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D-3M	TREATED GUTTERS	06-13-97
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F-2M	DRIVE GATE FOR CHAIN LINK FENCE, TYPE I	01-03-00
G-1M	STEEL BEAM GUARD RAIL (50 MPH & OVER)	01-03-00
G-10M	STEEL BEAM GUARD RAIL (40 MPH & LESS)	01-03-00
G-4M	MARKERS, STEEL MARKER POSTS	06-13-97
G-18M	PRECAST CONCRETE TEMPORARY TRAFFIC BARRIER	06-13-97
J-1M	PROJECT AND BOUNDARY MARKERS	06-13-97

CONVENTIONAL SYMBOLS

COUNTY LINE	---
TOWN LINE	---
LIMITS OF ACCESS	---o---o---o---
POINT OF ACCESS	X
FENCE LINE	X---X---X---X---
STONE WALL	o---o---o---o---
TRAVELED WAY	---
GUARD RAIL	o---o---o---o---
RAILROAD	+
SURVEY LINE	---
CULVERT	---
POWER POLE	⊕
TELEPHONE POLE	⊕
TREES	⊕
CONTROL OF ACCESS	PL
PROPERTY LINE	---
R.O.W. TAKING LINE	---
SLOPE RIGHTS	SR
TOP OF CUT	---
TOE OF SLOPE	---

SURVEYED BY :
SURVEYED DATE :

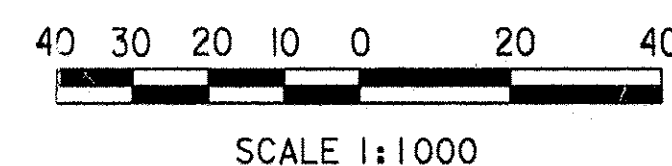
DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

PLANS PREPARED BY

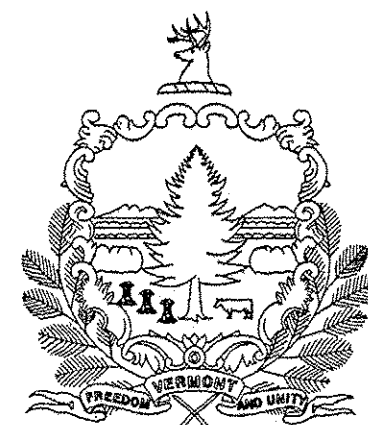


McFARLAND-JOHNSON, INC.
BINGHAMTON N.Y.

BY



STATE OF VERMONT AGENCY OF TRANSPORTATION

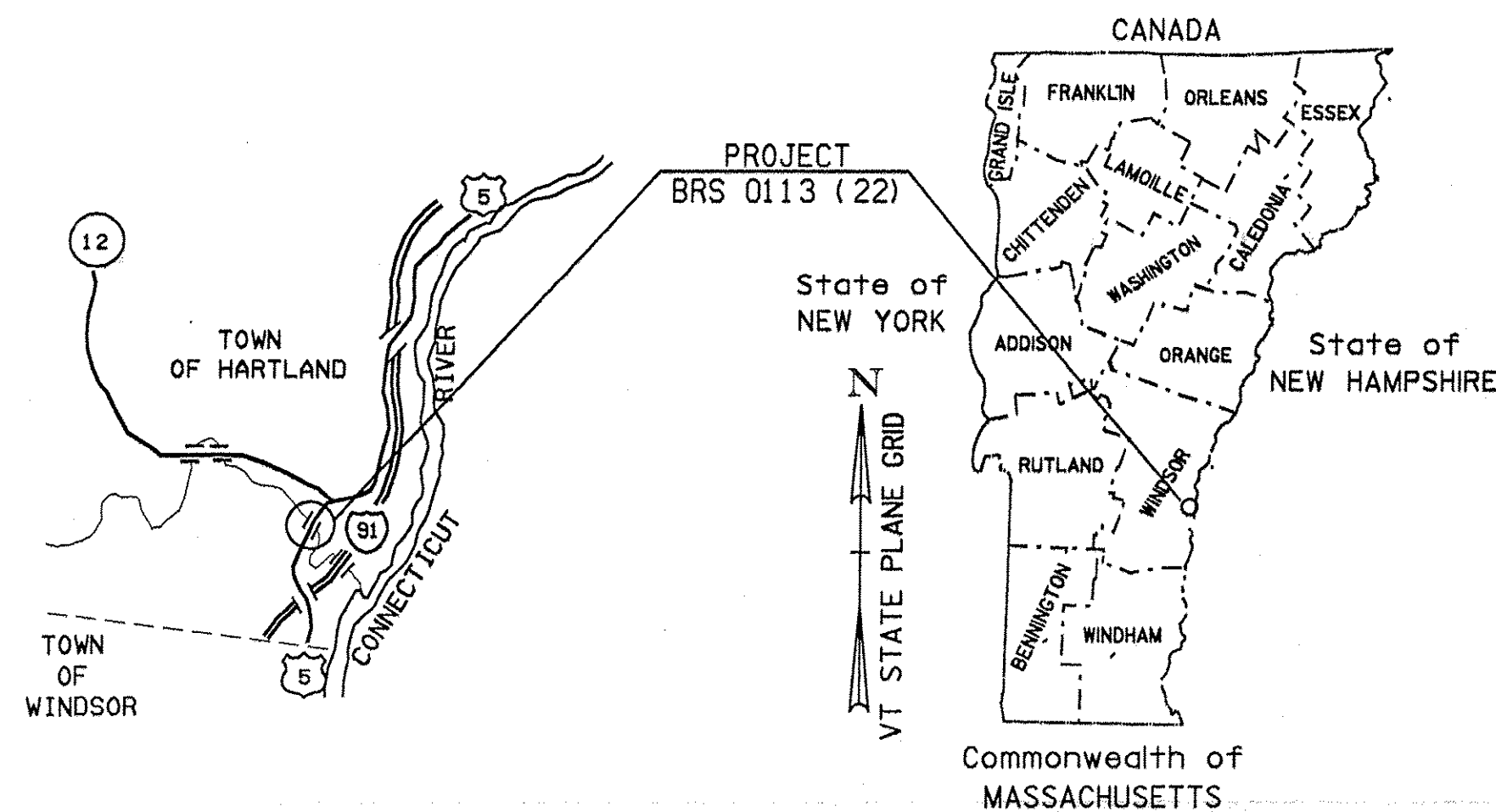
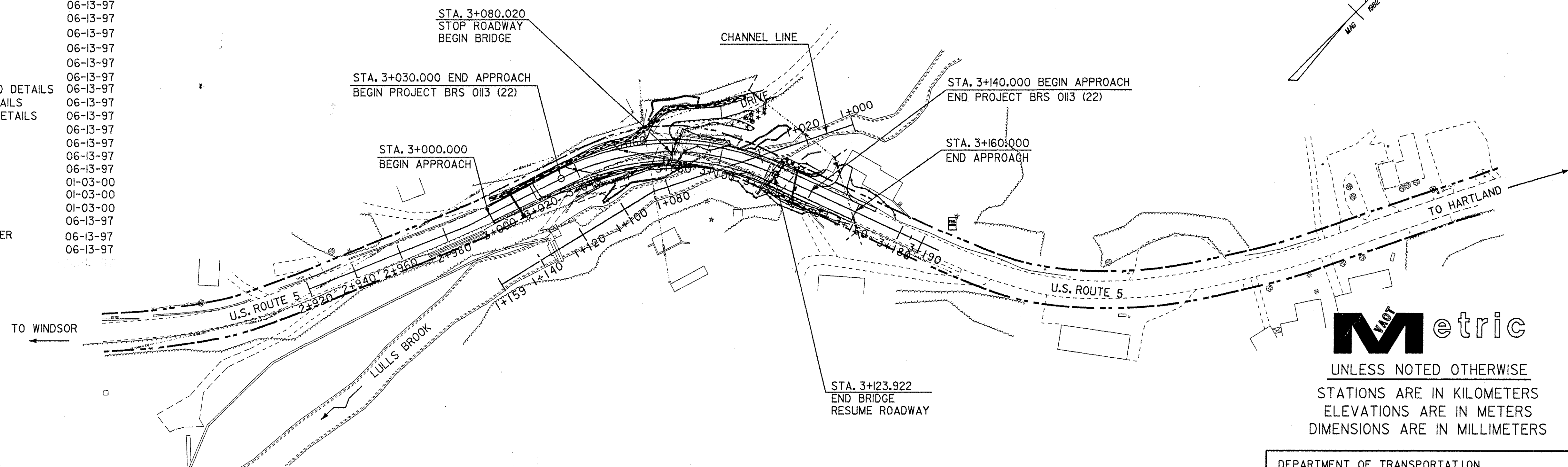


PROPOSED IMPROVEMENT TOWN OF HARTLAND COUNTY OF WINDSOR U.S. RTE. 5 HARTLAND BRS 0113 (22)

BEGINNING AT A POINT APPROXIMATELY 2.135 KILOMETERS
NORTH OF THE WINDSOR-HARTLAND TOWN LINE AND EXTENDING NORTH 0.110 KILOMETERS

WORK TO BE PERFORMED ON THIS PROJECT INCLUDES REPLACEMENT OF BRIDGE #60
OVER LULLS BROOK AND NECESSARY ROADWAY APPROACHES.

LENGTH OF STRUCTURES 0.044 KILOMETERS
LENGTH OF ROADWAY 0.066 KILOMETERS
LENGTH OF PROJECT 0.110 KILOMETERS



RECORD PLANS

CONTRACTOR: MILLER CONSTRUCTION, INC. - WINDSOR, VT

RESIDENT ENGINEER: DARYL BASSETT

CONSTRUCTION BEGAN: APRIL 18, 2005

CONSTRUCTION COMPLETE: SEPTEMBER 20, 2007

RECORD PLANS BY: DARYL BASSETT & AMOS KEMPTON

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

BY *Daryl Bassett* RESIDENT ENGINEER

DATE 2/7/12

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

Metric

UNLESS NOTED OTHERWISE
STATIONS ARE IN KILOMETERS
ELEVATIONS ARE IN METERS
DIMENSIONS ARE IN MILLIMETERS

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ DATE _____

DIRECTOR OF PROGRAM DEVELOPMENT

APPROVED *[Signature]* DATE 2/14/09

PROJECT MANAGER : CRAIG KELLER

PROJECT NAME : BRS 0113 (22)

PROJECT NUMBER : HARTLAND

SHEET 1 OF 86 SHEETS

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

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE
WITH THESE PLANS AND THE STANDARD SPECIFICATIONS
FOR CONSTRUCTION DATED 2001, AS APPROVED BY THE
FEDERAL HIGHWAY ADMINISTRATION ON JANUARY 4, 2001
FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT
REVISIONS AND SUCH REVISED SPECIFICATIONS AND
SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE
PLANS.

TYPICAL SECTIONS



115 BITUMINOUS CONCRETE PAVEMENT (50 TYPE III OVER 65 TYPE II)
80 BASE COURSE OF BITUMINOUS CONCRETE PAVEMENT (TYPE I, ONE LIFT) TYPE I I
SUBBASE OF CRUSHED GRAVEL (COARSE GRADED) - MODIFIED (DEPTH VARIES - SEE TRANSITION DETAILS, SHEETS 78 & 84)

MATERIAL ITEM	THICKNESS TOLERANCE
PAVEMENT (TOTAL DEPTH)	+/- 5
SUBBASE	+/- 30

NOTES

1. THE PAVEMENT WEARING COURSE SHALL BE TYPE III, BITUMINOUS CONCRETE PAVEMENT. ASPHALT CEMENT USED IN THE BITUMINOUS CONCRETE PAVEMENT SHALL BE PG 58-28.
2. COLD PLANING TO BE COMPLETED ACCORDING TO TYPICAL OR AS NOTED OTHERWISE ON THE PLANS. ALL COLD PLANED AREAS SHALL BE TACKED WITH EMULSIFIED ASPHALT.
3. EMULSIFIED ASPHALT TO BE APPLIED ON EXISTING PAVEMENT, BETWEEN ALL COURSES OF PAVEMENT AND ON COLD PLANED AREAS AT THE RATE OF 0.07 L/m² OR AS DIRECTED BY THE ENGINEER.
4. CLEANING OF PIPE INLET AND OUTLET AREAS, AND DITCH CLEANING THROUGHOUT THE PROJECT SHALL BE PERFORMED AT LOCATIONS AS INDICATED ON PLANS, OR AS DIRECTED BY THE ENGINEER. PAYMENT SHALL BE MADE UNDER APPLICABLE RENTAL ITEM(S).
5. SLOPE ROUNDING - ALL CUT SLOPE ROUNDINGS TO BE ROUNDED IN ACCORDANCE WITH STANDARD SHEET B-5M.
6. MILEMARKERS DISTURBED BY CONSTRUCTION SHALL BE RESET AT THE DIRECTION OF THE ENGINEER WITH PAYMENT TO BE SUBSIDIARY TO OTHER ITEMS OF WORK.
7. SEED: 90 KG/Ha
TO BE APPLIED PER SEEDING MIXTURES OR AS DIRECTED BY THE ENGINEER.
FERTILIZER:
FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 560 kg/ha. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA)
AGRICULTURAL LIMESTONE:
TO BE APPLIED AT THE RATE OF 4500kg/ha, OR AS DIRECTED BY THE ENGINEER.
HAY MULCH:
TO BE PLACED ON EARTH SLOPES AT THE RATE OF 4500kg/ha, OR AS DIRECTED BY THE ENGINEER.
TOPSOIL:
TO BE USED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

RURAL AREAS - SEED MIXTURE				
% WT	kg/ha	NAME	PUR %	GERM %
37.1	26.0	CREEPING RED FESCUE	98	85
37.1	26.0	TALL FESCUE	95	90
5.7	4.0	RED TOP	95	90
14.4	10.0	BIRDSFOOT TREFOIL	98	85
5.7	4.0	ANNUAL RYE GRASS	95	85
100.0	70.0			

URBAN AREAS (LAWNS) - SEED MIXTURE				
% WT	kg/ha	NAME	PUR %	GERM %
42.5	38.0	CREEPING RED FESCUE	98	85
10.0	9.0	PERENNIAL RYE GRASS	95	90
42.5	38.0	KENTUCKY BLUE GRASS	85	85
5.0	5.0	ANNUAL RYE GRASS	95	85
100.0	90.0			

SEED MIXTURE:
SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.

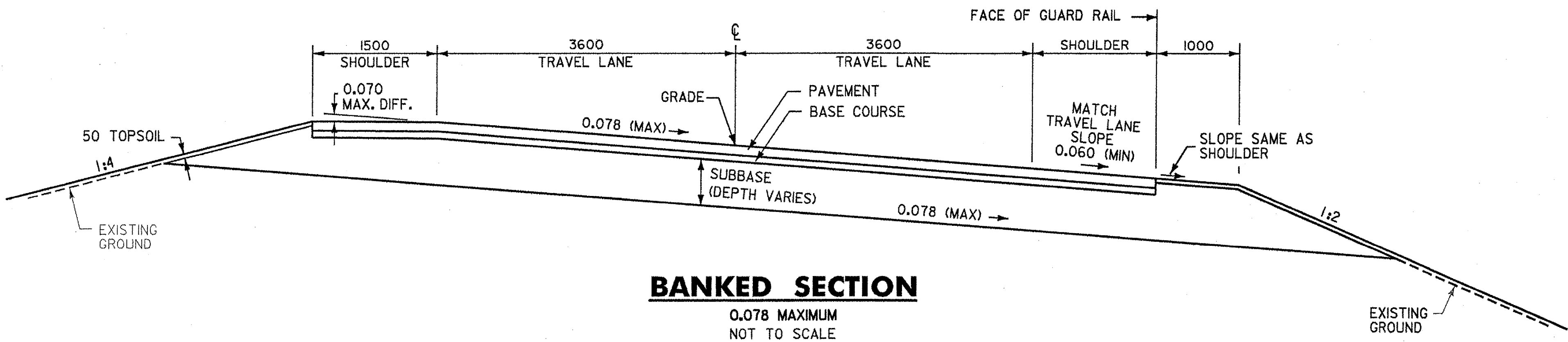
8. MARKER POSTS:
TO BE PLACED AS INDICATED OR AS DIRECTED BY THE ENGINEER.

NOTE: ALL DIMENSIONS ON THIS SHEET IN MILLIMETERS EXCEPT WHERE OTHERWISE INDICATED

STATE OF VERMONT
AGENCY OF TRANSPORTATION

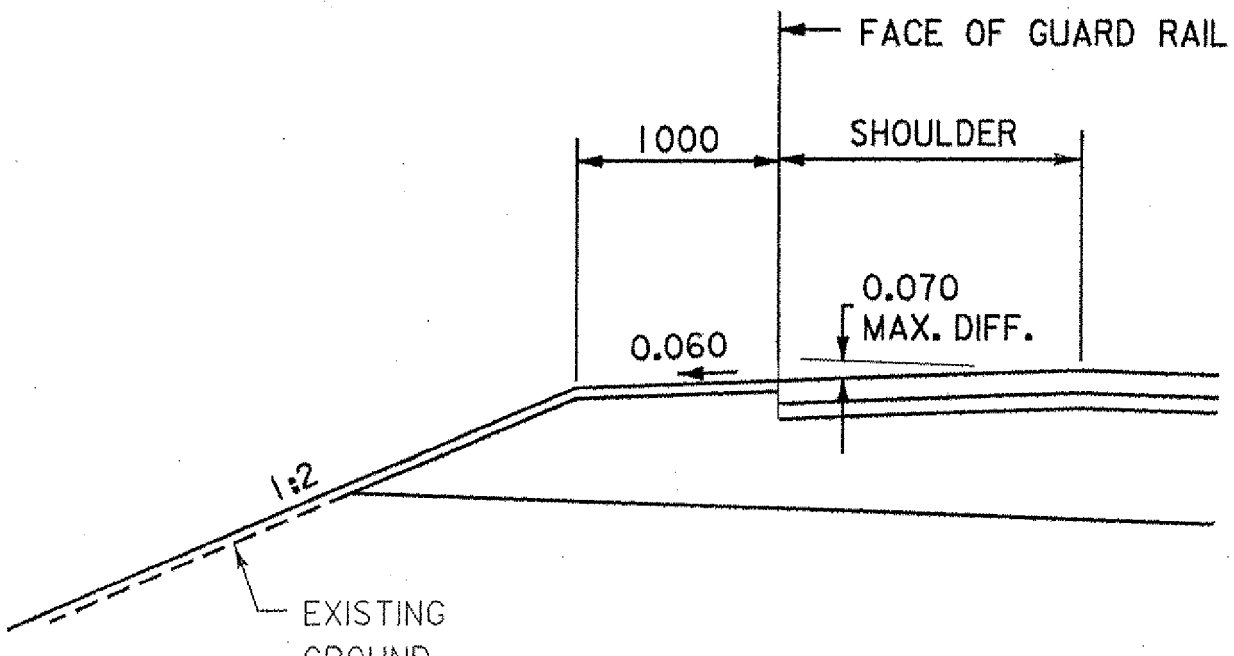
Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
TYPICAL SECTIONS			
Designed By	S.E. COSILMON	Drawn By	R. REMY / G.F. O'NEIL
Checked By	J.R. McDUFFEE	Date	2/04
		Bridge Design Supervisor	J. MIECZKOWSKI Date 2/04
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\1456201\VA0T Hartland\zf204frm.dgn			
Bridge Sheet No.		Sheet	2 of 86

SHOULDERS: 115 BITUMINOUS CONCRETE PAVEMENT
80 BASE COURSE OF BITUMINOUS CONCRETE PAVEMENT



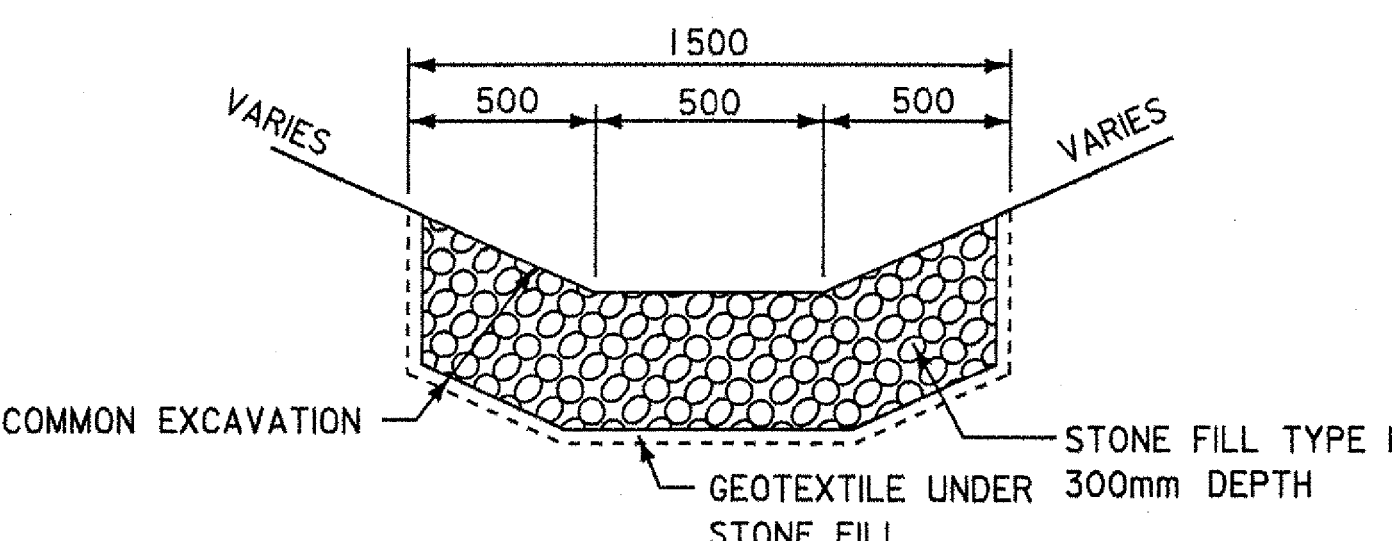
BANKED SECTION

0.078 MAXIMUM
NOT TO SCALE



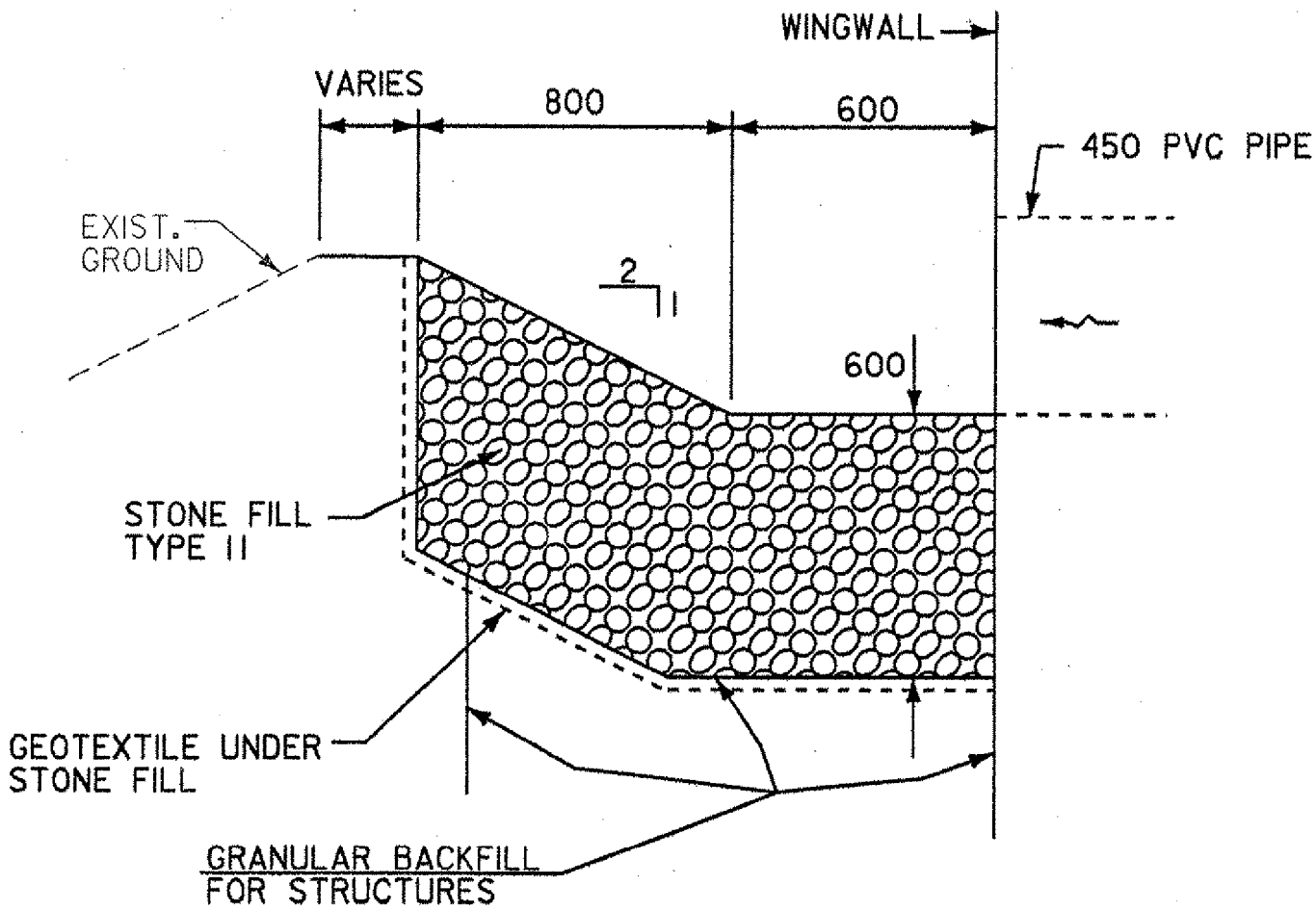
DETAIL OF GUARD RAIL ON
HIGH SIDE OF BANKED SECTION

NOT TO SCALE



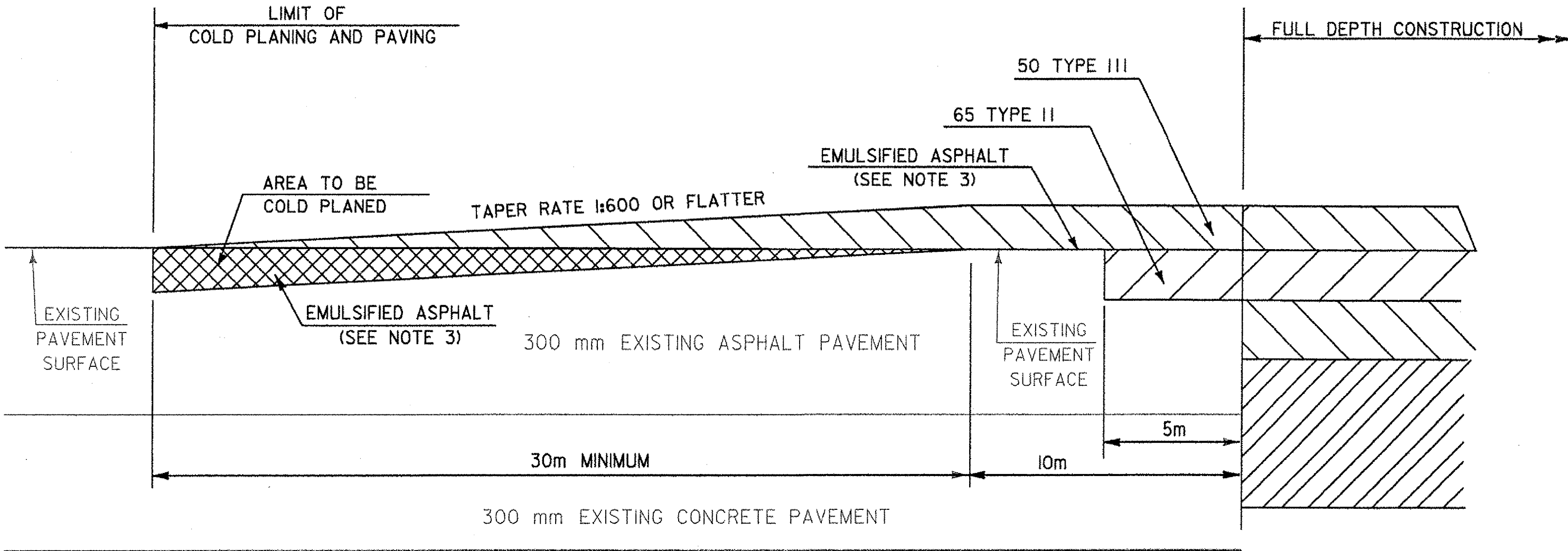
STONE FILLED
DITCH DETAIL I

NOT TO SCALE



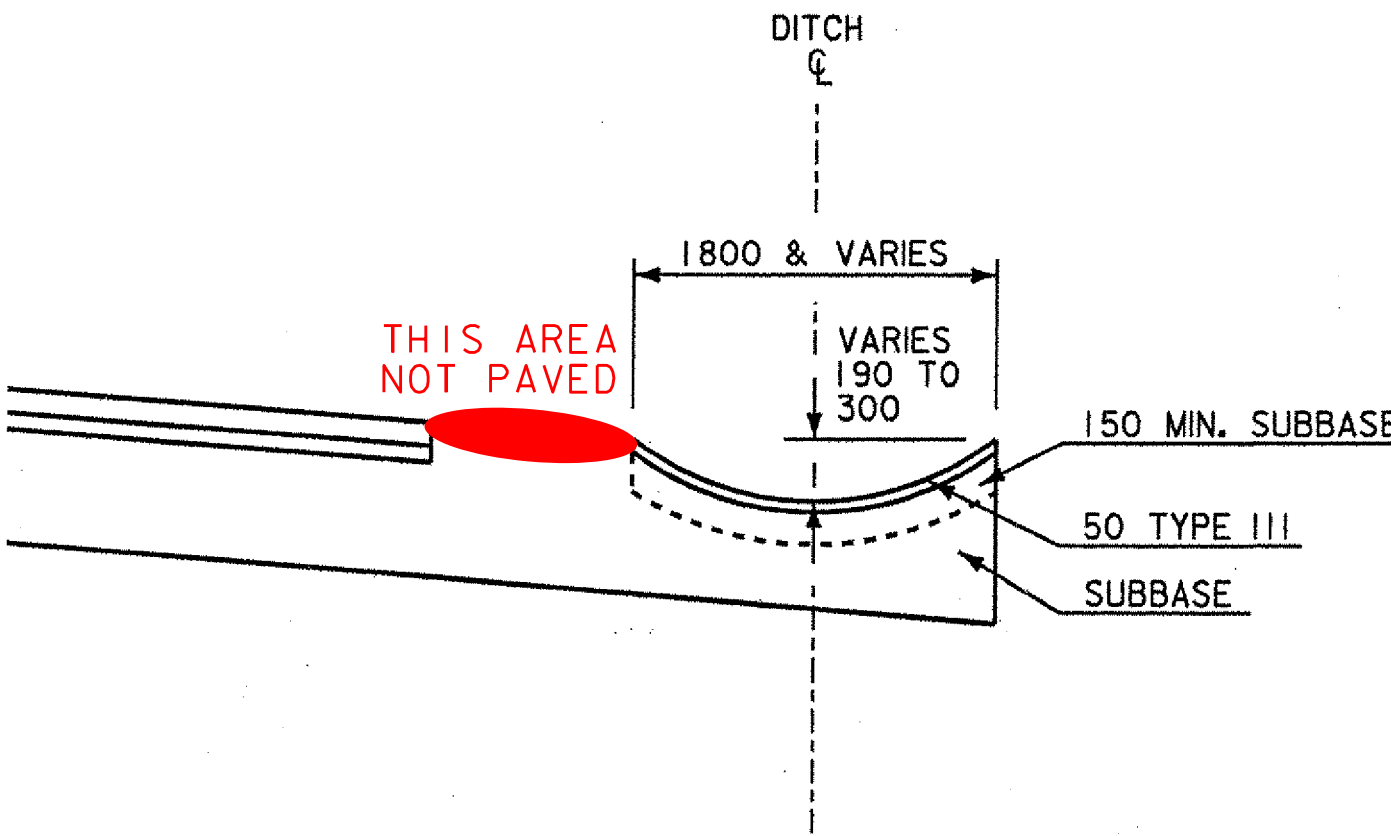
STONE FILLED
DITCH DETAIL II

NOT TO SCALE



COLD PLANE DETAIL

STA. 3+000 TO 3+030
NOT TO SCALE



PAVED GUTTER DETAIL

NOT TO SCALE



SUMMARY OF ESTIMATED QUANTITIES												DETAILED SUMMARY OF QUANTITIES				DETAILED SUMMARY OF QUANTITIES			
FULL E & C	EROSION CONTROL			BRIDGE	ROADWAY	QUANTITIES GRAND TOTAL	UNIT	ITEMS	ITEM NUMBER	RND	QUANTITIES	UNIT	ITEMS	QUANTITIES	UNIT	ITEMS			
					1	1	LS	CLEARING AND GRUBBING	201.10										
					1	1	EA	DEMOLITION AND DISPOSAL OF BUILDING (NO.1 STA 3+145 LT.) (MOD.)	202.10										
					570	570	m ³	COMMON EXCAVATION	203.15	4	376	m ³	U.S. ROUTE 5						
					300	300	m ³	SOLID ROCK EXCAVATION	203.16	2	75	m ³	DRAINAGE						
				600		600	m ³	UNCLASSIFIED CHANNEL EXCAVATION	203.27		115	m ³	DRIVEWAYS						
				40	29	69	m ³	GRANULAR BORROW	203.32		4	m ³	ROUNDING						
					800	800	m ²	FINE GRADING - SUBGRADE	203.40	13	570	m ³	TOTAL						
	1				99	100	m ³	TRENCH EXCAVATION OF EARTH	204.20	2									
				1040		1040	m ³	STRUCTURE EXCAVATION	204.25		474	m ³	U.S. ROUTE 5						
				445		445	m ³	GRANULAR BACKFILL FOR STRUCTURES	204.30	9	35	m ³	DRIVEWAYS						
					290	290	m ²	COLD PLANING - BITUMINOUS PAVEMENT	210.10	3	11	m ³	ROUNDING						
					520	520	m ³	SUBBASE OF CRUSHED GRAVEL (COARSE GRADED) (MOD.)	301.25	4	520	m ³	TOTAL						
				80	121	201	kg	EMULSIFIED ASPHALT	404.65										
				96	450	546	+	BITUMINOUS CONCRETE PAVEMENT (PG 58-28)	406.25	4	297	+	U.S. ROUTE 5						
					5	5	m ³	CONCRETE, CLASS B	501.25	0.17	52	+	DRIVEWAYS						
				148		148	m ³	CONCRETE, HIGH PERFORMANCE CLASS A	501.33		96	+	BRIDGE						
				494		494	m ³	CONCRETE, HIGH PERFORMANCE CLASS B	501.34		98	+	DETOUR						
				163,000		163,000	kg	STRUCTURAL STEEL (PLATE GIRDER) (CURVED)	506.55		3	+	ROUNDING						
				22,020	250	22,270	kg	REINFORCING STEEL	507.15		450	+	TOTAL						
				25,874		25,874	kg	EPOXY COATED REINFORCING STEEL	507.17										
				1		1	LS	SHEAR CONNECTORS (1128 - 22 MM x 175 MM)	508.15		788	m ²	U.S. ROUTE 5						
				1		1	LS	STRUCTURAL PAINTING ,SHOP APPLIED (18 METRIC TONS)	513.25										
	1					1	LS	CONTAINMENT & ENVIRONMENTAL PROTECTION, FIELD (MOD.-FLOATING BOOM)	513.36		12	m ²	ROUNDING						
				1		1	LS	SURFACE PREPARATION, SHOP (18 METRIC TONS)	513.40		800	m ²	TOTAL						
				195		195	l	WATER REPELLENT	514.10										
				12		12	m	BRIDGE EXPANSION JOINT (VERMONT JOINT)	516.10										
				566		566	m ²	SHEET MEMBRANE WATERPROOFING (MOD.-TORCH APPLIED)	519.20		1	m ³	TRENCH EXCAVATION OF EARTH						
				124		124	m	BRIDGE RAILING - 3 RAIL ALUMINUM (MOD.-ANODIZED BLACK)	525.22		75	m ³	STONE FILL TYPE I						
											460	m ²	GEOTEXTILE FABRIC FOR SILT FENCE						
											3	kg	SEED (WINTER RYE)						
											0.55	+	HAY MULCH						
				1		1	LS	ONE WAY TEMPORARY BRIDGE (150 SM- EST.)	528.10		385	m ²	EROSION MATTING						
				295		295	m ²	REMOVAL OF BRIDGE PAVEMENT	529.10										

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town OfHARTLAND

Bridge No. 60

Highway No. U.S. ROUTE 5

Log Sta.
Surv. Sta.

U.S. ROUTE 5 OVER LULLS BROOK

SUMMARY OF QUANTITIES

Designed By S.E. COSILMON

Drawn By R. REMY / G.F. O'NEIL

Checked By J. McDUFFEE

Date 2/04

Bridge Design Supervisor J. MIECZKOWSKI

Date 2/04

PROJECT HARTLAND

PROJECT NO. BRS No. 0113(22)

I.G.C. Info. M:\145620\VAOT Hartland\zf204frm.dgn

Bridge Sheet No. Sheet 3 of 86

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town OfHARTLAND

Bridge No. 60

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U.S. ROUTE 5 OVER LULLS BROOK

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I.G.C. Info. M:\456201\VAOT Hartland\zf204frm.dgn

Bridge Sheet No. 3 of 86



SUMMARY OF ESTIMATED QUANTITIES											DETAILED SUMMARY OF QUANTITIES			DETAILED SUMMARY OF QUANTITIES		
FULL E & C	EROSION CONTROL					QUANTITIES GRAND TOTAL	UNIT	ITEMS	ITEM NUMBER	RND	QUANTITIES	UNIT	ITEMS	QUANTITIES	UNIT	ITEMS
				BRIDGE	ROADWAY											
				1		1	EA	REMOVAL OF STRUCTURE (300 SM - EST)	529.15							
				10		10	EA	BEARING DEVICE ASSEMBLY (POT)	531.10							
								***** BEGIN OPTION ITEMS *****								
				11		11	m	450mm PCCSP 2.01(68mm x 12mm)	601.0416							
				11		11	m	450mm CAAP 1.91(68mm x 12mm)	601.0216							
				11		11	m	450mm CPEP	601.0915							
								***** END OPTION ITEMS *****								
				3		3	EA	CAST IRON GRATE WITH FRAME, TYPE D	604.47							
				5		5	HR	BULLDOZER RENTAL, TYPE I	608.10	EST						
				10		10	HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25	EST						
				10		10	HR	TRUCK RENTAL	608.37	EST						
				5		5	HR	LOADER RENTAL, TYPE I	608.40	EST						
				3600		3600	HR	TRUCK-MOUNTED ATTENUATOR	608.45	EST						
				40		40	m ³	DUST CONTROL WITH WATER	609.10	EST						
				1		1	+	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15	EST						
	75					75	m ³	STONE FILL TYPE I	613.10							
	12					12	m ³	STONE FILL TYPE II	613.11							
				7		7	+	BITUMINOUS CONCRETE GUTTERS AND TRAFFIC ISLANDS	616.47							
				10		10	EA	BOUNDARY MARKERS	619.10	EST						
				1		1	EA	STEEL MARKER POSTS	619.16							
				2		2	EA	REMOVING AND RESETTING PROPERTY MARKERS	619.20	EST						
	160					160	m	CHAIN LINK FENCE, 1.2m (MOD.)	620.11							
				330		330	m	SNOW FENCE (MOD. - PDF)	620.70							
				46		46	m	STEEL BEAM GUARD RAIL	621.20							
				1		1	EA	MANUFACTURED TERMINAL SECTION (TANGENT)	621.505							
				3		3	EA	ENERGY ABSORPTION ATTENUATOR	621.56							
				1		1	EA	ANCHOR FOR STEEL BEAM RAIL	621.60							
				38		38	m	ALUMINUM APPROACH RAILING (MOD. - ANODIZED BLACK)	621.74							
				70		70	m	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	0.1						
				140		140	m	TEMPORARY TRAFFIC BARRIER	621.90	3						

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town OfHARTLAND

Bridge No. 60

Highway No. U.S. ROUTE 5

Log Sta.
Surv. Sta.

U.S. ROUTE 5 OVER LULLS BROOK

SUMMARY OF QUANTITIES

Designed ByS.E. COSILMON

Drawn ByR. REMY / G.F. O'NEIL

Checked ByJ. R. McDUFFEE

Date2/04

Bridge Design SupervisorJ. MIECZKOWSKI

Date2/04

PROJECTHARTLAND

PROJECT NO.
BRS No. 0113(22)

I.G.C. Info. M:\456201\VA0T Hartland\zf204frm.dgn

Bridge Sheet No. 4 of 86

STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of HARTLAND		Bridge No. 60	
Highway No. U.S. ROUTE 5		Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
SUMMARY OF QUANTITIES			
Designed By S.E. COSILMON		Drawn By R. REMY / G.F. O'NEIL	
Checked By J.R. McDUFFEE 2/04		Bridge Design Supervisor J. MIECZKOWSKI Date 2/04	
PROJECT HARTLAND		PROJECT NO. BRS No. 0113(22)	
I.G.C. Info. M:\145620\VAOT Hartland\zf204frm.dgn			
Bridge Sheet No.		Sheet 4 of 86	

QUANTITY SHEET

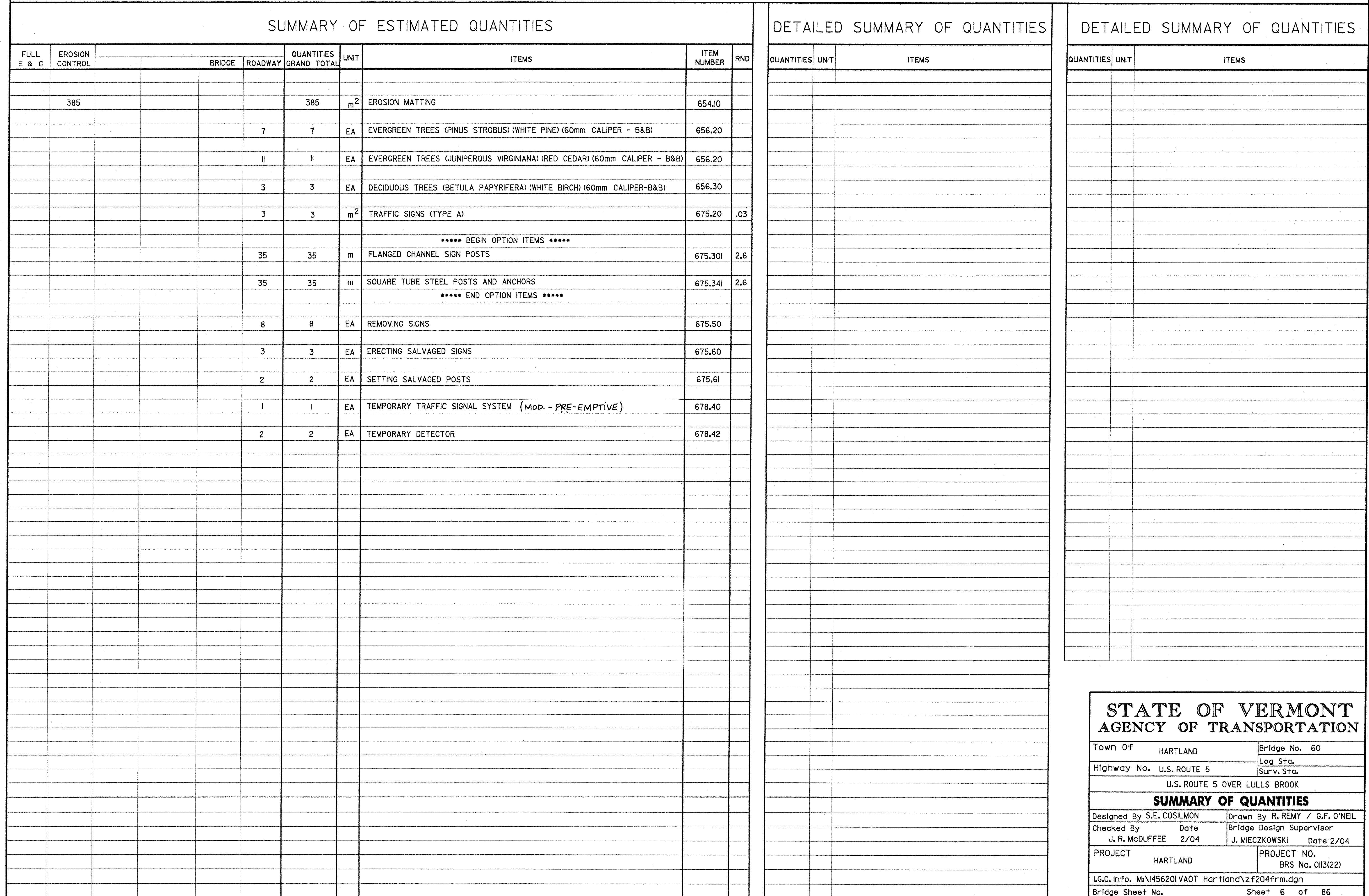


DETAILED SUMMARY OF QUANTITIES

[illegible][illegible]

STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of		HARTLAND	
		Bridge No. 60	
		Log Sta.	
Highway No.		U.S. ROUTE 5	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
SUMMARY OF QUANTITIES			
Designed By S.E. COSILMON		Drawn By R. REMY / G.F. O'NEIL	
Checked By Date		Bridge Design Supervisor	
J. R. McDUFFEE 2/04		J. MIECZKOWSKI Date 2/04	
PROJECT		PROJECT NO.	
HARTLAND		BRS No. 0113(22)	
I.G.C. Info. M:\456201\VAOT Hartland\zf204frm.dgn			
Bridge Sheet No.		Sheet 5 of 86	

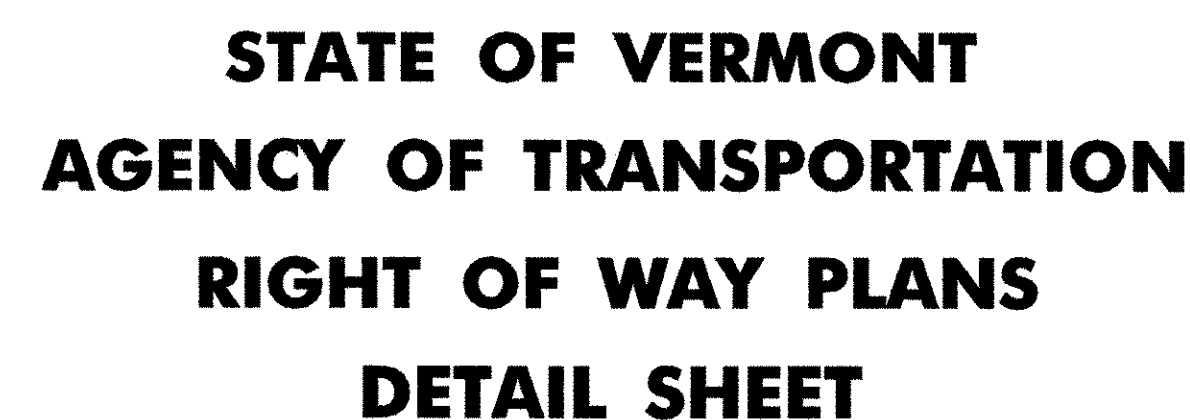
QUANTITY SHEET



[illegible]

EARTHWORKS

[illegible]



PARCEL NO.	GRANTOR	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKING	REM.	RIGHTS	TITLE TAKEN	DATE	TOWN OR CITY RECORDED	BK.	PG.	REMARKS	REVISION NO.	SHEET	DESCRIPTION OF REVISION	DATE	MADE BY	APPROVED BY						
1	FIRST CONGREGATIONAL CHURCH OF HARTLAND, VERMONT, INC.	9,10	3+000.00 CL	3+056.48 CL	0.059 HA±		ALL R. T. & I.	QCD	11-25-03	HARTLAND	147	543-544	U.S. RT. 5 (0.15A±)	1	8,10	PARCEL NO. 3 JAMES. EXTENDED ALL R.T.& I. TO INCLUDE PART OF LULLS BROOK TO THE P/L. CORRECTED RUNNING DISTANCES, FLAGS, AND RECALCULATED TAKE AREA. PER C.O. 9228.	04-08-02	G. J. F.	R. P. D.						
2A	MARTINSVILLE HYDRO CORPORATION	9,10	3+033.57 RT. 3+033.57 RT. 3+028.00 RT.	3+109.36 RT. 3+109.36 RT.	0.038 HA±		EXCEPT & RESERVE INSTALL (T)	WD	09-22-03	HARTLAND	145	527-529	(0.09A±) FLOWAGE RIGHTS GEOGRID NET												
2B		9,10	3+000.00 CL 2+990.58 RT.	3+117.58 LT. 3+076.56 RT.	0.081 HA±		ALL R. T. & I. CONST. (T) 0.041 HA±						U.S. RT. 5 (0.20A±) INCLUDES EROSION CONTROL WITH ROCK REMOVAL CONTAINMENT SYSTEM (0.10A±) (3.2 S.F.±) FENCE												
			3+011.47 RT. 3+023.00 RT.	3+012.87 RT. 3+046.00 RT.			DIT. & DR. (P) 0.3 S.M.± REMOVE & RESET (T)																		
3	JAMES, LOUISE M.	10	3+056.48 LT. 3+068.63 LT.	3+118.88 LT. 3+132.93 LT.	0.048 HA±		ALL R. T. & I. DETOUR (T) 0.093 HA±	WD	09-22-03	HARTLAND	145	524-525	U.S. RT. 5 (0.12A±) INCLUDES EROSION CONTROL WITH ROCK REMOVAL CONTAINMENT SYSTEM, LANDSCAPING (0.23A±) MM 1359, 5 M (16.4') APPROACH RAIL GUARDRAIL												
			3+075.00 LT. 3+079.50 LT. 3+082.65 LT.	3+082.65 LT. 3+107.82 LT.			DRIVE (T) INSTALL & MAINTAIN (P) INSTALL (T)																		
4A	COCKWILL, NEIL J & HEIDI P.	10	3+103.55 RT.	3+131.54 RT.	80.3 S.M±			WD	03-20-03	HARTLAND	140	257-258	(864 S.F.±) (187.3 S.F.±) (33.4 S.F.±) PROTECTIVE FENCE 11 M± (36.1'±)												
			3+112.21 RT. 3+114.78 RT. 3+120.13 RT.	3+129.55 RT. 3+121.19 RT. 3+130.15 RT.			CONST. (T) 17.4 S.M.± SLOPE (T) 3.1 S.M.± INSTALL (T)																		
4B		10	3+109.36 RT.	3+130.74 RT.	0.012 HA±		ALL R. T. & I.	WD	03-20-03	HARTLAND	140	257-258	U.S. RT. 5 (0.03A±)												
5	TOWN OF HARTLAND	10	3+110.41 LT. 3+123.57 LT.	3+128.38 LT. 3+146.71 LT.	70.43 S.M.±		ALL R. T. & I. DETOUR (T) 0.012 HA±	QCD	08-01-03	HARTLAND	144	196-197	U.S. RT.5 (758.1 S.F.±) INCLUDES EROSION CONTROL WITH ROCK REMOVAL CONTAINMENT SYSTEM (0.03A±) (24.2 S.F.±) PROTECTIVE FENCE 21 M± (69.9'±)												
			3+124.28 LT. 3+125.90 LT.	3+129.07 LT. 3+133.14 LT.			SLOPE (T) 2.25 S.M.± INSTALL (T)																		
5A		11	3+212.21 LT.	3+239.98 LT.			EASE. (T) 71.9 S.M.±						INSTALL PARKING AREA FOR PARCEL #6 BY OPTION ONLY (774 S.F.±)												
6	TURNER, BRENT A. & ARLENE J.	10	3+119.31 CL 3+128.38 LT																						

R. O. W. PLANS

HARTLAND

BRS 0113 (22)

R. O. W. SHEET 8 OF 11 SHEETS

SHEET 9 OF 86

U.S. ROUTE 5 CURVE 1 DATA	
Δ	5°10' 57.5" R
R	400.00m
T	18.10m
L	36.18m
E	0.41m
e	EXISTING

N/F TOEPHER,
PETER & ROSE A.

STA 3+030.000
END APPROACH
MATCH 50 mm OVERLAY
BEGIN PROJECT BRS 0113(22)

STA 3+011 LT.
REMOVE HEADWALL

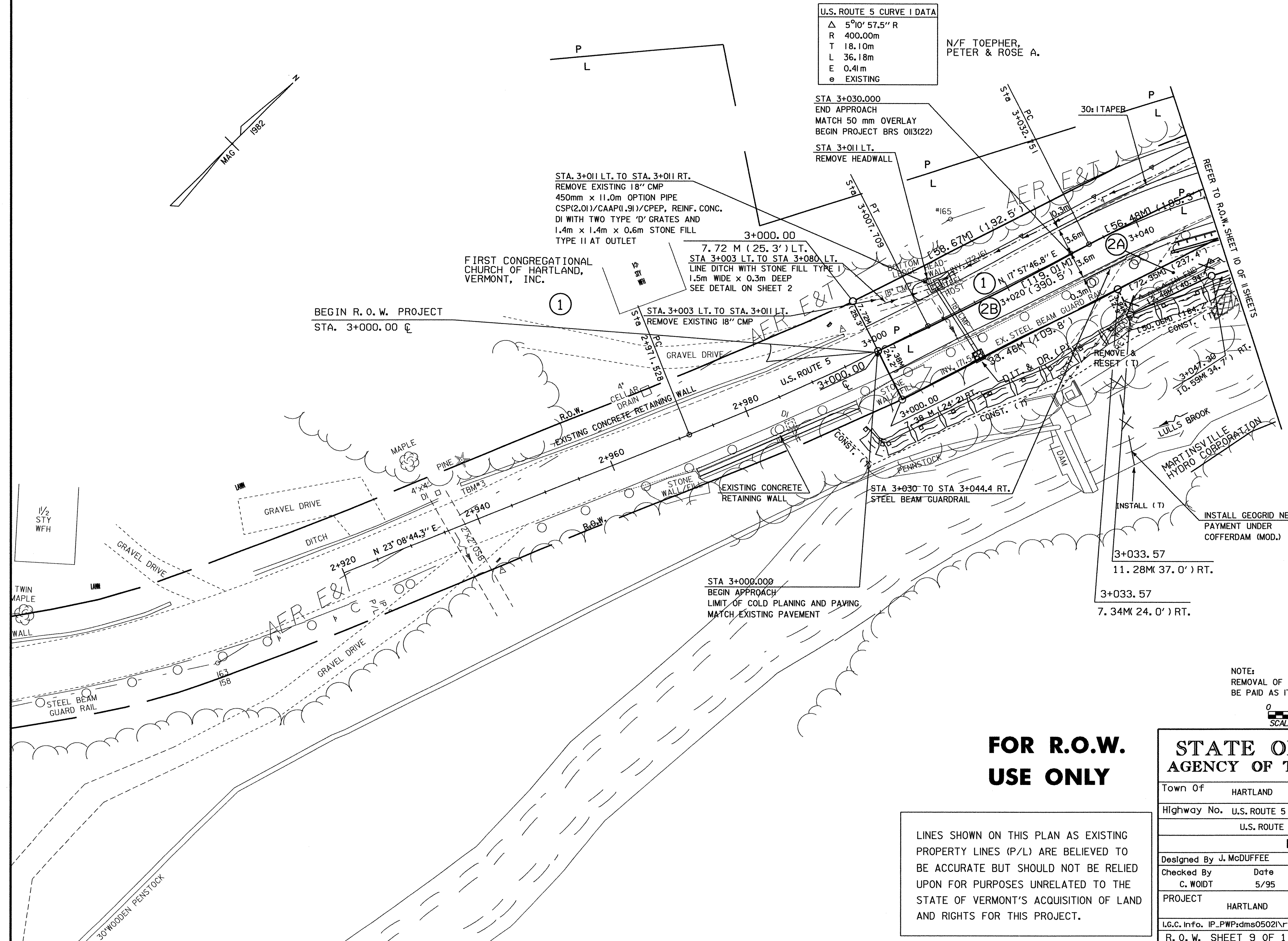
STA. 3+011 LT. TO STA. 3+011 RT.
REMOVE EXISTING 18" CMP
450mm x 11.0m OPTION PIPE
CSP(2.01)/CAAP(1.91)/CPEP, REINF. CONC.
DI WITH TWO TYPE 'D' GRATES AND
1.4m x 1.4m x 0.6m STONE FILL
TYPE II AT OUTLET

FIRST CONGREGATIONAL
CHURCH OF HARTLAND,
VERMONT, INC.

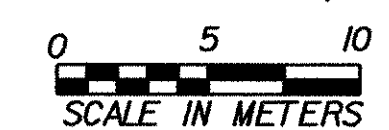
7.72 M (25.3') LT.
STA 3+003 LT. TO STA 3+080 LT.
LINE DITCH WITH STONE FILL TYPE I
1.5m WIDE x 0.3m DEEP
SEE DETAIL ON SHEET 2

STA. 3+003 LT. TO STA. 3+011 LT.
REMOVE EXISTING 18" CMP

BEGIN R.O.W. PROJECT
STA. 3+000.00 @



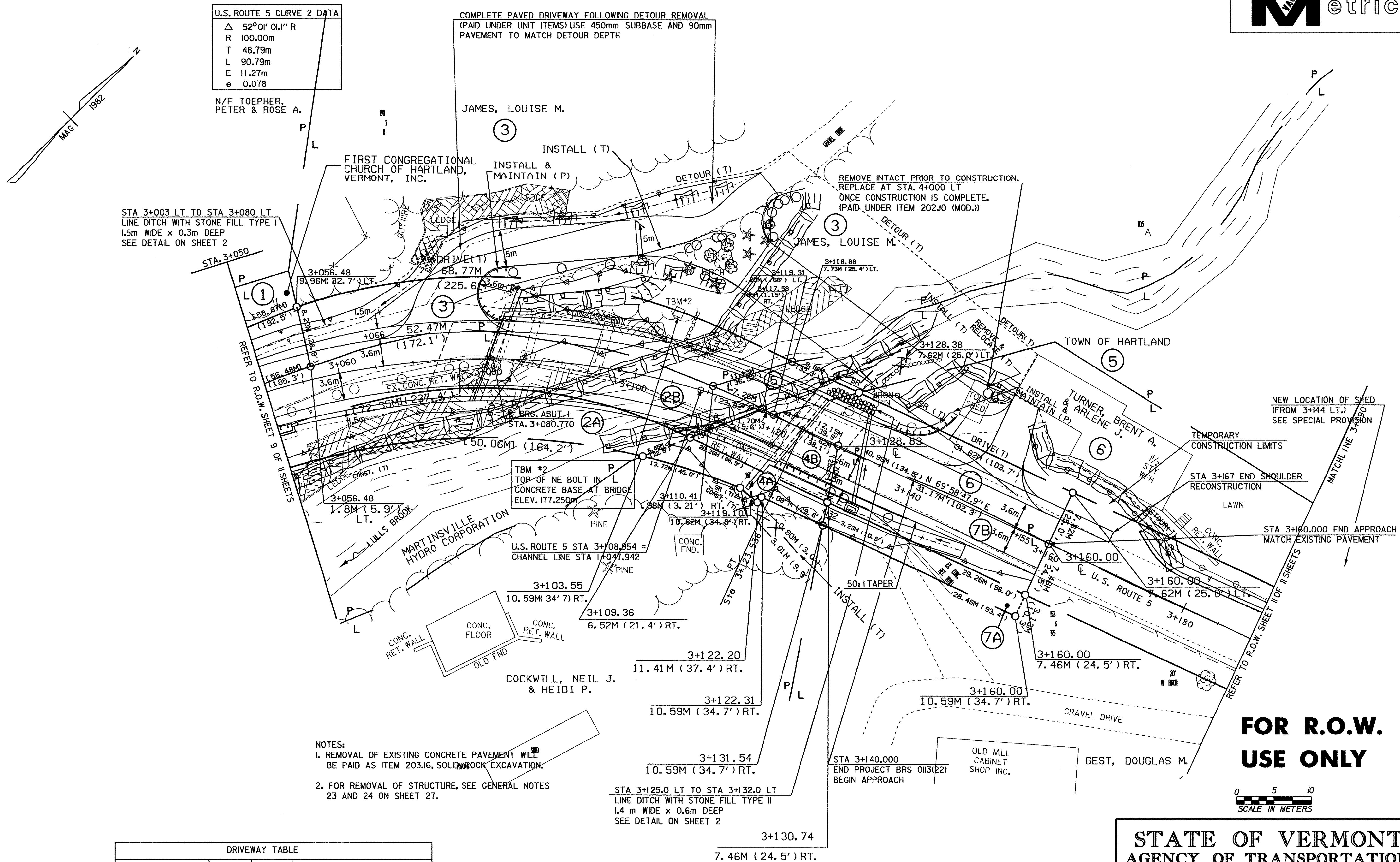
NOTE:
REMOVAL OF EXISTING CONCRETE PAVEMENT WILL
BE PAID AS ITEM 203.16, SOLID ROCK EXCAVATION



**FOR R.O.W.
USE ONLY**

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

STATE OF VERMONT AGENCY OF TRANSPORTATION		
Town Of	HARTLAND	Bridge No. 60
Highway No.	U.S. ROUTE 5	Log Sta.
		Surv. Sta.
U.S. ROUTE 5 OVER LULLS BROOK		
PLAN		
Designed By	J. McDUFFEE	Drawn By R.REMY
Checked By	C. WOLDT	Bridge Design Supervisor
	5/95	J.MIECZKOWSKI Date DEC. 1998
PROJECT	HARTLAND	PROJECT NO. BRS No. 0113(22)
I.G.C. Info. IP_PWP:dms05021\rf204zzz.dgn		
R.O.W. SHEET 9 OF 11 SHEETS SHEET 10 OF 86		

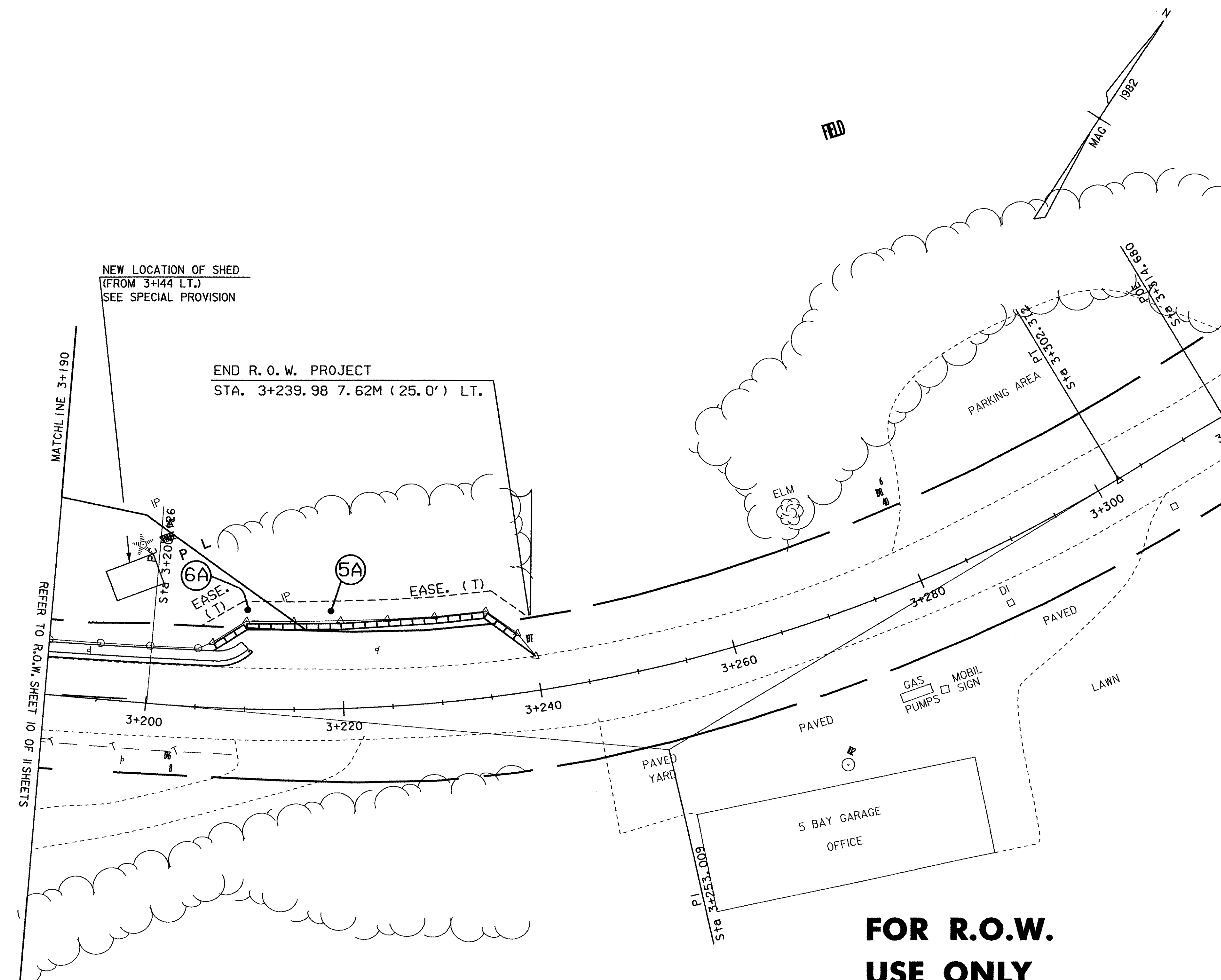


DRIVEWAY TABLE			
DRIVEWAY LOCATION	RADIUS	WIDTH	REMARKS
STA 3+075 LT	6m	5m	COMPLETE PAVING FOLLOWING DETOUR REMOVAL
STA 3+150 LT	6m	4.4m	PAVED

- NOTES:
1. REMOVAL OF EXISTING CONCRETE PAVEMENT WILL BE PAID AS ITEM 203.16, SOLID ROCK EXCAVATION.
 2. FOR REMOVAL OF STRUCTURE, SEE GENERAL NOTES 23 AND 24 ON SHEET 27.

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.

STATE OF VERMONT			
AGENCY OF TRANSPORTATION			
Town Of		HARTLAND	
Highway No.		U.S. ROUTE 5	
Bridge No.		60	
Log Sta.		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
PLAN			
Designed By J. McDUFFEE		Drawn By R. REMY	
Checked By		Date	
C. WOLDT		5/95	
Bridge Design Supervisor		J. MIECZKOWSKI	
Date DEC. 1998			
PROJECT		HARTLAND	
PROJECT NO.		BRS No. 0113(22)	
I.G.C. Info. IP_PWP:dms05021\rf204zzz.dgn			
R. O. W. SHEET 10 OF 11 SHEETS SHEET 11 OF 86			

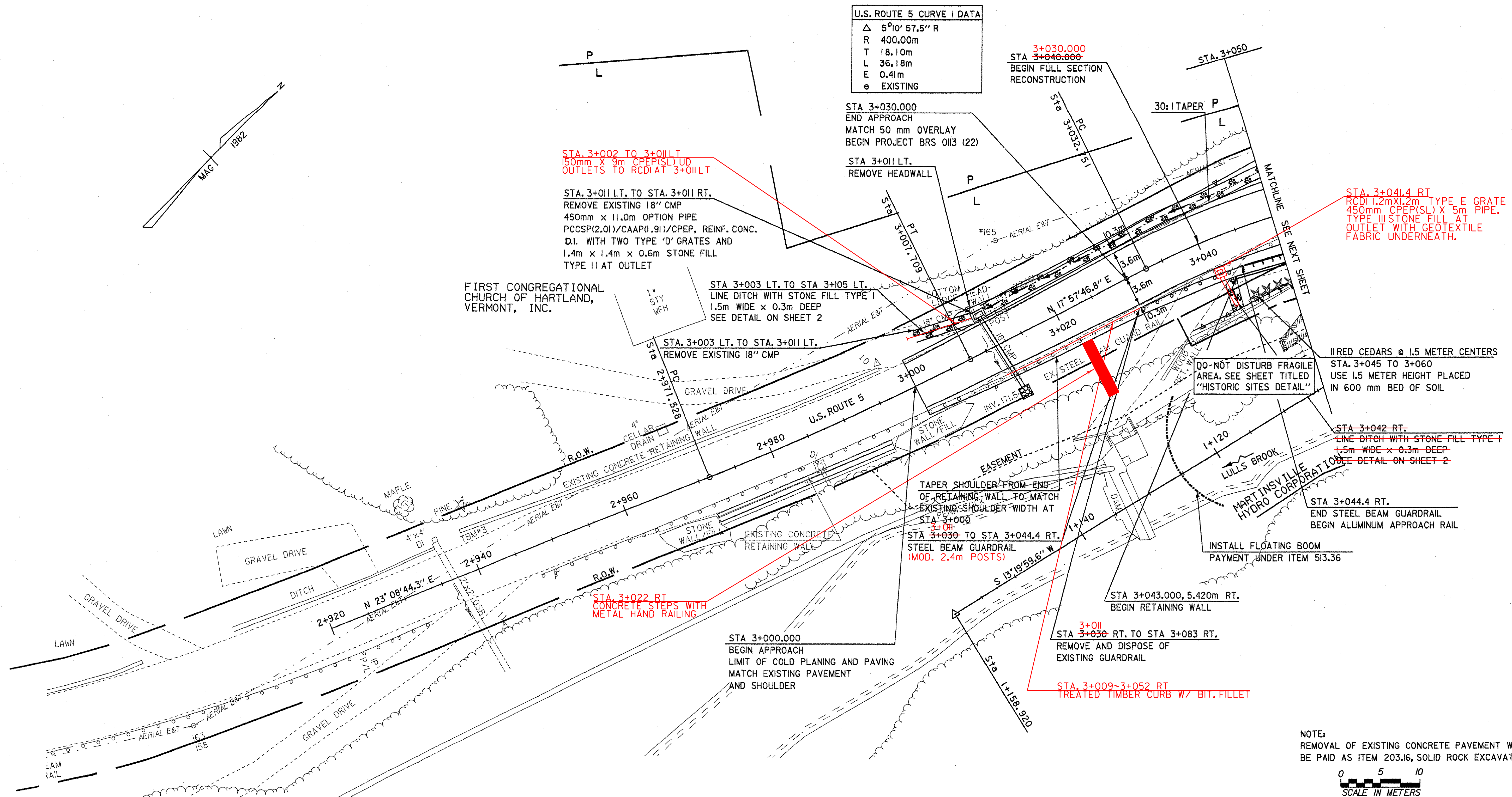


**FOR R.O.W.
USE ONLY**

LINES SHOWN ON THIS PLAN AS EXISTING
PROPERTY LINES (P/L) ARE BELIEVED TO
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UPON FOR PURPOSES UNRELATED TO THE
STATE OF VERMONT'S ACQUISITION OF LAND
AND RIGHTS FOR THIS PROJECT.

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
Designed By	Drawn By		
Checked By	Date	Bridge Design Supervisor	Date
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. IP_PWP:dms05021\rf204zzz.dgn			
R. O. W. SHEET 11 OF 11 SHEETS SHEET 12 OF 86			



NOTE:
REMOVAL OF EXISTING CONCRETE PAVEMENT WILL
BE PAID AS ITEM 203.16, SOLID ROCK EXCAVATION.

0 5 10
SCALE IN METERS

CENTERLINE TIES		
U.S. ROUTE 5		
P.O.S.T. STA 3+000.000= STA. 3+000.001, 0.074 RT.	P.I. STA 3+081.543= STA 3+074.746	P.O.T. STA 3+180.000
U.S. RTE 5 TO HARTLAND NOTCHES IN STEEL GUARD POSTS	U.S. RTE 5 TO HARTLAND COR. CONC. BRIDGE RAIL	U.S. RTE 5 TO HARTLAND TACK IN HOUSE CORNER 0.3m UP FROM STONE

STATE OF VERMONT AGENCY OF TRANSPORTATION	
Town Of HARTLAND	Bridge No. 60
Highway No. U.S. ROUTE 5	Log Sta. Surv. Sta.
U.S. ROUTE 5 OVER LULLS BROOK	
ROADWAY PLAN	
Designed By S.E. COSILMON	Drawn By R. REMY / G.F. O'NEIL
Checked By J. R. McDUFFEE	Bridge Design Supervisor
Date 2 /04	Date 2 /04
PROJECT HARTLAND	PROJECT NO. BRS No. 0113(22)
I.G.C. Info. B:\145620\VAOT Hartland\zf204bdr.dgn	
Bridge Sheet No.	Sheet 13 of 86

U.S. ROUTE 5 CURVE 2 DATA
 Δ 52°01' 01.1" R
 R 100.00m
 T 48.79m
 L 90.79m
 E 11.27m
 e 0.078

FIRST CONGREGATIONAL CHURCH OF HARTLAND, VERMONT, INC.

REMOVE PAVEMENT AND APPROACH EMBANKMENT (PAID UNDER ITEM 528.10)
 TOPSOIL AND SEED (FOLLOWING DETOUR REMOVAL)

STA. 3+085.5 LT TO STA. 3+088.5 LT
 TYPE III STONE EMBANKMENT STABILIZATION

END RETAINING WALL, BEGIN WINGWALL
 STA. 3+070.685, 5.035m RT.

STA 3+003 LT TO STA 3+105 LT
 LINE DITCH WITH STONE FILL TYPE I
 1.5m WIDE x 0.3m DEEP
 SEE DETAIL ON SHEET 2

COMPLETE PAVED DRIVEWAY FOLLOWING DETOUR REMOVAL (PAID UNDER UNIT ITEMS) USE 450mm SUBBASE AND 90mm PAVEMENT TO MATCH DETOUR DEPTH

STA 3+080.8 LT
 ALUMINUM APPROACH RAILING
 SEE DETAILS ON SHEET 34

STA 3+080.020
 STOP ROADWAY
 BEGIN BRIDGE

APPROX. PERMANENT AERIAL LOCATION BY CVPS
 ROCK CUT FOR BEAM CLEARANCE PAID UNDER UNCLASSIFIED CHANNEL EXCAVATION ITEM 203.27

STA. 3+082.2 LT TO STA. 3+108.4 LT
 INSTALL STEEL BEAM GUARDRAIL
 INSTALL GUARDRAIL APPROACH END (5.0m RADIUS STD. G-IDM)
 INSTALL ANCHOR FOR STEEL BEAM RAIL

APPROX. POLE LOCATION BY CVPS
 TEMPORARY CONSTRUCTION LIMITS

JAMES, LOUISE M.

RELOCATE TOOL SHED TO NEW LOCATION AT STA. 4+000 LT (PAID UNDER ITEM 202.10 (MOD.))

APPROX. POLE LOCATION BY CVPS
 APPROX. PERMANENT AERIAL LOCATION BY CVPS

STA 3+135.0 LT TO STA 3+146.1 LT
 ALUMINUM APPROACH RAILING
 SEE DETAILS ON SHEET 34

DECIDUOUS TREES (WHITE BIRCH (TYP.))
 EVERGREEN TREES (WHITE PINE (TYP.)) NOT PLANTED

STA 3+121 LT TO STA 3+138 LT
 REMOVE AND DISPOSE OF EXISTING GUARDRAIL

Q BRG. ABUT. 2
 STA. 3+123.110

REMOVE PAVEMENT AND APPROACH EMBANKMENT (PAID UNDER ITEM 528.10), TOPSOIL AND SEED (FOLLOWING DETOUR REMOVAL)

TEMPORARY CONSTRUCTION LIMITS

STA 3+140.000
 END PROJECT BRS 0113 (22)
 BEGIN APPROACH

REMOVE PAVEMENT AND APPROACH EMBANKMENT (PAID UNDER ITEM 528.10)
 TOPSOIL AND SEED (FOLLOWING DETOUR REMOVAL)

TEMPORARY CONSTRUCTION LIMITS

STA 3+167 END SHOULDER RECONSTRUCTION

NEW LOCATION OF TOOL SHED (FROM 3+144 LT.)
 SEE SPECIAL PROVISION

TEMPORARY WALKWAY, GUARDRAIL, WALL, AND PARKING AREA
 SEE TRAFFIC CONTROL PLAN AND CROSS SECTIONS FOR DETAILS

PLANTED CEDARS @ 1.5 METER CENTERS
 STA. 3+045 TO 3+060
 USE 1.5 METER HEIGHT PLACED IN 600 mm BED OF SOIL

STA. 3+052.000, 4.715m LT. BEGIN WINGWALL, WITH BRIDGE RAILING (3) RAIL ALUMINUM WITH OFFSET BLOCK, WITH BLACK ANODIZED FINISH

MARTINSVILLE HYDRO CORPORATION
 CONC. FLOOR
 CONC. RET. WALL
 AERIAL E&T
 OLD FND

U.S. ROUTE 5 STA 3+108.954 = CHANNEL LINE STA 1+047.942

ROCK CUT FOR BEAM CLEARANCE PAID UNDER UNCLASSIFIED CHANNEL EXCAVATION ITEM 203.27

COCKWILL, NEIL J. & HEIDI P.

STA 3+123.922
 END BRIDGE
 RESUME ROADWAY

STA 3+122.4 RT TO STA 3+130.0 RT
 ALUMINUM APPROACH RAILING
 SEE DETAILS ON SHEET 34

STA 3+134 RT TO STA 3+131 LT
 450mm x 12.0m PVC PIPE, REIN. CONC. D.I. WITH TYPE 'D' GRATE. OUTLET PIPE THROUGH WINGWALL USING 530mm SLEEVE

STA 3+130.0 RT TO STA 3+141.4 RT
 MANUFACTURED TERMINAL SECTION (TANGENT), SEE DETAILS ON SHEET 34

STA 3+125.0 LT TO STA 3+132.0 LT
 LINE DITCH WITH STONE FILL TYPE II
 1.4 m WIDE x 0.6m DEEP
 SEE DETAIL ON SHEET 2

STA 3+150 END FULL SECTION RECONSTRUCTION

STA 3+120 RT TO STA 3+150 RT
 PAVED GUTTER
 SEE DETAIL ON SHEET 2

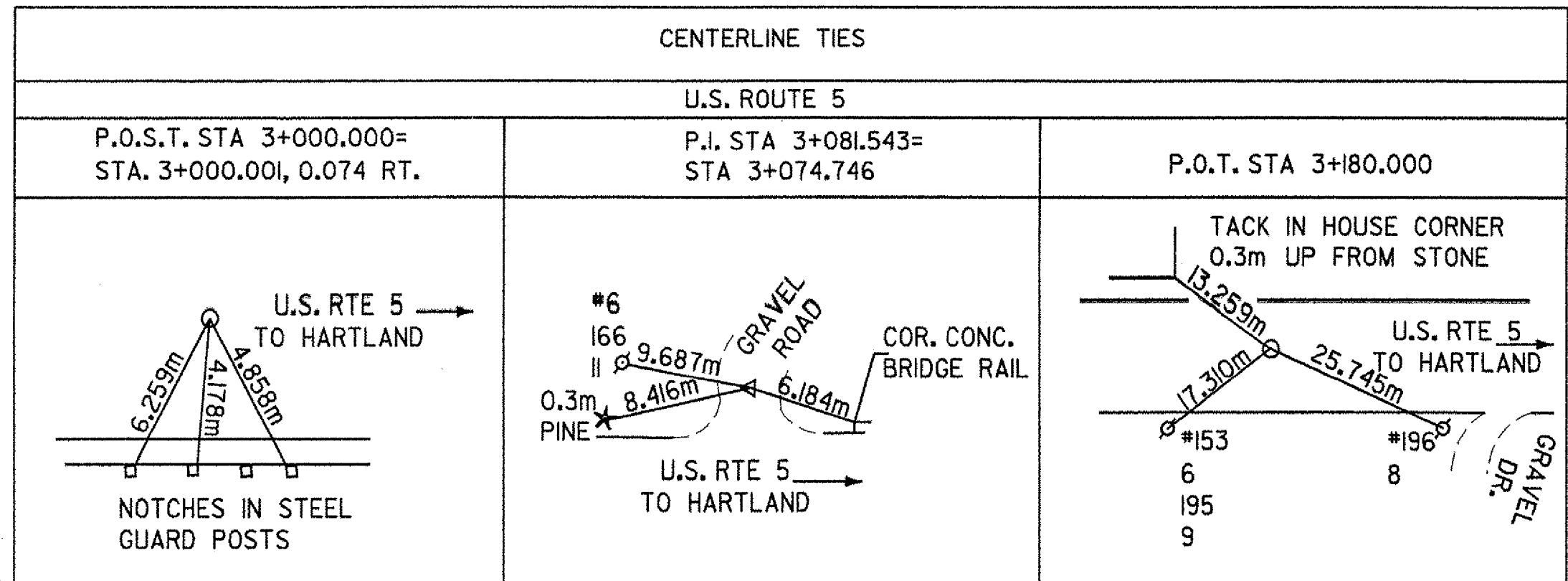
OLD MILL CABINET SHOP INC

GEST, DOUGLAS M.

- NOTES:
1. REMOVAL OF EXISTING CONCRETE PAVEMENT WILL BE PAID AS ITEM 203.16, SOLID ROCK EXCAVATION.
 2. FOR REMOVAL OF STRUCTURE, SEE GENERAL NOTES 23 AND 24 ON SHEET 37.

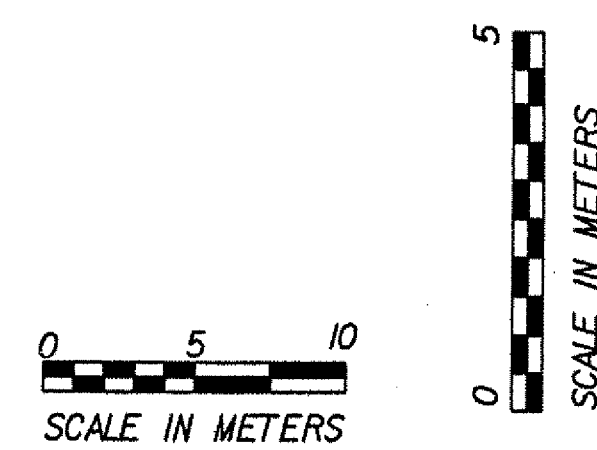
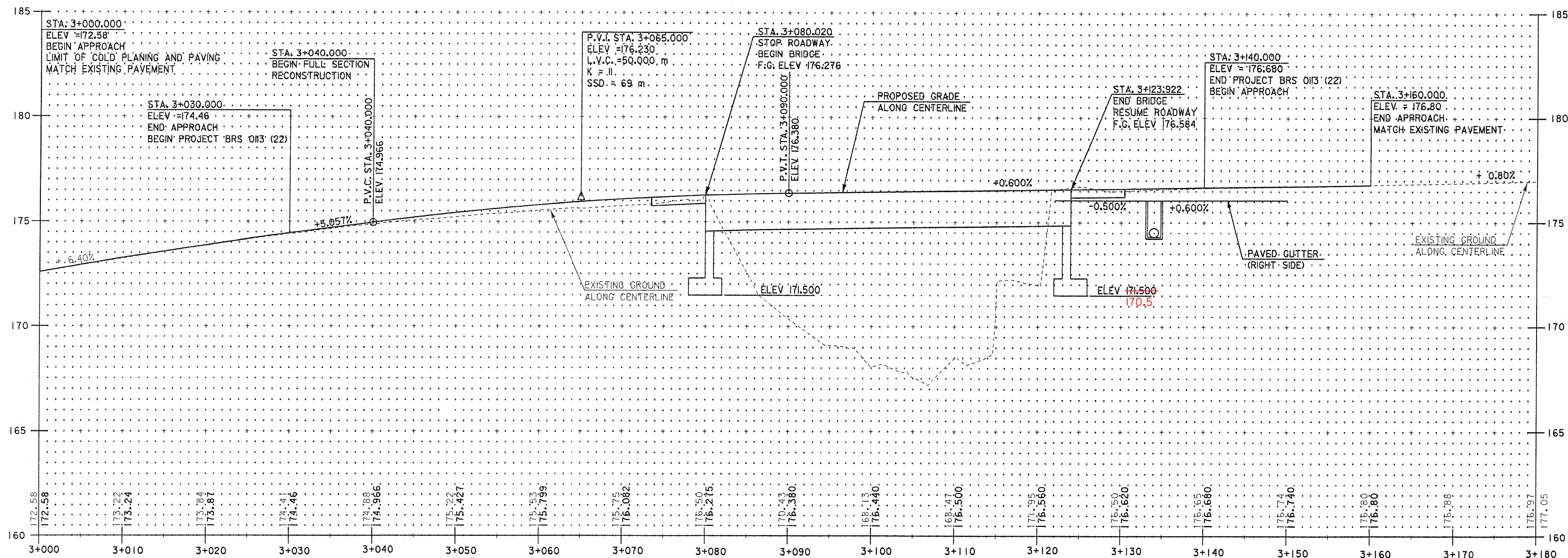
0 5 10
 SCALE IN METERS

DRIVEWAY TABLE			
DRIVEWAY LOCATION	RADIUS	WIDTH	REMARKS
STA 3+075 LT	6m	5m	COMPLETE PAVING FOLLOWING DETOUR REMOVAL
STA 3+150 LT	6m	4.4m	PAVED

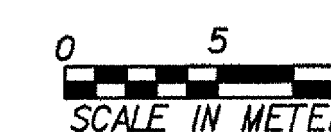


**STATE OF VERMONT
 AGENCY OF TRANSPORTATION**

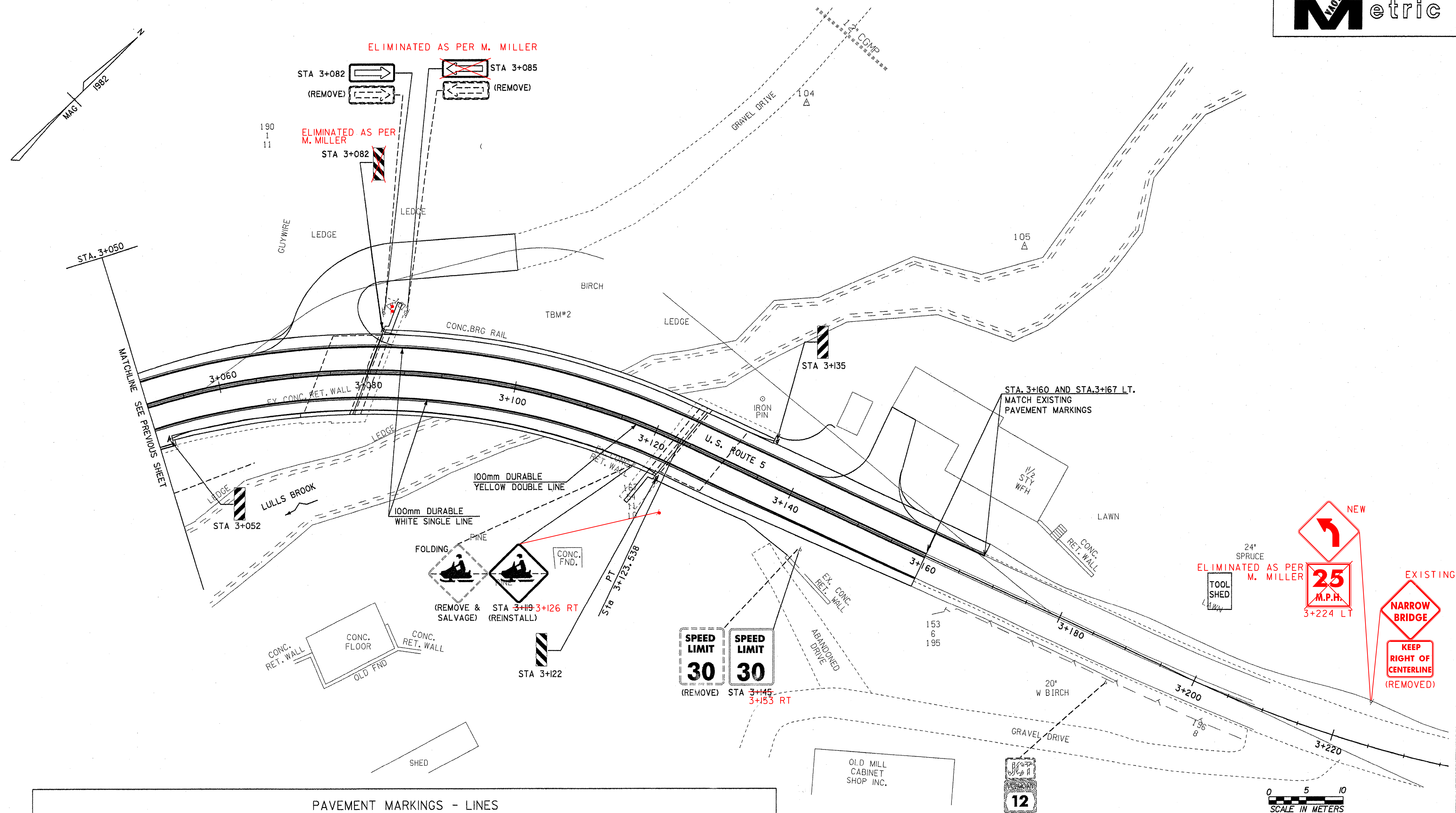
Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
ROADWAY PLAN			
Designed By	S.E. COSILMON	Drawn By	R. REMY / G.F. O'NEIL
Checked By	Date	Bridge Design Supervisor	
	J.R. McDUFFEE		2/ 04
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\145620\VA0T Hartland\z204bdr.dgn			
Bridge Sheet No.		Sheet	14 of 86



STATE OF VERMONT	
AGENCY OF TRANSPORTATION	
Town Of	HARTLAND
Bridge No.	60
Highway No.	U.S. ROUTE 5
Log Sta.	
Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK	
PROFILE	
Designed By	S.E. COSILMON
Drawn By	R. REMY / G.F. O'NEIL
Checked By	J. R. McDUFFEE
Date	2/ 04
Bridge Design Supervisor	J. MIECZKOWSKI
Date	2/ 04
PROJECT	HARTLAND
PROJECT NO.	BRS No. 013(22)
I.G.C. Info. M:\45620\VAOT Hartland\zf204xsl.dgn	
Bridge Sheet No.	Sheet 15 of 86



Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
PAVEMENT MARKING AND SIGN LAYOUT			
Designed By	S.E. COSILMON	Drawn By	R.REMY / G.F. O'NEIL
Checked By	Date	Bridge Design Supervisor	
J.R. McDUFFEE	2/ 04	J.MIECZKOWSKI	Date 2/ 04
PROJECT	HARTLAND	PROJECT NO.	
		BRS No.	0113(22)
I.G.C. Info. M:\456201\VAOT Hartland\zf204bdr.dgn			
Bridge Sheet No.		Sheet 16 of 86	



PAVEMENT MARKINGS - LINES

LOCATION	DURABLE 100mm WHITE, SINGLE	DURABLE 100mm YELLOW, DOUBLE	TEMPORARY 100mm WHITE, SINGLE	TEMPORARY 100mm YELLOW, DOUBLE	TEMPORARY 600mm WHITE, STOP BAR	REMARKS
U.S. RTE 5						
2+952 STA 3+000 TO 3+167 LT 3+193.4	167m 241.4m		334m			
2+952 STA 3+000 TO 3+160 RT 3+193.4	160m 241.4m		320m			
2+952 STA 3+000 TO 3+160 LT 3+194.4		2 x 160m = 320m		320		
U.S. RTE. 5 STA 2+965, RT		2X242.4 = 484.8m			3m	
U.S. 5 STA 2+970 LT TO DETOUR STA 5+064 LT			153m			SEE TRAFFIC CONTROL PLAN
U.S. 5 STA 2+970 RT TO DETOUR STA 5+064 RT			148m			
DETOUR STA 5+058 LT					3m	
DETOUR STA 5+099 LT TO U.S. 5 STA 3+182 LT			41m			
DETOUR STA 5+099 RT TO U.S. 5 STA 3+194 RT			54m			
U.S. RTE. 5 STA 3+195, LT					4m	
TOTAL	327m	320m	1050m	320m	10m	

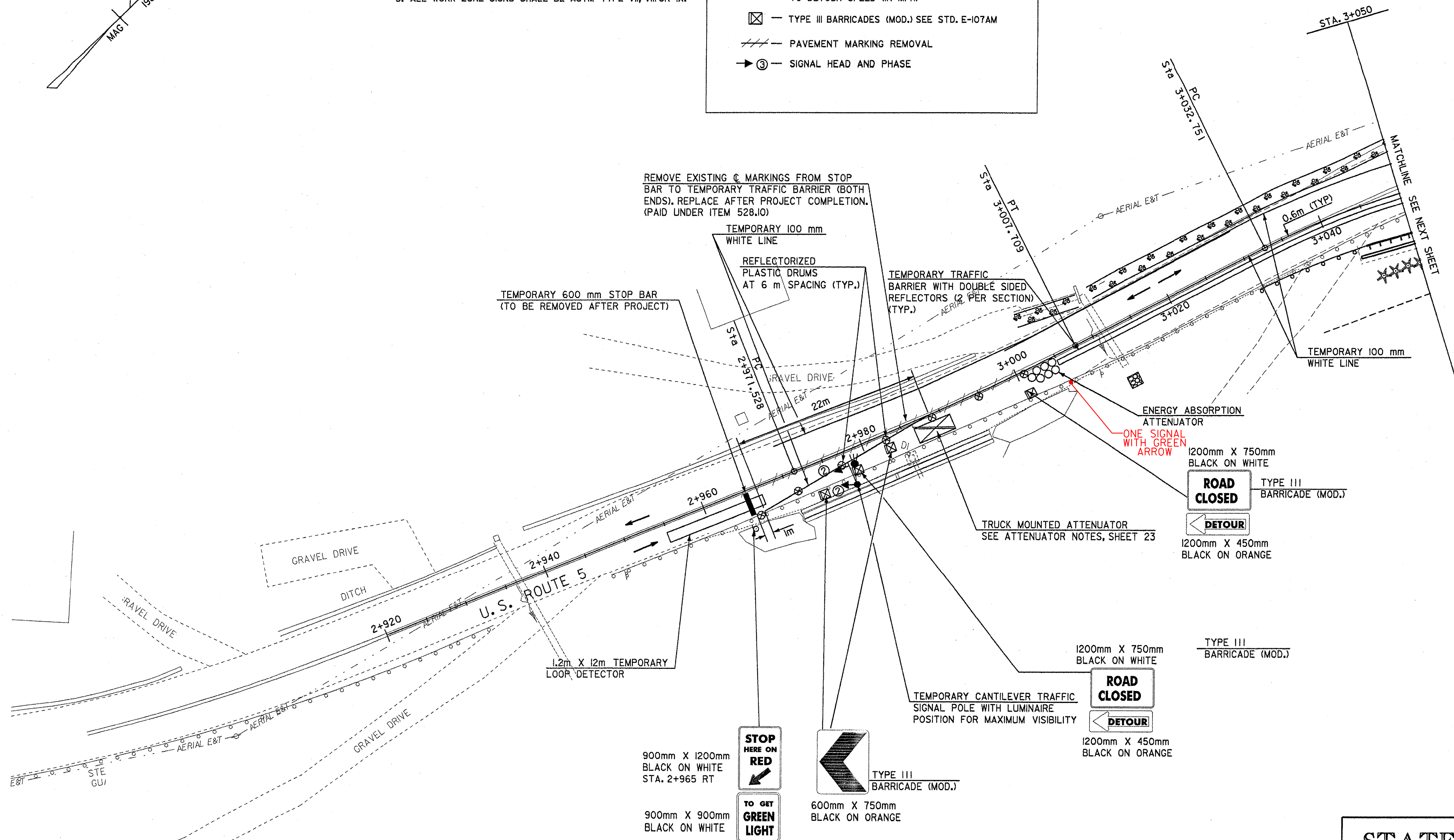
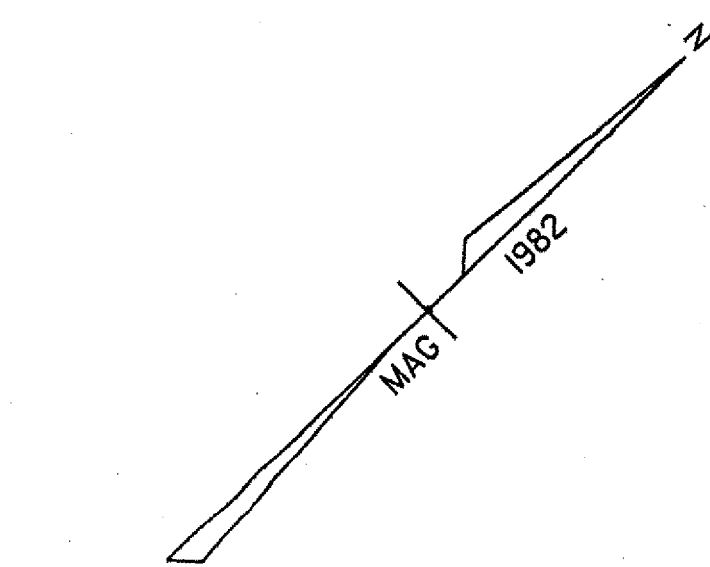
STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
PAVEMENT MARKING AND SIGN LAYOUT			
Designed By	S.E. COSILMON	Drawn By	R.REMY / G.F. O'NEIL
Checked By	J. R. McDUFFEE	Date	2/ 04
		Bridge Design Supervisor	J.MIECZKOWSKI Date 2/ 04
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\456201\VAOT Hartland\2f204bdr.dgn			
Bridge Sheet No.		Sheet	17 of 86

2-AUG-2004

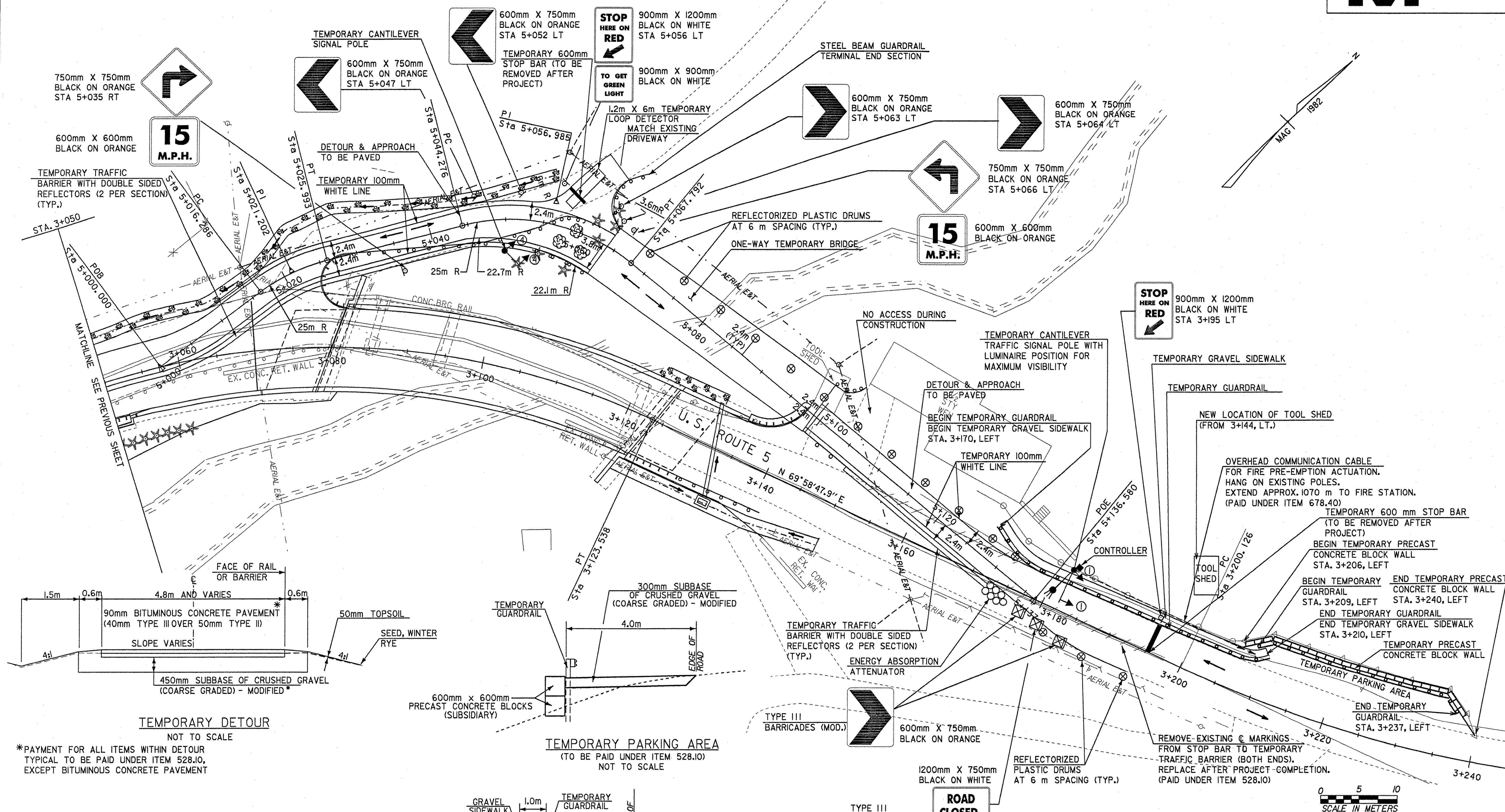
LEGEND

- — TRAFFIC SIGNAL POLE WITH LUMINAIRE
- ⊗ — REFLECTORIZED PLASTIC DRUMS (SEE STD. E-106M)
DRUM SPACING (IN FEET) IS EQUAL
TO DETOUR SPEED (IN MPH)
- ☒ — TYPE III BARRICADES (MOD.) SEE STD. E-107AM
- /// — PAVEMENT MARKING REMOVAL
- ➡ ③ — SIGNAL HEAD AND PHASE



STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
TRAFFIC CONTROL PLAN			
Designed By S.E. COSILMON		Drawn By R.REMY / G.F. O'NEIL	
Checked By	Date	Bridge Design Supervisor	
J. McDUFFEE	2/ 04	J. MIECZKOWSKI	Date 2/ 04
PROJECT		PROJECT NO.	
HARTLAND		BRS No. 0113(22)	
I.G.C. Info. M:\145620\VA0T Hartland\zf204bdr.dgn			
Bridge Sheet No.		Sheet 19 of 86	



LEGEND

- — TRAFFIC SIGNAL POLE WITH LUMINAIRE
- ⊗ — REFLECTORIZED PLASTIC DRUMS (SEE STD. E-106M) DRUM SPACING (IN FEET) IS EQUAL TO DETOUR SPEED (IN MPH)
- — TYPE III BARRICADES SEE STD. E-107AM
- /// — PAVEMENT MARKING REMOVAL
- ③ — SIGNAL HEAD AND PHASE

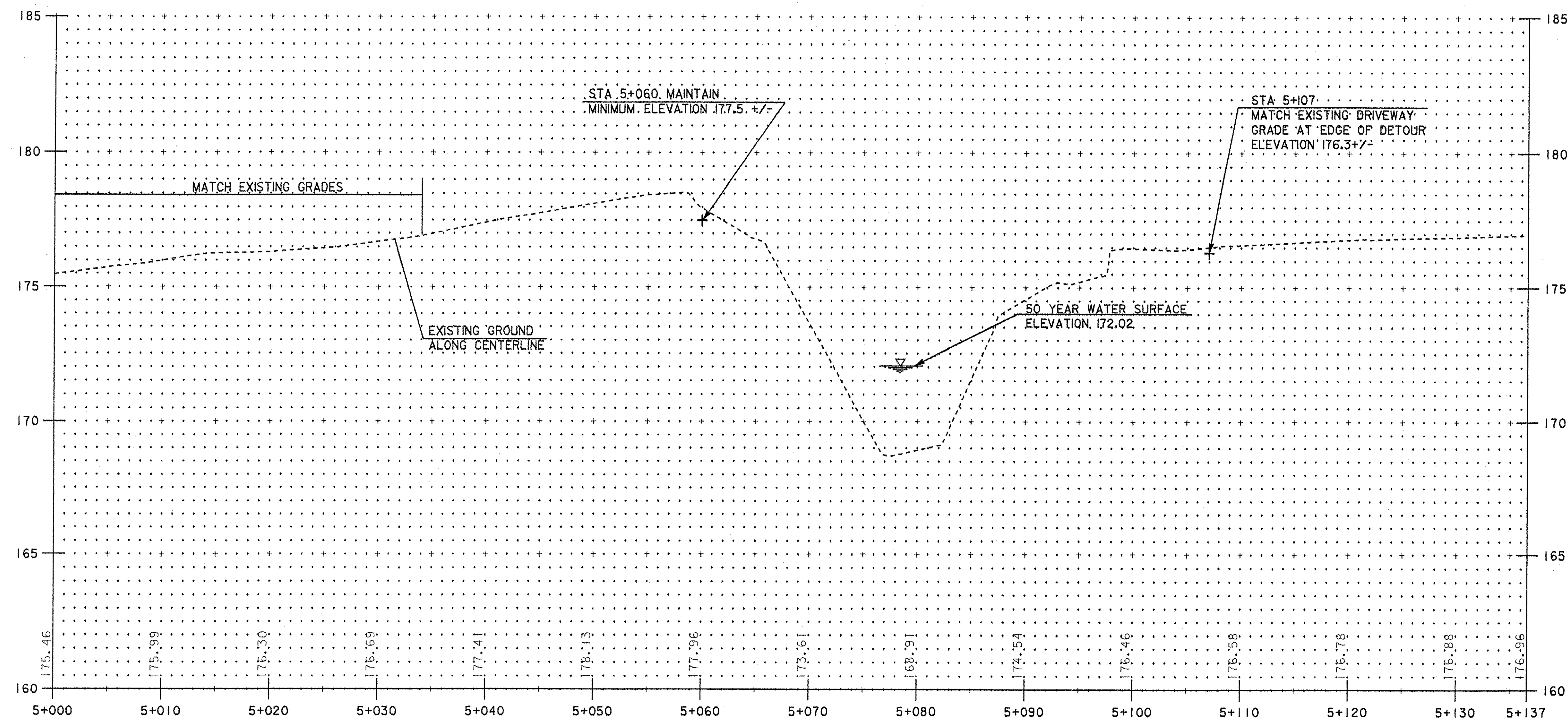
TEMPORARY DRIVEWAY TABLE

DRIVEWAY LOCATION	RADIUS	WIDTH	REMARKS
DETOUR STA 5+059 LT	6m, 3.6m	4m	PAVED

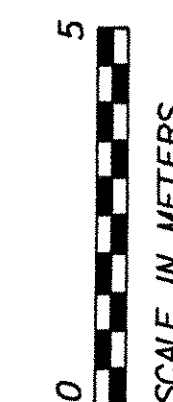
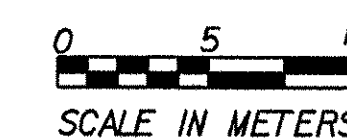
- NOTES:**
- ALL TRAFFIC RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN SIGNAL IS NOT OPERATING.
 - ITEM LOCATIONS ARE APPROXIMATE.
 - THE CONTRACTOR SHALL BE RESPONSIBLE TO CONFIRM ANY MEASUREMENTS IN THE FIELD.
 - PAYMENT FOR THE TEMPORARY PARKING AREA, SIDEWALK, BLOCK WALL, AND GUARDRAIL SHALL BE INCLUDED UNDER ITEM 582.10 AND SHALL INCLUDE COSTS FOR REMOVAL.
 - FOR ADVANCE WARNING SIGNS LAYOUT, SEE SHEET 22.
 - ALL WORK ZONE SIGNS SHALL BE ASTM TYPE VII, VIII OR IX.

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

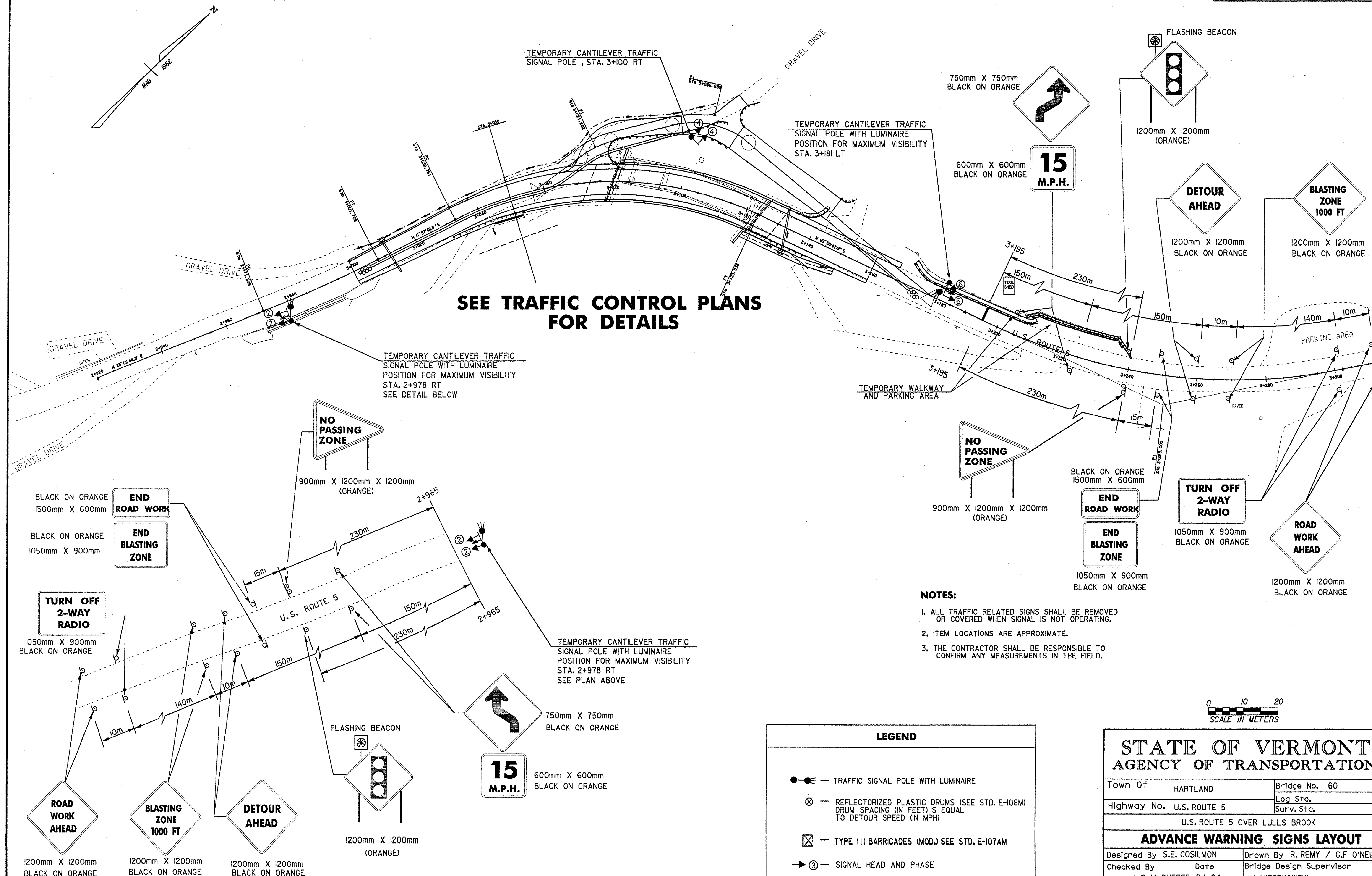
Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
TRAFFIC CONTROL PLAN			
Designed By	S.E. COSILMON	Drawn By	R.REMY / G.F. O'NEIL
Checked By	Date	Bridge Design Supervisor	
	J. R. McDUFFEE 2/ 04	J. MIECZKOWSKI	Date 2/ 04
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\145620\VAOT Hartland\2f204bdr.dgn			
Bridge Sheet No.		Sheet	20 of 86



TEMPORARY DETOUR



STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of		HARTLAND	
Highway No.		U.S. ROUTE 5	
		U.S. ROUTE 5 OVER LULLS BROOK	
TEMPORARY DETOUR PROFILE			
Designed By		S.E. COSILMON	
Checked By		J. R. McDUFFEE	
Date		2/ 04	
PROJECT		HARTLAND	
		PROJECT NO.	
		BRS No. 0113(22)	
I.G.C. Info. M:\1456201\VA0T Hartland\zf204xsl.dgn			
Bridge Sheet No.		Sheet 21 of 86	



- NOTES:**
1. ALL TRAFFIC RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN SIGNAL IS NOT OPERATING.
 2. ITEM LOCATIONS ARE APPROXIMATE.
 3. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONFIRM ANY MEASUREMENTS IN THE FIELD.

0 10 20
SCALE IN METERS

LEGEND	
	— TRAFFIC SIGNAL POLE WITH LUMINAIRE
	— REFLECTORIZED PLASTIC DRUMS (SEE STD. E-106M) DRUM SPACING (IN FEET) IS EQUAL TO DETOUR SPEED (IN MPH)
	— TYPE III BARRICADES (MOD.) SEE STD. E-107AM
	— SIGNAL HEAD AND PHASE
	— FIRE PRE-EMPTION

STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of		HARTLAND	Bridge No. 60
Highway No.		U.S. ROUTE 5	Log Sta.
			Surv. Sta.
U.S. ROUTE 5 OVER LULLS BROOK			
ADVANCE WARNING SIGNS LAYOUT			
Designed By		S.E. COSILMON	
Checked By		Date	
J. R. McDUFFEE		2/ 04	
Drawn By		R. REMY / G.F. O'NEIL	
Bridge Design Supervisor		J. MIECZKOWSKI	
		Date 2/ 04	
PROJECT		HARTLAND	
PROJECT NO.		BRS No. 0113(22)	
I.G.C. Info. M:\45620\VAOT Hartland\zf204bdr.dgn			
Bridge Sheet No.		Sheet 22 of 86	

PHASING DIAGRAM AND SPECIAL NOTES
FOR EACH LOCATION

PHASE	2			1			4			3		
MINIMUM	10						10			90		
EXTENSION	2						2			2		
MAXIMUM	35	3	42	35	3	42	27	3	42	100	3	42
HEAD 2	G	Y	R	R	R	R	R	R	R	R	R	R
HEAD 1	R	R	R	G	Y	R	R	R	R	G	Y	R
HEAD 4	R	R	R	R	R	R	G	Y	R	R	R	R

APPROACH 4 IS A SIDE DRIVE APPROACH

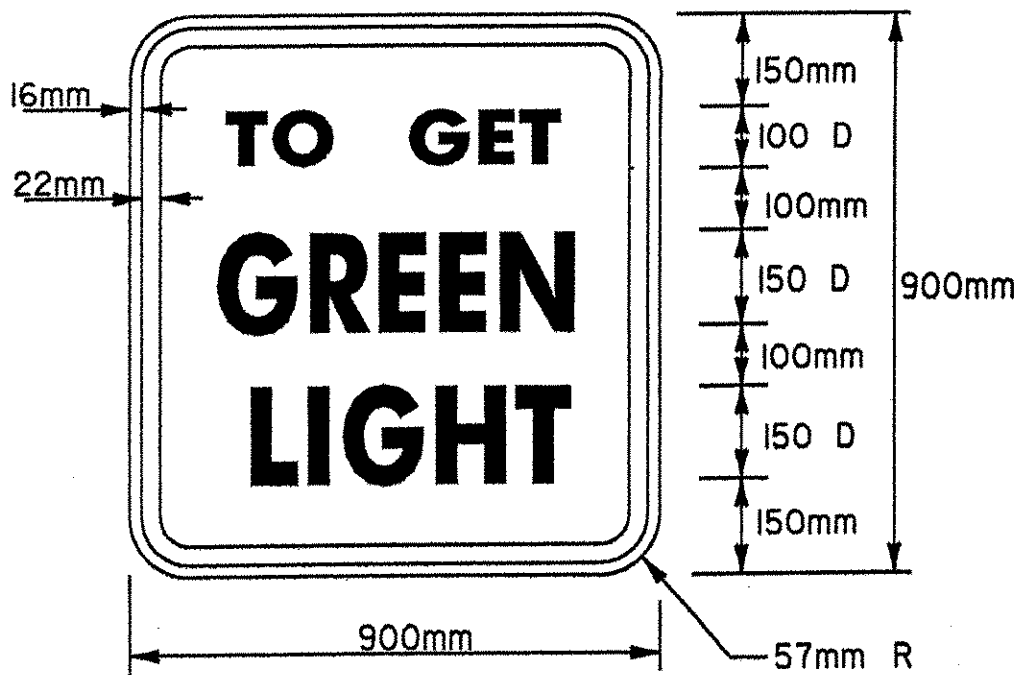
NOTES:

1. SET RECALL TO PHASE 1.
2. PHASE 3 IS UTILIZED FOR FIRE PRE-EMPTION

SPECIAL REQUIREMENTS

APPROACH	TEMPORARY VEHICLE DETECTOR	DILEMMA ZONE LOOP	FLASHING BEACON OR ADVANCED WARNING SIGN
2	X		X
1			X
4	X		

ENTER CHECK MARK IN APPROPRIATE
BOX WHEN REQUIRED ON THIS PROJECT



COLORS: BLACK TEXT AND BORDER
WHITE REFL. BACKGROUND
MATERIALS: PER STD. E-142M

STANDARD SHEETS REQUIRED FOR USE WITH
TEMPORARY DETOUR SHEETS INCLUDE:

E-100M	E-171AM
E-101M	E-171BM
E-102M	E-171CM
E-102AM	E-172M
E-106M	E-173M
E-107M	E-175M
E-107AM	
E-121M	
E-140M	

Metric

ATTENUATOR NOTES

TO ALLOW THE CONTRACTOR ACCESS TO THE WORK AREA, NO BARRIER TAPER WILL BE INSTALLED. ENERGY ABSORPTION ATTENUATORS SHALL BE INSTALLED AT BOTH ENDS OF THE BARRIER AND A TRUCK-MOUNTED ATTENUATOR INSTALLED AT THE SOUTHERN END ONLY.

THE TRUCK-MOUNTED ATTENUATOR WILL BE PAID FOR UNDER ITEM 608.45, AND THE ENERGY ABSORPTION ATTENUATORS WILL BE PAID FOR UNDER ITEM 621.56. THE ATTENUATORS SHALL MEET THE REQUIREMENTS OF THE 2002 AASHTO "ROADSIDE DESIGN GUIDE", AND SHALL BE DESIGNED FOR A 4500 LB VEHICLE AT 30 MPH.

GENERAL NOTES

1. DESIGN OF SIGNAL SUPPORT(S) AND ANY REQUIRED GUYING IS THE RESPONSIBILITY OF THE CONTRACTOR.
2. SIGNAL TIMING/TIMING ADJUSTMENTS REQUESTED BY THE RESIDENT ENGINEER SHALL BE ACCOMPLISHED WITHIN A 48 HOUR PERIOD AND PAYMENT SHALL BE SUBSIDIARY TO THE TRAFFIC SIGNAL ITEM. THE ALL-RED CLEARANCE INTERVAL IS BASED ON AN ASSUMED SPEED OF 10-20 MPH. THE RESIDENT ENGINEER SHALL MAKE SEVERAL TRIAL RUNS TO DETERMINE THE PROPER ALL-RED CLEARANCE INTERVAL.
3. SIGNAL FACES SHALL CONSIST OF 305mm LENSES, (RED, YELLOW, AND GREEN).
4. THE BOTTOM OF THE HOUSING OF THE SIGNAL FACE SUSPENDED OVER A ROADWAY SHALL NOT BE LESS THAN 5.0m NOR MORE THAN 5.8m ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE ROADWAY. THE BOTTOM OF THE SIGNAL FACE NOT MOUNTED OVER A ROADWAY SHALL NOT BE LESS THAN 2.4m NOR MORE THAN 4.6m ABOVE THE GROUND. CAUTION SHOULD BE USED TO INSURE COMPLIANCE WITH THE HEIGHT REQUIREMENTS IN THE EVENT THE NEW APPROACH GRADES DIFFER SIGNIFICANTLY FROM THE OLD ROAD GRADE.
5. SIGNAL FACES FOR ANY ONE APPROACH SHALL NOT BE LESS THAN 2.4m APART MEASURED HORIZONTALLY BETWEEN CENTER OF FACES.
6. SIGNAL HEADS MAY BE HUNG ON A SPAN WIRE OR ON A CANTILEVER MAST ARM. AT LEAST ONE SIGNAL HEAD SHALL BE UNMISTAKABLY IN LINE WITH THE CENTER OF APPROACHING TRAFFIC AT ALL TIMES. THE SECOND SIGNAL HEAD MAY BE POST MOUNTED, LOCATED AT A DISTANCE NO GREATER THAN 4.4m FROM THE CENTER OF THE APPROACH LANE WHEN THE STOP BAR IS 12.2m FROM THE SIGNAL HEAD. CONSULT THE M.U.T.C.D. FOR ADDITIONAL INFORMATION CONCERNING SIGNAL PLACEMENT.
7. SIGNAL HEAD PLACEMENT IS CRITICAL. HEADS SHALL BE ADJUSTED TO REFLECT LANE LOCATION CHANGES.
8. THE SIGNAL SYSTEM SHALL CONSIST OF POLES, SIGNS AND POSTS, WARNING SIGNS, LUMINAIRES, FLASHING BEACONS, FIRE PRE-EMPTION AND SIGNAL EQUIPMENT TO PROVIDE FOR AN ADEQUATE DESIGN. IT ALSO INCLUDES PERMITS AND COST ASSOCIATED WITH PROVIDING ELECTRICAL POWER.
9. THE CONTRACTOR SHALL PROVIDE AN ACTUATED CONTROLLER. THE APPROACHES NOTED SHALL HAVE A TEMPORARY VEHICLE DETECTOR. THE TYPE OF DETECTION SHALL BE INDUCTANCE . THE CONTROLLER, VEHICLE DETECTORS AND ALL OTHER SIGNAL EQUIPMENT SHALL MEET OR EXCEED ALL NEMA STANDARDS.
10. VEHICLE DETECTOR LOOPS SHALL BE 1.2m X 12m FOR PRESENCE DETECTION ON U.S. ROUTE 5 AND 1.2m X 6m FOR SIDE APPROACH. THE NEAR PORTION OF THE LOOPS SHALL EXTEND 1.5m BEYOND THE STOP BAR.
11. INTERVAL TIMING SHOWN IN SECONDS.

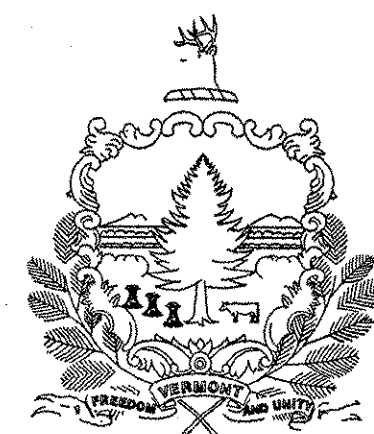
12. INTERCONNECT BETWEEN SIGNAL POLES BY WHATEVER MEANS POSSIBLE OR CONVENIENT TO PROVIDE FOR A SAFE INSTALLATION.
13. PLACE TEMPORARY POLES BEHIND GUARDRAIL WHERE POSSIBLE.
14. POLES SUPPORTING SPAN WIRES AND/OR MAST ARMS SHALL BE ADEQUATELY BRACED OR GUYED AND SHALL NOT BE PLACED SO AS TO CREATE A HAZARD TO THE TRAVELING PUBLIC.
15. ALL TEMPORARY SIGNAL EQUIPMENT, SIGNS, ETC., SHALL BELONG TO THE CONTRACTOR AT THE END OF THE PROJECT AND HE SHALL BE RESPONSIBLE FOR THEIR REMOVAL, INCLUDING ANY TEMPORARY PAVEMENT MARKINGS, UTILITY POLES, WIRES, ETC.
16. A 250 WATT MERCURY OR 150 WATT HPS LUMINAIRE AND MAST ARM SHALL BE PROVIDED ON A POLE ON EACH APPROACH AT A MOUNTING HEIGHT OF 9.1m ABOVE ROADWAY CENTERLINE TO LIGHT UP THE AREA AROUND THE SIGNAL HEADS AND STOP BAR FOR VISIBILITY. THE RESIDENT ENGINEER SHALL DETERMINE THE ADEQUACY OF THE LIGHTING AND DIRECT CHANGES IF THE LIGHTING IS INSUFFICIENT.
17. STOP BARS SHALL BE LOCATED A MINIMUM OF 12.2m AND A MAXIMUM OF 36.6m FROM THE NEAREST SIGNAL HEAD.
18. PAYMENT FOR TEMPORARY VEHICLE LOOP DETECTOR ITEM SHALL BE FOR EACH UNIT INSTALLED.
19. SIGNS AND POSTS AS SHOWN ON THIS SHEET AND NOTED BELOW ARE SUBSIDIARY TO THE TRAFFIC CONTROL SIGNAL ITEM ("STOP HERE ON RED," "SIGNAL AHEAD," "NO PASSING ZONE," AND "TO GET GREEN LIGHT," ETC.) THE TEMPORARY STOP BARS SHOULD BE PAID UNDER THE TEMPORARY 600 mm STOP BAR ITEM.
20. SEE STD. E-140M FOR "STOP HERE ON RED" SIGN DETAIL AND E-101M FOR "SIGNAL AHEAD" SYMBOL SIGN. SEE STD. E-121M FOR SIGN PLACEMENT, SEE STDs. E-171AM THROUGH E-172M FOR ADDITIONAL INFORMATION ON SIGNALS AND DETECTORS.
21. A "SIGNAL AHEAD" SIGN SHALL BE PLACED AT LEAST 225m FROM THE SIGNAL OR AT A POSITION TO BE DETERMINED BY THE ENGINEER.
22. THE "NO PASSING" SIGN SHALL BE USED TO PREVENT PASSING FOR 225m IN ADVANCE OF THE STOP BAR. THE SIGN SHALL BE PER STD. E-102M.
23. ALL ELECTRICAL WORK SHALL MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND STATE INSPECTOR.
24. APPROACH WIDTHS SHALL BE AS DETAILED IN SECTION 528.04(b)2 TO MINIMIZE VEHICLE DELAY.

25. TRAFFIC CONTROL WARNING SIGNS SHALL BE PROVIDED ON EACH APPROACH PER STANDARD E-107M. ADDITIONAL PROJECT CONSTRUCTION SIGNS SHALL BE INSTALLED AS REQUIRED BY THE RESIDENT ENGINEER PER STANDARD E-100M, E-101M, E-102M & E-102AM. PAYMENT FOR THESE SIGNS, THE REFLECTORIZED PLASTIC DRUMS, ETC. SHALL BE PAID AS PART OF THE "MAINTENANCE OF TRAFFIC FOR BRIDGE PROJECTS" ITEM OR THE "TRAFFIC CONTROL" ITEM.
26. THE "TO GET GREEN LIGHT" SIGN IS TO BE USED ONLY ON APPROACHES WITH VEHICLE DETECTOR LOOPS.
27. TEMPORARY TRAFFIC BARRIER SHALL BE SUBSTITUTED FOR THE CHANNELIZING DEVICES SHOWN WHEN ANY OF THE FOLLOWING ARE MET:
A.) THE BRIDGE DECK IS REMOVED
B.) THE BRIDGE RAIL IS REMOVED, OR
C.) IN THE JUDGEMENT OF THE RESIDENT ENGINEER TEMPORARY BARRIER IS NEEDED.
28. PAYMENT FOR THE TEMPORARY BARRIER USED SHALL BE MADE UNDER THE APPROPRIATE ITEM.
29. INSTALL TEMPORARY FIRE PRE-EMPTION EQUIPMENT ON SIGNALS AT STA. 2+978, RT. AND STA. 3+181, LT.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
TEMPORARY DETOUR NOTES			
Designed By	S.E. COSILMON	Drawn By	R. REMY / G.F. O'NEIL
Checked By	Date	Bridge Design Supervisor	
J. McDUFFEE	2/04	J. MIECZKOWSKI	Date 2/04
PROJECT	HARTLAND		PROJECT NO. BRS No. 0113(22)
I.G.C. Info. M:\1456201\VAOT Hartland\zf204frm.dgn			
Bridge Sheet No.		Sheet 23 of 86	

STATE OF VERMONT
AGENCY OF TRANSPORTATION



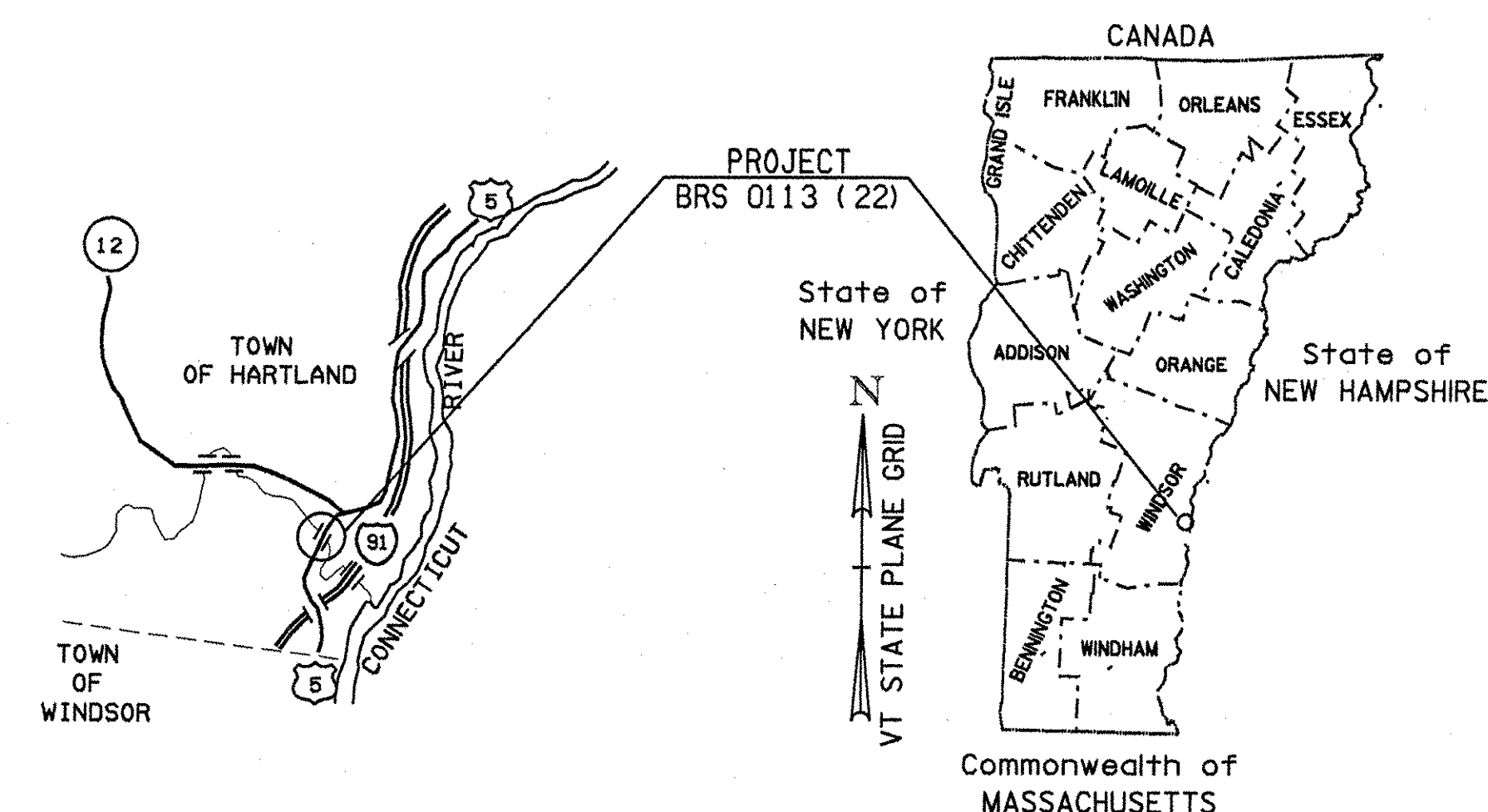
EROSION PREVENTION
AND SEDIMENT CONTROL
MEASURES
FOR THE
PROPOSED IMPROVEMENT
TOWN OF HARTLAND
COUNTY OF WINDSOR
U.S. RTE. 5

HARTLAND BRS 0113 (22)

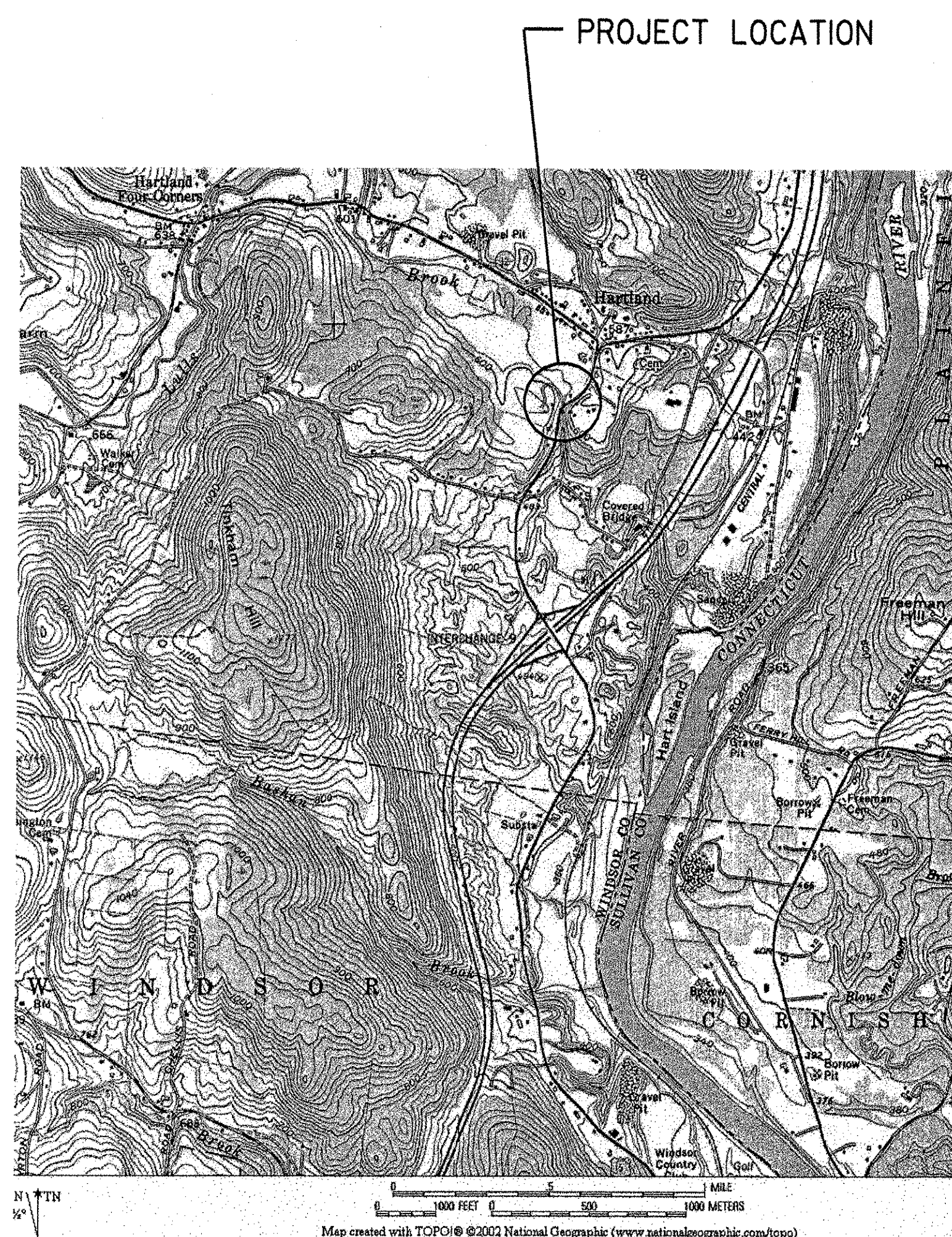
BEGINNING AT A POINT APPROXIMATELY 2.135 KILOMETERS
NORTH OF THE WINDSOR-HARTLAND TOWN LINE AND
EXTENDING NORTH 0.110 KILOMETERS

WORK TO BE PERFORMED ON THIS PROJECT INCLUDES
REPLACEMENT OF BRIDGE #60 OVER LULLS BROOK
AND NECESSARY ROADWAY APPROACHES.

LENGTH OF STRUCTURES	0.044 KILOMETERS
LENGTH OF ROADWAY	0.066 KILOMETERS
LENGTH OF PROJECT	0.110 KILOMETERS



24	TITLE SHEET AND LOCATION MAP
	EROSION AND SEDIMENT CONTROL NARRATIVE
	EXISTING CONDITIONS SITE PLANS
	EROSION AND SEDIMENT CONTROL PLANS
	FINAL CONDITION PLANS
	EROSION AND SEDIMENT CONTROL DETAILS



COUNTY LINE	
TOWN LINE	
LIMITS OF ACCESS	-○- -○- -○-
POINT OF ACCESS	X X X X X
FENCE LINE	-○- -○- -○- -○-
STONE WALL	-○- -○- -○- -○-
TRAVELED WAY	-○- -○- -○- -○-
GUARD RAIL	-○- -○- -○- -○-
RAILROAD	
SURVEY LINE	+ + +
CULVERT	- - - - - -
POWER POLE	⊠ ⦿
TELEPHONE POLE	⊞ ⦿
TREES	⊗ ⊛
CONTROL OF ACCESS	PL // //
PROPERTY LINE	- - - PL
R.O.W. TAKING LINE	SR ▲ SR ○ SR
SLOPE RIGHTS	▲ ▲ ▲
TOP OF CUT	-○- -○- -○-
TOE OF SLOPE	△ △ △

SURVEYED BY :
SURVEYED DATE :

DATUM

VERTICAL NGVD 1929
HORIZONTAL N/A

PLANS PREPARED BY



McFARLAND-JOHNSON, INC.
BINGHAMTON N.Y.

BY _____

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

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2001, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JANUARY 4, 2001 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATOR

APPROVED _____ DATE _____

DIRECTOR OF PROJECT DEVELOPMENT

APPROVED _____ DATE _____

PROJECT MANAGER : CRAIG KELLER

PROJECT NAME : BRS 0113 (22)

PROJECT NUMBER : HARTLAND

SHEET 24A OF 86 SHEETS

M:\145620\VAOT Hartland\zf204ES-LOC.dan
19-AUG-2004

DESCRIPTION OF PROJECT

THIS PROJECT INCLUDES REMOVAL AND REPLACEMENT OF BRIDGE #60 ON ROUTE 5 OVER LULLS BROOK AND THE NECESSARY ROADWAY APPROACH IMPROVEMENTS ASSOCIATED WITH THE BRIDGE. THE PROJECT IS LOCATED APPROXIMATELY 2.135 KM NORTH OF THE WINDSOR-HARTLAND TOWN LINE AND EXTENDS NORTH 0.110 KM. TOTAL ROADWAY WORK, INCLUDING BOTH APPROACHES, IS APPROXIMATELY 160 METERS. AN EXISTING PRIVATELY OWNED TOOL SHED WILL BE RELOCATED TO ALLOW FOR CONSTRUCTION OF A TEMPORARY DETOUR ROADWAY AND BRIDGE JUST NORTH OF THE EXISTING STRUCTURE. CONSTRUCTION OF THE PROPOSED BRIDGE WILL OCCUR ABOVE THE ORDINARY HIGH WATER ELEVATION AND NO WORK WITHIN THE FLOWING WATER IS ANTICIPATED DURING CONSTRUCTION. LULLS BROOK IS CLASSIFIED AS CLASS B WATERS AND IS LOCATED IN THE LOWER CONNECTICUT RIVER BASIN. THE LIMITS OF CONSTRUCTION DO NOT ENCROACH UPON WETLANDS. NO THREATENED OR ENDANGERED SPECIES HAVE BEEN IDENTIFIED IN THE PROJECT AREA. THE PROJECT WILL INVOLVE AN ADVERSE EFFECT ON A MULTIPLE RESOURCE DISTRICT CONSISTING OF THE EXISTING BRIDGE, STANDING STRUCTURES AND ARCHAEOLOGICAL SITES DETERMINED ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES. THESE EFFECTS WILL BE MITIGATED BY IMPLEMENTATION OF THE STIPULATIONS CONTAINED IN A SECTION 106 MOA SIGNED BY THE FHWA ON JULY 13, 1998.

THE SITE IS LOCATED AT APPROXIMATELY 433218 N, 722407 W (NAD 83/92) IT IS ANTICIPATED THAT THE PROJECT WILL LAST TWO CONSTRUCTION SEASONS. NO WINTER CONSTRUCTION IS ANTICIPATED. TOTAL DISTURBED AREA (EXCLUDING WASTE, BORROW AND STAGING AREAS): 0.283 ha (0.70 ACRES).

SITE INVENTORY & ANALYSIS

OFF SITE DRAINAGE CHARACTERISTICS:
THE PROPERTY SURROUNDING THE PROJECT SITE CONSISTS OF WELL ESTABLISHED VEGETATION WITH STEEP SLOPES OF VARIOUS GRASSES, SHRUBS AND TREES. STORMWATER RUNOFF FROM AREAS NORTHWEST AND SOUTHEAST OF THE CROSSING ARE CONVEYED INTO LULLS BROOK VIA A SERIES OF ROADSIDE DITCHES AND CULVERTS UNDER US RT 5. SOUTHWEST AND NORTHEAST OF THE CROSSING RUNOFF IS CONVEYED AS SHEET FLOW AND DISCHARGED DIRECTLY INTO LULLS BROOK.

DRAINAGE, WATERWAYS, BODIES OF WATER:
LULLS BROOK IS LOCATED WITHIN THE PROJECT AREA. THERE ARE NO OTHER WATER BODIES OR WETLANDS WITHIN THE PROJECT AREA. LULLS BROOK IS CLASSIFIED AS A CLASS B STREAM AND IS A COLD WATER FISHERY. THE BROOK IS A TRIBUTARY OF THE CONNECTICUT RIVER. THE CONTRIBUTING DRAINAGE AREA OF LULLS BROOK AT THE EXISTING CROSSING IS 55.4 SQ. KM. (21.4 SQ. MI.). THE FEMA DELINEATED 100-YEAR FLOODPLAIN IS EXTREMELY NARROW THROUGHOUT THE PROJECT AREA DUE TO STEEP OVERBANK SIDESLOPES AND CHANNEL SLOPE.

TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES:
THE TOPOGRAPHY OF THE PROJECT SITE CONSISTS OF A ROCKY GORGE IMMEDIATELY UPSTREAM AND DOWNSTREAM OF THE EXISTING BRIDGE. SLOPES ON EITHER SIDE OF THE STREAM ARE PARTIALLY WOODED. EXISTING LAND USE IS LOW DENSITY RESIDENTIAL AND COMMERCIAL. THE LAND IMMEDIATELY SURROUNDING THE BRIDGE IS UNDEVELOPED DUE TO STEEP SLOPES ASSOCIATED WITH LULLS BROOK GORGE. A SMALL HYDROELECTRIC FACILITY IS LOCATED SOUTHEAST OF THE EXISTING BRIDGE. UTILITY POLES WILL BE RELOCATED AS PART OF THE PROJECT.

VEGETATION:
VEGETATION ON EITHER SIDE OF THE STREAM IS PARTIALLY WOODED WITH SPECIES SUCH AS AMERICAN ELM, BOX ELDER AND STAGHORN SUMAC. OTHER SPECIES OBSERVED ARE BUSH HONEYSUCKLE, RASPBERRY AND TIGER LILLIES. NORTHEAST OF THE BRIDGE IS DOMINATED BY MATURE WHITE PINES. NORTHWEST AND SOUTHWEST OF THE EXISTING BRIDGE IS SIMILAR. THE STEEP ROCKY SLOPES CONSIST A MIX OF SEVERAL TREE SPECIES THAT INCLUDE WHITE PINE, RED OAK, BOX ELDER, AMERICAN ELM AND BASSWOOD. BUSH HONEYSUCKLE, BRAMBLES AND STAGHORN SUMAC ARE THE PRIMARY UNDERSTORY VEGETATION.

SOILS:
THE SOIL SURVEY IDENTIFIES TWO SOIL TYPES IN THE WORK AREA: SHELBURNE ON THE NORTH AND RUMNEY ON THE SOUTH. A DESCRIPTION OF THE SOIL TYPES IS INCLUDED IN THE PLAN SHEET TITLED "EXISTING CONDITIONS SITE PLAN".
SHELBURNE:
SHELBURNE FINE, SANDY LOAM IS A HIGHLY ERODIBLE SOIL.
RUMNEY:
RUMNEY FINE, SANDY LOAM IS NOT HIGHLY ERODIBLE

SEVEN SOIL BORINGS WERE TAKEN IN THE PROJECT AREA. ALL BORINGS INDICATED BEDROCK WITHIN THE TOP 3.3M OF THE SAMPLES. MATERIALS BETWEEN THE SURFACE AND THE BEDROCK WERE CLASSIFIED AS SILT, SAND, STONES, LOOSE AND/OR SOFT ROCK OR GRAVEL.

SENSITIVE RESOURCE AREAS:
NO THREATENED OR ENDANGERED SPECIES HAVE BEEN IDENTIFIED WITHIN THE PROJECT LIMITS AND ADVERSE EFFECTS TO HISTORIC OR ARCHAEOLOGICAL FEATURES WILL BE MITIGATED AS STATED IN THE MOA. LULLS BROOK IS AN IDENTIFIED RESOURCE. THERE ARE NO WETLANDS WITHIN 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 THE NEW STRUCTURE AND THE TEMPORARY DETOUR ROADWAY AND BRIDGE. TEMPORARY DISTURBANCES TO THE STREAM BANKS DURING CONSTRUCTION WILL BE STABILIZED WITH STONE FILL, TYPE II. STONE FILL WILL BE REMOVED UPON REMOVAL OF THE TEMPORARY ROADWAY AND BRIDGE.

TEMPORARY EROSION PREVENTION & SEDIMENT CONTROL

TEMPORARY EROSION PREVENTION MEASURES TO BE UTILIZED INCLUDE:
"PROJECT DEMARCATION FENCING," DENOTED -PDF- 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 UNLESS THE FORECAST OF RAINFALL DICTATES STABILIZATION SOONER.

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.

WHERE NECESSARY TEMPORARY STONE CHECK DAMS WILL BE PLACED IN DITCHES TO REDUCE FLOW VELOCITIES AND THUS REDUCE THE POTENTIAL FOR EROSION. CHECK DAMS WILL BE PLACED ALONG THE DITCHES SUCH THAT THE ELEVATION OF THE TOP OF EACH CHECK DAM CORRESPONDS WITH THE ELEVATION OF THE TOE OF THE PRECEDING UPSLOPE CHECK DAM. SEE 'EROSION CONTROL DETAILS' SHEET. THE CHECK DAMS MAY BE REMOVED ONCE THE STONE LINING OF THE DITCHES IS COMPLETE AND THE SURROUNDING AREA STABILIZED.

TEMPORARY MEASURES TO CONTROL SEDIMENT TRANSPORT INCLUDE:
SILT FENCE WILL BE INSTALLED FROM THE TOE OF SLOPES TO 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 30 M (100'). SILT FENCE SHALL BE INSTALLED PRIOR TO ANY UPSLOPE EARTHWORK.

SAND BAGS FILLED WITH CLEAN, SMALL DIAMETER STONE, OR AN EQUIVALENT BARRIER, WILL BE UTILIZED AROUND THE DROP INLET TO CREATE A TEMPORARY PONDING AREA FOR PARTICLES TO SETTLE OUT AS WATER DRAINS THROUGH THE BARRIER. INLET PROTECTION SHALL BE INSTALLED AS SOON AS THERE IS THE POSSIBILITY OF WATER FLOWING TO THE STRUCTURE. THE HEIGHT OF THE BARRIER SHALL BE LIMITED SUCH THAT THE PONDING AREA DOES NOT PRESENT A HAZARD TO THE TRAVELING PUBLIC. ALTERNATIVE INLET CONTROL MEASURES SHALL BE APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTATION.

MEASURES SUCH AS TEMPORARY STONE CHECK DAMS, SILT FENCE, AND SAND BAGS SHALL BE CHECKED EACH WORKDAY AND AFTER EACH RAINFALL EVENT 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.

TEMPORARY SEDIMENT SETTLING BASINS MAY OR MAY NOT BE UTILIZED ON THIS PROJECT. IF A SEDIMENT SETTLING BASIN IS TO BE USED FOR DEWATERING A COFFERDAM, IT SHOULD BE SIZED BASED UPON THE FOLLOWING CRITERIA:
(SEE SEDIMENT SETTLING BASIN SIZING CRITERIA ON NEXT SHEET.)

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

PERMANENT EROSION CONTROL MEASURES

SEVERAL PERMANENT EROSION CONTROL MEASURES WILL BE UTILIZED:
STONE FILL, TYPE I WILL BE UTILIZED TO LINE THE DRAINAGE DITCH ON THE NORTH SIDE OF THE PROJECT. STONE FILL, TYPE II WILL BE UTILIZED AT THE OUTLET OF THE DRAINPIPE AT THE SOUTH END OF THE PROJECT.

GRASS, OR OTHER SUITABLE GROUND COVER WILL BE ESTABLISHED OUTSIDE OF THE ROADWAY LIMITS WHERE STONE LINING HAS NOT BEEN SPECIFIED. ALL 3:1 SLOPE SHALL BE SEEDED AND MULCHED PROMPTLY UPON ACHIEVING FINAL GRADE. SLOPES GREATER THAN 3:1 SHALL RECEIVE EROSION CONTROL MATTING. AFTER PLACEMENT, GRUBBING MATERIAL SHALL BE STABILIZED WITH STRAW MATTING AND/OR SEED AND MULCH AS DIRECTED BY THE RESIDENT ENGINEER.

EROSTON & SEDIMENT CONTROL GUIDELINES

GENERAL EROSION CONTROLS:
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.

IF THE CONTRACTOR WOULD LIKE TO IMPLEMENT ALTERNATE TEMPORARY EROSION CONTROL MEASURES, A PLAN SHALL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL BY THE AGENCY OF TRANSPORTATION.

THE CONTRACTOR SHALL COORDINATE THE INSTALLATION, USE, AND REMOVAL OF EROSION AND SEDIMENT CONTROL MEASURES WITH CONSTRUCTION ACTIVITIES TO ENSURE ECONOMIC, EFFECTIVE AND CONTINUOUS EROSION AND SEDIMENT CONTROL. THE CONTRACTOR SHALL 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 AOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2001.

THE TYPE, SIZE, AND LOCATION OF ANY EROSION CONTROL DEVICES SHALL NOT BE CHANGED UNLESS PRIOR APPROVAL IS OBTAINED FROM THE ENGINEER. ANY APPROVED CHANGES SHALL BE NOTED ON THE EROSION CONTROL PLANS AND DISCUSSED IN THE WEEKLY REPORT.

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

PREVENTING INITIAL SOIL EROSION IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. THE CONTRACTOR SHALL 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, OTHER TEMPORARY CONTROLS SHALL BE INSTALLED 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 SHALL BE ESTABLISHED WHEREVER POSSIBLE.

THE CONTRACTOR NEED ONLY CONTROL SEDIMENT-LADEN RUNOFF GENERATED BY THE PROJECT SITE. THE CONTRACTOR SHALL COLLECT AND ROUTE CLEAN OFFSITE RUNOFF AROUND OR THROUGH THE PROJECT SITE USING DIVERSION BERMS, DIVERSION CHANNELS, CULVERTS, AND/OR TEMPORARY PIPES.

CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED ON THE DOWN SLOPE SIDE OF PERIMETER CONTROL MEASURES.

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

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

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

STRAW MATTING WILL BE INSTALLED AS SOON AS PRACTICAL ON ALL TEMPORARY DETOUR CUT AND FILL SLOPES AND PERMANENT CUT AND FILL SLOPES.

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

THE PROJECT COMPLETION DATE HAS BEEN SET FOR OCTOBER 15TH TO ENSURE ALL FINAL EROSION CONTROL MEASURES FOR THE ESTABLISHMENT OF PERMANENT VEGETATION WILL TAKE PLACE DURING THE GROWING SEASON. THEREFORE WINTER STABILIZATION METHODS WILL NOT BE SHOWN ON THE PLANS OR DESCRIBED IN THE NARRATIVE.

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

PRIOR TO ANY CONSTRUCTION OR STAGING THE CONTRACTOR SHALL INSTALL STABILIZED CONSTRUCTION ENTRANCES LEADING TO STAGING AREAS AND THE PROJECT SITE TO PREVENT THE TRACKING OF SILTS AND SEDIMENTS OFFSITE. COARSE STONE FILL OVER FILTER FABRIC SHOULD BE UTILIZED WHERE AN ALREADY ESTABLISHED STABLE ENTRANCE DOES NOT EXIST. THE CRUSHED STONE PRODUCT USED FOR THE CONSTRUCTION OF THE STABILIZED ENTRANCES SHALL BE MONITORED FOR SEDIMENT ACCUMULATION AND REPLACED AS NECESSARY OR AS DIRECTED BY THE

PROJECT NAME:	U.S. 5 OVER LULLS BROOK		
PROJECT NUMBER:			
FILE NAME:	ZF204EC.XLS	PLOT DATE:	7/29/2004
PROJECT LEADER:	J. MIECZKOWSKI	DRAWN BY:	A. DUGON
DESIGNED BY:	A. DUGON/L. DOLPHIN	CHECKED	L. DOLPHIN
EROSION CONTROL NARRATIVE		SHEET	24B OF 86

ENGINEER. STABILIZED CONSTRUCTION ENTRANCES SHALL ALSO BE ESTABLISHED AND MAINTAINED AT ALL OFFSITE WASTE AND BORROW AREAS. THE MINIMUM SIZE OF A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 4 METERS WIDE BY 15 METERS LONG. 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 150mm DIAMETER SHALL BE USED.

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

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

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

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

AFTER PERIMETER CONTROLS ARE IN PLACE, AND PRIOR TO GRADING OPERATIONS, THE CONTRACTOR SHALL CONSTRUCT TEMPORARY ONSITE SEDIMENT TRAPS WHERE NECESSARY OR AS DIRECTED BY THE ENGINEER. DISTURBED AREAS SHALL BE GRADED TO DRAIN TOWARDS SEDIMENT TRAP WHERE POSSIBLE.

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

ANY OFF-SITE AREAS WHERE BORROW OR EXCAVATED MATERIALS WILL BE STOCKPILED AND ANY WASTE DISPOSAL AREAS WILL HAVE TWO INSTALLATIONS OF SILT FENCE, 600 mm APART AROUND THE BASE OF EACH STOCKPILE. SEEDING AND MULCHING SHALL BE PERFORMED IMMEDIATELY AFTER FINAL GRADING. REMOVAL OF THE SILT FENCES AROUND THE WASTE AREAS SHALL BE PERFORMED ONLY AFTER APPROVAL FROM THE RESIDENT ENGINEER IS OBTAINED.

INFORMATION REQUIRED BY THE CONTRACTOR

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

1. THE LOCATION OF ALL STABILIZED CONSTRUCTION ENTRANCES.
2. THE LOCATION OF STOCK FILES, STAGING AND DISPOSAL AREAS.
3. THE NAME, TITLE, QUALIFICATIONS, AND CONTACT INFORMATION FOR THE ON-SITE COORDINATOR
4. THE PROPOSED DATES ASSOCIATED WITH PROJECT MILESTONES INDICATED ON THE SEQUENCE CONSISTENT WITH THE PROJECT CFM SCHEDULE.
5. ANY PROPOSED MODIFICATIONS OR ADDITIONS REQUIRED TO THESE EROSION AND SEDIMENT CONTROL PLANS.

MAINTENANCE PLAN FOR EROSION AND SEDIMENT CONTROLS

THE FOLLOWING MAINTENANCE REQUIREMENTS WILL BE MET THROUGHOUT THE DURATION OF THE PROJECT:

1. AN ASSIGNED INDIVIDUAL WHO IS NOT PERMANENTLY ASSOCIATED WITH THE DAY-TO-DAY OPERATIONS OF THE PROJECT SHALL DO MONITORING OF THE EROSION CONTROL MEASURES. THE INSPECTOR WILL BE FAMILIAR WITH THE PLANS, EROSION AND SEDIMENT CONTROL PROCEDURES, AND ROAD AND BRIDGE CONSTRUCTION TECHNIQUES. SITE INSPECTIONS WILL BE PERFORMED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND AFTER EACH RAIN EVENT OF MORE THAN 13mm (1/2") IN A TWENTY FOUR HOUR PERIOD.
2. A COPY OF THE MONITORING REPORT PREPARED BY THE SITE REVIEWER SHALL BE GIVEN TO THE RESIDENT ENGINEER AFTER EACH SITE VISIT. THE REPORT WILL BE A WRITTEN REPORT STATING THE DATE OF THE REVIEW, AND A DESCRIPTION OF THE EROSION AND SEDIMENT CONTROL MEASURES REVIEWED. ALSO INCLUDED WILL BE THE EFFECTIVENESS OF THE EROSION CONTROL MEASURE, ANY DEFICIENCIES AND CORRECTIVE ACTION TO BE UNDERTAKEN.

3. THE PLAN PREPARER WILL BE AVAILABLE FOR ON-SITE CONSULTATION WITH THE ENGINEER WITHIN TWENTY FOUR HOURS OF A REQUEST.
4. ALL SILT FENCES AND STONE CHECK DAMS WILL BE INSPECTED EACH SITE VISIT BY THE DESIGNATED INSPECTOR, AS DESCRIBED BELOW:
 - A. THESE CONTROLS WILL BE MAINTAINED IN GOOD CONDITION, ANY SILT FENCE OR STONE CHECK DAMS THAT ARE INEFFECTIVE WILL BE REPAIRED OR REPLACED IMMEDIATELY.
 - B. SEDIMENT DEPOSITS WILL BE REMOVED WHEN THEY REACH ONE-HALF THE HEIGHT OF THE SEDIMENT CONTROL DEVICE, OR SIGNIFICANT RAINFALL IS EXPECTED.
 - C. ALL SEDIMENT REMOVED WILL BE DEPOSITED IN AN UPLAND PORTION OF THE PROJECT SITE OR DEPOSITED OFF-SITE IN THE DESIGNATED PROJECT WASTE SITE.
5. ALL SLOPES WILL BE CHECKED EACH SITE VISIT AND ANY ERODED AREAS WILL BE IMMEDIATELY REPAIRED. TEMPORARY STABILIZATION METHODS WILL BE USED AS NECESSARY OR AS DIRECTED BY THE ENGINEER UNTIL FINAL STABILIZATION MEASURES ARE IN PLACE.
6. BOTH TEMPORARY AND PERMANENT SEEDING AND MULCHING WILL BE CHECKED EACH SITE VISIT FOR VEGETATIVE GROWTH. ANY AREAS REQUIRING RE-VEGETATION WILL BE REPAIRED IMMEDIATELY.
7. DRAINAGE STRUCTURES WILL BE CLEANED AS NECESSARY TO REMOVE ANY SEDIMENT BUILDUP IN THE SUMP OR AT THE INLET OF THE STRUCTURE.
 - A. ANY INLET CONTROL FOUND TO BE INEFFECTIVE WILL BE REPLACED AS NECESSARY AND WILL BE DONE IMMEDIATELY.
 - B. ALL SEDIMENTS REMOVED WILL BE DEPOSITED IN AN UPLAND PORTION OF THE PROJECT SITE OR DEPOSITED OFF-SITE IN THE DESIGNATED PROJECT WASTE SITE.
8. TEMPORARY CONSTRUCTION ACCESSES WILL BE MONITORED EACH SITE VISIT.
9. ALL TEMPORARY EROSION CONTROL DEVICES WILL STAY IN PLACE UNTIL FINAL GRASS GROWTH HAS BEEN ESTABLISHED AND COMPLETE STABILIZATION OF THE AREA HAS OCCURRED.
10. ONCE STABILIZATION HAS OCCURRED, ALL TEMPORARY EROSION CONTROL MEASURES WILL BE REMOVED AND ALL DISTURBED AREAS WILL BE STABILIZED WITH STRAW MATTING AND/OR SEED AND MULCH.
11. REMOVAL OF SILT FENCE SHALL COMMENCE ONLY AFTER ALL UPSLOPE AREAS ARE STABILIZED AND WELL ESTABLISHED, AND THE RESIDENT ENGINEER HAS APPROVED THE REMOVAL.
12. REMOVE ALL REMAINING TEMPORARY EROSION CONTROL MEASURES. REGRADE ANY AREAS IF NECESSARY. TREAT ALL REGRADED AREAS WITH STRAW MATTING OR SEED AND MULCH. ESTABLISH ANY FINAL EROSION CONTROL DEVICES AS DEEMED NECESSARY BY THE RESIDENT ENGINEER.

SEDIMENT SETTLING BASIN SIZING CRITERIA

PUMP FLOW RATE		REQUIRED SURFACE AREA		LENGTH WIDTH = 2:1			
Q (gpm)	Q (m^3/s)	(ft^2)	(m^2)	L (ft)	W (ft)	L (m)	W (m)
50	0.0032	595	55	35.0	17.0	10.6	5.3
100	0.0063	1200	111	49.0	24.5	15.0	7.5
150	0.0095	1776	165	59.6	29.8	18.2	9.1
200	0.0126	2368	220	68.8	34.4	21.0	10.5
250	0.0158	2970	276	77.0	38.5	23.4	11.7
300	0.0189	3560	330	84.4	42.2	25.8	12.9
350	0.0221	4155	386	91.2	45.6	27.8	13.9

PROJECT NAME: U.S. 5 OVER LULLS BROOK
PROJECT NUMBER:

FILE NAME:	ZF204EC.XLS	PLOT DATE:	7/29/2004
PROJECT LEADER:	J. MIECZKOWSKI	DRAWN BY:	A. DUGON
DESIGNED BY:	A. DUGON/L. DOLPHIN	CHECKED	L. DOLPHIN
EROSION CONTROL NARRATIVE		SHEET	25 OF 86

LEGEND:

----- SOIL BOUNDARY

P
L
----- PROPERTY LINE

----- FLOOD PLAIN BOUNDARY

----- RIPARIAN BUFFER

----- HIGHWAY RIGHT-OF-WAY

■ TEST UNIT INDICATING HISTORIC MATERIAL

(ID) SOIL TYPE

VT-WN-XXX HISTORIC SITE

SOILS KEY AND DESCRIPTION

(ID) HITCHCOCK SILT LOAM

15-25% SLOPES
HYDROLOGIC SOIL GROUP B
DEPTH TO BEDROCK: 60'
DEPTH TO WATER TABLE: 6'
HIGHLY ERODIBLE

(20E) SHELBURNE FINE SANDY LOAM

3-8% SLOPES
HYDROLOGIC SOIL GROUP D
DEPTH TO BEDROCK: 10'-40'
DEPTH TO WATER TABLE: 6'
HIGHLY ERODIBLE

(32B) RUMNEY FINE SANDY LOAM

0 TO 3% SLOPES
HYDROLOGIC SOIL GROUP: NOT RATED
DEPTH TO BEDROCK: UNRANKED
DEPTH TO WATER TABLE: UNRANKED
NOT HIGHLY ERODIBLE

VT-WN-212 - WINSLOW &
DICKERSON TURBINE FACILITY
AND VT-WN-213 - A.A.
MARTIN ELECTRIC GENERATING
FACILITY

0 5 10
SCALE IN METERS

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of HARTLAND Bridge No. 60

Highway No. U.S. ROUTE 5 Log Sta.

U.S. ROUTE 5 OVER LULLS BROOK

EXISTING CONDITIONS SITE PLAN

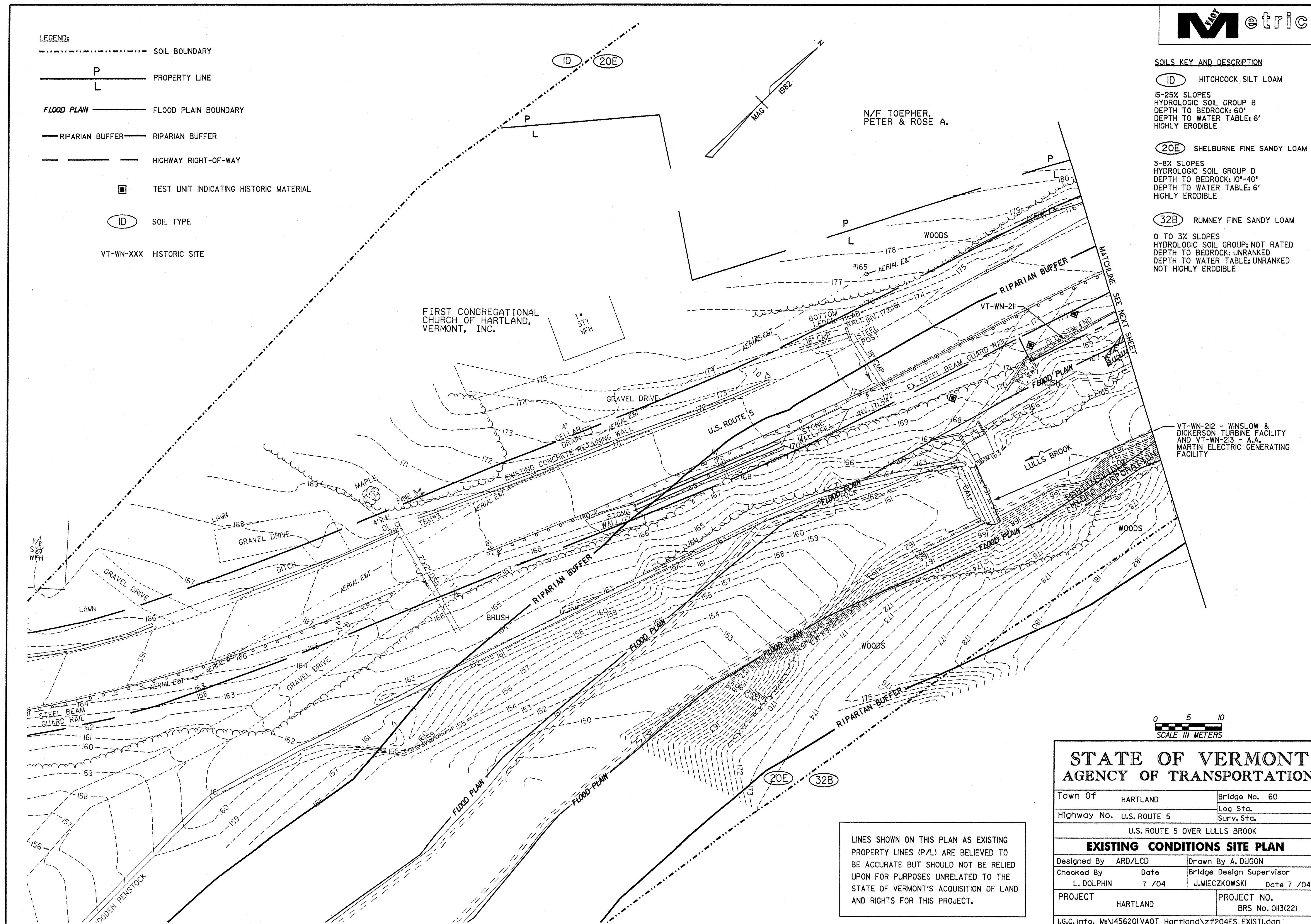
Designed By ARD/LCD Drawn By A. DUGON
Checked By Date Bridge Design Supervisor
L. DOLPHIN 7 /04 J. MIECZKOWSKI Date 7 /04

PROJECT HARTLAND PROJECT NO.
BRS No. 0113(22)

I.G.C. Info. M:\456201\VA0T Hartland\zf204ES-EXIST.dgn

Bridge Sheet No. Sheet 26 of 86

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.

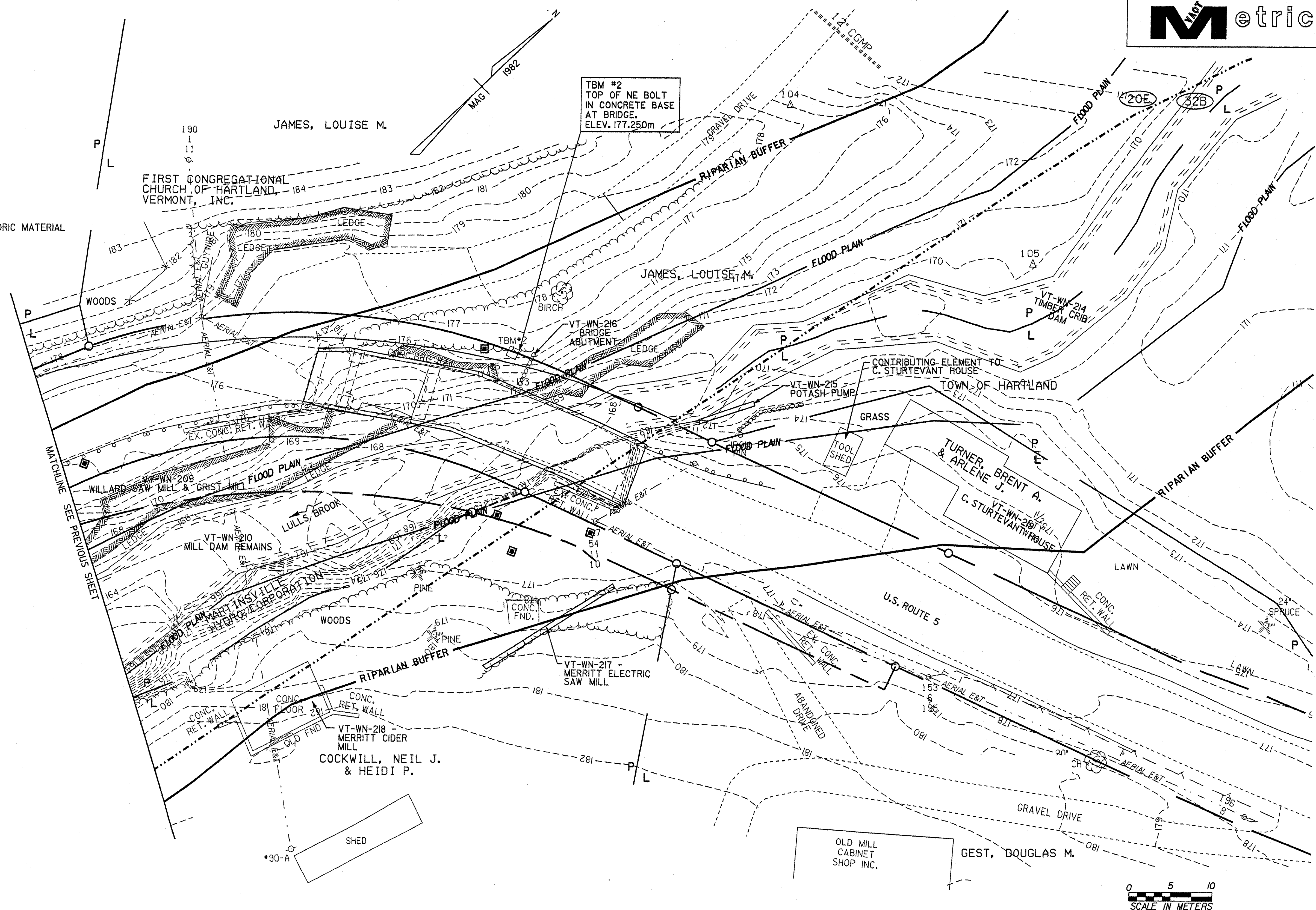


- LEGEND:**
- SOIL BOUNDARY
 - P
L PROPERTY LINE
 - FLOOD PLAN FLOOD PLAIN BOUNDARY
 - RIPARIAN BUFFER RIPARIAN BUFFER
 - HIGHWAY RIGHT-OF-WAY
 - TEST UNIT INDICATING HISTORIC MATERIAL
 - (ID) SOIL TYPE
 - VT-WN-XXX HISTORIC SITE

SOILS KEY AND DESCRIPTION

- (ID) HITCHCOCK SILT LOAM
15-25% SLOPES
HYDROLOGIC SOIL GROUP B
DEPTH TO BEDROCK: 60'
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HIGHLY ERODIBLE
- (20E) SHELburnE FINE SANDY LOAM
3-8% SLOPES
HYDROLOGIC SOIL GROUP D
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- (32B) RUMNEY FINE SANDY LOAM
0 TO 3% SLOPES
HYDROLOGIC SOIL GROUP: NOT RATED
DEPTH TO BEDROCK: UNRANKED
DEPTH TO WATER TABLE: UNRANKED
NOT HIGHLY ERODIBLE

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.

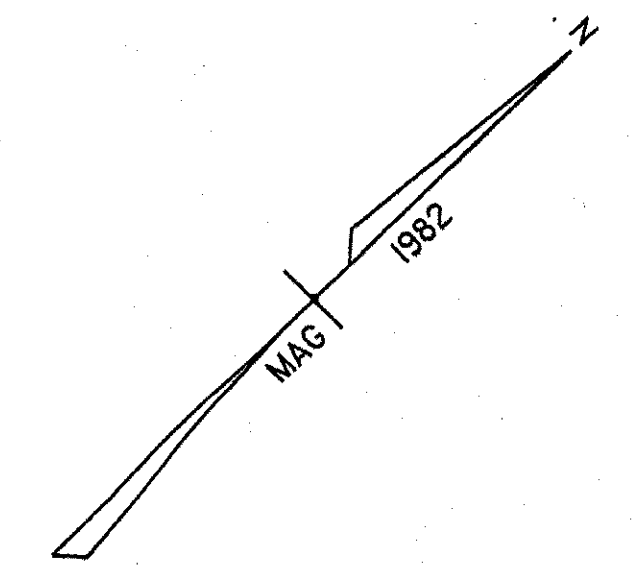


**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
EXISTING CONDITIONS SITE PLAN			
Designed By	A. DUGON	Drawn By	A. DUGON
Checked By	L. DOLPHIN	Bridge Design Supervisor	J. MECZKOWSKI
Date	7 / 04	Date	7 / 04
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\456201 VAOT Hartland\z4204ES.EXIST2.dgn			
Bridge Sheet No.		Sheet	27 of 86

LEGEND:

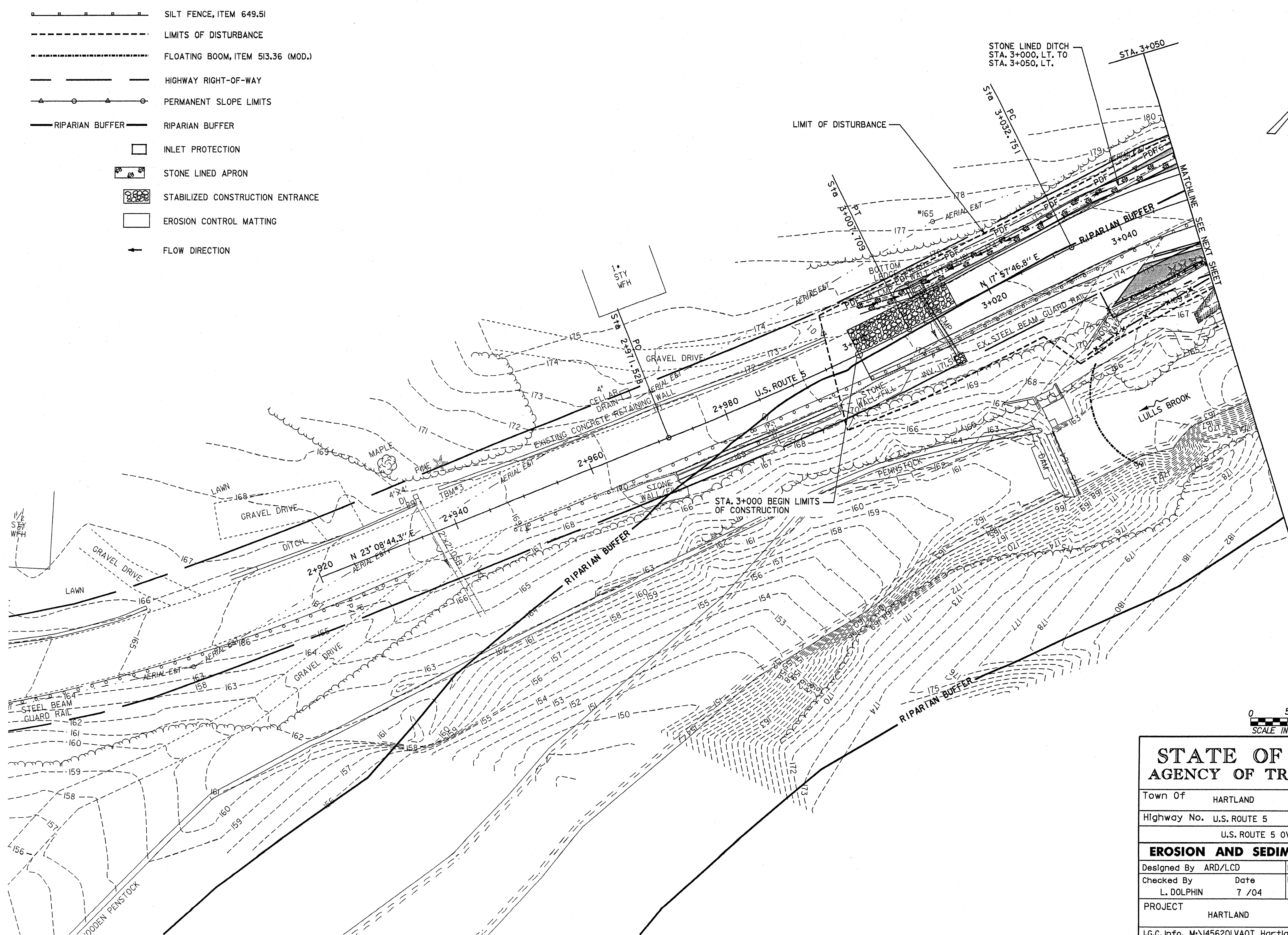
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- x — x — x — x — x — ROCK CONTAINMENT SYSTEM, ITEM 620.11 (MOD.)
- — — — — SILT FENCE, ITEM 649.51
- - - - - LIMITS OF DISTURBANCE
- - - - - FLOATING BOOM, ITEM 513.36 (MOD.)
- — — — — HIGHWAY RIGHT-OF-WAY
- — — — — PERMANENT SLOPE LIMITS
- — — — — RIPARIAN BUFFER
- — — — — RIPARIAN BUFFER
- INLET PROTECTION
- ▨ STONE LINED APRON
- ▨ STABILIZED CONSTRUCTION ENTRANCE
- EROSION CONTROL MATTING
- FLOW DIRECTION

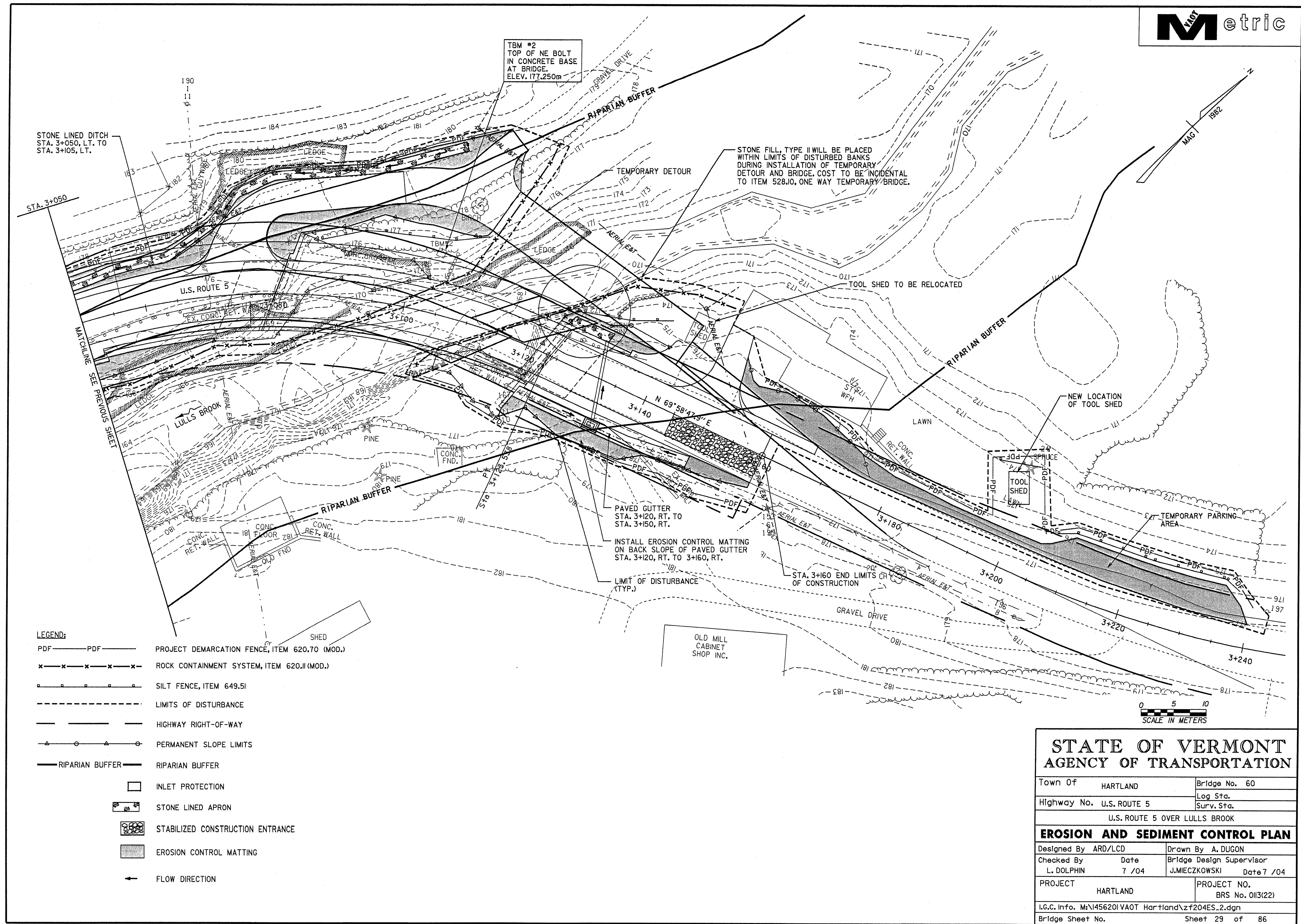


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SCALE IN METERS

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

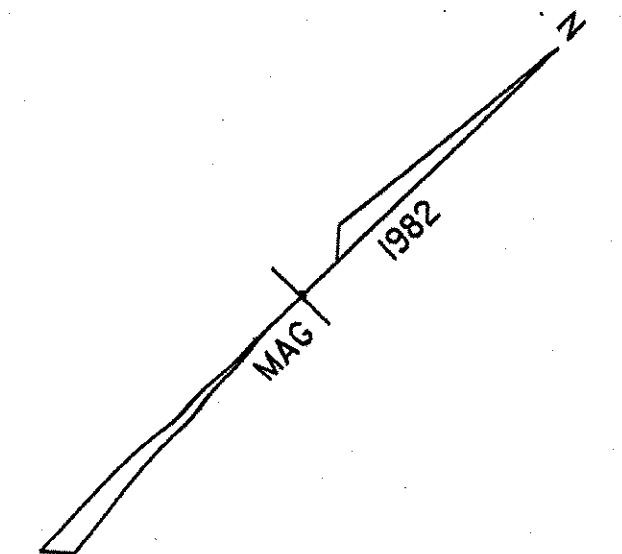
Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
EROSION AND SEDIMENT CONTROL PLAN			
Designed By	ARD/LCD	Drawn By	A. DUGON
Checked By	L. DOLPHIN	Bridge Design Supervisor	J. MECZKOWSKI
	7 / 04	Date	7 / 04
PROJECT	HARTLAND	PROJECT NO.	BRS No. 013(22)
I.G.C. Info. M:\45620\VAOT Hartland\zf204ES.dgn			
Bridge Sheet No.		Sheet	28 of 86





LEGEND:

- PROPERTY LINE
- PERMANENT SLOPE LIMITS
- RIPARIAN BUFFER
- STONE LINED APRON
- DISTURBED AREAS WHERE SEEDING AND MULCHING HAVE BEEN APPLIED

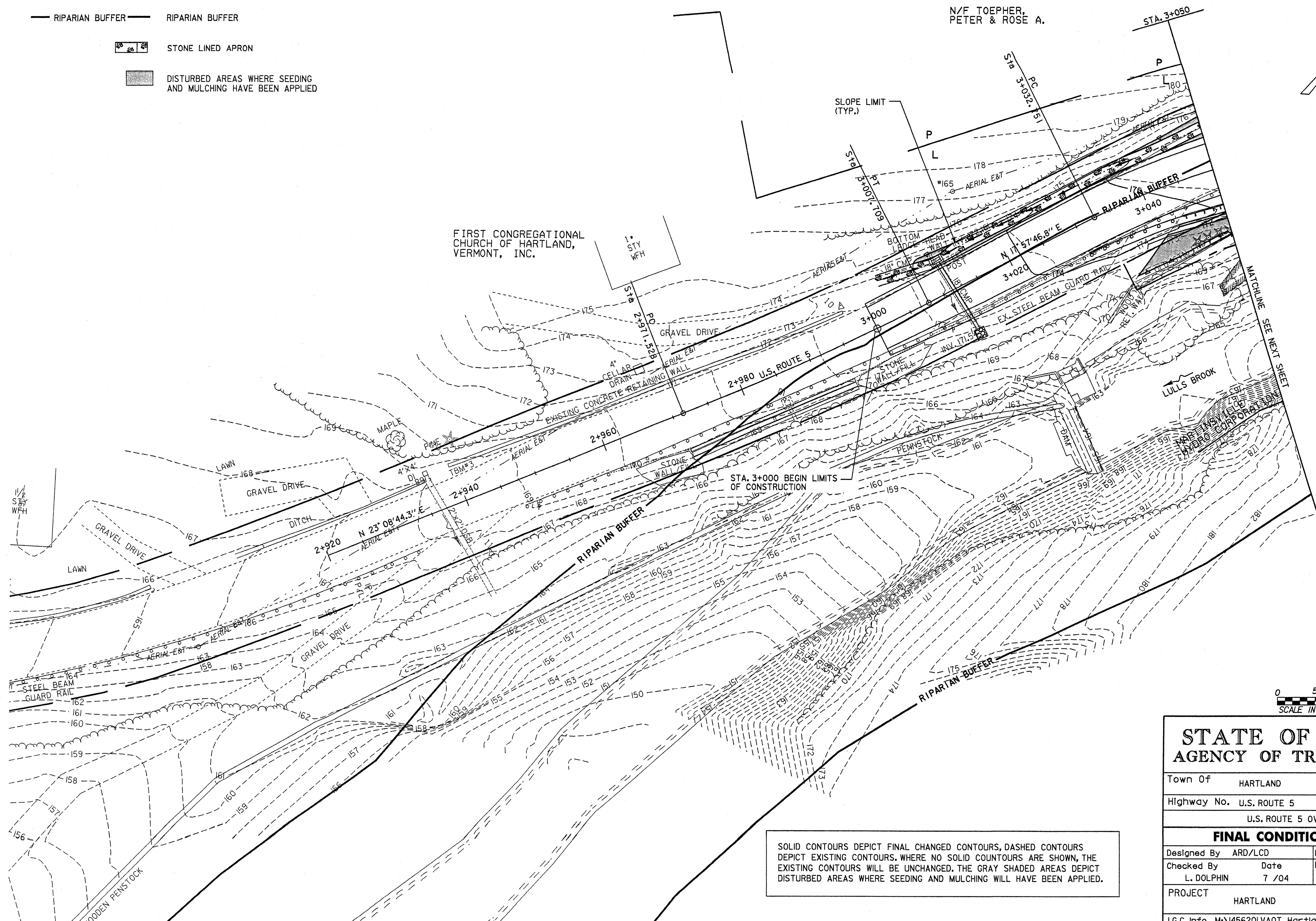


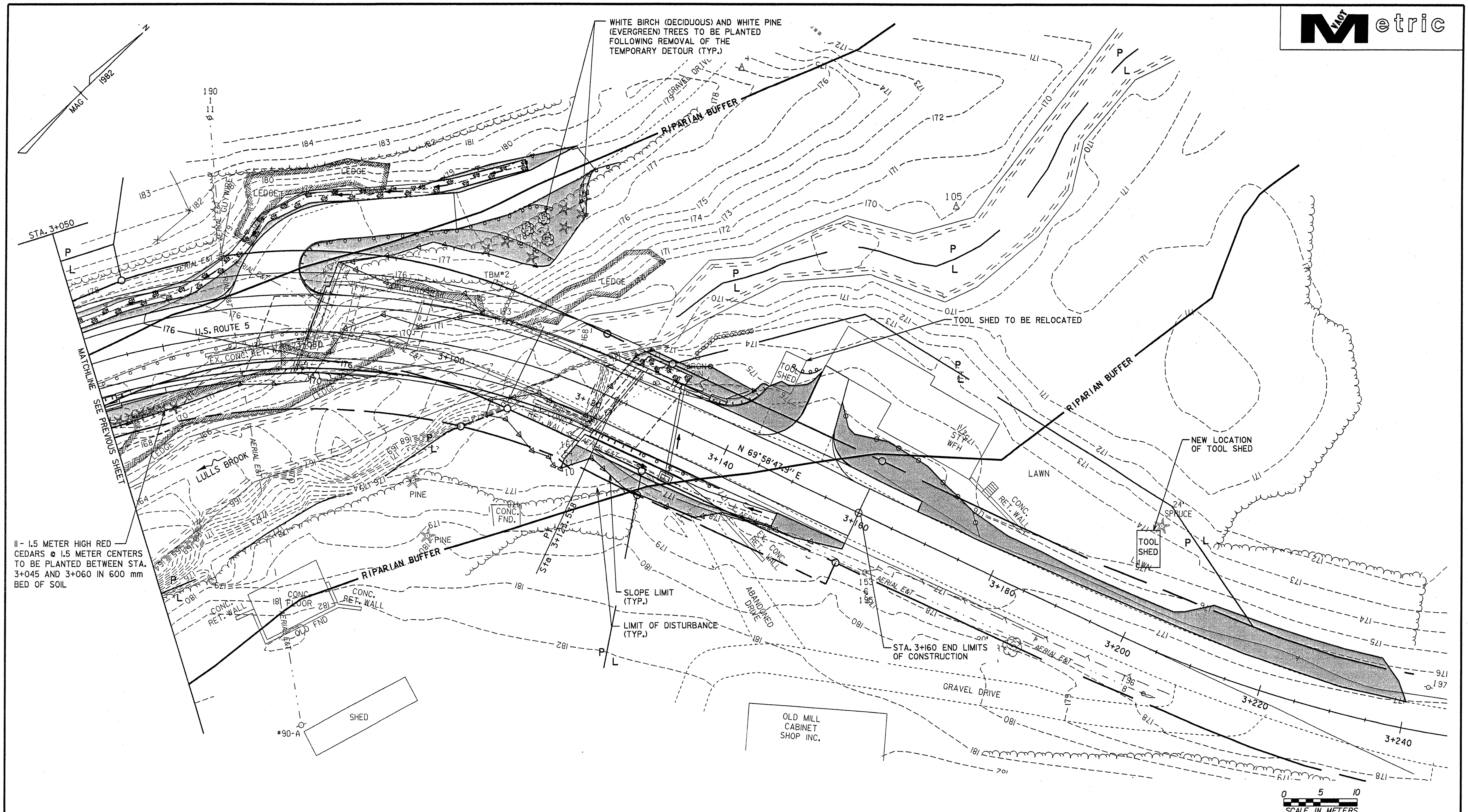
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SCALE IN METERS

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
FINAL CONDITIONS SITE PLAN			
Designed By	ARD/LCD	Drawn By	A. DUGON
Checked By	L. DOLPHIN	Bridge Design Supervisor	J. MIECZKOWSKI
Date	7 / 04	Date	7 / 04
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\456201\VAOT Hartland\zvf204ES_ECFINAL.dgn		Bridge Sheet No.	Sheet 30 of 86

SOLID CONTOURS DEPICT FINAL CHANGED CONTOURS, DASHED CONTOURS DEPICT EXISTING CONTOURS. WHERE NO SOLID CONTOURS ARE SHOWN, THE EXISTING CONTOURS WILL BE UNCHANGED. THE GRAY SHADED AREAS DEPICT DISTURBED AREAS WHERE SEEDING AND MULCHING WILL HAVE BEEN APPLIED.





SOLID CONTOURS DEPICT FINAL CHANGED CONTOURS, DASHED CONTOURS DEPICT EXISTING CONTOURS. WHERE NO SOLID CONTOURS ARE SHOWN, THE EXISTING CONTOURS WILL BE UNCHANGED. THE GRAY SHADED AREAS DEPICT DISTURBED AREAS WHERE SEEDING AND MULCHING WILL HAVE BEEN APPLIED.

- LEGEND:**
- P
L
PROPERTY LINE
 - PERMANENT SLOPE LIMITS
 - RIPARIAN BUFFER
 - STONE LINED APRON
 - DISTURBED AREAS WHERE SEEDING AND MULCHING HAVE BEEN APPLIED

STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of		HARTLAND	
Highway No.		U.S. ROUTE 5	
U.S. ROUTE 5 OVER LULLS BROOK		Bridge No. 60	
		Log Sta.	
		Surf. Sta.	
FINAL CONDITIONS SITE PLAN			
Designed By		ARD/LCD	
Checked By		Date	
L. DOLPHIN		7 /04	
PROJECT		HARTLAND	
PROJECT NO.		BRS No. 0113(22)	
I.G.C. Info. M:\145620\VA0T Hartland\zf204ES_ECFINAL2.dgn			
Bridge Sheet No.		Sheet 31 of 86	

SILT FENCE

APPLICATION NOTES:

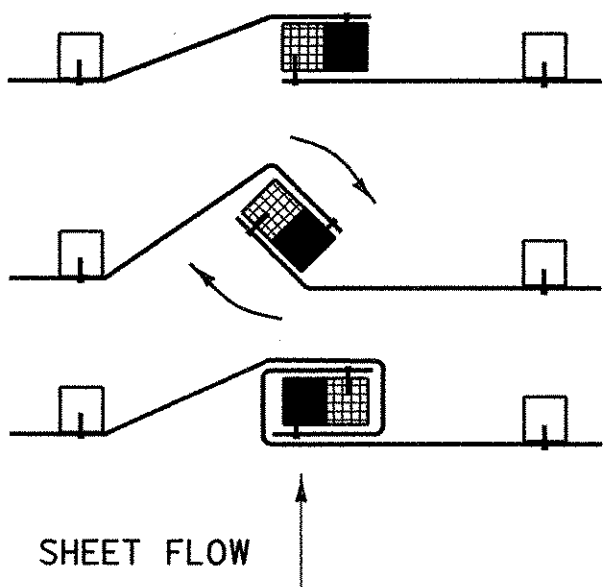
- A. THE PRIMARY PURPOSE OF SILT FENCE IS TO REDUCE RUNOFF VELOCITY AND TRAP SEDIMENT. VELOCITY IS REDUCED, WATER IS IMPOUNDED BEHIND THE MEASURE, AND SEDIMENT FALLS OUT OF SUSPENSION.
- B. SILT FENCE SHALL BE INSTALLED ON A LINE OF EQUAL ELEVATION (CONTOUR). IT MAY BE INSTALLED AT INTERMEDIATE POINTS UP SLOPES AS WELL AS AT THE BOTTOM, AS SHOWN IN THE DETAIL.
- C. SILT FENCE SHALL NOT BE USED ACROSS CONCENTRATED FLOW.

GENERAL NOTES:

- 1. SILT FENCE SHALL GENERALLY BE PLACED A MINIMUM OF 1.5 m BEYOND TOE OF SLOPE, 3 m PREFERRED, TO PROVIDE ADEQUATE AREA FOR SEDIMENT STORAGE AND FACILITATE MAINTENANCE OF SEDIMENT CONTAINMENT AREA.
- 2. ALL ENDS SHALL BE "J" HOOKED TO TRAP SEDIMENT.
- 3. IN AREAS WITH TWO SLOPES, SILT FENCE SHALL BE USED TO ERECT A DAM AND TRAP SEDIMENT AT THE BASE OF THE STEEPER SLOPE.
- 4. THE BOTTOM EDGE OF SILT FENCE SHALL BE BURIED A MINIMUM OF 150 mm BELOW GROUND, AND KEYED IN 100 mm. THE FENCE SHALL BE INSTALLED WITH THE POSTS ON THE DOWNSTREAM SIDE OF THE FABRIC.
- 5. MAXIMUM DRAINAGE AREA TRIBUTARY TO 30 m OF SILT FENCE SHALL BE 0.1Ha.
- 6. THE FOLLOWING ARE MAXIMUM SLOPE LENGTHS FOR THESE MEASURES:

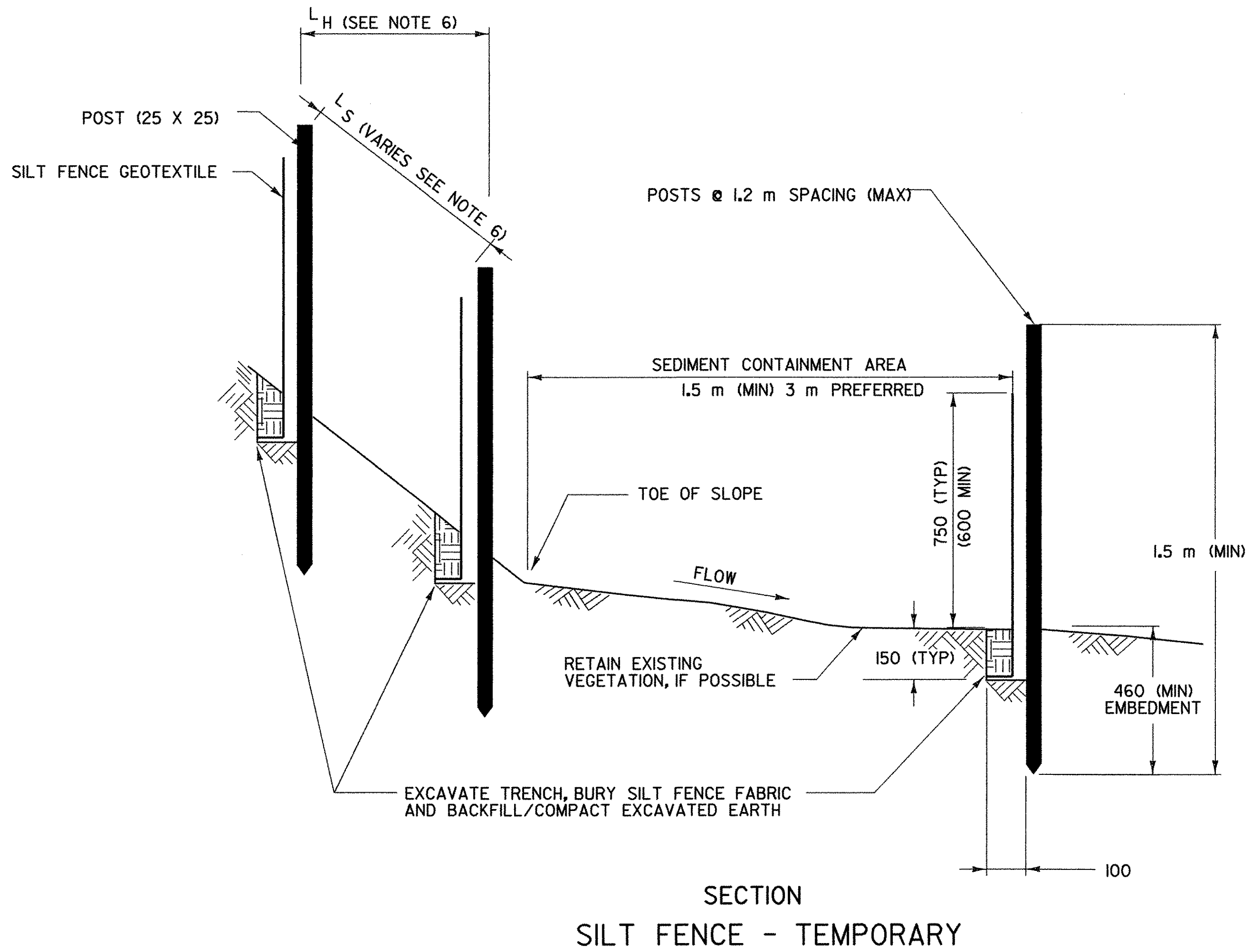
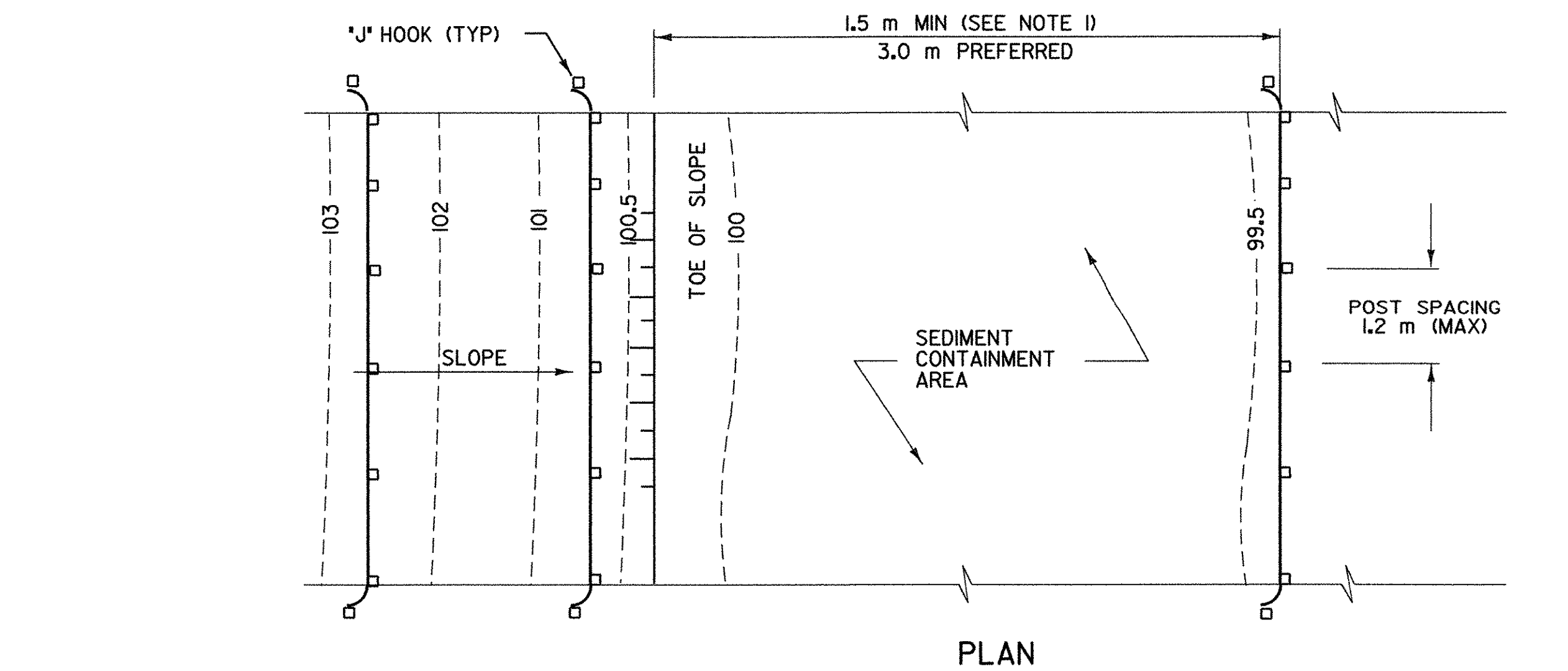
CONSTRUCTED SLOPE	SLOPE LENGTH (LS) m	HORIZONTAL LENGTH (LH) m
3 : 1	25	24
4 : 1	40	39
5 : 1	60	60
> 5 : 1	80	80

- 7. MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
- 8. MEASURES SHALL BE CLEANED AND REPAIRED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE MEASURE HEIGHT. SEDIMENT SHALL BE DISPOSED OF AS UNSUITABLE MATERIAL.
- 9. SILT FENCE SHALL BE REMOVED WHEN THE AREA HAS BEEN STABILIZED. AT TIME OF REMOVAL OF THE SILT FENCE, THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.
- 10. PAYMENT FOR INSTALLATION AND REMOVAL OF SILT FENCE SHALL BE MADE UNDER THE GEOTEXTILE FOR SILT FENCE ITEM.
- 11. PAYMENT FOR MONITORING SILT FENCE SHALL BE MADE UNDER THE MONITORING EROSION & SEDIMENT CONTROL PLAN ITEM.
- 12. PAYMENT FOR MAINTAINING SILT FENCE SHALL BE MADE UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM, UNLESS MAINTENANCE IS REQUIRED DUE TO POOR INSTALLATION PRACTICES.



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

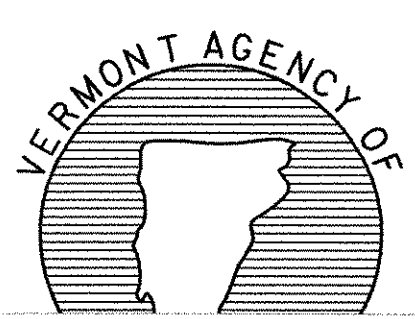
SPLICING DETAIL



NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

REVISIONS AND CORRECTIONS
MAY 18, 2004 N. GARBICK

EROSION PREVENTION &
SEDIMENT CONTROL DETAILS
SILT FENCE



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Metric
DETAIL
EPSC-1M

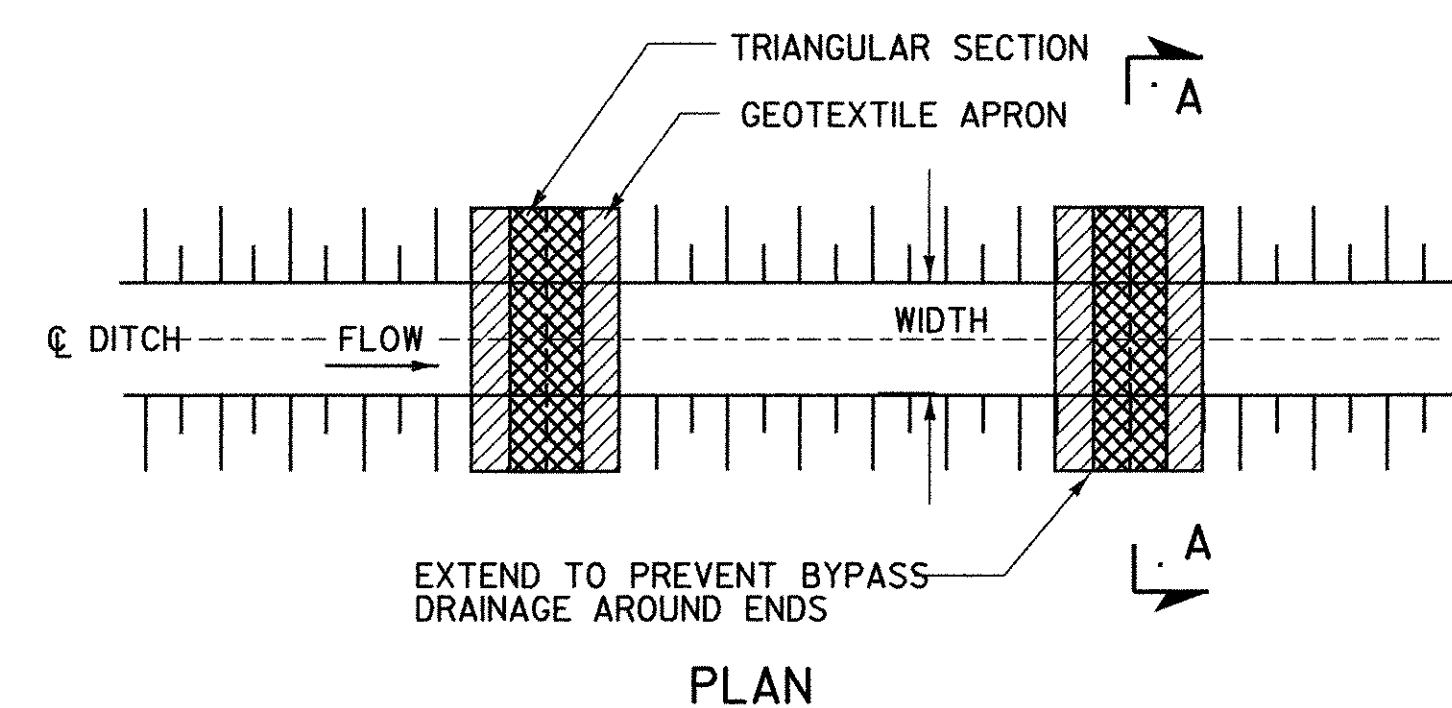
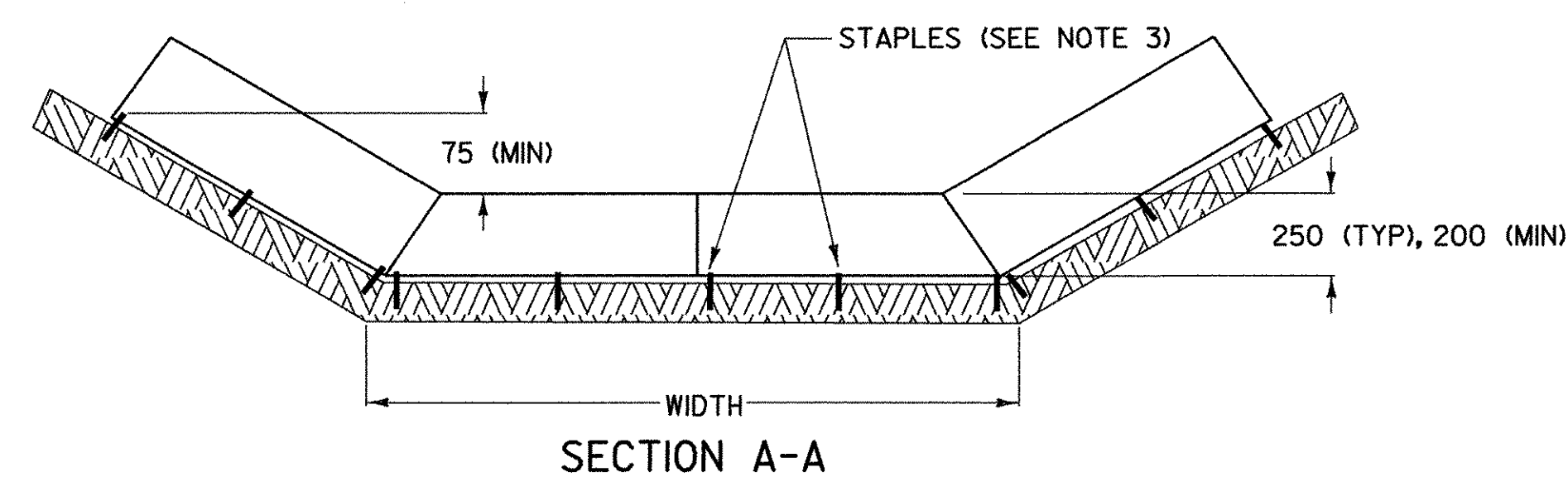
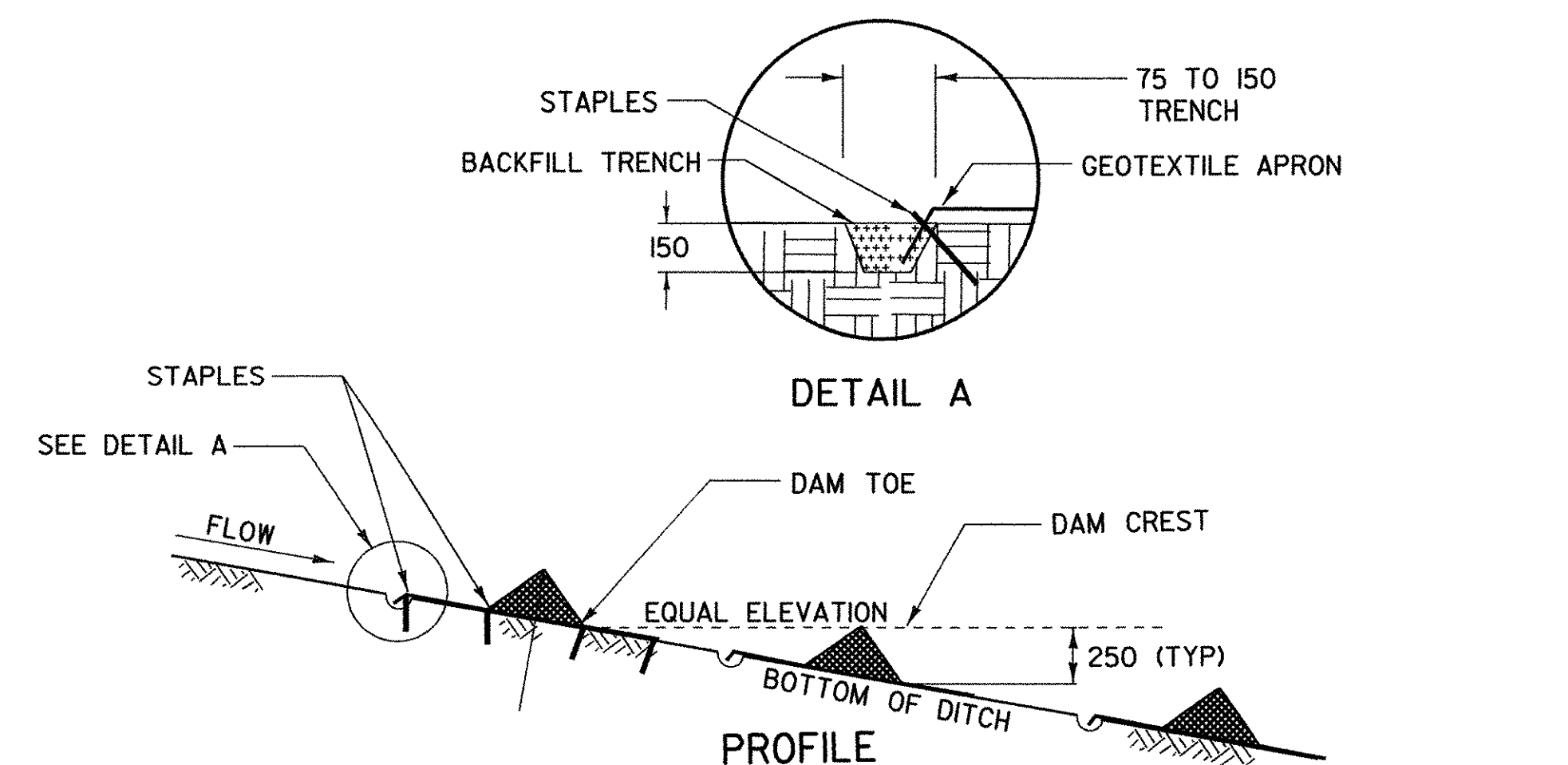
CHECK DAMS

APPLICATION NOTES:

- THE PRIMARY PURPOSE OF A CHECK DAM IS TO REDUCE EROSION IN A CHANNEL BY REDUCING FLOW VELOCITY.
- CHECK DAMS WILL CAPTURE SEDIMENT THAT FALLS OUT OF SUSPENSION BEHIND THE CHECK DAM DUE TO DECREASED VELOCITY.
- CHECK DAMS ARE NOT INTENDED TO FILTER SEDIMENT FROM TURBID WATER.
- DETAILS SHOWN SHALL BE USED FOR TEMPORARY INSTALLATION ONLY.
- PREFABRICATED DAMS ARE NOT TO BE USED ON SLOPES GREATER THAN 5% OR PER MANUFACTURER'S SPECIFICATIONS.
- PREFABRICATED DAM SPECIFICATIONS SHALL BE PROVIDED TO THE ENGINEER FOR APPROVAL PRIOR TO USE.

