PLEASE SEE SHEET 2 FOR INDEX OF SHEETS AND LIST OF STANDARDS

RECORD PLANS	
CONTRACTOR	J A MCDONALD INC - LYNDON CENTER, VT
RESIDENT ENGINEER	CHRIS CRAIG
CONSTRUCTION BEGAN	MAY 12,2008
CONSTRUCTION COMPLETE	
RECORD PLANS BY	CHRIS CRAIG & CRAIG PEIRCE

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

BY CMP For Chris Craig RESIDENT ENGINEER

DATE Nov. 4, 2010

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

STATE OF VERMONT
AGENCY OF TRANSPORTATION

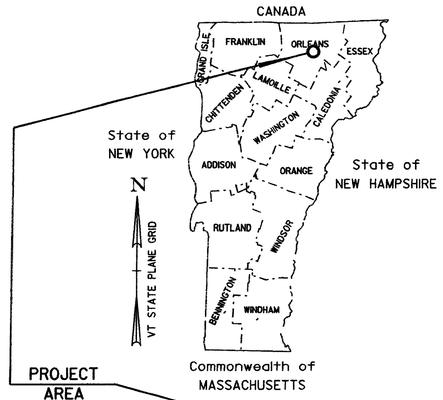
PROPOSED IMPROVEMENT
TOWN OF BARTON, VILLAGE OF ORLEANS
COUNTY OF ORLEANS

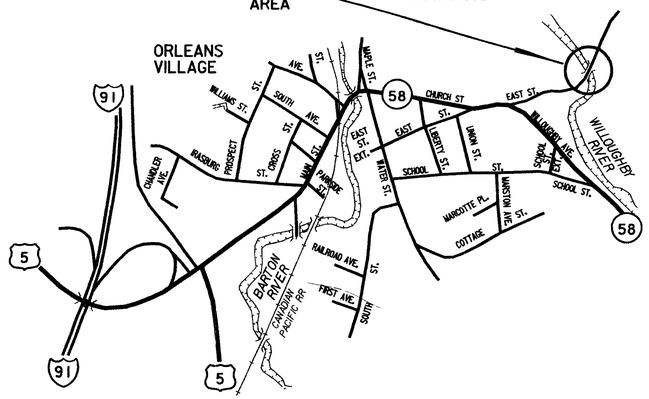
ROUTE NO : TH #3, CL 3 BRIDGE NO : #61

PROJECT LOCATION : LOCATED IN THE COUNTY OF ORLEANS, VILLAGE OF ORLEANS, ON TOWN HIGHWAY #3 (EAST STREET), BRIDGE #61 OVER THE WILLOUGHBY RIVER, APPROXIMATELY 0.2 MILE EAST OF THE JUNCTION OF TOWN HIGHWAY #1.

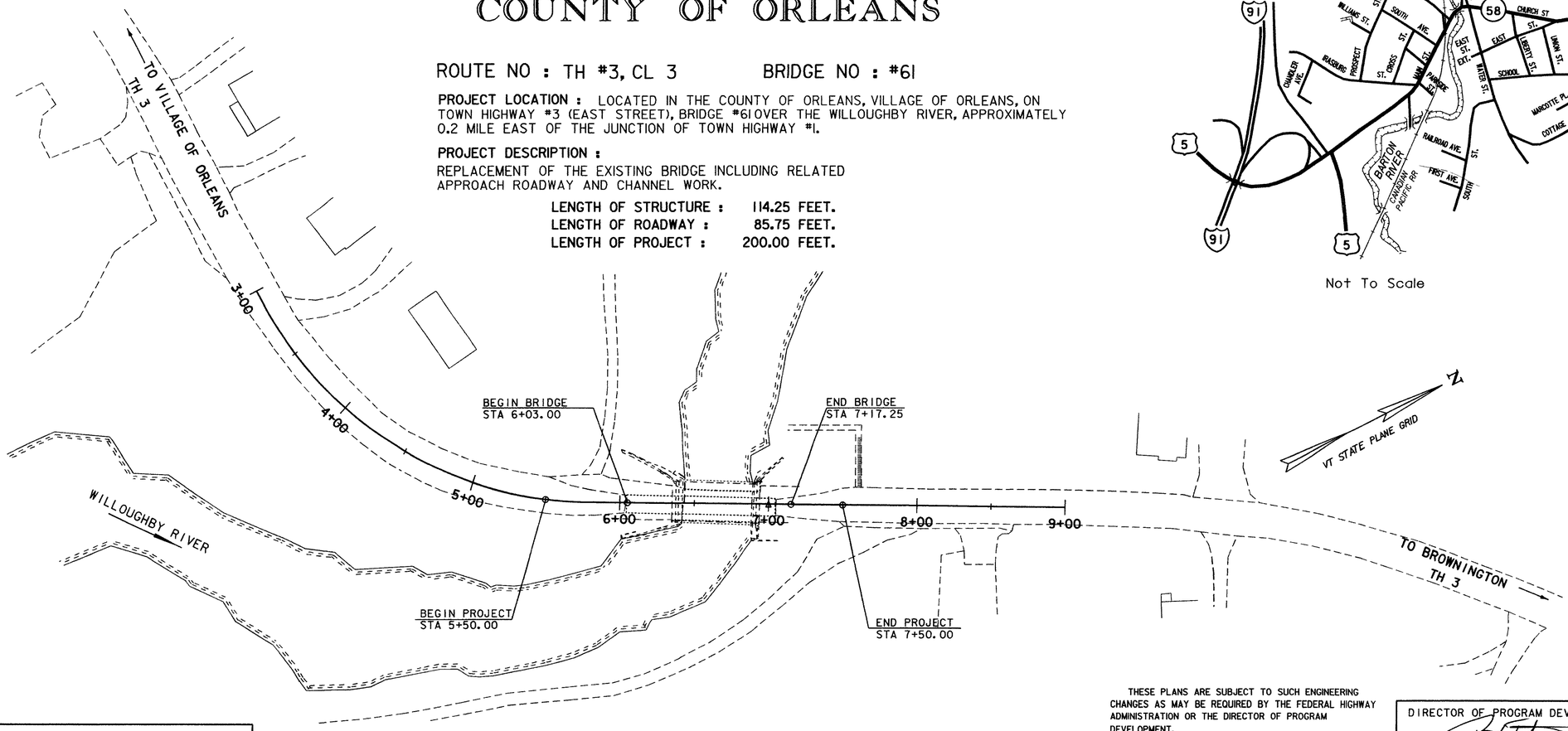
PROJECT DESCRIPTION :
REPLACEMENT OF THE EXISTING BRIDGE INCLUDING RELATED APPROACH ROADWAY AND CHANNEL WORK.

LENGTH OF STRUCTURE :	114.25 FEET.
LENGTH OF ROADWAY :	85.75 FEET.
LENGTH OF PROJECT :	200.00 FEET.





Not To Scale



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 : R. GILMAN
SURVEYED DATE : 10/2001

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (96)

SCALE 1" = 40'-0
40 0 40

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

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

sj168bdr.dgn sj168t1t.1 07-MAR-2007

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED Rick Taylor DATE 3/8/07

PROJECT MANAGER : W.B. SYMONDS

PROJECT NAME : BARTON
PROJECT NUMBER : BRO 1449 (29)

SHEET 1 OF 84 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET

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24.	EROSION AND SEDIMENT PREVENTION PLANS - CONSTRUCTION ENTRANCE	E-107	6/30/03
25.	EROSION AND SEDIMENT PREVENTION PLANS - CHECK DAMS	E-107A	8/8/95
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FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: October 2003

DRAINAGE AREA : 61.4 sq. mi.
CHARACTER OF TERRAIN : Hilly to mountainous. A mixture of forested and open areas.
STREAM CHARACTERISTICS : Steep upstream. Nearly level downstream. High steep banks.
NATURE OF STREAMBED : All exposed ledge with scattered cobbles in some areas.

PEAK FLOW DATA

Q 2.33 =	1570 cfs	Q 50 =	3730 cfs
Q 10 =	2680 cfs	Q 100 =	4400 cfs
Q 25 =	3290cfs	Q 500 =	6400 cfs

DATE OF FLOOD OF RECORD: November 1927
ESTIMATED DISCHARGE: unknown
WATER SURFACE ELEV.: unknown
NATURAL STREAM VELOCITY : @ Q25 = 6.0 fps through bridge area. 18.7 fps upstream.
ICE CONDITIONS : moderate
DEBRIS: moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes
IS ORDINARY RISE RAPID? Yes
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
IF YES, DESCRIBE:

WATERSHED STORAGE: 6% HEADWATERS: X
UNIFORM:
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single span rolled beam bridge with temporary Mabey bridge over it.
YEAR BUILT: Bridge built in 1939. Mabey bridge installed over it in 2001.
CLEAR SPAN(NORMAL TO STREAM): 42' minimum (47' along road)
VERTICAL CLEARANCE ABOVE STREAMBED: 27' (bottom of beam elev. 734.5')
WATERWAY OF FULL OPENING: 1,170 sq. ft.
DISPOSITION OF STRUCTURE: Complete removal.
TYPE OF MATERIAL UNDER SUBSTRUCTURE: Ledge

WATER SURFACE ELEVATIONS AT:

Q2.33 =	714.9'	VELOCITY =	6.8 fps *
Q10 =	717.5'	"	8.4 fps
Q25 =	718.7'	"	9.1 fps
Q50 =	719.5'	"	9.6 fps
Q100 =	720.6'	"	10.3 fps

LONG TERM STREAMBED CHANGES: None known and little expected due to ledge.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 740.4'
DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Barton DISTANCE: 5,500'
HIGHWAY#: T.H. 8 STRUCTURE #: 37
CLEAR SPAN: 90' CLEAR HEIGHT: 7.5'
YEAR BUILT: 1988 FULL WATERWAY: 600 sq. ft.+-
STRUCTURE TYPE: Single span plate girder bridge

DOWNSTREAM STRUCTURE

TOWN: Confluence with Barton River downstream DISTANCE: 3,800'
HIGHWAY#: STRUCTURE #:
CLEAR SPAN: CLEAR HEIGHT:
YEAR BUILT: FULL WATERWAY:
STRUCTURE TYPE:

LOAD FACTOR - LOAD RATING (TONS)

LOADING LEVELS	TRUCK						
	H	HS	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY	31	49					
POSTED	44	69	77		64	66	73
OPERATING		82	92	104	77	78	

COMMENTS:

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2006	740	140	56	3	20
2026	990	160	56	2	20

20 year ESAL for flexible pavement from 2006 to 2026 : 137,000
40 year ESAL for flexible pavement from 2006 to 2046 : 340,000
Design Speed : 30 mph

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span plate girder bridge.

CLEAR SPAN(NORMAL TO STREAM): 93.0' minimum (108' along road)
VERTICAL CLEARANCE ABOVE STREAMBED: 29'
WATERWAY OF FULL OPENING: 2,200 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	714.6'	VELOCITY=	4.7 fps *
Q10 =	717.0'	"	5.5 fps
Q25 =	718.1'	"	5.9 fps
Q50 =	718.8'	"	6.2 fps
Q100 =	719.8'	"	6.5 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 741.1'
DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 736.3'
VERTICAL CLEARANCE: @ Q100 = 16.5'

SCOUR: The new bridge will not constrict the channel. The stream bed is exposed ledge.
Scour is not a concern provided abutments are founded on competent ledge.
REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW:	90 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	45 cfs	0.5' except in pools
ORDINARY HIGH WATER:	600 cfs	3.0' except in pools **

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary required. The road will be closed during construction.
CLEAR SPAN (NORMAL TO STREAM):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

* Velocities listed for the bridges are the highest total stream velocities through the bridge. Velocities are much higher in localized areas and upstream.
** Ordinary high water depths are measured from the average channel bottom, or from the low water surface elevation in pool areas.

DESIGN CRITERIA

1. DESIGN LIVE LOAD AASHTO HS-25
2. DESIGN SPAN 110 ft.
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A
   ON LEDGE 8 KSF
4. ALLOWABLE LOAD FOR PILING N/A
   TYPE N/A
   ESTIMATED LENGTH N/A
5. STRUCTURAL STEEL AASHTO M270M/M270 GRADE M 270, Grade 50W
6. REINFORCING STEEL GRADE 60
7. CONCRETE, HIGH PERFORMANCE CLASS A fc: 4000 psi
   CONCRETE, HIGH PERFORMANCE CLASS B fc: 3500 psi
8. DESIGN SOIL UNIT WEIGHT 140 pcf
9. DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL N/A

TRAFFIC MAINTENANCE

1. IS TRAFFIC TO BE MAINTAINED? NO, BRIDGE CLOSED
   IF YES, ON EXISTING STRUCTURE? ---
   OR ON TEMPORARY BRIDGE? ---
   ONE OR TWO-WAY TRAVEL?
2. TRAFFIC CONTROL SIGNALS REQUIRED? ---
3. ARE SIDEWALKS REQUIRED? ---
   IF SO, ON WHAT SIDE? ---
4. ALTERNATE ROUTE DETOUR WILL BE PROVIDED, SEE SHEET 29.

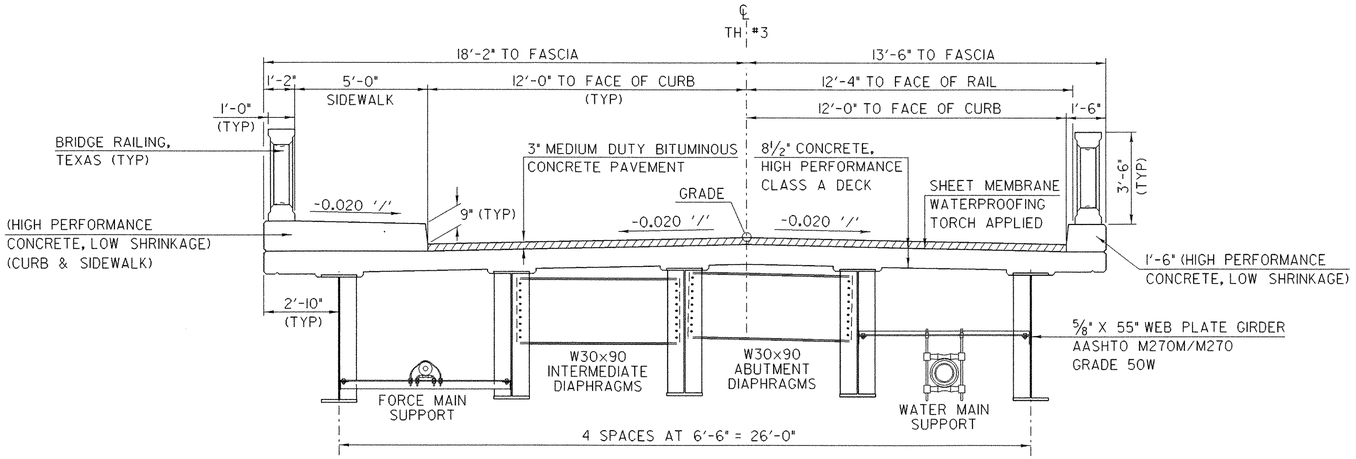
PROJECT NAME: **BARTON**
PROJECT NUMBER: **BRO 1449 (29)**

FILE NAME: /str5/01j168/sj168pi.xls
PROJECT LEADER: W. SYMONDS
DESIGNED BY: J. REED
PRELIMINARY INFORMATION SHEET

PLOT DATE: 3/29/2007
DRAWN BY: J. REED
CHECKED T. SUMNER

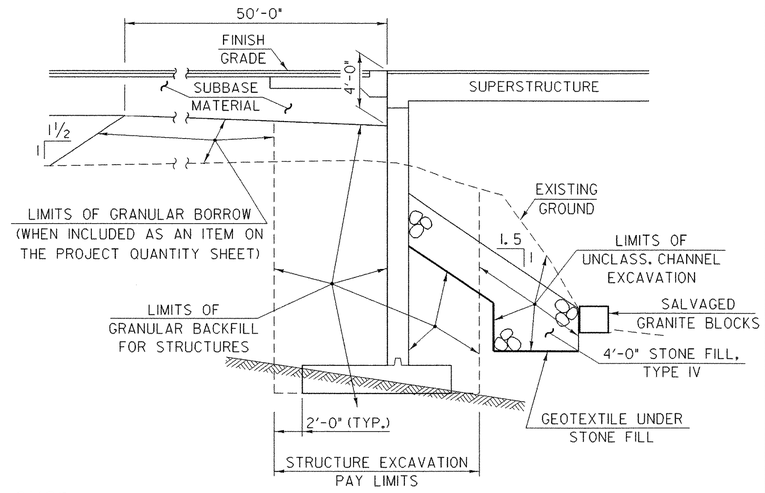
MATERIAL ITEM	TOLERANCE
PAVEMENT	±1/4" TOTAL THICKNESS
SUBBASE	± 1"

1½" MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT (PG 58-34), TYPE III OR TYPE IV over
1½" MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT (PG 58-34), TYPE III OR TYPE IV



BRIDGE TYPICAL SECTION

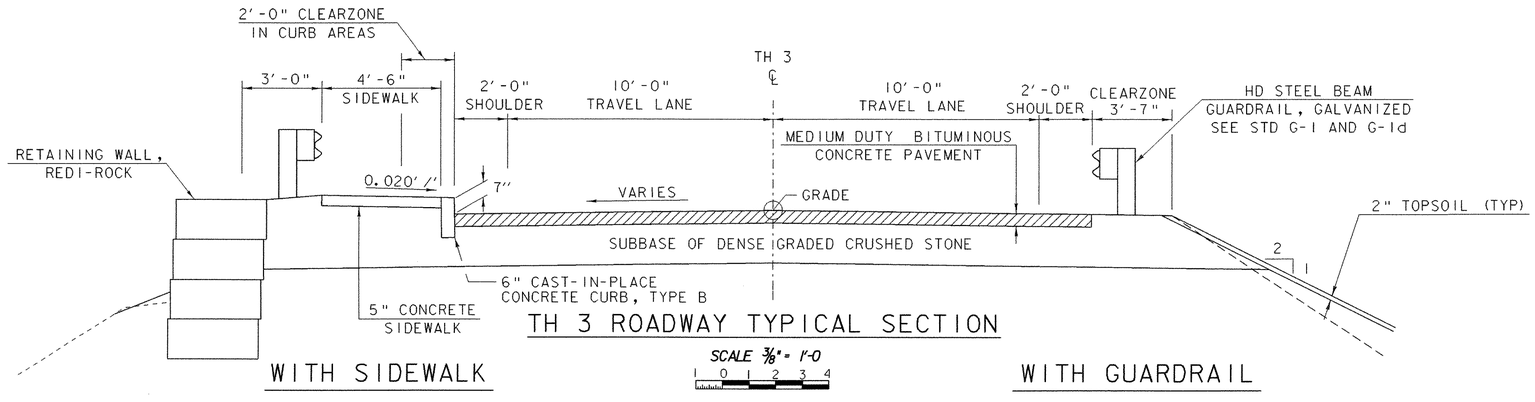
SCALE: 3/8" = 1'-0"



TYPICAL ABUTMENT SECTION

(NOT TO SCALE)

1½" MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT (PG 58-34), TYPE III OR TYPE IV over
2½" MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT (PG 58-34), TYPE I OR II over
VARIABLE DEPTH SUBBASE OF DENSE GRADED CRUSHED STONE (SEE SHEET 74 OF 84)



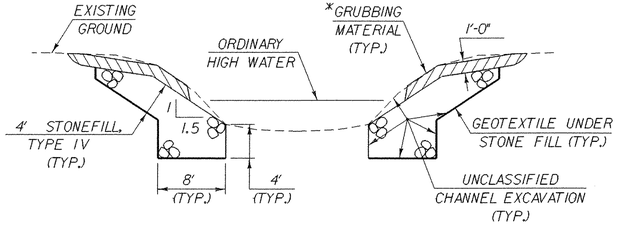
TH 3 ROADWAY TYPICAL SECTION

SCALE 3/8" = 1'-0

0 1 2 3 4

WITH SIDEWALK

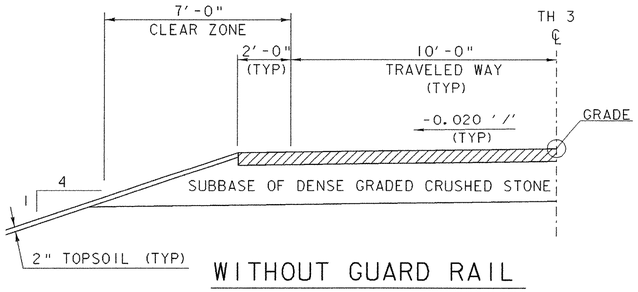
WITH GUARDRAIL



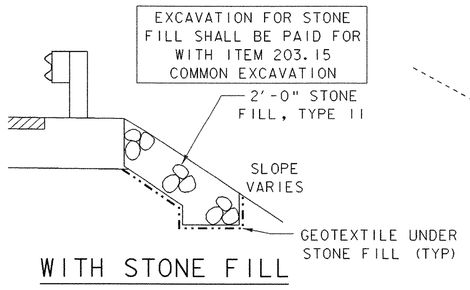
TYPICAL CHANNEL SECTION

(NOT TO SCALE)

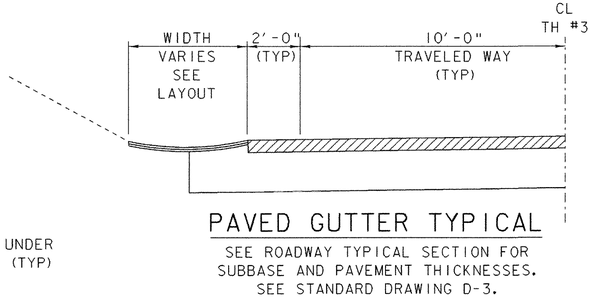
*GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.



WITHOUT GUARD RAIL



WITH STONE FILL



PAVED GUTTER TYPICAL

SEE ROADWAY TYPICAL SECTION FOR SUBBASE AND PAVEMENT THICKNESSES. SEE STANDARD DRAWING D-3.

NOTE: ALL DRIVES ON PROJECT WILL UTILIZE SUBBASE OF CRUSHED GRAVEL, FINE GRADED FOR THE SUBBASE MATERIAL.

TYPICAL SECTIONS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)
FILE NAME: /str5/01jl68/sjl68typ.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: W. SYMONDS
DESIGNED BY: W. SYMONDS	CHECKED BY: J. LACROIX
sjl68typ.i	SHEET 3 OF 84

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
			ROADWAY	TRAINING	EROSION CONTROL	UTILITIES	UTILITIES - (NON-PARTICIPATIN	BRIDGE	FULL E & C ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
			1							1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				
			630							630		CY	COMMON EXCAVATION	203.15				
								20		20		CY	SOLID ROCK EXCAVATION	203.16				
								645		645		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				
			150		10					160		CY	TRENCH EXCAVATION OF EARTH	204.20				
			5							5		CY	TRENCH EXCAVATION OF ROCK	204.21				
			1							1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				
			40					1135		1175		CY	STRUCTURE EXCAVATION	204.25				
								885		885		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
			270							270		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
			62							62		CY	SUBBASE OF CRUSHED GRAVEL, FINE GRADED	301.26				
			580							580		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
			2					1		3		CWT	EMULSIFIED ASPHALT	404.65				
			188					50		238		TON	MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT (PG 58-34)	406.27				
													BEGIN ALTERNATE ZA					
								94		94		CY	CONCRETE, HIGH PERFORMANCE CLASS A (FPQ)	501.33				
								94		94		CY	CONCRETE, HIGH PERFORMANCE CLASS A (SIPCMF)(FPQ)	501.33				
													END ALTERNATE ZA					
			6					299		305		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
								149000		149000		LB	STRUCTURAL STEEL, PLATE GIRDER	506.55				
								300		300		LB	STRUCTURAL STEEL	506.60				
								34500		34500		LB	REINFORCING STEEL	507.15				
								134		134		LF	DRILLING AND GROUTING DOWELS	507.16				
								29760		29760		LB	EPOXY COATED REINFORCING STEEL	507.17				
								1		1		LS	SHEAR CONNECTORS (780 - 7/8" x 7")	508.15				
								1		1		LS	STRUCTURAL PAINTING, SHOP APPLIED (7 TONS)	513.25				
								1		1		LS	SURFACE PREPARATION, SHOP (7 TONS)	513.40				
								32		32		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
								32		32		LF	BRIDGE EXPANSION JOINT, VERMONT	516.11				
								305		305		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
			62							62		LF	METAL HAND RAILING	525.15				
								132		132		SY	REMOVAL OF BRIDGE PAVEMENT	529.10				
			1							1		EACH	REMOVAL OF STRUCTURE (36 FEET - TIMBER STAIRS)	529.15				
								1		1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20				
								10		10		EACH	BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD	531.11				
								30		30		CY	CONCRETE, CLASS C	541.30				

PROJECT NAME: BARTON
PROJECT NUMBER: BRO 1449(29)

FILE NAME: /str5/01j168/sj168qs.xls
PROJECT MANAGER: W. SYMONDS
DESIGNED BY: J. LACROIX
QUANTITY SHEET #1

PLOT DATE: 04/02/2007
DRAWN BY: R. PELLETT
CHECKED BY: T. SUMNER
SHEET 4 OF 84

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES								TOTALS		DESCRIPTIONS			
ROADWAY	TRAINING	EROSION CONTROL	UTILITIES	UTILITIES - (NON-PARTICIPATIN	BRIDGE	FULL E & C ITEMS		GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
											BEGIN OPTION AA		
128								128		LF	18" CSP .079 (2-2/3 X 1/2)	601.0016	
128								128		LF	18" CAAP .075 (2-2/3 X 1/2)	601.0216	
128								128		LF	18" PCCSP .079 (2-2/3 X 1/2)	601.0416	
128								128		LF	18" CPEP	601.0915	
											END OPTION AA		
3								3		EACH	PRECAST REINFORCED CONCRETE CURB DI WITH CAST IRON GRATE	604.30	
62								62		LF	6 INCH UNDERDRAIN PIPE	605.10	
10								10		LF	6 INCH UNDERDRAIN CARRIER PIPE	605.20	
1								1		EACH	UNDERDRAIN FLUSHING BASIN	605.95	
		10						10		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25	
		2						2		MGAL	DUST CONTROL WITH WATER	609.10	
75								75		CY	STONE FILL, TYPE II	613.11	
					470			470		CY	STONE FILL, TYPE IV	613.13	
60								60		LF	CAST-IN-PLACE CONCRETE CURB, TYPE B	616.28	
12								12		TON	BITUMINOUS CONCRETE GUTTERS AND TRAFFIC ISLANDS	616.47	
40								40		SY	PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH	618.10	
6								6		SF	DETECTABLE WARNING SURFACE	618.30	
292.5								292.5		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21	
4								4		EACH	TERMINAL CONNECTOR FOR STEEL BEAM GUARDRAIL	621.53	
5								5		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60	
75								75		LF	REMOVE AND RESET GUARDRAIL	621.75	
420								420		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	
			141					141		LF	DUCTILE IRON PIPE, CEMENT-LINED (8")	629.24	
			1					1		EACH	GATE VALVE WITH VALVE BOX (8")	629.27	
			1					1		EACH	RELOCATE HYDRANT	629.29	
				260				260		LF	PLASTIC WATER PIPE, RIGID (2")	629.33	
			1					1		EACH	TAPPING SLEEVE AND VALVE WITH VALVE BOX	629.35	
			1					1		LS	TRANSFER TO NEW SYSTEM, WATER SYSTEM	629.42	
100								100		HR	FLAGGERS	630.15	
						1		1		LS	FIELD OFFICE, ENGINEERS	631.10	
						1		1		LS	TESTING EQUIPMENT, CONCRETE	631.16	
						1		1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17	
						1		1		LU	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.25	
	520							520		HR	EMPLOYEE TRAINEESHIP	634.10	
1								1		LS	MOBILIZATION/DEMOBILIZATION	635.11	
1								1		LS	TRAFFIC CONTROL	641.10	
800								800		LF	4 INCH WHITE LINE	646.20	
800								800		LF	4 INCH YELLOW LINE	646.21	
75								75		SY	GEOTEXTILE UNDER STONE FILL	649.31	

DETAILED SUMMARY OF QUANTITIES		
QUANTITIES	UNIT	ITEMS

PROJECT NAME: BARTON
PROJECT NUMBER: BRO 1449(29)

FILE NAME: /str5/01j168/sj168qs.xls
PROJECT MANAGER: W. SYMONDS
DESIGNED BY: J. LACROIX
QUANTITY SHEET #2

PLOT DATE: 04/02/2007
DRAWN BY: R. PELLETT
CHECKED BY: T. SUMNER

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
			ROADWAY	TRAINING	EROSION CONTROL	UTILITIES	UTILITIES - (NON-PARTICIPATIN	BRIDGE	FULL E & C ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
			115							115		SY	GEOTEXTILE FOR UNDERDRAIN TRENCH LINING	649.41				
			1667		40					1707		SY	GEOTEXTILE FOR SILT FENCE	649.51				
			30		10					40		LB	SEED	651.15				
			200							200		LB	FERTILIZER	651.18				
			1							1		TON	AGRICULTURAL LIMESTONE	651.20				
			1							1		TON	HAYMULCH	651.25				
			40							40		CY	TOPSOIL	651.35				
			110							110		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				
					20					20		SY	TEMPORARY EROSION MATTING	653.20				
					10					10		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
					35					35		CY	VEHICLE TRACKING PAD	653.35				
					3					3		EACH	INLET PROTECTION DEVICE, TYPE I	653.40				
					750					750		LF	PROJECT DEMARCATION FENCE	653.55				
			1							1		EACH	REMOVING SIGNS	675.50				
			1							1		EACH	ERECTING SALVAGED SIGNS	675.60				
								34		34		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, LOW SHRINKAGE)	900.608				
								40		40		GAL	SPECIAL PROVISION (WATER REPELLENT, SILANE)	900.625				
								221		221		LF	SPECIAL PROVISION (BRIDGE RAILING, TEXAS)	900.640				
							1			1		LS	SPECIAL PROVISION (SEWER MAIN ON BRIDGE) (2")	900.645				
						1				1		LS	SPECIAL PROVISION (WATER MAIN ON BRIDGE) (8")	900.645				
			27							27		SY	SPECIAL PROVISION (PRECAST CONCRETE GRAVITY RETAINING WALL)	900.675				

PROJECT NAME: BARTON
PROJECT NUMBER: BRO 1449(29)

FILE NAME: /str5/01j168/sj168qs.xls
PROJECT MANAGER: W. SYMONDS
DESIGNED BY: J. LACROIX
QUANTITY SHEET #3

PLOT DATE: 04/02/2007
DRAWN BY: R. PELLETT
CHECKED BY: T. SUMNER
SHEET 6 OF 84

STATE OF VERMONT
AGENCY OF TRANSPORTATION

EARTHWORKS

STATION	DIST FT.	TOTAL EXCAVATION EARTH AND ROCK AREA S.F.	TOTAL EXCAVATION EARTH AND ROCK VOLUME C.Y.	ROCK EXCAVATION AREA S.F.	ROCK EXCAVATION VOLUME C.Y.	EMBANKMENT AREA S.F.	EMBANKMENT VOLUME C.Y.	AREA S.F.	VOLUME C.Y.
4+75		8.7							
	25		28.0						
5+00		51.8							
	25		59.6						
5+25		77.0						CUT	438
	25		94.4					ROCK	0
5+50		126.8						R.FAC	.495
	25		130.8					FILL	0
5+75		155.7						F.FAC	1.15
	22		125.6					EX. C	438
5+97		152.5							
7+25		119.6							
	25		80.7						
7+50		54.7						CUT	151
	25		40.8					ROCK	0
7+75		33.4						R.FAC	.495
	25		29					FILL	0
8+00		29						F.FAC	1.15
								EX. C	151

STATION	DIST FT.	TOTAL EXCAVATION EARTH AND ROCK AREA S.F.	TOTAL EXCAVATION EARTH AND ROCK VOLUME C.Y.	ROCK EXCAVATION AREA S.F.	ROCK EXCAVATION VOLUME C.Y.	EMBANKMENT AREA S.F.	EMBANKMENT VOLUME C.Y.	AREA S.F.	VOLUME C.Y.

STATION	DIST FT.	TOTAL EXCAVATION EARTH AND ROCK AREA S.F.	TOTAL EXCAVATION EARTH AND ROCK VOLUME C.Y.	ROCK EXCAVATION AREA S.F.	ROCK EXCAVATION VOLUME C.Y.	EMBANKMENT AREA S.F.	EMBANKMENT VOLUME C.Y.	AREA S.F.	VOLUME C.Y.

SUMMARY AND BALANCES

STATION TO STATION	TOT EXC EARTH & ROCK C.Y.	ROCK EXCAV C.Y.	EMBANK C.Y.	EXCESSES CUT	EXCESSES FILL	ACUMULATIVE EXCESSES CUT	ACUMULATIVE EXCESSES FILL

REMARKS

EARTH AND ROCK EXCAVATION	589	
SOLID ROCK EXCAVATION		
EARTH EXCAVATION	589	
PLANIMETERED FILL	0	
LESS FACTORED SOLID ROCK	0	
LESS DISPLACEMENT OF ANY LARGE STRUCTURES		
NET PLANIMETERED FILL		
FACTOR		
PLANIMETERED FILL INCLUDING FACTOR	0	
MATERIALS AVAILABLE FOR FILLS		
EARTH EXCAVATION	589	
CHANNEL EXCAVATION	645	
UNDERDRAIN EXCAVATION	160	
STRUCTURE EXCAVATION	1175	
	60	
TOTAL MATERIAL AVAILABLE FOR FILL	2629	
TOTAL FILL INCLUDING FACTOR	0	
TOTAL MATERIAL FOR FILL	2629	
BORROW		
EXCESS EXCAVATION	2629	

PROJECT NAME: **BARTON**
PROJECT NUMBER: **BRO 1449(29)**

FILE NAME: **SJ168EW.XLS**
PROJECT LEADER: **W. SYMONDS**
DESIGNED BY: **J. LACROIX**
EARTHWORK SHEET #1

PLOT DATE: **12/19/2006**
DRAWN BY: **G. SHANGRAW**
CHECKED BY: **T. SUMNER**
SHEET **7** OF **84**

STATE OF VERMONT
AGENCY OF TRANSPORTATION

RIGHT - OF - WAY DETAIL SHEET

TABLE OF PROPERTY ACQUISITION

PARCEL NO.	PROPERTY OWNER	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKE	REMAINDER	RIGHT			RECORDING DATA					REMARKS
					AREA±	AREA±	TYPE	(T)/(P)	AREA ±	TITLE	DATE	TOWN / CITY	BOOK	PAGE	
1	SMITH, DAVID V. &	13	5+51.65 LT.	5+74.95 LT.			CONST.	(T)	61 SF			BARTON			INCLUDES PDF
	DEBORAH J.														
2	STATE OF VERMONT-	13	4+46.1 RT.	6+00.00 RT.			CONST.	(T)	731 SF			BARTON			INCLUDES PDF & EC
	AGENCY OF NATURAL RESOURCES		5+25.00 RT.	8+82.47 RT.			UTILITY	(P)	0.14 A						
	DEPARTMENT OF FISH & WILDLIFE		5+48.74 RT.				INSTALL	(P)							GUY WIRE
			5+33.71 RT.												DO NOT DISTURB
															GRANITE MONUMENT
			6+84.51 RT.	7+20.11 RT.			CONST.	(T)	298 SF						INCLUDES PDF & EC
			6+86.26 RT.	7+29.00 RT.			CHANNEL	(P)	279 SF						
			6+86.26 RT.	7+12.17 RT.			DRAINAGE	(P)							
			7+12.17 RT.	7+60.07 RT.			CULVERT	(P)							INCLUDES DROP INLET
			7+21.74 RT.	8+08.55 RT.			CONST.	(T)	354 SF						INCLUDES PDF
			7+60.00 RT.				DRIVE	(T)							11' GRAVEL IN COMMON/TARBOX
			8+00.00 RT.				INSTALL	(P)							GUY WIRE
3A	BLODGETT, DAVID &	13	7+11.20 LT.	8+02.46 LT.	2345 SF							BARTON			TO BE TRANSFERRED TO FISH &
	NAULT, MILDRED														WILDLIFE, DO NOT DISTURB - FENCE
3B		13	7+09.14 LT.	7+50.00 LT.	242 SF										
3C		13	7+09.14 CL.	8+02.46 LT.	2262 SF		ALL R.T. & I.								HWY. EASE. TH 3
4A	BLODGETT, DAVID &	13	6+71.18 LT.	7+18.31 LT.	1071 SF							BARTON			(DISPUTED PARCEL) TO BE TRANSFER
	NAULT, MILDRED &														TO FISH & WILDLIFE
	STATE OF VERMONT-														
	AGENCY OF NATURAL RESOURCES														
	DEPARTMENT OF FISH & WILDLIFE														
4B		13	6+70.56 LT.	7+11.20 LT.	292 SF										
4C		13	6+70.56 CL	7+09.14 LT.	893 SF		ALL R.T. & I.								HWY. EASE. TH 3
5	VILLAGE OF ORLEANS, INC. &	13	6+24.13 LT.	6+42.42 LT.			CONST.	(T)	176 SF			BARTON			INCLUDES PDF (DISPUTED PARCEL)
	STATE OF VERMONT-		6+24.13 LT.	6+42.42 LT.			DRAINAGE	(P)							
	AGENCY OF NATURAL RESOURCES		6+26.14 LT.	6+31.41 LT.			CHANNEL	(P)	4 SF						
	DEPARTMENT OF FISH & WILDLIFE														
6	VILLAGE OF ORLEANS, INC.														UTILITY
	(WATER & SEWER & ELECTRIC)														
7	VERISON NEW ENGLAND, INC.														UTILITY
8	ADELPHIA TELECOMMUNICATIONS, INC.														UTILITY

TABLE OF REVISIONS

REVISION NO.	SHEET NO.	DESCRIPTION	DATE
1	12	PARCEL NO. 2 STATE OF VERMONT - AGENCY OF NATURAL	11/21/05
		RESOURCES DEPARTMENT OF FISH & WILDLIFE.	
		CHANGE BEGINNING STA. OF CONST. (T) AT STA. 6+81.51 RT	
		TO STA. 6+84.51 RT.	
		CHANGE ENDING STA. OF CHANNEL (P) FROM STA. 7+39.00	
		RT. TO STA. 7+29.00 RT. PER C.O. 9446.	
		MADE BY: MR APPROVED BY: RD	
2	12	PARCEL NO. 3. BLODGETT. CHANGE AREA OF TAKING FOR	11/21/05
		PARCEL 3B FROM 150 SF± TO 242 SF±. PER C.O. 9447	
		MADE BY: MR APPROVED BY: RD	

PLAN LEGEND

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

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

APPROVED: ROGER P. DUMAS DATE: 05-02-05
CHIEF, PLANS & TITLES

PLOT DATE 03/28/07

PROJECT NAME: **BARTON**
PROJECT NUMBER: **BRO 1449(29)**

FILE NAME: **01j168det.xls**
PROJECT LEADER: **C. S. KELLER**
DESIGNED BY: **J. Reed**
R.O.W. SHEET 12 OF 13

PLOT DATE:
DRAWN BY: **W. B. SYMONDS**
CHECKED BY: **0**
SHEET **8** OF **84**

DRAINAGE KEY

①	5+00 - 5+66 LT NEW 6" X 62' UNDERDRAIN W/ F.B. @ INLET	⑤	7+05 - 8+02 RT REMOVE EXISTING 18" CGMP REMOVE DROP INLET AT/8+02 RT
②	4+75 LT - 5+74 LT NEW PAVED GUTTER	⑥	8+04-8+60 RT EXISTING 15" CGMP - DO NOT DISTURB
③	7+34 - 8+02 RT NEW 18" X 68' OPTION PIPE NEW 4' x 4' PRECAST DI W/ TYPE "D" GRATE @ INLET	⑦	7+12 - 7+34 RT NEW 18" X 20' OPTION PIPE NEW 4' x 4' PRECAST DI W/TYPE "D" GRATE @ INLET
④	5+66 - 6+04 LT NEW 18" X 40' OPTION PIPE NEW 4' x 4' PRECAST DI W/ TYPE "D" GRATE @ INLET		

EXISTING BRIDGE DATA
STEEL BEAM WITH CONCRETE DECK
LENGTH = 59'
WIDTH = 20' CURB TO CURB
SIDEWALK = 5'
BUILT IN 1939

EXISTING TEMPORARY BRIDGE DATA
MABEY BRIDGE SPANNING EXISTING
LENGTH = 100'
WIDTH = 14' CURB TO CURB
ERECTED IN 2001

CURVE #1 DATA
R = 249.10'
T = 146.63'
L = 265.05'
E = 39.95'
BANK = .060 MAX

BENCHMARK
RR SPIKE IN LEDGE
ELEV. 747.550

CONSTRUCT CAST IN-PLACE STAIRS (CONCRETE, HIGH PERFORMANCE CLASS B)
STA. 7+75 LT

METAL HAND RAILING
STA. 7+73.5 (18.4 LT. to 49.4 LT.)
STA. 7+76.5 (18.4 LT. to 49.4 LT.)

BRIDGE RAILING, TEXAS
STA. 6+03.0 - 7+14.58 LT.
STA. 6+03.0 - 7+15.33 RT.

HD STEEL BEAM GUARDRAIL, GALVANIZED
STA. 5+31 - 6+04 RT.
STA. 5+97 - 6+04 LT
STA. 7+13.6 - 7+72 LT.
STA. 7+14.3 - 7+34.0 RT.

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 5+24 - 5+97 RT.
STA. 5+78 - 6+35 RT.
STA. 5+94 - 6+01 LT.
STA. 6+01 - 6+35 LT.
STA. 6+95 - 7+31 RT.
STA. 7+06 - 7+31 RT.
STA. 7+06 - 7+30 LT.
STA. 6+97 - 8+57 LT.

ANCHOR FOR STEEL BEAM RAIL
STA. 5+31 RT.
STA. 7+34 RT.
STA. 7+72 LT.

REMOVAL OF MEDIUM TREES (INCIDENTAL TO CLEARING AND GRUBBING)
STA. 5+83 LT.

REMOVING SIGNS
STA. 8+02 RT.

ERECTING SALVAGED SIGNS
STA. 8+02 RT.

CONSTRUCT DRIVE
STA. 5+82 LT. 8.5' GRAVEL
STA. 7+60 RT. 11' GRAVEL

SUBBASE FOR DRIVES SHALL BE ITEM 301.26 SUBBASE OF CRUSHED GRAVEL, FINE GRADED

REMOVE AND RESET GUARDRAIL
STA. 4+50 - 5+19 RT.

COLD PLANING BITUMINOUS PAVEMENT
STA. 4+50 - 5+00
STA. 8+00 - 8+50

PRECAST CONCRETE GRAVITY RETAINING WALL
STA. 7+25 - 7+73 LT.

STONE FILL TYPE II
STA. 4+75 - 6+08.5 RT.
STA. 5+29.9 -6+08.5 LT.
STA. 7+14 - 7+27.2 RT.
STA 7+14 - 7+31.1 LT.

REMOVAL OF EXISTING WOODEN STAIRS
STA. 7+60 LT.

4 INCH YELLOW LINE
STA. 4+50 - 8+50 LT.
STA. 4+50 - 8+50 RT.

4 INCH WHITE LINE
STA. 4+50 - 8+50 LT.
STA. 4+50 - 8+50 RT.

PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH
STA. 7+17.25 - 7+73 LT.

PARCEL #4 & #5 ARE DISPUTED PARCELS
STATE OF VERMONT FISH & WILDLIFE
BLODGETT, DAVID & NAULT, MILDRED
VILLAGE OF ORLEANS INC.

SMITH, DAVID V. & DEBORAH J.

VILLAGE OF ORLEANS INC.

STATE OF VERMONT FISH & WILDLIFE

BLODGETT, DAVID & NAULT, MILDRED

DISPUTED PARCEL

DISPUTED PARCEL

MAINLINE POT STA 7+25.00 = CHANNEL LINE STA 23+25.00
DELTA = 90° RT.

STAIRS POT STA 70+60.00

MAINLINE POT STA 7+75.00= STAIRS POT STA 70+00.00
DELTA = 90° LT.

DO NOT DISTURB FENCE

REMOVE

DRAINAGE (P)

CONST (T)

CHANNEL (P)

LIMITS OF PAVED GUTTER

LIMITS OF PAVEMENT

TH 3

TH 3 TO BROWINGTON

TO VILLAGE OF ORLEANS

TO BROWINGTON

INSTALL (P)

UE (P)

DRIVE (T)

CUL (P)

REMOVE & RESET

DEPT. OF FISH AND GAME

BENCHMARK
CHISELED SQUARE ON BOULDER
ELEV. 744.494

BEGIN APPROACH
STA 4+50.00

BEGIN PROJECT
STA 5+50.00

BEGIN BRIDGE
STA. 6+03.00

END PROJECT
STA 7+50.00

END APPROACH
STA 8+50.00

APPROX LOCATION OF AERIAL UTILITY RELOCATION DONE BY OTHERS

PI 4+58.87 bk = 4+30.66 ahd

2-45 bends

4" x 2" reducer

4" DIP

8" G.V.

6" G.V.

4" c900 insulated

22½° bend

45° bends

6+73.42 53.80LT

6+71.18 30.00' LT

6+70.56 23.26LT.

6+70.56 CL

7+09.14 CL

7+18.31 53.80' LT

7+11.20 30.00' LT

7+09.14 22.97' LT

7+17.85 40.02'

7+50.00 24.75' LT

8+02.46 47.20' LT

8+02.46 24.75' LT

8+02.46 CL

7+60.00 30.00' LT

5.25

27.46

52.46'

93.32'

44.89

56.69

38.80'

38.58'

40.86'

END R.O.W. PROJECT
BRO 1449(29)
STA. 8+82.47
32.12' RT

BEGIN R.O.W. PROJECT
BRO 1449(29) STA. 4+46.10
24.10' RT.

ROW TO N/F TARBOX, W.

N62° 25' 00.33" W

N27° 34' 59.67" E
Channel Line

20+00 21+00 22+00 23+00 24+00 25+00 8+00 9+00

STATE OF VERMONT FISH & WILDLIFE

SCALE 1" = 20'-0
20 0 20

FOR EROSION CONTROL SEE SHEET 10 OF 13

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

FOR R.O.W. USE ONLY

LAYOUT SHEET

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)
FILE NAME: /str5/01jl68/sjl68bdr.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: W. SYMONDS
DESIGNED BY: W. SYMONDS	CHECKED BY: T. SUMNER
sjl68layout.l	R.O.W. SHEET 13 OF 13 SHEETS — SHEET 9 OF 84 SHEETS

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GPS CONTROL POINTS

HVCTRL #1

STANDARD DISC STAMPED

RAINDOW AZ

** N = 48127.423

E = 17026.428

ELEV. =

GENERAL LOCATION, IRASBURG, VT. TO REACH FROM THE INTERSECTION OF I-91 AND I-191 AT EXIT 27 IN DERBY GO SOUTH ALONG I-91 SOUTHBOUND FOR 7.2 MI (11.6 KM) TO MILE MARKER 162.90 ON THE RIGHT AND THE SITE OF THE MARK ON THE RIGHT ON A GRASSY SLOPE ABOVE THE SOUTHWEST END OF A ROCK CUT. IT IS 1.4 MI (2.3 KM) NORTH ALONG I-91 FROM EXIT 26 IN ORLEANS. THE MARK IS SET IN THE TOP OF A 2.0 M (6.6 FT) X 0.5 M (1.6 FT) ROCK OUTCROP WHICH PROJECTS ABOUT 10 CM ABOVE GROUND SURFACE. IT IS 31.0 M (101.7 FT) (SLOPE) NORTHWEST OF THE NORTHWEST EDGE OF PAVEMENT OF I-91 SOUTHBOUND, 39.3 M (128.9 FT) (SLOPE) SOUTHEAST OF THE RIGHT-OF-WAY FENCE, 36.8 M (120.7 FT) SOUTHWEST OF A 35 CM ASH, 24.7 M (81.0 FT) NORTHEAST OF A 25 CM ELM, AND 1.4 M (4.6 FT) NORTHWEST OF A FIBERGLASS WITNESS POST.

HVCTRL #2

STANDARD DISC STAMPED

RAINBOW

** N = 43347.296

E = 20148.236

ELEV. = 762.57

GENERAL LOCATION, BARTON, VT., IN THE VILLAGE OF ORLEANS. TO REACH FROM THE MOST EASTERLY INTERSECTION OF VT ROUTE 58 AND U.S.ROUTE 5 GO NORTHEAST ALONG VT ROUTE 58 FOR 0.6 MI (1.0 KM) TO THE INTERSECTION OF WILLOUGHBY AVENUE LEFT. TURN LEFT AND GO NORTHEAST ALONG WILLOUGHBY AVENUE FOR 0.25 MI (0.40 KM) TO THE SITE OF THE MARK ON THE LEFT, ABOUT OPPOSITE THE ENTRANCE DRIVE TO THE PLEASANT VIEW CEMETERY. THE MARK IS SET 4 CM BELOW GROUND SURFACE IN THE TOP OF A 30 CM DIAMETER CONCRETE MONUMENT. IT IS 5.6 M (18.4 FT) NORTHWEST OF AND ABOUT 0.1 M (0.3 FT) LOWER THAN THE CENTERLINE OF WILLOUGHBY AVENUE, 24.4 M (80.1 FT) NORTH NORTHWEST OF THE MOST NORTHEASTERLY BRICK MASONRY GATE POST FOR THE CEMETERY, 16.8 M (55.1 FT) WEST OF POLE NO 12, AND 13.3 M (43.6 FT) SOUTHWEST OF A GUY POLE AND A FIBERGLASS WITNESS POST.

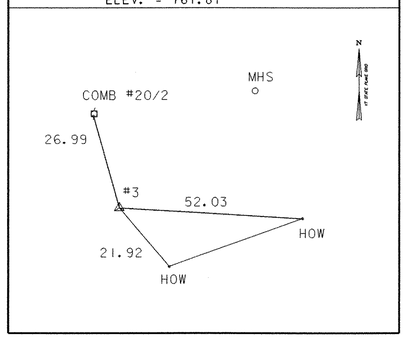
** TO ALLOW THE AGENCY DESIGN PLANE COORDINATES TO FIT THE STATE PLANE COORDINATES, ADD 800000 TO THE NORTHING & ADD 1700000 TO THE EASTINGS, TO THE ABOVE AND BELOW VALUES.

* DESCRIPTION PROVIDED BY VERMONT AGENCY OF TRANSPORTATION GEODETIC SURVEY UNIT

TRAVERSE TIES

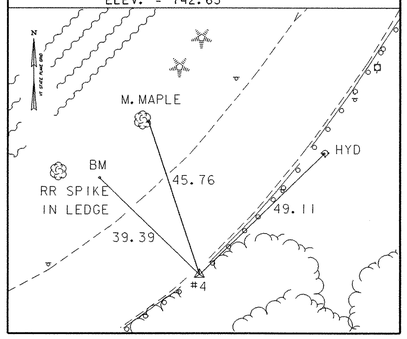
HVCTRL #3

NORTH = 42590.49
EAST = 19236.02
ELEV. = 761.87



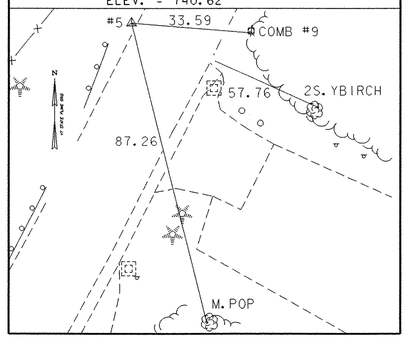
HVCTRL #4

NORTH = 42690.55
EAST = 19735.20
ELEV. = 742.63



HVCTRL #5

NORTH = 43038.32
EAST = 19909.48
ELEV. = 740.62



NORTH =
EAST =
ELEV. =

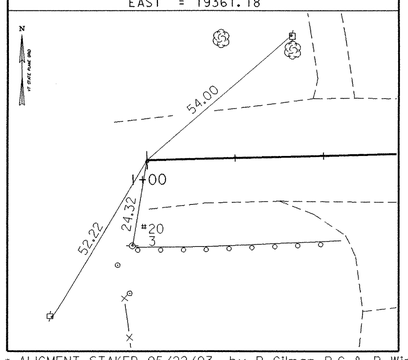
NORTH =
EAST =

* MAIN TRAVERSE COMPLETED : OCTOBER 21, 2001 BY R.GILMAN, P.WINTERS, T.WILSON, & D.BREER

ALIGNMENT TIES

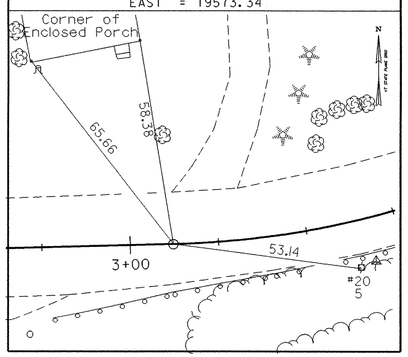
POT 1+00.00

NORTH = 42638.16
EAST = 19361.18



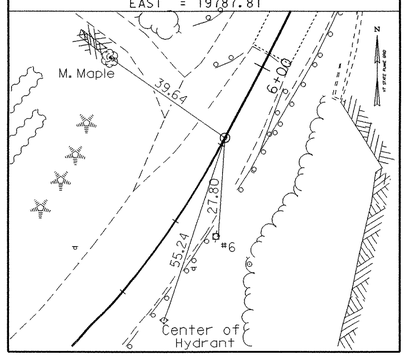
PC 3+12.24

NORTH = 42643.54
EAST = 19573.34



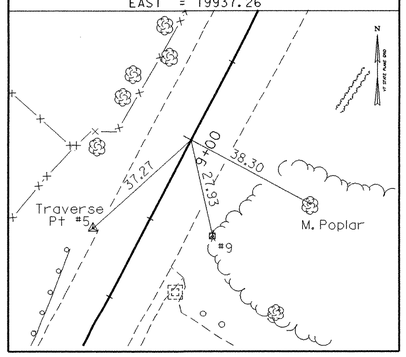
PT 5+77.29

NORTH = 42777.22
EAST = 19787.81



POT 9+00.00

NORTH = 43063.24
EAST = 19937.26



NORTH =
EAST =

* ALIGMENT STAKED 05/22/03 by R. Gilman P.C. & P. Winters

DATUM

VERTICAL NAVD 88

HORIZONTAL NAD-83 (96)

ADJUSTMENT COMPASS

TIE SHEET

PROJECT NAME: BARTON
PROJECT NUMBER: BRO 1449(29)

FILE NAME: 01j168/survey/xj168ti.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: J. REED
sj168ti.i

PLOT DATE: 02-APR-2007
DRAWN BY: J. H. & R. B.
CHECKED BY: T. SUMNER
SHEET 14 OF 84

CURVE #1 DATA
R = 249.10'
T = 146.63'
L = 265.05'
E = 39.95'
BANK = .060 MAX

BENCHMARK
RR SPIKE IN LEDGE
ELEV. 747.550

EXISTING BRIDGE DATA
STEEL BEAM WITH CONCRETE DECK
LENGTH = 59'
WIDTH = 20' CURB TO CURB
SIDEWALK = 5'
BUILT IN 1939

EXISTING TEMPORARY BRIDGE DATA
MABEY BRIDGE SPANNING EXISTING
LENGTH = 100'
WIDTH = 14' CURB TO CURB
ERECTED IN 2001

CONSTRUCT CAST IN-PLACE STAIRS (CONCRETE, HIGH PERFORMANCE CLASS B)
STA. 7+75 LT

METAL HAND RAILING
STA. 7+73.5 (18.4 LT. to 49.4 LT.)
STA. 7+76.5 (18.4 LT. to 49.4 LT.)

BRIDGE RAILING, TEXAS
STA. 6+03.0 - 7+14.58 LT.
STA. 6+03.0 - 7+15.33 RT.

HD STEEL BEAM GUARDRAIL, GALVANIZED
STA. 5+31 - 6+04 RT.
STA. 5+97 - 6+04 LT
STA. 7+13.6 - 7+72 LT.
STA. 7+14.3 - 7+34.0 RT.
STA. 7+76 - 8+67 LT.

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 5+24 - 5+97 RT.
STA. 5+78 - 6+35 RT.
STA. 5+94 - 6+01 LT.
STA. 6+01 - 6+35 LT.
STA. 6+95 - 7+31 RT.
STA. 7+06 - 7+31 RT.
STA. 7+06 - 7+30 LT.
STA. 6+97 - 8+57 LT.

ANCHOR FOR STEEL BEAM RAIL
STA. 5+25 RT. STA. 7+76 LT.
STA. 5+31 RT. STA. 8+67 LT.
~~STA. 5+97 LT.~~
STA. 7+34 RT.
STA. 7+72 LT.

REMOVAL OF MEDIUM TREES (INCIDENTAL TO CLEARING AND GRUBBING)
STA. 5+83 LT.

REMOVING SIGNS
STA. 8+02 RT.

ERECTING SALVAGED SIGNS
STA. 8+02 RT.

CONSTRUCT DRIVE
STA. 5+82 LT. 8.5' GRAVEL
STA. 7+60 RT. 11' GRAVEL

SUBBASE FOR DRIVES SHALL BE ITEM 301.26 SUBBASE OF CRUSHED GRAVEL, FINE GRADED

REMOVE AND RESET GUARDRAIL
~~STA. 4+50 - 5+19 RT.~~
STA. 4+60 - 5+25 RT.

DETECTABLE WARNING SURFACE
STA. 5+88 LT.
STA. 7+89 LT.

COLD PLANING BITUMINOUS PAVEMENT
STA. 4+50 - ~~5+00~~ 4+96
STA. ~~8+00~~ 8+16 - 8+50

PRECAST CONCRETE GRAVITY RETAINING WALL
STA. 7+25 - 7+73 LT.

STONE FILL TYPE II
STA. 4+75 - 6+08.5 RT.
STA. 5+29.9 -6+08.5 LT.
STA. 7+14 - 7+27.2 RT.
STA 7+14 - 7+31.1 LT.

REMOVAL OF EXISTING WOODEN STAIRS
STA. 7+60 LT.

4 INCH YELLOW LINE
~~STA. 4+50 - 8+50 LT.~~
~~STA. 4+50 - 8+50 RT.~~
STA. 4+15 - 8+70 LT. & RT.

4 INCH WHITE LINE
~~STA. 4+50 - 8+50 LT.~~
~~STA. 4+50 - 8+50 RT.~~
STA. 4+40 - 8+65 LT. & RT.

PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH
STA. 5+90 - 6+03 LT.
STA. 7+17.25 - 7+~~73~~ 89 LT.

MAINLINE POT STA 7+25.00 =
CHANNEL LINE STA 23+25.00
DELTA = 90° RT.

STAIRS POT STA 70+60.00

MAINLINE POT STA ~~7+75.00~~ 7+75.50
STAIRS POT STA 70+00.00
DELTA = 90° LT.

PT STA 5+77.29

PI 4+58.87 bk =
4+30.66 ahd

BEGIN APPROACH
STA 4+50.00

BEGIN PROJECT
STA 5+50.00

BEGIN BRIDGE
STA. 6+03.00

END BRIDGE
STA. 7+17.25

LIMITS OF PAVEMENT

END PROJECT
STA 7+50.00

END APPROACH
STA 8+50.00

BENCHMARK
CHISELED SQUARE
ON BOULDER
ELEV. 744.494

DEPT. OF FISH AND GAME
REMOVE & RESET

N62°25'00.33"W

N27°34'59.67"E
Channel Line

WILLOUGHBY RIVER

TO VILLAGE OF ORLEANS

TH 3 TO BROWINGTON

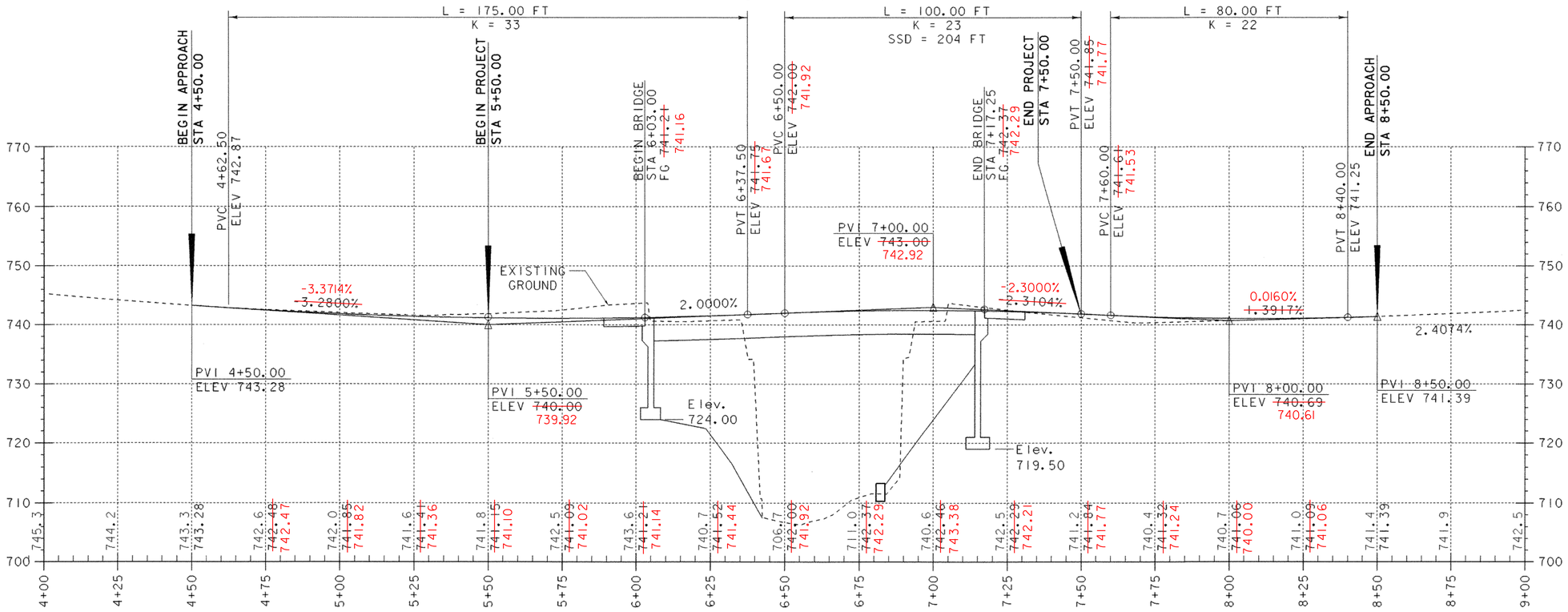
VT STATE PLANE GRID

SCALE 1" = 20'-0
20 0 20

LAYOUT SHEET

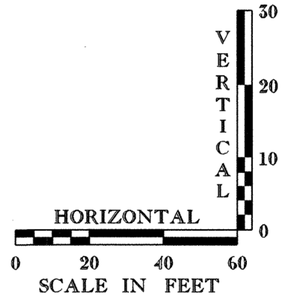
PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)
FILE NAME: /str5/01j168/sj168bdr.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: W. SYMONDS
DESIGNED BY: W. SYMONDS	CHECKED BY: T. SUMNER
sj168layout.i	SHEET 15 OF 84

PROFILE TH 3



NOTE: EXISTING CENTERLINE ELEVATIONS ARE SHOWN TO THE TENTH.
PROPOSED CENTERLINE ELEVATIONS ARE SHOWN TO THE HUNDREDTH.

NOTE - FINISHED GRADE REVISED TO MINIMIZE THE HAUNCH DEPTHS AFTER GIRDER PROFILES WERE TAKEN.



PROFILE SHEET

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)

FILE NAME: /str5/01jl68/sjl86xs.dgn		PLOT DATE:	02-APR-2007
PROJECT LEADER:	W. SYMONDS	DRAWN BY:	J. REED
DESIGNED BY:	J. REED	CHECKED BY:	T. SUMNER
sjl68pro.i		SHEET 16	OF 84

DRAINAGE KEY

1	5+00 - 5+66 LT NEW 6" X 62' UNDERDRAIN W/ F.B. @ INLET	5	7+05 - 8+02 RT REMOVE EXISTING 18" CGMP REMOVE DROP INLET AT 8+02 RT
2	4+75 LT - 5+74 LT NEW PAVED GUTTER	6	8+04-8+60 RT EXISTING 15" CGMP - DO NOT DISTURB
3	7+34 - 8+02 RT NEW 18" X 68' OPTION PIPE NEW 4' x 4' PRECAST DI W/ TYPE "D" GRATE @ INLET	7	7+12 - 7+34 RT NEW 18" X 20' OPTION PIPE NEW 4' x 4' PRECAST DI W/TYPE "D" GRATE @ INLET
4	5+66 - 6+04 LT NEW 18" X 40' OPTION PIPE NEW 4' x 4' PRECAST DI W/ TYPE "D" GRATE @ INLET		
4	NOTE-OUTLET END CAST THRU WING WALL #1		

VT STATE PLANE GRID

3+00

TO VILLAGE OF ORLEANS

P. 5
E. 5
RPL W/ 45'-3SPP
RPL ANCHOR W/ 1" TTA
STA 3+62
13' RT

22½° bend 4+00

8" DIP water

AER E&T

LIMITS OF PAVED GUTTER

T.B.

1 2

22½° bend 5+00

6" G.V.

8" G.V.

4 6+00

2-45 bends

4" DIP

4" c900 Insulated

AER E&T

P. 25

APPROX LOCATION OF AERIAL UTILITY RELOCATION DONE BY OTHERS

P. 6
E. 6
(RMV 40'-4SPC '85)
PL 50'-2SPP
PL 1" TTA
PL 10M PAG
(RM ANC&G08)
STA 5+53
27' RT

7 3 7+00

P. 7
E. 7
(RM 35-5SPP '79)

2-45 bends 5

8+00

4" x 2" reducer

+25

+75

9+00

TH 3 TO BROWINGTON

TYPE II STONE FILL

6

2" GSP

P. 9
E. 9
(RM 35-5SPP '79)
PL PUSH BRACE
RPL P. 9 W/ 45'-3SPP
STA 8+79
18' RT

NEW P. 7
PL 50'-2
PL AVG
STA 8+00
32' RT

JOHN MORLEY - VILLAGE OF ORLEANS POWER
PHONE NUMBER - 754-6913

DEPT. OF FISH AND GAME
REMOVE & RESET

SCALE 1" = 20'-0
20 0 20

DRAINAGE & UTILITIES SHEET

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

FILE NAME: /str5/01j168/sj168bdr.dgn		PLOT DATE:	02-APR-2007
PROJECT LEADER:	W. SYMONDS	DRAWN BY:	W. SYMONDS
DESIGNED BY:	W. SYMONDS	CHECKED BY:	T. SUMNER
sj168utldrain.1		SHEET 17	OF 84

STATE OF VERMONT
AGENCY OF TRANSPORTATION

DRAINAGE DETAIL SHEET

STATION	STATION	POS.	KEY	INLET/OUTLET TYPE		DITCH		UNDERDRAIN			PIPE		ALLOWABLE OPTIONS						PIPE ELBOW	PRE-CAST DROP INLET	PRE-CAST CATCH BASIN	PRCDI	DEPTH DI	CONC CLASS B	REINF STEEL	DI GRATE	CHAN ELEV	CRM	TRENCH EXCAVATION		COMM EXC	UNC CHAN EXC	STRUCT EXCAV	SOLID ROCK EXCAV	GRAN BORR	GEOTEX TILE FABRIC	STONE FILL		MARKER POSTS		KEY		REMARKS
				INLET	OUTLET	IN	OUT	D IN	L FT		D IN	L FT	RCP (A)	PCCSP (B)	CAAP (C)	CPEP (D)	CSP (E)		NO. DEG	EA	EA		FT	CY	LBS	TYPE	EA	CY	EARTH CY	ROCK CY	CY	CY	CY	CY	CY	SY	CY	TYPE	LT EA	RT EA			
5+00	5+66	LT	1	FB	PCDI			6	62																			12												1		NEW 6" x 62' UNDERDRAIN w/ F.B. @ INLET
4+75	5+74	LT	2																									16												2		NEW PAVED GUTTER
7+34	8+02	RT	3	PCDI	PCDI						18	68								1						D			36												3		NEW OPTION PIPE @ 7+34 RT w/ TYPE "D" GRATE
5+66	6+04	LT	4	PCDI							18	40								1						D			21												4		NEW OPTION PIPE @ 5+66 LT w/ TYPE "D" GRATE
7+05	8+02	RT	5		PCDI						18	95																	51	3											5		REMOVE PIPE & EXISTING DI @ 7+05 RT
8+04	8+60	RT	6	PCDI	PCDI																																			6		EXISTING 15" CGMP - DO NOT DISTURB
7+12	7+34	RT	7	PCDI							18	20								1						D			11												7		NEW OPTION PIPE @ 7+12 RT w/ TYPE "D" GRATE
TOTALS											18	223								3						3-D			147	3												

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)
FILE NAME:	/str5/01j168/sj168drn.xls
PROJECT LEADER:	W. SYMONDS
DESIGNED BY:	G. SHANGRAW
DRAINAGE DETAIL SHEET	
PLOT DATE:	2/6/2007
DRAWN BY:	R. PELLETT
CHECKED BY:	J. LACROIS
SHEET	18 OF 84

STATE OF VERMONT
AGENCY OF TRANSPORTATION

EROSION CONTROL NARRATIVE

DESCRIPTION OF PROJECT

LOCATED ON TOWN HIGHWAY # 3 (EAST STREET) 0.2 MILES EAST OF THE INTERSECTION WITH TOWN HIGHWAY # 1. THE PROJECT CONTINUES EAST FOR A DISTANCE OF 200 FEET ALONG TOWN HIGHWAY # 3.

WORK TO BE PERFORMED UNDER THIS CONTRACT INCLUDES REPLACEMENT OF BRIDGE #61 ON EXISTING ALIGNMENT, NEW GUARDRAIL, PAVEMENT AND ASSOCIATED ROADWAY ITEMS.

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

TOTAL DISTURBED AREA (EXCLUDING WASTE, BORROW AND STAGING AREAS):
0.39 ACRES. FOR REQUIREMENTS, SEE EPSC ACCEPTANCE MEMO DATED NOV. 13, 2006.

SITE INVENTORY & ANALYSIS

OFF SITE DRAINAGE CHARACTERISTICS:
THE PROPERTY SURROUNDING THE PROJECT SITE CONSISTS OF WELL ESTABLISHED VEGETATION, WITH STEEP SLOPES OF VARIOUS GRASSES, SHRUBS AND TREES WITH EXPOSED LEDGE. THE DRAINAGE WAYS ARE WELL DEFINED AND RUNOFF WATER ENTERING THE PROJECT SITE WILL BE PRIMARILY LIMITED TO THAT WHICH IS CONVEYED ALONG ROADWAY DITCHES, AND CULVERTS.

DRAINAGE, WATERWAYS, BODIES OF WATER:
THE WILLOUGHBY RIVER IS LOCATED IN THE PROJECT AREA. THE WILLOUGHBY RIVER HAS A LEDGE WITH SCATTERED COBBLES STREAMBED. UPSTREAM OF THE BRIDGE THE STREAM IS STEEP BUT IS NEARLY LEVEL DOWNSTREAM OF THE BRIDGE. THE STREAM BANKS REMAIN STEEP THROUGHOUT THE PROJECT. THE WILLLOUGHBY RIVER HAS A DRAINAGE AREA OF 61.4 SQ. MI.

TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES:
THE TOPOGRAPHY OF THE PROJECT SITE IS HILLY TO MOUNTAINOUS, WITH A MIXTURE OF FORESTED AND OPEN AREAS.
THERE ARE SOME RESIDENCES AND BUSINESSES FOUND WITHIN THE PROJECT. OVERHEAD UTILITIES SERVICE FOLLOWS ALONG TOWN HIGHWAY # 3 WITH THE NEED FOR RELOCATION OF THE UTILITY POLES LIKELY. THE WATERLINE THAT IS CURRENTLY HANGING FROM THE BRIDGE WILL BE REPLACED ON THE NEW BRIDGE. IT SHOULD BE NOTED THAT A FISH AND GAME ACCESS IS LOCATED ADJACENT TO THE PROJECT.

VEGETATION:
THE VEGETATION SURROUNDING THE PROJECT SITE CONSISTS OF VARIOUS GRASSES, SHRUBS AND WOODED AREAS. THERE ARE NO AGRICULTURAL FIELDS NEAR THE PROJECT LIMITS. IMPACTS TO VEGETATION WILL BE LIMITED TO THAT EFFECTED BY THE CONSTRUCTION OF THE NEW BRIDGE ON THE EXISTING ALIGNMENT.

FOLLOWING THE CONSTRUCTION OF THE NEW BRIDGE, THE SLOPES WILL BE STABILIZED WITH STONE FILL AND VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

SOILS:
A SOIL PROFILE IS NOT AVAILABLE AT THIS TIME. THE AGENCY HAS PERFORMED BORINGS AT THIS SITE AND FOUND THE SOIL TO CONSIST MOSTLY OF SAND. SAND HAS A HIGH PERCOLATION RATE WHICH EXHIBITS LOW ERODIBILITY PROPERTIES. THE SHALLOW SAND LAYER, (< 10 FEET DEEP) SITS ON LEDGE THROUGHOUT THE PROJECT. THE MAJORITY OF THIS PROJECT IS CONSIDERED TO BE "IN A FILL TYPICAL", MEANING THE ROADWAY IS HIGHER THAN THE SURROUNDING MEAN GROUND ELEVATION. DUE TO ENGINEERING REQUIREMENTS FOR SELECTIVE FILL MATERIAL DEPTHS, MUCH OF THIS FILL MATERIAL WILL NEED TO BE BROUGHT IN FROM AN OUTSIDE SOURCE. SINCE WE DO NOT KNOW WHERE THIS SOURCE PIT WILL BE, WE CAN NOT PROVIDE ITS ERODABILITY PROPERTIES.

SENSITIVE RESOURCE AREAS:
NO "THREATENED & ENDANGERED SPECIES" HAVE BEEN IDENTIFIED WITHIN THE PROJECT LIMITS AND THERE WILL BE NO ADVERSE EFFECT TO HISTORIC OR ARCHEOLOGICAL FEATURES. THE WILLOUGHBY RIVER IS A KNOWN SPAWNING WATER FOR THE RAINBOW TROUT.

PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES:
DISTURBANCE OF SOILS NEAR NATURAL OR MAN-MADE WATERWAYS CONSISTS OF THAT WHICH IS NECESSARY TO REMOVE TWO CONCRETE ABUTMENTS. STABILIZATION OF DISTURBANCES TO STREAM BANKS WILL BE ACCOMPLISHED WITH STONE FILL, TYPE IV, UNDERLAID WITH GEOTEXTILE FABRIC.

DESCRIPTION OF SLOPES

THE EXISTING SHAPE OF THE PROJECT AREA CAN BE SEEN BY LOOKING AT THE "EXISTING EROSION CONTROL" SHEET, WHERE THE EXISTING CONTOURS ARE SHOWN.

EXISTING SLOPES
THE PROJECT IMPACTS STEEP SLOPES. THE SLOPES ARE EITHER WELL VEGETATED OR HAVE EXPOSED LEDGE.

THE PROPOSED SLOPES REMAIN STEEP, AT 1-1.5 FOR THE MAJORITY OF THE PROJECT. THE SLOPE FROM THE FRONT FACE OF ABUTMENT #1 DOWN TO THE RIVER WILL BE DETERMINED BY THE LEDGE PROFILE. THIS WILL BE EXPOSED LEDGE IN IT'S FINAL CONDITION.
THE SLOPES AFTER THE BRIDGE ON THE RIGHT WILL MATCH THE EXISTING SLOPES
THE SLOPE ON THE LEFT WILL BE FLATTENED WITH THE USE OF A RETAINING WALL THAT WILL BE INSTALLED TO AID IN THE CONSTRUCTION OF A PEDESTRIAN PATH. THE RESULTING SLOPES WILL BE SEEDED AND MULCHED.
THE SLOPES ALONG CHANNEL BANKS ARE LINED WITH HEAVY STONE AND ARE AT 1:-1.5 (67%).

PROPOSED SLOPES
THE PROPOSED SLOPES REMAIN STEEP, AT 1-1.5 FOR THE MAJORITY OF THE PROJECT. THE SLOPE FROM THE FRONT FACE OF ABUTMENT #1 DOWN TO THE RIVER WILL BE DETERMINED BY THE LEDGE PROFILE. THIS WILL BE EXPOSED LEDGE IN IT'S FINAL CONDITION.
THE SLOPES AFTER THE BRIDGE ON THE RIGHT WILL MATCH THE EXISTING SLOPES
THE SLOPE ON THE LEFT WILL BE FLATTENED WITH THE USE OF A RETAINING WALL THAT WILL BE INSTALLED TO AID IN THE CONSTRUCTION OF A PEDESTRIAN PATH. THE RESULTING SLOPES WILL BE SEEDED AND MULCHED.
THE SLOPES ALONG CHANNEL BANKS ARE LINED WITH HEAVY STONE AND ARE AT 1:-1.5 (67%).

GENERAL EROSION & SEDIMENT CONTROL GUIDELINES

GENERAL EROSION CONTROL PLANS ARE INTENDED AS A GUIDE FOR PREVENTING SOIL EROSION AND CONTROLLING SEDIMENT. THE WORK OUTLINED IN THIS NARRATIVE CONSISTS OF APPLYING MEASURES THROUGHOUT THE DURATION OF THE PROJECT TO CONTROL EROSION AND MINIMIZE THE SEDIMENTATION OF THE RECEIVING WATERS.

AN ALTERNATE TEMPORARY EROSION CONTROL PLAN WILL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL BY THE AGENCY OF TRANSPORTATION.

THE CONTRACTOR WILL USE OTHER TEMPORARY OR PERMANENT EROSION CONTROL DEVICES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION AND AS DIRECTED BY THE RESIDENT ENGINEER. SEE SECTION 105.23 OF THE 2006 VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

THE CONTRACTOR SHALL COORDINATE THE INSTALLATION, USE, AND REMOVAL OF EROSION AND SEDIMENT CONTROL MEASURES WITH CONSTRUCTION ACTIVITIES TO ASSURE ECONOMICAL, EFFECTIVE, AND CONTINUOUS EROSION AND SEDIMENT CONTROL. THE CONTRACTOR SHALL EMPLOY TEMPORARY STABILIZATION PRACTICES IN INCREMENTAL STAGES AS CONSTRUCTION ACTIVITIES PROCEED.

THE RESIDENT ENGINEER MAY DIRECT THE INSTALLATION OF CERTAIN EROSION CONTROL MEASURES IN ORDER TO FORESTALL OR MITIGATE, POTENTIAL OR EXISTING, EROSION PROBLEMS, OR TO RESPOND TO STORM EVENTS OR DAMAGE BY CONSTRUCTION OPERATIONS.

THE CONTRACTOR SHALL INSTALL EROSION AND SEDIMENT CONTROL MEASURES AS SEQUENCED IN THE "SPECIFIC GUIDELINES", OR AS DIRECTED BY THE RESIDENT ENGINEER. THE TYPE, SIZE, AND LOCATION OF ANY EROSION CONTROL DEVICES SHALL NOT BE CHANGED UNLESS PRIOR APPROVAL IS OBTAINED FROM THE RESIDENT ENGINEER. ANY APPROVED CHANGES SHALL BE NOTED ON THE EROSION CONTROL PLANS AND DISCUSSED IN THE WEEKLY REPORT. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES DAILY AND AFTER EACH RAINFALL EVENT. THE CONTRACTOR SHALL REPAIR ALL DAMAGED EROSION CONTROL MEASURES IMMEDIATELY. ALL EROSION CONTROL MEASURES THAT TRAP SEDIMENT, SUCH AS SEDIMENT BASINS AND SILT FENCES, SHALL BE CLEANED OUT WHEN THEIR CAPACITY REACHES 50%.

