON CENTER WITH WELDS AS SHOWN.
5. SHEETS SHALL BEAR A MINIMUM OF 1" ON SUPPORTS.
6. EACH SHEET MUST BE FASTENED TO SUPPORTS IMMEDIATELY UPON PLACEMENT TO AVOID HAZARD THAT COULD RESULT FROM HORIZONTAL MOVEMENT OR SUDDEN UPLIFT.
7. ALL CUTTING OF FORM SHEETS AND ACCESSORY ITEMS SHALL BE DONE BY SAW, SHEAR OR OTHER APPROVED METHODS. (NO BURNING)

MISCELLANEOUS NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS.
2. CARE SHALL BE TAKEN TO AVOID DAMAGING THE INSTALLED FORM FROM EITHER STACKING OF MATERIALS, DROPPING EQUIPMENT OR HEAVY CONSTRUCTION TRAFFIC. DAMAGED FORMS TO BE REPLACED BY CONTRACTOR, AS DIRECTED BY ENGINEER AT NO ADDITIONAL COST TO CITY/STATE.
3. CONCRETE SHALL NOT BE DUMPED ON FORMS TO A DEPTH GREATER THAN 10" ABOVE TOP OF FORMS.
4. ANY ADDITIONAL CONCRETE REQUIRED DUE TO USE OF FORMS SHALL BE AT THE CONTRACTOR'S EXPENSE.
5. CALCIUM CHLORIDE (OR ANY ADMIXTURE CONTAINING SALTS) SHALL NOT BE USED IN THE CONCRETE PLACED ON THE FORMS.
6. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE MOST RECENT VERMONT A.O.T. STANDARD SPECIFICATIONS AND CURRENT SUPPLEMENTS.
7. ALL FORMS AND THEIR SUPPORTS HAVE BEEN DESIGNED TO CARRY THE DEAD LOAD OF FORM, THE DECK CONCRETE PLUS 55 psf FOR CONSTRUCTION LOADS.
8. GENERAL CONTRACTOR TO PROVIDE FIELD TOUCH UP MATERIAL, AS REQUIRED.
9. WEEPHOLES AT CONSTRUCTION JOINTS AS REQUIRED. (BY GENERAL CONTRACTOR).
10. WELDING TO FLANGE IN TENSION AREA IS NOT PERMITTED.

BRIDGE DECK MATERIAL LIST

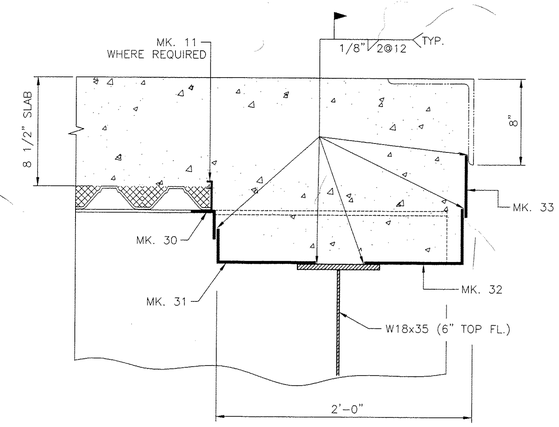
TYPE	GAGE	QTY.	LENGTH	SQUARE
BRIDGE 3N				
2 1/2" X 8"	22	480	81.5"	86.93
BRIDGE 3S				
2" X 8 1/2"	22	360	70.5"	59.93
TOTALS		840		146.86

BRIDGEDECK ACCESSORIES

ACCESSORY QUANTITIES BASED ON LIN. FTG. REQUIRED. CUT-OFFS MUST BE UTILIZED.

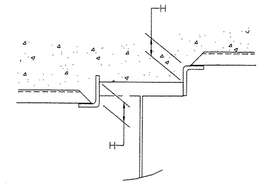
BRIDGE		6000 HEX WASHER HEAD SELF-DRILLING BRIDGE DECK SCREW (ASTM-B766)					
3N	3S	GIRTH	LENGTH	MARK	DESCRIPTION	ANGLE	GAGE
260	208	5"	120"	3	3" X 2" SUPPORT ANGLE ⌐	90	12
---	4	2 3/4"	120"	11A	2" X 3/4" CLOSURE ANGLE ⌐	90	20
5	---	3 1/4"	120"	11B	2 1/2" X 3/4" CLOSURE ANGLE ⌐	90	20
10	8	6"	120"	30	3" X 3" CLOSURE ⌐	90	14
5	4	14"	120"	31	12" X 4" CLOSURE └	90	14
5	4	16"	120"	32	10" X 4" CLOSURE ┘	90	14
5	4	6"	120"	33	6" FLAT CLOSURE |	---	14
550	480	4"	2"	15	3" X 1" HOLD DOWN CLIPS ⌊	90	12
115	98	2"	120"	20	2" STRAPS —	---	12

1



SECTION C-C

@ EXP END ABUT
NO SCALE



CONTRACTOR SHALL SURVEY HAUNCH 'H' FROM TOP OF STRINGER FLANGE TO TOP OF ANGLE SEAT. THIS DISTANCE SHALL BE MARKED ON THE TOP FLANGE @ 10' INTERVALS ON EACH EDGE OF BEAM.

NO SCALE

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such review will not extend to any USER connection or accreditation. Contractor is responsible for dimensions to be confirmed and correlated at the job site for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: Mark A. Cole
DATE: 4/8/2009

TRANSMITTAL RECORD		
2	3/25/09	APPROVAL
1	2/20/09	APPROVAL
NO.	DATE	SENT FOR

OWNER: STATE OF VERMONT
AGENCY OF TRANSPORTATION

CONTRACTOR: J.A. McDONALD, INC.

PROJECT: I-91 OVER BROAD BROOK & BROAD BROOK ROAD
BRIDGE NO. 3N&S

LOCATION: GUILFORD, VERMONT

J & B WELDING, INC.
229 N. MAIN ST.
COOPERSBURG, PA 18036
(610) 282-3461
FAX. (610) 282-3014

COMMONWEALTH OF MASSACHUSETTS
PAUL H. REIMER, JR.
CIVIL
No. 33131
REGISTERED PROFESSIONAL ENGINEER
FEB 20 2009
SEAL

RECORD OF REVISIONS		
1	3/25/09	ENGINEER'S REVISIONS
REV.	DATE	DESCRIPTION

DATE: 2/13/09	APPROVED BY:	CHECKED BY:	DRAWN BY: JJJ
SCALE: 3/32" = 1'-0"	J&B PROJECT No: 920		
PG. 2 OF 2	PROJECT No: IM 091-1(33)		

GENERAL NOTES:

1. FABRICATION AND TESTING OF BEARINGS SHALL BE IN ACCORDANCE WITH THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION (2006), SECTIONS 531 & 731 AND AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DIVISION I, SECTION 14 & DIVISION II, SECTION 18, UNLESS NOTED OTHERWISE.

2. MATERIALS:

SOLE & MASONRY PLATES*	ASTM A572, AASHTO M270 GR50, or ASTM A709 GR50
ELASTOMER	60±5 DUROMETER NATURAL RUBBER, Gr.4 SM = 150psi ±22.5psi
STEEL SHIMS	~~ASTM A1011 Gr. 40~~ AASHTO M270 GR50, ASTM A709 GR50
10ga STAINLESS STEEL SURFACE	ASTM A240 Ty. 304 w/ #8 MIRROR FINISH
½" STAINLESS STEEL BACKING PLATES	ASTM A240 Ty. 304
ANCHOR BOLTS	ASTM A307
HEAVY HEX NUTS	AASHTO M 291
PLATE WASHERS	ASTM A36

FABRIC PADS CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, SUBSECTION 731.01.

PTFE CONFORMS TO AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION I, SECTION 15 & DIVISION II, SECTION 18.8.

*ALL CORNERS & EDGES OF PLATES SHALL BE GROUND TO A 1/16" RADIUS.