GENERAL NOTES:

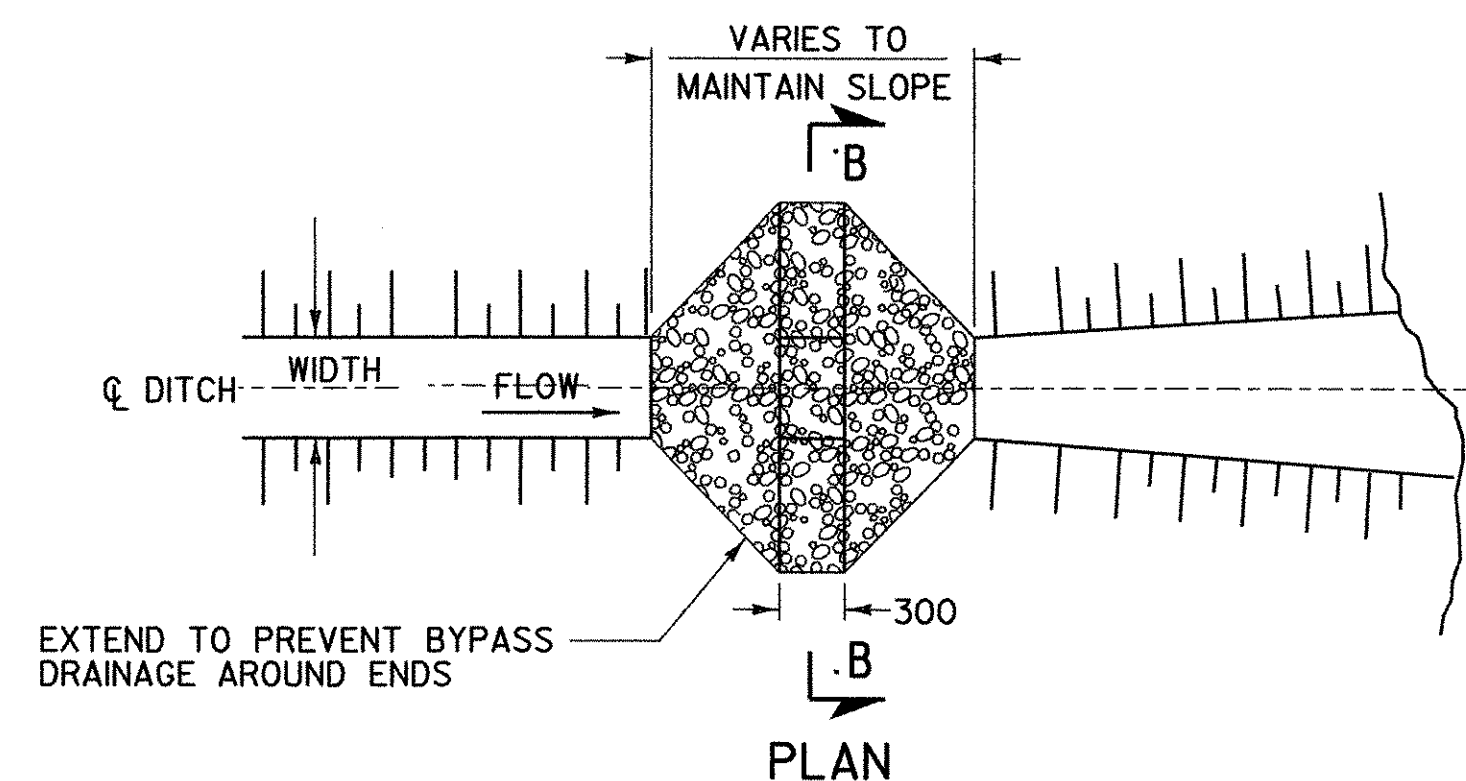
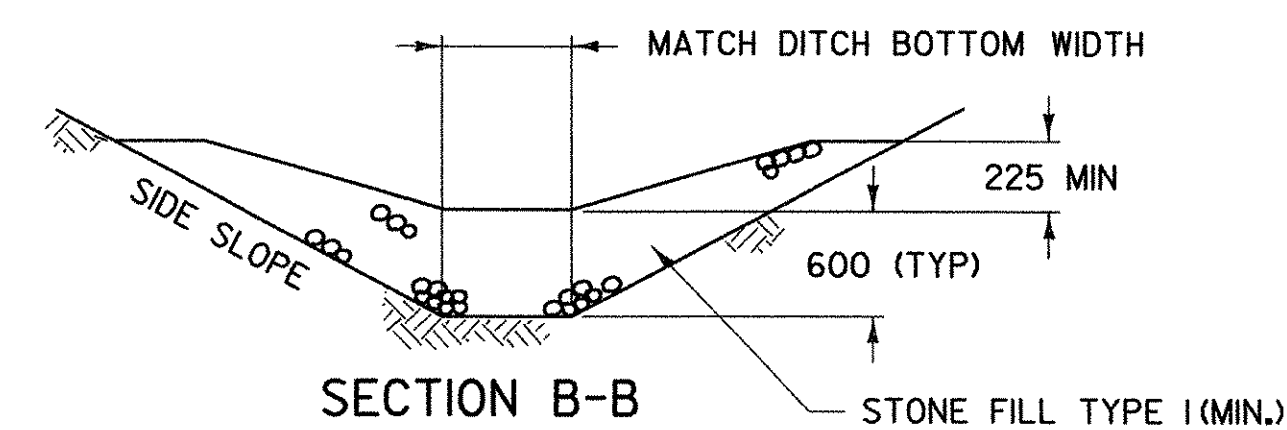
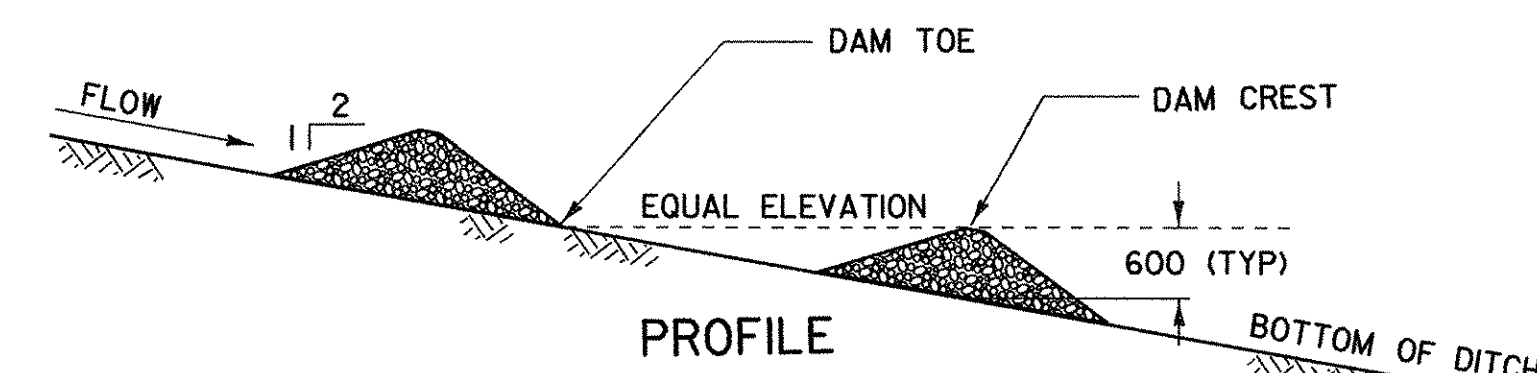
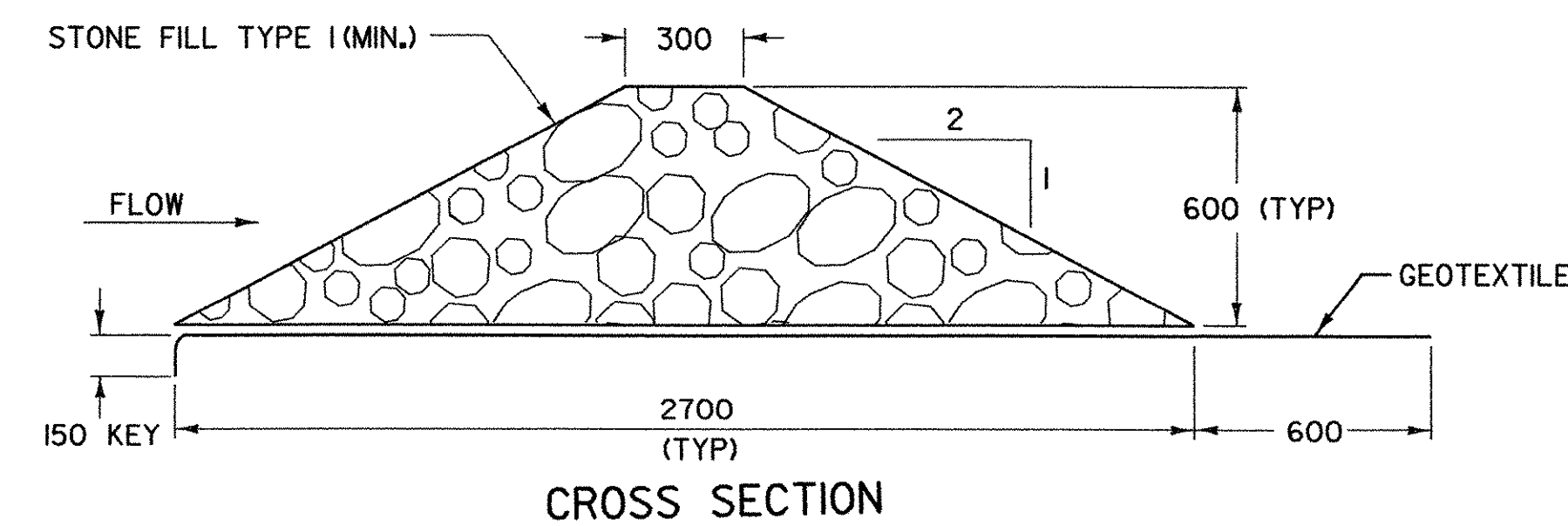
- GEOTEXTILE SHALL BE INSTALLED UNDER STONE FILL, IT SHALL BE KEYED IN ON THE UP HILL END AND SHALL EXTEND 0.6 m BEYOND THE STONE ON THE DOWN HILL END.
- CORE MATERIAL FOR THE STONE CHECK DAM SHALL MEET THE GRADATION REQUIREMENTS OF STONE FILL TYPE I (MIN.). STONE SIZE SHOULD BE INCREASED WITH INCREASED SLOPE AND VELOCITY.
- THE UPHILL END OF THE APRON FOR THE PREFABRICATED CHECK DAM SHALL BE STAPLED AND BURIED AS SHOWN IN DETAIL 'A' OR AS RECOMMENDED BY THE MANUFACTURER'S LITERATURE.
- MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
- MEASURES SHALL BE CLEANED AND REPAIRED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE MEASURE HEIGHT. SEDIMENT SHALL BE DISPOSED OF AS UNSUITABLE MATERIAL.
- AT TIME OF REMOVAL OF THE CHECK DAMS, THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.
- PAYMENT FOR INSTALLATION AND REMOVAL OF CHECK DAMS SHALL BE MADE UNDER APPLICABLE ITEMS INCLUDED IN THE CONTRACT PLANS OR UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM.
- PAYMENT FOR MONITORING CHECK DAMS SHALL BE MADE UNDER THE MONITORING EROSION & SEDIMENT CONTROL PLAN ITEM.
- PAYMENT FOR MAINTAINING CHECK DAMS SHALL BE MADE UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM, UNLESS MAINTENANCE IS REQUIRED DUE TO POOR INSTALLATION PRACTICES.



CHECK DAM - TEMPORARY
(PREFABRICATED)

PREFABRICATED CHECK DAM PLACEMENT INTERVAL	
DITCH SLOPE	PLACEMENT INTERVAL **
1 %	15 m
2 %	12 m
3 %	8 m
4 %	6 m
5 %	5 m

** BASED ON 0.25 m TYPICAL HEIGHT



CHECK DAM - TEMPORARY
(STONE)

STONE CHECK DAM PLACEMENT INTERVAL	
DITCH SLOPE	PLACEMENT INTERVAL **
1 %	60 m
2 %	30 m
3 %	20 m
4 %	15 m
5 %	12 m
6 %	10 m
8 %	7.5 m
10 %	6 m

** BASED ON 0.6 m TYPICAL HEIGHT

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

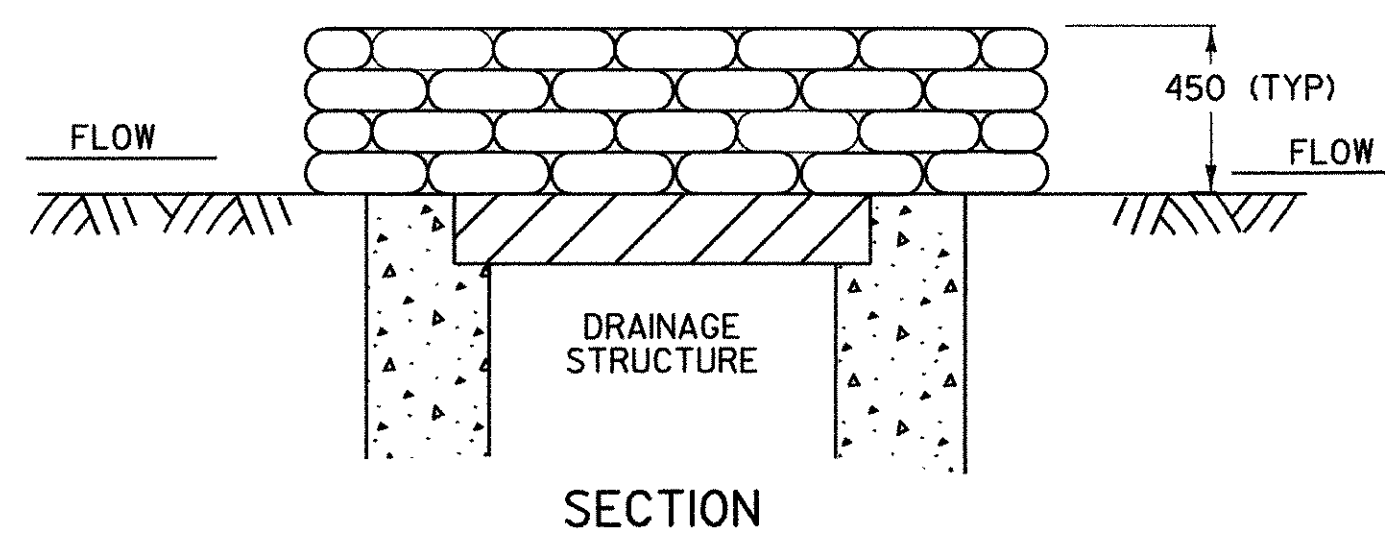
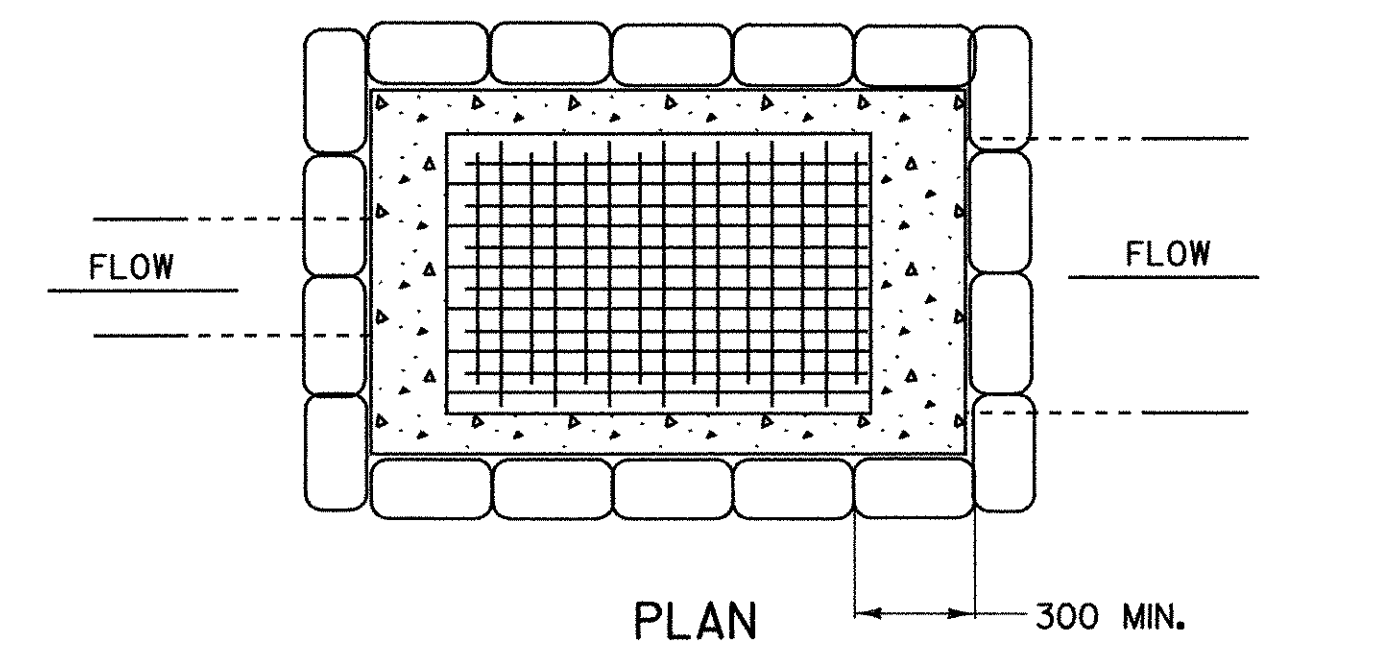
REVISIONS AND CORRECTIONS
MAY 15, 2004 N. GARBACK

EROSION PREVENTION & SEDIMENT CONTROL DETAILS CHECK DAMS

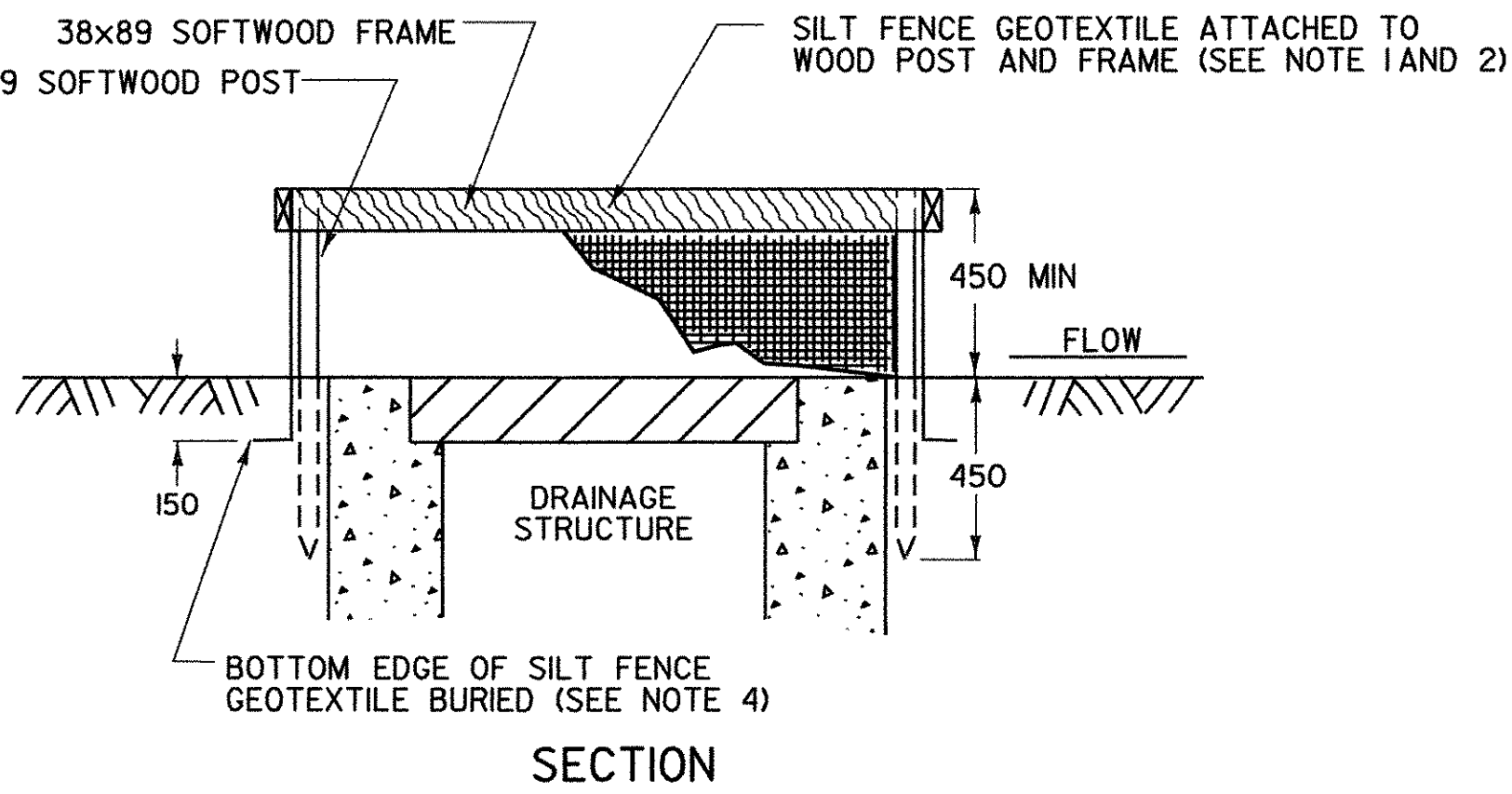
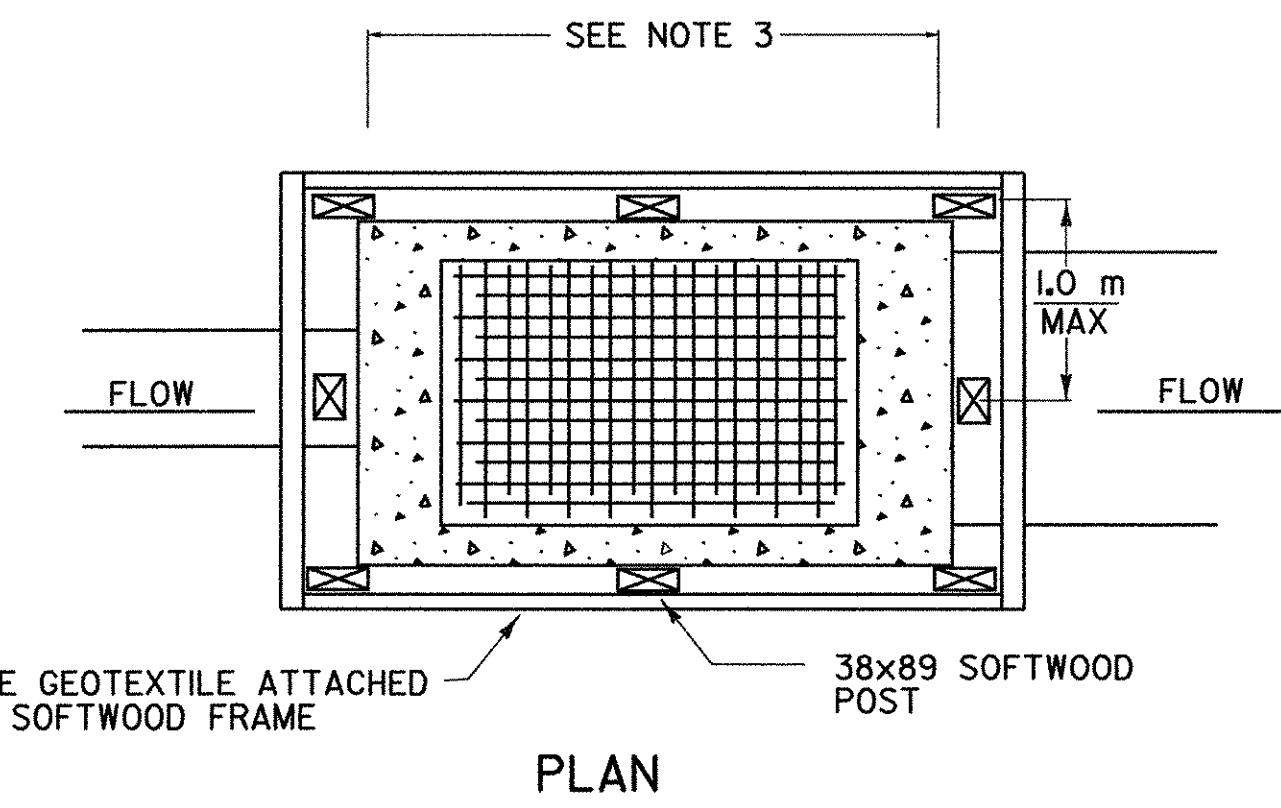


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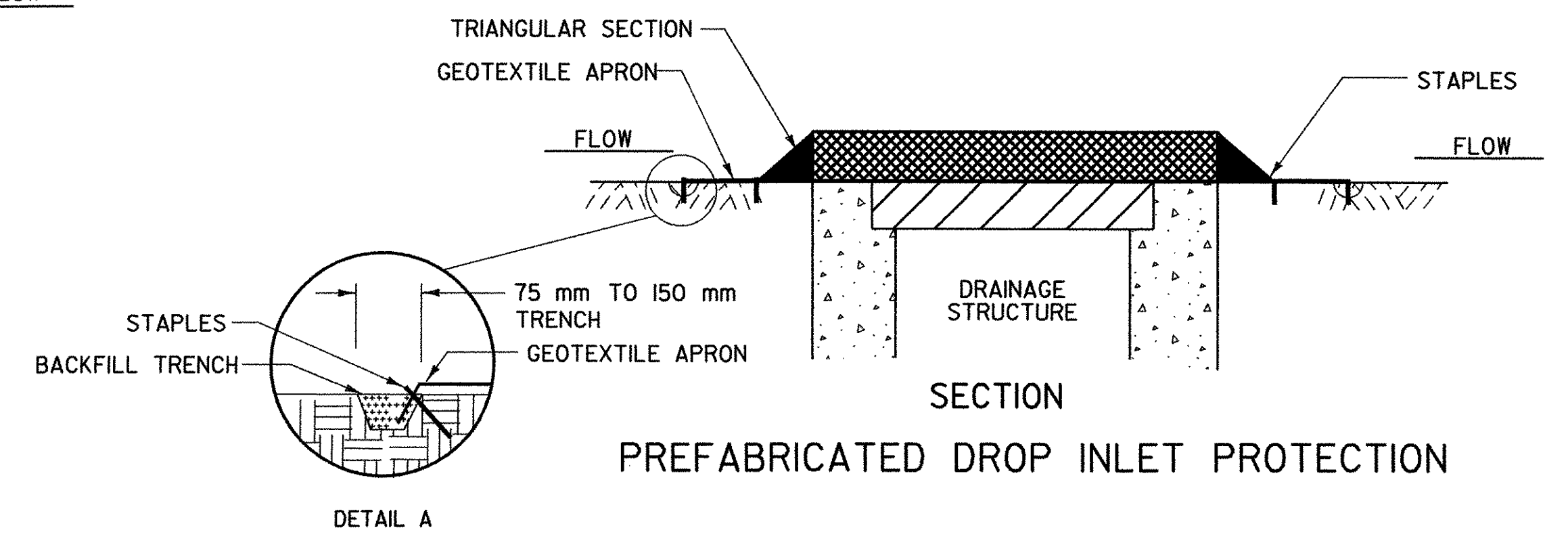
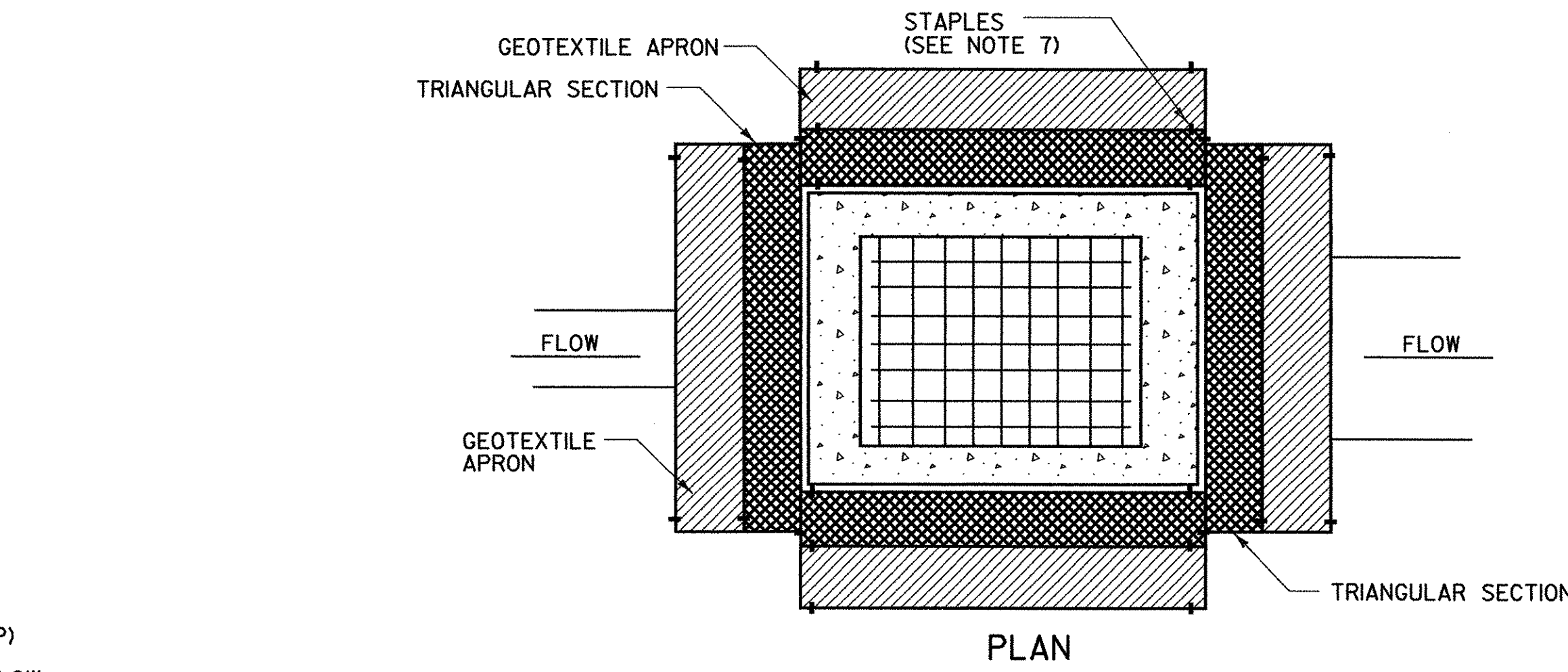
Metric
DETAIL
EPSC-2M



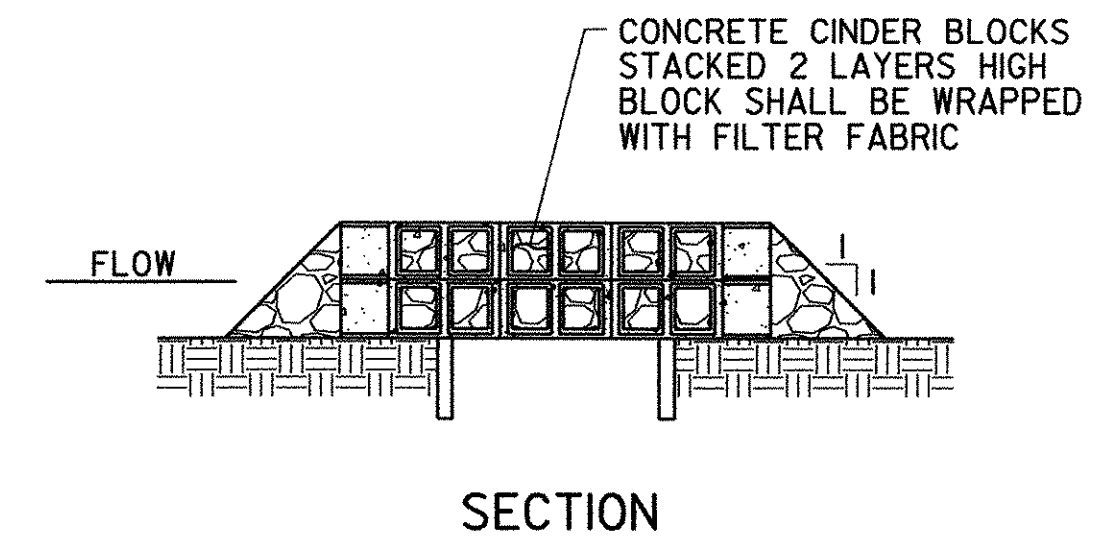
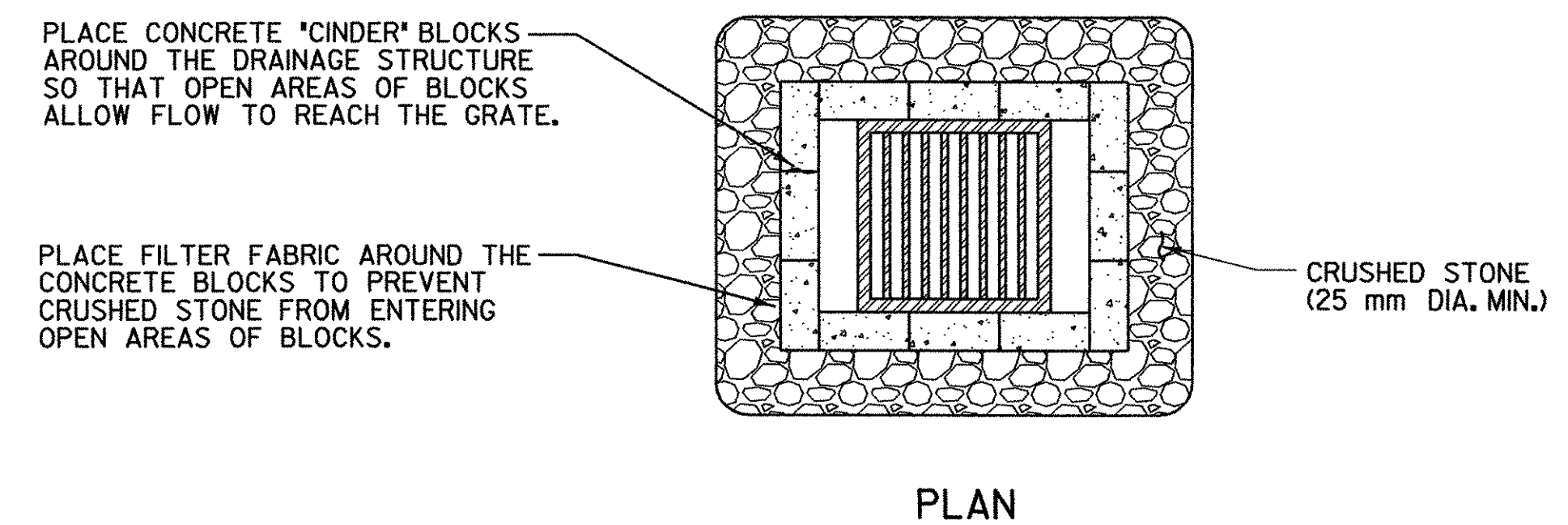
GRAVEL BAG DROP INLET PROTECTION



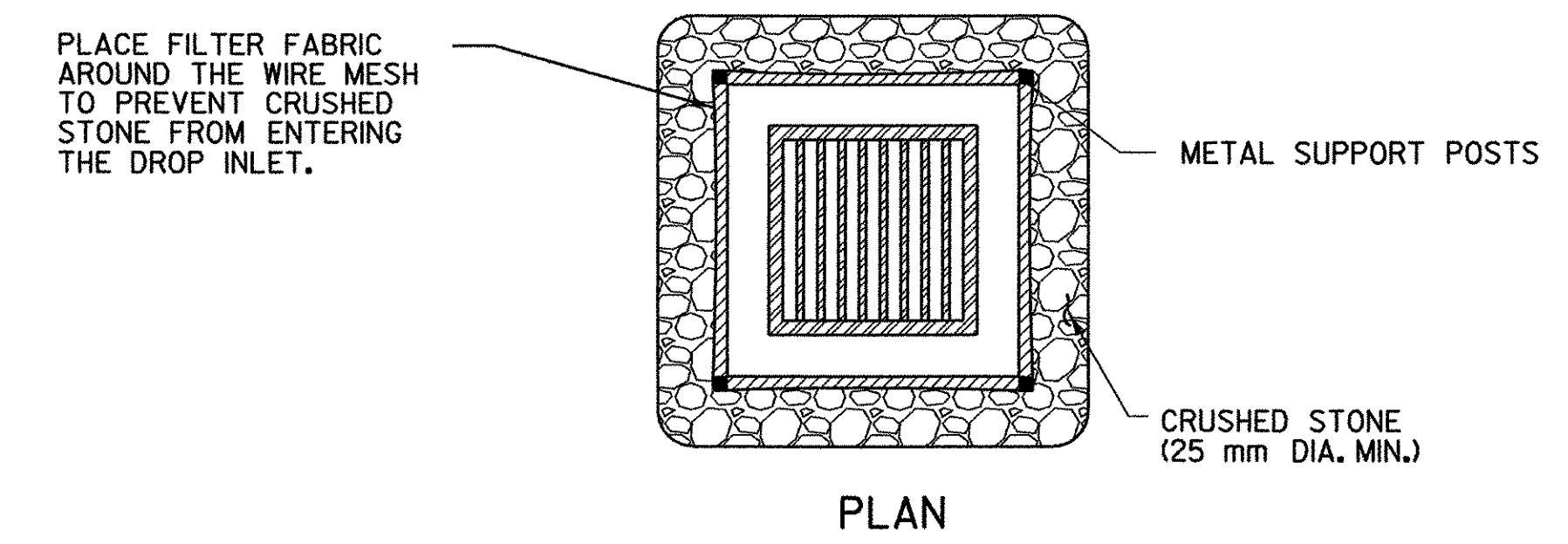
SILT FENCE DROP INLET PROTECTION



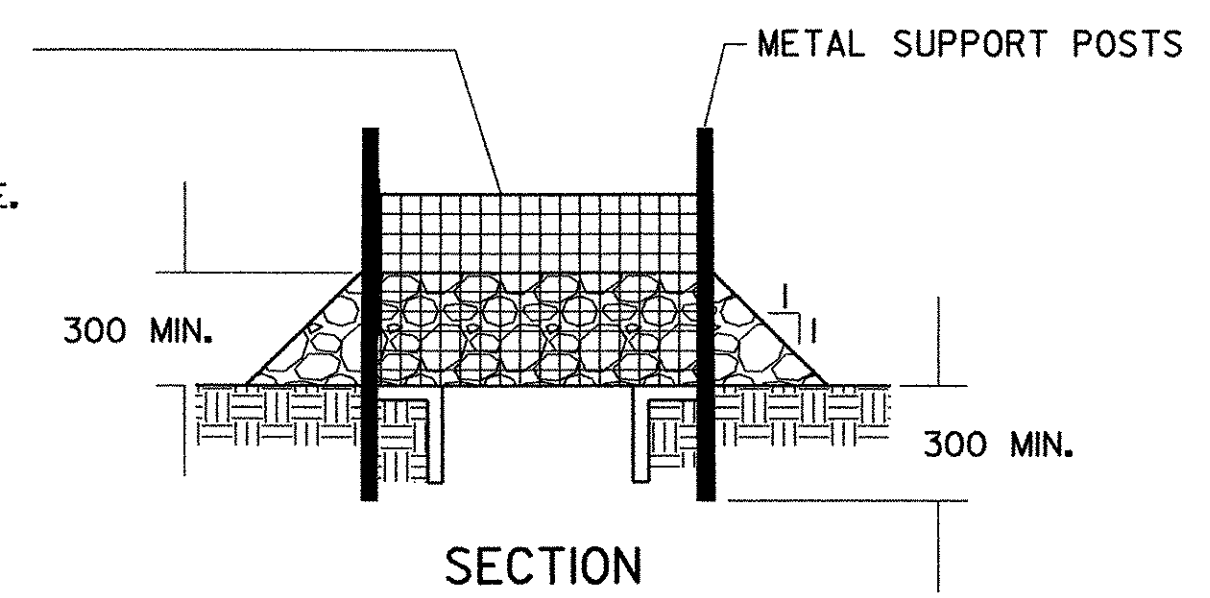
PREFABRICATED DROP INLET PROTECTION



ROCK BARRIER DROP INLET PROTECTION
TEMPORARY PAVED AREAS



WIRE MESH FENCE WITH 12 mm MAX. OPENINGS. FENCE WILL BE WRAPPED WITH FILTER FABRIC. SECURE TIGHTLY TO METAL SUPPORT POSTS BEFORE PLACEMENT OF CRUSHED STONE.



ROCK BARRIER INLET PROTECTION
TEMPORARY UNPAVED AREAS

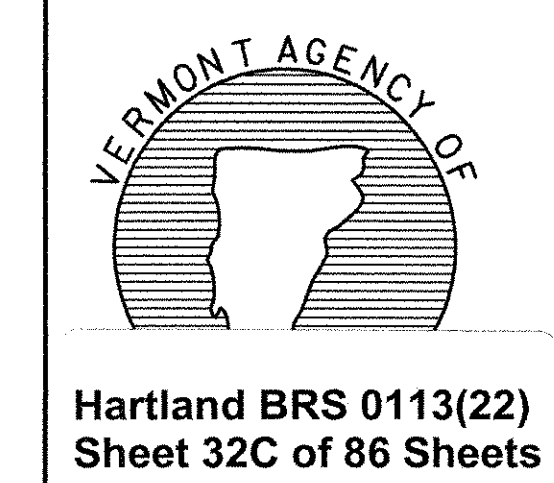
APPLICATION NOTES:

- THE PRIMARY PURPOSE OF DRAINAGE STRUCTURE INLET PROTECTION IS TO PREVENT SEDIMENT FROM ENTERING A DRAINAGE SYSTEM BY PONDING WATER WHICH ALLOWS SEDIMENT TO FALL OUT OF SUSPENSION.
 - THESE EXAMPLES OF DROP INLET PROTECTION ARE NOT INTENDED FOR USE ON GRADES. ON GRADE THEY MAY CAUSE WATER TO BYPASS THE STRUCTURE, CREATING ADDITIONAL EROSION OR FLOODING.
 - POSSIBLE MODIFICATIONS FOR USE ON GRADE INCLUDE ADDING A BERM DOWNSTREAM OF THE INLET TO CREATE PONDING. CHECK DAMS MAY ALSO BE USED UPSTREAM OF THE INLET TO SLOW VELOCITIES.
 - PREFABRICATED DROP INLET PROTECTION SPECIFICATIONS SHALL BE PROVIDED TO THE ENGINEER FOR APPROVAL PRIOR TO USE.
- GENERAL NOTES:
- THE TOP OF THE INLET PROTECTION SHALL BE SET AT THE MAXIMUM DESIRED WATER LEVEL, BASED ON FIELD LOCATION AND CONDITIONS.
 - SILT FENCE GEOTEXTILE SHALL BE A SINGLE CONTINUOUS PIECE TO ELIMINATE JOINTS.
 - SPACE SILT FENCE POSTS EVENLY AROUND INLET WITH A MAXIMUM SPACING OF 1.0 m. DRIVE POSTS A MINIMUM OF 450 mm INTO GROUND. WIRE MESH MAY BE REQUIRED BEHIND GEOTEXTILE TO PROVIDE SUPPORT.
 - SILT FENCE GEOTEXTILE SHALL BE EMBEDDED A MINIMUM OF 150 mm AND BACKFILLED. GEOTEXTILE SHALL BE SECURELY FASTENED TO POSTS AND FRAME.
 - GRAVEL BAGS SHALL BE FILLED WITH CLEAN STONE, RATHER THAN SAND, TO PREVENT SEDIMENT FROM ENTERING A DRAINAGE SYSTEM IF BAGS ARE DAMAGED DURING USE.
 - GRAVEL BAGS SHALL BE INDIVIDUALLY TIED, DOUBLE BAGGED AND INVERSELY INSERTED. GRAVEL BAGS SHALL LAP THE JOINTS BETWEEN THE BAGS IN THE LAYER BELOW.
 - SECURE THE ENDS OF THE APRON FOR THE PREFABRICATED DRAINAGE STRUCTURE INLET PROTECTION WITH STAPLES AS DETAILED IN THE PLAN VIEW OR AS RECOMMENDED BY THE MANUFACTURERS LITERATURE.
 - MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
 - MEASURES SHALL BE CLEANED AND REPAIRED AS NEEDED, SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE MEASURE HEIGHT. SEDIMENT SHALL BE DISPOSED OF AS UNSUITABLE MATERIAL.
 - PAYMENT OF INLET PROTECTION SHALL BE MADE UNDER APPLICABLE ITEMS INCLUDED IN THE CONTRACT PLANS OR UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM.
 - PAYMENT FOR MONITORING INLET PROTECTION SHALL BE MADE UNDER THE MONITORING EROSION & SEDIMENT CONTROL PLAN ITEM.
 - PAYMENT FOR MAINTAINING INLET PROTECTION SHALL BE MADE UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM, UNLESS MAINTENANCE IS REQUIRED DUE TO POOR INSTALLATION PRACTICES.

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

REVISIONS AND CORRECTIONS
MAY 18, 2004 N. GARBACK

EROSION PREVENTION &
SEDIMENT CONTROL DETAILS
DROP INLET PROTECTION



Metric
DETAIL
EPSC-3M

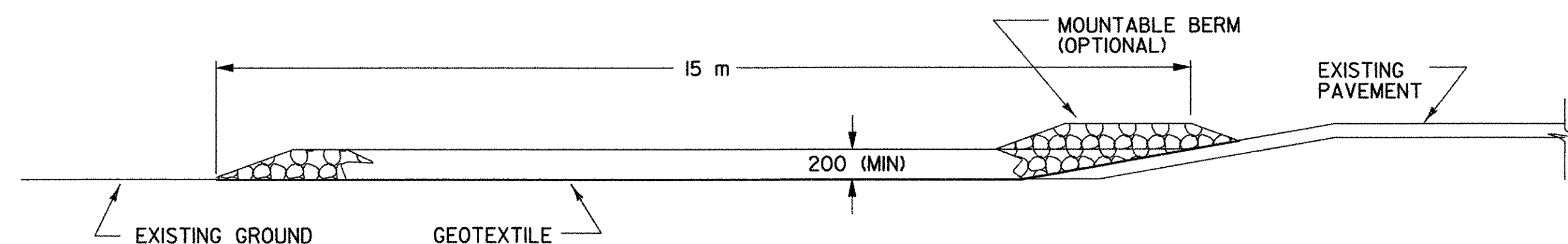
STABILIZED CONSTRUCTION ENTRANCE

APPLICATION NOTES:

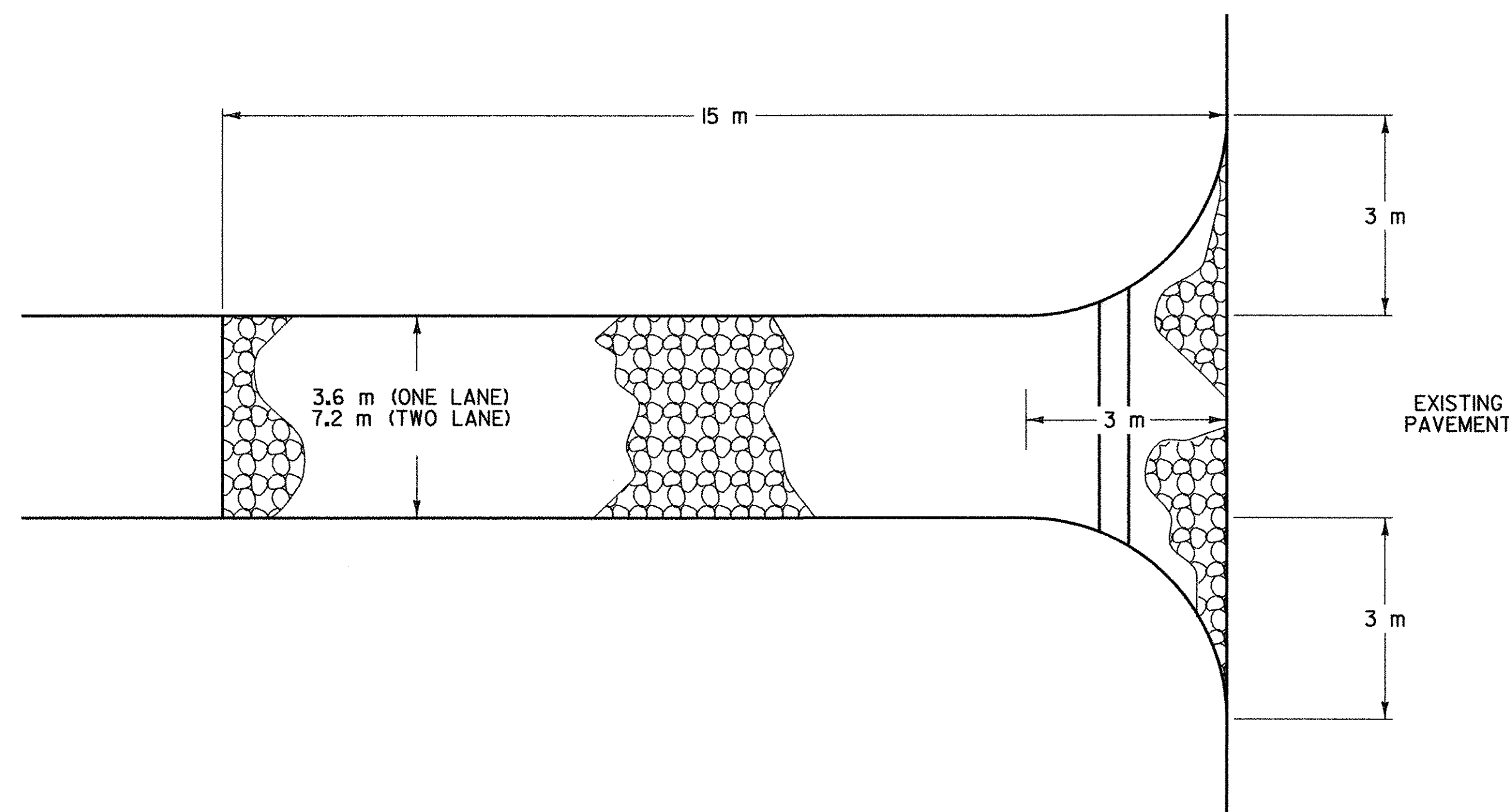
A. THE PURPOSE OF A STABILIZED CONSTRUCTION ENTRANCE IS TO REDUCE OR ELIMINATE THE TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY OR STREETS.

GENERAL NOTES:

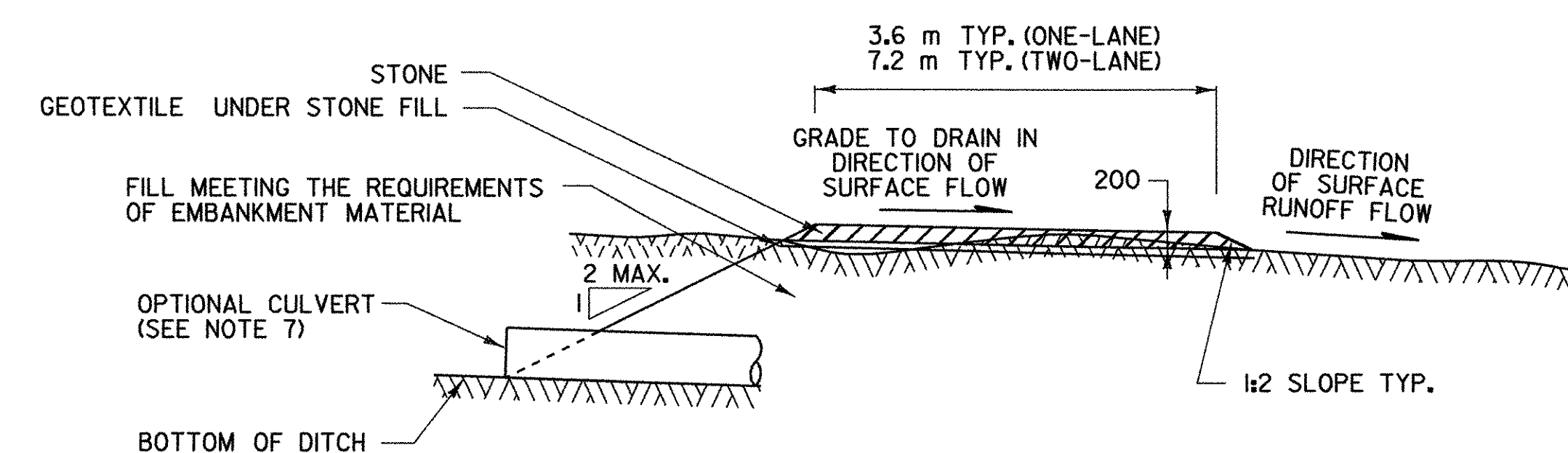
1. STONE SIZE - USE CLEAN STONE WITH GRADATION BETWEEN 50 mm AND 100 mm.
2. LENGTH - 15 m (MIN)
3. THICKNESS - 200 mm (MIN)
4. WIDTH - 3.6 m (MIN)
5. GEOTEXTILE UNDER STONE WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE AS DIRECTED BY THE ENGINEER. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. PROPOSED DRAINAGE PIPES SHALL BE SIZED WITH SUFFICIENT CAPACITY TO CARRY DITCH FLOWS. ALTERNATIVE WAYS OF TRANSPORTING DITCH DRAINAGE ACROSS CONSTRUCTION ENTRANCES MAY BE PROPOSED BY THE CONTRACTOR FOR APPROVAL BY THE ENGINEER.
8. WHEN WASHING OF VEHICLE IS NECESSARY, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
10. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
11. AT THE TIME OF REMOVAL OF THE STABILIZED CONSTRUCTION ENTRANCE THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.
12. PAYMENT OF THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE MADE UNDER APPLICABLE ITEMS INCLUDED IN THE CONTRACT PLANS OR UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM.
13. PAYMENT FOR MONITORING STABILIZED CONSTRUCTION ENTRANCES SHALL BE MADE UNDER THE MONITORING EROSION & SEDIMENT CONTROL PLAN ITEM.
14. PAYMENT FOR MAINTAINING STABILIZED CONSTRUCTION ENTRANCES SHALL BE MADE UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM, UNLESS MAINTENANCE IS REQUIRED DUE TO POOR INSTALLATION PRACTICES.



TYPICAL CONSTRUCTION ENTRANCE PROFILE
(CUT AND DITCH SECTIONS)



TYPICAL CONSTRUCTION ENTRANCE PLAN
(CUT/DITCH AND FILL SECTIONS)



TYPICAL CONSTRUCTION ENTRANCE SECTION

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

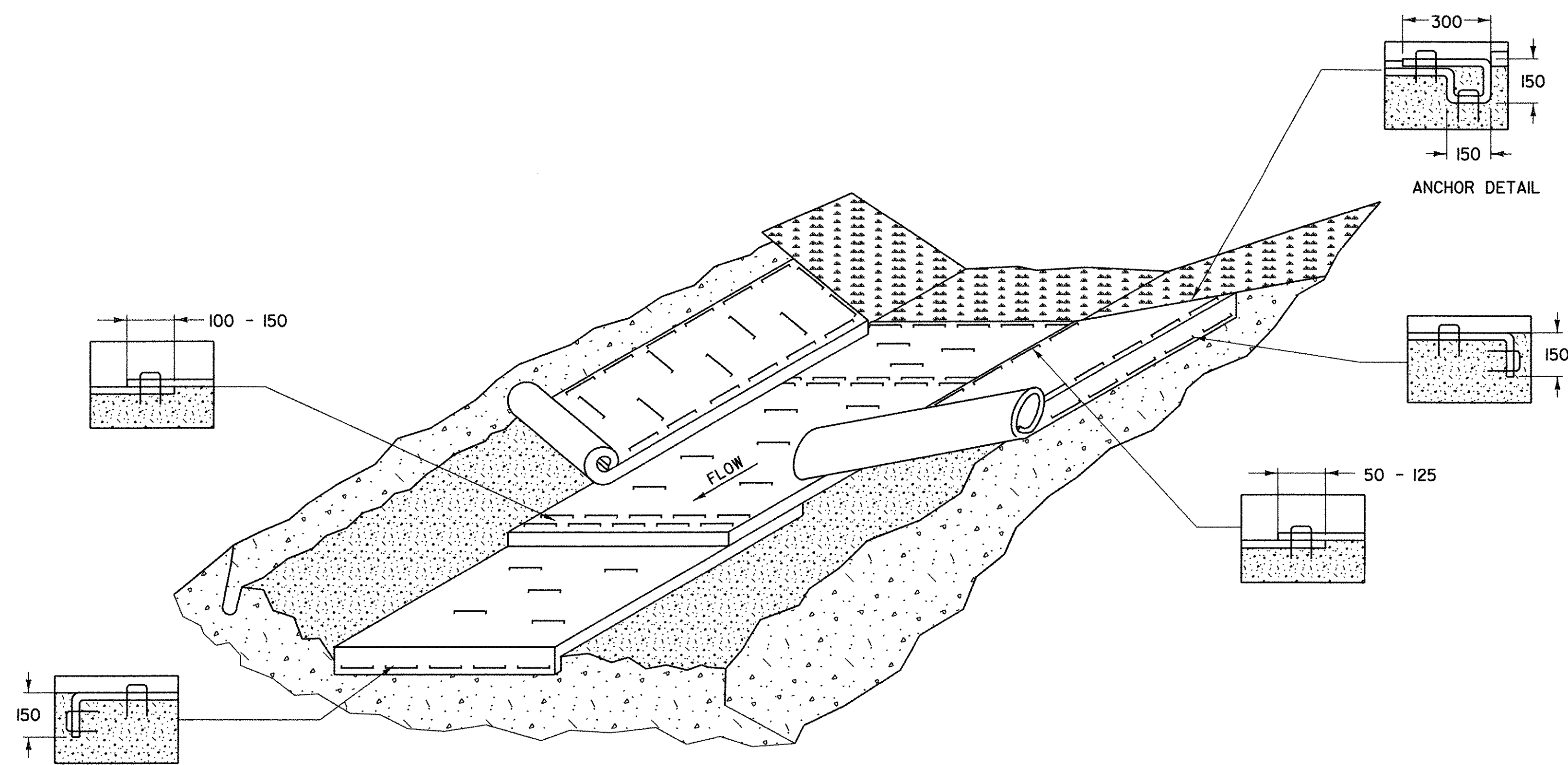
REVISIONS AND CORRECTIONS
MAY 18, 2004 N. GARBACIK

EROSION PREVENTION & SEDIMENT CONTROL DETAILS CONSTRUCTION ENTRANCE



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Metric
DETAIL
EPSC-4M



EROSION PROTECTION FOR DITCHES

APPLICATION NOTES:

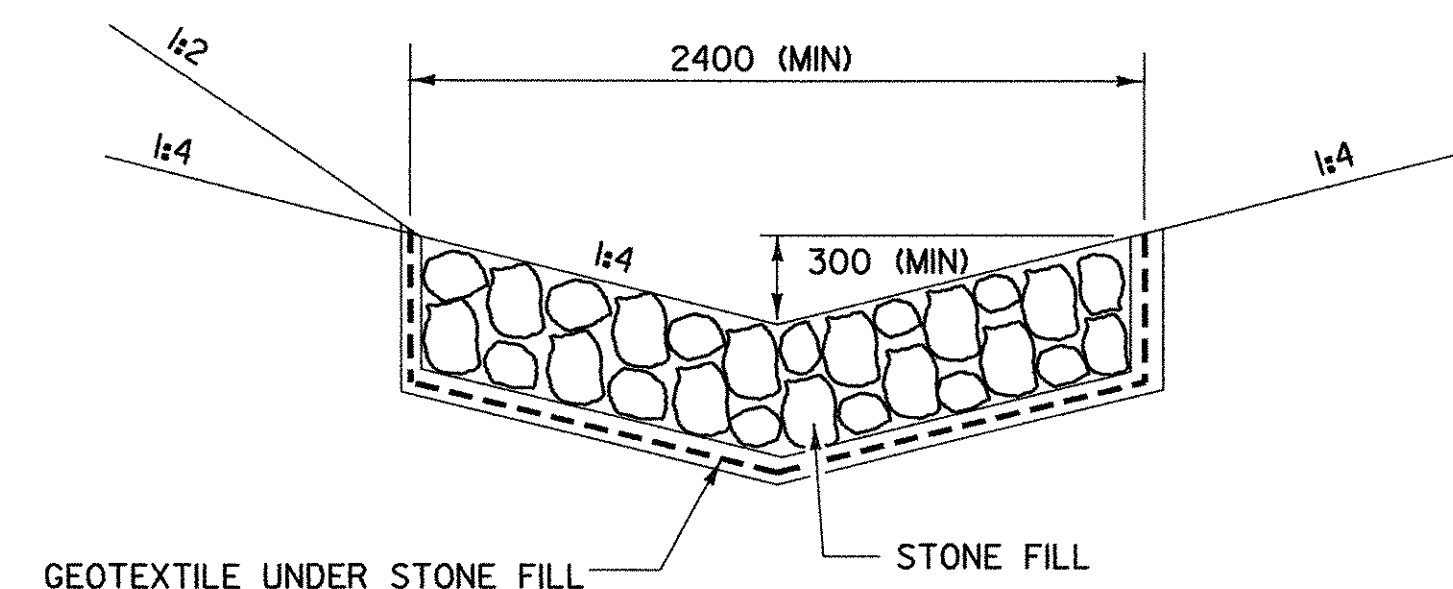
- A. THE PURPOSE OF LINING THE DITCH WITH EROSION MATTING IS TO REDUCE EROSION AND AID THE ESTABLISHMENT OF VEGETATION AT LOW VELOCITIES.
- B. THE FOLLOWING CHARTS SHALL BE USED TO DETERMINE THE APPROPRIATE EROSION CONTROL MEASURE:

DITCH AND CHANNEL PROTECTION	
SLOPE	LINING
< 1%	GRASS
1% TO 4 %	EROSION MATTING
4 % TO 10 %	STONE FILL, TYPE I
> 10 %	STONE FILL, TYPE II

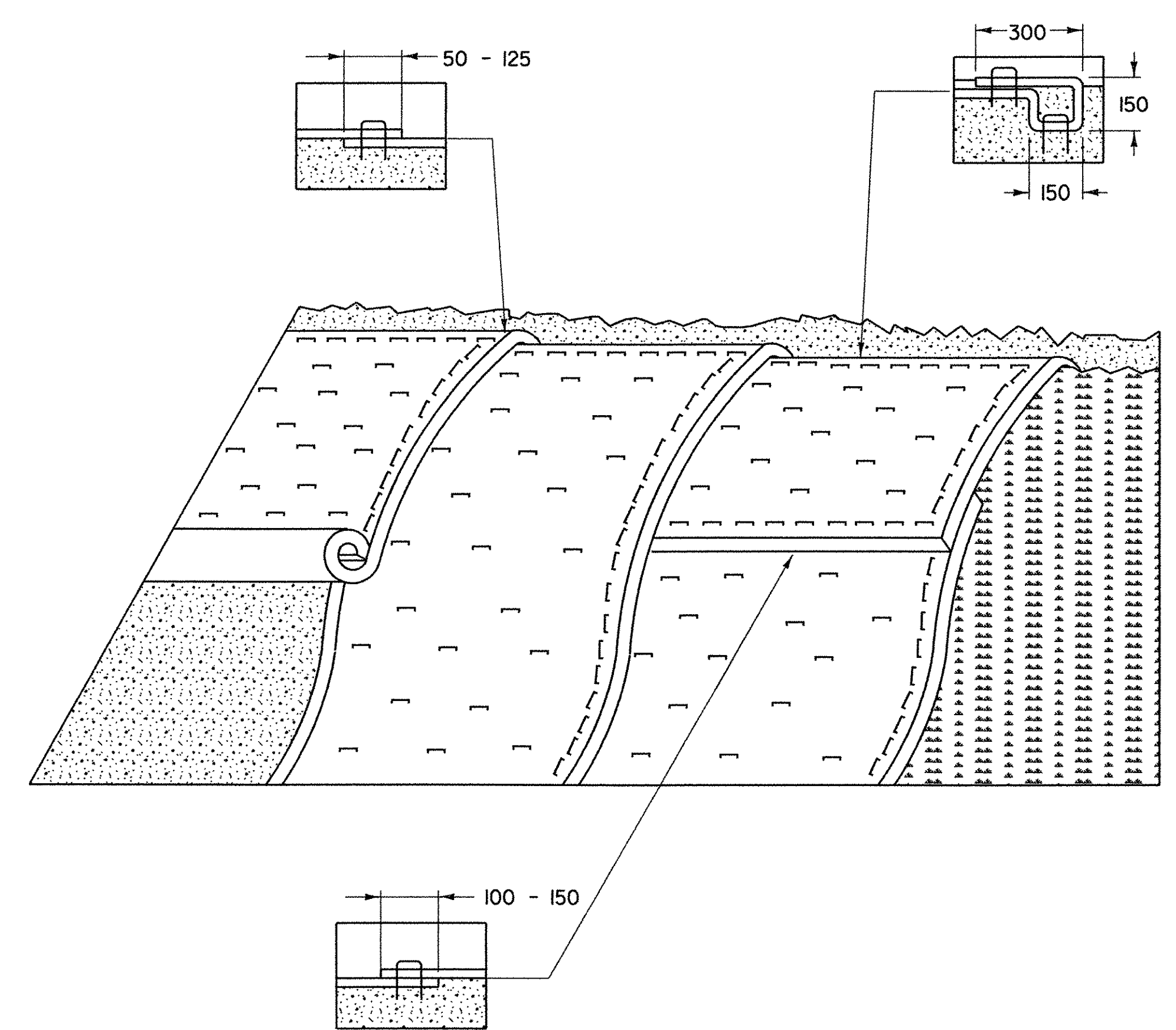
STONE FILL THICKNESS	
STONE FILL TYPE	THICKNESS
TYPE I	0.3 m
TYPE II	0.6 m

GENERAL NOTES:

- WATER MAY NEED TO BE DIVERTED TO ALLOW PROPER MATTING INSTALLATION.
- GRADE AND SMOOTH CHANNEL TO PROVIDE GOOD MATTING TO SOIL SURFACE CONTACT.
- APPLY FERTILIZER, LIME, AND SEED PRIOR TO PLACING MATTING.
- INSTALL MATTING IN THE CENTER OF THE CHANNEL, IN THE DIRECTION OF THE WATER FLOW.
- INSTALL MATTING ON THE SIDE SLOPES OF THE CHANNEL, OVERLAPPING THE CENTER MAT.
- ANCHOR MATTING AS SHOWN, UTILIZING ANCHOR STAPLES. STAPLE PLACEMENT SHALL BE DETERMINED BY THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
- MEASURES SHALL BE REPAIRED AND RESTAPLED AS NECESSARY TO ENSURE PROPER FUNCTION.
- PAYMENT FOR INSTALLATION OF MATTING SHALL BE MADE UNDER THE EROSION CONTROL WITH MATTING ITEM.
- PAYMENT FOR MONITORING EROSION CONTROL MATTING SHALL BE MADE UNDER THE MONITORING EROSION & SEDIMENT CONTROL PLAN ITEM.
- PAYMENT FOR MAINTAINING EROSION CONTROL MATTING SHALL BE MADE UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM, UNLESS MAINTENANCE IS REQUIRED DUE TO POOR INSTALLATION PRACTICES.



TEMPORARY STONE LINED DITCH



EROSION PREVENTION FOR SIDE SLOPES

APPLICATION NOTES:

- A. THE PURPOSE OF MATTING ON SIDE SLOPES IS TO REDUCE EROSION AND AID THE ESTABLISHMENT OF VEGETATION
- B. EROSION CONTROL MATTING SHALL BE USED FOR THE FOLLOWING REASONS:
- SIDE SLOPES > 3:1 (H:V)
 - AREAS WHERE SEED AND MULCH WILL NOT STAY IN PLACE ALONE
 - WHERE SEEDING IS OUTSIDE THE GROWING SEASON.

GENERAL NOTES:

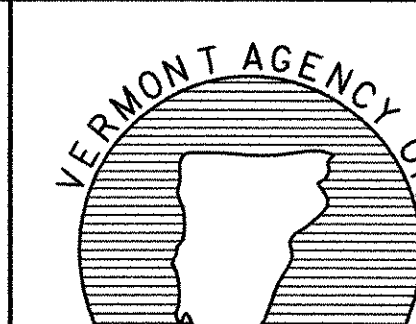
- GRADE AND SMOOTH THE SLOPE TO PROVIDE GOOD MATTING TO SOIL SURFACE CONTACT.
- APPLY FERTILIZER, LIME, AND SEED PRIOR TO PLACING MATTING.
- ANCHOR MATTING AS SHOWN, UTILIZING ANCHOR STAPLES. STAPLE PLACEMENT SHALL BE DETERMINED BY THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- UNROLL MATTING VERTICALLY DOWN SLOPE IN THE DIRECTION OF WATER FLOW.
- OVERLAP UPPER MATTING OVER LOWER MATTING AS SHOWN.
- OVERLAP ADJACENT MATTING AS SHOWN.
- CUT EXCESS MATTING AT END OF SLOPE AND ANCHOR THE END.
- MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
- MATTING SHALL BE REPAIRED AND RESTAPLED AS NECESSARY TO ENSURE PROPER FUNCTION.
- PAYMENT FOR INSTALLATION OF MATTING SHALL BE MADE UNDER THE EROSION CONTROL WITH MATTING ITEM.
- PAYMENT FOR MONITORING EROSION CONTROL MATTING SHALL BE MADE UNDER THE MONITORING EROSION & SEDIMENT CONTROL PLAN ITEM.
- PAYMENT FOR MAINTAINING EROSION CONTROL MATTING SHALL BE MADE UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM, UNLESS MAINTENANCE IS REQUIRED DUE TO POOR INSTALLATION PRACTICES.

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

REVISIONS AND CORRECTIONS

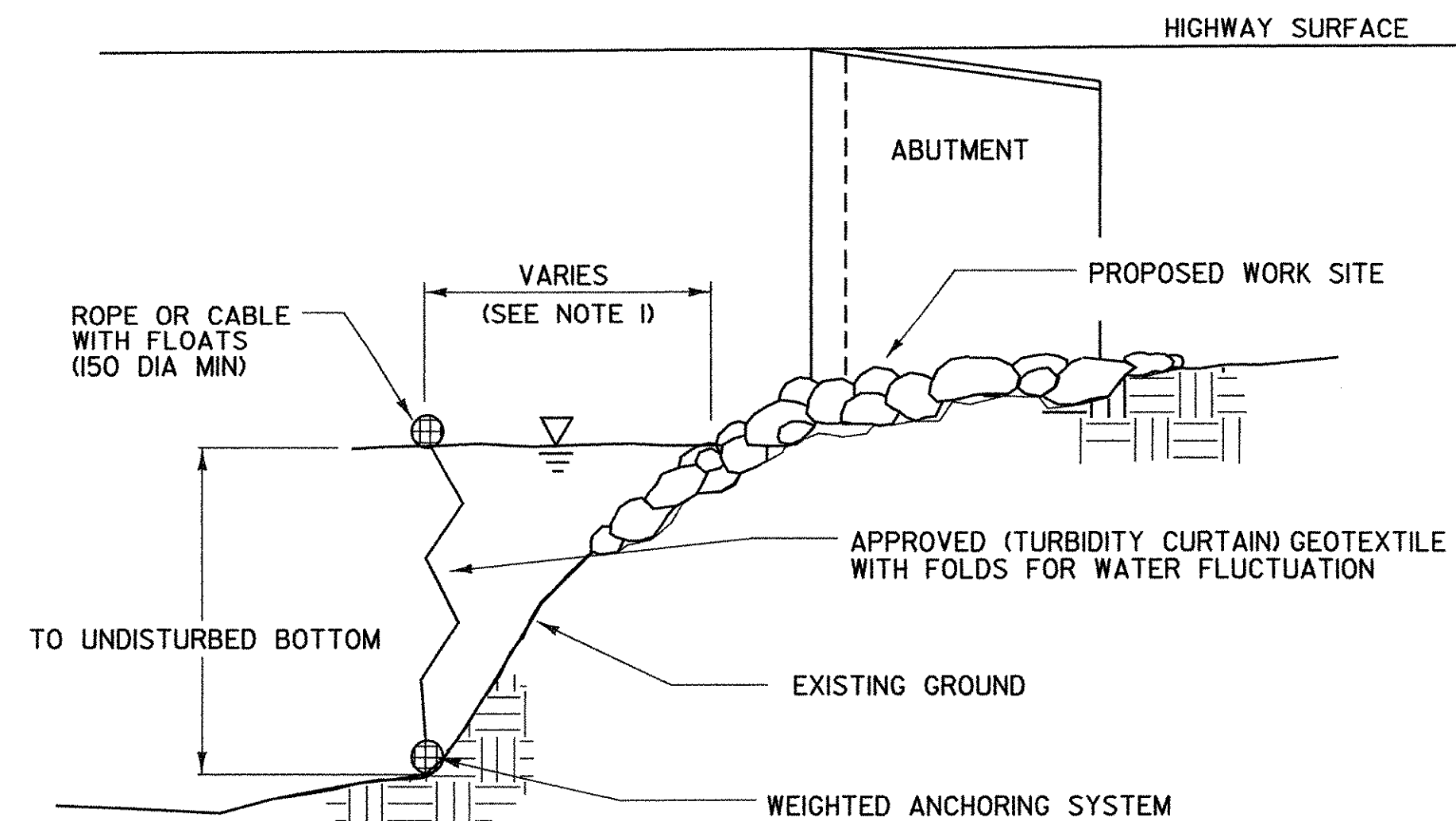
MAY 18, 2004 N. GARBACK

EROSION PREVENTION & SEDIMENT CONTROL DETAILS DITCH & SIDE SLOPE PROTECTION

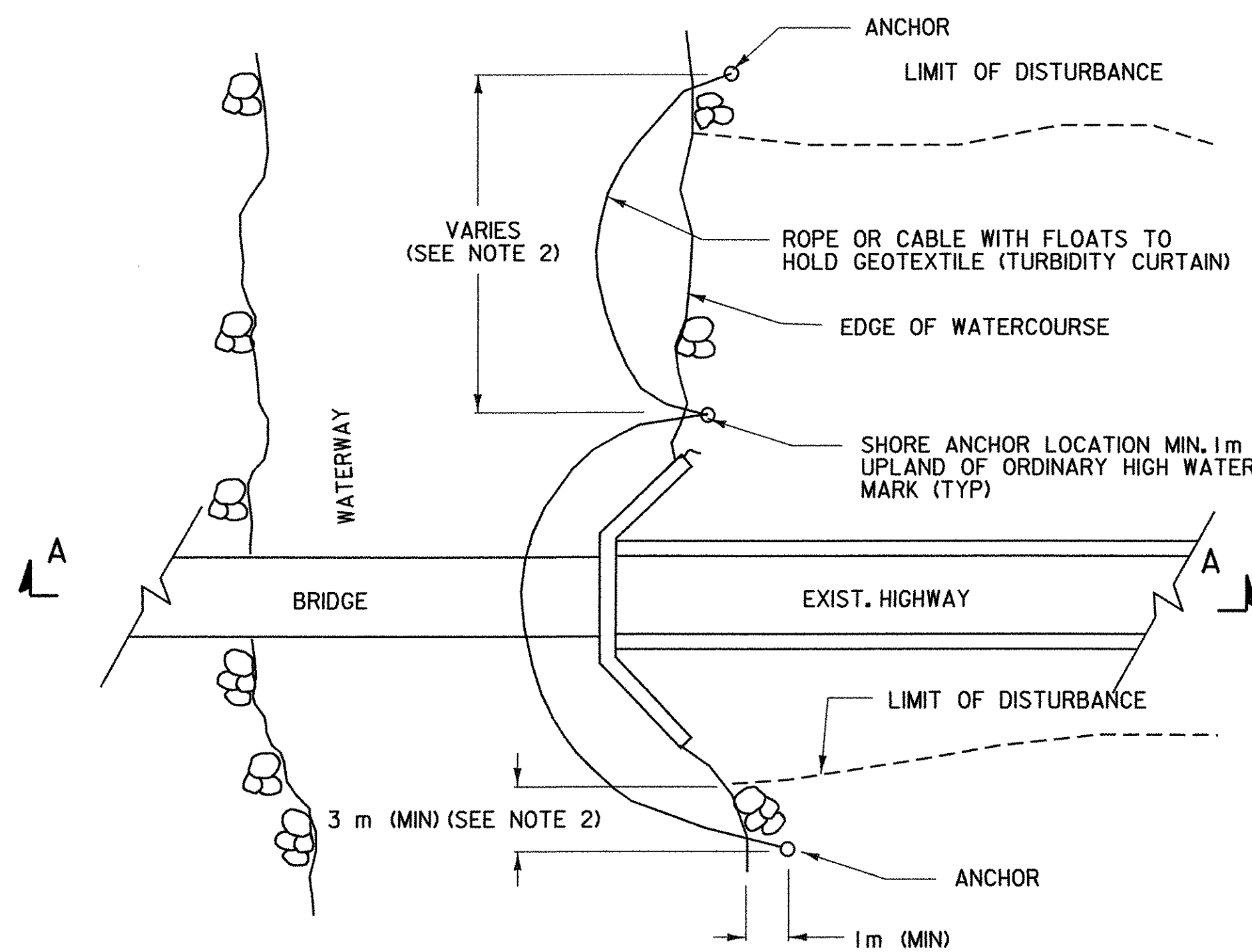


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Metric
DETAIL
EPSC-5M



SECTION A-A



PLAN

TURBIDITY CURTAIN - TEMPORARY

TURBIDITY CURTAIN

APPLICATION NOTES:

- THE PURPOSE OF A TURBIDITY CURTAIN IS TO SEPARATE WORK AREAS IN OR ADJACENT TO WATERS, TO PREVENT SEDIMENT FROM ENTERING THE WATERS.
- TURBIDITY CURTAIN SHALL NOT BE PLACED ACROSS A FLOWING WATERWAY, OR IN A WATERWAY WITH STREAM VELOCITIES GREATER THAN 0.5m/SEC.
- TURBIDITY CURTAIN SHALL NOT BE PLACED AT THE OUTLET OF A CULVERT OR DITCH UNLESS THE VELOCITY DOES NOT EXCEED 0.5 m/SEC.
- THE DETAIL DEPICTS WORK AT A BRIDGE LOCATION, BUT TURBIDITY CURTAIN MAY BE APPLIED AT OTHER LOCATIONS.

GENERAL NOTES:

- THE TURBIDITY CURTAIN SHALL BE PLACED AS CLOSE TO THE WORK AS POSSIBLE WITHOUT INTERFERING WITH CONSTRUCTION OPERATIONS.
- THE TURBIDITY CURTAIN SHALL BE A MAXIMUM OF 30 m LONG BETWEEN ANCHORS. LAST SECTION SHALL TERMINATE A MINIMUM OF 3 m BEYOND THE LIMIT OF DISTURBANCE.
- THE CONTRACTOR SHALL MONITOR THE TURBIDITY CURTAIN, TAKING INTO ACCOUNT WEATHER PATTERNS AND PREVAILING WIND DIRECTIONS THAT MAY AFFECT WATER LEVELS, VELOCITY AND MOVEMENT OF THE TURBIDITY CURTAIN.
- THE TURBIDITY CURTAIN SHALL BE REMOVED BY SLOWLY PULLING TOWARD THE SHORE TO MINIMIZE ESCAPE OF SEDIMENTS INTO THE WATERWAY.
- THE WEIGHTED ANCHOR SYSTEM SHALL BE A TYPE THAT ALLOWS THE CURTAIN TO CONFORM TO THE CONTOUR ON THE BOTTOM OF THE WATERWAY.
- PAYMENT FOR INSTALLATION AND REMOVAL OF THE TURBIDITY CURTAIN SHALL BE MADE UNDER THE GEOTEXTILE FOR FILTER CURTAIN ITEM.
- PAYMENT FOR MONITORING TURBIDITY CURTAIN SHALL BE MADE UNDER THE MONITORING EROSION & SEDIMENT CONTROL PLAN ITEM.
- PAYMENT FOR MAINTAINING TURBIDITY CURTAIN SHALL BE MADE UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM, UNLESS MAINTENANCE IS REQUIRED DUE TO POOR INSTALLATION PRACTICES.

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

REVISIONS AND CORRECTIONS

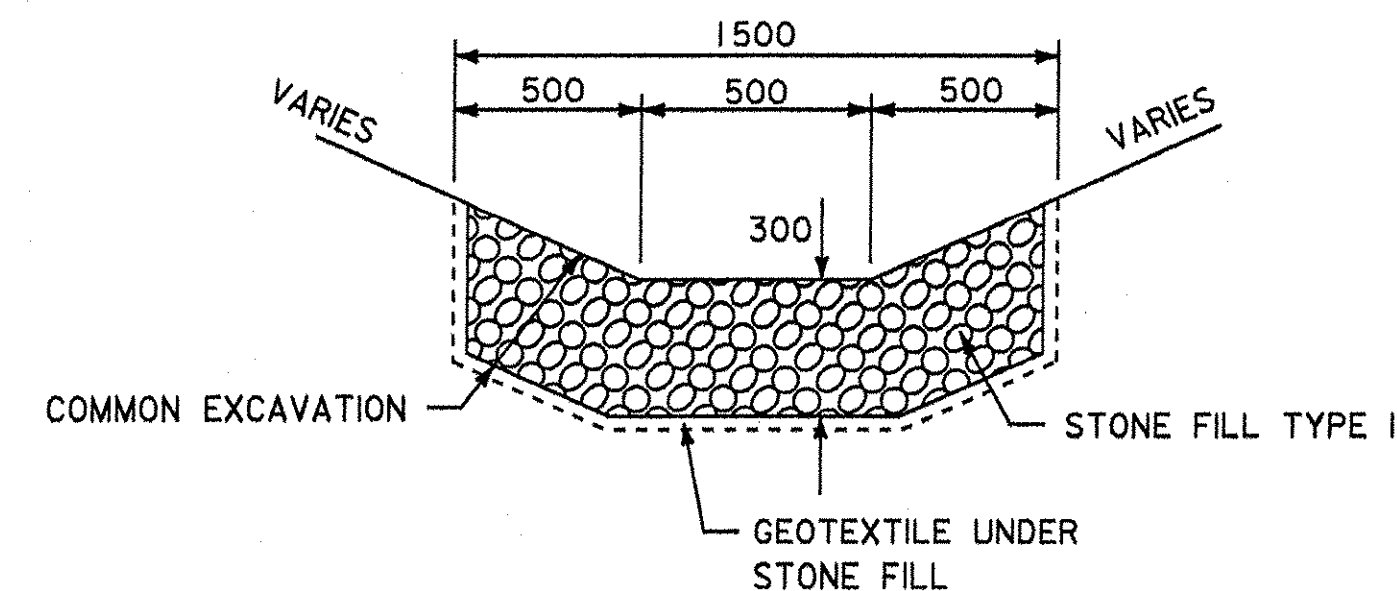
MAY 18, 2004 N. GARBICK

EROSION PREVENTION & SEDIMENT CONTROL DETAILS TURBIDITY CURTAIN

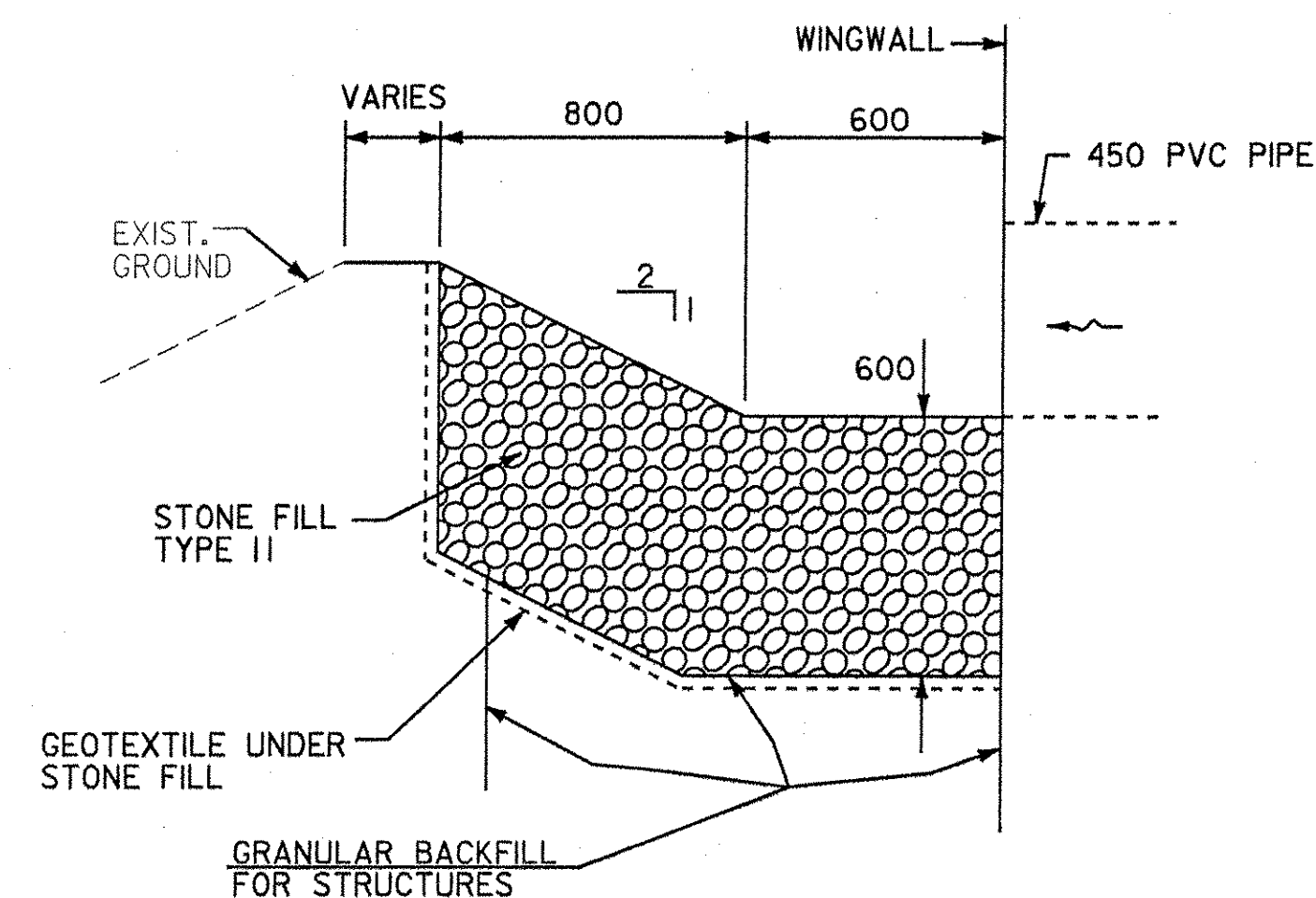


Hartland BRS 0113(22)
Sheet 32F of 86 Sheets

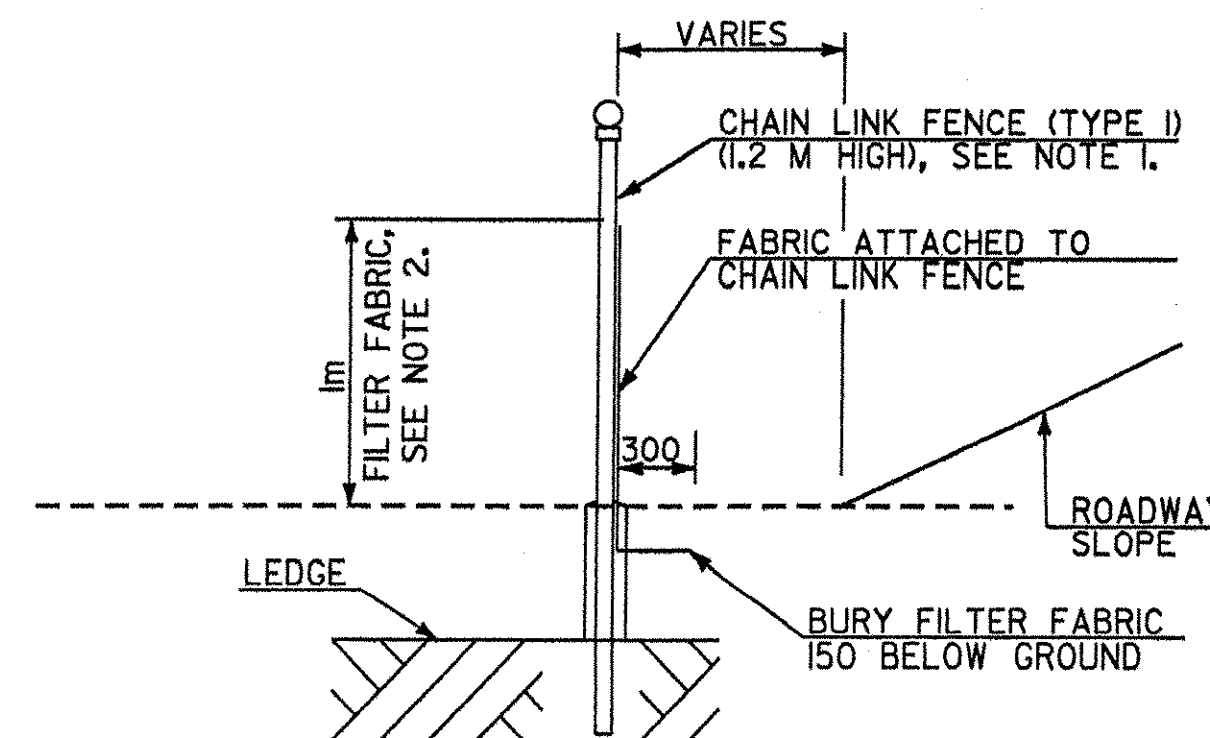
Metric
DETAIL
EPSC-6M



STONE FILLED DITCH DETAIL I
(STA. 3+003, LT. TO STA. 3+105, LT.)
NOT TO SCALE



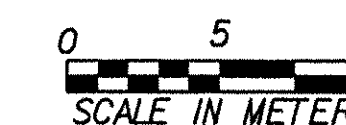
STONE FILLED DITCH DETAIL II
(STA. 3+125, LT. TO STA. 3+132, LT.)
NOT TO SCALE



ROCK REMOVAL CONTAINMENT SYSTEM

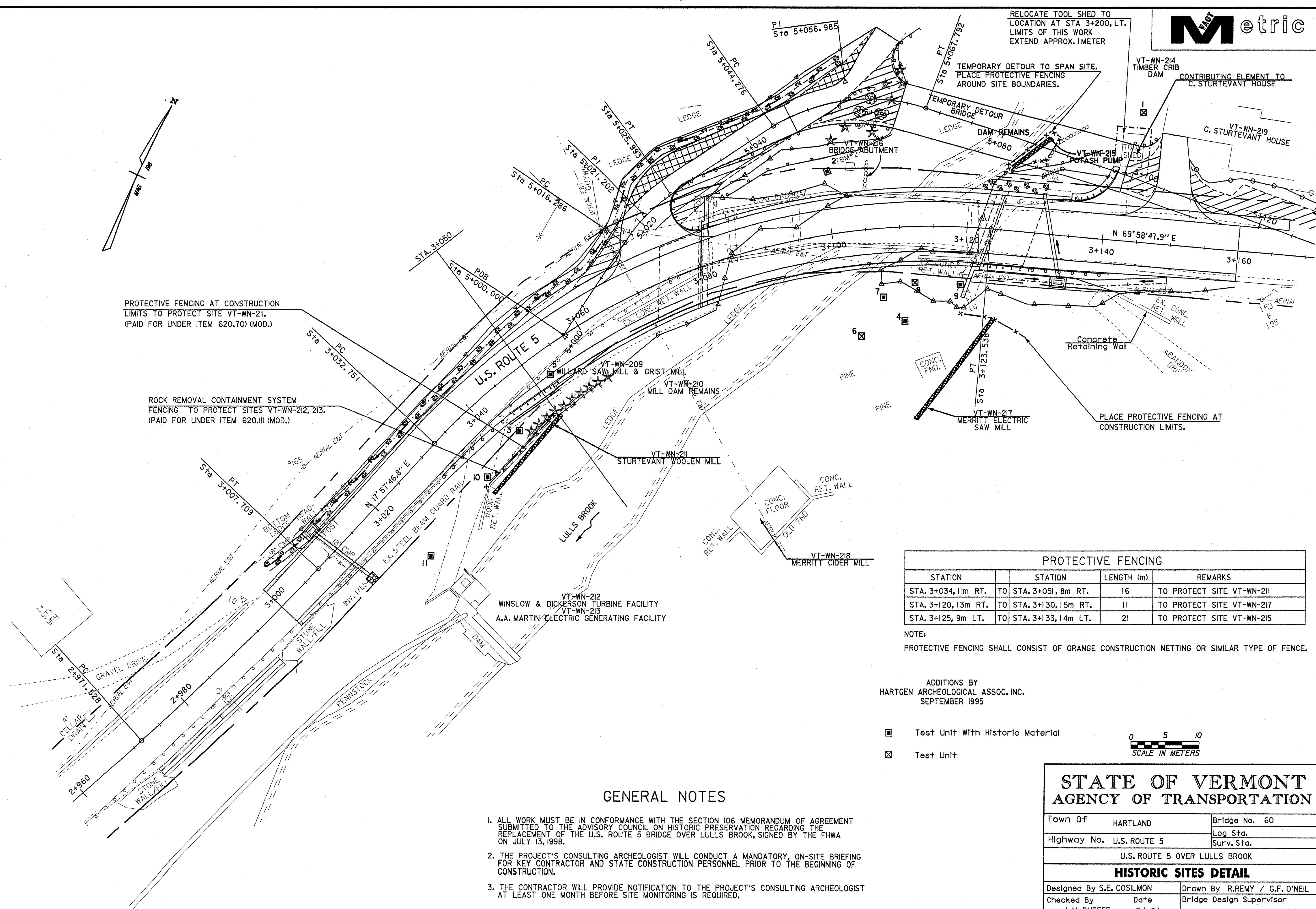
NOTE: NOT TO SCALE

1. SEE VAOT STD. DWG. F-2M FOR CHAIN LINK FENCE (TYPE I) DETAILS USED AS PART OF ROCK CONTAINMENT SYSTEM.
2. IN LOCATIONS WHERE THE EXISTING SOIL CONDITIONS PROHIBIT EMBEDMENT OF THE SILT FENCE, THE FILTER FABRIC SHALL BE ATTACHED TO THE CHAIN LINK FENCE AND SLOPE INTERCEPTOR DEVICES SHALL BE PLACED AND ANCHORED AT THE BASE OF THE FENCE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.



**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
EROSION AND SEDIMENT CONTROL DETAILS			
Designed By	ARD/LCD	Drawn By	A. DUGON
Checked By	J. McDUFFEE	Bridge Design Supervisor	J. MIECZKOWSKI
Date	2 /04	Date	2 /04
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\1456201 VAOT Hartland\zf204ES_DET2.dgn			
Bridge Sheet No.		Sheet	32G of 86



PROTECTIVE FENCING AT CONSTRUCTION LIMITS TO PROTECT SITE VT-WN-211. (PAID FOR UNDER ITEM 620.70) (MOD.)

ROCK REMOVAL CONTAINMENT SYSTEM FENCING TO PROTECT SITES VT-WN-212, 213. (PAID FOR UNDER ITEM 620.11) (MOD.)

RELOCATE TOOL SHED TO LOCATION AT STA 3+200, LT. LIMITS OF THIS WORK EXTEND APPROX. 1 METER

TEMPORARY DETOUR TO SPAN SITE. PLACE PROTECTIVE FENCING AROUND SITE BOUNDARIES.

VT-WN-214 TIMBER CRIB DAM CONTRIBUTING ELEMENT TO C. STURTEVANT HOUSE

VT-WN-219 C. STURTEVANT HOUSE

Concrete Retaining Wall

PLACE PROTECTIVE FENCING AT CONSTRUCTION LIMITS.

CONC. FND.

VT-WN-217 MERRITT ELECTRIC SAW MILL

VT-WN-218 MERRITT CIDER MILL

VT-WN-212 WINSLOW & DICKERSON TURBINE FACILITY
VT-WN-213 A.A. MARTIN ELECTRIC GENERATING FACILITY

GENERAL NOTES

- ALL WORK MUST BE IN CONFORMANCE WITH THE SECTION 106 MEMORANDUM OF AGREEMENT SUBMITTED TO THE ADVISORY COUNCIL ON HISTORIC PRESERVATION REGARDING THE REPLACEMENT OF THE U.S. ROUTE 5 BRIDGE OVER LULLS BROOK, SIGNED BY THE FHWA ON JULY 13, 1998.
- THE PROJECT'S CONSULTING ARCHEOLOGIST WILL CONDUCT A MANDATORY, ON-SITE BRIEFING FOR KEY CONTRACTOR AND STATE CONSTRUCTION PERSONNEL PRIOR TO THE BEGINNING OF CONSTRUCTION.
- THE CONTRACTOR WILL PROVIDE NOTIFICATION TO THE PROJECT'S CONSULTING ARCHEOLOGIST AT LEAST ONE MONTH BEFORE SITE MONITORING IS REQUIRED.

PROTECTIVE FENCING			
STATION	STATION	LENGTH (m)	REMARKS
STA. 3+034, 11m RT.	TO STA. 3+051, 8m RT.	16	TO PROTECT SITE VT-WN-211
STA. 3+120, 13m RT.	TO STA. 3+130, 15m RT.	11	TO PROTECT SITE VT-WN-217
STA. 3+125, 9m LT.	TO STA. 3+133, 14m LT.	21	TO PROTECT SITE VT-WN-215

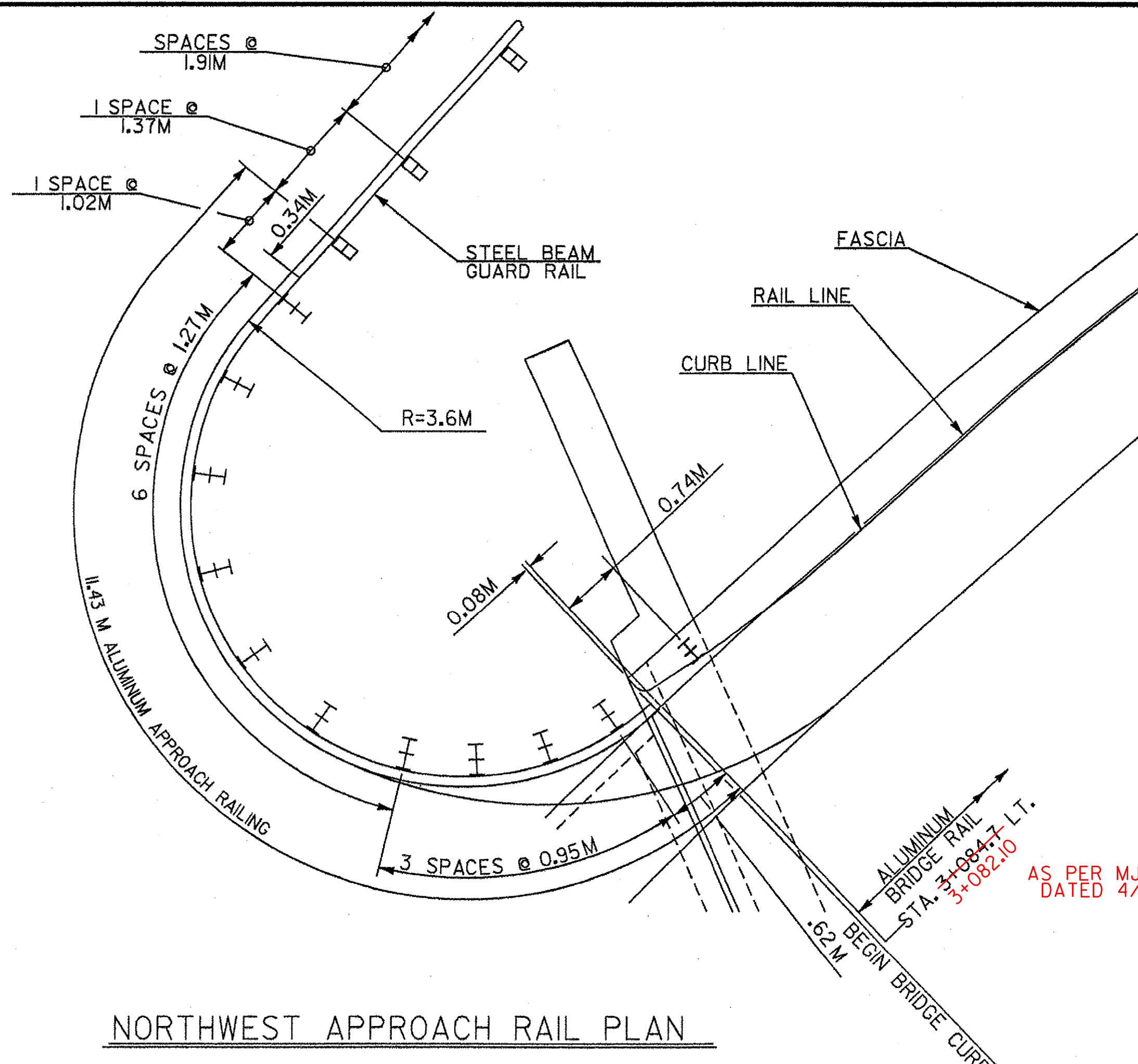
NOTE:
PROTECTIVE FENCING SHALL CONSIST OF ORANGE CONSTRUCTION NETTING OR SIMILAR TYPE OF FENCE.

ADDITIONS BY
HARTGEN ARCHEOLOGICAL ASSOC. INC.
SEPTEMBER 1995

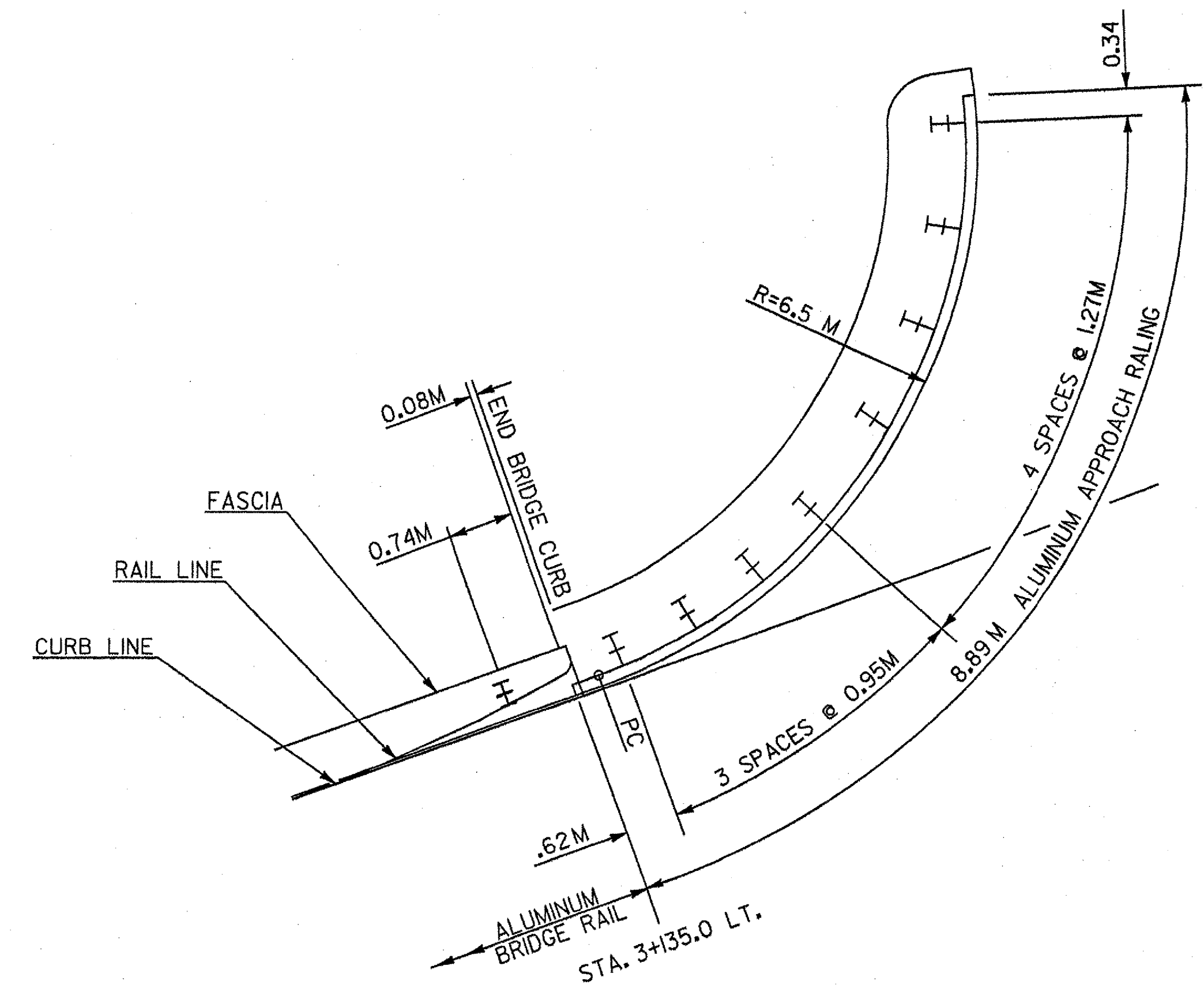
- Test Unit With Historic Material
- ⊠ Test Unit



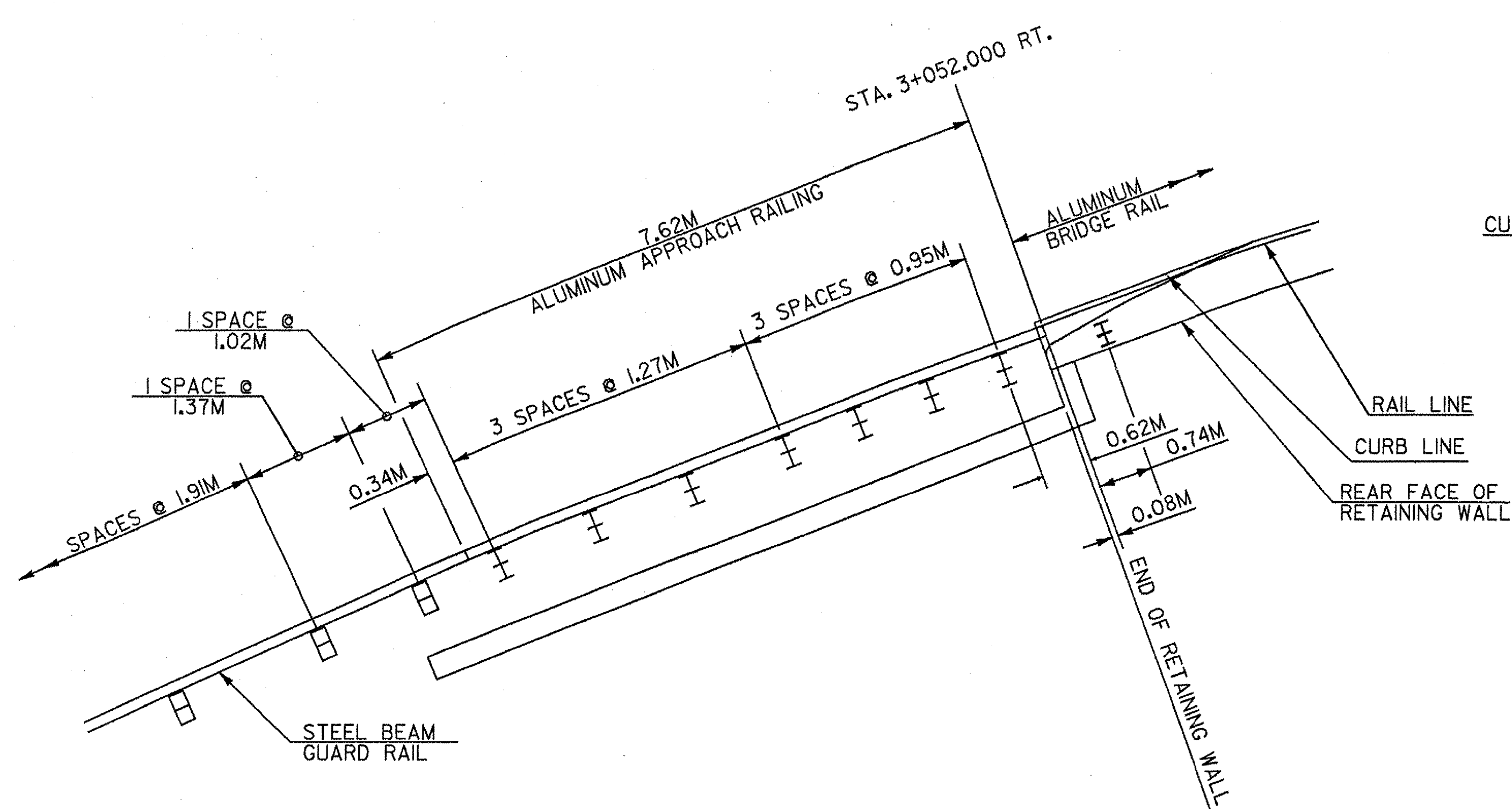
STATE OF VERMONT AGENCY OF TRANSPORTATION		
Town Of	HARTLAND	Bridge No. 60
Highway No.	U.S. ROUTE 5	Log Sta.
		Surv. Sta.
U.S. ROUTE 5 OVER LULLS BROOK		
HISTORIC SITES DETAIL		
Designed By	S.E. COSILMON	Drawn By
Checked By	J. McDUFFEE	Bridge Design Supervisor
Date	2/ 04	Date
		J. MIECZKOWSKI
PROJECT	HARTLAND	PROJECT NO.
		BRS No. 0113(22)
I.G.C. Info. M:\145620\VAOT Hartland\zrf204bdr.dgn		
Bridge Sheet No.	Sheet 33	of 86



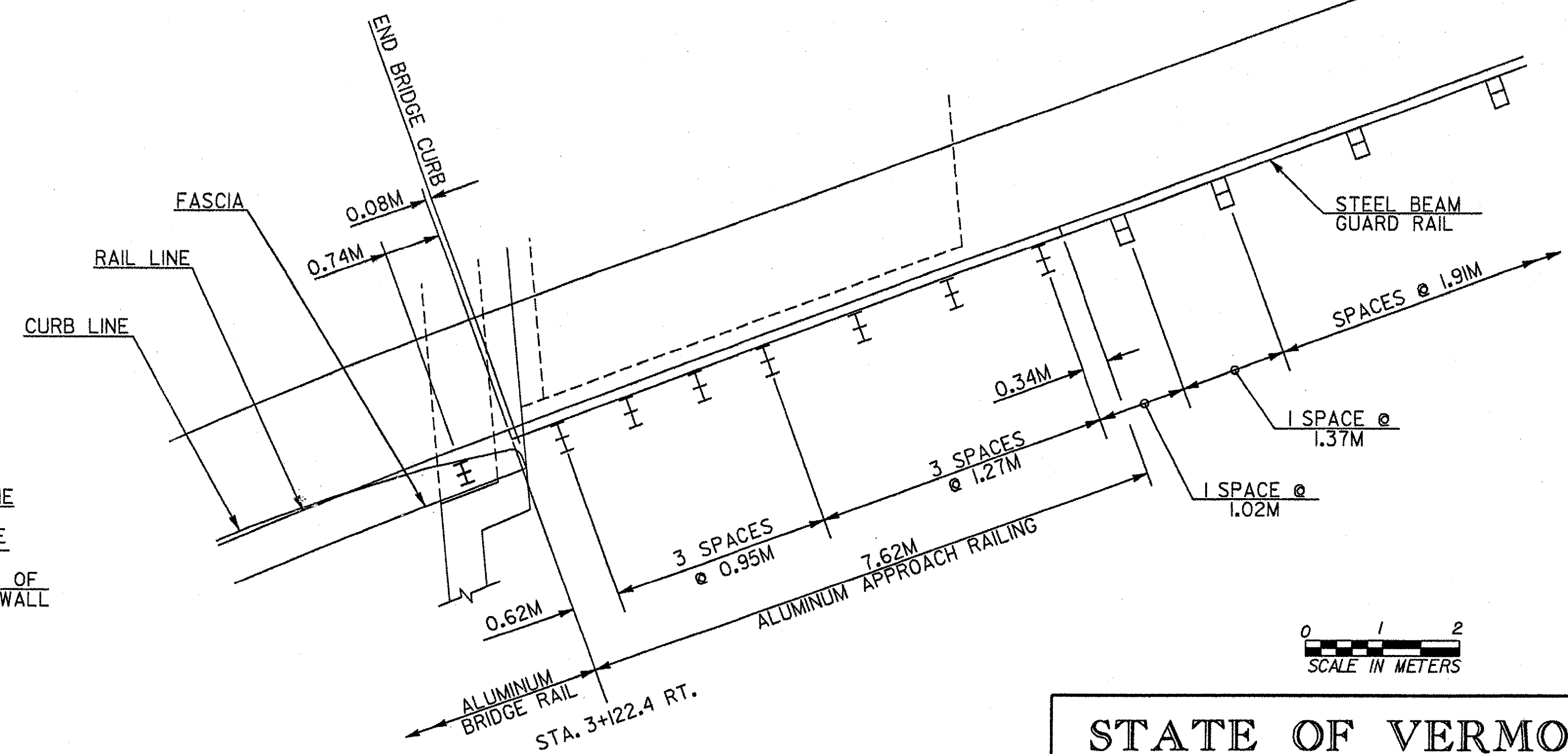
NORTHWEST APPROACH RAIL PLAN



NORTHEAST APPROACH RAIL PLAN



SOUTHWEST APPROACH RAIL PLAN



SOUTHEAST APPROACH RAIL PLAN

0 1 2
SCALE IN METERS

STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of HARTLAND		Bridge No. 60	
Highway No. U.S. ROUTE 5		Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
APPROACH RAIL DETAILS			
Designed By S.E. COSILMON		Drawn By R. REMY / G.F.O'NEIL	
Checked By J.R. McDUFFEE		Bridge Design Supervisor J. MIECZKOWSKI	
Date 2/ 04		Date 2/ 04	
PROJECT HARTLAND		PROJECT NO. BRS No. 0113(22)	
I.G.C. Info. M:\456201\VAOT Hartland\zf204frm.dgn			
Bridge Sheet No.		Sheet 34 of 86	

FINAL HYDRAULICS REPORT



HYDROLOGIC DATA

DRAINAGE AREA= 55.4 sq.km.
 CHARACTER OF TERRAIN= HILLY
 CHARACTER & TYPE OF STREAM= DEEP, GORGE-LIKE CHANNEL
 NATURE OF STREAMBED= LEDGE
 Q2.33= 24.5 cms Q50= 95.8 cms
 Q10= 53.8 cms Q100= 117.8 cms
 Q25= 73.1 cms Q500= 184.3 cms
 DATE OF FLOOD OF RECORD= NONE DOCUMENTED
 WATER SURFACE ELEV.= N/A ESTIMATED DISCHARGE= N/A
 NATURAL STREAM VELOCITY @ Q 25 = 4.2 mps
 ICE CONDITIONS= MINOR DEBRIS= MINOR
 DOES THE STREAM REACH MAXIMUM HIGH WATER ELEVATION RAPIDLY? NO
 IS ORDINARY RISE RAPID? NO
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? YES
 IF YES, DESCRIBE BACK WATER PRODUCED BY A DAM IMPOUNDMENT 76.2 m DOWNSTREAM
 WATERSHED STORAGE HEADWATERS UNIFORM THROUGHOUT WATERSHED
 IMMEDIATELY ABOVE SITE

EXISTING STRUCTURE

STRUCTURE TYPE= SINGLE SPAN STEEL GIRDER W/ TWO CONCRETE SLABS YEAR BUILT= 1926
 CLEAR SPAN (NORMAL TO STREAM)= 11.4 m
 VERTICAL CLEARANCE ABOVE STREAMBED= 8.6 m
 WATERWAY OF FULL OPENING= 80.3 SQUARE METERS
 DISPOSITION OF STRUCTURE= REMOVE
 TYPE OF MATERIAL UNDER SUBSTRUCTURE= LEDGE
 WATER SURFACE ELEV. @ Q2.33= 169.79 m VELOCITY= 3.10 mps
 Q10= 170.48 m " = 3.87 mps
 Q25= 170.84 m " = 4.21 mps
 Q50= 171.22 m " = 4.52 mps
 Q100= 171.55 m " = 4.78 mps

LONG TERM STREAM BED CHANGES= NONE NOTED
 IS THE ROADWAY OVERTOPPED BELOW THE Q100? NO FREQUENCY= _____
 RELIEF ELEVATION= _____ DISCHARGE OVER ROAD @ Q100= _____

UPSTREAM STRUCTURE= TOWN= HARTLAND DISTANCE= 2134.00 m
 HIGHWAY NO.= VT RTE. 12 STRUCTURE NO.= 2
 STRUCTURE TYPE= SINGLE SPAN STEEL BEAM BRIDGE W/ CONCRETE DECK
 CLEAR SPAN= 12.80 m CLEAR HEIGHT= 3.35 m
 YEAR BUILT= 1931 FULL WATERWAY= 42.70 sm
 DOWNSTREAM STRUCTURE= TOWN= HARTLAND DISTANCE= 396.00 M
 HIGHWAY NO.= T.H. 46 STRUCTURE NO.= 20
 STRUCTURE TYPE= SINGLE SPAN STEEL BEAM BRIDGE W/ CONCRETE DECK
 CLEAR SPAN= 12.80 m CLEAR HEIGHT= 4.72 m
 YEAR BUILT= 1956 FULL WATERWAY= UNKNOWN

PROPOSED STRUCTURE

STRUCTURE TYPE= SIMPLE SPAN MULTI-STEEL CURVED GIRDER
 CLEAR SPAN (NORMAL TO STREAM)= 16.5 m
 VERTICAL CLEARANCE ABOVE STREAMBED= 5.7 m
 WATERWAY OF FULL OPENING= 84.2 SQUARE METERS
 WATER SURFACE ELEV. @ Q2.33= 169.79 m VELOCITY= 3.10 mps
 Q10= 170.47 m " = 3.87 mps
 Q25= 170.84 m " = 4.21 mps
 Q50= 171.20 m " = 4.52 mps
 Q100= 171.66 m " = 4.78 mps
 IS THE ROADWAY OVERTOPPED BELOW THE Q100? NO FREQUENCY= _____
 RELIEF ELEVATION= _____ DISCHARGE OVER ROAD @ Q100= _____
 MINIMUM LOW ELEVATION OF SUPERSTRUCTURE= 174.1 m
 VERTICAL CLEARANCE @ Q100 = 2.44 m
 SCOUR= 0.0 m
 REQUIRED CHANNEL PROTECTION= NONE

PERMIT INFORMATION

AVERAGE DAILY FLOW= 1.2 cms
 ORDINARY LOW WATER= 0.6 cms DEPTH= 0.3 m
 ORDINARY HIGH WATER= 14.2 cms DEPTH= 0.9 m

ADDITIONAL COMMENTS



DESIGN CRITERIA:

- DESIGN LIVE LOAD AASHTO MS 22.5
- DESIGN SPAN 43.90 m
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A ON LEDGE 480 KPa
- ALLOWABLE LOAD FOR PILING N/A TYPE N/A ESTIMATED LENGTH N/A
- STRUCTURAL STEEL AASHTO GRADE M270 GRADE 345W TENSION 190 MPa*
- REINFORCING STEEL GRADE 420
- CONCRETE, HIGH PERFORMANCE CLASS A f'_c = 30 MPa
 CONCRETE, HIGH PERFORMANCE CLASS B f'_c = 25 MPa

*WORKING STRESS METHOD IS USED TO DESIGN THE CURVED STEEL PLATE GIRDER. THE BRIDGE SHALL BE LOAD RATED USING THE LOAD FACTOR METHOD.

TRAFFIC MAINTENANCE:

- IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE NO OR ON TEMPORARY BRIDGE YES
- TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY ONE TRAFFIC CONTROL SIGNALS REQUIRED YES
 MINIMUM CLEAR SPAN (NORMAL TO STREAM)= 35 m VERTICAL CLEARANCE ABOVE STREAMBED= 5.85m (TO CLEAR HISTORIC STONEWALL)
 WATERWAY OF FULL OPENING= 95.0 sq. m
 ARE SIDEWALKS REQUIRED? NO IF SO, ON WHAT SIDE? _____
 STRUCTURE TYPE= _____

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2001	4600	630	55	2	310
2021	6100	800	55	2	320

20 year ESAL for flexible pavement from 2001 to 2021 = 2,074,000
 40 year ESAL for flexible pavement from 2001 to 2041 =
 Design speed= 30 km/hr Functional Classification= Rural Local Road

LOAD RATING (TONS)

LOADING LEVELS (LOAD FACTOR)	M	MS	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY A =	47	50					
POSTED A =	66	70	75		68	68	73
OPERATING A =		83	90	97	81	82	

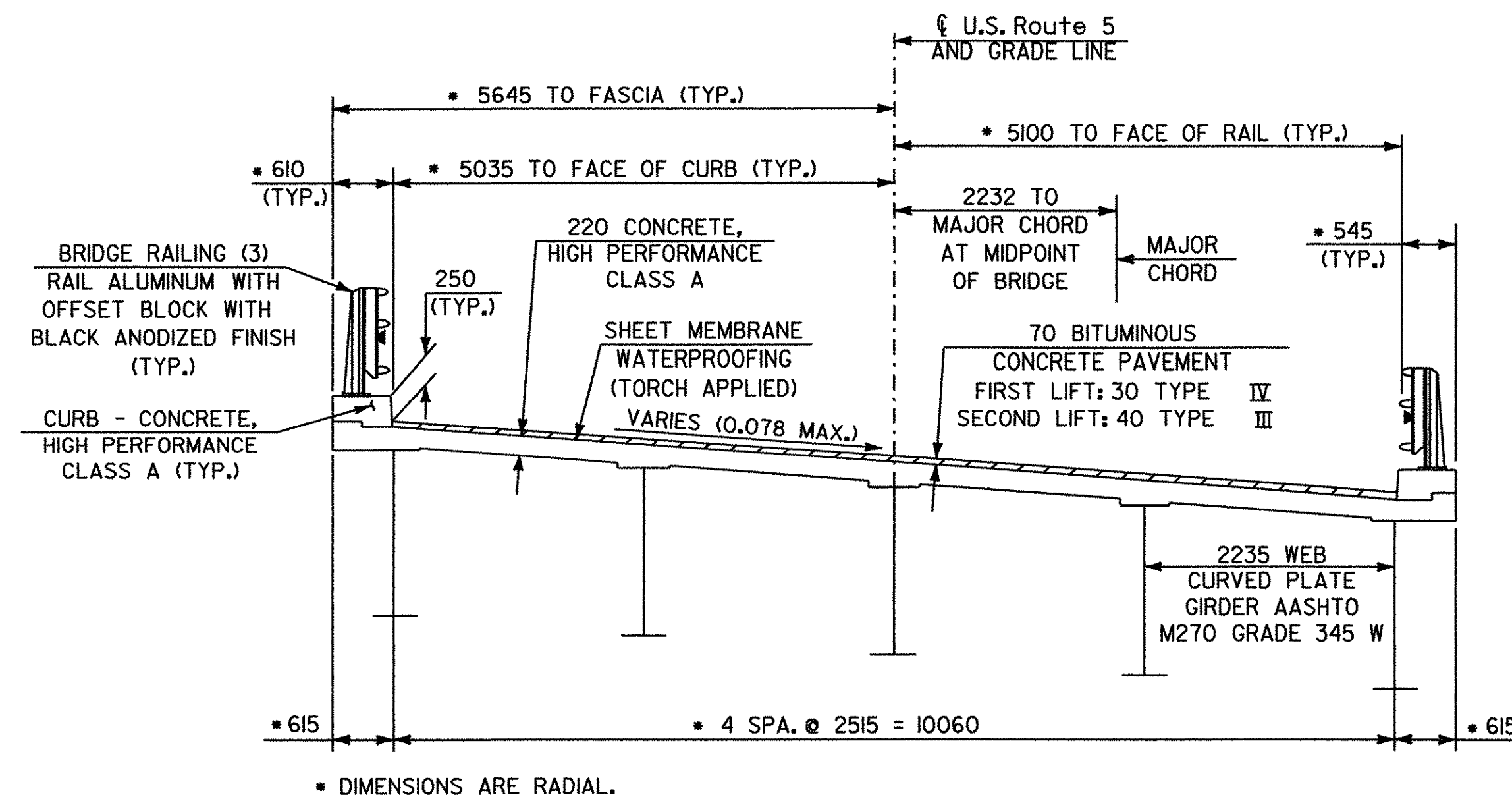
RF = $\frac{M_N}{M_{LL+1}} - 1.3 \frac{M_{DL}}{M_{LL+1}}$

STATE OF VERMONT AGENCY OF TRANSPORTATION

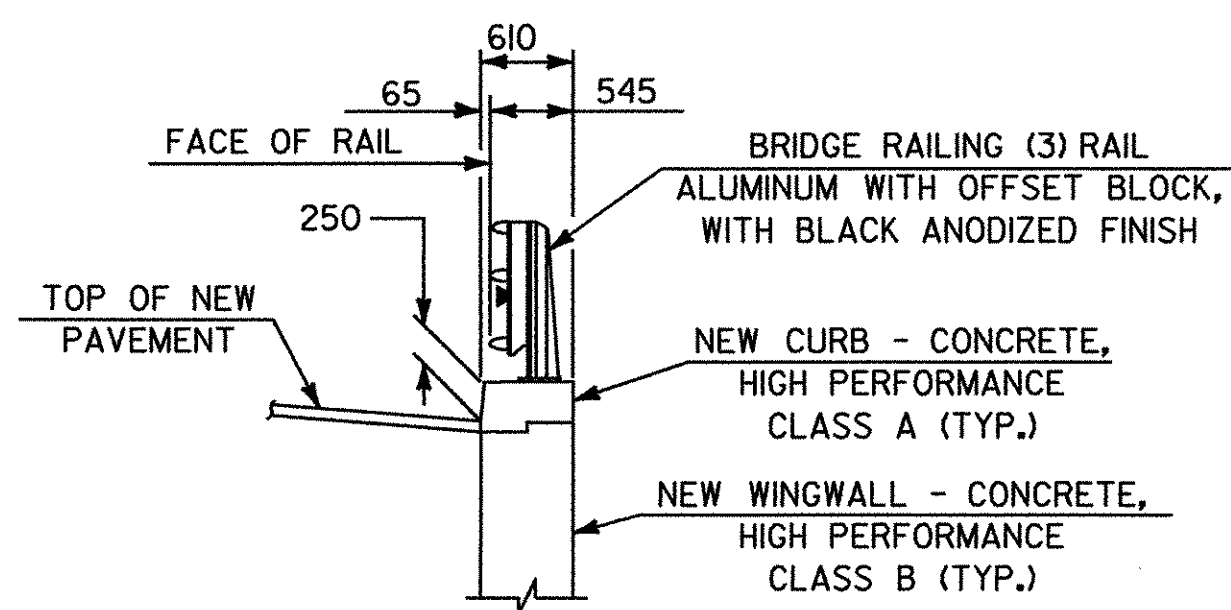
Town Of HARTLAND Bridge No. 60
 Highway No. U.S. ROUTE 5 Log Sta.
 Surv. Sta.
 U.S. ROUTE 5 OVER LULLS BROOK

PRELIMINARY INFORMATION SHEET

Designed By S. BAKI 12/98 Drawn By W. GAYNOR 12/98
 Checked By S. BAKI Date 12/98 Bridge Design Supervisor J. MIECZKOWSKI Date 12/98
 PROJECT HARTLAND PROJECT NO. BRS No. 0113(22)
 I.G.C. Info. C:\PW\Working\GShangraw\dms05022\zfd-667-0004
 Bridge Sheet No. BR100 Sheet 35 of 86



TYPICAL SECTION

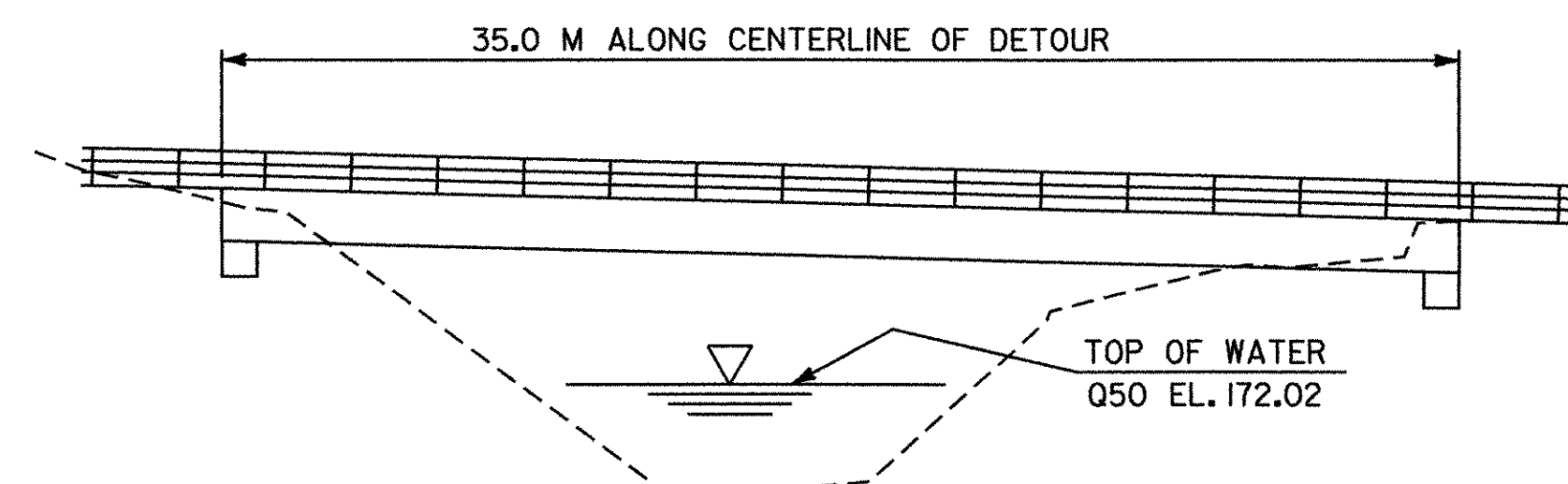


TYPICAL SECTION AT NEW WINGWALL NO.'S 2 AND 3



INDEX OF BRIDGE SHEETS

- BR100 PRELIMINARY INFORMATION SHEET
- BR101 BRIDGE QUANTITY SHEET
- BR102 GENERAL NOTES
- BR103 BRIDGE PLAN AND ELEVATION
- BR104 TYPICAL ABUTMENT AND WINGWALL SECTIONS
- BR105 BORING INFORMATION SHEET - 1
- BR106 BORING INFORMATION SHEET - 2
- BR107 BORING INFORMATION SHEET - 3
- BR108 BORING INFORMATION SHEET - 4
- BR109 DECK REINFORCING PLAN AND SECTIONS
- BR110 TYPICAL BRIDGE SECTION AND DETAILS
- BR111 FRAMING PLAN AND GIRDER ELEVATION
- BR112 CROSS FRAME DETAILS
- BR113 MISC. GIRDER DETAILS
- BR114 GIRDER SPLICE DETAILS
- BR115 ABUTMENT NO. 1 FIXED BEARING
- BR116 ABUTMENT NO. 2 EXPANSION BEARING
- BR117 EXPANSION JOINT DETAILS AT ABUTMENT NO. 2
- BR118 EXPANSION JOINT DETAILS AT ABUTMENT NO. 2
- BR119 EXPANSION JOINT DETAILS AT ABUTMENT NO. 2
- BR120 MISCELLANEOUS DETAILS
- BR121 ABUTMENT NO. 1 PLAN
- BR122 ABUTMENT NO. 1 ELEVATION & SECTIONS
- BR123 ABUTMENT NO. 2 DETAILS
- BR124 WINGWALL NO. 2 AND 3 ELEVATIONS
- BR125 WINGWALL NO. 1, 2 AND 3 SECTIONS
- BR126 ABUTMENT NO. 1 BACKWALL DETAILS & SECTIONS
- BR127 ABUTMENT NO. 2 BACKWALL DETAILS & SECTIONS
- BR128 RETAINING WALL PLAN AND ELEVATION
- BR129 RETAINING WALL DETAILS
- BR130 ABUTMENT NO. 1 AND 2 FOOTING REINFORCEMENT
- BR131 APPROACH SLAB DETAILS
- BR132 ALUMINUM BRIDGE RAILING DETAILS 1 OF 3
- BR133 ALUMINUM BRIDGE RAILING DETAILS 2 OF 3
- BR134 ALUMINUM BRIDGE RAILING DETAILS 3 OF 3
- BR135 REINFORCING BAR SCHEDULE
- BR136 REINFORCING BAR SCHEDULE



TEMPORARY BRIDGE INFORMATION

NOT TO SCALE

TEMPORARY BRIDGE NOTE:

BEGIN ABUTMENT SHALL BE SET BEHIND ROCK LEDGE.
 END ABUTMENT SHALL BE SET TO AVOID HISTORICALLY SENSITIVE AREAS (STONE WALL AND POTASH PUMP).

[illegible]

BRIDGE(S) AT STATION(S)	BEGIN STA. 3+080.020 END STA. 3+123.922	PREPARED BY:	B. TYLER	CHECKED BY:	W. GAYNOR	PROJECT:	HARTLAND	PROJECT NO:	BRS. NO. 0113(22)
LOCATION(S)	U.S. ROUTE 5 OVER LULLS BROOK	SUPERVISOR:	J. MIECZKOWSKI	BR	101	OF	135	SHEET NO:	36 OF 86

M:\456201 VAOT Hartland\struct\zf204qsh.dgn

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION (DATED 2001), AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, AND ITS LATEST REVISIONS.

2. DESIGN IS FOR MS 22.5 LOADING, USING SERVICE LOAD METHOD.

3. WORKING STRESS METHOD IS USED TO DESIGN THE CURVED STEEL PLATE GIRDER. THE BRIDGE SHALL BE LOAD RATED USING THE LOAD FACTOR METHOD.

4. ALL STRUCTURAL STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH SECTION 506.03 OF THE STANDARD SPECIFICATIONS.

5. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF BEAMS SHALL BE TAKEN AS DIRECTED BY THE ENGINEER FOR USE IN DETERMINING FINAL GRADE.

6. ANY HOLES IN FASCIA BEAMS OR FASCIA GIRDER WEBS NOT OTHERWISE FILLED SHALL BE FILLED WITH BUTTON HEAD OR HEX HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SECTION 506.19.

7. FASCIA OVERHANG BRACKETS SHALL BE SPACED AT A MAXIMUM OF 1.2 m, AND SHALL BE DESIGNED BY THE CONTRACTOR.

8. ALL FIELD CONNECTIONS SHALL BE MADE WITH THE FOLLOWING:

A. UNPAINTED AREAS: 22 mm DIAMETER BOLTS, MEETING ASTM DESIGNATION A-325 M (AASHTO M164, TYPE III)

B. PAINTED AREAS: 22 mm DIAMETER BOLTS, MEETING ASTM DESIGNATION A-325 M (AASHTO M164, TYPE I, GALVANIZED)

HOLES SHALL BE 24 mm DIAMETER. CONNECTIONS NOT DESIGNATED SHALL BE DETAILED BY THE FABRICATOR.

9. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING STEEL INSTITUTE".

10. MINIMUM COVER FOR REINFORCING STEEL IN SUBSTRUCTURES SHALL BE 50 mm ALONG BACK FACES OF WALLS AGAINST EARTH AND 80 mm ELSEWHERE, UNLESS OTHERWISE DESIGNATED ON PLANS.

11. REINFORCING PLACEMENT TOLERANCES SHALL BE:

SPACING +/- 25 mm

CLEARANCE +/- 6 mm

12. CONCRETE FOR DECK AND CURBS SHALL BE "CONCRETE, HIGH PERFORMANCE CLASS A". ALL OTHER CONCRETE SHALL BE "CONCRETE, HIGH PERFORMANCE CLASS B", UNLESS OTHERWISE DESIGNATED ON THE PLANS.

13. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 25 X 25.

14. WATER REPELLENT SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF DECK BETWEEN DRIP BEADS.

15. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 20° C.

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

17. THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT.

18. DECK POURS ARE TO BE CONSTRUCTED IN ONE CONTINUOUS OPERATION WITH A MAXIMUM DURATION OF EIGHT HOURS. IF, DURING THE PLACEMENT, UNFORESEEN CIRCUMSTANCES MAKE PLACEMENT WITHIN THE EIGHT HOUR PERIOD IMPOSSIBLE, THE CONTRACTOR SHALL BE PREPARED TO PLACE A BULKHEAD, AS DIRECTED BY THE ENGINEER, TO LIMIT THE PLACEMENT TO EIGHT HOURS. IF THE PLACEMENT IS STOPPED AND A BULKHEAD IS PLACED, NEW CONCRETE SHALL NOT BE PLACED AGAINST THE VERTICAL CONSTRUCTION JOINT UNTIL THE PREVIOUSLY PLACED CONCRETE HAS BEEN IN PLACE A MINIMUM OF SEVENTY TWO HOURS.

19. SURFACES OF BRIDGE SEATS UNDER BEARING DEVICES SHALL BE LEVEL. OTHER BRIDGE SEAT AREAS SHALL BE SLOPED 12 PER 300. ABUTMENT SEATS SHALL BE SLOPED FULL WIDTH TOWARD CENTER SPAN. THE ENTIRE BRIDGE SEAT SURFACE SHALL BE SMOOTHED WITH EITHER A WOOD OR MAGNESIUM FLOAT FINISH.

20. ALL STRUCTURAL STEEL WITHIN 2.5 m OF ABUTMENT NO. 2 SHALL BE COATED WITH A PROTECTIVE PAINT SYSTEM AS SPECIFIED IN SUPPLEMENTAL SPECIFICATION 513. THE COLOR OF PAINT WILL BE BROWN, COLOR CHIP 20059.

21. PAYMENT FOR REMOVAL OF ALL EXISTING BRIDGE BITUMINOUS CONCRETE PAVEMENT SHALL BE MADE UNDER ITEM 529.10. THE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF PROPERLY AT AN OFF SITE LOCATION.
22. ITEM 529.15, REMOVAL OF STRUCTURE, SHALL INCLUDE THE REMOVAL OF THE SUPERSTRUCTURE; REMOVAL OF THE SOUTH PIER; REMOVAL OF THE INTERMEDIATE BENT; REMOVAL OF THE EXISTING RETAINING WALL AT THE SOUTH ABUTMENT TO 0.300 m BELOW THE SUBBASE LAYER; REMOVAL OF THE NORTH ABUTMENT LOCATED OUTSIDE THE STRUCTURE EXCAVATION. THE SOUTH PIER AND THE INTERMEDIATE PIER REPRESENTS 0.20 OF THE TOTAL REMOVAL OF STRUCTURE AND IS SHOWN IN THE CHANNEL COLUMN OF THE BRIDGE QUANTITY SHEET.

23. ITEM 204.25 STRUCTURE EXCAVATION, SHALL INCLUDE THE REMOVAL OF THE SOUTH ABUTMENT AND PART OF THE EXISTING SOUTHEAST RETAINING WALL, PART OF THE NORTH ABUTMENT AND PART OF THE EXISTING NORTHEAST RETAINING WALL LOCATED INSIDE THE STRUCTURE EXCAVATION.

24. TRAFFIC WILL BE MAINTAINED ON A TEMPORARY ONE WAY BRIDGE WITH TRAFFIC CONTROL SIGNALS

25. THE STRUCTURAL STEEL OF THE EXISTING BRIDGE ON THIS PROJECT IS PAINTED WITH A MATERIAL WHICH MAY CONTAIN LEAD. THE STRUCTURAL STEEL BECOMES THE PROPERTY OF THE CONTRACTOR AND THE CONTRACTOR MAY DISPOSE OF IT OR RETAIN IT FOR FUTURE USE. THE CONTRACTOR WILL INFORM THE ENGINEER OF HIS/HER PLANS FOR THE DISPOSAL OR RETAINAGE OF THE STRUCTURAL STEEL PRIOR TO ITS REMOVAL.

26. EXISTING BRIDGE PLANS (BUILT 1926) ARE AVAILABLE FOR THIS PROJECT AND CAN BE OBTAINED THROUGH THE VERMONT AGENCY OF TRANSPORTATION.

27. WHERE TOP OF SOUND LEDGE IS BELOW THE FOOTING ELEVATION, A SUB-FOOTING SHALL BE POURED SEPERATELY, UP TO THE BOTTOM OF THE FOOTING, USING "CONCRETE, HIGH PERFORMANCE CLASS B". THE SUB-FOOTING SHALL BE FOUNDED ON LEDGE WHICH HAS BEEN CLEANED OF ALL LOOSE ROCK AND OTHER DEBRIS. THE TOP OF THE SUB-FOOTING SHALL BE INTENTIONALLY ROUGHENED TO CREATE A BOND WITH THE FOOTING CONCRETE. THE OUTSIDE LIMITS OF THE SUB-FOOTING SHALL BE 300 mm OUTSIDE THE FOOTING.

28. WHERE LEDGE IS STEEPLY SLOPED, A 1200 X 1200 GRID PATTERN OF #25 DOWELS SHALL BE DRILLED INTO LEDGE UNDER FOOTING. THE DOWELS SHOULD HAVE 600 mm EMBEDMENT INTO LEDGE AND SHALL EXTEND 450 mm INTO FOOTING.

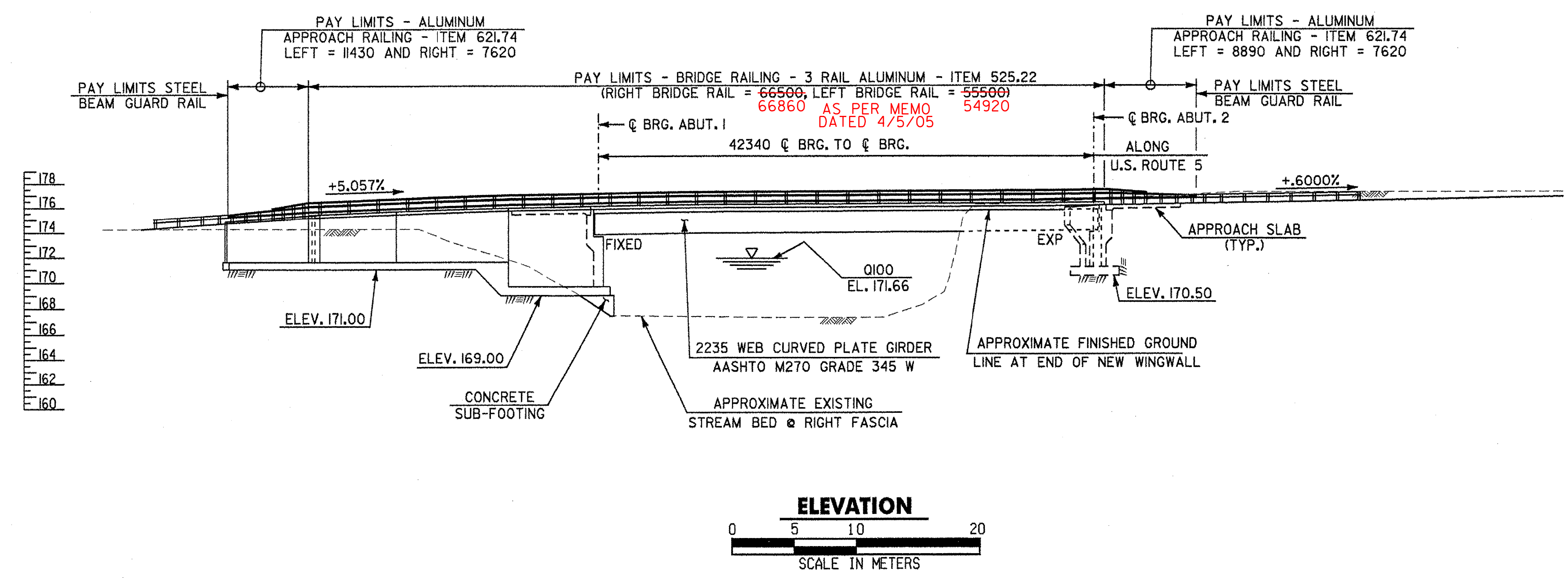
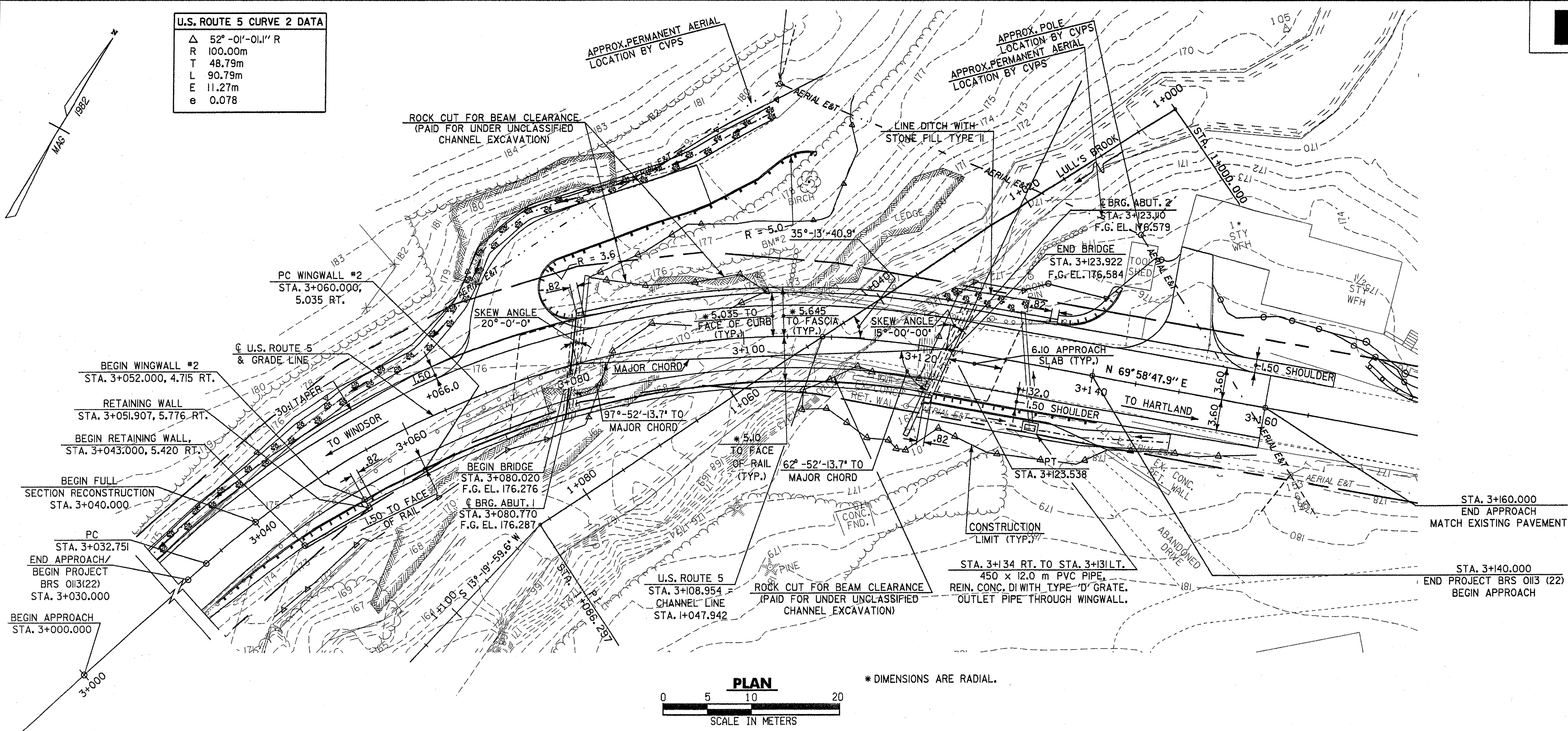
29. UPON COMPLETION OF THE STRUCTURE EXCAVATION, AND PRIOR TO THE PLACING OF THE CONCRETE FORMS, THE RESIDENT ENGINEER SHALL CONTACT THE SOILS AND FOUNDATIONS ENGINEER/ENGINEERING GEOLOGIST FROM THE VERMONT AGENCY OF TRANSPORTATION, TO INSPECT THE ROCK TO DETERMINE IF IT IS COMPETENT TO SUPPORT THE DESIGN BEARING PRESSURE SHOWN ON THE PLANS. THE GEOLOGIST SHALL BE ALLOWED 5 WORKING DAYS FROM NOTICE OF EXCAVATION TO MAKE HIS INSPECTION AND REPORT HIS DETERMINATION ON THE COMPETENCY OF THE ROCK.

30. UNCLASSIFIED CHANNEL EXCAVATION SHALL INCLUDE EITHER EARTH EXCAVATION OR SOLID ROCK EXCAVATION, OR BOTH. PART OF THE EXISTING NORTHEAST RETAINING WALL ABOVE THE BOTTOM OF THE EXISTING FOOTING SHALL BE REMOVED UNDER ITEM 203.27, UNCLASSIFIED CHANNEL EXCAVATION.

31. ROCK CUT FOR BEAM CLEARANCE SHALL BE PAID UNDER UNCLASSIFIED CHANNEL EXCAVATION, ITEM 203.27. A QUANTITY OF 34 m³ WAS ADDED TO THE QUANTITY SHEET.

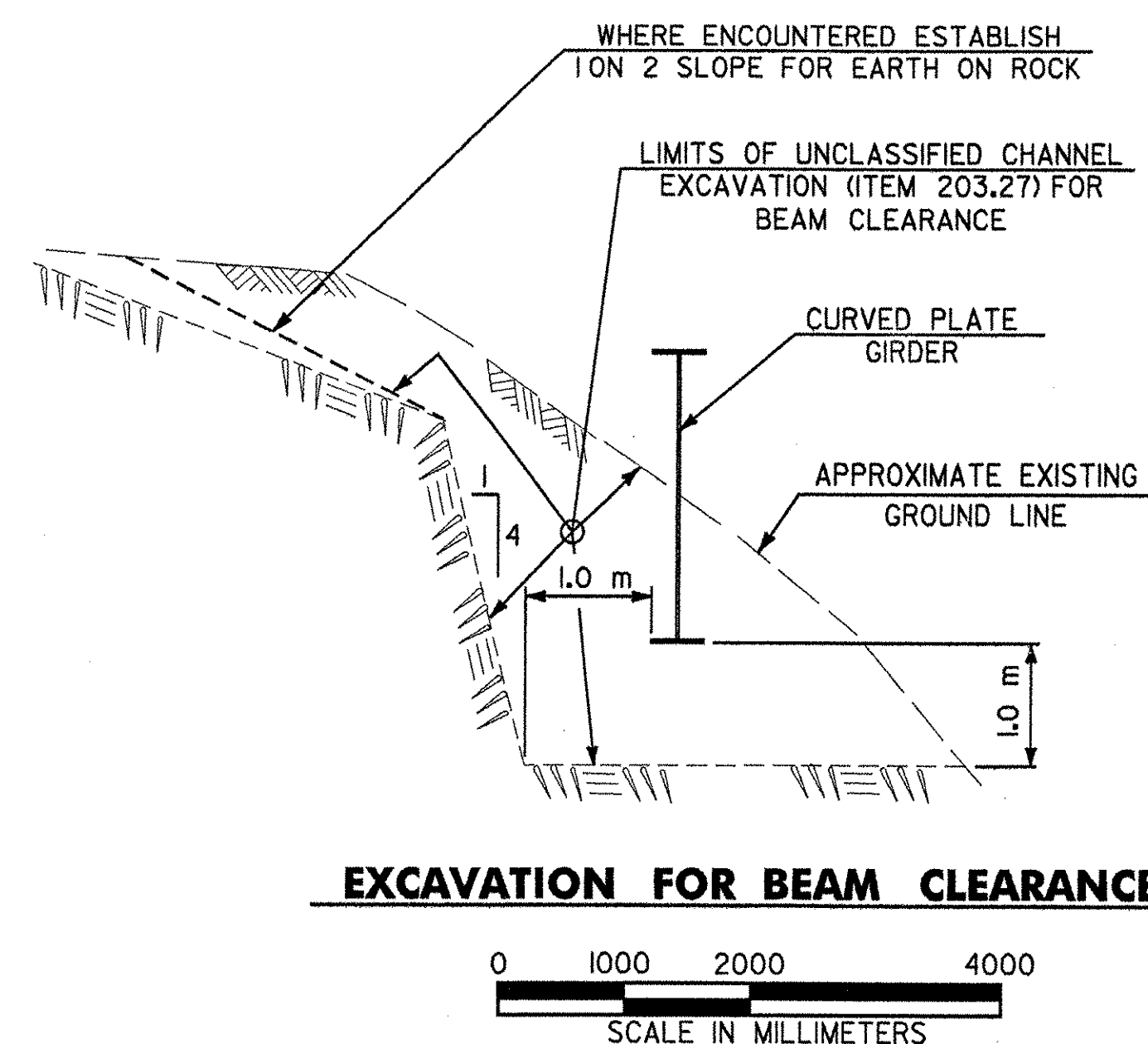
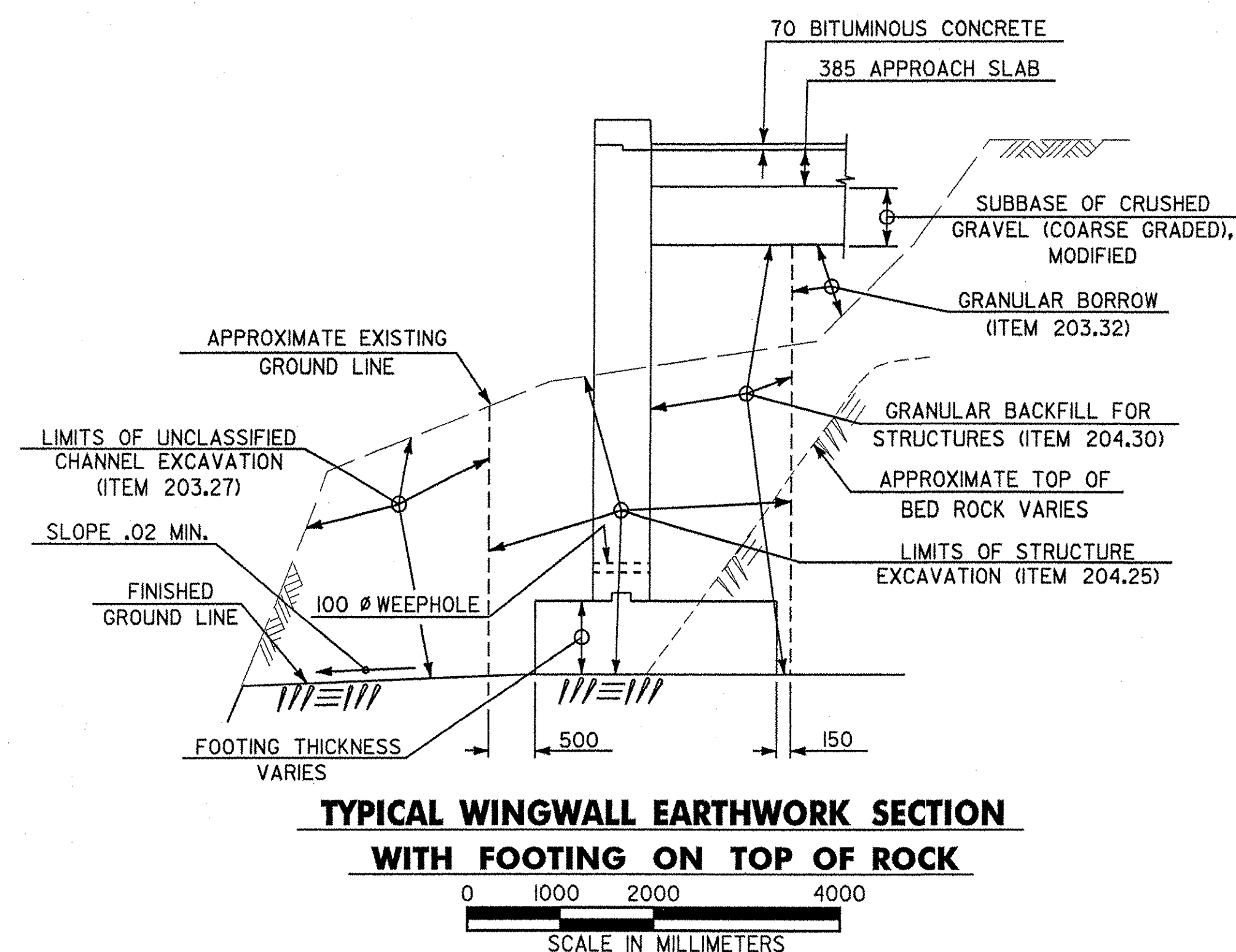
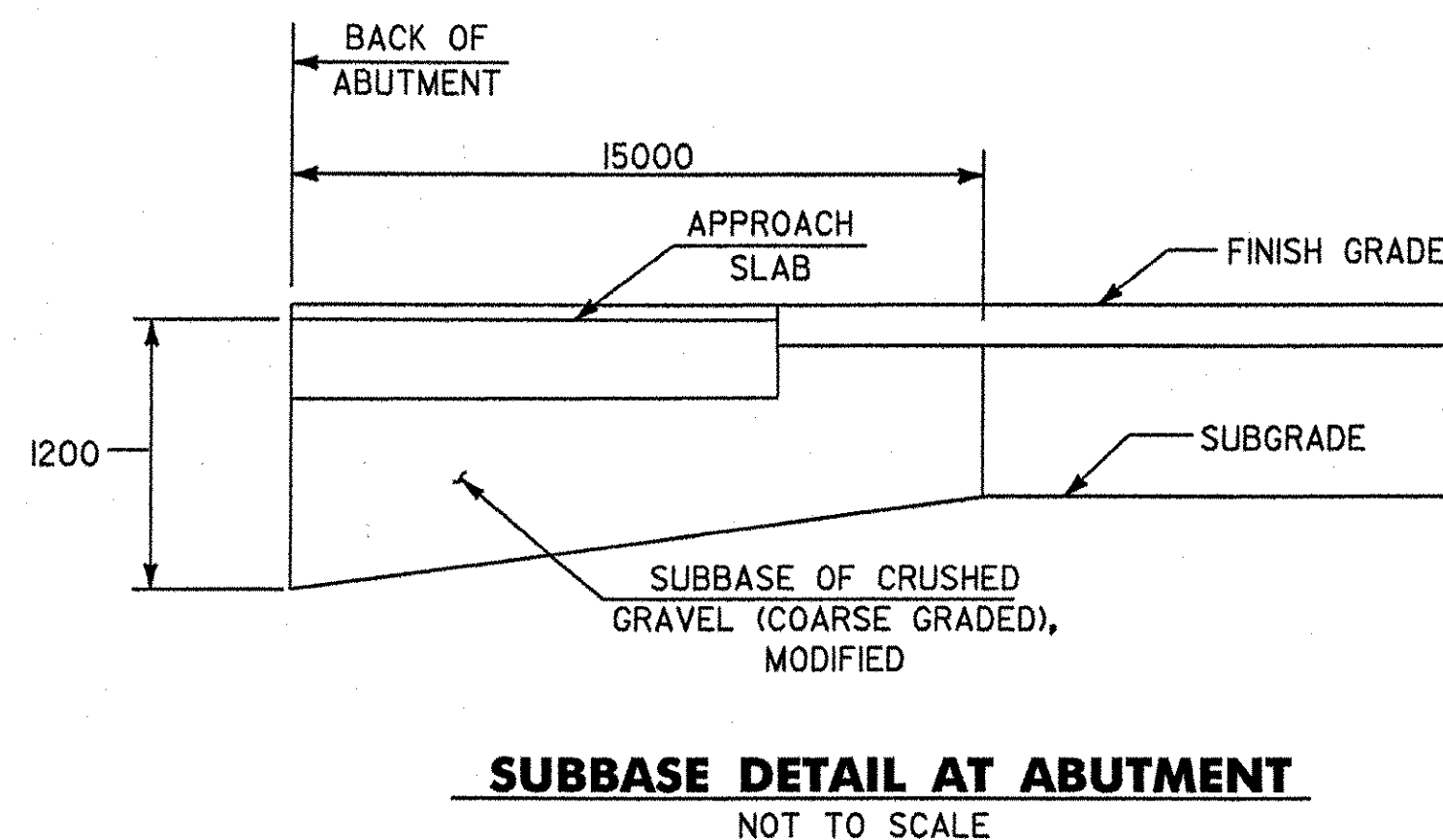
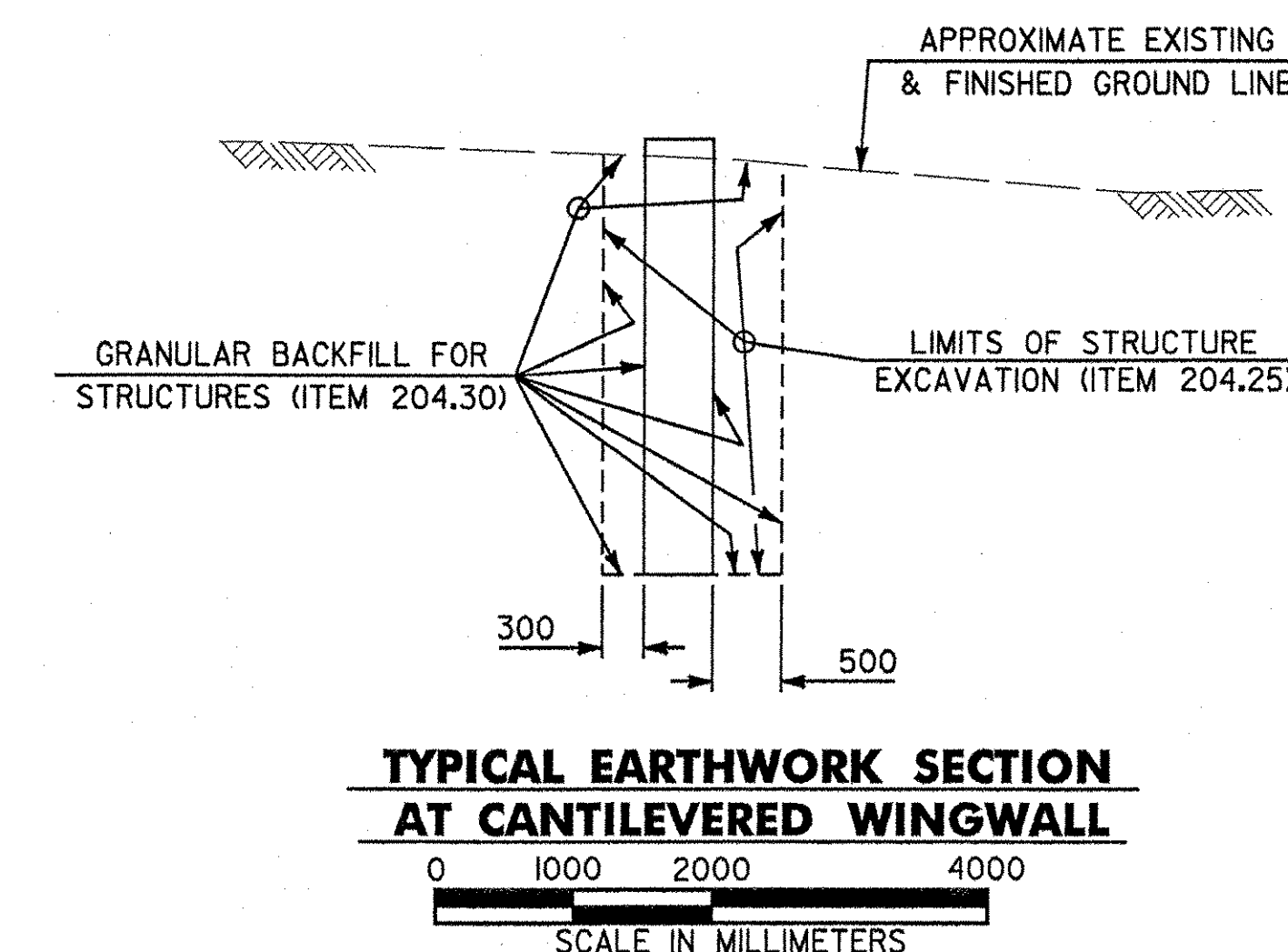
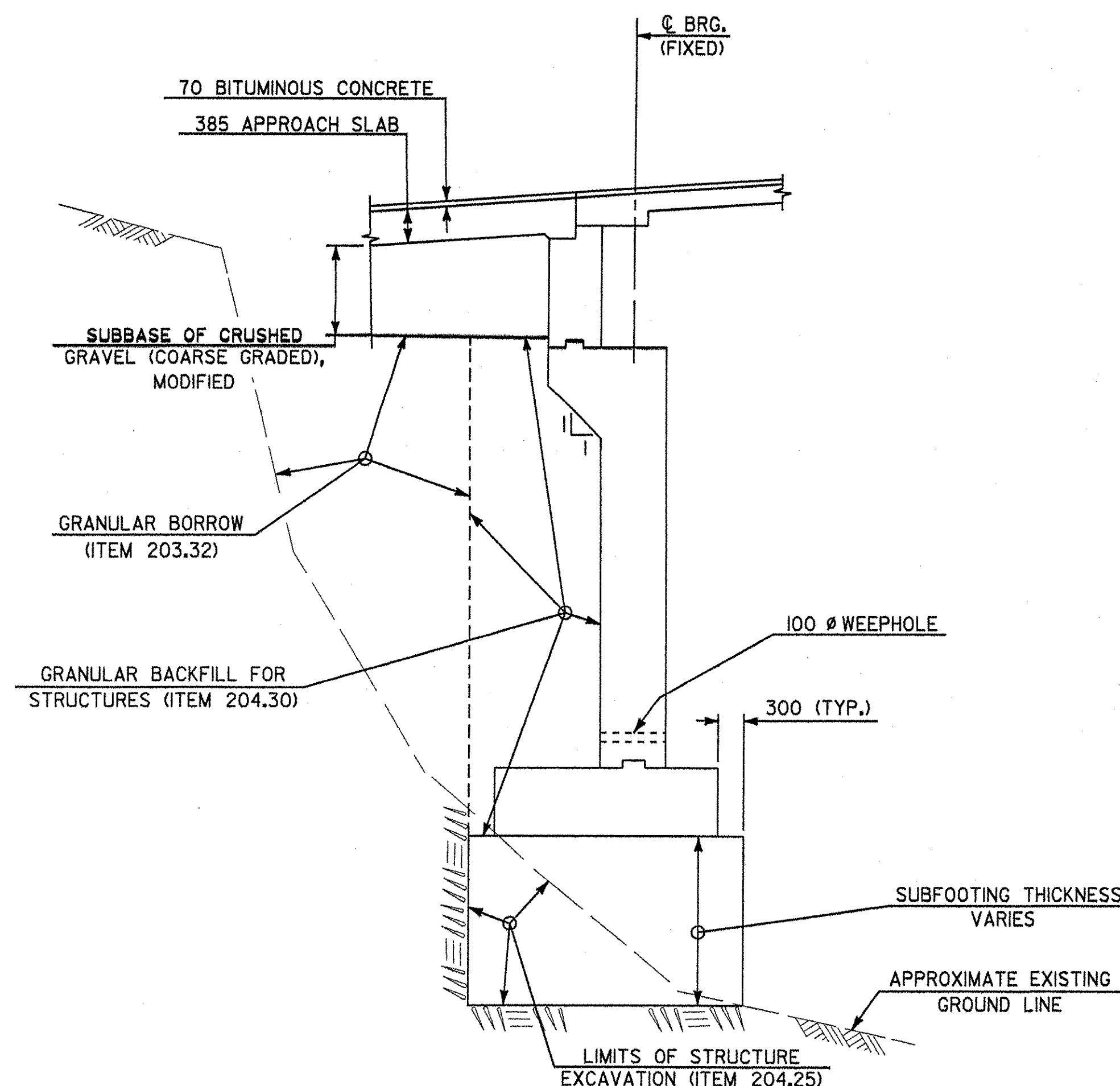
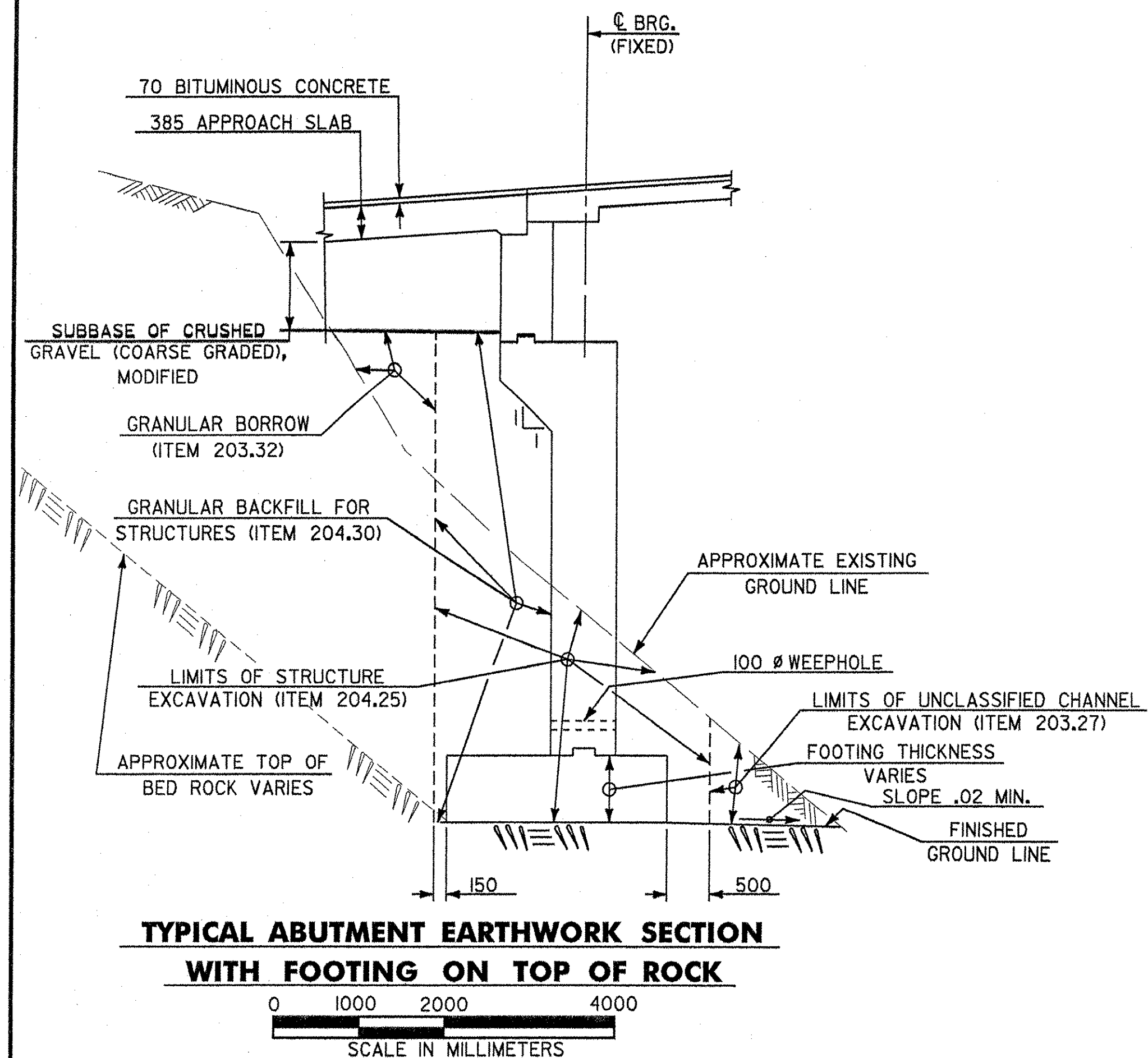
STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of HARTLAND		Bridge No. 60	
Highway No. U.S. ROUTE 5		Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
GENERAL NOTES			
Designed By S. BAKI		Drawn By B. TYLER	
Checked By S. BAKI		Bridge Design Supervisor J. MIECZKOWSKI	
PROJECT HARTLAND		PROJECT NO. BRS No. 0113(22)	
I.G.C. Info. M:\45620\VA0T Hartland\struct\zf204gen.dgn			
Bridge Sheet No. BR102		Sheet 37 of 86	

U.S. ROUTE 5 CURVE 2 DATA	
Δ	52°-01'-01.1" R
R	100.00m
T	48.79m
L	90.79m
E	11.27m
e	0.078



- NOTES:**
1. FOR EXISTING STRUCTURE LAYOUT SEE HIGHWAY PLAN SHEET
 2. FOR TEMPORARY DETOUR LAYOUT SEE TRAFFIC CONTROL PLAN SHEETS.
 3. FOR REMOVAL AND RELOCATION OF EXISTING TOOL SHED SEE HIGHWAY PLAN SHEET

STATE OF VERMONT			
AGENCY OF TRANSPORTATION			
Town Of		HARTLAND	
Highway No.		U.S. ROUTE 5	
Bridge No.		60	
Log Sta.			
Surv. Sta.			
U.S. ROUTE 5 OVER LULLS BROOK			
BRIDGE PLAN AND ELEVATION			
Designed By		S. BAKI 12/98	
Drawn By		W. GAYNOR 12/98	
Checked By		Date	
S. BAKI		12/98	
Bridge Design Supervisor		J. MIECZKOWSKI Date 12/98	
PROJECT		HARTLAND	
PROJECT NO.		BRS No. 0113(22)	
I.G.C. Info. M:\45620\VAOT Hartland\struct\zf204gpl.dgn			
Bridge Sheet No. BR103		Sheet 38 of 86	



STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of HARTLAND Bridge No. 60
Highway No. U.S. ROUTE 5 Log Sta.
Surv. Sta.

U.S. ROUTE 5 OVER LULLS BROOK

TYPICAL ABUTMENT & WINGWALL SECTIONS

Designed By S. BAKI 12/98 Drawn By W. GAYNOR 12/98
Checked By S. BAKI Date 12/98 Bridge Design Supervisor
J. MIECZKOWSKI Date 12/98

PROJECT HARTLAND PROJECT NO.
BRS No. 0113(22)

I.G.C. Info. M:\456201\VAOT Hartland\struct\zf204aty.dgn
Bridge Sheet No. BR104 Sheet 39 of 86

SOIL CLASSIFICATION

AASHTO

A1	GRAVEL AND SAND
A3	FINE SAND
A2	SILTY OR CLAYEY GRAVEL AND SAND
A4	SILTY SOIL - LOW COMPRESSIBILITY
A5	SILTY SOIL - HIGHLY COMPRESSIBLE
A6	CLAYEY SOIL - LOW COMPRESSIBILITY
A7	CLAYEY SOIL - HIGHLY COMPRESSIBLE

ROCK QUALITY DESIGNATION

R.Q.D.	ROCK DESCRIPTION
<25	VERY POOR
25 TO 50	POOR
51 TO 75	FAIR
76 TO 90	GOOD
>90	EXCELLENT

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN KPa	CONSISTENCY
<12	VERY SOFT
12-24	SOFT
24-48	MED. STIFF
48-96	STIFF
96-192	VERY STIFF
>192	HARD

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	VERY LOOSE	<2	VERY SOFT
5-10	LOOSE	2-4	SOFT
11-24	MED. DENSE	5-8	MED. STIFF
25-50	DENSE	9-15	STIFF
>50	VERY DENSE	16-30	VERY STIFF
		31-60	HARD
		>60	VERY HARD

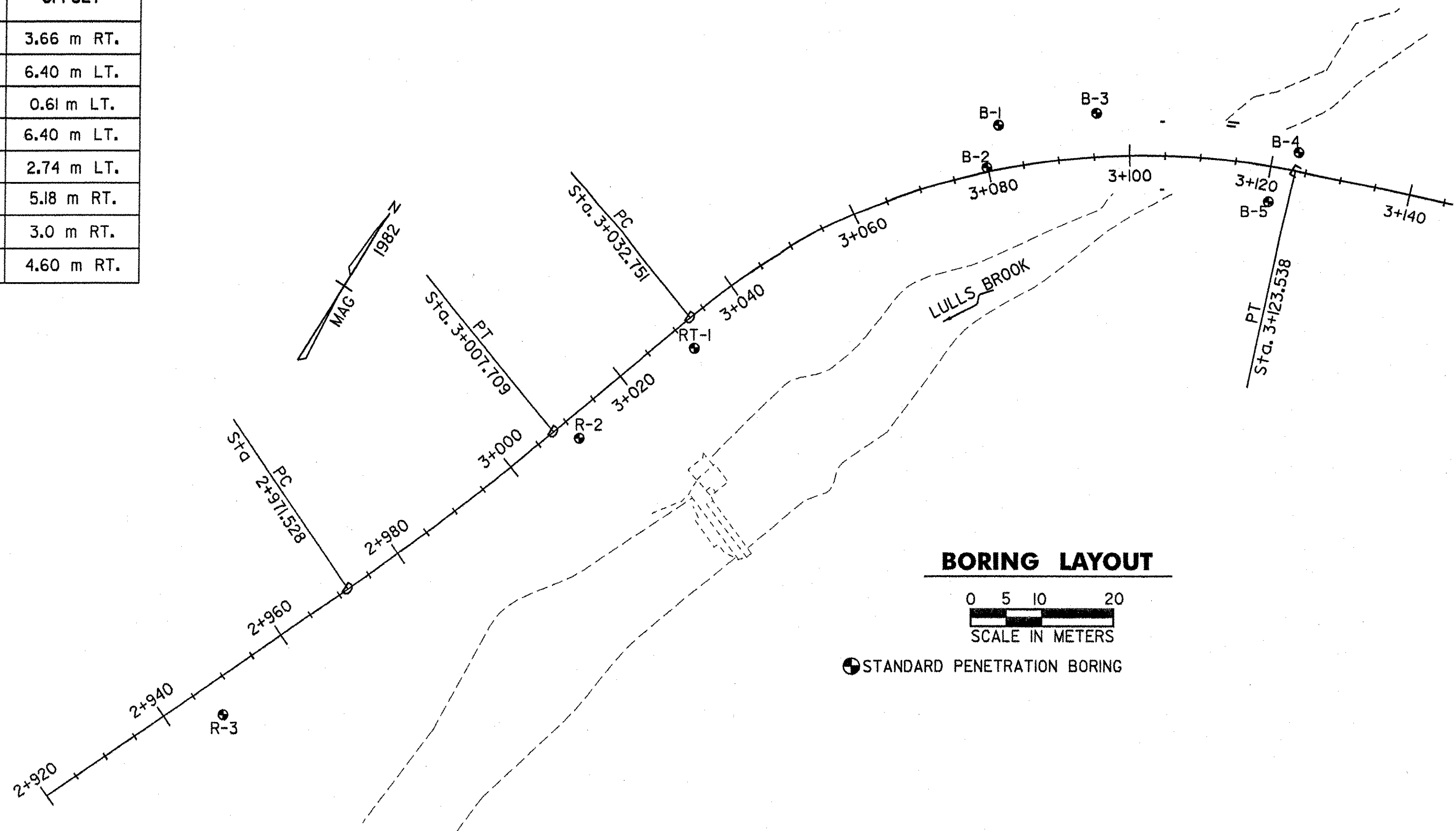
COMMONLY USED SYMBOLS

▼	WATER ELEVATION
⊕	STANDARD PENETRATION BORING
⊗	AUGER BORING
○	ROD SOUNDING
S	SAMPLE
N	STANDARD PENETRATION TEST
	BLOW COUNT PER FOOT FOR:
	50.8 mm O.D. SAMPLER
	35.0 mm I.D. SAMPLER
	HAMMER WEIGHT OF 63.5 kg
	HAMMER FALL OF 762 mm
VS	FIELD VANE SHEAR TEST
US	UNDISTURBED SOIL SAMPLE
B	BLAST
DC	DIAMOND CORE
MD	MUD DRILL
WA	WASH AHEAD
HSA	HOLLOW STEAM AUGER
AX	CORE SIZE 28.5 mm
BX	CORE SIZE 41.2 mm
NX	CORE SIZE 52.1 mm
M	DOUBLE TUBE CORE BARREL USED
LL	LIQUID LIMIT
PL	PLASTIC LIMIT
PI	PLASTICITY INDEX
NP	NON PLASTIC
w	MOISTURE CONTENT (DRY WGT. BASIS)
D	DRY
M	MOIST
MTW	MOIST TO WET
W	WET
SAT	SATURATED
BO	BOULDER
GR	GRAVEL
SA	SAND
SI	SILT
CL	CLAY
HP	HARDPAN
LE	LEDGE
NLTD	NO LEDGE TO DEPTH
CNPF	CAN NOT PENETRATE FURTHER
TLOB	TO LEDGE OR BOULDER
NR	NO RECOVERY
REC	RECOVERY
XREC	PERCENT RECOVERY
RQD	ROCK QUALITY DESIGNATION
CBR	CALIFORNIA BEARING RATIO
<	LESS THAN
>	GREATER THAN
R	REFUSAL (N>100)

COLOR

BLK	BLACK	PNK	PINK
BL	BLUE	PU	PURPLE
BRN	BROWN	RD	RED
DK	DARK	TN	TAN
GR	GRAY	WH	WHITE
GN	GREEN	YEL	YELLOW
LT	LIGHT	MLTC	MULTICOLORED
OR	ORANGE		

STANDARD PENETRATION BORINGS		
BORING NO.	STATION	OFFSET
RT-1	3+030.48	3.66 m RT.
B-1	3+082.60	6.40 m LT.
B-2	3+079.86	0.61 m LT.
B-3	3+095.71	6.40 m LT.
B-4	3+123.44	2.74 m LT.
B-5	3+120.77	5.18 m RT.
R-2	3+010.00	3.0 m RT.
R-3	2+947.00	4.60 m RT.



AUGER BORINGS AND ROD SOUNDINGS			
BORING NO.	STATION	OFFSET	LEDGE ELEVATION
AB-1	3+041.00	3.0 m RT.	172.600
AB-1A	3+041.00	5.0 m RT.	170.745
AB-1B	3+041.00	8.0 m RT.	170.780
AB-2	3+050.00	2.0 m RT.	172.950
AB-2A	3+050.00	4.5 m RT.	172.885
AB-2B	3+050.00	7.0 m RT.	172.975
AB-2C	3+050.00	9.0 m RT.	172.255
AB-3	3+060.00	1.5 m RT.	173.620
AB-3A	3+060.00	5.0 m RT.	174.012
AB-3B	3+060.00	7.0 m RT.	173.081
AB-3C	3+060.00	8.5 m RT.	171.958

AUGER BORINGS AND ROD SOUNDINGS			
BORING NO.	STATION	OFFSET	LEDGE ELEVATION
AB-4	3+070.00	0	173.965
AB-4A	3+070.00	4.0 m RT.	172.851
AB-4B	3+070.00	6.0 m RT.	171.228
AB-5	3+125.00	5.0 m RT.	174.260
AB-6	3+126.00	3.0 m LT.	173.120
AB-7	3+136.00	3.0 m LT.	172.745
AB-8	3+140.00	10.0 m RT.	177.565
AB-9	3+140.00	11.5 m RT.	177.900
TB-1	3+110.00	18.0 m LT.	176.270
TB-1A	3+110.00	15.0 m LT.	175.950
TB-1B	3+110.00	21.0 m LT.	176.675
TB-2	3+143.00	9.5 m LT.	172.690

GENERAL NOTES

- THE SUBSURFACE EXPLORATIONS SHOWN HEREIN WERE MADE BETWEEN 8/1/94 AND 2/2/96 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 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.
- TERMINOLOGY USED ON BORING LOGS TO DESCRIBE THE HARDNESS DEGREE OF WEATHER AND SPACING OF FRACTURES, JOINTS AND OTHER DISCONTINUITIES IN THE BEDROCK IS DEFINED IN THE AASHTO MANUAL SUBSURFACE INVESTIGATIONS, 1988.
- 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.

DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - ROCK IN ITS NATIVE LOCATION OF INDEFINITE THICKNESS.	VARVED - ALTERNATE LAYERS OF SILT AND CLAY.
BOULDER - A ROCK FRAGMENT WITH AN AVERAGE DIMENSION > 304.8 mm.	HARDPAN - EXTREMELY DENSE SOIL, CEMENTED LAYER, NOT SOFTENED WHEN WET.
COBBLE - ROCK FRAGMENTS WITH AN AVERAGE DIMENSION BETWEEN 76.2 AND 304.8 mm.	MUCK - SOFT ORGANIC SOIL (CONTAINING > 10% ORGANIC MATERIALS).
GRAVEL - ROUNDED PARTICLES OF ROCK < 76.2 mm AND > 2 mm. (#10 SIEVE)	MOISTURE CONTENT - WEIGHT OF WATER DIVIDED BY DRY WEIGHT OF SOIL.
SAND - PARTICLES OF ROCK < 2 mm (#10 SIEVE) AND > 75 mm. (#200 SIEVE)	FLOWING SAND - GRANULAR SOIL SO SATURATED (LOOSE) THAT IT FLOWS INTO DRILL CASING DURING EXTRACTION OF WASH ROD.
SILT - SOIL < 75 mm (#200 SIEVE), NON OR SLIGHTLY PLASTIC AND EXHIBITS NO STRENGTH WHEN AIR DRIED.	STRIKE - ANGLE FROM MAGNETIC NORTH TO LINE OF INTERSECTION OF BED WITH A HORIZONTAL PLANE.
CLAY - FINE GRAINED SOIL, EXHIBITS PLASTICITY WHEN MOIST AND CONSIDERABLE STRENGTH WHEN AIR DRIED.	DIP - INCLINATION OF BED WITH A HORIZONTAL PLANE.
	REFUSAL - RATE OF 100 OR MORE BLOWS PER FOOT PENETRATION DURING STANDARD PENETRATION TEST.

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
BORING INFORMATION SHT. - 1			
Designed By	S. BAKI 12/98	Drawn By	W. GAYNOR 12/98
Checked By	S. BAKI	Date	12/98
		Bridge Design Supervisor	J. MIECZKOWSKI Date 12/98
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\45620\VAOT Hartland\struc\zf204bpl.dgn			
Bridge Sheet No. BR105		Sheet 40 of 86	

HARTLAND BRS-0113(22)
BORING NO. RT-1

ELEVATION	METRIC (M)	ENGLISH (FT)	DEPTH	BLOWS ON CASING	STANDARD PENETRATION	SAMPLE NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL
174.32 M 571.90 FT									0.0' TO 1.0' - PAVEMENT FILL, SAND & GRAVEL
ELEV. 171.650 M TOP OF FOOTING RETAINING WALL			5						NO SAMPLE, BOULDER
		2							SAND & GRAVEL
			10		R		M	DK BRN	TOP OF BEDROCK AT 10.5'
650 (MIN.) POUR TO LEDGE			4						ADVANCED CASING TO 11.0' - CLEANED OUT
			15						RUN #1, BXMDC, 11.0' TO 16.0' - REC. 3.6
			6						RUN #2, BXMDC, 16.0' TO 21.0' - REC. 3.0
			20						HOLE STOPPED AT 21.0' IN BEDROCK
			25						RUN REC% ROD% 1 72% 24% 2 60% 7%
			8						CORE CONSISTS OF INTERBEDDED PHYLLITE, QUARTZITE AND SILICEOUS LIMESTONE. THE ROCK IS SLIGHTLY WEATHERED, HARD & COMPETENT. LOW ROD DUE TO MECHANICAL BREAKS ALONG PROMINENT CLEAVAGE DURING CORING.
			30						
			10						
			35						

HARTLAND BRS-0113(22)
BORING NO. B-1

ELEVATION	METRIC (M)	ENGLISH (FT)	DEPTH	BLOWS ON CASING	STANDARD PENETRATION	SAMPLE NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL
176.48 M 579.01 FT									0.0' TO 7.0' GRAVEL, FILL & BOULDERS
		5							
		2							7.0' TO 10.0' CONCRETE RUN #1, BXMDC CORED 7.0' TO 11.0', REC. 2.0
ELEV. 172.650 M TOP OF FOOTING ABUTMENT #1			10						TOP OF BEDROCK AT 11.0' VERY SOFT W/SEAMS AND VOIDS ADVANCE CASING TO 15.0' & CLEANED OUT
			4						RUN #2, BXMDC, 15.0' TO 20.0' - REC. 4.1
650 (MIN.) POUR TO LEDGE			15						
			6						RUN #3, BXMDC, 20.0' TO 25.0' - REC. 5.0
			20						
			25						RUN #4, BXMDC, 25.0' TO 28.0' - REC. 3.0
			8						HOLE STOPPED AT 28.0' IN BEDROCK
			30						RUN REC% ROD% 1 50% 0% 2 82% 28% 3 100% 68% 4 100% 50%
			10						CORE CONSISTS OF INTERBEDDED PHYLLITE, QUARTZITE AND SILICEOUS LIMESTONE. THE ROCK IS SLIGHTLY WEATHERED, HARD & COMPETENT. SOIL & VOIDS FROM 11.0' TO 15.0'.
			35						
			12						
			40						
			45						

HARTLAND BRS-0113(22)
BORING NO. B-2

ELEVATION	METRIC (M)	ENGLISH (FT)	DEPTH	BLOWS ON CASING	STANDARD PENETRATION	SAMPLE NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL
176.15 M 577.92 FT									0.0' TO 1.0' - PAVEMENT GRAVEL & SAND
			5						NO SAMPLE, BOULDER
		2							GRAVEL & SAND (WASH)
ELEV. 172.150 M TOP OF FOOTING ABUTMENT #1			10						NR
			4						RUN #1, BXMDC, 12.5' TO 15.0', CONCRETE (REC. 1.2)
650 (MIN.) POUR TO LEDGE			15						TOP OF BEDROCK AT 15.0' 15.0' TO 17.5' BEDROCK
			6						RUN #2, BXMDC, 17.5' TO 22.5', REC. 3.5
			20						HOLE STOPPED AT 22.5' IN BEDROCK
			25						RUN REC% ROD% 1 74% 18% 2 70% 23%
			8						BEDROCK CONSISTS OF INTERBEDDED PHYLLITE, QUARTZITE AND SILICEOUS LIMESTONE. THE ROCK IS SLIGHTLY WEATHERED, HARD & COMPETENT. LOW ROD DUE TO PROMINENT CLEAVAGE CAUSING BREAKS DURING CORING.
			30						
			10						
			35						
			12						
			40						

NOTE:

BORINGS RT-1, B-1 AND B-2 ARE SHOWN IN ENGLISH UNITS (SCALE: 3/8" = 1'-0") AND ARE SHOWN IN THE RIGHT COLUMN TO THE LEFT SIDE OF THE BORING LOG. EQUIVALENT METRIC DEPTHS ARE SHOWN NEXT TO THE ENGLISH DEPTHS IN THE LEFT COLUMN TO THE LEFT SIDE OF THE BORING LOG.

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
BORING INFORMATION SHT. - 2			
Designed By	S. BAKI 12/98	Drawn By	W. GAYNOR 12/98
Checked By	S. BAKI 12/98	Bridge Design Supervisor	J. MIECZKOWSKI Date 12/98
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\456201\VAOT Hartland\struct\zf204bld.dgn			
Bridge Sheet No. BRI06		Sheet 41 of 86	

HARTLAND BRS-0113(22) BORING NO. B-3									
ELEVATION	METRIC (M)	ENGLISH (FT)	DEPTH	BLOWS ON CASING	STANDARD PENETRATION	SAMPLE NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL
172.96 M 567.47 FT									
			5						OVERHANG 0.0' TO 11.0'
		2							
			10						TOP OF BEDROCK AT 11.0'
		4							
			15						RUN #1, BXMDC, 11.0' TO 16.0' - REC. 2.5
									RUN #2, BXMDC, 16.0' TO 21.0' - REC. 5.0
		6							HOLE STOPPED AT 21.0' IN BEDROCK
									RUN REC% ROD%
									1 50% 9%
									2 100% 48%
		8							CORE CONSISTS OF INTERBEDDED PHYLLITE, QUARTZITE AND SILICEOUS LIMESTONE. THE ROCK IS SLIGHTLY WEATHERED, HARD & COMPETENT. LOW ROD DUE TO MECHANICAL BREAKS ALONG PROMINENT CLEAVAGE DURING CORING.
			25						
		10							
			35						

HARTLAND BRS-0113(22) BORING NO. B-4									
ELEVATION	METRIC (M)	ENGLISH (FT)	DEPTH	BLOWS ON CASING	STANDARD PENETRATION	SAMPLE NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL
176.71 M 579.77 FT									0.0' TO 1.0' PAVEMENT 1.0' TO 2.0' CONCRETE
			5						
		2			19		M	BRN	SILT SAND W/STONES, REC. 0.5
			10						TOP OF BEDROCK AT 9.0'
									RUN #1, BXMDC, 9.0' 14.0', REC. 2.4
		4							
			15						RUN #2, BXMDC, 14.0' TO 19.0', REC. 2.6
		6							RUN #3, BXMDC, 19.0' TO 23.0', REC. 1.9
			20						HOLE STOPPED AT 23.0' IN BEDROCK
									RUN REC% ROD%
									1 48% 7%
									2 52% 13%
									3 48% 15%
		8							CORE CONSISTS OF INTERBEDDED PHYLLITE, QUARTZITE AND SILICEOUS LIMESTONE. THE ROCK IS SLIGHTLY WEATHERED, IS & COMPETENT OVERALL. LOW ROD DUE TO NUMEROUS MECHANICAL BREAKS DURING CORING.
			25						
			30						
		10							
			35						
		12							

HARTLAND BRS-0113(22) BORING NO. B-5									
ELEVATION	METRIC (M)	ENGLISH (FT)	DEPTH	BLOWS ON CASING	STANDARD PENETRATION	SAMPLE NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL
176.31 M 578.46 FT									0.0' TO 4.0', GRAVEL & SAND
			5						
		2							CORED 4.0' TO 6.0', LOOSE ROCK OR BOULDERS
			10						ADVANCED CASING TO 10.0' CORED 10.0' TO 12.0'
		4							ADVANCED CASING TO 16.0' LOOSE ROCK OR FILL CLEANED OUT HOLE
			15						TOP OF BEDROCK AT 16.0'
									RUN #1, BXMDC, 16.0' TO 18.0', REC. 0.4
		6							RUN #2, BXMDC, 18.0' TO 23.0', REC. 3.9
			20						
									RUN #3, BXMDC, 23.0' TO 28.0', REC. 4.4
		8							
			25						
			30						RUN #4, BXMDC, 28.0' TO 33.0', REC. 4.8
		10							HOLE STOPPED AT 33.0' IN BEDROCK
			35						RUN REC% ROD%
									1 20% 0%
									2 78% 7%
									3 88% 48%
									4 96% 78%
		12							CORE CONSISTS OF INTERBEDDED PHYLLITE, QUARTZITE AND SILICEOUS LIMESTONE. THE ROCK IS HARD, SLIGHTLY WEATHERED IN THE TOP 8.0' AND COMPETENT OVERALL.
			40						
		14							
			45						
			50						

NOTE:
BORINGS B-3, B-4 AND B-5 ARE SHOWN IN ENGLISH UNITS (SCALE: 3/16" = 1'-0")
AND ARE SHOWN IN THE RIGHT COLUMN TO THE LEFT SIDE OF THE BORING LOG.
EQUIVALENT METRIC DEPTHS ARE SHOWN NEXT TO THE ENGLISH DEPTHS IN THE
LEFT COLUMN TO THE LEFT SIDE OF THE BORING LOG.

STATE OF VERMONT AGENCY OF TRANSPORTATION

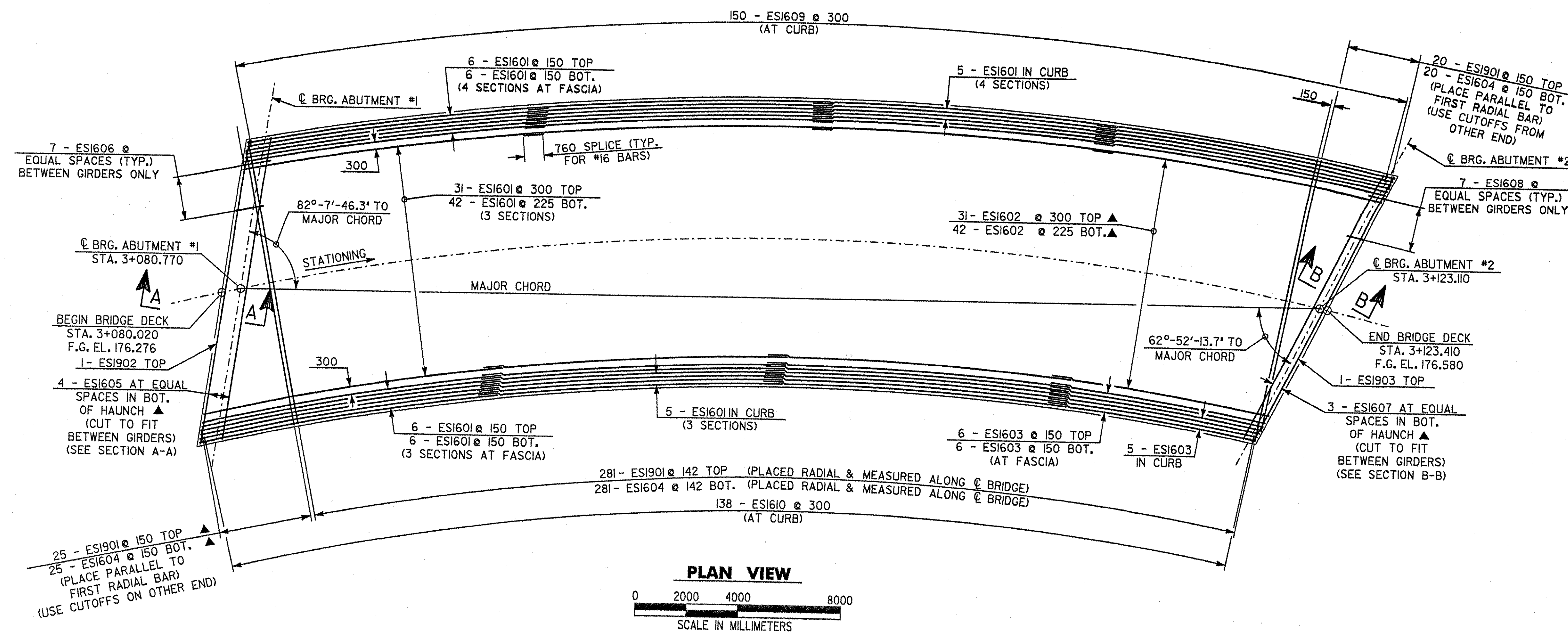
Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
BORING INFORMATION SHT. - 3			
Designed By	S. BAKI 12/98	Drawn By	W. GAYNOR 12/98
Checked By	Date S. BAKI 12/98	Bridge Design Supervisor	J. MIECZKOWSKI Date 12/98
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\145620\VAOT Hartland\struct\zf204bll.dgn			
Bridge Sheet No.	BRI07	Sheet	42 of 86

STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH DIVISION SUBSURFACE INFORMATION				HOLE NO.: R-2 SHEET 1 OF 1 DATE STARTED: 12/28/95 DATE COMPLETED: 12/28/95					
PROJECT NAME: HARTLAND SITE NAME: US Route 5 STATION: 3+010.00 GROUND EL.: 173.238				PROJECT NUMBER: BRS 0113(22) SITE NO.: BR 60 OFFSET: 3.00 G.W. DEPTH:					
BORING CREW CREW CHIEF: WILLIS DRILLER: WARREN LOGGER: CHABOT				BORING RIG: TRUCK BORING TYPE: WASH BORE SAMPLE TYPE: SPLIT BARREL					
DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS <i>(Description)</i>	BLOWS PER FOOT	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		A-2-4, Grsisa, Moist, dk Brn, Rec. = 0.6.	27	16.7	25.3	44.9	29.8	0	0
		Possible very soft Rock. Rec. = 0.36.	68						
5		BXMDC 3.22-3.91, Rec = 0.69 BXMDC 3.91-5.44, Rec = 1.52 BXMDC 5.44-6.66, Rec = 1.01 See Geologist's report							
		Geologist's Report Run Rec(%) ROD(%) DIP(deg.) 1 45 48 45/60 2 100 50 45 3 66 20 55/60 Run #1: Dark gray slightly Cal- Careous phyllite with quartz veins. Medium to soft, slightly to very slightly weathered. Run #2: Gray slightly Cal- Careous phyllite with quartz veins. Medium to soft, fresh to very slight weathering. Run #3: Gray quartzose slightly CalCareous phyllite with quartz veins. Varies from medium to moderately hard dependent upon quartz Content. Fresh to very slight weathering.							
10									
15									
20									
25									
30									

STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH DIVISION SUBSURFACE INFORMATION				HOLE NO.: R-3 SHEET 1 OF 1 DATE STARTED: 12/18/95 DATE COMPLETED: 12/19/95					
PROJECT NAME: HARTLAND SITE NAME: US Route 5 STATION: 2+947.00 GROUND EL.: 168.873				PROJECT NUMBER: BRS 0113(22) SITE NO.: BR 60 OFFSET: 4.60 G.W. DEPTH:					
BORING CREW CREW CHIEF: MCGLYNN DRILLER: WARREN LOGGER: KELLY				BORING RIG: TRUCK BORING TYPE: WASH BORE SAMPLE TYPE: SPLIT BARREL					
DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS <i>(Description)</i>	BLOWS PER FOOT	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		0.0-3.0, Boulders							
			Top of	Bed	rock	@	3.00		
5		Run #1: BXMDC 3.00-3.91, Rec. = 0.67 Run #2: BXMDC 3.91-3.4.82 Rec. = 0.45 Run #3: BXMDC 4.82-6.35 Rec. = 1.51 Run #4: BXMDC 6.35-7.88 Rec. = 1.48 See Geologist's report							
		Geologist's Report	Hole	stopped	@	7.88			
10		Run Rec(%) ROD(%) DIP(deg.) 1 44 7 45 2 29 10 50 3 100 45 50 4 100 77 50 Run #1: Gray, slightly Cal- Careous schist Interbedded with quartzite. Hard to moderately hard. Slight weathering. Run #2: (Top 0.16 m) Gray Cal- Careous quartzite. Hard, fresh weathering. (Bottom 0.24 m) Gray phyllite with thin quartz stringers. Soft to medium hardness, moderately weathered. Run #3: Gray slightly Cal- Careous quartzite Interbedded with gray phyllite and quartzite. Hard, fresh weathering. Run #4: Same as above.							
15									
20									
25									
30									

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
BORING INFORMATION SHT. - 4			
Designed By	S. BAKI 12/98	Drawn By	W. GAYNOR 12/98
Checked By	Date	Bridge Design Supervisor	
S. BAKI	12/98	J. MIECZKOWSKI	Date 12/98
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\456201 VAOT Hartland\struct\zf204bll.dgn			
Bridge Sheet No.	BRI08	Sheet	43 of 86



PLAN VIEW



SECTION A-A
NOT TO SCALE

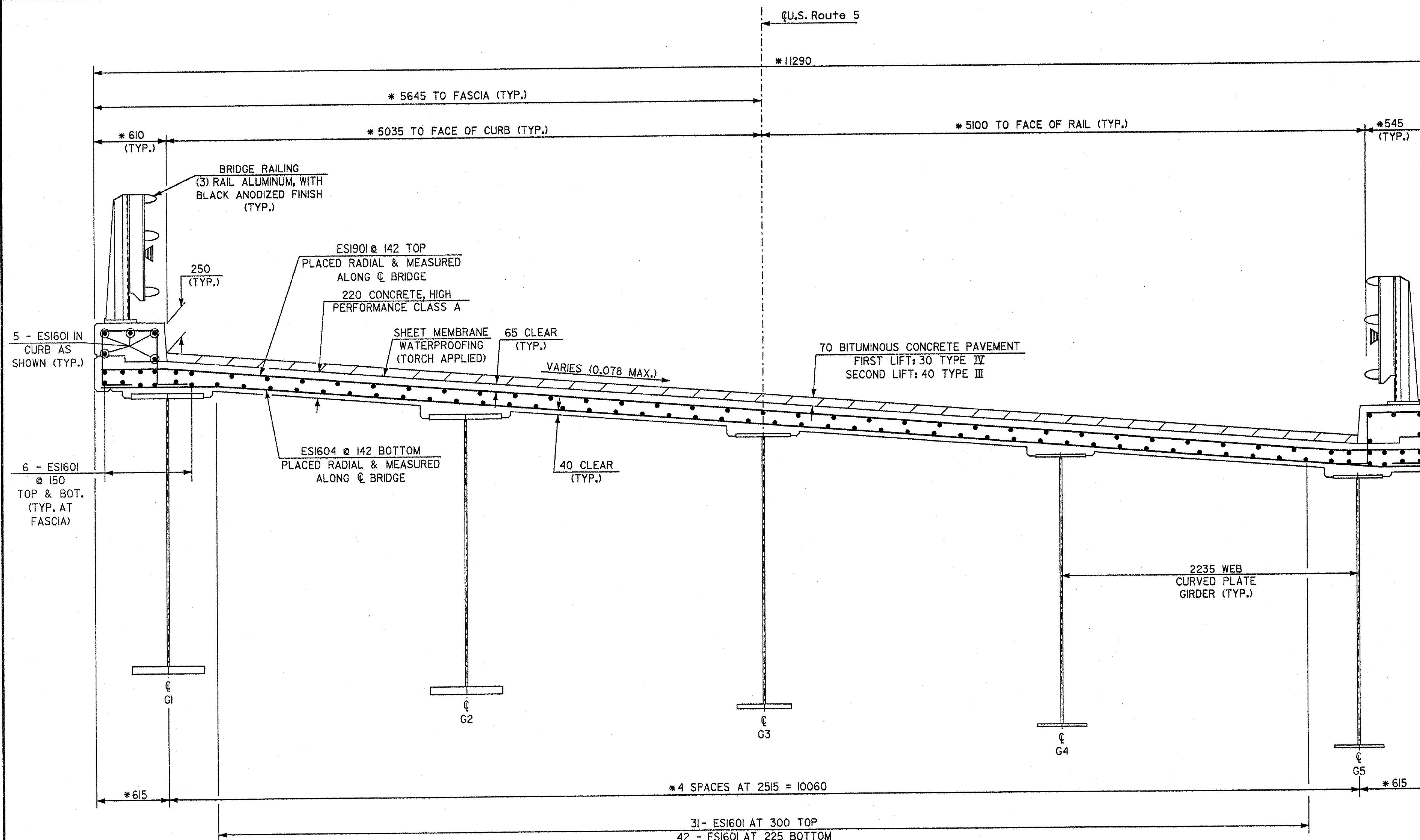
SECTION B-B
NOT TO SCALE

NOTES:

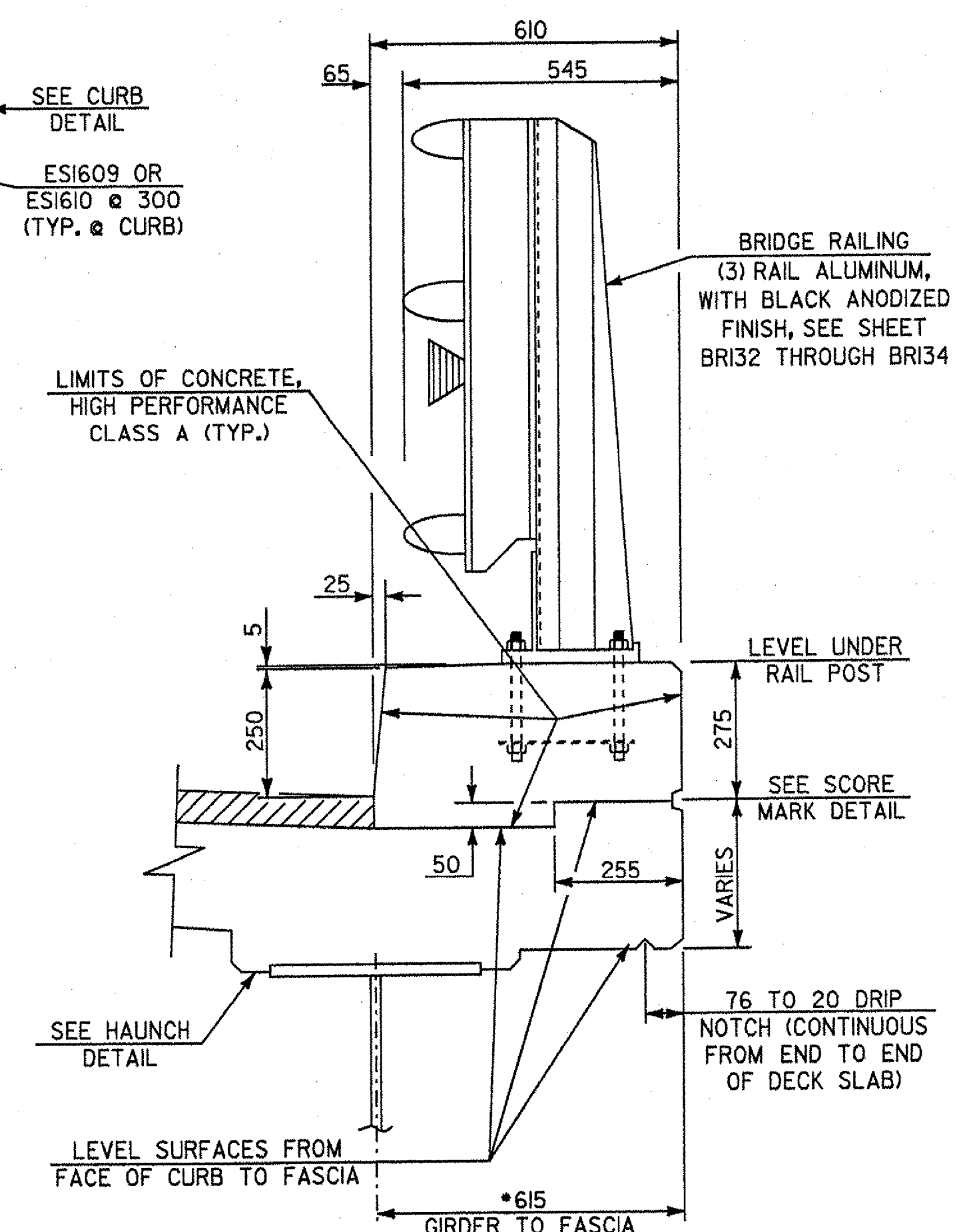
▲ - CUT TO FIT IN FIELD
FOR TYPICAL BRIDGE SECTION, SEE SHEET BR110.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
DECK REINFORCING PLAN AND SECTIONS			
Designed By	S. BAKI	Drawn By	W. GAYNOR 11/99
Checked By	Date	Bridge Design Supervisor	
S. BAKI		J. MIECZKOWSKI Date	
PROJECT		PROJECT NO.	
HARTLAND		BRS No. 0113(22)	
I.G.C. Info. M:\456201\VAOT Hartland\struct\zf204dpl.dgn			
Bridge Sheet No. BRI09		Sheet 44 of 86	



TYPICAL BRIDGE SECTION

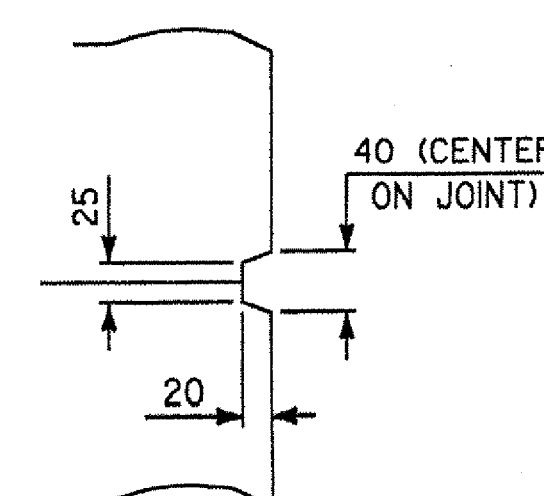


CURB DETAIL

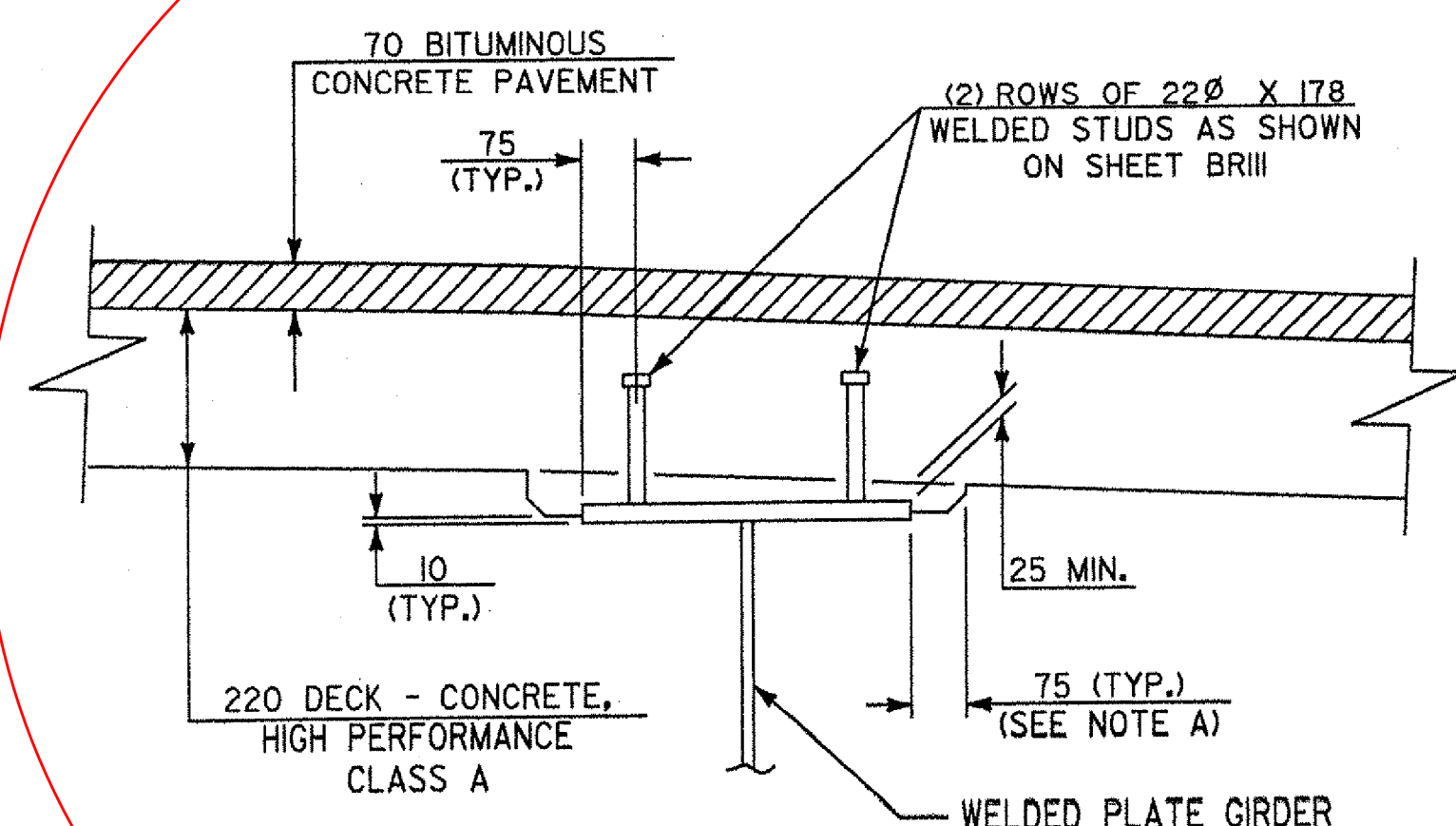
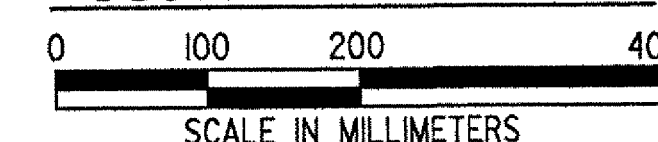


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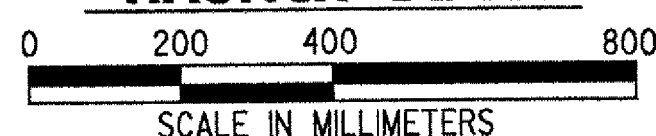
REINFORCING COVER 80 CLEAR AT FACES OF CURB AND AT EDGE OF DECK FASCIA. FOR DECK REINFORCING PLAN AND SECTIONS, SEE SHEET BRI09.



SCORE MARK DETAIL



HAUNCH DETAIL



REVISED AS
PER MJ MEMO.
SEE HALF SIZE SHEET
FOR REVISED DETAIL.

NOTE A:

AS AN ALTERNATIVE HAUNCH FORMING SYSTEM, THE CONTRACTOR MAY ELIMINATE THE 75 mm HORIZONTAL SECTION, BUT ONLY WITH THE APPROVAL OF THE STRUCTURES ENGINEER.

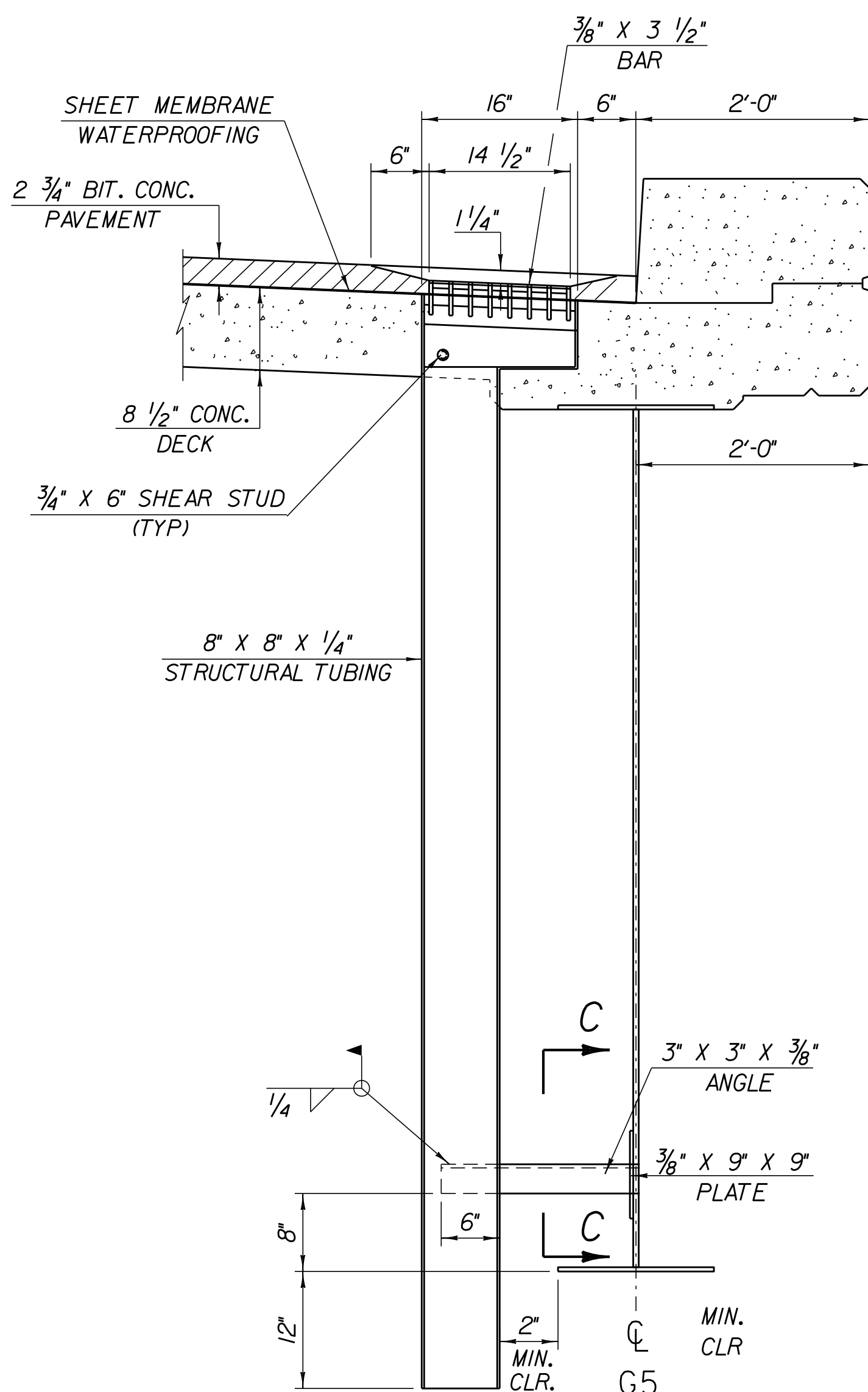
**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of HARTLAND Bridge No. 60
Highway No. U.S. ROUTE 5 Log Sta.
Surv. Sta.