THE RESIDENT ENGINEER'S APPROVAL SHALL BE OBTAINED PRIOR TO INSTALLING ANY EROSION CONTROL NOT SPECIFIED IN THE EROSION CONTROL PLANS. HOWEVER, IN EMERGENCY SITUATIONS WHERE THE RESIDENT ENGINEER IS NOT IMMEDIATELY AVAILABLE, THE CONTRACTOR SHOULD REPAIR OR INSTALL THE EROSION CONTROLS AS THEY DEEM NECESSARY AND REPORT THE INCIDENT TO THE RESIDENT ENGINEER AS SOON AS PRACTICAL.

THE CONTRACTOR SHALL CONTROL ALL SEDIMENT-LADEN RUNOFF GENERATED WITHIN THE PROJECT SITE. CLEAN RUNOFF FROM OUTSIDE THE PROJECT SITE SHALL BE ROUTED THROUGH THE PROJECT USING DIVERSION BERMS, DIVERSION CHANNELS, AND TEMPORARY OR PERMANENT CULVERTS.

CONSTRUCTION EQUIPMENT WILL NOT BE ALLOWED TO OPERATE ON THE DOWNHILL SIDE OF THE PERIMETER CONTROL MEASURES.

CONSTRUCTION EQUIPMENT WILL NOT BE ALLOWED TO CROSS A FLOWING STREAM, OR DISTURB THE EXISTING STREAM BANKS, UNLESS AUTHORIZED BY THE RESIDENT ENGINEER.

ALL IN-STREAM CONSTRUCTION MUST TAKE PLACE IN A DRY CHANNEL BETWEEN JULY 1ST AND OCTOBER 1ST.

IN GENERAL, PRESERVE EXISTING VEGETATION, SHRUBS, AND TREES WHENEVER POSSIBLE.

SILT FENCE SHALL BE PLACED AT THE TOES OF ALL FILL SLOPES AND SHALL BE CONSTRUCTED SO THAT FLOWS CANNOT BYPASS THE ENDS. AREAS DIRECTLY BELOW (DOWNHILL) OF THE SILT FENCES MUST BE UNDISTURBED AND VEGETATED.

AS CONSTRUCTION PROGRESSES, IMPLEMENTATION OF ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AS DEEMED NECESSARY BY THE ON-SITE COORDINATOR AND AS APPROVED BY THE RESIDENT ENGINEER.

INFORMATION REQUIRED BY THE CONTRACTOR

MUCH OF THE INFORMATION SHOWN ON THE EROSION CONTROL PLANS AND DESCRIBED IN THIS NARRATIVE IS GENERAL IN NATURE. MORE SITE SPECIFIC INFORMATION IS NOT YET AVAILABLE AS A CONTRACTOR HAS NOT YET BEEN SELECTED. THE FOLLOWING LIST OUTLINES SOME OF THE SPECIFIC INFORMATION THAT IS NOT INCLUDED IN THE EROSION CONTROL PLANS AND DESCRIBED IN THIS NARRATIVE;

1. THE LOCATION OF VEHICLE TRACKING PADS.
2. THE LOCATION OF STOCK PILES, STAGING AREAS, AND DISPOSAL AREAS.
3. THE NAME, TITLE, QUALIFICATIONS, AND CONTACT INFORMATION FOR THE ON-SITE COORDINATOR.

MAINTENANCE PLAN FOR EROSION AND SEDIMENT CONTROLS

THE FOLLOWING MAINTENANCE SCHEDULE WILL BE FOLLOWED THROUGHOUT THE DURATION OF THE PROJECT:

1. AN ASSIGNED INDIVIDUAL WHO CAN BE ASSOCIATED WITH THE DAY-TO-DAY OPERATIONS OF THE PROJECT SHALL DO MONITORING OF THE CONSTRUCTION SITE. THE INSPECTOR WILL BE FAMILIAR WITH THIS PLAN AND WITH EROSION & SEDIMENT CONTROL PROCEDURES AND WITH ROAD AND BRIDGE CONSTRUCTION TECHNIQUES. SITE REVIEWS WILL BE PERFORMED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS, AND AFTER EACH RAIN EVENT OF MORE THAN 0.5" IN A TWENTY-FOUR HOUR PERIOD.
2. A COPY OF THE EROSION PREVENTION AND SEDIMENT CONTROL WEEKLY PLAN REVIEW PREPARED BY THE SITE REVIEWER SHALL BE GIVEN TO THE RESIDENT ENGINEER EACH WEEK. THE REPORT WILL BE FILLED OUT IN ACCORDANCE WITH ITEM 652.20 "MONITORING EPSC PLAN."
3. THE PLAN PREPARER WILL BE AVAILABLE FOR ON-SITE CONSULTATIONS WITH THE RESIDENT ENGINEER WITHIN TWENTY-FOUR HOURS OF THE REQUEST.
4. ALL SILT FENCES AND STONE CHECK DAMS WILL BE INSPECTED EACH SITE VISIT BY THE DESIGNATED INSPECTOR, AS DESCRIBED BELOW;
   a. THESE CONTROLS WILL BE MAINTAINED IN GOOD CONDITION. ANY SILT FENCE OR STONE CHECK DAMS THAT ARE INEFFECTIVE WILL BE REPAIRED OR REPLACED IMMEDIATELY.
   b. SEDIMENT DEPOSITS WILL BE REMOVED WHEN THEY REACH ONE-HALF THE HEIGHT OF THE SEDIMENT CONTROL DEVICE.
   c. ALL SEDIMENTS REMOVED WILL BE DEPOSITED IN AN UPLAND PORTION OF THE PROJECT SITE, OR DISPOSED OFF-SITE IN THE DESIGNATED PROJECT WASTE SITE.
5. ALL SLOPES WILL BE CHECKED EACH SITE VISIT AND ANY ERODED AREAS WILL BE IMMEDIATELY REPAIRED. TEMPORARY STABILIZATION METHODS WILL BE USED AS NECESSARY UNTIL FINAL STABILIZATION MEASURES ARE IN PLACE.
6. BOTH TEMPORARY & PERMANENT SEEDING & MULCHING WILL BE CHECKED EACH SITE VISIT FOR VEGETATIVE GROWTH. ANY AREAS REQUIRING RE-VEGETATION WILL BE REPAIRED IMMEDIATELY.
7. DRAINAGE STRUCTURES WILL BE CLEANED AS NECESSARY TO REMOVE ANY SEDIMENT BUILDUP IN THE SUMP OF THE STRUCTURES OR AT THE INLET OF THE STRUCTURE.
   a. ANY INLET CONTROL FOUND TO BE INEFFECTIVE WILL BE REPLACED AS NECESSARY AND WILL BE DONE IMMEDIATELY.
   b. ALL SEDIMENTS REMOVED WILL BE DEPOSITED IN AN UPLAND PORTION OF THE PROJECT SITE, OR DISPOSED OFF-SITE IN THE DESIGNATED PROJECT WASTE SITE.
8. TEMPORARY CONSTRUCTION ACCESSES WILL BE INSPECTED EACH SITE VISIT.
9. ALL TEMPORARY EROSION CONTROL DEVICES WILL STAY IN PLACE UNTIL FINAL GROWTH HAS BEEN ESTABLISHED AND COMPLETE STABILIZATION OF THE AREAS HAS OCCURRED.
10. ONCE STABILIZATION HAS OCCURRED, ALL TEMPORARY EROSION CONTROL MEASURES WILL BE REMOVED AND ALL DISTURBED AREAS WILL BE STABILIZED WITH TEMPORARY EROSION AND/OR SEED & MULCH.

SPECIFIC GUIDELINES

PERIMETER EROSION CONTROLS
PRIOR TO ANY CONSTRUCTION ACTIVITIES, THE PROJECT DEMARCATION FENCING SHALL BE PLACED ALONG THE PERIMETER OF THE PROJECT AS SHOWN ON THE EROSION CONTROL PLANS. THE INSTALLATION OF THE DEMARCATION FENCING WILL BE PERFORMED SUCH THAT NO VEGETATION ON THE OUTSIDE OF THE FENCING IS DISTURBED.

PRIOR TO ANY CONSTRUCTION OR STAGING, THE CONTRACTOR WILL INSTALL STABILIZED CONSTRUCTION ENTRANCES LEADING TO STAGING AREAS AND THE PROJECT

EROSION CONTROL NARRATIVE #1

PROJECT NAME:	BARTON		
PROJECT NUMBER:	BRO 1449 (29)		
FILE NAME:	/str5/01j168/sj168ecn.xls	PLOT DATE:	3/29/2007
PROJECT LEADER:	W. SYMONDS	DRAWN BY:	J. GILMORE
DESIGNED BY:	J. REED	CHECKED BY:	T. SUMNER
EROSION CONTROL NARRATIVE #1		SHEET	19 OF 84

STATE OF VERMONT
AGENCY OF TRANSPORTATION

EROSION CONTROL NARRATIVE

SITE TO PREVENT THE TRACKING OF SILTS AND SEDIMENTS OFFSITE. COARSE STONE FILL OVER FILTER FABRIC SHOULD BE UTILIZED WHERE AN ALREADY ESTABLISHED STABLE ENTRANCE DOES NOT EXIST. THE CRUSHED STONE PRODUCT USED FOR THE CONSTRUCTION OF THE STABILIZED ENTRANCES SHALL BE MONITORED FOR SEDIMENT ACCUMULATION AND REPLACED AS NECESSARY AS DIRECTED BY THE RESIDENT ENGINEER. STABILIZED CONSTRUCTION ENTRANCES SHALL ALSO BE ESTABLISHED AND MAINTAINED AT ALL OFFSITE WASTE AND BORROW AREAS. THE MINIMUM SIZE OF A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 15 FEET WIDE BY 50 FEET LONG.

AFTER THE CLEARING OF TREES AND SHRUBS, BUT PRIOR TO ANY GRUBBING AND EXCAVATION, CONSTRUCT PERIMETER CONTROLS TO ENSURE THAT ANY DISTURBED SEDIMENT DOES NOT LEAVE THE SITE. SEDIMENT TRAPS/BASINS, WHERE WATER HAS BEEN ADEQUATELY TREATED, MAY BE DIRECTED TO NEARBY UNDISTURBED STREAMS OR SWALES.

INSTALL PERIMETER SILT FENCE IN AREAS OF PROPOSED WORK AS SHOWN ON THE PLANS PRIOR TO GRUBBING AND FILLING ACTIVITIES. IN AREAS OF HIGH EXPOSURE, IT MAY BE NECESSARY TO DOUBLE UP PROTECTION WITH ADDITIONAL SILT FENCING. IN AREAS OF EXPOSED LEDGE, STONE CHECK DAMS WILL BE UTILIZED.

DURING GRUBBING OPERATIONS, STONE CHECK DAM BARRIERS SHALL BE INSTALLED AT ANY OBVIOUS CONCENTRATED FLOW DISCHARGE POINTS, OR AS DIRECTED BY THE RESIDENT ENGINEER.

THE FINAL LEDGE GRADE WILL BE ACHIEVED BEFORE COMPLETE REMOVAL OF THE ABUTMENTS SO THAT THEY CAN BE USED TO TRAP SEDIMENT.

THE LEDGE SHOULD BE EXPOSED STARTING AT THE TOE OF THE SLOPE AND CONTINUE TOWARD THE NEW ABUTMENTS. THIS EXCAVATION SHALL BE ACCOMPLISHED IN ONE DAY.

ALL AREAS OF EXPOSED SOILS AFTER THE GRUBBING ACTIVITY SHALL BE TEMPORARILY STABILIZED WITH MULCHING & SEEDING, EROSION MATTING, OR JUTE MATTING AS SOON AS PRACTICAL AND BEFORE ANY PREDICTED RAINFALL EVENT. THESE TEMPORARY EROSION MEASURES CAN BE PLACED IN ANY COMBINATION IN AREAS OF POTENTIAL EROSION AS DEEMED NECESSARY BY THE RESIDENT ENGINEER.

AFTER PERIMETER CONTROLS ARE IN PLACE, AND PRIOR TO GRADING OPERATIONS, CONSTRUCT TEMPORARY ONSITE SEDIMENT TRAPS WHERE NECESSARY. GRADE DISTURBED AREAS TO DRAIN TOWARD SEDIMENT TRAPS WHERE POSSIBLE.

ANY MATERIAL STOCKPILES, INCLUDING BUT NOT LIMITED TO, GRUBBING MATERIAL, SAND BORROW, EARTH BORROW, GRANULAR BORROW, TOPSOIL, AND ANY EXCAVATED WASTE PILES SHALL BE MULCHED AND SHALL ALSO HAVE SILT FENCE INSTALLED AROUND THE BASE OF THE STOCKPILE.

ANY OFF-SITE AREAS WHERE BORROW OR EXCAVATED MATERIALS WILL BE STOCKPILED WILL HAVE A DOUBLE INSTALLATION OF SILT FENCE AROUND THE BASE OF EACH STOCKPILE. WASTE DISPOSAL SITES WILL ALSO HAVE A DOUBLE INSTALLATION OF SILT FENCE AROUND THE BASE OF EACH STOCKPILE, AND IMMEDIATELY AFTER FINAL GRADING, SHALL BE SEEDED AND MULCHED. REMOVAL OF THE SILT FENCES AROUND THE WASTE AREAS SHALL BE PERFORMED ONLY AFTER THE APPROVAL OF THE ON-SITE COORDINATOR.

BRIDGE EROSION
NEW SLOPES STEEPER THAN 50% (1-2 SLOPES) WILL BE CONSTRUCTED WITH STONE FILL FOR SLOPE STABILIZATION AS THE EMBANKMENT CONSTRUCTION PROGRESSES.

ROADWAY EROSION CONTROLS
ALL INLETS FOR EXISTING OR NEW DRAINAGE STRUCTURES SHALL BE PROTECTED WITH AN APPROVED INLET PROTECTION MEASURE.

ON ANY PARTIALLY COMPLETED CUT AND FILL SLOPES, ALL EXPOSED SOILS WILL BE STABILIZED WITH JUTE MATTING OR SEEDED AND MULCHED. IN AREAS OF CONCENTRATED RUNOFF ABOVE NEWLY CONSTRUCTED FILL SLOPES, FLEXIBLE SLOPE PIPES OR OTHER APPROVED DIVERSION METHODS WILL BE USED TO TRANSPORT RUNOFF DOWN THE FILL SLOPES TO SEDIMENT TRAPS OR SETTLING BASINS.

ANY NEW FILL SLOPES THAT ARE DESIGNED WITH STONE FILL BLANKETS FOR SLOPE STABILIZATION SHALL BE CONSTRUCTED WITH THE STONE FILL BEING PLACED AS THE FILL SLOPE EMBANKMENT CONSTRUCTION PROGRESSES.

THE SUBBASE MATERIAL SHOULD BE PLACED AS SOON AS THE SUBGRADE HAS REACHED ITS FINAL GRADE AND SLOPE. THE TEMPORARY TRAVELING SURFACE WILL BE GRADED TO PROMOTE SHEET FLOW OFF THE SURFACE ONTO SLOPES, OR FLOWS WILL BE DIRECTED TO COLLECTION AREAS AND SHALL BE TRANSPORTED DOWN THE FILL SLOPES TO SEDIMENT TRAPS OR SETTLING BASINS.

ON PARTIALLY COMPLETED WORK, ALL EXPOSED SOIL WILL BE COVERED WITH MATTING AND STABILIZED AT THE END OF EACH WORK DAY.

FINAL EROSION CONTROLS

ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED FOLLOWING FINAL GRADING ACTIVITIES. ALL AREAS THAT ARE GRADED OUTSIDE OF THE GROWING SEASON SHALL BE TREATED WITH SLOPE STABILIZATION UNTIL SEEDING & MULCHING CAN BE PERFORMED.

ON ANY PARTIALLY COMPLETED CUT AND FILL SLOPES, ALL EXPOSED SOILS WILL BE STABILIZED WITH TEMPORARY EROSION MATTING OR SEEDED AND MULCHED. IN AREAS OF CONCENTRATED RUNOFF ABOVE NEWLY CONSTRUCTED FILL SLOPES, FLEXIBLE SLOPE PIPES OR OTHER APPROVED DIVERSION METHODS WILL BE USED TO TRANSPORT RUNOFF DOWN THE FILL SLOPES TO SEDIMENT TRAPS OR SETTLING BASINS.

ANY NEW FILL SLOPES THAT ARE DESIGNED WITH STONE FILL BLANKETS FOR SLOPE STABILIZATION SHALL BE CONSTRUCTED WITH THE STONE FILL BEING PLACED AS THE FILL SLOPE EMBANKMENT CONSTRUCTION PROGRESSES.

MATERIAL SHALL NOT BE PLACED BENEATH THE NEW STRUCTURE OR BELOW THE ORDINARY HIGH WATER ELEVATION. REFER TO THE HYDRAULICS INFORMATION ON THE PRELIMINARY INFORMATION SHEET.

THE NEWLY PLACED GRUBBING MATERIAL SHALL BE STABILIZED WITH JUTE MATTING AND/OR SEED & MULCH AS DIRECTED BY THE RESIDENT ENGINEER.

REMOVAL OF SILT FENCE SHALL COMMENCE ONLY AFTER ALL UPSLOPE AREAS ARE STABILIZED AND WELL ESTABLISHED, AND THE RESIDENT ENGINEER HAS APPROVED THE REMOVAL.

REMOVE PERIMETER SILT FENCE AND SEDIMENT TRAPS ONLY AFTER ANY TOE-OF-FILL DITCHES HAVE BEEN STABILIZED AND VEGETATION IS WELL ESTABLISHED.

REMOVE ALL REMAINING TEMPORARY EROSION CONTROL MEASURES, REGRADE ANY AREAS IF NECESSARY, TREAT ALL REGRADED AREAS WITH JUTE MATTING AND/OR MULCH & SEED, AND ESTABLISH ANY FINAL EROSION CONTROL DEVICES AS DEEMED NECESSARY BY THE RESIDENT ENGINEER.

SEDIMENT SETTLING BASIN SIZING CRITERIA

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

EROSION CONTROL NARRATIVE #2

PROJECT NAME: **BARTON**
PROJECT NUMBER: **BRO 1449 (29)**

FILE NAME: /str5/01j168/sj168ecn.xls
PROJECT LEADER: W. SYMONDS
DESIGNED BY: J. REED
EROSION CONTROL NARRATIVE #2

PLOT DATE: 3/29/2007
DRAWN BY: J. GILMORE
CHECKED BY: T. SUMNER
SHEET 20 OF 84

EXISTING BRIDGE DATA
STEEL BEAM WITH CONCRETE DECK
LENGTH = 59'
WIDTH = 20' CURB TO CURB
SIDEWALK = 5'
BUILT IN 1939

EXISTING TEMPORARY BRIDGE DATA
BABEY BRIDGE SPANNING EXISTING
LENGTH = 100'
WIDTH = 14' CURB TO CURB
ERECTED IN 2001

N
VT STATE PLANE GRID

BENCHMARK
RR SPIKE IN LEDGE
ELEV. 747.550

PT 5+77.29

50' BUFFER ZONE

WILLOUGHBY RIVER

TO VILLAGE OF ORLEANS

TH 3 TO BROWINGTON

PI 4+58.87 bk =
4+30.66 ahd

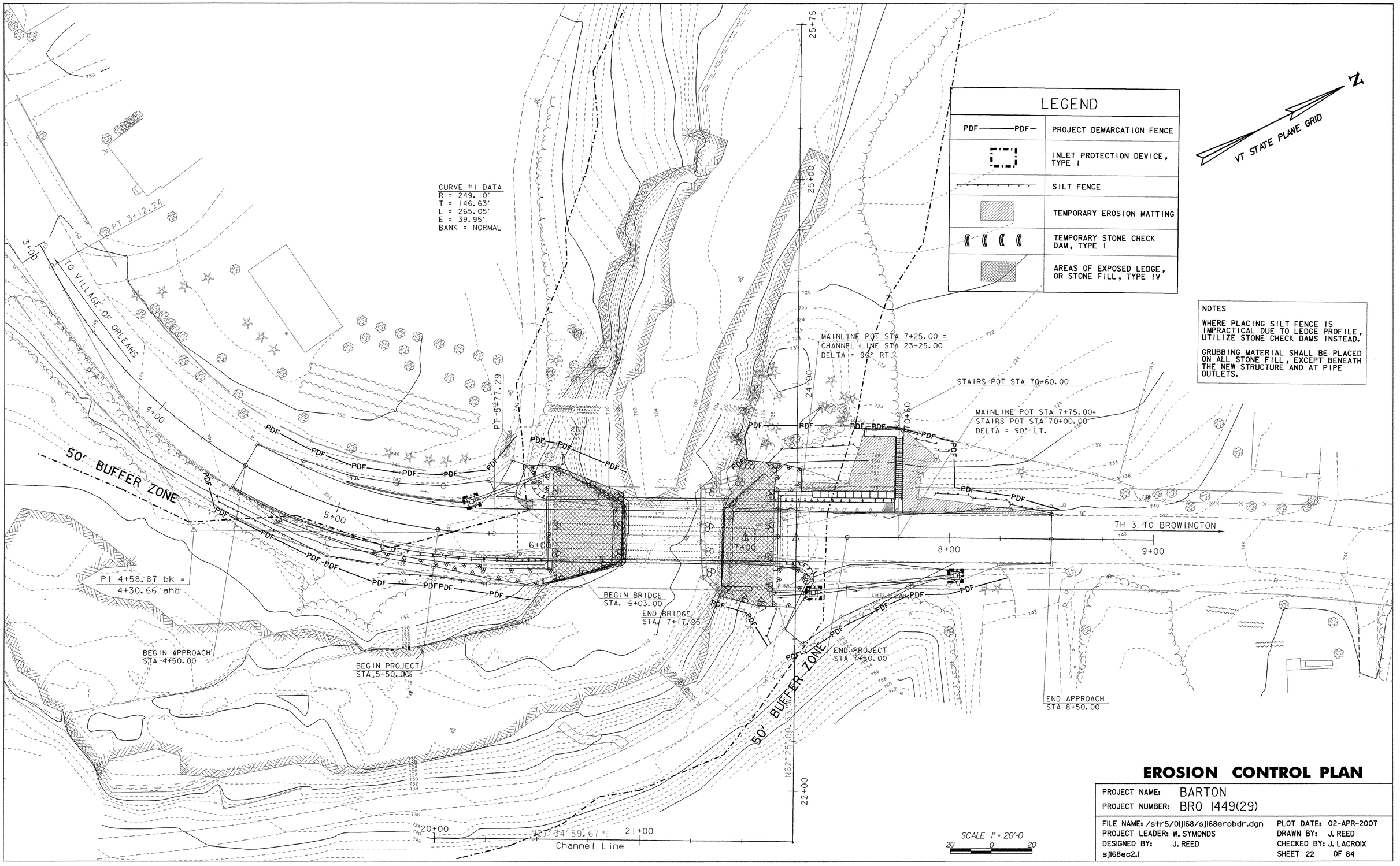
BENCHMARK
CHISELED SQUARE
ON BOULDER
ELEV. 744.494

SCALE 1" = 20'-0
20 0 20

EXISTING CONDITIONS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

FILE NAME: /str5/01j168/sj168erobdr.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. REED
DESIGNED BY: J. REED	CHECKED BY: J. LACROIX
sj168ecl.1	SHEET 21 OF 84



LEGEND

PDF——PDF—	PROJECT DEMARCATION FENCE
	INLET PROTECTION DEVICE, TYPE I
	SILT FENCE
	TEMPORARY EROSION MATTING
	TEMPORARY STONE CHECK DAM, TYPE I
	AREAS OF EXPOSED LEDGE, OR STONE FILL, TYPE IV

NOTES

WHERE PLACING SILT FENCE IS IMPRACTICAL DUE TO LEDGE PROFILE, UTILIZE STONE CHECK DAMS INSTEAD.

GRUBBING MATERIAL SHALL BE PLACED ON ALL STONE FILL, EXCEPT BENEATH THE NEW STRUCTURE AND AT PIPE OUTLETS.

SCALE 1" = 20'-0

20 0 20

EROSION CONTROL PLAN

PROJECT NAME: BARTON
PROJECT NUMBER: BRO 1449(29)

FILE NAME: /str5/01J168/sJ168erobdr.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: J. REED
sJ168ec2.1

PLOT DATE: 02-APR-2007
DRAWN BY: J. REED
CHECKED BY: J. LACROIX
SHEET 22 OF 84

N

VT STATE PLANE GRID

PT 3+12.24

3+00

TO VILLAGE OF ORLEANS

4+00

50' BUFFER ZONE

5+00

6+00

PT 5+77.29

PI 4+58.87 bk =
4+30.66 ahd

25+00

24+00

MAINLINE POT STA 7+25.00 =
CHANNEL LINE STA 23+25.00
DELTA = 90° RT

STAIRS POT STA 70+60.00

70+60

MAINLINE POT STA 7+75.00=
STAIRS POT STA 70+00.00
DELTA = 90° LT.

7+00

8+00

TH 3 TO BROWINGTON

9+00

50' BUFFER ZONE

N62° 25' 00.33"E

22+00

N01° 34' 59.67"E

20+00

21+00

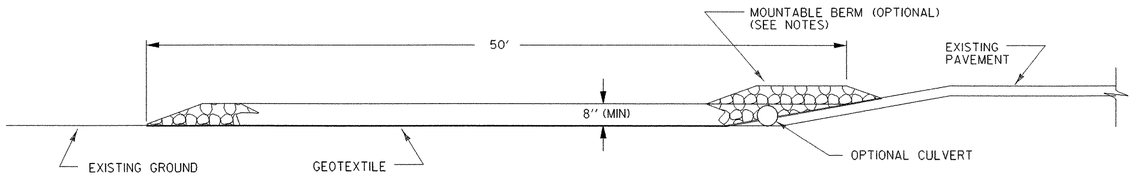
Channel Line

IN LIEU OF FINAL CONTOURS
SEE CROSS SECTIONS

FINAL CONDITIONS

SCALE 1" = 20'-0
20 0 20

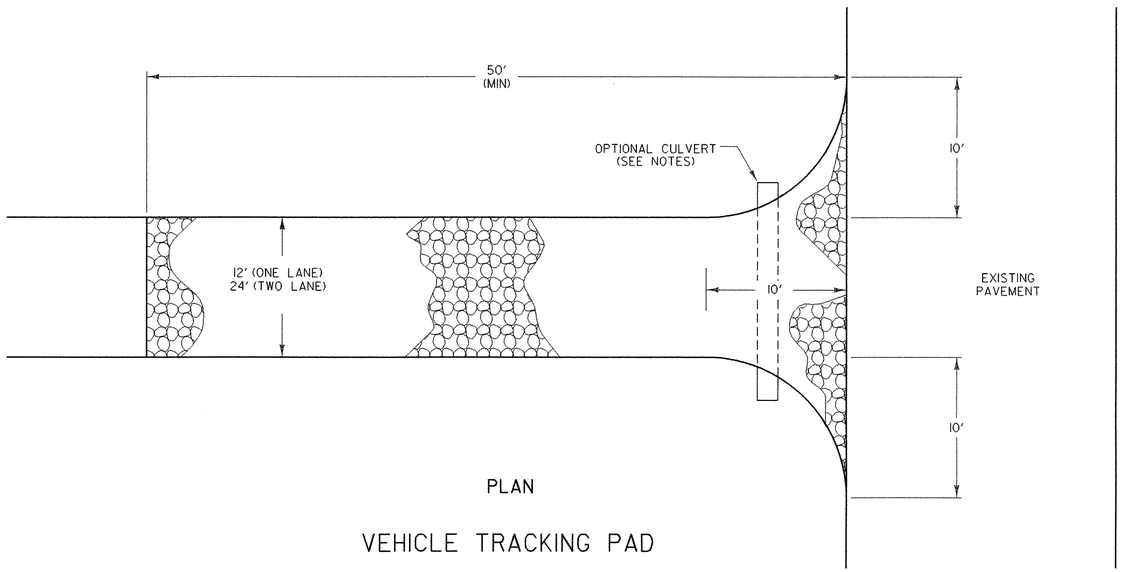
PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)
FILE NAME: /str5/0ljl68/sjl68erobdr.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. REED
DESIGNED BY: J. REED	CHECKED BY: J. LACROIX
sjl68erofin.i	SHEET 23 OF 84



PROFILE

VEHICLE TRACKING PAD

NOT TO SCALE



PLAN

VEHICLE TRACKING PAD

NOT TO SCALE

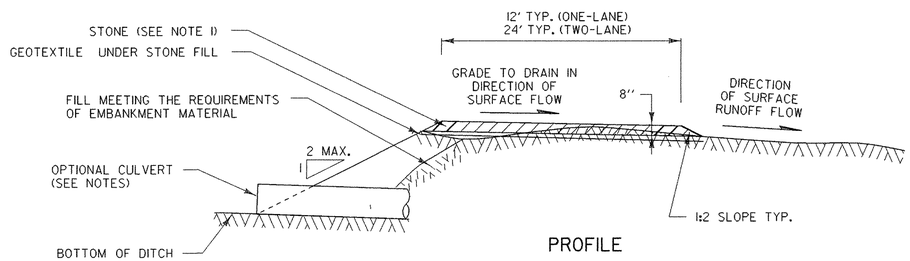
VEHICLE TRACKING PAD

APPLICATION NOTES:

A. THE PURPOSE OF A VEHICLE TRACKING PAD IS TO REDUCE OR ELIMINATE THE TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY OR STREETS.

GENERAL NOTES:

1. STONE SIZE - USE CLEAN STONE THAT MEETS THE GRADATION REQUIREMENTS SPECIFIED IN THE CONTRACT DOCUMENTS.
2. LENGTH - 50 FEET (MIN.)
3. THICKNESS - 8 INCHES (MIN)
4. WIDTH - 12 FEET (MIN)
5. GEOTEXTILE UNDER STONE SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE AS DIRECTED BY THE ENGINEER. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. PROPOSED DRAINAGE PIPES SHALL BE SIZED WITH SUFFICIENT CAPACITY TO CARRY DITCH FLOWS. ALTERNATIVE WAYS OF TRANSPORTING DITCH DRAINAGE ACROSS CONSTRUCTION ENTRANCES MAY BE PROPOSED BY THE CONTRACTOR FOR APPROVAL BY THE ENGINEER.
8. WHEN A VEHICLE TRACKING PAD ALONE IS NOT CAPABLE OF PREVENTING TRACKING OF SEDIMENT ONTO THE ROAD SURFACE THE CONTRACTOR SHALL TAKE ADDITIONAL STEPS BEFORE VEHICLES LEAVE THE CONSTRUCTION AREA.
9. VEHICLE TRACKING PAD SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
10. VEHICLE TRACKING PAD SHALL BE MAINTAINED WHEN THE AGGREGATE BECOMES CLOGGED AND NO LONGER PREVENTS TRACKING OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. ADDITIONAL AGGREGATE MAY BE ADDED ON TOP OF EXISTING AGGREGATE ONLY TO A POINT WHICH ALLOWS A SMOOTH TRANSITION BETWEEN THE ROAD SURFACE AND CONSTRUCTION AREA.
11. AT THE TIME OF REMOVAL OF THE VEHICLE TRACKING PAD, THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.



PROFILE

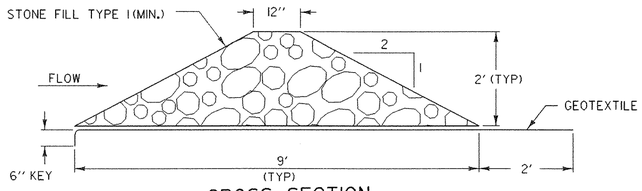
VEHICLE TRACKING PAD

NOT TO SCALE

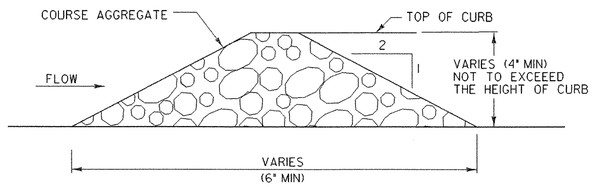
CONSTRUCTION ENTRANCE

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)

FILE NAME: /str5//01j168/sj168ecd.dgn PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS DRAWN BY: VARIOUS
DESIGNED BY: J. REED CHECKED BY: T. SUMNER
sj168ce.i SHEET 24 OF 84



CROSS SECTION



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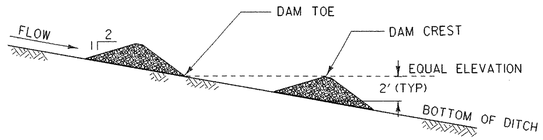

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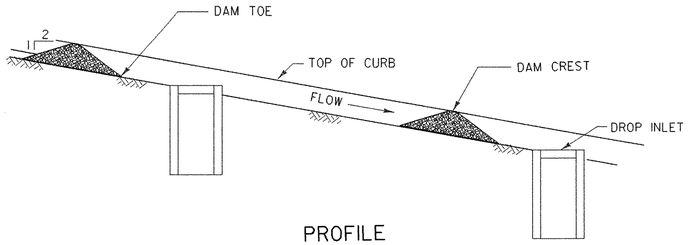
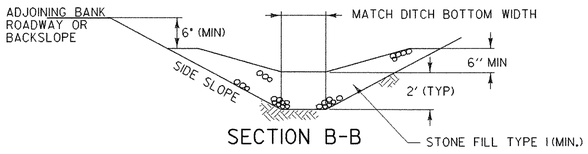
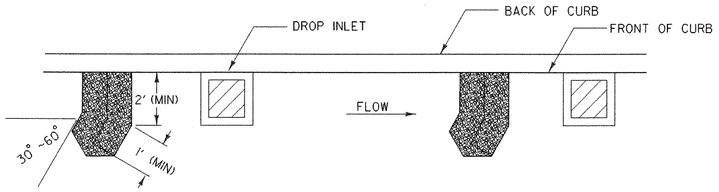


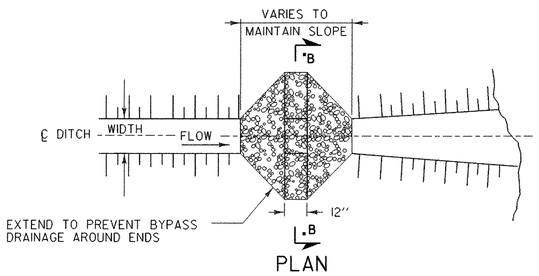
PROFILE



SECTION B-B



PLAN



PLAN

TEMPORARY STONE CHECK DAM
TYPE I

NOT TO SCALE

TEMPORARY STONE CHECK DAM
TYPE II

NOT TO SCALE

TEMPORARY CHECK DAMS

APPLICATION NOTES:

A. TEMPORARY CHECK DAM TYPE I IS USED FOR CHANNEL FLOW, CHECK DAM TYPE II IS USED FOR FLOW ALONG A CURB.

B. THE PRIMARY PURPOSE OF A TEMPORARY STONE CHECK DAM (TYPE I) IS TO REDUCE EROSION IN A CHANNEL BY REDUCING FLOW VELOCITY.

C. THE PRIMARY PURPOSE OF A TEMPORARY STONE CHECK DAM (TYPE II) IS TO LIMIT THE AMOUNT OF SEDIMENT ENTERING A CLOSED DRAINAGE SYSTEM WITH STORMWATER RUNOFF.

D. TEMPORARY CHECK DAMS WILL CAPTURE SEDIMENT THAT FALLS OUT OF SUSPENSION BEHIND THE CHECK DAMS DUE TO DECREASED VELOCITY. CHECK DAMS ARE NOT INTENDED TO FILTER SEDIMENT FROM STORMWATER.

E. DETAILS SHOWN SHALL BE USED FOR TEMPORARY INSTALLATION ONLY.

F. USE OF PREFABRICATED TEMPORARY CHECK DAMS SHALL BE AS APPROVED IN THE EPSCP.

GENERAL NOTES:

1. GEOTEXTILE SHALL BE INSTALLED UNDER TEMPORARY STONE CHECK DAMS TYPE I. IT SHALL BE KEYED IN ON THE UPHILL END AND SHALL EXTEND 2 FEET BEYOND THE STONE ON THE DOWNHILL END.

2. STONE FOR TEMPORARY STONE CHECK DAMS SHALL MEET THE GRADATION REQUIREMENTS SPECIFIED IN THE CONTRACT DOCUMENTS.

3. PREFABRICATED TEMPORARY CHECK DAMS SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.

4. TEMPORARY CHECK DAMS SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.

5. TEMPORARY CHECK DAMS SHALL BE CLEANED AND REPAIRED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE HEIGHT OR AS RECOMMENDED BY THE MANUFACTURER. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED WASTE SITE.

6. AT TIME OF REMOVAL OF THE TEMPORARY CHECK DAM, THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.

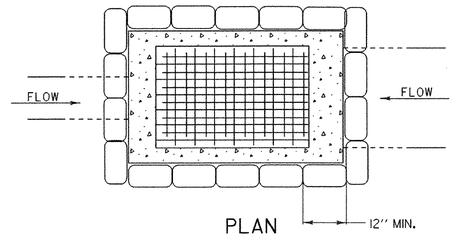
STONE CHECK DAM PLACEMENT INTERVAL

DITCH SLOPE	PLACEMENT INTERVAL **
1%	200 FT
2 %	100 FT
3 %	65 FT
4 %	50 FT
5 %	40 FT
6 %	30 FT
8 %	25 FT
10 %	20 FT

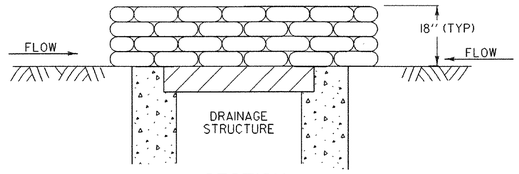
** BASED ON 2' TYPICAL HEIGHT

CHECK DAMS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)
FILE NAME: /str5/01j168/sj168ecd.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: VARIOUS
DESIGNED BY: J. REED	CHECKED BY: T. SUMNER
sj168ckd.i	SHEET 25 OF 84

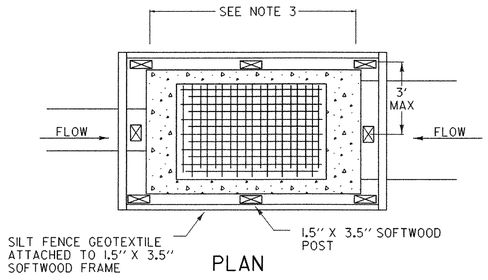


PLAN



SECTION

GRAVEL BAG INLET PROTECTION



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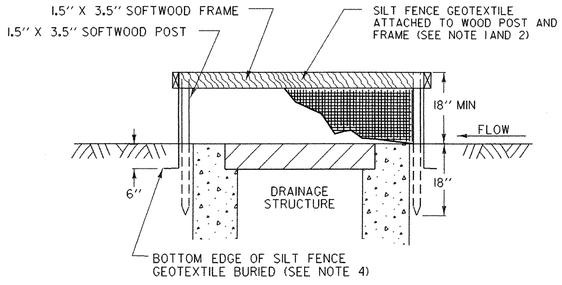
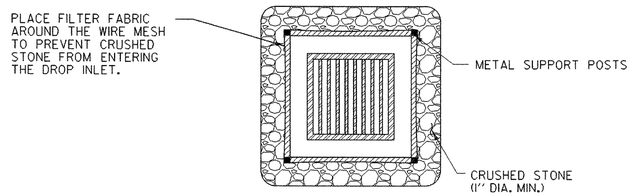


SECTION

SILT FENCE INLET PROTECTION

NOT TO SCALE



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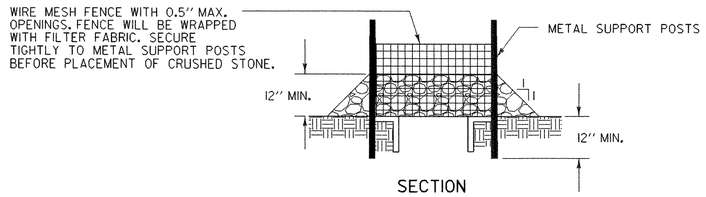
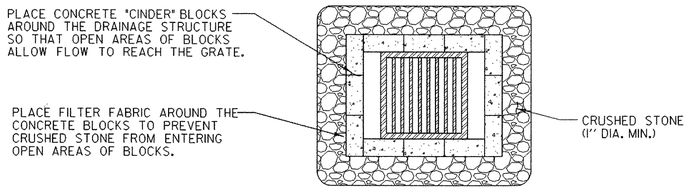
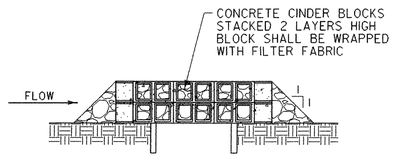


SECTION

ROCK BARRIER INLET PROTECTION TEMPORARY UNPAVED AREAS



PLAN



SECTION

ROCK BARRIER INLET PROTECTION TEMPORARY PAVED AREAS

NOT TO SCALE

INLET PROTECTION

APPLICATION NOTES:

A. THE PRIMARY PURPOSE OF INLET PROTECTION IS TO PREVENT SEDIMENT FROM ENTERING A DRAINAGE STRUCTURE, WHILE STILL ALLOWING THE WATER TO DRAIN. THIS WORKS BY PONDING THE WATER, WHICH WILL ALLOW THE SEDIMENT TO FALL OUT OF SUSPENTION, BEFORE THE WATER ENTERS THE STRUCTURE.

B. THESE EXAMPLES OF INLET PROTECTION ARE NOT INTENDED TO CAUSE STORMWATER TO BYPASS THE STRUCTURE AND CREATE ADDITIONAL EROSION OR FLOODING. IN THE CASE WERE THE INLET PROTECTION STRUCTURE HAS CAUSED WATER TO BYPASS THE DRAINAGE STRUCTURE, ADDITIONAL PROTECTION DEVICES WILL BE REQUIRED. POSSIBLE MODIFICATIONS MAY INCLUDE ADDING CHECK DAMS UPSTREAM OF THE INLET TO CREATE MORE PONDING AND TO SLOW VELOCITIES. A BERM DOWNSTREAM OF THE INLET TO CREATE ADDITIONAL PONDING MAY ALSO BE UTILIZED.

C. DETAILS SHOWN SHALL BE USED FOR TEMPORARY INSTALATION ONLY.

D. USE OF PREFABRICATED INLET PROTECTION SHALL BE AS APPROVED IN THE EPSCP.

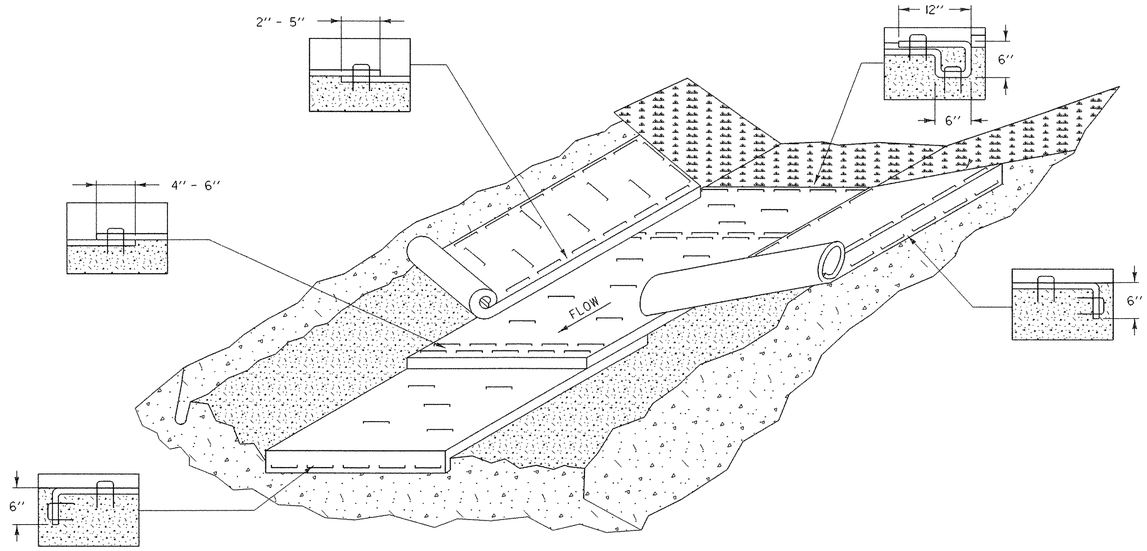
GENERAL NOTES:

1. THE TOP OF THE INLET PROTECTION SHALL BE SET AT THE MAXIMUM DESIRED WATER LEVEL BASED ON FIELD LOCATION AND CONDITIONS.
2. SILT FENCE GEOTEXTILE SHALL BE A SINGLE CONTINUOUS PIECE TO MINIMIZE UNNECESSARY JOINTS.
3. SPACE SILT FENCE POSTS EVENLY AROUND INLET WITH A MAXIMUM SPACING OF 3 FEET. DRIVE POSTS A MINIMUM OF 18 INCHES INTO THE GROUND. WIRE MESH MAY BE REQUIRED BEHIND GEOTEXTILE TO PROVIDE SUPPORT.
4. SILT FENCE GEOTEXTILE SHALL BE EMBEDDED A MINIMUM OF 6 INCHES AND BACKFILLED. GEOTEXTILE SHALL BE SECURELY FASTENED TO POSTS AND FRAME.
5. GRAVEL BAGS SHALL BE FILLED WITH CLEAN STONE, RATHER THAN SAND. THIS WILL PREVENT SAND FROM ENTERING A DRAINAGE SYSTEM IF BAGS ARE DAMAGED DURING USE.
6. GRAVEL BAGS SHALL BE TIED, THEN INVERSELY INSERTED INTO A SECOND BAG, WHICH SHALL ALSO BE TIED. GRAVEL BAGS SHALL LAP THE JOINTS BETWEEN THE BAGS IN THE LAYER BELOW.
7. INLET PROTECTION SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE STORMWATER TO LEAVE THE CONSTRUCTION SITE.
8. INLET PROTECTION SHALL BE CLEANED AND REPAIRED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE HEIGHT OR AS RECOMMENDED BY THE MANUFACTURER. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED WASTE SITE.
9. AT THE TIME OF REMOVAL OF INLET PROTECTION, THE DISTURBED AREA SHALL BE REPAIRED AND STTABILIZED.
10. PREFABRICATED INLET PROTECTION SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATION

DROP INLET PROTECTION

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

FILE NAME: /str5/01j168/sj168ecd.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: VARIOUS
DESIGNED BY: J. REED	CHECKED BY: T. SUMNER
sj168dip.i	SHEET 26 OF 84



EROSION MATTING FOR DITCHES

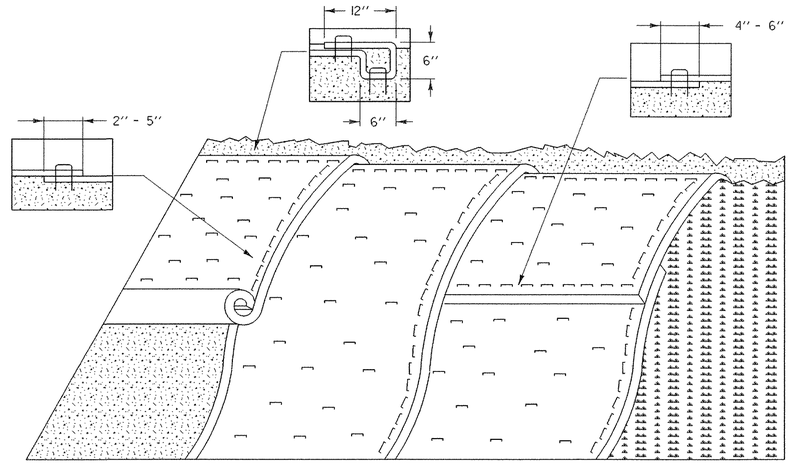
APPLICATION NOTES:

A. THE PURPOSE OF LINING THE DITCH WITH EROSION MATTING IS TO REDUCE EROSION AND AID THE ESTABLISHMENT OF VEGETATION AT LOW VELOCITIES.

B. TYPE OF EROSION MATTING TO BE USED SHOULD BE BASED ON FACTORS SPECIFIC TO EACH APPLICATION. SEE SPECIFICATIONS AND PRODUCT RECOMMENDATIONS FOR SUITABILITY.

GENERAL NOTES:

1. WATER MAY NEED TO BE DIVERTED TO ALLOW PROPER MATTING INSTALLATION.
2. GRADE AND SMOOTH CHANNEL TO PROVIDE GOOD MATTING TO SOIL SURFACE CONTACT.
3. APPLY FERTILIZER, LIME, AND SEED PRIOR TO PLACING MATTING.
4. INSTALL MATTING IN THE CENTER OF THE CHANNEL, IN THE DIRECTION OF THE WATER FLOW.
5. INSTALL MATTING ON THE SIDE SLOPES OF THE CHANNEL, OVERLAPPING THE CENTER MAT.
6. ANCHOR MATTING AS SHOWN, UTILIZING ANCHOR STAPLES. STAPLE PLACEMENT SHALL BE DETERMINED BY THE MANUFACTURER'S INTALLATION INSTRUCTIONS.
7. EROSION MATTING SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
8. EROSION MATTING SHALL BE REPAIRED AND RESTAPLED AS NECESSARY TO ENSURE PROPER FUNCTION.



EROSION MATTING FOR SLOPES

APPLICATION NOTES:

A. THE PURPOSE OF EROSION MATTING ON SLOPES IS TO REDUCE EROSION AND AID THE ESTABLISHMENT OF VEGETATION

B. EROSION CONTROL MATTING SHALL BE USED FOR THE FOLLOWING REASONS:

- SLOPES > 3H:1V
- AREAS WHERE SEED AND MULCH WILL NOT STAY IN PLACE ALONE
- WHERE SEEDING IS OUTSIDE THE GROWING SEASON.

GENERAL NOTES:

1. GRADE AND SMOOTH THE SLOPE TO PROVIDE GOOD MATTING TO SOIL SURFACE CONTACT.
2. APPLY FERTILIZER, LIME, AND SEED PRIOR TO PLACING MATTING.
3. ANCHOR MATTING AS SHOWN, UTILIZING ANCHOR STAPLES. STAPLE PLACEMENT SHALL BE DETERMINED BY THE MANUFACTURER'S INTALLATION INSTRUCTIONS.
4. UNROLL EROSION MATTING VERTICALLY DOWN SLOPE IN THE DIRECTION OF WATER FLOW.
5. OVERLAP UPPER MATTING OVER LOWER MATTING AS SHOWN.
6. OVERLAP ADJACENT MATTING AS SHOWN.
7. CUT EXCESS MATTING AT END OF SLOPE AND ANCHOR THE END.
8. EROSION MATTING SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
9. EROSION MATTING SHALL BE REPAIRED AND RESTAPLED AS NECESSARY TO ENSURE PROPER FUNCTION.

DITCH AND SLOPE PROTECTION

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)
FILE NAME: /str5/01j168/sj168ecd.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: VARIOUS
DESIGNED BY: J. REED	CHECKED BY: T. SUMNER
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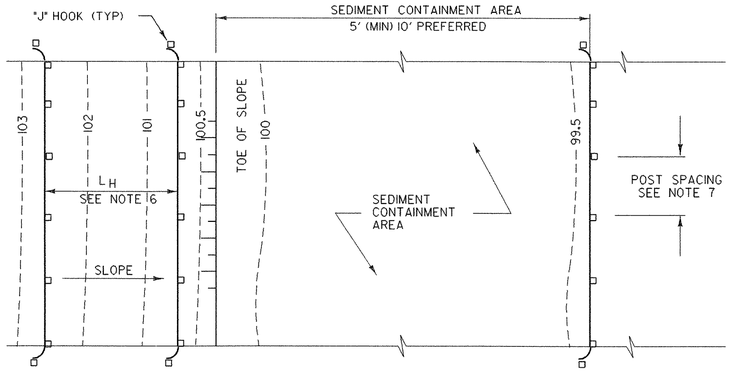

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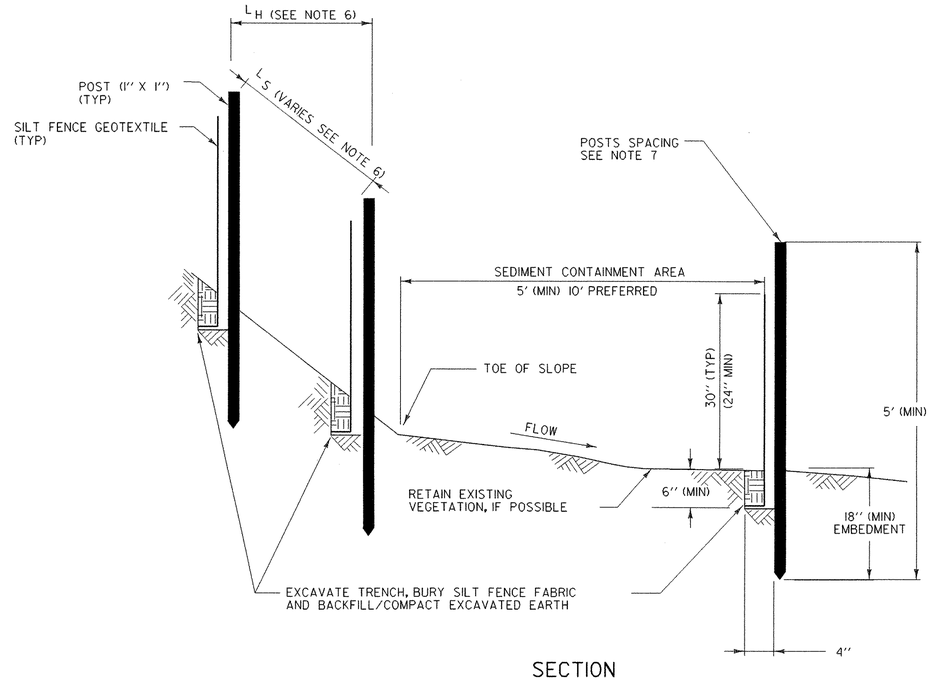


SECTION

SILT FENCE - TEMPORARY

NOT TO SCALE

SILT FENCE

APPLICATION NOTES:

A. THE PRIMARY PURPOSE OF SILT FENCE IS TO REDUCE RUNOFF VELOCITY AND TRAP SEDIMENT. VELOCITY IS REDUCED, WATER IS IMPOUNDED BEHIND THE MEASURE, AND SEDIMENT FALLS OUT OF SUSPENSION.

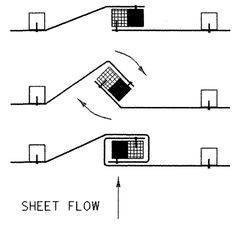
B. SILT FENCE SHALL NOT BE USED ACROSS CONCENTRATED FLOW.

GENERAL NOTES:

1. SILT FENCE SHALL GENERALLY BE PLACED A MINIMUM OF 5 FEET BEYOND TOE OF SLOPE, 10 FEET PREFERRED, TO PROVIDE ADEQUATE AREA FOR SEDIMENT STORAGE AND FACILITATE MAINTENANCE OF SEDIMENT CONTAINMENT AREA.
2. SILT FENCE SHALL BE INSTALLED ON A LINE OF EQUAL ELEVATION (CONTOUR). IT MAY BE INSTALLED AT INTERMEDIATE POINTS UP SLOPES AS WELL AS AT THE BOTTOM, AS SHOWN IN THE DETAIL.
3. ALL ENDS SHALL BE "J" HOOKED TO TRAP SEDIMENT.
4. IN AREAS WITH TWO SLOPES, SILT FENCE SHALL BE USED TO ERECT A DAM AND TRAP SEDIMENT AT THE BASE OF THE STEEPER SLOPE.
5. THE BOTTOM EDGE OF SILT FENCE SHALL BE BURIED A MINIMUM OF 6 INCHES BELOW GROUND, AND KEYED IN 4 INCHES. THE FENCE SHALL BE INSTALLED WITH THE POSTS ON THE DOWNSTREAM SIDE OF THE FABRIC.
6. MAXIMUM DRAINAGE AREA TRIBUTARY TO 100 FEET OF SILT FENCE SHALL BE 0.25 ACRES.
7. THE FOLLOWING ARE MAXIMUM LENGTHS FOR SILT FENCE INSTALATIONS:

CONSTRUCTED SLOPE	SLOPE LENGTH (LS) FT	HORIZONTAL LENGTH (LH) FT
3H : 1V	80	75
4H : 1V	130	125
5H : 1V	200	200
> 5H : 1V	250	250

8. WHERE ELONGATION IS >50%, POST SPACING SHALL NOT EXCERED 4 FEET. WHERE ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6 FEET.
9. SILT FENCE SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
10. SILT FENCE SHALL BE CLEANED AND REPAIRED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE MEASURE HEIGHT. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED WASTE SITE.
11. SILT FENCE SHALL BE REMOVED WHEN THE AREA HAS BEEN STABILIZED. AT TIME OF REMOVAL OF THE SILT FENCE, THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.



1. PLACE THE END POST OF ONE FENCE INSIDE THE END POST OF THE OTHER FENCE.
2. ROTATE BOTH POSTS AT LEAST 180 DEGREES IN A CLOCKWISE DIRECTION TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL
3. DRIVE BOTH POSTS 18 INCHES INTO THE GROUND AND BURY THE FLAP IN THE TRENCH.

SPLICING DETAIL

NOT TO SCALE

SILT FENCE

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)
FILE NAME: /str5/01j168/sj168ecd.dgn	PLOT DATE: 02-APR-2007
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DESIGNED BY: J. REED	CHECKED BY: T. SUMNER
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TO BE PLACED ON TYPE III BARRICADES PER TYPICAL APPLICATION #20

60x30
ROAD CLOSED TO THRU TRAFFIC
DETOUR
48x18

48x30
ROAD CLOSED

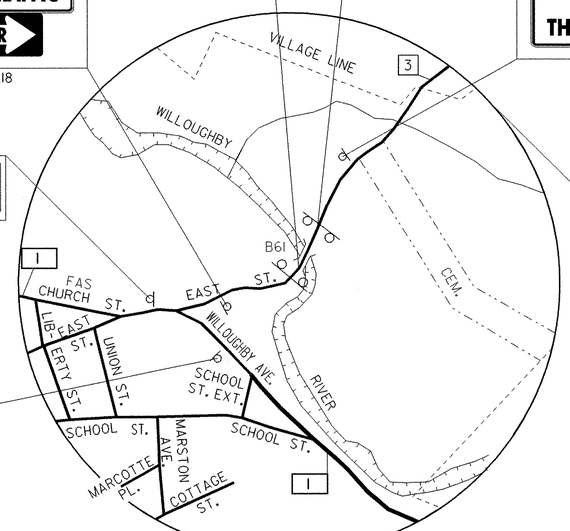
48x30
ROAD CLOSED

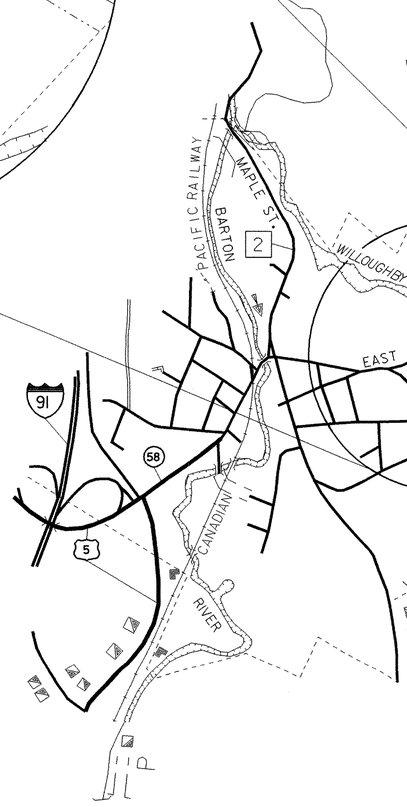
60x30
ROAD CLOSED TO THRU TRAFFIC

TO BE PLACED ON TYPE III BARRICADES PER TYPICAL APPLICATION #20

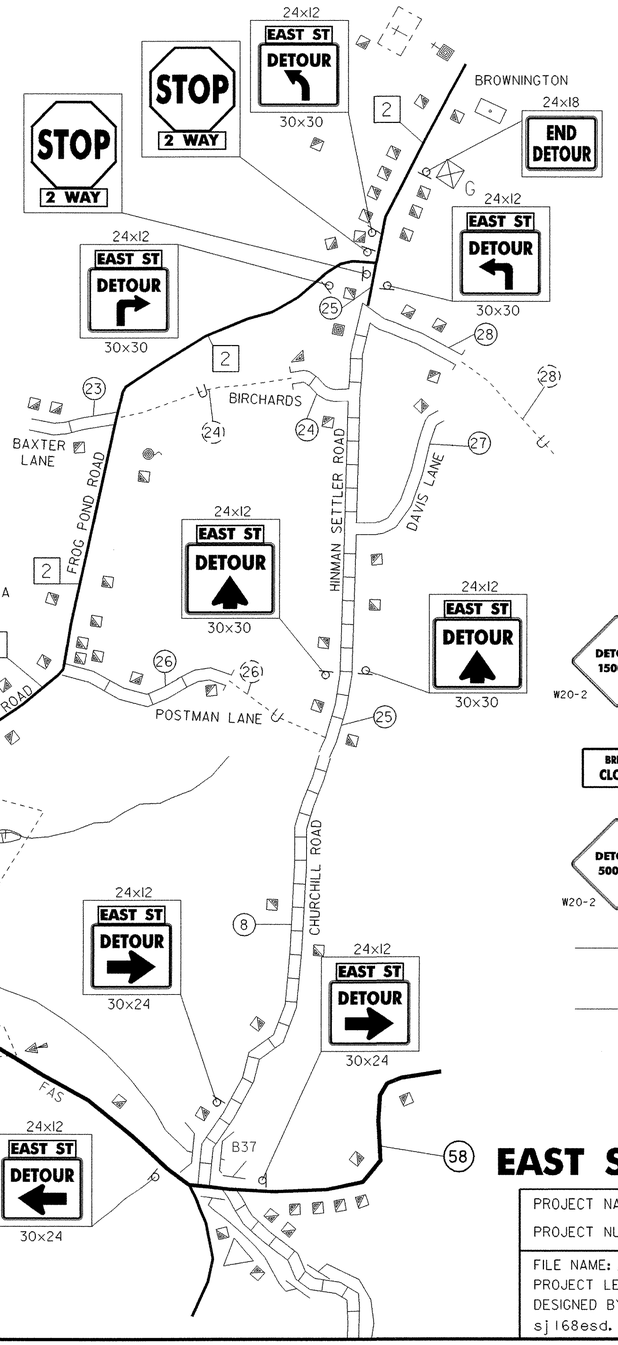
24x18
END DETOUR

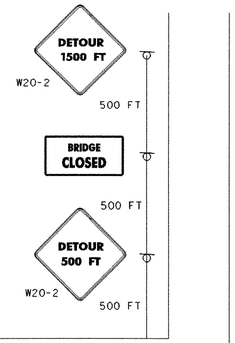
24x12
EAST ST
DETOUR
30x30



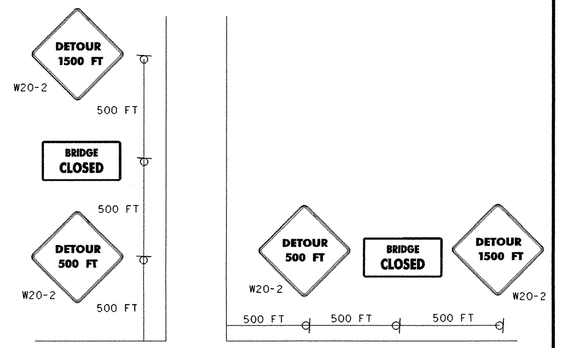


WILLOUGHBY FALLS WILDLIFE MANAGEMENT AREA





STANDARD LAYOUT
FOR SINGLE INTERSECTIONS:
FROG POND RD/HINMAN SETTLER RD
WILLOUGHBY AVE/EAST ST



STANDARD LAYOUT
FOR MULTIPLE INTERSECTIONS:
EAST ST/CHURCH ST

EAST STREET DETOUR LAYOUT

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

FILE NAME: /str5/01j168/sj168trf.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. GILMORE
DESIGNED BY: J. REED	CHECKED BY: J. REED
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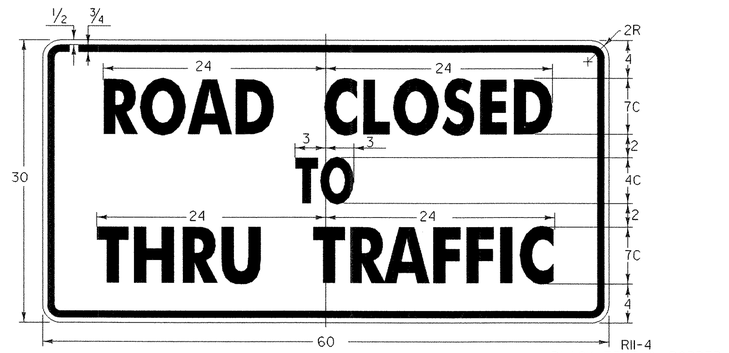
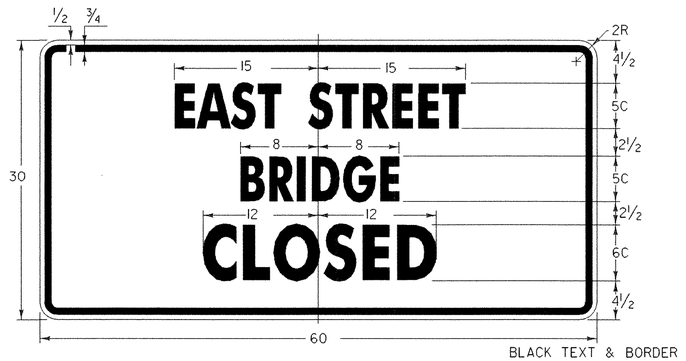
QUANTITY OF SIGNS	SIGN LEGEND	SIGN DIMENSIONS WIDTH (in)	SIGN DIMENSIONS HEIGHT (in)	FLANGED CHANNEL lb/ft 3.0
4	BRIDGE CLOSED	60	23	X
3	DETOUR 500 FT W20-2			X
2	ROAD CLOSED TO THRU TRAFFIC R11-4	60	30	X
3	DETOUR 1500 FT W20-2			X
3	DETOUR M4-9 (U)	30	30	X
2	DETOUR M4-9 (R)	30	24	X
1	DETOUR M4-9 (L)	30	24	X
1	DETOUR	48	18	
2	ROAD CLOSED	48	30	X
2	END DETOUR	24	18	X
9	EAST ST	24	12	
1	DETOUR	30	30	X
1	DETOUR	30	30	X
1	DETOUR	30	30	X
2	STOP	-	-	X
2	2 WAY	-	-	

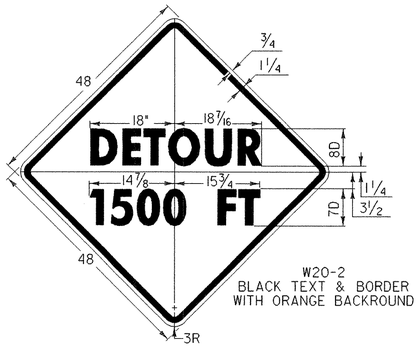
SEE STD. E-121 FOR SIGN PLACEMENT



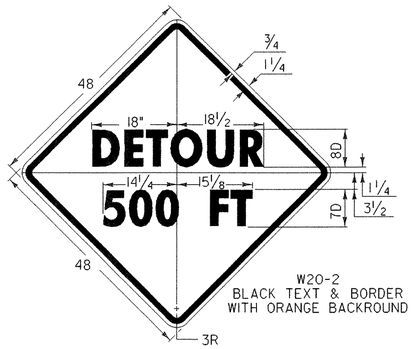
R11-4
BLACK TEXT & BORDER
WITH WHITE BACKROUND



BLACK TEXT & BORDER
WITH ORANGE BACKROUND

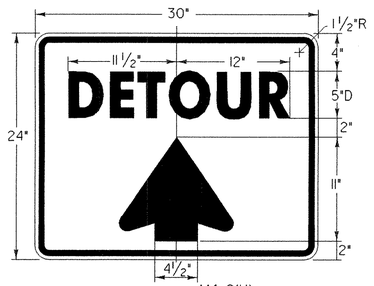


W20-2
BLACK TEXT & BORDER
WITH ORANGE BACKROUND

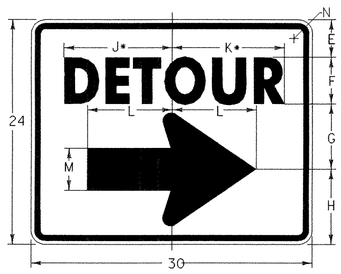


W20-2
BLACK TEXT & BORDER
WITH ORANGE BACKROUND

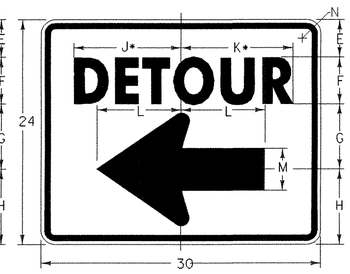
NOTE: THE COST AND INSTALLATION OF ALL DETOUR SIGNS AND POSTS WILL BE PAID FOR UNDER ITEM 641.10, TRAFFIC CONTROL



M4-9(U)
BLACK TEXT & BORDER
WITH ORANGE BACKROUND



M4-9(R)
BLACK TEXT & BORDER
WITH ORANGE BACKROUND



M4-9(L)
BLACK TEXT & BORDER
WITH ORANGE BACKROUND

SIGN	DIMENSIONS (INCHES) ✱REDUCE SPACING 40% A	B	C	D	E	F	G	H	J	K	L	M	N
STD.	30	24	3/8	1/2	4	5D	6 7/8	8	11 1/2	12	9	4 1/2	1 1/2
SPECIAL	48	36	1/2	1	6	8D	10	12	15/8	20 1/4	13 1/2	7	2 3/8
SPECIAL	60	48	3/4	1 3/8	8	10D	14	16	2	24	18	9	3 1/8

DETOUR DETAILS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)
FILE NAME: /str5/01j168/sj168trf.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. GILMORE
DESIGNED BY: J. REED	CHECKED BY: J. REED
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SOIL CLASSIFICATION

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

ROCK QUALITY DESIGNATION

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

SHEAR STRENGTH

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

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

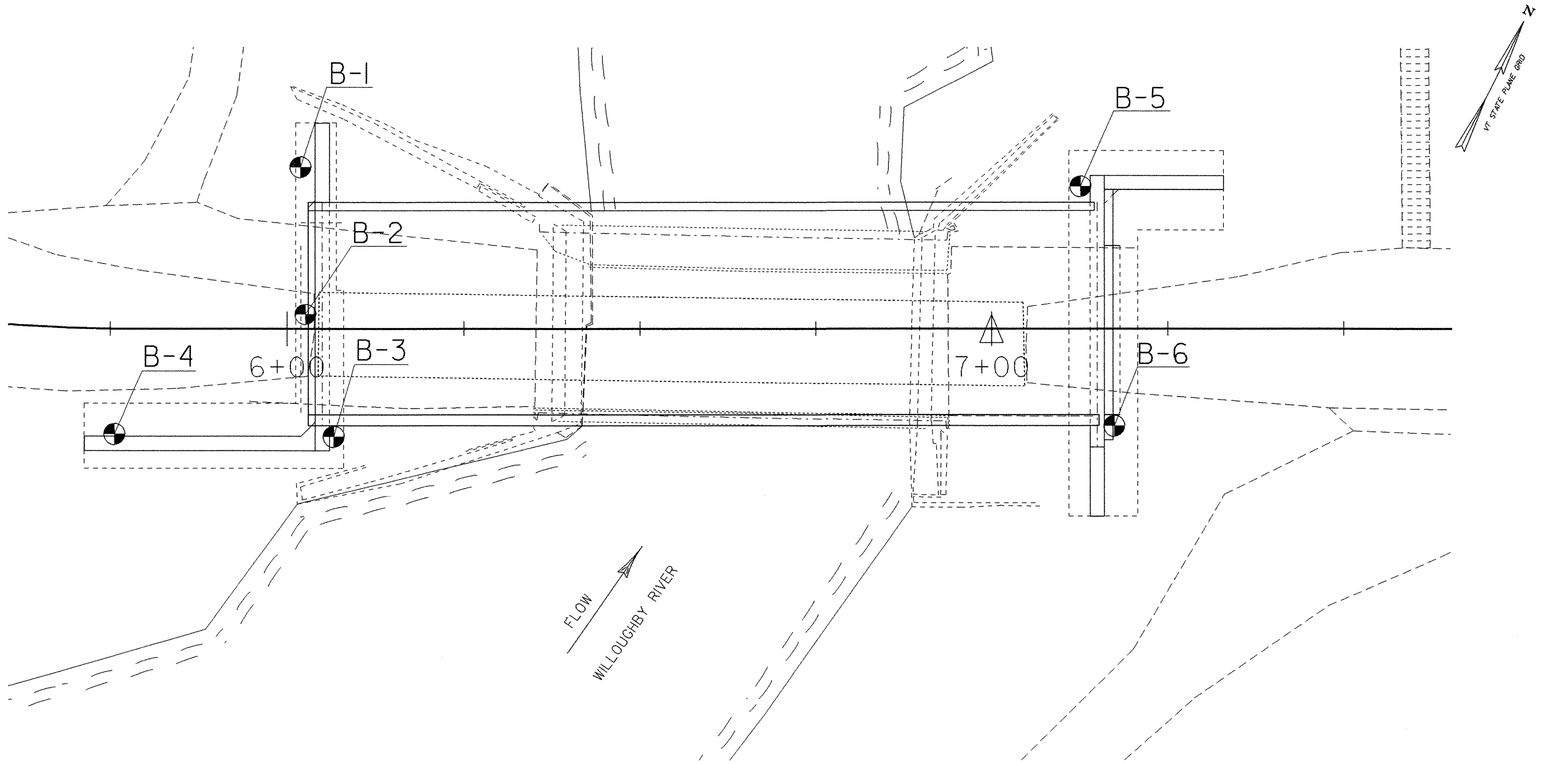
DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

COMMONLY USED SYMBOLS

▼	Water Elevation
	Standard Penetration Boring
⊕	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per Foot For: 2" O.D. Sampler 1⅜" 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 1⅛"
BX	Core Size 1⅝"
NX	Core Size 2⅛"
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
ROD	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		



10 0 10
SCALE IN FEET

BORING CHART

HOLE NO.	SURV. STATION	OFFSET	GROUND ELEV.	ELEV. TLOB
B-1	6+02	23' LT.	739.13'	733.38'
B-2	6+03	3' LT.	743.78'	733.78'
B-3	6+07	15' RT.	739.08'	724.28'
B-4	5+76	15' RT.	739.21'	726.21'
B-5	7+13	20' LT.	737.31'	719.31'
B-6	7+17	13' RT.	738.99'	724.99'

BORING PLAN SHEET

DEFINITIONS (AASHTO)

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

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

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

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

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

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

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

VARVED - Alternate layers of silt and clay.

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

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

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

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

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

DIP - Inclination of bed with a horizontal plane.

