

PRELIMINARY INFORMATION SHEET

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INDEX OF STANDARDS

E-100	CONSTRUCTION APPROACH SIGNS	1/2/2004
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E-102A	CONSTRUCTION SIGN DETAILS	5/01/2004
E-121	STANDARD SIGN PLACEMENT	8/8/1995
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G-1D	HEAVY DUTY STEEL BEAM GUARDRAIL	1/3/2000

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: Nov. 2006

DRAINAGE AREA : 15.4 sq. mi.
 CHARACTER OF TERRAIN : Hilly to Mountainous
 STREAM CHARACTERISTICS : Meandering, alluvial channel with some eroding stream banks.
 NATURE OF STREAMBED : Silt, sand, gravel and cobbles

PEAK FLOW DATA

Q 2.33 =	1,000 cfs	Q 50 =	2,160 cfs
Q 10 =	1,500 cfs	Q 100 =	2,500 cfs
Q 25 =	1,850 cfs	Q 500 =	3,340 cfs

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q50 = 2.8 fps
 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 : <1% HEADWATERS :
 UNIFORM : X
 IMMEDIATELY ABOVE SITE :

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : A concrete arch was damaged in a flood in 2004 and removed.
 YEAR BUILT : Built in 1900. Widened in 1973.
 CLEAR SPAN(NORMAL TO STREAM) : 35'
 VERTICAL CLEARANCE ABOVE STREAMBED : 10'
 WATERWAY OF FULL OPENING : 250 sq. ft.
 DISPOSITION OF STRUCTURE : It has been removed.
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : See boring logs.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	See note 1.	VELOCITY =	See note 1.
Q10 =	1015.7'	"	"
Q25 =	"	"	"
Q50 =	1017.6'	"	"
Q100 =	1018.5'	"	"

LONG TERM STREAMBED CHANGES : There is scour through the bridge area.
 The stream is laterally unstable with areas of stream bank erosion.

IS THE ROADWAY OVERTOPPED BELOW Q100 : No
 FREQUENCY : Above Q100
 RELIEF ELEVATION : 1021.7'
 DISCHARGE OVER ROAD @Q100 : None

UPSTREAM STRUCTURE

TOWN : N.A. - The stream divides DISTANCE :
 HIGHWAY # : STRUCTURE # :
 CLEAR SPAN : CLEAR HEIGHT :
 YEAR BUILT : FULL WATERWAY :
 STRUCTURE TYPE :

DOWNSTREAM STRUCTURE

TOWN : N.A. - Confluence with Connecticut River DISTANCE : 4,000'
 HIGHWAY # : STRUCTURE # :
 CLEAR SPAN : CLEAR HEIGHT :
 YEAR BUILT : FULL WATERWAY :
 STRUCTURE TYPE :

SERVICE II LOAD RATING

RATING FACTORS	LOAD FACTOR ANALYSIS					
	HL-93	3S2	6 AXLE	3 AXLE	4 AXLE	5 AXLE
INVENTORY	1.14	2.07	1.34	1.92	1.71	1.8
OPERATING	1.48	2.69	1.75	2.50	2.23	2.34

COMMENTS: LOAD RATED AS A BARE DECK.

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2005	610	220	51	6	40
2025	790	240	51	10	80

20 year ESAL for flexible pavement from 2005 to 2025 : 320,000
 40 year ESAL for flexible pavement from 2005 to 2045 : 787,000
 Design Speed : 50 mph

PROPOSED STRUCTURE

STRUCTURE TYPE : Single span steel beam bridge.
 CLEAR SPAN(NORMAL TO STREAM) : 80'
 VERTICAL CLEARANCE ABOVE STREAMBED : 11' maximum
 WATERWAY OF FULL OPENING : 660 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1014.7'	VELOCITY =	2.7 fps
Q10 =	1015.5'	"	3.6 fps
Q25 =	1016.0'	"	4.0 fps
Q50 =	1016.5'	"	4.4 fps
Q100 =	1017.0'	"	4.7 fps

IS THE ROADWAY OVERTOPPED BELOW Q100 : No
 FREQUENCY : Above Q100
 RELIEF ELEVATION : 1022.8'
 DISCHARGE OVER ROAD @Q100 : None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE : 1018.3
 VERTICAL CLEARANCE : @ Q100 1.3'

SCOUR : Estimate 4' of contraction scour up to Q500, based on the fact that the scour hole under the bridge has been at least 4' deeper than when the project was surveyed.
 REQUIRED CHANNEL PROTECTION : Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW : 30 cfs DEPTH OR ELEVATION :
 ORDINARY LOW WATER : 15 cfs Elevation 1011'
 ORDINARY HIGH WATER : 150 cfs Elevation 1013'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE : Temporary bridge already in use. It will be moved to a new alignment.
 CLEAR SPAN (NORMAL TO STREAM) : 80'
 VERTICAL CLEARANCE ABOVE STREAMBED : Minimum low beam elev. 1017.0'
 WATERWAY AREA OF FULL OPENING : Approximately 500 sq. ft.

ADDITIONAL INFORMATION

Note 1 - There is not enough information available for the previous arch and pre-flood conditions to do an accurate hydraulic analysis of that structure. Information shown for the existing bridge is from records and the 1980 Flood Insurance Study. The new bridge has a larger span, so it will result in lower upstream water surface elevations and lower velocities than the previous arch.

DESIGN CRITERIA

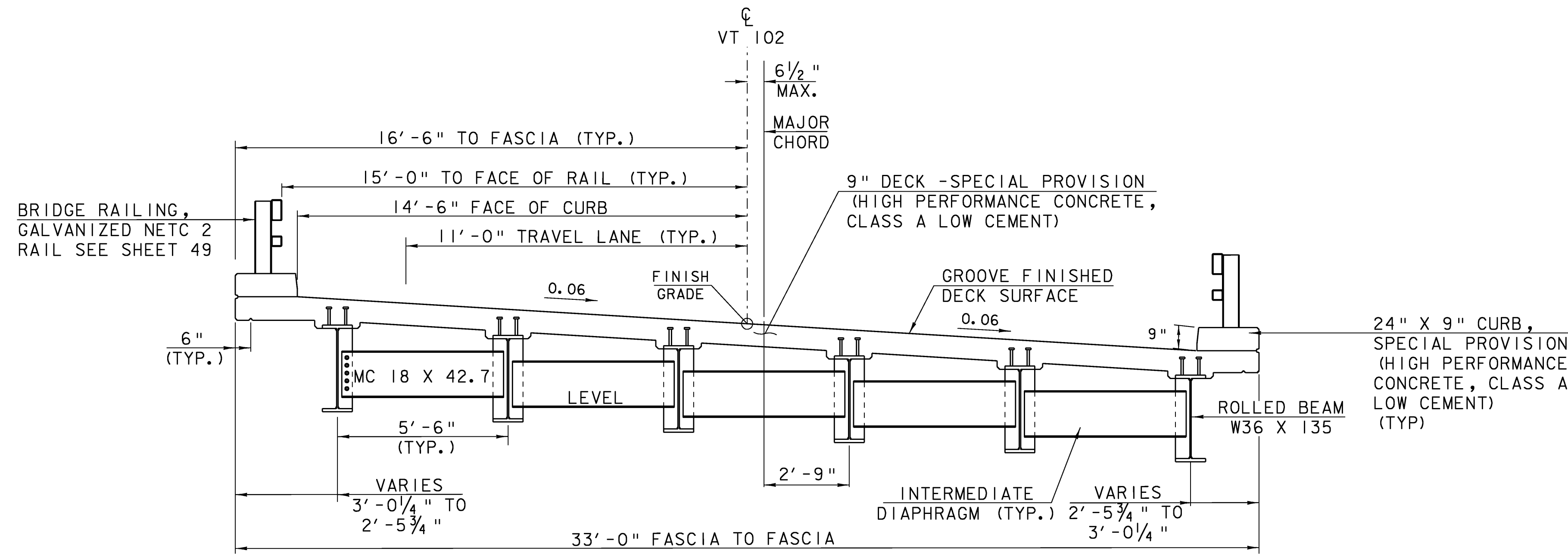
- DESIGN LIVE LOAD AASHTO : HL-93
- DESIGN SPAN : 82 Feet centerline to centerline of bearing
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL : 2.5 ksf
ON LEDGE : not applicable
- ALLOWABLE LOAD FOR PILING : not applicable
TYPE :
ESTIMATED LENGTH :
- STRUCTURAL STEEL AASHTO GRADE : 50 (painted)
- REINFORCING STEEL GRADE : 60
- SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE)
CLASS A LOW CEMENT) f'c : 4000 psi
CONCRETE CLASS B (HPC-B) f'c : 3500 psi
- SOIL UNIT WEIGHT : 140 pcf Dry Unit wt.
- DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL : 2.5 ksf

TRAFFIC MAINTENANCE

- IS TRAFFIC TO BE MAINTAINED? : yes
IF YES, ON EXISTING STRUCTURE? : not applicable
OR ON TEMPORARY BRIDGE? : yes
ONE OR TWO-WAY TRAVEL? : two-way
- TRAFFIC CONTROL SIGNALS REQUIRED? : no
- ARE SIDEWALKS REQUIRED? : no
IF SO, ON WHAT SIDE? : not applicable

PROJECT NAME : CANAAN
 PROJECT NUMBER : ER ST 0271(16)

FILE NAME : I04c098x04c098excel.xls PLOT DATE : 7/22/2008
 PROJECT MANAGER : Evans-Mongeon DRAWN BY : L. DUQUETTE
 DESIGNED BY : S. SCRIBNER CHECKED BY : S. SCRIBNER
 PRELIMINARY INFORMATION SHEET SHEET 2 OF 66



BRIDGE TYPICAL

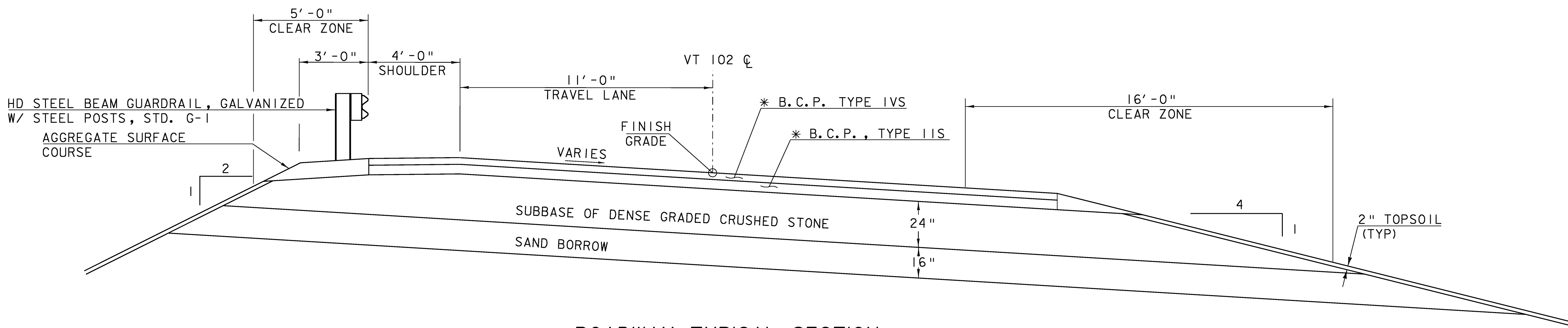
SCALE $\frac{3}{8}'' = 1'-0''$
 1 0 1 2 3 4

**SEEDING FORMULA
 RURAL AREAS**

% WT.	LBS./A.	NAME	PUR %	GERM %
37.5	22.5	CREeping RED FESCUE	98	85
37.5	22.5	TALL FESCUE	95	90
5.0	3.0	RED TOP	95	90
15.0	9.0	BIRDSFOOT TREFOIL	98	85
5.0	3.0	ANNUAL RYEGRASS	95	85
100.0	60.0			

GENERAL NOTES

- SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
- SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.
- FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).
- AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.
- HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.
- TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- EMULSIFIED FOR TACK COAT 0.025 GAL/SY



ROADWAY TYPICAL SECTION

SCALE $\frac{3}{8}'' = 1'-0''$
 1 0 1 2 3 4

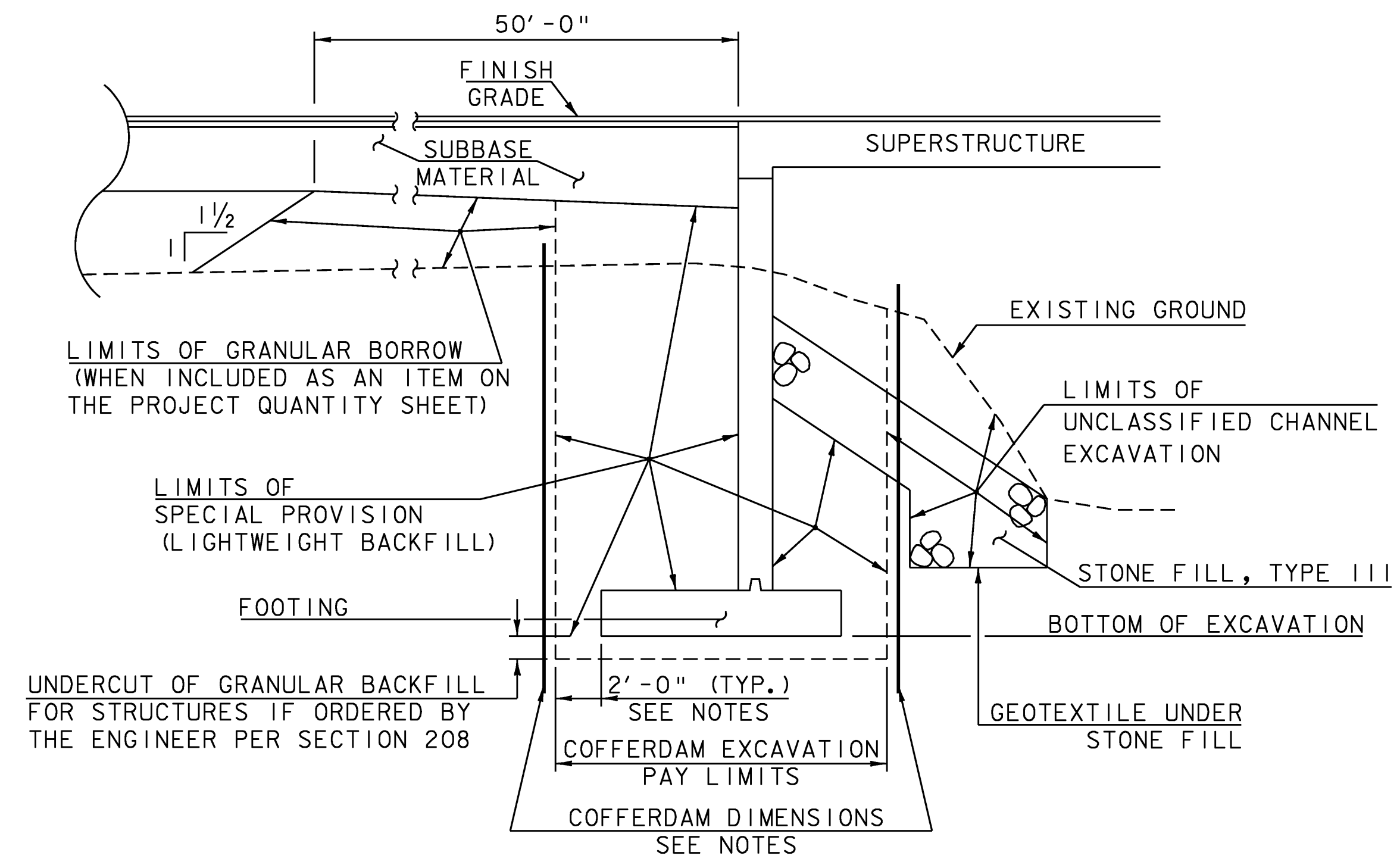
- * 2- 1 1/2" LIFTS OF TYPE IVS OVER
- 2- 2 1/2" LIFTS OF TYPE IIS

MATERIAL ITEM	TOLERANCE
PAVEMENT	± 1/4" TOTAL THICKNESS
AGGREGATE SURFACE COURSE	± 1/2"
BASE COURSE	± 1/2"
SUBBASE	± 1"
SAND BORROW	± 1"
GRANULAR BORROW	± 1"

DETAIL OF GUARD RAIL ON HIGH SIDE OF BANKED SECTION

TYPICAL SECTIONS SHEET (1)

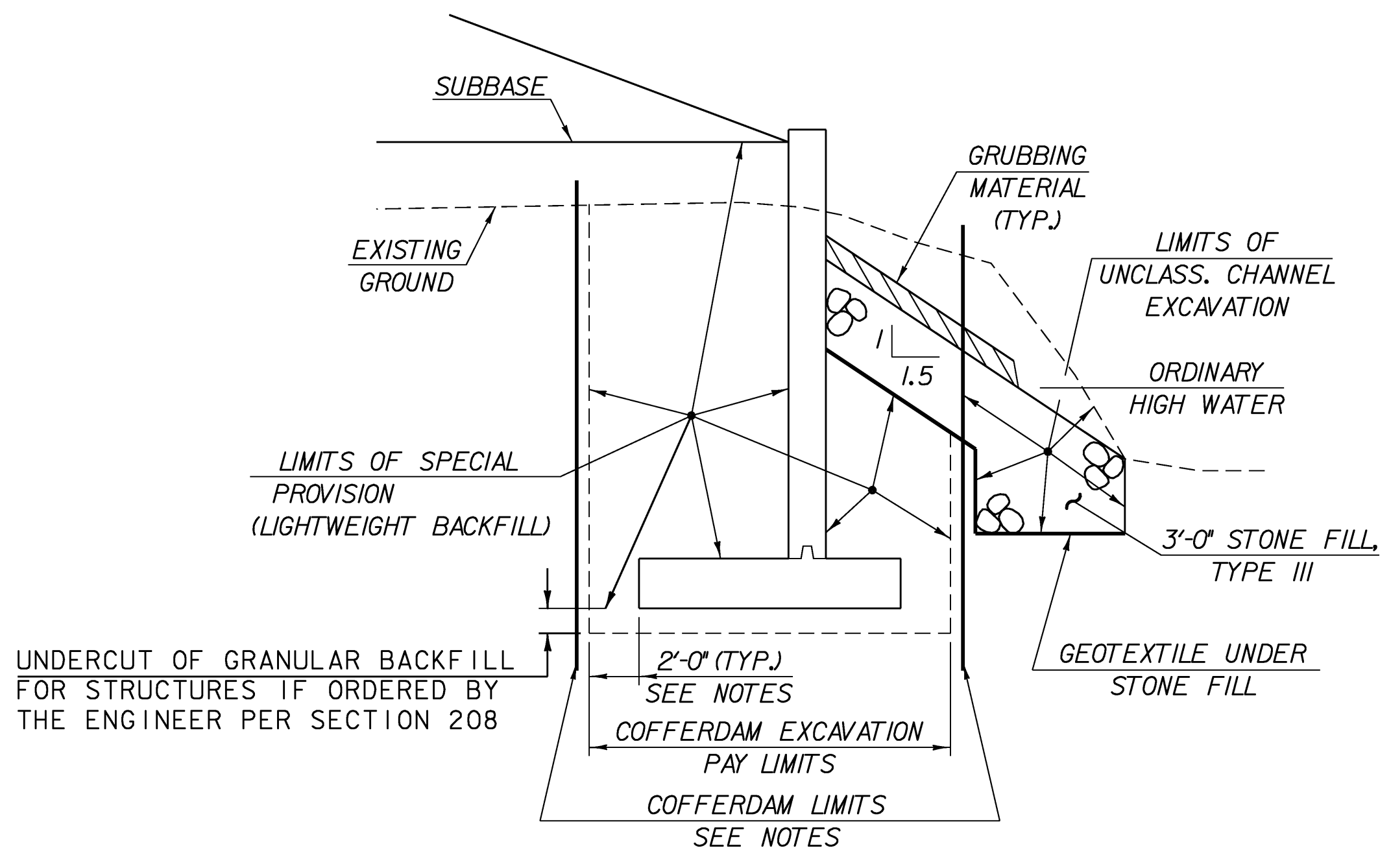
PROJECT NAME: Canaan	PLOT DATE: 18-AUG-2008
PROJECT NUMBER: ER ST 0271(16)	DRAWN BY: T. Husk
FILE NAME: Structures\X04c098typ.dgn	CHECKED BY: S. SCRIBNER
DESIGNED BY: S. Scribner	SHEET 3 OF 66



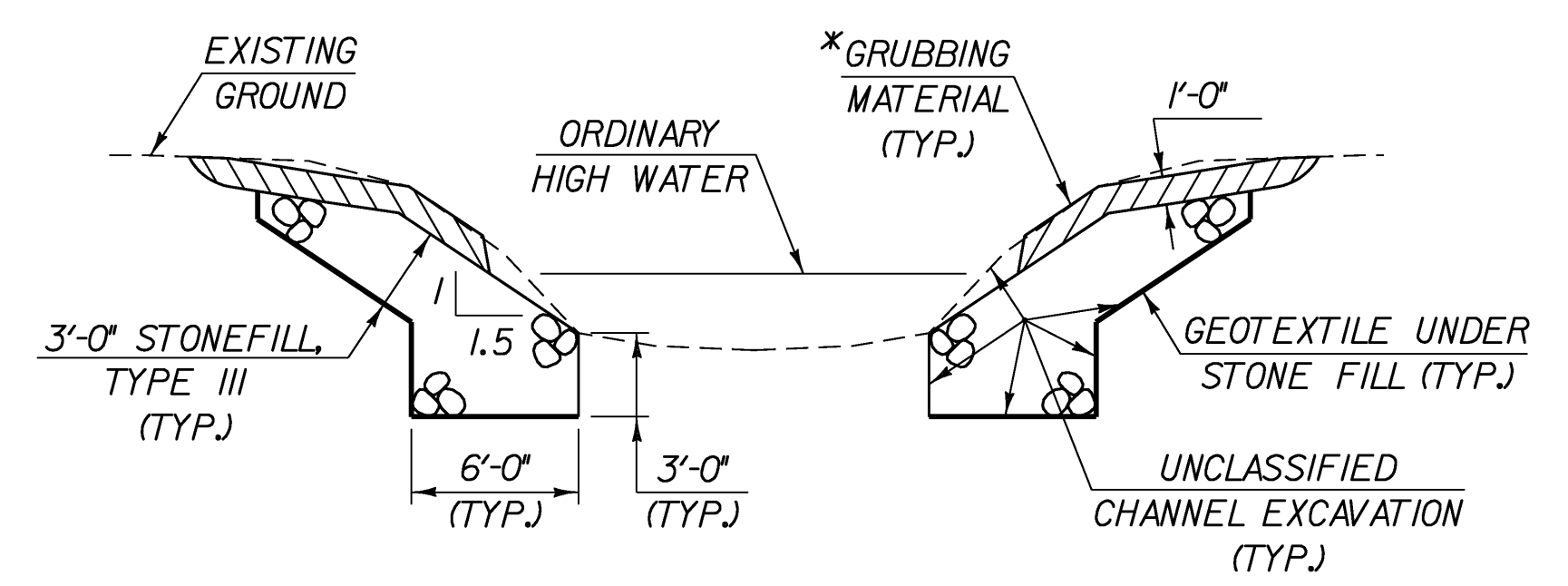
COFFERDAM AND EARTHWORK SECTION
(NOT TO SCALE)

COFFERDAM NOTES

1. COFFERDAM DIMENSIONS TO BE DETERMINED BY THE CONTRACTOR.
2. THE PAY LIMITS OF "COFFERDAM EXCAVATION, EARTH" SHALL BE 2'-0" OUTSIDE THE PERIMETER OF THE FOOTING AND FROM BOTTOM OF EXCAVATION UP TO THE EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.
3. IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE INDICATED COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION. NO MEASUREMENT AND PAYMENT WILL BE MADE FOR COFFERDAM EXCAVATION, GRANULAR BACKFILL FOR STRUCTURES, AND SPECIAL PROVISION LIGHTWEIGHT BACKFILL OUTSIDE THE PAY LIMITS DEFINED IN NOTE 2.



TYPICAL WINGWALL SECTION
(NOT TO SCALE)



TYPICAL CHANNEL SECTION
(NOT TO SCALE)

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

TYPICAL SECTIONS SHEET (2)

PROJECT NAME:	Canaan
PROJECT NUMBER:	ER ST 0271(16)
FILE NAME:	Structures\04c098typ.dgn
PROJECT LEADER:	M. Evans-Mongeon
DESIGNED BY:	S. Scribner
CHECKED BY:	S. SCRIBNER
PLOT DATE:	18-AUG-2008
DRAWN BY:	T. Husk
CHECKED BY:	S. SCRIBNER
SHEET	4 OF 66

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
				Roadway	Erosion Control	Bridge	Full C&E	Alternate ZA	Alternate ZB	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
				1						1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				EARTH WORKS SUMMARY
				2320						2320		CY	COMMON EXCAVATION	203.15		410 CY		FILL REQUIRED
						930				930		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				FILL AVAILABLE
				950						950		CY	SAND BORROW	203.31		2320 CY		COMMON EXCAVATION: 2320 x 1.0
				50						50		CY	TRENCH EXCAVATION OF EARTH	204.20		558 CY		UNCLASSIFIED CHANNEL EXCAVATION: 930 x 0.6
						95				95		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		50 CY		TRENCH EXCAVATION EARTH: 50 x 1.0
						2500				2500		CY	COFFERDAM EXCAVATION, EARTH	208.30		625 CY		COFFERDAM EXCAVATION EARTH: 2500 x 0.25
						1				1		LS	COFFERDAM (STA. 60+93)	208.40		3553 CY		SUBTOTAL
						1				1		LS	COFFERDAM (STA. 61+75)	208.40		7 CY		ROUNDING
				560						560		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10		3560 CY		TOTAL
				1560						1560		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35		3560 CY		FILL AVAILABLE
				70						70		CY	AGGREGATE SURFACE COURSE	401.10		410 CY		FILL REQUIRED
				5						5		CWT	EMULSIFIED ASPHALT	404.65		3150 CY		WASTE
						390				390		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
						85070				85070		LB	STRUCTURAL STEEL, ROLLED BEAM	506.50				
						53980				53980		LB	REINFORCING STEEL	507.15				
						27573				27573		LB	EPOXY COATED REINFORCING STEEL	507.17				
						1				1		LS	SHEAR CONNECTORS (996 - 7/8" X 7")	508.15				
						1				1		LS	STRUCTURAL PAINTING, SHOP APPLIED (39.1 TONS)	513.25				
						1				1		LS	SURFACE PREPARATION, SHOP (39.1 TONS)	513.40				
						30				30		GAL	WATER REPELLENT, SILANE	514.10				
						30				30		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
						90				90		LF	JOINT SEALER, HOT Poured	524.11				
						204				204		LF	BRIDGE RAILING, GALVANIZED NETC 2 RAIL	525.33				
													BEGIN ALTERNATE ZA					
								1		1		LS	MAINTENANCE OF STRUCTURES AND APPROACHES	527.10				
								1		1		LS	TWO-WAY TEMPORARY BRIDGE (2080 SF - EST)	528.11				
								1		1		EACH	REMOVAL OF STRUCTURE (200 SF - EST)	529.15				
								1		1		LS	TRAFFIC CONTROL	641.10				
													END ALTERNATE ZA					
													BEGIN ALTERNATE ZB					
									1	1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20				
									1	1		LS	TRAFFIC CONTROL	641.10				
									1	1		LS	SPECIAL PROVISION (RELOCATE AND REMOVE EXISTING TEMPORARY BRIDGE)	900.645				
													END ALTERNATE ZB					
						12				12		EACH	BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD	531.11				
				1						1		MGAL	DUST CONTROL WITH WATER	609.10				
						703				703		CY	STONE FILL, TYPE III	613.12				
				615						615		LF	REMOVAL OF EXISTING FENCE	620.55				
				390						390		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21				

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES											TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
				Roadway	Erosion Control	Bridge	Full C&E	Alternate ZA	Alternate ZB		GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
				4							4		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60				
				4							4		EACH	GUARDRAIL APPROACH SECTION, GALVANIZED NETC 2 RAIL	621.72				
				400							400		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
				40							40		LF	TEMPORARY TRAFFIC BARRIER	621.90				
				150							150		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				
				1							1		LS	MOBILIZATION/DEMobilIZATION	635.11				
				1540							1540		LF	4 INCH WHITE LINE	646.20				
				1540							1540		LF	4 INCH YELLOW LINE	646.21				
						840					840		SY	GEOTEXTILE UNDER STONE FILL	649.31				
					245						245		SY	GEOTEXTILE FOR SILT FENCE	649.51				
					120						120		SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515				
					130						130		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61				
					50						50		LB	SEED	651.15				
					200						200		LB	FERTILIZER	651.18				
					2						2		TON	AGRICULTURAL LIMESTONE	651.20				
					3						3		TON	HAYMULCH	651.25				
				105							105		CY	TOPSOIL	651.35				
						400					400		SY	GRUBBING MATERIAL	651.40				
					1						1		LS	EPSC PLAN	652.10				
					150						150		HR	MONITORING EPSC PLAN	652.20				
					1						1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
					1000						1000		SY	TEMPORARY EROSION MATTING	653.20				
					16						16		CY	VEHICLE TRACKING PAD	653.35				
					748						748		LF	BARRIER FENCE	653.50				
					752						752		LF	PROJECT DEMARCATIOn FENCE	653.55				
				1							1		SF	TRAFFIC SIGNS, TYPE A	675.20				
				16							16		LF	FLANGED CHANNEL SIGN POST	675.301				
				4							4		EACH	DELINEATOR WITH STEEL POST	676.10				
						150					150		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT) (FPQ)	900.608				
						1360					1360		CY	SPECIAL PROVISION (LIGHTWEIGHT BACKFILL)	900.608				
				1							1		LS	SPECIAL PROVISION (DRYHYDRANT)	900.645				
				1							1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
				1							1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
						420					420		SY	SPECIAL PROVISION (LONGITUDINAL DECK GROOVING)	900.675				
				840							840		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES										TOTALS		DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES				
								ABUT 1	ABUT 2	SUPER-STRUCTURE	BRIDGE TOTAL		UNIT	ITEMS	ITEM NUMBER		QUANTITIES	UNIT	ITEMS
								275	655		930		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				
								45	50		95		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
								1282	1218		2500		CY	COFFERDAM EXCAVATION, EARTH	208.30				
								1			1		LS	COFFERDAM (STA. 60+93)	208.40				
									1		1		LS	COFFERDAM (STA. 61+75)	208.40				
								202	188		390		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
										85070	85070		LB	STRUCTURAL STEEL, ROLLED BEAM	506.50				
								27916	26064		53980		LB	REINFORCING STEEL	507.15				
								2223	2218	23132	27573		LB	EPOXY COATED REINFORCNG STEEL	507.17				
										1	1		LS	SHEAR CONNECTORS (996 - 7/8" X 7")	508.15				
										1	1		LS	STRUCTURAL PAINTING, SHOP APPLIED (39.1 TONS)	513.25				
										1	1		LS	SURFACE PREPARATION, SHOP (39.1 TONS)	513.40				
								12	12	6	30		GAL	WATER REPELLENT, SILANE	514.10				
									30		30		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
								30	30	30	90		LF	JOINT SEALER, HOT POURED	524.11				
										204	204		LF	BRIDGE RAILING, GALVANIZED NETC 2 RAIL	525.33				
								6	6		12		EACH	BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD	531.11				
								283	420		703		CY	STONE FILL, TYPE III	613.12				
								274	566		840		SY	GEOTEXTILE UNDER STONE FILL	649.31				
								130	270		400		SY	GRUBBING MATERIAL	651.40				
										150	150		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT) (FPQ)	900.608				
								680	680		1360		CY	SPECIAL PROVISION (LIGHTWEIGHT BACKFILL)	900.608				
										420	420		SY	SPECIAL PROVISION (LONGITUDNAL DECK GROOVING)	900.675				

RIGHT - OF - WAY DETAIL SHEET

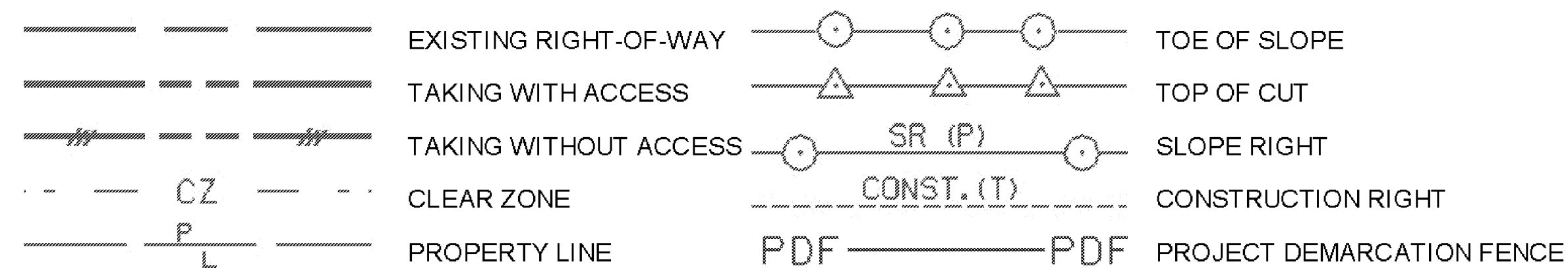
TABLE OF PROPERTY ACQUISITION

PARCEL NO.	PROPERTY OWNER	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKE	REMAINDER	RIGHT			RECORDING DATA					REMARKS
					AREA±	AREA±	TYPE	(T)(P)	AREA ±	TITLE	DATE	TOWN / CITY	BOOK	PAGE	
1A	RICHARDS, DENNIS B. & LISA G.	14,15	58+50.00 LT.	62+14.82 LT.	4,113 S.F.					WD	05/21/08	CANAAN	55	623	
1B		14,15	60+74.00 RT.	61+99.99 RT.	3493 S.F.										
1C		14,15	56+21.00 RT.	64+55.24 LT.	.95A			ALL R.T. & I.							VT. RTE. 102 HWY. EASEMENT 9932 S.F.±
			56+21 RT.	64+52 RT.				UE	(P)	23 A					
			56+21 RT.	64+50 RT.				UE	(T)						
			56+21 RT.	57+44 RT.				REMOVE	(T)						FENCE
			57+97 RT.					DRIVE	(T)						12' DRIVE GRAVEL MM 0109
			58+47 RT.	61+03 RT.				CONST.	(T)	2,294 S.F.					INCLUDES EROSION CONTROL & PDF
			58+11 RT.	60+98 RT.				REMOVE	(T)						FENCE
			58+61 RT.	60+98 RT.				REMOVE	(T)						FENCE
			58+87 RT.	63+89 RT.				DETOUR	(T)	46 A					19,837 S.F.±
			59+17 RT.	60+07 RT.				SLOPE	(T)	776 S.F.					
			61+58 RT.	64+20 RT.				CONST.	(T)	2,404 S.F.					INCLUDES EROSION CONTROL & PDF
			62+75 RT.	62+99 RT.				SLOPE	(P)	19 S.F.					
			62+99 RT.	63+72 RT.				SLOPE	(T)	1135 S.F.					
			64+10 RT.	64+50 RT.				REMOVE	(T)						FENCE
			57+58 LT.					DRIVE	(T)						19' DRIVE GRAVEL MM 0109
			58+11 LT.					DRIVE	(T)						12' DRIVE GRAVEL MM 0110
			58+17 LT.	61+07 LT.				CONST.	(T)	2,335 S.F.					INCLUDES EROSION CONTROL & PDF
			58+82 LT.	59+92 LT.				REMOVE	(T)						FENCE
			58+87 LT.	60+04 LT.				REMOVE	(T)						FENCE
			58+90 LT.	60+49 LT.				SLOPE	(P)	2,686 S.F.					
			61+56 LT.	64+38 LT.				CONST.	(T)	2,556 S.F.					INCLUDES EROSION CONTROL & PDF
			62+00 LT.	63+69 LT.				SLOPE	(P)	1,233 S.F.					
			62+03 LT.	62+23 LT.				REMOVE	(T)						FENCE
			63+04 LT.	63+30 LT.				REMOVE	(T)						FENCE
			63+98 RT.					DRIVE	(T)						14' DRIVE FIELD MM 0120
			64+33 LT.					DRIVE	(T)						12' DRIVE FIELD MM 0120
2	SARACO, MICHAEL D. III MAGUIRE, KEVIN C.	15	64+50 RT.	64+89 RT.				INSTALL	(T)	106 S.F.		CANAAN			PDF
			64+50 RT.	65+12 RT.				UE	(T)						
			64+51 RT.	65+30.83 RT.				UE	(P)	918 S.F.					
			64+50.61 RT.	65+30.83 RT.	3857 S.F.			ALL R.T. & I.							VT. RTE. 102 HWY EASEMENT
3	WHITE MOUNTAIN CABLEVISION														UTILITY
4	VERMONT ELECTRIC COOPERATIVE INC.														UTILITY
5	VERIZON NEW ENGLAND INC.														UTILITY

TABLE OF REVISIONS

REVISION NO.	SHEET NO.	DESCRIPTION	DATE
1	13,14 15	PARCEL NO. 1 RICHARDS. CHANGE THE EIGHT RIGHTS FROM REMOVE & RESET FENCE TO REMOVE FENCE. CHANGE BEGINNING STATION OF DRIVE (T) FROM 63+98 LT. TO STA. 63+98 RT. PER C.O. 9502 MADE BY: MR APPROVED BY: HP	11/30/07
2	13	PARCEL NO. 1 RICHARDS. CHANGE THE ENDING STATION FOR REMOVE (T) FENCE FROM 57+24 TO 57+44. PER C.O. 9508 MADE BY: JAB APPROVED BY: HP	01/10/08
3	13	PARCEL NO. 1C RICHARDS. CHANGE THE AREA FOR THE SLOPE (P) AT STA. 62+00 LT. ~ 63+69 LT. FROM 581 SF± TO 1,233 S.F.± PER C.O. 9509 MADE BY: MR APPROVED BY: HP	01/14/08
		PRE-FINAL PLANS NUMBERED FOR LEAD DIVISION	05/07/08

PLAN LEGEND



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

APPROVED: HARRY PETROVS DATE: 10-25-07
CHIEF, PLANS & TITLES

PLOT DATE 07/22/08

PROJECT NAME: CANAAN	PLOT DATE:
PROJECT NUMBER: ER ST 0271(16)	DRAWN BY: MR
FILE NAME: RC098DET.XLS	CHECKED BY: BF
PROJECT LEADER: EVANS-MONGEON	SHEET 8 OF 66
DESIGNED BY:	
R.O.W. DETAIL SHEET #1	

SPECIAL PROVISION (DRY HYDRANT)

STA. 61+34.00 - 62+04.92 LT

DELINEATOR WITH STEEL POST (TYPE 1)

STA. 59+84 LT (GREEN)
STA. 59+81 RT (BLUE)

REMOVAL AND DISPOSAL OF GUARDRAIL

STA. 60+43.09 - 60+84.28 RT
STA. 59+22.82 - 60+85.48 LT
STA. 61+50.29 - 63+37.35 RT
STA. 61+49.41 - 62+25.00 LT

HEAVY DUTY STEEL BEAM GUARDRAIL, GALVANIZED

STA. 59+69.40 - 60+58.90 LT
STA. 59+61.67 - 60+57.17 RT
STA. 62+09.73 - 62+25.00 LT
STA. 62+10.04 - 62+25.00 RT

ANCHORS FOR HEAVY DUTY STEEL BEAM GUARDRAIL

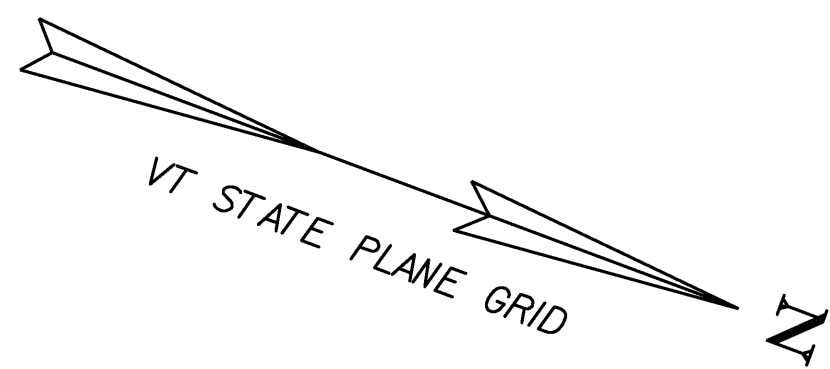
STA. 59+78.90 LT
STA. 59+75.00 RT

CONSTRUCT DRIVE

STA. 57+58 LT, 19' - GRAVEL
STA. 58+11 LT, 14' - GRAVEL
STA. 57+97 RT, 12' - GRAVEL

REMOVAL OF EXISTING FENCE

STA. 58+50 - STA. 61+00 RT
STA. 59+00 - STA. 60+00 LT
STA. 62+15 - STA. 62+20 LT



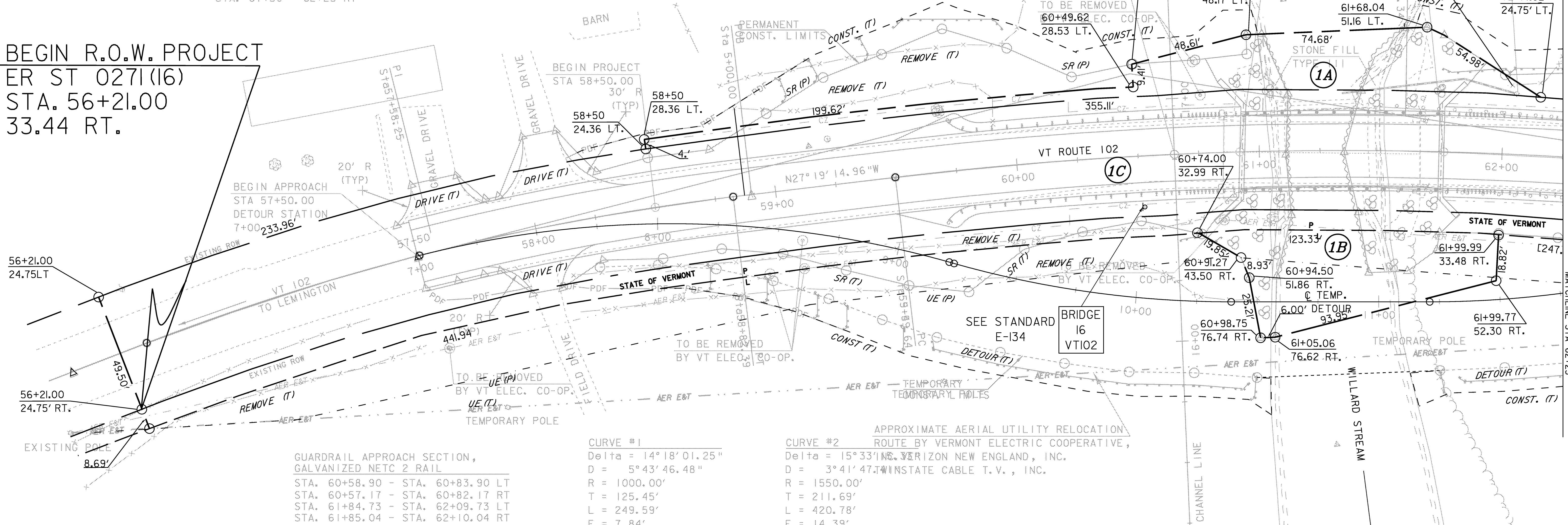
4" YELLOW LINE (DOUBLE)

STA. 57+50 - 62+25

4" WHITE LINE

STA. 57+50 - 62+25 LT
STA. 57+50 - 62+25 RT

BEGIN R.O.W. PROJECT
ER ST 0271(16)
STA. 56+21.00
33.44 RT.



56+21.00
24.75LT
56+21.00
24.75' RT.

BEGIN APPROACH
STA 57+50.00
DETOUR STATION
7+00

BEGIN PROJECT
STA 58+50.00

VT ROUTE 102

BRIDGE 16
VT102

WILLARD STREAM

GUARDRAIL APPROACH SECTION,
GALVANIZED NETC 2 RAIL
STA. 60+58.90 - STA. 60+83.90 LT
STA. 60+57.17 - STA. 60+82.17 RT
STA. 61+84.73 - STA. 62+09.73 LT
STA. 61+85.04 - STA. 62+10.04 RT

CURVE #1
Delta = 14°18'01.25"
D = 5°43'46.48"
R = 1000.00'
T = 125.45'
L = 249.59'
E = 7.84'

CURVE #2
Delta = 15°33'10.00"
D = 3°41'47.14"
R = 1550.00'
T = 211.69'
L = 420.78'
E = 14.39'

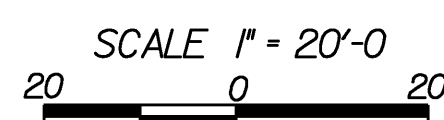
BRIDGE RAILING,
GALVANIZED NETC 2 RAIL
STA. 60+83.90 - STA. 61+84.73 LT
STA. 60+82.17 - STA. 61+85.04 RT

TRAFFIC SIGNS, TYPE A
STA. 60+50.00 21' RT
STA. 62+25.00 21' LT

RICHARDS, DENNIS B. & LISA G.

PREVIOUS BRIDGE DATA
SINGLE SPAN OPEN BOTTOM CONCRETE ARCH - DESTROYED IN 2004 FLOOD
CLEAR SPAN (NORMAL TO STREAM): 31 FEET MIN.
OVERALL LENGTH: 34.5 FEET BACK TO BACK OF ABUTMENTS
VERTICAL CLEARANCE: 7 FEET
BRIDGE WIDTH: +/- 34.5 FEET FACE OF RAIL TO FACE OF RAIL

CURRENT STRUCTURE
WIDTH: 24
LENGTH: 80



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

ROW LAYOUT SHEET #1

PROJECT NAME:	Canaan	FILE NAME:	04c098\struc\04c098bdr	PLOT DATE:	18-AUG-2008
PROJECT NUMBER:	ER ST 0271(16)	PROJECT LEADER:	M. Evans-Mongeon	DRAWN BY:	L. DUQUETTE
DESIGNED BY:	S. Scribner	DESIGNED BY:	S. Scribner	CHECKED BY:	S. SCRIBNER
ROW SHEET 14 OF 15		ROW SHEET 14 OF 15		CHECKED BY:	S. SCRIBNER
					SHEET 9 OF 66

4" YELLOW LINE (DOUBLE) STA. 62+25 - 65+15
 4" WHITE LINE STA. 62+25 - 65+15 LT
 STA. 62+25 - 65+15 RT

DELINEATOR WITH STEEL POST (TYPE 1)
 STA. 63+33.50 LT (BLUE)
 STA. 63+36.50 RT (GREEN)

HEAVY DUTY STEEL BEAM GUARDRAIL, GALVANIZED
 STA. 62+25.00 - 63+49.23 LT
 STA. 62+25.00 - 63+49.54 RT

ANCHORS FOR HEAVY DUTY STEEL BEAM GUARDRAIL
 STA. 63+39.00 LT
 STA. 63+43.00 RT

REMOVAL AND DISPOSAL OF GUARDRAIL
 STA. 62+25.00 - 63+37.35 RT
 STA. 62+25.00 - 63+32.51 LT

CONSTRUCT DRIVE
 STA. 64+33 LT, 12' - GRAVEL
 STA. 63+98 RT, 14' - GRAVEL

END R.O.W. PROJECT
 ER ST 0271(16)
 STA. 65+30.83
 24.32' RT.

SARACO, MICHAEL D. III
 & MAGUIRE, KEVIN C.

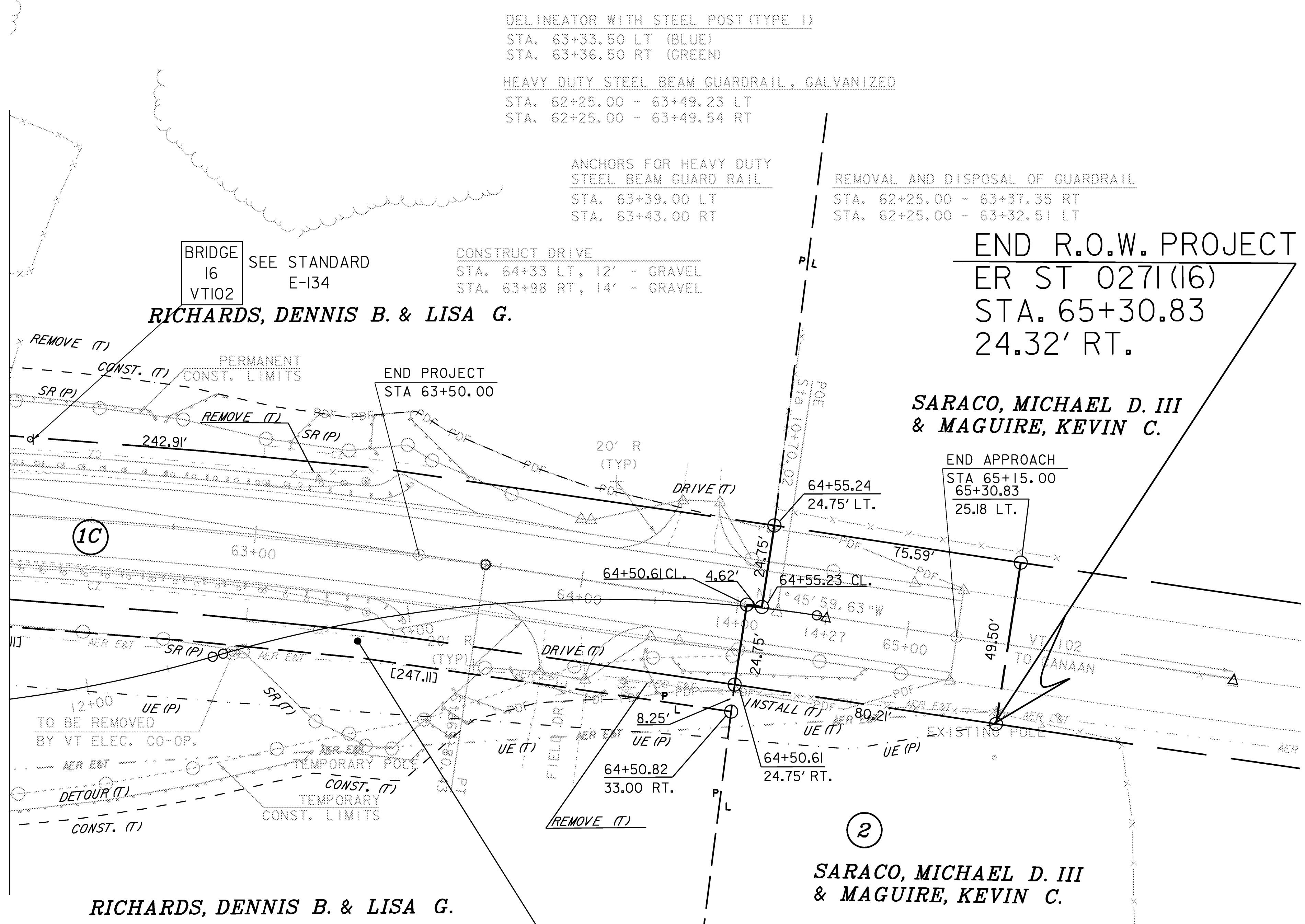
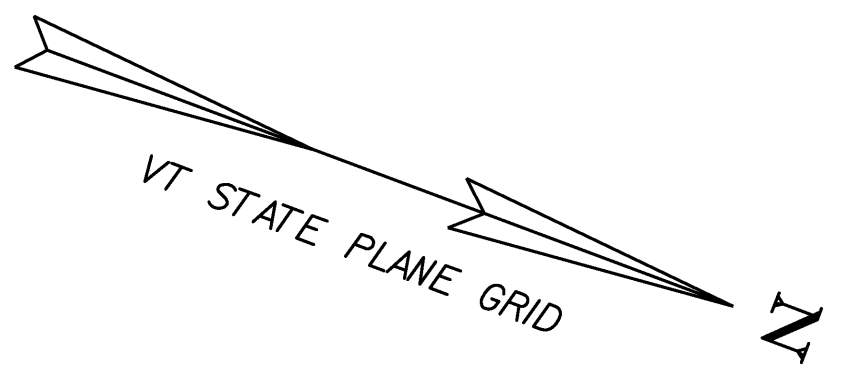
END APPROACH
 STA 65+15.00
 65+30.83
 25.18 LT.

2
 SARACO, MICHAEL D. III
 & MAGUIRE, KEVIN C.

RICHARDS, DENNIS B. & LISA G.

ADDITIONAL ROW ACQUIRED
 2/9/73 BK. X PG. 332
 CANAAN LAND RECORDS
 FROM ROLAND & EUNICE RICHARDS

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



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

ROW LAYOUT SHEET #2

PROJECT NAME: Canaan	PLOT DATE: 18-AUG-2008
PROJECT NUMBER: ER ST 0271(16)	DRAWN BY: L. DUQUETTE
FILE NAME: 04c098\struc\04c098bdr	CHECKED BY: S. SCRIBNER
PROJECT LEADER: M. Evans-Mongeon	DESIGNED BY: S. SCRIBNER
ROW SHEET 15 OF 15	SHEET 10 OF 66

GPS CONTROL POINTS

HVCTRL #1

DESIGNATION

"VT/NH BRM 78"

** N = 892289.6500
E = 1892838.4500
ELEV. = 1021.0900

GENERAL LOCATION, CANAAN, VT. OWNERSHIP, BILL JOHNSON, 3603 VT ROUTE 102, CANAAN, VT 05903. TO REACH FROM THE INTERSECTION OF VT ROUTES 114, 102, AND 253 GO SOUTHWEST ALONG VT ROUTE 102 FOR 4.3 MI TO THE INTERSECTION OF A FIELD DRIVE LEFT, JUST NORTH OF HOUSE NO 2566. PARK VEHICLE AND WALK EAST ALONG THE FIELD DRIVE FOR ABOUT 120 M TO THE SITE OF THE MARK AT THE SOUTH EDGE OF A LARGE FIELD. THE MARK IS A 12.5 CM DIAMETER UNITED STATES SUPREME COURT REFERENCE MARK DISK SET IN THE TOP OF A 30 CM SQUARE GRANITE MONUMENT WHICH PROJECTS 50 CM ABOVE GROUND SURFACE. IT IS 19.2 M WEST NORTHWEST OF A 30 CM ELM, 23.9 M EAST OF A 25 CM WHITE BIRCH, 7.4 M NORTH NORTHWEST OF THE TOP OF A SMALL BANK, 38.0 M SOUTHEAST OF A CLUMP OF FOUR 15 CM BIRCHES, AND 0.3 M NORTH OF A FIBERGLASS WITNESS POST.

HVCTRL #2

DESIGNATION

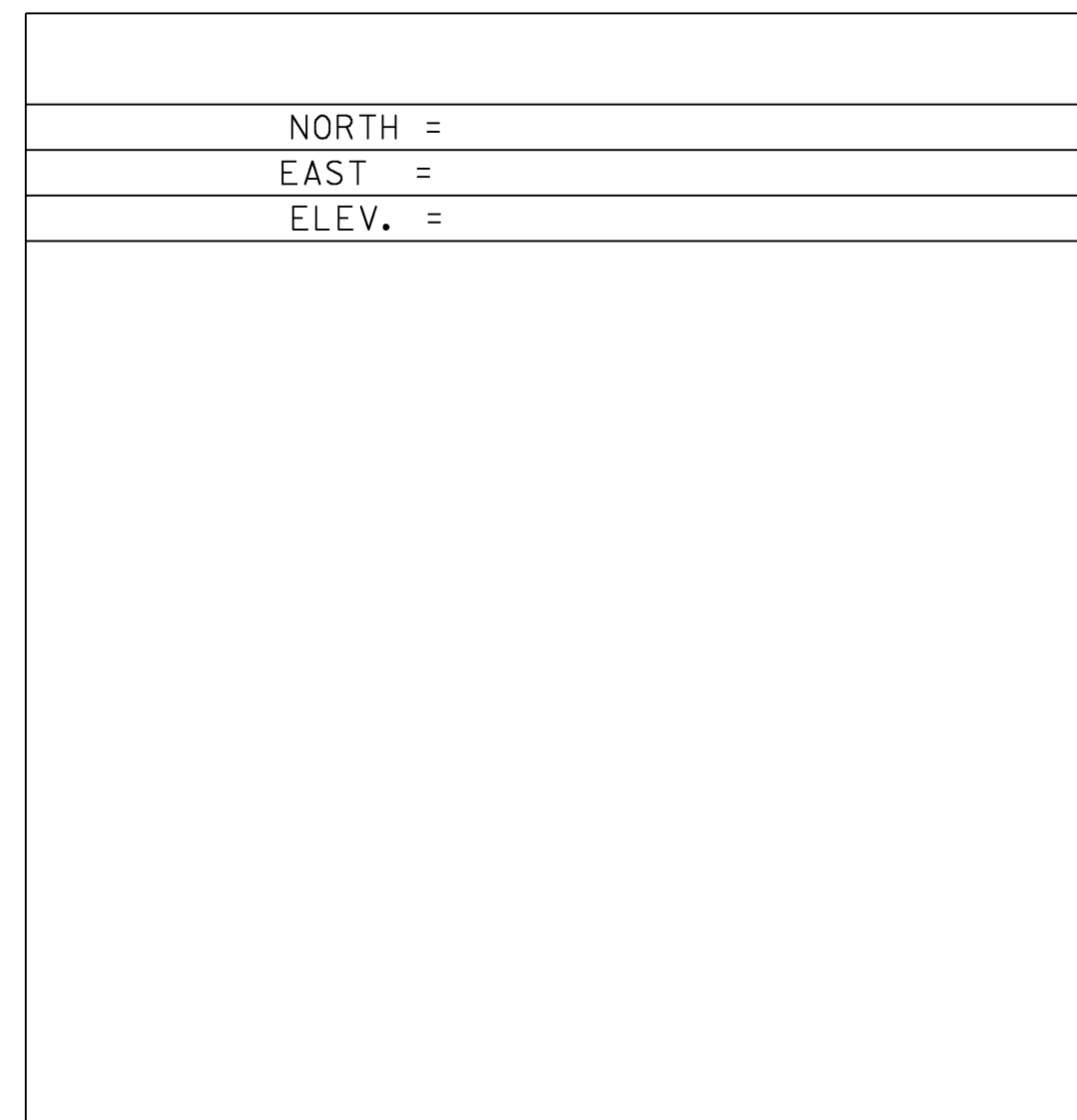
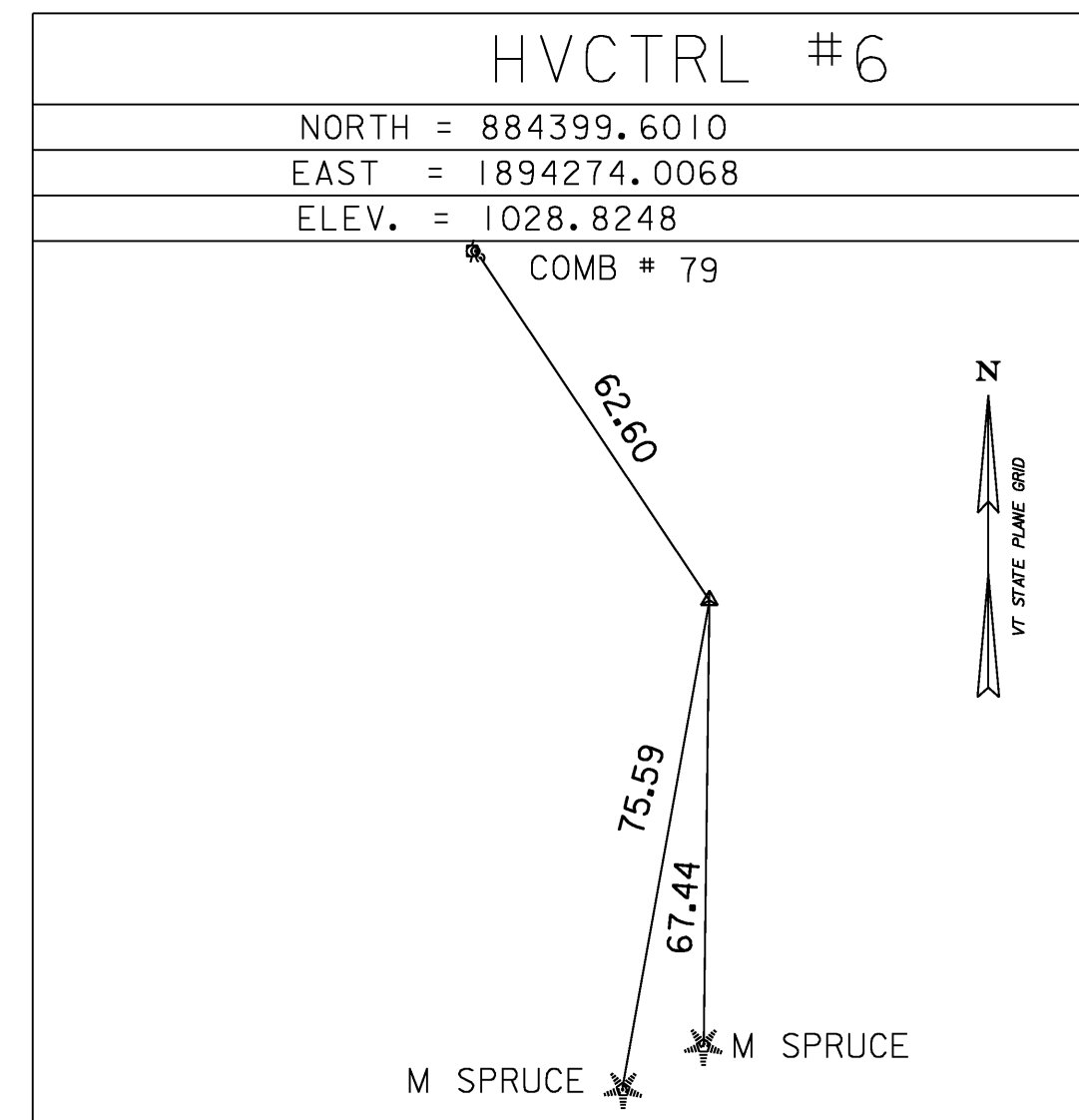
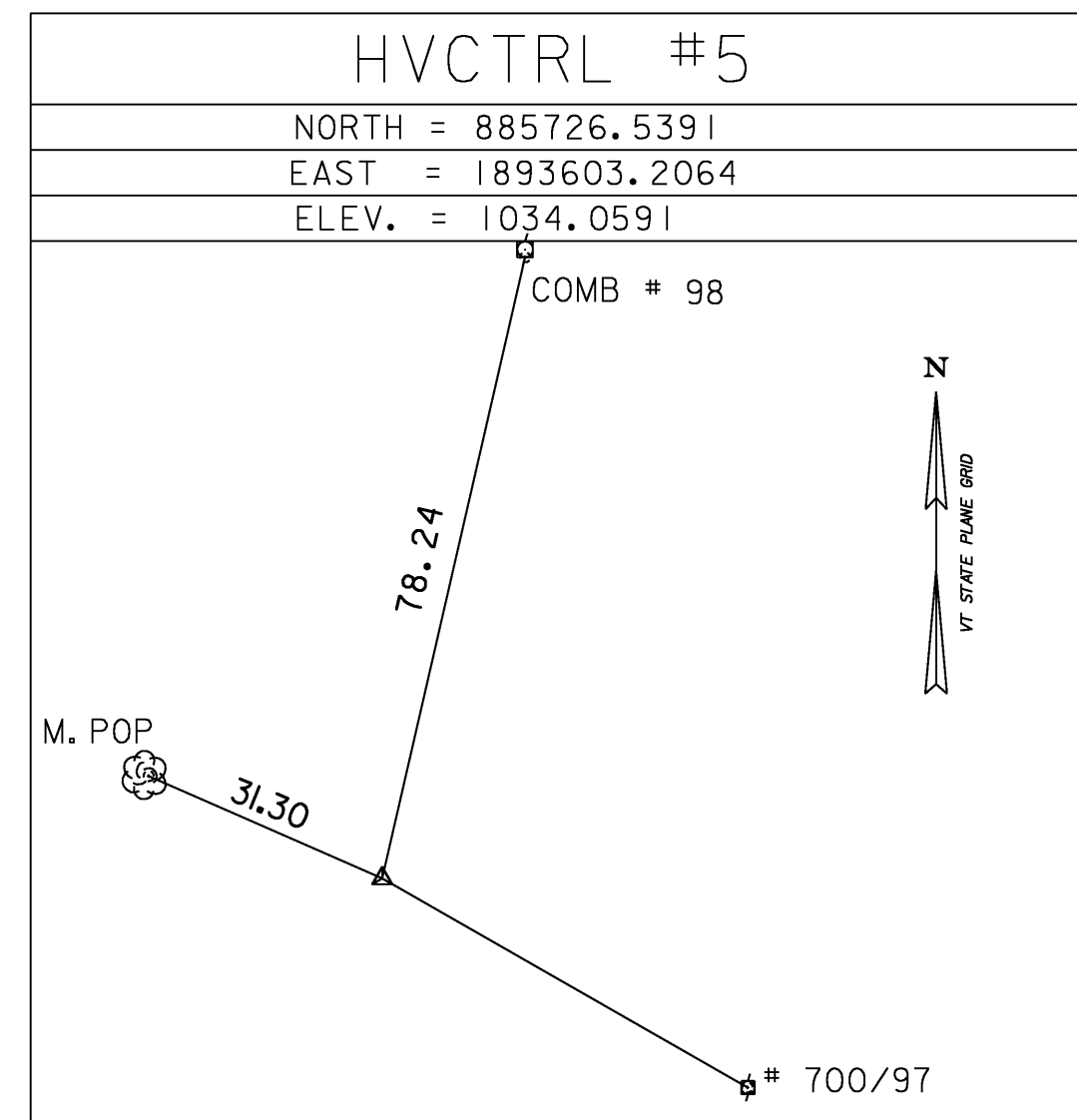
"VT/NH BRM 77"

** N = 890752.1900
E = 1893251.0900
ELEV. = 1022.7000

GENERAL LOCATION, CANAAN, VT. OWNERSHIP, BILL JOHNSON, 3603 VT ROUTE 102, CANAAN, VT 05903. TO REACH FROM THE INTERSECTION OF VT ROUTES 114, 102, AND 253 GO SOUTHWEST ALONG VT ROUTE 102 FOR 4.6 MI TO A LARGE WHITE FARM HOUSE ON THE RIGHT AND AN L-SHAPED BARN ON THE LEFT. PARK VEHICLE AND WALK EAST FOR ABOUT 150 M TO THE SITE OF THE MARK AT THE NORTH EDGE OF A LARGE FIELD. THE MARK IS A 12.5 CM DIAMETER UNITED STATES SUPREME COURT REFERENCE MARK DISK SET IN THE TOP OF A 30 CM SQUARE GRANITE MONUMENT WHICH PROJECTS 40 CM ABOVE GROUND SURFACE. IT IS ABOUT ON AN EAST BEARING WITH THE HOUSE. IT IS ABOUT 95 M EAST SOUTHEAST OF THE SOUTHEAST CORNER OF A FALLING DOWN BARN ELL, 18.0 M SOUTH OF THE NORTH EDGE OF A STEEP EMBANKMENT, AND 0.3 M SOUTHEAST OF A FIBERGLASS WITNESS POST.

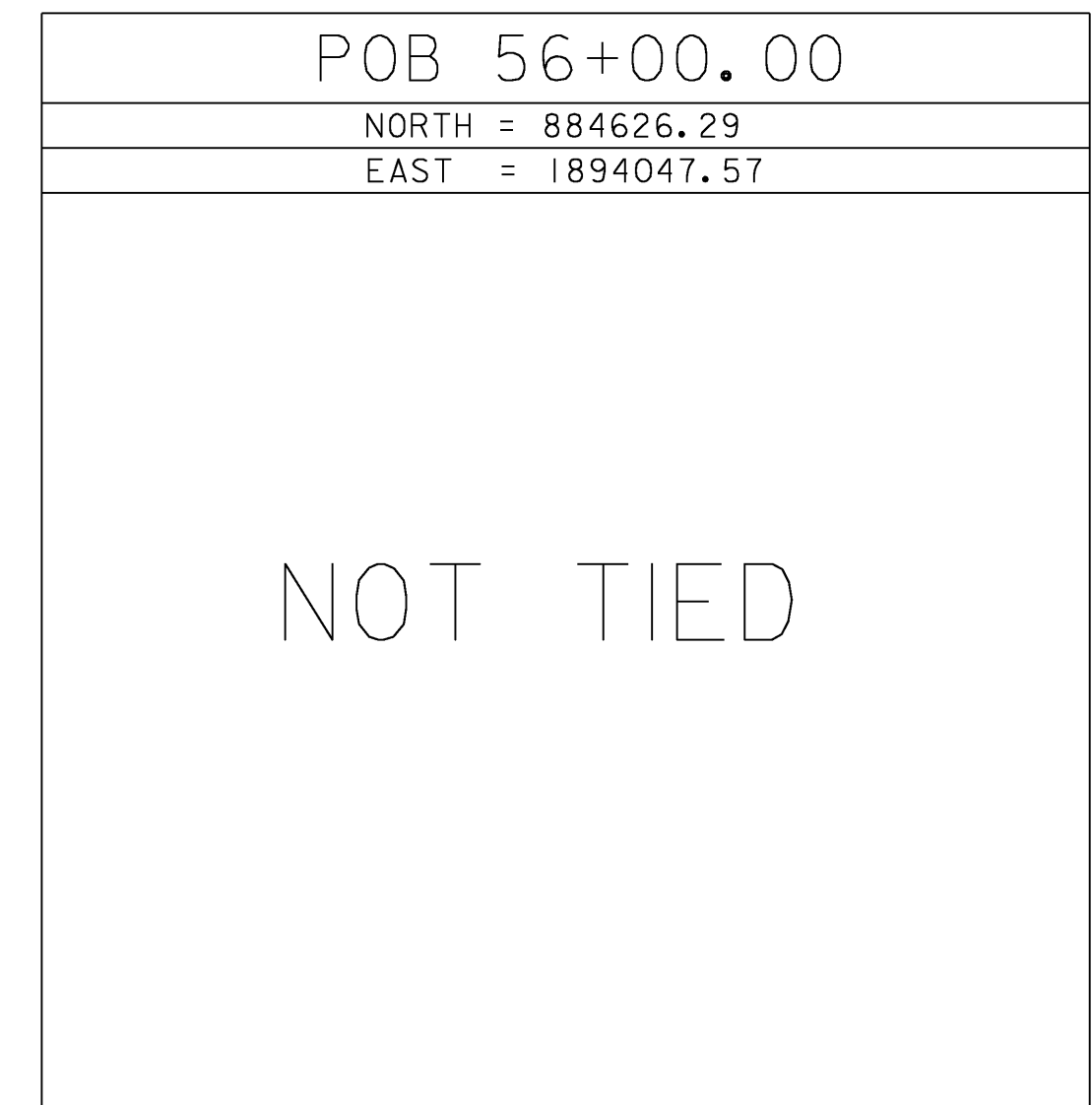
* DESCRIPTION PROVIDED BY VERMONT AGENCY OF TRANSPORTATION GEODETIC SURVEY UNIT

TRAVERSE TIES

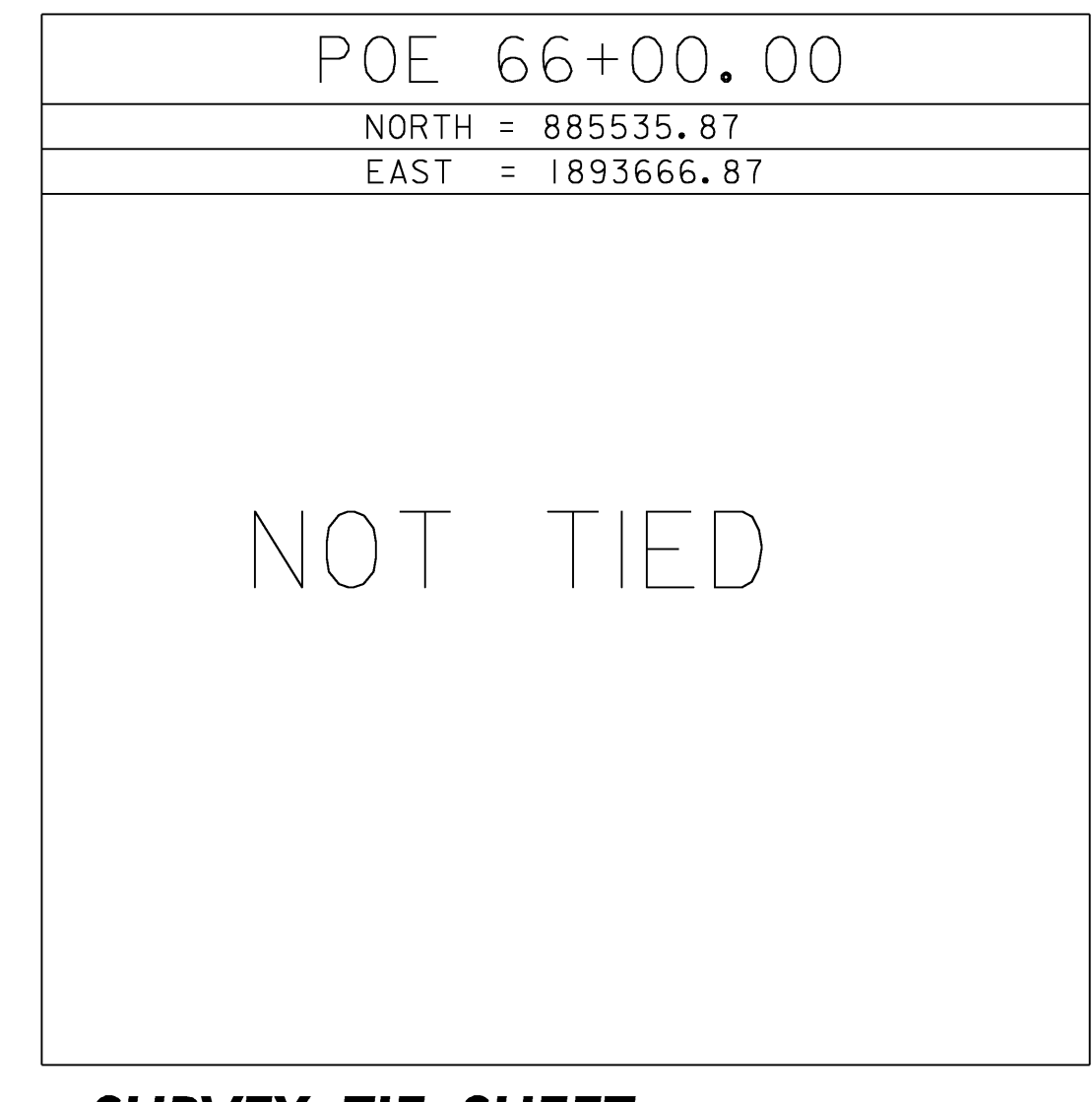
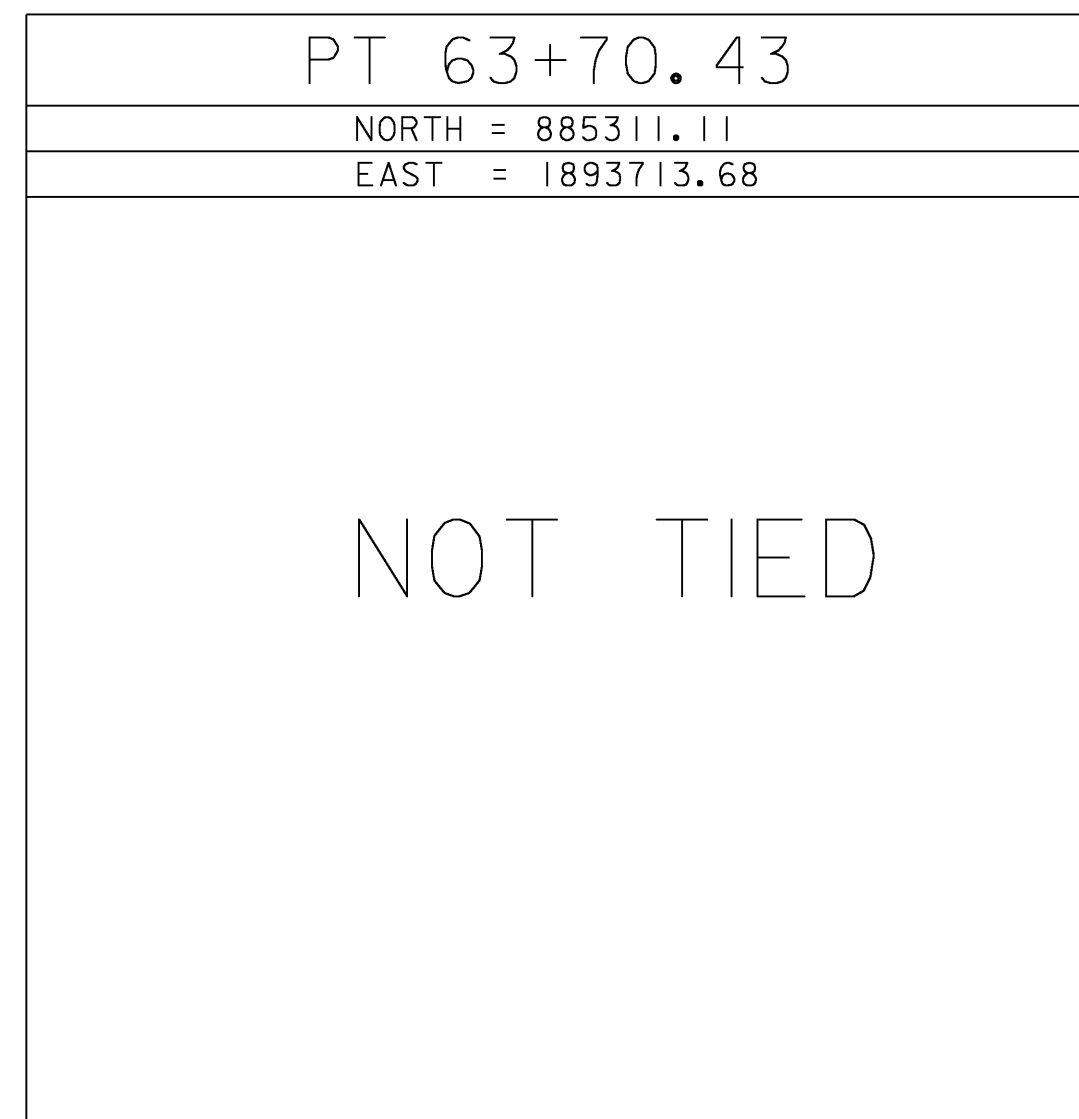
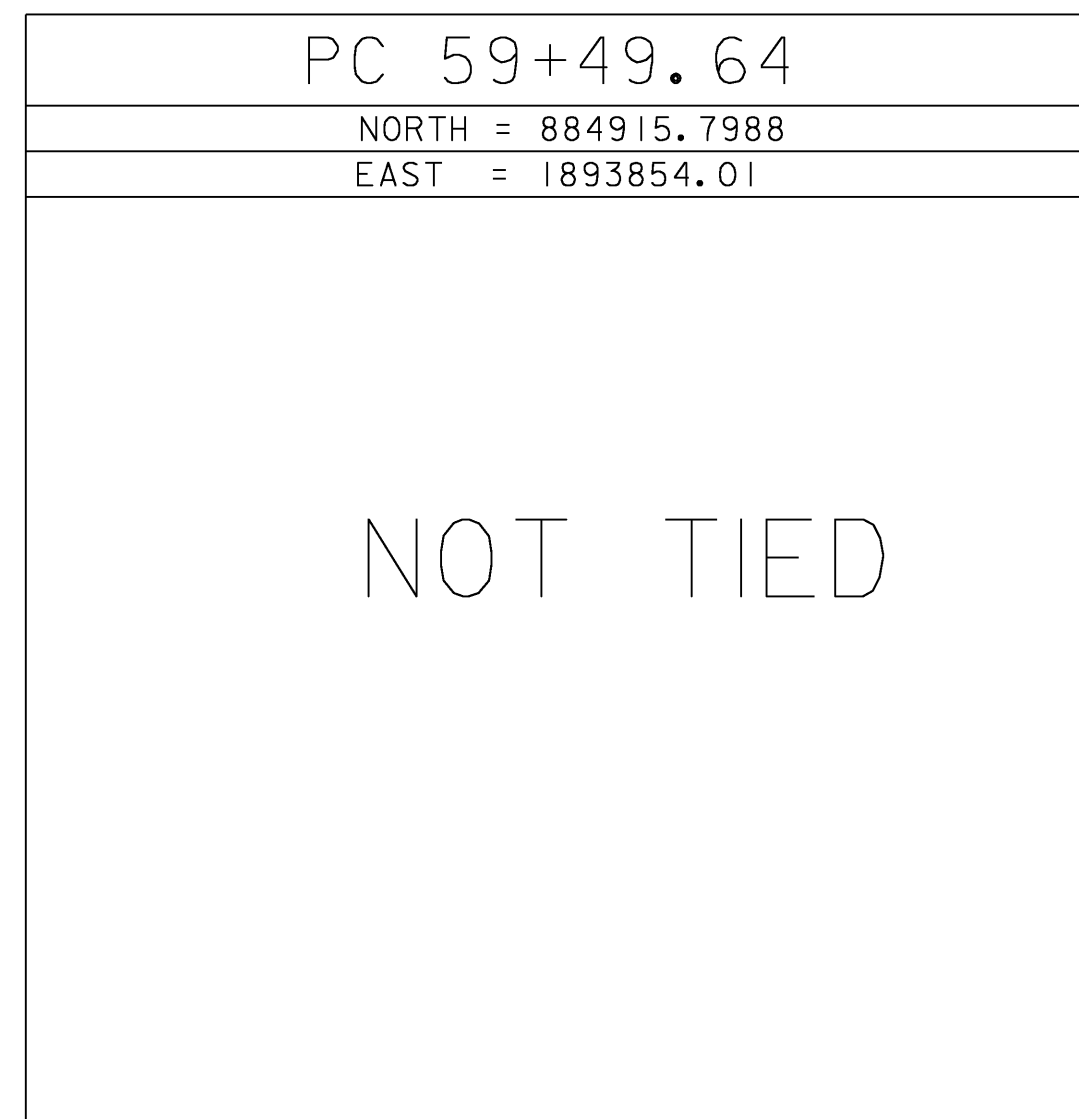
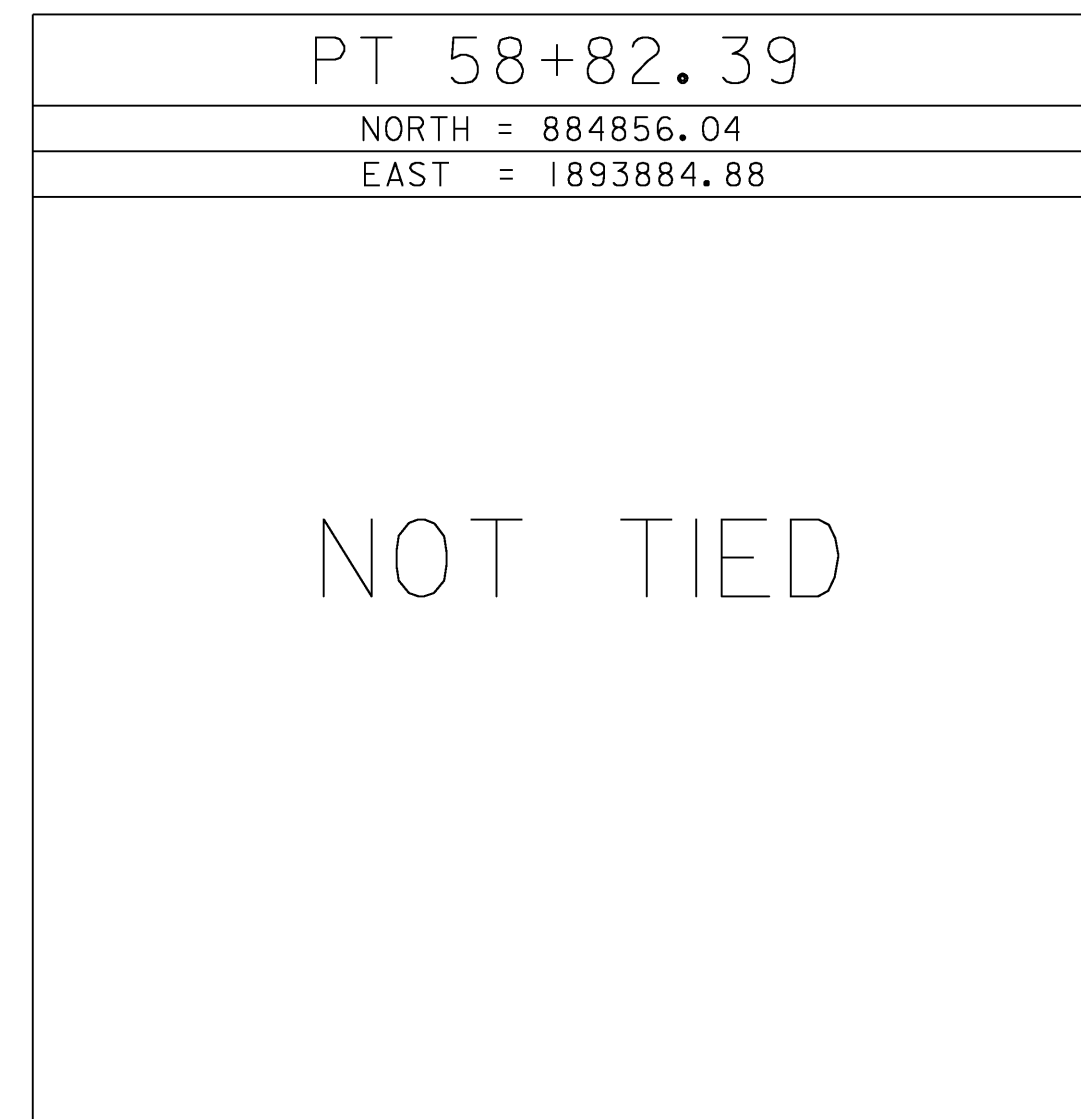
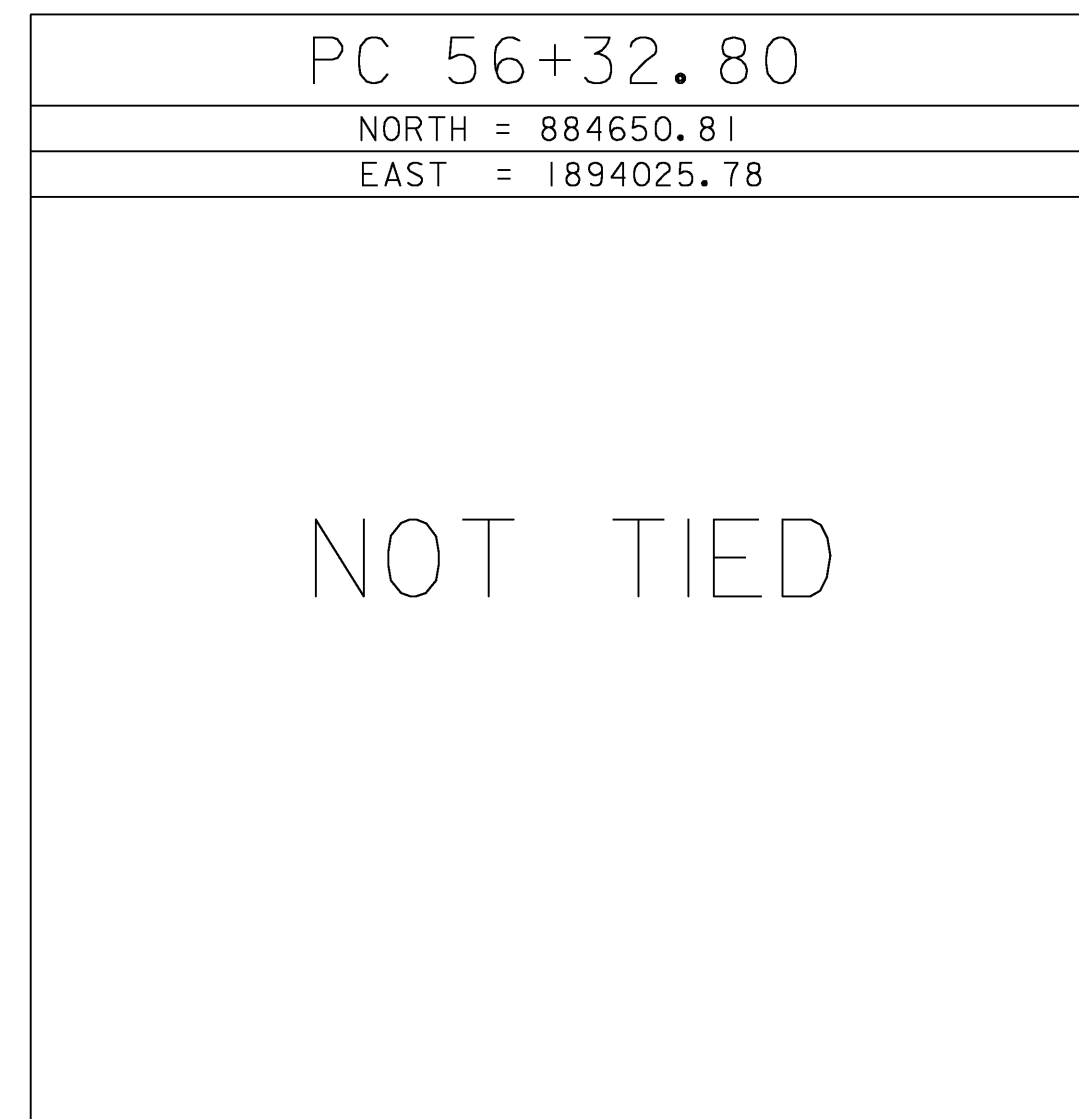


* MAIN TRAVERSE COMPLETED: AUGUST 11, 2004 BY R. GILMAN PC, P. WINTERS

ALIGNMENT TIES



ALIGNMENT TIES



* Alignment as of 12/7/06

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

SURVEY TIE SHEET

PROJECT NAME:	CANAAN	PLOT DATE:	18-AUG-2008
PROJECT NUMBER:	ER ST 027(16)	DRAWN BY:	J.HULETT
FILE NAME:	04c098\struc\x04c098t1.dgn	CHECKED BY:	P.HODGE
PROJECT LEADER:	M. EVANS-MONGEON	SHEET	II
DESIGNED BY:	S. SCRIBNER	OF	66



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] 802-838-2621
[fax] 802-828-3566
[ttd] 800-233-0191

See next sheet for instructions

Highway Safety Corp.
P.O. Box 358
Glastonbury, CT 06033

DATE: February 19, 2009

Project Name: Canaan Project #: ER ST 0271 (16)

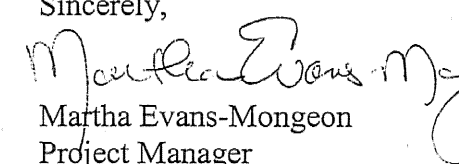
Structure Identification: VT 102, BR # 16, over the Willard Stream

The following Bridge Railing details Item # 525.33, Bridge Railing, NETC 2-Rail for the above project Vendor's Job #1684 transmitted with your letter dated February 4, 2009, have been reviewed and are being returned herewith.

Sheets: 1 of 2
is approved [X]

Sheets: 2 of 2
is approved as noted [X]

There shall be no fabrication done until all drawings and welding procedures are 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,

Martha Evans-Mongeon
Project Manager

Attachments
cc: [X] Resident Engineer w/prints, Doug Bumps
[X] Shop Inspector w/prints, Jeff Clark
[X] Contractor w/prints, Winterset, Inc.
[X] Subcontractor - letter only F.R. Lafayette
[X] Construction Divison - letter only
[X] Materials & Research Section (C&IA Unit) - letter only
[X] Files (Structures & Central)

Highway Safety Corporation
Glastonbury, CT
Welding Procedure Specification

Material specification A572 gr 50, A709 Gr 50
 Welding process Gas Metal Arc Welding (GMAW)
 Manual, semi-automatic, or automatic Semi-Automatic
 Position of welding Flat (1F) or Horizontal (2F)
 Filler metal specification AWS A5.18
 Filler metal classification ER70S-3
 Electrode and manufacturer Lincoln Electric Lincoln Weld L-50
 Flux and manufacturer N/A
 Shielding gas 85% Argon / 15% CO2 Flow rate 19-27 L / min
 Single or multiple pass Single or Multiple
 Single or multiple arc Single
 Welding current DCEP
 Polarity Reverse - electrode positive
 Welding progression Stringers
 Root treatment clean base metal
 Preheat and interpass temperature base metal up to 3/4" (50°F) ; over 3/4 thru 1-1/2" (150°F) ; over 1-1/2" thru 2-1/2" (225°F)
 Postheat treatment None
 Electrode extension 3/4" ± 1/4"

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters		Travel speed	Joint detail
			Amperes	Volts		
5/16"	1	0.062"	275 A ± 25	25 V ± 2	8-10 ipm	
7/16"	1 & 2	0.062"	↓	↓	8-10 ipm	

APPROVED BY: *JUC* DATE: *02/13/09*
 RECEIVED BY: *VRANS* DATE: *FEB 03 2009*

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

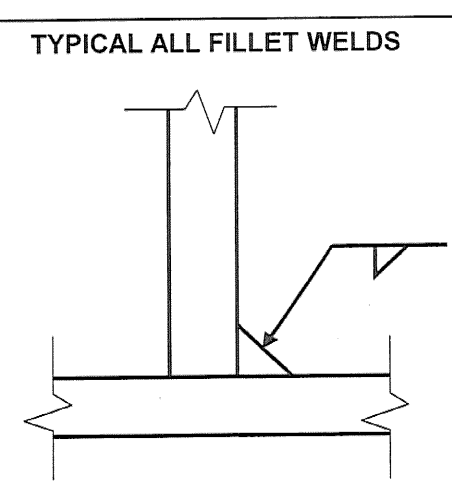
WPS no. W-1684-A Fabricator Highway Safety Corporation
 Revision no. 0 Authorized by Paul Radice
 Supporting PQR no. Pre-Qualified Date 2/3/09
 Project Name Canaan, VT R 102 Project Number ER ST 0271(10)

Highway Safety Corporation
Glastonbury, CT

Welding Procedure Specification

Material specification ASTM A36, A709 Gr 36, A500 gr B, A53 gr B
Welding process Gas Metal Arc Welding (GMAW)
Manual, semi-automatic, or automatic Semi-Automatic
Position of welding Flat (1F) or Horizontal (2F)
Filler metal specification AWS A5.18
Filler metal classification ER70S-3
Electrode and manufacturer Lincoln Electric Lincoln Weld L-60
Flux and manufacturer N/A
Shielding gas 85% Argon / 15% CO2 Flow rate 19-27 L / min
Single or multiple pass Single
Single or multiple arc Single
Welding current DCEP
Polarity Reverse - electrode positive
Welding progression Stringers
Root treatment clean base metal
Preheat and interpass temperature base metal up to 3/4" (50°F) ; over 3/4 thru 1-1/2" (150°F) ; over 1-1/2" thru 2-1/2" (225°F)
Postheat treatment None
Electrode extension 3/4" ± 1/4"

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters			Travel speed	Joint detail
			Amperes	Volts			
1/8"	1	0.045"	300 A ± 30	29 V ± 2	28 ipm ± 2	 <p>TYPICAL ALL FILLET WELDS</p>	
3/16"	1	0.045"	300 A ± 30	29 V ± 2	14 ipm ± 2		

OK'D BY JK DATE 01/13/09
APPROVED
DATE 01/13/09

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

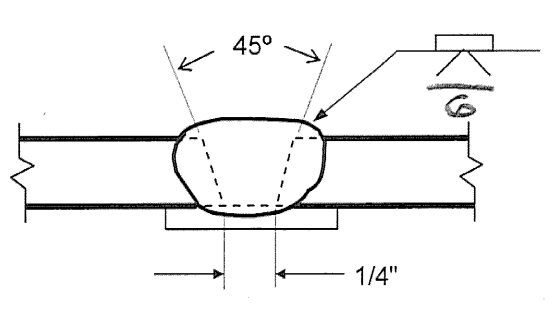
WPS no. W-1684-B Fabricator Highway Safety Corporation
Revision no. 0 Authorized by Paul Radice
Supporting PQR no. Pre-Qualified Date 2/3/09
Project Name Canaan, VT Rt 102 Project Number ER ST 0271(10)

Highway Safety Corporation
Glastonbury, CT

Welding Procedure Specification

Material specification ASTM A500 Gr B
 Welding process Shielded Metal Arc Welding (SMAW)
 Manual, semi-automatic, or automatic Manual
 Position of welding Flat (1G)
 Filler metal specification AWS A5.1
 Filler metal classification ER7018
 Electrode and manufacturer Lincoln Electric Jet LH 78 MR
 Flux and manufacturer N/A
 Shielding gas N/A Flow rate N/A
 Single or multiple pass Multiple
 Single or multiple arc Single
 Welding current AC
 Polarity N/A
 Welding progression Stringers
 Root treatment clean base metal
 Preheat and interpass temperature 50°F (min)
 Postheat treatment None
 Electrode extension N/A

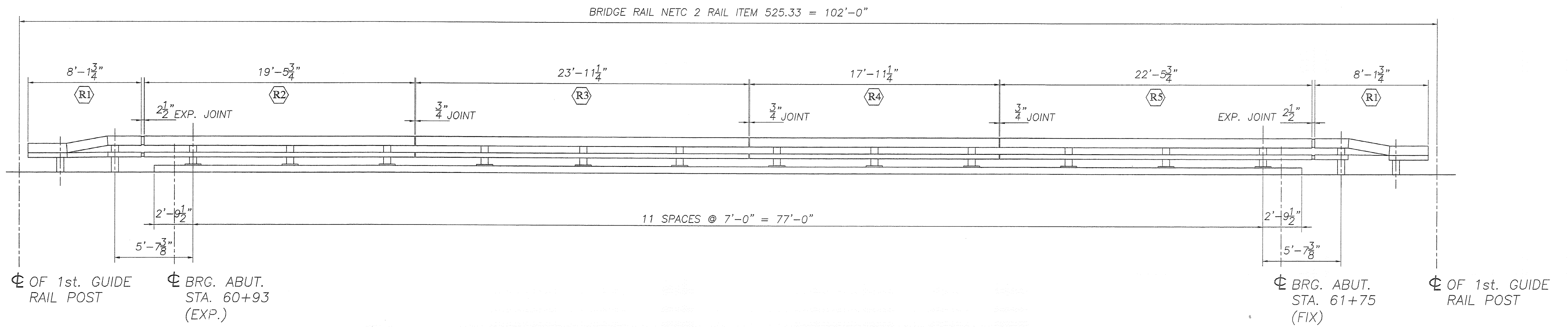
WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters Amperes Volts	Travel speed	Joint detail
	ALL	5/32"	150 A to 220 A	VARIES	B-U2a 

TRANS RECEIVED
 CHECKED BY: Juc
 FEB 03 2009
 APPROVED: AS
 DATE: 01/13/09

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

WPS no. W-1684-C Fabricator Highway Safety Corporation
 Revision no. 0 Authorized by Paul Radice
 Supporting PQR no. Pre-Qualified Date 2/3/09
 Project Name Canaan, VT rt 102 Project Number ER ST 0271(10)



WEST RAIL ELEVATION
(EAST ELEVATION SIMILAR)

BILL OF MATERIAL (BOTH SIDES OF BRIDGE)			
Mark #	Qty.	Description	Material
	24	W6x25 POST W/BASEPLATE (2'-0.375") OAL	A709 Gr. 50
	4	W6x25 DRIVEN POST (7'-0") OAL	A709 Gr. 50
	4	W6x25 DRIVEN POST (6'-5") OAL	A709 Gr. 50
(R1)	4	DROP END TOP RAIL TS 8 x 4 x 0.313" (8'-1.750") OAL	A500 Gr. B
	4	BOTTOM RAIL TS 4 x 4 x 0.25" (8'-1.750") OAL	A500 Gr. B
(R2)	2	TOP RAIL TS 8 x 4 x 0.313" (19'-5.750") OAL	A500 Gr. B
	2	BOTTOM RAIL TS 4 x 4 x 0.25" (19'-5.750") OAL	A500 Gr. B
(R3)	2	TOP RAIL TS 8 x 4 x 0.313" (23'-11.250") OAL	A500 Gr. B
	2	BOTTOM RAIL TS 4 x 4 x 0.25" (23'-11.250") OAL	A500 Gr. B
(R4)	2	TOP RAIL TS 8 x 4 x 0.313" (17'-11.750") OAL	A500 Gr. B
	2	BOTTOM RAIL TS 4 x 4 x 0.25" (17'-11.750") OAL	A500 Gr. B
(R5)	2	DROP END TOP RAIL TS 8 x 4 x 0.313" (22'-5.750") OAL	A500 Gr. B
	2	BOTTOM RAIL TS 4 x 4 x 0.25" (22'-5.750") OAL	A500 Gr. B
	10	TS 7 x 3 x .375" SPLICE TUBE 20" LONG	A500 Gr. B
	10	TS 3 x 3 x .25" SPLICE TUBE 20" LONG	A500 Gr. B
	24	.125" BEARING PAD	NEOPRENE
	4	BACK UP PLATE	A709 Gr. 36
	4	TERMINAL CONNECTOR	M180 B2
	152	.75" Ø ROUND HEAD BOLT, 6" LONG	M164
	152	.75" Ø HEX NUT	A563 DH
	152	.75" Ø WASHER	F436
	80	.625" Ø SPLICE BOLT, 1.75" LONG	M164
	80	.625" Ø PLAIN HARDENED WASHER	F436
	40	.625" Ø NUT WELDED TO SPLICE TUBE	A563A
	40	.75" Ø x .5" SCH. 40 PIPE SPACER	A53 Gr. B
	96	1" Ø ANCHOR STUD, 12" LONG	M49
	96	1" Ø WASHER	F436
	96	1" Ø JAMB NUT	A563 DH
	192	1" Ø HEX NUT	A563 DH
	24	SPACER PLATE	A36

NOTES:
1. ITEMS MARKED "*" ARE NOT SUPPLIED BY HIGHWAY SAFETY CORPORATION, AND THEY ARE SHOWN ONLY FOR REFERENCE.