3. TOLERANCES:

BEARING DEVICES AND COMPONENTS:	
HORIZONTAL DIM.	±1/16"
DESIGN THICKNESS	±1/16"
BEVEL SLOPE	±0.002 rad
SIZE OF HOLES/SLOTS	−0, +1/8"
POSITION OF HOLES/SLOTS	±1/16"
POSITION OF WELDED COMPONENTS	±1/16"
FLATNESS (SOLE PLATE)	0.01" MAX. DEVIATION
FLATNESS (SOLE PLATE) (surfaces to which S.S. will be attached)	0.0005 x NOM. DIM.
FLATNESS (MASONRY PLATES)	0.04" MAX. DEVIATION
FLATNESS (S.S. SURFACE) (when mating w/ PTFE bonded to steel)	0.0005 x NOM. DIM.
FLATNESS (S.S. SURFACE) (when mating w/ PTFE bonded to fabric pad)	0.01" MAX. DEVIATION
SURFACE FINISH	MAX. 125 rms
ELASTOMERIC PADS:	
HORIZONTAL DIM.	−0, +1/4"
DESIGN THICKNESS	−0, +1/4"
THICKNESS OF INDIVIDUAL LAYERS OF ELASTOMER	±1/8"
PARALLELISM:	
TOP	±0.005 rad (0.005"/in.)
SIDES	±1/4"
EDGE COVER OF EMBEDDED LAMINATES	−0, +1/8"
MISCELLANEOUS HARDWARE:	
ANCHOR BOLT LENGTH	±1/4"

4. WELDING:
   ALL DESIGN DETAILS, QUALITY OF WORK, PROCEDURES, AND INSPECTION OF WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE AWS D1.5 BRIDGE WELDING CODE & D1.6 STRUCTURAL WELDING CODE – STAINLESS STEEL.

5. PAINT / COATINGS:
   ALL SOLE, SHIM AND MASONRY PLATES AND ALL HARDWARE (ANCHOR BOLTS, NUTS, PLATE WASHERS) SHALL BE GALVANIZED PER AASHTO M 111 OR AASHTO M 232, AS APPLICABLE.

6. TESTING:
   100% SHORT TERM LOAD TESTING, 10% LONG TERM LOAD TESTING, AND COEFFICIENT OF FRICTION TESTING IS INCLUDED.

7. MARKING:
   WITH INDELIBLE INK OR FLEXIBLE PAINT, MARK EACH BEARING WITH LOCATION, ORIENTATION, ORDER NUMBER, LOT NUMBER, BEARING IDENTIFICATION NUMBER, AND ELASTOMER TYPE AND GRADE. PLACE ON A FACE WHICH WILL BE VISIBLE AFTER ERECTION OF THE BRIDGE.

8. SHIPPING:
   BEARINGS SHALL BE PACKAGED IN SUCH A MANNER TO ENSURE THAT DURING SHIPMENT AND STORAGE THE BEARINGS WILL BE PROTECTED AGAINST DAMAGE FROM HANDLING, WEATHER, OR ANY NORMAL HAZARD.

9. MANUFACTURER'S REPRESENTATIVE:
   S.V. RATHNAM ..... (903) 675-8571

DRAWING REFERENCE:

VT AOT CONTRACT PLANS
PROJECT: AC IM 091-1(33)

SHEETS BR130, BR130A,
BR131 & BR132
DATED 4/28/08

TVGA CONSULTANTS

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
Contractor has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to any means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incidental thereto. Such reviews do not extend to any USED combination or assemblies. Contractor is responsible for dimensions to be confirmed and correlated at the job site for fabrication that performs safety to the fabrication processes or to techniques of construction and for coordination of the work of all trades.

BY: James W Wagner
DATE: 1/28/09

Seismic Energy Products, L.P.
STRUCTURAL BEARINGS FOR BRIDGES & BUILDINGS
518 PROGRESS WAY PHONE: 903-675-8571
ATHENS, TEXAS 75751 FAX: 903-677-2875

STATE OF VERMONT
AGENCY OF TRANSPORTATION

CUSTOMER: J.A. McDONALD
P.O. NO: SIGNED QT

TOWN OF	HIGHWAY NO.	BRIDGE NO.
GUILFORD	I-91	3N & 3S

PROJECT	PROJECT NO.
GUILFORD	IM 091-1(33)

I-91 OVER BROAD BROOK
& BROAD BROOK ROAD
GENERAL NOTES

REV	DESCRIPTION	DATE
A	ORIGINAL SHOP DWG ISSUE	11/25/08

DWN BY DMH | DATE 10/8/08 | DRAWING NO. 38627VT-01 | SHEET NO. 1 OF 8
CHK BY CW | DATE 10/14/08

SCALE: NTS

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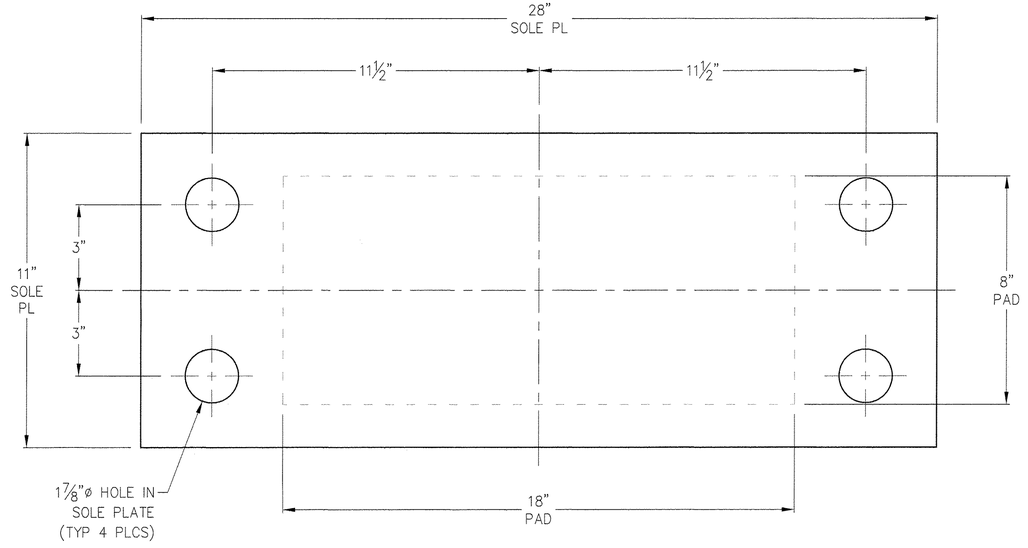
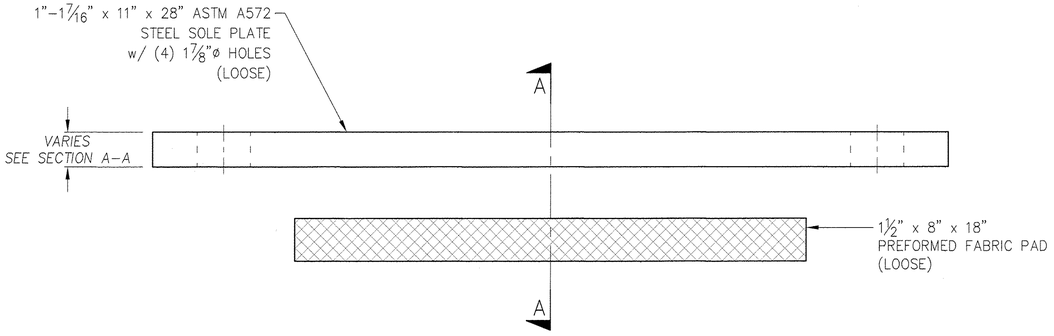