GENERAL NOTES

1. The subsurface explorations shown herein were made between 6/20/03 and 7/17/03 by the Agency.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering 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.

sJI68bor.i

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of BARTON	Bridge No. 61
Highway No. T.H. 1	Log Sta. / Surv. Sta.
T.H. 1 OVER THE WILLOUGHBY RIVER	
BORING INFORMATION SHEET	
Designed By J. REED	Drawn By J. REED
Checked By T. SUMNER Date 10/2006	Bridge Design Supervisor W. SYMONDS Date 11/2006
PROJECT BARTON	PROJECT NO. BRO 1449 (29)
I.G.C. Info. /str5/01ji68/sji68bor.dgn	
Bridge Sheet No.	Sheet 31 of 84

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

BORING NUMBER: B-01
SHEET 1of 1
DATE STARTED: 6/20/03
DATE COMPLETED: 6/23/03

PROJECT NAME: BARTON (ORLEANS)
SITE NAME: BR 61
STATION: 6+02.00
OFFSET: -23.00

PROJECT NUMBER: BRO 1449 (29)
SITE NUMBER: TH 3
GROUND ELEVATION: 739.13 ft
GROUNDWATER DEPTH:

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: TALLMAN
LOGGER: RUSSELL

BORING RIG: SMALL SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY:

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / ROD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (ft/min)
		A-1-b, GrSa, brn, Moist, Rec. = 0.6 ft	3	17.3	27.5	52.8	19.7
		A-2-4, SlSa, brn, Moist, Rec. = 0.8 ft	3	15.7	8.9	69.7	21.4
5		A-1-b, SlSaGr, brn, Moist, Rec. = 0.4 ft	3	16.9	41.5	34.8	23.7
				Top of Bedrock @ 5.75 ft			
		Light gray, Meta-Limestone, Competent, Moderately hard, Unweathered, NXMDC, 5.75 ft - 10.75 ft, Rec. = 4.75 ft	1	95	88	50	
10		Light gray, Meta-Limestone, Competent, Moderately hard, Unweathered, NXMDC, 10.75 ft - 15.75 ft, Rec. = 5.0 ft	2	100	100	50	
15		Hole stopped @ 15.75 ft					
20							
25							

ABUTMENT 1 BOTTOM OF FOOTING EL. 732.00

LOG OF BORING BARTONORLEANS.GPJ VT AOT.GDT 10/28/03

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

BORING NUMBER: B-02
SHEET 1of 1
DATE STARTED: 7/30/03
DATE COMPLETED: 7/30/03

PROJECT NAME: BARTON (ORLEANS)
SITE NAME: BR 61
STATION: 6+03.00
OFFSET: -3.00

PROJECT NUMBER: BRO 1449 (29)
SITE NUMBER: TH 3
GROUND ELEVATION: 743.78 ft
GROUNDWATER DEPTH:

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: TALLMAN
LOGGER: RUSSELL

BORING RIG: LARGE SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY:

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / ROD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (ft/min)
		0.0 ft - 0.35 ft, Asphalt					
		4.0 ft - 5.0 ft, NXGDC, Broken Rock & Concrete, Cleaned out casing.					
5		A-1-b, GrSa, gry, Moist, Rec. = 0.8 ft	14	11.6	31.2	54.4	14.4
		A-2-4, Sa, brn, Moist, Rec. = 0.9 ft		9.3	1.1	80.8	18.1
				Top of Bedrock @ 10.0 ft			
10		Gray, Phyllite, Poor ROD, Moderately soft, Moderately weathered, NXMDC, 10.0 ft - 14.0 ft, Rec. = 2.9 ft	1	73	0	35	
15		Light gray, Meta-Limestone, with 0.6" thick quartz vein, Fair competency, Moderately to very hard, Unweathered, NXMDC, 14.0 ft - 16.0 ft, Rec. = 1.6 ft	2	80	40		
		Light gray, Meta-Limestone, grading to phyllite, Fair competency, Moderately hard to moderately soft, Moderately weathered, NXMDC, 16.0 ft - 20.0 ft, Rec. = 3.6 ft	3	90	30		
20		Hole stopped @ 20.0 ft					
25							

ABUTMENT 1 BOTTOM OF FOOTING EL. 724.00'

LOG OF BORING BARTONORLEANS.GPJ VT AOT.GDT 10/28/03

BORING LOGS #1

PROJECT NAME: BARTON
PROJECT NUMBER: BRO 1449(29)

FILE NAME: /str5/01J168/sJ168bor.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: J. REED
sJ168log.i

PLOT DATE: 02-APR-2007
DRAWN BY: P. BEYOR
CHECKED BY: T. SUMNER
SHEET 32 OF 84

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

BORING NUMBER: B-03
SHEET 1 of 1
DATE STARTED: 6/30/03
DATE COMPLETED: 7/03/03

PROJECT NAME: BARTON (ORLEANS)
SITE NAME: BR 61
STATION: 6+07.00
OFFSET: 15.00

PROJECT NUMBER: BRO 1449 (29)
SITE NUMBER: TH 3
GROUND ELEVATION: 739.08 ft
GROUNDWATER DEPTH:

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: TALLMAN
LOGGER: RUSSELL

BORING RIG: SMALL SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY:

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / ROD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (ft/min)
5		BXDC, Cleaned out casing, 4.5 ft - 5.0 ft					
		A-3, Sa with Trace of Organics, gry, Moist, Rec. = 0.4 ft, Sample tested 2.2% Organic	2	25.1	6.2	87.4	6.4
10		A-2-4, GrSa, gry, Moist, Rec. = 0.9 ft, Sample had a strong creosote odor.	II	10.7	29.0	58.9	12.1
		NXMDC, Broke through granite Boulder, 12.5 ft - 13.75 ft					
					Top of Bedrock @ 14.8 ft		
15		Light gray, Meta-Limestone, Slight weathering along joint surfaces, Competent, Moderately hard, NXMDC, 14.8 ft - 19.8 ft, Rec. = 4.9 ft	1	98	78	50	
20		Light gray, Meta-Limestone, Slight weathering along joint surfaces, Competent, Moderately hard, NXMDC, 19.8 ft - 24.8 ft, Rec. = 4.3 ft	2	86	86	50	
25		Hole stopped @ 24.8 ft					

ABUTMENT 1 BOTTOM OF FOOTING EL. 724.00'

LOG OF BORING BARTONORLEANS.GPJ VT AOT.GDT 10/28/03

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

BORING NUMBER: B-04
SHEET 1 of 1
DATE STARTED: 7/08/03
DATE COMPLETED: 7/10/03

PROJECT NAME: BARTON (ORLEANS)
SITE NAME: BR 61
STATION: 5+76.00
OFFSET: 15.00

PROJECT NUMBER: BRO 1449 (29)
SITE NUMBER: TH 3
GROUND ELEVATION: 739.21 ft
GROUNDWATER DEPTH:

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

BORING RIG: SMALL SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY:

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / ROD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (ft/min)
5		A-1-b, SIGrSa, gry, Moist, Rec. = 1.0 ft	9	25.8	27.0	51.7	21.3
10		Visual Class: Broken Weathered Rock, gry, Moist, Rec. = 1.1 ft, 10.0 ft - 12.0 ft	39	23.6			
					Top of Bedrock @ 13.0 ft		
15		Light gray, Meta-Limestone, with phyllite and quartz veins, Competent, Moderately soft to very hard, Slightly weathered, NXMDC, 13.0 ft - 16.75 ft, Rec. = 3.5 ft	1	93	66	30	
20		Light gray, Meta-Limestone, Competent, Moderately hard, Unweathered, NXMDC, 16.75 ft - 21.75 ft, Rec. = 5.0 ft	2	100	74	35	
		Light gray, Meta-Limestone, Competent, Moderately hard, Unweathered, NXMDC, 21.75 ft - 25.25 ft, Rec. = 3.5 ft	3	100	88	35	
25		Hole stopped @ 25.25 ft					

ABUTMENT 1 BOTTOM OF FOOTING EL. 724.00'

LOG OF BORING BARTONORLEANS.GPJ VT AOT.GDT 10/28/03

BORING LOGS #2

PROJECT NAME: BARTON
PROJECT NUMBER: BRO 1449(29)

FILE NAME: /str5/01j168/sj168bor.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: J. REED
sj168log2.i

PLOT DATE: 02-APR-2007
DRAWN BY: P. BEYOR
CHECKED BY: T. SUMNER
SHEET 33 OF 84

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

BORING NUMBER: B-05
SHEET 1of 1
DATE STARTED: 7/18/03
DATE COMPLETED: 7/24/03

PROJECT NAME: BARTON (ORLEANS)
SITE NAME: BR 61
STATION: 7+13.00
OFFSET: -20.00

PROJECT NUMBER: BRO 1449 (29)
SITE NUMBER: TH 3
GROUND ELEVATION: 737.31 ft
GROUNDWATER DEPTH:

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: TALLMAN
LOGGER: RUSSELL

BORING RIG: SMALL SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY:

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / ROD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (ft/min)	
5		A-1-b, SaGr, brn, Moist, Rec. = 0.25 ft	2	12.2	47.9	43.8	8.3	
10		No sample, Boulders, 9.0 ft - 18.0 ft						
15								
		Top of Bedrock @ 18.0 ft						
20		Gray, Phyllitic Slate, grading to light gray Meta-Limestone, Competent, Moderately soft, Unweathered, NXMDC, 18.0 ft - 23.0 ft, Rec. = 5.0 ft	1	100	95	75		ABUTMENT 2 BOTTOM OF FOOTING EL. 719.50'
25		Light gray, Meta-Limestone, Competent, Moderately hard, Unweathered, NXMDC, 23.0 ft - 26.7 ft, Rec. = 5.0 ft	2	100	94	45		
		Gray, Phyllite, with quartz veins, Competent, Moderately hard to moderately soft, Unweathered, 26.7 ft - 28.0 ft						
		Hole stopped @ 28.0 ft						

LOG OF BORING BARTONORLEANS.GPJ VT AOT.GDT 10/28/03

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

BORING NUMBER: B-06
SHEET 1of 1
DATE STARTED: 7/15/03
DATE COMPLETED: 7/17/03

PROJECT NAME: BARTON (ORLEANS)
SITE NAME: BR 61
STATION: 7+17.00
OFFSET: 16.00

PROJECT NUMBER: BRO 1449 (29)
SITE NUMBER: TH 3
GROUND ELEVATION: 738.99 ft
GROUNDWATER DEPTH:

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: TALLMAN
LOGGER: RUSSELL

BORING RIG: SMALL SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY:

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / ROD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (ft/min)	
5		A-1-b, SlSa, brn, Moist, Rec. = 0.9 ft	14		19.1	58.9	22.0	
10		A-4, SlSa, gry, Moist, Rec. = 1.5 ft	5		10.9	47.6	41.5	
		Top of Bedrock @ 14.0 ft						
15		Light gray, Meta-Limestone, Poor recovery, Poor RQD, Moderately hard, NXMDC, 14.0 ft - 19.0 ft, Rec. = 1.0 ft	1	20	12			
20		Light gray, Meta-Limestone, Competent, Moderately hard, Unweathered, NXMDC, 19.0 ft - 24.0 ft, Rec. = 4.8 ft	2	96	88			ABUTMENT 2 BOTTOM OF FOOTING EL. 719.50'
25		Light gray, Meta-Limestone, Competent, Moderately hard, Unweathered, NXMDC, 24.0 ft - 28.0 ft, Rec. = 4.0 ft	3	100	98			
		Hole stopped @ 28.0 ft						

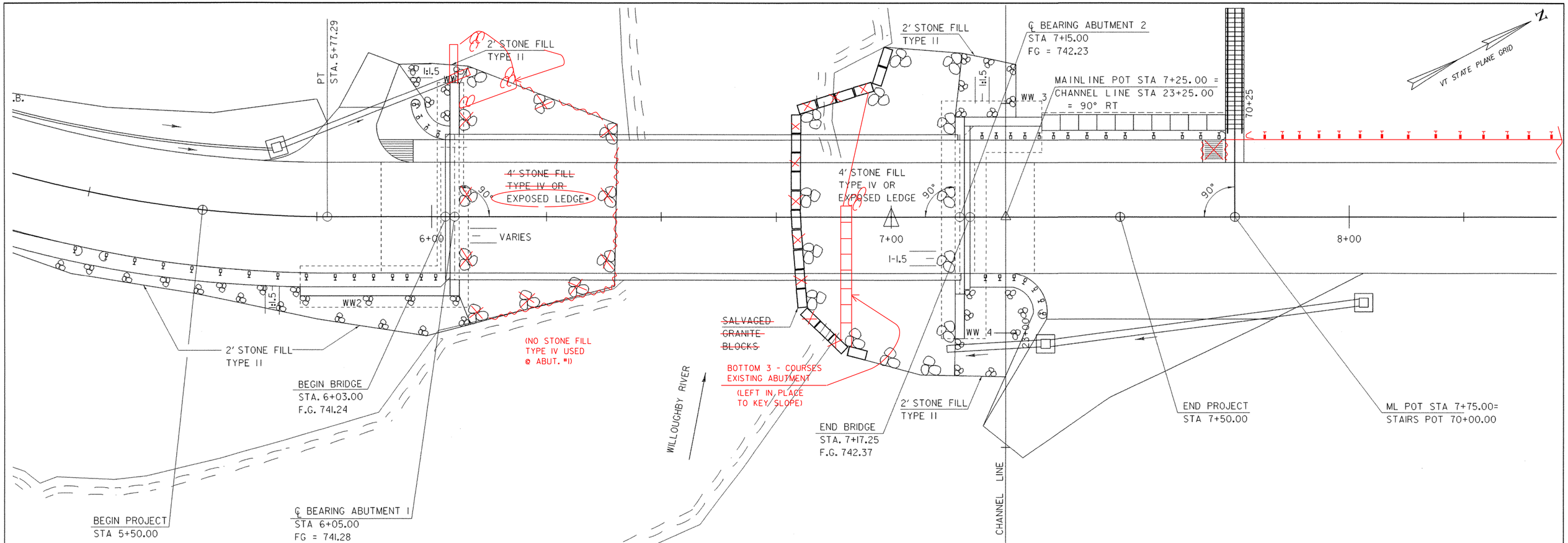
LOG OF BORING BARTONORLEANS.GPJ VT AOT.GDT 10/28/03

BORING LOGS #3

PROJECT NAME: BARTON
PROJECT NUMBER: BRO 1449(29)

FILE NAME: /str5/01j168/sj168bor.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: J. REED
sj168log3.i

PLOT DATE: 02-APR-2007
DRAWN BY: P. BEYOR
CHECKED BY: T. SUMNER

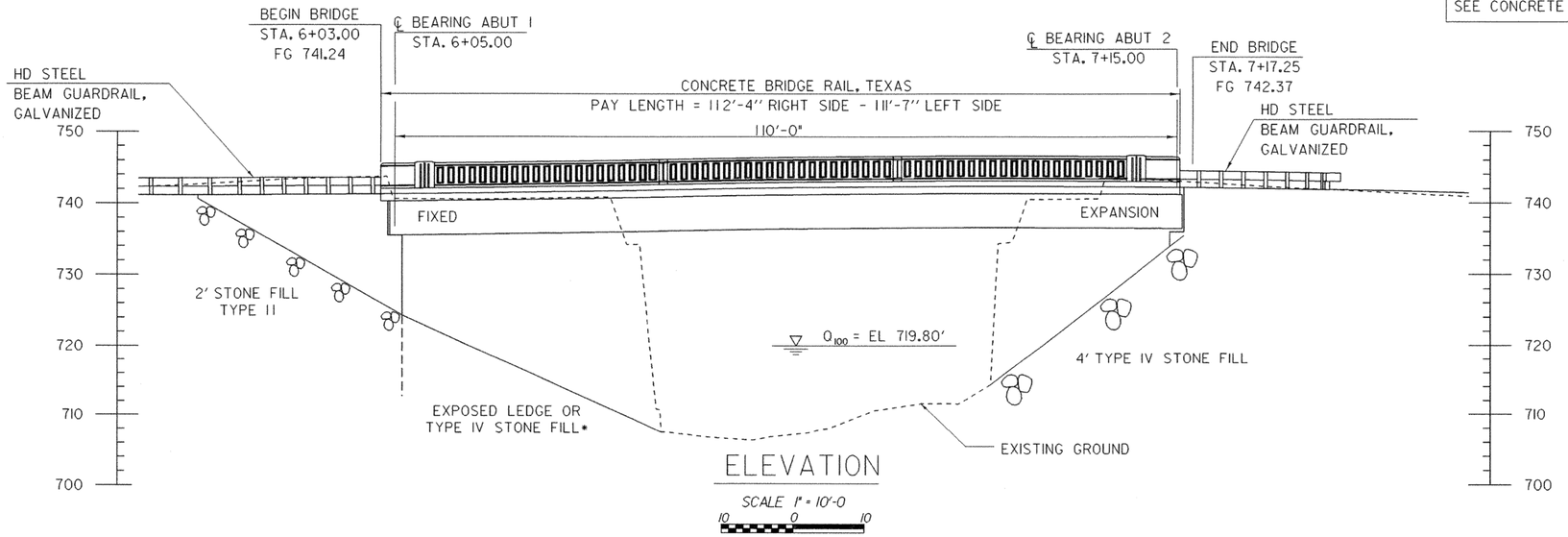


PLAN

SCALE 1" = 10'-0

10 0 10

SEE RAIL LAYOUT SHEET FOR GUARD RAIL LAYOUTS (SHEET 60).
FOR BRIDGE TO GUARDRAIL TRANSITIONS,
SEE CONCRETE BRIDGE RAILING DETAILS (SHEETS 61 & 62).



ELEVATION

SCALE 1" = 10'-0

10 0 10

* STONE FILL, TYPE IV MAY NOT BE REQUIRED IN THE AREAS OF EXPOSED LEDGE AS DETERMINED BY THE ENGINEER.

PLAN & ELEVATION

PROJECT NAME: BARTON
PROJECT NUMBER: BRO 1449 (29)

FILE NAME: /str5/01j168/sj168pe.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: J. REED
sj168pe.i

PLOT DATE: 02-APR-2007
DRAWN BY: J. REED
CHECKED BY: T. SUMNER
SHEET 35 OF 84

STATE OF VERMONT
AGENCY OF TRANSPORTATION

GENERAL NOTES

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION STANDARD SPECIFICATION FOR CONSTRUCTION, DATED 2006, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SEVENTEENTH EDITION DATED 2002, AND ITS LATEST REVISIONS.

2. BRIDGE IS DESIGNED FOR HS-25 LIVE LOAD WITH NO ALLOWANCE FOR FOR FUTURE PAVEMENT.

3. EAST STREET WILL BE CLOSED TO THROUGH TRAFFIC DURING THE RECONSTRUCTION OF BRIDGE 61. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS.

4. ITEM 529.15, "REMOVAL OF STRUCTURE (36 FEET - TIMBER STAIRS)" SHALL BEUSED TO PAY FOR THE REMOVAL AND DISPOSAL OF THE EXISTING TIMBER STAIRS.

5. ALL MATERIAL REMOVED THAT IS NOT OTHERWISE NOTED WILL BECOME PROPERTY OF THE CONTRACTOR.

6. ITEM 529.20 "PARTIAL REMOVAL OF STRUCTURE" INCLUDES, BUT IS NOT LIMITED TO, REMOVAL OF THE EXISTING SUPERSTRUCTURE AND ALL PORTIONS OF BOTH ABUTMENTS THAT ARE NOT REMOVED AS STRUCTURE EXCAVATION.

7. THE EXISTING SUPERSTRUCTURE IS PAINTED WITH A MATERIAL THAT MAY CONTAIN LEAD. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE, TOWN, ITS OFFICERS, AND EMPLOYEES HARMLESS CONCERNING THE DISPOSITION OF THIS MATERIAL.

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

9. EMULSIFIED ASPHALT IS TO BE APPLIED AT A RATE OF 0.015 GALLONS PER SQUARE YARD BETWEEN SUCCESSIVE COURSES OF PAVEMENT OR AS DIRECTED BY THE ENGINEER.

10. BACKFILL SHALL BE LIMITED TO TWO FEET BELOW ABUTMENT BRIDGE SEAT ELEVATIONS UNTIL THE SUPERSTRUCTURE IS ERECTED.

11. THE LEDGE IN FRONT OF THE ABUTMENTS IS INTENDED TO BE STRIPPED CLEAN. IT MAY BE NECESSARY TO USE STONEFILL TYPE IV TO STABILIZE THE SLOPES ADJACENT TO THE WINGWALLS.

12. ALL ON AND OFF PROJECT SIGNS THAT ARE REQUIRED FOR THE DETOUR WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. PAYMENT WILL BE PAID UNDER 641.10 TRAFFIC CONTROL.

CONCRETE

13. REINFORCEMENT PLACEMENT TOLERANCES SHALL BE:

    SPACING +/- 1 INCH
    CLEARANCE +/- 1/4 INCH

14. MINIMUM COVER FOR REINFORCING STEEL IN THE SUBSTRUCTURES SHALL BE 2 INCHES ALONG BACK FACES OF WALLS AGAINST EARTH AND 3 INCHES ELSEWHERE, UNLESS OTHERWISE NOTED.

15. ALL REINFORCING STEEL IN THE CONCRETE DECK AND IN APPROACH SLABS SHALL BE EPOXY COATED AND PAID FOR UNDER THE ITEM 507.17. WHEN EPOXY COATED REINFORCING STEEL IS CUT, THE UNCOATED ENDS SHALL BE REPAIRED WITH MATERIALS AND PROCEDURES APPROVED BY THE COATING MANUFACTURER. FLAME CUTTING OF EPOXY COATED REINFORCING STEEL WILL NOT BE PERMITTED.

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

17. THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT. UPWARD KEYS SHALL BE PLACED INTEGRALLY WITH THE CONCRETE BELOW THE JOINT.

18. CONCRETE PORTIONS OF THE ABUTMENT AND WINGWALLS ABOVE THE BRIDGE SEAT ELEVATIONS SHALL NOT BE PLACED UNTIL THE FINISH GRADE HAS BEEN DETERMINED BY THE RESIDENT ENGINEER.

19. FLEMING BRACKETS OR SIMILAR FALSEWORK SHALL BE PLACED AT A SHALL BE PLACED INTEGRALLY WITH THE CONCRETE BELOW THE JOINT. MAXIMUM SPACING OF 4'-0".

MAXIMUM SPACING OF 4'-0".

20. SURFACES OF BRIDGE SEATS UNDER THE BEARING DEVICES SHALL BE LEVEL. THE ENTIRE BRIDGE SEAT SURFACE SHALL BE GIVEN A MAGNESIUM FLOAT FINISH.

21. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH BY 1 INCH.

22. THE DECK IS TO BE POURED IN ONE CONTINUOUS POUR WITH A MAXIMUM DURATION OF EIGHT HOURS. IF THE DECK CAN NOT BE PLACED IN EIGHT HOURS, A CONSTRUCTION JOINT SHALL BE USED. A 96 HOUR DELAY SHALL BE OBSERVED BETWEEN SUCCESSIVE POURS.

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

24. NO TRAFFIC SHALL BE ALLOWED ON THE NEW DECK UNTIL THE CURE PERIOD IS UP AND THE 28 DAY DESIGN STRENGTH IS ATTAINED, AS EVIDENCED BY TEST CYLINDERS CURED UNDER FIELD CONDITIONS.

STEEL

25. THE DOWNSPOUT FOR THE EXPANSION JOINT WILL BE PAID AS ITEM 506.60 STRUCTURAL STEEL.

26. PAINT THE LAST 10 FEET OF THE GIRDERS AND THE ABUTMENT DIAPHRAGMS AT THE EXPANSION END WITH BROWN PAINT, CHIP # 20059

27. ALL HOLES IN THE FASCIA GIRDERS NOT OTHERWISE FILLED, SHALL BE FITTED WITH BUTTON HEAD OR HEX BOLTS, CONFORMING TO AASHTO M164 TYPE 3. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH THE 506.19 SPECIFICATION.

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

29. AFTER THE SUPERSTRUCTURE HAS BEEN ERECTED, ELEVATIONS SHALL BE TAKEN ALONG THE TOP OF THE GIRDERS AS DIRECTED BY THE ENGINEER FOR USE IN DETERMINING THE FINISH GRADE.

30. ALL FIELD CONNECTIONS NOT OTHERWISE DETAILED SHALL BE MADE WITH 7/8 INCH DIAMETER BOLTS CONFORMING TO AASHTO M164 TYPE 3. TYPE 1 GALVANIZED BOLTS SHALL BE USED IN PAINTED AREAS. HOLES SHALL BE 15/16 INCH DIAMETER.

LEDGE NOTES

31. FINAL LEDGE GRADE TO COMPETENT ROCK WILL BE DETERMINED BY THE SOILS AND FOUNDATIONS ENGINEER. LEDGE ELEVATIONS SHOWN ON PLANS ARE APPROXIMATE AND MAY VARY FROM ACTUAL FINAL LEDGE GRADE. THE CONTRACTOR IS RESPONIBLE FOR COORDINATION WITH THE SOILS AND FOUNDATIONS ENGINEER AND THE RESIDENT ENGINEER, IN DETERMINING ACTUAL FINAL LEDGE GRADE. THE AGENCY WILL NOT GRANT ANY EXTENSION OF TIME DUE TO THE CONTRACTORS FAILURE TO PROPERLY COORDINATE THE FINAL LEDGE GRADE DETERMINATION.

32. IF COMPETENT ROCK IS BELOW WHAT IS SHOWN ON THE PLANS, A SUB-FOOTING WILL BE USED, (SEE SHEET 54 FOR DETAILS). IN AREAS WHERE THE MINIMUM SUB-FOOTING THICKNESS (EIGHT INCHES) CANNOT BE MET, THE CONTRACTOR HAS THE OPTION TO POUR CONCRETE, HIGH PERFORMANCE CLASS B TO THE FINAL LEDGE GRADE, OR EXCAVATE LEDGE UNTIL A MINIMUM THICKNESS IS MET. ANY CONCRETE POURED BELOW THE BOTTOM OF FOOTING ELEVATIONS SHOWN ON THE PLANS WILL BE PAID AT THE "CONCRETE CLASS C" BID PRICE.

33. THE LIMITS FOR THE SUB-FOOTING SHALL BE ONE FOOT OUTSIDE THE LIMITS OF THE FOOTING SHOWN. DOWELS SHALL BE DRILLED AND GROUTED INTO THE LEDGE UNDER THE SUB-FOOTING AS SHOWN ON SHEET 54.

34. FOOTINGS OR SUB-FOOTINGS SHALL BE FOUNDED ON COMPETENT LEDGE WHICH HAS BEEN CLEANED OF ALL LOOSE ROCK AND DEBRIS.

35. IF SOUND LEDGE IS ABOVE THE ELEVATIONS SHOWN ON THE PLANS, THE FOOTING WILL BE RAISED. BEFORE ANY UPWARD ADJUSTMENT IS MADE TO THE FOOTING ELEVATION, THE STRUCTURES ENGINEER SHALL BE CONTACTED FOR THE DESIGN OF THE MODIFIED CONFIGURATION.

36. DOWELS SHALL BE DRILLED AND GROUTED INTO LEDGE AS SHOWN ON THE PLANS, OR AS DIRECTED BY THE ENGINEER. THE DOWELS SHALL HAVE A 1'-6" EMBEDMENT INTO THE LEDGE AND SHALL EXTEND INTO THE FOOTING A MINIMUM OF 1'-6".

37. WATER SHALL NOT BE ALLOWED TO POOL AROUND THE NEW ABUTMENT FOOTINGS. A TROUGH(S) IN THE LEDGE SHALL BE EXCAVATED, IF NECESSARY, AS DIRECTED BY THE ENGINEER. PAYMENT SHALL BE MADE UNDER ITEM 203.16 SOLID ROCK EXCAVATION.

STONE FILL

38. STONE FILL, TYPE IV MAY NOT BE REQUIRED IN AREAS OF EXPOSED LEDGE AS DETERMINED BY THE ENGINEER.

39. BLOCKS FROM THE EXISTING ABUTMENT #2 SHALL BE USED TO ANCHOR STONE FILL SLOPES. ALL SALVAGING, STORING AND PLACEMENT OF THE BLOCKS WILL BE INCIDENTIAL TO ITEM 529.20 PARTIAL REMOVAL OF STRUCTURE. SEE SHEET 82 FOR MORE DETAIL.

ASPHALTIC PLUG BRIDGE JOINT

40. THE JOINT SHALL BE LOCATED CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.

41. THE JOINT SHALL BE EXCAVATED AS SHOWN ON THE PLANS BY USE OF SAWS AND PNEUMATIC HAMMER OR A HAMMER AND CHISEL.

42. THE JOINT AREA SHALL BE BLAST CLEANED OF DEBRIS AND ASPHALT. THE JOINT AREA SHALL BE THOROUGHLY DRIED USING HOT COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.

43. SPALLED AND DEFECTIVE CONCRETE SHALL BE REPAIRED WITH AN APPROVED MATERIAL AS AGREED UPON BY THE ENGINEER.

44. PROPERLY SIZED HEAT RESISTANT BACKER ROD SHALL BE PLACE IN THE MOVEMENT GAP ALLOWING FOR 1 INCH +/- OF BINDER ABOVE THE ROD.

45. THE BINDER MATERIAL SHALL BE HEATED AND PLACED AS RECOMMENDED BY THE MANUFACTURER.

46. PLACE 1/4 INCH THICK BY 8 INCH WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE 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.

47. THE BINDER MATERIAL AND AGGREGATE SHALL BE HEATED AND MIXED AS RECOMMENDED BY THE MANUFACTURER.

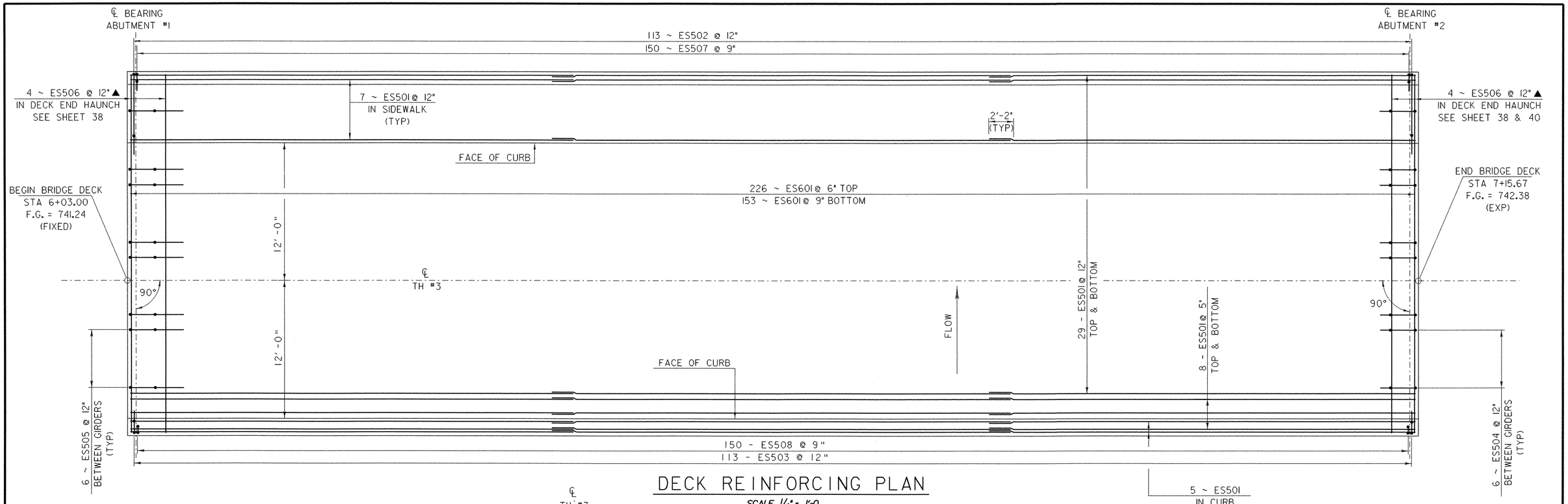
48. THE INSTALLATION OF MATERIAL, COMPACTION, AND TOP COATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.

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

50. JOINT SHALL BE PROTECTED FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 125 DEG F +/-.

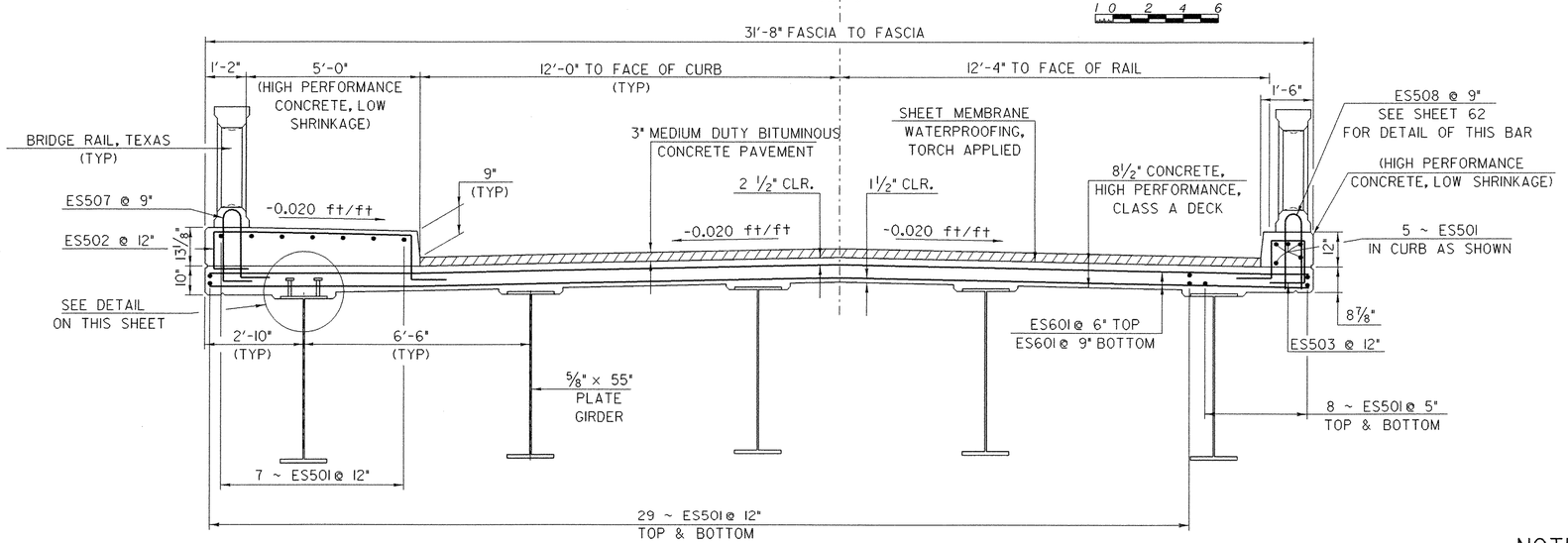
51. BINDER MATERIAL SHALL BE APPLIED ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL: THE AMBIENT AIR TEMPERATURE IS AT LEAST 50 DEG F AND RISING, THE ROAD SURFACE IS SUFFICIENTLY DRY AND THE WEATHER CONDITIONS OR OTHER CONDITION ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.

PROJECT NAME:	Barton
PROJECT NUMBER:	BRO 1449(29)
FILE NAME:	str5/01j168/sj168gen.xls
PROJECT LEADER:	W. SYMONDS
DESIGNED BY:	J. REED
GENERAL NOTES SHEET	
PLOT DATE:	3/29/2007
DRAWN BY:	P. BEYOR
CHECKED BY:	T. SUMNER
SHEET	36 OF 84



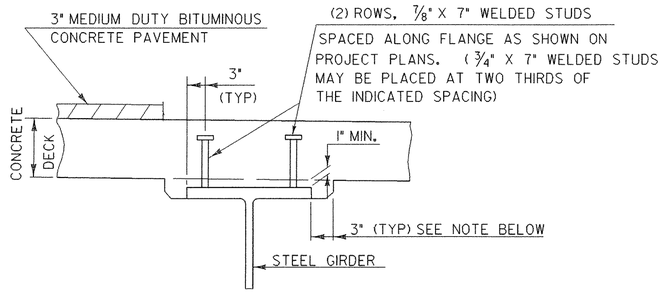
DECK REINFORCING PLAN

SCALE 1/4" = 1'-0



TYPICAL BRIDGE SECTION

SCALE 1/2" = 1'-0



NOTE:
THE 3" HORIZONTAL SECTION MAY BE ELIMINATED FOR FORMING SYSTEMS DESIGNED FOR THE CONSTRUCTION OF VERTICAL HAUNCHES. SYSTEMS SHALL BE SUBMITTED FOR APPROVAL TO THE STRUCTURES ENGINEER. ALL VOIDS SHALL BE FILLED WITH MORTAR, TYPE IV OR POLYURETHANE JOINT SEALER.

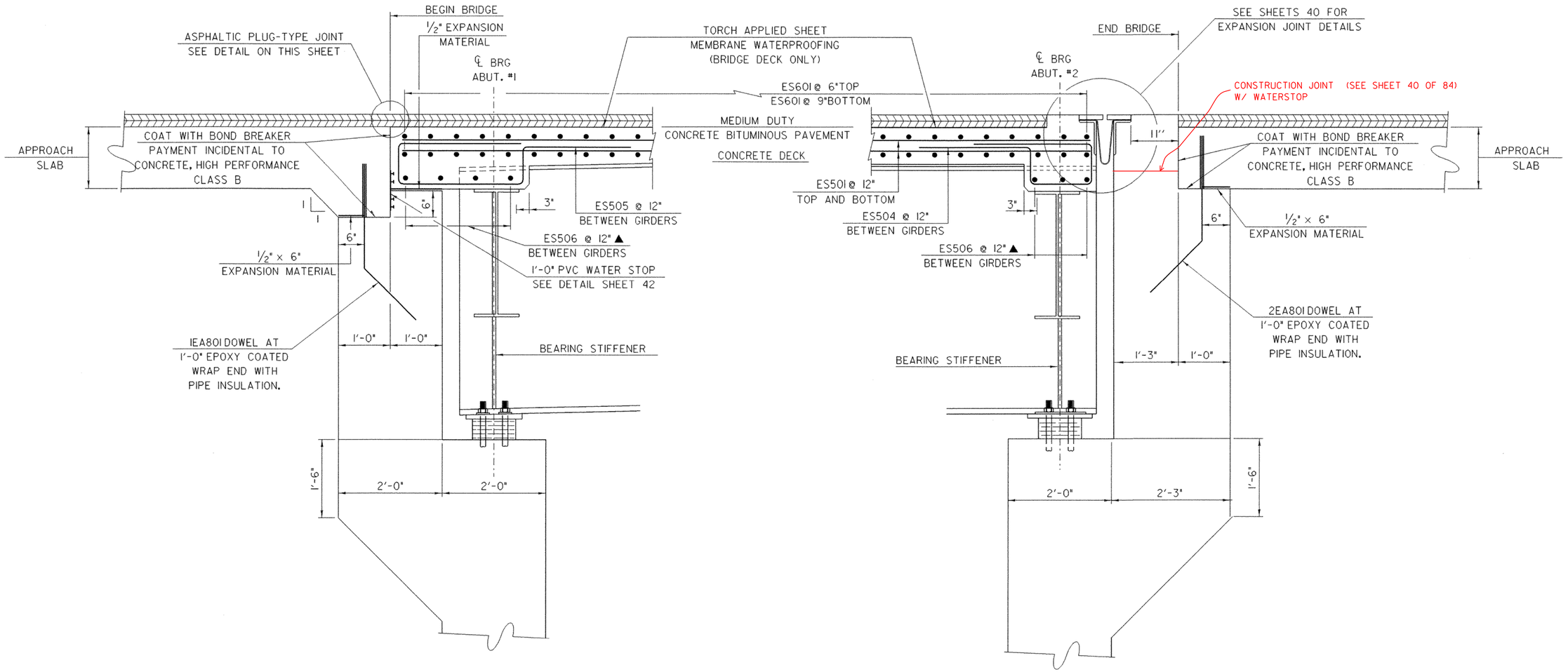
HAUNCH AND SHEAR CONNECTOR DETAILS

NTS

NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR UNLESS OTHERWISE SPECIFIED ON THE PLANS

DECK DETAILS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)
FILE NAME: /str5/01j168/sj168sup.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. GILMORE
DESIGNED BY: J. REED	CHECKED BY: J. REED
sj168dck.i	SHEET 37 OF 84

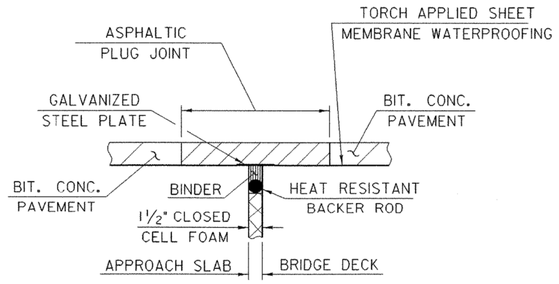


END DETAIL AT ABUT. 1 FIXED NORMAL TO ℄ BEARING

SCALE 1" = 1'-0

END DETAIL AT ABUT. 2 EXPANSION NORMAL TO ℄ BEARING

SCALE 1" = 1'-0



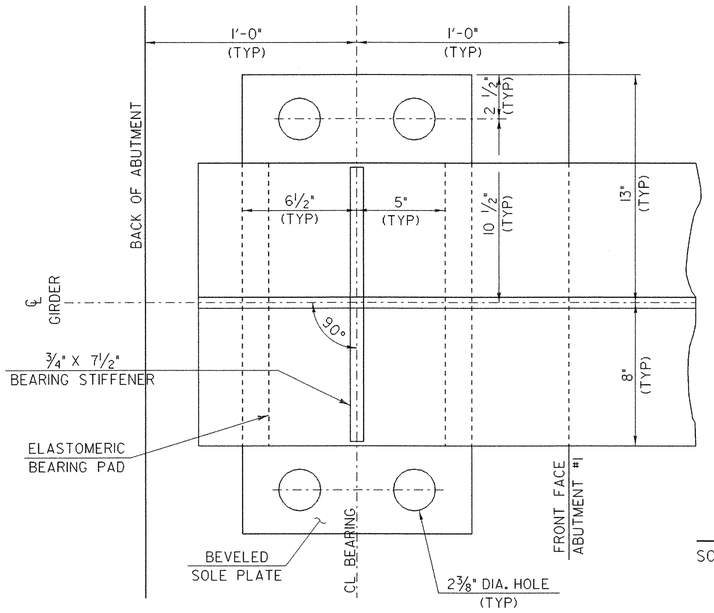
ASPHALTIC PLUG-TYPE JOINT DETAIL

SCALE 1" = 1'-0

BRIDGE ENDS

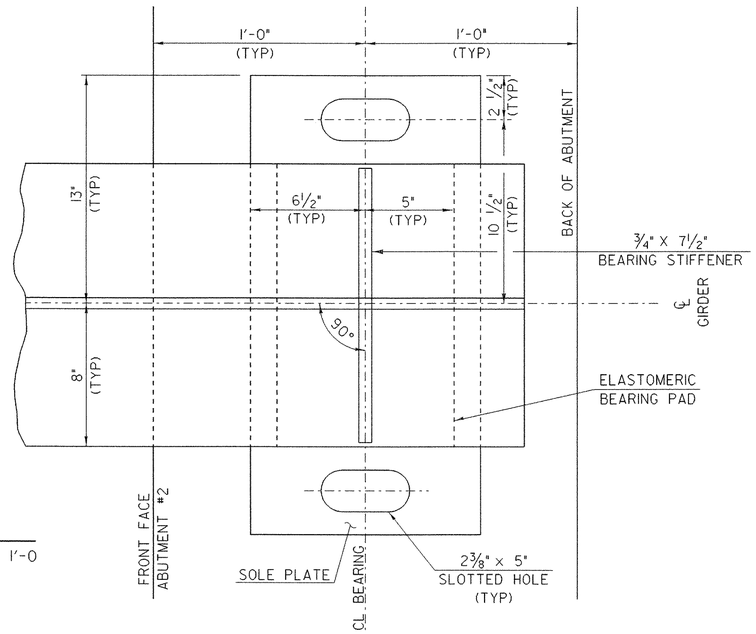
PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)

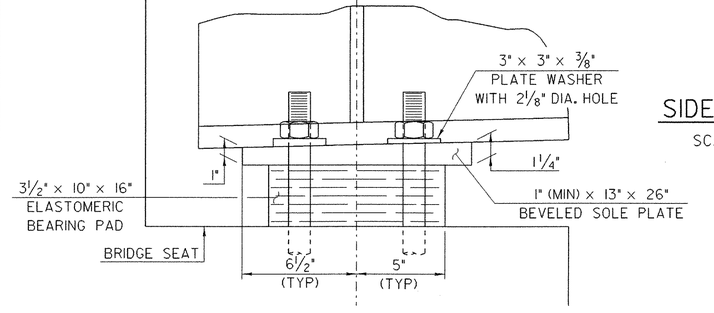
FILE NAME: /str5/01j168/sj168sup.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. GILMORE
DESIGNED BY: J. REED	CHECKED BY: J. REED
sj168bre.i	SHEET 38 OF 84



PLAN

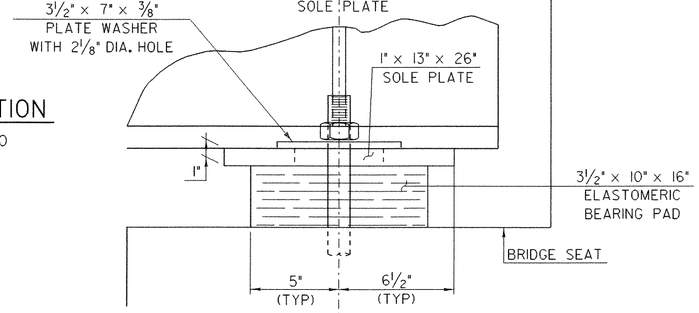
SCALE 3" = 1'-0

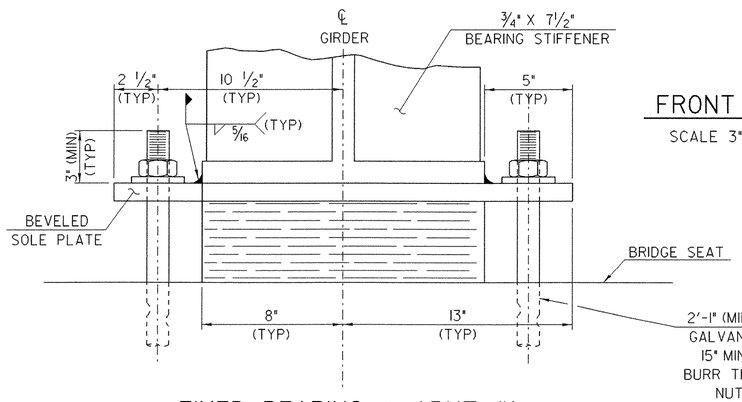




SIDE ELEVATION

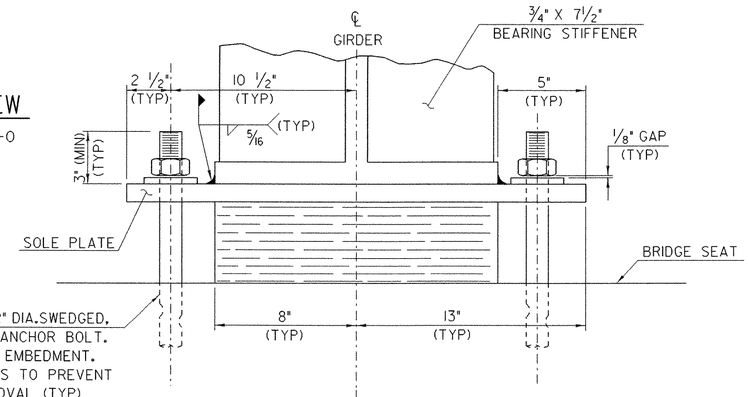
SCALE 3" = 1'-0





FRONT VIEW

SCALE 3" = 1'-0



FIXED BEARING @ ABUT #1

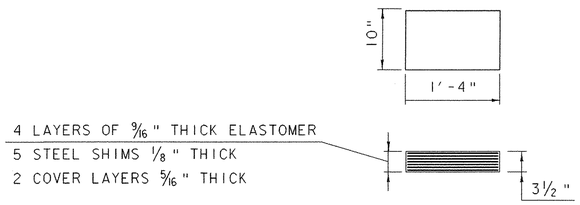
EXPANSION BEARING @ ABUT #2

BEARING NOTES

1. Bearings shall be paid for under the item 531.11 "Bearing Device Assembly, Elastomeric Pad" and shall conform to applicable subsections of Standard Specifications Section 531 and 731.
2. All Bearing Devices shall be galvanized or metalized as per subsections 531.04 (b) and 506.15 of the Standard Specifications. If the bearings are metalized, they shall be sealed with an approved sealer as specified in subsection 506.15 (b) of the Standard Specifications. Areas of galvanizing of metalizing damaged by field welding or handling shall be repaired in conformance with standard specification 513
3. Payment for anchor bolts, nuts, and washers shall be included in the unit bid price for Item 531.11 "Bearing Device Assembly, Elastomeric Pad." Anchor bolts, nuts and washers shall be galvanized per AASHTO M232/M232M.
4. All steel in bearing devices shall be AASHTO M270/M270M Grade 50.
5. All reinforcement between layers of elastomeric shall be steel AASHTO M270/M270M Grade 36. All internal steel plates shall be sand blasted and free of coatings, rust, and mill scale. The plates shall be free of sharp edges and burrs.
6. Steel reinforced elastomeric bearings shall have a minimum of 1/8" edge seal of elastomer integral with bearing over all internal plates.
7. Alternate configurations for bearings may be submitted for approval. Any alternate submitted shall be designed and certified to meet the design loads and criteria shown on this sheet. The alternate shall maintain the anchorage system shown and shall be designed per AASHTO Standard Specifications for Highway Bridges 2002 Edition and its latest revisions.
8. Bridge seat elevations may be revised to accommodate an alternative configuration.
9. Design Criteria:
   Rotation = 0.013 Radius
   RDL = 95 K
   RLL = 74 K
   Translation = s = 1"
   Temperature Range = -30°F to 120° F
   Bearings are designed as per AASHTO Standard Specifications for Highway Bridges, Edition 2002 and its latest revisions, Section 14, Method B.
   Elastomer shall have a nominal hardness of 60 on shore 'A' scale. Elastomer shall have a Shear Modulus between 0.130 ksi and 0.200. The Raw Elastomer shall be classified as Low Temperature Grade 4 as defined in Table 18.4.5.1 - 1a of AASHTO, Division II, Section 18.
   No fabric reinforcement will be allowed in elastomeric pads.
10. The steel sole plates shall be hot bonded to the reinforced elastomeric pad during the vulcanization process. The steel surfaces to be bonded to the pad shall not be metalized.
11. The concrete surface under the Bearing Device shall be level.
12. All required fabrication of bearings will occur before vulcanization process.

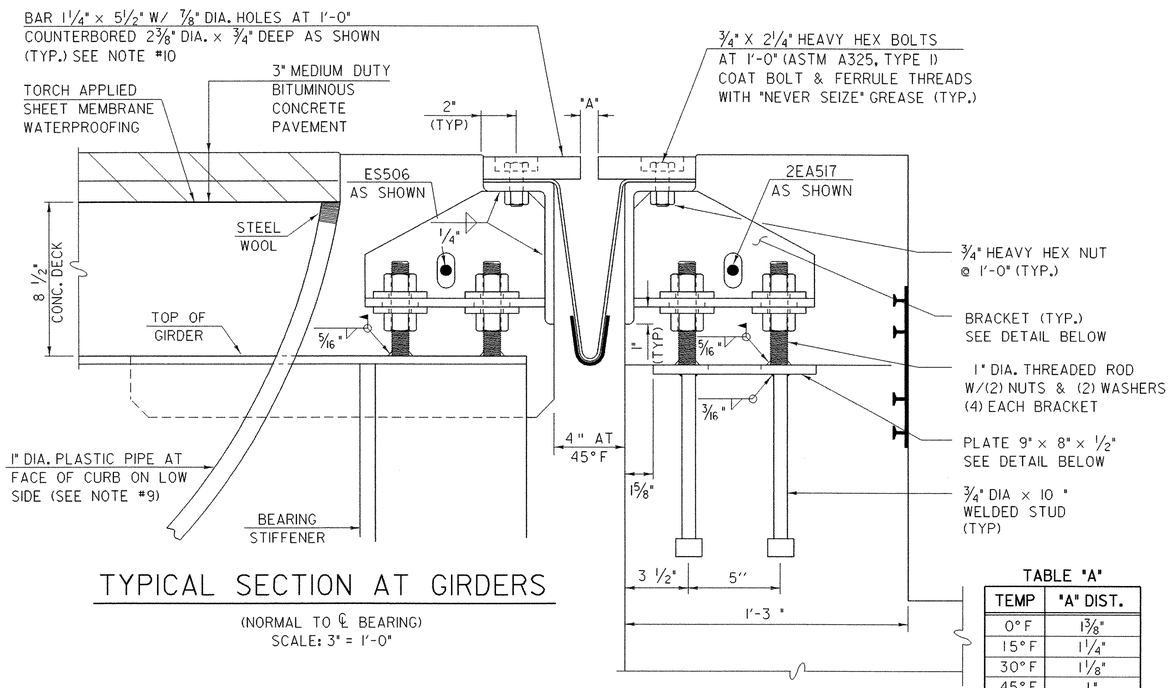
SCALE 3" = 1'-0

1 9 6 3 0 1



BEARING DEVICE DETAILS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)
FILE NAME: /str5/01j168/sj168sup.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. GILMORE
DESIGNED BY: J. REED	CHECKED BY: J. REED
sj168bdd.i	SHEET 39 OF 84



TYPICAL SECTION AT GIRDERS

(NORMAL TO ℄ BEARING)
SCALE: 3" = 1'-0"

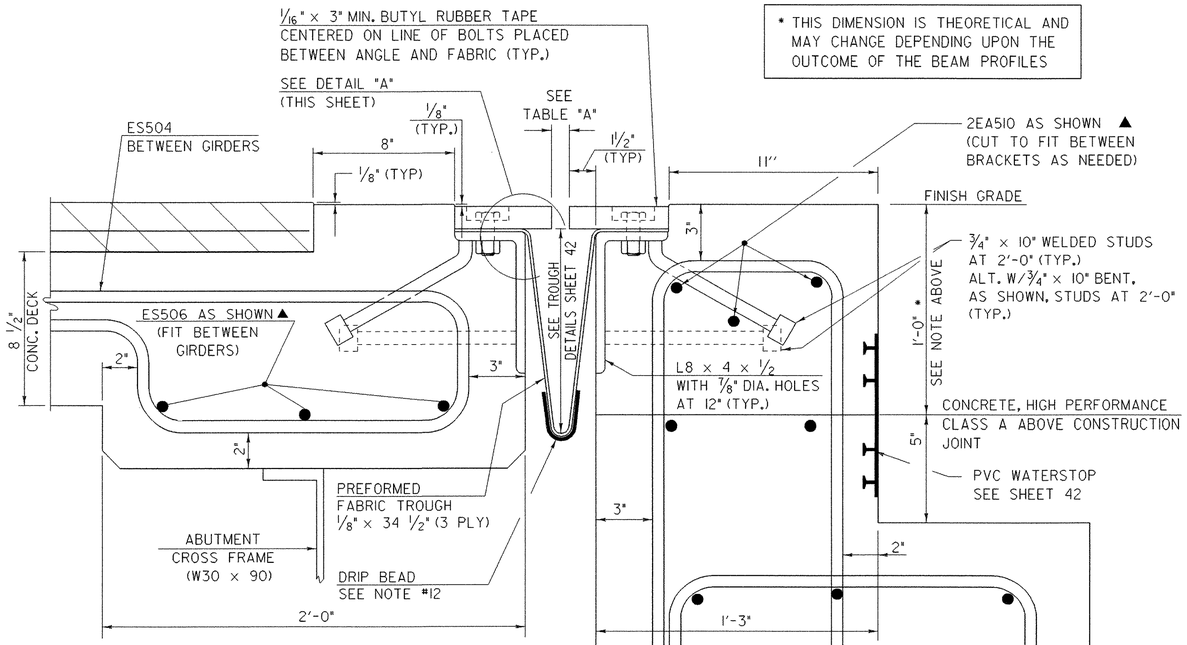
TABLE "A"

TEMP	"A" DIST.
0°F	1⅜"
15°F	1¼"
30°F	1⅛"
45°F	1"
60°F	⅞"
75°F	¾"
90°F	⅝"
105°F	½"

"A" IS THE SETTING CONDITION BEFORE ANY LOADS ARE IN PLACE.

EXPANSION JOINT NOTES

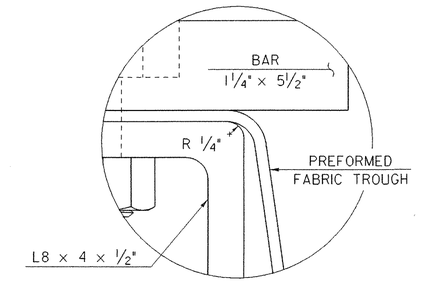
1. DETAILS ON THIS SHEET ARE FOR ITEM 516.11 "BRIDGE EXPANSION JOINT, VERMONT".
2. PREFORMED FABRIC MATERIAL SHALL BE CONTINUOUS AND SHALL CONFORM TO SUBSECTION 707.07 OF THE SPECIFICATIONS.
3. BUTYL RUBBER TAPE SHALL CONFORM TO SUBSECTION 707.12 OF THE SPECIFICATIONS.
4. THE FINAL FINISH OF THE EXPANSION DEVICE SHALL BE COVERED DURING THE PLACING OF BRIDGE DECK CONCRETE.
5. ALL STEEL COMPONENTS SHALL BE AASHTO M270/M270M GRADE 36 GALVANIZED OR METALIZED AS PER SUBSECTION 506.15 (a) OR (b) UNLESS OTHERWISED SPECIFIED. THREADED RODS SHALL CONFORM TO ASTM A307, GRADE C. THE NUTS FOR THE THREADED RODS BE ASTM A563.
6. THE ITEM "BRIDGE EXPANSION JOINT, VERMONT" 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 AND ANY OTHER MISCELLANEOUS MATERIAL NECESSARY TO INSTALL THE JOINT.
7. THE 8 × 4 × ½ ANGLES SHALL BE FURNISHED AS ONE CONTINUOUS PIECE. THE 1 ¼" × 5½" BARS EACH SIDE OF THE JOINT SHALL BE PROVIDED IN TWO EQUAL LENGTHS.
8. COAT CONCRETE CONTACT SURFACES WITH EPOXY BONDING COMPOUND. REFER TO SUBSECTION 516.05. PAYMENT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 516.11 "BRIDGE EXPANSION JOINT, VERMONT".
9. A 1" DIAMETER PLASTIC DRAIN TUBE PER SPECIFICATION 740.01 SHALL BE INSTALLED AS SHOWN AT THE FACE OF CURB. THE UPPER END IS TO BE PLUGGED AND 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 STRINGERS USING A METHOD APPROVED BY THE ENGINEER. PAYMENT FOR DRAIN TUBES AND THEIR INSTALLATION SHALL BE MADE INCIDENTAL TO ITEM 501.33. HIGH PERFORMANCE CONCRETE, CLASS A.
10. FILL COUNTERBORED HOLES WITH HOT POURED JOINT SEALER PER SPECIFICATION 707.04 AFTER BOLT INSTALLATION. PAYMENT FOR THE WORK SHALL BE INCIDENTAL TO ITEM 516.11 BRIDGE EXPANSION JOINT, VERMONT.
11. PAYMENT FOR WATERSTOP SHALL BE INCIDENTAL TO ITEM 501.34, CONCRETE, HIGH PERFORMANCE CLASS B.
12. A DRIP BEAD OF ¼" × 7" STRIP OF PREFORMED MATERIAL SHALL BE CEMENTED TO THE BOTTOM OF THE FABRIC TROUGH USING AN ADHESIVE APPROVED BY THE MANFACTURER. THE DRIP BEAD SHALL BE APPILED 1" FROM THE DOWNSPOUT END OF THE TROUGH.
13. FABRIC TROUGH SHALL BE THOROUGHLY CLEANED AND FLUSHED AFTER PAVING OPERATIONS.
14. THE EXPANSION JOINT SHALL BE SHOP ASSEMBLED AND SHIPPED AS ONE UNIT.



* THIS DIMENSION IS THEORETICAL AND MAY CHANGE DEPENDING UPON THE OUTCOME OF THE BEAM PROFILES

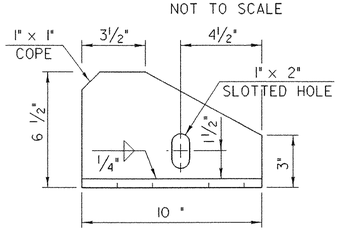
TYPICAL SECTION BETWEEN GIRDERS

(NORMAL TO ℄ BEARING)
SCALE 3" = 1'-0"



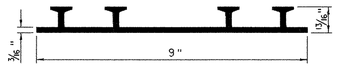
DETAIL "A"

NOT TO SCALE



BRACKET ELEVATION

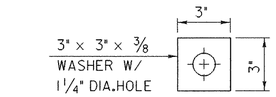
SCALE: 3" = 1'-0"



P.V.C. WATERSTOP FOR CONSTRUCTION JOINTS

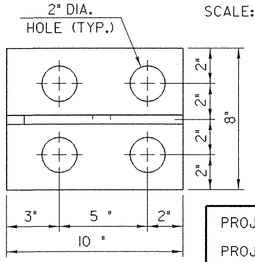
NOT TO SCALE

THE COST FOR P.V.C. WATERSTOP SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 501.22, "CONCRETE, CLASS B (HPC-B)". OTHER CONFIGURATIONS MAY BE USED UPON APPROVAL BY THE STRUCTURES ENGINEER.



WASHER FOR BRACKET

SCALE: 3" = 1'-0"



BRACKET PLAN

SCALE: 3" = 1'-0"

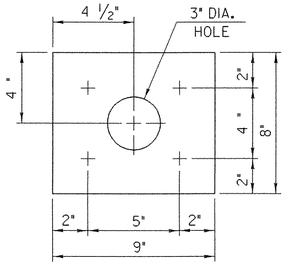


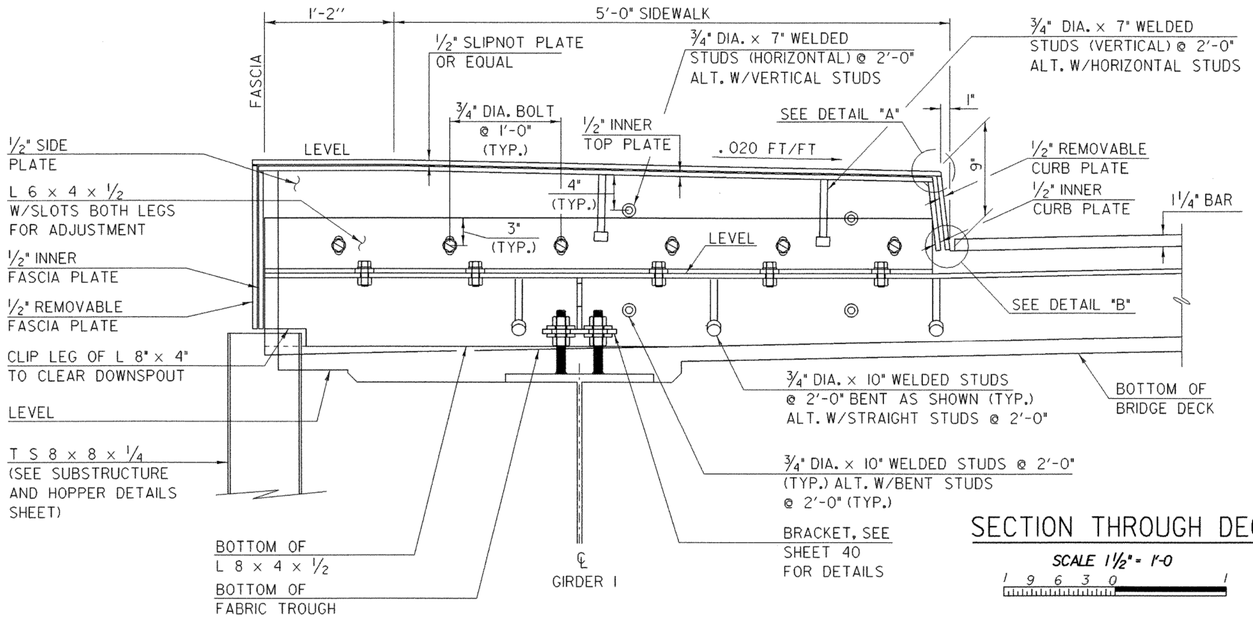
PLATE PLAN

SCALE: 3" = 1'-0"
(NO GALVANIZING REQUIRED)

ALL PLATES ½" THICK UNLESS OTHERWISE NOTED

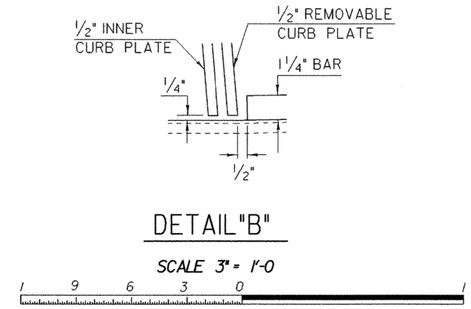
EXPANSION JOINT TYPICAL SECTION

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)
FILE NAME: /str5/01j168/sj168sup.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. GILMORE
DESIGNED BY: J. REED	CHECKED BY: J. REED
sj168ex2.i	SHEET 40 OF 84



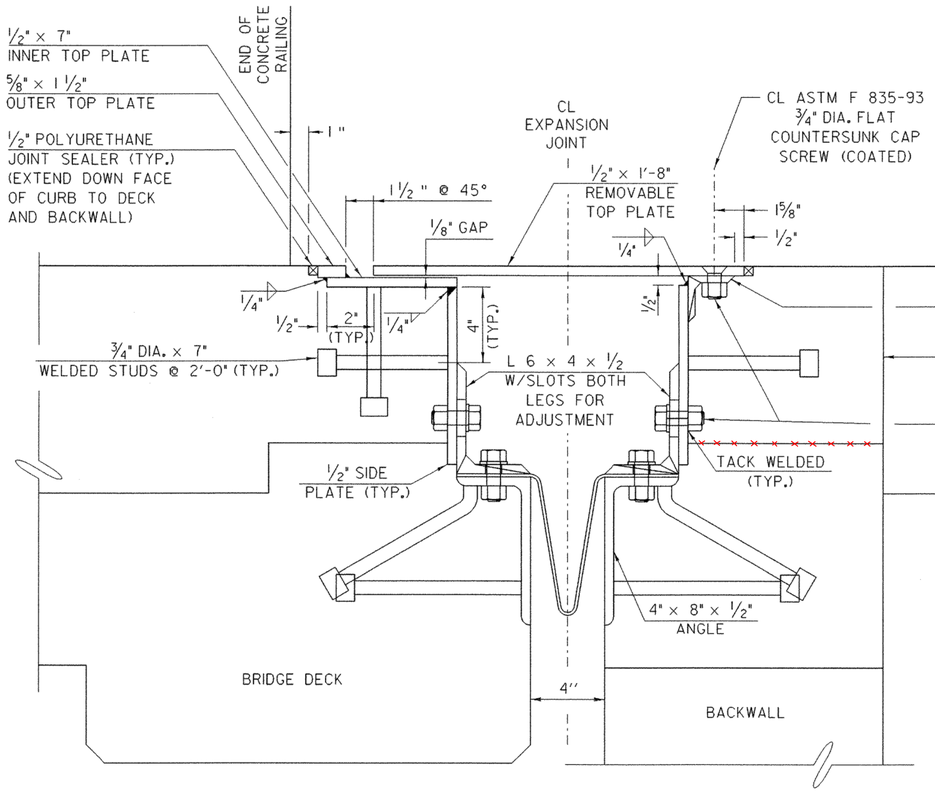
SECTION THROUGH DECK

SCALE 1 1/2" = 1'-0



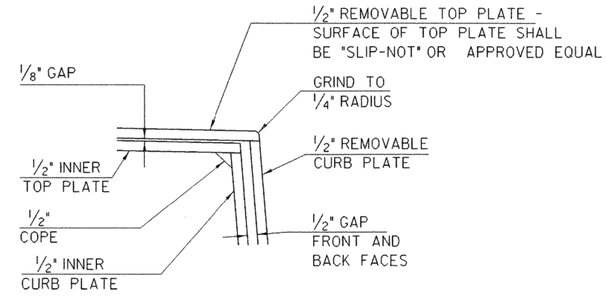
DETAIL "B"

SCALE 3" = 1'-0



SECTION THROUGH JOINT

SCALE 3" = 1'-0



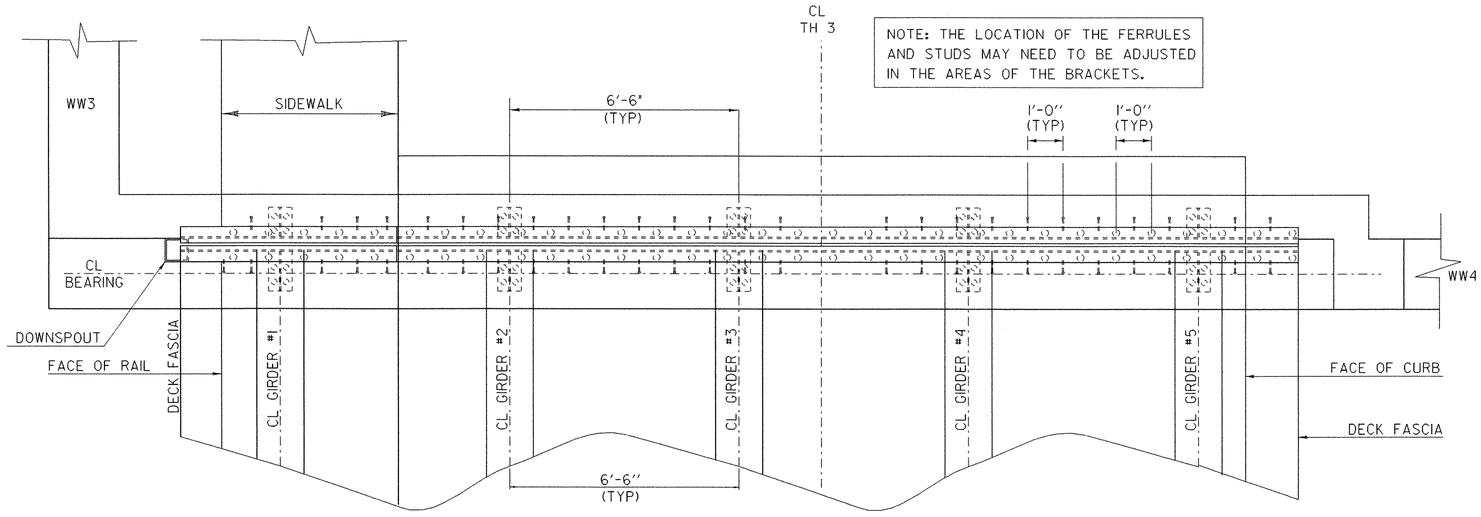
DETAIL "A"

SCALE 3" = 1'-0

SIDEWALK EXPANSION JOINT DETAILS

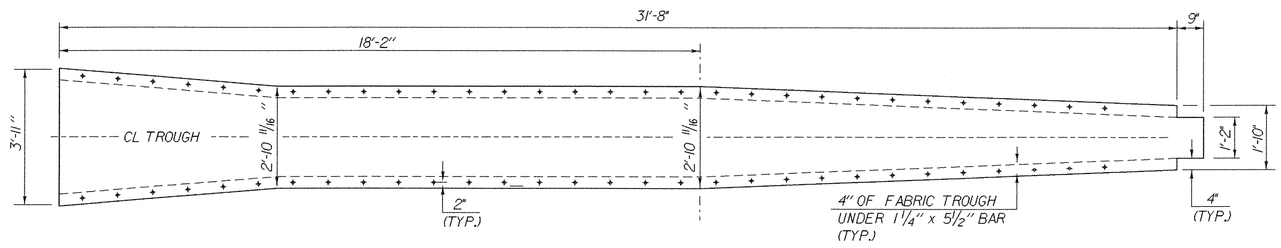
PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)

FILE NAME: /str5/01j168/sj168sup.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. GILMORE
DESIGNED BY: J. REED	CHECKED BY: J. REED
sj168exjsw.i	SHEET 41 OF 84



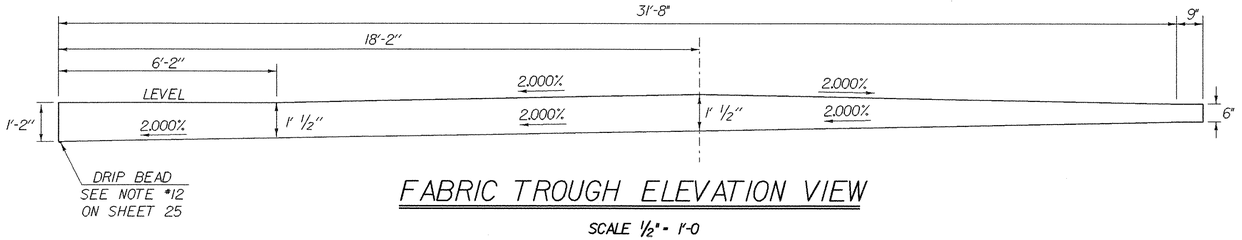
EXPANSION JOINT PLAN VIEW

SCALE 1/2" = 1'-0



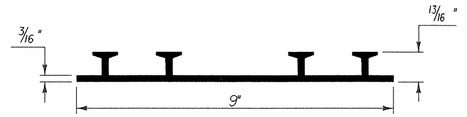
FABRIC TROUGH PLAN VIEW

SCALE 1/2" = 1'-0



FABRIC TROUGH ELEVATION VIEW

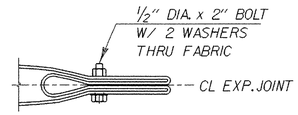
SCALE 1/2" = 1'-0



P.V.C. WATERSTOP FOR CONSTRUCTION JOINTS

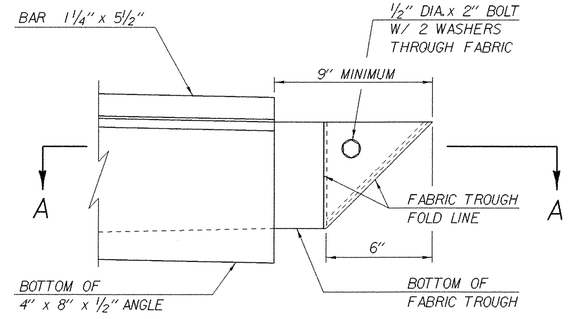
NOT TO SCALE

THE COSTS FOR P.V.C. WATERSTOP SHALL BE INCLUDED IN THE UNIT PRICE BID FOR HIGH PERFORMANCE CLASS B CONCRETE. OTHER CONFIGURATIONS MAY BE USED UPON APPROVAL OF THE STRUCTURES ENGINEER.



VIEW A - A

NTS



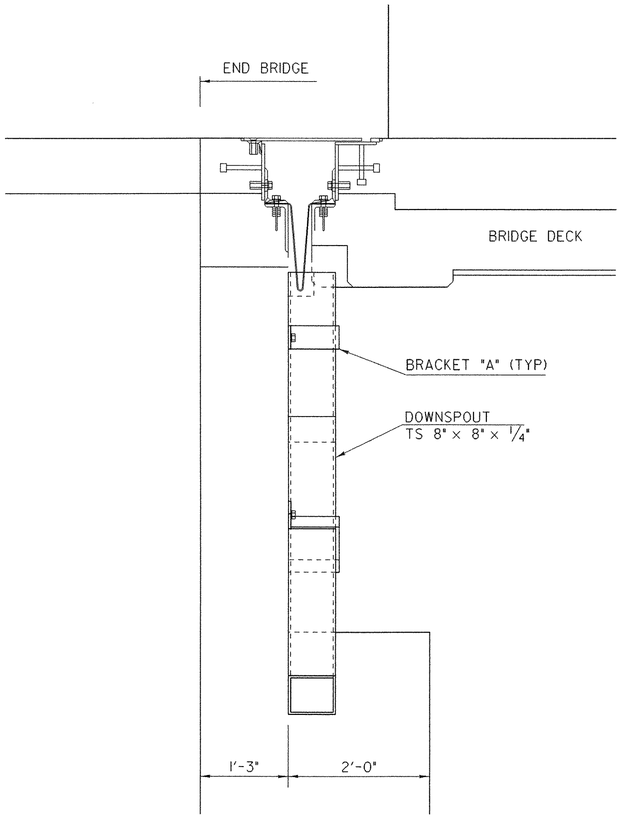
ELEVATION
FOLDED TROUGH END DETAILS

NTS

ROADWAY EXPANSION JOINT DETAILS

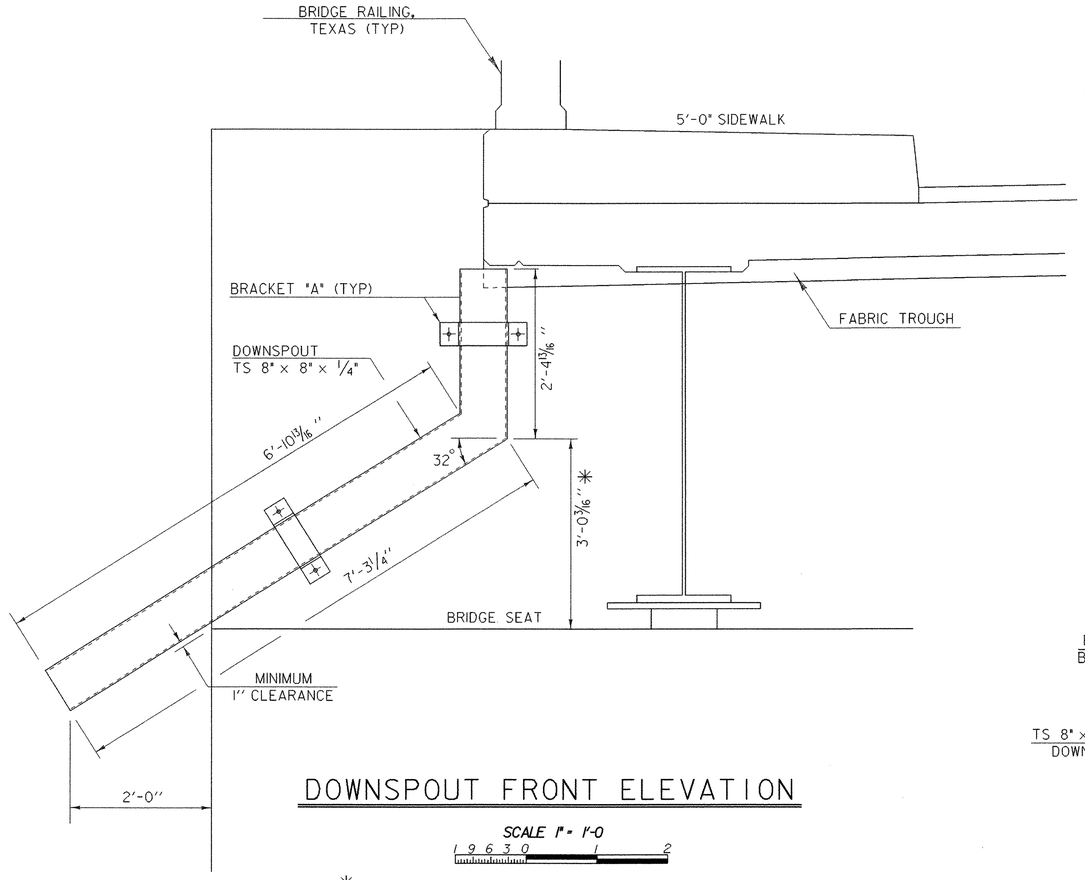
PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)

FILE NAME: /str5/01j168/sj168sup.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. GILMORE
DESIGNED BY: J. REED	CHECKED BY: J. REED
sj168exjr.i	SHEET 42 OF 84



DOWNSPOUT SIDE ELEVATION

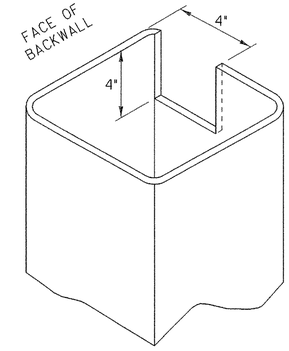
SCALE 1" = 1'-0



DOWNSPOUT FRONT ELEVATION

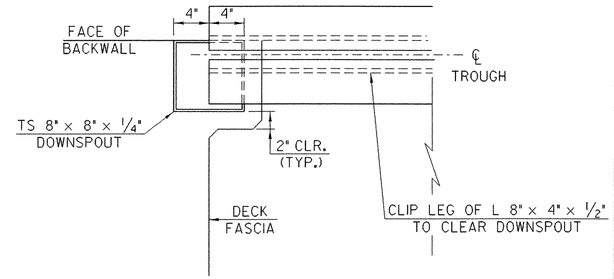
SCALE 1" = 1'-0

* THIS DIMENSION MAY BE ADJUSTED IN ORDER TO INSURE THAT THE DOWNSPOUT CLEARS THE BRIDGE SEAT BY THE REQUIRED 1" CLEARANCE.



DOWNSPOUT CUTOUT FOR TROUGH

NTS

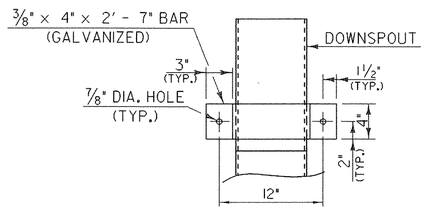


PLAN VIEW OF DECK BOXOUT FOR DOWNSPOUT

SCALE 1 1/2" = 1'-0

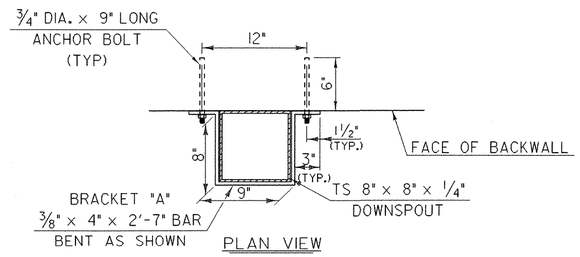
DOWNSPOUT NOTES

1. HOLLOW STRUCTURAL STEEL TUBING SHALL CONFORM TO A-500 OR A-501.
2. ALL PLATES, BARS, AND ANGLES SHALL CONFORM TO AASHTO M270 GR. 36.
3. DOWNSPOUT SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111 AFTER FABRICATION.
4. ALL BOLTS AND RELATED HARDWARE SHALL BE ASTM A-307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232.
5. ANY PLACE WHERE THE GALVANIZING HAS BEEN DAMAGED ON THE DOWNSPOUT EITHER BY CUTTING, BURNING, WELDING, PLACING, OR ANY OTHER MEANS, IT SHALL BE REPAIRED BY THROUGHLY CLEANING THE DAMAGED AREAS WITH A WIRE BRUSH AND PAINTING THE DAMAGED AREAS WITH TWO COATS OF AN APPROVED SEALANT.
6. DOWNSPOUT AND ALL ANCHOR BOLTS WITH RELATED HARDWARE SHALL BE PAID FOR UNDER THE ITEM 506.60 "STRUCTURAL STEEL".