REVISIONS		
No.	Remarks	Date
0	Initial submittal	2/4/09

RECEIVED
EXC. 559
DATE 2/11/09
AS NOTED

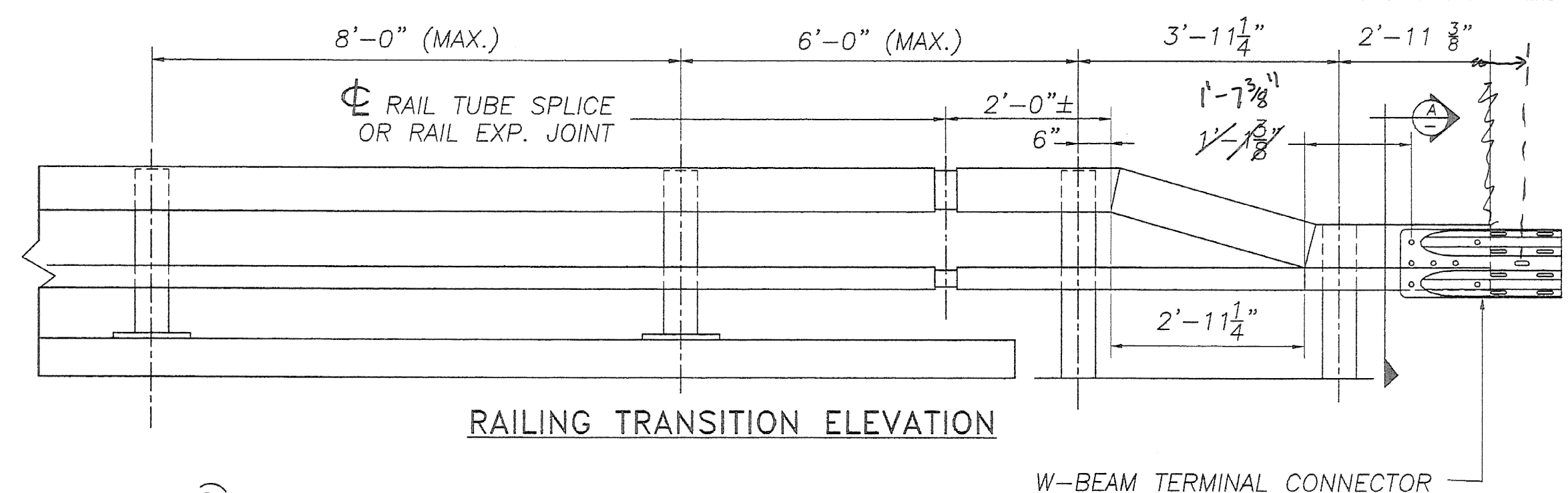
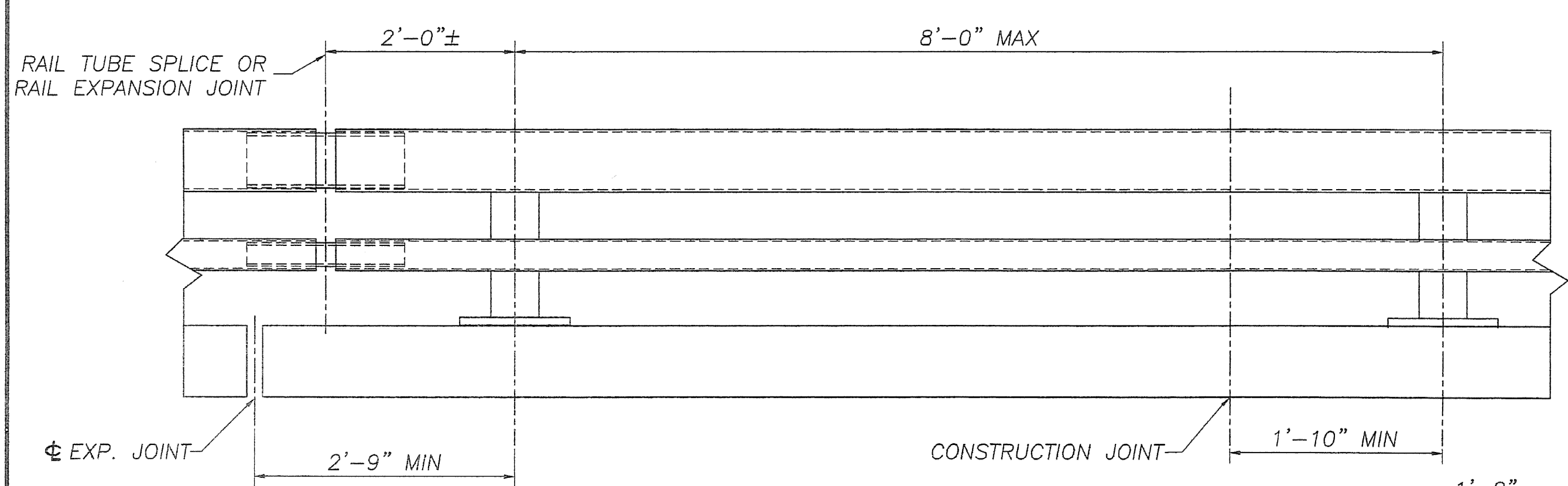


HIGHWAY SAFETY CORP.
GLASTONBURY, CT

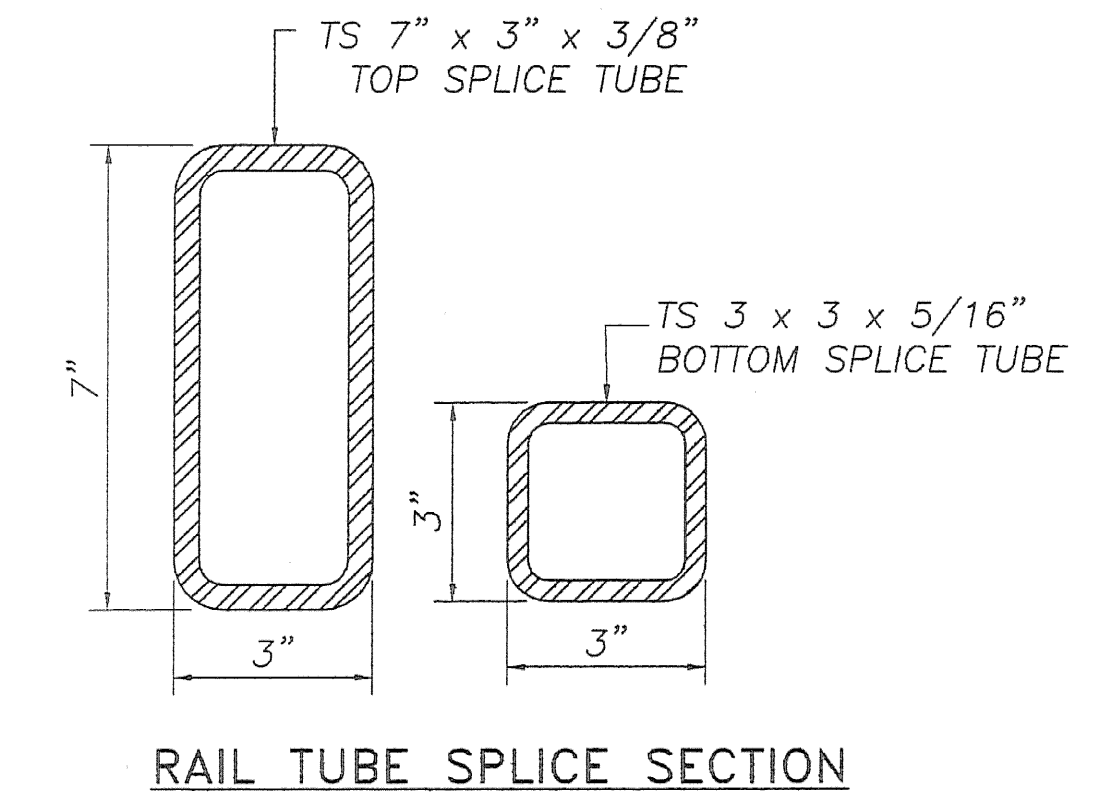
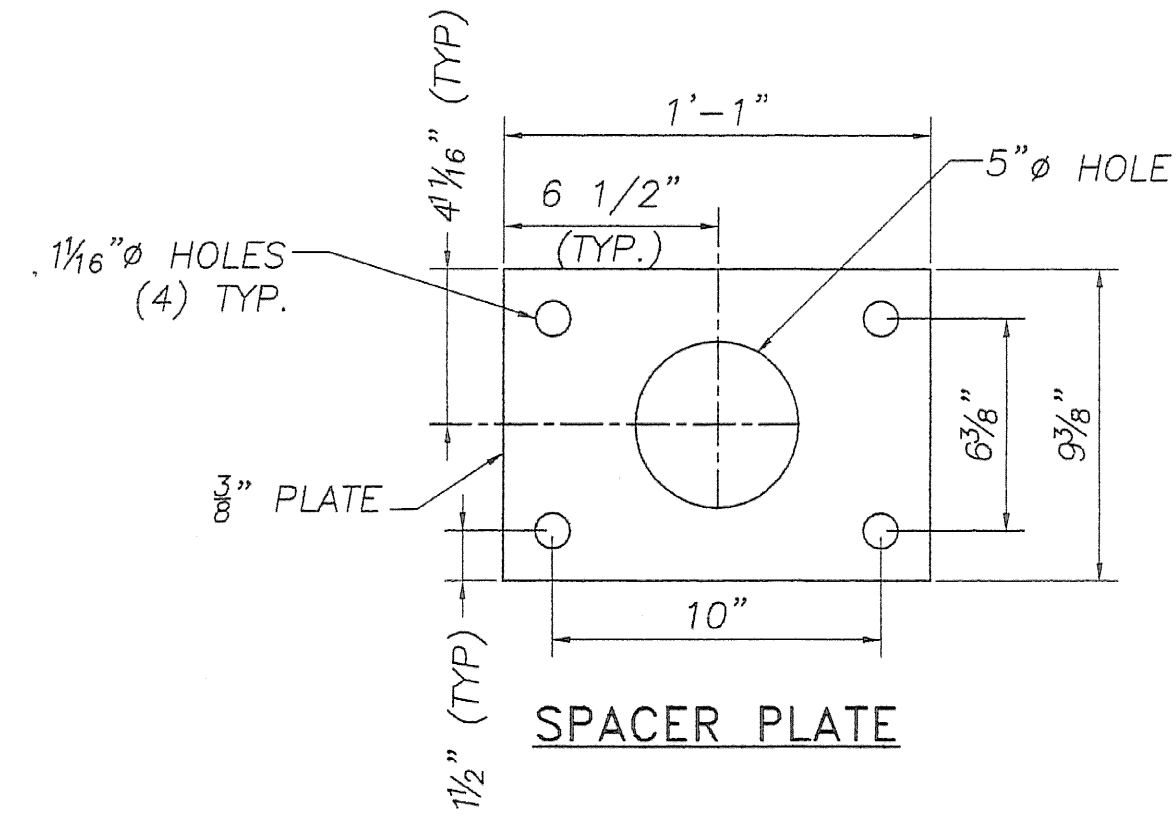
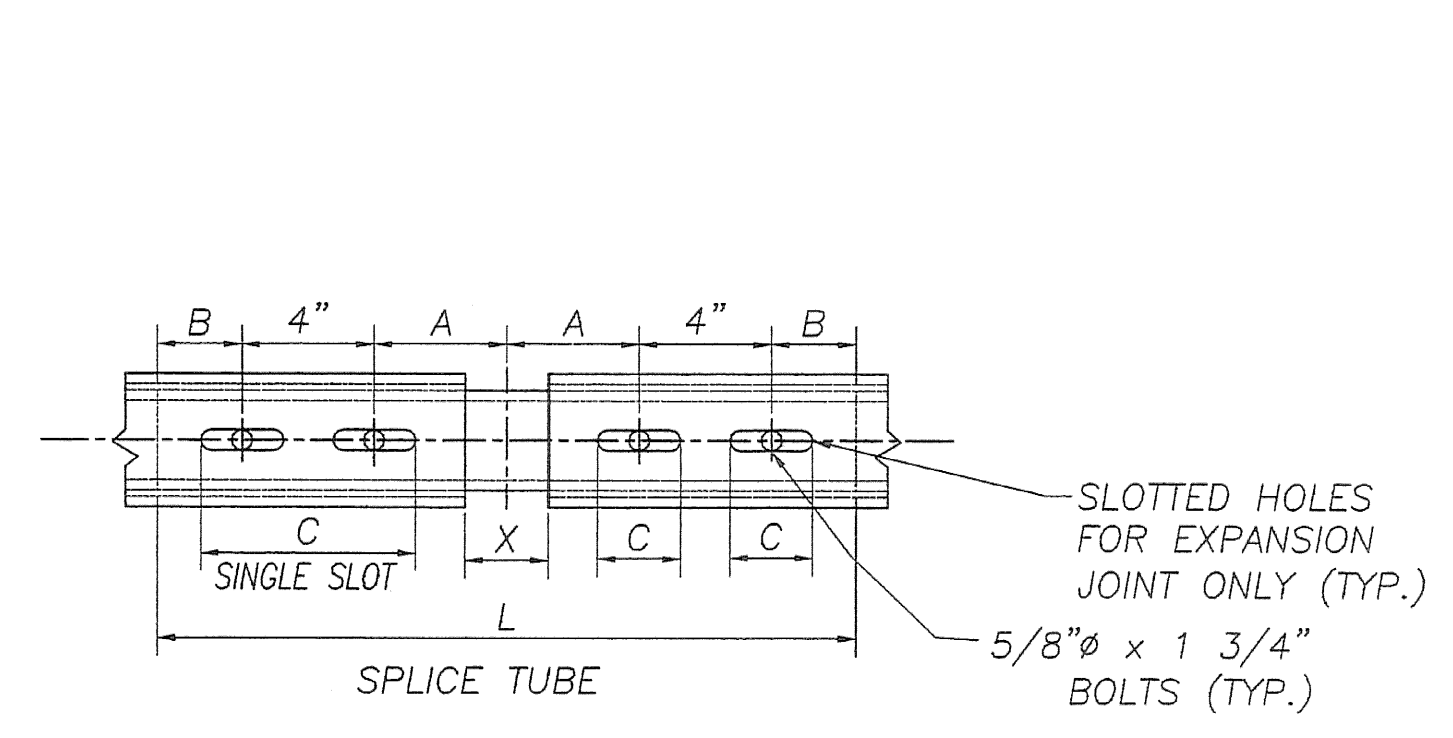
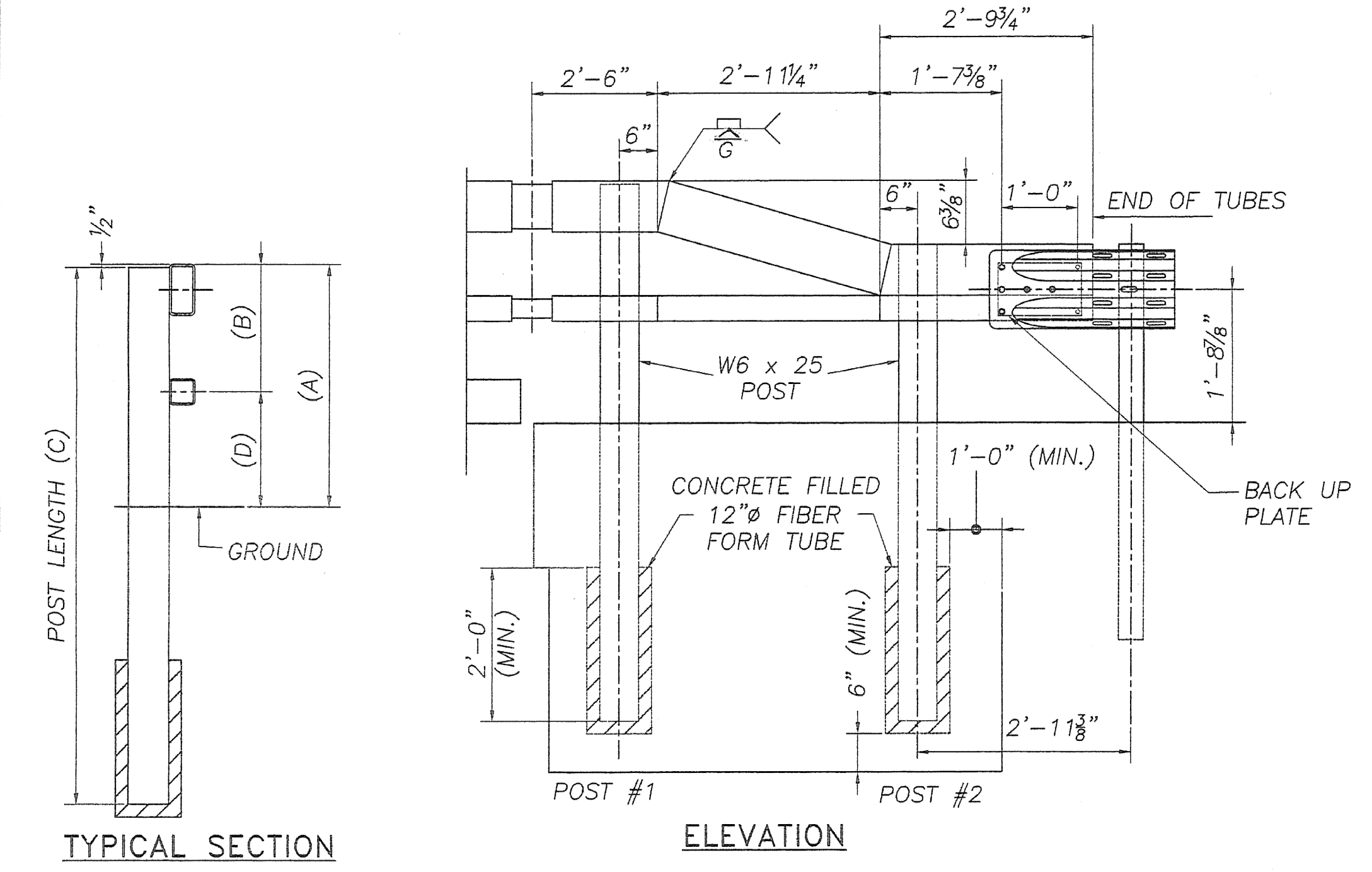
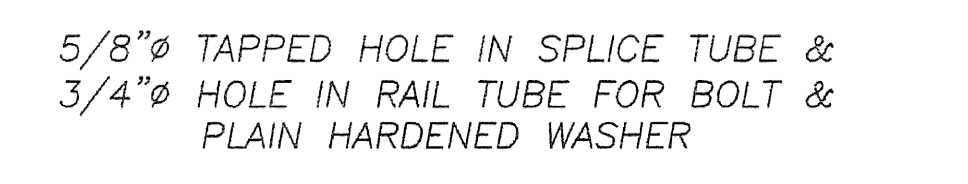
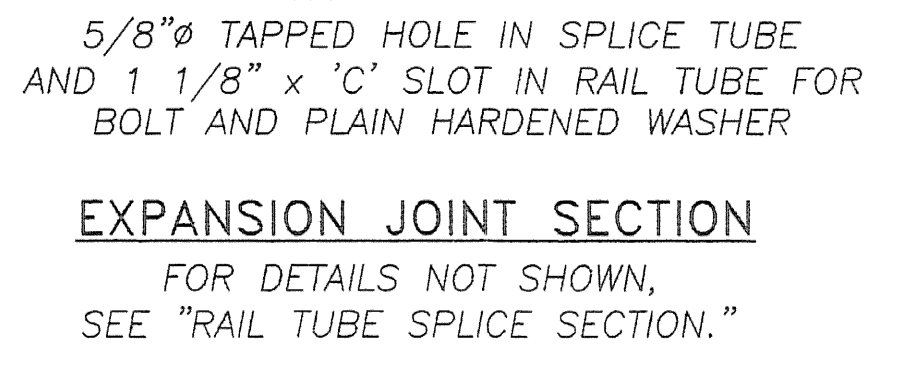
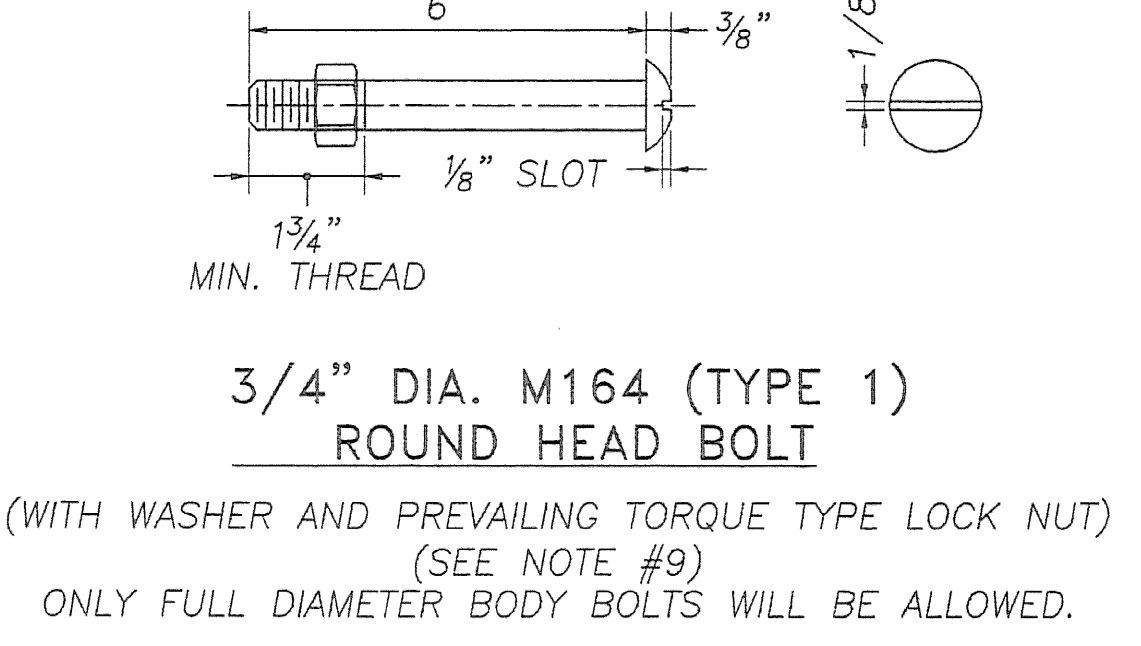
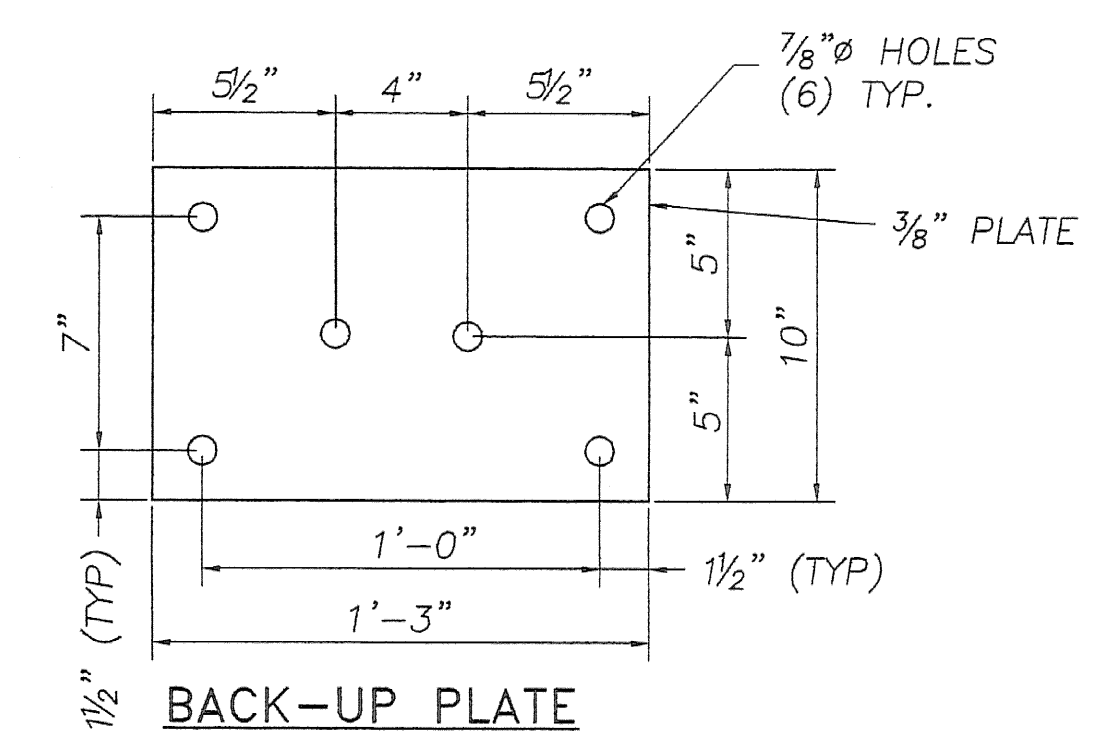
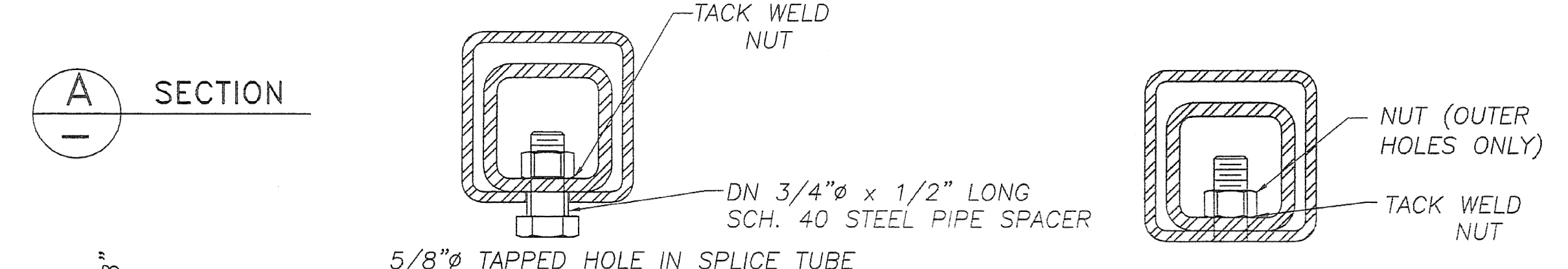
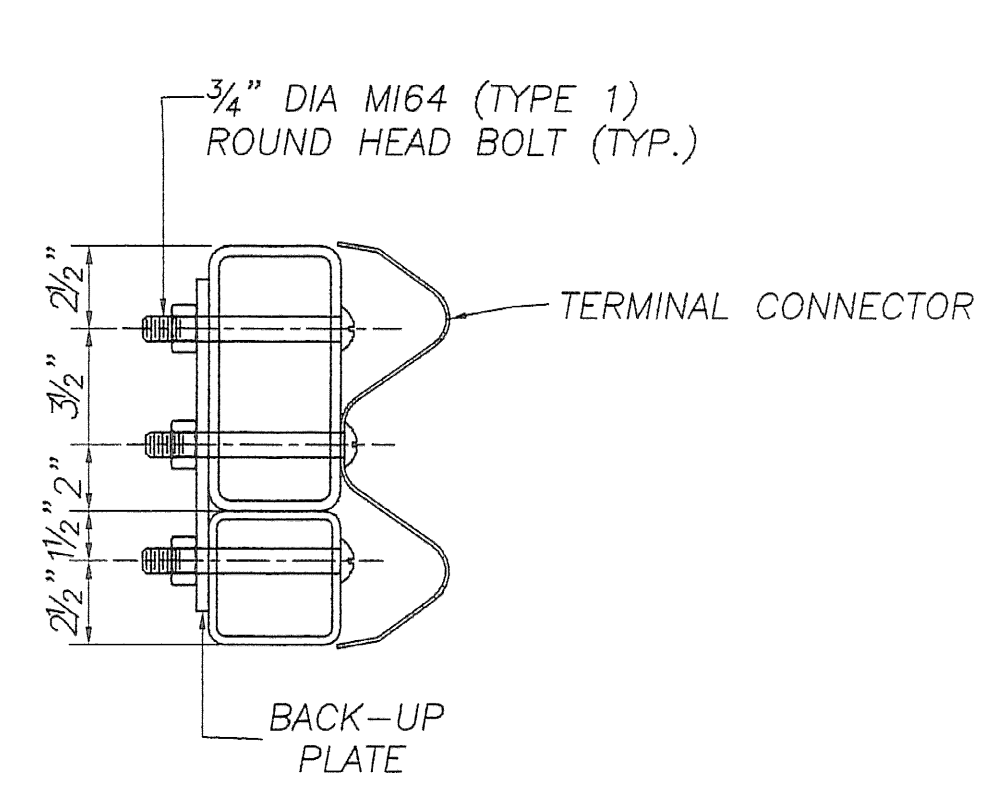
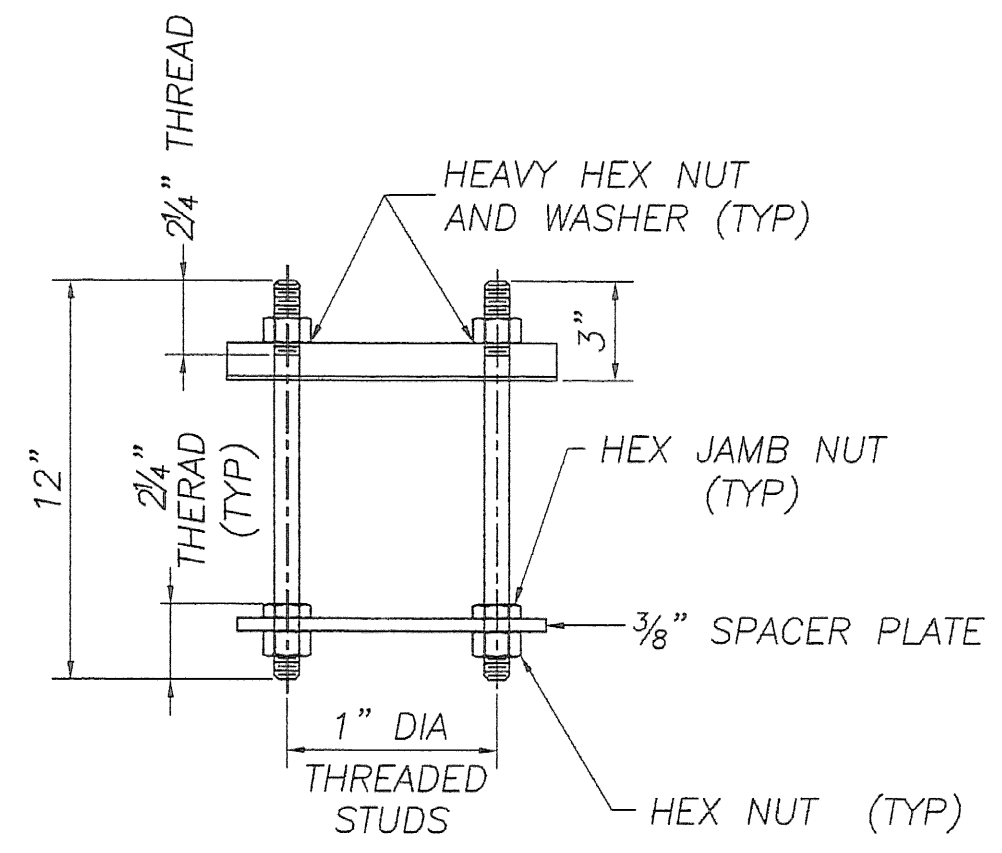
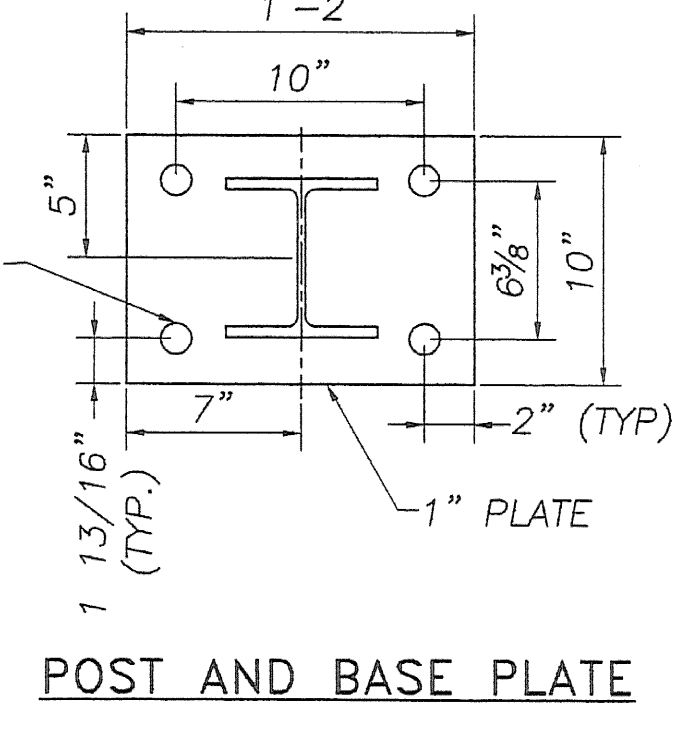
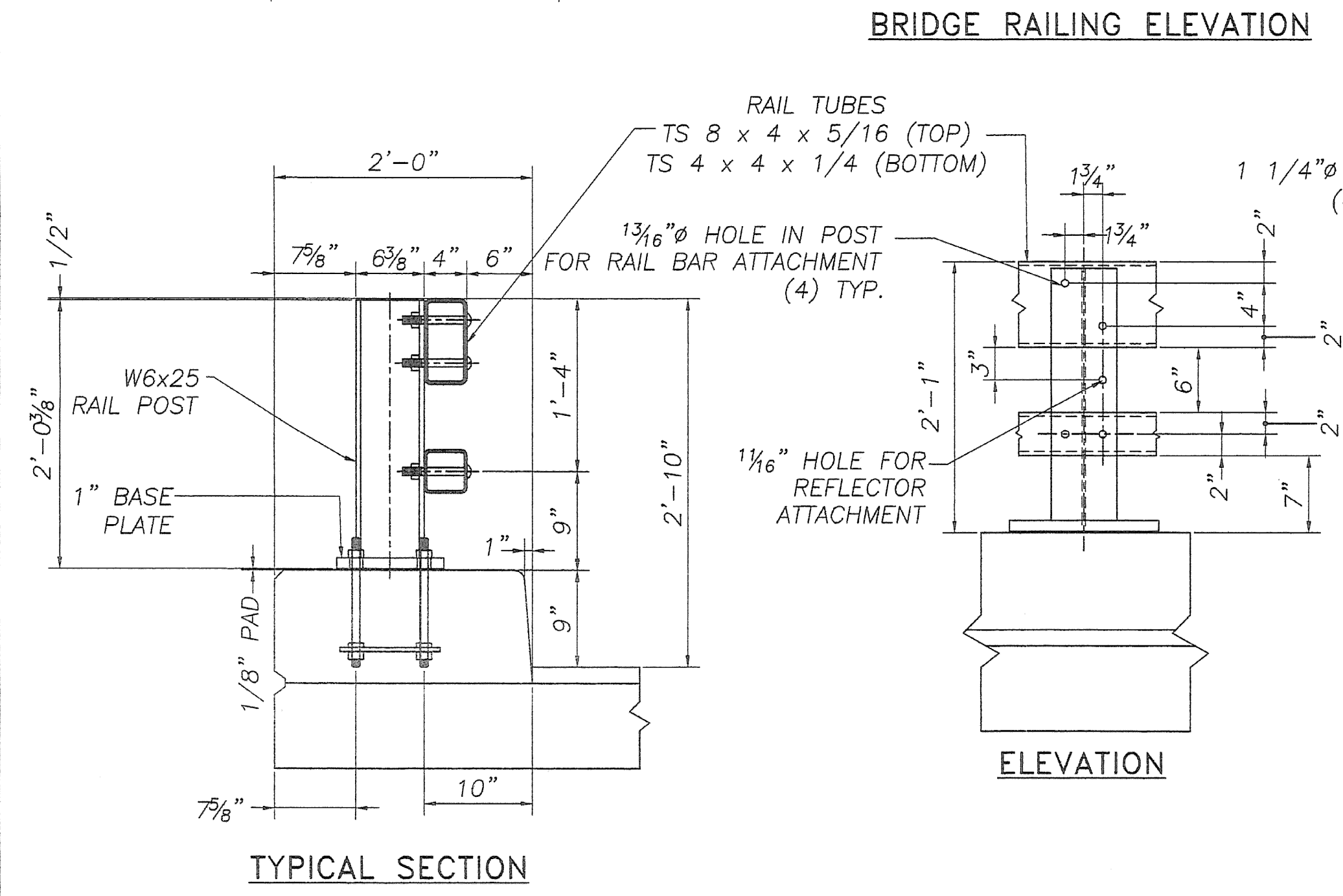
ITEM 525.33 - BRIDGE RAILING-NETC 2 RAIL
PROJECT No. ER ST 0271(10)
TOWN OF CANAAN COUNTY OF ESSEX
ROUTE No. VT 102
BRIDGE NO. : 16

GENERAL CONTRACTOR
SUB CONTRACTOR F.R. LAFAYETTE, INC.

DRAWN: RWL
CHECKED: P. Radice
DATE: 2/2/09
SCALE: NONE
HSC REFERENCE NO.: 1684
SIZE: D REVISION: 0
SHEET NO.: 1 of 2



- NOTES:**
- ALL RAILINGS AND MATERIALS SHALL CONFORM TO THE PROVISION OF SECTION 525
 - PRIOR TO GALVANIZING, ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 1/16" RADIUS AND BE FREE OF BURRS.
 - RAIL POSTS SHALL BE SET NORMAL TO GRADE.
 - SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO (2) RAIL POSTS AND PREFERABLY TO AT LEAST FOUR (4) POSTS.
 - RAIL TUBE EXPANSION JOINT SHALL BE PROVIDED IN ANY RAIL BAY SPANNING A SUPERSTRUCTURE EXPANSION JOINT. EXPANSION JOINT WIDTH SHALL BE "X" AT 45°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
 - ALL PARTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M111, EXCEPT HARDWARE, WHICH SHALL MEET THE REQUIREMENTS OF AASHTO M232.
 - RAIL POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
 - RAIL TUBES SHALL BE ATTACHED USING 3/4" FULL DIAMETER BODY AASHTO M164 (TYPE 1) ROUND HEAD BOLT INSERTED THROUGH THE FACE OF THE TUBE. HOLES IN POSTS SHALL BE 1/16" LARGER THAN THE BOLT SIZE.
 - HOLES IN RAILS FOR RAIL TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO ERECTION.
 - ANY BENDING OF RAIL SHALL BE BY SHOP PROCEDURE ONLY.
 - THE FABRICATOR SHALL SUBMIT SHOP DRAWINGS, INCLUDING WELDING PROCEDURES TO THE STRUCTURES SECTION FOR APPROVAL IN ACCORDANCE WITH SUBSECTION 525.03. ALL WELDING SHALL CONFORM WITH SUBSECTION 506.10.
 - RAIL POSTS AND BASE PLATES SHALL BE TESTED FOR IMPACT PROPERTIES IN ACCORDANCE WITH ASTM A-370 CHARPY IMPACT TESTING USING TYPE A SPECIMEN.



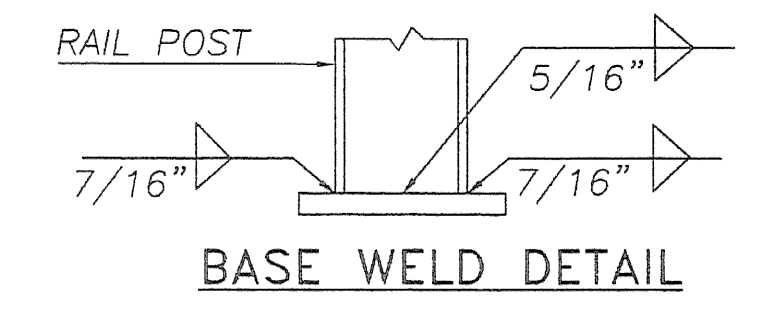
- MATERIALS**
- RAIL TUBES.....ASTM A500, GRADE B OR ASTM A501
 - RAIL POSTS AND BASE PLATES.....ASTM A709/A709M, GRADE 50
 - ALL OTHER SHAPES AND PLATES.....ASTM A709/A709M, GRADE 50
 - ANCHOR STUDS.....ASTM A449
 - ALL OTHER BOLTS (UNLESS NOTED).....AASHTO M164, TYPE 1
 - NUTS FOR AASHTO M164 BOLTS AND FOR ANCHOR STUDS SHALL COMPLY WITH AASHTO M291 (ASTM A563).
 - WASHERS SHALL COMPLY WITH AASHTO M293 (ASTM F436) SPECIFICATIONS.
 - 1/8" PAD SHALL COMPLY WITH STANDARD SPECIFICATION SUBSECTION 731.01 OR 731.02.



POST NUMBER	RAIL HEIGHT (A)	RAIL SPACING (B)	POST LENGTH (C)	RAIL HEIGHT (D)
1	2'-10"	1'-4"	7'-0"	1'-6"
2	2'-3 5/8"	10"	6'-5"	1'-5 5/8"

SPLICE TABLE						
T	A	B	C	L	X	
N/A	4"	2"	--	20"	3/4"	
EXPANSION JOINT TABLE						
<4"	4"	2"	2 1/2"	20"	2 1/2"	

T = TOTAL MOVEMENT BETWEEN BRIDGE EXPANSION JOINTS. SEE NOTE 6



REVISIONS		
No.	Remarks	Date
0	Initial submittal	2/4/09

RECEIVED
 SSS
 FEB 11 2009
 AS NOTED
 2/11/09

HIGHWAY SAFETY CORP.
 GLASTONBURY, CT

ITEM 525.33 - BRIDGE RAILING-NETC 2 RAIL
 PROJECT No. ER ST 0271(16)
 TOWN OF CANAAN COUNTY OF ESSEX
 ROUTE No. VT 102
 BRIDGE NO. : 16

GENERAL CONTRACTOR
 SUB CONTRACTOR F.R. LAFAYETTE, INC.

DRAWN RWL
 CHECKED P Radice
 DATE 2/2/09
 SCALE NONE
 HSC REFERENCE NO. 1684
 SIZE D REVISION 0
 SHEET NO. 2 of 2

SPECIAL PROVISION (DRY HYDRANT)

STA. 61+34.00 - 62+04.92 LT

DELINEATOR WITH STEEL POST (TYPE I)

STA. 59+84 LT (GREEN)
STA. 59+81 RT (BLUE)

REMOVAL AND DISPOSAL OF GUARDRAIL

STA. 60+43.09 - 60+84.28 RT
STA. 59+22.82 - 60+85.48 LT
STA. 61+50.29 - 63+37.35 RT
STA. 61+49.41 - 62+25.00 LT

HEAVY DUTY STEEL BEAM GUARDRAIL, GALVANIZED

STA. 59+69.40 - 60+58.90 LT
STA. 59+61.67 - 60+57.17 RT
STA. 62+09.73 - 62+25.00 LT
STA. 62+10.04 - 62+25.00 RT

ANCHORS FOR HEAVY DUTY STEEL BEAM GUARD RAIL

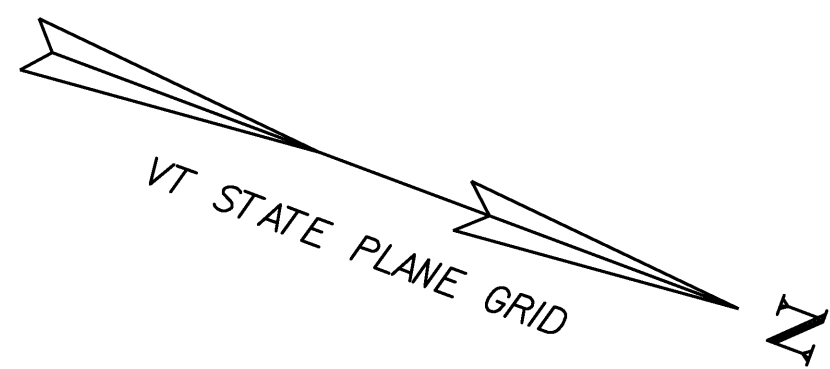
STA. 59+78.90 LT
STA. 59+75.00 RT

REMOVAL OF EXISTING FENCE

STA. 58+50 - STA. 61+00 RT
STA. 59+00 - STA. 60+00 LT
STA. 62+15 - STA. 62+20 LT

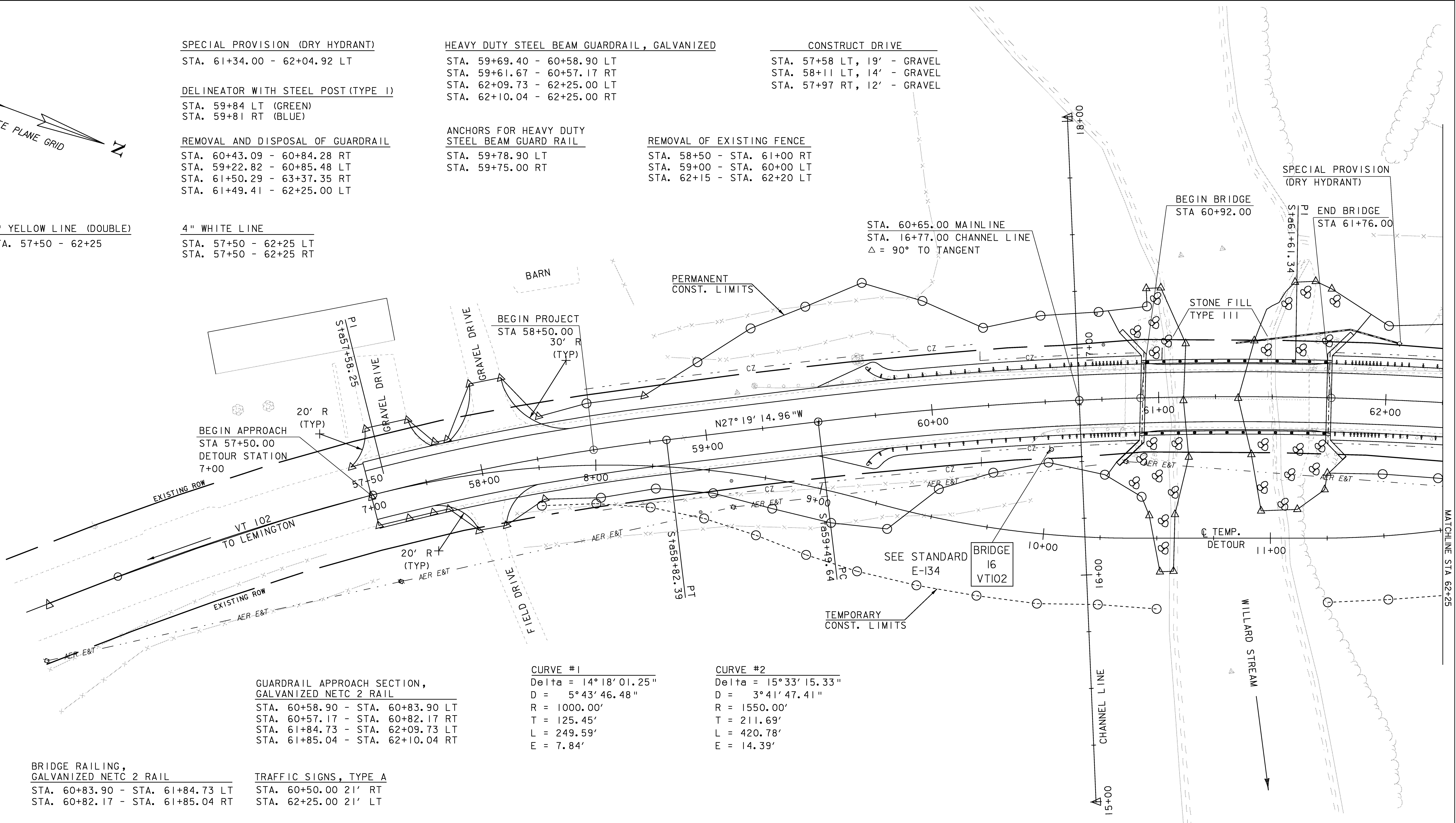
CONSTRUCT DRIVE

STA. 57+58 LT, 19' - GRAVEL
STA. 58+11 LT, 14' - GRAVEL
STA. 57+97 RT, 12' - GRAVEL



4" YELLOW LINE (DOUBLE)
STA. 57+50 - 62+25

4" WHITE LINE
STA. 57+50 - 62+25 LT
STA. 57+50 - 62+25 RT



BEGIN APPROACH
STA 57+50.00
DETOUR STATION
7+00

BEGIN PROJECT
STA 58+50.00
30' R
(TYP)

STA. 60+65.00 MAINLINE
STA. 16+77.00 CHANNEL LINE
 $\Delta = 90^\circ$ TO TANGENT

SPECIAL PROVISION
(DRY HYDRANT)

BEGIN BRIDGE
STA 60+92.00

END BRIDGE
STA 61+76.00

STONE FILL
TYPE III

EXISTING ROW
VT 102
TO LEMINGTON

SEE STANDARD
E-134
BRIDGE
16
VT102

TEMP.
DETOUR

GUARDRAIL APPROACH SECTION,
GALVANIZED NETC 2 RAIL
STA. 60+58.90 - STA. 60+83.90 LT
STA. 60+57.17 - STA. 60+82.17 RT
STA. 61+84.73 - STA. 62+09.73 LT
STA. 61+85.04 - STA. 62+10.04 RT

CURVE #1
Delta = $14^\circ 18' 01.25''$
D = $5^\circ 43' 46.48''$
R = 1000.00'
T = 125.45'
L = 249.59'
E = 7.84'

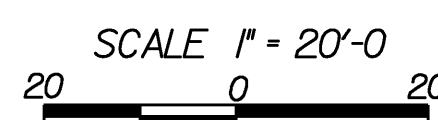
CURVE #2
Delta = $15^\circ 33' 15.33''$
D = $3^\circ 41' 47.41''$
R = 1550.00'
T = 211.69'
L = 420.78'
E = 14.39'

BRIDGE RAILING,
GALVANIZED NETC 2 RAIL
STA. 60+83.90 - STA. 61+84.73 LT
STA. 60+82.17 - STA. 61+85.04 RT

TRAFFIC SIGNS, TYPE A
STA. 60+50.00 21' RT
STA. 62+25.00 21' LT

PREVIOUS BRIDGE DATA
SINGLE SPAN OPEN BOTTOM CONCRETE ARCH - DESTROYED IN 2004 FLOOD
CLEAR SPAN (NORMAL TO STREAM): 31 FEET MIN.
OVERALL LENGTH: 34.5 FEET BACK TO BACK OF ABUTMENTS
VERTICAL CLEARANCE: 7 FEET
BRIDGE WIDTH: +/- 34.5 FEET FACE OF RAIL TO FACE OF RAIL

CURRENT STRUCTURE
WIDTH: 24
LENGTH: 80

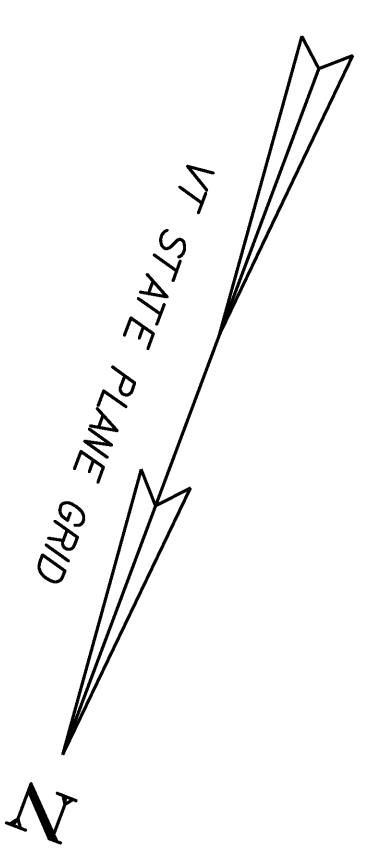


LAYOUT SHEET #1

PROJECT NAME: Canaan
PROJECT NUMBER: ER ST 027(16)

FILE NAME: 04c098\struc\04c098bdr
PROJECT LEADER: M. Evans-Mongeon
DESIGNED BY: S. Scribner

PLOT DATE: 18-AUG-2008
DRAWN BY: L. DUQUETTE
CHECKED BY: S. SCRIBNER
SHEET 12 OF 66



4" YELLOW LINE (DOUBLE)
 STA. 62+25 - 65+15

4" WHITE LINE
 STA. 62+25 - 65+15 LT
 STA. 62+25 - 65+15 RT

DELINEATOR WITH STEEL POST (TYPE 1)
 STA. 63+33.50 LT (BLUE)
 STA. 63+36.50 RT (GREEN)

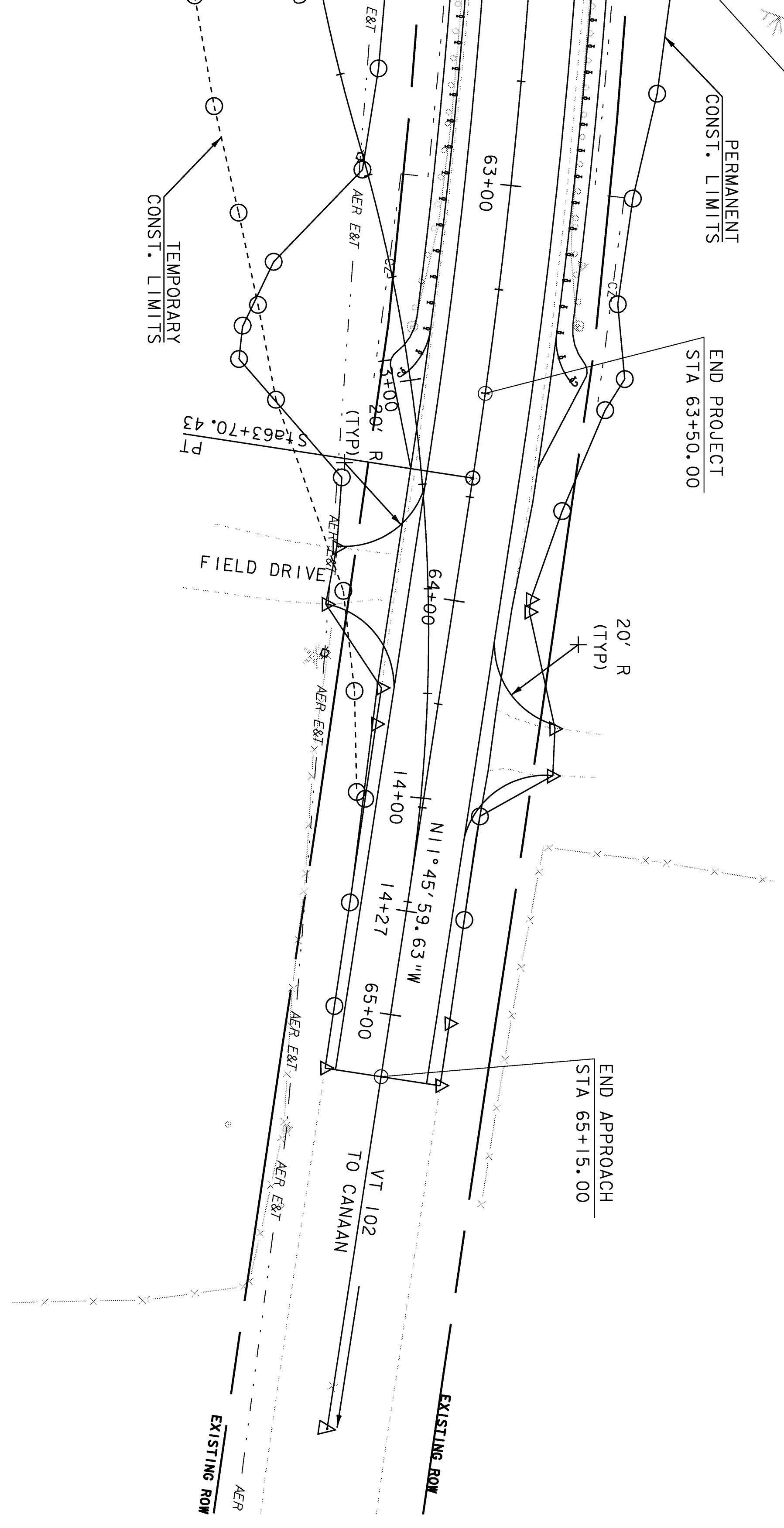
HEAVY DUTY STEEL BEAM GUARDRAIL, GALVANIZED
 STA. 62+25.00 - 63+49.23 LT
 STA. 62+25.00 - 63+49.54 RT

ANCHORS FOR HEAVY DUTY
 STEEL BEAM GUARD RAIL
 STA. 63+39.00 LT
 STA. 63+43.00 RT

REMOVAL AND DISPOSAL OF GUARDRAIL
 STA. 62+25.00 - 63+37.35 RT
 STA. 62+25.00 - 63+32.51 LT

BRIDGE 16
 VT102
 SEE STANDARD
 E-134

CONSTRUCT DRIVE
 STA. 64+33 LT, 12' - GRAVEL
 STA. 63+98 RT, 14' - GRAVEL



TEMPORARY
 CONST. LIMITS

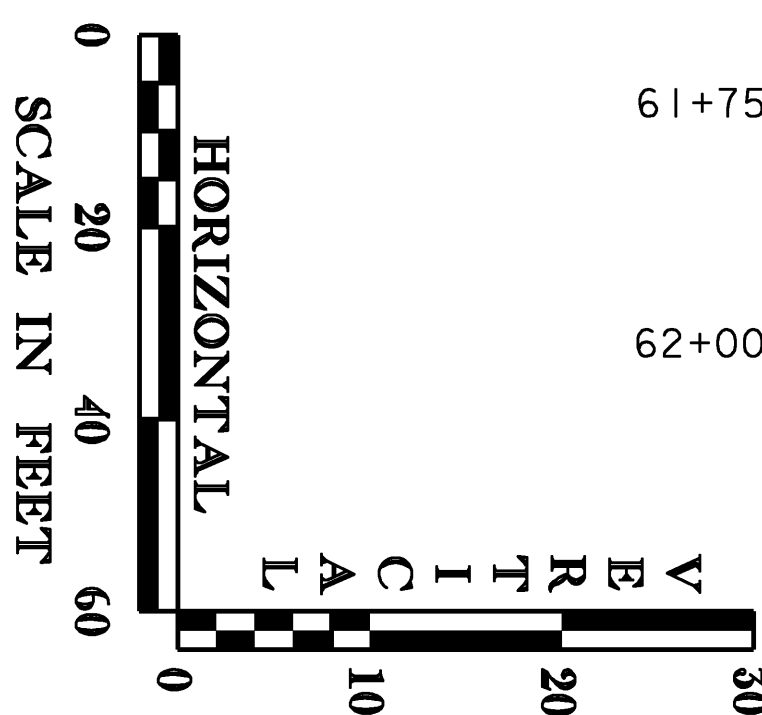
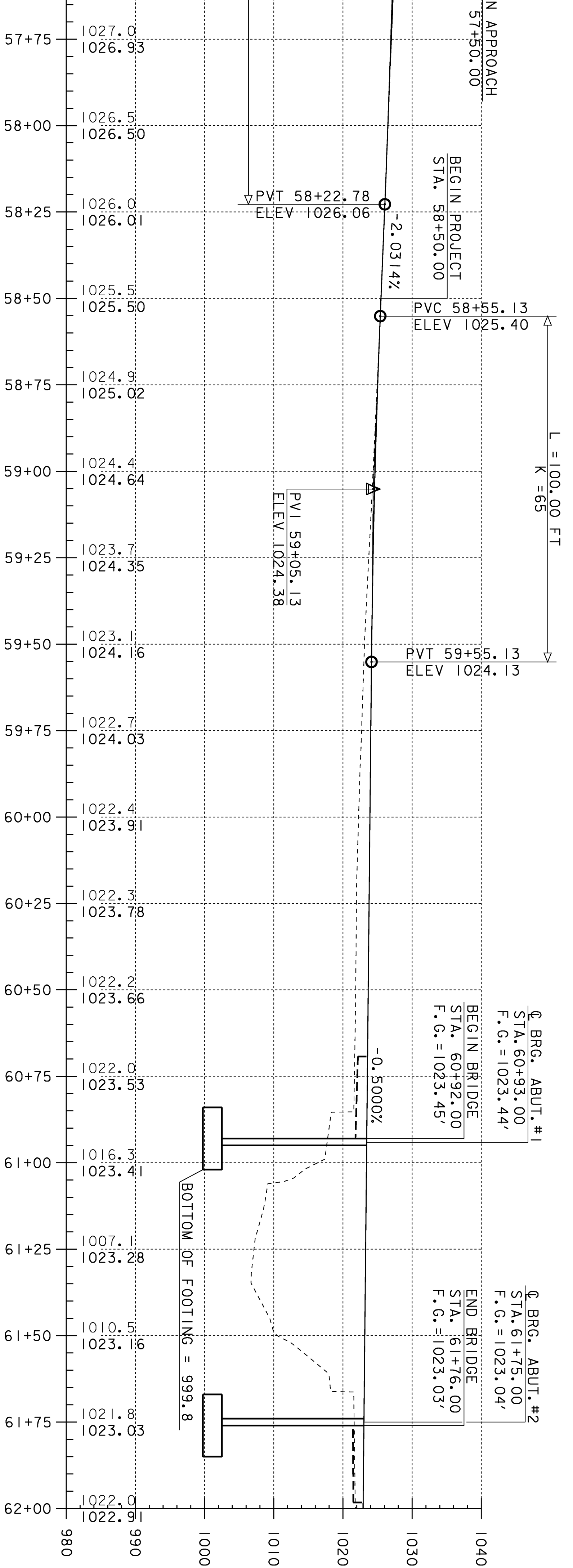


LAYOUT SHEET #2

PROJECT NAME: CANNON
 PROJECT NUMBER: ER ST 0271(6)
 FILE NAME: 046098\struc\X046098bdr
 PROJECT LEADER: M. Evans-Monjeon
 DESIGNED BY: S. SCRIBNER

PLOT DATE: 18-AUG-2008
 DRAWN BY: L. DUQUETTE
 CHECKED BY: S. SCRIBNER
 SHEET 13 OF 66

PROFILE ALONG CENTERLINE VT 102

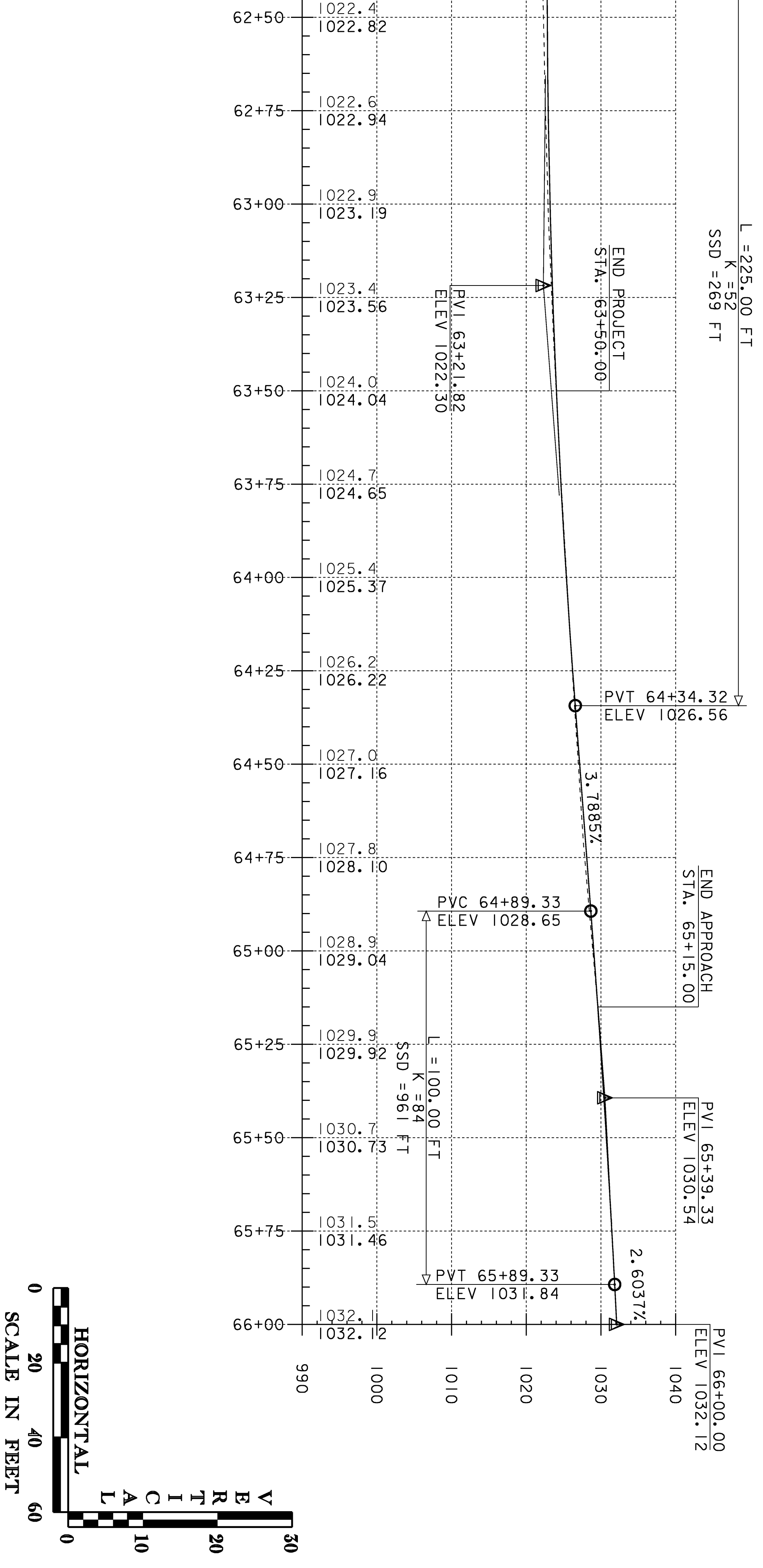


PROFILE SHEET #1

PROJECT NAME: CNDQGN
 PROJECT NUMBER: ER ST 0271(6)
 FILE NAME: Structur\er\X04c098p\er.dgn
 PROJECT LEADER: M. Evans-Monaghan
 DESIGNED BY: S. Scribner
 PL01 DATE: 18-AUG-2008
 DRAWN BY: T. Husk
 CHECKED BY: S. SCRIBNER.
 SHEET 14 OF 66

NOTE: ELEVATIONS SHOWN TO THE TENTH ARE EXISTING GROUND
 ELEVATIONS SHOWN TO THE HUNDREDDTH ARE FINISH GRADE

PROFILE ALONG CENTERLINE VT 102



PROFILE SHEET #2

PROJECT NAME: CANNON
PROJECT NUMBER: ER ST 0271(6)

FILE NAME: Structure\X04c098xs.dgn
PROJECT LEADER: M. Evans-Monson
DESIGNED BY: S. Scribner

PLOT DATE: 18-AUG-2008
DRAWN BY: T. Husk
CHECKED BY: S. SCRIBNER.
SHEET 15 OF 66

NOTE: ELEVATIONS SHOWN TO THE TENTH ARE EXISTING GROUND
ELEVATIONS SHOWN TO THE HUNDRETH ARE FINISH GRADE

EROSION CONTROL NARRATIVE

approaches will be removed, the slopes stabilized with stone fill and vegetation reestablished with standard seed and mulch practices.

SOILS:

The Soil Conservation Service has mapped the soils throughout Essex County. The soil types identified for this are Rumney Very Fine Sandy Loam(0%-2% slope). This soil type is described as "...very deep to bedrock and well drained. Permeability is moderate or moderately rapid in the solum, and rapid or very rapid in the substratum." These soils formed in flood plains. Another soil type is Colton-Dunbury Complex(0%-15%). This soil type is described as "...very deep to bedrock and excessively drained. Permeability is moderately rapid to very rapid in the solum, and very rapid in the substratum." These soils formed in terraces and plains. The last soil found on this project is Croghan Loamy Fine Sand(3%-8%). This soil type is described as "...very deep to bedrock and poorly drained. Permeability is moderately rapid or rapid in the surface layer, and rapid or very rapid in the subsoil and stratum."

The listed Soil Erodibility Coefficient (K-value) for Rumney Very Fine Sandy Loam ranges from 0.20 to 0.37, Colton-Dunbury Complex ranges from 0.10 to 0.49, and Croghan Loamy Fine Sand is 0.17.

Generally, K-values indicate the following: 0.0 - 0.23 = low erodibility; 0.24 - 0.36 = moderate erodibility; 0.37 and higher = higher erodibility. Soils are saturated during at least part of the growing season. Because this wetland is located within the floodplain of the Willard stream, it is capable of being inundated by many feet of water. However, in most years inundation does not occur in the project area.

SENSITIVE RESOURCE AREAS:

No 'Threatened & Endangered Species' have been identified within the project limits and there will be no adverse effect to Historic or Archaeological features. Willard Stream is the only identified resource. There are wetlands in the vicinity of the project.

PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES:

Disturbance of soils near natural or man-made waterways consists of that which is necessary to construct two new concrete bridge abutments and applicable roadway approaches as well as the removal of the existing temporary bridge. Stabilization of disturbances to stream banks will be accomplished with Stone Fill, Type III.

TEMPORARY EROSION PREVENTION & SEDIMENT CONTROL

Temporary erosion prevention measures to be utilized include:

Project Demarcation Fence denoted -PDF- and barrier Fence denoted -BF- on the plans, to delineate the limits the contractor can access with construction equipment. This measure limits the area that can be disturbed and exposed to erosion.

Seeding, mulching and biodegradable erosion control matting, or an equivalent product, will be utilized on all slopes steeper than 3:1 that are not lined with stone fill.

These slopes shall be stabilized within 48 hours of reaching final grade or during intermittent phases of construction activity.

Tracking of all exposed slopes, combined with temporary mulching, will also be utilized on a regular basis. Any slopes to be exposed for several days prior to final grading shall be tracked and mulched. The forecast of rainfall events shall also trigger protection of exposed slopes.

Before placement of temporary fill for the detour, geotextile will be placed on original grade to facilitate restoration of pre-existing grade and preservation of plant roots and seeds. All disturbed area will be top soiled, fertilized, seeded, and mulched. The construction area will be protected by erosion and sedimentation controls until disturbed areas are stabilized.

Geotextile placed under the temporary bridge approaches shall be Road Bed Separator in accordance with section 649 and will be paid incidental to the temporary bridge item in the contract.

Temporary measures to control sediment transport include:

Silt Fence will be installed and maintained as indicated in "erosion & sediment control plan". The contractor may need to adjust locations as indicated on the plans to better suit their construction needs. Proposed and/or alternate silt fence locations will prevent sediment transport to down gradient areas. Each line of silt fence will be placed along the contour with ends turned slightly uphill to create a ponding effect should water try to run along the fencing and around the ends. The maximum slope length between separate runs of silt fence is 100 feet. Silt fence shall be installed prior to any upslope earthwork.

Filter curtains will be installed and maintained as indicated in "erosion &

sediment control plan". The contractor may need to adjust locations as indicated on the plans to better suit their construction needs. Proposed and/or alternate filter curtain locations will prevent sediment transport to the Willard stream. Filter curtain shall be installed prior to any in stream construction.

Measures such as silt fence and sand bags shall be checked regularly for accumulation of sediment. Sediment build-up shall be removed when the level of sediment reaches one-half the height of the control measure. Sediments shall be disposed of in an approved area such that they will not be subject to erosion.

Stabilized construction entrances to the project site, staging areas, as well as to waste and borrow areas shall be established. The minimum size of a stabilized construction entrance is 12 feet X 50 feet. All surface water flowing to or diverted towards a construction entrance shall be piped under the stone. Pipes shall be appropriately sized for the contributing area, however, no pipes smaller than 6 inches diameter shall be used. See typical detail on 'Erosion and Sediment Control Plan' sheet for materials and construction method to be utilized when constructing a stabilized entrance.

Temporary sediment settling basins may or may not be utilized on this project. If a settling basin is to be used for dewatering a Cofferdam, it should be sized based upon the pumping rate and target particle size to be settled out for the project site. The following sizing criteria is based upon a target particle size of .01 millimeters and is provided as general guidance on sheet 18.

PERMANENT EROSION CONTROL MEASURES

Several permanent erosion control measures will be utilized:

Stone lining of the stream banks with Stone Fill, Type III as specified by Vermont Hydraulics personnel is specified. This stone will protect from stream bank erosion during design storm events.

Grass, or other suitable ground cover will be established outside of the roadway limits where stone lining has been determined. Specifically at the toes of slopes and any other disturbed area.

GENERAL EROSION & SEDIMENT CONTROL GUIDELINES

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

Coordinate the installation, use, and removal of erosion and sediment control measures with construction activities to ensure economical, effective and continuous erosion and sediment control. Employ temporary stabilization practices in incremental stages as construction proceeds. The contractor will use additional erosion control measures as necessitated by the sequence of construction and as directed by the Engineer. See section 105.23 of the Vermont AOR Standard Specifications for Construction, dated 2006.

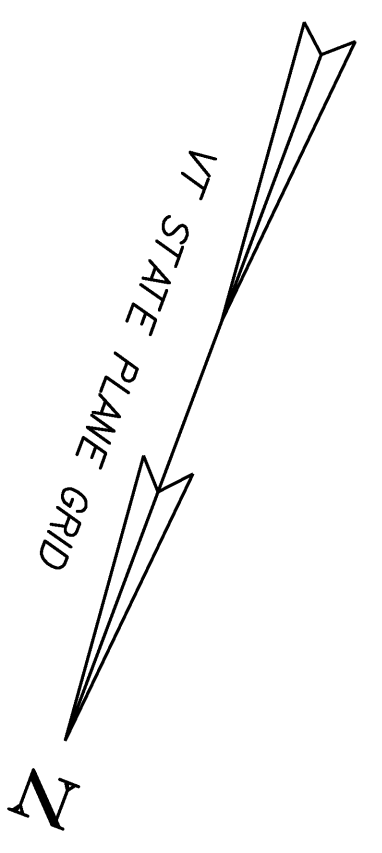
Install all erosion prevention and sediment control measures as shown in the Erosion Prevention and Sediment Control Plan or as directed by the Resident Engineer. Do not modify the type, size or location of any control or practice without approval of the Resident Engineer. Any changes shall be noted on the plans, in the weekly inspection report, and reported to the appropriate authority in a timely manner. Inspect all control measures weekly and after each rainfall event. Repair measures promptly once damage is discovered.

Preventing initial soil erosion is much more effective than treating eroded sediment. Therefore, stabilize all disturbed areas promptly after construction activity has temporarily or permanently ceased. Temporary vegetation shall be established if the area is to be without construction activity for a period of 14 days. Perimeter control measures shall be installed following clearing, but prior to the start of any grubbing or grading activity, install other temporary controls in incremental stages as construction proceeds.

Maintaining vegetated buffers along stream banks, wetlands or other sensitive areas is a crucial erosion and sediment control measure that should be utilized wherever possible.

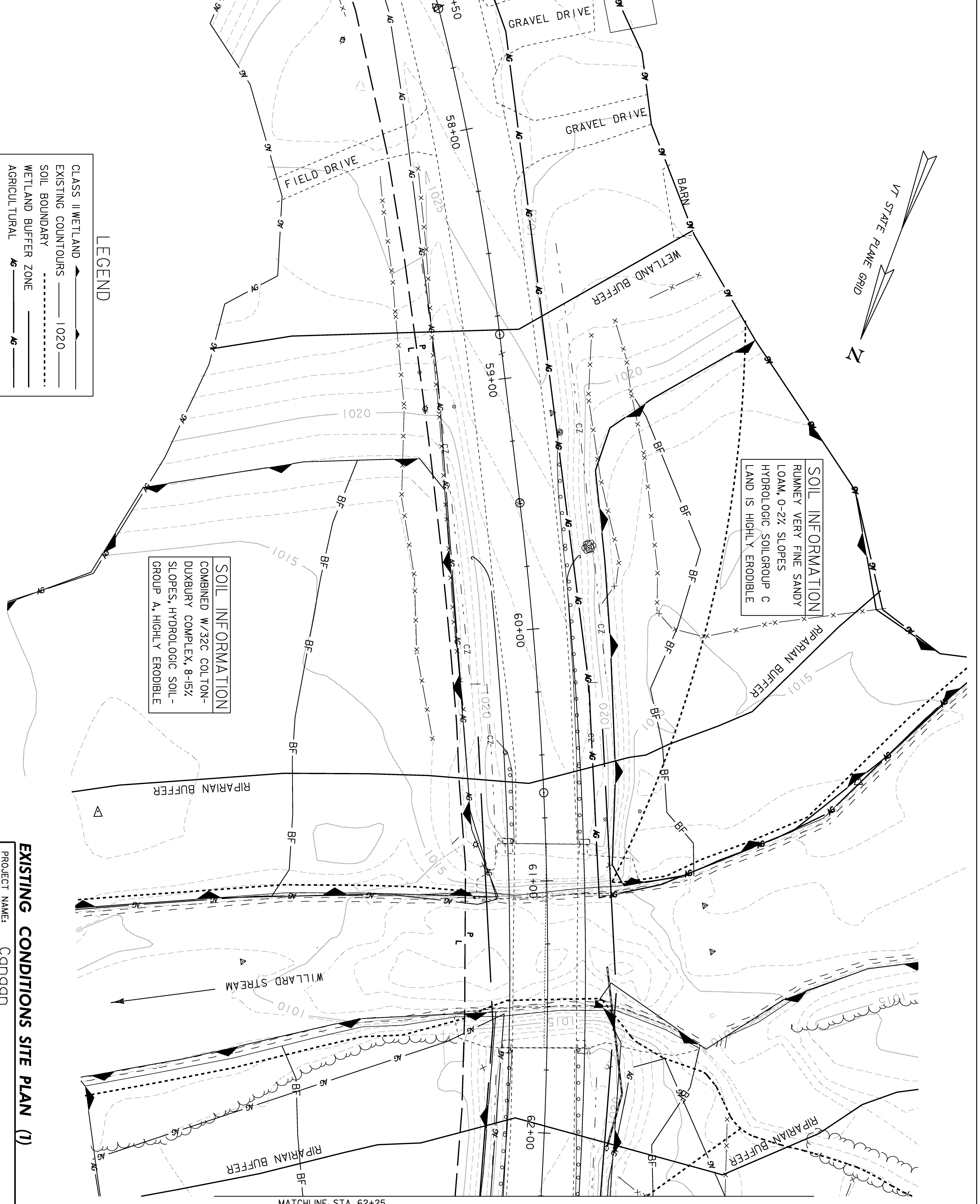
Control only sediment-laden runoff generated by the project site. Collect and route clean offsite runoff around or through the project site using diversion berms, diversion channels, culverts and/or temporary pipes. Do not allow construction equipment to operate on the down slope side of perimeter control measures.

PROJECTNAME:	CANAN	PLOT DATE:	8/18/2008
PROJECT NUMBER:	ER ST 0271 (16)	DRAWN BY:	G. ROKES
FILE NAME:	M:\structures\04c098econ.dgn	CHECKED BY:	G. ROKES
PROJECT LEADER:	M. EVANS-MONGON	SHEET	16
DESIGNED BY:	S. SCRIBNER	OF	66
EROSION CONTROL NARRATIVE			



SOIL INFORMATION
 RUMNEY VERY FINE SANDY
 LOAM, 0-2% SLOPES
 HYDROLOGIC SOILGROUP C
 LAND IS HIGHLY ERODIBLE

SOIL INFORMATION
 COMBINED W/32C COLTON-
 DUXBURY COMPLEX, 8-15%
 SLOPES, HYDROLOGIC SOIL-
 GROUP A, HIGHLY ERODIBLE



LEGEND

CLASS II WETLAND	→
EXISTING COUNTOURS	—— 1020
SOIL BOUNDARY	---
WETLAND BUFFER ZONE	- - - -
AGRICULTURAL	AG

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

EXISTING CONDITIONS SITE PLAN (1)

PROJECT NAME: CNDQGN
 PROJECT NUMBER: ER ST 0271(16)
 FILE NAME: Structur\es\X04c098er\obdr.d
 PROJECT LEADER: M. Evans-Monaghan
 DESIGNED BY: S. Scribner
 PLOT DATE: 18-AUG-2008
 DRAWN BY: T. Husk
 CHECKED BY: S. SCRIBNER
 SHEET 17 OF 66

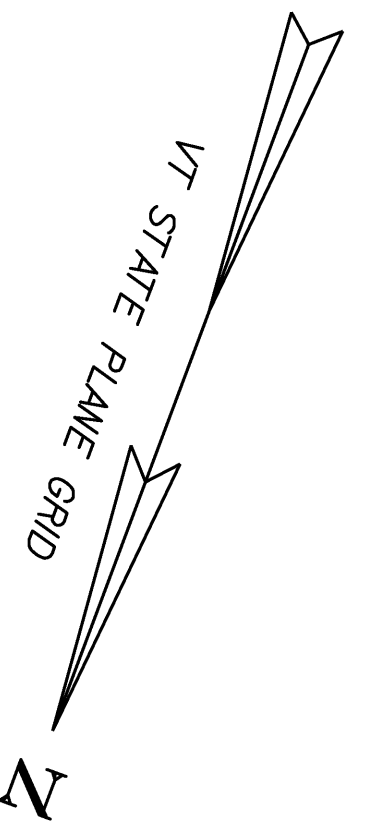
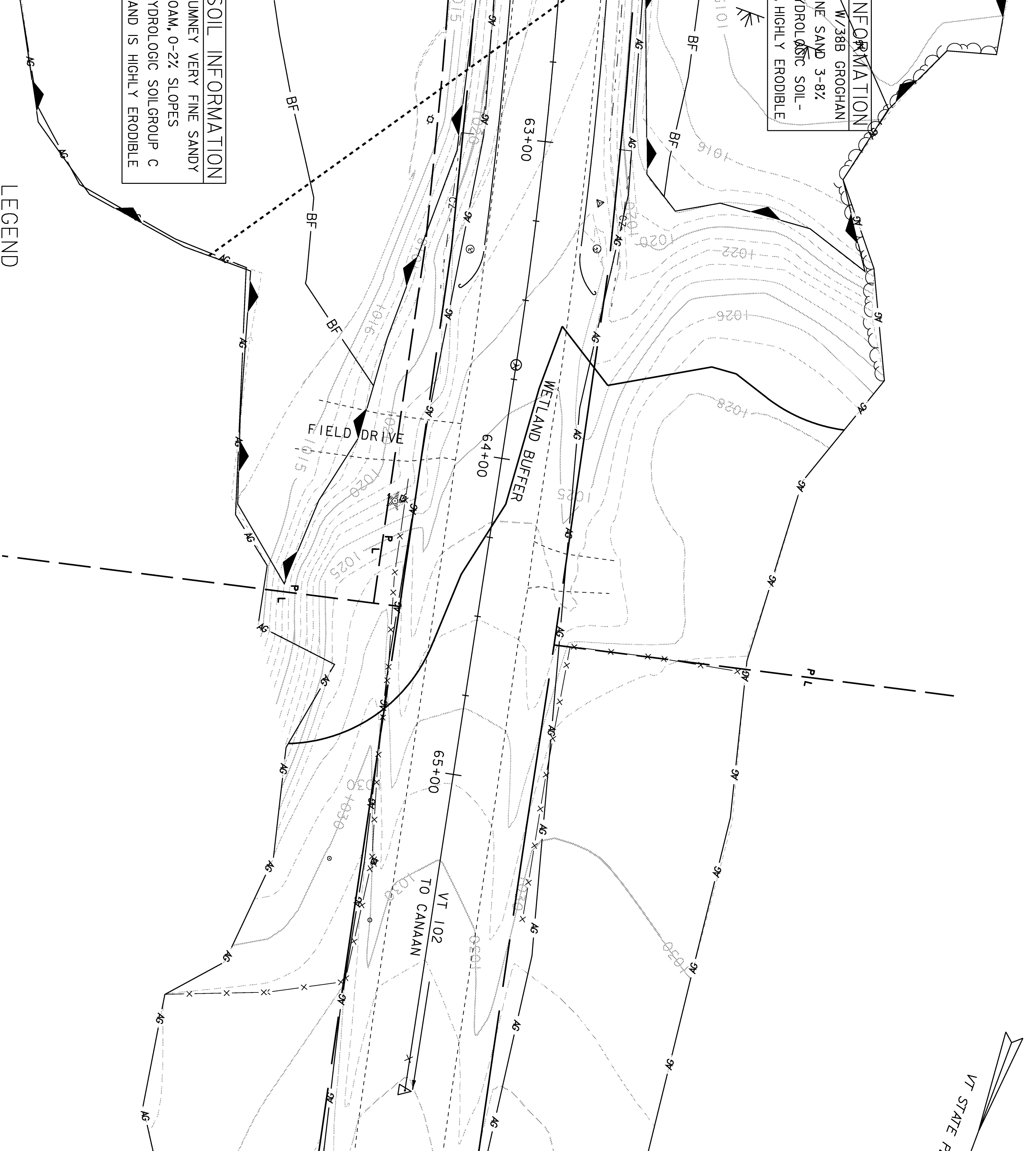
MATCHLINE STA 62+25

INFORMATION
 W/388 GROGHAN
 NE SAND 3-8%
 HYDROLOGIC SOIL GROUP -
 HIGHLY ERODIBLE

SOIL INFORMATION
 UMNNEY VERY FINE SANDY
 OAM, 0-2% SLOPES
 HYDROLOGIC SOIL GROUP C
 AND IS HIGHLY ERODIBLE

CLASS II WETLAND
 EXISTING COUNTOURS 1020
 SOIL BOUNDARY
 WETLAND BUFFER ZONE
 AGRICULTURAL

LEGEND



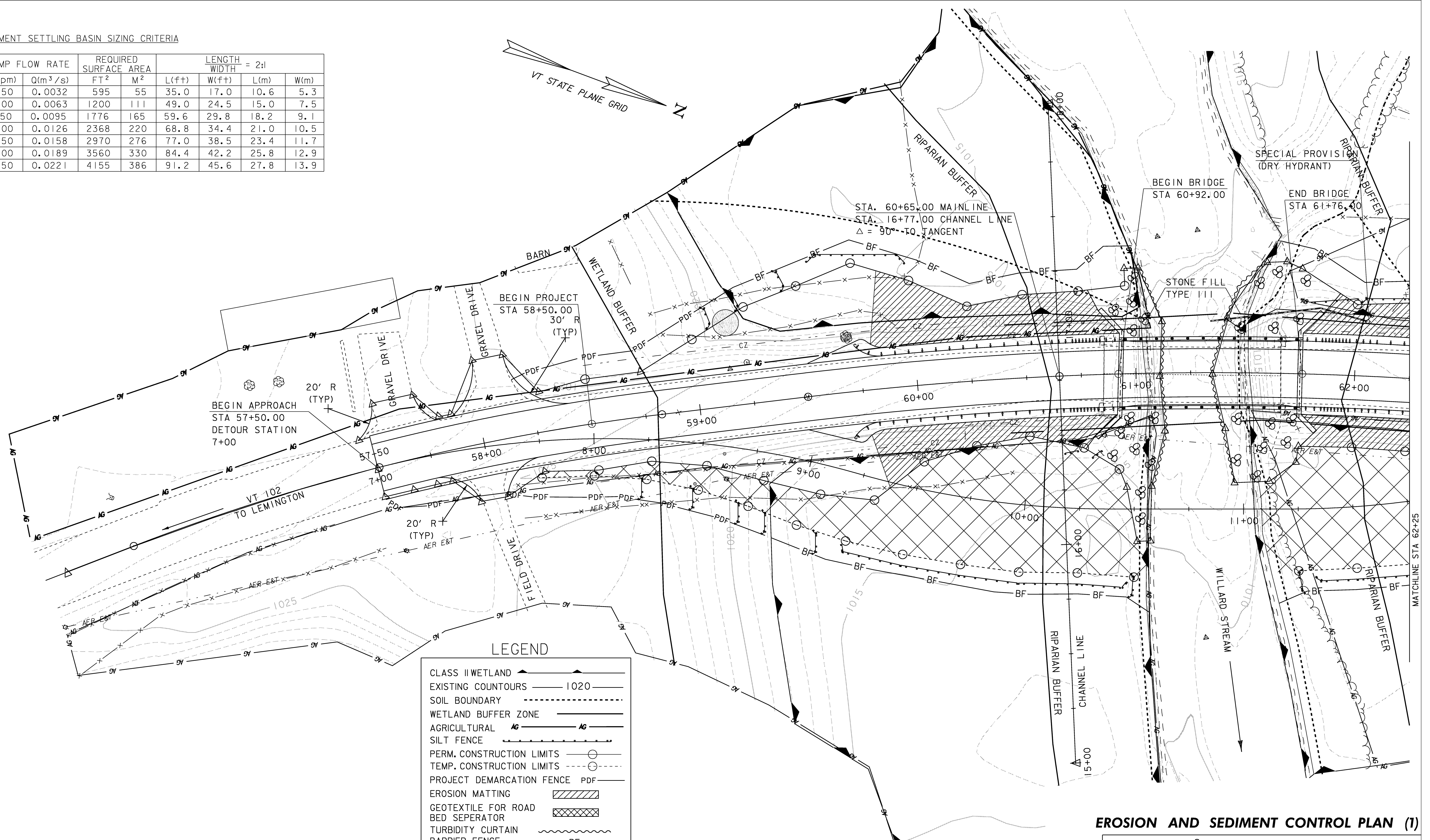
SCALE 1" = 20'-0"
 20 0 20

EXISTING CONDITIONS SITE PLAN (2)

PROJECT NAME: CONGDN
 PROJECT NUMBER: ER ST 0271(16)
 FILE NAME: Structures\X0460988r\obdr.d
 PROJECT LEADER: M. Evans-Monson
 DESIGNED BY: S. Scribner
 PLOT DATE: 18-AUG-2008
 DRAWN BY: T. Husk
 CHECKED BY: S. SCRIBNER
 SHEET 18 OF 66

SEDIMENT SETTLING BASIN SIZING CRITERIA

PUMP FLOW RATE		REQUIRED SURFACE AREA		LENGTH = 2:l			
Q(gpm)	Q(m ³ /s)	FT ²	M ²	L(f+)	W(f+)	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

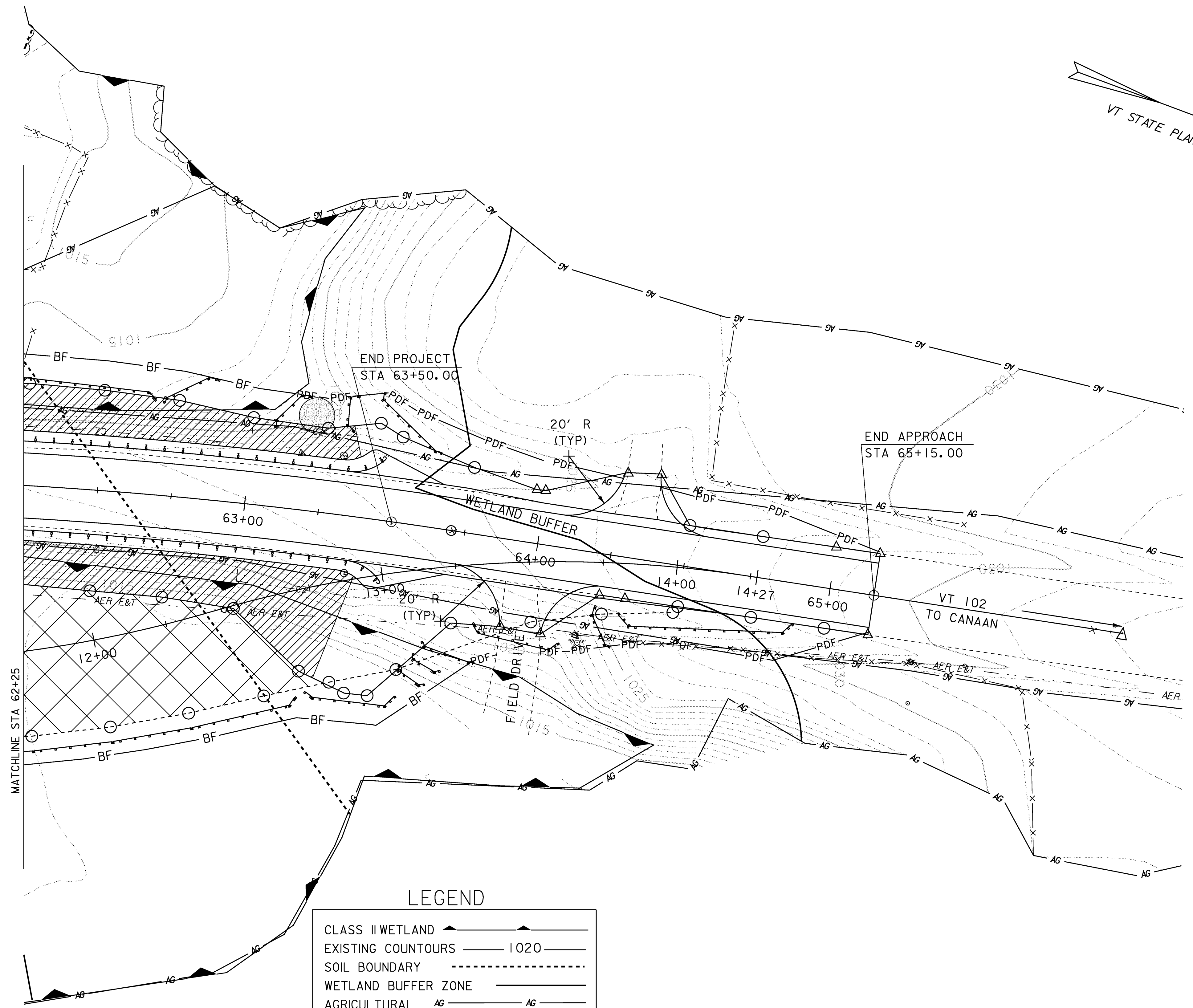
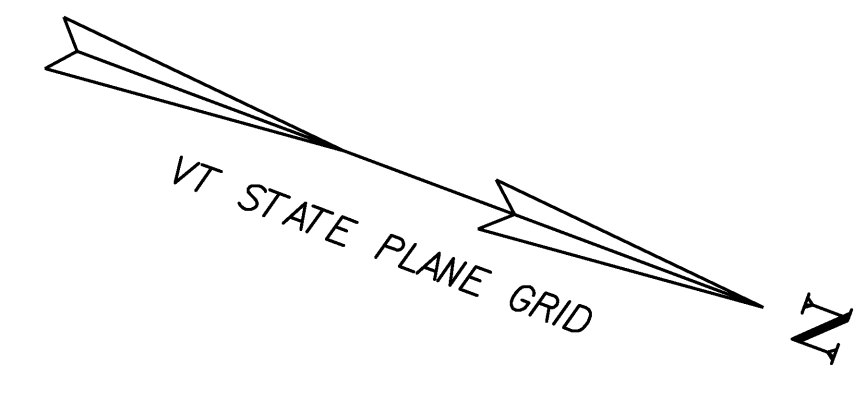


LEGEND

CLASS II WETLAND	
EXISTING COUNTOURS	
SOIL BOUNDARY	
WETLAND BUFFER ZONE	
AGRICULTURAL	
SILT FENCE	
PERM. CONSTRUCTION LIMITS	
TEMP. CONSTRUCTION LIMITS	
PROJECT DEMARCATION FENCE	
EROSION MATTING	
GEOTEXTILE FOR ROAD BED SEPERATOR	
TURBIDITY CURTAIN	
BARRIER FENCE	
PROPOSED SEDIMENT DEWATERING LOCATION	

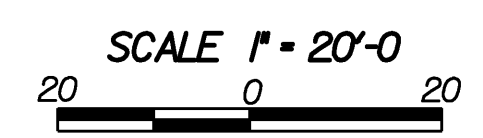
EROSION AND SEDIMENT CONTROL PLAN (1)

PROJECT NAME: Canaan
 PROJECT NUMBER: ER ST 0271(16)
 FILE NAME: Structures\04c098erobdr.d
 PROJECT LEADER: M. Evans-Mongeon
 DESIGNED BY: S. Scribner
 PLOT DATE: 18-AUG-2008
 DRAWN BY: T. Husk
 CHECKED BY: S. SCRIBNER
 SHEET 19 OF 66



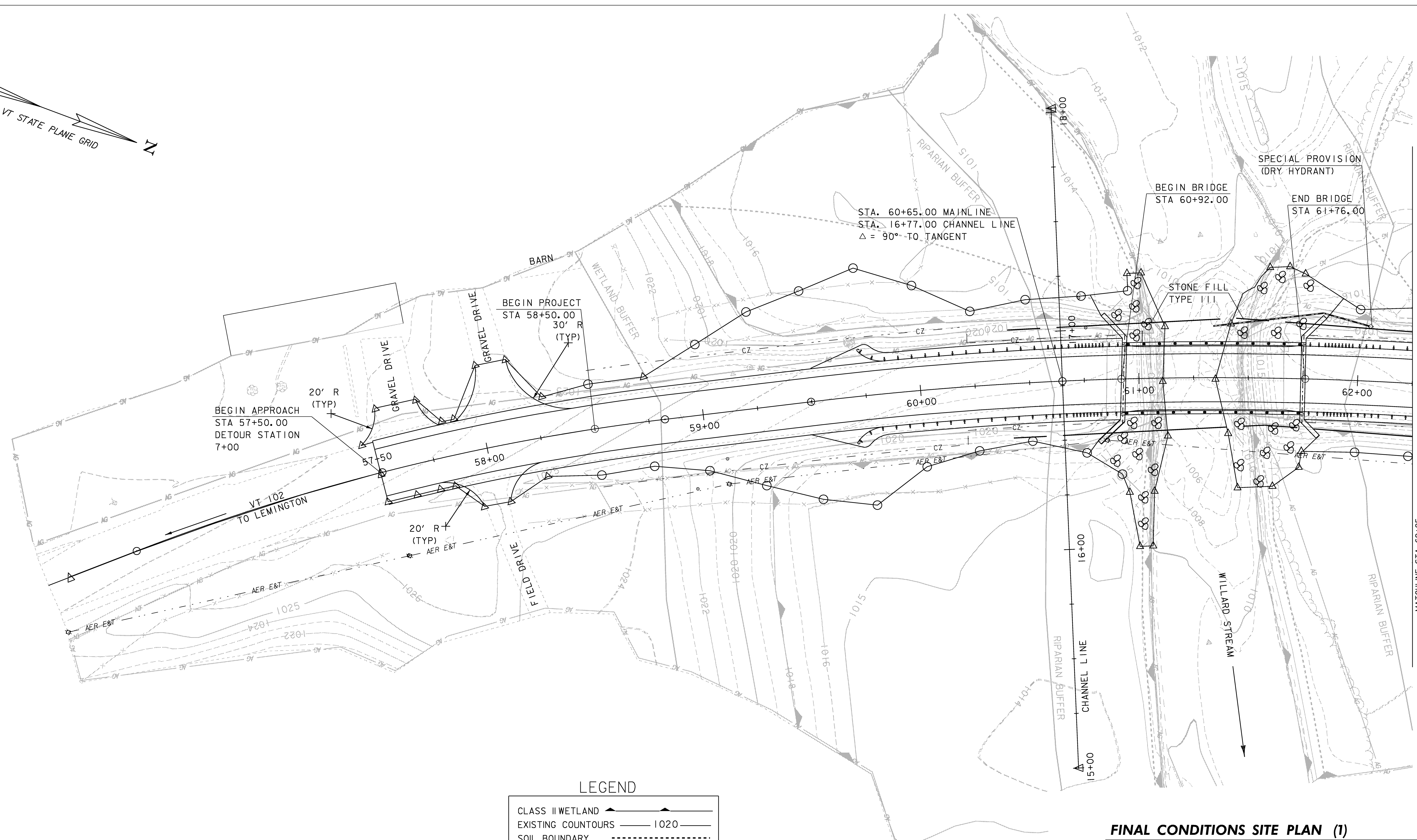
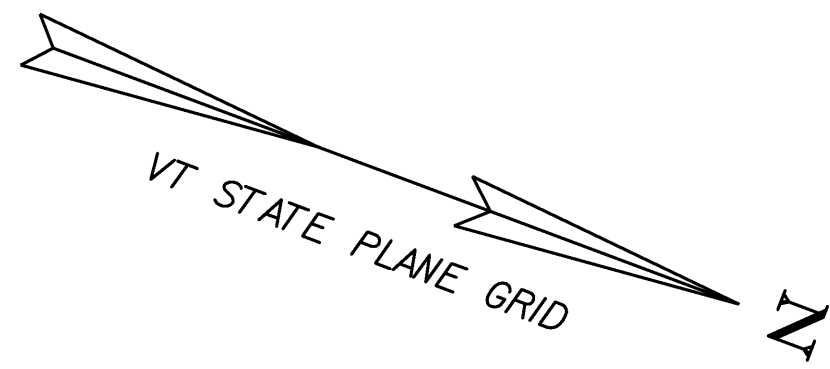
LEGEND

CLASS II WETLAND	
EXISTING COUNTOURS	
SOIL BOUNDARY	
WETLAND BUFFER ZONE	
AGRICULTURAL	
SILT FENCE	
PERM. CONSTRUCTION LIMITS	
TEMP. CONSTRUCTION LIMITS	
PROJECT DEMARCATION FENCE	
EROSION MATTING	
GEOTEXTILE FOR ROAD BED SEPERATOR	
BARRIER FENCE	
PROPOSED SEDIMENT DEWATERING LOCATION	



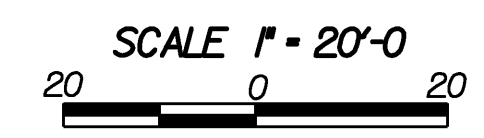
EROSION AND SEDIMENT CONTROL PLAN (2)

PROJECT NAME: Canaan	PLOT DATE: 18-AUG-2008
PROJECT NUMBER: ER ST 0271(16)	DRAWN BY: T. Husk
FILE NAME: Structures\X04c098erobdr.d	CHECKED BY: S. SCRIBNER
PROJECT LEADER: M. Evans-Mongeon	SHEET 20 OF 66
DESIGNED BY: S. Scribner	



LEGEND

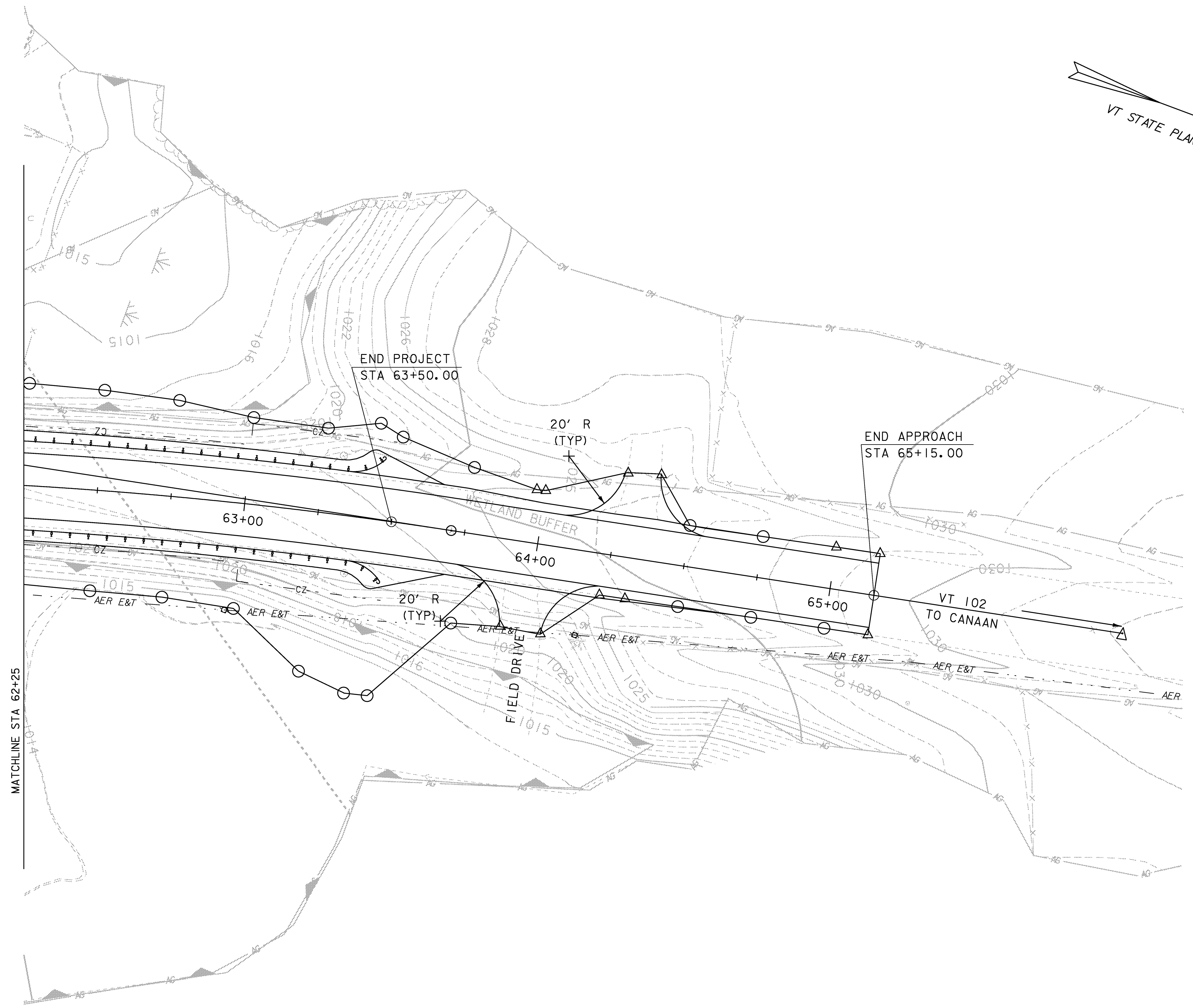
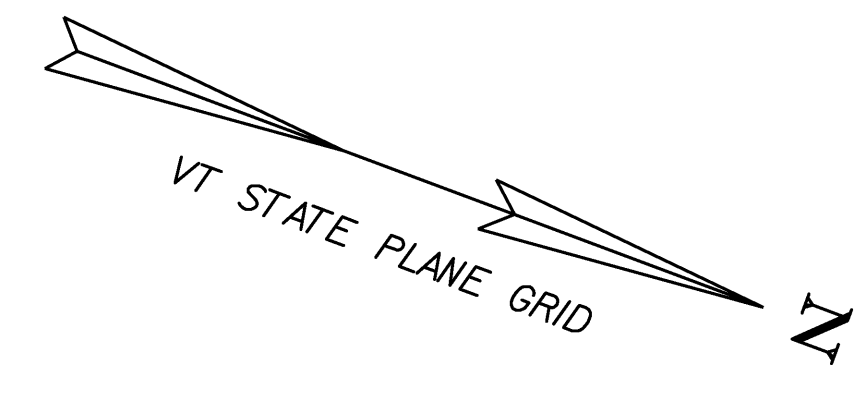
CLASS II WETLAND	
EXISTING CONTOURS	
SOIL BOUNDARY	
WETLAND BUFFER ZONE	
AGRICULTURAL	



CONTOURS SHOWN ARE EXISTING CONTOURS,
SEE CROSS SECTIONS FOR PROPOSED CONTOURS.

FINAL CONDITIONS SITE PLAN (1)

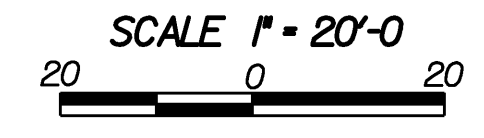
PROJECT NAME:	Canaan	PLOT DATE:	18-AUG-2008
PROJECT NUMBER:	ER ST 0271(16)	DRAWN BY:	T. Husk
FILE NAME:	Structures\04c098erobdr.d	CHECKED BY:	S. Scribner
DESIGNED BY:	S. Scribner	SHEET	21 OF 66



MATCHLINE STA 62+25

LEGEND

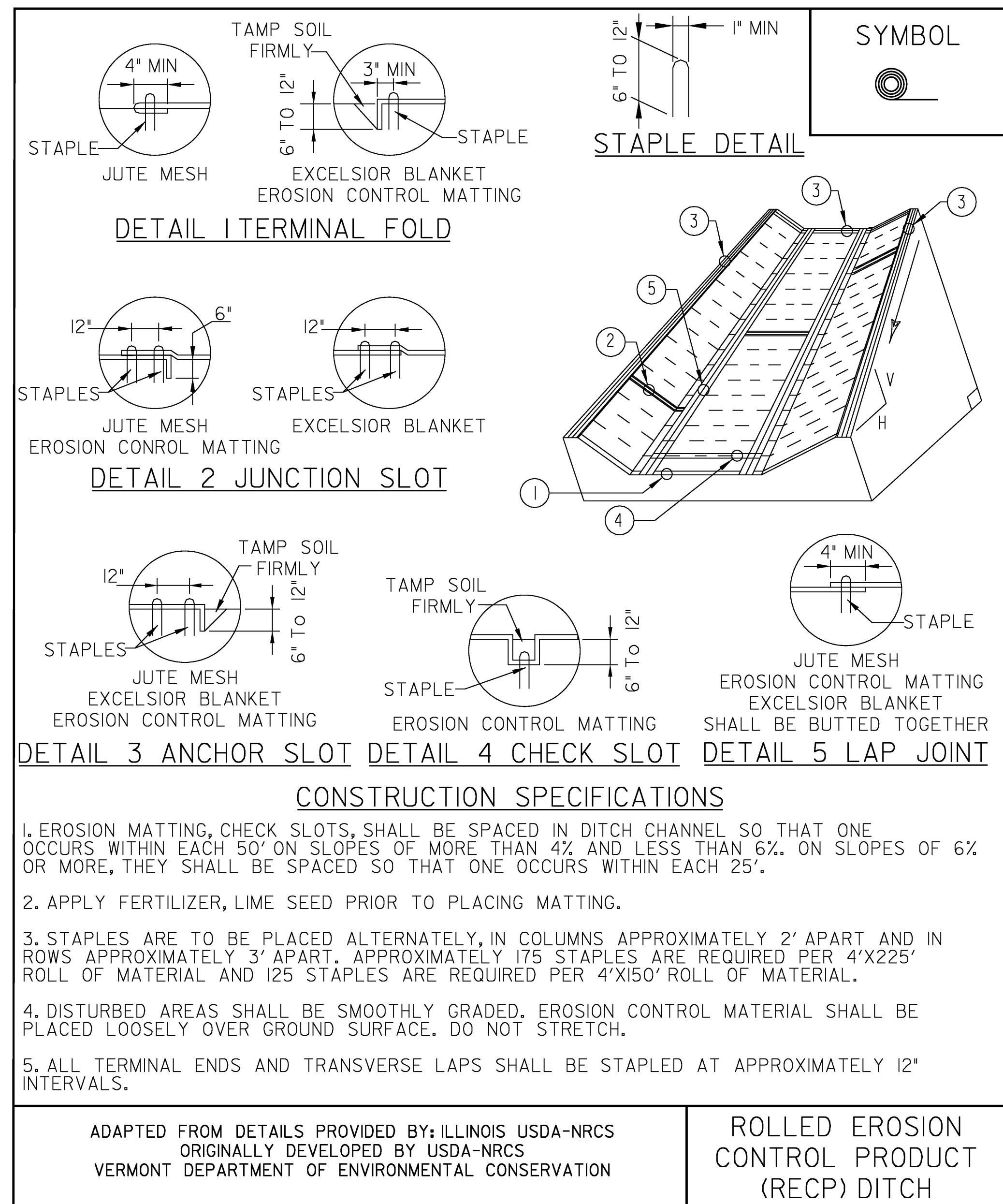
CLASS II WETLAND	
EXISTING COUNTOURS	
SOIL BOUNDARY	
WETLAND BUFFER ZONE	
AGRICULTURAL	



CONTOURS SHOWN ARE EXISTING CONTOURS,
SEE CROSS SECTIONS FOR PROPOSED CONTOURS.

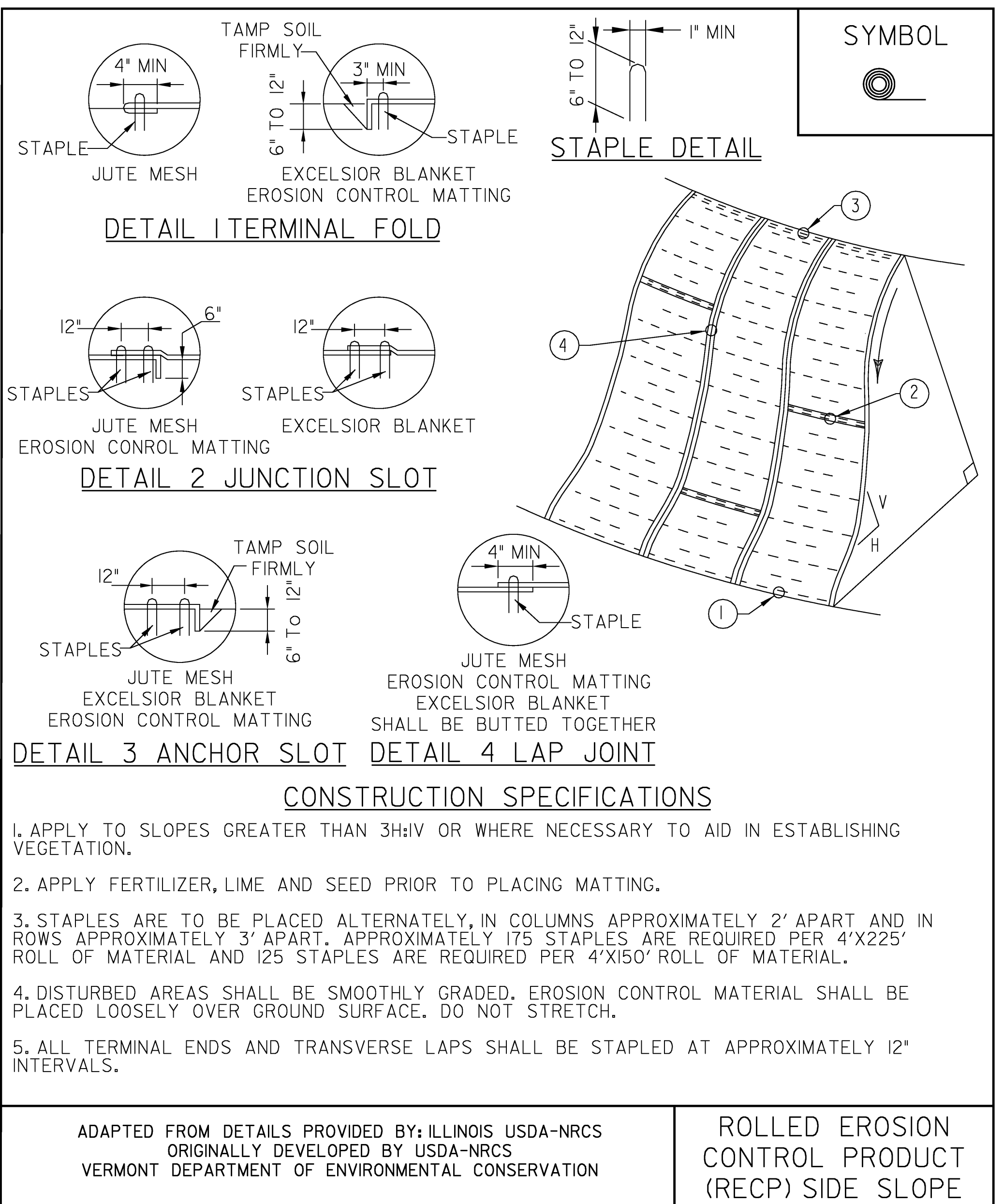
FINAL CONDITIONS SITE PLAN (2)

PROJECT NAME: Canaan	PLOT DATE: 18-AUG-2008
PROJECT NUMBER: ER ST 0271(16)	DRAWN BY: T. Husk
FILE NAME: Structures\04c098erobdr.d	CHECKED BY: S. SCRIBNER
PROJECT LEADER: M. Evans-Mongeon	SHEET 22 OF 66
DESIGNED BY: S. Scribner	



NOTES:
 REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
 THIS ITEM SHALL BE PAID FOR UNDER ITEM 653.20 TEMPORARY EROSION MATTING OR 653.21 PERMANENT EROSION MATTING

REVISIONS		
MARCH 8, 2007	JMF	
APRIL 16, 2007	WHF	

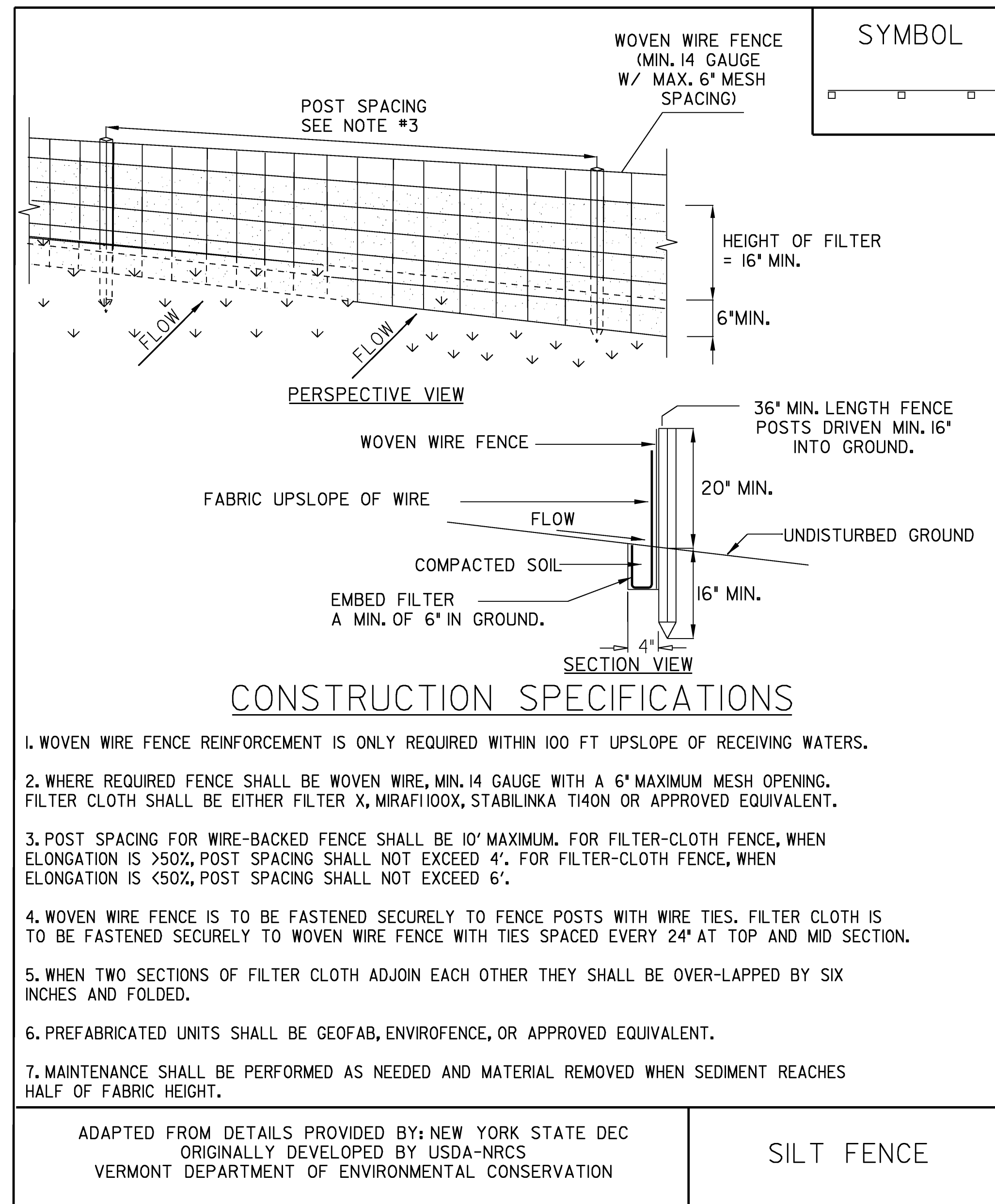


NOTES:
 REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
 THIS ITEM SHALL BE PAID FOR UNDER ITEM 653.20 TEMPORARY EROSION MATTING OR 653.21 PERMANENT EROSION MATTING

REVISIONS		
NEW		
APRIL 16, 2007	WHF	

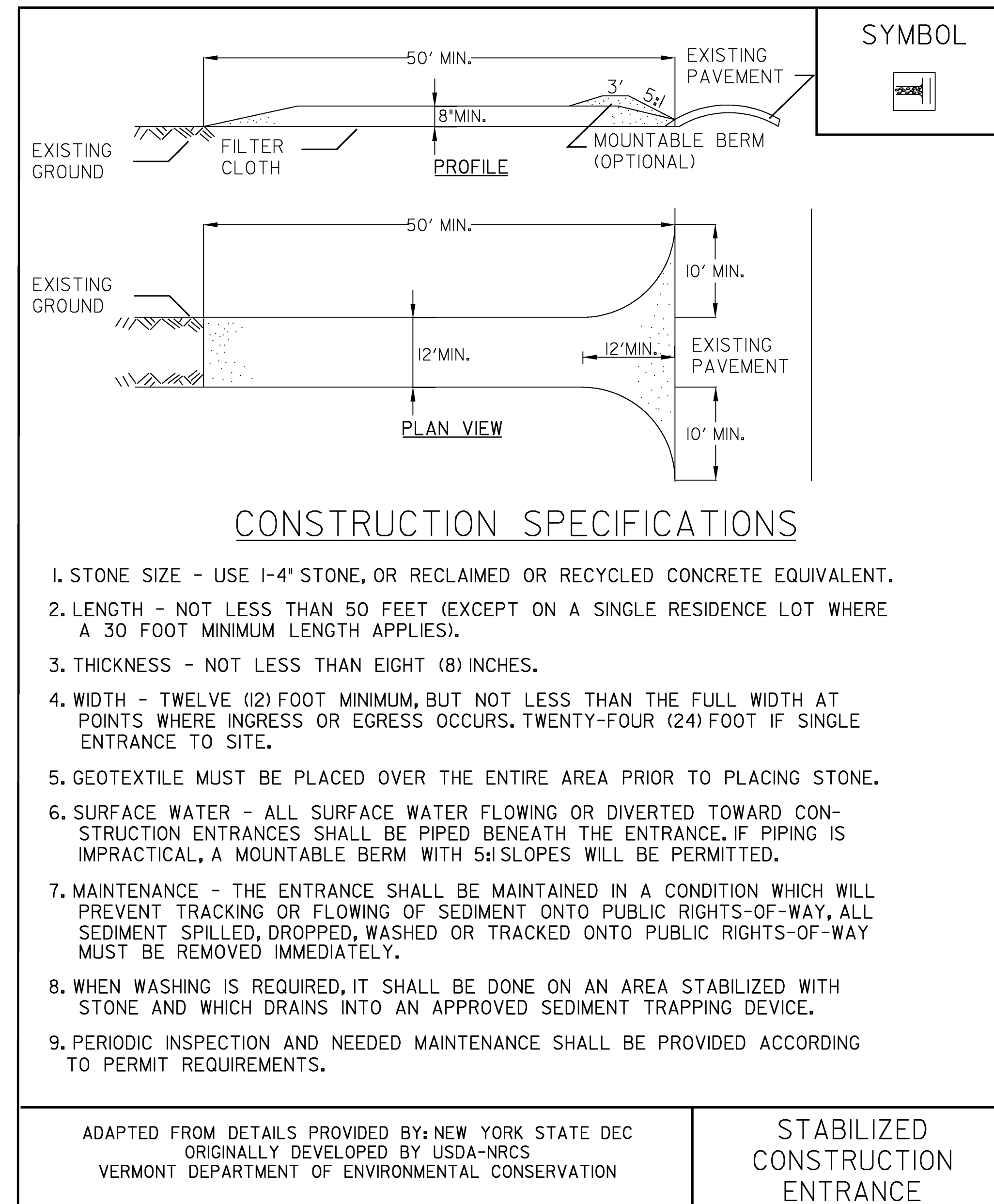
EROSION DETAIL SHEET 1

PROJECT NAME: Canaan	PLOT DATE: 18-AUG-2008
PROJECT NUMBER: ER ST 0271(16)	DRAWN BY: T. Husk
FILE NAME: Structures*c098ero.dgn	CHECKED BY: S. SCRIBNER
PROJECT LEADER: M. Evans-Mongeon	SHEET 23 OF 66
DESIGNED BY: S. Scribner	



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

THIS ITEM SHALL BE PAID FOR UNDER ITEM STANDARD SPECIFICATION 649.51 GEOTEXTILE FOR SILT FENCE OR SPECIAL PROVISION 900.675 (GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED)



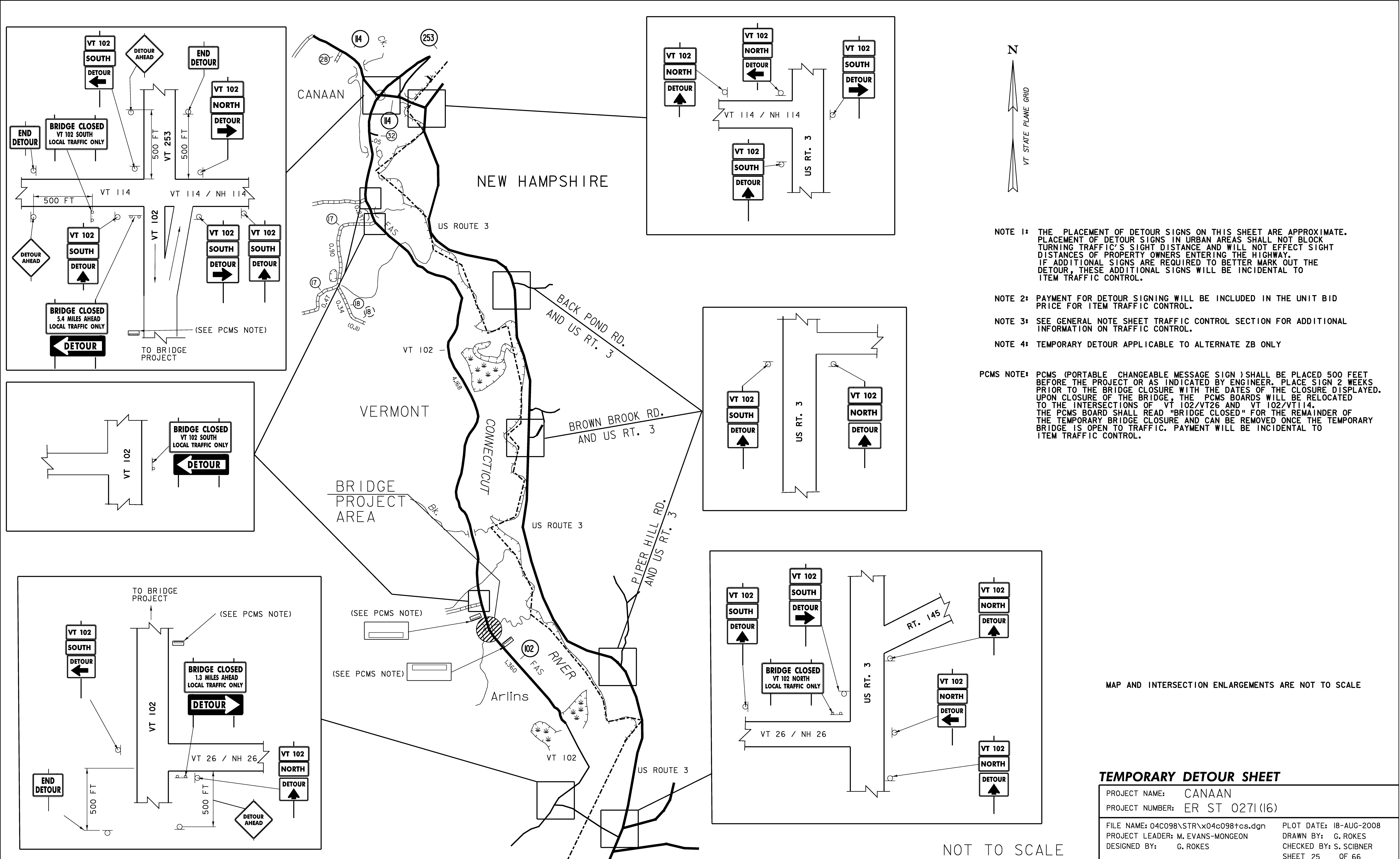
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS ITEM SHALL BE PAID FOR UNDER ITEM 653.35 VEHICLE TRACKING PAD

REVISIONS		
FEBRUARY 9, 2007	WHF	
MARCH 8, 2007	JMF	

EROSION DETAIL SHEET 2

PROJECT NAME:	Canaan
PROJECT NUMBER:	ER ST 0271(16)
FILE NAME:	Structures*c098ero.dgn
PROJECT LEADER:	M. Evans-Mongeon
DESIGNED BY:	S. Scribner
CHECKED BY:	S. Scribner
PLOT DATE:	18-AUG-2008
DRAWN BY:	T. Husk
CHECKED BY:	S. Scribner
SHEET	24 OF 66



- NOTE 1: THE PLACEMENT OF DETOUR SIGNS ON THIS SHEET ARE APPROXIMATE. PLACEMENT OF DETOUR SIGNS IN URBAN AREAS SHALL NOT BLOCK TURNING TRAFFIC'S SIGHT DISTANCE AND WILL NOT EFFECT SIGHT DISTANCES OF PROPERTY OWNERS ENTERING THE HIGHWAY. IF ADDITIONAL SIGNS ARE REQUIRED TO BETTER MARK OUT THE DETOUR, THESE ADDITIONAL SIGNS WILL BE INCIDENTAL TO ITEM TRAFFIC CONTROL.
- NOTE 2: PAYMENT FOR DETOUR SIGNING WILL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM TRAFFIC CONTROL.
- NOTE 3: SEE GENERAL NOTE SHEET TRAFFIC CONTROL SECTION FOR ADDITIONAL INFORMATION ON TRAFFIC CONTROL.
- NOTE 4: TEMPORARY DETOUR APPLICABLE TO ALTERNATE ZB ONLY

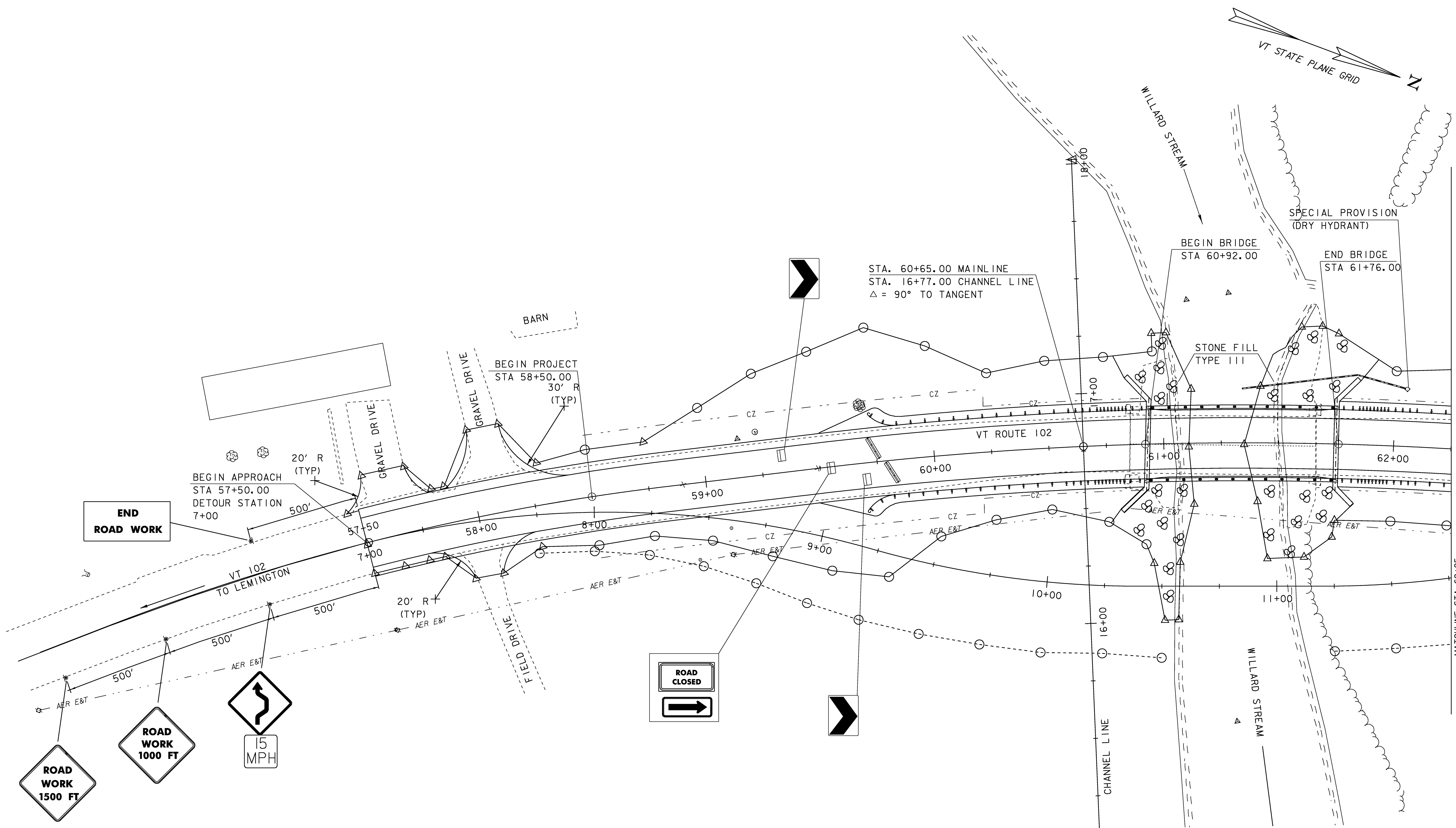
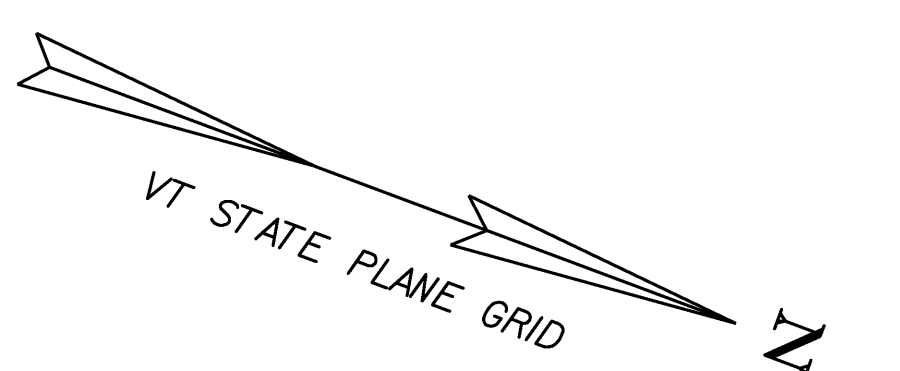
PCMS NOTE: PCMS (PORTABLE CHANGEABLE MESSAGE SIGN) SHALL BE PLACED 500 FEET BEFORE THE PROJECT OR AS INDICATED BY ENGINEER. PLACE SIGN 2 WEEKS PRIOR TO THE BRIDGE CLOSURE WITH THE DATES OF THE CLOSURE DISPLAYED. UPON CLOSURE OF THE BRIDGE, THE PCMS BOARDS WILL BE RELOCATED TO THE INTERSECTIONS OF VT 102/VT26 AND VT 102/VT114. THE PCMS BOARD SHALL READ "BRIDGE CLOSED" FOR THE REMAINDER OF THE TEMPORARY BRIDGE CLOSURE AND CAN BE REMOVED ONCE THE TEMPORARY BRIDGE IS OPEN TO TRAFFIC. PAYMENT WILL BE INCIDENTAL TO ITEM TRAFFIC CONTROL.