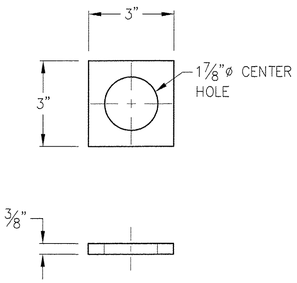
PLAN VIEW



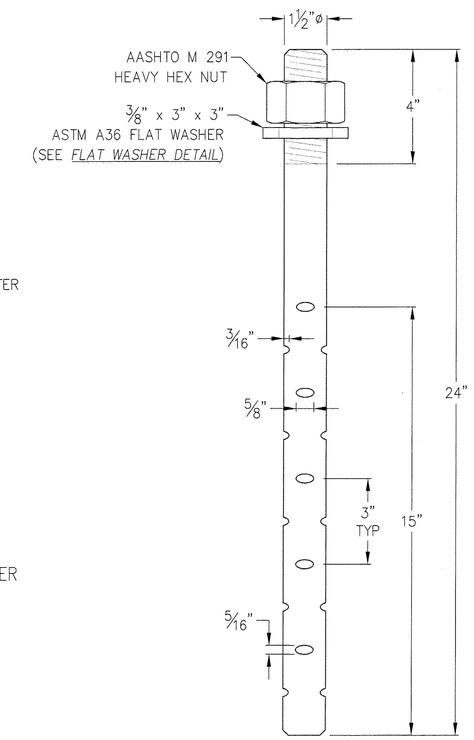
ELEVATION
MK. 01
BRIDGE 3N, ABUT 1
GIRDERS N1–N6
FIXED BEARING – FABRIC PAD
(6) REQ'D

GENERAL NOTES:

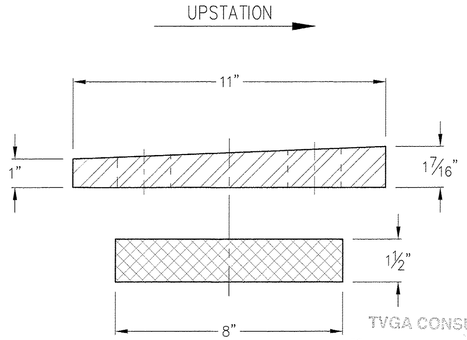
SEE SHEET 1



FLAT WASHER DETAIL
⅜" x 3" x 3" ASTM A36 FLAT WASHER



ANCHOR BOLT ASSEMBLY
1½"ø x 24" LONG ASTM A307 SWEDGED ANCHOR BOLT
w/ (1) AASHTO M 291 HEAVY HEX NUT &
(1) ⅜" x 3" x 3" ASTM A36 FLAT WASHER
ALL GALVANIZED PER AASHTO M 232
(24) REQ'D FOR MK. 01



SECTION A–A

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such review does not relieve Contractor from compliance or responsibility. Contractor is responsible for determining and confirming all field conditions and dimensions and for coordinating all trades involved in the Work and for the performance of all work and for coordination of the work of all trades.

BY: James W Kruppenbach
DATE: 1/30/09

Seismic Energy Products, L.P.

STRUCTURAL BEARINGS FOR BRIDGES & BUILDINGS
518 PROGRESS WAY PHONE: 903-675-8571
ATHENS, TEXAS 75751 FAX: 903-677-2875

SCALE: NTS

REV	DESCRIPTION	DATE
A	ORIGINAL SHOP DWG ISSUE	11/24/08

STATE OF VERMONT
AGENCY OF TRANSPORTATION

CUSTOMER: J.A. McDONALD

P.O. NO: SIGNED QT

TOWN OF	HIGHWAY NO.	BRIDGE NO.
GUILFORD	I-91	3N & 3S

PROJECT	PROJECT NO.
GUILFORD	IM 091-1(33)

I-91 OVER BROAD BROOK
& BROAD BROOK ROAD
FIXED BEARINGS – FABRIC PAD

DWN BY DMH	DATE 10/2/08	DRAWING NO.	SHEET NO.
CHK BY CW	DATE 10/14/08	38627VT-02	2 OF 8

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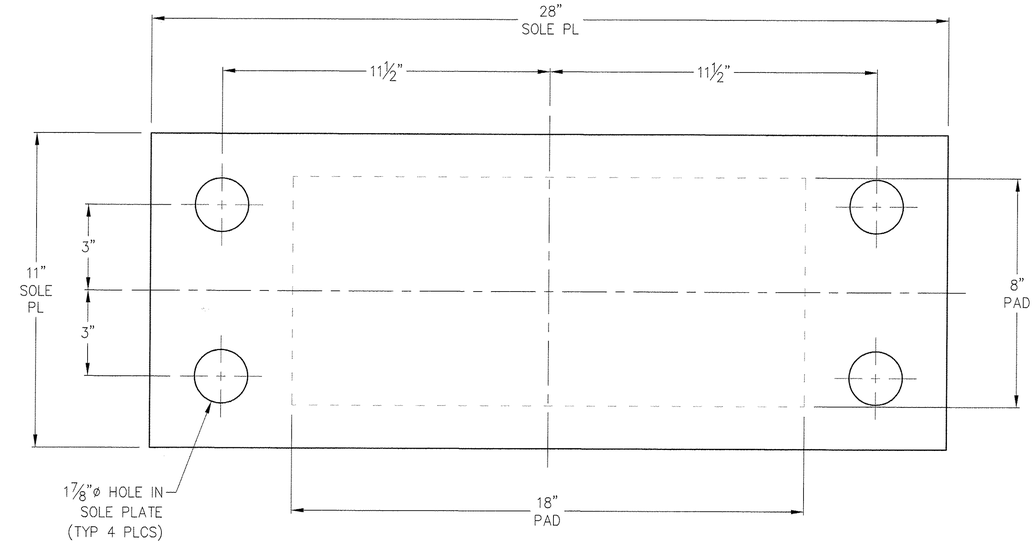
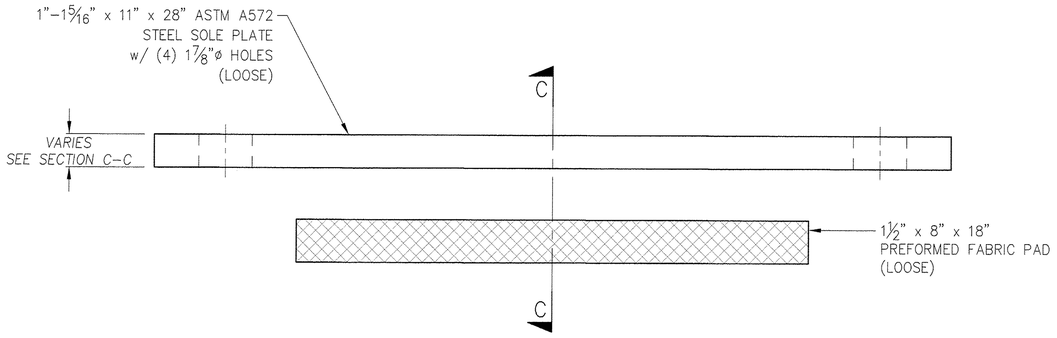


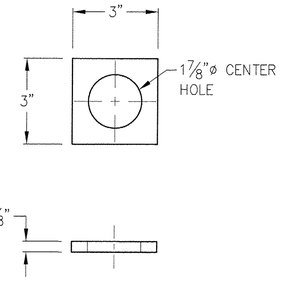
PLAN VIEW



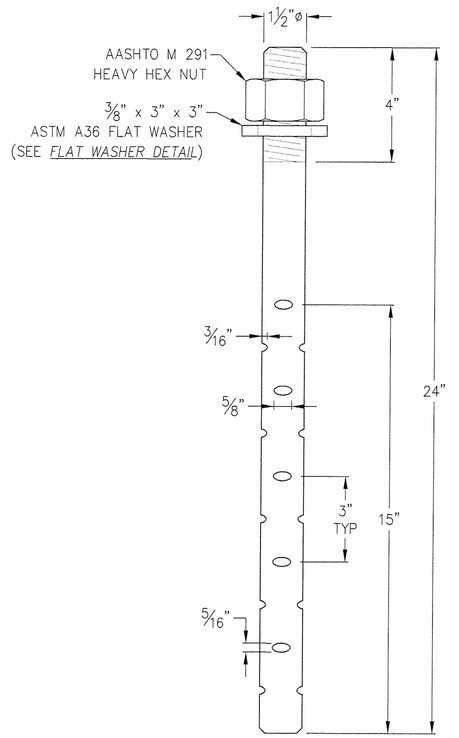
ELEVATION
MK. 02
BRIDGE 3S, ABUT 2
GIRDERS S1–S5
FIXED BEARING – FABRIC PAD
(5) REQ'D