ELEVATION VIEW OF BRACKET "A"

SCALE 1 1/2" = 1'-0

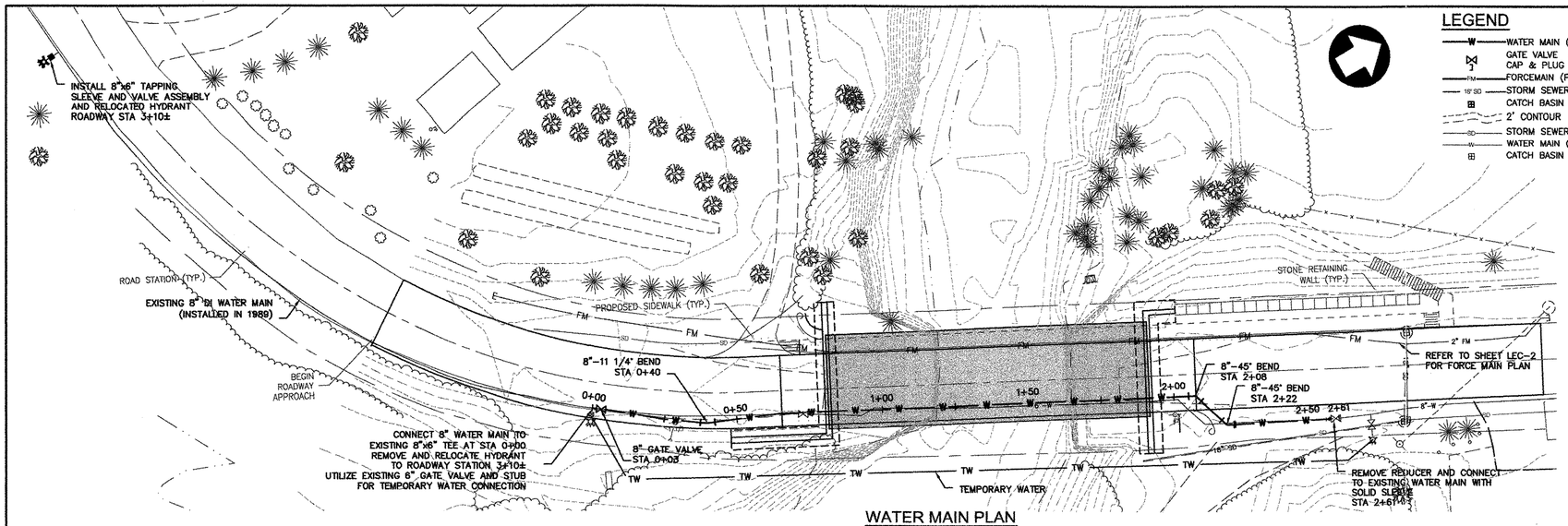


DETAILS FOR ATTACHING DOWNSPOUT TO BACKWALL

SCALE 1 1/2" = 1'-0

DOWNSPOUT DETAILS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)
FILE NAME: /str5/01j168/sj168sup.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. GILMORE
DESIGNED BY: J. REED	CHECKED BY: J. REED
sj168dsp.i	SHEET 43 OF 84

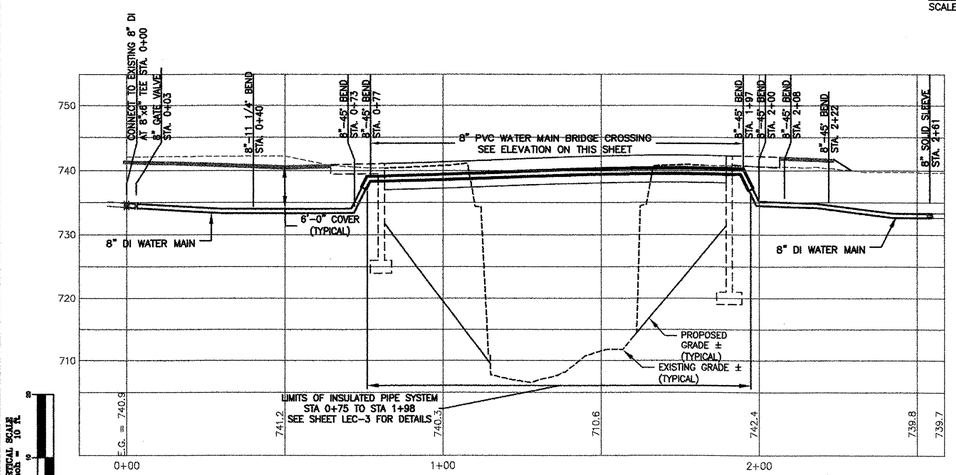


WATER MAIN PLAN

SCALE: 1" = 20'

LEGEND

- WATER MAIN (PROPOSED)
- GATE VALVE (PROPOSED)
- CAP & PLUG
- FORCEMAIN (PROPOSED)
- STORM SEWER (PROPOSED)
- CATCH BASIN (PROPOSED)
- 2' CONTOUR
- STORM SEWER (EXISTING)
- WATER MAIN (EXISTING)
- CATCH BASIN (EXISTING)
- GATE VALVE (EXISTING)
- FIRE HYDRANT (EXISTING)
- SIGN
- POWER POLE
- GUY
- R-O-W/PROPERTY LINE
- EXISTING GUARDRAIL
- EXISTING TREES
- PAVED SHOULDER (PROPOSED)
- EDGE OF PAVEMENT (PROPOSED)
- ROAD ℄ (PROPOSED)
- TEMPORARY WATER (PROPOSED)



WATER MAIN PROFILE

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

GENERAL NOTES

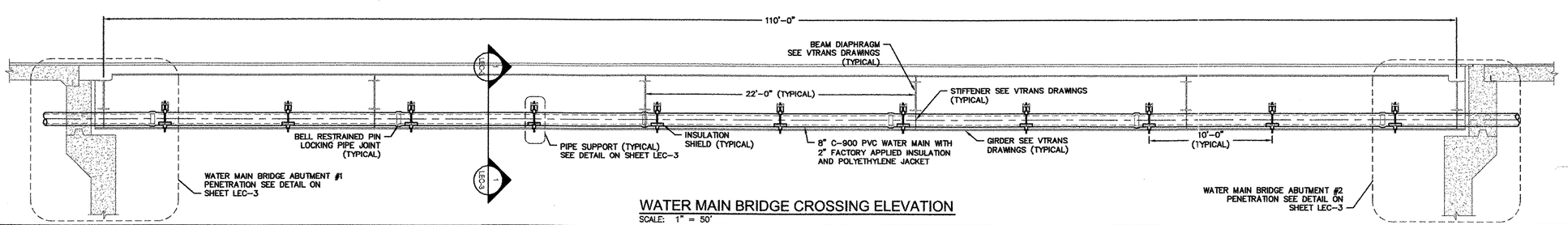
1. THE CONTRACTOR SHALL NOTE THAT THE DRAWINGS PROVIDED ARE DIAGRAMMATIC AND THAT THE CONTRACTOR IS REQUIRED TO PROVIDE ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT REQUIRED TO COMPLETE THE WORK IN ACCORDANCE WITH THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. ALL PIPING SHALL BE COMPLETE, INCLUDING CONNECTIONS TO STRUCTURES AND PIPELINES BUILT BY OTHERS.
2. TOPOGRAPHIC AND PROPOSED BRIDGE IMPROVEMENTS INFORMATION WERE PROVIDED BY VTRANS DRAWINGS DATED MAY 2, 2003.
3. THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION SCHEDULE WITH THE VARIOUS UTILITIES IN ORDER TO PREVENT UNNECESSARY DELAY OF WORK OR INTERRUPTION OF SERVICES
4. EXISTING UTILITIES AND UNDERGROUND STRUCTURES SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY. ALL UTILITIES SHALL BE LOCATED IN THE FIELD BY THE CONTRACTOR. NEITHER THE ENGINEER NOR THE OWNER WARRANTS OR GUARANTEES THE CONDITIONS SHOWN ON THE DRAWINGS. CONTRACTOR MUST CONTACT AND COORDINATE WITH "DIG-SAFE" AND THE VILLAGE FOR UTILITY LOCATION MARKINGS.
5. DEPTHS OF EXISTING WATER LINES SHOWN ON PROFILES ARE ESTIMATED FROM BEST AVAILABLE INFORMATION AND SHALL BE LOCATED BY CONTRACTOR PRIOR TO STARTING INSTALLATION OF THE WATER MAIN. ADJUSTMENTS TO THE WATER MAIN SHALL BE MADE TO ACCOMMODATE THE EXISTING WATER MAIN.
6. NO SINGLE PIECE OF PIPE SHALL BE LAID UNLESS IT IS GENERALLY STRAIGHT AND IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS AND VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATION SECTION 629.06. THE CENTERLINE OF THE PIPE SHALL NOT DEVIATE FROM A STRAIGHT LINE BETWEEN CENTERS OF THE OPENINGS AT THE ENDS OF THE PIPE BY MORE THAN 1/16" PER FOOT OF PIPE. IF A PIECE OF PIPE CAN NOT MEET THESE REQUIREMENTS IT SHALL BE REJECTED AND REMOVED FROM THE SITE.
7. CONTRACTOR SHALL PLUG & SEAL OPEN ENDS OF ALL UTILITIES TO BE ABANDONED.
8. CONTRACTOR IS RESPONSIBLE TO NOTIFY VILLAGE WATER SUPERINTENDENT TO SCHEDULE ANY WATER MAIN SHUTDOWN. LOCAL RESIDENTS SHALL BE NOTIFIED IN COOPERATION WITH THE VILLAGE.
9. ALL WORK SHALL BE WITHIN THE ROAD RIGHT-OF-WAY, UNLESS SPECIFICALLY INDICATED OTHERWISE.
10. WATER MAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATION SECTION 629.
11. 8" PVC WATER MAIN FOR BRIDGE CROSSING SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA C900 PRESSURE PIPE (4"-12") FOR WATER. PIPE SHALL INCORPORATE AN INTEGRAL BELL RESTRAINED LOCKING JOINT USING EXTERNAL RING AND PIN CONNECTION. EXPANSION AND CONTRACTION OF SYSTEM SHALL BE ACCOUNTED FOR IN PIPE JOINTS.

11a. PIPE AND FITTINGS SHALL BE THOROUGHLY CLEANED BEFORE INSTALLATION AND SHALL BE KEPT CLEAN DURING THE PROCESS OF CONSTRUCTION. THE CONTRACTOR SHALL PLUG OPEN ENDS OF PIPE TO AVOID CONTAMINATION DURING TIMES WHEN INSTALLATION IS NOT IN PROGRESS, EVEN INCLUDING BUT NOT LIMITED TO MID DAY BREAKS.

12. EACH CLASS/TYPE OF PIPE SHALL BE FROM A SINGLE MANUFACTURER AND SHIPPED TO THE SITE IN ITS ORIGINAL PACKAGE WITH MARKINGS TO SHOW QUALITY OF CONTENTS AND BEARING LABELS. INSPECTION OF THE PIPE AND MATERIALS MAY BE MADE BY THE PROJECT REPRESENTATIVE AND SHALL BE SUBJECT TO REJECTION AT ANY TIME ON ACCOUNT OF FAILURE TO MEET SPECIFICATIONS. ANY MATERIALS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTORS EXPENSE
13. PIPE, WHERE SPECIFIED, SHALL HAVE 2" RIGID POLYURETHANE FOAM INSULATION FACTORY APPLIED BY A VOID FREE INSULATION PROCESS. INSULATION MEET ASTM D1622 DENSITY AND ASTM D2856 FOR CLOSED CELL CONTENT AND PROTECTED BY A POLYETHYLENE OUTER JACKET. INSULATION OF ASSOCIATED JOINTS, FITTINGS AND ACCESSORIES SHALL BE PER MANUFACTURERS RECOMMENDATIONS. PIPE INSULATION SHALL BE INSTALLED IN ACCORDANCE WITH VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATION SECTION 629.15.
14. POLYETHYLENE OUTER JACKET SHALL BE UV INHIBITED BLACK, FACTORY APPLIED JACKET WITH ENHANCED COLD CLIMATE HANDLING PROPERTIES. THE JACKET SEALANT SHALL BE BUTYL RUBBER ADHESIVE TO ENSURE POSITIVE ADHESION TO THE FOAM INSULATION AND SHALL BE APPLIED HOT IN TWO COUNTER WOUND AND OVERLAPPING LAYERS. JACKET THICKNESS SHALL BE 50 MILS. SERVICE TEMPERATURE RANGE SHALL BE -30°F TO 180°F FOR INSTALLATION AND -49°F TO 185°F FOR SERVICE.
15. PIPES SHALL BE SUPPORT BY PIPE ROLLERS DESIGNED TO ALLOW HORIZONTAL MOVEMENT DUE TO EXPANSION AND CONTRACTION OF THE PIPE. SUPPORTS SHALL EQUALLY DISBURSE THE LOAD OF THE PIPE ACROSS THE BRIDGE SPAN USING THE PARAMETERS THAT AN 8" C900 PVC PIPE WEIGHS 9.1 LBS/FT AND CONTAINS 22.1 LBS/FT OF WATER, FOR SAFETY PURPOSES 35 LBS/FT SHALL BE THE TOTAL DESIGN WEIGHT.
16. PIPE ROLLER SYSTEM SHALL BE CAST IRON WITH LOW CARBON STEEL AXLES. ALL BRACKETS FOR SUPPORT OF THE ROLLERS SHALL BE MADE FROM B-A53 STEEL AND BOLTS SHALL BE MADE FROM A325N STEEL. PIPE ROLLER SUPPORT SHALL COMPLY WITH FEDERAL SPECIFICATION A-A-1192A, TYPE 41 AND MANUFACTURERS STANDARDIZATION SOCIETY AP-69, TYPE 41. RODS, WASHERS, NUTS, ETC. REQUIRED FOR THE COMPLETE INSTALLATION OF PIPE ROLLER ASSEMBLY SHALL BE PROVIDED BY THE MANUFACTURER. ALL THREADED PARTS SHALL BE ELECTRO-PLATED ZINC PER ASTM B633, ALL OTHER COMPONENTS SHALL BE HOP-DIPPED GALVANIZED PER ASTM D123.

SEQUENCE OF CONSTRUCTION

1. INSTALL TAPPING SLEEVE AND VALVE AT ROADWAY STATION 3+10. TEMPORARILY SHUT DOWN EXISTING WATER MAIN TO RELOCATE EXISTING HYDRANT AND INSTALL 8" GATE VALVE AT WATER MAIN STATION 0+03.
2. TEMPORARY WATER SHALL BE CONNECTED BY ATTACHING TO EXISTING 6" HYDRANT STUB AFTER THE GATE VALVE. TRANSITION FITTINGS TO HDPE SHALL BE ACCEPTABLE OR BY INSTALLING A 2" CORPORATION WITH A TRANSITION TO 4" HDPE TEMPORARY WATER. TEMPORARY WATER SHALL RECONNECT AT THE EXISTING HYDRANT AT ROADWAY STATION 7+90. CONTRACTOR SHALL SUBMIT A METHOD TO CROSS RIVER CHANNEL WITH TEMPORARY WATER FOR REVIEW AND APPROVAL TO THE OWNER AND ENGINEER. ALL EXPOSED TEMPORARY WATER SHALL BE INSULATED WITH CIRCUMFERENTIAL INSULATION IF TEMPORARY WATER IS TO REMAIN IN SERVICE DURING THE WINTER MONTHS.
3. ALL PORTIONS OF TEMPORARY WATER SHALL BE INSTALLED BEFORE ABANDONING EXISTING BRIDGE CROSSING. DISINFECTION AND TESTING OF TEMPORARY WATER SHALL BE IN ACCORDANCE WITH ANR WATER SUPPLY DIVISION.
4. WATER MAIN AND TEMPORARY WATER MAY BE INSTALLED PRIOR TO OR AFTER ROADWAY RECONSTRUCTION BUT NOT BEFORE ALL CHANNEL BLASTING HAS BEEN COMPLETED.



WATER MAIN BRIDGE CROSSING ELEVATION

SCALE: 1" = 50'

NO.	REVISIONS	DATE

PLAN AND PROFILE
8" WATER MAIN
BRIDGE #61, TH #3
TOWN OF BARTON, VILLAGE OF ORLEANS, VERMONT

LEACH ENGINEERING CONSULTANTS, P.A.
36 EASTERN AVENUE, SUITE 6
ST. JOHNSBURY, VERMONT 05819
PHONE: (802) 748-9099 FAX: (802) 748-9023

DRAWN:	EAE
CHK'D:	NPS
APP'D:	GAL
DATE:	08/14/06
SCALE:	AS SHOWN

LEC-1

BARTON
BRO 1449(29)

SHEET 44 OF 84

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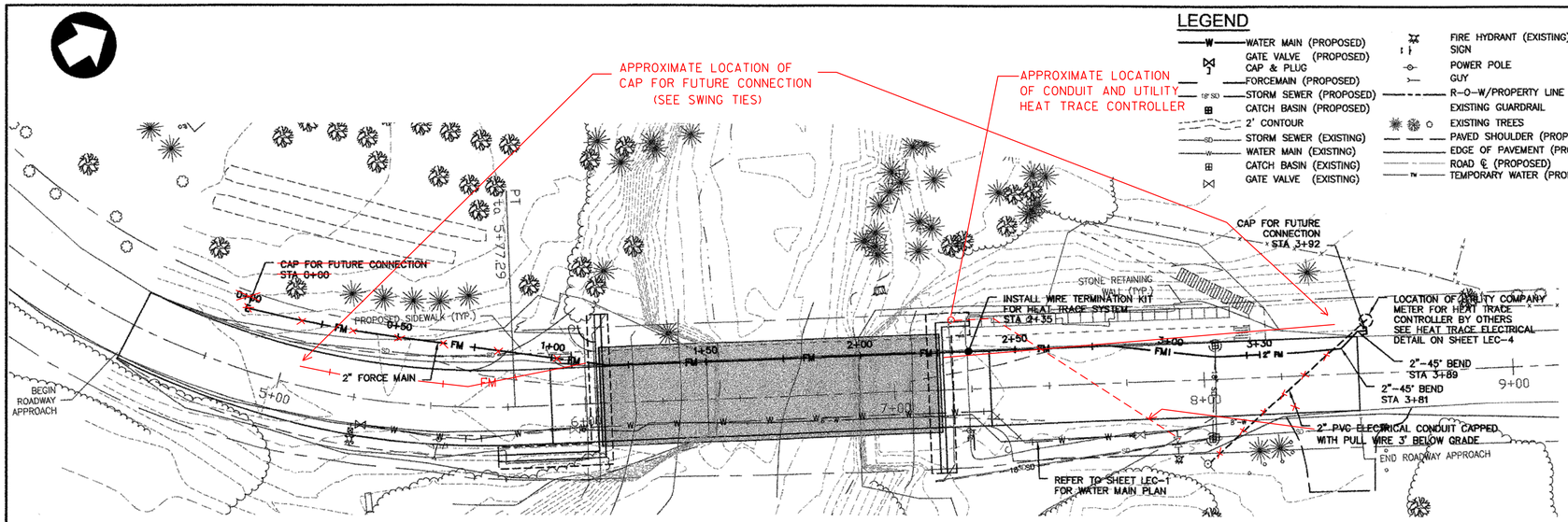
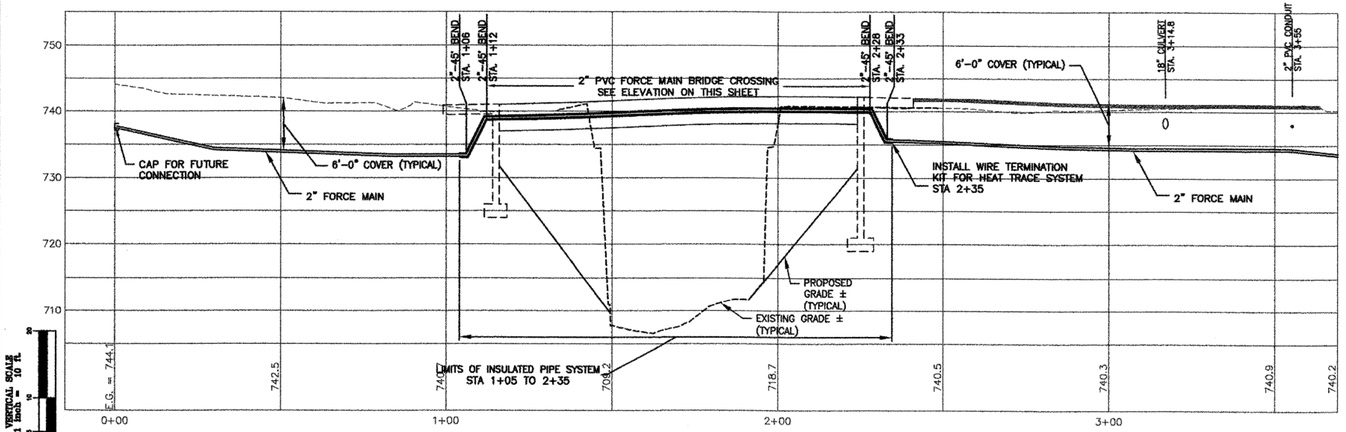


SEWER FORCE MAIN PLAN

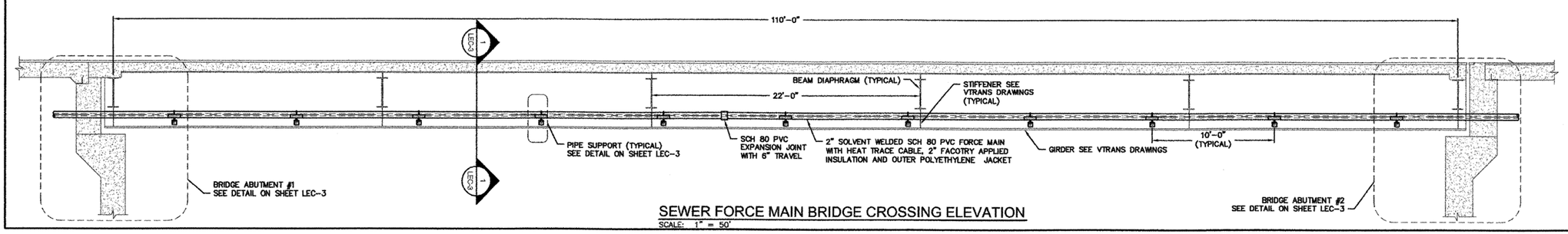
SCALE: 1" = 20'



SEWER FORCE MAIN PROFILE

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

GRAPHIC SCALE



SEWER FORCE MAIN BRIDGE CROSSING ELEVATION

SCALE: 1" = 50'

LEGEND

- WATER MAIN (PROPOSED)
- GATE VALVE (PROPOSED)
- CAP & PLUG
- FORCEMAIN (PROPOSED)
- STORM SEWER (PROPOSED)
- CATCH BASIN (PROPOSED)
- 2' CONTOUR
- STORM SEWER (EXISTING)
- WATER MAIN (EXISTING)
- CATCH BASIN (EXISTING)
- GATE VALVE (EXISTING)
- FIRE HYDRANT (EXISTING)
- SIGN
- POWER POLE
- GUY
- R-O-W/PROPERTY LINE
- EXISTING GUARDRAIL
- EXISTING TREES
- PAVED SHOULDER (PROPOSED)
- EDGE OF PAVEMENT (PROPOSED)
- ROAD ℄ (PROPOSED)
- TEMPORARY WATER (PROPOSED)

GENERAL NOTES

1. THE CONTRACTOR SHALL NOTE THAT THE DRAWINGS PROVIDED ARE DIAGRAMMATIC AND THAT THE CONTRACTOR IS REQUIRED TO PROVIDE ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT REQUIRED TO COMPLETE THE WORK IN ACCORDANCE WITH THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. ALL PIPING SHALL BE COMPLETE, INCLUDING CONNECTIONS TO STRUCTURES AND PIPELINES BUILT BY OTHERS.
2. TOPOGRAPHIC AND PROPOSED BRIDGE IMPROVEMENTS INFORMATION WERE PROVIDED BY VTRANS DRAWINGS DATED MAY 2, 2003.
3. EXISTING UTILITIES AND UNDERGROUND STRUCTURES SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY. ALL UTILITIES SHALL BE LOCATED IN THE FIELD BY THE CONTRACTOR. NEITHER THE ENGINEER NOR THE OWNER WARRANTS OR GUARANTEES THE CONDITIONS SHOWN ON THE DRAWINGS. CONTRACTOR MUST CONTACT AND COORDINATE WITH "DIG-SAFE" AND THE VILLAGE FOR UTILITY LOCATION MARKINGS.
4. NO SINGLE PIECE OF PIPE SHALL BE LAID UNLESS IT IS GENERALLY STRAIGHT AND IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS AND VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION SECTION 628.06. THE CENTERLINE OF THE PIPE SHALL NOT DEVIATE FROM A STRAIGHT LINE BETWEEN CENTERS OF THE OPENINGS AT THE ENDS OF THE PIPE BY MORE THAN 1/16" PER FOOT OF PIPE. IF A PIECE OF PIPE CAN NOT MEET THESE REQUIREMENTS IT SHALL BE REJECTED AND REMOVED FROM THE SITE.
5. ALL WORK SHALL BE WITHIN THE ROAD RIGHT-OF-WAY, UNLESS SPECIFICALLY INDICATED OTHERWISE.
6. FORCE MAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATION SECTION 628.
7. SEWER FORCE MAIN FOR BRIDGE CROSSING SHALL BE SOLVENT WELDED SCHEDULE 80 PVC. A TRIPLE O-RING SEALED TELESCOPING EXPANSION JOINT SHALL BE INSTALLED AT ANY POINT BETWEEN THE CENTER MOST BEAM DIAPHRAGMS. SDR 21 PVC SHALL TRANSITION TO SCH 80 PVC AT VERTICAL BENDS BEFORE/AFTER ABUTMENT PENETRATIONS
8. ALL PIPE SHALL BE FROM A SINGLE MANUFACTURER AND SHIPPED TO THE SITE IN ITS ORIGINAL PACKAGE WITH MARKINGS TO SHOW QUALITY OF CONTENTS AND BEARING LABELS. INSPECTION OF THE PIPE AND MATERIALS MAY BE MADE BY THE PROJECT RESENTATIVE AND SHALL BE SUBJECT TO REJECTION AT ANY TIME ON ACCOUNT OF FAILURE TO MEET SPECIFICATIONS. ANY MATERIALS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTORS EXPENSE
9. PIPE, WHERE SPECIFIED, SHALL HAVE 2" RIGID POLYURETHANE FOAM INSULATION FACTORY APPLIED BY A VOID FREE INSULATION PROCESS. INSULATION SHALL MEET ASTM D1622 DENSITY AND ASTM D2856 FOR CLOSED CELL CONTENT AND PROTECTED BY A POLYETHYLENE OUTER JACKET. INSULATION OF ASSOCIATED JOINTS, FITTINGS AND ACCESSORIES SHALL BE PER MANUFACTURERS RECOMMENDATIONS. PIPE INSULATION SHALL BE INSTALLED IN ACCORDANCE WITH VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATION SECTION 629.15.
10. POLYETHYLENE OUTER JACKET SHALL BE UV INHIBITED BLACK, FACTORY APPLIED JACKET WITH ENHANCED COLD CLIMATE HANDLING PROPERTIES. THE JACKET SEALANT SHALL BE BUTYL RUBBER ADHESIVE TO ENSURE POSITIVE ADHESION TO THE FOAM INSULATION AND SHALL BE APPLIED HOT IN TWO COUNTER WOUND AND OVERLAPPING LAYERS. JACKET THICKNESS SHALL BE 50 MILS SERVICE TEMPERATURE RANGE SHALL BE -30℉ TO 180℉ FOR INSTALLATION AND -49℉ TO 185℉ FOR SERVICE.
11. HEAT TRACE CONDUITS SHALL CONSIST OF AN EXTRUDED MOLDING AND SHALL BE APPLIED TO THE PIPE PRIOR TO APPLICATION OF THE INSULATION.
12. PIPES SHALL BE SUPPORTED BY PIPE ROLLERS DESIGNED TO ALLOW HORIZONTAL MOVEMENT DUE TO EXPANSION AND CONTRACTION OF PIPE. SUPPORT SHALL EQUALLY DISBURSE THE LOAD OF THE PIPE ACROSS THE BRIDGE SPAN USING THE PARAMETERS THAT 2"-C900 PVC PIPE WEIGHS 1.0 LBS/FT AND CONTAINS 1.4 LBS/FT OF FORCE MAIN SEWER. FOR SAFETY PURPOSES 5 LBS/FT SHALL BE THE TOTAL DESIGN WEIGHT.
13. PIPE ROLLER SYSTEM SHALL BE CAST IRON WITH LOW CARBON STEEL AXLES. ALL BRACKETS FOR SUPPORT OF THE ROLLERS SHALL BE MADE FROM B-A53 STEEL AND BOLTS SHALL BE MADE FROM A325N STEEL. PIPE ROLLER SUPPORT SHALL COMPLY WITH FEDERAL SPECIFICATION A-A-1192A, TYPE 41 AND MANUFACTURERS STANDARDIZATION SOCIETY AP-69, TYPE 41.
14. RODS, WASHERS, NUTS, ETC REQUIRED FOR THE COMPLETE INSTALLATION OF PIPE ROLLER SUPPORT ASSEMBLY SHALL BE PROVIDED BY THE MANUFACTURER. ALL THREADED PARTS SHALL BE ELECTRO-PLATED ZINC PER ASTM B633, ALL OTHER COMPONENTS SHALL BE HOT-DIPPED GALVANIZED PER ASTM D123.
15. HEATING CABLE SHALL PROVIDE 3 WATTS/LF AT 240V/1ø/60 HZ AND A MAXIMUM CIRCUIT LENGTH OF 800 FEET. PROVIDE SYSTEM WITH THERMOSTAT, TEMPERATURE SENSORS AND POWER FEED KIT.

NO.	REVISIONS	DATE

PLAN AND PROFILE
SEWER FORCE MAIN
BRIDGE #61, TH #3

TOWN OF BARTON, VILLAGE OF ORLEANS, VERMONT

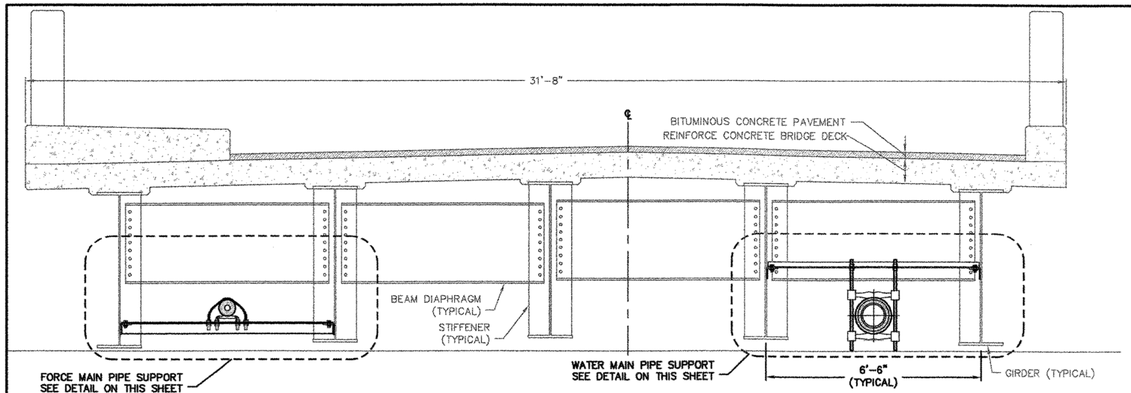
LEACH ENGINEERING CONSULTANTS, P.A.
36 EASTERN AVENUE, SUITE 6
ST. JOHNSBURY, VERMONT 05819
PHONE: (802) 748-9008 FAX: (802) 748-9023

DRAWN:	EAE
CH'D:	NPS
APP'D:	GAL
DATE:	08/14/06
SCALE:	1" = 20'

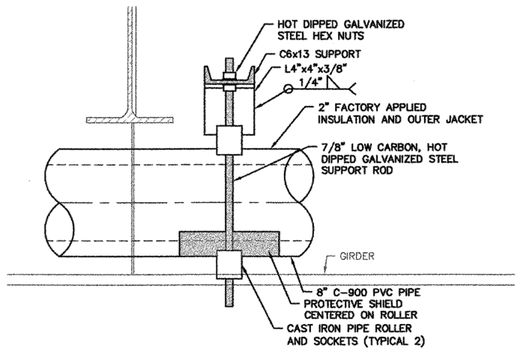
LEC-2

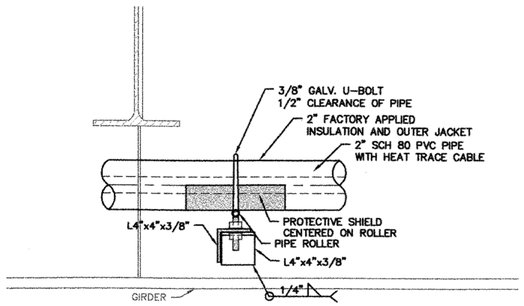
BARTON
BRO 1449(29)

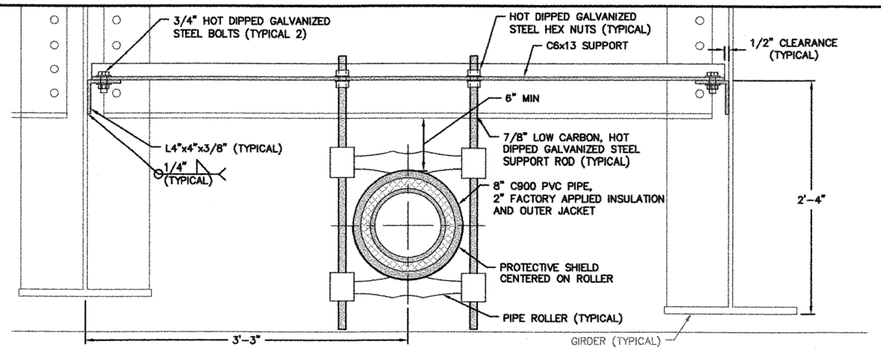
S:\Projects\ORL-WLR-B\dwg\ORL-WLR-B-LEC-2.dwg 8/29/2008 8:34 AM



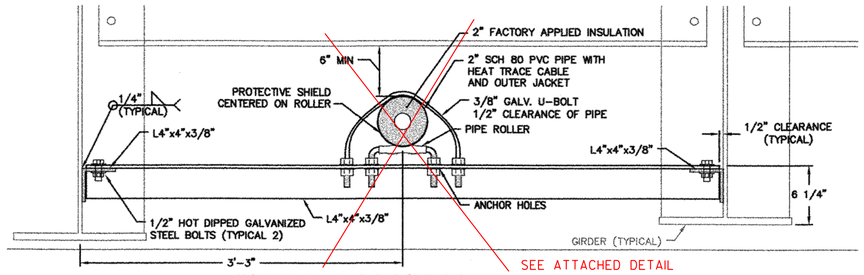
1 BRIDGE SECTION
SCALE: 1/2" = 1'-0"







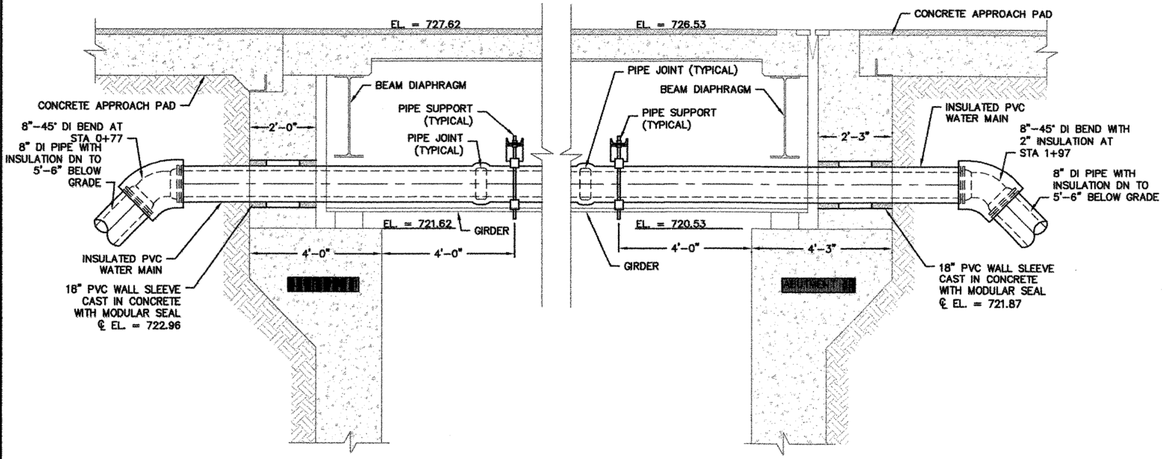
WATER MAIN PIPE SUPPORT DETAIL
SCALE: 1 1/2" = 1'-0"
NOTE:
1. SIZE DOUBLE ROLLER PIPE SUPPORT AND SHIELD FOR OUTSIDE DIAMETER OF FACTORY APPLIED INSULATION
2. SUPPORT SYSTEM SHALL BE A-36 GALVANIZED STEEL
3. ALL HOT DIPPED GALVANIZED STEEL SHALL MEET ASTM 123.



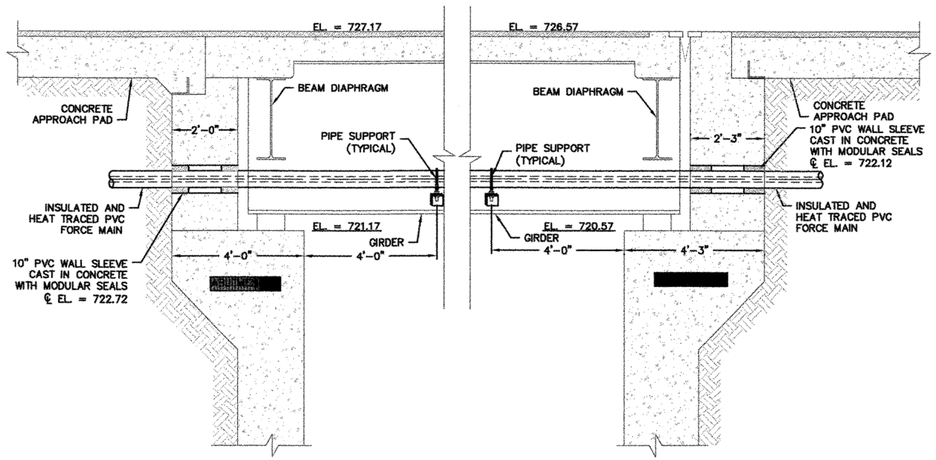
FORCE MAIN PIPE SUPPORT DETAIL
SCALE: 1 1/2" = 1'-0"
NOTE:
1. SIZE DOUBLE ROLLER PIPE SUPPORT AND SHIELD FOR OUTSIDE DIAMETER OF FACTORY APPLIED INSULATION
2. SUPPORT SYSTEM SHALL BE A-36 GALVANIZED STEEL
3. ALL HOT DIPPED GALVANIZED STEEL SHALL MEET ASTM 123.

WATER MAIN PIPE SUPPORT DETAIL
SCALE: 1 1/2" = 1'-0"

FORCE MAIN PIPE SUPPORT DETAIL
SCALE: 1 1/2" = 1'-0"



WATER MAIN ABUTMENT PENETRATION DETAIL
SCALE: 1/2" = 1'-0"
NOTE:
1. INSTALL MODULAR SEALS ON INSIDE AND OUTSIDE FACE OF ABUTMENT.
2. PROTECT INSULATION FROM BEING CRUSHED DURING INSTALLATION OF MODULAR SEALS
3. VERIFY INSULATION OUTSIDE DIAMETER and WALL SLEEVE INSIDE DIAMETER FOR MODULAR SEAL.
4. CAST HOLES IN NEW ABUTMENTS TAKING SPECIAL CARE TO ALIGN HOLES WITH SHOP DRILLED PIPE HANGER LOCATIONS.



FORCE MAIN ABUTMENT PENETRATION DETAIL
SCALE: 1/2" = 1'-0"
NOTE:
1. INSTALL MODULAR SEALS ON INSIDE AND OUTSIDE FACE OF ABUTMENT.
2. PROTECT INSULATION FROM BEING CRUSHED DURING INSTALLATION OF MODULAR SEALS
3. VERIFY INSULATION OUTSIDE DIAMETER AND WALL SLEEVE INSIDE DIAMETER FOR MODULAR SEAL.
4. CAST HOLES IN NEW ABUTMENTS TAKING SPECIAL CARE TO ALIGN HOLES WITH SHOP DRILLED PIPE HANGER LOCATIONS.

NO.	REVISIONS	DATE

BRIDGE CROSSING DETAILS

BRIDGE #61, TH #3

TOWN OF BARTON, VILLAGE OF ORLEANS, VERMONT

LEACH ENGINEERING CONSULTANTS, P.A.
36 EASTERN AVENUE, SUITE 6
ST. JOHNSBURY, VERMONT 05819
PHONE: (802) 748-8009 FAX: (802) 748-9023

DRAWN:	EAE
CHK'D:	NPS
APP'D:	GAL
DATE:	08/14/06
SCALE:	AS SHOWN

LEC-3

BARTON
BRO 1449(29)

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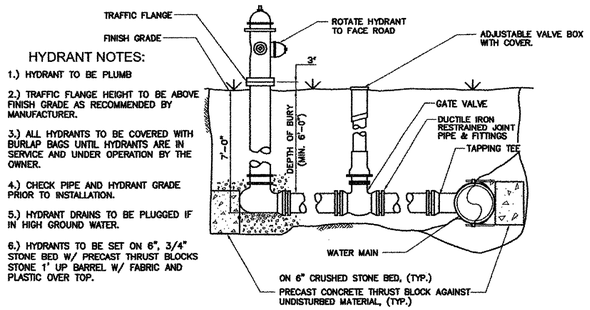


HYDRANT NOTES:

1.) HYDRANT TO BE PLUMB

2.) TRAFFIC FLANGE HEIGHT TO BE ABOVE FINISH GRADE AS RECOMMENDED BY MANUFACTURER.

3.) ALL HYDRANTS TO BE COVERED WITH BURLAP BAGS UNTIL HYDRANTS ARE IN SERVICE AND UNDER OPERATION BY THE OWNER.

4.) CHECK PIPE AND HYDRANT GRADE PRIOR TO INSTALLATION.

5.) HYDRANT DRAINS TO BE PLUGGED IF IN HIGH GROUND WATER.

6.) HYDRANTS TO BE SET ON 6", 3/4" STONE BED W/ PRECAST THRUST BLOCKS STONE 1' UP BARREL W/ FABRIC AND PLASTIC OVER TOP.

HYDRANT WITH VALVE DETAIL
NOT TO SCALE

ALLOWABLE PIPE LEAKAGE SCHEDULE

AVG. TEST PRESSURE (PSI)	GPH/1000 LF OF PIPE							
	2" PIPE	3" PIPE	4" PIPE	6" PIPE	8" PIPE	10" PIPE	12" PIPE	14" PIPE
200	0.21	0.32	0.43	0.64	0.85	1.06	1.28	1.48
175	0.20	0.30	0.40	0.59	0.80	0.99	1.19	1.39
150	0.19	0.28	0.37	0.55	0.74	0.92	1.10	1.29
125	0.17	0.25	0.34	0.50	0.67	0.84	1.01	1.18
100	0.15	0.23	0.30	0.45	0.60	0.75	0.90	1.05
80	0.14	0.20	0.27	0.41	0.54	0.68	0.81	0.95
60	0.12	0.13	0.23	0.35	0.47	0.59	0.70	0.82

NOTES:

1. ALLOWABLE LEAKAGED BASED ON 18' NOMINAL LENGTHS OF PIPE
2. FOR SYSTEMS USING 20' NOMINAL LENGTH PIPE MULTIPLY ABOVE CALCULATED GPH BY 0.9 TO ACHIEVE APPROPRIATE LEAKAGE FACTOR.
3. FOR SYSTEMS USING MULTIPLE PIPE DIAMETERS ALLOWABLE LEAKAGE WILL BE THE SUM OF THE COMPUTED LEAKAGE FOR EACH SIZE.

PIPE DISINFECTION

CHLORINATE WATER FOR DISINFECTION

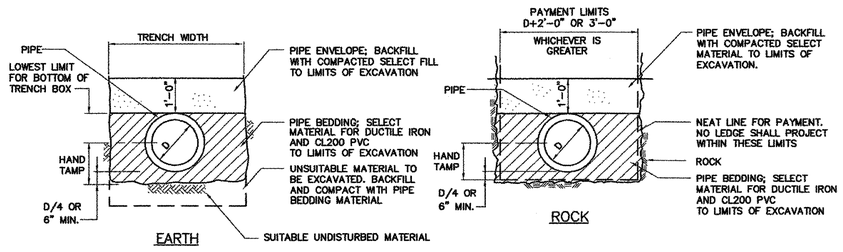
DESIRED RESIDUAL CHLORINE CONCENTRATION (mg/L)	LIQUID CHLORINE REQUIRED (POUNDS)	SODIUM HYPOCHLORITE REQUIRED (GALLONS)			CALCIUM HYPOCHLORITE REQUIRED (POUNDS)
		5% AVAILABLE CHLORINE	10% AVAILABLE CHLORINE	15% AVAILABLE CHLORINE	65% AVAILABLE CHLORINE
2.00	1.70	3.90	2.00	1.30	2.60
10.00	8.30	19.40	9.90	6.70	12.80
50.00	42.00	97.00	49.60	33.40	64

DECHLORINATE WATER FOR DISPOSAL

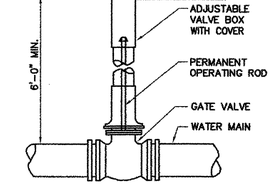
RESIDUAL CHLORINE CONCENTRATION (mg/L)	CHEMICAL REQUIRED (POUNDS)			
	SULFER DIOXIDE (SO_2)	SODIUM BISULFATE ($NaHSO_3$)	SODIUM SULFITE (Na_2SO_3)	SODIUM THIOSULFATE ($Na_2S_2O_3*5H_2O$)
1.00	0.80	1.20	1.20	1.20
2.00	1.70	2.50	2.40	2.40
10.00	8.30	12.50	12.00	12.00
50.00	41.70	62.60	60.00	60.00

NOTE:

1. ALL CHEMICAL REQUIREMENTS ARE BASED ON 100,000 GALLONS OF WATER.
2. EXTENDED OR IMPROPER STORAGE OF CHEMICALS MAY CAUSE A LOSS OF ABAILABLE CHLORINE.

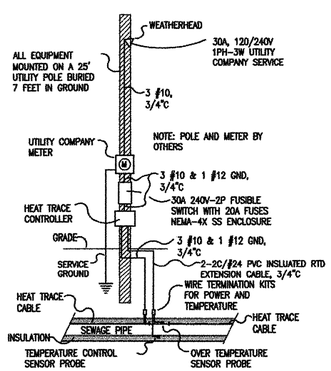


TRENCH SECTIONS
NOT TO SCALE



BURIED GATE VALVE DETAIL
NOT TO SCALE

NOTE:
UNLESS OTHERWISE INDICATED ALL GATE VALVES SHALL HAVE PERMANENTLY INSTALLED OPERATING RODS TERMINATING AT LEAST 24" AND NOT MORE THAN 36" BELOW THE TOP OF THE VALVE BOX.



ELECTRICAL HEAT TRACE DETAIL
NOT TO SCALE

NO.	REVISIONS	DATE

MISCELLANEOUS DETAILS

BRIDGE #61, TH #3

TOWN OF BARTON, VILLAGE OF ORLEANS, VERMONT

LEACH ENGINEERING CONSULTANTS, P.A.
76 EASTERN AVENUE, SUITE 6
ST. JOHNSBURY, VERMONT 05819
PHONE: (802) 748-9009 FAX: (802) 748-8023

DRAWN:	EAE
CHK'D:	NPS
APP'D:	GAL
DATE:	08/14/06
SCALE:	AS SHOWN

LEC-4

BARTON
BRO 1449(29)

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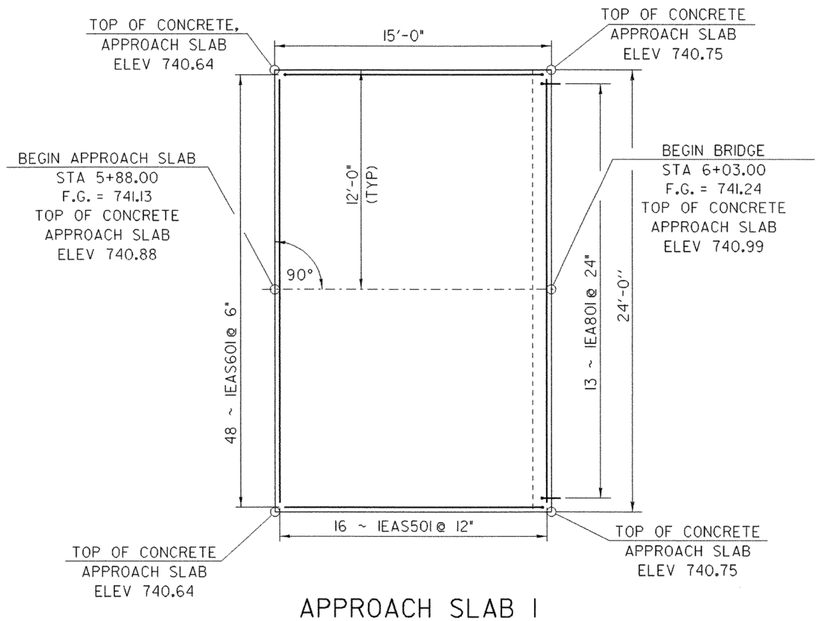
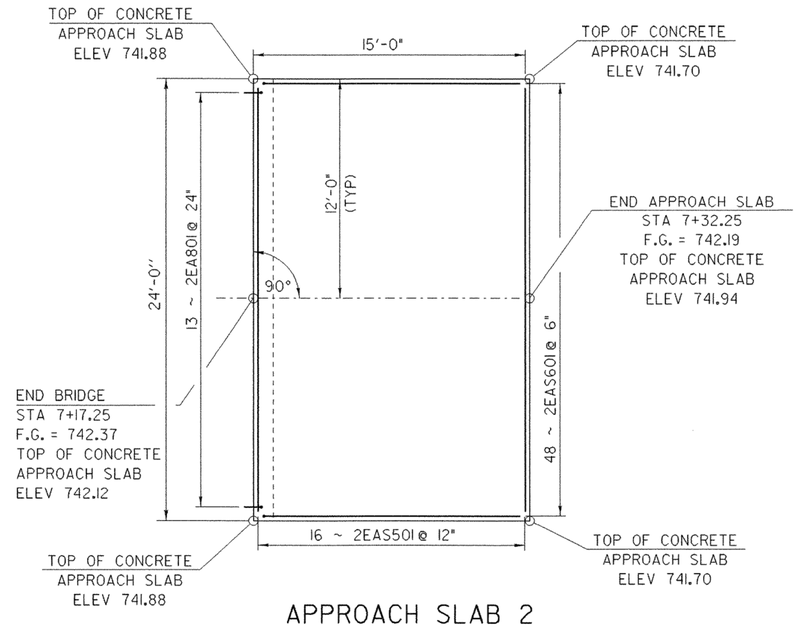


APPROACH SLAB 1

SCALE 1/4" = 1'-0

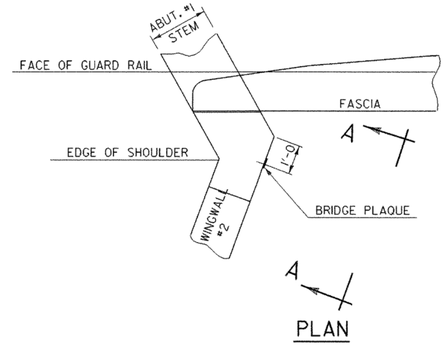


APPROACH SLAB 2

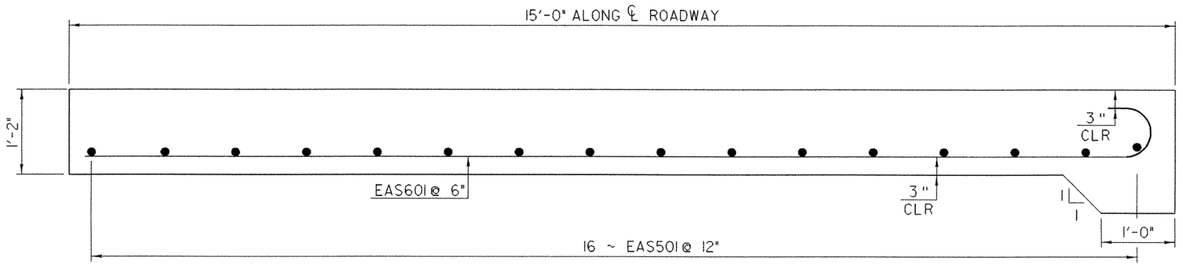
SCALE 1/4" = 1'-0

LONGITUDINAL CONSTRUCTION JOINT

1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITENANCE AND SHALL BE ROUGHENED TO AN AMPLITUDE OF 1/4"
2. IMMEDIATLY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.

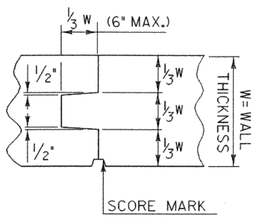


PLAN

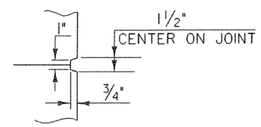


APPROACH SLAB SECTION

SCALE 1" = 1'-0

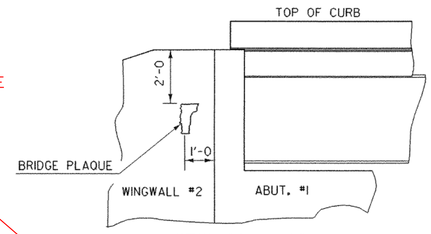


TYPICAL VERTICAL CONCRETE CONSTRUCTION JOINT



SCORE MARK DETAIL

NOTE: BRIDGE PLAQUE LOCATED ON INNER FACE OF TEXAS RAIL ON DOWNSTREAM SIDE OF BRIDGE.



VIEW "A - A"

LOCATE BRIDGE PLAQUE

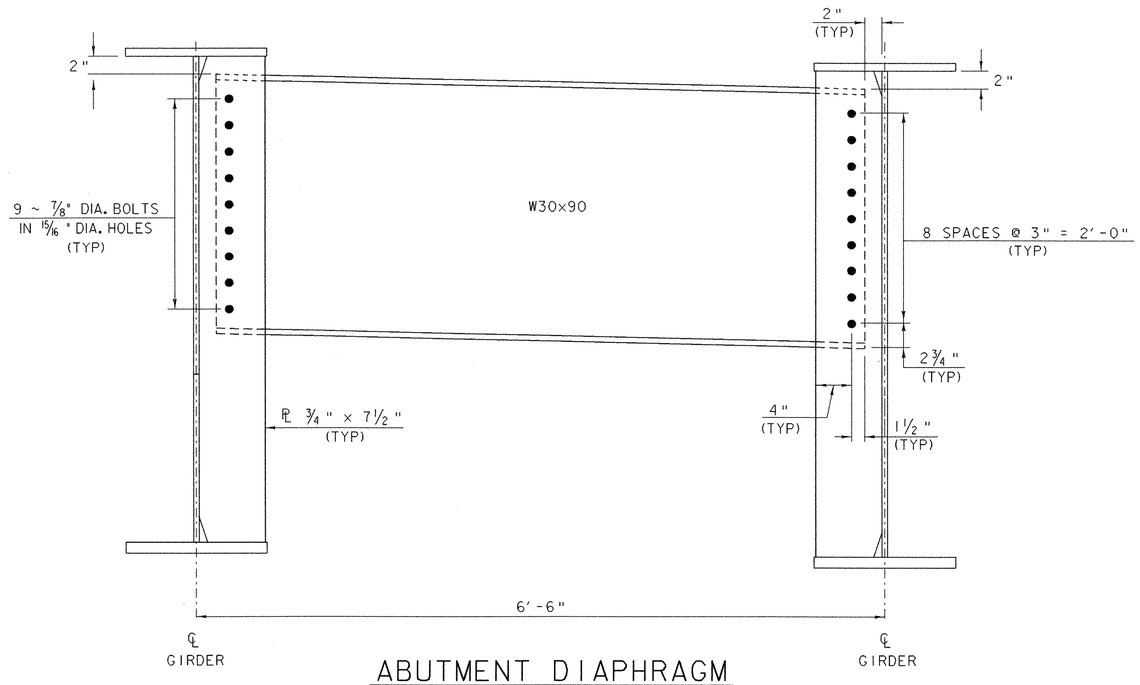
THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR UNLESS OTHERWISE SPECIFIED ON THE PLANS

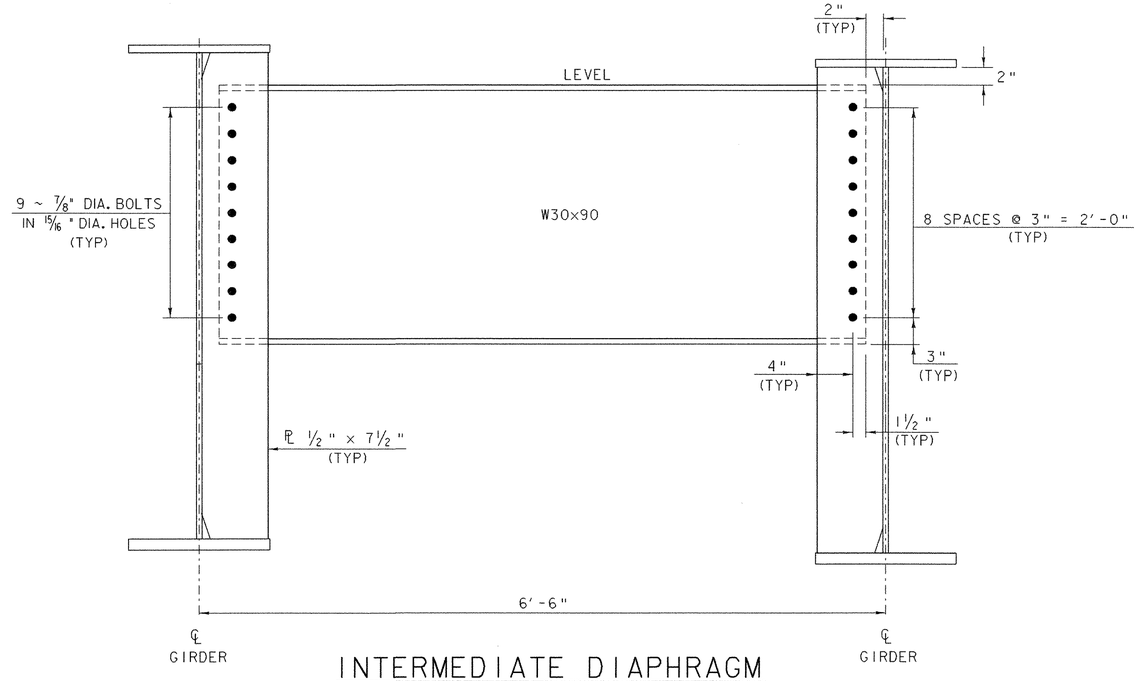
APPROACH SLAB DETAILS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)
FILE NAME: /str5/01j168/sj168sup.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. GILMORE
DESIGNED BY: J. REED	CHECKED BY: J. REED
sj168asd.i	SHEET 49 OF 84



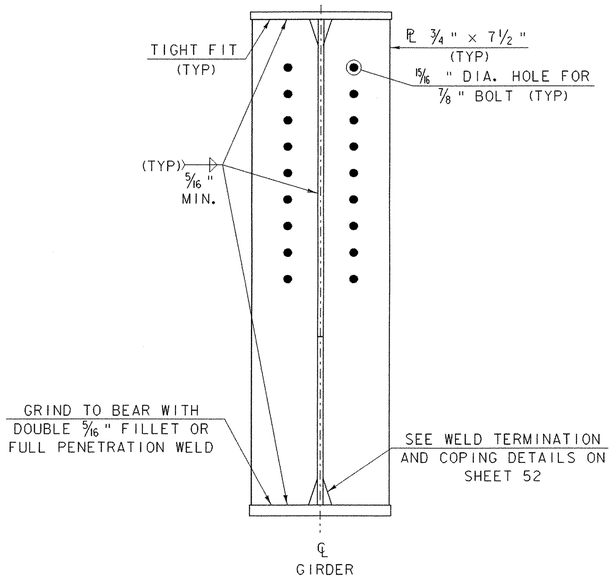
ABUTMENT DIAPHRAGM

SCALE 1 1/2" = 1'-0



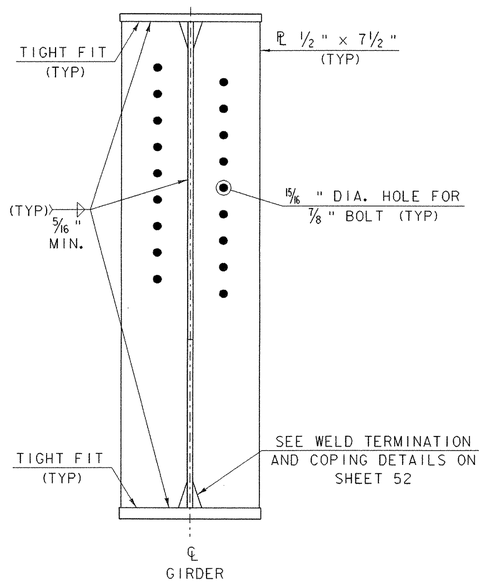
INTERMEDIATE DIAPHRAGM

SCALE 1 1/2" = 1'-0



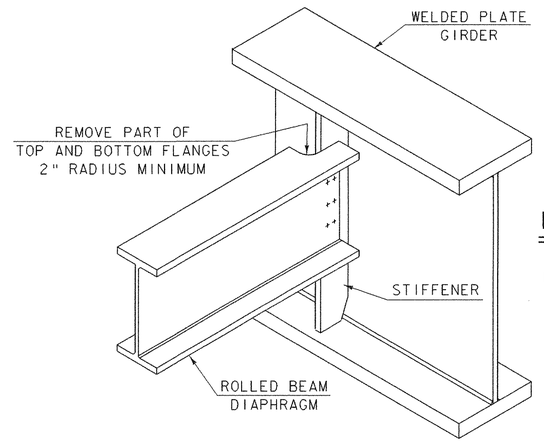
ABUTMENT BEARING STIFFENER

SCALE 1 1/2" = 1'-0



INTERMEDIATE DIAPHRAGM CONNECTION PLATE

SCALE 1 1/2" = 1'-0



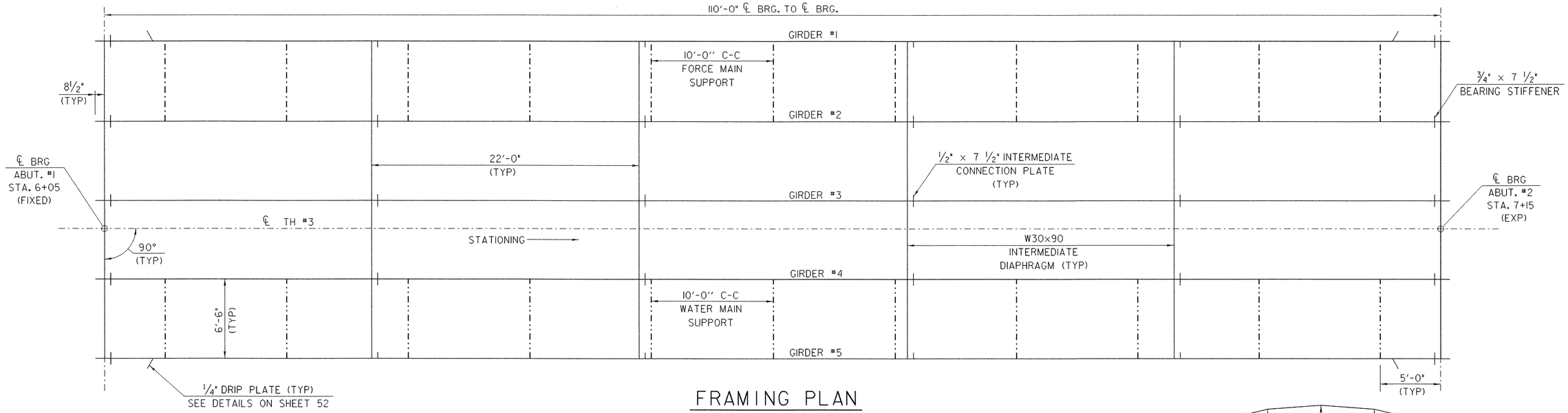
ROLLED BEAM USED AS DIAPHRAGM

SEE THIS SHEET FOR SIZES OF MEMBERS AND CONNECTION DETAILS

STRUCTURAL CONNECTION DETAILS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

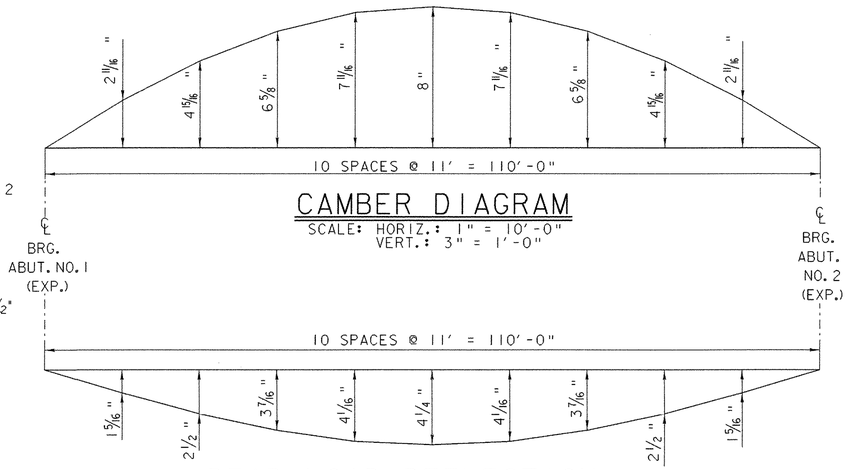
FILE NAME: /str5/01j168/sj168sup.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. GILMORE
DESIGNED BY: J. REED	CHECKED BY: J. REED
sj168scd.i	SHEET 50 OF 84



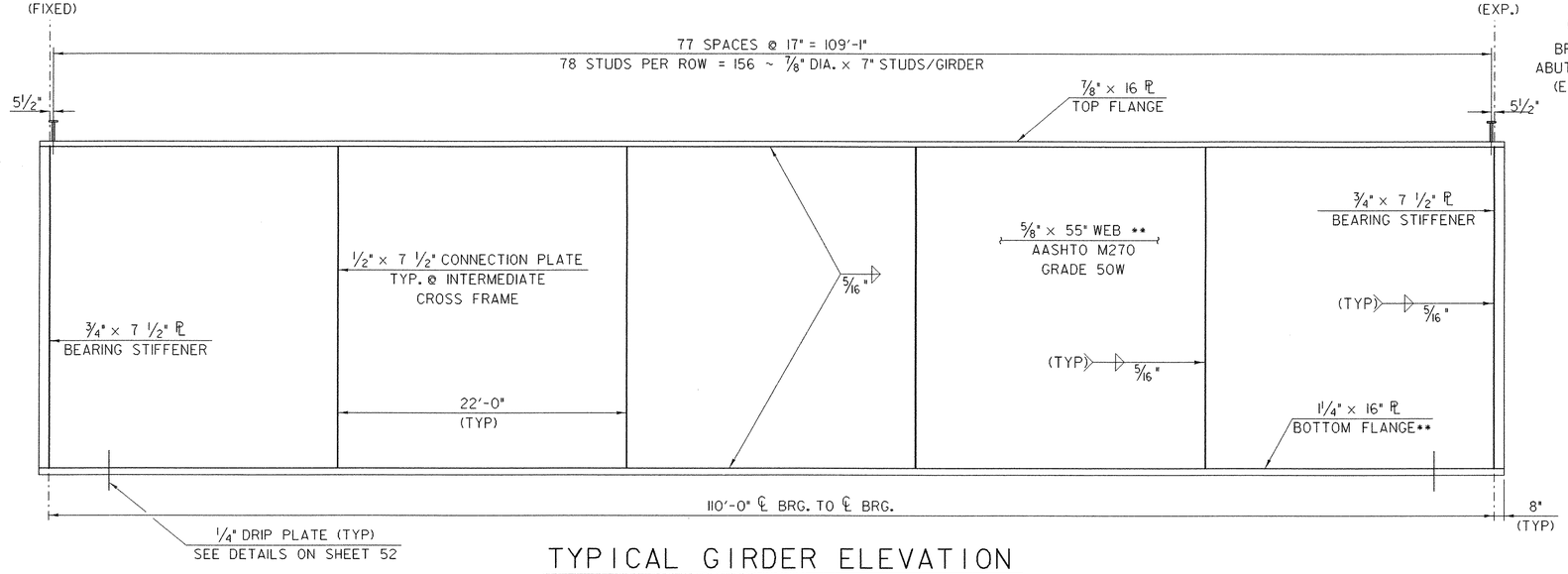
FRAMING PLAN

SCALE 1/4" = 1'-0

NOTE:
SEE SHEET 50 FOR DIAPHRAGM AND CONNECTION DETAILS



NOTE:
DEAD LOAD DEFLECTION IS DUE TO GIRDER, DIAPHRAGMS, DECK, CURBS, PAVEMENT AND RAILING. DEAD LOAD DEFLECTION DUE TO GIRDER AT MIDSPAN IS 7/8".



TYPICAL GIRDER ELEVATION

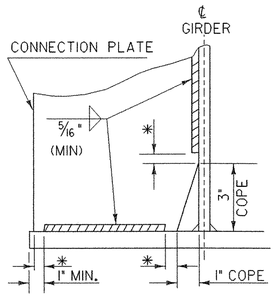
SCALE:
HORIZONTAL: 3/16" = 1'-0"
VERTICAL: 1" = 1'-0"

** PLATE REQUIRES CHARPY V- NOTCH TESTING

FRAMING DETAILS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

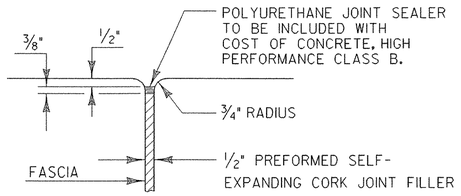
FILE NAME: /str5/01j168/sj168sup.dgn		PLOT DATE:	02-APR-2007
PROJECT LEADER: W. SYMONDS		DRAWN BY:	J. GILMORE
DESIGNED BY:	J. REED	CHECKED BY:	J. REED
sj168frm.i		SHEET	51 OF 84



*NO WELD FOR 1/4" MIN. 1/2" MAX.
(EXCEPT MUST MAINTAIN 1" MINIMUM FROM EDGE OF FLANGE)

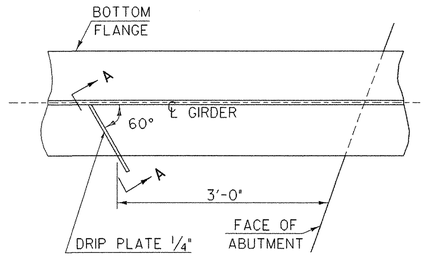
WELD TERMINATION AND COPING DETAILS FOR WELDED PLATE MEMBERS

NTS



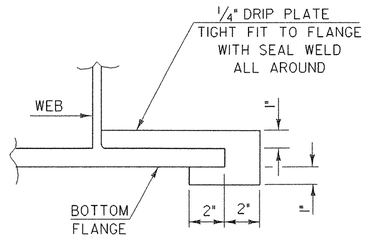
JOINT BETWEEN FASCIA AND WINGWALL

NTS



PLAN DRIP PLATE

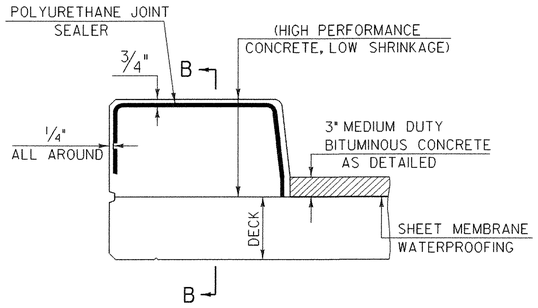
NTS



SECTION A - A

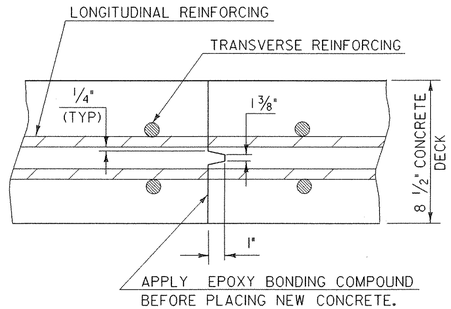
NTS

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



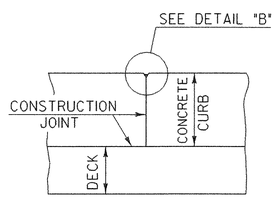
TYPICAL SECTION THROUGH CONCRETE CURB CONSTRUCTION JOINT

NTS



TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS

NTS

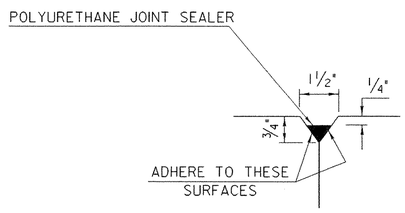


OPTIONAL CONSTRUCTION JOINT

NTS

NOTE: 1. 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.