MAP AND INTERSECTION ENLARGEMENTS ARE NOT TO SCALE

TEMPORARY DETOUR SHEET

PROJECT NAME:	CANAAN	FILE NAME:	04C098\STR\X04C098+cs.dgn	PLOT DATE:	18-AUG-2008
PROJECT NUMBER:	ER ST 0271(16)	PROJECT LEADER:	M. EVANS-MONGEON	DRAWN BY:	G. ROKES
		DESIGNED BY:	G. ROKES	CHECKED BY:	S. SCIBNER
				SHEET	25 OF 66

NOT TO SCALE



END ROAD WORK

BEGIN APPROACH
STA 57+50.00
DETOUR STATION
7+00

BEGIN PROJECT
STA 58+50.00
30' R
(TYP)

STA. 60+65.00 MAINLINE
STA. 16+77.00 CHANNEL LINE
 $\Delta = 90^\circ$ TO TANGENT

BEGIN BRIDGE
STA 60+92.00

END BRIDGE
STA 61+76.00

STONE FILL
TYPE III

SPECIAL PROVISION
(DRY HYDRANT)

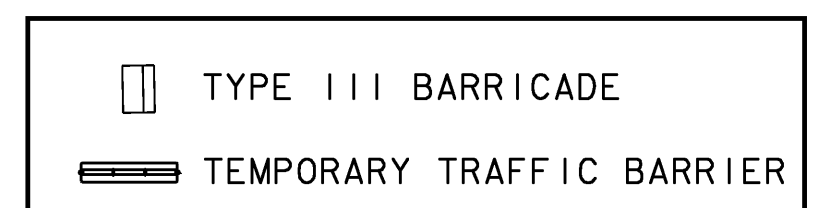
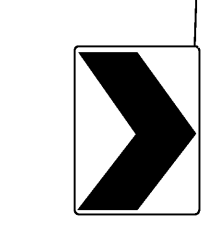
VT ROUTE 102

VT 102
TO LEMINGTON

ROAD
WORK
1500 FT

ROAD
WORK
1000 FT

15
MPH

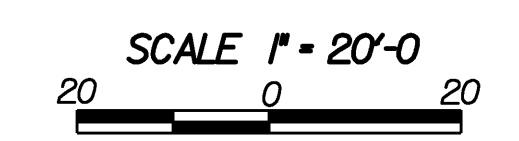
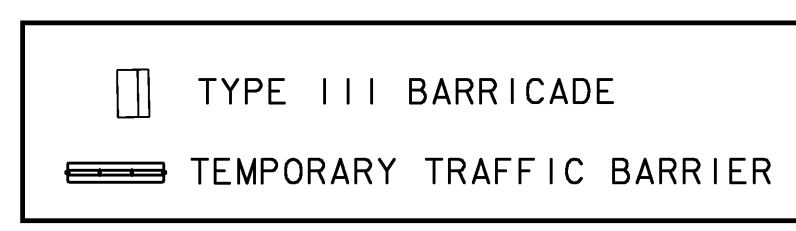
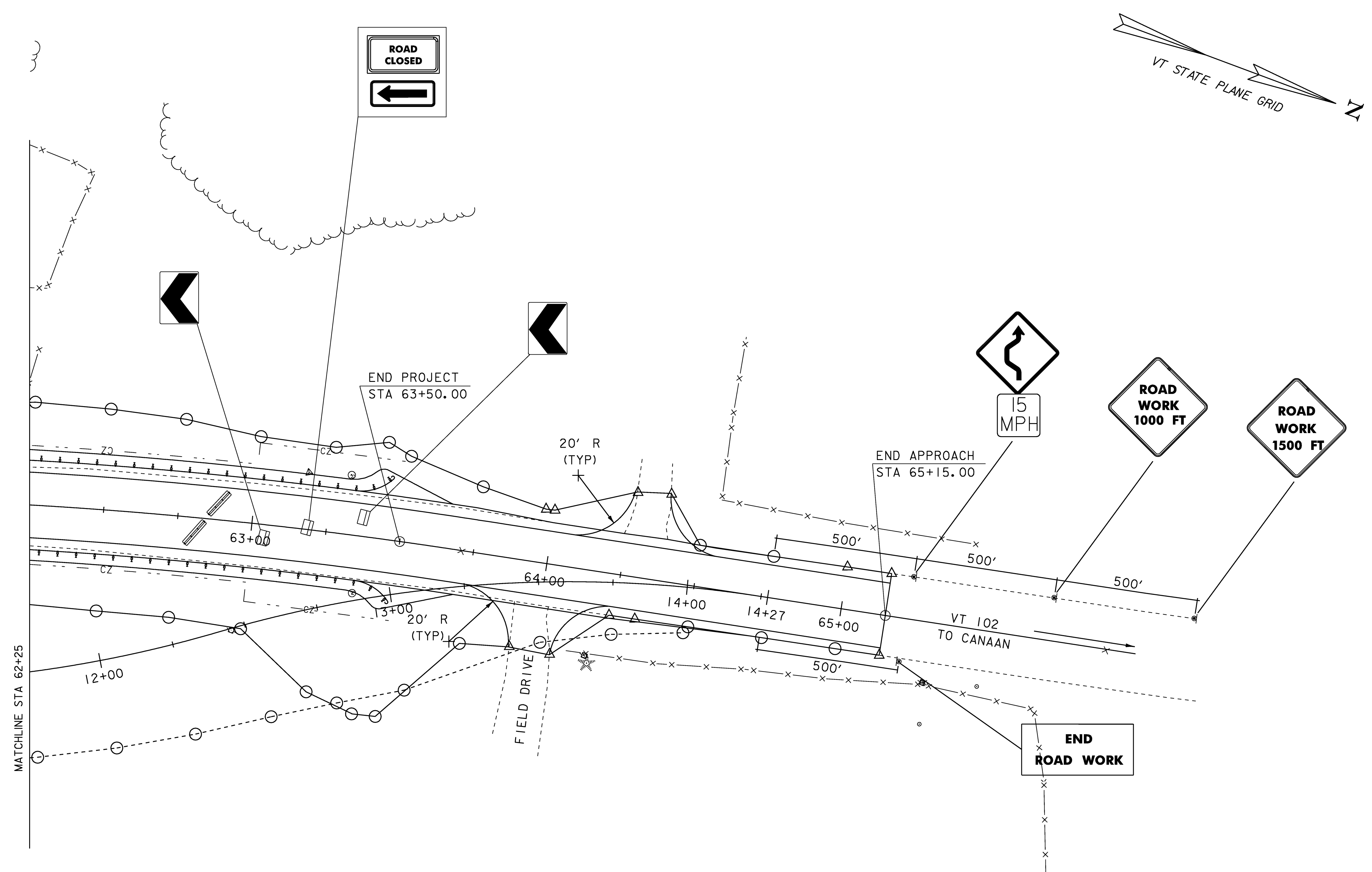


SCALE 1" = 20'-0"
20 0 20

TRAFFIC CONTROL SHEET #1

PROJECT NAME: Canaan	PLOT DATE: 18-AUG-2008
PROJECT NUMBER: ER ST 0271(16)	DRAWN BY: T. Husk
FILE NAME: Structures/04c098+cs.dgn	CHECKED BY: S. SCRIBNER
PROJECT LEADER: M. Evans-Mongeon	SHEET 26 OF 66
DESIGNED BY: S. Scribner	

MATCHLINE STA 62+25



TRAFFIC CONTROL SHEET #2

PROJECT NAME: Canaan	PLOT DATE: 18-AUG-2008
PROJECT NUMBER: ER ST 0271(16)	DRAWN BY: T. Husk
FILE NAME: Structures/04c098+cs.dgn	CHECKED BY: S. SCRIBNER
PROJECT LEADER: M. Evans-Mongeon	SHEET 27 OF 66
DESIGNED BY: S. Scribner	

SOIL CLASSIFICATION

AASHTO

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

COMMONLY USED SYMBOLS

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

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

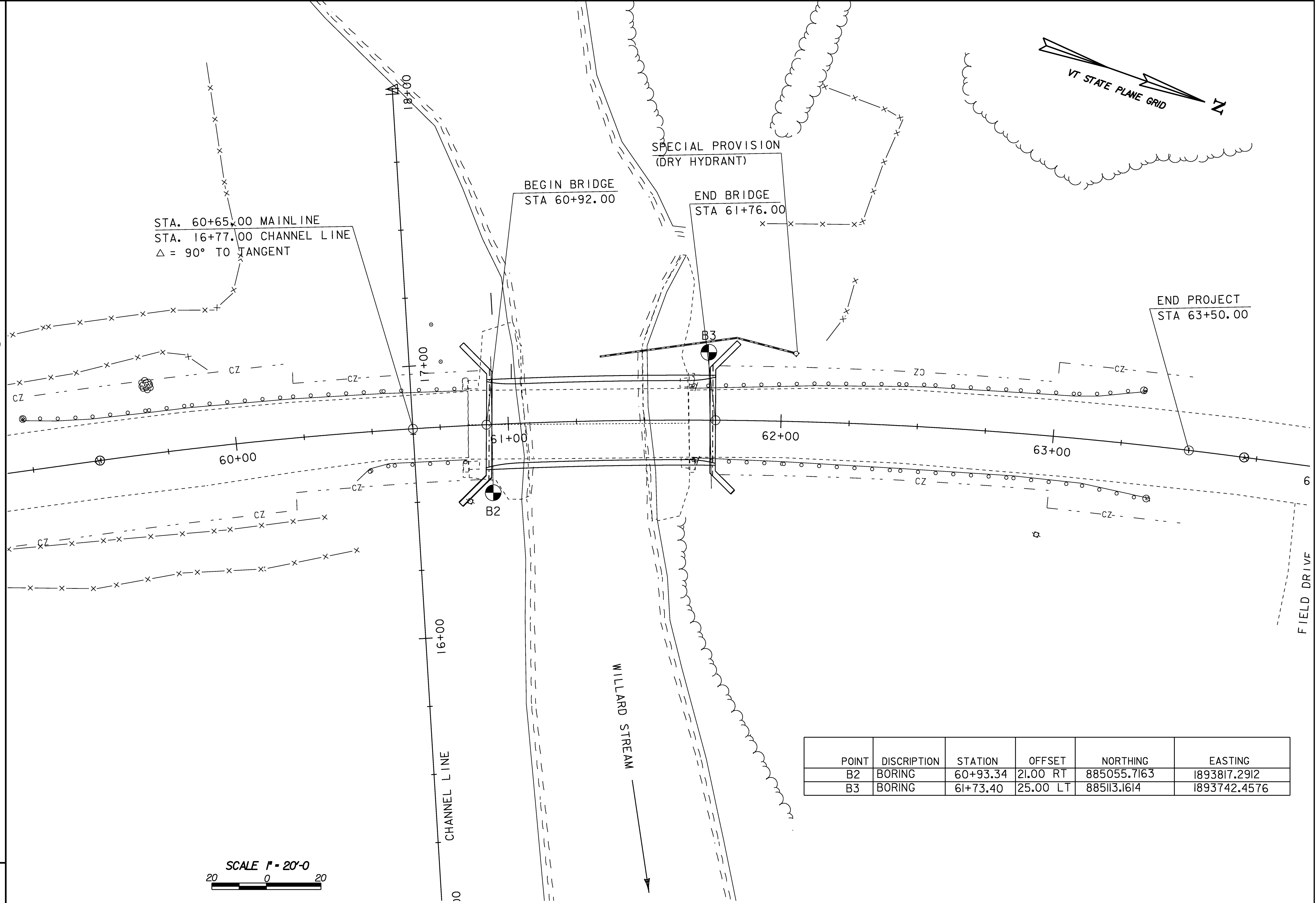
CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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

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

DEFINITIONS (AASHTO)

- BEDROCK (LEDGE)** - Rock in its native location of indefinite thickness.
- BOULDER** - A rock fragment with an average dimension > 12 inches.
- COBBLE** - Rock fragments with an average dimension between 3 and 12 inches.
- GRAVEL** - Rounded particles of rock < 3" and > 0.075" (#10 sieve).
- SAND** - Particles of rock < 0.075" (#10 sieve) and > 0.0025" (#200 sieve).
- SILT** - Soil < 0.0025" (#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.



POINT	DISCRPTION	STATION	OFFSET	NORTHING	EASTING
B2	BORING	60+93.34	21.00 RT	885055.7163	1893817.2912
B3	BORING	61+73.40	25.00 LT	885113.1614	1893742.4576

GENERAL NOTES

- The subsurface explorations shown herein were made between 10/30/04 and 12/03/04 by the Agency.
- 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.
- 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.
- 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.
- 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.
- 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.

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	CANAAN	Bridge No.	16
Highway No.	VT 102	Log Sta.	
		Surv. Sta.	
BORING INFORMATION SHEET			
Designed By	S. SCRIBNER	Drawn By	T. HUSK
Checked By	S. SCRIBNER	Bridge Design Supervisor	
PROJECT	CANAAN	PROJECT NO.	ER ST 027(16)
I.G.C. Info.			
Bridge Sheet No.		Sheet	28 of 66

VT logo		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING NUMBER: B-2 SHEET 1 of 2 DATE STARTED: 11/01/04 DATE COMPLETED: 11/09/04					
PROJECT NAME: CANAAN SITE NAME: BR-16 STATION: 60+93.34 OFFSET: 21.00		PROJECT NUMBER: ST 0271(16) SITE NUMBER: VT-102 GROUND ELEVATION: 1017.0 ft GROUNDWATER DEPTH: 8.0 ft 11/09/04							
BORING CREW CREW CHIEF: TALLMAN DRILLER: TALLMAN LOGGER: RUSSELL		BORING RIG: LARGE SKID RIG BORING TYPE: WASH BORE SAMPLE TYPE: SPLIT BARREL CHECKED BY: CAA							
DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)	LL (%)	PI (%)
10		A-1-b, GrSa, brn, Moist, Rec. = 0.4 ft No Recovery, 2.0 ft - 4.0 ft	10	17.3	31.5	48.7	19.8		
		A-1-b, SaGr, brn, Moist, Rec. = 0.5 ft	5	12.6	45.3	43.1	11.6		
		A-1-b, SaGr, brn, Moist, Rec. = 0.4 ft	10	13.9	46.6	39.6	13.8		
		A-1-a, SaGr, brn, Moist, Rec. = 0.8 ft	7	14.9	51.7	37.7	10.6		
		A-1-a, SaGr, brn, Moist, Rec. = 0.7 ft	6	12.2	60.7	29.7	9.6		
		A-4, SaSi, Dk/gry, Moist, Rec. = 1.1 ft	7	21.8	0.2	37.6	62.2		
		A-4, Si, Dk/gry, Moist, Rec. = 2.0 ft	4	22.0	0.0	8.9	91.1		
		A-4, Si, Dk/gry, Moist, Rec. = 2.0 ft	3	26.5	0.0	4.8	95.2		
		A-4, Si, Dk/gry, Moist, Rec. = 2.0 ft	2	27.9	0.0	6.7	93.3		
20		A-4, Si, Dk/gry, Moist, Rec. = 2.0 ft	2	25.4	0.0	4.9	95.1		
30		A-4, Si, Dk/gry, Moist, Rec. = 1.2 ft	2	24.7	0.0	3.7	96.3		
		A-4, Si, Dk/gry, Moist, Rec. = 1.0 ft	3	26.3	0.0	5.0	95.0		
40		A-4, Si, Dk/gry, Moist, Rec. = 1.1 ft	2	23.5	0.0	7.0	93.0		
		A-4, Si, Dk/gry, Moist, Rec. = 1.2 ft	2	26.5	0.0	3.9	96.1		
50		A-4, Si, Dk/gry, Moist, Rec. = 1.0 ft	WH	29.5	0.0	2.1	97.9		
		A-4, Si, Dk/gry, Moist, Rec. = 1.1 ft	WH	27.4	0.0	1.8	98.2		
60		A-4, Si, Dk/gry, Moist, Rec. = 0.8 ft	2	28.4	0.0	1.8	98.2		
		A-4, Si, Dk/gry, Moist, Rec. = 0.9 ft	WH	28.4	0.0	1.4	98.6		
70		A-4, Si, Dk/gry, Moist, Rec. = 1.4 ft	WH	28.3	0.0	1.2	98.8	24	3
		A-4, Si, Dk/gry, Moist, Rec. = 1.3 ft	WH	29.2	0.0	1.4	98.6	25	3
80		A-4, Si, Dk/gry, Moist, Rec. = 1.4 ft	WH	28.2	0.0	1.0	99.0	25	2
		84.0 ft, No sample, Still in same material, Will continue in 10 ft. intervals until material changes.							
90		A-4, Si, Dk/gry, Moist, Rec. = 2.0 ft	WH	28.4	0.0	1.9	98.1	25	3
100		A-4, Si, Dk/gry, Moist, Rec. = 2.0 ft	WH	27.9	0.0	1.9	98.1	25	4
		No Recovery, 105.0 ft - 107.0 ft	9						

BOTTOM OF FOOTING
 ELEVATION = 999.80

LOG OF BORING CANAAN ST0271(16).DGN VT_A01.GBT 8/8/05

VT logo		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING NUMBER: B-2 SHEET 2 of 2 DATE STARTED: 11/01/04 DATE COMPLETED: 11/09/04					
PROJECT NAME: CANAAN SITE NAME: BR-16 STATION: 60+93.34 OFFSET: 21.00		PROJECT NUMBER: ST 0271(16) SITE NUMBER: VT-102 GROUND ELEVATION: 1017.0 ft GROUNDWATER DEPTH: 8.0 ft 11/09/04							
BORING CREW CREW CHIEF: TALLMAN DRILLER: TALLMAN LOGGER: RUSSELL		BORING RIG: LARGE SKID RIG BORING TYPE: WASH BORE SAMPLE TYPE: SPLIT BARREL CHECKED BY: CAA							
DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)	LL (%)	PI (%)
120		A-4, SaSi, Dk/gry, Moist, Rec. = 1.9 ft 112.0 ft, Drillers noted pocket of sandy material that changed back to silt between 110 ft. and 120 ft.	9	19.7	0.0	28.6	71.4		
		A-4, Si, Dk/gry, Moist, Rec. = 1.8 ft, Encountered flowing water.	WH	29.5	0.0	1.0	99.0	27	4
130		Visual Class: A-4, Si, Dk/gry, Moist, Rec. = 1.9 ft, 130.0 ft - 132.0 ft	WH	29.2					
140		Visual Class: A-4, Si, Dk/gry, Moist, Rec. = 1.6 ft, 140.0 ft - 142.0 ft	WH	30.5					
150		A-4, Si, Dk/gry, Moist, Rec. = 1.5 ft	WH	30.3	0.0	1.5	98.5	26	3
160		Visual Class: A-4, Si, Dk/gry, Moist, Rec. = 1.5 ft, 160.0 ft - 162.0 ft	WH	31.3					
170		A-4, Si, Dk/gry, Moist, Rec. = 1.8 ft	WH	31.3	0.0	0.5	99.5	30	7
180		180.0 ft - 182.0 ft, No Sample, Advanced casing.							
190		190.0 ft - 192.0 ft, No Sample, Advanced casing.							
200		A-4, Si, Dk/gry, Moist, Rec. = 1.9 ft Hole stopped @ 202.0 ft	WH	30.0	0.0	1.6	98.4	27	3
210		DRILLER'S NOTES: Encountered flowing water at 120.0 feet.							

LOG OF BORING CANAAN ST0271(16).DGN VT_A02.GBT 8/8/05

BORING LOG SHEET 1

PROJECT NAME: Canaan	PLOT DATE: 18-AUG-2008
PROJECT NUMBER: ER ST 0271(16)	DRAWN BY: T. Husk
FILE NAME: Structures/04c098ero.dgn	CHECKED BY: S. SCRIBNER
PROJECT LEADER: M. Evans-Mongeon	SHEET 29 OF 66
DESIGNED BY: S. Scribner	



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

BORING NUMBER: B-3
SHEET 1 of 2
DATE STARTED: 11/30/04
DATE COMPLETED: 12/03/04

PROJECT NAME: CANAAN
SITE NAME: BR-16
STATION: 61+73.40
OFFSET: -25.00

PROJECT NUMBER: ST 0271(16)
SITE NUMBER: VT-102
GROUND ELEVATION: 1020.72 ft
GROUNDWATER DEPTH: 11.16 ft 12/03/04

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

BORING RIG: LAG TRACK RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CAA

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)	LL (%)	PI (%)
5		BXDC, Cleaned out casing, 4.5 ft - 5.0 ft A-1-a, SaGr, brn, Moist, Rec. = 0.3 ft	4	12.0	53.2	39.7	7.1		
10		A-1-b, CrSa, brn, Moist, Rec. = 1.0 ft	15	13.8	40.7	46.7	12.6		
15		A-1-a, SaGr, gry, Moist, Rec. = 0.5 ft 17.0 ft, Little gray silt at bottom of sampler.	8	13.2	57.7	27.6	14.7		
20		A-4, Si, Dk/gry, Moist, Rec. = 2.0 ft	2	26.9	0.0	3.2	96.8	24	4
25		VS = 717/68 psf, 26.5 ft - 26.9 ft							
30		A-4, Si, Dk/gry, Moist, Rec. = 1.5 ft	2	29.2	0.0	3.3	96.7		
35		VS = 845/166 psf, 36.5 ft - 36.9 ft							
40		A-4, Si, Dk/gry, Moist, Rec. = 1.5 ft	4	27.8	0.0	1.1	98.9		
45		VS = 936/174 psf, 46.5 ft - 46.9 ft							

BOTTOM OF FOOTING
ELEVATION = 999.80

LOG OF BORING CANAAN ST0271(16).DGN, VT, M01.D01, 8/18/05



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

BORING NUMBER: B-3
SHEET 2 of 2
DATE STARTED: 11/30/04
DATE COMPLETED: 12/03/04

PROJECT NAME: CANAAN
SITE NAME: BR-16
STATION: 61+73.40
OFFSET: -25.00

PROJECT NUMBER: ST 0271(16)
SITE NUMBER: VT-102
GROUND ELEVATION: 1020.72 ft
GROUNDWATER DEPTH: 11.16 ft 12/03/04

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

BORING RIG: LAG TRACK RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CAA

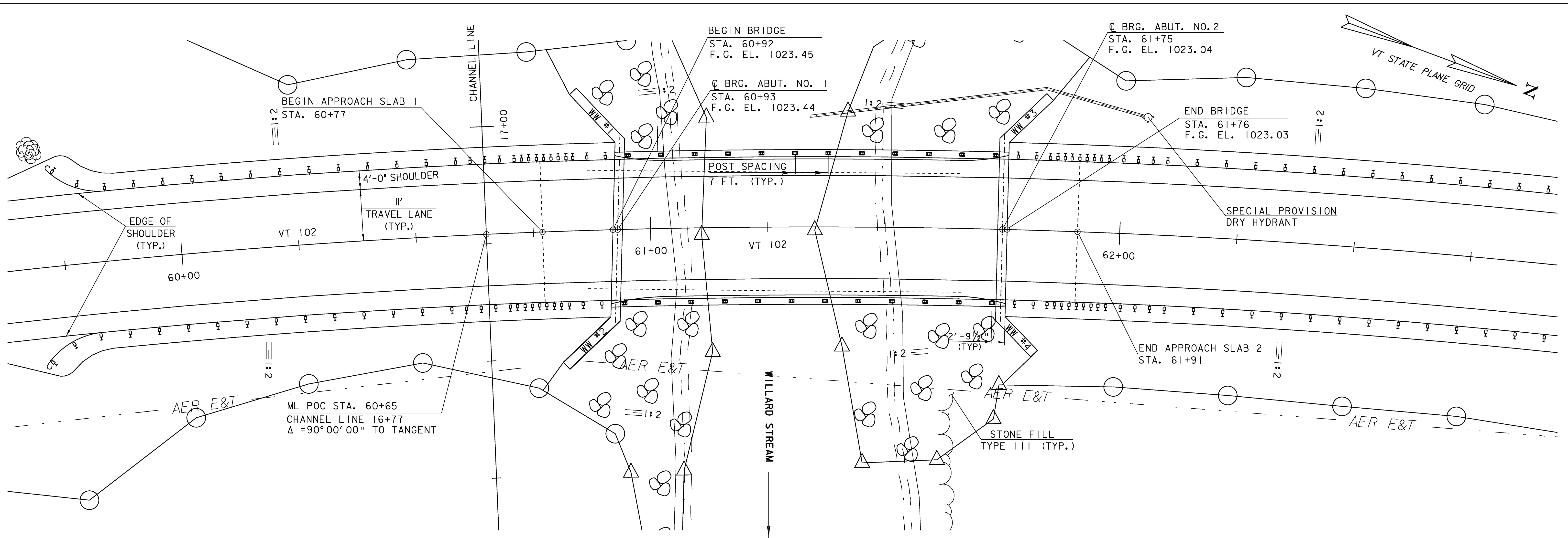
DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)	LL (%)	PI (%)
55		A-4, Si, Dk/gry, Moist, Rec. = 1.4 ft	3	25.9	0.0	2.5	97.5		
60		VS = 905/151 psf, 56.5 ft - 56.9 ft							
65		A-4, Si, Dk/gry, MTW, Rec. = 1.7 ft	2	29.5	0.0	0.6	99.4	24	3
70		VS = 1071/211 psf, 66.5 ft - 66.9 ft							
75		A-4, Si, Dk/gry, MTW, Rec. = 1.8 ft	4	27.7	0.0	0.4	99.6		
80		VS = 1011/196 psf, 76.5 ft - 76.9 ft Hole stopped @ 76.9 ft							
85		DRILLER'S NOTES: 1. Vane used was 2.5 inches x 5.0 inches. 2. Vane Shear = Initial/Remold.							
90									
95									

LOG OF BORING CANAAN ST0271(16).DGN, VT, M01.D01, 8/18/05

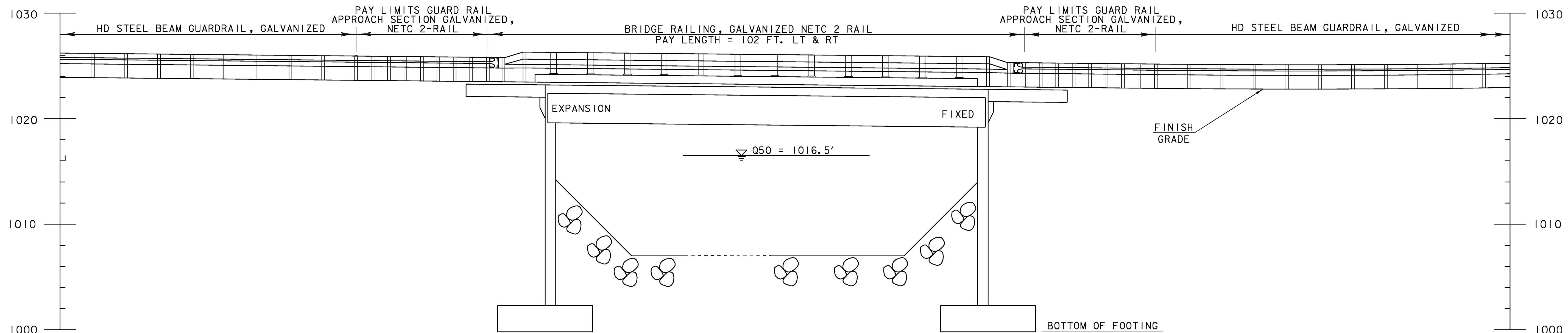
BORING LOG SHEET 2

PROJECT NAME: Canaan
PROJECT NUMBER: ER ST 0271(16)

FILE NAME: Structures/04c098ero.dgn PLOT DATE: 18-AUG-2008
PROJECT LEADER: M. Evans-Mongeon DRAWN BY: T. Husk
DESIGNED BY: S. Scribner CHECKED BY: S. SCRIBNER
x04c098bs2.1 SHEET 30 OF 66



PLAN

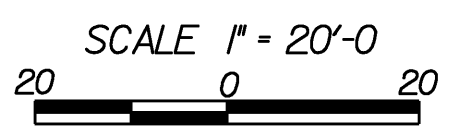
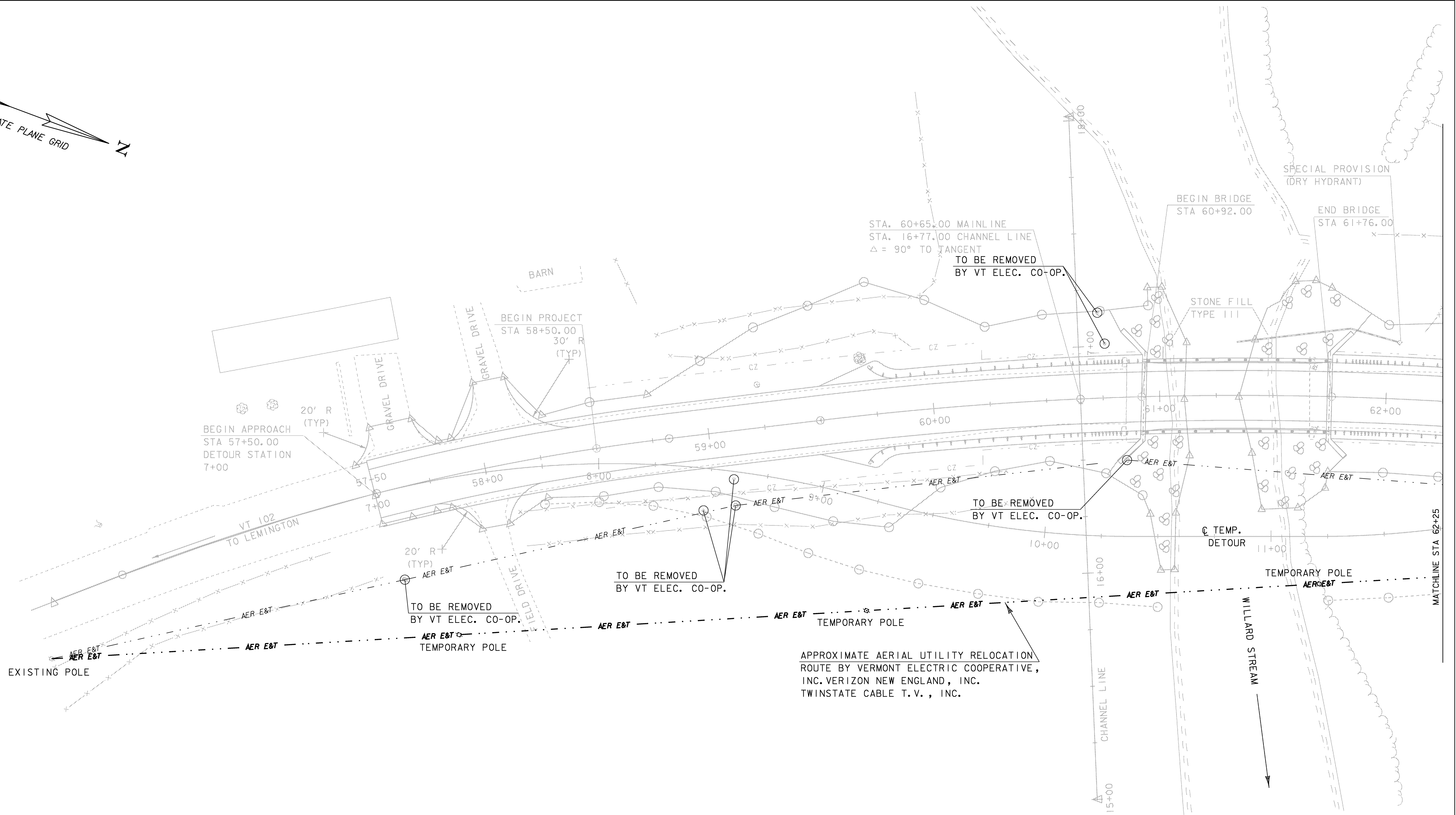
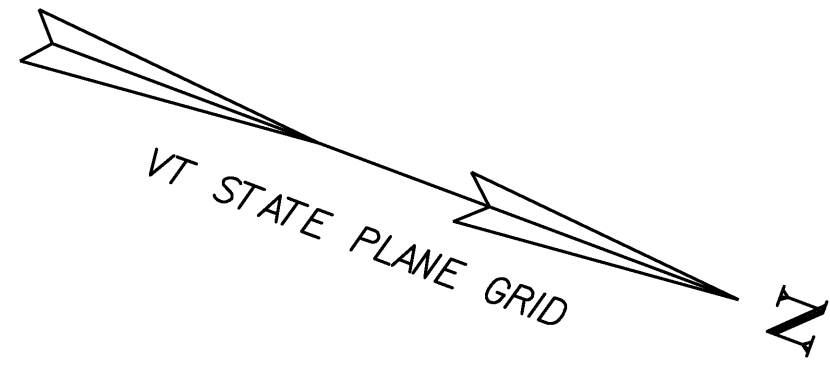


ELEVATION

SCALE 1" = 10'-0"

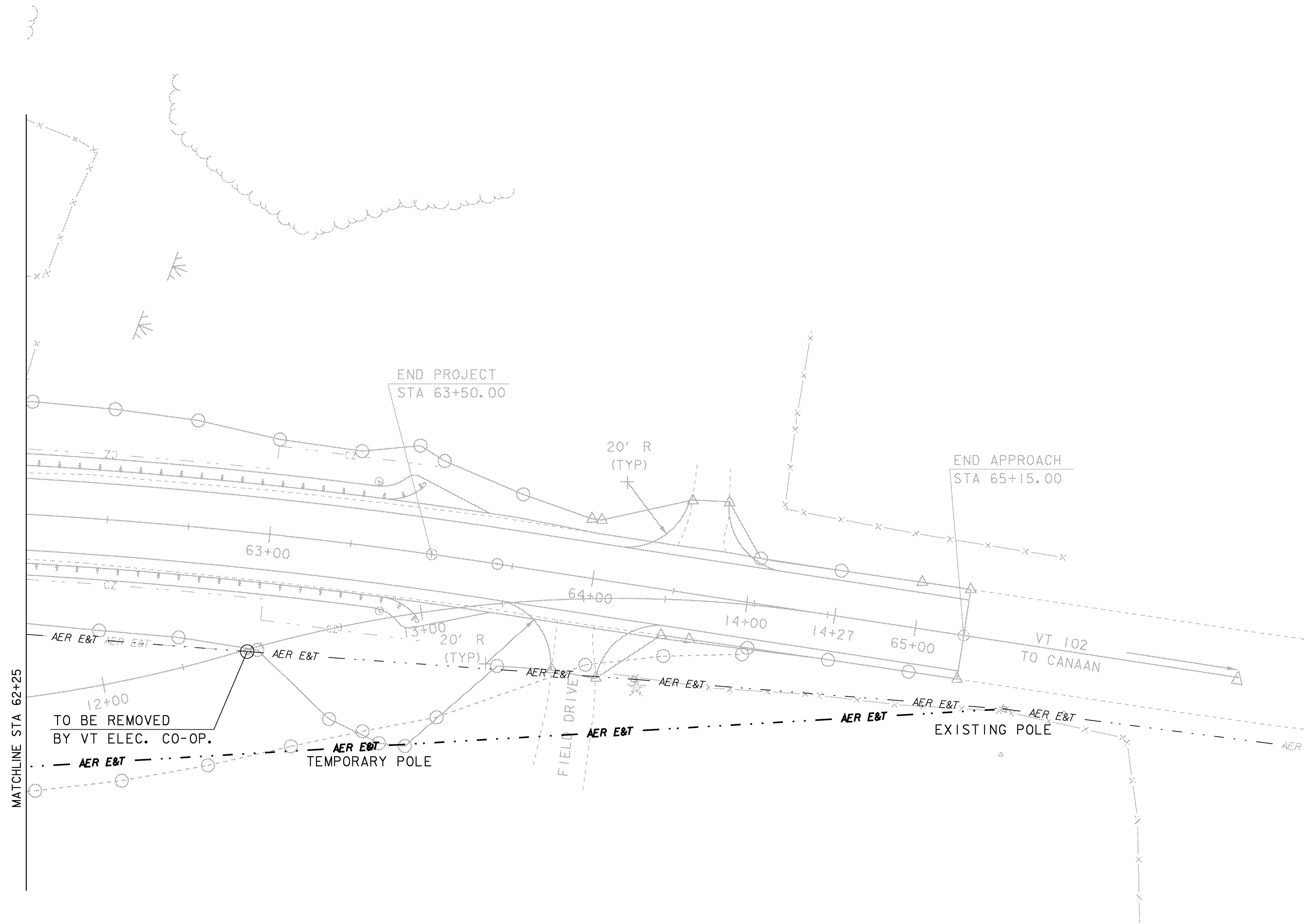
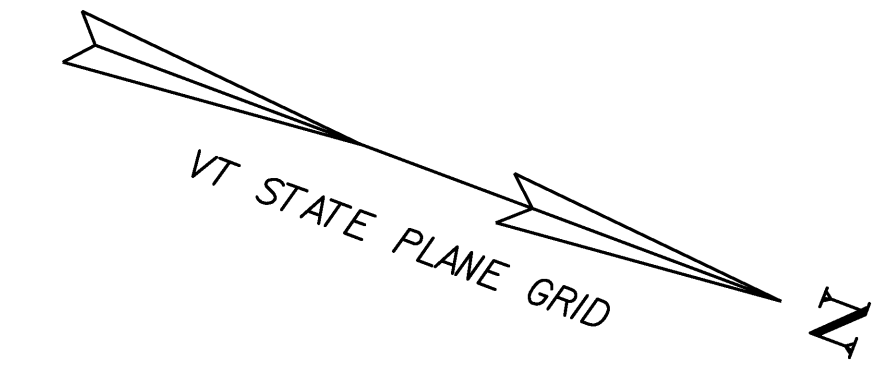
PLAN AND ELEVATION

PROJECT NAME: Canaan	PLOT DATE: 18-AUG-2008
PROJECT NUMBER: ER ST 0271(16)	DRAWN BY: L. DUQUETTE
FILE NAME: Structures/04c098pe.dgn	CHECKED BY: S. SCRIBNER
PROJECT LEADER: M. Evans-Mongeon	SHEET 31 OF 66
DESIGNED BY: S. Scribner	

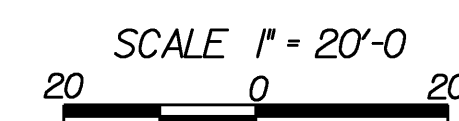


UTILITIES SHEET #1

PROJECT NAME:	Canaan	PLOT DATE:	18-AUG-2008
PROJECT NUMBER:	ER ST 027(16)	DRAWN BY:	L. DUQUETTE
FILE NAME:	04c098\struc\04c098b	CHECKED BY:	S. SCRIBNER
PROJECT LEADER:	M. Evans-Mongeon	SHEET	32 OF 66
DESIGNED BY:	S. Scribner		



MATCHLINE STA 62+25



UTILITIES SHEET #2

PROJECT NAME: Canaan
 PROJECT NUMBER: ER ST 0271(16)

FILE NAME: 04c098\str\04c098utilbdr	PLOT DATE: 18-AUG-2008
PROJECT LEADER: M. Evans-Mongeon	DRAWN BY: L. DUQUETTE
DESIGNED BY: S. Scribner	CHECKED BY: S. SCRIBNER
x04c098lou+2.1	SHEET 33 OF 66

GENERAL

- 1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FOURTH EDITION, DATED 2007, AND ITS LATEST REVISIONS.
- 2. BRIDGE IS DESIGNED FOR HL-93 LIVE LOAD WITH AN ALLOWANCE FOR FUTURE PAVEMENT.
- 3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT SILTATION OR POLLUTION, IN PARTICULAR THE DISCHARGE OF RAW CONCRETE INTO WILLARD STREAM, AS DIRECTED BY THE RESIDENT ENGINEER AND STANDARD SPECIFICATIONS SECTION 105.
- 4. FOR INFORMATION REGARDING UTILITIES, SEE THE SPECIAL PROVISIONS.
- 5. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE

TRAFFIC CONTROL

- 6. THE CONTRACTOR SHALL ERECT AND MAINTAIN ALL TEMPORARY ON AND OFF-PROJECT SIGNS AND BARRICADES AS DIRECTED BY THE RESIDENT ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL."
- 7. FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES.

TEMPORARY BRIDGE

- 8. DURING CONSTRUCTION, TRAFFIC SHALL BE MAINTAINED ON A TWO-WAY TEMPORARY BRIDGE CONSTRUCTED DOWNSTREAM OF THE EXISTING STRUCTURE. THE CONTRACTOR HAS THE OPTION OF EITHER RELOCATING THE EXISTING TEMPORARY BRIDGE OR INSTALLING A SEPARATE TEMPORARY BRIDGE TO MAINTAIN TRAFFIC. BID ALTERNATIVES HAVE BEEN INCLUDED IN THE PROPOSAL FOR THIS PURPOSE. CONSTRUCTION AND MAINTENANCE OF THE TEMPORARY BRIDGE AND ITS APPROACHES SHALL BE PAID FOR UNDER ITEM 900.645, SPECIAL PROVISION "RELOCATE AND REMOVE EXISTING TEMPORARY BRIDGE", OR ITEM 528.11, TWO-WAY TEMPORARY BRIDGE. THE APPROACHES TO THE TEMPORARY BRIDGE SHALL BE PAVED WITH 2 INCHES OF PAVEMENT.

ALTERNATE ZA

DURING CONSTRUCTION OF THE TEMPORARY BRIDGE ON THE TEMPORARY ALIGNMENT THE CONTRACTOR SHALL MAINTAIN TRAFFIC ON THE TEMPORARY MABEY CURRENTLY IN PLACE. NO ROAD CLOSURE WILL BE ALLOWED UNDER THIS ALTERNATE. DISASSEMBLY OF THE MABEY WILL TAKE PLACE AFTER THE CONTRACTORS TEMPORARY STRUCTURE IS IN PLACE AND TRAFFIC IS ON THE TEMPORARY STRUCTURE.

CONTRACT ITEM 529.15 SHALL INCLUDE THE REMOVAL AND SALVAGE OF THE EXISTING TEMPORARY BRIDGE AND REMOVAL OF THE EXISTING BRIDGE SUBSTRUCTURES NOT REMOVED UNDER CONTRACT ITEMS 203.27 OR 208.30.

ALTERNATE ZB

VT 102 WILL BE CLOSED FOR A MAXIMUM DURATION OF TWO WEEKS WHILE THE EXISTING TEMPORARY BRIDGE IS RELOCATED TO THE TEMPORARY ALIGNMENT. A TEMPORARY DETOUR ROUTE IS SHOWN ON THE TRAFFIC CONTROL SHEET AND WILL BE PAID FOR UNDER ITEM 641.10, "TRAFFIC CONTROL".

THE CONTRACTOR SHALL NOTIFY THE TOWN A MINIMUM OF TWO (2) WEEKS PRIOR TO CLOSING THE ROAD. THE CONTRACTOR WILL ALSO NOTIFY DISTRICT 9 DTA DALE PERRON @ (802-334-7934) A MINIMUM OF TWO WEEKS PRIOR. AS WELL AS NH DISTRICT ENGINEER @ (603-788-4641).

WHEN CONSTRUCTION OF THE NEW BRIDGE IS COMPLETE, THE TEMPORARY MABEY BRIDGE WILL BE REMOVED, DISASSEMBLED, CLEANED, SORTED, BUNDLED, AND TRANSPORTED TO THE MENDON STATE GARAGE. PAYMENT FOR THIS WORK WILL BE MADE UNDER ITEM 900.645 SPECIAL PROVISION "RELOCATE AND REMOVE EXISTING TEMPORARY BRIDGE". SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

CONTRACT ITEM 529.20 SHALL INCLUDE THE REMOVAL OF THE EXISTING BRIDGE SUBSTRUCTURES OTHERWISE NOT REMOVED UNDER CONTRACT ITEMS 203.27 OR 208.30.

EARTHWORK AND RELATED ITEMS

- 9. THE FOLLOWING TABLE OF ALLOWABLE STRESSES AND WEIGHTS APPLY TO THESE PLANS FOR DESIGN PURPOSES:

SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT) f'c = 4000 PSI fc=1600PSI

HIGH PERFORMANCE CONCRETE, CLASS B f'c = 3500 PSI fc = 1400 PSI

REINFORCING STEEL: Ft = 24,000 GRADE 60

SOIL: UNIT WEIGHT 140 PCF

SPECIAL PROVISION(LIGHTWEIGHT BACKFILL): UNIT WEIGHT 48 PCF

- 10. TEMPORARY CONSTRUCTION FILLS WITHIN THE WATERCOURSE FOR ANY PURPOSE SHALL CONSIST OF CLEAN STONE FILL ONLY. NO OTHER FILLING IN THE STREAM SHALL OCCUR WITHOUT THE APPROVAL OF THE STREAM ALTERATION ENGINEER.
- 11. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SUBSECTION 306.06 REGARDING THE COMPACTION OF SUBBASE MATERIAL FOR THIS PROJECT.
- 12. COFFERDAMS ARE REQUIRED FOR THE CONSTRUCTION OF THE NEW SUBSTRUCTURE UNITS. PAYMENT FOR COFFERDAM EXCAVATION WILL BE MADE ONLY FOR SUCH EXCAVATION WITHIN THE LIMITS SHOWN ON THE PLANS.
- 13. THE "STONE FILL, TYPE III" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE NEW STEEL GIRDERS ARE SET.
- 14. A VEHICLE TRACKING PAD SHALL BE USED FOR EROSION CONTROL AT THE DISCRETION OF THE RESIDENT ENGINEER. PAYMENT FOR MATERIAL AND PLACEMENT SHALL BE MADE UNDER ITEM 653.35 VEHICLE TRACKING PAD.
- 15. THE HEIGHT OF FILL BEHIND ABUTMENTS WILL BE LIMITED TO THE BRIDGE SEAT ELEVATION UNTIL THE DECK HAS BEEN POURED AND THE CURING PERIOD IS UP.
- 16. DRY HYDRANT AND ALL NEEDED MATERIALS WILL BE PAID UNDER 900.645 SPECIAL PROVISION (DRY HYDRANT) DETAILS ARE SHOWN ON SHEET 50. CONTRACTOR SHALL NOTIFY VERN CRAWFORD @ (802-266-8277) A MINIMUM OF ONE WEEK PRIOR TO INSTALLATION OF THE DRY HYDRANT.
- 17. AFTER DECK HAS BEEN POURED AND CURED BEAMS AT ABUTMENT 1 WILL BE JACKED UP TO ALLOW THE ELASTOMERIC BEARINGS TO RETURN TO THEIR ORIGINAL POSITION BEFORE WELDING THE SOLE PLATES TO THE BOTTOM FLANGE. FINAL POSITION OF THE VERTICAL BEARING FACES WILL BE STRAIGHT. PAYMENT FOR THIS WORK WILL BE INCIDENTAL TO BEARING ITEM. NO BEARING WILL BE JACKED MORE THAN 1/2" FROM ITS ORIGINAL POSITION.

STRUCTURAL STEEL

- 18. UNLESS OTHERWISE NOTED, ALL NEW STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270M/M 270 GRADE 50 AND SHALL BE PAID FOR UNDER ITEM 506.50, "STRUCTURAL STEEL ROLLED BEAM", COLOR CHIP NO. 20059, BROWN.
- 19. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.
- 20. ALL FIELD CONNECTIONS SHALL BE MADE USING 7/8 INCH BOLTS IN 15/16 INCH HOLES PER SECTION 506. ANY CONNECTIONS NOT DESIGNATED SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
- 21. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF THE BEAMS SHALL BE TAKEN AS DIRECTED BY THE RESIDENT ENGINEER FOR USE IN DETERMINING FINISHED GRADES.
- 22. FLEMING BRACKETS OR SIMILAR FALSEWORK SHALL BE SPACED AS REQUIRED BY DESIGN, BUT SHALL BE LIMITED TO A MAXIMUM SPACING OF 4 FEET. THE DESIGN OF FALSEWORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 23. ANY BOLT HOLES IN THE WEBS OF FASCIA BEAMS NOT OTHERWISE FILLED SHALL BE FILLED WITH BUTTON HEAD OR HEX HEAD BOLTS. THE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.19 OF THE STANDARD SPECIFICATIONS.
- 24. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.

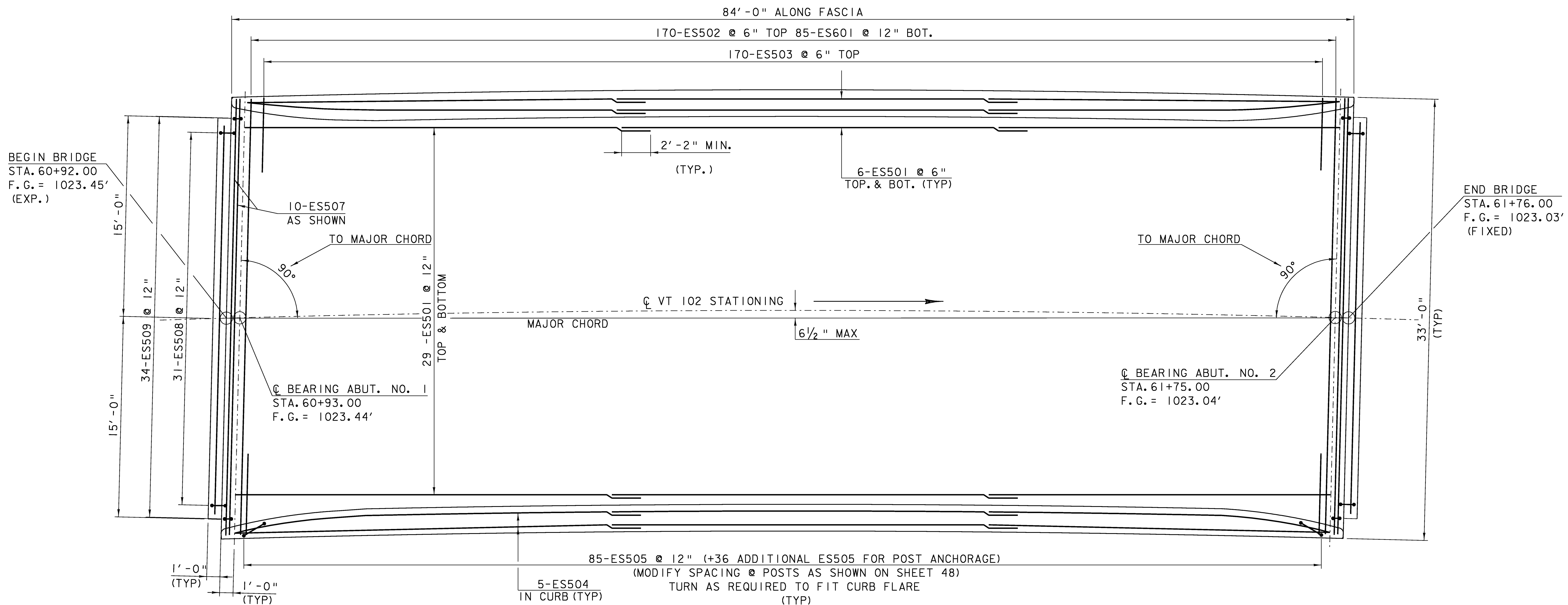
CONCRETE

- 25. SUBSTRUCTURE CONCRETE SHALL BE HIGH PERFORMANCE CLASS B AND SHALL BE PAID FOR UNDER ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B". ITEM 900.608 "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT)" SHALL BE USED TO PAY FOR THE DECK, THE CURBS, AND THE APPROACH SLABS.

- 26. SURFACES OF BRIDGE SEATS UNDER BEARING DEVICES SHALL BE LEVEL. ALL OTHER AREAS OF BRIDGE SEATS SHALL BE SLOPED 1/2 INCH PER FOOT. THE ENTIRE BRIDGE SEAT SURFACE SHALL BE GIVEN A FLOAT FINISH.
- 27. CONCRETE PORTIONS OF ABUTMENTS AND WINGWALLS ABOVE ADJACENT BRIDGE SEAT ELEVATIONS SHALL NOT BE PLACED UNTIL FINISH GRADES HAVE BEEN DETERMINED BY THE RESIDENT ENGINEER.
- 28. THE DECK IS TO BE POURED IN ONE CONTINUOUS POUR WITH A MAXIMUM DURATION OF EIGHT HOURS. IF CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL PREVENT THIS FROM BEING ACCOMPLISHED, A TRANSVERSE CONSTRUCTION JOINT SHALL BE USED BETWEEN ADJACENT POURS. A MINIMUM 96 HOUR DELAY BETWEEN ADJACENT POURS SHALL BE OBSERVED.
- 29. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH X 1 INCH.
- 30. WATER REPELLENT, SILANE, SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT THE UNDERSIDE OF THE DECK BETWEEN DRIP NOTCHES.
- 31. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS SHOWN IN THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.
- 32. THE DECK AND APPROACH SLABS WILL HAVE A LONGITUDINAL GROOVED FINISH. THIS WORK WILL BE PAID FOR UNDER ITEM 900.675 "SPECIAL PROVISION (LONGITUDINAL DECK GROOVING)"
- 33. 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.
- 34. ALL DECK, CURB, CURTAINWALL, AND APPROACH SLAB REINFORCING STEEL SHALL BE EPOXY COATED AND PAID FOR UNDER ITEM 507.17, "EPOXY COATED REINFORCING STEEL". CUTTING AND REPAIRING DAMAGED AREAS OF COATED REINFORCING STEEL SHALL BE PERFORMED IN ACCORDANCE WITH SUBSECTION 507.04 OF THE STANDARD SPECIFICATIONS.
- 35. MINIMUM COVER FOR REINFORCING STEEL SHALL BE AS INDICATED IN THE PLANS.
- 36. PVC WATERSTOPS TO BE USED ON ALL VERTICAL AND HORIZONTAL CONSTRUCTION JOINTS AND THE BOTTOM OF THE CURTAIN WALL AS SHOWN IN PLANS. PAYMENT WILL BE MADE INCIDENTAL TO THE ADJACENT CONCRETE.
- 37. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE:
 SPACING: +/- 1 INCH
 CLEARANCE: +/- 1/4 INCH

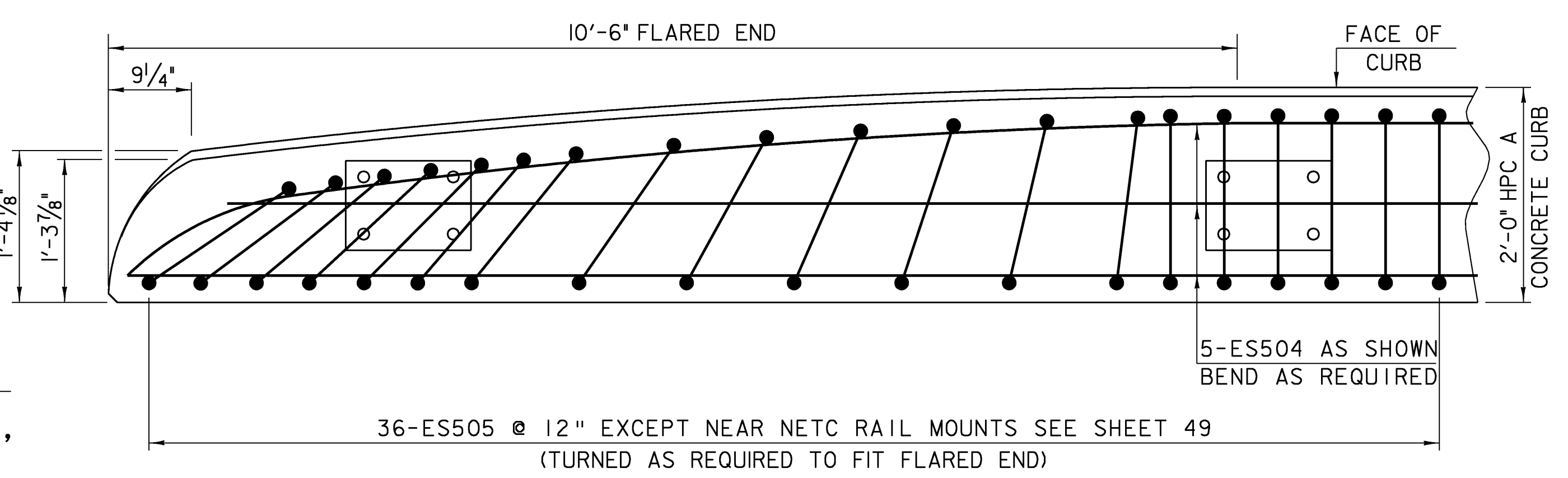
GENERAL NOTES

PROJECT NAME:	CANAAN
PROJECT NUMBER:	ER ST 0271 (16)
FILE NAME: structures/x04c098exoel.dg	PLOT DATE: 18-AUG-2008
PROJECT LEADER: M. ENANS-MONGEON	DRAWN BY: L. DUQUETTE
DESIGNED BY: S. SCRIBNER	CHECKED BY: S. SCRIBNER
	SHEET 34 OF 66

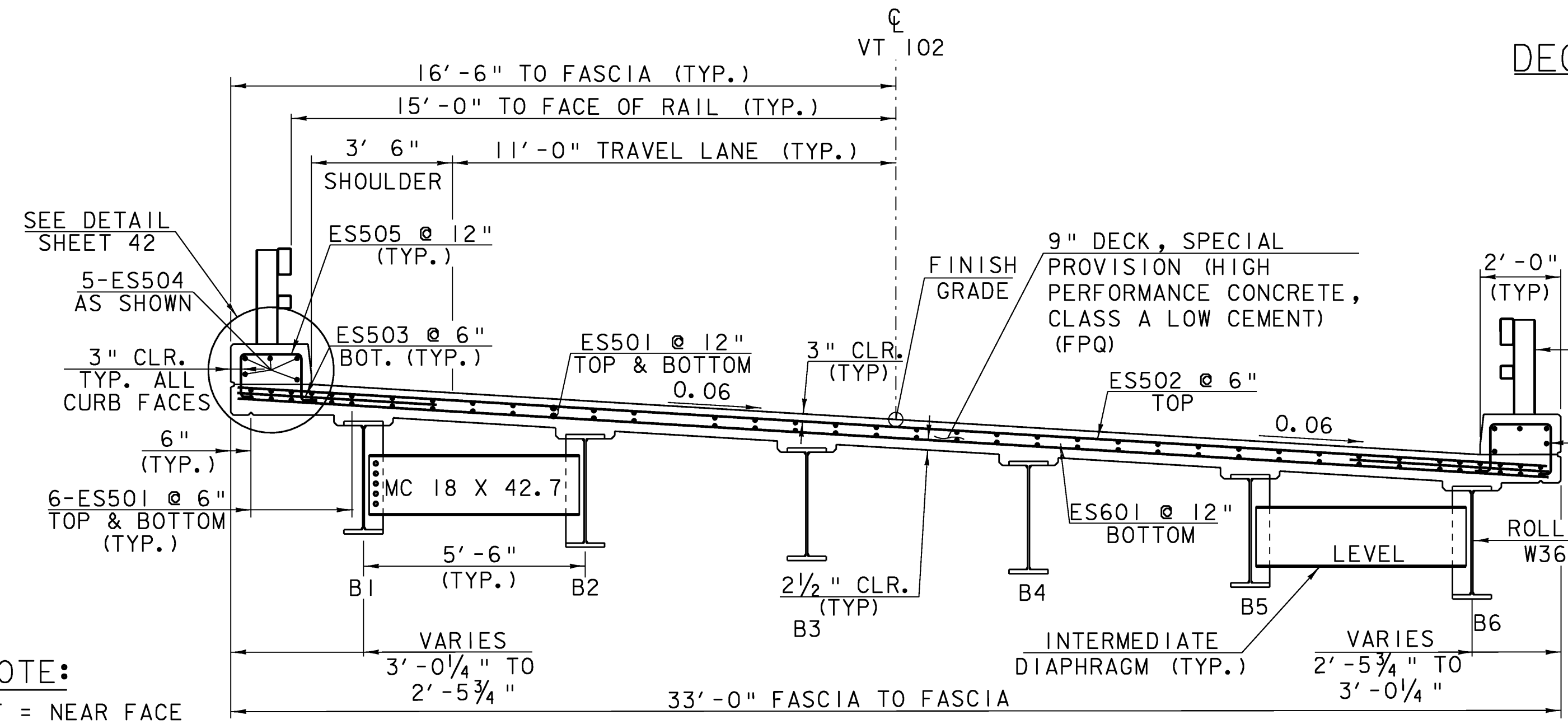


DECK REINFORCING PLAN

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



PLAN VIEW CURB END
NTS



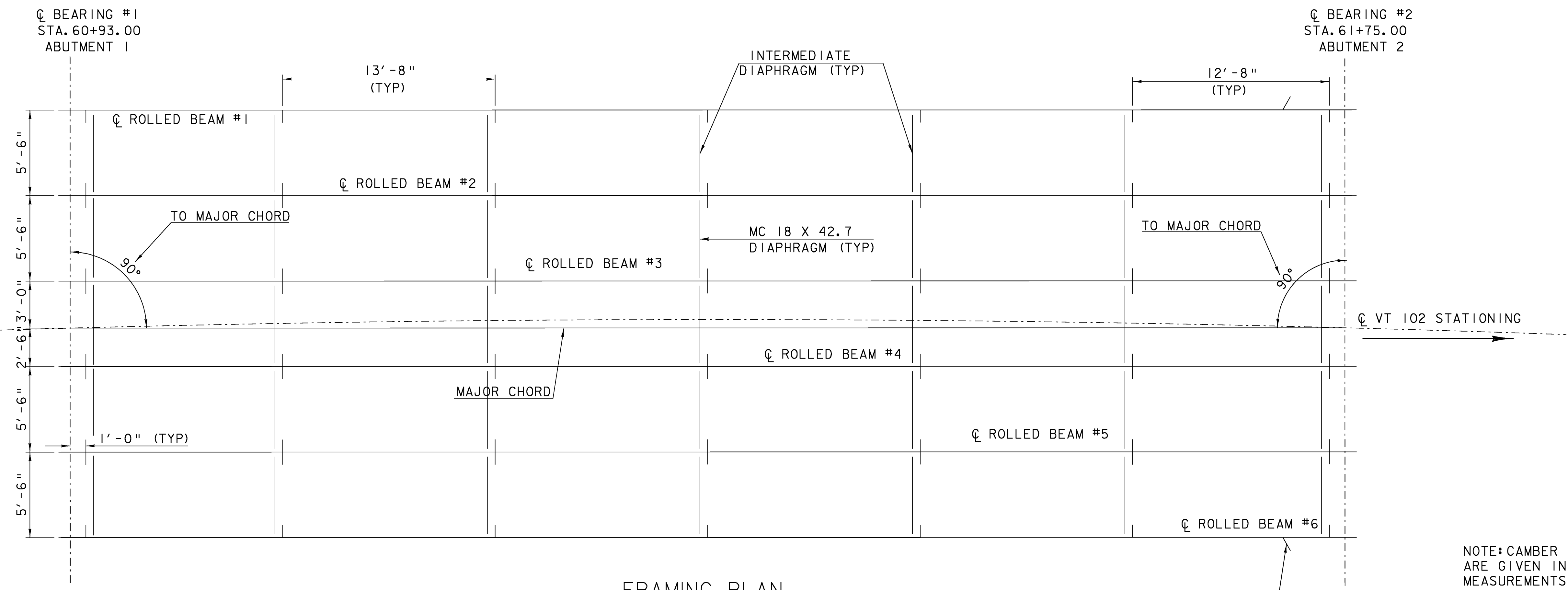
BRIDGE TYPICAL

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

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.

DECK REINFORCING PLAN

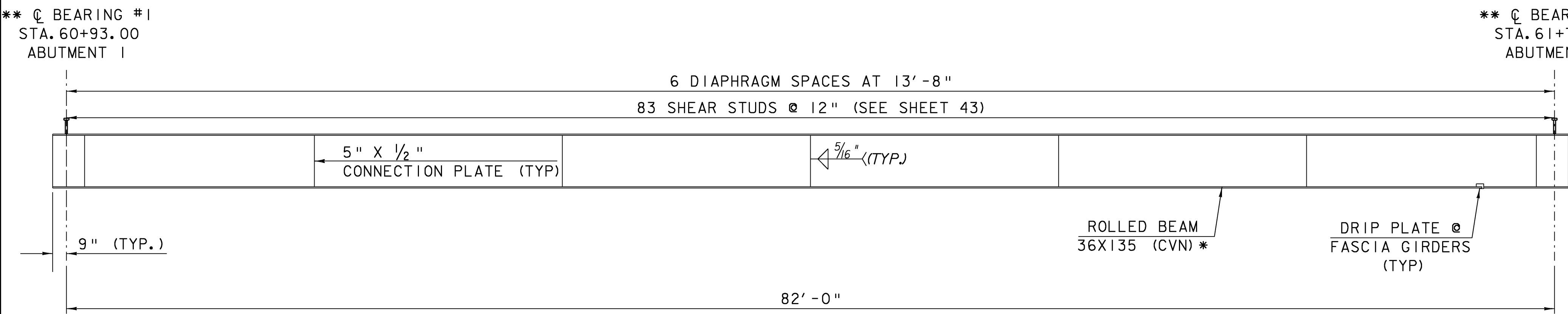
PROJECT NAME:	CANAAN	FILE NAME:	04c098/st+uc./s04c098sup	PLOT DATE:	18-AUG-2008
PROJECT NUMBER:	ER ST 0271(16)	PROJECT LEADER:	M. EVANS-MONGEON	DRAWN BY:	L. DUQUETTE
		DESIGNED BY:	S. SCRIBNER	CHECKED BY:	S. SCRIBNER
				SHEET	35 OF 66



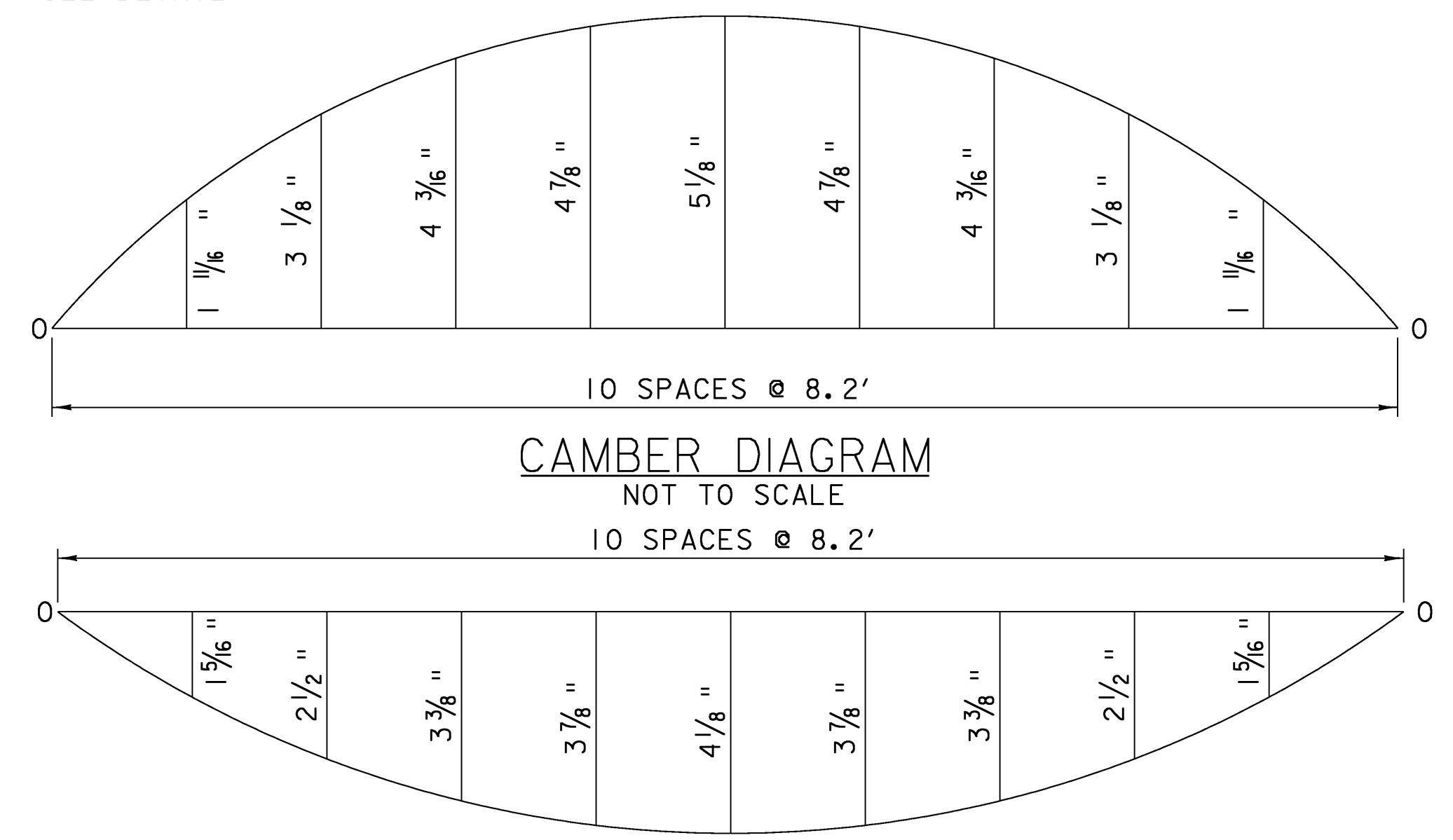
FRAMING PLAN

NOTE: CAMBER AND DEFLECTION MEASUREMENTS ARE GIVEN IN INCHES TO THE NEAREST SIXTEENTH. MEASUREMENTS INCLUDE BEAM SELF-WEIGHT.

DRIP PLATE
SEE DETAIL



ROLLED BEAMS

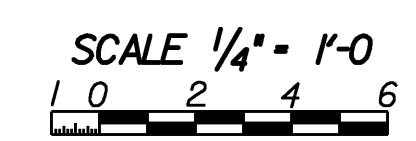


CAMBER DIAGRAM

DEAD LOAD DEFLECTION DIAGRAM

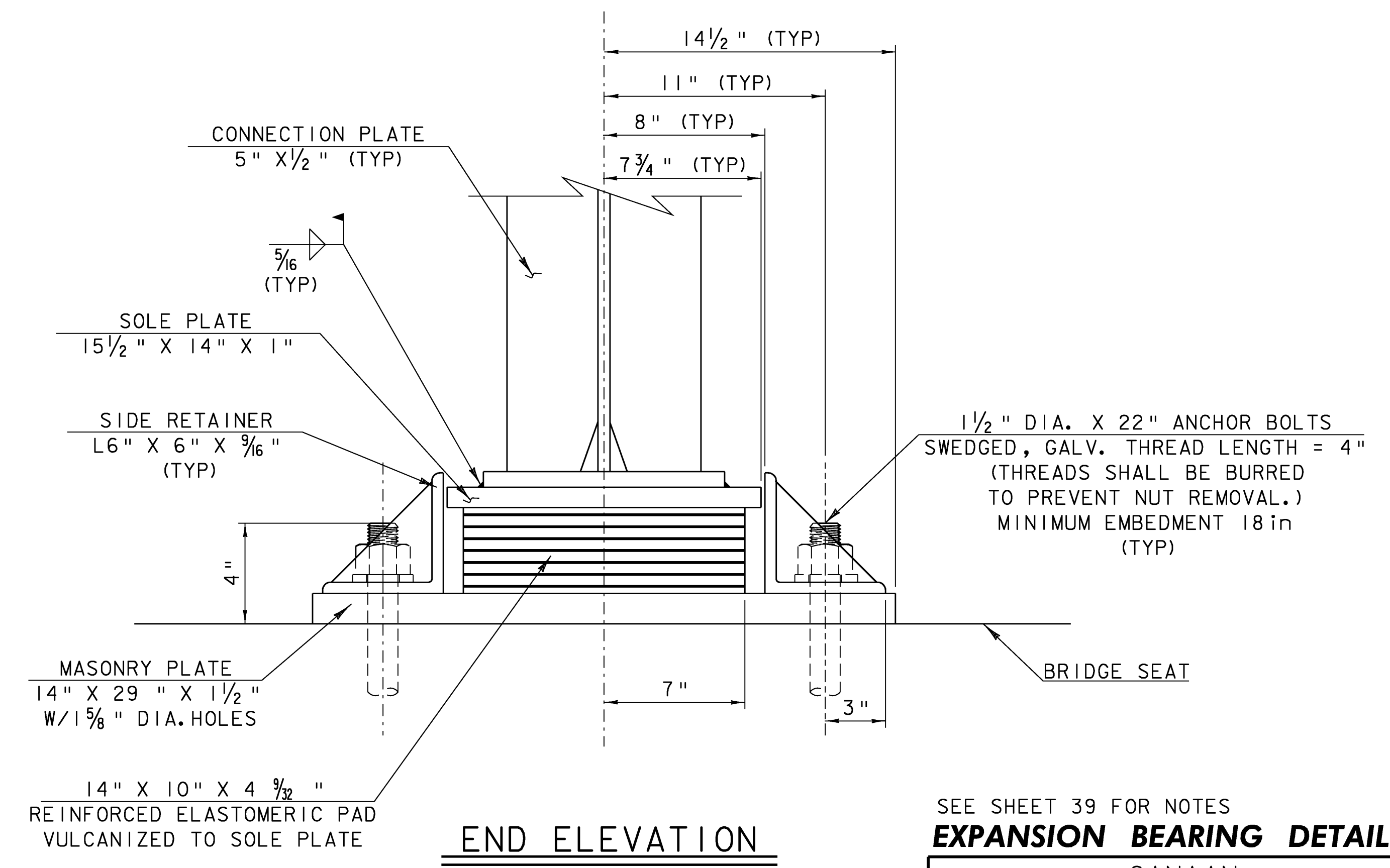
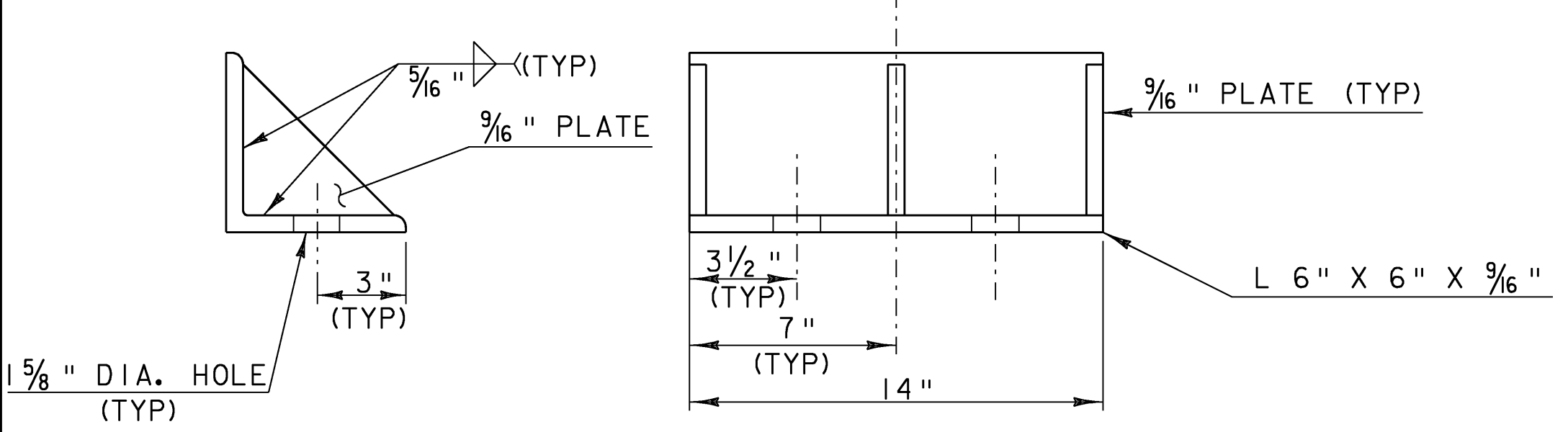
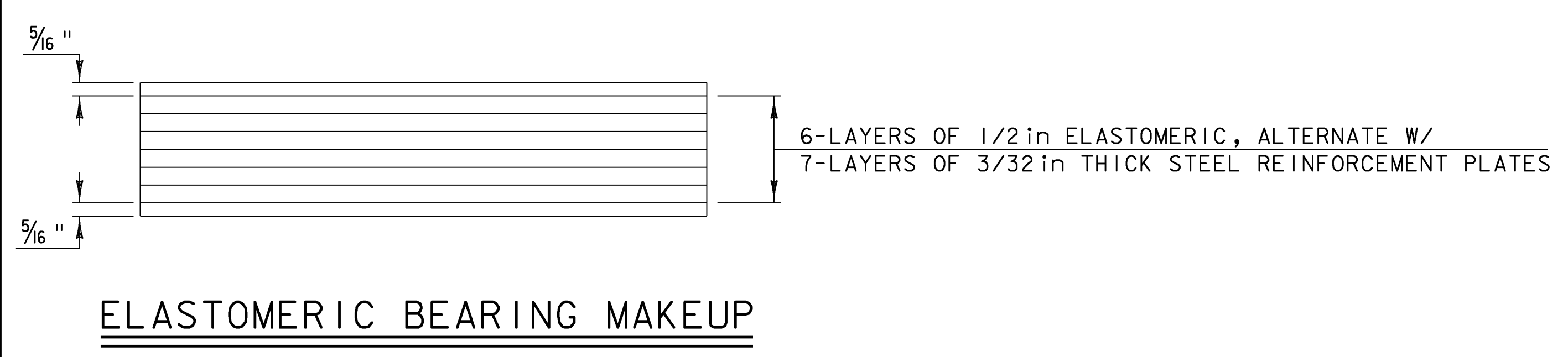
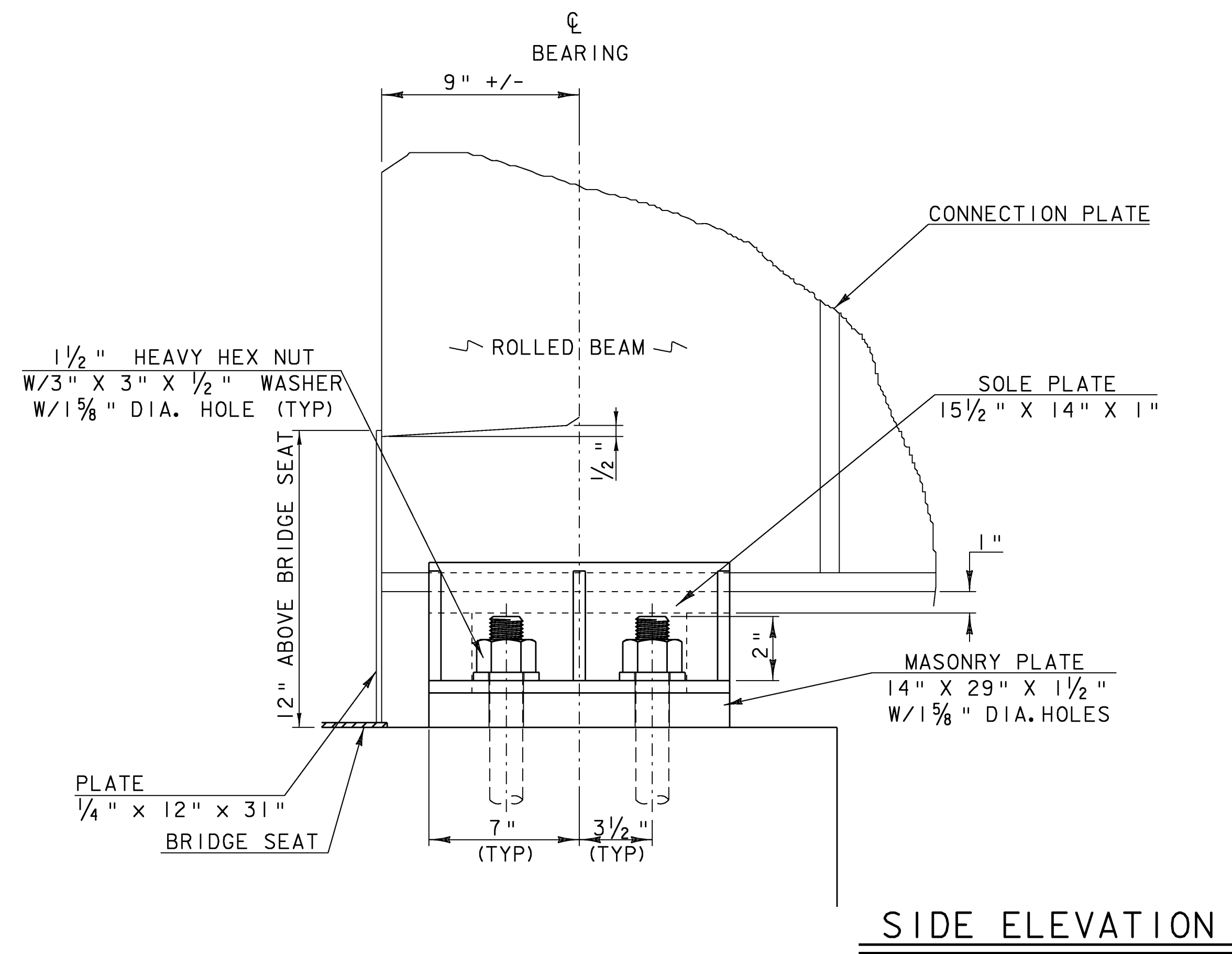
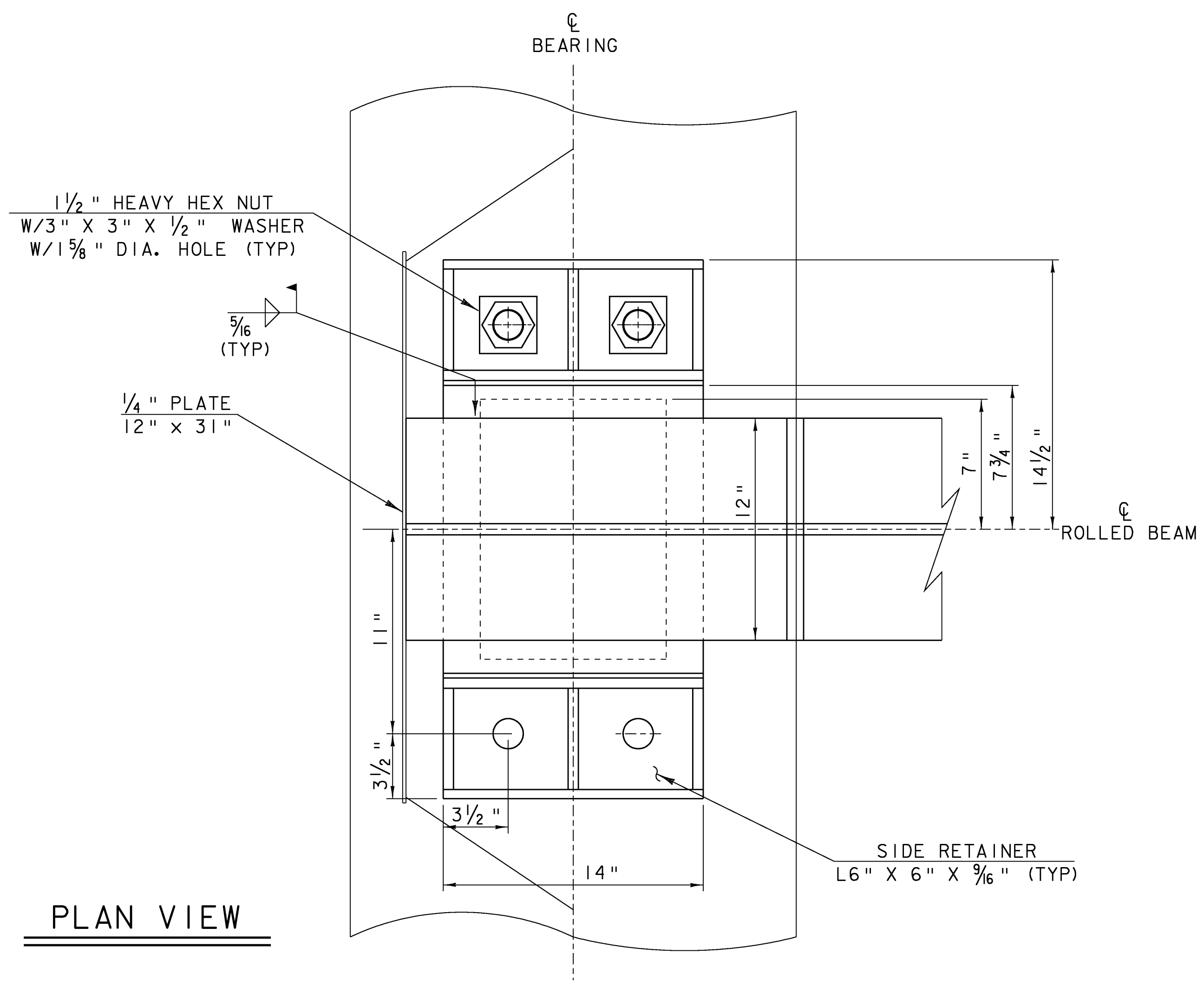
* CVN - SHALL MEET CHARPY V-NOTCH REQUIREMENTS FOR MAIN MEMBERS AS INDICATED IN SECTION 714 OF THE STANDARD SPECIFICATIONS
 ** HOLES FOR TRANSVERSE ABUTMENT REINFORCING STEEL NOT SHOWN. SEE SHEET 40

SEE SHEET 42 FOR DETAILS



FRAMING PLAN

PROJECT NAME: CANAAN	PLOT DATE: 18-AUG-2008
PROJECT NUMBER: ER ST 0271(16)	DRAWN BY: L. DUQUETTE
FILE NAME: 04c098/struc./s04c098sup	CHECKED BY: S. SCRIBNER
DESIGNED BY: S. SCRIBNER	SHEET 36 OF 66

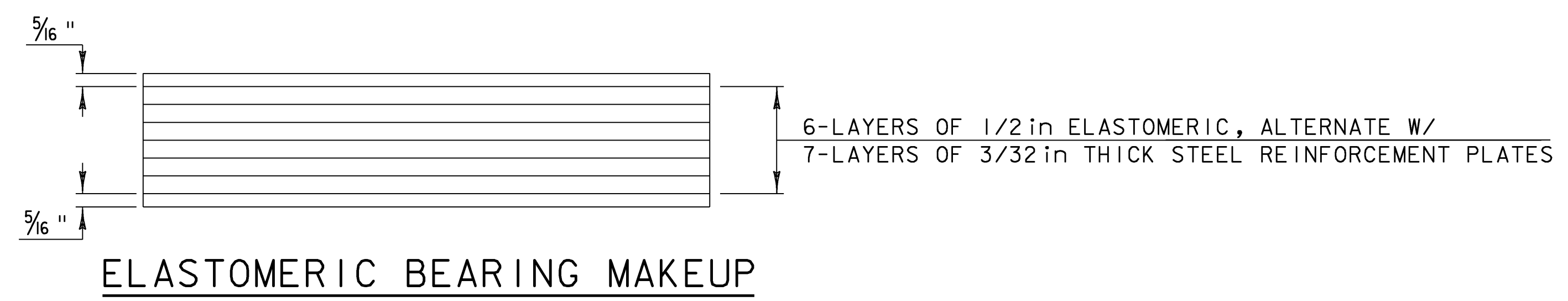
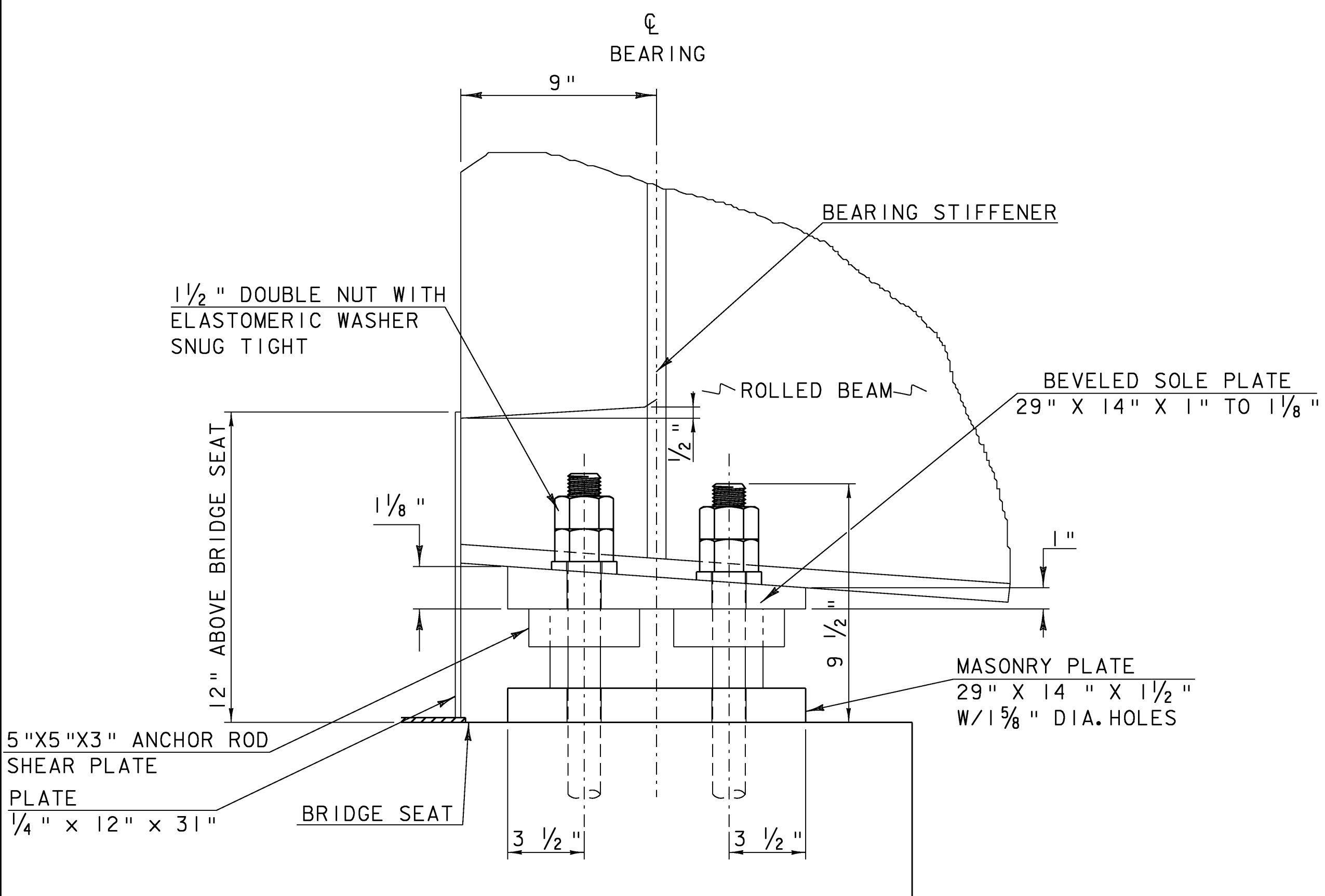
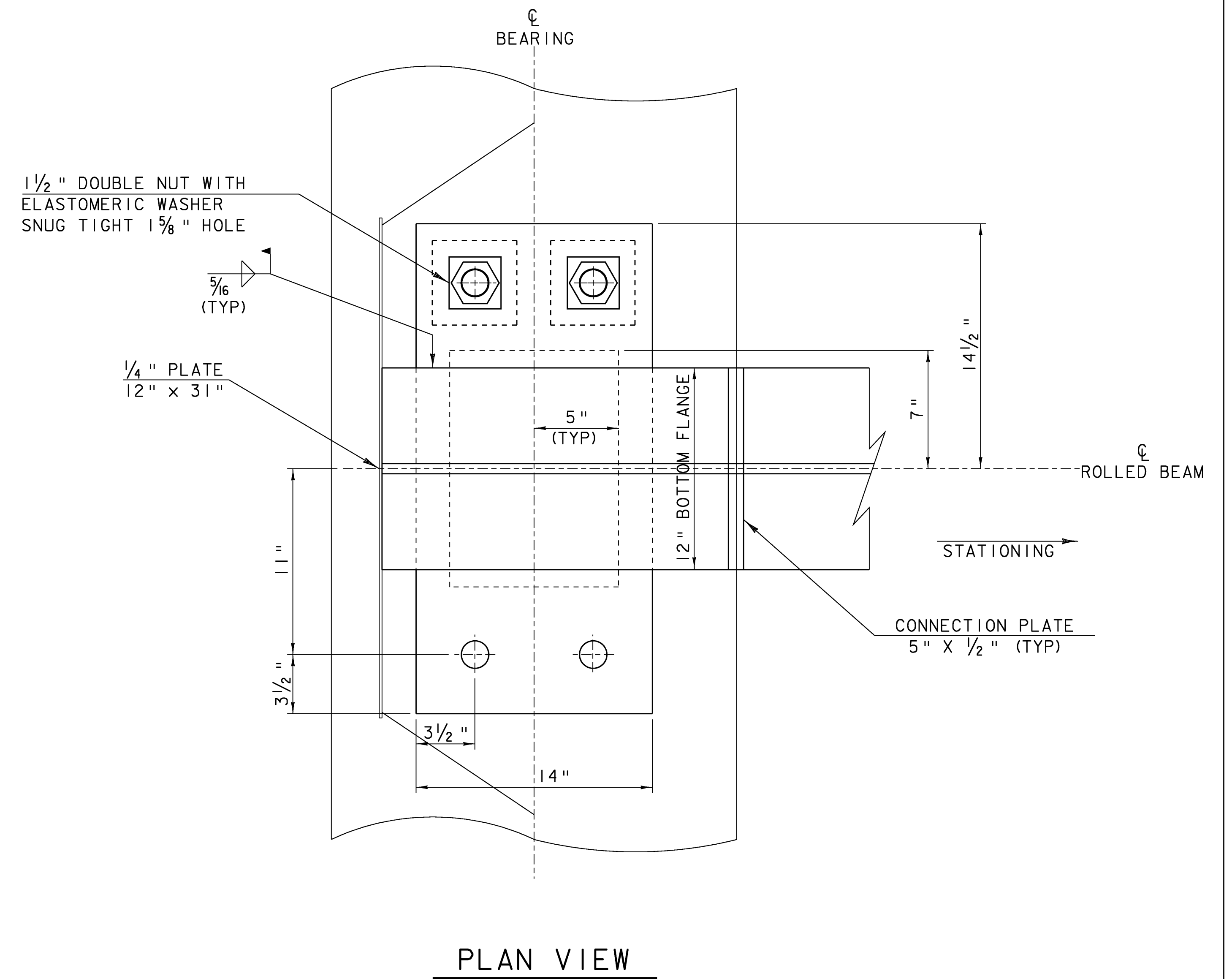
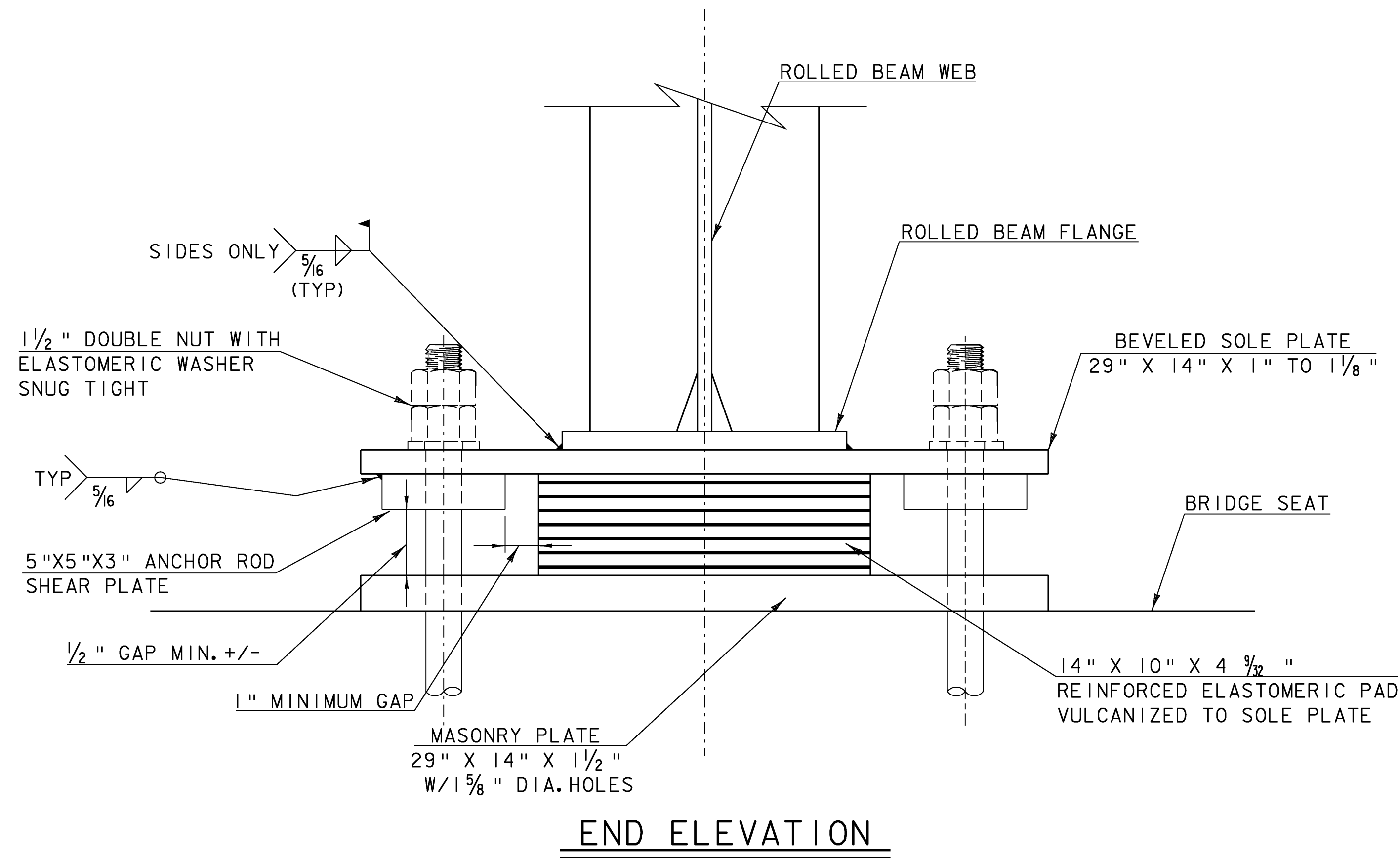


SEE SHEET 39 FOR NOTES
EXPANSION BEARING DETAIL

PROJECT NAME:	CANAAN	FILE NAME:	04c098/struc./s04c098sup	PLOT DATE:	18-AUG-2008
PROJECT NUMBER:	ER ST 0271(16)	PROJECT LEADER:	M. EVANS-MONGEON	DRAWN BY:	L. DUQUETTE
		DESIGNED BY:	S. SCRIBNER	CHECKED BY:	S. SCRIBNER
					SHEET 37 OF 66

ABUT. I EXPANSION BEARING DETAILS

NOT TO SCALE



Abut. 2 FIXED BEARING DETAILS

NOT TO SCALE

SEE SHEET 39 FOR NOTES
FIXED BEARING DETAIL

PROJECT NAME: CANAAN
PROJECT NUMBER: ER ST 0271(I6)

FILE NAME: 04c098/struc./s04c098sup
PROJECT LEADER: M. EVANS-MONGEON
DESIGNED BY: S. SCRIBNER
PLOT DATE: 18-AUG-2008
DRAWN BY: L. DUQUETTE
CHECKED BY: S. SCRIBNER
SHEET 38 OF 66

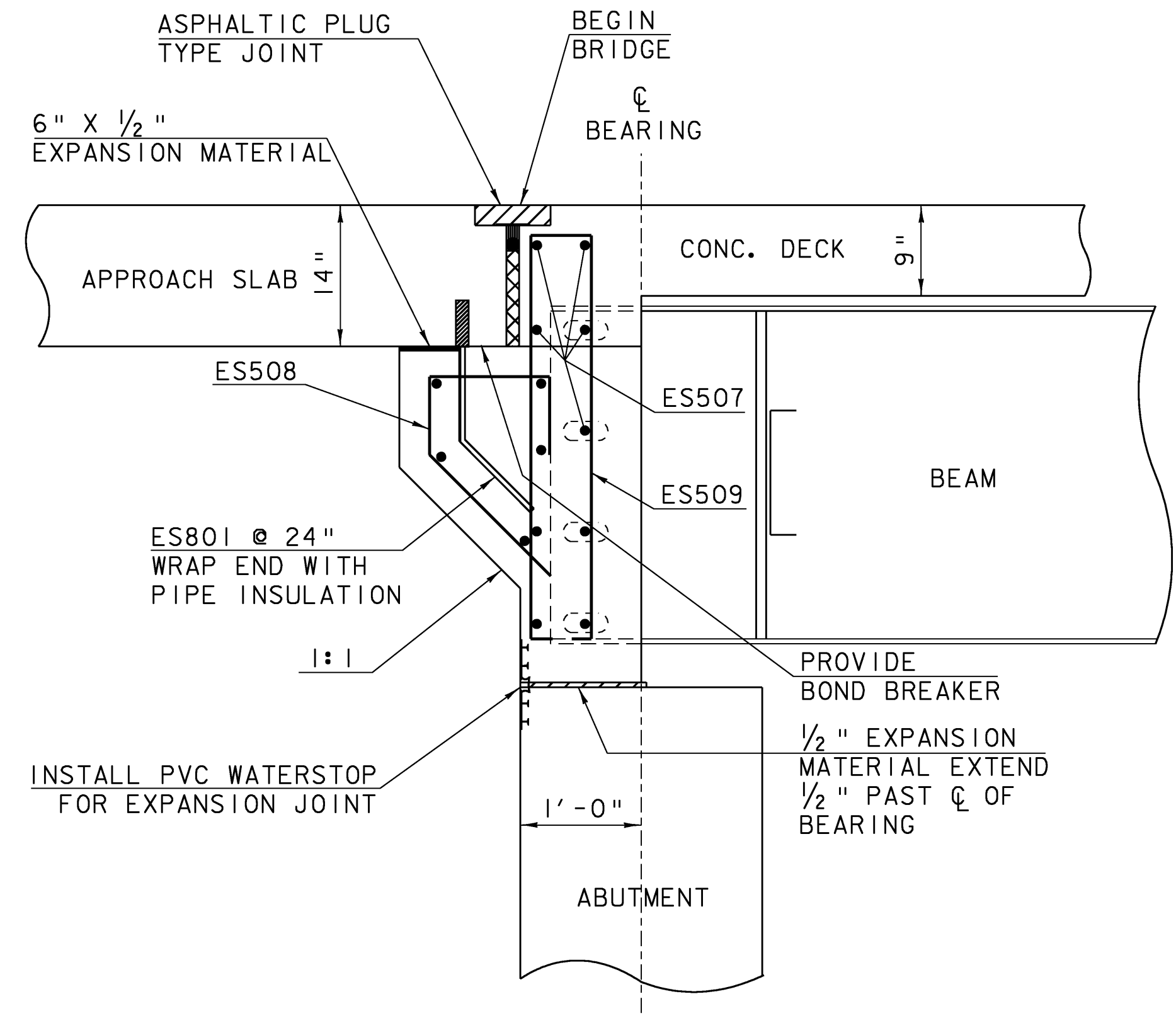
BEARING NOTES

1. EXPANSION BEARINGS SHALL BE PAID FOR UNDER THE ITEM 531.11 "BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD" AND SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTION 531 AND 731.
2. THE FIELD WELD CONNECTING THE BOTTOM FLANGE WITH THE BEARING DEVICE SHALL BE MADE WITH E7018 RODS. AREAS OF METALIZING DAMAGED BY WELDING AND/OR HANDLING SHALL BE REPAIRED BY METALIZING IN ACCORDANCE WITH ASTM A 760.
3. ALL STEEL COMPONENTS SHALL BE METALIZED AS PER SECTION 531.04 (b) AND 506.15. AFTER THE BEARINGS ARE METALIZED, THEY SHALL BE SEALED WITH AN APPROVED SEALANT AS SPECIFIED IN SUBSECTION 506.15 (b). ALL WASHERS SHALL BE 1/2" PLATE MINIMUM. PAYMENT FOR ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE INCLUDED IN THE UNIT BID PRICE FOR "BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD." ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED PER AASHTO M 232.
4. ALL STEEL IN BEARING DEVICES SHALL BE AASHTO M 270 GRADE 50 UNLESS NOTED OTHERWISE.
5. ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMERIC SHALL BE STEEL ASTM A36. 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 THE 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 LRFD BRIDGE DESIGN SPECIFICATIONS 2007 EDITION AND ITS LATEST REVISIONS.
8. BRIDGE SEAT ELEVATIONS MAY BE REVISED TO ACCOMMODATE AN ALTERNATIVE CONFIGURATION. THE CONCRETE SURFACES UNDER THE BEARING DEVICES SHALL BE LEVEL.
9. DESIGN CRITERIA:
 - A. MASONRY PLATE TO CONCRETE DESIGN PRESSURE = 800 PSI
 - B. DESIGN ROTATION = 0.011 RAD
 - C. HORIZONTAL CAPACITY SHALL BE MINIMUM OF 20% VERTICAL LOAD IN ANY RESTRAINED DIRECTION.
 - D. DESIGN LOAD PER BEARING
 - RDL = 43.8 kips
 - RLL = 58.2 kips
 - E. TEMPERATURE RANGE = -15° TO 105° F
 - F. ELASTOMER SHALL HAVE NOMINAL HARDNESS OF 60 ON SHORE 'A' SCALE. ELASTOMER SHALL HAVE A SHEAR MODULUS BETWEEN 0.13KSI AND 0.20 KSI THE RAW ELASTOMER SHALL BE VIRGIN NEOPRENE CLASSIFIED AS LOW TEMPERATURE GRADE 4 AS DEFINED IN TABLE 18.2.3.1-1 OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
 - G. NO FABRIC REINFORCEMENT WILL BE ALLOWED IN ELASTOMERIC PADS
10. THE STEEL SOLE PLATES AND MASONRY 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.