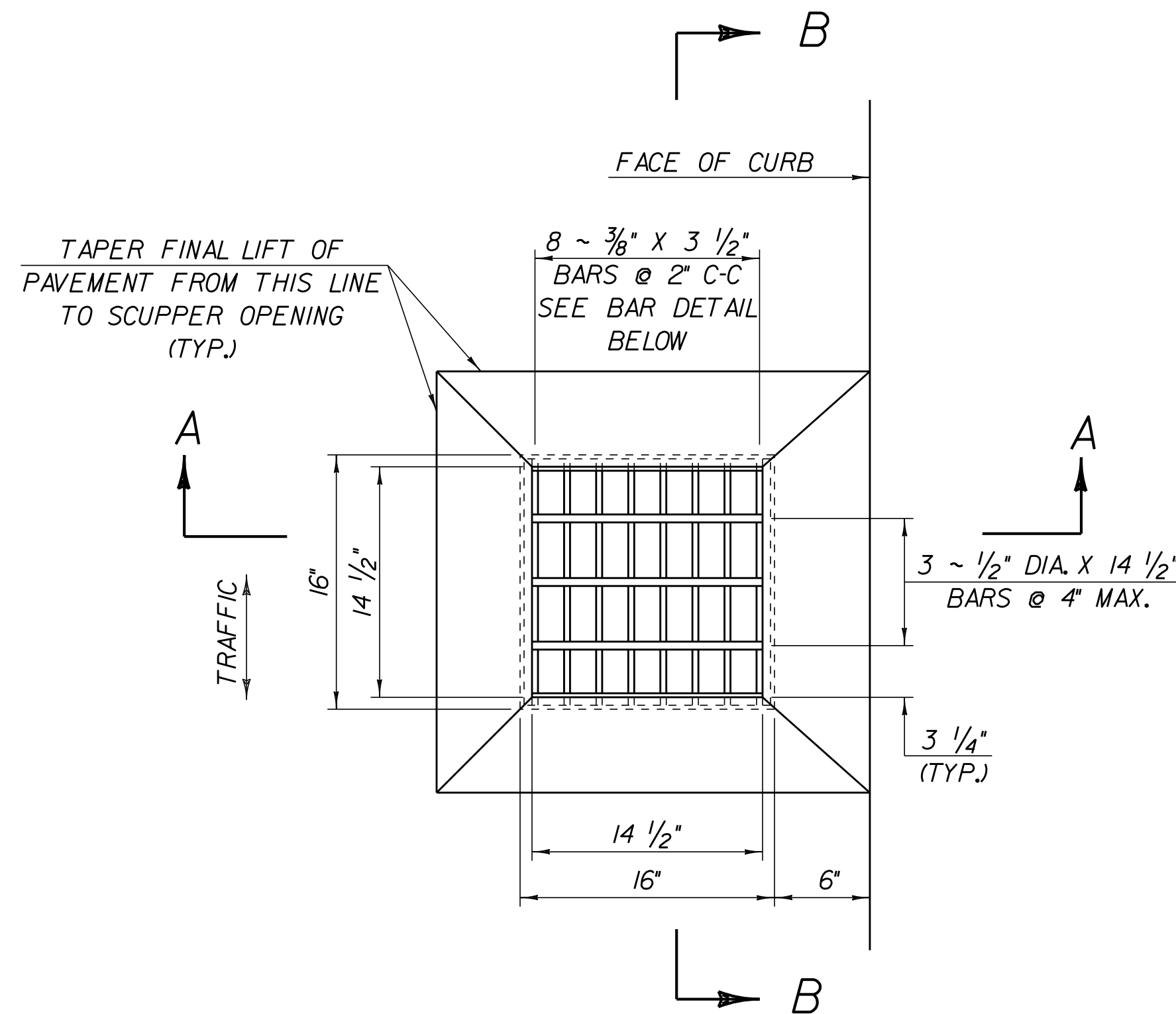
U.S. ROUTE 5 OVER LULLS BROOK

TYPICAL BRIDGE SECTION AND DETAILS

Designed By S. BAKI Drawn By W. GAYNOR
Checked By S. BAKI Date Bridge Design Supervisor
J. MIECZKOWSKI Date
PROJECT HARTLAND PROJECT NO.
BRS No. 0113(22)
I.G.C. Info. M:\145620\VA0T Hartland\struct\zf204dty.dgn
Bridge Sheet No. BRI10 Sheet 45 of 86

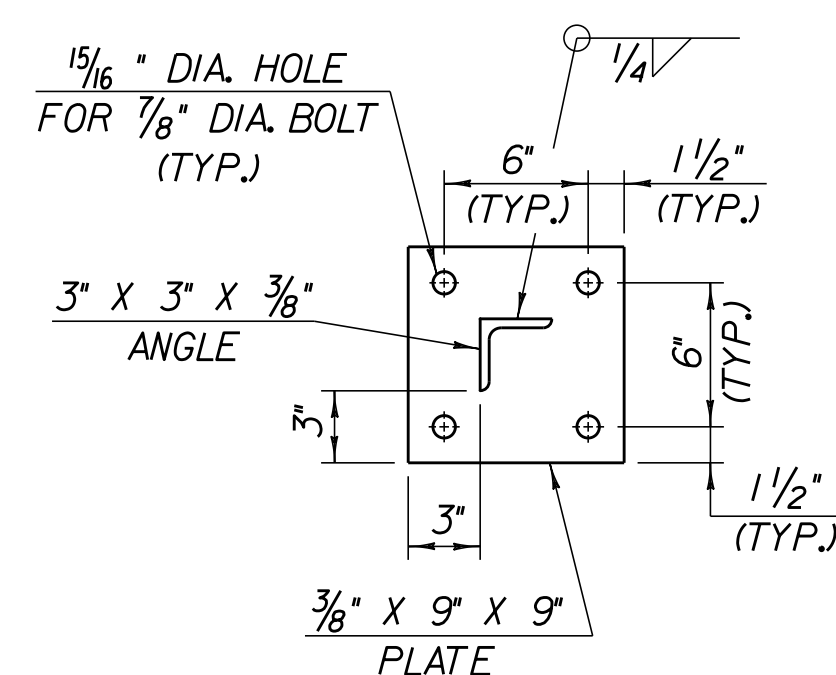


SECTION A - A (AT CURB)
SCALE: 1" = 1'-0"



SCUPPER PLAN

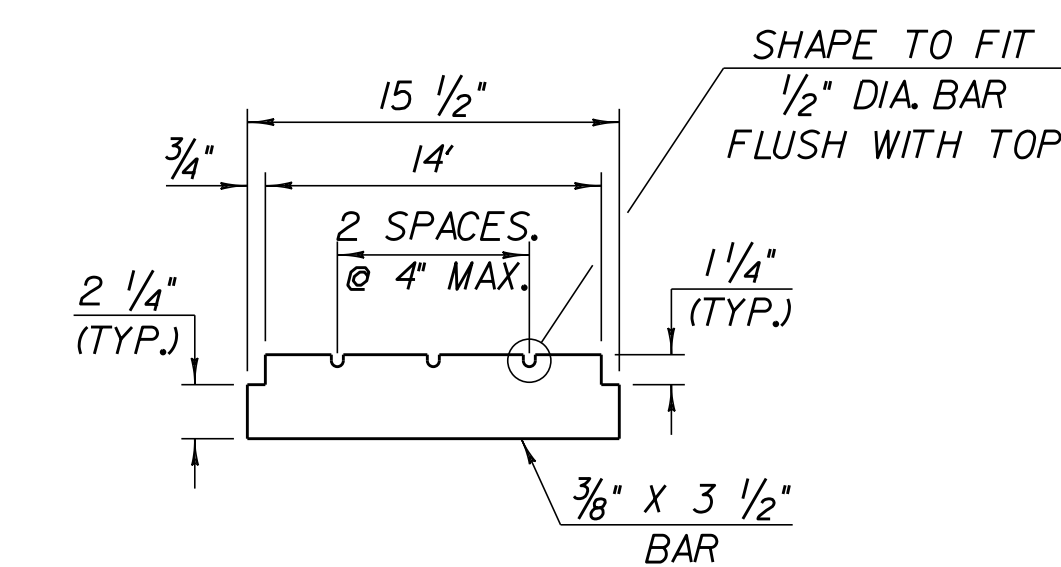
SCALE 1 1/2" = 1'-0"
1 9 6 3 0 1



NOTE: HOLES SHALL BE FIELD DRILLED IN PLATE GIRDER.

SECTION C - C

SCALE 1 1/2" = 1'-0"
1 9 6 3 0 1

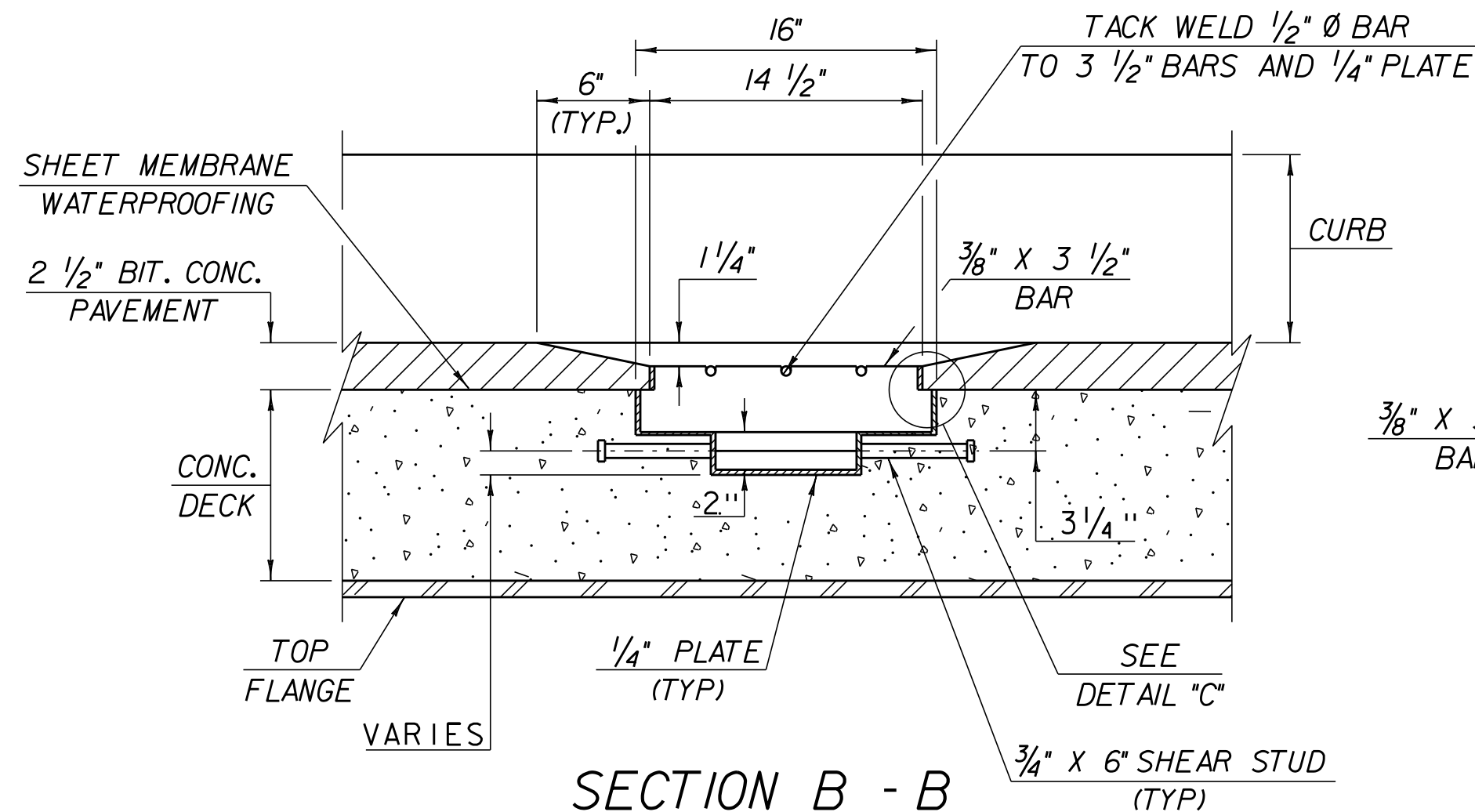


BAR DETAIL FOR GRATE

SCALE 1 1/2" = 1'-0"
1 9 6 3 0 1

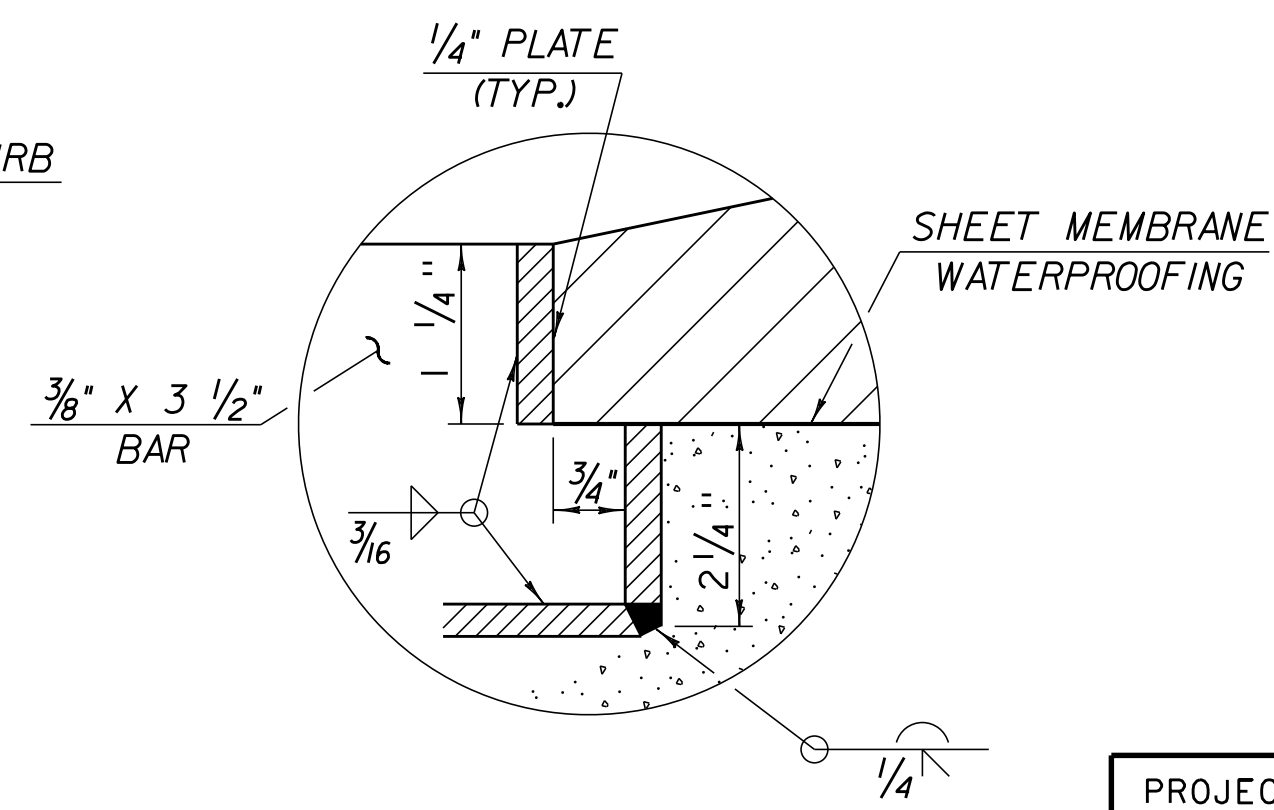
SCUPPER AND DOWNSPOUT NOTES

- HOLLOW STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM A-500 GR. B.
- ALL PLATES, BARS, AND ANGLES SHALL CONFORM TO AASHTO M 270/M 270M GR. 36.
- ALL SCUPPERS, DOWNSPOUTS & SUBSTRUCTURE DRAINS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 111M/M 111 AFTER FABRICATION.
- THE TOP SURFACE OF SCUPPER SHALL BE SLOPED TO MATCH ROADWAY SLOPE AND GRADE.
- THE BAR AND GRATE SECTION MAY BE PREFABRICATED PROVIDING THE GEOMETRY AND SECTION PROPERTIES ARE EQUIVALENT TO THE DETAILS SHOWN.
- SCUPPERS & DOWNSPOUTS SHALL BE PAID FOR AS EXTRA WORK.
- ALL REQUIRED WELDS FOR SCUPPERS & DOWNSPOUTS SHALL BE DETAILED ON SHOP DRAWINGS WHICH SHALL ALSO INCLUDE ALL APPLICABLE WELDING PROCEDURES.
- AFTER ALL PAVING AND CONCRETING OPERATIONS THE SCUPPERS & DOWNSPOUTS SHALL BE CLEANED OF ALL CONTAMINATION BY FLUSHING.
- SCUPPER CONNECTION BOLTS SHALL BE 7/8" Ø AASHTO M 164/M 164M, TYPE 111.



SECTION B - B

SCALE 1 1/2" = 1'-0"
1 9 6 3 0 1



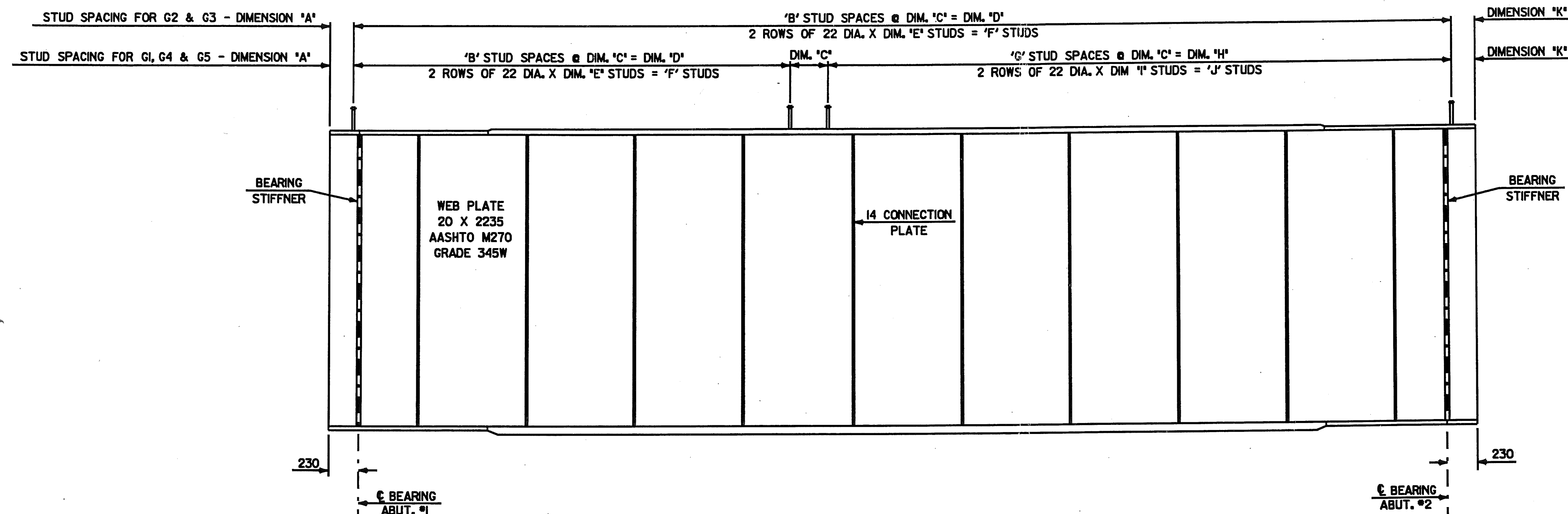
DETAIL "C"
NTS

ENTIRE SHEET ADDED TO PLANS

SCUPPER LOCATION

STA. 3+085 RT
STA. 3+110 RT

PROJECT NAME:	HARTLAND BRS 0113 (22)	PLOT DATE:	11-SEP-2012 13:44
PROJECT NUMBER:		DRAWN BY:	STR
FILE NAME:	78f204/structures/scupper.dgn	CHECKED BY:	STR
IPARM NAME:	scupper.i	SHEET	45A OF 86
PROJECT LEADER:	W. SYMONDS		
DESIGNED BY:	STR		
SCUPPER DETAILS			

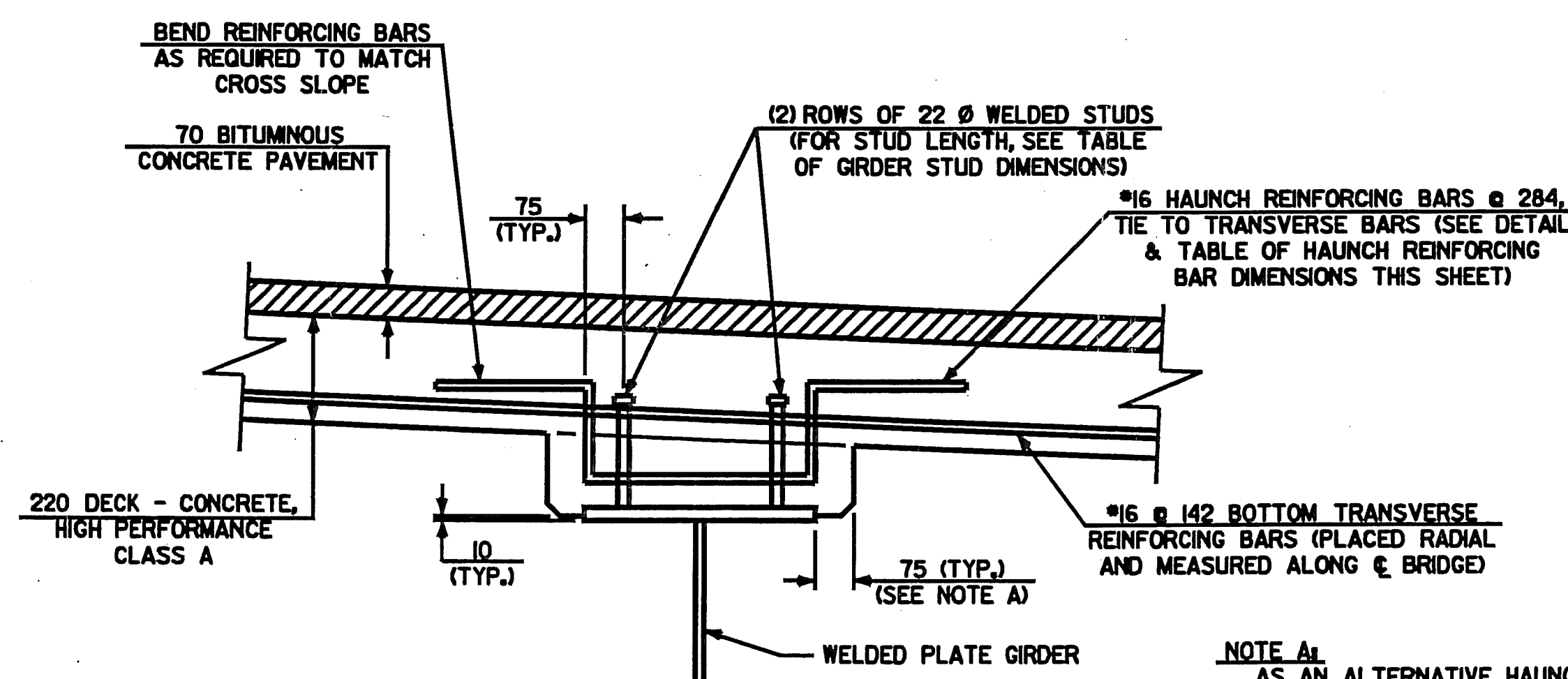


Revised Sheet
As per MJ Memo
3/24/05
Job No. 14562.01

GIRDER ELEVATION
NOT TO SCALE

TABLE OF GIRDER STUD DIMENSIONS

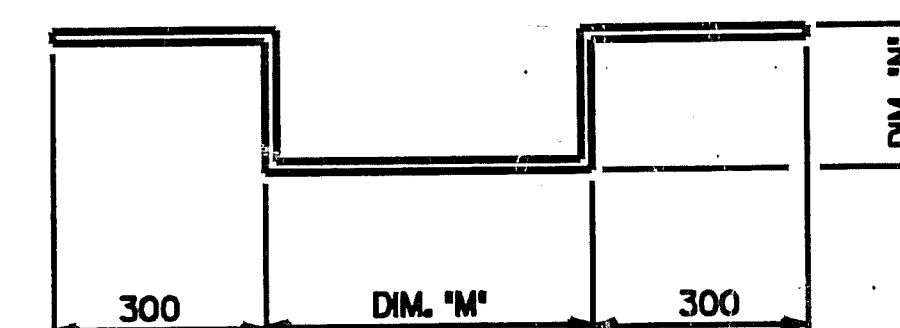
GIRDER NO.	DIM. 'A'	NO. OF SPA.	STUD SPA. DIM. 'C'	DIM. 'D'	STUD LENGTH DIM. 'E'	NO. OF STUDS 'F'	NO. OF SPA. 'G'	DIM. 'H'	STUD LENGTH DIM. 'I'	NO. OF STUDS 'J'	DIM. 'K'
G1	215	22	355	780	225	46	101	35055	178	204	215
G2	197	131	330	43230	178	264	-	-	-	-	197
G3	278	119	355	42245	178	240	-	-	-	-	277
G4	253	94	432	40608	178	190	1	432	225	4	253
G5	242	82	457	37474	178	166	6	2742	225	14	242



REINFORCED HAUNCH DETAIL
NOT TO SCALE

NOTE A:
AS AN ALTERNATIVE HAUNCH FORMING SYSTEM, THE CONTRACTOR MAY ELIMINATE THE 75 mm HORIZONTAL SECTION, BUT ONLY WITH THE APPROVAL OF THE STRUCTURES ENGINEER. IF THE CONTRACTOR DOES ELIMINATE THE 75 mm HORIZONTAL SECTION, THE HAUNCH REINFORCING BAR DIMENSIONS SHOWN IN THE TABLE MUST BE ADJUSTED TO MATCH.

- NOTES:**
1. FOR STUD LENGTH, SEE TABLE OF GIRDER STUD DIMENSIONS ON THIS SHEET.
 2. FOR LOCATION OF HAUNCH REINFORCEMENT BARS, SEE TABLE OF HAUNCH REINFORCEMENT DIMENSIONS ON THIS SHEET.



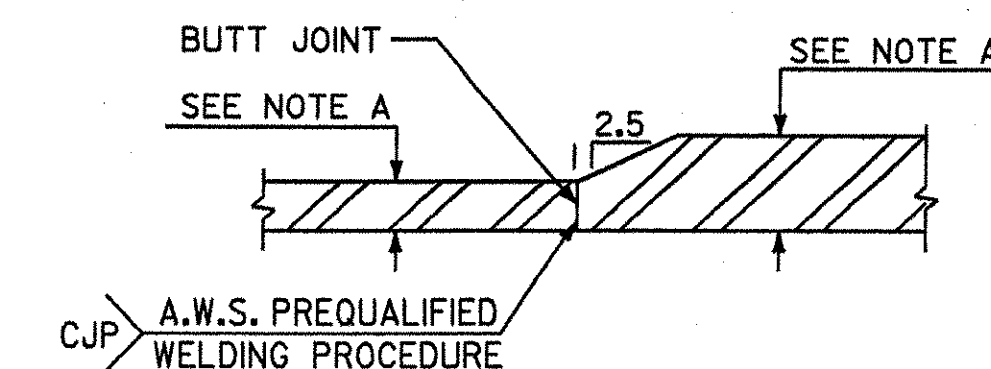
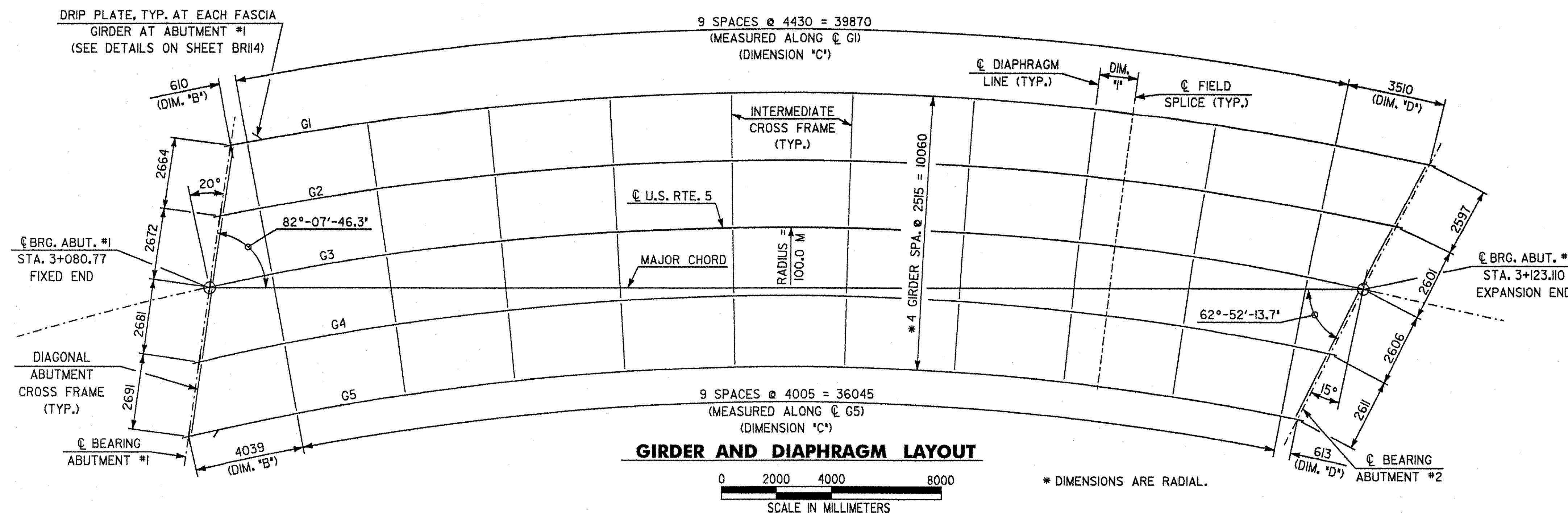
HAUNCH REINFORCING BAR DETAIL
NOT TO SCALE

TABLE OF HAUNCH REINFORCING BAR DIMENSIONS

GIRDER NO.	LOCATION ALONG C GIRDER	DIM. 'M'	DIM. 'N'	NO. OF BARS REQUIRED
G1	FROM C ABUT. #1 TO 13197	610	200	48
G2	C ABUT. #1 TO 6132	610	150	23
G3	NONE	-	-	-
G4	C ABUT. #2 TO 2999	410	150	12
G5	C ABUT. #2 TO 4307	410	200	17

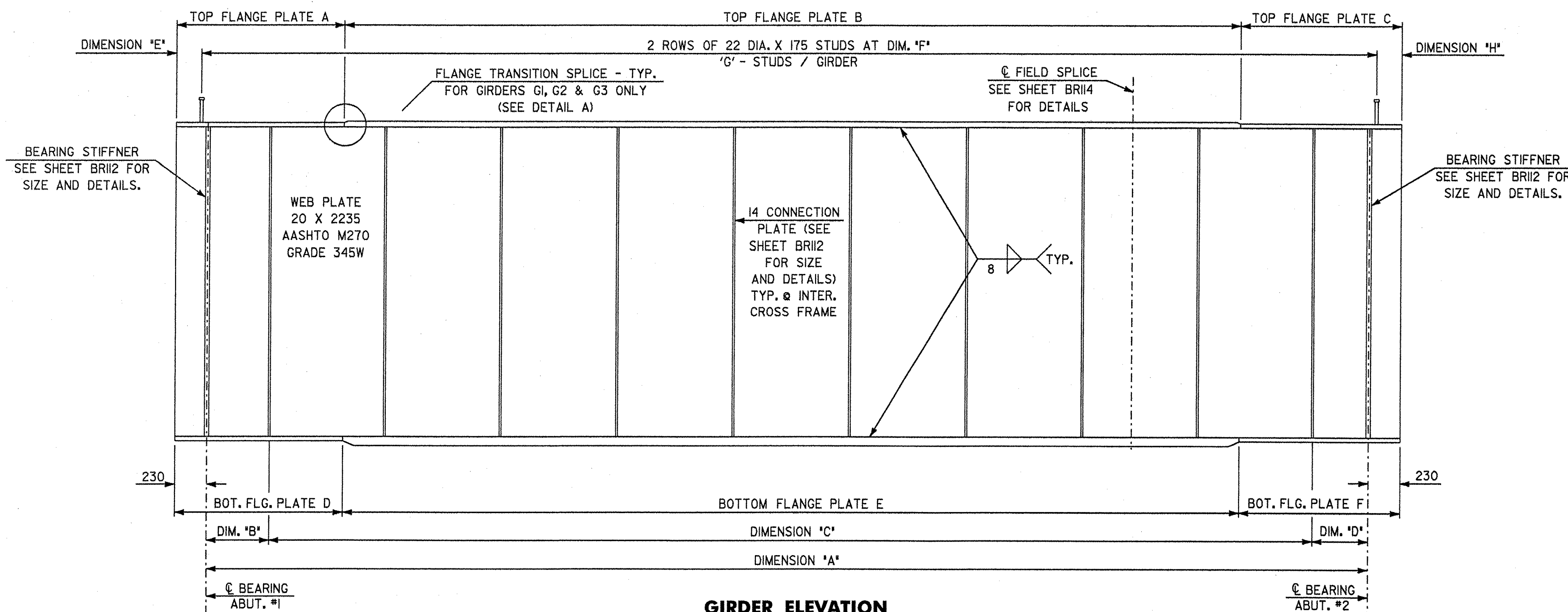
**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
HAUNCH REINFORCING DETAILS			
Designed By	W. GAYNOR	Drawn By	W. GAYNOR
Checked By	Y. LIU	Date	
		Bridge Design Supervisor	J. MECZKOWSKI
PROJECT	HARTLAND	PROJECT NO.	BRS No. 013(22)
L.G.C. Info. M:\456201\VAOT Hartland\struat\zf204fpl.dgn			
Bridge Sheet No.		Sheet	of



DETAIL A
NOT TO SCALE

NOTE A:
FLANGE PLATE THICKNESS VARIES, SEE TABLE OF GIRDER DIMENSIONS FOR PLATE THICKNESS.



GIRDER NOTES

1. DIMENSIONS ARE ALONG THE ARC OF ϕ GIRDER AND ϕ BEARING.
2. INTERMEDIATE CROSS FRAMES ARE ON RADIAL LINES FROM THE CENTER OF THE CURVE.
3. BEARING STIFFENERS SHALL BE PLUMB AND PERPENDICULAR TO THE WEB IN THEIR FINAL POSITION.
4. CONNECTION PLATES AT INTERMEDIATE CROSS FRAMES SHALL BE PERPENDICULAR TO FLANGES
5. CONNECTION PLATES AT ABUTMENTS SHALL BE PERPENDICULAR TO FLANGES AND PARALLEL TO CENTER LINE OF BEARING AND WEBS.
6. ENDS OF GIRDERS SHALL BE FABRICATED AS TO BE PLUMB UNDER FULL DEAD LOAD AND SUPERIMPOSED DEAD LOAD.
7. ALL CROSS FRAMES, TENSION FLANGES, AND WEBS SHALL HAVE "CHARPY V-NOTCH TEST" PERFORMED AS SPECIFIED IN SUBSECTION 714.01 AND 714.03.

TABLE OF GIRDER DIMENSIONS

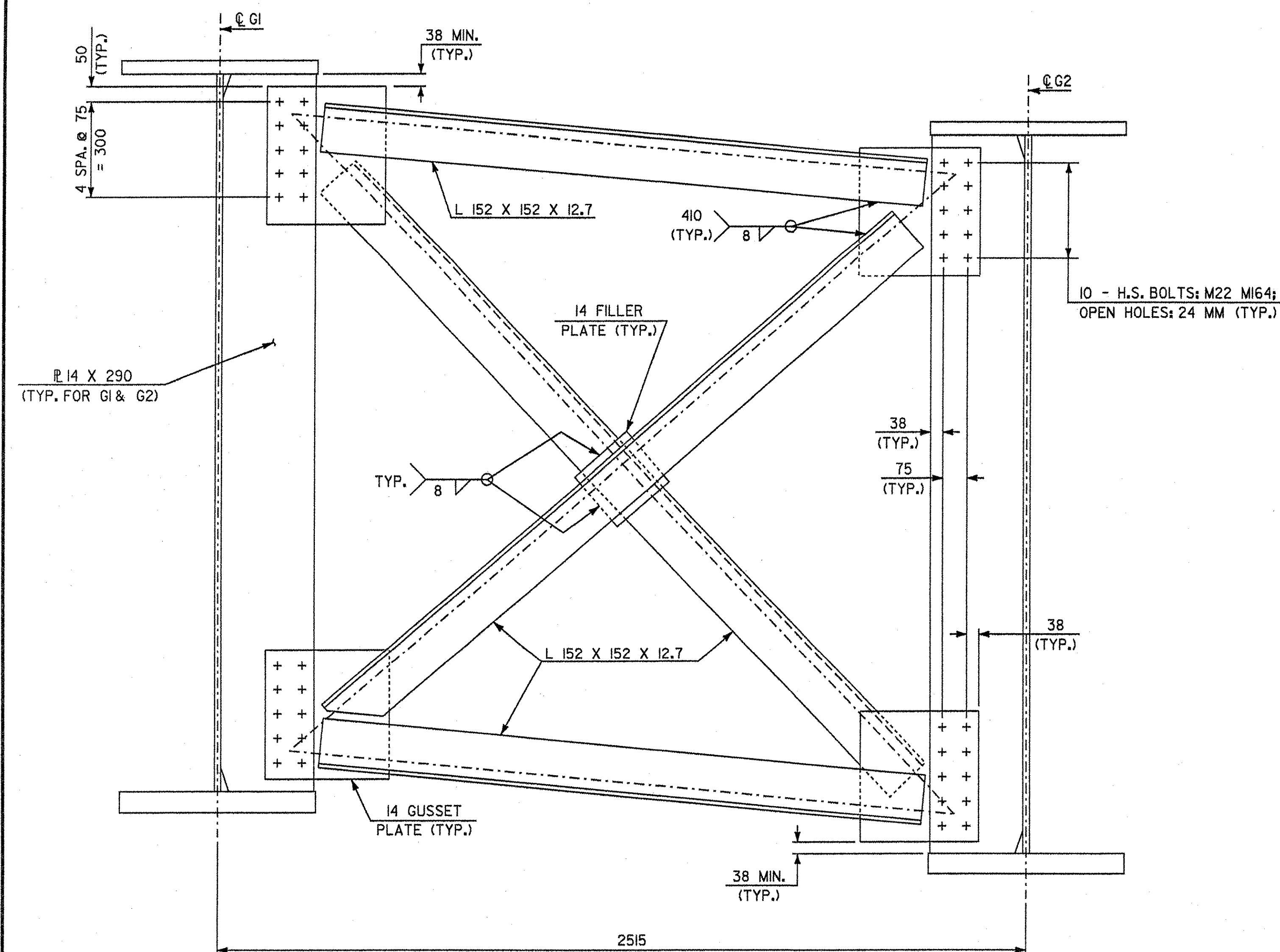
GIRDER NO.	RADIUS (METERS)	DIMENSION 'A'	TOP FLANGE PLATE			BOTTOM FLANGE PLATE			DIMENSION 'B'	DIMENSION 'C'	DIMENSION 'D'	DIMENSION 'E'	DIMENSION 'F'	'G' - NO. OF STUDS / GIRDER	DIMENSION 'H'	DIMENSION 'I'
			PLATE A	PLATE B	PLATE C	PLATE D	PLATE E	PLATE F								
G1	105.030	43990	32 X 610 X 4970	45 X 610 X 31610	32 X 610 X 7870	32 X 610 X 4970	65 X 610 X 31610	32 X 610 X 7870	610	9 SPA. @ 4430 = 39870	3510	215	355	250	215	1382
G2	102.515	43164	32 X 610 X 5716	45 X 610 X 30868	32 X 610 X 7040	32 X 610 X 5716	65 X 610 X 30868	32 X 610 X 7040	1462	9 SPA. @ 4324 = 38916	2786	197	330	264	197	1349
G3	100.000	42340	25 X 460 X 42800 (FULL LENGTH)			25 X 460 X 6466			2318	9 SPA. @ 4218 = 37962	2060	278	355	240	277	1316
G4	97.485	41518	22 X 410 X 41978 (FULL LENGTH)			22 X 410 X 41978 (FULL LENGTH)			3177	9 SPA. @ 4111 = 36999	1342	253	432	194	253	1283
G5	94.970	40697	22 X 410 X 41157 (FULL LENGTH)			22 X 410 X 41157 (FULL LENGTH)			4039	9 SPA. @ 4005 = 36045	613	242	457	180	242	1250

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of **HARTLAND** Bridge No. **60**
 Highway No. **U.S. ROUTE 5** Log Sta.
 Surv. Sta.
U.S. ROUTE 5 OVER LULLS BROOK

FRAMING PLAN AND GIRDER ELEVATION

Designed By **S. BAKI** Drawn By **W. GAYNOR**
 Checked By **S. BAKI** Date Bridge Design Supervisor **J. MIECZKOWSKI** Date
 PROJECT **HARTLAND** PROJECT NO. **BRS No. 0113(22)**
 I.G.C. Info. **M:\1456201\VA0T Hartland\struct\zf204fpl.dgn**
 Bridge Sheet No. **BR111** Sheet **46 of 86**

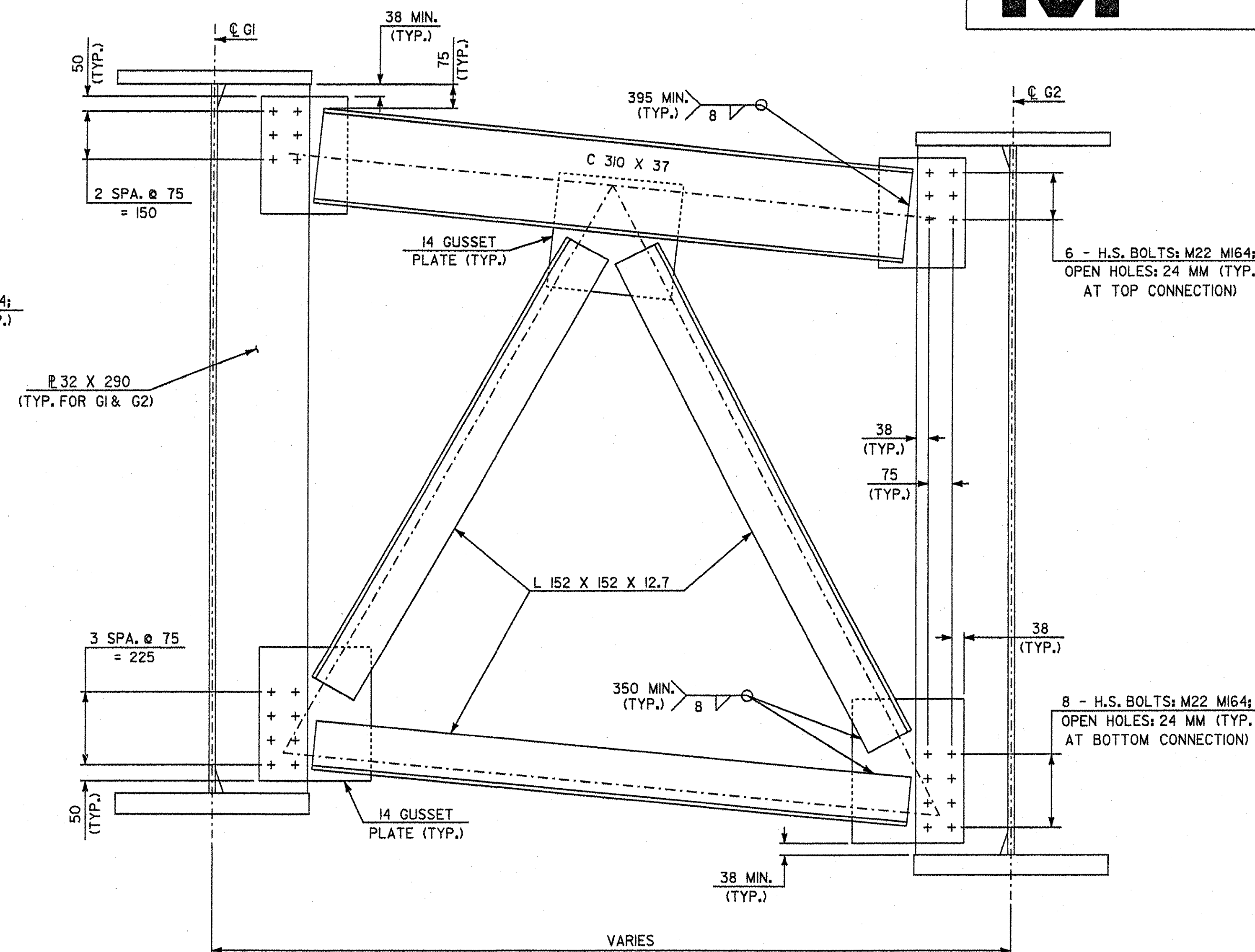


INTERMEDIATE CROSS FRAME

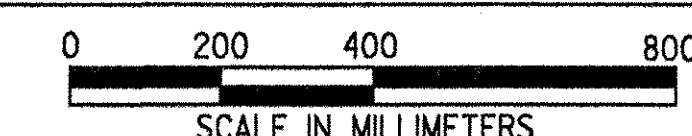


NOTE:

INTERMEDIATE CROSS FRAME DETAIL SHOWN FOR BAY BETWEEN G1 AND G2, BAYS BETWEEN G2 AND G5 ARE SIMILAR EXCEPT FOR DIFFERENT SIZES FOR FLANGE PLATES AND CONNECTION PLATES. FOR FLANGE PLATE SIZES, SEE TABLE OF GIRDER DIMENSIONS ON SHEET BRII. FOR CONNECTION PLATE SIZES, SEE TABLE OF CONNECTION PLATE DIMENSIONS ON SHEET BRII3.



ABUTMENT CROSS FRAME

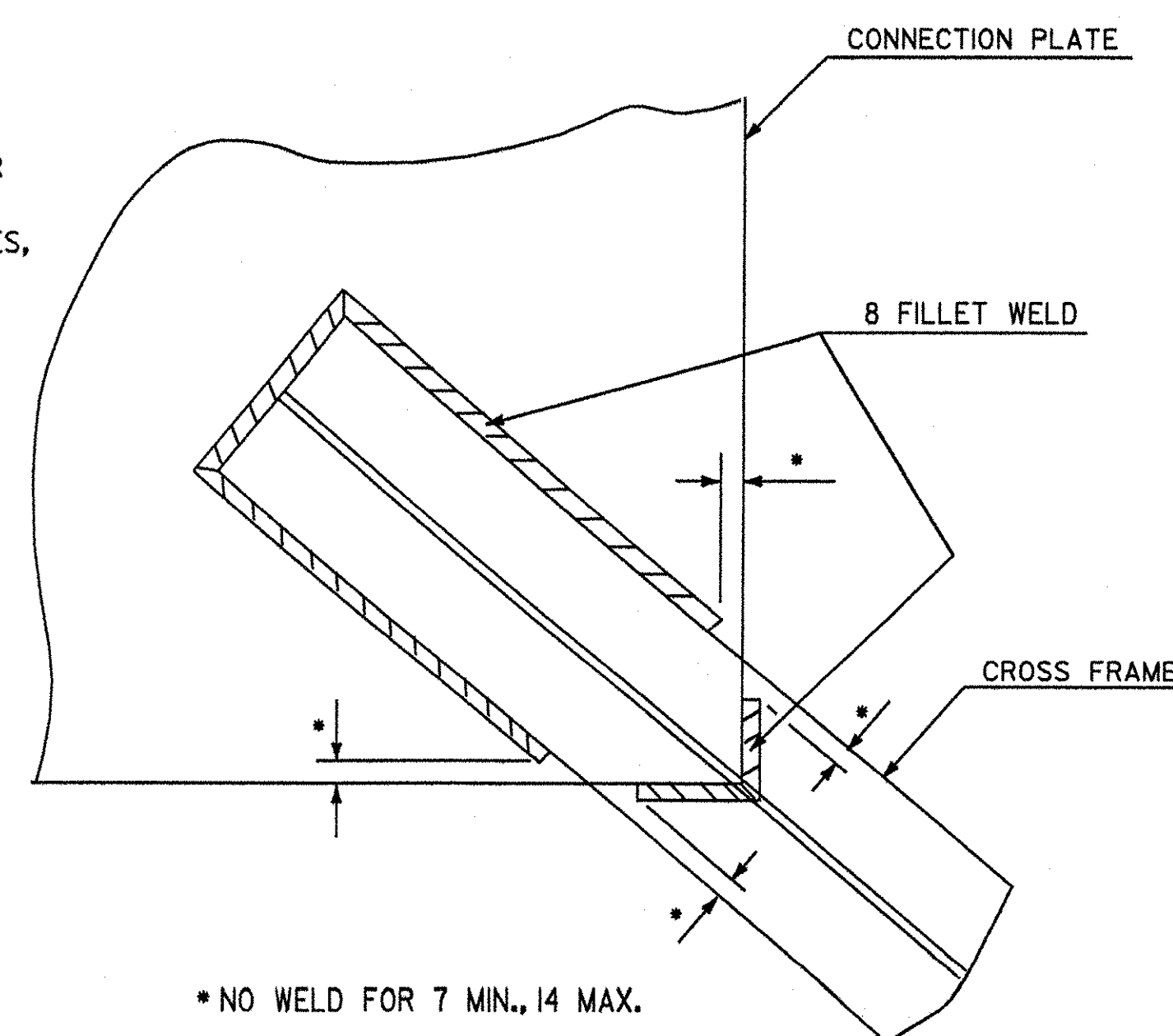


NOTE:

ABUTMENT CROSS FRAME DETAIL SHOWN FOR BAY BETWEEN G1 AND G2, BAYS BETWEEN G2 AND G5 ARE SIMILAR EXCEPT FOR DIFFERENT SIZES FOR FLANGE PLATES AND BEARING STIFFENER PLATES. FOR FLANGE PLATE SIZES, SEE TABLE OF GIRDER DIMENSIONS ON SHEET BRII. FOR BEARING STIFFENER PLATE SIZES, SEE TABLE OF BEARING STIFFENER DIMENSIONS ON SHEET BRII3.

NOTES:

1. FOR INTERMEDIATE CROSS FRAME CONNECTION PLATE DETAIL, SEE SHEET BRII3.
2. FOR BEARING STIFFENER AND CONNECTION PLATE DETAIL AT ABUTMENT CROSS FRAMES, SEE SHEET BRII3.
3. FOR SPACING OF ABUTMENT CROSS FRAMES, SEE FRAMING PLAN ON SHEET BRII.

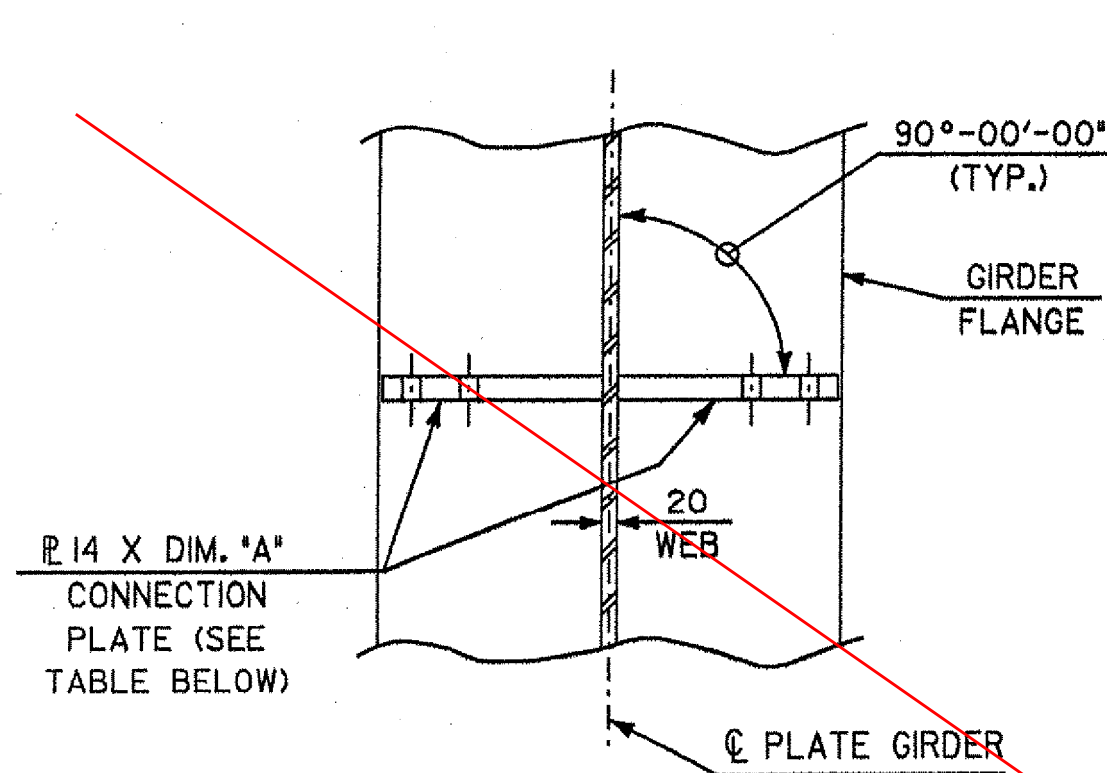


**WELD LOCATION DETAIL
AT CROSS FRAMES AND
LATERAL BRACING**

NOT TO SCALE

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

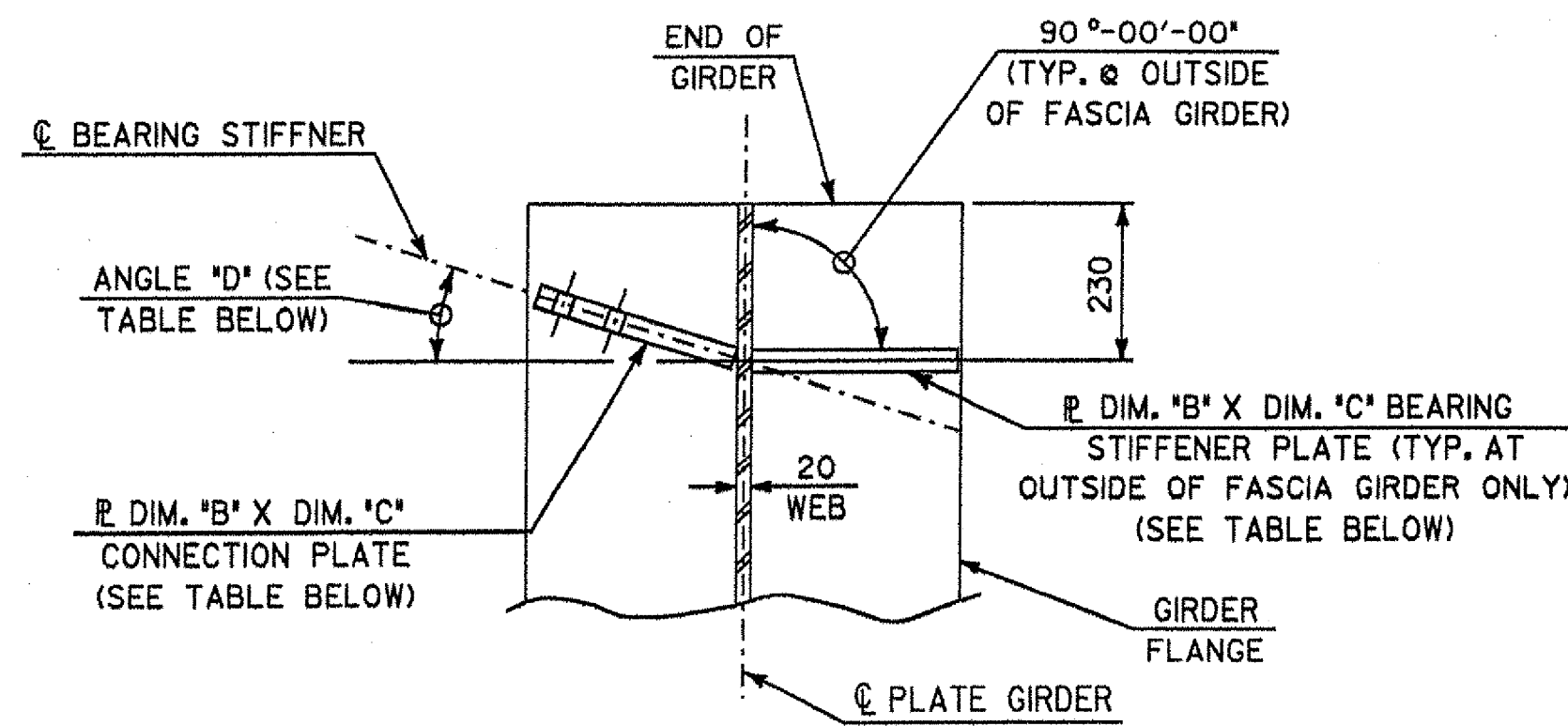
Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
CROSS FRAME DETAILS			
Designed By	S. BAKI	Drawn By	W. GAYNOR
Checked By	S. BAKI	Bridge Design Supervisor	J. MIECZKOWSKI
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\145620\VAOT Hartland\struct\zf204odt.dgn			
Bridge Sheet No. BRII2		Sheet 47 of 86	



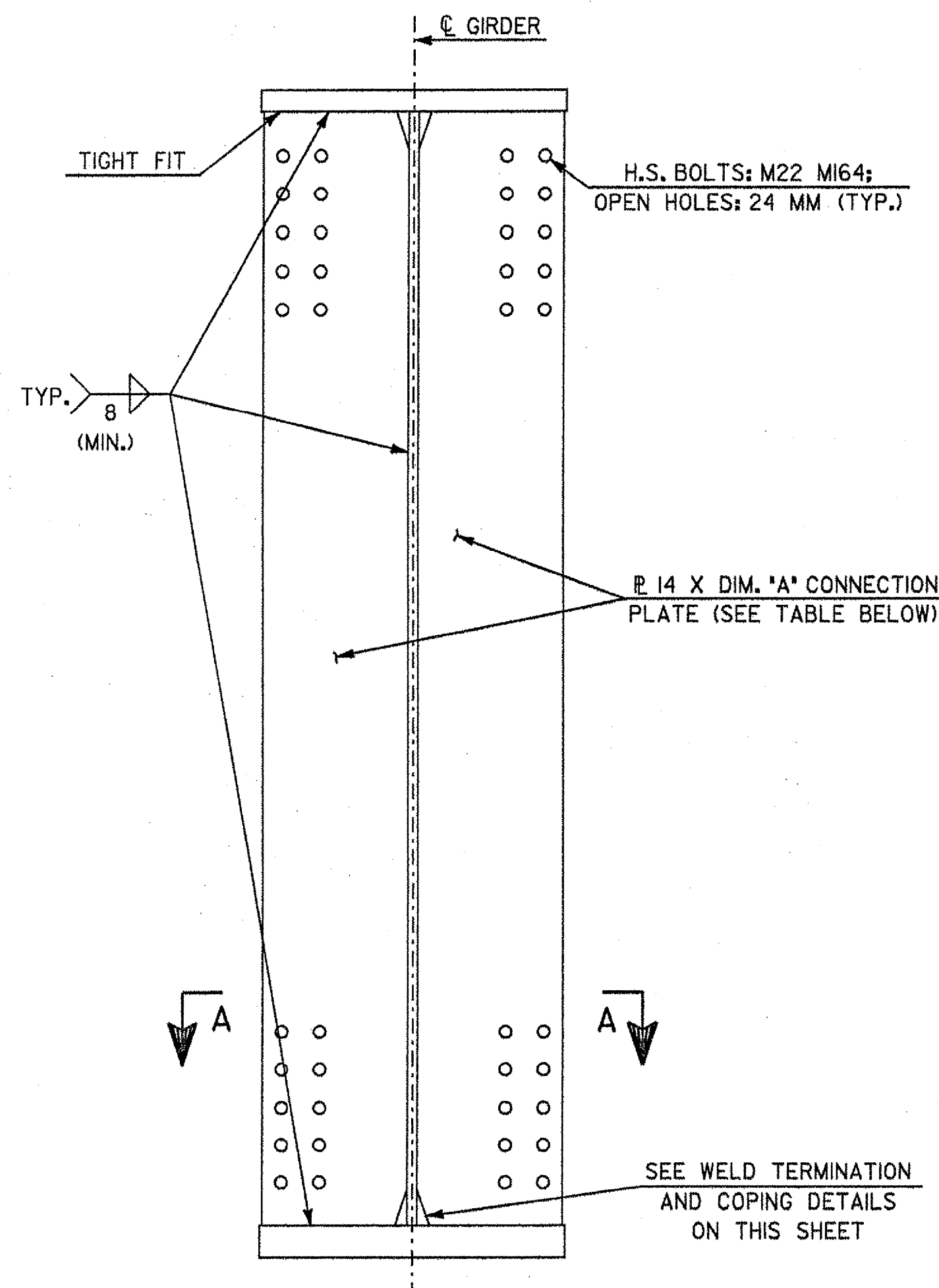
SECTION A-A



NOTE: NO CONNECTION PLATE AT OUTSIDE OF FASCIA GIRDER.



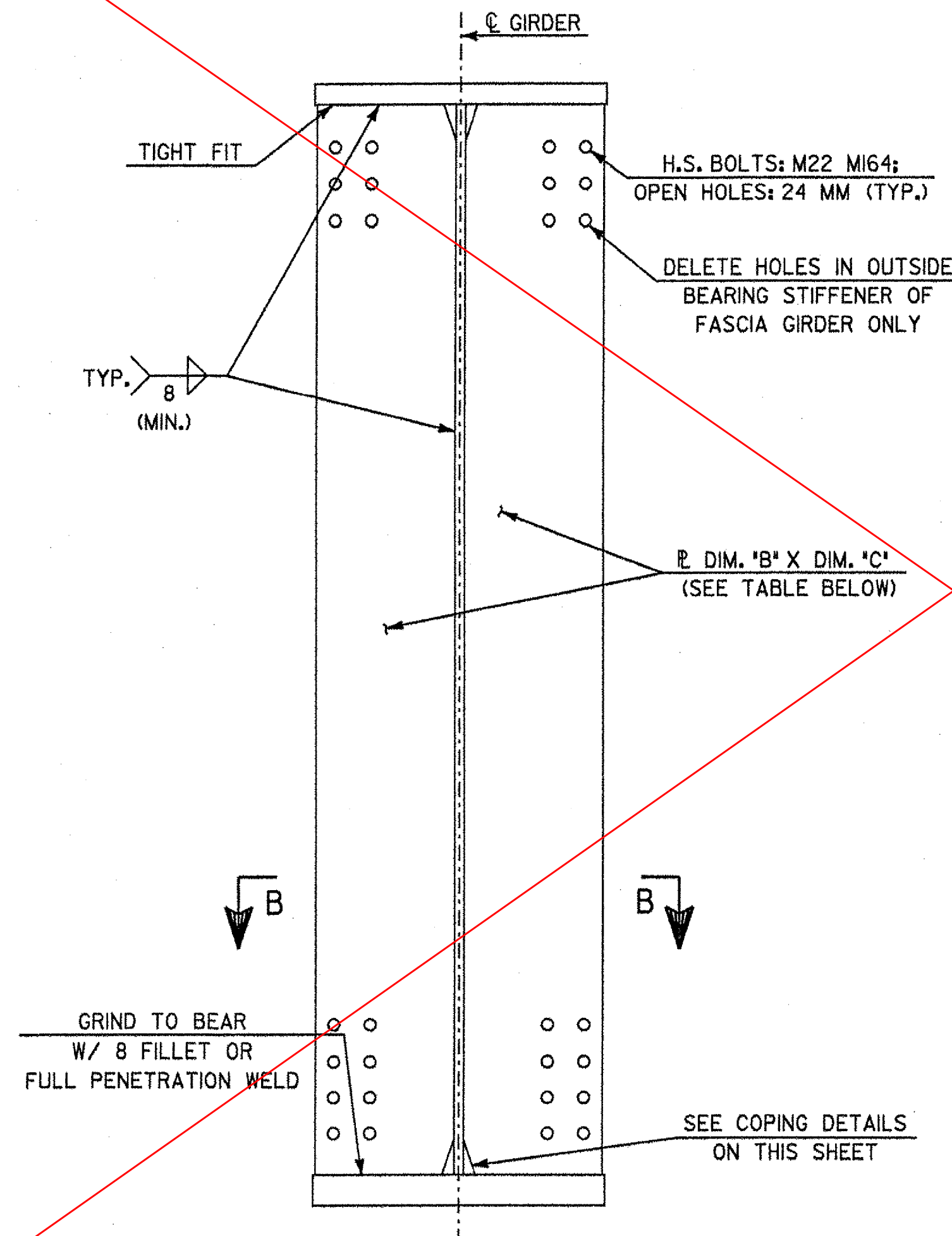
SECTION B-B



INTERMEDIATE CROSS FRAME CONNECTION PLATE DETAIL



TABLE OF CONNECTION PLATE DIMENSIONS	
GIRDER NO.	DIMENSION 'A'
G1	290
G2	290
G3	215
G4	190
G5	190



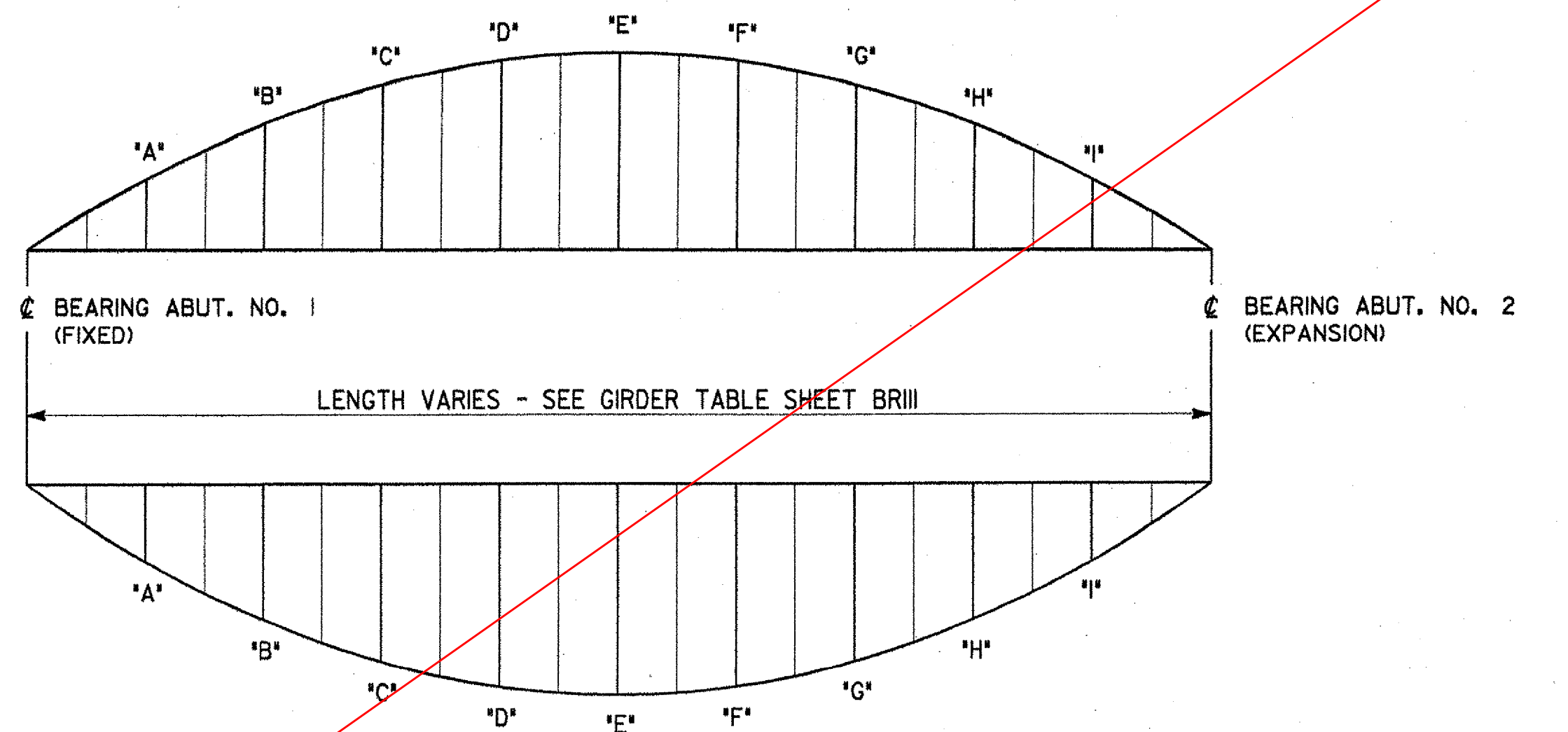
ABUTMENT CROSS FRAME BEARING STIFFENER AND CONNECTION PLATE DETAIL



TABLE OF BEARING STIFFENER & CONNECTION PLATE DIMENSIONS				
GIRDER NO.	DIMENSION 'B'	DIMENSION 'C'	ABUTMENT #1 ANGLE 'D'	ABUTMENT #2 ANGLE 'D'
G1	32	290	19°-00'-15.8"	14°-15'-57.6"
G2	32	290	19°-29'-21.2"	14°-37'-25.3"
G3	25	215	20°-00'-00.0"	15°-00'-00.0"
G4	22	190	20°-32'-20.2"	15°-23'-47.2"
G5	22	190	21°-06'-30.5"	15°-48'-52.9"

CAMBER DIAGRAM

NOT TO SCALE



DL DEFLECTION DIAGRAM

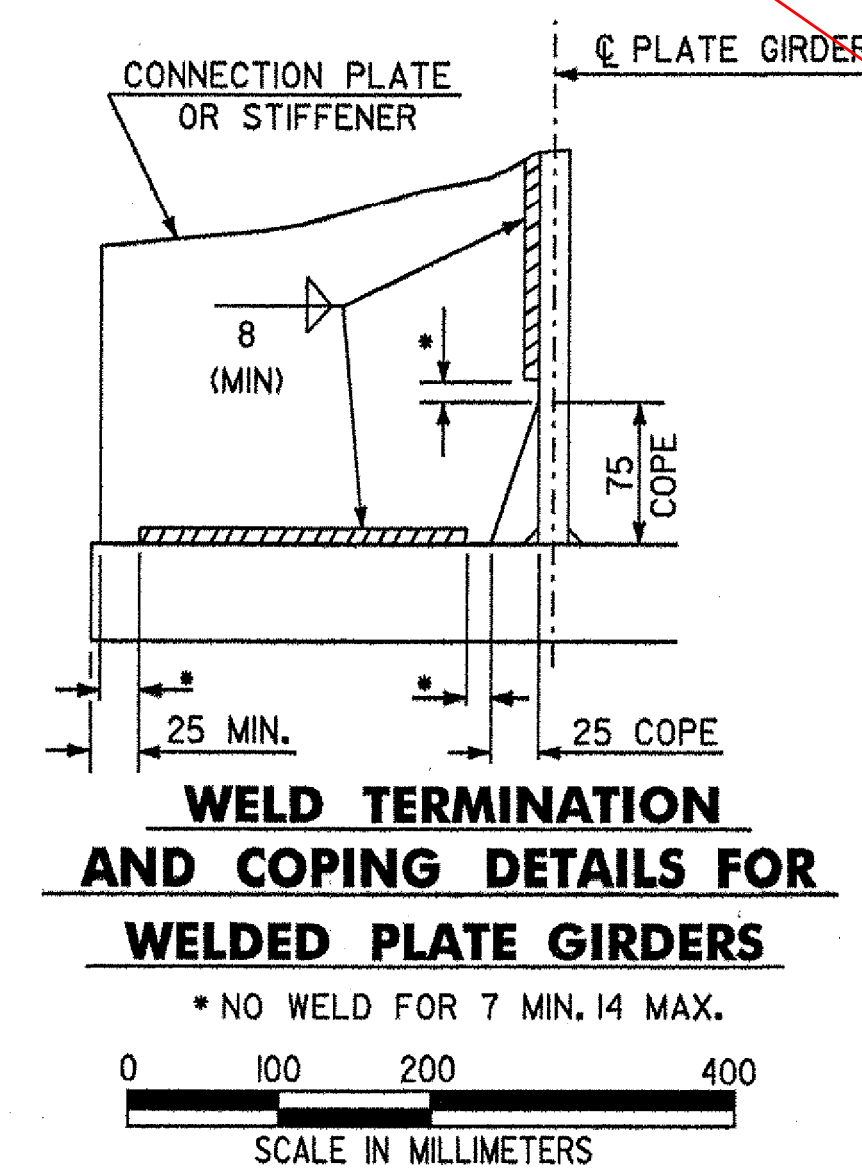
NOT TO SCALE

CAMBER AND DEFLECTION MEASUREMENTS ARE GIVEN IN MILLIMETERS AT TENTH POINTS

CAMBER AND DL DEFLECTION ORDINATE SCHEDULE

L = TOTAL LENGTH C BRG. ABUT. NO. 1 TO C BRG. ABUT. NO. 2 (SEE GIRDER TABLE SHEET BR111)

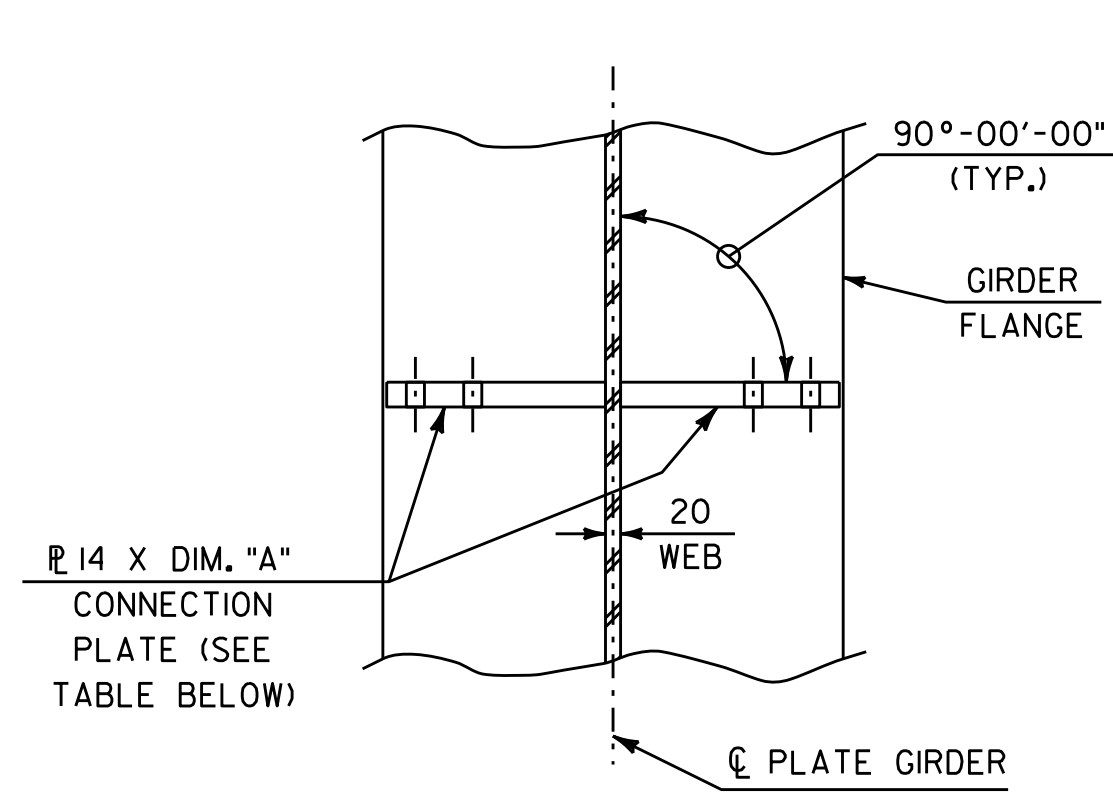
GIRDER NO.		Ⓒ BRG. ABUT. NO. 1	'A' 0. 10L	'B' 0. 20L	'C' 0. 30L	'D' 0. 40L	'E' 0. 50L	'F' 0. 60L	'G' 0. 70L	'H' 0. 80L	'I' 0. 90L	Ⓒ BRG. ABUT. NO. 2
1	CAMBER	0	64	117	158	184	192	184	158	118	65	0
	DL DEFLECTION	0	-40	-75	-103	-121	-127	-121	-103	-76	-41	0
2	CAMBER	0	57	103	139	162	170	164	142	106	59	0
	DL DEFLECTION	0	-33	-62	-85	-100	-106	-102	-88	-65	-35	0
3	CAMBER	0	48	90	122	142	150	144	126	94	51	0
	DL DEFLECTION	0	-26	-50	-69	-82	-87	-84	-73	-54	-29	0
4	CAMBER	0	43	80	108	125	132	126	110	82	45	0
	DL DEFLECTION	0	-21	-41	-56	-66	-70	-67	-58	-43	-23	0
5	CAMBER	0	40	72	96	110	115	109	94	71	39	0
	DL DEFLECTION	0	-17	-32	-44	-51	-53	-50	-42	-31	-16	0



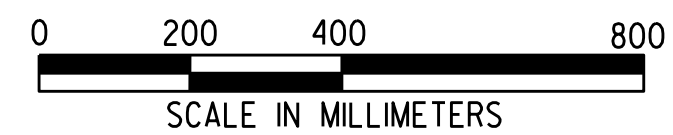
SHEET REVISED

STATE OF VERMONT AGENCY OF TRANSPORTATION

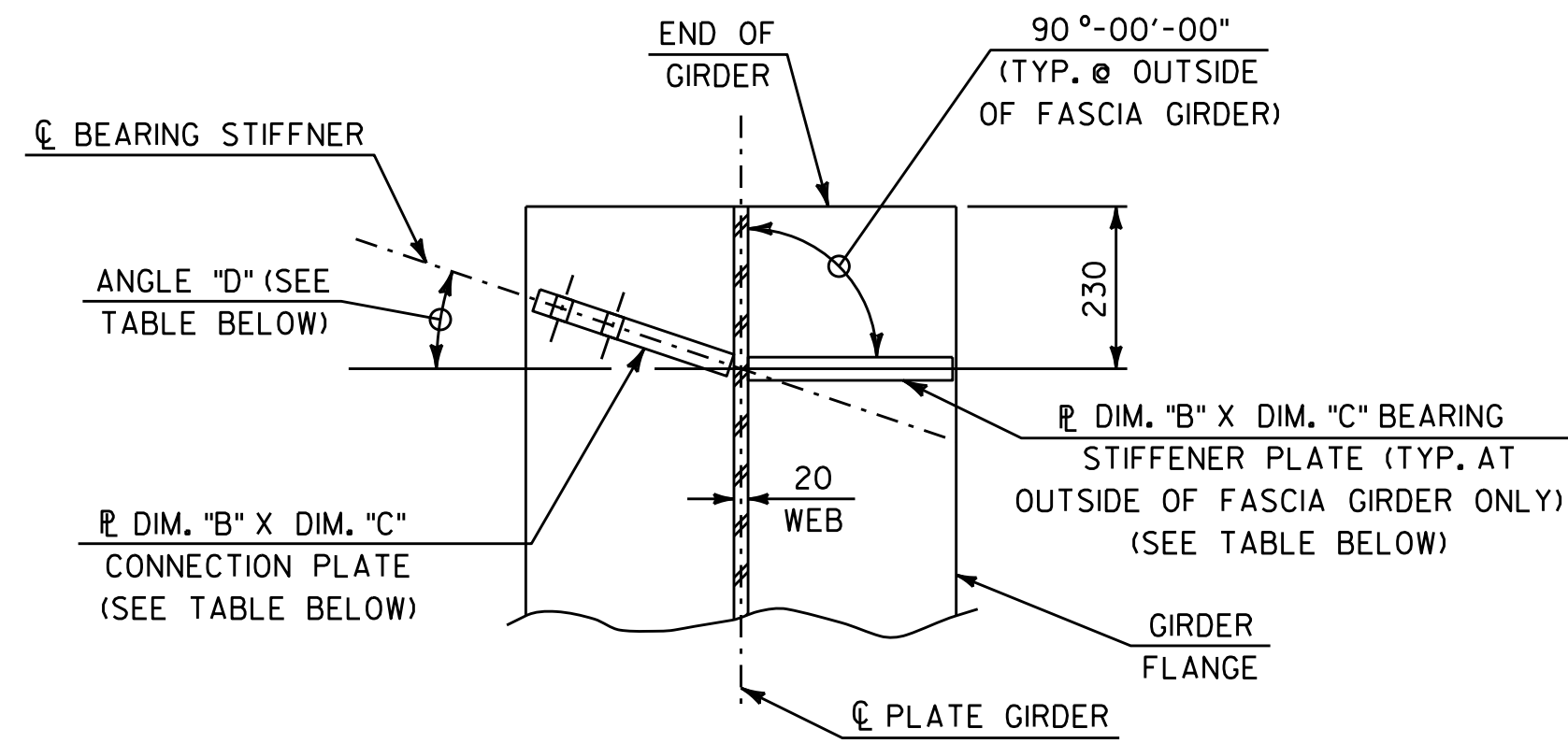
Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
MISC. GIRDER DETAILS			
Designed By	S. BAKI	Drawn By	W. GAYNOR
Checked By	S. BAKI	Date	
		Bridge Design Supervisor	J. MIECZKOWSKI
		Date	
PROJECT	HARTLAND	PROJECT NO.	BRS No. Q113(22)
I.G.C. Info. M:\145620\VA0T Hartland\struct\zf204cdt.dgn			
Bridge Sheet No. BR113		Sheet 48 of 86	



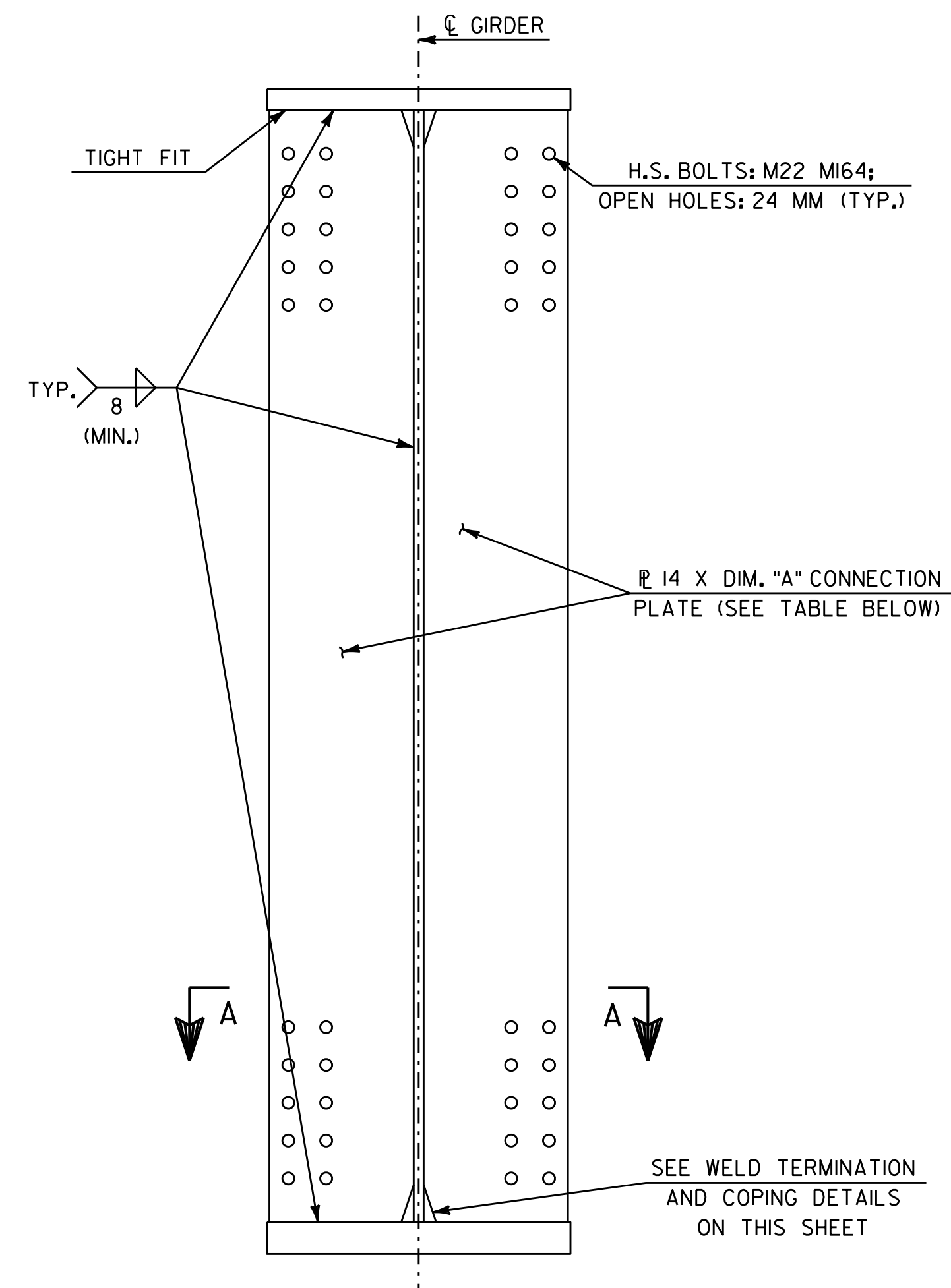
SECTION A-A



NOTE: NO CONNECTION PLATE AT OUTSIDE OF FASCIA GIRDER.



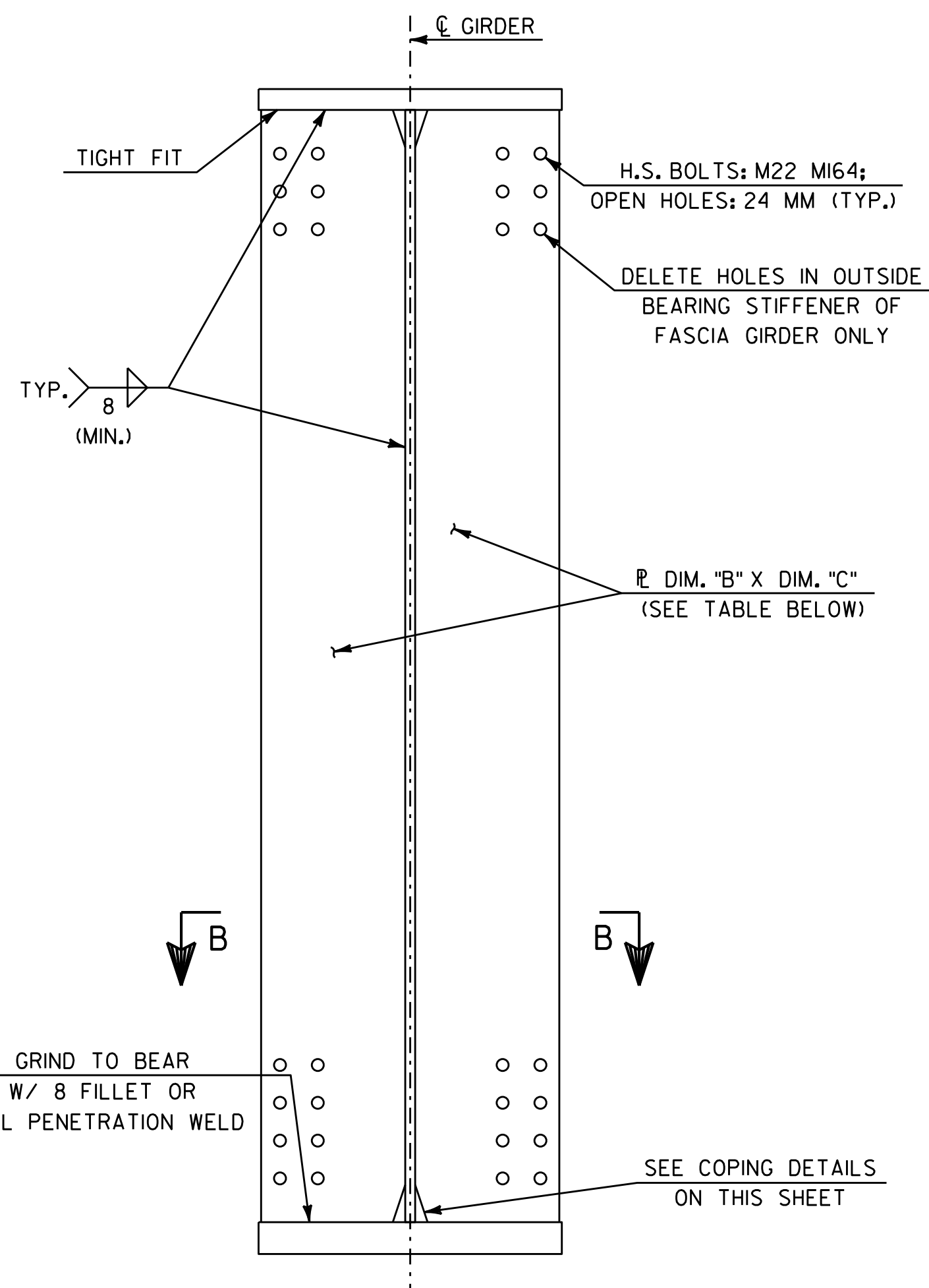
SECTION B-B



**INTERMEDIATE CROSS FRAME
CONNECTION PLATE DETAIL**



TABLE OF CONNECTION PLATE DIMENSIONS	
GIRDER NO.	DIMENSION "A"
G1	290
G2	290
G3	215
G4	190
G5	190



**ABUTMENT CROSS FRAME
BEARING STIFFENER AND
CONNECTION PLATE DETAIL**

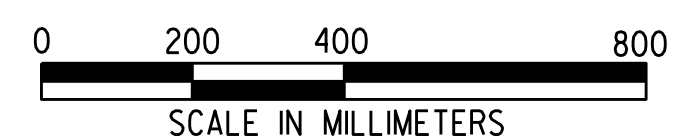
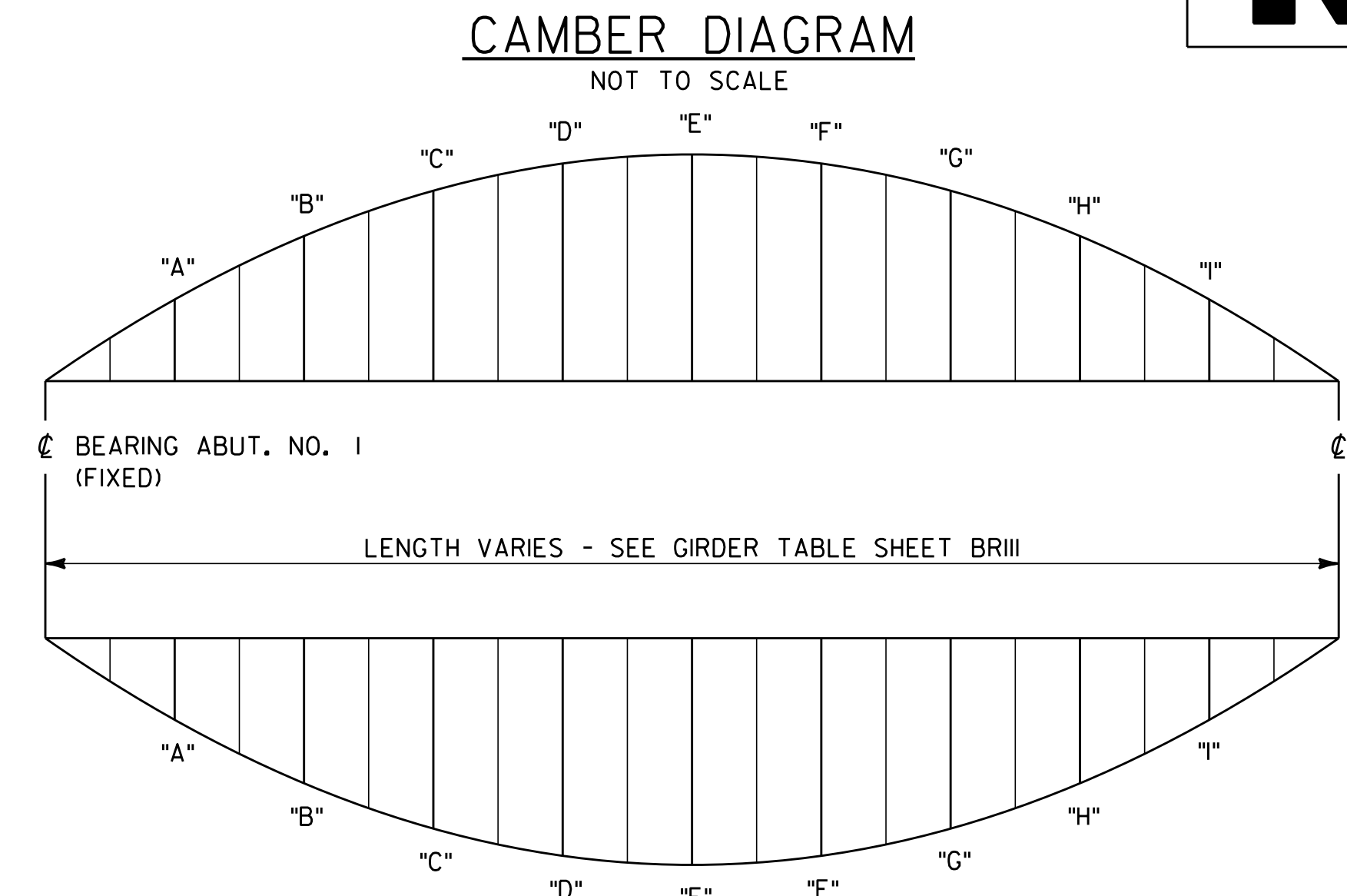


TABLE OF BEARING STIFFENER & CONNECTION PLATE DIMENSIONS				
GIRDER NO.	DIMENSION "B"	DIMENSION "C"	ABUTMENT #1 ANGLE "D"	ABUTMENT #2 ANGLE "D"
G1	32	290	19°-00'-15.8"	14°-15'-57.6"
G2	32	290	19°-29'-21.2"	14°-37'-25.3"
G3	25	215	20°-00'-00.0"	15°-00'-00.0"
G4	22	190	20°-32'-20.2"	15°-23'-47.2"
G5	22	190	21°-06'-30.5"	15°-48'-52.9"



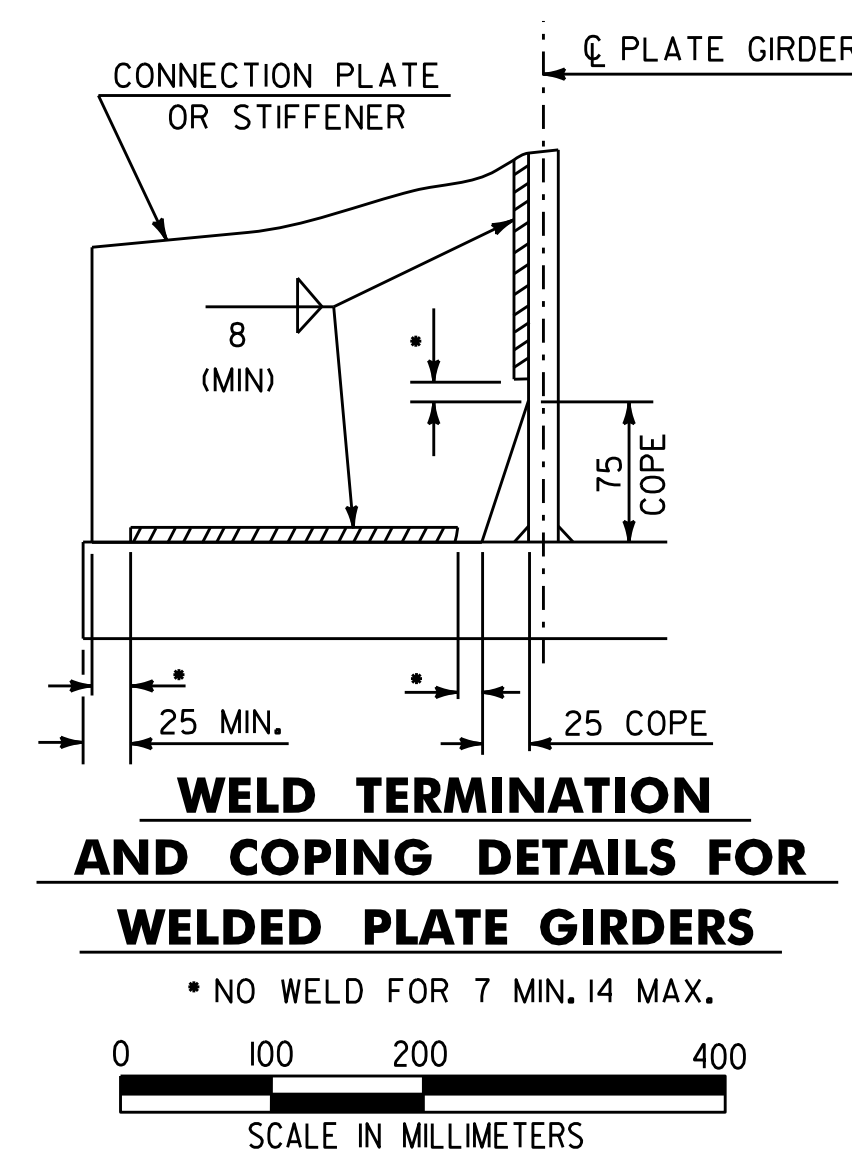
DL DEFLECTION DIAGRAM

NOT TO SCALE
CAMBER AND DEFLECTION MEASUREMENTS
ARE GIVEN IN MILLIMETERS AT TENTH POINTS

CAMBER AND DL DEFLECTION ORDINATE SCHEDULE

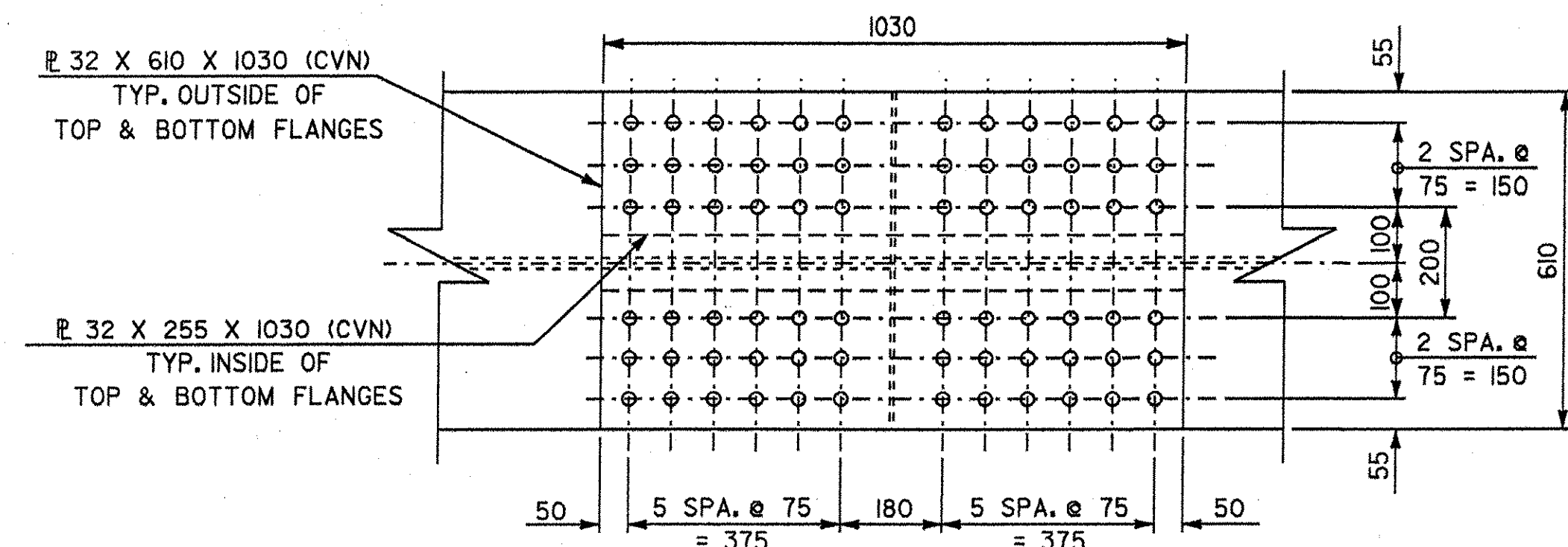
L = TOTAL LENGTH @ BRG. ABUT. NO. 1 TO @ BRG. ABUT. NO. 2 (SEE GIRDER TABLE SHEET BR111)

GIRDER NO.	@ BRG. ABUT. NO. 1	"A" 0.10L	"B" 0.20L	"C" 0.30L	"D" 0.40L	"E" 0.50L	"F" 0.60L	"G" 0.70L	"H" 0.80L	"I" 0.90L	@ BRG. ABUT. NO. 2
1	CAMBER	0	57	105	142	165	173	165	142	105	0
1	DL DEFLECTION	0	-40	-75	-103	-121	-127	-121	-103	-76	0
2	CAMBER	0	50	91	123	144	151	144	123	91	0
2	DL DEFLECTION	0	-33	-62	-85	-100	-106	-102	-88	-65	0
3	CAMBER	0	41	78	106	124	131	124	106	78	0
3	DL DEFLECTION	0	-26	-50	-69	-82	-87	-84	-73	-54	0
4	CAMBER	0	36	68	92	107	113	107	92	68	0
4	DL DEFLECTION	0	-21	-41	-56	-66	-70	-67	-58	-43	0
5	CAMBER	0	33	60	80	92	96	92	80	60	0
5	DL DEFLECTION	0	-17	-32	-44	-51	-53	-50	-42	-31	0

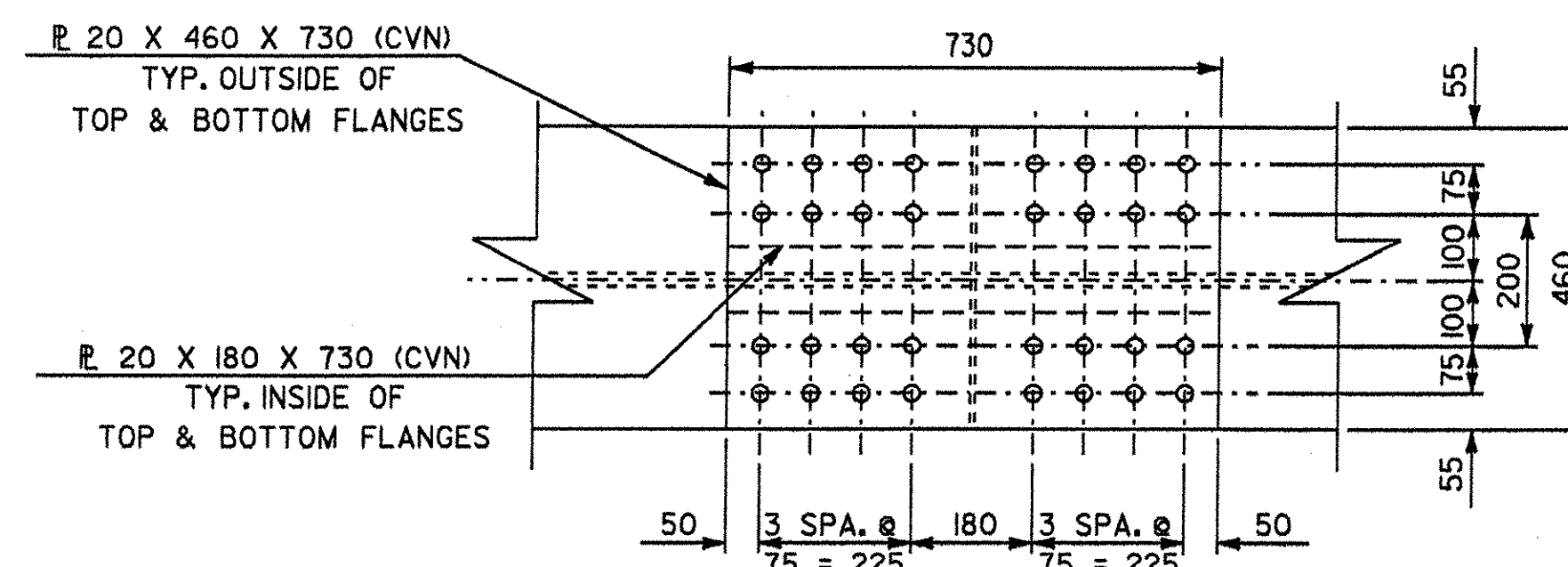


**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

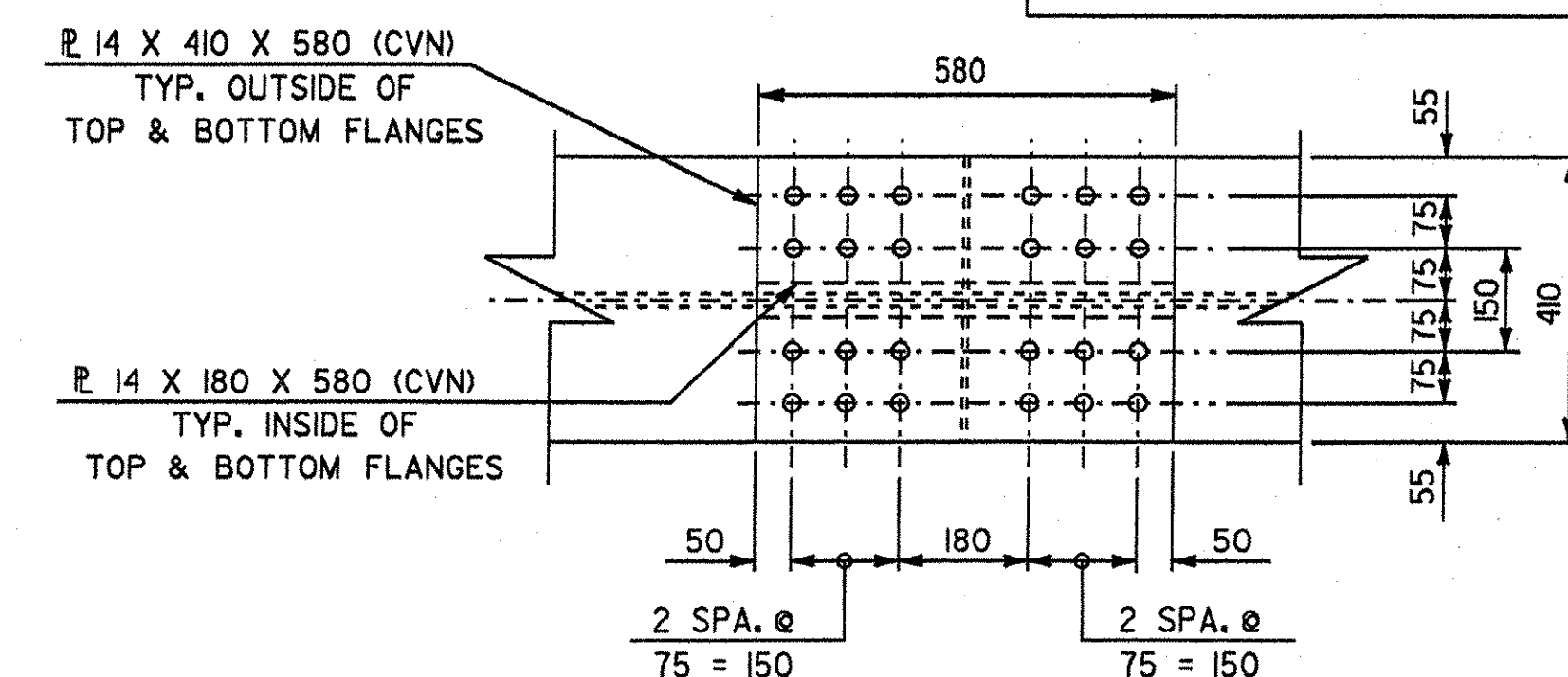
Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
MISC. GIRDER DETAILS			
Designed By	S. BAKI	Drawn By	W. GAYNOR
Checked By	S. BAKI	Date	
		Bridge Design Supervisor	J. MIECZKOWSKI
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\Projects\78f204\Construction\zf204cdt_r1.dgn			
Bridge Sheet No. BR113		Sheet 48 of 86	



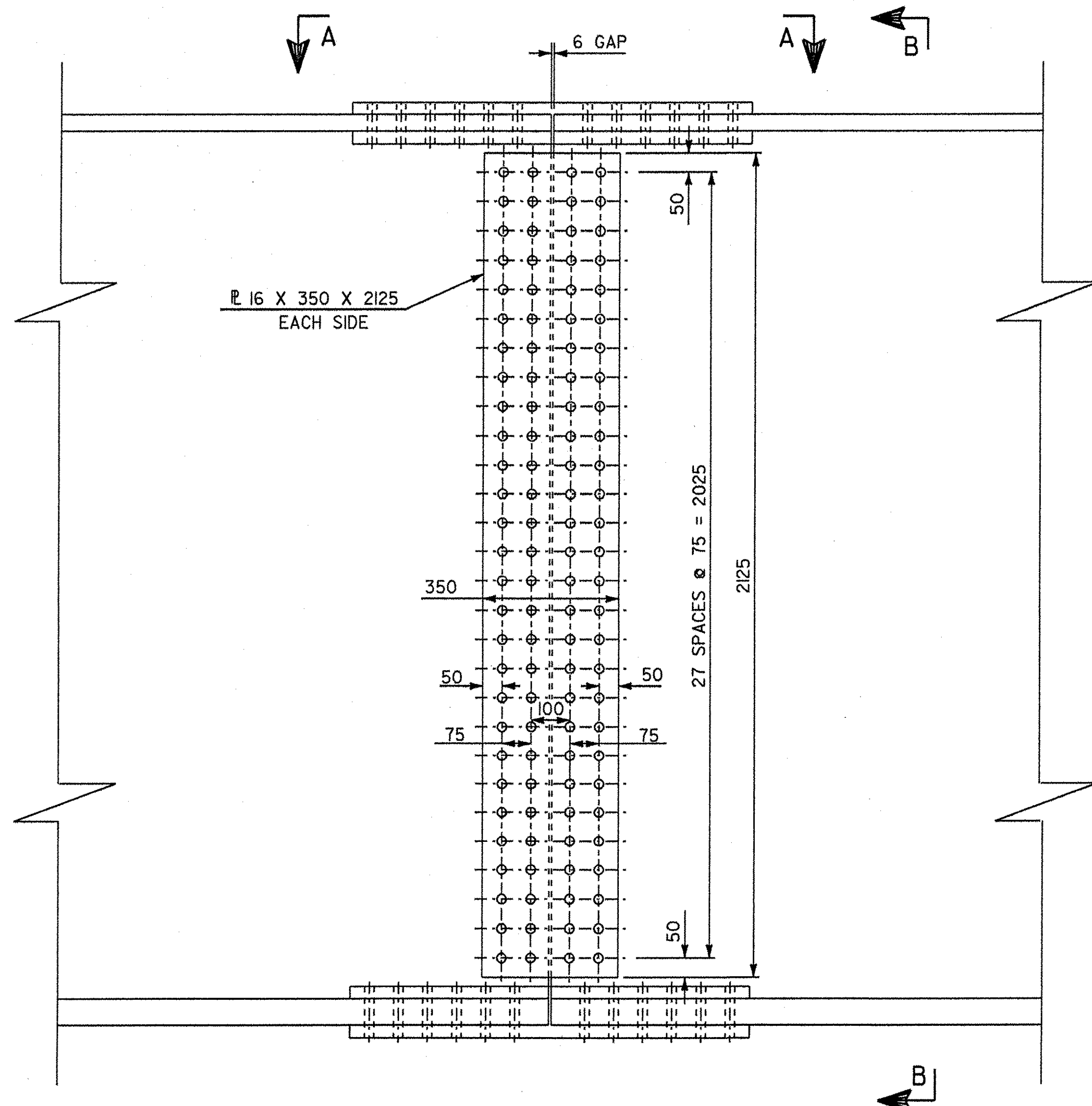
VIEW A-A
GIRDER G1 & G2
SCALE IN MILLIMETERS



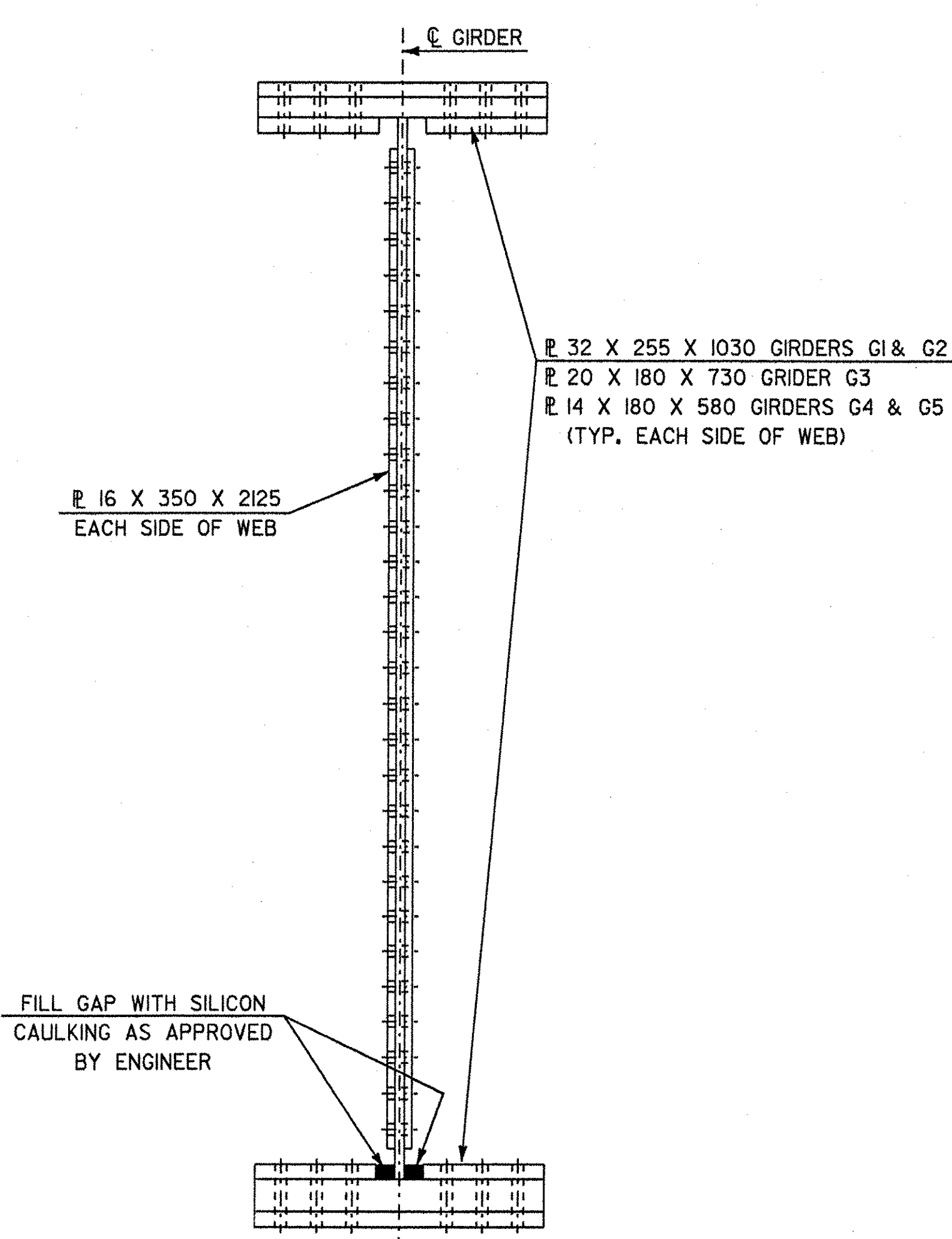
VIEW A-A
GIRDER G3
SCALE IN MILLIMETERS



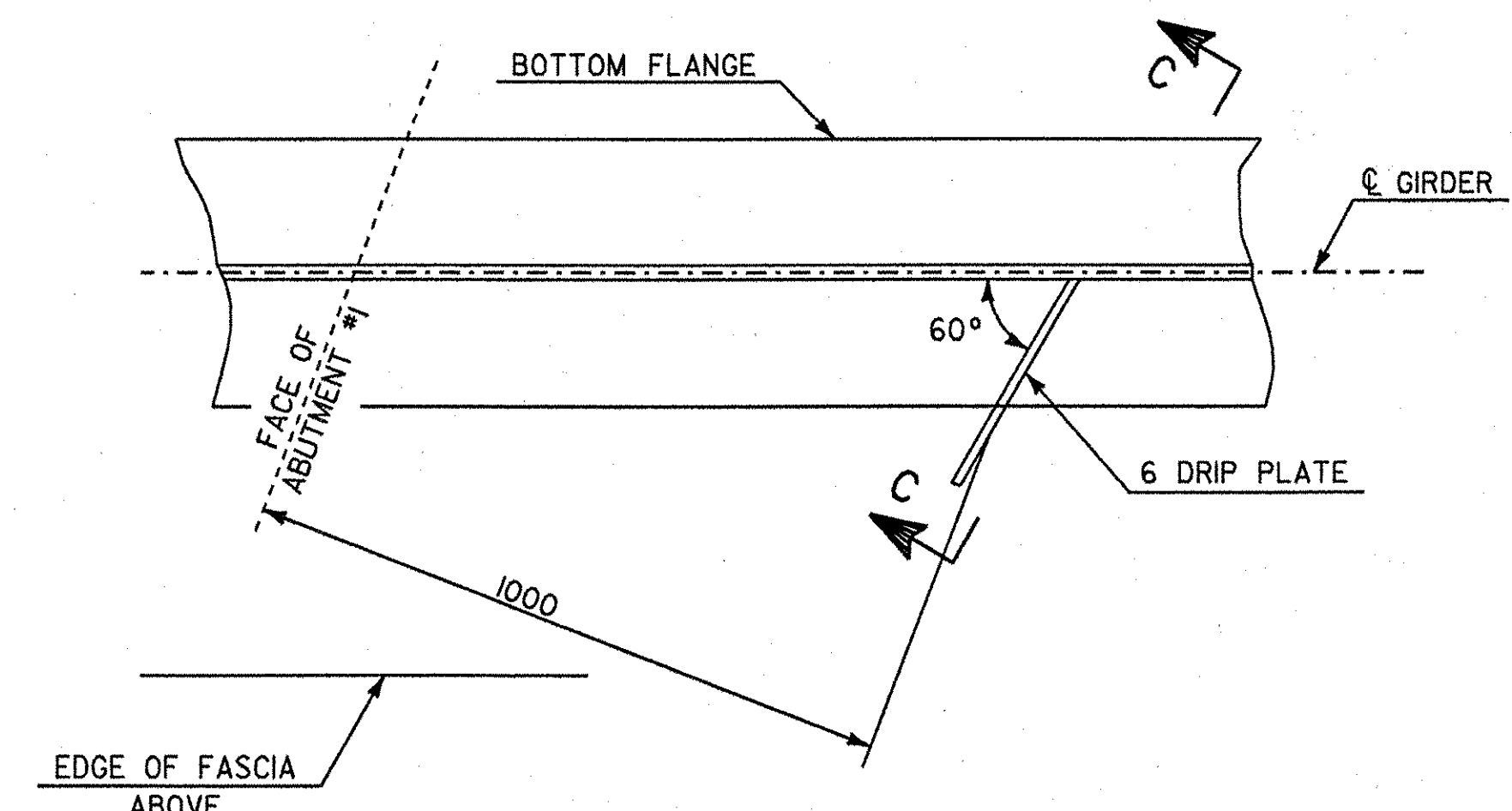
VIEW A-A
GIRDER G4 & G5
SCALE IN MILLIMETERS



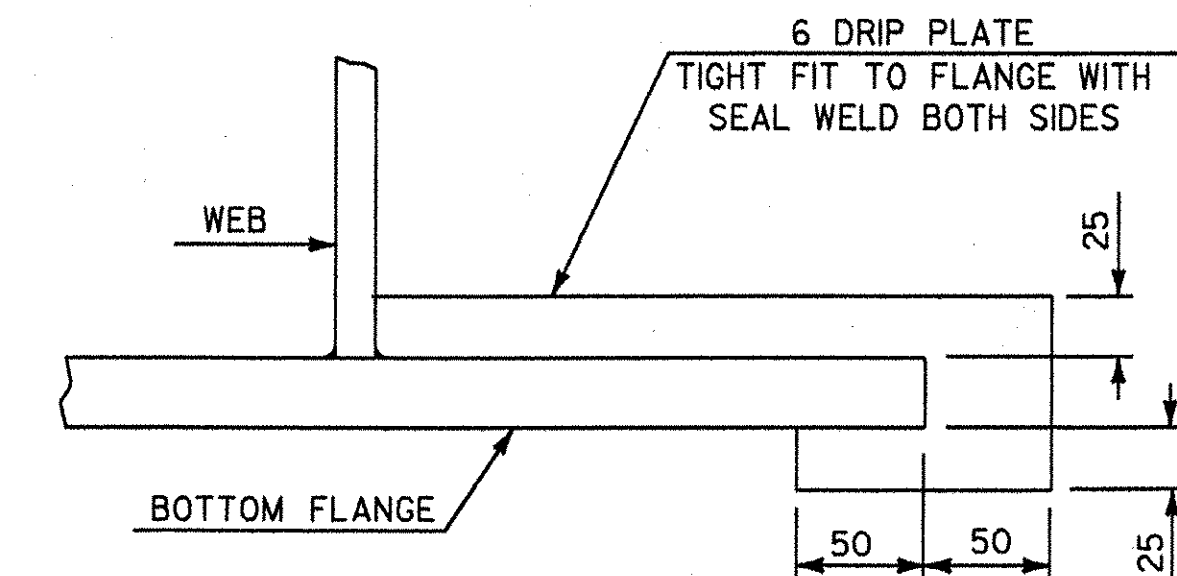
ELEVATION



SECTION B-B



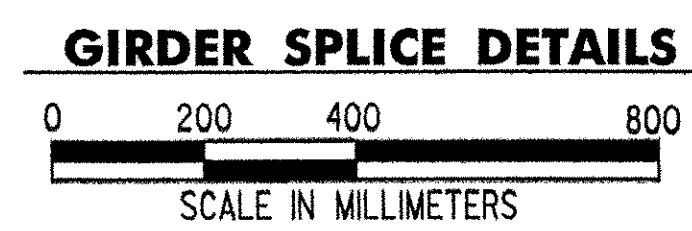
DRIP PLATE PLAN
SCALE IN MILLIMETERS



VIEW C-C
NOT TO SCALE

FIELD SPLICE NOTES

1. WEB SPLICES ARE THE SAME FOR GIRDERS G1 THRU G5.
2. ALL SPLICE CONNECTIONS SHALL BE MADE USING 22 Ø AASHTO M164 BOLTS IN 25 Ø HOLES.
3. CVN = CHARPY V - NOTCH TESTING REQUIRED
4. CONNECTION DETAILS FOR BOLTED FIELD SPLICE SHALL HAVE A CLASS 'B' SURFACE CONDITION WITH BOLT THREADS PRECLUDED FROM THE SHEAR PLANE.



NOTE:

GIRDER SPLICE ELEVATION AND SECTION B-B ARE SHOWN FOR GIRDERS G1 AND G2. ELEVATION AND SECTION B-B FOR GIRDERS G3, G4 AND G5 ARE SIMILAR.

NOTE:

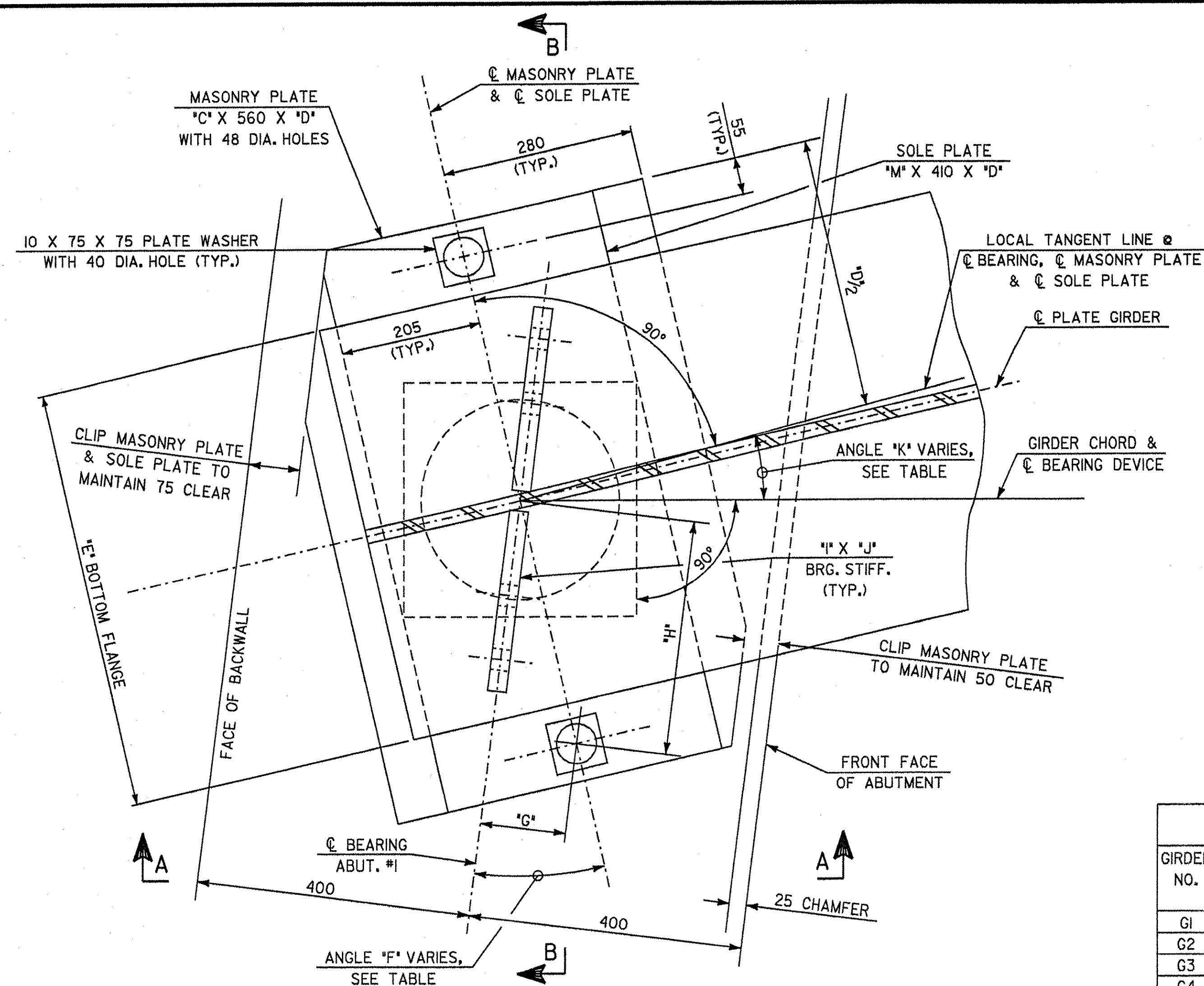
DRIP PLATES SHALL BE PLACED ON OUTSIDE EDGE OF FASCIA GIRDERS. SEE FRAMING PLAN ON SHEET BR11 FOR LOCATIONS.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
GIRDER SPLICE DETAILS			
Designed By	S. BAKI	Drawn By	B. TYLER
Checked By	S. BAKI	Bridge Design Supervisor	J. MIECZKOWSKI
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\145620\VAOT_Hartland\struct\zf204sd+g			
Bridge Sheet No.	BR114	Sheet	49 of 86

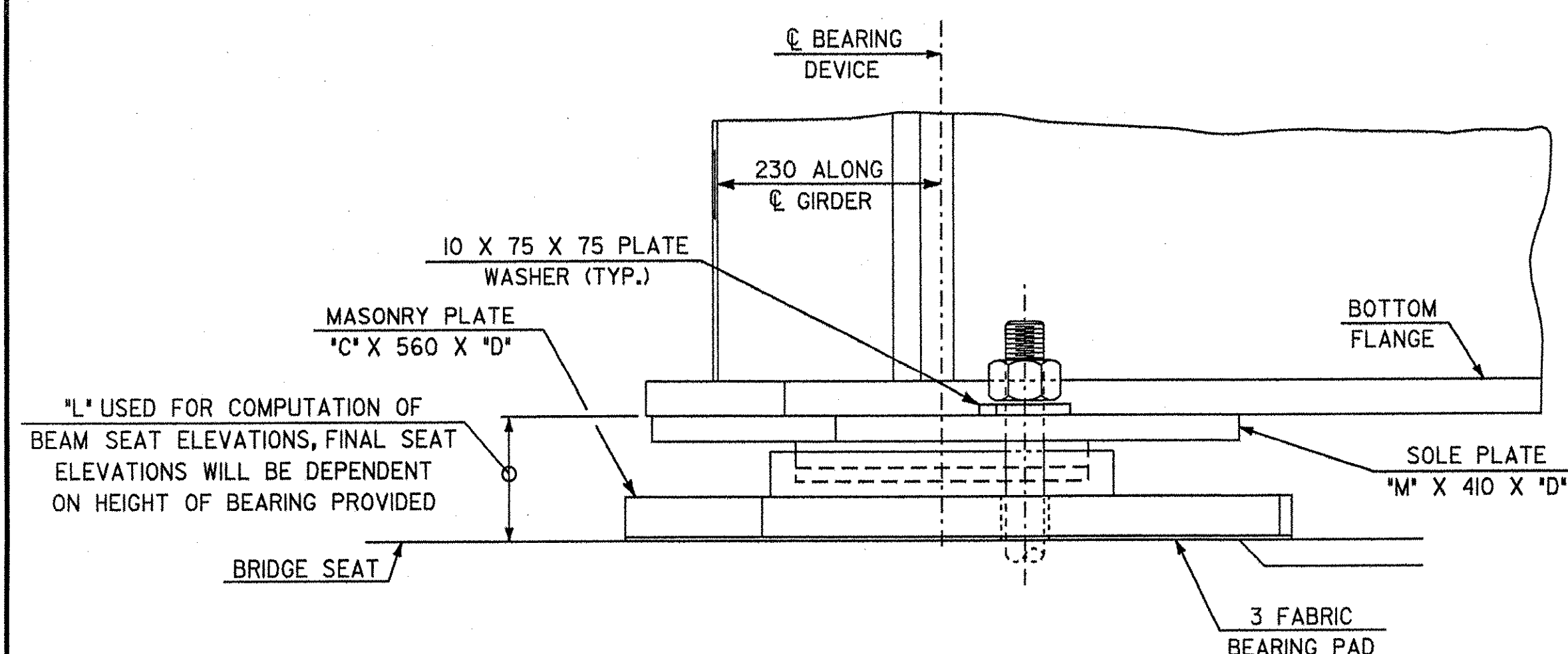
BEARING NOTES

1. BEARINGS SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTION 531 AND 731 AND SHALL BE PAID FOR UNDER THE ITEM 531.0 'BEARING DEVICE ASSEMBLY'.
2. THE FIELD WELD CONNECTING THE BOTTOM FLANGE WITH THE BEARING DEVICE SHALL BE MADE WITH E7018 RODS.
3. ALL BEARING DEVICES SHALL BE GALVANIZED OR METALIZED AS PER SECTION 531.04(b) AND 506.15(a) AND (b). AREAS OF GALVANIZING OR METALIZING DAMAGED BY FIELD WELDS OR HANDLING SHALL BE PAINTED WITH AN APPROVED SEALANT IN ACCORDANCE WITH SUBSECTION 531.04.
4. 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, AND SHALL MAINTAIN THE ANCHORAGE SYSTEM SHOWN.
5. BRIDGE SEAT ELEVATIONS MAY BE REVISED TO ACCOMMODATE AN ALTERNATE CONFIGURATION.
6. THE CONCRETE SURFACE UNDER THE BEARING DEVICE SHALL BE LEVEL.
7. 'A' DISTANCE IS THE FINAL SETTING FOR THE BEARING PAD AFTER THE CONCRETE SLAB, CURB, PAVEMENT AND BRIDGE RAIL ARE PLACED. 'B' DISTANCE IS LISTED FOR SETTING THE BEARING AFTER THE STRUCTURAL STEEL IS ERECTED AND BEFORE THE CONCRETE DECK IS POURED. THE DIFFERENCE IS THE THEORETICAL ELONGATION OF THE BOTTOM FLANGE DUE TO DEAD LOAD DEFLECTION. THE FINAL 'A' DISTANCE AS SHOWN IN THE TABLE, MUST BE ATTAINED WITHIN 3 MM.
8. DESIGN CRITERIA:
 - A. BASE PLATE TO CONCRETE DESIGN PRESSURE = 6,895 kPa MAXIMUM.
 - B. MINIMUM ALLOWABLE DESIGN ROTATION = 0.015 RADIAN.
 - C. HORIZONTAL CAPACITY SHALL BE A MINIMUM 10% OF VERTICAL LOAD. GUIDE BARS SHALL BE DESIGNED FOR THIS CAPACITY.
 - D. DESIGN LOAD PER BEARING = 1,690 kN AT ABUTMENT 1 AND 1,335 kN AT ABUTMENT 2.
9. THE MINIMUM GAP BETWEEN THE GUIDE BARS AND THE BEARING ON THE EXPANSION BEARINGS SHALL 14 MIN. TO ALLOW FOR LATERAL MOVEMENT.

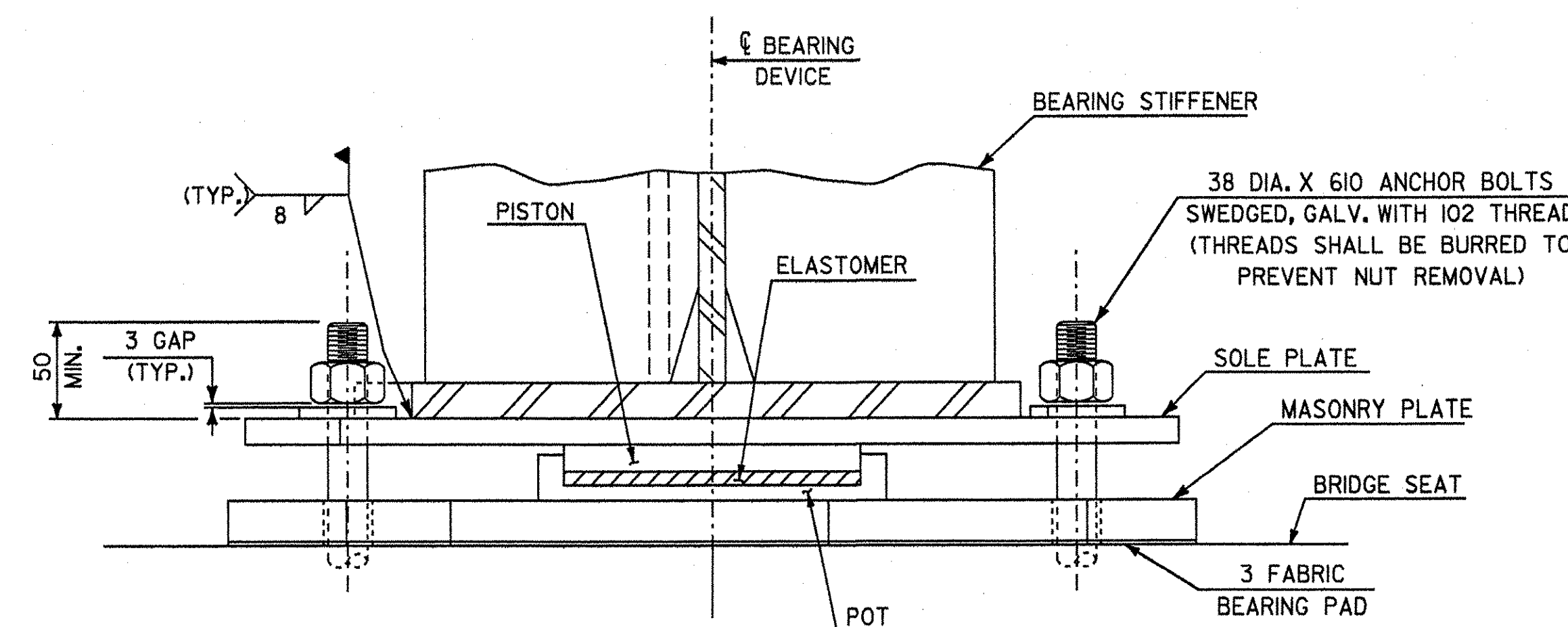


PLAN VIEW

GIRDER NO.	PLATE THICKNESS, DIM. 'C'	PLATE LENGTH, DIM. 'D'	FLANGE WIDTH, DIM. 'E'	ANGLE 'F' BETWEEN 'C' BRG. & 'C' MAS. P.	HOLE DIM. 'G'	HOLE DIM. 'H'	STIFF. R. DIM. 'I'	STIFF. R. DIM. 'J'	ANGLE 'K' BETWEEN GIRDER CHORD & LOCAL TANGENT @ 'C' BEARING	HEIGHT 'L' BETWEEN TOP OF BRIDGE SEAT & BOTTOM OF GIRDER FLANGE	PLATE THICKNESS, DIM. 'M'
G1	60	840	610	19°-00'-15.8"	119	345	32	290	11°-59'-55.3"	174	38
G2	48	840	610	19°-29'-21.2"	122	344	32	290	12°-03'-44.2"	154	30
G3	32	686	460	20°-00'-00.0"	99	271	25	215	12°-07'-46.3"	133	25
G4	32	636	410	20°-32'-20.0"	92	246	22	190	12°-12'-02.7"	127	25
G5	32	636	410	21°-06'-30.6"	95	245	22	190	12°-16'-35.1"	127	25

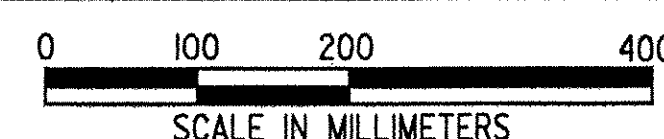


SECTION A-A



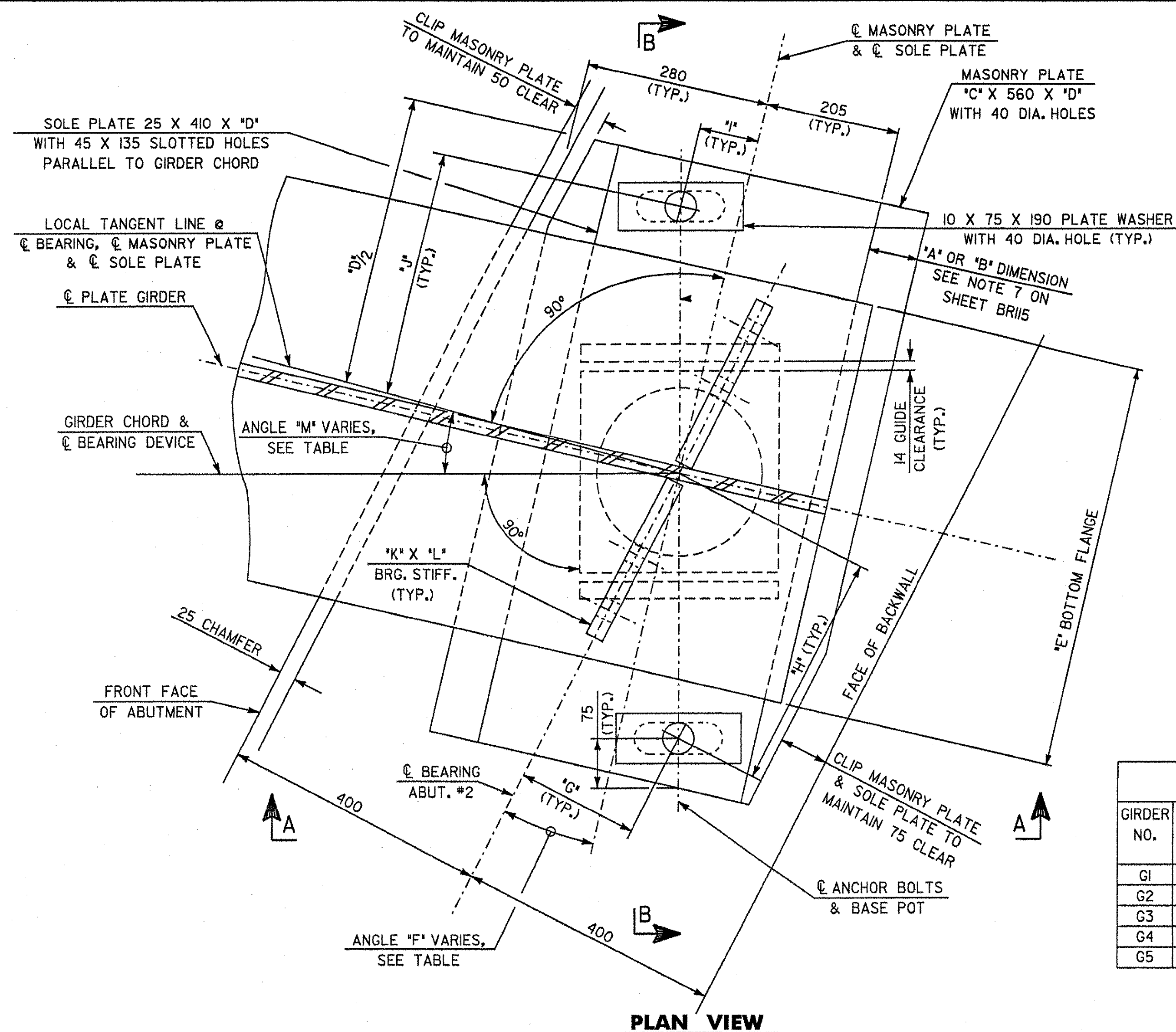
SECTION B-B

FIXED BEARING DETAIL AT ABUTMENT NO. 1



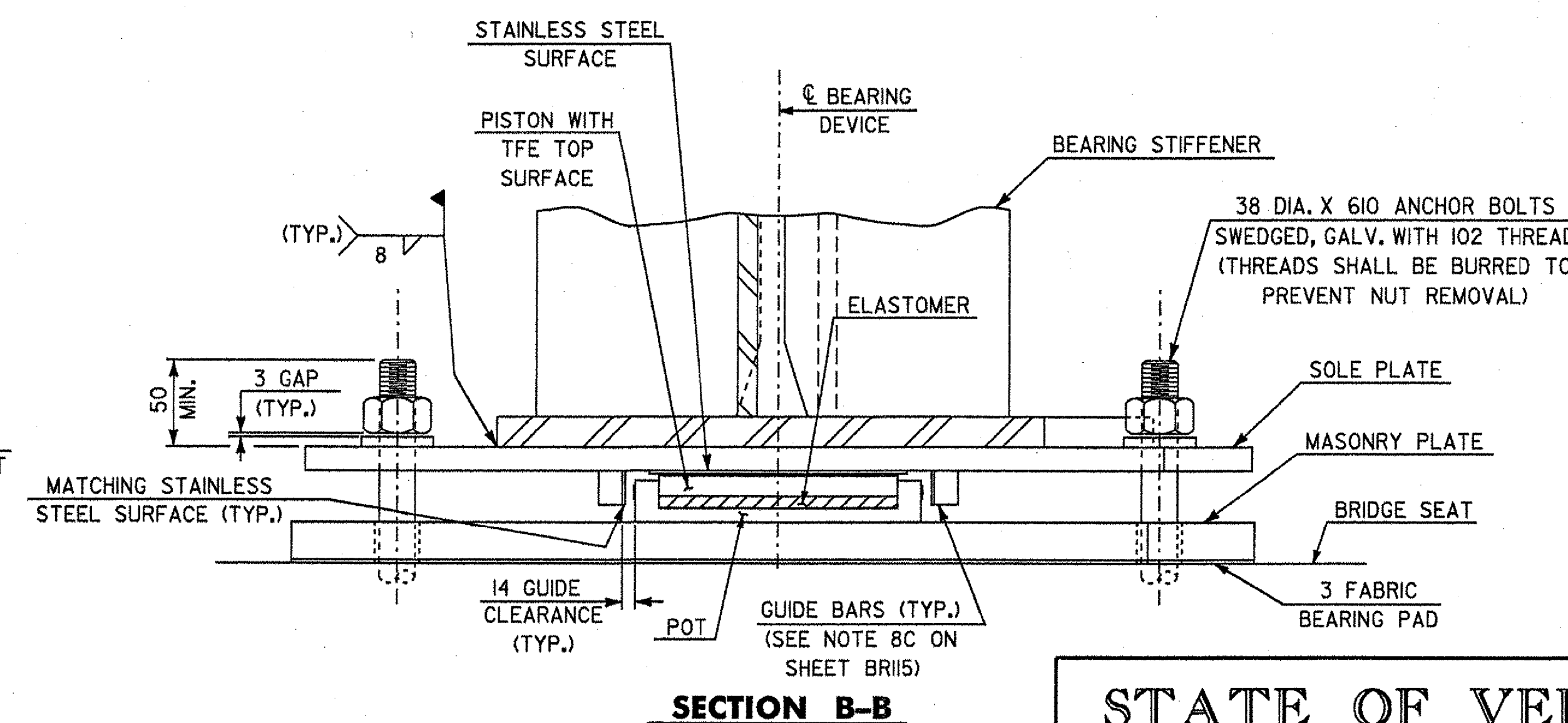
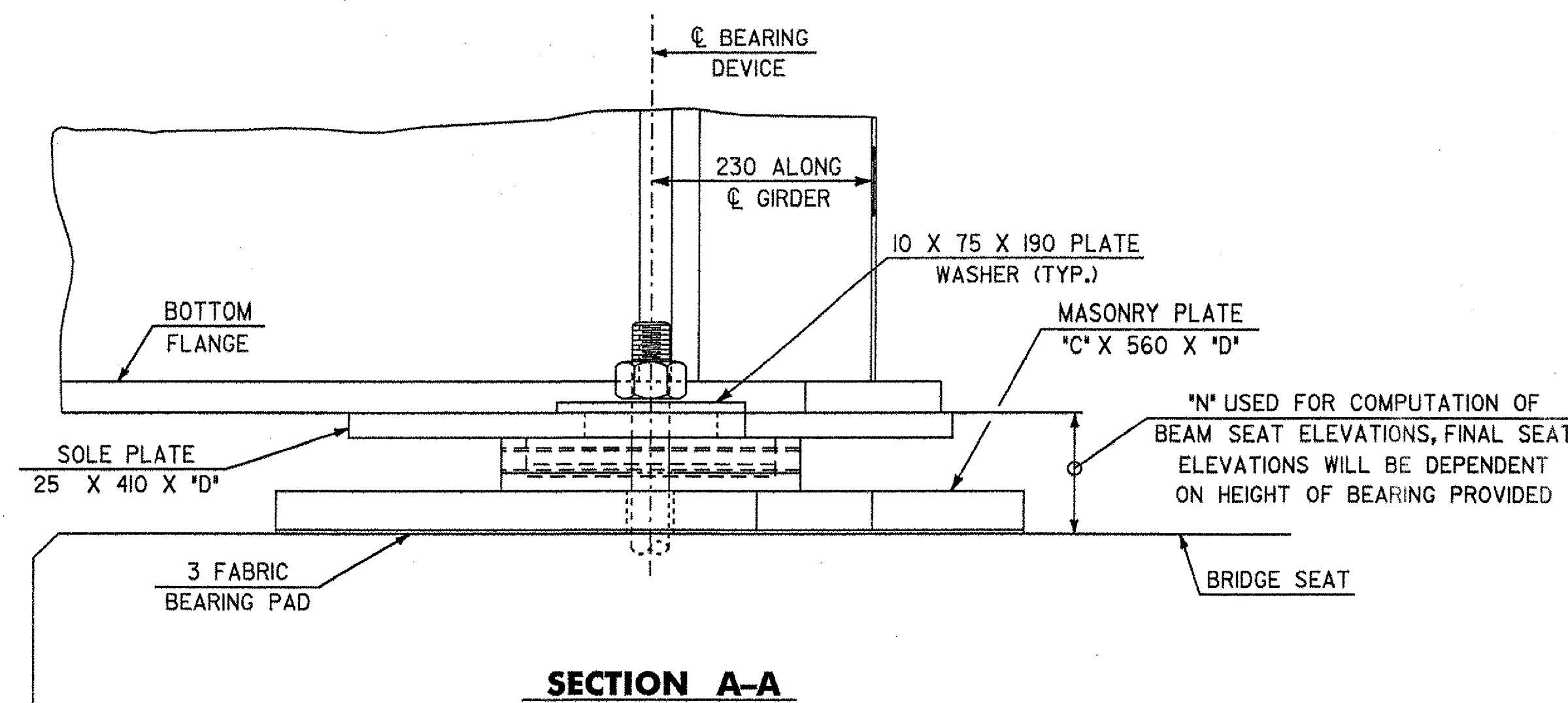
STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
ABUTMENT NO. 1 FIXED BEARING			
Designed By	S. BAKI	Drawn By	W. GAYNOR
Checked By	Date	Bridge Design Supervisor	J. MIECZKOWSKI Date
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\145620\VAOT Hartland\struct\zf204bdt.dgn			
Bridge Sheet No. BR115		Sheet 50 of 86	



ABUTMENT NO. 2		
TEMP	'A' DIST	'B' DIST
0°C-F	89	104
15°C-F	85	100
30°C-F	80	96
45°C-F	76	92
60°C-F	72	87
75°C-F	68	83
90°C-F	63	79
105°C-F	59	74

TABLE OF EXPANSION BEARING DIMENSIONS AT ABUTMENT NO. 2												
GIRDER NO.	PLATE THICKNESS DIM. 'C'	PLATE LENGTH DIM. 'D'	FLANGE WIDTH DIM. 'E'	ANGLE 'F' BETWEEN 'C' BRG. & 'C' MAS. P.	HOLE DIM. 'G'	HOLE DIM. 'H'	HOLE DIM. 'I'	HOLE DIM. 'J'	STIFF. P. DIM. 'K'	STIFF. P. DIM. 'L'	ANGLE 'M' BETWEEN GIRDER CHORD & LOCAL TANGENT @ 'C' BEARING	HEIGHT 'N' BETWEEN TOP OF BRIDGE SEAT & BOTTOM OF GIRDER FLANGE
G1	55	916	610	14°-15'-57.6"	174	352	82	385	32	290	11°-59'-55.3"	165
G2	55	916	610	14°-37'-25.3"	177	351	82	385	32	290	12°-03'-44.2"	165
G3	32	762	460	15°-00'-00.0"	144	280	66	308	25	215	12°-07'-46.3"	142
G4	32	712	410	15°-23'-47.0"	134	256	61	283	22	190	12°-12'-02.7"	142
G5	32	712	410	15°-48'-52.9"	136	255	62	283	22	190	12°-16'-35.1"	130



EXPANSION BEARING DETAIL AT ABUTMENT NO. 2



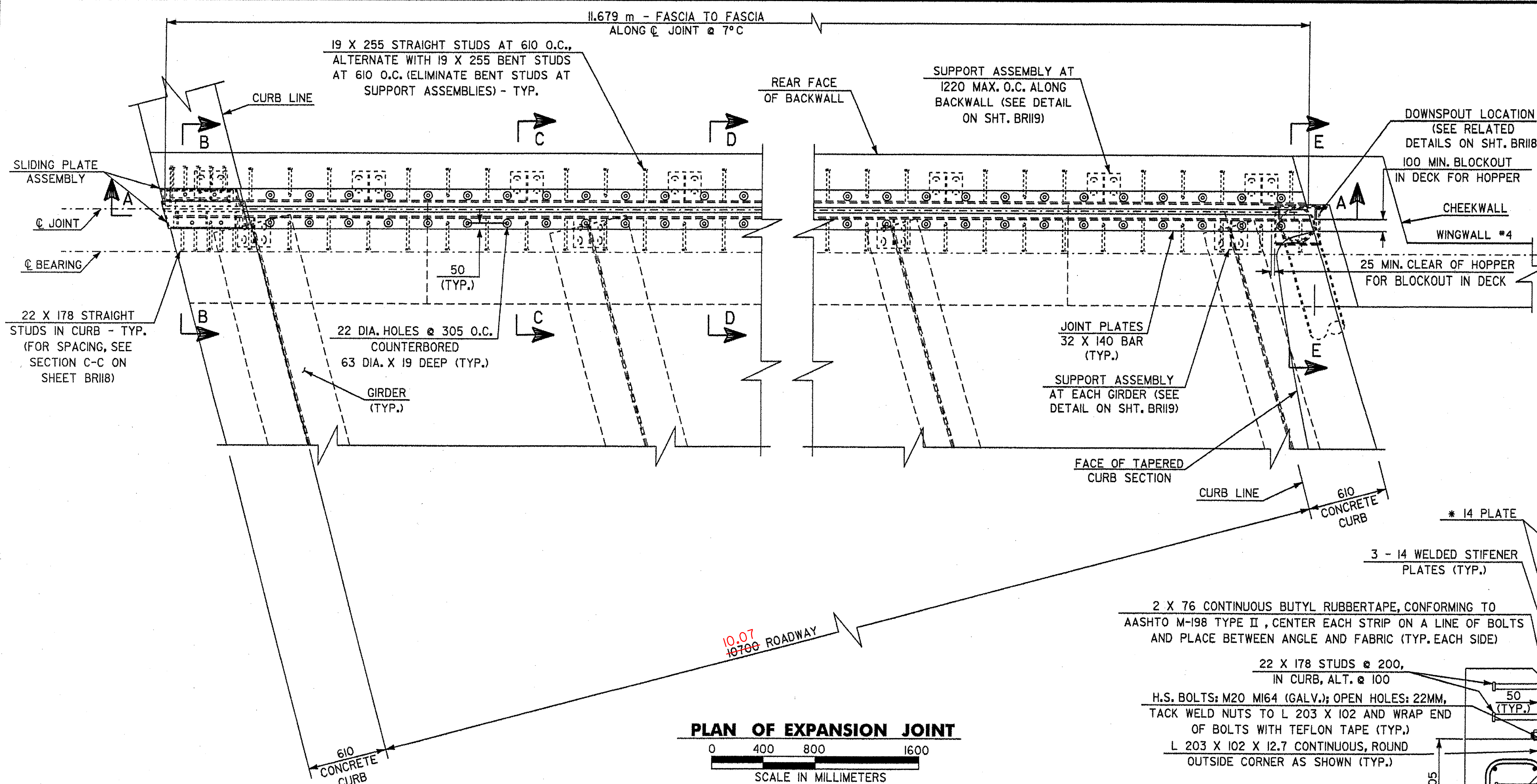
STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of HARTLAND Bridge No. 60
Highway No. U.S. ROUTE 5 Log Sta.
Surv. Sta.
U.S. ROUTE 5 OVER LULLS BROOK

ABUTMENT NO. 2 EXPANSION BEARING

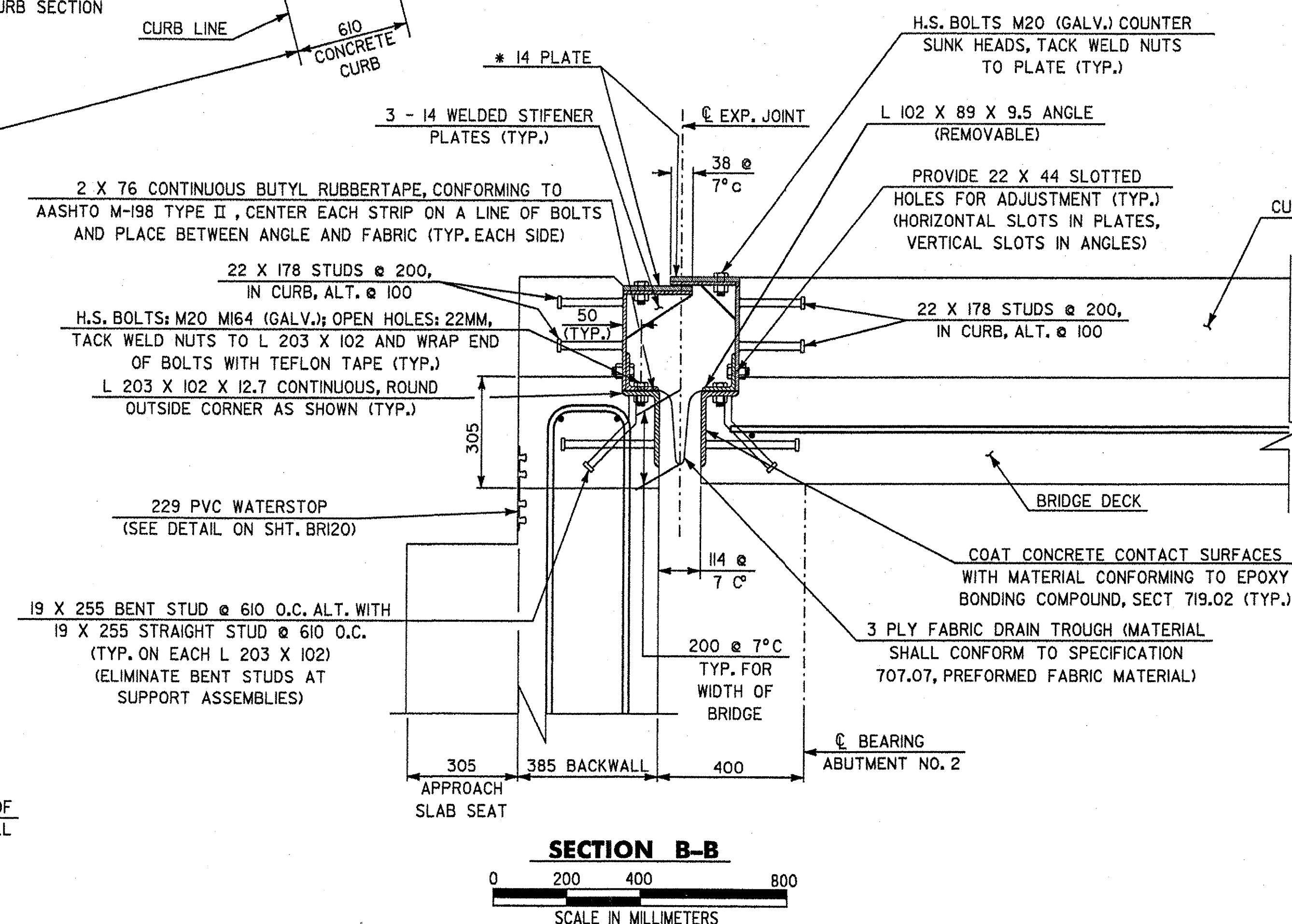
Designed By S. BAKI Drawn By W. GAYNOR
Checked By Date Bridge Design Supervisor
S. BAKI J. MECZKOWSKI Date
PROJECT HARTLAND PROJECT NO.
BRS No. 0113(22)
I.G.C. Info. M:\456201\VAOT Hartland\struct\zf204bdt.dgn
Bridge Sheet No. BR116 Sheet 51 of 86

MAG 1982

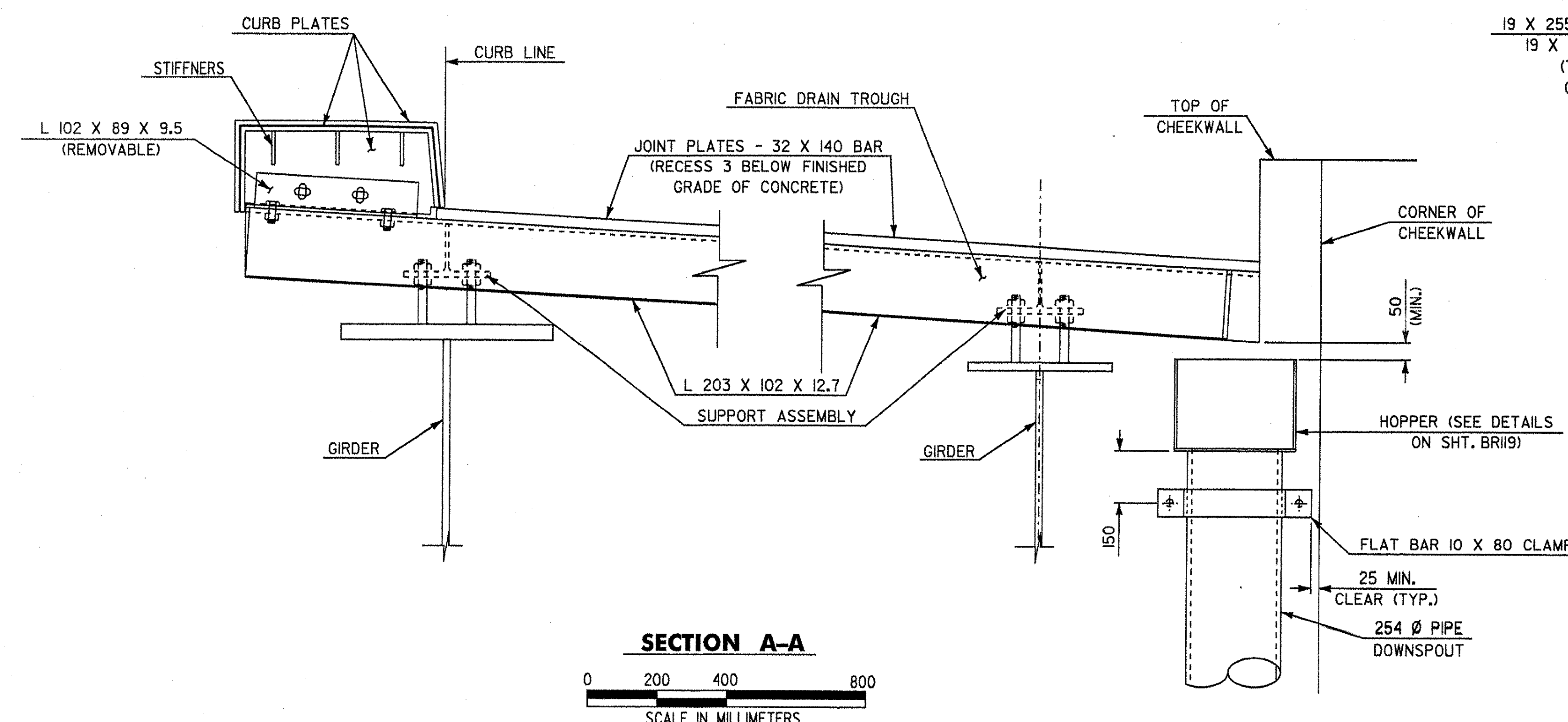


JOINT DIMENSION TABLE	
TEMPERATURE	"A" DISTANCE
-18°C	51
-9°C	47
-1°C	42
7°C	38
16°C	34
24°C	30
32°C	25
41°C	21

NOTE:
FOR SECTIONS C-C, D-D AND E-E,
SEE SHEET BRII8.



* PROVIDE 3 CLEARANCE BETWEEN SURFACES
OF THE FIXED AND SLIDING CURB PLATES.



STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of HARTLAND Bridge No. 60

Highway No. U.S. ROUTE 5 Log Sta.

Surv. Sta.

U.S. ROUTE 5 OVER LULLS BROOK

EXPANSION JOINT DETAILS AT ABUT. NO. 2

Designed By S. BAKI Drawn By W. GAYNOR

Checked By S. BAKI Date Bridge Design Supervisor

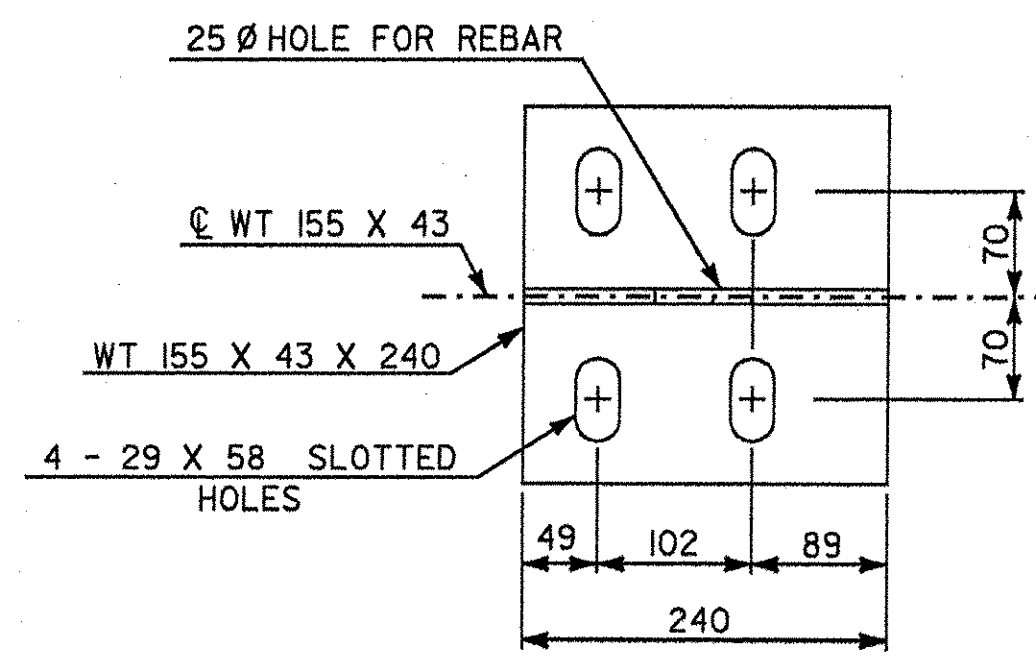
J. MIECZKOWSKI Date

PROJECT HARTLAND PROJECT NO.

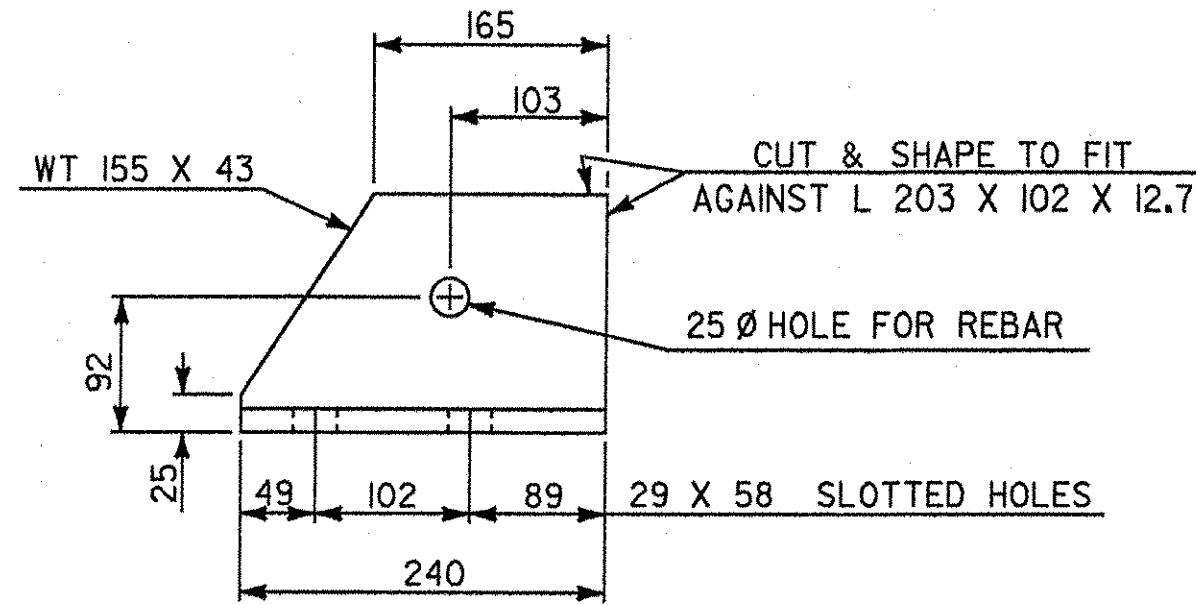
BRS No. 0113(22)

I.G.C. Info. M:\145620\VAOT Hartland\struct\zf204Jdt.dgn

Bridge Sheet No. BRII7 Sheet 52 of 86

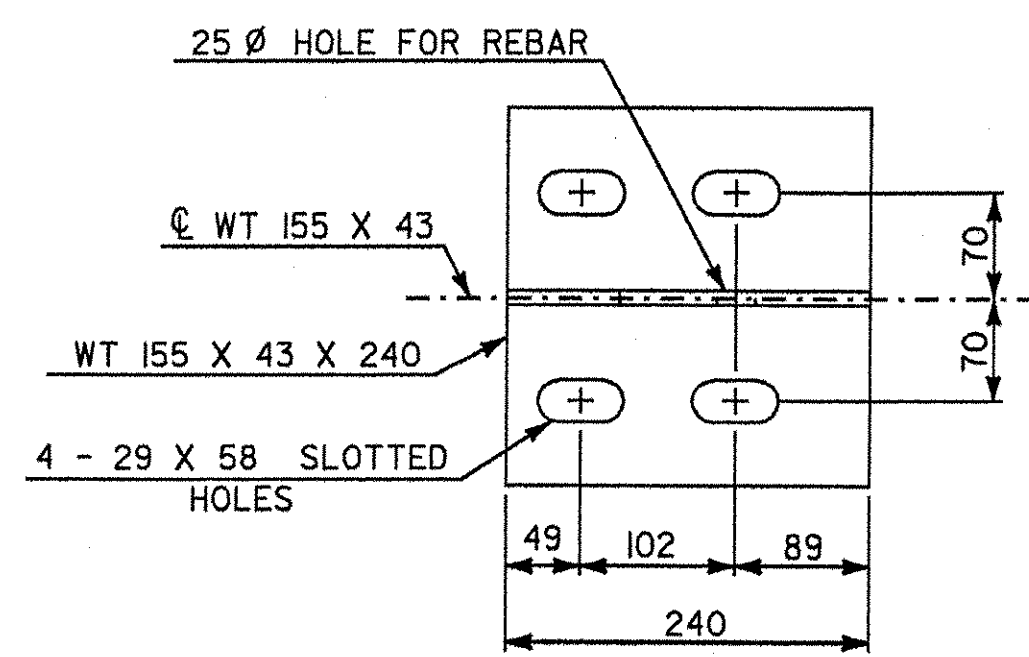


PLAN

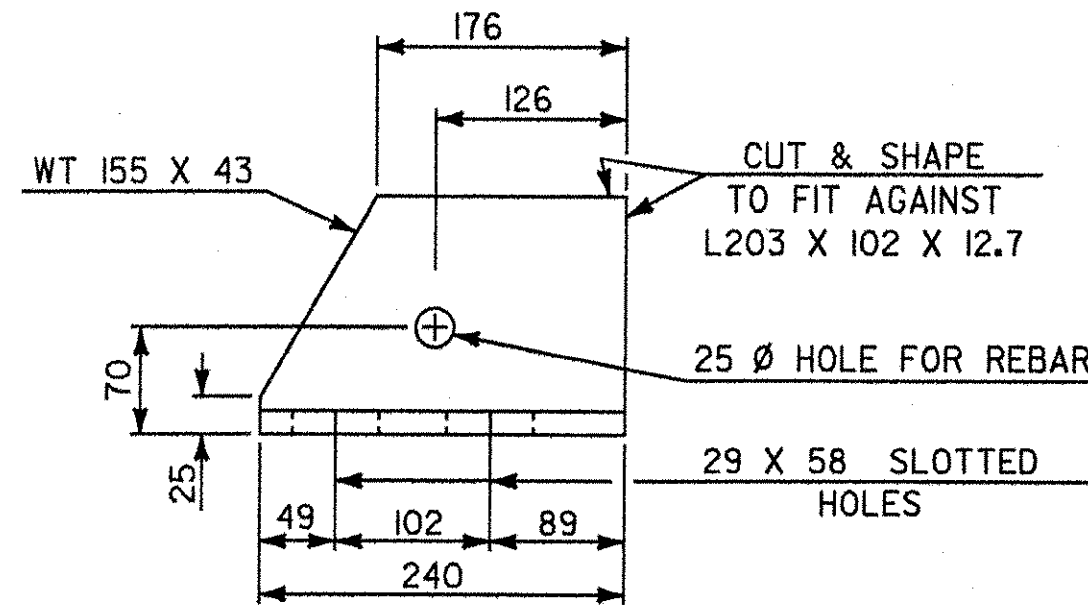


ELEVATION

BACKWALL SUPPORT ASSEMBLY BRACKET DETAIL

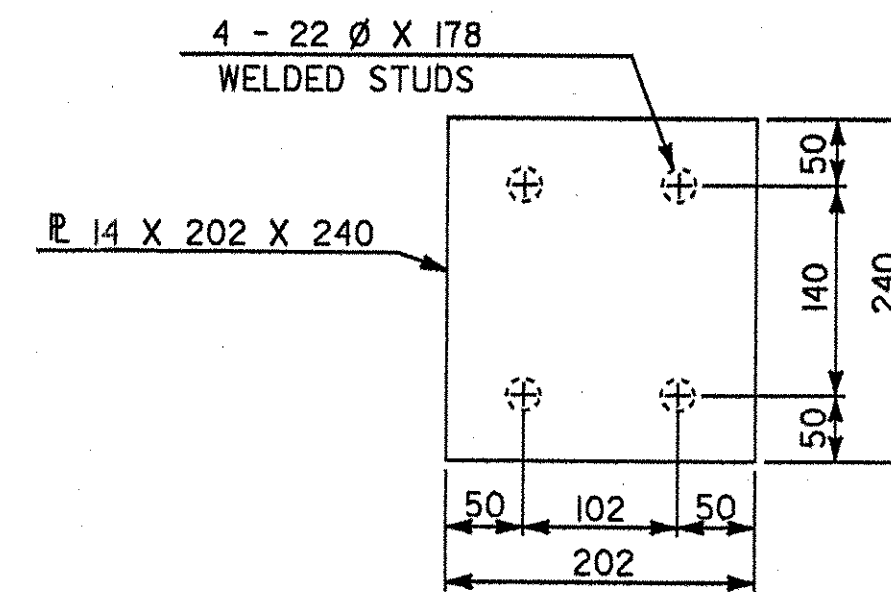


PLAN

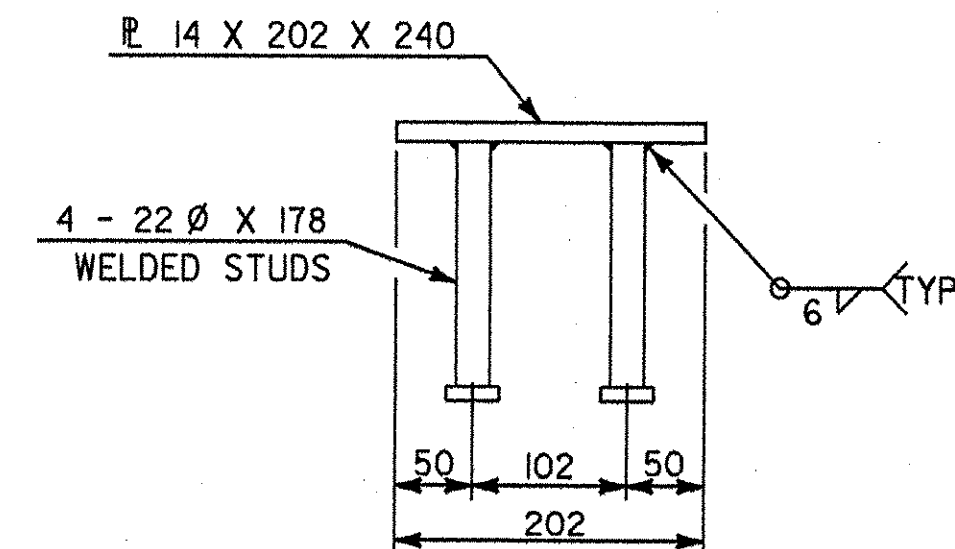


ELEVATION

GIRDER SUPPORT ASSEMBLY BRACKET DETAIL

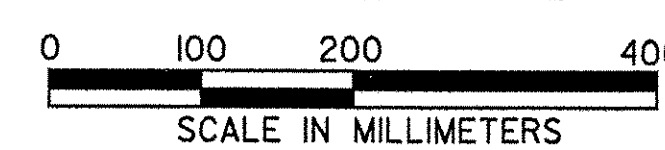


PLAN



ELEVATION

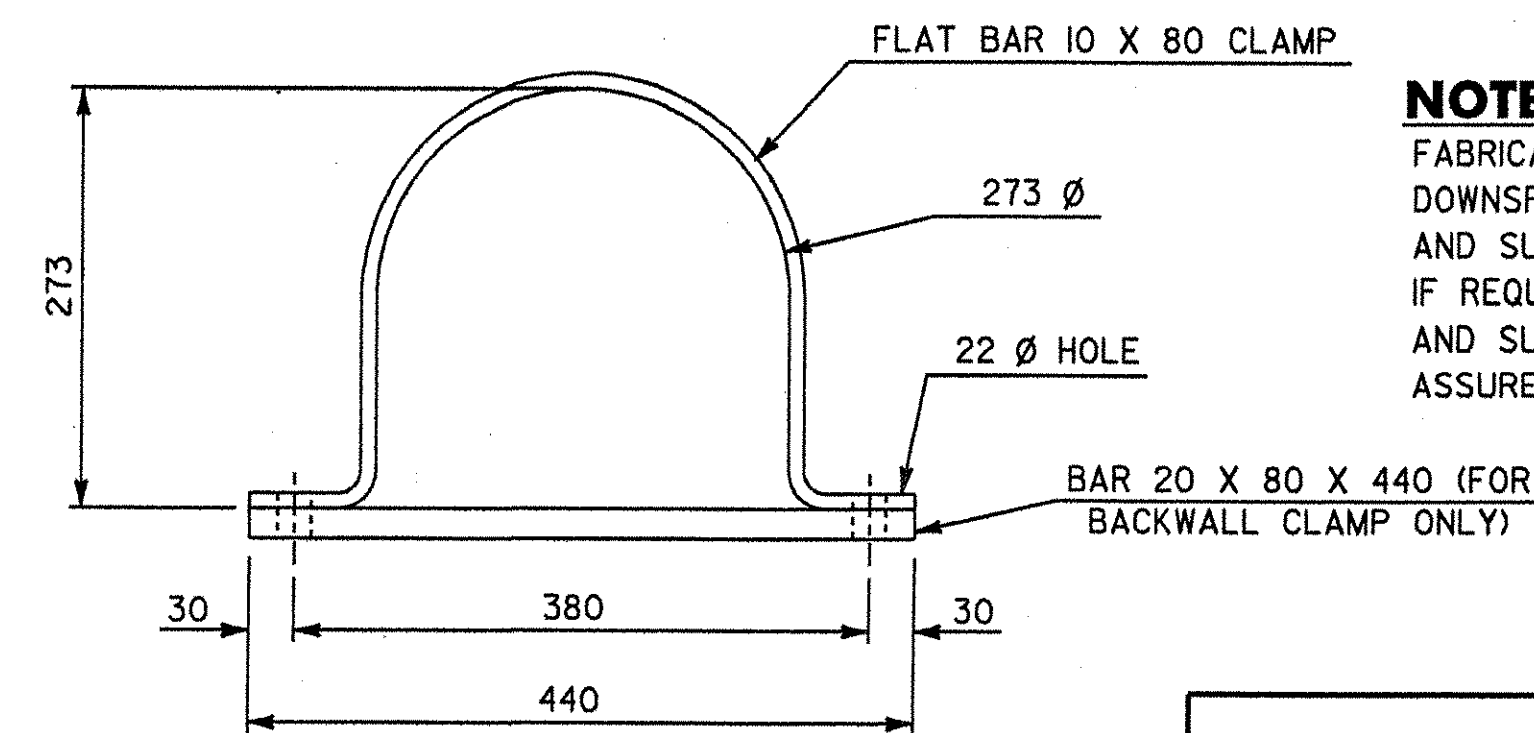
BACKWALL SUPPORT ASSEMBLY PLATE DETAIL



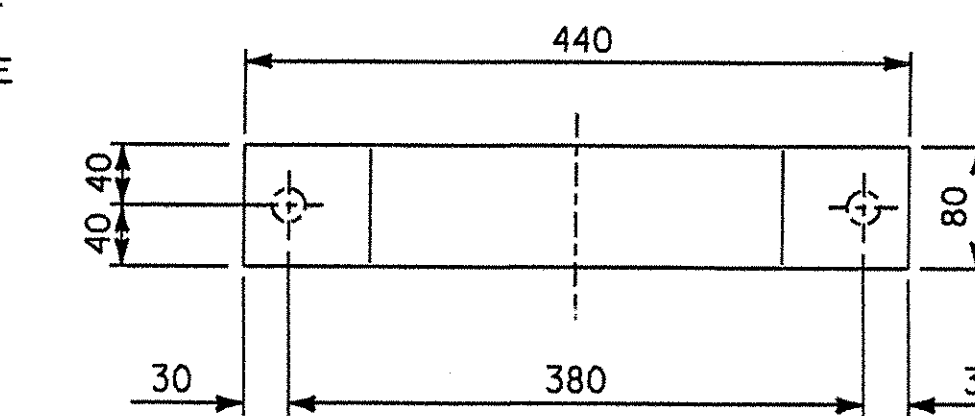
- ### EXPANSION JOINT NOTES
1. THE FINAL FINISH OF THE EXPANSION JOINT SHALL BE COVERED DURING THE PLACING OF THE BRIDGE DECK CONCRETE.
 2. ALL STEEL COMPONENTS SHALL BE AASHTO M270M GR 250 MPa GALVANIZED OR METALIZED AS PER SUBSECTION 506.15 (b) OR (c), UNLESS OTHERWISE NOTED. PAYMENT FOR THE CURB EXPANSION PLATE ASSEMBLY, COMPLETE IN PLACE, SHALL BE UNDER BRIDGE EXPANSION JOINT, ITEM 516.10, TOTAL MOVEMENT 30.
 3. THE ITEM "BRIDGE EXPANSION JOINT" SHALL INCLUDE THE FABRICATION AND ERECTION OF THE COMPLETE JOINT ASSEMBLY INCLUDING ALL STEEL PLATES, BRACKETS, ANGLES, WELDED STUDS OR RODS, PREFORMED FABRIC DRAIN TROUGH MATERIAL AND PLASTIC DRAIN TUBES, BUTYL RUBBER TAPE AND ANY OTHER MISCELLANEOUS MATERIAL NECESSARY TO INSTALL JOINT.
 4. THE FABRIC TROUGH SHALL BE CONTINUOUS PREFORMED FABRIC MATERIAL CONFORMING TO SECTION 707.07. THE HIGH END OF THE FABRIC TROUGH SHALL BE CLOSED BY FOLDING.
 5. PAYMENT FOR THE DOWNSPOUT ASSEMBLY SHALL BE INCLUDED IN THE UNIT PRICE BID FOR BRIDGE EXPANSION JOINT, ITEM 516.10
 6. WHERE INDICATED, EPOXY BONDING COMPOUND CONFORMING TO SECTION 719.02 SHALL BE APPLIED. PAYMENT TO BE INCLUDED IN UNIT PRICE BID FOR BRIDGE EXPANSION JOINT, ITEM 516.10
 7. A 25 DIAMETER PLASTIC DRAIN TUBE SHALL BE INSTALLED AS SHOWN AT THE FACE OF CURB ON THE LOW SIDE. THE UPPER END IS TO BE PLUGGED WITH STEEL WOOL AND THE LOWER END IS TO EXTEND BELOW THE BOTTOM OF THE ADJACENT GIRDER. THE DRAIN TUBES SHALL BE FASTENED TO THE GIRDERS USING A METHOD APPROVED BY THE ENGINEER.
 8. FILL COUNTERBORED HOLES IN THE JOINT PLATES WITH HOT POURED JOINT SEALER AFTER BOLT INSTALLATION. PAYMENT FOR THE WORK SHALL BE SUBSIDIARY TO BRIDGE EXPANSION JOINT, ITEM 516.10
 9. PAYMENT FOR WATERSTOP SHALL BE SUBSIDIARY TO CONCRETE, HIGH PERFORMANCE CLASS B, ITEM 501.34.
 10. FABRIC TROUGH SHALL BE THOROUGHLY CLEANED AND FLUSHED AFTER PAVING OPERATION.
 11. THE EXPANSION JOINT SHALL BE SHOP ASSEMBLED AND SHIPPED AS ONE UNIT.
 12. A DRIP BEAD OF 13 WIDE X 228 LONG OF PREFORMED FABRIC MATERIAL, SHALL BE CEMENTED TO THE BOTTOM OF THE FABRIC TROUGH WITH AN ADHESIVE APPROVED BY THE FABRIC MANUFACTURER. THE DRIP BEAD SHALL BE APPLIED 25 FROM THE HOPPER END OF THE FABRIC TROUGH.
 13. 32 X 140 BARS SHALL BE FURNISHED IN 2 EQUAL LENGTH PIECES EACH SIDE OF JOINT.
 14. THE 32 X 140 BARS SHALL BE REMOVED AFTER CONCRETE IS POURED. THE FABRIC TROUGH SHALL THEN BE THOROUGHLY CLEANED AND THIS SURFACE IS TO BE SEALED FULL LENGTH OF THE JOINT WITH BUTYL RUBBERTAPE. THE COST IS TO BE SUBSIDIARY TO THE BRIDGE EXPANSION JOINT, ITEM 516.10.
 15. THE L 203 X 102 X 12.7 SHALL BE FURNISHED IN ONE CONTINUOUS PIECE.

NOTE:

FABRICATOR SHALL VERIFY OUTSIDE DIAMETER OF DOWNSPOUT PIPE PRIOR TO FABRICATION OF CLAMP AND SUPPORT PLATE, AND ADJUST DIMENSIONS SHOWN IF REQUIRED. FABRICATOR SHALL SHOP FIT CLAMP AND SUPPORT PLATE TO DOWNSPOUT PIPE TO ASSURE PROPER FIT IN THE FIELD.

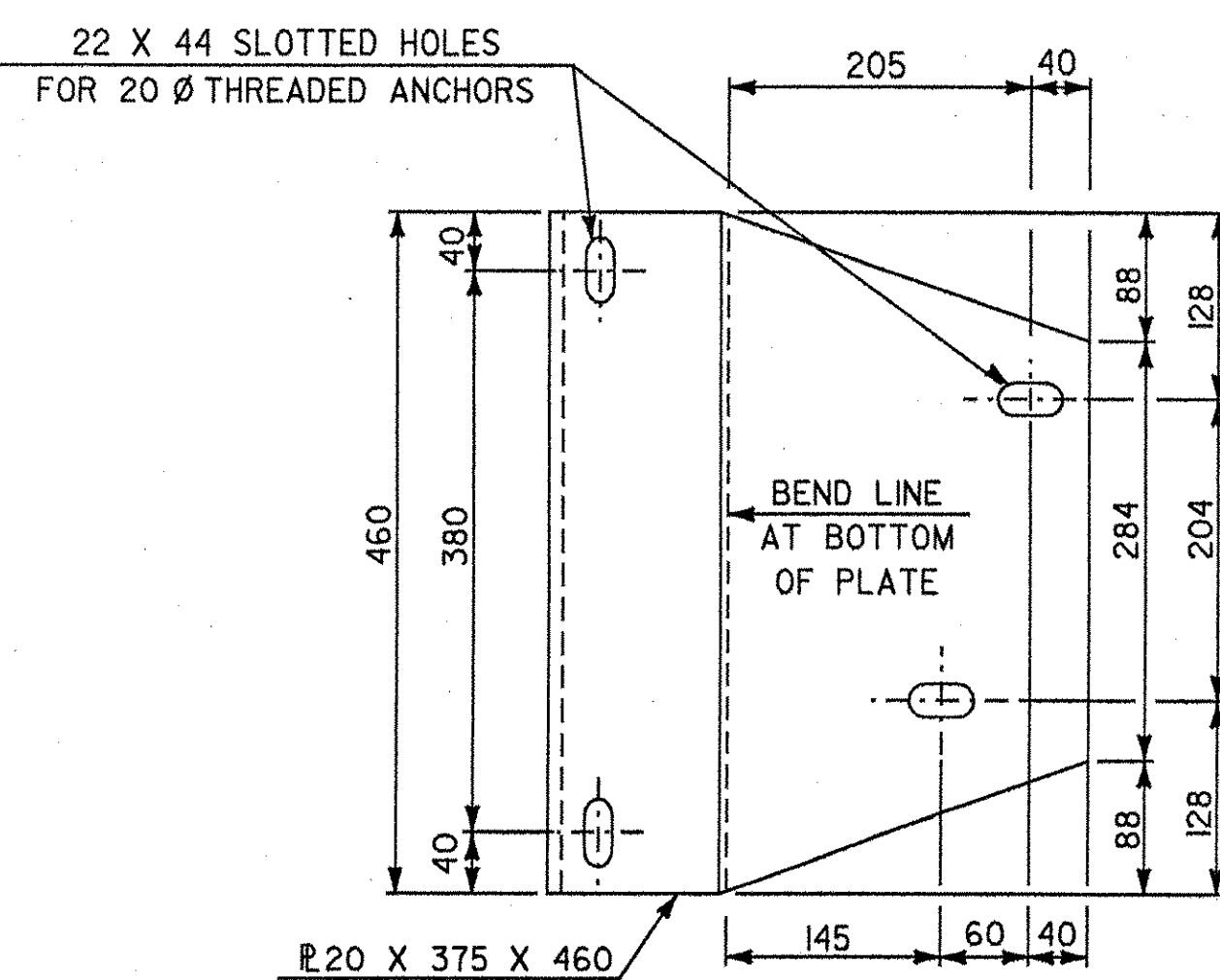
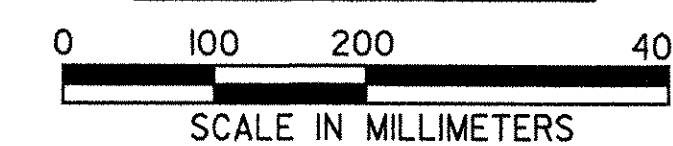


ELEVATION

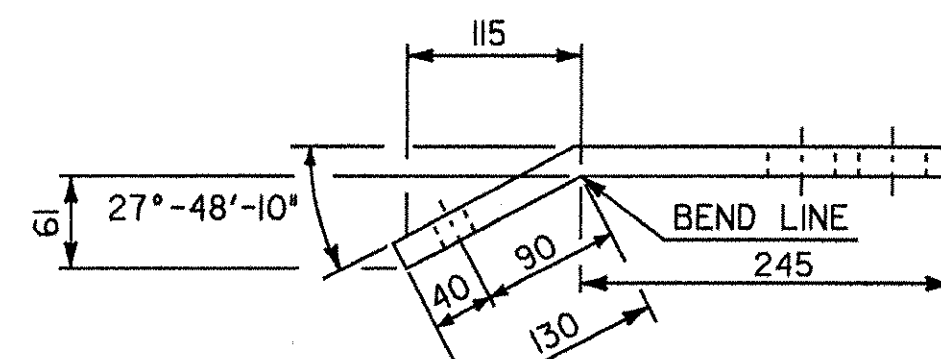


PLAN

CLAMP DETAILS

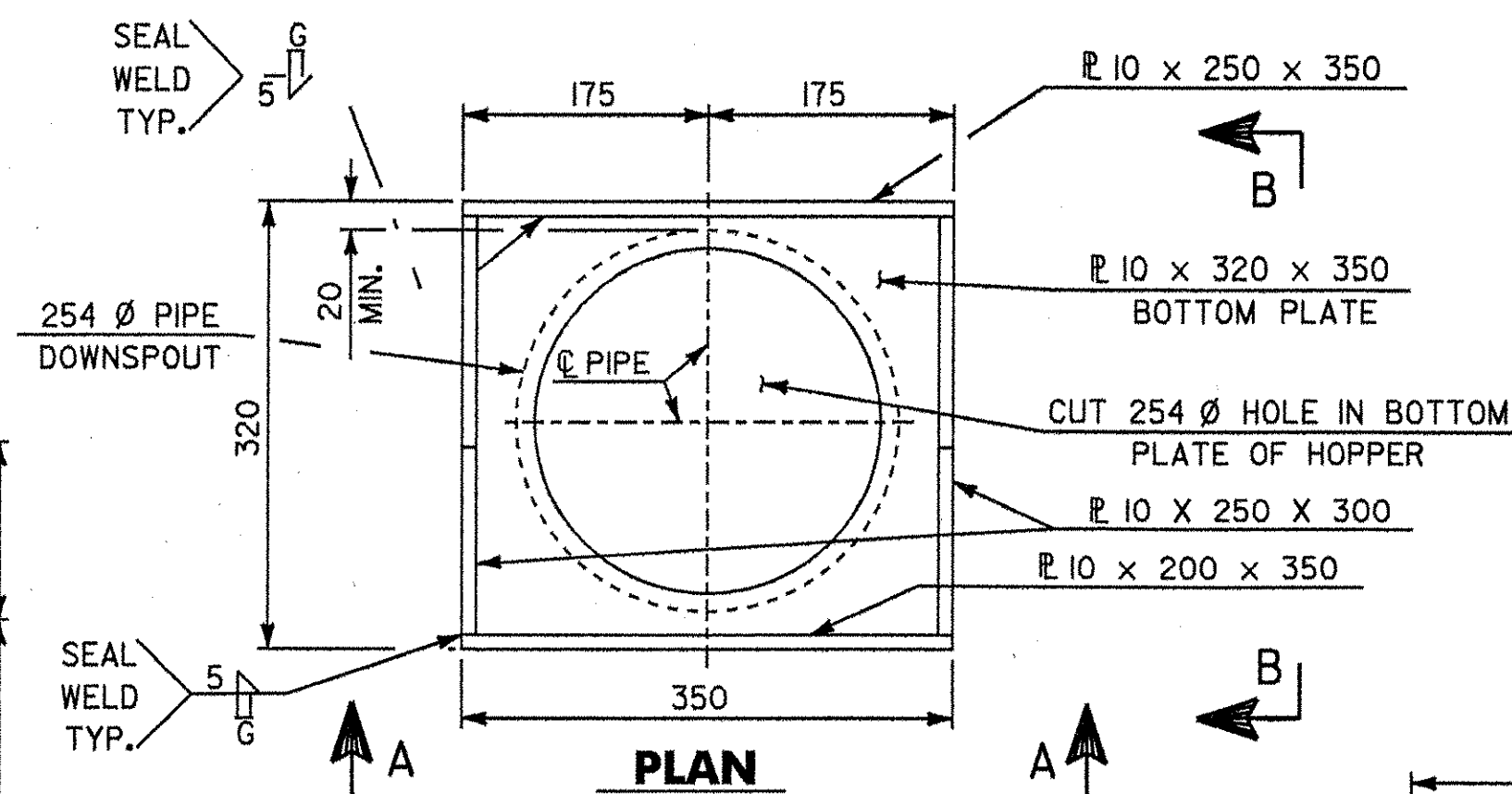


PLAN

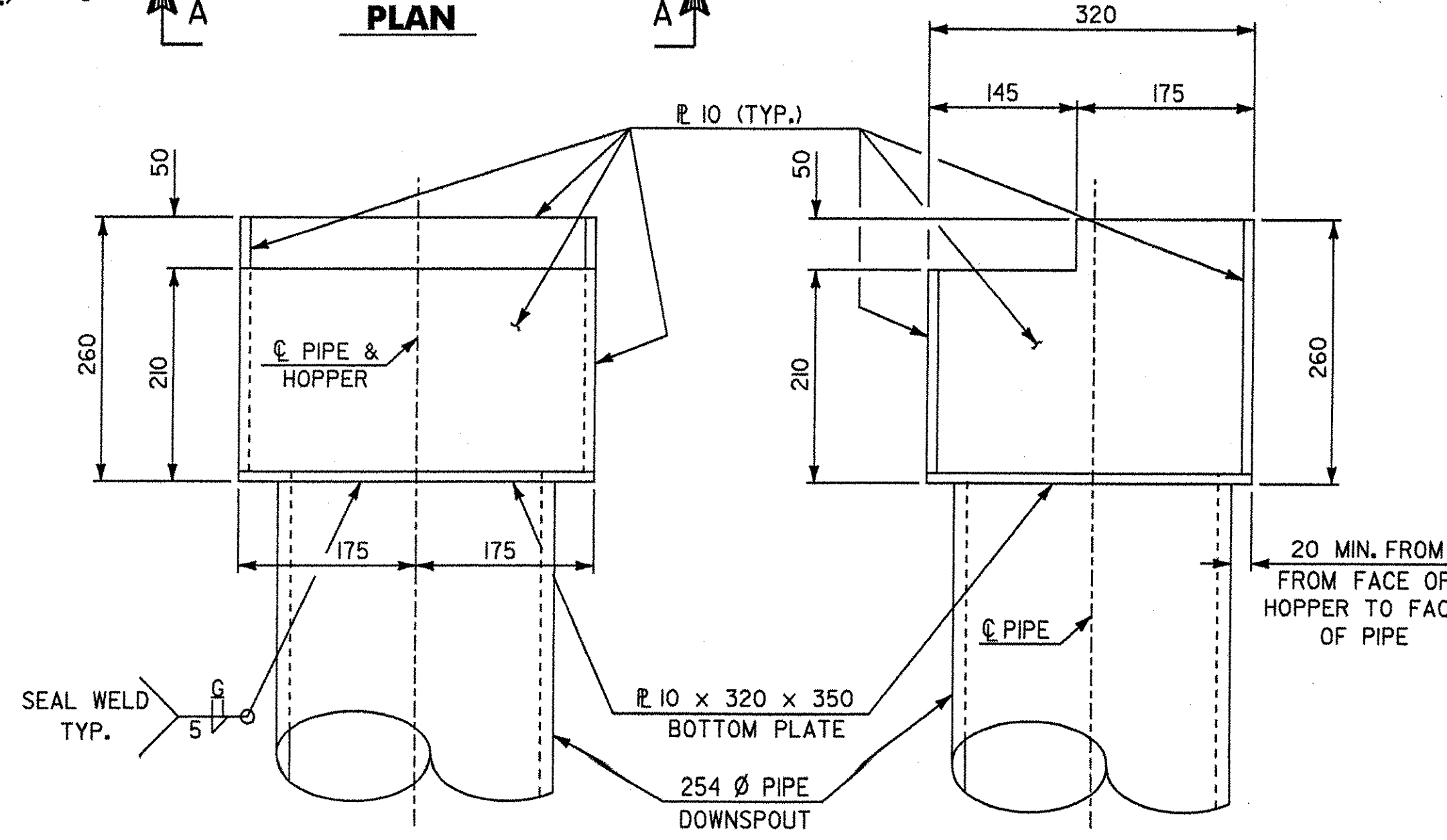


ELEVATION

ABUTMENT DOWNSPOUT SUPPORT PLATE DETAIL

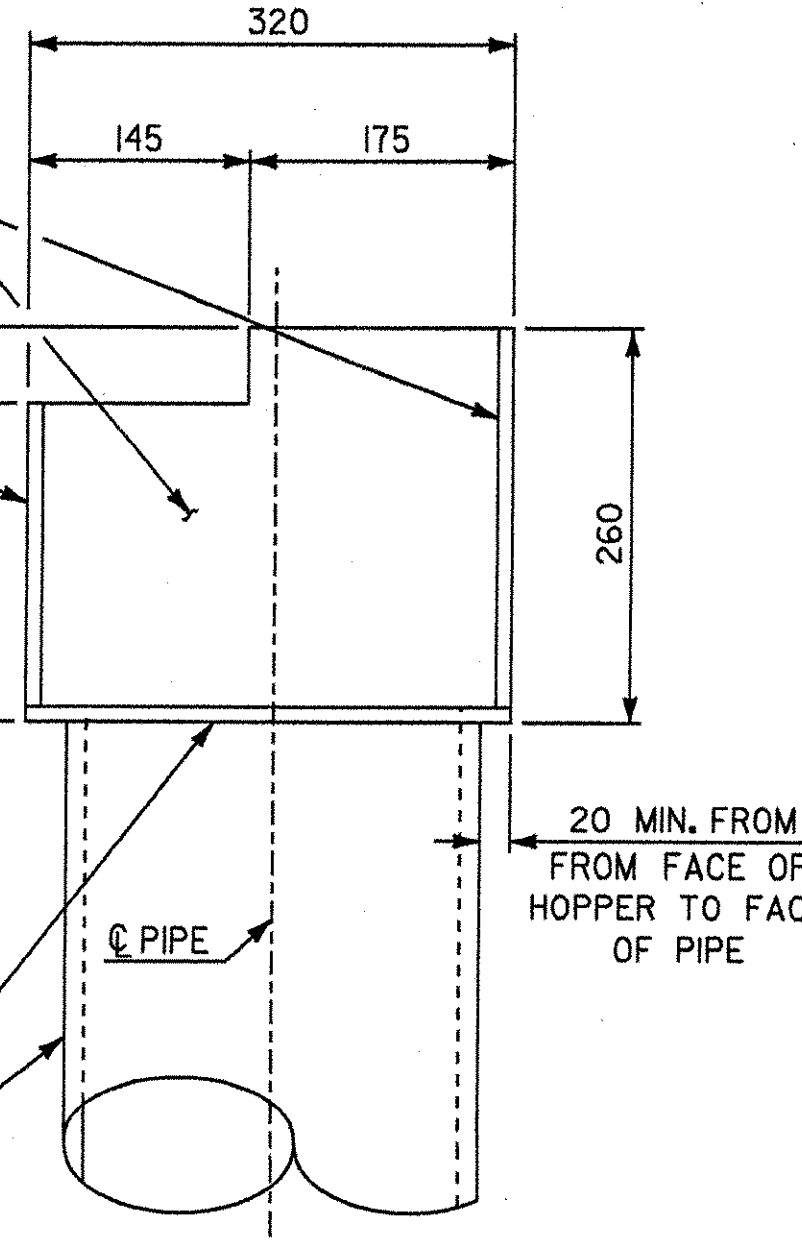
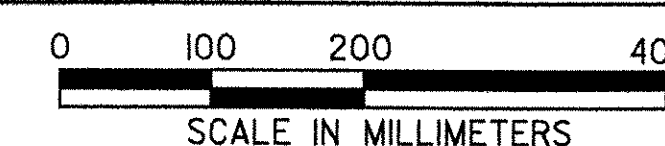


PLAN

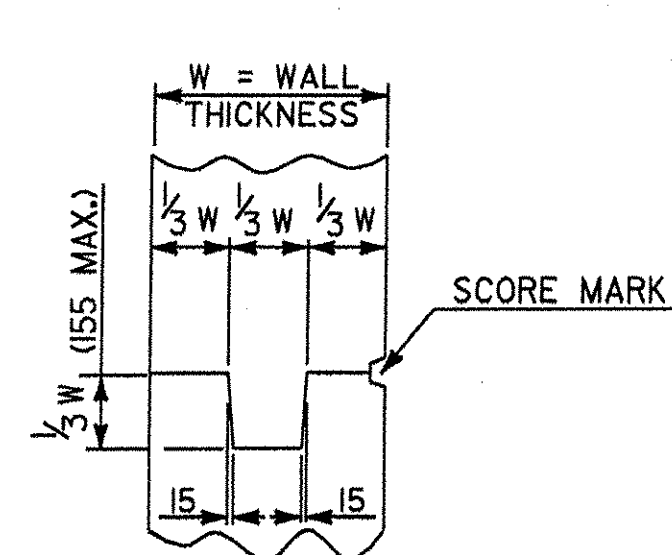


ELEVATION A-A

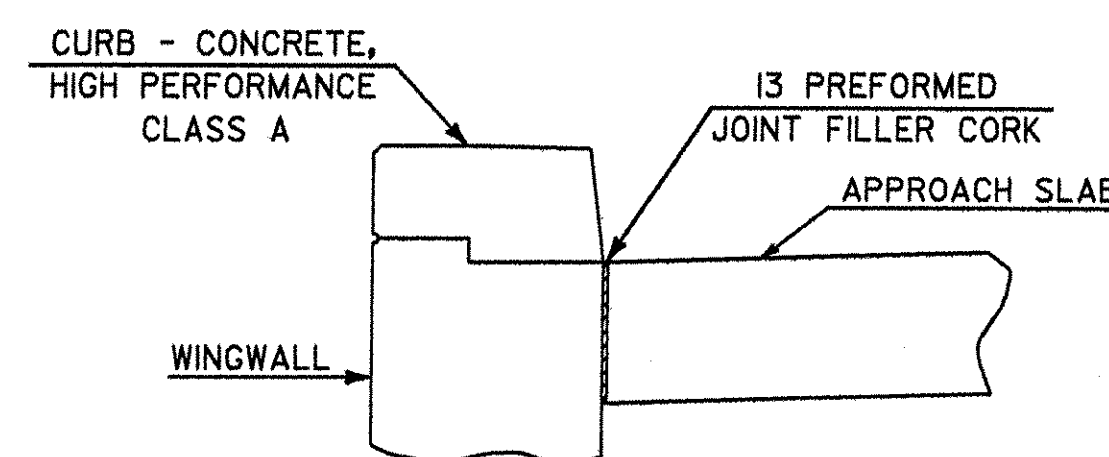
HOPPER AND DOWNSPOUT ASSEMBLY DETAILS



ELEVATION B-B

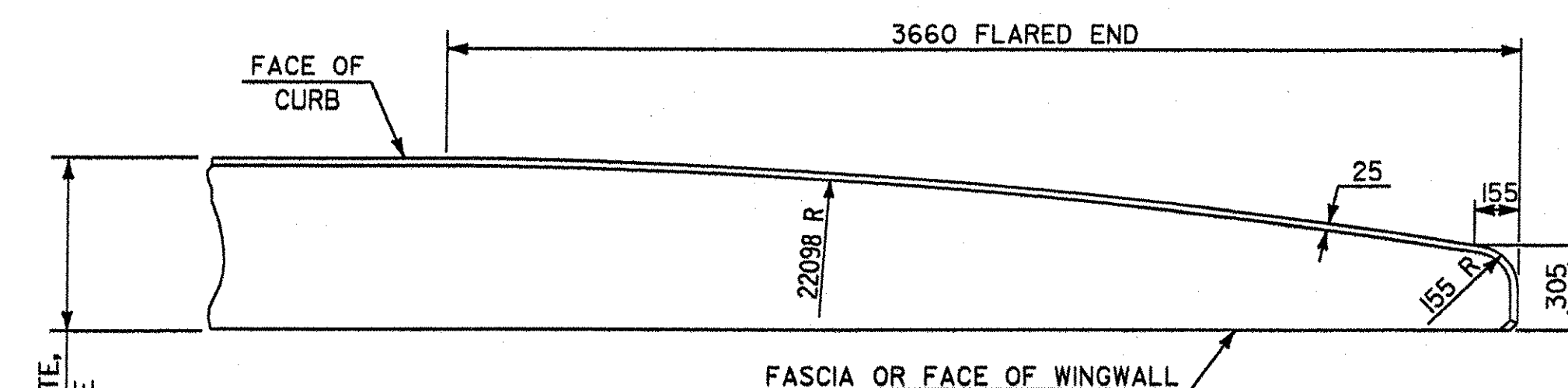


THE COSTS FOR P. V. C. WATERSTOP SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE, HIGH PERFORMANCE CLASS B, ITEM 501.34. OTHER CONFIGURATIONS MAY BE USED UPON APPROVAL OF THE STRUCTURES ENGINEER.



0 400 800 1600

SCALE IN MILLIMETERS



0 400 800 1600

SCALE IN MILLIMETERS

SEE DETAIL 'B'

CONSTRUCTION JOINT

DECK

CURB - CONCRETE, HIGH PERFORMANCE CLASS A

ONE JOINT SEALER,
SECTION 524.06(c),
MATCH CONCRETE.
BE INCLUDED IN THE
BID FOR CONCRETE.

27

19

ADHERE TO THESE
SURFACES

Diagram of Wingwall No. 2. The diagram shows a cross-section of a wingwall. The top of the curb is labeled "TOP OF CURB". The height of the wingwall is labeled "610". The width of the wingwall is labeled "305". The year "2005" is inscribed on the wingwall. The label "YEAR BUILT INCISED" points to the year. The label "BRIDGE PLAQUE" points to the year. The label "WINGWALL NO. 2" is below the wingwall. The label "ABUTMENT NO. 1" is below the abutment.

SECTION

Diagram illustrating the curb cross-section details for waterproofing:

- POLYURETHANE JOINT SEALER**: Applied to the joint.
- 7**: Dimension indicating the width of the sealer application.
- ALL AROUND**: Label for the sealer application.
- 19**: Dimension indicating the height of the curb.
- CURB - CONCRETE, HIGH PERFORMANCE CLASS A**: Label for the curb material.
- 60 CURB HIGH P**: Label for the curb material.
- 70 BITUMINOUS CONCRETE**: Label for the concrete material.
- SHEET MEMBRANE WATERPROOFING**: Label for the waterproofing material.
- DECK**: Label for the deck surface.
- A**: Arrow pointing to the joint area.

NOTES:

-
- Diagram illustrating the bridge plaque mounting location. The wingwall is labeled "WINGWALL #2". The abutment stem is labeled "ABUT. #1 STEM". A dimension line indicates a distance of 305 from the wingwall to the centerline of the abutment stem. A note points to the wingwall base: "MOUNT BRIDGE PLAQUE 610 BELOW TOP OF CONCRETE".

LONGITUDINAL REINFORCING

TRANSVERSE REINFORCING

7
(TYP)

35

220

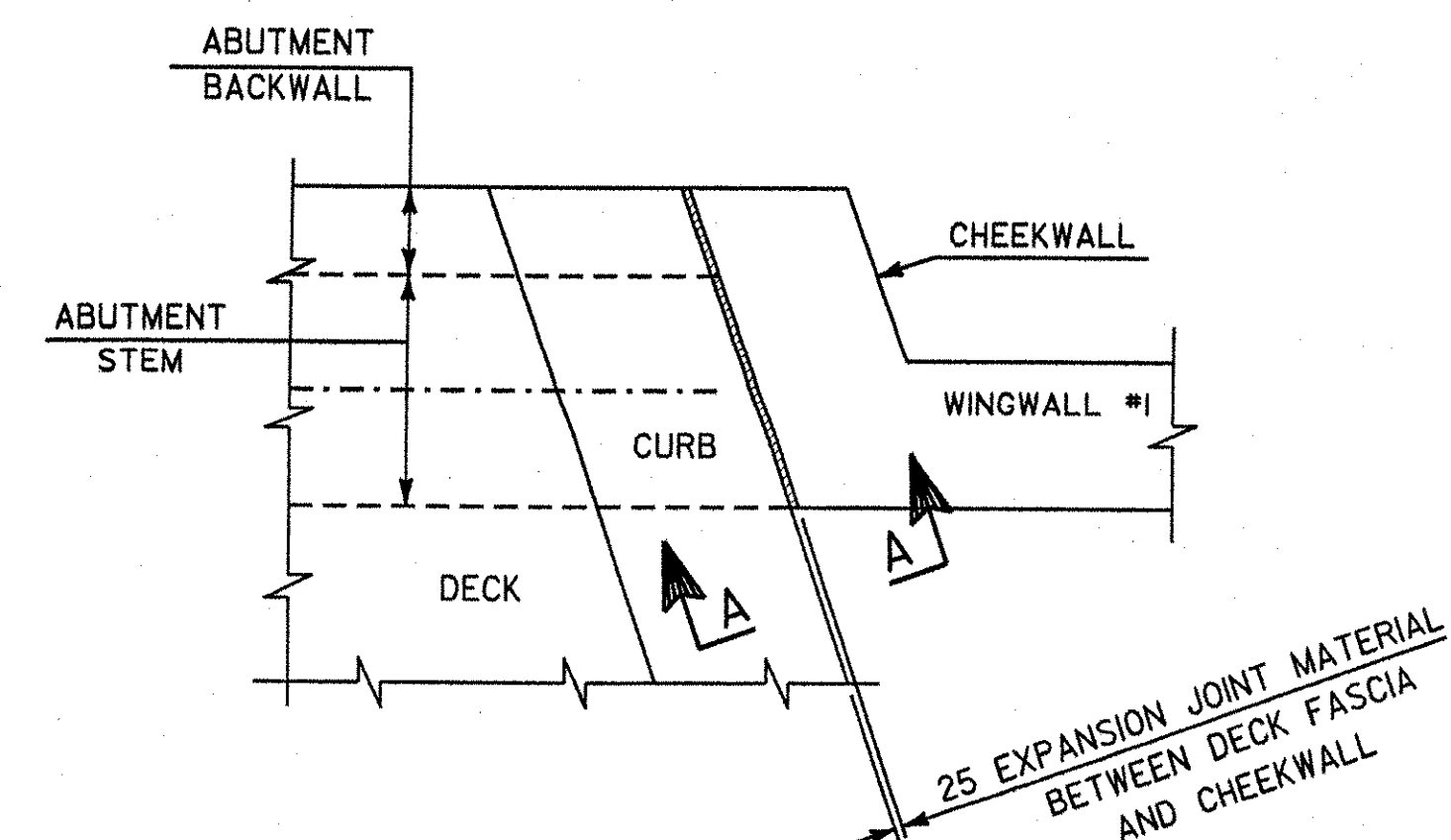
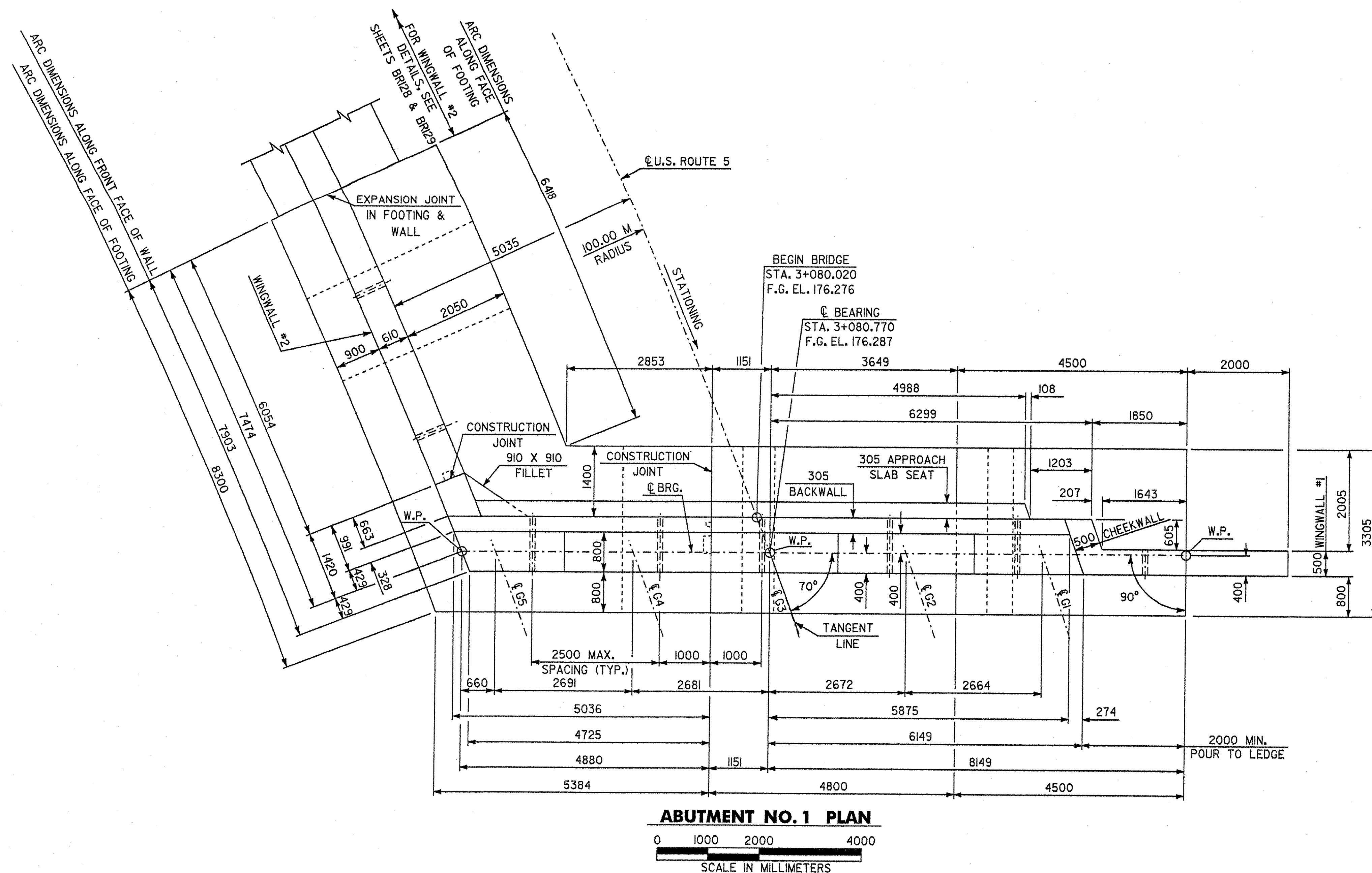
25

APPLY EPOXY BONDING COMPOUND
BEFORE PLACING NEW CONCRETE,
INCLUDE WITH COST BID FOR CONCRETE

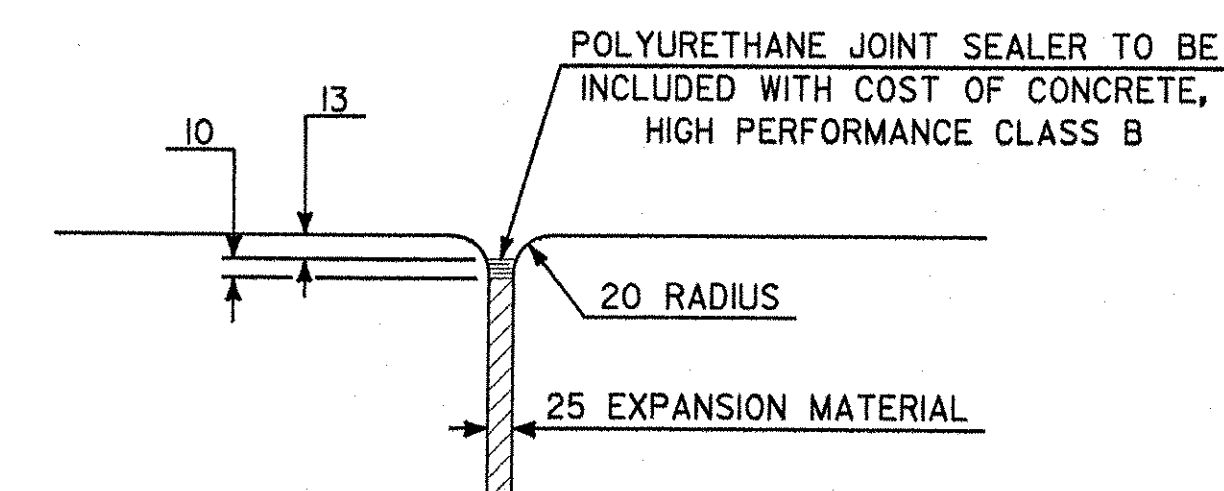
BRIDGE PLAQUE LOCATION DETAIL
NOT TO SCALE

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT NO. 1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

STATE OF VERMONT AGENCY OF TRANSPORTATION	
Town Of HARTLAND	Bridge No. 60
Highway No. U.S. ROUTE 5	Log Sta.
	Surv. Sta.
U.S. ROUTE 5 OVER LULLS BROOK	
MISCELLANEOUS DETAILS	
Designed By S. BAKI	Drawn By W. GAYNOR
Checked By Date	Bridge Design Supervisor
S. BAKI	J. MIECZKOWSKI Date
PROJECT HARTLAND	PROJECT NO. BRS No. 0113(22)
I.G.C. Info. M:\456201\VAOT Hartland\struct\zf204mdt.dgn	
Bridge Sheet No. BR120	Sheet 55 of 86



PLAN
0 500 1000 2000
SCALE IN MILLIMETERS



SECTION A-A
NOT TO SCALE

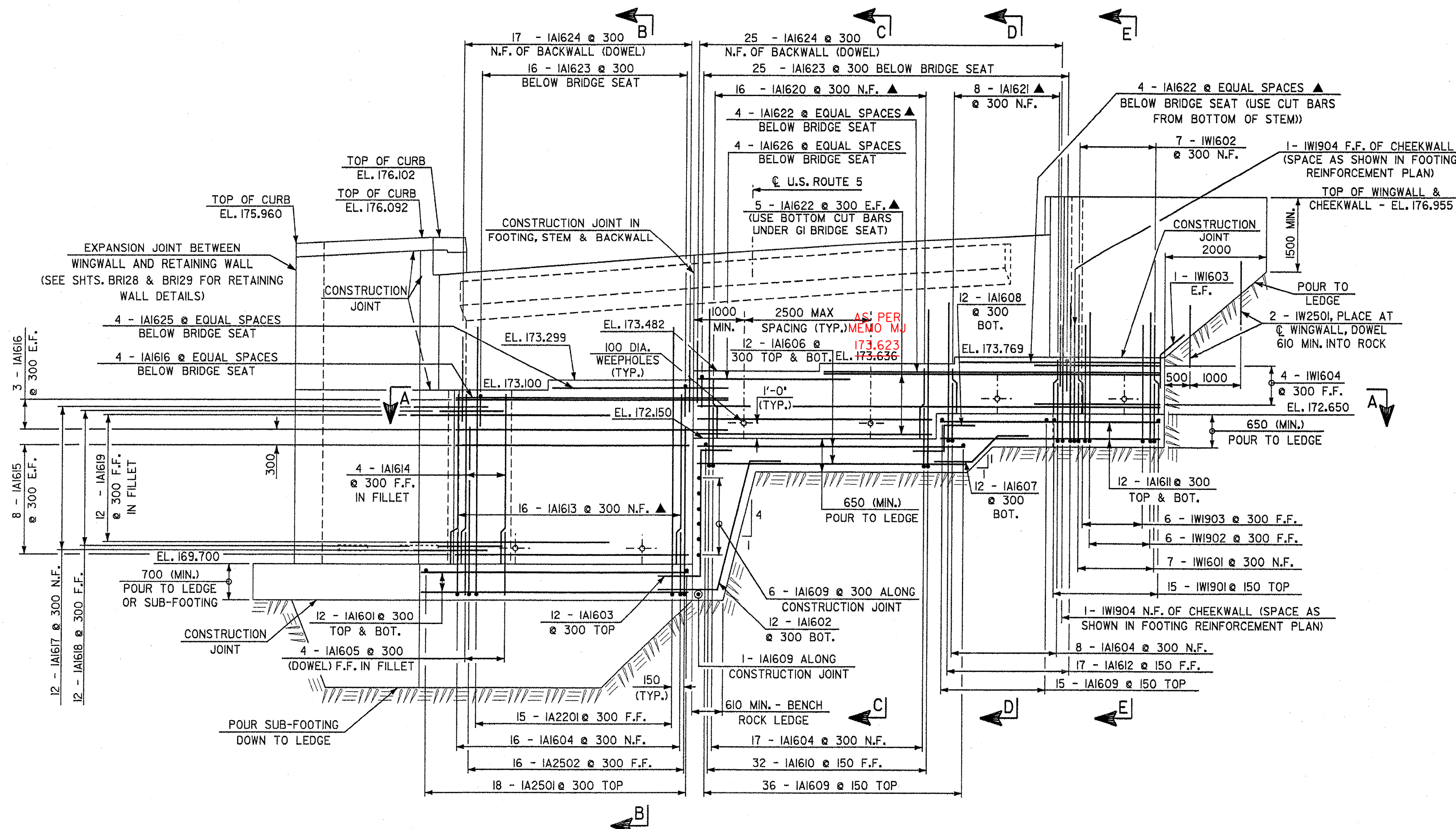
JOINT BETWEEN FASCIA AND CHEEKWALL

NOTES:

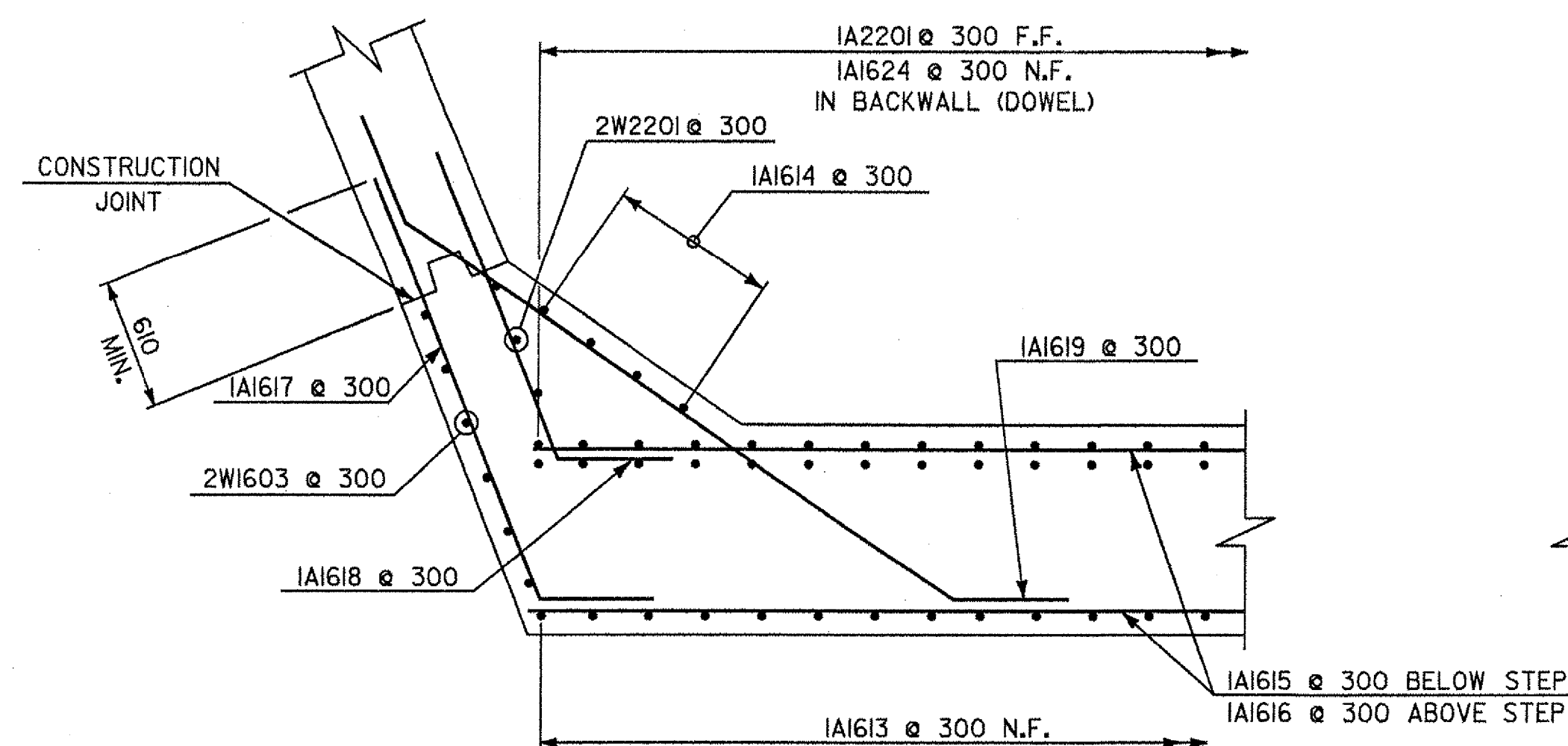
1. FOR ABUTMENT ELEVATION AND SECTIONS, SEE SHEET BRI22.
2. FOR ABUTMENT SECTIONS, SEE SHEET BRI26.
3. FOR FOOTING REINFORCING PLAN, SEE SHEET BRI30.
4. FOR ABUTMENT BACKWALL PLAN AND ELEVATION, SEE SHEET BRI26.