DETAIL "B"

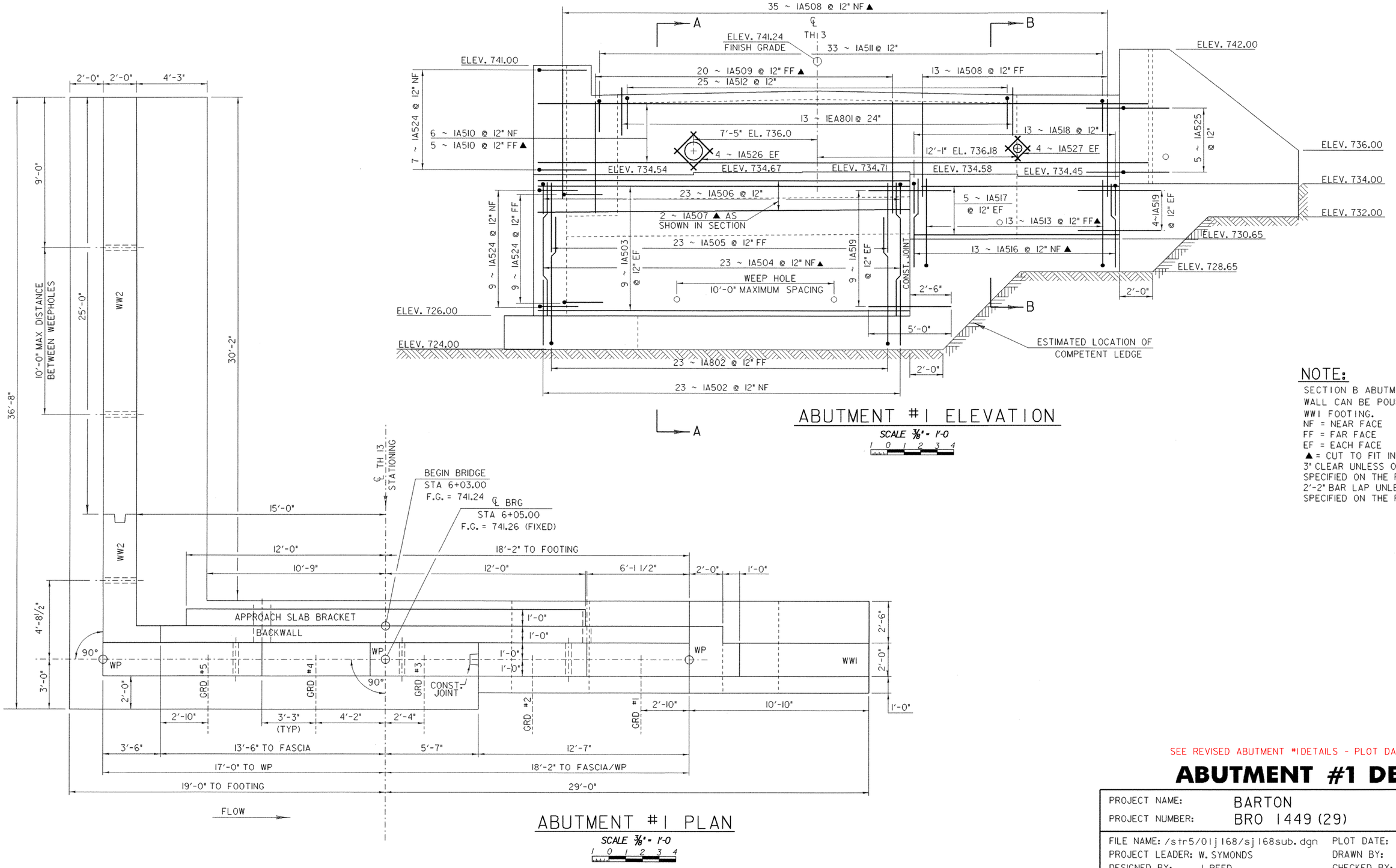
NTS

NOTE: MATERIAL AND APPLICATION FOR POLYURETHANE JOINT SEALER SHALL MEET THE REQUIREMENTS OF SUBSECTIONS 707.05 AND 524.06 OF THE STANDARD SPECIFICATIONS. PAYMENT SHALL BE MADE INCIDENTAL TO ITEM 501.33

SUPERSTRUCTURE DETAILS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)

FILE NAME: /str5/01j168/sj168sup.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. GILMORE
DESIGNED BY: J. REED	CHECKED BY: J. REED
sj168ssd.i	SHEET 52 OF 84



ABUTMENT #1 ELEVATION

SCALE 3/8" = 1'-0

ABUTMENT #1 PLAN

SCALE 3/8" = 1'-0

NOTE:

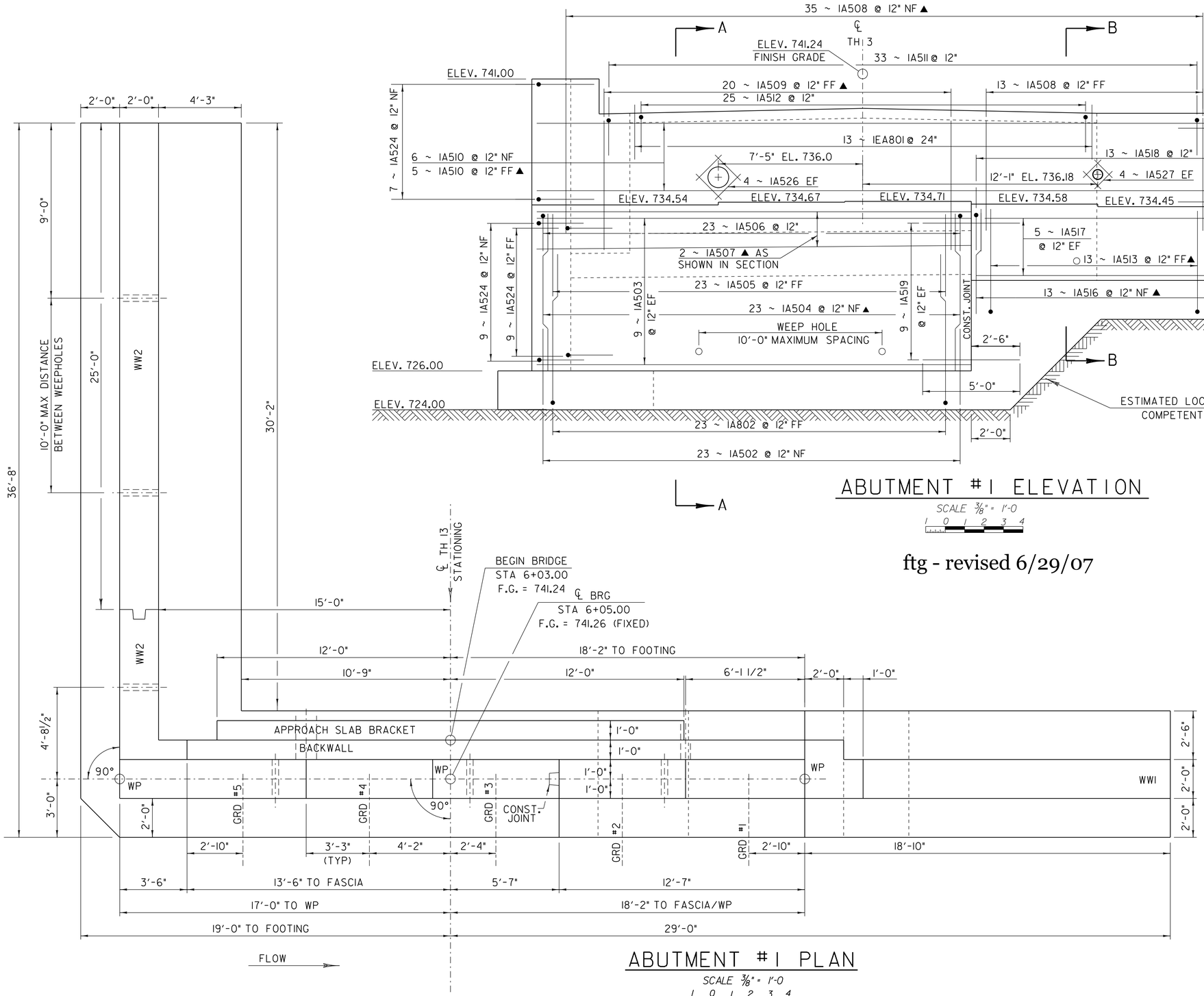
SECTION B ABUTMENT STEM WALL CAN BE POURED WITH WW1 FOOTING.
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR UNLESS OTHERWISE SPECIFIED ON THE PLANS
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS

SEE REVISED ABUTMENT #1 DETAILS - PLOT DATE 11-JUL-2007

ABUTMENT #1 DETAILS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)

FILE NAME: /str5/01j168/sj168sub.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. GILMORE
DESIGNED BY: J. REED	CHECKED BY: J. REED
sj168ab1.i	SHEET 53 OF 84



ABUTMENT #1 ELEVATION

SCALE 3/8" = 1'-0

ftg - revised 6/29/07

ABUTMENT #1 PLAN

SCALE 3/8" = 1'-0

ftg - revised 6/29/07

NOTE:

SECTION B ABUTMENT STEM WALL CAN BE POURED WITH WW1 FOOTING.
NF = NEAR FACE
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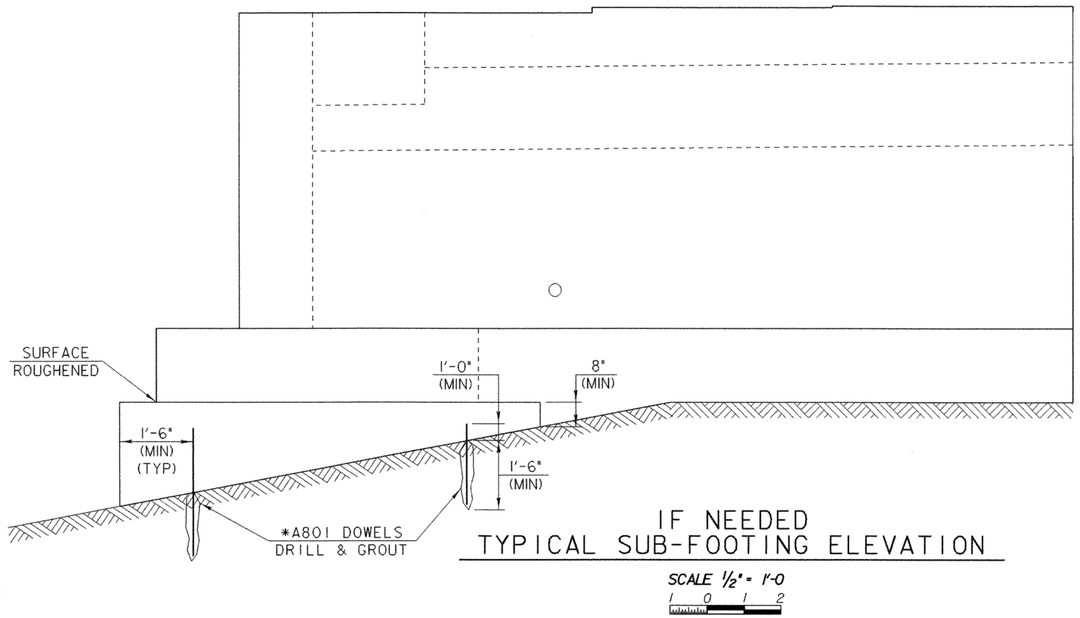
3" CLEAR UNLESS OTHERWISE SPECIFIED ON THE PLANS
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS

ABUTMENT #1 DETAILS

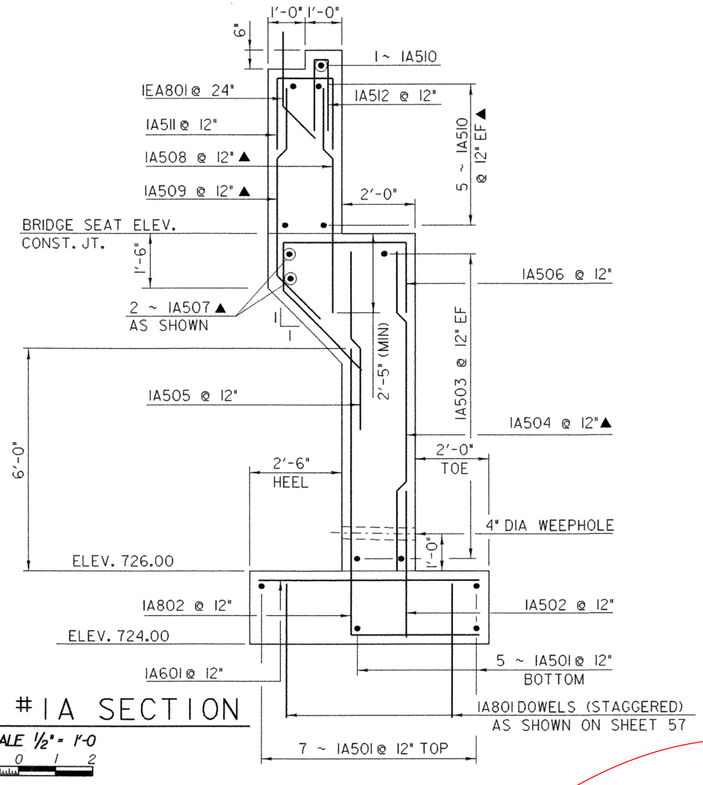
PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

FILE NAME: /str5/01j168/sj168sub.dgn		PLOT DATE:	12-SEP-2011
PROJECT LEADER:	W. SYMONDS	DRAWN BY:	J. GILMORE
DESIGNED BY:	J. REED	CHECKED BY:	J. REED
sj168abl.i		SHEET	53 OF 84



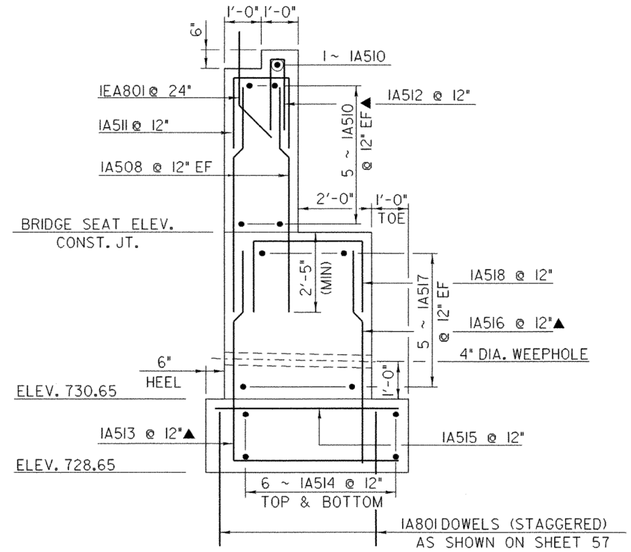
IF NEEDED TYPICAL SUB-FOOTING ELEVATION

SCALE ½"= 1'-0



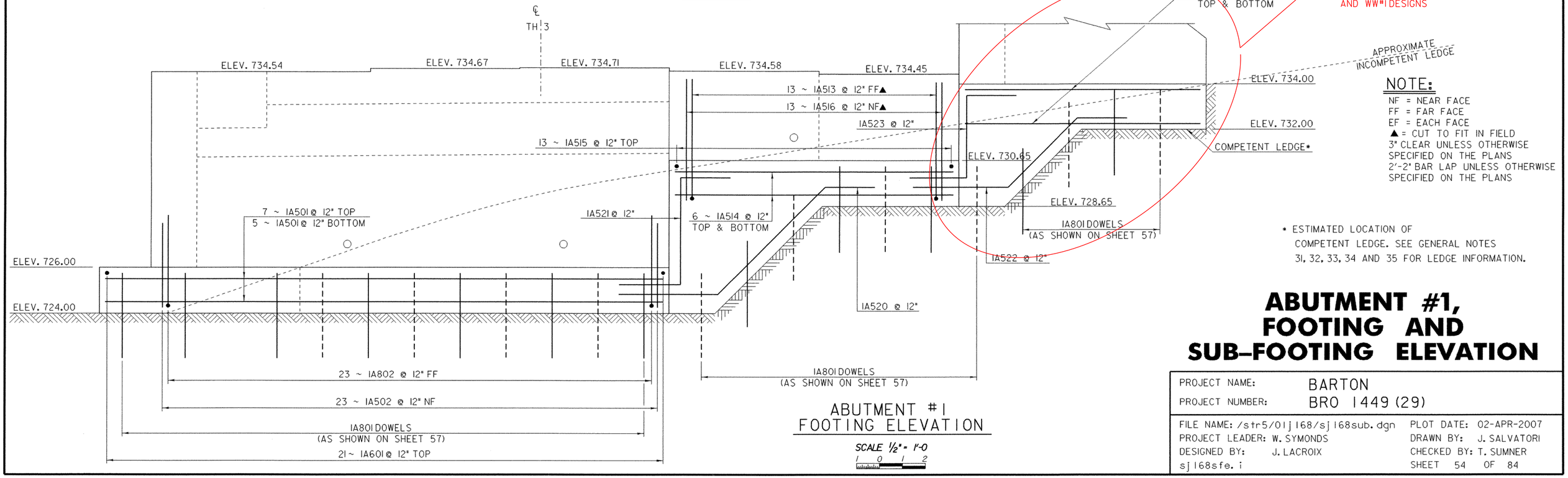
ABUTMENT #1A SECTION

SCALE ½"= 1'-0



ABUTMENT #1B SECTION

SCALE ½"= 1'-0



ABUTMENT #1 FOOTING ELEVATION

SCALE ½"= 1'-0

NOTE:

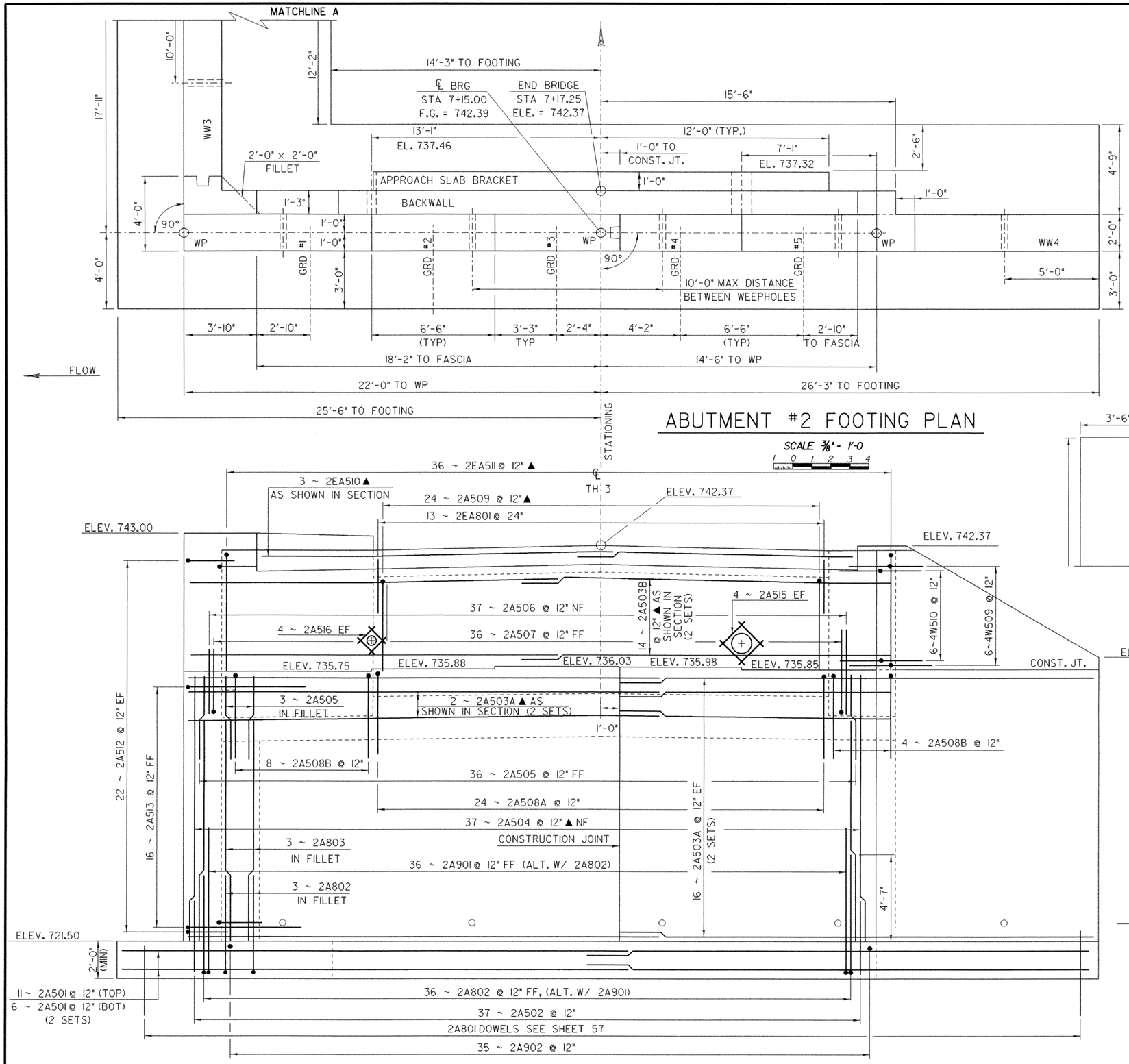
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR UNLESS OTHERWISE SPECIFIED ON THE PLANS
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS

* ESTIMATED LOCATION OF COMPETENT LEDGE. SEE GENERAL NOTES 31, 32, 33, 34 AND 35 FOR LEDGE INFORMATION.

ABUTMENT #1, FOOTING AND SUB-FOOTING ELEVATION

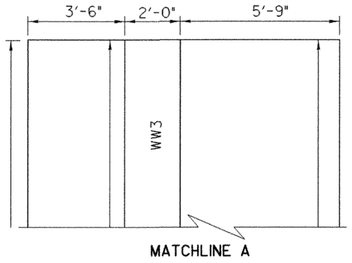
PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

FILE NAME: /str5/01j168/sj168sub.dgn		PLOT DATE:	02-APR-2007
PROJECT LEADER:	W. SYMONDS	DRAWN BY:	J. SALVATORI
DESIGNED BY:	J. LACROIX	CHECKED BY:	T. SUMNER
sj168sfe.i		SHEET	54 OF 84



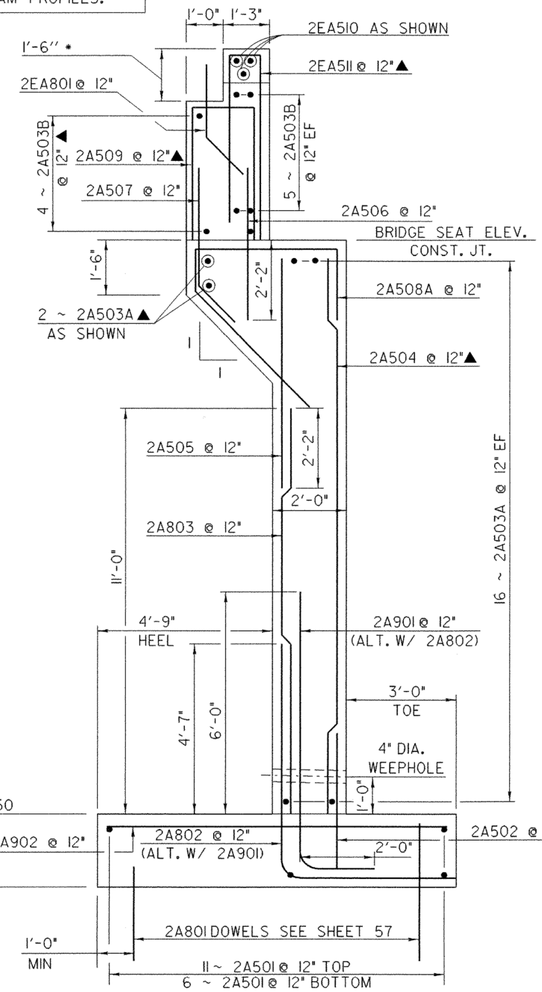
ABUTMENT #2 FOOTING PLAN

SCALE 3/8" = 1'-0



ELEV. 736.50

* THIS DIMENSION IS THEORETICAL AND MAY CHANGE DEPENDING UPON THE OUTCOME OF THE BEAM PROFILES.



ABUTMENT #2 SECTION

SCALE 1/2" = 1'-0

NOTE:

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

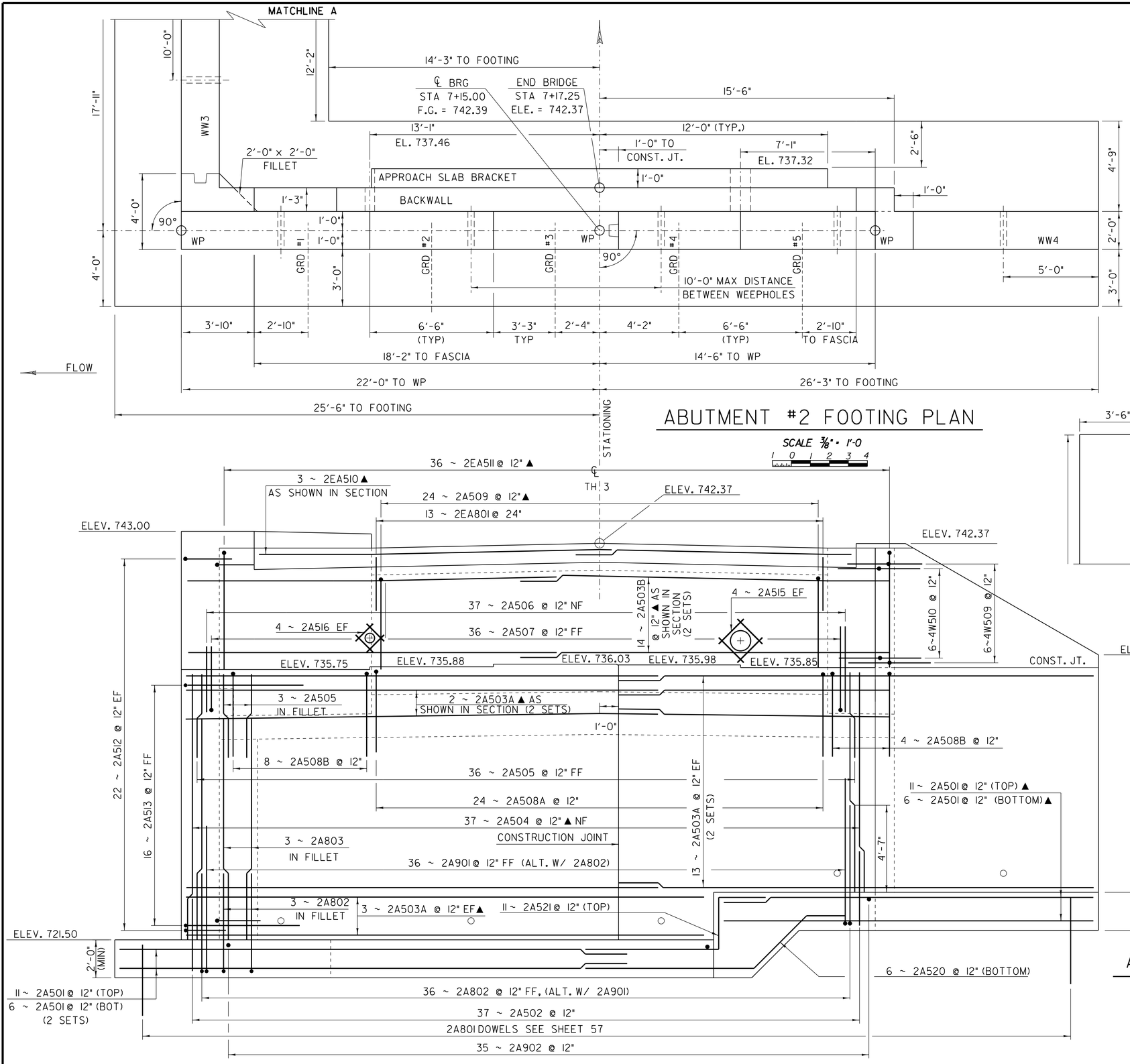
ABUTMENT #2 AND WINGWALL #4 HAVE BEEN REVISED DUE TO THE OCCURRENCE OF COMPETENT BEDROCK SHALLOWER THEN EXPECTED. SEE REVISED SHEET, PLOT DATE OF 06-JUL-2007

ABUTMENT #2 ELEVATION

SCALE 3/8" = 1'-0

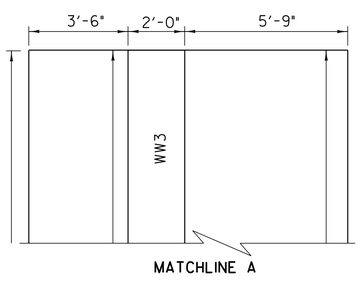
ABUTMENT #2 DETAILS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)
FILE NAME: /str5/01j168/sj168sub.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. LACROIX	CHECKED BY: T. SUMNER
sj168ab2.i	SHEET 55 OF 84

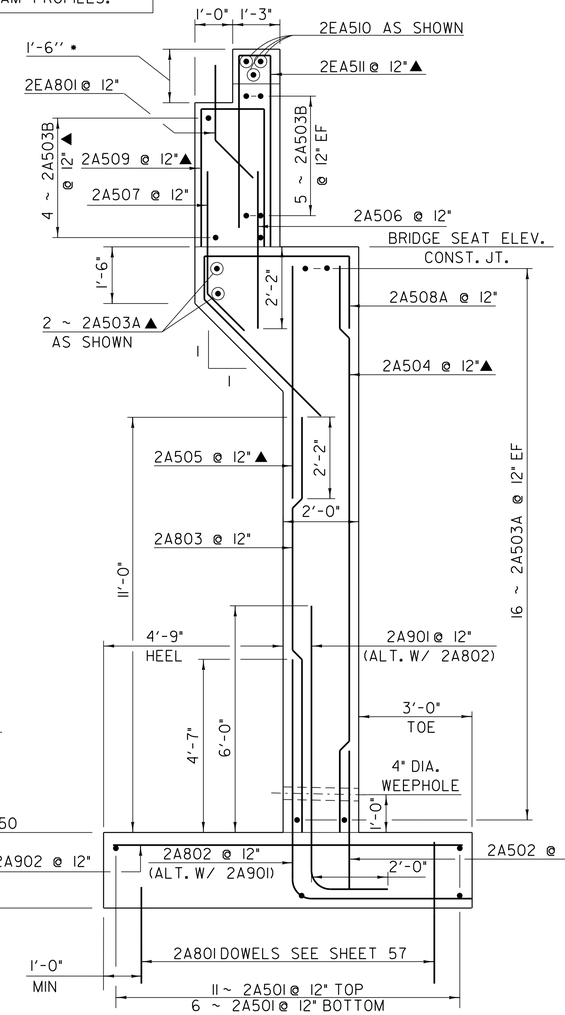


ABUTMENT #2 FOOTING PLAN

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



• THIS DIMENSION IS THEORETICAL AND MAY CHANGE DEPENDING UPON THE OUTCOME OF THE BEAM PROFILES.



ABUTMENT #2A SECTION

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

NOTE:

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

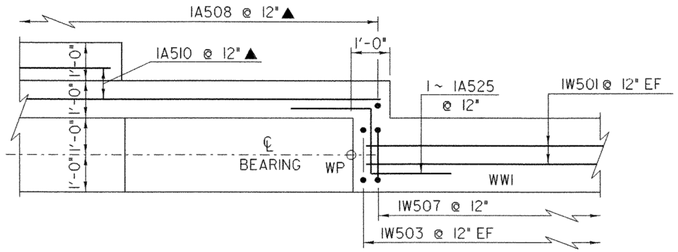
ABUTMENT #2 AND WINGWALL #4 HAVE BEEN REVISED DUE TO THE OCCURRENCE OF COMPETENT BEDROCK SHALLOWER THEN EXPECTED

ABUTMENT #2 DETAILS

ABUTMENT #2 ELEVATION

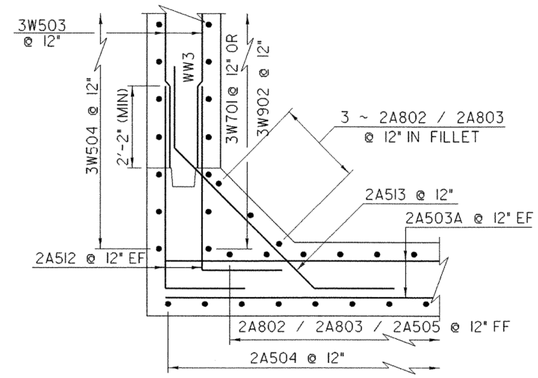
SCALE 3/8" = 1'-0
1 0 1 2 3 4

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)
FILE NAME: /str5/01j168/sj168sub.dgn	PLOT DATE: 12-SEP-2011
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. LACROIX	CHECKED BY: T. SUMNER
sj168ab2.i	SHEET 55 OF 84



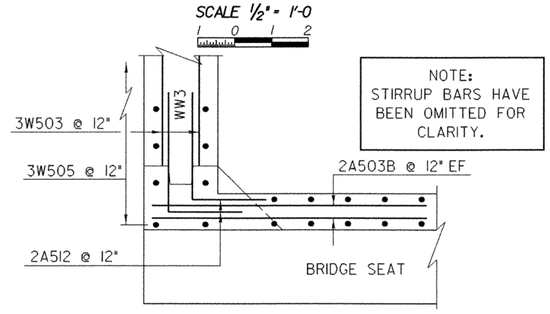
CORNER DETAIL WW1 ABOVE BRIDGE SEAT

SCALE ½" = 1'-0



CORNER DETAIL WW3 BELOW BRIDGE SEAT

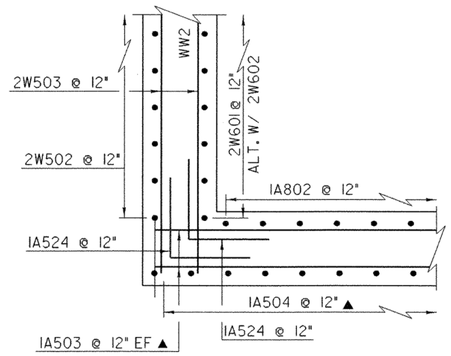
SCALE ½" = 1'-0



NOTE:
STIRRUP BARS HAVE BEEN OMITTED FOR CLARITY.

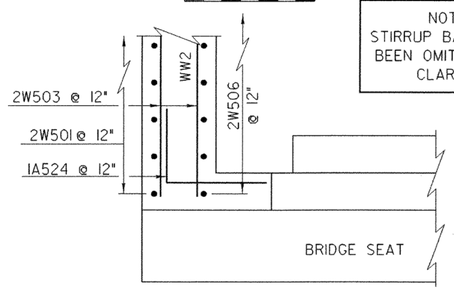
CORNER DETAIL WW3 ABOVE BRIDGE SEAT

SCALE ½" = 1'-0



CORNER DETAIL WW2 BELOW BRIDGE SEAT

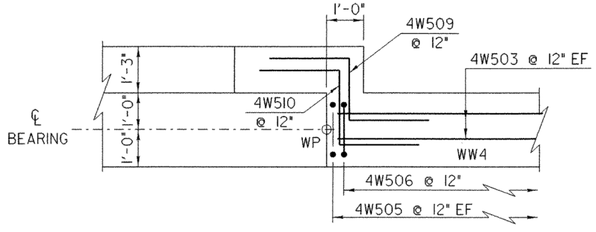
SCALE 1/4" = 1'-0



NOTE:
STIRRUP BARS HAVE BEEN OMITTED FOR CLARITY.

CORNER DETAIL WW2 ABOVE BRIDGE SEAT

SCALE 1/4" = 1'-0



CORNER DETAIL WW4 ABOVE BRIDGE SEAT

SCALE ½" = 1'-0

ABUTMENT #2 AND WINGWALL #4 HAVE BEEN REVISED DUE TO THE OCCURRENCE OF COMPETENT BEDROCK SHALLOWER THEN EXPECTED. SEE REVISED SHEET. PLOT DATE 06-JUL-2007.

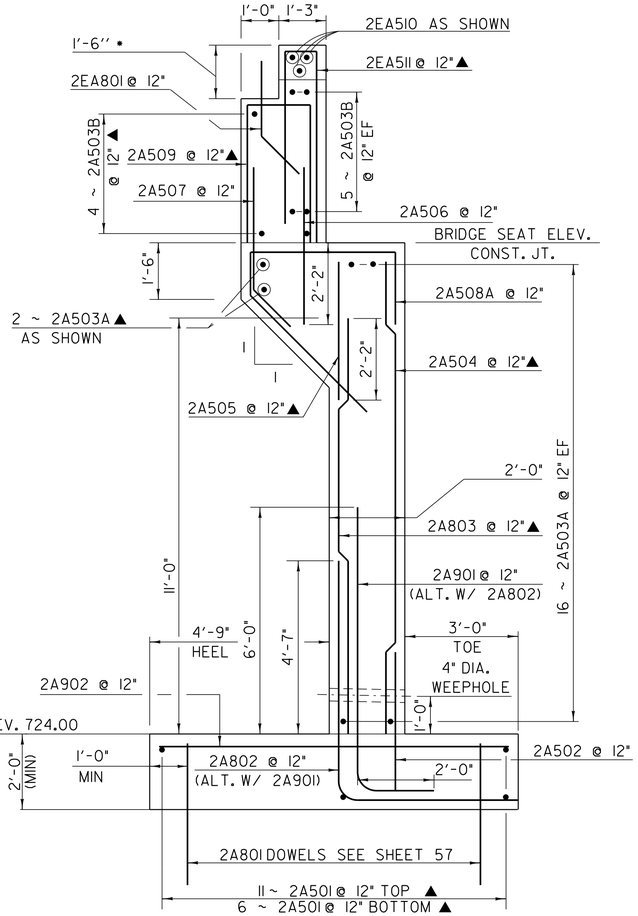
NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR UNLESS OTHERWISE SPECIFIED ON THE PLANS
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS

CORNER DETAIL

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

FILE NAME: /str5/01j168/sj168sub.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: J. LACROIX
sj168abs.i

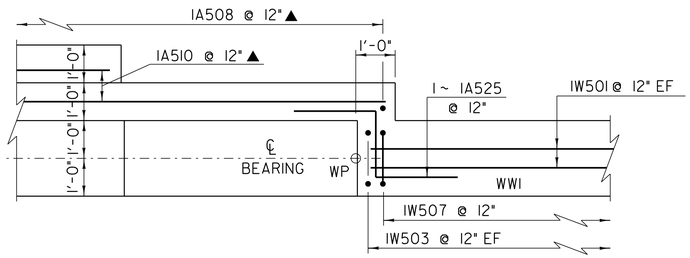
PLOT DATE: 02-APR-2007
DRAWN BY: J. SALVATORI
CHECKED BY: T. SUMNER
SHEET 56 OF 84



ABUTMENT #2B SECTION

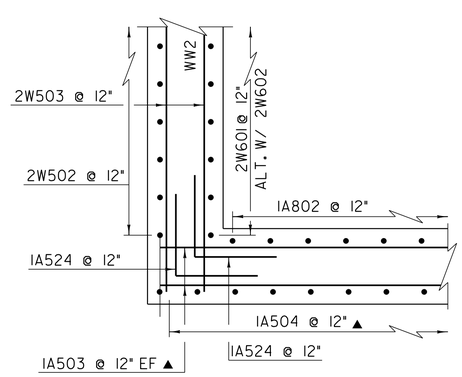
SCALE ½" = 1'-0

ABUTMENT #2 AND WINGWALL #4 HAVE BEEN REVISED DUE TO THE OCCURRENCE OF COMPETENT BEDROCK SHALLOWER THEN EXPECTED



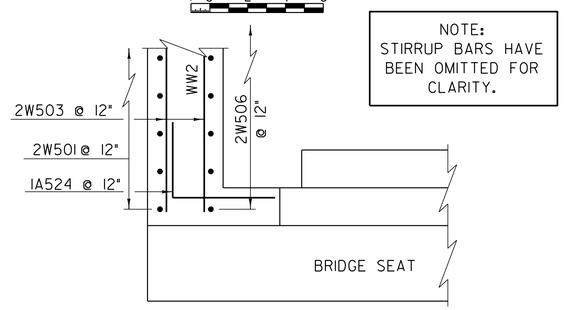
CORNER DETAIL WW1 ABOVE BRIDGE SEAT

SCALE ½" = 1'-0



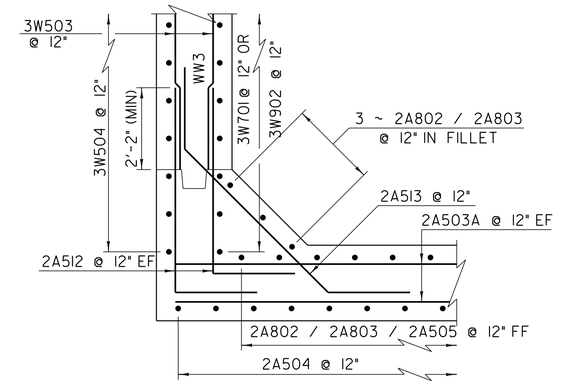
CORNER DETAIL WW2 BELOW BRIDGE SEAT

SCALE ¼" = 1'-0



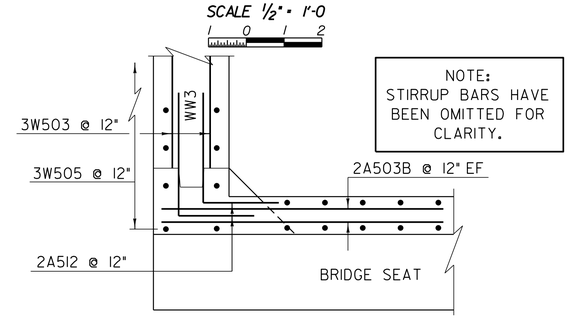
CORNER DETAIL WW2 ABOVE BRIDGE SEAT

SCALE ¼" = 1'-0



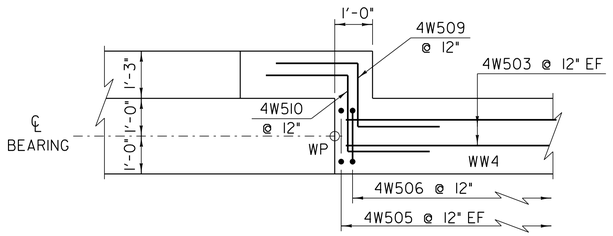
CORNER DETAIL WW3 BELOW BRIDGE SEAT

SCALE ½" = 1'-0



CORNER DETAIL WW3 ABOVE BRIDGE SEAT

SCALE ½" = 1'-0



CORNER DETAIL WW4 ABOVE BRIDGE SEAT

SCALE ½" = 1'-0

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
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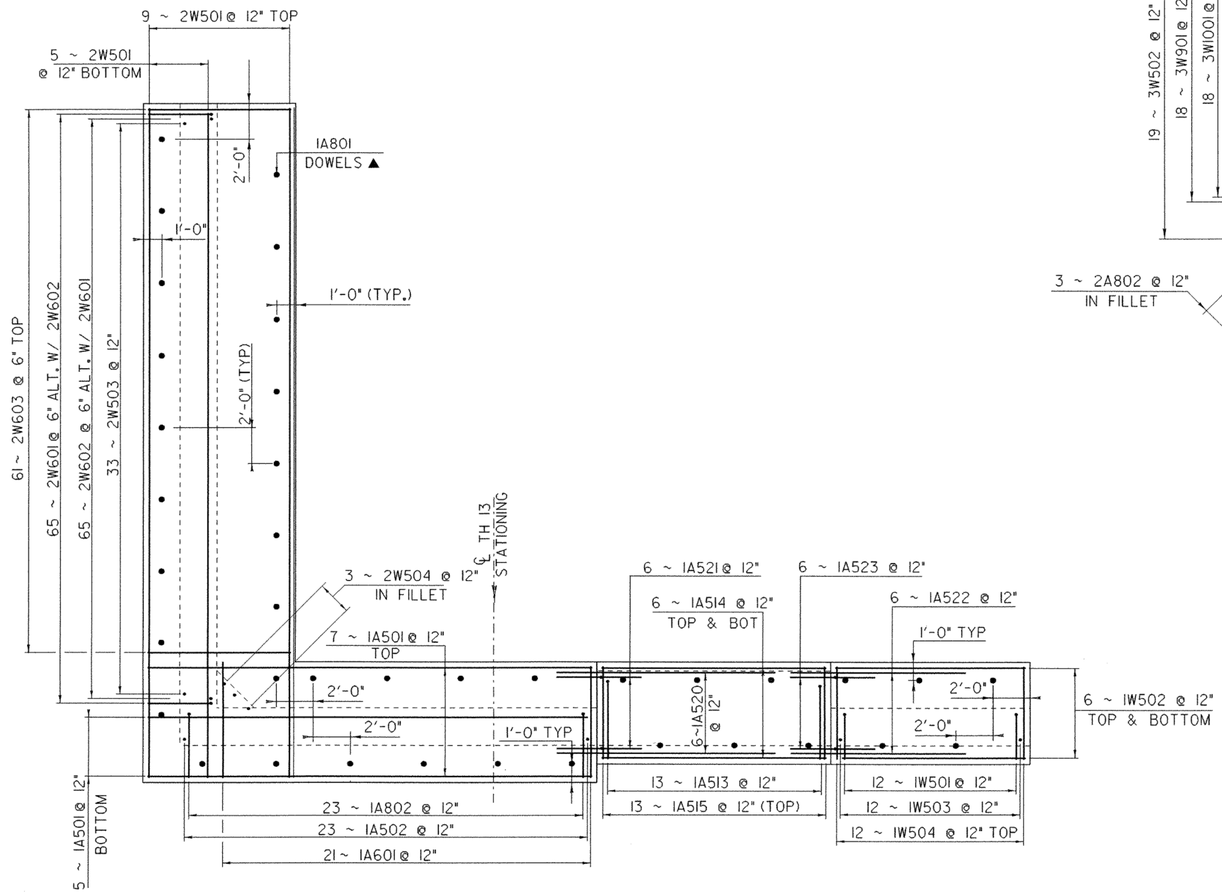
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS

CORNER DETAIL

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

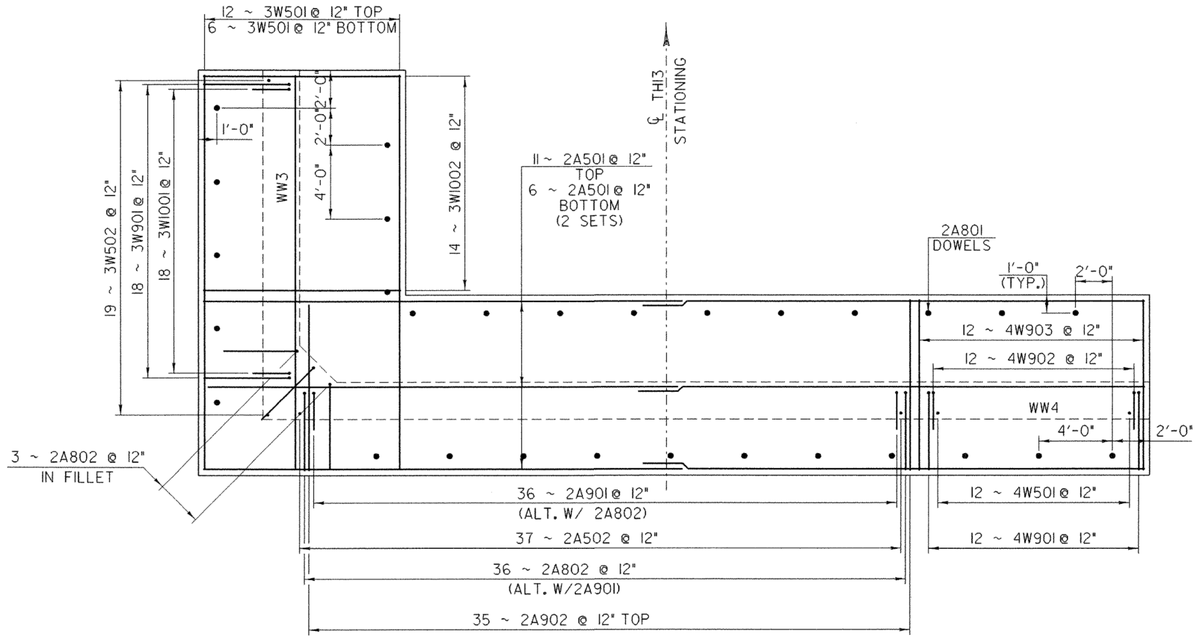
FILE NAME: /str5/01j168/sj168sub.dgn		PLOT DATE:	12-SEP-2011
PROJECT LEADER:	W. SYMONDS	DRAWN BY:	J. SALVATORI
DESIGNED BY:	J. LACROIX	CHECKED BY:	T. SUMNER
sj168abs.i		SHEET	56 OF 84



ABUTMENT #1 FOOTING REINFORCING PLAN

SCALE 1/4" = 1'-0
1 0 2 4 6

FOOTING REVISED 6/29/07
SEE SHEET PLOT DATE 11-JUL-2007



ABUTMENT #2 FOOTING REINFORCING PLAN

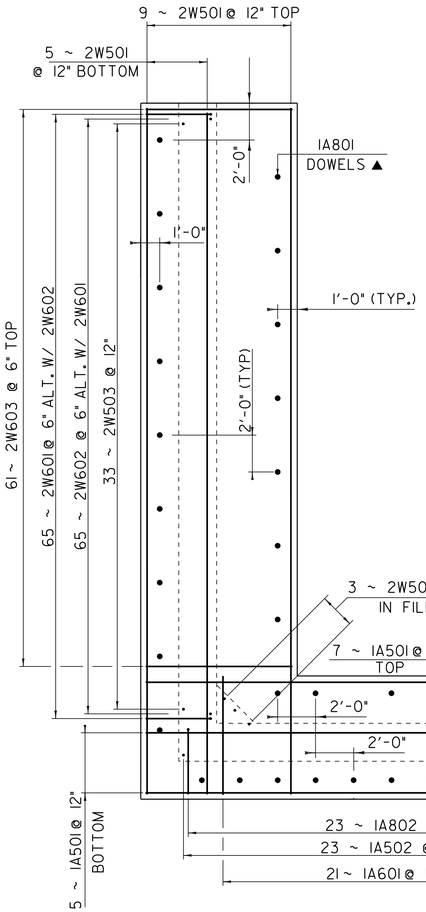
SCALE 1/4" = 1'-0
1 0 2 4 6

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

FOOTING REINFORCING

PROJECT NAME: BARTON
PROJECT NUMBER: BRO 1449 (29)

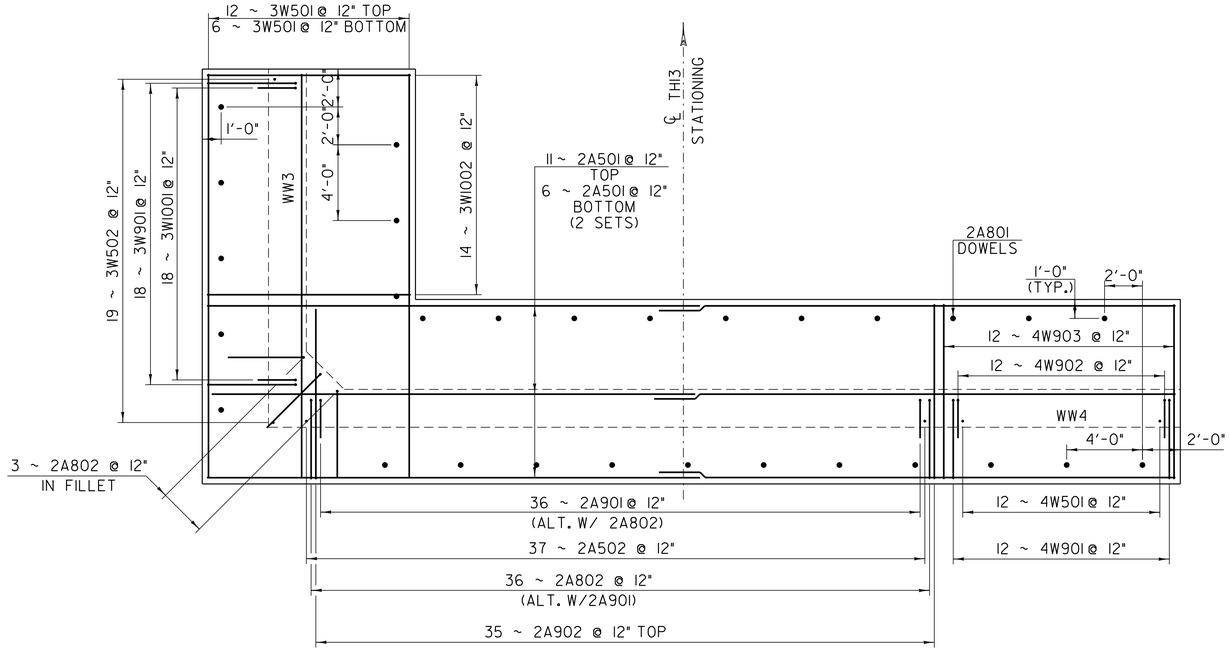
FILE NAME: /str5/01j168/sj168sub.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: J. LACROIX
sj168ftg.i
PLOT DATE: 02-APR-2007
DRAWN BY: J. SALVATORI
CHECKED BY: T. SUMNER
SHEET 57 OF 84



ABUTMENT #1 FOOTING REINFORCING PLAN

SCALE 1/4" = 1'-0
1 0 2 4 6

ftg - revised 6/29/07



ABUTMENT #2 FOOTING REINFORCING PLAN

SCALE 1/4" = 1'-0
1 0 2 4 6

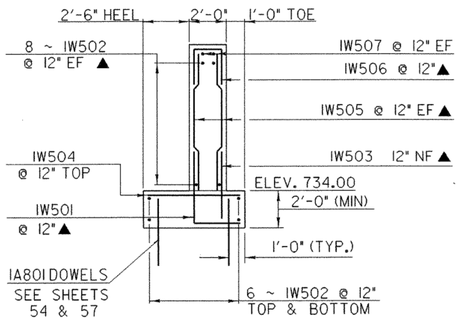
NOTE:

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

FOOTING REINFORCING

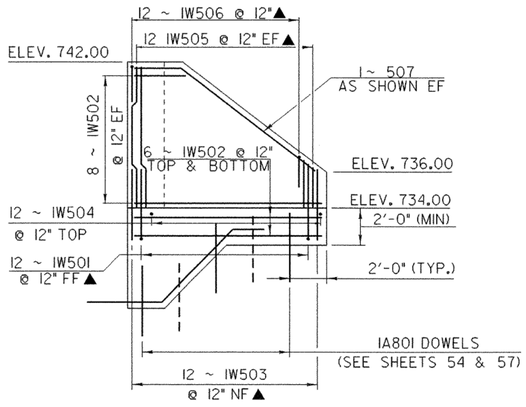
PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)

FILE NAME: /str5/01j168/sj168sub.dgn		PLOT DATE:	12-SEP-2011
PROJECT LEADER:	W. SYMONDS	DRAWN BY:	J. SALVATORI
DESIGNED BY:	J. LACROIX	CHECKED BY:	T. SUMNER
sj168ftg.i		SHEET	57 OF 84



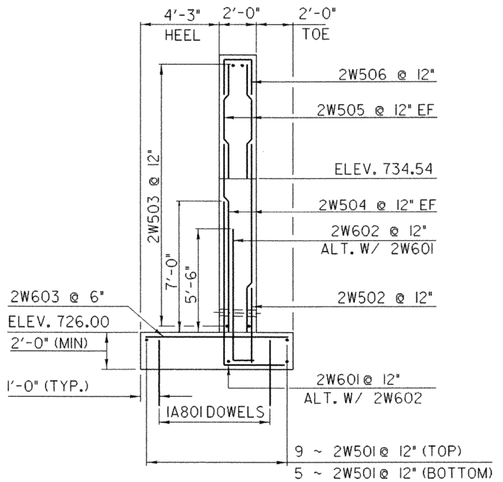
WINGWALL #1 SECTION

SCALE 1/4" = 1'-0



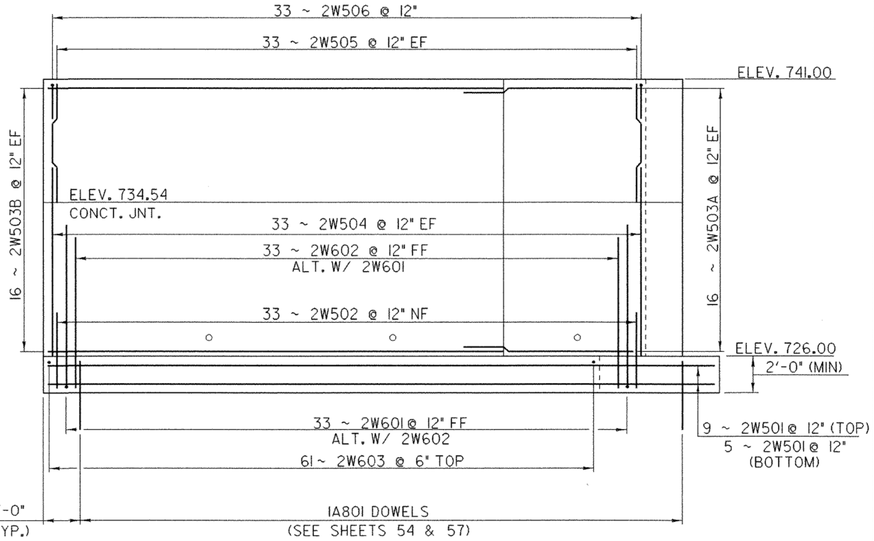
WINGWALL #1 ELEVATION

SCALE 1/4" = 1'-0



WINGWALL #2 SECTION

SCALE 1/4" = 1'-0

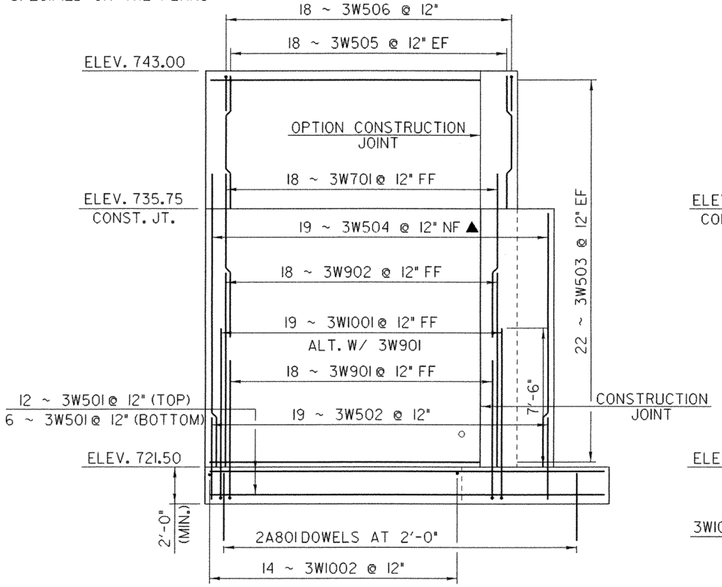


WINGWALL #2 ELEVATION

SCALE 1/4" = 1'-0

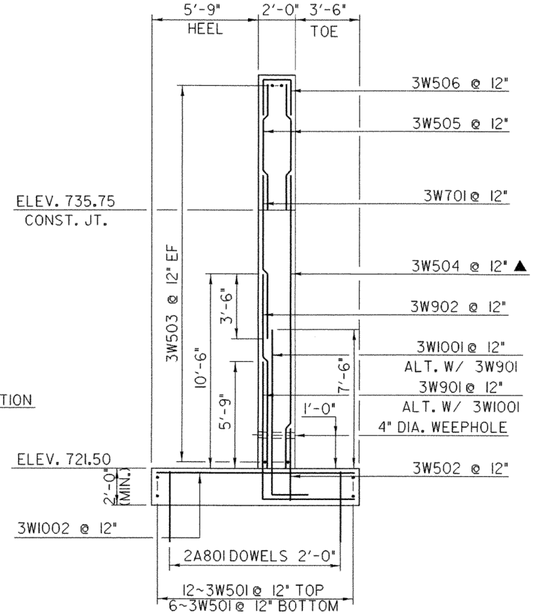
NOTE:

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



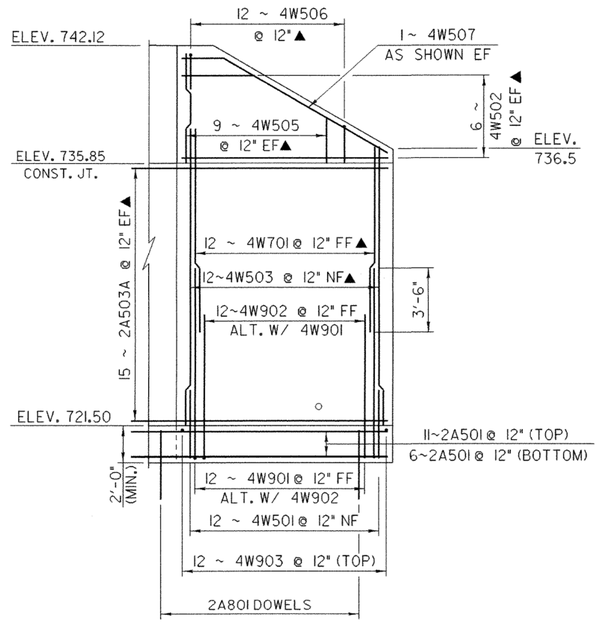
WINGWALL #3 ELEVATION

SCALE 1/4" = 1'-0



WINGWALL #3 SECTION

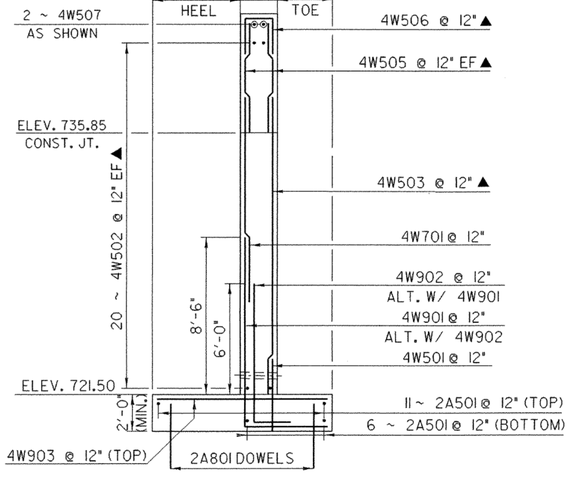
SCALE 1/4" = 1'-0



WINGWALL #4 ELEVATION

SCALE 1/4" = 1'-0

ABUTMENT #2 AND WINGWALL #4 HAVE BEEN REVISED DUE TO THE OCCURRENCE OF COMPETENT BEDROCK SHALLOWER THEN EXPECTED. SEE SHEET PLOT DATE OF 11-JUL-2007.



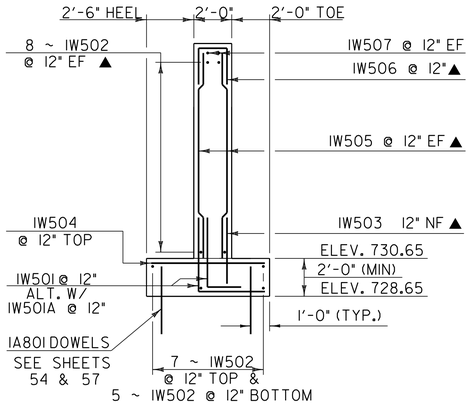
WINGWALL #4 SECTION

SCALE 1/4" = 1'-0

WINGWALL ELEVATIONS

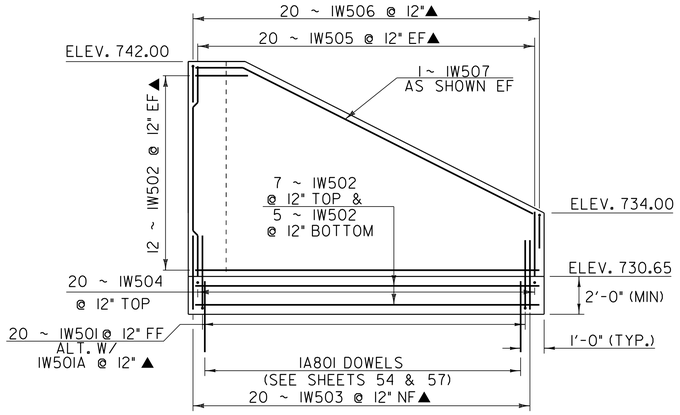
PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)

FILE NAME: /str5/01j168/sj168sub.dgn		PLOT DATE:	02-APR-2007
PROJECT LEADER:	W. SYMONDS	DRAWN BY:	J. SALVATORI
DESIGNED BY:	J. LACROIX	CHECKED BY:	T. SUMNER
sj168ww.i		SHEET	58 OF 84



WINGWALL #1 SECTION

SCALE 1/4" = 1'-0

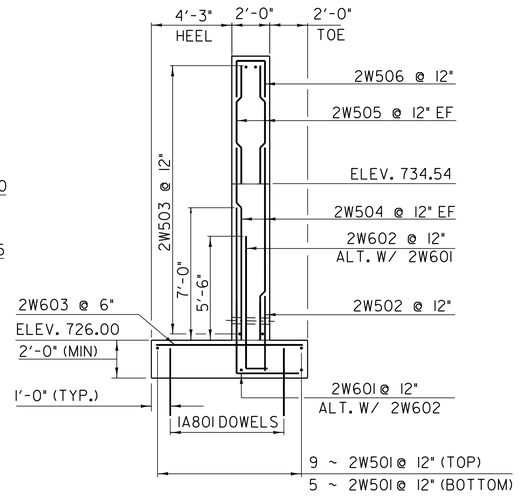


WINGWALL #1 ELEVATION

SCALE 1/4" = 1'-0

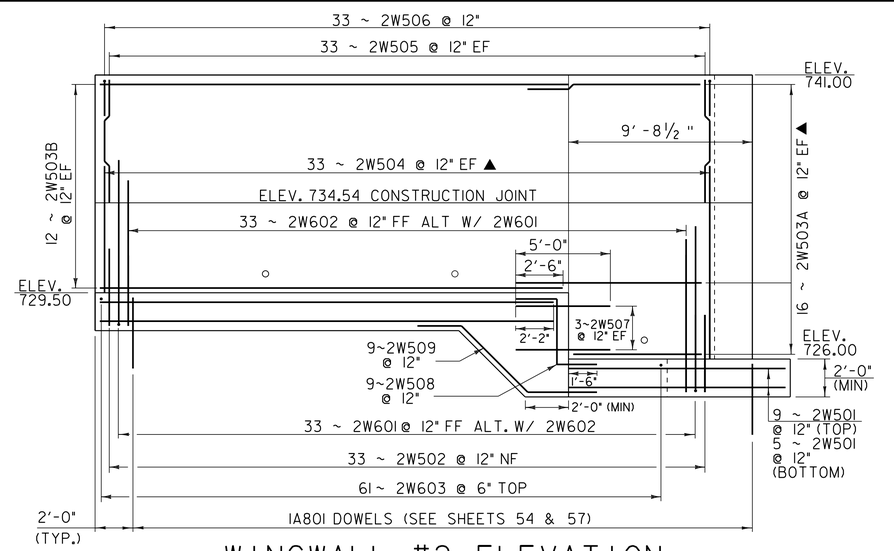
ww - revised 7/2/07

ww - revised 7/6/07



WINGWALL #2 SECTION

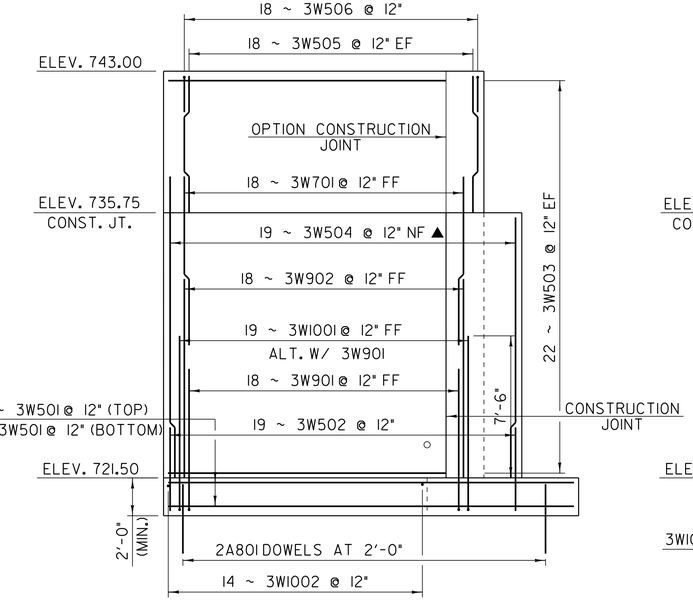
SCALE 1/4" = 1'-0



WINGWALL #2 ELEVATION

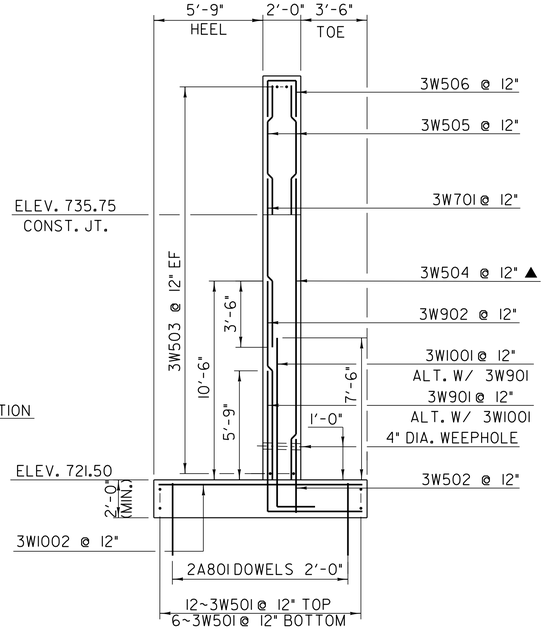
SCALE 1/4" = 1'-0

ww - revised 7/6/07



WINGWALL #3 ELEVATION

SCALE 1/4" = 1'-0

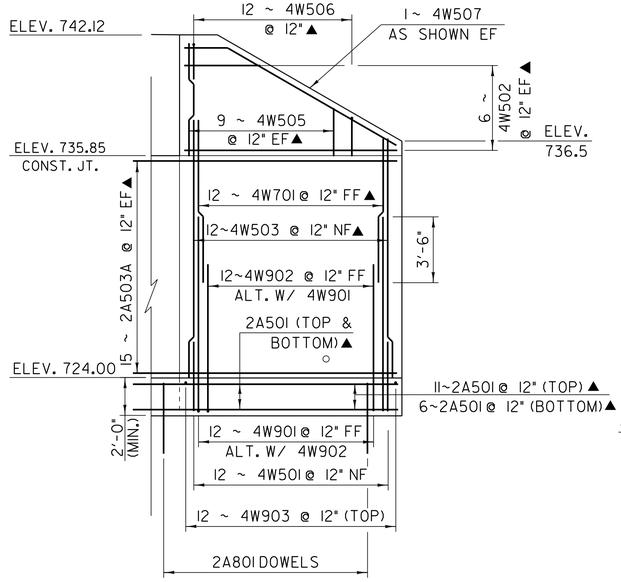


WINGWALL #3 SECTION

SCALE 1/4" = 1'-0

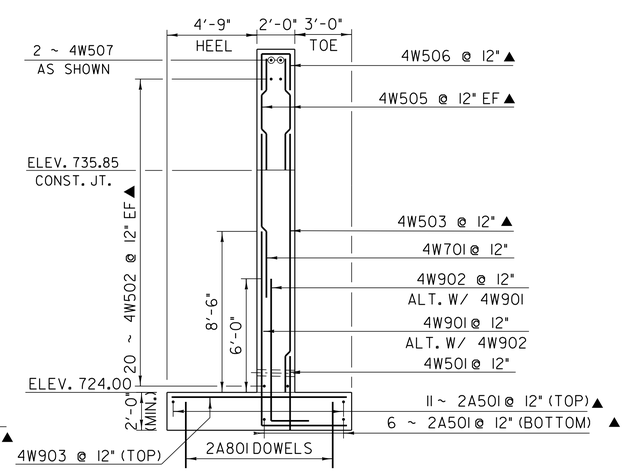
NOTE:

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



WINGWALL #4 ELEVATION

SCALE 1/4" = 1'-0



WINGWALL #4 SECTION

SCALE 1/4" = 1'-0

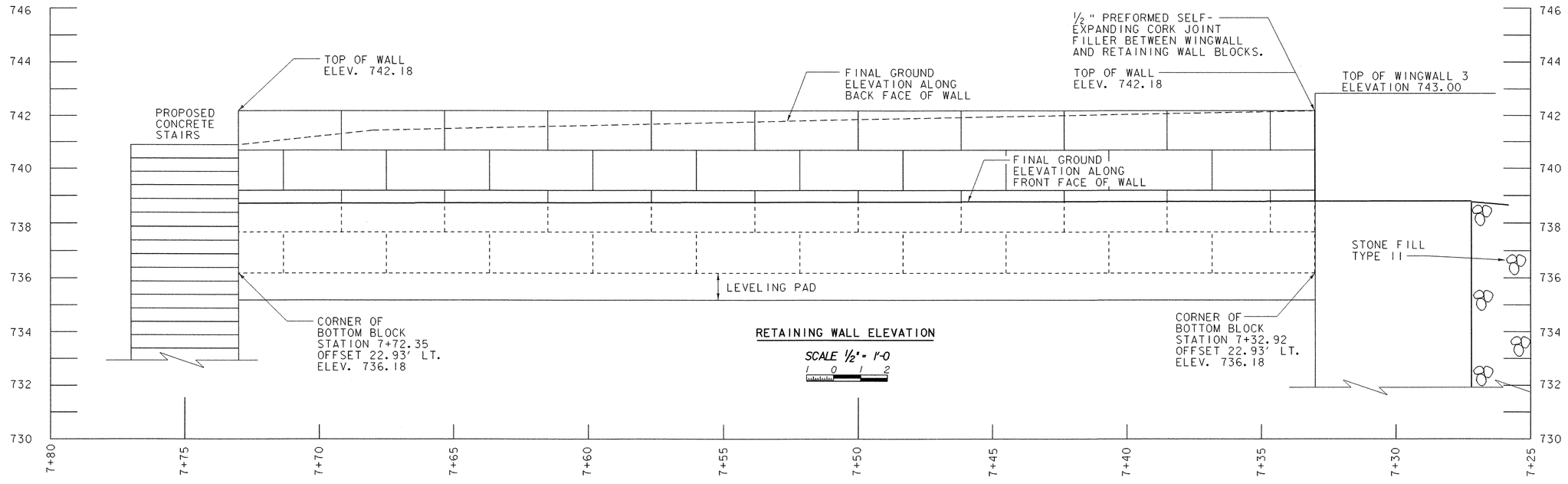
ABUTMENT #2 AND WINGWALL #4 HAVE BEEN REVISED DUE TO THE OCCURRENCE OF COMPETENT BEDROCK SHALLOWER THEN EXPECTED

WINGWALL ELEVATIONS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

FILE NAME: /str5/01j168/sj168sub.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: J. LACROIX
sj168ww.i

PLOT DATE: 12-SEP-2011
DRAWN BY: J. SALVATORI
CHECKED BY: T. SUMNER
SHEET 58 OF 84



RETAINING WALL ELEVATION

SCALE ½" = 1'-0

1 0 1 2

RETAINING WALL NOTES

ITEM 900.675 SPECIAL PROVISION (PRECAST CONCRETE GRAVITY RETAINING WALL) SHALL CONSIST OF THE DESIGN, CONSTRUCTION, AND ALL MATERIALS INCLUDING BUT NOT LIMITED TO CONCRETE BLOCKS, GRANULAR BACKFILL FOR STRUCTURES, GEOTEXTILE FABRIC, ½" EXPANSION MATERIAL, AND ANY DRAINAGE MATERIAL REQUIRED FOR THE RETAINING WALL SHOWN ON THIS SHEET.

THE DETAILS SHOWN ARE CONCEPTUAL IN NATURE AND ARE INTENDED TO PROVIDE OVERALL INFORMATION SUCH AS BEGINNING AND END OF WALL AND APPROXIMATE TOP AND BOTTOM PROFILE OF THE WALL.

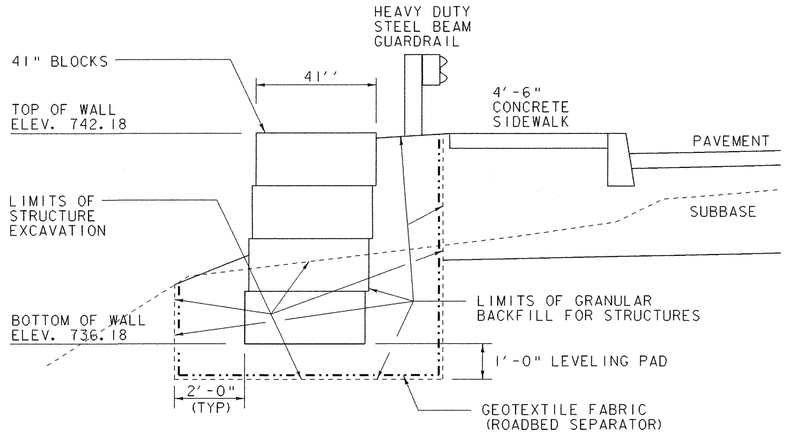
THE DESIGN SHALL BE IN ACCORDANCE WITH THE APPROPRIATE SECTIONS OF THE AASHTO 2002 STANDARD SPECIFICATIONS 17TH ADDITION FOR HIGHWAY BRIDGES.

FOR DESIGN PURPOSES THE UNIT WEIGHT OF SELECT GRANULAR BACKFILL SHALL BE 140 POUNDS/CUBIC FOOT WITH AN INTERNAL FRICTION ANGLE OF 34 DEGREES. THE MAXIMUM ALLOWABLE BEARING CAPACITY SHALL BE 4 KIPS/SQUARE FOOT.

NO LIVE LOAD SURCHARGE.

LEVEL AND COMPACT GRANULAR BACKFILL FOR STRUCTURES PRIOR TO PLACING BLOCKS.

BACKFILL AND COMPACT THE FILL MATERIAL BEHIND THE WALL AS THE WALL IS INSTALLED.



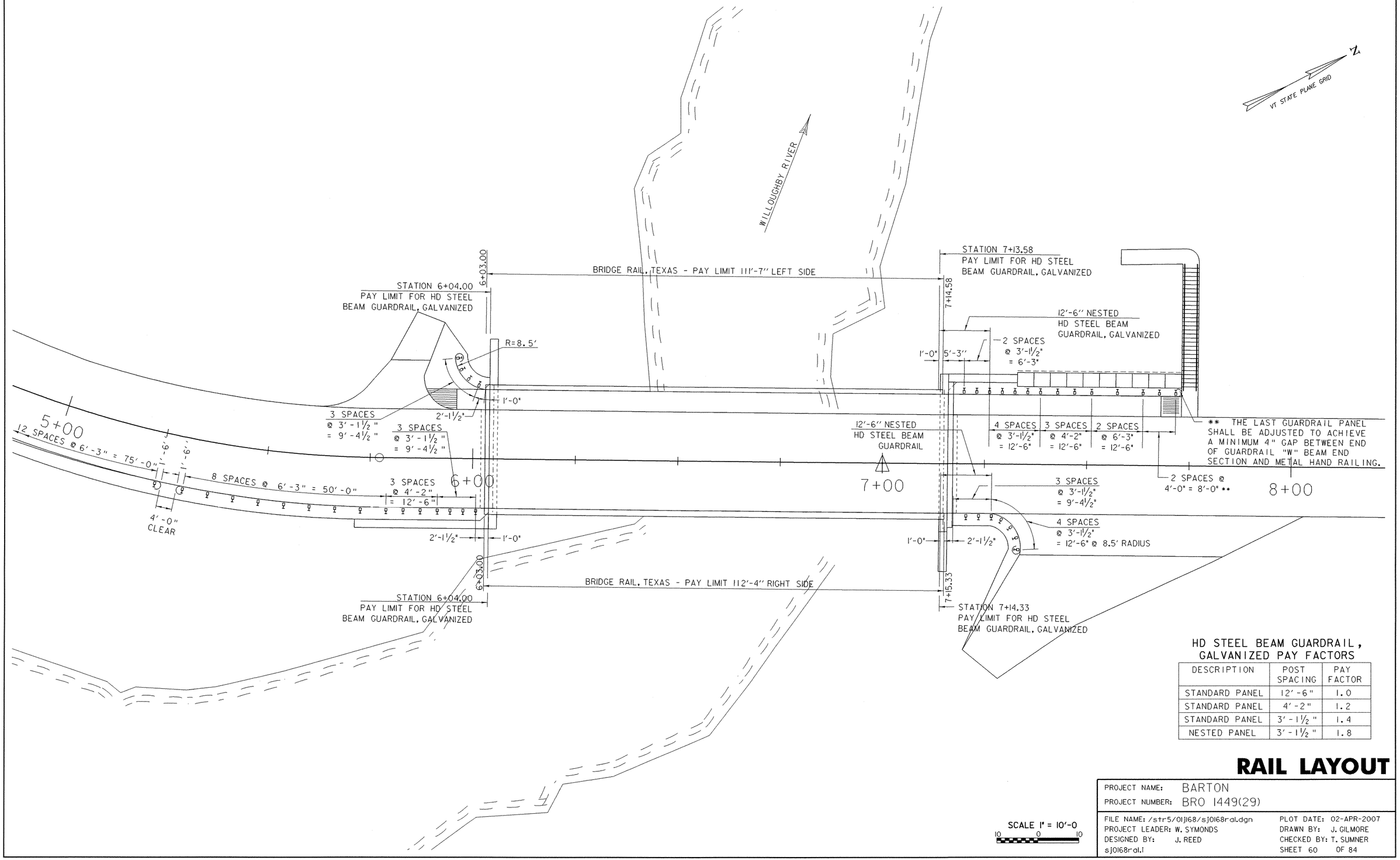
RETAINING WALL
EARTHWORKS TYPICAL

SCALE ½" = 1'-0

1 0 1 2

RETAINING WALL

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)
FILE NAME: 01j68/struct/sj168retwallpe.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: G. SHANGRAW
DESIGNED BY: J. LACROIX	CHECKED BY: T. SUMNER
sj168retwallpe.i	SHEET 59 OF 84



HD STEEL BEAM GUARDRAIL, GALVANIZED PAY FACTORS

DESCRIPTION	POST SPACING	PAY FACTOR
STANDARD PANEL	12'-6"	1.0
STANDARD PANEL	4'-2"	1.2
STANDARD PANEL	3'-1½"	1.4
NESTED PANEL	3'-1½"	1.8

SCALE 1" = 10'-0

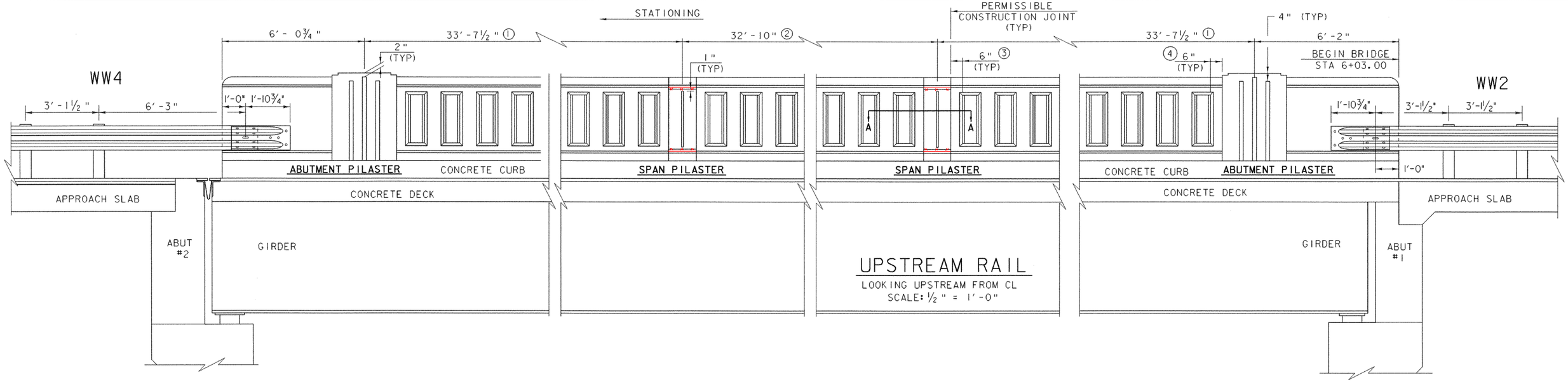
10 0 10

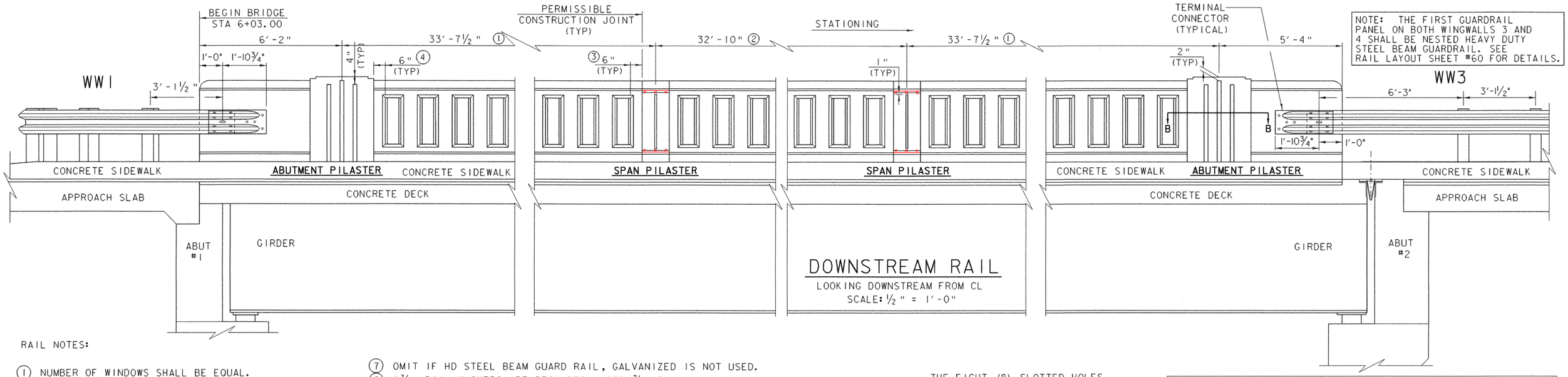
RAIL LAYOUT

PROJECT NAME: BARTON
PROJECT NUMBER: BRO 1449(29)

FILE NAME: /str5/01j168/sj0168ral.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: J. REED
sj0168ral.i

PLOT DATE: 02-APR-2007
DRAWN BY: J. GILMORE
CHECKED BY: T. SUMNER
SHEET 60 OF 84





NOTE: THE FIRST GUARDRAIL PANEL ON BOTH WINGWALLS 3 AND 4 SHALL BE NESTED HEAVY DUTY STEEL BEAM GUARDRAIL. SEE RAIL LAYOUT SHEET #60 FOR DETAILS.

RAIL NOTES:

① NUMBER OF WINDOWS SHALL BE EQUAL.

② NUMBER OF WINDOWS SHALL NOT BE LESS THAN THE AMOUNT IN ①. SPAN PILASTERS MAY BE SPACED AT 1/5 POINTS IN LONG SPANS. SEE BRIDGE POINTS IN LONG SPANS. SEE BRIDGE LAYOUT OR OTHER PLAN SHEETS.

③ DIMENSIONS SHALL BE THE SAME FOR ALL POSTS ADJACENT TO SPAN PILASTERS IN A SPAN. DIMENSIONS MAY VARY FROM SPAN TO SPAN. MIN. =3", MAX = 7½ ".

④ FOR RAIL WITHOUT PILASTERS, MIN. =6", MAX. = 1'-3".

⑤ HOLES AND RECESSES MUST BE FORMED OR CORED. PERCUSSION DRILLING IS NOT PERMITTED.

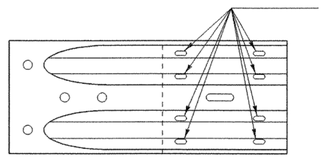
⑥ REDUCE BY 2" OR FIELD BEND OVER BITUMINOUS FIBER TO GAIN COVER.