BEARING NOTES

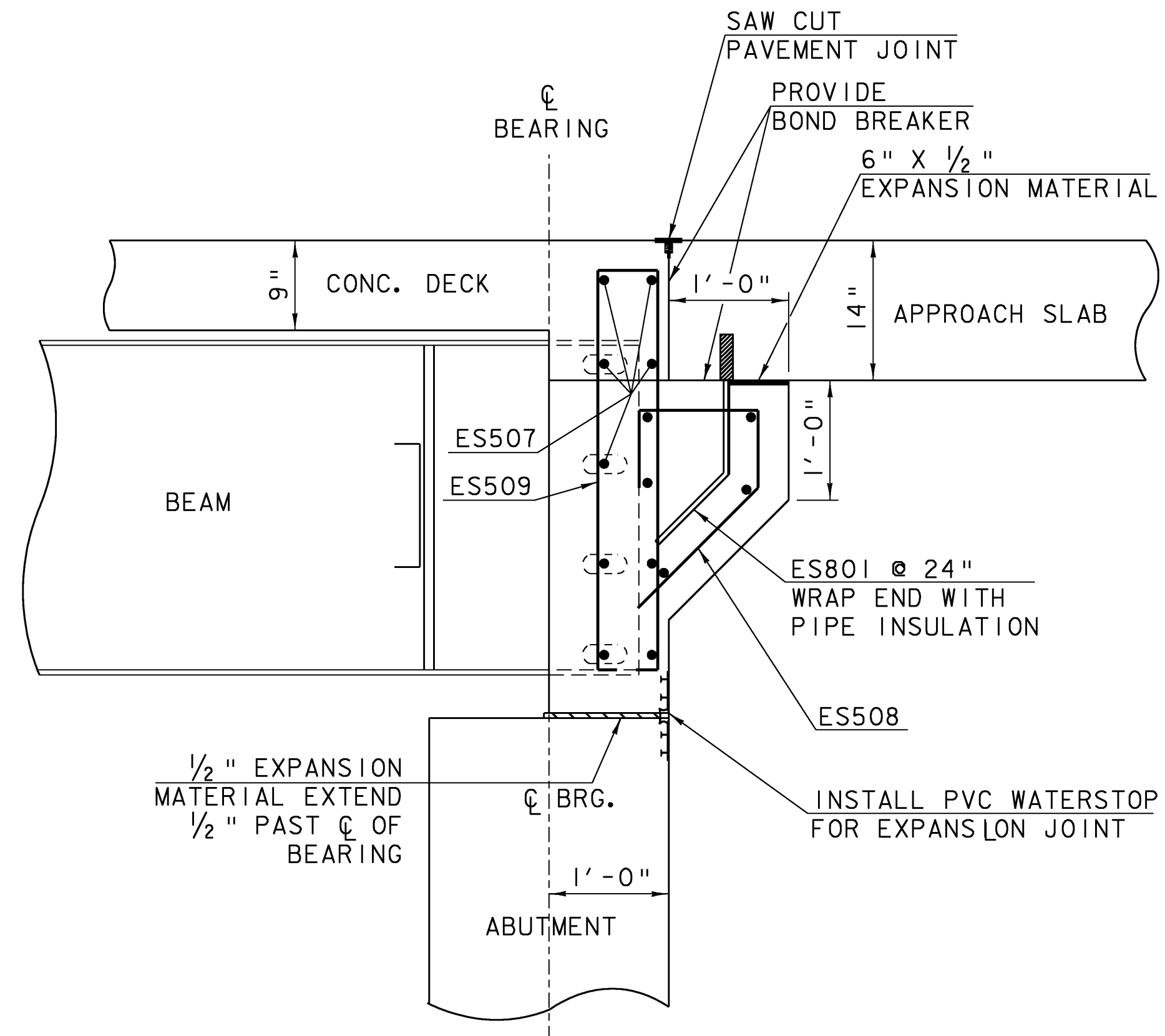
PROJECT NAME: CANAAN
PROJECT NUMBER: ER ST 0271(16)

FILE NAME: 04c098/struc./s04c098sup	PLOT DATE: 18-AUG-2008
PROJECT LEADER: M. EVANS-MONGEON	DRAWN BY: L. DUQUETTE
DESIGNED BY: S.SCRIBNER	CHECKED BY: S. SCRIBNER
	SHEET 39 OF 66



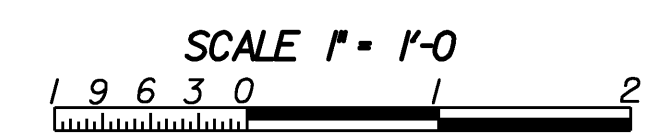
BRIDGE EXPANSION END DETAIL
ABUTMENT #1

NOTE:
PAYMENT FOR FURNISHING AND INSTALLING EXPANSION MATERIAL, PIPE INSULATION, BOND BREAKER, AND PVC WATERSTOP WILL BE MADE INCIDENTAL TO THE PAY ITEM FOR ADJACENT CONCRETE.



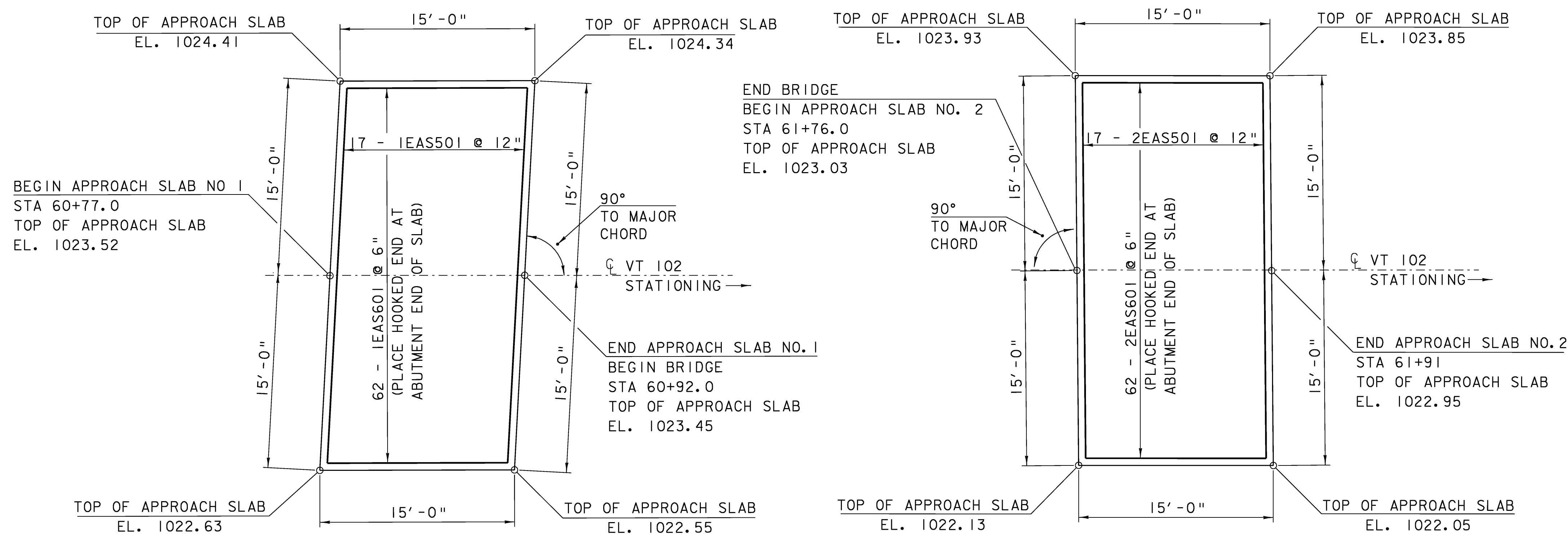
BRIDGE FIXED END DETAIL
ABUTMENT #2

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.



BRIDGE END DETAILS

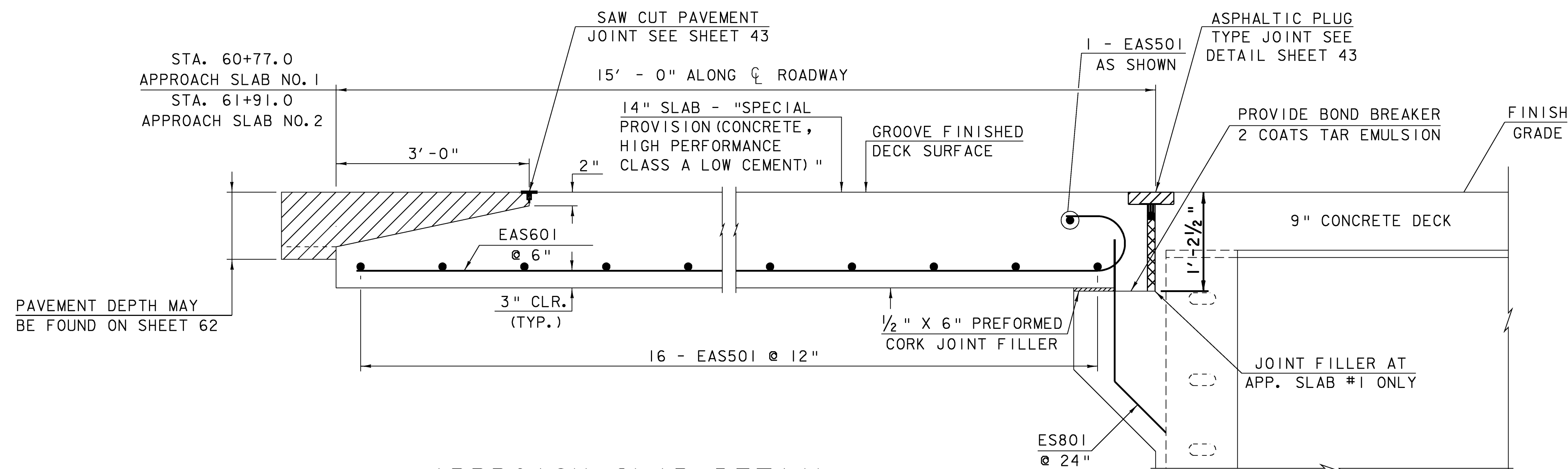
PROJECT NAME:	CANAAN	PLOT DATE:	18-AUG-2008
PROJECT NUMBER:	ER ST 0271(16)	DRAWN BY:	L. DUQUETTE
FILE NAME:	04c098/struc./s04c098sup	CHECKED BY:	S. SCRIBNER
DESIGNED BY:	S. SCRIBNER	SHEET	40 OF 66



APPROACH SLAB PLAN

SCALE 3/16" = 1'-0"
 1 0 2 4 6 8

NOTE:
 PAYMENT FOR FURNISHING AND INSTALLING BOND BREAKER AND JOINT FILLER WILL BE MADE INCIDENTAL TO THE PAY ITEM FOR ADJACENT CONCRETE.



APPROACH SLAB DETAIL

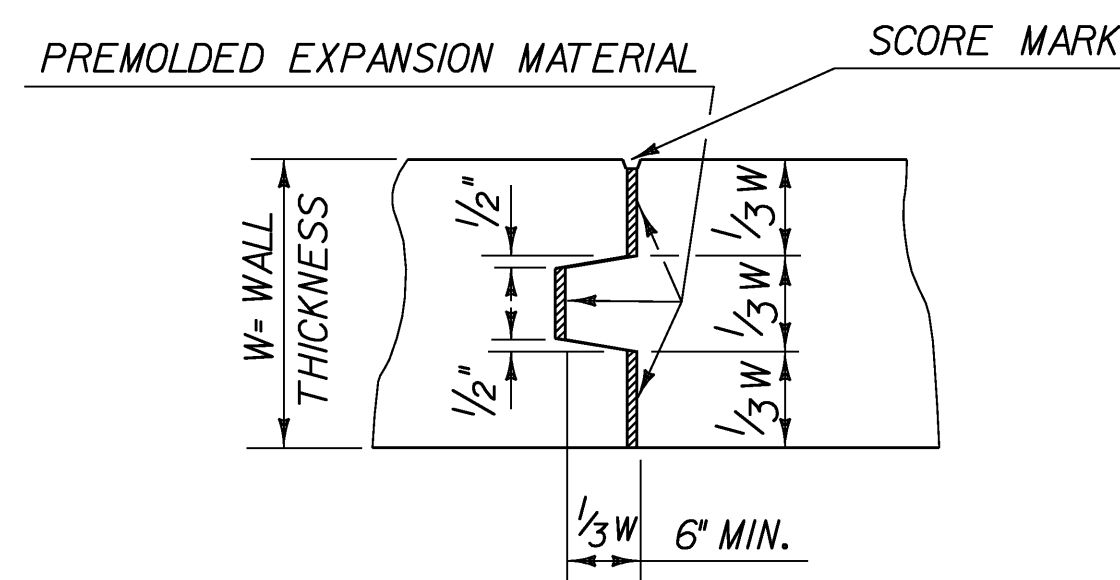
APPROACH SLAB 1 SHOWN
 APPROACH SLAB 2 SIMILAR

NOTE:

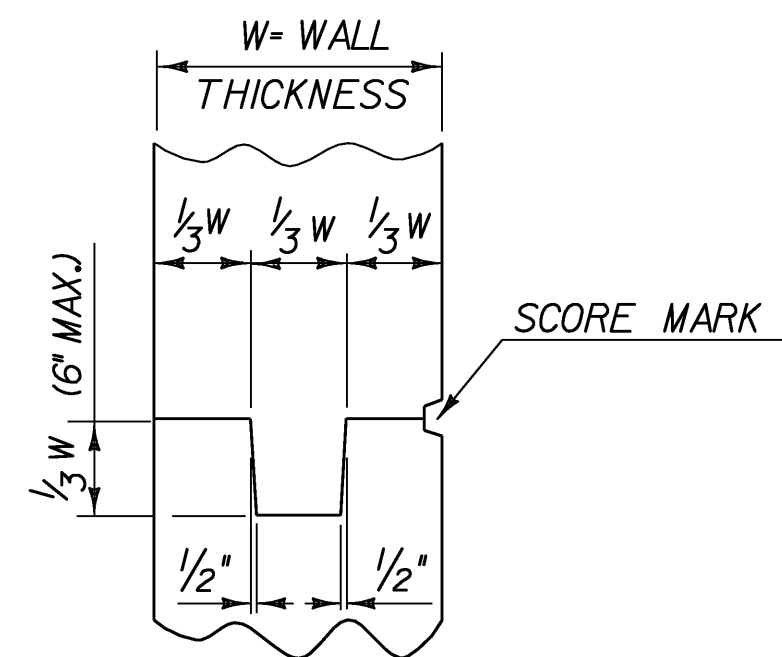
NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

APPROACH SLAB DETAILS

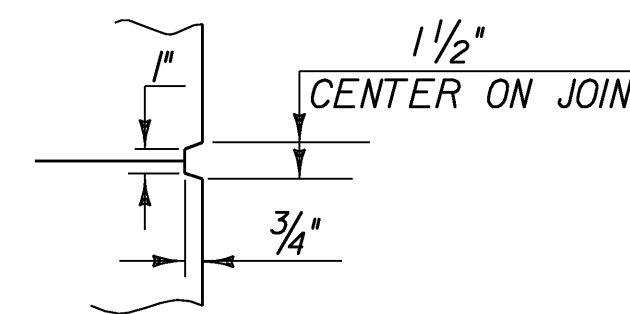
PROJECT NAME:	CANAAN	PLOT DATE:	18-AUG-2008
PROJECT NUMBER:	ER ST 0271(16)	DRAWN BY:	L. DUQUETTE
FILE NAME:	04c098/struc./s04c098sup	DESIGNED BY:	S.SCRIBNER
PROJECT LEADER:	M. EVANS-MONGEON	CHECKED BY:	S. SCRIBNER
		SHEET	41 OF 66



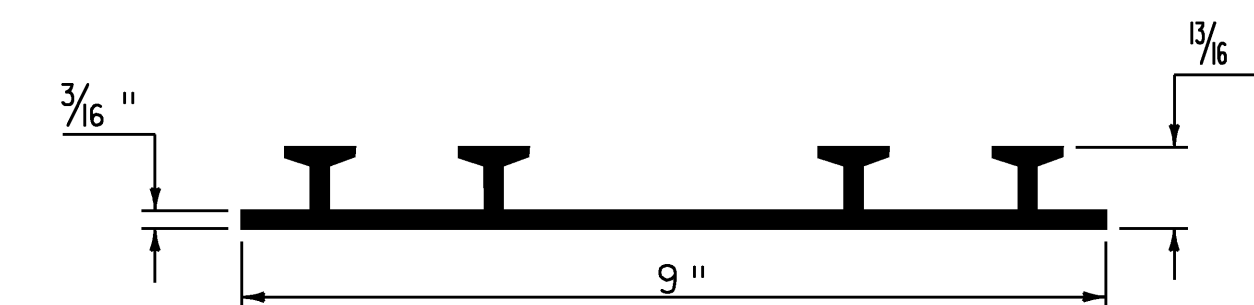
TYPICAL CONCRETE EXPANSION JOINT



TYPICAL CONCRETE CONSTRUCTION JOINT



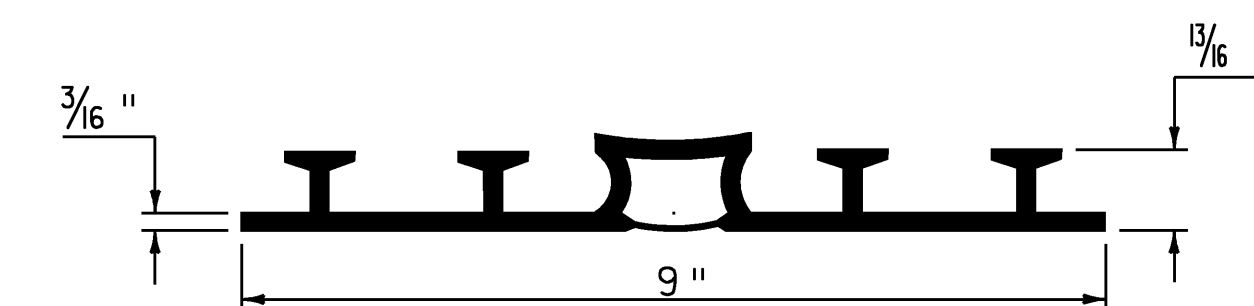
SCORE MARK DETAIL



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

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

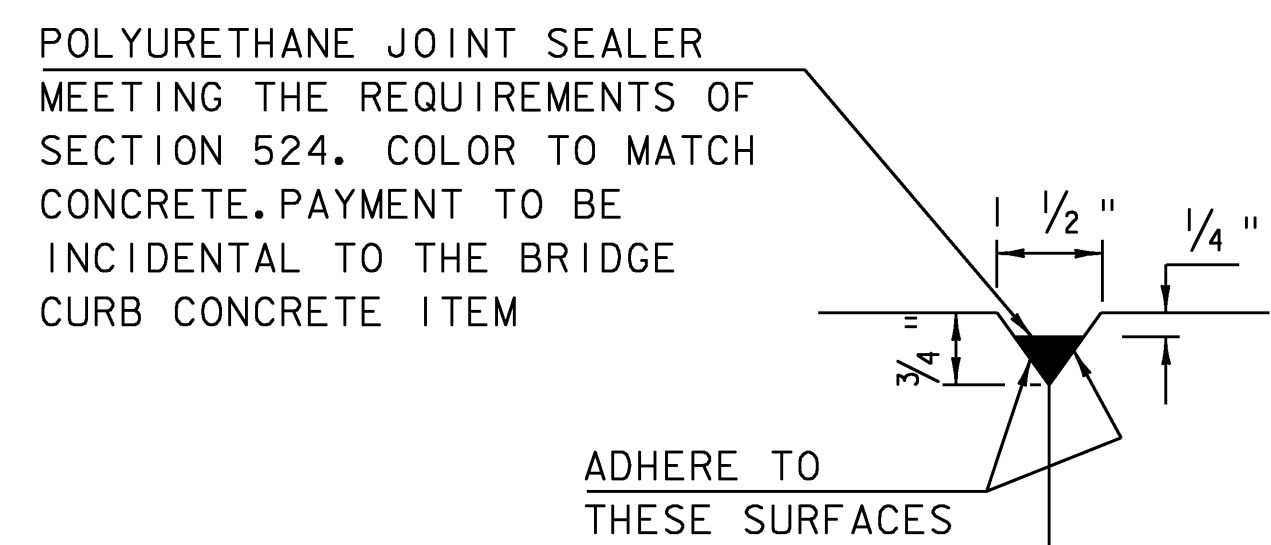
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



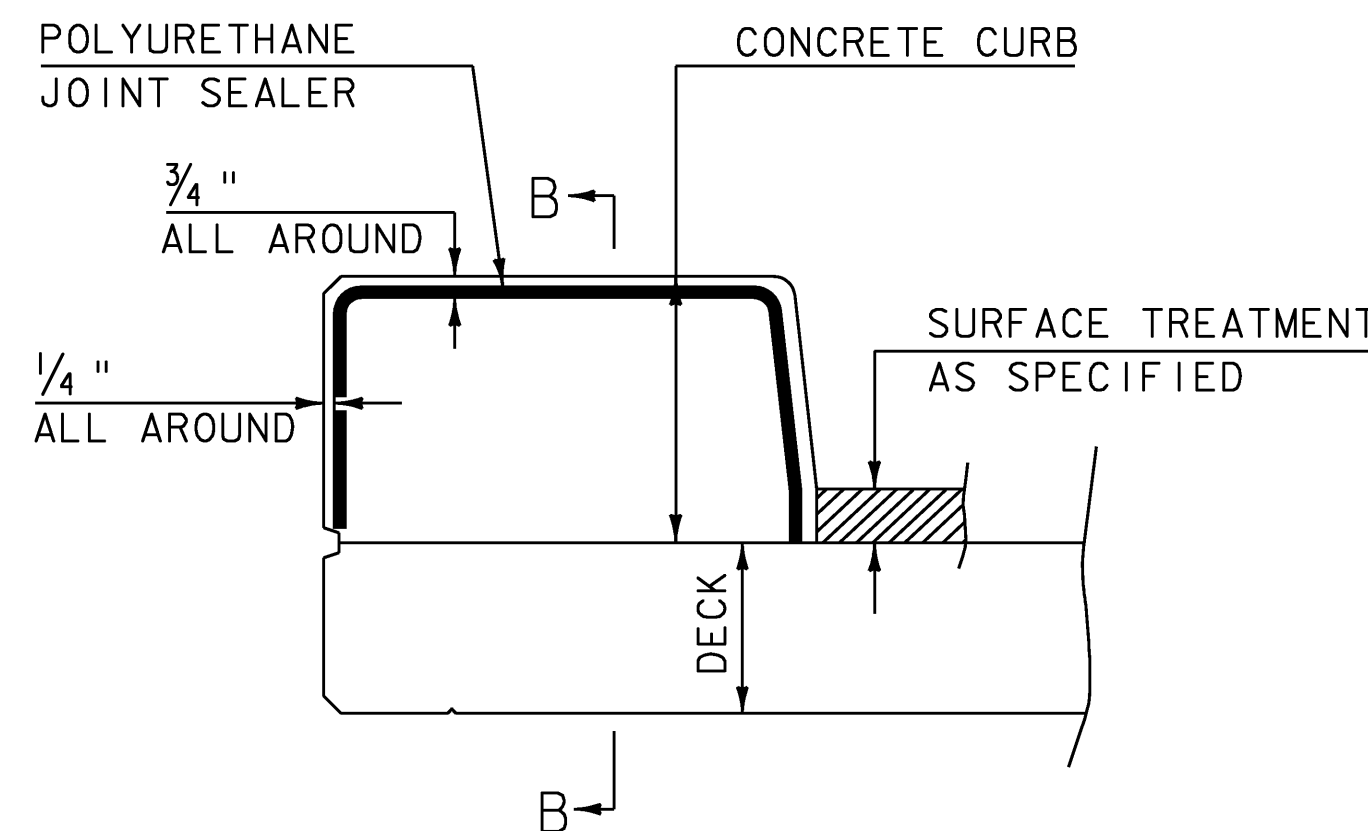
P.V.C. WATERSTOP FOR EXPANSION JOINTS (NOT TO SCALE)

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

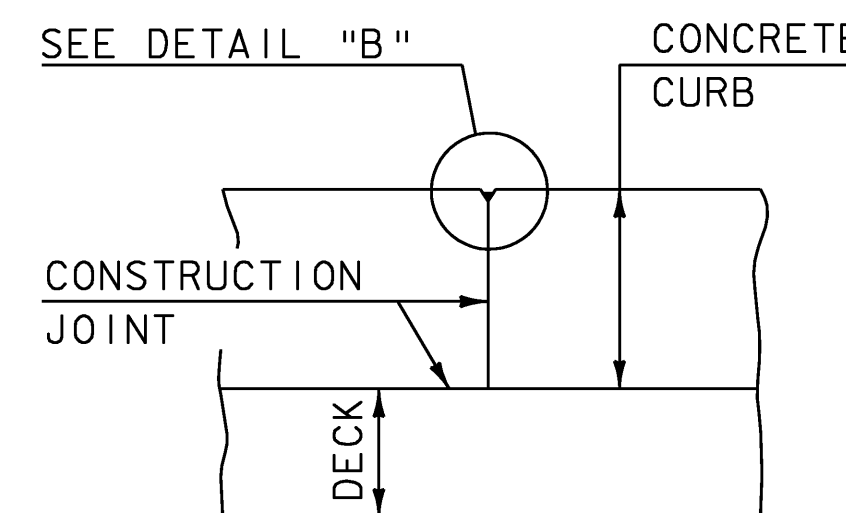
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



DETAIL "B" NOT TO SCALE



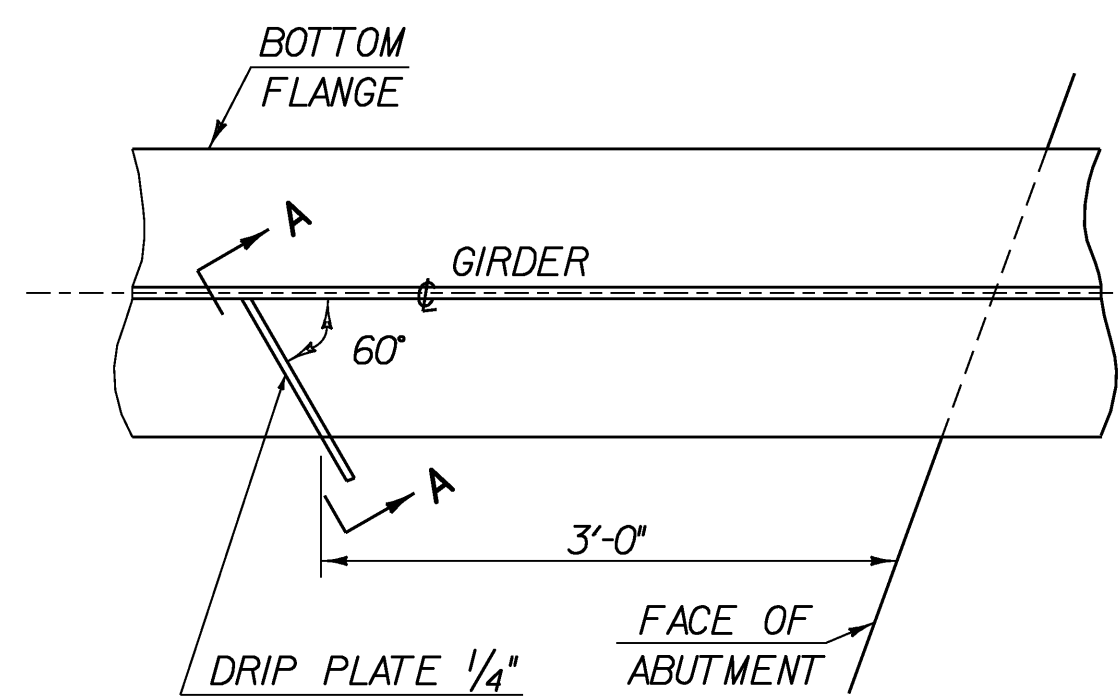
CONCRETE CURB JOINT SECTION NOT TO SCALE



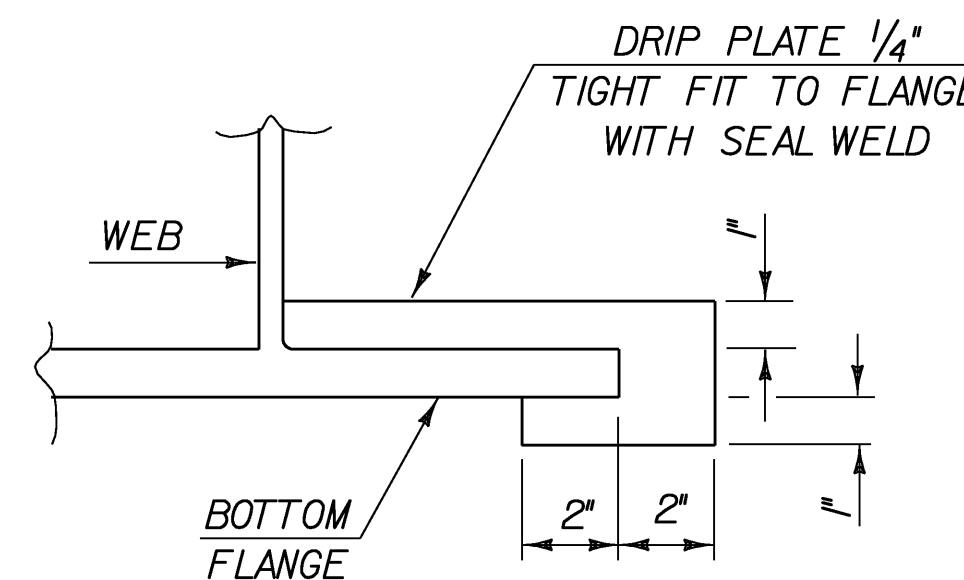
SECTION B - B NOT TO SCALE

CONCRETE CURB JOINT NOTES

1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION. IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.
3. ON MULTI-SPAN CONTINUOUS SUPERSTRUCTURES, REGARDLESS OF WHETHER APPROVED SHRINKAGE REDUCING ADMIXTURE IS USED, CURB JOINTS SHALL BE LOCATED OVER THE CENTERLINE OF PIERS AND 7'-0" EACH SIDE OF THE CENTERLINE OF EACH PIER.
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.
5. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THROUGH CURB CONSTRUCTION JOINTS. CURB STIRRUP BARS SHALL BE TURNED AS NECESSARY TO MAINTAIN COVER IN THE FLARED CURB ENDS.
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.

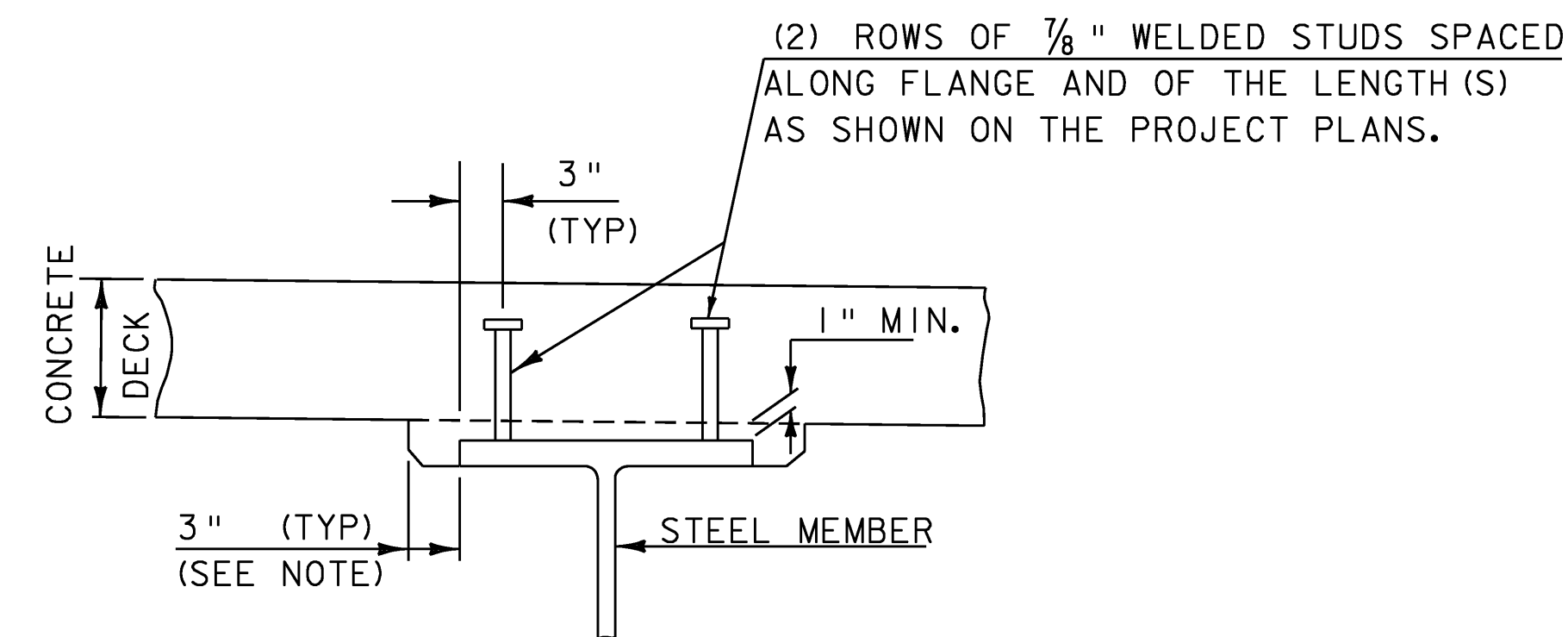


PLAN DRIP PLATE



SECTION A - A

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

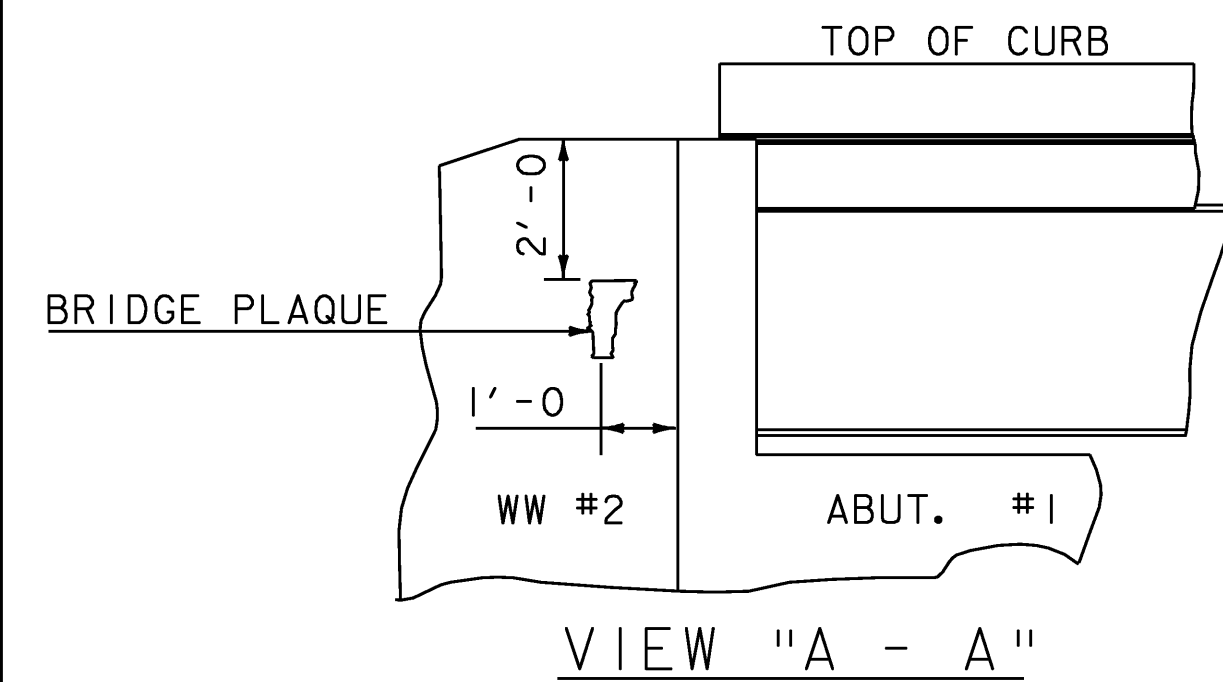


NOTE: THE 3" HORIZONTAL SECTION MAY BE ELIMINATED FOR FORMING SYSTEMS DESIGNED FOR THE CONSTRUCTION OF VERTICAL HAUNCHES. ANY VOIDS RESULTING FROM FORMING SYSTEM ELEMENTS SHALL BE FILLED WITH JOINT SEALER, POLYURETHANE MEETING THE REQUIREMENTS OF SECTION 524. THE COST OF THE JOINT SEALER, POLYURETHANE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

HAUNCH AND SHEAR CONNECTOR DETAIL (NOT TO SCALE)

SUPERSTRUCTURE DETAILS (1)

PROJECT NAME:	CANAAN	PLOT DATE:	18-AUG-2008
PROJECT NUMBER:	ER ST 0271(16)	DRAWN BY:	L. DUQUETTE
FILE NAME:	04c098/struc./s04c098sup	DESIGNED BY:	S. SCRIBNER
PROJECT LEADER:	M. EVANS-MONGEON	CHECKED BY:	S. SCRIBNER
		SHEET	42 OF 66

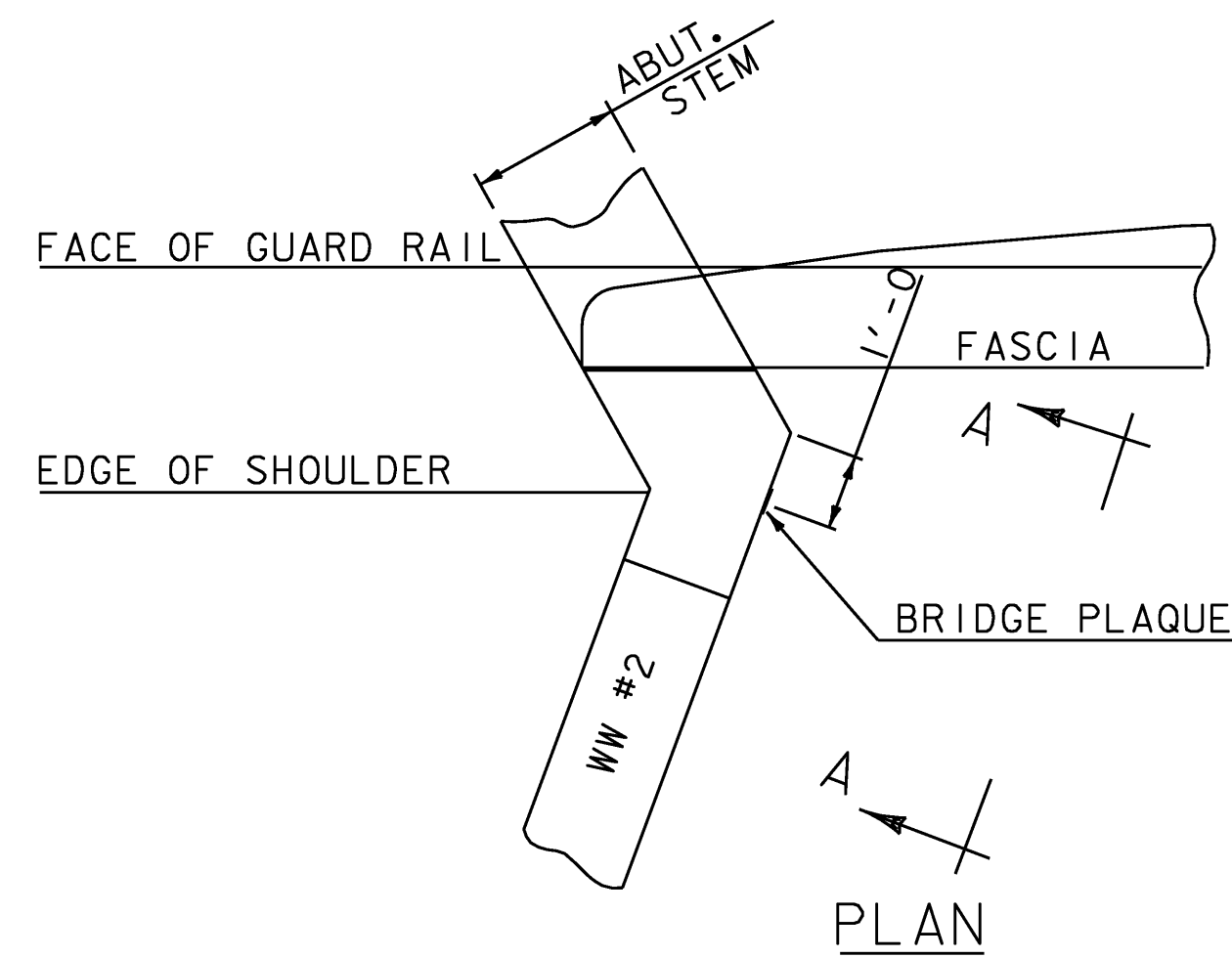


VIEW "A - A"

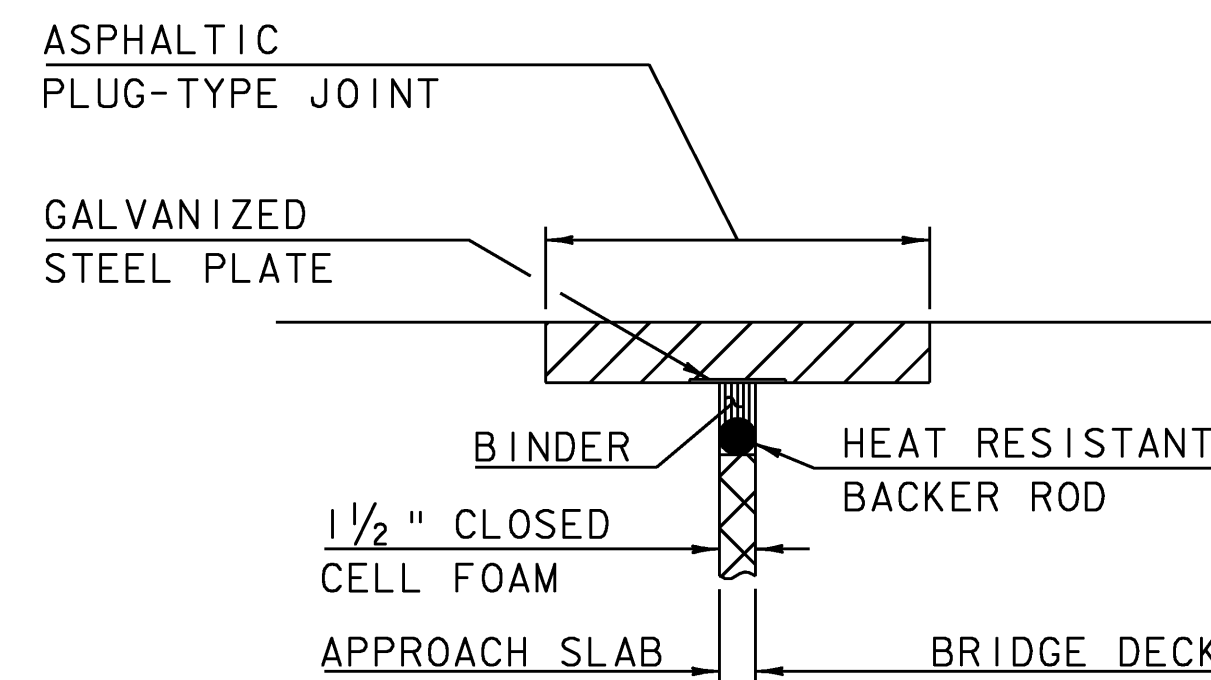
BRIDGE PLAQUE
(NOT TO SCALE)

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

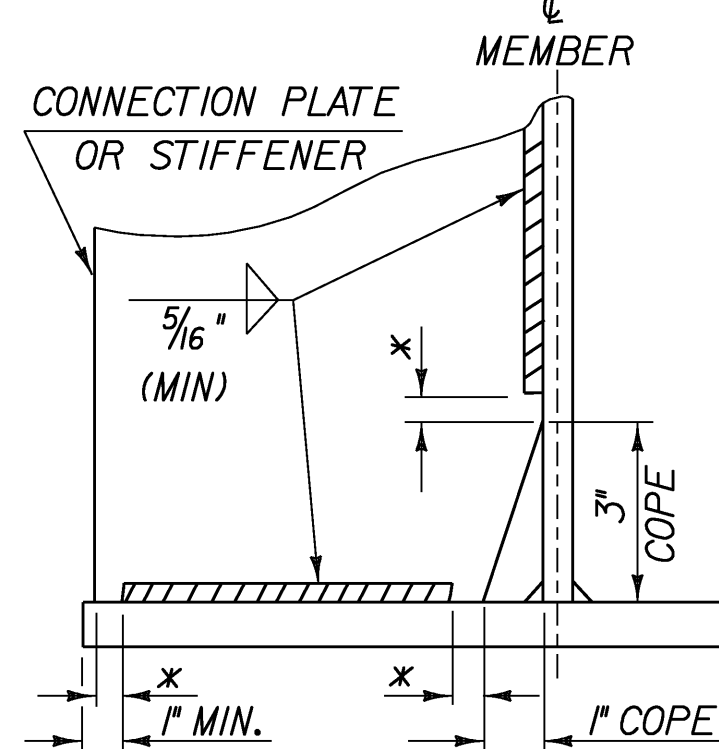
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.



PLAN



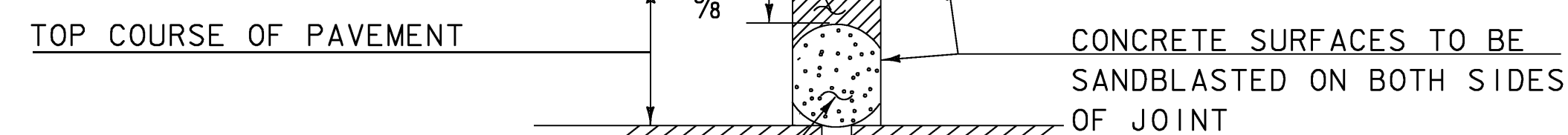
ASPHALTIC PLUG-TYPE
JOINT DETAIL
(NOT TO SCALE)



**WELD TERMINATION AND COPING
DETAILS FOR STEEL MEMBERS**

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

JOINT SEALER, HOT OR COLD POURED. SHALL BE SLIGHTLY OVER FILLED THEN WIPED FLUSH WITH A "V" OR "U" SHAPED SQUEEGEE TO PROVIDE A 1 1/4" WIPE ZONE EACH SIDE OF JOINT.



3/8" Ø HEAT RESISTANT FOAM BACKER ROD. COMPRESSION FIT REQUIRED TO ENSURE THAT THE ROD POSITION IS MAINTAINED DURING FILLING OPERATION. COST TO BE INCLUDED WITH UNIT PRICE BID FOR JOINT SEALER.

SAWED PAVEMENT JOINT DETAIL
(NOT TO SCALE)

*JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUTS WILL BE MADE DIRECTLY OVER THE END OF CONCRETE DECK. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING THE JOINT SEALER. PAYMENT INCIDENTAL TO 406.25

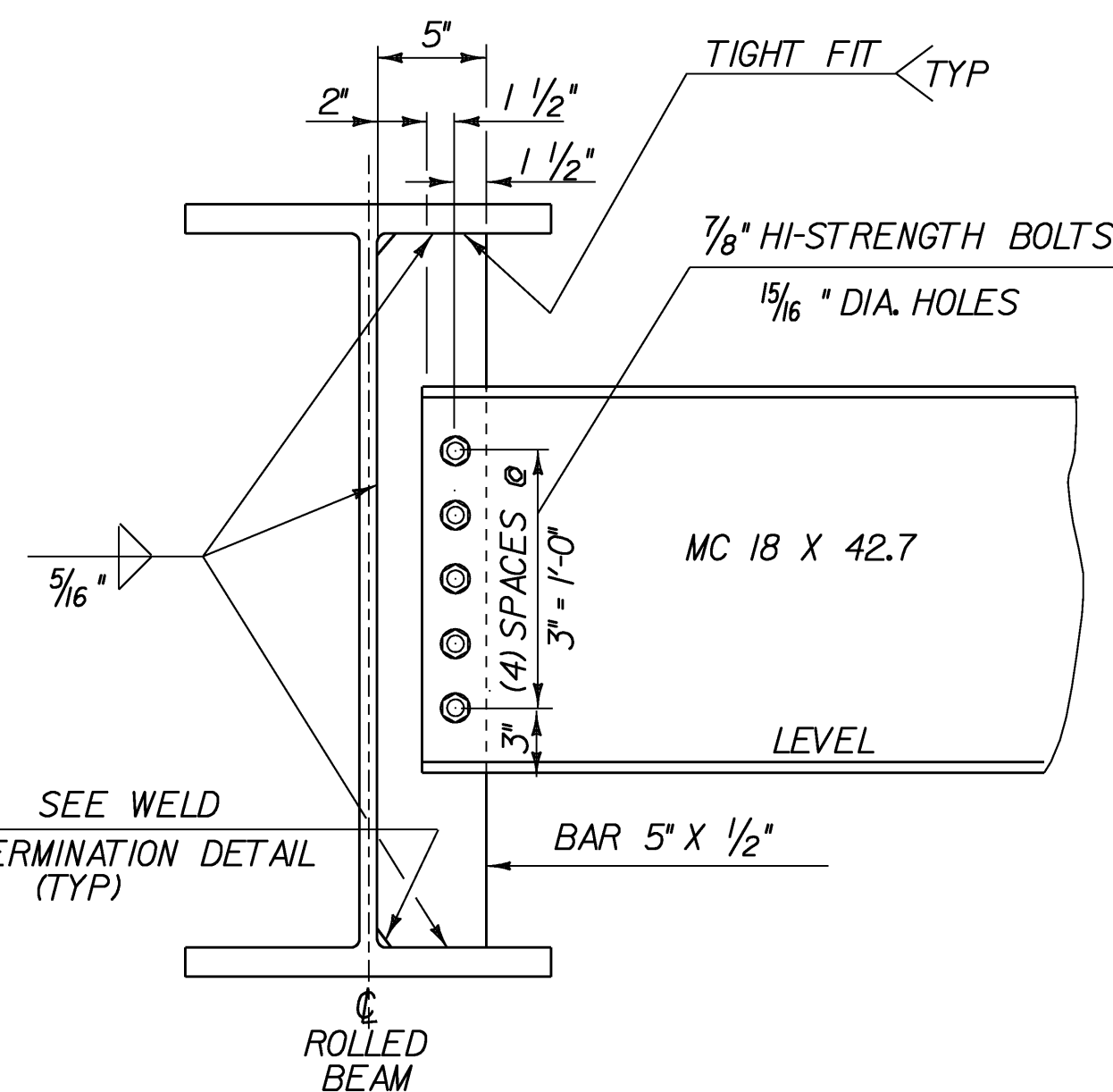
ASPHALTIC PLUG JOINT NOTES

1. INSTALLATION

- A. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
- B. REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.
- C. BLAST CLEAN THE JOINT AREA OF DEBRIS AND ASPHALT. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
- D. REPAIR SPALLED AND DEFECTIVE CONCRETE WITH AN APPROVED MATERIAL AS AGREED UPON BY THE ENGINEER.
- E. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
- F. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
- G. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRESTAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.
- H. HEAT AND MIX THE BINDER MATERIAL AND AGGREGATE AS RECOMMENDED BY THE MANUFACTURER.
- I. INSTALLATION OF MATERIAL, COMPACTION, AND TOP COATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
- J. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.
- K. PROTECT JOINT FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 51 DEG C (125 DEG F) +/-.

2. WEATHER LIMITATIONS. (APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER):

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

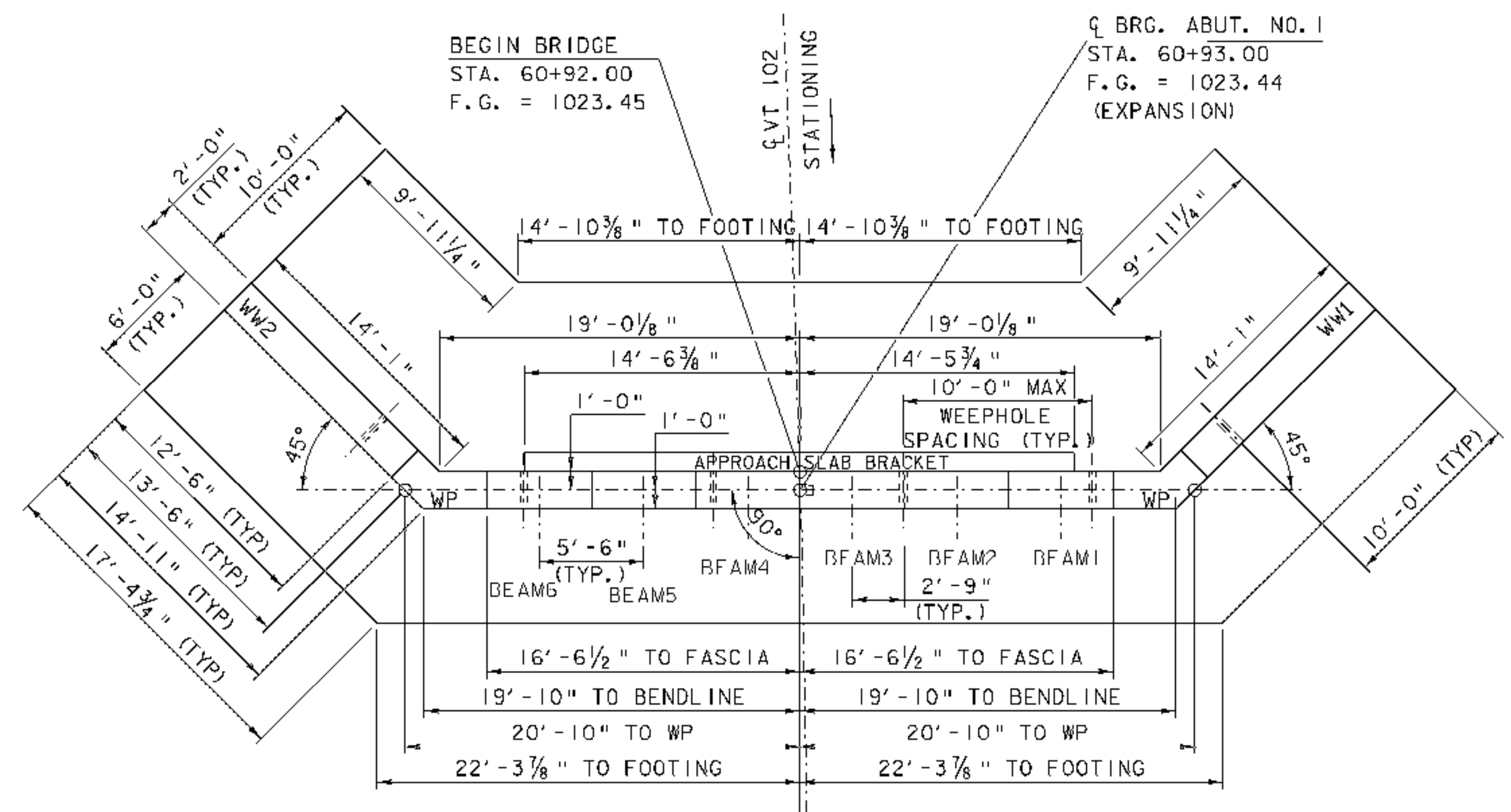


NOTE: HI-STRENGTH BOLTS, NUTS AND WASHERS SHALL CONFORM TO AASHTO DESIGNATION M164.

INTERMEDIATE DIAPHRAGMS

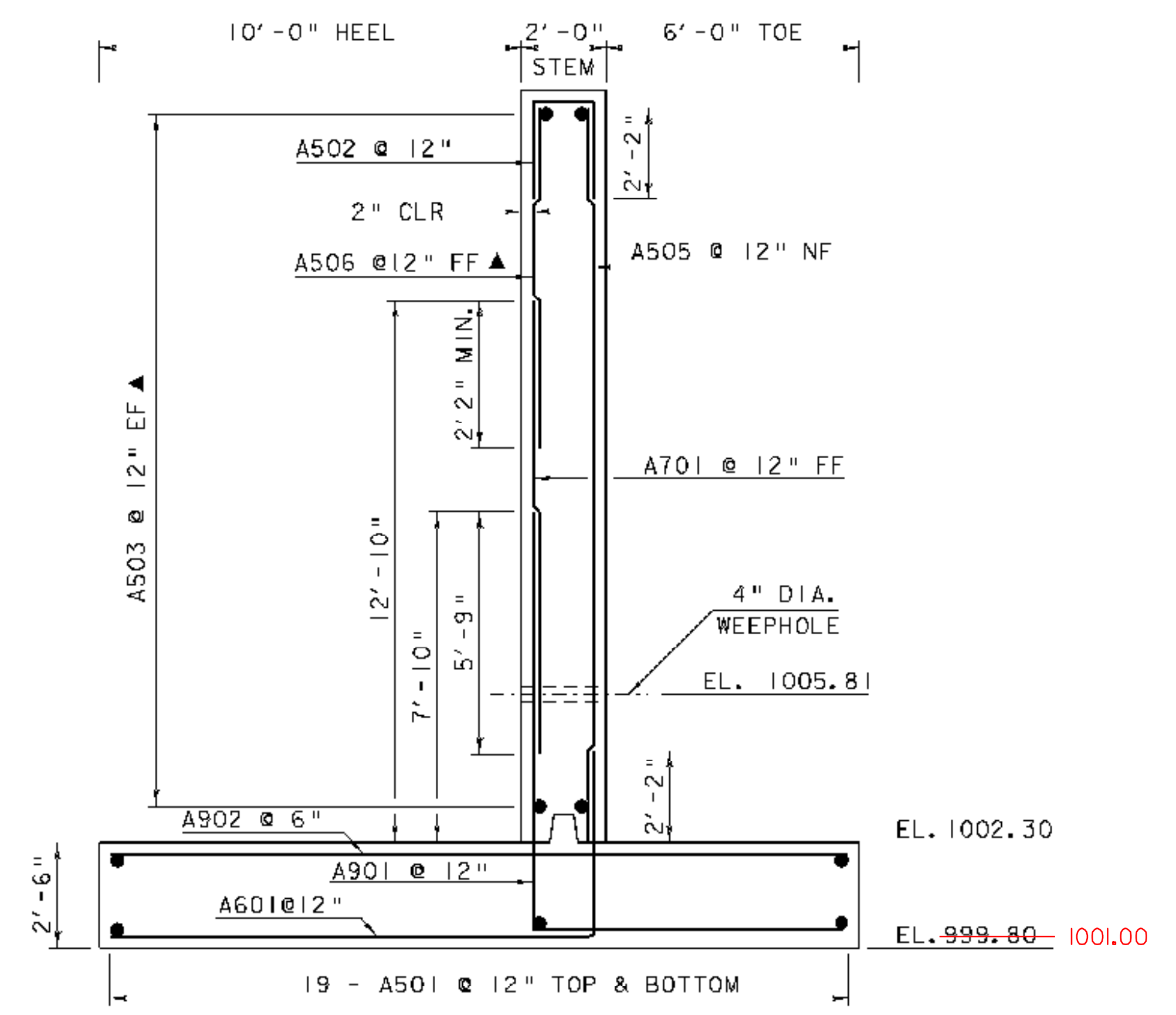
SUPERSTRUCTURE DETAILS (2)

PROJECT NAME:	CANAAN	PLOT DATE:	18-AUG-2008
PROJECT NUMBER:	ER ST 0271(16)	DRAWN BY:	L. DUQUETTE
FILE NAME:	04c098/struc./s04c098sup	CHECKED BY:	S. SCRIBNER
DESIGNED BY:	S. SCRIBNER	SHEET	43 OF 66



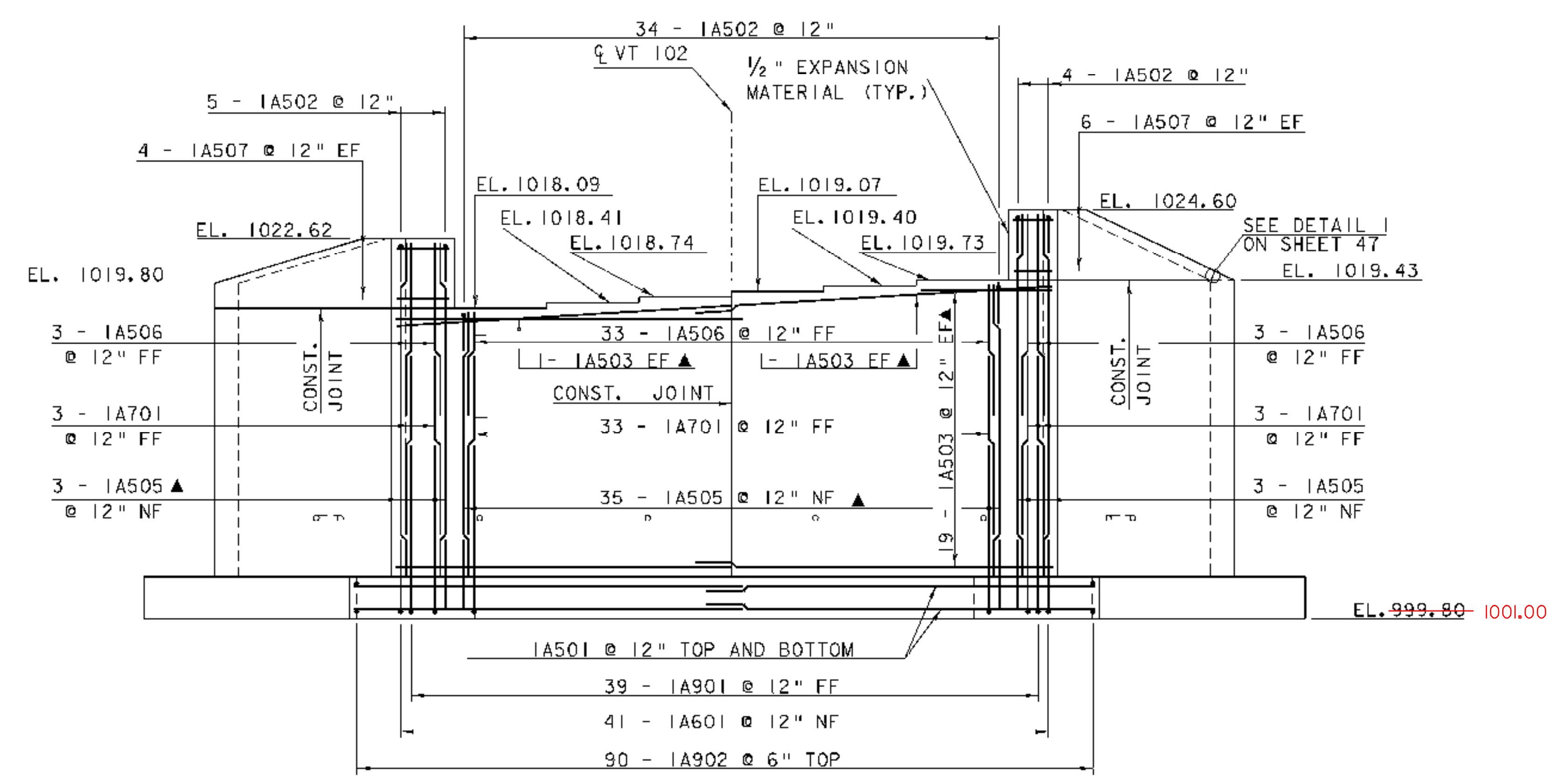
ABUTMENT NO. 1 PLAN

SCALE 3/16" = 1'-0"
1 0 2 4 6 8



ABUTMENT TYPICAL

SCALE 3/16" = 1'-0"
1 0 1 2 3 4



ABUTMENT NO. 1 ELEVATION

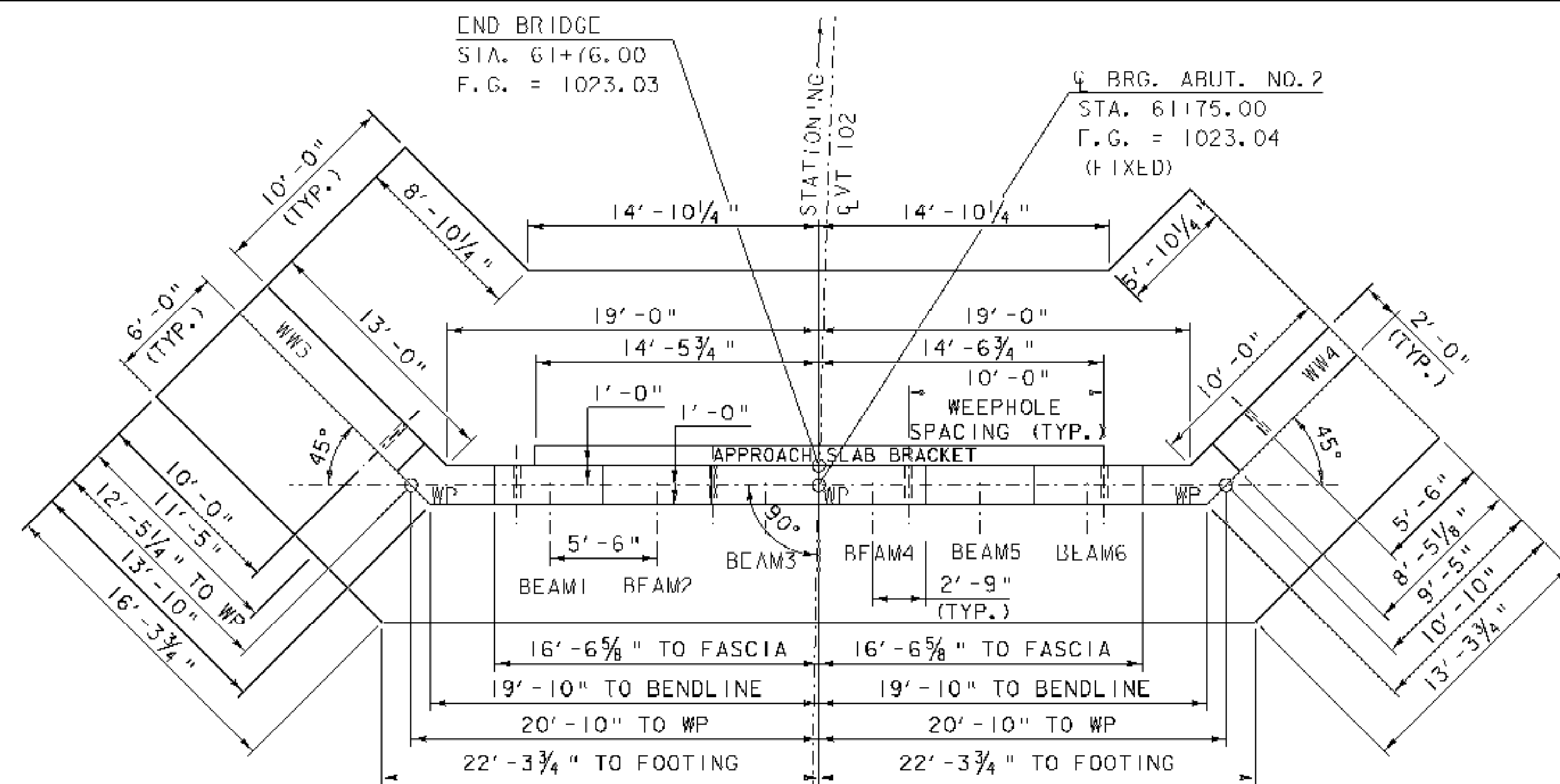
SCALE 3/16" = 1'-0"
1 0 2 4 6 8

NOTE:

NI = NEAR FACE
 FF = FAR FACE
 FF = FACH FACF
 ▲ - CUT TO FIT IN FIELD
 3" CI FAR, UNI FSS OTHERWISF
 SPECIFID ON THF PI ANS.
 2'-2" BAR LAP UNLESS OTHERWISF
 SPECIFIED ON THE PLANS.
 ALL DIMENSIONS ARE TAKEN FROM THE
 MAJOR CHORD NOT FROM THE C OF VT 102

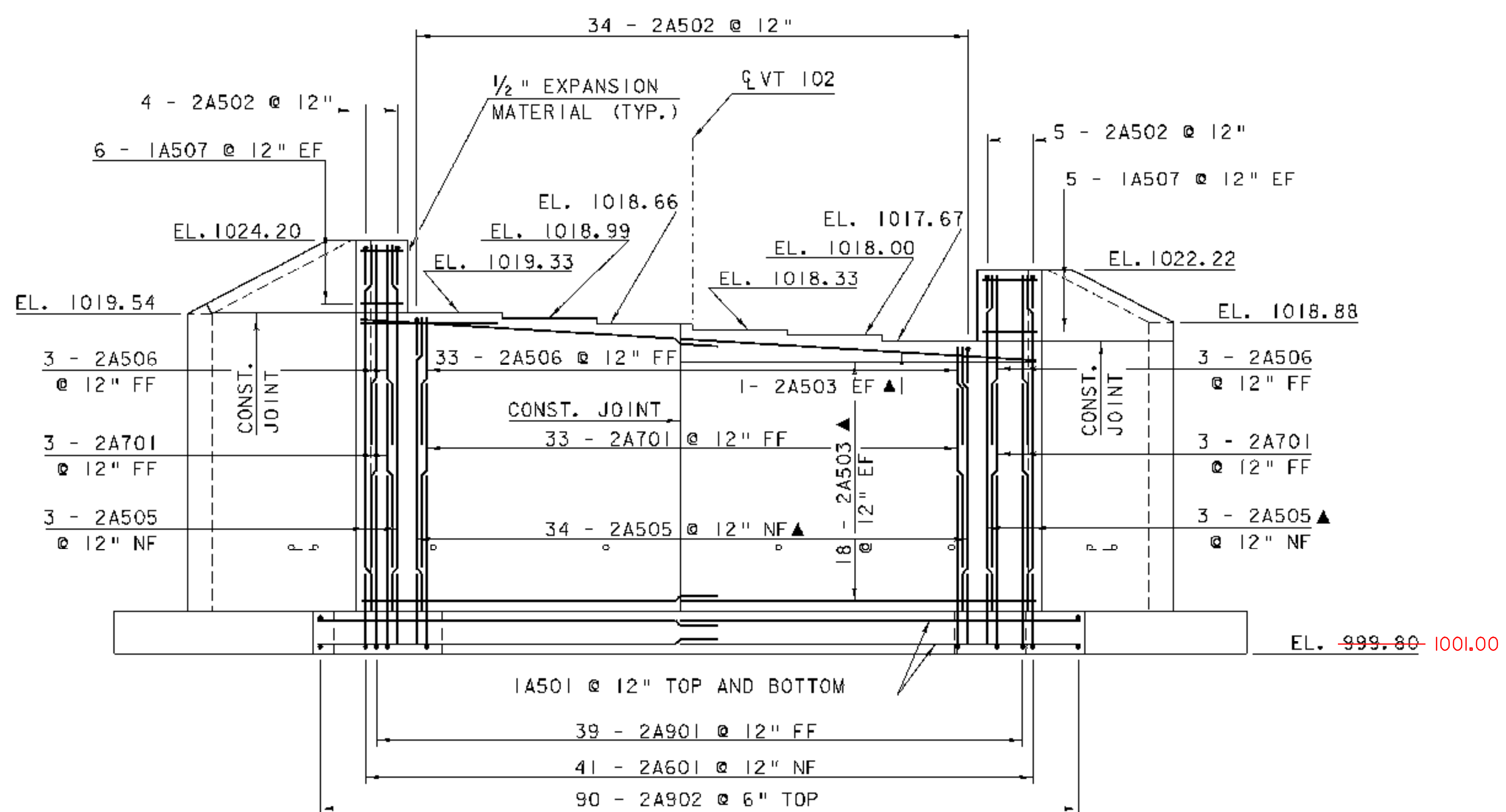
ABUTMENT #1 DETAILS

PROJECT NAME:	CANAAN	PLOT DATE:	18-AUG-2008
PROJECT NUMBER:	ER ST 0271(16)	DRAWN BY:	C. JOLLY
FILE NAME:	04c098/struc./s04c098sup	CHECKED BY:	S. SCRIBNER
PROJECT LEADER:	M. EVANS-MONGEON	SHEET	44 OF 66
DESIGNED BY:	S. SCRIBNER		



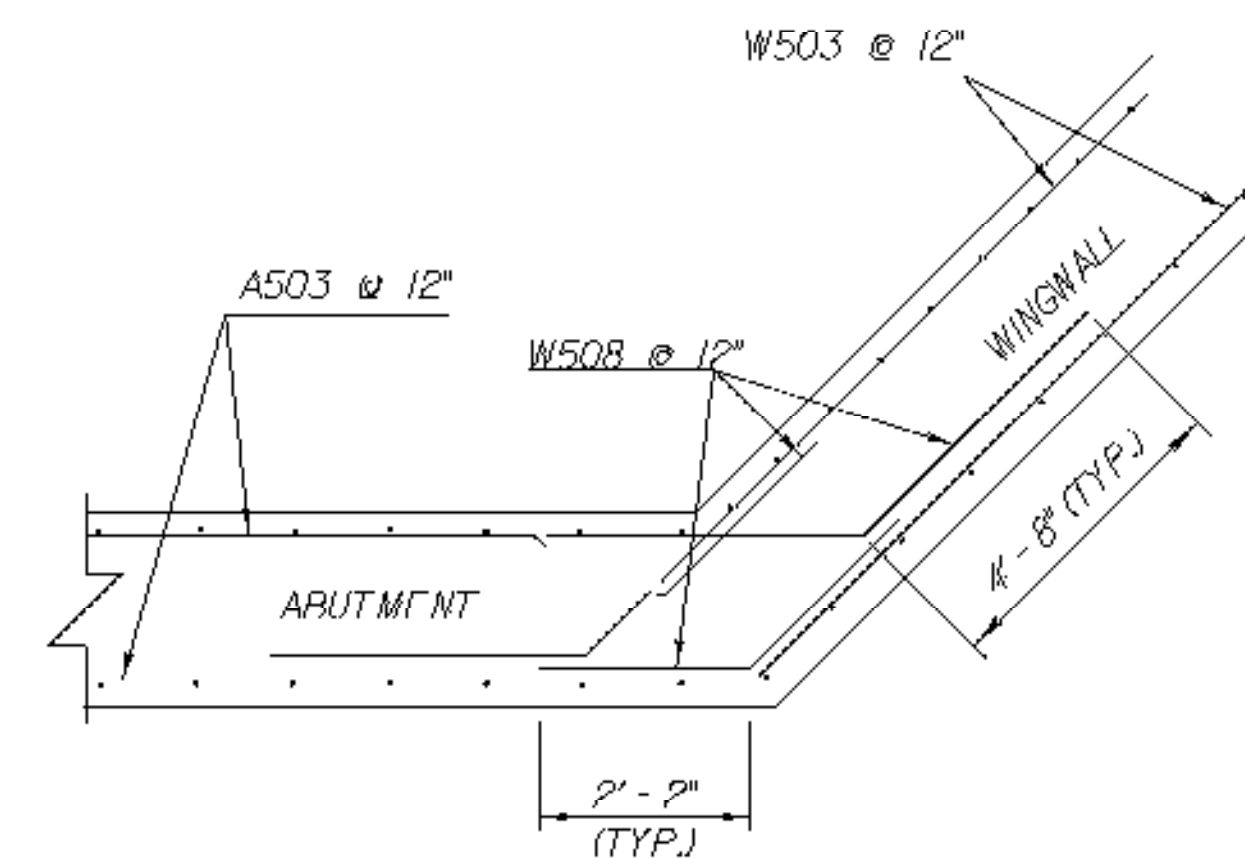
ABUTMENT NO. 2 PLAN

SCALE 3/16" = 1'-0"
1 0 2 4 6 8



ABUTMENT NO. 2 ELEVATION

SCALE 3/16" = 1'-0"
1 0 2 4 6 8

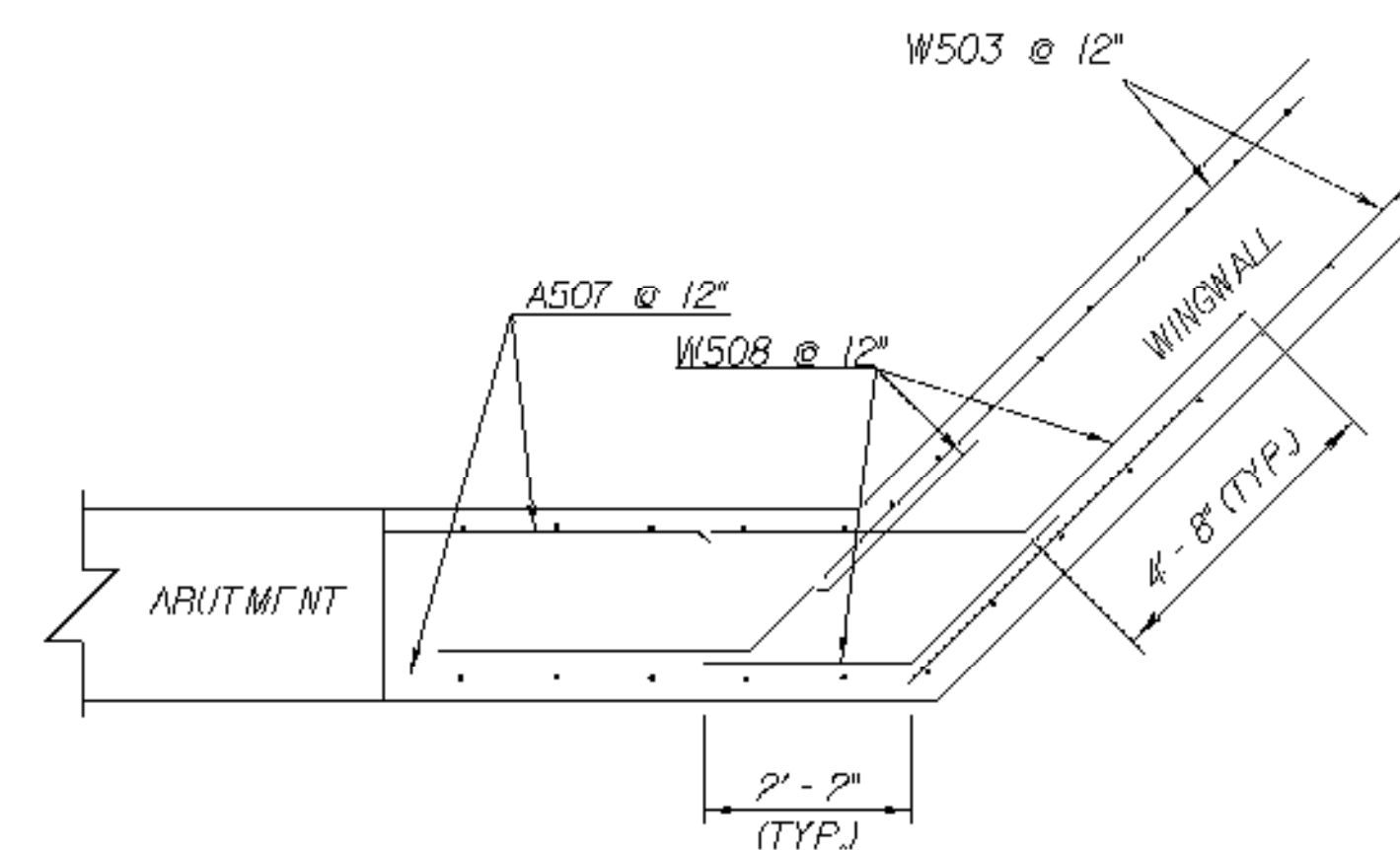


WINGWALL CORNER DETAIL FOR 45° OR UNDER

WINGWALL CORNER DETAIL

(BELOW BRIDGE SEAT)

NOT TO SCALE



WINGWALL CORNER DETAIL FOR 45° OR UNDER

WINGWALL CORNER DETAIL

(ABOVE BRIDGE SEAT)

NOT TO SCALE

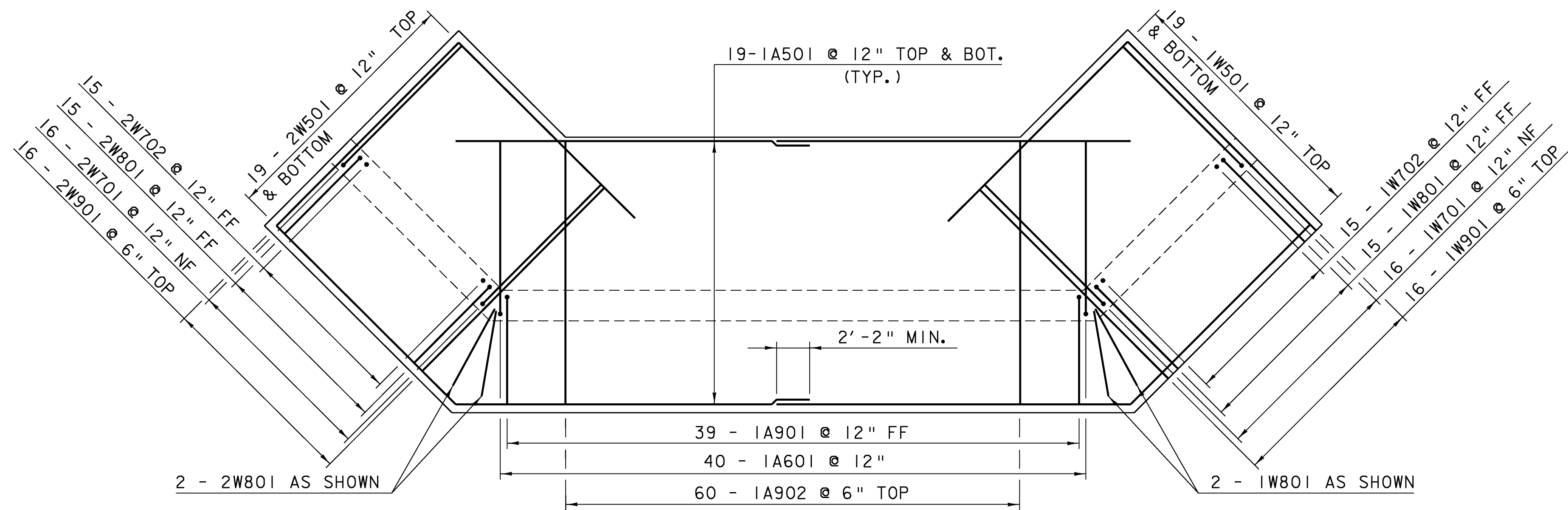
NOTE:

- NI = NEAR FACE
- FF = FAR FACE
- FF = FACH FACF
- ▲ - CUT TO FIT IN FIELD
- 3" CI FAR, UNIFSS OTHERWISE SPECIFIED ON THE PLANS.
- 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- ALL DIMENSIONS ARE TAKEN FROM THE MAJOR CHORD NOT FROM THE CL OF VT 102

ABUTMENT #2 DETAILS

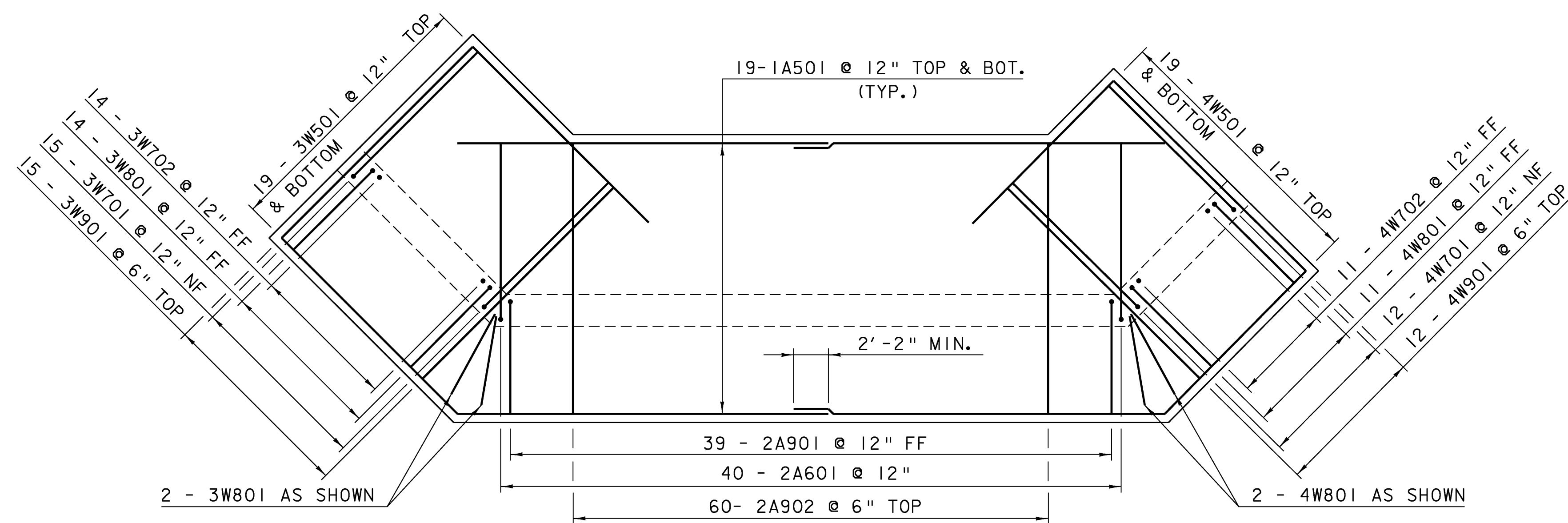
PROJECT NAME: CANAAN
PROJECT NUMBER: ER ST 0271(16)

FILE NAME: 04c098/struc./s04c098sup PLOT DATE: 18-AUG-2008
PROJECT LEADER: M. EVANS-MONGEON DRAWN BY: C. JOLLY
DESIGNED BY: S. SCRIBNER CHECKED BY: S. SCRIBNER
SHEET 45 OF 66



ABUTMENT NO. 1 FOOTING REINFORCING PLAN

SCALE $\frac{3}{16}'' = 1'-0$
 1 0 2 4 6 8



ABUTMENT NO. 2 FOOTING REINFORCING PLAN

SCALE $\frac{3}{16}'' = 1'-0$
 1 0 2 4 6 8

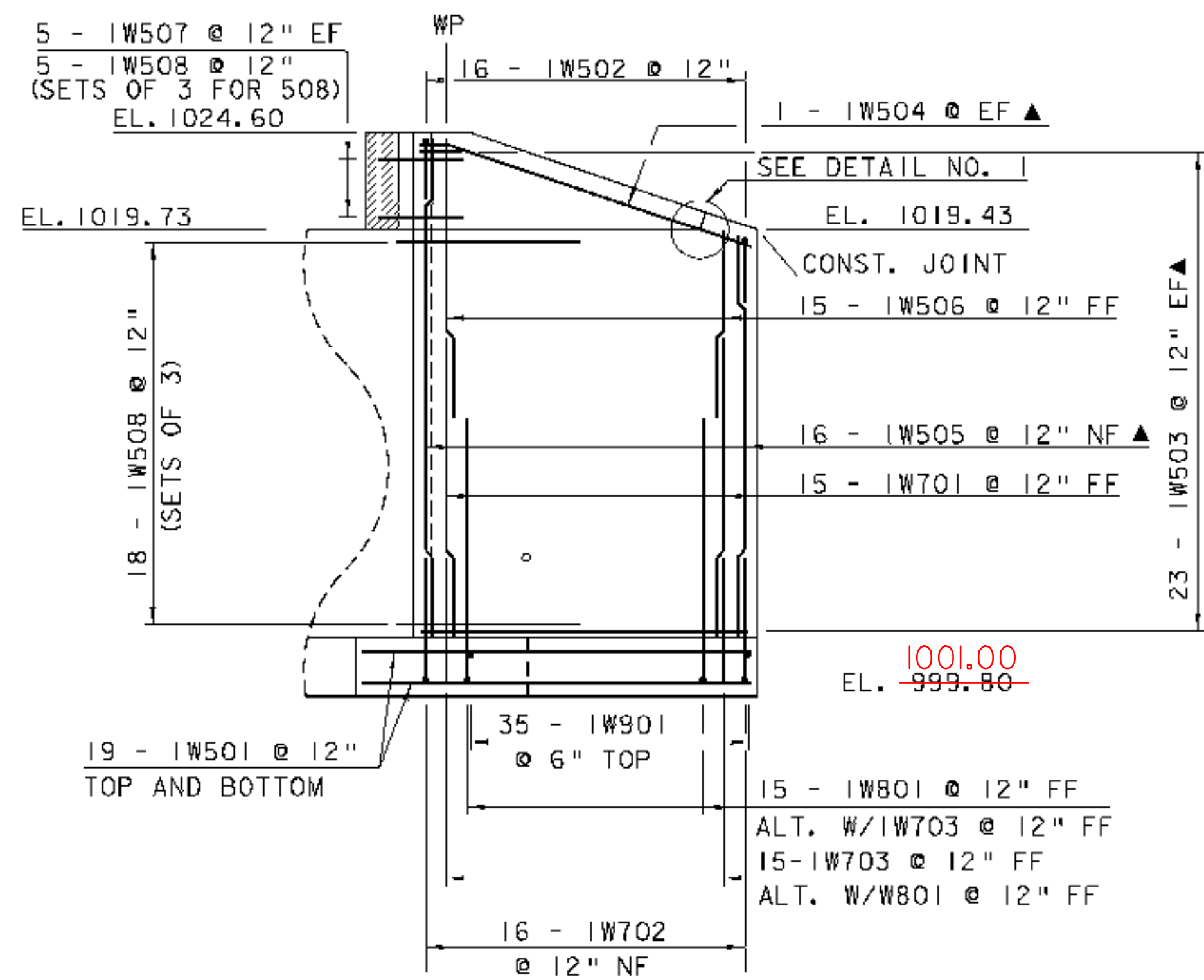
NOTE:

- 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 PLAN

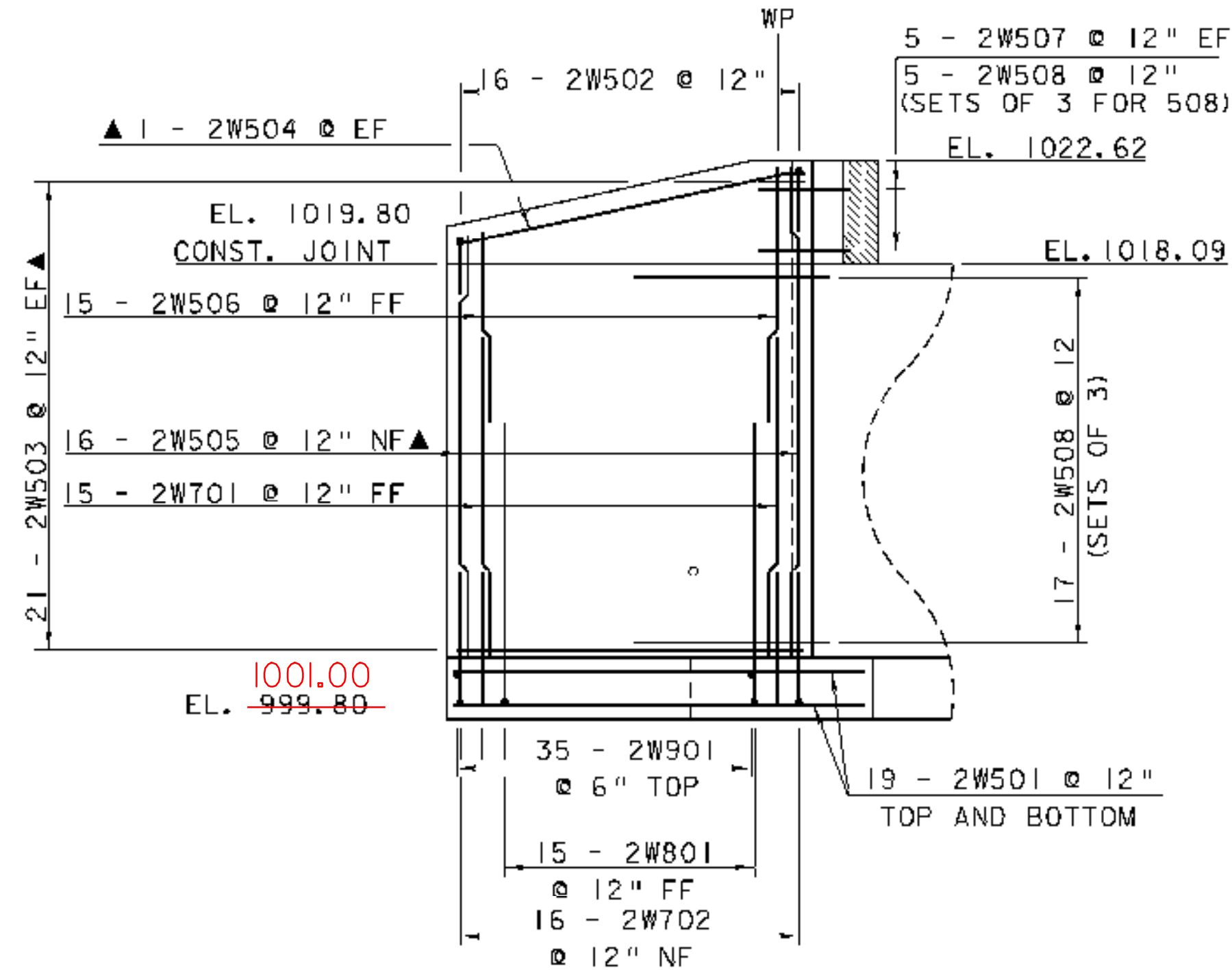
PROJECT NAME: CANAAN
 PROJECT NUMBER: ER ST 0271(16)

FILE NAME: 04c098/struc./s04c098sup PLOT DATE: 18-AUG-2008
 PROJECT LEADER: M. EVANS-MONGEON DRAWN BY: C. JOLLY
 DESIGNED BY: S. SCRIBNER CHECKED BY: S. SCRIBNER
 SHEET 46 OF 66



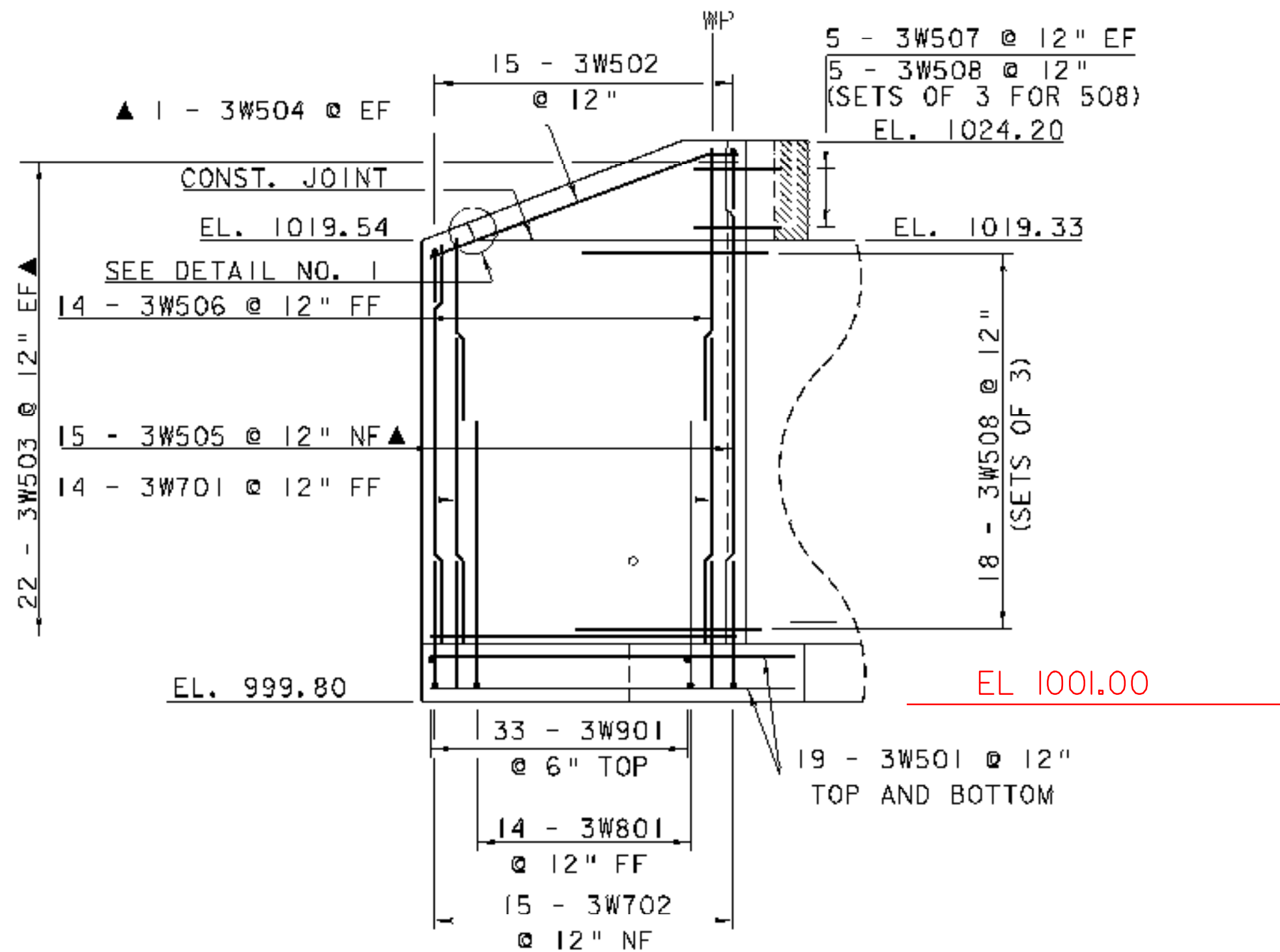
WINGWALL NO. 1 ELEVATION

SCALE 3/16" = 1'-0"
1 0 2 4 6 8



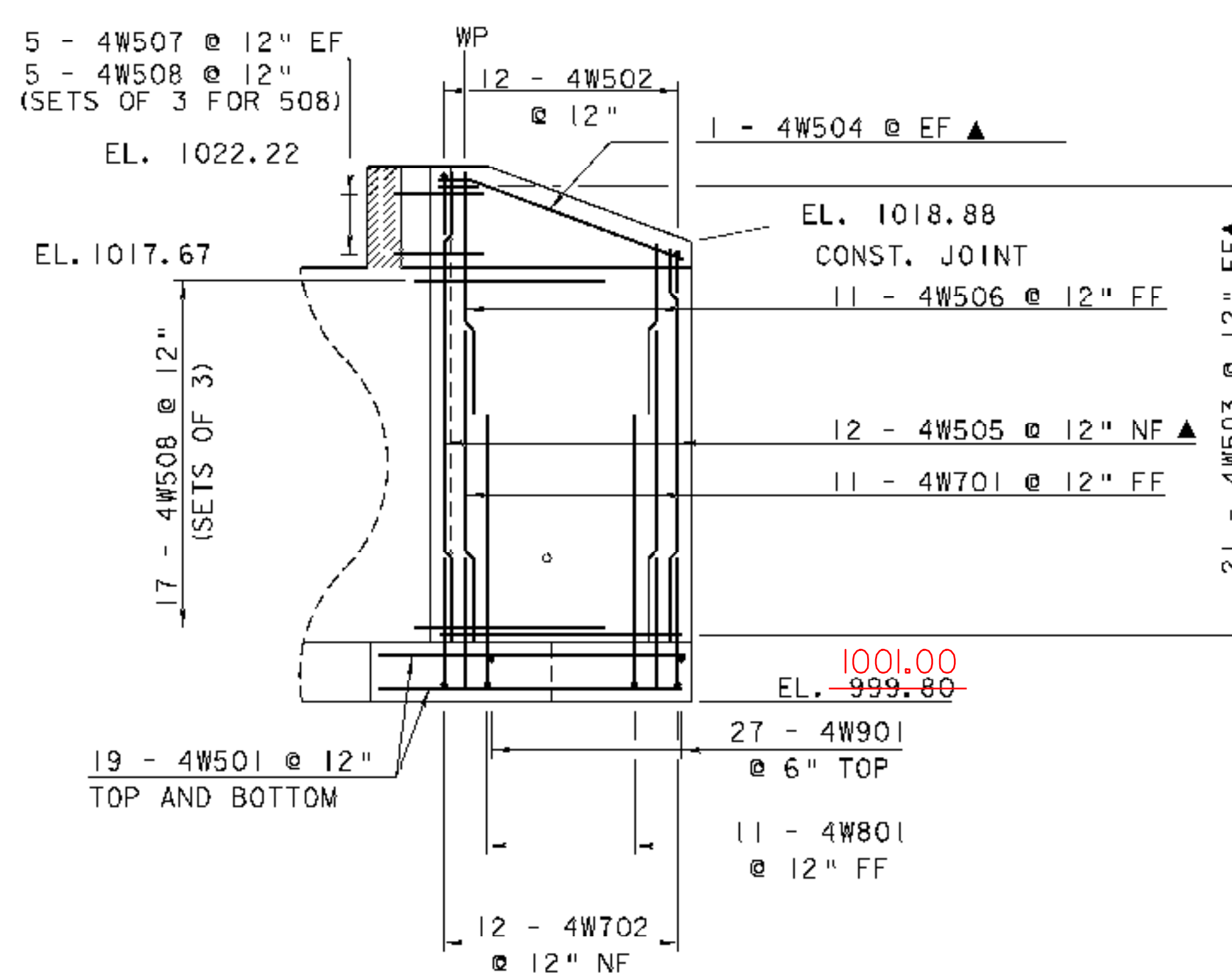
WINGWALL NO. 2 ELEVATION

SCALE 3/16" = 1'-0"
1 0 2 4 6 8



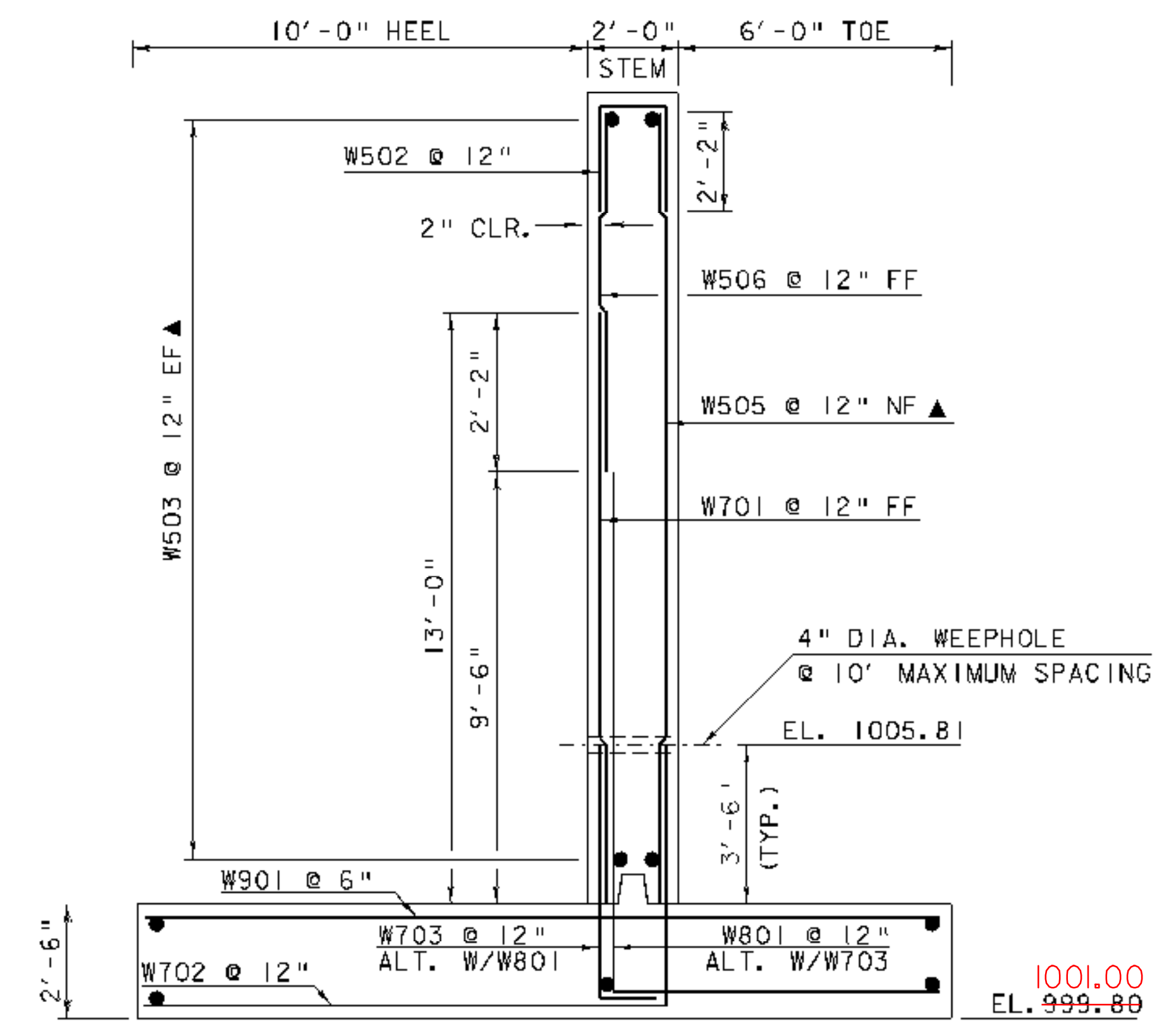
WINGWALL NO. 3 ELEVATION

SCALE 3/16" = 1'-0"
1 0 2 4 6 8



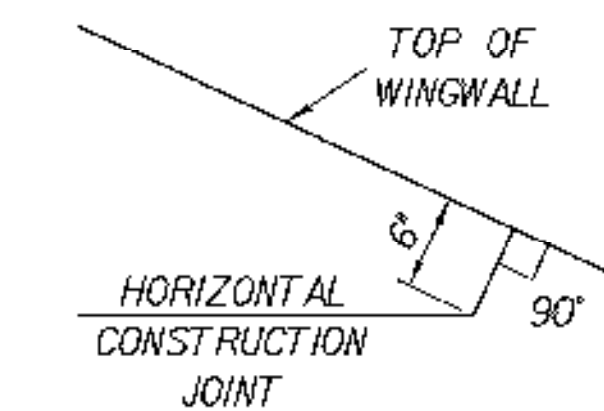
WINGWALL NO. 4 ELEVATION

SCALE 3/16" = 1'-0"
1 0 2 4 6 8



WINGWALL TYPICAL

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



DETAIL NO. 1
NOT TO SCALE

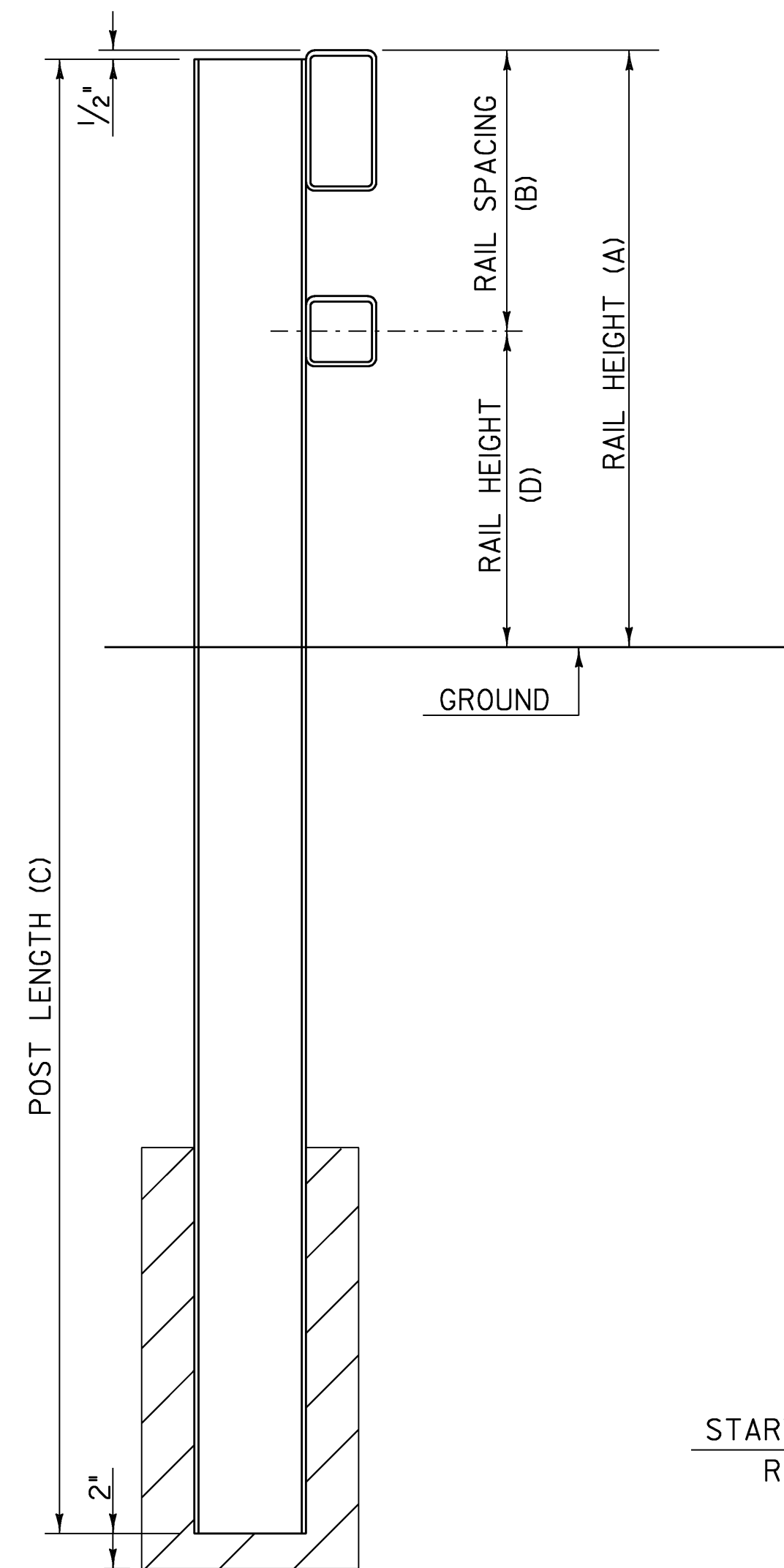
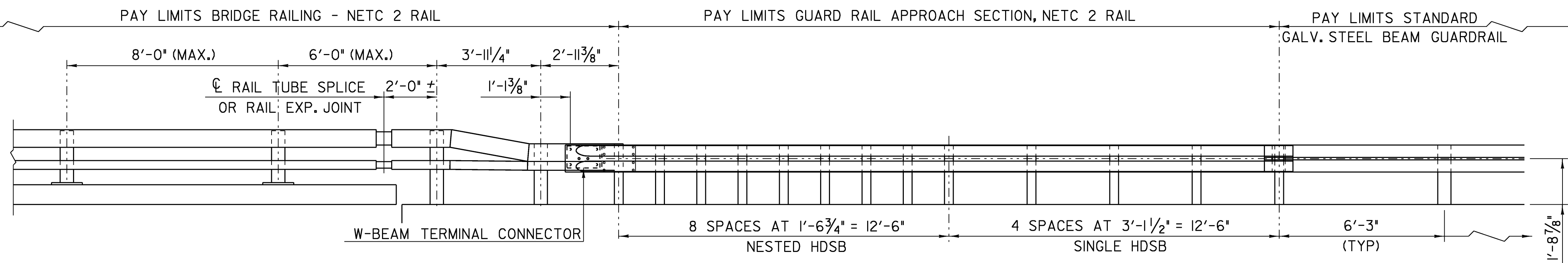
NOTE:

- NF = NFAR FACE
- FF = FAR FACE
- EI = 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 DETAILS

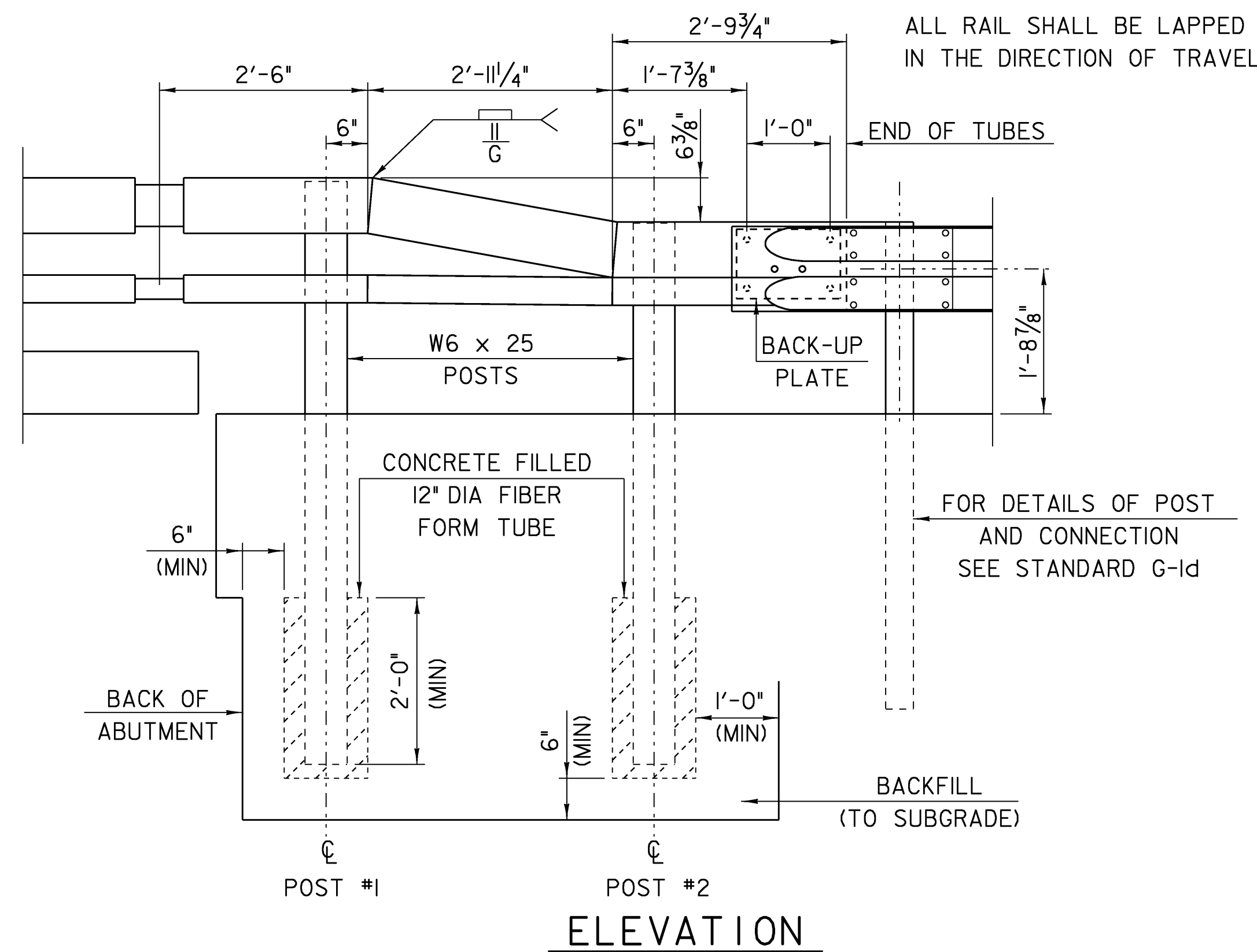
PROJECT NAME: CANAAN
PROJECT NUMBER: ER ST 0271(16)

FILE NAME: 04c098/struc./s04c098sup PLOT DATE: 18-AUG-2008
PROJECT LEADER: M. EVANS-MONGEON DRAWN BY: C. JOLLY
DESIGNED BY: S. SCRIBNER CHECKED BY: S. SCRIBNER
SHEET 47 OF 66

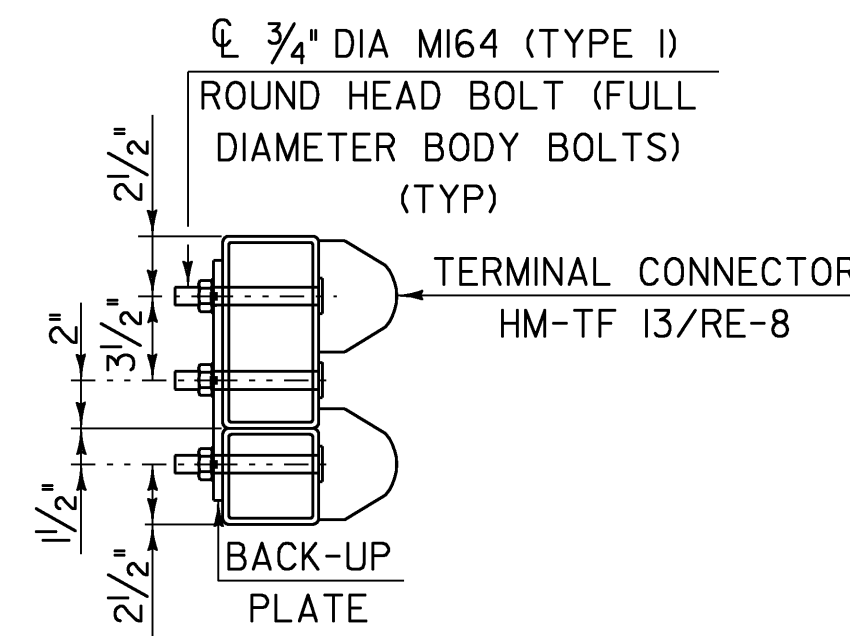


TYPICAL SECTION

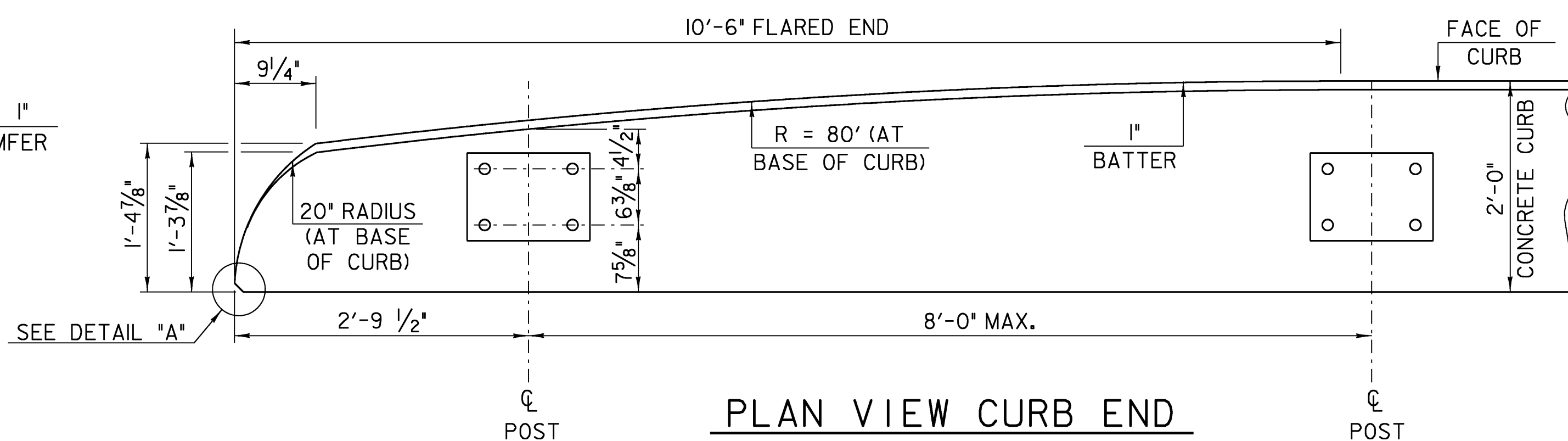
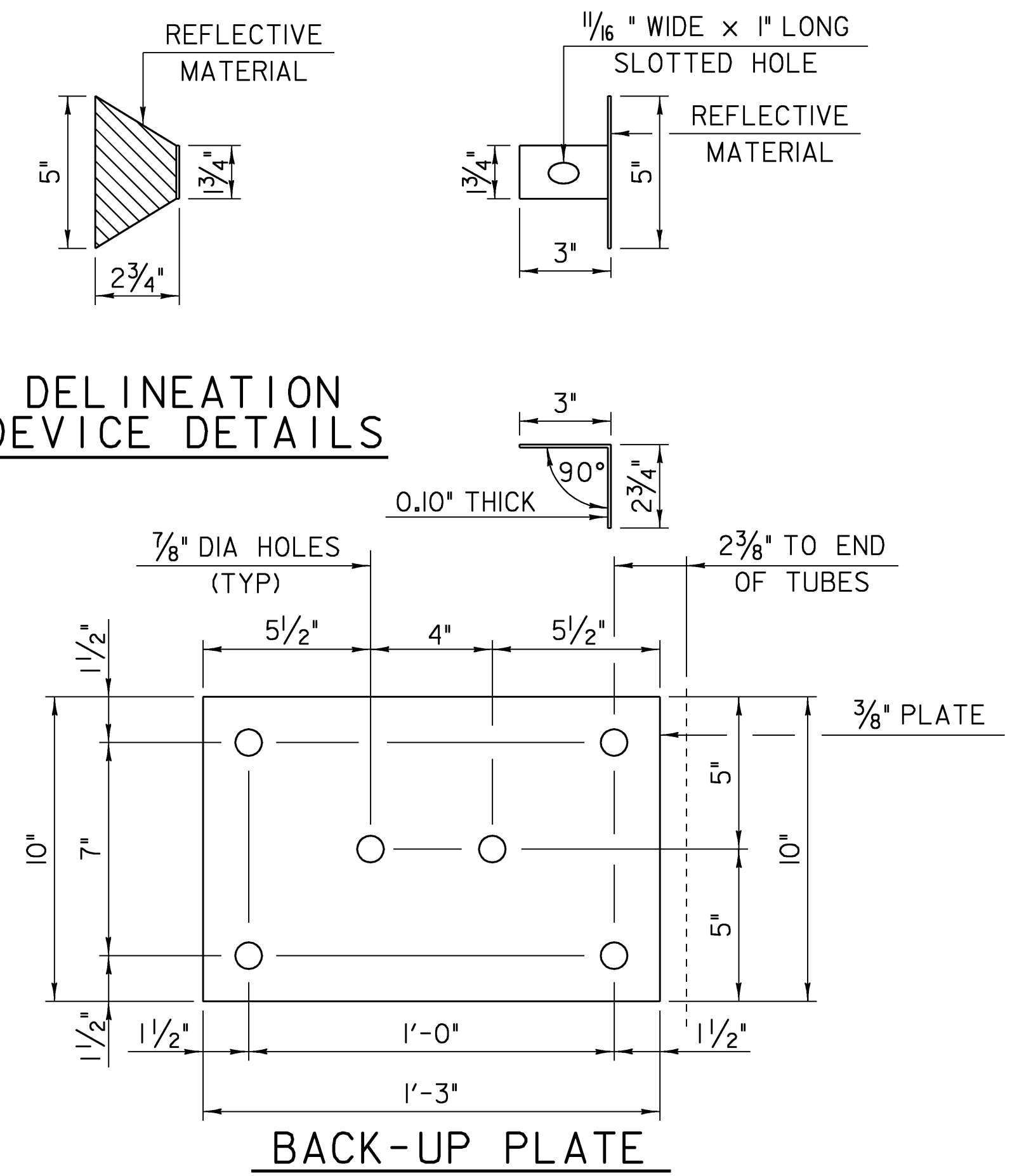
RAILING TRANSITION ELEVATION



SECTION THROUGH GUARD RAIL CONNECTION AT TERMINAL CONNECTOR



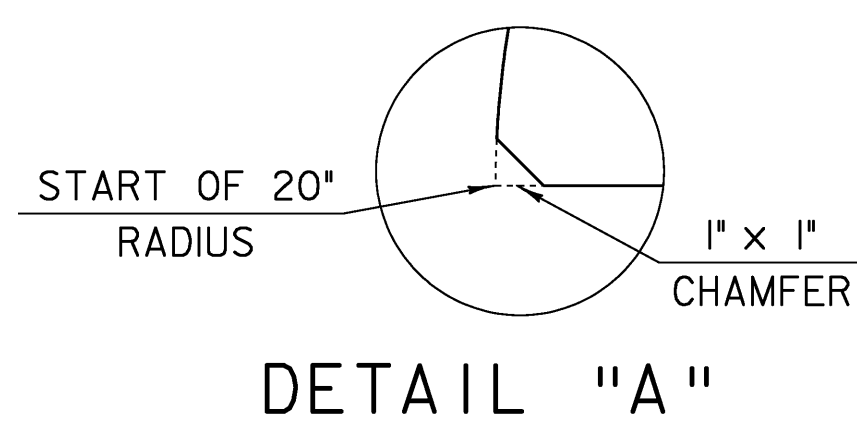
DELINEATION DEVICE DETAILS



PLAN VIEW CURB END

Notes:

1. REFER TO SHEET 49 FOR ADDITIONAL DETAILS, NOTES AND MATERIAL SPECIFICATIONS.
2. TO FACILITATE FIELD FIT - UP OF THE TRANSITION RAILING, POSTS SHALL BE SET LOOSELY INTO FIBER FORM TUBES WHILE TRANSITION PARTS ARE BEING ASSEMBLED. POST HOLES SHALL BE BACKFILLED WITH A CONCRETE MIX APPROVED BY THE ENGINEER. PAYMENT FOR COMPONENTS, INCLUDING BACKUP PLATE AND END TERMINAL CONNECTOR FOR GUARD RAIL, AUGERING, FIBER FORM TUBES AND CONCRETE, AND INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO BRIDGE RAILING, GALVANIZED NETC 2 RAIL.
3. THE REFLECTORIZED ALUMINUM DELINEATION IS TO BE ERECTED EVERY 30' (OR CLOSEST POST) WITH A 5/8" DIAMETER BOLT. DELINEATORS SHALL MEET SPECIFICATION REQUIREMENTS FOR ASTM B209 ALLOY 5052-H32.
4. RETROREFLECTIVE MATERIAL SHALL MEET REQUIREMENTS OF SUBSECTION 750.08 AND SHALL BE OF ENCAPSULATED LENS SILVER OR AMBER. AMBER IS TO BE INSTALLED ON THE DRIVER'S LEFT AND SILVER ON THEIR RIGHT.
5. ON BRIDGES WITH A SIDEWALK, DELINEATORS ARE NOT TO BE INSTALLED ON THE SIDEWALK SIDE OF THE BRIDGE (I.E. DELINEATORS INSTALLED ONLY ON THE CURB SIDE AND ON THE APPROACH ON THE CURB SIDE). PAYMENT SHALL BE INCIDENTAL TO ALL OTHER ITEMS.
6. ALL APPROACH RAIL SPLICES SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW.
7. SEE STANDARDS G-1 AND G-1d FOR ADDITIONAL INFORMATION.