STATE OF VERMONT AGENCY OF TRANSPORTATION

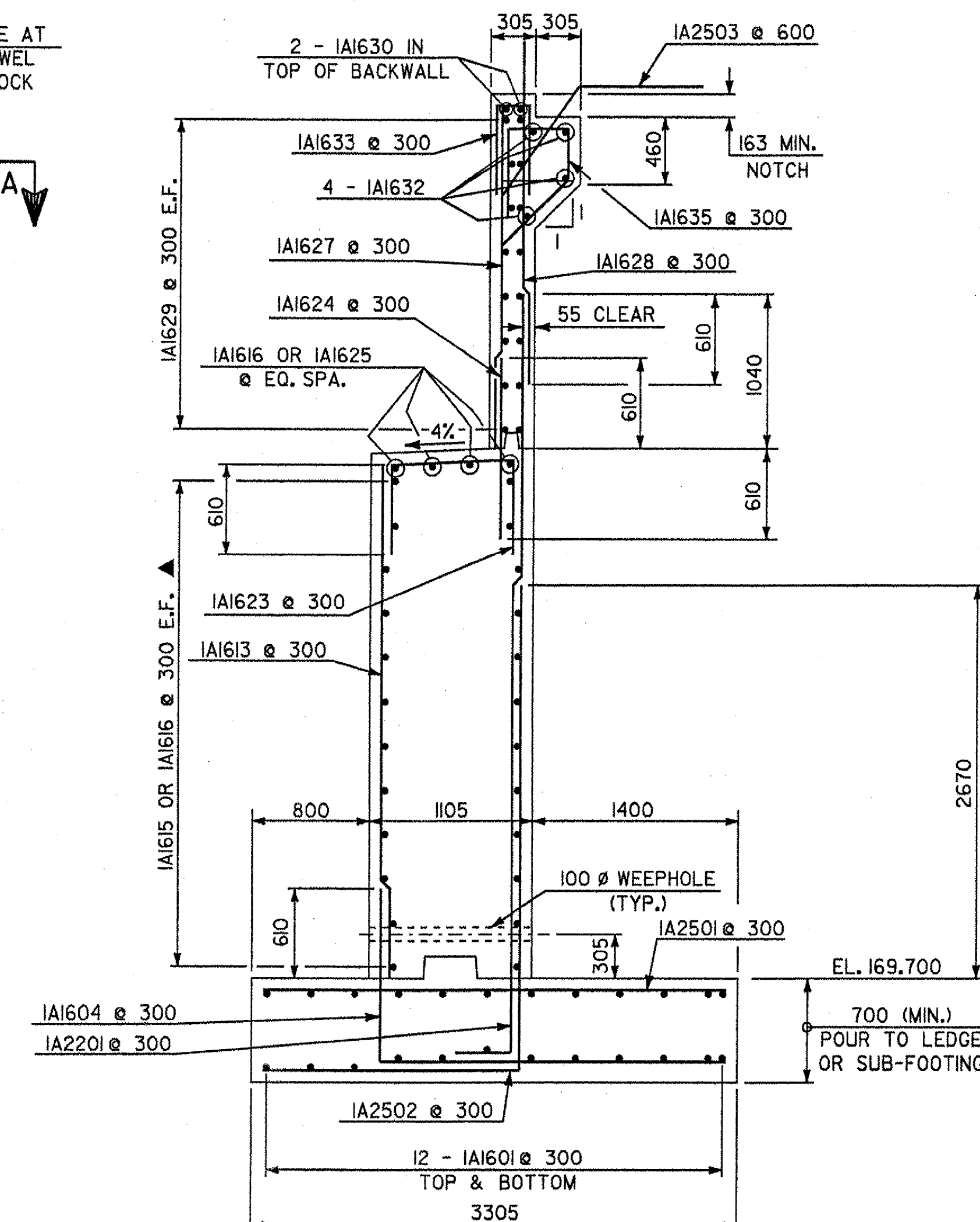
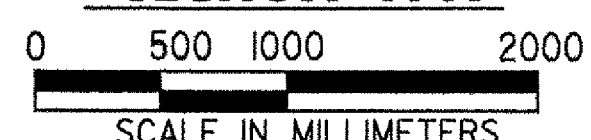
Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
ABUTMENT NO. 1 PLAN			
Designed By	S. BAKI	Drawn By	W. GAYNOR
Checked By	S. BAKI	Bridge Design Supervisor	J. MIECZKOWSKI
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\45620\VAOT Hartland\struct\zf204aml.dgn		Bridge Sheet No. BRI21	
		Sheet 56 of 86	



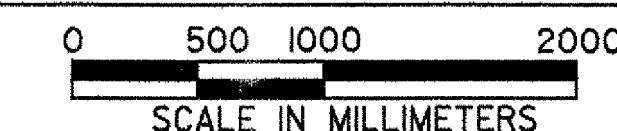
ABUTMENT NO. 1 ELEVATION



SECTION A-A



SECTION B-B AT ABUTMENT NO. 1

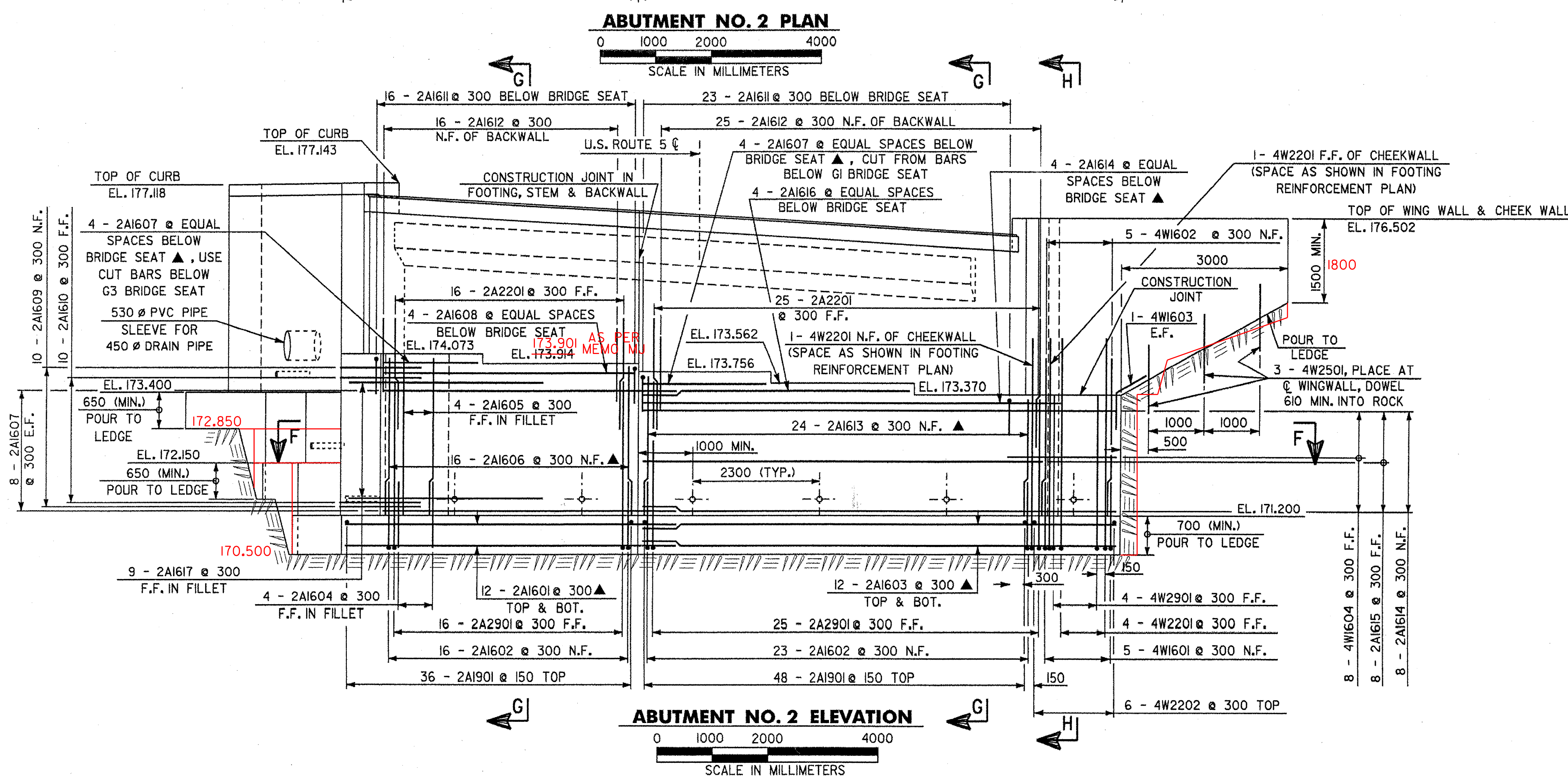
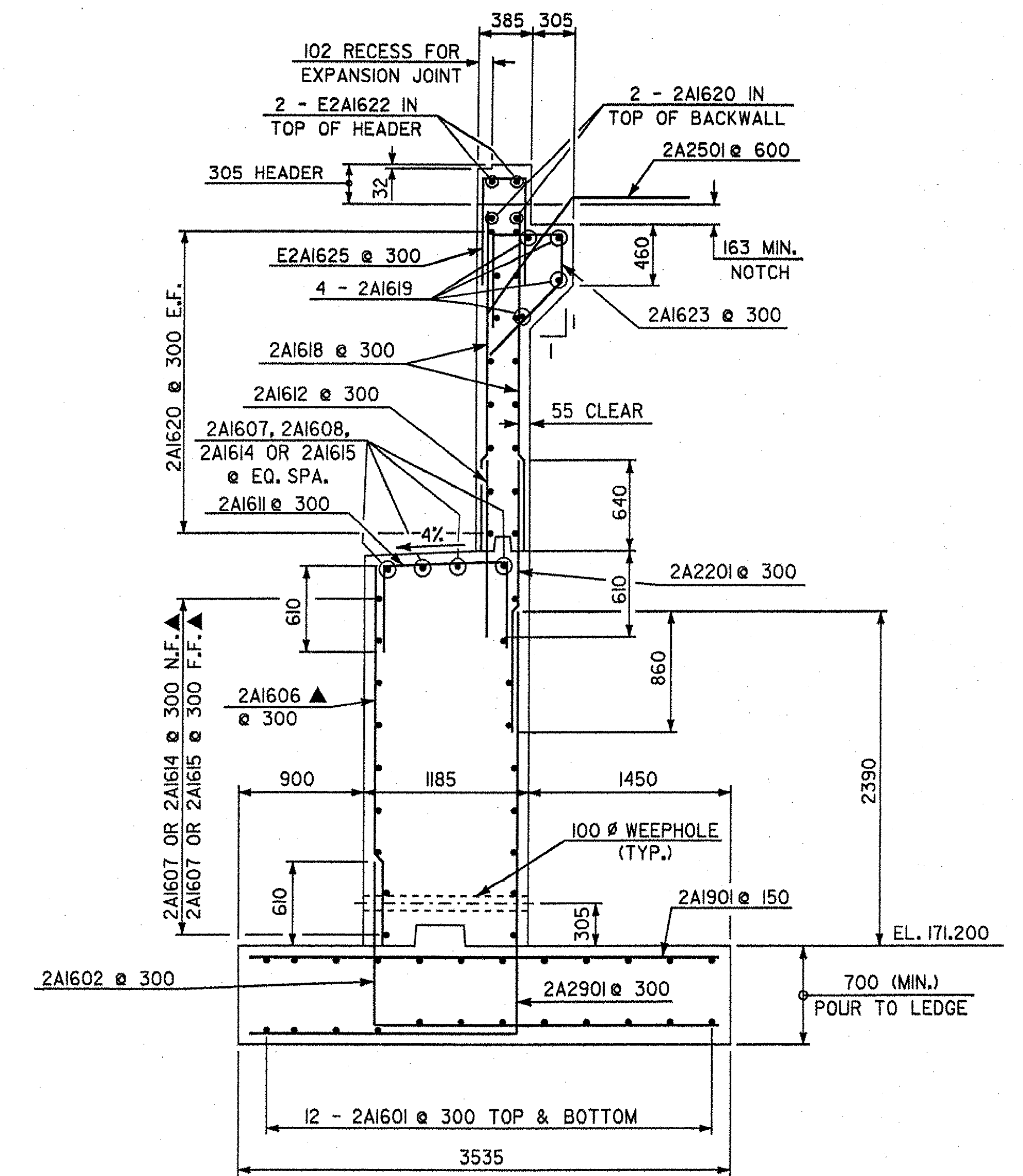
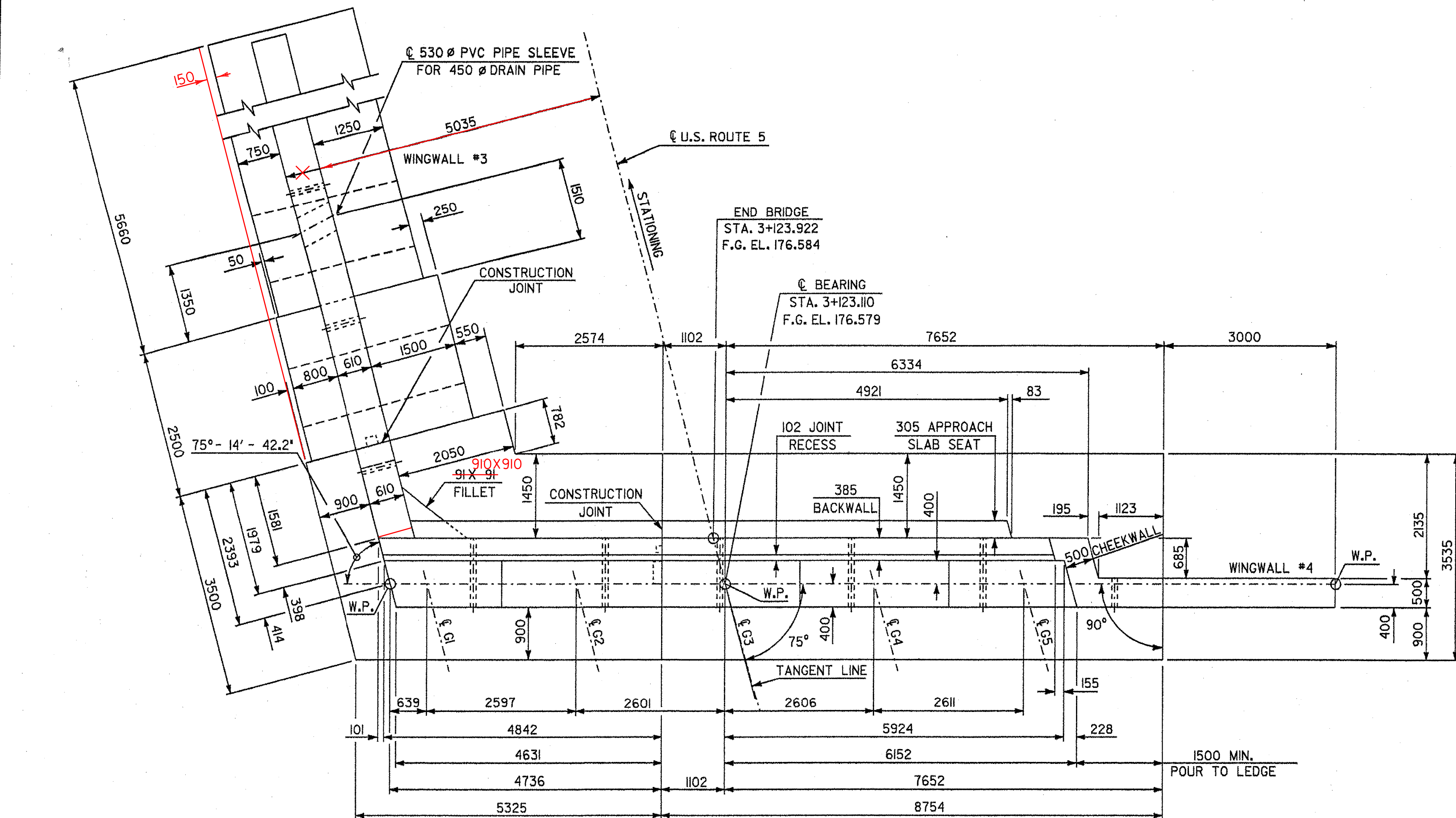


NOTES:

N.F. - NEAR FACE
F.F. - FAR FACE
E.F. - EACH FACE
REINFORCING COVER 80 CLEAR ON ALL FACES EXCEPT WHERE NOTED.
MINIMUM LAP LENGTH FOR HORIZONTAL #16 BARS IS 610 UNLESS NOTED OTHERWISE.
▲ - CUT TO FIT IN FIELD
FOR SECTIONS C-C & D-D, SEE SHEET BRI26.
FOR SECTIONS E-E, SEE SHEET BRI25.

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

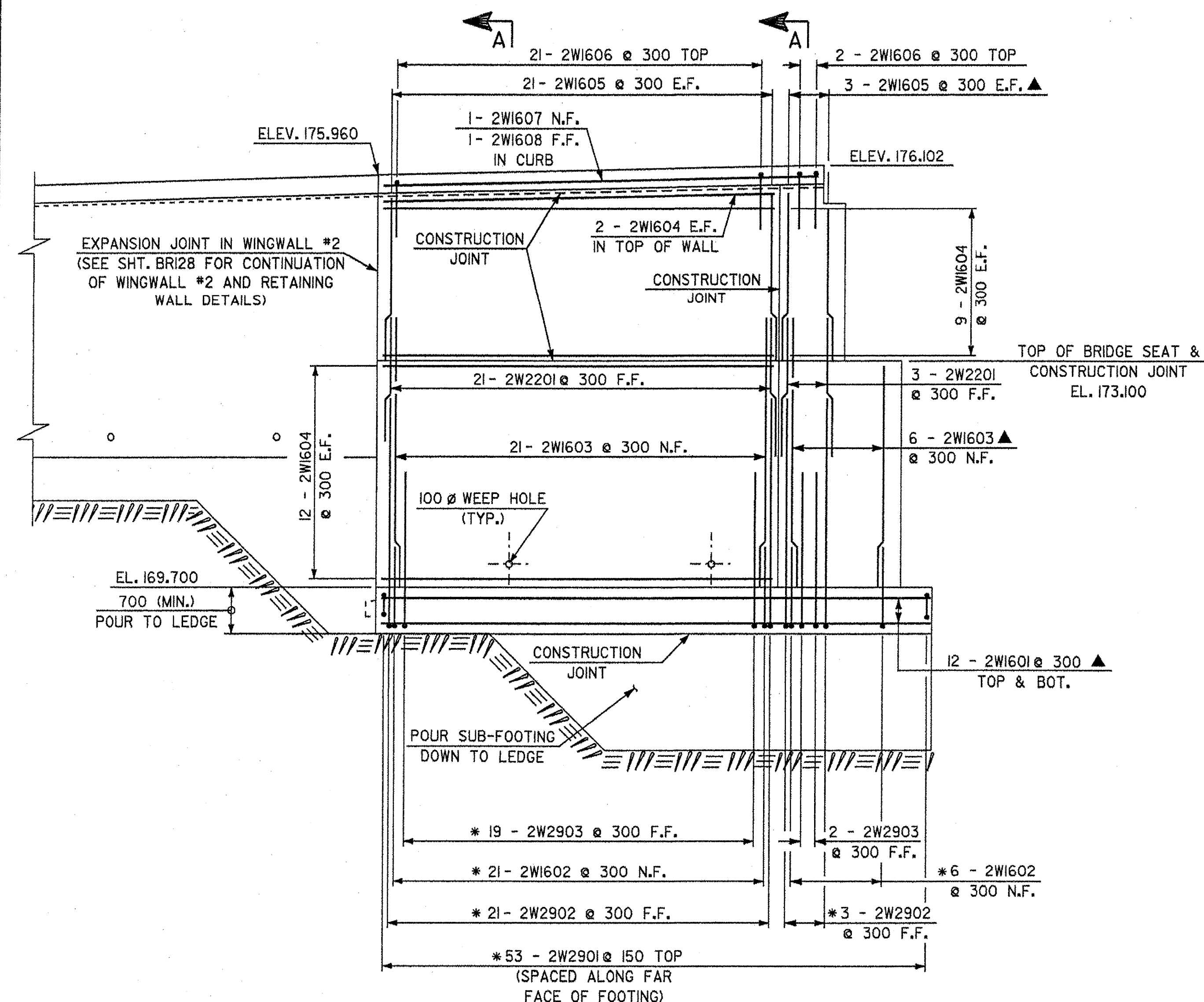
Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
ABUT. NO. 1 ELEVATION AND SECTIONS			
Designed By	S. BAKI	Drawn By	W. GAYNOR
Checked By	Date	Bridge Design Supervisor	
	S. BAKI	J. MIECZKOWSKI	Date
PROJECT	HARTLAND	PROJECT NO.	
		BRS No.	0113(22)
I.G.C. Info. M:\1456201\VA0T Hartland\struct\zf204aml.dgn			
Bridge Sheet No.	BRI22	Sheet	57 of 86



NOTES:
 N.F. - NEAR FACE
 F.F. - FAR FACE
 E.F. - EACH FACE
 REINFORCING COVER 80 CLEAR ON ALL FACES
 EXCEPT WHERE NOTED.
 MINIMUM LAP LENGTH FOR HORIZONTAL #16 BARS
 IS 610 UNLESS NOTED OTHERWISE.
 E - DENOTES EPOXY COATED REINFORCEMENT.
 ▲ - CUT TO FIT IN FIELD
 FOR SECTIONS F-F AND H-H, SEE SHEET BR127.

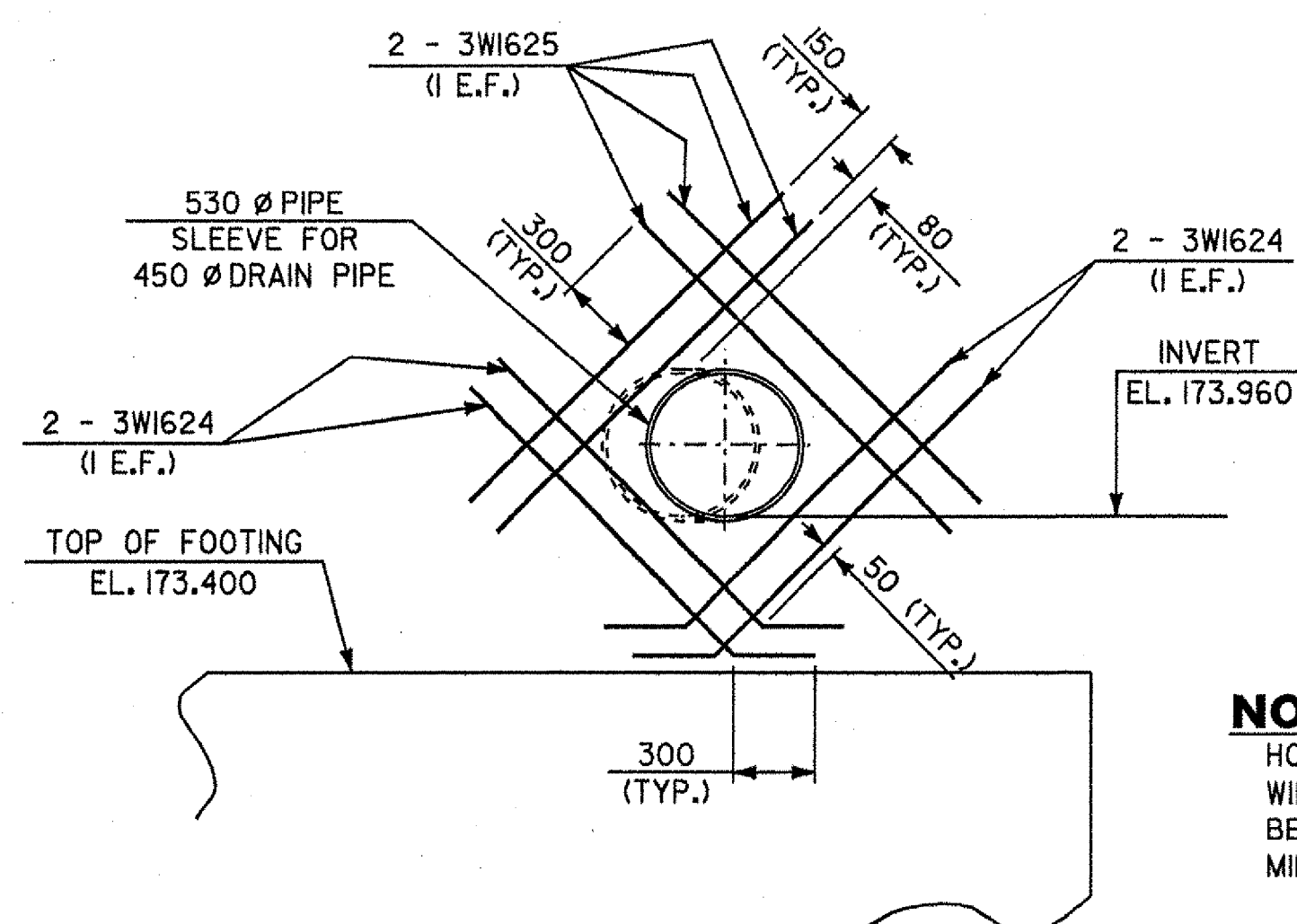
STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
ABUTMENT NO. 2 DETAILS			
Designed By	S. BAKI	Drawn By	W. GAYNOR
Checked By	Date	Bridge Design Supervisor	J. MECZKOWSKI Date
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\456201\VA0T Hartland\struct\zf204am2.dgn			
Bridge Sheet No. BR123		Sheet 58 of 86	



WINGWALL NO. 2 ELEVATION

0 1000 2000 4000
SCALE IN MILLIMETERS



DETAIL A

0 500 1000 2000
SCALE IN MILLIMETERS

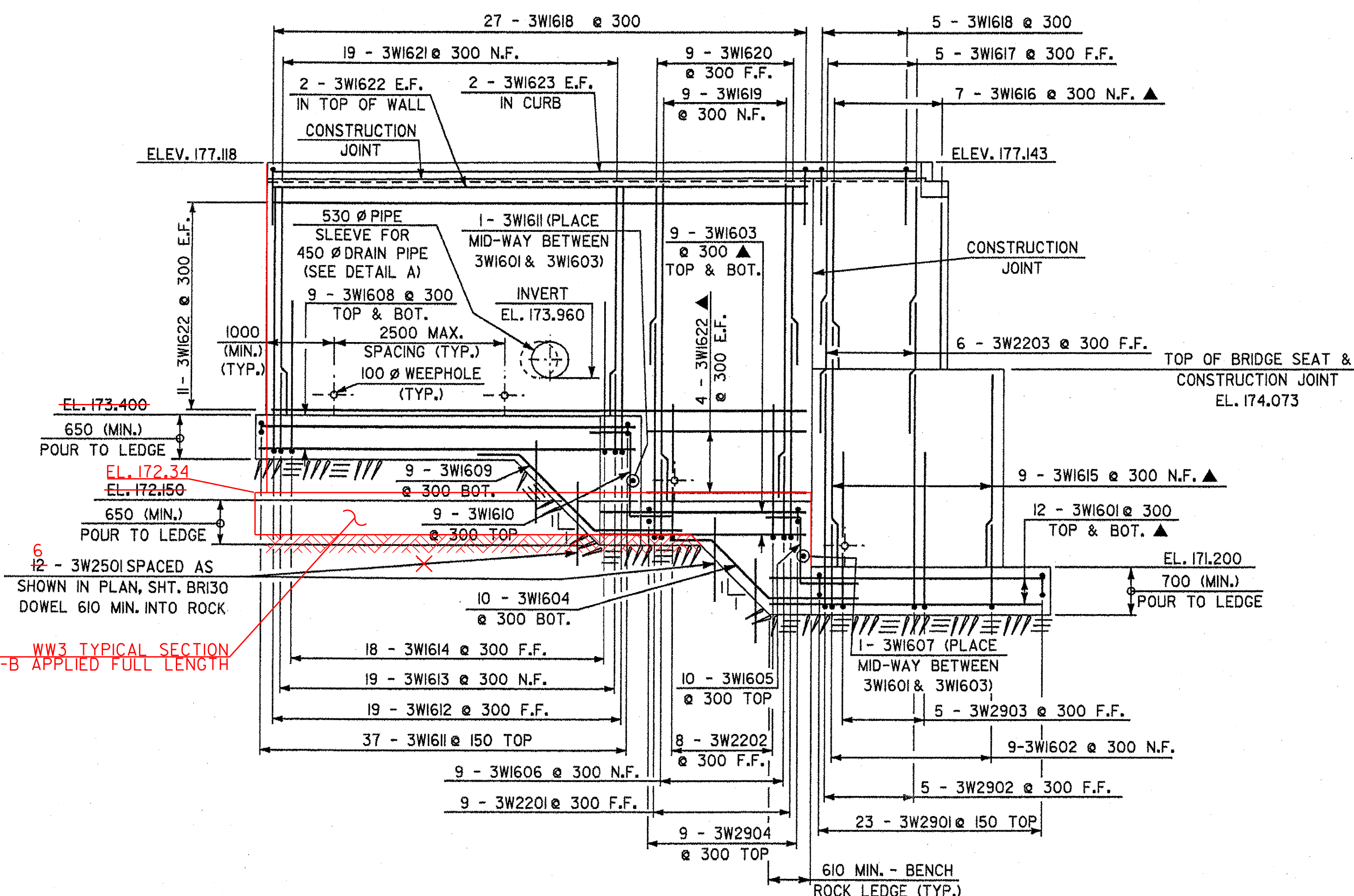
NOTE:

HORIZONTAL AND VERTICAL REINFORCING IN WINGWALL, NOT SHOWN IN DETAIL A, SHALL BE CUT AS REQUIRED TO MAINTAIN A MINIMUM 80 COVER AROUND PIPE SLEEVE.

NOTES:

N.F. - NEAR FACE
F.F. - FAR FACE
E.F. - EACH FACE
REINFORCING COVER 80 CLEAR ON ALL FACES EXCEPT WHERE NOTED.
MINIMUM LAP LENGTH FOR HORIZONTAL #16 BARS IS 610 UNLESS NOTED OTHERWISE.
▲ - CUT TO FIT IN FIELD
* - PLACED RADIAL.
FOR SECTIONS A-A, B-B AND C-C, SEE SHEET BRI25.

WW3 TYPICAL SECTION B-B APPLIED FULL LENGTH

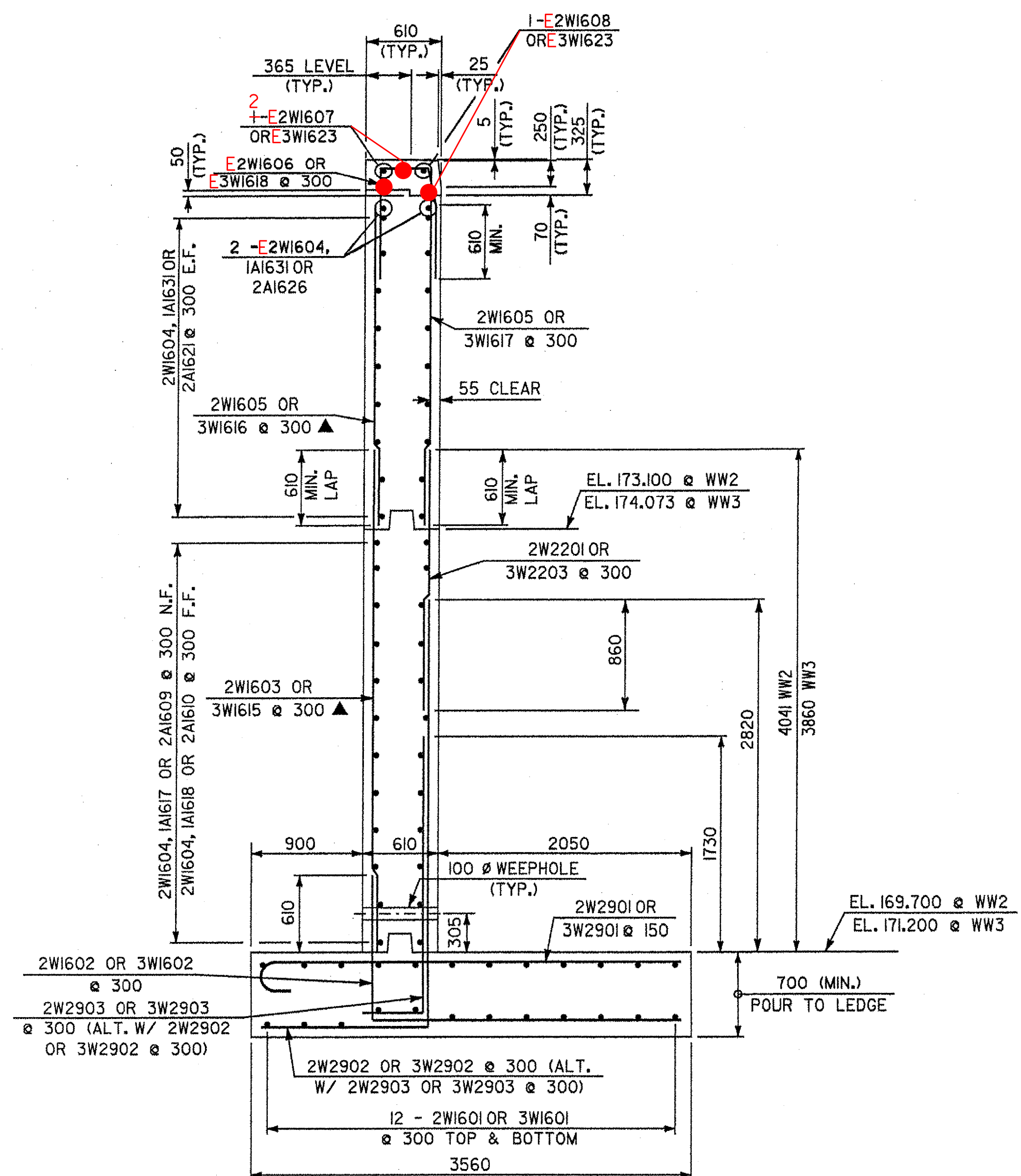


WINGWALL NO. 3 ELEVATION

0 1000 2000 4000
SCALE IN MILLIMETERS

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

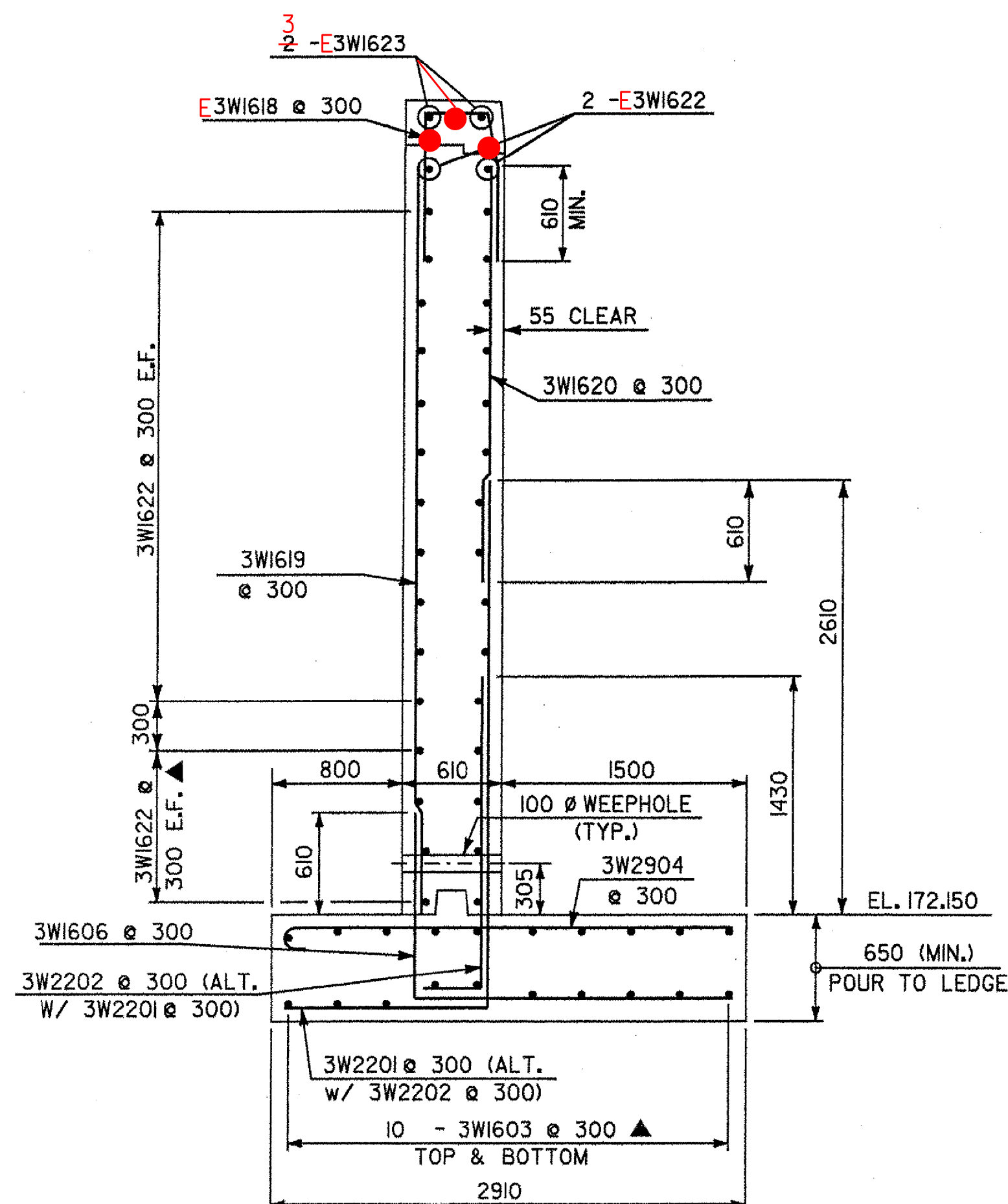
Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
WINGWALL NO. 2 & NO. 3 ELEVATIONS			
Designed By	S. BAKI	Drawn By	W. GAYNOR
Checked By	Date	Bridge Design Supervisor	J. MIECZKOWSKI Date
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\1456201\VAOT Hartland\struct\zf204wdt.dgn			
Bridge Sheet No.	BRI24	Sheet	59 of 86



SECTION A-A AT WINGWALL NO. 2 & NO. 3

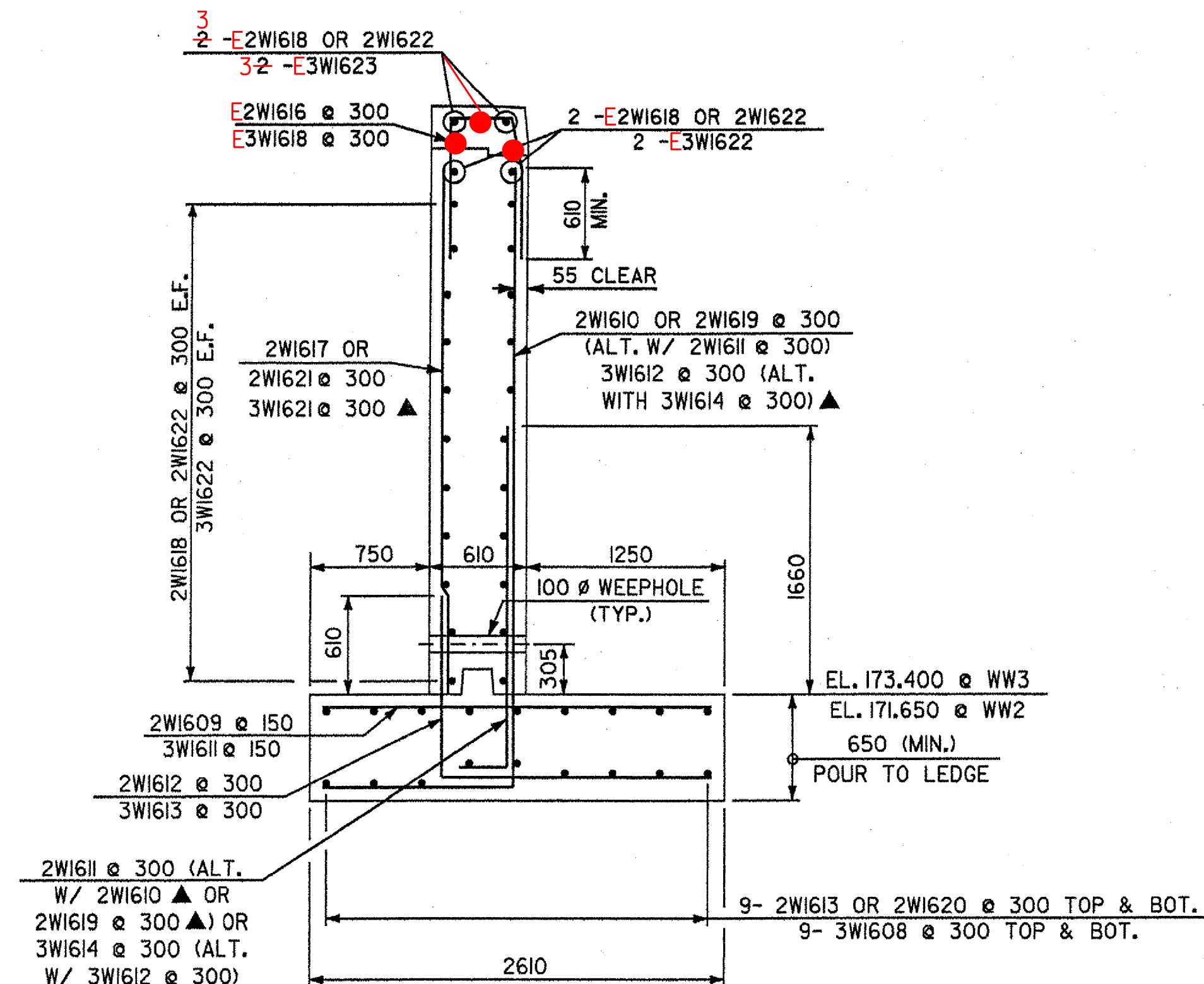
0 500 1000 2000
SCALE IN MILLIMETERS

NOTE: REBAR MARKS WITH A 2W PREFIX INDICATES A WINGWALL NO. 2 BAR, REBAR MARKS WITH A 2A OR 3W PREFIX INDICATES A WINGWALL NO. 3 BAR.



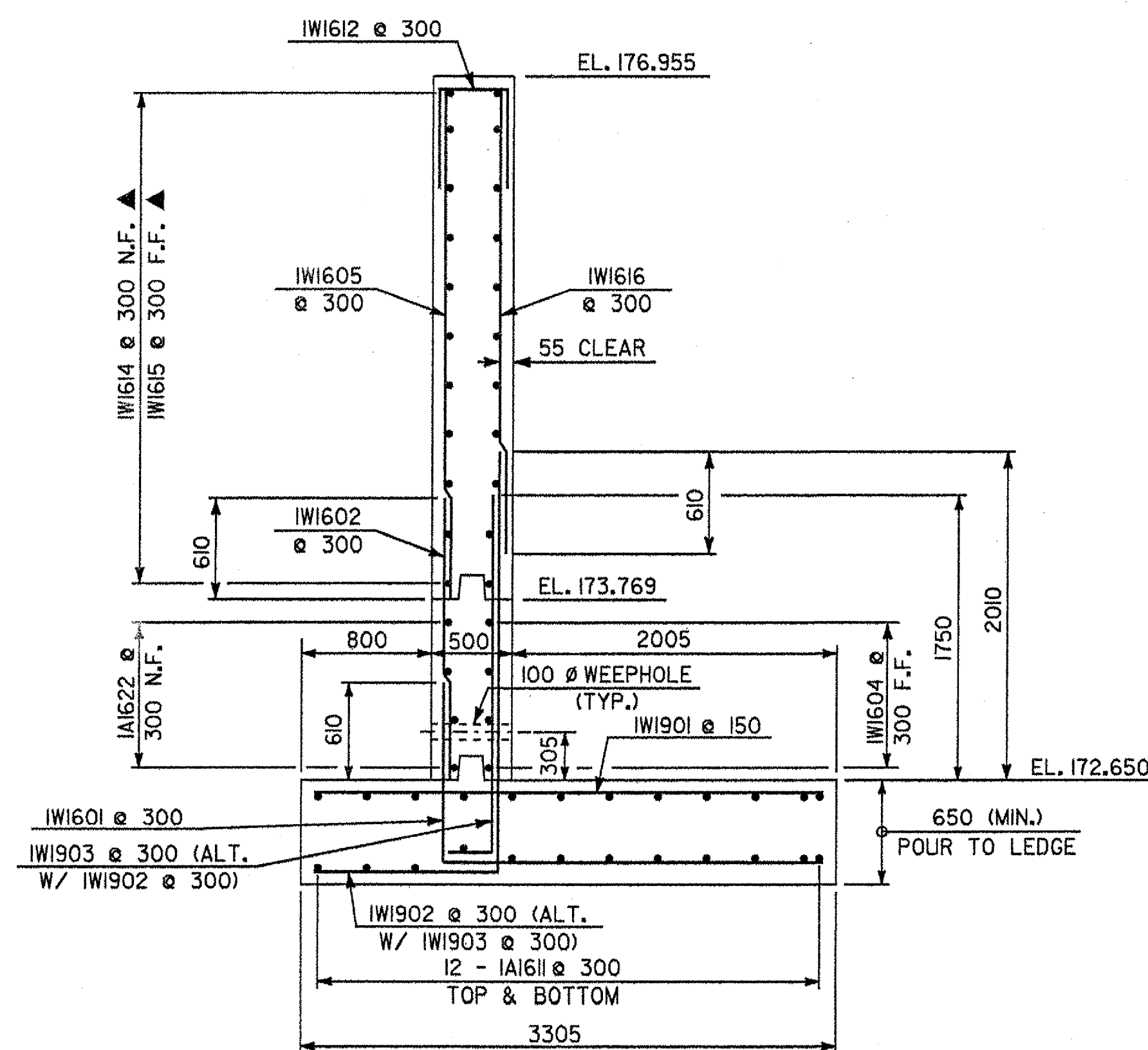
SECTION B-B AT WINGWALL NO. 3

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SCALE IN MILLIMETERS



SECTION C-C AT WINGWALLS NO. 2 & NO. 3

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SCALE IN MILLIMETERS



SECTION E-E AT WINGWALL NO. 1

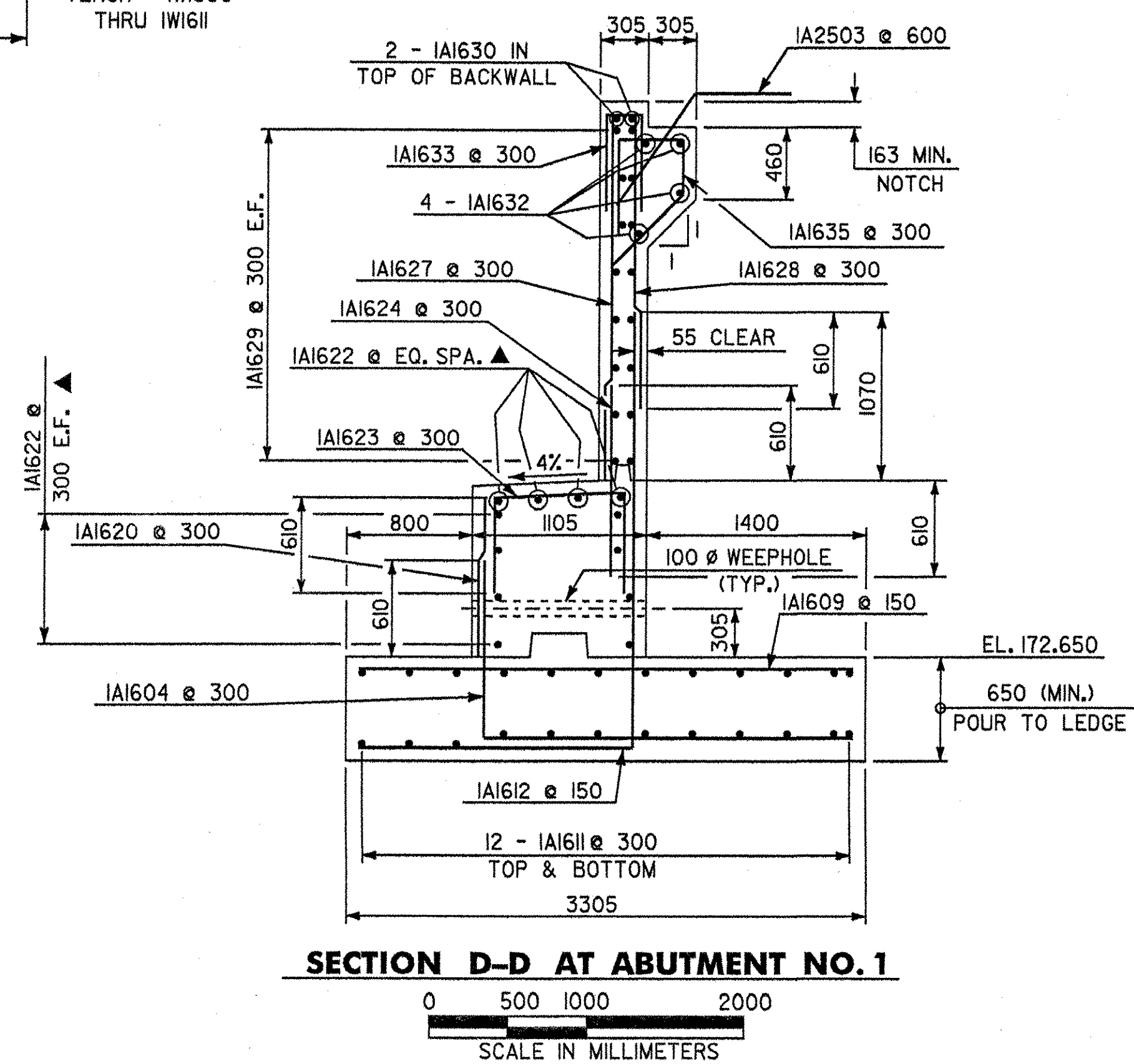
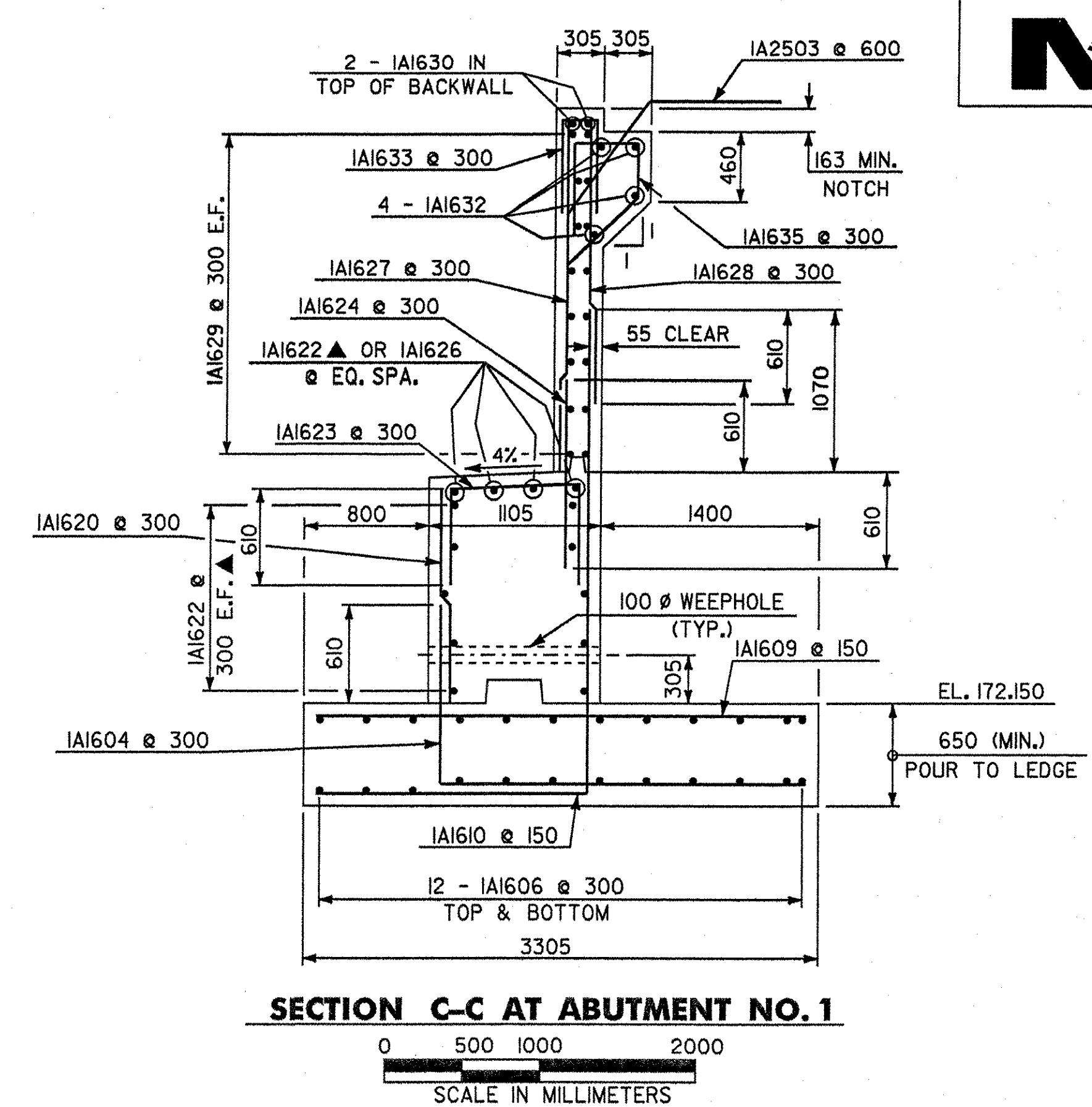
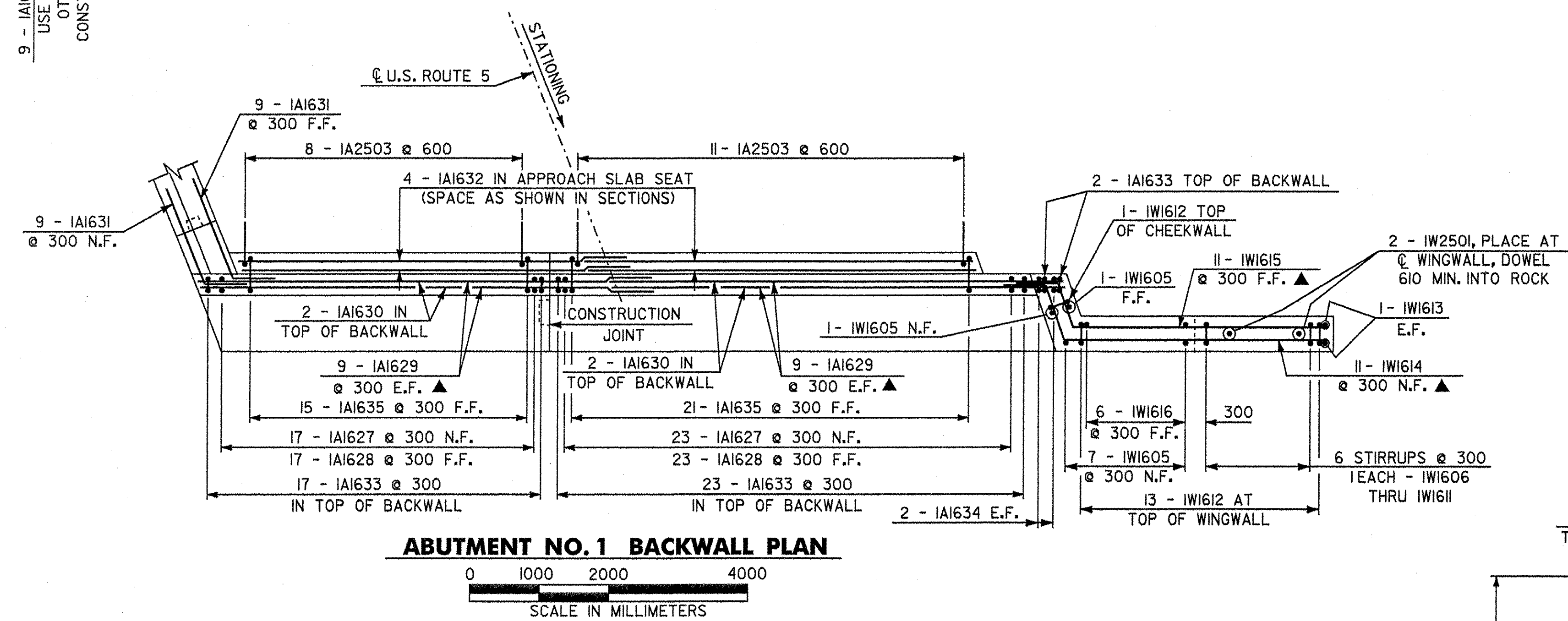
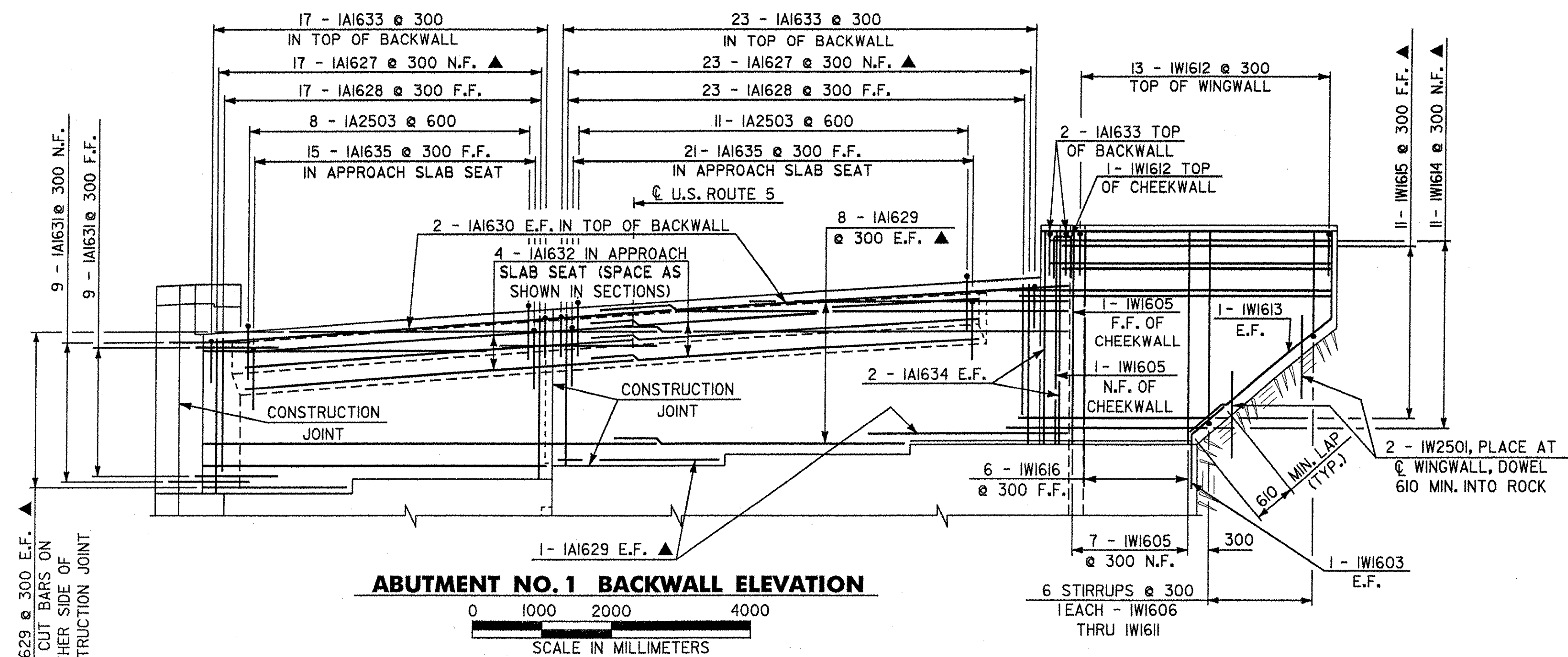
0 500 1000 2000
SCALE IN MILLIMETERS

NOTES:

N.F. - NEAR FACE
F.F. - FAR FACE
E.F. - EACH FACE
REINFORCING COVER 80 CLEAR ON ALL FACES EXCEPT WHERE NOTED.
FOR LOCATION OF SECTIONS A-A, B-B AND C-C, SEE SHEET BR124.
FOR LOCATION OF SECTION E-E, SEE SHEET BR122.

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

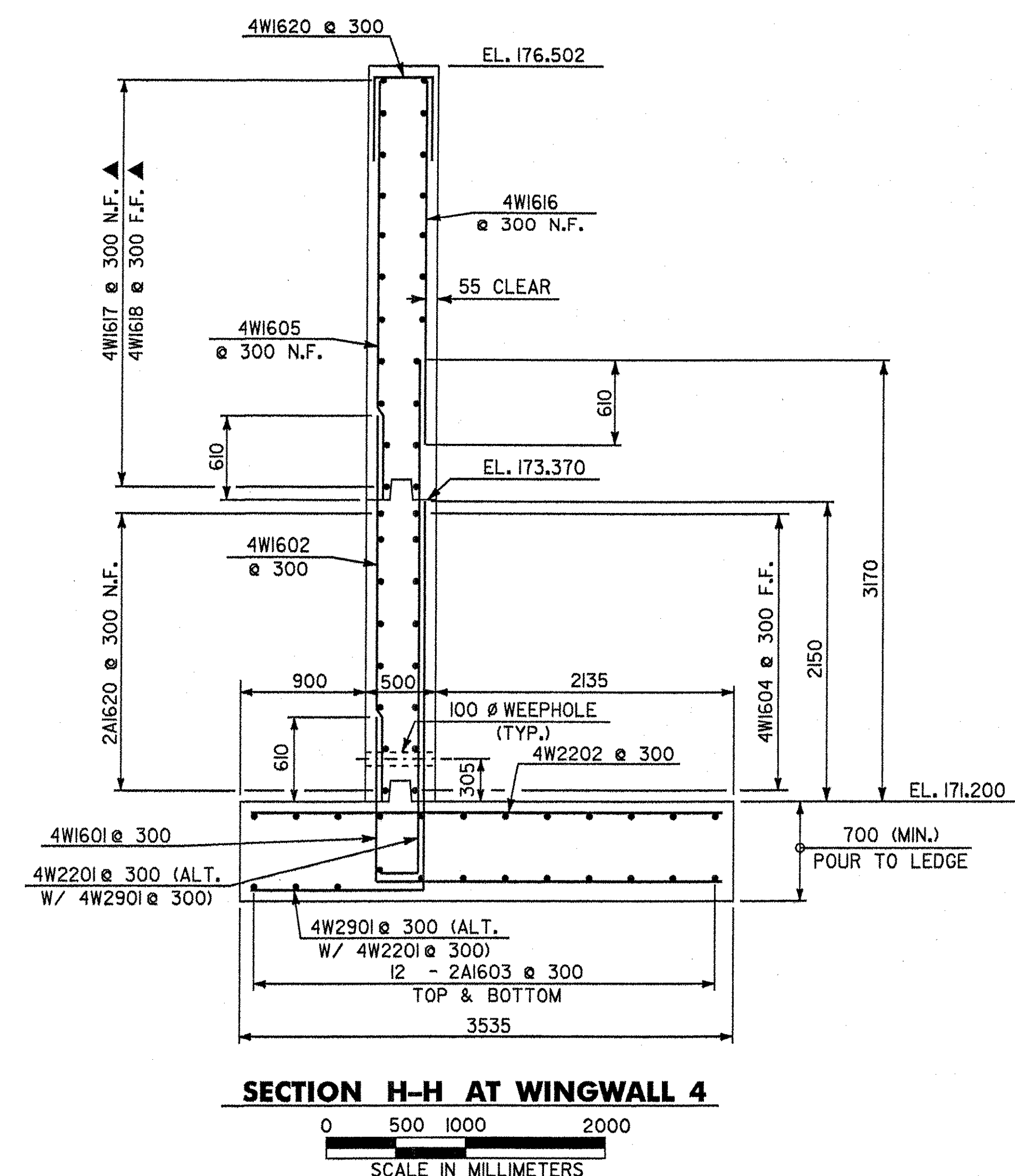
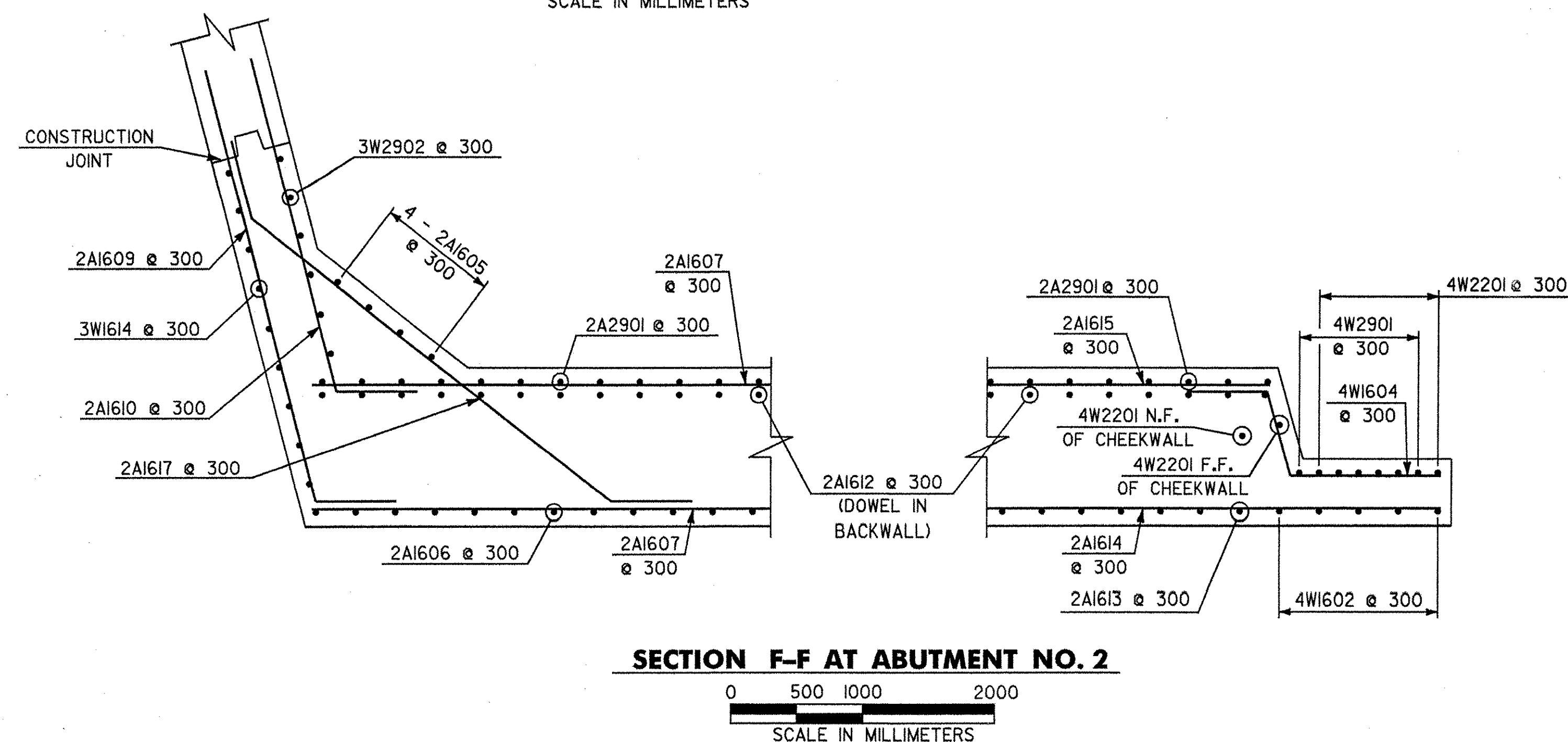
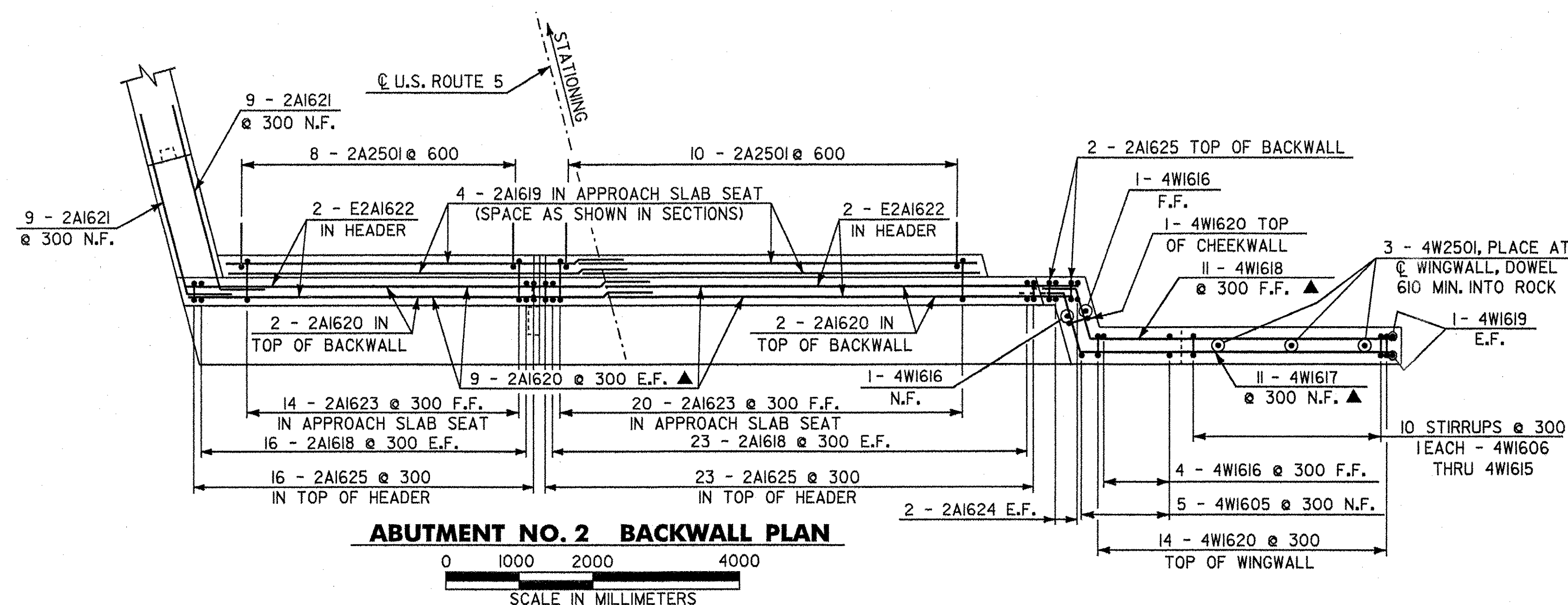
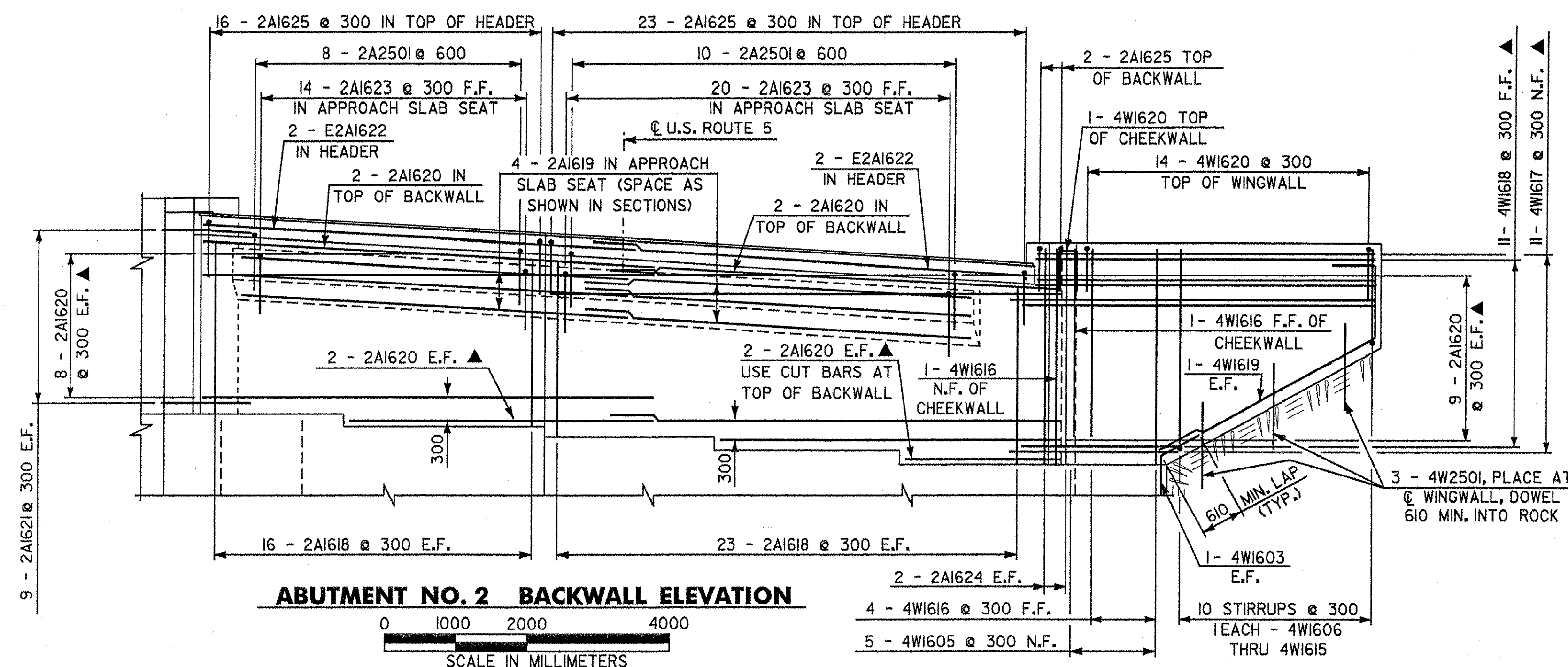
Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
WINGWALL NO. 1, NO. 2 & NO. 3 SECTIONS			
Designed By	S. BAKI	Drawn By	W. GAYNOR
Checked By	S. BAKI	Bridge Design Supervisor	J. MIECZKOWSKI
		Date	
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\456201\VA01 Hartland\struct\zf204wdt.dgn			
Bridge Sheet No. BR125		Sheet 60 of 86	



N.F. - NEAR FACE
F.F. - FAR FACE
E.F. - EACH FACE
REINFORCING COVER 80 CLEAR ON ALL FACES
EXCEPT WHERE NOTED.
MINIMUM LAP LENGTH FOR HORIZONTAL #16 BARS
IS 610 UNLESS NOTED OTHERWISE.
▲ - CUT TO FIT IN FIELD.
FOR LOCATION OF SECTIONS C-C AND D-D,
SEE SHEET BR122.

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	HARTLAND	Bridge No.	60
		Log Sta.	
Highway No.	U.S. ROUTE 5	Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
ABUT. NO. 1 BACKWALL DETAILS & SECTIONS			
Designed By	S. BAKI	Drawn By	W. GAYNOR
Checked By	Date	Bridge Design Supervisor	
	S. BAKI	J. MIECZKOWSKI	Date
PROJECT	HARTLAND	PROJECT NO.	
		BRIS NO.	0113(22)
I.G.C. Info. M:\45620\VAOT Hartland\struct\F204\ARI.DGN			
Bridge Sheet No.	BR126	Sheet	61 of 86



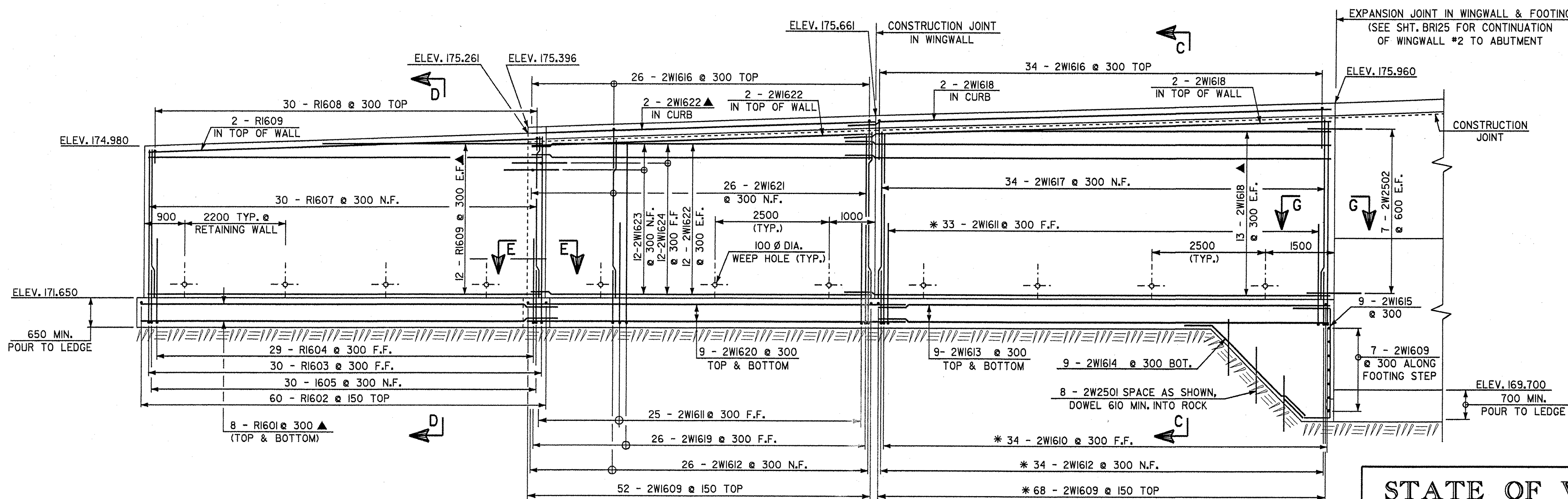
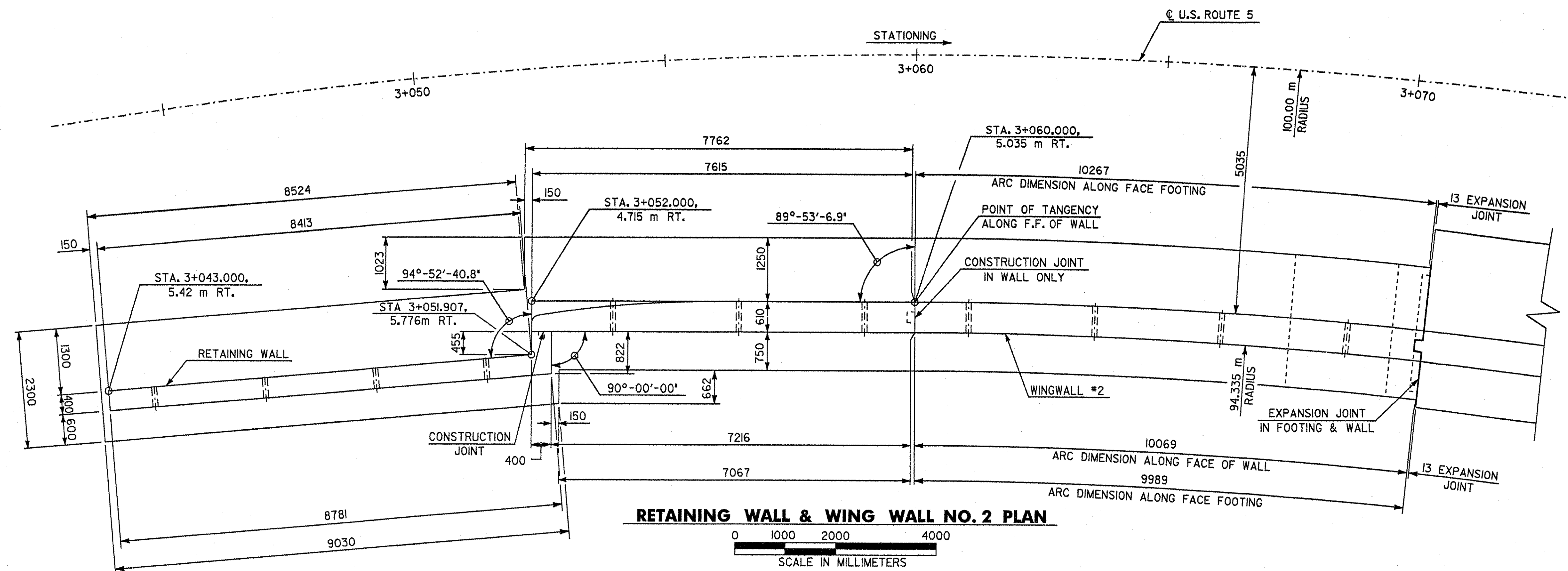
- NOTES:**
- N.F. - NEAR FACE
 - F.F. - FAR FACE
 - E.F. - EACH FACE
 - REINFORCING COVER 80 CLEAR ON ALL FACES EXCEPT WHERE NOTED.
 - MINIMUM LAP LENGTH FOR HORIZONTAL #16 BARS IS 610 UNLESS NOTED OTHERWISE.
 - ▲ - CUT TO FIT IN FIELD
 - FOR LOCATION OF SECTIONS F-F AND H-H, SEE SHEET BR123.

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			

ABUT. NO. 2 BACKWALL DETAILS & SECTIONS

Designed By	S. BAKI	Drawn By	W. GAYNOR
Checked By	S. BAKI	Bridge Design Supervisor	J. MIECZKOWSKI
PROJECT	HARTLAND	PROJECT NO.	BR No. 0113(22)
I.G.C. Info. M:\456201\VAOT Hartland\struct\ZF204ARI.DGN		Sheet 62 of 86	
Bridge Sheet No. BR127			



**RETAINING WALL & WING WALL NO. 2
DEVELOPED ELEVATION**

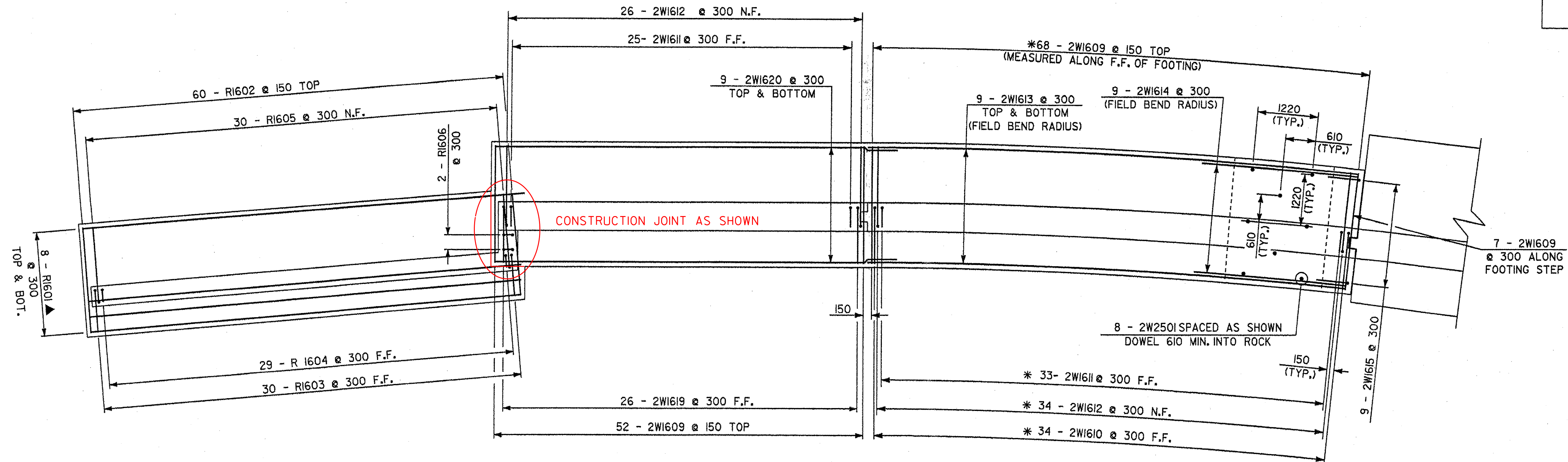


NOTES:

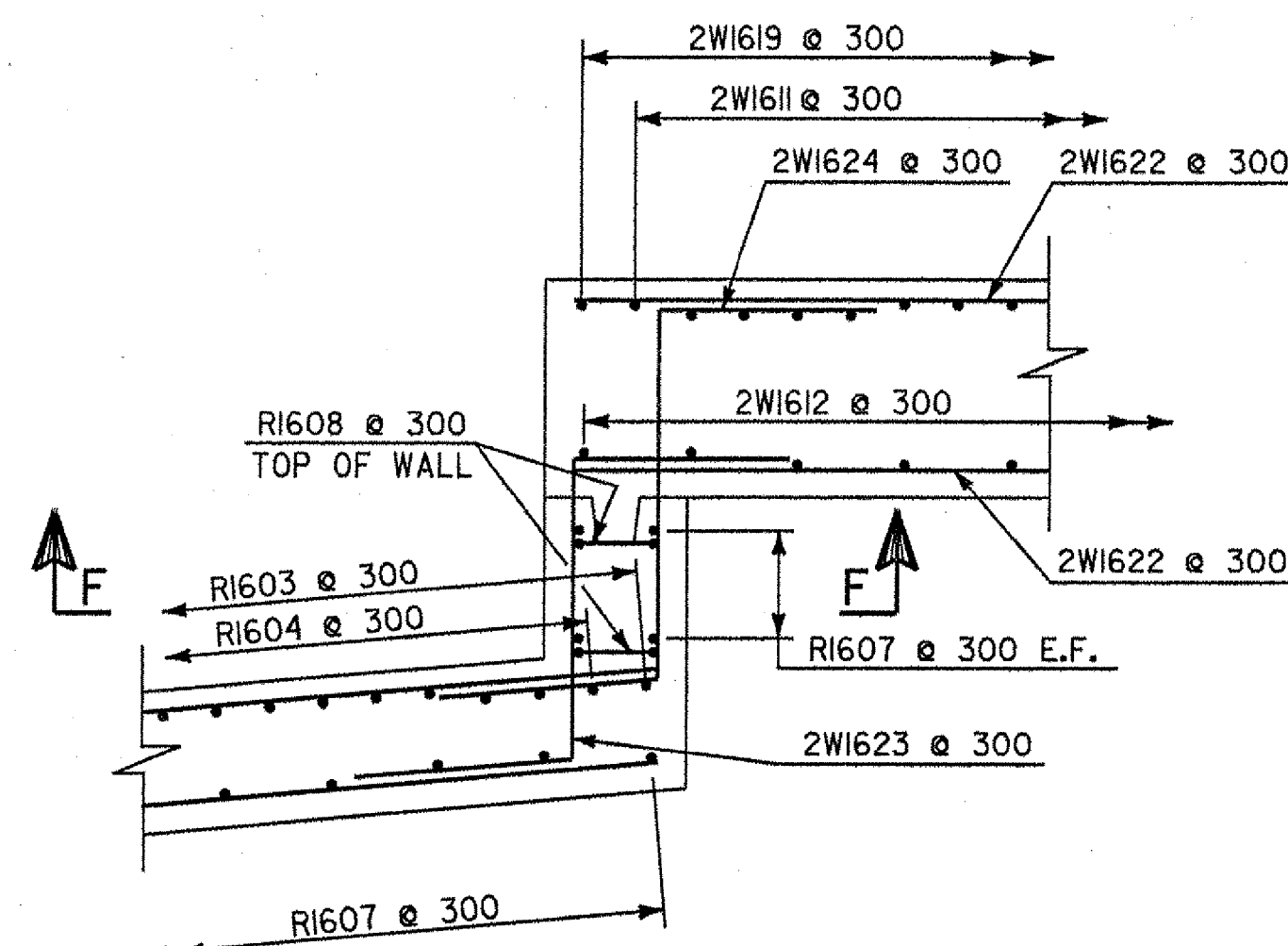
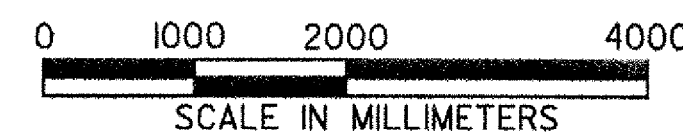
N.F. - NEAR FACE
F.F. - FAR FACE
E.F. - EACH FACE
REINFORCING COVER 80 CLEAR ON ALL FACES
EXCEPT WHERE NOTED.
MINIMUM LAP LENGTH FOR HORIZONTAL #16 BARS
IS 610 UNLESS NOTED OTHERWISE.
▲ - CUT TO FIT IN FIELD
* - PLACED RADIAL.
FOR SECTIONS C-C, SEE SHEET BRI25.
FOR SECTION D-D, E-E, AND G-G, SEE SHEET BRI29.

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

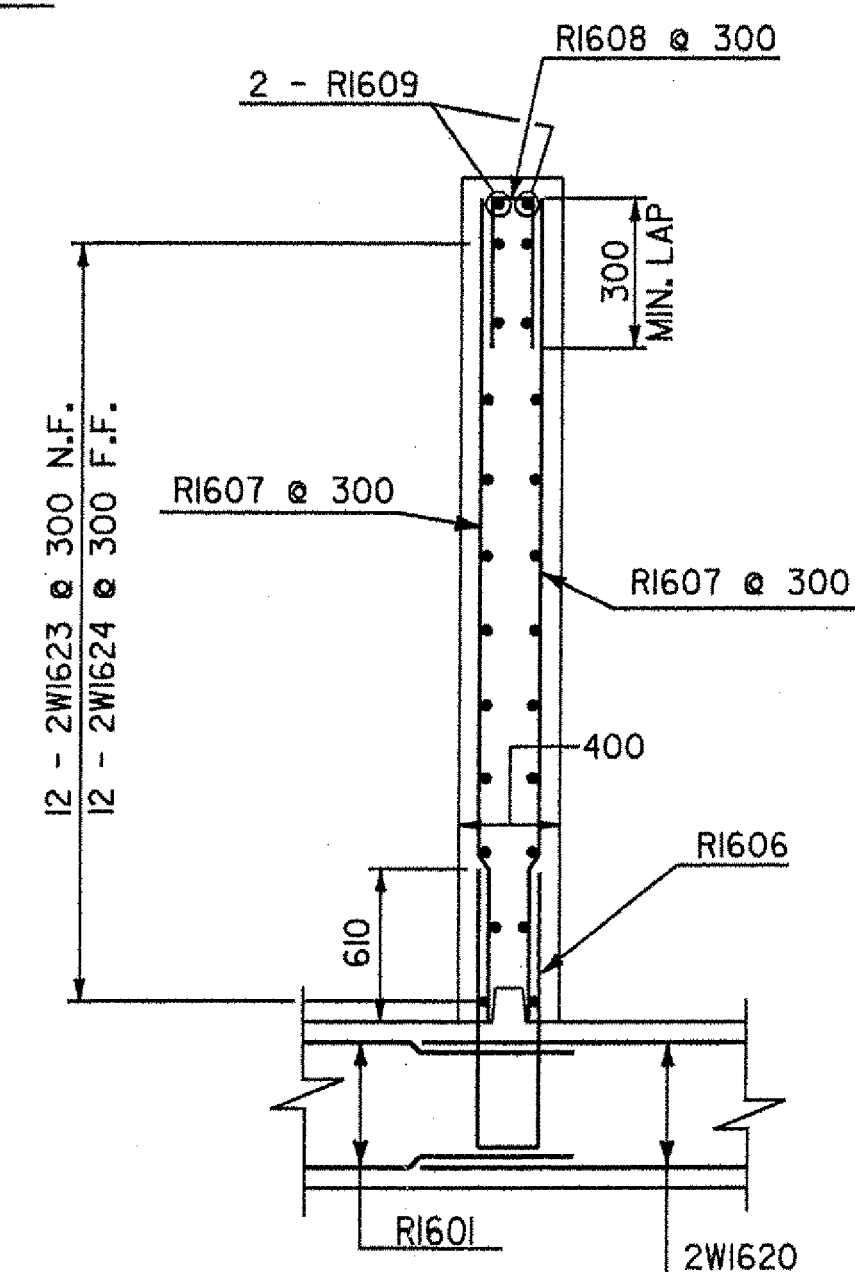
Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
RETAINING WALL PLAN AND ELEVATION			
Designed By	S. BAKI	Drawn By	B. TYLER
Checked By	S. BAKI	Bridge Design Supervisor	J. MIECZKOWSKI
		Date	
PROJECT	HARTLAND	PROJECT NO.	BRS No. 013(22)
I.G.C. Info. M:\45620\VA0T Hartland\struct\zf204rml.dgn			
Bridge Sheet No. BRI28		Sheet 63 of 86	



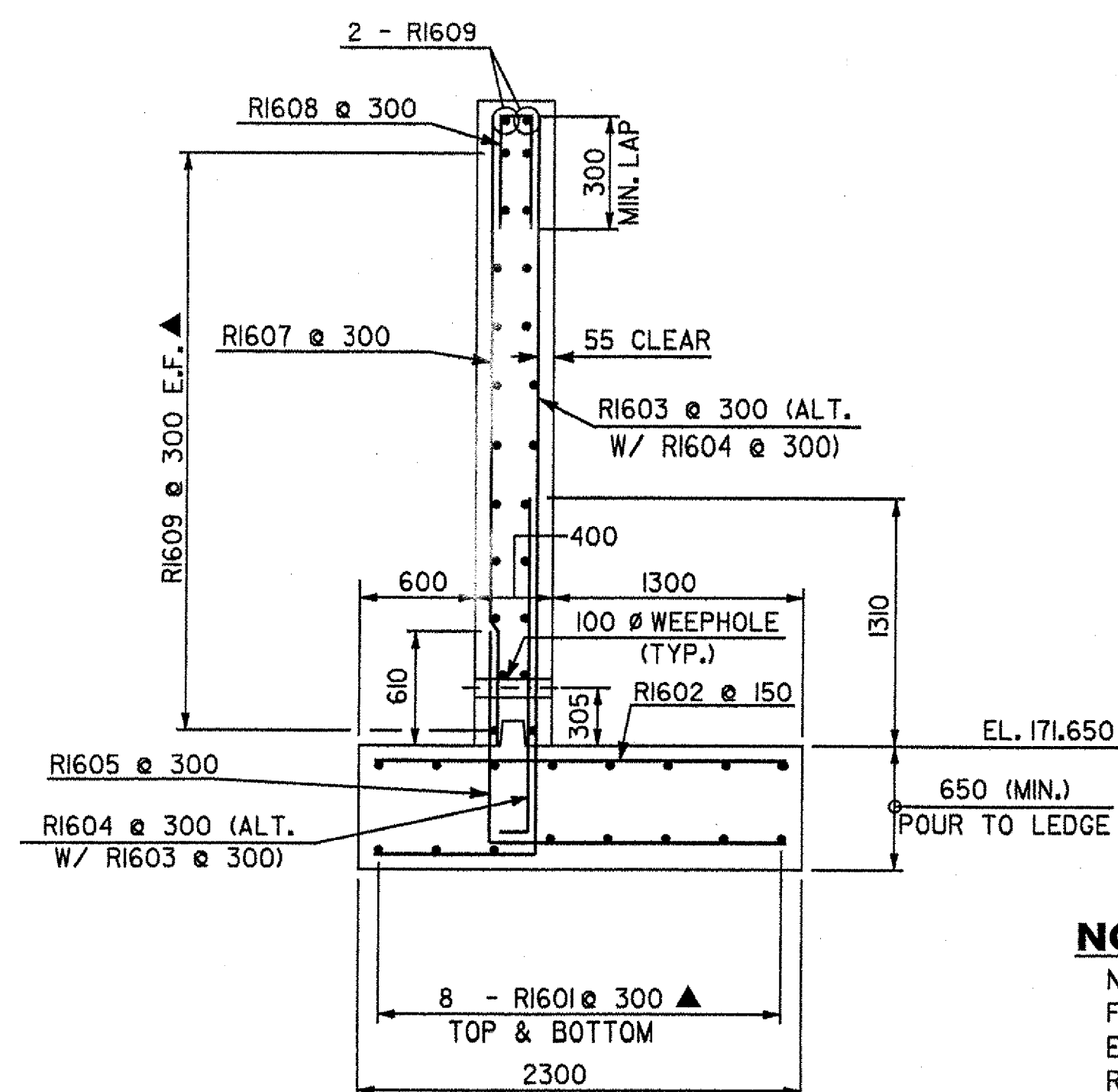
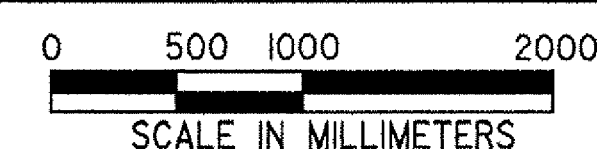
**RETAINING WALL & WING WALL NO. 2
REINFORCING PLAN**



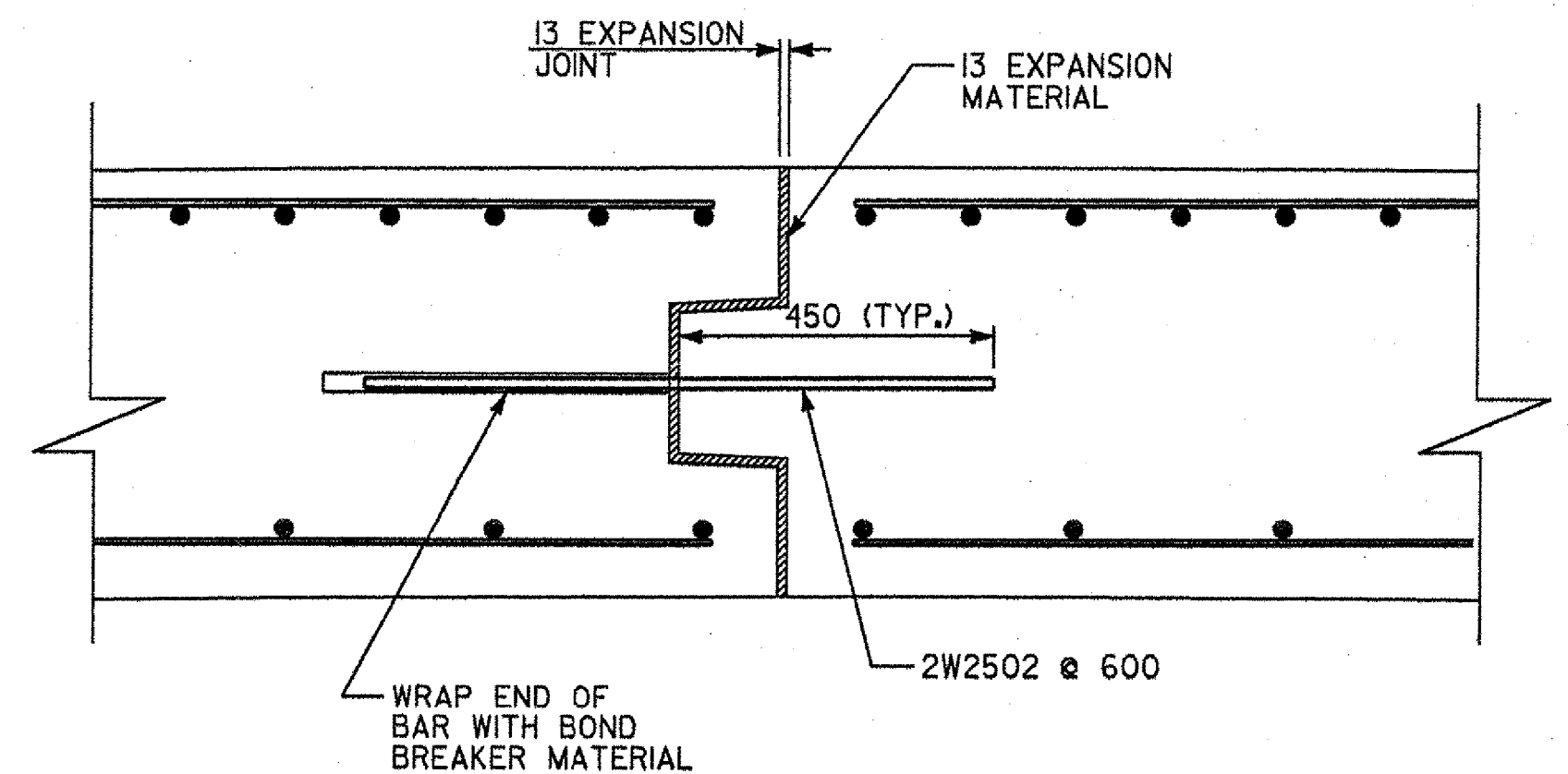
SECTION E-E AT RETAINING WALL



SECTION F-F AT RETAINING WALL



SECTION D-D AT RETAINING WALL



SECTION G-G

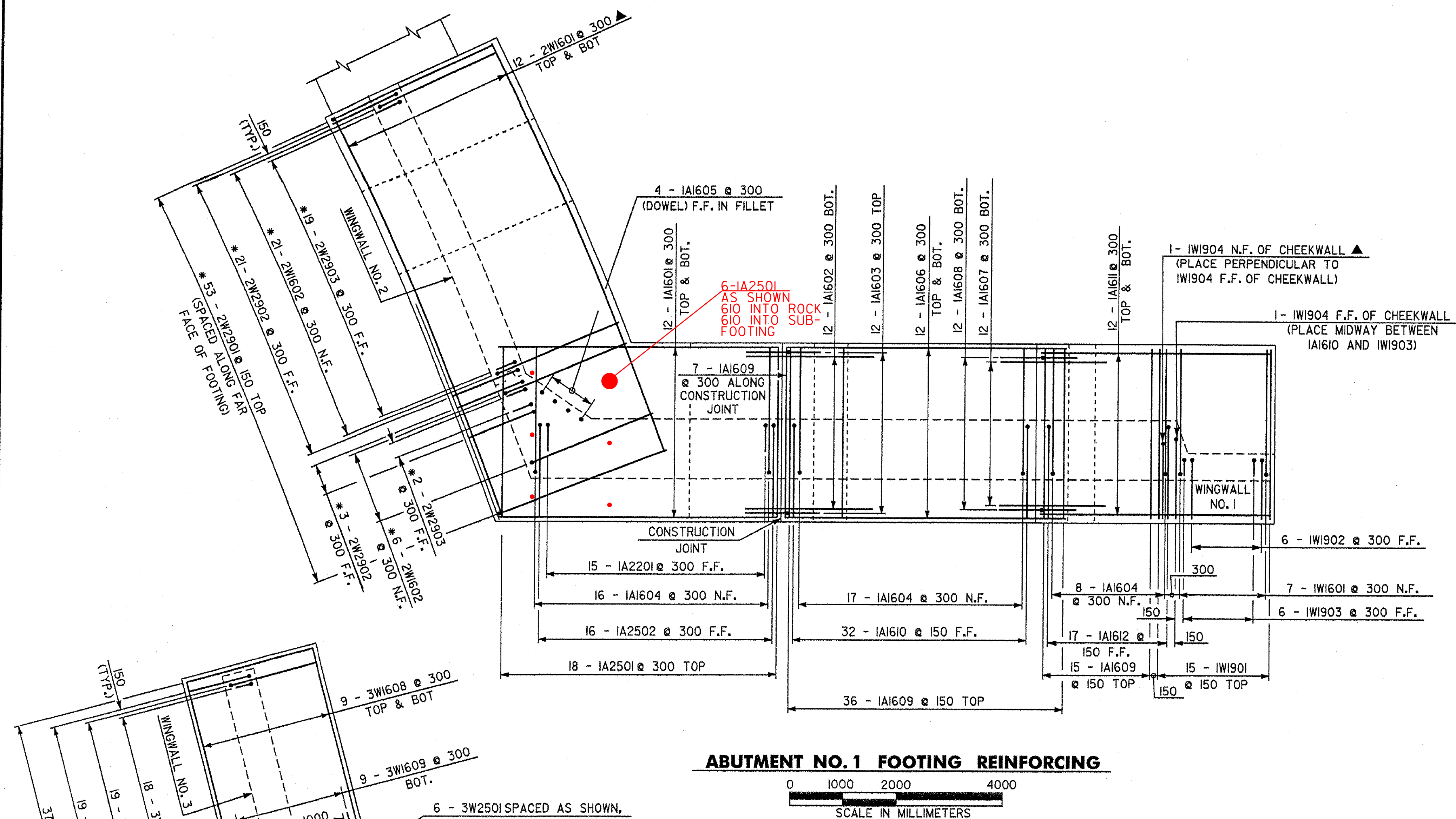


NOTES:

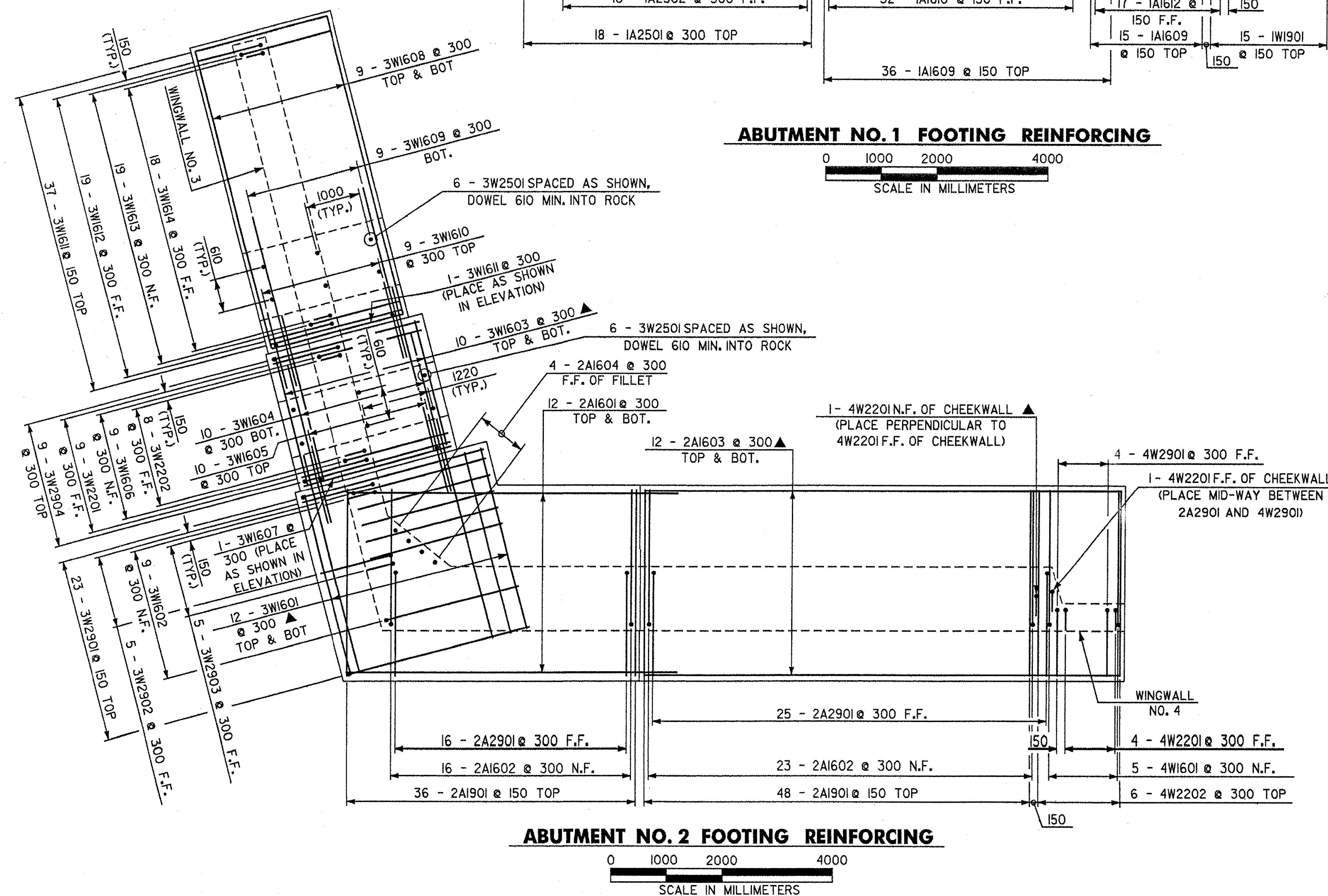
N.F. - NEAR FACE
F.F. - FAR FACE
E.F. - EACH FACE
REINFORCING COVER 80 CLEAR ON ALL FACES EXCEPT WHERE NOTED.
MINIMUM LAP LENGTH FOR HORIZONTAL #16 BARS IS 610 UNLESS NOTED OTHERWISE.
▲ - CUT TO FIT IN FIELD
* - PLACED RADIAL.
FOR LOCATION OF SECTIONS E-E AND G-G, SEE SHEET BRI28.

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
RETAINING WALL DETAILS			
Designed By	S. BAKI	Drawn By	B. TYLER
Checked By	Date	Bridge Design Supervisor	
	S. BAKI	J. MIECZKOWSKI	Date
PROJECT	HARTLAND	PROJECT NO.	
		BRS No.	0113(22)
I.G.C. Info. M:\N456201\VAOT Hartland\struct\z\204rml.dgn			
Bridge Sheet No.	BRI29	Sheet	64 of 86



ABUTMENT NO.1 FOOTING REINFORCING



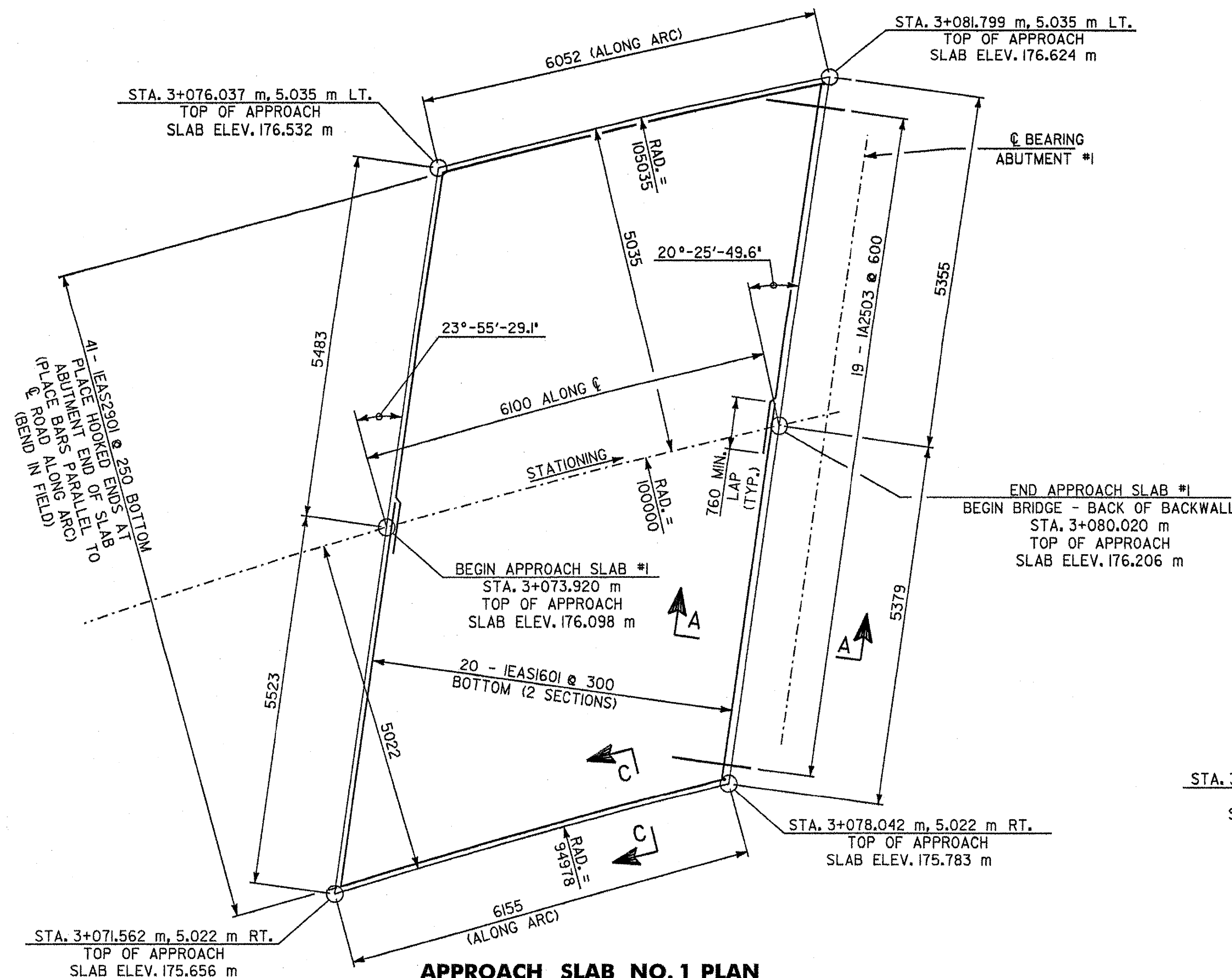
ABUTMENT NO. 2 FOOTING REINFORCING

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	HARTLAND	Bridge No. 60
Highway No.	U.S. ROUTE 5	Log Sta.
		Surv. Sta.
U.S. ROUTE 5 OVER LULLS BROOK		
ABUT. NO. 1 & NO. 2 FOOTING REINF.		
Designed By	S. BAKI	Drawn By W. GAYNOR
Checked By	Date	Bridge Design Supervisor
S. BAKI		J. MIECZKOWSKI Date
PROJECT		PROJECT NO.
HARTLAND		BRIS No. 0113(22)
I.G.C. Info. M:\45620\VAOT Hartland\struct\zf204fml.dgn		
Bridge Sheet No. BRI30		Sheet 65 of 86

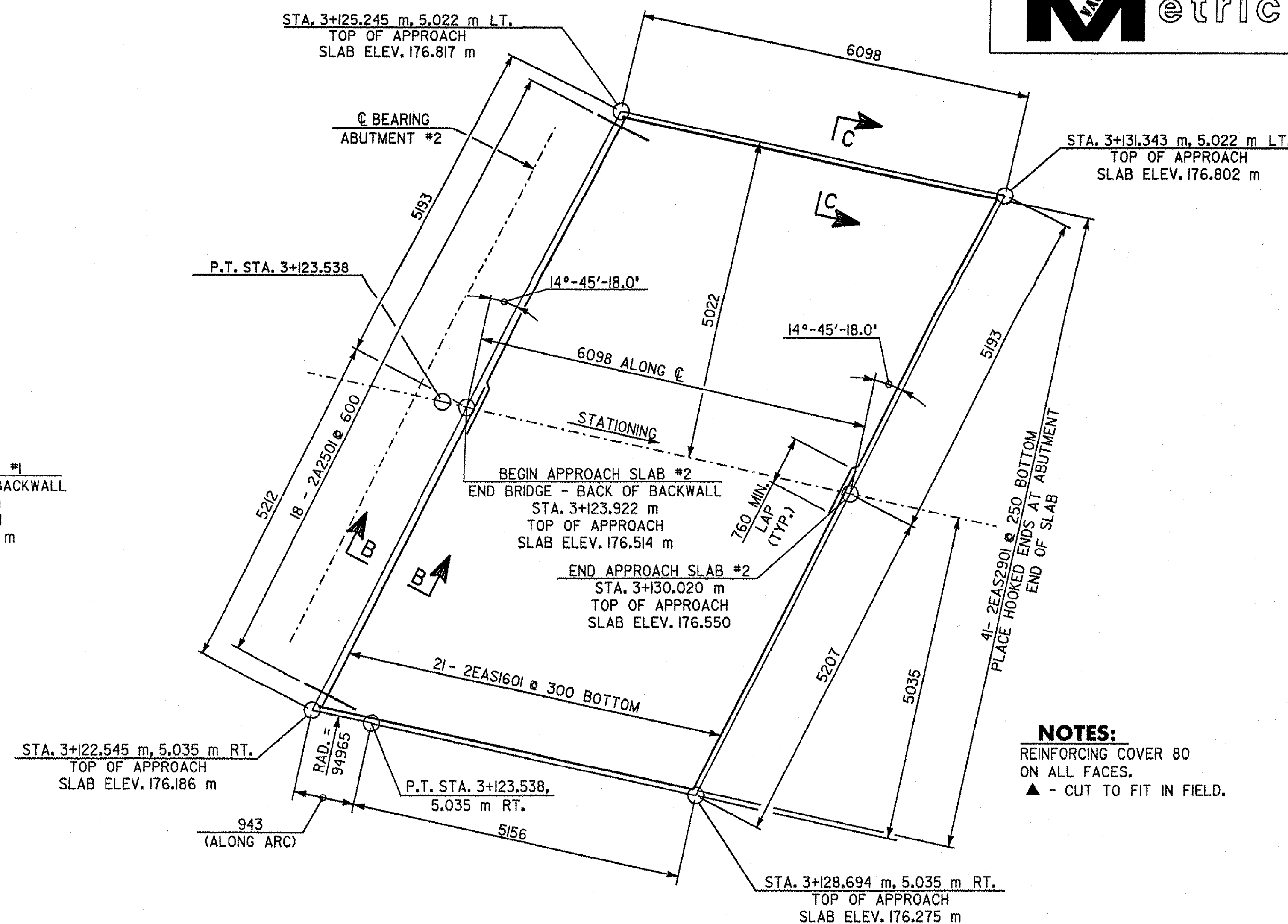
NOTES:

N.F. - NEAR FACE
F.F. - FAR FACE
E.F. - EACH FACE
REINFORCING COVER 80 ON ALL FACES.
MINIMUM LAP LENGTH FOR HORIZONTAL #16 BARS
IS 610 UNLESS NOTED OTHERWISE.
▲ - CUT TO FIT IN FIELD
* - PLACED RADIAL.
FOR WINGWALL NO. 2 AND NO. 3 ELEVATIONS, SEE
SHEET BR124.



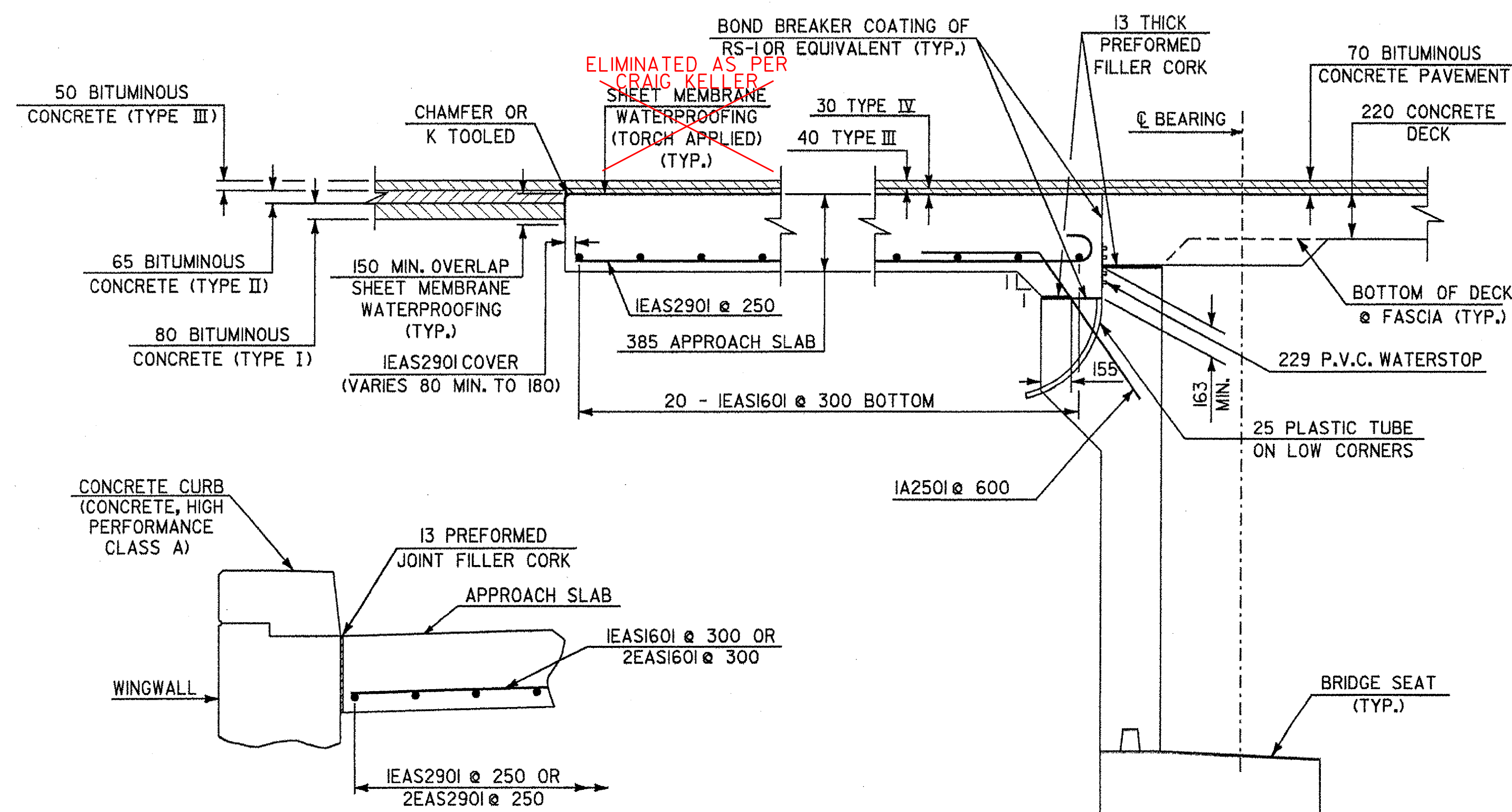
APPROACH SLAB NO. 1 PLAN

0 1000 2000 4000
SCALE IN MILLIMETERS



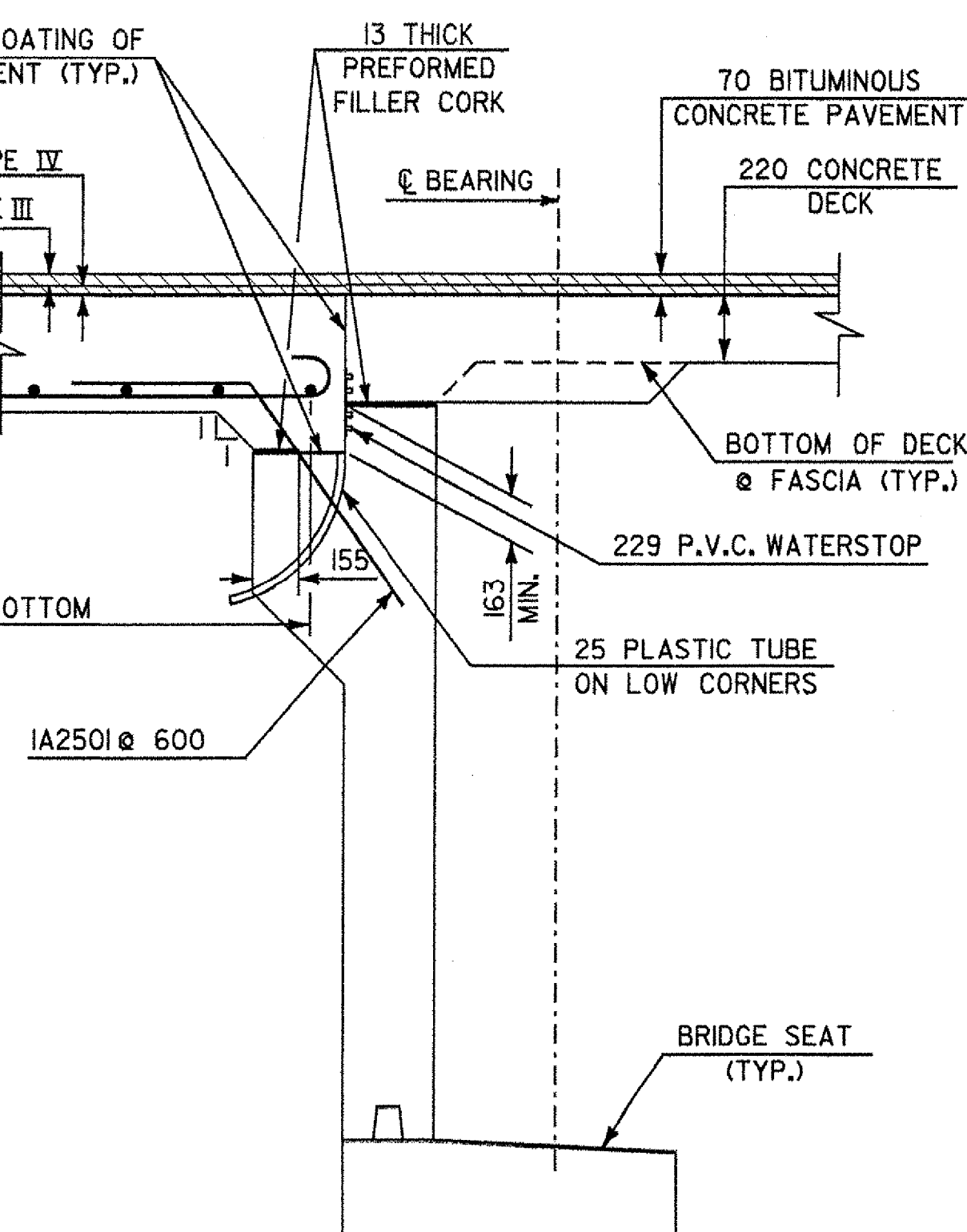
APPROACH SLAB NO. 2 PLAN

0 1000 2000 4000
SCALE IN MILLIMETERS



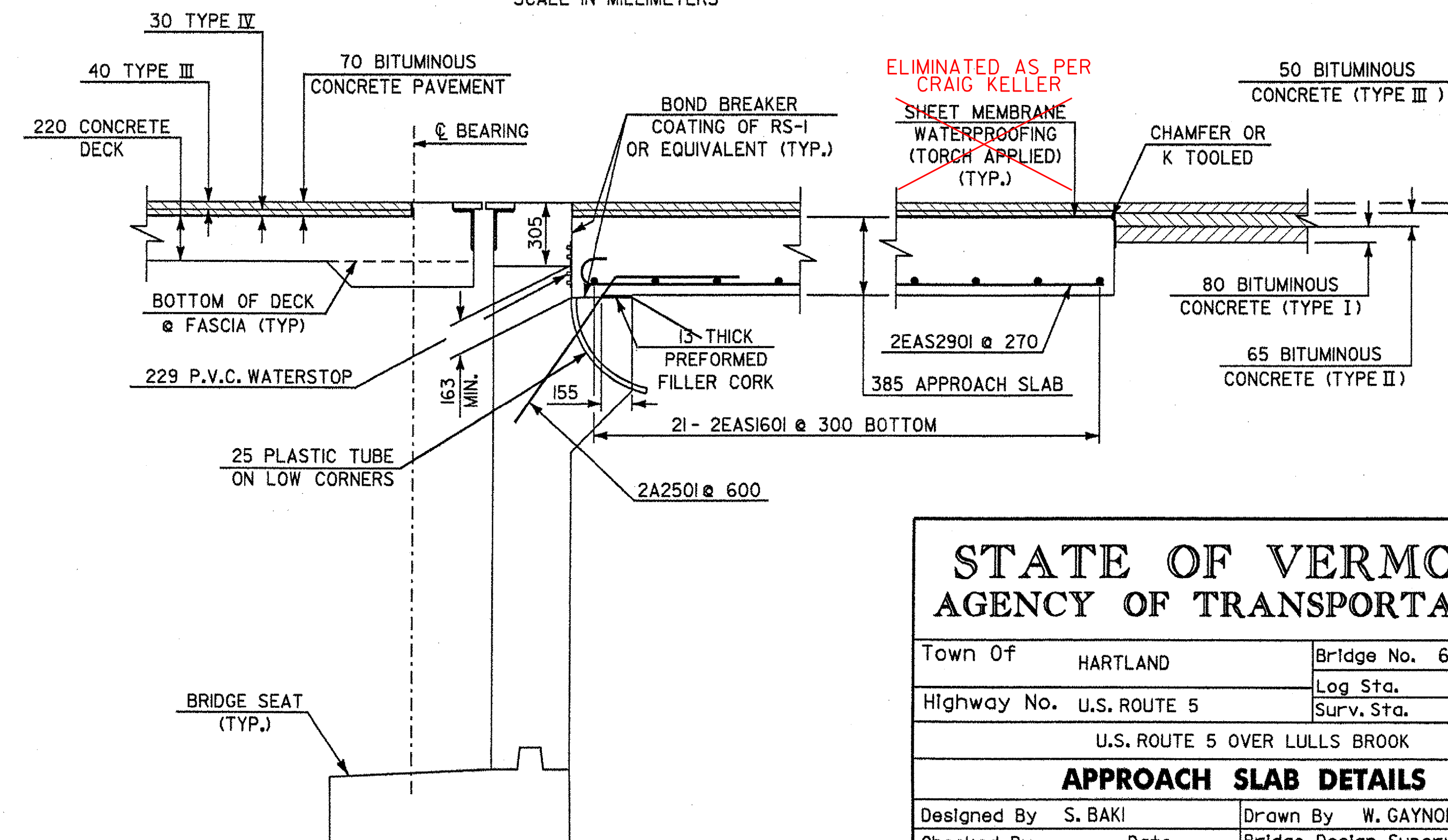
SECTION C-C

0 400 800 1600
SCALE IN MILLIMETERS



SECTION A-A

0 400 800 1600
SCALE IN MILLIMETERS

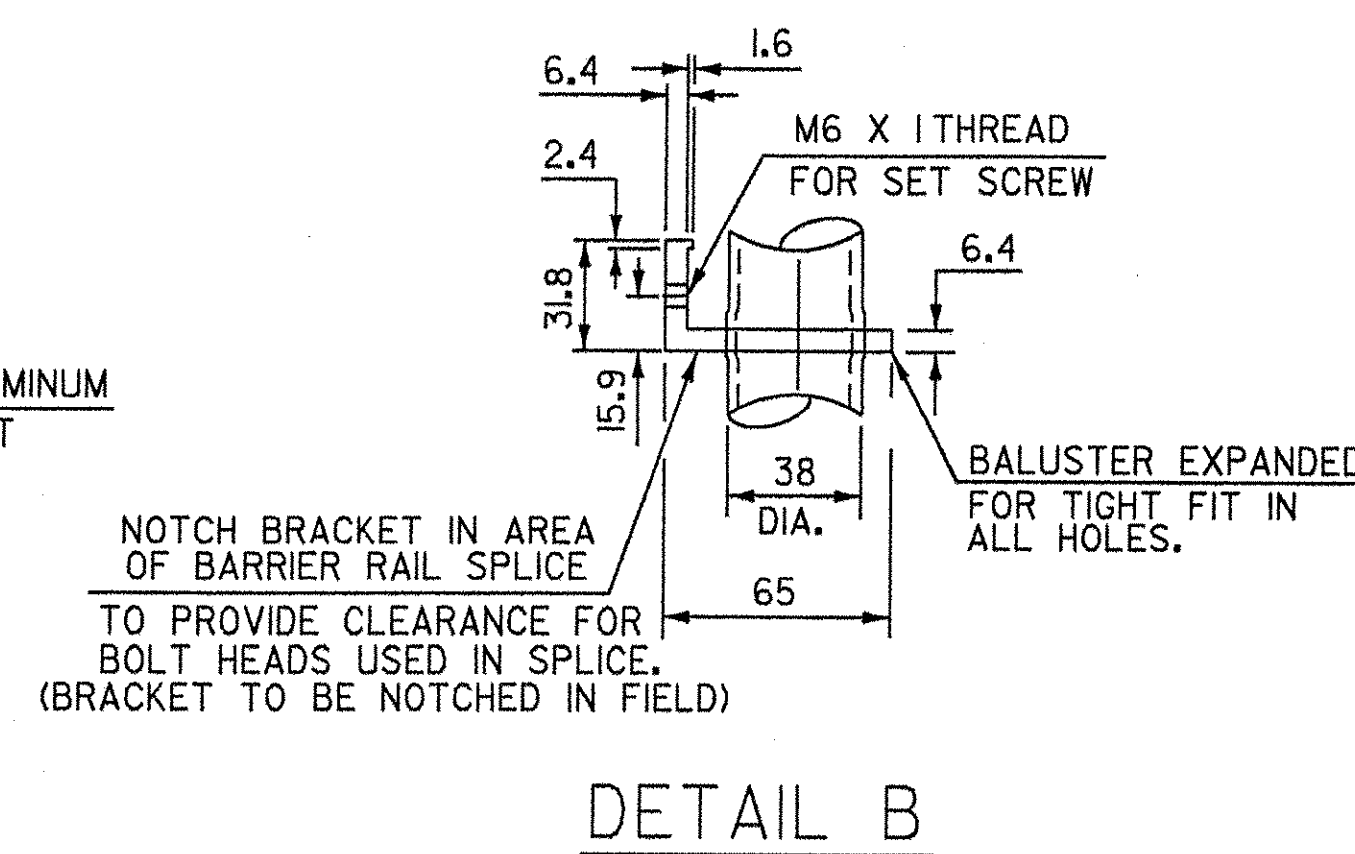
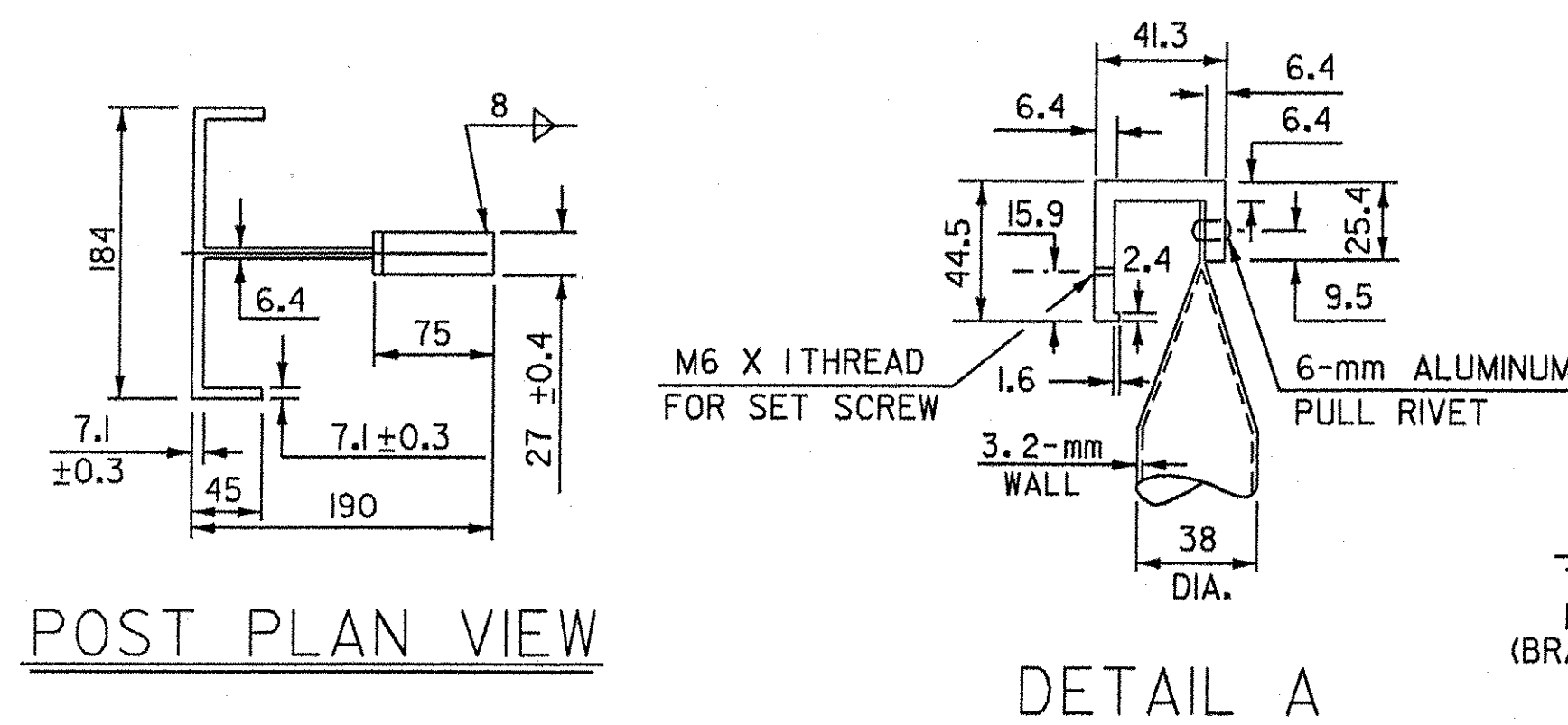
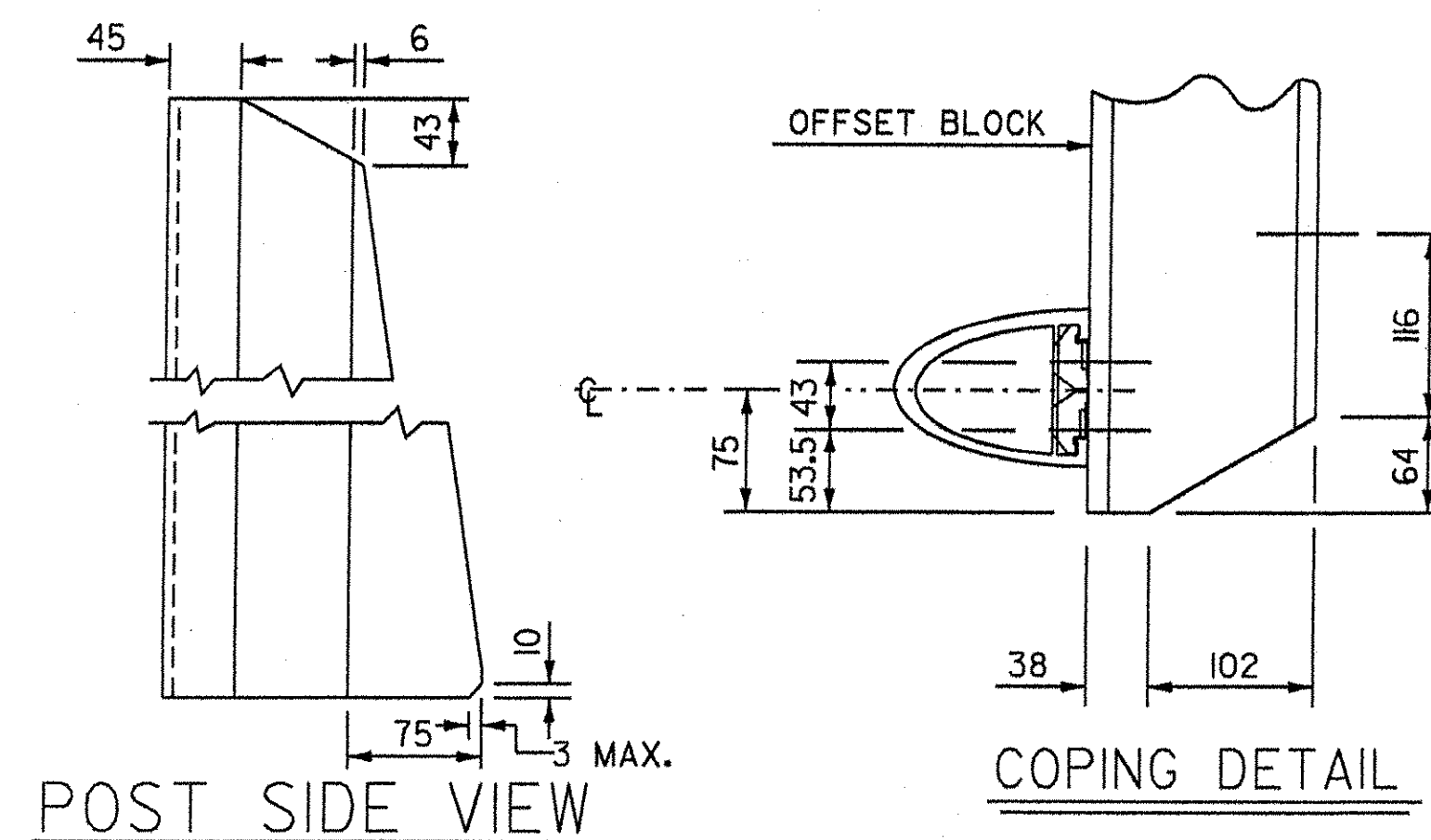


SECTION B-B

0 400 800 1600
SCALE IN MILLIMETERS

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
APPROACH SLAB DETAILS			
Designed By	S. BAKI	Drawn By	W. GAYNOR
Checked By	S. BAKI	Bridge Design Supervisor	J. MIECZKOWSKI
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\456201\VAOT Hartland\struct\z204aps.dgn		Sheet 66 of 86	
Bridge Sheet No. BR131			



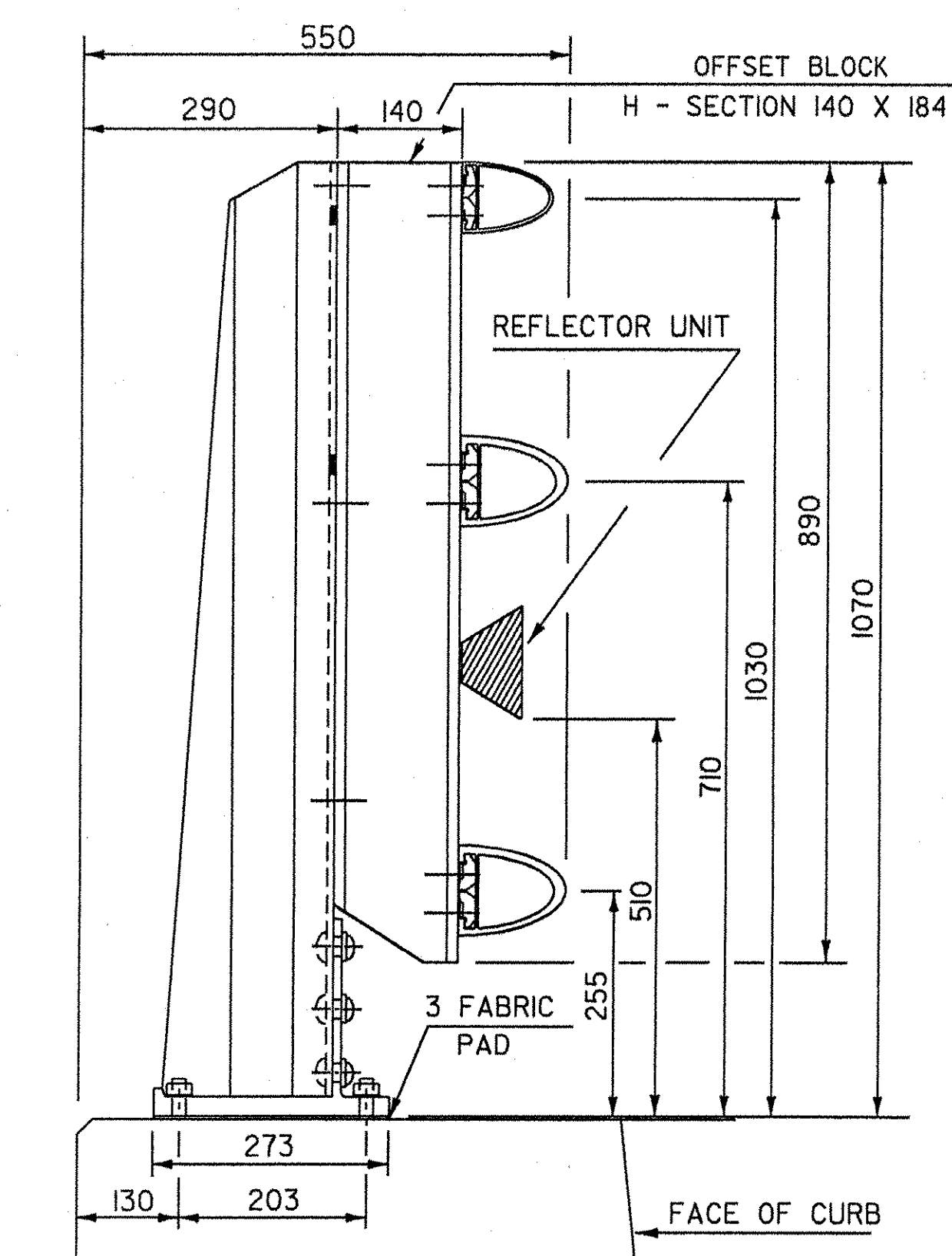
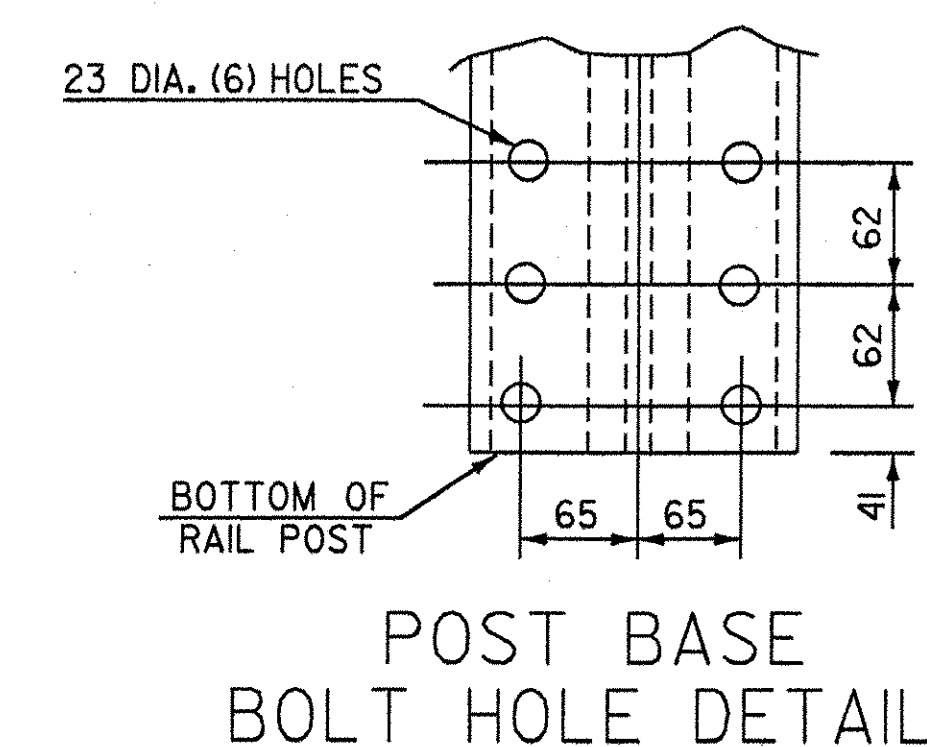
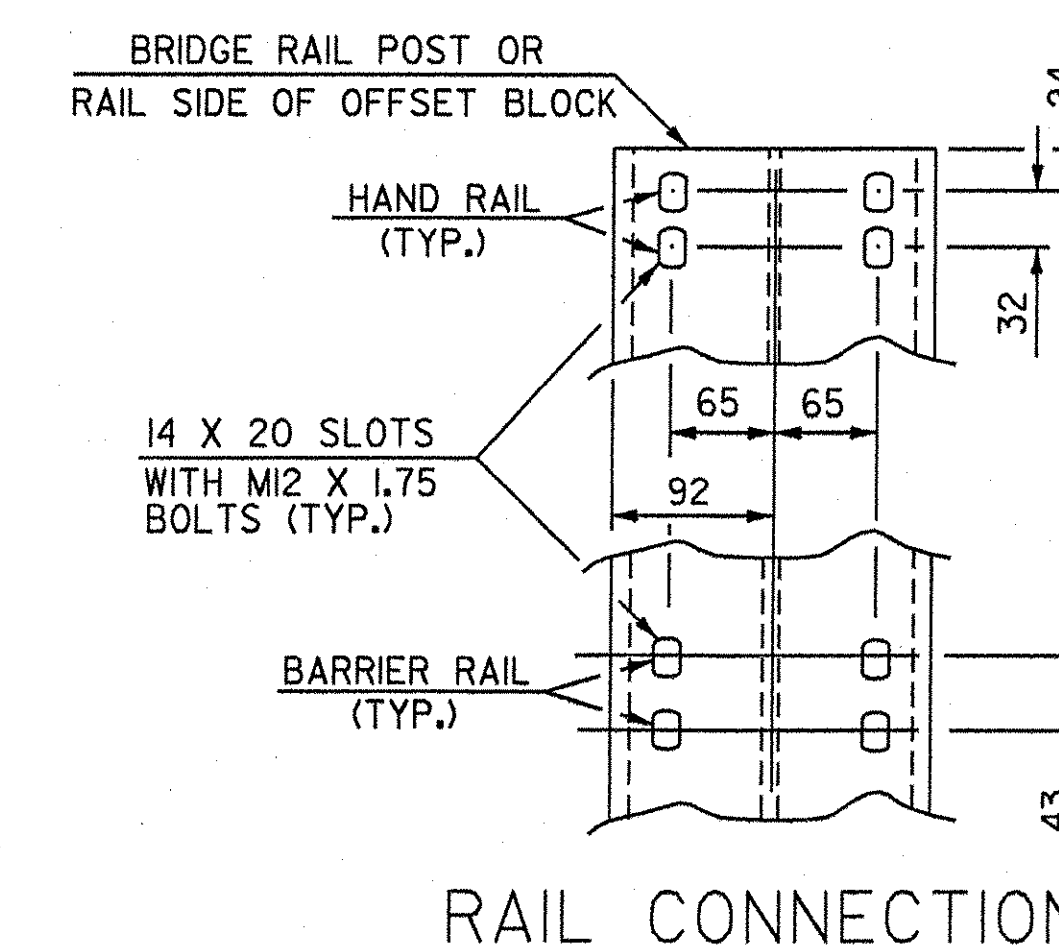
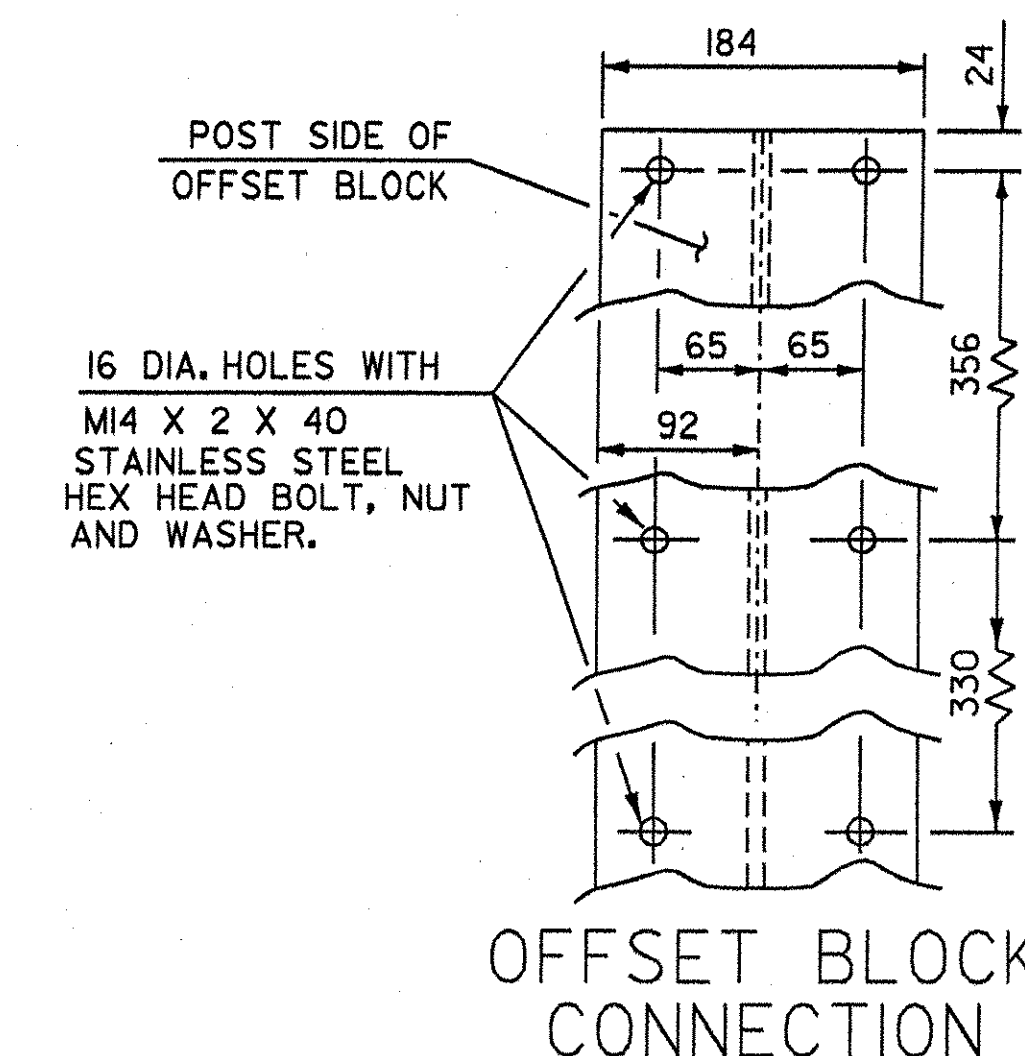
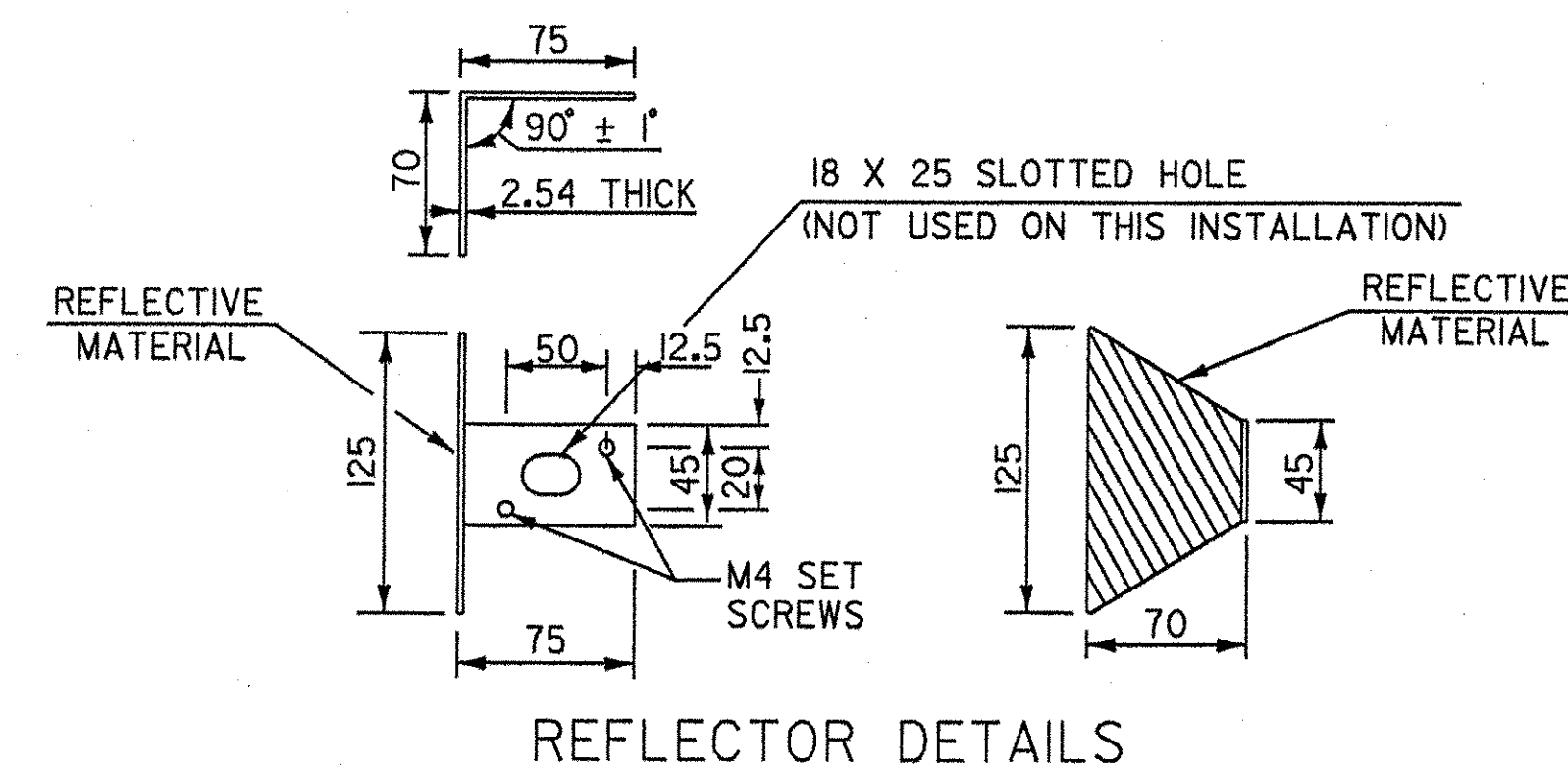
THIS REFLECTORIZED ALUMINUM DELINEATOR IS TO BE ERECTED EVERY 9 m (OR CLOSEST POST) WITH 2 M4 X 0.7 X 20 SET SCREWS.

DELINEATORS SHALL MEET SPECIFICATION REQUIREMENTS FOR ASTM B 209M ALLOY 5052-H32.

REFLECTIVE MATERIAL SHALL MEET THE 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.

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 RAIL ON THE CURB SIDE)

PAYMENT SHALL BE SUBSIDIARY TO ALL OTHER ITEMS.



SIDE ELEVATION OF THREE RAIL TO BE USED ON CURB SIDE

RAIL POST DETAILS ON SUPERSTRUCTURE

REVISIONS AND CORRECTIONS
DECEMBER 18, 1997 - ORIGINAL APPROVAL DATE
REVISION: COPING DETAIL MODIFIED, JHW 06/16/98

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of HARTLAND Bridge No. 60
Highway No. U.S. ROUTE 5 Log Sta.
Surv. Sta.
U.S. ROUTE 5 OVER LULLS BROOK

ALUMINUM BRIDGE RAILING DETAILS 1 OF 3

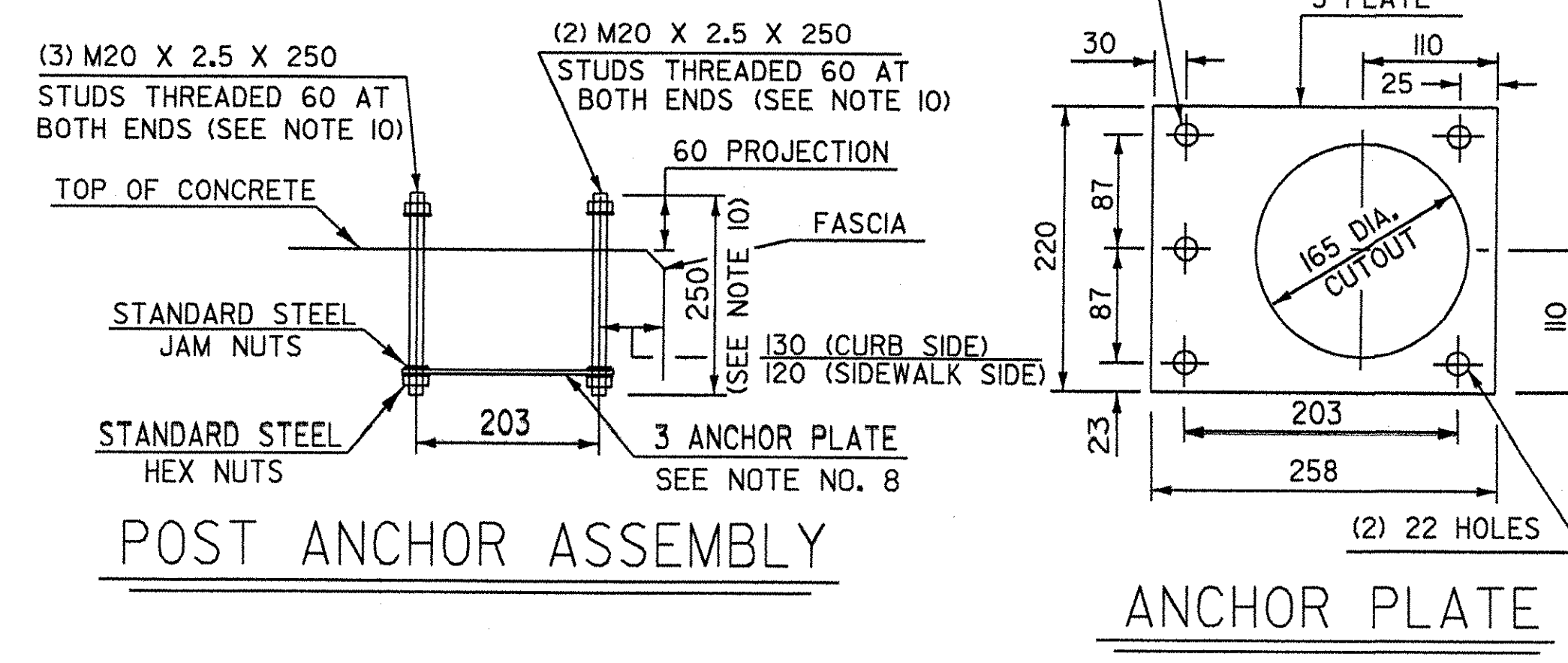
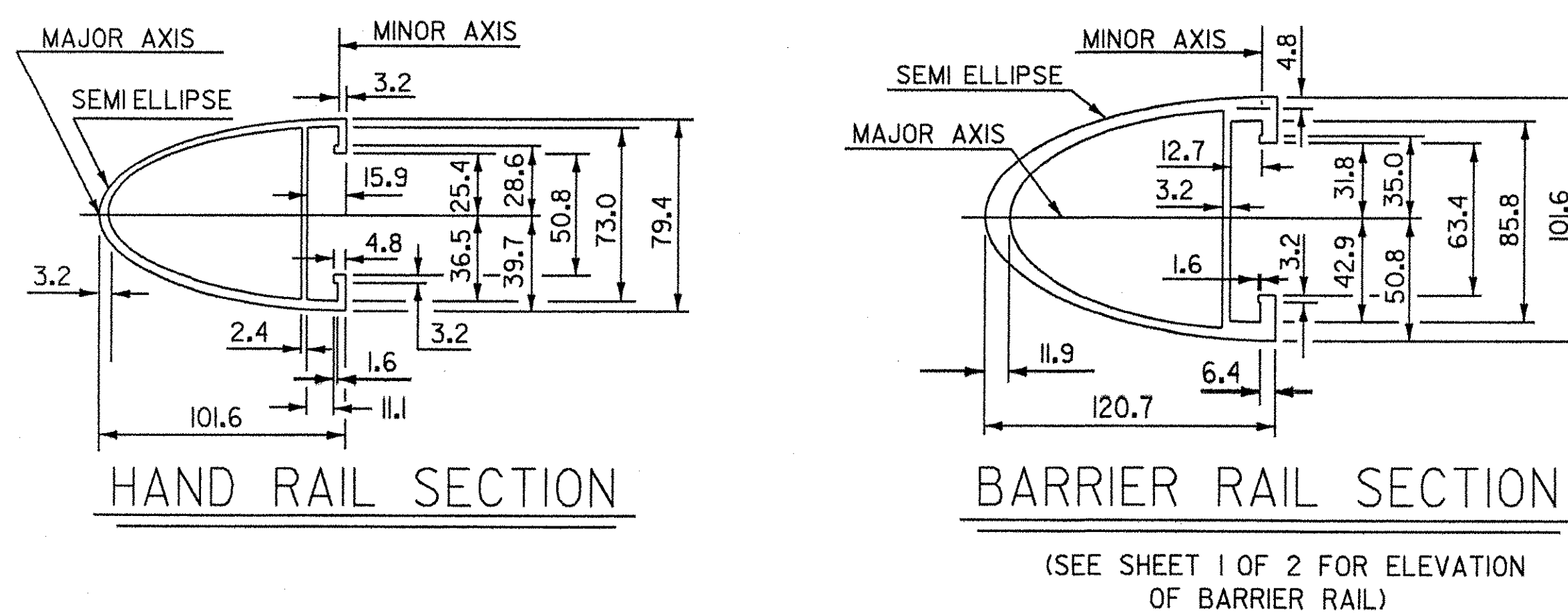
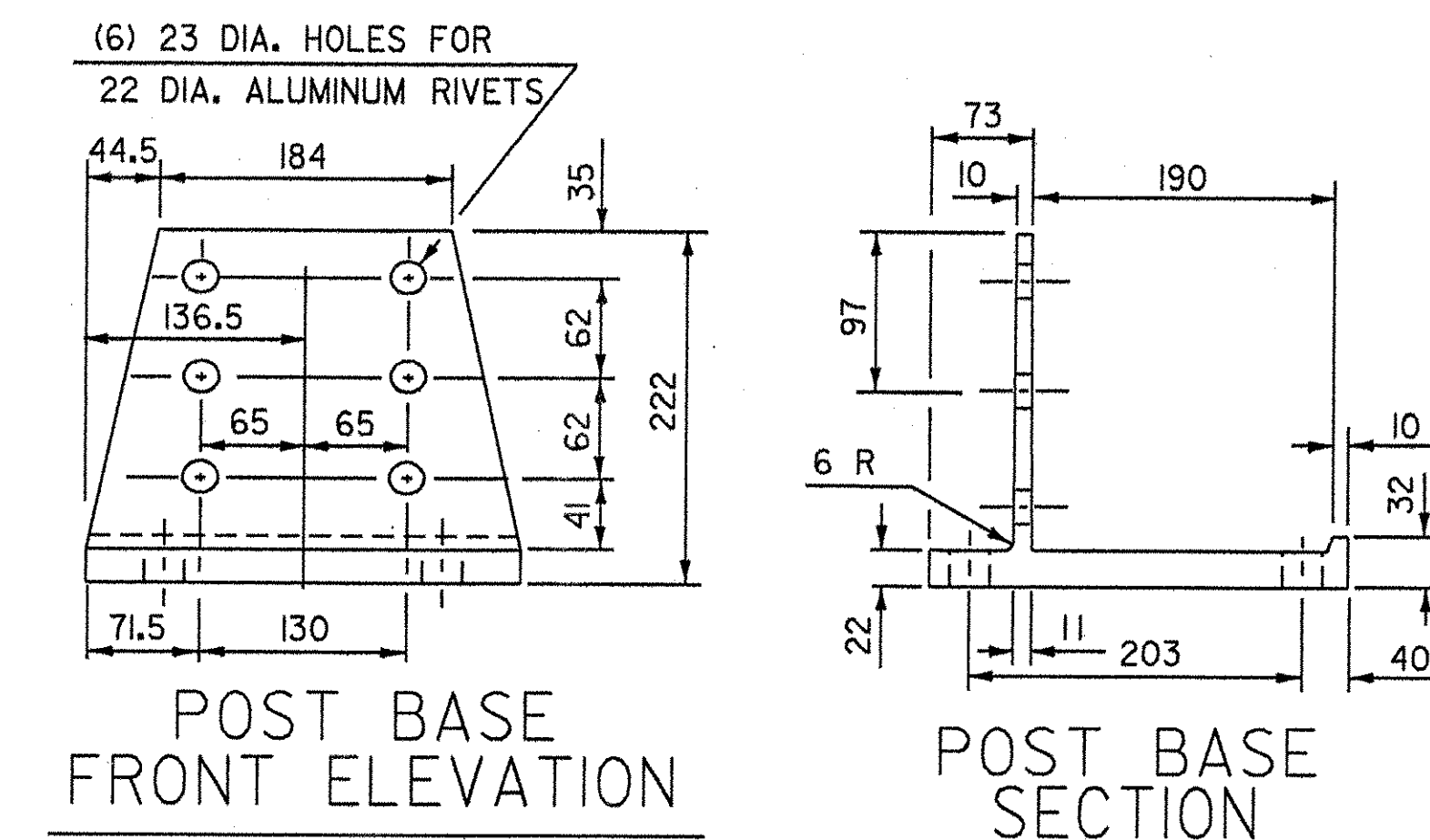
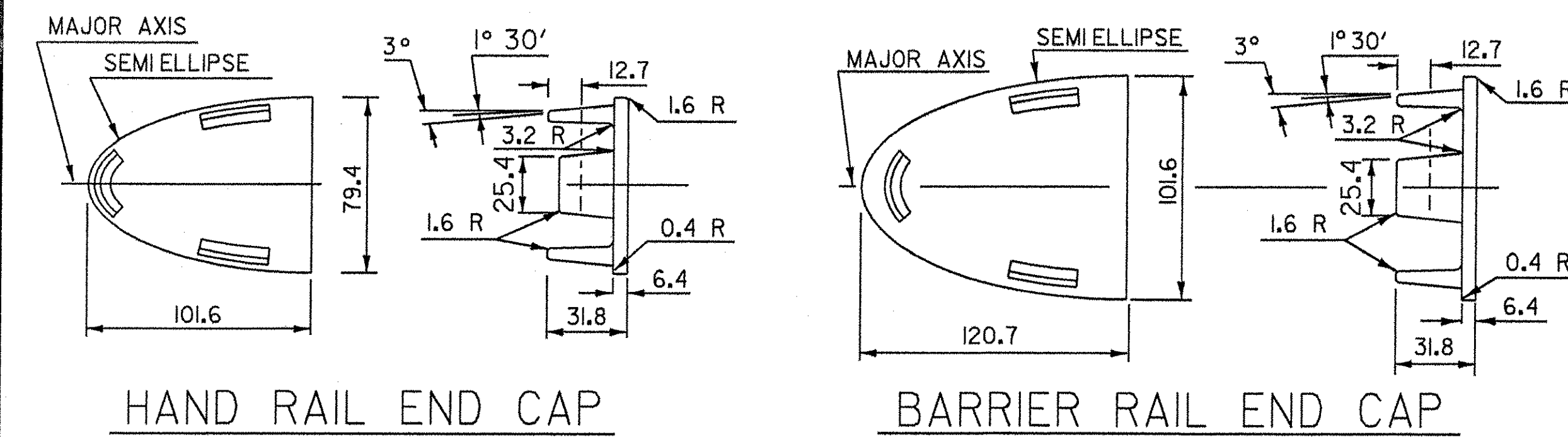
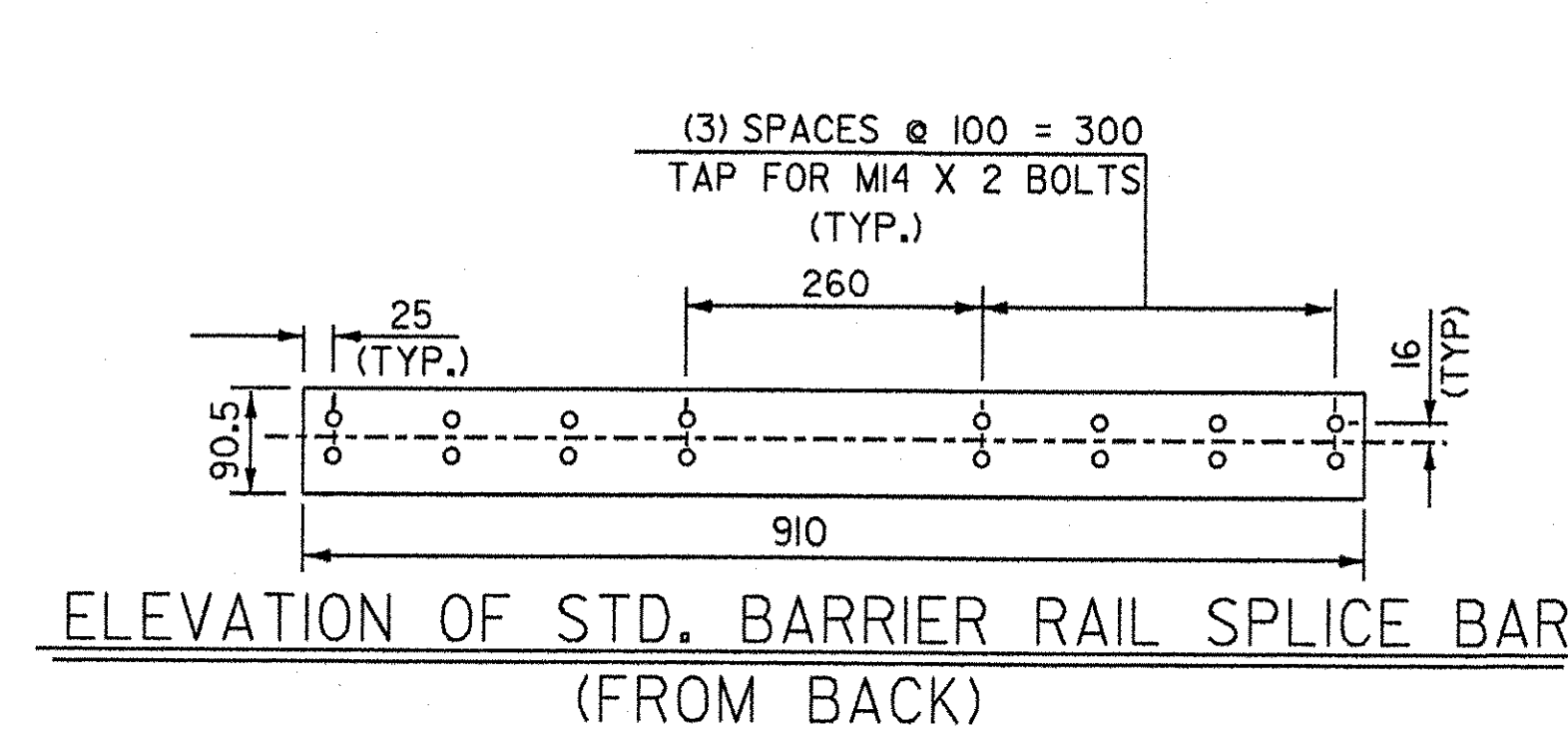
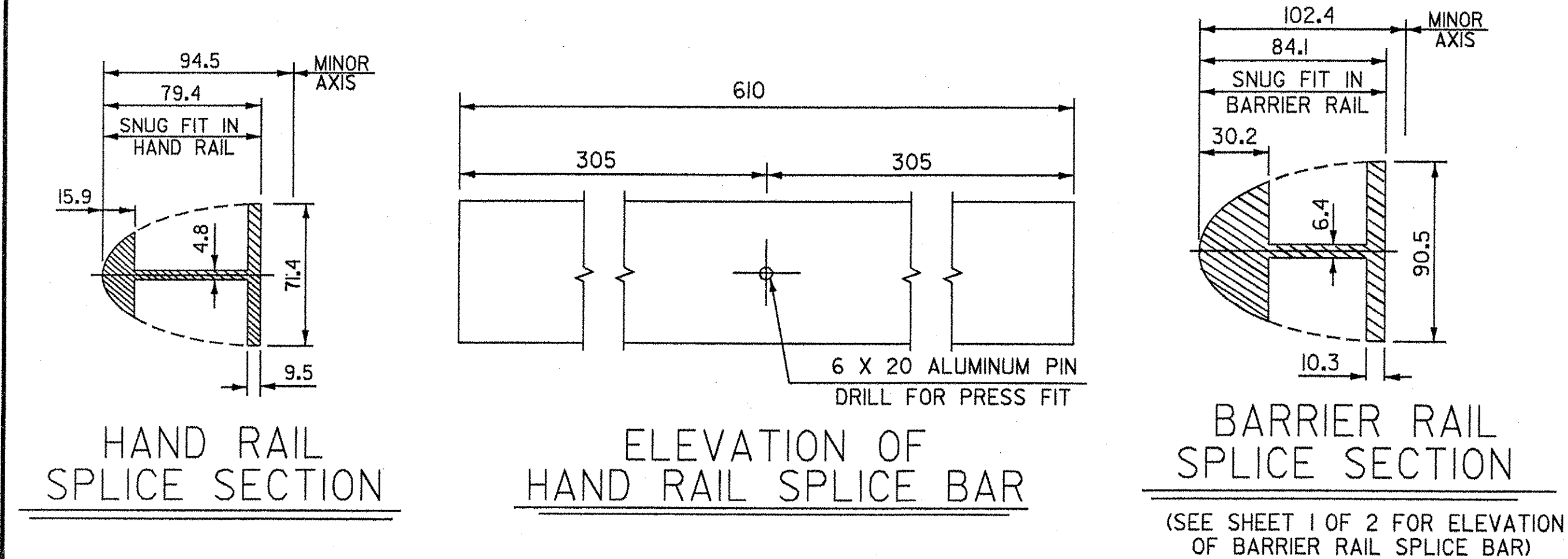
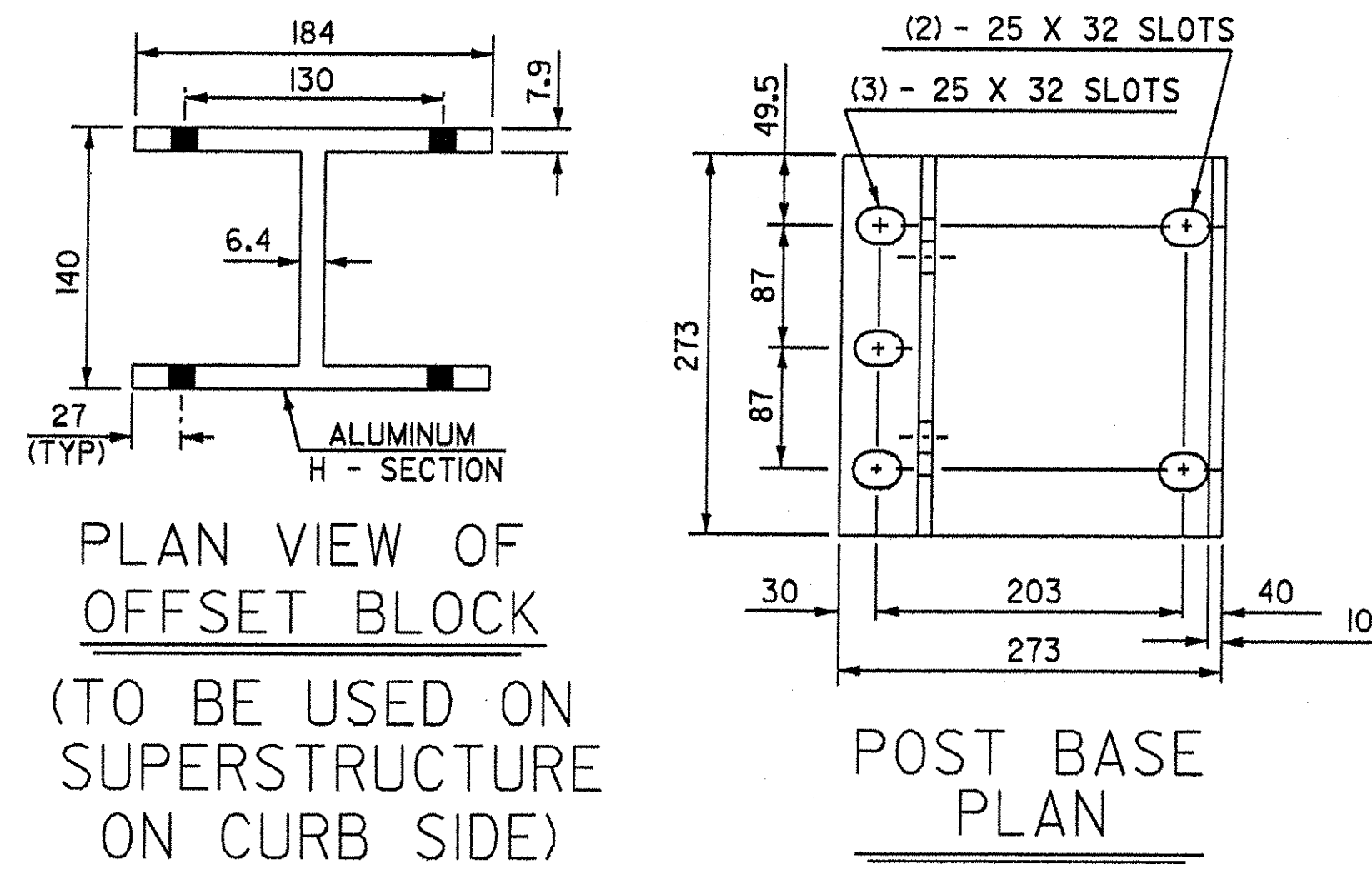
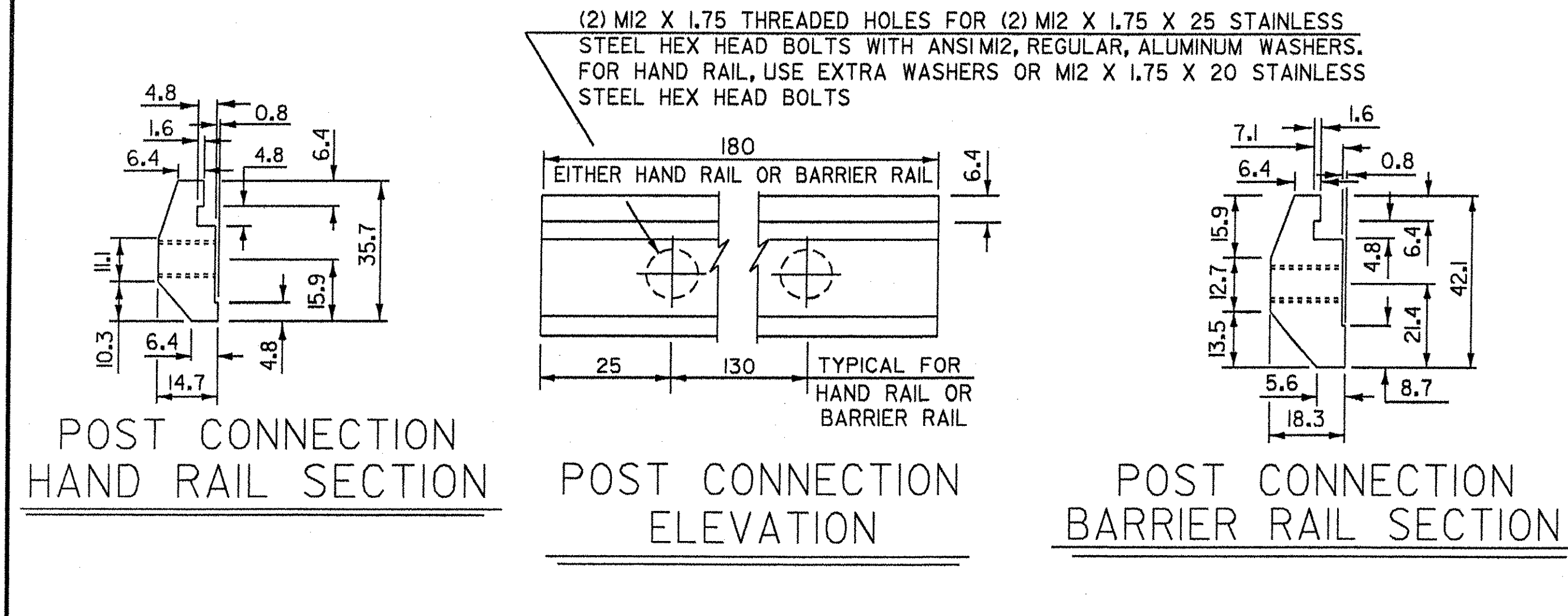
Designed By VAOT Drawn By VAOT
Checked By S. BAKI Date 1/00 Bridge Design Supervisor J. MIECZKOWSKI Date 1/00

PROJECT HARTLAND PROJECT NO. BRS No. 0113(22)

I.G.C. Info: M:\456201\VAOT Hartland\struct\zf204rd.dgn
Bridge Sheet No. BRI32 Sheet 67 of 86

NOTES

- ANCHOR BOLTS, WASHERS & HEAVY HEXAGONAL NUTS MAY BE ANY OF THE FOLLOWING:
 - ASTM F 568M, CLASS 8.8 GALVANIZED.
 - ASTM M 164M GALVANIZED, OR
 - BOLTS AND WASHERS OF STAINLESS STEEL ASTM F 738M, CLASS A1-70, CONDITION CW, ALLOY TYPE 304 WITH STAINLESS STEEL NUTS OF ASTM F 836M, CLASS A1-70, CONDITION CW, ALLOY TYPE 304.
- ALUMINUM POSTS, POST BASES, SPLICE BARS, CONNECTION BARS, RAILS AND BALUSTER FRAMES SHALL CONFORM TO ASTM B 221M ALLOY 6061-T6 OR ALLOY 6351-T5. MINIMUM YIELD STRENGTH $F_y = 240$ MPa.
- ALUMINUM BALUSTER TUBES SHALL CONFORM TO ASTM B 210M ALLOY 6061-T5 OR 6063-T5.
- ALUMINUM RAIL AND CAPS SHALL CONFORM TO ASTM B 26/B 26M ALLOY 356-T6.
- THE POST, RAIL AND OFFSET CONNECTION BOLTS AND WASHERS SHALL CONFORM TO ASTM F 738M, CLASS A1-50, CONDITION AF, ALLOY TYPE 304. NUTS FOR THESE BOLTS SHALL CONFORM TO ASTM 836M, CLASS A1-50, CONDITION AF, ALLOY TYPE 304.
- SET SCREWS FOR ATTACHING BALUSTERS TO RAILING SHALL CONFORM TO ASTM F 880M, CLASS A1-70, CONDITION CW, ALLOY TYPE 304.
- RIVETS SHALL BE COLD DRIVEN HIGH BUTTON HEAD "CONE POINT", CONFORMING TO ASTM B 316/B 316M ALLOY 6061-T6.
- THE ANCHOR PLATE FOR THE POST ANCHOR ASSEMBLY SHALL BE AASHTO M 183M/M 183 STRUCTURAL STEEL.
- WELDING SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 506.10 USING THE GMAW-INERT GAS PROCESS AND AWS ER 5356 ELECTRODE WIRE.
- UNLESS OTHERWISE SPECIFIED, ANCHOR BOLTS SHALL BE CAST INTO THE CONCRETE AS DETAILED.
- WHENEVER FEASIBLE, BARRIER RAIL AND HAND RAIL SECTIONS SHALL BE FULL LENGTH SECTIONS (12 m $\pm$) AND WHEN PRACTICAL SHALL BE ATTACHED TO THREE POSTS. RAILS SHALL BE SPLICED AT EACH DECK JOINT AND INTERMITTENTLY AS REQUIRED. SPLICES SHALL OCCUR WITHIN THE SAME PANEL.
- ENDS OF RAILS SHALL BE CUT SQUARE AND GROUND FREE OF BURRS OR RAGGED EDGES. EXPOSED ENDS SHALL BE CAPPED.
- THE CONCRETE CONTACT SURFACE AT THE POST BASE SHALL BE BUSH HAMMERED AND/OR SHIMMED AS REQUIRED FOR PROPER POST ALIGNMENT. POST HEIGHT ADJUSTMENTS LESS THAN 6 mm SHALL BE WITH 2-mm AND 3-mm SHIMS. CORRECTIONS EXCEEDING 6 mm SHALL BE WITH EPOXY MORTAR CONFORMING WITH SECTION 530. FABRIC BEARING PADS AND ANY REQUIRED SHIMS OR EPOXY MORTAR ARE SUBSIDIARY TO THE UNIT PRICE BID FOR THE RAILING.
- SHIMS AND 3-mm FABRIC BEARING PADS SHALL BE 273 mm SQUARE WITH SLOTTED HOLES SIZED AND LOCATED THE SAME AS THE POST BASE DETAIL. FABRIC BEARING PADS SHALL CONFORM TO SUBSECTION 731.01 OR 731.02, SHIM MATERIAL SHALL BE ASTM B 209M ALLOY 1100-0.
- EXTRUDED SECTIONS ARE DETAILED TO COMPLY WITH CURRENT AASHTO-AGC-ARTBA STANDARDS. MINOR VARIATIONS OF THE DETAILS SHOWN MAY BE CONSIDERED PROVIDING THEY DO NOT REDUCE THE STRENGTH CAPACITY OF THE RAIL SYSTEM.
- ALUMINUM WASHERS SHALL BE ASTM B209M ALLOY ACLAD 2024-T4.
- OFFSET BLOCKS AND ALUMINUM APPROACH RAIL POSTS SHALL CONFORM TO ASTM SPECIFICATION B 308/ B 308M.



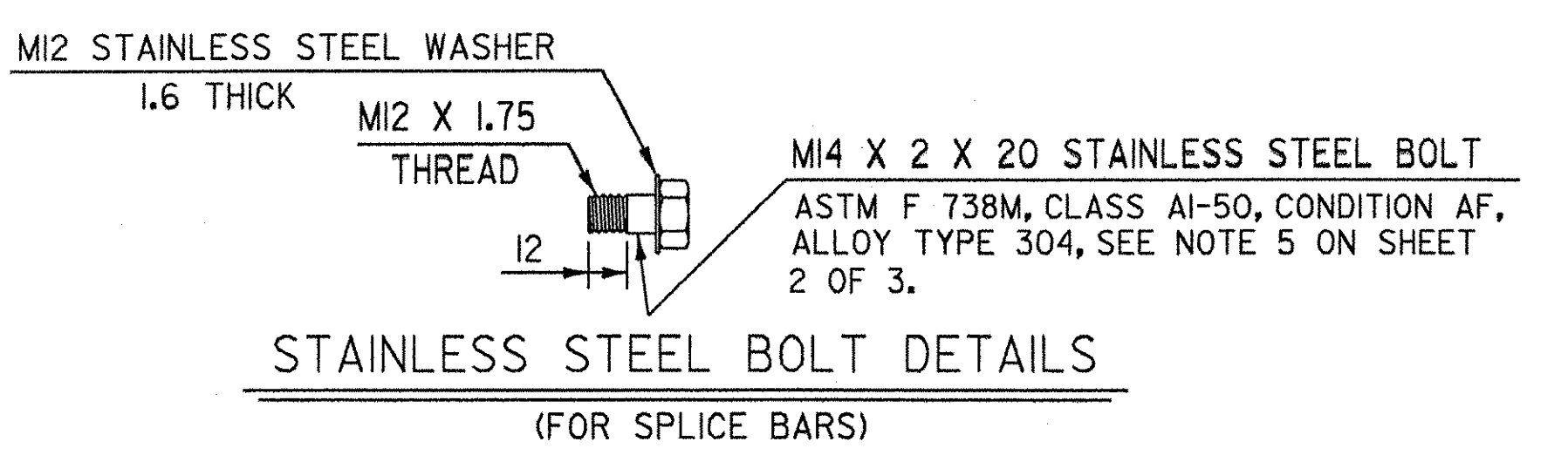
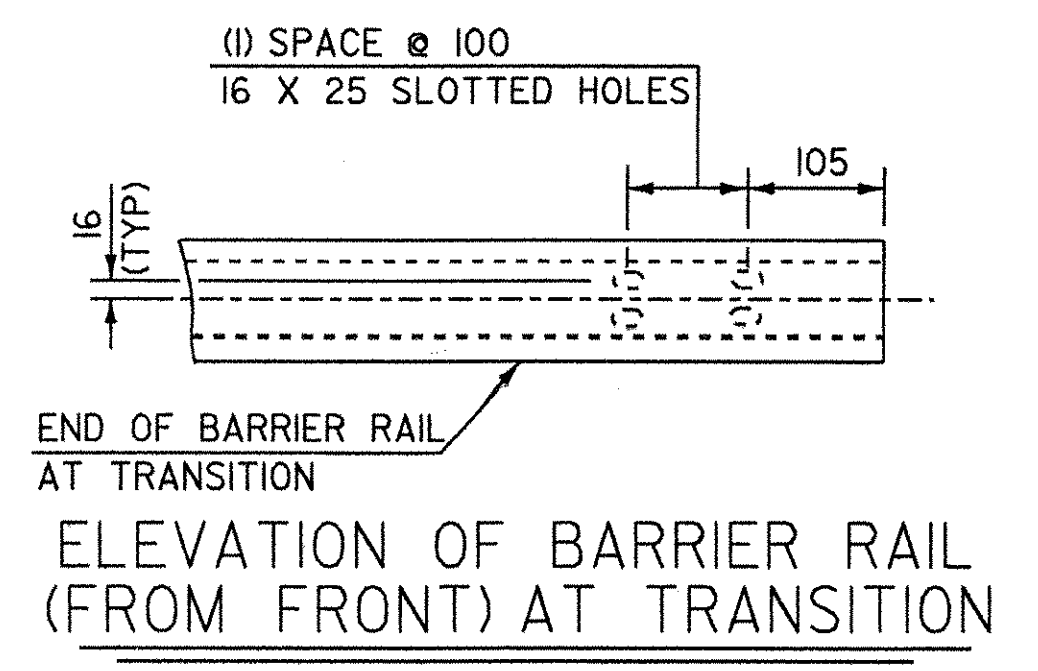
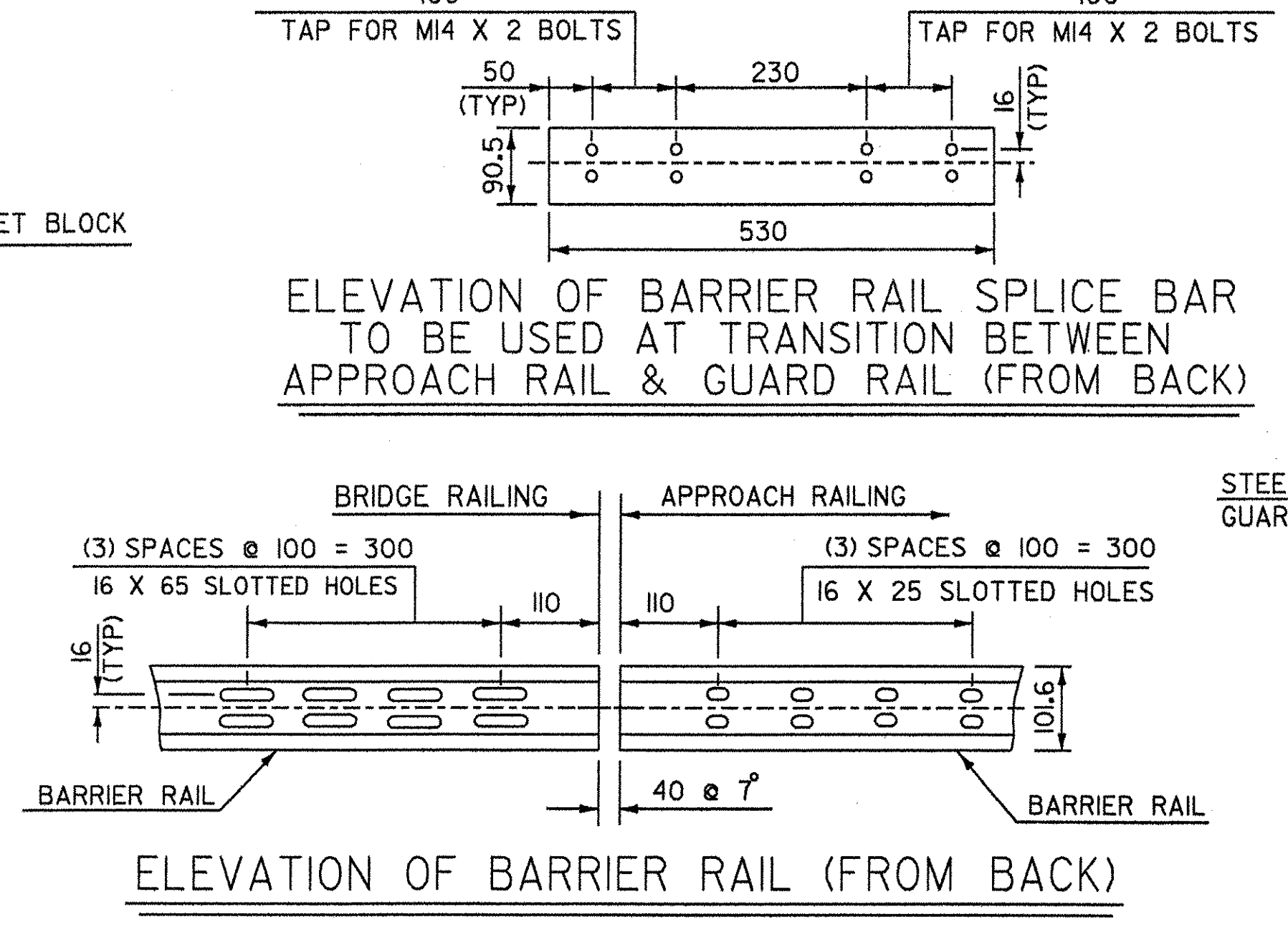
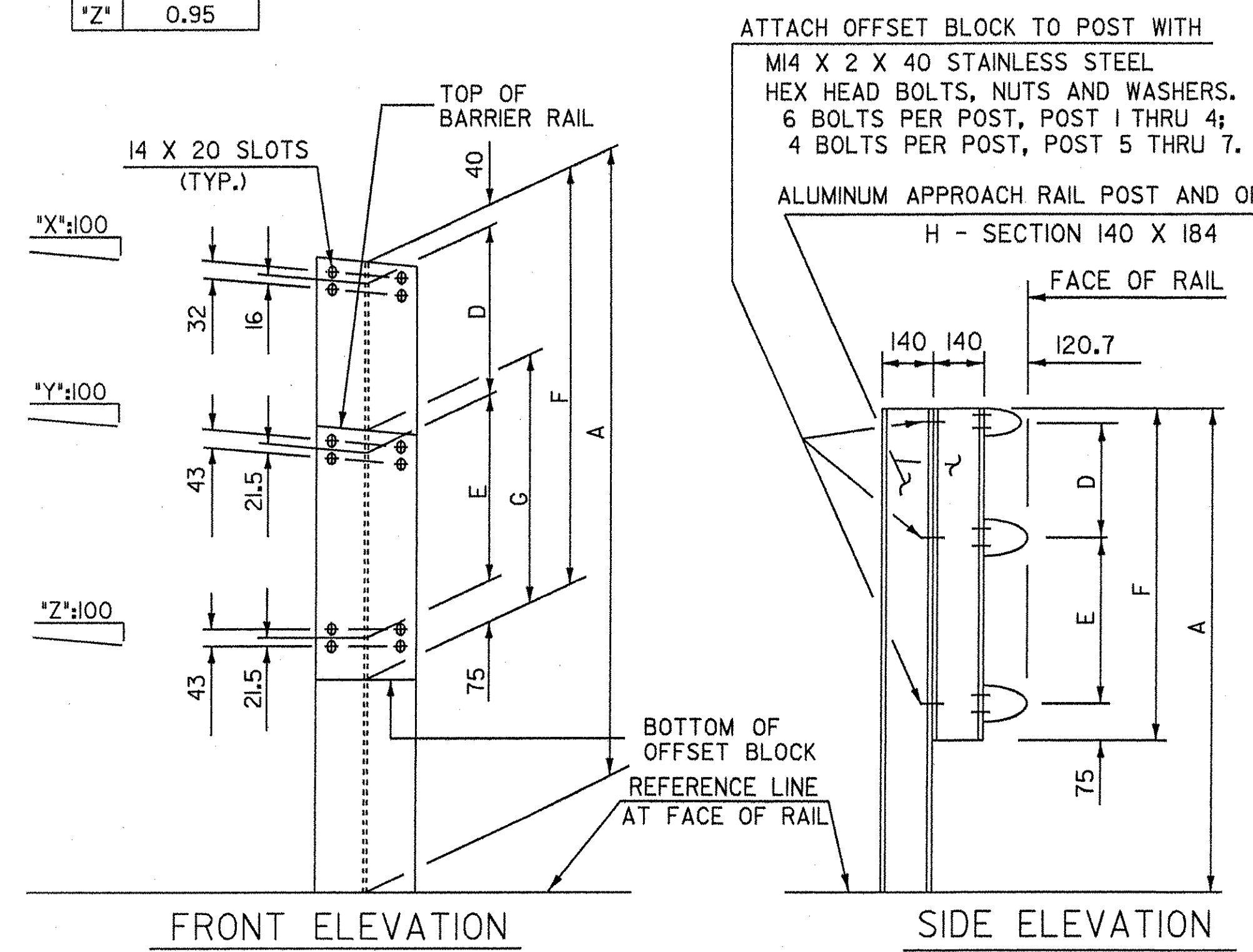
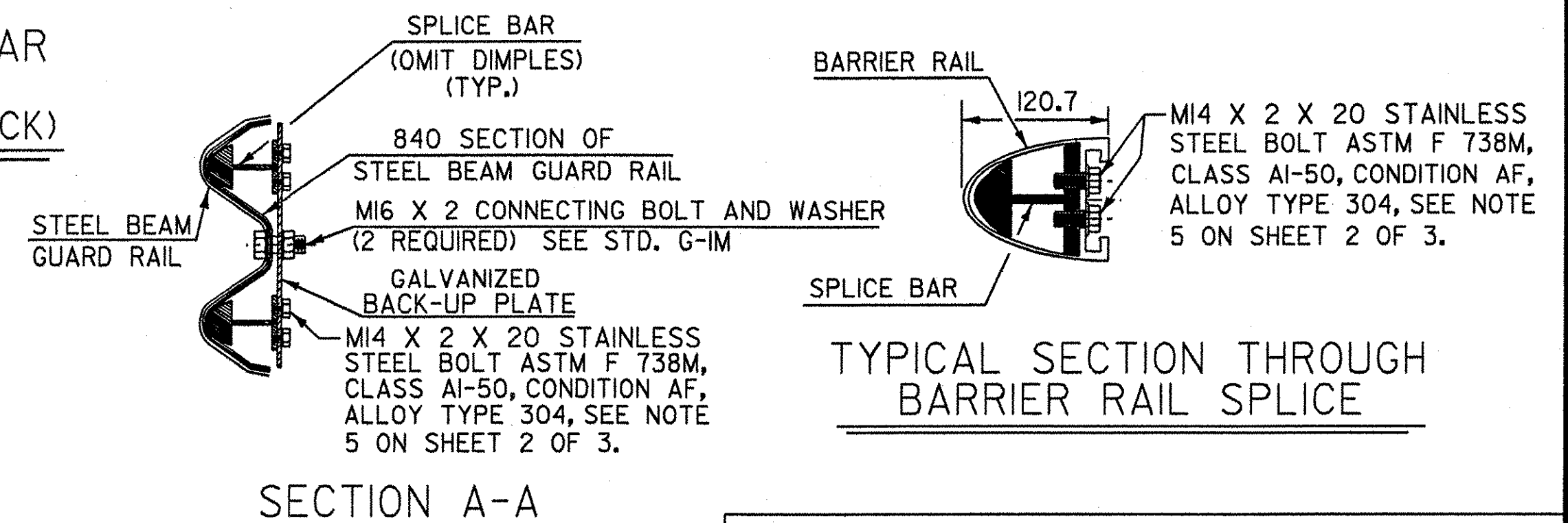
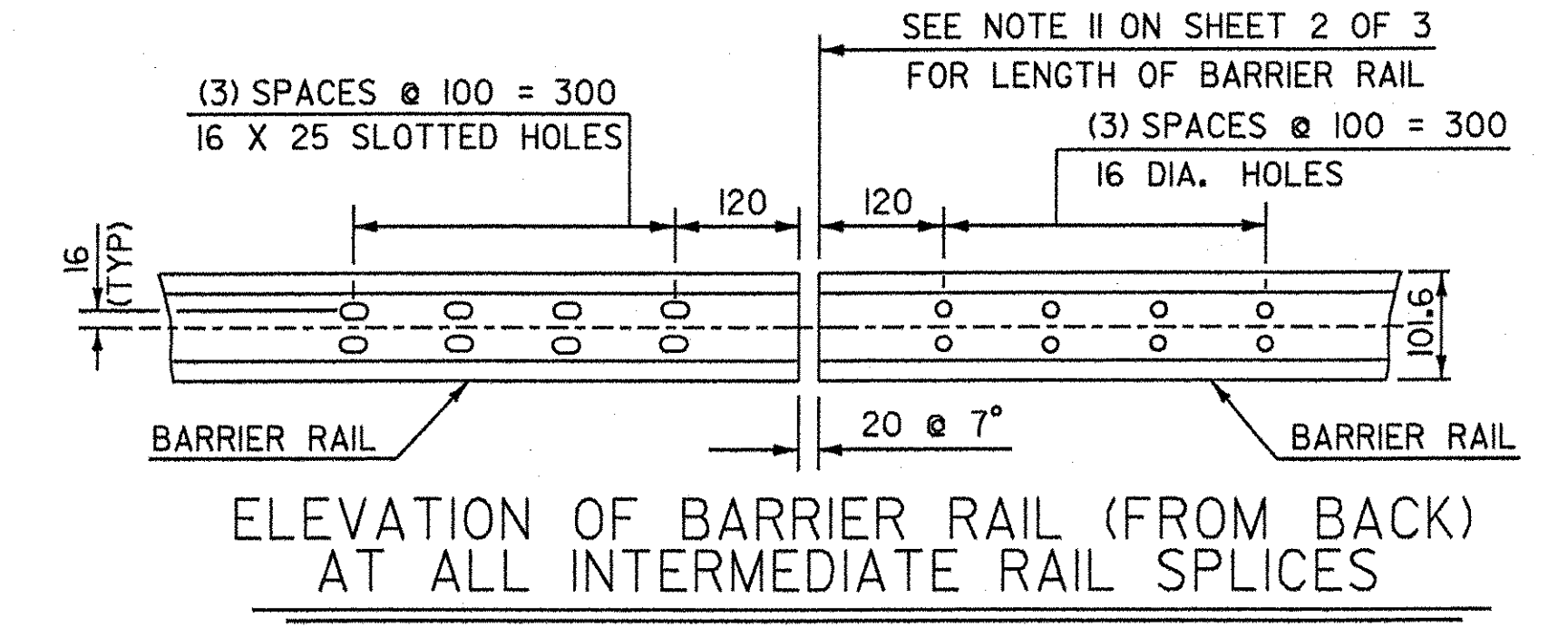
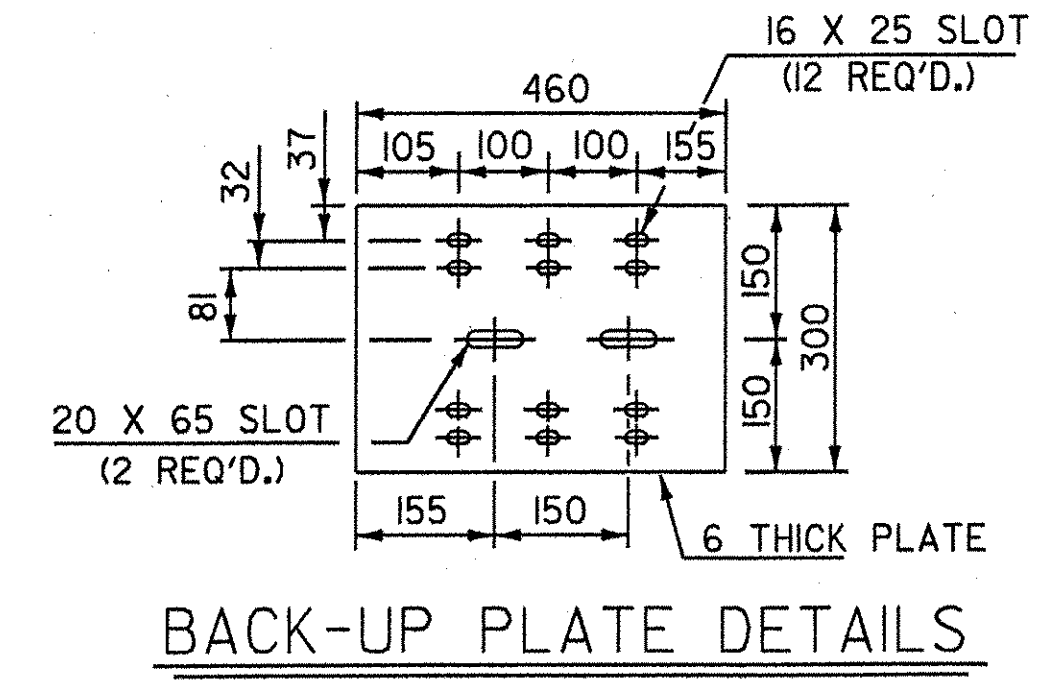
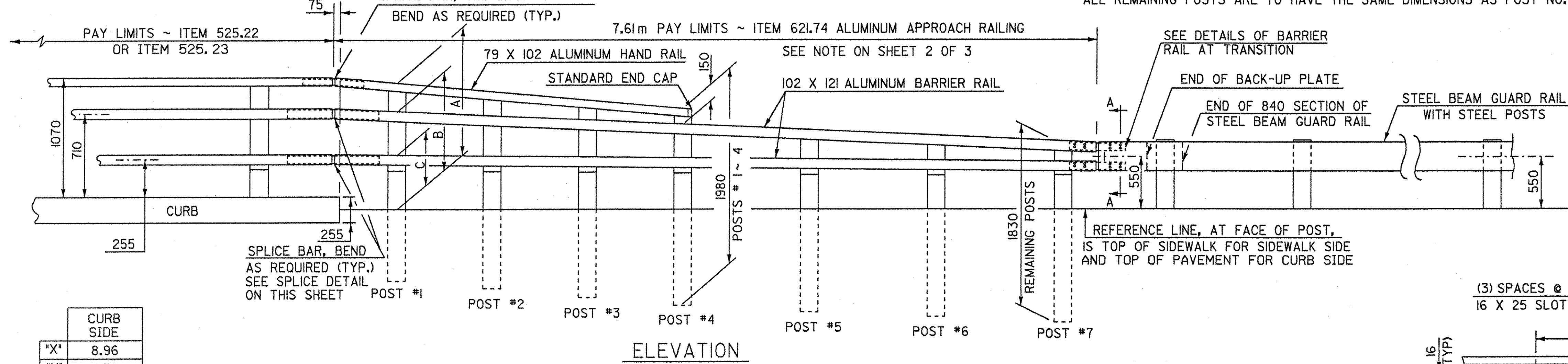
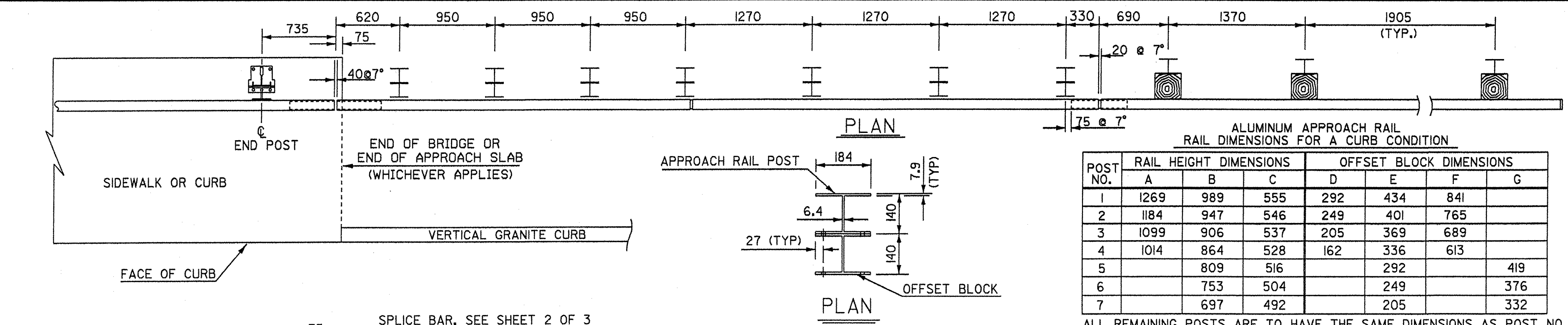
REVISIONS AND CORRECTIONS
DECEMBER 18, 1997 - ORIGINAL APPROVAL DATE

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			

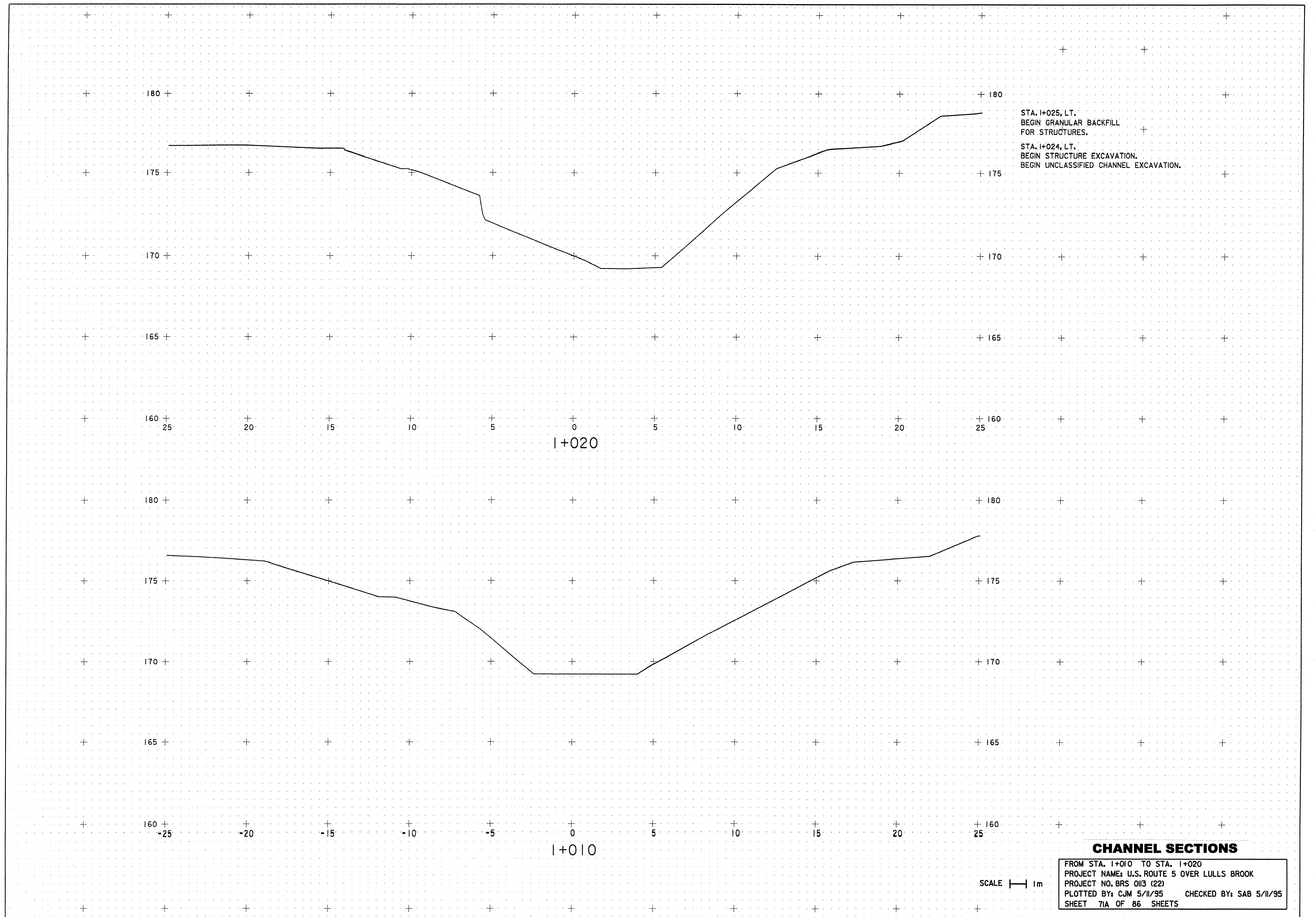
ALUMINUM BRIDGE RAILING DETAILS 2 OF 3

Designed By	VAOT	Drawn By	VAOT
Checked By	S. BAKI	Bridge Design Supervisor	J. MIECZKOWSKI
Date	1/00	Date	1/00
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\45620\VAOT Hartland\struct\zf204rd.dgn			
Bridge Sheet No.	BRI33	Sheet	68 of 86



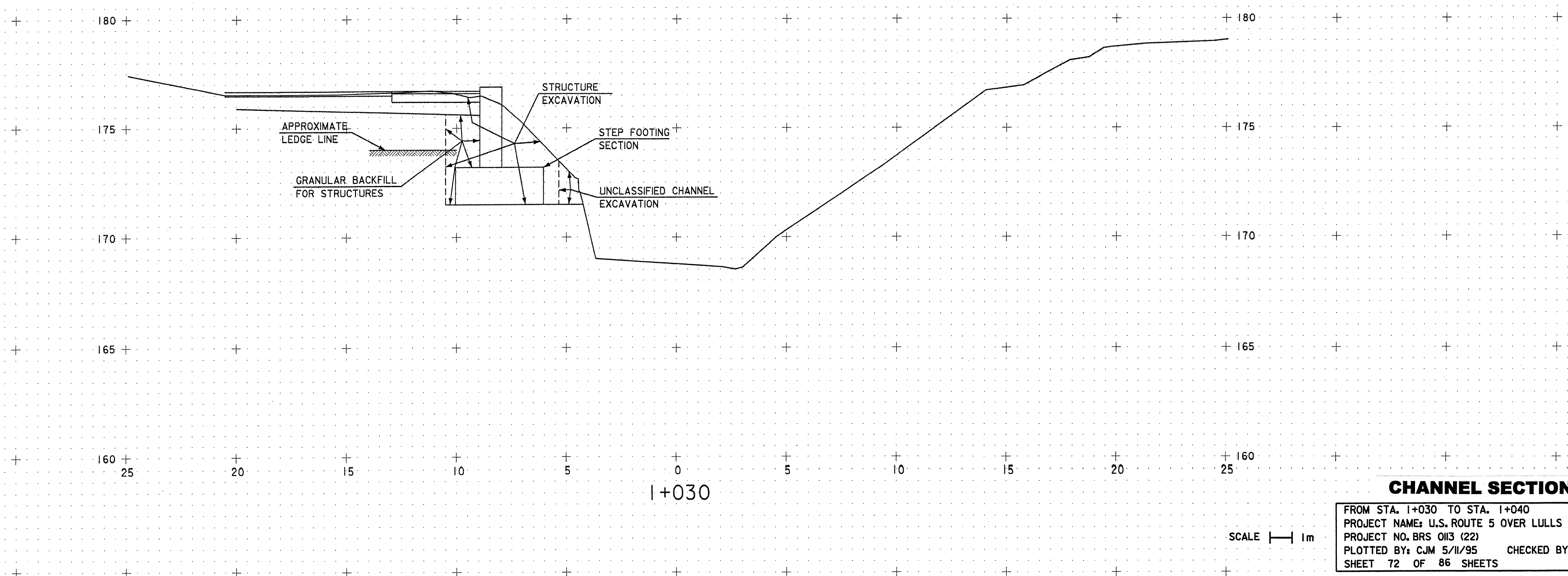
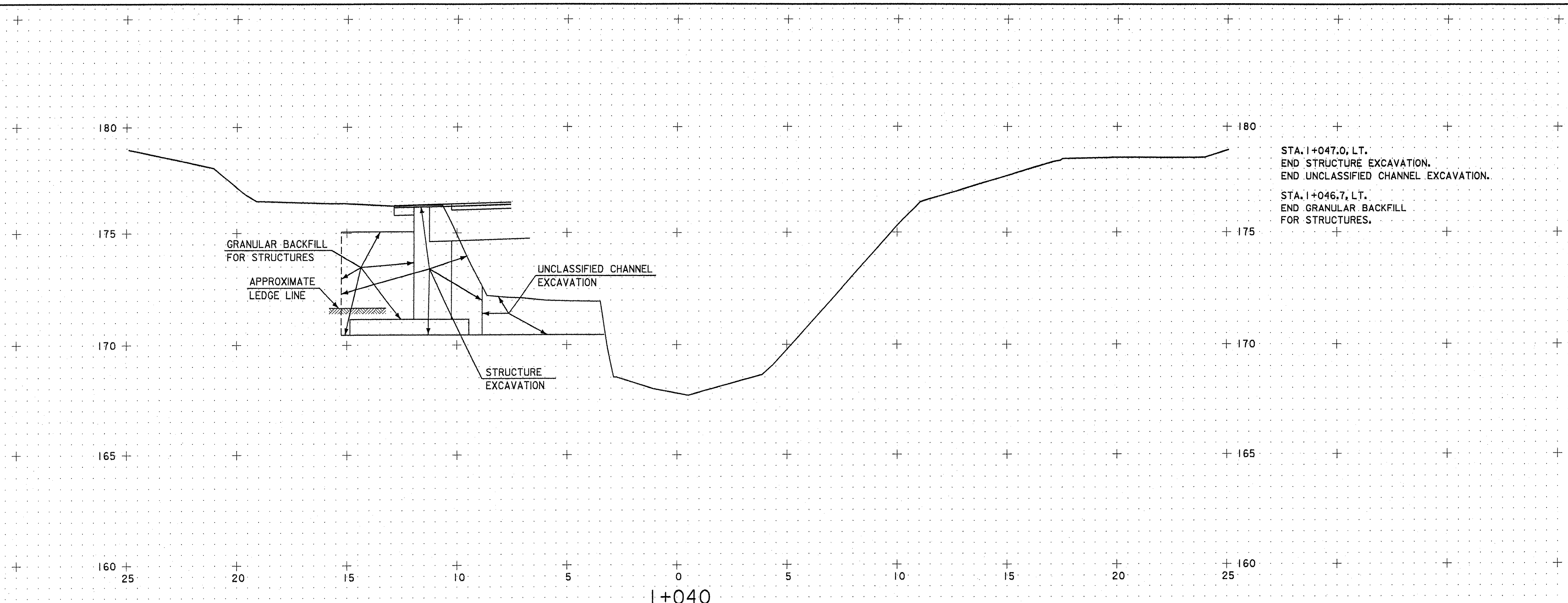
- NOTES**
- POST 1 THROUGH 7 SHALL BE EXTRUDED ALUMINUM.
 - ALL STRUCTURAL STEEL SHALL BE AASHTO M 270/M 270M GRADE 250 GALVANIZED AFTER FABRICATION.
 - ALL ITEMS NOT OTHERWISE INDICATED SHALL MEET THE SPECIFICATION REQUIREMENTS OF THE STANDARD SHEETS ON WHICH THEY ARE DETAILED.
 - SEE STANDARD G-1M FOR STEEL BEAM GUARD RAIL DETAILS. SEE SHEETS 1 OF 3 AND 2 OF 3 FOR ALUMINUM BRIDGE RAILING DETAILS.
 - THE COST OF ALL MATERIALS AND LABOR FOR THE SPLICE BETWEEN THE ALUMINUM APPROACH RAILING AND THE STEEL BEAM GUARD RAIL SHALL BE SUBSIDIARY TO ITEM 621.74, ALUMINUM APPROACH RAILING.
 - DETAILS ARE SHOWN FOR TRANSITION TO A 3 RAIL ALUMINUM BRIDGE RAILING.
 - DIMENSIONS SHOWN ARE FROM A REFERENCE LINE AT THE FACE OF POST FOR A NORMAL CROWNED SECTION. APPROPRIATE CORRECTIONS SHALL BE MADE FOR CROSS SLOPES OTHER THAN A NORMAL SECTION.