⑦ OMIT IF HD STEEL BEAM GUARD RAIL, GALVANIZED IS NOT USED.

⑧ 1⅜ " DIA. WASHERS ARE REQUIRED UNDER ⅞ " DIA. BOLT HEADS AND NUTS.

⑨ PLACE ADDITIONAL #4 LONGITUDINAL BAR (INCLUDED AS PART OF RAILING REINFORCEMENT) WHEN U BARS ARE EMBEDDED LESS THAN 5".

⑩ CIP SLABS: (WITH U BARS CAST IN SLAB). SLAB THICKNESS + SIDEWALK THICKNESS + 6".
CIP SLABS: (WITH U BARS RESTING ON SLAB). 7½ " + SIDEWALK THICKNESS.
CG SPANS: 12½ " + SIDEWALK THICKNESS.
BOX BEAMS: (WITH U BARS CAST IN BOX). 11½ " + OVERLAY + SIDEWALK THICKNESS.
BOX BEAMS: (WITH U BARS RESTING ON BOX). 7½ ' + OVERLAY + SIDEWALK THICKNESS.



W BEAM TERMINAL CONNECTOR MODIFICATION

NOT TO SCALE

THE EIGHT (8) SLOTTED HOLES USED TO ATTACH THE STEEL BEAM GUARDRAIL TO THE CONCRETE BRIDGE RAIL SHALL BE LENGTHENED FROM 1⅛ " TO 2¾ ". THIS MODIFICATION IS ONLY FOR TERMINAL CONNECTORS AT THE EXPANSION END (WINGWALLS 3 AND 4).

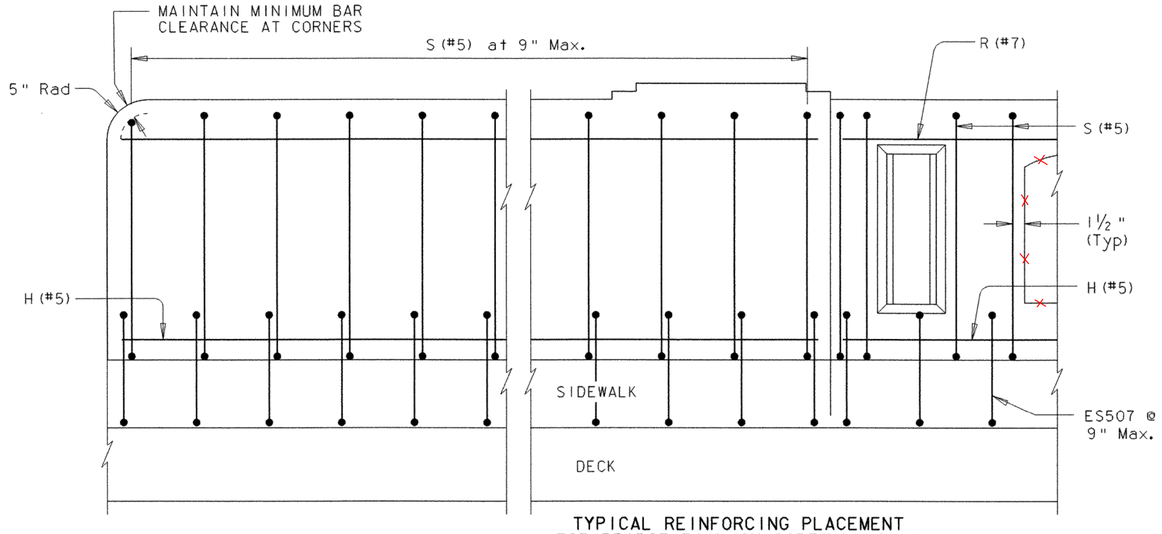
WHEN INSTALLING THE TERMINAL CONNECTORS FOR WINGS 3 & 4, THE FIRST W BEAM GUARDRAIL PANEL SHALL BE BOLTED TO THE TERMINAL CONNECTOR, CENTERING THE BOLTS WITHIN THE SLOTS, HAND TIGHTEN ONLY, AND BURRING THE THREADS. THE TERMINAL CONNECTOR CAN THEN BE ATTACHED TO THE CONCRETE RAILING.

Note 'A':
HD Steel Beam Guard Rail, Galvanized must be attached to the bridge rail and extend along the embankment unless curb and sidewalk extends and if so shown elsewhere on plans. See plan sheets for details and length for payment. The splice between the approach guard rail and the Terminal Connector shall be with the normal 8 bolts.

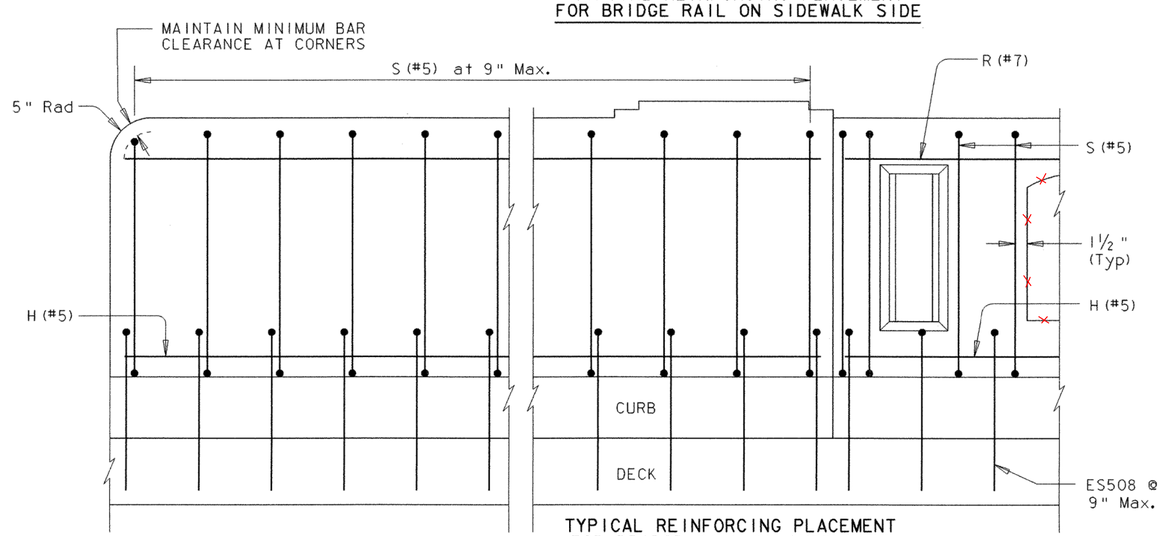
CONC. BRIDGE RAIL DETAILS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)

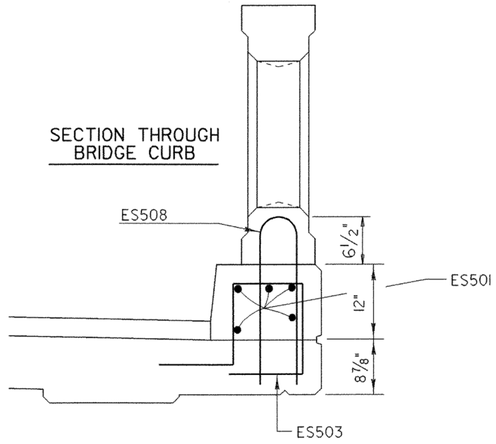
FILE NAME: /str5/01j168/sj168tex.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. GILMORE
DESIGNED BY: J. REED	CHECKED BY: J. REED
sj168tx1.i	SHEET 61 OF 84

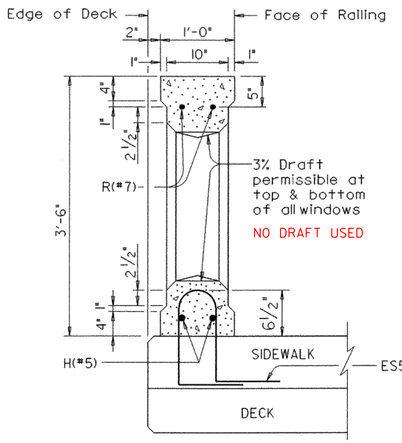


TYPICAL REINFORCING PLACEMENT FOR BRIDGE RAIL ON SIDEWALK SIDE

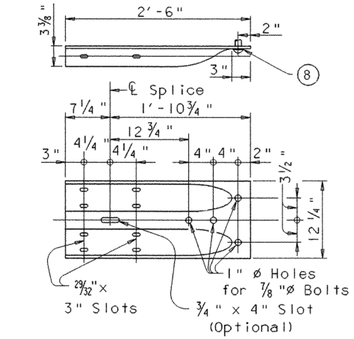


TYPICAL REINFORCING PLACEMENT FOR BRIDGE RAIL ON CURB SIDE



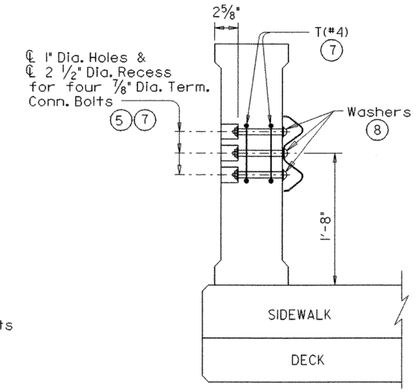


SECTION THROUGH WINDOW ON BRIDGE SIDEWALK

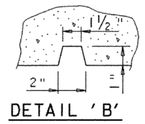


TERMINAL CONNECTOR

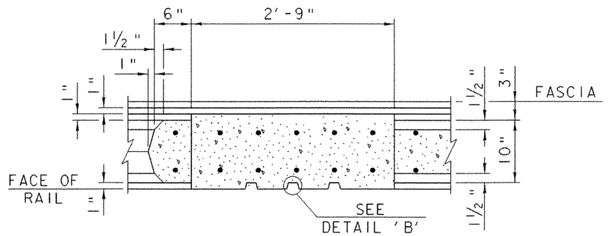
Terminal Connector shall receive the same protective coating as the attached HD Steel Beam Guardrail, Galvanized



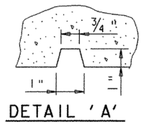
TERMINAL CONNECTOR DETAIL



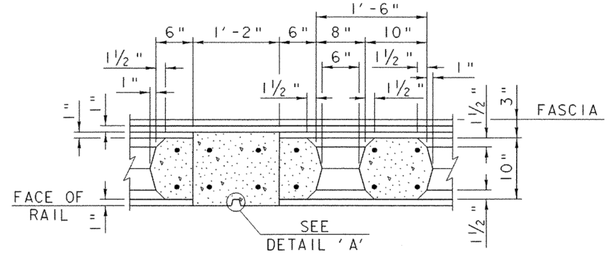
DETAIL 'B'



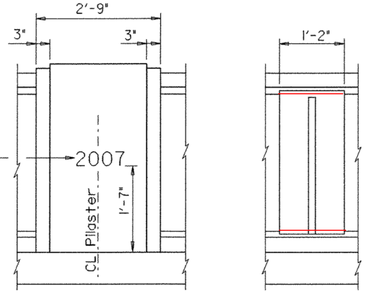
SECTION B-B ABUTMENT PILASTER



DETAIL 'A'

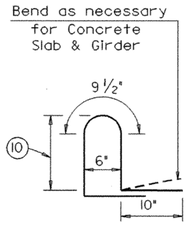


SECTION A-A SPAN PILASTER

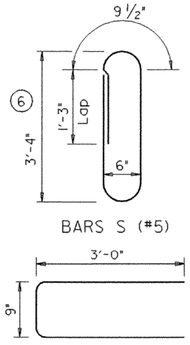


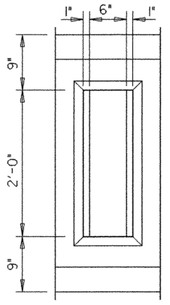
Construction year 3" High 'Plantin Bold' Typeface with ¼" recess. Placed at abutment #1 on the exterior face of the abutment pilaster at wingwall #2.

EXTERIOR PILASTER ELEVATIONS

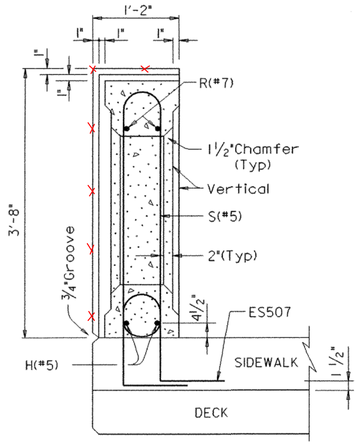


ES507





WINDOW TYPE



SECTION THROUGH POST ON BRIDGE SIDEWALK

(Showing Pilaster)

GENERAL NOTES:
1. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.

CONCRETE BRIDGE RAIL DETAILS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)

FILE NAME: /str5/01j168/sj168tex.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. GILMORE
DESIGNED BY: J. REED	CHECKED BY: J. REED
sj168tx2. i	SHEET 62 OF 84

STATE OF VERMONT
AGENCY OF TRANSPORTATION

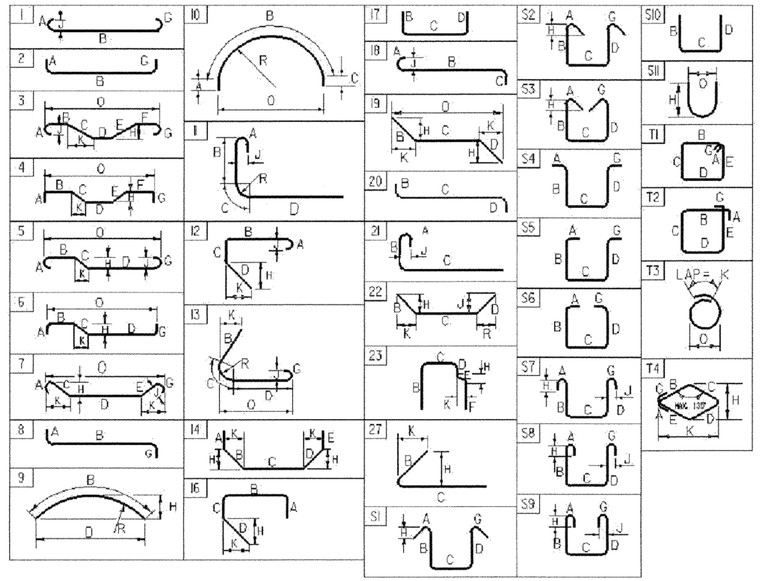
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	DECK																
	258	5	38'- 10"	ES501	STR												
	8	5	31'- 2"	ES506	STR												
✳	378	6	31'- 2"	ES601	STR												
△	115	5	12'- 5"	ES502	S5	2'- 2"	1'- 5"	5'- 8"	1'- 0"			2'- 2"					
	113	5	7'- 8"	ES503	S5	2'- 2"	1'- 4"	1'- 0"	1'- 0"			2'- 2"					
	24	5	7'- 0"	ES504	S5	2'- 2"	0'- 11"	0'- 11"	0'- 10"			2'- 2"					
	24	5	8'- 4"	ES505	S5	2'- 2"	0'- 11"	2'- 3"	0'- 10"			2'- 2"					
	150	5	9'- 0"	ES507	S5	2'- 2"	2'- 2"	0'- 6"	2'- 0"			2'- 2"					
	150	5	4'- 6"	ES508	S11								2'- 0"				0'- 6"
	ABUTMENT #1																
	12	5	24'- 1"	1A501	STR												
	23	5	3'- 11"	1A502	STR												
	18	5	22'- 1"	1A503	STR												
▲	23	5	8'- 6"	1A504	STR												
	23	5	4'- 10"	1A505	STR												
▲	2	5	22'- 1"	1A507	STR												
▲	48	5	8'- 3"	1A508	STR												
▲	11	5	36'- 8"	1A510	STR												
	12	5	12'- 1"	1A514	STR												
	13	5	5'- 0"	1A515	STR												
▲	13	5	5'- 6"	1A516	STR												
	10	5	12'- 1"	1A517	STR												
	26	5	5'- 0"	1A519	STR												
	8	5	1'- 11"	1A526	STR												
	8	5	1'- 5"	1A527	STR												
	21	6	6'- 0"	1A601	STR												
△	41	8	3'- 9"	1A801	STR												
△	15	8	3'- 6"	1EA801	19		1'- 0"	2'- 6"	---								
	23	5	10'- 1"	1A506	16	2'- 2"	3'- 6"	1'- 3"	3'- 3"								
	33	5	5'- 10"	1A511	17		2'- 2"	1'- 6"	2'- 2"								
	25	5	4'- 10"	1A512	17		2'- 2"	0'- 6"	2'- 2"								
▲	13	5	9'- 11"	1A513	17		5'- 6"	4'- 6"	---								
	13	5	7'- 10"	1A518	17		2'- 2"	3'- 6"	2'- 2"								
	25	5	5'- 2"	1A524	17		2'- 2"	3'- 0"	---								
	5	5	6'- 10"	1A525	17		2'- 2"	2'- 6"	2'- 2"								
	20	5	8'- 3"	1A509	19		2'- 2"	6'- 1"	---								
	6	5	13'- 1"	1A520	19		4'- 4"	6'- 7"	2'- 2"								
	6	5	11'- 2"	1A522	19		4'- 4"	4'- 8"	2'- 2"								
	6	5	8'- 2"	1A523	20		2'- 8"	3'- 4"	2'- 2"								
	6	5	9'- 6"	1A521	20		2'- 8"	4'- 8"	2'- 2"								
	23	8	11'- 3"	1A802	17		7'- 9"	3'- 6"	---								
	WINGWALL #1																
▲	28	5	10'- 4"	1W502	STR												
▲	12	5	3'- 11"	1W503	STR												
	12	5	5'- 0"	1W504	STR												
✳	25	5	7'- 6"	1W505	STR												
▲	12	5	6'- 5"	1W501	17		3'- 11"	2'- 6"	---								
	12	5	5'- 10"	1W506	17		2'- 2"	1'- 6"	2'- 2"								
	2	5	13'- 7"	1W507	19		2'- 7"	11'- 0"	---								
	WINGWALL #2																
	14	5	36'- 2"	2W501	STR												
	33	5	3'- 11"	2W502	STR												
	32	5	11'- 10"	2W503A	STR												
	32	5	24'- 6"	2W503B	STR												
	66	5	10'- 8"	2W504	STR												
	66	5	6'- 2"	2W505	STR												
	33	6	8'- 3"	2W602	17		7'- 3"	1'- 0"	---								
✳	62	6	7'- 9"	2W603	STR												
	33	5	5'- 10"	2W506	17		2'- 2"	1'- 6"	2'- 2"								
	34	6	12'- 3"	2W601	17		8'- 9"	3'- 6"	---								
	ABUTMENT #2																
	34	5	26'- 8"	2A501	STR												
	37	5	3'- 11"	2A502	STR												
▲	68	5	25'- 0"	2A503A	STR												
▲	14	5	20'- 6"	2A503B	STR												
▲	37	5	14'- 4"	2A504	STR												
✳	40	5	5'- 8"	2A505	STR												
	37	5	4'- 4"	2A506	STR												
	8	5	1'- 11"	2A515	STR												
	8	5	1'- 5"	2A516	STR												
	30	8	3'- 9"	2A801	STR												

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
✳	40	8	11'- 0"	2A803	STR												
	35	9	9'- 3"	2A902	STR												
▲	3	5	31'- 2"	2EA510	STR												
	36	5	4'- 10"	2A507	19		---	3'- 7"	1'- 4"								
	24	5	12'- 3"	2A508A	16	2'- 2"	3'- 10"	1'- 4"	5'- 0"								
	12	5	11'- 2"	2A508B	16	2'- 2"	2'- 10"	2'- 2"	4'- 0"								
▲	24	5	11'- 0"	2A509	17		4'- 6"	1'- 10"	4'- 6"								
▲	44	5	8'- 1"	2A512	17		---	2'- 2"	5'- 11"								
	16	5	11'- 7"	2A513	22		2'- 2"	7'- 3"	2'- 2"								
▲	36	5	12'- 11"	2EA511	17		6'- 0"	0'- 9"	6'- 0"								
	40	8	8'- 4"	2A802	17		6'- 4"	2'- 0"	---								
	13	8	3'- 8"	2EA801	19		---	2'- 8"	1'- 0"								
	36	9	9'- 9"	2A901	17		7'- 9"	2'- 0"	---								
	WINGWALL #3																
	18	5	21'- 5"	3W501	STR												
	19	5	3'- 11"	3W502	STR												
	44	5	14'- 8"	3W503	STR												
	18	5	16'- 5"	3W504	STR												
	36	5	7'- 0"	3W505	STR												
✳	19	7	9'- 5"	3W701	STR												
	19	9	10'- 6"	3W902	STR												
✳	15	10	10'- 9"	3W1002	STR												
	18	5	5'- 10"	3W506	17		2'- 2"	1'- 6"	2'- 2"								
	18	9	12'- 6"	3W901	17		7'- 6"	5'- 0"	---								
	18	10	11'- 3"	3W1001	17		9'- 3"	2'- 0"	---								
	WINGWALL #4																
	12	5	3'- 11"	4W501	STR												
▲	12	5	11'- 3"	4W502	STR												
▲	12	5	16'- 6"	4W503	STR												
				4W504			NOT USED										
▲	18	5	6'- 0"	4W505	STR												
▲	12	7	11'- 6"	4W701	STR												
	12	9	9'- 3"	4W903	STR												
	12	5	5'- 10"	4W506	17		2'- 2"	1'- 6"	2'- 2"								
	2	5	12'- 0"	4W507	16	---	---	1'- 0"	11'- 0"								
				4W508			NOT USED										
	6	5	5'- 7"	4W509	20		2'- 2"	1'- 3"	2'- 2"								
	6	5	6'- 4"	4W510	20		2'- 2"	2'- 0"	2'- 2"								
	12	9	14'- 9"	4W901	17		10'- 3"	4'- 6"	---								
✳	13	9	9'- 9"	4W902	17		7'- 9"	2'- 0"	---								
	APPROACH SLAB #1																
	16	5	23'- 6"	1EAS501	STR												
	48	6	15'- 2"	1EAS601	1	0'- 8"	14'- 6"					---					0'- 6"
	APPROACH SLAB #2																
	16	5	23'- 6"	2EAS501	STR												
	48	6	15'- 2"	2EAS601	1	0'- 8"	14'- 6"					---					0'- 6"

~ NOTES ~

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



ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION DIAMETER INCHES	AREA INCHES ^{2}	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

REVISED - SEE SHEET PLOT DATE 7/9/2007

PROJECT NAME: BARTON
PROJECT NUMBER: BRO 1449(29)

FILE NAME: sj168rss.xls
PROJECT MANAGER: W. SYMONDS
DESIGNED BY: J. LACROIX
REINFORCING STEEL SCHEDULE SHEET #1

PLOT DATE: 11/10/2006
DRAWN BY: J. SALVATORI
CHECKED BY: T. SUMNER
SHEET 63 OF 84

STATE OF VERMONT
AGENCY OF TRANSPORTATION

REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
▲																	
DECK																	
	258	5	38'- 10"	ES501	STR												
	8	5	31'- 2"	ES506	STR												
✳	378	6	31'- 2"	ES601	STR												
△	115	5	12'- 5"	ES502	S5	2'- 2"	1'- 5"	5'- 8"	1'- 0"			2'- 2"					
	113	5	7'- 8"	ES503	S5	2'- 2"	1'- 4"	1'- 0"	1'- 0"			2'- 2"					
	24	5	7'- 0"	ES504	S5	2'- 2"	0'- 11"	0'- 11"	0'- 10"			2'- 2"					
	24	5	8'- 4"	ES505	S5	2'- 2"	0'- 11"	2'- 3"	0'- 10"			2'- 2"					
	150	5	9'- 0"	ES507	S5	2'- 2"	2'- 2"	0'- 6"	2'- 0"			2'- 2"					
	150	5	4'- 6"	ES508	S11								2'- 0"				0'- 6"
ABUTMENT #1																	
	12	5	24'- 1"	1A501	STR												
	23	5	3'- 11"	1A502	STR												
	18	5	22'- 1"	1A503	STR												
▲	23	5	8'- 6"	1A504	STR												
	23	5	4'- 10"	1A505	STR												
▲	2	5	22'- 1"	1A507	STR												
▲	48	5	8'- 3"	1A508	STR												
▲	11	5	36'- 8"	1A510	STR												
	14	5	12'- 1"	1A514	STR												
	13	5	6'- 0"	1A515	STR												
▲	13	5	5'- 6"	1A516	STR												
	10	5	12'- 1"	1A517	STR												
	18	5	5'- 0"	1A519	STR												
	8	5	1'- 11"	1A526	STR												
	8	5	1'- 5"	1A527	STR												
	21	6	6'- 0"	1A601	STR												
△	41	8	3'- 9"	1A801	STR	* DOWEL LENGTHS ADJUSTED IN FIELD											
△	15	8	3'- 6"	1EA801	19		1'- 0"	2'- 6"	---								
	23	5	10'- 1"	1A506	16	2'- 2"	3'- 6"	1'- 3"	3'- 3"								
	33	5	5'- 10"	1A511	17		2'- 2"	1'- 6"	2'- 2"								
	25	5	4'- 10"	1A512	17		2'- 2"	0'- 6"	2'- 2"								
▲	13	5	11'- 0"	1A513	17		5'- 6"	5'- 6"	---								
	13	5	7'- 10"	1A518	17		2'- 2"	3'- 6"	2'- 2"								
	25	5	5'- 2"	1A524	17		2'- 2"	3'- 0"	---								
	5	5	6'- 10"	1A525	17		2'- 2"	2'- 6"	2'- 2"								
	20	5	8'- 3"	1A509	19		2'- 2"	6'- 1"	---								
	6	5	13'- 1"	1A520	19		4'- 4"	6'- 7"	2'- 2"								
	6	5	5'- 0"	1A522	STR												
	6	5	5'- 0"	1A523	STR												
	6	5	9'- 6"	1A521	20		2'- 8"	4'- 8"	2'- 2"								
	23	8	11'- 3"	1A802	17		7'- 9"	3'- 6"	---								
WINGWALL #1																	
▲	36	5	18'- 4"	1W502	STR												
▲	20	5	3'- 11"	1W503	STR												
	20	5	6'- 0"	1W504	STR												
✳	25	5	10'- 2"	1W505	STR												
	20	5	7'- 5"	1W501A	17		3'- 11"	3'- 6"	---								
▲	20	5	6'- 5"	1W501	17		3'- 11"	2'- 6"	---								
	12	5	5'- 10"	1W506	17		2'- 2"	1'- 6"	2'- 2"								
	2	5	13'- 7"	1W507	19		2'- 7"	11'- 0"	---								
WINGWALL #2																	
	14	5	36'- 2"	2W501	STR												
	33	5	3'- 11"	2W502	STR												
▲	32	5	11'- 10"	2W503A	STR												
	32	5	24'- 6"	2W503B	STR												
▲	66	5	10'- 8"	2W504	STR												
	66	5	6'- 2"	2W505	STR												
	6	5	5'- 0"	2W507	STR												
	33	6	8'- 3"	2W602	17		7'- 3"	1'- 0"	---								
✳	62	6	7'- 9"	2W603	STR												
	9	5	7'- 5"	2W508	20		2'- 2"	3'- 6"	1'- 9"								
	33	5	5'- 10"	2W506	17		2'- 2"	1'- 6"	2'- 2"								
	9	5	10'- 8"	2W509	19		3'- 6"	5'- 0"	2'- 2"								
	34	6	12'- 3"	2W601	17		8'- 9"	3'- 6"	---								
ABUTMENT #2																	
▲	34	5	26'- 8"	2A501	STR												
	37	5	3'- 11"	2A502	STR												
▲	68	5	25'- 0"	2A503A	STR												
▲	14	5	20'- 6"	2A503B	STR												
▲	37	5	14'- 4"	2A504	STR												
▲ ✳	40	5	5'- 8"	2A505	STR												
	37	5	4'- 4"	2A506	STR												
	8	5	1'- 11"	2A515	STR												
	8	5	1'- 5"	2A516	STR												
	30	8	3'- 9"	2A801	STR												

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
✳	40	8	11'- 0"	2A803	STR												
	35	9	9'- 3"	2A902	STR												
▲	3	5	31'- 2"	2EA510	STR												
	36	5	4'- 10"	2A507	19		---	3'- 7"	1'- 4"								
	24	5	12'- 3"	2A508A	16	2'- 2"	3'- 10"	1'- 4"	5'- 0"								
	12	5	11'- 2"	2A508B	16	2'- 2"	2'- 10"	2'- 2"	4'- 0"								
▲	24	5	11'- 0"	2A509	17		4'- 6"	1'- 10"	4'- 6"								
▲	44	5	8'- 1"	2A512	17		---	2'- 2"	5'- 11"								
	16	5	11'- 7"	2A513	22		2'- 2"	7'- 3"	2'- 2"								
	11	5	14'- 2"	2A520	19		8'- 8"	3'- 6"	2'- 2"								
	11	5	12'- 8"	2A521	20		8'- 0"	2'- 6"	2'- 2"								
▲	36	5	12'- 11"	2EA511	17		6'- 0"	0'- 9"	6'- 0"								
	40	8	8'- 4"	2A802	17		6'- 4"	2'- 0"	---								
	13	8	3'- 8"	2EA801	19		---	2'- 8"	1'- 0"								
	36	9	9'- 9"	2A901	17		7'- 9"	2'- 0"	---								
WINGWALL #3																	
	18	5	21'- 5"	3W501	STR												
	19	5	3'- 11"	3W502	STR												
	44	5	14'- 8"	3W503	STR												
	18	5	16'- 5"	3W504	STR												
	36	5	7'- 0"	3W505	STR												
✳	19	7	9'- 5"	3W701	STR												
	19	9	10'- 6"	3W902	STR												
✳	15	10	10'- 9"	3W1002	STR												
	18	5	5'- 10"	3W506	17		2'- 2"	1'- 6"	2'- 2"								
	18	9	12'- 6"	3W901	17		7'- 6"	5'- 0"	---								
	18	10	11'- 3"	3W1001	17		9'- 3"	2'- 0"	---								
WINGWALL #4																	
	12	5	3'- 11"	4W501	STR												
▲	12	5	11'- 3"	4W502	STR												
▲	12	5	16'- 6"	4W503	STR												
				4W504			NOT USED										
▲	18	5	6'- 0"	4W505	STR												
▲	12	7	11'- 6"	4W701	STR												
	12	9	9'- 3"	4W903	STR												
	12	5	5'- 10"	4W506	17		2'- 2"	1'- 6"	2'- 2"								
	2	5	12'- 0"	4W507	16	---	---	1'- 0"	11'- 0"								
				4W508			NOT USED										
	6	5	5'- 7"	4W509	20		2'- 2"	1'- 3"	2'- 2"								
	6	5	6'- 4"	4W510	20		2'- 2"	2'- 0"	2'- 2"								
	12	9	14'- 9"	4W901	17		10'- 3"	4'- 6"	---								
✳	13	9	9'- 9"	4W902	17		7'- 9"	2'- 0"	---								
APPROACH SLAB #1																	
	16	5	23'- 6"	1EAS501	STR												
	48	6	15'- 2"	1EAS601	1	0'- 8"	14'- 6"					---	0'- 6"				
APPROACH SLAB #2																	
	16	5	23'- 6"	2EAS501	STR												
	48	6	15'- 2"	2EAS601	1	0'- 8"	14'- 6"					---	0'- 6"				

~ NOTES ~

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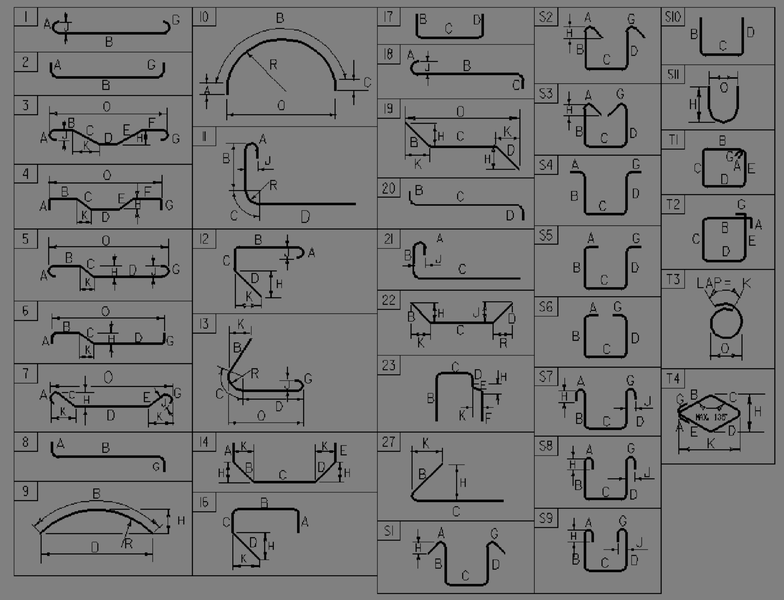
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8.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



ASTM STANDARD REINFORCING BARS

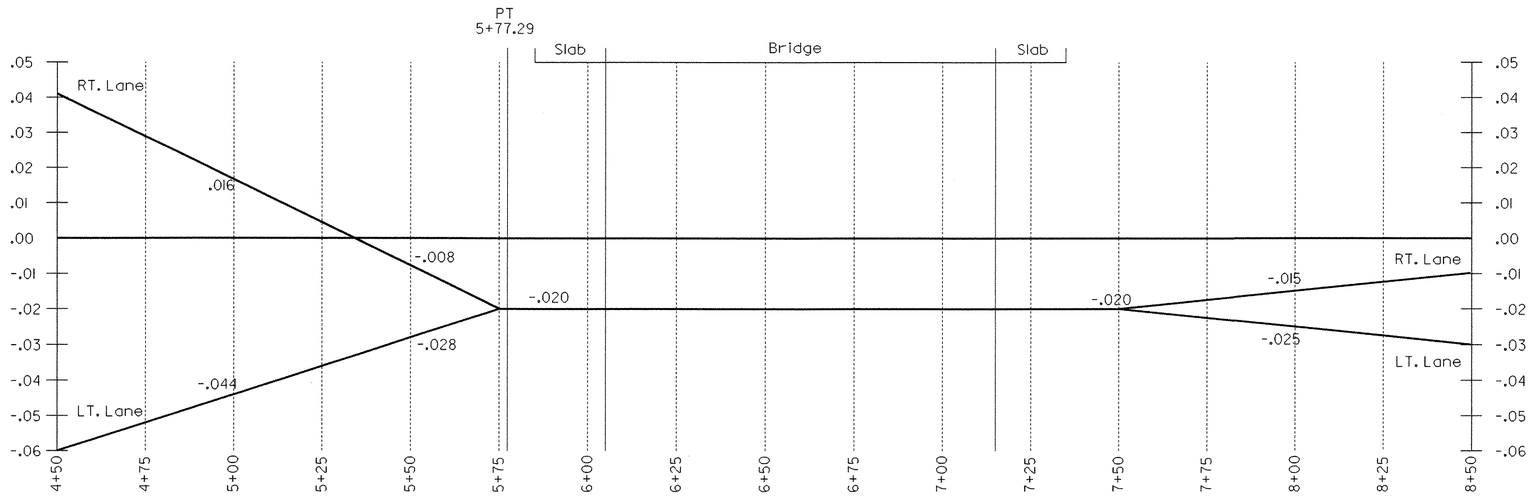
BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION DIAMETER INCHES	AREA INCHES^2	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

PROJECT NAME: **BARTON**
PROJECT NUMBER: **BRO 1449(29)**

FILE NAME: **sj168rss.xls**
PROJECT MANAGER: **W. SYMONDS**
DESIGNED BY: **J. LACROIX**
REINFORCING STEEL SCHEDULE SHEET #1

PLOT DATE: **7/9/2007**
DRAWN BY: **J. SALVATORI**
CHECKED BY: **T. SUMNER**
SHEET **63** OF **84**

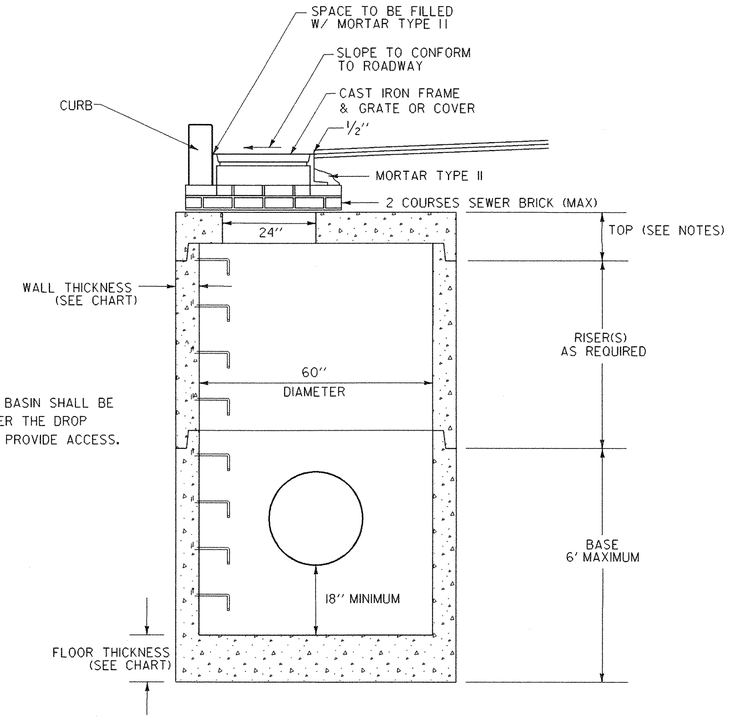
BANKING DIAGRAM



BANKING DIAGRAM

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)

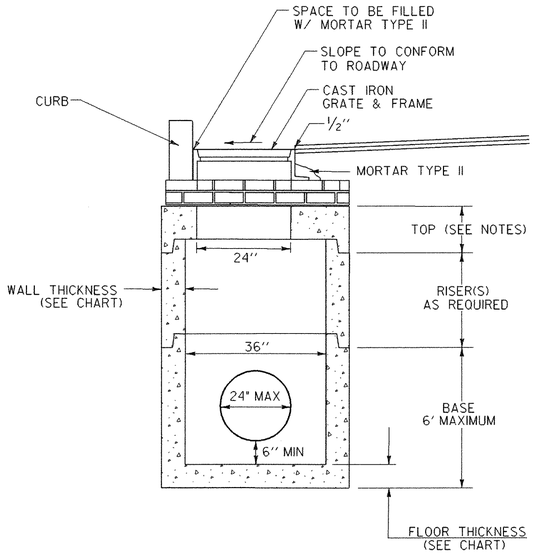
FILE NAME: /str5/01j168/sj168xs.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. REED
DESIGNED BY: J. REED	CHECKED BY: J. LACROIX
sj168bnk.i	SHEET 64 OF 84



NOTE:
STEPS IN CATCH BASIN SHALL BE ORIENTATED UNDER THE DROP INLET GRATE TO PROVIDE ACCESS.

PRECAST CATCH BASIN

N. T. S.



PRECAST DROP INLET

N. T. S.

SIZING CHART

DIAMETER	WALL THICKNESS	FLOOR THICKNESS
48" OR SMALLER	5"	6"
60"	6"	8"
72"	7"	8"
84"	8"	10"
96"	9"	10"

NOTES:

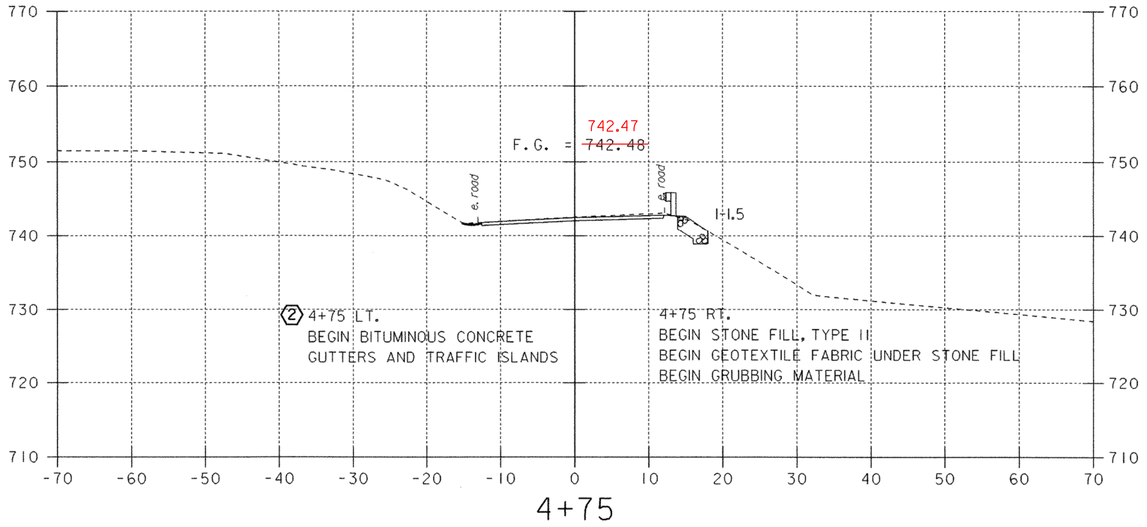
1. ALL PRECAST CONCRETE DROP INLETS SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH AASHTO M199M / AASHTO M199
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL INVERT ELEVATIONS, PIPE SIZES AND LOCATIONS SHOWN PRIOR TO ORDERING THE PRECAST COMPONENTS.
3. SEE STANDARDS D-11, D-15, AND D-16 FOR CAST IRON FRAME AND GRATE DETAILS.
4. THE TOP SECTIONS MAY BE EITHER THE FLAT TOPS AS SHOWN OR CONE SECTIONS. IF CONE SECTIONS ARE USED THEY MAY EITHER BE CONCENTRIC OR ECCENTRIC. PIPES ARE NOT PERMITTTED TO ENTER CONE SECTIONS.
5. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROVE JOINT 4" HIGH AT AN ANGLE OF 11 DEGREES CENTERED IN THE WIDTH OF THE JOINT. ALL SECTIONS SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT.
6. ALL SECTIONS WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 1'-0" OF OUTSIDE SURFACE BETWEEN HOLES. NO MORE THAN 75% OF A HORIZONTAL CROSS SECTION SHALL BE HOLES. HOLES SHALL BE NO CLOSER THAN 3" TO A JOINT.
7. SEE STANDARD D-15 FOR SIZING AND SPACING OF STEPS.
8. ALL HOLES IN BASINS AND INLETS SHALL HAVE SMOOTH, CLEAN EDGES.

Not To Scale

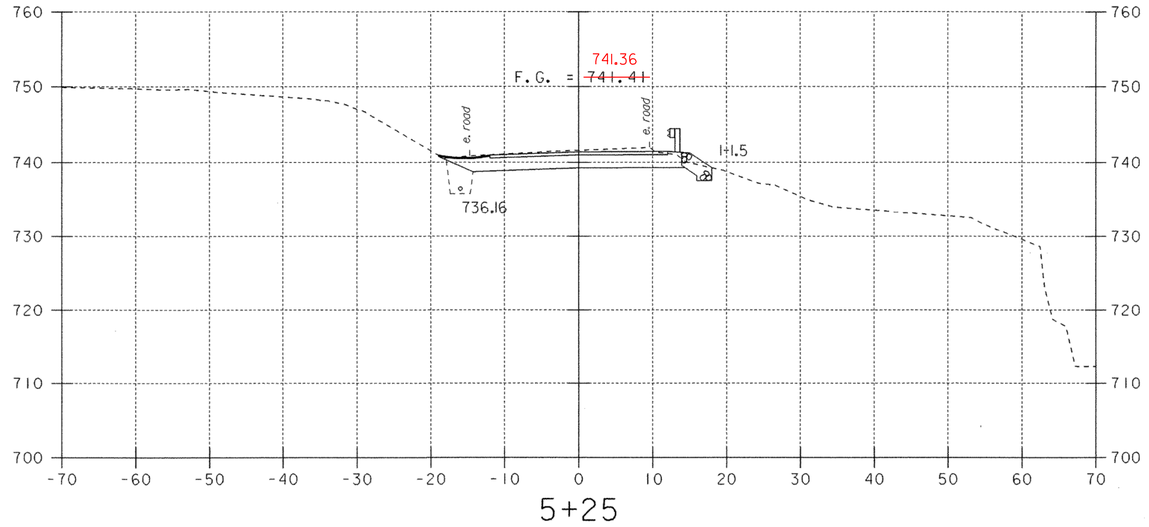
PRECAST DROP INLET

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRF 1449I(29)

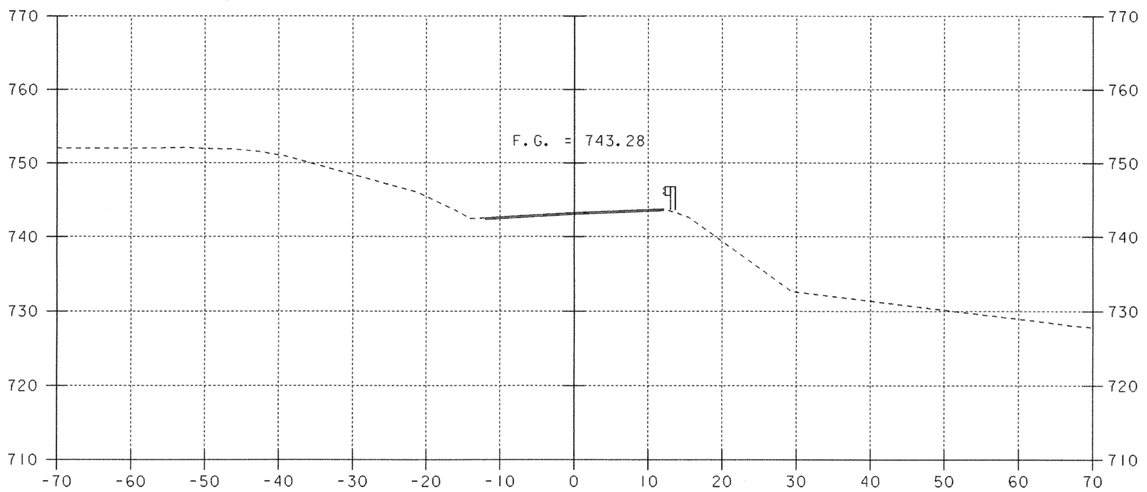
FILE NAME: /str5/0ij168/precastDI.dgn		PLOT DATE:	02-APR-2007
PROJECT LEADER:	W. Symonds	DRAWN BY:	G. Shangraw
DESIGNED BY:	W. Symonds	CHECKED BY:	T. Sumner
sj096precast.i		SHEET	65 OF 84



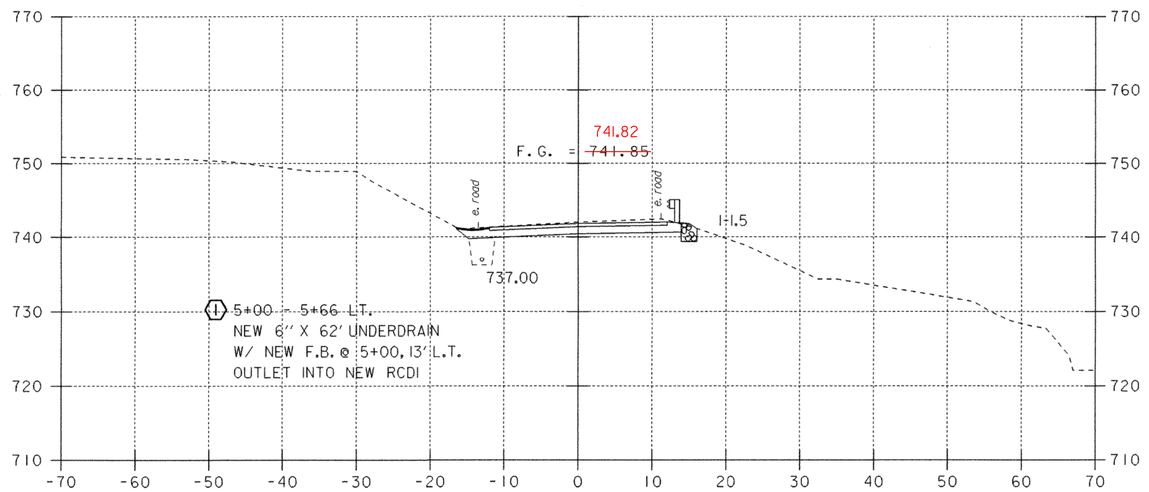
4+75



5+25



4+50

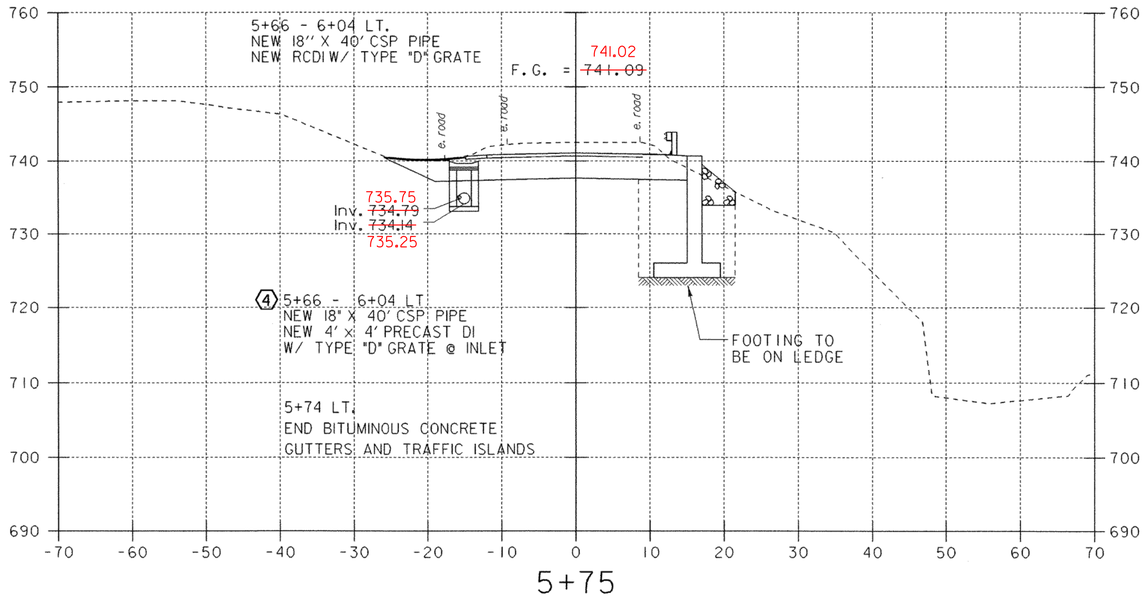


5+00

ROADWAY CROSS SECTIONS

0 10 20
SCALE

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)
FILE NAME: /str5/01j168/sj168xs.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: G. SHANGRAW
DESIGNED BY: W. SYMONDS	CHECKED BY: J. LACROIX
sj168x1.i	SHEET 70 OF 84



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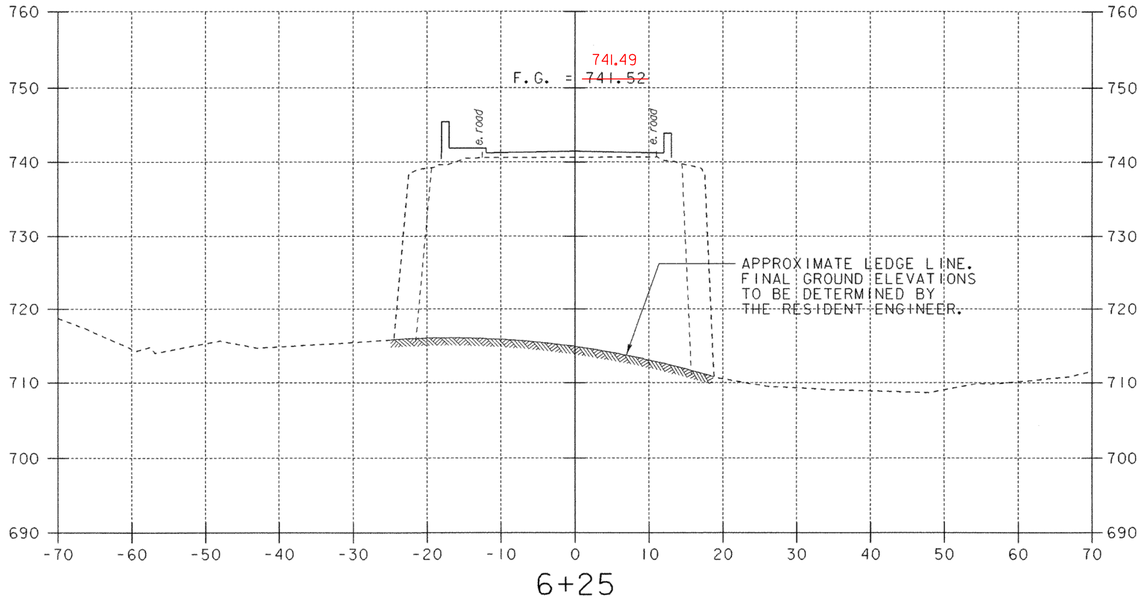

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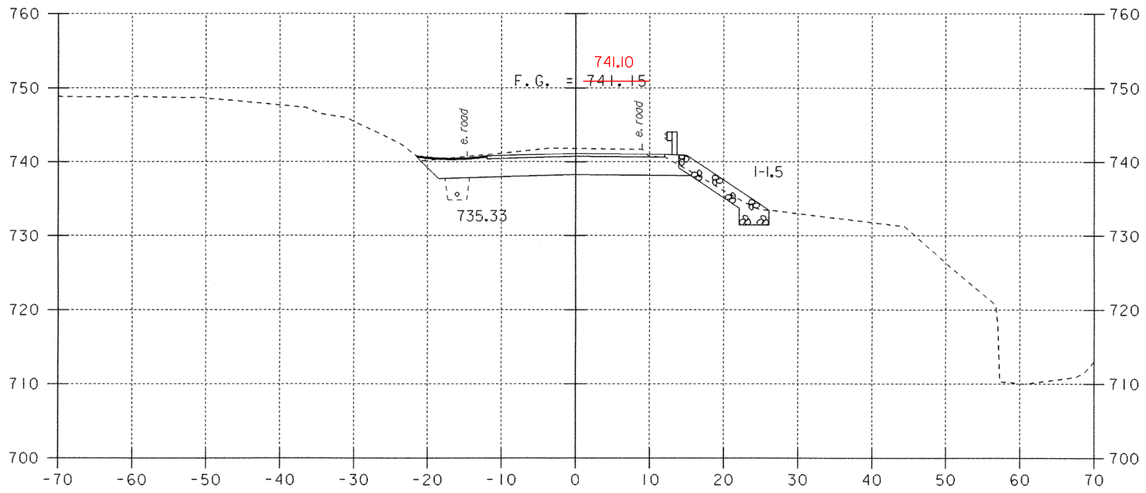

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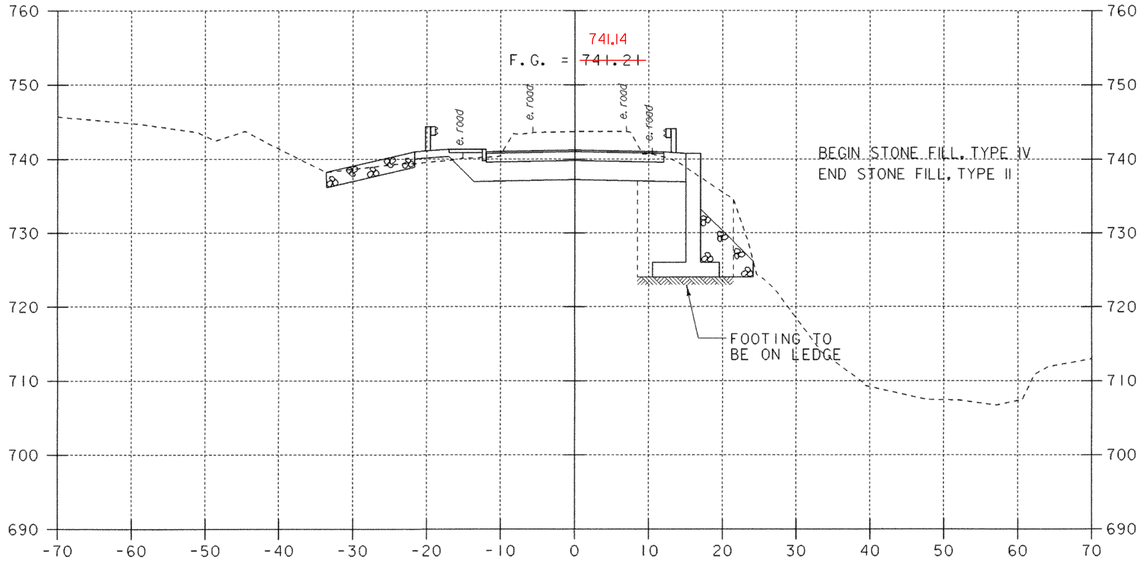
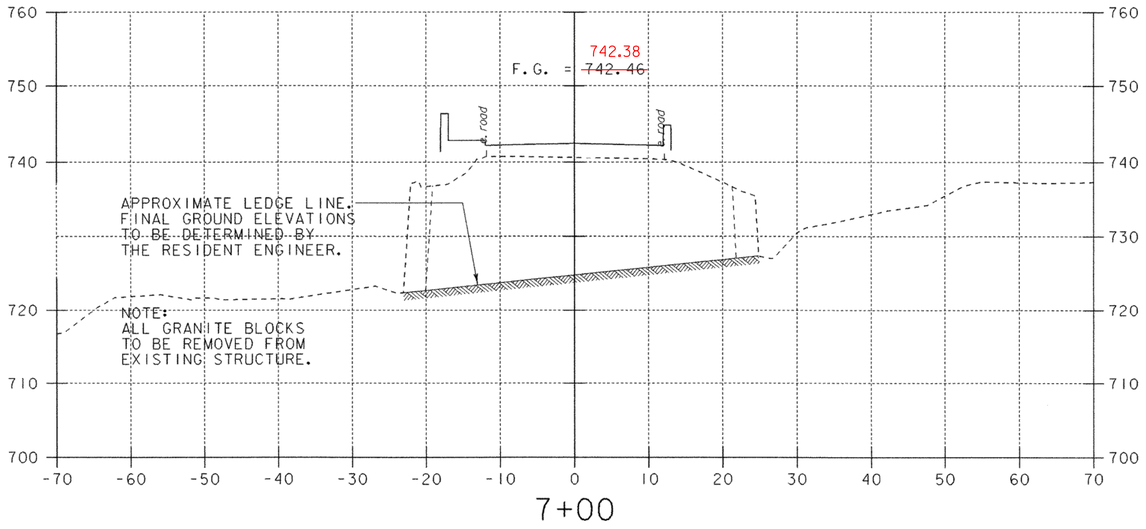


6+00

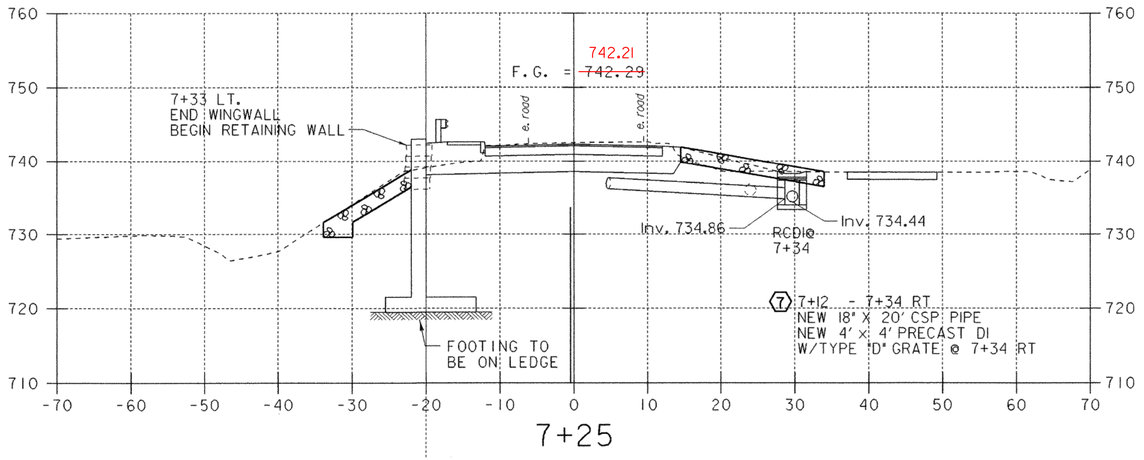
ROADWAY CROSS SECTIONS

0 10 20
SCALE

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)
FILE NAME: /str5/01j168/sj168xs.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: G. SHANGRAW
DESIGNED BY: W. SYMONDS	CHECKED BY: J. LACROIX
sj168x2.i	SHEET 71 OF 84



7+00



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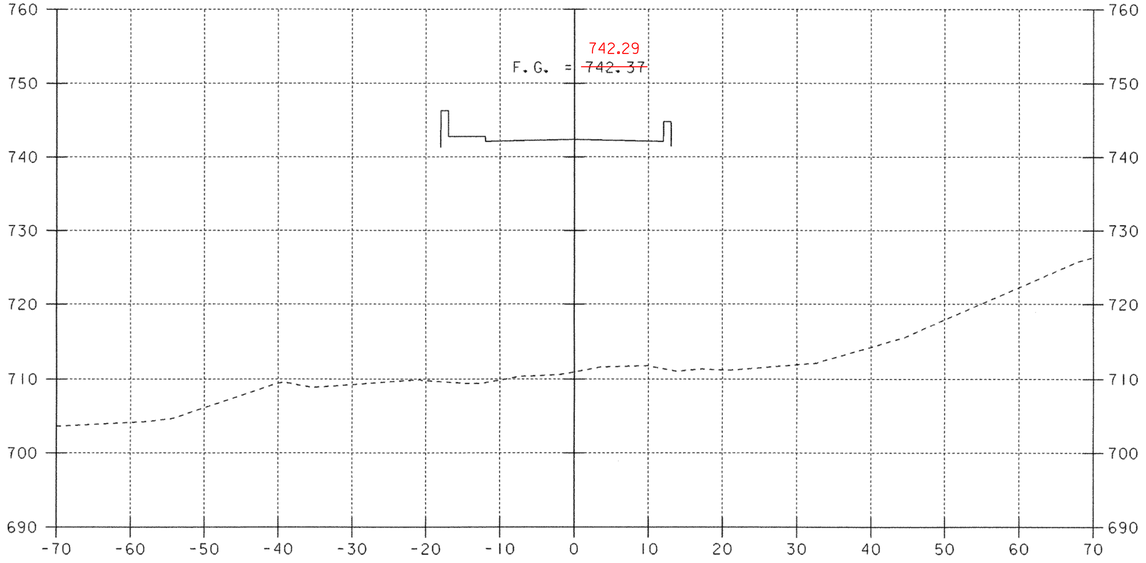
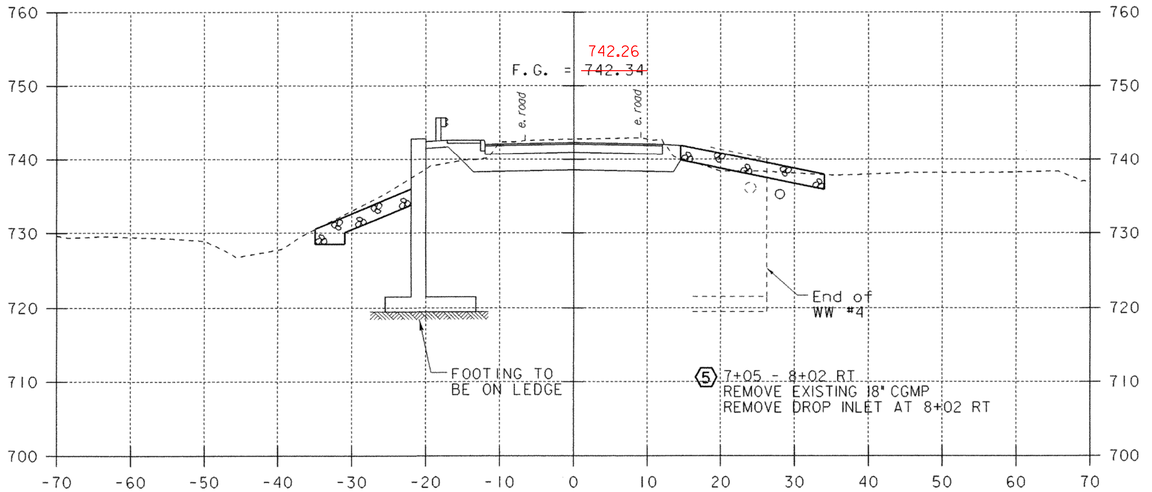


6+75

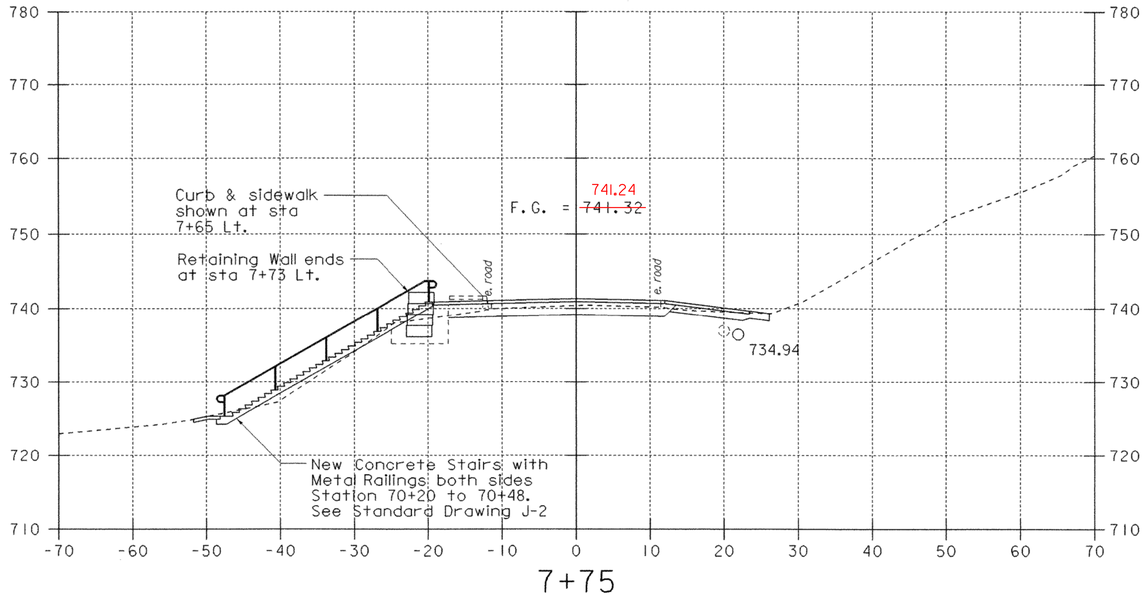


7+20

ROADWAY CROSS SECTIONS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)
FILE NAME: /str5/01j168/sj168xs.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: G. SHANGRAW
DESIGNED BY: W. SYMONDS	CHECKED BY: J. LACROIX
sj168x3.1	SHEET 72 OF 84

0 10 20
SCALE



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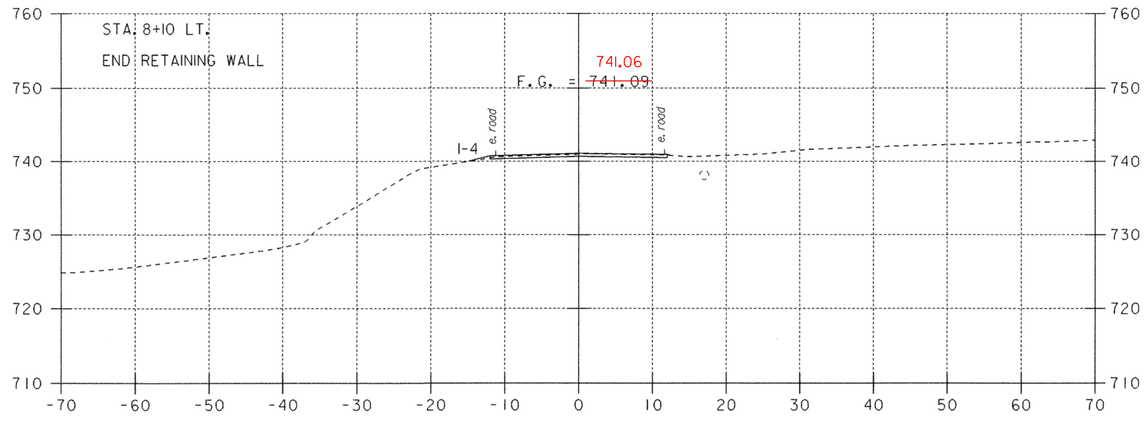
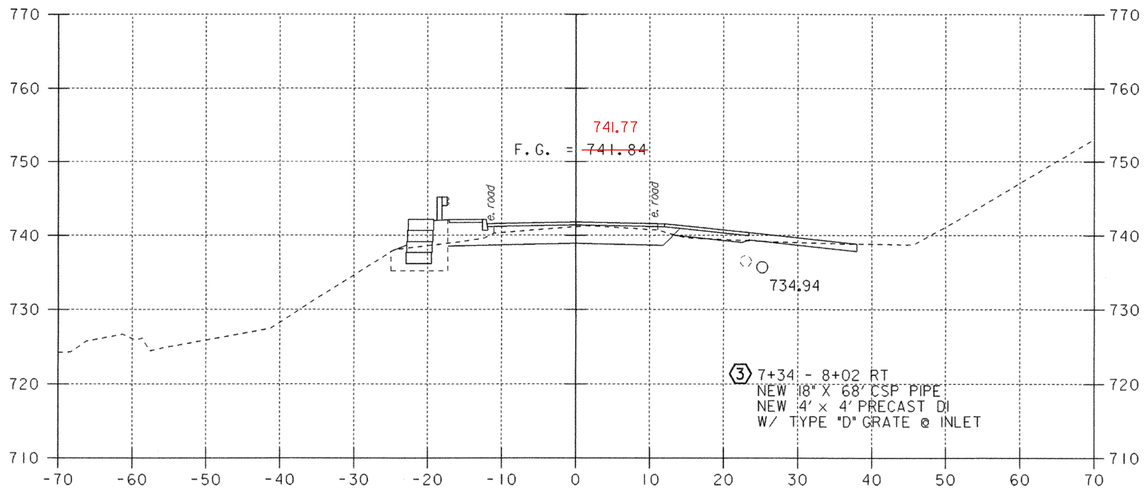


8+25



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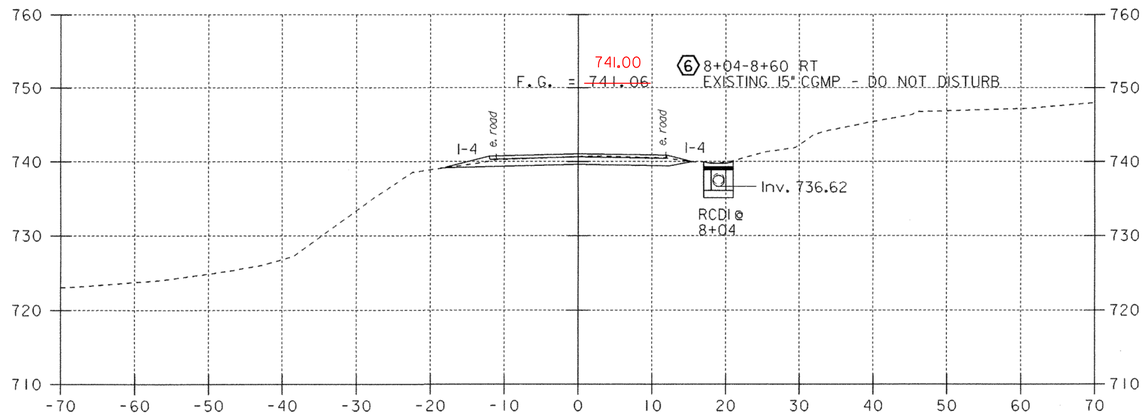


8+00

ROADWAY CROSS SECTIONS

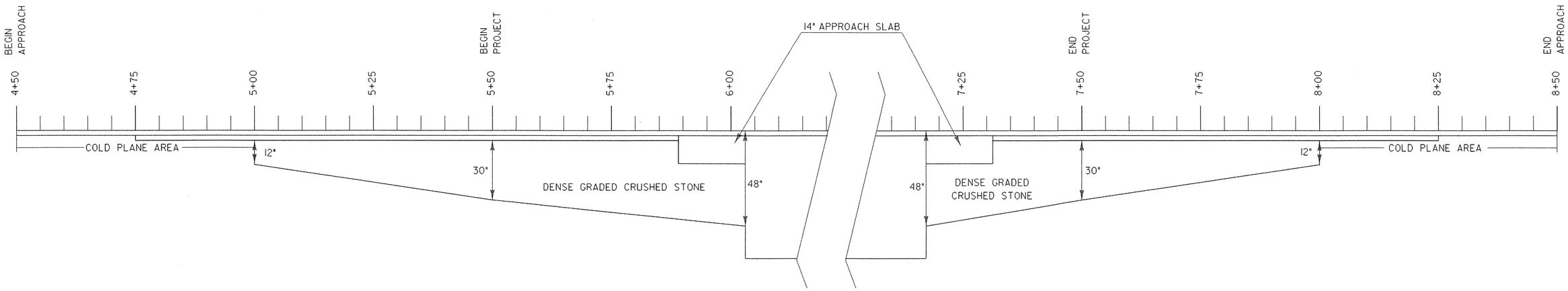
PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)

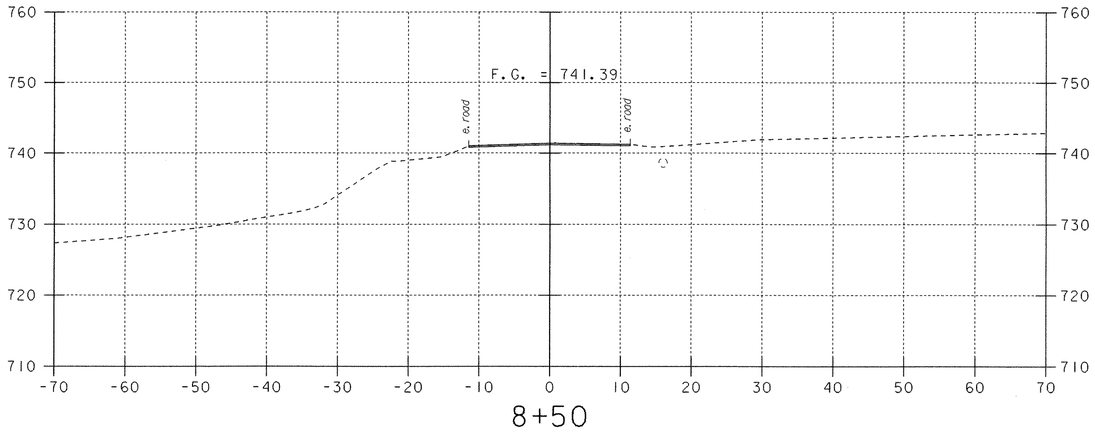
FILE NAME: /str5/01j168/sj168xs.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: G. SHANGRAW
DESIGNED BY: W. SYMONDS	CHECKED BY: J. LACROIX
sj168x4.i	SHEET 73 OF 84

0 10 20
SCALE

MATERIAL TRANSITION DIAGRAM

N.T.S.