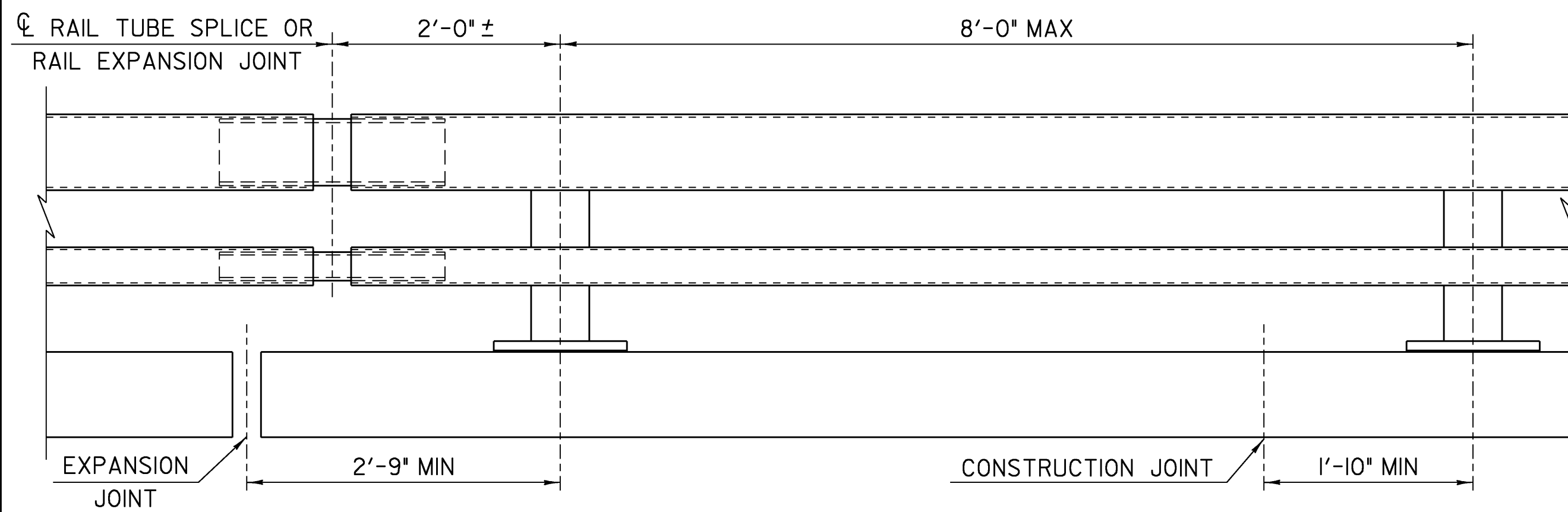


DETAIL "A"

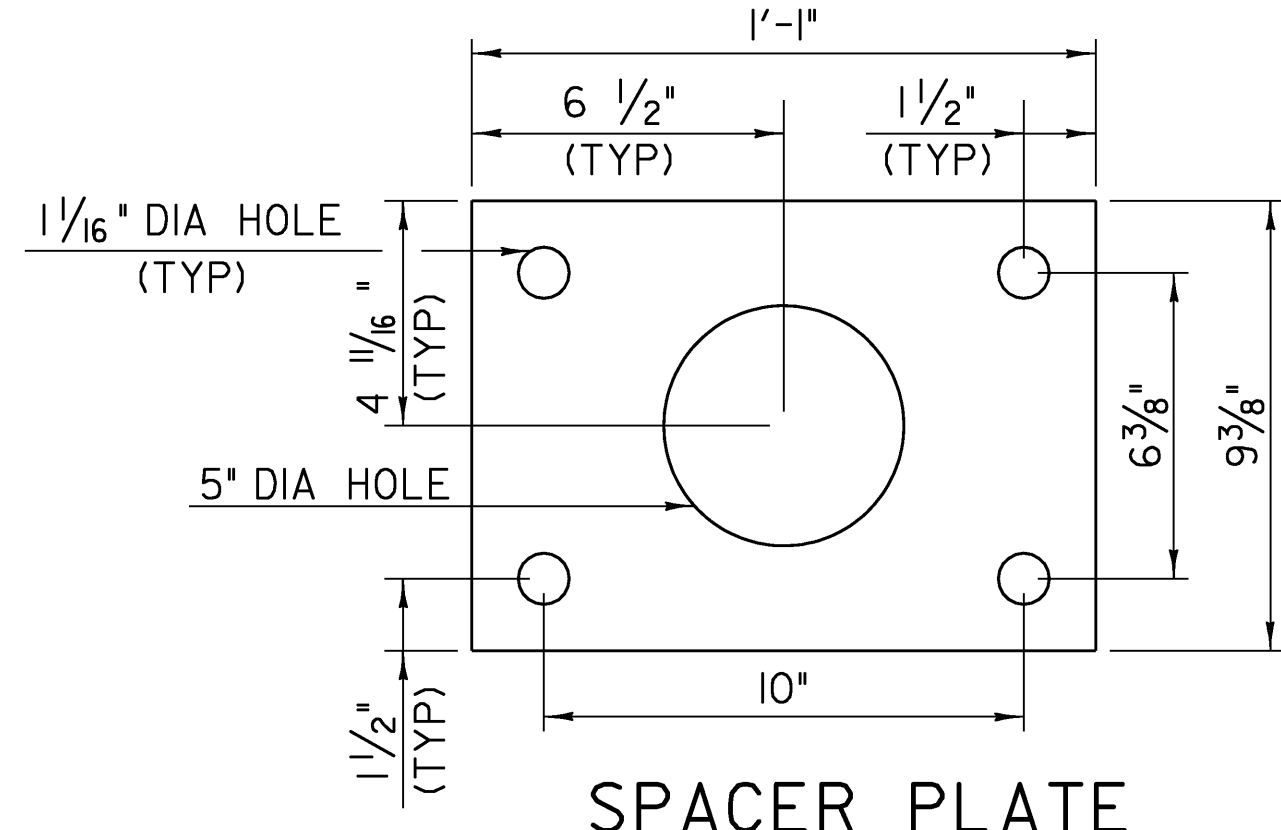
POST NUMBER	RAIL HEIGHT (A)	RAIL SPACING (B)	POST LENGTH (C)	RAIL HEIGHT (D)
1	2'-10"	1'-4"	7'-0"	1'-6"
2	2'-3 5/8"	10"	6'-5"	1'-5 5/8"

NETC RAIL DETAILS (1)

PROJECT NAME:	CANAAN	PLOT DATE:	18-AUG-2008
PROJECT NUMBER:	ER ST 0271(16)	DRAWN BY:	L. DUQUETTE
FILE NAME:	04c098/struc./s04c098d1s	DESIGNED BY:	S.SCRIBNER
PROJECT LEADER:	M. EVANS-MONGEON	CHECKED BY:	S. SCRIBNER
		SHEET	48 OF 66



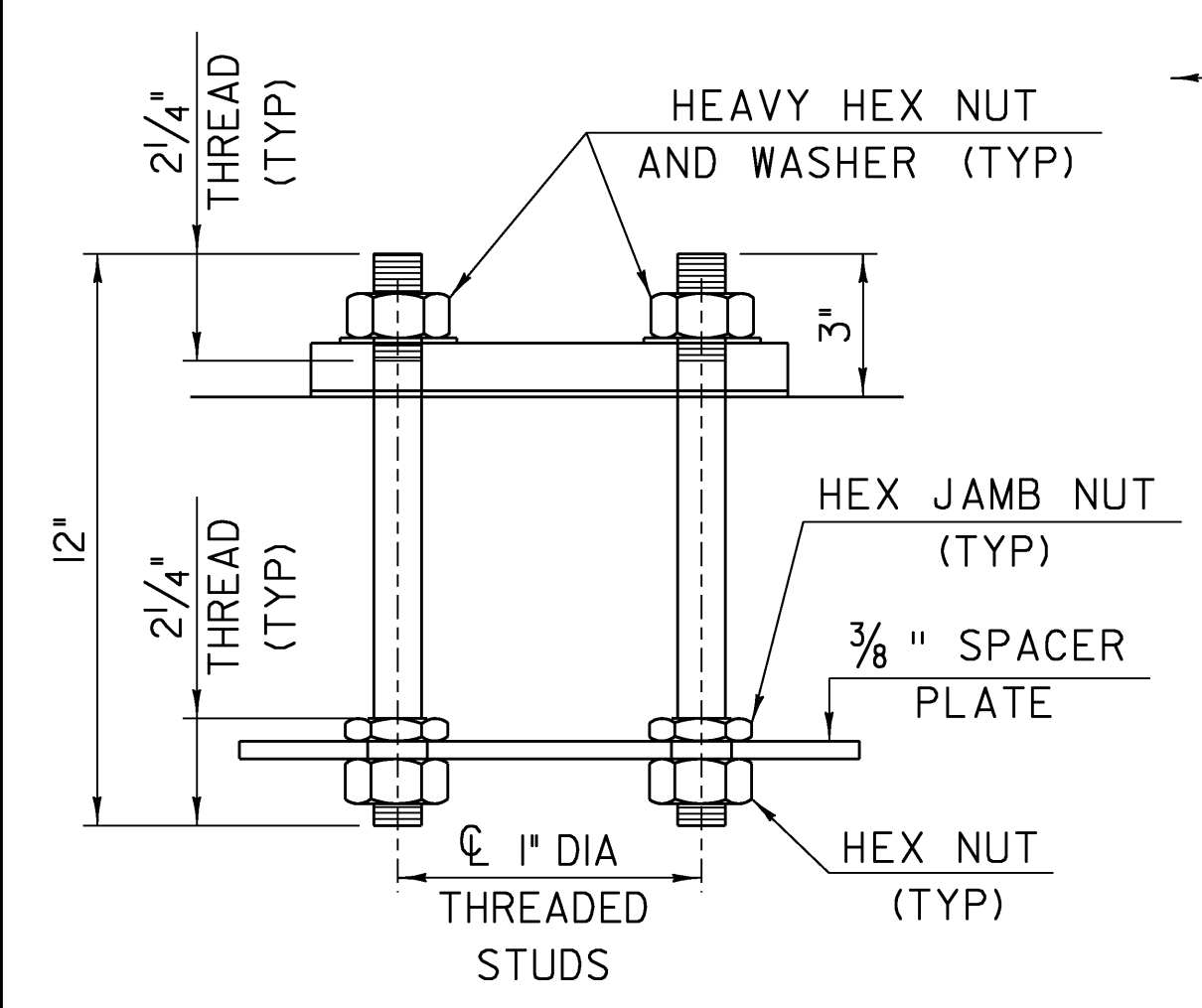
BRIDGE RAILING ELEVATION



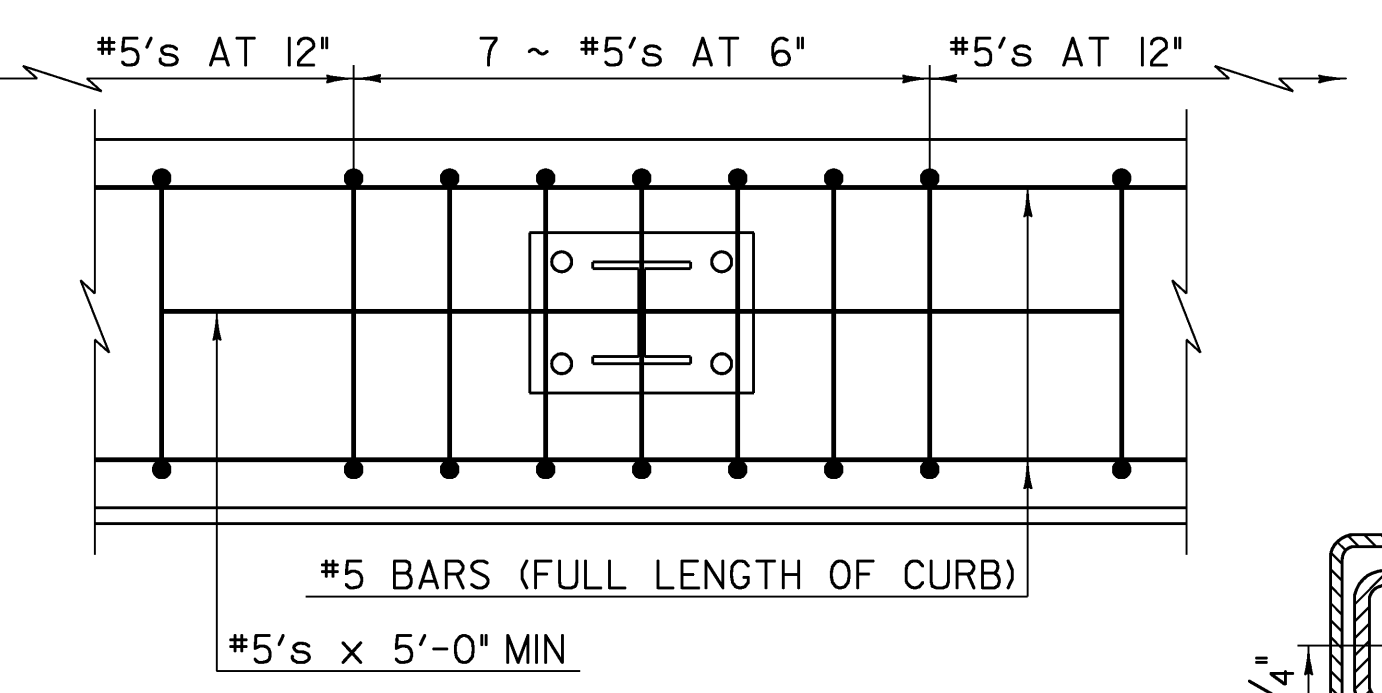
SPACER PLATE

NOTES

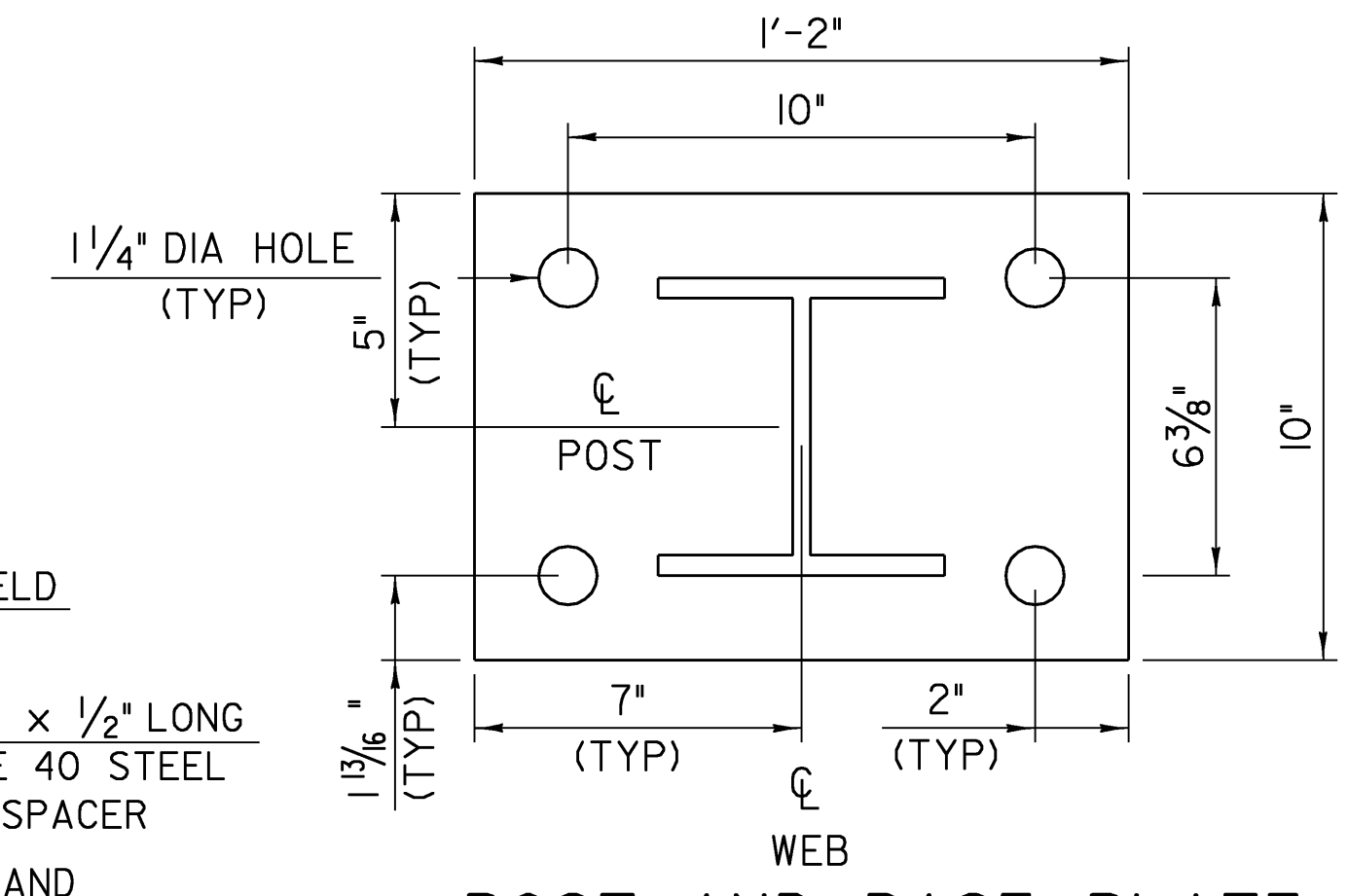
1. ALL WORK AND MATERIALS SHALL CONFORM TO THE PROVISIONS OF SECTION 525.
2. ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 1/16" RADIUS AND BE FREE OF BURRS.
3. RAIL POSTS SHALL BE SET NORMAL TO GRADE.
4. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO (2) RAIL POSTS AND PREFERABLY TO AT LEAST FOUR (4) POSTS.
5. RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING A SUPERSTRUCTURE EXPANSION JOINT. EXPANSION JOINT WIDTH SHALL BE "X" AT 45°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
6. ALL PARTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M111, EXCEPT THAT HARDWARE SHALL MEET THE REQUIREMENTS OF AASHTO M232.
7. RAIL POSTS ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
8. RAIL TUBES SHALL BE ATTACHED USING 3/4" FULL DIAMETER BODY AASHTO M164 (TYPE 1) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE. HOLES IN POSTS SHALL BE 1/16" LARGER THAN THE BOLT SIZE.
9. HOLES IN RAILS FOR RAIL TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO ERECTION.
10. ANY BENDING OF RAIL SHALL BE BY SHOP PROCEDURE ONLY.
11. THE FABRICATOR SHALL SUBMIT DRAWINGS INCLUDING WELDING PROCEDURES TO THE STRUCTURES SECTION FOR APPROVAL IN ACCORDANCE WITH THE PROVISIONS OF SUBSECTION 525.03. ALL WELDING SHALL CONFORM WITH SUBSECTION 506.10.
12. RAIL POSTS AND BASE PLATES SHALL BE TESTED FOR IMPACT PROPERTIES IN ACCORDANCE WITH ASTM A-370 CHARPY IMPACT TESTING USING TYPE A SPECIMEN.



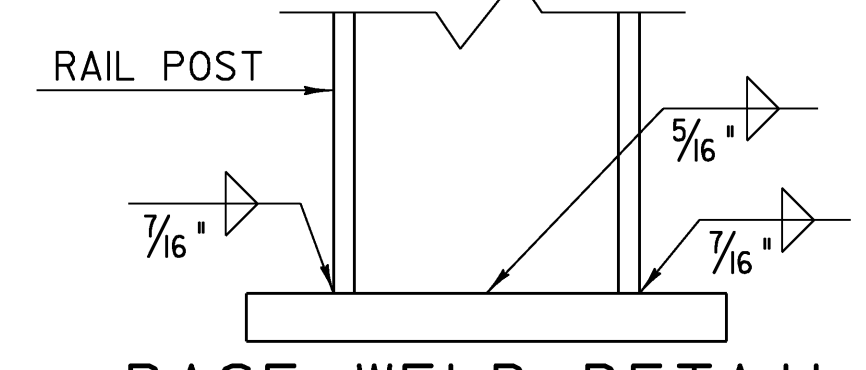
RAIL POST ANCHORAGE



CURB REINFORCING PLAN



POST AND BASE PLATE



EXPANSION JOINT SECTION

FOR DETAILS NOT SHOWN, SEE "RAIL TUBE SPLICE SECTION."

SPLICE TABLE					
T	A	B	C	L	X
N/A	4"	2"	--	20"	3/4"
EXPANSION JOINT TABLE					
<4"	4"	2"	2 1/2"	20"	2 1/2"
>4" <6 1/2"	5 1/2"	2 3/8"	3 1/2"	23 3/4"	4"
>6 1/2" <9"	6 1/2"	3 3/8"	9"*	27 3/4"	5"
>9" <13"	8 1/2"	4 3/8"	11"*	33 3/4"	7"

T = TOTAL MOVEMENT BETWEEN BRIDGE EXPANSION JOINTS. SEE NOTE 6.
* = SINGLE SLOT

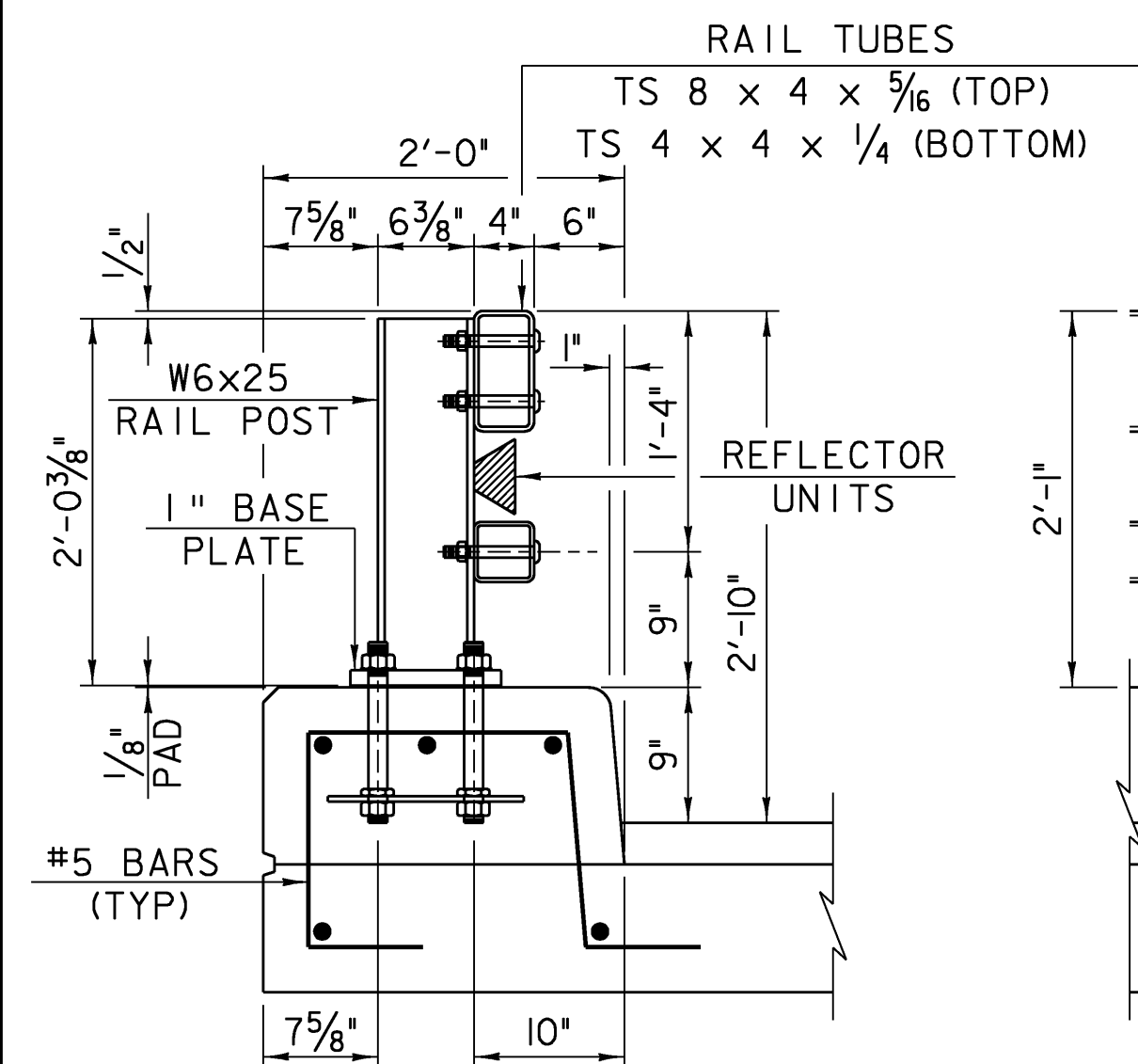
MATERIALS

RAIL TUBES.....ASTM A500, GRADE B OR ASTM A501
RAIL POSTS AND BASE PLATES.....ASTM A709A709M, GRADE 50
ALL OTHER SHAPES AND PLATES.....ASTM A709/A709M, GRADE 36
ANCHOR STUDS.....ASTM A449
ALL OTHER BOLTS (UNLESS NOTED).....AASHTO M164, TYPE 1

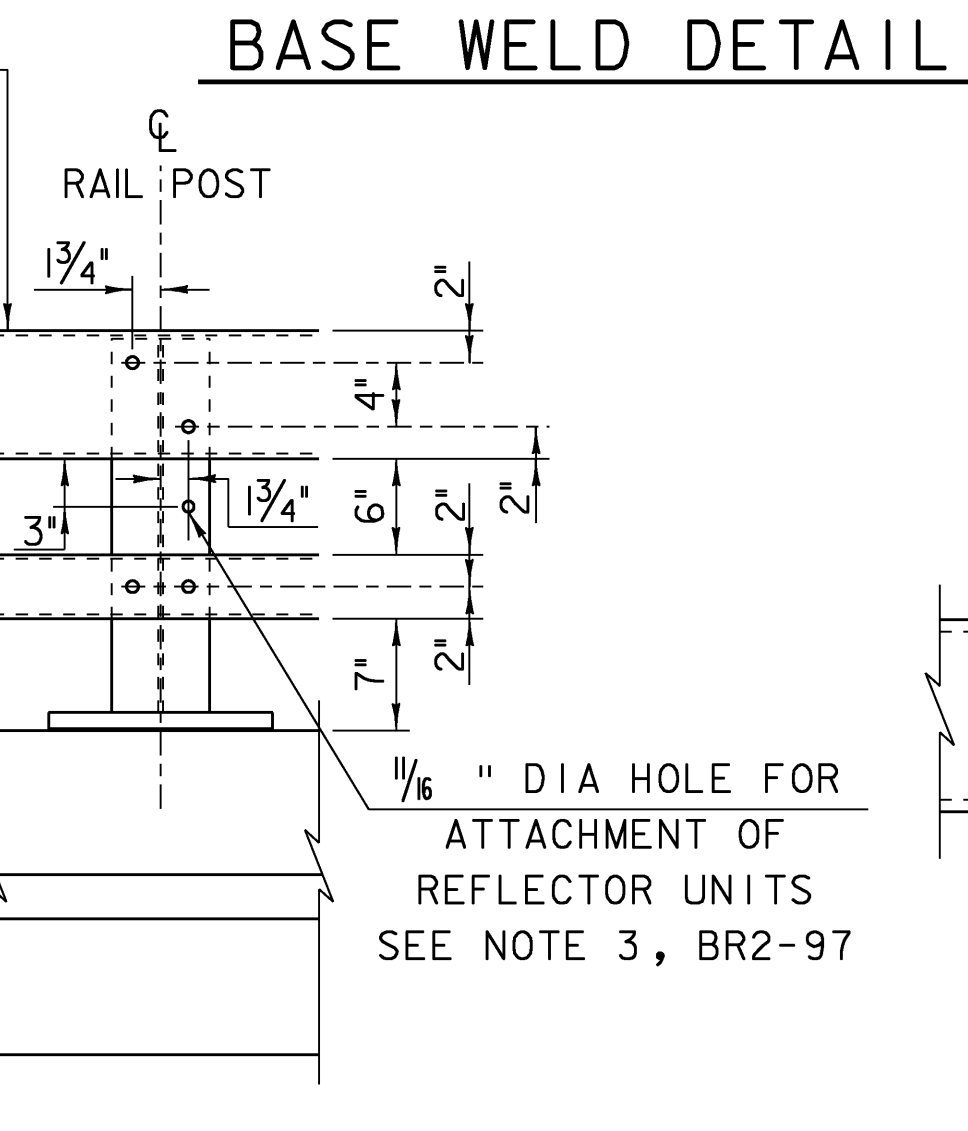
NUTS FOR AASHTO M164 (ASTM A325) BOLTS AND FOR ANCHOR STUDS SHALL COMPLY WITH AASHTO M291 (ASTM A563).

WASHERS SHALL COMPLY WITH AASHTO M293 (ASTM F436) SPECIFICATIONS.

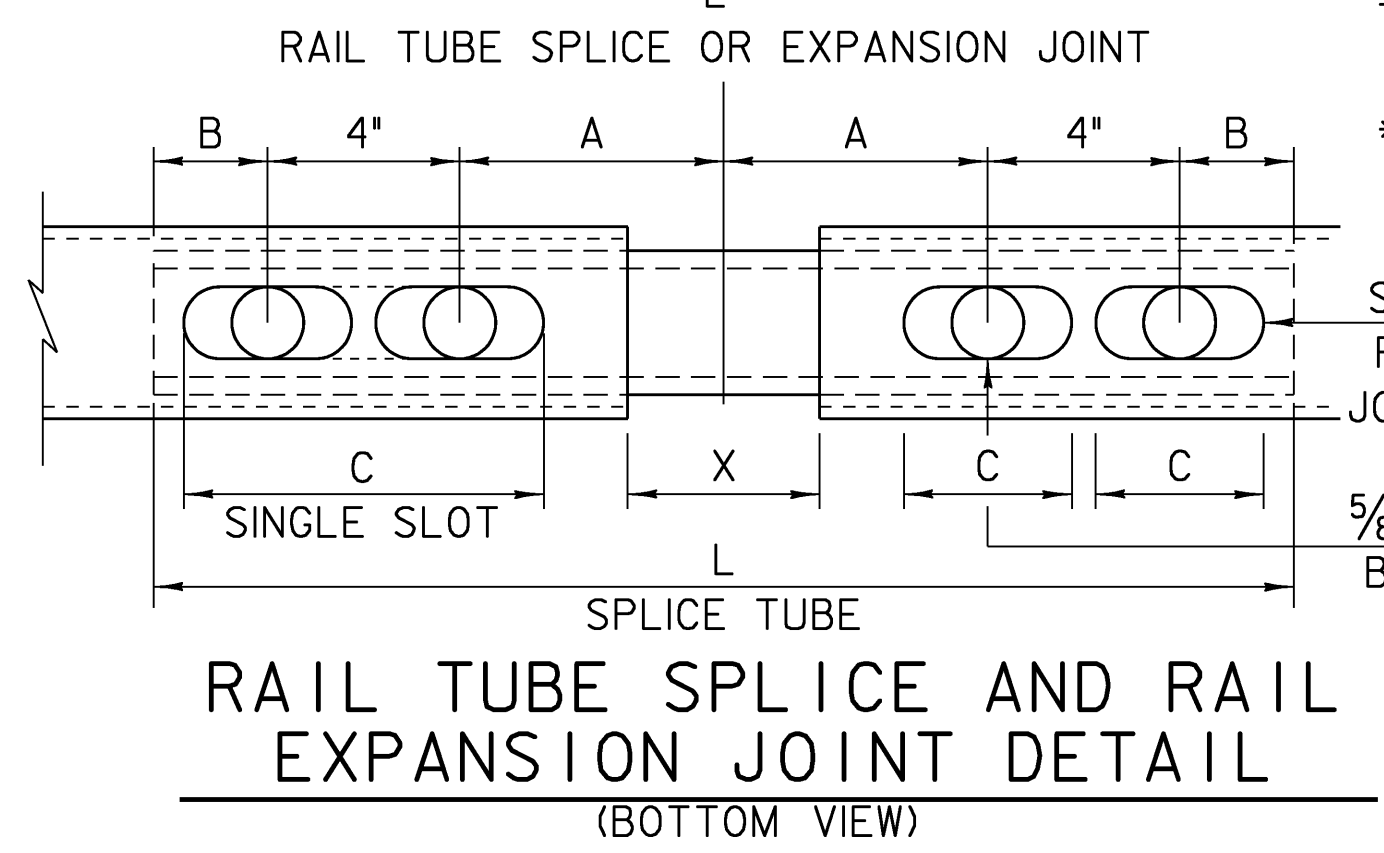
1/8" PAD SHALL COMPLY WITH STANDARD SPECIFICATION SUBSECTION 731.01 OR 731.02.



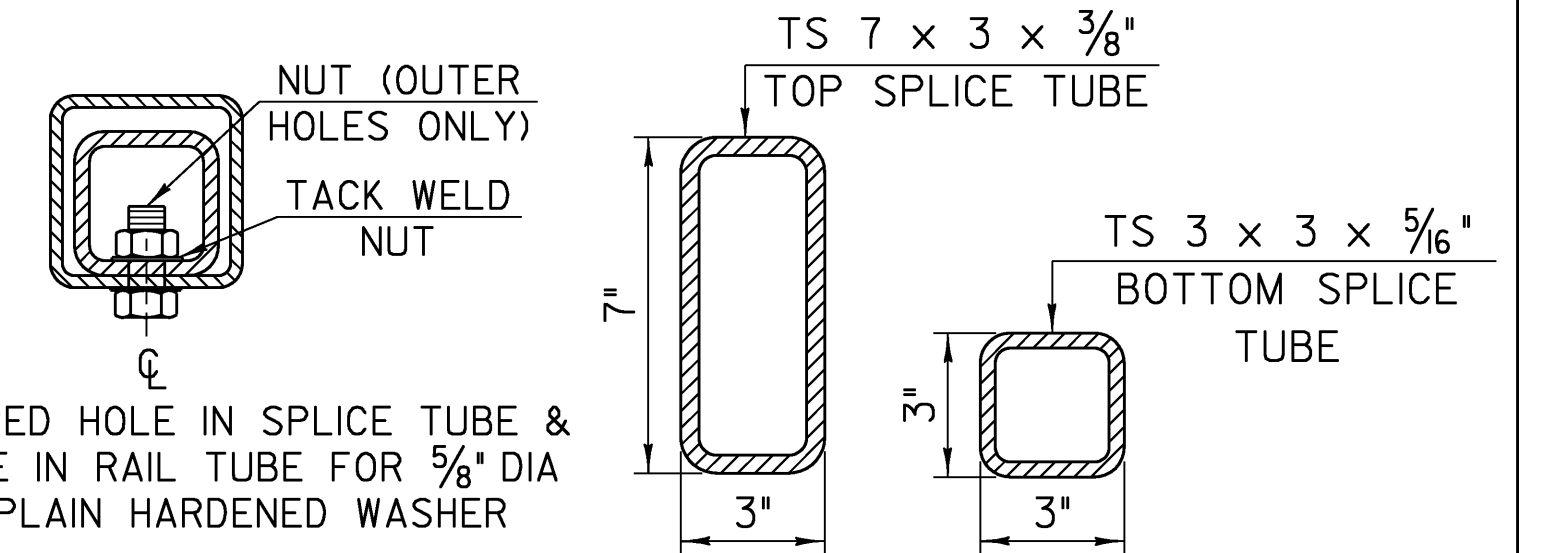
TYPICAL SECTION



ELEVATION



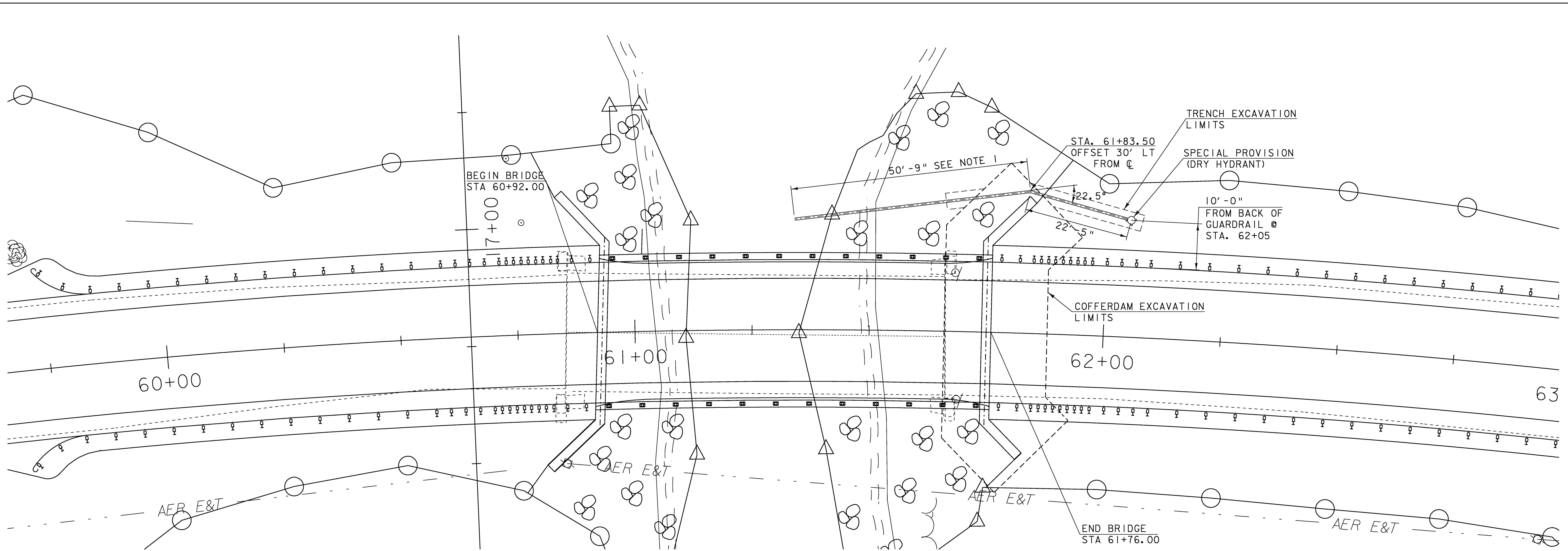
3/4" DIA M164 (TYPE 1) ROUND HEAD BOLT (WITH WASHER AND PREVAILING TORQUE TYPE LOCK NUT) ONLY FULL DIAMETER BODY BOLTS WILL BE ALLOWED.



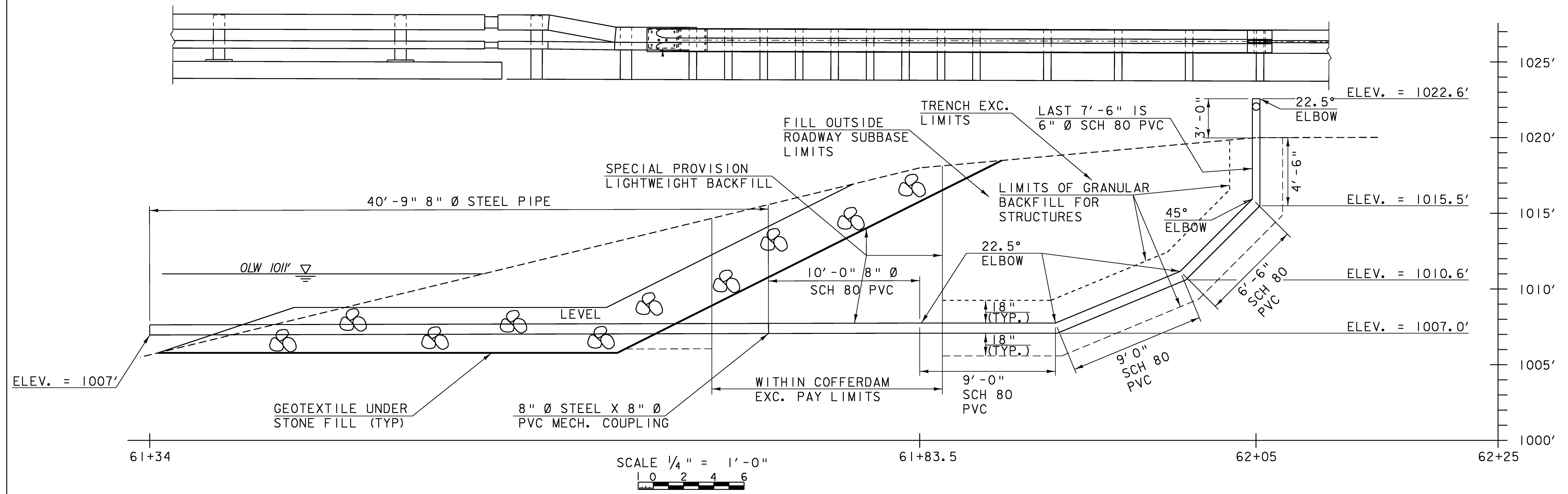
RAIL TUBE SPLICE SECTION

NETC RAIL DETAILS (2)

PROJECT NAME: CANAAN	PLOT DATE: 18-AUG-2008
PROJECT NUMBER: ER ST 0271(16)	DRAWN BY: L. DUQUETTE
FILE NAME: 04c098/struc./s04c098d.tls	CHECKED BY: S. SCRIBNER
DESIGNED BY: S.SCRIBNER	SHEET 49 OF 66



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



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

*CARE SHALL BE GIVEN THAT ANY EXCAVATION OUTSIDE THE COFFERDAM EXCAVATION LIMITS AND CHANNEL EXCAVATION LIMITS FOR THE PURPOSE OF PLACING THE DRY HYDRANT WILL BE PAID UNDER TRENCH EXCAVATION LIMITS

- NOTE:
1. VERIFY LENGTH TO DEEPEST CHANNEL POINT IN FIELD PRIOR TO INSTALLATION
 2. SEE CHANNEL CROSS SECTION 17+00

DRY HYDRANT DETAIL

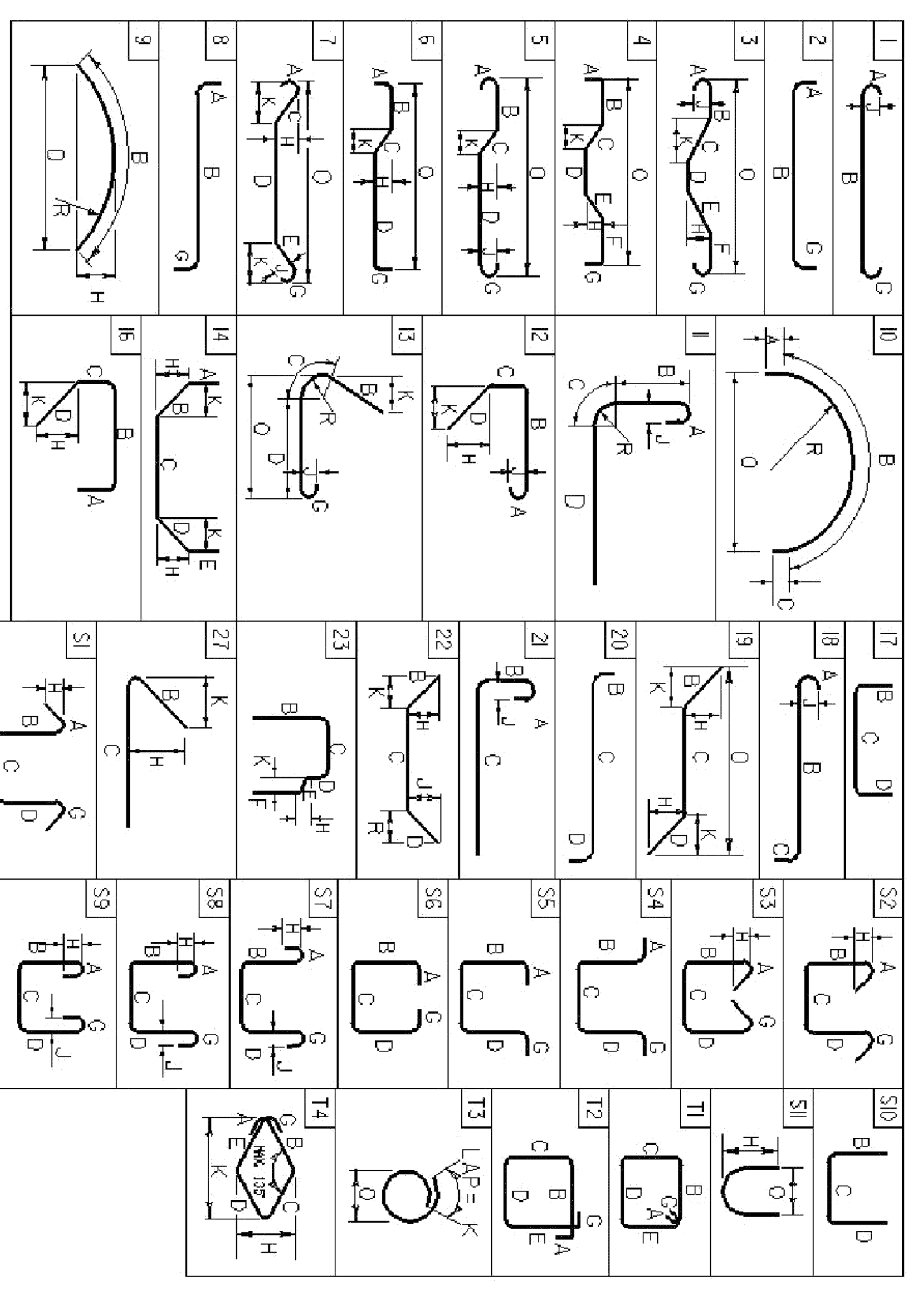
PROJECT NAME:	Canaan	PLOT DATE:	19-AUG-2008
PROJECT NUMBER:	ER ST 0271(16)	DRAWN BY:	L. DUQUETTE
FILE NAME:	Structures\x04c098xs.dgn	DESIGNED BY:	S. Scribner
		CHECKED BY:	S. SCRIBNER.
			SHEET 50 OF 66

REINFORCING STEEL SCHEDULE

R	O	ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O	
		ABUTMENT # 2																		
		76	5	23'-2"	2A501	STR 23'-2"														
		72	5	21'-5"	2A503	STR 21'-5"														
		41	5	21'-0"	2A505	STR 21'-0"														
		39	5	12'-1"	2A506	STR 12'-1"														
		20	5	3'-6"	2A507	STR 3'-6"														
		43	5	5'-11"	2A502	STR 5'-11"														
		42	6	15'-11"	2A601	STR 15'-11"														
		39	7	10'-9"	2A701	STR 10'-9"														
		90	9	17'-6"	2A902	STR 17'-6"														
		39	9	17'-8"	2A901	STR 17'-8"														
		WINGWALL # 3																		
		38	5	15'-9"	3W501	STR 15'-9"														
		44	5	13'-4"	3W503	STR 13'-4"														
		2	5	13'-11"	3W504	STR 13'-11"														
		15	5	21'-4"	3W505	STR 21'-4"														
		14	5	12'-1"	3W506	STR 12'-1"														
		15	5	5'-11"	3W502	STR 5'-11"														
		69	5	9'-4"	3W508	STR 9'-4"														
		14	7	13'-0"	3W701	STR 13'-0"														
		14	7	0'-0"	3W702	STR 0'-0"														
		14	7	6'-9"	3W703	STR 6'-9"														
		16	8	19'-3"	3W801	STR 19'-3"														
		34	9	17'-6"	3W901	STR 17'-6"														
		WINGWALL # 4																		
		38	5	12'-10"	4W501	STR 12'-10"														
		42	5	10'-4"	4W503	STR 10'-4"														
		2	5	10'-9"	4W504	STR 10'-9"														
		12	5	19'-4"	4W505	STR 19'-4"														
		11	5	10'-1"	4W506	STR 10'-1"														
		12	5	5'-11"	4W502	STR 5'-11"														
		66	5	9'-4"	4W508	STR 9'-4"														
		11	7	13'-0"	4W701	STR 13'-0"														
		14	7	0'-0"	4W702	STR 0'-0"														
		11	7	6'-9"	4W703	STR 6'-9"														
		14	8	19'-3"	4W801	STR 19'-3"														
		27	9	17'-6"	4W901	STR 17'-6"														
		APPROACH SLAB # 2																		
		17	5	29'-6"	2EA501	STR 29'-6"														
		62	6	16'-1"	2EA601	STR 16'-1"														

NOTES

- 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 BILET-STEEL BARS FOR CONCRETE REINFORCEMENT, ASTM A 615 (ASTM A 615-5). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
- 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.
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
- "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
- "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
- WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
- ▲ DENOTES BARS TO BE CUT IN FIELD.
- * DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.

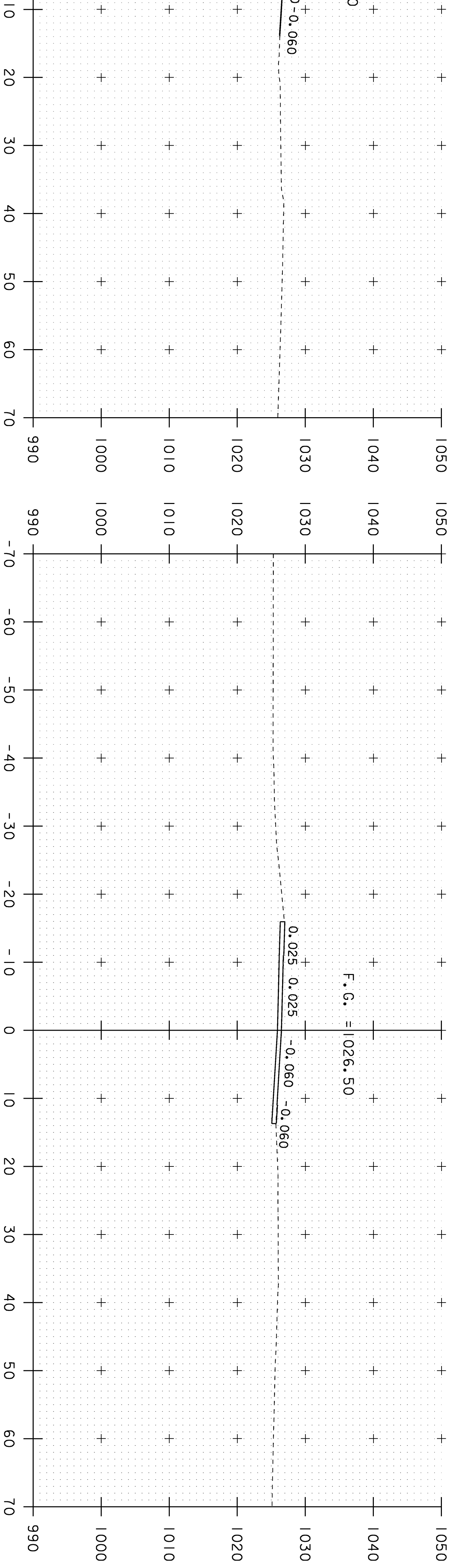


ASME STANDARD REINFORCING BARS

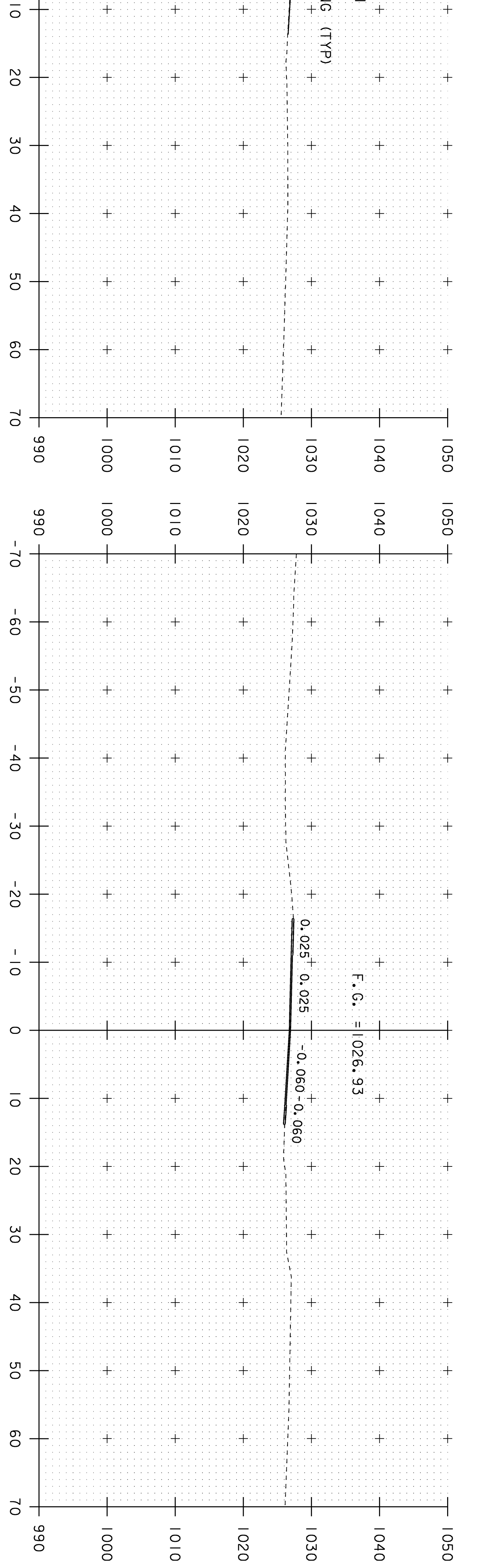
BAR SIZE DESIGNATION	WEIGHT PER FOOT	NOMINAL DIAMETER INCHES	AREA INCHES ²	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#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: **CANANAN**
 PROJECT NUMBER: **ER ST 0271(16)**
 FILE NAME: **04cd098**
 PROJECT MANAGER: **M.EVANS-MONGEON**
 DESIGNED BY: **S.SCRIBNER**
 REINFORCING STEEL SCHEDULE SHEET #1

PLOT DATE: **4/22/2008**
 DRAWN BY: **L.DUQUETTE**
 CHECKED BY: **M.EVANS-MONGEON**
 SHEET **51** OF **66**



58+00

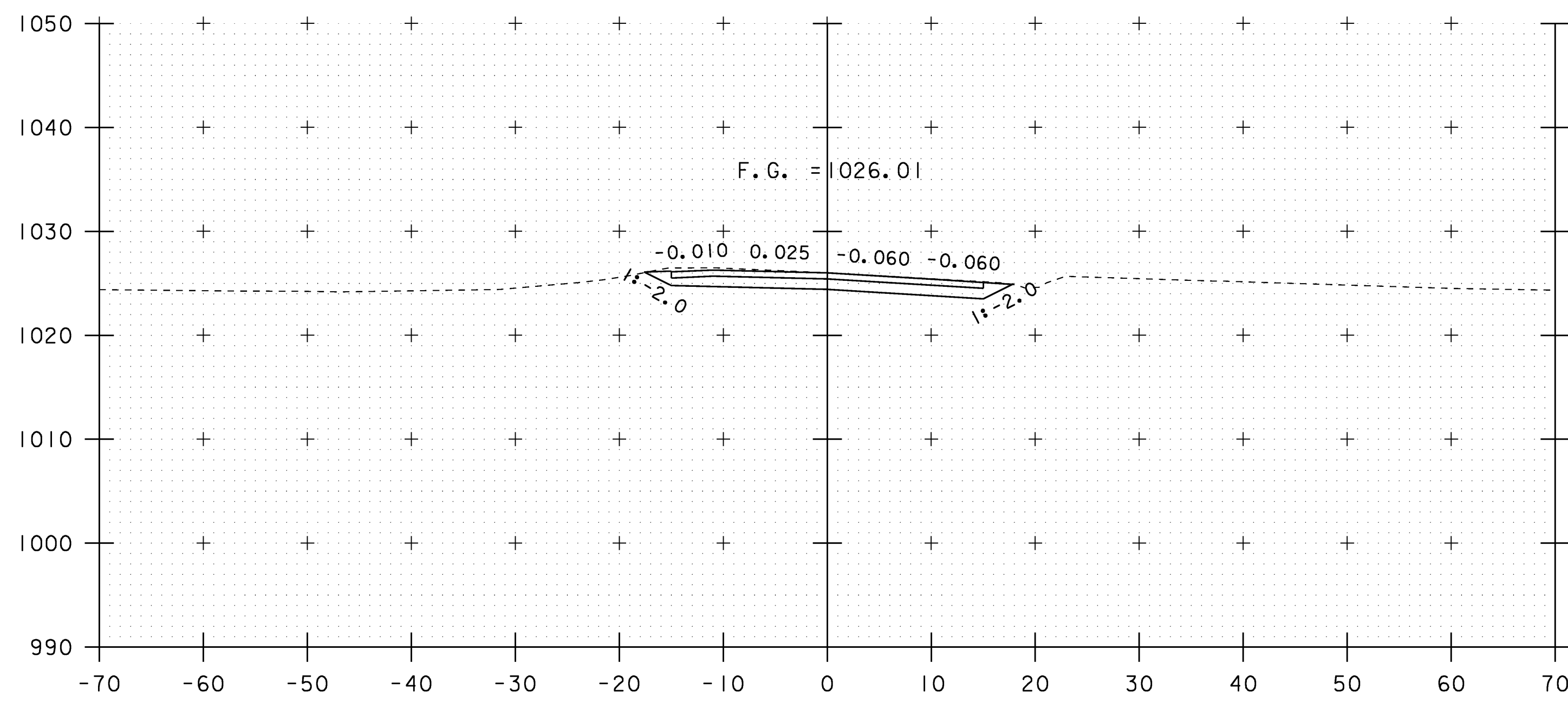


57+75

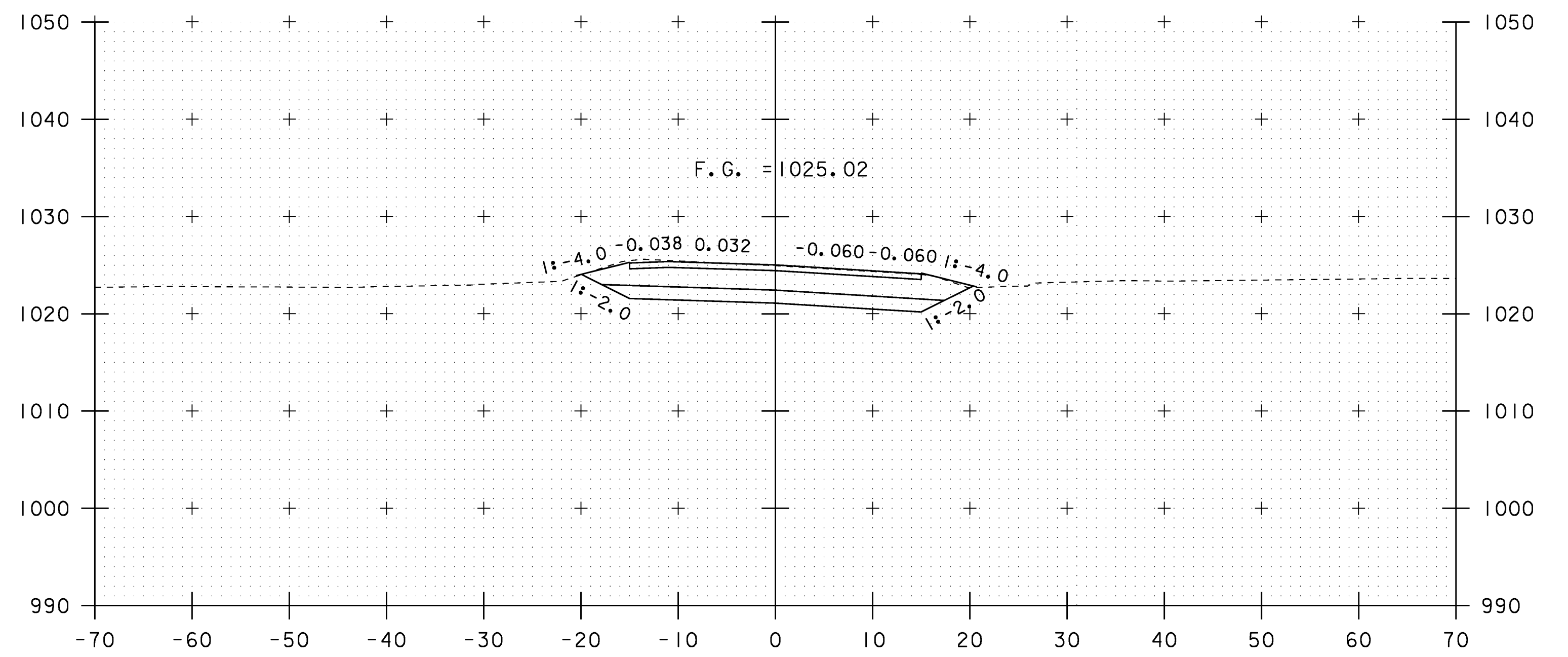


VT 102 CROSS SECTIONS (1)

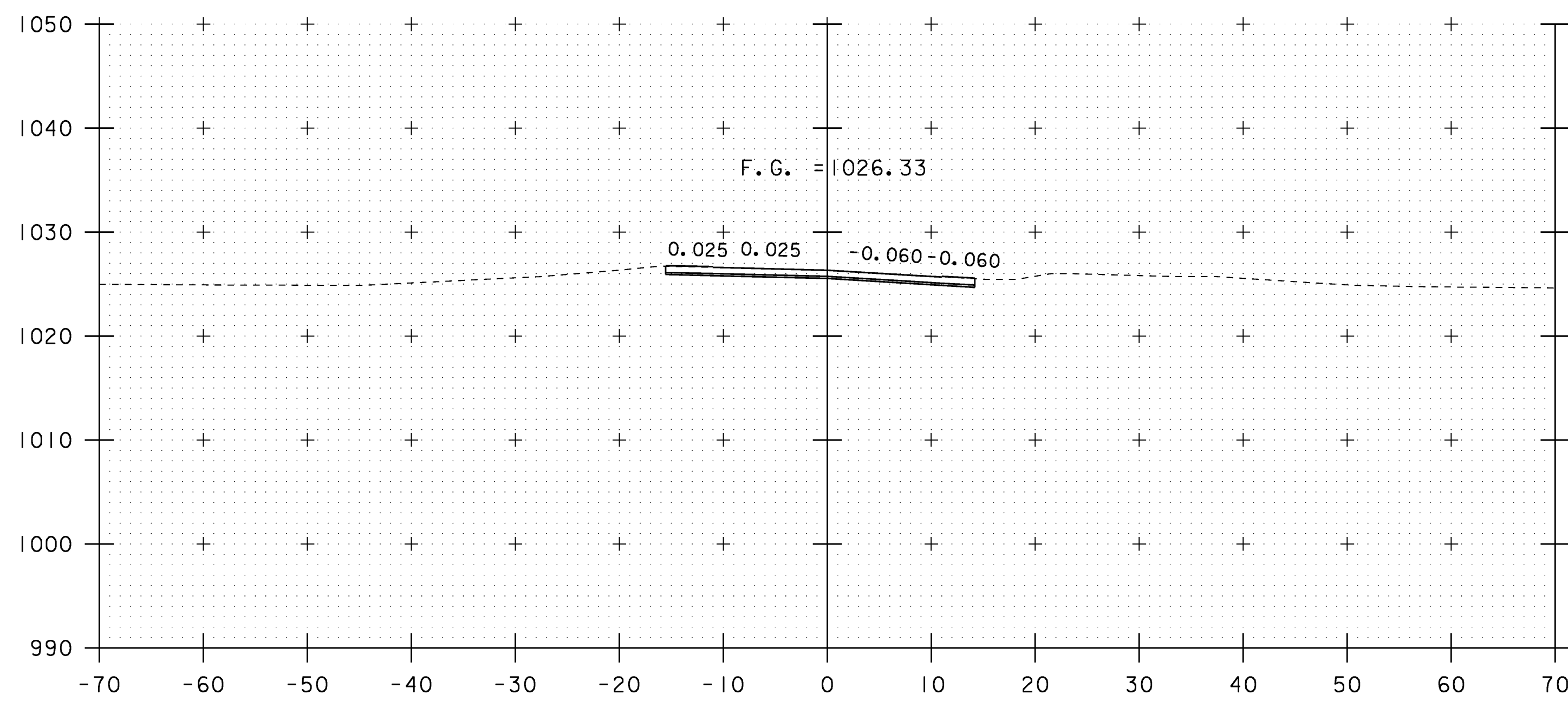
PROJECT NAME:	CANAAN	PLOT DATE:	18-AUG-2008
PROJECT NUMBER:	ER ST 0271(16)	DRAWN BY:	HUSK
FILE NAME:	/sfr2/04c098/x04c098xs.dgn	CHECKED BY:	SCRIBNER
PROJECT LEADER:	EVANS-MONGEON	SHEET	52
DESIGNED BY:	SCRIBNER	OF	66
X04G098-Xsl1			



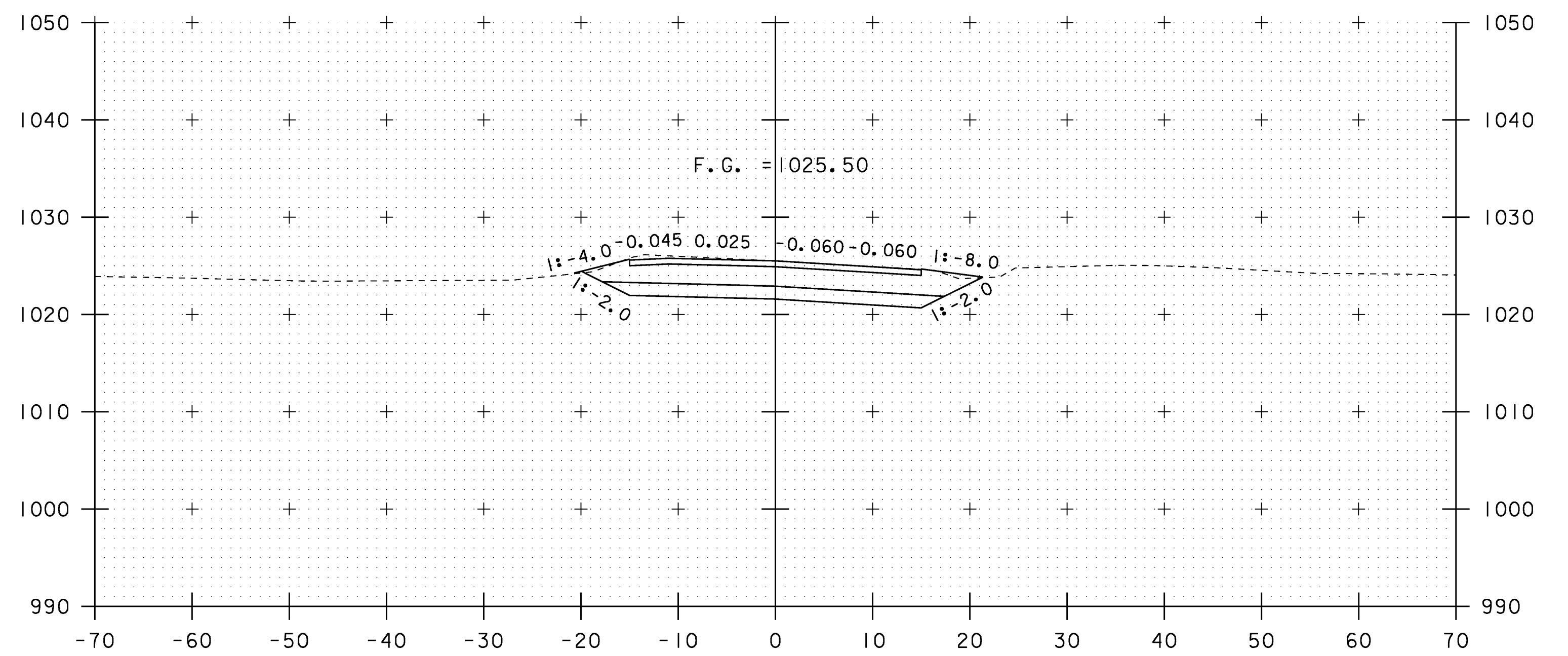
58+25



58+75

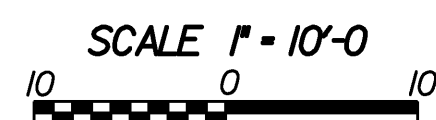


58+09



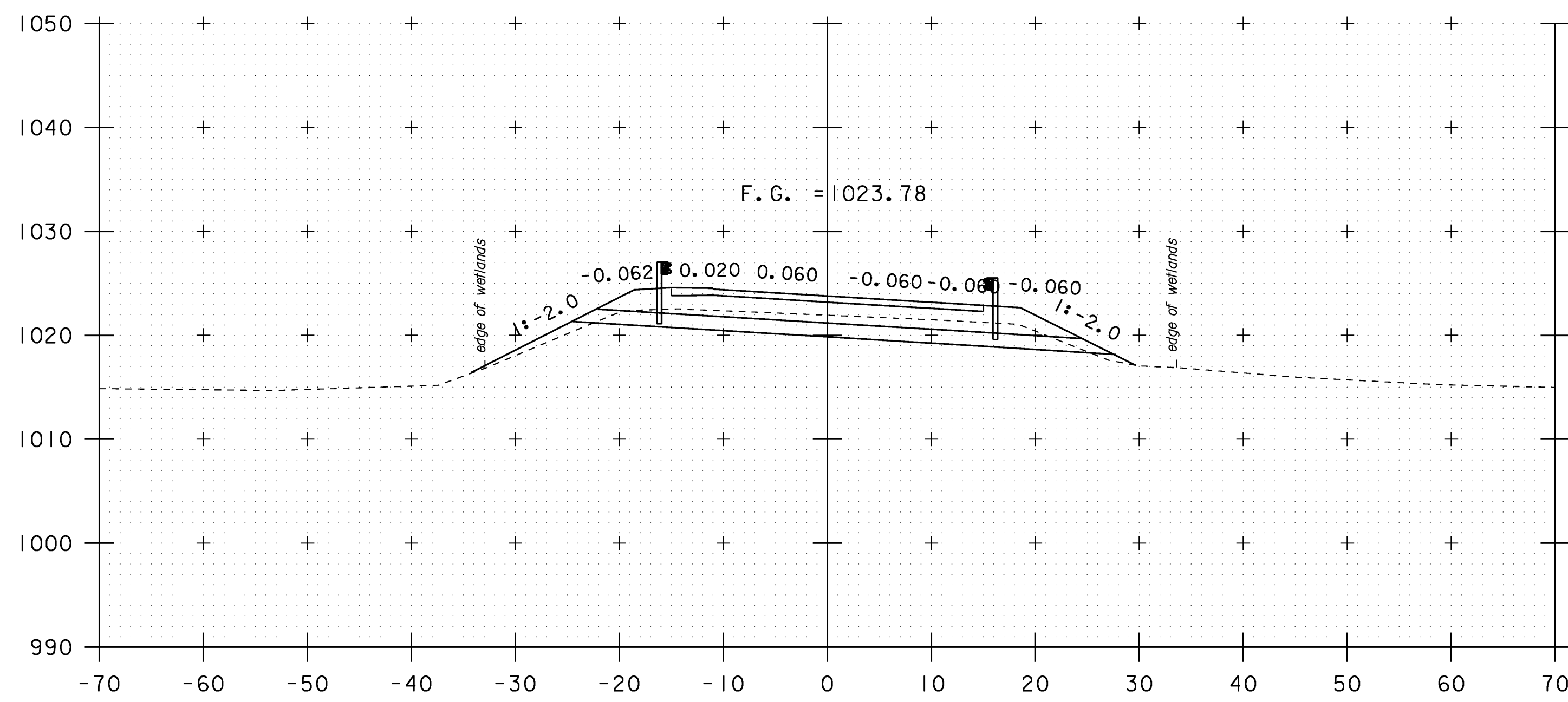
STA. 58+50
END APPROACH
BEGIN PROJECT

58+50

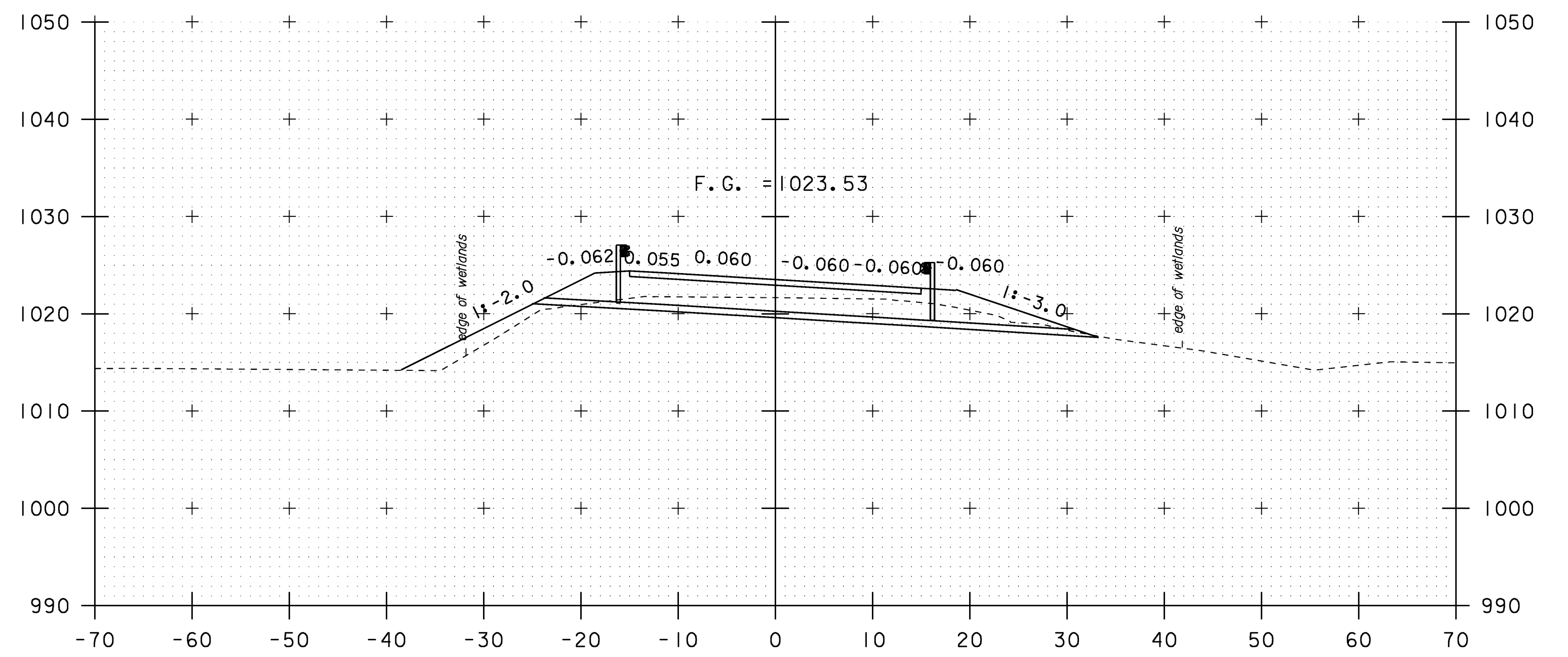


VT 102 CROSS SECTIONS (2)

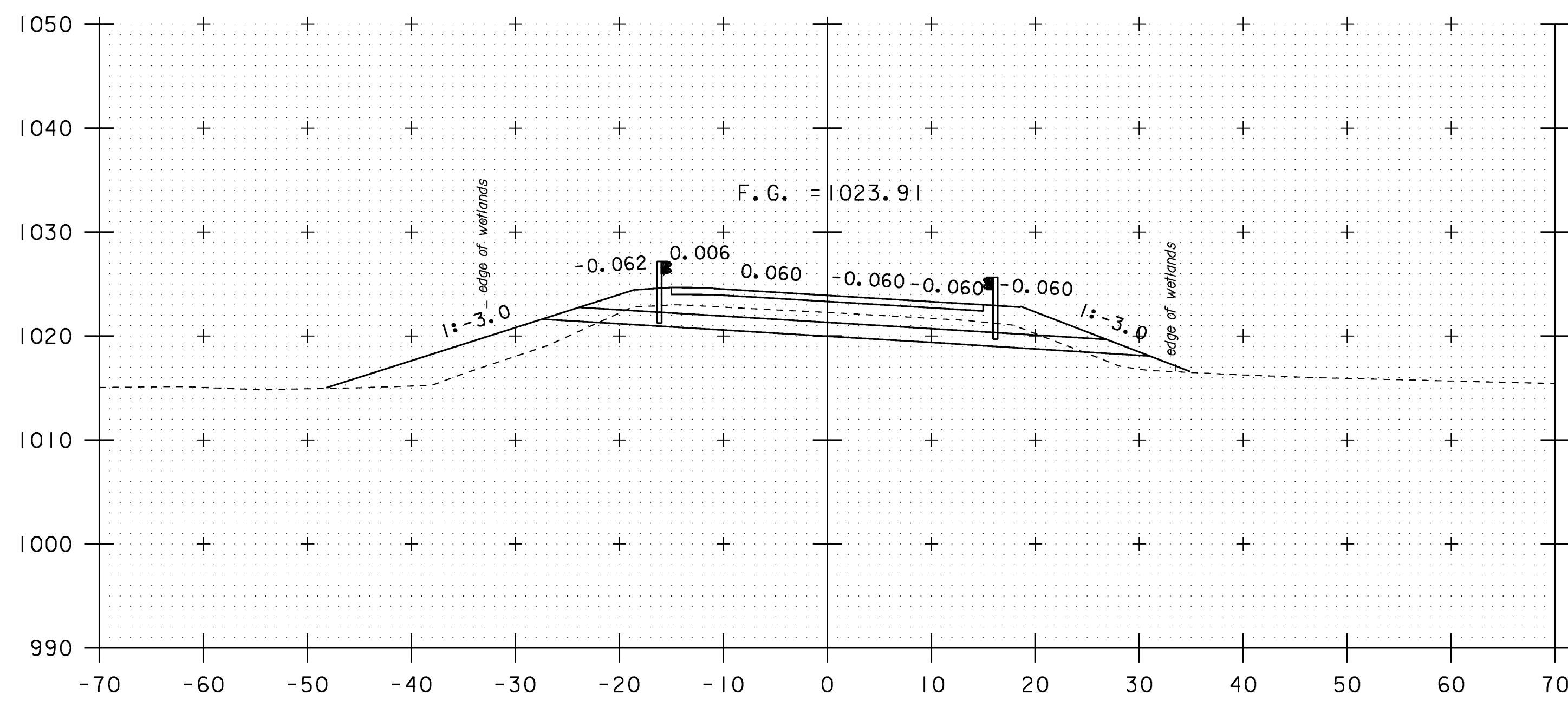
PROJECT NAME:	CANAAN		
PROJECT NUMBER:	ER ST 0271(16)		
FILE NAME:	/str2/04c098/x04c098bdr.dgn	PLOT DATE:	18-AUG-2008
PROJECT LEADER:	EVANS-MONGEON	DRAWN BY:	HUSK
DESIGNED BY:	SCRIBNER	CHECKED BY:	SCRIBNER
x04c098rxs2.1		SHEET 53	OF 66



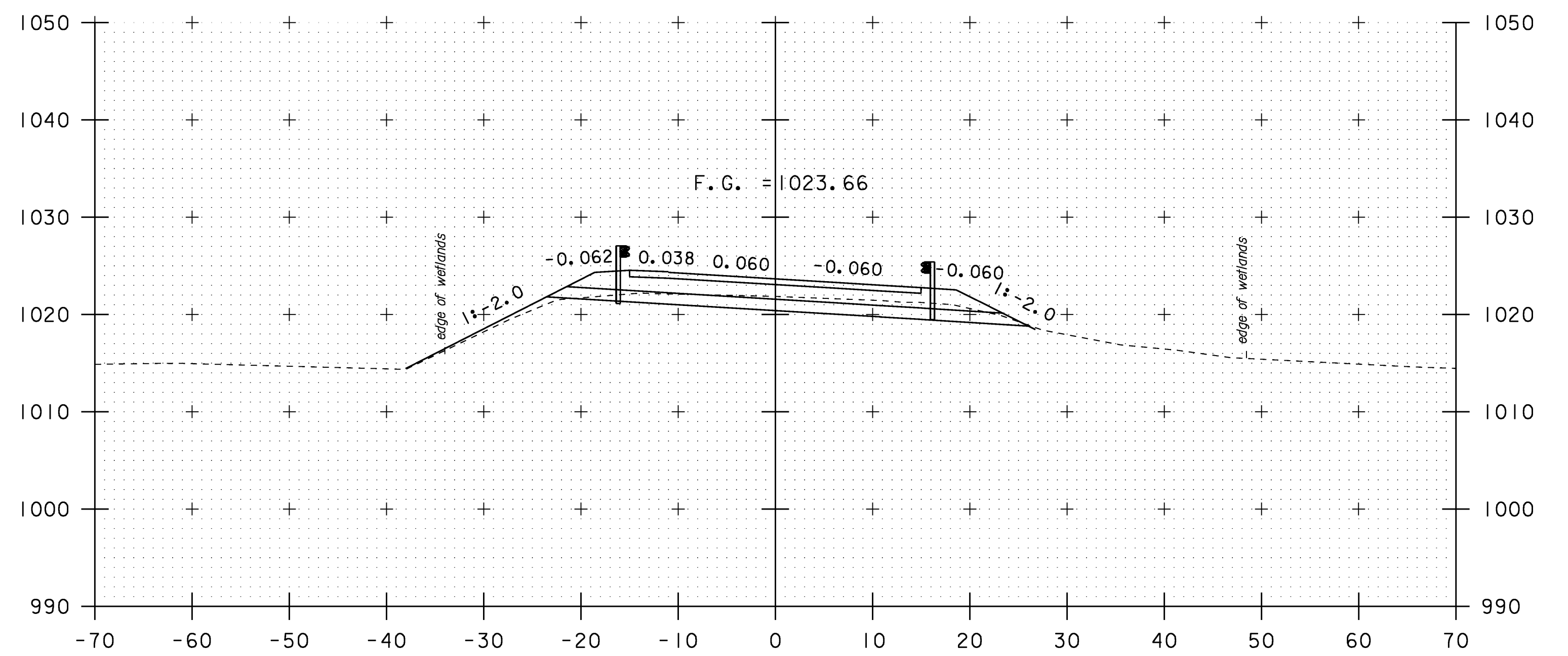
60+25



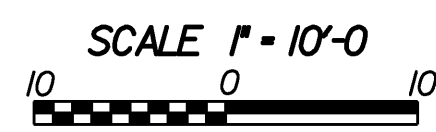
60+75



60+00

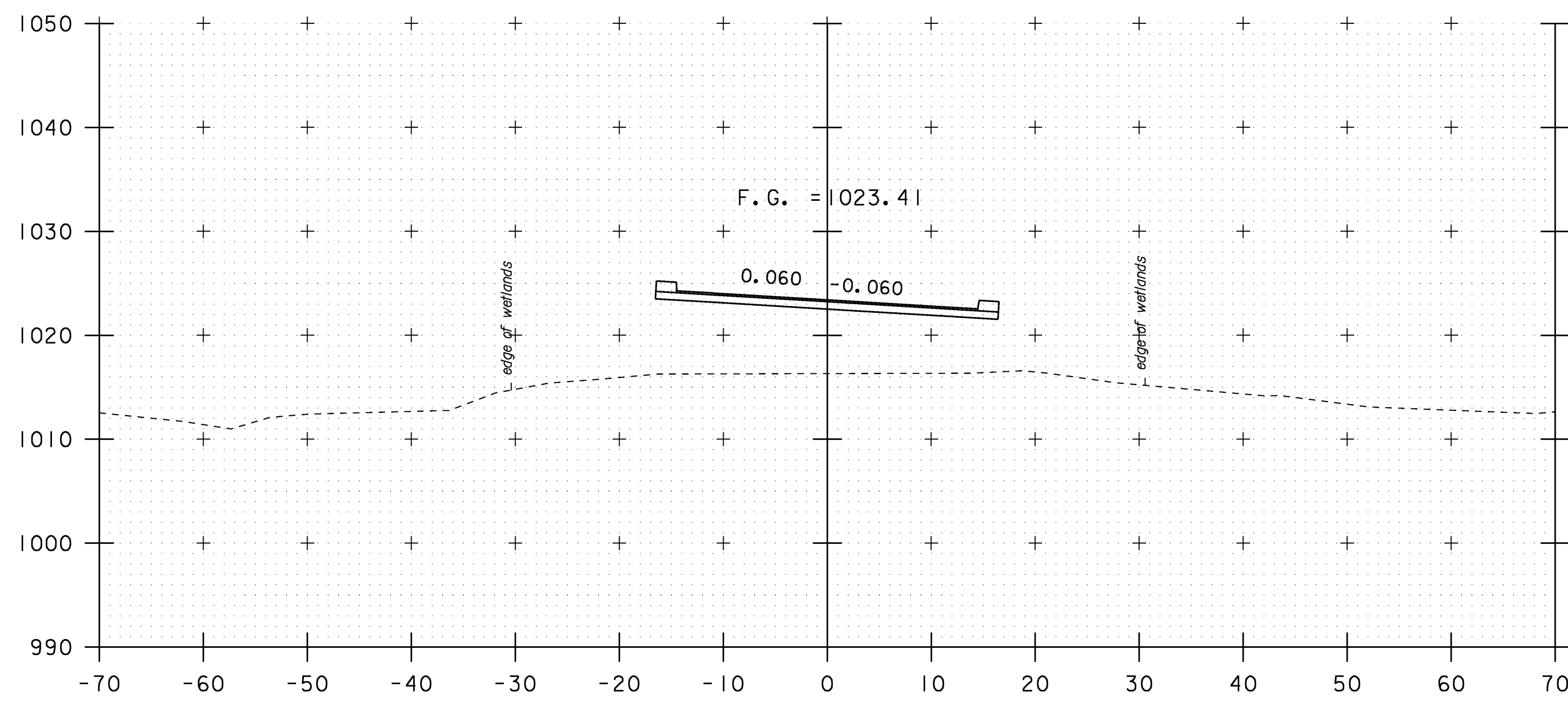


60+50

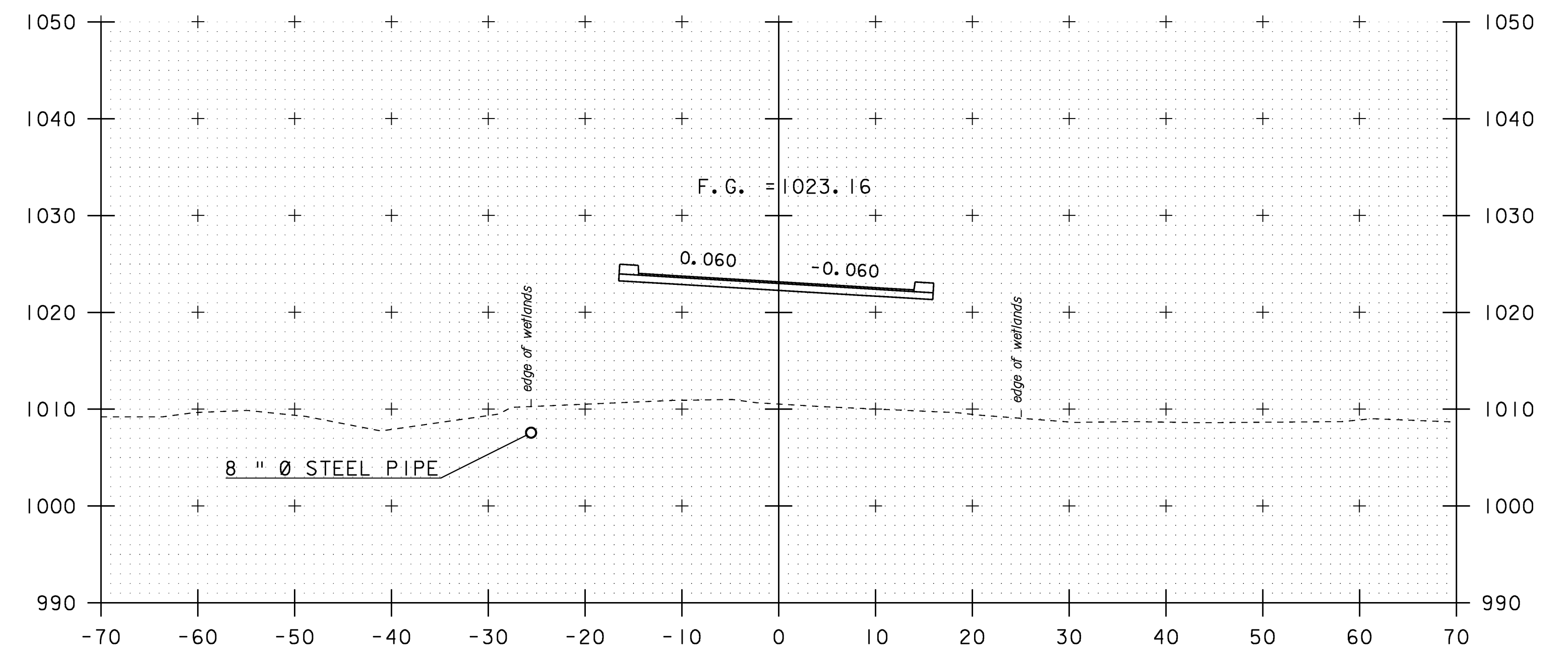


VT 102 CROSS SECTIONS (4)

PROJECT NAME:	CANAAN		
PROJECT NUMBER:	ER ST 0271(16)		
FILE NAME:	/str2/04c098/x04c098bdr.dgn	PLOT DATE:	18-AUG-2008
PROJECT LEADER:	EVANS-MONGEON	DRAWN BY:	HUSK
DESIGNED BY:	SCRIBNER	CHECKED BY:	SCRIBNER
x04c098rxs4.1		SHEET 55	OF 66

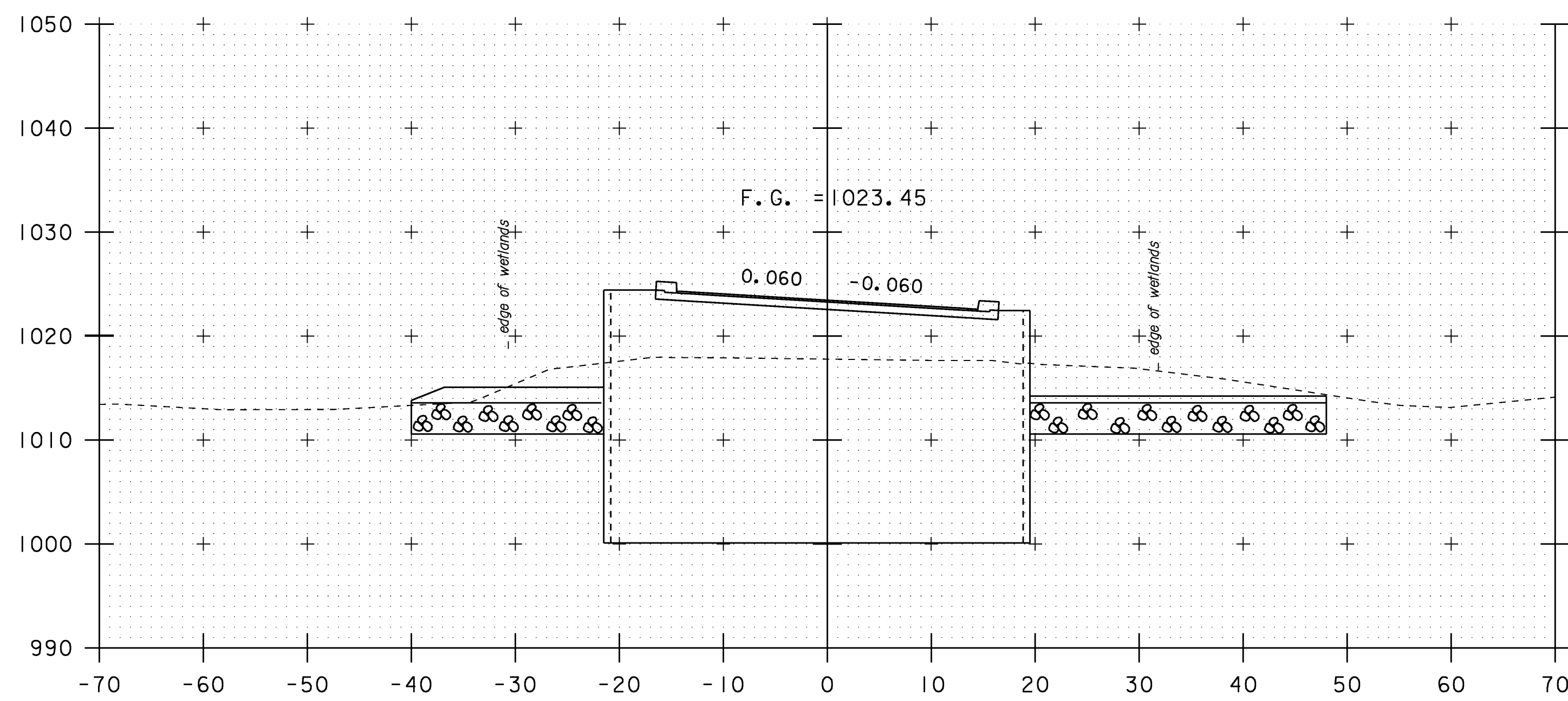


61+00



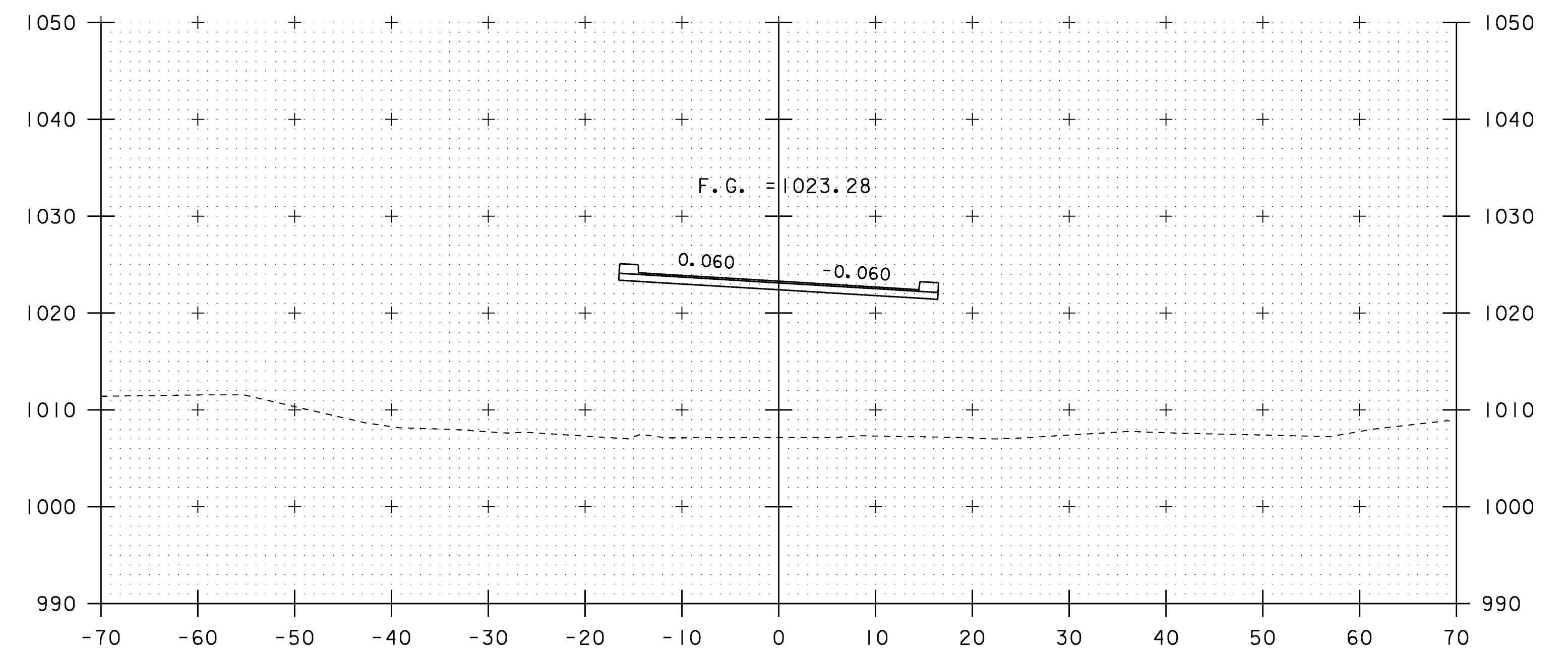
STA. 61+34 LT
BEGIN DRY HYDRANT

61+50

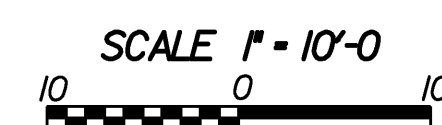


STA. 60+92
BEGIN BRIDGE

60+93

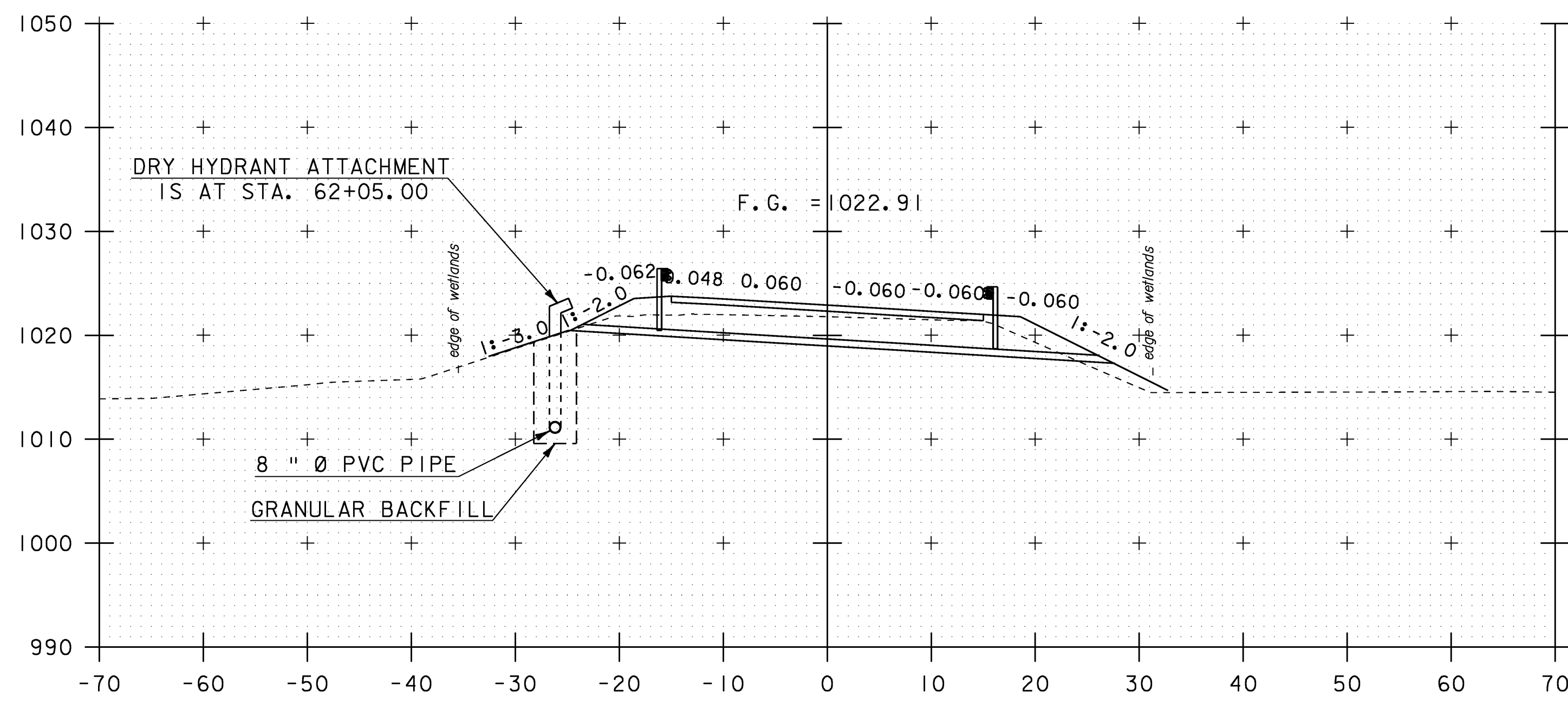


61+25



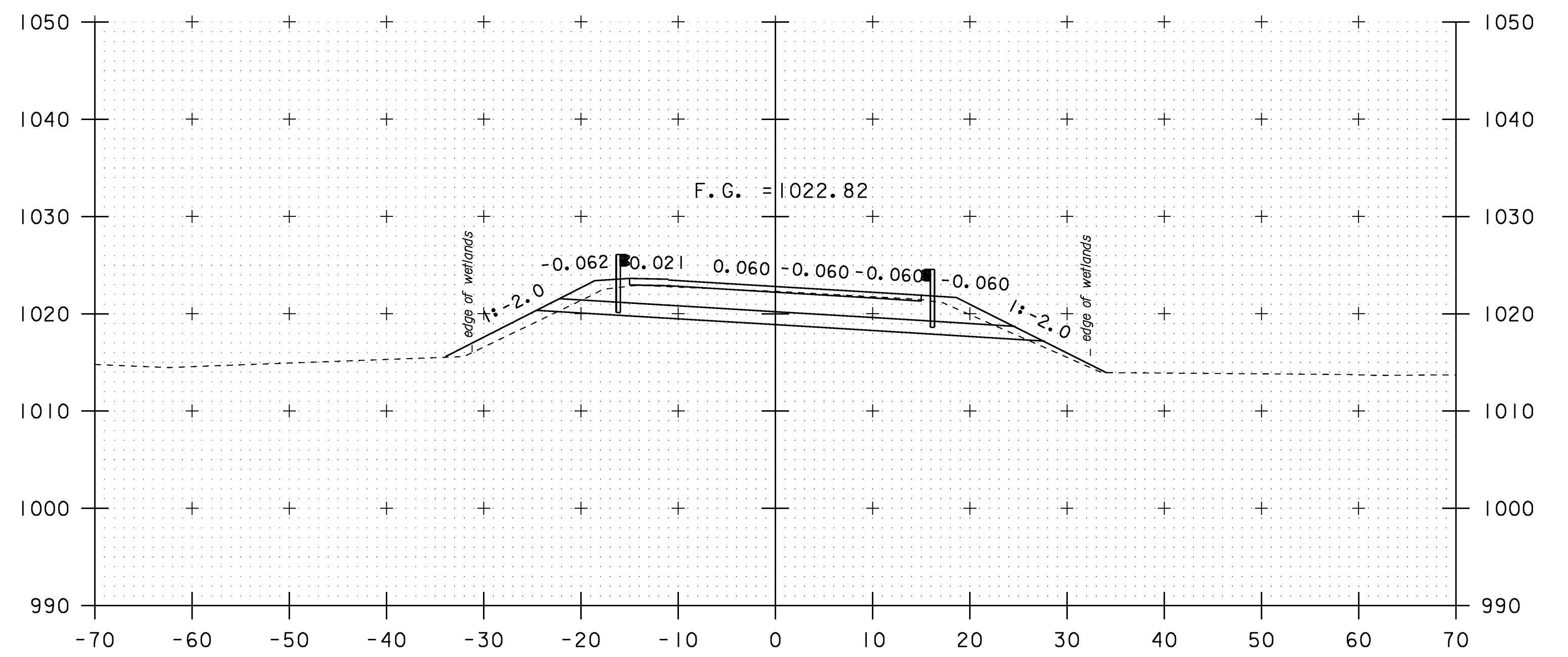
VT 102 CROSS SECTIONS (5)