GENERAL NOTES:

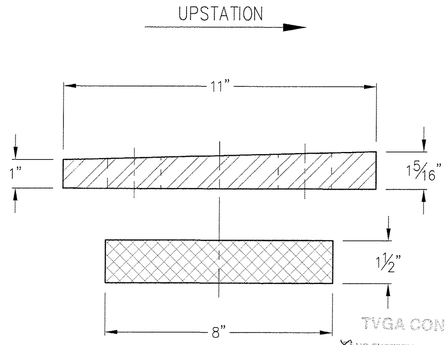
SEE SHEET 1



FLAT WASHER DETAIL
⅜" x 3" x 3" ASTM A36 FLAT WASHER



ANCHOR BOLT ASSEMBLY
1½"ø x 24" LONG ASTM A307 SWEDGED ANCHOR BOLT
w/ (1) AASHTO M 291 HEAVY HEX NUT 7
(1) ⅜" x 3" x 3" ASTM A36 FLAT WASHER
ALL GALVANIZED PER AASHTO M 232
(20) REQ'D FOR MK. 02



SECTION C–C

TVGA CONSULTANTS
☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
BY: James W Sheppard
DATE: 1/20/09

Seismic Energy Products, L.P.
STRUCTURAL BEARINGS FOR BRIDGES & BUILDINGS
518 PROGRESS WAY PHONE: 903–675–8571
ATHENS, TEXAS 75751 FAX: 903–677–2875

STATE OF VERMONT
AGENCY OF TRANSPORTATION

CUSTOMER: J.A. McDONALD

P.O. NO: SIGNED QT

TOWN OF	HIGHWAY NO.	BRIDGE NO.
GUILFORD	I–91	3N & 3S

PROJECT	PROJECT NO.
GUILFORD	IM 091–1(33)

I–91 OVER BROAD BROOK
& BROAD BROOK ROAD
FIXED BEARINGS – FABRIC PAD

REV	DESCRIPTION	DATE
A	ORIGINAL SHOP DWG ISSUE	11/24/08

SCALE: NTS

DWN BY DMH	DATE 10/3/08	DRAWING NO.	SHEET NO.
CHK BY CW	DATE 10/14/08	38627VT–03	3 OF 8

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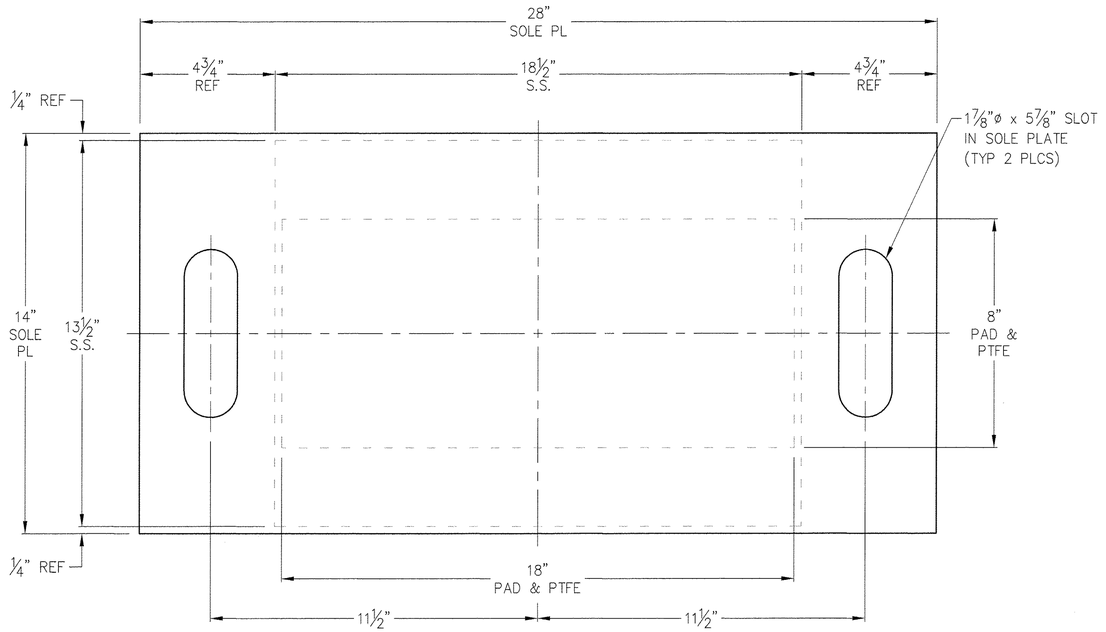
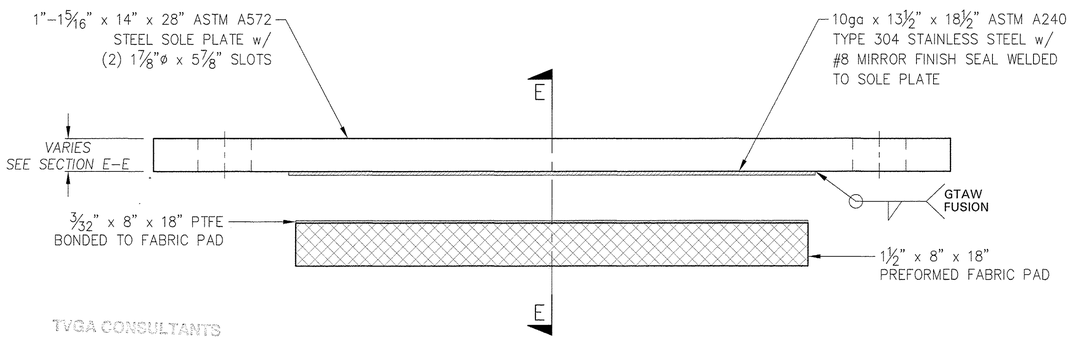


PLAN VIEW



ELEVATION

MK. 03
BRIDGE 3N, ABUT 2
GIRDERS N1–N6
EXPANSION BEARING – FABRIC PAD
(6) REQ'D

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS NOTED/CORRECTED
☐ REVISE AND RESUBMIT

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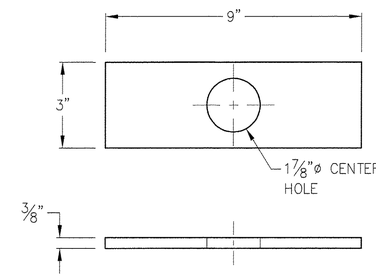
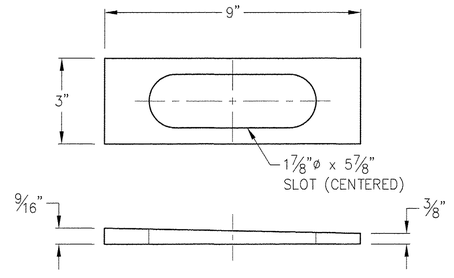
BY: James W Kruppa
DATE: 1/22/09