REVISIONS AND CORRECTIONS			
DECEMBER 18, 1997 - ORIGINAL APPROVAL DATE			
STATE OF VERMONT			
AGENCY OF TRANSPORTATION			
Town Of	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
ALUMINUM BRIDGE RAILING DETAILS 3 OF 3			
Designed By	VAOT	Drawn By	VAOT
Checked By	S. BAKI	Bridge Design Supervisor	J. MIECZKOWSKI
Date	1/00	Date	1/00
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\456201\VAOT Hartland\struct\zf204rd.dgn			
Bridge Sheet No. BR134		Sheet 69 of 86	



CHANNEL SECTIONS

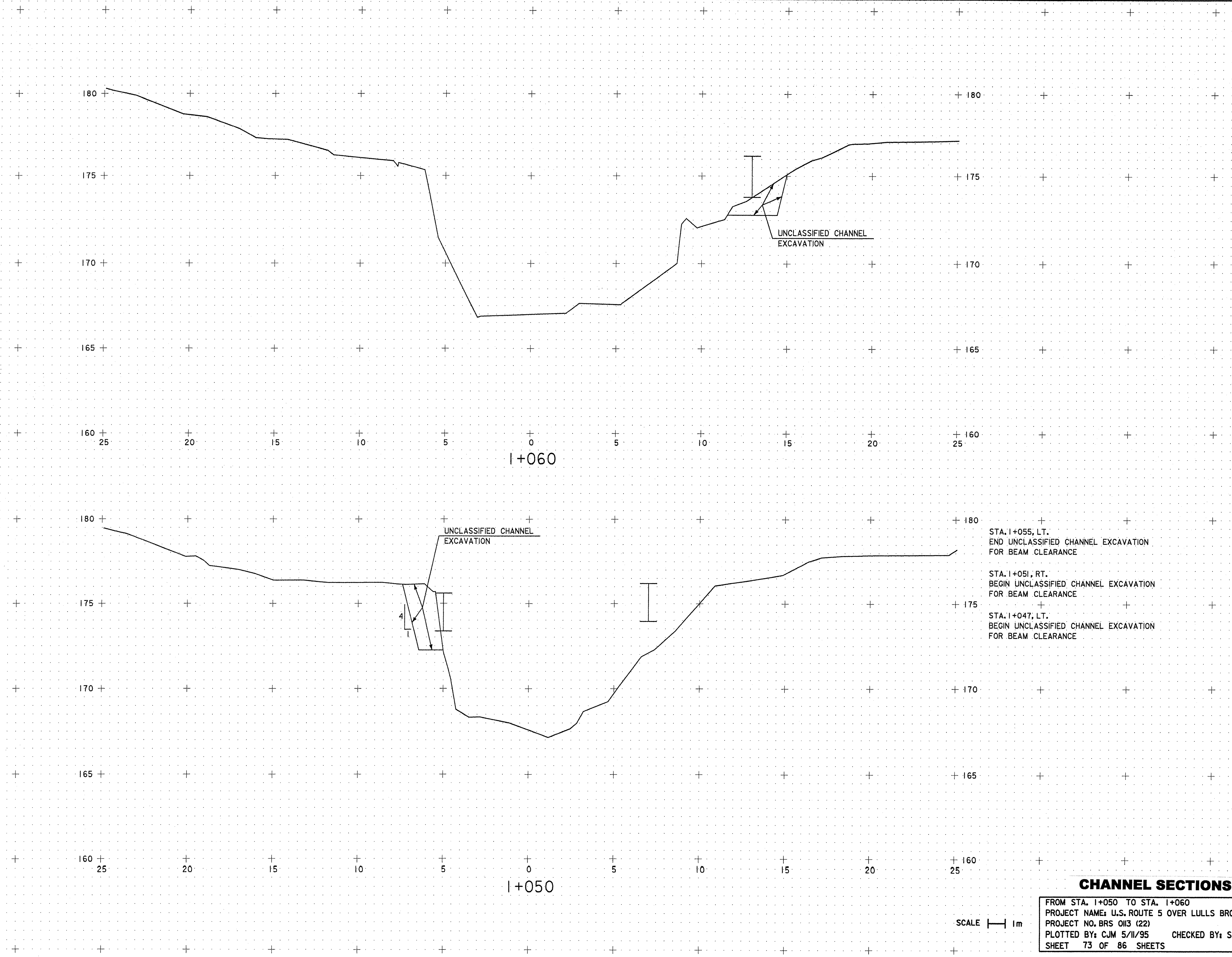
FROM STA. I+010 TO STA. I+020
PROJECT NAME: U.S. ROUTE 5 OVER LULLS BROOK
PROJECT NO. BRS 013 (22)
PLOTTED BY: CJM 5/11/95 CHECKED BY: SAB 5/11/95
SHEET 71A OF 86 SHEETS



CHANNEL SECTIONS

FROM STA. I+030 TO STA. I+040
 PROJECT NAME: U.S. ROUTE 5 OVER LULLS BROOK
 PROJECT NO. BRS 0113 (22)
 PLOTTED BY: CJM 5/11/95 CHECKED BY: SAB 5/11/95
 SHEET 72 OF 86 SHEETS

SCALE 1" = 1m



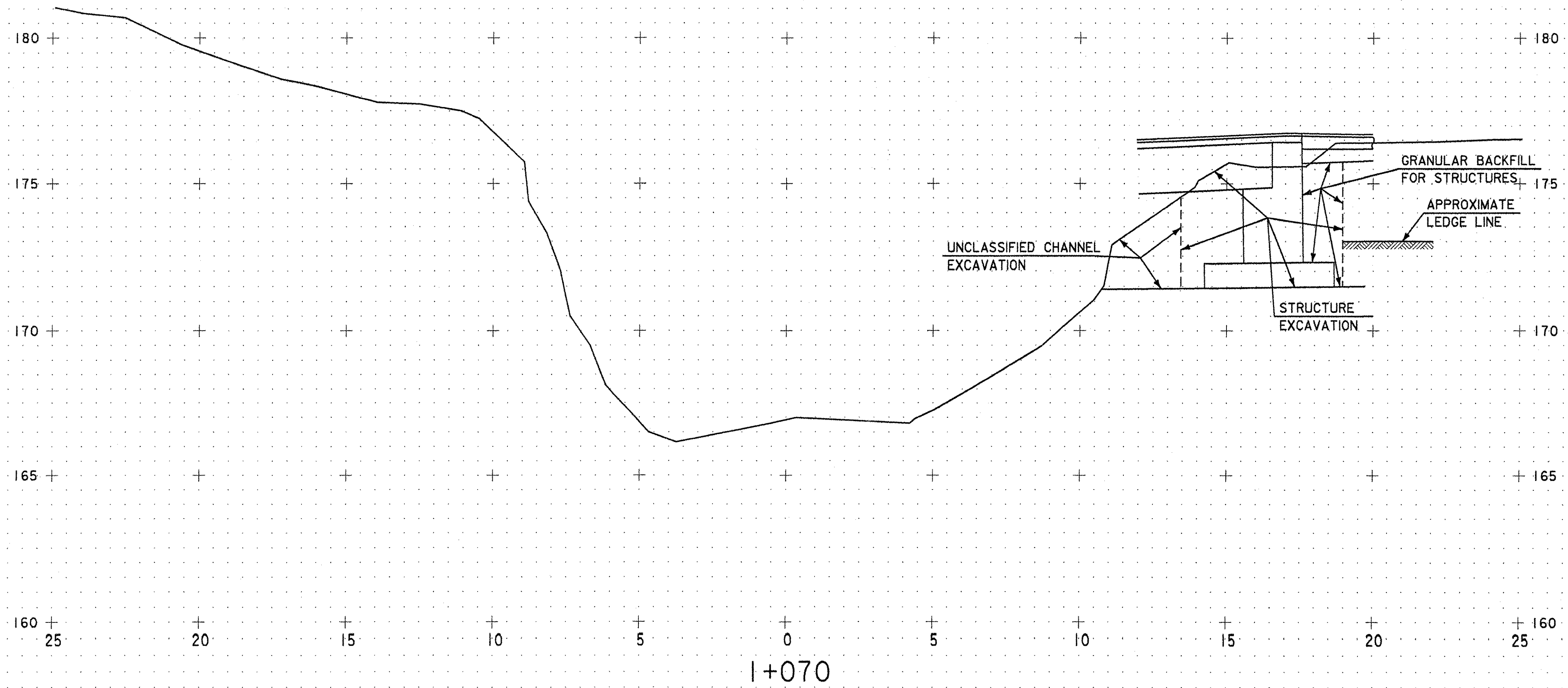
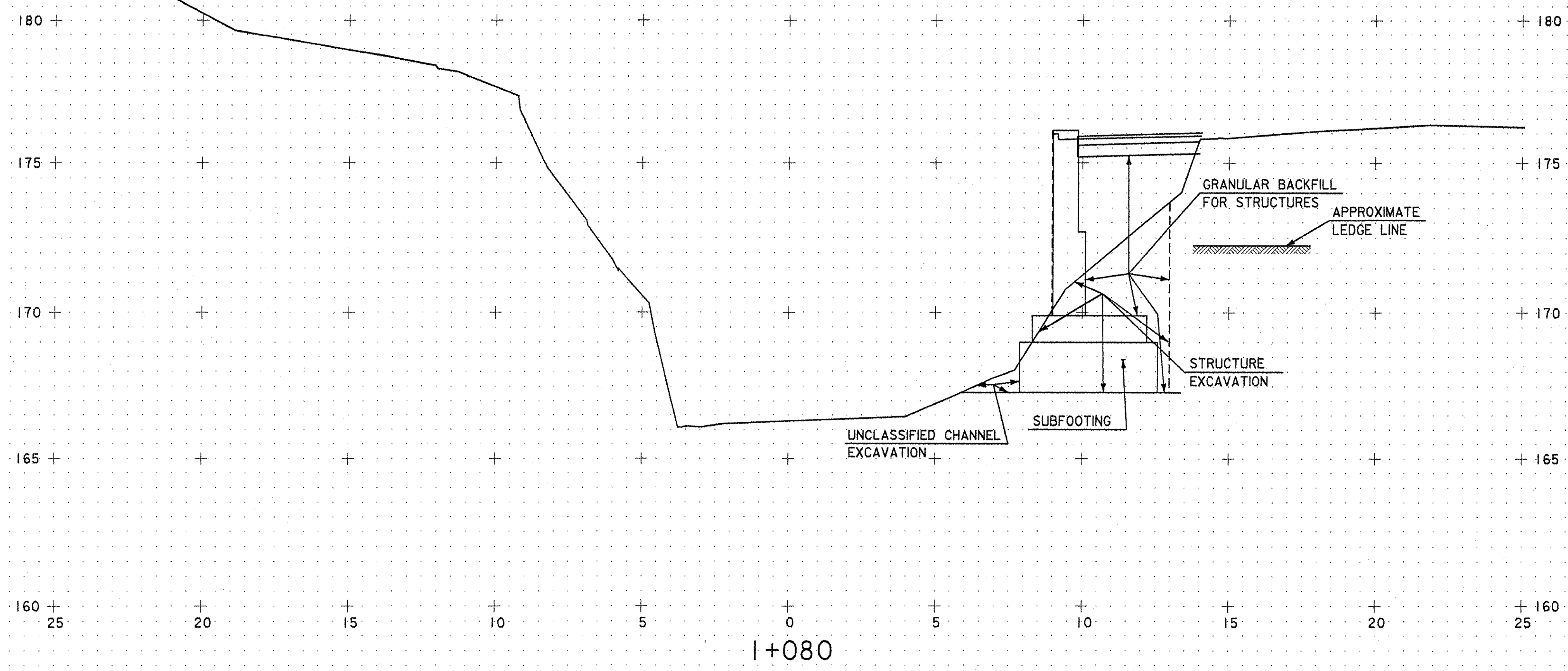
STA. 1+055, LT.
END UNCLASSIFIED CHANNEL EXCAVATION
FOR BEAM CLEARANCE

STA. 1+051, RT.
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
FOR BEAM CLEARANCE

STA. 1+047, LT.
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
FOR BEAM CLEARANCE

CHANNEL SECTIONS

FROM STA. 1+050 TO STA. 1+060
PROJECT NAME: U.S. ROUTE 5 OVER LULLS BROOK
PROJECT NO. BRS 0113 (22)
PLOTTED BY: CJM 5/11/95 CHECKED BY: SAB 5/11/95
SHEET 73 OF 86 SHEETS



STA. I+069, RT.
 BEGIN GRANULAR BACKFILL
 FOR STRUCTURES.
 STA. I+068, RT.
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
 FOR BEAM CLEARANCE.
 STA. I+067, RT.
 BEGIN STRUCTURE EXCAVATION.
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION.

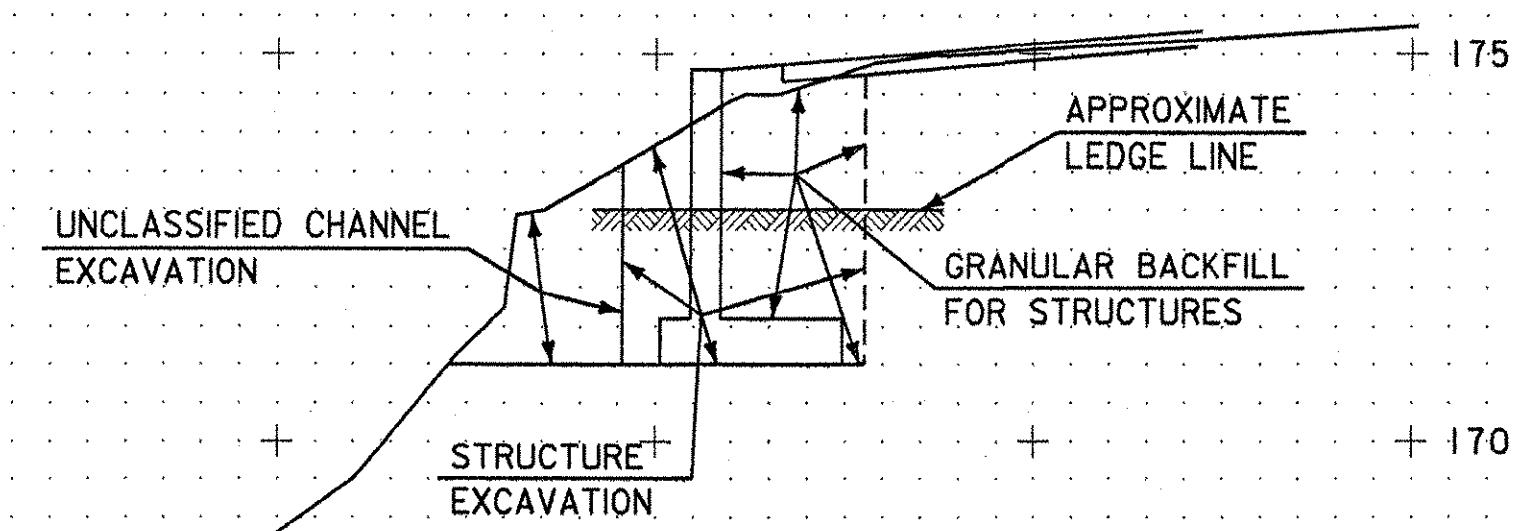
CHANNEL SECTIONS

FROM STA. I+070 TO STA. I+080
 PROJECT NAME: U.S. ROUTE 5 OVER LULLS BROOK
 PROJECT NO. BRS 013 (22)
 PLOTTED BY: CJM 5/11/95 CHECKED BY: SAB 5/11/95
 SHEET 74 OF 86 SHEETS

SCALE 1" = 1m

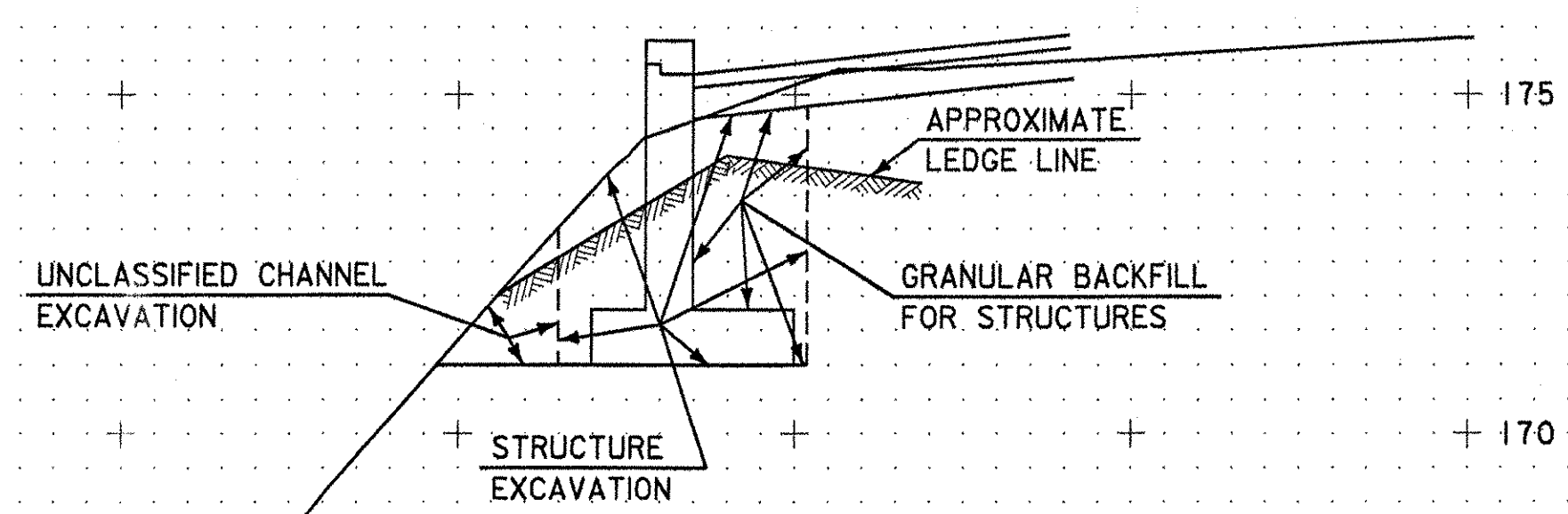
180 + 175 + 170 + 165 + 160 + 25 20 15 10 5 0 5 10 15 20 25

STA. 1+107.62, RT.
END GRANULAR BACKFILL FOR STRUCTURES
END STRUCTURE EXCAVATION.
END UNCLASSIFIED CHANNEL EXCAVATION.



1+100

180 + 175 + 170 + 165 + 160 + 25 20 15 10 5 0 5 10 15 20 25



1+090

SCALE 1" = 1m

CHANNEL SECTIONS

FROM STA. 1+090 TO STA. 1+100
PROJECT NAME: U.S. ROUTE 5 OVER LULLS BROOK
PROJECT NO. BRS 013 (22)
PLOTTED BY: CJM 5/11/95 CHECKED BY: SAB 5/11/95
SHEET 75 OF 86 SHEETS



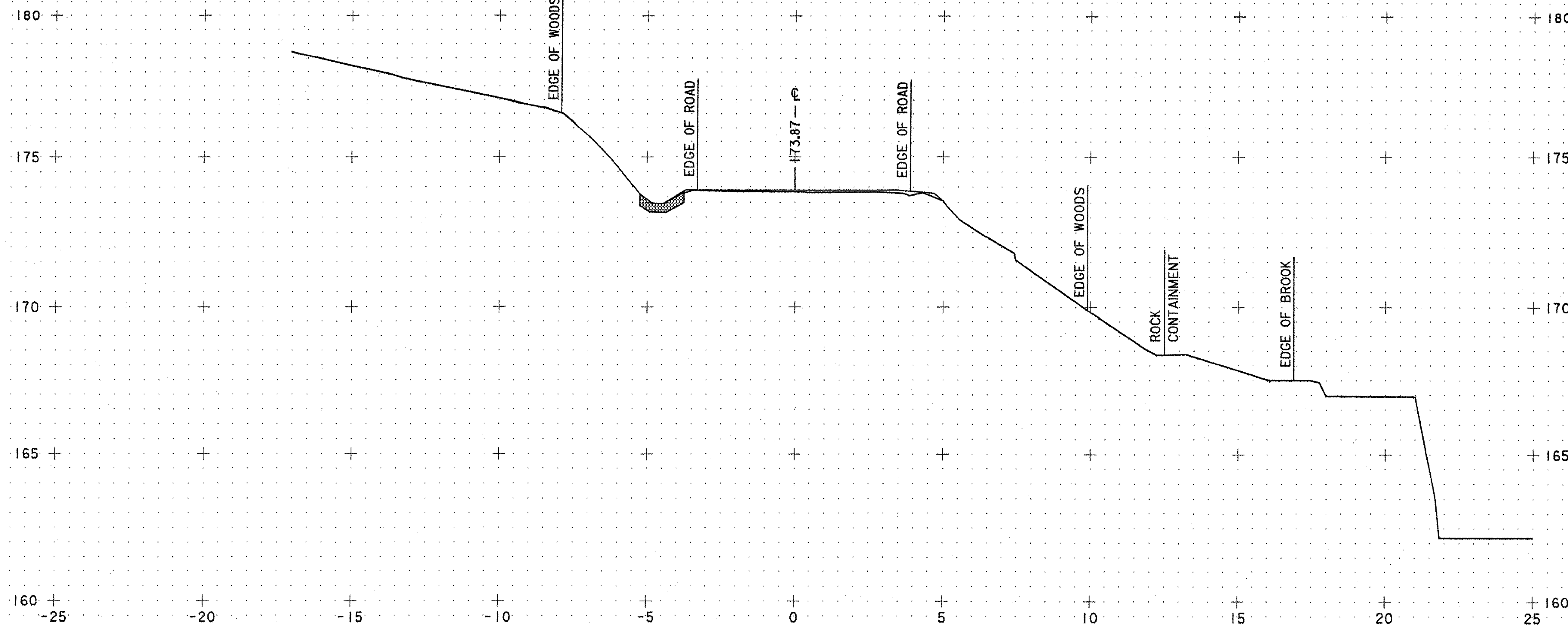
I+120

I+110

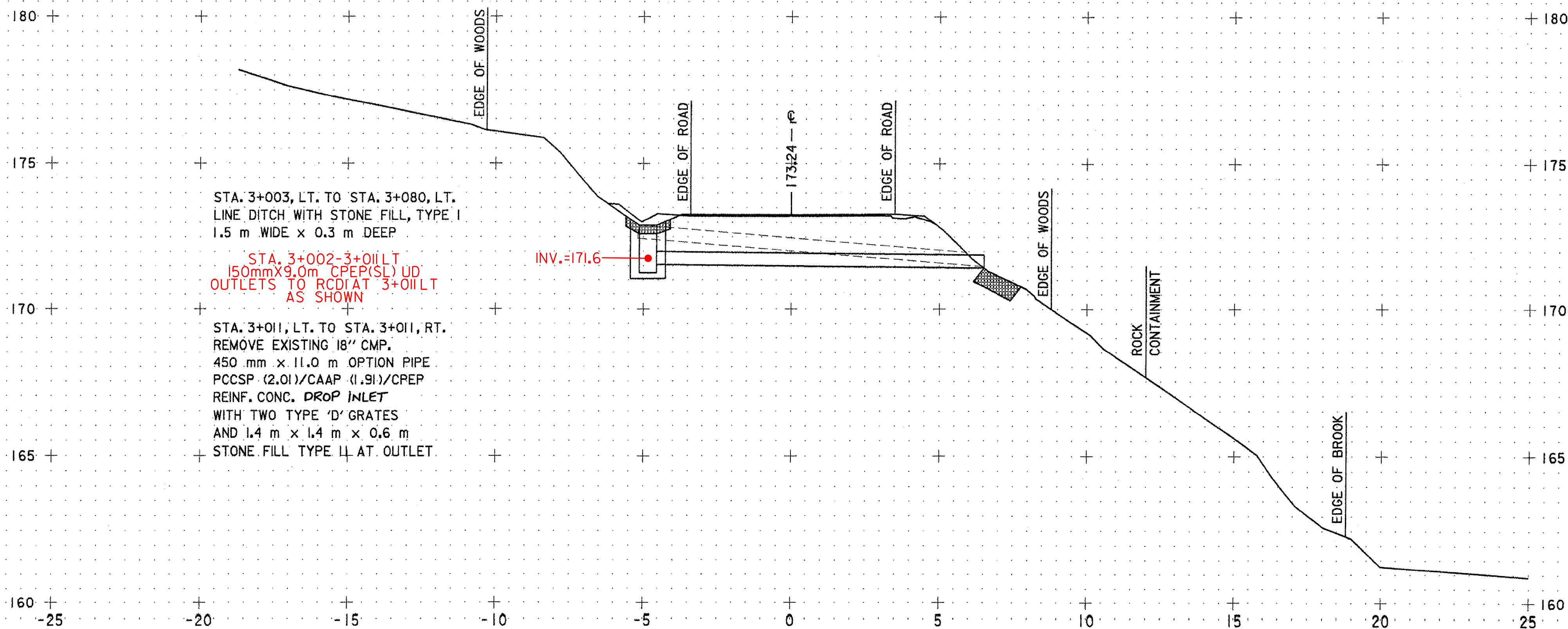
CHANNEL SECTIONS

FROM STA. I+110 TO STA. I+120
PROJECT NAME: U.S. ROUTE 5 OVER LULLS BROOK
PROJECT NO. BRS 0113 (22)
PLOTTED BY: CJM 5/11/95 CHECKED BY: SAB 5/11/95
SHEET 76 OF 86 SHEETS

SCALE 1" = 1m



3+020



STA. 3+003, LT. TO STA. 3+080, LT.
LINE DITCH WITH STONE FILL, TYPE I
1.5 m WIDE x 0.3 m DEEP

STA. 3+002-3+011 LT.
150mm x 9.0m CPEP(SL) UD
OUTLETS TO RCDI AT 3+011 LT.
AS SHOWN

STA. 3+011, LT. TO STA. 3+011, RT.
REMOVE EXISTING 18" CMP.
450 mm x 11.0 m OPTION PIPE
PCCSP (2.01)/CAAP (1.91)/CPEP
REINF. CONC. DROP INLET
WITH TWO TYPE 'D' GRATES
AND 1.4 m x 1.4 m x 0.6 m
STONE FILL TYPE II AT OUTLET

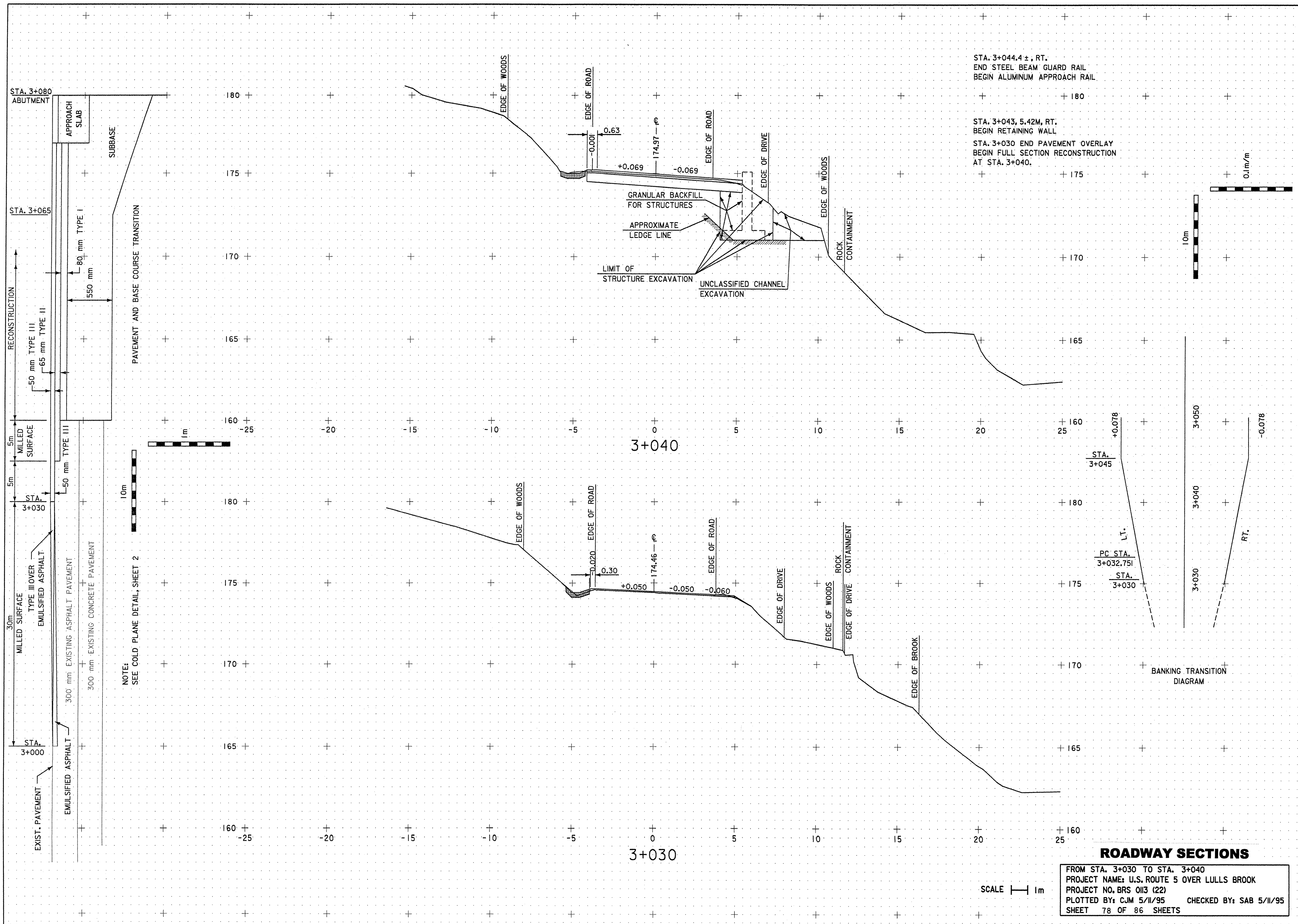
INV.=171.6

3+010

ROADWAY SECTIONS

FROM STA. 3+010 TO STA. 3+020
PROJECT NAME: U.S. ROUTE 5 OVER LULLS BROOK
PROJECT NO. BRS 013 (22)
PLOTTED BY: CJM 5/11/95 CHECKED BY: SAB 5/11/95
SHEET 77 OF 86 SHEETS

SCALE 1" = 1m



RELOCATED
UTILITY POLE

EDGE OF WOODS

EDGE OF ROAD

1.30

+0.008

175.80 — P

EDGE OF ROAD

+0.078

-0.078

GRANULAR
BORROW

BOTTOM OF EXISTING CONCRETE
PAVEMENT, TO BE REMOVED

APPROXIMATE
LEDGE LINE

GRANULAR BACKFILL
FOR STRUCTURES

LIMIT OF
STRUCTURE EXCAVATION

UNCLASSIFIED CHANNEL
EXCAVATION

ROCK
CONTAINMENT

EDGE OF BROOK

Q 100 171.6+/-

3+060

EDGE OF WOODS

EDGE OF ROAD

0.97

+0.008

175.43 — P

EDGE OF ROAD

+0.078

-0.078

GRANULAR
BORROW

BOTTOM OF EXISTING CONCRETE
PAVEMENT, TO BE REMOVED

APPROXIMATE
LEDGE LINE

GRANULAR BACKFILL
FOR STRUCTURES

LIMIT OF
STRUCTURE EXCAVATION

UNCLASSIFIED CHANNEL
EXCAVATION

ROCK
CONTAINMENT

EDGE OF BROOK

STA. 3+052.000, 4.715M, RT.
BEGIN WINGWALL NO. 2

STA. 3+051.907, 5.776M, RT.
END RETAINING WALL

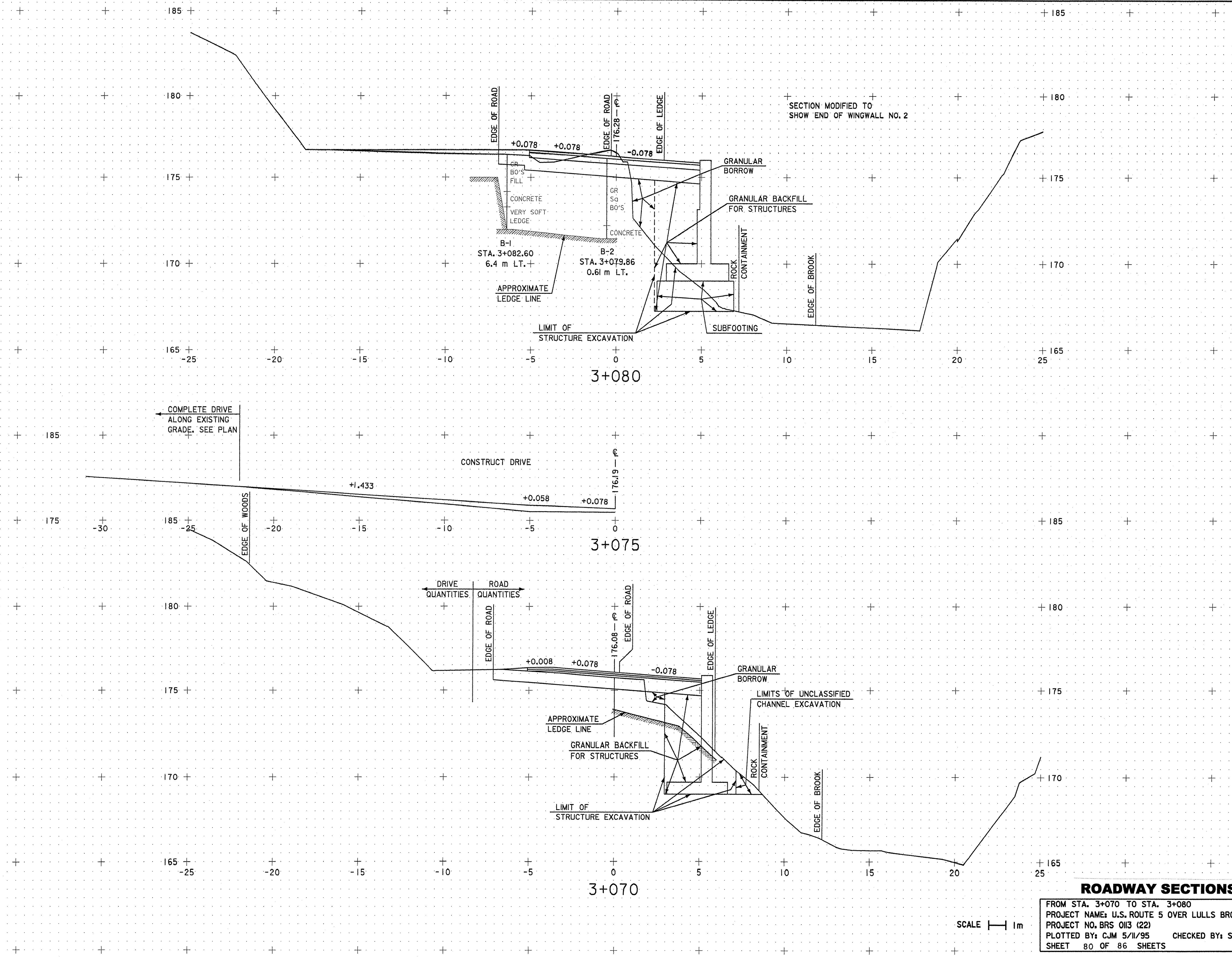
STA. 3+045, RT. TO STA. 3+60, RT.
RED CEDARS (JUNIPEROUS VIRGINIANA)
1.5 m TALL IN 600 mm BED OF SOIL
|| SHRUBS @ 1.5 CENTERS

3+050

ROADWAY SECTIONS

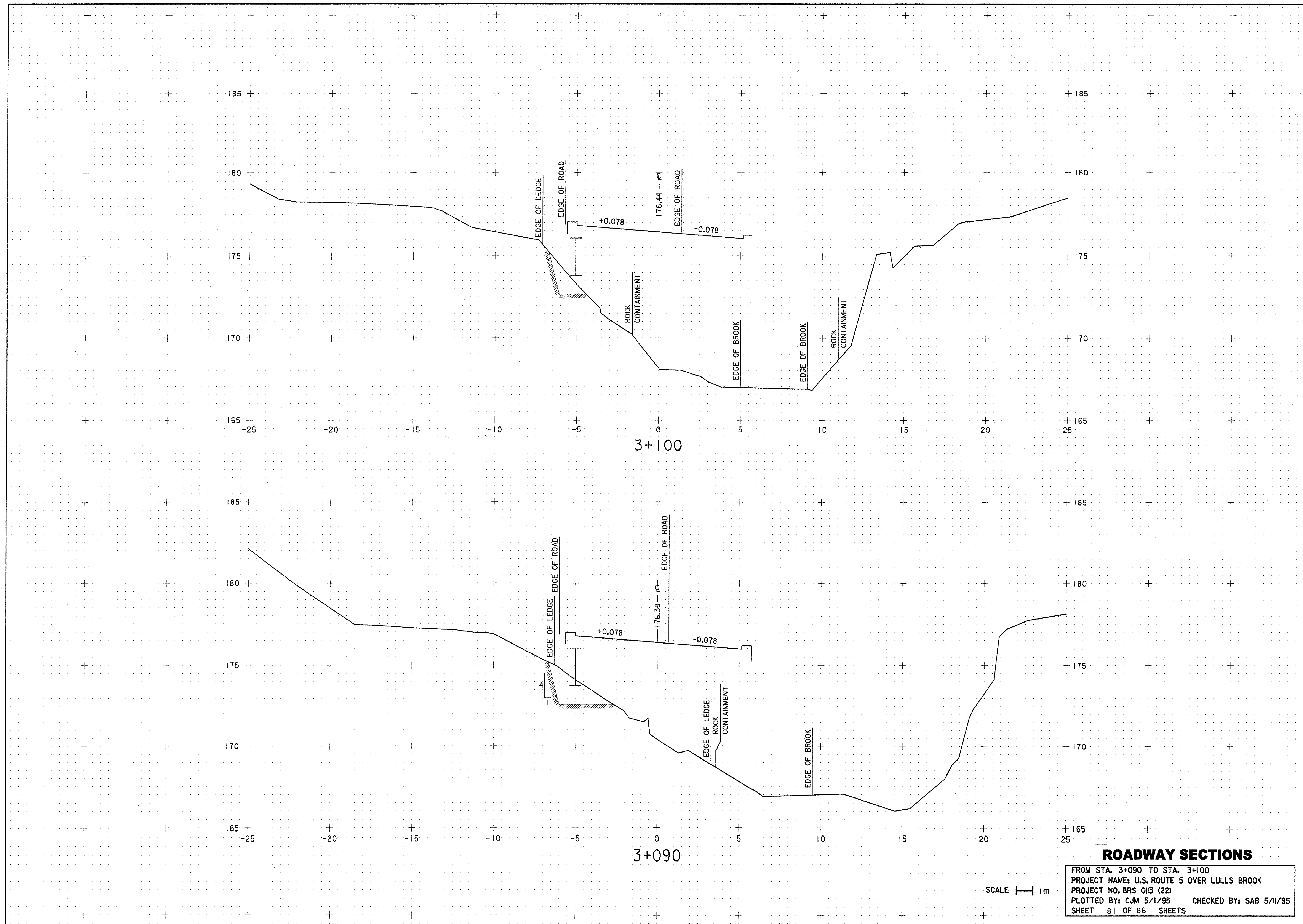
FROM STA. 3+050 TO STA. 3+060
PROJECT NAME: U.S. ROUTE 5 OVER LULLS BROOK
PROJECT NO. BRS 013 (22)
PLOTTED BY: CJM 5/11/95 CHECKED BY: SAB 5/11/95
SHEET 79 OF 86 SHEETS

SCALE 1m



ROADWAY SECTIONS

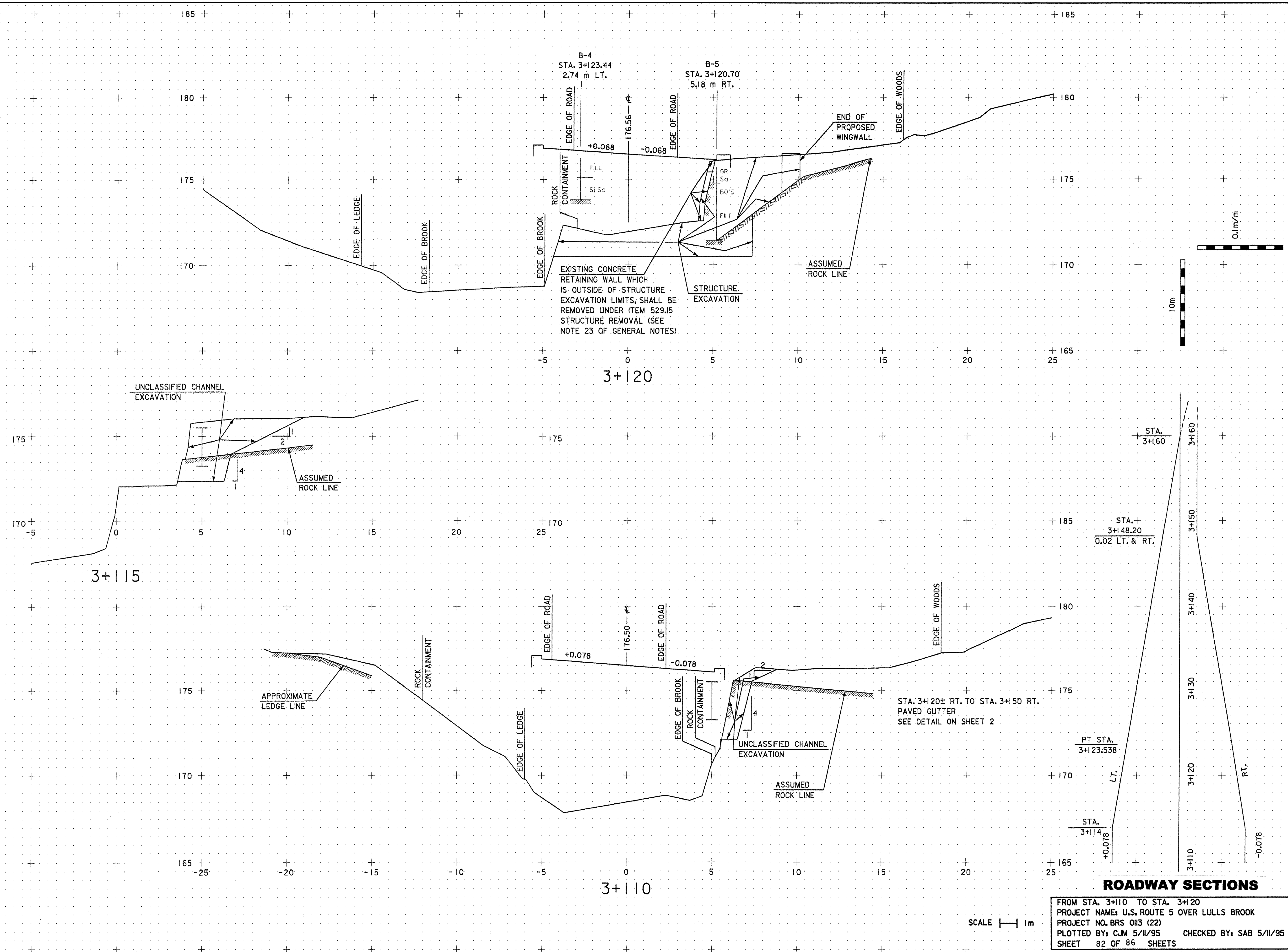
FROM STA. 3+070 TO STA. 3+080
PROJECT NAME: U.S. ROUTE 5 OVER LULLS BROOK
PROJECT NO. BRS 013 (22)
PLOTTED BY: CJM 5/11/95 CHECKED BY: SAB 5/11/95
SHEET 80 OF 86 SHEETS



ROADWAY SECTIONS

FROM STA. 3+090 TO STA. 3+100
PROJECT NAME: U.S. ROUTE 5 OVER LULLS BROOK
PROJECT NO. BRS 0113 (22)
PLOTTED BY: CJM 5/11/95 CHECKED BY: SAB 5/11/95
SHEET 81 OF 86 SHEETS

SCALE 1" = 1m



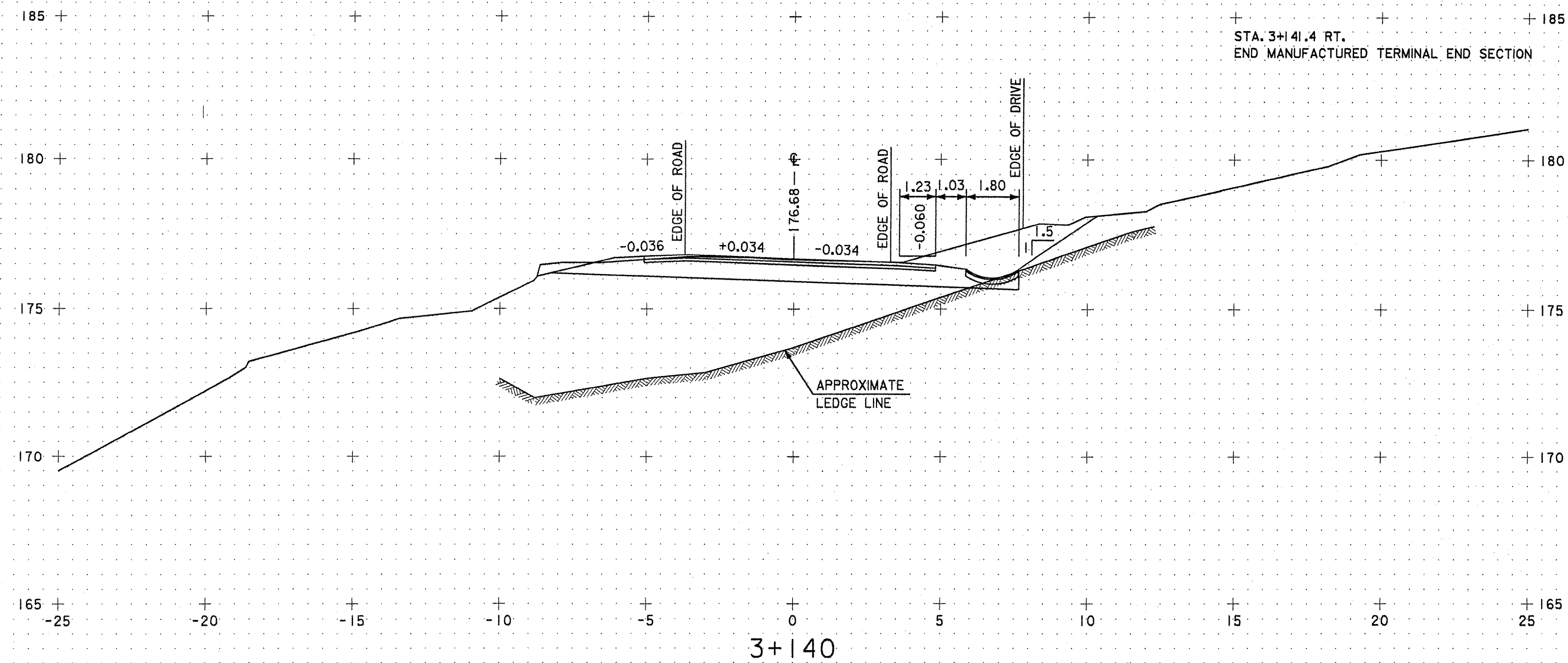
ROADWAY SECTIONS

FROM STA. 3+110 TO STA. 3+120
PROJECT NAME: U.S. ROUTE 5 OVER LULLS BROOK
PROJECT NO. BRS 013 (22)
PLOTTED BY: CJM 5/11/95 CHECKED BY: SAB 5/11/95
SHEET 82 OF 86 SHEETS

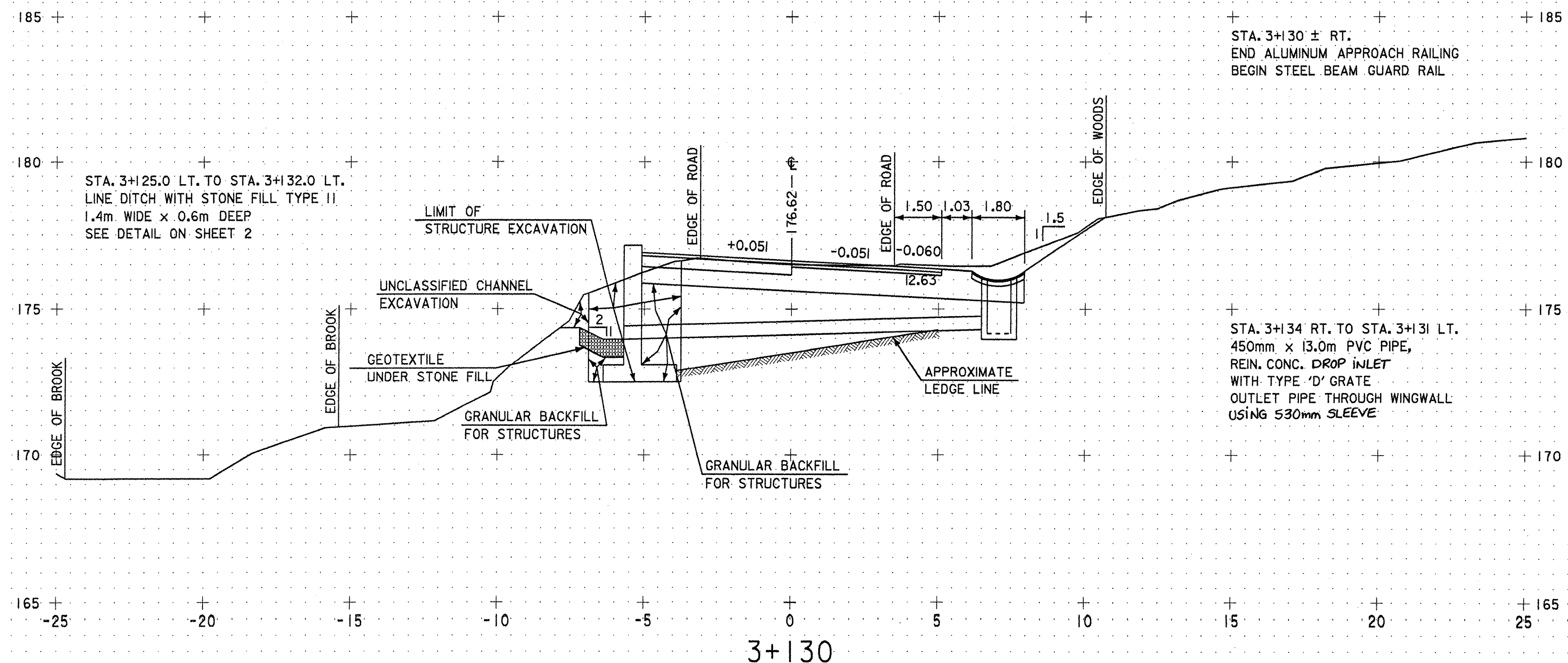
SCALE 1m

STA. 3+140 RT. TO STA. 3+160 RT.
CONSTRUCT SPECIAL DITCH.
LINE WITH STONE FILL TYPE I,
2.0 m. WIDE x 0.3 m DEEP, IF ROCK
NOT ENCOUNTERED AT DITCH BOTTOM

STA. 3+141.4 RT.
END MANUFACTURED TERMINAL END SECTION



STA. 3+130 ± RT.
END ALUMINUM APPROACH RAILING
BEGIN STEEL BEAM GUARD RAIL

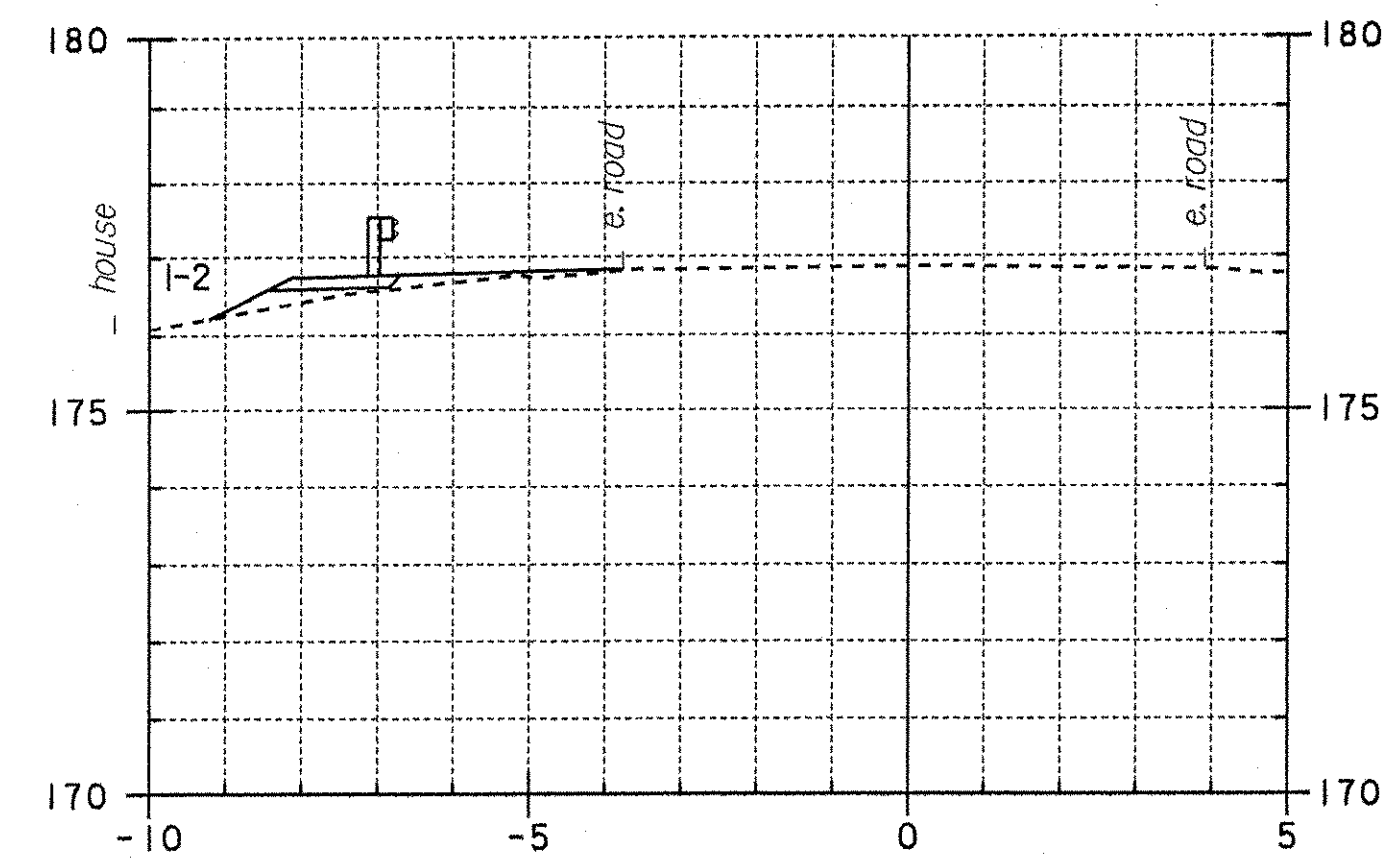


STA. 3+134 RT. TO STA. 3+131 LT.
450mm x 13.0m PVC PIPE,
REIN. CONC. DROP INLET
WITH TYPE 'D' GRATE
OUTLET PIPE THROUGH WINGWALL
USING 530mm SLEEVE

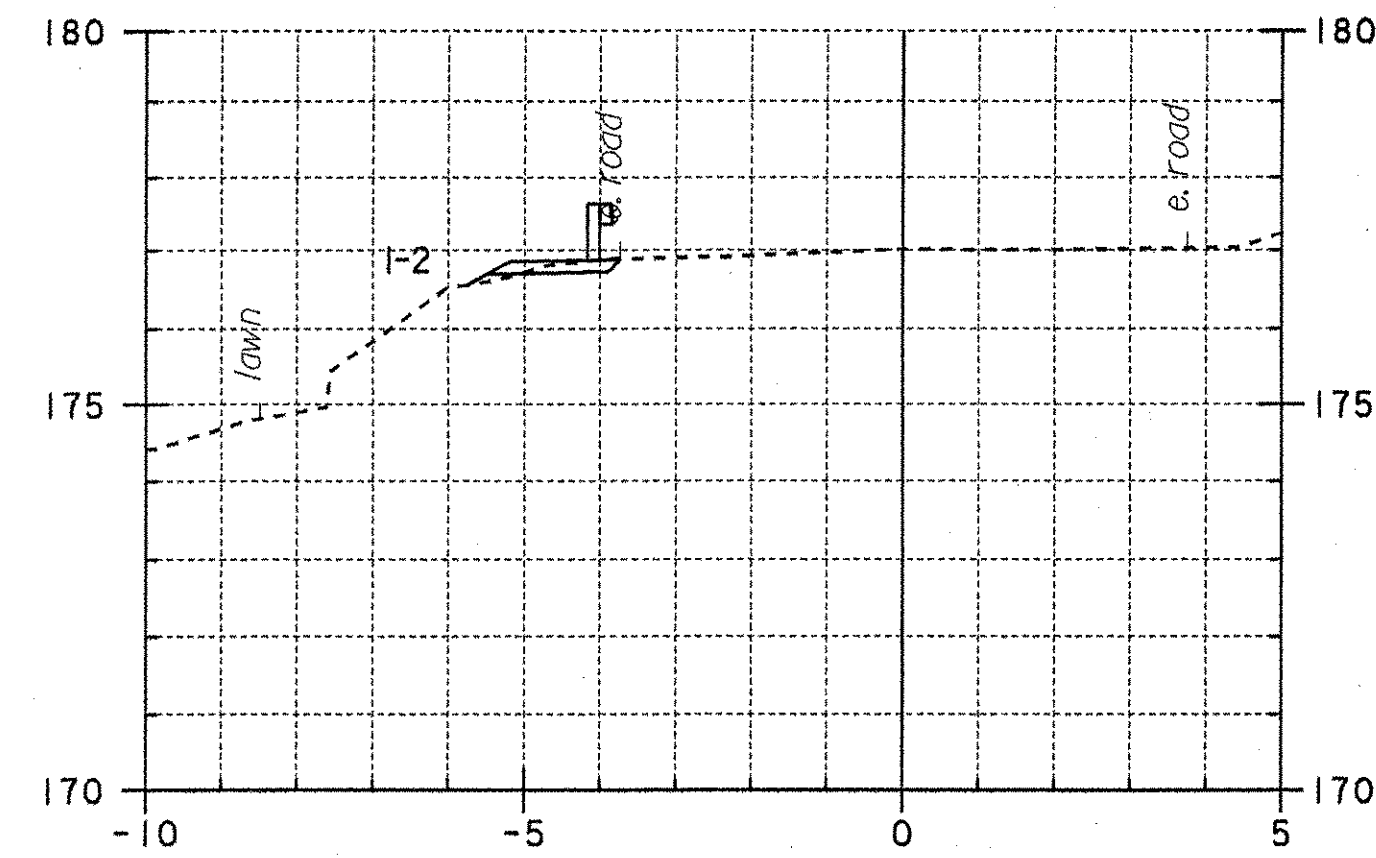
ROADWAY SECTIONS

FROM STA. 3+130 TO STA. 3+140
PROJECT NAME: U.S. ROUTE 5 OVER LULLS BROOK
PROJECT NO. BRS 0113 (22)
PLOTTED BY: CJM 5/11/95 CHECKED BY: SAB 5/11/95
SHEET 83 OF 86 SHEETS

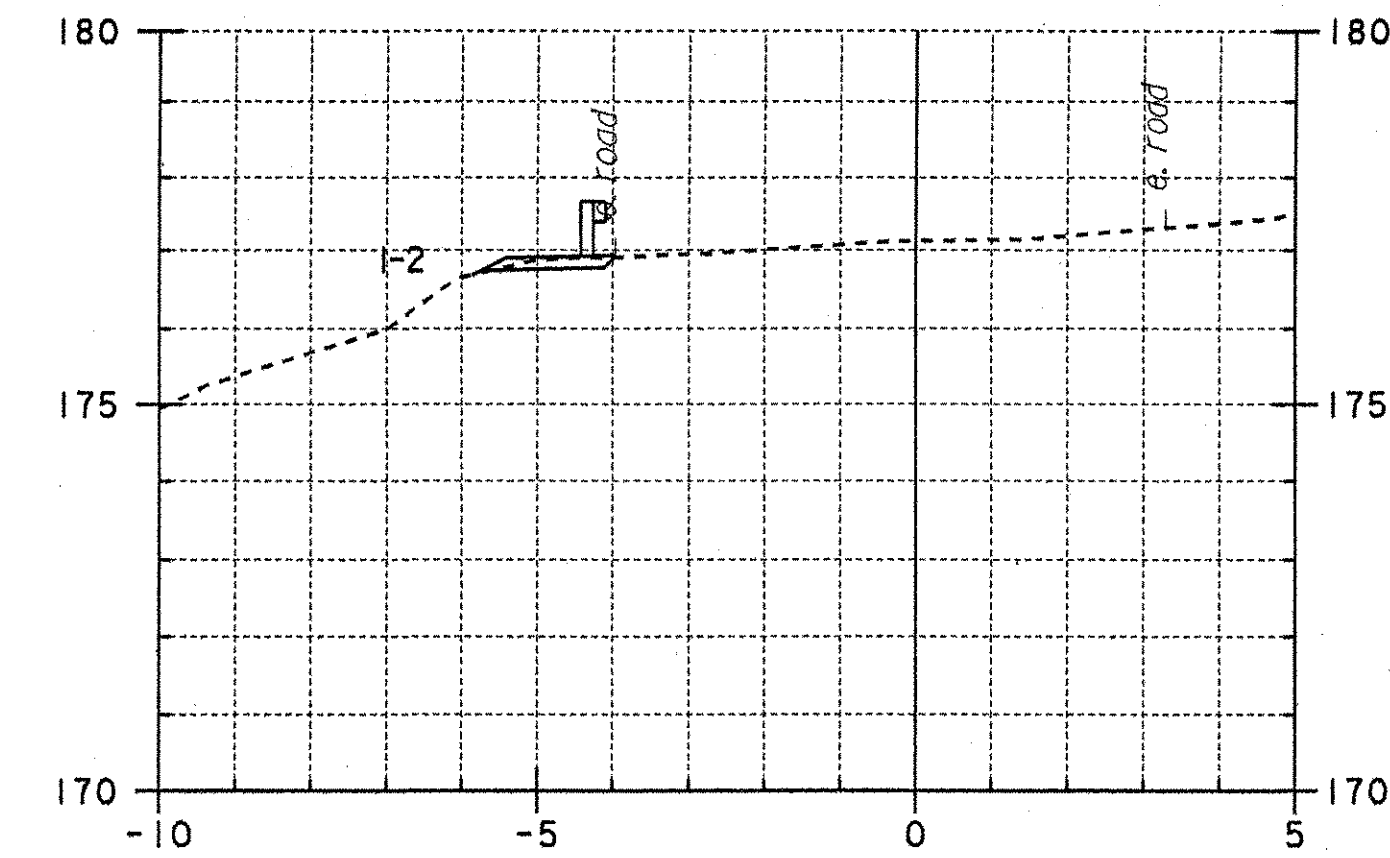
SCALE 1" = 1m



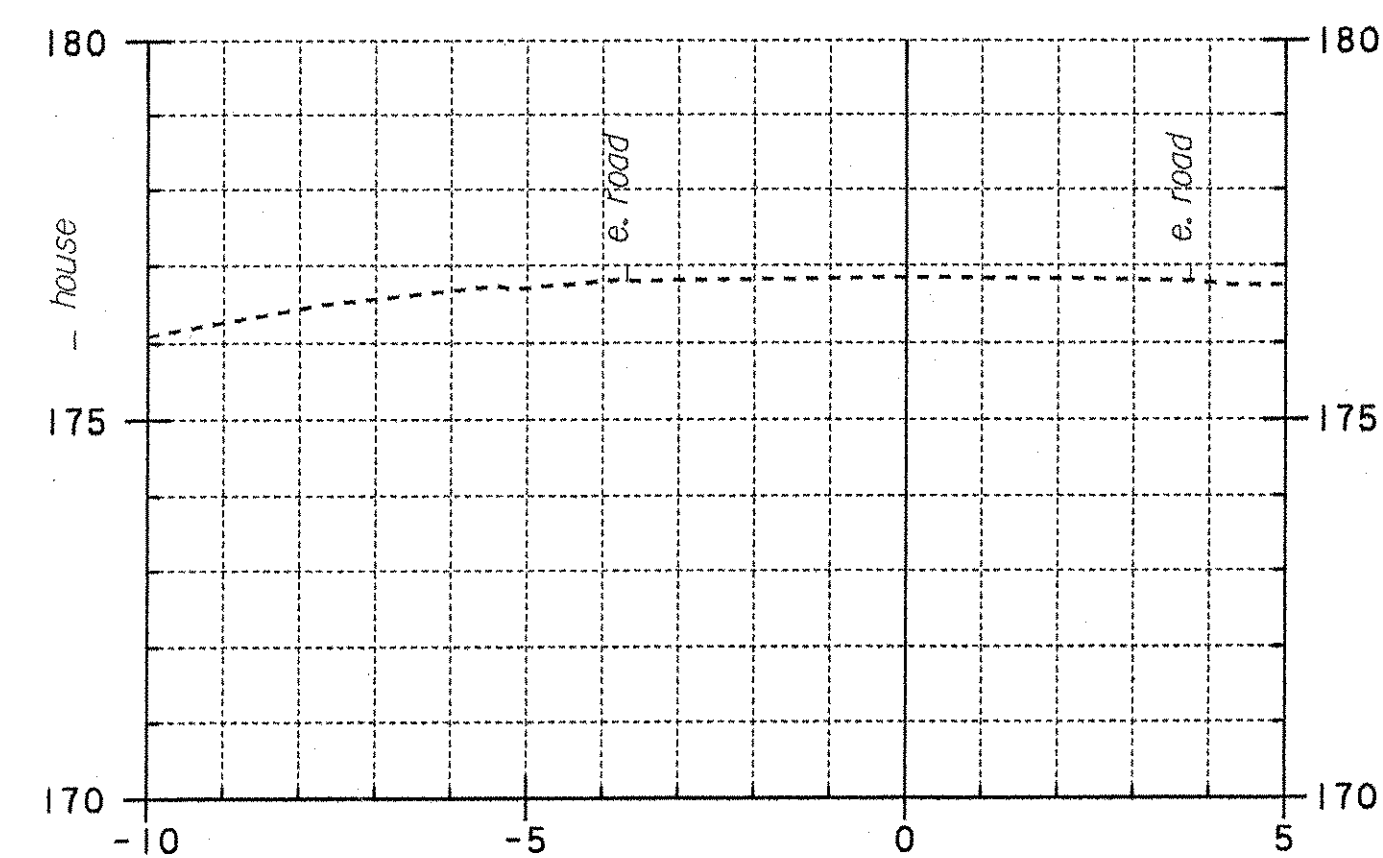
3+170
Begin Guardrail Left
Begin Gravel Sidewalk Left



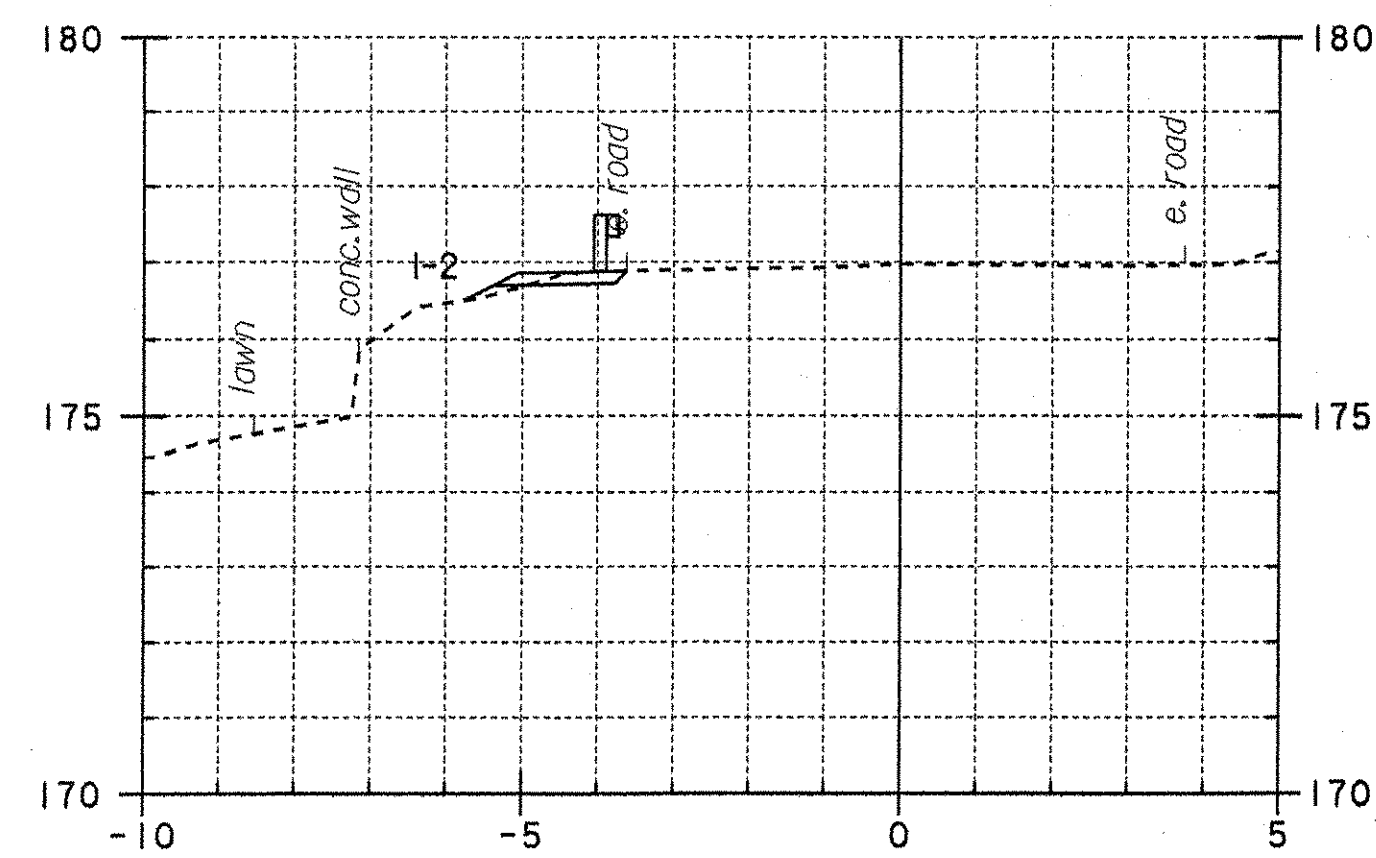
3+185



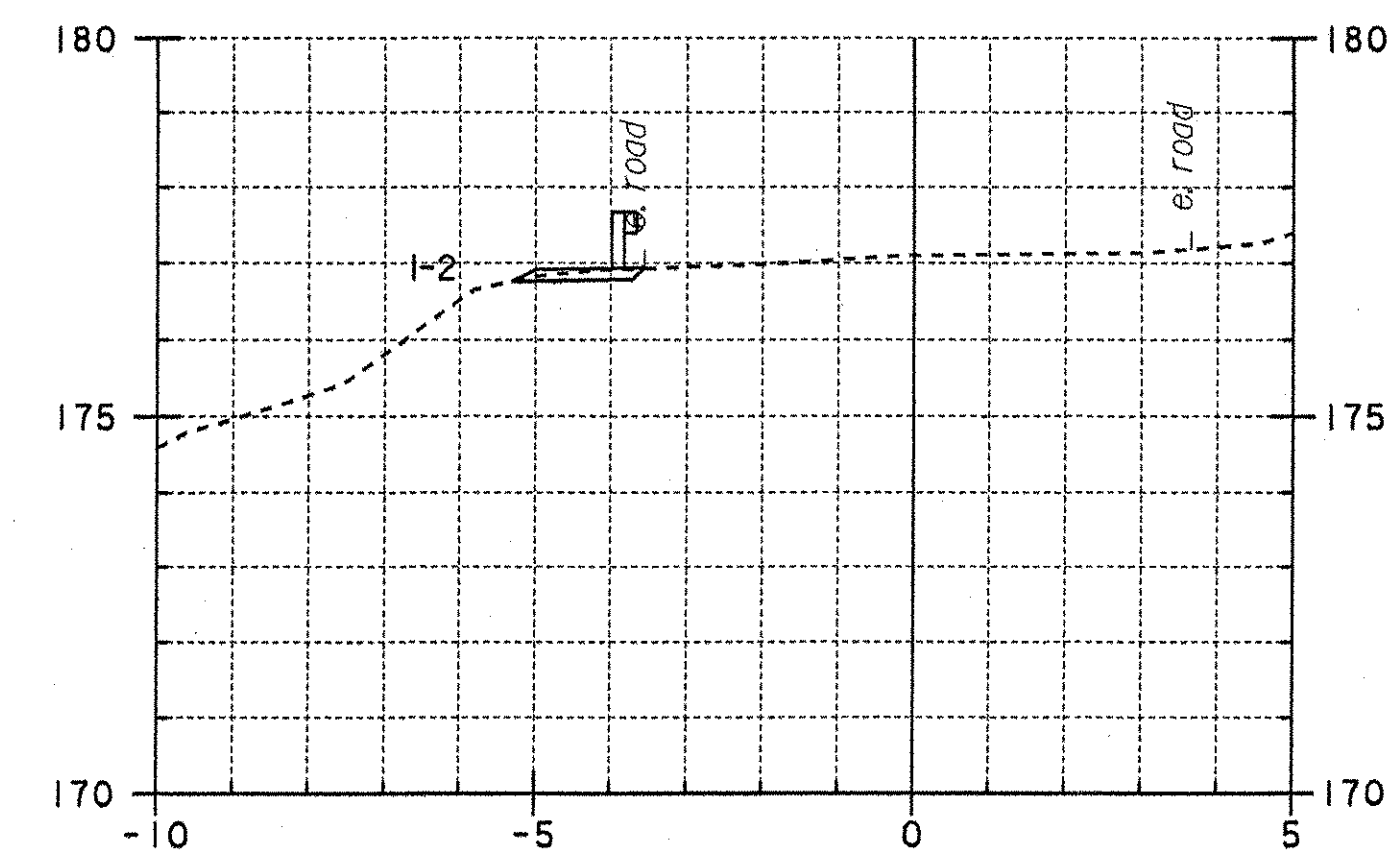
3+200



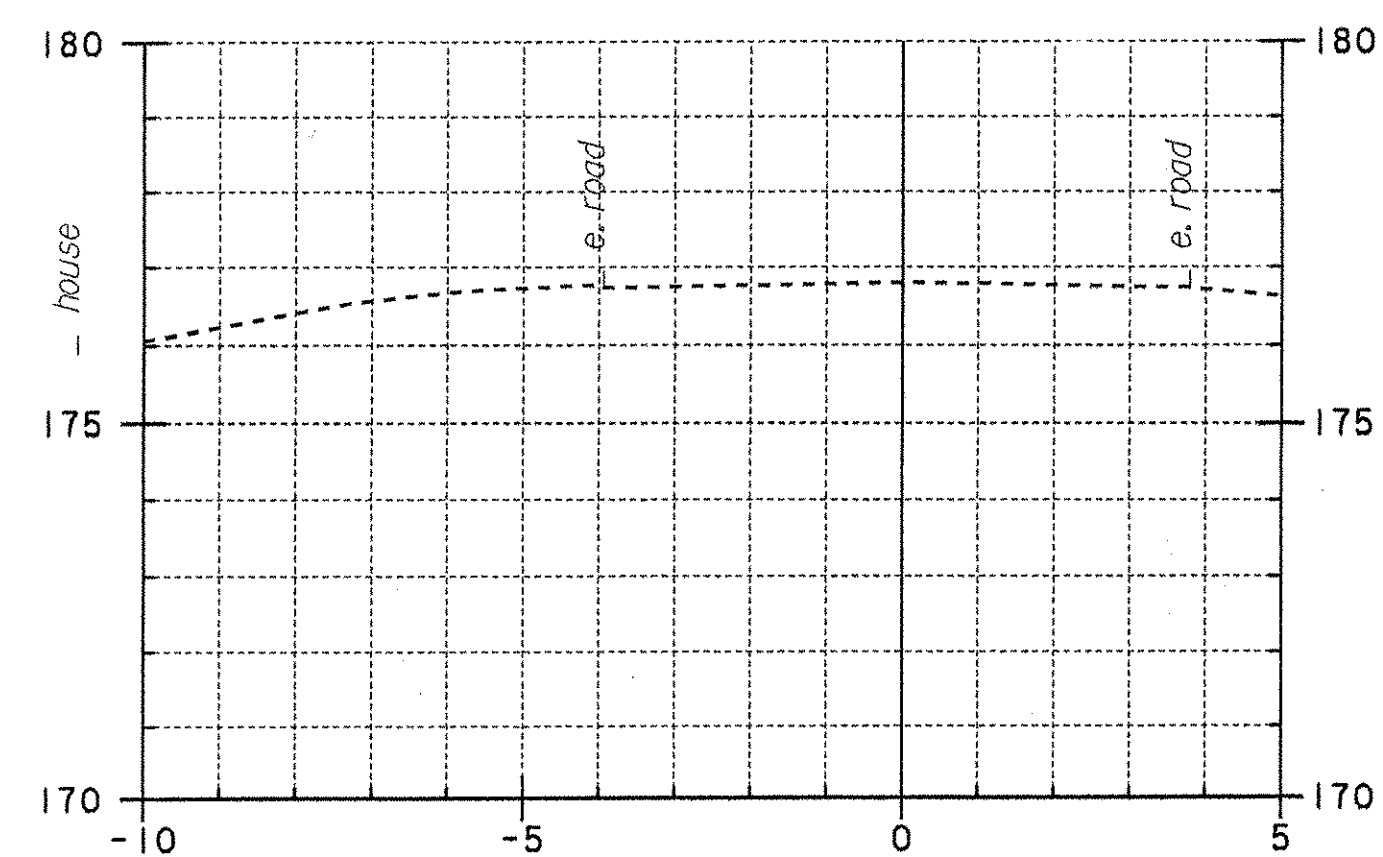
3+165



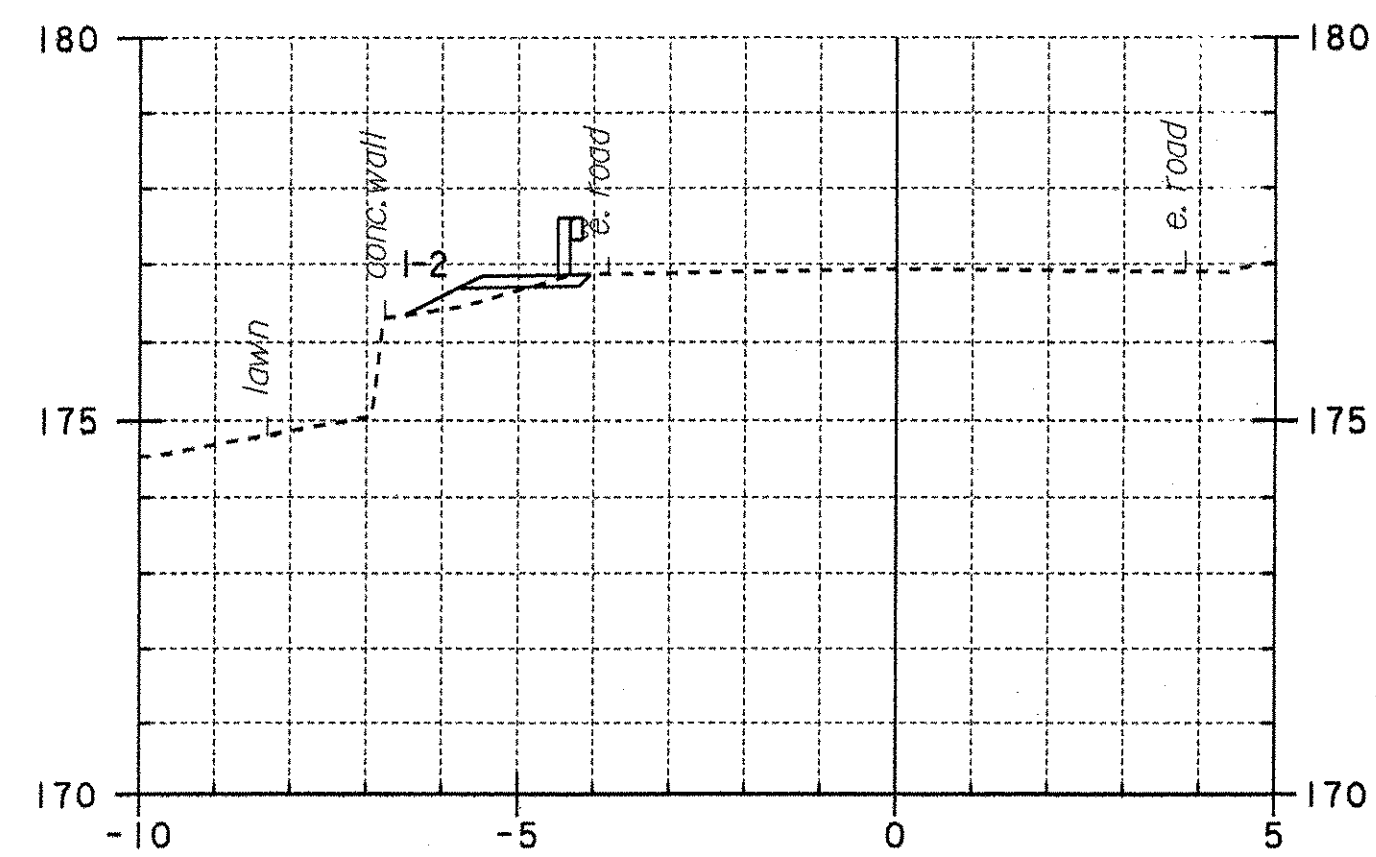
3+180



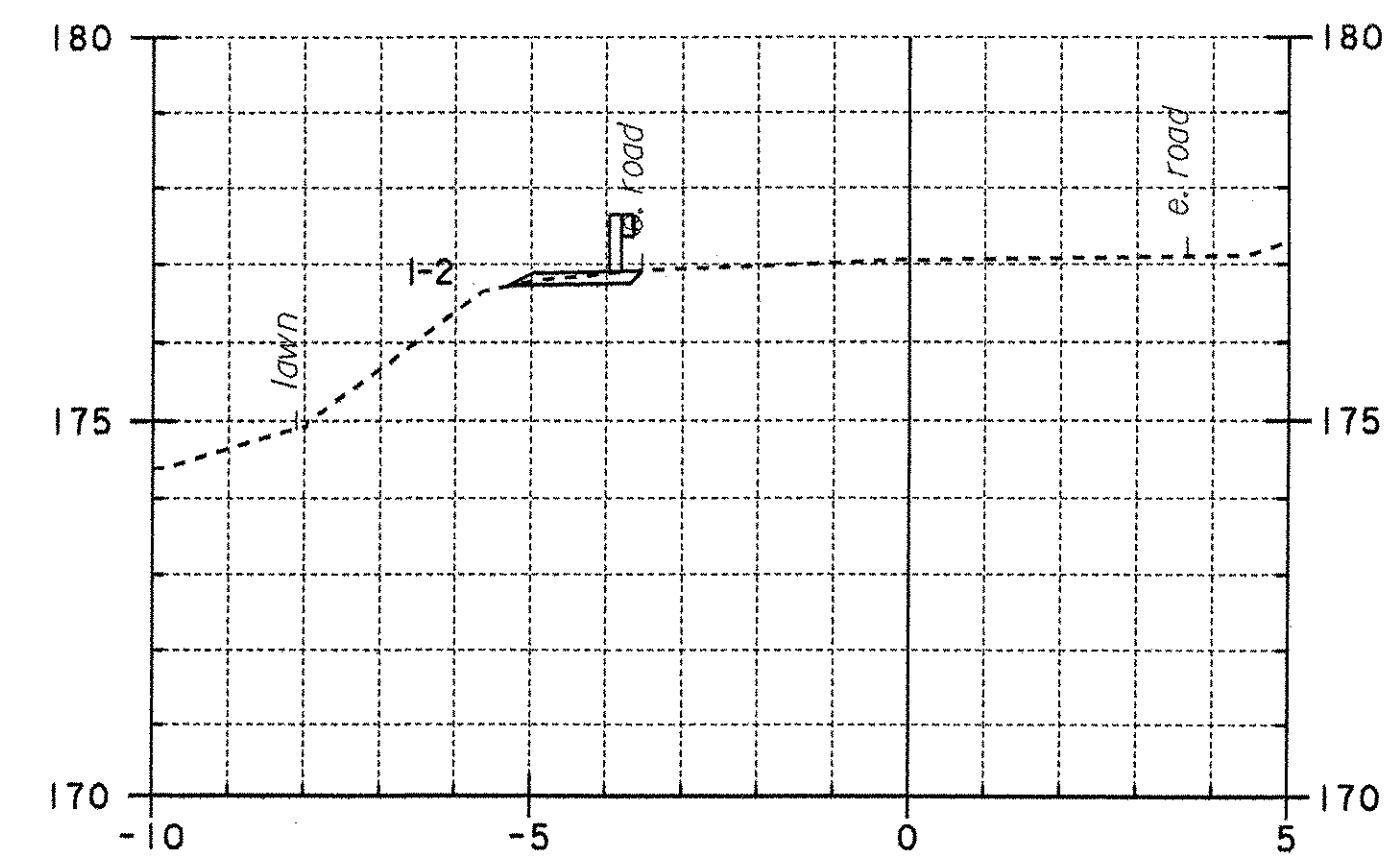
3+195



3+160



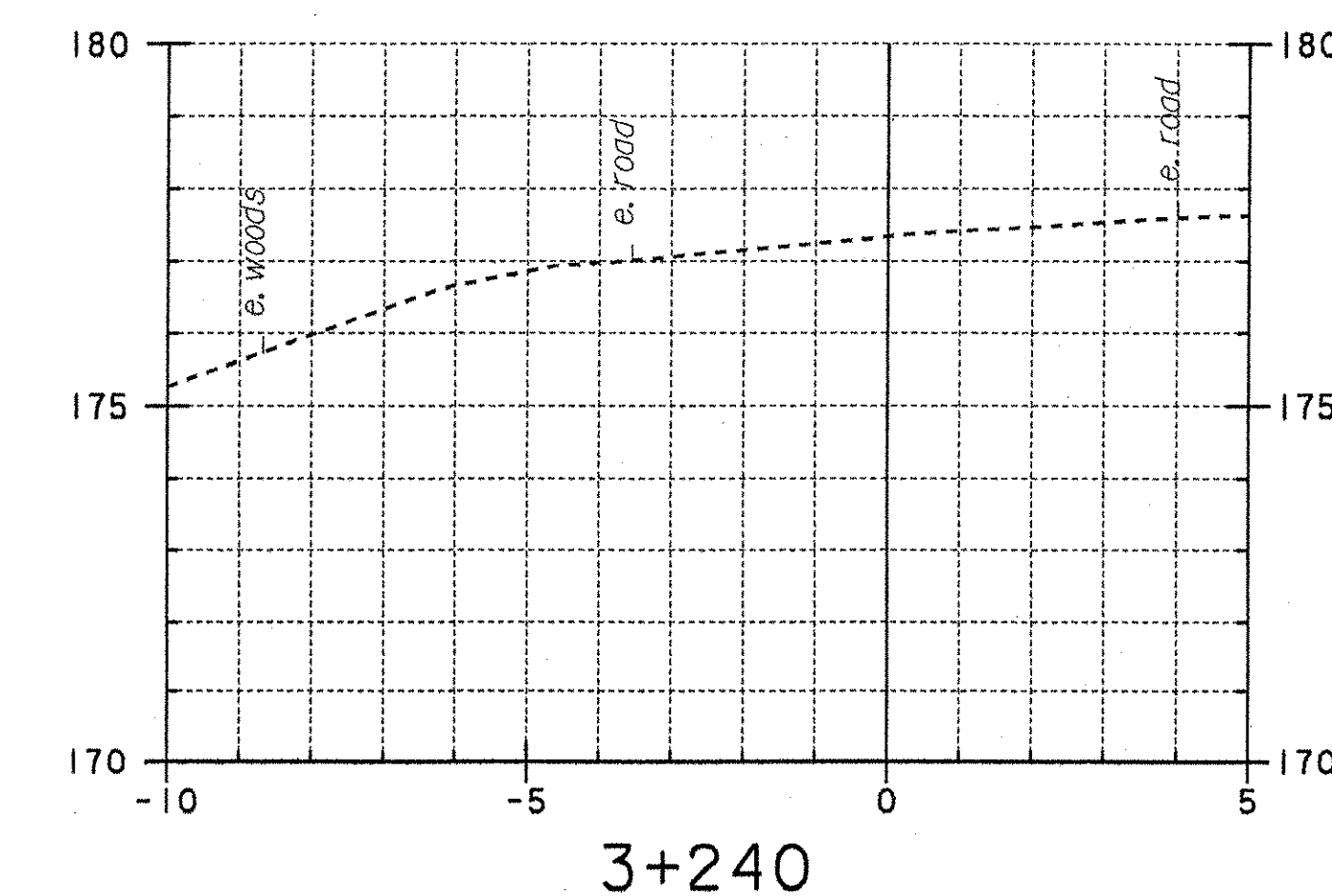
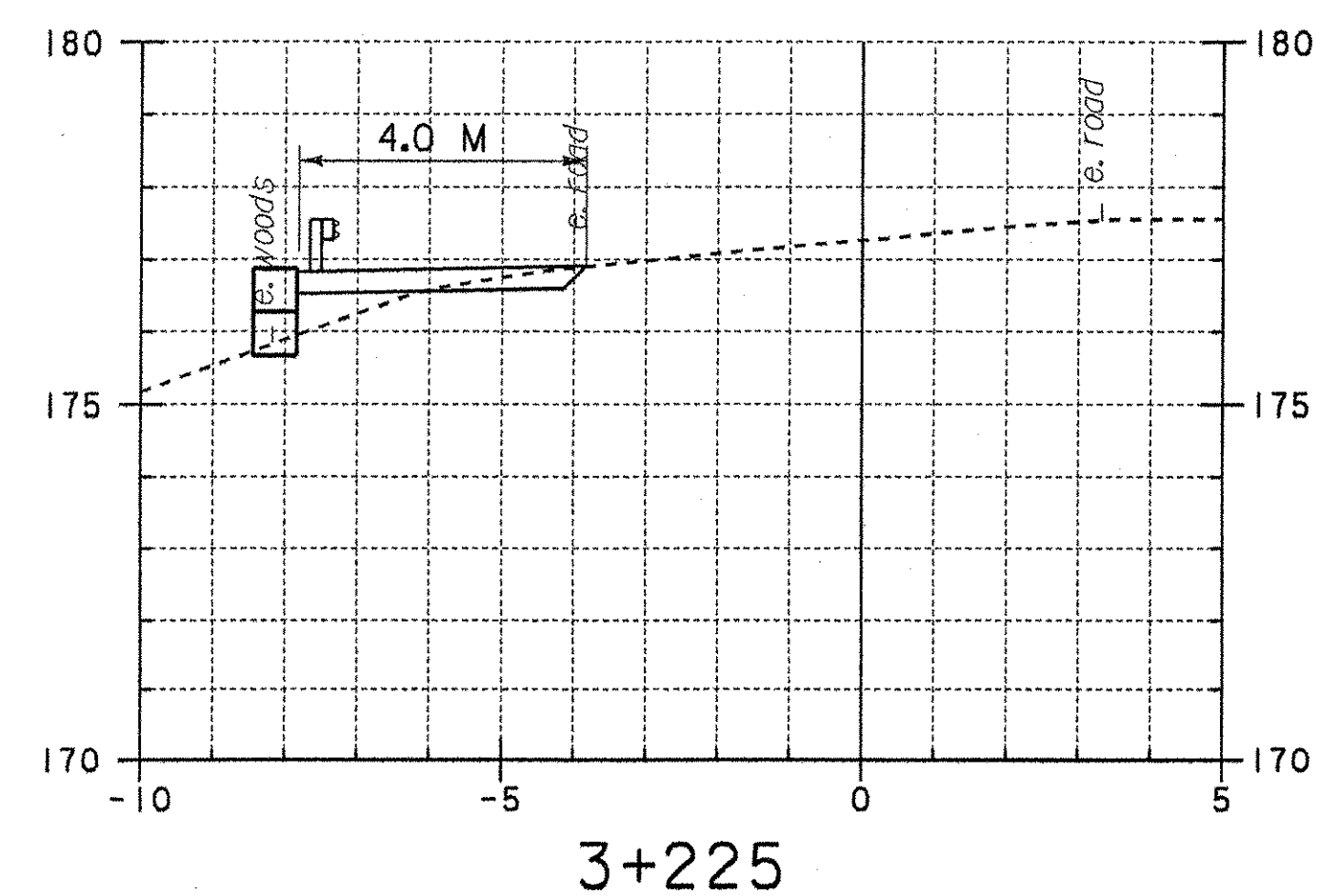
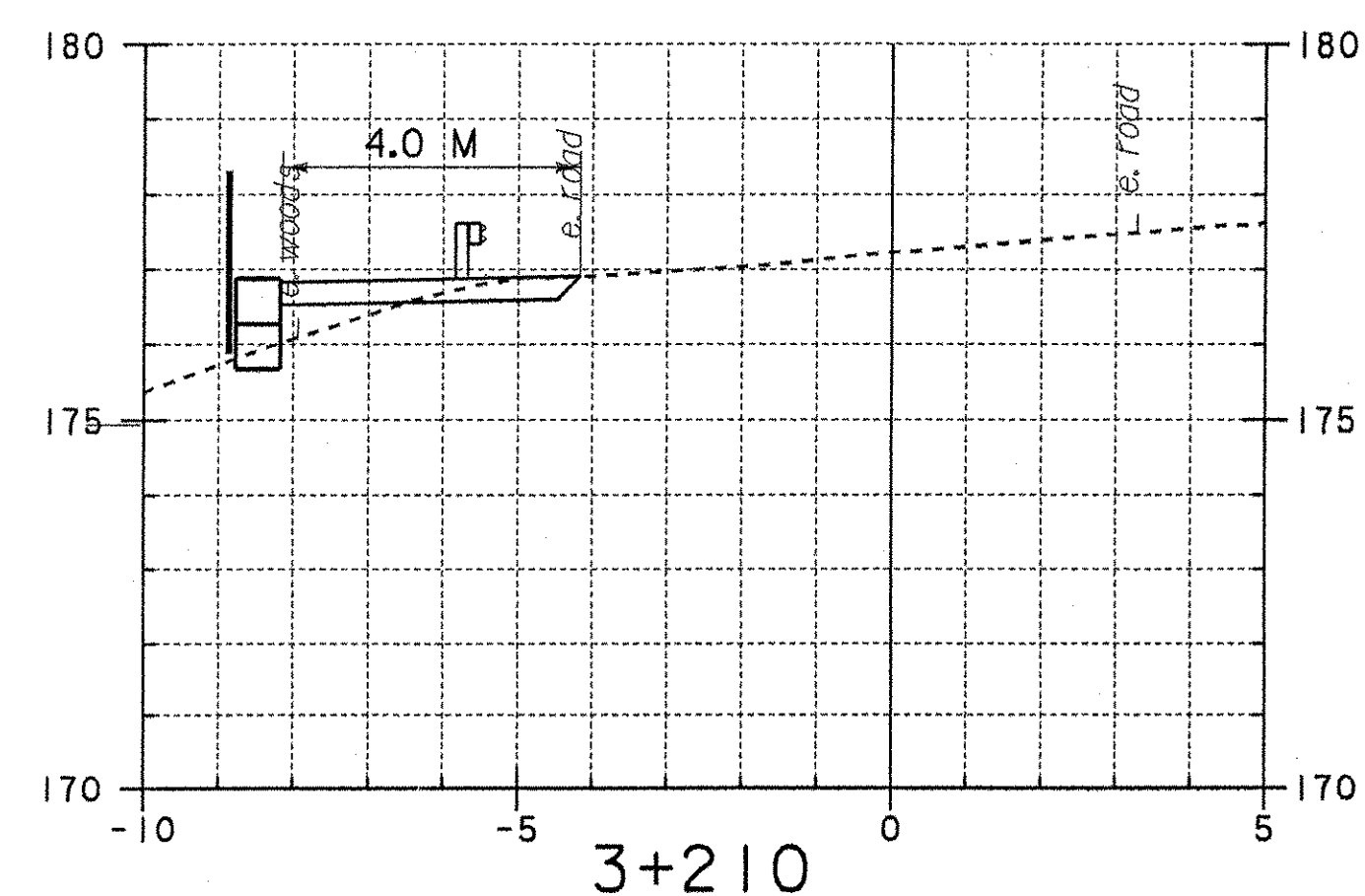
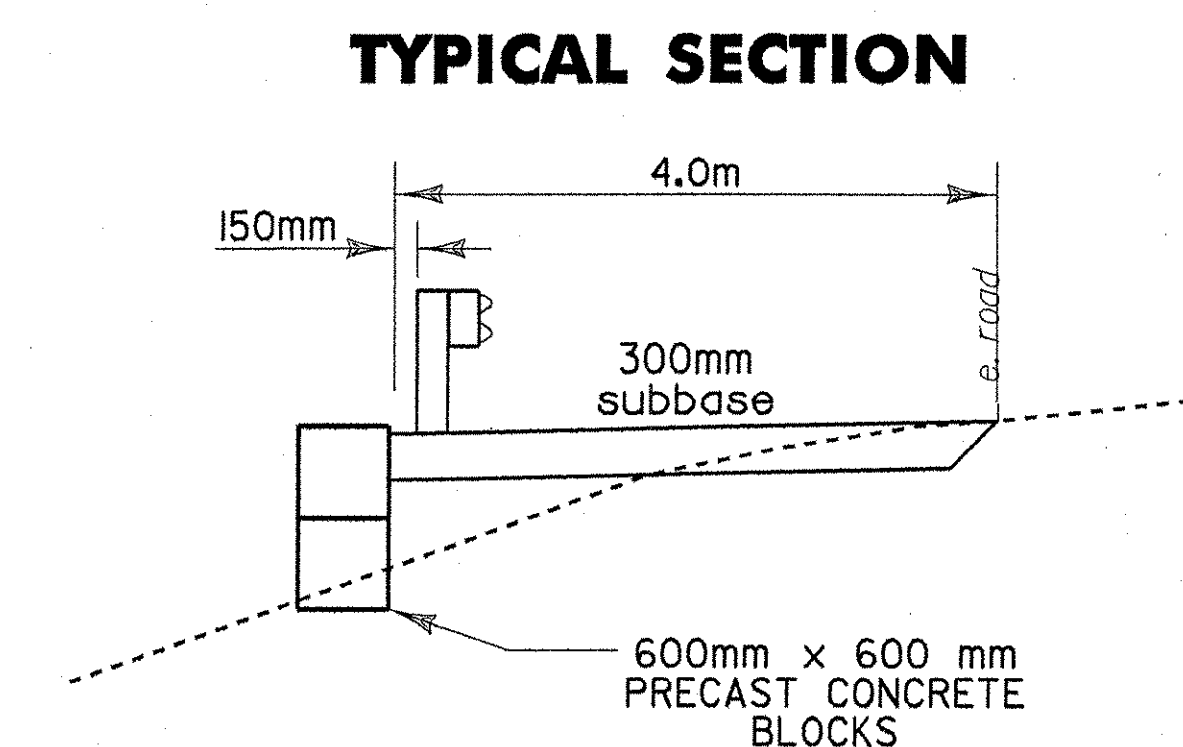
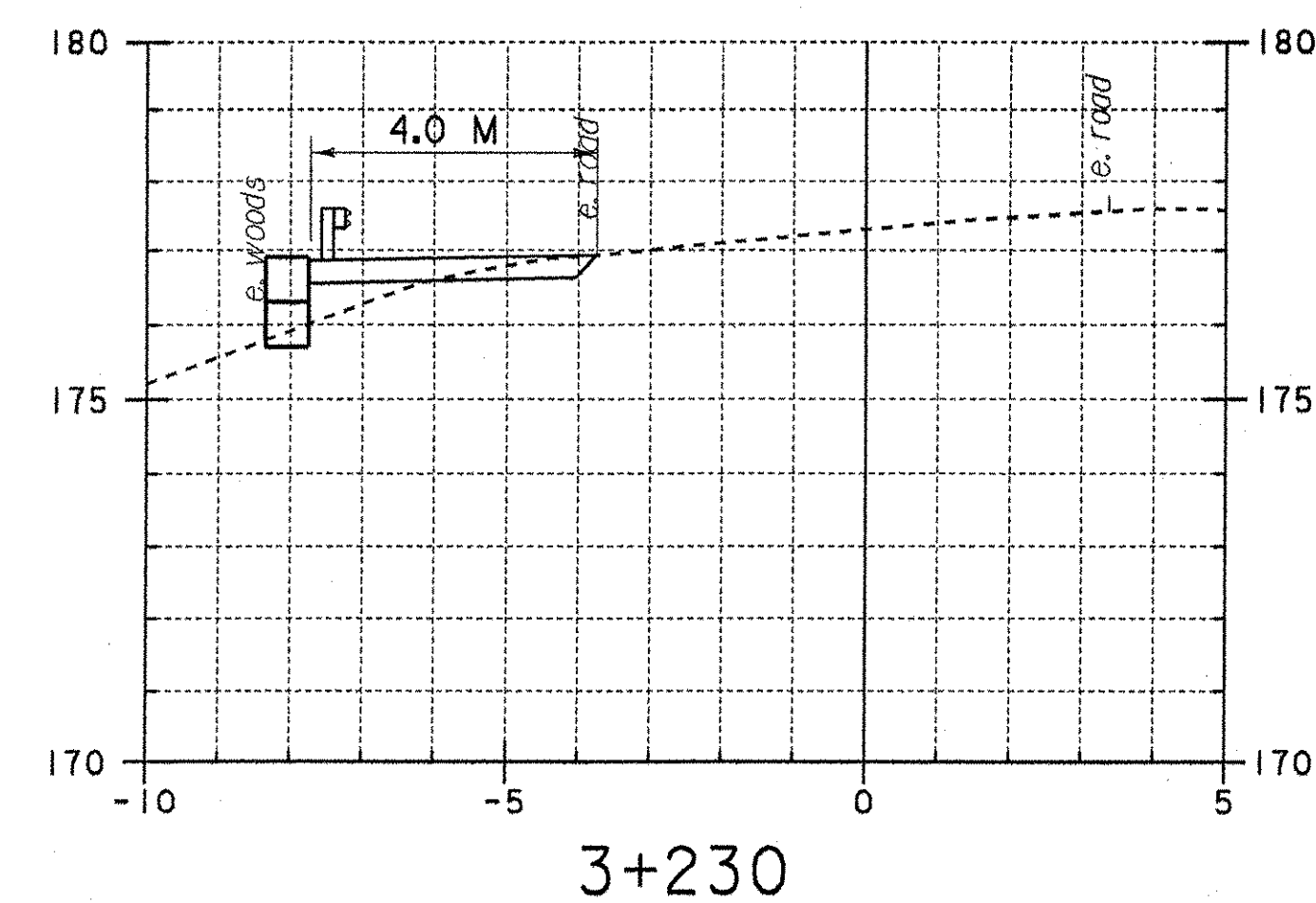
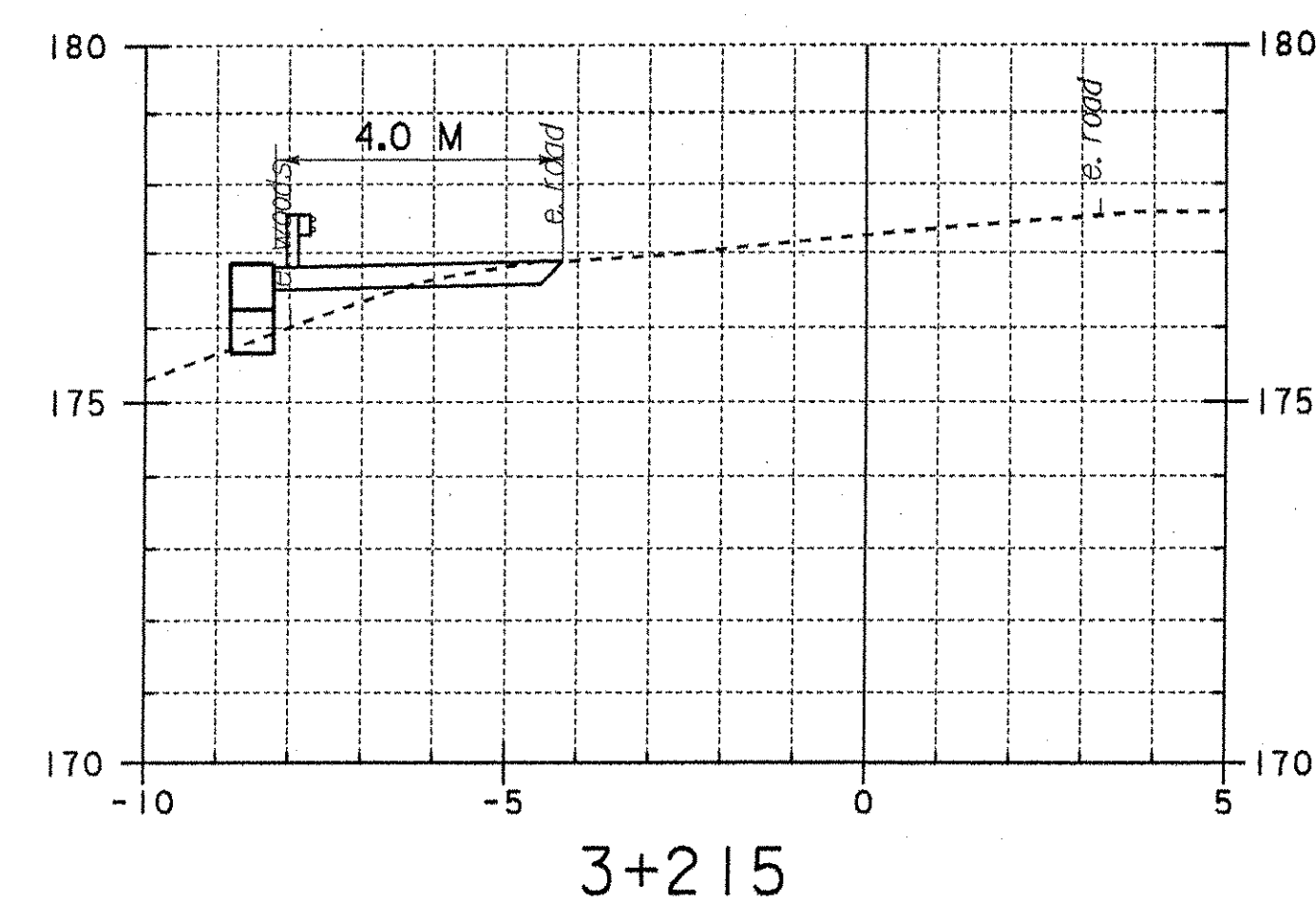
3+175



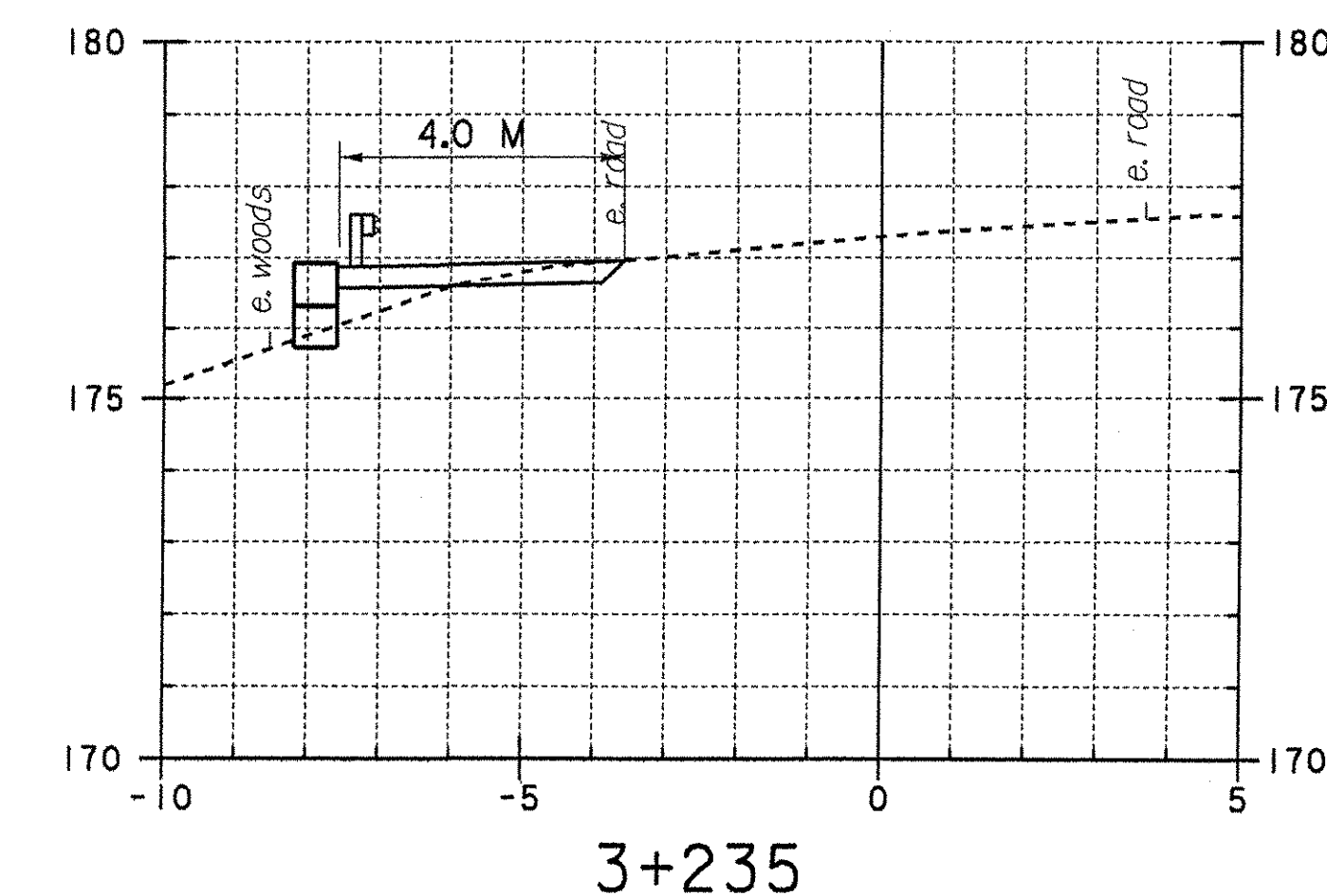
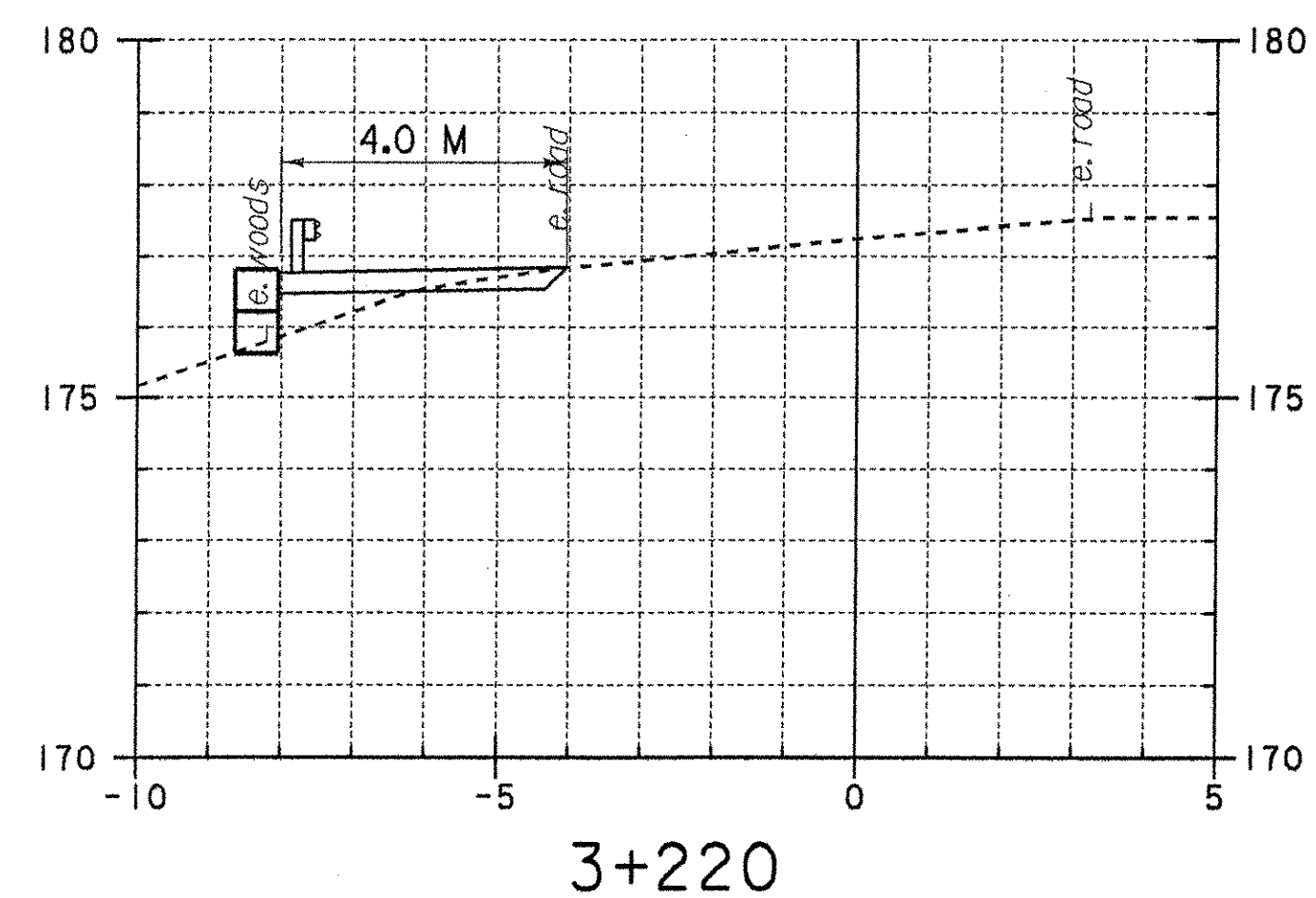
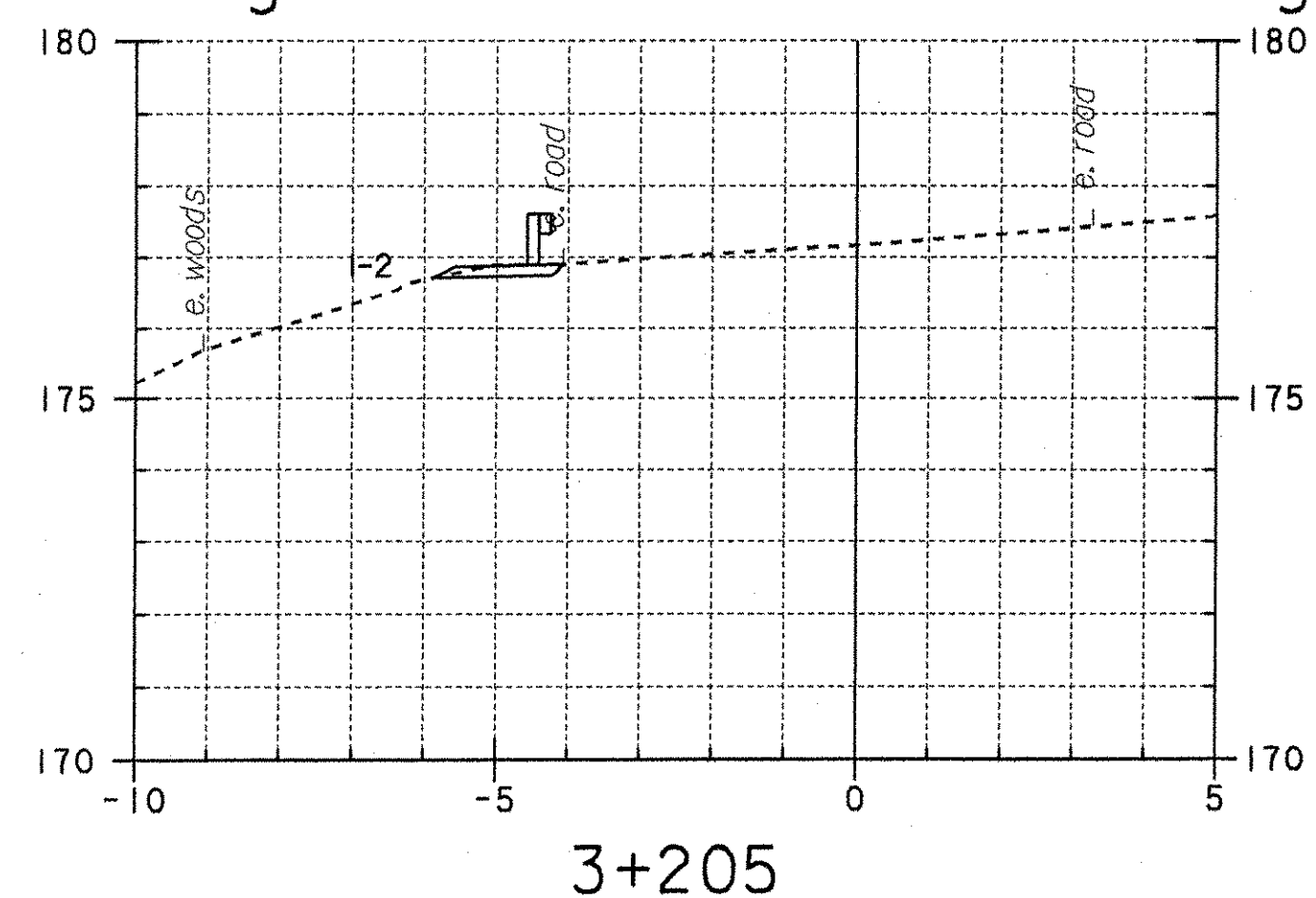
3+190

Temporary Sidewalk & Retaining Wall Sections

PROJECT NAME:	Harland
PROJECT NUMBER:	BRS 0113 (22)
FILE NAME:	/str5/78f204/sf204park.dgn
PROJECT LEADER:	C. Keller
DESIGNED BY:	G. Shangraw
	sf204park2.i
PLOT DATE:	17-AUG-2004
DRAWN BY:	G. Shangraw
CHECKED BY:	
SHEET	85 OF 86



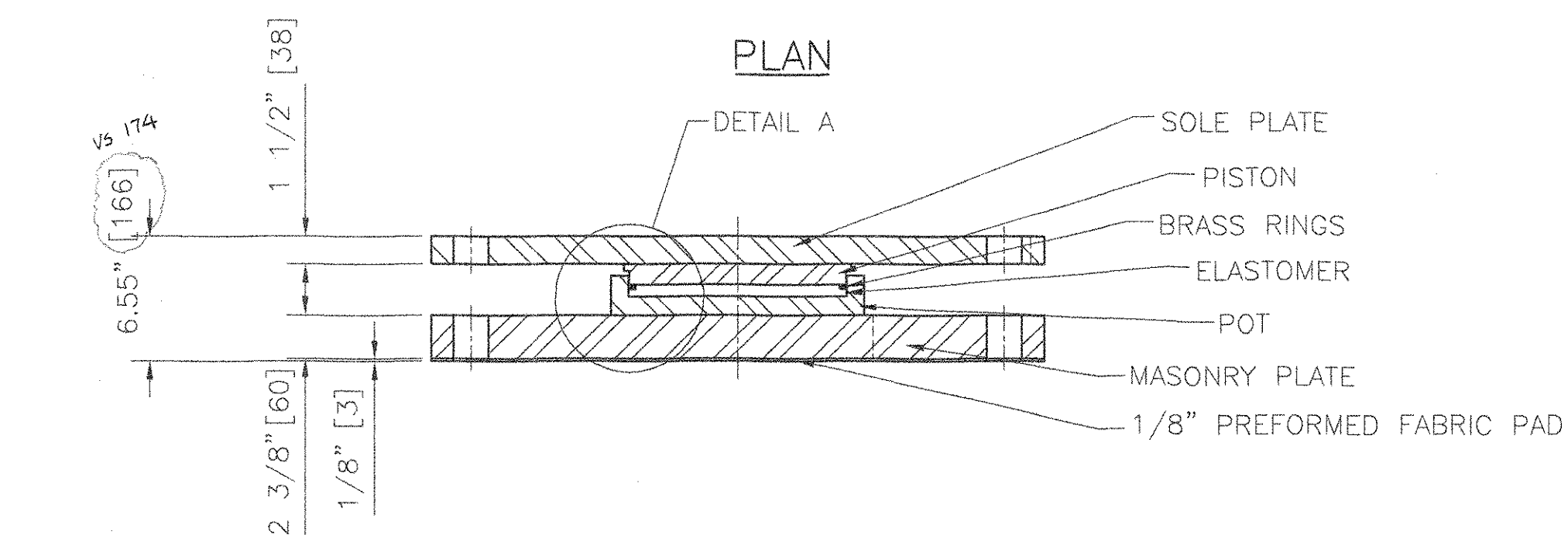
3+210 End Guardrail & Sidewalk Left
 3+206 Begin Precast Concrete Block Wall
 3+209 Begin Guardrail for Parking Area



End Concrete Block Wall Left
 End Guardrail @ Sta. 3+237

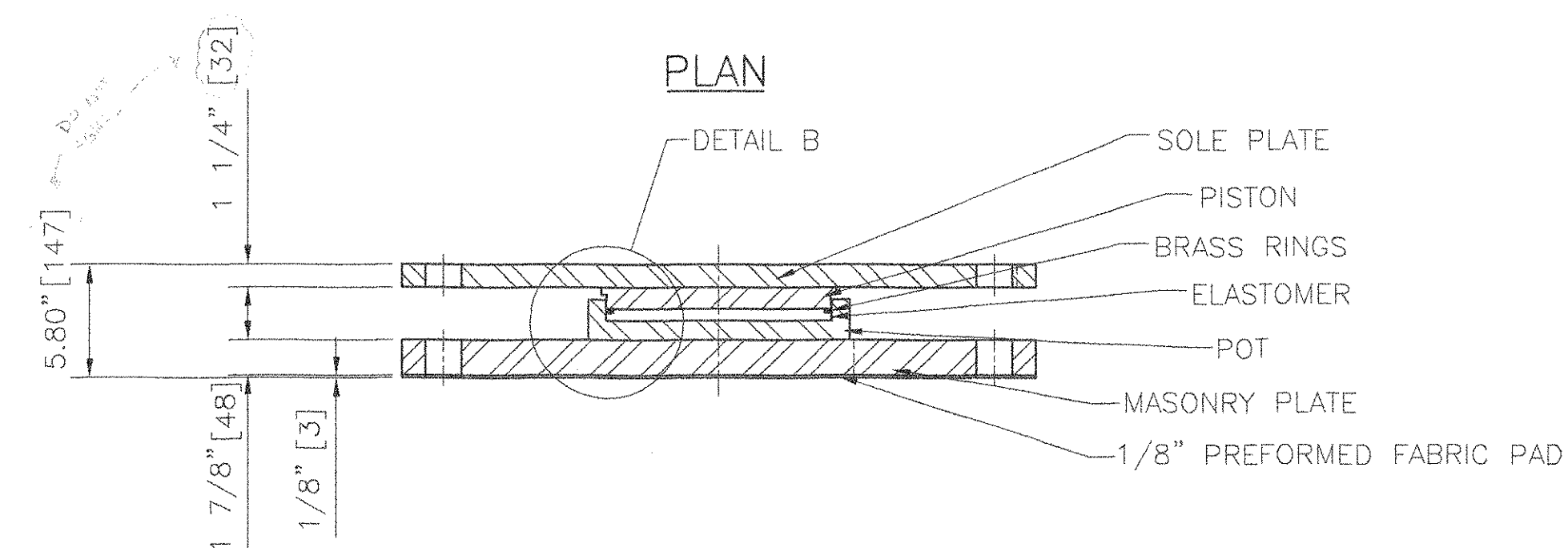
Temporary Sidewalk & Retaining Wall Sections

PROJECT NAME:	Harland		
PROJECT NUMBER:	BRS 0113 (22)		
FILE NAME:	/str5/78f204/sf204park.dgn	PLOT DATE:	17-AUG-2004
PROJECT LEADER:	C. Keller	DRAWN BY:	G. Shangraw
DESIGNED BY:	G. Shangraw	CHECKED BY:	
sf204park3.i		SHEET	86 OF 86



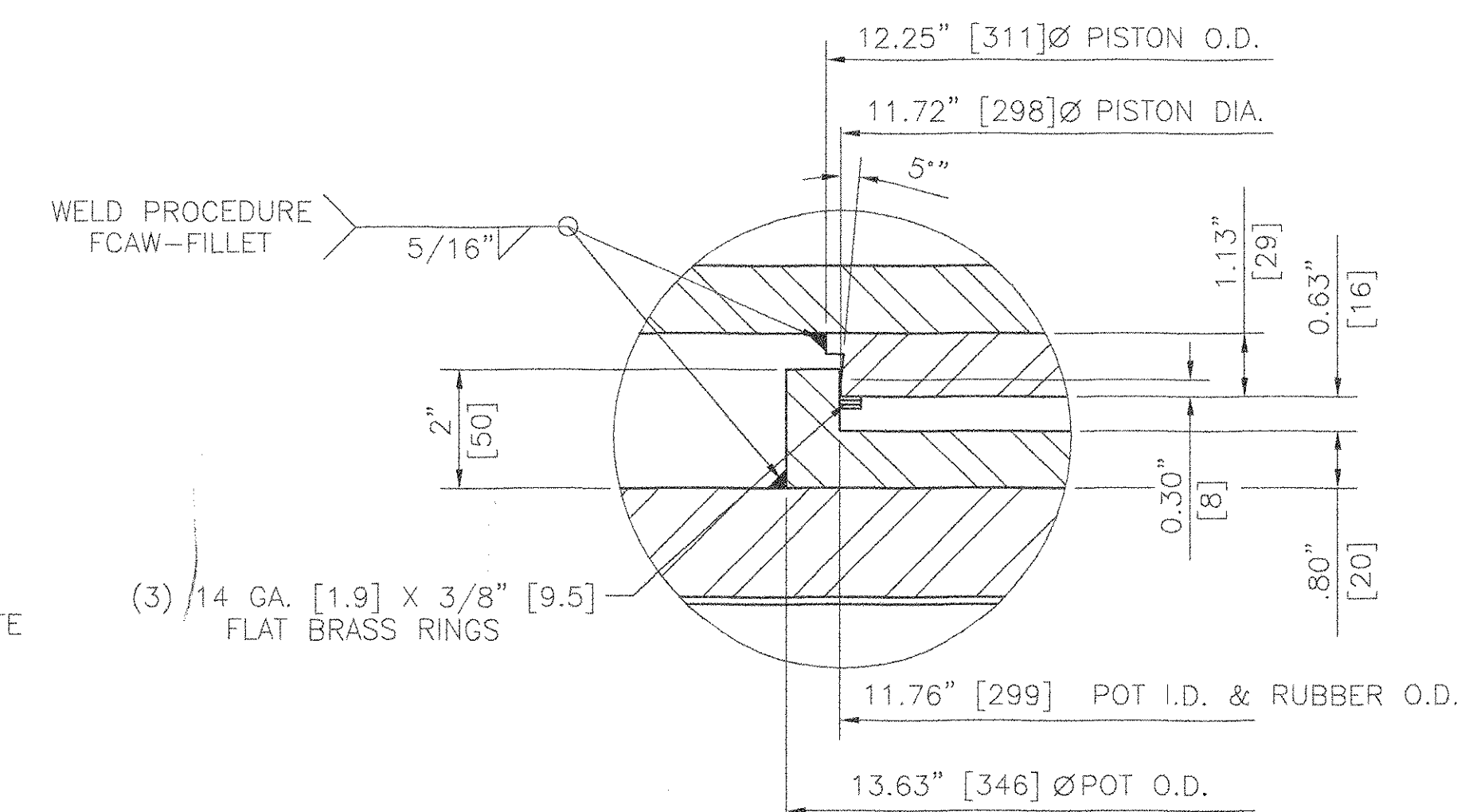
COSMEC FIXED POT BEARING

LOCATION: ABUTMENT #1; GIRDER #G1
QUANTITY: 1
TOTAL VERTICAL CAPACITY= 380 KIPS [1690 Kn]
TOTAL HORIZONTAL CAPACITY= 38 KIPS [169 Kn]
MOVEMENT CAPACITY= 0"
ROTATION CAPACITY= 0.015 RADIAN



COSMEC FIXED POT BEARING

LOCATION: ABUTMENT #1; GIRDER #G2
QUANTITY: 1
TOTAL VERTICAL CAPACITY= 380 KIPS [1690 Kn]
TOTAL HORIZONTAL CAPACITY= 38 KIPS [169 Kn]
MOVEMENT CAPACITY= 0"
ROTATION CAPACITY= 0.015 RADIAN



1 1 1/2" [38]Ø X 24" [610] ANCHOR BOLTS
SWEDGED, GALV. WITH 4" [102] THREAD
(THREADS SHALL BE BURRED TO PREVENT
NUT REMOVAL)

HEAVY HEX NUT ———
(ASTM A.563 GR.DH, GALV.)

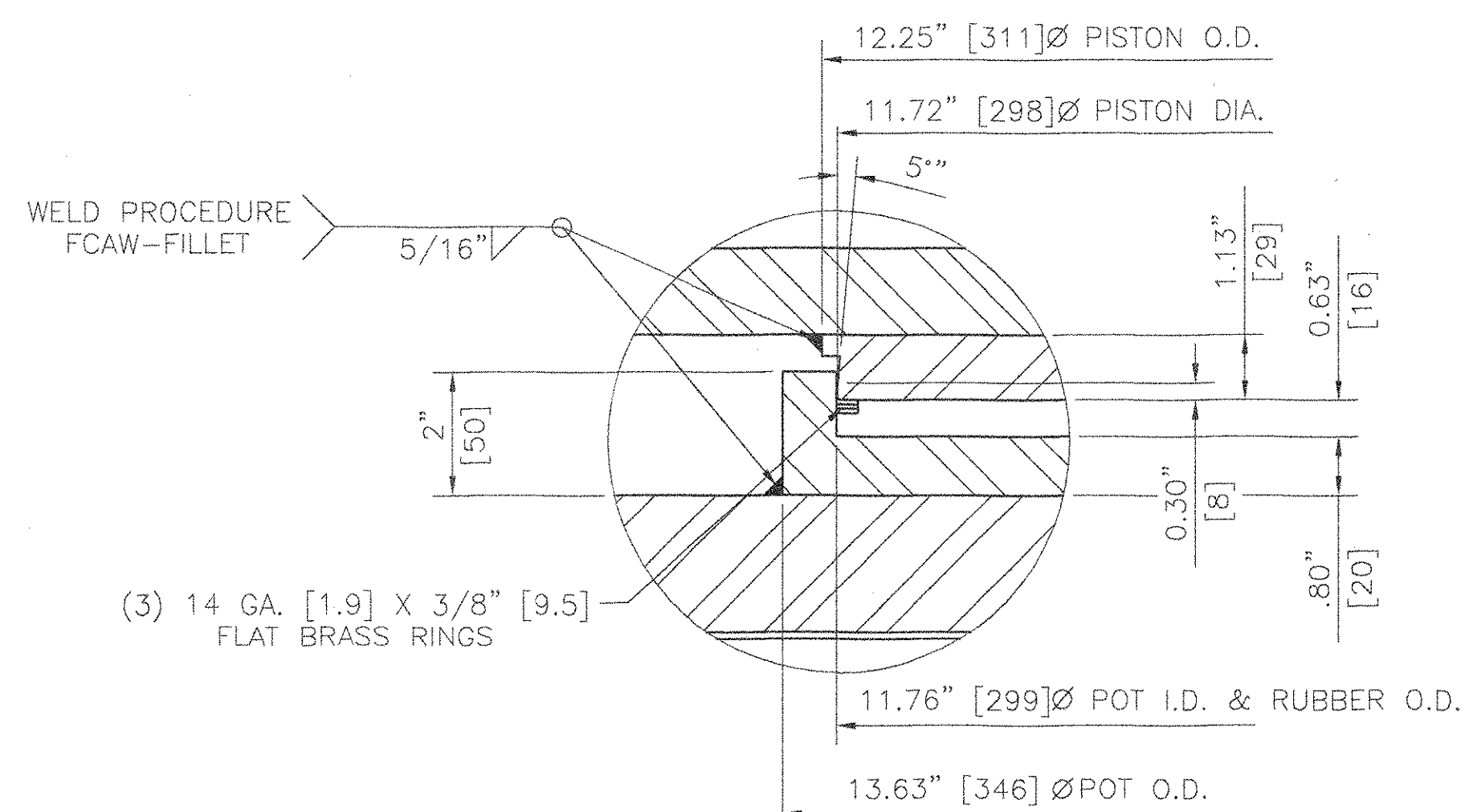
3/8" [10] X 3" [75] X 3" [75] -
PLATE WASHER WITH 1 5/8" [40]Ø
HOLE (TYP.) (A.36, GALV.)

SOLE PLATE

MASONRY PLATE

FABRIC BEARING PAD

24" [610]



BEARING NOTES

1. ALL MATERIALS USED IN THE FABRICATION OF THESE BEARINGS SHALL BE MADE IN THE U.S.A.
2. BEARINGS ARE TO BE SHIPPED AS COMPLETE UNITS, STEEL BANDED, AND SHALL BE WRAPPED TO PROTECT FROM MOISTURE AND DIRT DURING TRANSIT AND STORAGE.
3. LOCATION OF FABRICATION PLANT - 70 SOUTH STREET
WALPOLE, MA 02081
4. COSMEC, INC. REPRESENTATIVE - MR. MATT McANDREWS (508) 668-6600
5. BEARINGS SHALL BE STORED IN A CLEAN, DRY, LEVEL UPRIGHT POSITION.
6. UNITS: INCH[mm]
7. BEARINGS MUST NOT BE DISASSEMBLED
8. ALL BEARINGS SHALL BE METALLIZED AS PER SECTION 531.04(B) & 506.15 (a) & (b). AREAS OF METALLIZED DAMAGED BY FIELD WELDS OR HANDLING SHALL BE REPAIRED PER SUPPLEMENTAL SPECIFICATION 513.06(F).
9. PRIOR TO METALLIZING, ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES, ETC. SHALL BE GROUND TO A 1/16" [1.6] RADIUS.

MATERIALS

STEEL - ASTM A709 GRADE 36, ZINC METALLIZED & SEALED
 PREFORMED FABRIC PAD - AASHTO DIV. II SPEC. 18.4.9.1
 ANCHOR BOLTS - ASTM F1554 GRADE 55
 ELASTOMER - AASHTO 50 DUROMETER NEOPRENE
 BRASS SEALING RINGS - ASTM B.36 HALF HARD

ANCHOR BOLT DETAIL
N.T.S.

STATE OF VERMONT
AGENCY OF TRANSPORTATION
TOWN OF HARTLAND
U.S. ROUTE 5 OVER LULLS BROOK
BRIDGE NO. 60

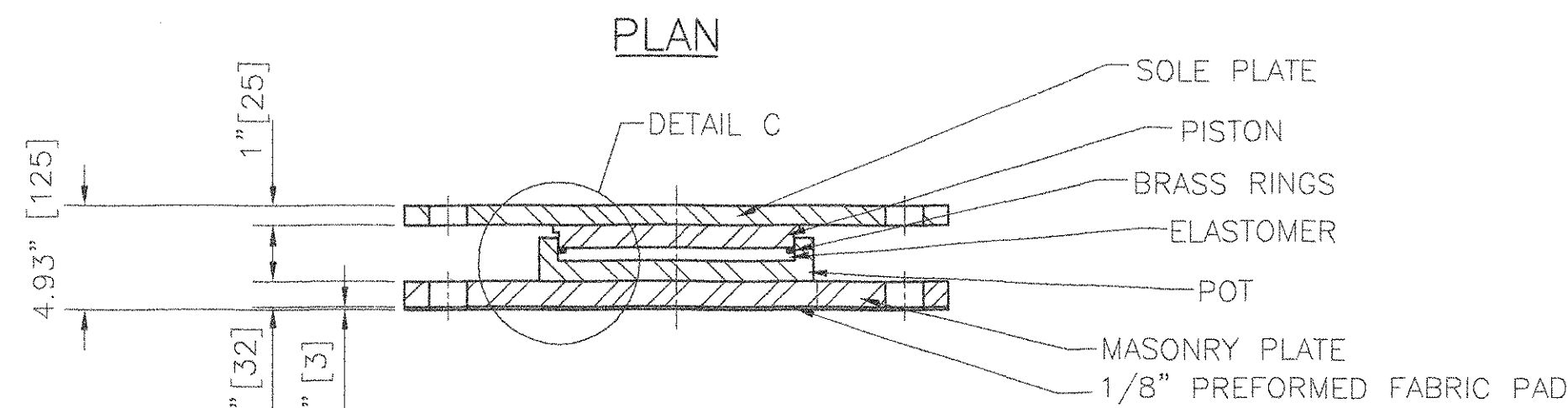
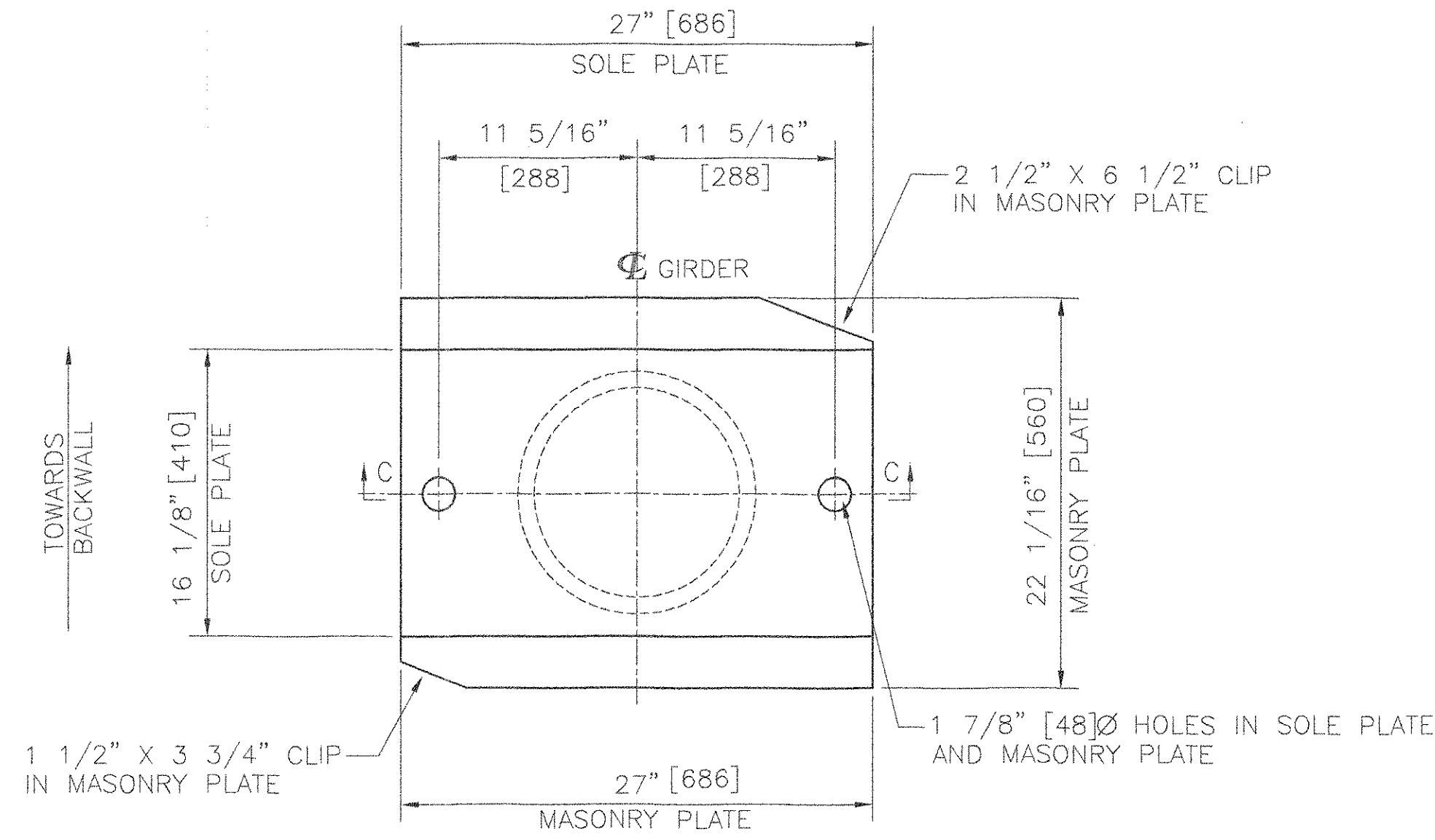
COSMEC, INC.

70 SOUTH STREET
WALPOLE, MA. 02081

SCALE: 1/8"=1"	DRAWN BY: MRR	CHECKED BY: MCM
	DATE: 7-20-05	DATE: 8-17-05

COSMEC POT BEARINGS

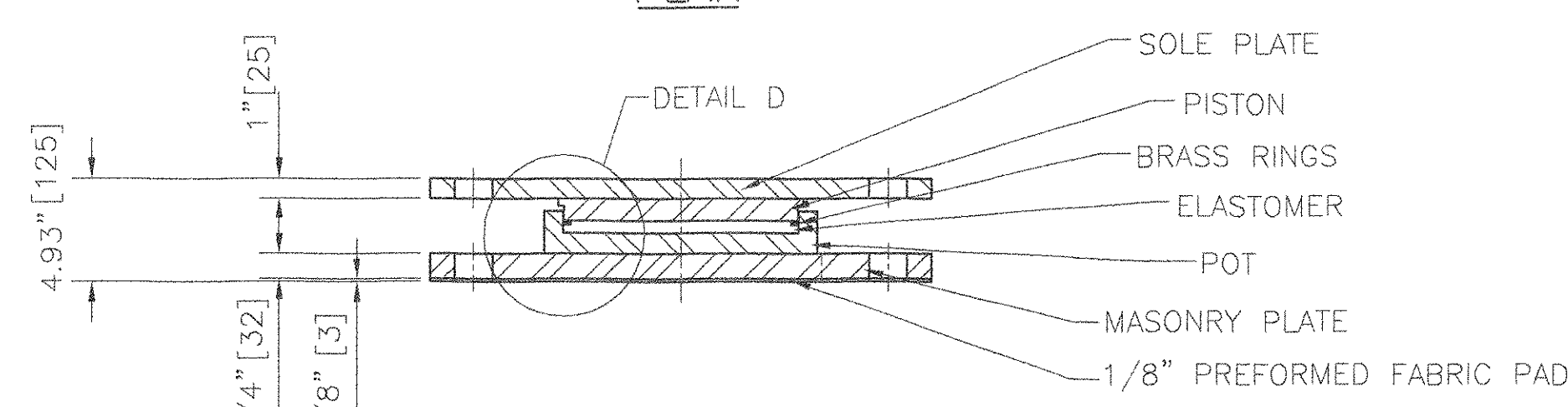
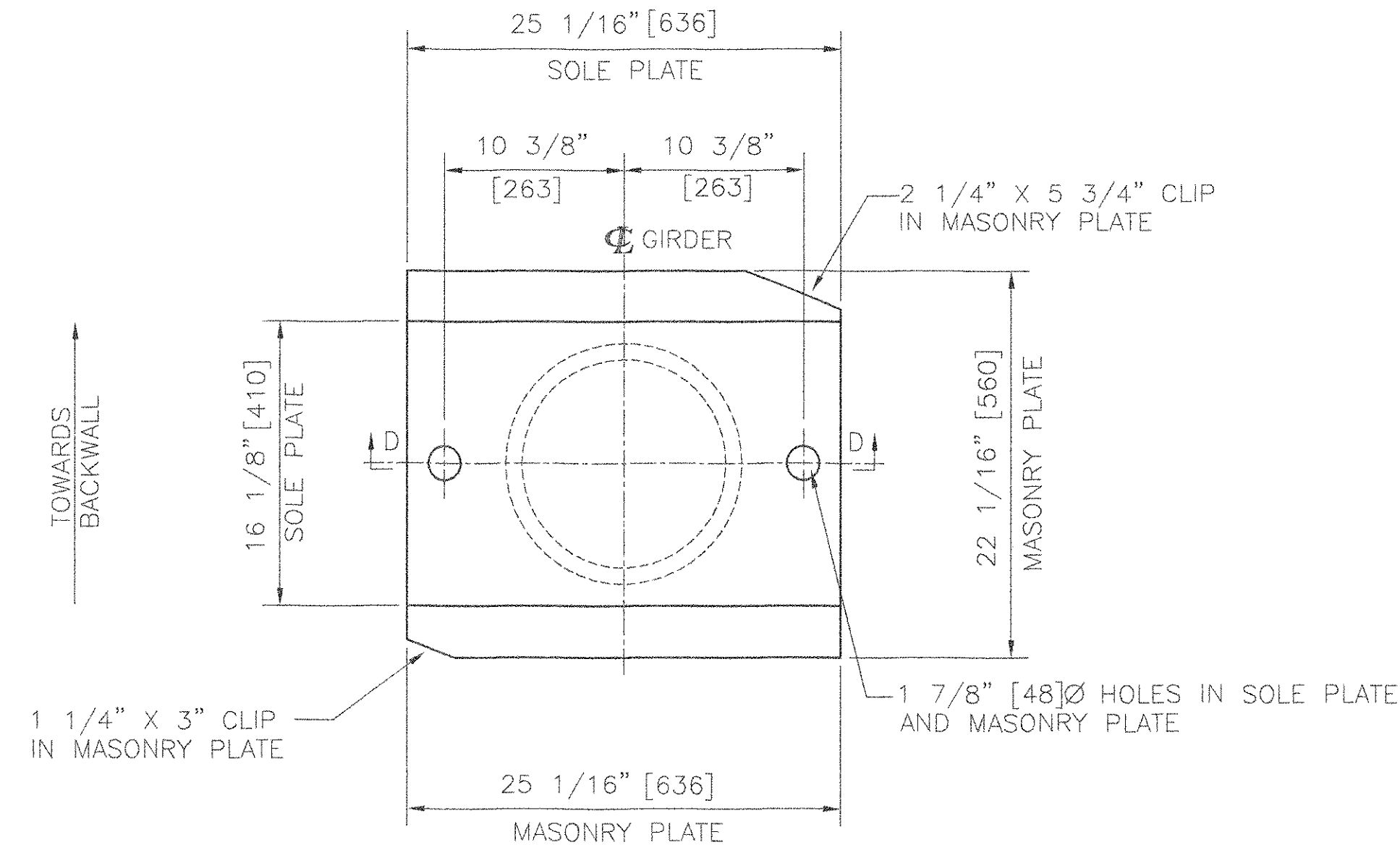
CUSTOMER MILLER CONSTRUCTION, INC.	S.O. NUMBER 60304	DRAWING NUMBER 4460	REV.
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SECTION C-C

COSMEC FIXED POT BEARING

LOCATION: ABUTMENT #1; GIRDER #G3
 QUANTITY: 1
 TOTAL VERTICAL CAPACITY= 380 KIPS [1690 Kn]
 TOTAL HORIZONTAL CAPACITY= 38 KIPS [169 Kn]
 MOVEMENT CAPACITY= 0"
 ROTATION CAPACITY= 0.015 RADIAN



SECTION D-D

COSMEC FIXED POT BEARING

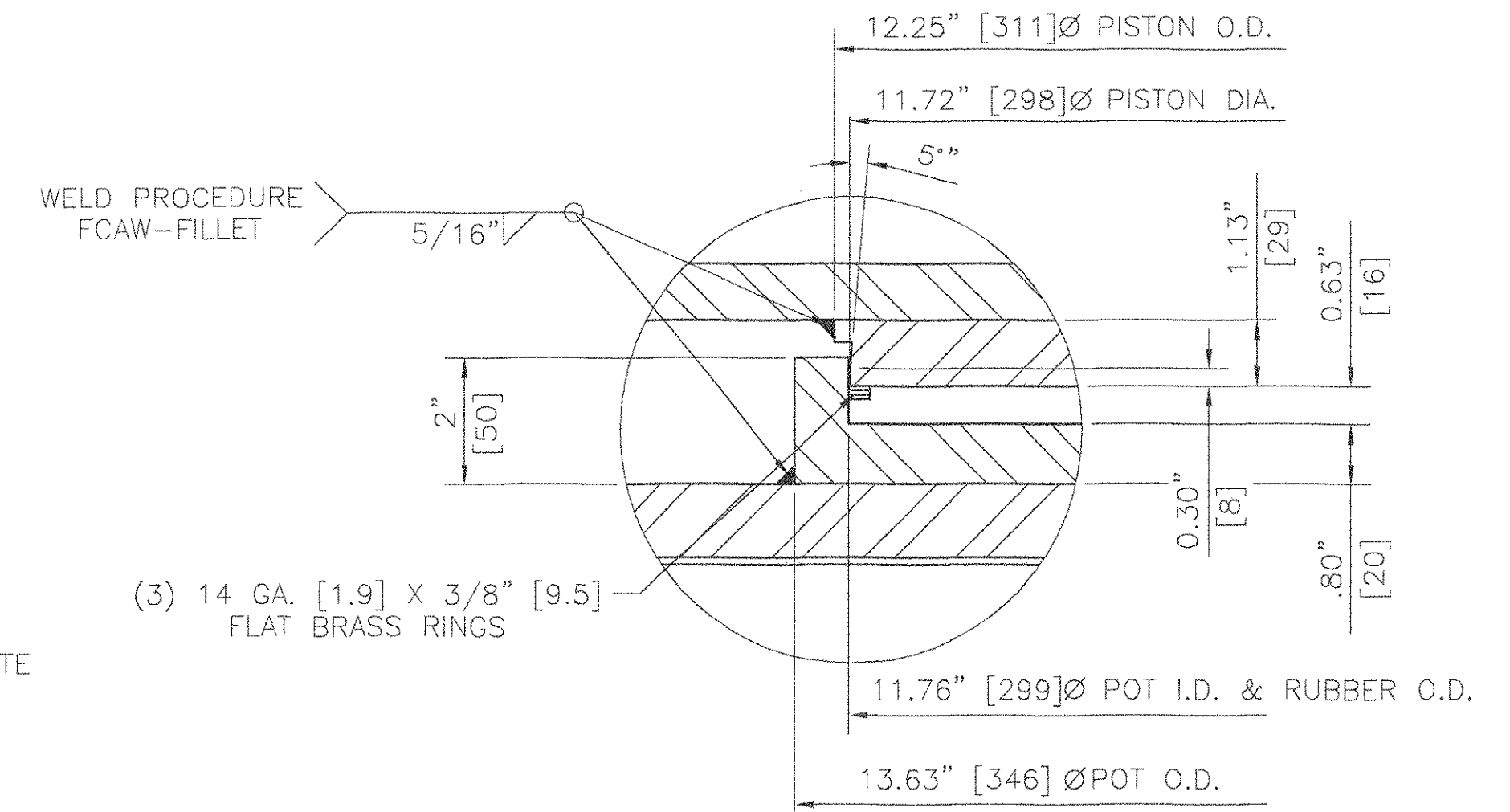
LOCATION: ABUTMENT #1; GIRDER #G4
 QUANTITY: 1
 TOTAL VERTICAL CAPACITY= 380 KIPS [1690 Kn]
 TOTAL HORIZONTAL CAPACITY= 38 KIPS [169 Kn]
 MOVEMENT CAPACITY= 0"
 ROTATION CAPACITY= 0.015 RADIAN

BEARING NOTES

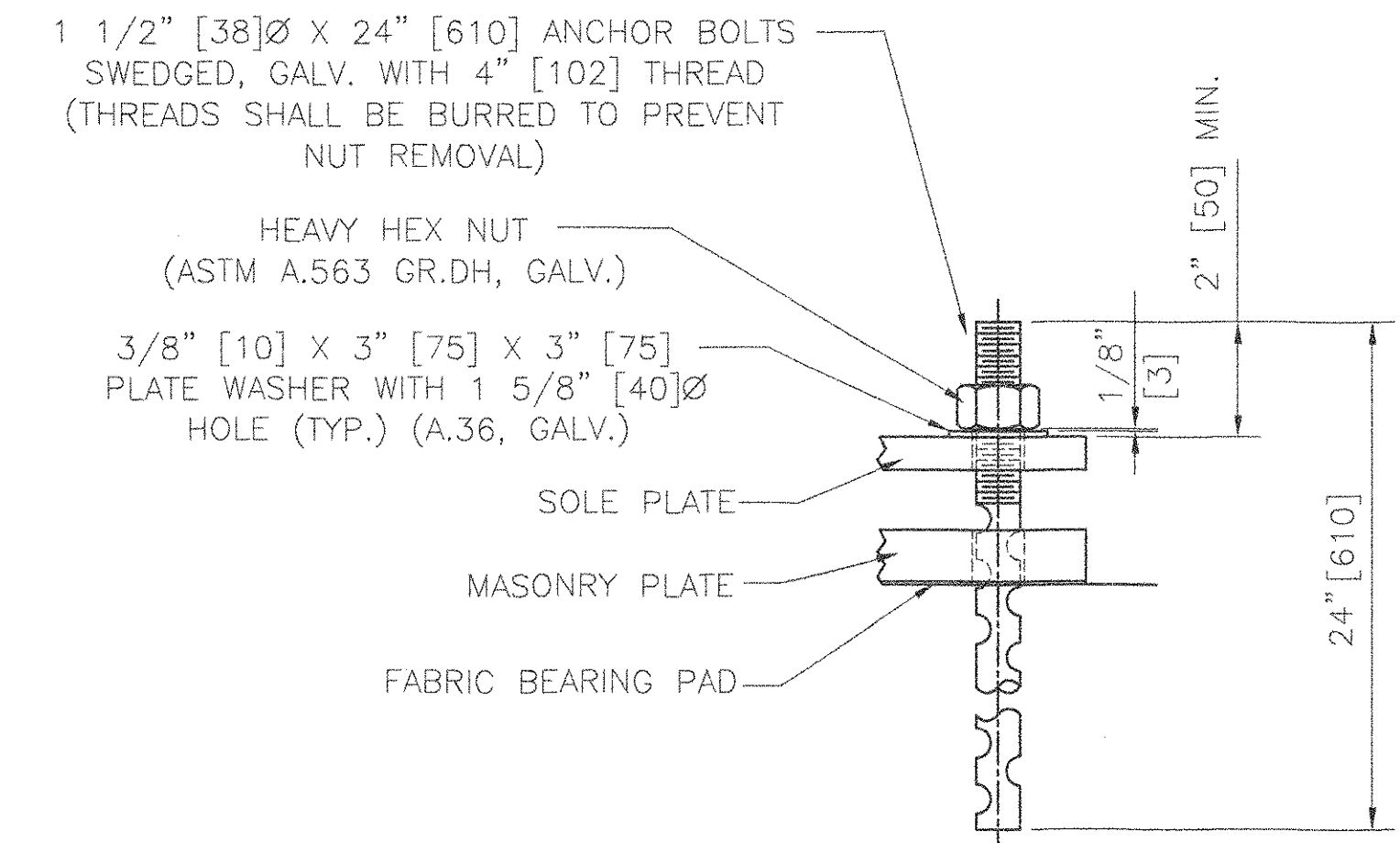
- ALL MATERIALS USED IN THE FABRICATION OF THESE BEARINGS SHALL BE MADE IN THE U.S.A.
- BEARINGS ARE TO BE SHIPPED AS COMPLETE UNITS, STEEL BANDED, AND SHALL BE WRAPPED TO PROTECT FROM MOISTURE AND DIRT DURING TRANSIT AND STORAGE.
- LOCATION OF FABRICATION PLANT - 70 SOUTH STREET WALPOLE, MA 02081
- COSMEC, INC. REPRESENTATIVE - MR. MATT McANDREWS (508) 668-6600
- BEARINGS SHALL BE STORED IN A CLEAN, DRY, LEVEL UPRIGHT POSITION.
- UNITS: INCH[mm]
- BEARINGS MUST NOT BE DISASSEMBLED
- ALL BEARINGS SHALL BE METALLIZED AS PER SECTION 531.04(B) & 506.15 (a) & (b). AREAS OF METALLIZED DAMAGED BY FIELD WELDS OR HANDLING SHALL BE REPAIRED PER SUPPLEMENTAL SPECIFICATION 513.06(F).
- PRIOR TO METALLIZING, ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES, ETC. SHALL BE GROUND TO A 1/16" [1.6] RADIUS.

MATERIALS

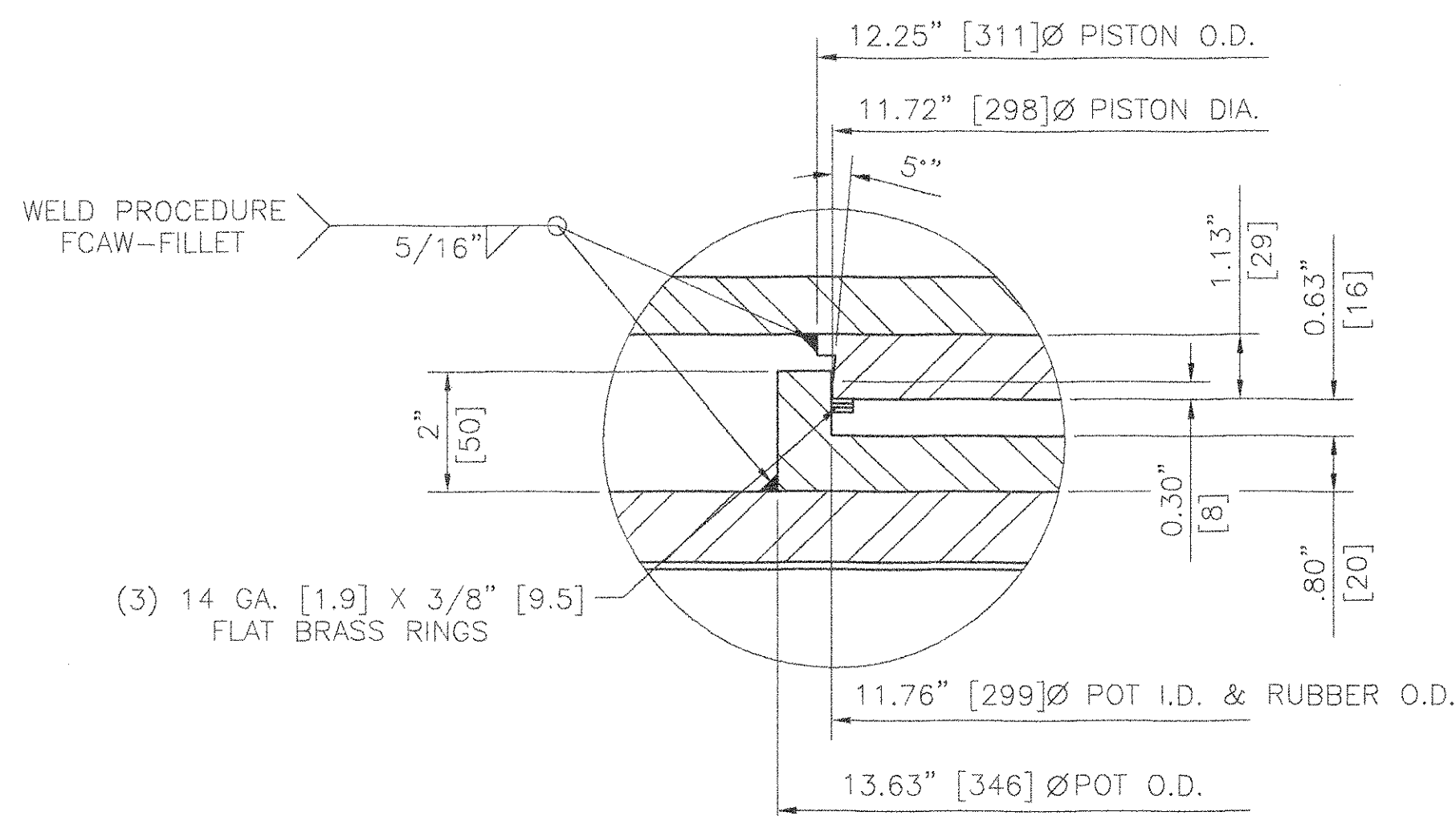
STEEL - ASTM A709 GRADE 36, ZINC METALLIZED & SEALED
 PREFORMED FABRIC PAD - AASHTO DIV. II SPEC. 18.4.9.1
 ANCHOR BOLTS - ASTM F1554 GRADE 55
 ELASTOMER - AASHTO 50 DUROMETER NEOPRENE
 BRASS SEALING RINGS - ASTM B.36 HALF HARD



DETAIL D - BEARING
N.T.S.



ANCHOR BOLT DETAIL
N.T.S.



DETAIL C - BEARING
N.T.S.

STATE OF VERMONT
 AGENCY OF TRANSPORTATION
 TOWN OF HARTLAND
 U.S. ROUTE 5 OVER LULLS BROOK
 BRIDGE NO. 60

COSMEC, INC. 70 SOUTH STREET WALPOLE, MA. 02081

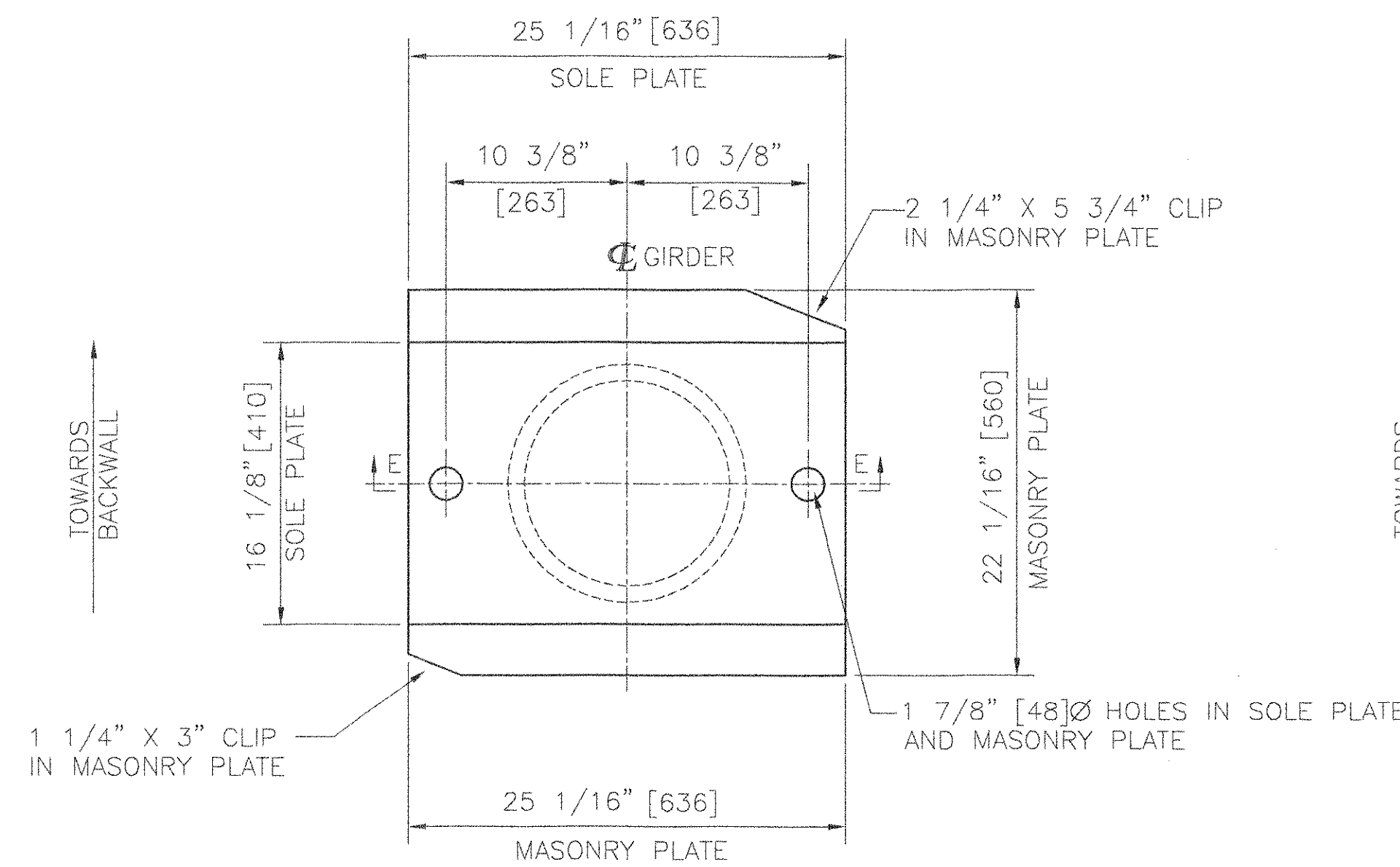
SCALE: 1/8"=1" DRAWN BY: MRR CHECKED BY: MCM
 DATE: 7-20-05 DATE: 8-17-05

COSMEC POT BEARINGS

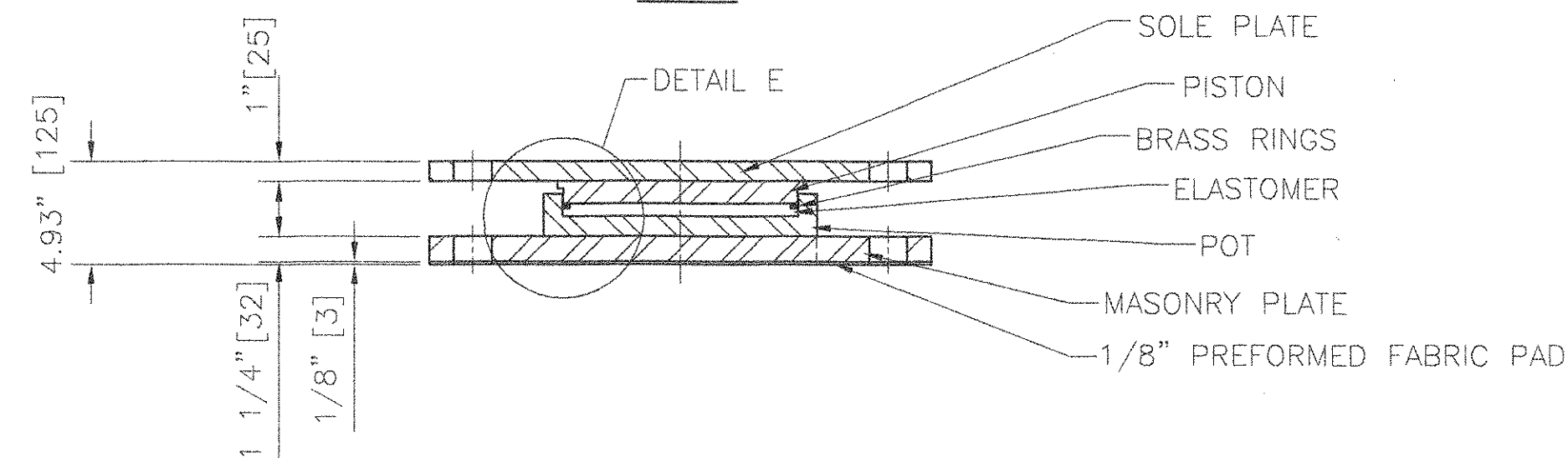
CUSTOMER: MILLER CONSTRUCTION, INC. S.O. NUMBER: 60304 DRAWING NUMBER: 4461 REV.

REV.	BY	DATE	CHK'D	DATE

08866



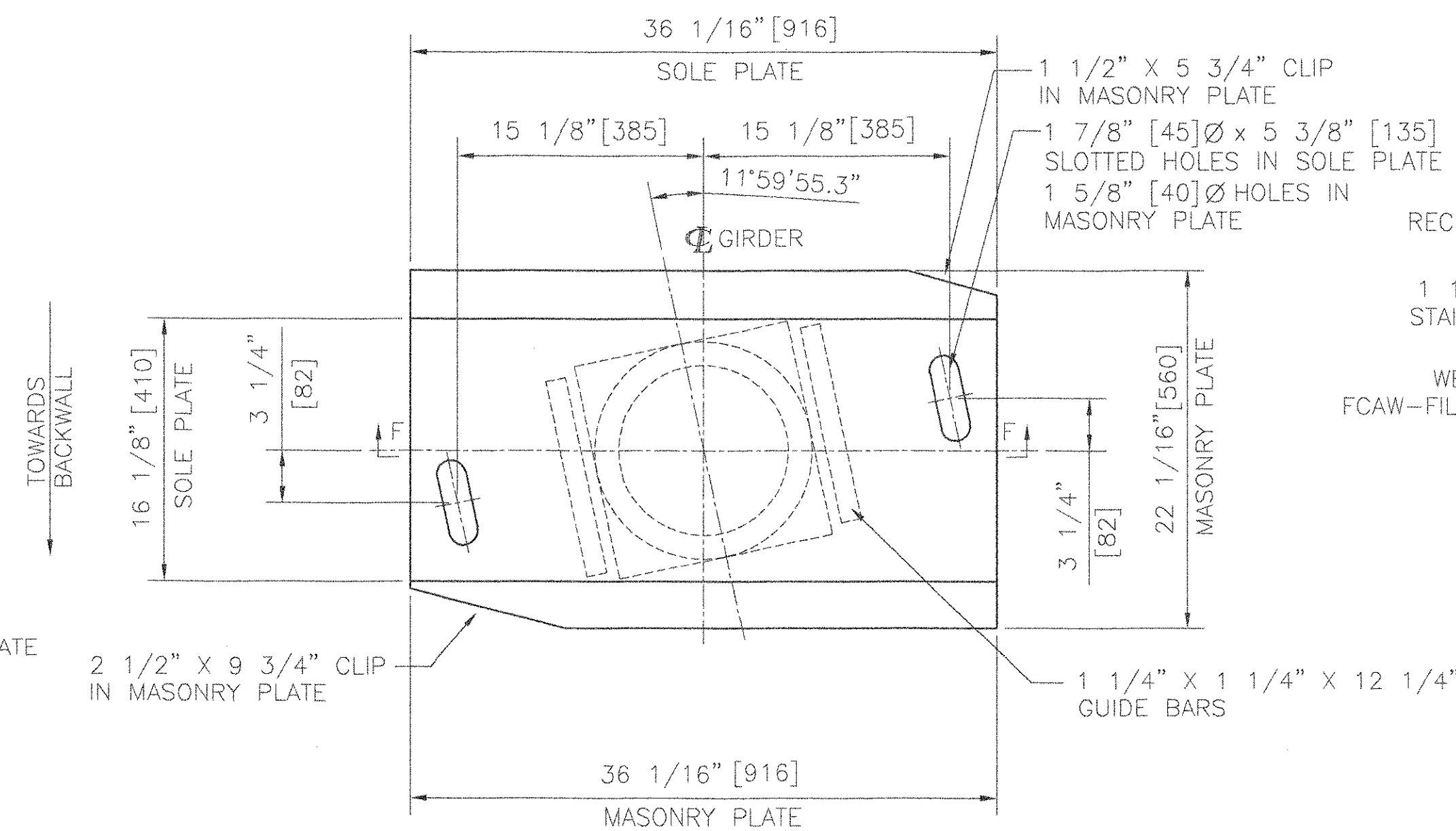
PLAN



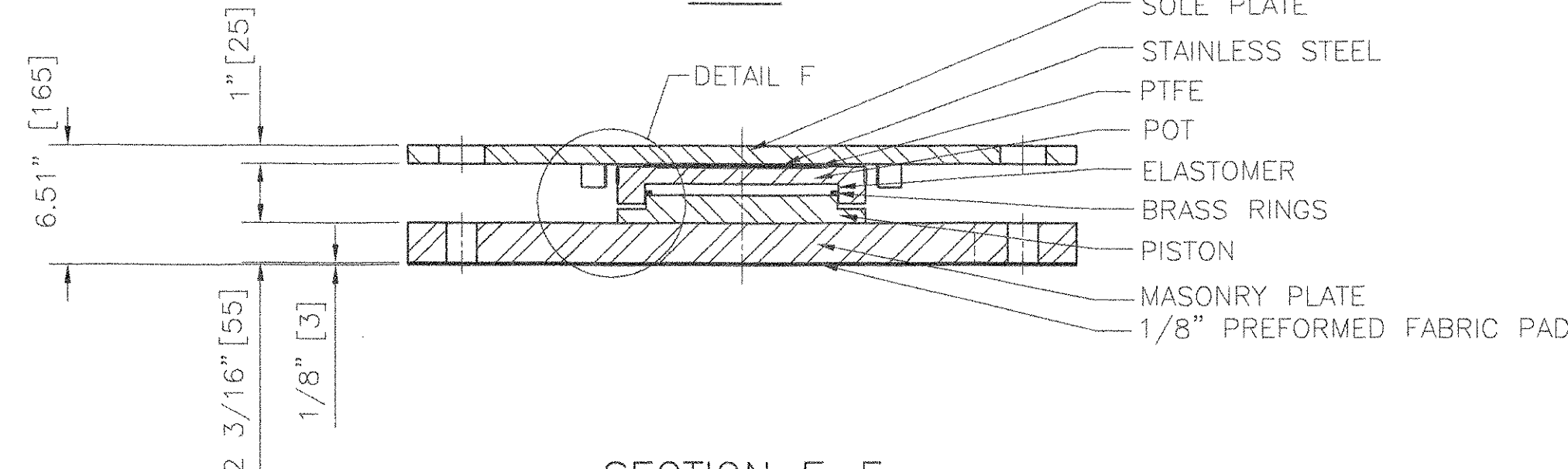
SECTION E-E

COSMEC FIXED POT BEARING

LOCATION: ABUTMENT #1; GIRDER #G5
QUANTITY: 1
TOTAL VERTICAL CAPACITY= 380 KIPS [1690 Kn]
TOTAL HORIZONTAL CAPACITY= 38 KIPS [169 Kn]
MOVEMENT CAPACITY= 0"
ROTATION CAPACITY= 0.015 RADIAN



PLAN



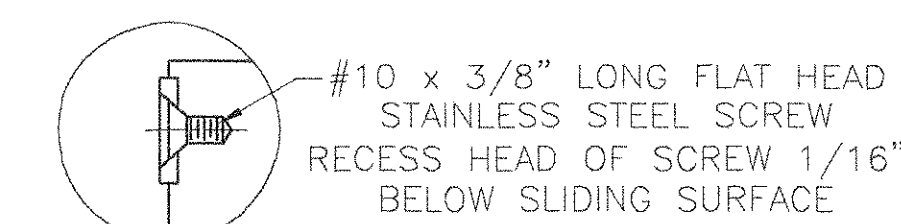
SECTION F-F

COSMEC GUIDED EXPANSION POT BEARING

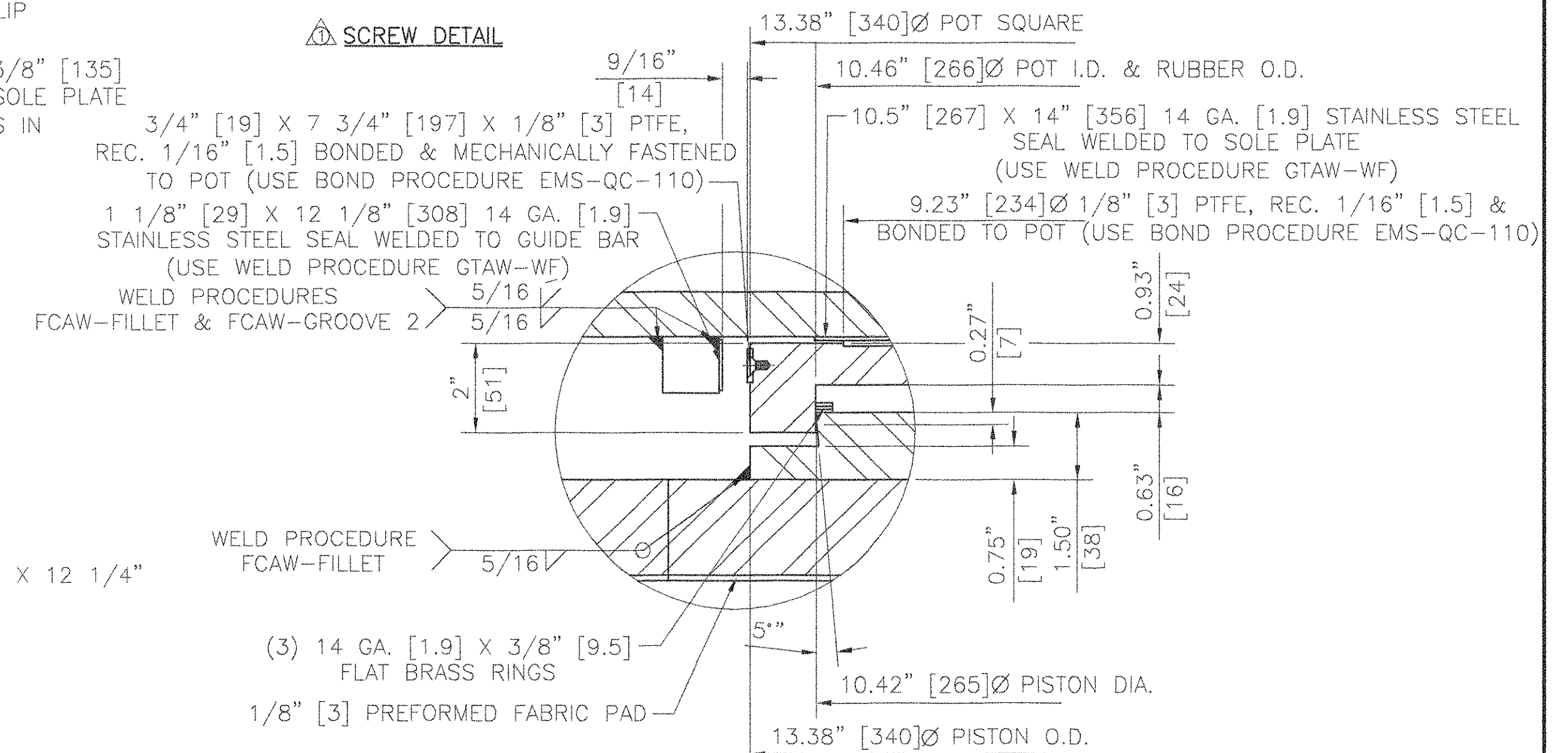
LOCATION: ABUTMENT #2; GIRDER #G1
QUANTITY: 1
TOTAL VERTICAL CAPACITY= 300 KIPS [1335 Kn]
TOTAL HORIZONTAL CAPACITY= 30 KIPS [133.5 Kn]
MOVEMENT CAPACITY= 3 13/16" [97]
TRANSVERSE MOVEMENT CAPACITY= 1 1/8" [28]
ROTATION CAPACITY= 0.015 RADIAN

BEARING NOTES

- ALL MATERIALS USED IN THE FABRICATION OF THESE BEARINGS SHALL BE MADE IN THE U.S.A.
- BEARINGS ARE TO BE SHIPPED AS COMPLETE UNITS, STEEL BANDED, AND SHALL BE WRAPPED TO PROTECT FROM MOISTURE AND DIRT DURING TRANSIT AND STORAGE.
- LOCATION OF FABRICATION PLANT - 70 SOUTH STREET WALPOLE, MA 02081
- COSMEC, INC. REPRESENTATIVE - MR. MATT McANDREWS (508) 668-6600
- BEARINGS SHALL BE STORED IN A CLEAN, DRY, LEVEL UPRIGHT POSITION.
- UNITS: INCH[mm]
- BEARINGS MUST NOT BE DISASSEMBLED
- ALL BEARINGS SHALL BE METALLIZED AS PER SECTION 531.04(B) & 506.15 (a) & (b). AREAS OF METALLIZED DAMAGED BY FIELD WELDS OR HANDLING SHALL BE REPAIRED PER SUPPLEMENTAL SPECIFICATION 513.06(F).
- PROTECT PTFE & S.S. SURFACES FROM DIRT, WELD SPATTER, & ANY OTHER FOREIGN SUBSTANCES.
- PRIOR TO METALLIZING, ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES, ETC. SHALL BE GROUND TO A 1/16" [1.6] RADIUS.



SCREW DETAIL



DETAIL F - BEARING

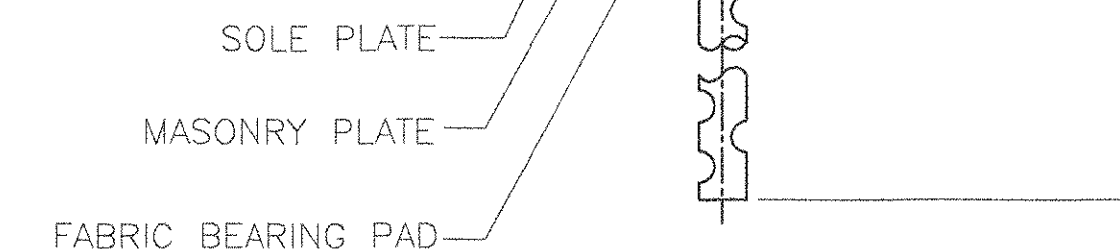
N.T.S.

1 1/2" [38] Ø X 24" [610] ANCHOR BOLTS SWEDGED, GALV. WITH 4" [102] THREAD (THREADS SHALL BE BURR TO PREVENT NUT REMOVAL)

HEAVY HEX NUT (ASTM A563 GR.DH, GALV.)

FIXED BEARING:
3/8" [10] X 3" [75] X 3" [75] PLATE WASHER WITH 1 5/8" [40] Ø HOLE (TYP.) (A.36, GALV.)

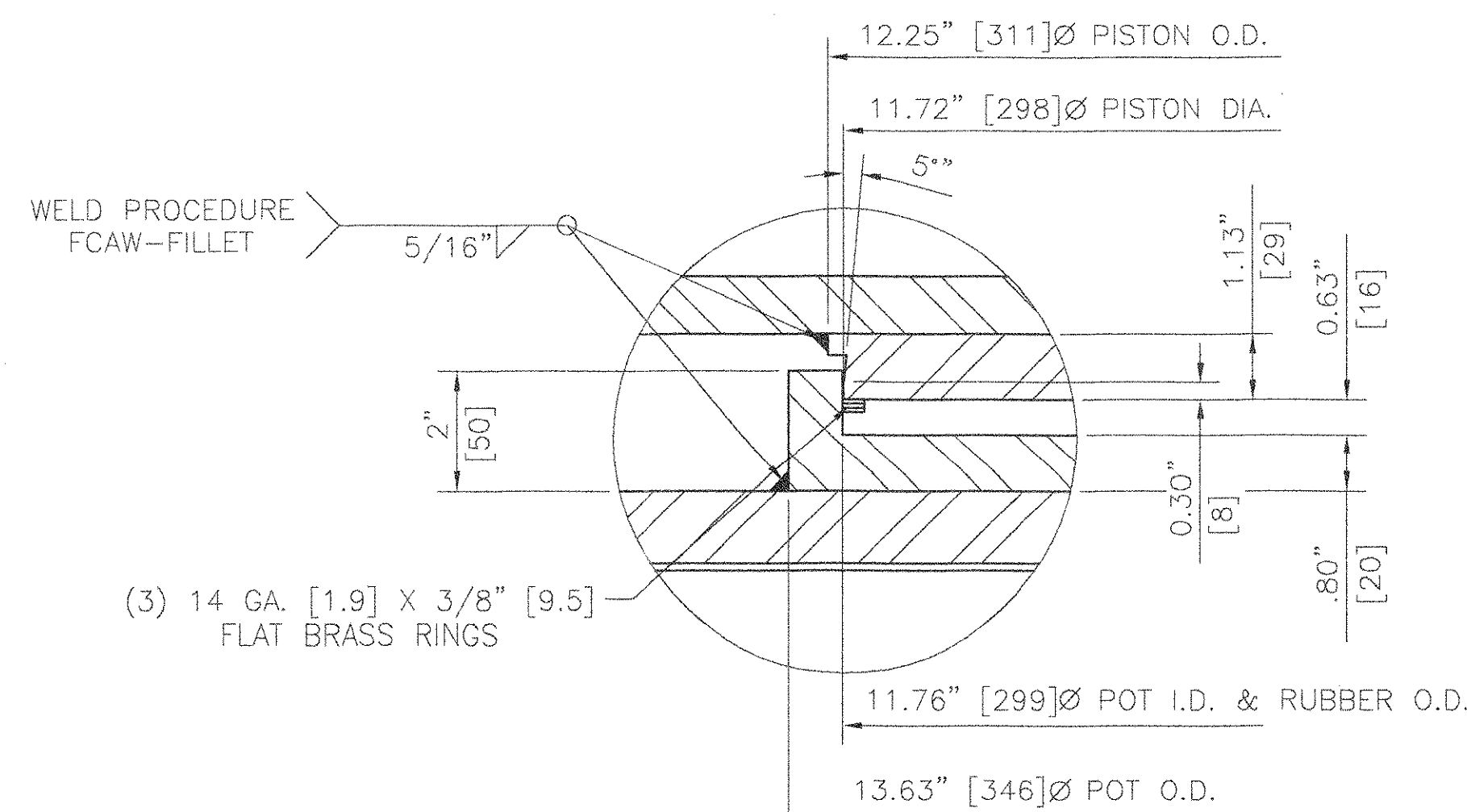
EXPANSION BEARING:
3/8" [10] X 3" [75] X 7 1/2" [190] PLATE WASHER WITH 1 5/8" [40] Ø HOLE (TYP.) (A.36, GALV.)



ANCHOR BOLT DETAIL

N.T.S.

RECEIVED
CHK'D BY JWC OK'D BY
NOV 09 2005
RESUBMIT APPROVED
BY TJC DATE 11/16/05



DETAIL E - BEARING

N.T.S.

MATERIALS

STEEL - ASTM A709 GRADE 36, ZINC METALLIZED & SEALED
STAINLESS STEEL - ASTM A240 TYPE 304, 10 RMS FINISH OR LESS
PREFORMED FABRIC PAD - AASHTO DIV. II SPEC. 18.4.9.1
ANCHOR BOLTS - ASTM F1554 GRADE 55
PTFE - ASTM D.4894 VIRGIN UNFILLED
ELASTOMER - AASHTO 50 DUROMETER NEOPRENE
BRASS SEALING RINGS - ASTM B.36 HALF HARD

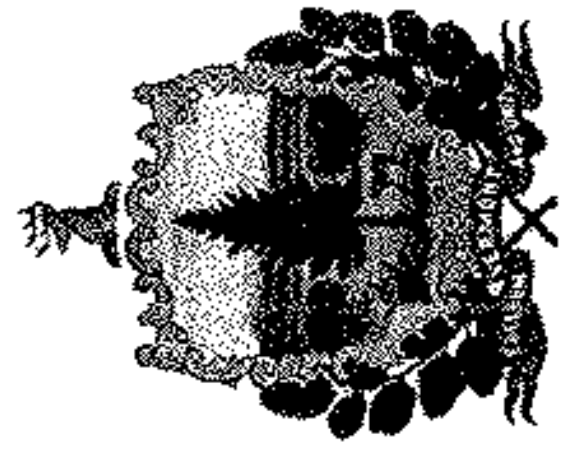
STATE OF VERMONT
AGENCY OF TRANSPORTATION
TOWN OF HARTLAND
U.S. ROUTE 5 OVER LULLS BROOK
BRIDGE NO. 60

COSMEC, INC. 70 SOUTH STREET WALPOLE, MA. 02081

SCALE: 1/8"=1" DRAWN BY: MRR CHECKED BY: MCM
DATE: 7-20-05 DATE: 8-17-05

COSMEC POT BEARINGS

REV.	DETAIL MECHANICAL FASTENER	BY	DATE	OK'D	DATE	S.O. NUMBER	CUSTOMER	DRAWING NUMBER	REV.
		MRR	11-3-05	MCM	11-4-05	60304	MILLER CONSTRUCTION, INC.	4462	1



State of Vermont
Agency of
Transportation
1 National Life Drive
Drawer 33
Montpelier, Vermont

VT
Trans

Working to Get You There

Program Development
Structures Design Section

DATE: November 14, 2005

Phone: (802) 828-2621 – FAX: (802) 828-3566

Miller Construction, Inc.
P.O. Box 86 Ascutney Blvd
Windsor, VT 05089-0086

Project Name: Hartland, Vermont

Project #: BRS 0113(22)

Structure Identification: Bridge No. 60 on U.S. Route 5 over Lulls Brook

The following Pot Bearing details for Item 531.10, Bearing Device Assembly (Pot), for the above project have been reviewed and are being returned herewith.

Sheets:

- 1) Bearing Prints, Drawing Number 4462, Revised 11/03/2005
- 2) Bearing Prints, Drawing Number 4463, Revised 11/03/2005
- 3) Bearing Prints, Drawing Number 4464, Revised 11/03/2005

are approved.

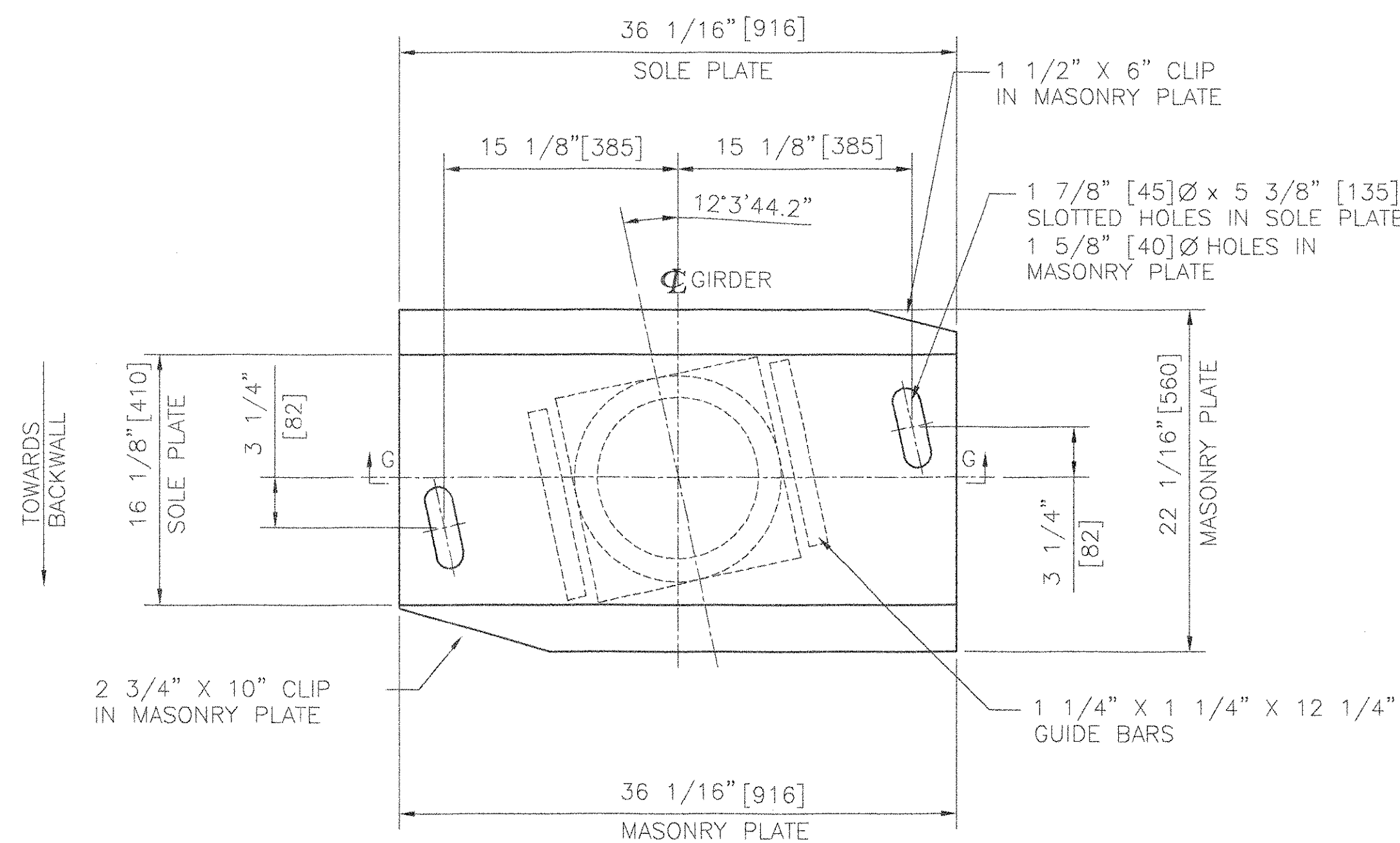
Sincerely,

Todd Summer, Acting Structures Project Manager

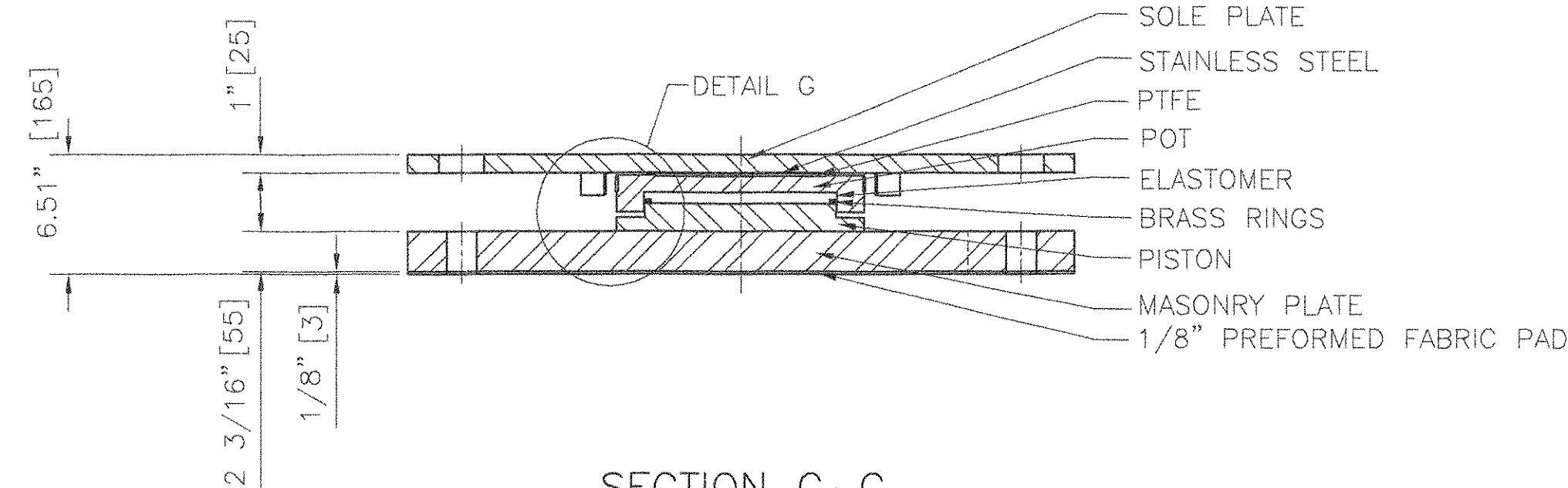
Attachments

cc: ☒ Resident Engineer, Daryl Bassett w/prints
 ☒ Shop Inspector, Jeff Clark w/prints
 ☒ Miller Construction, Inc., Roger C. Gilman w/prints
 ☒ Cosmec, Inc., Matt McAndrews w/prints
 ☒ Construction Section – letter only
 ☒ Materials & Research Section (C&IA Unit) – letter only
 ☒ Files (Structures & Central)

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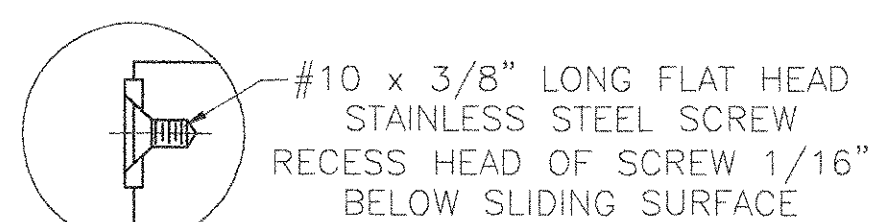
PLAN



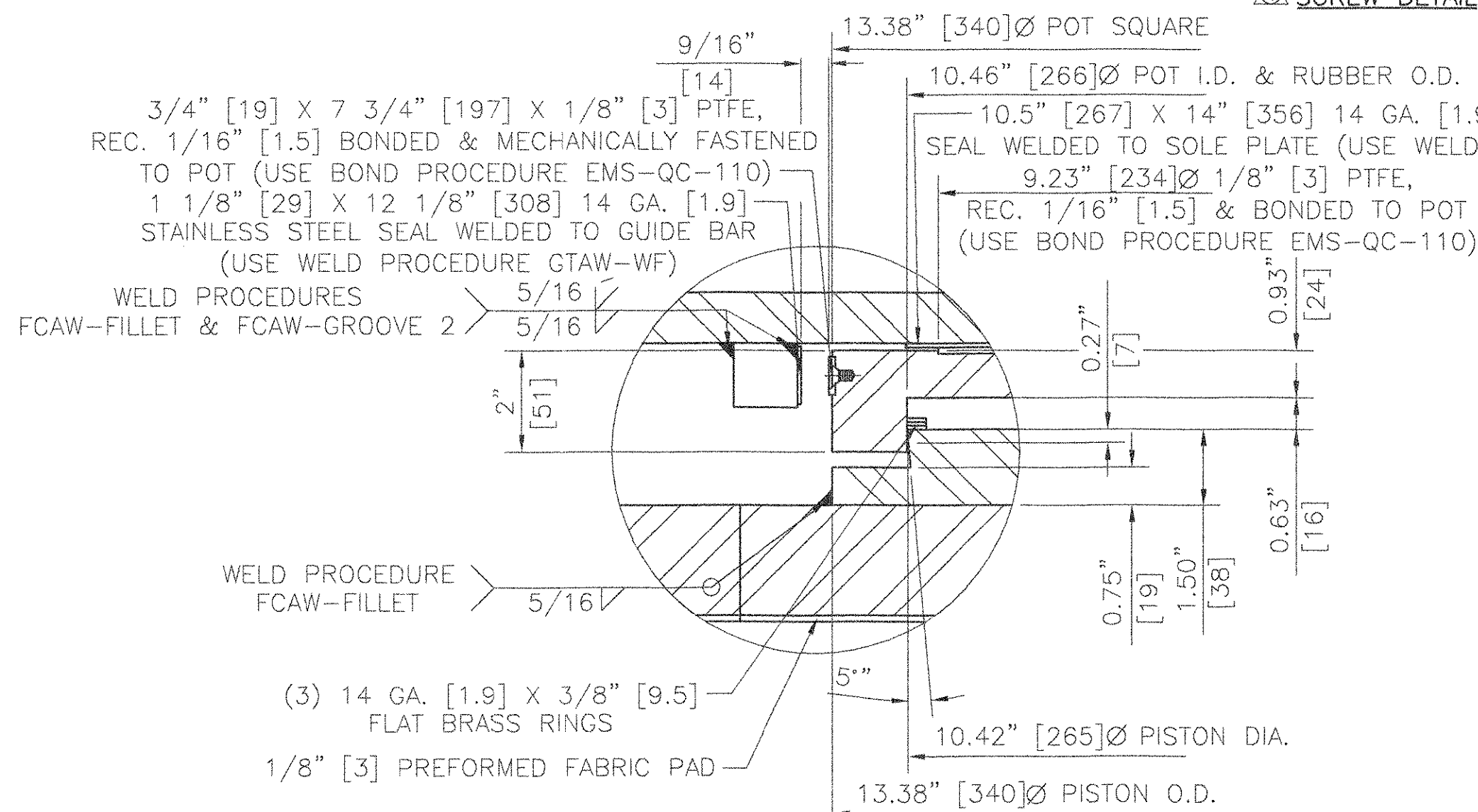
SECTION G-G

COSMEC GUIDED EXPANSION POT BEARING

LOCATION: ABUTMENT #2; GIRDER #G2
 QUANTITY: 1
 TOTAL VERTICAL CAPACITY= 300 KIPS [1335 Kn]
 TOTAL HORIZONTAL CAPACITY= 30 KIPS [133.5 Kn]
 MOVEMENT CAPACITY= 3 13/16" [97]
 TRANSVERSE MOVEMENT CAPACITY= 1 1/8" [28]
 ROTATION CAPACITY= 0.015 RADIAN



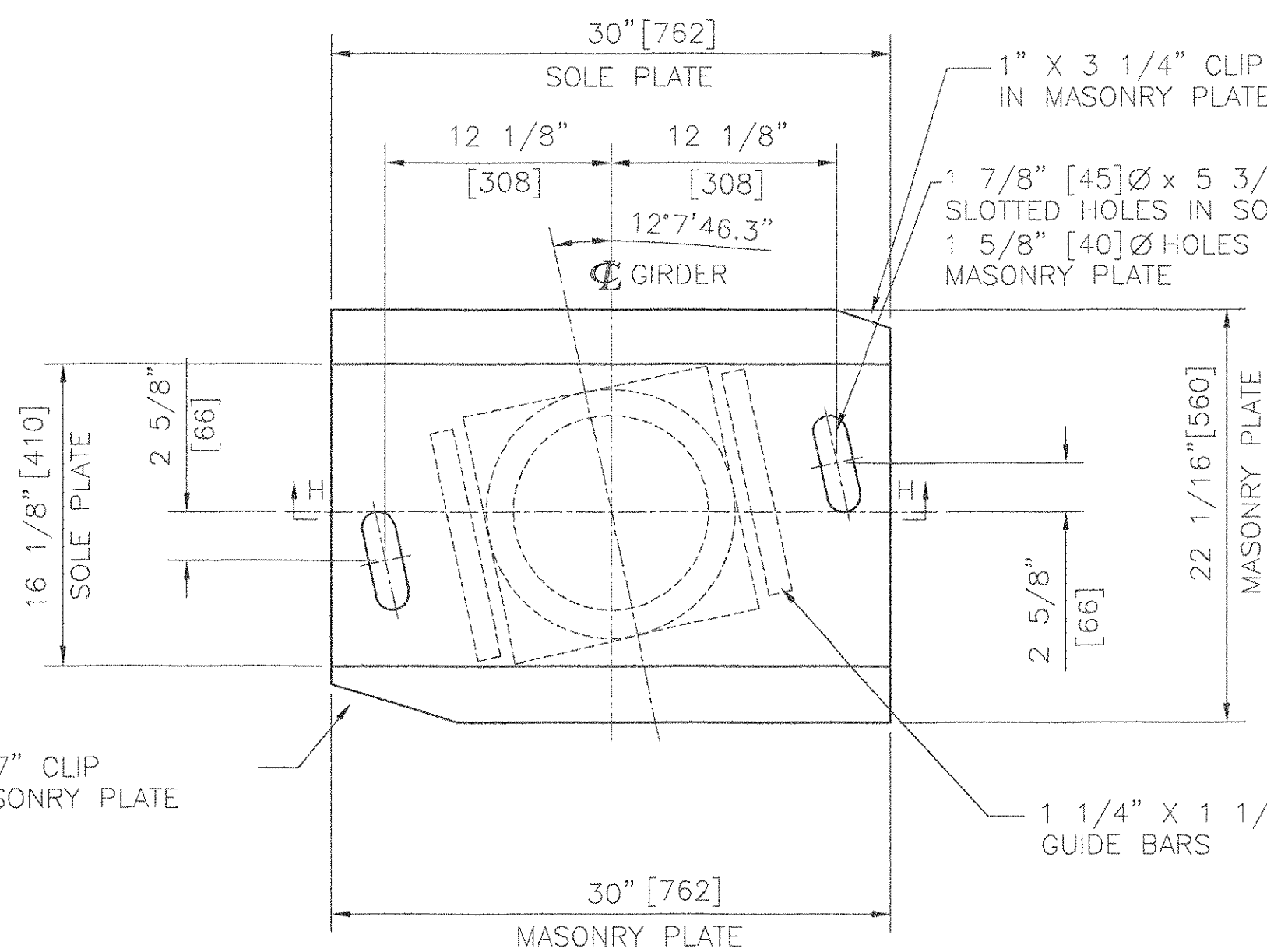
SCREW DETAIL



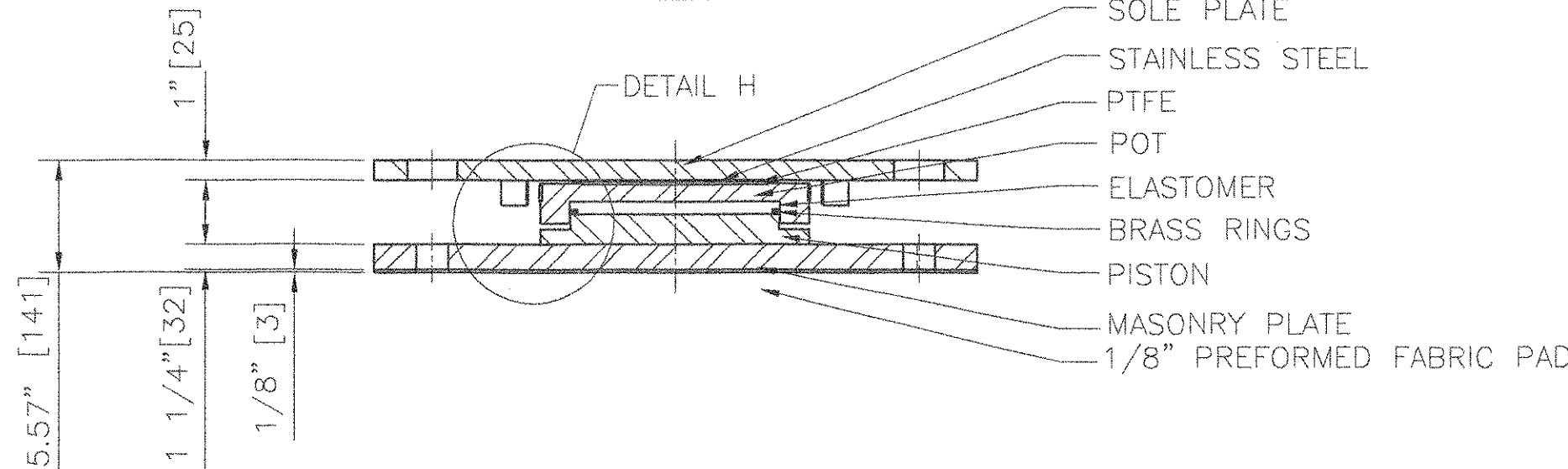
DETAIL G - BEARING
 N.T.S.

BEARING NOTES

- ALL MATERIALS USED IN THE FABRICATION OF THESE BEARINGS SHALL BE MADE IN THE U.S.A.
- BEARINGS ARE TO BE SHIPPED AS COMPLETE UNITS, STEEL Banded, AND SHALL BE WRAPPED TO PROTECT FROM MOISTURE AND DIRT DURING TRANSIT AND STORAGE.
- LOCATION OF FABRICATION PLANT - 70 SOUTH STREET WALPOLE, MA 02081
- COSMEC, INC. REPRESENTATIVE - MR. MATT McANDREWS (508) 668-6600
- BEARINGS SHALL BE STORED IN A CLEAN, DRY, LEVEL UPRIGHT POSITION.
- UNITS: INCH[mm]
- BEARINGS MUST NOT BE DISASSEMBLED
- ALL BEARINGS SHALL BE METALLIZED AS PER SECTION 531.04(B) & 506.15 (a) & (b). AREAS OF METALLIZED DAMAGED BY FIELD WELDS OR HANDLING SHALL BE REPAIRED PER SUPPLEMENTAL SPECIFICATION 513.06(F).
- PROTECT PTFE & S.S. SURFACES FROM DIRT, WELD SPATTER, & ANY OTHER FOREIGN SUBSTANCES.
- PRIOR TO METALLIZING, ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES, ETC. SHALL BE GROUND TO A 1/16" [1.6] RADIUS.