PROJECT NAME:	CANAAN		
PROJECT NUMBER:	ER ST 0271(16)		
FILE NAME:	/str2/04c098/x04c098bdr.dgn	PLOT DATE:	18-AUG-2008
PROJECT LEADER:	EVANS-MONGEON	DRAWN BY:	HUSK
DESIGNED BY:	SCRIBNER	CHECKED BY:	SCRIBNER
x04c098rxs5.1		SHEET 56	OF 66

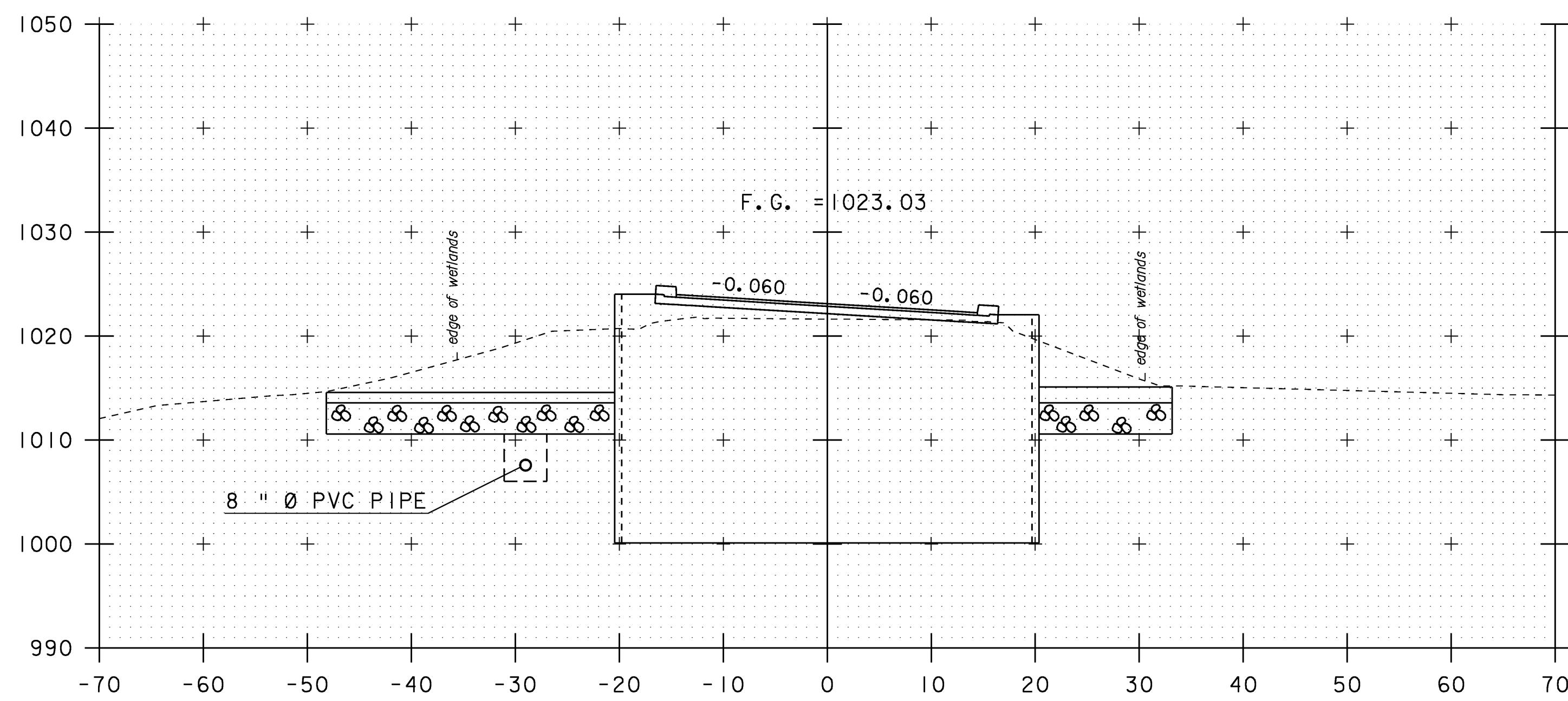


STA. 62+05 LT
END DRY HYDRANT

62+00

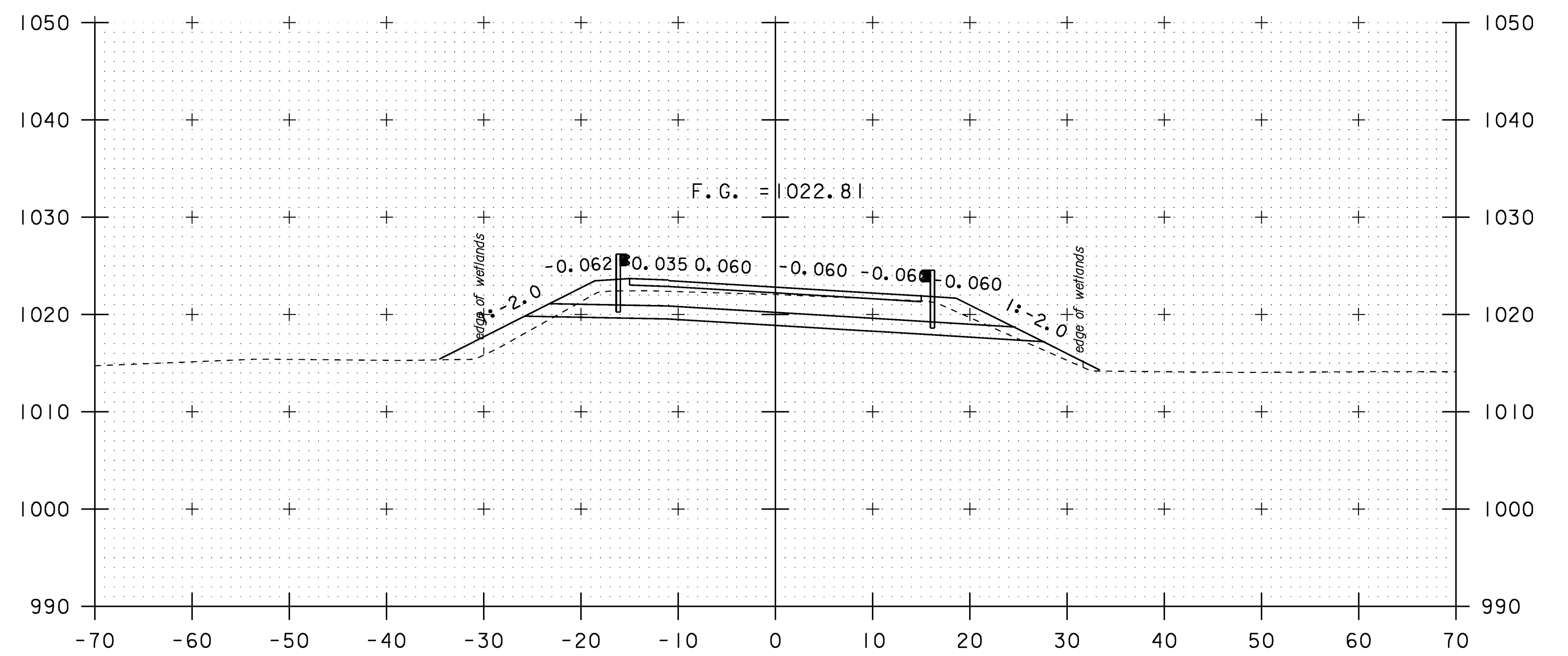


62+50

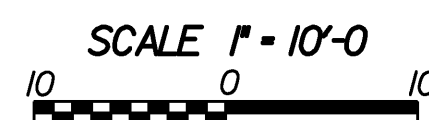


STA. 61+76
END BRIDGE

61+75

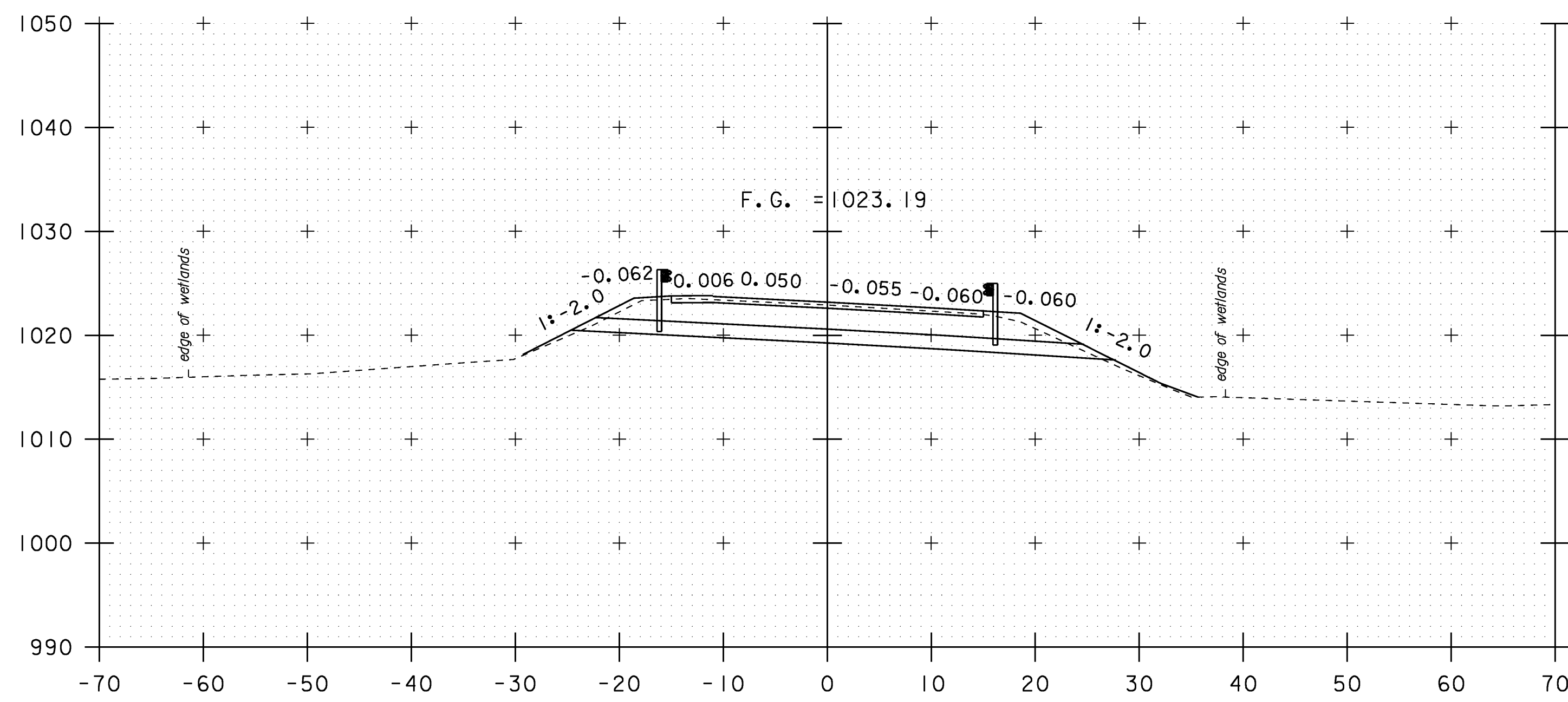


62+25

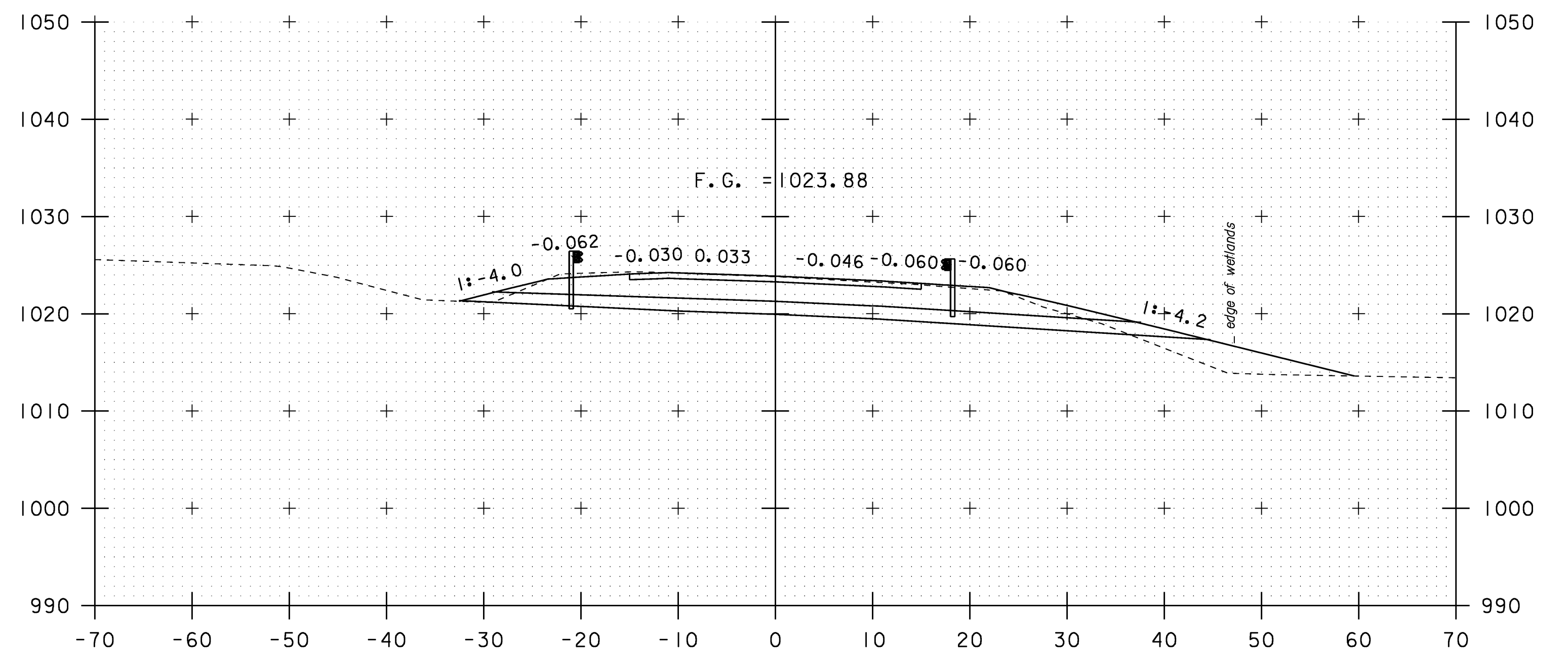


VT 102 CROSS SECTIONS (6)

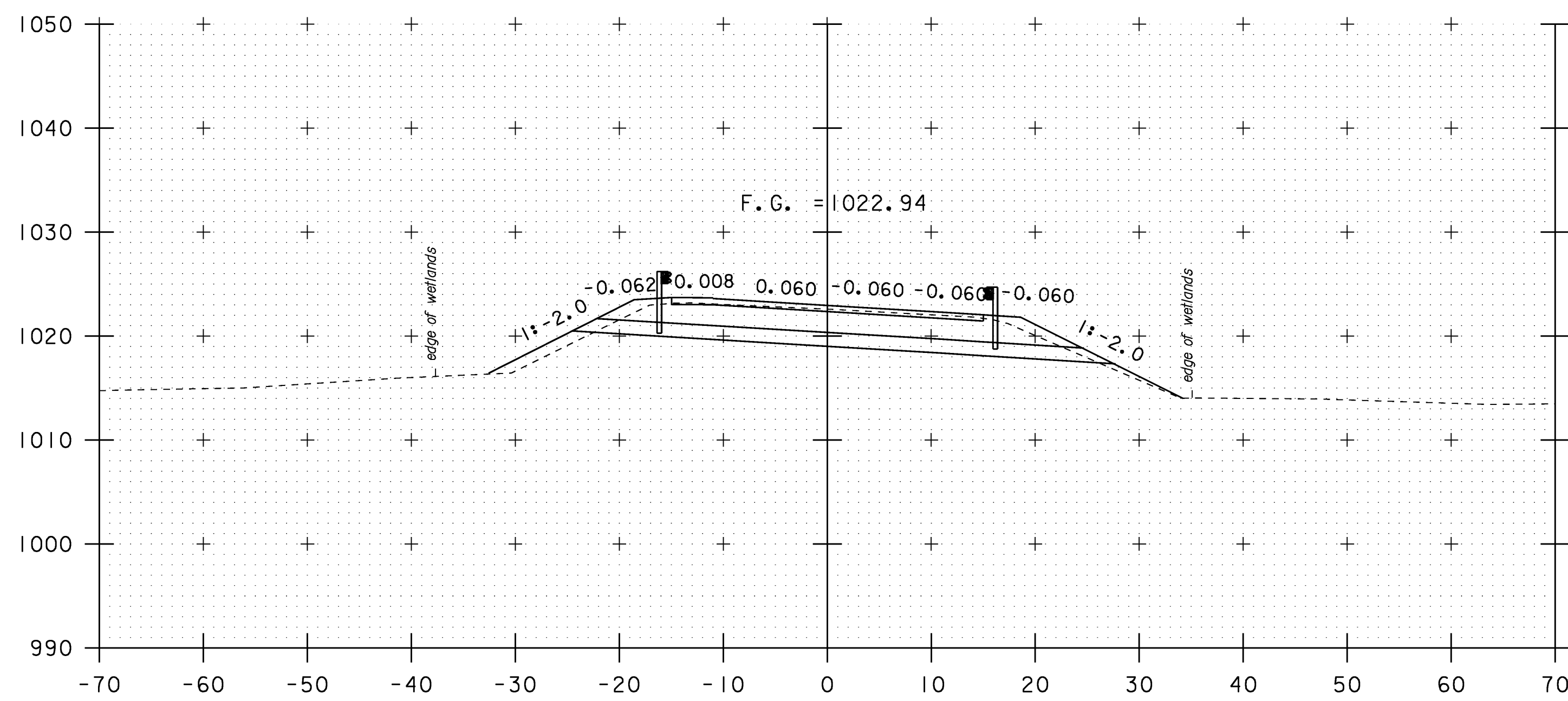
PROJECT NAME:	CANAAN		
PROJECT NUMBER:	ER ST 0271(16)		
FILE NAME:	/str2/04c098/x04c098bdr.dgn	PLOT DATE:	18-AUG-2008
PROJECT LEADER:	EVANS-MONGEON	DRAWN BY:	HUSK
DESIGNED BY:	SCRIBNER	CHECKED BY:	SCRIBNER
x04c098rxs6.1		SHEET 57	OF 66



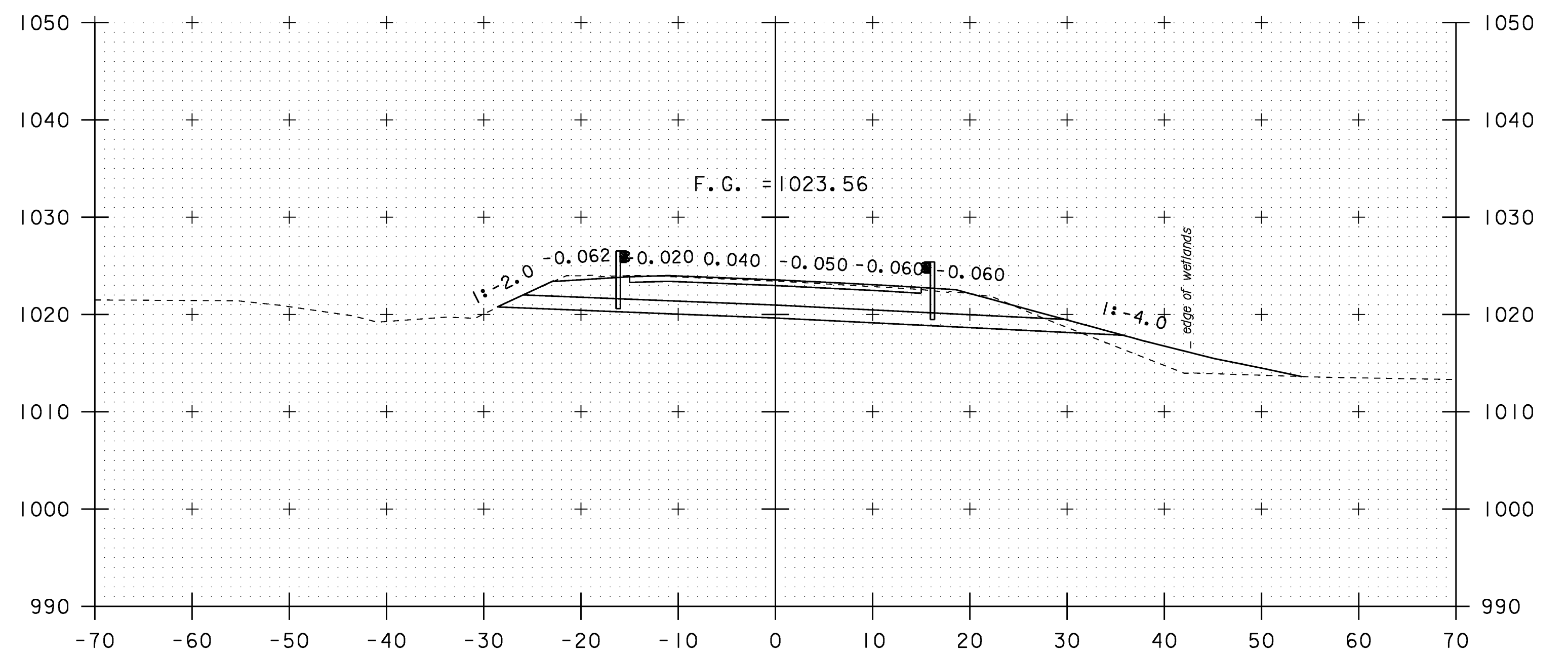
63+00



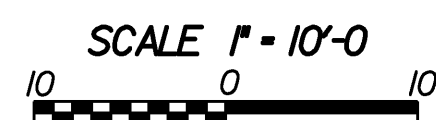
63+42



62+75

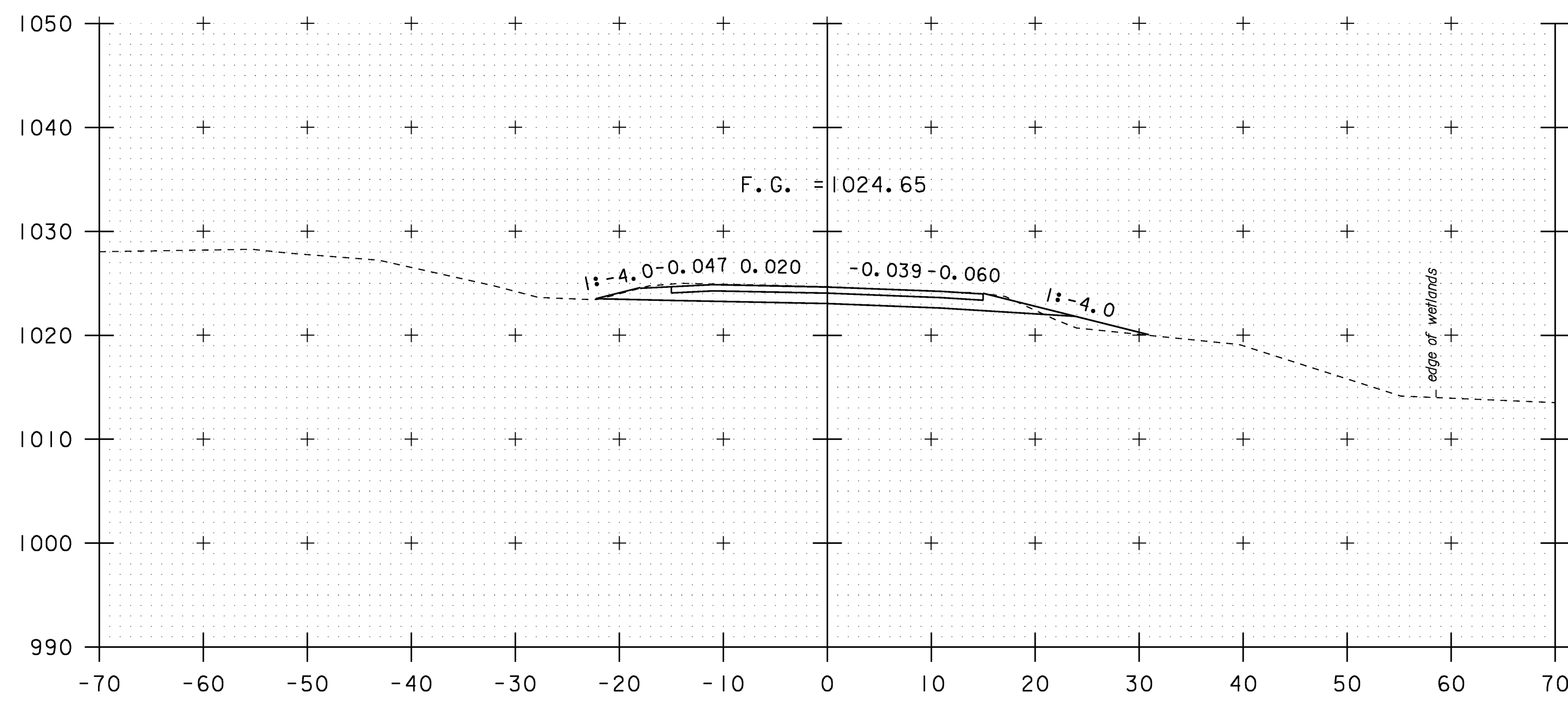


63+25

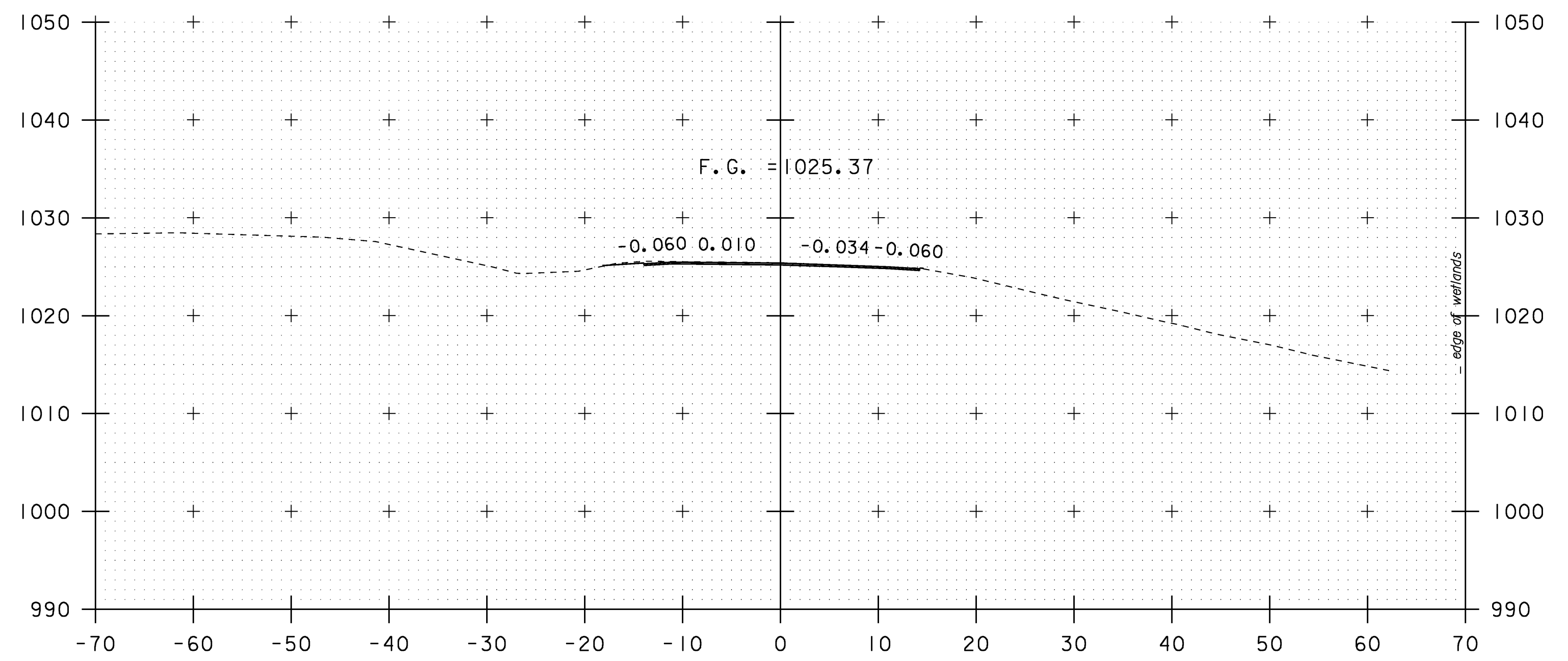


VT 102 CROSS SECTIONS (7)

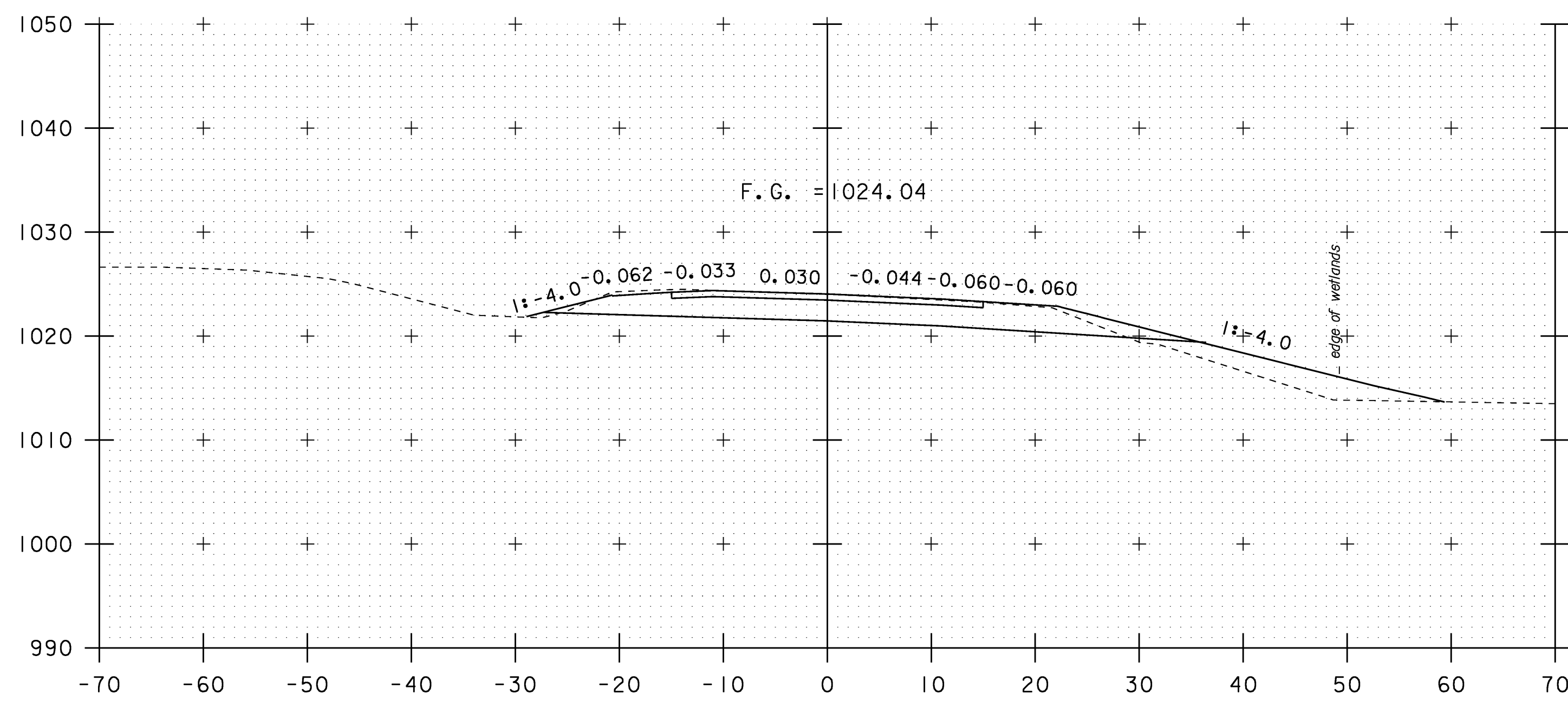
PROJECT NAME:	CANAAN		
PROJECT NUMBER:	ER ST 0271(16)		
FILE NAME:	/str2/04c098/x04c098bdr.dgn	PLOT DATE:	18-AUG-2008
PROJECT LEADER:	EVANS-MONGEON	DRAWN BY:	HUSK
DESIGNED BY:	SCRIBNER	CHECKED BY:	SCRIBNER
x04c098rxs7.1		SHEET 58	OF 66



63+75

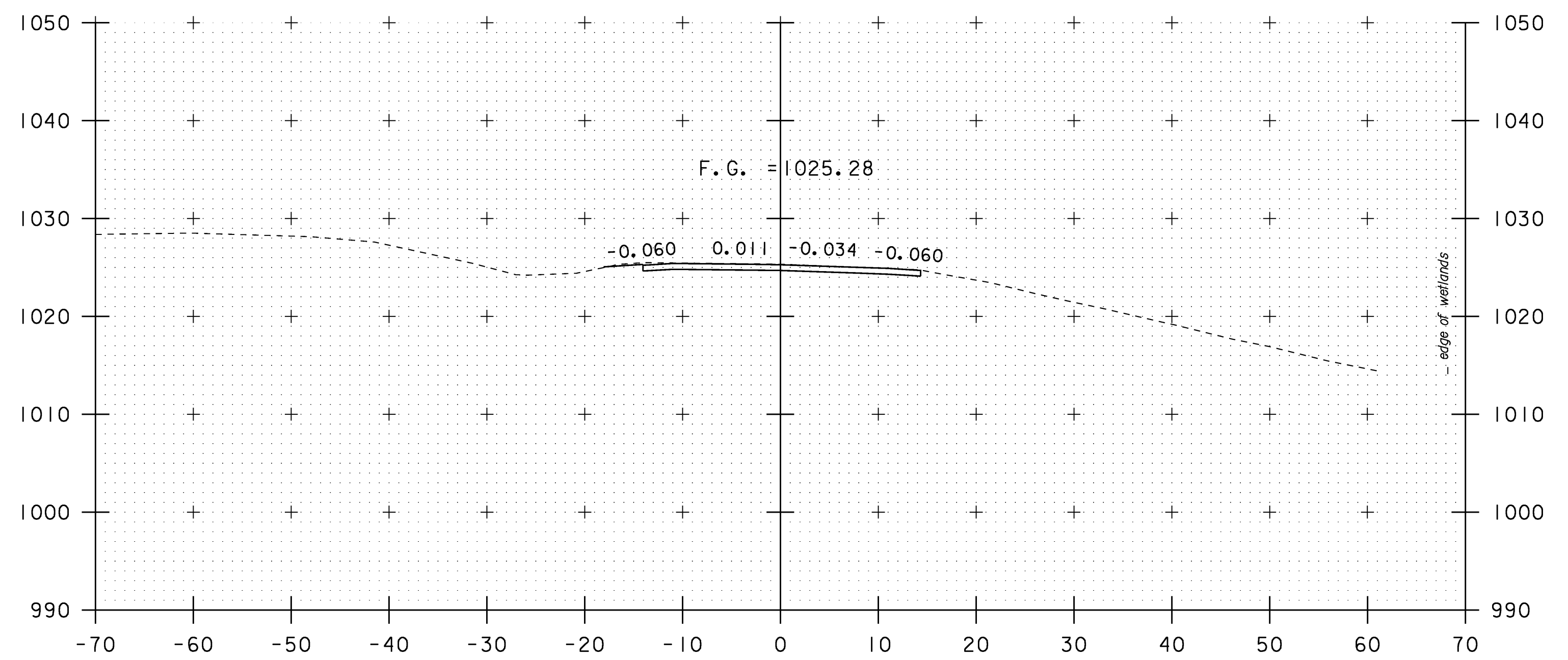


64+00

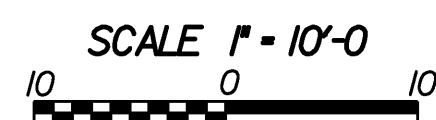


63+50

STA. 63+50
END PROJECT
BEGIN APPROACH

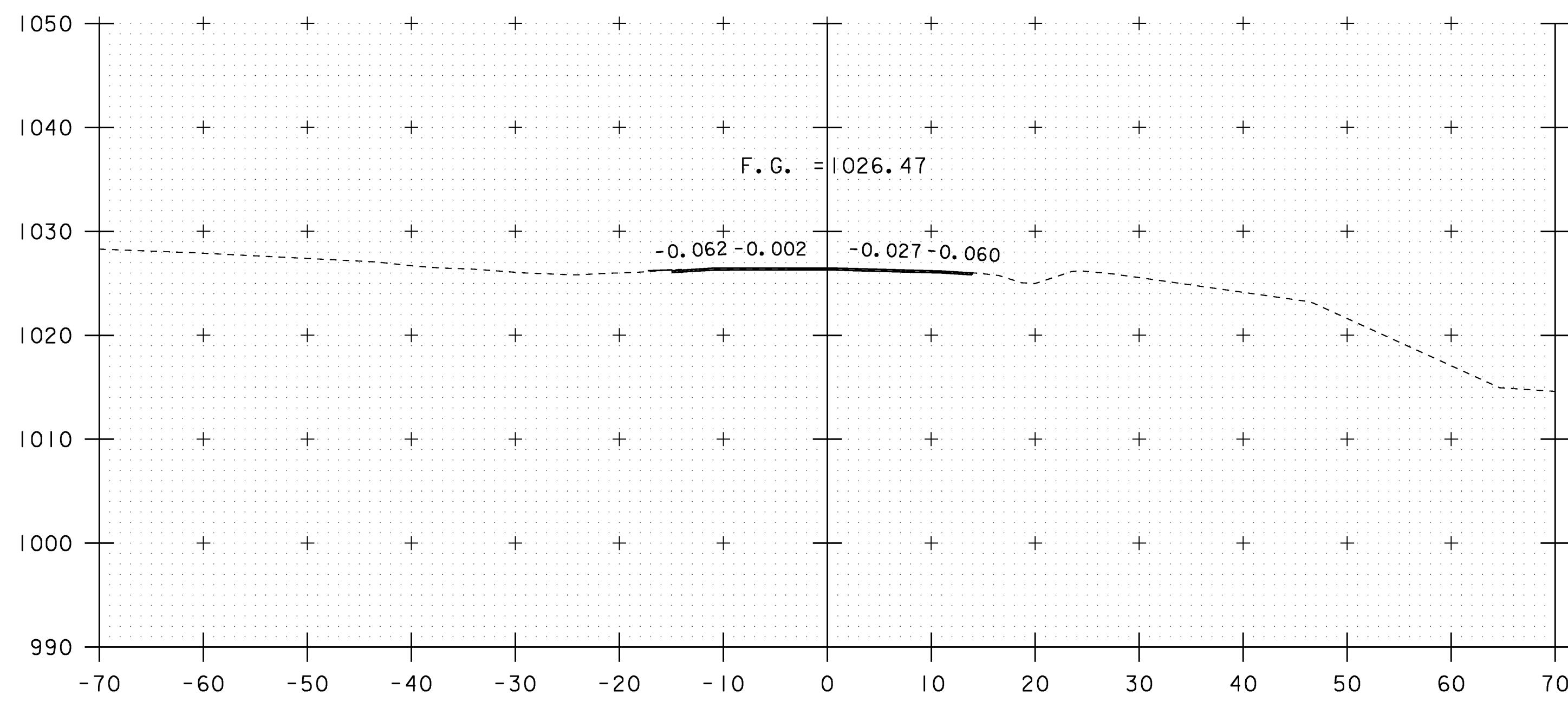


63+97

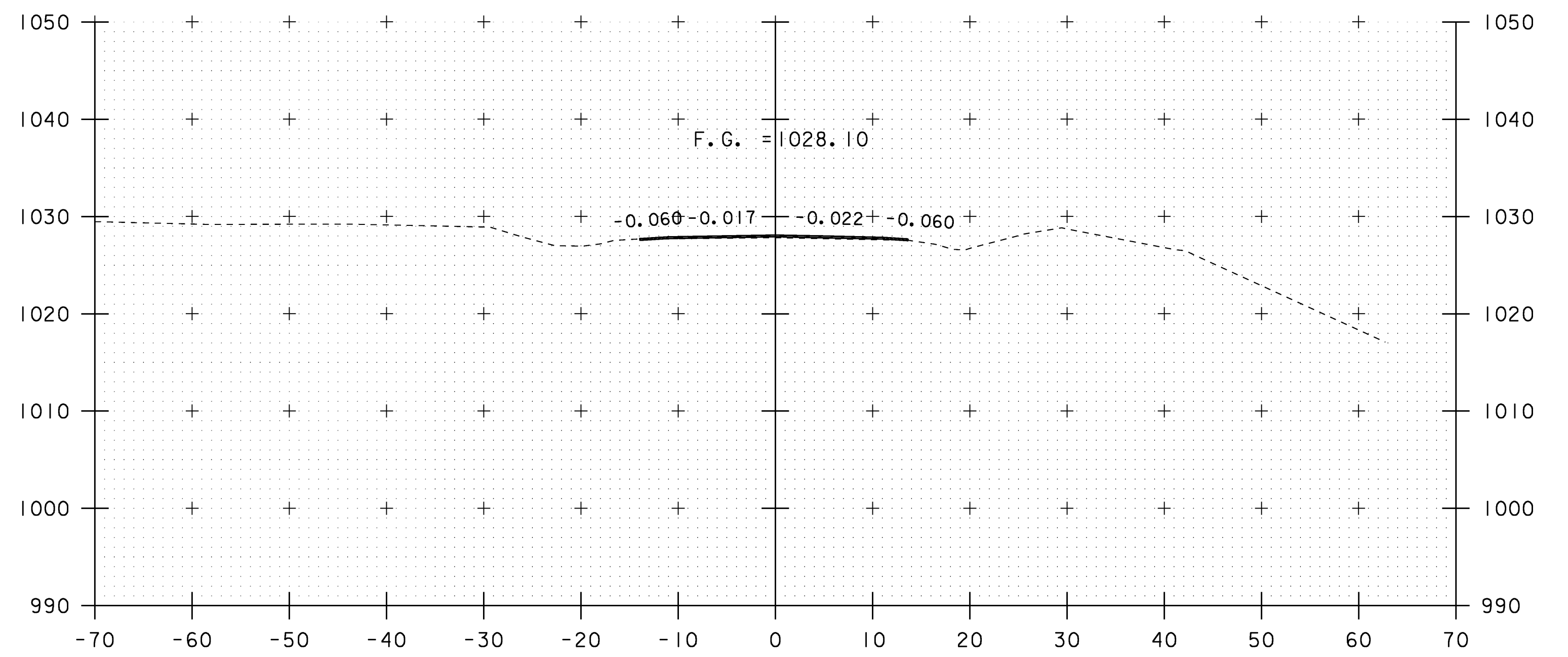


VT 102 CROSS SECTIONS (8)

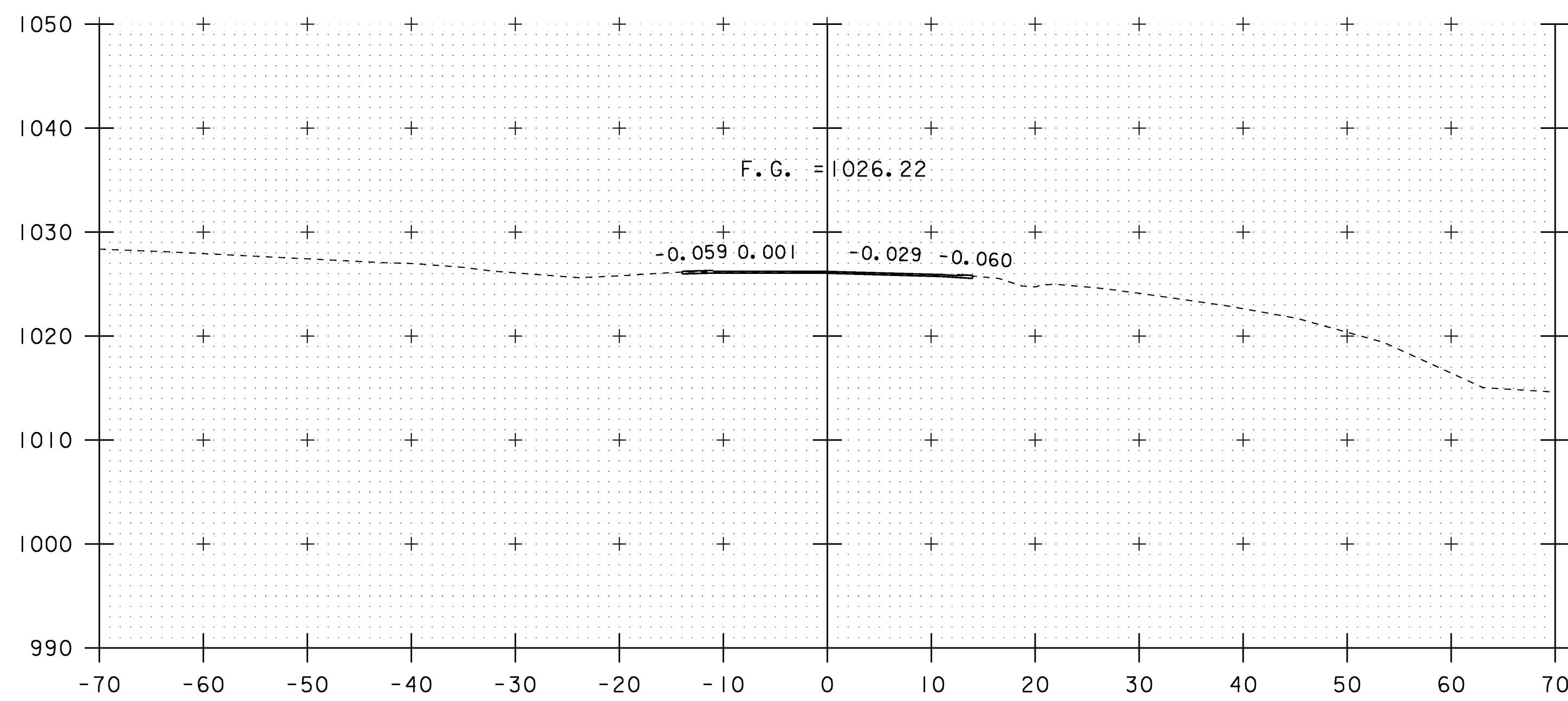
PROJECT NAME:	CANAAN		
PROJECT NUMBER:	ER ST 0271(16)		
FILE NAME:	/str2/04c098/x04c098bdr.dgn	PLOT DATE:	18-AUG-2008
PROJECT LEADER:	EVANS-MONGEON	DRAWN BY:	HUSK
DESIGNED BY:	SCRIBNER	CHECKED BY:	SCRIBNER
x04c098rxs8.1		SHEET 59	OF 66



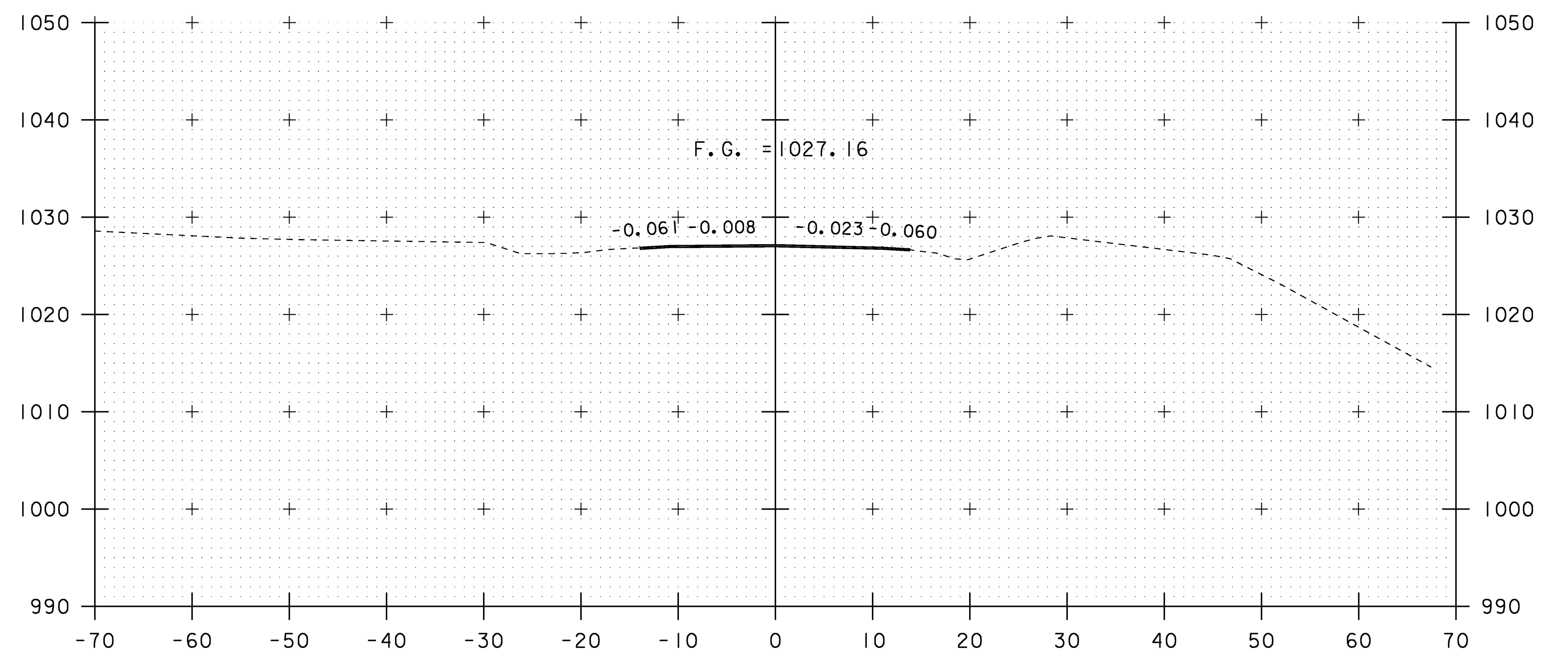
64+32



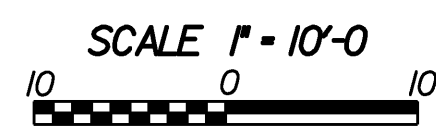
64+75



64+25

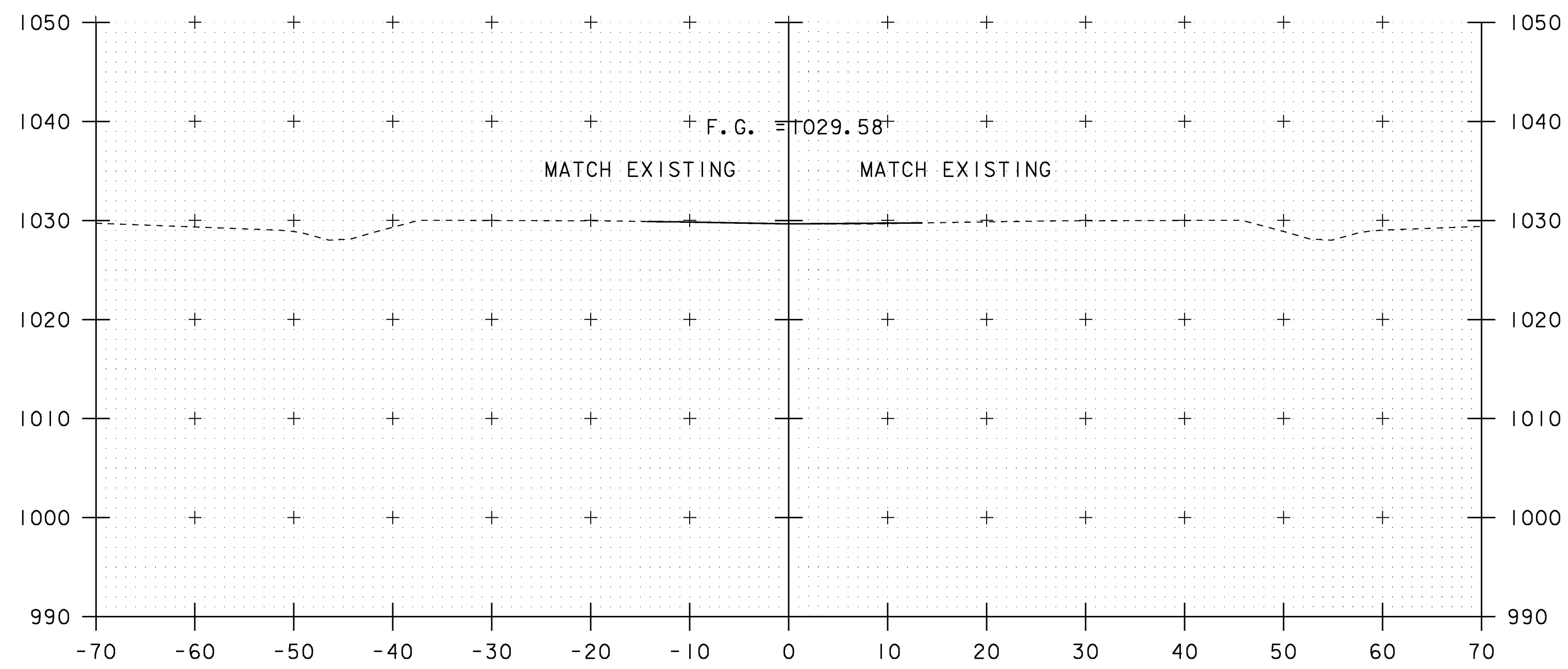


64+50



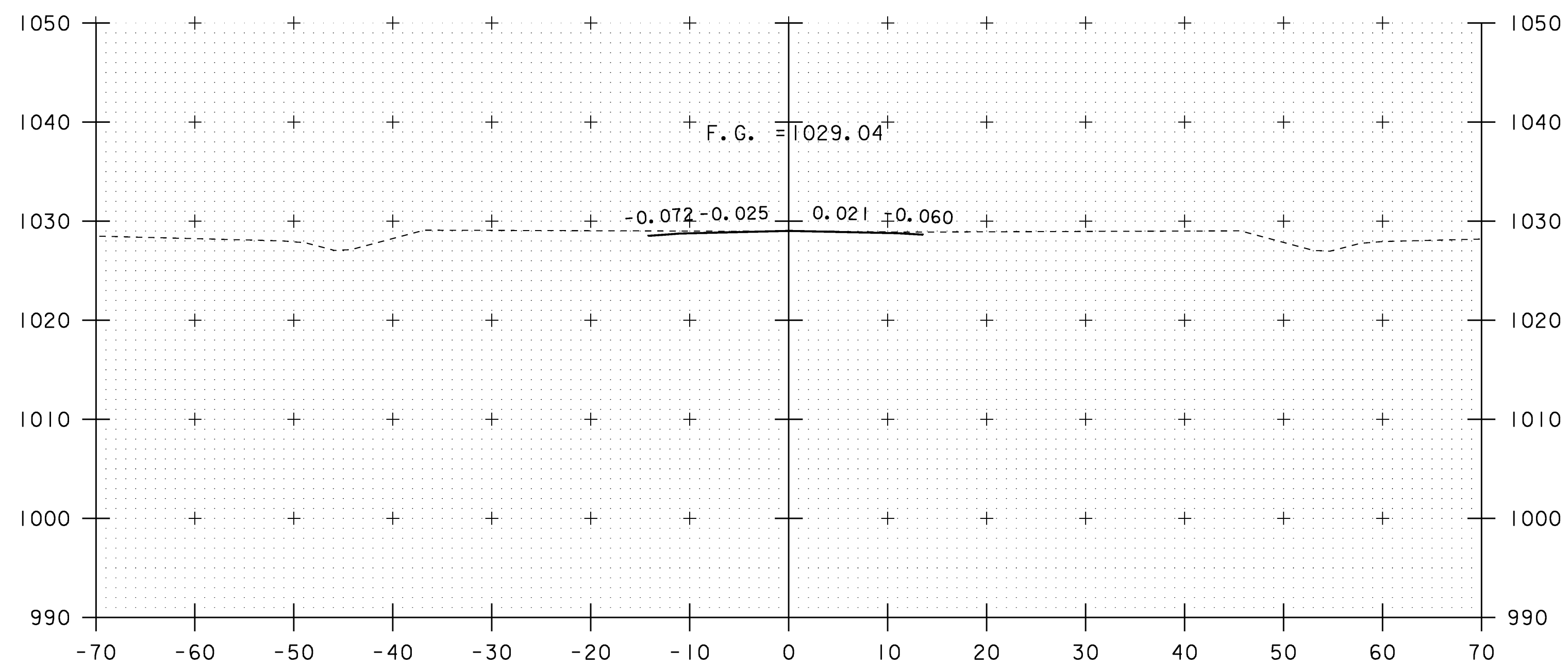
VT 102 CROSS SECTIONS (9)

PROJECT NAME:	CANAAN		
PROJECT NUMBER:	ER ST 0271(16)		
FILE NAME:	/str2/04c098/x04c098bdr.dgn	PLOT DATE:	18-AUG-2008
PROJECT LEADER:	EVANS-MONGEON	DRAWN BY:	HUSK
DESIGNED BY:	SCRIBNER	CHECKED BY:	SCRIBNER
x04c098rxs9.1		SHEET 60	OF 66

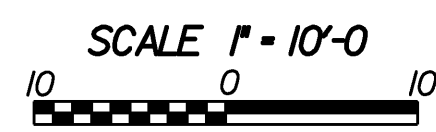


STA. 65+15
 END APPROACH
 MATCH EXISTING GRADE AND BANKING

65+15



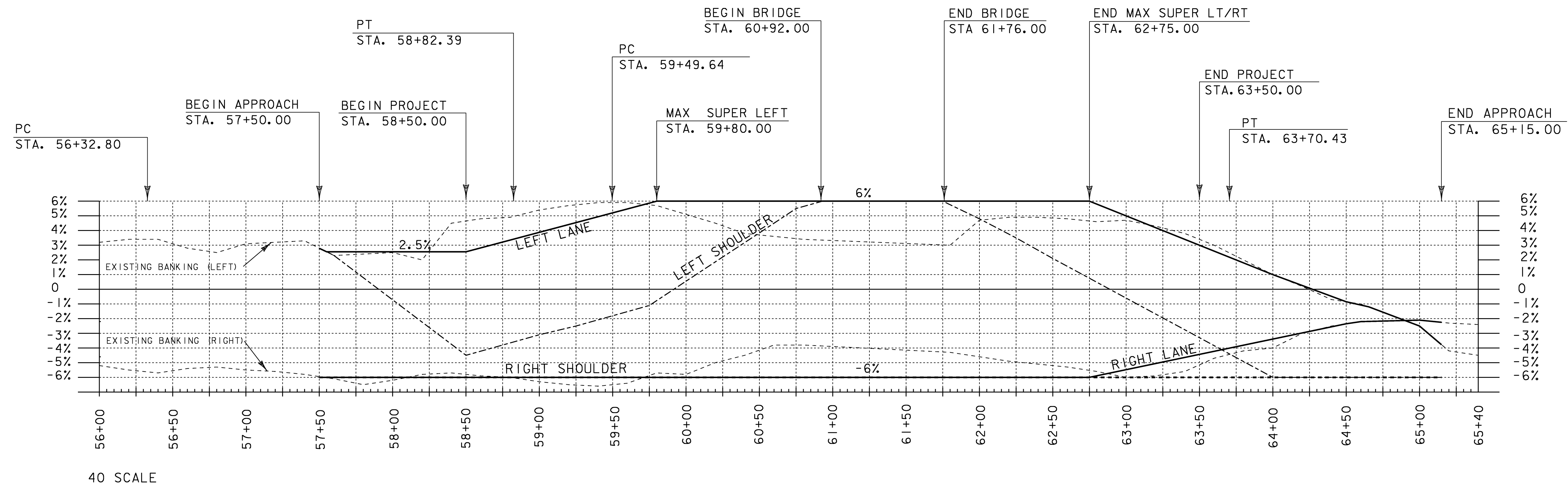
65+00



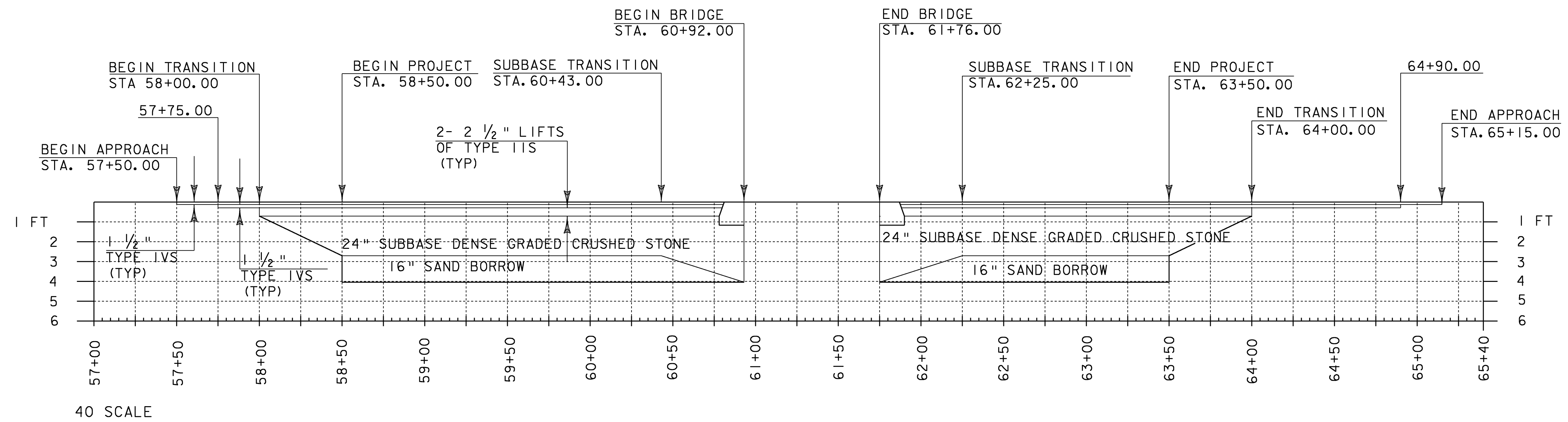
VT 102 CROSS SECTIONS (10)

PROJECT NAME:	CANAAN		
PROJECT NUMBER:	ER ST 0271(16)		
FILE NAME:	/str2/04c098/x04c098bdr.dgn	PLOT DATE:	18-AUG-2008
PROJECT LEADER:	EVANS-MONGEON	DRAWN BY:	HUSK
DESIGNED BY:	SCRIBNER	CHECKED BY:	SCRIBNER
x04c098rxs10.1		SHEET 61	OF 66

BANKING DIAGRAM

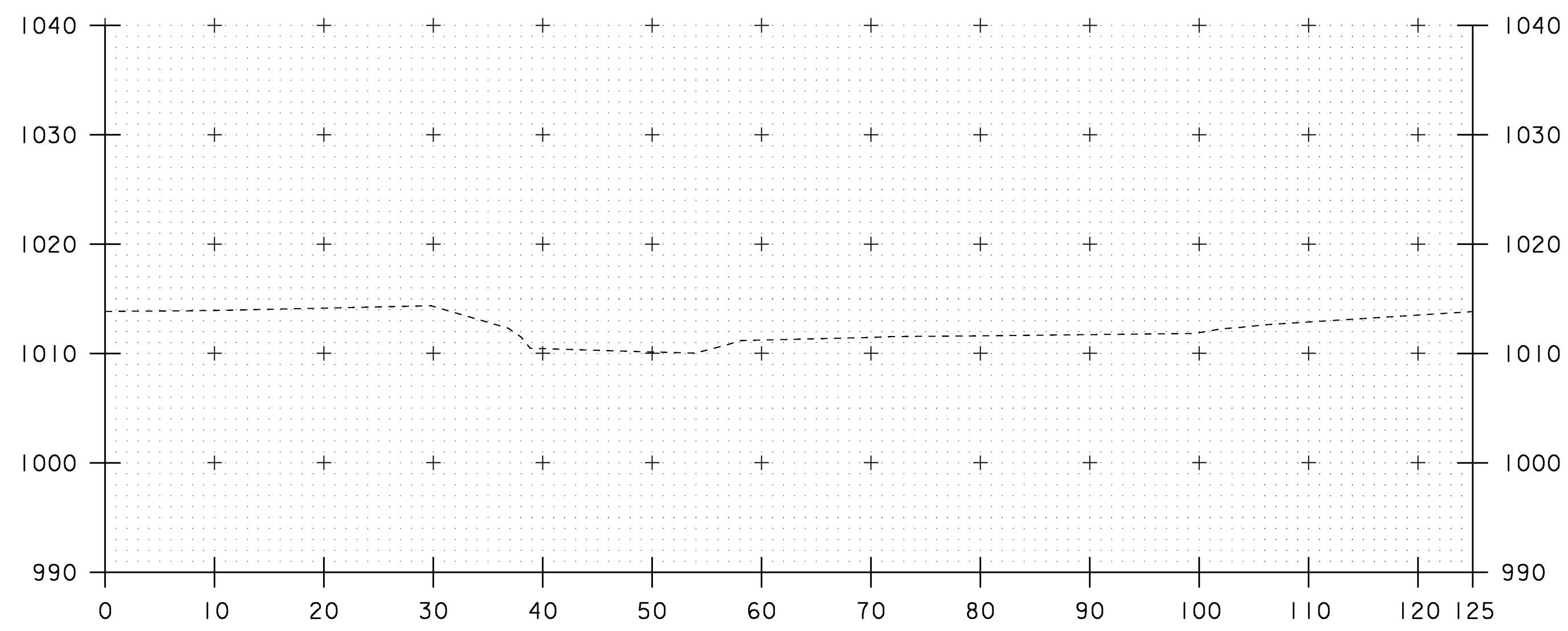


MATERIAL TRANSITIONS

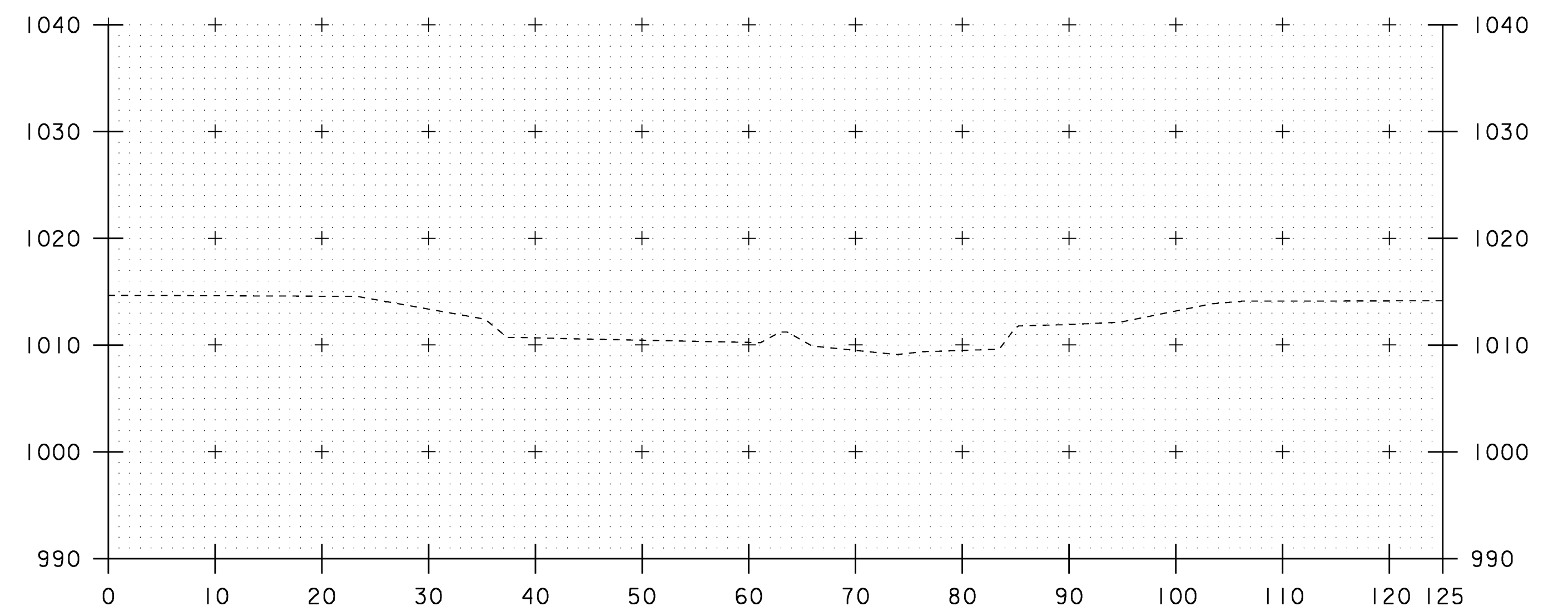


BANKING DIAGRAM & MATERIAL TRANSITION

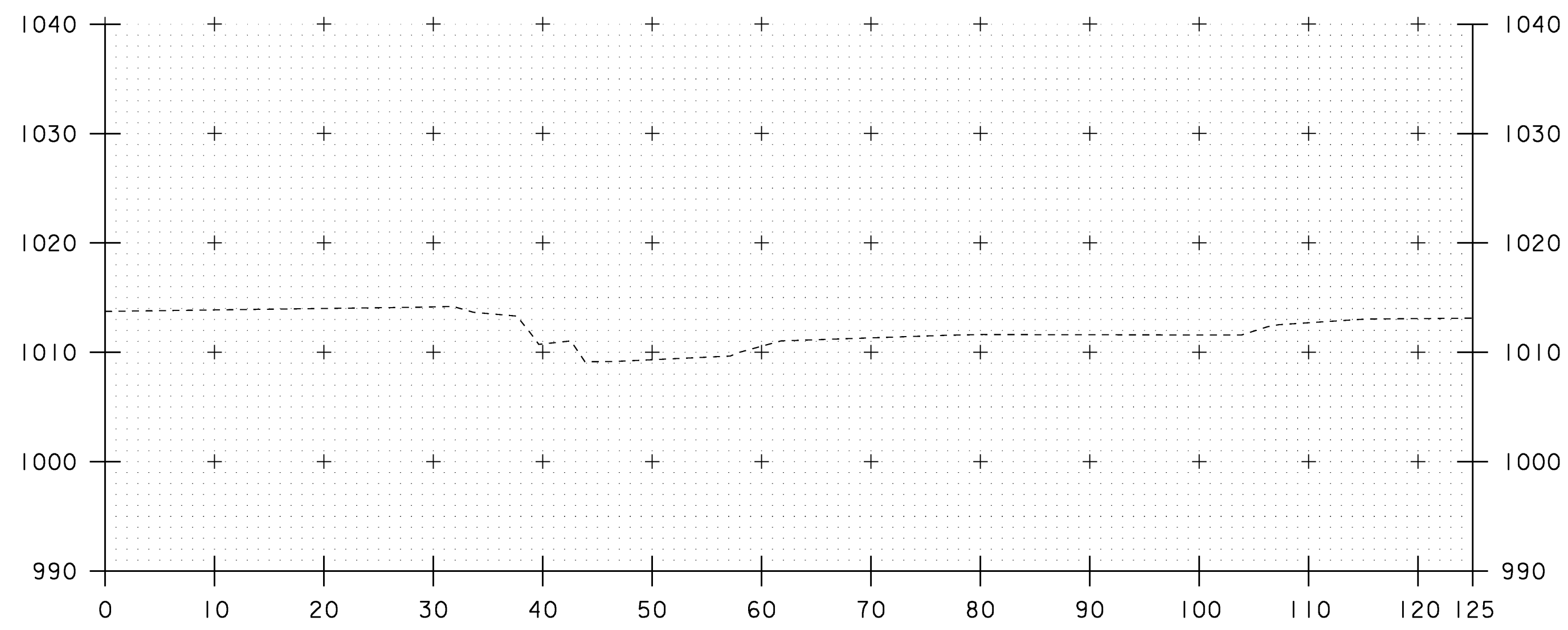
PROJECT NAME:	CANAAN	FILE NAME:	/str2/04c098/x04c098xs.dgn	PLOT DATE:	02-SEP-2008
PROJECT NUMBER:	ER ST 0271(16)	PROJECT LEADER:	EVANS-MONGEON	DRAWN BY:	HUSK
		DESIGNED BY:	SCRIBNER	CHECKED BY:	SCRIBNER
			x04c098pfl	SHEET	62 OF 66



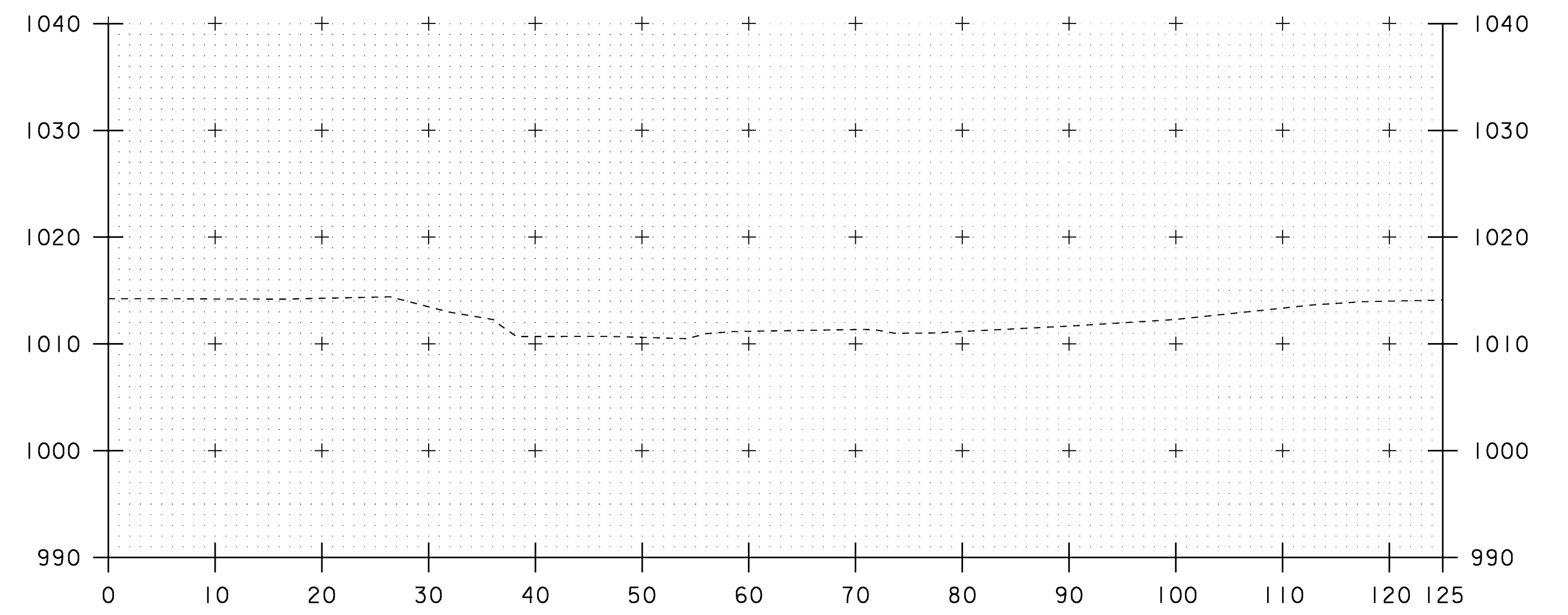
15+25



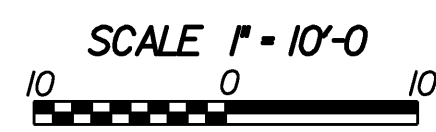
15+75



15+00

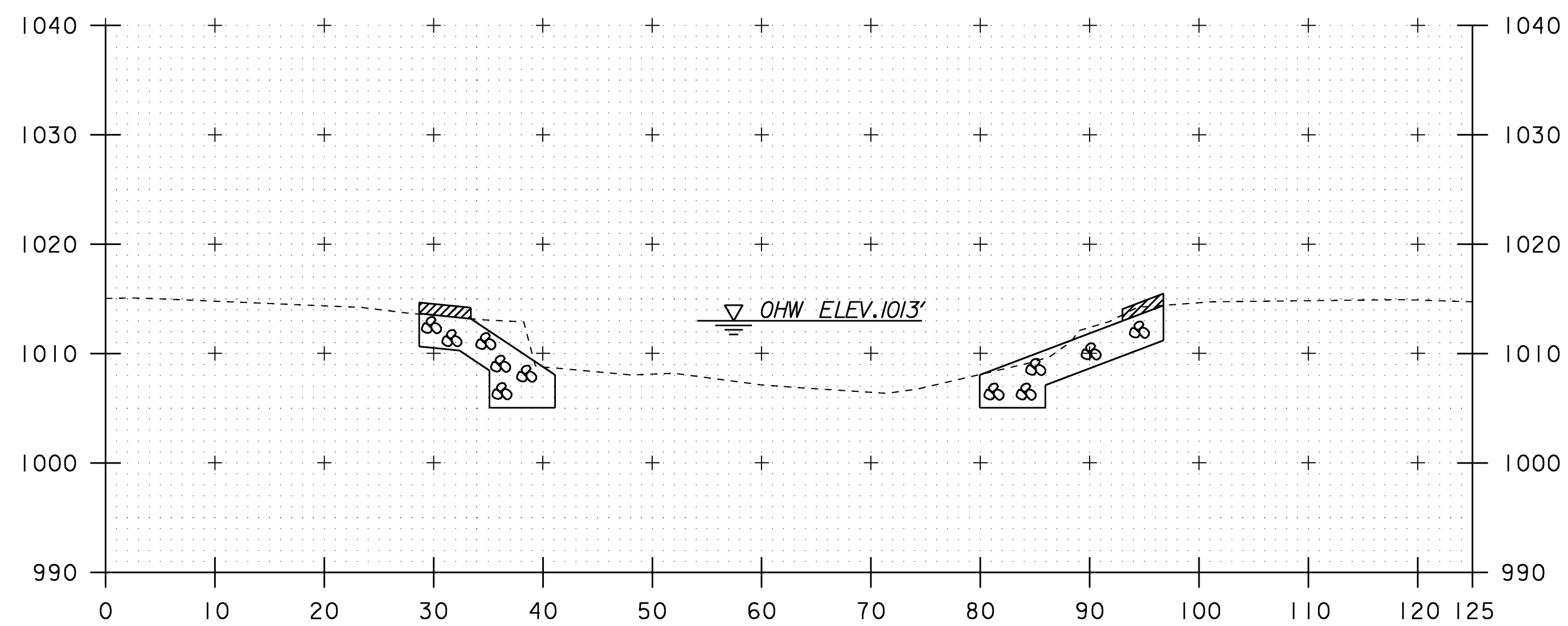


15+50

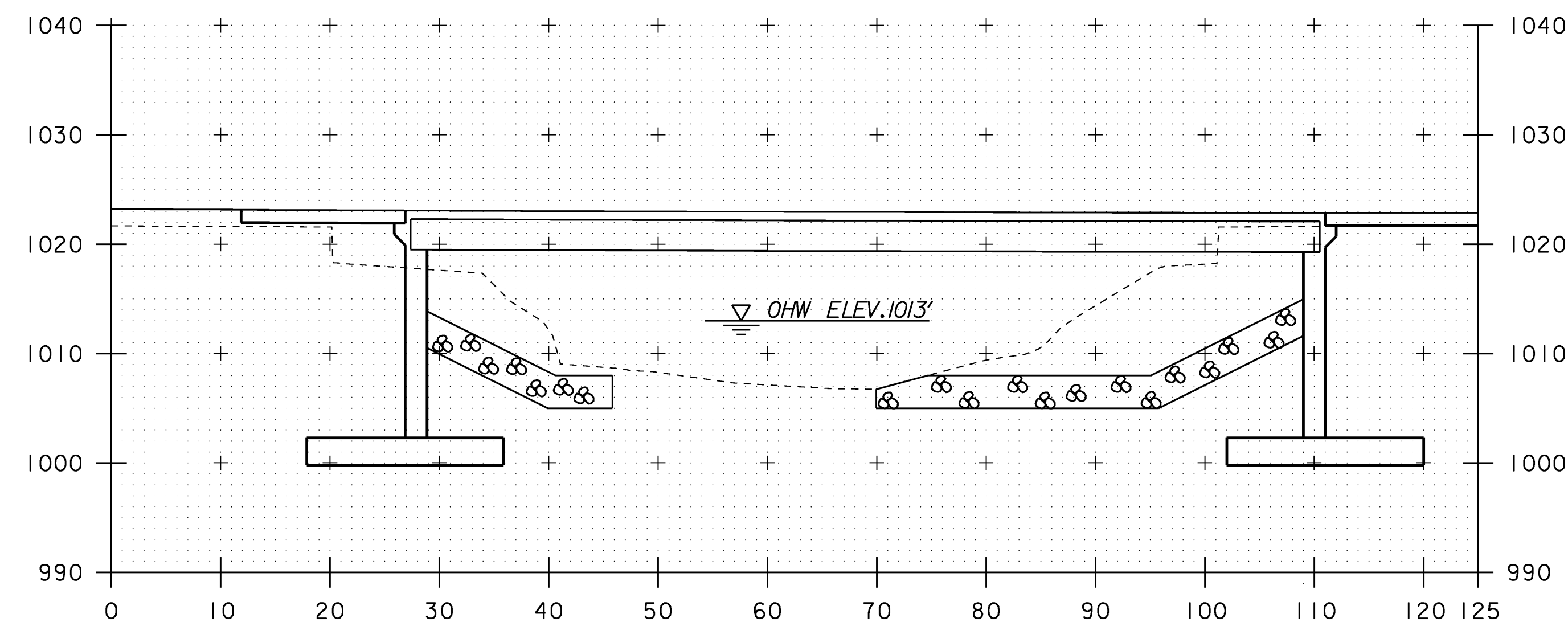


CHANNEL CROSS SECTIONS (1)

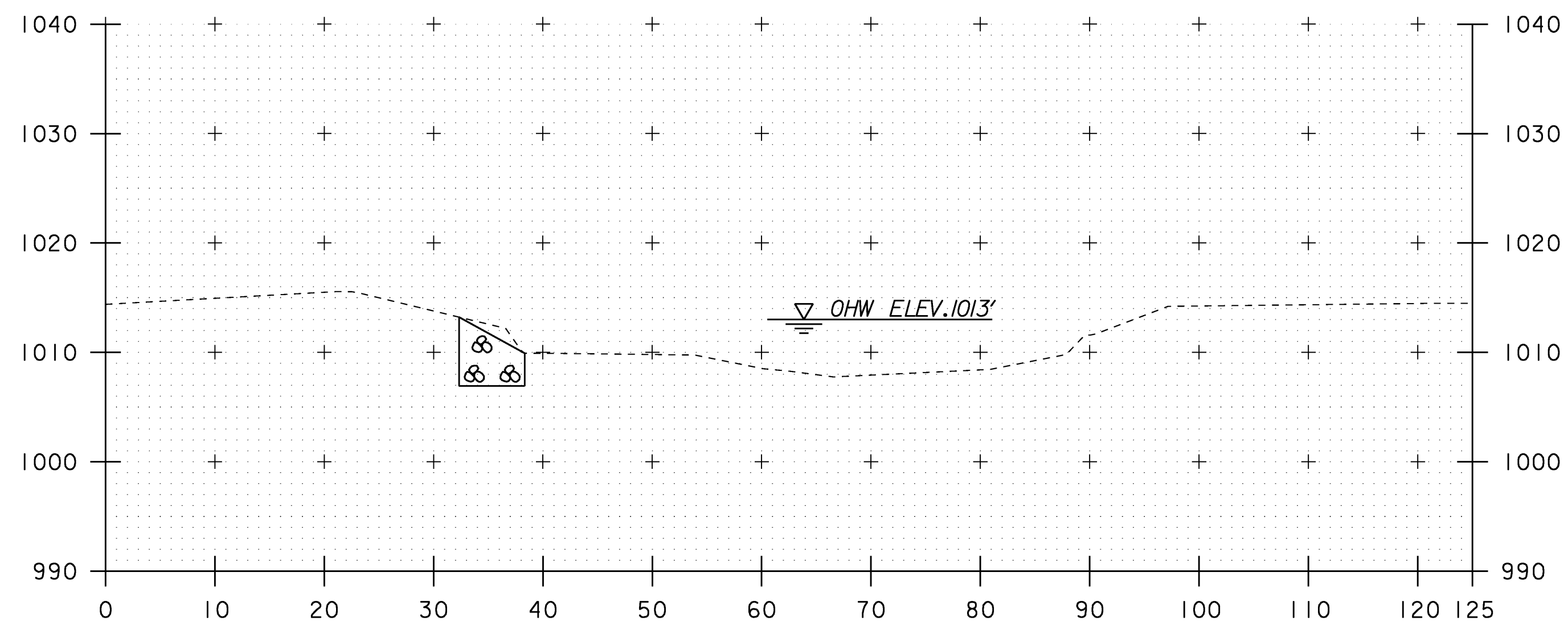
PROJECT NAME:	CANAAN		
PROJECT NUMBER:	ER ST 0271(16)		
FILE NAME:	/str2/04c098/x04c098bdr.dgn	PLOT DATE:	18-AUG-2008
PROJECT LEADER:	EVANS-MONGEON	DRAWN BY:	HUSK
DESIGNED BY:	SCRIBNER	CHECKED BY:	SCRIBNER
x04c098cxsl.I		SHEET	63 OF 66



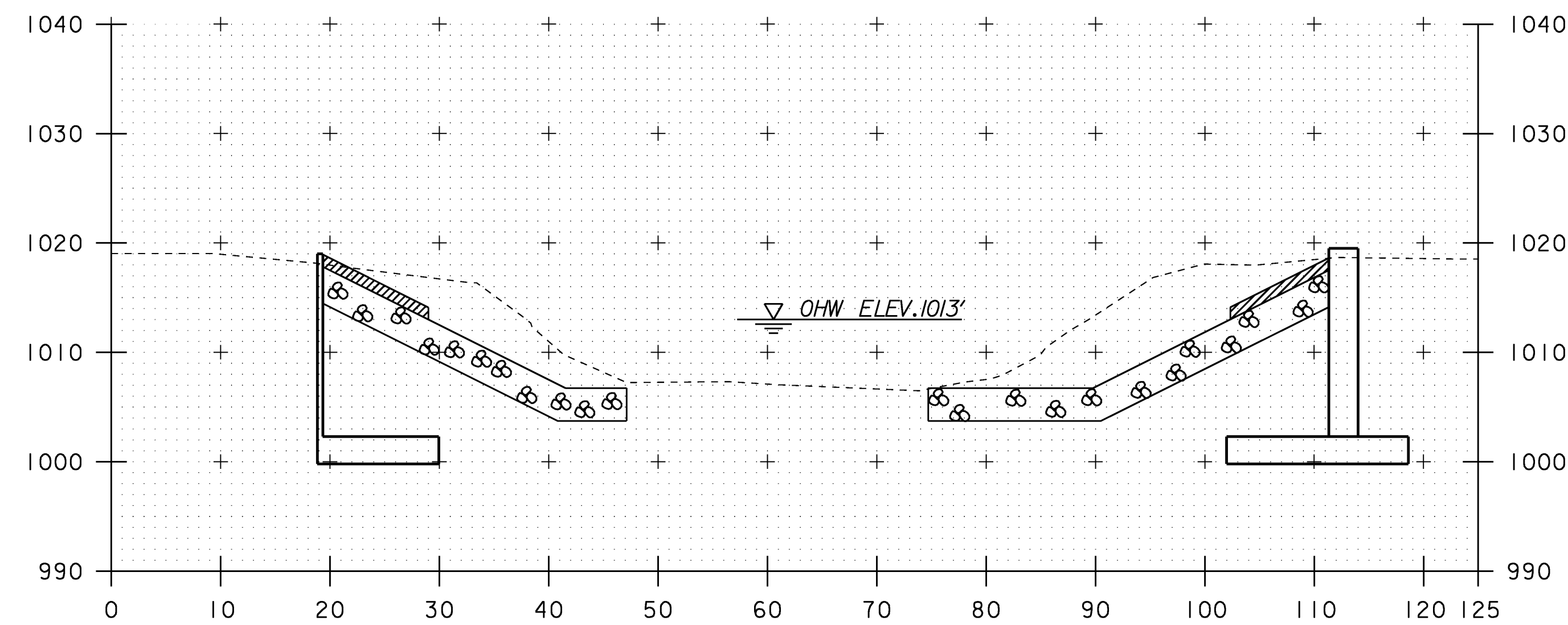
STA. 16+25 ABUT #2
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
 BEGIN STONE FILL, TYPE III
 BEGIN GEOTEXTILE UNDER STONE FILL
 BEGIN GRUBBING MATERIAL
 STA. 16+25 ABUT #1
 BEGIN GRUBBING MATERIAL



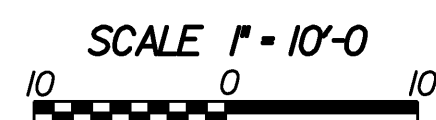
STA. 16+60 ABUT #1 & #2
 END GRUBBING MATERIAL



STA. 16+00 ABUT #1
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
 BEGIN STONE FILL, TYPE III
 BEGIN GEOTEXTILE UNDER STONE FILL

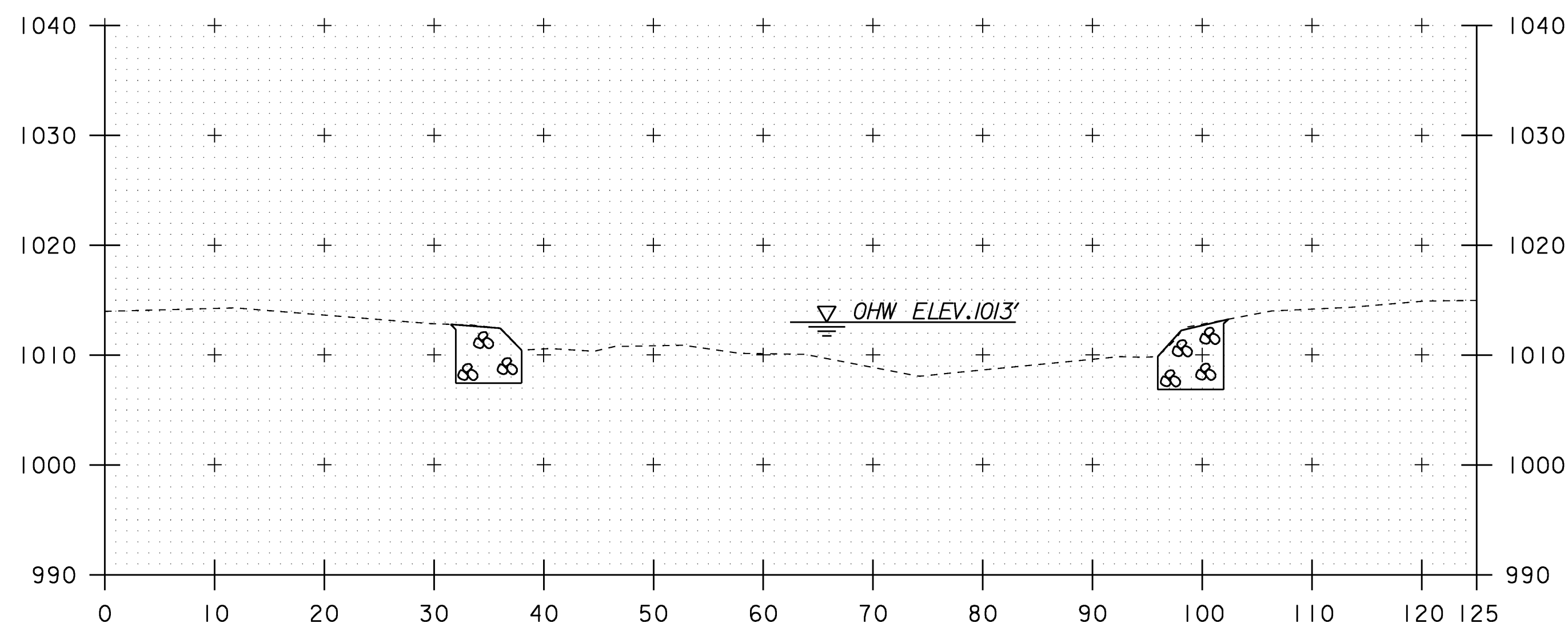


STA. 16+41 ABUT #1
 BEGIN COFFERDAM EXCAVATION EARTH
 BEGIN LIGHTWEIGHT BACKFILL PRODUCT
 STA. 16+40 ABUT #2
 BEGIN COFFERDAM EXCAVATION EARTH
 BEGIN LIGHTWEIGHT BACKFILL PRODUCT



CHANNEL CROSS SECTIONS (2)

PROJECT NAME:	CANAAN		
PROJECT NUMBER:	ER ST 0271(16)		
FILE NAME:	/str2/04c098/x04c098bdr.dgn	PLOT DATE:	18-AUG-2008
PROJECT LEADER:	EVANS-MONGEON	DRAWN BY:	HUSK
DESIGNED BY:	SCRIBNER	CHECKED BY:	SCRIBNER
x04c098cxs2.1		SHEET	64 OF 66

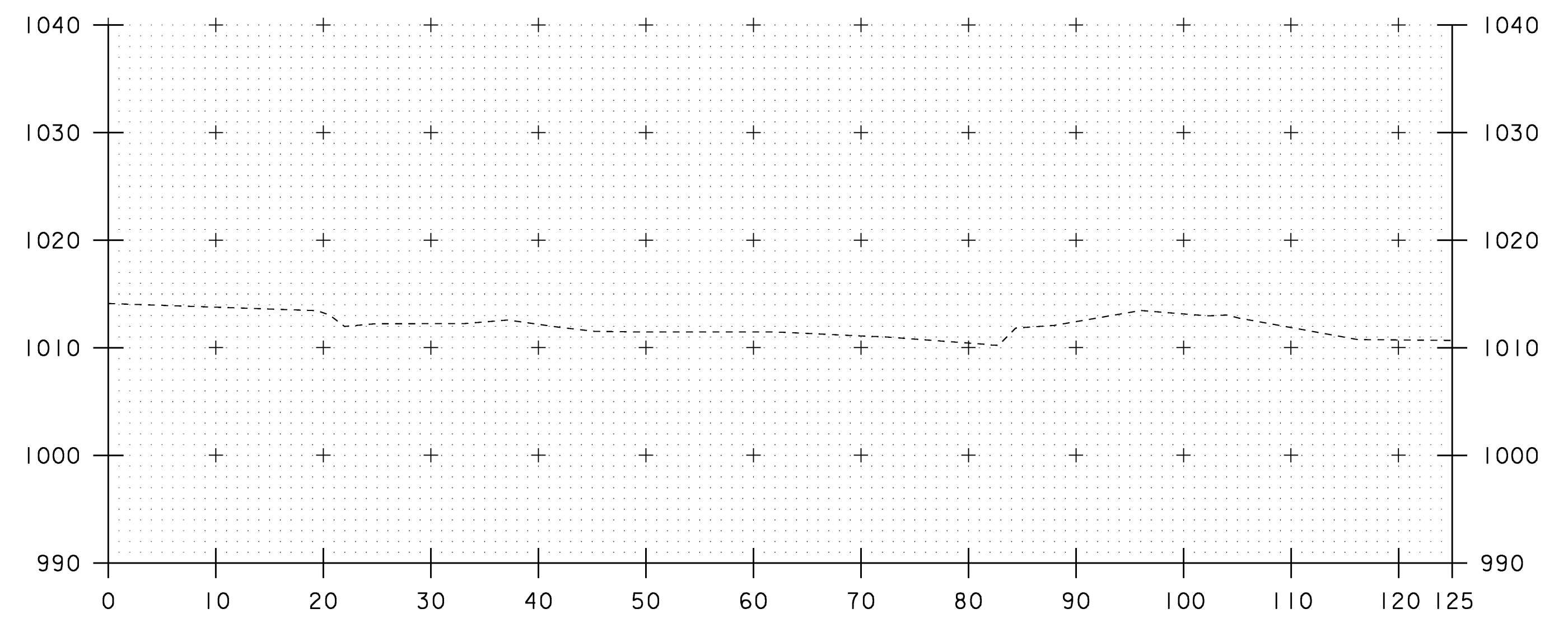


STA. 17+25 ABUT #1 & #2
 END GRUBBING MATERIAL
 END GEOTEXTILE UNDER STONE FILL
 END UNCLASSIFIED CHANNEL EXCAVATION
 END STONE FILL, TYPE III

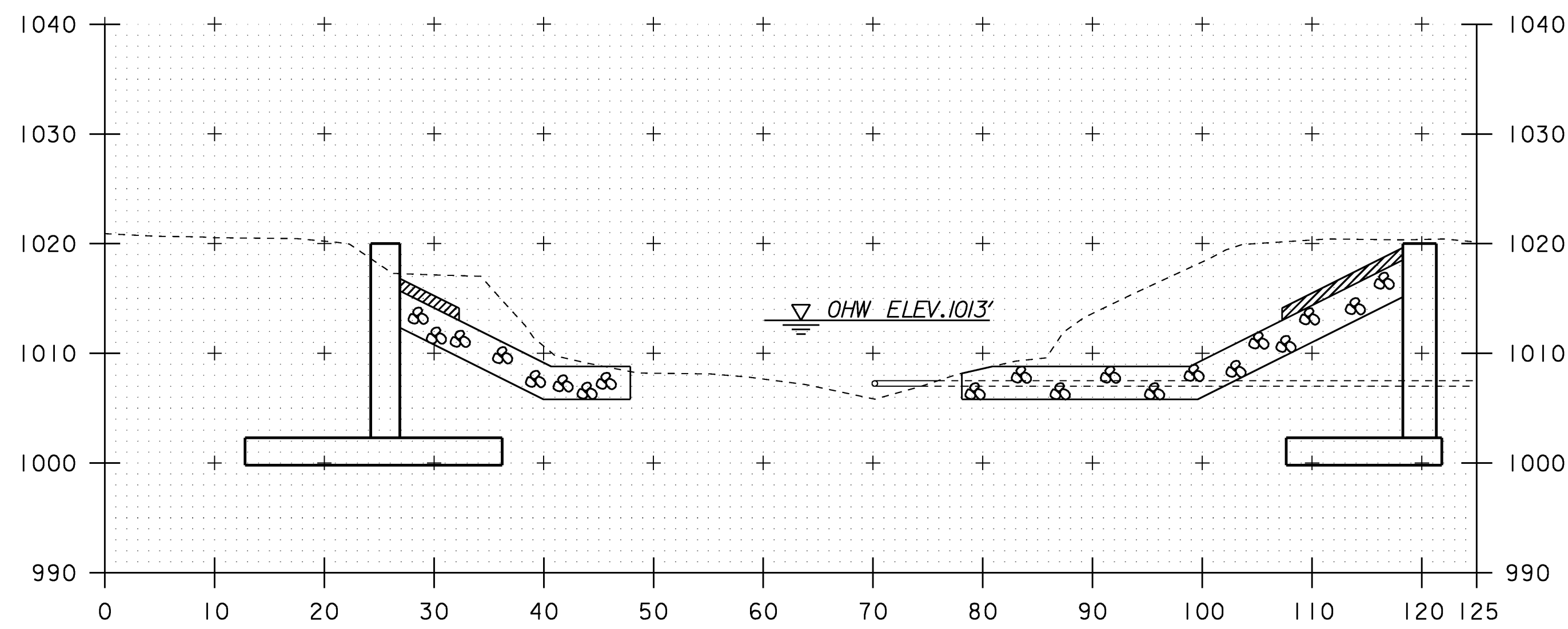
 STA. 17+12 ABUT #1
 END COFFERDAM EXCAVATION EARTH
 END LIGHTWEIGHT
 BACKFILL PRODUCT

 STA. 17+08 ABUT #2
 END COFFERDAM EXCAVATION EARTH
 END LIGHTWEIGHT
 BACKFILL PRODUCT

17+25

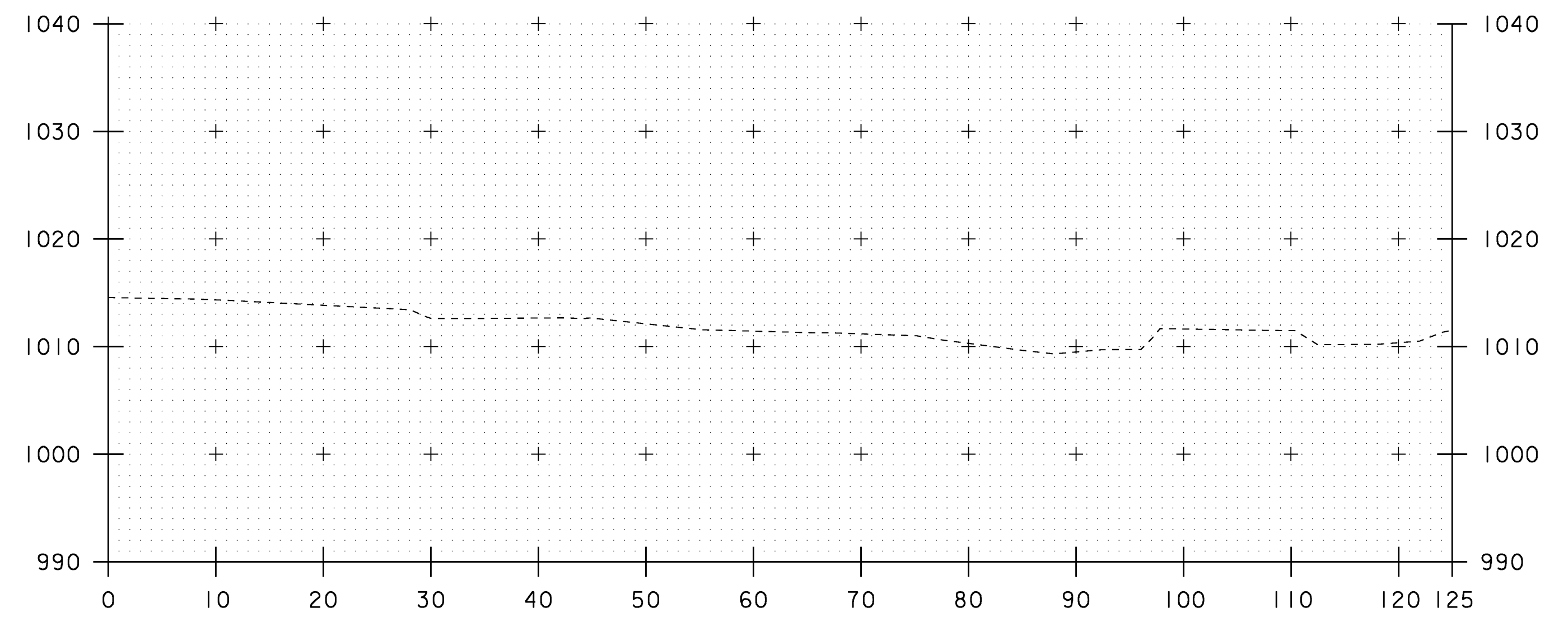


17+75

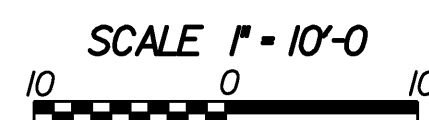


STA. 16+95 ABUT #1 & #2
 BEGIN GRUBBING MATERIAL

17+00

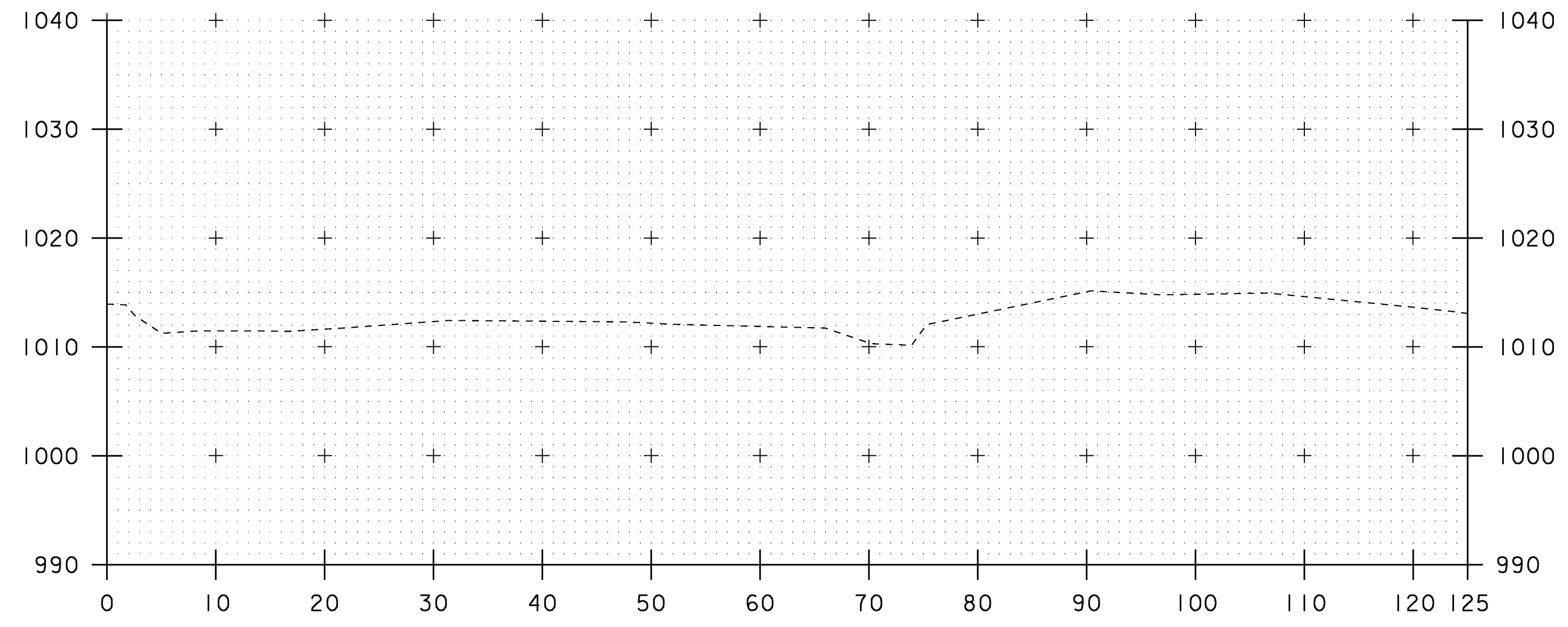


17+50

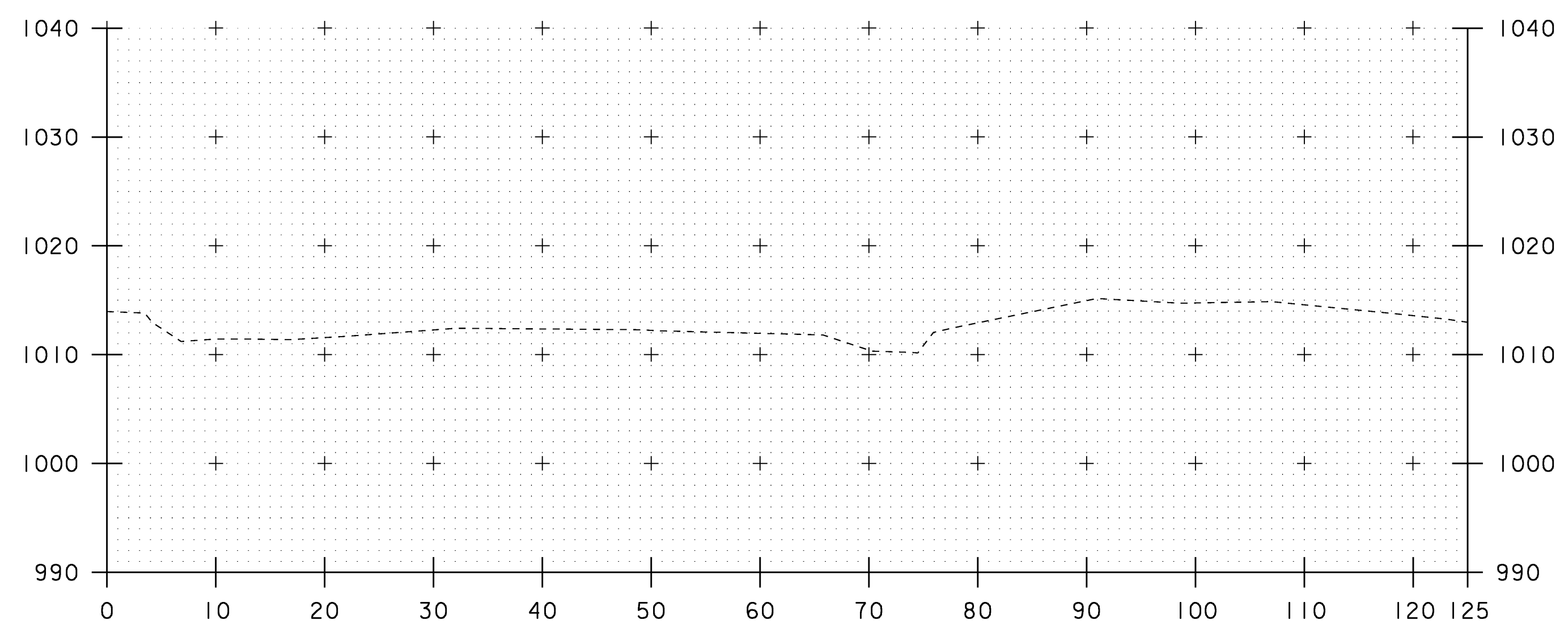


CHANNEL CROSS SECTIONS (3)

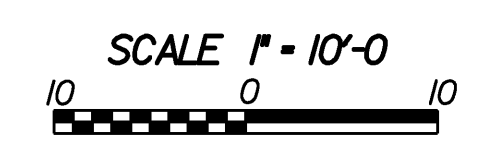
PROJECT NAME:	CANAAN		
PROJECT NUMBER:	ER ST 0271(16)		
FILE NAME:	/str2/04c098/x04c098bdr.dgn	PLOT DATE:	18-AUG-2008
PROJECT LEADER:	EVANS-MONGEON	DRAWN BY:	HUSK
DESIGNED BY:	SCRIBNER	CHECKED BY:	SCRIBNER
x04c098cxs3.1		SHEET	65 OF 66



18+02



18+00



CHANNEL CROSS SECTIONS (4)

PROJECT NAME:	CANAAN		
PROJECT NUMBER:	ER ST 0271(16)		
FILE NAME:	/str2/04c098/x04c098bdr.dgn	PLOT DATE:	18-AUG-2008
PROJECT LEADER:	EVANS-MONGEON	DRAWN BY:	HUSK
DESIGNED BY:	SCRIBNER	CHECKED BY:	SCRIBNER
x04c098cxs4.1		SHEET 66	OF 66



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
(toll) 800-255-0191

Agency of Transportation

See next sheet for instructions

DS Brown Company
300 East Cherry Street
North Baltimore, Ohio 45872

DATE: February 6, 2009

Project Name: Canaan Project #: ER ST 0271 (16)

Structure Identification: VT 102, BR # 16, over the Willard Stream

The following Expansion bearing details Item # 531.11, Bearing Device Assembly, Elastomeric Pad for the above project Vendor's Job #25217 transmitted with your letter dated January 29, 2009 have been reviewed and are being returned herewith.