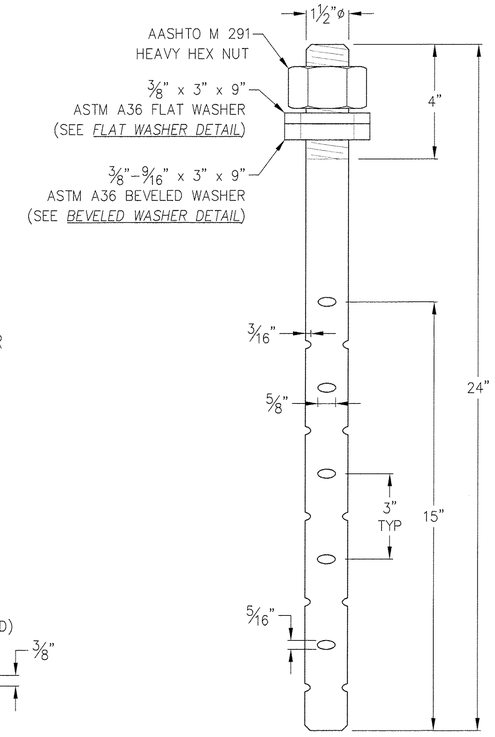
FLAT WASHER DETAIL

⅜" x 3" x 9" ASTM A36 FLAT WASHER



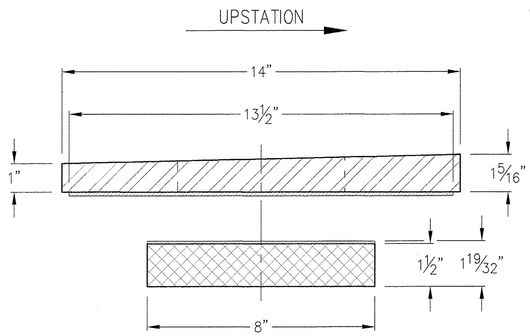
BEVELED WASHER DETAIL

⅜"–9/16" x 3" x 9" ASTM A36 BEVELED WASHER



ANCHOR BOLT ASSEMBLY

1½"ø x 24" LONG ASTM A307 SWEDGED ANCHOR BOLT
w/ (1) AASHTO M 291 HEAVY HEX NUT,
(1) ⅜" x 3" x 9" ASTM A36 FLAT WASHER &
(1) ⅜"–9/16" x 3" x 9" ASTM A36 BEVELED WASHER
ALL GALVANIZED PER AASHTO M 232
(12) REQ'D FOR MK. 03



SECTION E–E

GENERAL NOTES:

SEE SHEET 1

Seismic Energy Products, L.P.

STRUCTURAL BEARINGS FOR BRIDGES & BUILDINGS
518 PROGRESS WAY PHONE: 903-675-8571
ATHENS, TEXAS 75751 FAX: 903-677-2875

STATE OF VERMONT
AGENCY OF TRANSPORTATION

CUSTOMER: J.A. McDONALD		
P.O. NO: SIGNED QT		
TOWN OF: GUILFORD	HIGHWAY NO.: I–91	BRIDGE NO.: 3N & 3S
PROJECT: GUILFORD		PROJECT NO.: IM 091–1(33)

I–91 OVER BROAD BROOK
& BROAD BROOK ROAD
EXPANSION BEARINGS – FABRIC PAD

REV	DESCRIPTION	DATE
A	ORIGINAL SHOP DWG ISSUE	11/24/08

SCALE: NTS

DWN BY DMH | DATE 10/3/08 | DRAWING NO. 38627VT–04 | SHEET NO. 4 OF 8
CHK BY CW | DATE 10/14/08

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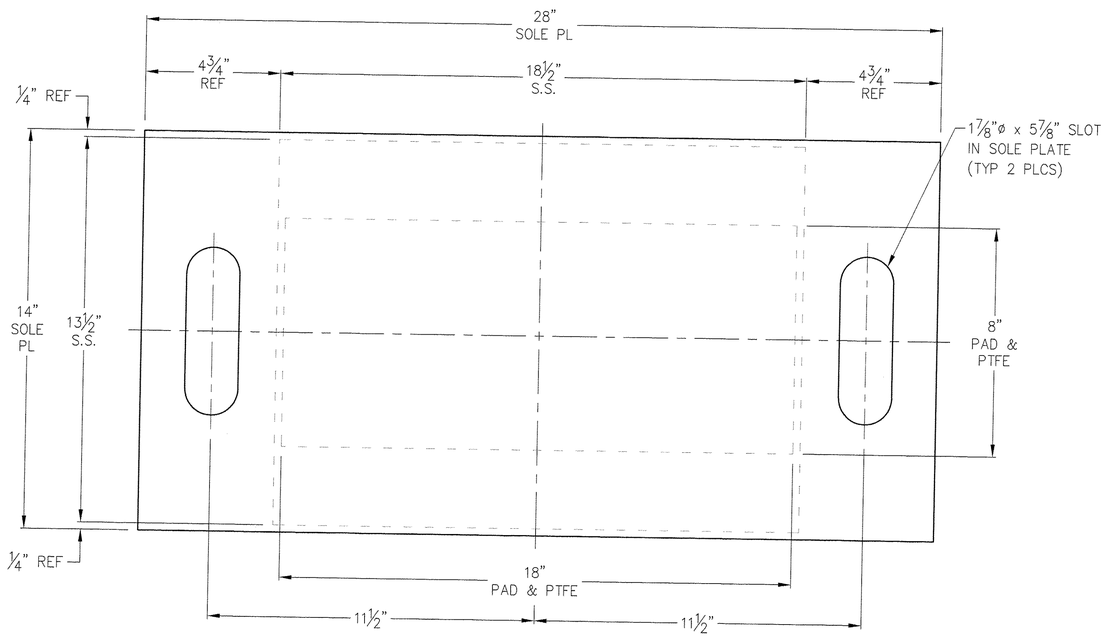
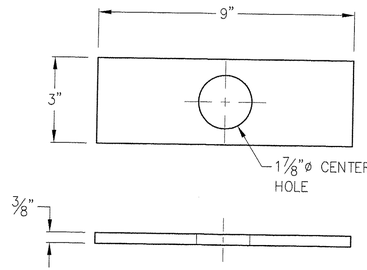
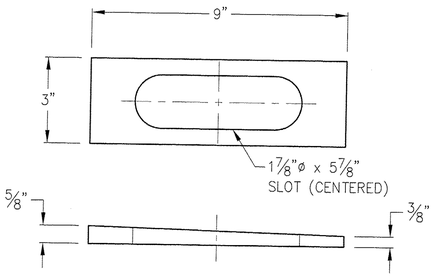