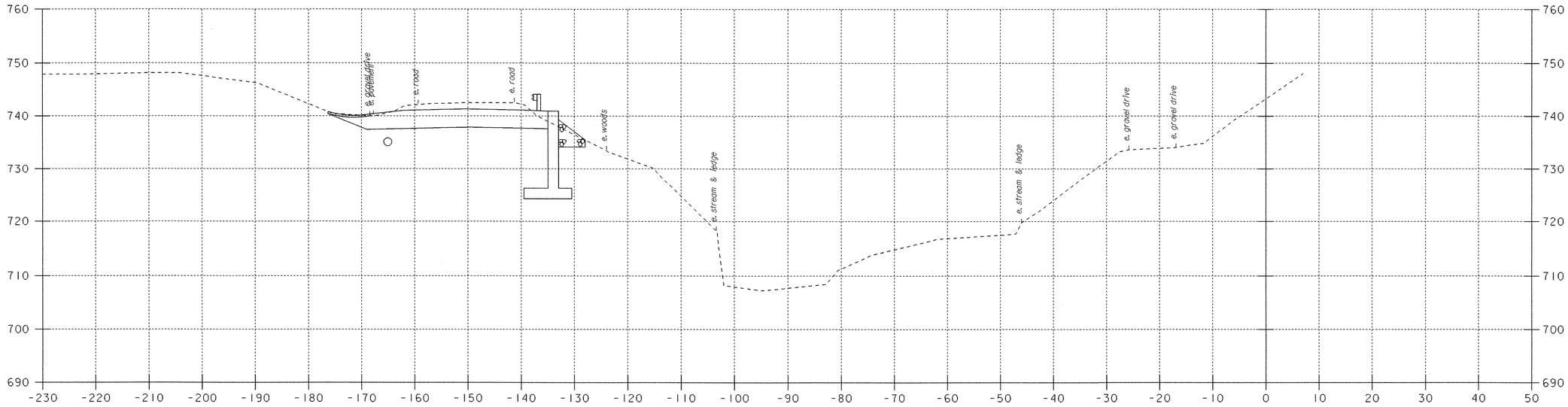
8+50

ROADWAY CROSS SECTIONS

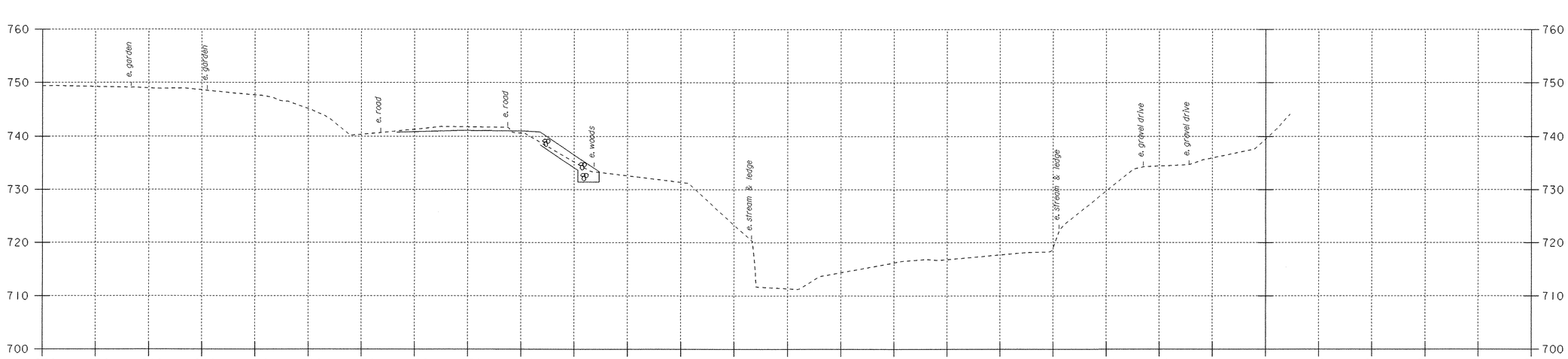
PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

0 10 20
SCALE

FILE NAME: /str5/01j168/sj168xs.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: G. SHANGRAW
DESIGNED BY: W. SYMONDS	CHECKED BY: J. LACROIX
sj168x5.i	SHEET 74 OF 84



20+25

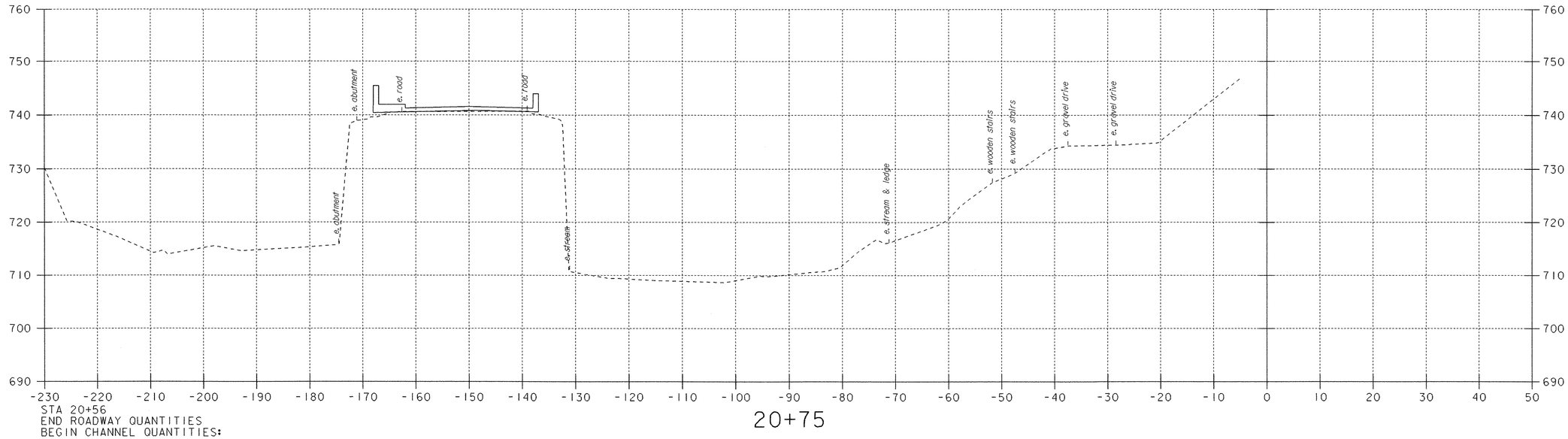


20+00

CHANNEL CROSS SECTIONS

0 10 20
SCALE

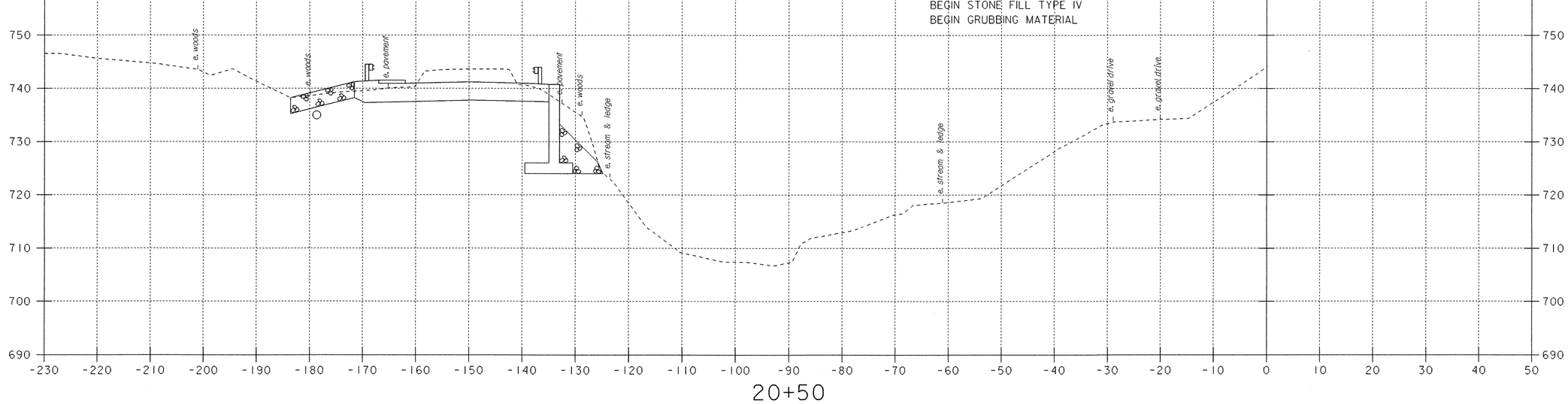
PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)
FILE NAME: /str5/0ij168/sj168xs.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J.REED
DESIGNED BY: J. REED	CHECKED BY: J. LACROIX
sj168cxl.i	SHEET 75 OF 84



20+75

STA 20+56
END ROADWAY QUANTITIES
BEGIN CHANNEL QUANTITIES:
STONE FILL, TYPE III
GRUBBING MATERIAL
GEOTEXTILE UNDER STONE FILL
CHANNEL EXCAVATION OF EARTH

BEGIN UNCLASSIFIED CHANNEL EXCAVATION
BEGIN STONE FILL TYPE IV
BEGIN GRUBBING MATERIAL



20+50

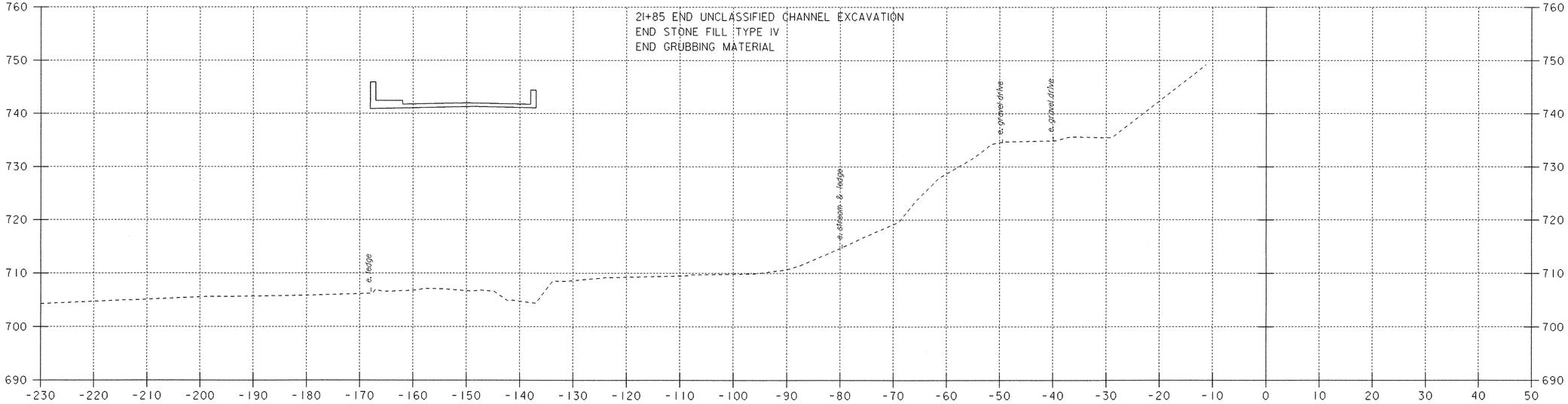
CHANNEL CROSS SECTIONS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)

FILE NAME: /str5/01ji68/sji68xs.dgn		PLOT DATE:	02-APR-2007
PROJECT LEADER:	W. SYMONDS	DRAWN BY:	J. REED
DESIGNED BY:	J. REED	CHECKED BY:	J. LACROIX
sji68cx2.i		SHEET 76	OF 84

0 10 20
SCALE

STA 21+35.87 LT
BEGIN CHANNEL QUANTITIES:
STONE FILL, TYPE III
GRUBBING MATERIAL
GEOTEXTILE UNDER STONE FILL
CHANNEL EXCAVATION OF EARTH



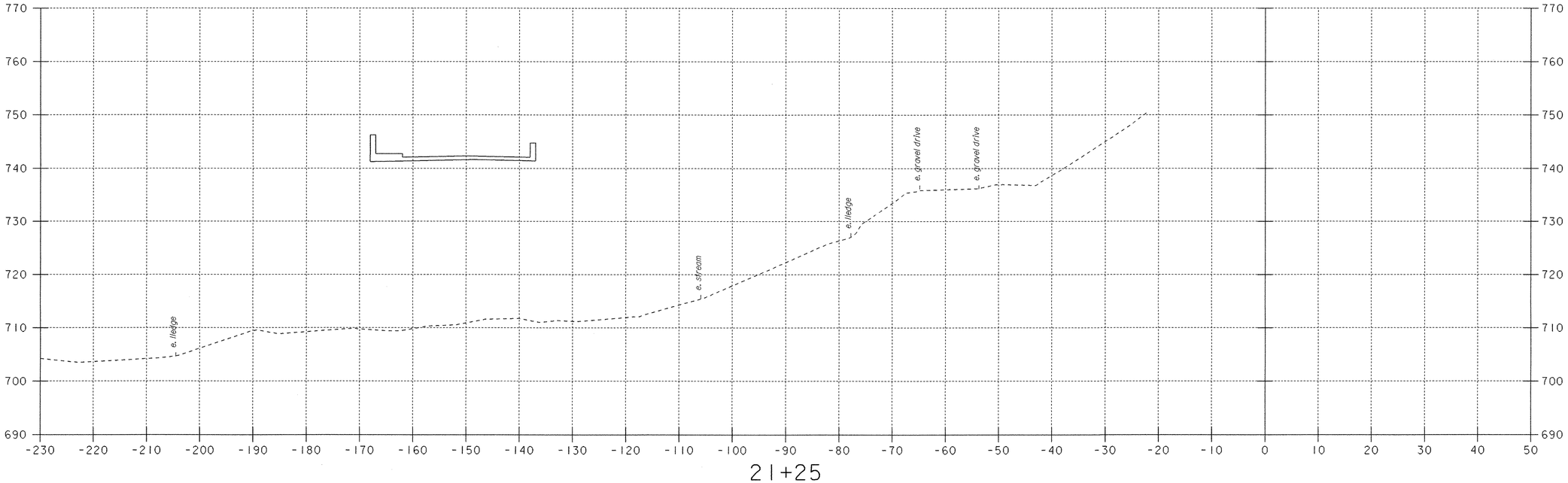
STA 20+89.80 LT
END CHANNEL QUANTITIES:
STONE FILL, TYPE III
GRUBBING MATERIAL
GEOTEXTILE UNDER STONE FILL
CHANNEL EXCAVATION OF EARTH

CHANNEL CROSS SECTIONS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

FILE NAME: /str5/01j168/sj168xs.dgn		PLOT DATE: 02-APR-2007	
PROJECT LEADER: W. SYMONDS		DRAWN BY:	J. REED
DESIGNED BY:	J. REED	CHECKED BY:	J. LACROIX
sj168cx3.i		SHEET 77 OF 84	

0 10 20
SCALE



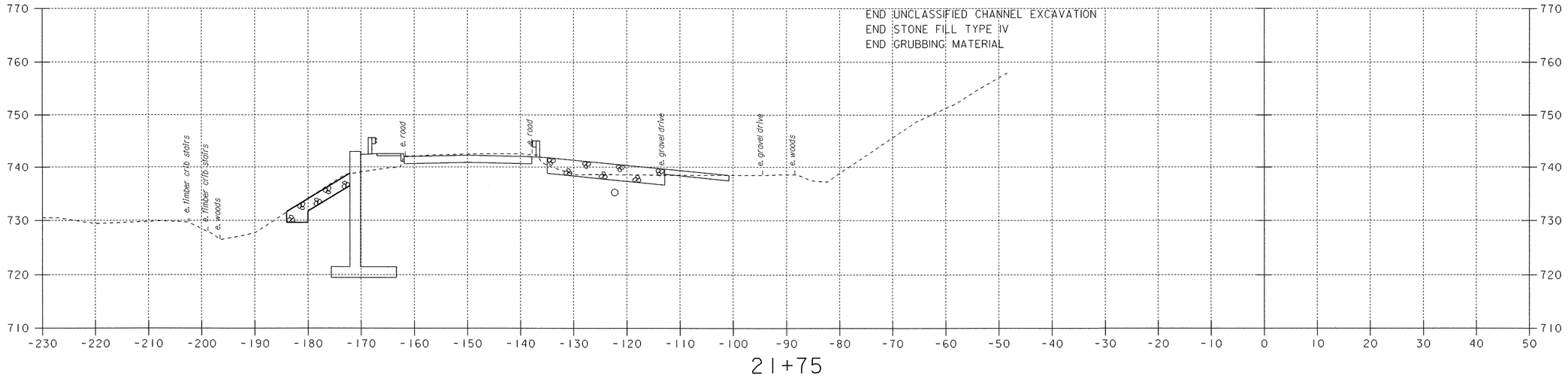
21+25

CHANNEL CROSS SECTIONS

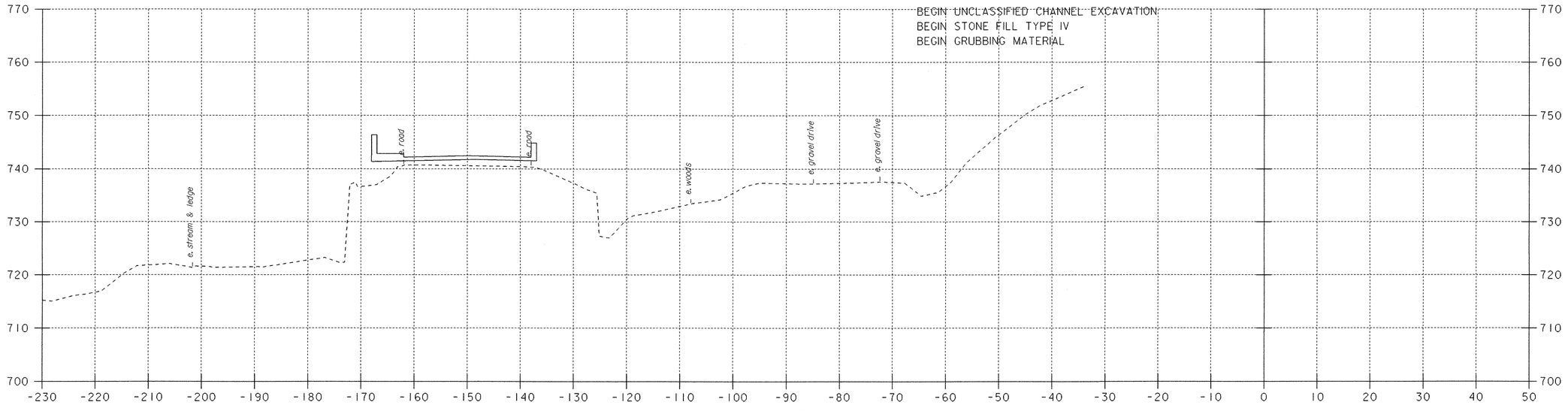
PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

FILE NAME: /str5/01ji68/sji68xs.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. REED
DESIGNED BY: J. REED	CHECKED BY: J. LACROIX
sji68cx4.i	SHEET 78 OF 84

0 10 20
SCALE



21+75



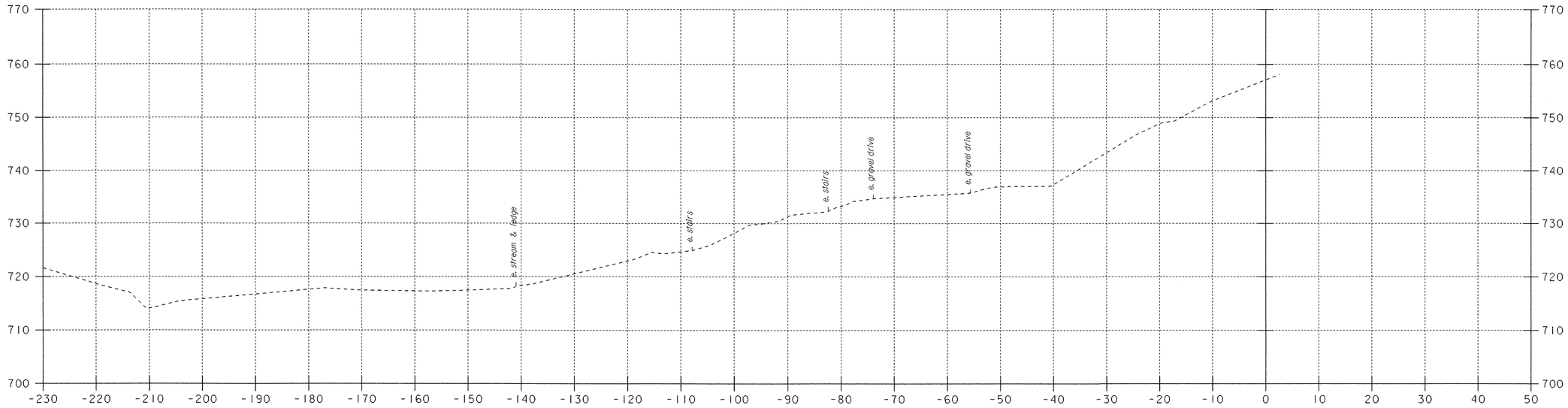
21+50

CHANNEL CROSS SECTIONS

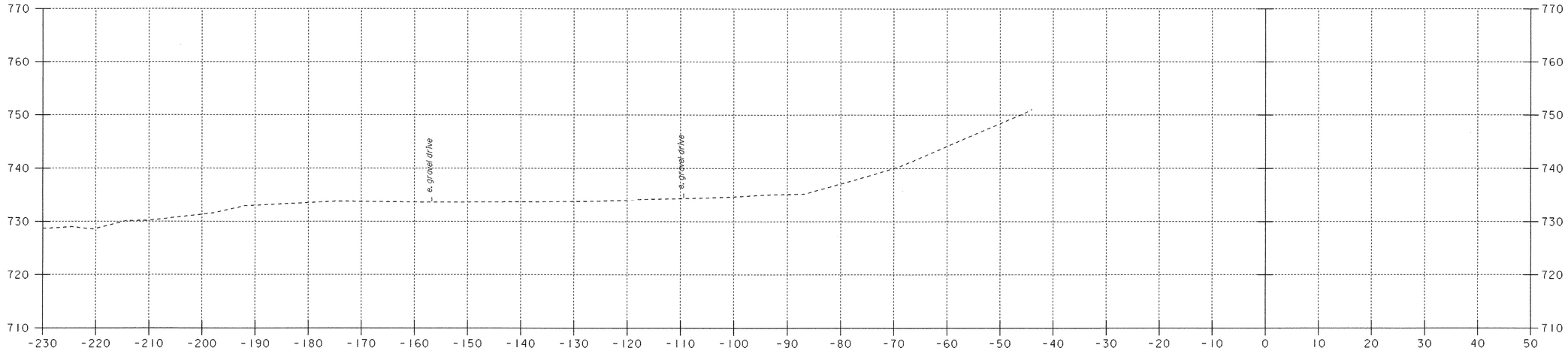
PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

FILE NAME: /str5/0ljl68/sjl68xs.dgn		PLOT DATE:	02-APR-2007
PROJECT LEADER:	W. SYMONDS	DRAWN BY:	J. REED
DESIGNED BY:	J. REED	CHECKED BY:	J. LACROIX
sjl68cx5.i		SHEET	79 OF 84

0 10 20
SCALE



22+25

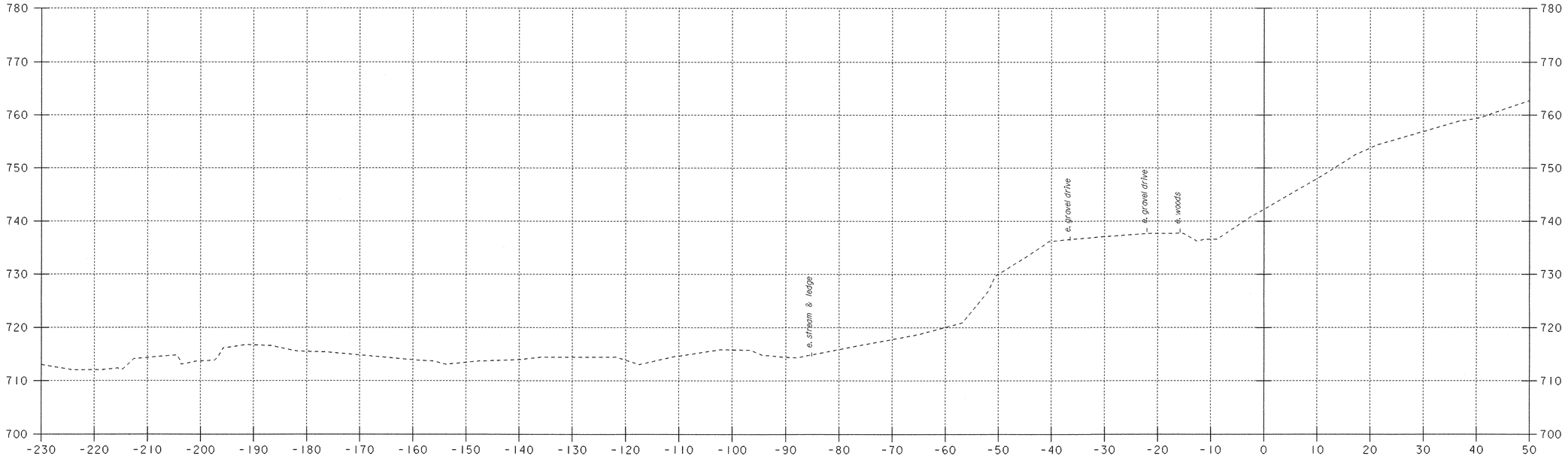


22+00

CHANNEL CROSS SECTIONS

0 10 20
SCALE

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)
FILE NAME: /str5/01jl68/sjl68xs.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. REED
DESIGNED BY: J. REED	CHECKED BY: J. LACROIX
sjl68cx6.i	SHEET 80 OF 84

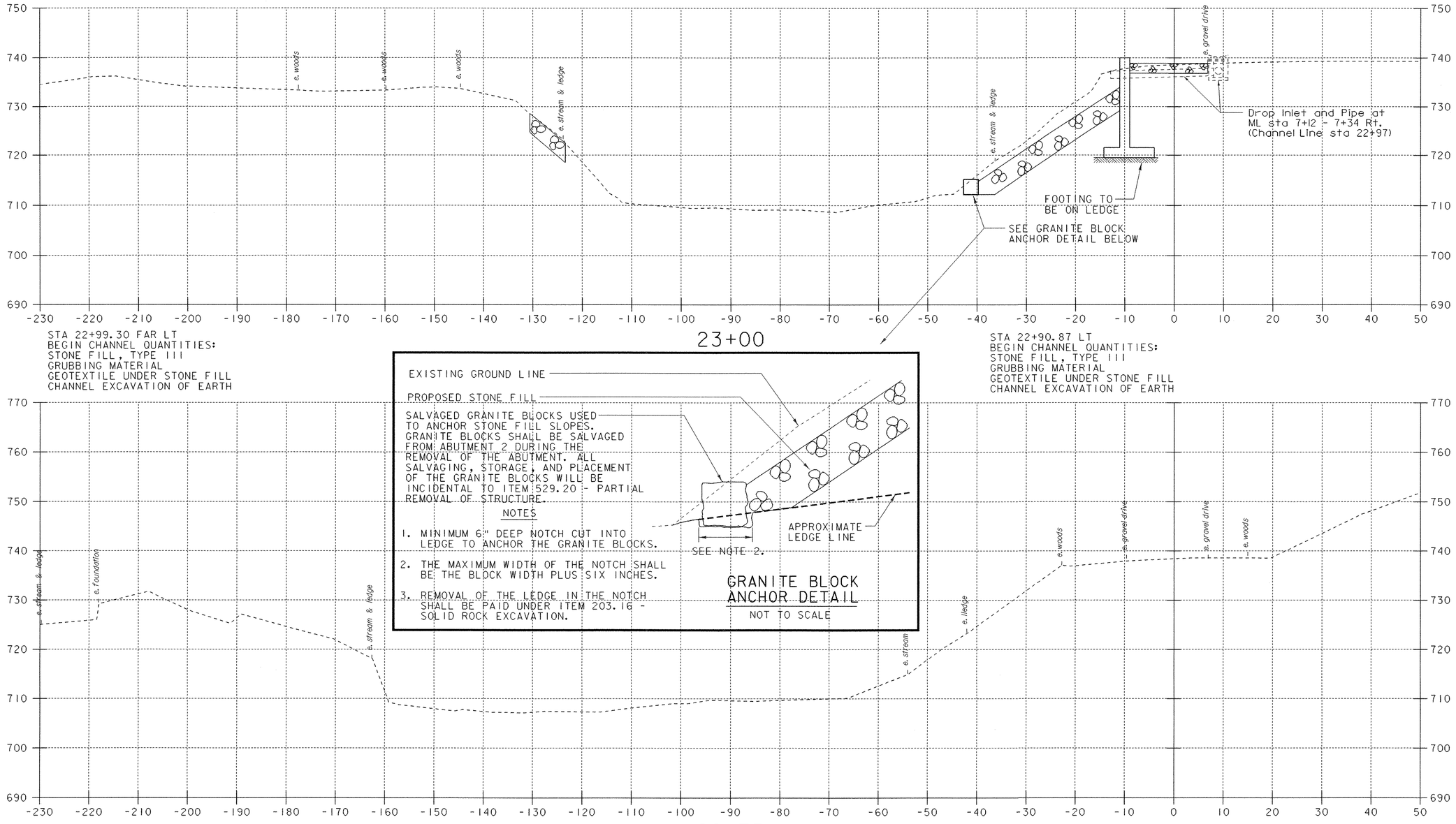


CHANNEL CROSS SECTIONS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

FILE NAME: /str5/01jl68/sjl68xs.dgn		PLOT DATE: 02-APR-2007	
PROJECT LEADER: W. SYMONDS		DRAWN BY:	J. REED
DESIGNED BY:	J. REED	CHECKED BY:	J. LACROIX
sjl68cx7.i		SHEET 81 OF 84	

0 10 20
SCALE



EXISTING GROUND LINE

PROPOSED STONE FILL

SALVAGED GRANITE BLOCKS USED TO ANCHOR STONE FILL SLOPES. GRANITE BLOCKS SHALL BE SALVAGED FROM ABUTMENT 2 DURING THE REMOVAL OF THE ABUTMENT. ALL SALVAGING, STORAGE, AND PLACEMENT OF THE GRANITE BLOCKS WILL BE INCIDENTAL TO ITEM 529.20 - PARTIAL REMOVAL OF STRUCTURE.

NOTES

1. MINIMUM 6" DEEP NOTCH CUT INTO LEDGE TO ANCHOR THE GRANITE BLOCKS.
2. THE MAXIMUM WIDTH OF THE NOTCH SHALL BE THE BLOCK WIDTH PLUS SIX INCHES.
3. REMOVAL OF THE LEDGE IN THE NOTCH SHALL BE PAID UNDER ITEM 203.16 - SOLID ROCK EXCAVATION.

GRANITE BLOCK ANCHOR DETAIL

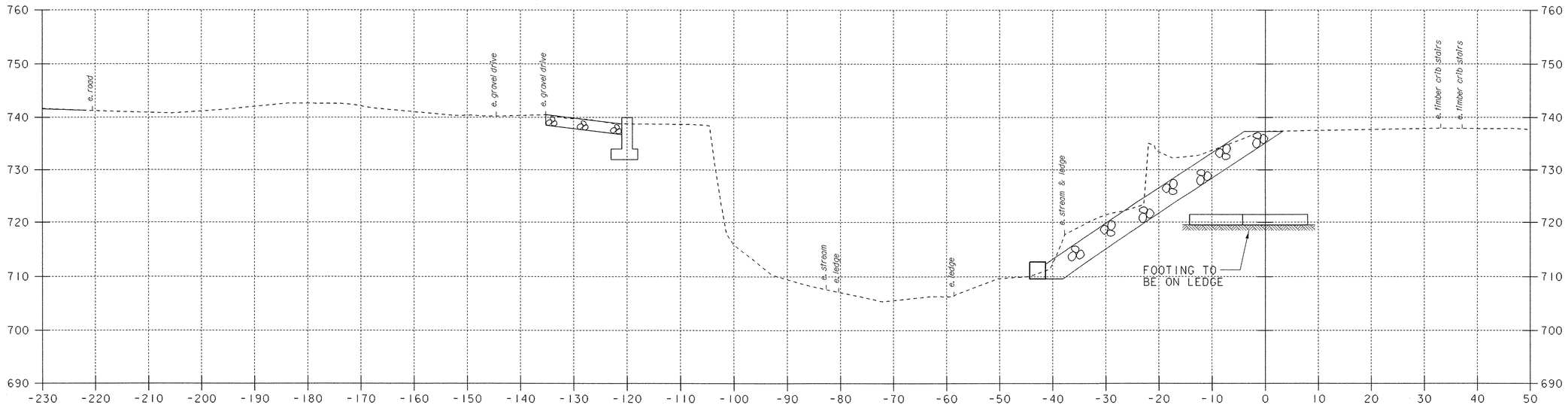
NOT TO SCALE

CHANNEL CROSS SECTIONS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)

FILE NAME: /str5/0ji68/sji68xs.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. REED
DESIGNED BY: J. REED	CHECKED BY: J. LACROIX
sji68cx8.i	SHEET 82 OF 84

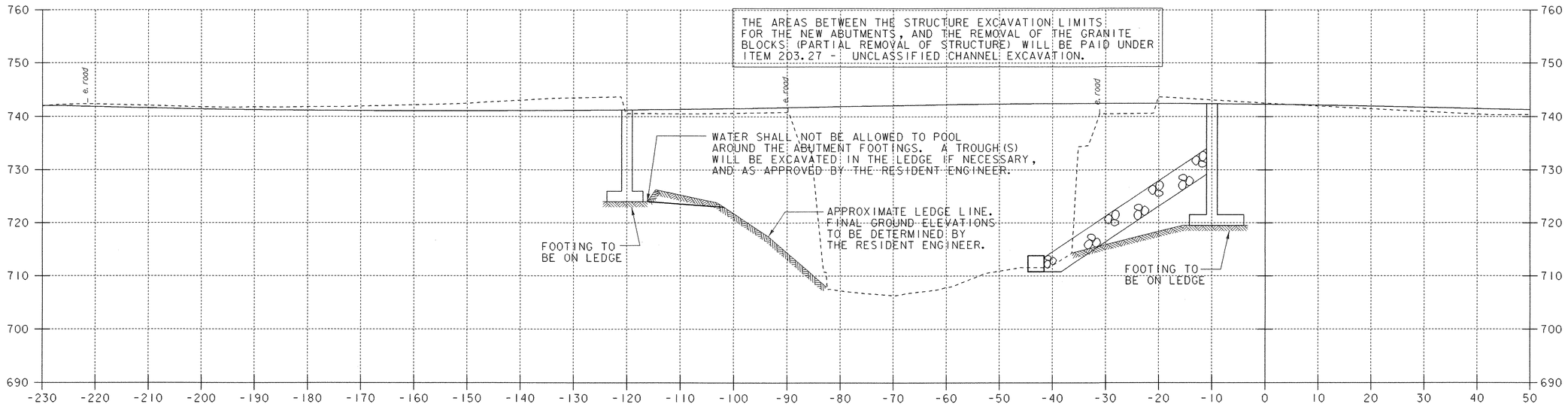
0 10 20
SCALE



STA 23+43.17 FAR LT
BEGIN CHANNEL QUANTITY:
GRUBBING MATERIAL

23+50

STA 23+43.17 LT
BEGIN CHANNEL QUANTITY:
GRUBBING MATERIAL



STA 23+11.50 FAR LT
END CHANNEL QUANTITY:
GRUBBING MATERIAL

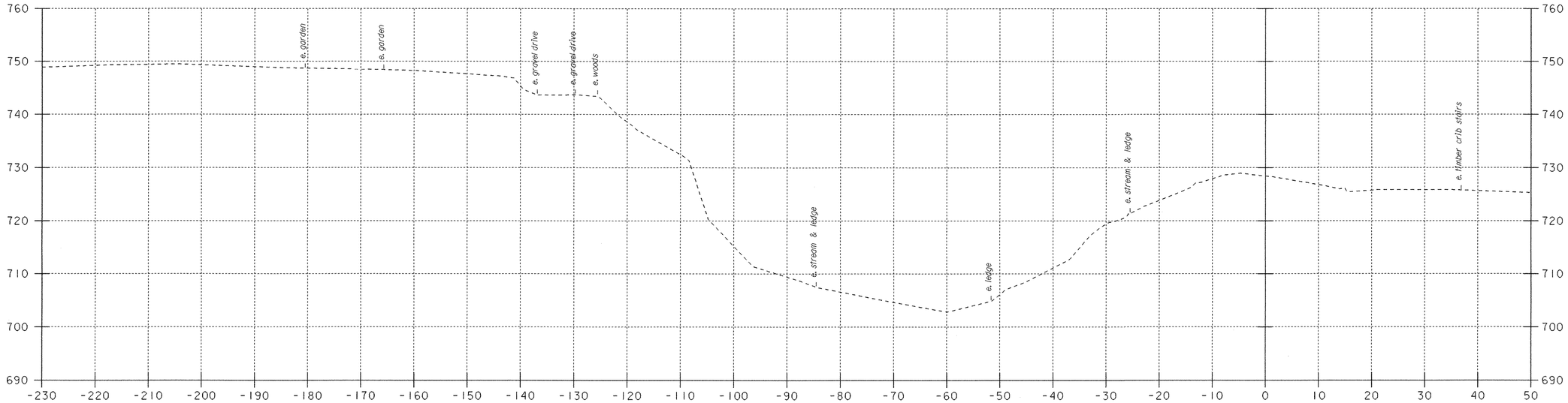
23+25

STA 23+11.50 LT
END CHANNEL QUANTITY:
GRUBBING MATERIAL

CHANNEL CROSS SECTIONS

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449(29)
FILE NAME: /str5/01jl68/sjl68xs.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. REED
DESIGNED BY: J. REED	CHECKED BY: J. LACROIX
sjl68cx9.i	SHEET 83 OF 84

0 10 20
SCALE



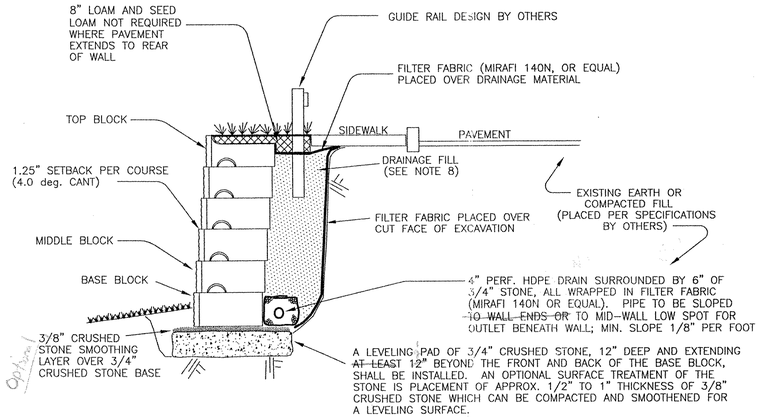
STA 23+61.29 FAR LT
END CHANNEL QUANTITIES:
STONE FILL, TYPE III
GRUBBING MATERIAL
GEOTEXTILE UNDER STONE FILL
CHANNEL EXCAVATION OF EARTH

STA 23+62.20 LT
END CHANNEL QUANTITIES:
STONE FILL, TYPE III
GRUBBING MATERIAL
GEOTEXTILE UNDER STONE FILL
CHANNEL EXCAVATION OF EARTH

CHANNEL CROSS SECTIONS

0 10 20
SCALE

PROJECT NAME:	BARTON
PROJECT NUMBER:	BRO 1449 (29)
FILE NAME: /str5/01J168/sJ168xs.dgn	PLOT DATE: 02-APR-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: J. REED
DESIGNED BY: J. REED	CHECKED BY: J. LACROIX
sJ168cx10.i	SHEET 84 OF 84



THE MINIMUM REQUIRED BEARING CAPACITY OF THE SOIL BENEATH
THE BASE SHALL BE GREATER THAN OR EQUAL TO: 800 psf.

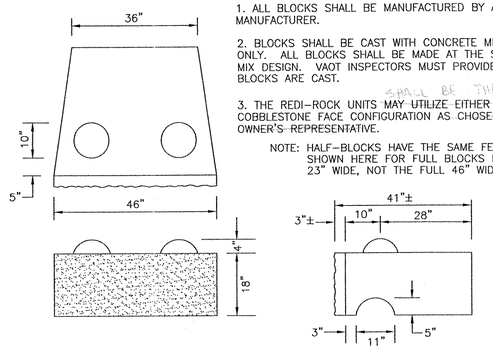
TYPICAL SECTION – REDI ROCK WALL – GRAVITY WALL SECTIONS (TYPICAL DETAIL ONLY – SEE WALL FACE DRAWING FOR SPECIFIC BLOCK CONFIGURATIONS)

"REDIROCK" SEGMENTAL RETAINING WALL
(NOT TO SCALE)

GENERAL NOTES:

1. STRIP ALL VEGETATION, ORGANIC SOILS AND UNSUITABLE FILL SOILS FROM THE WALL ALIGNMENT AREA.
2. BENCH CUT ALL EXCAVATED SLOPES.
3. DO NOT OVER EXCAVATE UNLESS DIRECTED TO DO SO BY THE OWNER'S SITE REPRESENTATIVE IN ORDER TO REMOVE UNSUITABLE SOIL.
4. THE OWNER'S SITE REPRESENTATIVE SHALL VERIFY FOUNDATION SOILS AS BEING COMPETENT PER THE DESIGN STANDARDS AND PARAMETERS.
5. LEVELING PAD SHALL CONSIST OF COMPACTED, 3/4" CRUSHED GRAVEL, 12" THICK AND EXTENDING ~~AT LEAST 12"~~ 2" TO EITHER SIDE OF THE BASE BLOCK. A SMOOTHING SURFACE LAYER OF 3/8" CRUSHED STONE MAY BE UTILIZED.
6. MINIMUM EMBEDMENT OF WALL BELOW FINISH GRADE SHALL BE AS INDICATED ON THE WALL FACE DRAWING.
7. FOLLOW APPLICABLE PROVISIONS OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WRITTEN SPECIFICATIONS, ESPECIALLY WITH REGARDS TO LEVELING OF BLOCKS AND BASE.
8. DRAINAGE FILL SHALL CONSIST OF 3/4" TO 3/8" SIZE CRUSHED STONE, LESS THAN 5% MINUS #200 SIEVE, PLACED BEHIND THE WALL FOR A DEPTH OF ~~AT LEAST 12"~~ BEHIND THE WALL. A FILTER FABRIC SHALL BE PLACED OVER THE CUT OR FILL FACE BEHIND THE WALL AREA TO PREVENT SOIL MIGRATION INTO THE DRAINAGE MATERIAL. 3/4" CONCRETE AGGREGATE IS AN ACCEPTABLE MATERIAL FOR THIS USE.
9. WHERE PERFORATED HDPE DRAINS ARE USED, PROVIDE OUTLETS AT THE ENDS OF THE WALL OR AT A LOW COLLECTION POINT ALONG THE WALL. (ALTERNATE OUTLET METHODS MAY BE APPROVED BY THE DESIGN ENGINEER.) NOT REQUIRED
10. BACKFILL AND COMPACT THE FILL MATERIAL BEHIND THE WALL AS THE WALL IS INSTALLED.
11. COMPACTION TESTS SHALL BE TAKEN AS THE WALL IS INSTALLED. THE MINIMUM NUMBER OF TESTS SHALL BE DETERMINED BY THE OWNER'S SITE REPRESENTATIVE.
12. PLACE A FILTER FABRIC (MIRAFI 140N, OR EQUAL) OVER THE DRAINAGE MATERIAL TO MINIMIZE SOIL MIGRATION FROM THE SURFACE MATERIAL INTO THE DRAINAGE MATERIAL.
13. COMPACTION SHALL BE TO 92% (MODIFIED PROCTOR) OR 95% (STANDARD PROCTOR).
14. PROVIDE LATERAL DRAINAGE SWALES TO DIRECT FLOWS AROUND THE ENDS OF THE WALL AND AWAY FROM THE WALL DURING CONSTRUCTION. DO NOT CONSTRUCT A SWALE BEHIND THE WALL AS PART OF THE FINISHED WALL. GRADE ABOVE THE WALL SO THAT WATER FLOWS OVER THE WALL FACE OR TO A POINT AT LEAST AS FAR BEHIND THE WALL AS THE WALL HEIGHT.
15. TURF, OR SOME ACCEPTABLE FORM OF SOIL EROSION PROTECTION, SHOULD BE ESTABLISHED AT THE TOP OF THE WALL (WHERE REQUIRED) BY THE LANDSCAPE CONTRACTOR AS SOON AS THE WALL IS COMPLETED.
16. FINAL WALL ALIGNMENT SHALL BE LOCATED IN THE FIELD BY THE OWNER'S SITE REPRESENTATIVE.
17. RECOMMENDED COMPACTION EQUIPMENT WITHIN 15 FEET OF THE BACK OF THE WALL IS AS FOLLOWS:
    0 – 4 FEET HAND TAMP OR VIBRATORY PLATE COMPACTOR
    4 – 15 FEET NOTHING LARGER THAN TWO-DRUM, WALK-BEHIND VIBRATORY ROLLER
    (LARGER ROLLERS CAN BE USED STATICALLY, PROVIDED LIFT SIZE DOES NOT COMPROMISE ACHIEVEMENT OF NECESSARY COMPACTION RATES.)
18. THESE WALLS HAVE BEEN DESIGNED WITH CONSIDERATION OF SEISMIC LOADINGS.

IF CONDITIONS ARE DIFFERENT THAN THOSE STATED IN THESE DRAWINGS AND SPECIFICATIONS, THE CONTRACTOR MUST CONTACT THE DESIGN ENGINEER PRIOR TO PROCEEDING WITH THE CONSTRUCTION OF THE WALL.



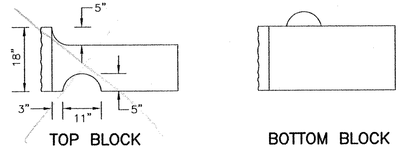
TYPICAL UNIT–MIDDLE BLOCK

UNIT DIMENSIONS
(NOT TO SCALE)

BLOCK SPECIFICATION NOTES:

1. ALL BLOCKS SHALL BE MANUFACTURED BY A LICENSED REDI-ROCK (TM) MANUFACTURER.
2. BLOCKS SHALL BE CAST WITH CONCRETE MEETING HPC-B REQUIREMENTS ONLY. ALL BLOCKS SHALL BE MADE AT THE SAME PLANT WITH THE SAME MIX DESIGN. VAOT INSPECTORS MUST PROVIDE OVERSIGHT WHEN THE BLOCKS ARE CAST.
3. THE REDI-ROCK UNITS MAY UTILIZE EITHER THE SPLIT LIMESTONE OR COBBLESTONE FACE CONFIGURATION AS CHOSEN BY THE OWNER OR OWNER'S REPRESENTATIVE.

NOTE: HALF-BLOCKS HAVE THE SAME FEATURES AS SHOWN HERE FOR FULL BLOCKS BUT THEY ARE 23" WIDE, NOT THE FULL 46" WIDE.



TOP BLOCK

BOTTOM BLOCK

DO NOT USE AS TOP BLOCK (WALL ELEVATION IS CONSTANT WHERE FINISH GRADE IS CHANGING)

SHOW NEW TOP BLOCK DETAIL (FRIT STANDING BLOCK)

IMPERVIOUS MATERIAL GENERAL REQUIREMENTS	
SIEVE SIZE	% PASSING
3"	100%
#4	80–100%
#40	50–90%
#100	40–80%
#200	30–80%

8" OF TOPSOIL IS AN ACCEPTABLE ALTERNATE FOR IMPERVIOUS FILL ALONG THE TOP OF THE WALL.

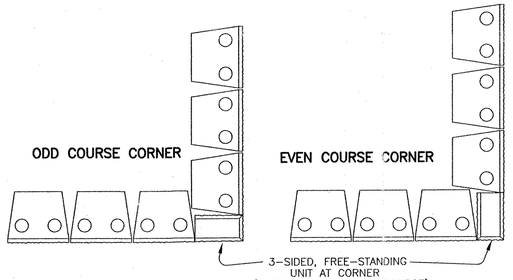
MAY USE STANDARD SPEC 704.08

COMPACTION NOTE: WHERE THE RETAINING WALL PASSES OVER ANY UTILITY LINES, COMPACTION OF THE SOIL WITHIN THE UTILITY TRENCH IS CRITICAL IN ORDER TO PREVENT SETTLEMENT OF THE WALL. COMPACTION OF ALL FILL MATERIAL IN UTILITY TRENCHES WHICH PASS UNDER THIS RETAINING WALL MUST BE AT LEAST 95% OF THE MAXIMUM DENSITY OF THE FILL MATERIAL.

DESIGN ASSUMPTIONS		
SOIL	SOIL UNIT WEIGHT	ϕ
SELECT FILL/BACKFILL	140	34
RETAINED EARTH	140	34
FOUNDATION SOIL	120	30

APPLIED SURCHARGE LOADING: NONE
SEISMIC ACCELERATION = 0.06

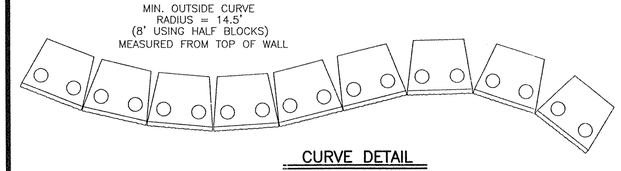
MINIMUM FACTORS OF SAFETY	
OVERTURNING	2.0
SLIDING	1.5
BEARING CAPACITY	2.5



TYPICAL CORNER INSTALLATION

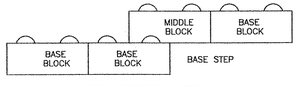
(NOT TO SCALE)

RECEIVED
CK'D BY _____ OK'D BY _____
JUN 19 2007
RESUBMIT _____ APPROVED _____
BY _____ DATE 6/26/07



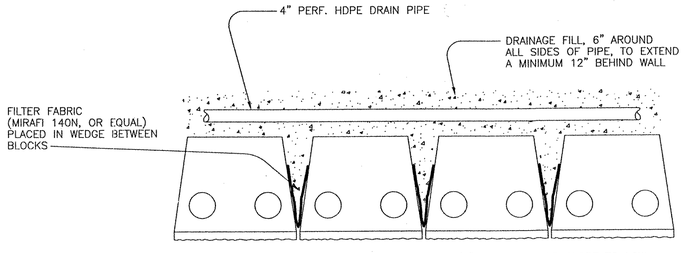
CURVE DETAIL

TYPICAL CURVES
(NOT TO SCALE)



BASE STEP DETAIL

(NOT TO SCALE)



1. SLOPE DRAIN ~~TO WALL ENDS, MIN. 1/8" PER FOOT, OR SLOPE~~ TO LOW POINT AND DROP THE DRAIN UNDER THE WALL
2. WALL DRAIN MAY TIE TO NEARBY CLOSED DRAINAGE SYSTEM, IF AVAILABLE

DRAIN & FABRIC DETAIL

(NOT TO SCALE)

New England's SVE Retaining Wall Designers

STATE OF VERMONT
RANDALL H. BRAGDON #6788 CIVIL LICENSED PROFESSIONAL ENGINEER
6/26/07

NOTE: THIS DRAWING WAS PREPARED FOR USE WITH REDI-ROCK (TM) RETAINING WALL SYSTEMS. CONTACT REDI-ROCK WALLS OF NEW ENGLAND AT (603) 863-1000

SOUHEGAN VALLEY ENGINEERING, INC.
CIVIL ENGINEERING CONSULTANTS — SITE DESIGN SPECIALISTS
434 LEAR HILL ROAD NEWPORT(UNITY), NEW HAMPSHIRE 03773
TEL: (603) 863-5454 FAX: (603) 863-3629
Est. 1990 Available On The Web At www.SVEngineering.com

CLIENT: REDI-ROCK WALLS OF NEW ENGLAND
8 REEDS MILL ROAD, NEWPORT, NH 03773

PROJECT: BARTON BRIDGE – BRO 1449 (29)
BARTON, VT

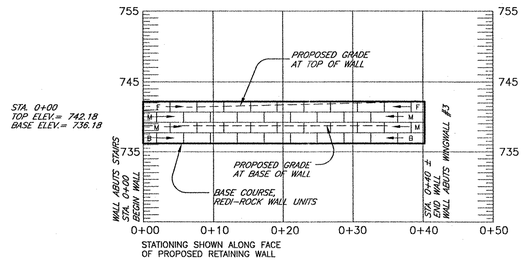
SHEET TITLE: RETAINING WALL DESIGN SHEET 1

DATE: JUNE 6, 2007 SCALE: AS SHOWN PROJECT No.: 07-332

SHEET 1 OF 2

085 RW

NOTE: IF THE FIELD CONDITIONS INDICATE THE GRADE AT THE BASE AND/OR TOP OF THE WALL TO BE DIFFERENT FROM THAT SHOWN ON THESE PLANS, THE DESIGN ENGINEER SHALL BE CONTACTED TO VERIFY CHANGES TO THE WALL BASE COURSE AND/OR TOP OF WALL ELEVATION.



WALL FACE DRAWING

SCALE: 1" = 10'

LEGEND

F	FREESTANDING BLOCK
M	MIDDLE BLOCK
B	BOTTOM BLOCK

NOTES:

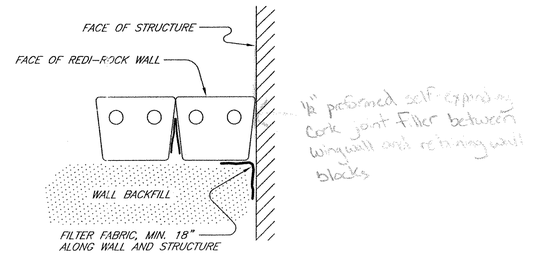
1. CARE SHOULD BE TAKEN TO REMOVE ALL ORGANIC MATERIAL FROM THE BASE EXCAVATION FOR THE RETAINING WALL.

2. ENDS OF THE RETAINING WALLS SHALL BE BLENDED INTO THE PROPOSED/EXISTING GRADE IN A MANNER SATISFACTORY TO THE OWNER'S SITE REPRESENTATIVE. AT THE ENDS OF A WALL WHERE BLENDING TAKES PLACE, THE ISSUE IS NOT A STRUCTURAL FACTOR BUT AN AESTHETIC FACTOR AND THE OWNER'S SITE REPRESENTATIVE IS QUALIFIED TO MAKE THIS JUDGEMENT.

3. IF THE PERFORATED WALL DRAIN IS TO BE CARRIED UNDER THE WALL TO OUTLET, IT SHALL BE CARRIED DOWNSLOPE ENOUGH DISTANCE TO ALLOW FOR A PROPER DRAINING SLOPE (MIN. 1/4" PER FOOT FROM WALL TO DAYLIGHT) OR TIED TO A CLOSED DRAINAGE SYSTEM.

DRAIN LINES (4" HDPE) WHICH PASS UNDER THE WALL BASE SHOULD BE CENTERED UNDER THE BASE BLOCK. THE PIPE TRENCH SHALL BE MINIMIZED SO THAT THE BASE BLOCK ACTS AS A LINTEL OVER THE PIPE AND TRENCH.

WHERE THE WALL ABUTS A STRUCTURE, A FILTER FABRIC (MIRAFI 140N, OR EQUAL) SHALL BE PLACED VERTICALLY ALONG THE SEAM TO PREVENT MIGRATION OF SOILS BETWEEN THE WALL BLOCK AND THE STRUCTURE. THE FABRIC SHOULD EXTEND AT LEAST 18" ALONG THE STRUCTURE AND 18" ALONG THE REAR OF THE WALL BLOCK.



DETAIL
WALL ABUTTING STRUCTURE

(NOT TO SCALE)

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OK'D BY_____ OK'D BY_____
JUN 19 2007
RESUBMIT_____ APPROVED_____
BY WM DATE 6/20/07

STATE OF VERMONT
RANDALL H. BRAGDON #6788 CIVIL
LICENSED PROFESSIONAL ENGINEER
6/7/07

New England's SVE Retaining Wall Designers

NOTE: THIS DRAWING WAS PREPARED FOR USE WITH REDI-ROCK (TM) RETAINING WALL SYSTEMS. CONTACT REDI-ROCK WALLS OF NEW ENGLAND AT (603) 863-1000.

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8 REEDS MILL ROAD, NEWPORT, NH 03773

PROJECT: BARTON BRIDGE – BRO 1449 (29)
BARTON, VT

SHEET TITLE: RETAINING WALL DESIGN SHEET 2

DATE: JUNE 6, 2007 SCALE: AS SHOWN PROJECT No.: 07-332

SHEET 2 OF 2

086 RW

RECEIVED
JUL 05 2007
DESIGNED BY _____ DATA BY _____
REVIEWED _____ APPROVED _____
BY _____ DATE _____

5 FIXED BEARING ASSEMBLIES, FB1
BEVEL CHAMFER ALL LAMINATIONS
SOLID
ABUT #1

5 SOLE PLATES, SP1
F_y = 1 1/4" x 13" x 28"
AASHTO M270/ASTM DR.50
(GALVANIZED)
VULCANIZED TO LAMINATED ELASTOMERIC BEARING, LEB1
FIXED BEARING ASSEMBLY, FB1

(5) LAMINATED ELASTOMERIC BEARING, LEB1
LAMINATED ELASTOMERIC BEARING TO CONFORM TO ASSHTO M270/ASTM DR.50
IN ACCORDANCE WITH SECTION 731.03 OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS AND BRIDGES.
ELASTOMER = 60 DUROMETER NEOPRENE OR 3
SHIM = 1/8" STAINLESS STEEL SHIM PLATE VULCANIZED TO SOLE PLATE, SP1
USE WITH
FIXED BEARING ASSEMBLY, FB1

SHOP NOTES:
1. SOLE PLATES SHALL BE AASHTO M270/ASTM DR.50 GALVANIZED.
2. ELASTOMER=60 DUROMETER NATURAL RUBBER GR.4. △
3. SHIMS=AASHTO M270/ASTM DR.36
4. ALL DIMENSIONS ARE IN INCHES
5. DESIGN CRITERIA: R_L = 30 x
R_T = 30 x
6. RAW ELASTOMER SHEAR MODULUS BETWEEN 150PSI & 0.200.
7. ⊗ SHOP TO MARK MIDRIDGE OF PLATE AND AHEAD & BACK AS NOTED.
△ 8. ALL REQUIRED FABRICATION OF BEARINGS WILL OCCUR BEFORE VULCANIZATION PROCESS.

FIXED BEARING ASSEMBLY
TYPE: FB1
TOWN HIGHWAY #3, BRIDGE #61
BRIDGE OVER WILLOUGHBY RIVER

STATE	COUNTY	PROJECT NAME
VERMONT	ORLEANS	BARTON

PROJECT NO.: BRO 1448(59)

DYNAMIC RUBBER
A DIVISION OF DYNAMIC, INC.
SCALE: NONE
DRAWN BY: MH
DATE: 5/4/07
CHECKED BY: MH
DATE: 5/14/07
1301 TURF CREEK ROAD
P.O. BOX 1000
ROANOKE, AL 36274-1000

△	FOR APPROVAL	MH	5/25	MH	5/30	SHEET 1 OF 2	DRP NO. 9470	
NO.	DESCRIPTION	BY	DATE	BY	DATE	J.A. MCDONALD, INC.	DRAWING NUMBER 9470-01	REV. △

0897 bb

RECEIVED
CKD BY TJS CKD BY
JUL 06 2007
RESUBMIT APPROVED AS NOTED
BY TJS DATE 7/6/07

5 EXPANSION BEARING ASSEMBLIES, EB1
LOCATE AT PIER, #2

5 EXPANSION SOLE PLATES, SP2
PL 1" x 12" x 26"
AASHTO M270/ASTM GR. 50
GALVANIZED
ASTM A153
EXPANSION BEARING ASSEMBLY, EB1

SECTION A-A

5 LAMINATED ELASTOMERIC BEARING, LEB1
LAMINATED ELASTOMERIC BEARING 3 1/2" x 10" x 16"
IN ACCORDANCE WITH AASHTO M251 AND SECTION 18 OF
VERMONT AGENCY OF TRANSPORTATION STANDARD
SPECIFICATION FOR CONSTRUCTION AND MAINTENANCE OF
HIGHWAYS AND BRIDGES, LATEST EDITION
ELASTOMER = 60 DUROMETER ASSIGNED GR-3 (NATURAL RUBBER, CLC 4
SHIMS - AASHTO M270/ASTM A36
VULCANIZED TO STEEL PLATE, PP1
NO NOTCH
FIXED BEARING ASSEMBLY, FB1

SEE SHEET 1 FOR SHOP NOTES

EXPANSION BEARING ASSEMBLY TYPE: EB1		
TOWN HIGHWAY #3, BRIDGE #61 BRIDGE OVER WILLOUGHBY RIVER		
STATE	COUNTY	PROJECT NAME
VERMONT	ORLEANS	BARTON
PROJECT NO.: BRS 1449(29)		

DYNAMIC RUBBER
A DIVISION OF Dynamic Rubber Inc.
EMAIL: NONE

NO.	DESCRIPTION	BY	DATE	CHK'D	DATE
1	FOR APPROVAL	MH	6/22	RPR	6/22

NO.	DESIGNED BY: DAT	DES. SCALE:
	DRAWN BY: MAP	CHK'D BY: RPR
	SHEET NO.: MAP 2 of 2	DRP NO.: 9470
	DESIGN: J.A. MCDONALD, INC.	DRAWING NAME/NO.: 9470-001

08866

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS

1). ALL MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006 WITH LATEST REVISIONS AND THE SPECIAL PROVISIONS.

MATERIAL SPECIFICATIONS

1). UNLESS OTHERWISE NOTED, ALL STEEL TO BE AASHTO M270M/M270, GRADE 50W. (UNPAINTED EXCEPT AS NOTED IN DETAIL "P1")

2). MATERIAL NOTED "CVN" OR "H2-3" ON DETAIL DRAWINGS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF VERMONT STANDARD SPECIFICATIONS SECTION 714.01.

3). HIGH STRENGTH BOLTS: AASHTO M164 7/8" DIAMETER (TYPE 3 AT UNPAINTED CONNECTIONS AND TYPE 1 GALV AT PAINTED & GALV. CONNECTIONS) IN 15/16" DIAMETER HOLES, UNLESS NOTED OTHERWISE.
BOLTS & NUTS SHALL BE ROTATIONAL CAPACITY TESTED.
DO NOT MIX NUTS & BOLTS FROM DIFFERENT CONTAINERS UNLESS ALL BOLTS & NUTS HAVE THE SAME LOT NUMBER.

4). UTILITY SUPPORTS SHALL BE A709-36 & HOT DIPPED GALVANIZED TO MEET ASTM A123.

FABRICATION

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

WELDING

1). THE CONFIGURATION OF THE WELD JOINTS AND ALL WELDING PROCEEDURES SHALL BE IN ACCORDANCE WITH AASHTO/AWS D1.5-02 BRIDGE WELDING CODE AND IN ADDITION TO SPECIFICATIONS SHOWN ABOVE. ALL WELDING WILL BE DETAILED TO PRE-QUALIFIED JOINTS, UNLESS PROHIBITED BY THE DESIGNER.

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

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

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

CLEANING & PAINTING:

1). ALL STEEL SHALL BE BLAST CLEANED AS PER SSPC SP-10 PER SPEC. 506.14(a)

2). ALL STEEL SHALL BE UNPAINTED (EXCEPT THE END 10'-0 OF THE GIRDERS AND THE ABUTMENT DIAPHRAGMS AT THE EXPANSION END SHALL BE PAINTED WITH BROWN PAINT, CHIP #20059. (SEE DETAIL "P1")

△3). PAINT SYSTEM:

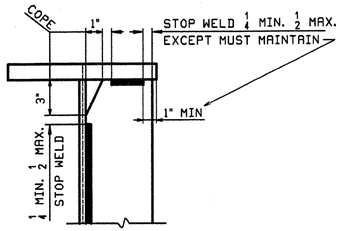
	MANUFACTURER: INTERNATION PAINT, INC.	DFT (MILS) MIN.	DFT (MILS) MAX.
P	INTERZINC 22HS INORGANIC ZINC SILICATE PRIMER	2.5	5.0
I	INTERGARD 475HS EPOXY	4.0	8.0
T	INTERHANE 870 POLYURETHANE	3.0	5.0

FIELD CONNECTIONS

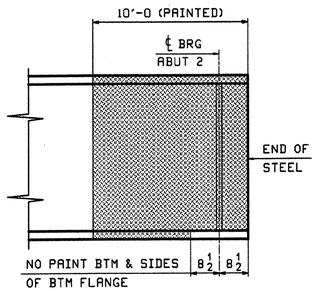
△1). ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH STRENGTH AASHTO M164 BOLTS (UN), INSTALLED PER SECTION 506.19(c). SEE DWG E1 FOR FIELD BOLT SIZES.

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

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



DETAIL "WS1"



DETAIL "P1"

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

RECEIVED
CK'D BY SCL CK'D BY
JUL 24 2007
RESUBMIT APPROVED ✓
BY WM DATE 7/27/07

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	6/14/07									
	OUT FOR APPROVAL	7/20/07									
	ISSUED TO SHOP										
	FIELD & OFFICE										
△	APPROVAL COMMENTS	7/25 2007	JTB	ELC							

MATERIAL: | ELECTRODES: | HOLES: | SHOP BOLTS:

SURFACE PREP. & PAINT:

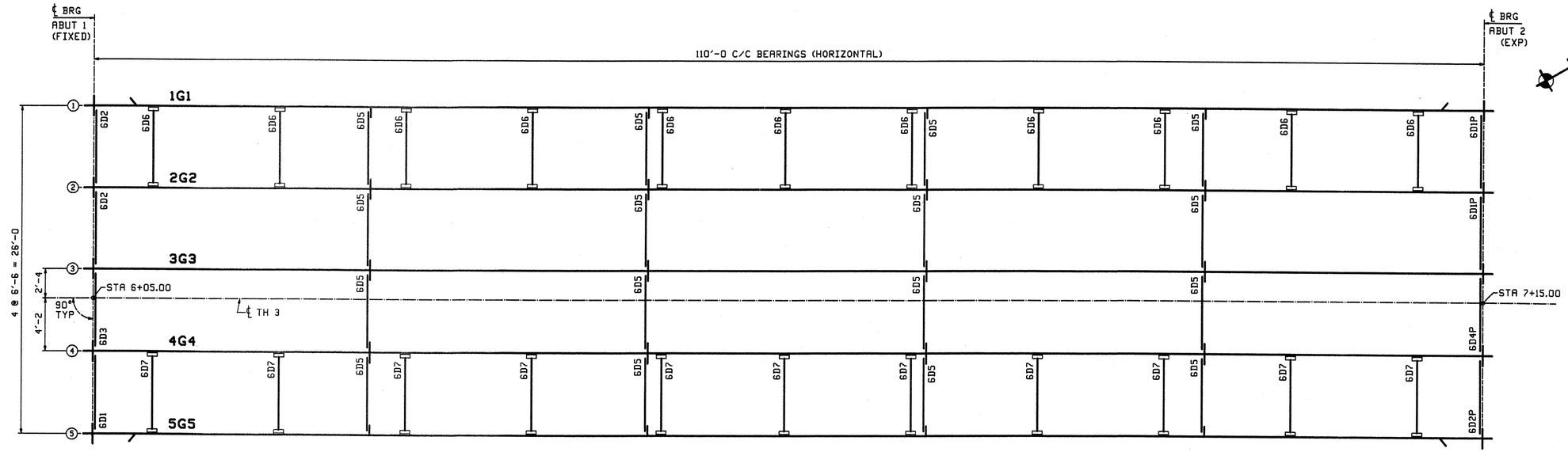
DESCRIPTION: GENERAL NOTES	DRAWN BY	DATE
JOB: TOWN HIGHWAY #3 OVER WILLOUGHBY RIVER BRIDGE NO. 61, TOWN OF BARTON, VILLAGE OF ORLEANS, COUNTY OF ORLEANS, VERMONT, CONTRACTOR: JA McDONALD	JTB	06/06
	CHKD BY	
	ELC	06/07
TENSOR 2722	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. BRO 1449(28)	Q.A.	
CUSTOMER: VERMONT AOT		

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
328	GN1
	REV. △

089 55

ELC Mon, Jul 9, 2007 08:01:11 AM //casco/jobs/2722/dgn1.dgn



FRAMING PLAN

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JUL 24 2007
RESUBMIT APPROVED
BY WJG DATE 7/27/07

FIELD BOLT LIST — A325 Type 3 BOLTS

LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS /CONN	# OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED	WASH CODE	PIECES CONNECTED AND REMARKS
1									**ABUT 1 DIAPHRAGMS**
2	72	7/8	2 3/4	9	8	1 1/4	1/2 3/4	1	DIAPHRAGM WEB TO BRG STIFFENER
3									
4									**INTERMEDIATE DIAPHRAGMS**
5	288	7/8	2 1/2	9	32	1	1/2 1/2	1	DIAPHRAGM WEB TO CONNECTION PLATE

WASHER CODES
1: 1 Hard Flat Washer

FIELD BOLT LIST — A325 Type 1 (GALV) BOLTS

LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS /CONN	# OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED	WASH CODE	PIECES CONNECTED AND REMARKS
1									**ABUT 2 DIAPHRAGM**
2	72	7/8	2 3/4	9	8	1 1/4	1/2 3/4	1	DIAPHRAGM WEB TO BRG STIFFENER
3									
4									**UTILITY SUPPORT 6D6**
⚠1 5	22	7/8	2 1/4	1	22	3/4	3/8 3/8	1	ANGLE TO CONNECTION ANGLE
6									
7									**UTILITY SUPPORT 6D7**
⚠1 8	22	7/8	2 1/4	1	22	13/16	7/16 3/8	1	CHANNEL WEB TO CONNECTION ANGLE

WASHER CODES
1: 1 Hard Flat Washer

FIELD BOLT SUMMARY — 2% ADDED, MIN. 2 EXTRA

LINE	NO. OF BOLTS	BOLT DIAM.	TYPE	BOLT LEN	ACTUAL COUNT	REMARKS
1	294	7/8	A325 Type 3	2 1/2	288	
2	74	7/8	A325 Type 3	2 3/4	72	
3	368	Hard Flat Washers for 7/8 ø BOLT				
4						
⚠1 5	46	7/8	A325 Type 1	2 1/4	44	(GALV)
⚠1 6	46	Hard Flat Washers for 7/8 ø BOLT				(GALV)
7						
8	74	7/8	A325 Type 1	2 3/4	72	(GALV)
9	74	Hard Flat Washers for 7/8 ø BOLT				(GALV)
10						
11						

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	6/14/07									
	OUT FOR APPROVAL	7/20/07									
	ISSUED TO SHOP										
	FIELD & OFFICE										
⚠1	APPROVAL COMMENTS	7/09/2007	JTB	ELC							

MATERIAL: | ELECTRODES: | HOLES: | SHOP BOLTS:

SURFACE PREP. & PAINT:

DESCRIPTION: FRAMING PLAN

JOB: TOWN HIGHWAY #3 OVER WILLOUGHBY RIVER
BRIDGE NO. 61
TOWN OF BARTON, VILLAGE OF ORLEANS
COUNTY OF ORLEANS, VERMONT
CONTRACTOR: JA McDONALD

TENSOR 2722

PROJ NO. BRO 1449(29)

CUSTOMER: VERMONT AOT

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

	DRAWN BY	DATE
	JTB	06/07
CHKD BY		
ELC		06/07
APPROV BY		
SUPERVISOR		W. J. GATTI
Q.A.		
JOB NO.		DRG. NO.
328		E1
	REV.	⚠1

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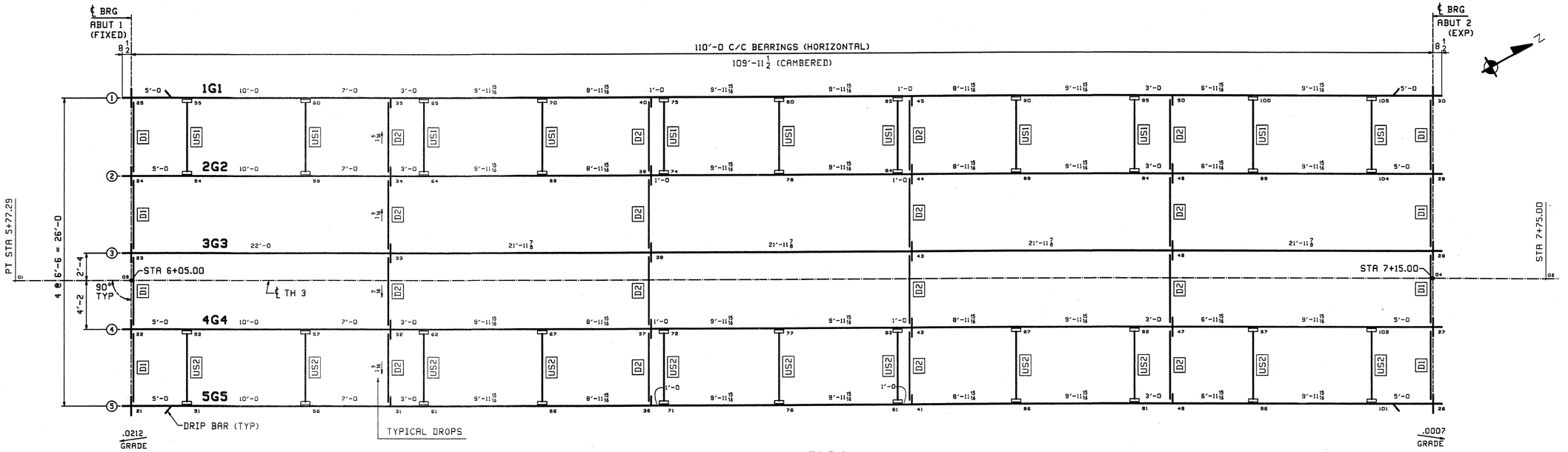

CALCULATION PLAN

RECEIVED
OK'D BY JFL OK'D BY
JUL 24 2007
RESUBMIT APPROVED ✓
BY WY DATE 7/24/07

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	6/14/07									
	OUT FOR APPROVAL	7/20/07									
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:

SURFACE PREP. & PAINT:

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

NOTES
1. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BOTTOM OF GIRDERS WITH CORRECTIONS MADE FOR DL CAMBER & VERT. CURVE (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZONTAL PLANE (UN).
3. ARROW POINTS TOWARD LOW END OF MEMBER.
4. ENDS OF GIRDERS ARE VERTICAL AFTER DL ROTATION.
5. DIAPHRAGM STIFFENERS ARE NORMAL TO GRADE.
6. BOTTOM POINT NUMBERS = TOP POINT NUMBERS + 100
7. FOR LAYOUTS SEE DRAWING TD1.

DESCRIPTION:	CALCULATION PLAN	DRAWN BY	DATE
JOB:	TOWN HIGHWAY #3 OVER WILLOUGHBY RIVER BRIDGE NO. 61 TOWN OF BARTON, VILLAGE OF ORLEANS COUNTY OF ORLEANS, VERMONT	JTB	06/06
		CHKD BY	
		ELC	06/07
		APPROV BY	
TENSOR 6722	CONTRACTOR: JA McDONALD	SUPERVISOR	W. J. GATTI
PROJ NO.	BRO 1449(28)	Q.A.	
CUSTOMER:	VERMONT AOT		
CASCO BAY STEEL STRUCTURES, INC.		JOB NO.	DRG. NO.
75 SPRING HILL ROAD SACO, MAINE 04072		328	WS1
PHONE (207) 282-7360 FAX. (207) 282-1179			REV. △

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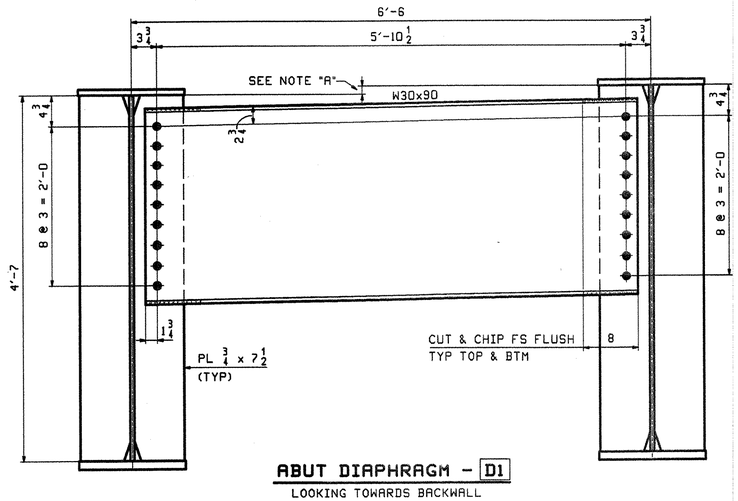
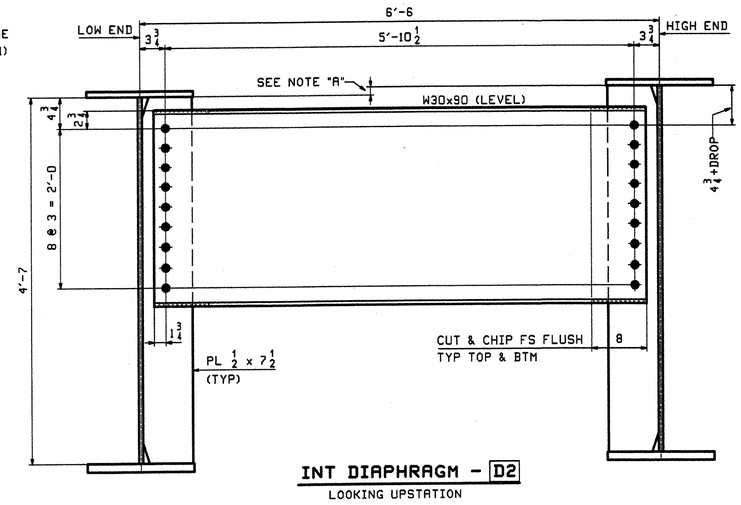


ABUT DIAPHRAGM - D1

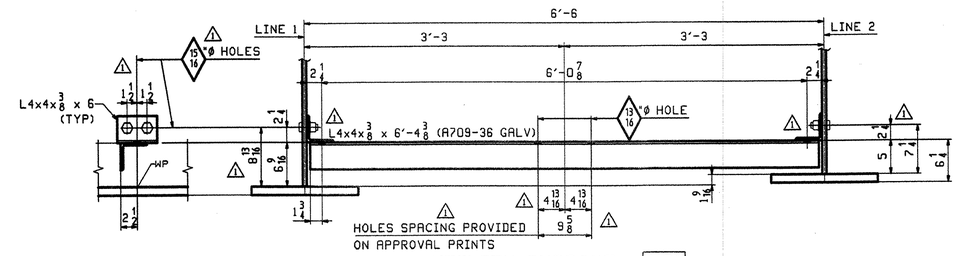
LOOKING TOWARDS BACKWALL

NOTE "A"
⚠1 DROP VARIES IN MAGNITUDE & DIRECTION (SEE DWG WS1)



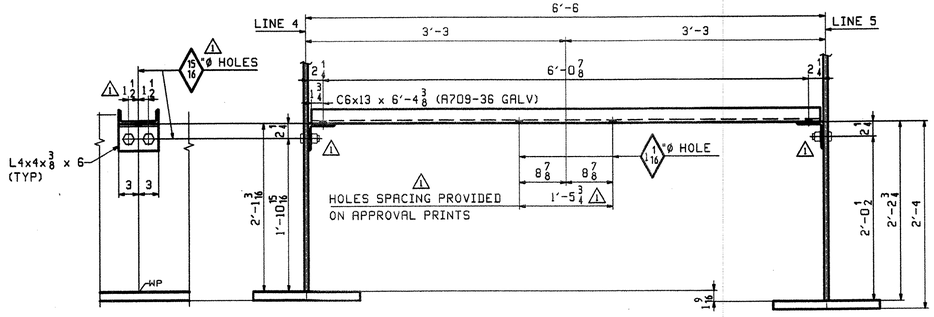
INT DIAPHRAGM - D2

LOOKING UPSTATION



UTILITY SUPPORT - US1

LOOKING UPSTATION



UTILITY SUPPORT - US2

LOOKING UPSTATION

NOTES:
1. MATERIAL SHALL BE AASHTO M270M/M270, GRADE 50W (UN).
2. ALL BOLTS SHALL BE 7/8"ø AASHTO M164 TYPE 3 HSB IN 15/16"ø HOLES (UN).
3. ALL BOLTS AT ABUTMENT 1 DIAPHRAGMS & UTILITY SUPPORTS SHALL BE AASTHO M164 TYPE 1 (GALV) .