Sheets: GN1.01, 02

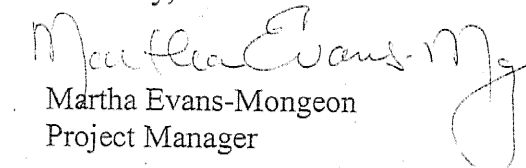
are approved [X]

Sheets:

Are to be reconsidered (note comments in red) and resubmitted for final approval.

There shall be no fabrication done until all drawings and welding procedures are 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,


Martha Evans-Mongeon
Project Manager

Attachments

cc: Resident Engineer w/prints, Doug Bumps
 Shop Inspector w/prints, Jeff Clark
 Contractor w/prints, Winterset, Inc.
 Subcontractor - letter only
 Construction Division - letter only
 Materials & Research Section (C&IA Unit) - letter only
 Files (Structures & Central)

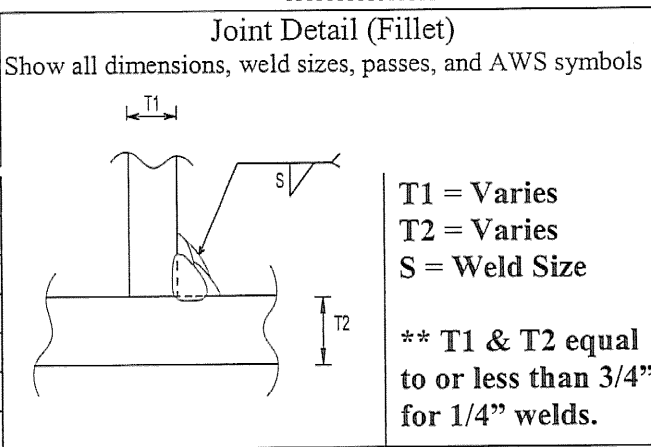
DSBROWN Production Joint Welding Procedure Specification (D1.5-02)

Procedure No: B-FE-01 Date Issued: 3-28-08 Revision No: 0 Rev. Date: _____
 Contractor (Fabricator) D. S. Brown Company Prepared by: Brad Streeter, Quality Assurance Manager

1. Non-Fracture Critical Fracture Critical WPS Expiration Date: 3-6-13
2. Qualified in accordance with: AWS D1.5-2002 (5.13)
 Referenced PQR No(s): PQR-FCAW-01-(08)
 Referenced FWST No(s): N/A
3. Material specification(s) ASTM A709 Gr. 36, 50, 60 For DOT Approval
4. Material Thickness (es) Unlimited
5. Welding process FCAW
6. Manual , machine , or semiautomatic
7. Position(s) of welding 1F, 2F
8. Filler metal specification AWS A5.20
9. Filler metal class and brand name E71T-1CH8 (UltraCore71C)
10. Flux class & brand N/A, Type N/A
11. Shielding gas 100% CO2 Flow rate 45 CFH
12. Single pass Or multiple pass
13. Single arc Or multiple arc
14. Welding Current DCEP
15. Polarity Reverse
16. Welding progression stringers
17. Root treatment Clean to bright sound metal or per AWS D1.5 (3.2.1 & 3.11)
18. Postheat treatment N/A
19. Calculated Heat Input (KJ/in) Min 32.2 KJ/in Max 45.8 KJ/in
20. Electrode extension (electrical stickout) 3/4"

TRANS
JWC
01/09/09

Weld Size (in)	Pass No(s)	Electrode Size (in)	Welding Process Variables		Travel Speed (IPM)
			AMPS/WFS*	VOLTS	
**1/4"	1	1/16"	257-295	26.1-29.5	11.4-12.5
5/16"	1	1/16"	257-295	26.1-29.5	11.4-12.5
3/8"	2-3	1/16"	257-295	26.1-29.5	11.4-12.5
7/16"	3-5	1/16"	257-295	26.1-29.5	11.4-12.5
1/2"	4-6	1/16"	257-295	26.1-29.5	11.4-12.5
5/8"	5-7	1/16"	257-295	26.1-29.5	11.4-12.5
3/4"	6-8	1/16"	257-295	26.1-29.5	11.4-12.5



Prepared By: _____ DSB QA Manager	Preheat and Interpass Temperature Chart	
	Base Metal Thickness range	Minimum Preheat (°F) / Max Preheat & Interpass (°F)
Project: _____ DSB Job: 25217-1104	≤3/4"	50°F / 450°F
	>3/4" to ≤1.5"	70°F / 450°F
	>1.5" to ≤5"	150°F / 450°F
	>2.5"	225°F / 450°F

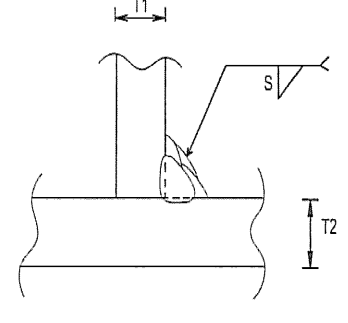
Note: When this procedure is used for A709Gr50W materials, it shall be limited to 5/16" single pass or material be coated.

DSBROWN Production Joint Welding Procedure Specification (D1.5-02)

Procedure No: A-(M)GJF-01 Date Issued: 9-28-04 Revision No: 0 Rev. Date: _____
 Contractor (Fabricator) D. S. Brown Company Prepared by: James R. Connor, Quality Assurance Manager

1. Non-Fracture Critical Fracture Critical WPS Expiration Date: _____
2. Qualified in accordance with: AWS D1.5:2002 (5.12.1)
 Referenced PQR No(s): PQR-(MC)GMAW-01(04)
 Referenced FWST No(s): PQR-(MC)GMAW-FWST-01A(04), PQR-(MC)GMAW-FWST-01B(04)
3. Material specification(s) ASTM A709 Gr. 36, 50, 50W For DOT Approval
4. Material Thickness (es) Unlimited
5. Welding process GMAW
6. Manual , machine , or semiautomatic
7. Position(s) of welding 1F, 2F
8. Filler metal specification AWS A5.18
9. Filler metal class and brand name E70C-6M Corex Metal-Core Maxim
10. Flux class & brand N/A, Type N/A
11. Shielding gas 75% Ar / 25% CO2 Flow rate 45 CFH
12. Single pass Or multiple pass
13. Single arc Or multiple arc
14. Welding Current DCEP
15. Polarity Reverse
16. Welding progression stringers
17. Root treatment Clean to bright sound metal or per AWS D1.5 (3.2.1 & 3.11)
18. Postheat treatment N/A
19. Calculated Heat Input (KJ/in) Min 30.6 KJ/in Max 51.1 KJ/in
20. Electrode extension (electrical stickout) 3/4"

TRANS
JUC
01/09/09

Weld size (in)	Weld Pass No(s)	Electrode size (in)	Welding Process Variables		Travel Speed (ft/min)	Joint Detail (Fillet) Show all dimensions, weld sizes, passes, and AWS symbols
			AMPS/WFS*	VOLTS		
1/4"	1	.052"	265-320	31-34.5	13-16	 <p>T1 = Varies T2 = Varies S = Weld Size</p> <p> T1 & T2 equal to or less than 3/4" for 1/4" welds.</p>
5/16"	1	.052"	265-320	31-34.5	13-16	
3/8"	1-3	.052"	265-320	31-34.5	13-16	
7/16"	2-4	.052"	265-320	31-34.5	13-16	
1/2"	4-6	.052"	265-320	31-34.5	13-16	
5/8"	5-7	.052"	265-320	31-34.5	13-16	
3/4"	6-8	.052"	265-320	31-34.5	13-16	

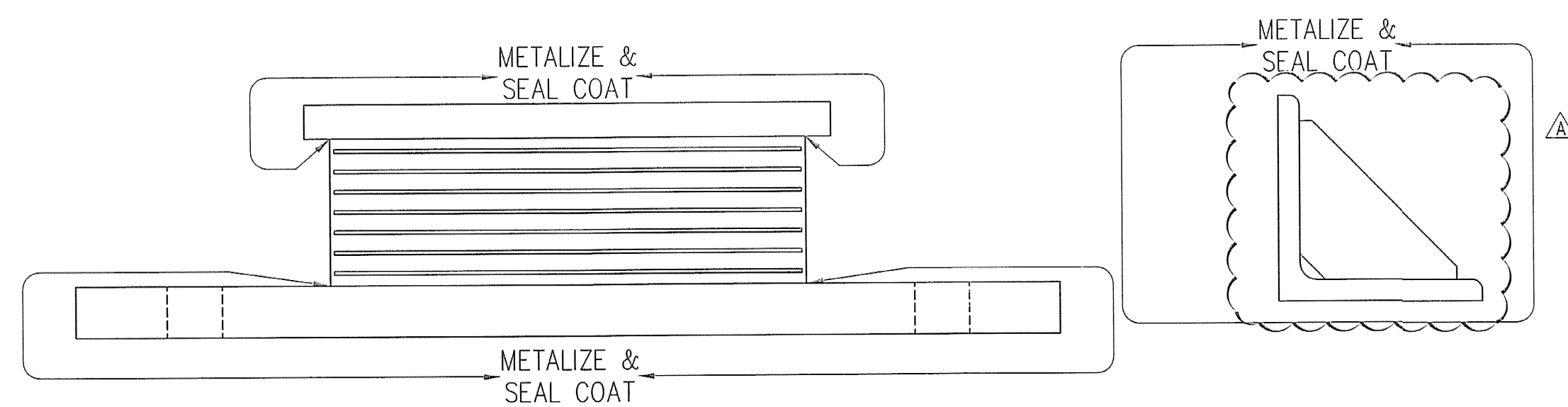
* Wire feed speed may be used along with amperage (include chart)

Prepared By: James R. Connor DSB QA Manager
 Project: _____

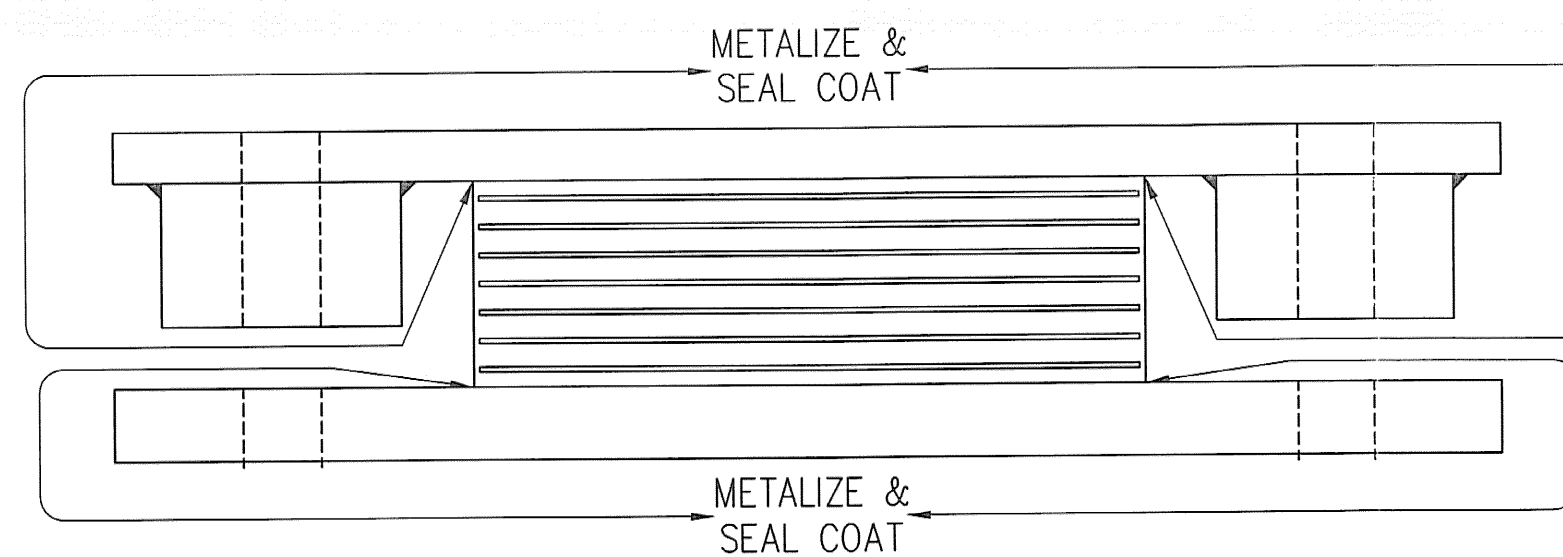
DSB Job: 25217-1104

Note: When this procedure is used for A709Gr50W materials, it shall be limited to 5/16" single pass or material be coated.

Base Metal Thickness range	Minimum Preheat (°F)	Max Preheat & Interpass (°F)
≤3/4"	50°F	450°F
>3/4" to ≤1.5"	70°F	450°F
>1.5" to ≤2.5"	150°F	450°F
>2.5"	225°F	450°F



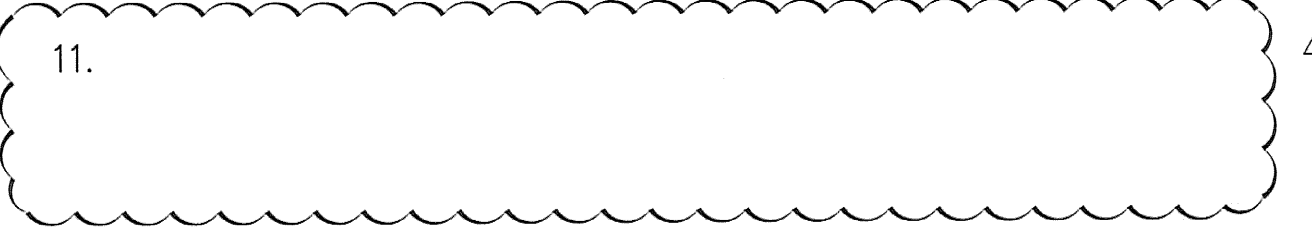
EXPANSION BEARING COATING LIMITS




FIXED BEARING COATING LIMITS

GENERAL NOTES:

- PAD AND MATERIALS SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2006 AND THE LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, (FOURTH EDITION, DATED 2007, AND ITS LATEST REVISIONS, CONTRACT PLANS, AND THE SPECIAL PROVISIONS. GENERAL SHOP PRACTICES, STRUCTURAL FABRICATION, WELDING AND ASSEMBLY SHALL BE GOVERNED BY ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.
- THESE SHOP DRAWINGS ARE PREPARED IN ACCORDANCE WITH THE CONTRACT PLANS AND SPECIFICATIONS. THE D.S. BROWN COMPANY DOES NOT ACCEPT LIABILITY FOR THE DESIGN OF THE PRODUCTS DETAILED IN THESE SHOP DRAWINGS.
- THE D.S. BROWN COMPANY TO SUPPLY ONLY THE PARTS SHOWN ON THESE DRAWINGS.
- ALL STEEL SHALL BE PRODUCED IN THE UNITED STATES OF AMERICA.
- THE BEARING SHALL BE SUBJECT TO RANDOM IN-HOUSE ELASTOMER TESTING AND IN-HOUSE PROOF LOAD TESTING IN ACCORDANCE WITH AASHTO DIVISION I, SECTION 14 (METHOD "A") AND AASHTO DIVISION II, SECTION 18.
- THE TEMPERATURE OF THE STEEL ADJACENT TO THE ELASTOMER SHALL NOT EXCEED 93°C (200°F). TEMPERATURE SHALL BE CONTROLLED BY THE USE OF A TEMPERATURE INDICATING CRAYON OR OTHER DEVICES APPROVED BY THE ENGINEERS.
- ALL CORNERS AND EDGES OF STEEL PLATES SHALL BE GROUND TO A 0.063" RADIUS.
- ALL STRUCTURAL STEEL SURFACES TO BE METALIZED SHALL BE CLEANED IN ACCORDANCE WITH SSPC-SP5.
- ALL SPECIFIED STEEL TO BE ZINC METALIZED IN ACCORDANCE WITH AWS C 2.18 SPECIFICATIONS TO A MINIMUM DRY FILM THICKNESS OF 6 MILS. THE ZINC METALIZED SHALL CONSIST OF 99.9% ZINC. EXTERIOR SURFACES SHALL BE SEALED WITH CARBOLINE SEALER "RUSTABOND" WITH A MINIMUM DRY FILM THICKNESS 2 MILS. SEE COATING LIMITS FOR LOCATIONS.

11. 

TOLERANCE TABLE	
DESCRIPTION (ELASTOMER)	TOLERANCE
OVERALL VERTICAL DIMENSION	+ 1/8", -0
ELASTOMERIC BEARING DESIGN THICKNESS > 1.250"	+ 1/4", -0
ELASTOMERIC BEARING PLAN ≤ 36"	+ 1/4", -0
ELASTOMERIC COVER TOP & BOTTOM	+ 1/8", -0
ELASTOMERIC COVER SIDES	+ 1/8", -0
THICKNESS OF INDIVIDUAL LAYERS OF ELASTOMER (LAMINATED BEARINGS ONLY) AT ANY POINT WITHIN THE BEARING	± 1/8"
VARIATION FROM A PLANE PARALLEL TO THE THEORETICAL SURFACE (AS DETERMINED BY MEASUREMENTS AT THE EDGE OF THE BEARINGS)	
TOP	0.005 RAD
SIDES	± 1/4"
POSITION OF EXPOSED CONNECTION MEMBERS	± 1/8"
EDGE COVER OF EMBEDDED LAMINATES OF CONNECTION MEMBERS	+ 1/8", -0
SIZE OF HOLES, SLOTS, OR INSERTS	± 1/8"
POSITION OF HOLES, SLOTS, OR INSERTS	± 1/8"

MASONRY PL. PLAN DIMENSIONS	±1/4"
MASONRY PL. UNDERSIDE SURFACE FLATNESS	CLASS C
MASONRY PL. UPSIDE SURFACE FLATNESS	CLASS A
MASONRY PL. THICKNESS	±1/16"
HOLE LOCATION	±1/16"
SOLE PL. PLAN DIMENSIONS	±1/16" 
SOLE PL. UNDERSIDE SURFACE FLATNESS	CLASS A
SOLE PL. UPSIDE SURFACE FLATNESS	CLASS C
SOLE PL. BEVEL SLOPE	± 0.002 RAD
SOLE PL. THICKNESS	±1/16"
MASONRY & SOLE PLATE SURFACE FINISH (BEARING SIDE)	125 RMS

FLATNESS TOLERANCE	
CLASS	X NOM. DIM.
A	0.0005
B	0.001
C	0.002

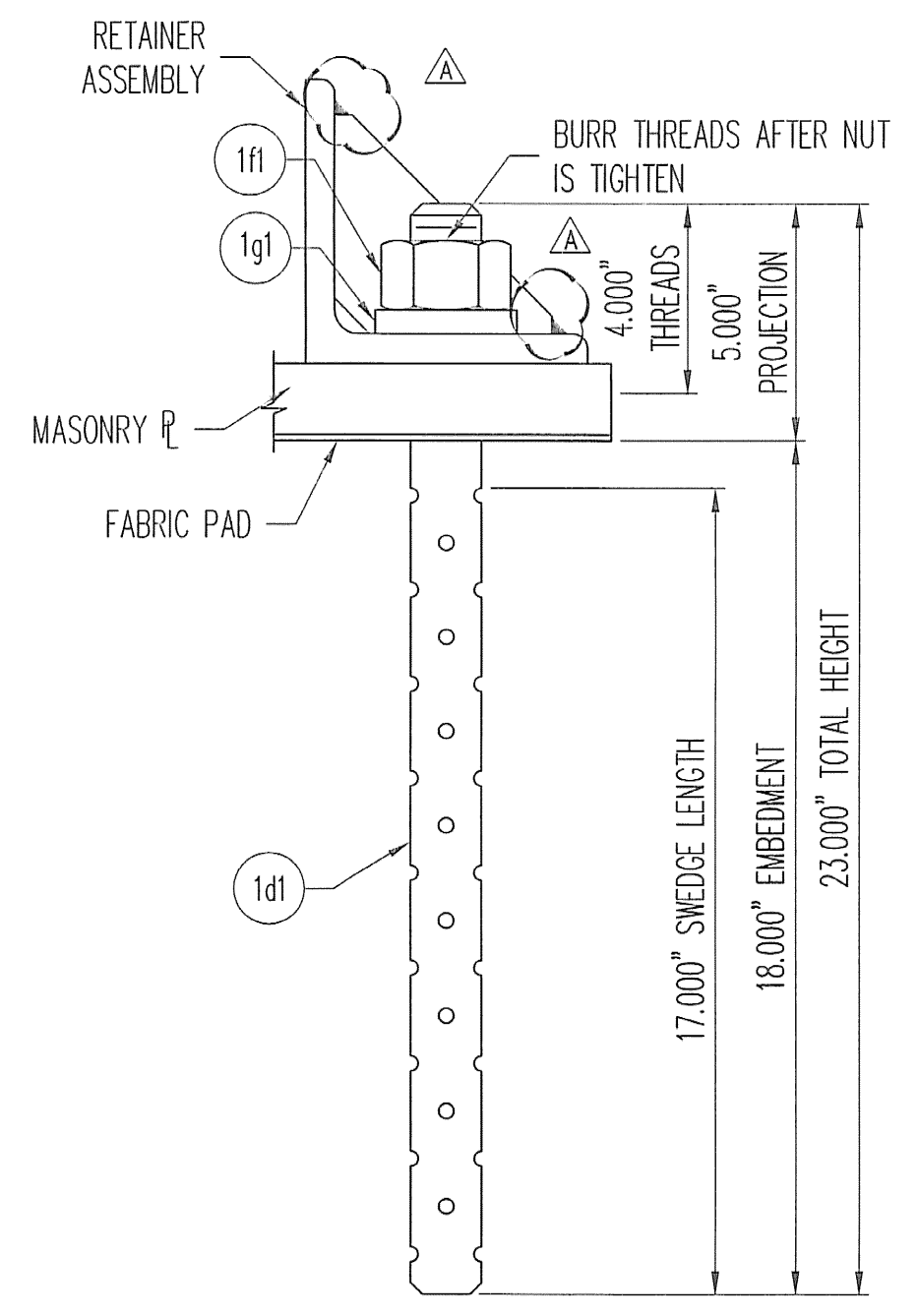
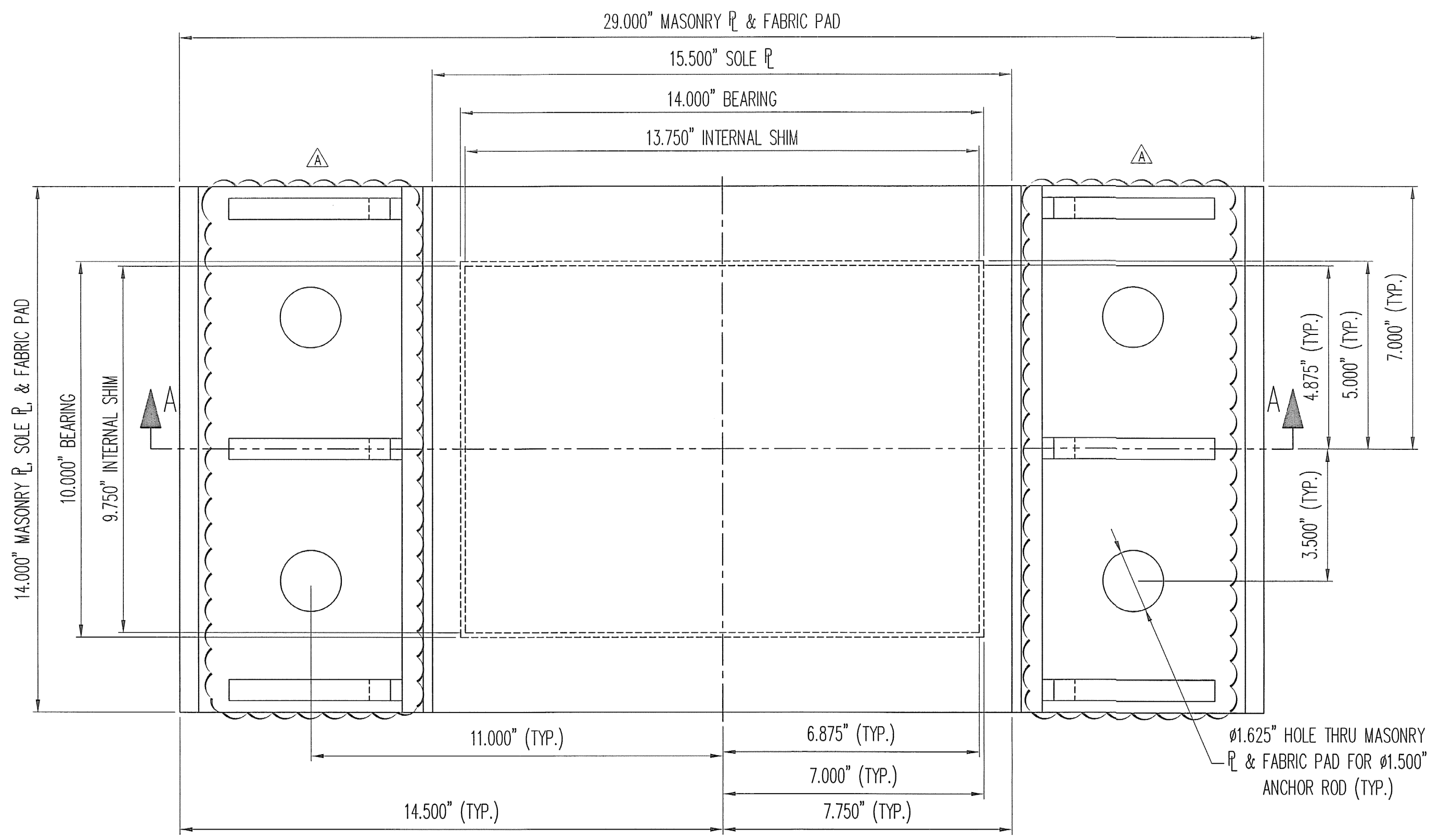
RECEIVED
 CKD BY: *SSS* OKD BY: *MFM*
 FEB 11 2009
 BY: *[Signature]* DATE: 2/3/09

REV.	DESCRIPTION	DATE	DET.	DAE
1	REVIEWERS COMMENTS	1/27/09	DA	DAE
	LOCATION — VT 102 (MAJOR COLLECTOR)		ITEM	QUANTITY
	PROJECT NO. — ER ST 0271 (16)		—	—
	BRIDGE — 16		—	—
	—		—	—
	—		—	—
	P.O. NO. — C2223		—	—
	DESIGNER — VT DOT		—	—
	CUSTOMER — WINTERSET INC.		—	—
	DESCRIPTION: GENERAL NOTES & COATING LIMITS	SCALE: N.T.S.	DRAWN BY: DA	CHECKED BY: DAE
	ESSEX CO., VT	DATE: 12/15/08	PROJECT NUMBER: 25217	PRODUCT CODE: 1104
		RELEASE: 1	SHEET: 1	GN1

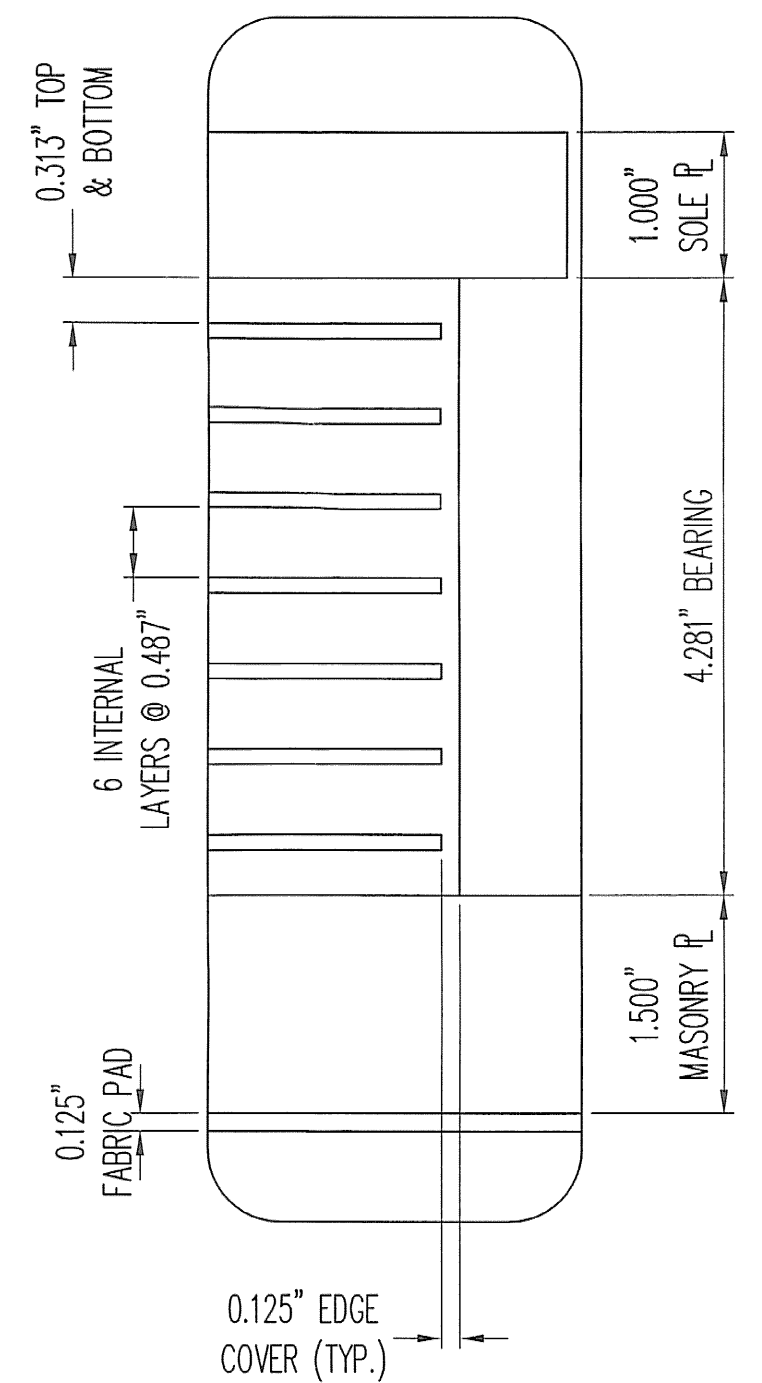
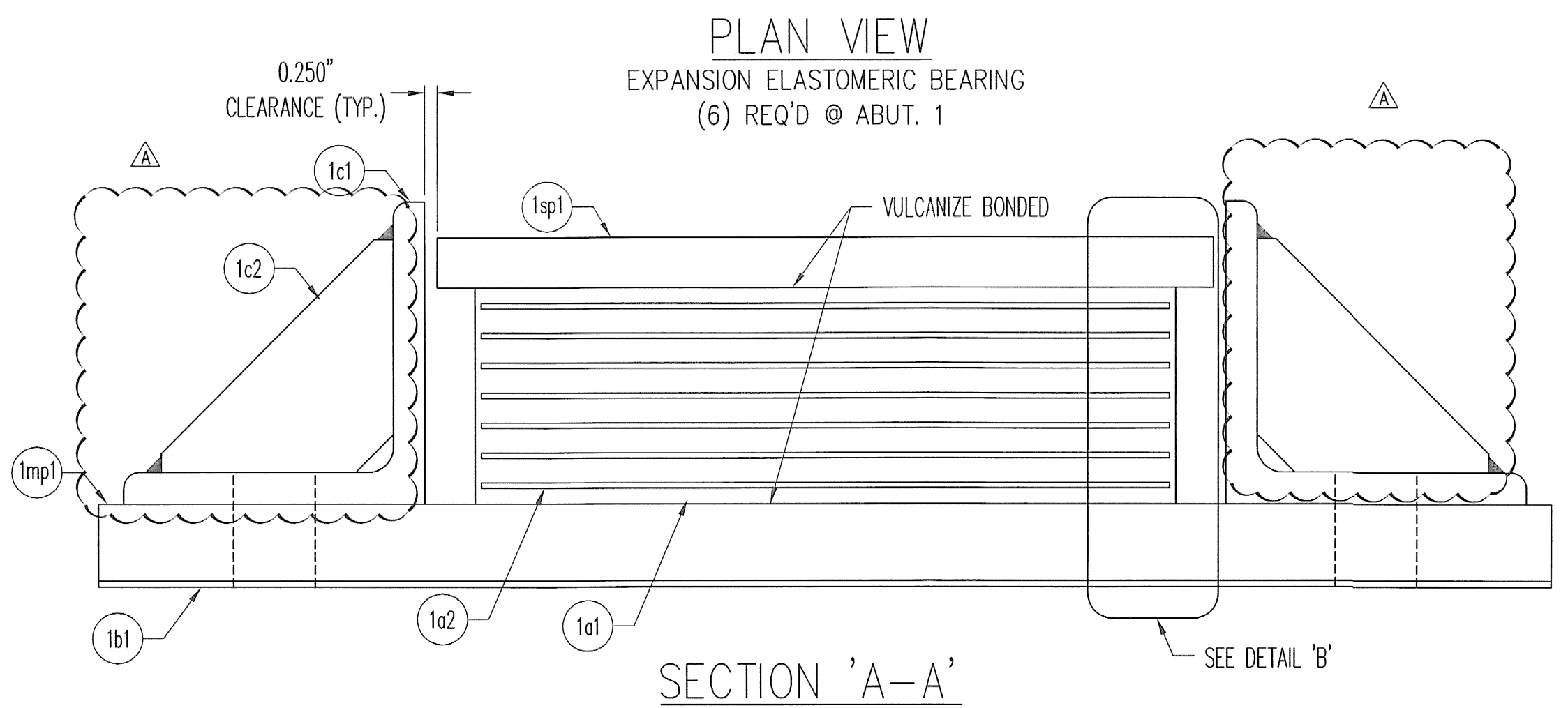


THE D.S. BROWN COMPANY
 300 E. CHERRY STREET
 NORTH BALTIMORE, OHIO 45872
 419.257.3561
 FAX: 419.257.0332
 WWW.DSBROWN.COM

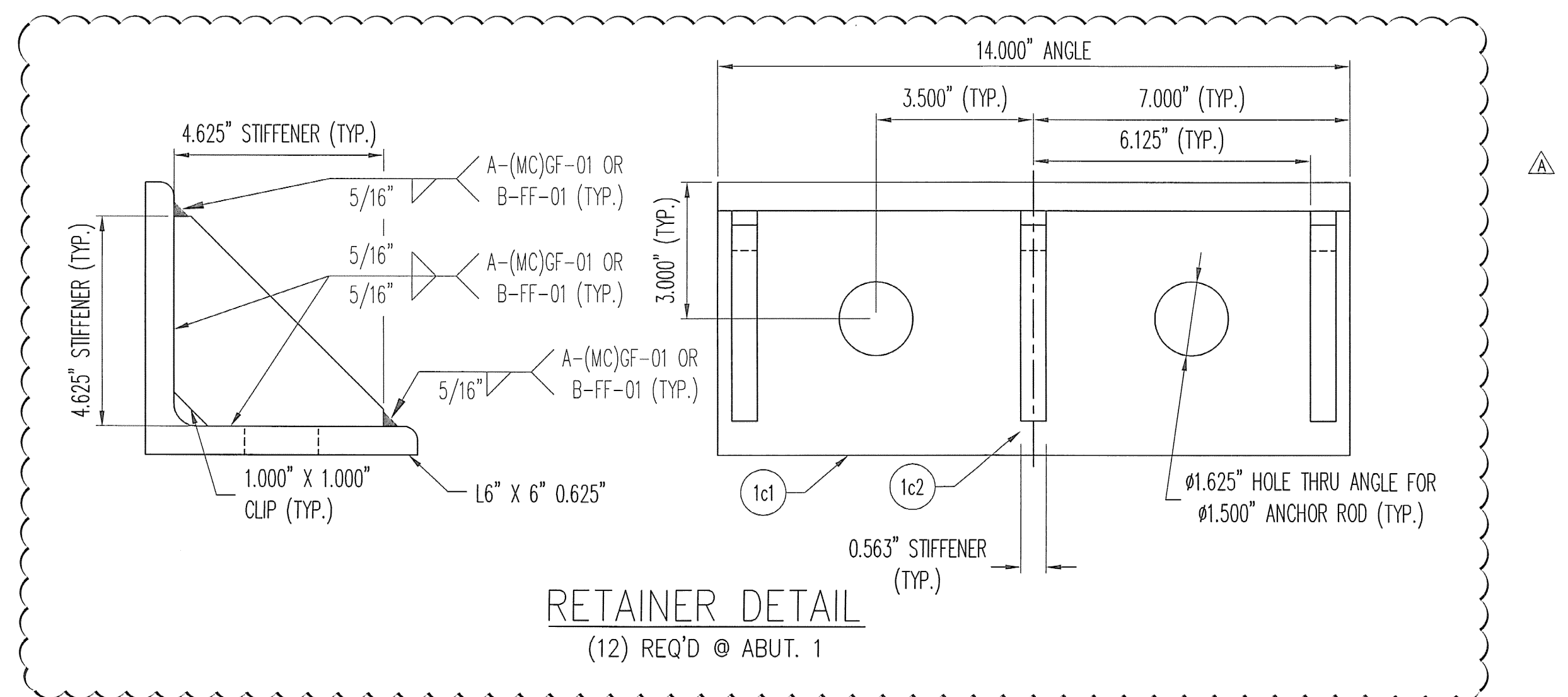




ANCHOR ROD DETAIL



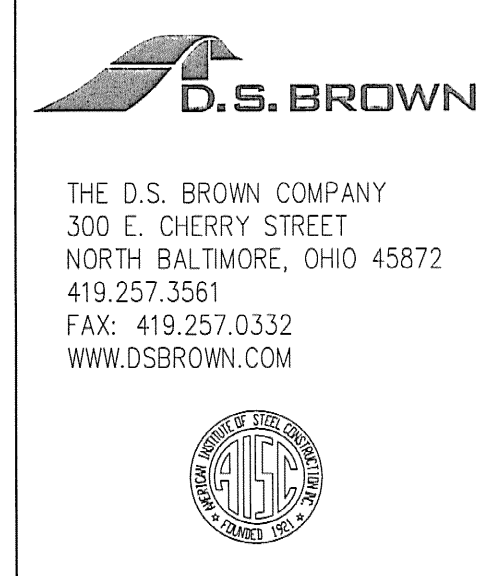
DETAIL 'B'



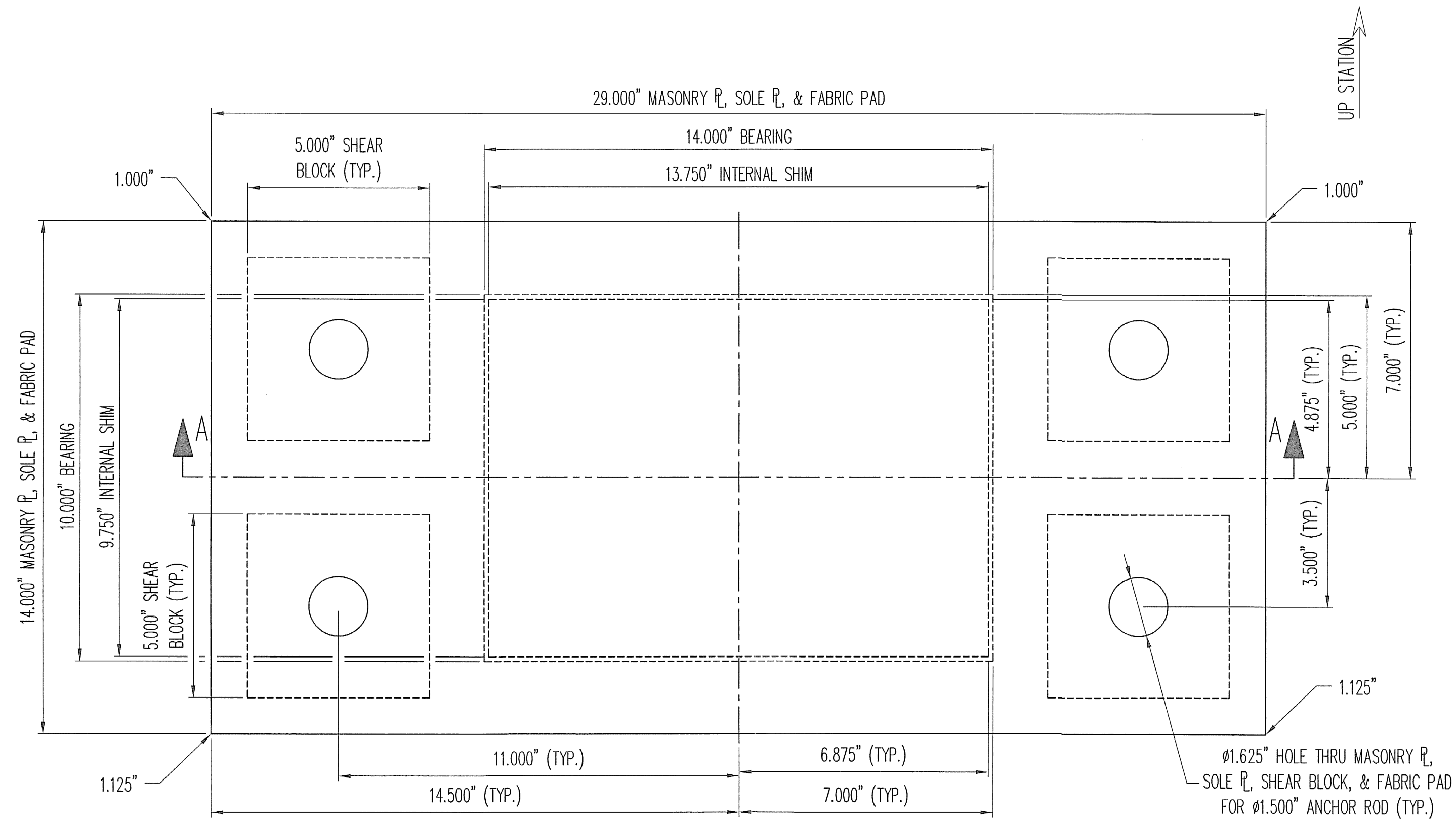
MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	REV
1A	6	ELASTOMERIC BEARING				-
1a1	6	4.281" X 14.000"	NATURAL RUBBER	10.000"	60+/-5 DURO GR.4	-
1a2	42	12 GA. X 13.750"	A1011 GR. 36	9.750"	PLAIN	-
1mp1	6	1.500" X 29.000"	A709 GR 50	14.000"	METALIZE, SEAL	A
1sp1	6	1.000" X 15.500"	A709 GR 50	14.000"	METALIZE, SEAL	A
1B	6	FABRIC PAD				-
1b1	6	0.125" X 29.000"	AASHTO (LRFD) 18.10.2	14.000"	HOLES	-
1C	12	RETAINER				-
1c1	12	L6 X 6 X 5/8	A709 GR 50 OR A992	14.000"	1.625" Ø HOLES; METALIZE, SEAL	A
1c2	36	0.563" X 4.625"	A709 GR 50 OR A992	4.625"	CLIPPED; METALIZE, SEAL	A
1D	24	SWEDGE ROD				-
1d1	24	Ø1.500" X 23.000" SWEDGED ROD	A449		4" THREADS, 17" SWEDGE; A153-HDG	-
1F	24	HEAVY HEX NUT				-
1f1	24	Ø1.500" HEX NUT	A563-DH OR A194-2H		A153-HDG	-
1G	24	WASHER PLATE				-
1g1	24	0.500" X 3.000"	A709 GR 50	3.000"	1.563" Ø HOLE @ CENTER; A123-HDG	A
					1/28/09 11:18:46 AM	

SEE SHT. GN1 FOR GENERAL NOTES & COATING LIMITS.

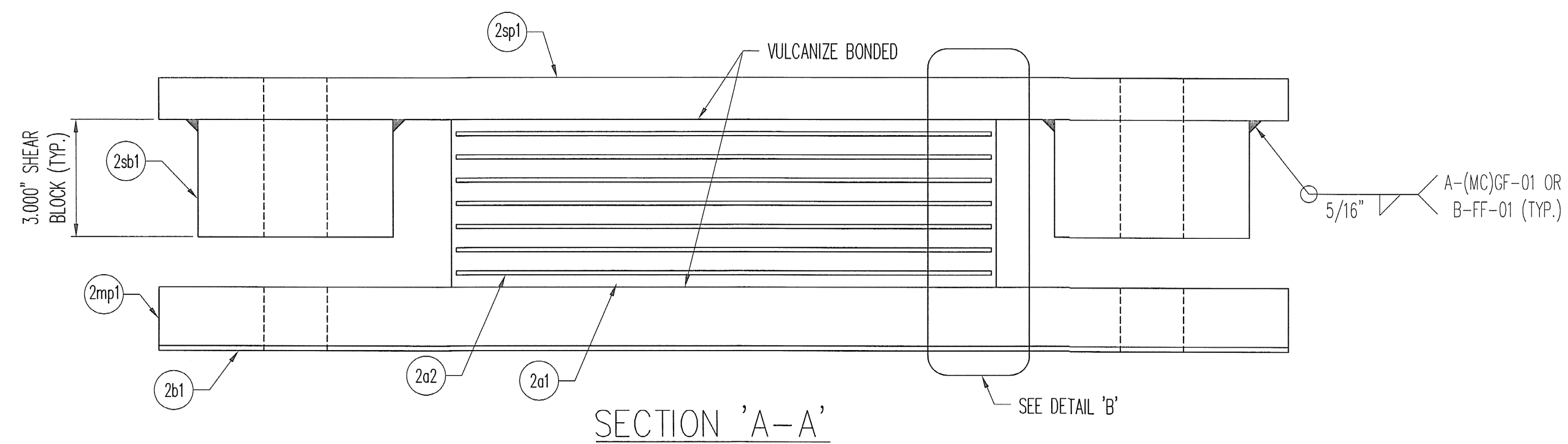
REV.	DESCRIPTION	DATE	DAE	DAE
1	REVIEWERS COMMENTS	1/27/09	DA	DAE
2	LOCATION - VT 102 (MAJOR COLLECTOR)		ITEM	QUANTITY
	PROJECT NO. - ER ST 0271 (16)		25217-1104-1	6 OF 6
	BRIDGE - 16		-	-
	-		-	-
	-		-	-
	-		-	-
	P.O. NO. - C2223		-	-
	DESIGNER - VT DOT		-	-
	CUSTOMER - WINTERSET INC.		-	-
	DESCRIPTION: VERSIFLEX ELASTOMERIC BEARING ESSEX CO., VT	SCALE: N.T.S.	DRAWN BY: DA	CHECKED BY: DAE
		PROJECT NUMBER: 25217	PRODUCT CODE: 1104	DATE: 12/15/08
			RELEASE: 1	SHEET: 01



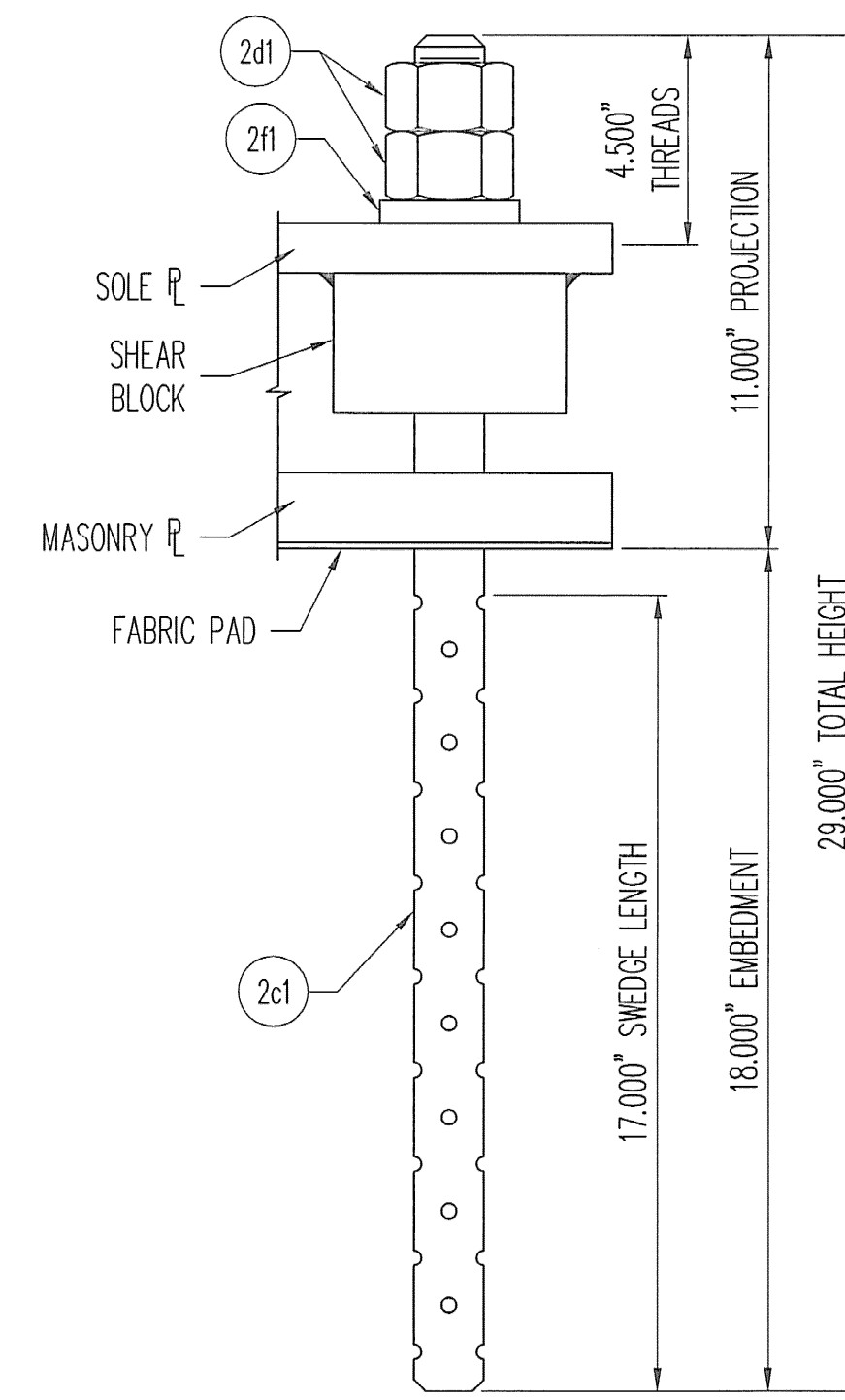
RECEIVED
 OK'D BY: SSS
 DATE: 2/3/09



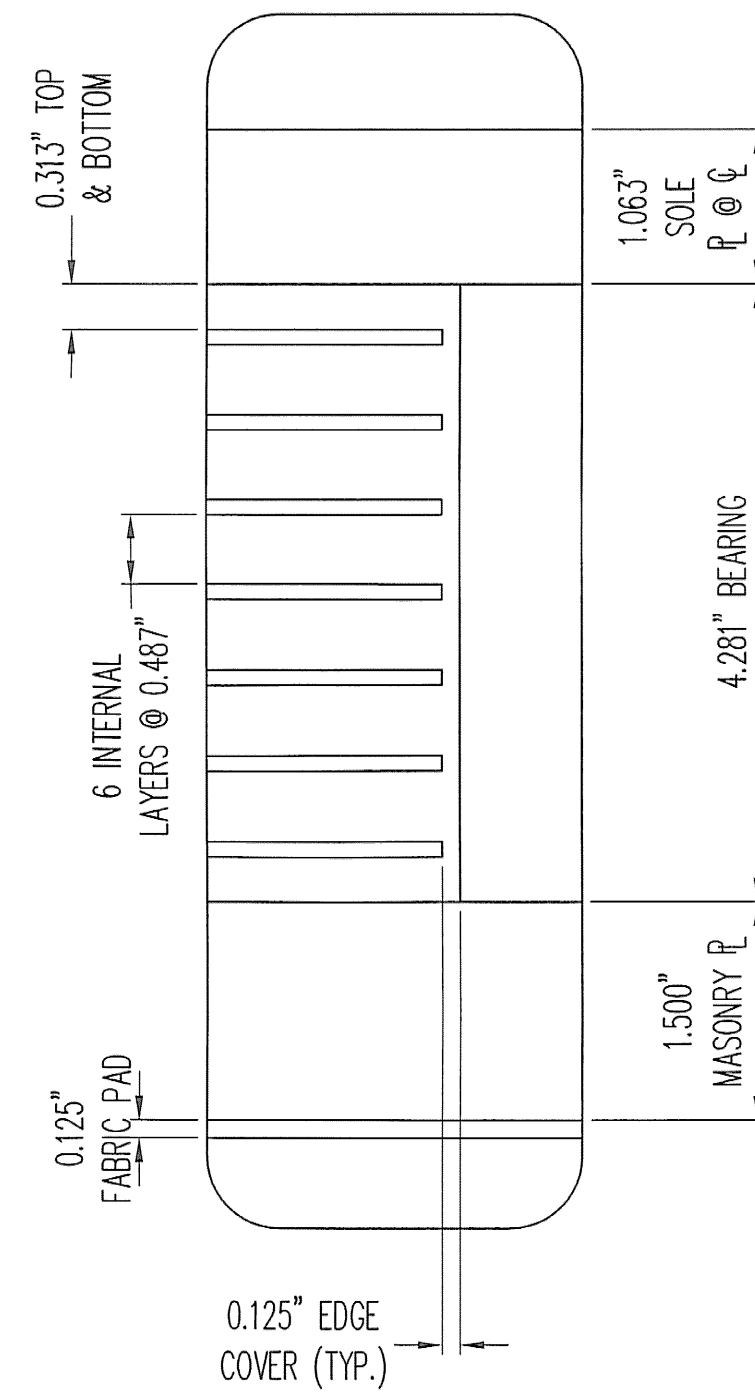
PLAN VIEW
FIXED ELASTOMERIC BEARING
(6) REQ'D @ ABUT. 2



SECTION 'A-A'



ANCHOR ROD DETAIL



DETAIL 'B'

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	REV
2A	6	ELASTOMERIC BEARING				--
2a1	6	4.281" X 14.000"	NATURAL RUBBER	10.000"	60+/-5 DURO GR.4	--
2a2	42	12 GA. X 13.750"	A1011 GR. 36	9.750"	PLAIN	--
2mp1	6	1.500" X 29.000"	A709 GR 50	14.000"	METALIZE, SEAL	A
2sb1	12	3.000" X 5.000"	A709 GR 50	5.000"	METALIZE, SEAL	A
2sp1	6	1.125" X 29.000"	A709 GR 50	14.000"	METALIZE, SEAL	A
2B	6	FABRIC PAD				--
2b1	6	0.125" X 29.000"	AASHTO (LRFD) 18.10.2	14.000"	HOLES	--
2C	24	SWEDGE ROD				--
2c1	24	Ø1.500" X 29.000" SWEDGED ROD	A449		4.5" THREADS, 17" SWEDGE; A153-HDG	--
2D	48	HEAVY HEX NUT				--
2d1	48	Ø1.500" HEX NUT	A563-DH OR A194-2H		A153-HDG	--
2F	24	ELASTOMERIC WASHER				--
2f1	24	0.500" X 3.000"	NATURAL RUBBER	3.000"	60 MIN. DURO GR.3; 1.563" Ø HOLE @ CENTER	--
					1/27/2009 10:05:23 AM	

SEE SHT. GN1 FOR GENERAL NOTES & COATING LIMITS.

REV.	DESCRIPTION	DATE	DAE	DAE
1	REVIEWERS COMMENTS	1/27/09	DA	DAE
	LOCATION — VT 102 (MAJOR COLLECTOR)		ITEM	QUANTITY
	PROJECT NO. — ER ST 0271 (16)		25217-1104-2	6 OF 6
	BRIDGE — 16			
	P.O. NO. — C2223			
	DESIGNER — VT DOT			
	CUSTOMER — WINTERSET INC.			
	SCALE: N.T.S.	DRAWN BY: DA	CHECKED BY: DAE	DATE: 12/15/08
	PROJECT NUMBER: 25217	PRODUCT CODE: 1104	RELEASE: 1	SHEET: 02

D.S. BROWN

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

RECEIVED
SSS
1/27/09
2/3/09



State of Vermont
 PDD/Structures Design Section
 National Life Building - Drawer 33
 Montpelier, VT 05633-6001
 www.aot.state.vt.us

(phone) 802-828-2621
 (fax) 802-828-3566
 (tel) 800-253-0191

Agency of Transportation

Foster Precise
 3 Farm Lane
 Georgetown, MA 01833

3476 ✓

DATE: January 29, 2009

Project Name: Canaan Project #: ER ST 0271 (16)

Structure Identification: Bridge #16, VT 102 over the Willard Stream

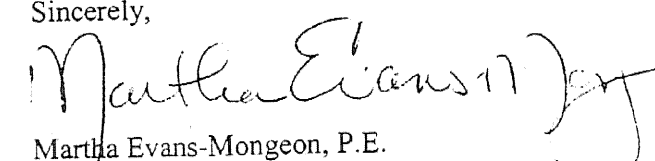
The following Structural Steel details, Item # 506.50, Structural Steel, Rolled Beam for the above project (Vendor's Job # 3476) transmitted with your letter dated 01/19/2009 have been reviewed and are being returned herewith.

Sheets: GNI, E1, 1-7, and X1
 are approved

Sheets: _____
 are approved "as noted"

You must provide notice to our fabrication inspector, Jeff Clark, as to the date fabrication represented by these drawings will begin. Jeff must receive and acknowledge your notice at least seven days prior to that date, as per Specification 506.03. You may contact Jeff 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.

Please submit extended weights for our approval.
Partial payment for this item will be withheld until extended weights are received and approved.

Sincerely,

 Martha Evans-Mongee, P.E.
 Project Manager

RECEIVED

FEB - 2 2009

FOSTER-PRECISE
 Division of L.B. Foster Company

Attachments
 cc: [X] Resident Engineer w/prints, Doug Bumps
 [X] Shop Inspector w/prints, Jeff Clark
 [X] Contractor w/prints, Winterset
 [X] Construction Division - letter only
 [X] Materials & Research Section (C&IA Unit) - letter only
 [X] Files (Structures & Central)

 LB Foster SHIPPING LIST PAGE 1
 JOB: 3476 - ER ST 0271 (16) Canaan CONTRACT:
 PROJECT: DATE: 2/2/2009
 REMARKS:

PIECE #	MARK	QTY.	TYPE DESCRIPTION	LENGTH	MILL MARK	GRADE	CAMBER	REMARKS	WEIGHT	
									ONE ITEM	LINE TOTAL
✓1) 1A	✓1 W	36	x 135 ✓	83'- 6 11/16 ✓	C	50 ✓		cvn bevel ✓	✓11280.23	✓11280.23
✓2) paxl	✓1 PL	1/2	x 5 ✓	2'- 9 7/8 ✓	G	50 ✓			✓24.01	✓24.01
✓3) pfxl	✓3 PL	1/2	x 5 ✓	2'- 9 7/8 ✓	G	50 ✓			✓24.01	✓72.04
✓4) ppxl	✓3 PL	1/2	x 5 ✓	2'- 9 7/8 ✓	G	50 ✓			✓24.01	✓72.04
✓5) pfxl	✓1 PL	1/4	x 2 13/16 ✓	0'- 8 5/16 ✓	G	50 ✓			✓1.66	✓1.66
WEIGHT OF ALL PIECES 1A: 11449.98 LBS. ✓									WEIGHT OF 1 PIECE: 11449.98 LBS. ✓	
✓6) 2A	✓1 W	36	x 135 ✓	83'- 6 11/16 ✓	C	50 ✓		cvn bevel ✓	✓11280.23	✓11280.23
✓7) paxl	✓7 PL	1/2	x 5 ✓	2'- 9 7/8 ✓	G	50 ✓			✓24.01	✓168.10
✓8) paxl	✓7 PL	1/2	x 5 ✓	2'- 9 7/8 ✓	G	50 ✓			✓24.01	✓168.10
WEIGHT OF ALL PIECES 2A: 11616.43 LBS. ✓									WEIGHT OF 1 PIECE: 11616.43 LBS. ✓	
✓9) 3A	✓1 W	36	x 135 ✓	83'- 6 11/16 ✓	C	50 ✓		cvn bevel ✓	✓11280.23	✓11280.23
✓10) paxl	✓7 PL	1/2	x 5 ✓	2'- 9 7/8 ✓	G	50 ✓			✓24.01	✓168.10
✓11) paxl	✓7 PL	1/2	x 5 ✓	2'- 9 7/8 ✓	G	50 ✓			✓24.01	✓168.10
WEIGHT OF ALL PIECES 3A: 11616.43 LBS. ✓									WEIGHT OF 1 PIECE: 11616.43 LBS. ✓	
✓12) 4A	✓1 W	36	x 135 ✓	83'- 6 11/16 ✓	C	50 ✓		cvn bevel ✓	✓11280.23	✓11280.23
✓13) paxl	✓7 PL	1/2	x 5 ✓	2'- 9 7/8 ✓	G	50 ✓			✓24.01	✓168.10
✓14) paxl	✓7 PL	1/2	x 5 ✓	2'- 9 7/8 ✓	G	50 ✓			✓24.01	✓168.10
WEIGHT OF ALL PIECES 4A: 11616.43 LBS. ✓									WEIGHT OF 1 PIECE: 11616.43 LBS. ✓	
✓15) 5A	✓1 W	36	x 135 ✓	83'- 6 11/16 ✓	C	50 ✓		cvn bevel ✓	✓11280.23	✓11280.23
✓16) paxl	✓7 PL	1/2	x 5 ✓	2'- 9 7/8 ✓	G	50 ✓			✓24.01	✓168.10
✓17) pfxl	✓1 PL	1/2	x 5 ✓	2'- 9 7/8 ✓	G	50 ✓			✓24.01	✓24.01
✓18) paxl	✓3 PL	1/2	x 5 ✓	2'- 9 7/8 ✓	G	50 ✓			✓24.01	✓72.04
✓19) pfxl	✓3 PL	1/2	x 5 ✓	2'- 9 7/8 ✓	G	50 ✓			✓24.01	✓72.04
WEIGHT OF ALL PIECES 5A: 11616.42 LBS. ✓									WEIGHT OF 1 PIECE: 11616.42 LBS. ✓	
✓20) 6A	✓1 W	36	x 135 ✓	83'- 6 11/16 ✓	C	50 ✓		cvn bevel ✓	✓11280.23	✓11280.23
✓21) paxl	✓7 PL	1/2	x 5 ✓	2'- 9 7/8 ✓	G	50 ✓			✓24.01	✓168.10
✓22) pfxl	✓1 PL	1/4	x 2 13/16 ✓	0'- 8 5/16 ✓	G	50 ✓			✓1.66	✓1.66
WEIGHT OF ALL PIECES 6A: 11449.99 LBS. ✓									WEIGHT OF 1 PIECE: 11449.99 LBS. ✓	
✓23) 7A	✓35 WC	18	x 42.7 ✓	✓5'- 1 3/8	G	50 ✓			✓218.39	✓7643.74
WEIGHT OF ALL PIECES 7A: 7643.74 LBS. ✓									WEIGHT OF 1 PIECE: 218.39 LBS. ✓	

 LB Foster SHIPPING LIST PAGE 2
 JOB: 3476 - ER ST 0271 (16) Canaan CONTRACT:
 PROJECT: DATE: 2/2/2009
 REMARKS:

*** JOB SUMMARY ***

ITEM	MATERIAL	MATERIAL	STEEL	STAINLESS	ALUMINUM
QTY	TYPE	WEIGHT	SURFACE AREA	SURFACE AREA	SURFACE AREA
✓ 6	W SHAPE	✓ 67682 LBS.	✓ 4889 SQ. FT.	0 SQ. FT.	0 SQ. FT.
✓ 25	MC SHAPE	✓ 7644 LBS.	✓ 751 SQ. FT.	0 SQ. FT.	0 SQ. FT.
✓ 71	PLATE	✓ 1585 LBS.	✓ 182 SQ. FT.	0 SQ. FT.	0 SQ. FT.
<u>JOB TOTAL:</u>		✓ 77011 LBS.	✓ 5822 SQ. FT.	0 SQ. FT.	0 SQ. FT.



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] 802-828-3366
[td] 800-253-0191

Agency of Transportation

Foster Precise
3 Farm Lane
Georgetown, MA 01833

DATE: January 29, 2009

Project Name: Canaan Project #: ER ST 0271 (16)

Structure Identification: Bridge #16, VT 102 over the Willard Stream

The following Structural Steel details, Item # 506.50, Structural Steel, Rolled Beam for the above project (Vendor's Job # 3476) transmitted with your letter dated 01/19/2009 have been reviewed and are being returned herewith.

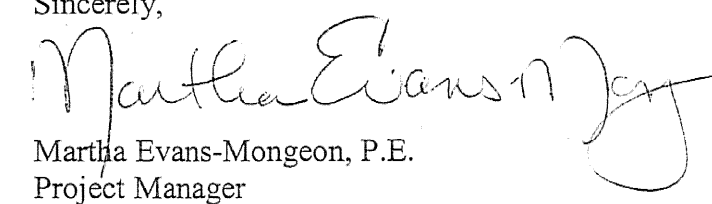
Sheets: GN1, E1, 1-7, and X1
are approved

Sheets: _____
are approved "as noted"

You must provide notice to our fabrication inspector, Jeff Clark, as to the date fabrication represented by these drawings will begin. Jeff must receive and acknowledge your notice at least seven days prior to that date, as per Specification 506.03. You may contact Jeff 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.

Please submit extended weights for our approval.
Partial payment for this item will be withheld until extended weights are received and approved.

Sincerely,



Martha Evans-Mongeeon, P.E.
Project Manager

Attachments
cc: Resident Engineer w/prints, Doug Bumps
 Shop Inspector w/prints, Jeff Clark
 Contractor w/prints, Winterset
 Construction Division - letter only
 Materials & Research Section (C&IA Unit) - letter only
 Files (Structures & Central)

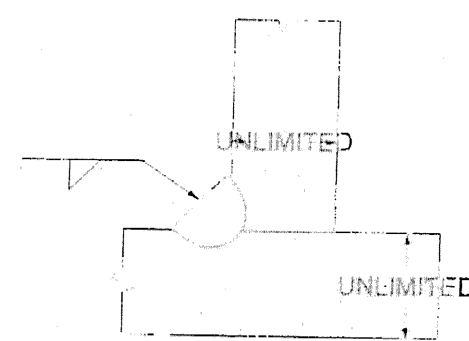
LB FOSTER CO Precise Structural Products
Welding Procedure Specification

Page 1 of 2

001 - FILLET WELD

Material Spec: <u>ASTM A709 G36, G60 & G50W</u> <u>AASHTO M270 G36, G60 & G50W</u>						
Welding Process(es) <u>SAW</u>						
Position of Welding <u>1F & 2F</u>						
Manual <input type="checkbox"/> Machine <input type="checkbox"/> Semi-Automatic <input checked="" type="checkbox"/> Automatic <input type="checkbox"/>						
Filler Metal Specification <u>AWS A5.23</u>						
Filler Metal Classification <u>F7A2-ENiK-Ni1-H8</u>						
Flux <u>LINCOLN 860</u>						
Shielding Gas <u>N/A</u> Gas Flow Rate <u>N/A</u>						
Single or Multiple Pass <u>BOTH</u>						
Single or Multiple Arc <u>SINGLE</u>						
Welding Current <u>REVERSE</u>						
Polarity: AC <input type="checkbox"/> DCEP <input checked="" type="checkbox"/> DCEN <input type="checkbox"/> Pulsed <input type="checkbox"/>						
Welding Progression Up <input type="checkbox"/> Down <input type="checkbox"/>						
Root Treatment <u>CLEAN AS TO REMOVE CONTAMINANTS</u>						
Preheat Temperature <u>*** SEE PAGE 2</u> Interpass Temperature <u>*** SEE PAGE 2</u>						
Postheat Treatment <u>N/A</u>						
Heat Input Min <u>48.55 KILOJOULES/IN</u> Max <u>76.29 KILOJOULES/IN</u>						
WELDING PROCEDURE						
Pass No.	Electrode Size	Amperes	Volts	Travel Speed	Other	Joint Detail
All	5/64	330-350	33-35	10-11		
<p style="text-align: center;"><i>V. Trues</i> RECEIVED OK'D BY <u>JWC</u> DT'D BY <u>JWC</u> DEC 1 2008 BY <u>JWC</u> DATE <u>01/09/09</u></p>						
<p>This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in Section 5.</p>						
<p>Procedure No. <u>001 - FILLET WELD</u> Contractor _____</p>						
<p>Revision No. <u>01</u> Authorized By <u>WALTER J. BORKOWSKI</u> Date <u>3/14/2008</u></p>						

Joint Detail



MEMO

*** MINIMUM PREHEAT AND INTERPASS TEMPERATURE SHALL BE AS FOLLOWS: TO 3/4" INCL 90 DEG F, OVER 3/4" TO 1-1/2" INCL 70 DEG F, OVER 1-1/2" TO 2-1/2" INCL 150 DEG F, OVER 2-1/2" 225 DEG F.

LEG DIMENSION AS FOLLOWS: 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 3/4".

PROCEDURE QUALIFICATION RECORD NUMBER SAW-01-2007

LB FOSTER CO Precise Structural Products
Welding Procedure Specification

Page 1 of 2
3476-01

Material Spec. ASTM A709 G36, G50 & G50W

Welding Process(es) SMAW

Position of Welding 1F, 2F, 3F, 4F

Manual Machine Semi-Automatic Automatic

Filler Metal Specification AWS A5.1

Filler Metal Classification E7018

Flux N/A

Shielding Gas N/A Gas Flow Rate N/A

Single or Multiple Pass Single

Single or Multiple Arc SINGLE

Welding Current REVERSE

Polarity: AC DCEP DCEN Pulsed

Welding Progression Up Down

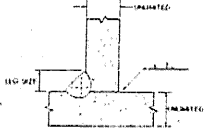
Root Treatment CLEAN AS TO REMOVE CONTAMINANTS

Preheat Temperature N/A Interpass Temperature N/A

Postheat Treatment N/A

Heat Input Min N/A Max N/A

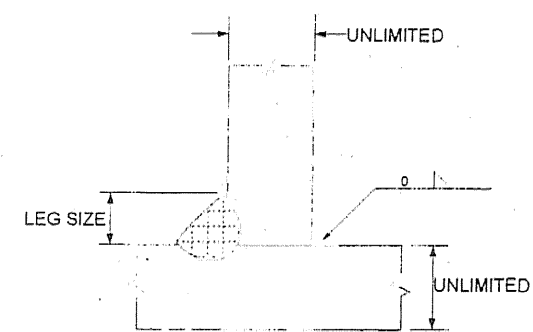
WELDING PROCEDURE

Pass No.	Electrode Size	Amperes	Volts	Travel Speed	Other	Joint Detail
ALL	3/32	120-150				
ALL	1/8	140-180				
ALL	5/32	160-210				
ALL	3/16	180-250				

VITRANS
 RECEIVED
 OK'D BY: JWC
 DEC 1 2008
 APPROVED: 08/05/09

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

Joint Detail



MEMO

THIS PROCEDURE APPLIES TO TACK WELDING ONLY.
TACK LEG SIZE SHALL BE 1/8" OR 3/16".

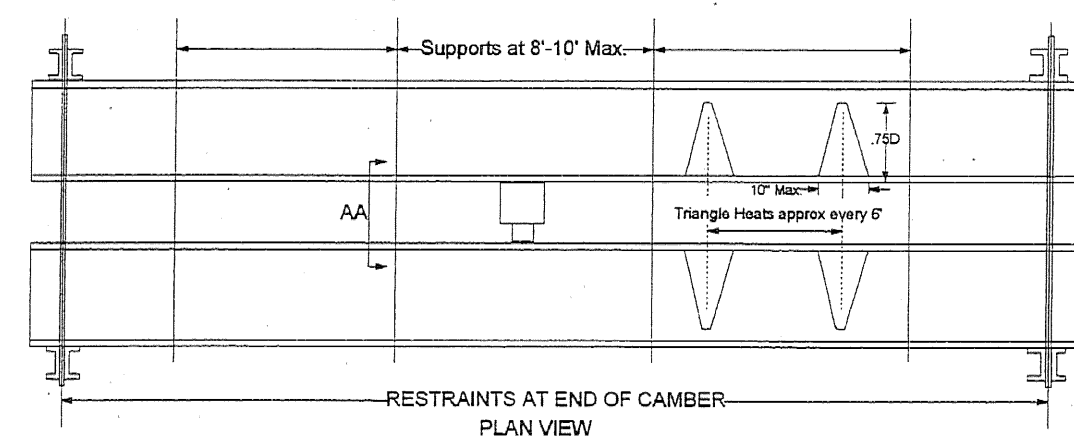
HEAT CAMBER PROCEDURE

Heating Equipment: Heating shall be performed using large, approximately 1 inch diameter, multi-orifice (rosebud) heating torch operating at approximately 25 psi of propane and 125 psi oxygen. Heating shall be confined to the patterns described herein and shall be conducted to bring the steel within the planned pattern to a temperature between 1000 Deg F and 1150 Deg F as rapidly as possible without overheating the steel.

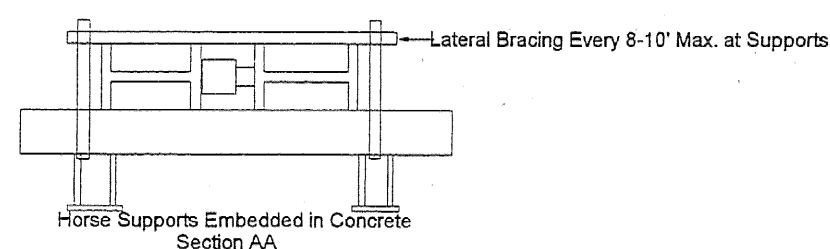
Heat Measurement: Heating measurements shall be made using temperature indicating crayons manufactured, for 1000 Deg F, 1100 Deg F, 1150 and 1200 Deg F. Heat measurements shall be made after heating flame is removed.

Order of Events:

1. Stringer flanges shall be supported in the no load position (web horizontal). Stringers are to be placed on steel horses. Steel horses are approximately every 8' to 10'.
2. Stringers are to be laid back to back (flange to flange). Two stringers shall be heat cambered simultaneously.
3. Triangular heating patterns shall be marked onto the webs and flanges as required, to achieve specified camber. See sketch below.
4. Maximum 20,000-psi compressive stress shall be induced. One ram shall be used to accomplish specified camber at each location. Ram shall have a calibrated pressure gauge. Once specified camber is achieved the ram is repositioned to the next location.
5. Heating shall begin at the apex of the triangle and progress to the base and across the full width of the flange. Temperature shall be brought between 1000 Deg F and 1150 Deg F as rapidly as possible. Temperature exceeding 1200 Deg F shall cause for rejection.
6. Stringers are to be cooled in still air. Quenching with water or water and air will not be performed.
7. Cambers are checked in the unloaded position accordance with the approved shop drawing(s).



VTRANS
RECEIVED
OK'D BY JWC
JAN 05 2009
APPROVED
DATE 01/06/09

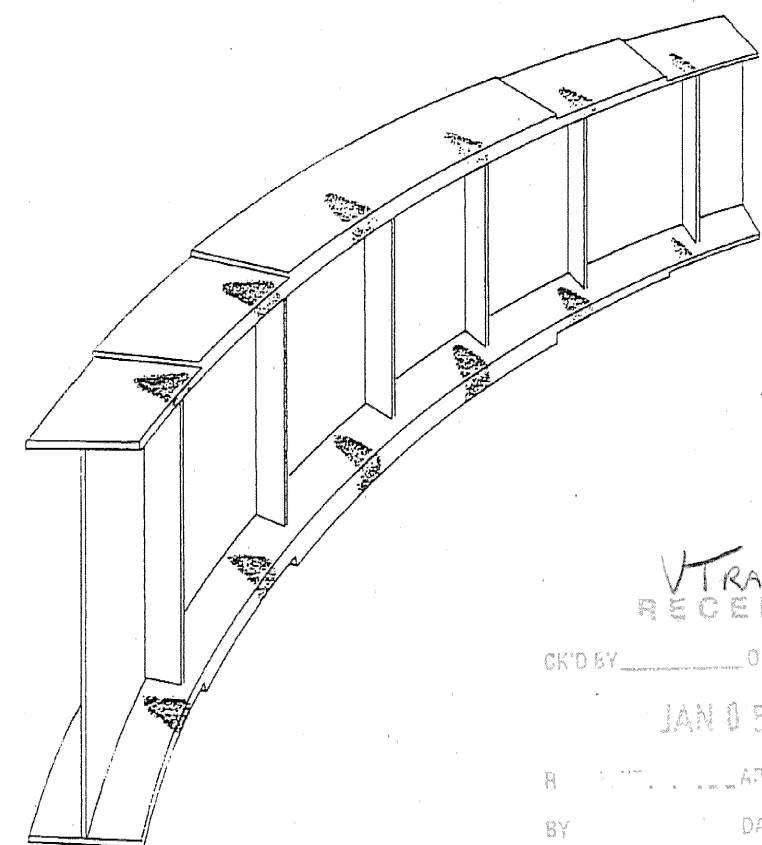


HEAT STRAIGHTENING AND SWEEP PROCEDURE

Heat straightening and sweep of rolled sections where the radius is less than 1,000 feet.

- 1) Heating V type patterns shall be marked on flange as required to obtain desired curvature. The truncated triangle shall have an included angle of approximately 15 to 30 degrees. The apex of the truncated triangle shall terminate just before the juncture of the web. The base of the truncated triangle shall not exceed 10 inches (Typically 3" to 5"). See Detail Below.
- 2) Heating shall be performed using large, approximately 1 inch diameter, multiorifice (rosebud) heating torch. Approximately 25 psi propane and 126 psi oxygen.
- 3) Heating operation shall begin at the apex of the truncated triangle and progress to the base (Do not heat the apex once heating progresses to base). Heating both inside and outside of flange surfaces concurrently is required when the flange thickness is greater than 1 1/4".
- 4) Maximum heating temperature shall be 1150 degrees F as verified with temperature indicating crayons. 1000, 1100, 1150, 1200 degrees F temperature indicating crayons shall be allied after heat is removed. Temperature exceeding 1,200 degrees F shall be cause for rejection.
- 5) Particular attention shall be placed on unwanted web distortion.
- 6) Cooling shall be performed in still dry air.
- 7) Stringer sweep shall be re-inspected, with the web in the vertical position.
- 8) Operation shall be performed in accordance with AASHTO Div 2 11.4.12.2.

Diagram below depicts typical sweep type procedure. For heat straightening the V heats are applied on the outside of the curve. It is understood that the apex of the triangles, are pointed in the opposite direction of desired movement.



VTRANS
RECEIVED
OK'D BY JWC
JAN 05 2009
APPROVED ✓
DATE 01/06/09

WINTERSET INCORPORATED
P.O. BOX 968
LYNDONVILLE, VERMONT 05851

LETTER OF TRANSMITTAL

(802) 626-9330 FAX (802) 626-8933

TO State of Vermont
Agency of Transportation

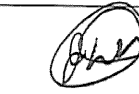
DATE	1/28/2009	JOB NO.	
ATTENTION	Martha Evans-Mangion		
RE:	Canaan ER ST 6271 (16)		

WE ARE SENDING YOU Attached Under separate cover via _____ the following items:
 Shop drawings Prints Plans Samples Specifications
 Copy of letter Change order _____

COPIES	DATE	NO.	DESCRIPTION
1	12/13/08	1	Welding Procedure Specifications (2)

THESE ARE TRANSMITTED as checked below:
 For approval Approved as submitted Resubmit _____ copies for approval
 For your use Approved as noted Submit _____ copies for distribution
 As requested Returned for corrections Return _____ corrected prints
 For review and comment _____
 FOR BIDS DUE _____ PRINTS RETURNED AFTER LOAN TO US

REMARKS

COPY TO _____
SIGNED: Alex Thompson 
If enclosures are not as noted, kindly notify us at once. Winterset Inc

L.B.Foster Co. **Letter Of Transmittal**
Foster Precise

3 Farm Lane • Georgetown • MA • 01833 • Ph:(978) 352-2591 • Fax:(978) 352-2182

Project Number: 3476 LOT No.: 2
Project Name: VT AOT - VT 102 Bridge Project Canaan Date: 12/31/08 10:08 AM

To: Alex Thompson, PE Winterset, Inc. PO Box 968 128 Winterset Drive Lyndonville, VT 05851 Ph: (802) 626-9330 Fax: (802) 626-8933	CC: None
---	----------

Subject: WELDING PROCEDURE SPECIFICATIONS (2)

We are sending you the following 13 page(s) via

Please return the following by:

Shop Drawings Contract Drawings Miscellaneous Other:

Purpose of Transmittal: For Approval

Items	Date	Rev #	Description
1	12/31/2008		SMAW TACK PROCEDURE
Sheets: 2			
1	11/20/2007		SAW PROCEDURE QUALIFICATION
Sheets: 9			
1	3/14/2008		SAW FILLET WELD PROCEDURE SPECIFICATION
Sheets: 2			

Remarks:

Gentlemen,

Please find attached welding procedure specifications for consideration by the Vermont Agency of Transportation.

Please feel free to call with any questions.

Respectfully,

Walter Borkowski Ext 14

FOSTER PRECISE

LB FOSTER CO Precise Structural Products
Welding Procedure Specification

Page 1 of 2

001 - FILLET WELD

Material Spec. ASTM A709 G36, G50 & G50W AASHTO M270 G36, G50 & G50W

Welding Process(es) SAW

Position of Welding 1F & 2F

Manual Machine Semi-Automatic Automatic

Filler Metal Specification AWS A5.23

Filler Metal Classification F7A2-EN1K-Ni1-H8

Flux LINCOLN 860

Shielding Gas N/A Gas Flow Rate N/A

Single or Multiple Pass BOTH

Single or Multiple Arc SINGLE

Welding Current REVERSE

Polarity: AC DCEP DCEN Pulsed

Welding Progression Up Down

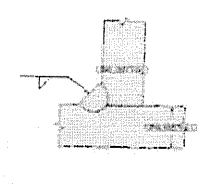
Root Treatment CLEAN AS TO REMOVE CONTAMINANTS

Preheat Temperature *** SEE PAGE 2 Interpass Temperature *** SEE PAGE 2

Postheat Treatment N/A

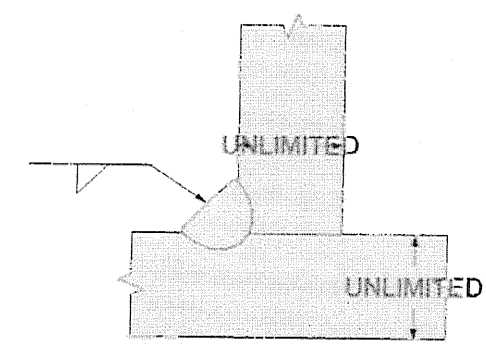
Heat Input Min 48.55 KILOJOULES/IN Max 76.29 KILOJOULES/IN

WELDING PROCEDURE

Pass No.	Electrode Size	Amperes	Volts	Travel Speed	Other	Joint Detail
All	5/64	330-350	33-35	10-11		

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

Joint Detail



MEMO

*** MINIMUM PREHEAT AND INTERPASS TEMPERATURE SHALL BE AS FOLLOWS: TO 3/4" INCL 50 DEG F, OVER 3/4" TO 1-1/2" INCL 70 DEG F, OVER 1-1/2" TO 2-1/2" INCL 150 DEG F, OVER 2-1/2" 225 DEG F.

LEG DIMENSION AS FOLLOWS: 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 3/4".

PROCEDURE QUALIFICATION RECORD NUMBER SAW-01-2007

PROCEDURE QUALIFICATION RECORD - SAW-01-2007

Contractor L.B. Foster Company Test Date November 20, 2007
 Process Submerged Arc Welding (SAW) Filler Metal A5.23
 Position Plat (1G)
 Electrode(s) Mfg. Designation Lincoln LA-75 AWS Specification A5.22
 Flux Mfg. Designation not available AWS Classification F7A2-ENIK-Ni-418
 Electrode Extension 1.25 inches

Electrode	Diameter	Current	IPM*	Voltage	Current & Polarity
(1)	<u>5/64 inches</u>	<u>340</u>	<u>10</u>	<u>34</u>	<u>DC/EP</u>
(2)					
(3)					

Calculated Heat Input 69.36 kilojoules / inch (See 5.12)
 Shielding Gas not applicable Flow Rate not applicable
 Dew Point not available Travel Speed 10 IPM

Base Metal Specification & Thickness AASHTO M270, grade 50W, 1 inches thick
 (Attach Certified Copy of Mill Test Report)

Preheat Temp. 200° F Interpass Temp. Min. 200° F Max. 400° F

SPECIMEN	TEST RESULTS			
	All Weld Metal Tension (AWMT)	Tensile Strength (PSI)	76,334	
	Yield Strength (PSI)	59,675		
	Elongation in 2 inches (%)	30.9		
	Reduction in Area (%)	69.8		

Side Bend 1. acceptable 2. acceptable 3. acceptable 4. acceptable

Reduced Section Tension Tensile Strength 1. 82,220 Location of 1. base metal
 (PSI) 2. 85,789 Break 2. base metal

Charpy V-notch Impact Toughness (average ft - lbs ** 56 , 44 , 36 , 68 , 24)
 of Weld Metal SMAW, SAW, @ -20 degrees F.
 GMAW (NA , NA , NA)
 5 required average ft - lbs ** @ NA degrees F.
 ESW & EGW - 8 required ** Discard the highest and lowest values and average the remaining values.

Chemistry of Deposited Weld Metal When required by Contract Documents
 C NA Mn NA Si NA P NA S NA
 Ni NA Cr NA Mo NA V NA Cu NA

REMARKS Visual acceptable Radiographic Test acceptable

* Wire feed may be used in lieu of current when a correlation curve is provided for the same electrode diameter and same electrode extension.

Test Witness Derek Crowe Agency Mass Highway Department
 Results Reviewed _____ State Acceptance _____ Date _____

A B C Testing Inc.

95 FIRST STREET • P.O. BOX 868 • BRIDGEWATER, MASSACHUSETTS 02324
 TELEPHONE 508 - 697 - 6068 • FAX # 508 - 697 - 6154

MECHANICAL TEST REPORT

ABC Testing number: 117907 Date: December 10, 2007
 Customer: L.B. Foster Company Purchase order: per transmittal - W. Borkowski
 Code or Standard: ASTM E-8, ASTM E-23, AWS D1.5 & N155SCM
 PQR #, Heat #, or other: SAW-1-2007
 Material & Dimensions: 1 inch thick plate (ASTM A709, Grade 50W)
 Remarks: Impact tests: -20 degrees F

BEND TESTS

Type and Figure	Result
Transverse Side - Figure 5.11	Acceptable
Transverse Side - Figure 5.11	Acceptable
Transverse Side - Figure 5.11	Acceptable
Transverse Side - Figure 5.11	Acceptable

TENSILE TESTS

Type & Figure: Transverse Rectangular - Figure 5.10

Specimen	Width (inches)	Thickness (inches)	Area (sq. in.)	Ultimate Load (pounds)	Ultimate Strength (PSI)	Type of Failure
A	0.983	0.997	0.980	81,400	82,220	Duct - BM
B	0.933	0.982	0.916	78,600	85,789	Duct - BM

Type & Figure: Round (all weld metal) - Figure 5.9

Specimen	Diameter (inches)	Area (sq. inches)	Yield Load (pounds)	Tensile Load (pounds)	Yield Strength (PSI)	Tensile Strength (PSI)
WM1	0.806	0.507	12,000	15,350	69,276	78,334
WM2	0.806	0.507	12,000	15,150	69,017	76,538
Gage length (inches)	New length (inches)	% elongation	New diameter (inches)	Reduced Area (sq. inches)	% RA	
WM1	2.014	2.637	30.53	0.278	0.061	69.82
WM2	2.014	2.680	32.08	0.275	0.059	70.35

IMPACT TESTS

Type & Figure: Type A - Figure 5.13

Specimen	1	2	3	4	5	average **
	(ft-lbs)	(ft-lbs)	(ft-lbs)	(ft-lbs)	(ft-lbs)	(ft-lbs)
Value	59	44	36	69	24	45.33

**discard the highest and lowest values and average the remaining values

All tests were conducted in accordance with the referenced standard.

By: James E. Harrington Jr.

A B C Testing Inc.

95 FIRST STREET • P.O. BOX 868 • BRIDGEWATER, MASSACHUSETTS 02324
 TELEPHONE 508 - 697 - 6068 • FAX # 508 - 697 - 6154

RECORD OF RADIOGRAPHIC EXAMINATION

TO L. B. Foster Company Client's Order No. verbal W. Borkowski
3 Farm Lane ABC Project No. 117907
Georgetown, MA 01833-1843 Date November 29, 2007
 Drawing No. _____
 Contract No. _____

Location Involved ABC Testing Laboratory Date November 29, 2007
 Object or Part Radiographed PQR plate Approved proc. No. RT I/3 rev. 2
 Joint Type long, butt Coverage full Penetrant Location source side
 Type of Material steel Group No. 1 Penetrant #20 Group No. 1
 Wall Thickness 1 in Total Exposure Thickness 1 in Shim(s)/Reinforcement 0
 Source of Radiation X-ray Curies NA No of Exp 2 per weld 2 Total
 Focal Spot 4.0 mm KV 300 MA 10 Angle of Source 90 Degrees
 Mfr of Machine Phillips Exposure Type single wall Location of Markers source side
 Standard AWS D1.3 Object to Film Distance 1 in Film to source Distance 36 inches
 Time of Exposure 0.8 minutes Type of film Agfa D5 No. of film 1 Screens Pb, 010x, 010 in
 Acceptance Standard AWS D1.3 Radiograph Status original View Type single
 Remarks: _____

Serial and Film Number	Acceptable	Rejectable	Cracks	Lack of Penit.	Lack of Fusion	Slag Inclusion	Porosity	Suck - up	Burn Through	Undercutting	Tungsten	Film Artifacts	P2+ Sensitivity	Retake	Remarks
A-B	X											X			
B-C	X											X			film scratch

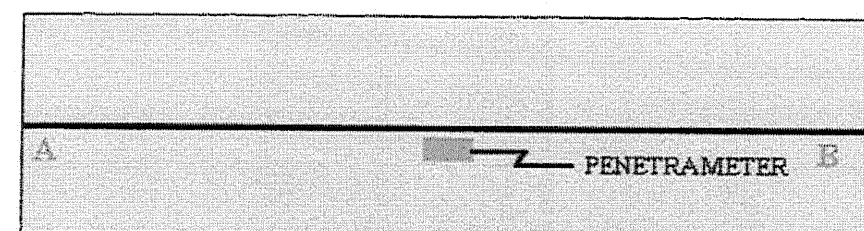
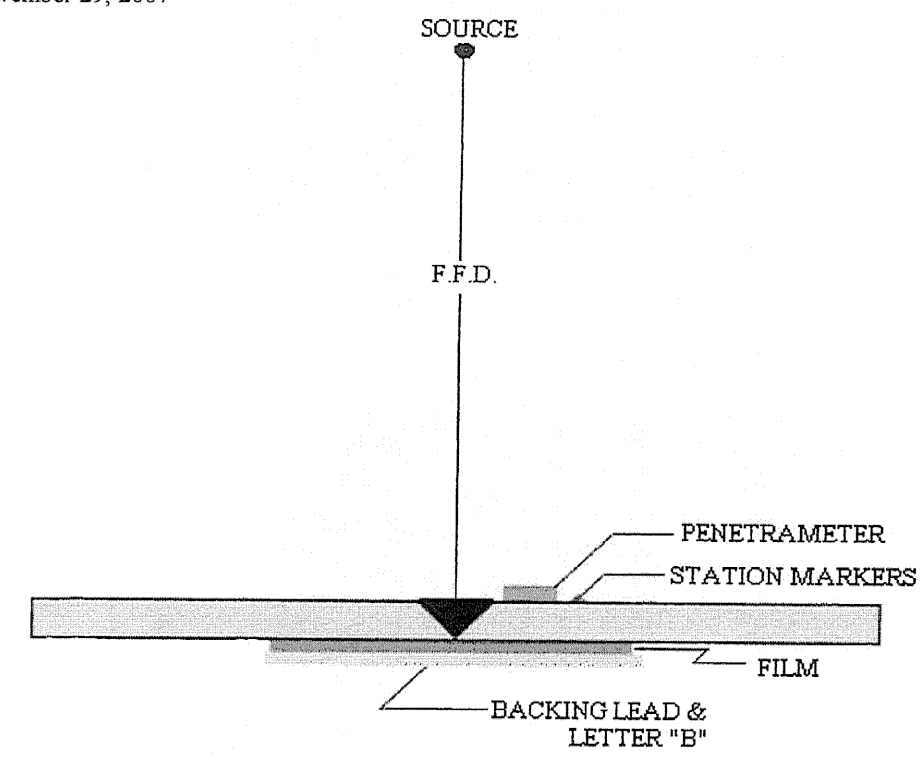
Radiographed By Jeffrey Rodrigues Reported By Jeffrey Rodrigues, Level II
 Owner / Manufacturers Review By _____ Date: _____

A. B. C. Testing Inc.

95 FIRST STREET • P.O. BOX 968 • BRIDGEWATER, MASSACHUSETTS 02324
TELEPHONE 508 - 697 - 6060 • FAX # 508 - 697 - 6154

Radiographic Shooting Sketch

Client: L.B. Foster Company
Purchase order: verbal(Walter Borkowski)
Object: PQR plate
RT date: November 29, 2007



Technique variables data

Source: X-ray
Penetrator: #20
Film type: Agfa D5
Focal Film distance: 36 inches
Shim: 0

3801 FOSTER PRECISION FABRICATING
 DIVISION OF L. B. FOSTER COMPANY
 3 FARM LANE
 GEORGETOWN, VA

ASTM A709-00a Grade 50 W T Type A Zone 2

CORROSION

MILL ORDER NO. 156112
 DATE 07/23/03

CUSTOMER P.O. NO. 146508-3059
 DATE 07/23/03

STANDARD SPECIFICATION: ASTM A709-00a Grade 50 W T Type A Zone 2

HEAT NO.	CHEMICAL ANALYSIS																	
	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	B	Al	V	Nb	N	As	Sb	Sn	Ti
118071	0.13	0.90	0.009	0.015	0.30	0.30	0.21	0.61	0.061	0.029	0.007	0.045	0.003	0.010	0.006	0.002	0.002	0.002

HEAT NO.	DIMENSION		TENSILE TESTS		IMPACT TESTS	
	GAUGE	LENGTH	YIELD	TENSILE	1	2
118071	50.0000	240.0000	69.0	80.0	25	15.0
118071	50.0000	240.0000	69.0	80.0	25	15.0
118071	50.0000	240.0000	69.0	80.0	25	15.0

NOTARY SEAL: [Signature] NAME: [Name]

DATE: 07/23/03

TEST RESULTS: [Data]

TESTER: [Name]

DATE: 07/23/03

TESTER: [Name]

DATE: 07/23/03

TESTER: [Name]

DATE: 07/23/03

TESTER: [Name]

DATE: 07/23/03

TESTER: [Name]

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DATE: 07/23/03

TESTER: [Name]



2331 Topaz Drive, Hatfield, PA 19440
Phone: 800-219-9095 • Fax: 800-219-9096

Certified Test Report

CSC002-05-11-29581-1

CHARPY APPROVED



SOLD TO
Chapel Steel Company
Attn: Tara Townsend
P.O. Box 1000
Spring House, PA 19477

SHIP TO
Chapel Steel Company
Building 2E, Suite 106
191 South Keim Street
Pottstown, PA 19464
ATTN: Gary Halteman

CUSTOMER P.O.
73911

CERTIFICATION DATE
11/7/05

SHIP VIA
FAX AND MAIL

DESCRIPTION

2 pcs 5" x 7" Test Samples, 1pc .3/4" Thick and 1pc 3/8" Thick ASTM A709-01b, Gr *50WT2, Heat #1U345
Reference: Customer #11686, Customer PO #13331-3059, Chapel W.O. #73911

***AMENDED CERTIFICATION (12/07/2005)**

Longitudinal Charpy V-Notch Impact testing at 40° F was performed on (2) sets of the submitted Test Specimens and (2) sets were found to be in conformance to ASTM A709-01b⁶³ and Customer's Requirements with the following results:

SAMPLE SIZE REQUIRED	PIECE NO.	FT-LBS. 15 MIN. AVG.	LAT. EXP.	% SHEAR
3/4"	1	79	.066"	65
	2	74	.062"	65
	3	75	.083"	65
3/8"	1	76	.083"	100
	2	77	.079"	100
	3	77	.078"	100

NOTE: Sub-size (9mm x 10mm) charpy specimens were used for testing 3/8" sample.
*This clarification is in response to Chapel Steel's request to explain why LTI used the average energy (Yield) to determine the temperature to perform the Charpy Notch Test. Chapel Steel Work Order # 73911 identified the heat as 1U345.

ASTM A709-1b Table S1-2 Notes:
Note A states "The CVN-impact testing shall be "H" heat frequency testing in accordance with Specification A673/A 673M."

Note B states "If the yield point of the material exceeds 65 Ksi (450 MPa), the testing temperature for the minimum average energy required shall be reduced by 15°F (8°C) for each increment of 10 Ksi (70 MPa). The yield point is the value given on the certified "Mill Test Report."

Chapel Steel identified that LTI use the requirements from ASTM A709/A 709 M 50WT2 Specification. Using the Notes in Table S1-2 for the Grade that was identified on the Work Order we determined that as long as the same heat is being tested that we could average the Yield on the Chapel Steel Material Test Report, which gave two Yields for the same heat. (69 & 62 Ksi - Ave. 65.5 Ksi)

The services performed above were done in accordance with LTI's Quality System Program Manual Revision 17 dated 12/3/04 and ISO/IEC 17025. These results relate only to the items tested and this report shall not be reproduced, except in full, without the written approval of Laboratory Testing, Inc. LTI is accredited by NADCAP to ISO/IEC 17025, Material's Testing and NDT (MT, PT and UT).

MERCURY CONTAMINATION: During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

By:
QA Manager

NOTE: The recording of false, fictitious or fraudulent statements or entries on this document may be punished as a felony under Federal Statutes.



[1 Year]

Product: Lincolnweld® 860 Flux/
LA-75 Electrode
Classification: F7A2-ENIK-NI-H8
Specification: AWS A5.25-97, ASME SFA-5.23
Test Completed: July 26, 2007

This is to certify that the product named above and supplied on the referenced order number is of the proper description, manufacturing process, and material requirements as the material which was used in the production of the product. The results of the tests performed are shown below. All tests required by the referenced specification were performed at that time and the material tested met all requirements. If you have any questions regarding the Quality System Program of the Lincoln Electric Company, Cleveland, please contact the Quality System Department at (216) 325-4400, ext. 2524 or by e-mail at quality@lincolnelectric.com. The Quality System Program has been approved by ASME, ABS, and VNTV.

Operating Settings	AWISASME Requirements	Results
Electrode Size	5/32 inch	5/32 inch
Wire Feed		28
Wire Feed Speed, cm/min (in/min)	27 - 30	28
Travel Speed, cm/min (in/min)	475 - 575	512 (64)
Control Tip Work Distance, mm (in.)	(1 - 1 1/2)	32 (1 1/4)
Travel Speed, cm/min (in/min)	(15 - 17)	41 (1 5/8)
Preheat Temp., °C (°F)	175 - 225	188 (370)
Interpass Temp., °C (°F)	175 - 225	188 (370)
Preheat Time, min	15 - 20	15
Interpass Time, min	15 - 20	15
Weld Strength, 0.2% offset MPa (ksi)	50 (5)	560 (80)
Weld Strength, 0.2% offset MPa (ksi)	50 (5)	480 (68)
Average Hardness Rockwell B	22 min.	48
Average Hardness Rockwell B	Not Required	87
Diffusible Hydrogen (ppm)	(20 max.)	14
Absorbable Hydrogen (grams hydrogen/100 g Fe)	8.0 max.	86,111,112 (72,82.83)
		4.4
		85

Chemical composition of the weld deposit and electrode

Analysis (weight %)	Requirements	Results	Requirements	Results
Mn	0.12 max.	0.04	0.12 max.	0.08
Si	0.80 max.	0.47	0.80 - 1.40	0.88
P	0.025 max.	0.011	0.020 max.	0.028
Cr	0.75 - 1.10	0.85	0.020 max.	0.008
Ni	0.05 max.	0.78	Not Required	0.02
V-Ti-Vz	0.05 max.	0.01	Not Required	0.02
Cu (total)	0.35 max.	0.09	0.35 max.	0.05

This certificate complies to the requirements of EN 10204, Type 2.2.
Test assembly construction: 1/8" Outer T-bulb

Results below the detection limit of the test are reported as zero.
If SI units are reported to the nearest 0.01 MPa, convert them to actual MPa. Pounds and interpass temperature values are reported to the nearest 0.1 degree.

Philip Wood
Philip Wood
Consumables R&D Department
Date: July 26, 2007
Signature: *Philip Wood*
Consumables R&D Department
Date: July 26, 2007

L.B. FOSTER COMPANY
PRECISE STRUCTURAL PRODUCTS

SAW MACROETCH TEST REPORT

Test Date: 3/27/2008

Test conducted in accordance with AWS D1.5 Section 5.10 FIGURE 5.8
Plate Thickness: T1 & T2 = 1" HEAT NUMBER T0371

Position: FLAT
Maximum Single-Pass: 3/8" NO REJECTABLE INDICATION - PASS
Smallest Multi-Pass: 7/16" NO REJECTABLE INDICATION - PASS

Position: HORIZONTAL
Maximum Single-Pass: 5/16" NO REJECTABLE INDICATION - PASS
Smallest Multi-Pass: 7/16" NO REJECTABLE INDICATION - PASS

Test Conducted By: Walter J. Borkowski & Michael Morelli
L.B. FOSTER COMPANY
QUALITY DEPARTMENT

Preparation and testing witnessed by Mr. Derek Crowe Massachusetts Highway
Department

Derek Crowe 4/7/2008

LB FOSTER CO Precise Structural Products
Welding Procedure Specification

Page 1 of 2
 3476-01

Material Spec. ASTM A709 G36, G50 & G50W

Welding Process(es) SMAW

Position of Welding 1F, 2F, 3F, 4F

Manual Machine Semi-Automatic Automatic

Filler Metal Specification AWS A5.1

Filler Metal Classification E7018

Flux N/A

Shielding Gas N/A Gas Flow Rate N/A

Single or Multiple Pass Single

Single or Multiple Arc SINGLE

Welding Current REVERSE

Polarity: AC DCEP DCEN Pulsed

Welding Progression Up Down

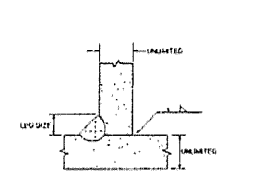
Root Treatment CLEAN AS TO REMOVE CONTAMINANTS

Preheat Temperature N/A Interpass Temperature N/A

Postheat Treatment N/A

Heat Input Min N/A Max N/A

WELDING PROCEDURE

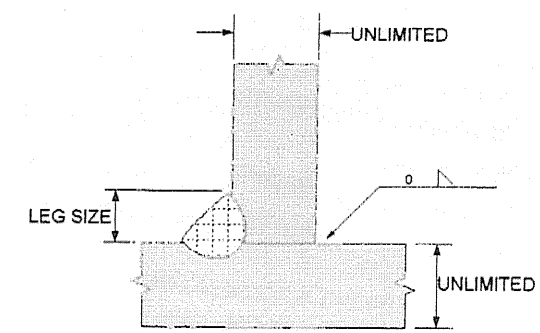
Pass No.	Electrode Size	Amperes	Volts	Travel Speed	Other	Joint Detail
ALL	3/32	120-150				
ALL	1/8	140-180				
ALL	5/32	160-210				
ALL	3/16	190-250				

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

Procedure No. 1 TACK WELD Contractor _____

Revision No. _____ Authorized By WALTER J. BORKOWSKI Date 12/31/2008

Joint Detail



MEMO

THIS PROCEDURE APPLIES TO TACK WELDING ONLY.

TACK LEG SIZE SHALL BE 1/8" OR 3/16".

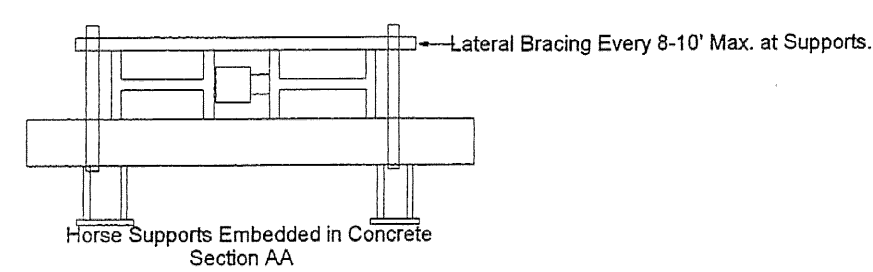
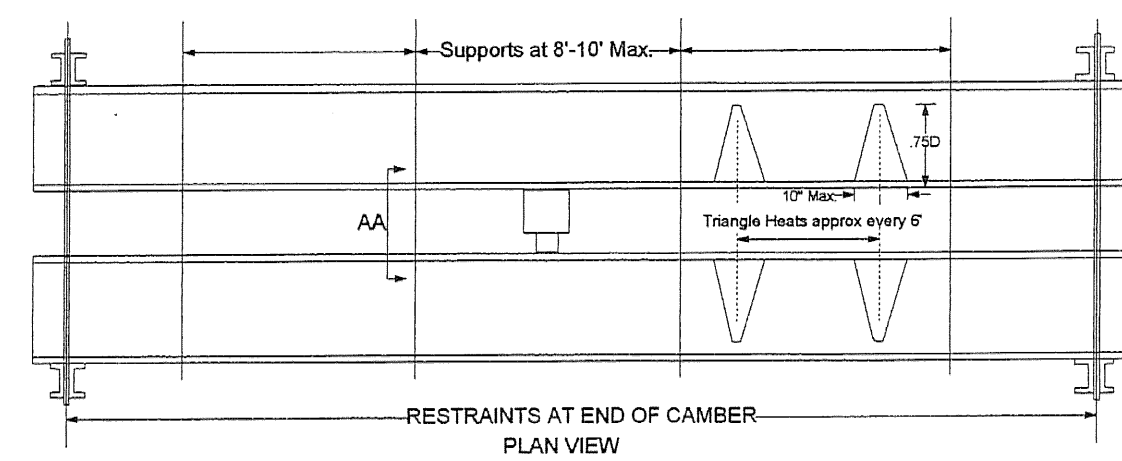
HEAT CAMBER PROCEDURE

Heating Equipment: Heating shall be performed using large, approximately 1 inch diameter, multi-orifice (rosebud) heating torch operating at approximately 25 psi of propane and 125 psi oxygen. Heating shall be confined to the patterns described herein and shall be conducted to bring the steel within the planned pattern to a temperature between 1000 Deg F and 1150 Deg F as rapidly as possible without overheating the steel.

Heat Measurement: Heating measurements shall be made using temperature indicating crayons manufactured, for 1000 Deg F, 1100 Deg F, 1150 and 1200 Deg F. Heat measurements shall be made after heating flame is removed.

Order of Events:

1. Stringer flanges shall be supported in the no load position (web horizontal). Stringers are to be placed on steel horses. Steel horses are approximately every 8' to 10'.
2. Stringers are to be laid back to back (flange to flange). Two stringers shall be heat cambered simultaneously.
3. Triangular heating patterns shall be marked onto the webs and flanges as required, to achieve specified camber. See sketch below.
4. Maximum 20,000-psi compressive stress shall be induced. One ram shall be used to accomplish specified camber at each location. Ram shall have a calibrated pressure gauge. Once specified camber is achieved the ram is repositioned to the next location.
5. Heating shall begin at the apex of the triangle and progress to the base and across the full width of the flange. Temperature shall be brought between 1000 Deg F and 1150 Deg F as rapidly as possible. Temperature exceeding 1200 Deg F shall be cause for rejection.
6. Stringers are to be cooled in still air. Quenching with water or water and air will not be performed.
7. Cambers are checked in the unloaded position accordance with the approved shop drawing(s).

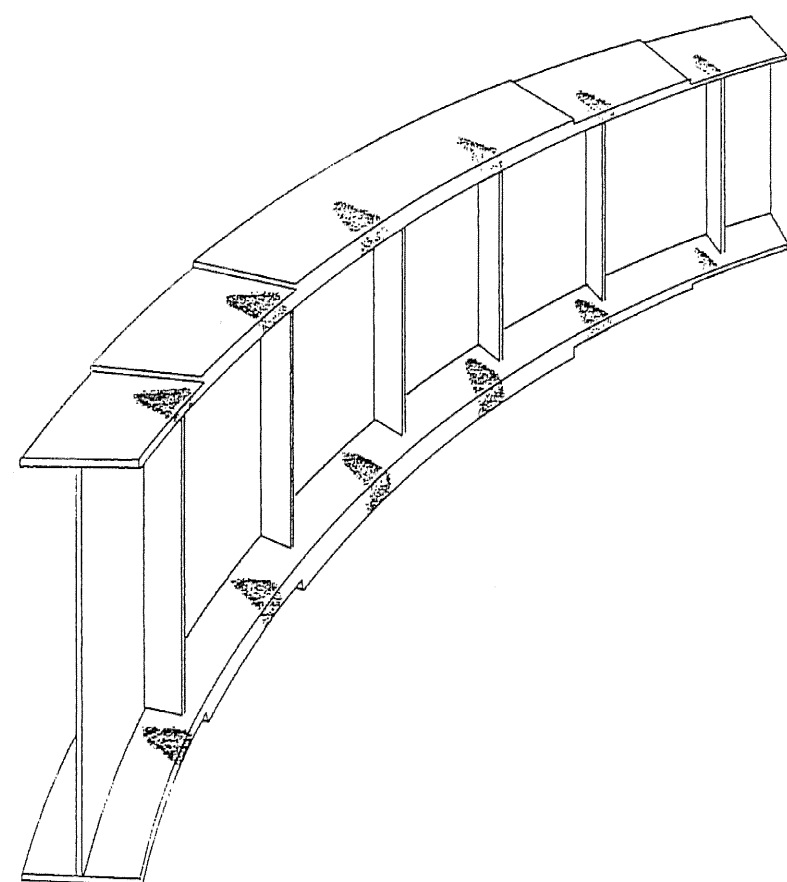


HEAT STRAIGHTENING AND SWEEP PROCEDURE

Heat straightening and sweep of rolled sections where the radius is less than 1,000 feet.