PLAN VIEW



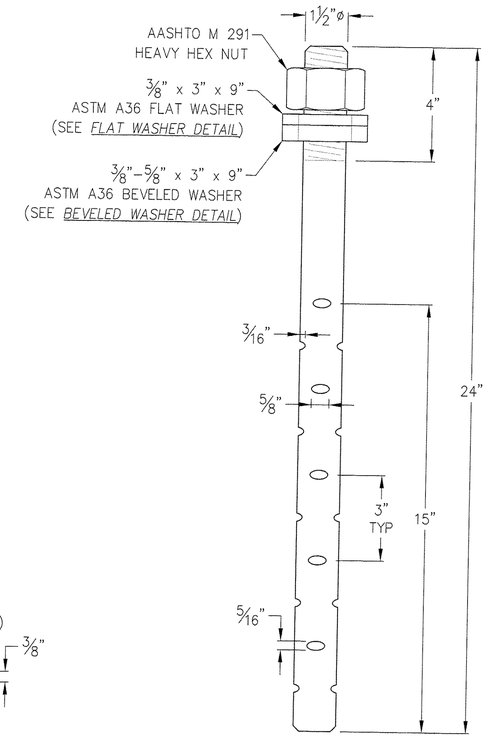
FLAT WASHER DETAIL

⅜" x 3" x 9" ASTM A36 FLAT WASHER



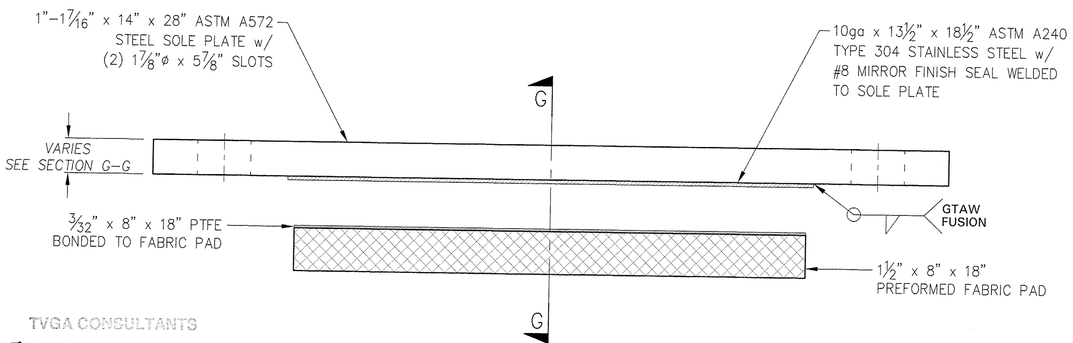
BEVELED WASHER DETAIL

⅜"–⅝" x 3" x 9" ASTM A36 BEVELED WASHER



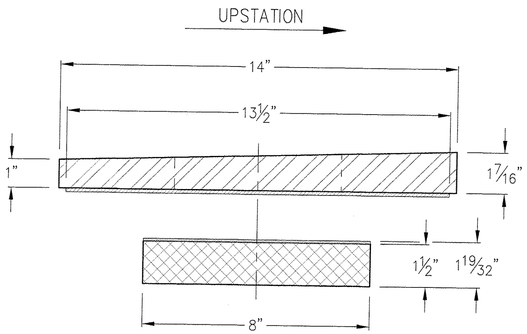
ANCHOR BOLT ASSEMBLY

1½"ø x 24" LONG ASTM A307 SWEDGED ANCHOR BOLT
w/ (1) AASHTO M 291 HEAVY HEX NUT,
(1) ⅜" x 3" x 9" ASTM A36 FLAT WASHER &
(1) ⅜"–⅝" x 3" x 9" ASTM A36 BEVELED WASHER
ALL GALVANIZED PER AASHTO M 232
(10) REQ'D FOR MK. 04



ELEVATION

MK. 04
BRIDGE 3S, ABUT 1
GIRDERS S1–S5
EXPANSION BEARING – FABRIC PAD
(5) REQ'D



SECTION G–G

GENERAL NOTES:

SEE SHEET 1

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and either does or does not take exception to material, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such review shall not relieve the CONTRACTOR from responsibility for deviations to be mentioned and corrected in the job site, for information that pertains solely to the fabrication processes or techniques of construction and for coordination of the work of all trades.

BY: James W Hempstead
DATE: 1/20/09

Seismic Energy Products, L.P.

STRUCTURAL BEARINGS FOR BRIDGES & BUILDINGS
518 PROGRESS WAY PHONE: 903-675-8571
ATHENS, TEXAS 75751 FAX: 903-677-2875

STATE OF VERMONT
AGENCY OF TRANSPORTATION

CUSTOMER: J.A. McDONALD

P.O. NO: SIGNED QT

TOWN OF	HIGHWAY NO.	BRIDGE NO.
GUILFORD	I–91	3N & 3S

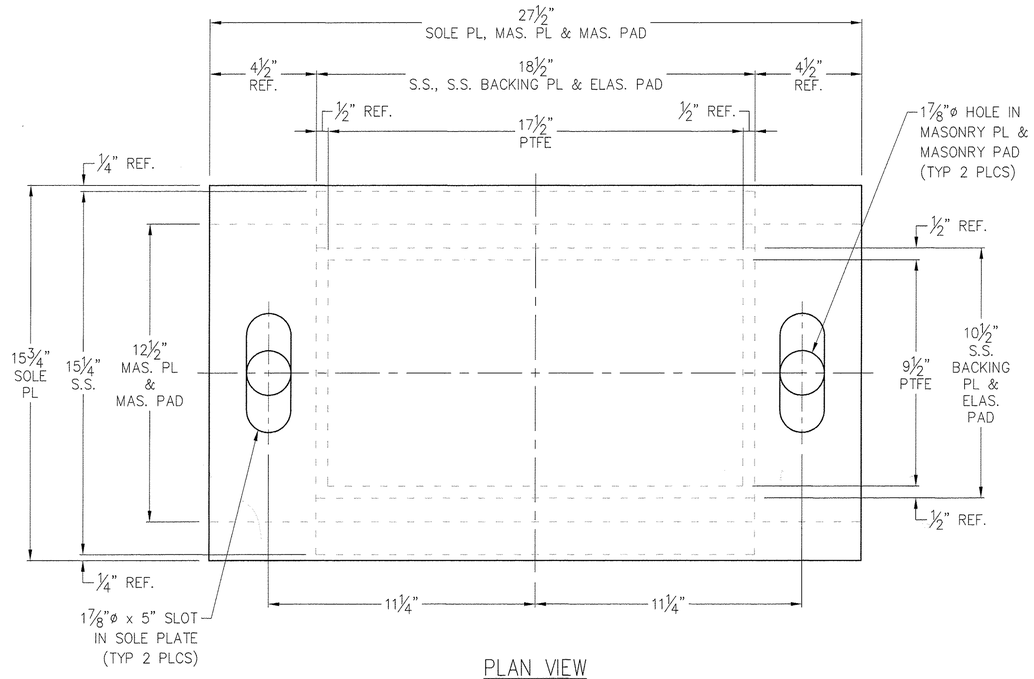
PROJECT	PROJECT NO.
GUILFORD	IM 091–1(33)

I–91 OVER BROAD BROOK
& BROAD BROOK ROAD
EXPANSION BEARINGS – FABRIC PAD

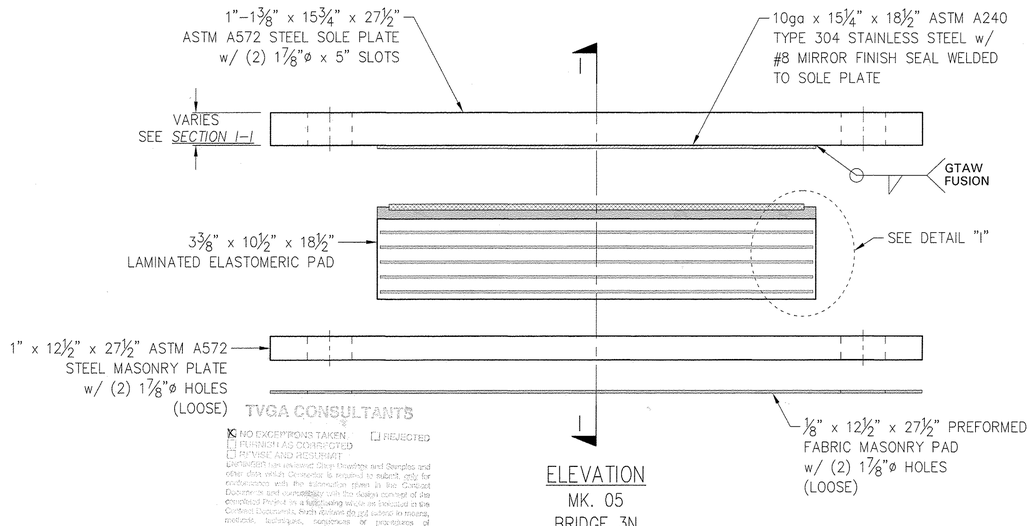
REV	DESCRIPTION	DATE
A	ORIGINAL SHOP DWG ISSUE	11/24/08