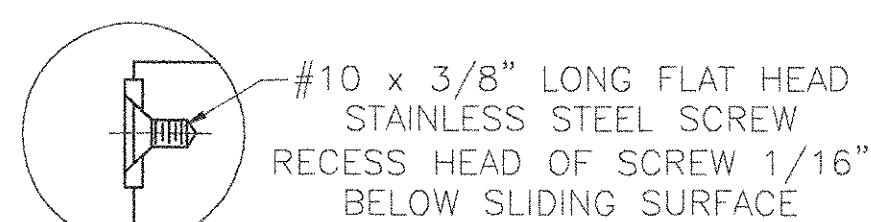
PLAN



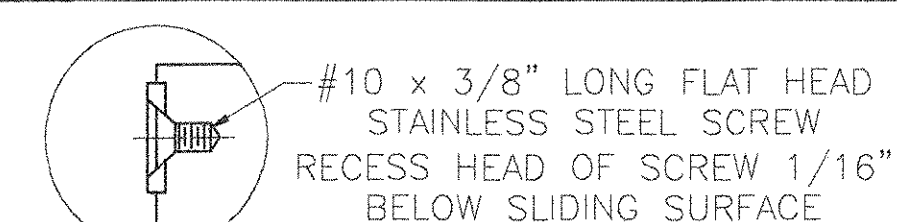
SECTION H-H

COSMEC GUIDED EXPANSION POT BEARING

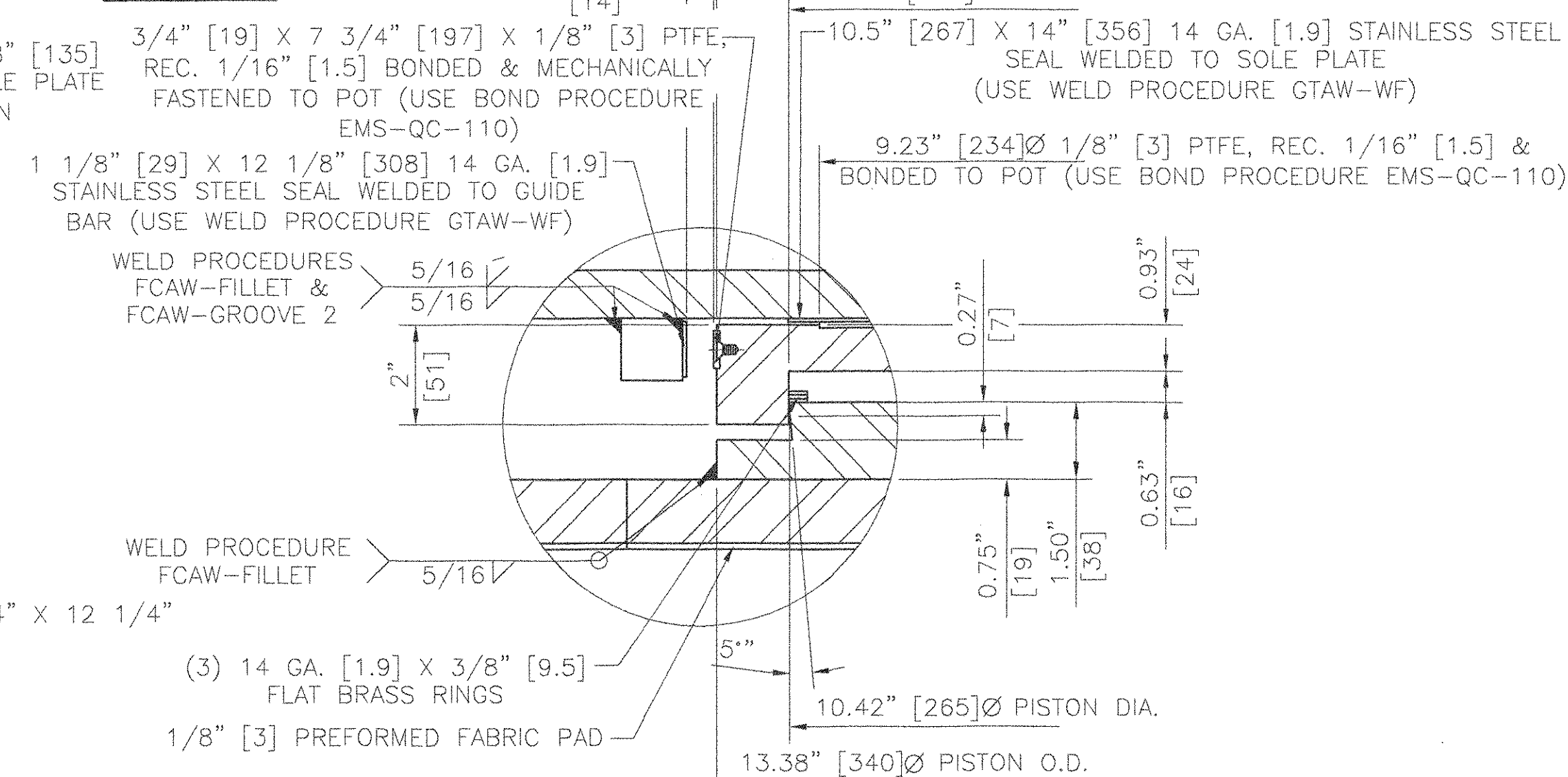
LOCATION: ABUTMENT #2; GIRDER #G3
 QUANTITY: 1
 TOTAL VERTICAL CAPACITY= 300 KIPS [1335 Kn]
 TOTAL HORIZONTAL CAPACITY= 30 KIPS [133.5 Kn]
 MOVEMENT CAPACITY= 3 13/16" [97]
 TRANSVERSE MOVEMENT CAPACITY= 1 1/8" [28]
 ROTATION CAPACITY= 0.015 RADIAN



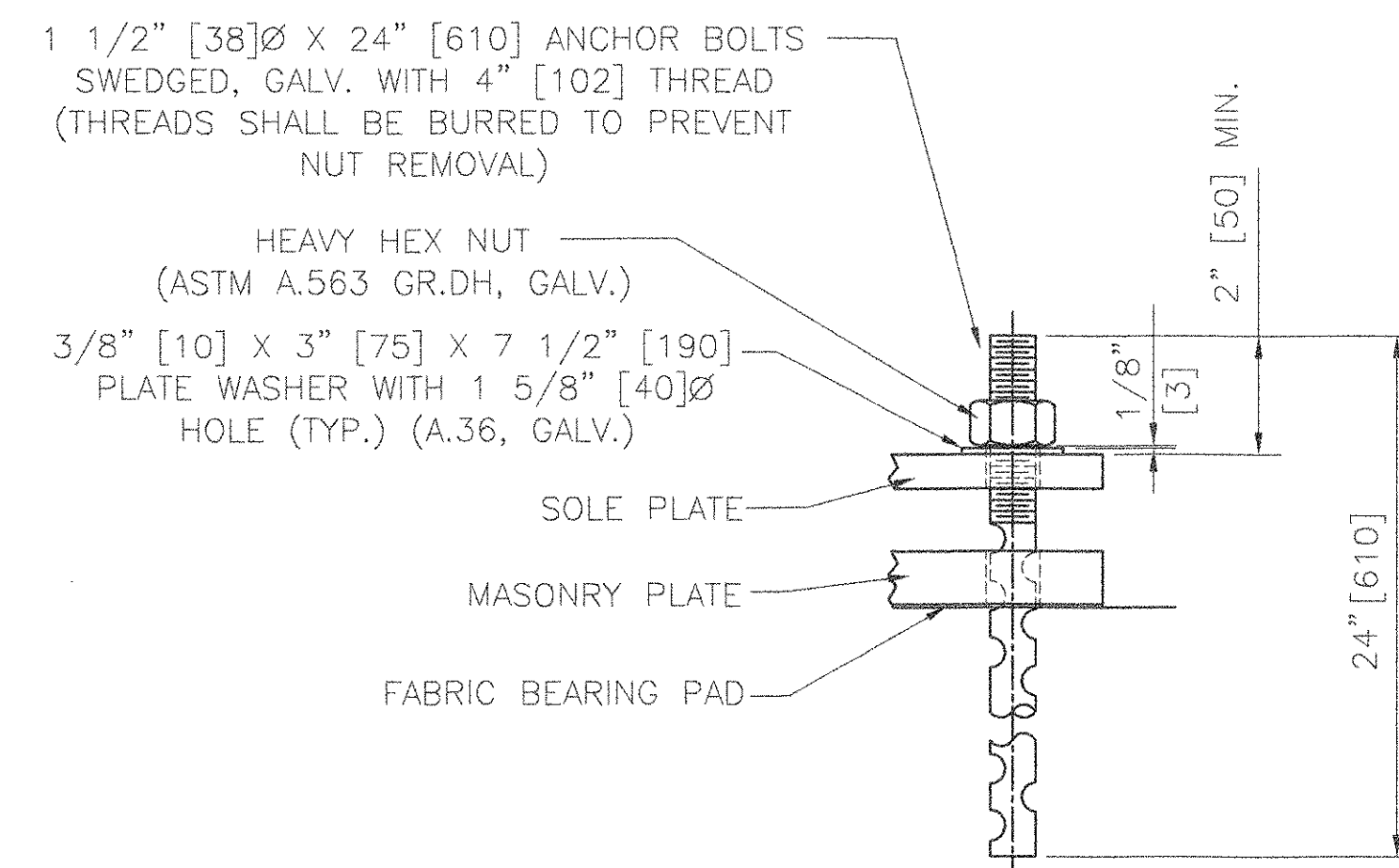
SCREW DETAIL



SCREW DETAIL



DETAIL H - BEARING
 N.T.S.



ANCHOR BOLT DETAIL
 N.T.S.

MATERIALS

STEEL - ASTM A709 GRADE 36, ZINC METALLIZED & SEALED
 STAINLESS STEEL - ASTM A240 TYPE 304, 10 RMS FINISH OR LESS
 PREFORMED FABRIC PAD - AASHTO DIV. II SPEC. 18.4.9.1
 ANCHOR BOLTS - ASTM F1554 GRADE 55
 PTFE - ASTM D.4894 VIRGIN UNFILLED
 ELASTOMER - AASHTO 50 DUROMETER NEOPRENE
 BRASS SEALING RINGS - ASTM B.36 HALF HARD

RECEIVED

CHKD BY: JWC OKD BY:

NOV 09 2005

REWORK BY: APPROVED BY:

BY: TBS DATE: 11/16/05

STATE OF VERMONT
 AGENCY OF TRANSPORTATION
 TOWN OF HARTLAND
 U.S. ROUTE 5 OVER LULLS BROOK
 BRIDGE NO. 60

COSMEC, INC.

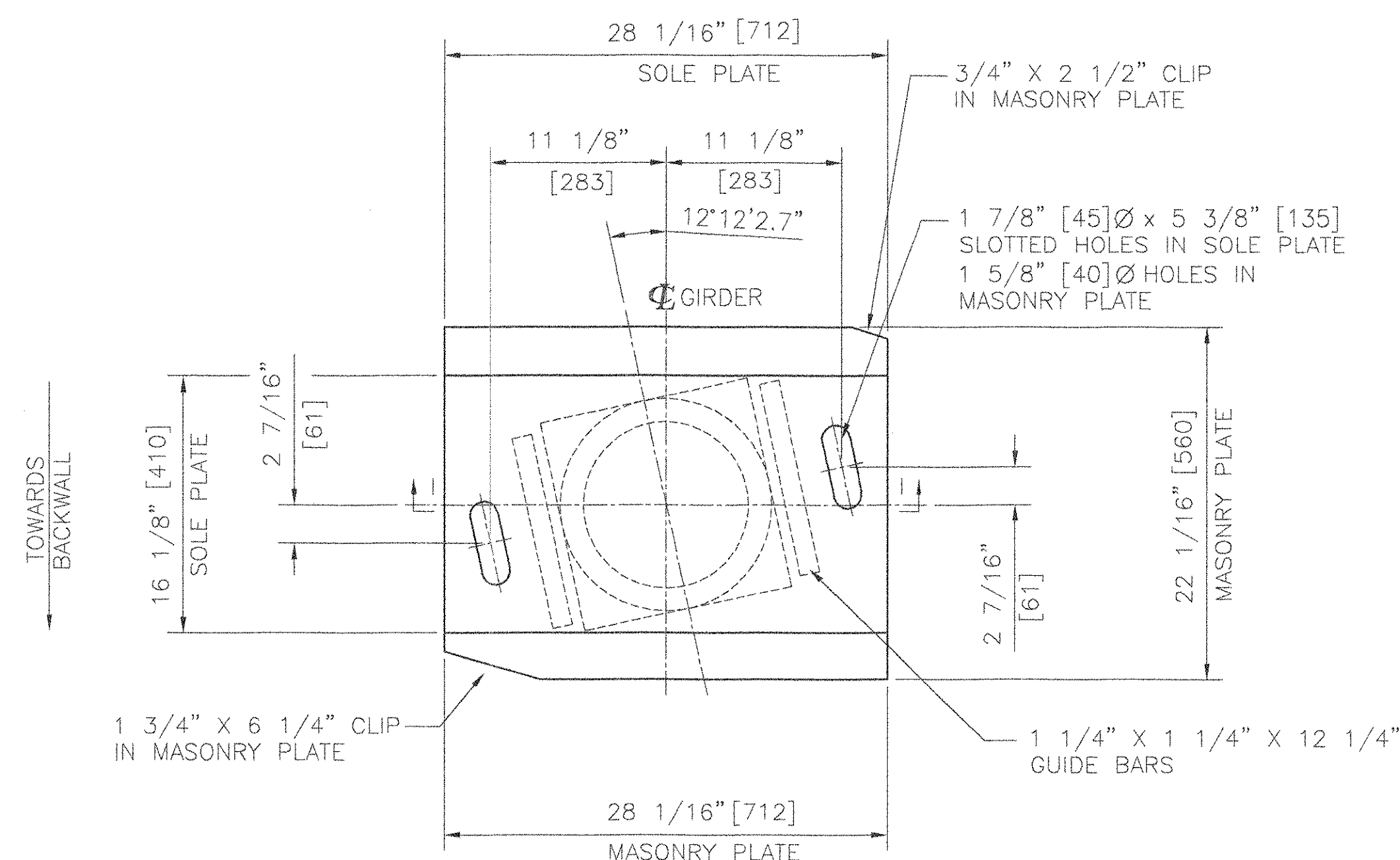
70 SOUTH STREET
 WALPOLE, MA 02081

SCALE: 1/8"=1" DRAWN BY: MRR CHECKED BY: MCM
 DATE: 7-20-05 DATE: 8-17-05

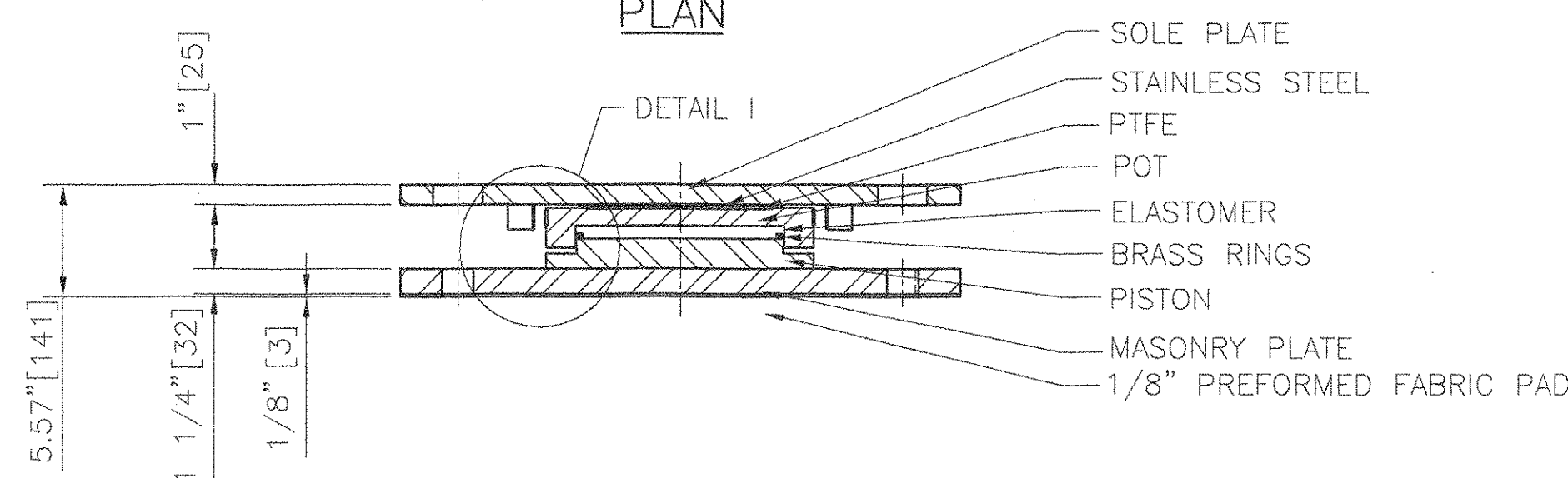
COSMEC POT BEARINGS

REV. DETAIL MECHANICAL FASTENER BY: MRR DATE: 11-3-05 OKD: MCM DATE: 11-4-05
 CUSTOMER: MILLER CONSTRUCTION, INC. S.O. NUMBER: 60304 DRAWING NUMBER: 4463 REV: 1

04066



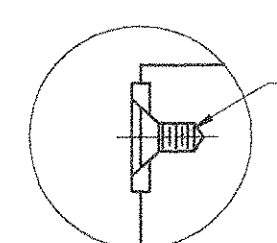
PLAN



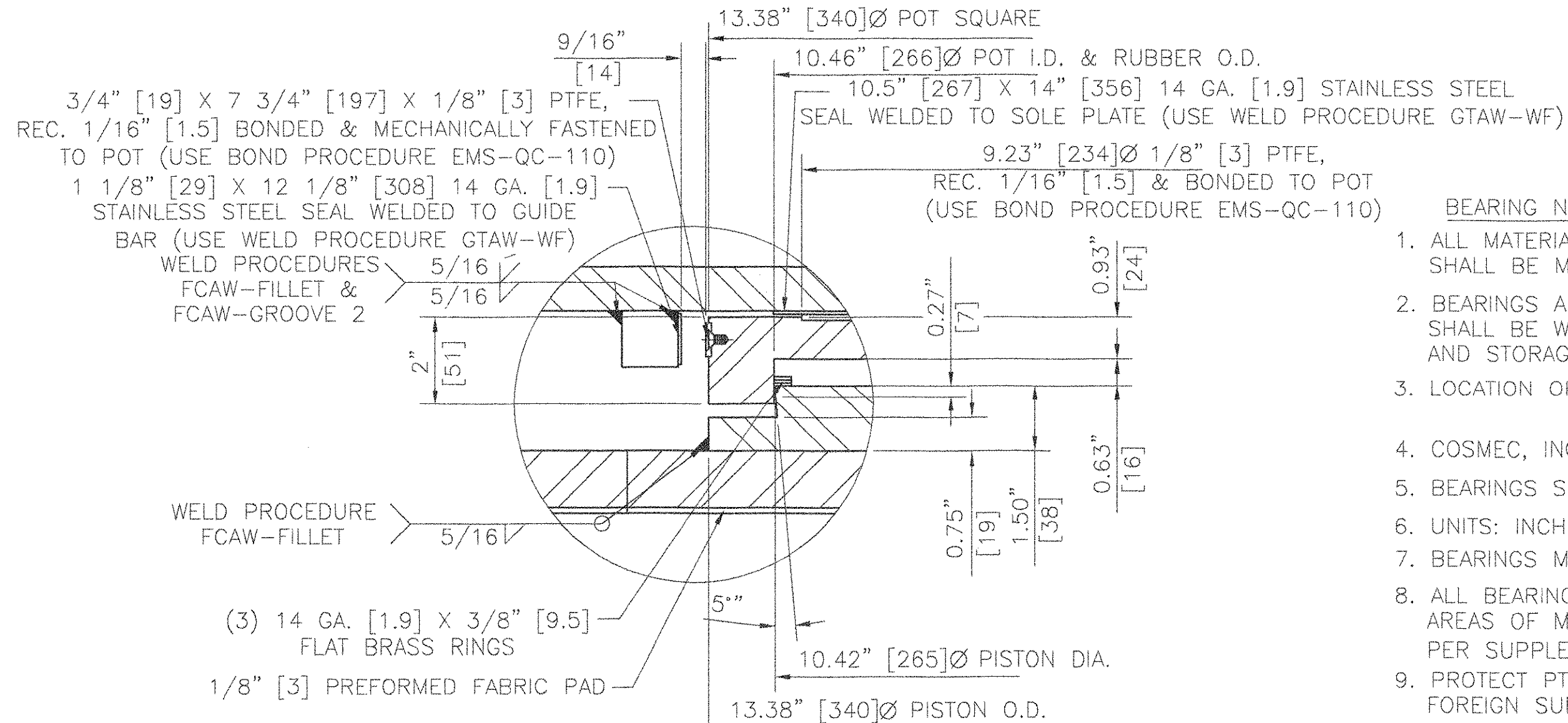
SECTION I-I

COSMEC GUIDED EXPANSION POT BEARING

LOCATION: ABUTMENT #2; GIRDER #G4
 QUANTITY: 1
 TOTAL VERTICAL CAPACITY= 300 KIPS [1335 Kn]
 TOTAL HORIZONTAL CAPACITY= 30 KIPS [133.5 Kn]
 MOVEMENT CAPACITY= 3 13/16" [97]
 TRANSVERSE MOVEMENT CAPACITY= 1 1/8" [28]
 ROTATION CAPACITY= 0.015 RADIAN



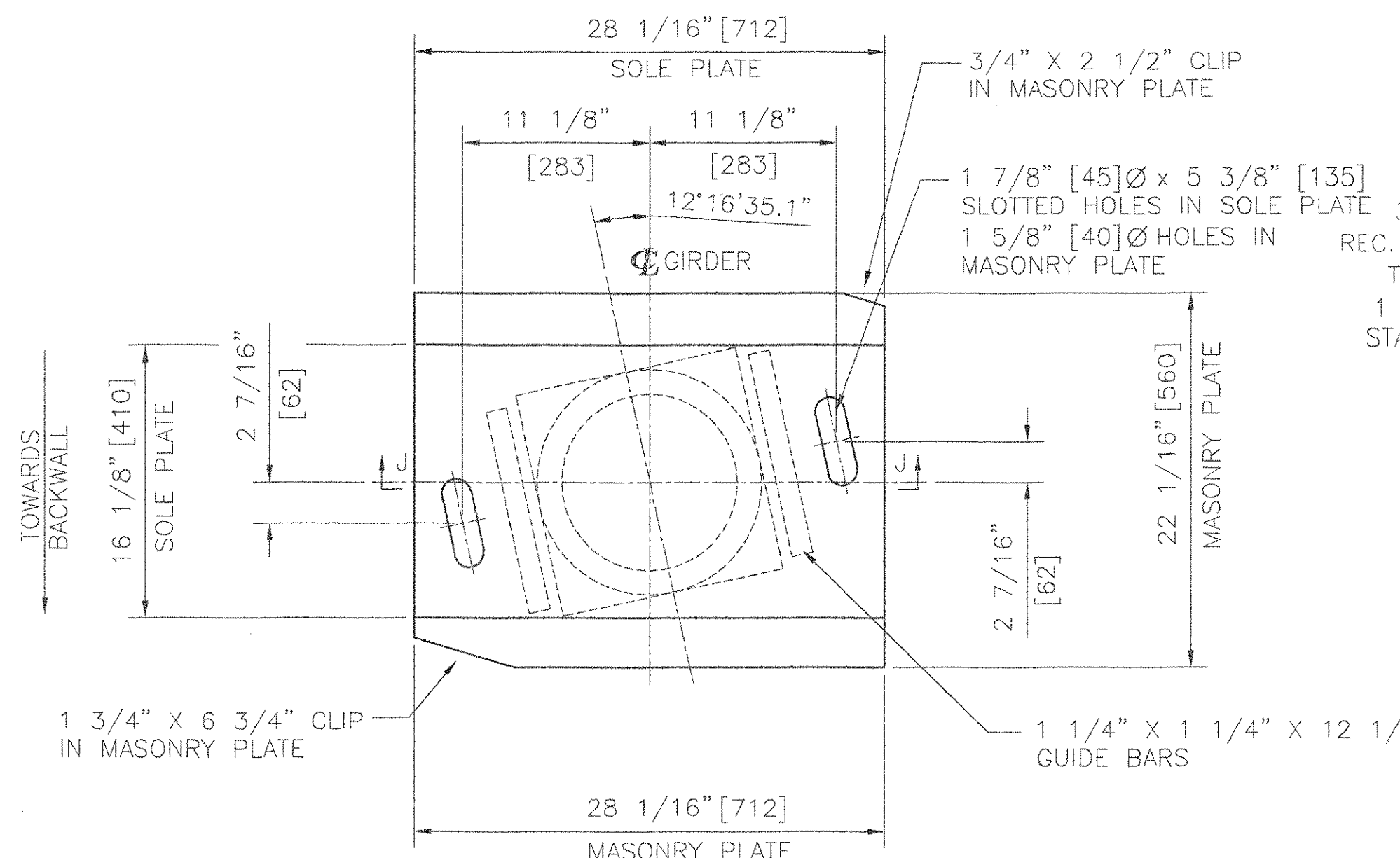
SCREW DETAIL



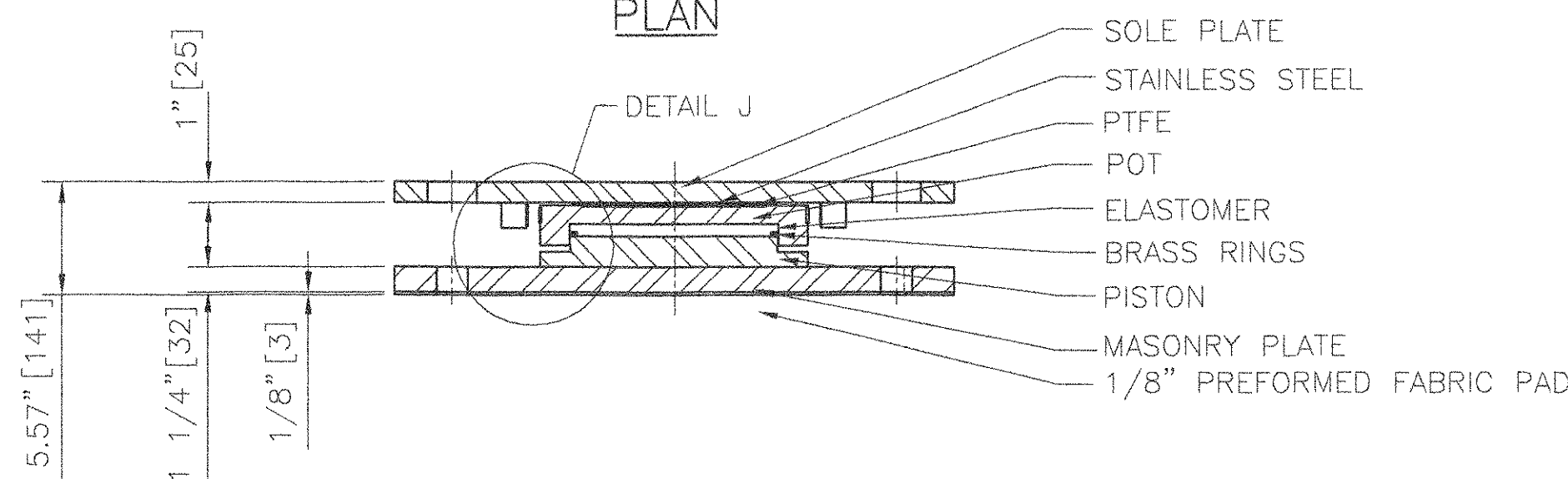
DETAIL I - BEARING
 N.T.S.

BEARING NOTES

- ALL MATERIALS USED IN THE FABRICATION OF THESE BEARINGS SHALL BE MADE IN THE U.S.A.
- BEARINGS ARE TO BE SHIPPED AS COMPLETE UNITS, STEEL Banded, AND SHALL BE WRAPPED TO PROTECT FROM MOISTURE AND DIRT DURING TRANSIT AND STORAGE.
- LOCATION OF FABRICATION PLANT - 70 SOUTH STREET WALPOLE, MA 02081
- COSMEC, INC. REPRESENTATIVE - MR. MATT McANDREWS (508) 668-6600
- BEARINGS SHALL BE STORED IN A CLEAN, DRY, LEVEL UPRIGHT POSITION.
- UNITS: INCH[mm]
- BEARINGS MUST NOT BE DISASSEMBLED
- ALL BEARINGS SHALL BE METALLIZED AS PER SECTION 531.04(B) & 506.15 (a) & (b). AREAS OF METALLIZED DAMAGED BY FIELD WELDS OR HANDLING SHALL BE REPAIRED PER SUPPLEMENTAL SPECIFICATION 513.06(F).
- PROTECT PTFE & S.S. SURFACES FROM DIRT, WELD SPATTER, & ANY OTHER FOREIGN SUBSTANCES.
- PRIOR TO METALLIZING, ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES, ETC. SHALL BE GROUND TO A 1/16" [1.6] RADIUS.



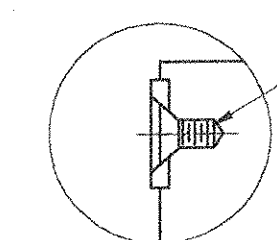
PLAN



SECTION J-J

COSMEC GUIDED EXPANSION POT BEARING

LOCATION: ABUTMENT #2; GIRDER #G5
 QUANTITY: 1
 TOTAL VERTICAL CAPACITY= 300 KIPS [1335 Kn]
 TOTAL HORIZONTAL CAPACITY= 30 KIPS [133.5 Kn]
 MOVEMENT CAPACITY= 3 13/16" [97]
 TRANSVERSE MOVEMENT CAPACITY= 1 1/8" [28]
 ROTATION CAPACITY= 0.015 RADIAN



SCREW DETAIL

3/4" [19] X 7 3/4" [197] X 1/8" [3] PTFE,
 REC. 1/16" [1.5] BONDED & MECHANICALLY FASTENED
 TO POT (USE BOND PROCEDURE EMS-QC-110)
 1 1/8" [29] X 12 1/8" [308] 14 GA. [1.9]
 STAINLESS STEEL SEAL WELDED TO GUIDE BAR
 (USE WELD PROCEDURE GTAW-WF)

WELD PROCEDURES
 FCAW-FILLET &
 FCAW-GROOVE 2

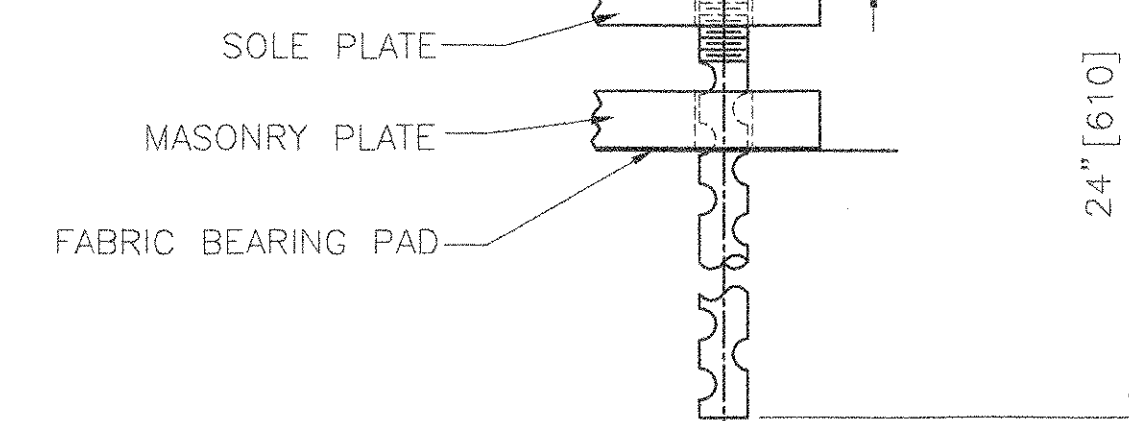
WELD PROCEDURE
 FCAW-FILLET

(3) 14 GA. [1.9] X 3/8" [9.5]
 FLAT BRASS RINGS
 1/8" [3] PREFORMED FABRIC PAD

DETAIL J - BEARING
 N.T.S.

1 1/2" [38] X 24" [610] ANCHOR BOLTS
 SWEDGED, GALV. WITH 4" [102] THREAD
 (THREADS SHALL BE BURRED TO PREVENT
 NUT REMOVAL)

HEAVY HEX NUT
 (ASTM A563 GR.DH, GALV.)
 3/8" [10] X 3" [75] X 7 1/2" [190]
 PLATE WASHER WITH 1 5/8" [40] HOLE (TYP.) (A36, GALV.)



ANCHOR BOLT DETAIL
 N.T.S.

MATERIALS

STEEL - ASTM A709 GRADE 36, ZINC METALLIZED & SEALED
 STAINLESS STEEL - ASTM A240 TYPE 304, 10 RMS FINISH OR LESS
 PREFORMED FABRIC PAD - AASHTO DIV. II SPEC. 18.4.9.1
 ANCHOR BOLTS - ASTM F1554 GRADE 55
 PTFE - ASTM D.4894 VIRGIN UNFILLED
 ELASTOMER - AASHTO 50 DUROMETER NEOPRENE
 BRASS SEALING RINGS - ASTM B.36 HALF HARD

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NOV 09 2005

APPROVED

DATE 11/16/05

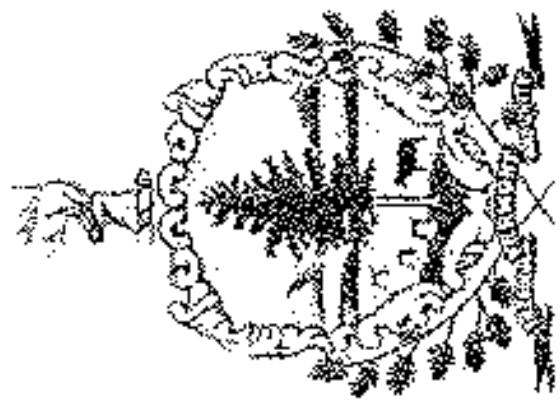
STATE OF VERMONT
 AGENCY OF TRANSPORTATION
 TOWN OF HARTLAND
 U.S. ROUTE 5 OVER LULLS BROOK
 BRIDGE NO. 60

COSMEC, INC. 70 SOUTH STREET
 WALPOLE, MA 02081

SCALE: 1/8"=1" DRAWN BY: MRR CHECKED BY: MCM
 DATE: 7-20-05 DATE: 8-17-05

COSMEC POT BEARINGS

CUSTOMER: MILLER CONSTRUCTION, INC. S.O. NUMBER: 60304 DRAWING NUMBER: 4464 REV: 1



State of Vermont
Agency of Transportation
National Life Building
Drawer 33
Montpelier, VT
05633-5001

VTrans Working to Get You There

July 18, 2005

High Steel Structures, Inc.
1770 Hempstead Road
Lancaster, PA 17605-0008

Project Name: Hartland, Vermont
Project Number: BRS 0113(22)

The following girder shop drawing sheets, for the above-referenced bridge project (General Contractor – Miller Construction, Inc.), have been reviewed and are being returned herewith:

1. WS1 of WS1, Worksheet – Calculation Plan, revised 04-25-05;
2. E1 of E2, Erection Framing Plan, revised 04-25-05;
3. E2 of E2, Erection Plan – Stud Layout, revised 04-26-05;
4. SA1 of SA1, Shop Assembly Diagram, revised 04-26-05;
5. FS1 of FS3, Flange Splice Details, revised 04-26-05;
6. FS2 of FS3, Flange Splice Details, revised 04-26-05;
7. FS3 of FS3, Flange Splice Details, revised 04-26-05;
8. WC1 of WC1, Web Camber Diagrams, revised 04-28-05;
9. HC1 of HC1, Horizontal Curve Diagrams, revised 04-28-05;
10. TD1 of TD1, Typical Detail – Crossframe Layouts, dated 04-12-05;
11. M1 of M1, Crossframe Job Standards, dated 04-18-05;
12. X1 of X2, Girder Job Standards, dated 04-13-05;
13. X2 of X2, Girder Job Standards, dated 04-13-05;
14. **GN1 of GN1, General Shop Notes, dated 03-04-05:**
15. 1 of 15, Crossframes (CF1 thru CF8), dated 04-18-05;
16. 2 of 15, Crossframes (CF9 thru CF14), dated 04-18-05;
17. 3 of 15, Crossframes (CF15 thru CF21), dated 04-18-05;
18. 4 of 15, Crossframes (CF22 thru CF27), dated 04-18-05;
19. 5 of 15, Crossframes (CF28 thru CF33), dated 04-18-05;
20. 6 of 15, Girder G1A, revised 04-26-05;
21. 7 of 15, Girder G2A, revised 04-26-05;
22. 8 of 15, Girder G3A, revised 04-26-05;
23. 9 of 15, Girder G4A, revised 04-26-05;

(continued next page)

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Hardland BRS 0113(22)
Page 1

092 ss

24. 10 of 15, Girder G5A, revised 04-26-05;
25. 11 of 15, Girder G1B, revised 04-26-05;
26. 12 of 15, Girder G1B, revised 04-26-05;
27. 13 of 15, Girder G1B, revised 04-26-05;
28. 14 of 15, Girder G1B, revised 04-26-05 and
29. 15 of 15, Girder G1B, revised 04-26-05.

Are approved except as noted [X]
(shown as bold underlined text above)

Additionally, the Welding Procedures have been approved and are attached.

Sincerely,



Todd Sumner
Acting Structures Project Manager

Attachments

cc: [x] Resident Engineer, Daryl Bassett w/attachments
[x] Contractor, Miller Construction, Inc. w/attachments
[x] McFarland-Johnson, Inc. (Concord, NH), Ed Weingartner w/attachments
[x] Shop Inspector, Jeff Clark w/attachments
[x] Construction Section – letter only
[x] Materials & Research Section (C&IA Unit) – letter only
[x] Central Files
[x] Project File

09355

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS

W2 - METRIC

PROCEDURE SPECIFICATIONS

MATERIAL SPECIFICATION _____ ASTM A709 GRADES: 250, 345, 345W
 WELDING PROCESS _____ SHIELDED METAL ARC WELDING
 MANUAL OR MACHINE _____ MANUAL
 POSITION OF WELDING _____ ALL (EXCEPT AS NOTED BELOW)
 FILLER METAL SPECIFICATION _____ AWS A5.1 AND A5.5
 WELD METAL CLASSIFICATION _____ E7018/E7028 (TACKING ONLY) AND E8018-C3
 WIRE/FLUX _____ D.N.A.
 POLARITY _____ DC+ OR AC
 ROOT TREATMENT _____ MANUAL CLEANING
 PREHEAT AND INTERPASS TEMPERATURE _____ SEE PREHEAT CHART
 ELECTRICAL STICK-OUT _____ D.N.A.
 SHIELDING GAS _____ D.N.A.

REVISED: 7/27/98

ORIGINAL ISSUE: 4/9/96

WELDING PROCEDURE

PASS NO.	WIRE SIZE (mm)	CURRENT RANGE		TRAVEL SPEED (mm/min)	JOINT DETAIL
		DC+	E7018 AC		
1	3.2	90-150	110-170	152-228	TACK WELDS GROOVE ROOT PASSES AND TACK WELDS
1	4.0	120-190	135-225	203-330	
PASS NO.	WIRE SIZE (mm)	CURRENT RANGE		TRAVEL SPEED (mm/min)	JOINT DETAIL (LIMITED TO FLAT AND HORIZONTAL TACK WELDS AND FLAT POSITION GROOVE ROOT PASSES)
		DC+	E7028 AC		
1	4.0	170-240	180-270	203-330	GROOVE ROOT PASSES AND TACK WELDS
PASS NO.	WIRE SIZE (mm)	CURRENT RANGE		TRAVEL SPEED (mm/min)	JOINT DETAIL
		DC+	E8018-C3 AC		
1	4.0	130-190	140-225	203-330	GROOVE ROOT PASSES, REPAIR WELDS AND TACKS FILLET WELDS FILLET WELDS (FLAT AND HORIZONTAL WELDS ONLY) FILLET WELDS (FLAT AND HORIZONTAL WELDS ONLY)
ALL	4.0	130-190	140-225	203-330	
ALL	4.8	180-270	210-290	228-381	
ALL	4.8	250-330	270-370	228-406	

* WELD SIZE DETERMINED BY TRAVEL SPEED

Z:\HS\JOBS\05017\wp1.dgn 04/27/05 10:00:46 AM

TRANS
 RECEIVED
 CK'D BY _____ OK'D BY JWC 09455
 JUN 03 2005
 RESUBMIT _____ APPROVED ✓
 BY _____ DATE 7-6-05

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS

GMAW - TACK

PROCEDURE SPECIFICATIONS

MATERIAL SPECIFICATION _____ ASTM A709 GRADES: 250, 345, 345W
WELDING PROCESS _____ GAS METAL ARC WELDING
MANUAL OR MACHINE _____ SEMIAUTOMATIC
POSITION OF WELDING _____ IF OR 2F
FILLER METAL SPECIFICATION _____ AWS A5.18
WELD METAL CLASSIFICATION _____ ER70S-6
WIRE/FLUX _____ NATIONAL STANDARD NS-115
WIRE DIAMETER _____ 1.6 mm
SINGLE OR MULTIPLE ARC _____ SINGLE ARC
POLARITY _____ DC+
ROOT TREATMENT _____ MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE _____ SEE PREHEAT CHART*
ELECTRICAL STICK-OUT _____ 19.1 mm
SHIELDING GAS _____ 92% AR + 8% CO2

REVISED:

ORIGINAL ISSUE: 1/21/03

WELDING PROCEDURE

PASS NO.	AMPS	VOLTS	TRAVEL SPEED (mm/MIN.)	GAS FLOW (L/MIN.)	JOINT DETAIL
1	283-325	25.2-28.7	394-432	15-20	TACK WELDS REMELTED BY THE SAW PROCESS

* PREHEAT NOT REQUIRED FOR TACKING.

THIS PROCEUDRE IS ONLY TO BE USED FOR TACKING
CROSS- FRAMES / DIAPHRAGMS.

PROCEDURE QUALIFICATION RECORD NS-01-02 (EXPIRES 9/10/06)

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VTTRANS
RECEIVED

CK'D BY _____ OK'D BY TWC

JUN 03 2005

RESUBMIT _____ APPROVED ✓

BY _____ DATE 7-6-05

095SS

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS

W14 - METRIC

PROCEDURE SPECIFICATIONS

MATERIAL SPECIFICATION _____ ASTM A709 GRADES: 250, 345, 345W
 WELDING PROCESS _____ SUBMERGED ARC WELDING
 MANUAL OR MACHINE _____ SEMIAUTOMATIC OR MACHINE
 POSITION OF WELDING _____ 2F
 FILLER METAL SPECIFICATION _____ AWS A5.17
 WELD METAL CLASSIFICATION _____ F7A2-EM12K
 WIRE/FLUX _____ LINCOLN L61/960
 WIRE DIAMETER _____ 2.4mm
 SINGLE OR MULTIPLE ARC _____ SINGLE ARC
 POLARITY _____ DC-
 ROOT TREATMENT _____ MANUAL CLEANING
 PREHEAT AND INTERPASS TEMPERATURE _____ SEE PREHEAT CHART
 ELECTRICAL STICK-OUT _____ 25.4mm
 SHIELDING GAS _____ D.N.A.

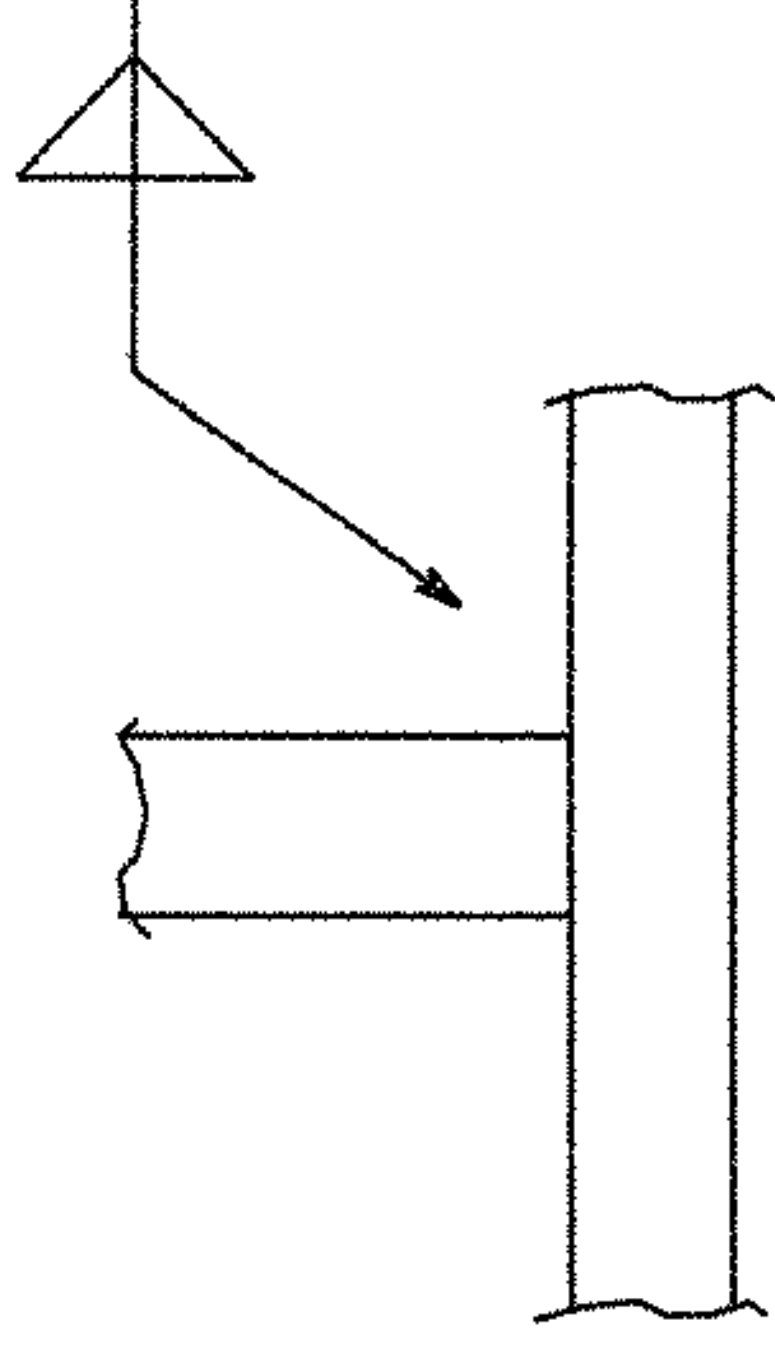
REVISED: 3/3/03

ORIGINAL ISSUE: 3/4/96

WELDING PROCEDURE

PASS NO.	WELDING CURRENT			TRAVEL SPEED (mm/m)	JOINT DETAIL
	AMPS	WIRE FEED SPEED	VOLTS		
1	405-550	3.3-5.0	34.5-39.5	394-635	8mm FILLET WELD

PRIMARY USE:
 WEB TO FLANGE
 (AND OTHER APPLICATIONS AS NEEDED)



PROCEDURE QUALIFICATION RECORD 01-1 (EXPIRES 3/19/06)
 PROCEDURE QUALIFICATION RECORD AWS-03-7 (EXPIRES 2/4/08)

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JUN 03 2005
 RESUBMIT _____ APPROVED ✓

BY _____ DATE 7-6-05

09655

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS

W34 - METRIC

PROCEDURE SPECIFICATIONS

MATERIAL SPECIFICATION_____ASTM A709 GRADES: 250, 345, 345W
WELDING PROCESS_____SUBMERGED ARC WELDING
MANUAL OR MACHINE_____SEMI-AUTOMATIC OR MACHINE
POSITION OF WELDING_____2F
FILLER METAL SPECIFICATION_____AWS A5.17
WELD METAL CLASSIFICATION_____F7A2-EMI2K
WIRE/FLUX_____LINCOLN L61/761
WIRE DIAMETER_____2.4mm
SINGLE OR MULTIPLE ARC_____SINGLE ARC
POLARITY_____DC-
ROOT TREATMENT_____MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE_____SEE PREHEAT CHART
ELECTRICAL STICK-OUT_____25.4mm
SHIELDING GAS_____D.N.A.

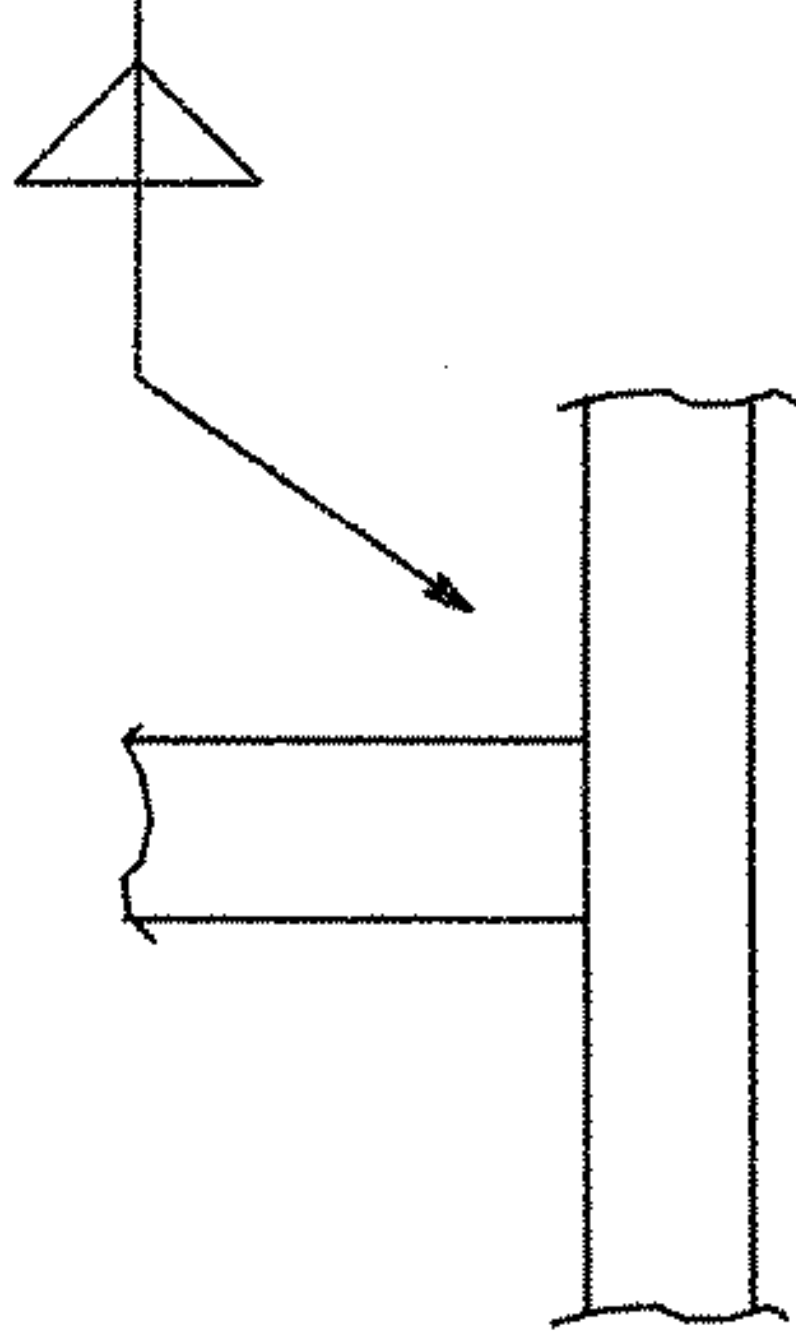
REVISED: 5/5/03

ORIGINAL ISSUE: 3/4/96

WELDING PROCEDURE

PASS NO.	WELDING CURRENT		TRAVEL SPEED (mm/m)	JOINT DETAIL
	AMPS	WIRE FEED SPEED	VOLTS	
1	360-440	2.9-3.7	29.0-36.0	279-686 8mm FILLET WELD

PRIMARY USE:
STIFFENER TO WEB
(AND OTHER APPLICATIONS AS NEEDED)



PROCEDURE QUALIFICATION RECORD AWS-FCM-02-4 (EXPIRES 6/27/07)
PROCEDURE QUALIFICATION RECORD AWS-FCM-02-5A (EXPIRES 7/16/07)

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09755

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BY

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7-6-05

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS

W44 - METRIC

PROCEDURE SPECIFICATIONS

MATERIAL SPECIFICATION _____ ASTM A709 GRADES: 250, 345, 345W
 WELDING PROCESS _____ SUBMERGED ARC WELDING
 MANUAL OR MACHINE _____ SEMIAUTOMATIC OR MACHINE
 POSITION OF WELDING _____ 2F
 FILLER METAL SPECIFICATION _____ AWS A5.17
 WELD METAL CLASSIFICATION _____ F7A2-EM12K
 WIRE/FLUX _____ LINCOLN L61/76I
 WIRE DIAMETER _____ 2.4mm
 SINGLE OR MULTIPLE ARC _____ SINGLE ARC
 POLARITY _____ DC-
 ROOT TREATMENT _____ MANUAL CLEANING
 PREHEAT AND INTERPASS TEMPERATURE _____ SEE PREHEAT CHART
 ELECTRICAL STICK-OUT _____ 25.4mm
 SHIELDING GAS _____ D.N.A.

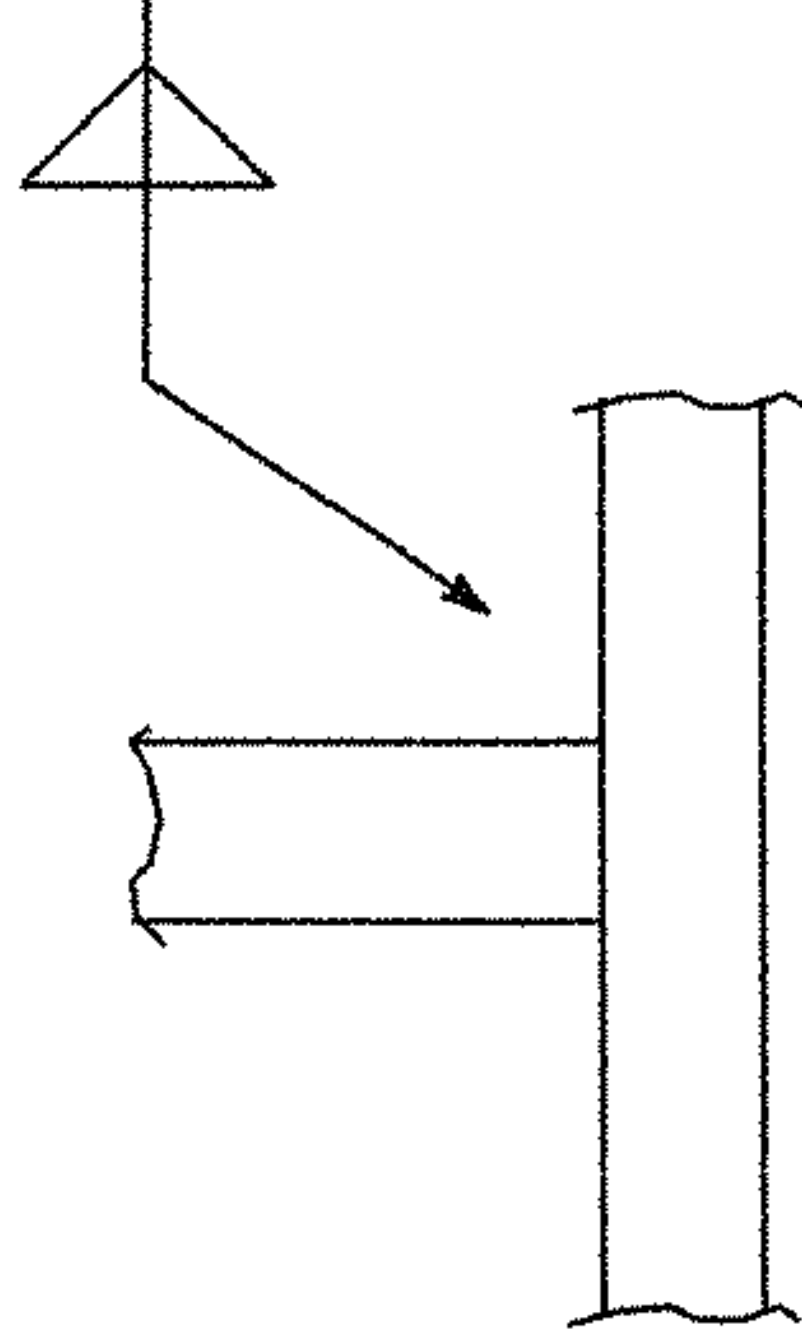
REVISED: 5/5/03

ORIGINAL ISSUE: 3/4/96

WELDING PROCEDURE

PASS NO.	WELDING CURRENT		TRAVEL SPEED (mm/m)	JOINT DETAIL
	AMPS	WIRE FEED SPEED		
1	360-440	2.9-3.7	279-685	8mm FILLET WELD

PRIMARY USE:
 STIFFENER TO FLANGE
 (AND OTHER APPLICATIONS AS NEEDED)



PROCEDURE QUALIFICATION RECORD AWS-FCM-02-4 (EXPIRES 6/27/07)
 PROCEDURE QUALIFICATION RECORD AWS-FCM-02-5A (EXPIRES 7/16/07)

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BY

DATE 7-6-05

09855

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS

W54 - METRIC

PROCEDURE SPECIFICATIONS

MATERIAL SPECIFICATION_____ASTM A709 GRADES: 250, 345, 345W
WELDING PROCESS_____SUBMERGED ARC WELDING
MANUAL OR MACHINE_____SEMI-AUTOMATIC OR MACHINE
POSITION OF WELDING_____2F
FILLER METAL SPECIFICATION_____AWS A5.17
WELD METAL CLASSIFICATION_____F7A2-EM12K
WIRE/FLUX_____LINCOLN L61/960
WIRE DIAMETER_____SEE BELOW
SINGLE OR MULTIPLE ARC_____SINGLE ARC
POLARITY_____SEE BELOW
ROOT TREATMENT_____MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE_____SEE PREHEAT CHART
ELECTRICAL STICK-OUT_____25.4mm
SHIELDING GAS_____D.N.A.

REVISED: 5/5/03

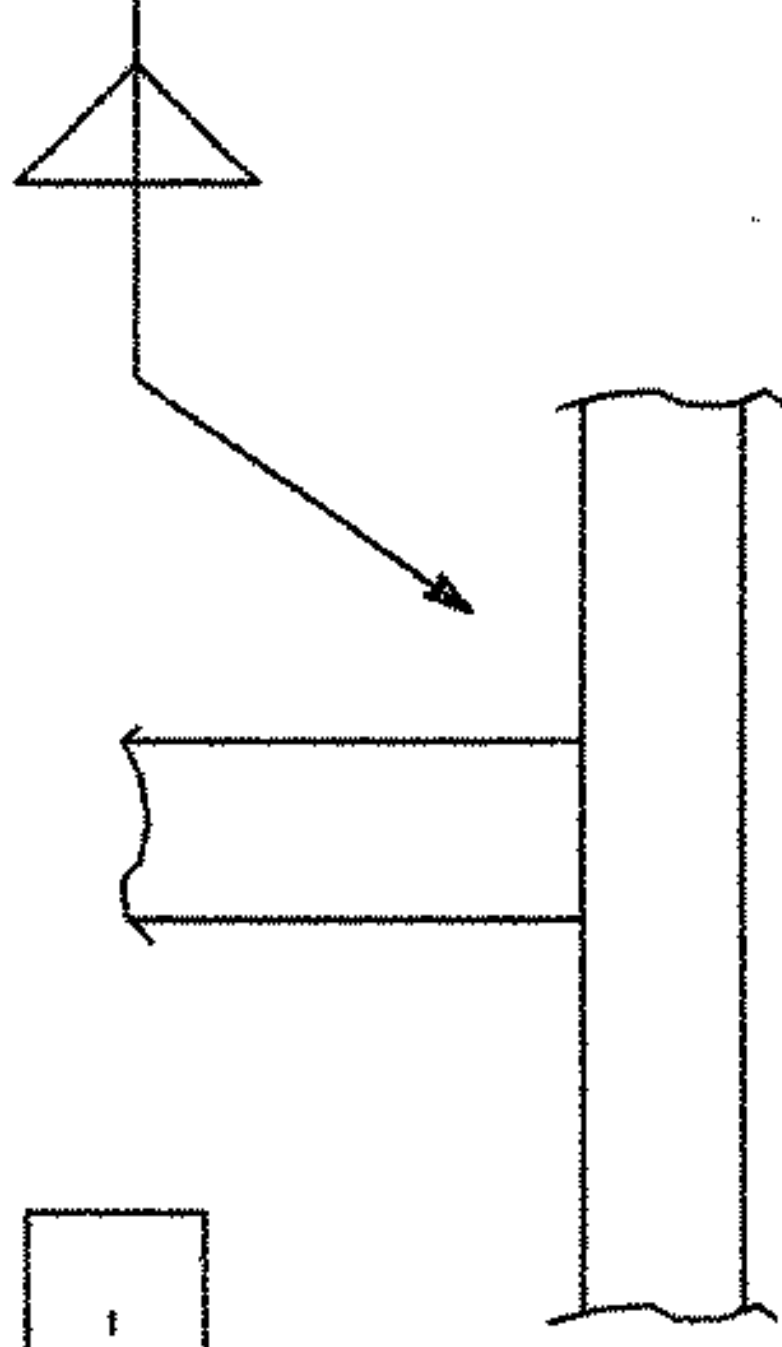
ORIGINAL ISSUE: 10/25/00

WELDING PROCEDURE

PASS NO.	WELDING CURRENT		TRAVEL SPEED (mm/m)	WIRE DIA.	POL.	JOINT DETAIL
	AMPS	WIRE FEED SPEED				
1	400-550	3.1-5.5	32.5-39.5	2.0mm	DC+	8mm FILLET WELDS

1	400-550	3.3-5.0	32.5-39.5	431-584	2.4mm	DC-
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PRIMARY USE:
CROSS FRAMES AND DIAPHRAGMS
(AND OTHER APPLICATIONS AS NEEDED)



PROCEDURE QUALIFICATION RECORD AWS-03-7 (EXPIRES 2/4/08)
PROCEDURE QUALIFICATION RECORD 01-1 (EXPIRES 3/19/06)
PROCEDURE QUALIFICATION RECORD AWS-03-5 (EXPIRES 1/28/08)
PROCEDURE QUALIFICATION RECORD AWS-03-6 (EXPIRES 1/31/08)

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RESUBMIT _____ APPROVED ✓

BY _____ DATE 7-6-05

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS
W71X-2 METRIC

PROCEDURE SPECIFICATIONS

MATERIAL SPECIFICATION _____ ASTM A709 GRADES: 250, 345, 345W
WELDING PROCESS _____ SUBMERGED ARC WELDING
MANUAL OR MACHINE _____ SEMIAUTOMATIC OR MACHINE
POSITION OF WELDING _____ 1G
FILLER METAL SPECIFICATION _____ AWS A5.23
WELD METAL CLASSIFICATION _____ F8A2-ENI1K-NI1-H8
WIRE/FLUX _____ LINCOLN LA-75/960
WIRE DIAMETER _____ 2.4 mm
SINGLE OR MULTIPLE ARC _____ SINGLE ARC
POLARITY _____ DC+
ROOT TREATMENT _____ MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE _____ SEE PREHEAT CHART
ELECTRICAL STICK-OUT _____ 25.4 mm
SHIELDING GAS _____ D.N.A.

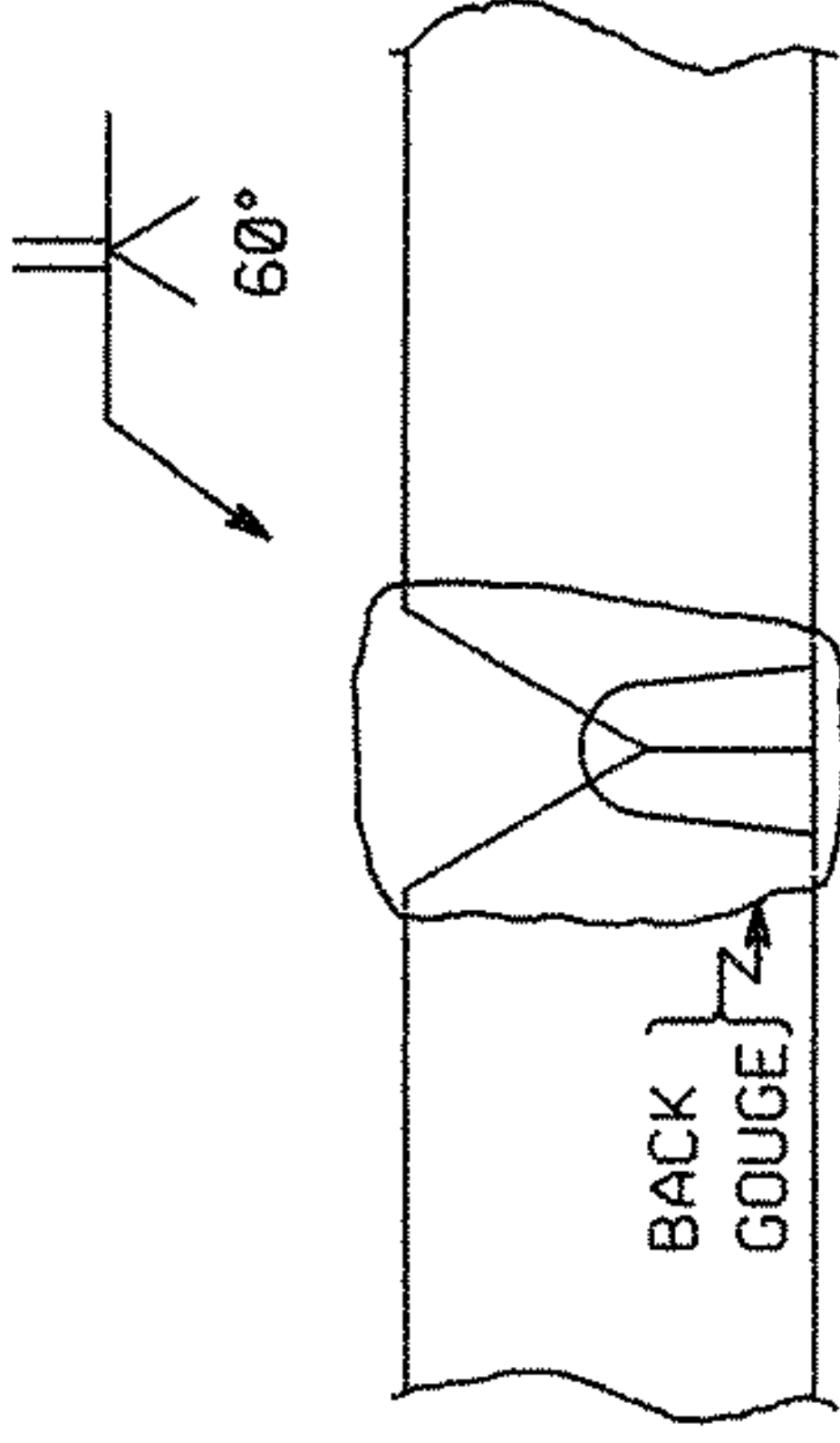
REVISED:

ORIGINAL ISSUE: 3/10/03

WELDING PROCEDURE

PASS NO.	AMPS	WIRE FEED SPEED (m/MIN.)	VOLTS	TRAVEL SPEED (mm/MIN.)	JOINT DETAIL
ALL	448-550	2.3-3.2	31.0-38.0	381-635	

B-L2c-S



PROCEDURE QUALIFICATION RECORD AWS-04-1 (EXPIRES 4/29/09)
PROCEDURE QUALIFICATION RECORD AWS-04-2 (EXPIRES 2/2/09)

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RESUBMIT _____ APPROVED _____

BY

DATE 7-6-05

100 SS

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS

W71X - AC - METRIC

PROCEDURE SPECIFICATIONS

MATERIAL SPECIFICATION _____ ASTM A709 GRADES: 250, 345, 345W
 WELDING PROCESS _____ SUBMERGED ARC WELDING
 MANUAL OR MACHINE _____ SEMIAUTOMATIC OR MACHINE
 POSITION OF WELDING _____ 1G
 FILLER METAL SPECIFICATION _____ AWS A5.23
 WELD METAL CLASSIFICATION _____ F8A2-ENI1K-N11-H8
 WIRE/FLUX _____ LINCOLN LA-75/960
 WIRE DIAMETER _____ 2.4 mm
 SINGLE OR MULTIPLE ARC _____ SINGLE ARC
 POLARITY _____ AC (SEE RESTRICTIONS BELOW)
 ROOT TREATMENT _____ MANUAL CLEANING
 PREHEAT AND INTERPASS TEMPERATURE _____ SEE PREHEAT CHART
 ELECTRICAL STICK-OUT _____ 25.4 mm
 SHIELDING GAS _____ D.N.A.

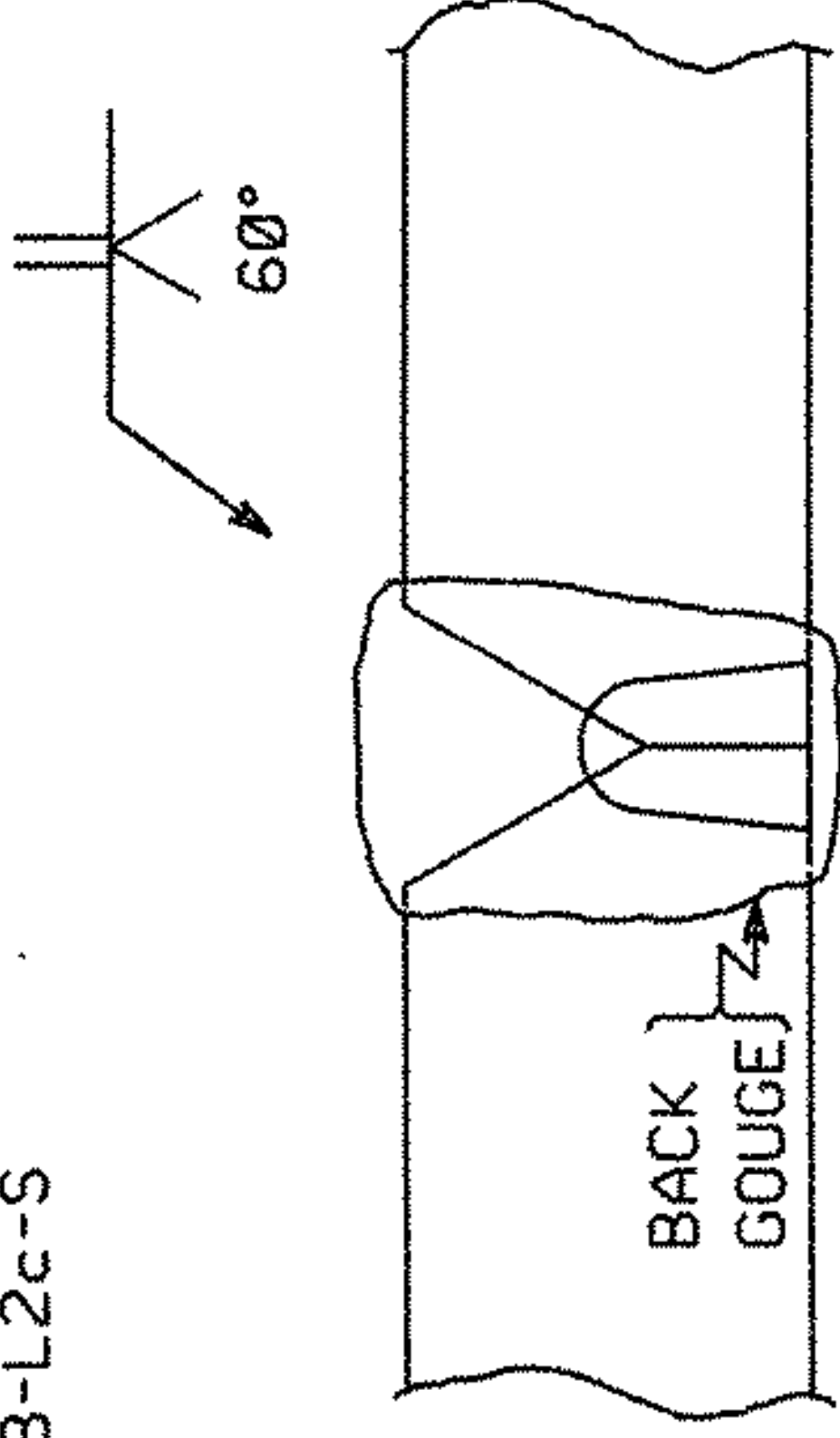
REVISED: 2/18/03
 ORIGINAL ISSUE: 5/10/02

WELDING PROCEDURE

PASS NO.	AMPS	WIRE FEED SPEED (IN/MIN.)	VOLTS	TRAVEL SPEED (mm/MIN.)	JOINT DETAIL
ALL	462-670	108-205	34.0-36.0	381-508	

B-L2c-S

NOTE: THIS PROCEDURE SHALL ONLY BE USED WITH A MILLER SUMMIT ARC 1000 POWER SOURCE WITH A FREQUENCY OF 60HZ AND A 66/34 (DC+/DC-) POLARITY BALANCE PLUG.



THE MAXIMUM WELDING CURRENT TO BE USED IN MAKING A GROOVE WELD FOR ANY PASS THAT HAS FUSION TO BOTH FACES OF THE GROOVE SHALL BE 600 AMPS / 171 WIRE FEED SPEED.

PROCEDURE QUALIFICATION RECORD AWS-03-1 (EXPIRES 1/8/08)
 PROCEDURE QUALIFICATION RECORD AWS-03-2 (EXPIRES 1/9/08)

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DATE 7-6-05

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS
W72X-2 METRIC

PROCEDURE SPECIFICATIONS

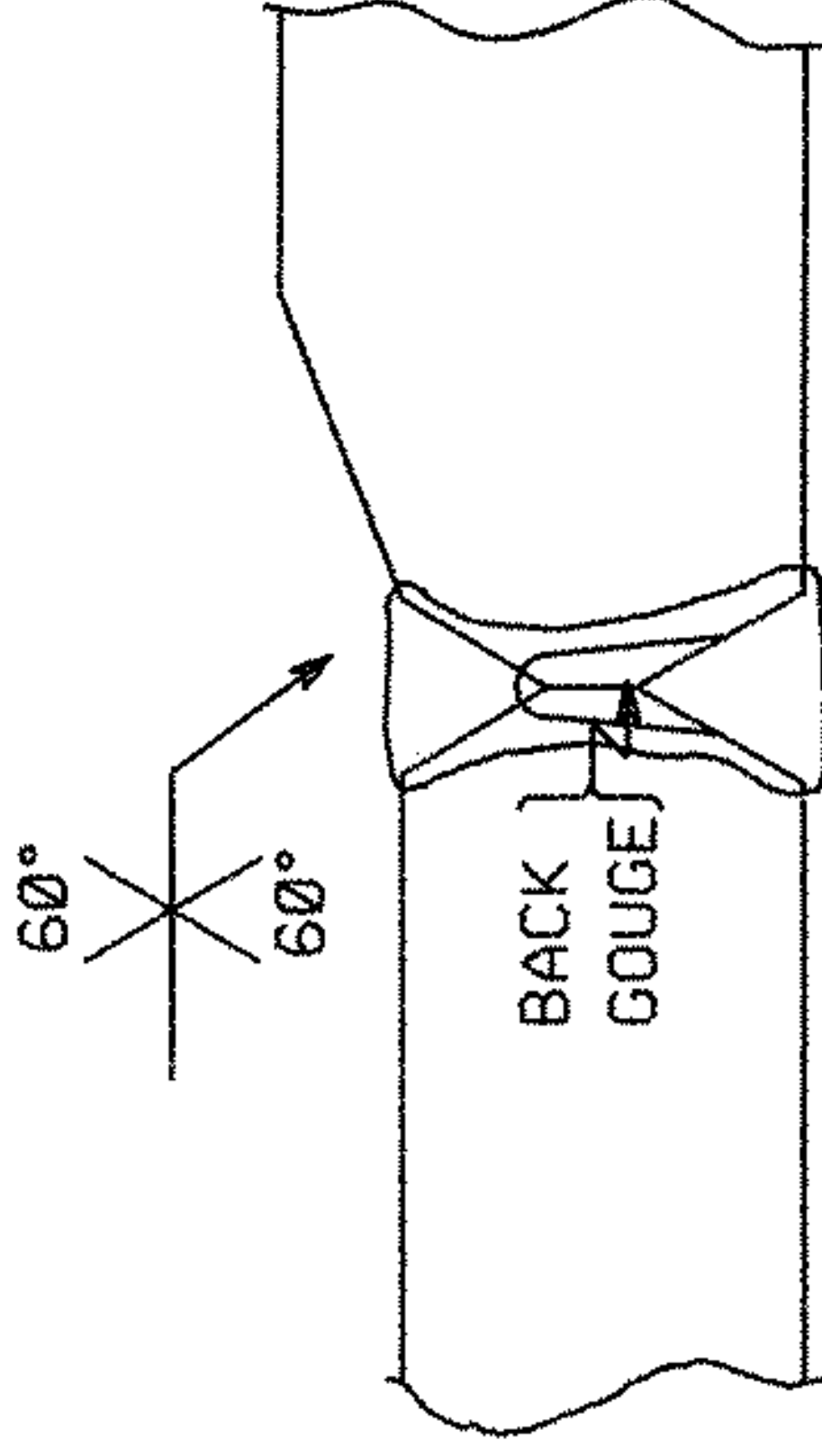
MATERIAL SPECIFICATION _____ ASTM A709 GRADES: 250, 345, 345W
WELDING PROCESS _____ SUBMERGED ARC WELDING
MANUAL OR MACHINE _____ SEMIAUTOMATIC OR MACHINE
POSITION OF WELDING _____ 1G
FILLER METAL SPECIFICATION _____ AWS A5.23
WELD METAL CLASSIFICATION _____ F8A2-ENIK-NII-H8
WIRE/FLUX _____ LINCOLN LA-75/960
WIRE DIAMETER _____ 2.4 mm
SINGLE OR MULTIPLE ARC _____ SINGLE ARC
POLARITY _____ DC+
ROOT TREATMENT _____ MANUAL CLEANING
PREHEAT AND INTERPASS TEMPERATURE _____ SEE PREHEAT CHART
ELECTRICAL STICK-OUT _____ 25.4 mm
SHIELDING GAS _____ D.N.A.

REVISED:

WELDING PROCEDURE

ORIGINAL ISSUE: 3/10/03

PASS NO.	AMPS	WIRE FEED SPEED (m/MIN.)	VOLTS	TRAVEL SPEED (mm/MIN.)	JOINT DETAIL
ALL	448-550	2.3-3.2	31.0-38.0	381-635	B-U3c-S



PROCEDURE QUALIFICATION RECORD AWS-04-1 (EXPIRES 4/29/09)
PROCEDURE QUALIFICATION RECORD AWS-04-2 (EXPIRES 2/2/09)

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JUN 03 2005

10255

RESUBMIT _____ APPROVED _____

BY

DATE 7-6-05

WELDING PROCEDURE FOR AWS PREQUALIFIED JOINTS

W72X - AC - METRIC

PROCEDURE SPECIFICATIONS

MATERIAL SPECIFICATION ASTM A709 GRADES: 250, 345, 345W
 WELDING PROCESS SUBMERGED ARC WELDING
 MANUAL OR MACHINE SEMI-AUTOMATIC OR MACHINE
 POSITION OF WELDING 1G
 FILLER METAL SPECIFICATION AWS A5.23
 WELD METAL CLASSIFICATION F8A2-ENIK-NII-H8
 WIRE/FLUX LINCOLN LA-75/960
 WIRE DIAMETER 2.4 mm
 SINGLE OR MULTIPLE ARC SINGLE ARC
 POLARITY AC (SEE RESTRICTIONS BELOW)
 ROOT TREATMENT MANUAL CLEANING
 PREHEAT AND INTERPASS TEMPERATURE SEE PREHEAT CHART
 ELECTRICAL STICK-OUT 25.4 mm
 SHIELDING GAS D.N.A.

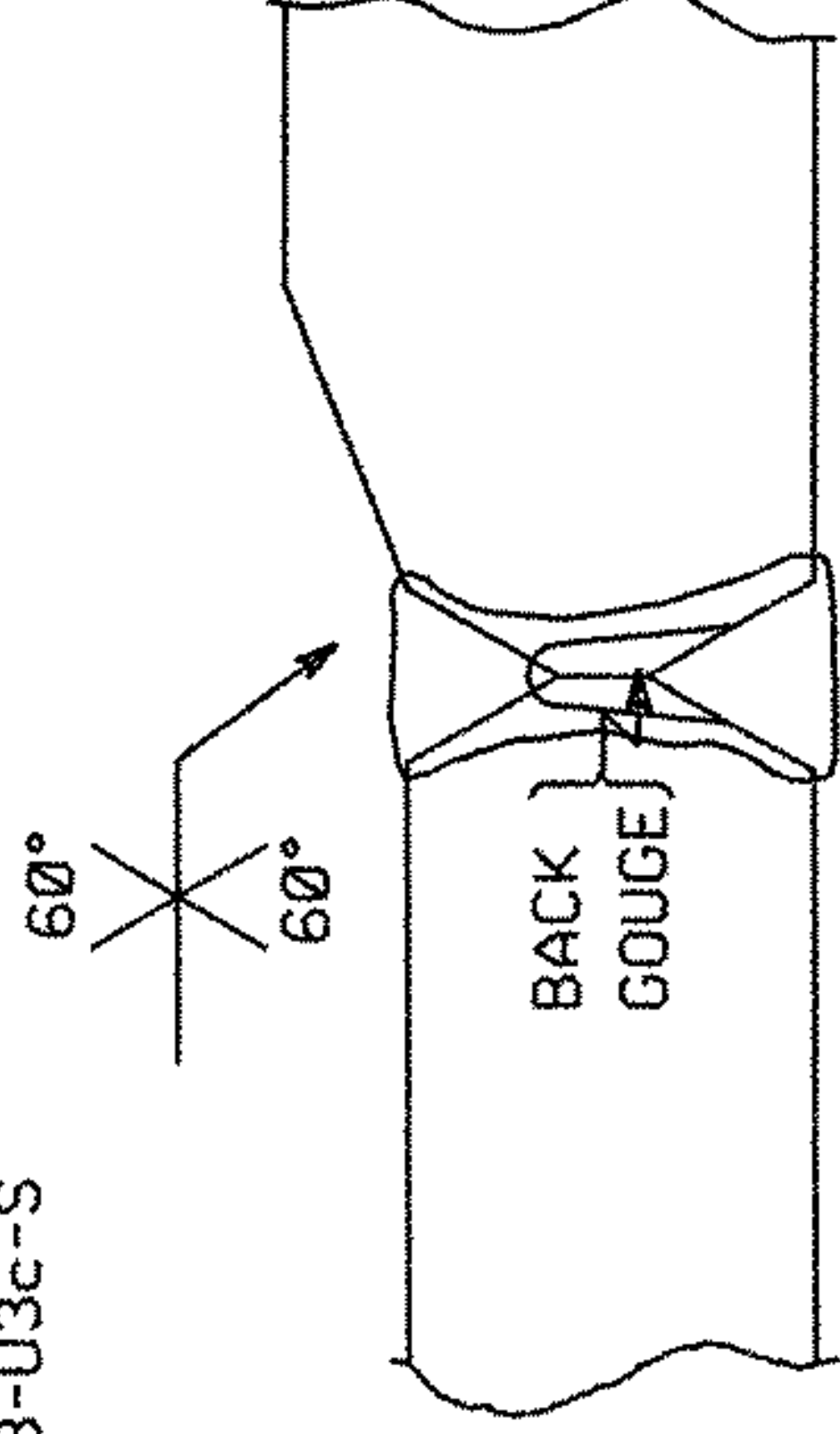
REVISED: 2/18/03

ORIGINAL ISSUE: 5/10/02

WELDING PROCEDURE

PASS NO.	AMPS	WIRE FEED SPEED (IN/MIN.)	VOLTS	TRAVEL SPEED (mm/MIN.)	JOINT DETAIL
ALL	462-670	108-205	34.0-36.0	381-508	B-U3c-S

NOTE: THIS PROCEDURE SHALL ONLY BE USED WITH A MILLER SUMMIT ARC 1000 POWER SOURCE WITH A FREQUENCY OF 60HZ AND A 66/34 (DC+/DC-) POLARITY BALANCE PLUG.



THE MAXIMUM WELDING CURRENT TO BE USED IN MAKING A GROOVE WELD FOR ANY PASS THAT HAS FUSION TO BOTH FACES OF THE GROOVE SHALL BE 600 AMPS / 171 WIRE FEED SPEED.

PROCEDURE QUALIFICATION RECORD AWS-03-1 (EXPIRES 1/8/08)
 PROCEDURE QUALIFICATION RECORD AWS-03-2 (EXPIRES 1/9/08)

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OK'D BY JWC

JUN 03 2005

RESUBMIT APPROVED

BY

DATE 7-6-05

10355

MINIMUM PREHEAT AND INTERPASS TEMPERATURE

SHIELDED METAL-ARC WELDING WITH LOW
HYDROGEN ELECTRODES, OR SUBMERGED ARC
WELDING, OR FLUX CORED ARC WELDING

THICKNESS OF THICKEST PART AT POINT OF WELDING - (mm)	ASTM A-36, A-572, AND A-588 M183, M223, AND M222 ASTM A709, GRADE 250 ASTM A709, GRADE 345 ASTM A709, GRADE 345W
TO 19.1, INCL.	10°C
OVER 19.1 TO 38.1, INCL.	20°C
OVER 38.1 TO 63.5, INCL.	65°C
OVER 63.5	110°C

THE MAXIMUM PREHEAT TEMPERATURE SHALL NOT EXCEED 232°C.
THE MAXIMUM INTERPASS TEMPERATURE SHALL NOT EXCEED 288°C.

REFER TO THE FOLLOWING CHART FOR EQUIVALENT STEEL TYPES.

ASTM A-36 AND A-709 GRADE 36 AND AASHTO M183
ASTM A-572 AND A-709 GRADE 50 AND AASHTO M223
ASTM A-588 AND A-709 GRADE 50W AND AASHTO M222

CONTACT QUALITY CONTROL FOR PREHEAT REQUIREMENTS ON ANY STEEL NOT SPECIFICALLY NOTED ABOVE	REVISED:
	ORIGINAL ISSUE: 3/4/96

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OK'D BY _____ OK'D BY *Jane*

JUN 03 2005

SUBMIT _____ APPROVED *[Signature]*

BY _____ DATE *7-6-05*

10453

METRIC

Scale = 0.015000 of full size.

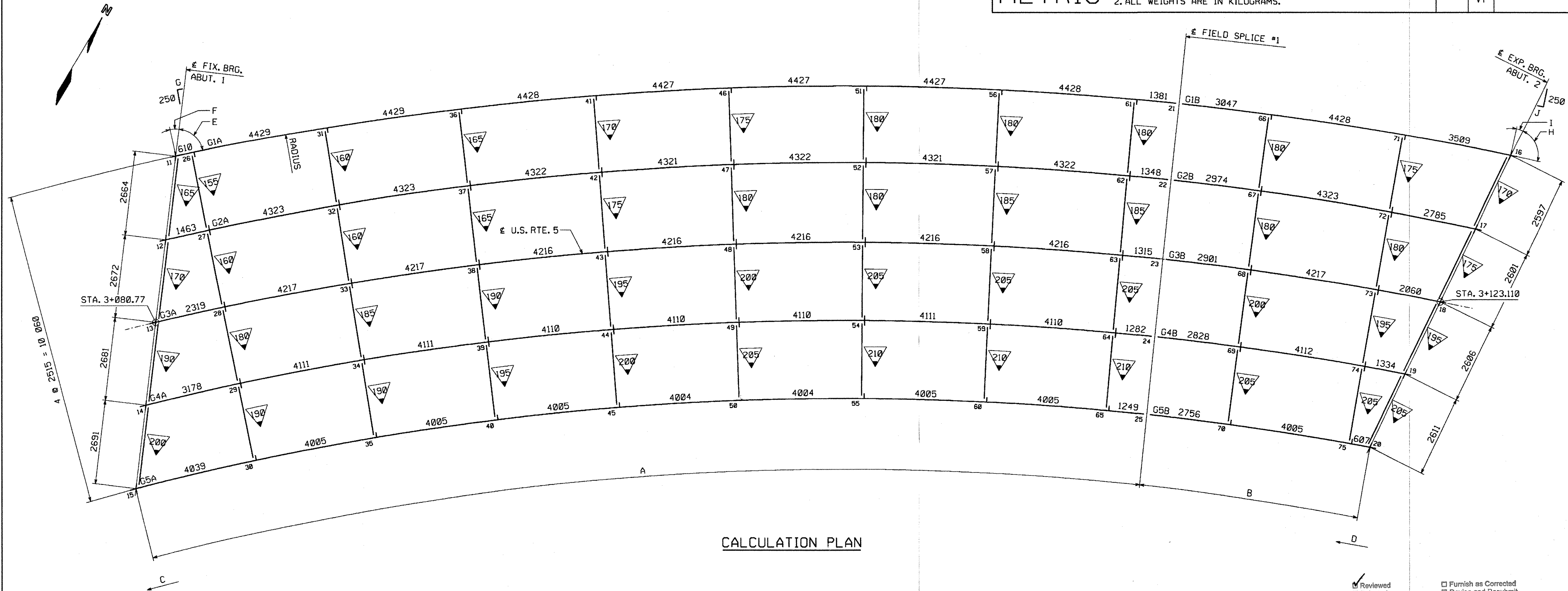
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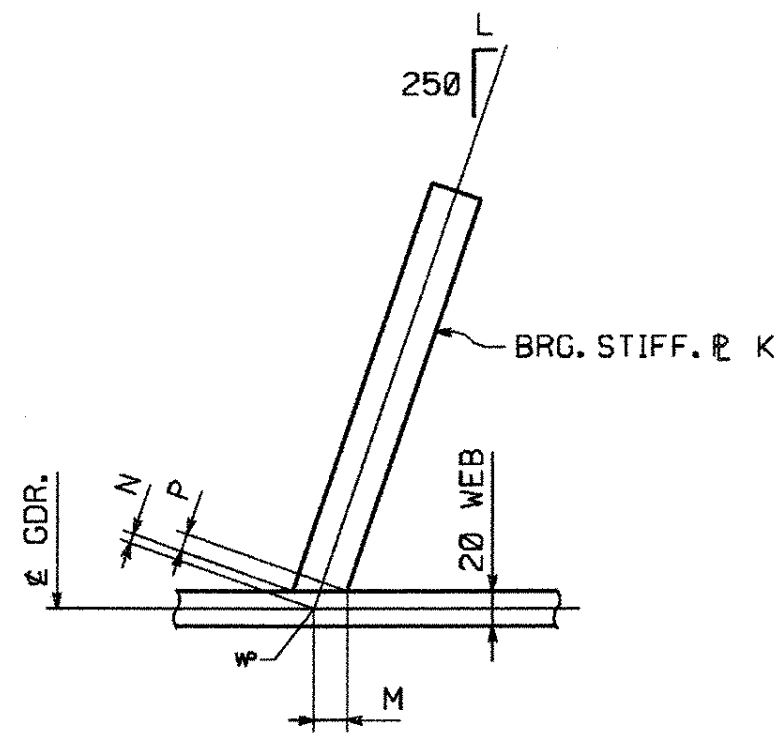
BY: mkr:ed:1

PLOTTED: 4/28/2005
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LINE	RADIUS	A	B	C	D	E	F	G	H	I	J
G1	105 030	32 986	10 984	.0110	.0027	70°-59'-44.2"	19°-00'-15.8"	86	75°-44'-02.4"	14°-15'-57.6"	64
G2	102 515	33 065	10 082	.0114	.0026	70°-30'-36.8"	19°-29'-21.2"	88	75°-22'-34.7"	14°-37'-25.3"	65
G3	100 000	33 148	9178	.0103	.0041	70°-00'-00.0"	20°-00'-00.0"	91	75°-00'-00.0"	15°-00'-00.0"	67
G4	97 485	33 233	8274	.0107	.0036	69°-27'-39.8"	20°-32'-20.2"	94	74°-36'-12.8"	15°-23'-47.2"	69
G5	94 970	33 321	7368	.0111	.0017	68°-53'-29.5"	21°-06'-30.5"	97	74°-11'-07.1"	15°-48'-52.9"	71



CALCULATION PLAN



SKewed BRG. STIFF. LAYOUT

PT. NO.	K	L	M	N	P
11	32 x 290	86	22	5	12
12	32 x 290	88	22	5	12
13	25 x 215	91	17	6	9
14	22 x 190	94	16	6	8
15	22 x 190	97	16	6	8
16	32 x 290	64	21	6	9
17	32 x 290	65	21	6	9
18	25 x 215	67	16	7	7
19	22 x 190	69	14	7	6
20	22 x 190	71	14	7	6

NOTES:

DIMENSIONS ON PLAN ALONG GIRDERS ARE GIVEN TO THE CHORD AT THE BOTTOM OF WEB IN FULLY CAMBERED POSITION. ALL OTHER DIMENSIONS ARE GIVEN HORIZONTALLY.
DIMENSIONS PLACED ON THE GIRDER LINES REPRESENT CROSSFRAME SPACING.
FIGURES GIVEN THUS: ∇ ARE THE GRADES OF THE GIRDERS AT THE BEARINGS IN FINAL POSITION; ARROW POINTS DOWNGRADE.
ALL STIFFENER AND CONNECTION PLATE SPACINGS ARE GIVEN TO $\pm$ PLATE. ENDS OF GIRDERS AND ALL BEARING STIFFENERS TO BE VERTICAL IN FINAL POSITION.
ALL STEEL TO BE AASHTO M270M GR. 345W (U.N.).
IN UNPAINTED AREAS ALL FIELD CONNECTIONS TO BE MADE WITH $\frac{7}{8}$ " H.S. (A325 TYPE 3) BOLTS.
IN PAINTED AREAS ALL FIELD CONNECTIONS TO BE MADE WITH $\frac{7}{8}$ " H.S. (A325 TYPE 1) BOLTS (MECH. GALV. TO ASTM B695 CLASS 50).
FIGURES GIVEN THUS: ∇ ARE THE DIFFERENCES IN ELEVATIONS OF GIRDERS (IN THE PLANE OF THE CROSSFRAME IN ERECTED POSITION) AT CROSSFRAMES; ARROW POINTS TOWARD LOW GIRDER.
FOR TYPICAL DETAIL LAYOUTS, SEE DRAWINGS PREFIXED "TD".
ALL STATIONS ARE GIVEN IN METERS.

NOTE

THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DRAWING IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION. THIS DRAWING IS FOR REFERENCE ONLY, APPROVAL IS NOT REQUIRED.

METRIC

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.

FED. ROAD DIV. NO. STATE VT
FED. AID PROJ. NO.

Reviewed
Rejected

Furnish as Corrected
Revise and Resubmit
Submit Specified Item

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections of errors made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and correlated at the job site information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of all other trades and performing all work in a safe and satisfactory manner.

McFarland-Johnson, Inc.

Date 4/11/05
By C.W.

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CK'D BY JWC DATED BY

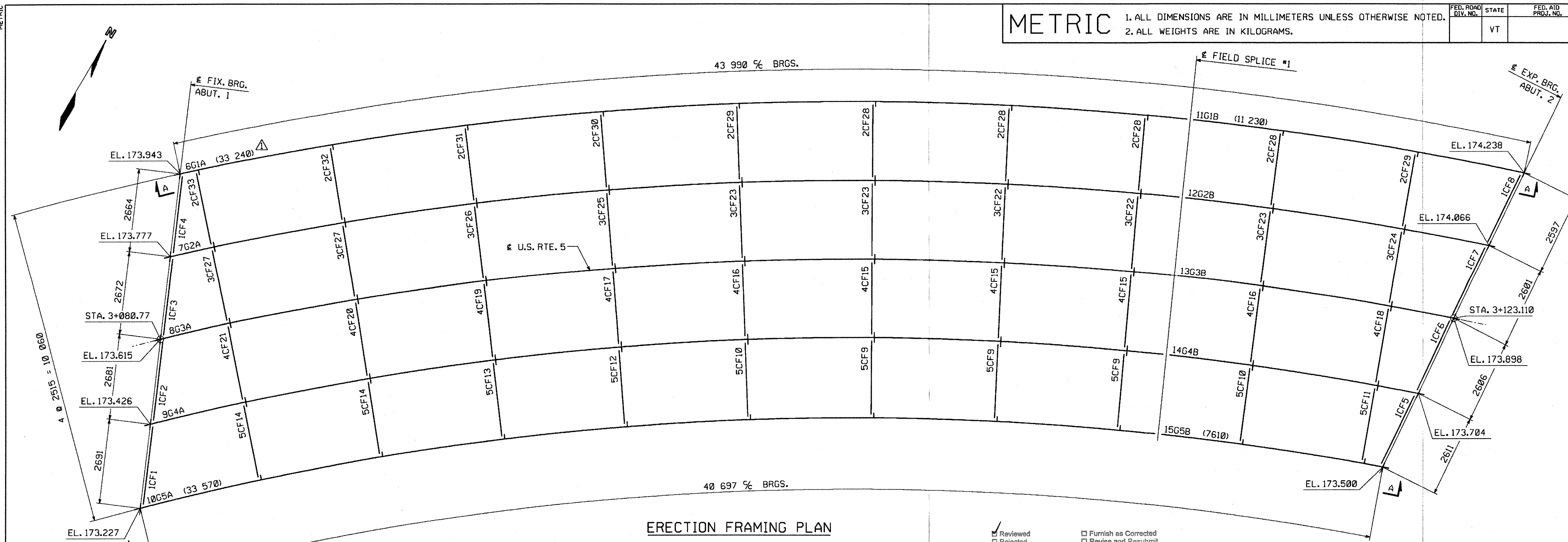
JUN 03 2005

RESUBMIT APPROVED
BY DATE

△			
△			
△	CAMBER DESIGN CHANGE	MKG	4-25-05
NO.	REVISION	BY	DATE
HIGH STEEL STRUCTURES, INC.			
1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5201 A Division of High Industries, Inc.			
WORKSHEET - CALCULATION PLAN			
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE: GLIDDEN (IH) MADE BY: MKG CHK'D. RC DATE: 4/11/05			
CONTRACT NUMBER: VT-05017-1 DRAWING NUMBER: WS1 OF WS1			

10555

METRIC

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.FED. ROAD
DIV. NO.
STATE
VT
FED. AID
PROJ. NO.

ERECTION FRAMING PLAN

SHIPPING PIECE MARK	WEIGHT KGS EACH
G1A	29049.59
G2A	29601.80
G3A	19582.59
G4A	17488.97
G5A	17104.96
G1B	9370.05
G2B	8922.99
G3B	5889.77
G4B	4836.31
G5B	4283.07

Reviewed
Rejected

Furnish as Corrected
Revise and Resubmit
Submit Specified Item

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and correlated at the jobsite information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction, coordination of the Work with that of all other trades and performing all work in a safe and satisfactory manner.

McFarland-Johnson, Inc.

Date: 6/10/05
By: EFW

NOTES:

NO CREDIT WILL BE ALLOWED FOR WORK PERFORMED BY OTHERS IN REPLACING OR CORRECTING MATERIALS OR WORKMANSHIP COVERED BY THIS DRAWING UNLESS EXPRESSLY AUTHORIZED BY HIGH STEEL STRUCTURES, INC.

ALL FIELD CONNECTIONS IN UNPAINTED AREAS TO BE MADE WITH $\frac{7}{8}$ " HIGH STRENGTH (A325, TYPE 3) BOLTS.

ALL FIELD CONNECTIONS IN PAINTED AREAS TO BE MADE WITH $\frac{7}{8}$ " HIGH STRENGTH (A325, TYPE 1) BOLTS (MECH. GALV. ASTM B-695, CLASS 50).

ALL DIMENSIONS ARE GIVEN HORIZONTALLY (U.N.).

DIMENSIONS GIVEN THUS: (33 240) ARE THE SHIPPING LENGTHS OUT TO OUT OF FASCIA GIRDERS.

HIGH STEEL STRUCTURES, INC. DOES NOT SUPPLY SHEAR STUDS, EXPANSION DAM MATERIAL, SCUPPERS OR ANY OTHER BRIDGE DRAINAGE MATERIAL, BEARING ASSEMBLIES INCLUDING PADS AND ANCHOR BOLTS.

SEE DRAWING SAI FOR MATCH MARKING SYSTEM.

WORK THIS DRAWING WITH DRAWING E2.

NOTICE: WEIGHTS OF MEMBERS LISTED ON THESE DRAWINGS ARE ESTIMATED WEIGHTS AND ACTUAL WEIGHTS WILL VARY. HIGH STEEL STRUCTURES, INC. WILL NOT BE RESPONSIBLE FOR ANY ERECTION PROCEDURES, SHIPPING PROCEDURES, ETC. DEVELOPED USING ESTIMATED WEIGHTS AS SHOWN.

ERECTOR NOTE: ELEVATIONS, CAMBER CHECKS AND HORIZONTAL ALIGNMENT OF FIELD SPLICES MUST BE COMPLETED PRIOR TO FINAL BOLTING. HIGH STEEL STRUCTURES IS TO BE NOTIFIED AND CONSULTED, PRIOR TO FINAL BOLTING, IF SPLICE LOCATIONS ARE NOT WITHIN ACCEPTABLE TOLERANCE. BOTH VERTICAL & HORIZONTAL CORRECTION OF ANY UNACCEPTABLE SPLICES AFTER FINAL BOLTING WILL BE AT NO COST TO HIGH STEEL STRUCTURES.

NOTICE TO ERECTOR & CONTRACTOR: THIS STRUCTURAL STEEL IS BEING DELIVERED WITH THE FINAL FINISH COAT APPLIED. YOUR SPECIAL ATTENTION REQUIRES EXTREME CARE AND APPROPRIATE EQUIPMENT FOR HANDLING DURING ERECTION AND SUBSEQUENT FIELD OPERATIONS. HIGH STEEL STRUCTURES, INC. WILL NOT BE RESPONSIBLE FOR ANY TOUCH-UP REQUIRED DUE TO YOUR FAILURE TO PROPERLY PROTECT FINISH PAINT.

ANCHOR BOLTS MUST BE SET BEFORE CROSSFRAMES AT BEARINGS ARE ERECTED. ALL FIELD BOLTS THRU BOTTOM FLANGE ARE TO HAVE HEADS UP. ALL FIELD BOLTS THRU WEB OF FASCIA GIRDERS ARE TO HAVE HEADS ON OUTSIDE OF WEB.

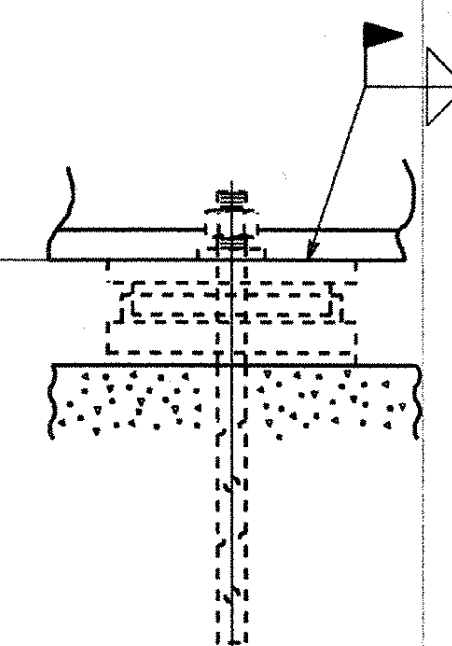
THE SHIPPING MARKS SHOWN CONSIST OF THE PREFIX INDICATING THE SHEET NUMBER UPON WHICH THE PIECE IS DETAILED ALONG WITH THE SHIPPING PIECE MARK.

ALL ELEVATIONS AND STATIONS ARE GIVEN IN METERS.

FILL GAP BETWEEN INSIDE SPLICE PLATES AND WEB AT BOTTOM FLANGE WITH SILICON CAULKING AS APPROVED BY ENGINEER (NOT BY H.S.S.I.).

CONTRACTOR NOTE:

ELEVATIONS ARE GIVEN TO BOTTOM OF STEEL - DO NOT POUR TO FINAL ELEVATIONS WITHOUT VERIFICATION OF BEARING HEIGHTS AND BRIDGE SEATS.

BOTTOM OF STEEL
FOR ELEV., SEE PLAN

SECTION A

VTrans
RECEIVED

OK'D BY: JWC OK'D BY:

JUN 03 2005

RESUBMIT: _____ APPROVED: _____

BY: _____ DATE: _____

ERECTOR NOTE: ALL BOLTS MUST BE LOCATED IN ACCORDANCE WITH THIS LIST OF FIELD CONNECTIONS. HIGH STEEL STRUCTURES WILL NOT BE RESPONSIBLE FOR FURNISHING ADDITIONAL BOLTS OR FOR ANY OTHER RELATED COSTS OR DAMAGES RESULTING FROM IMPROPER LOCATIONS OF BOLTS

LIST OF FIELD CONNECTIONS

ONE WASHER PER BOLT
UNLESS NOTED OTHERWISE

LINE	ACTUAL NUMBER REQ'D	BOLT DIAM.	BOLT LENGTH	BOLTS PER CONN.	NO. OF CONN.	GRIP	THICKNESS OF PIECES JOINED	PIECES CONNECTED AND REMARKS
1								ASTM A325, TYPE 3
2	560	7/8	3 1/2	112	5	51.8	15.9 20 15.9	WEB SPLICE
3	144	7/8	6	72	2	120	34.9 45 34.9 5.0	TOP FLG. SPLICE @ G1, G2 W/2 WASHERS
4	144	7/8	7	72	2	140	34.9 65 34.9 5.0	BOTT. FLG. SPLICE @ G1, G2 W/2 WASHERS
5	32	7/8	4	32	1	66.2	20.6 25 20.6	TOP FLG. SPLICE @ G3
6	32	7/8	4 1/4	32	1	73.2	20.6 32 20.6	BOTT. FLG. SPLICE @ G3
7	96	7/8	3 1/4	24	4	50.6	14.3 22 14.3	TOP & BOTT. FLG. SPLICE @ G4, G5
8	42	7/8	3 1/4	14	3	50.8	34.9 15.9	END CROSSFRAME - BRG. STIFF. TO GUSSET PLATE @ G1, G2 IN UNPAINTED AREA
9	28	7/8	3	14	2	41.3	25.4 15.9	END CROSSFRAME - BRG. STIFF. TO GUSSET PLATE @ G3 IN UNPAINTED AREA
10	42	7/8	2 3/4	14	3	38.1	22.2 15.9	END CROSSFRAME - BRG. STIFF. TO GUSSET PLATE @ G4, G5 IN UNPAINTED AREA
11	1480	7/8	2 1/2	20	74	31.8	15.9 15.9	INTERMEDIATE CROSSFRAME - CONN. PLATE TO GUSSET PLATE IN UNPAINTED AREA
12								ASTM A325, TYPE 1
13	42	7/8	3 1/4	14	3	50.8	34.9 15.9	END CROSSFRAME - BRG. STIFF. TO GUSSET PLATE @ G1, G2 IN PAINTED AREA
14	28	7/8	3	14	2	41.3	25.4 15.9	END CROSSFRAME - BRG. STIFF. TO GUSSET PLATE @ G3 IN PAINTED AREA
15	42	7/8	2 3/4	14	3	38.1	22.2 15.9	END CROSSFRAME - BRG. STIFF. TO GUSSET PLATE @ G4, G5 IN PAINTED AREA
16	120	7/8	2 1/2	20	6	31.8	15.9 15.9	INTERMEDIATE CROSSFRAME - CONN. PLATE TO GUSSET PLATE IN PAINTED AREA
17								

FIELD BOLT SUMMARY

(4% ADDITIONAL BOLTS ADDED + 3 EA. FOR TESTING)

ASTM A325 TYPE 3 BOLTS WITH HVY. HEX HEAD AND
ASTM A563 GRADE DH3 HVY. HEX NUT

153 - $\frac{7}{8}$ " HIGH STRENGTH BOLTS $\times$ 0'-7
153 - $\frac{7}{8}$ " HIGH STRENGTH BOLTS $\times$ 0'-6
37 - $\frac{7}{8}$ " HIGH STRENGTH BOLTS $\times$ 0'-4 1/4
37 - $\frac{7}{8}$ " HIGH STRENGTH BOLTS $\times$ 0'-4
585 - $\frac{7}{8}$ " HIGH STRENGTH BOLTS $\times$ 0'-3 1/2
147 - $\frac{7}{8}$ " HIGH STRENGTH BOLTS $\times$ 0'-3 1/4
33 - $\frac{7}{8}$ " HIGH STRENGTH BOLTS $\times$ 0'-3
47 - $\frac{7}{8}$ " HIGH STRENGTH BOLTS $\times$ 0'-2 3/4
1542 - $\frac{7}{8}$ " HIGH STRENGTH BOLTS $\times$ 0'-2 1/2

(RCT)

3034 HARD, FLAT F436 WEATHERING WASHERS
FOR $\frac{7}{8}$ " H. S. BOLTSASTM A325 TYPE 1 BOLTS WITH HVY. HEX HEAD AND
ASTM A563 GRADE DH HVY. HEX NUT

47 - $\frac{7}{8}$ " HIGH STRENGTH BOLTS $\times$ 0'-3 1/4
33 - $\frac{7}{8}$ " HIGH STRENGTH BOLTS $\times$ 0'-3
47 - $\frac{7}{8}$ " HIGH STRENGTH BOLTS $\times$ 0'-2 3/4
128 - $\frac{7}{8}$ " HIGH STRENGTH BOLTS $\times$ 0'-2 1/2

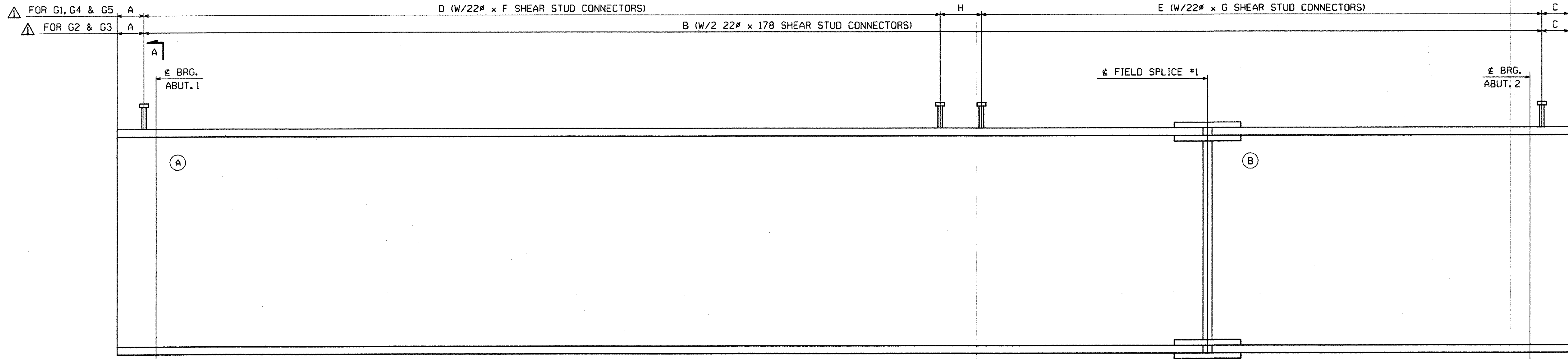
(RCT)

MECH. GALV. TO
B695 CLASS 50255 HARD, FLAT F436 WASHERS
FOR $\frac{7}{8}$ " H. S. BOLTS

(RCT) INDICATES ROTATIONAL CAPACITY TESTED BOLTS. DO NOT MIX NUTS, BOLTS AND WASHERS FROM DIFFERENT CONTAINERS UNLESS ALL NUTS, BOLTS AND WASHERS HAVE THE SAME LOT NUMBER.

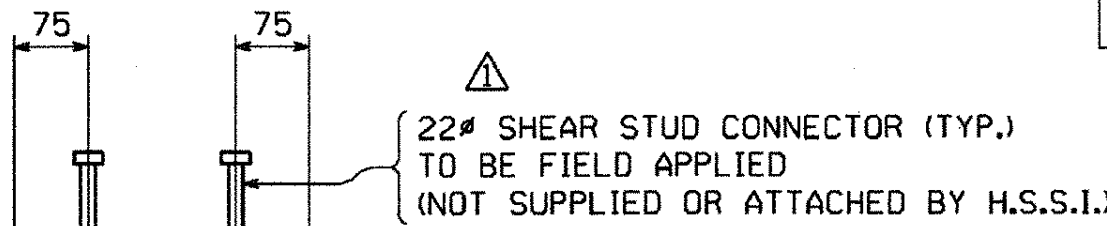
BY: mfr:edj

PLOTED: 4/28/2005
9:56:37 AM



SHEAR STUD CONNECTOR LOCATION LAYOUT

GDR. LINE	A	B	C	D	E	F	G	H
G1	215	--	215	22 @ 355 = 7810	101 @ 355 = 35 855	225	178	355
G2	197	131 @ 330 = 43 230	197	--	--	--	--	--
G3	278	119 @ 355 = 42 245	277	--	--	--	--	--
G4	253	--	253	94 @ 432 = 40 608	1 @ 432 = 432	178	225	432
G5	242	--	242	82 @ 457 = 37 474	6 @ 457 = 2742	178	225	457



SECTION A

☒ Reviewed
☐ Rejected

☐ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and correlated at the job site. Information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction, coordination of the Work with that of all other trades and performing all work in a safe and satisfactory manner.

McFarland-Johnson, Inc.
Date: 4/16/05
By: EFW

VTrans
RECEIVED

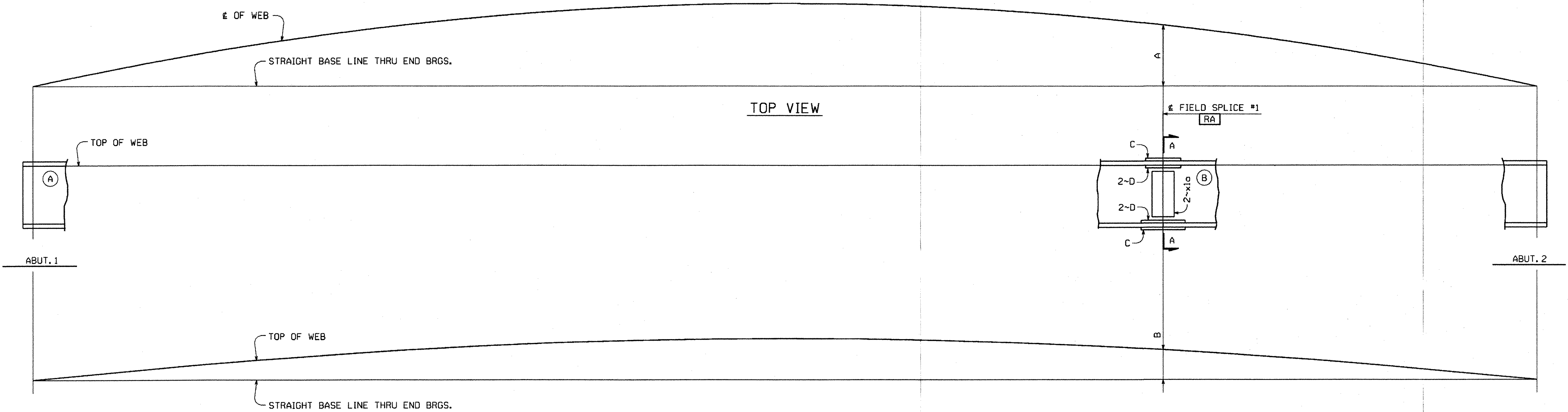
OK'D BY: JWC
JUN 03 2005

RESUBMIT: _____ APPROVED: _____
BY: _____ DATE: _____

NOTES:
FOR NOTES, SEE DRAWING E1.
WORK THIS DRAWING WITH DRAWING E1.
(A) INDICATES SUFFIX MARK OF SHIPPING PIECE.

△			
△			
△	DESIGN CHANGE	MGK	4-26-05
NO.	REVISION	BY	DATE
HIGH STEEL STRUCTURES, INC.  1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5211 A Division of High Industries, Inc.			
ERECTION PLAN - STUD LAYOUTS			
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE: GLIDDEN (IH) MADE BY: MGK CHK'D BY: RC DATE: 4-18-05			
CONTRACT NUMBER: VT-05017-1 DRAWING NUMBER: E2 OF E2			

10955



GDR. LINE	A	B	C	D
G1	1721	125	x1b	x1c
G2	1622	103	x1b	x1c
G3	1517	83	x1d	x1f
G4	1406	68	x1g	x1h
G5	1288	55	x1g	x1h

NOTES:
ALL SPLICE PLATES ARE MATCH MARKED AFTER REAMING AS SHOWN IN SECTION A-A. THE MATCH MARKS ON THE SPLICE MATERIAL CONSIST OF THE MARK OF THE GIRDER THEY ARE SHIPPED WITH AND A SUFFIX. THE MARKINGS ARE LOCATED ON THE STEEL AT THE END OF THE SPLICE MATERIAL WHICH IS ON THE GIRDER IT IS SHIPPED WITH. MATCH MARKING MARKS WILL APPEAR ON EDGES OF PLATES. THE CORRESPONDING SUFFIX (A, B, C, ETC.) IS MARKED NEAR THE SPLICE PLATE ON THE GIRDER (SEE VIEW B.) FOR GIRDER MARKS, SEE THE ERECTION FRAMING PLAN DRAWINGS. HOLES MARKED [RA] ARE TO BE SUB-PUNCHED/SUB-DRILLED 1/4" UNDER SIZE AND REAMED TO FULL SIZE OR DRILLED FROM SOLID WITH CONNECTING PARTS ASSEMBLED AND MATCH MARKED. HOLES TO BE 1 5/8".
Ⓐ INDICATES SUFFIX MARK OF SHIPPING PIECE.

☒ Reviewed
☐ Rejected

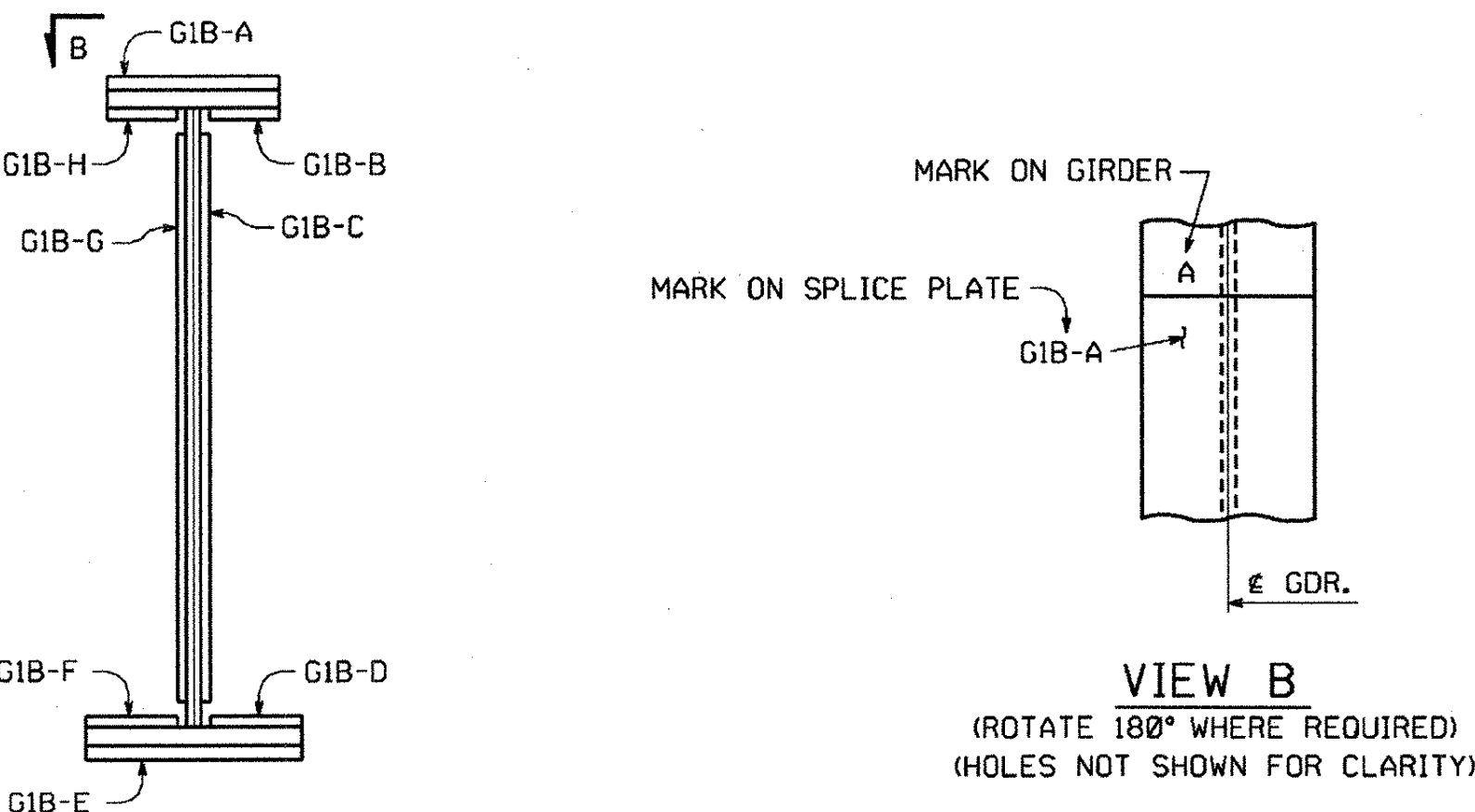
☐ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

This review is only for general conformance with the design contract and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and contained in the specifications, information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction, coordination of the work with that of all other trades and performing all work in a safe and satisfactory manner.

McFarland-Johnson, Inc.
Date: 6/10/05
By: [Signature]

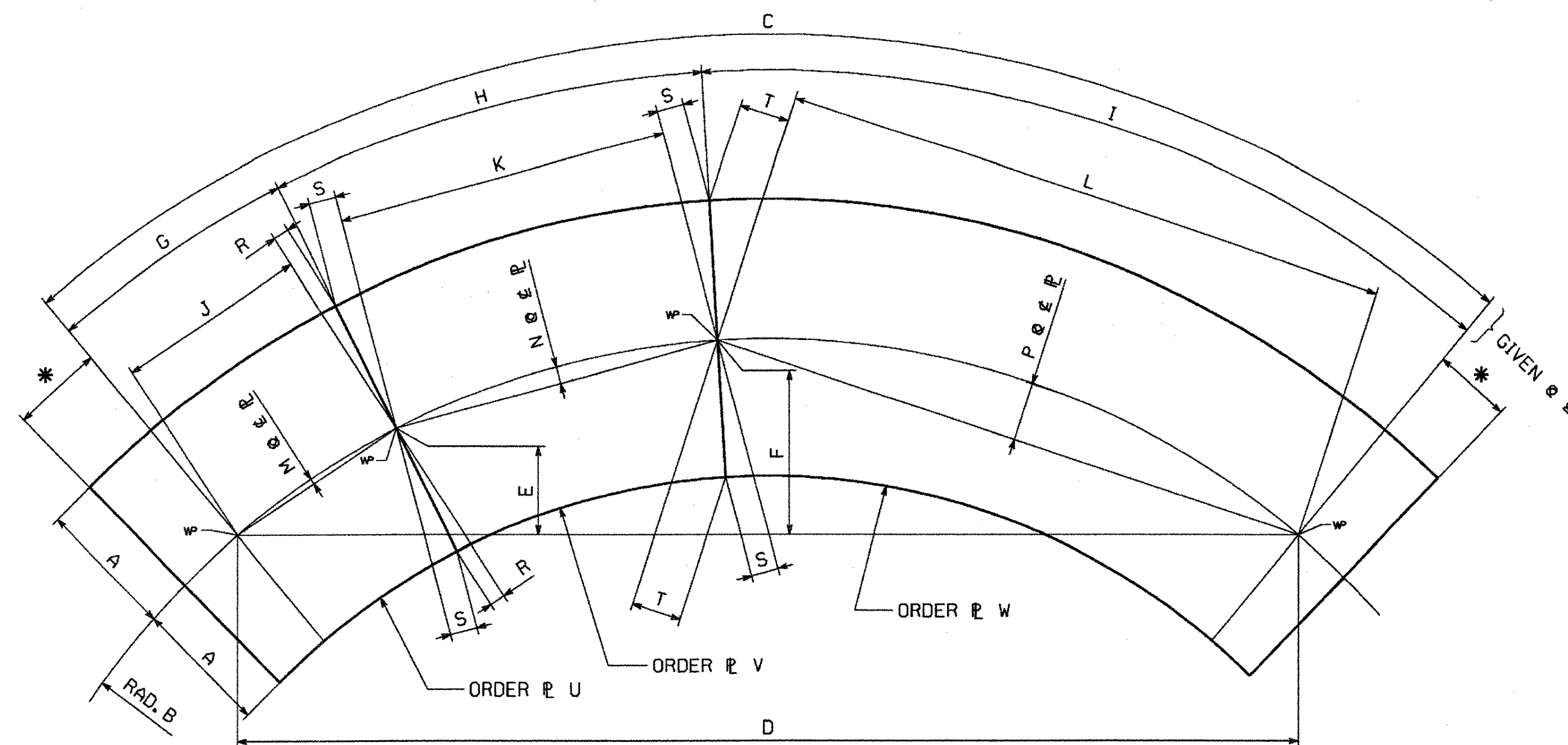
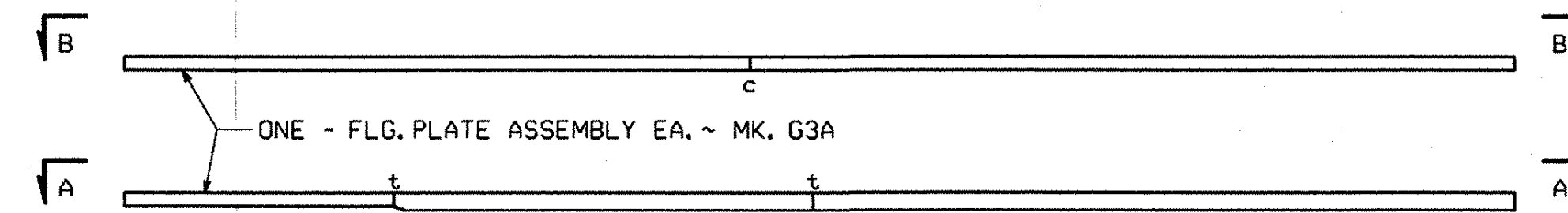
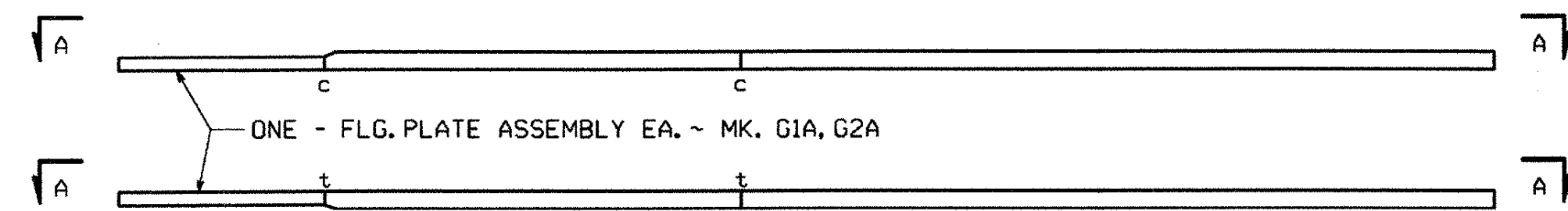
VTTrans
RECEIVED
CK'D BY: JWC
JUN 03 2005
RESUBMIT: _____ APPROVED: _____
BY: _____ DATE: _____

△			
△			
1	CAMBER DESIGN CHANGE	MGK	4-26-05
NO.	REVISION	BY	DATE
1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5211 HIGH STEEL STRUCTURES, INC. A Division of High Industries, Inc.			
SHOP ASSEMBLY DIAGRAM			
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE: GLIDDEN (IH) MADE BY: MGK CHK'D BY: RC DATE: 4-13-05			
CONTRACT NUMBER: VT-05017-1 DRAWING NUMBER: SA1 OF SA1			

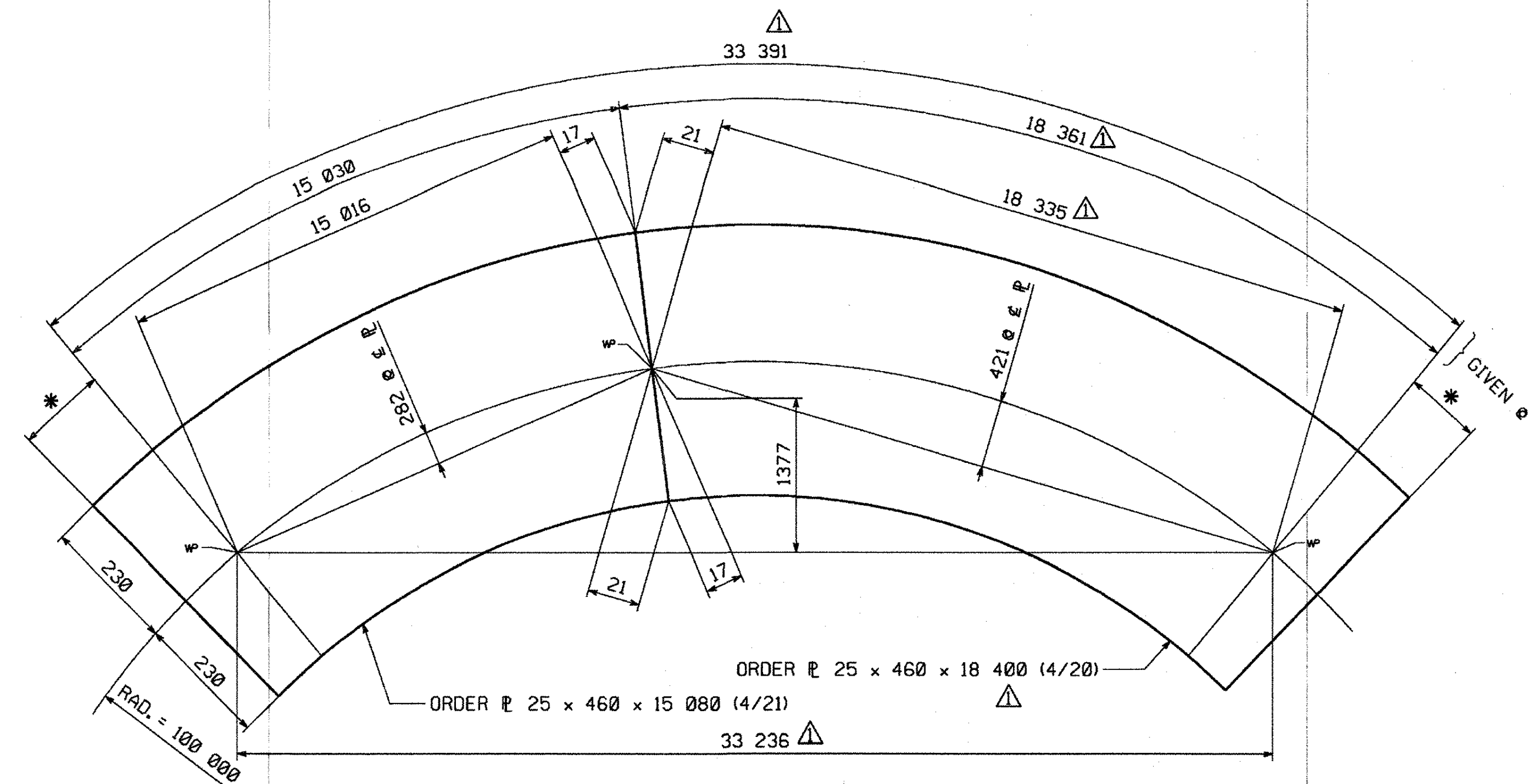


SECTION A-A FOR G1B
(G2B THRU G5B SIMILAR)

BY: mkr-etal
PLOTTED: 4/28/2005
9:38:35 AM



VIEW A-A



VIEW B-B

		△		△		△		△		△		△		△		△		△	
MARK	FLANGE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	R	S	T
G1A	TOP	305	105 030	33 239	33 100	667	1300	4970	10 060	18 209	4970	10 056	18 186	29	120	394	7	15	26
G2A	TOP	305	102 515	33 313	33 166	767	1346	5716	10 064	17 533	5715	10 060	17 511	40	123	375	9	15	26
G1A	BOTT.	305	105 030	33 214	33 076	666	1298	4970	10 060	18 184	4970	10 056	18 161	29	120	393	7	15	26
G2A	BOTT.	305	102 515	33 293	33 147	766	1345	5716	10 064	17 513	5715	10 060	17 491	40	123	374	9	15	26
G3A	BOTT.	230	100 000	33 376	33 221	867	1389	6466	10 064	16 846	6465	10 060	16 826	52	127	355	7	12	15

						
MARK	FLANGE	U		V		W
G1A	TOP	32 x 610 x 5020 (4/16)		45 x 610 x 10 120 [10 060] (4/7)		45 x 610 x 18 260 (4/5)
G2A	TOP	32 x 610 x 5760 (4/14)		45 x 610 x 10 120 [10 064] (4/7)		45 x 610 x 17 600 (4/6)
G1A	BOTT.	32 x 610 x 5020 (T) (4/15)		65 x 610 x 10 120 [10 060] (T) (4/3)		65 x 610 x 18 240 (T) (4/1)
G2A	BOTT.	32 x 610 x 5760 (T) (4/13)		65 x 610 x 10 120 [10 064] (T) (4/3)		65 x 610 x 17 580 (T) (4/2)
G3A	BOTT.	25 x 460 x 6500 (T) (4/23)		32 x 460 x 10 120 [10 064] (T) (4/18)		32 x 460 x 16 900 (T) (4/17)

☒ Reviewed
☐ Rejected
☐ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

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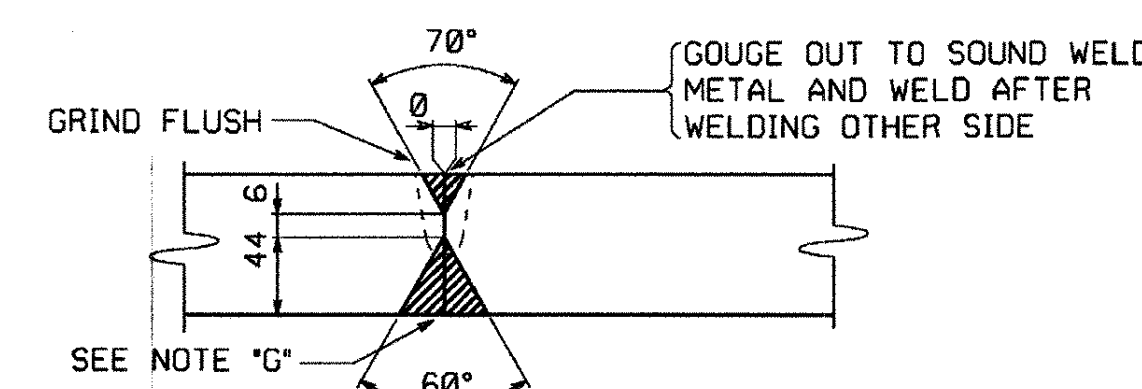
McFarland-Johnson, Inc.

Date 6/21/05
By ETW

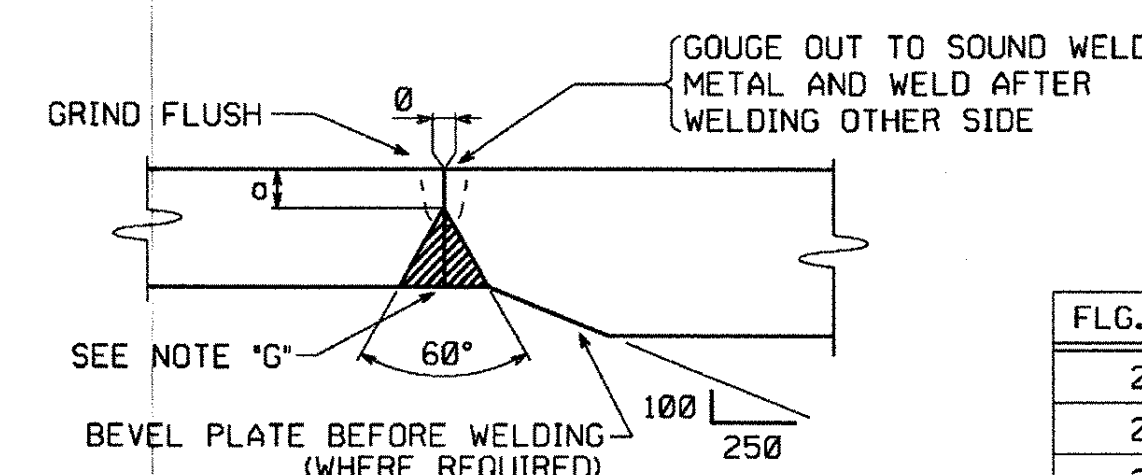
NOTES:

FOR GENERAL SHOP NOTES, SEE DRAWING GNI.
(7) INDICATES PLATES THAT REQUIRE CHAPPY V-NOTCH TEST.
DIMENSIONS SHOWN THUS: [10 060] ARE THE ACTUAL DIMENSIONS
THAT WILL APPEAR ON THE GIRDER DETAIL DRAWINGS.
THE LETTERS "t" & "c" AT FLANGE SPLICES INDICATE TENSION
AND COMPRESSION SPLICES RESPECTIVELY.
ALL SPLICES MARKED "t" TO BE RADIOGRAPHICALLY TESTED 100%.
ALL SPLICES MARKED "c" TO BE RADIOGRAPHICALLY TESTED 25%.
ARC DIMENSIONS ARE GIVEN TO ENDS OF PLATES AS DETAILED
ON GIRDER DETAILS.

* INDICATES FLANGE OVER RUN THAT IS TO BE TRIMMED AFTER
FLANGE IS WELDED TO WEB.
WORK THIS DRAWING WITH DRAWINGS FS2 & FS3.



TYPICAL FLANGE PLATE SPLICE
FOR FLANGE PLATES THICKER THAN 50 mm (B-U3c-S)



TYPICAL FLANGE PLATE SPLICE

FLG. THK.	α
22	
25	
32	10
45	13

NOTE "G"

ALL SPLICES MAY HAVE A MAXIMUM REINFORCEMENT OF 3 mm. GRIND SMOOTH AT SPLICES THAT ARE TO BE TESTED AND ALL BOTTOM FLANGE SPLICES.

VTans
RECEIVED
CK'D BY JWC CK'D BY _____
JUN 03 2005
RESUBMIT _____ APPROVED _____
BY _____ DATE _____

			
			
	CAMBER DESIGN CHANGE	MGK	4-26-05
NO.	REVISION	BY	DATE

HIGH STEEL STRUCTURES, INC.

1770 Hempstead Road
Lancaster, PA 17605-0008
Phone 717/299-5211

A Division of High Industries, Inc.

FLANGE SPLICE DETAILS

U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK

U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110

TOWN OF HARTLAND

WINDSOR COUNTY, VERMONT

STATE OF VERMONT, AGENCY OF TRANSPORTATION

STATE CONTRACT OR REF NO.	PROJECT NO. BRS-0113(22
------------------------------	-------------------------

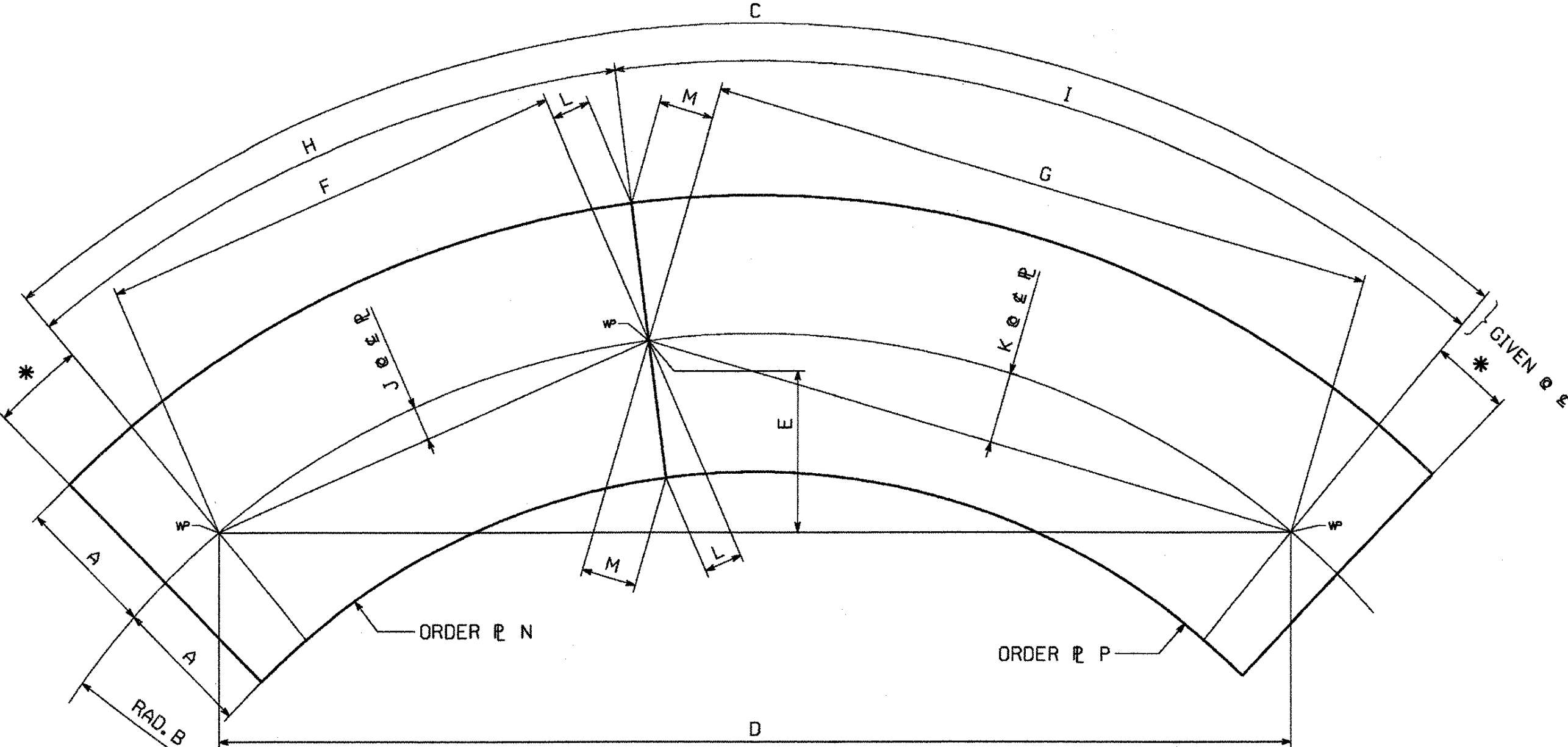
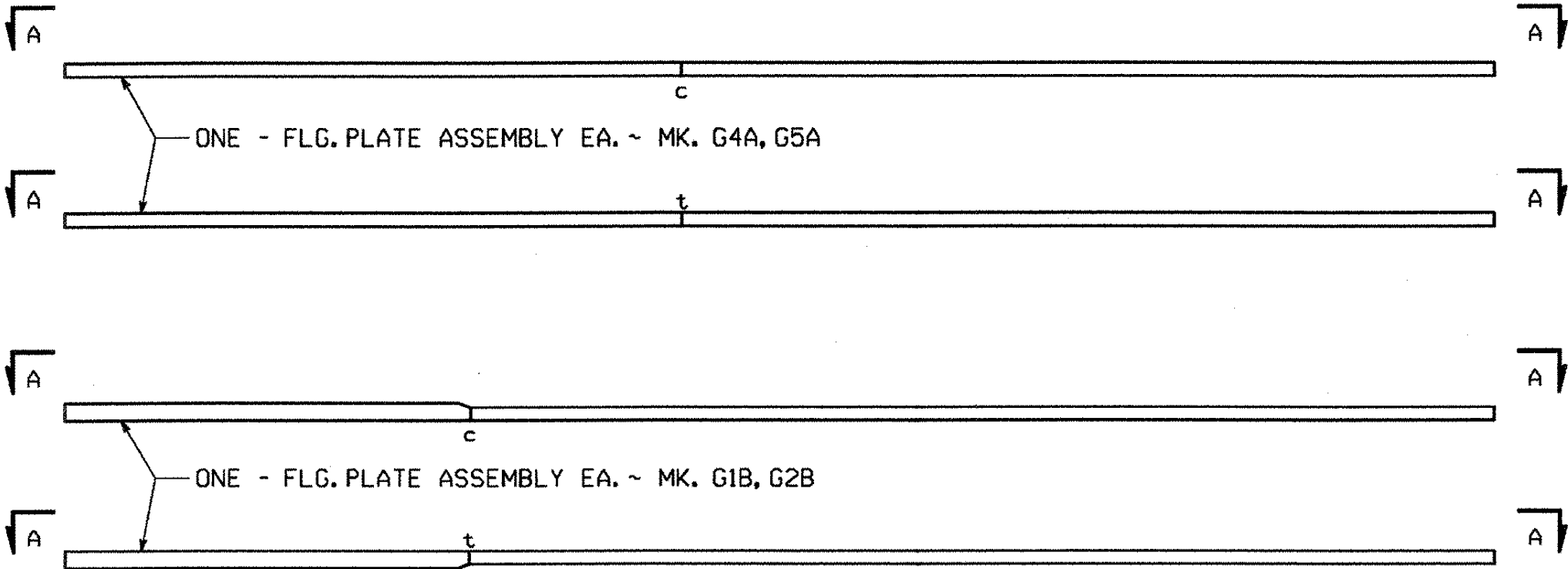
OR REF. NO. _____ PROJECT NO. BRS-011302
MILLER CONSTRUCTION, INC.

CONTRACTOR MILLER CONSTRUCTION, INC.

IN CHARGE: GLIDDEN (IH) MADE BY: BBM CHK'D. BY: MGK DATE: 4/15/05

CONTRACT VT-05017-1

DRAWING ES1 OF ES3



VIEW A-A

MARK	FLANGE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P
G4A	TOP	205	97 485	33 471	33 307	1421	15 215	18 215	15 230	18 241	297	426	16	19	22 x 410 x 15 280 (4/32)	22 x 410 x 18 280 (4/28)
G5A	TOP	205	94 970	33 556	33 382	1466	15 214	18 298	15 230	18 326	305	442	16	20	22 x 410 x 15 280 (4/31)	22 x 410 x 18 360 (4/26)
G4A	BOTT.	205	97 485	33 460	33 296	1421	15 215	18 204	15 230	18 230	297	426	16	19	22 x 410 x 15 280 (T) (4/30)	22 x 410 x 18 280 (T) (4/27)
G5A	BOTT.	205	94 970	33 548	33 374	1465	15 214	18 290	15 230	18 318	305	441	16	20	22 x 410 x 15 280 (T) (4/29)	22 x 410 x 18 360 (T) (4/25)
G1B	TOP	305	105 030	11 230	11 225	126	3360	7868	3360	7870	13	74	5	11	45 x 610 x 3400 (4/8)	32 x 610 x 7920 (4/10)
G2B	TOP	305	102 515	10 326	10 322	113	3286	7039	3286	7040	13	60	5	10	45 x 610 x 3400 (4/8)	32 x 610 x 7080 (4/12)
G1B	BOTT.	305	105 030	11 211	11 206	125	3341	7868	3341	7870	13	74	5	11	65 x 610 x 3380 (T) (4/4)	32 x 610 x 7920 (T) (4/9)
G2B	BOTT.	305	102 515	10 309	10 305	112	3269	7039	3269	7040	13	60	5	10	65 x 610 x 3380 (T) (4/4)	32 x 610 x 7080 (T) (4/11)

☒ Reviewed
☐ Rejected

☐ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments must be on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specification shall not include review of an assembly of which the item is a component. This Contractor is responsible for dimensions to be confirmed and corrected at the jobsite. Information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of all other trades and performing all work in a safe and satisfactory manner.

McFarland-Johnson, Inc.
Date: 6/10/05
By: [Signature]

VTrans
RECEIVED
OK'D BY: [Signature] OK'D BY: [Signature]
JUN 03 2005
RESUBMIT: _____ APPROVED: _____
BY: _____ DATE: _____

NOTES:
FOR WELDING DETAILS, SEE DWG. FS1.
FOR OTHER NOTES, SEE DWG. FS1.

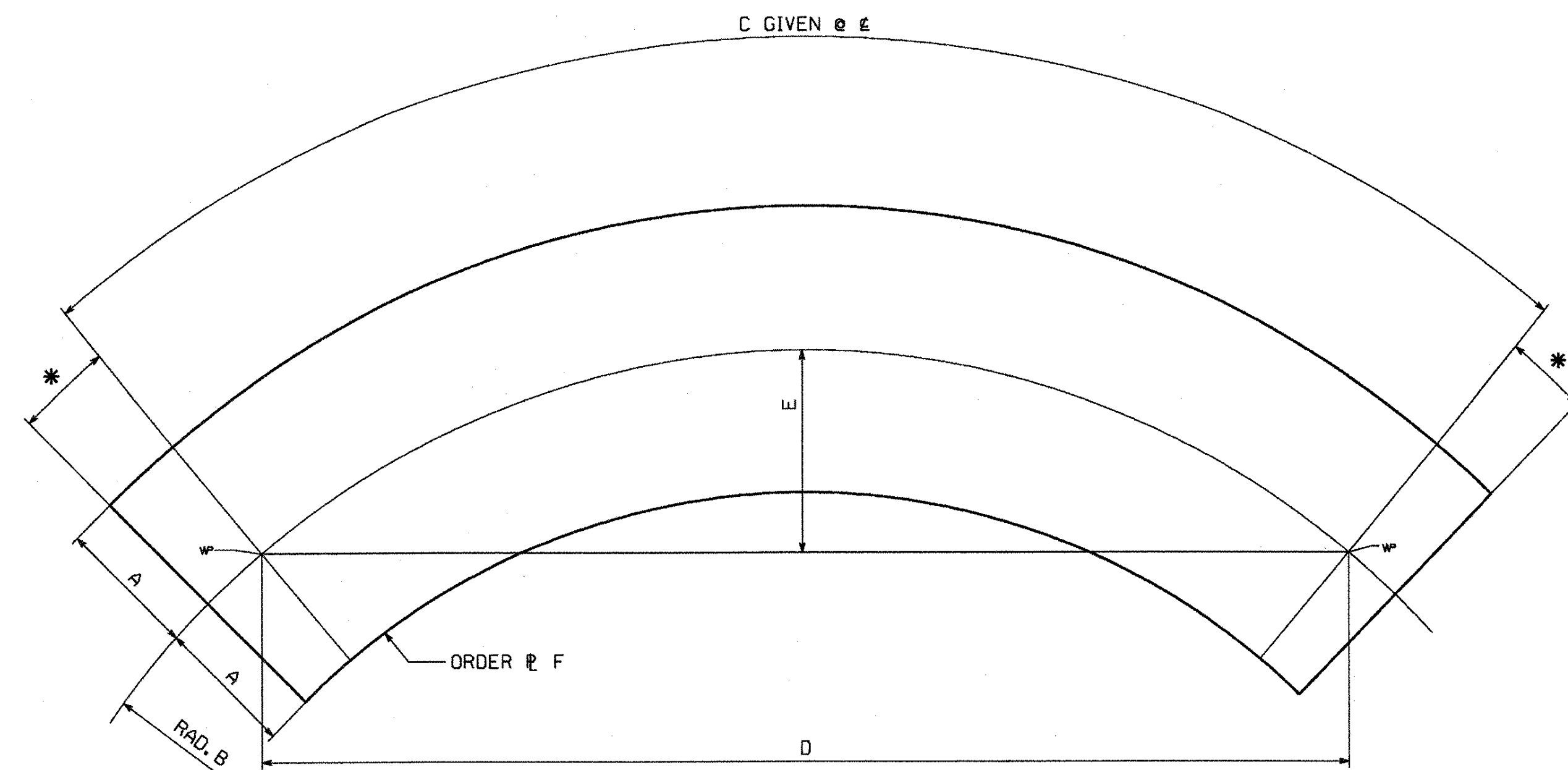
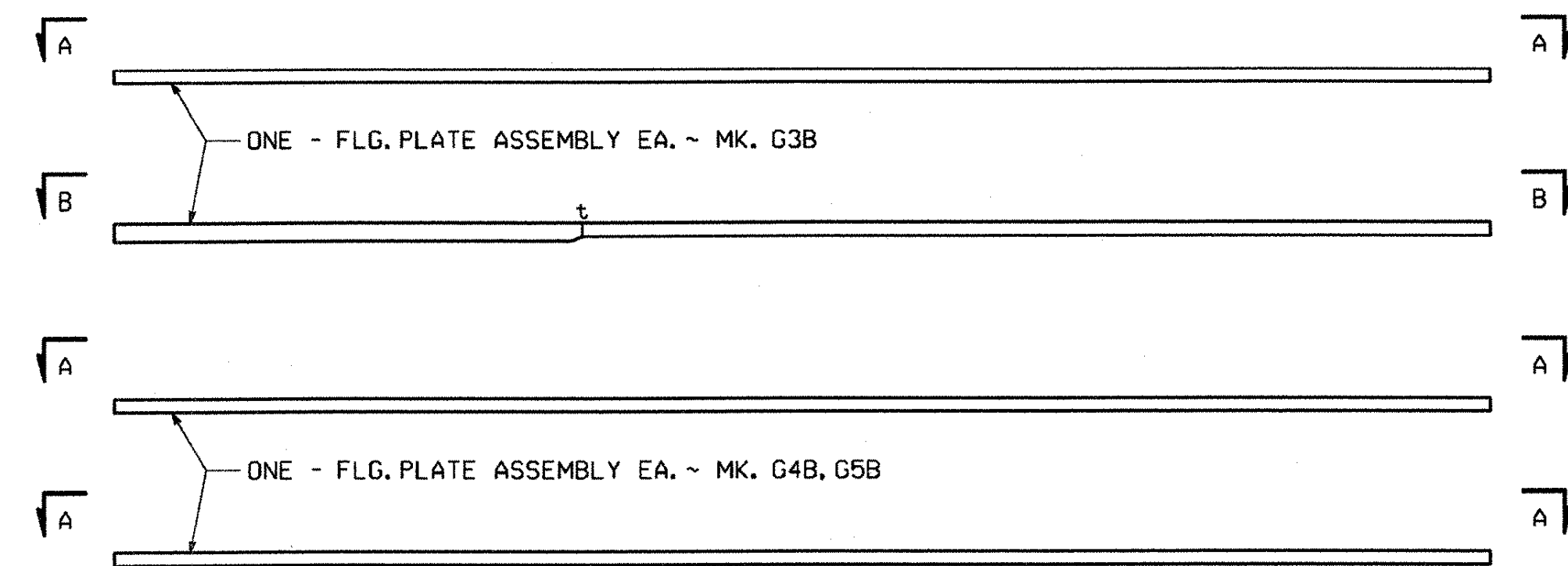
△			
△			
1	CAMBER DESIGN CHANGE	MGK	4-26-05
NO.	REVISION	BY	DATE
HIGH STEEL STRUCTURES, INC. 1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5211 A Division of High Industries, Inc.			
FLANGE SPLICE DETAILS			
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE: GLIDDEN (IH) MADE BY: DBM CHK'D BY: MGK DATE: 4/15/05			
CONTRACT NUMBER: VT-05017-1 DRAWING NUMBER: FS2 OF FS3			

CODE: 30

11055

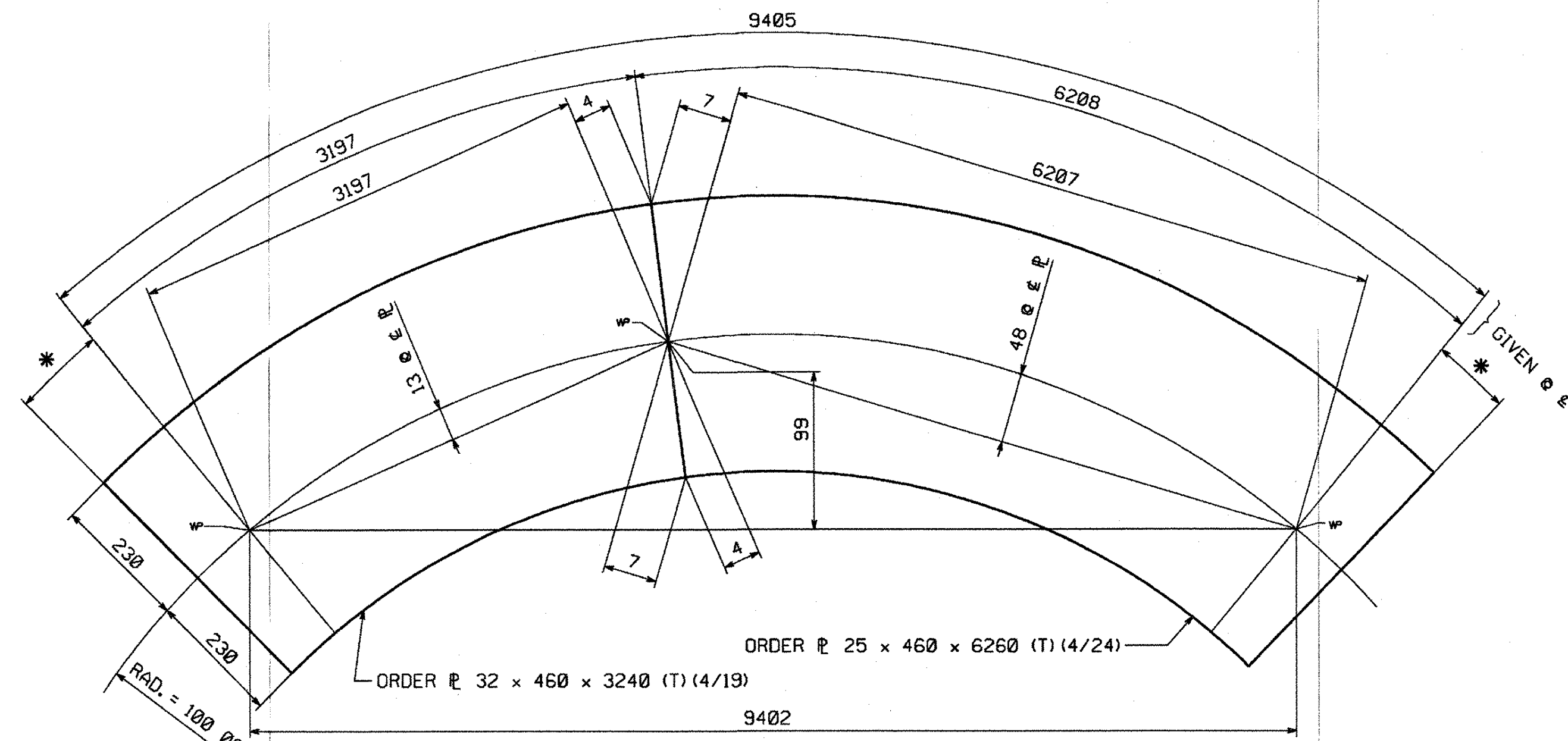
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED
2. ALL WEIGHTS ARE IN KILOGRAMS.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.
	VT	



VIEW A-A

		$\triangle$		$\triangle$			
MARK	FLANGE	A	B	C	D	E	F
G3B	TOP	230	100 000	9420	9417	111	25 x 460 x 9460 (4/22)
G4B	TOP	205	97 485	8513	8510	93	22 x 410 x 8560 (4/33)
G5B	TOP	205	94 970	7606	7604	76	22 x 410 x 7660 (4/35)
G4B	BOTT.	205	97 485	8501	8498	93	22 x 410 x 8540 (T) (4/34)
G5B	BOTT.	205	94 970	7595	7593	76	22 x 410 x 7640 (T) (4/36)



VIEW B-B

RECEIVED
CK'D BY JWC OK'D BY _____
JUN 03 2005
RESUBMIT _____ APPROVED _____
BY _____ DATE _____

NOTES:

FOR WELDING DETAILS, SEE DWG. FS1.
FOR OTHER NOTES, SEE DWG. FS1.

☒ Reviewed
☐ Rejected

☐ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of all other trades; and performing all work in a safe and satisfactory manner.

McFarland-Johnson, Inc.

Date 6/27/05
By ERW

CODE: 30

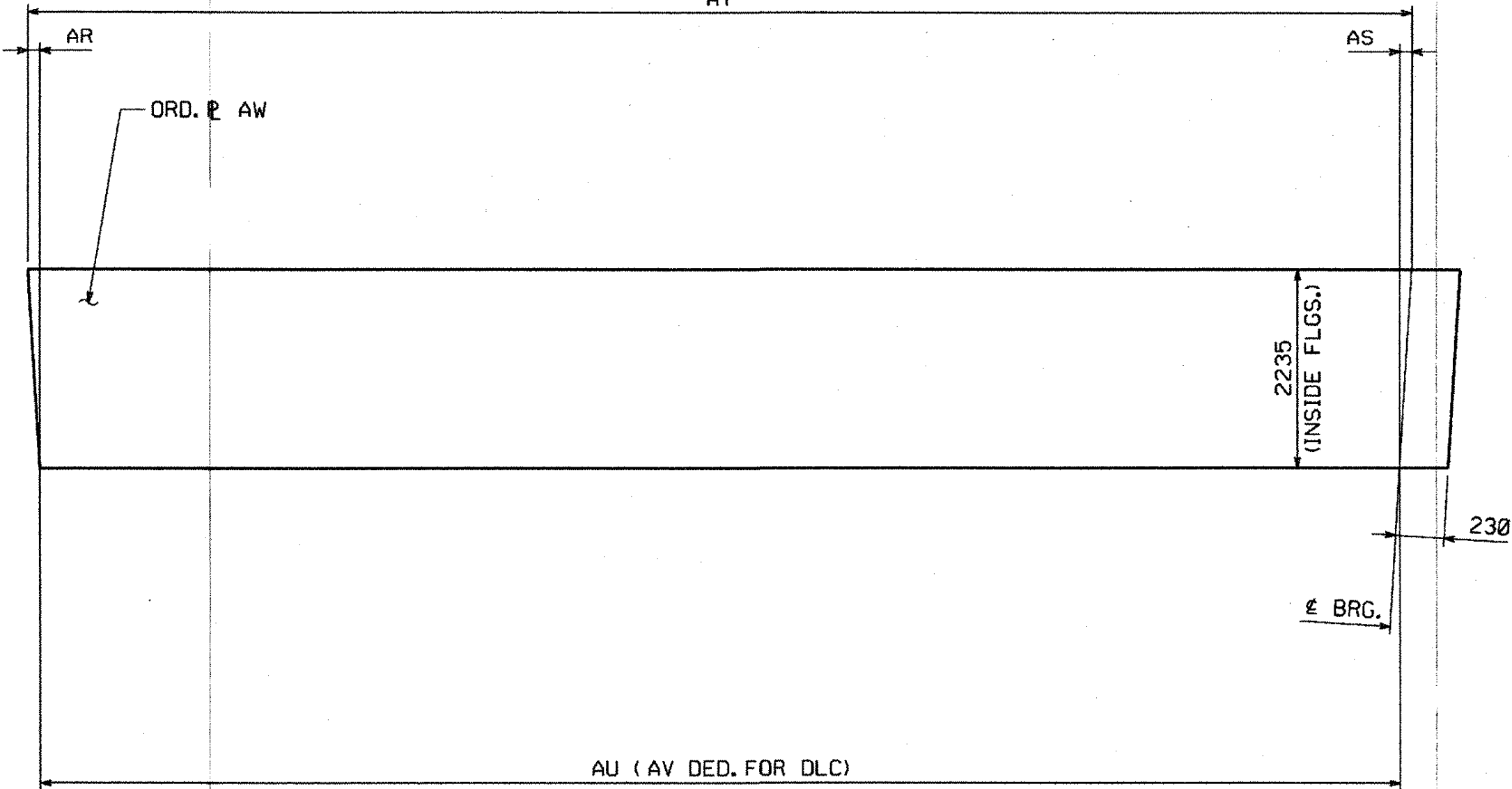
			
	CAMBER CHANGE	MKG	4-26-05
NO.	REVISION	BY	DATE
 HIGH STEEL STRUCTURES, INC. 1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5211 <i>A Division of High Industries, Inc.</i>			
FLANGE SPLICE DETAILS			
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE:	GLIDDEN (IH)	MADE BY:	DBM MKG DATE: 4/15/05
CONTRACT NUMBER:	VT-05017-1	DRAWING NUMBER:	FS3 OF FS3

111 SS

METRIC

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.
	VT	



MARK	AR	AS	AT	AU	AV	AW
G3B	4	11	9190	9175	2	20 x 2260 x 9480 (3/6)
G4B	3	9	8283	8271	2	20 x 2260 x 8580 (3/7)
G5B	4	7	7376	7365	0	20 x 2260 x 7660 (3/8)

- ☒ Reviewed
☐ Rejected
☐ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

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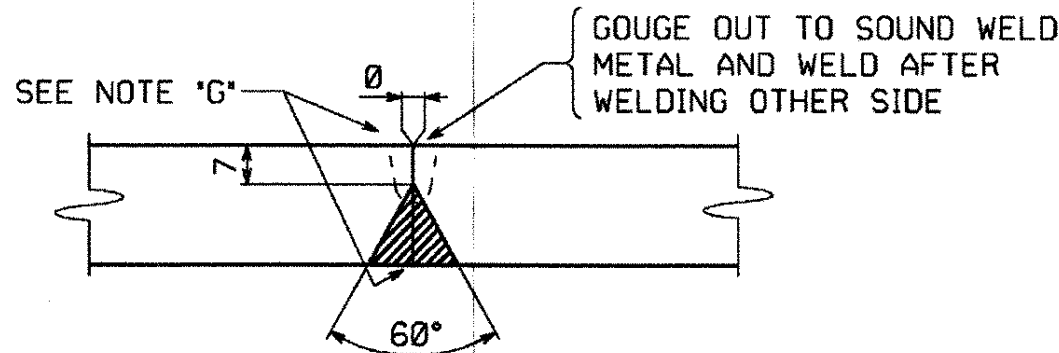
McFarland-Johnson, Inc.
Date: 6/10/05
By: ECU

VTrans
RECEIVED

OK'D BY: JWC
JUN 03 2005
RESUBMIT: _____
BY: _____ DATE: _____

NOTES:

FOR GENERAL SHOP NOTES, SEE DRAWING G01.
ALL WEB PLATES REQUIRE CHARPY V-NOTCH TEST.
THE LETTERS 't' & 'c' AT WEB SPLICES INDICATE TENSION AND COMPRESSION EDGES AT SPLICES.
RT INDICATES RADIOGRAPHIC TESTING FOR 1/6 OF THE WEB DEPTH AT TENSION EDGE PLUS 25% OF THE REMAINDER.



TYPICAL WEB PLATE SPLICE
FOR WEB PLATES 13 mm TO 50 mm THICK (B-L2c-S)

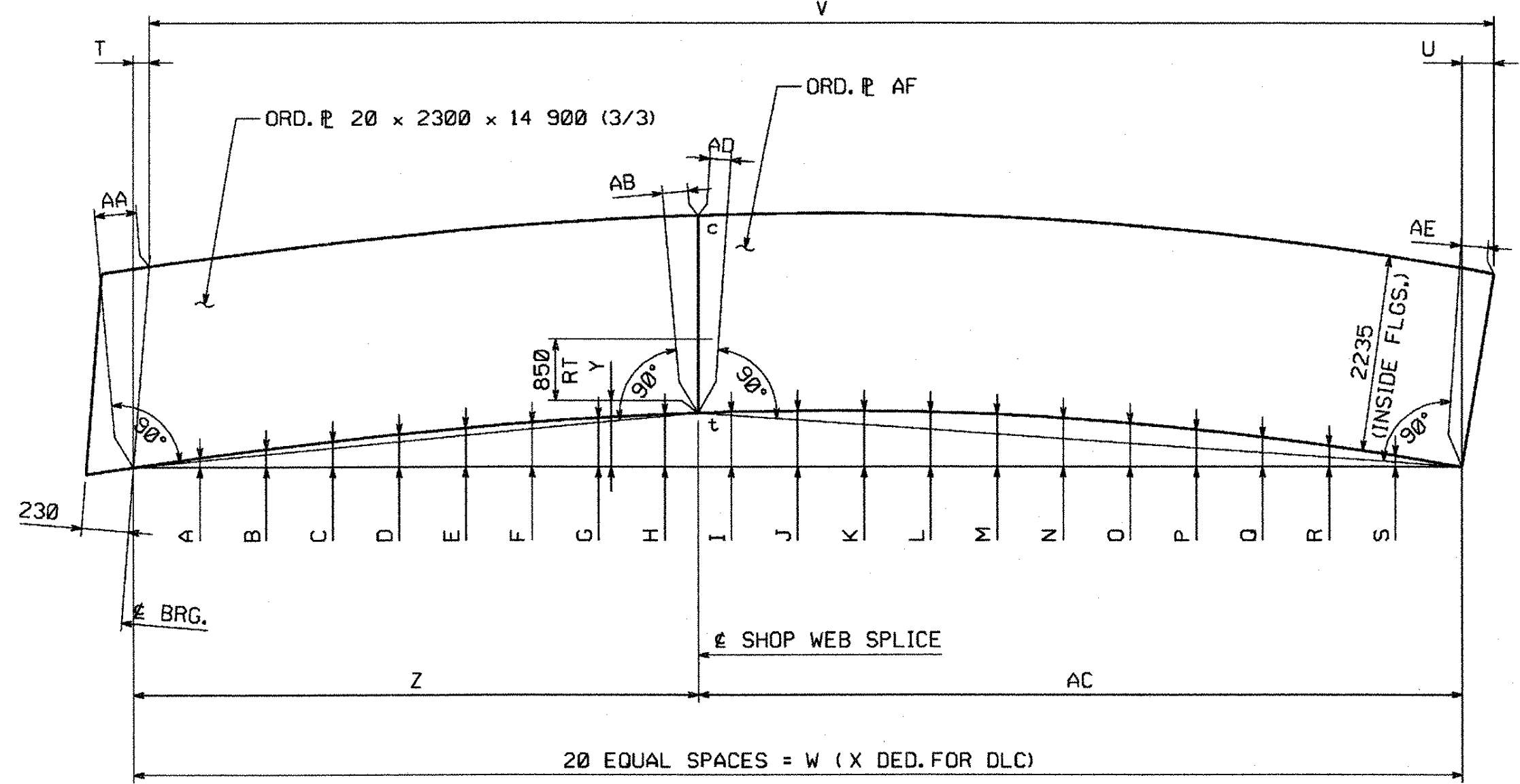
NOTE "G"

ALL WELDS MAY HAVE A MAXIMUM REINFORCEMENT OF 3 mm. GRIND THE WELDS SMOOTH IN THE AREAS TO BE TESTED AND FOR THE FULL DEPTH OF WEB ON G1A (F.S.) AND G5A (I.S.).

CODE: 30

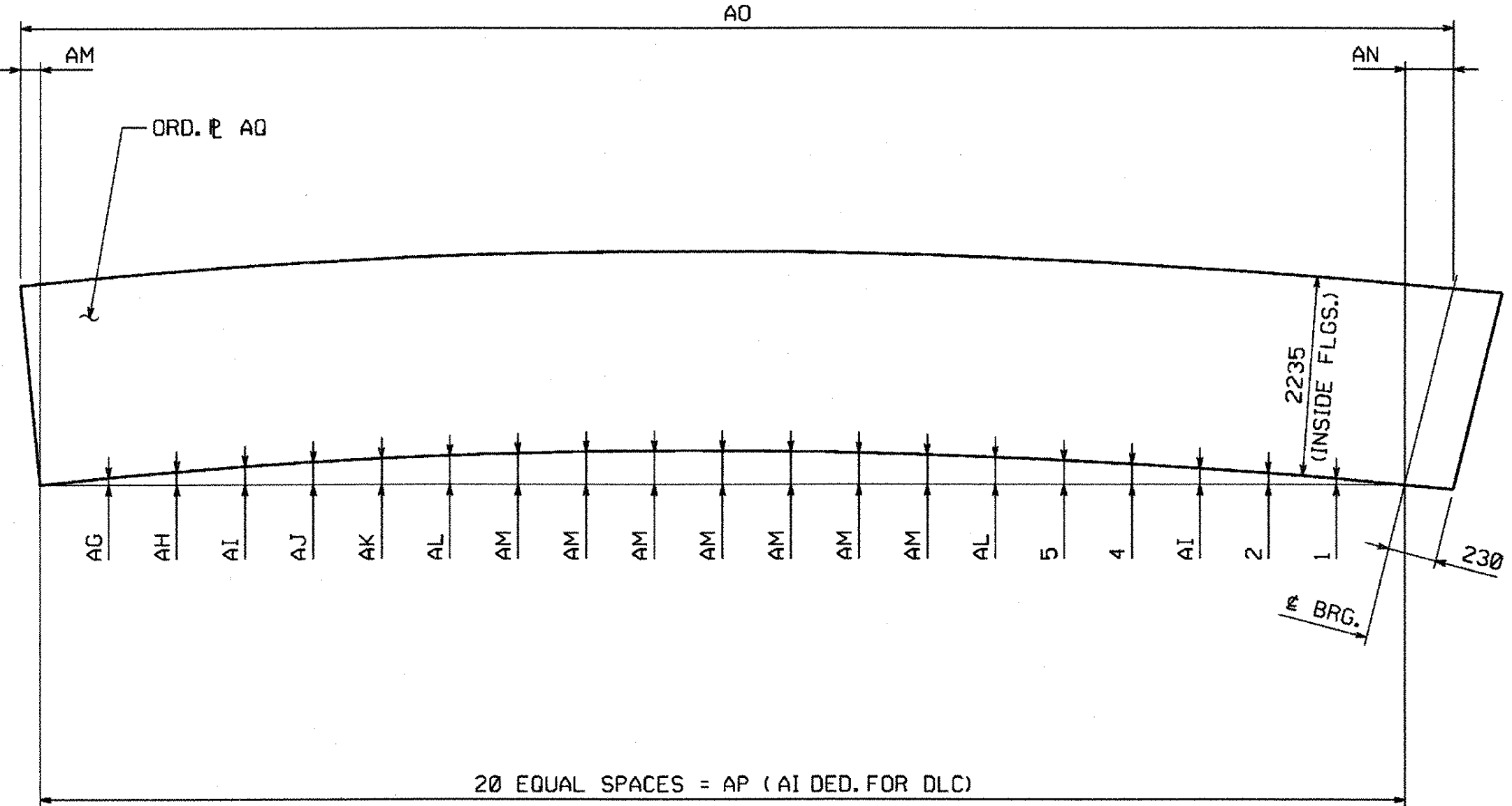
△		
△		
△	CAMBER DESIGN CHANGE	WW 4-28-05
NO.	REVISION	BY DATE
HIGH STEEL STRUCTURES, INC. 1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5211 A Division of High Industries, Inc.		
WEB CAMBER DIAGRAM		
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK		
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110		
TOWN OF HARTLAND		
WINDSOR COUNTY, VERMONT		
STATE OF VERMONT, AGENCY OF TRANSPORTATION		
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-01131221		
CONTRACTOR MILLER CONSTRUCTION, INC.		
IN CHARGE: GLIDDEN (IH)	MADE BY: KMA	CHK'D BY: SJA DATE: 4-21-05
CONTRACT NUMBER: VT-05017-1		DRAWING NUMBER: WC1 OF WC1

11255



MARK	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE			
G1A	16	31	45	57	68	78	86	92	96	98	98	96	92	85	76	65	52	37	19	2	27	33 008	32	983	18	95	14	592	17	15	18	391	11	15
G2A	15	29	41	52	62	71	78	84	88	90	90	88	84	78	70	60	47	33	17	4	24	33 082	33	062	15	87	14	593	17	13	18	469	11	13
G3A	12	24	35	46	56	64	70	76	79	81	82	80	77	71	63	54	42	30	16	7	22	33 160	33	145	12	79	14	594	19	12	18	551	9	13
G4A	11	22	33	42	51	58	64	69	72	73	73	72	69	63	56	48	38	27	14	9	20	33 241	33	230	10	71	14	595	20	11	18	635	8	11
G5A	11	22	31	40	47	53	58	62	64	65	65	63	60	55	49	42	34	24	12	9	17	33 326	33	318	9	64	14	596	19	10	18	722	7	9

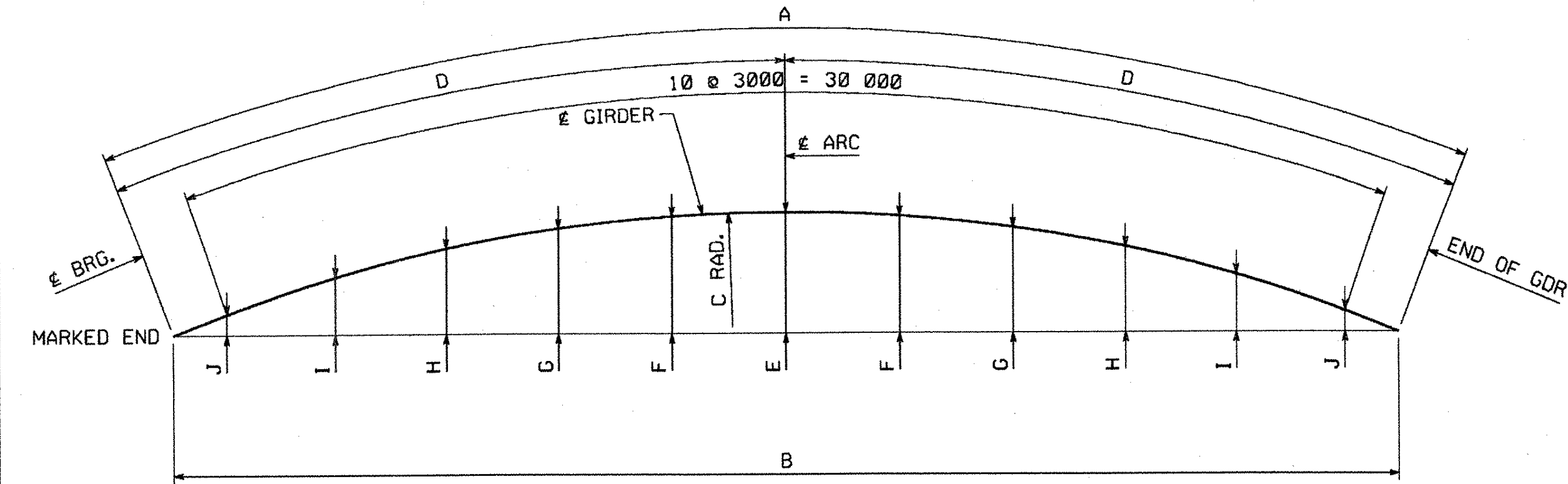
MARK	AF
G1A	20 x 2320 x 18 720 (3/2)
G2A	20 x 2320 x 18 720 (3/2)
G3A	20 x 2320 x 18 720 (3/2)
G4A	20 x 2320 x 18 720 (3/2)
G5A	20 x 2320 x 18 800 (3/1)



MARK	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ
G1B	2	3	4	5	6	6	7	12	11 000	10 981	20 x 2280 x 11 280 (3/4)
G2B	1	2	3	4	4	5	6	11	10 096	10 079	20 x 2280 x 10 380 (3/5)

BY: mk-reid-1

PLOTTED: 4/28/2005
9:28:44 AM



MARK	A	B	C	D	E	F	G	H	I	J
G1A	33 008	32 872	105 030	16 504	1294	1251	1123	909	609	225
G2A	33 082	32 939	102 515	16 541	1332	1288	1156	937	630	236
G3A	33 160	33 008	100 000	16 580	1371	1326	1191	967	652	248
G4A	33 241	33 080	97 485	16 621	1413	1367	1229	998	676	262
G5A	33 326	33 155	94 970	16 663	1458	1411	1269	1032	701	276

△

△

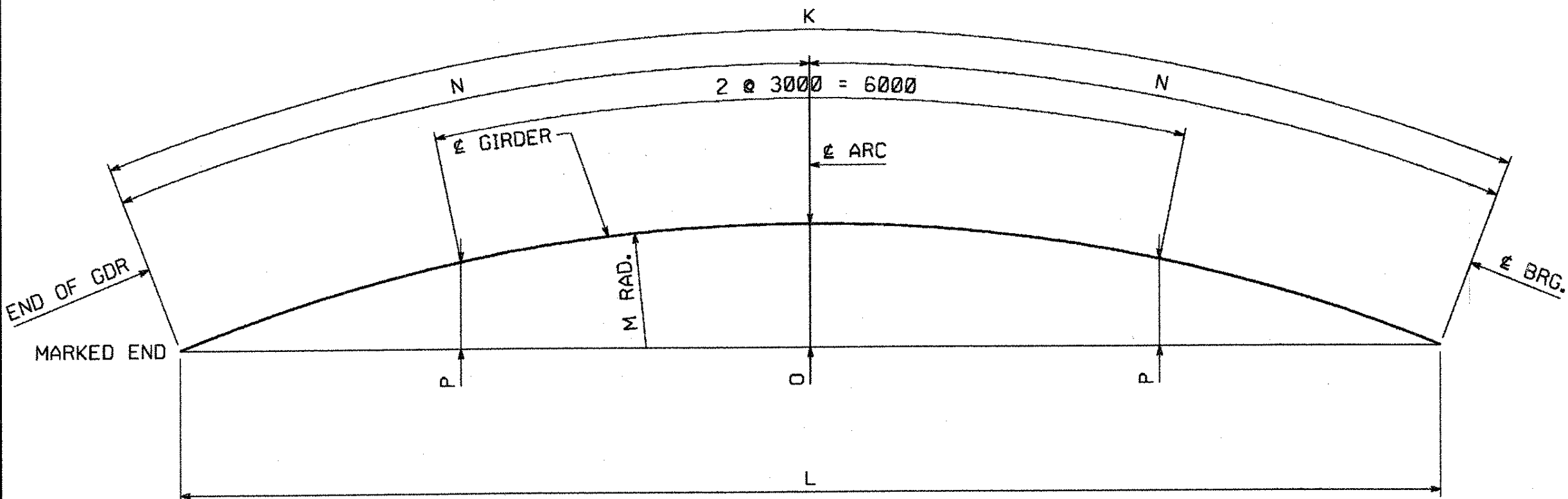
△

△

△

△

△



MARK	K	L	M	N	O	P
G1B	11 000	10 995	105 030	5500	144	101
G2B	10 096	10 092	102 515	5048	124	80
G3B	9190	9187	100 000	4595	106	61
G4B	8283	8281	97 485	4142	88	42
G5B	7376	7374	94 970	3688	72	24

△

△

△

△

△

NOTES:
ALL DIMENSIONS APPLY AT THE TOP OF WEB PLATE OF THE GIRDERS.

☒ Reviewed
☐ Rejected

☐ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

This review is only for general conformance with the design content and the information given in the Construction Documents. Corrections or omissions made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specification shall not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and correlated at the job site. Information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of all other trades and performing all work in a safe and satisfactory manner.

McFarland-Johnson, Inc.
Date: 6/12/05
By: CWS

VTTrans

RECEIVED

CHK'D BY: JWE OK'D BY: _____

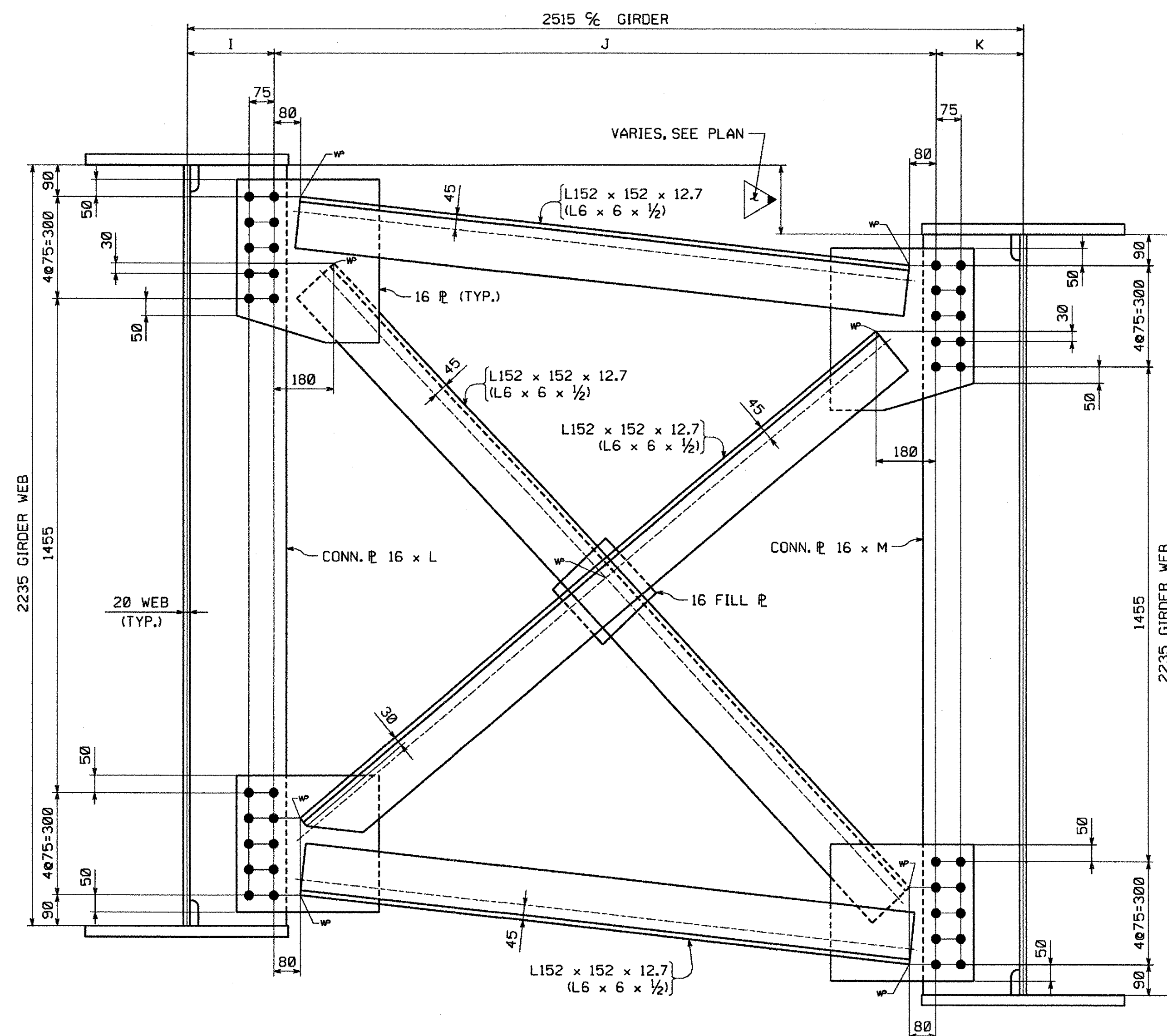
JUN 03 2005

RESUBMIT: _____ APPROVED: _____

BY: _____ DATE: _____

△			
△			
△	CAMBER DESIGN CHANGE	WW	4-28-05
NO.	REVISION	BY	DATE
HIGH STEEL STRUCTURES, INC.		1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5281 A Division of High Industries, Inc.	
HORIZONTAL CURVE DIAGRAMS			
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE: GLIDDEN (IH)		MADE BY: KMA	CHK'D BY: SJA DATE: 4-21-05
CONTRACT NUMBER: VT-05017-1		DRAWING NUMBER: HC1 OF HC1	

CODE: 30



INTERMEDIATE CROSSFRAME LAYOUT
(LOOKING STATIONS AHEAD)

LOCATION	I	J	K	L	M
G1 - G2	262	1991	262	290	291
G2 - G3	262	2066	187	290	215
G3 - G4	187	2166	162	215	190
G4 - G5	162	2191	162	190	190

VIVAS
 RECEIVED
 CK'D BY Jwc CK'D BY _____
 JUN 21 2005
 RESUBMIT _____ APPROVED _____
 BY _____ DATE _____

☒ Reviewed
☐ Rejected

☐ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

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McFarland-Johnson, Inc. _____
Date 6/27/05
By EGW

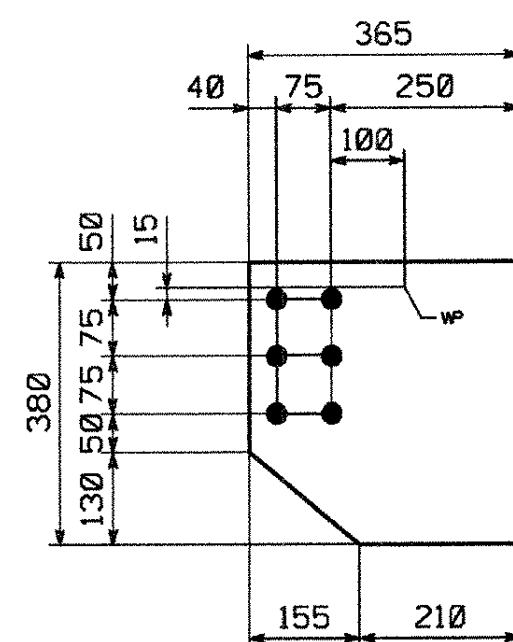
NOTES:
FOR NOTES, SEE DRAWING WS1.
WORK THIS DRAWING WITH DRAWING WS1.
ALL HOLES TO BE $\frac{15}{16}$ " ϕ FOR $\frac{7}{8}$ " ϕ H.S. BOLTS.

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

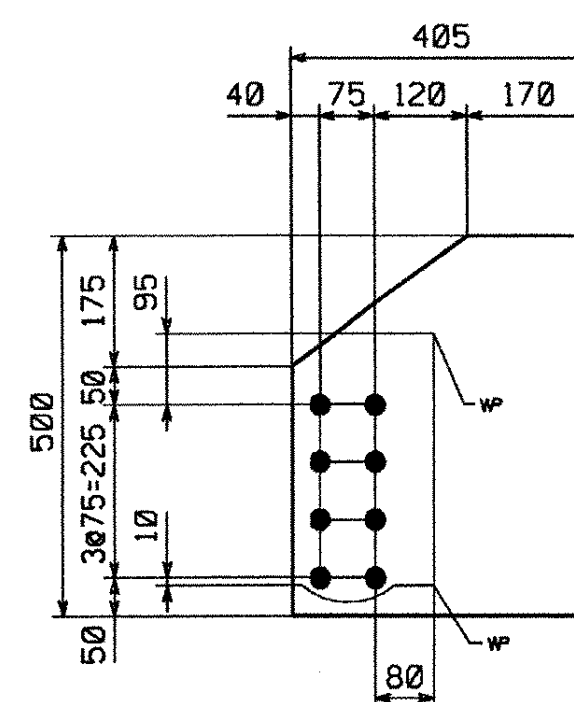
			
			
NO.	REVISION	BY	DATE
1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5211 <i>A Division of High Industries, Inc.</i>			
			
HIGH STEEL STRUCTURES, INC.			
TYPICAL DETAIL - CROSSFRAME LAYOUTS			
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE: GLIDDEN (IH) MADE BY: MCK CHK'D. BY: RC DATE: 4-12-05			
CONTRACT NUMBER: VT-05017-1 DRAWING NUMBER: TD1 OF TD1			

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.

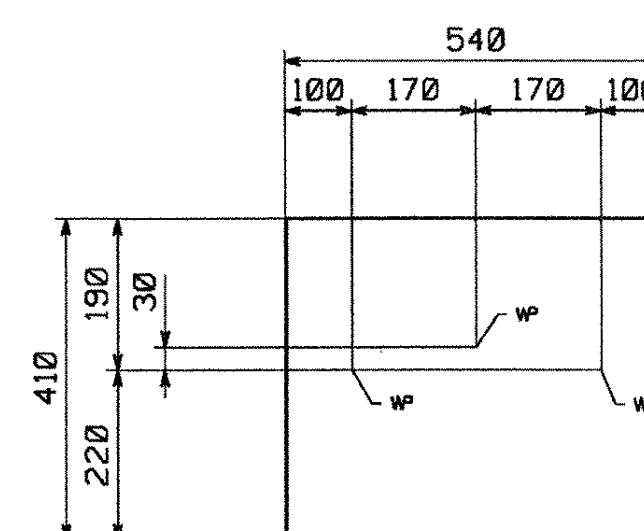
STATE	FED. AID PROJ. NO.
-------	-----------------------

[illegible]

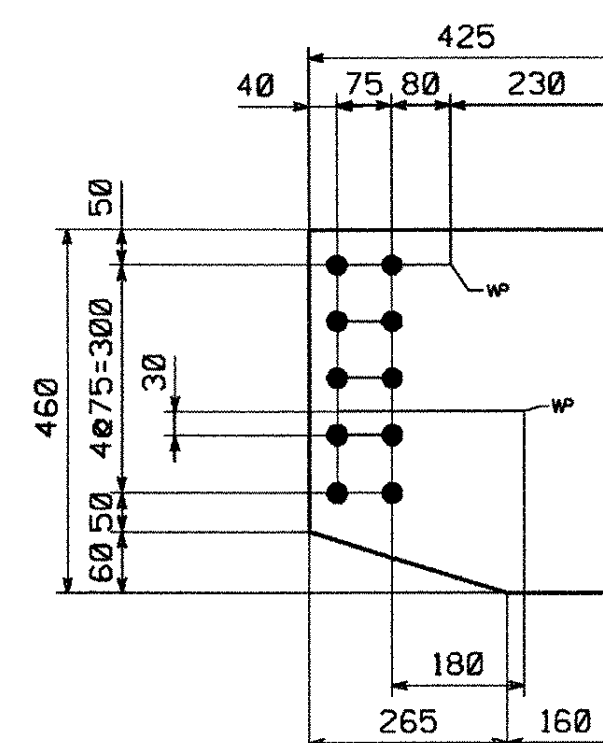
GUSSET PLATES ~ MK. m1a
GUSSET PLATES ~ MK. m1b (CG)



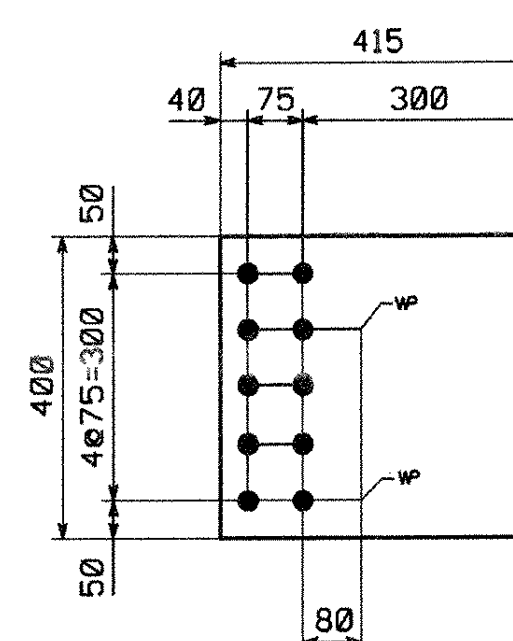
GUSSET PLATES ~ MK.m1c
GUSSET PLATES ~ MK.m1d (CG)



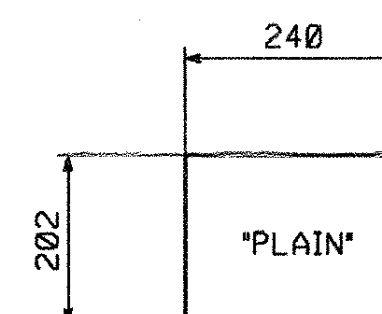
GUSSET PLATES ~ MK.mlf
GUSSET PLATES ~ MK.mlg (CG)



GUSSET PLATES ~ MK. m1h
GUSSET PLATES ~ MK. m1k (CG)



GUSSET PLATES ~ MK. m1m
GUSSET PLATES ~ MK. m1n (CG)



FILL PLATE ~ MK.m1p
FILL PLATE ~ MK.m1s (CG)

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McFarland-Johnson, Inc.

Date 6/10/05
By EW

VTtrans
RECEIVED

OK'D BY JWC OK'D BY _____

JUN 21 2005

RESUBMIT _____ APPROVED _____
BY _____ DATE _____

BY _____ DATE _____

SHOP NOTE

HOLES: $1\frac{5}{16}'' \varnothing$

BOLTS: NONE

PAINT: NONE

FOR GENERAL SHOP NOTES, SEE DWG. GN1.

(CG) INDICATES CORNER GRINDING IS REQUIRED.
CORNER GRINDING IS NOT REQUIRED FOR
MATERIAL ON THIS DRAWING UNLESS NOTED (CG).

CODE:63

													
NO.										REVISION		BY	DATE
HIGH STEEL STRUCTURES, INC.  7702 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5218 <i>A Division of High Industries, Inc.</i>													
CROSSFRAME JOB STANDARDS													
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK													
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110													
TOWN OF HARTLAND													
STATE OF VERMONT, AGENCY OF TRANSPORTATION													
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)													
CONTRACTOR MILLER CONSTRUCTION, INC.													
IN CHARGE: GLIDDEN (IH)				MADE BY: K.L.W.		CHK'D BY: MCK		DATE: 4/18/05					
CONTRACT NUMBER: VT-05017-1				DRAWING		M1 OF M1							

11555

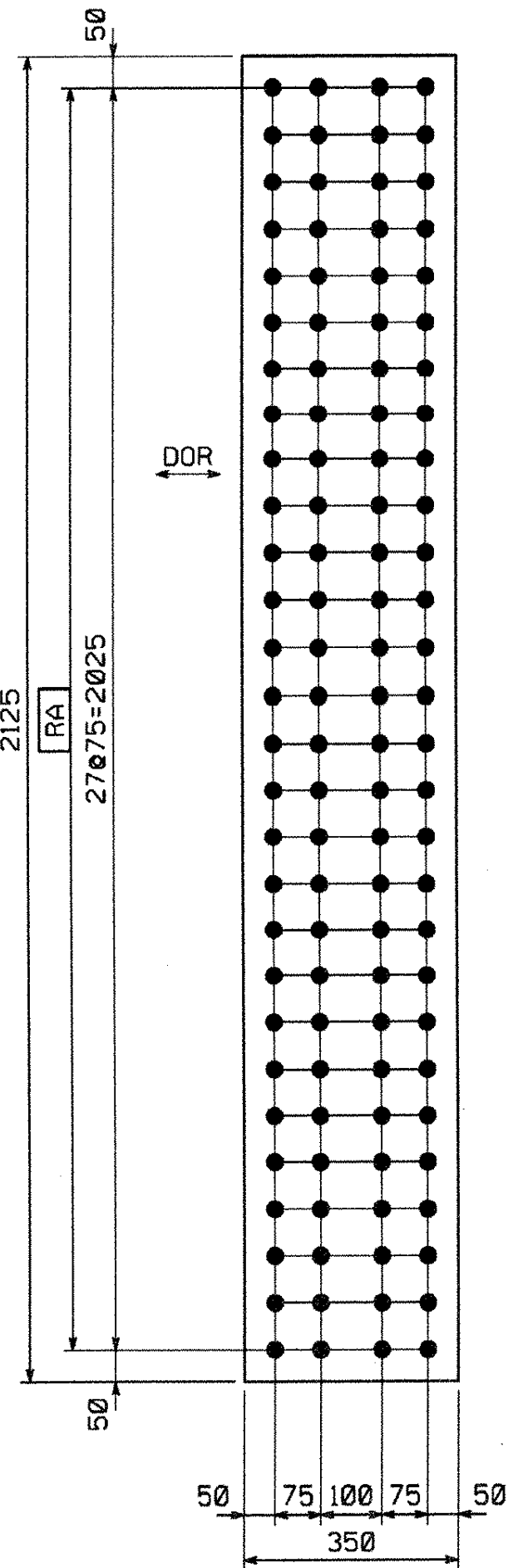
METRIC

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.

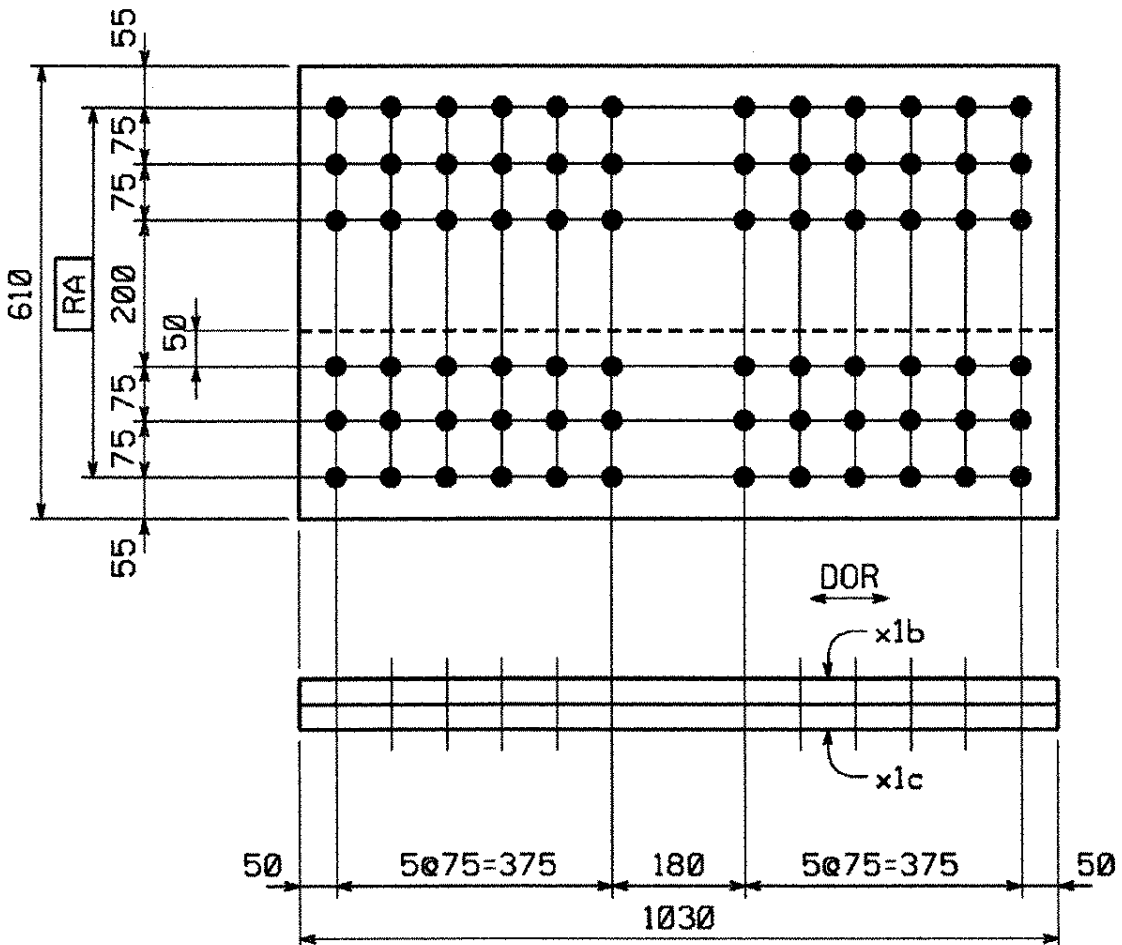
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.
	VT	

BILL OF MATERIAL

SHIP.	QTY	MARK	COMMODITY	DESCRIPTION	LENGTH	SPEC	GRADE	TEST	REMARKS	GRP.	ITEM	WEIGHT EA. (KG)
1	10	x1a	PL	16 x 2125	350	M270M	345W	(T)		6	1	93.40
1	4	x1b	PL	32 x 610	1030	M270M	345W	(T)		6	2	157.81
1	8	x1c	PL	32 x 255	1030	M270M	345W	(T)		6	3	65.97
1	2	x1d	PL	20 x 460	730	M270M	345W	(T)		6	4	52.71
1	4	x1f	PL	20 x 180	730	M270M	345W	(T)		6	5	20.63
1	4	x1g	PL	14 x 410	580	M270M	345W	(T)		6	6	26.13
1	8	x1h	PL	14 x 180	580	M270M	345W	(T)		6	7	11.47
1	1	x1k	PL	32 x 290	2235	M270M	345W			7	1	162.80
1	1	x1m	PL	32 x 290	2235	M270M	345W			7	1	162.80
1	1	x1n	PL	22 x 190	2235	M270M	345W			7	3	73.33
1	1	x1p	PL	22 x 190	2235	M270M	345W			7	3	73.33
1	2	x1s	PL	32 x 290	2236	M270M	345W			7	1	162.87
1	1	x1t	PL	25 x 215	2236	M270M	345W			7	2	94.33
1	1	x1w	PL	22 x 190	2236	M270M	345W			7	3	73.36
1	1	x1y	PL	32 x 290	2235	M270M	345W			7	1	162.80
1	1	x1aa	PL	25 x 215	2235	M270M	345W			7	2	94.29
1	2	x1ab	PL	22 x 190	2235	M270M	345W			7	3	73.33

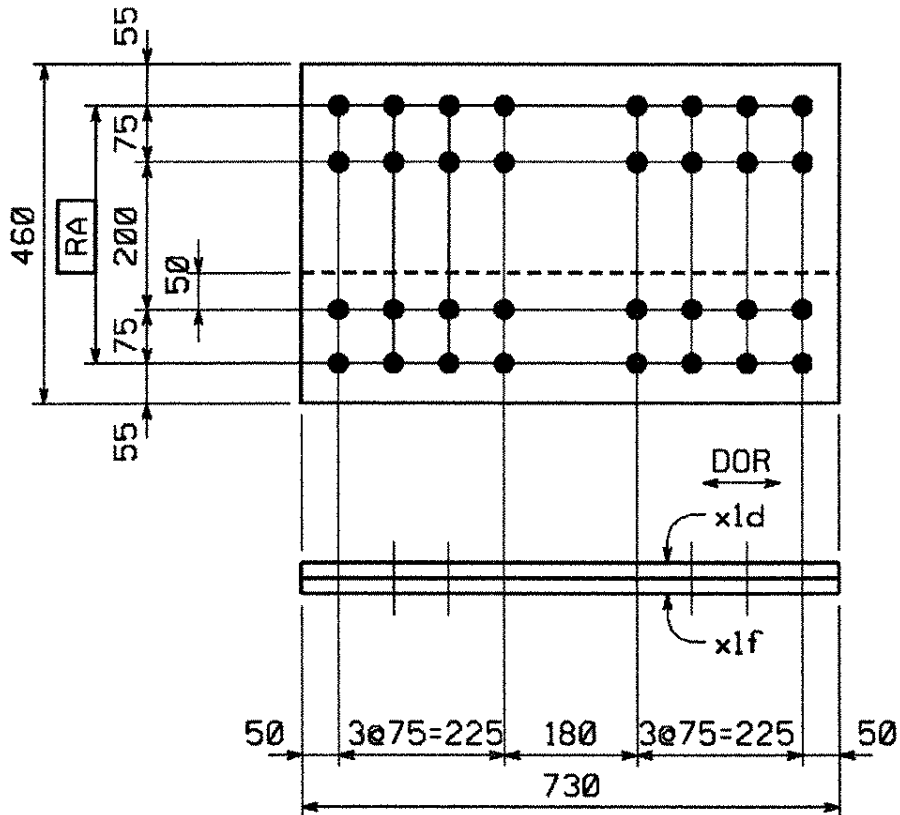


SPLICE P MK. x1a (CG)



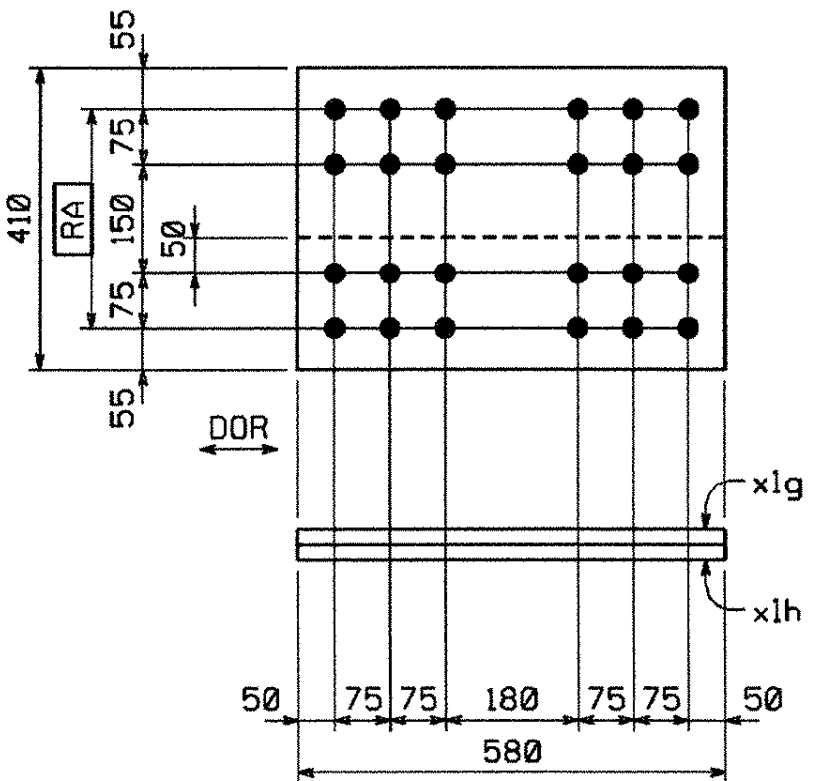
SPLICE P MK. x1b (CG)

SPLICE P MK. x1c (CG)



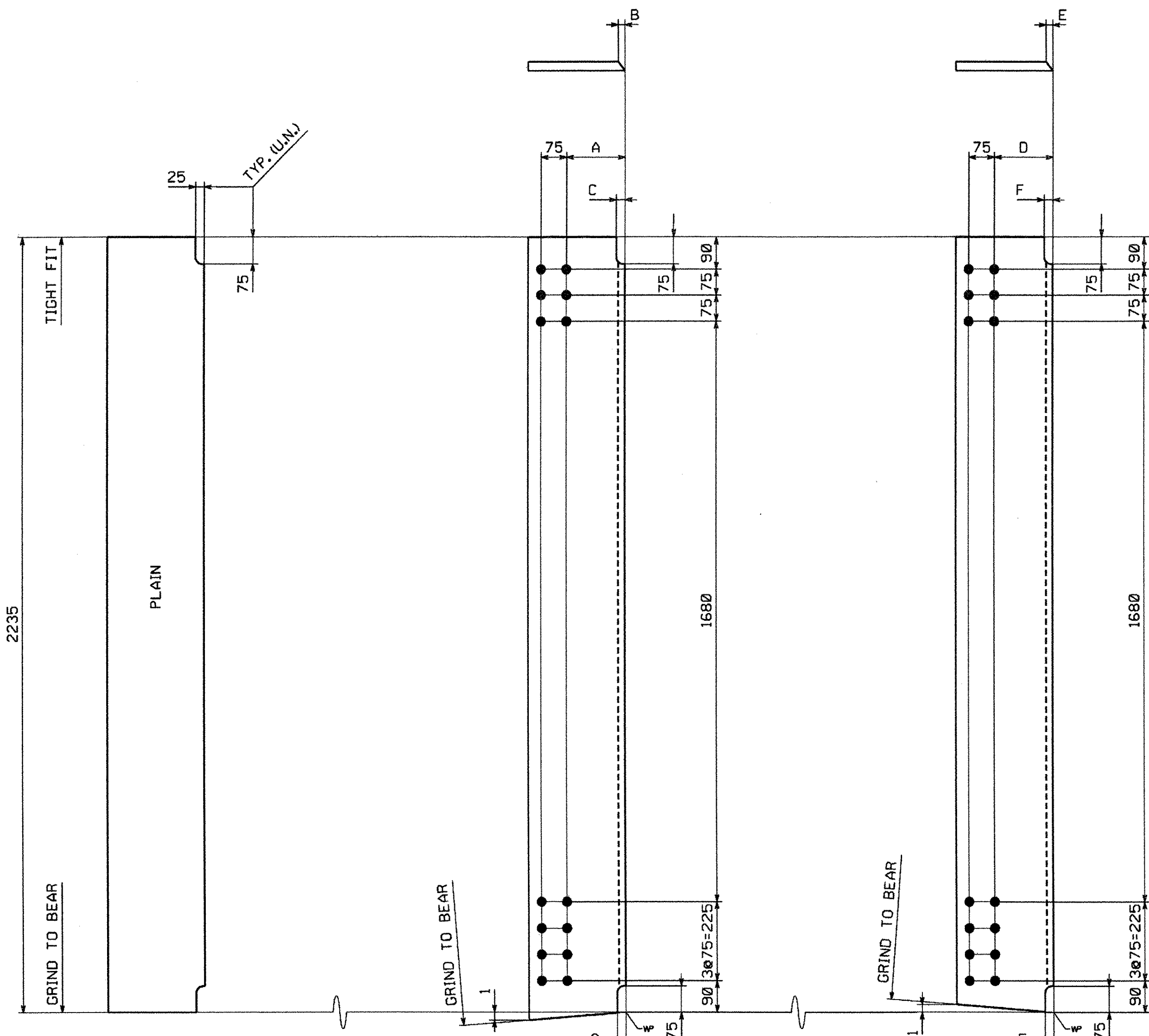
SPLICE P MK. x1d (CG)

SPLICE P MK. x1f (CG)



SPLICE P MK. x1g (CG)

SPLICE P MK. x1h (CG)



BRG. STIFF.

MARK	REMARKS
x1k	--
x1m	(CG)
x1n	--
x1p	(CG)

BRG. STIFF.

MARK	A	B	C
x1s	177	12	40
x1t	102	9	36
x1w	77	8	36

BRG. STIFF.

MARK	D	E	F
x1y	177	12	40
x1aa	102	9	36
x1ab	77	8	36

SHOP NOTE

HOLES: 1/8" (U.N.)

BOLTS: NONE

PAINT: NONE

DOR INDICATES DIRECTION OF ROLLING

FOR GENERAL SHOP NOTES, SEE DWG. GNL.

Reviewed
Revised
Rejected

Furnish as Corrected
Revise and Resubmit
Submit Specified Item

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and correlated at the job site. Information that pertains solely to the fabrication process or to the means, methods, techniques, sequential and procedures of construction, coordination of the Work with that of all other trades and performing all work in a safe and satisfactory manner.

McFarland-Johnson, Inc.
Date: 6/10/05
By: [Signature]

VT TRANS RECEIVED
JUN 21 2005
RESUBMIT APPROVED
BY DATE

NOTE: (CG) INDICATES CORNER GRINDING IS REQUIRED.
CORNER GRINDING IS NOT REQUIRED FOR
MATERIAL ON THIS DRAWING UNLESS NOTED (CG).

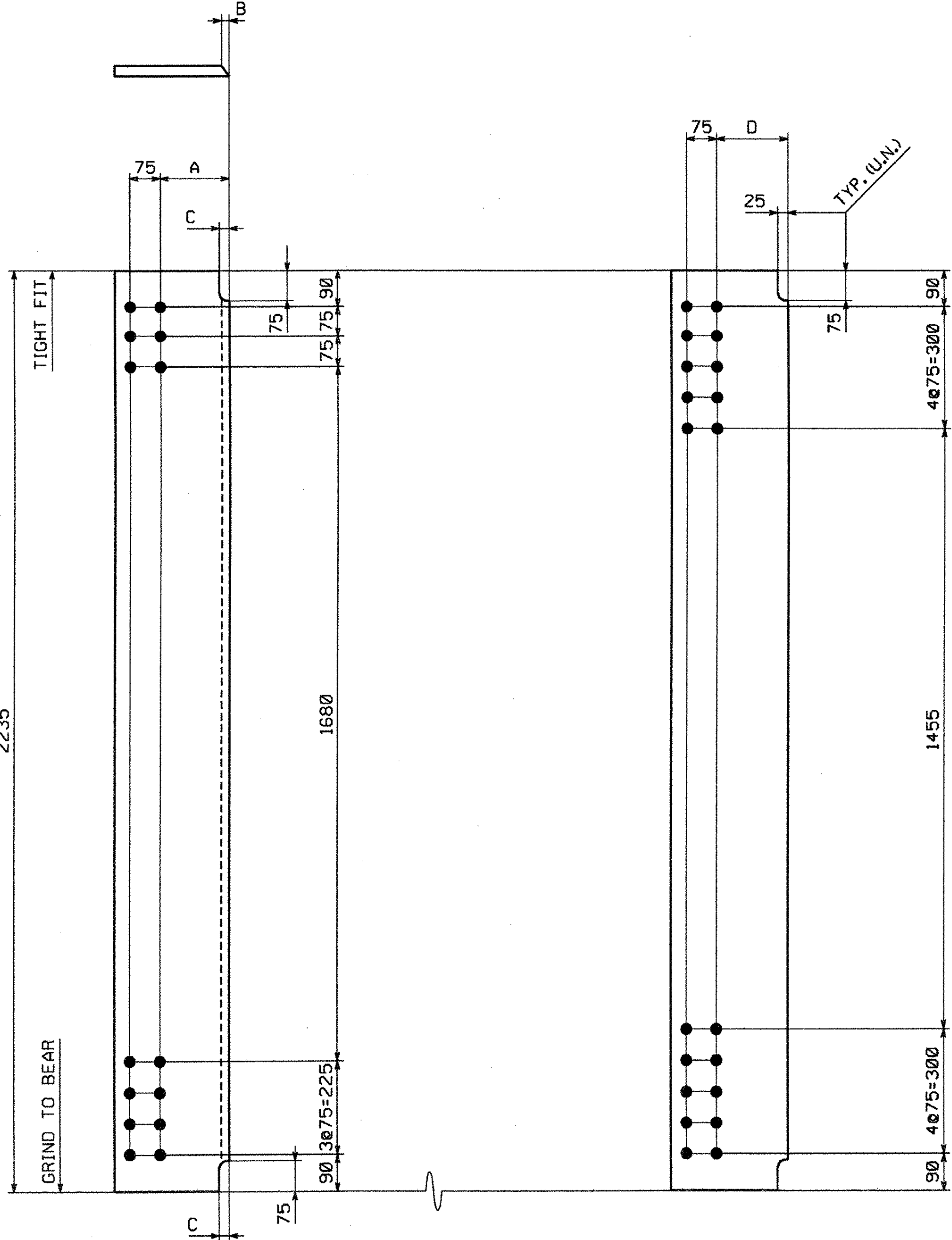
△			
△			
△			
NO.	REVISION	BY	DATE
HIGH STEEL STRUCTURES, INC. 1770 Hempstead Road, Lancaster, PA 17605-0008 Phone 717/299-5211 A Division of High Industries, Inc.			
GIRDER JOB STANDARDS			
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE: GLIDDEN (IH) MADE BY: MGK CHK'D BY: EC DATE: 4-13-05			
CONTRACT NUMBER: VT-05017-1 DRAWING NUMBER: X1 OF X2			

CODE:30

116 SS

METRIC 1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.