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RESUBMIT APPROVED
BY DATE 7/27/07

OUT FOR APPROVAL	6/4/07										
OUT FOR APPROVAL	7/23/07										
ISSUED TO SHOP											
FIELD & OFFICE											
⚠1 APPROVAL COMMENTS	7/8 2007	JTB	ELC								
REV. REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER	

MATERIAL: A709-50W (UN)	ELECTRODES:	HOLES: 15/16"ø (UN)	SHOP BOLTS: NONE

SURFACE PREP. & PAINT:
SEE DRAWING GN1

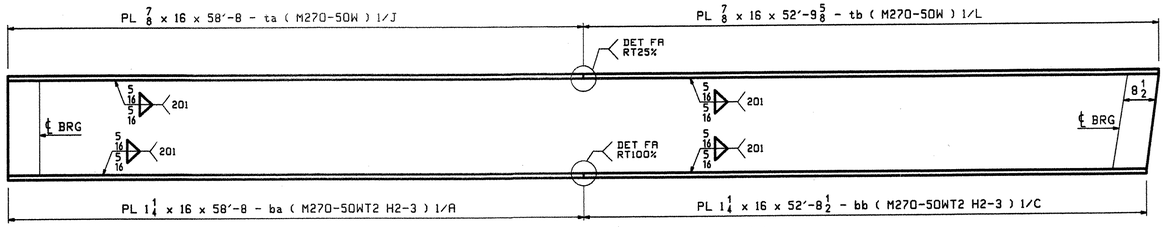
DESCRIPTION: LAYOUTS	DRAWN BY	DATE
JOB: TOWN HIGHWAY #3 OVER WILLOUGHBY RIVER BRIDGE NO. 61 TOWN OF BARTON, VILLAGE OF ORLEANS COUNTY OF ORLEANS, VERMONT CONTRACTOR: JA McDONALD	JTB	06/06
	CHKD BY	
	ELC	06/07
	APPROV BY	
TENSOR 2722	SUPERVISOR	W. J. GATTI
PROJ NO. BRO 1449(29)	Q.A.	
CUSTOMER: VERMONT AOT		

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

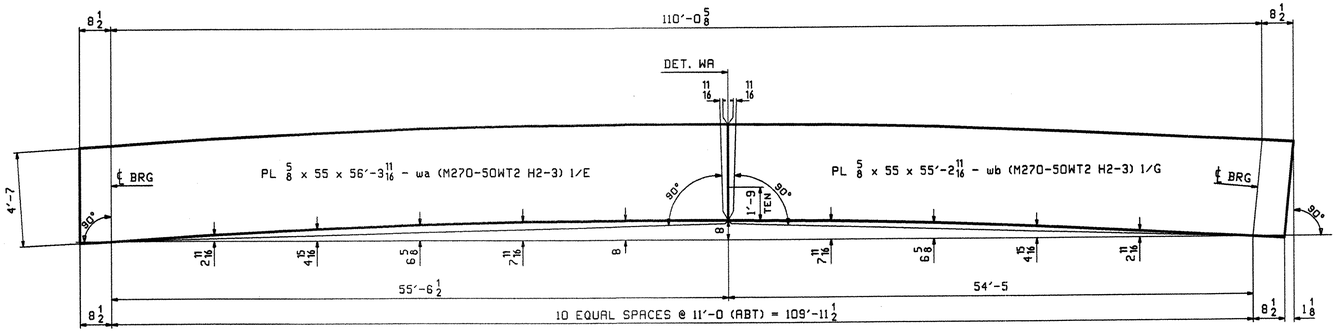
JOB NO.	DRG. NO.
328	TD1
	REV. ⚠

092 55

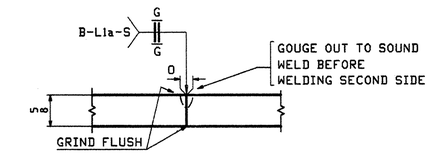
ELC Tue, Jul 24, 2007 2:08:57 PM J:\2007\328\TD1.dwg



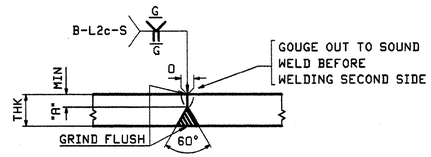
FLANGE DIAGRAM FOR 1G1 THRU 5G5



CAMBER DIAGRAM FOR 1G1 THRU 5G5



WEB PLATE SPLICE DETAIL "WA"



FLANGE PLATE SPLICE DETAIL "FA"

FLG THK	"A"
7/8	1/4
1 1/4	3/8

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BY WJ DATE 7/17/07

NOTES:

1. FOR GENERAL NOTES SEE DWG GN1.
2. H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TEST AT H FREQ. FOR ZONE 2

OUT FOR APPROVAL	6/14/07									
OUT FOR APPROVAL	7/2/07									
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
A709-50W (UN)		NONE	NONE

SURFACE PREP. & PAINT:
SEE DRAWING GN1

DESCRIPTION: CAMBER DIAGRAM		DRAWN BY	DATE
JOB: TOWN HIGHWAY #3 OVER WILLOUGHBY RIVER BRIDGE NO. 61 TOWN OF BARTON, VILLAGE OF ORLEANS COUNTY OF ORLEANS, VERMONT CONTRACTOR: JA McDONALD		JTB	06/06
		CHKD BY	
		ELC	06/07
		APPROV BY	
		SUPERVISOR	W. J. GATTI
PROJ NO. BRO 1449(28)		Q.A.	
CUSTOMER: VERMONT AOT			

TENSOR 2722

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
328	C1
	REV. △

093 55

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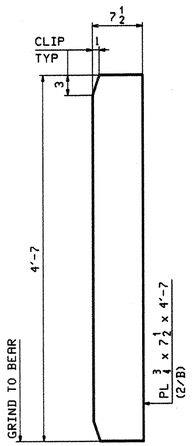
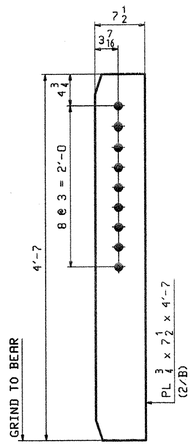
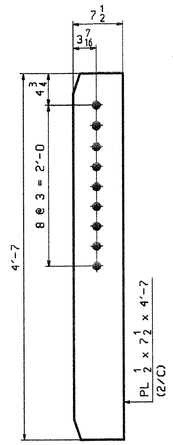


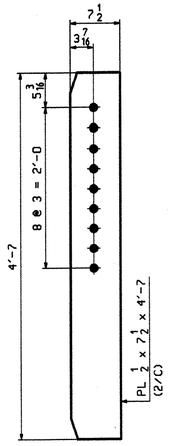
4 ~ x1a
BRG STIFF



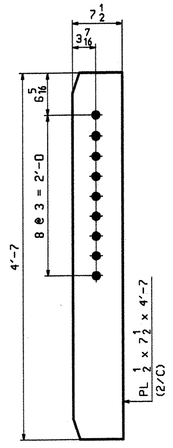
16 ~ x1b
BRG STIFF



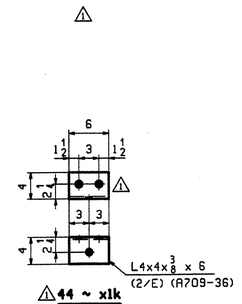
16 ~ x1c
INT DIAPH CONN PL
LOW END



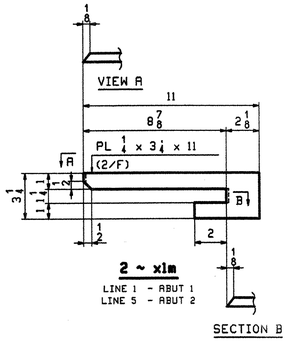
4 ~ x1d
INT DIAPH CONN PL 7/16
HIGH END - DROP 1 3/16



12 ~ x1f
INT DIAPH CONN PL 3/8
HIGH END - DROP 1 3/16

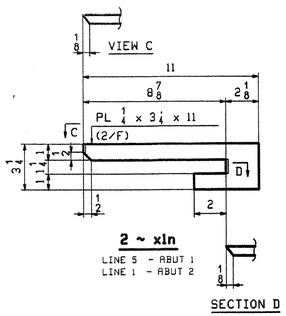


1 ~ x1k
UTILITY CONN - LINES 1 & 2
UTILITY CONN - LINES 4 & 5



2 ~ x1m
LINE 1 - ABUT 1
LINE 5 - ABUT 2

SECTION B



2 ~ x1n
LINE 5 - ABUT 1
LINE 1 - ABUT 2

SECTION D

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REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	6/14/07									
	OUT FOR APPROVAL	7/20/07									
	ISSUED TO SHOP										
	FIELD & OFFICE										
⚠	APPROVAL COMMENTS	7/25 2007	JTB	ELC							

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
A709-50W (UN)		15/16"ø ⚠	NONE

SURFACE PREP. & PAINT:
SEE DRAWING GN1

DESCRIPTION:	GIRDER STANDARDS	DRAWN BY	DATE
JOB:	TOWN HIGHWAY #3 OVER WILLOUGHBY RIVER	JTB	06/07
	BRIDGE NO. 61	CHKD BY	
	TOWN OF BARTON, VILLAGE OF ORLEANS	ELC	06/07
TENSOR 2722	COUNTY OF ORLEANS, VERMONT	APPROV BY	
	CONTRACTOR: JA McDONALD	SUPERVISOR	W. J. GATTI
PROJ NO.	BRO 1449(29)	Q.A.	
CUSTOMER:	VERMONT AOT		

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
328	X1
	REV. ⚠

09455

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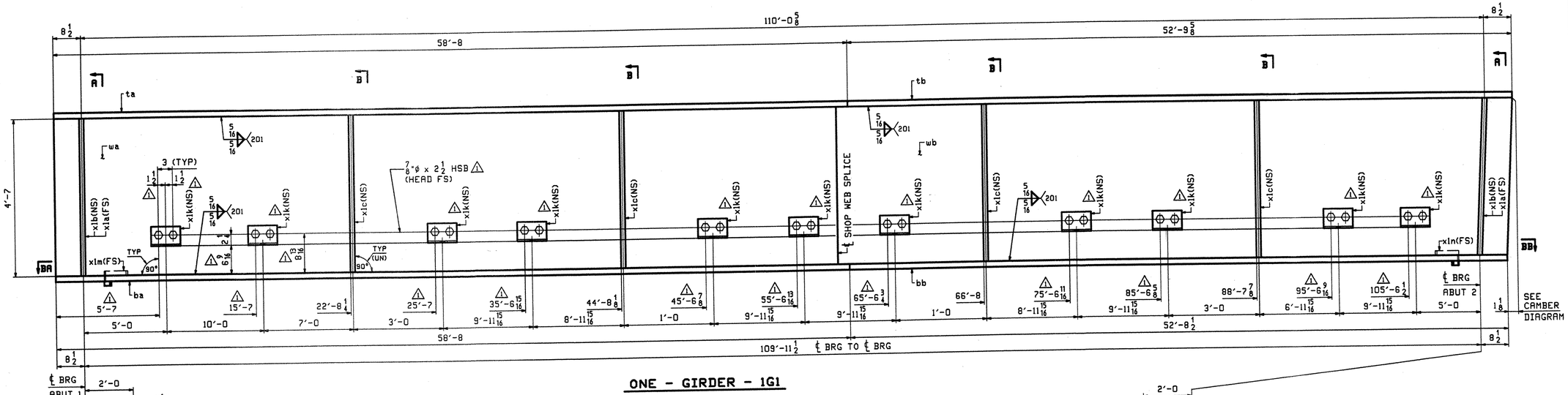
ABM INFO PAGE	ABM INFO LINE	SHIP MARK	BILL OF MATERIAL QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
					.025 x .625					
2	B		2	x1a	PL $\frac{3}{4}$x7$\frac{1}{2}$	4	7	(A709-50W) MIF		
2	B		2	x1b	PL $\frac{3}{4}$x7$\frac{1}{2}$	4	7	(A709-50W) MIF		
2	C		4	x1c	PL $\frac{1}{2}$x7$\frac{1}{2}$	4	7	(A709-50W)		
2	E		11	x1k	L 4x4x$\frac{3}{8}$	0	6	(A709-36)		
2	F		1	x1m	PL $\frac{1}{2}$x3$\frac{1}{4}$	0	11	(A709-50W)		
2	F		1	x1n	PL $\frac{1}{2}$x9$\frac{1}{4}$	0	11	(A709-50W)		
4	B		22		$\frac{7}{8}$ ø HSB	0	2$\frac{1}{2}$	(A325-3)		
4	D		22		$\frac{7}{8}$ ø HSW			(F436W)		

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	BILL OF MATERIAL QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		1G1	1		GIRDER				26599	
1	E		1	wa	PL $\frac{5}{8}$x55	56	3$\frac{11}{16}$	(M270-50WT2) (H2-3)		
1	G		1	wb	PL $\frac{5}{8}$x55	55	2$\frac{11}{16}$	(M270-50WT2) (H2-3)		
1	J		1	ta	PL $\frac{7}{8}$x16	58	8			
1	L		1	tb	PL $\frac{7}{8}$x16	52	9$\frac{5}{8}$			
1	A		1	ba	PL 1$\frac{1}{4}$x16	58	8	(M270-50WT2) (H2-3)		
1	C		1	bb	PL 1$\frac{1}{4}$x16	52	8$\frac{1}{2}$	(M270-50WT2) (H2-3)		

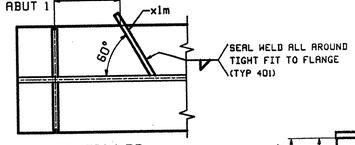
JOB NO. 328 | DRAWING NO. 1 | REV. 1

5310 TOP
4580 BOT
13.32 WEBS
25752

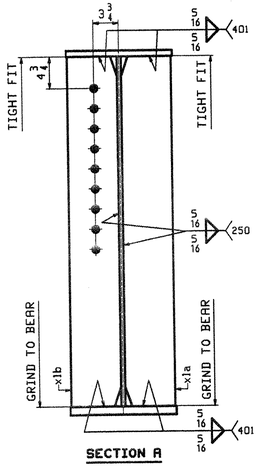


ONE - GIRDER - 1G1

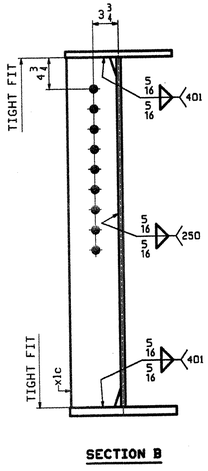
FOR GIRDER STANDARDS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GN1.
H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.



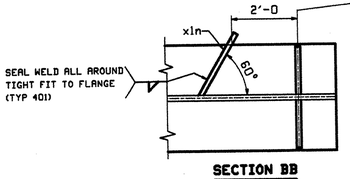
SECTION BA



SECTION A

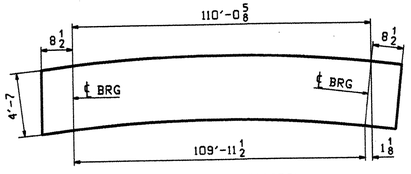


SECTION B



SECTION BB

RECEIVED
CK'D BY JK CK'D BY
JUL 24 2007
RESUBMIT APPROVED
BY DATE 7/27/07



ORIENTATION DIAGRAM
FOR CAMBER SEE DWG C1

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	6/14/07									
	OUT FOR APPROVAL	7/20/07									
	ISSUED TO SHOP										
	FIELD & OFFICE										
1	APPROVAL COMMENTS	7/25 2007	JTB	ELC							

MATERIAL: A709-50W (UN) | ELECTRODES: | HOLES: 15/16" ø (UN) | SHIP BOLTS: NONE

SURFACE PREP. & PAINT: SEE DRAWING GN1

DESCRIPTION: GIRDER - 1G1

JOB: TOWN HIGHWAY #3 OVER WILLOUGHBY RIVER
BRIDGE NO. 61
TOWN OF BARTON, VILLAGE OF ORLEANS
COUNTY OF ORLEANS, VERMONT
CONTRACTOR: JA McDONALD

TENSOR 5722

PROJ NO. BRO 1449(28)

CUSTOMER: VERMONT AOT

	DRAWN BY	DATE
	JTB	06/07
CHK'D BY		
	ELC	06/07
APPROV BY		
SUPERVISOR	W. J. GATTI	
Q.A.		

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
328	1
	REV. 1

09555

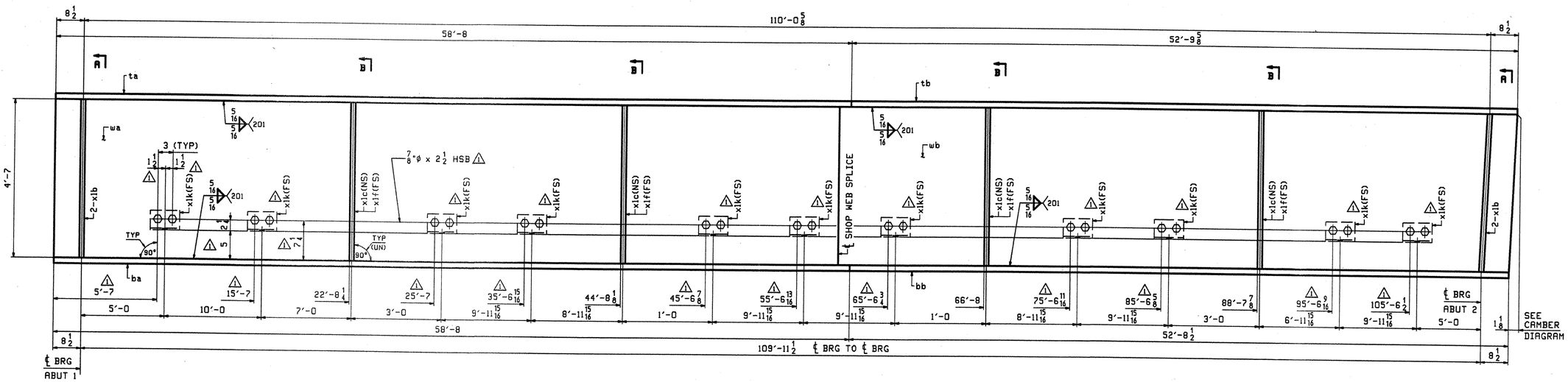
ELC Mon, Jul 9, 2007 09:05:08 AM //server/job/328/1.dwg

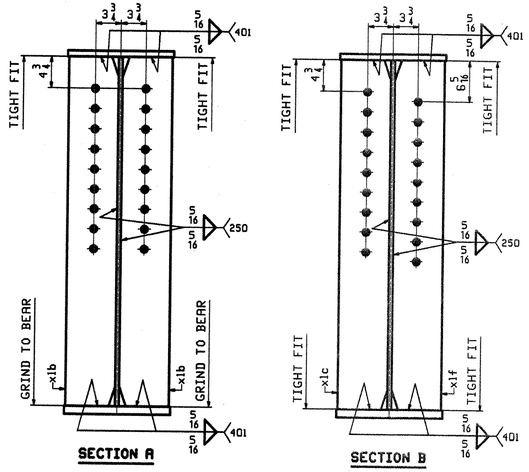
ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
2	B		4	x1b	PL $\frac{3}{4}$x7$\frac{1}{2}$	4	7	(A709-50W) MIF		
2	C		4	x1c	PL $\frac{1}{2}$x7$\frac{1}{2}$	4	7	(A709-50W)		
2	C		4	x1f	PL $\frac{1}{2}$x7$\frac{1}{2}$	4	7	(A709-50W)		
2	E		11	x1k	L 4x4x$\frac{3}{8}$	0	6	(A709-36)		
4	B		22		$\frac{7}{8}$ ø HSB	0	2$\frac{1}{2}$	(A325-3)		
4	D		22		$\frac{7}{8}$ ø HSW			(F436W)		

JOB NO. 328 — DRAWING NO. 2 — REV. 1

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		2G2	1		GIRDER				26827	
1	E		1	wa	PL $\frac{5}{8}$x55	56	3$\frac{11}{16}$	(M270-50WT2) (H2-3)		
1	G		1	wb	PL $\frac{5}{8}$x55	55	2$\frac{11}{16}$	(M270-50WT2) (H2-3)		
1	J		1	ta	PL $\frac{7}{8}$x16	58	8			
1	L		1	tb	PL $\frac{7}{8}$x16	52	9$\frac{5}{8}$			
1	A		1	ba	PL 1$\frac{1}{4}$x16	58	8	(M270-50WT2) (H2-3)		
1	C		1	bb	PL 1$\frac{1}{4}$x16	52	8$\frac{1}{2}$	(M270-50WT2) (H2-3)		

JOB NO. 328 — DRAWING NO. 2 — REV. 1

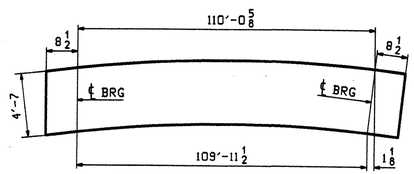




ONE - GIRDER - 2G2

FOR GIRDER STANDARDS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GN1.
H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.

RECEIVED
JUL 24 2007
APPROVED
DATE 7/17/07



ORIENTATION DIAGRAM
FOR CAMBER SEE DWG C1

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	6/14/07									
	OUT FOR APPROVAL	7/2/07									
	ISSUED TO SHOP										
	FIELD & OFFICE										
1	APPROVAL COMMENTS	7/5 2007	JTB	ELC							

MATERIAL: A709-50W (UN) — ELECTRODES: — HOLES: 15/16"ø (UN) — SHOP BOLTS: NONE

SURFACE PREP. & PAINT: SEE DRAWING GN1

DESCRIPTION: GIRDER - 2G2

JOB: TOWN HIGHWAY #3 OVER WILLOUGHBY RIVER
BRIDGE NO. 61
TOWN OF BARTON, VILLAGE OF ORLEANS
COUNTY OF ORLEANS, VERMONT
CONTRACTOR: JA McDONALD

PROJ NO. BRO 1449(29)

CUSTOMER: VERMONT AOT

DRAWN BY	DATE
JTB	06/07
CHKD BY	
ELC	06/07
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
328	2
	REV. 1

096 55

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	BILL OF MATERIAL QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
2	B		4	x1b	PL $\frac{3}{4}$x7$\frac{1}{2}$	4	7	(A709-50W) MIF		
2	C		4	x1c	PL $\frac{1}{2}$x7$\frac{1}{2}$	4	7	(A709-50W)		
2	C		4	x1f	PL $\frac{1}{2}$x7$\frac{1}{2}$	4	7	(A709-50W)		
2	E		11	x1k	L 4x4x$\frac{3}{8}$	0	6	(A709-36)		
4	B		22		$\frac{7}{8}$ ø HSB	0	2$\frac{1}{2}$	(A325-3)		
4	D		22		$\frac{7}{8}$ ø HSW			(F436W)		

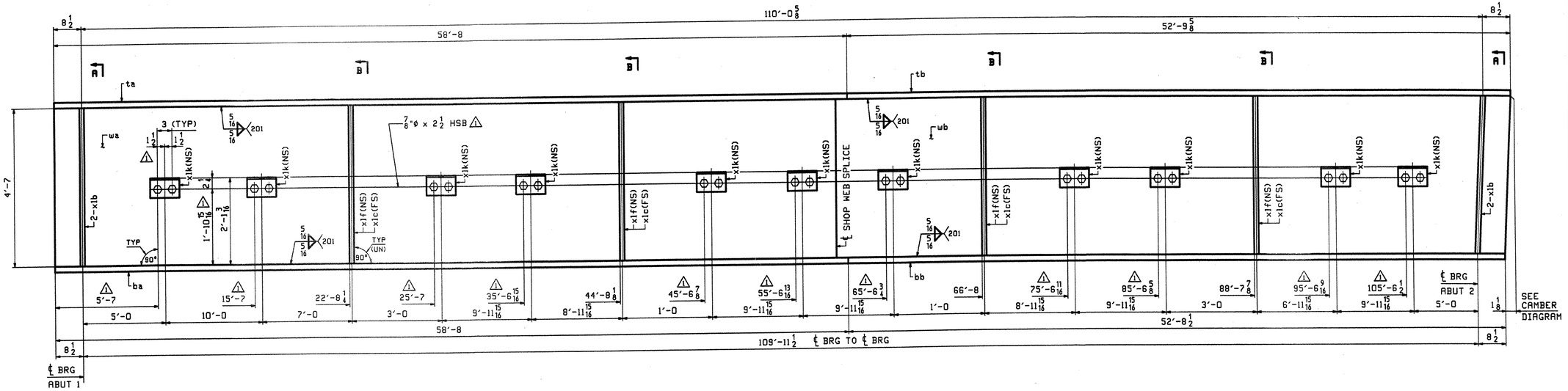
JOB NO. 328 | DRAWING NO. 4 | REV. ⚠

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	BILL OF MATERIAL QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		4G4	1		GIRDER				26827	
1	E		1	wa	PL $\frac{5}{8}$x55	58	3$\frac{11}{16}$	(M270-50WT2) (H2-3)		
1	G		1	wb	PL $\frac{5}{8}$x55	55	2$\frac{15}{16}$	(M270-50WT2) (H2-3)		
1	J		1	ta	PL $\frac{7}{8}$x16	58	8			
1	L		1	tb	PL $\frac{7}{8}$x16	52	9$\frac{5}{8}$			
1	A		1	ba	PL 1$\frac{1}{4}$x16	58	8	(M270-50WT2) (H2-3)		
1	C		1	bb	PL 1$\frac{1}{4}$x16	52	8$\frac{1}{2}$	(M270-50WT2) (H2-3)		

JOB NO. 328 | DRAWING NO. 4 | REV. ⚠

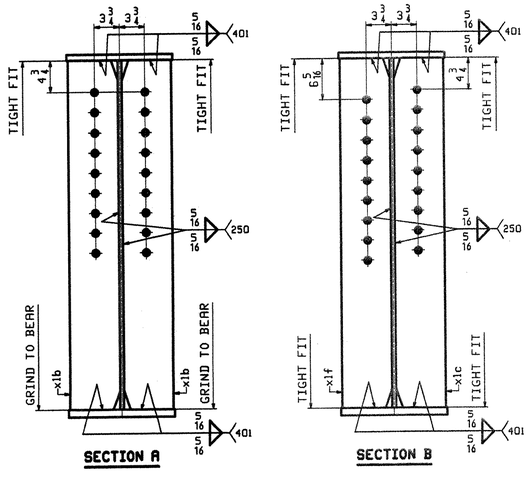
350
254
234
54

6588
6455
2761
2891
3946
3379
2677916



ONE - GIRDER - 4G4

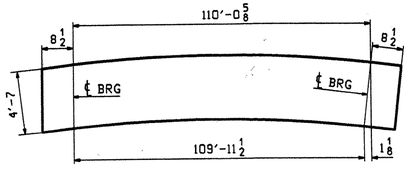
FOR GIRDER STANDARDS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GN1.
H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.



SECTION A

SECTION B

RECEIVED
CK'D BY SEL OK'D BY
JUL 24 2007
RESUBMIT APPROVED
BY DATE 7/27/07



ORIENTATION DIAGRAM
FOR CAMBER SEE DWG C1

OUT FOR APPROVAL	6/14/07									
OUT FOR APPROVAL	7-20-07									
ISSUED TO SHOP										
FIELD & OFFICE										
⚠ APPROVAL COMMENTS	7/3 2007	JTB	ELC							
REV. REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: A709-50W (UN) | ELECTRODES: | HOLES: 15/16 ø (UN) | SHOP BOLTS: NONE

SURFACE PREP. & PAINT: SEE DRAWING GN1

DESCRIPTION: GIRDER - 4G4

JOB: TOWN HIGHWAY #3 OVER WILLOUGHBY RIVER
BRIDGE NO. 61
TOWN OF BARTON, VILLAGE OF ORLEANS
COUNTY OF ORLEANS, VERMONT
CONTRACTOR: JA McDONALD

TENSOR 2722

PROJ NO. BRO 1449(29)

CUSTOMER: VERMONT AOT

DRAWN BY	DATE
JTB	06/07
CHKD BY	
ELC	06/07
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
328	4
	REV. ⚠

097 55

ELC Mon, Jul 9, 2007 09:09:59 PM //server/pw/27282x4.1.dwg

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	BILL OF MATERIAL QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
2	B		2	x1a	PL $\frac{3}{4}$x7$\frac{1}{2}$	4	7	(A709-50W) MIF		
2	B		2	x1b	PL $\frac{3}{4}$x7$\frac{1}{2}$	4	7	(A709-50W) MIF		
2	C		4	x1c	PL $\frac{1}{2}$x7$\frac{1}{2}$	4	7	(A709-50W)		
2	E		11	x1k	L 4x4x$\frac{3}{8}$	0	8	(A709-36)		
2	F		1	x1m	PL $\frac{1}{4}$x3$\frac{1}{4}$	0	11	(A709-50W)		
2	F		1	x1n	PL $\frac{1}{4}$x3$\frac{1}{4}$	0	11	(A709-50W)		
4	B		22		$\frac{7}{8}$ ø HSB	0	2$\frac{1}{2}$	(A325-3)		
4	D		22		$\frac{7}{8}$ ø HSW			(F436W)		

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	BILL OF MATERIAL QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		SGS	1		GIRDER				26598	
1	E		1	wa	PL $\frac{5}{8}$x55	56	3$\frac{11}{16}$	(M270-50WT2) (H2-3)		
1	G		1	wb	PL $\frac{5}{8}$x55	55	2$\frac{11}{16}$	(M270-50WT2) (H2-3)		
1	J		1	ta	PL $\frac{7}{8}$x16	58	8			
1	L		1	tb	PL $\frac{7}{8}$x16	52	9$\frac{5}{8}$			
1	R		1	ba	PL 1$\frac{1}{4}$x16	58	8	(M270-50WT2) (H2-3)		
1	C		1	bb	PL 1$\frac{1}{4}$x16	52	8$\frac{1}{2}$	(M270-50WT2) (H2-3)		

JOB NO. 328 | DRAWING NO. 5 | REV. 1

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64579
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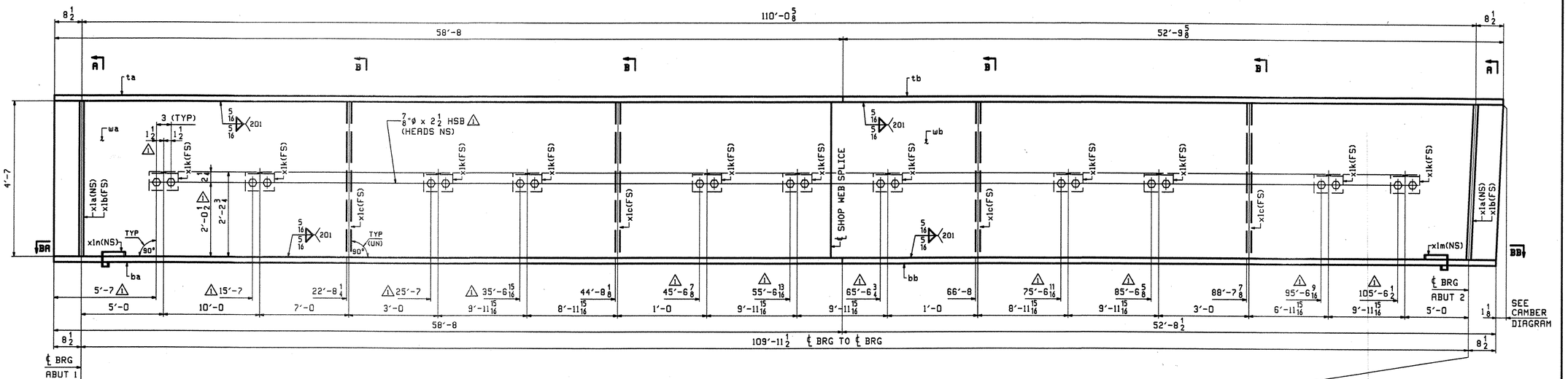
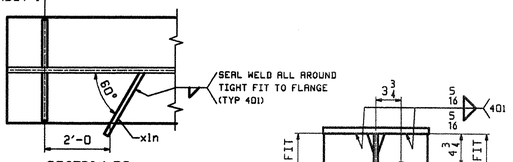
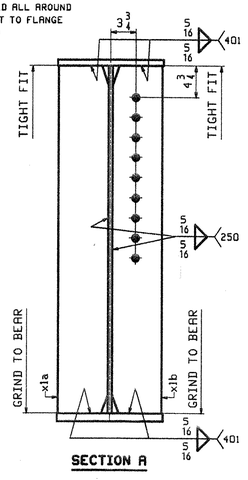
25114
3976
3529

26593

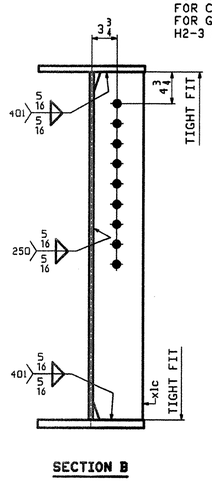




SECTION BA



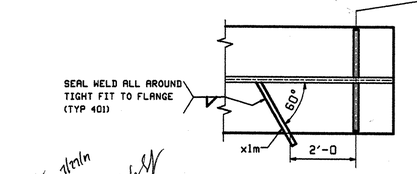
SECTION A



SECTION B

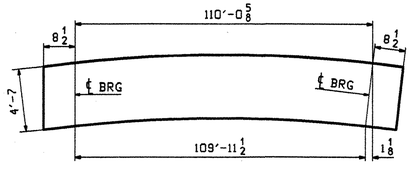
ONE - GIRDER - 5G5

FOR GIRDER STANDARDS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GN1.
H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.



SECTION BB

RECEIVED
JUL 24 2007
CKD BY
APPROVED
RESUBMIT
DATE
BY



ORIENTATION DIAGRAM
FOR CAMBER SEE DWG C1

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	6.14.07									
	OUT FOR APPROVAL	7.20.07									
	ISSUED TO SHOP										
	FIELD & OFFICE										
1	APPROVAL COMMENTS	7/5 2007	JTB	ELC							

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
A709-50W (UN)		15/16"ø (UN)	NONE

SURFACE PREP. & PAINT:
SEE DRAWING GN1

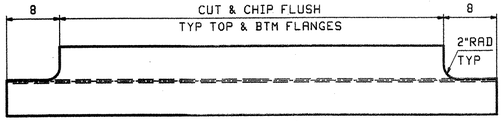
DESCRIPTION: GIRDER - 5G5	DRAWN BY	DATE
JOB: TOWN HIGHWAY #3 OVER WILLOUGHBY RIVER BRIDGE NO. 61	JTB	06/07
TOWN OF BARTON, VILLAGE OF ORLEANS	CHKD BY	
COUNTY OF ORLEANS, VERMONT	ELC	06/07
CONTRACTOR: JA McDONALD	APPROV BY	
TENSOR 2722	SUPERVISOR	W. J. GATTI
PROJ NO. BRO 1449(29)	Q.A.	
CUSTOMER: VERMONT AOT		

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

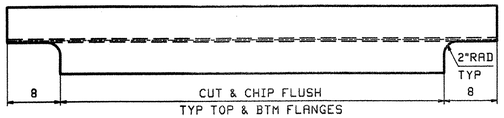
JOB NO. 328 | DRG. NO. 5 | REV. 1

098 55

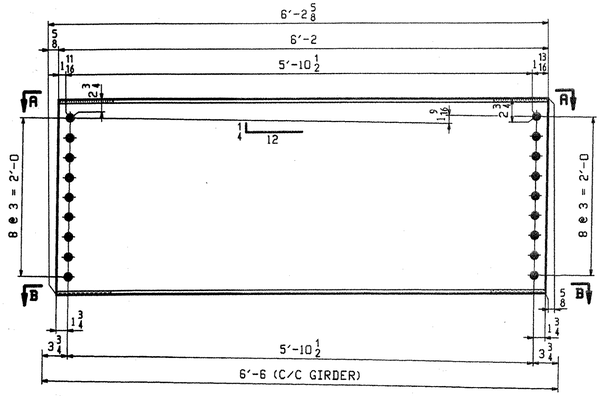
ELC Mon, Jul 9, 2007 10:58:58 AM J:\data\jobs\2722\5 1.dwg



VIEW "A-A" } AT 6D1 & 6D1P
SECT "B-B" } & 6D3P ONLY



VIEW "A-A" } AT 6D2 & 6D2P
SECT "B-B" } & 6D4 ONLY

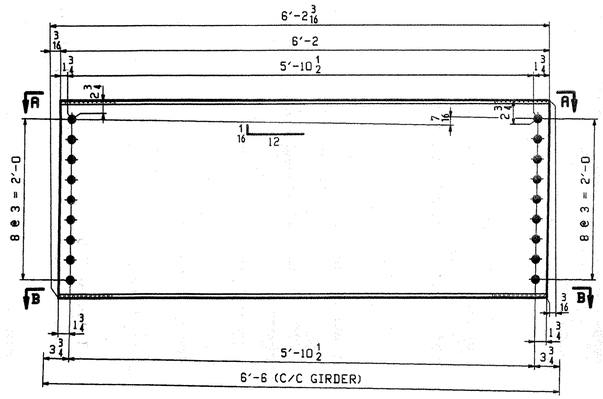


1 ~ BRG DIAPHRAGM - 6D1

2 ~ BRG DIAPHRAGMS - 6D1P (PAINTED)

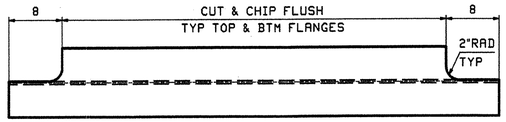
2 ~ BRG DIAPHRAGMS - 6D2

1 ~ BRG DIAPHRAGM - 6D2P (PAINTED)

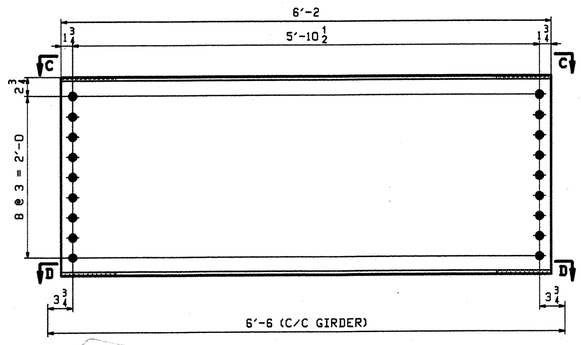


1 ~ BRG DIAPHRAGM - 6D3

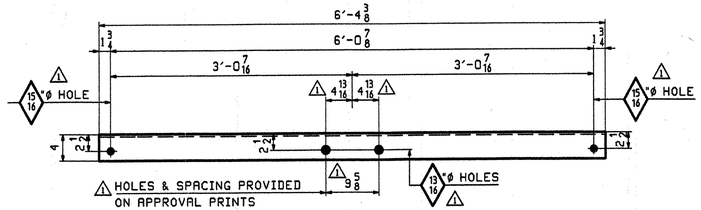
1 ~ BRG DIAPHRAGM - 6D4P (PAINTED)



VIEW "C-C"
SECT "D-D"

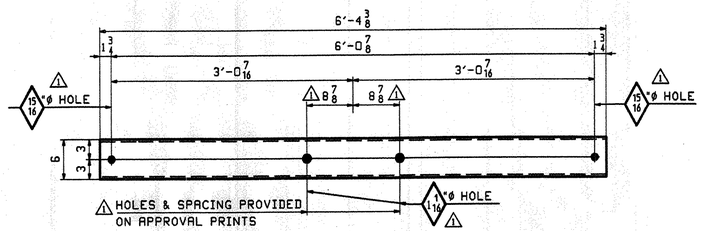


16 ~ INT. DIAPHRAGMS - 6D5



11 ~ UTILITY SUPPORTS - 6D6

(GALV AFTER FABRICATION)



11 ~ UTILITY SUPPORTS - 6D7

(GALV AFTER FABRICATION)

BILL OF MATERIAL

JOB NO. 328 | DRAWING NO. 6 | REV. 1

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
					DIAPHRAGMS					
2	J	6D1	1		W 30x90	6	2 5/8		560	
2	J	6D1P	2		W 30x90	6	2 5/8	PAINTED	560	
2	J	6D2	2		W 30x90	6	2 5/8		560	
2	J	6D2P	1		W 30x90	6	2 5/8	PAINTED	560	
2	J	6D3	1		W 30x90	6	2 3/16		556	
2	J	6D4P	1		W 30x90	6	2 3/16	PAINTED	556	
2	J	6D5	16		W 30x90	6	2		555	
					UTILITY SUPPORTS					
2	K	6D6	11		L 4x4x3/8	6	4 3/8	(A709-36) GALV	62	
2	L	6D7	11		C 6x13	6	4 3/8	(A709-36) GALV	83	

560
1120
1120
560
556
556
8880

682
913

14951

14951
-682
-913
12356 ✓

RECEIVED
CK'D BY JEL CK'D BY
JUL 24 2007
RESUBMIT APPROVED ✓
BY WJG DATE 7/17/07

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	6/14/07									
	OUT FOR APPROVAL	7-20-07									
	ISSUED TO SHOP										
	FIELD & OFFICE										
1	APPROVAL COMMENTS	7/5 2007	JTB	ELC							

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
A709-50W (UN)		15/16"ø (UN)	NONE

SURFACE PREP. & PAINT:
SEE DRAWING GN1

DESCRIPTION: DIAPHRAGMS & UTILITY SUPPORTS

JOB: TOWN HIGHWAY #3 OVER WILLOUGHBY RIVER
BRIDGE NO. 61
TOWN OF BARTON, VILLAGE OF ORLEANS
COUNTY OF ORLEANS, VERMONT
CONTRACTOR: JA McDONALD

TENSOR 2722

DRAWN BY	DATE
JTB	06/07
CHK'D BY	
ELC	06/07
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

PROJ NO. BRO 1449(29)
CUSTOMER: VERMONT AOT

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

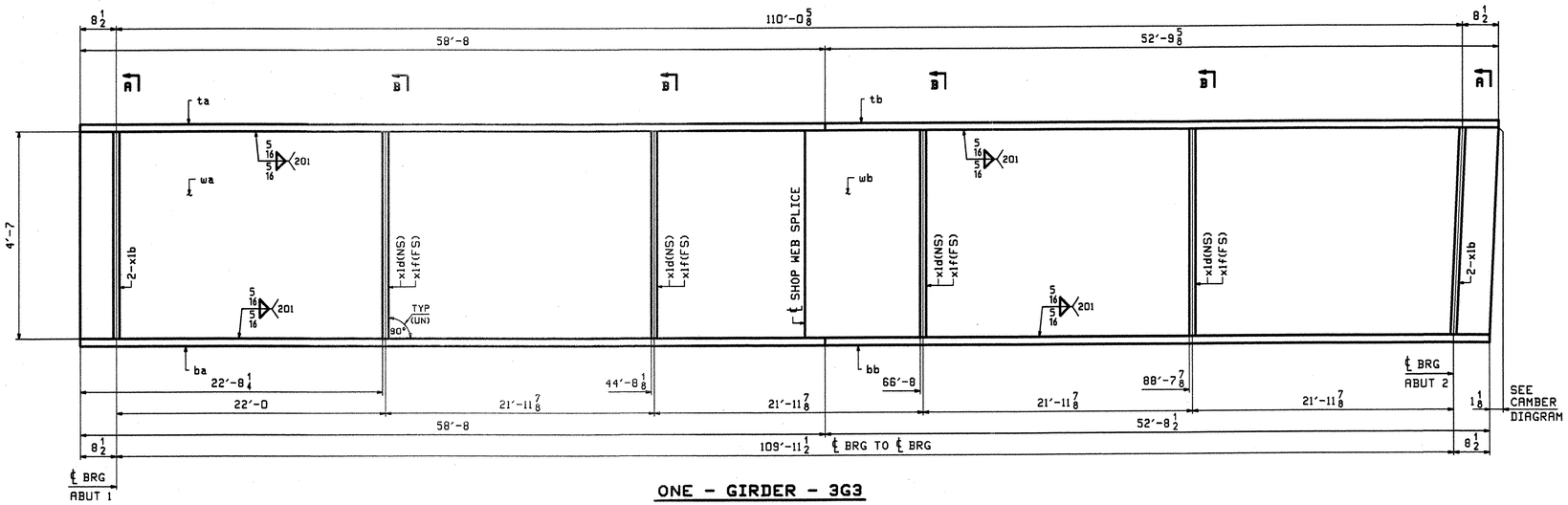
JOB NO.	DRG. NO.
328	6
	REV. 1

09955

ELC Tue, Jul 10, 2007 07:09:26 PM c:\users\jobs\2722\6-1.dwg

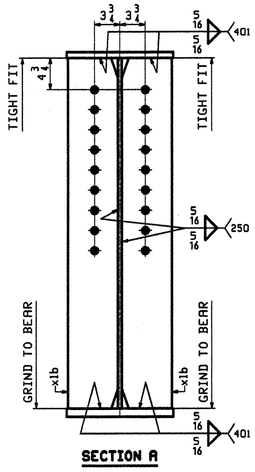
ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
								328	3	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		3G3	1		GIRDER				26755	
1	E		1	wa	PL $\frac{5}{8}$x55	58	$3\frac{11}{16}$	(M270-50WT2) (H2-3)		
1	G		1	wb	PL $\frac{5}{8}$x55	55	$2\frac{11}{16}$	(M270-50WT2) (H2-3)		
1	J		1	ta	PL $\frac{7}{8}$x16	58	8			
1	L		1	tb	PL $\frac{7}{8}$x16	52	$9\frac{5}{8}$			
1	A		1	ba	PL $1\frac{1}{4}$x16	58	8	(M270-50WT2) (H2-3)		
1	C		1	bb	PL $1\frac{1}{4}$x16	52	$8\frac{1}{2}$	(M270-50WT2) (H2-3)		
2	B		4	x1b	PL $\frac{3}{4}$x$7\frac{1}{2}$	4	7	(A709-50W) MIE		
2	C		4	x1d	PL $\frac{1}{2}$x$7\frac{1}{2}$	4	7	(A709-50W)		
2	C		4	x1f	PL $\frac{1}{2}$x$7\frac{1}{2}$	4	7	(A709-50W)		

6588
6459
2791
2511
3976
3379
350
234
234
26722 OK

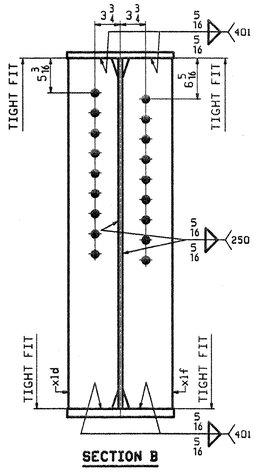


ONE - GIRDER - 3G3

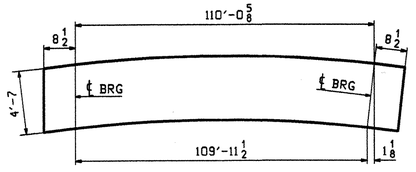
FOR GIRDER STANDARDS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GN1.
H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.



SECTION A



SECTION B



ORIENTATION DIAGRAM
FOR CAMBER SEE DWG C1

RECEIVED
CK'D BY ___ OK'D BY ___
JUL 24 2007
RESUBMIT ___ APPROVED ✓
BY Wy gr DATE 7/24/07

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	6/14/07									
	OUT FOR APPROVAL	7/20/07									
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
A709-50W (UN)		$\frac{15}{16}$"ϕ (UN)	NONE

SURFACE PREP. & PAINT:
SEE DRAWING GN1

DESCRIPTION: GIRDER - 3G3	DRAWN BY	DATE
JOB: TOWN HIGHWAY #3 OVER WILLOUGHBY RIVER BRIDGE NO. 61	JTB	06/07
TOWN OF BARTON, VILLAGE OF ORLEANS	CHKD BY	
COUNTY OF ORLEANS, VERMONT	ELC	06/07
TENSOR 2722 CONTRACTOR: JA McDONALD	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. BRO 1449(29)	Q.A.	
CUSTOMER: VERMONT AOT		

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
328	3
	REV. △

100 53

ELC Wed, Jun 13, 2007 11:15:30 AM c:\cascd\jobs\2722\3 - 3G3.dwg

VERMONT

State of Vermont
PDD/Structures Design Section
National Life Building – Drawer 33
Montpelier, VT 05633-5001
www.aot.state.vt.us

Agency of Transportation

[phone] 802-828-2621
[fax] 802-828-3566
[ttd] 800-253-0191

July 11, 2007

Casco Bay Steel Structures, Inc.
75 Spring Hill Road
Saco, Maine 04072

Project Name: BARTON Project #: BRO 1449(29)

Structure Identification: Bridge 61 over Willoughby River

The following Expansion Joint fabrication drawings and Welding Procedures for the above project (General Contractor – J.A. McDonald, Inc.), have been reviewed and are being returned herewith.

Sheets J1AB and J1B are approved "as noted". Please note the comments in red.
Sheet D1 is approved.
Welding Procedures are also approved.

You must provide notice to our fabrication inspector, Jeff Clark, as to the date fabrication represented by these drawings will begin. That notice must be received and acknowledged at least seven days prior to that date, as per Specification 506.03. Jeff may be contacted by phone at (802)828-0044 or email at jeff.clark@state.vt.us. Any material fabricated prior to the notification date is subject to rejection without further cause.

Sincerely,

Todd A. Sumner
Interim Structures Project Manager

Attachments
cc: [X] Resident Engineer w/prints – Chris Craig
[X] Shop Inspector w/prints – Jeff Clark
[X] Contractor w/prints – J.A. McDonald
[X] Construction Divison – letter only
[X] Materials & Research Section (C&IA Unit) – letter only
[X] Files

101 b5

VTrans Working to Get You There! Vermont Agency of Transportation

Casco Bay Steel Structures, Inc.
5 Industry Road
South Portland, Maine 04106
hone: (207) 772-2533 Fax: (207) 772-0580

WELDING PROCEDURE SPECIFICATION

Material specification ASTM 709 Gr 36-50-50W (250-345-345W)
Welding process Shielded Metal Arc Welding (SMAW)
Manual or machine Manual
Position of welding Flat (1F), Horizontal (2F)
Filler metal specification ANSI/AWS A5.1 - A5.5
Filler metal classification E7018 - 8018 C1/C2 - 7028
Flux NA
Shielding gas NA Flow rate NA
Single or multiple pass Single and multiple
Single or multiple arc Single
Welding current AC/DC
Polarity Straight / Reverse
Welding progression
Root treatment Meet AWS SPECIFICATION
Preheat and interpass temperature To 3/4(19) 50°(10°) 3/4(19) To 1 1/2(38) 70°(20°) 1 1/2(38) To 2 1/2(63.5) 150°(65°) over 2 1/2(63.5) 225°(110°)
Postheat temperature NA
Heat Input Min NA Max NA

VT/AMS
RECEIVED
ORD BY ORD BY JEK
JUN 25 2007
ASSEMBLY APPROVED
BY DATE 6/29/07

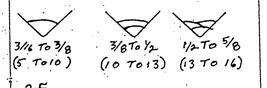
Barton VT Bridge 61
Proj No. BRO 1449(29)
CBSS no 325

(metric) WELDING PROCEDURE

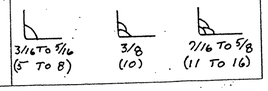
Pass no.	Electrode size	Welding current Amperes	Welding current Volts	Travel speed
AS REQ	7018 1/8 (3.2)	70-170	22-26	AS REQ
	5/32 (3.9)	120-225	22-26	
	3/16 (4.8)	170-300	24-27	
	8018 1/8 (3.2)	90-160	22-26	
	5/32 (3.9)	120-225	22-26	
	3/16 (4.8)	180-290	24-27	
	7028 5/32 (3.9)	190-270	22-26	
	3/16 (4.8)	210-330	24-27	

AWS 01.5 Joint detail Fillet

1F



2F



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

Procedure no. 401
Revision no.
Form III-2

PAUL E. HOODALE 03102001 CWI

Contractor Casco Bay Steel
Authorized By Paul E. Hoodale
Date 3/2/00

102bJ

Casco Bay Steel Structures, Inc.
75 Spring Hill Road
Saco, Maine 04072
Phone: (207) 282-7360 Fax: (207) 282-1179

WELDING PROCEDURE SPECIFICATION

Material specification ASTM A709/A709M - Grade 36(250) 50(345) 50W(345W)
Welding process Flux Cored Arc welding (FCAW)
Manual or machine semi AUTO
Position of welding Flat (1F) Horizontal (2F)
Filler metal specification AWS A5.20
Filler metal classification E71T-1
Flux N/A
Shielding gas 75% AR 25% CO2 Flow rate 40CFH ±5
Single or multiple pass Single and Multiple - Electrode Extension 5/8 ± 1/4 (15.87 ± 6.35)
Single or multiple arc Single
Welding current DC
Polarity Reverse
Welding progression
Root treatment To meet AWS specification
Preheat and interpass temperature To 3/4 (19): 50°(10°) - 3/4 (19) To 1 1/2 (38): 70°(20°) - 1 1/2 (38) To 2 1/2 (63) 150°(65°) over 2 1/2 (63) = 225° (110°)
Postheat temperature N/A
Heat Input Min N/A Max N/A

BARTON VT BRNO GI
PROJ NO. BRO 1449 (29
CBSS NO 328

WELDING PROCEDURE

(METRIC)

Pass no.	Electrode size	Welding current Amperes	Welding current Volts	Travel speed
1/16	1/16	275 247.5 TO 302.5	28.8 26.8 TO 30.8	11.6 10.4 TO 12.8
(METRIC)				
1.6	1.6	275 247.5 TO 302.5	28.8 26.8 TO 30.8	294.6 264.2 TO 325.12

Joint detail FILLET

AWS D1.5

1F

To 1/2 (12.7)

2F

To 3/8 (9.5)

TRANS RECEIVED JUN 25 2007

CK'D BY CK'D BY

RESUBMIT APPROVED

BY DATE 6/27/07

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

Procedure no. 101
Revision no.
Form fil-2

AWS QC1 PAUL E. WOODDALE (AUTHORIZED USER)

Contractor Casco Bay Steel
Authorized By Paul E Wooddale
Date 3/23/00

103 bJ

Casco Bay Steel Structures, Inc.

75 Spring Hill Road
Saco, Maine 04072

Phone: (207) 282-7360 Fax: (207) 282-1179

WELDING PROCEDURE SPECIFICATION

Material specification ASTM A709/A709M - Grade 36(250) 50(345) 50W(345W)
Welding process Flux Cored Arc welding (FCAW)
Manual or machine Semi Auto
Position of welding Flat (1G) Horizontal (2G)
Filler metal specification AWS A5.20
Filler metal classification E71T-1
Flux NA
Shielding gas 75% AR 25% CO2 Flow rate 40CFH ES
Single or multiple pass Single and Multiple - Electrode Extension 5/8-1/4(15.87-6.35)
Single or multiple arc Single
Welding current DC
Polarity Reverse
Welding progression See Joint Detail
Root treatment To meet AWS specification
Preheat and interpass temperature To 3/4 (19):50°(10)-3/4 (19) To 1 1/2(38):70°(20)-1 1/2(38) To 2 1/2(63) 150°(65) over 2 1/2 (63) = 225°(110°)
Postheat temperature NA
Heat Input Min _____ Max _____

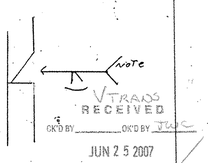
Baxton VT Grind Gi
Proj No. BRC 1449 (29)
CBSS no 329

WELDING PROCEDURE

(METRIC)

Pass no.	Electrode size	Welding current Amperes	Welding current Volts	Travel speed
	1/16	275 247.5 To 302.5	28.8 26.8 To 30.8	11.6 10.4 To 12.8
		(METRIC)		
	1.6	275 247.5 To 302.5	28.8 26.8 To 30.8	294.6 264.2 To 325.12

AWS D1.5 Joint detail TC P4-F



VTRANS RECEIVED
JUN 25 2007

CK'D BY _____ CK'D BY JWC
RESUBMIT _____ APPROVED
BY: DATE 6/27/07

NOTE: Grind Flush as Req

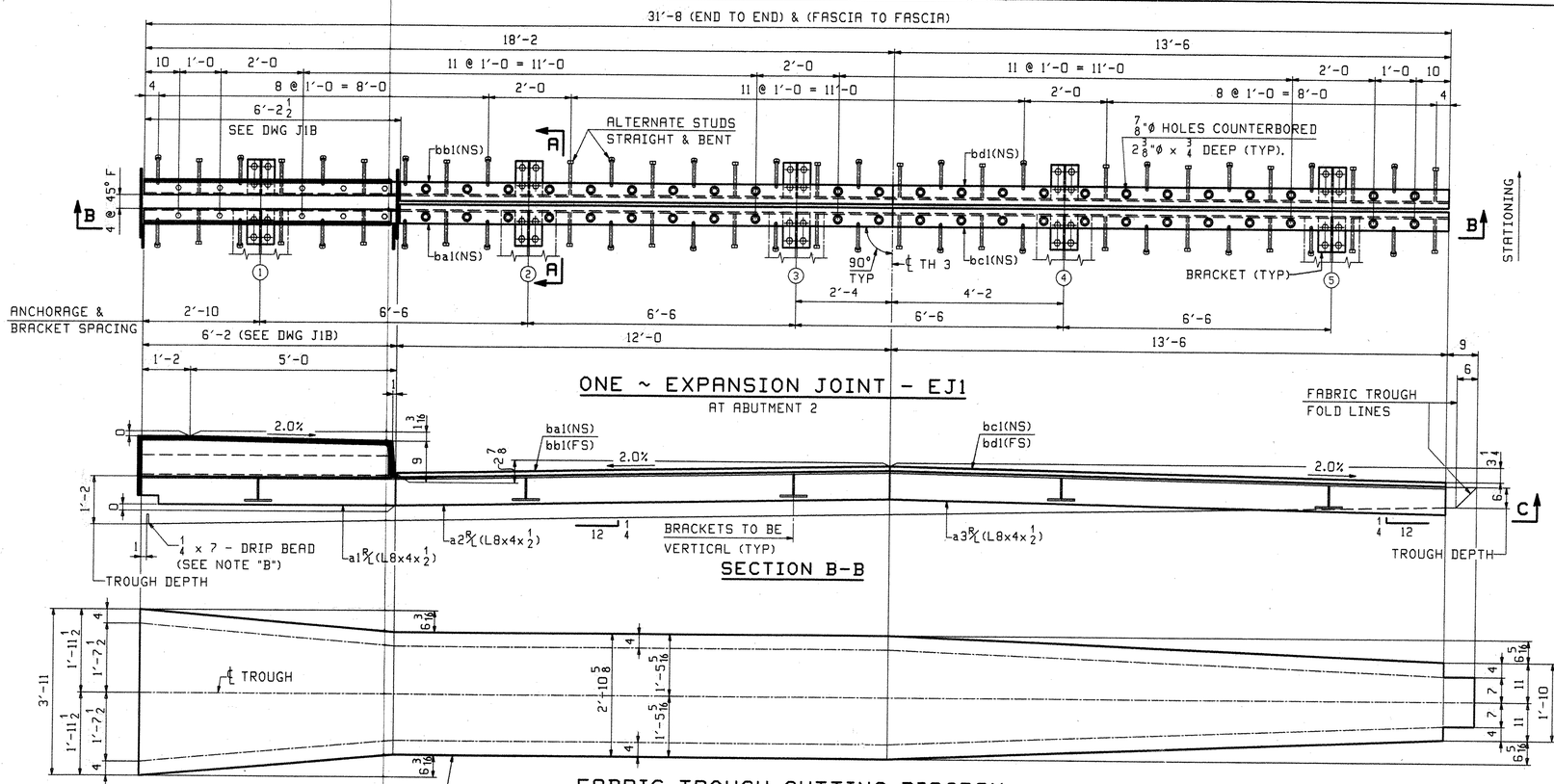
This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

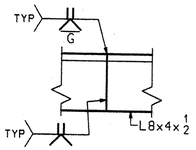
Procedure no. 103
Revision no. _____
Form III-2

AWS QC-1 PAUL E. WOODALE AUTHORITY CWI

Contractor Casco Bay Steel
Authorized By Paul E. Woodale
Date 3/23/00

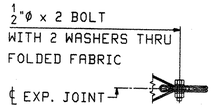
1046J





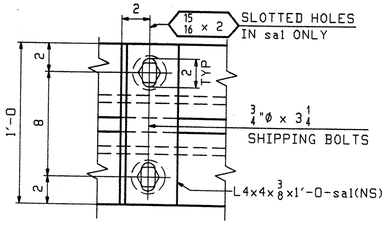
WELDING DETAIL

(AS REQ'D)



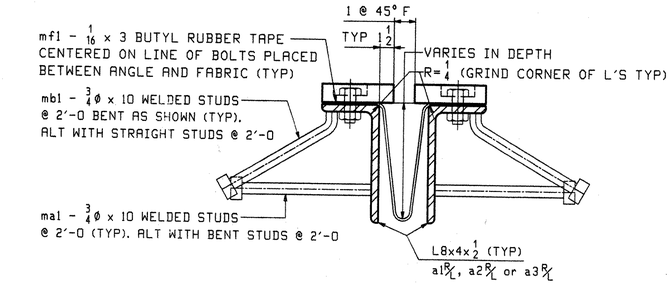
SECTION C

FINGER PLATES AND ANGLES NOT SHOWN



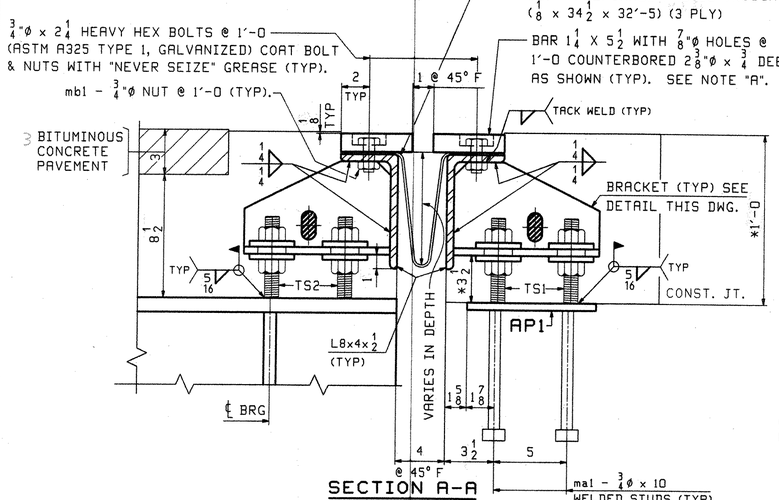
DETAIL @ SHIPPING DEVICES

SPACED AT 5'-0 MAX (6 REQ'D)

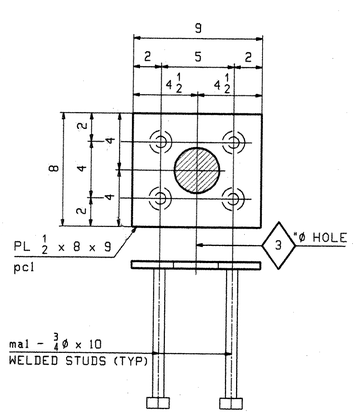


TYPICAL SECTION BETWEEN GIRDERS

WORK THIS DWG WITH DWG J1B

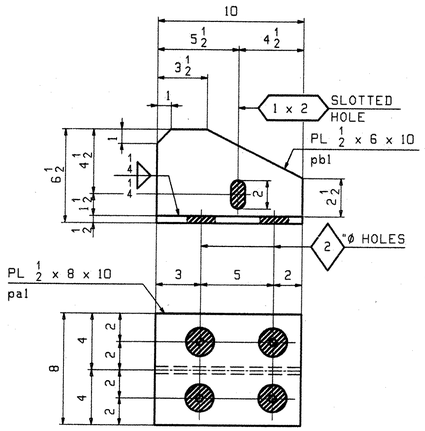


SECTION A-A



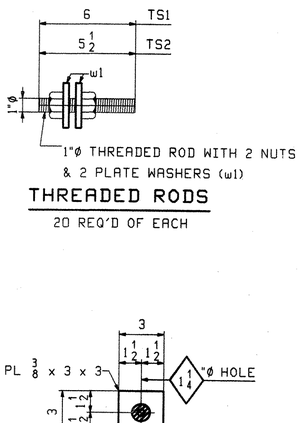
ANCHORAGE - AP1

5 REQ'D (NO GALV REQ'D)



BRACKET DETAIL

10 REQ'D



THREADED RODS

20 REQ'D OF EACH

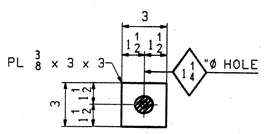


PLATE WASHER - w1

80 REQ'D

* THESE DIMENSIONS ARE THEORETICAL AND MAY CHANGE DEPENDING UPON BEAM PROFILES.

NOTE "A"

FILL COUNTERBORED HOLES WITH HOT POURED JOINT SEALER (STANDARD SPECIFICATION 707.04 AS MODIFIED BY THE GENERAL SPECIAL PROVISIONS) AFTER BOLT INSTALLATION. PAYMENT FOR THE WORK SHALL BE INCIDENTAL TO ITEM 516.11.

RECEIVED
CKD BY TJS OK'D BY JEL
JUN 25 2007
RESUBMIT APPROVED AS NOTED
BY TJS DATE 7/11/07

* Expansion Joint shall be shipped as one unit

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	6.9.07									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
A709-36		13/16"Ø (UN)	AS NOTED

SURFACE PREP. & PAINT:

GALVANIZED AFTER FABRICATION (EXCEPT AS NOTED)

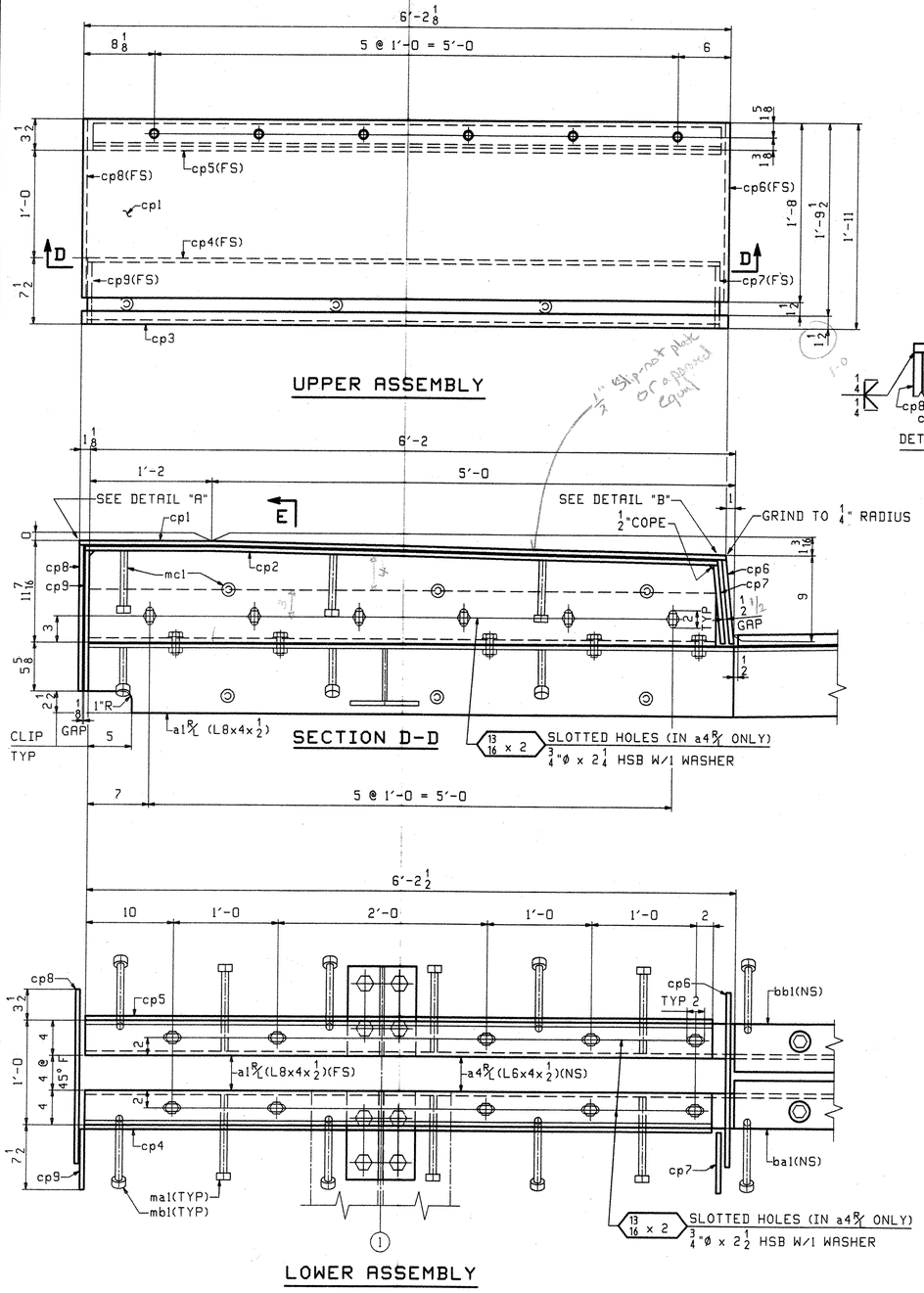
DESCRIPTION: EXPANSION JOINT (ABUT 2)	DRAWN BY	DATE
JOB: TOWN HIGHWAY #3 OVER WILLOUGHBY RIVER BRIDGE NO. 61 (EXPANSION JOINT) TOWN OF BARTON, VILLAGE OF ORLEANS COUNTY OF ORLEANS, VERMONT CONTRACTOR: JA McDONALD	JTB	06/10
	CHKD BY	
	ELC	6/15/07
	APPROV BY	
TENSOR 2723	SUPERVISOR	W. J. GATTI
PROJ NO. BRO 1449(29)	Q.A.	
CUSTOMER: VERMONT AOT		

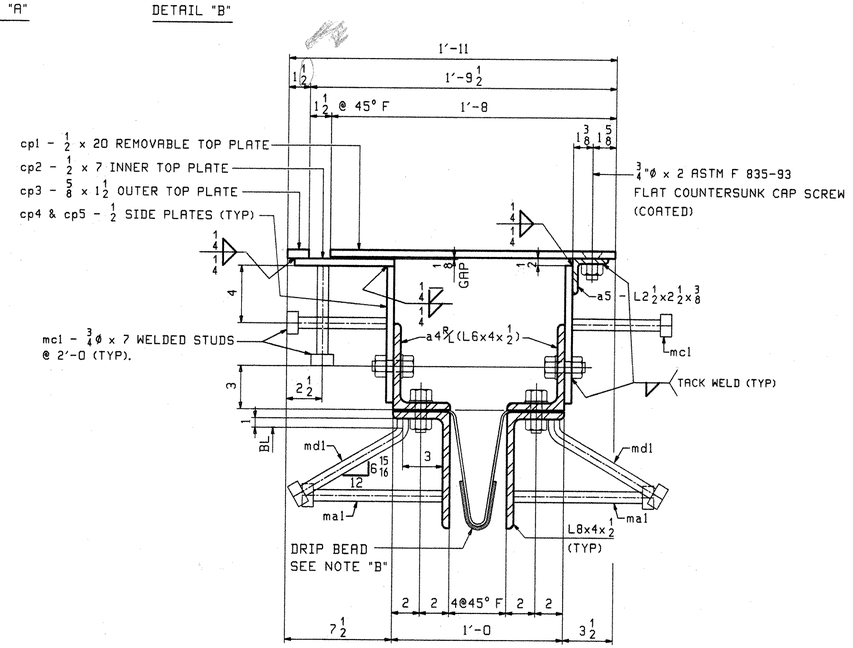
CASCO BAY STEEL STRUCTURES, INC.

75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
328	J1AB
1056J	REV. △

ELC Mon, Jun 18, 2007 07:57:05 PM //users/jobs/2723/J1AB - Rev0





NOTE "B"
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.

RECEIVED
CK'D BY JCL OK'D BY
JUN 25 2007
RESUBMIT APPROVED AS NOTED
BY TAS DATE 7/11/07

BILL OF MATERIAL

JOB NO. J1B — DRAWING NO. — REV.

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		AP1	5		ANCHORAGE				13	
1	V		5	pc1	PL 1/2x8	0	9			
2	C		20	ma1	3/4 Ø STUD	0	10	(A108) STUDS		
		TS1	20		THREADED RODS				4	
2	U		20		1 Ø ROD	0	6	THREAD FULL LENGTH		
2	V		40	wl	PL 3/8x3	0	3			
2	W		40		1 Ø HHN			(A563)		
		TS2	20		THREADED RODS				4	
2	U		20		1 Ø ROD	0	5 1/2	THREAD FULL LENGTH		
2	V		40	wl	PL 3/8x3	0	3			
2	W		40		1 Ø HHN			(A563)		

BILL OF MATERIAL

JOB NO. 328 — DRAWING NO. J1B — REV.

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		EJ1	1		EXPANSION JOINT				362	
1	B		1	a1L	L 8x4x1/2	6	2			
1	B		1	a1R	L 8x4x1/2	6	2			
1	C		1	a2L	L 8x4x1/2	12	0			
1	C		1	a2R	L 8x4x1/2	12	0			
1	D		1	a3L	L 8x4x1/2	13	6			
1	D		1	a3R	L 8x4x1/2	13	6			
1	E		1	a4L	L 6x4x1/2	6	0			
1	E		1	a4R	L 6x4x1/2	6	0			
1	F		1	a5	L 2 1/2x2 1/2x3/8	6	0			
1	G		1	ba1	BAR 1 1/4x5 1/2	11	11 1/2			
1	G		1	bb1	BAR 1 1/4x5 1/2	11	11 1/2			
1	H		1	bc1	BAR 1 1/4x5 1/2	13	6			
1	H		1	bd1	BAR 1 1/4x5 1/2	13	6			
1	J		1	cp1	PL 1/2x20	6	2 1/8	SLIPNOT OR EQUIV.		
1	M		1	cp2	PL 1/2x7	6	2 1/8			
1	Q		1	cp3	PL 5/8x1 1/2	6	2 1/8			
1	R		1	cp4	PL 1/2x9 13/16	6	0			
1	R		1	cp5	PL 1/2x9 15/16	6	0			
1	K		1	cp6	PL 1/2x20	0	9 5/8			
1	N		1	cp7	PL 1/2x7	0	9			
1	L		1	cp8	PL 1/2x20	1	4 9/16			
1	P		1	cp9	PL 1/2x7	1	3 15/16			
1	S		10	pa1	PL 1/2x8	0	10			
1	T		10	pb1	PL 1/2x6	0	10			
2	B		30	ma1	3/4 Ø STUD	0	10	(A108) STUDS		
2	C		30	mb1	3/4 Ø STUD	0	10	(A108) BENT STUDS		
2	D		9	mc1	3/4 Ø STUD	0	7	(A108) STUDS		
2	E		1	md1	FABRIC DRAIN	32	5	3-PLY (1/8 x 34 1/2)		
2	F		2	mf1	TAPE 1/16x3	31	8	BUTYL RUBBER		
2	H		1		1/2 Ø HSB	0	2	(A325-1) (GALV)		
2	J		2		1/2 Ø HSW			(F436) (GALV)		
2	K		6		3/4 Ø CAP SCREW	0	2	(F837) STAINLESS STEEL		
2	L		60		3/4 Ø HSB	0	2 1/4	(A325-1) (GALV)		
2	M		10		3/4 Ø HSB	0	2 1/2	(A325-1) (GALV)		
2	N		22		3/4 Ø HSW			(F436) (GALV)		
2	R		6	sa1	L 4x4x3/8	1	0	SHIPPING DEVICE		
2	S		12		3/4 Ø HSB	0	3 1/4	(A325-1) SHIPPING BOLTS		
2	T		12		3/4 Ø HSW			(F436)		

WORK THIS DWG WITH DWG J1AB

OUT FOR APPROVAL	6907									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: A709-36 — ELECTRODES: — HOLES: 13/16"Ø (UN) — SHOP BOLTS: AS NOTED

SURFACE PREP. & PAINT: GALVANIZED AFTER FABRICATION (EXCEPT AS NOTED)

DESCRIPTION: EXPANSION JOINT (ABUT 2)

JOB: TOWN HIGHWAY #3 OVER WILLOUGHBY RIVER
BRIDGE NO. 61 (EXPANSION JOINT)
TOWN OF BARTON, VILLAGE OF ORLEANS
COUNTY OF ORLEANS, VERMONT
CONTRACTOR: JA McDONALD

TENSOR 2723

PROJ NO. BRO 1449(29)

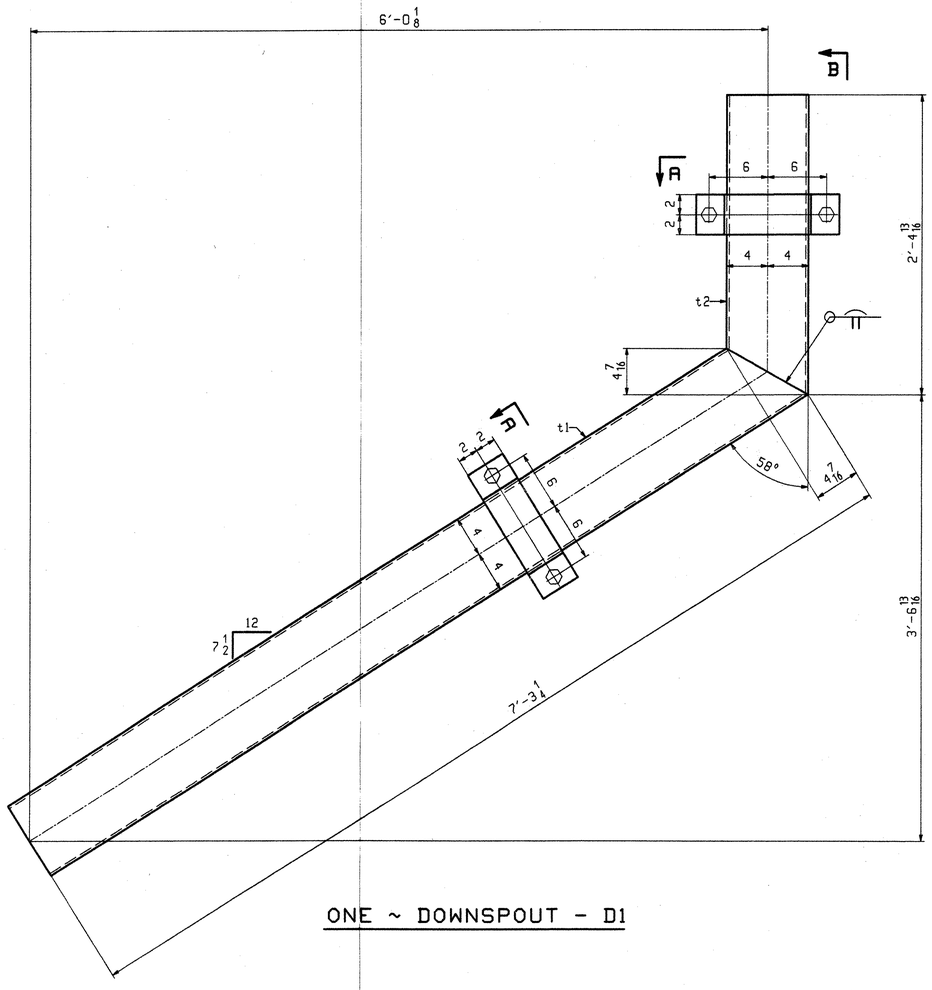
CUSTOMER: VERMONT AOT

DRAWN BY	DATE
JTB	06/14
CHK'D BY	
ELC	6/15/07
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

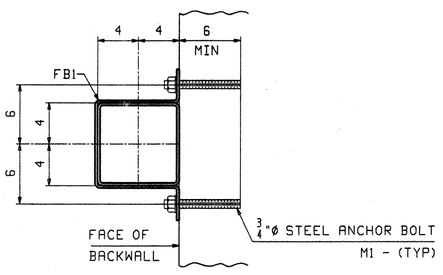
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
328	J1B
1066J	REV. △

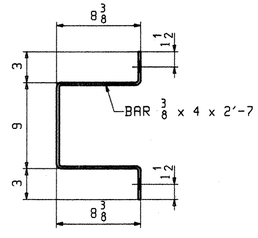
ELC Mon, Jun 18, 2007 07:58:16 PM K:\detail\jobs\2723\J1B.dwg



ONE ~ DOWNSPOUT - D1



SECTION A



DETAIL - FB1
(2 REQ'D)

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
								328	D1		
		D1	1		DOWNSPOUT				250		
3	B		1	t1	TS 8x8x 1/4	2	4 13/16	(A500-B)			
3	C		1	t2	TS 8x8x 1/4	7	3 1/4	(A500-B)			
3	D	FB1	2		BAR 3/8x4	2	7	BENT	13		
		M1	4		ANCHOR BOLTS				1		
3	E		4		3/4 ø ROD	0	9	(GALV) (M270-36) W/1 NUT			
3	F		4		3/4 ø HSW			(F436) (GALV)			

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	6-19-07									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
A709-36 (UN)		15/16 Ø (OVS)	NONE

SURFACE PREP. & PAINT:

GALVANIZED AFTER FABRICATION

DESCRIPTION: DOWNSPOUT	DRAWN BY	DATE
JOB: TOWN HIGHWAY #3 OVER WILLOUGHBY RIVER BRIDGE NO. 61 (EXPANSION JOINT) TOWN OF BARTON, VILLAGE OF ORLEANS COUNTY OF ORLEANS, VERMONT CONTRACTOR: JA McDONALD	JTB	06/14
	CHKD BY	
TENSOR 2723	ELC	6/15/07
	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. BRO 1449(29)	Q.A.	
CUSTOMER: VERMONT AOT		

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
328	D1
107	REV. △

RECEIVED
CK'D BY JTB OK'D BY JTB
JUN 25 2007
RESUBMIT ____ APPROVED ✓
BY TAS DATE 7/11/07

107-D1

ELC Mon, Jun 18, 2007 07:07:27 AM c:\work\jobs\2723\D1.dwg

VERMONT

State of Vermont
PDD/Structures Design Section
National Life Building – Drawer 33
Montpelier, VT 05633-5001
www.aot.state.vt.us

[phone] 802-828-2621
[fax] 802-828-3566
[tld] 800-253-0191

Agency of Transportation

P.G. Adams, Inc.
1215 Airport Parkway
South Burlington, VT 05403

April 30, 2008

Project Name: BARTON Project #: BRO 1449(29)

Structure Identification: Bridge 61 over Willoughby River

The following railing details [item 525.15 Metal Hand Railing] for the above project received in this office on April 21, 2008 (General Contractor – J.A. McDonald, Inc.), have been reviewed and are being returned herewith.

Sheets 1 and 2 are approved "as noted". Please detail the spacing and number of posts as well as the depth of the post sleeves. The welding procedures have been approved as noted. All comments are shown in red on the drawings. You may fax the revisions to 802-828-3566 and they will be added to the contract documents.

Sincerely,

Kristin M. Higgins

Kristin M. Higgins, P.E.
Structures Project Manager

Attachments
cc: [X] Resident Engineer w/prints – Chris Craig
[X] Shop Inspector w/prints – Jeff Clark
[X] Contractor w/prints – J.A. McDonald
[X] Construction Divison – letter only
[X] Materials & Research Section (C&IA Unit) – letter only
[X] Files

108 HR

VTrans Working to Get You There

NOTE:
ALL WELDING SHALL CONFORM TO THE CODE FOR ARC WELDING IN BUILDING CONSTRUCTION OF THE AMERICAN WELDING SOCIETY USING THE SMAW PROCESS.

RECEIVED
APR 2 1 2008
RESUBMIT ____ APPROVED As Noted
DATE 04/23/08

(2) RAILING ELEVATION @ CONCRETE SPAN
SCALE: 1/2" = 1'-0"

* # Posts = ____
* Detail Sheets ____

VT. DOT. BARTON
P.G. ADAMS, INC.
4.10.08
REVISED 4.23.08

109 HR