SCALE: NTS

DWN BY DMH	DATE 10/6/08	DRAWING NO.	SHEET NO.
CHK BY CW	DATE 10/14/08	38627VT–05	5 OF 8



PLAN VIEW



ELEVATION
MK. 05
BRIDGE 3N
PIERS 1 & 2
EXPANSION BEARING – ELASTOMERIC
(12) REQ'D

TVGA CONSULTANTS

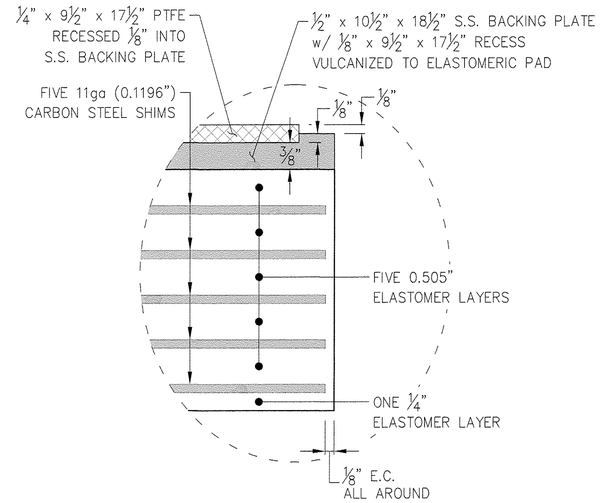
X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

Examination has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not include means, methods, techniques, sequences or procedures of construction or for safety precautions and programs incident thereto. Such review should not relieve Contractor from compliance or responsibility. Contractor is responsible for dimensions to be confirmed and coordinated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.

BY: James W Huppert
DATE: 1/20/09

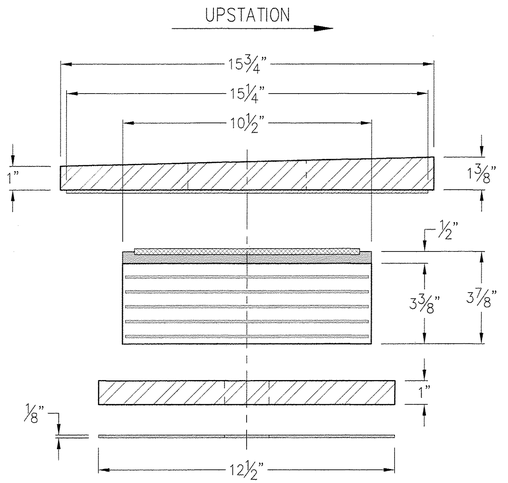
GENERAL NOTES:

SEE SHEET 1



DETAIL "I"

SEE SHEET 8 FOR
ANCHOR BOLT AND
WASHER DETAILS



SECTION I–I

Seismic Energy Products, L.P.
STRUCTURAL BEARINGS FOR BRIDGES & BUILDINGS
518 PROGRESS WAY PHONE: 903-675-8571
ATHENS, TEXAS 75751 FAX: 903-677-2875

STATE OF VERMONT
AGENCY OF TRANSPORTATION

CUSTOMER: J.A. McDONALD

P.O. NO: SIGNED QT

TOWN OF	HIGHWAY NO.	BRIDGE NO.
GUILFORD	I–91	3N & 3S

PROJECT	PROJECT NO.
GUILFORD	IM 091–1(33)

I–91 OVER BROAD BROOK
& BROAD BROOK ROAD
EXPANSION BEARINGS – ELASTOMERIC

REV	DESCRIPTION	DATE
A	ORIGINAL SHOP DWG ISSUE	11/24/08

SCALE: NTS

DWN BY DMH | DATE 10/6/08 | DRAWING NO. 38627VT-06 | SHEET NO. 6 OF 8
CHK BY CW | DATE 10/14/08

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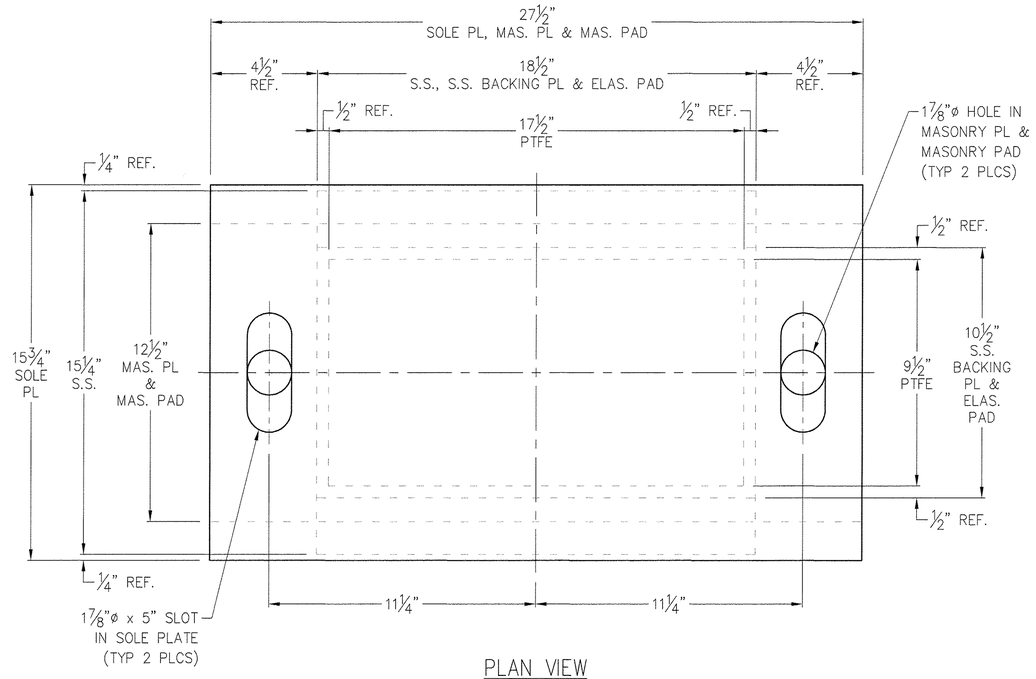
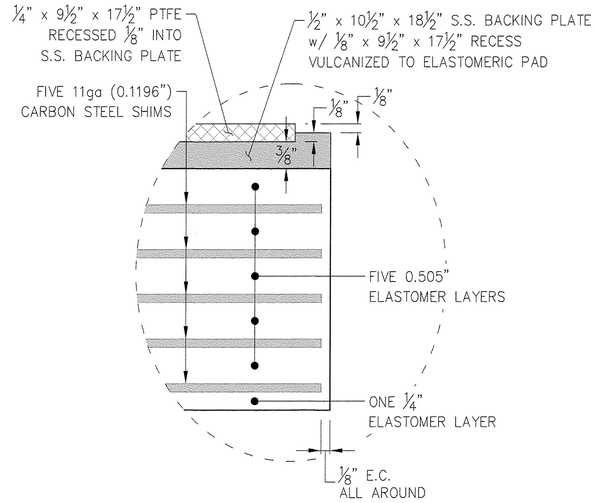
GENERAL NOTES:

SEE SHEET 1

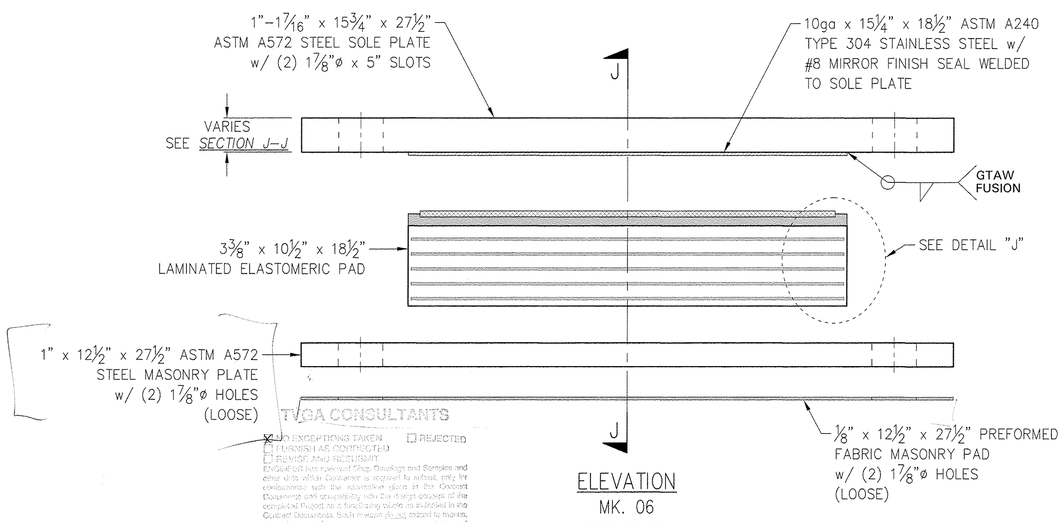


PLAN VIEW

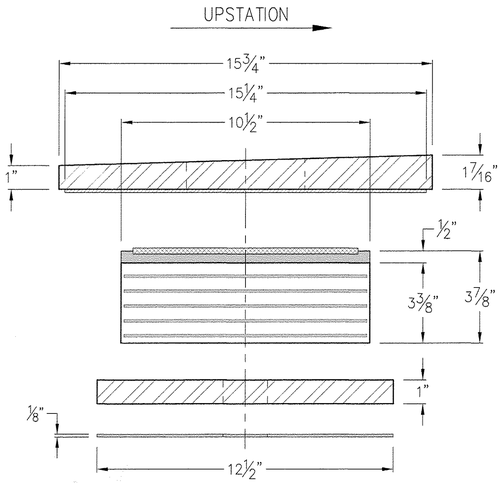


DETAIL "J"

SEE SHEET 8 FOR ANCHOR BOLT AND WASHER DETAILS



ELEVATION
MK. 06
BRIDGE 3S
PIERS 1 & 2
EXPANSION BEARING – ELASTOMERIC
(10) REQ'D



SECTION J–J

TYGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the submittal items in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such review does not relieve any CONTRACTOR from any responsibility. Contractor is responsible for dimensions to be confirmed and correlated at the jobsite; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: James W Engwall
DATE: 12/9/08

Seismic Energy Products, L.P.

STRUCTURAL BEARINGS FOR BRIDGES & BUILDINGS
518 PROGRESS WAY PHONE: 903-675-8571
ATHENS, TEXAS 75751 FAX: 903-677-2875

STATE OF VERMONT
AGENCY OF TRANSPORTATION

CUSTOMER: J.A. McDONALD

P.O. NO: SIGNED QT

TOWN OF	HIGHWAY NO.	BRIDGE NO.
GUILFORD	I–91	3N & 3S

PROJECT	PROJECT NO.
GUILFORD	IM 091–1(33)

I–91 OVER BROAD BROOK
& BROAD BROOK ROAD
EXPANSION BEARINGS – ELASTOMERIC

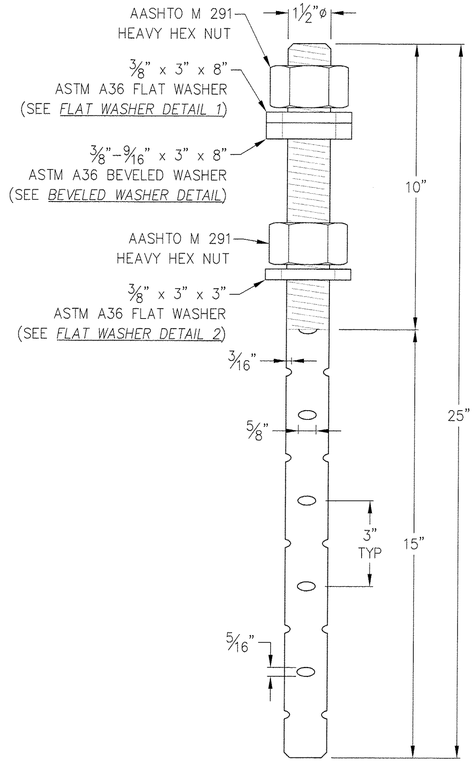
REV	DESCRIPTION	DATE
A	ORIGINAL SHOP DWG ISSUE	11/24/08

SCALE: NTS

DWN BY DMH	DATE 10/6/08	DRAWING NO.	SHEET NO.
CHK BY CW	DATE 10/14/08	38627VT-07	7 OF 8

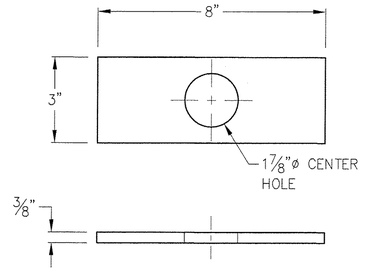
GENERAL NOTES:

SEE SHEET 1



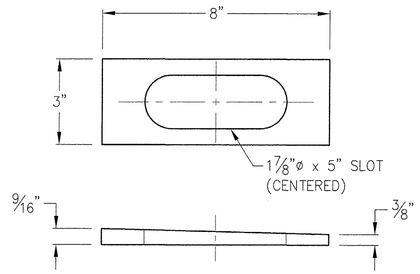
ANCHOR BOLT ASSEMBLY

1½"ø x 25" LONG ASTM A307 SWEDGED ANCHOR BOLT
w/ (2) AASHTO M 291 HEAVY HEX NUTS,
(1) ⅜" x 3" x 3" ASTM A36 FLAT WASHER,
(1) ⅜" x 3" x 8" ASTM A36 FLAT WASHER &
(1) ⅜"–9⁄16" x 3" x 8" ASTM A36 BEVELED WASHER
ALL GALVANIZED PER AASHTO M 232
(24) REQ'D FOR MK. 05
(20) REQ'D FOR MK. 06
(44) TOTAL REQ'D



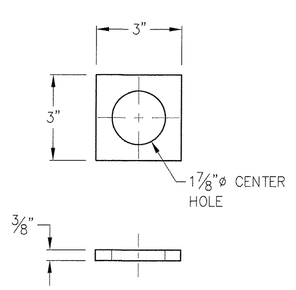
FLAT WASHER DETAIL 1

⅜" x 3" x 8" ASTM A36 FLAT WASHER



BEVELED WASHER DETAIL

⅜"–9⁄16" x 3" x 8" ASTM A36 BEVELED WASHER



FLAT WASHER DETAIL 2

⅜" x 3" x 3" ASTM A36 FLAT WASHER

Seismic Energy Products, L.P.

STRUCTURAL BEARINGS FOR BRIDGES & BUILDINGS
518 PROGRESS WAY PHONE: 903-675-8571
ATHENS, TEXAS 75751 FAX: 903-677-2875

TVGA CONSULTANTS

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
EXCEPTIONS TAKEN (if checked) ... Drawings and other data where ... only for conformance with ... Contract Documents. ... out of the ... as the Contract Documents. ... means, methods, ... and of construction ... incidental thereto. ... to such items ... modification or abbreviation. ... to be performed and quantities of materials in that portion solely to the ... to techniques of construction; and for coordination ... other trades.

BY: James W Ruppert
DATE: 1/30/09

STATE OF VERMONT
AGENCY OF TRANSPORTATION

CUSTOMER: J.A. McDONALD

P.O. NO: SIGNED QT

TOWN OF	HIGHWAY NO.	BRIDGE NO.
GUILFORD	I-91	3N & 3S

PROJECT	PROJECT NO.
GUILFORD	IM 091-1(33)

I-91 OVER BROAD BROOK
& BROAD BROOK ROAD
EXPANSION BEARINGS – ELASTOMERIC

REV	DESCRIPTION	DATE
A	ORIGINAL SHOP DWG ISSUE	11/24/08

DWN BY DMH | DATE 10/6/08 | DRAWING NO. 38627VT-08 | SHEET NO. 8 OF 8
CHK BY CW | DATE 10/14/08

SCALE: NTS