BILL OF MATERIAL												
SHIP.	QTY	MARK	COMMODITY	DESCRIPTION	LENGTH	SPEC	GRADE	TEST	REMARKS	GRP.	ITEM	WEIGHT EA. (KG)
1	3	x2a	PL	32 x 290	2 235	M270M	345W			7	1	162.80
1	2	x2b	PL	25 x 215	2 235	M270M	345W			7	2	94.29
1	3	x2c	PL	22 x 190	2 235	M270M	345W			7	3	73.33
1	30	x2d	PL	16 x 290	2 235	M270M	345W			7	4	81.40
1	18	x2f	PL	16 x 215	2 235	M270M	345W			7	5	60.35
1	2	x2g	PL	16 x 215	2 235	M270M	345W			7	5	60.35
1	27	x2h	PL	16 x 190	2 235	M270M	345W			7	6	53.33
1	3	x2k	PL	16 x 190	2 235	M270M	345W			7	6	53.33
1	1	x2m	PL	6 x 82	391	M270M	345W			7	7	1.51
1	1	x2n	PL	6 x 72	275	M270M	345W			7	7	0.93

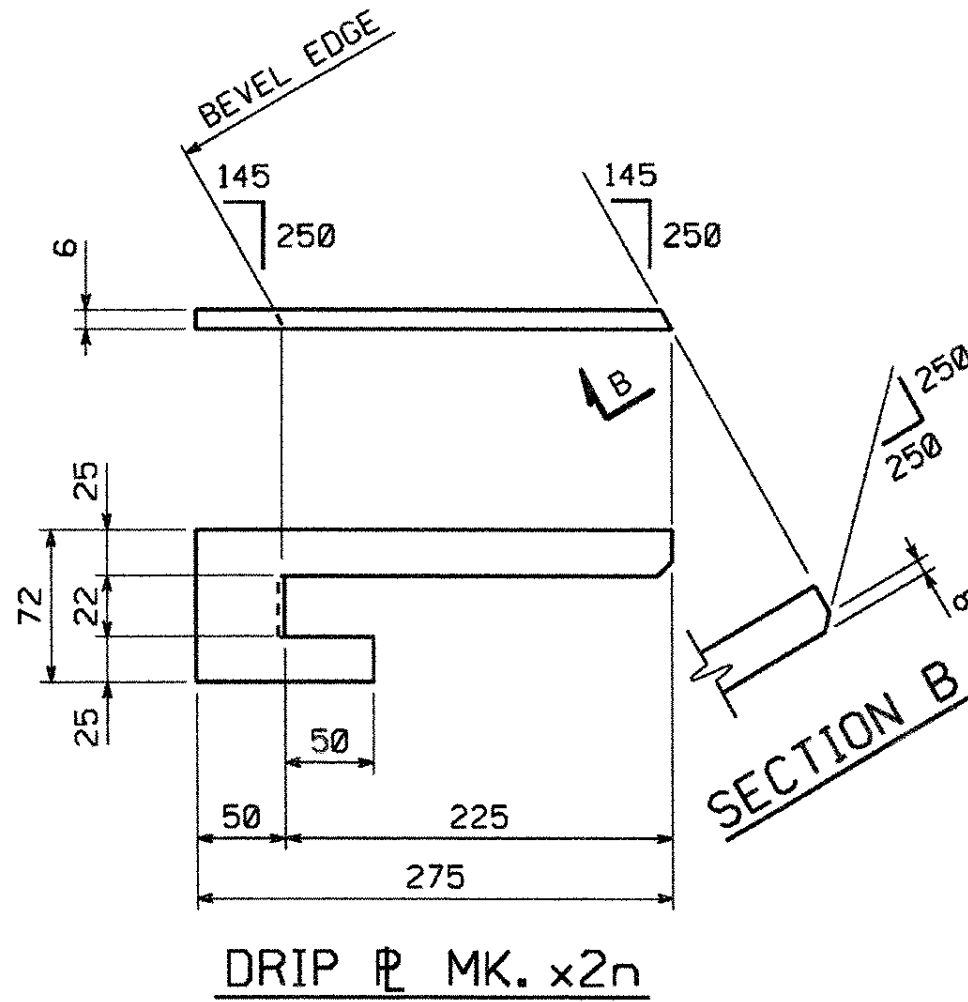
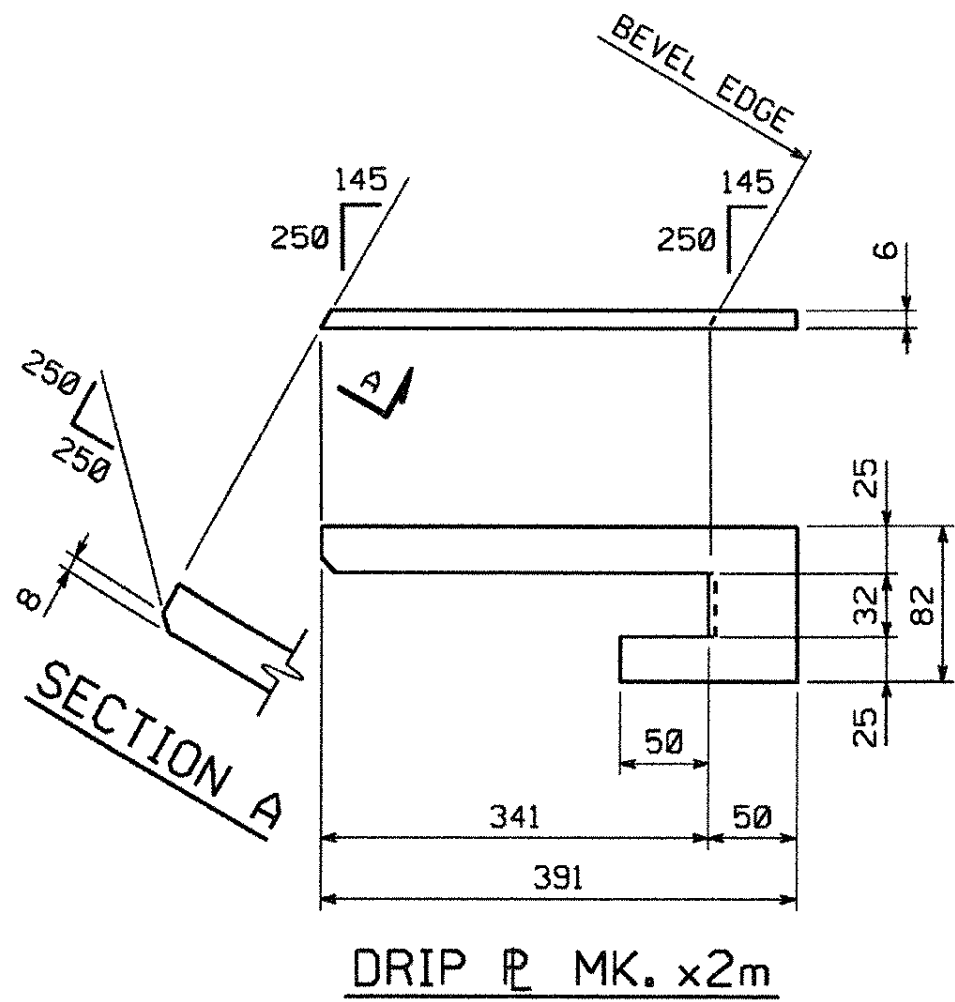


BRG. STIFF. (CG)

MARK	A	B	C
x2a	177	9	35
x2b	102	7	33
x2c	77	6	33

CONN. P

MARK	D	REMARKS
x2d	177	--
x2f	102	--
x2g	102	(CG)
x2h	77	--
x2k	77	(CG)



Reviewed
Rejected

Furnish as Corrected
Revise and Resubmit
Submit Specified Item

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McFarland-Johnson, Inc.
Date: 6/2/05
By: EWO

VT Vero
RECEIVED
JUN 2 1 2005
RESUBMIT BY DATE

NOTE: (CG) INDICATES CORNER GRINDING IS REQUIRED.
CORNER GRINDING IS NOT REQUIRED FOR
MATERIAL ON THIS DRAWING UNLESS NOTED (CG).

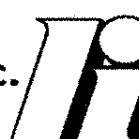
SHOP NOTE

HOLES: 1/8"

BOLTS: NONE

PAINT: NONE

FOR GENERAL SHOP NOTES, SEE DWG. GNI.

△			
△			
△			
NO.	REVISION	BY	DATE
1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5211 HIGH STEEL STRUCTURES, INC.  A Division of High Industries, Inc.			
GIRDER JOB STANDARDS			
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE: GLIDDEN (IH) MADE BY: MGK CHK'D BY: RC DATE: 4-13-05			
CONTRACT NUMBER: VT-05017-1 DRAWING NUMBER: X2 OF X2			

CODE:30

11755

METRIC

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.
	VT	

GENERAL SHOP NOTES

SPECIFICATIONS:

ALL MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE STATE OF VERMONT, AGENCY OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2001, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, AND ITS LATEST REVISIONS.

MATERIAL:

UNLESS NOTED OTHERWISE, ALL STEEL TO BE AASHTO M270M GRADE 345W.
(T) INDICATES CHARPY V-NOTCH TESTING REQUIRED.

NON-DESTRUCTIVE TESTING:

FLANGE AND WEB PLATE SPLICES TO BE RADIOGRAPHICALLY TESTED, AS CALLED FOR ON DRAWINGS PREFIXED 'FS' AND 'WC', BY H.S.S.I.

MAGNETIC PARTICLE INSPECTION IS REQUIRED ON AT LEAST 300 mm OF EVERY 3000 mm LENGTH OF FILLET WELDS AND 300 mm OF SUCH WELDS LESS THAN 3000 mm IN LENGTH ON GIRDER WEB TO FLANGE AND CONNECTION PLATES TO WEB AND FLANGE WELDS.

MT IS ALSO REQUIRED ON CROSS
FRAME WELDS ON CURVED GIRDERS

RA NOTE:

HOLES MARKED [RA] ON DETAIL DRAWINGS TO BE SUB-PUNCHED/SUB-DRILLED 6# UNDER SIZE AND REAMED TO FULL SIZE OR DRILLED FROM SOLID WITH CONNECTING PARTS ASSEMBLED AND MATCH MARKED.

CLEANING:

ALL STEEL TO BE BLAST CLEANED TO SSPC-SP10 (NEAR WHITE), (ASTM D2200 GRADE SA 2-1/2).
BLAST CLEANING ANCHOR PROFILE TO BE FROM 38 TO 64 MICROMETERS DEEP.

PAINTING:

ALL STEEL TO BE PAINTED (UNLESS NOTED) WITHIN 2500mm FROM THE END OF THE GIRDERS AT ABUTMENT 2, WITH A 3 COAT PAINT SYSTEM AS FOLLOWS:

PRIME COAT: CARBOZINC 859 (ORGANIC ZINC) WITH 75 TO 150 MICROMETERS D.F.T.

INTER. COAT: CARBOGUARD 888 (EPOXY) WITH 75 TO 250 MICROMETERS D.F.T.

FINISH COAT: CARBOTHANE 133 HB (POLYURETHANE) WITH 75 TO 125 MICROMETERS D.F.T.

FINISH COLOR TO BE DARK BROWN, FEDERAL STANDARD 595, COLOR *20059.

PRIME COAT ONLY WITHIN 75mm OF OPEN HOLES.

PRIME COAT TO BE APPLIED WITHIN 8 HOURS AFTER BLAST CLEANING.

STRIPE COAT ALL EDGES OF PLATES, ANGLES OR OTHER SHAPES WITH SHARP EDGES PRIOR

TO THE APPLICATION OF THE FULL PRIME COAT.

TOP FLANGE OF GIRDERS, AS SHOWN IN 'TYPICAL PAINT SECTION' SHALL RECEIVE A LIGHT

RUST PREVENTIVE COAT OF PRIMER IN THE PAINTED AREAS, NOT TO EXCEED 38

MICROMETERS D.F.T.

INTERMEDIATE AND FINISH COATS SHALL BE STAGGERED A MINIMUM OF 12mm FROM THE

FAYING SURFACES OF EACH OTHER.

PAINT MANUFACTURER: THE CARBOLINE CO. ST. LOUIS, MO.

SHOP PROCEDURE:

ALL FLANGE AND WEB PLATE SPLICES TO BE MADE BEFORE FINAL FITTING AND WELDING INTO GIRDER.

CAMBER TOLERANCE: -0 mm TO +19 mm

ALL RE-ENTRANT CUTS TO HAVE 25 MIN. RADIUS.

BEARING AREA, AS NOTED ON GIRDER DETAILS, INDICATES AREA THAT MUST BE FLAT AND

TRUE TO RECEIVE SOLE PLATE.

ONLY LOW STRESS DIE STAMPS MAY BE USED FOR MARKING IN AREAS NOT EXPOSED ON

THE FINISHED STRUCTURE.

DOR INDICATES DIRECTION OF ROLLING.

(CG) INDICATES CORNER GRINDING.

CORNER GRINDING IS REQUIRED FOR ALL MAIN MEMBER GIRDER FLANGE PLATES AND

SPLICE PLATES AND SECONDARY MEMBERS IN PAINTED AREAS, AS NOTED (CG) - NOTHING ELSE.

INSPECTION:

SHOP INSPECTION BY THE VERMONT AGENCY OF TRANSPORTATION

WELDING:

ALL WELDING IS TO CONFORM TO AWS D1.5-02.

WELDING METHODS, PROCEDURES, AND MATERIALS SHALL COMPLY WITH THE SPECIFIC

PROCEDURE DESIGNATED IN THE WELD SYMBOL TAIL.

FOR WELDING STIFFENERS AND CONNECTION PLATES TO GIRDERS, SEE TYPICAL WELDING

DETAIL.

FOR WELDING CROSSFRAMES, SEE SECONDARY MEMBER WELDING DETAIL.

IDENTIFICATION OF HOLE PLACEMENT:

UNLESS NOTED OTHERWISE, BOLT HOLES IN MATERIAL 16mm OR LESS IN THICKNESS MAY BE

CNC (COMPUTER NUMERICALLY CONTROLLED) PUNCHED OR CNC DRILLED FULL SIZE

UNASSEMBLED. ALL MATERIAL THICKER THAN 16mm IS TO BE DRILLED.

DRAWING REFERENCE:

FLANGE SPLICES

-PREFIXED 'FS'

WEB CAMBERS

-PREFIXED 'WC'

GIRDER JOB STANDARDS

-PREFIXED 'X'

CROSSFRAME JOB STDS.

-PREFIXED 'M'

SHOP ASSEMBLY

-PREFIXED 'SA'

HORIZONTAL CURVE

-PREFIXED 'HC'

WELDING PROCEDURE

-PREFIXED 'WP'

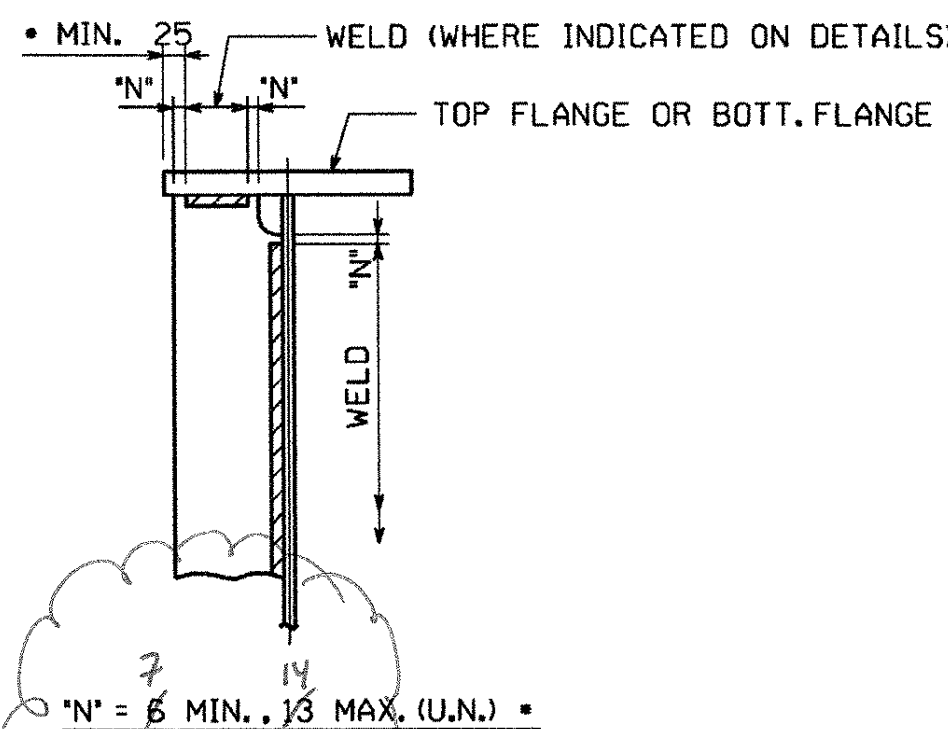
☐ Reviewed
☐ Rejected

☒ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

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McFarland-Johnson, Inc.

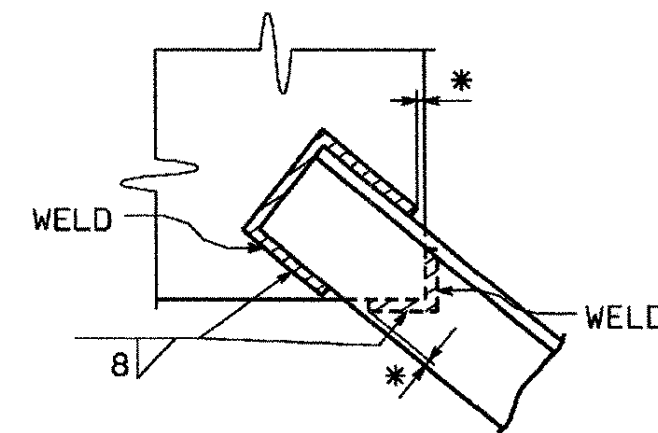
Date: 6/1/05
By: CFW



STIFFENER WELDING DETAIL

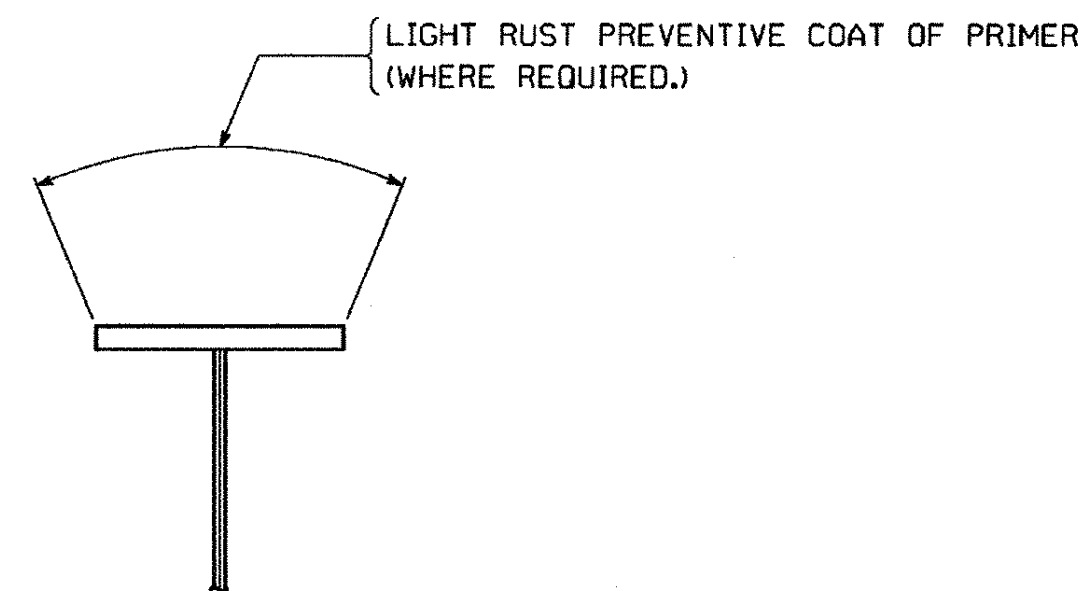
* WELDS MUST STOP 25 MINIMUM FROM EDGE OF FLANGE

ALL CROSSFRAME WELDS ARE TO BE
TERMINATED FROM EDGE OF GUSSET PLATES,
FILL PLATES OR ANGLES AS INDICATED



* NO WELD FOR 7 MIN., 14 MAX.

SECONDARY MEMBER WELDING DETAIL



TYP. PAINT SECTION

VTrans
RECEIVED

OK'D BY: Jax OK'D BY:

JUN 2 1 2005

RESUBMIT: APPROVED:

BY: DATE:

△			
△			
△			
NO.	REVISION	BY	DATE
HIGH STEEL STRUCTURES, INC. 1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5211 A Division of High Industries, Inc.			
GENERAL SHOP NOTES			
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE: GLIDDEN (IH) MADE BY: Kma CHK'D BY: SJA DATE: 3/4/05			
CONTRACT NUMBER: VT-05017-1 DRAWING NUMBER: GN1 OF GN1			

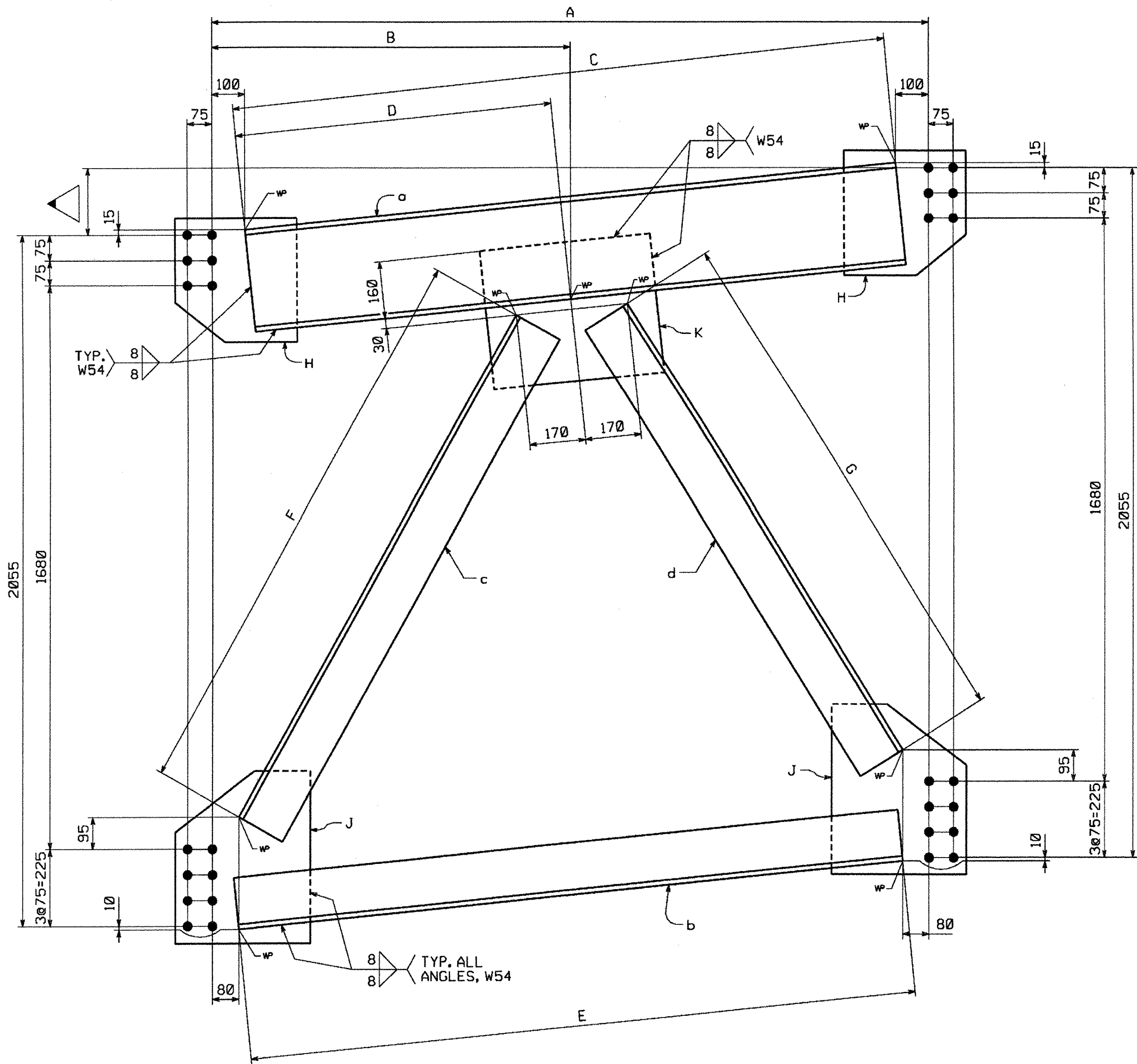
11855

METRIC

METRIC

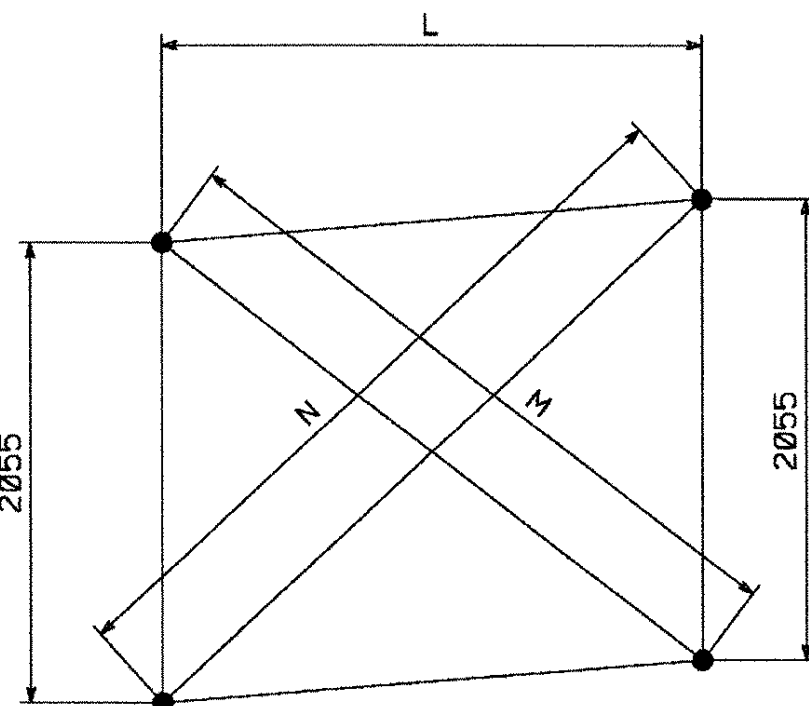
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.

FED. ROAD
DIV. NO.
STATE
VT
FED. AID
PROJ. NO.



END CROSSFRAMES

MARK		A	B	C	D	E	F	G	H	J	K	REMARKS
CF1	200	2375	1188	2184	1064	2224	1769	1626	m1a	m1c	m1f	NO PAINT
CF2	190	2340	1182	2148	1060	2188	1764	1613	m1a	m1c	m1f	NO PAINT
CF3	170	2232	1153	2039	1031	2079	1742	1580	m1a	m1c	m1f	NO PAINT
CF4	165	2150	1075	1957	953	1997	1698	1578	m1a	m1c	m1f	NO PAINT
CF5	(-)-205	2293	1146	2103	1081	2143	1601	1749	m1b	m1d	m1g	PAINTED
CF6	(-)-195	2263	1119	2072	1052	2112	1590	1745	m1b	m1d	m1g	PAINTED
CF7	(-)-175	2159	1042	1967	973	2007	1560	1725	m1b	m1d	m1g	PAINTED
CF8	(-)-170	2081	1040	1889	972	1929	1558	1683	m1b	m1d	m1g	PAINTED



CHECK DIMENSIONS

MARK	L	M	N
CF1	2375	3014	3275
CF2	2340	2992	3243
CF3	2232	2921	3152
CF4	2150	2863	3090
CF5	2293	3220	2946
CF6	2263	3191	2929
CF7	2159	3104	2863
CF8	2081	3047	2808

SHOP NOTE

HOLES: 15/16"

BOLTS: NONE

PAINT: SEE DWG. GNI (U.N.)

FOR GENERAL SHOP NOTES, SEE DWG. GNI.

BILL OF MATERIAL

QTY EA.	MARK	COMM.	DESCRIPTION	LENGTH	SPEC	GRADE	TEST	REMARKS	GRP.	ITEM	SHIP WEIGHT EA.
ONE	CF6		CROSSFRAME								351.94
1	a	C	310 x 37	2072	M270M	345W	T	(C12 x25)	11	1	76.86
1	b	L	152 x 152 x 12.7	2112	M270M	345W	T	(L6 x6x1/2)	11	2	62.73
1	c	L	152 x 152 x 12.7	1590	M270M	345W	T	(L6 x6x1/2)	11	2	47.22
1	d	L	152 x 152 x 12.7	1745	M270M	345W	T	(L6 x6x1/2)	11	2	51.83
2	m1b	PL	16 x 365	380	M270M	345W	T		11	3	17.42
2	m1d	PL	16 x 405	500	M270M	345W	T		11	3	25.43
1	m1g	PL	16 x 410	540	M270M	345W	T		11	3	27.80
ONE	CF7		CROSSFRAME								343.45
1	a	C	310 x 37	1967	M270M	345W	T	(C12 x25)	11	1	72.78
1	b	L	152 x 152 x 12.7	2007	M270M	345W	T	(L6 x6x1/2)	11	2	59.61
1	c	L	152 x 152 x 12.7	1560	M270M	345W	T	(L6 x6x1/2)	11	2	46.33
1	d	L	152 x 152 x 12.7	1725	M270M	345W	T	(L6 x6x1/2)	11	2	51.23
2	m1b	PL	16 x 365	380	M270M	345W	T		11	3	17.42
2	m1d	PL	16 x 405	500	M270M	345W	T		11	3	25.43
1	m1g	PL	16 x 410	540	M270M	345W	T		11	3	27.80
ONE	CF8		CROSSFRAME								336.95
1	a	C	310 x 37	1889	M270M	345W	T	(C12 x25)	11	1	69.89
1	b	L	152 x 152 x 12.7	1929	M270M	345W	T	(L6 x6x1/2)	11	2	57.29
1	c	L	152 x 152 x 12.7	1558	M270M	345W	T	(L6 x6x1/2)	11	2	46.27
1	d	L	152 x 152 x 12.7	1683	M270M	345W	T	(L6 x6x1/2)	11	2	49.99
2	m1b	PL	16 x 365	380	M270M	345W	T		11	3	17.42
2	m1d	PL	16 x 405	500	M270M	345W	T		11	3	25.43
1	m1g	PL	16 x 410	540	M270M	345W	T		11	3	27.80

TOTAL WEIGHT THIS SHEET: 2798.13 kg

BILL OF MATERIAL

QTY EA.	MARK	COMM.	DESCRIPTION	LENGTH	SPEC	GRADE	TEST	REMARKS	GRP.	ITEM	SHIP WEIGHT EA.
ONE	CF1		CROSSFRAME								361.20
1	a	C	310 x 37	2184	M270M	345W	T	(C12 x25)	11	1	80.81
1	b	L	152 x 152 x 12.7	2224	M270M	345W	T	(L6 x6x1/2)	11	2	66.05
1	c	L	152 x 152 x 12.7	1769	M270M	345W	T	(L6 x6x1/2)	11	2	52.54
1	d	L	152 x 152 x 12.7	1626	M270M	345W	T	(L6 x6x1/2)	11	2	48.29
2	m1a	PL	16 x 365	380	M270M	345W	T		11	3	17.42
2	m1c	PL	16 x 405	500	M270M	345W	T		11	3	25.43
1	m1f	PL	16 x 410	540	M270M	345W	T		11	3	27.80
ONE	CF2		CROSSFRAME								358.26
1	a	C	310 x 37	2148	M270M	345W	T	(C12 x25)	11	1	79.48
1	b	L	152 x 152 x 12.7	2188	M270M	345W	T	(L6 x6x1/2)	11	2	64.98
1	c	L	152 x 152 x 12.7	1764	M270M	345W	T	(L6 x6x1/2)	11	2	52.39
1	d	L	152 x 152 x 12.7	1613	M270M	345W	T	(L6 x6x1/2)	11	2	47.91
2	m1a	PL	16 x 365	380	M270M	345W	T		11	3	17.42
2	m1c	PL	16 x 405	500	M270M	345W	T		11	3	25.43
1	m1f	PL	16 x 410	540	M270M	345W	T		11	3	27.80
ONE	CF3		CROSSFRAME								349.36
1	a	C	310 x 37	2039	M270M	345W	T	(C12 x25)	11	1	75.44
1	b	L	152 x 152 x 12.7	2079	M270M	345W	T	(L6 x6x1/2)	11	2	61.75
1	c	L	152 x 152 x 12.7	1742	M270M	345W	T	(L6 x6x1/2)	11	2	51.74
1	d	L	152 x 152 x 12.7	1580	M270M	345W	T	(L6 x6x1/2)	11	2	46.93
2	m1a	PL	16 x 365	380	M270M	345W	T		11	3	17.42
2	m1c	PL	16 x 405	500	M270M	345W	T		11	3	25.43
1	m1f	PL	16 x 410	540	M270M	345W	T		11	3	27.80
ONE	CF4		CROSSFRAME								342.52
1	a	C	310 x 37	1957	M270M	345W	T	(C12 x25)	11	1	72.41
1	b	L	152 x 152 x 12.7	1997	M270M	345W	T	(L6 x6x1/2)	11	2	59.31
1	c	L	152 x 152 x 12.7	1698	M270M	345W	T	(L6 x6x1/2)	11	2	50.43
1	d	L	152 x 152 x 12.7	1578	M270M	345W	T	(L6 x6x1/2)	11	2	46.87
2	m1a	PL	16 x 365	380	M270M	345W	T		11	3	17.42
2	m1c	PL	16 x 405	500	M270M	345W	T		11	3	25.43
1	m1f	PL	16 x 410	540	M270M	345W	T		11	3	27.80
ONE	CF5		CROSSFRAME								354.46
1	a	C	310 x 37	2103	M270M	345W	T	(C12 x25)	11	1	77.81
1	b	L	152 x 152 x 12.7	2143	M270M	345W	T	(L6 x6x1/2)	11	2	63.65
1	c	L	152 x 152 x 12.7	1601	M270M	345W	T	(L6 x6x1/2)	11	2	47.55
1	d	L	152 x 152 x 12.7	1749	M270M	345W	T	(L6 x6x1/2)	11	2	51.95
2	m1b	PL	16 x 365	380	M270M	345W	T		11	3	17.42
2	m1d	PL	16 x 405	500	M270M	345W	T		11	3	25.43
1	m1g	PL	16 x 410	540	M270M	345W	T		11	3	27.80

Reviewed
Rejected

Furnish as Corrected
Revise and Resubmit
Submit Specified Item

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McFarland-Johnson, Inc.

Date: 6/2/05
By: E.W.

VTtrans
RECEIVED

OK'D BY: JWC OK'D BY:

JUN 2 1 2005

RESUBMIT: APPROVED: BY: DATE:

NO.	REVISION	BY	DATE

1770 Hempstead Road
Lancaster, PA 17606-0008
Phone 717/299-5211
A Division of High Industries, Inc.

CROSSFRAMES CF1 THRU CF8

U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK

U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110

TOWN OF HARTLAND

WINDSOR COUNTY, VERMONT

STATE OF VERMONT, AGENCY OF TRANSPORTATION

STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)

CONTRACTOR MILLER CONSTRUCTION, INC.

IN CHARGE: GLIDDEN (IH) MADE BY: K.L.W. CHK'D BY: M.G.K. DATE: 4/18/05

CONTRACT NUMBER: VT-05017-1 DRAWING NUMBER: 1 OF 15

11935

BY: mke-udol

PLOTTED: 4/20/2005 6:44:53 AM

METRIC

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.
	VT	

BILL OF MATERIAL

QTY EA	MARK	COMM.	DESCRIPTION	LENGTH	SPEC	GRADE	TEST	REMARKS	GRP.	ITEM	SHIP WEIGHT EA
3	CF9		CROSSFRAMES								368.79
6	a	L	152 x 152 x 12.7	2 042	M270M	345W	T	(L6 x6x1/2)	11	2	60.65
3	b	L	152 x 152 x 12.7	2 671	M270M	345W	T	(L6 x6x1/2)	11	2	79.33
3	c	L	152 x 152 x 12.7	2 400	M270M	345W	T	(L6 x6x1/2)	11	2	71.28
6	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
6	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
3	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
2	CF10		CROSSFRAMES								368.70
4	a	L	152 x 152 x 12.7	2 041	M270M	345W	T	(L6 x6x1/2)	11	2	60.62
2	b	L	152 x 152 x 12.7	2 667	M270M	345W	T	(L6 x6x1/2)	11	2	79.21
2	c	L	152 x 152 x 12.7	2 403	M270M	345W	T	(L6 x6x1/2)	11	2	71.37
4	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
4	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
2	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
ONE	CF11		CROSSFRAME								368.70
2	a	L	152 x 152 x 12.7	2 041	M270M	345W	T	(L6 x6x1/2)	11	2	60.62
1	b	L	152 x 152 x 12.7	2 667	M270M	345W	T	(L6 x6x1/2)	11	2	79.21
1	c	L	152 x 152 x 12.7	2 403	M270M	345W	T	(L6 x6x1/2)	11	2	71.37
2	m1k	PL	16 x 425	460	M270M	345W	T		11	3	24.55
2	m1n	PL	16 x 400	415	M270M	345W	T		11	3	20.85
1	m1s	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
ONE	CF12		CROSSFRAME								368.70
2	a	L	152 x 152 x 12.7	2 041	M270M	345W	T	(L6 x6x1/2)	11	2	60.62
1	b	L	152 x 152 x 12.7	2 664	M270M	345W	T	(L6 x6x1/2)	11	2	79.12
1	c	L	152 x 152 x 12.7	2 406	M270M	345W	T	(L6 x6x1/2)	11	2	71.46
2	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
2	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
1	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
ONE	CF13		CROSSFRAME								368.61
2	a	L	152 x 152 x 12.7	2 040	M270M	345W	T	(L6 x6x1/2)	11	2	60.59
1	b	L	152 x 152 x 12.7	2 660	M270M	345W	T	(L6 x6x1/2)	11	2	79.00
1	c	L	152 x 152 x 12.7	2 409	M270M	345W	T	(L6 x6x1/2)	11	2	71.55
2	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
2	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
1	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
2	CF14		CROSSFRAMES								368.61
4	a	L	152 x 152 x 12.7	2 040	M270M	345W	T	(L6 x6x1/2)	11	2	60.59
2	b	L	152 x 152 x 12.7	2 657	M270M	345W	T	(L6 x6x1/2)	11	2	78.91
2	c	L	152 x 152 x 12.7	2 412	M270M	345W	T	(L6 x6x1/2)	11	2	71.64
4	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
4	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
2	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09

TOTAL WEIGHT THIS SHEET: 3687.01 kg

RECEIVED
OK'D BY: JWC OK'D BY:

JUN 21 2005

RESUBMIT: APPROVED:

BY: DATE:

Reviewed
Rejected

Furnish as Corrected
Revise and Resubmit
Submit Specified Item

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and correlated at the job site. Information that pertains to the fabrication process or to the means, methods, techniques, sequences and procedures of construction, coordination of the Work with that of all other trades and performing all work in a safe and satisfactory manner.

McGraw-Hill Construction, Inc.

Date: 6/17/05

By: EWC

SHOP NOTE

HOLES: 1/8"

BOLTS: NONE

PAINT: SEE DWG. GN1 (U.N.)

FOR GENERAL SHOP NOTES, SEE DWG. GN1.

NO.	REVISION	BY	DATE
HIGH STEEL STRUCTURES, INC. 1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5211 A Division of High Industries, Inc.			
CROSSFRAMES CF9 THRU CF14			
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE: GLIDDEN (IH) MADE BY: KLV CHK'D BY: MGK DATE: 4/18/05			
CONTRACT NUMBER: VT-05017-1 DRAWING NUMBER: 2 OF 15			

12055

METRIC

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.FED. ROAD
DIV. NO. STATE
VTFED. AID
PROJ. NO.

BILL OF MATERIAL

QTY EA.	MARK	COMM.	DESCRIPTION	LENGTH	SPEC	GRADE	TEST	REMARKS	GRP.	ITEM	SHIP WEIGHT EA.
ONE	CF21		CROSSFRAME								365.91
2	a	L	152 x 152 x 12.7	2 014	M270M	345W	T	(L6 x6x1/2)	11	2	59.82
1	b	L	152 x 152 x 12.7	2 632	M270M	345W	T	(L6 x6x1/2)	11	2	78.17
1	c	L	152 x 152 x 12.7	2 398	M270M	345W	T	(L6 x6x1/2)	11	2	71.22
2	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
2	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
1	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09

TOTAL WEIGHT THIS SHEET: 3660.31 kg

BILL OF MATERIAL

QTY EA.	MARK	COMM.	DESCRIPTION	LENGTH	SPEC	GRADE	TEST	REMARKS	GRP.	ITEM	SHIP WEIGHT EA.
3	CF15		CROSSFRAMES								366.09
6	a	L	152 x 152 x 12.7	2 016	M270M	345W	T	(L6 x6x1/2)	11	2	59.88
3	b	L	152 x 152 x 12.7	2 649	M270M	345W	T	(L6 x6x1/2)	11	2	78.68
3	c	L	152 x 152 x 12.7	2 383	M270M	345W	T	(L6 x6x1/2)	11	2	70.78
6	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
6	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
3	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
2	CF16		CROSSFRAMES								366.09
4	a	L	152 x 152 x 12.7	2 016	M270M	345W	T	(L6 x6x1/2)	11	2	59.88
2	b	L	152 x 152 x 12.7	2 646	M270M	345W	T	(L6 x6x1/2)	11	2	78.59
2	c	L	152 x 152 x 12.7	2 386	M270M	345W	T	(L6 x6x1/2)	11	2	70.86
4	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
4	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
2	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
ONE	CF17		CROSSFRAME								366.00
2	a	L	152 x 152 x 12.7	2 015	M270M	345W	T	(L6 x6x1/2)	11	2	59.85
1	b	L	152 x 152 x 12.7	2 642	M270M	345W	T	(L6 x6x1/2)	11	2	78.47
1	c	L	152 x 152 x 12.7	2 389	M270M	345W	T	(L6 x6x1/2)	11	2	70.95
2	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
2	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
1	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
ONE	CF18		CROSSFRAME								366.00
2	a	L	152 x 152 x 12.7	2 015	M270M	345W	T	(L6 x6x1/2)	11	2	59.85
1	b	L	152 x 152 x 12.7	2 642	M270M	345W	T	(L6 x6x1/2)	11	2	78.47
1	c	L	152 x 152 x 12.7	2 389	M270M	345W	T	(L6 x6x1/2)	11	2	70.95
2	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
2	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
1	m1s	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
ONE	CF19		CROSSFRAME								366.00
2	a	L	152 x 152 x 12.7	2 015	M270M	345W	T	(L6 x6x1/2)	11	2	59.85
1	b	L	152 x 152 x 12.7	2 639	M270M	345W	T	(L6 x6x1/2)	11	2	78.38
1	c	L	152 x 152 x 12.7	2 392	M270M	345W	T	(L6 x6x1/2)	11	2	71.04
2	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
2	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
1	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
ONE	CF20		CROSSFRAME								365.97
2	a	L	152 x 152 x 12.7	2 015	M270M	345W	T	(L6 x6x1/2)	11	2	59.85
1	b	L	152 x 152 x 12.7	2 635	M270M	345W	T	(L6 x6x1/2)	11	2	78.26
1	c	L	152 x 152 x 12.7	2 395	M270M	345W	T	(L6 x6x1/2)	11	2	71.13
2	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
2	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
1	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09

INTERMEDIATE CROSSFRAMES

MARK	▷	A	B	C	D	E	F	G	REMARKS
CF15	205	2016	1209	2649	2383	m1h	m1m	m1p	NO PAINT
CF16	200	2016	1207	2646	2386	m1h	m1m	m1p	NO PAINT
CF17						m1h	m1m	m1p	NO PAINT
CF18	195	2015	1205	2642	2389	m1k	m1n	m1s	PAINTED
CF19	190	2015	1203	2639	2392	m1h	m1m	m1p	NO PAINT
CF20	185	2015	1201	2635	2395	m1h	m1m	m1p	NO PAINT
CF21	180	2014	1199	2632	2398	m1h	m1m	m1p	NO PAINT

☒ Reviewed
☐ Rejected
☐ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

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McFarland-Johnson, Inc.

Date: 6/17/05

By: Ew

SHOP NOTE

HOLES: 1 5/16"

BOLTS: NONE

PAINT: SEE DWG. GNI (U.N.)

FOR GENERAL SHOP NOTES, SEE DWG. GNI.

VT
RECEIVED

CHK'D BY: Jue OK'D BY:

JUN 21 2005

RESUBMIT _____ APPROVED _____

BY _____ DATE _____

NO.	REVISION	BY	DATE
HIGH STEEL STRUCTURES, INC.			
1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5281 A Division of High Industries, Inc.			
CROSSFRAMES CF15 THRU CF21			
U.S. RTE. 5 (BRIDGE *60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE: GLIDDEN (JH) MADE BY: KLV CHK'D BY: MGK DATE: 4/18/05			
CONTRACT NUMBER: VT-05017-1 DRAWING NUMBER: 3 OF 15			

12/55

METRIC

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.

FED. ROAD
DIV. NO. STATE
VT
FED. AID
PROJ. NO.

BILL OF MATERIAL

QTY EA.	MARK	COMM.	DESCRIPTION	LENGTH	SPEC	GRADE	TEST	REMARKS	GRP.	ITEM	SHIP WEIGHT EA.
2	CF22		CROSSFRAMES								355.57
4	a	L	152 x 152 x 12.7	1915	M270M	345W	T	(L6 x6x1/2)	11	2	56.88
2	b	L	152 x 152 x 12.7	2564	M270M	345W	T	(L6 x6x1/2)	11	2	76.15
2	c	L	152 x 152 x 12.7	2316	M270M	345W	T	(L6 x6x1/2)	11	2	68.79
4	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
4	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
2	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
3	CF23		CROSSFRAMES								355.48
6	a	L	152 x 152 x 12.7	1914	M270M	345W	T	(L6 x6x1/2)	11	2	56.85
3	b	L	152 x 152 x 12.7	2560	M270M	345W	T	(L6 x6x1/2)	11	2	76.03
3	c	L	152 x 152 x 12.7	2319	M270M	345W	T	(L6 x6x1/2)	11	2	68.87
6	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
6	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
3	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
ONE	CF24		CROSSFRAME								355.48
2	a	L	152 x 152 x 12.7	1914	M270M	345W	T	(L6 x6x1/2)	11	2	56.85
1	b	L	152 x 152 x 12.7	2560	M270M	345W	T	(L6 x6x1/2)	11	2	76.03
1	c	L	152 x 152 x 12.7	2319	M270M	345W	T	(L6 x6x1/2)	11	2	68.87
2	m1k	PL	16 x 425	460	M270M	345W	T		11	3	24.55
2	m1n	PL	16 x 400	415	M270M	345W	T		11	3	20.85
1	m1s	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
ONE	CF25		CROSSFRAME								355.48
2	a	L	152 x 152 x 12.7	1914	M270M	345W	T	(L6 x6x1/2)	11	2	56.85
1	b	L	152 x 152 x 12.7	2557	M270M	345W	T	(L6 x6x1/2)	11	2	75.94
1	c	L	152 x 152 x 12.7	2322	M270M	345W	T	(L6 x6x1/2)	11	2	68.96
2	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
2	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
1	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
ONE	CF26		CROSSFRAME								355.42
2	a	L	152 x 152 x 12.7	1913	M270M	345W	T	(L6 x6x1/2)	11	2	56.82
1	b	L	152 x 152 x 12.7	2550	M270M	345W	T	(L6 x6x1/2)	11	2	75.74
1	c	L	152 x 152 x 12.7	2329	M270M	345W	T	(L6 x6x1/2)	11	2	69.17
2	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
2	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
1	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
2	CF27		CROSSFRAMES								355.39
4	a	L	152 x 152 x 12.7	1913	M270M	345W	T	(L6 x6x1/2)	11	2	56.82
2	b	L	152 x 152 x 12.7	2546	M270M	345W	T	(L6 x6x1/2)	11	2	75.62
2	c	L	152 x 152 x 12.7	2332	M270M	345W	T	(L6 x6x1/2)	11	2	69.26
4	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
4	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
2	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09

TOTAL WEIGHT THIS SHEET: 3554.78 kg

VT
RECEIVED
OK'D BY: JWC OK'D BY: JWC

JUN 21 2005

RESUBMIT: APPROVED: BY: DATE:

Reviewed
Rejected
Furnish as Corrected
Revise and Resubmit
Submit Specified Item

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McFarland-Johnson, Inc.
Date: 6/10/05
By: Etw

SHOP NOTE

HOLES: 1 5/16"

BOLTS: NONE

PAINT: SEE DWG. GNI (U.N.)

FOR GENERAL SHOP NOTES, SEE DWG. GNI.

NO.	REVISION	BY	DATE

HIGH STEEL STRUCTURES, INC.		1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5211 A Division of High Industries, Inc.	
CROSSFRAMES CF22 THRU CF27			
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE: GLIDDEN (IH)		MADE BY: K.L.W.	CHK'D BY: MGK DATE: 4/18/05
CONTRACT NUMBER: VT-05017-1		DRAWING NUMBER: 4 OF 15	

1-22-22

METRIC

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.
	VT	

BILL OF MATERIAL

QTY EA	MARK	COMM.	DESCRIPTION	LENGTH	SPEC	GRADE	TEST	REMARKS	GRP.	ITEM	SHIP WEIGHT EA
4	CF28		CROSSFRAMES								347.82
8	a	L	152 x 152 x 12.7	1840	M270M	345W	T	(L6 x6x1/2)	11	2	54.65
4	b	L	152 x 152 x 12.7	2508	M270M	345W	T	(L6 x6x1/2)	11	2	74.49
4	c	L	152 x 152 x 12.7	2261	M270M	345W	T	(L6 x6x1/2)	11	2	67.15
8	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
8	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
4	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
2	CF29		CROSSFRAMES								347.76
4	a	L	152 x 152 x 12.7	1839	M270M	345W	T	(L6 x6x1/2)	11	2	54.62
2	b	L	152 x 152 x 12.7	2504	M270M	345W	T	(L6 x6x1/2)	11	2	74.37
2	c	L	152 x 152 x 12.7	2265	M270M	345W	T	(L6 x6x1/2)	11	2	67.27
4	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
4	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
2	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
ONE	CF30		CROSSFRAME								347.76
2	a	L	152 x 152 x 12.7	1839	M270M	345W	T	(L6 x6x1/2)	11	2	54.62
1	b	L	152 x 152 x 12.7	2501	M270M	345W	T	(L6 x6x1/2)	11	2	74.28
1	c	L	152 x 152 x 12.7	2268	M270M	345W	T	(L6 x6x1/2)	11	2	67.36
2	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
2	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
1	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
ONE	CF31		CROSSFRAME								347.67
2	a	L	152 x 152 x 12.7	1838	M270M	345W	T	(L6 x6x1/2)	11	2	54.59
1	b	L	152 x 152 x 12.7	2497	M270M	345W	T	(L6 x6x1/2)	11	2	74.16
1	c	L	152 x 152 x 12.7	2271	M270M	345W	T	(L6 x6x1/2)	11	2	67.45
2	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
2	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
1	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
ONE	CF32		CROSSFRAME								347.67
2	a	L	152 x 152 x 12.7	1838	M270M	345W	T	(L6 x6x1/2)	11	2	54.59
1	b	L	152 x 152 x 12.7	2494	M270M	345W	T	(L6 x6x1/2)	11	2	74.07
1	c	L	152 x 152 x 12.7	2274	M270M	345W	T	(L6 x6x1/2)	11	2	67.54
2	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
2	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
1	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09
ONE	CF33		CROSSFRAME								347.64
2	a	L	152 x 152 x 12.7	1838	M270M	345W	T	(L6 x6x1/2)	11	2	54.59
1	b	L	152 x 152 x 12.7	2490	M270M	345W	T	(L6 x6x1/2)	11	2	73.95
1	c	L	152 x 152 x 12.7	2277	M270M	345W	T	(L6 x6x1/2)	11	2	67.63
2	m1h	PL	16 x 425	460	M270M	345W	T		11	3	24.55
2	m1m	PL	16 x 400	415	M270M	345W	T		11	3	20.85
1	m1p	PL	16 x 202	240	M270M	345W	T	FILL	11	3	6.09

TOTAL WEIGHT THIS SHEET: 3477.56 kg

VTtrans
RECEIVED

OK'D BY: JWC OK'D BY: _____

JUN 21 2005

RESUBMIT _____ APPROVED _____

BY _____ DATE _____

☒ Reviewed
☐ Rejected

☐ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and correlated at the jobsite. Information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction, coordination of the Work with that of all other trades and performing all work in a safe and satisfactory manner.

McFarland-Johnson, Inc.

Date: 6/16/05

By: CWS

SHOP NOTE

HOLES: 15/16"

BOLTS: NONE

PAINT: NONE

FOR GENERAL SHOP NOTES, SEE DWG. GNL.

△			
△			
△			
NO.	REVISION	BY	DATE

HIGH STEEL STRUCTURES, INC.		1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5291 A Division of High Industries, Inc.	
CROSSFRAMES CF28 THRU CF33			
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE: GLIDDEN (IH)		MADE BY: KLV	CHK'D BY: MGK DATE: 4/18/05
CONTRACT NUMBER: VT-05017-1		DRAWING NUMBER: 5 OF 15	

CODE:63

12355

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.

VT

VT

BILL OF MATERIAL

	SHIP	QTY EA.	MARK	COMMODITY	DESCRIPTION	LENGTH	SPEC	GRADE	TEST	REMARKS	GRP.	ITEM	SHIP WEIGHT EA
△	1	1	G1A		GRIDER								29049.5
△	1	1	w1	PL	20 x 2235	14 837	M270M	345W	T		3	3	5205.60
△	1	1	w2	PL	20 x 2235	18 418	M270M	345W	T		3	2	6462.00
	1	1	t1	PL	32 x 610	4 970	M270M	345W			4	16	761.47
	1	1	t2	PL	45 x 610	10 060	M270M	345W			4	7	2167.45
	1	1	t3	PL	45 x 610	18 209	M270M	345W			5	3	3923.25
	1	1	b1	PL	32 x 610	4 970	M270M	345W	T		4	15	761.47
	1	1	b2	PL	65 x 610	10 060	M270M	345W	T		4	3	3130.82
	1	1	b3	PL	65 x 610	18 184	M270M	345W	T		4	1	5659.13
	1	1	x1k	PL	32 x 290	2 235	M270M	345W			7	1	162.80
	1	1	x1s	PL	32 x 290	2 236	M270M	345W			7	1	162.87
	1	8	x2d	PL	16 x 290	2 235	M270M	345W			7	4	81.40
	1	1	x2m	PL	6 x 82	391	M270M	345W			7	7	1.51

TOTAL WEIGHT THIS SHEET: 29049.59 kg

☒ Reviewed
☐ Rejected

☐ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item that not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and correlated at the jobsite information that pertain solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of all other trades and performing all work in a safe and satisfactory manner.

McFarland-Johnson, Inc. _____
Date 6/21/08
By EW

VTrans
RECEIVED

CK'D BY Jwc CK'D BY _____

JUN 03 2005

RESUBMIT _____ APPROVED _____
BY _____ DATE _____

△			
△			
△	CAMBER DESIGN CHANGE	MGK	4-26-05
NO.	REVISION	BY	DATE

HIGH STEEL STRUCTURES, INC.



1770 Hempstead Road
Lancaster, PA 17605-0008
Phone 717/299-5211

A Division of High Industries, Inc.

	GIRDER	GIA
--	--------	-----

U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.10

TOWN OF HARTLAND

STATE OF VERMONT, AGENCY OF TRANSPORTATION

STATE CONTRACT
OR REF. NO. PROJECT NO. BRS-0113(22)

CONTRACTOR MILLER CONSTRUCTION, INC.
IN CHARGE: GLIDDEN (IH) MADE BY: DSM CHK'D. BY: WBW DATE: 4/18/05

CONTRACT NUMBER:	VT-05017-1	DRAWING NUMBER:	6 OF 15
---------------------	------------	--------------------	---------

SHOP NOTE

HOLES: $1\frac{5}{16}"\varnothing$ (U.N.)

BOLTS: NONE

PAINT: NONE

FOR GENERAL SHOP NOTES, SEE DWG. GN1.
FOR WEB CAMBER DIAGRAM, SEE DWG. WC1.
FOR HORIZ. CURVE DIAGRAM, SEE DWG. HC1.

CODE:30

12455

05017 X2 5/12/05

5/Resubmit For Approval

TO: Miller Construction, Inc.

BY: mkreidel

PLOTTED: 4/28/2005
9:38:55 AM

60

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.

YT

△	1	1	G2A			GRDR													29601.80
△	1	1	w1	PL	20	x	2235	14 836	M270M	345W	T				3	3		5205.25	
△	1	1	w2	PL	20	x	2235	18 494	M270M	345W	T				3	2		6488.67	
	1	1	t1	PL	32	x	610	5 716	M270M	345W					4	14		875.77	
	1	1	t2	PL	45	x	610	10 064	M270M	345W					4	7		2168.35	
	1	1	t3	PL	45	x	610	17 533	M270M	345W					4	6		3777.60	
△	1	1	b1	PL	32	x	610	5 716	M270M	345W	T				4	13		875.77	
	1	1	b2	PL	65	x	610	10 064	M270M	345W	T				4	3		3132.07	
	1	1	b3	PL	65	x	610	17 513	M270M	345W	T				4	2		5450.31	
	1	1	x1s	PL	32	x	290	2 236	M270M	345W					7	1		162.87	
	1	1	x1y	PL	32	x	290	2 235	M270M	345W					7	1		162.80	
	1	16	x2d	PL	16	x	290	2 235	M270M	345W					7	4		81.40	

1

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of all other trades and performance of work in a safe and satisfactory manner.

VTTrans
RECEIVED
K'D BY JWC OK'D BY _____
JUN 03 2005
ESUBMIT _____ APPROVED _____
Y DATE



1770 Hempstead Road
Lancaster, PA 17605-0008
Phone 717/299-5211

A Division of High Industries, Inc.

FOR GENERAL SHOP NOTES, SEE DWG. GN1.
FOR WEB CAMBER DIAGRAM, SEE DWG. WC1.
FOR HORIZ. CURVE DIAGRAM, SEE DWG. HC1.

12555

TO: Miller Construction, Inc.

METRIC

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.
	VT	

BILL OF MATERIAL

SHIP.	QTY EA.	MARK	COMM.	DESCRIPTION	LENGTH	SPEC	GRADE	TEST	REMARKS	GRP.	ITEM	SHIP WEIGHT EA.
1	1	G3A		GIRDER								19582.59
1	1	w1	PL	20 x 2235	14 836	M270M	345W	T		3	3	5205.25
1	1	w2	PL	20 x 2235	18 573	M270M	345W	T		3	2	6516.38
1	1	t1	PL	25 x 480	15 030	M270M	345W			4	21	1356.67
1	1	t2	PL	25 x 480	18 361	M270M	345W			4	20	1657.34
1	1	b1	PL	25 x 480	6 466	M270M	345W	T		4	23	583.65
1	1	b2	PL	32 x 480	10 064	M270M	345W	T		4	18	1162.77
1	1	b3	PL	32 x 480	16 846	M270M	345W	T		4	17	1946.35
1	1	x1t	PL	25 x 215	2 236	M270M	345W			7	2	94.33
1	1	x1aa	PL	25 x 215	2 235	M270M	345W			7	2	94.29
1	16	x2f	PL	16 x 215	2 235	M270M	345W			7	5	60.35

TOTAL WEIGHT THIS SHEET: 19582.59 kg

☒ Reviewed
☐ Rejected

☐ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

This review is only for general conformance with the design contract and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specification shall not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and correlated at the project. Information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the work with that of all other trades and performing all work in a safe and satisfactory manner.

McFarland-Johnson, Inc.
Date: 6/18/05
By: [Signature]

VT
RECEIVED

OK'D BY: [Signature] OK'D BY: [Signature]

JUN 03 2005

RESUBMIT: [Signature] APPROVED: [Signature]

BY: [Signature] DATE: [Signature]

1	CAMBER DESIGN CHANGE	MGK	4-26-05
NO.	REVISION	BY	DATE

1770 Hempstead Road
Lancaster, PA 17605-0008
Phone 717/299-5211

HIGH STEEL STRUCTURES, INC.

A Division of High Industries, Inc.

GIRDER G3A

U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK

U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110

TOWN OF HARTLAND

WINDSOR COUNTY, VERMONT

STATE OF VERMONT, AGENCY OF TRANSPORTATION

PROJECT NO. BRS-0113(22)

CONTRACTOR MILLER CONSTRUCTION, INC.

IN CHARGE: GLIDDEN (IH) MADE: KJW CHK'D: WBW DATE: 4/18/05

CONTRACT NUMBER: VT-05017-1 DRAWING NUMBER: 8 OF 15

SHOP NOTE

HOLES: 15/16" (U.N.)

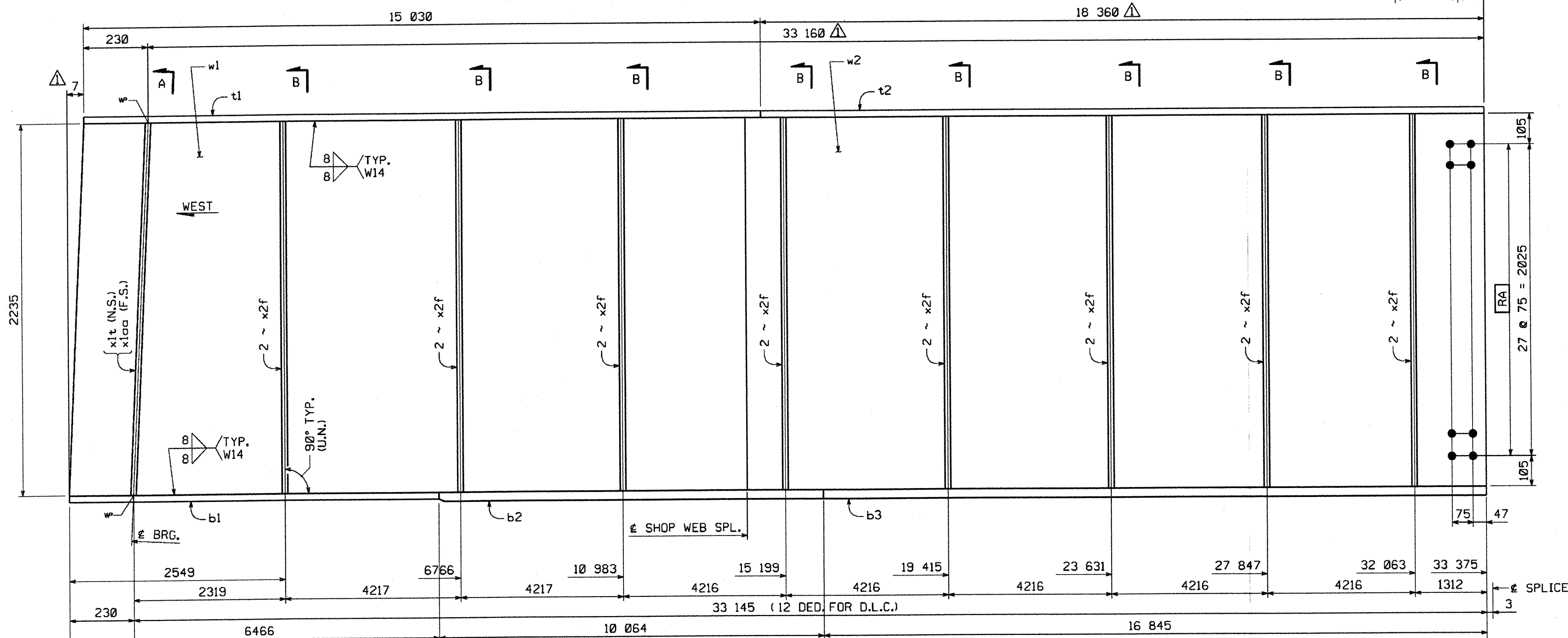
BOLTS: NONE

PAINT: NONE

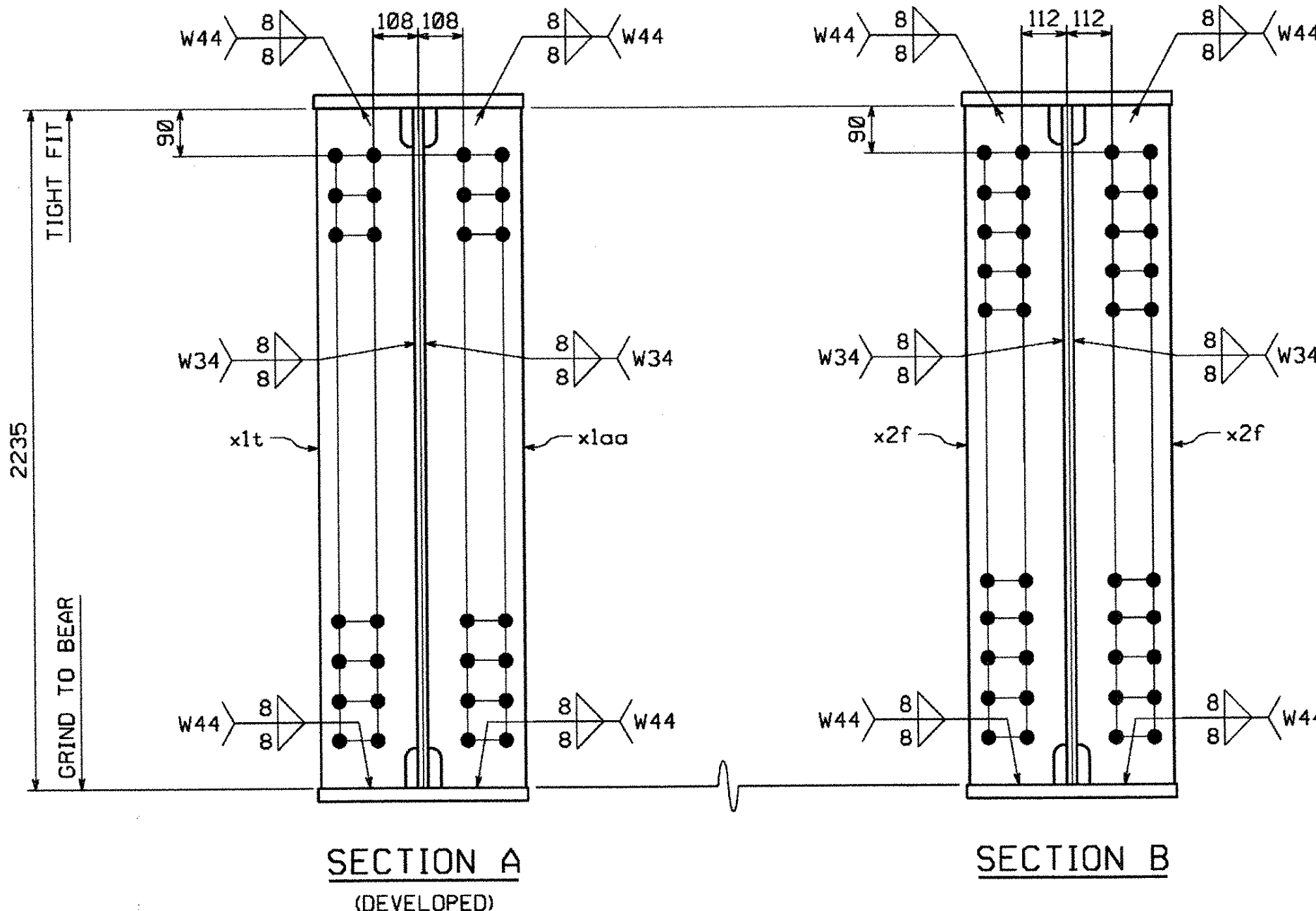
FOR GENERAL SHOP NOTES, SEE DWG. GNI.

FOR WEB CAMBER DIAGRAM, SEE DWG. WCI.

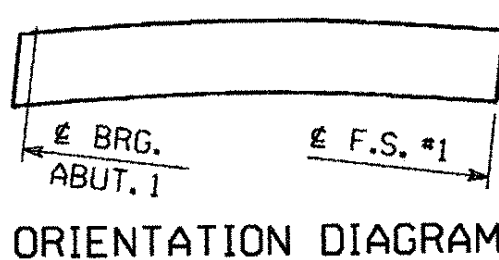
FOR HORIZ. CURVE DIAGRAM, SEE DWG. HCI.



GIRDER MK. ~ G3A



PLAN VIEW



ORIENTATION DIAGRAM

BY: mcreide1

PLOTTED: 4/28/2005 9:39:02 AM

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.
	VT	

[illegible]

NUMBER: 1	NUMBER: 2
-----------	-----------

TO: Miller Construction, Inc.

05017 X2 5/12/05 5/Resubmit For Approval TO:Miller Construction, Inc.

METRIC

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.

FED. ROAD
DIV. NO. STATE
VT

BILL OF MATERIAL

SHIP.	QTY EA.	MARK	COMMODITY	DESCRIPTION	LENGTH	SPEC	GRADE	TEST	REMARKS	GRP.	ITEM	SHIP WEIGHT EA.
1	1	G5A		GIRDER								17104.96
1	1	w1	PL	20 x 2235	14 836	M270M	345W	T		3	3	5205.25
1	1	w2	PL	20 x 2235	18 739	M270M	345W	T		3	1	6574.63
1	1	t1	PL	22 x 410	15 230	M270M	345W			4	31	1078.26
1	1	t2	PL	22 x 410	18 326	M270M	345W			4	26	1297.45
1	1	b1	PL	22 x 410	15 230	M270M	345W	T		4	29	1078.26
1	1	b2	PL	22 x 410	18 318	M270M	345W	T		4	25	1296.89
1	1	x1n	PL	22 x 190	2 235	M270M	345W			7	3	73.33
1	1	x1ab	PL	22 x 190	2 235	M270M	345W			7	3	73.33
1	8	x2h	PL	16 x 190	2 235	M270M	345W			7	6	53.33
1	1	x2n	PL	6 x 72	275	M270M	345W			7	7	0.93

TOTAL WEIGHT THIS SHEET: 17104.96 kg

Reviewed
Rejected

Furnish as Corrected
Revise and Resubmit
Submit Specified Item

This review is only for general conformance with the design criteria and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and correlated at the job site. Information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction, coordination of the work with that of all other trades and performing all work in a safe and satisfactory manner.

McFarland-Johnson, Inc.

Date: 6/9/05

By: BW

VTrans
RECEIVED

OK'D BY: Jue OK'D BY:

JUN 03 2005

RESUBMIT: APPROVED:

BY: DATE:

△		
△		
△	CAMBER DESIGN CHANGE	MCK 4-26-05
NO.	REVISION	BY DATE

HIGH STEEL STRUCTURES, INC.		1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5211 A Division of High Industries, Inc.	
GIRDER		G5A	
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE: GLIDDEN (IH)	MADE BY: K.L.W.	CHK'D BY: WBW	DATE: 4/18/05
CONTRACT NUMBER: VT-05017-1		DRAWING NUMBER: 10 OF 15	

SHOP NOTE

HOLES: $1\frac{5}{16}$ " (U.N.)

BOLTS: NONE

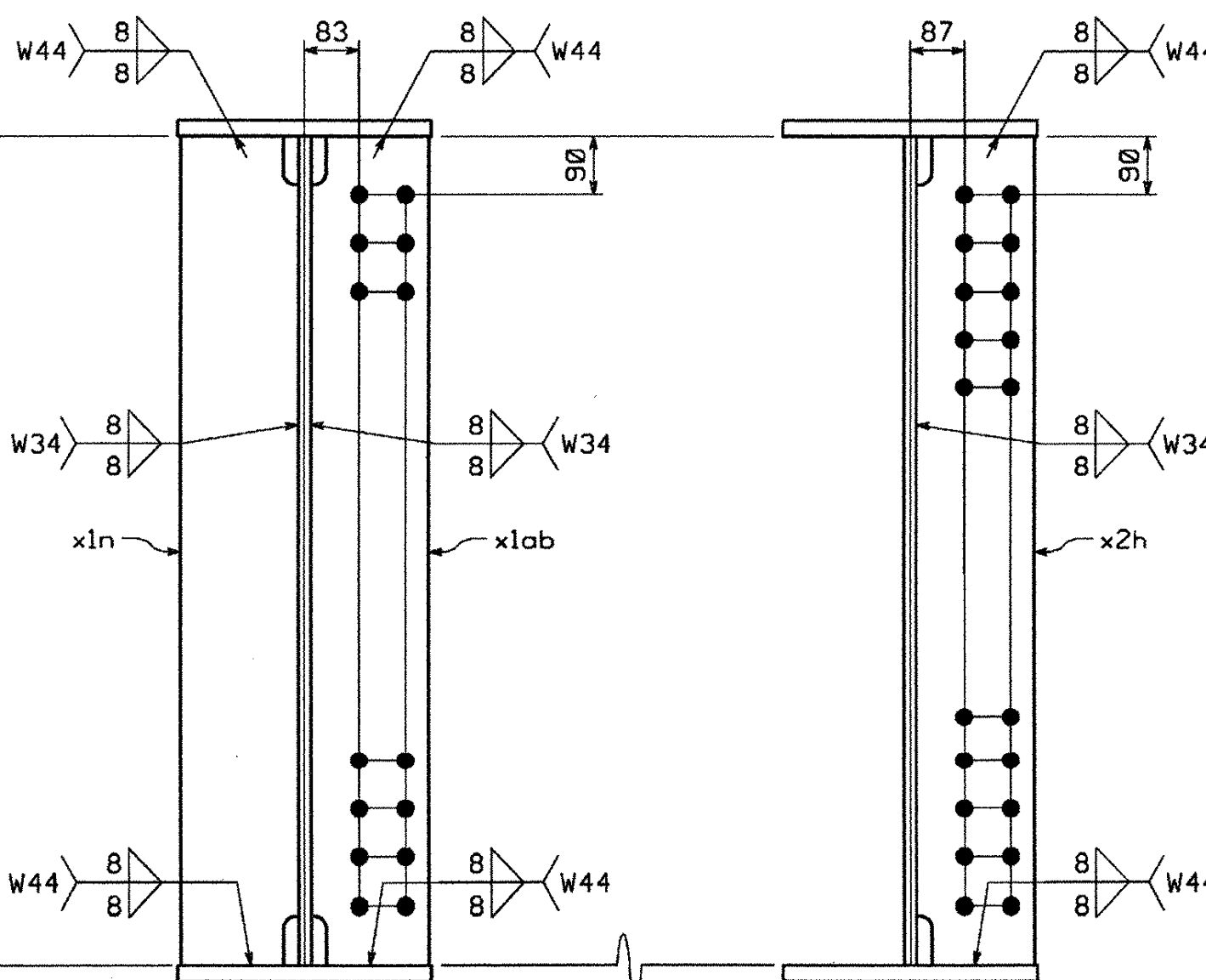
PAINT: NONE

FOR GENERAL SHOP NOTES, SEE DWG. GN1.

FOR WEB CAMBER DIAGRAM, SEE DWG. WC1.

FOR HORIZ. CURVE DIAGRAM, SEE DWG. HC1.

GIRDER MK. ~ G5A

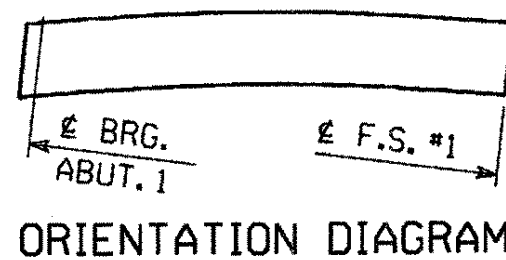


SECTION A
(DEVELOPED)

SECTION B

SECTION Z
(DEVELOPED)

PLAN VIEW



ORIENTATION DIAGRAM

METRIC

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.

FED. ROAD
DIV. NO. STATE
VT

BILL OF MATERIAL

SHIP	QTY	EA.	MARK	COMM.	DESCRIPTION	LENGTH	SPEC	GRADE	TEST	REMARKS	GRP.	ITEM	SHIP
													WEIGHT EA.
1	1		G1B		GIRDER								9370.05
1	1	w1	PL	20 x 2235	11 230	M270M	345W	T			3	4	3940.07
1	1	t1	PL	45 x 610	3 360	M270M	345W				4	8	723.93
1	1	l2	PL	32 x 610	7 870	M270M	345W				4	10	1205.79
1	1	b1	PL	65 x 610	3 341	M270M	345W	T			4	4	1039.77
1	1	b2	PL	32 x 610	7 870	M270M	345W	T			4	9	1205.79
1	2	x1a	PL	16 x 2125	350	M270M	345W	T			6	1	93.40
1	2	x1b	PL	32 x 610	1 030	M270M	345W	T			6	2	157.81
1	4	x1c	PL	32 x 255	1 030	M270M	345W	T			6	3	65.97
1	1	x1m	PL	32 x 290	2 235	M270M	345W				7	1	162.80
1	1	x2a	PL	32 x 290	2 235	M270M	345W				7	1	162.80
1	2	x2d	PL	16 x 290	2 235	M270M	345W				7	4	81.40

TOTAL WEIGHT THIS SHEET: 9370.05 kg

Reviewed
Rejected

Furnish as Corrected
Revise and Resubmit
Submit Specified Item

This review is only for general conformance with the design criteria and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not constitute approval of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and correlated at the job site. Information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction, coordination of the work, and all other trades and performing all work in a safe and satisfactory manner.

McFarland-Johnson, Inc.
Date: 6/1/05
By: EJO

VTtrans
RECEIVED
CK'D BY: JWC
JUN 03 2005
RESUBMIT: APPROVED: BY: DATE

CAMBER DESIGN CHANGE
NO. REVISION
MCK 4-26-05
BY DATE

HIGH STEEL STRUCTURES, INC.
1770 Hempstead Road
Lancaster, PA 17605-0008
Phone 717/299-5211
A Division of High Industries, Inc.

GIRDER G1B
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110
TOWN OF HARTLAND
WINDSOR COUNTY, VERMONT
STATE OF VERMONT, AGENCY OF TRANSPORTATION
STATE CONTRACT PROJECT NO. BRS-0113(22)
CONTRACTOR MILLER CONSTRUCTION, INC.
IN CHARGE: GLIDDEN (IH) MADE BY: KLVW CHK'D BY: WSW DATE: 4/19/05
CONTRACT NUMBER: VT-05017-1 DRAWING NUMBER: 11 OF 15

SHOP NOTE

HOLES: 15/16" (U.N.)
BOLTS: NONE
PAINT: SEE DWG. GNI
FOR GENERAL SHOP NOTES, SEE DWG. GNI.
FOR WEB CAMBER DIAGRAM, SEE DWG. WC1.
FOR HORIZ. CURVE DIAGRAM, SEE DWG. HC1.

GIRDER MK. ~ G1B

PAINT THE TOP AREA OF THE BOTTOM FLANGE.
PRIME THE SIDES AND BOTTOM OF THE BOTTOM
FLANGE IN THE BEARING AREA.

LIGHT RUST PREVENTIVE
COAT OF PRIMER (F.S.),
EDGES & SHADED AREA (N.S.)

SECTION A
(DEVELOPED)

SECTION B

PLAN VIEW

ORIENTATION DIAGRAM

BY: mk-reudoi

PLOTTED: 4/28/2005
9:59:18 AM

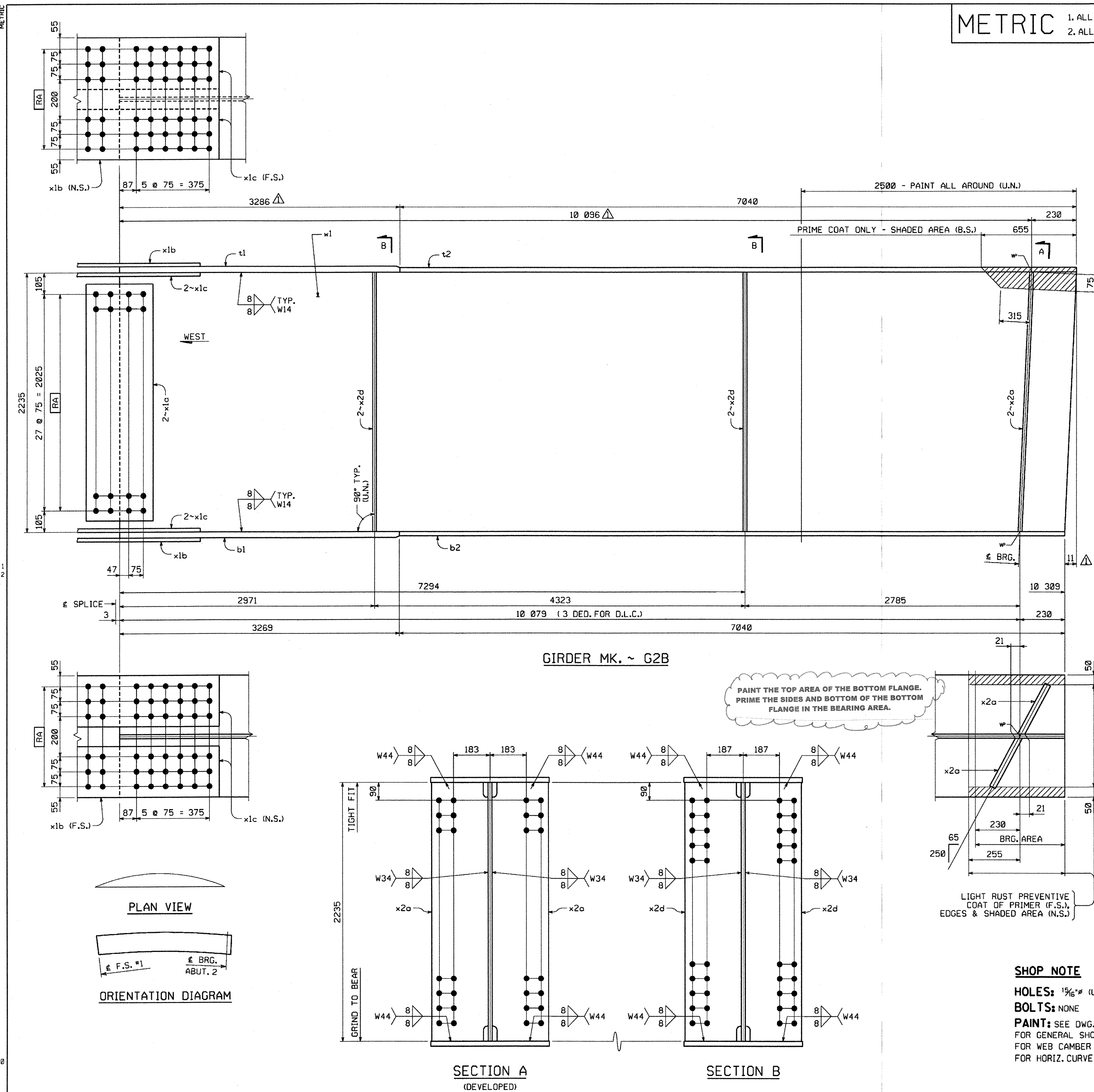
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.
	VT	

[illegible]

GIRDER		G2B
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK		
U.S. RTE. 5 STA. 3+00.77 TO STA. 3+123.110		
TOWN OF NORTHLAND		
WINDSOR COUNTY, VERMONT		
STATE OF VERMONT, AGENCY OF TRANSPORTATION		
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)		
CONTRACTOR MILLER CONSTRUCTION, INC.		
IN CHARGE: GLIDDEN (IH)	MADE BY: KLV	CHK'D. BY: BWB DATE: 4/19/05
CONTRACT NUMBER: VT-05017-1	DRAWING NUMBER: 12 OF 15	

CODE:30

TO: Miller Construction, Inc.



METRIC

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.FED. ROAD
DIV. NO.
STATE
VT
FED. AID
PROJ. NO.

BILL OF MATERIAL

SHIP.	QTY EA.	MARK	COMM.	DESCRIPTION	LENGTH	SPEC	GRADE	TEST	REMARKS	GRP.	ITEM	SHIP WEIGHT EA.
1	1	G3B		GIRDER								5889.77
1	1	w1	PL	20 x 2235	9 420	M270M	345W	T		3	6	3305.03
1	1	t1	PL	25 x 460	9 420	M270M	345W	T		4	22	850.29
1	1	b1	PL	32 x 460	3 197	M270M	345W	T		4	19	369.38
1	1	b2	PL	25 x 460	6 208	M270M	345W	T		4	24	560.36
1	2	x1a	PL	16 x 2125	350	M270M	345W	T		6	1	93.40
1	2	x1d	PL	20 x 460	730	M270M	345W	T		6	4	52.71
1	4	x1f	PL	20 x 180	730	M270M	345W	T		6	5	20.83
1	2	x2b	PL	25 x 215	2 235	M270M	345W			7	2	94.29
1	2	x2f	PL	16 x 215	2 235	M270M	345W			7	5	60.35
1	2	x2g	PL	16 x 215	2 235	M270M	345W			7	5	60.35

TOTAL WEIGHT THIS SHEET: 5889.77 kg

☒ Reviewed
☐ Rejected☐ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

This report is only for general compliance with the design contract and the information given in the Construction Documents. Corrections or omissions made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of its assembly of which the item is a component. This Contractor is responsible for dimensions to be confirmed and correlated at this point. Information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction, coordination of the work, or that of all other trades are performing all work in a safe and satisfactory manner.

McFarland-Johnson, Inc.

Date: 6/9/05
By: EJPVTrans
RECEIVED

CK'D BY: JWC

JUN 03 2005

RESUBMIT: _____

BY: _____

DATE: _____

△			
△			
△	CAMBER DESIGN CHANGE	MGK	4-26-05
NO.	REVISION	BY	DATE

HIGH STEEL STRUCTURES, INC.		1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5211 A Division of High Industries, Inc.	
GIRDER		G3B	
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT OR REF. NO. PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE: GLIDDEN (IH)		MADE BY: KLV	CHK'D BY: WBW
CONTRACT NUMBER: VT-05017-1		DATE: 4/19/05	
DRAWING NUMBER: 13 OF 15			

SHOP NOTE

HOLES: 15/16" (U.N.)

BOLTS: NONE

PAINT: SEE DWG. GNI

FOR GENERAL SHOP NOTES, SEE DWG. GNI.

FOR WEB CAMBER DIAGRAM, SEE DWG. WC1.

FOR HORIZ. CURVE DIAGRAM, SEE DWG. HC1.

GIRDER MK. ~ G3B

PAINT THE TOP AREA OF THE BOTTOM FLANGE.
PRIME THE SIDES AND BOTTOM OF THE BOTTOM
FLANGE IN THE BEARING AREA.LIGHT RUST PREVENTIVE
COAT OF PRIMER (F.S.),
EDGES & SHADED AREA (N.S.)

PLAN VIEW

ORIENTATION DIAGRAM

SECTION A
(DEVELOPED)

SECTION B

METRIC

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.FED. ROAD
DIV. NO. STATE
VT
FED. AID
PROJ. NO.

BILL OF MATERIAL

SHIP.	QTY EA.	MARK	COMM.	DESCRIPTION	LENGTH	SPEC	GRADE	TEST	REMARKS	GRP.	ITEM	SHIP WEIGHT EA.
1	1	G4B		GIRDER								4836.31
1	1	w1	PL	20 x 2235	8 513	M270M	345W	T		3	7	2986.81
1	1	t1	PL	22 x 410	8 513	M270M	345W	T		4	33	602.71
1	1	b1	PL	22 x 410	8 501	M270M	345W	T		4	34	601.86
1	2	x1a	PL	16 x 2125	350	M270M	345W	T		6	1	93.40
1	2	x1g	PL	14 x 410	580	M270M	345W	T		6	6	26.13
1	4	x1h	PL	14 x 180	580	M270M	345W	T		6	7	11.47
1	2	x2c	PL	22 x 190	2 235	M270M	345W			7	3	73.33
1	2	x2h	PL	16 x 190	2 235	M270M	345W			7	6	53.33
1	2	x2k	PL	16 x 190	2 235	M270M	345W			7	6	53.33

TOTAL WEIGHT THIS SHEET: 4836.31 kg

Reviewed
RejectedFurnish as Corrected
Revise and Resubmit
Submit Specified Item

This review is only for general conformance with the design contract and the information provided in the Construction Documents. Corrective or corrective action on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and corrected at the job site. Information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work; and all other issues and performing all work in a safe and satisfactory manner.

McFarland-Johnson, Inc.

Date: 4/19/05

By: EWS

RESUBMIT: APPROVED

BY DATE

△			
△			
△	CAMBER DESIGN CHANGE	MGK	4-26-05
NO.	REVISION	BY	DATE

HIGH STEEL STRUCTURES, INC.		1770 Hempstead Road Lancaster, PA 17605-0008 Phone 717/299-5211 A Division of High Industries, Inc.	
GIRDER		G4B	
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK			
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110			
TOWN OF HARTLAND			
WINDSOR COUNTY, VERMONT			
STATE OF VERMONT, AGENCY OF TRANSPORTATION			
STATE CONTRACT PROJECT NO. BRS-0113(22)			
CONTRACTOR MILLER CONSTRUCTION, INC.			
IN CHARGE: GLIDDEN (IH)	MADE BY: KLV	CHK'D BY: WBW	DATE: 4/19/05
CONTRACT NUMBER: VT-05017-1		DRAWING NUMBER: 14 OF 15	

SHOP NOTE

HOLES: 1 5/16" (U.N.)

BOLTS: NONE

PAINT: SEE DWG. GNI

FOR GENERAL SHOP NOTES, SEE DWG. GNI.

FOR WEB CAMBER DIAGRAM, SEE DWG. WC1.

FOR HORIZ. CURVE DIAGRAM, SEE DWG. HC1.

CODE:30

METRIC

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN KILOGRAMS.FED. ROAD
DIV. NO. STATE
VTFED. AID
PROJ. NO.

BILL OF MATERIAL

SHIP	QTY EA.	MARK	COMM.	DESCRIPTION	LENGTH	SPBC	GRADE	TEST	REMARKS	GRP.	ITEM	SHIP WEIGHT EA.
△	1	1	G5B	GIRDER								4283.07
△	1	1	w1	PL 20 x 2235	7608	M270M	345W	T		3	8	2668.58
△	1	1	t1	PL 22 x 410	7606	M270M	345W	T		4	35	538.49
△	1	1	b1	PL 22 x 410	7595	M270M	345W	T		4	36	537.71
	1	2	x1a	PL 16 x 2125	350	M270M	345W	T		6	1	93.40
	1	2	x1g	PL 14 x 410	580	M270M	345W	T		6	6	26.13
	1	4	x1h	PL 14 x 180	580	M270M	345W	T		6	7	11.47
	1	1	x1p	PL 22 x 190	2235	M270M	345W			7	3	73.33
	1	1	x2c	PL 22 x 190	2235	M270M	345W			7	3	73.33
	1	1	x2h	PL 16 x 190	2235	M270M	345W			7	6	53.33
	1	1	x2k	PL 16 x 190	2235	M270M	345W			7	6	53.33

TOTAL WEIGHT THIS SHEET: 4283.07 kg

TOTAL WEIGHT FOR BID ITEM #506.55: 164383.91 kg

☒ Reviewed
☐ Rejected☐ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

This review is only for general conformance with the design concept and the information shown on the Construction Documents. Corrections of omissions made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and correlated at the job site. Information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of all other trades and performing all work in a safe and satisfactory manner.

McFarland-Johnson, Inc.

Date: 6/13/05

By: [Signature]

VTrans
RECEIVED

CK'D BY: JWC CK'D BY:

JUN 03 2005

RESUBMIT: APPROVED:

BY: DATE:

△			
△			
△	CAMBER DESIGN CHANGE	MGK 4-26-05	
NO.	REVISION	BY	DATE

1770 Hempstead Road
Lancaster, PA 17603-0008
Phone 717/295-5211
A Division of High Industries, Inc.

GIRDER	G5B
U.S. RTE. 5 (BRIDGE #60) OVER LULLS BROOK	
U.S. RTE. 5 STA. 3+080.77 TO STA. 3+123.110	
TOWN OF HARTLAND	
WINDSOR COUNTY, VERMONT	
STATE OF VERMONT, AGENCY OF TRANSPORTATION	
STATE CONTRACT OR REF. NO.	PROJECT NO. BRS-0113(22)
CONTRACTOR	MILLER CONSTRUCTION, INC.
IN CHARGE: GLIDDEN (IH)	MADE BY: KLV
CHK'D BY: WBW	DATE: 4/19/05
CONTRACT NUMBER: VT-05017-1	DRAWING NUMBER: 15 OF 15

CODE:30



1. Non-Fracture Critical ☒ Fracture Critical ☐ WPS Expiration Date: _____

2. Qualified in accordance with: AWS D1.5-2002 (S.12.1)

Referenced PQR No(s). PQR-FCAW-WI-01-03

Referenced FWST No(s). PQR-FCAW-FWST-01(03), PQR-FCAW-FWST-01A(03)

3. Material specification(s) ASTM A709 Gr. 36, 50, 50W, A53 & 500C (pipe) For DOT Approval

4. Material Thickness (s) Unlimited

5. Welding process FCAW

6. Manual ☐, machine ☐, or semiautomatic ☒

7. Position(s) of welding 1G, 2G, 1F, 2F

8. Filler metal specification AWS A5.20

9. Filler metal class and brand name E7017-1, E7017-9 Lincoln Outershield Elite

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

Root treatment Clean to bright sound metal or per AWS D1.5 (3.2.1 & 3.11) BY _____

Postheat treatment N/A

19. Calculated Heat Input (KJ/In) Min 31.20 KJ/in Max 50.72 KJ/in

20. Electrode extension (electrical stickout) 3/4"

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JUN 25 2006
DATE 7-17-06

* Wire feed speed may be used along with amperage (include chart)		Preheat and Interpass Temperature Chart	
Prepared By: <u>Joe R. Lowe</u> DSB QA Manager	Thickness range	Base Metal	Max Preheat & Interpass (°F)
		Minimum Preheat (°F)	
Project: _____	Thickness range	≤ 3/4"	450 °F
		>3/4" to ≤ 5"	450 °F
		>1.5" to ≤ 2.5"	450 °F
		>2.5"	450 °F
DSB Job: 14032-1042			

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

134 scup



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

Procedure No: A-GSB-11Date Issued: 12-21-04Revision No: 0Rev. Date:

Contractor (Fabricator) D. S. Brown CompanyPrepared by: James R. Connor, Quality Assurance Manager

1. Non-Fracture Critical ☒Fracture Critical ☐

2. Qualified in accordance with: AWS D1.5:2002 (5.12.1)

Referenced PQR No(s): PQR-GMAW-01(04)

Referenced FWST No(s): PQR-GMAW-FWST-01A(03), PQR-GMAW-FWST-01B(03)

3. Material specification(s) ASTM A709 Gr. 36, 50, 50W, A53 & 500B.C (pipe)

4. Material Thickness (es) Unlimited

5. Welding process GMAW

6. Manual ☐, machine ☐, or semiautomatic ☒

7. Position(s) of welding 1G,2G,1F, 2F

8. Filler metal specification AWS A5.18

9. Filler metal class and brand name ER70S-3 Lincoln SuperArc 50

10. Flux class & brand N/A, Type N/A

11. Shielding gas 90% Ar / 10% CO2Flow 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 15.3 KJ/inMax 24.9 KJ/in

20. Electrode extension (electrical stickout) 3/4"

For DOT Approval

CR'D BY:OK'D BY: JWC

JUN 26 2006

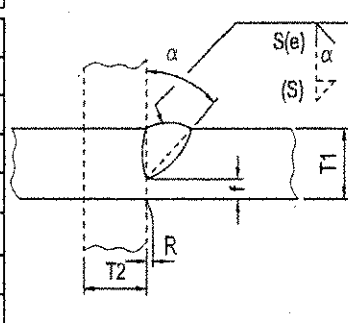
RESUBMIT:APPROVED: ☒

BY:DATE: 7-17-06

Joint Detail (TC-P4-GF)

Show all dimensions, weld sizes, passes, and AWS symbols

For Butt Joints see AWS 2.14



T1 = 1/4" min.
T2 = Varies
(E) = S-1/8"
f = 1/8" min.
R = 0
α = 45°
S = size groove
(S) = size of reinforcing
fillet (if required) not to
exceed 1/2" in corner & T jts.

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

Prepared By: James R. ConnorDSB QA Manager

Project:

DSB Job: 14032-1042

Preheat and Interpass Temperature Chart

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

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

135 SCUP

DSBROWN

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

Procedure No: A-GF-01

Date Issued: 6-18-04

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 ☐

2. Qualified in accordance with: AWS D1.5-2002 (5.12.1)

Referenced PQR No(s): PQR-GMAW-01(04)

Referenced FWST No(s): PQR-GMAW-FWST-01A(03), PQR-GMAW-FWST-01B(03)

3. Material specification(s) ASTM A709 Gr. 36, 50, 50W

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 ER70S-3 Lincoln SuperArc 50)

10. Flux class & brand N/A, Type N/A

11. Shielding gas 90% Ar / 10% 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 15.3 KJ/in Max 24.9 KJ/in

20. Electrode extension (electrical stickout) 3/4"

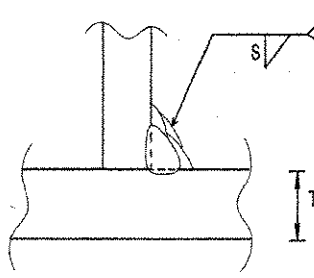
For DOT Approval

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OK'D BY: JWC
JUN 26 2006
RESUBMIT APPROVED
DATE 7-17-06

Weld size (in)	No(s)	Pass	Electrode Size (in)	Welding Process Variables		Travel Speed (in/min)
				AMPS/WFS*	VOLTS	
**1/4"	1		.045"	170-215	24-27	14-16
5/16"	1-2		.045"	170-215	24-27	14-16
3/8"	2-3		.045"	170-215	24-27	14-16
7/16"	3-5		.045"	170-215	24-27	14-16
1/2"	4-6		.045"	170-215	24-27	14-16
5/8"	5-7		.045"	170-215	24-27	14-16
3/4"	6-8		.045"	170-215	24-27	14-16

Joint Detail (Fillet)

Show all dimensions, weld sizes, passes, and AWS symbols



T1 = Varies
T2 = Varies
S = Weld Size

** T1 & T2 equal to or less than 3/4" for 1/4" welds.

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

Prepared By: James R. Connor DSB QA Manager

Project:

DSB Job: 14032-1042

Base Metal Thickness range	Preheat and Interpass Temperature Chart	
	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

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

136 scup

DSBROWN

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

Procedure No: A-G-SEALWELD-01 Date Issued: 12-21-04 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-GMAW-01(04)
Referenced FWST No(s). PQR-GMAW-FWST-01A(03) , PQR-GMAW-FWST-01B(03)

3. Material specification(s) ASTM A709 Gr. 36, 50, 50W, A500B, A53 For DOT Approval

4. Material Thickness (es) Unlimited

5. Welding process GMAW

6. Manual ☐ , machine ☐ , or semiautomatic ☒

7. Position(s) of welding 1G, 2G, 1F, 2F

8. Filler metal specification AWS A5.18

9. Filler metal class and brand name ER70S-3 Lincoln SuperArc 50

10. Flux class & brand N/A , Type N/A

11. Shielding gas 90% Ar / 10% 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 15.3 KJ/in Max 24.9 KJ/in

20. Electrode extension (electrical stickout) 3/4"

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BY _____ DATE 7-17-06

Weld size (in)

Pass No(s)

Electrode Size (in)

Welding Process Variables

AMPS

VOLTS

Electrode (in)

Travel Speed

**1/8"

1

.045"

170-215

24-27

14-16

**3/16"

1

.045"

170-215

24-27

14-16

NOTE:
THIS JOINT DETAIL TO BE USED
FOR SEALING NON-STRUCTURAL GALVANIZED OR PAINTED
APPLICATIONS WHERE FULL SIZED WELDMENTS ARE NOT
DESIGNED, DETAILED OR ARE NOT PRACTICAL.

Joint Detail (Sealweld)

Show all dimensions, weld sizes, passes, and AWS symbols

T1

T2

S

T1

T2

S

T1 = Varies

T2 = Varies

S = Weld Size

Preheat and Interpass Temperature Chart

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

Prepared By: James R. Connor DSB QA Manager

Project: _____

DSB Job: 14032-1042

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

137

Scup



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

Procedure No: A-F-SEALWELD-06Date Issued: 11-14-03Revision No: 0Rev. Date:

Contractor (Fabricator) D. S. Brown CompanyPrepared 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-FCAW-01-03

Referenced FWST No(s): PQR-FCAW-FWST-01(03), PQR-FCAW-FWST-01A(03)

3. Material specification(s) ASTM A709 Gr. 36, 50, 50W, A53 & A500C (pipe), A500B (tube)For DOT Approval

4. Material Thickness (es) Unlimited

5. Welding process FCAW

6. Manual ☐, machine ☐, or semiautomatic ☒

7. Position(s) of welding 1G,1F,2F

8. Filler metal specification AWS A5.20

9. Filler metal class and brand name E71T-1, E71T-9 Lincoln Outershield Elite)

10. Flux class & brand N/A, Type N/A

11. Shielding gas 100% CO2Flow 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

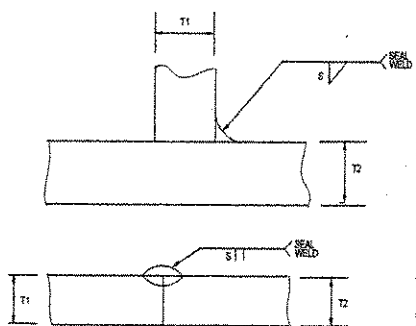
19. Calculated Heat Input (KJ/in) Min 31.20 KJ/inMax 50.72 KJ/in

20. Electrode extension (electrical stickout) 3/4"

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JUN 26 2006
JUN 17 06

Weld size (in)	Pass	Electrode size (in)	Welding Process Variables		Travel Speed (IPM)	Travel
			AMPS/WFS*	VOLTS		
**1/8"	1	1/16"	260-310	26-30	11-13	
**3/16"	1	1/16"	260-310	26-30	11-13	

NOTE:
THIS JOINT DETAIL TO BE USED
FOR SEALING NON-STRUCTURAL GALVANIZED OR PAINTED
APPLICATIONS WHERE FULL SIZED WELDMENTS ARE NOT
DESIGNED, DETAILED OR ARE NOT PRACTICAL.



T1 = Varies
T2 = Varies
S = Weld Size

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

Prepared By: James R. ConnorDSB QA Manager

Project:

DSB Job: 14032-1042

Preheat and Interpass Temperature Chart		
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

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

158 SCSJP

DSBROWN

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

Procedure No: A-FF-05

Date Issued: 11-11-03

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 ☐

2. Qualified in accordance with: AWS D1.5- 2002 (5.12.1)

Referenced PQR No(s): PQR-FCAW-01-03

Referenced FWST No(s): PQR-FCAW-FWST-01(03), PQR-FCAW-FWST-01A(03)

3. Material specification(s) ASTM A709 Gr. 36, 50, 50W, A53 & A500B,C(pipe)

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-1, E71T-9 Lincoln Outershield Elite)

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 31.20 KJ/in Max 50.72 KJ/in

20. Electrode extension (electrical stickout) 3/4"

For DOT Approval

OK'D BY: OK'D BY: JUN 26 2006

RESUBMIT: APPROVED: DATE 7-17-06

Weld size (in)	Pass No(s)	Electrode Size (in)	Welding Process Variables		Travel Speed (in/min)	Travel
			AMPS/WFS*	VOLTS		
*1/8"	1	1/16"	260-310	26-30	11-13	
**1/4"	1	1/16"	260-310	26-30	11-13	
5/16"	1	1/16"	260-310	26-30	11-13	
3/8"	2-3	1/16"	260-310	26-30	11-13	
7/16"	3-5	1/16"	260-310	26-30	11-13	
1/2"	4-6	1/16"	260-310	26-30	11-13	
5/8"	5-7	1/16"	260-310	26-30	11-13	
3/4"	6-8	1/16"	260-310	26-30	11-13	

* To be used for non-structural applications only!

Joint Detail (Fillet)

Show all dimensions, weld sizes, passes, and AWS symbols

T1 = Varies
T2 = Varies
S = Weld Size

** T1 & T2 equal to or less than 3/4" for 1/4" welds.

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

Preheat and Interpass Temperature Chart

Base Metal Thickness range	Preheat and Interpass Temperature Chart	
	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

Prepared By: James R. Connor DSB QA Manager

Project:

DSB Job: 14032-1042

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

13950 up



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

Procedure No: A-GF-03

Date Issued: 11-15-04

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-GMAW-01(04)

Referenced FWT No(s): PQR-GMAW-FWST-01A(04), PQR-GMAW-FWST-01B(04)

3. Material specification(s) ASTM A709 Gr. 36, 50, 50W, A500B, A53

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 ER70S-3 Lincoln SuperArc 50)

10. Flux class & brand N/A, Type N/A

11. Shielding gas 90% Ar / 10% 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 15.3 KJ/in Max 24.9 KJ/in

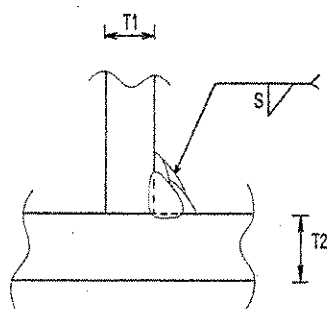
20. Electrode extension (electrical stickout) 3/4"

TRANS RECEIVED JUN 26 2006

APPROVED: DATE 7-17-06

Weld size (in)	Pass No(s)	Electrode Size (in)	Welding Process Variables		Travel Speed (in/min)
			AMPS/WFS*	VOLTS	
**1/4"	1	.045"	170-215	24-27	14-16
5/16"	1-2	.045"	170-215	24-27	14-16
3/8"	2-3	.045"	170-215	24-27	14-16
7/16"	3-5	.045"	170-215	24-27	14-16
1/2"	4-6	.045"	170-215	24-27	14-16
5/8"	5-7	.045"	170-215	24-27	14-16
3/4"	6-8	.045"	170-215	24-27	14-16

Joint Detail (Fillet)



T1 = Varies
T2 = Varies
S = Weld Size

** T1 & T2 equal to or less than 3/4" for 1/4" welds.

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

Preheat and Interpass Temperature Chart

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

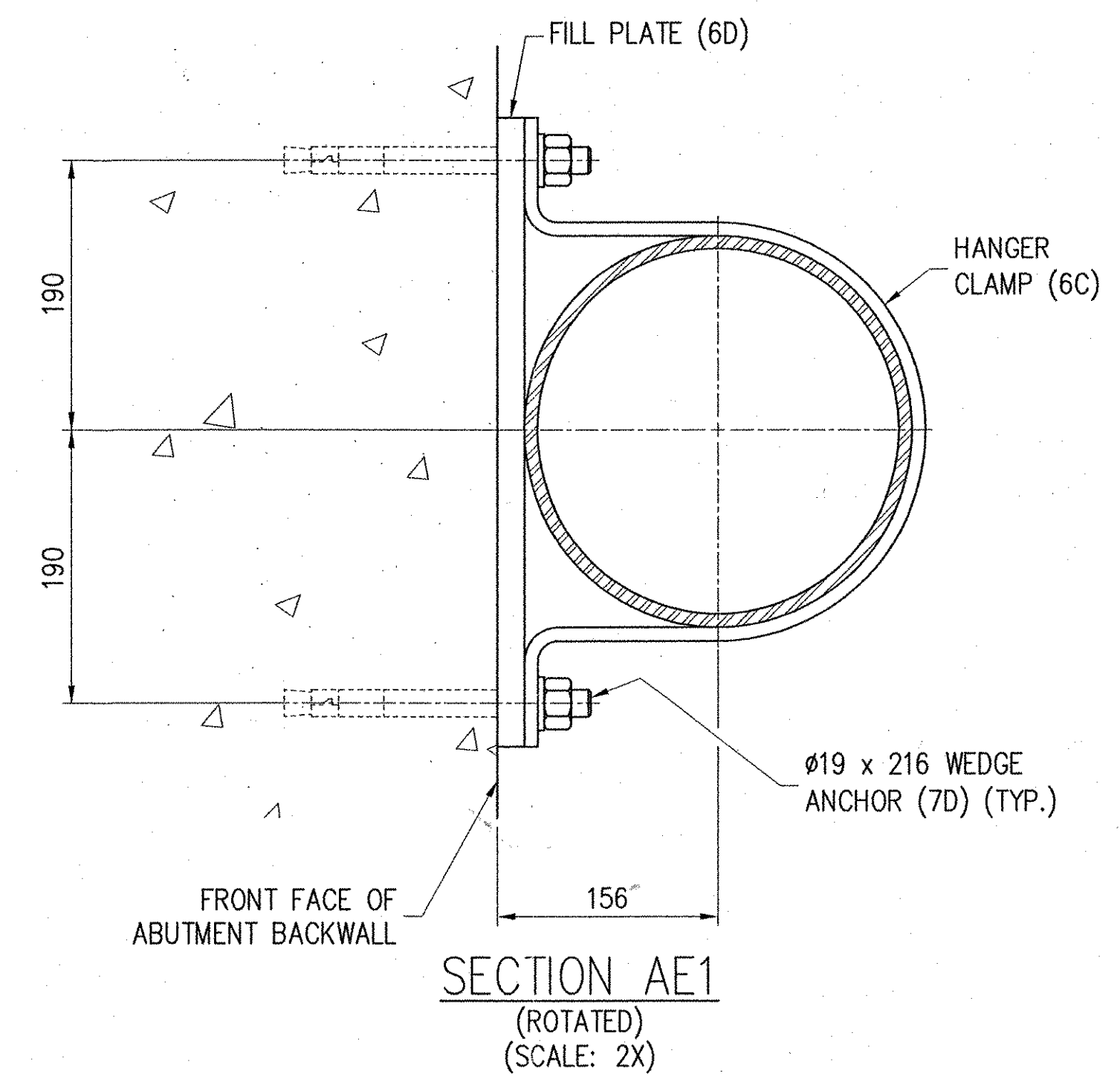
Prepared By: James R. Connor DSB QA Manager

Project:

DSB Job: 14032-1042

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

140 SCUP



WORK THIS SHEET WITH SHEET NO. 6 AND 7.

REV.	DESCRIPTION	DATE	DET.	CKD.
	LOCATION — U.S. ROUTE 5 OVER LULLS BROOK	ITEM	QUANTITY	
	BRIDGE — NO. 60	—	—	
	PROJECT — BRS 0113 (22)	—	—	
	TOWN — HARTLAND	—	—	
	P.O. NO. — 2004	—	—	
	DESIGNER — McFARLAND-JOHNSON, INC.	—	—	
	CUSTOMER — MILLER CONSTRUCTION, INC.	—	—	
		—	—	
DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:
EXPANSION JOINT DRAINAGE ERECTION DETAILS	N.T.S.	JMB	JEB	5/30/06
WINDSOR COUNTY, VT	PROJECT NUMBER:	PRODUCT CODE:		RELEASE:
	14032	1042		2
				SHEET
				E1

141500P



D.S. BROWN

300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332

4201 NOREX DRIVE
CHASKA, MINNESOTA 55318
952.368.3000
FAX: 952.448.7000

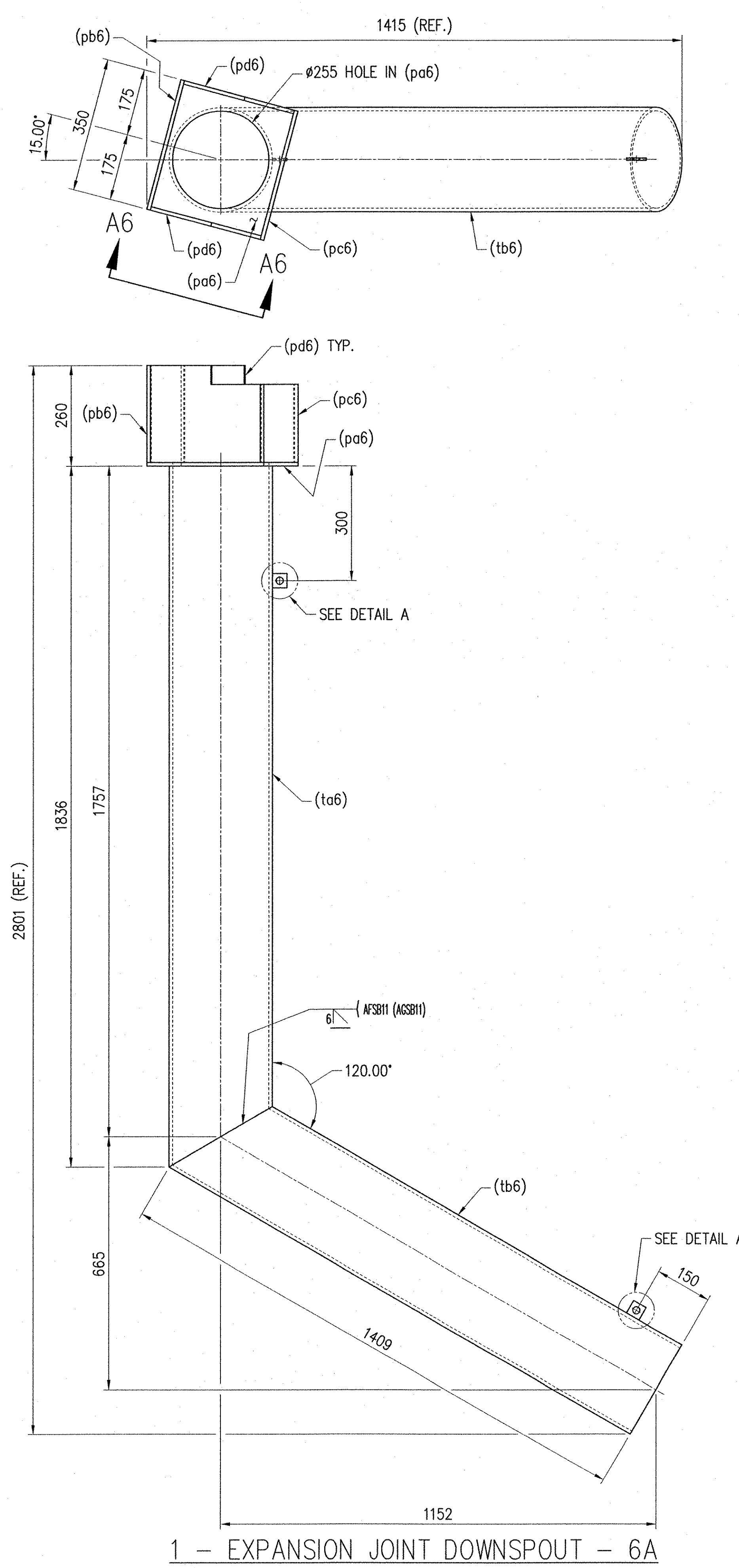
DSBROWN.COM



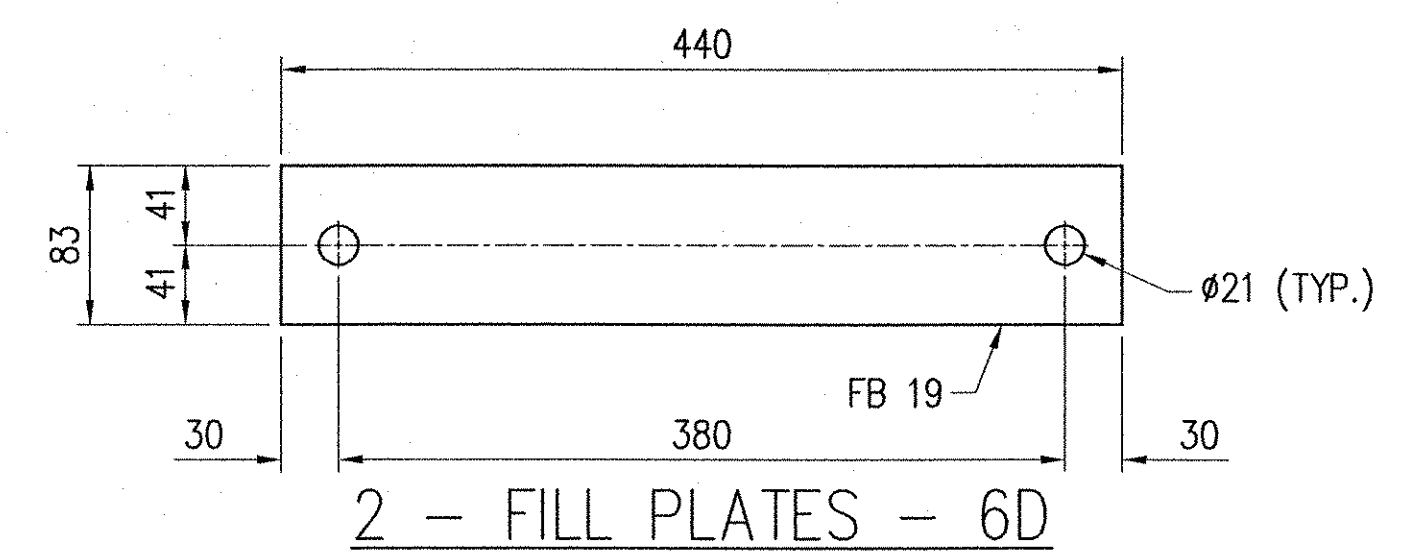
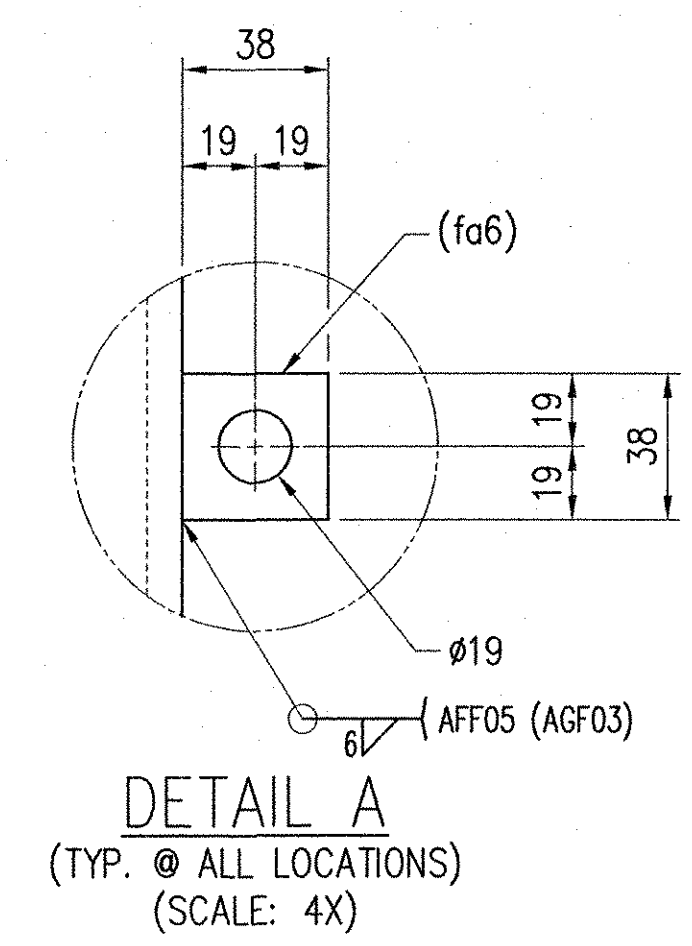
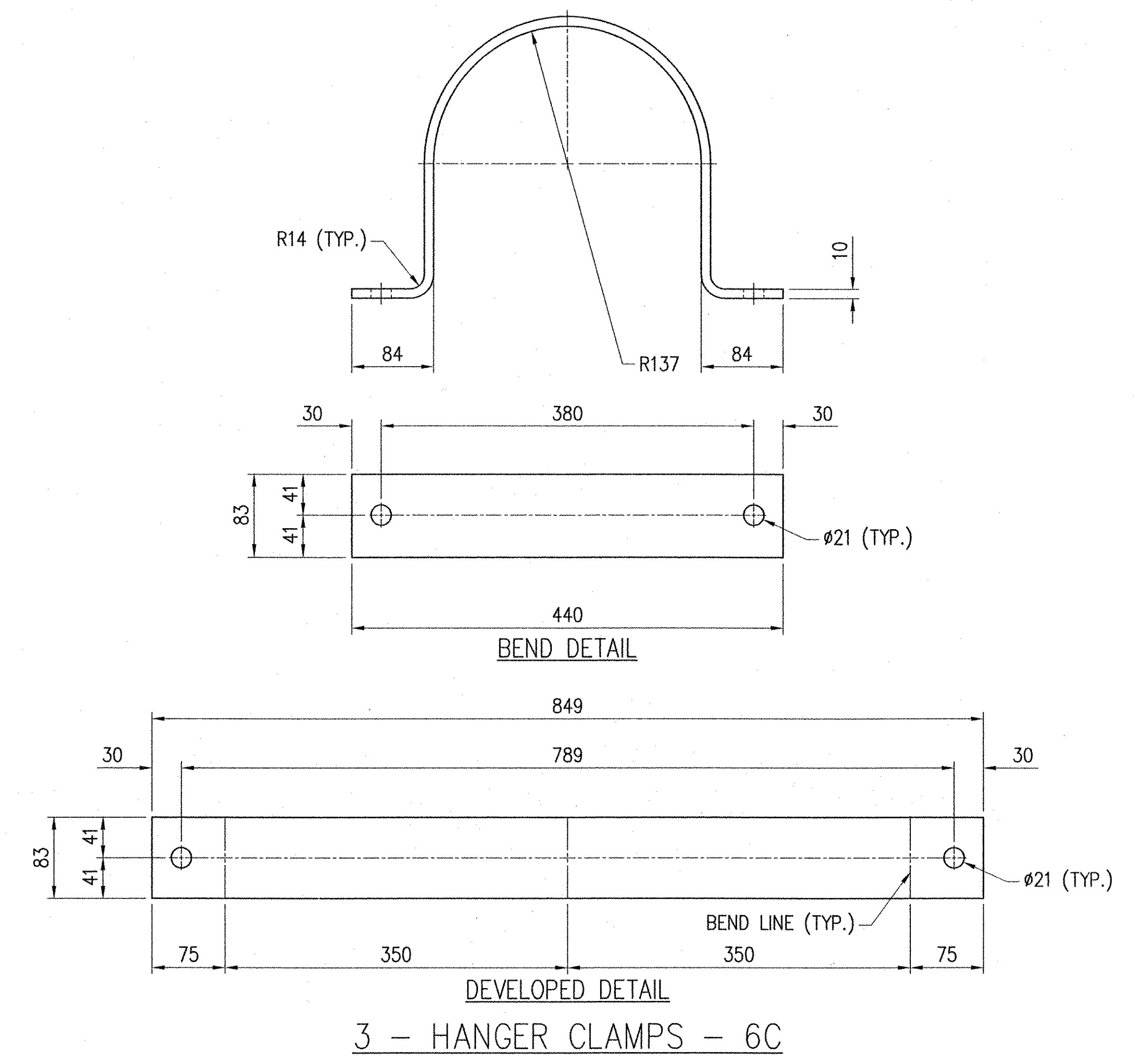
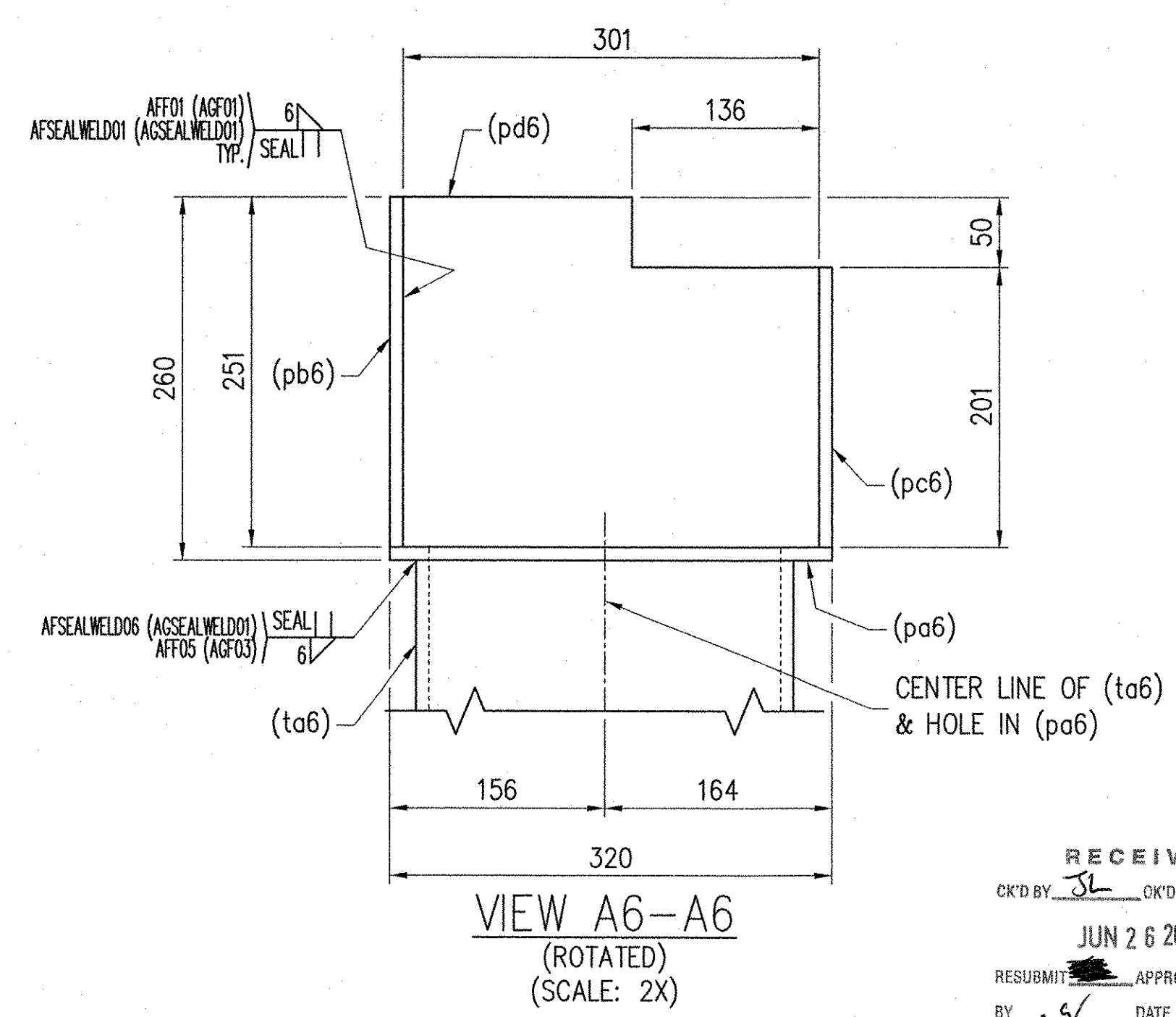
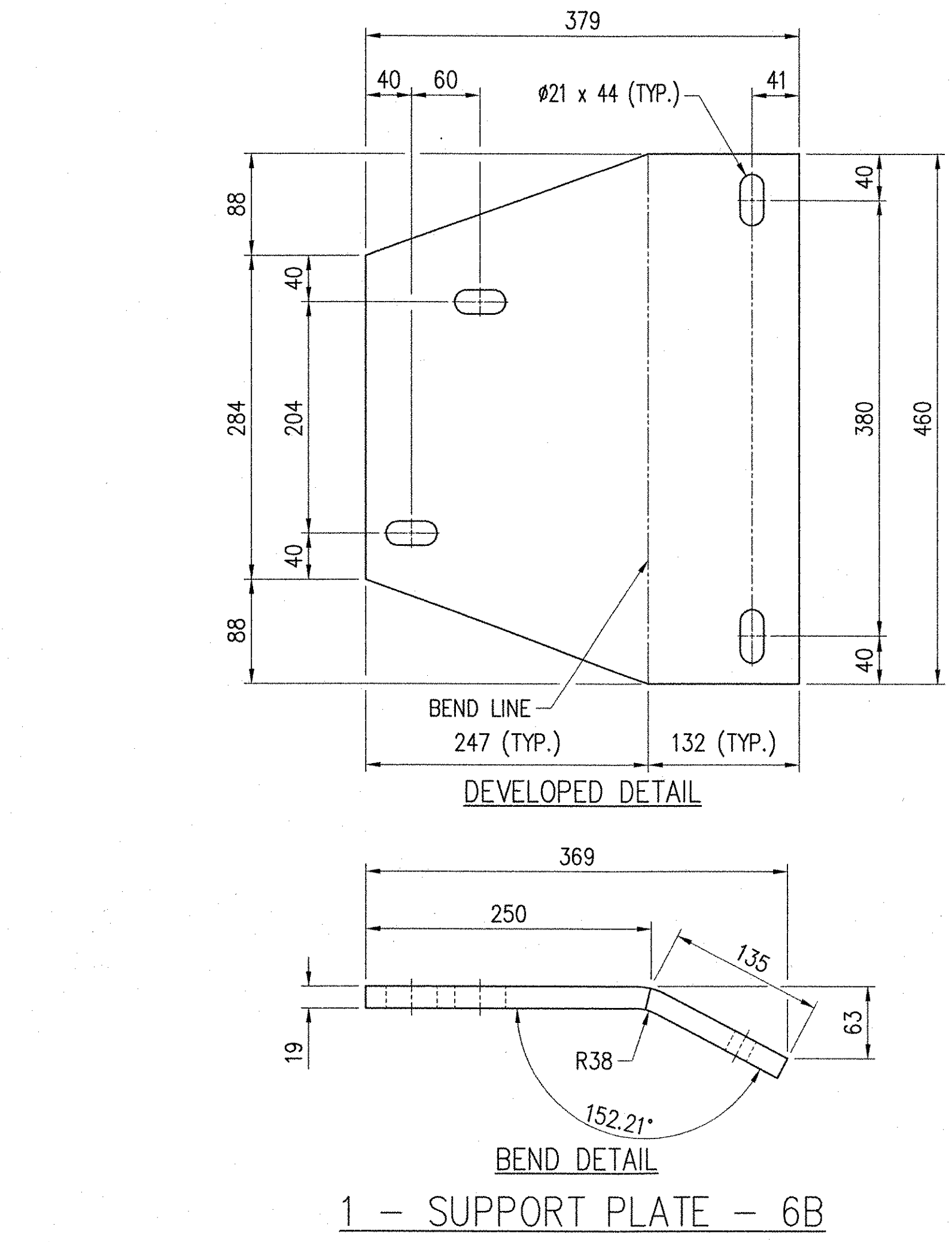
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CK'D BY JL CK'D BY _____
JUN 26 2006
RESUBMIT _____ APPROVED As Nd
BY _____ DATE 7/17/06

STRUCTURES
COPY

VTrans - PDD
JUN 26 2006
Structures Design
Section



1 - EXPANSION JOINT DOWNSPOUT - 6A



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JUN 26 2006
RESUBMIT: *[Signature]* APPROVED: *[Signature]*
BY: *[Signature]* DATE: 7/17/06

VTrans
JUN 26 2006
Structures Design
Section

D.S. BROWN
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419.257.3561
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952.368.3000
FAX: 952.448.7000
DSBROWN.COM

SEE SHEET NO. 7 FOR DRAINAGE NOTES AND BILL OF MATERIALS.

REV.	DESCRIPTION	DATE	DET.	CHKD.
1	LOCATION - U.S. ROUTE 5 OVER LULLS BROOK BRIDGE - NO. 60 PROJECT - BRS 0113 (22) TOWN - HARTLAND P.O. NO. - 2004 DESIGNER - McFARLAND-JOHNSON, INC. CUSTOMER - MILLER CONSTRUCTION, INC.			
2				
3				
4				
5				
6				
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8				
9				
10				

142360P



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

Procedure No: **A-FF-STUD-REP-01** Date Issued: 9-12-03 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 ☐

2. Qualified in accordance with: AWS D1.5-2002 (5.12.1)

Referenced PQR No(s): PQR-FCAW-01-03

Referenced FWT No(s): PQR-FCAW-FWST-01(03) , PQR-FCAW-FWST-01A(03)

3. Material specification(s) ASTM A709 Gr. 36, 50, 50W, A500B to A108 Stud

4. Material Thickness (es) Unlimited

5. Welding process FCAW

6. Manual ☐ , machine ☐ , or semiautomatic ☒

7. Position(s) of welding 2F

8. Filler metal specification AWS A5.20

9. Filler metal class and brand name E71T-1, E71T-9 Lincoln Outershield Elite

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 and per AWS D1.5 (3.2.1 & 3.11)

18. Postheat treatment N/A

19. Calculated Heat Input (KJ/in) Min 31.20 KJ/in Max 50.72 KJ/in

20. Electrode extension (electrical stickout) 3/4"

For DOT Approval

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DEC 1 9 2005

APPROVED

DATE

BY

Weld size
(in)

Pass
No(s)

Electrode
Size (in)

Welding Process
Variables

Travel
Speed
(IPM)

AMPS

VOLTS

**1/4"	1	1/16"	260-310	26-30	11-13
5/16"	1	1/16"	260-310	26-30	11-13
3/8"	2-3	1/16"	260-310	26-30	11-13

Table 7.2

STUD DIAMETER

MIN. SIZE FILLET

3/8"(9MM)

1/4"(6MM)

5/8, 3/4, 7/8(13, 16, 19, 22MM)

5/16(8MM)

1"(25MM)

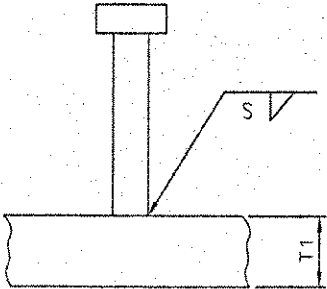
3/8(10MM)

PROCEDURE:

1) REPAIR WELDMENT SHALL BE OF THE SIZE LISTED BELOW AND EXTEND AT LEAST 3/8" (9MM) BEYOND THE END OF EACH DISCONTINUITY BEING REPAIRED.

Joint Detail (Fillet)

Show all dimensions, weld sizes, passes, and AWS symbols



T₁ =VARIES

S =VARIES PER TABLE 7.2 (AS SHOWN LEFT OF PAGE).

APPLICATION:

REPAIR OF STUD WELDMENTS, WHICH DO NOT EXHIBIT A FULL 360° FLASH

Prepared By: James R. Connor DSB QA Manager

Project: U.S. RTE. 5 OVER LULLS BROOK

DSB Job: 14032-1042

Preheat and Interpass Temperature Chart

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

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-(MC)GF-STUD-REP-01 Date Issued: 9-29-04 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 _____

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" _____

For DOT Approval

DSBROWN

APPROVED

DATE 11/6/06

BY

REVIEWED

DATE

BY

Weld size (in)	Pass No(s)	Electrode Size (in)	Welding Process Variables		Travel Speed (in/min)
			AMPS	VOLTS	
1/4"	1	.052"	265-320	31-34.5	13-16
5/16"	1	.052"	265-320	31-34.5	13-16
3/8"	1-2	.052"	265-320	31-34.5	13-16

STUD DIAMETER

Table 7.2

3/8" (13MM)

1/2", 5/8, 3/4, 7/8 (13, 16, 19, 22MM)

1" (25MM)

MIN. SIZE FILLET

1/4 (6MM)

5/16 (8MM)

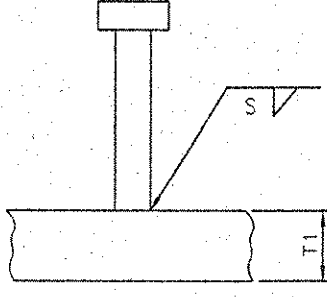
3/8 (10MM)

PROCEDURE:

1) REPAIR WELDMENT SHALL BE OF THE SIZE LISTED ABOVE AND EXTEND AT LEAST 3/8" (9MM) BEYOND THE END OF EACH DISCONTINUITY BEING REPAIRED.

Joint Detail (Fillet)

Show all dimensions, weld sizes, passes, and AWS symbols



T1 =VARIES

S =VARIES PER TABLE 7.2 (AS SHOWN LEFT OF PAGE).

APPLICATION:

REPAIR OF STUD WELDMENTS, WHICH DO NOT EXHIBIT A FULL 360° FLASH

Prepared By: James R. Connor DSB QA Manager

Project: U.S. RTE. 5 OVER LULLS BROOK

DSB Job: 14032-1042

Preheat and Interpass Temperature Chart		
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

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-SM-STUD-REP-01 Date Issued: 8/6/04 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: N/A

2. Qualified in accordance with: AWS D1.5- 2002

Referenced PQR No(s), N/A

Referenced FWST No(s), N/A , _____ , _____

3. Material specification(s) ASTM A709 Gr. 36, 50, 50W, A108 Stud

4. Material Thickness (es) Unlimited

5. Welding process SMAW

6. Manual ☒ , machine ☐ , or semiautomatic ☐

7. Position(s) of welding 1F, 2F

8. Filler metal specification AWS A5.1

9. Filler metal class and brand name LINCOLN JET LH-78-MR E7018

10. Flux class & brand N/A , Type N/A

11. Shielding gas N/A Flow rate N/A

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)

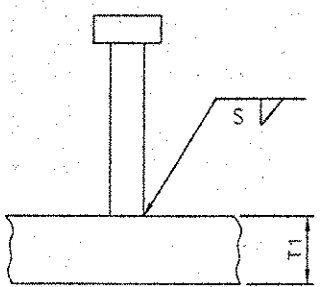
18. Postheat treatment N/A

19. Calculated Heat Input (KJ/in) Min 20.28 KJ/in Max 30.6 KJ/in

20. Electrode extension (electrical stickout) Varies

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BY _____ DATE 1/04/06

Weld size (in)	Pas No(s)	Electrode Size (in)	Welding Process Variables		Travel Speed (ipd)	Travel
			AMPS/WPS*	VOLTS		
1/4"	1	5/32"	130-170	26-30	10	
5/16"	1	5/32"	130-170	26-30	10	
3/8"	2-3	5/32"	130-170	26-30	10	

As per AWS D1.5 Sec. 7 (Table 7.2)

Stud Diameter	Minimum Fillet
≤ 3/8"	1/4"
3/8" ≤ 1"	5/16"
> 1"	3/8"

Joint Detail (Fillet)

Show all dimensions, weld sizes, passes, and AWS symbols

T1 = Varies
Stud = Varies
S = Weld Size

Weld must cover and extend beyond missing flush at least 3/8" in each direction

(see AWS D1.5 Table 7.2 for required weld size)

Prepared By: James R. Connor DSB QA Manager

Project: U.S. RTE. 5 OVER LULLS BROOK

DSB Job: 14032-1042

Preheat and Interpass Temperature Chart		
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

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



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

Procedure No: A-FF-01

Date Issued: 8-12-03

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 ☐

2. Qualified in accordance with: AWS D1.5-2002 (5.12.1)

Referenced PQR No(s): PQR-FCAW-01-03

Referenced FWST No(s): PQR-FCAW-FWST-01(03), PQR-FCAW-FWST-01A(03)

3. Material specification(s) ASTM A709 Gr. 36, 50, 50W

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-1, E71T-9 Lincoln Outershield Elite)

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 31.20 KJ/in Max 50.72 KJ/in

20. Electrode extension (electrical stickout) 3/4"

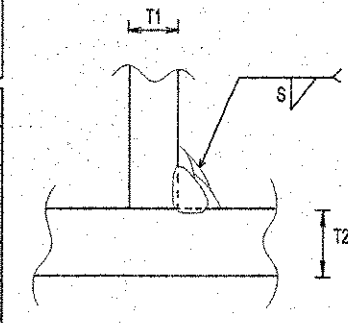
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DEC 19 2005
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BY: DATE 01-04-06

Weld size (in)	Pass No(s)	Electrode Size (in)	Welding Process Variables		Travel Speed (IPM)	Travel Time
			AMPS/WFS*	VOLTS		
**1/4"	1	1/16"	260-310	26-30	11-13	
5/16"	1	1/16"	260-310	26-30	11-13	
3/8"	2-3	1/16"	260-310	26-30	11-13	
7/16"	3-5	1/16"	260-310	26-30	11-13	
1/2"	4-6	1/16"	260-310	26-30	11-13	
5/8"	5-7	1/16"	260-310	26-30	11-13	
3/4"	6-8	1/16"	260-310	26-30	11-13	

Joint Detail (Fillet)

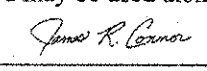
Show all dimensions, weld sizes, passes, and AWS symbols



T1 = Varies
T2 = Varies
S = Weld Size

** T1 & T2 equal to or less than 3/4" for 1/4" welds.

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

Prepared By:  DSB QA Manager

Project: U.S. RTE. 5 OVER LULLS BROOK

DSB Job: 14032-1042

Preheat and Interpass Temperature Chart		
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

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



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

Procedure No: A-(MC)GF-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 ☐

2. Qualified in accordance with: AWS D1.5-2002 (5.12.1)

3. Material specification(s) ASTM A709 Gr. 36, 50, 50W

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

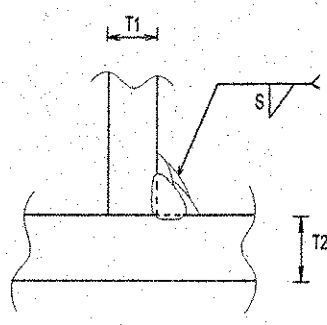
20. Electrode extension (electrical stickout) 3/4"

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DATE 01-04-06

Weld Size (in)	Pass No(s)	Electrode Size (in)	Welding Process Variables		Travel Speed (in/in)
			AMPS/WFS*	VOLTS	
**1/4"	1	.052"	265-320	31-34.5	13-16
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

Joint Detail (Fillet)



T1 = Varies
T2 = Varies
S = Weld Size

** T1 & T2 equal to or less than 3/4" for 1/4" welds.

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

Prepared By: James R. Connor DSB QA Manager

Project: U.S. RTE. 5 OVER LULLS BROOK

DSB Job: 14032-1042

Preheat and Interpass Temperature Chart

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

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-(MC)G-SEALWELD-01

Date Issued: 9-29-04

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 ☐

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

4. Material Thickness (es) Unlimited

5. Welding process GMAW

6. Manual ☐ , machine ☐ , or semiautomatic ☒

7. Position(s) of welding 1G, 2G, 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"

For DOT Approval

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OWNED BY

DEC 19 2005

RESUBMIT

APPROVED

DATE 01-04-06

Weld Size (in)	Pass No(s)	Electrode Size (in)	Welding Process Variables		Travel Speed (in)
			AMPS	VOLTS	
**1/8"	1	.052"	265-320	31-34.5	13-16
**3/16"	1	.052"	265-320	31-34.5	13-16
NOTE: THIS JOINT DETAIL TO BE ONLY USED FOR SEALING NON-STRUCTURAL APPLICATIONS WHERE FULL SIZED WELDMENTS ARE NOT DESIGNED, DETAILED OR ARE NOT PRACTICAL.					

T1

T2

S

T1

T2

S

T1 = Varies

T2 = Varies

S = Weld Size

Prepared By: James R. Connor DSB QA Manager

Project: U.S. RTE. 5 OVER LULLS BROOK

DSB Job: 14032-1042

Preheat and Interpass Temperature Chart

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

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



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

Procedure No: A-FSV-01

Date Issued: 8-12-03

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 ☐

2. Qualified in accordance with: AWS D1.5- 2002 (5.12.1)

Referenced PQR No(s): PQR-FCAW-01-03

Referenced FWST No(s): N/A

3. Material specification(s) ASTM A709 Gr. 36, 50, 50W

4. Material Thickness (es) Unlimited

5. Welding process FCAW

6. Manual ☐, machine ☐, or semiautomatic ☒

7. Position(s) of welding 1G

8. Filler metal specification AWS A5.20

9. Filler metal class and brand name E71T-1, E71T-9 (Lincoln Outershield Elite)

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 and per AWS D1.5 (3.2.1 & 3.11)

18. Postheat treatment N/A

19. Calculated Heat Input (KJ/in) Min 31.20 KJ/in Max 50.72 KJ/in

20. Electrode extension (electrical stickout) 3/4"

For DOT Approval

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DEC 19 2005

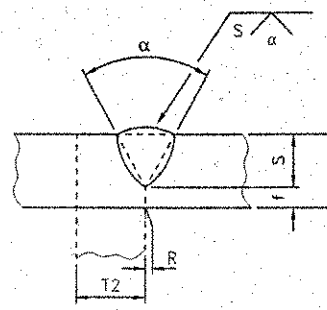
RESUBMIT ☒ APPROVED ☒

BY DTE 01-04-06

Weld size (in)	Pass No(s)	Electrode Size (in)	Welding Process Variables		Travel Speed (IPM)
			AMPS	VOLTS	
1/4"	1	1/16"	260-310	26-30	11-13
5/16"	1-2	1/16"	260-310	26-30	11-13
3/8"	2-3	1/16"	260-310	26-30	11-13
1/2"	4-5	1/16"	260-310	26-30	11-13
5/8"	5-6	1/16"	260-310	26-30	11-13
3/4"	5-8	1/16"	260-310	26-30	11-13

Joint Detail (C-P2-GF)

Show all dimensions, weld sizes, passes, and AWS symbols



T1 = 1/4" min.
T2 = Unlimited
f = 1/8" min.
R = 0
α = 60°
S = Groove Prep Depth

For Butt Joints see AWS 2.14

Prepared By: James R. Connor DSB QA Manager

Project: U.S. RTE. 5 OVER LULLS BROOK

DSB Job: 14032-1042

Preheat and Interpass Temperature Chart		
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

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



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

Procedure No: A-(MC)GSV-01Date Issued: 9-29-04Revision No: 0Rev. Date:

Contractor (Fabricator) D. S. Brown CompanyPrepared by: James R. Connor, Quality Assurance Manager

1. Non-Fracture Critical ☒Fracture Critical ☐

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),

3. Material specification(s) ASTM A709 Gr. 36, 50, 50W

4. Material Thickness (es) Unlimited

5. Welding process GMAW

6. Manual ☐, machine ☐, or semiautomatic ☒

7. Position(s) of welding 1G, 2G

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% CO2Flow 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/inMax 51.1 Kj/in

20. Electrode extension (electrical stickout) 3/4"

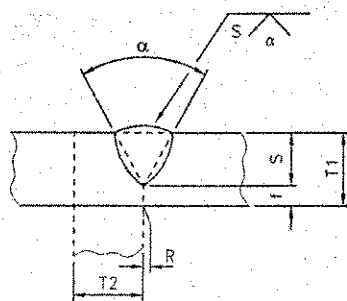
For DOT Approval

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CWO BY JAL
DEC 19 2005
RESUBMIT
APPROVED
DATE 01-04-06

Weld size (in)	Pass No(s)	Electrode Size (in)	Welding Process Variables		Travel Speed (IPM)
			AMPS	VOLTS	
1/4"	1	.052"	265-320	31-34.5	13-16
5/16"	1-2	.052"	265-320	31-34.5	13-16
3/8"	1-3	.052"	265-320	31-34.5	13-16
1/2"	3-4	.052"	265-320	31-34.5	13-16
5/8"	4-6	.052"	265-320	31-34.5	13-16
3/4"	5-8	.052"	265-320	31-34.5	13-16

Joint Detail (C-P2-GF)

Show all dimensions, weld sizes, passes, and AWS symbols



T1 = 1/4" min.
T2 = Unlimited
f = 1/8" min.
R = 0
alpha = 60°
S = Groove Prep Depth

For Butt Joints see AWS 2.14

Prepared By: James R. ConnorDSB QA Manager

Project: U.S. RTE. 5 OVER LULLS BROOK

DSB Job: 14032-1042

Preheat and Interpass Temperature Chart		
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

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

DRAINAGE NOTES

- 1.) MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH STATE OF VERMONT AGENCY OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION," 2001 EDITION, THE SUPPLEMENTAL SPECIFICATION, THE CONTRACT PLANS, AND THE SPECIAL PROVISIONS.
- 2.) ALL WELDING AND CORRESPONDING WELD INSPECTION SHALL CONFORM TO THE CURRENT EDITION OF THE AASHTO/AWS D-1.5 BRIDGE WELDING CODE.
- 3.) ALL FLAT BAR AND PLATE SHALL CONFORM TO AASHTO M270 (ASTM A709), GRADE 36. ALL PIPE SHALL BE IN ACCORDANCE WITH ASTM A53, GRADE B.
- 4.) ALL HARDWARE, EXCEPT WEDGE ANCHORS, SHALL BE HIGH STRENGTH. HIGH STRENGTH BOLTS, NUTS, AND WASHERS SHALL CONFORM TO AASHTO M164, M291, AND M293 (ASTM A325, A563 DH OR A194 2H, AND F436) RESPECTIVELY AND 506.19 AND 714.05 OF THE STANDARD SPECIFICATIONS.
- 5.) ALL STEEL SHALL HAVE SURFACE PREPARATION PERFORMED IN ACCORDANCE WITH SSPC-SP8 AND SECTION 506.14 OF THE STANDARD SPECIFICATIONS PRIOR TO GALVANIZING. ALL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111 (ASTM A123). ALL HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 (ASTM A153). REPAIR OF DAMAGED GALVANIZING SHALL BE PERFORMED IN ACCORDANCE WITH ASTM A780.

MK	QTY.	DESCRIPTION	MATERIAL	LENGTH	REMARKS	PART NO.
6A	1	EXPANSION JOINT DOWNSPOUT		2801	HDG	
fa6	2	FB 6 x 38	M270MGR250	38		16-27
pa6	1	PL 10 x 320	M270MGR250	350	SHAPE CUT	19-14
pb6	1	PL 10 x 251	M270MGR250	350		19-14
pc6	1	PL 10 x 201	M270MGR250	350		19-14
pd6	2	PL 10 x 251	M270MGR250	301	SHAPE CUT	19-14
ta6	1	PI ø254 SCH 40	A53MGRB	1836	SKEW CUT	21-14
tb6	1	PI ø254 SCH 40	A53MGRB	1409	SKEW CUT	21-14
6B	1	SUPPORT PLATE			HDG	
6B	1	PL 19 x 379	M270MGR250	460	SHAPE CUT/BEND	19-19
6C	3	HANGER CLAMPS			HDG	
6C	3	FB 10 x 83	M270MGR250	849	BEND	16-74
6D	2	FILL PLATES			HDG	
6D	2	FB 19 x 83	M270MGR250	440		16-124
		FIELD HARDWARE:				
7A	5	HB ø19 x 57	M164M HDG		(2) ROCAP	23-359
7B	5	HN ø19 HVY	M291M HDG		(2) ROCAP	25-24
7C	5	FW ø19	M293M HDG		(2) ROCAP	27-45
7D	10	M1 ø19 x 216 WEDGE ANCHOR			(6) HDG/RED HEAD #WS-3484G OR EQUAL	
		ENGLISH B.O.M. (REF. ONLY)				
6A	1	EXPANSION JOINT DOWNSPOUT		9'-2 1/4"	HDG	
fa6	2	FB 1/4 x 1 1/2	M270GR36	0'-1 1/2"		16-27
pa6	1	PL 3/8 x 12 5/8	M270GR36	1'-1 3/4"	SHAPE CUT	19-14
pb6	1	PL 3/8 x 9 7/8	M270GR36	1'-1 3/4"		19-14
pc6	1	PL 3/8 x 7 15/16	M270GR36	1'-1 3/4"		19-14
pd6	2	PL 3/8 x 9 7/8	M270GR36	0'-11 7/8"	SHAPE CUT	19-14
ta6	1	PI ø10 SCH 40	A53GRB	6'-0 5/16"	SKEW CUT	21-14
tb6	1	PI ø10 SCH 40	A53GRB	4'-7 1/2"	SKEW CUT	21-14
6B	1	SUPPORT PLATE			HDG	
6B	1	PL 3/4 x 14 15/16	M270GR36	1'-6 1/8"	SHAPE CUT/BEND	19-19
6C	3	HANGER CLAMPS			HDG	
6C	3	FB 3/8 x 3 1/4	M270GR36	2'-9 7/16"	BEND	16-74
6D	2	FILL PLATES			HDG	
6D	2	FB 3/4 x 3 1/4	M270GR36	1'-5 5/16"		16-124
		FIELD HARDWARE:				
7A	5	HB ø3/4 x 2 1/4	M164 HDG		(2) ROCAP	23-359
7B	5	HN ø3/4 HVY	M291 HDG		(2) ROCAP	25-24
7C	5	FW ø3/4	M293 HDG		(2) ROCAP	27-45
7D	10	M1 ø3/4 x 8 1/2 WEDGE ANCHOR			(6) HDG/RED HEAD #WS-3484G OR EQUAL	

SEE SHEET NO. 6 FOR DRAINAGE DETAILS.

REV.	DESCRIPTION	DATE	DET.	CKD.
	LOCATION — U.S. ROUTE 5 OVER LULLS BROOK		ITEM	QUANTITY
	BRIDGE — NO. 60		—	—
	PROJECT — BRS 0113 (22)		—	—
	TOWN — HARTLAND		—	—
	P.O. NO. — 2004		—	—
	DESIGNER — McFARLAND-JOHNSON, INC.		—	—
	CUSTOMER — MILLER CONSTRUCTION, INC.		—	—
			—	—
DESCRIPTION:	SCALE: N.T.S.	DRAWN BY: JMB	CHECKED BY: JEB	DATE: 5/30/06
EXPANSION JOINT DRAINAGE DETAILS	PROJECT NUMBER: 14032	PRODUCT CODE: 1042	RELEASE: 2	SHEET: 7
WINDSOR COUNTY, VT				



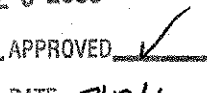
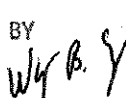
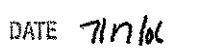
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332

4201 NOREX DRIVE
CHASKA, MINNESOTA 55318
952.368.3000
FAX: 952.448.7000
DSBROWN.COM



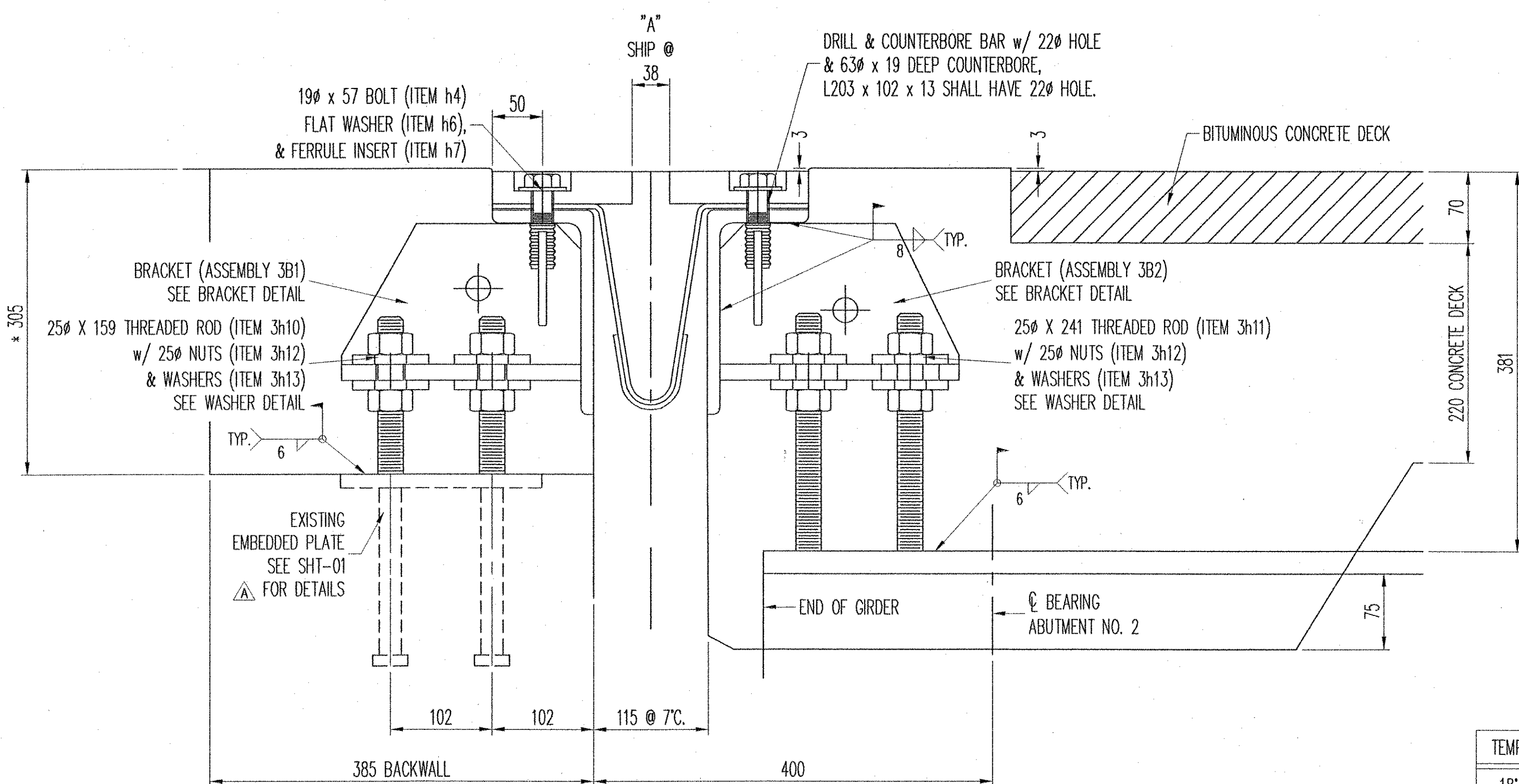
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CK'D BY _____ OK'D BY _____
JUN 2 6 2006

VTtrans - PDD
JUN 2 6 2006
Structures Design
Section

RESUBMIT _____ APPROVED 
BY  DATE 

143500P

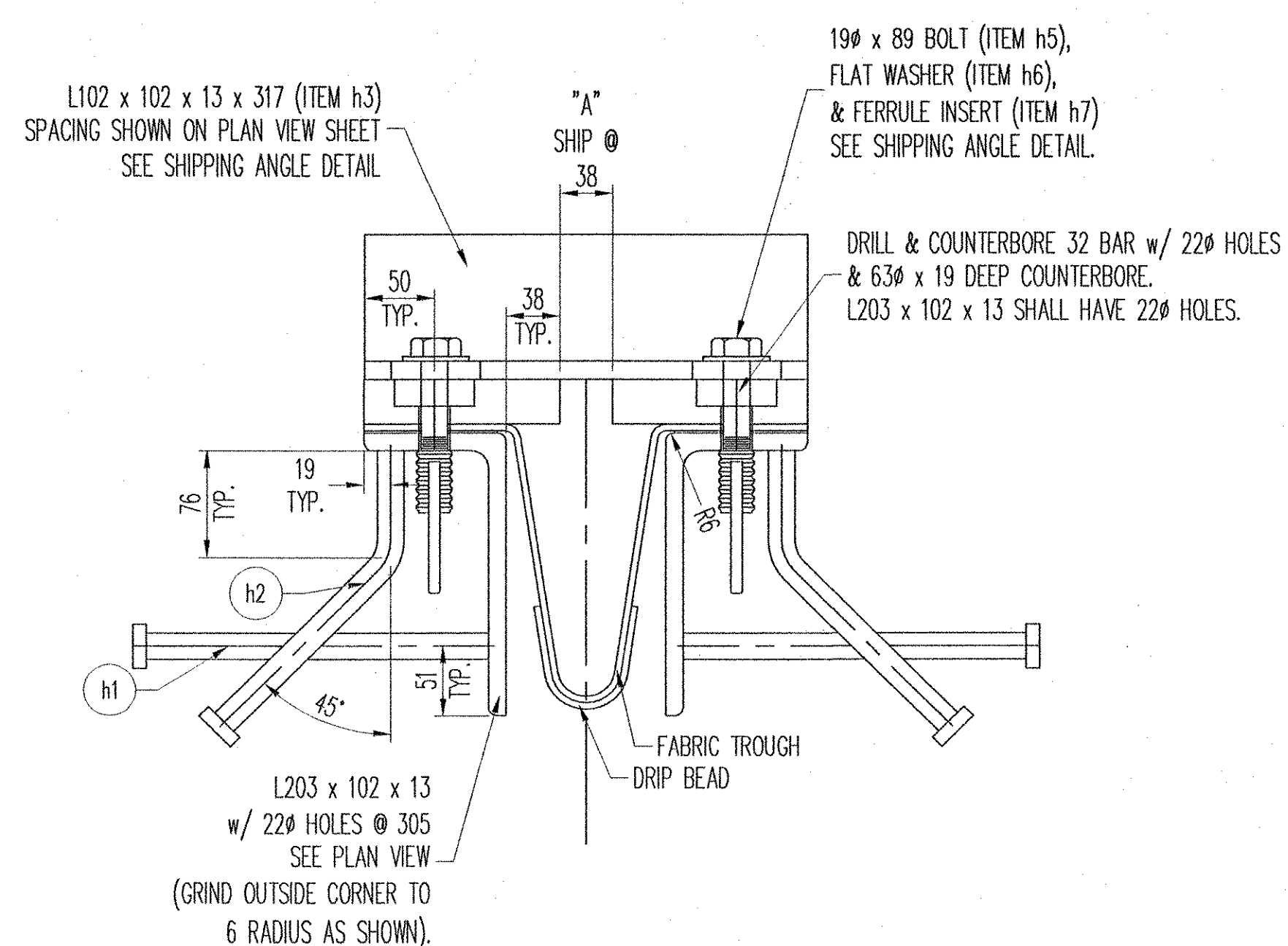




SECTION THRU JOINT AT GIRDER

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

TEMP.	"A" DIST.
-18° C	51
-9° C	47
-1° C	42
7° C	38
16° C	34
24° C	30
32° C	25
41° C	21



SECTION THRU JOINT

GENERAL NOTES

ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION (DATED 2001), AND IT'S LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, AND IT'S LATEST REVISIONS. GENERAL SHOP PRACTICES, STRUCTURAL FABRICATION, WELDING AND ASSEMBLY SHALL BE GOVERNED BY ANSI/AASHTO/AWS/ D1.5 BRIDGE WELDING CODE.

ADDITIONAL SHOP SPLICES SHALL BE PERMITTED IN EACH ASSEMBLY, PROVIDED THAT NO PIECE IS LESS THAN 610mm IN LENGTH.

STUD ANCHORS SHALL BE AASHTO M169 (ASTM-A108) AND AUTOMATIC END WELDED WITH COMPLETE FUSION.

A-FF-STUD-REP-01 / A-(MC)GF-STUD-REP-01 OR A-SM-STUD-REP-01 WILL BE USED, AS REQUIRED, TO REPAIR STUDS.

ANY TIGHTLY ADHERENT WELD SPATTER NEED NOT BE REMOVED IN COATING AREAS TO BE CAST IN CONCRETE.

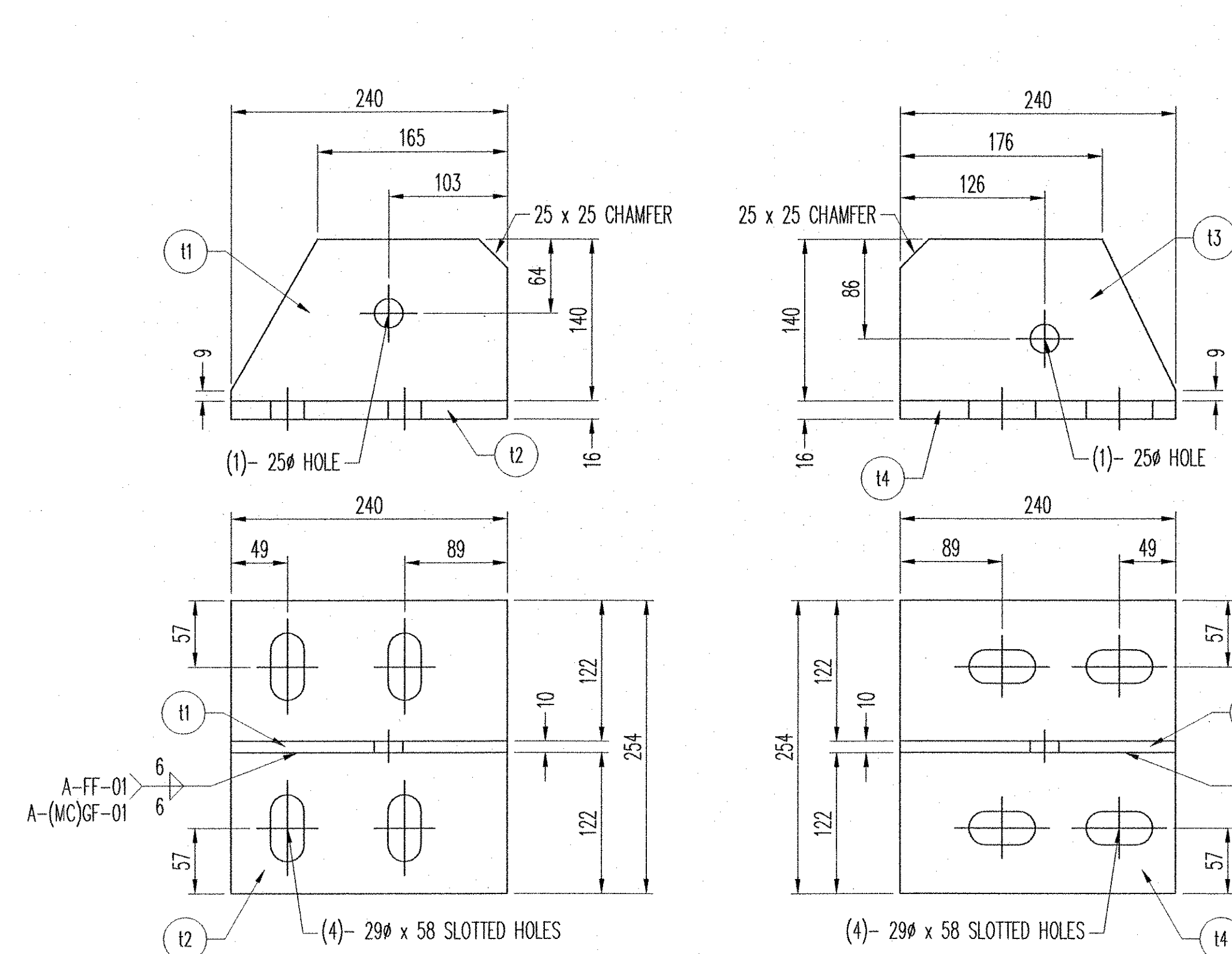
ALL STEEL COMPONENTS SHALL BE AASHTO M270 GRADE 36 GALVANIZED OR METALIZING, ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES, ETC., SHALL BE GROUND TO A 2mm RADIUS. (U.N.O.)

PREFORMED FABRIC MATERIAL SHALL BE CONTINUOUS AND SHALL CONFORM TO SUBSECTION 707.07.

BUTYL RUBBER TAPE SHALL CONFORM TO AASHTO SPECIFICATIONS M-198, TYPE II.

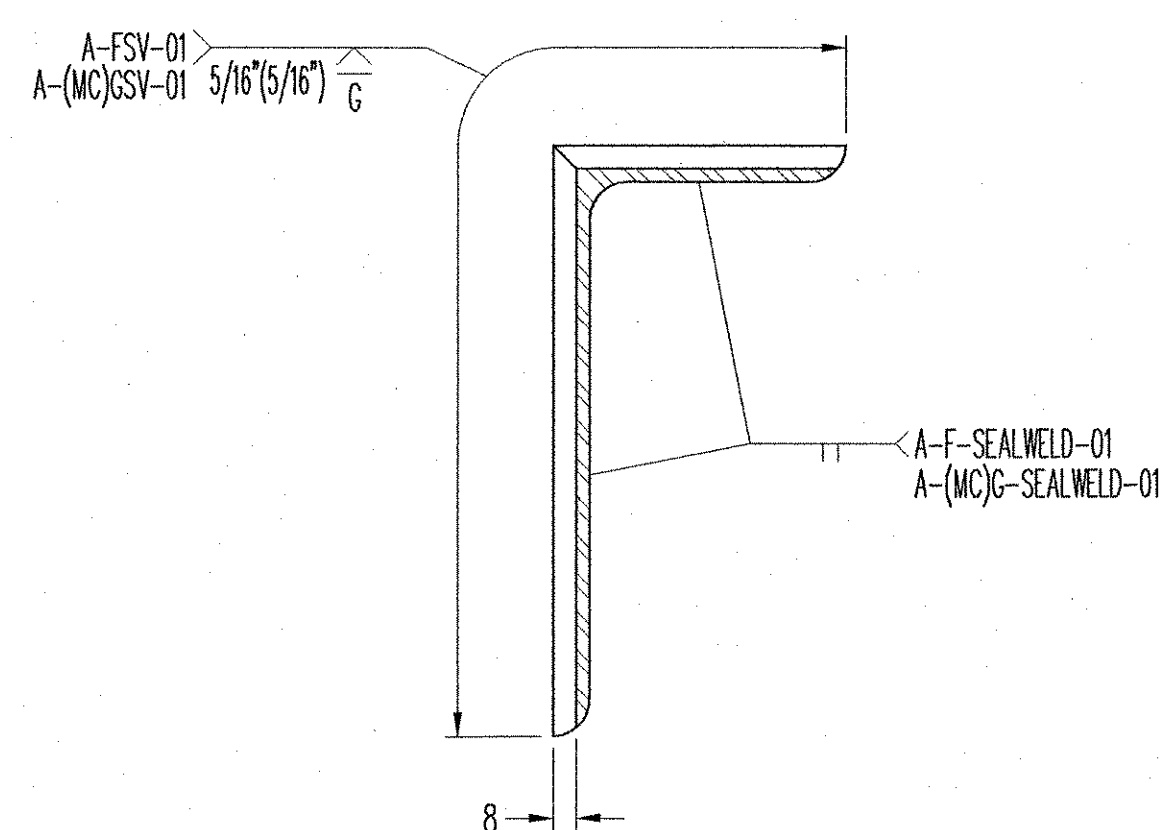
FABRIC TROUGH SHALL BE THOROUGHLY CLEANED AND FLUSHED AFTER PAVING OPERATION.

THE EXPANSION JOINT SHALL BE SHOP ASSEMBLED AND SHIPPED AS ONE UNIT.

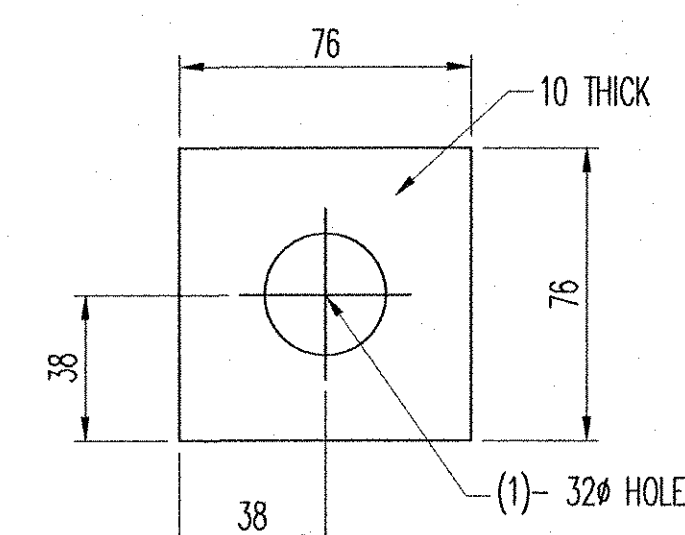


BRACKET TEE "3B1" ASSEMBLY

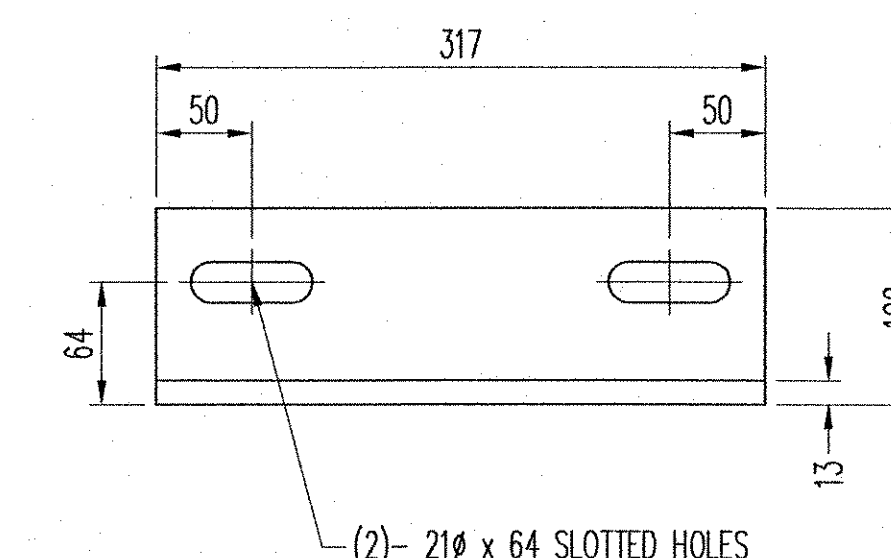
BRACKET TEE "3B2" ASSEMBLY



ANGLE SHOP SPLICE DETAIL



WASHER DETAIL (ITEM 3h13)



SHIPPING ANGLE DETAIL (ITEM h3)

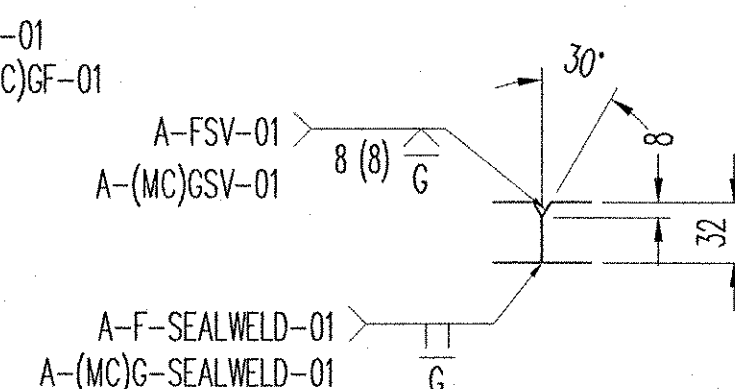
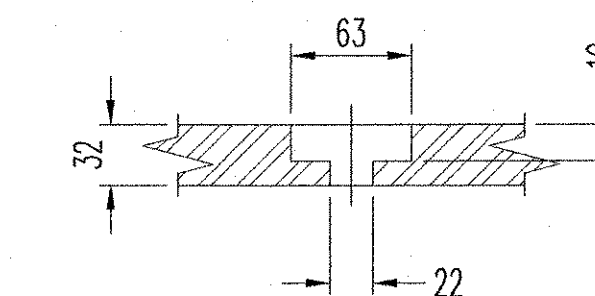


PLATE SHOP SPLICE DETAIL

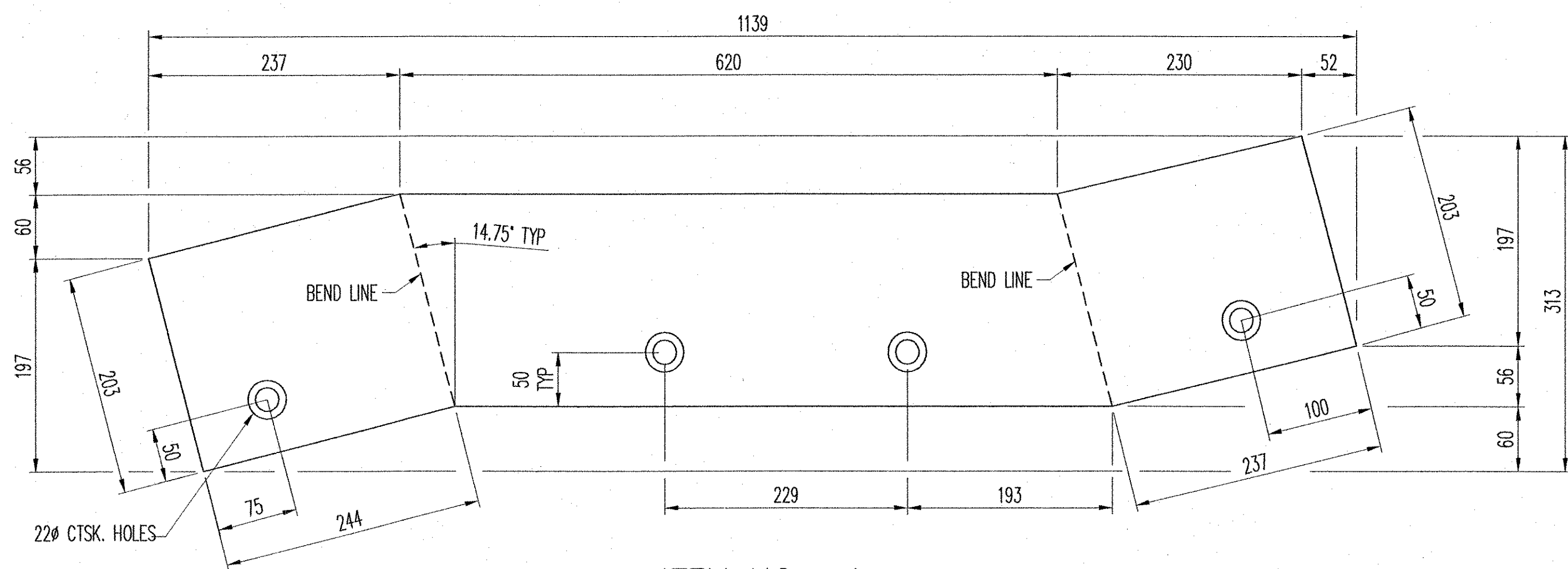


COUNTER BORE DETAIL

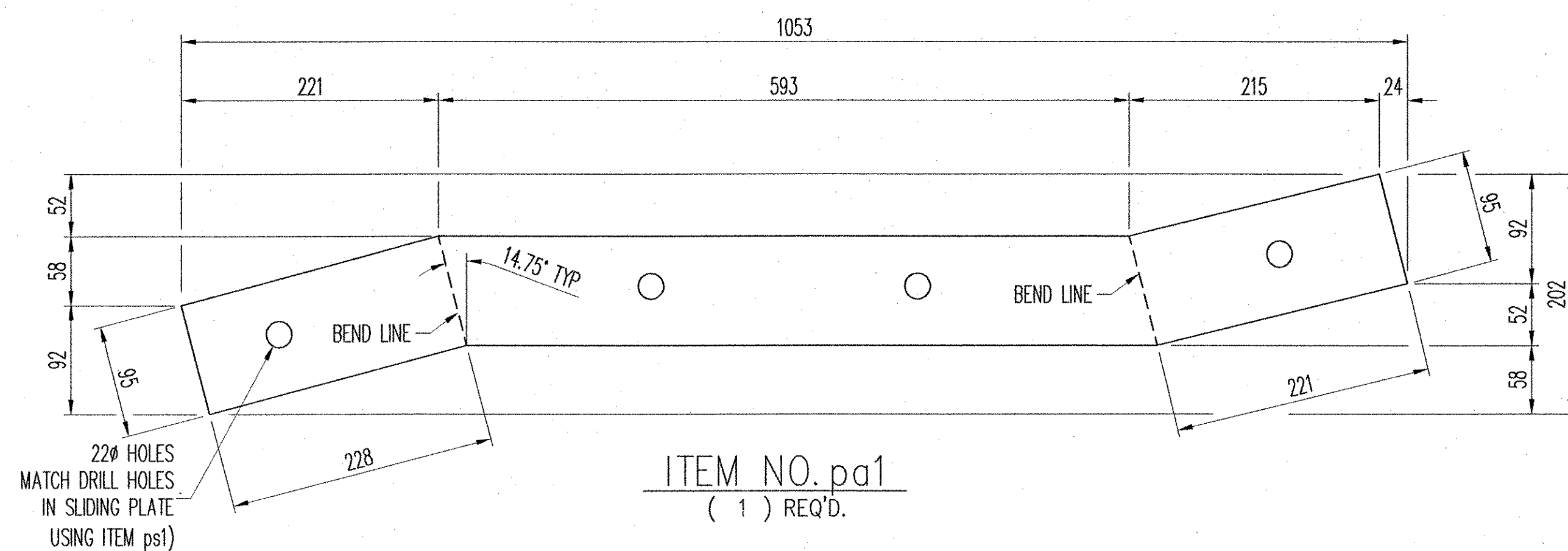
RECEIVED
FEB 15 2006
BY: [Signature]
DATE: 2/14/06

D.S. BROWN
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
4201 NOREX DRIVE
CHASKA, MINNESOTA 55318
952.368.3000
FAX: 952.448.7000
DSBROWN.COM

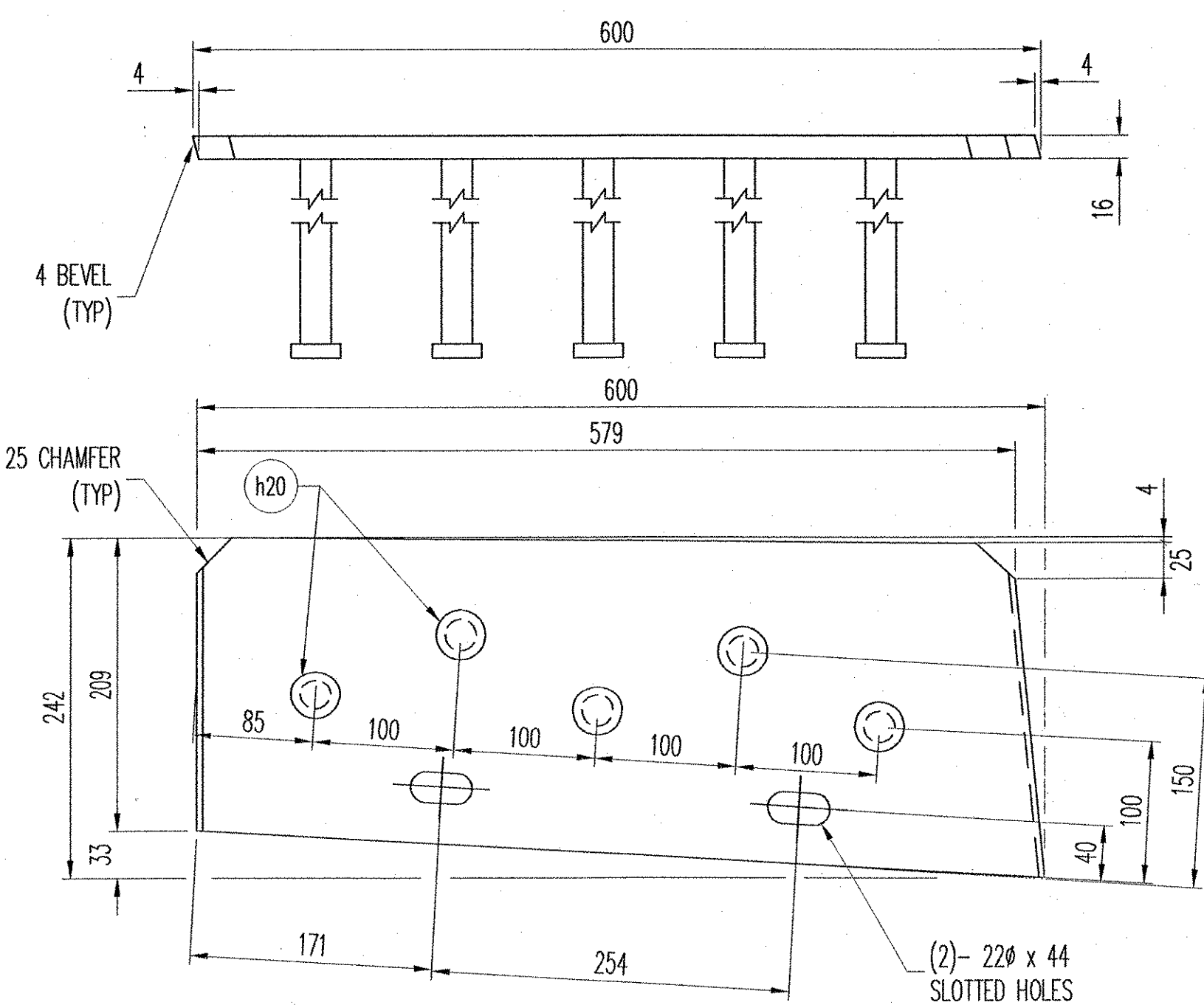
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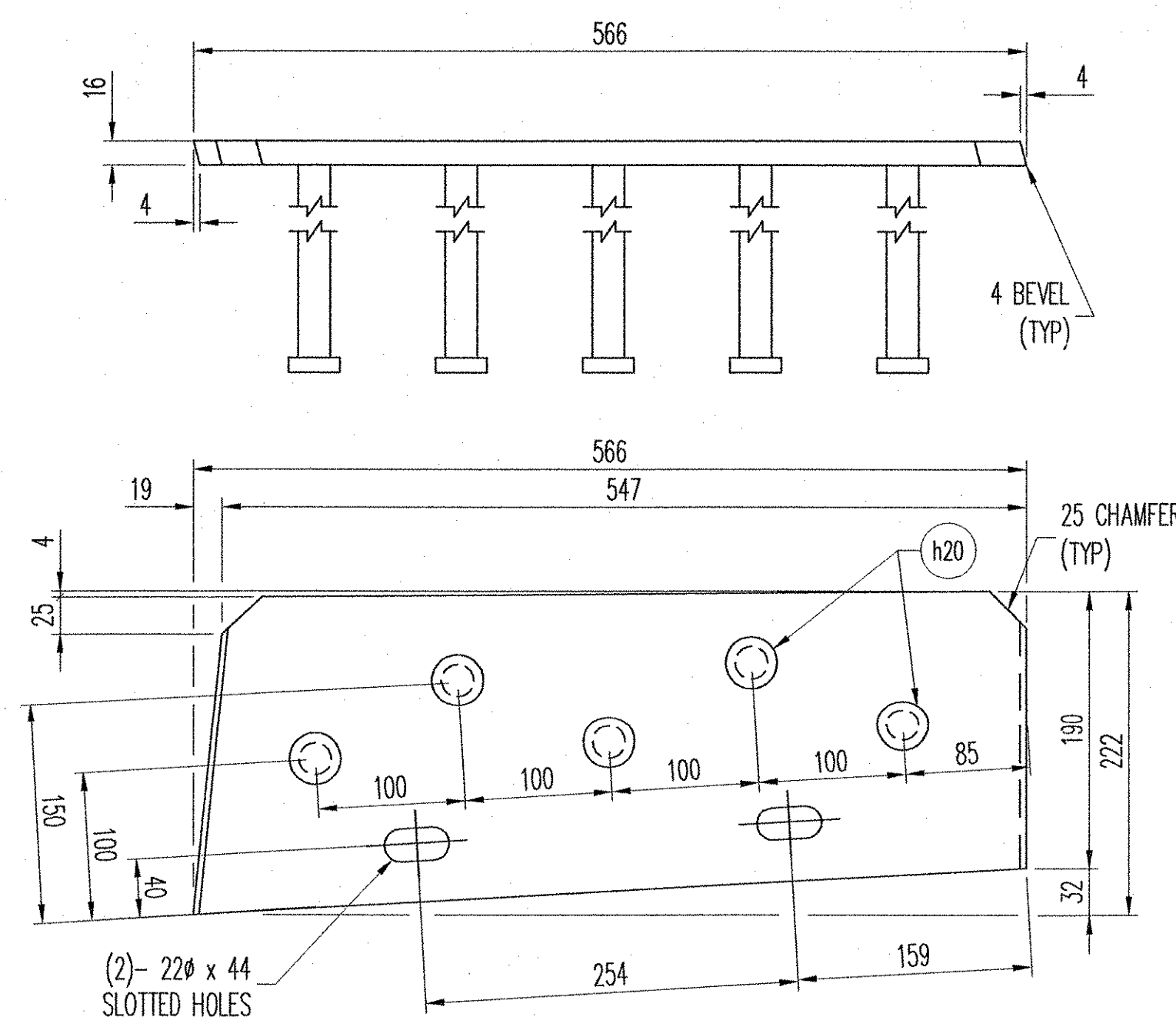
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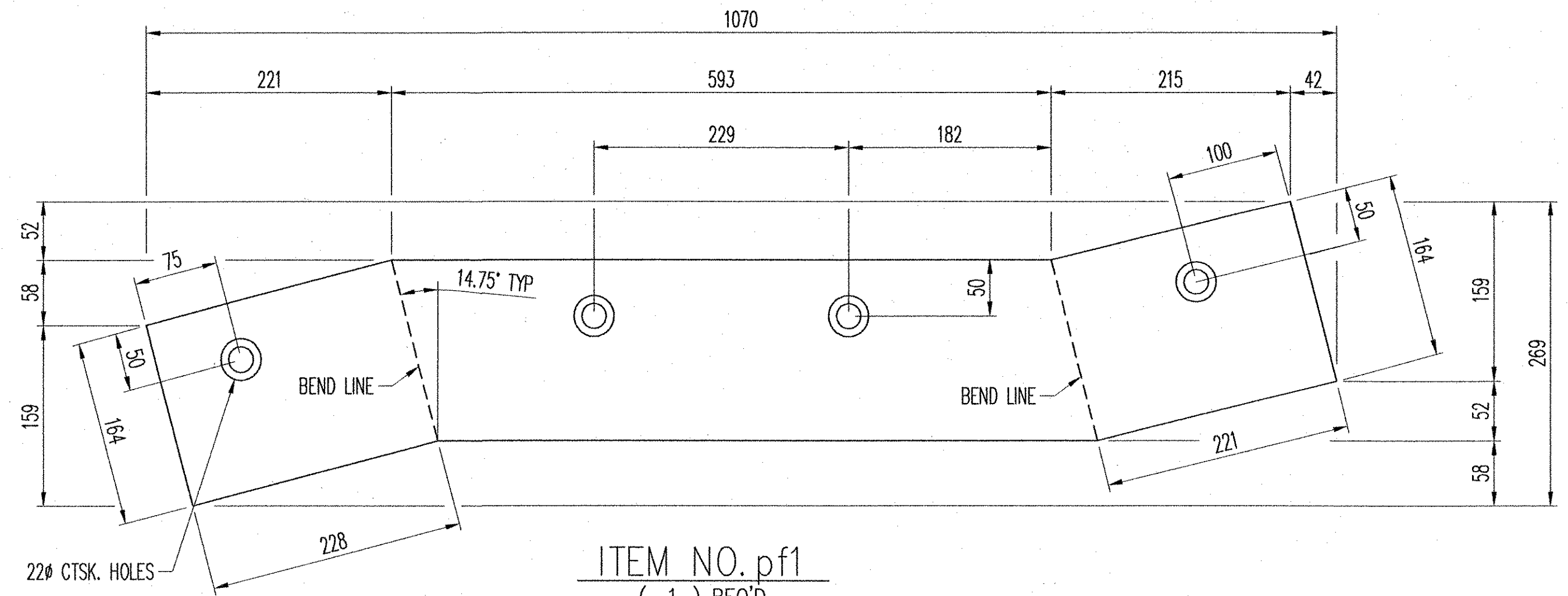
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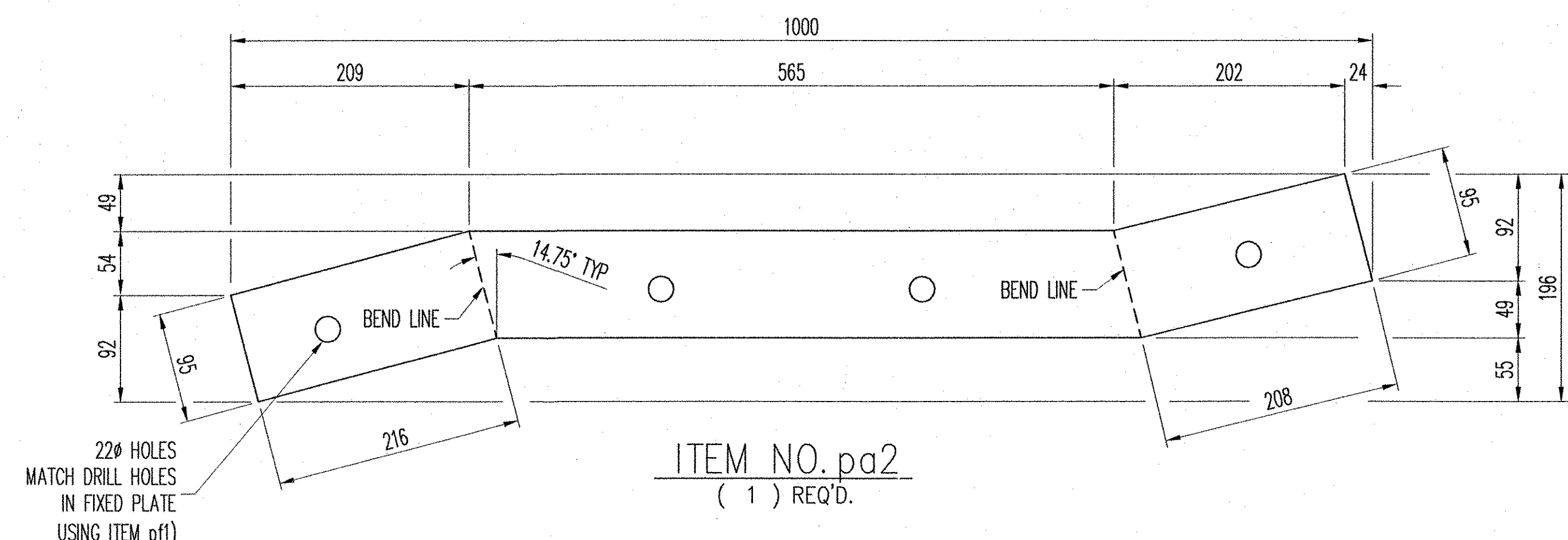
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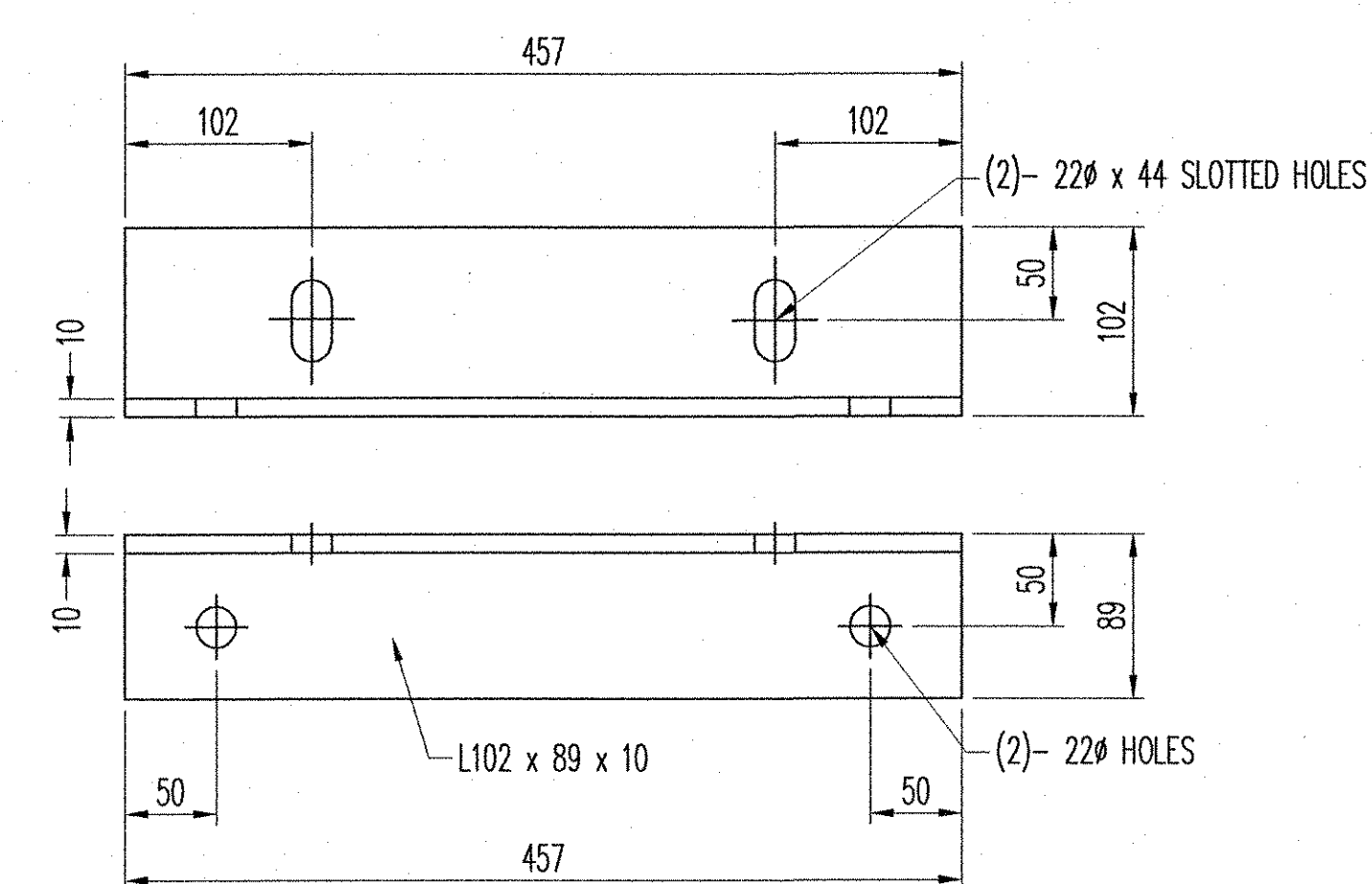
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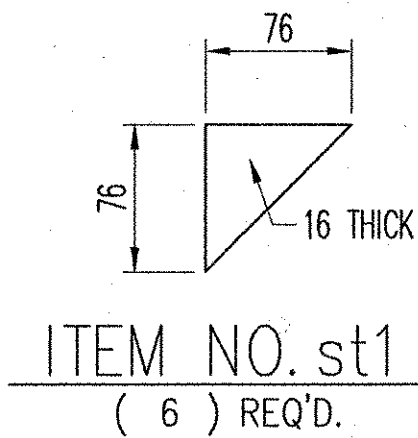
ITEM NO. pf1
(1) REQ'D.



ITEM NO. pa2
(1) REQ'D.



ITEM NO. ac1
(2) REQ'D.



ITEM NO. st1
(6) REQ'D.

☒ Reviewed
☐ Rejected
☐ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

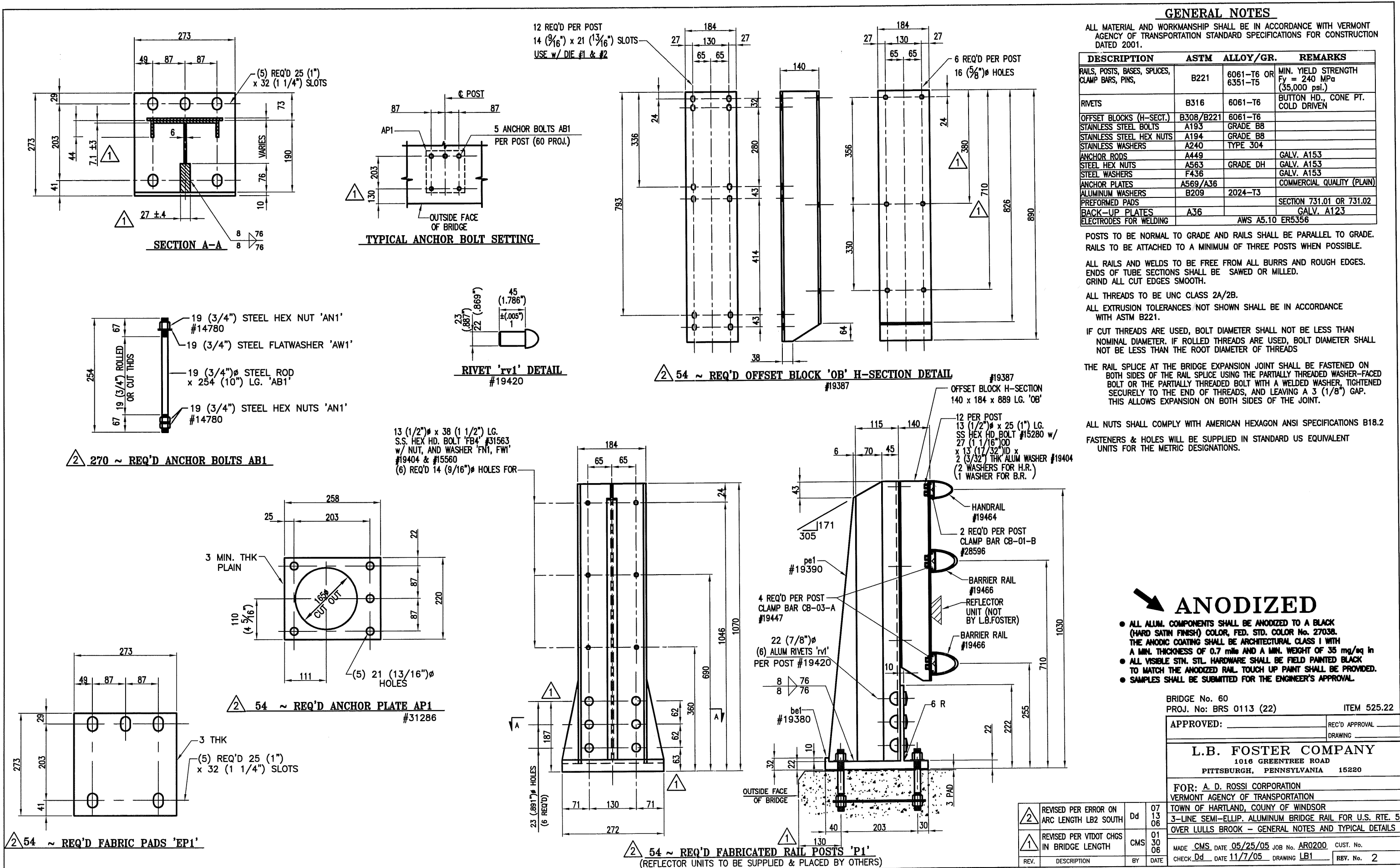
This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a separate item shall not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and controlled at this job site; information that pertains solely to the fabrication process or to the nature, methods, techniques, sequences and procedures of construction coordination of the Work with that of all other trades and performing all Work in a safe and satisfactory manner.

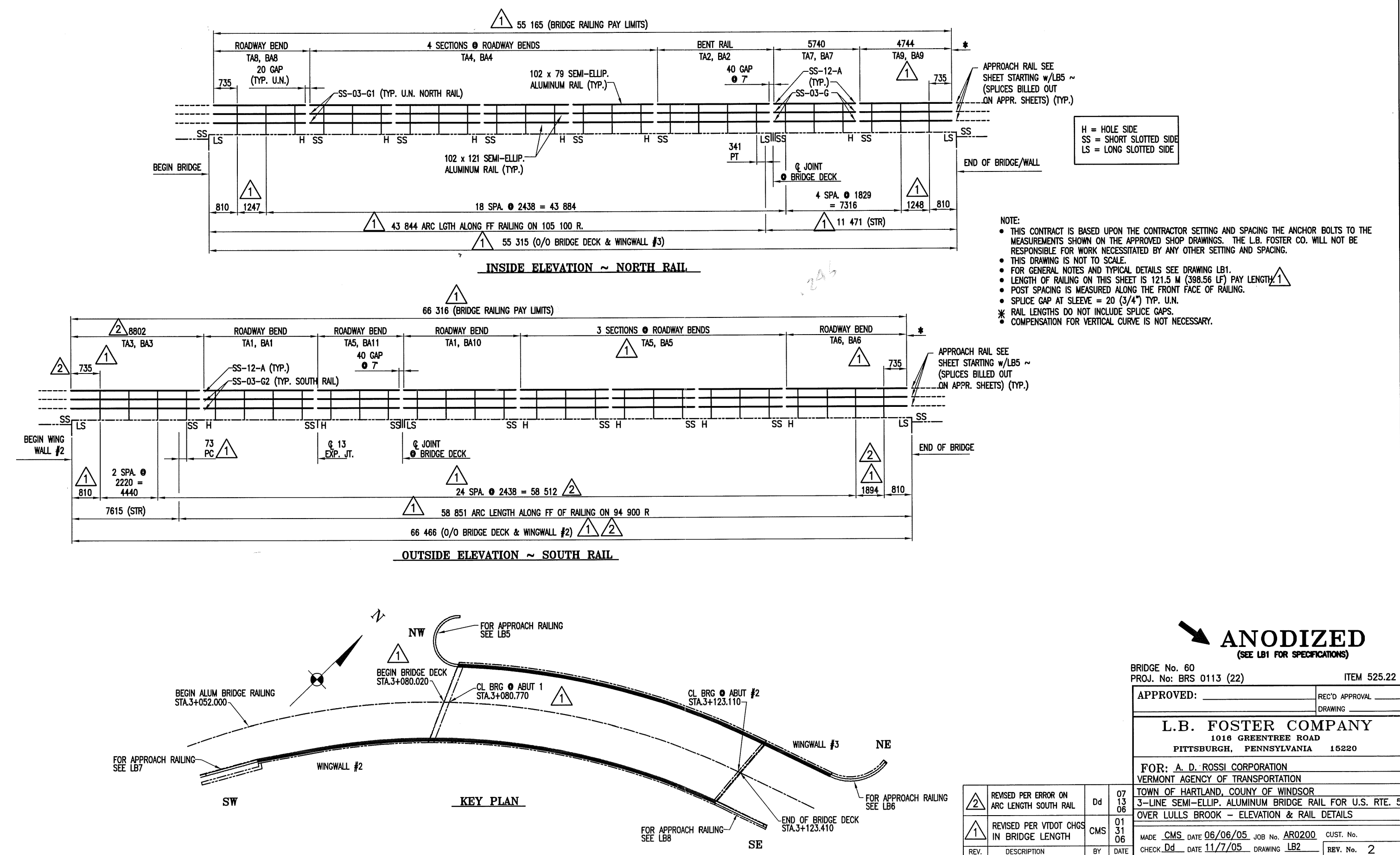
McFarland-Johnson, Inc.
Date: 1/16/06
By: RMR

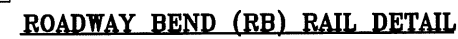
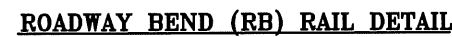
D.S. BROWN
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
4201 NOREX DRIVE
CHASKA, MINNESOTA 55318
952.368.3000
FAX: 952.448.7000
DSBROWN.COM

REV.	DESCRIPTION	DATE	DET.	CKD.
1	LOCATION — U.S. RTE. 5 OVER LULLS BROOK			
2	BRIDGE — 60			
3	PROJECT — BRS 0113 (22)			
4	TOWN — HARTLAND			
5	P.O. NO. — 2004			
6	DESIGNER — MCFARLAND-JOHNSON, INC.			
7	CUSTOMER — MILLER CONSTRUCTION			
COVER PLATE DETAILS WINDSOR COUNTY, VERMONT				
SCALE: N.T.S.	DRAWN BY: T.BOWERS	CHECKED BY: T.JOHNSON	DATE: 10-7-05	SHEET: 4 OF 4
PROJECT NUMBER: 14032	PRODUCT CODE: 1042	RELEASE		SHEET: 5

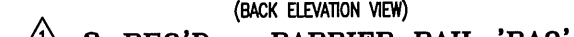
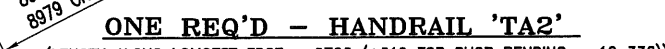
148501P







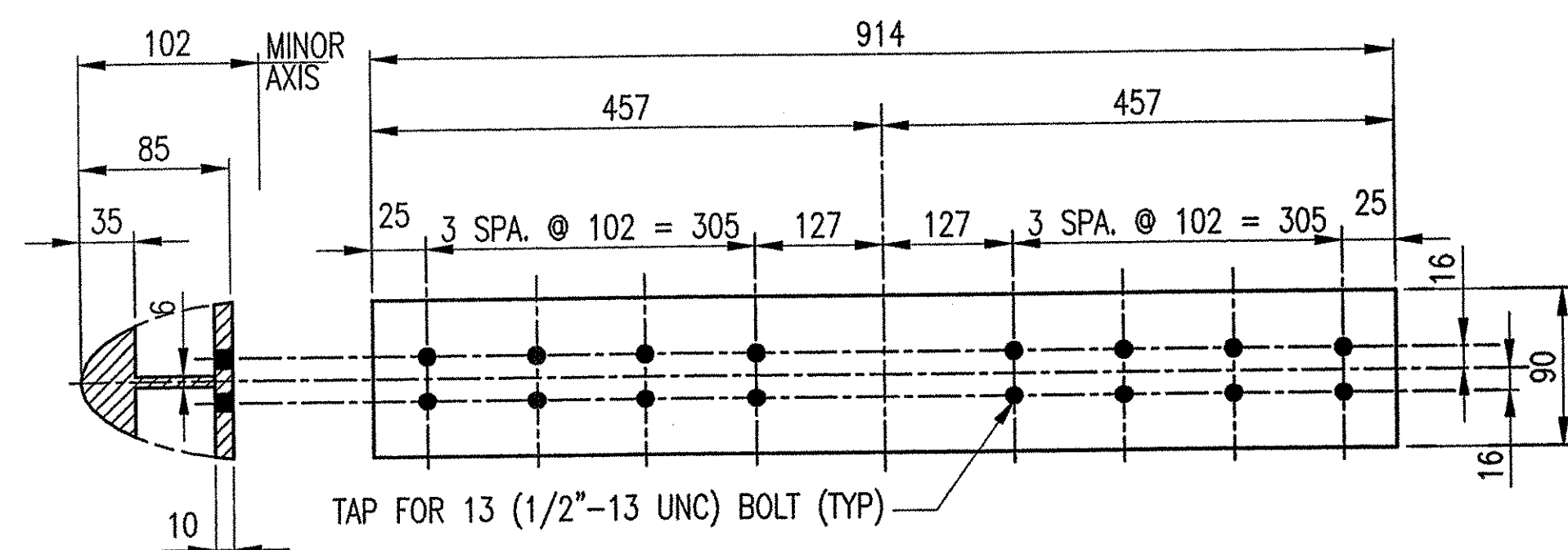
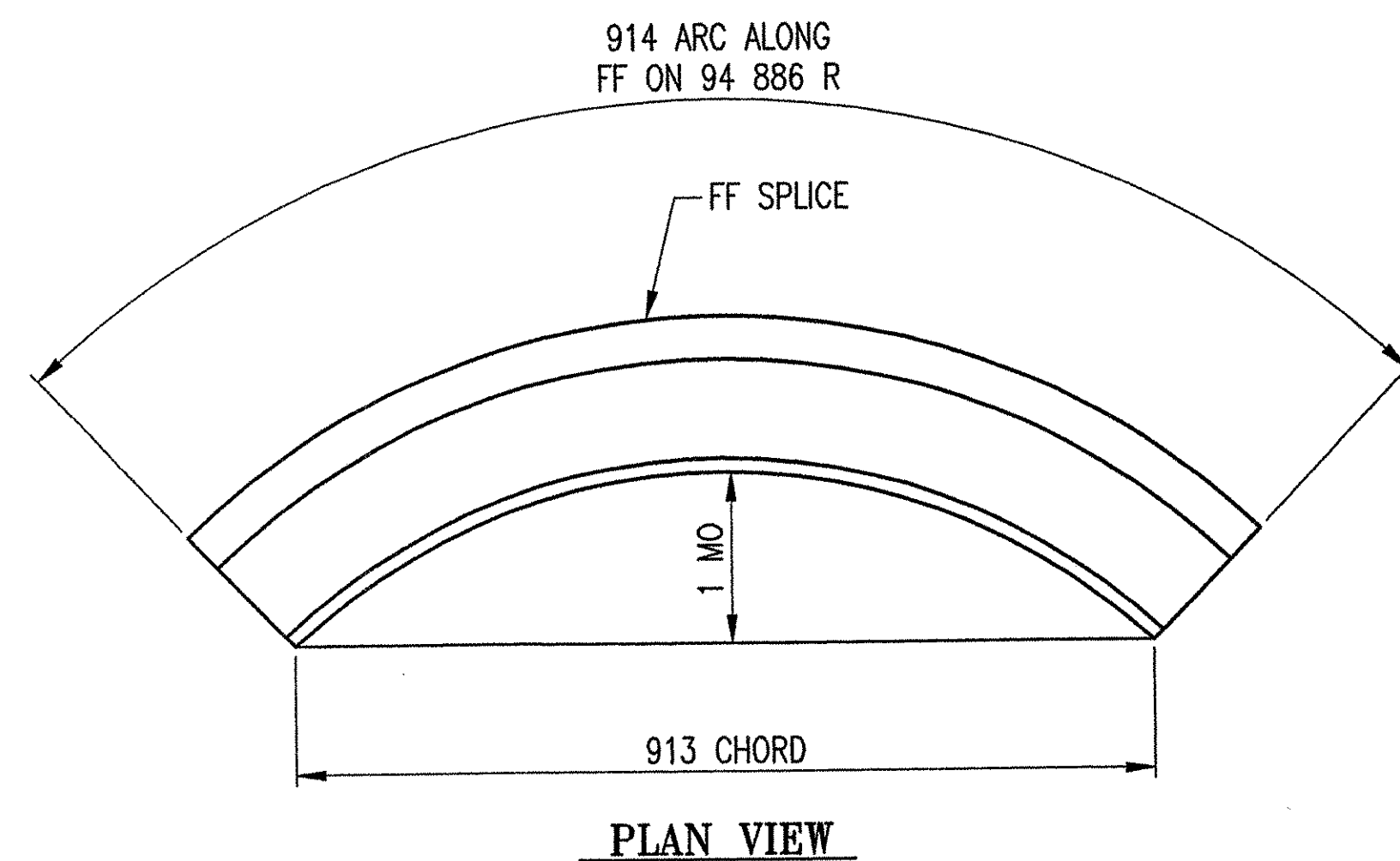
$\begin{array}{c} \triangle 2 \\ \triangle 2 \\ \triangle 2 \end{array}$
 $\begin{array}{c} \triangle 3 \\ \triangle 3 \end{array}$



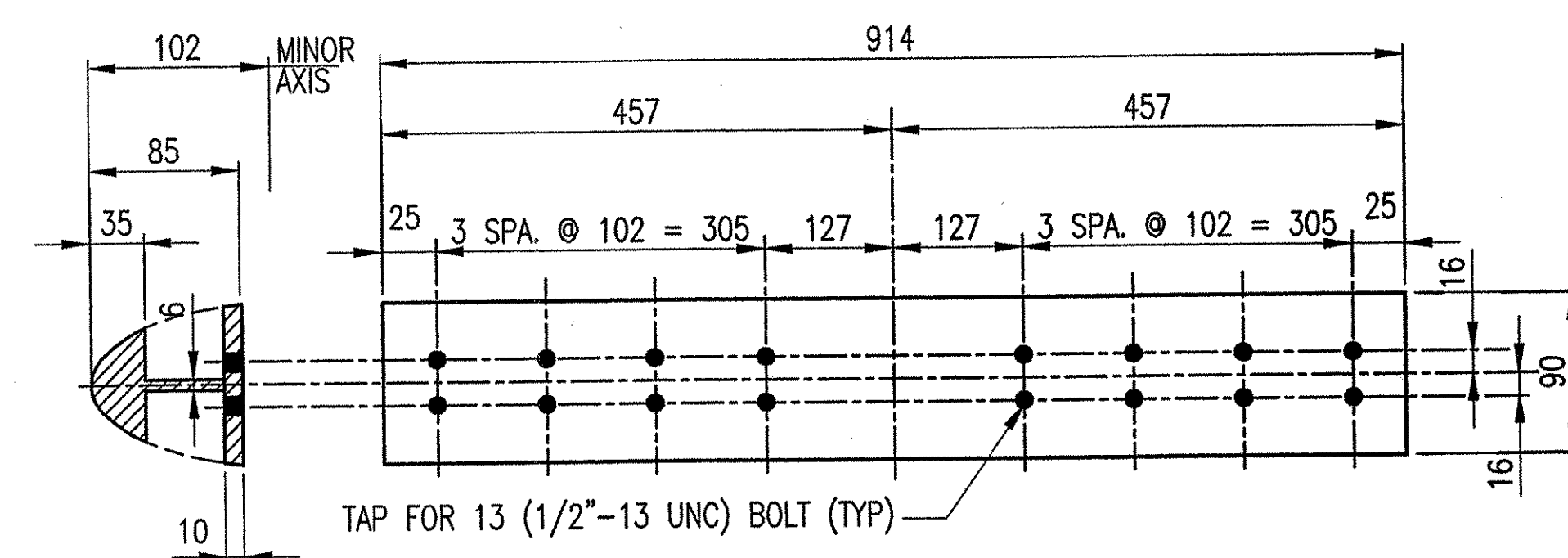
 **ANODIZED**
(SEE LB1 FOR SPECIFICATIONS)

	REMOVED PER ERROR ON ARC LENGTH LEGD SOUTH	Dd	07 13	FOR: A. D. ROSSI CORPORATION VERMONT AGENCY OF TRANSPORTATION TOWN OF HARTLAND, COLONY OF WINDSOR 3-LINE SEMI-ELLP. ALUMINUM BRIDGE RAIL FOR U.S. RTE. OVER LULLS BROOK - RAIL DETAILS	CUST. No.
	REVISED DIMENSIONS OF 3IN. DIA & BATIO PER ENG ERROR	CMS	05 22		
	REMOVED PER ERROR CHGS IN BRIDGE LENGTHS	CMS	01 11	MADE CMS DATE 06/06/05 JOB #AR0200	REV. No. 3
REV.	DESCRIPTION	BY	DATE	CHECK Dd DATE 11/7/05 DRAWING LBS	

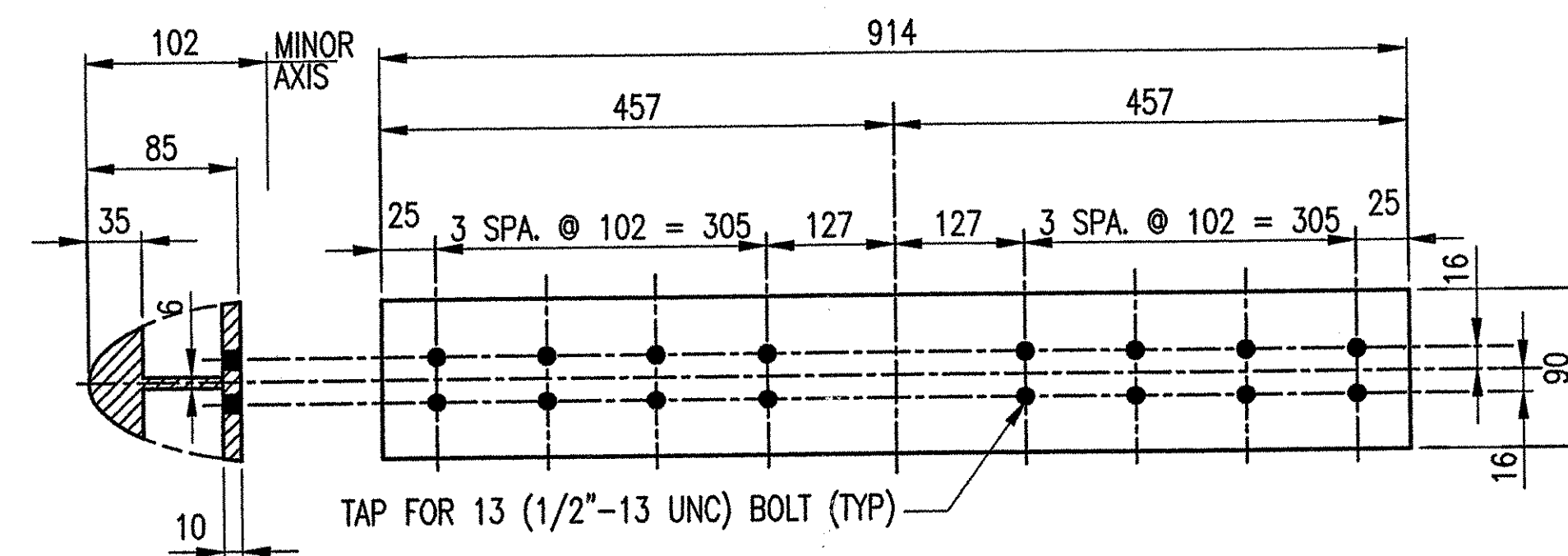
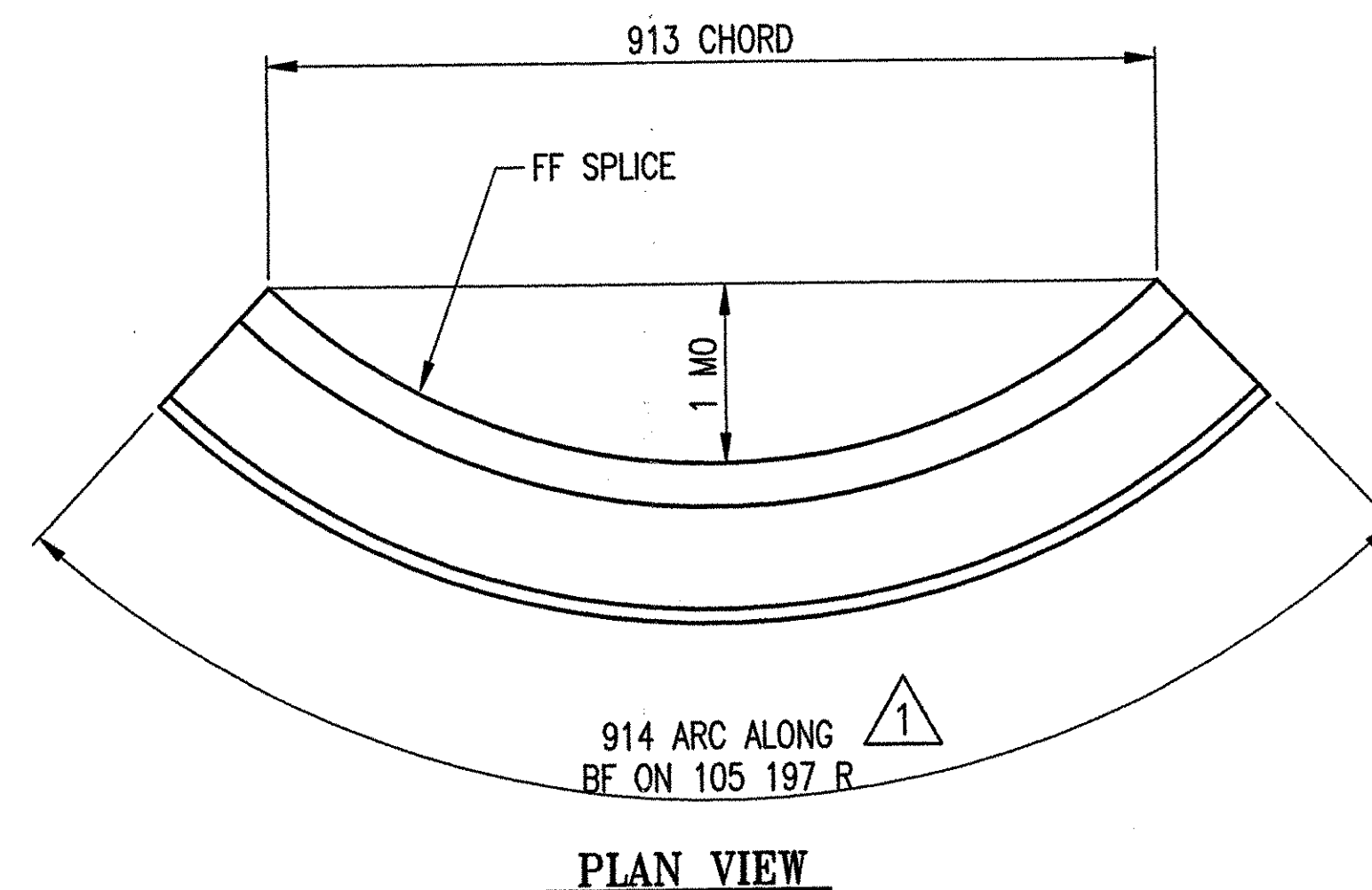
BRIDGE No. 60		ITEM 525.22	
PROJ. No: BRS 0113 (22)			
APPROVED: _____		REC'D APPROVAL _____ DRAWING _____	
L.B. FOSTER COMPANY 1016 GREENTREE ROAD PITTSBURGH, PENNSYLVANIA 15220			
FOR: A. D. ROSSI CORPORATION VERMONT AGENCY OF TRANSPORTATION TOWN OF HARTLAND, COUNTY OF WINDSOR 3-LINE SEMI-ELLIP. ALUMINUM BRIDGE RAIL FOR U.S. RTE. OVER LULLS BROOK - RAIL DETAILS			
MADE	CMS DATE 06/06/05	JOB No. ARG200	CUST. No.
CHECKED	DATE 11/77/05	DRAWING 183	REV. No. 3



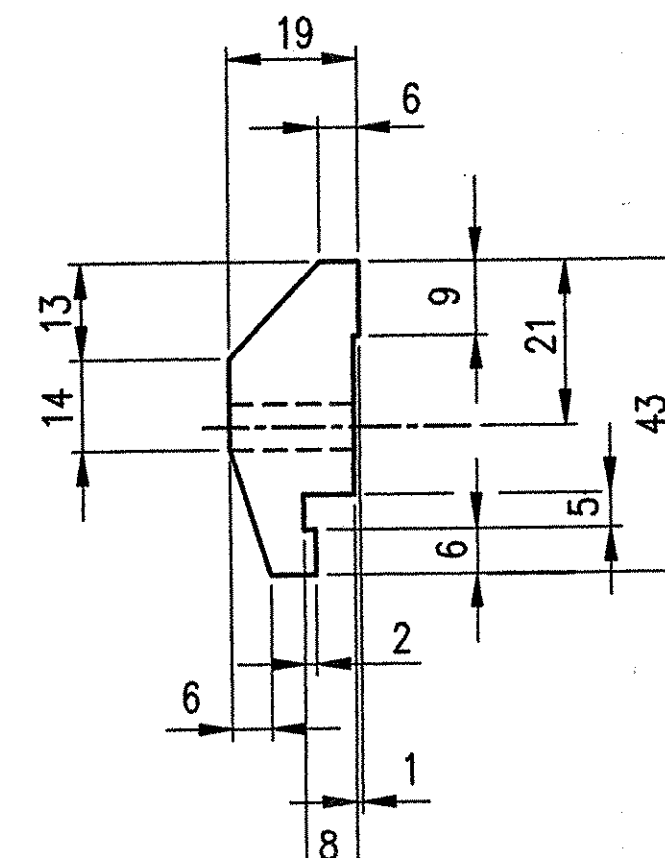
14 ~ REQ'D BENT SPLICE SLEEVES SS-03-G2
#19501 EXTR.