- 1) Heating V type patterns shall be marked on flange as required to obtain desired curvature. The truncated triangle shall have an included angle of approximately 15 to 30 degrees. The apex of the truncated triangle shall terminate just before the juncture of the web. The base of the truncated triangle shall not exceed 10 inches (Typically 3" to 5"). See Detail Below.
- 2) Heating shall be performed using large, approximately 1 inch diameter, multiorifice (rosebud) heating torch. Approximately 25 psi propane and 126 psi oxygen.
- 3) Heating operation shall begin at the apex of the truncated triangle and progress to the base (Do not heat the apex once heating progresses to base). Heating both inside and outside of flange surfaces concurrently is required when the flange thickness is greater than 1 1/4".
- 4) Maximum heating temperature shall be 1150 degrees F as verified with temperature indicating crayons. 1000, 1100, 1150, 1200 degrees F temperature indicating crayons shall be allied after heat is removed. Temperature exceeding 1,200 degrees F shall be cause for rejection.
- 5) Particular attention shall be placed on unwanted web distortion.
- 6) Cooling shall be performed in still dry air.
- 7) Stringer sweep shall be re-inspected, with the web in the vertical position.
- 8) Operation shall be performed in accordance with AASHTO Div 2 11.4.12.2.

Diagram below depicts typical sweep type procedure. For heat straightening the V heats are applied on the outside of the curve. It is understood that the apex of the triangles, are pointed in the opposite direction of desired movement.



GENERAL NOTES

SPECIFICATIONS



ALL MATERIAL AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2006, AND ITS LATEST REVISIONS AND AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FOURTH EDITION, DATED 2007 AND ITS LATEST REVISIONS.

ALL WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT STRUCTURAL WELDING CODE ANSI/AASHTO/AWS D1.5, AND THE PROVISIONS OF SUBSECTION 506.10

MATERIAL SPECIFICATIONS

ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M270 GR 50 (U.S.A.).

ALL BOLTS FOR THIS PROJECT SHALL BE HIGH STRENGTH HEX HEAD BOLTS AND CONFORM TO ASTM A325 TYPE 1.

FABRICATION

CVN- INDICATES CHARPY V-NOTCH TESTED FOR ZONE 2, IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.

MAIN LOAD CARRYING MEMBERS ARE ALL STRINGER BEAMS.

THE BOTTOM FLANGE OF STEEL BEAMS AT BEARING AREAS SHALL BE SHOP STRAIGHTENED AS NECESSARY TO PROVIDE UNIFORM CONTACT BETWEEN THE BEAM FLANGE & THE BEARING AT THE BRIDGE SEAT.

REMOVE SURFACE OF FLAME HARDENED STEEL BY GRINDING TO EXTENT NECESSARY TO ACHIEVE THE SPECIFIED SURFACE PROFILE.

ERECTION NOTES

ALL CONNECTION ARE BEING MADE WITH HIGH STRENGTH BOLTS NOTED ABOVE WITH ONE (1) HARDENED WASHER (ASTM F436 TYPE 1) TO BE PLACED UNDER THE TURNED ELEMENT.

SHIPPING MARK NUMBER WILL BE LOCATED AS SHOWN ON ERECTION PLANS.

CLEANING

ALL STEEL SHALL BE CLEANED IN ACCORDANCE WITH SSPC-SP10 BLAST CLEANING.

PAINT

DRY FILM THICKNESS:

PRIMER: 2-3 MILS MIN. U.N.-----CAR80 859

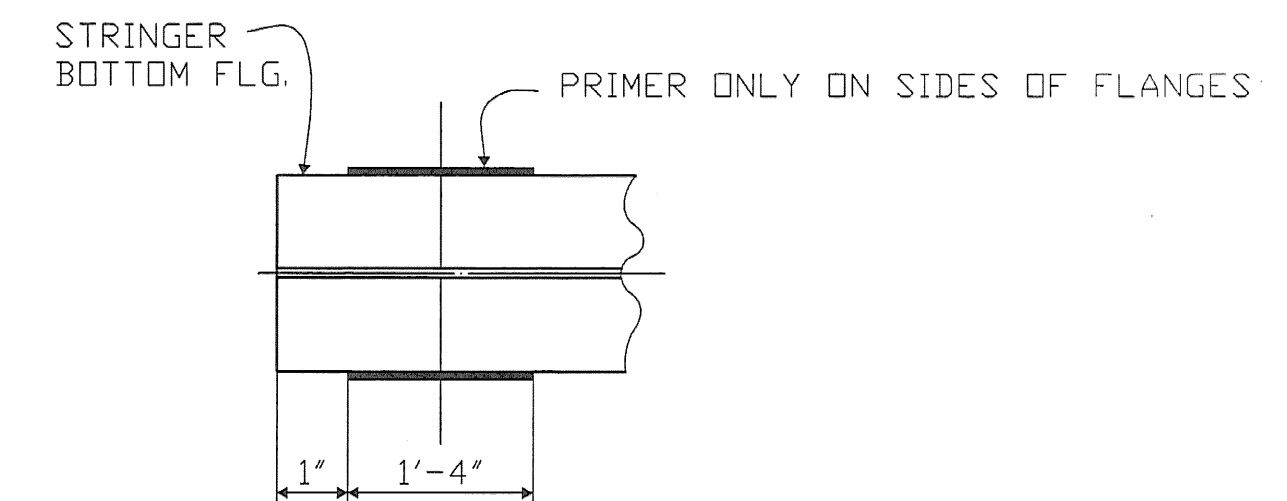
INTERMEDIATE: 4-6 MILS-----CARBOLINE 888

FINISH: 3-5 MILS-----CARBOHANE 133HB ALIPHATIC POLYURETHANE
COLOR 20059 (BROWN) OF FEDERAL STANDARD 595B.

PAINTED AREAS:

FAYING AREAS WITHIN 3" OF OPEN HOLES SHALL BE GIVEN A COAT OF PRIMER PAINT ONLY.

THE TOP OF TOP FLANGE OF BEAMS WHICH ARE TO RECEIVE FIELD WELDED STUDS SHALL BE GIVEN A MIST COAT (1-1/2 MILS) OF PRIMER PAINT ONLY.
(SEE DETAIL 1 BELOW)



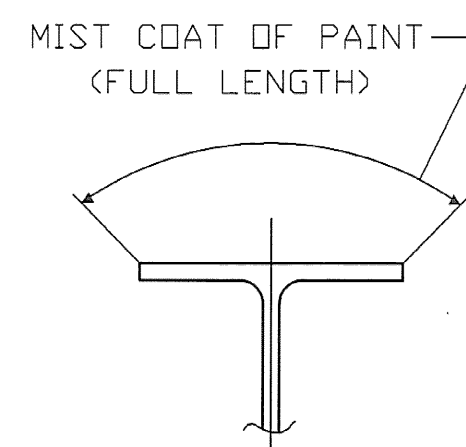
SOLE PL WELD PREP

TYPICAL ALL BEAMS EACH END

TEM NO.
506.50
513.25
513.40

DESCRIPTION
Structural Steel, Rolled Beam
Structural Steel Paint Shop Applied
Surface Preparation Shop

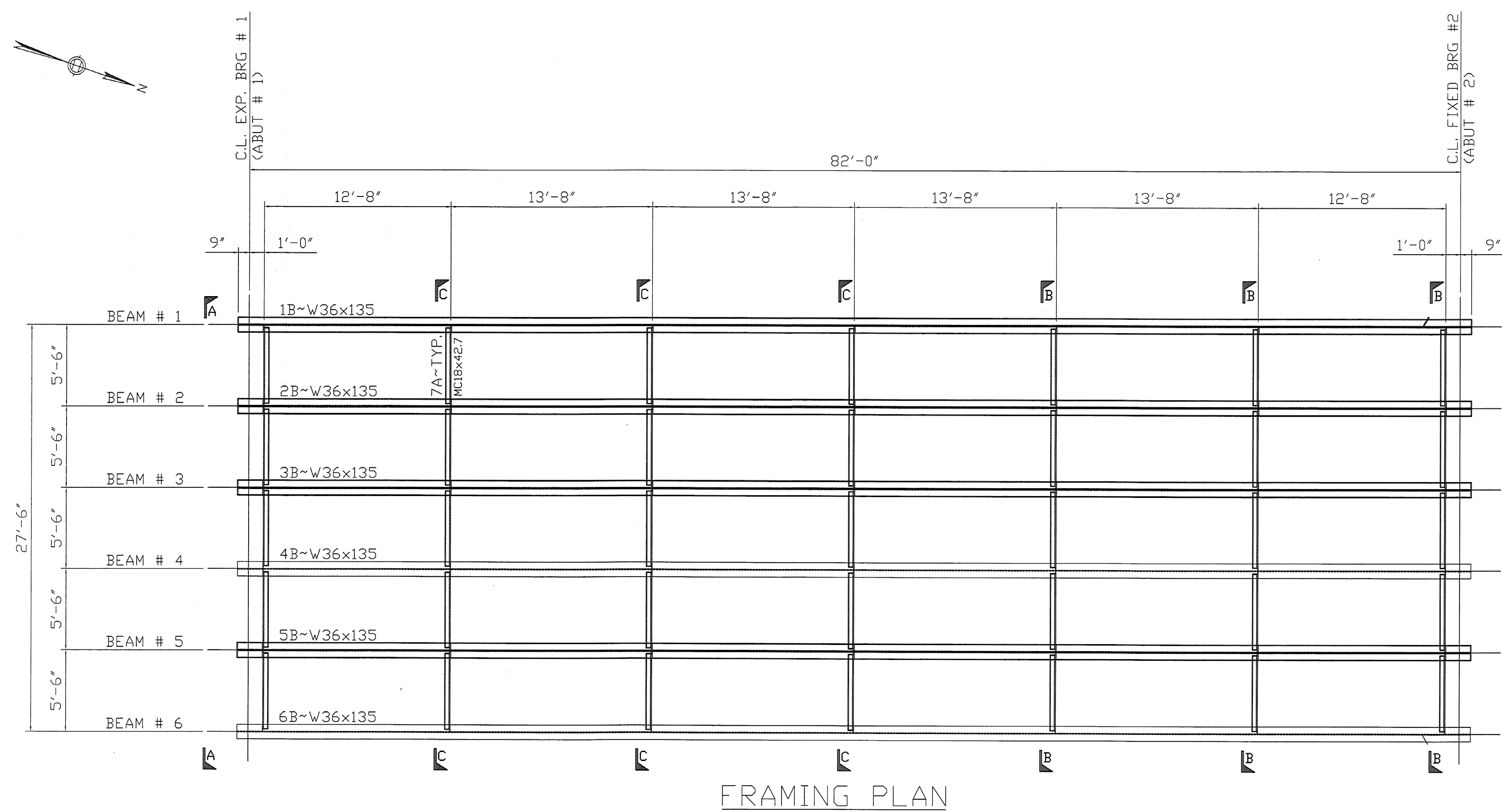
PER LB
LS
LS



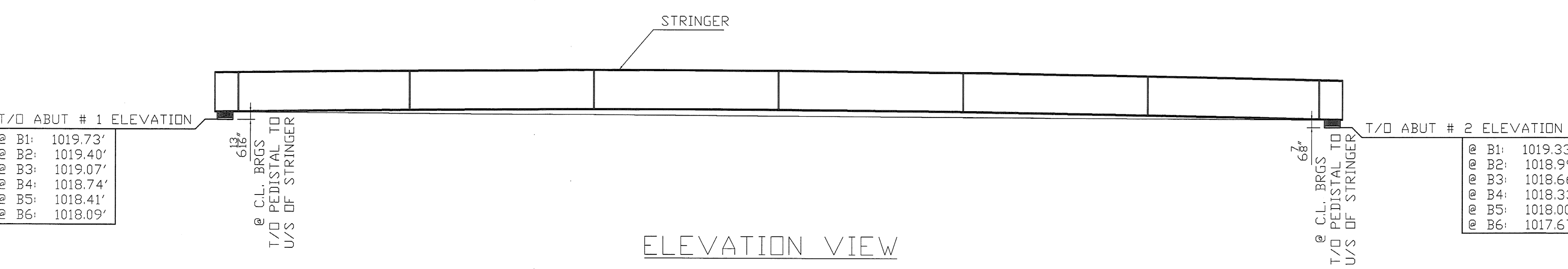
DETAIL 1

RECEIVED
OK'D BY SSS OK'D BY MFM
JAN 26 2008
APPROVED ✓
DATE 1/26/09

3			
2			
1	1/9/09	APPROVER COMMENTS	
REV. NO.	DATE	REVISION	
GENERAL NOTES			
VT.102 (MAJOR COLLECTOR) BRIDGE #16		CANAAN, VT	
PROJECT NUMBER ER ST 0271 (16)			
FOSTER • PRECISE			
3 FARM LANE GEORGETOWN, MA 01833 978-352-2591 FAX 978-352-2182			
OWNER: STATE OF VERMONT AGENCY OF TRANSPORTATION CONTRACTOR: WINTEREST INC.			
DRAWN BY	CHECKED BY	JOB NO.	SHEET NO.
KC	WL	3476	GN1
11/23/08	11/30/08		



FRAMING PLAN



ELEVATION VIEW

T/O ABUT # 1 ELEVATION

B1:	1019.73'
B2:	1019.40'
B3:	1019.07'
B4:	1018.74'
B5:	1018.41'
B6:	1018.09'

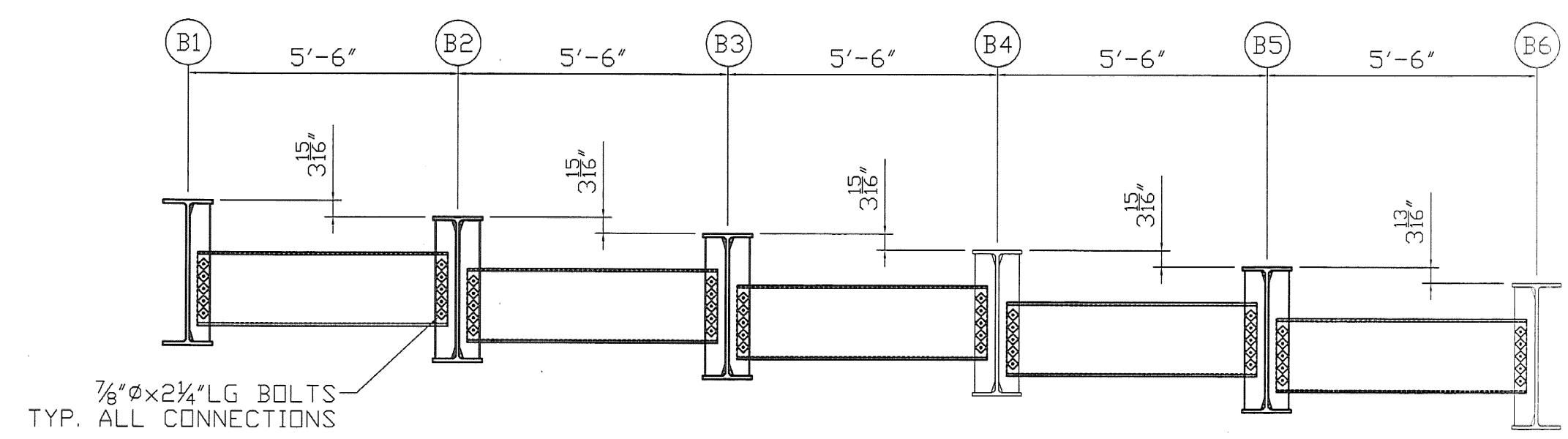
T/O ABUT # 2 ELEVATION

B1:	1019.33'
B2:	1018.99'
B3:	1018.66'
B4:	1018.33'
B5:	1018.00'
B6:	1017.67'

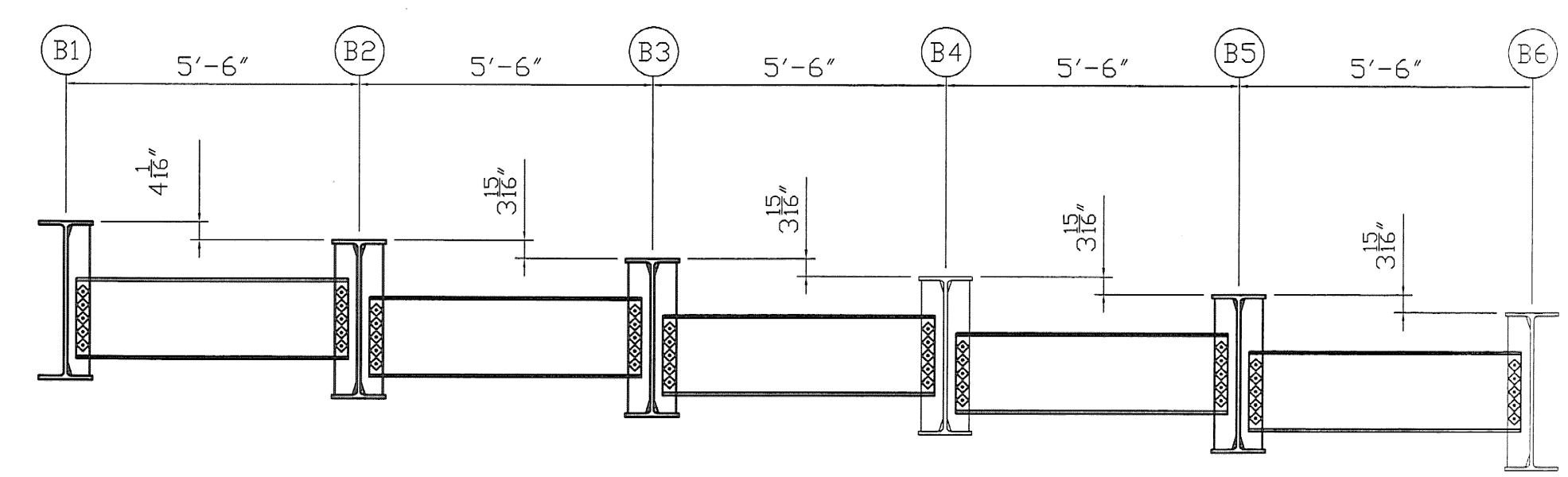
FIELD NOTE: BEARING ASSEMBLY & ANCHORS BY OTHERS

FIELD BOLT LIST										ASTM M164M (ASTM A325) TYPE 1 BOLTS U.N.O.		
LINE	ACTUAL No. REQ'D	BOLT DIAM	BOLT LENGTH	BOLTS / CONN.	# OF CONNS.	GRIP	THICKNESS OF PCS. CONNECTED			WASHER CODE	REMARKS	
1	350	3/8"	2 1/2"	70	5	1 3/4"	3/8"	1/2"		1	DIAPHRAGM TO BEAM CONNECTION	
2												
3												
4												
5												
6												

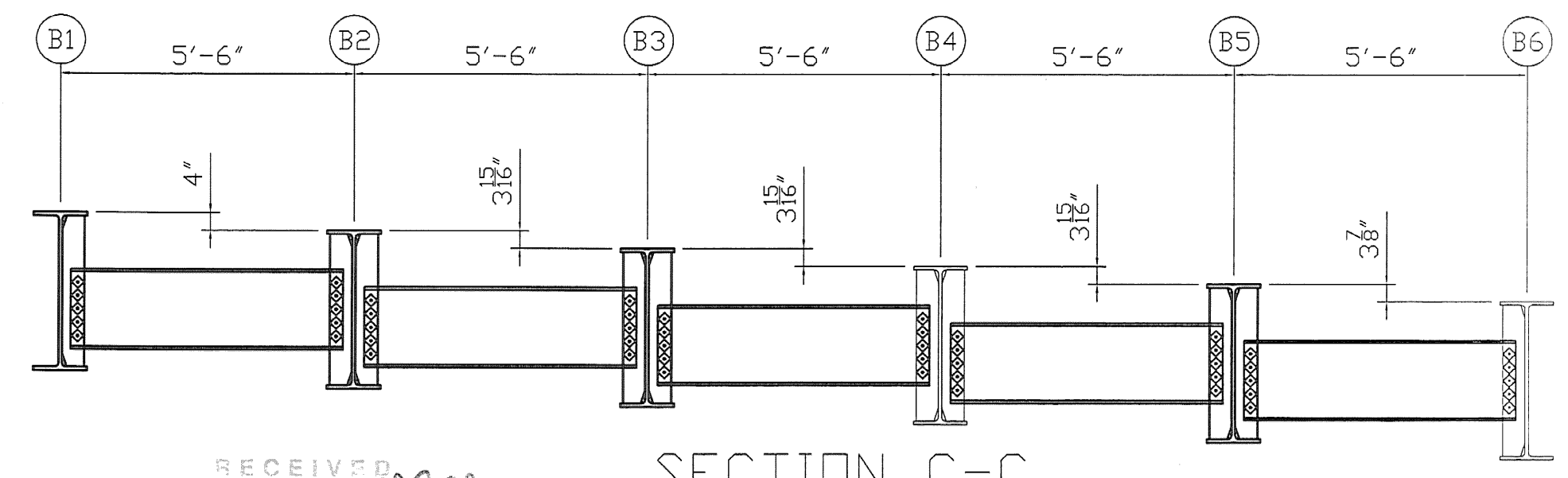
FIELD BOLT SUMMARY							NOTE: 4% ADDITIONAL BOLTS ADDED + 3 FOR TESTING	
LINE	No. OF BOLTS	BOLT DIAM	TYPE	BOLT LENGTH	ACTUAL COUNT	REMARKS	WEIGHT	
1	367	3/8"	ASTM - A325 TYPE 1	2 1/2"	350	w / 1 FLAT WASHER		
2								
3								
4								
TOTAL WT.								



SECTION A-A



SECTION B-B



SECTION C-C

RECEIVED
 OK'D BY: *SES* OK'D BY: *mfm*
 JAN 28 2009
 APPROVED: *[Signature]*
 BY: DATE 1/26/09

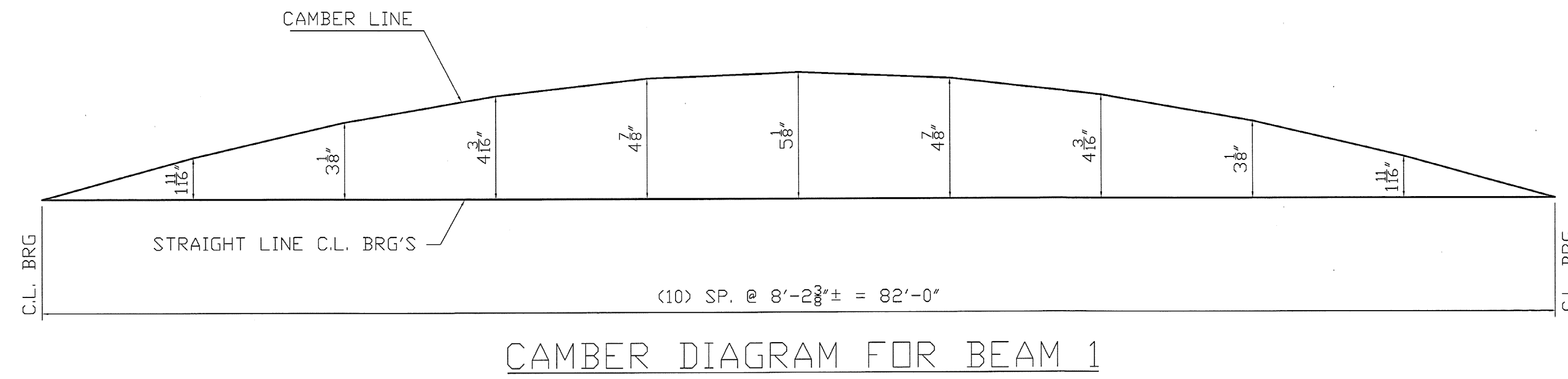
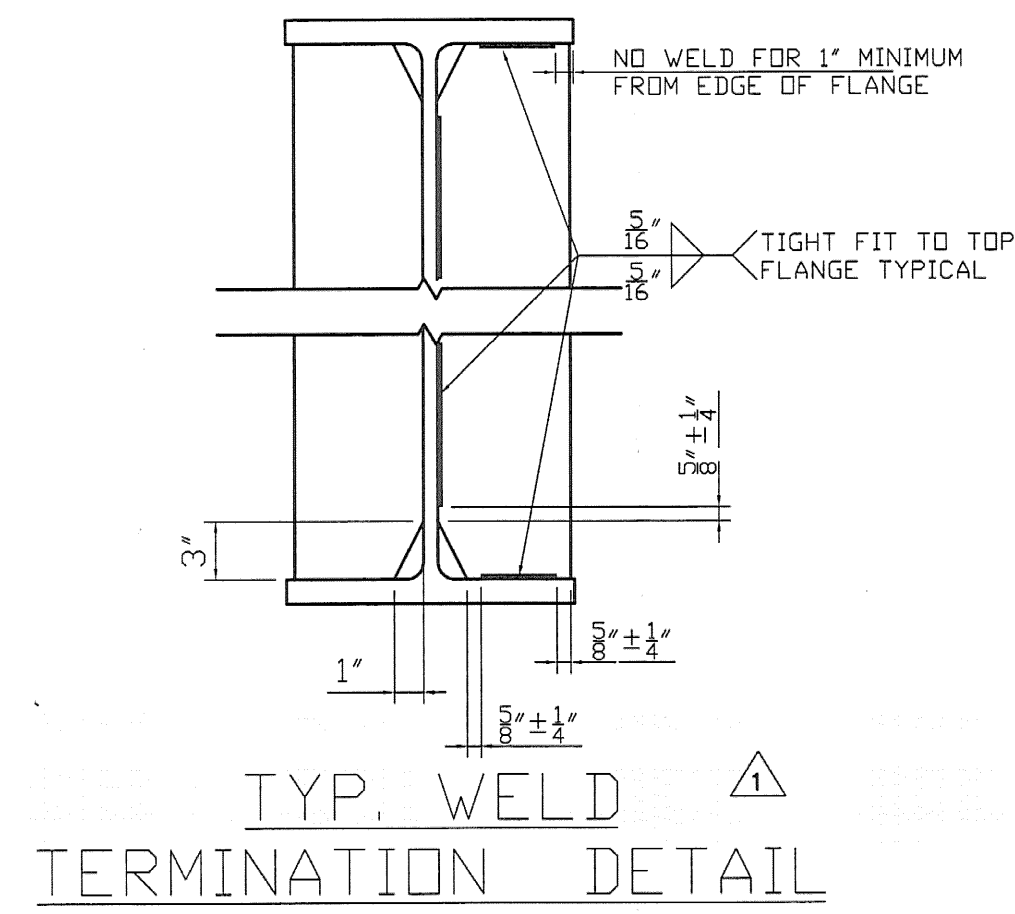
NOTE:
 1. FOR GENERAL NOTES SEE GN1

SHOP NOTES
 HOLES 15/16" (U.N.)
 BOLTS NONE
 PAINT SEE GN DWG
 WELDS TO BE MADE USING ER80-NiL ELECTRODES
 MATERIAL M270 Gr.50

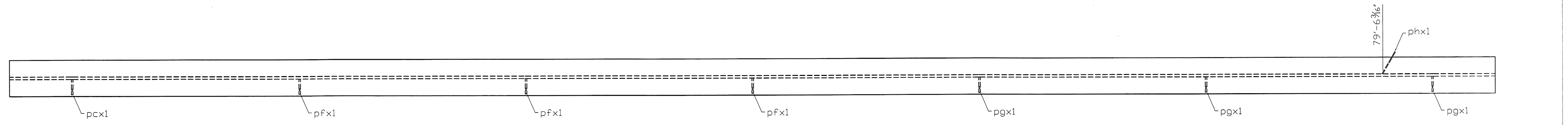
REV. NO.	DATE	REVISION
3		
2		
1		

ERECTION DRAWING
 VT.102 (MAJOR COLLECTOR) BRIDGE #16 CANAAN, VT
 PROJECT NUMBER ER ST 0271 (16)
FOSTER • PRECISE
 3 FARM LANE GEORGETOWN, MA 01833
 978-352-2591 FAX 978-352-2182
 OWNER: STATE OF VERMONT AGENCY OF TRANSPORTATION
 CONTRACTOR: WINTERSET INC

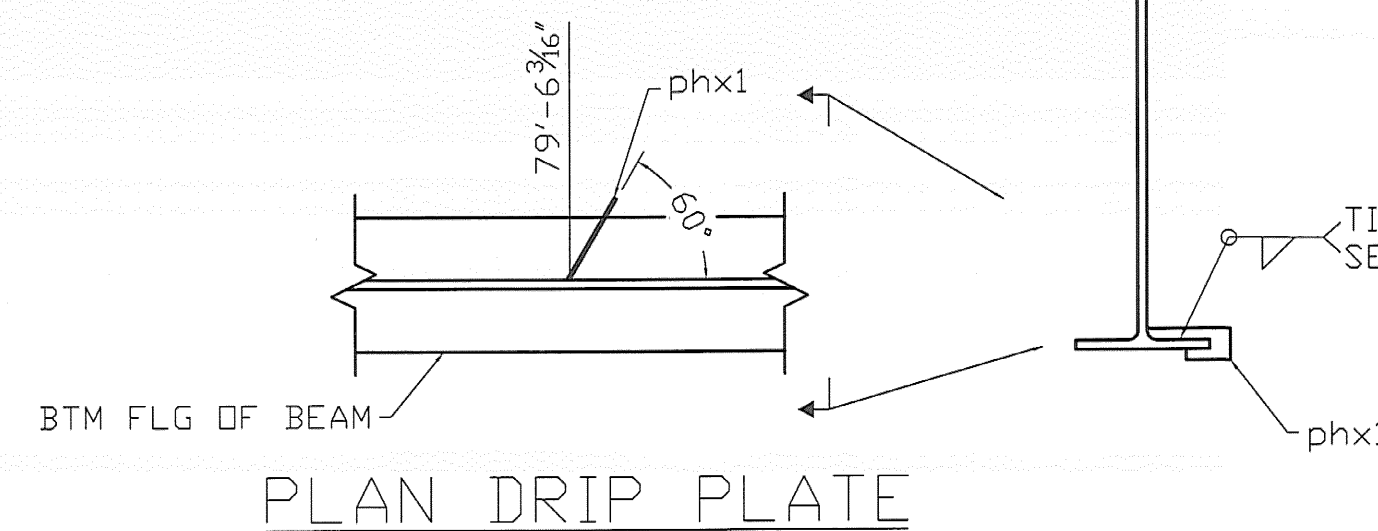
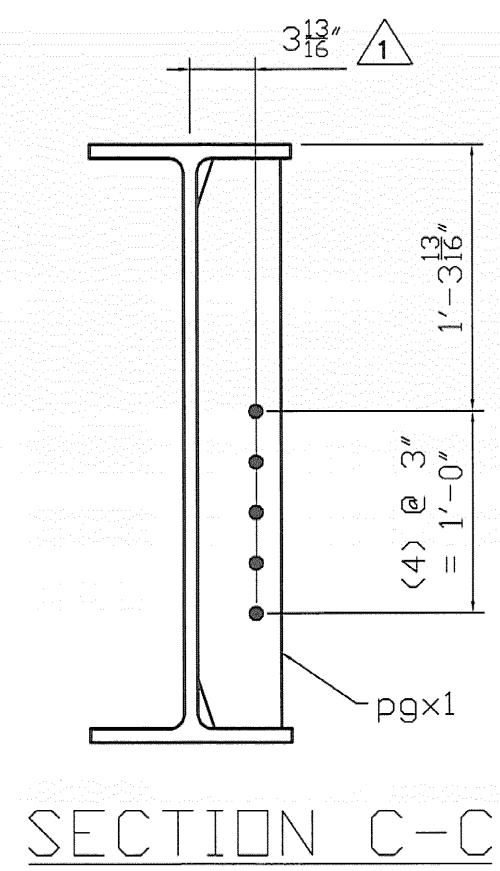
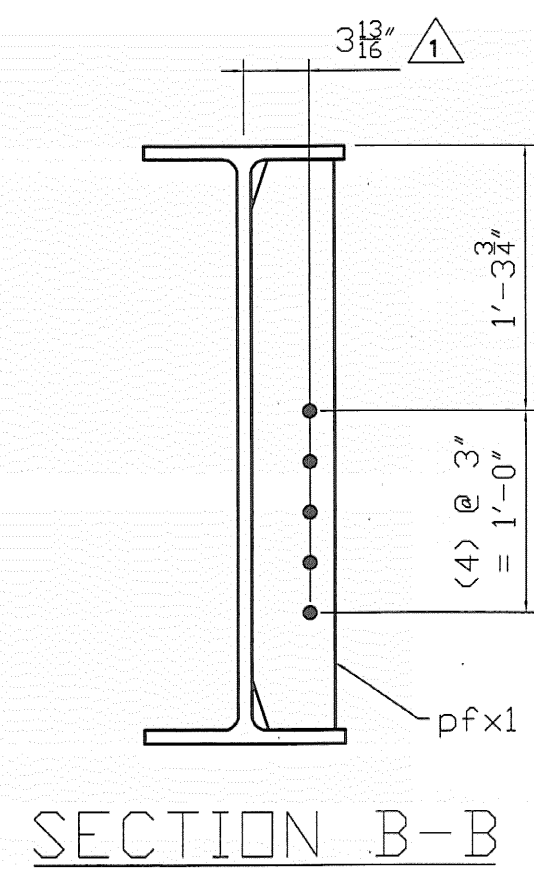
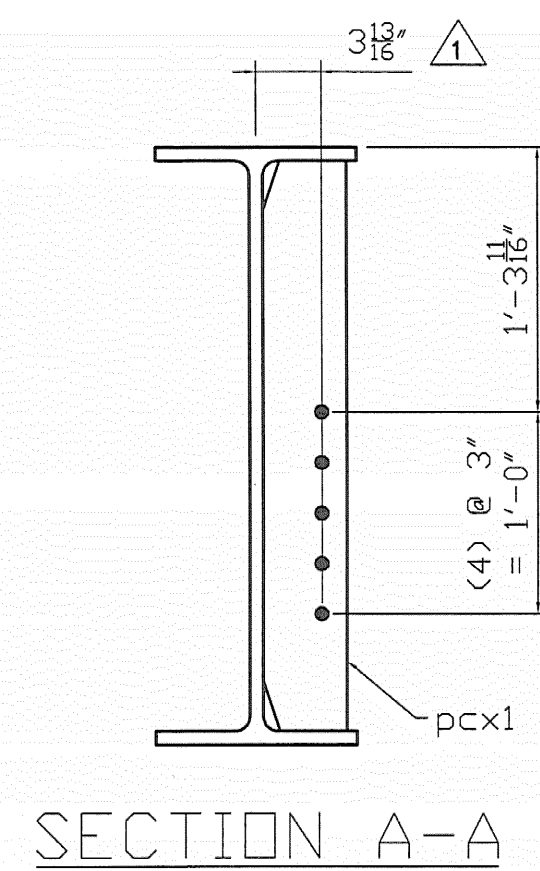
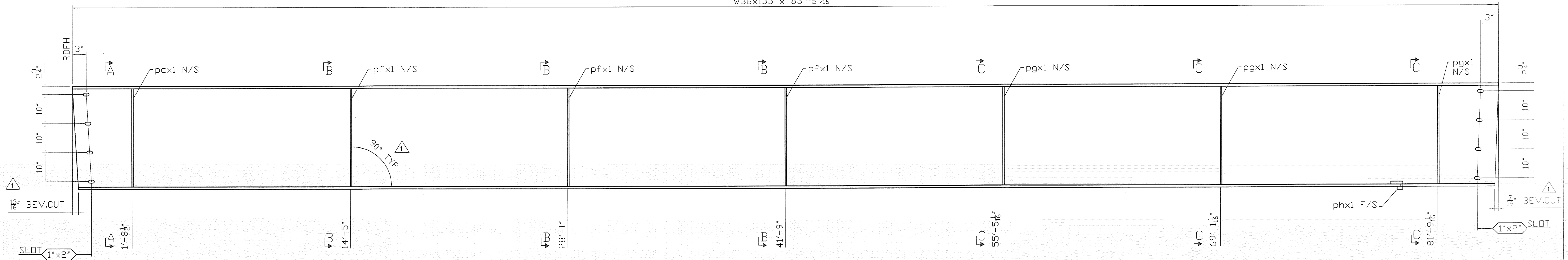
DRAWN BY	CHECKED BY	JOB NO.	SHEET NO.
KC	WL	3476	E1
11/23/08	11/30/08		



SHIPPER		BILL OF MATERIAL					
NO.	MARK	NO.	MARK	SIZE	LENGTH	REMARKS	WEIGHT
1	1A			W36X135	83'-6 1/16"	CVN/BEVEL --	
		1	pcx1	PL 1/2 x 5	2'-9 7/8"		--
		3	pfx1	PL 1/2 x 5	2'-9 7/8"		--
		3	pgx1	PL 1/2 x 5	2'-9 7/8"		--
		1	phx1	PL 1/2 x 2 1/8	0'-8 5/16"		--



W36x135 x 83'-6 1/16"



RECEIVED
 OK'D BY: *SSS* OK'D BY: *MJM*
 JAN 26 2009
 APPROVED BY: *[Signature]* DATE: 1/26/09

NOTE:
 1. FOR GENERAL NOTES SEE GN1

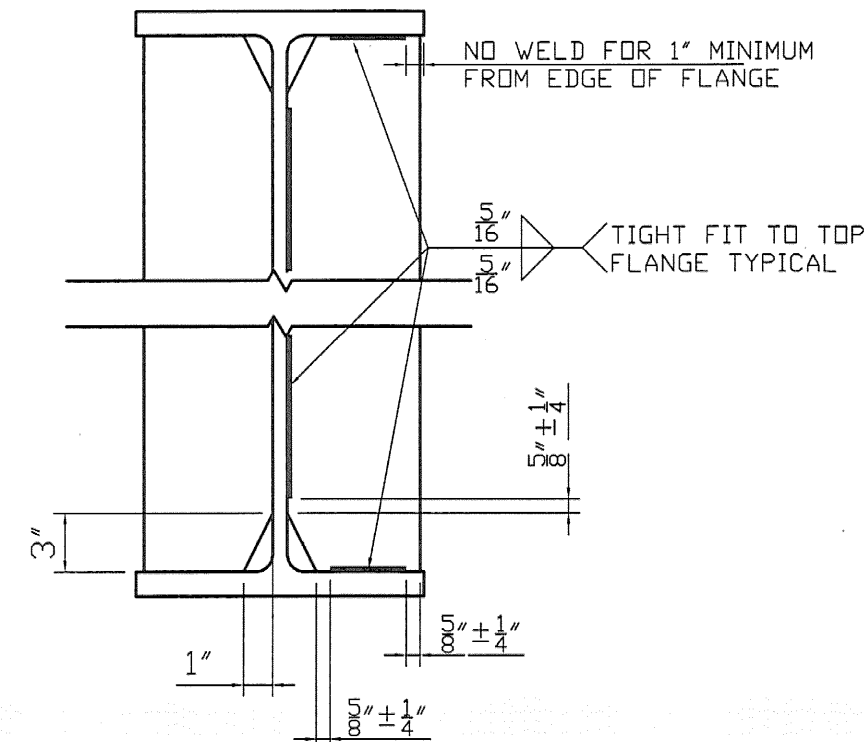
SHOP NOTES
 HOLES 15/16"Ø (U.N.)
 BOLTS NONE
 PAINT SEE GN DWG
 WELDS TO BE MADE USING ER80-NiL ELECTRODES
 MATERIAL M270 Gr.50

REV. NO.	DATE	APPROVER COMMENTS	REVISION
1	1/2/09		

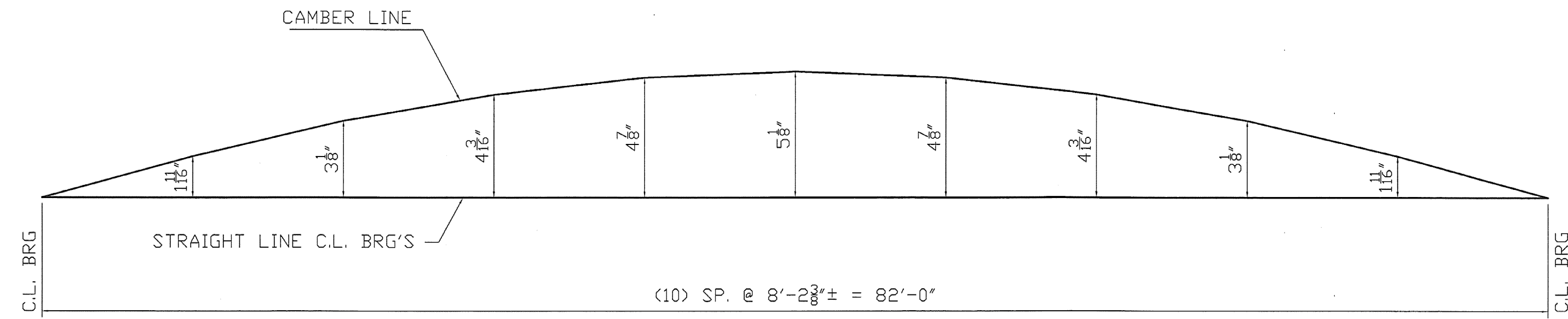
BEAM DETAIL B1
 VT.102 (MAJOR COLLECTOR) BRIDGE #16 CANAAN, VT
 PROJECT NUMBER ER ST 0271 (16)

FOSTER • PRECISE
 3 FARM LANE GEORGETOWN, MA 01833
 978-352-2591 FAX 978-352-2182
 OWNER: STATE OF VERMONT AGENCY OF TRANSPORTATION
 CONTRACTOR: WINTERSSET INC.

DRAWN BY	CHECKED BY	JOB NO.	SHEET NO.
KC	WL	3476	1

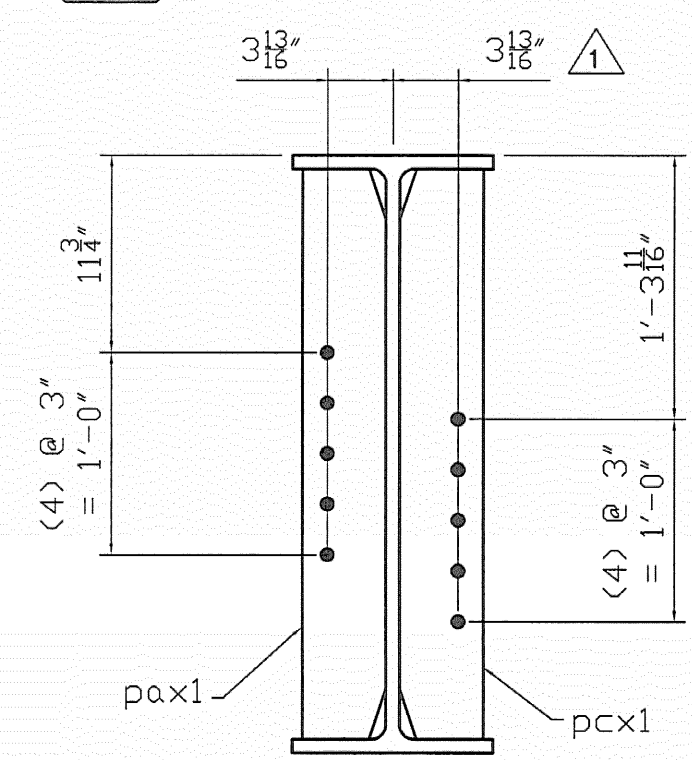
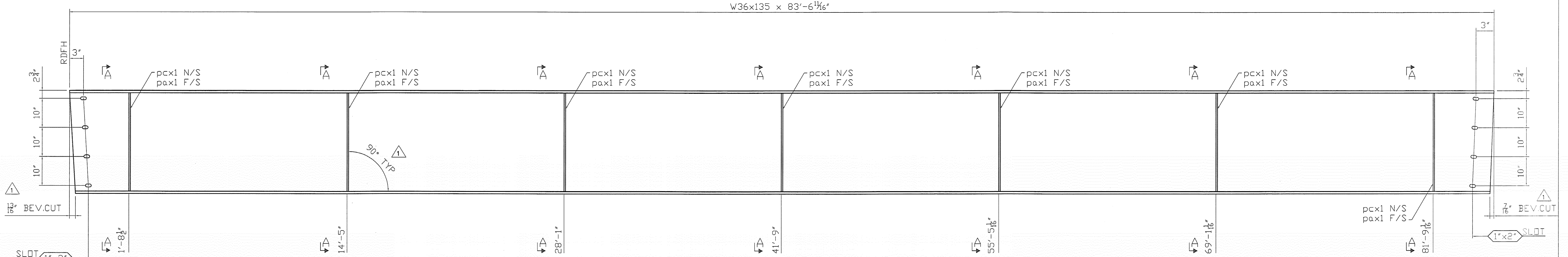
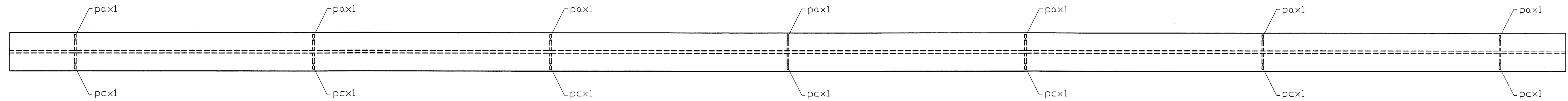


TYP. WELD TERMINATION DETAIL



CAMBER DIAGRAM FOR BEAM 2

SHIPPER		BILL OF MATERIAL					
NO.	MARK	NO.	MARK	SIZE	LENGTH	REMARKS	WEIGHT
1	2A			W36X135	83'-6 ¹ / ₁₆ "	CVN/BEVEL	--
		7	pax1	PL ¹ / ₂ x5	2'-9 ⁷ / ₈ "		--
		7	pcx1	PL ¹ / ₂ x5	2'-9 ⁷ / ₈ "		--



SECTION A-A

RECEIVED
 OK'D BY: *SSS* OK'D BY: *mem*
 JAN 19 2009
 BY: *✓* DATE: 1/26/09

NOTE:
 1. FOR GENERAL NOTES SEE GN1

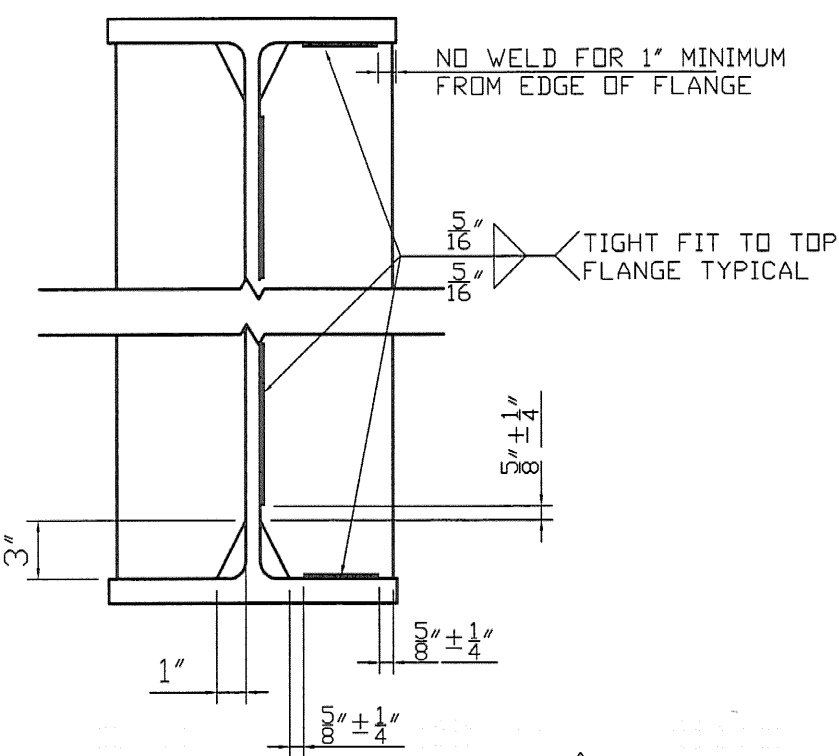
SHOP NOTES
 HOLES 15/16" Ø (U.N.)
 BOLTS NONE
 PAINT SEE GN DWG
 WELDS TO BE MADE USING ER80-NiL ELECTRODES
 MATERIAL M270 Gr.50

REV. NO.	DATE	APPROVER COMMENTS	REVISION
3			
2			
1	1/9/09		

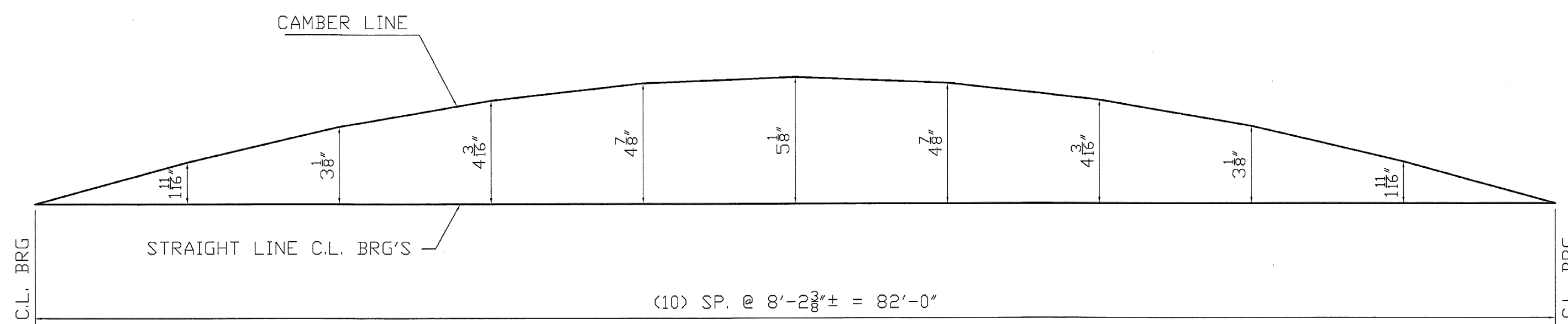
BEAM DETAIL B2
 VT.102 (MAJOR COLLECTOR) BRIDGE #16 CANAAN, VT
 PROJECT NUMBER ER ST 0271 (16)

FOSTER • PRECISE
 3 FARM LANE GEORGETOWN, MA 01833
 978-352-2591 FAX 978-352-2182
 OWNER: STATE OF VERMONT AGENCY OF TRANSPORTATION
 CONTRACTOR: WINTERSSET INC.

DRAWN BY	CHECKED BY	JOB NO.	SHEET NO.
KC	WL	3476	2
11/23/08	11/30/08		

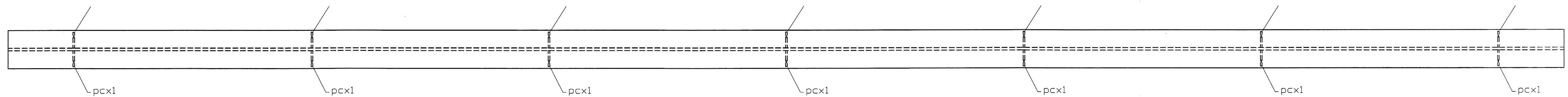


TYP. WELD TERMINATION DETAIL

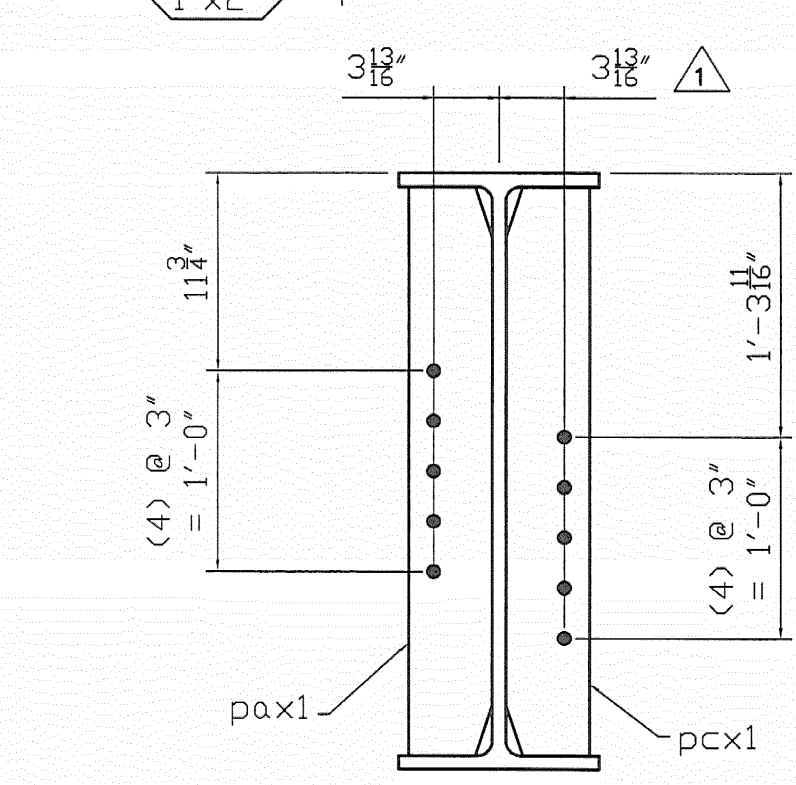
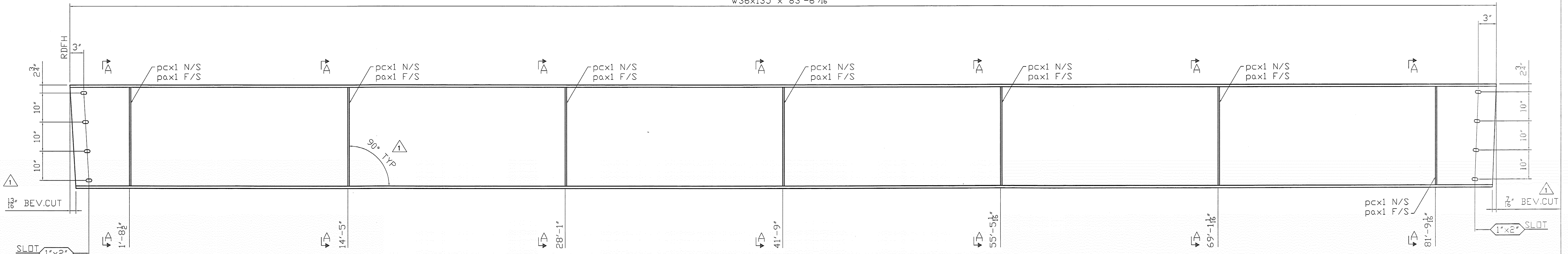


CAMBER DIAGRAM FOR BEAM 3

SHIPPER		BILL OF MATERIAL					
NO.	MARK	NO.	MARK	SIZE	LENGTH	REMARKS	WEIGHT
1	3A			W36X135	83'-6 1/8"	CVN/BEVEL	--
		7	pcx1	PL 1/2x5	2'-9 3/8"		--
		7	pcx1	PL 1/2x5	2'-9 3/8"		--



W36x135 x 83'-6 1/8"



SECTION A-A

RECEIVED
OK'D BY SSS OK'D BY MPM
JAN 17
BY [Signature] DATE 1/20/09

NOTE:
1. FOR GENERAL NOTES SEE GNI

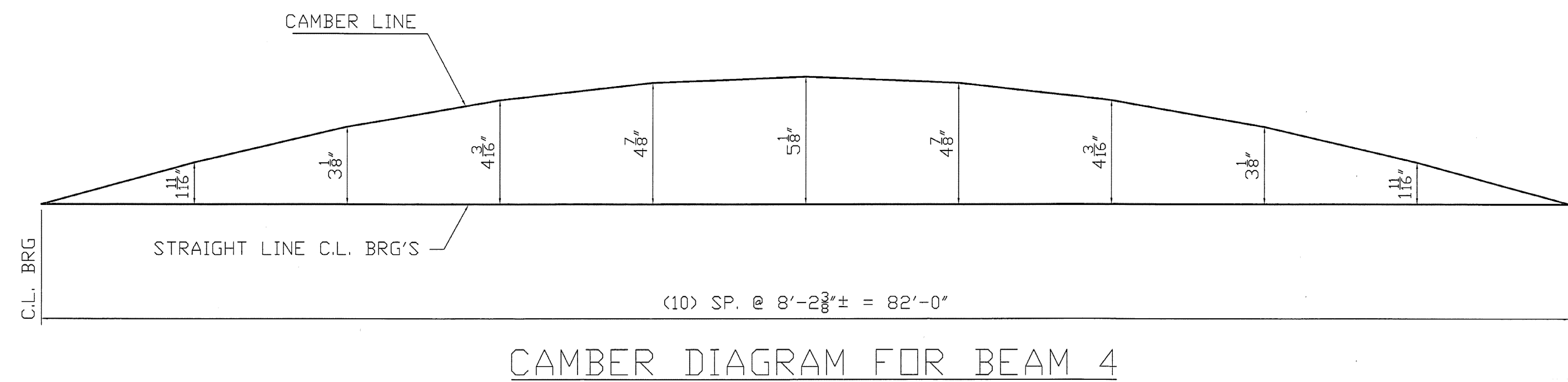
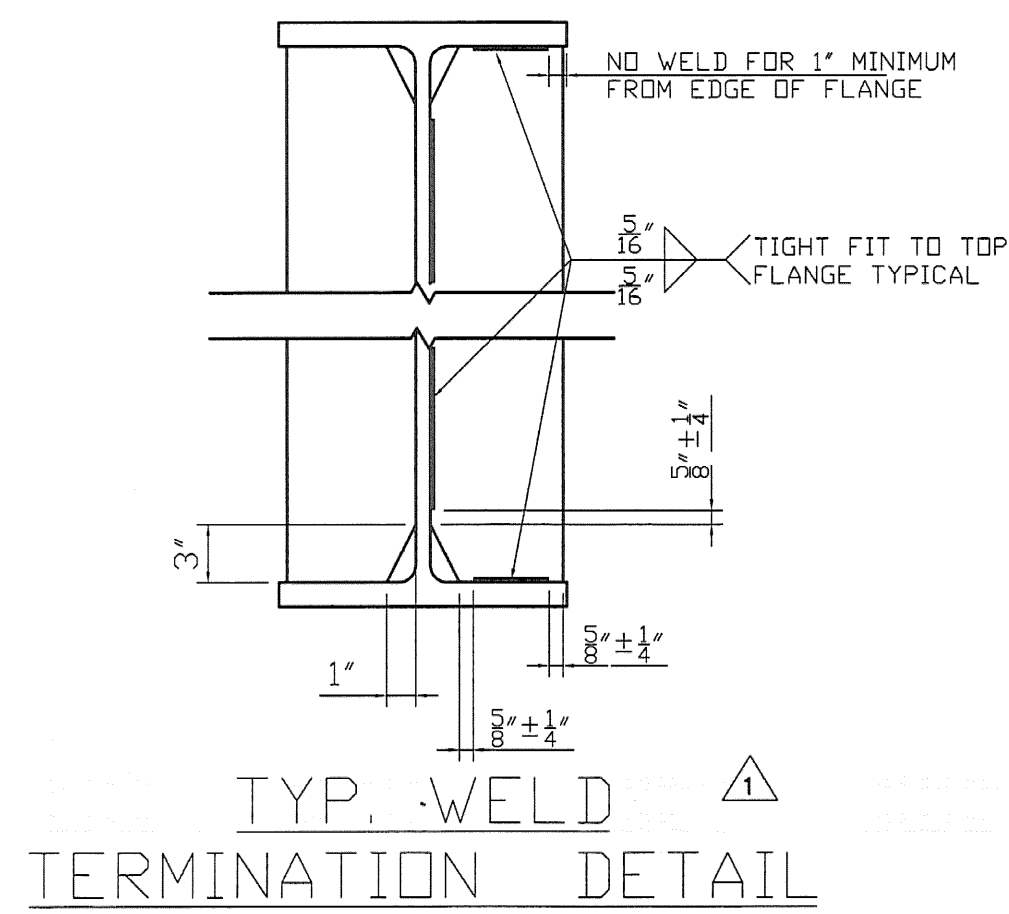
SHOP NOTES
HOLES 15/16" Ø (U.N.)
BOLTS NONE
PAINT SEE GN DWG
WELDS TO BE MADE USING ER80-NiL ELECTRODES
MATERIAL M270 Gr.50

REV. NO.	DATE	APPROVER COMMENTS	REVISION
1	1/9/09		

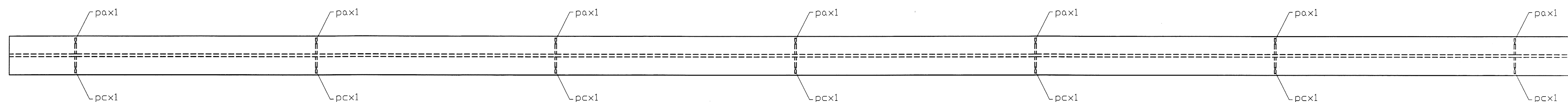
BEAM DETAIL B3
VT.102 (MAJOR COLLECTOR) BRIDGE #16 CANAAN, VT
PROJECT NUMBER ER ST 0271 (16)

FOSTER • PRECISE
3 FARM LANE GEORGETOWN, MA 01833
978-352-2591 FAX 978-352-2182
OWNER: STATE OF VERMONT AGENCY OF TRANSPORTATION
CONTRACTOR: WINTERSSET INC.

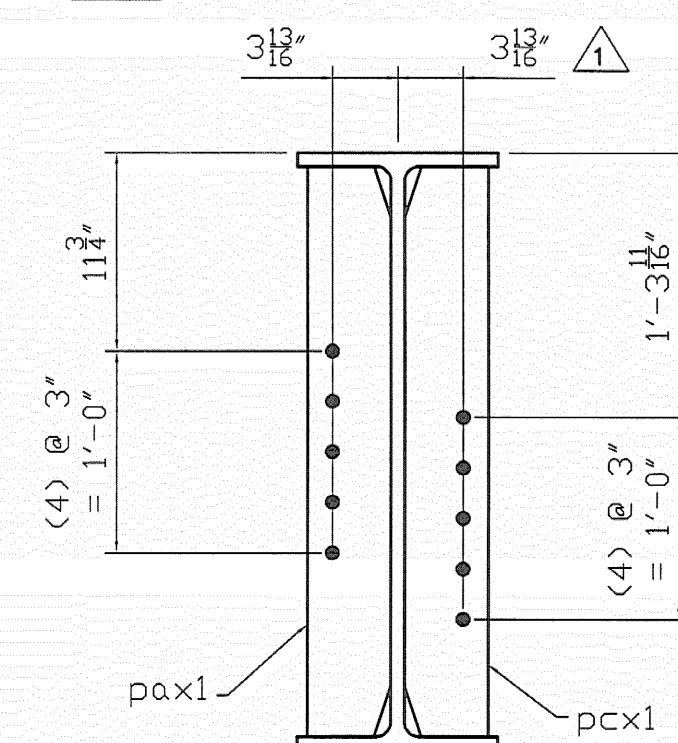
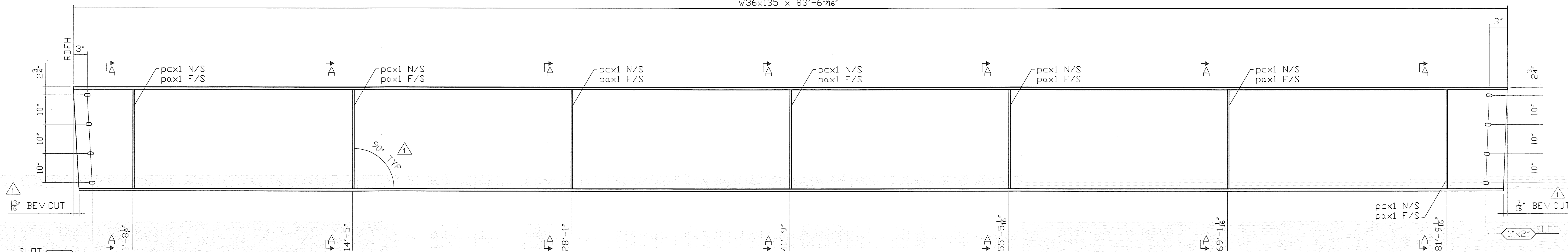
DRAWN BY	CHECKED BY	JOB NO.	SHEET NO.
KC	WL	3476	3
11/23/08	11/30/08		



SHIPPER		BILL OF MATERIAL					
NO.	MARK	NO.	MARK	SIZE	LENGTH	REMARKS	WEIGHT
1	4A			W36X135	83'-6 1/16"	CVN/BEVEL	--
		7	pa x1	PL 1/2 x 5	2'-9 3/8"		--
		7	pc x1	PL 1/2 x 5	2'-9 3/8"		--



W36x135 x 83'-6 1/16"



SECTION A-A

RECEIVED
 OK'D BY SSS OK'D BY mpm
 JAN 2009
 1/20/09

NOTE:
 1. FOR GENERAL NOTES SEE GN1

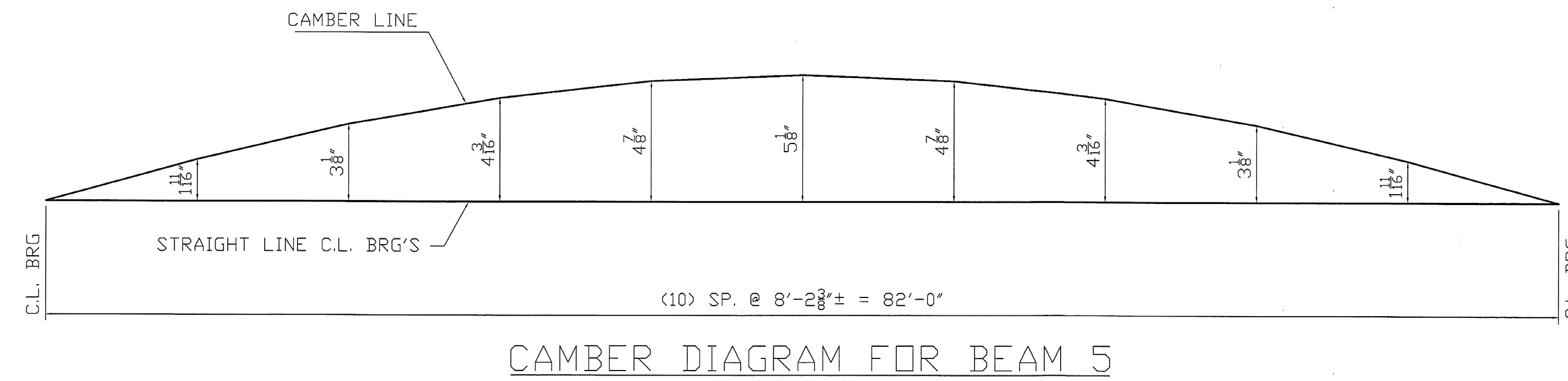
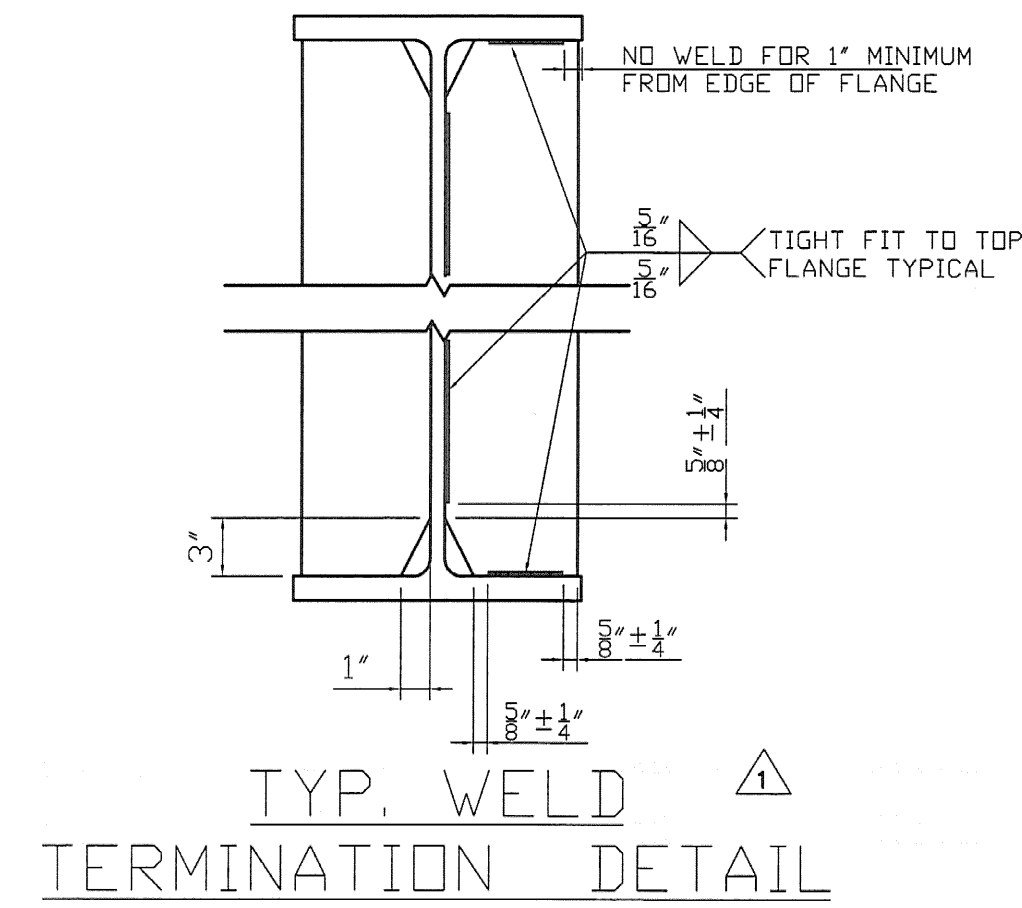
SHOP NOTES
 HOLES 15/16"Ø (U.N.)
 BOLTS NONE
 PAINT SEE GN DWG
 WELDS TO BE MADE USING ER80-NiL ELECTRODES
 MATERIAL M270 Gr.50

REV. NO	DATE	APPROVER COMMENTS	REVISION
3			
2			
1	1/9/09		

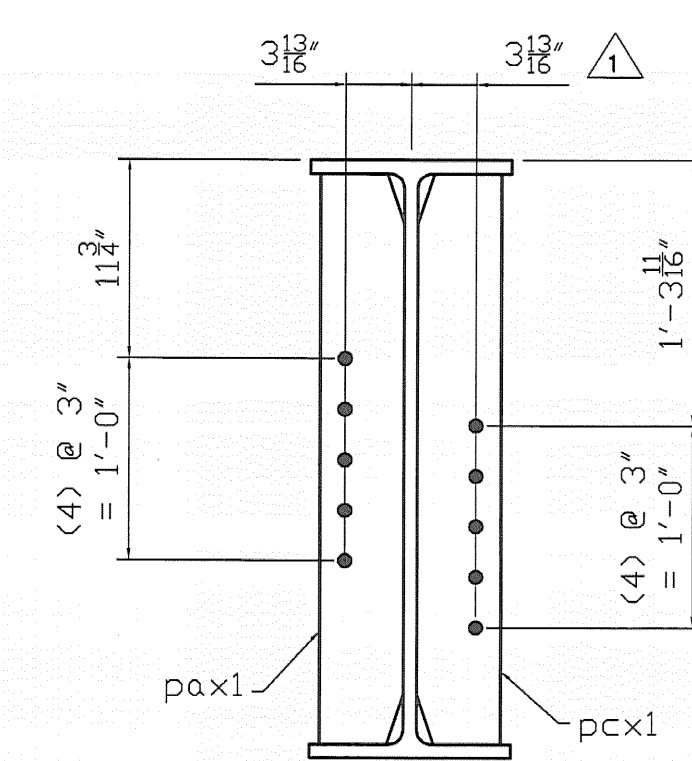
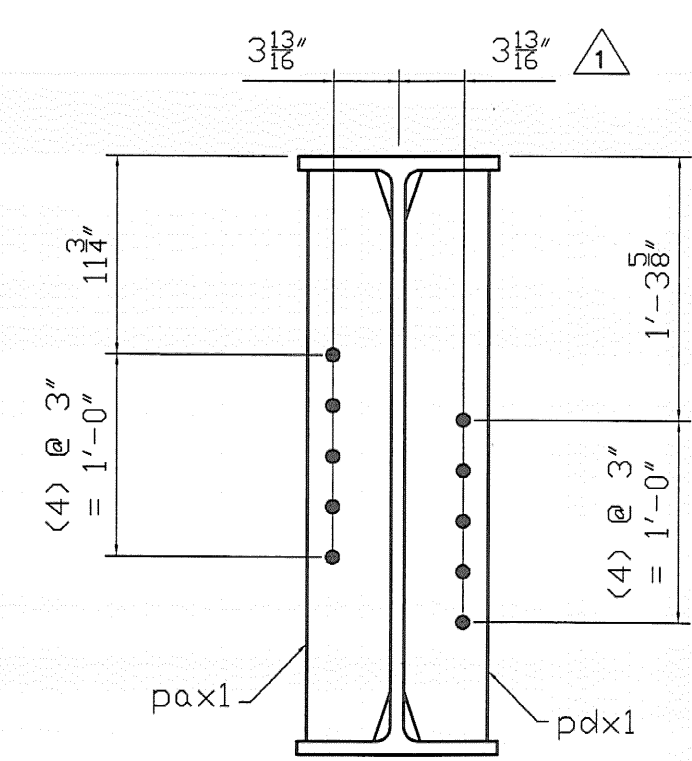
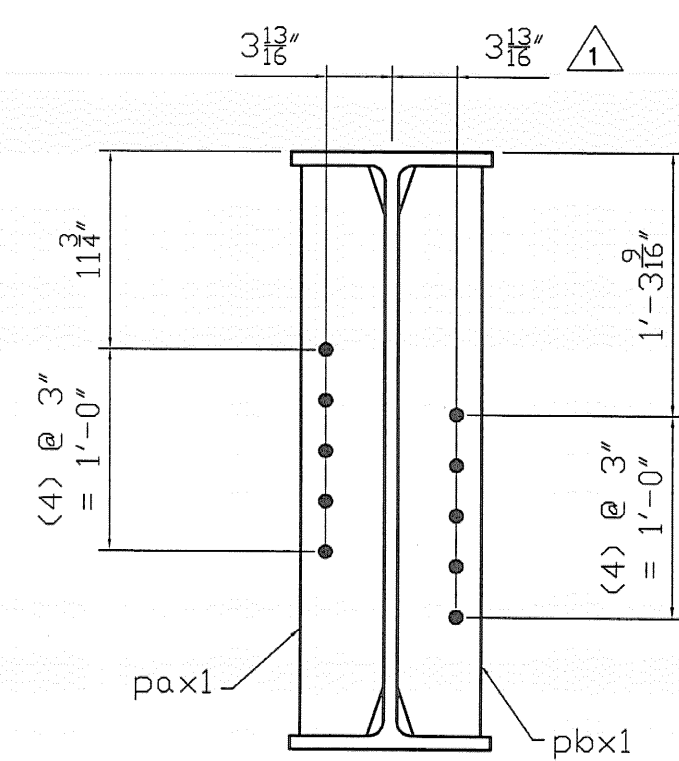
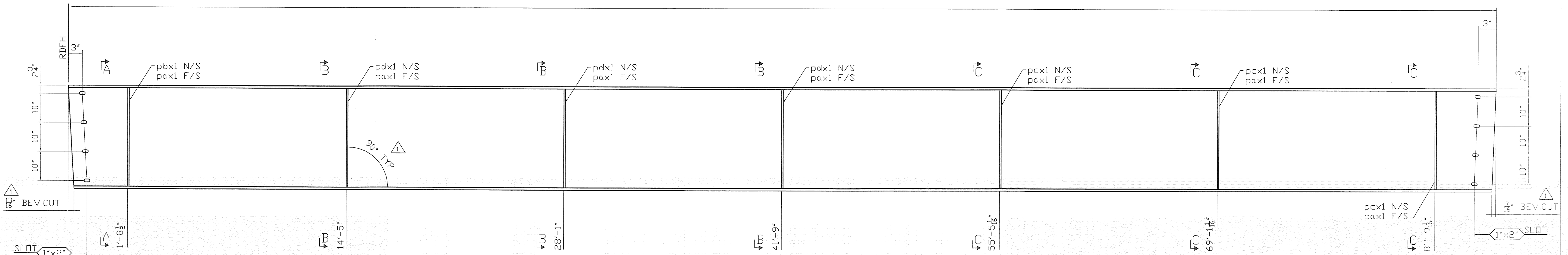
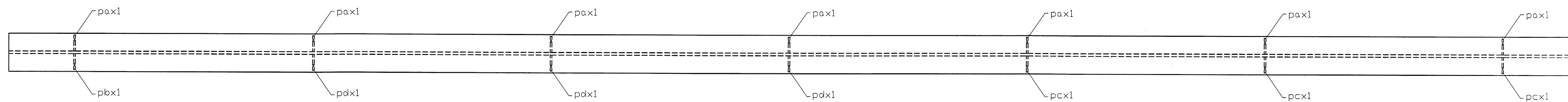
BEAM DETAIL B4
 VT.102 (MAJOR COLLECTOR) BRIDGE #16 CANAAN, VT
 PROJECT NUMBER ER ST 0271 (16)

FOSTER • PRECISE
 3 FARM LANE GEORGETOWN, MA 01833
 978-352-2591 FAX 978-352-2182
 OWNER: STATE OF VERMONT AGENCY OF TRANSPORTATION
 CONTRACTOR: WINTERSSET INC.

DRAWN BY	CHECKED BY	JOB NO.	SHEET NO.
KC	WL	3476	4
11/23/08	11/30/08		



SHIPPER		BILL OF MATERIAL					
NO.	MARK	NO.	MARK	SIZE	LENGTH	REMARKS	WEIGHT
1	5A			W36X135	83'-6 1/16	CVN/BEVEL	--
		7	pa x1	PL 1/2 x 5	2'-9 7/8		--
		1	pb x1	PL 1/2 x 5	2'-9 7/8		--
		3	pc x1	PL 1/2 x 5	2'-9 7/8		--
		3	pd x1	PL 1/2 x 5	2'-9 7/8		--



SECTION A-A

SECTION B-B

SECTION C-C

RECEIVED
 8K9 BY SSS OK'D BY MAM
 JAN
 1/26/09

NOTE:
 1. FOR GENERAL NOTES SEE GN

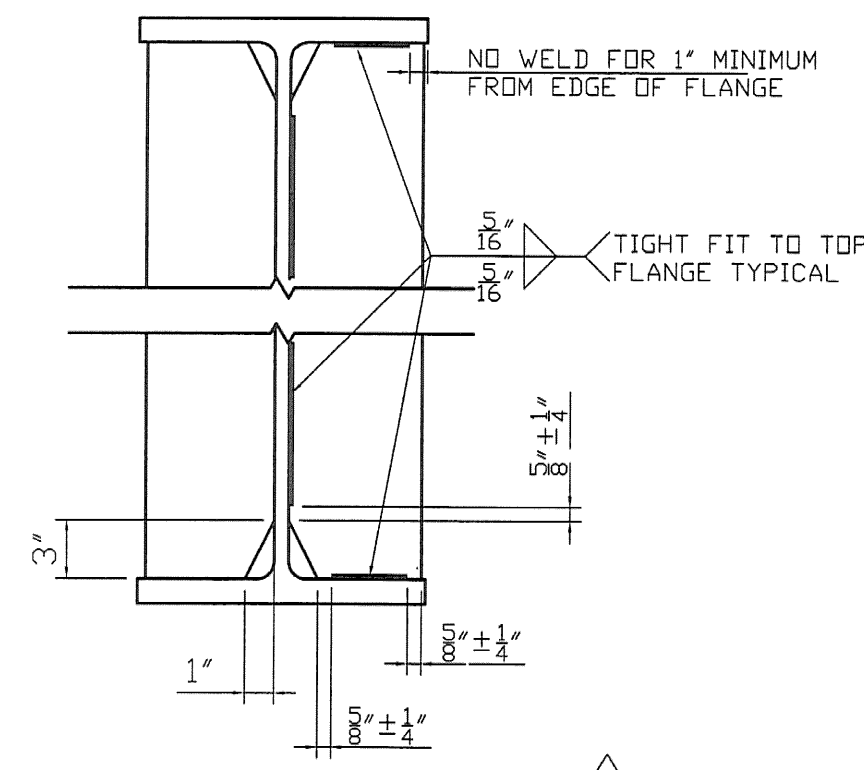
SHOP NOTES
 HOLES 15/16" Ø (U.N.)
 BOLTS NONE
 PAINT SEE GN DWG
 WELDS TO BE MADE USING ER80-NiL ELECTRODES
 MATERIAL M270 Gr.50

REV. NO.	DATE	APPROVER COMMENTS	REVISION
1	1/9/09		

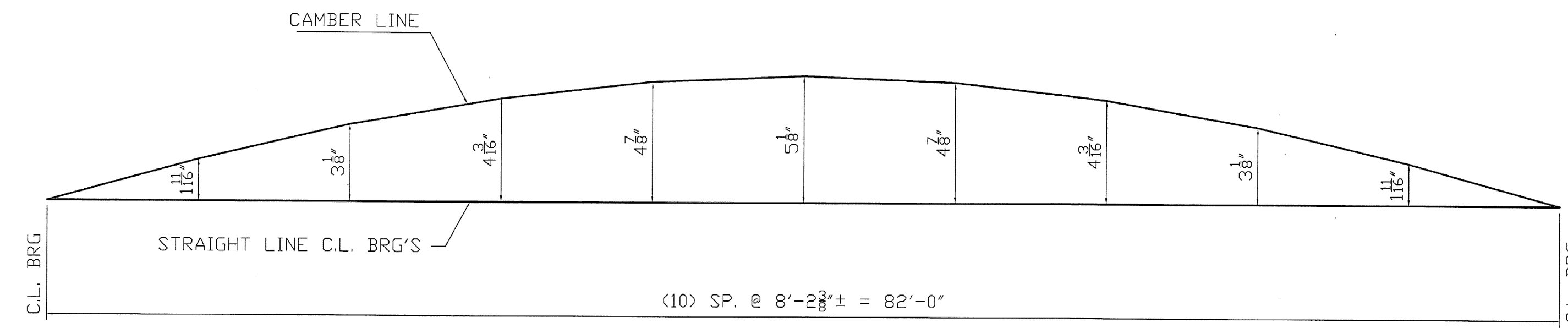
BEAM DETAIL B5
 VT.102 (MAJOR COLLECTOR) BRIDGE #16
 PROJECT NUMBER ER ST Q271 (16)

FOSTER • PRECISE
 3 FARM LANE GEORGETOWN, MA 01833
 978-352-2591 FAX 978-352-2182
 OWNER: STATE OF VERMONT AGENCY OF TRANSPORTATION
 CONTRACTOR: WINTERSET INC.

DRAWN BY	CHECKED BY	JOB NO.	SHEET NO.
KC	WL	3476	5
11/23/08	11/30/08		

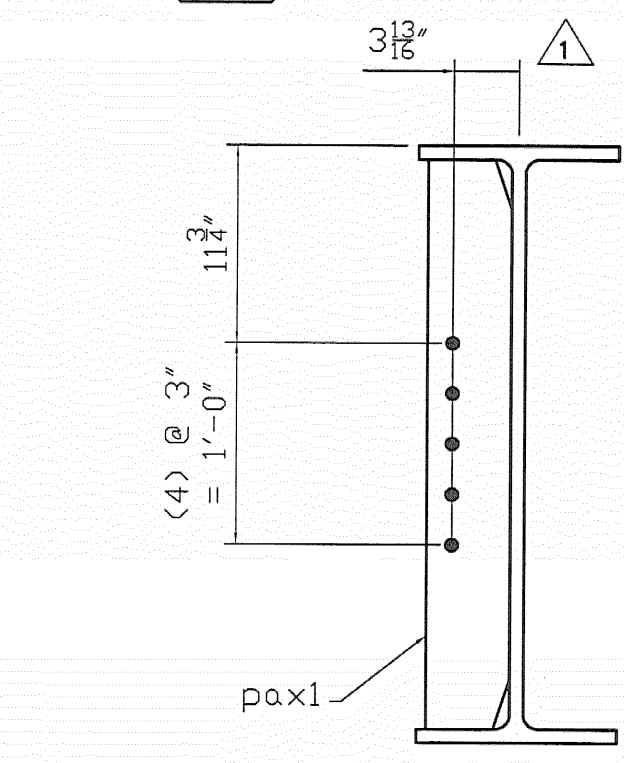
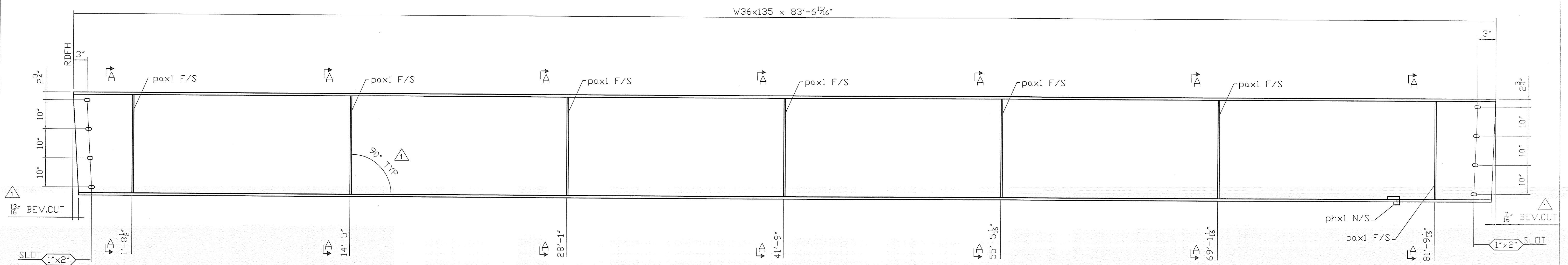
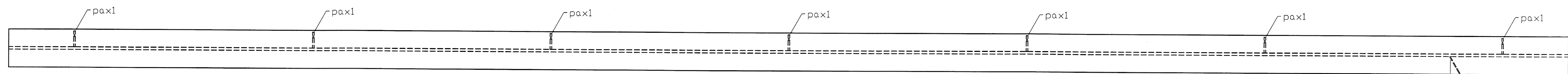


TYP. WELD TERMINATION DETAIL

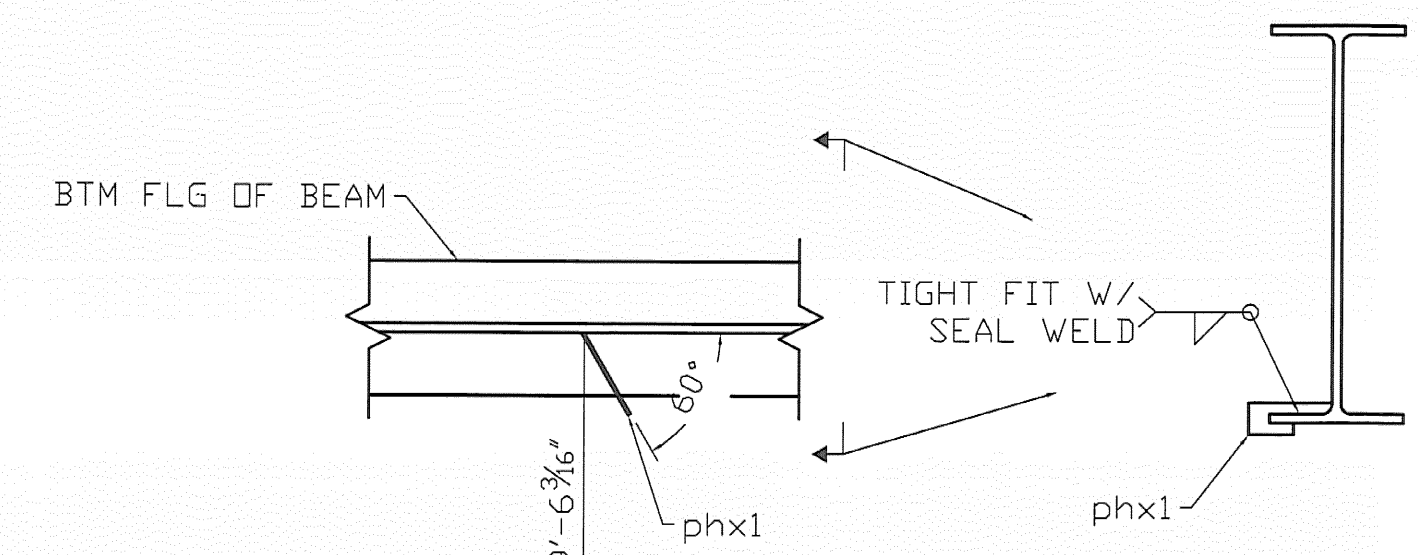


CAMBER DIAGRAM FOR BEAM 6

SHIPPER		BILL OF MATERIAL					
NO.	MARK	NO.	MARK	SIZE	LENGTH	REMARKS	WEIGHT
1	6A			W36X135	83'-6 1/16"	CVN/BEVEL	--
		7	pax1	PL 1/2 X 5	2'-9 3/8"		--
		1	phx1	PL 1/2 X 2 1/2	0'-8 1/8"		--



SECTION A-A



PLAN DRIP PLATE

Handwritten notes and signatures:
 3/3/09
 1/26/09

NOTE:
 1. FOR GENERAL NOTES SEE GN1

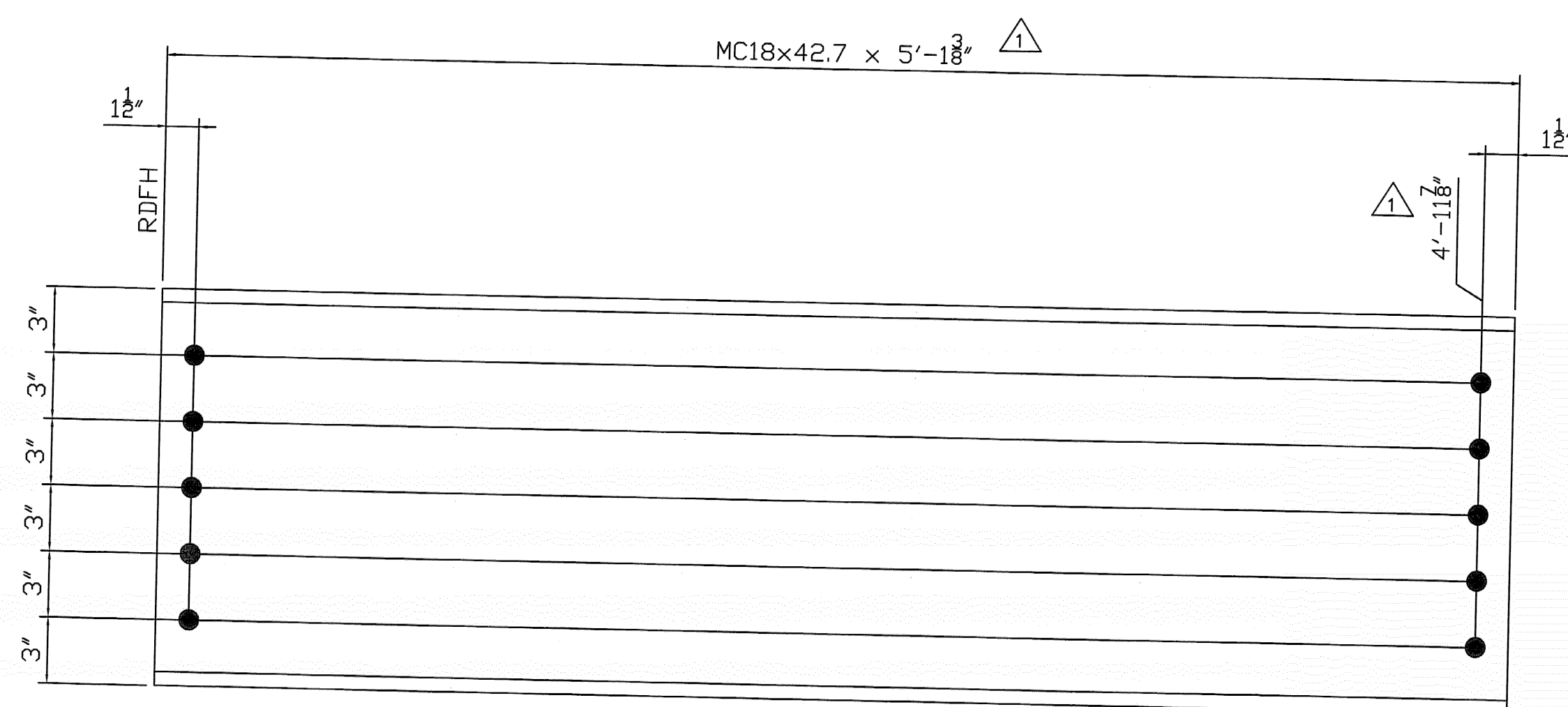
SHOP NOTES
 HOLES 15/16" Ø (U.N.)
 BOLTS NONE
 PAINT SEE GN DWG
 WELDS TO BE MADE USING ER80-NL ELECTRODES
 MATERIAL M270 Gr.50

REV. NO.	DATE	APPROVER COMMENTS
1	1/9/09	REVISION

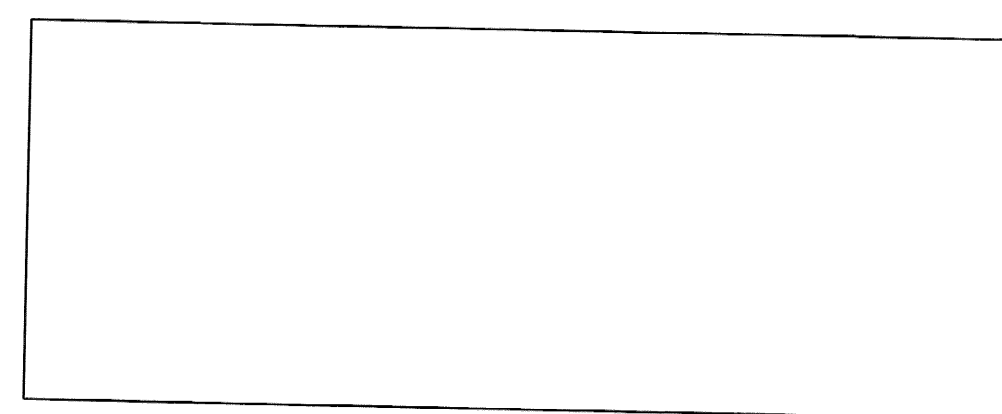
BEAM DETAIL B6
 VT.102 (MAJOR COLLECTOR) BRIDGE #16 CANAAN, VT
 PROJECT NUMBER ER ST 0271 (16)

FOSTER • PRECISE
 3 FARM LANE GEORGETOWN, MA 01833
 978-352-2591 FAX 978-352-2182
 OWNER: STATE OF VERMONT AGENCY OF TRANSPORTATION
 CONTRACTOR: WINTERSSET INC.

DRAWN BY KC	CHECKED BY WL	JOB NO. 3476	SHEET NO. 6
11/23/08	11/30/08		



35 REQ'D ~ DIAPHRAGMS ~ 7A



12 REQ'D ~ BLOCK OUT PLS. ~ 7P5

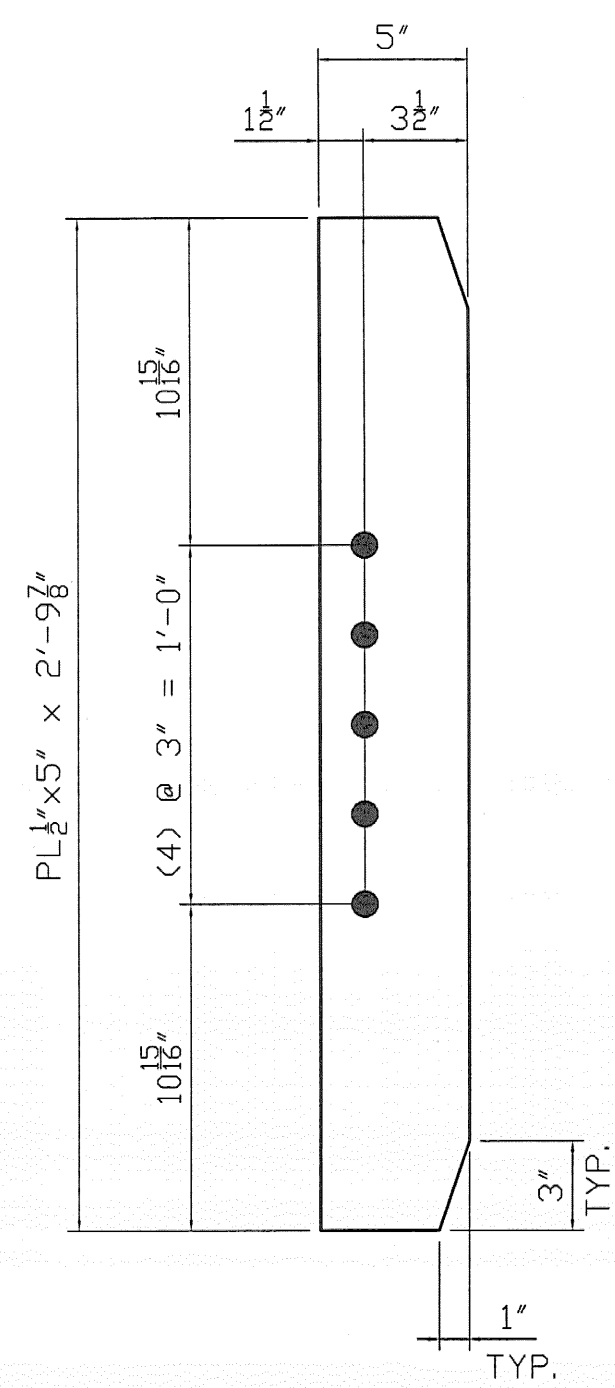
SHIPPER		BILL OF MATERIAL					
NO.	MARK	NO.	MARK	SIZE	LENGTH	REMARKS	WEIGHT
35	7A			MC18x42.7	5'-1 7/8"		--
12	7P5			PL 1/4 x 12	2'-7"		--

Approved for payment
9/28/2009 mjm

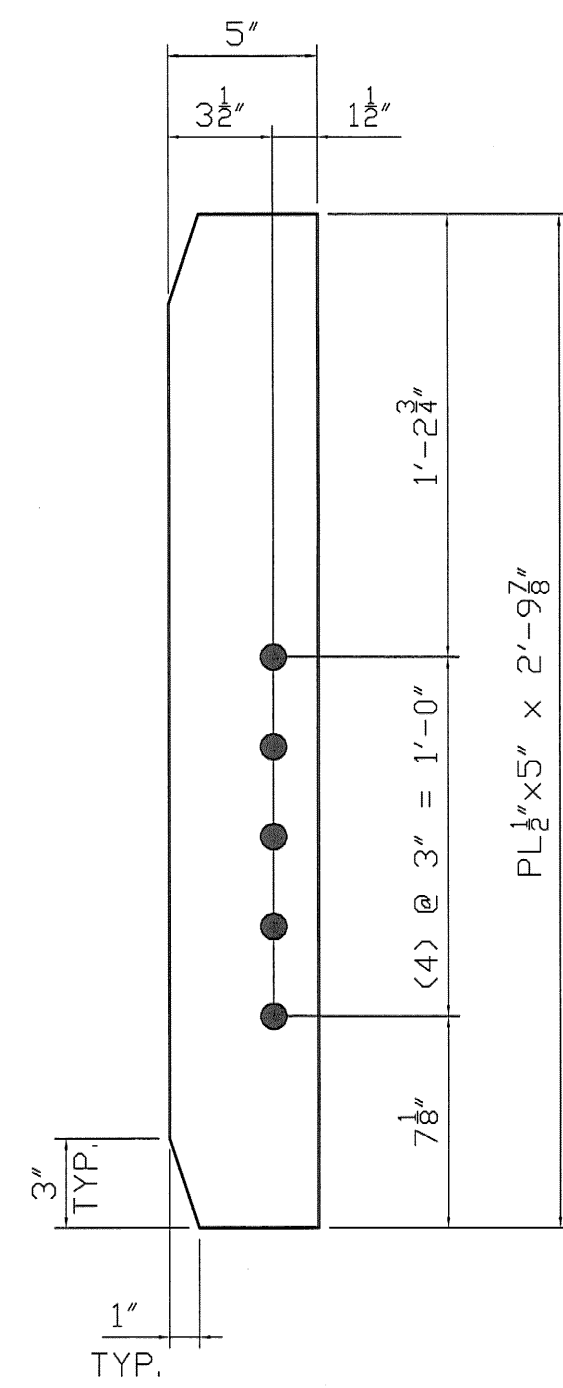
REV. NO.	DATE	REVISION
3		
2	9/28/09	ADDED BLOCK OUT STEEL
1	1/9/09	APPROVER COMMENTS
DIAPHRAM DETAIL		
VT.102 (MAJOR COLLECTOR) BRIDGE #16		CANAAN, VT
PROJECT NUMBER ER ST 0271 (16)		
FOSTER • PRECISE 3 FARM LANE GEORGETOWN, MA 01833 978-352-2591 FAX 978-352-2182 OWNER: STATE OF VERMONT AGENCY OF TRANSPORTATION CONTRACTOR: WINTEREST INC.		
DRAWN BY KC 11/23/08	CHECKED BY WL 11/30/08	JOB NO. 3476
		SHEET NO. 7

NOTE:
1. FOR GENERAL NOTES SEE GNI

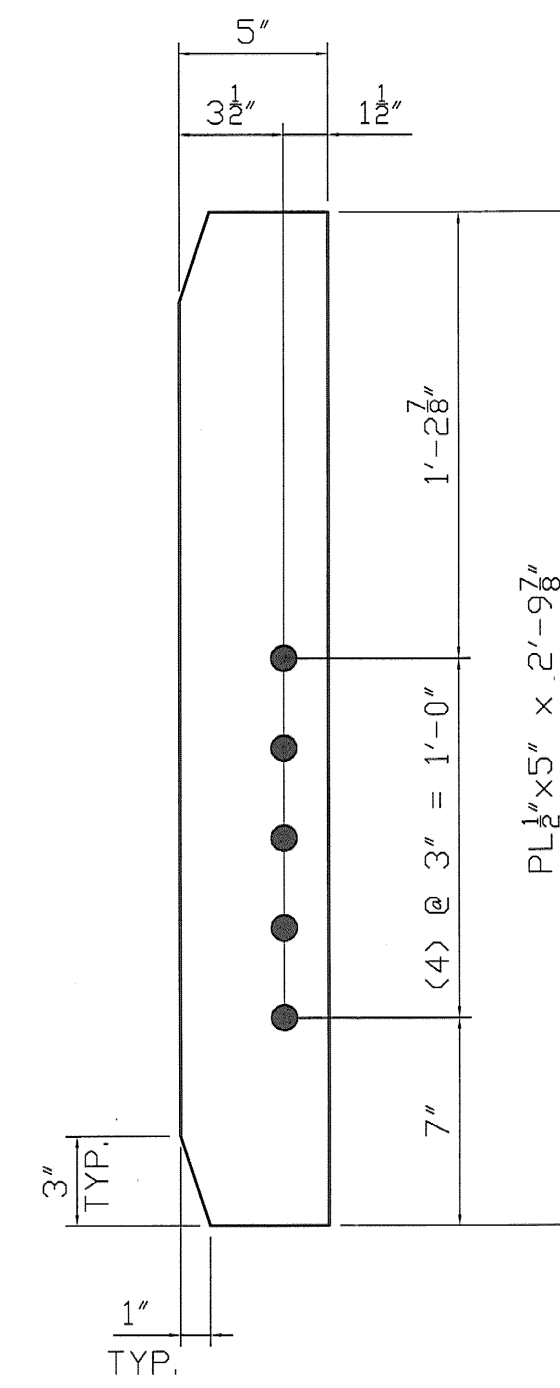
SHOP NOTES
 HOLES 15/16"Ø (U.N.)
 BOLTS NONE
 PAINT SEE GN DWG
 WELDS TO BE MADE USING ER80-NiL ELECTRODES
 MATERIAL M270 GR50



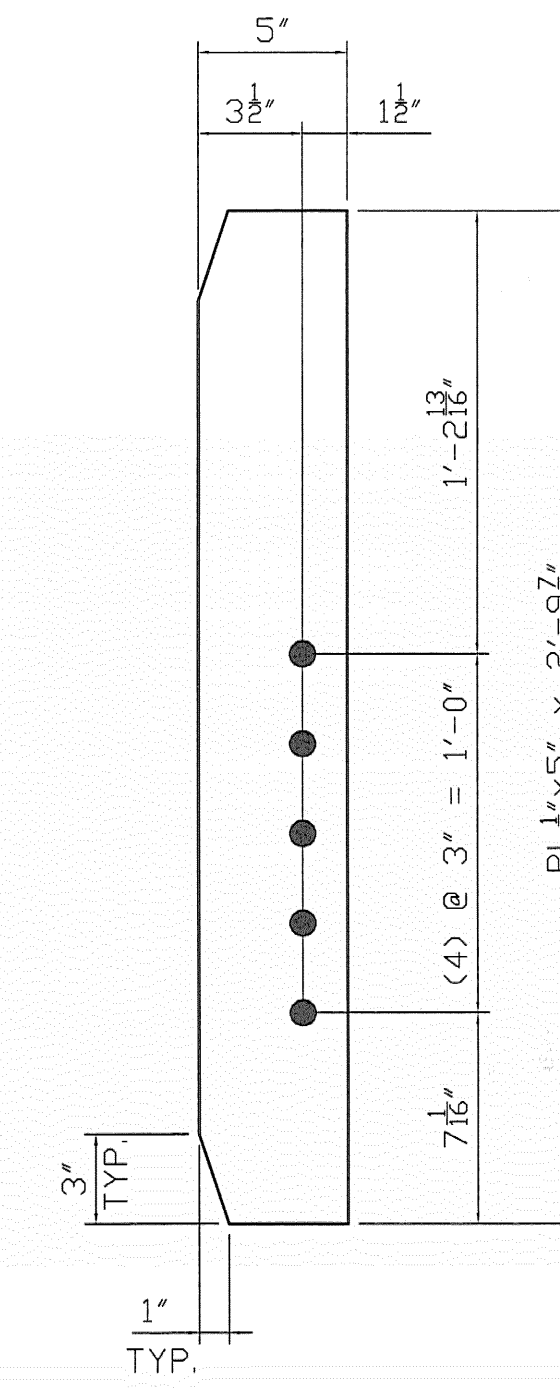
35 REQ'D ~ GUSSET ~ pax1



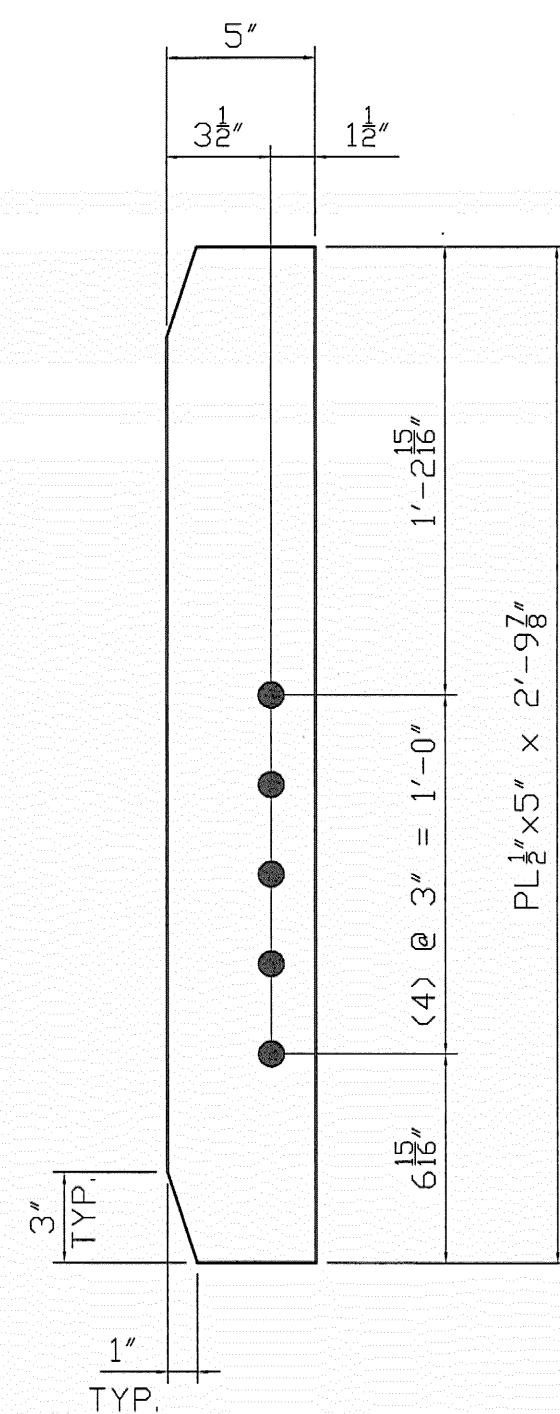
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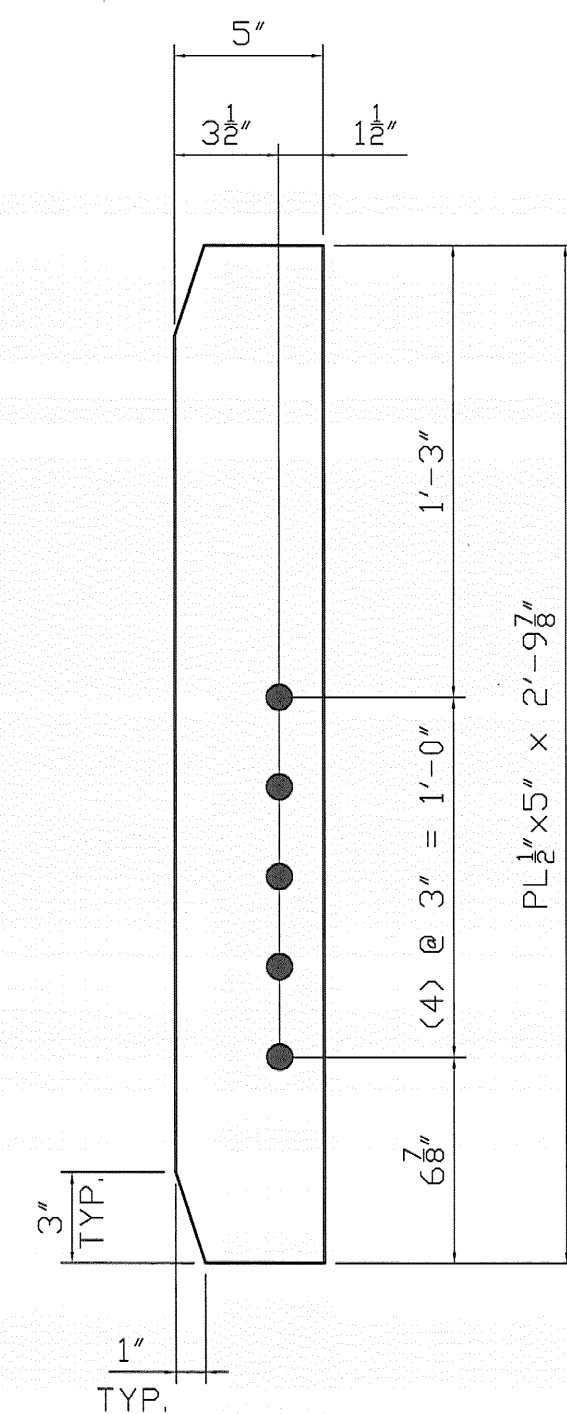
25 REQ'D ~ GUSSET ~ pcx1



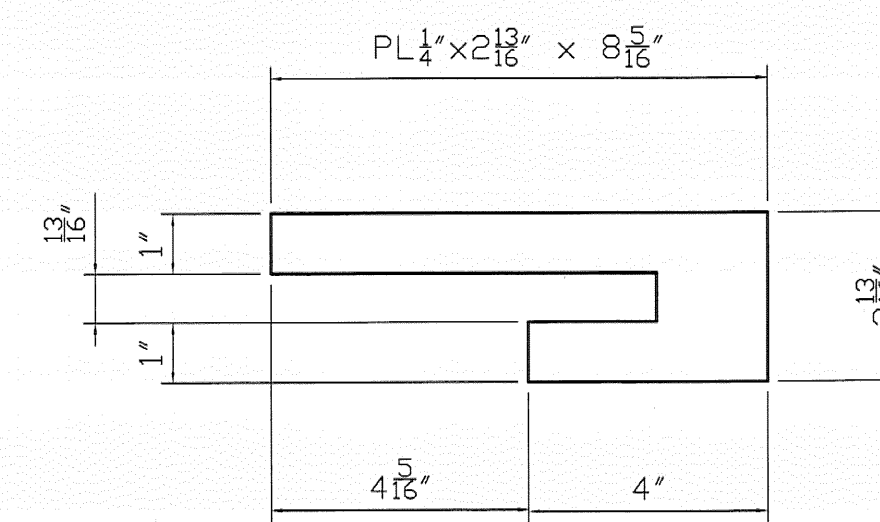
3 REQ'D ~ GUSSET ~ pdx1



3 REQ'D ~ GUSSET ~ pfx1



3 REQ'D ~ GUSSET ~ pgx1



2 REQ'D ~ GUSSET ~ phx1

OK'D BY *SSS* *mm*
 1/24/09

NOTE:
 1. FOR GENERAL NOTES SEE GN1

SHOP NOTES
 HOLES 15/16" Ø (U.N.)
 BOLTS NONE
 PAINT SEE GN DWG
 WELDS TO BE MADE USING ER80-NiL ELECTRODES
 MATERIAL M270 Gr.50

REV. NO.	DATE	REVISION
3		
2		
1		

DIAPHRAM DETAIL
 VT.102 (MAJOR COLLECTOR) BRIDGE #16 CANAAN, VT
 PROJECT NUMBER ER ST 0271 (16)

FOSTER • PRECISE
 3 FARM LANE GEORGETOWN, MA 01833
 978-352-2591 FAX 978-352-2182
 OWNER: STATE OF VERMONT AGENCY OF TRANSPORTATION
 CONTRACTOR: WINTERSET INC

DRAWN BY	CHECKED BY	JOB NO.	SHEET NO.
KC 11/23/08	WL 11/30/08	3476	X1