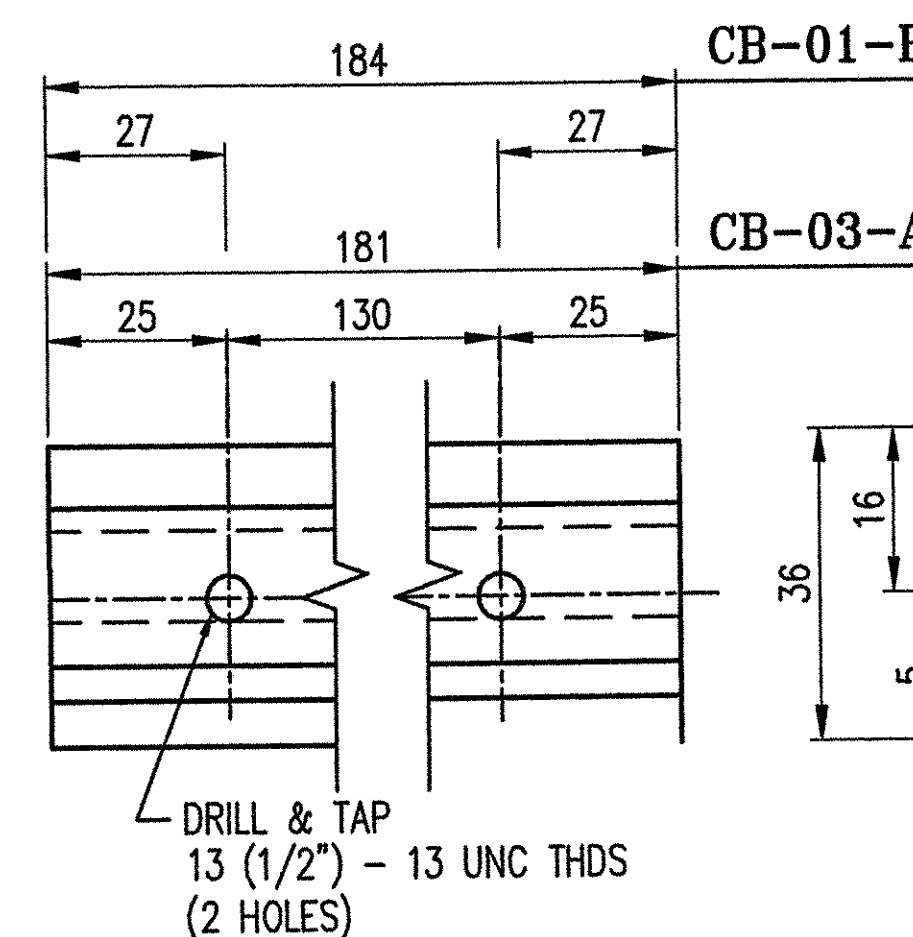
4 ~ REQ'D SPLICE SLEEVES SS-03-G
#19501 EXTR.



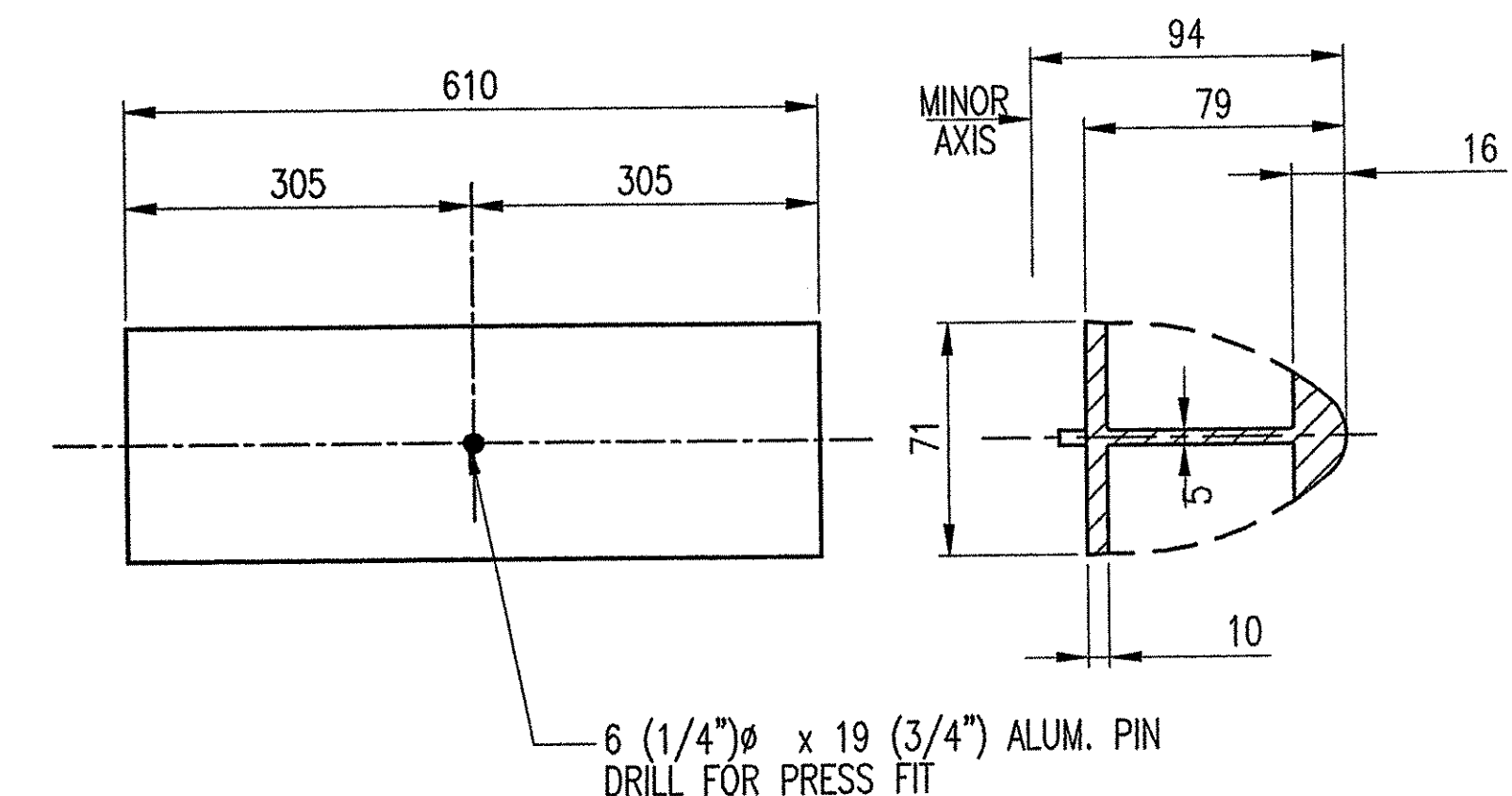
10 ~ REQ'D BENT SPLICE SLEEVES SS-03-G1
(FOR BARRIER RAIL - BACK ELEV. VIEW) #19501 EXTR.



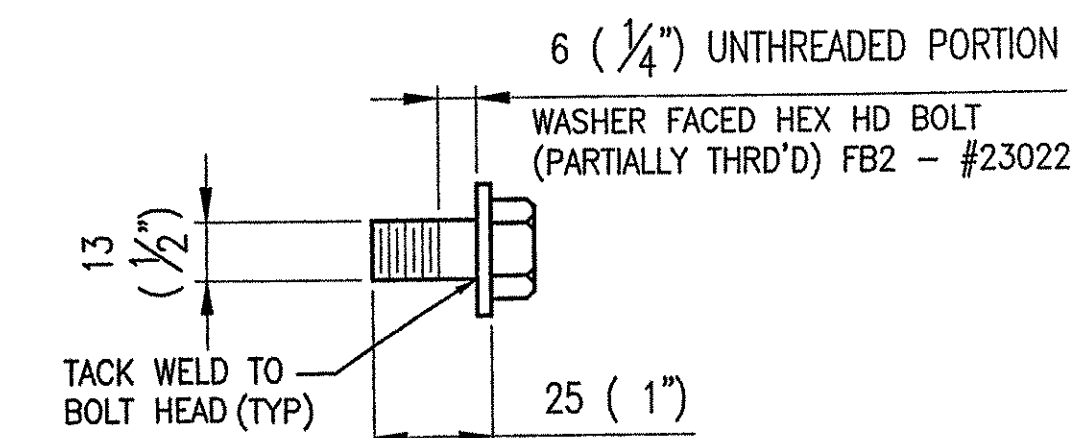
212 ~ REQ'D CLAMP
BAR CB-03-A
(BARRIER RAIL) #19447



106 ~ REQ'D CLAMP
BAR CB-01-B
(HANDRAIL) #28596



14 ~ REQ'D SPLICE SLEEVES SS-12-A
(HANDRAIL) #19497 EXTR., #14940 PIN



SPLICE BOLT DETAILS

ANODIZED
(SEE LB1 FOR SPECIFICATIONS)

BRIDGE No. 60
PROJ. No. BRS 0113 (22) ITEM 525.22

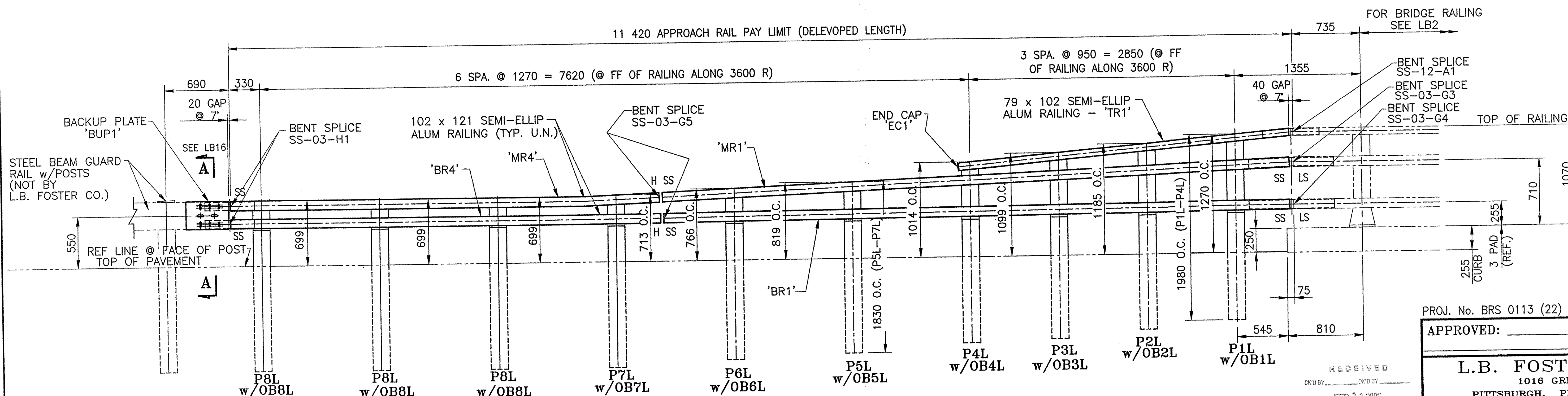
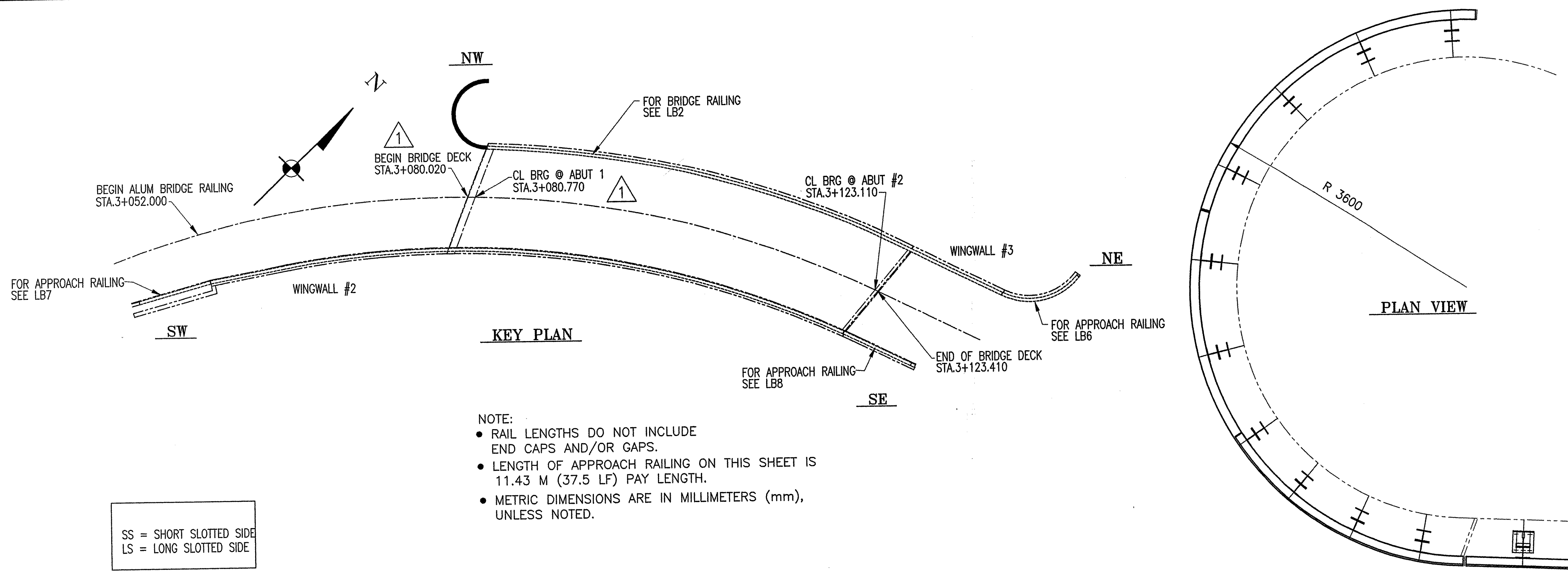
APPROVED: _____ REC'D APPROVAL _____
DRAWING _____

L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

FOR: A. D. ROSSI CORPORATION
VERMONT AGENCY OF TRANSPORTATION
TOWN OF HARTLAND, COUNTY OF WINDSOR
3-LINE SEMI-ELLIP. ALUMINUM BRIDGE RAIL FOR U.S. RTE. 5
OVER LULLS BROOK - SPLICE & MISC DETAILS

MADE CMS DATE 06/13/03 JOB No. ARO200 CUST. No.
CHECK Dd DATE 11/7/05 DRAWING LB4 REV. No. ONE

1	REVISED PER VDOT CHGS IN BRIDGE LENGTHS	CMS	01/31/06
REV.	DESCRIPTION	BY	DATE



INSIDE ELEVATION OF NW APPROACH RAIL

ANODIZED
(SEE LB1 FOR SPECIFICATIONS)

1	REVISED PER VDOT CHGS IN BRIDGE LENGTHS	CMS	01 31 06
REV.	DESCRIPTION	BY	DATE

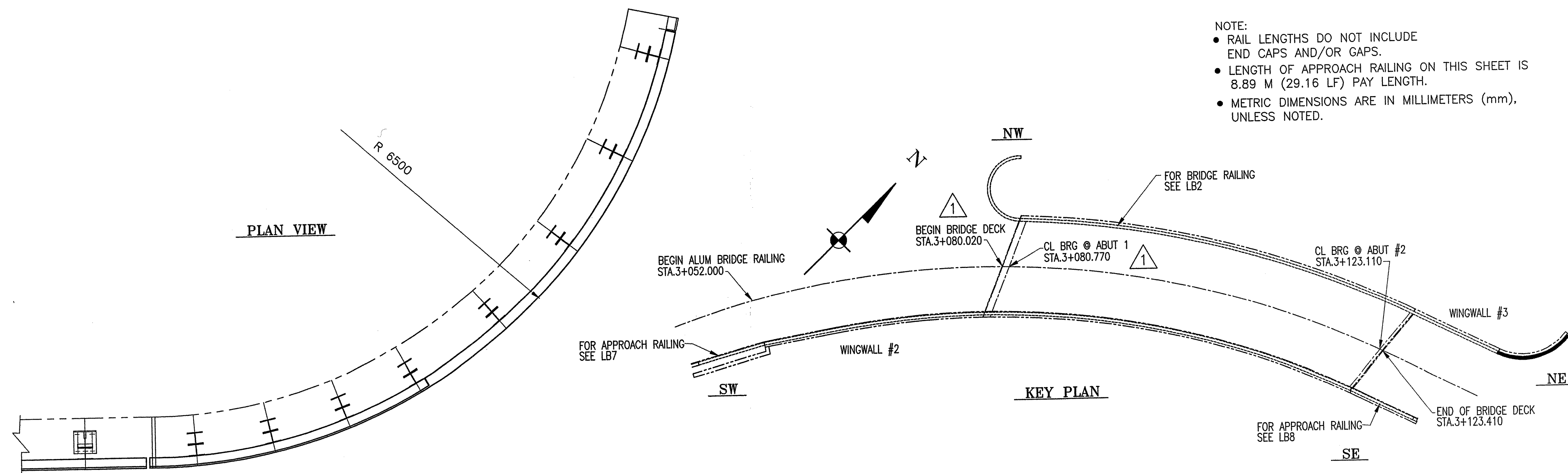
PROJ. No. BRS 0113 (22) ITEM No: 621.74

APPROVED: _____ REC'D APPROVAL _____

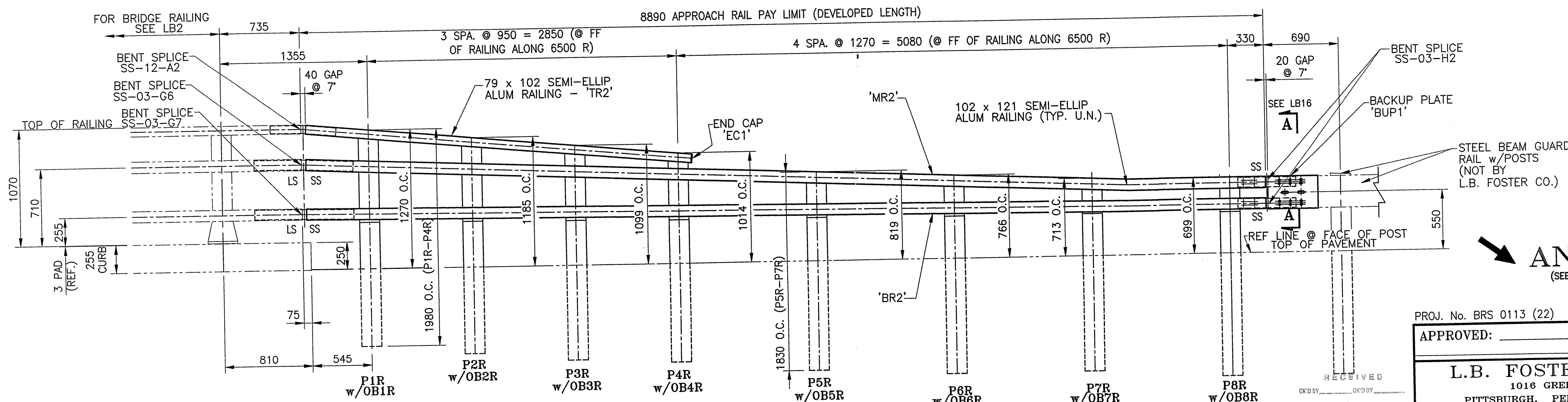
L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

FOR: A. D. ROSSI CORPORATION
VERMONT AGENCY OF TRANSPORTATION
TOWN OF HARTLAND, COUNTY OF WINDSOR
BRIDGE #60 - US RTE 5 OVER LULLS BROOK
3L ALUMINUM APPROACH RAIL ELEVATIONS

MADE CMS DATE 05/25/05 JOB No. AR0200 CUST. No. _____
CHECK_Dd DATE 11/7/05 DRAWING LB5 REV. No. ONE



- NOTE:
- RAIL LENGTHS DO NOT INCLUDE END CAPS AND/OR GAPS.
 - LENGTH OF APPROACH RAILING ON THIS SHEET IS 8.89 M (29.16 LF) PAY LENGTH.
 - METRIC DIMENSIONS ARE IN MILLIMETERS (mm), UNLESS NOTED.



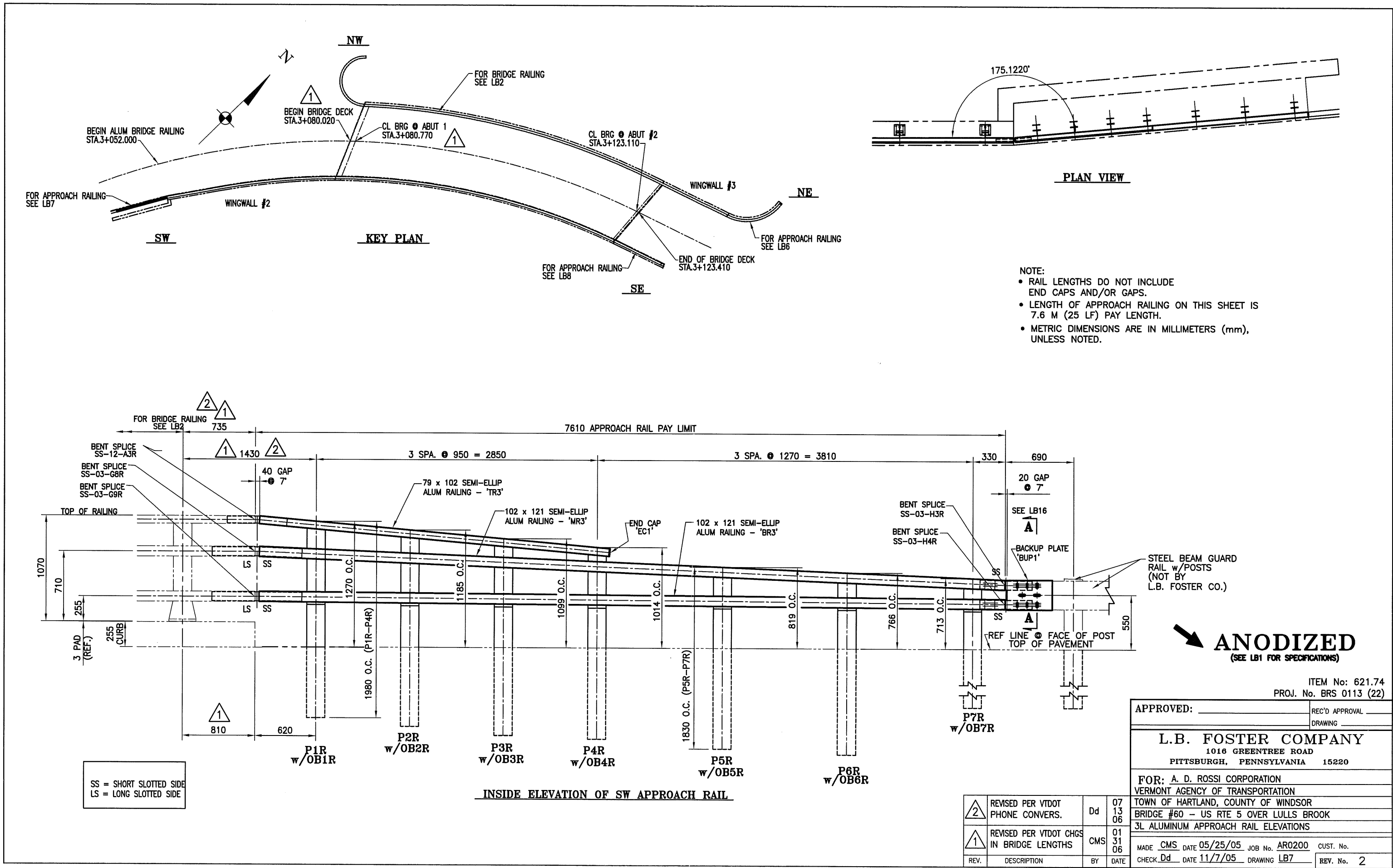
ANODIZED
(SEE LB1 FOR SPECIFICATIONS)

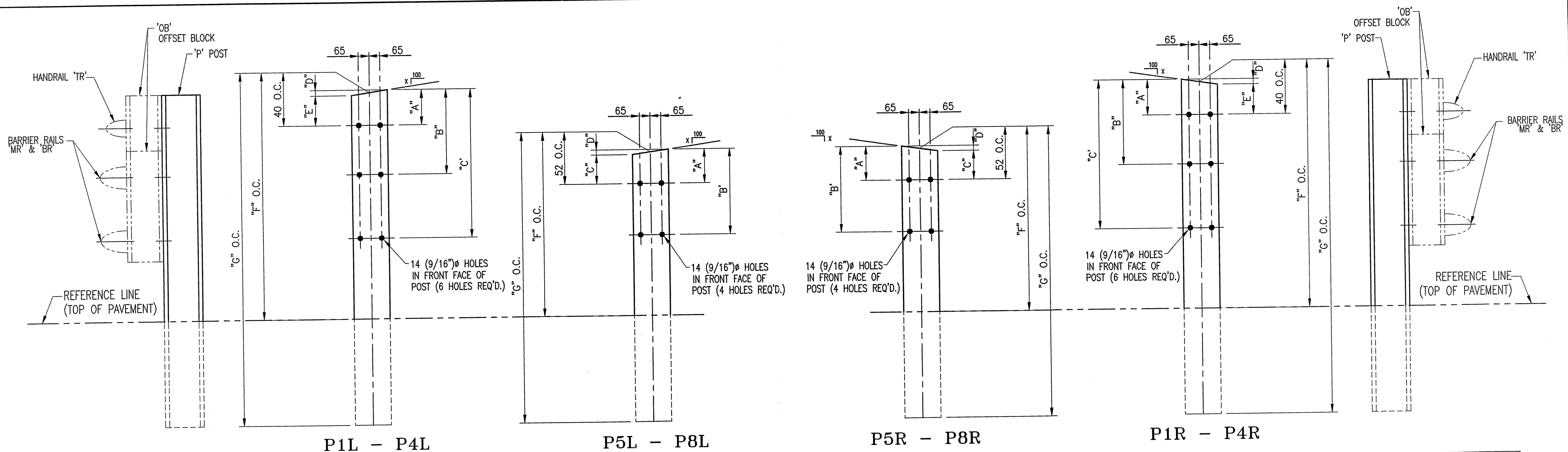
SS = SHORT SLOTTED SIDE
LS = LONG SLOTTED SIDE

INSIDE ELEVATION OF NE APPROACH RAIL

1	REVISED PER VT DOT CHGS TO BRIDGE LENGTHS	CMS	01/31/06
REV.	DESCRIPTION	BY	DATE

PROJ. No. BRS 0113 (22)		ITEM No: 621.74	
APPROVED: _____		REC'D APPROVAL _____	
DRAWING _____		DRAWING _____	
L.B. FOSTER COMPANY 1016 GREENTREE ROAD PITTSBURGH, PENNSYLVANIA 15220			
FOR: A. D. ROSSI CORPORATION VERMONT AGENCY OF TRANSPORTATION TOWN OF HARTLAND, COUNTY OF WINDSOR BRIDGE #60 - US RTE 5 OVER LULLS BROOK 3L ALUMINUM APPROACH RAIL ELEVATIONS			
MADE CMS	DATE 05/25/05	JOB No. AR0200	CUST. No.
CHECK LB6	DATE 11/7/05	DRAWING LB6	REV. No. ONE





POST DETAIL CHART FOR NW & SE APPROACHES
CURB CONDITION

POST No.	QTY.	OFFSET BLOCK MTG. DIMENSIONS							BEV
		A	B	C	D	E	F (O.C.)	G (O.C.)	X
P1L	2	48	340	774	17	32	1270	1980	9
P2L	2	48	294	696	17	32	1185	1980	9
P3L	2	48	248	617	17	32	1099	1980	9
P4L	2	48	203	539	17	32	1014	1980	9
P5L	2	56	348		8	48	819	1830	4
P6L	2	56	305		8	48	766	1830	4
P7L	2	56	262		8	48	713	1830	4
P8L	3	52	246		0	52	699	1830	SQ

POST DETAIL CHART FOR NE & SW APPROACHES
CURB CONDITION

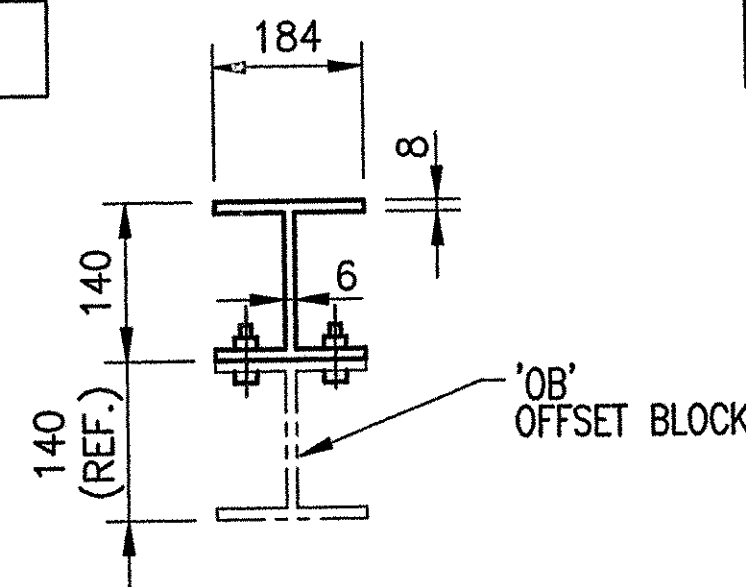
POST No.	QTY.	OFFSET BLOCK MTG. DIMENSIONS							BEV
		A	B	C	D	E	F (O.C.)	G (O.C.)	X
P1R	2	48	340	774	17	32	1270	1980	9
P2R	2	48	294	696	17	32	1185	1980	9
P3R	2	48	248	617	17	32	1099	1980	9
P4R	2	48	203	539	17	32	1014	1980	9
P5R	2	56	348		8	48	819	1830	4
P6R	2	56	305		8	48	766	1830	4
P7R	2	56	262		8	48	713	1830	4
P8R	1	52	246		0	52	699	1830	SQ

NOTE:

2 CLAMPING BARS CB-01-B (#28596) PER POSTS P1-P4
4 CLAMPING BARS CB-03-A (#19447) PER POSTS P1-P4
w/ 1/2" -13 UNC
S.S. BOLT x 1" LG. 'FB1',
1 1/16" O.D. x 17/32"
I.D. x 3/32" THK. ALUM
WASHER 'FW1'
(#22935 & # 19404)
(16 PER POST)

NOTE:

4 CLAMPING BARS CB-03-A (#19447) PER POSTS P5-P7
w/ 13 (1/2" -13 UNC)
S.S. BOLT x 25 (1") LG. 'FB1',
27 (1 1/16" O.D. x 13 (17/32")
I.D. x 2 (3/32") THK. ALUM
WASHER 'FW1'
(#22935 & # 19404)
(8 PER POST)



TYP. SECT. POST &
OFFSET BLOCK

ANODIZED
(SEE LB1 FOR SPECIFICATIONS)

RECEIVED

CHK'D BY: _____ OK'D BY: _____

FEB 23 2006

RESUBMIT: _____ APPROVED: _____

BY: _____ DATE: 2/23/06

REV.	DESCRIPTION	BY	DATE

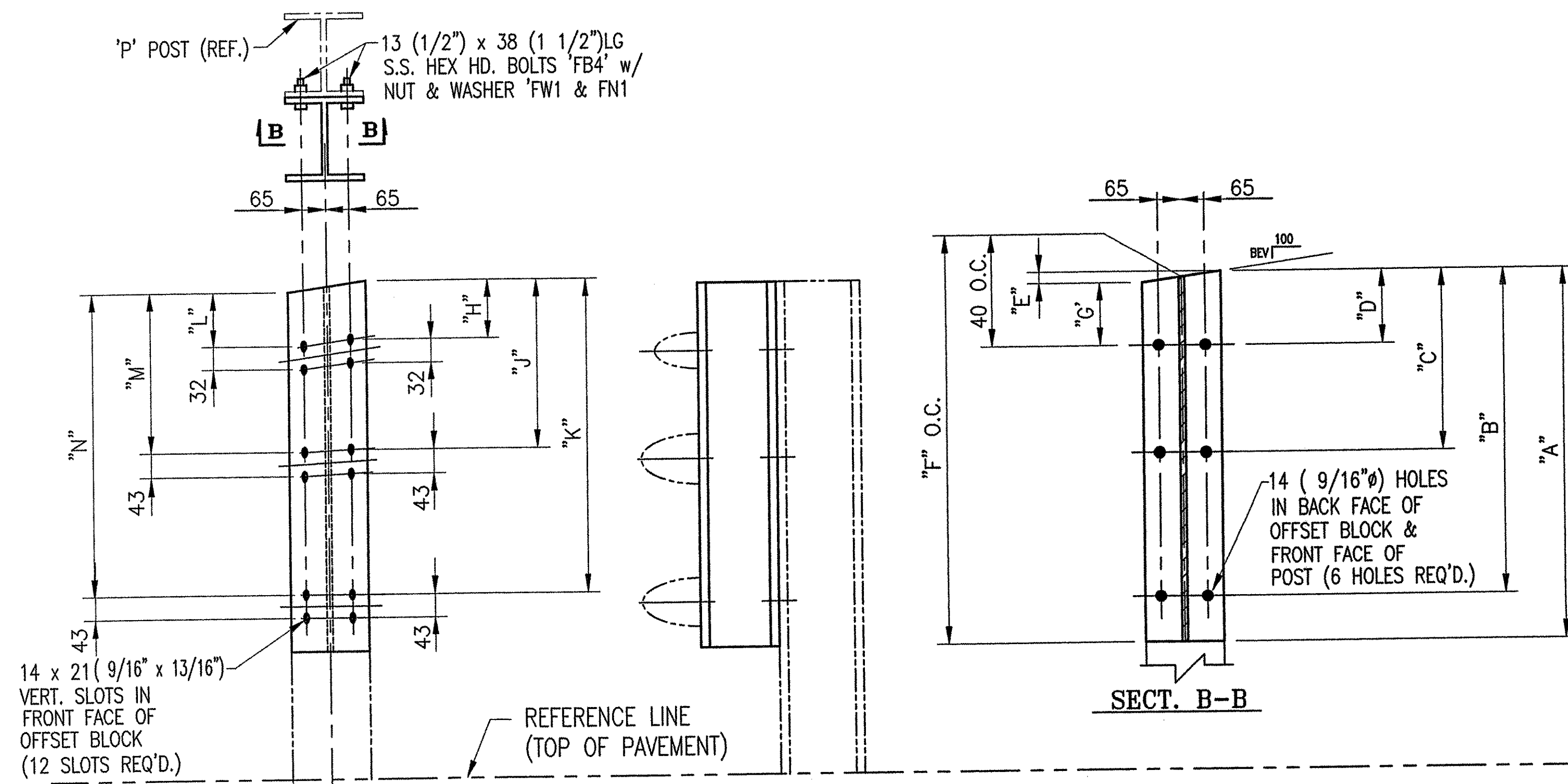
PROJ. No. BRS 0113 (22) ITEM No: 621.74

APPROVED: _____ REC'D APPROVAL _____
DRAWING _____

L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

FOR: A. D. ROSSI CORPORATION
VERMONT AGENCY OF TRANSPORTATION
TOWN OF HARTLAND, COUNTY OF WINDSOR
BRIDGE #60 - US RTE 5 OVER LULLS BROOK
3L ALUMINUM APPROACH RAIL POST DETAILS

MADE CMS DATE 09/01/05 JOB No. AR0200 CUST. No. _____
CHECK Dd DATE 11/7/05 DRAWING LB9 REV. No. _____



OFFSET BLOCK CHART FOR (NW) & (SE) APPROACHES
CURB CONDITION - POSTS P1L - P4L

OFFSET BLOCK ~ POST MTG. DIMENSIONS									BEV
POST No.	OFFSET BLOCK	QTY.	A	B	C	D	E	F (O.C.)	X
P1L	OB1L	2	850	774	340	49	17	841	32
P2L	OB2L	2	774	696	294	49	17	765	32
P3L	OB3L	2	697	617	248	49	17	689	32
P4L	OB4L	2	621	539	203	49	17	613	32

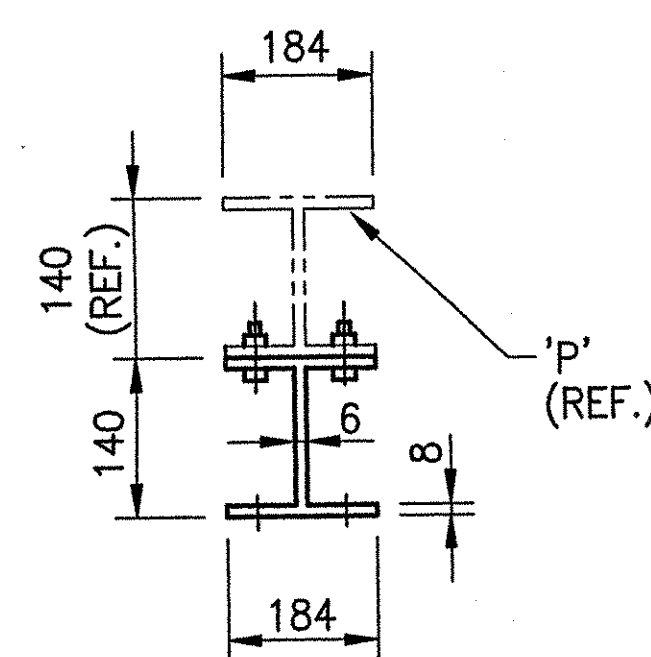
OFFSET BLOCK ~ RAIL MTG. DIMENSIONS						
POST No.	OFFSET BLOCK	H	J	K	L	N
P1L	OB1L	27	316	752	22	737
P2L	OB2L	27	270	674	22	658
P3L	OB3L	27	224	595	22	580
P4L	OB4L	27	178	517	22	205

NOTE:

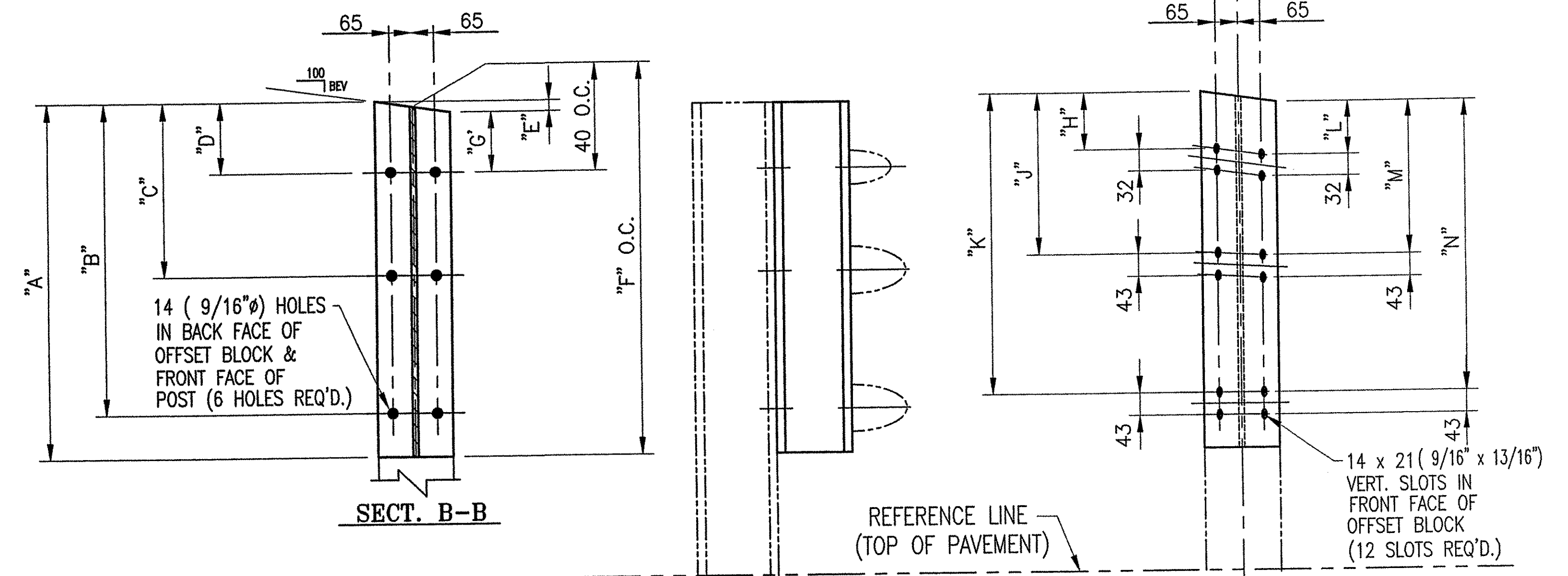
2 CLAMPING BARS CB-01-B (#28596) PER POSTS P1-P4
4 CLAMPING BARS CB-03-A (#19447) PER POSTS P1-P4
w/ 1/2" - 13 UNC
S.S. BOLT x 1" LG. 'FB1',
1 1/16" O.D. x 17/32"
I.D. x 3/32" THK. ALUM
WASHER 'FW1'
(#22935 & # 19404)
(16 PER POST)

NOTE:

4 CLAMPING BARS CB-03-A (#19447) PER POSTS P5-P7
w/ 13 (1/2" - 13 UNC)
S.S. BOLT x 25 (1") LG. 'FB1',
27 (1 1/16") O.D. x 13 (17/32")
I.D. x 2 (3/32") THK. ALUM
WASHER 'FW1'
(#22935 & # 19404)
(8 PER POST)



TYP. SECT. POST &
OFFSET BLOCK



OFFSET BLOCK CHART FOR (NE) & (SW) APPROACHES
CURB CONDITION - POSTS P1R - P4R

OFFSET BLOCK ~ POST MTG. DIMENSIONS									BEV
POST No.	OFFSET BLOCK	QTY.	A	B	C	D	E	F (O.C.)	X
P1R	OB1R	2	850	774	340	49	17	841	32
P2R	OB2R	2	774	696	294	49	17	765	32
P3R	OB3R	2	697	617	248	49	17	689	32
P4R	OB4R	2	621	539	203	49	17	613	32

OFFSET BLOCK ~ RAIL MTG. DIMENSIONS						
POST No.	OFFSET BLOCK	H	J	K	L	N
P1R	OB1R	27	316	752	22	737
P2R	OB2R	27	270	674	22	658
P3R	OB3R	27	224	595	22	580
P4R	OB4R	27	178	517	22	205

ANODIZED
(SEE LB1 FOR SPECIFICATIONS)

RECEIVED
OK'D BY _____ OK'D BY _____
FEB 23 2006
RESUBMIT _____ APPROVED _____
BY _____ DATE 2/23/06

REV.	DESCRIPTION	BY	DATE

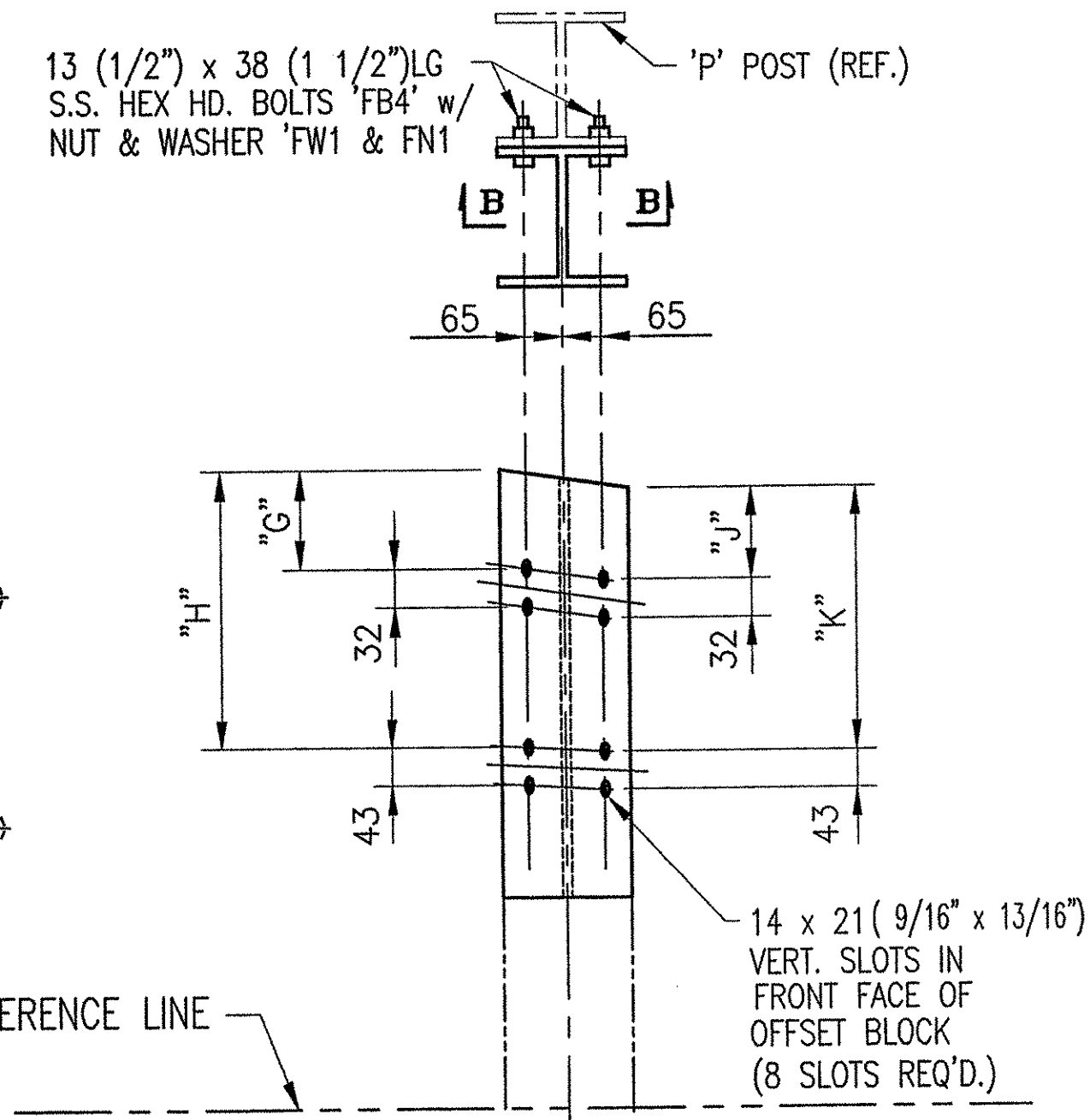
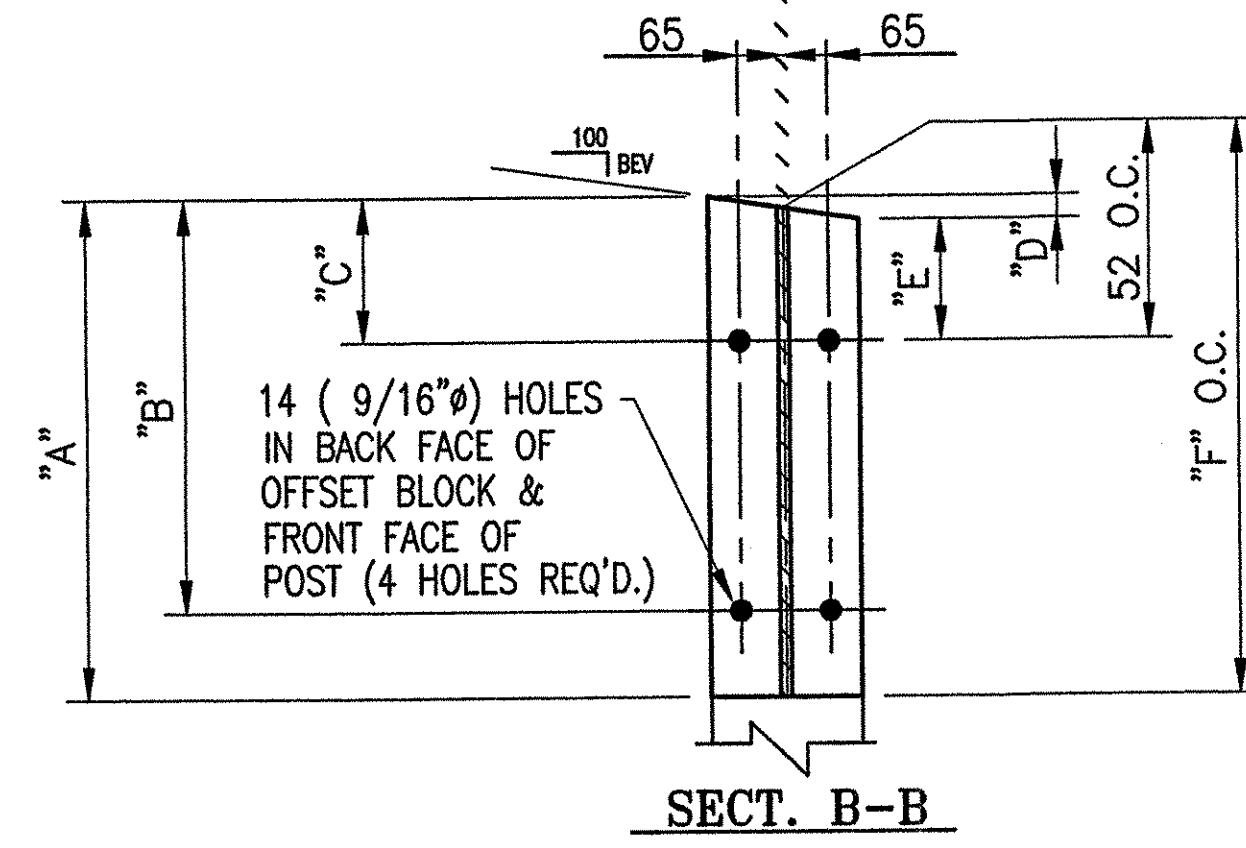
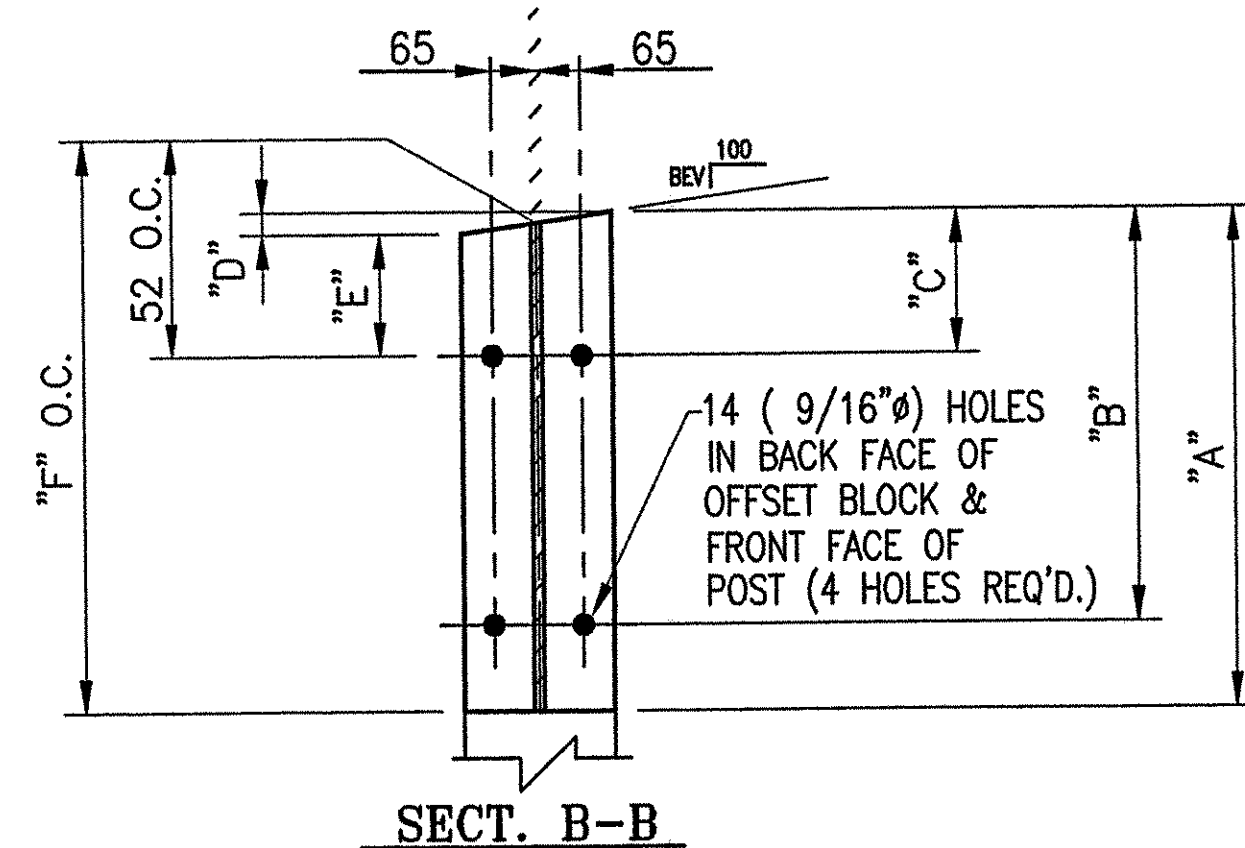
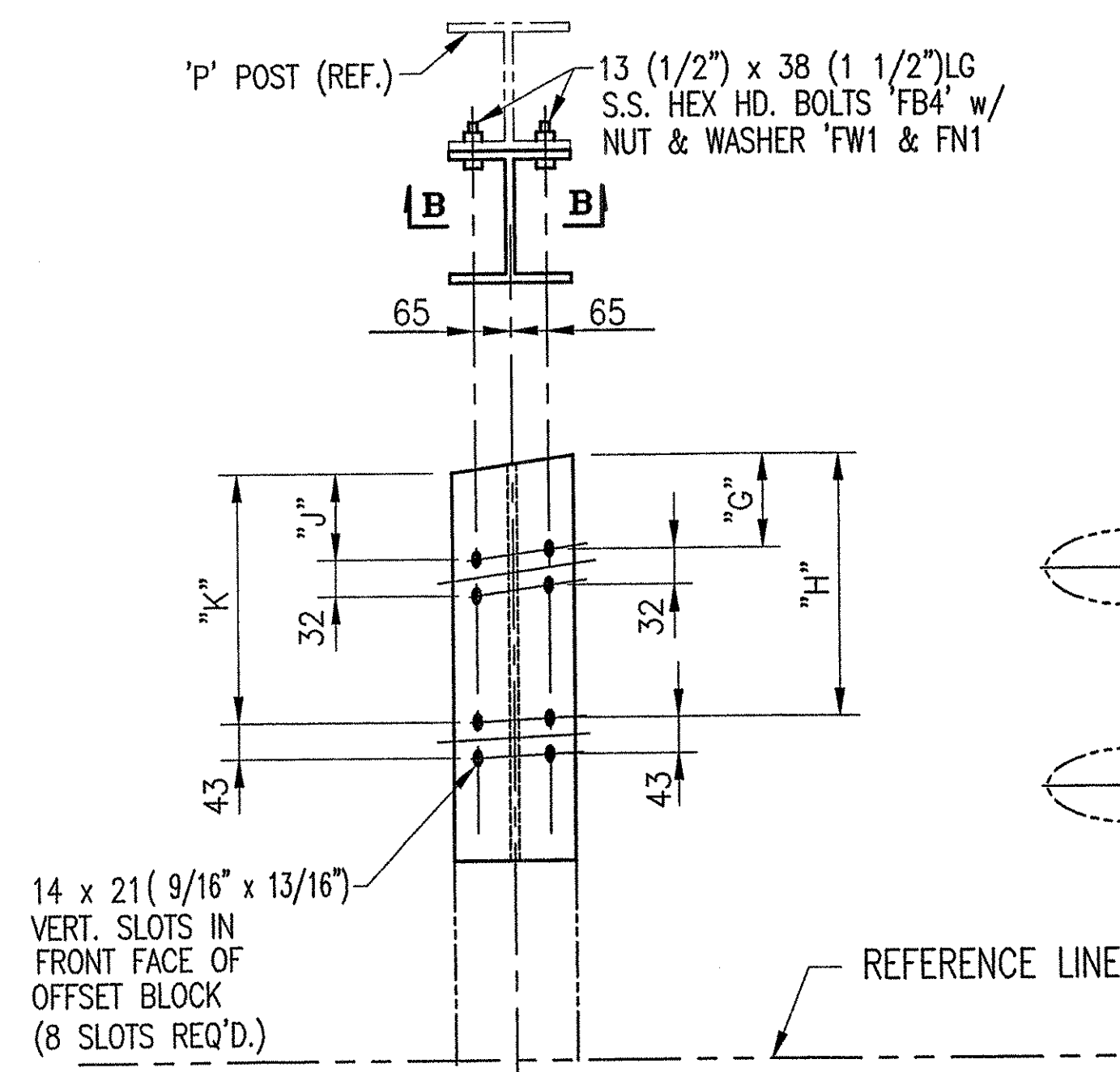
PROJ. No. BRS 0113 (22) ITEM No: 621.74

APPROVED: _____ REC'D APPROVAL _____
DRAWING _____

L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

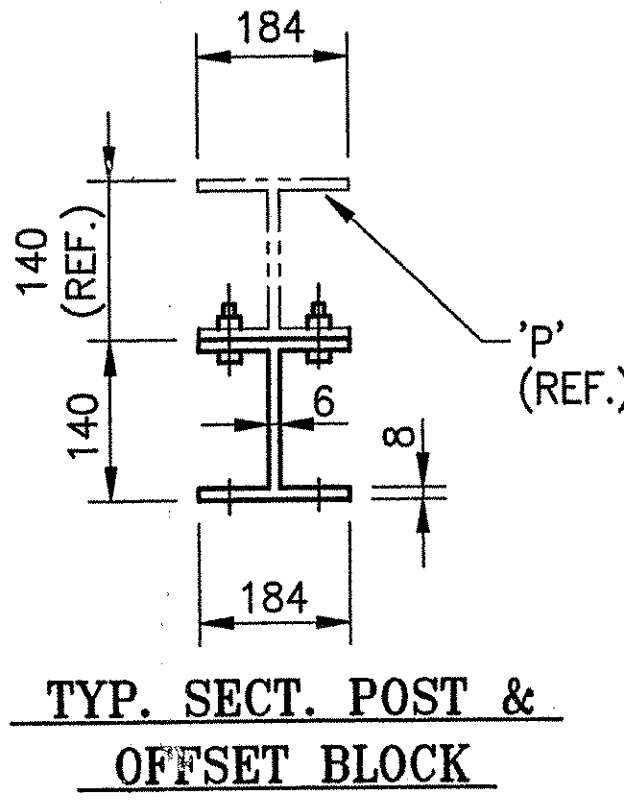
FOR: A. D. ROSSI CORPORATION
VERMONT AGENCY OF TRANSPORTATION
TOWN OF HARTLAND, COUNTY OF WINDSOR
3L APPROACH RAIL FOR BRIDGE #60 - US RTE 5 OVER LULLS BROOK
OFFSET BOX DETAILS - NW, NE, SW & SE APPROACHES

MADE CMS DATE 05/24/05 JOB No. ARO200 CUST. No. _____
CHECK Dd DATE 11/7/05 DRAWING LB10 REV. No. _____



OFFSET BLOCK CHART FOR (NW) & (SE) APPROACHES CURB CONDITION - POSTS P5L - P7L									
OFFSET BLOCK ~ POST MTG. DIMENSIONS									BEV
POST No.	OFFSET BLOCK	QTY.	A	B	C	D	E	F (O.C.)	X
P5L	OB5L	2	423	348	56	8	48	419	4
P6L	OB6L	2	380	305	56	8	48	376	
P7L	OB7L	2	337	262	56	8	48	332	
P8L	OB8L	3	332	246	52	0	52	332	SQ
OFFSET BLOCK ~ RAIL MTG. DIMENSIONS									
POST No.	OFFSET BLOCK	G	H	J	K				
P5L	OB5L	32	327	29	320				
P6L	OB6L	32	283	29	276				
P7L	OB7L	32	240	29	233				
P8L	OB8L	31	224	31	224				

OFFSET BLOCK CHART FOR (NE) & (SW) APPROACHES CURB CONDITION - POSTS P5R - P8R										
OFFSET BLOCK ~ POST MTG. DIMENSIONS									BEV	
POST No.	OFFSET BLOCK	QTY.	A	B	C	D	E	F (O.C.)	X	
P5R	OB5R	2	423	348	56	8	48	419	4	
P6R	OB6R	2	380	305	56	8	48	376		
P7R	OB7R	2	337	262	56	8	48	332		
P8R	OB8R	1	332	246	52	0	52	332	SQ	
OFFSET BLOCK ~ RAIL MTG. DIMENSIONS										
POST No.	OFFSET BLOCK	G	H	J	K					
P5R	OB5R	32	327	29	320					
P6R	OB6R	32	283	29	276					
P7R	OB7R	32	240	29	233					
P8R	OB8R	31	224	31	224					



NOTE:
2 CLAMPING BARS CB-01-B (#28596) PER POSTS P1-P4
4 CLAMPING BARS CB-03-A (#19447) PER POSTS P1-P4
w/ 13 (1/2"φ-13 UNC)
S.S. BOLT x 1" LG. 'FB1',
1 1/16" O.D. x 17/32"
I.D. x 3/32" THK. ALUM
WASHER 'FW1'
(#22935 & # 19404)
(16 PER POST)

NOTE:
4 CLAMPING BARS CB-03-A (#19447) PER POSTS P5-P7
w/ 13 (1/2"φ-13 UNC)
S.S. BOLT x 25 (1") LG. 'FB1',
27 (1 1/16") O.D. x 13 (17/32")
I.D. x 2 (3/32") THK. ALUM
WASHER 'FW1'
(#22935 & # 19404)
(8 PER POST)

ANODIZED
(SEE LB1 FOR SPECIFICATIONS)

PROJ. No. BRS 0113 (22) ITEM No: 621.74

APPROVED: _____ REC'D APPROVAL _____
DRAWING _____

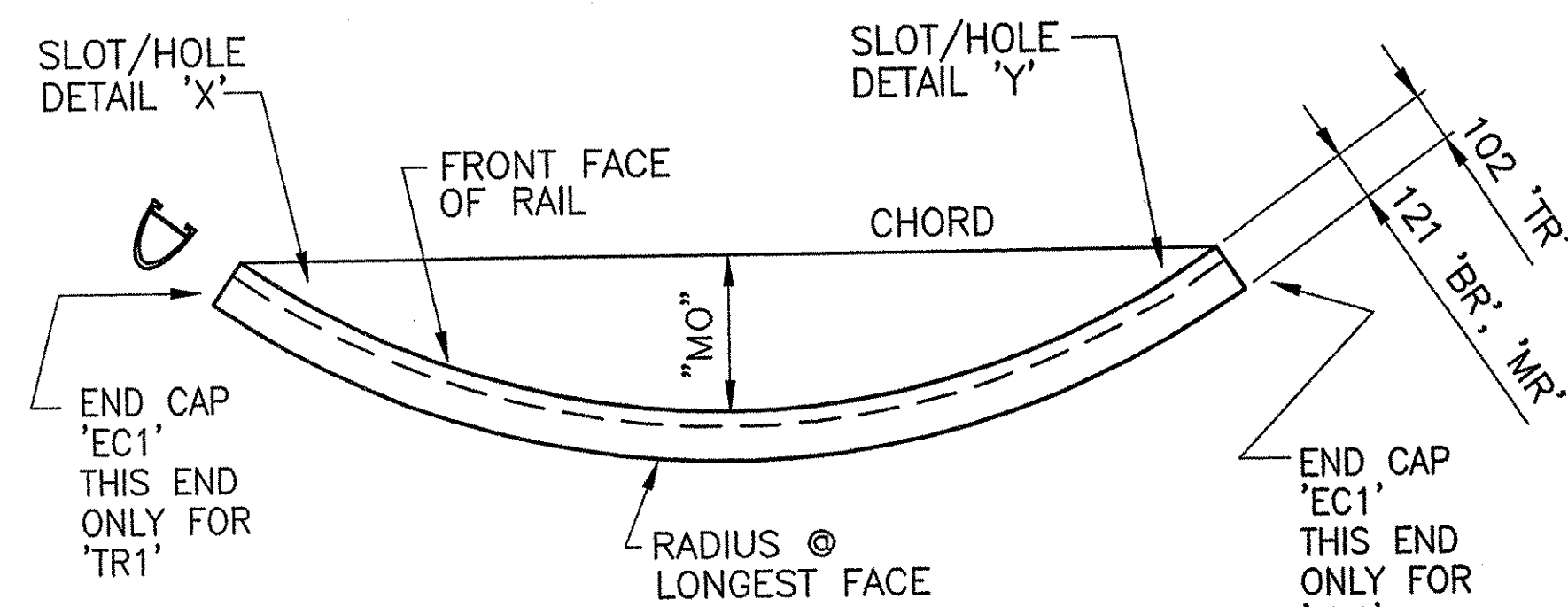
L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

FOR: A. D. ROSSI CORPORATION
VERMONT AGENCY OF TRANSPORTATION
TOWN OF HARTLAND, COUNTY OF WINDSOR
3L APPROACH RAILING FOR BRIDGE #60 - US RTE 5 OVER LULLS BROOK
OFFSET BOX DETAILS - NW, NE, SW & SE APPROACHES

MADE CMS DATE 05/24/05 JOB No. AR0200 CUST. No.
CHECK Dd DATE 11/7/05 DRAWING LB11 REV. No.

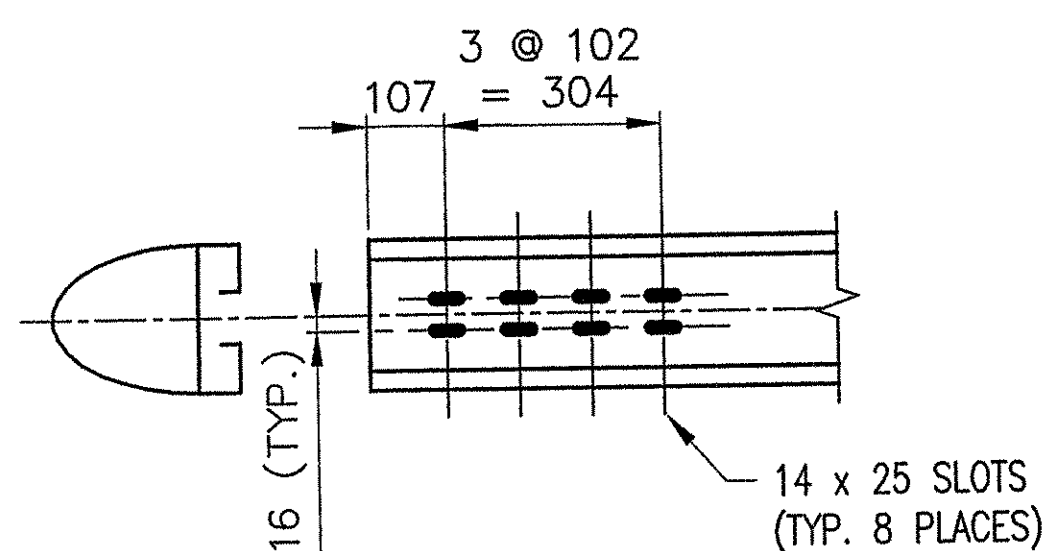
RECEIVED
OK'D BY _____ OK'D BY _____
FEB 23 2006
RESUBMIT _____ APPROVED _____
BY WY SD DATE 2/15/06

REV.	DESCRIPTION	BY	DATE

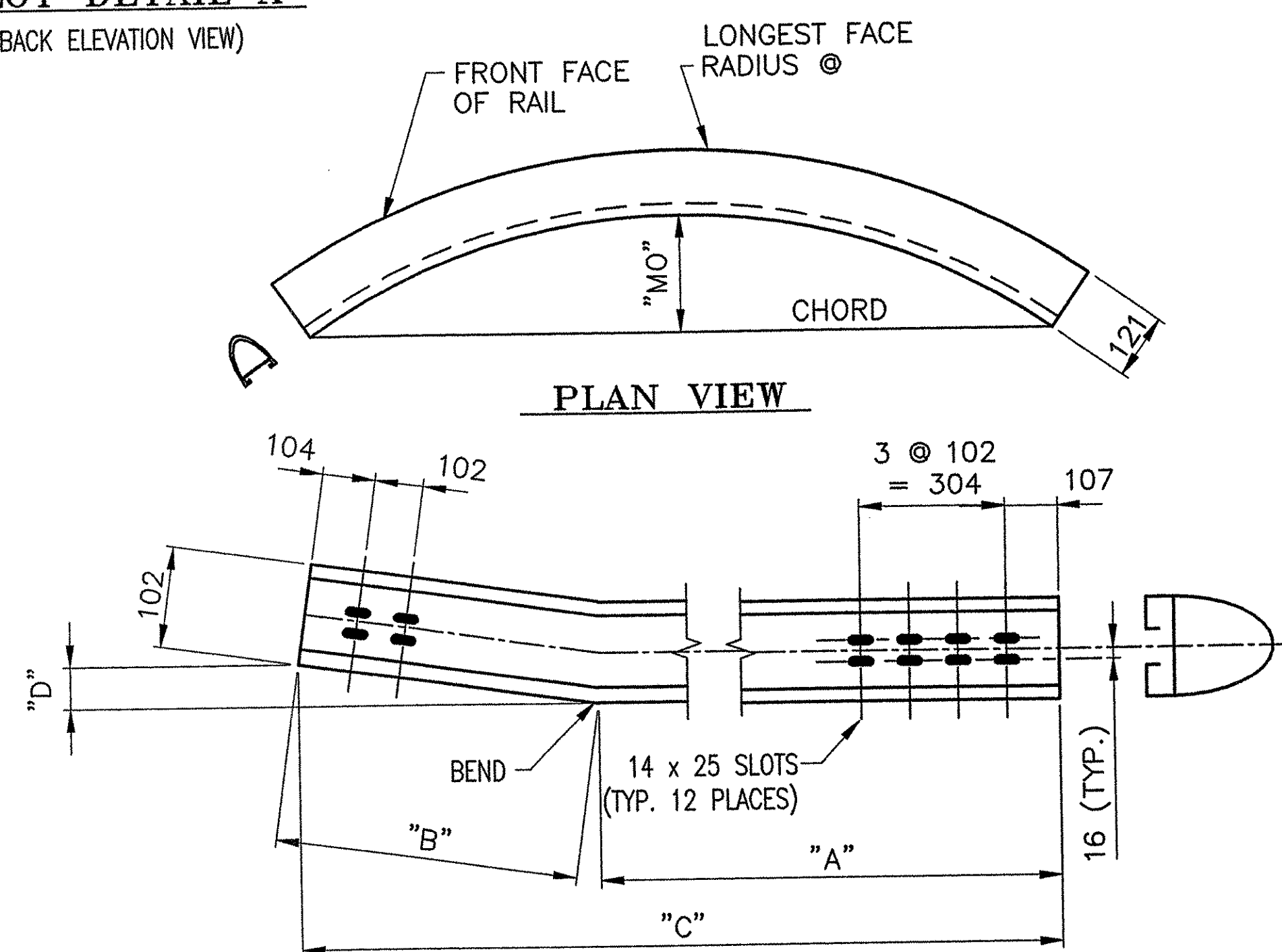


ROADWAY BEND (RB) RAIL DETAIL
(PLAN VIEW)

RAIL MK.	QTY.	LENGTH ALONG FF RAILING	RADIUS @ FF RAIL	MO	CHORD	SLOT/HOLE DETAIL 'X'	SLOT/HOLE DETAIL 'Y'	LOCATION
TR1	1	3529	3581	414	3292	—	—	NW
MR1	1	6604	3600	1364	5525	DET. A	DET. A	NW
BR1	1	6604	3600	1364	5525	DET. A	DET. A	NW
TR2	1	3577	6481	242	3479	—	—	NE

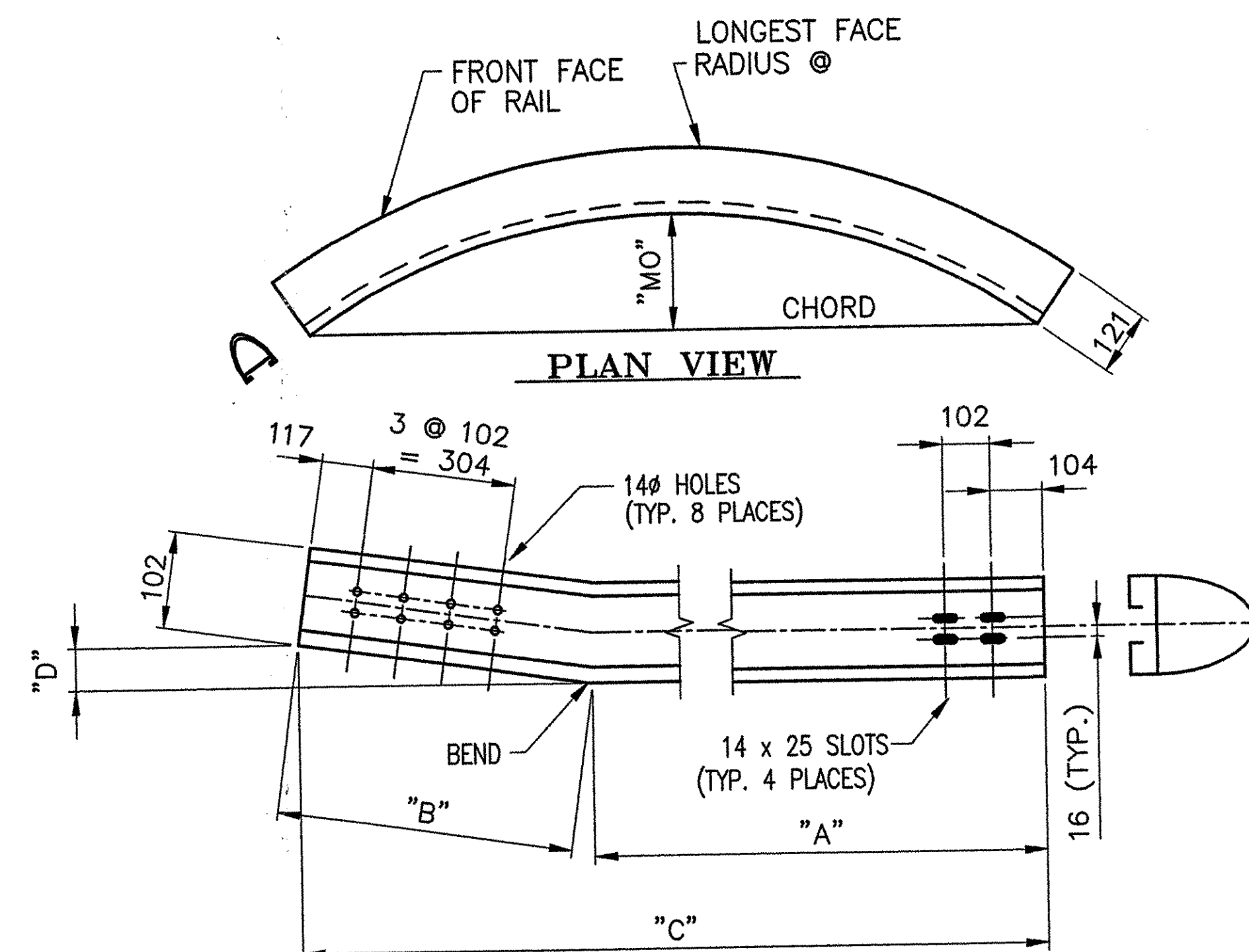


SLOT DETAIL A
(BACK ELEVATION VIEW)



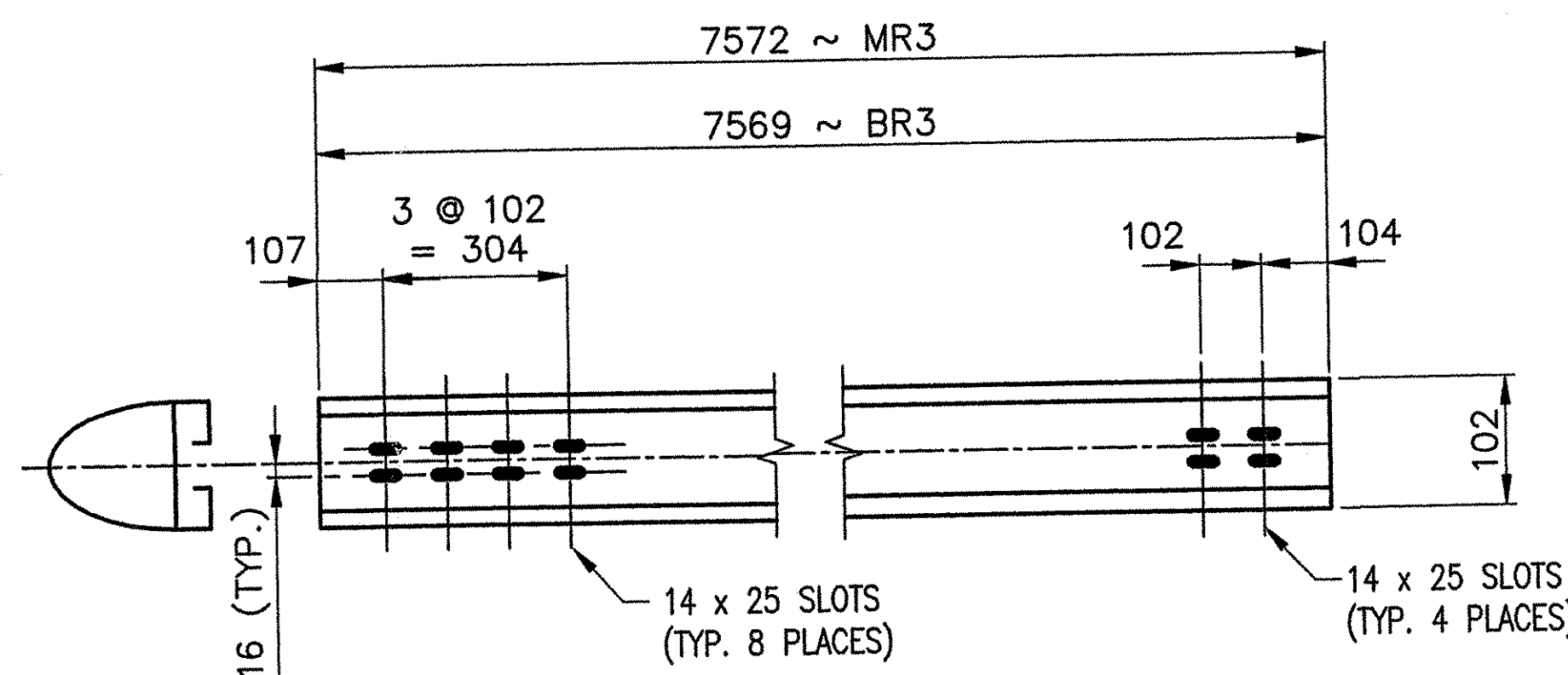
COMPOUND BENT RAIL DETAIL
(BACK ELEVATION VIEW)

RAIL MK.	QTY.	LENGTH ALONG FF RAILING	RADIUS @ FF RAIL	MO	CHORD	"A"	"B"	"C"	"D"	LOCATION
MR2	1	8880	6500	1432	8054	7585	1261	8845	52	NE
BR2	1	8880	6500	1432	8054	7580	1260	8840	9	NE



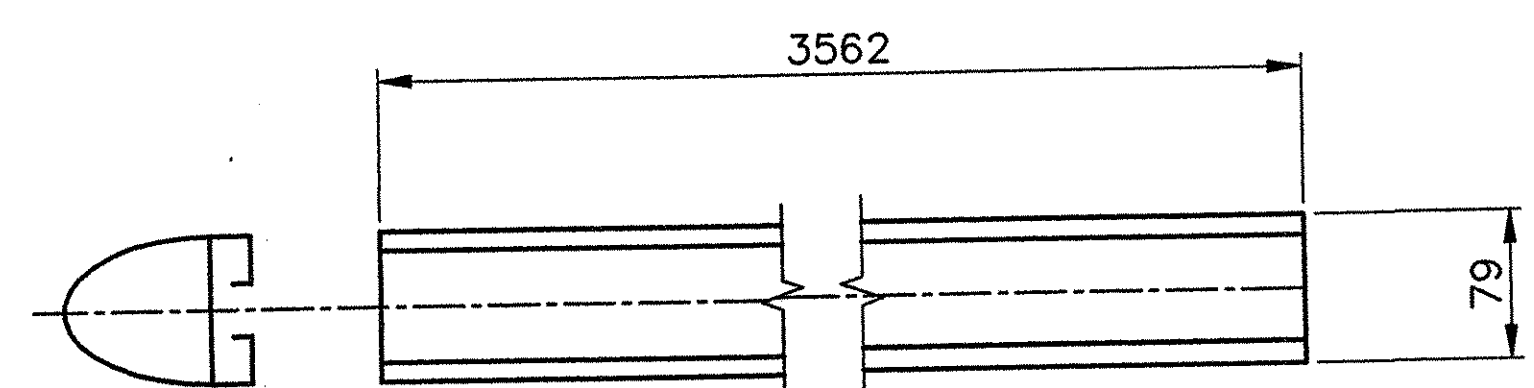
COMPOUND BENT RAIL DETAIL
(BACK ELEVATION VIEW)

RAIL MK.	QTY.	LENGTH ALONG FF RAILING	RADIUS @ FF RAIL	MO	CHORD	"A"	"B"	"C"	"D"	LOCATION
MR4	1	4756	3600	732	4269	3801	956	4756	40	NW
BR4	1	4756	3600	732	4269	3800	956	4756	7	NW

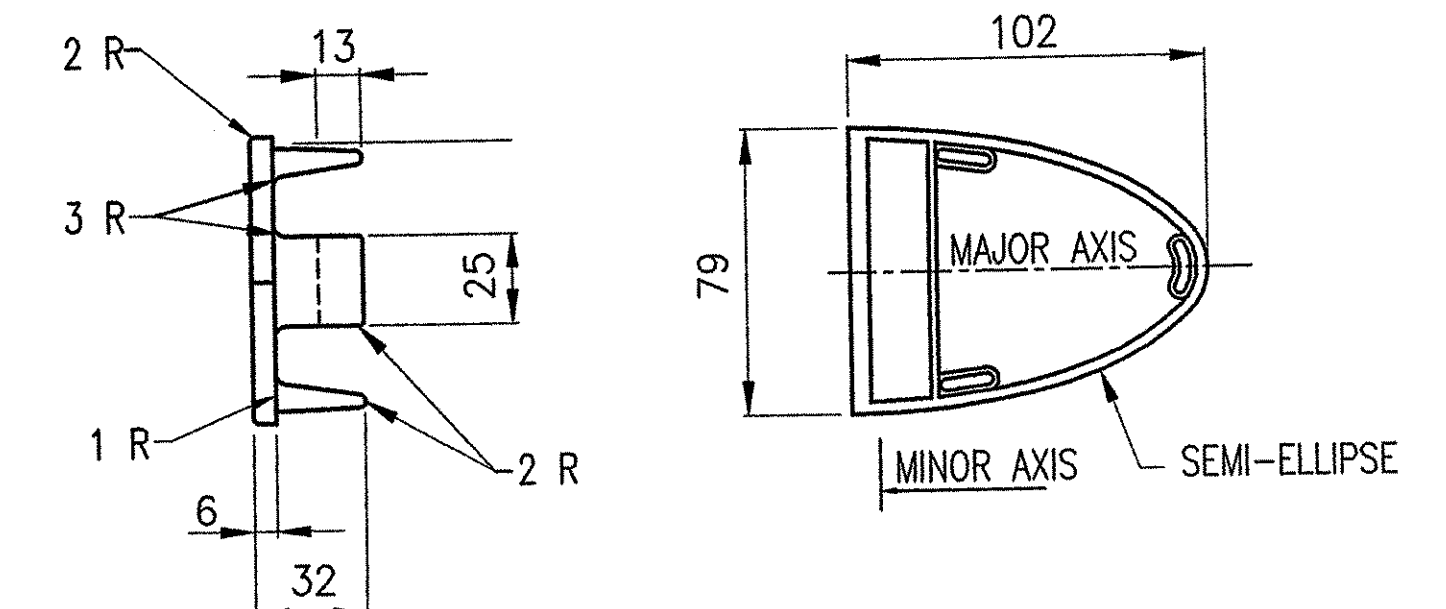


2 REQ'D - BARRIER RAIL 'MR3'
(BACK ELEVATION VIEW)(SE, SW)

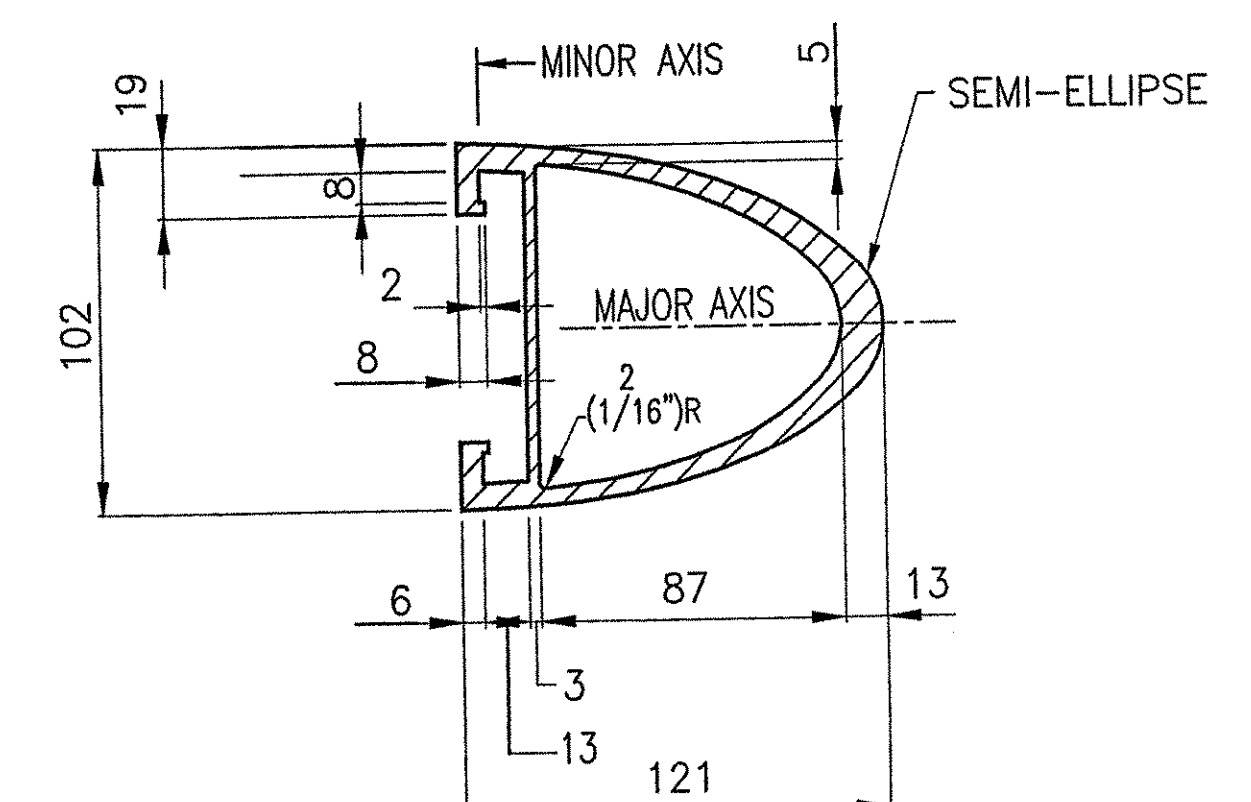
2 REQ'D - BARRIER RAIL 'BR3'
(BACK ELEVATION VIEW)(SE, SW)



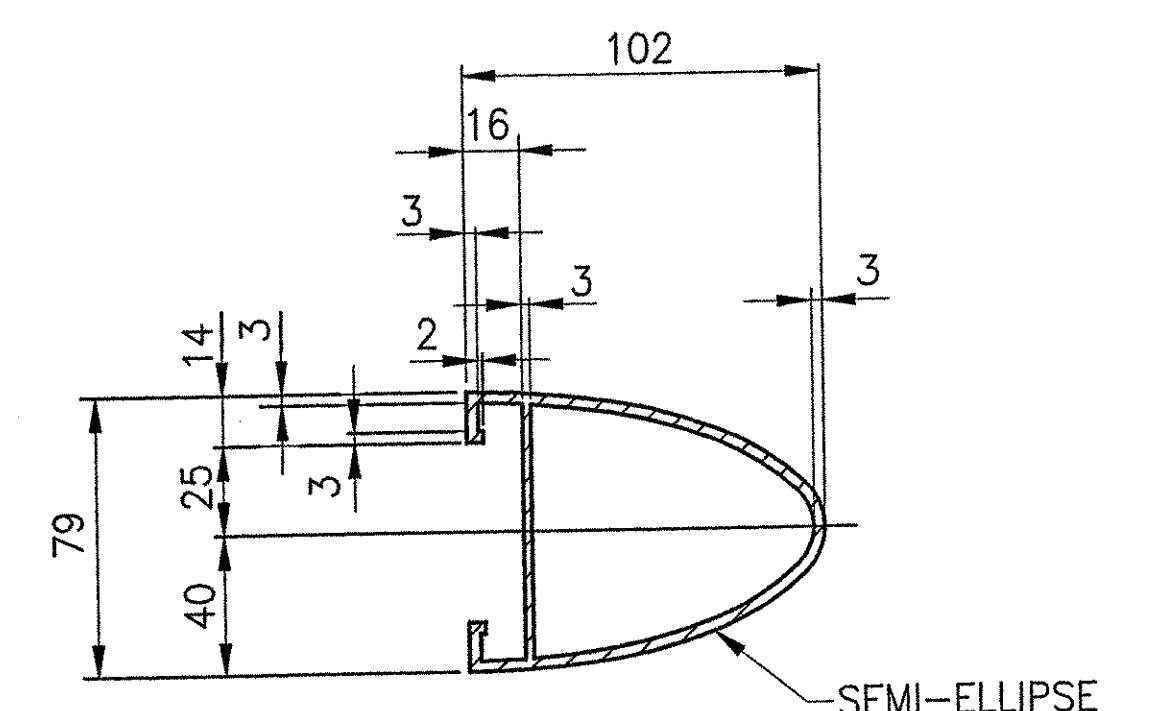
2 REQ'D - HANDRAIL 'TR3'
(BACK ELEVATION VIEW)(SE & SW)



4 ~ END CAPS 79 x 102 - EC1
#19344



TYP. BARRIER RAIL SECTION
#19466



TYP. HAND RAIL SECTION
#19464

ANODIZED
(SEE LB1 FOR SPECIFICATIONS)

RECEIVED
OK'D BY: _____ OK'D BY: _____
FEB 23 2006
RESUBMIT: _____ APPROVED: _____
BY: *WJ* DATE: *2/23/06*

REV.	DESCRIPTION	BY	DATE

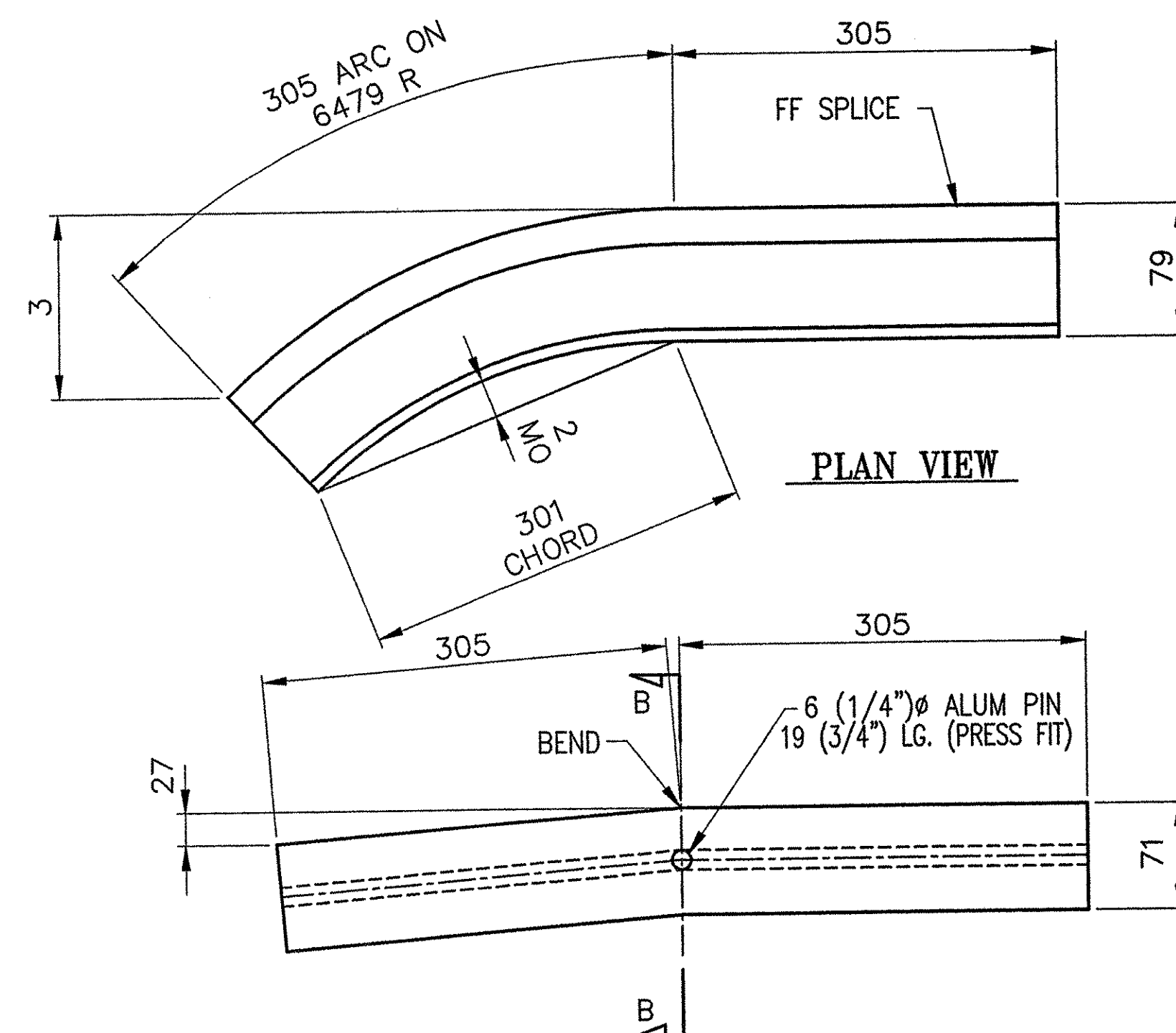
PROJ. No. BRS 0113 (22) ITEM No: 621.74

APPROVED: _____ REC'D APPROVAL _____
DRAWING _____

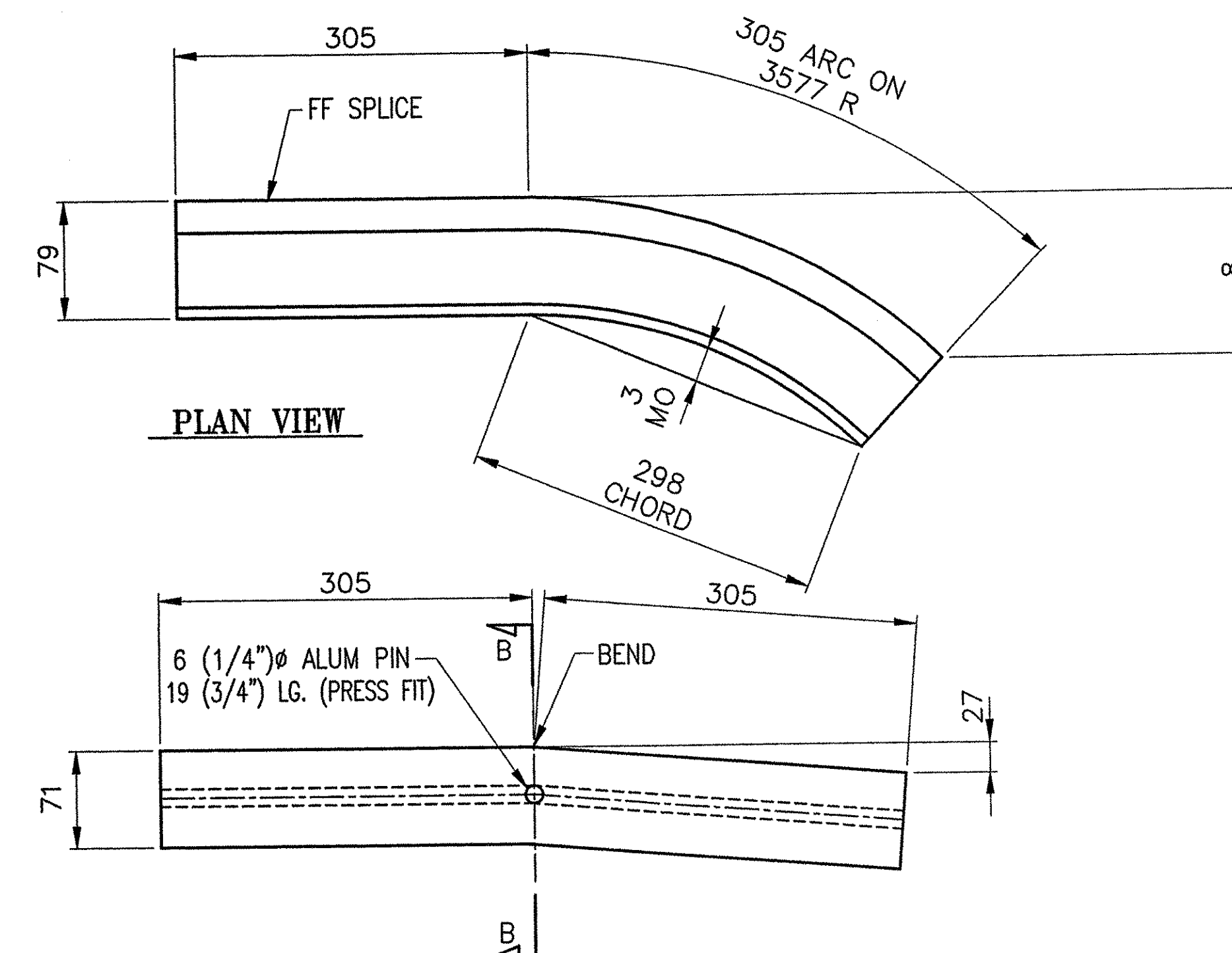
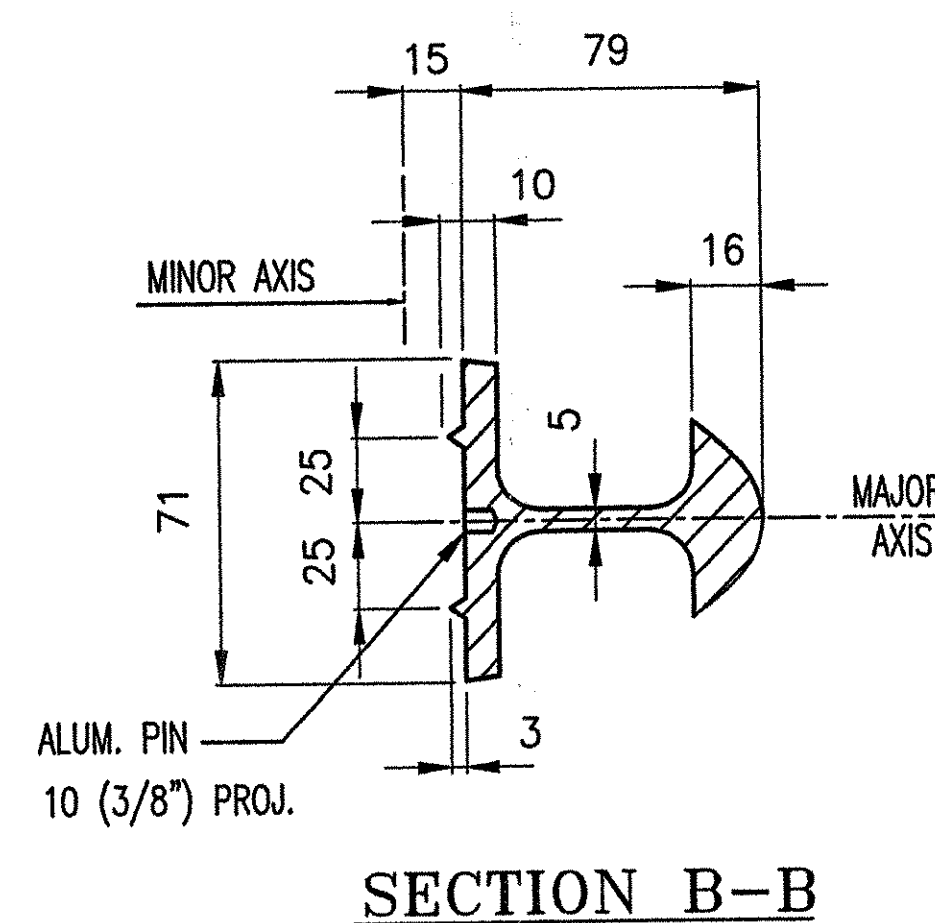
L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

FOR: A. D. ROSSI CORPORATION
VERMONT AGENCY OF TRANSPORTATION
TOWN OF HARTLAND, COUNTY OF WINDSOR
BRIDGE #60 - US RTE 5 OVER LULLS BROOK
3L ALUMINUM APPROACH RAIL - RAIL DETAILS

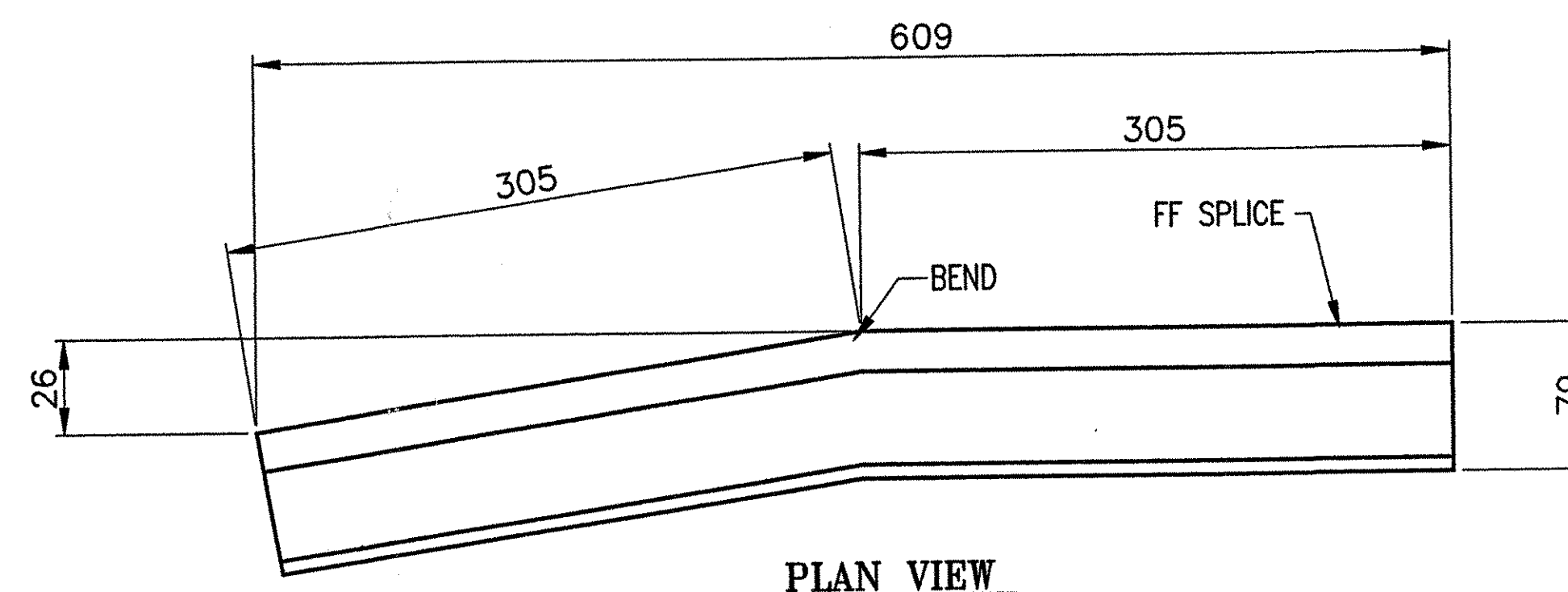
MADE CMS DATE 06/02/05 JOB No. AR0200 CUST. No. _____
CHECK Dd DATE 11/8/05 DRAWING LB12 REV. No. _____



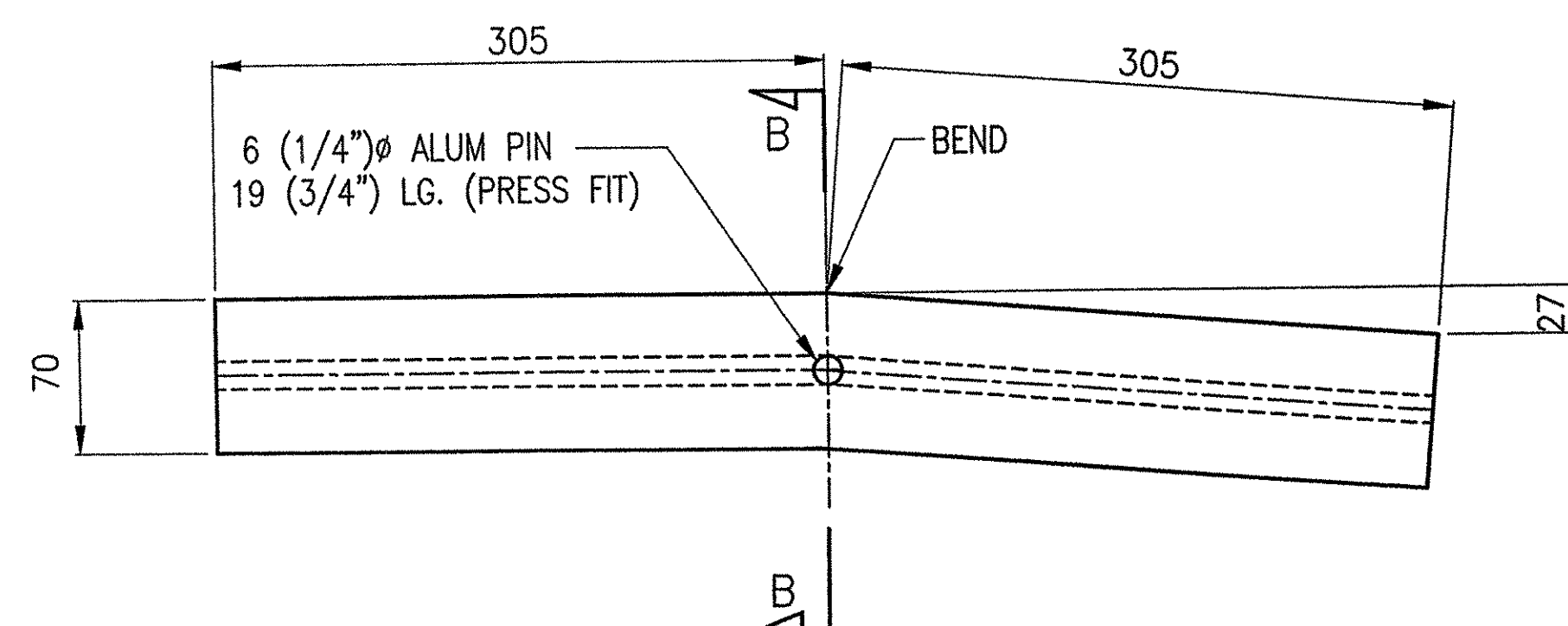
ONE REQ'D ~ HANDRAIL SPLICES 'SS-12-A2' (NE)
w/ ALUM. PIN x 19 (BACK ELEVATION VIEW)
#19497 EXTR., #14940 PIN



ONE REQ'D ~ HANDRAIL SPLICES 'SS-12-A1' (NW)
w/ ALUM. PIN x 19 (BACK ELEVATION VIEW)
#19497 EXTR., #14940 PIN



ONE REQ'D ~ HANDRAIL SPLICE 'SS-12-A3R' (SW)
w/ ALUM. PIN x 19 (BACK ELEVATION VIEW)
#19497 EXTR., #14940 PIN



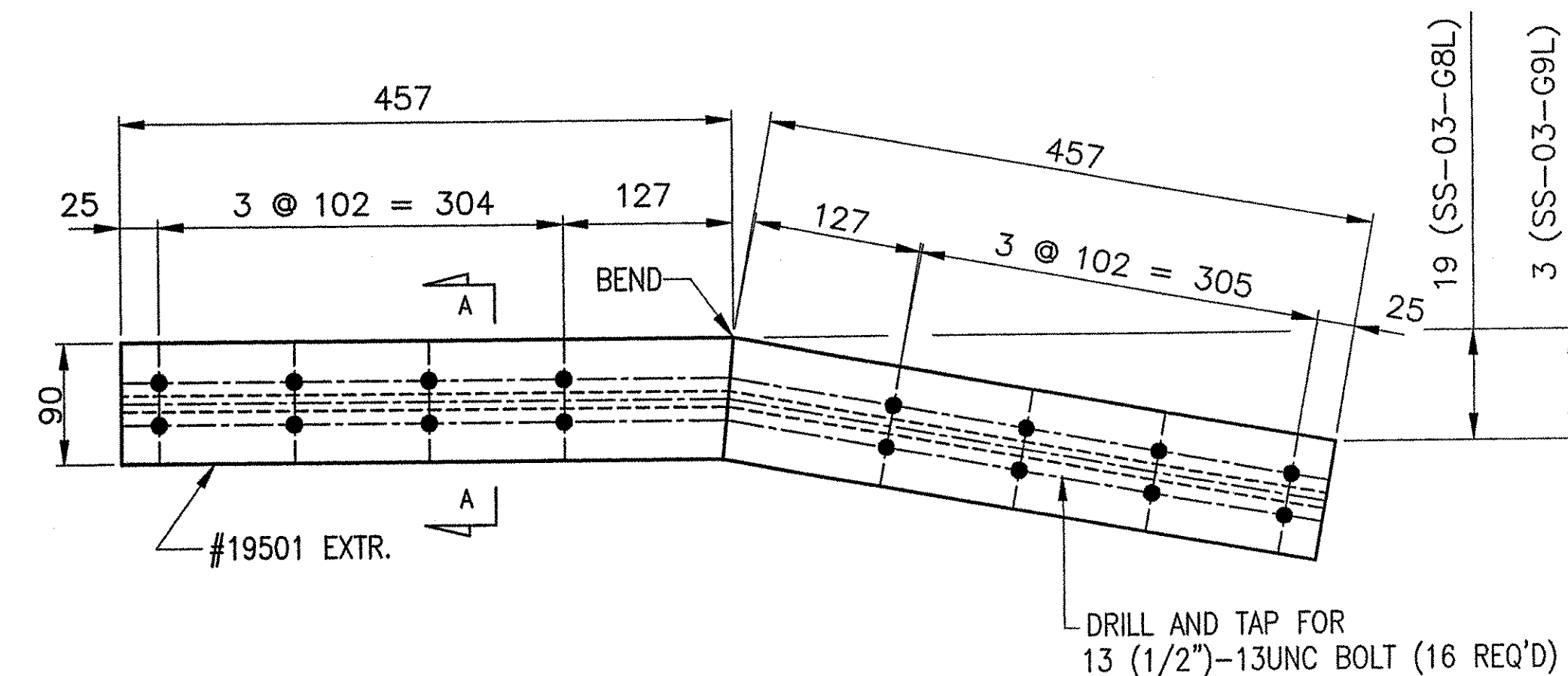
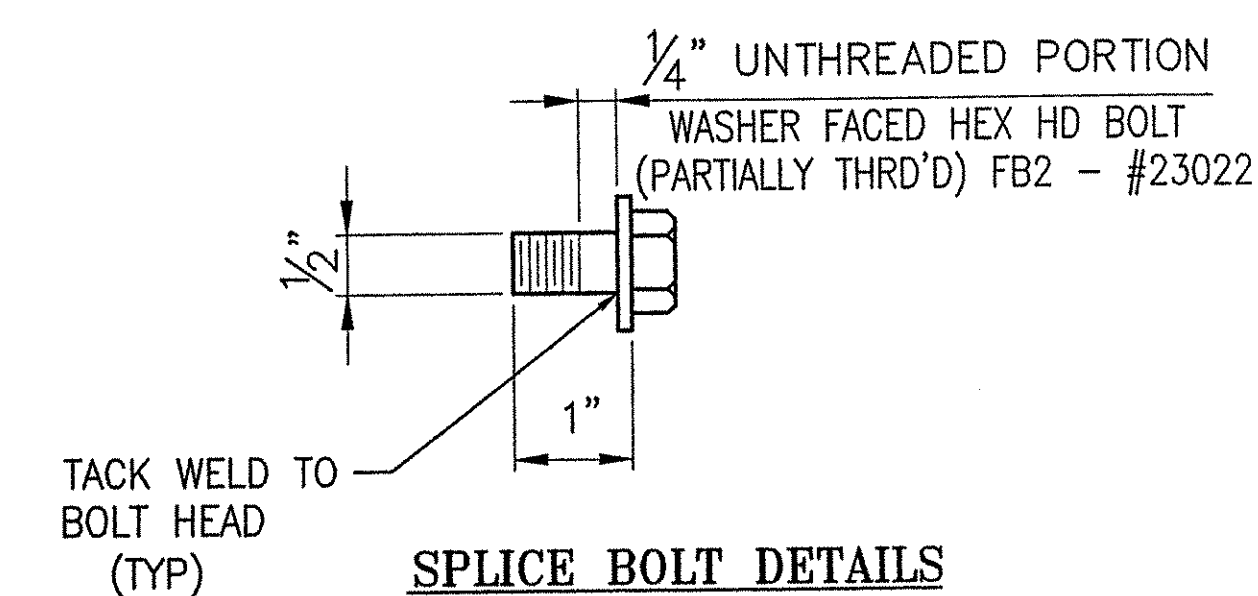
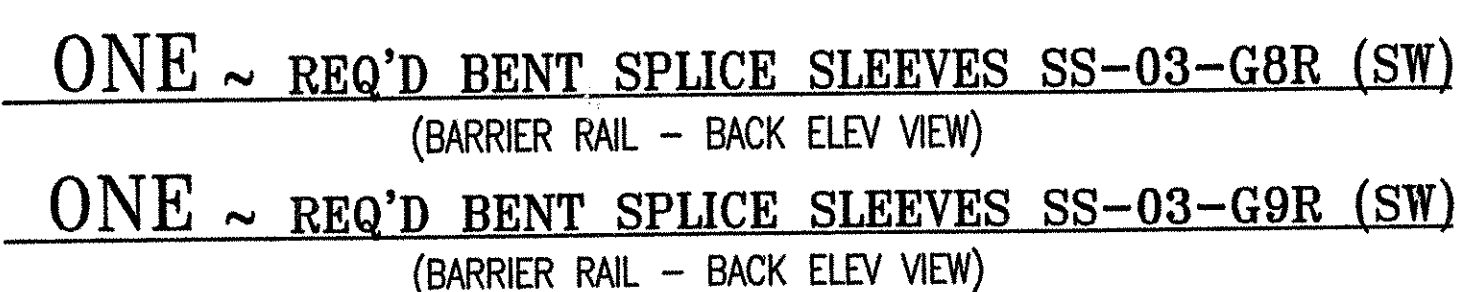
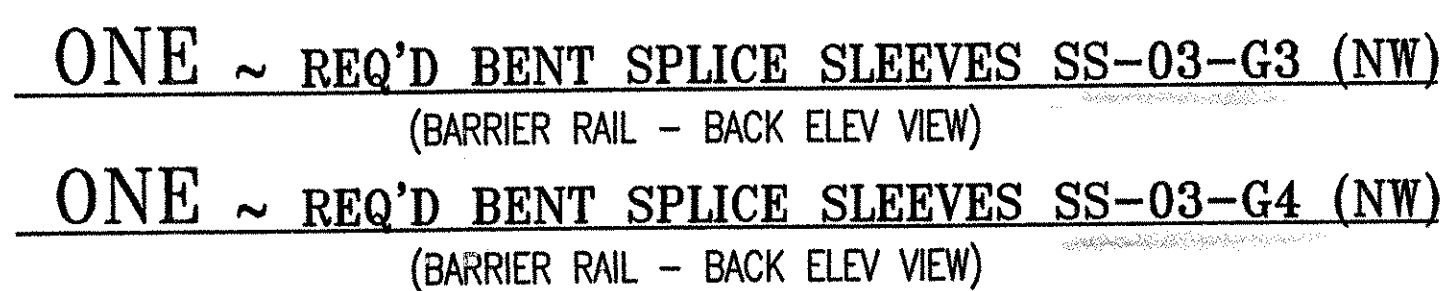
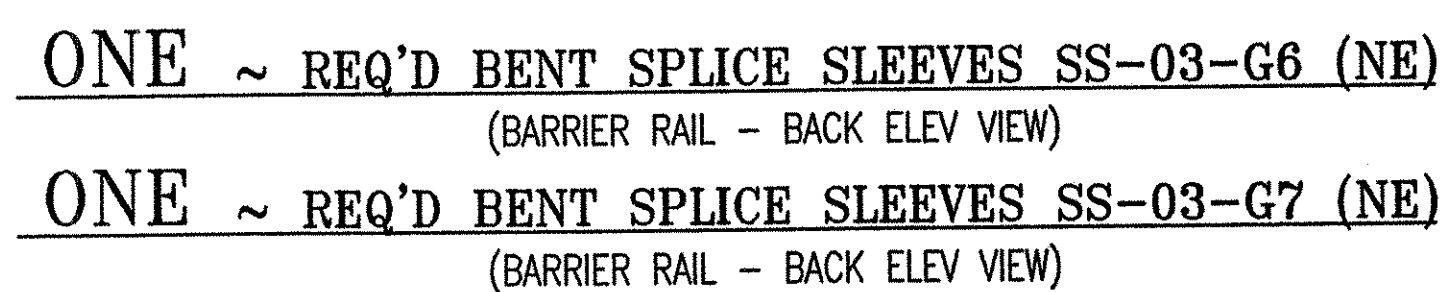
ONE REQ'D ~ HANDRAIL SPLICE 'SS-12-A3L' (SE)
w/ ALUM. PIN x 19 (BACK ELEVATION VIEW)
#19497 EXTR., #14940 PIN

ANODIZED
(SEE LB1 FOR SPECIFICATIONS)

RECEIVED
OK'D BY: _____ OK'D BY: _____
FEB 23 2006
RESUBMIT: _____ APPROVED: _____
BY: WJ DATE: 2/23/06

REV.	DESCRIPTION	BY	DATE

PROJ. No. BRS 0113 (22)		ITEM No: 621.74	
APPROVED: _____		REC'D APPROVAL _____	
DRAWING _____		DRAWING _____	
L.B. FOSTER COMPANY 1016 GREENTREE ROAD PITTSBURGH, PENNSYLVANIA 15220			
FOR: A. D. ROSSI CORPORATION VERMONT AGENCY OF TRANSPORTATION TOWN OF HARTLAND, COUNTY OF WINDSOR BRIDGE #60 - US RTE 5 OVER LULLS BROOK 3L ALUMINUM APPROACH ~ SPLICE DETAILS			
MADE	CMS	DATE 06/02/05	JOB No. AR0200
CHECK	Dd	DATE 11/8/05	DRAWING LB13
CUST. No.		REV. No.	



ONE ~ REQ'D BENT SPLICE SLEEVES SS-03-G8L (SE)
(BARRIER RAIL - BACK ELEV VIEW)

ONE ~ REQ'D BENT SPLICE SLEEVES SS-03-G9L (SE)
(BARRIER RAIL - BACK ELEV VIEW)

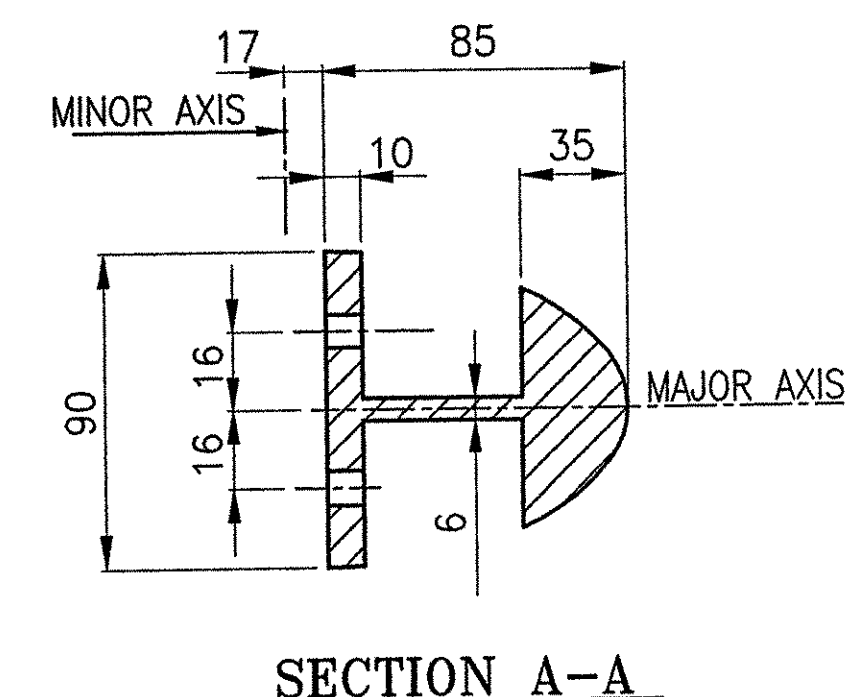
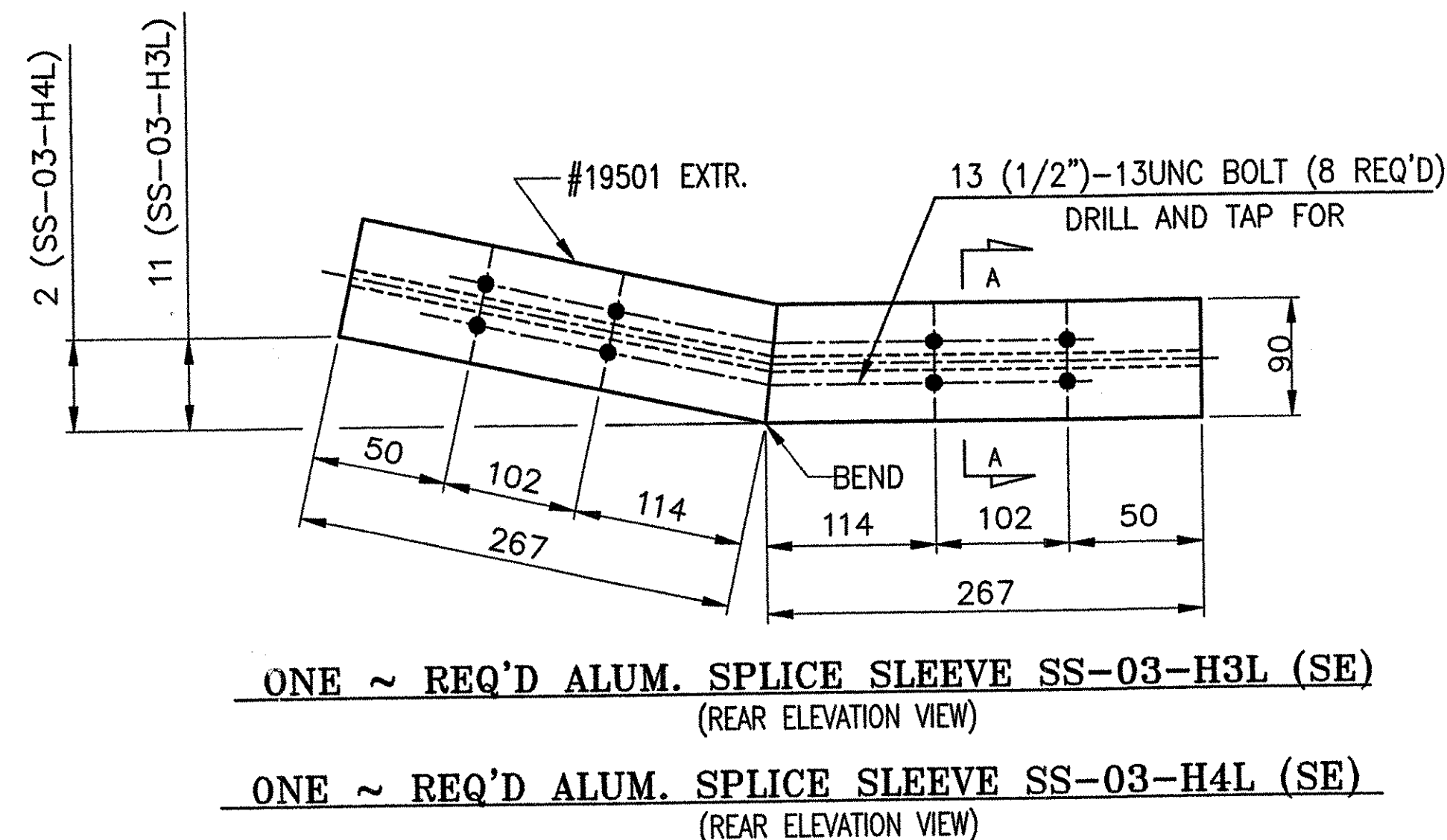
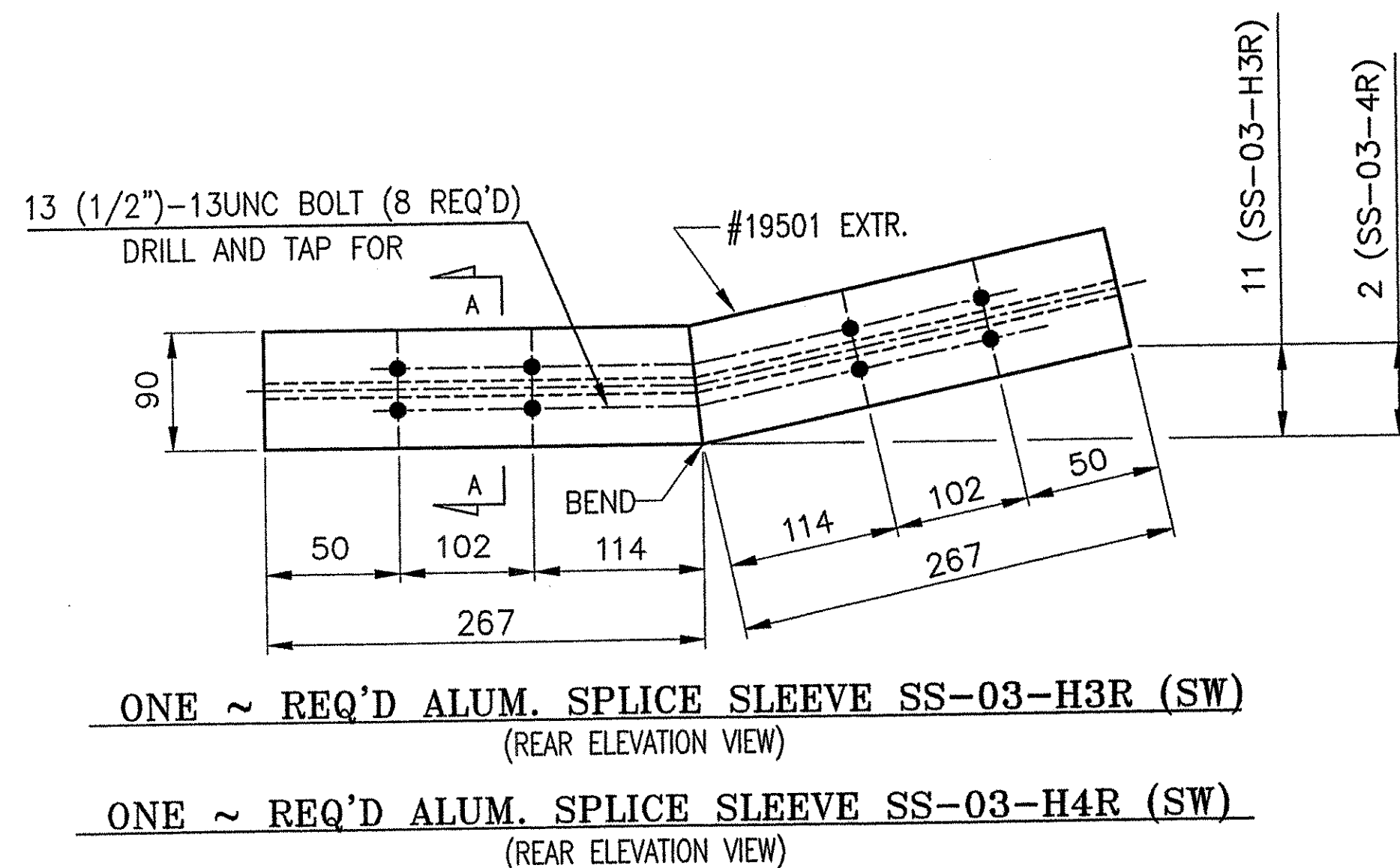
SS SS-03-G8L (SE) RECEIVED
C'D BY C'D BY
FEB 23 2006
SS SS-03-G9L (SE) RESUBMIT APPROVED
BY DATE ITEM No: 621.74
PROJ. No. BRS 0113 (22)

APPROVED: _____		REC'D APPROVAL _____	
		DRAWING _____	
L.B. FOSTER COMPANY 1016 GREENTREE ROAD PITTSBURGH, PENNSYLVANIA 15220			
FOR: A. D. ROSSI CORPORATION			
VERMONT AGENCY OF TRANSPORTATION			
TOWN OF HARTLAND, COUNTY OF WINDSOR			
BRIDGE #60 - US RTE 5 OVER LULLS BROOK			
3L ALUMINUM APPROACH ~ SPLICE DETAILS			
MADE	CMS	DATE	06/06/05
JOB NO.	AR0200		CUST. No.
CHECK	Dd	DATE	11/8/05
DRAWING	LB14		REV. No.

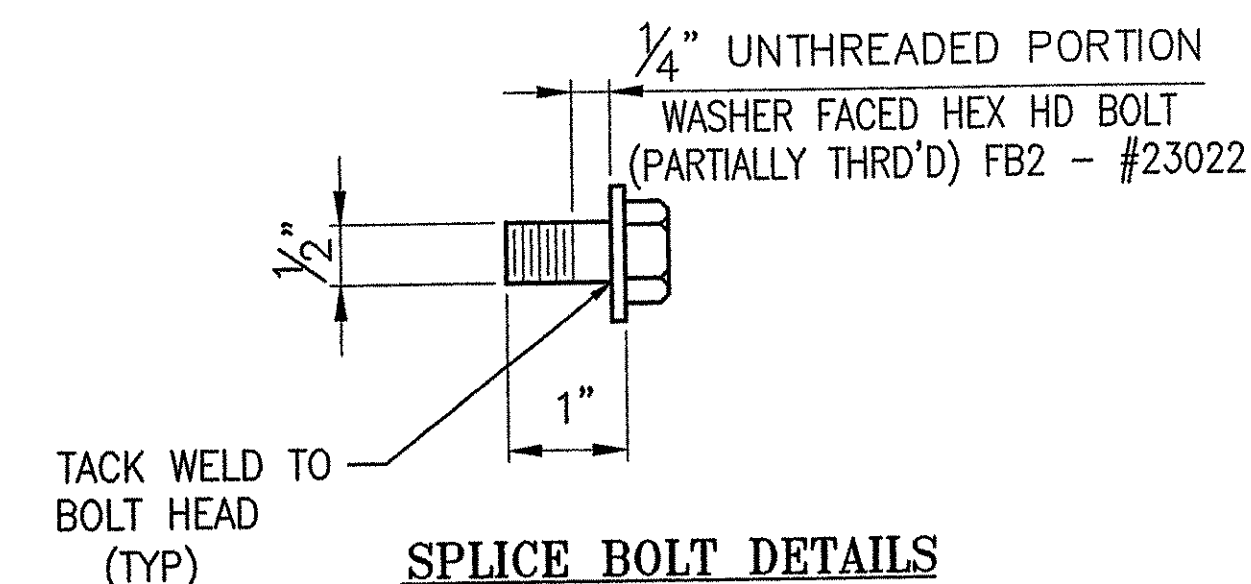
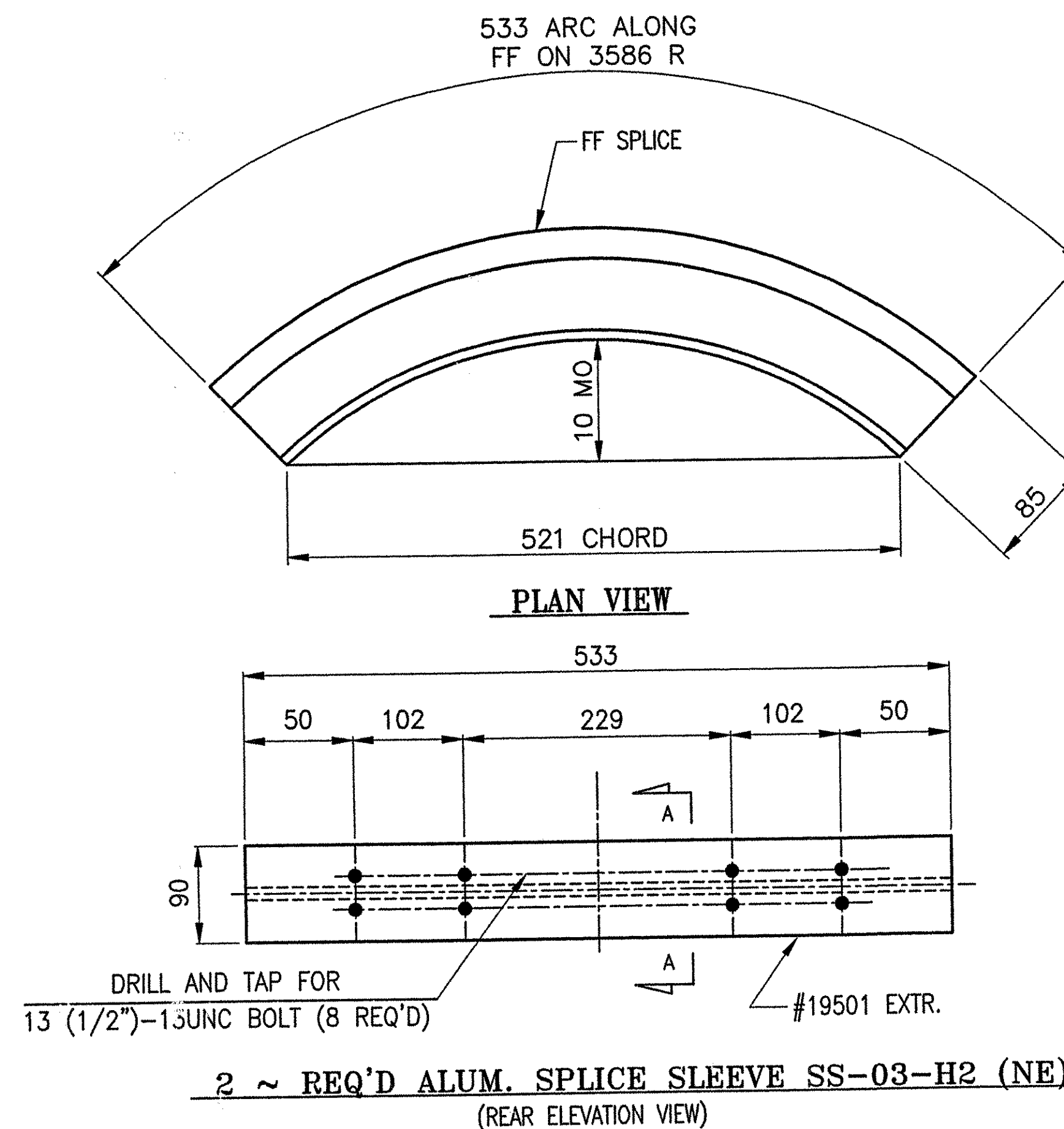
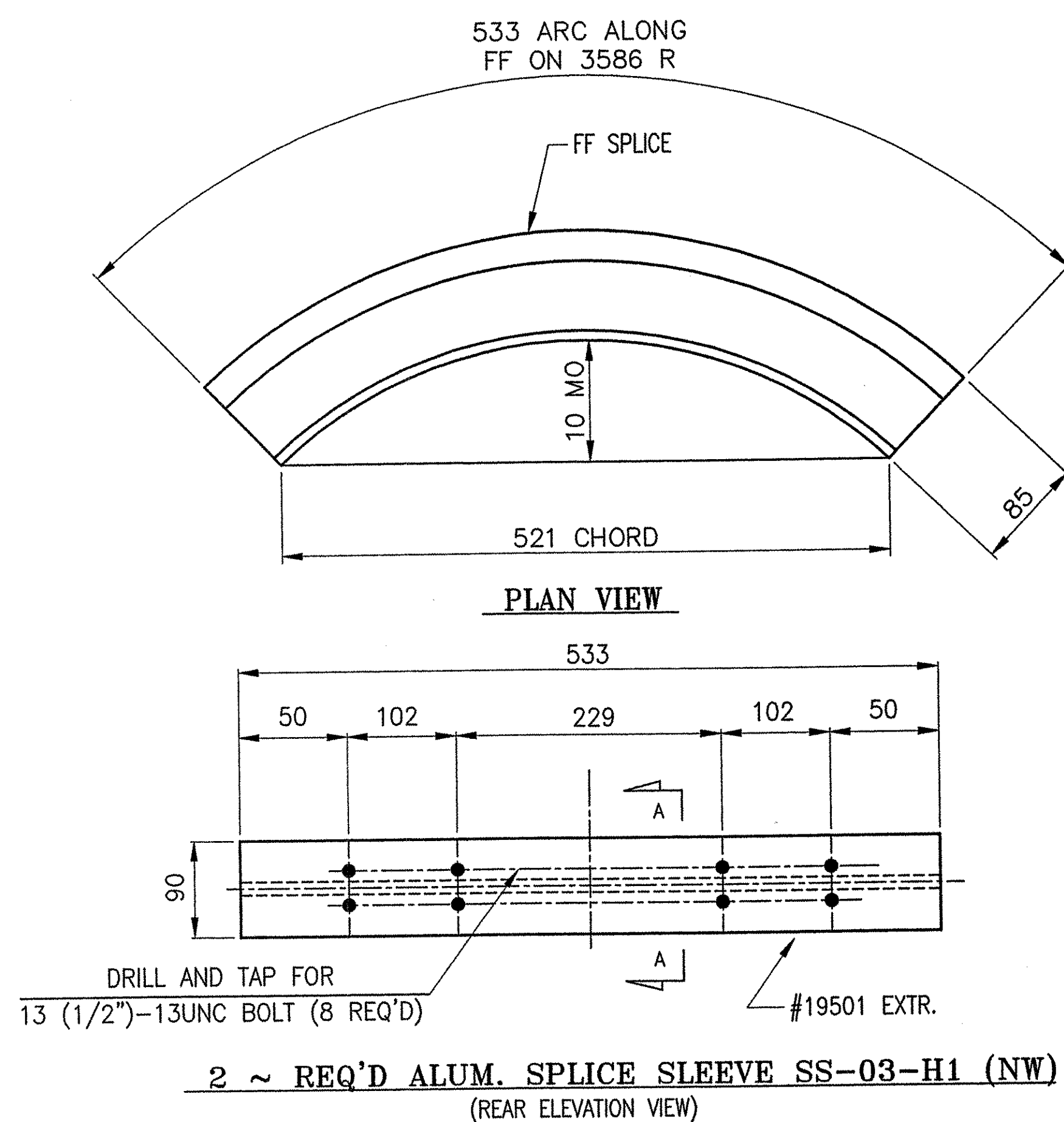
ANODIZED
(SEE LB1 FOR SPECIFICATIONS)

				TOWN OF HARTLAND, COUNTY OF WINDSOR			
				BRIDGE #60 - US RTE 5 OVER LULLS BROOK			
				3L ALUMINUM APPROACH ~ SPLICE DETAILS			
				MADE <u>CMS</u> DATE <u>06/06/05</u>		JOB NO. <u>AR0200</u>	
				CHECK <u>Dd</u> DATE <u>11/8/05</u>		CUST. No.	
REV.		DESCRIPTION		BY		DATE	
						DRAWING <u>LB14</u>	
						REV. No.	

1626R



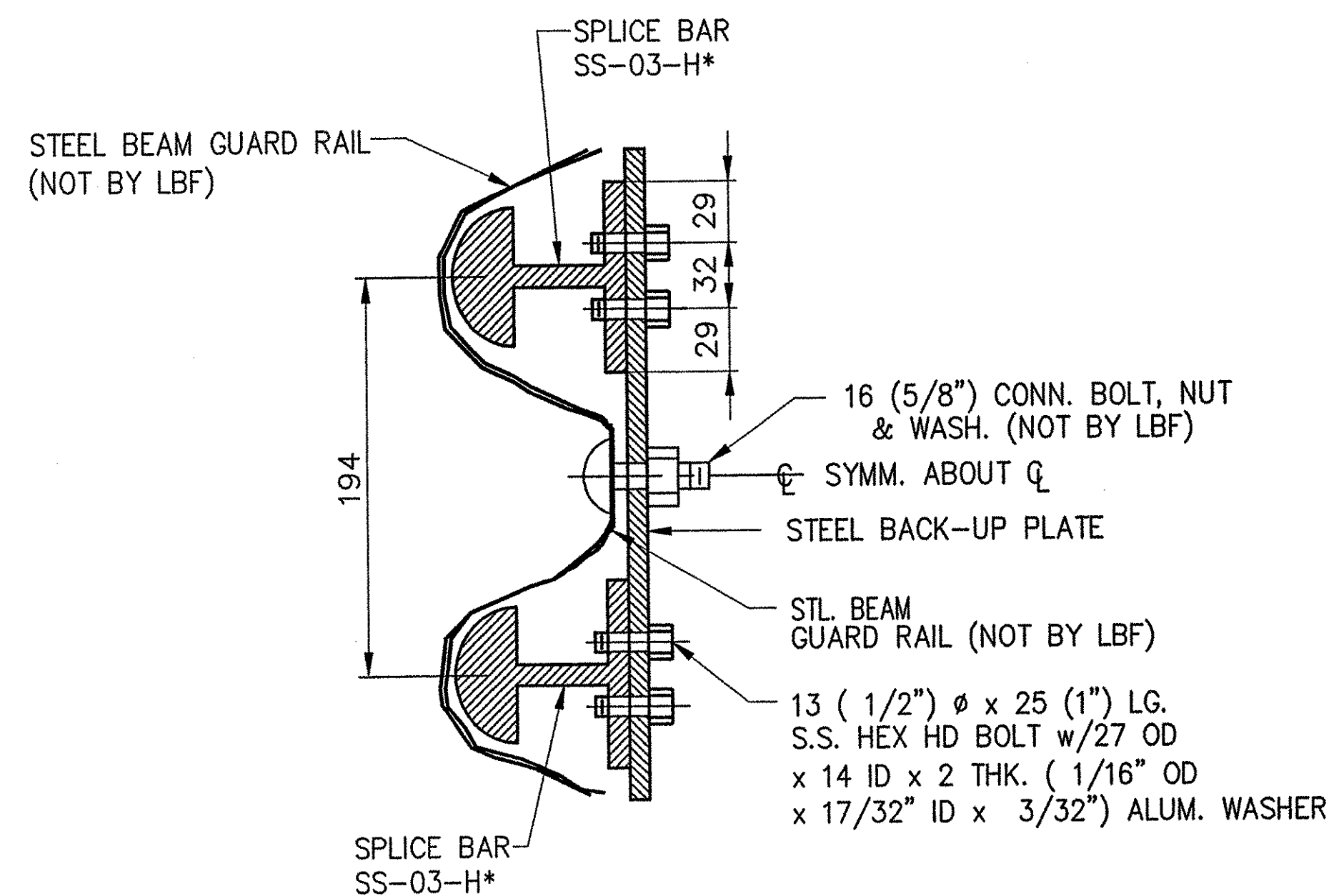
ANODIZED
(SEE LB1 FOR SPECIFICATIONS)



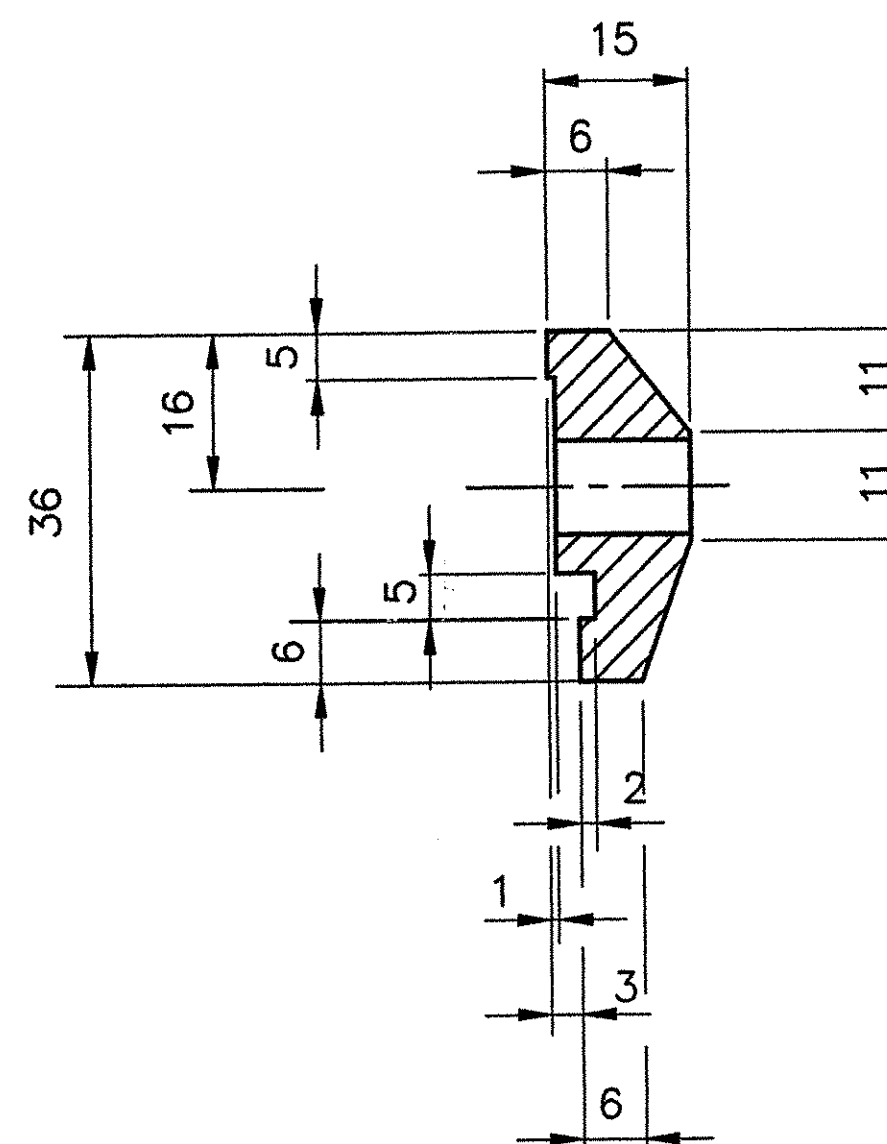
RECEIVED
OK'D BY _____ OK'D BY _____
FEB 23 2006
RESUBMIT _____ APPROVED _____
BY *WJ* DATE *2/23/06*

PROJ. No. BRS 0113 (22)	ITEM No: 621.74
APPROVED: _____	REC'D APPROVAL _____
DRAWING _____	
L.B. FOSTER COMPANY 1016 GREENTREE ROAD PITTSBURGH, PENNSYLVANIA 15220	
FOR: A. D. ROSSI CORPORATION VERMONT AGENCY OF TRANSPORTATION TOWN OF HARTLAND, COUNTY OF WINDSOR BRIDGE #60 - US RTE 5 OVER LULLS BROOK 3L ALUMINUM APPROACH ~ SPLICE DETAILS	
MADE CMS DATE 06/02/05 JOB No. ARO200 CUST. No.	CHECK Dd DATE 11/8/05 DRAWING LB15 REV. No.

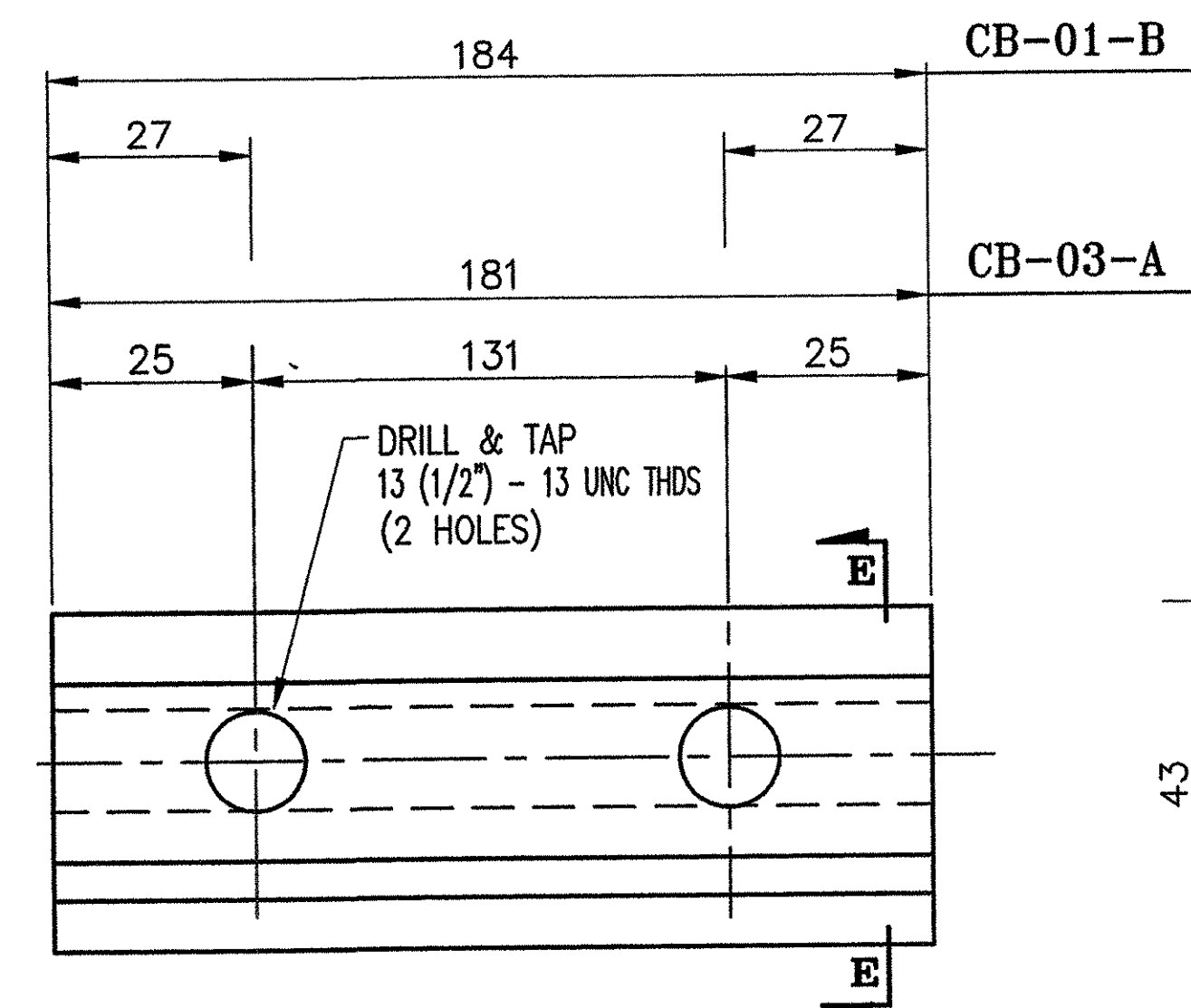
REV.	DESCRIPTION	BY	DATE



SECTION A-A
(SEE LB5, LB6 or LB7)

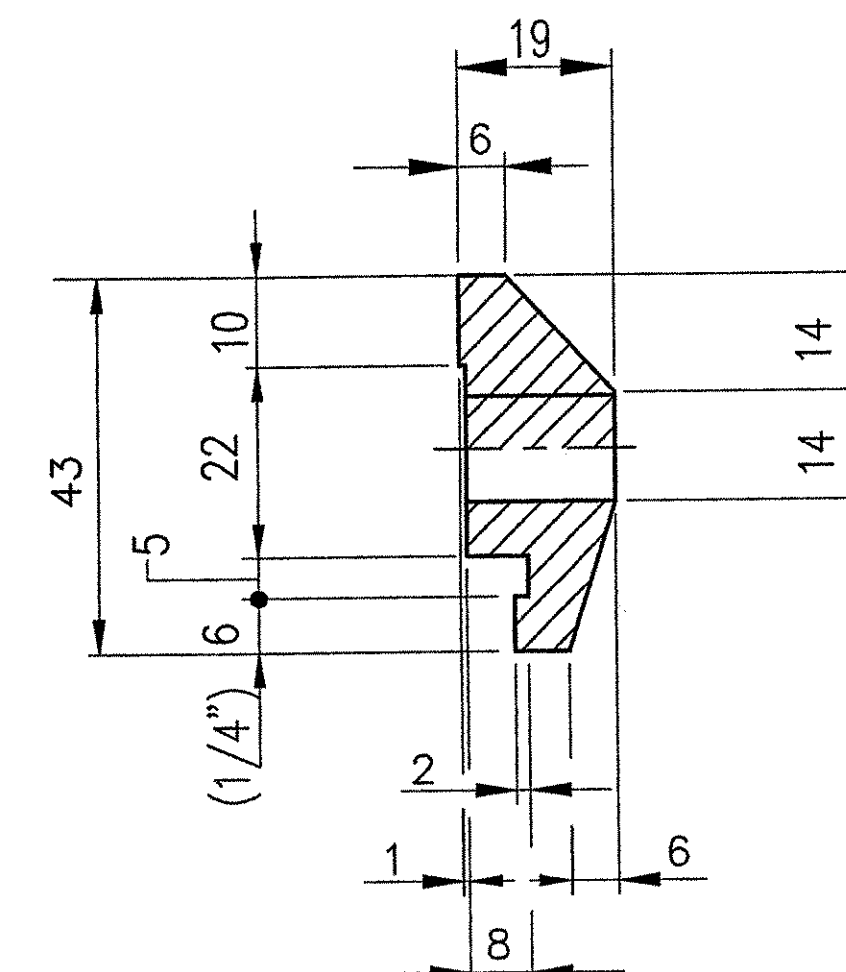


SECT. E-E
CB-01-B (HANDRAIL)
#28596

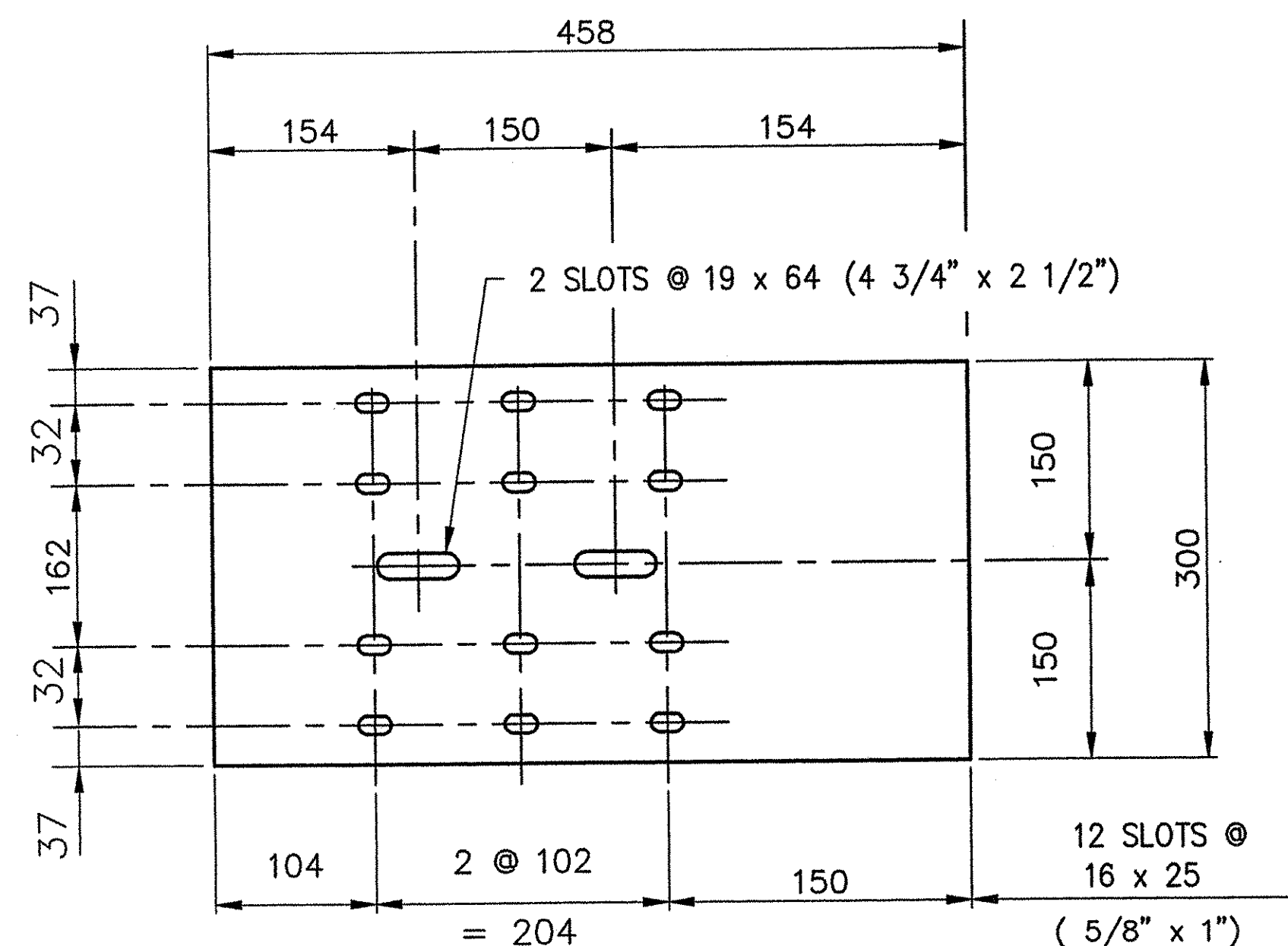


128 ~ REQ'D CLAMP BARS CB-03-A
(BARRIER #19447)

32 ~ REQ'D CLAMP BARS CB-01-B
(HANDRAIL #28596)



SECT. E-E
CB-03-A (BARRIER)
#19447



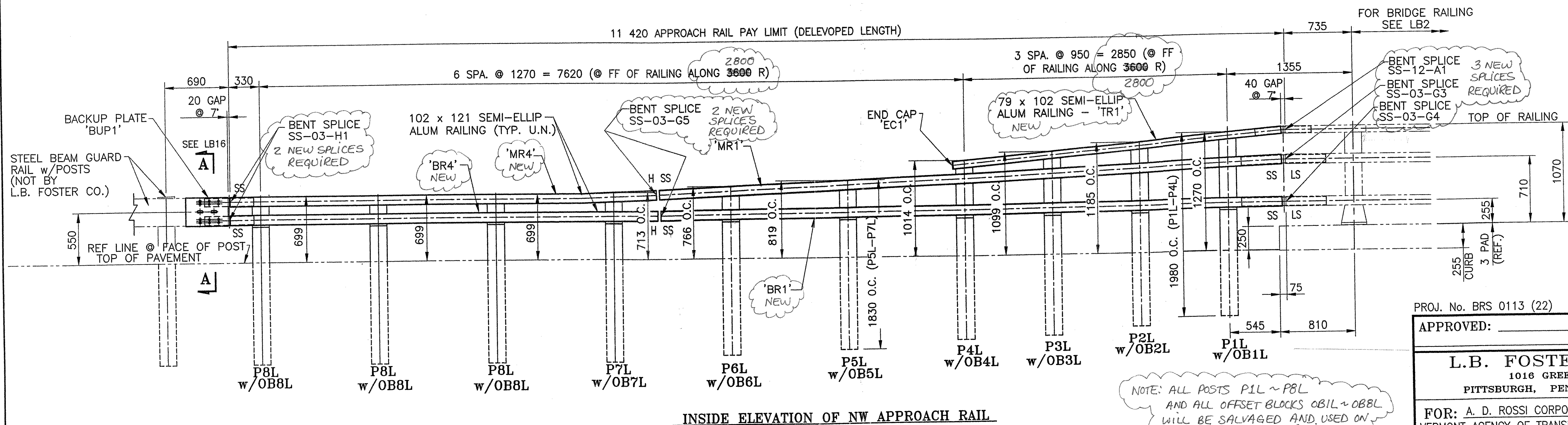
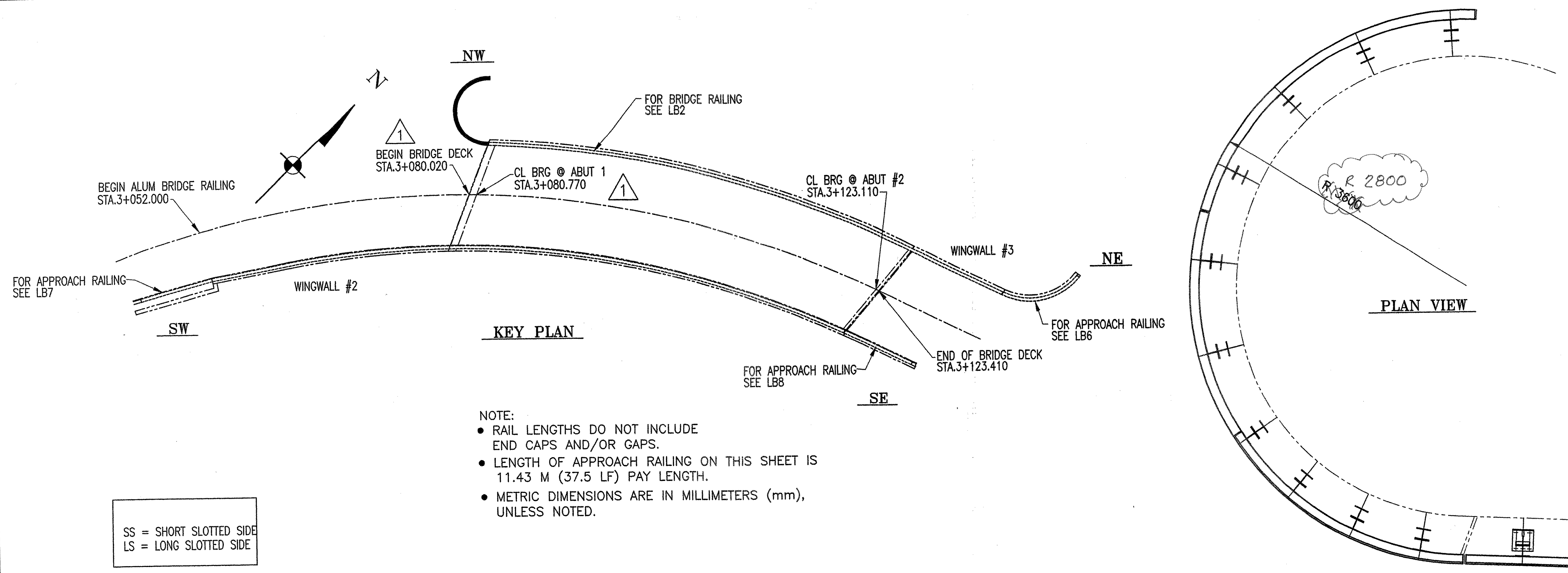
4 REQ'D. ~ BACK-UP PLATE BUP1
(6 THK. PLATE ~ A36 - GALV.)
#14560

ANODIZED
(SEE LB1 FOR SPECIFICATIONS)

RECEIVED
FEB 23 2006
BY *WJ* DATE *2/22/06*

PROJ. No. BRS 0113 (22)	ITEM No: 621.74
APPROVED: _____	REC'D APPROVAL _____
DRAWING _____	
L.B. FOSTER COMPANY 1016 GREENTREE ROAD PITTSBURGH, PENNSYLVANIA 15220	
FOR: A. D. ROSSI CORPORATION VERMONT AGENCY OF TRANSPORTATION TOWN OF HARTLAND, COUNTY OF WINDSOR BRIDGE #60 - US RTE 5 OVER LULLS BROOK 3L ALUMINUM APPROACH RAIL ~ MISC DETAILS	
MADE CMS DATE 06/06/05 JOB No. ARO200 CUST. No.	CHECK Dd DATE 11/8/05 DRAWING LB16 (LAST) REV. No.

REV.	DESCRIPTION	BY	DATE



1	REVISED PER VDOT CHGS IN BRIDGE LENGTHS	CMS	01 31 06	MADE CMS DATE 05/25/05	JOB No. ARO200	CUST. No.
REV.	DESCRIPTION	BY	DATE	CHECK	DATE 11/7/05	DRAWING LB5

ANODIZED
(SEE LB1 FOR SPECIFICATIONS)

PROJ. No. BRS 0113 (22) ITEM No: 621.74

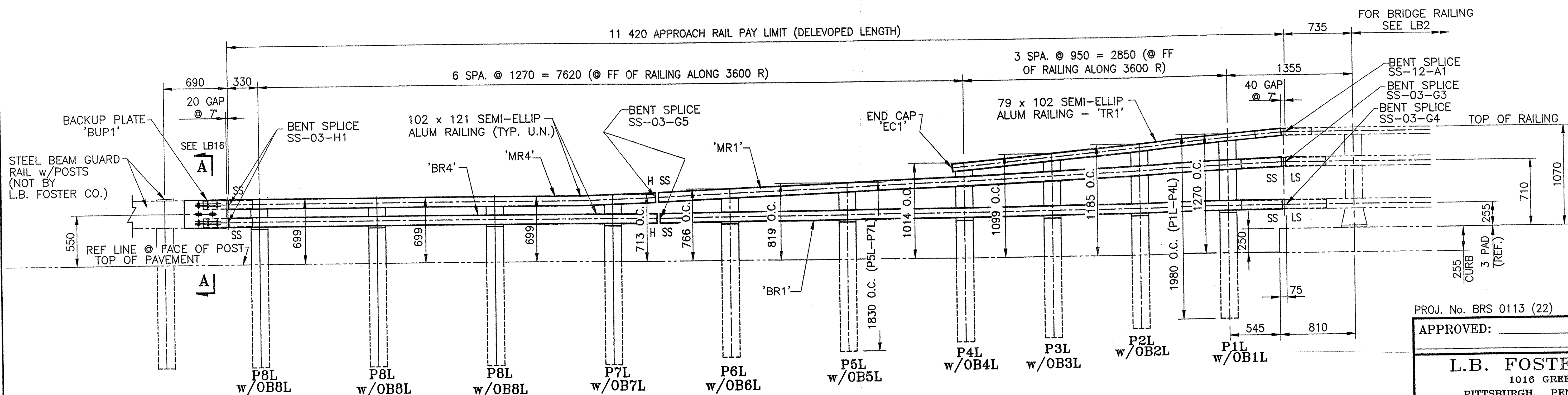
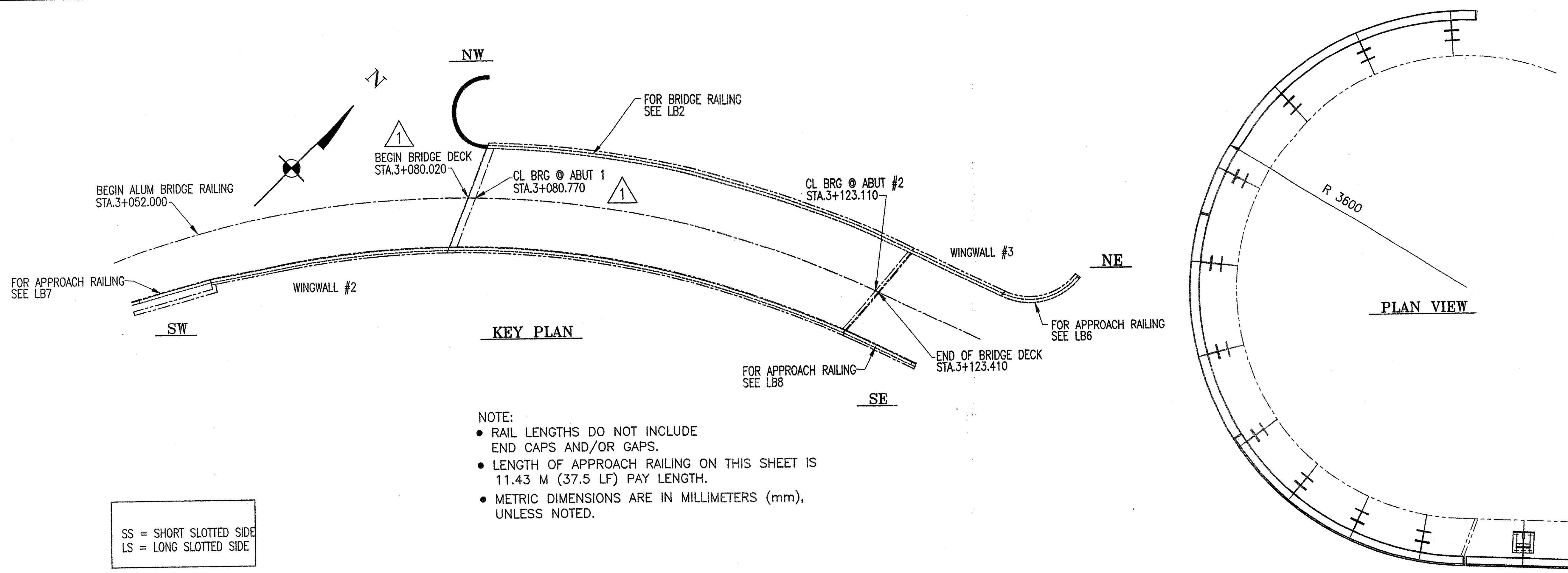
APPROVED: _____ REC'D APPROVAL _____
DRAWING _____

L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

FOR: A. D. ROSSI CORPORATION
VERMONT AGENCY OF TRANSPORTATION
TOWN OF HARTLAND, COUNTY OF WINDSOR
BRIDGE #60 - US RTE 5 OVER LULLS BROOK
3L ALUMINUM APPROACH RAIL ELEVATIONS

MADE CMS DATE 05/25/05 JOB No. ARO200 CUST. No.
CHECK DATE 11/7/05 DRAWING LB5 REV. No. ONE

1656R



INSIDE ELEVATION OF NW APPROACH RAIL

ANODIZED
(SEE LB1 FOR SPECIFICATIONS)

1	REVISED PER VTDOT CHGS IN BRIDGE LENGTHS	CMS	01/31/06
REV.	DESCRIPTION	BY	DATE

MADE	CMS	DATE	05/25/05	JOB No.	AR0200	CUST. No.	
CHECK	Dd	DATE	11/7/05	DRAWING	LB5	REV. No.	ONE

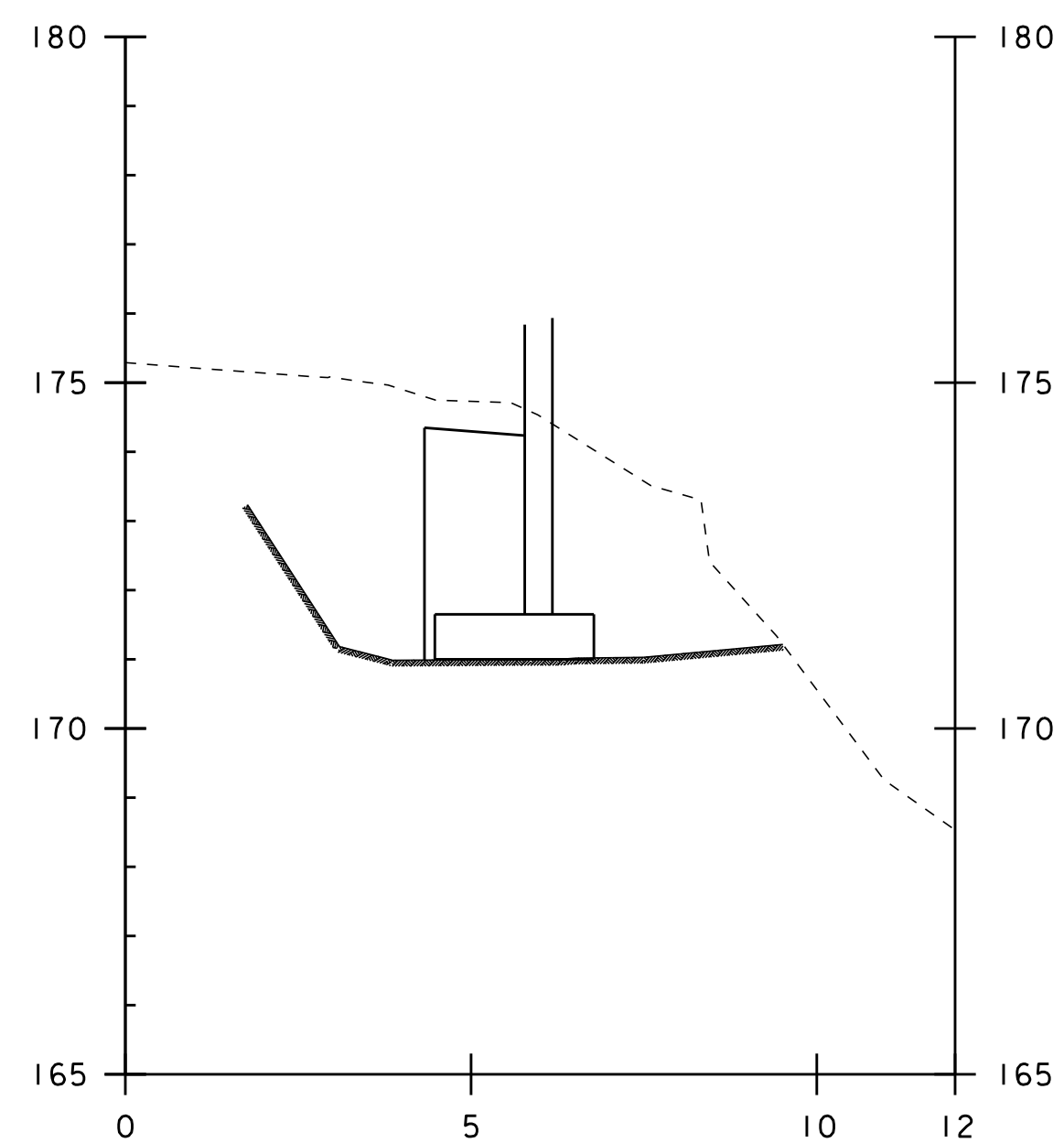
PROJ. No. BRS 0113 (22) ITEM No: 621.74

APPROVED: _____ REC'D APPROVAL _____

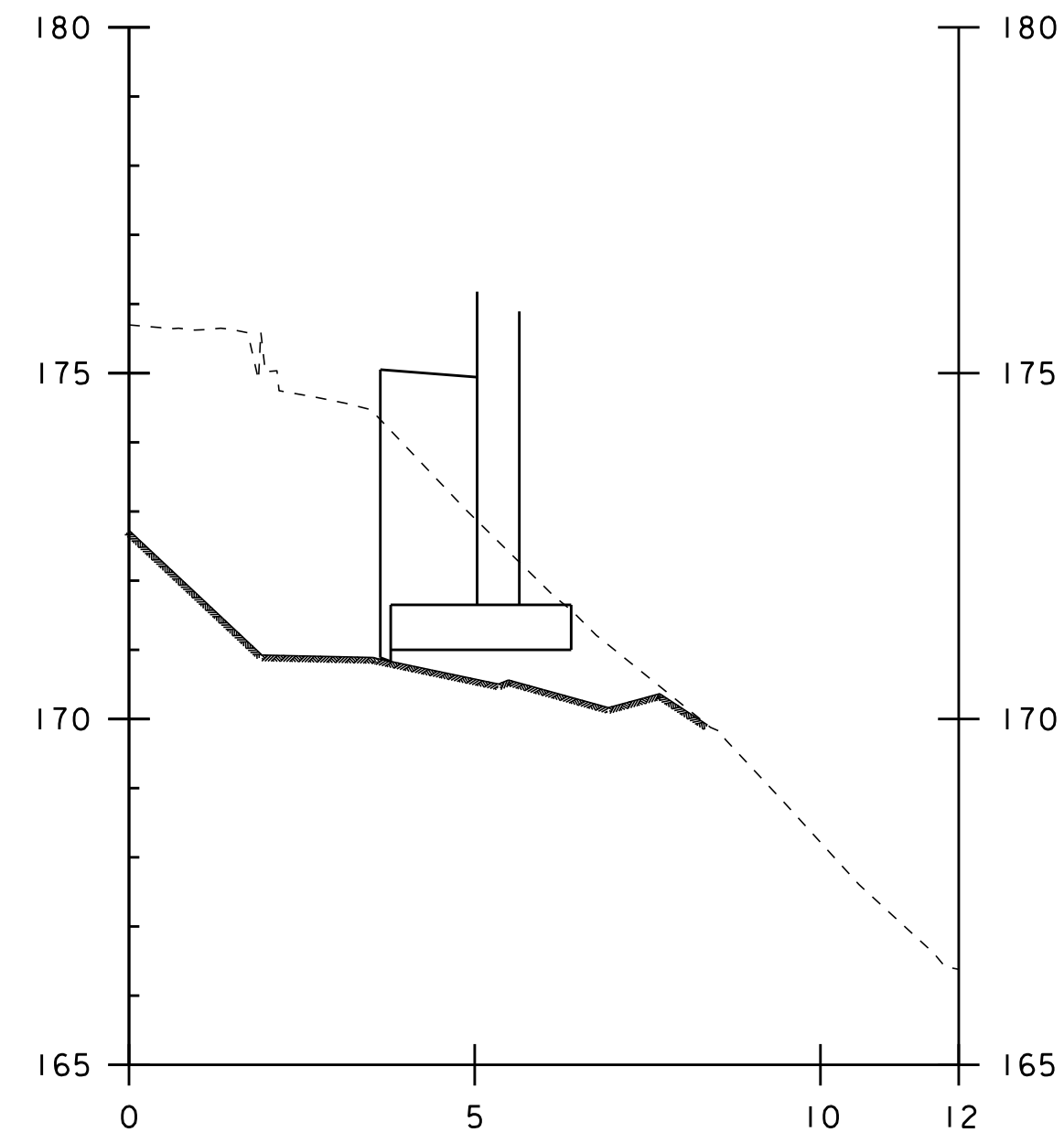
DRAWING _____

L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

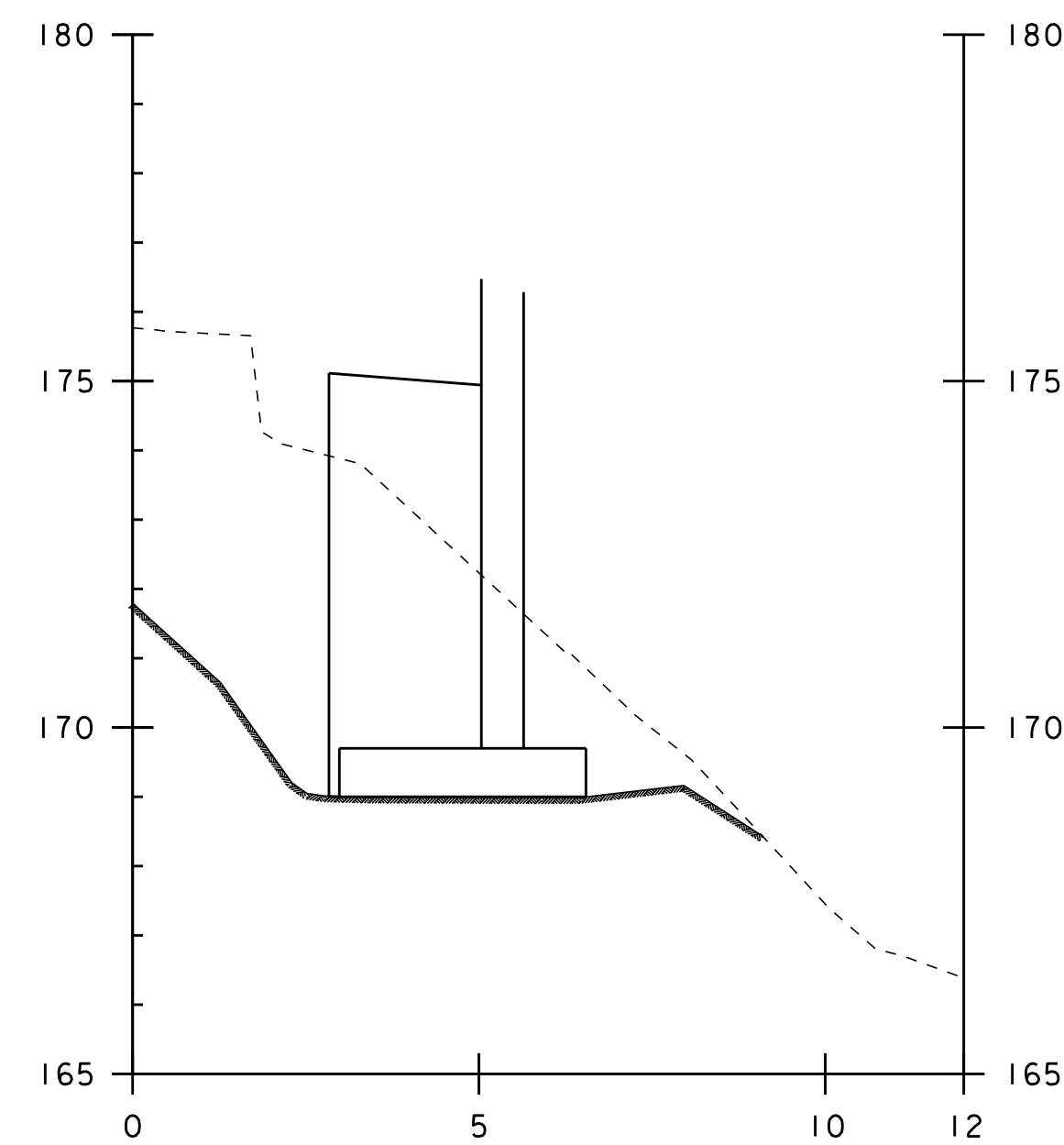
FOR: A. D. ROSSI CORPORATION
VERMONT AGENCY OF TRANSPORTATION
TOWN OF HARTLAND, COUNTY OF WINDSOR
BRIDGE #60 - US RTE 5 OVER LULLS BROOK
3L ALUMINUM APPROACH RAIL ELEVATIONS



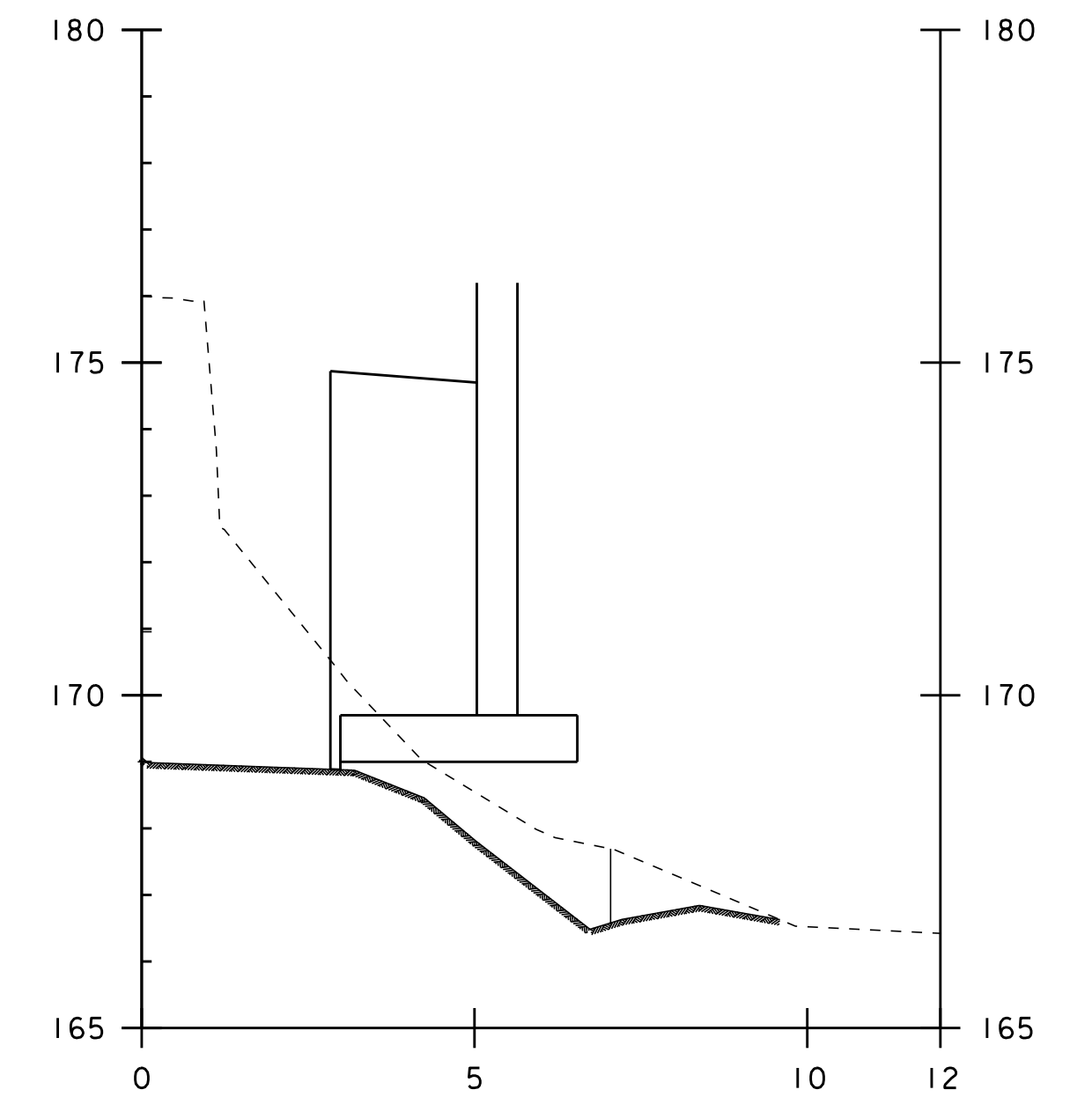
3+051.80



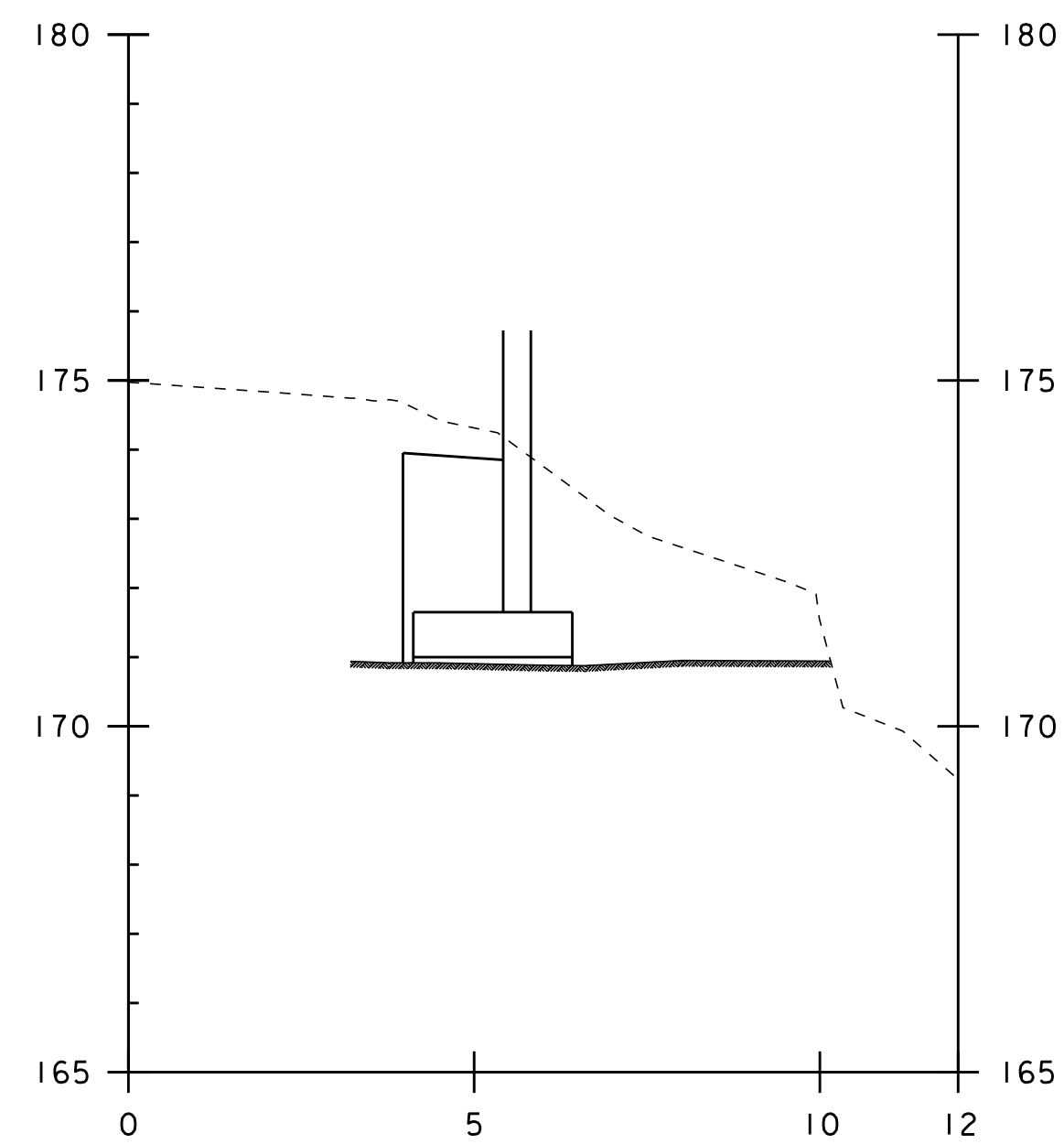
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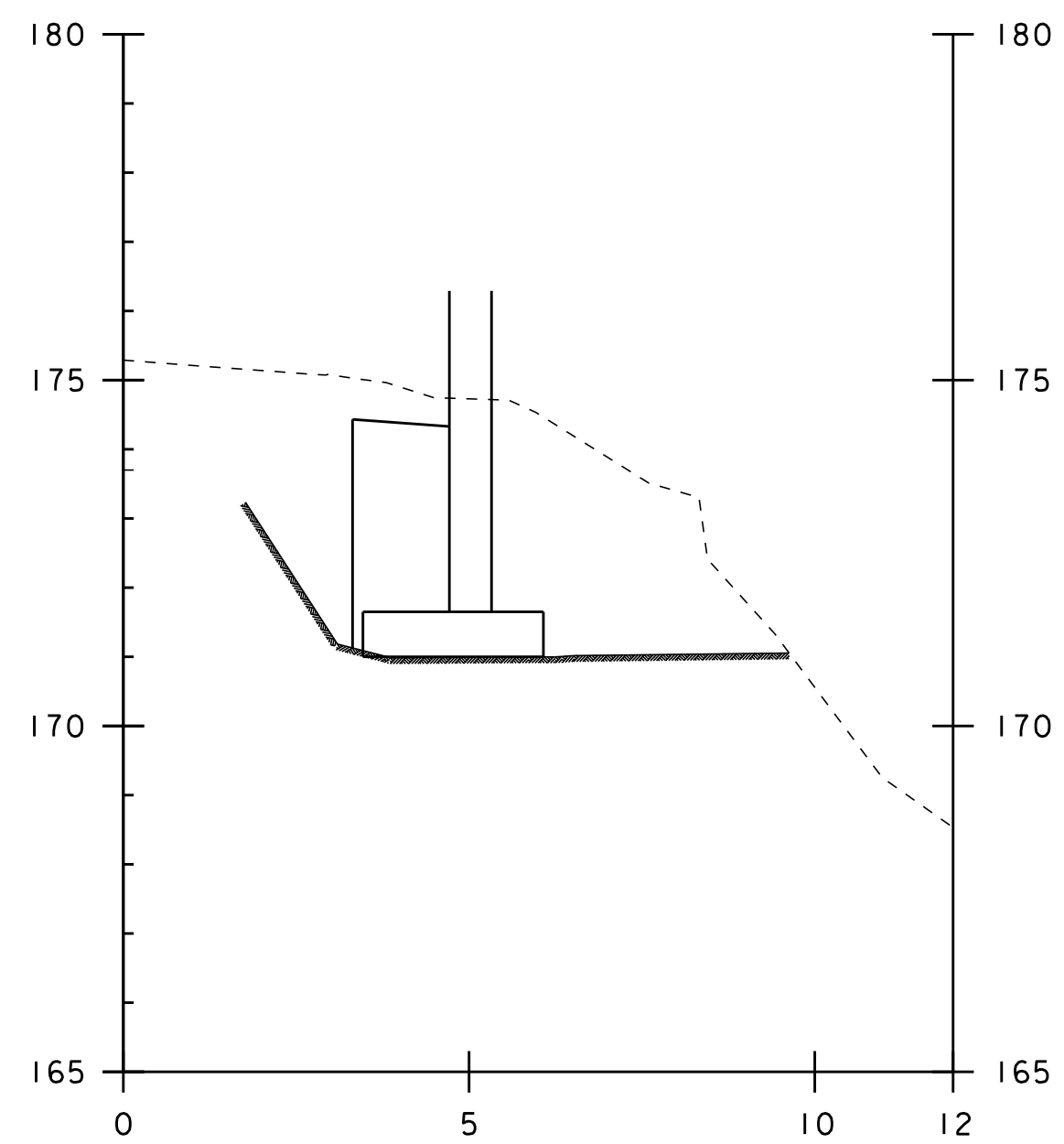
3+070.50



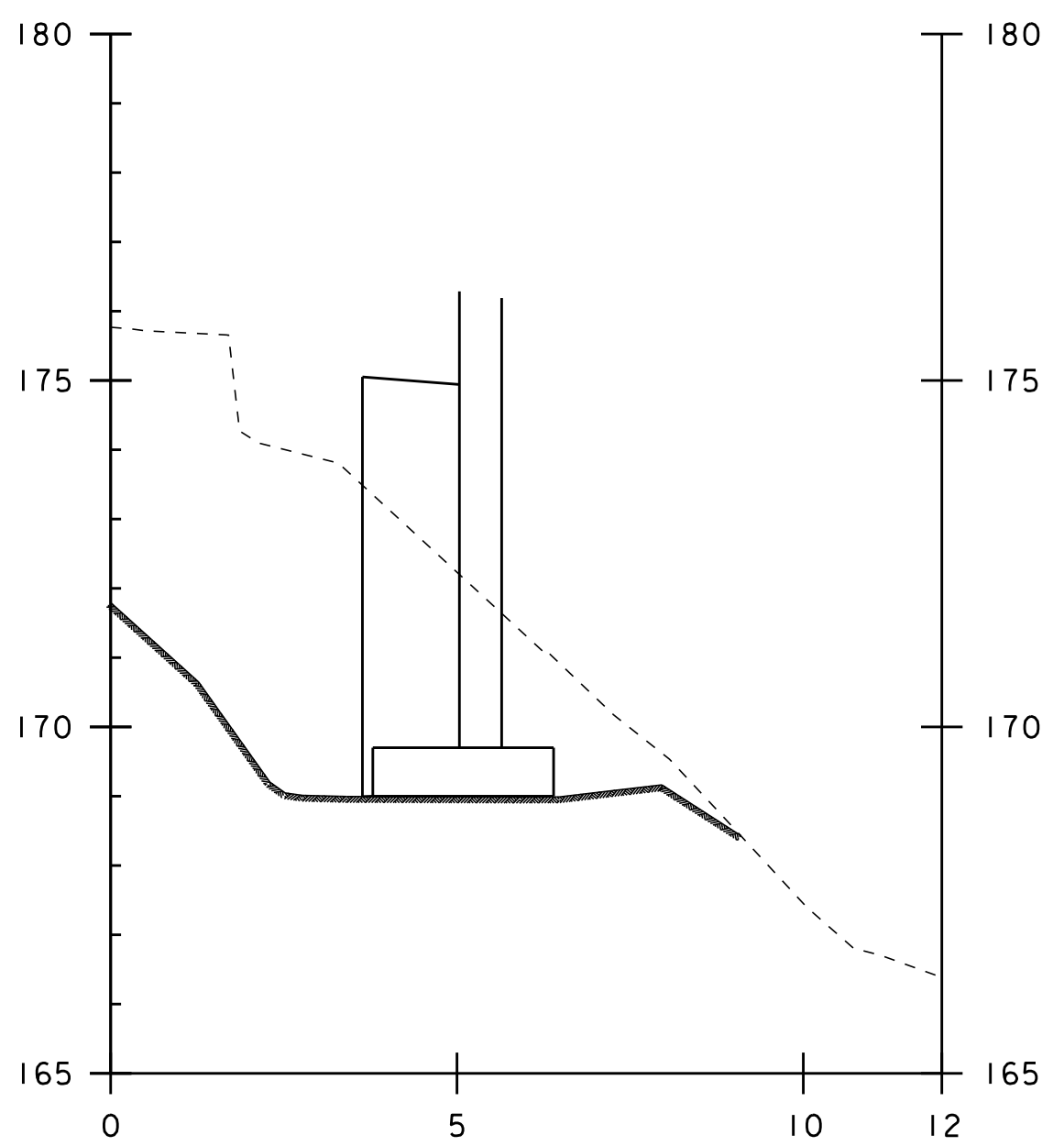
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3+042.50

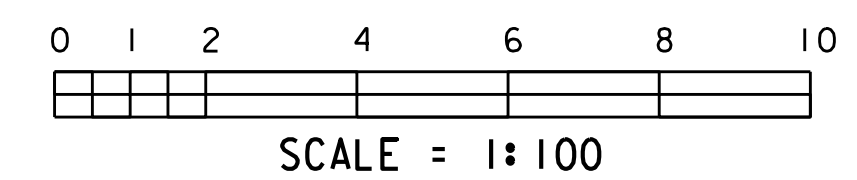


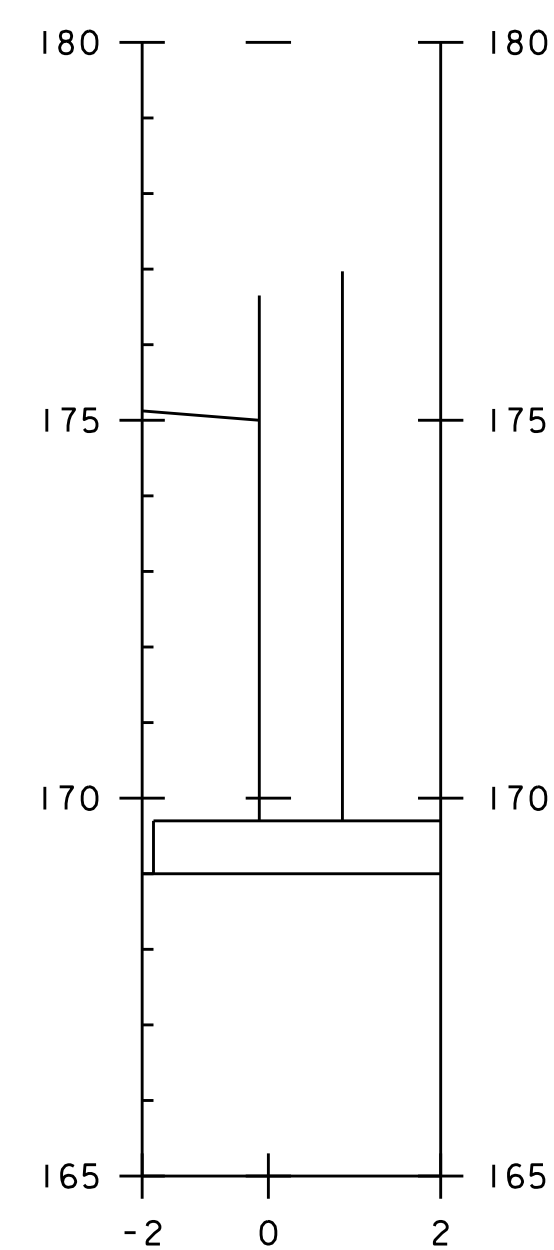
3+051.80



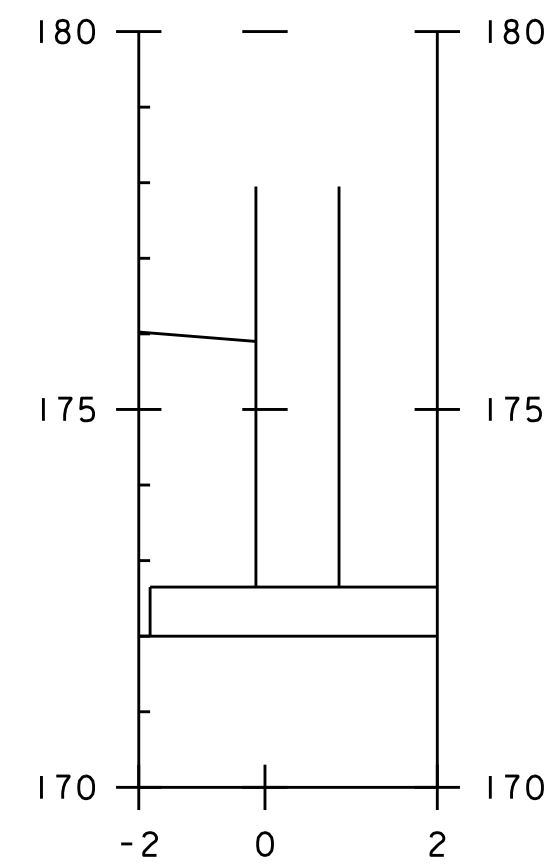
3+070.50

WINGWALL TWO
GRANULAR BACKFILL FOR STRUCTURES

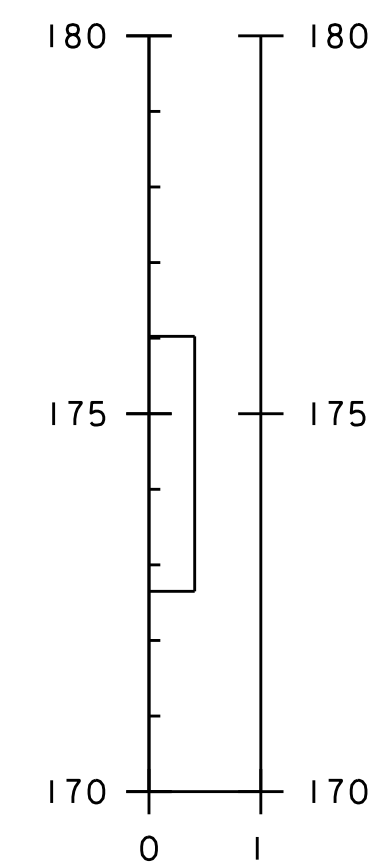




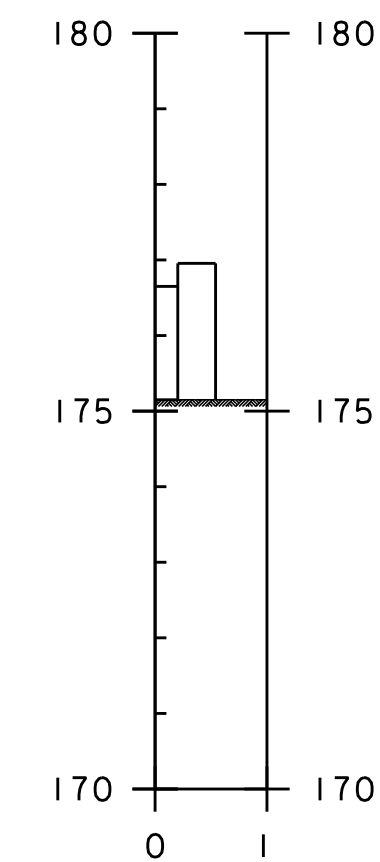
1+002.00



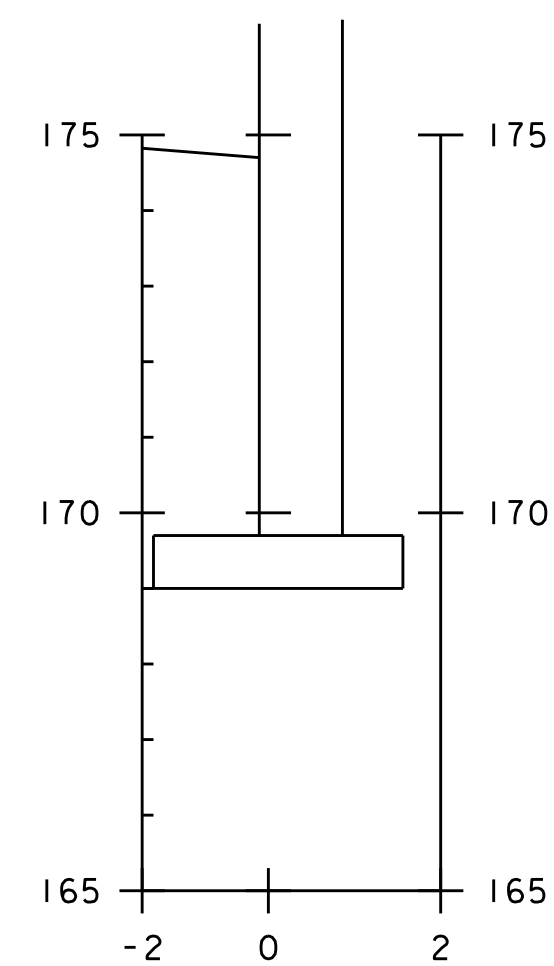
1+012.03



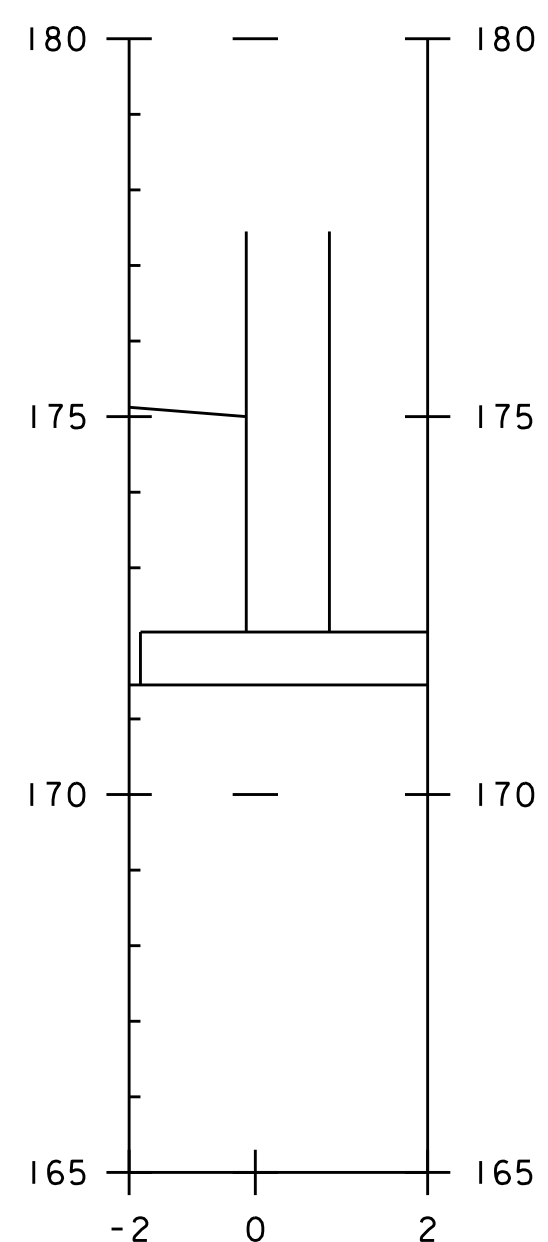
1+012.03



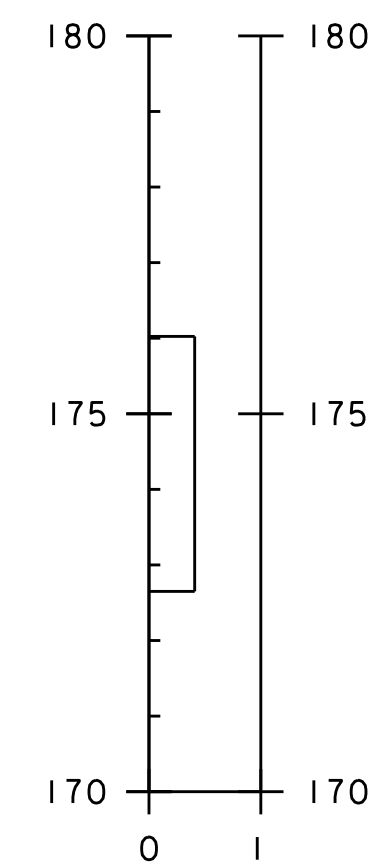
1+014.03



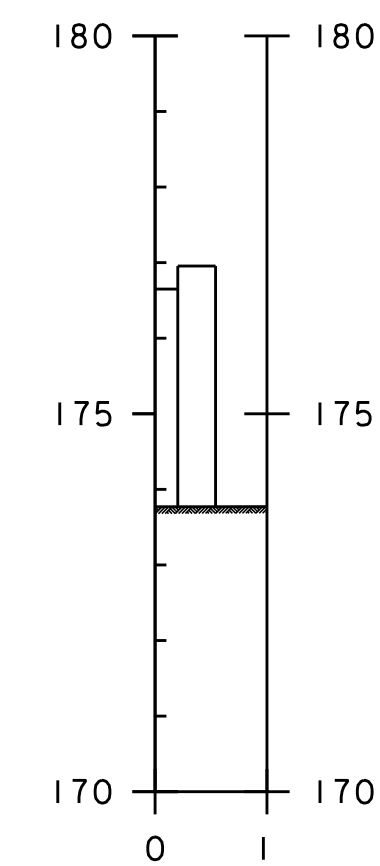
1+000.00



1+002.00

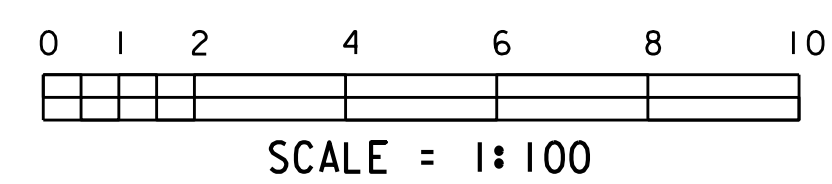


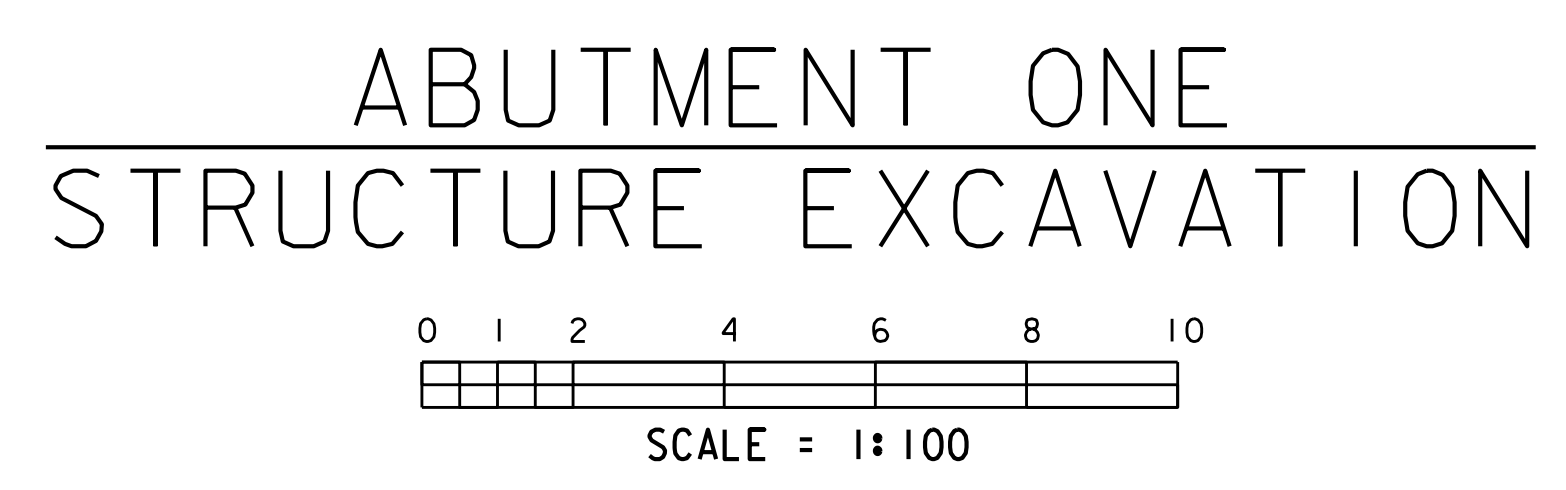
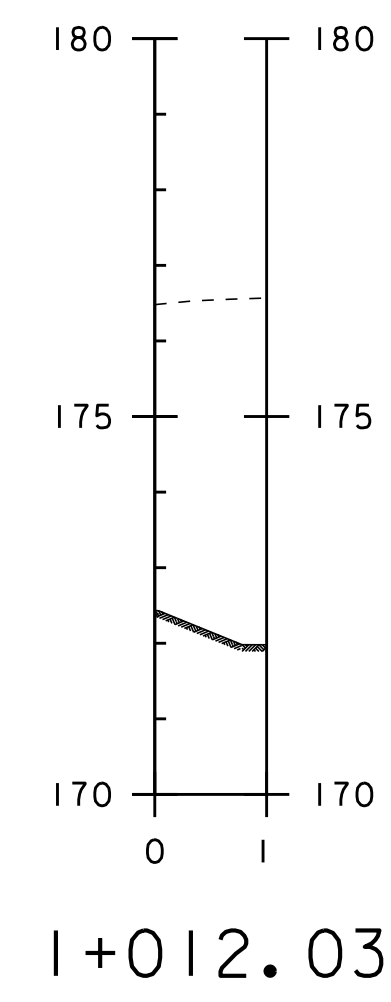
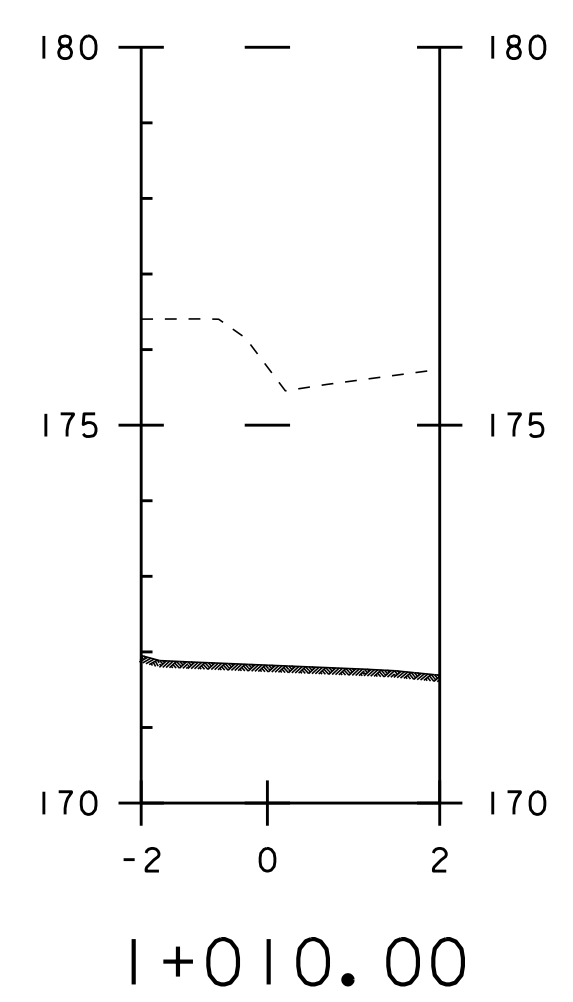
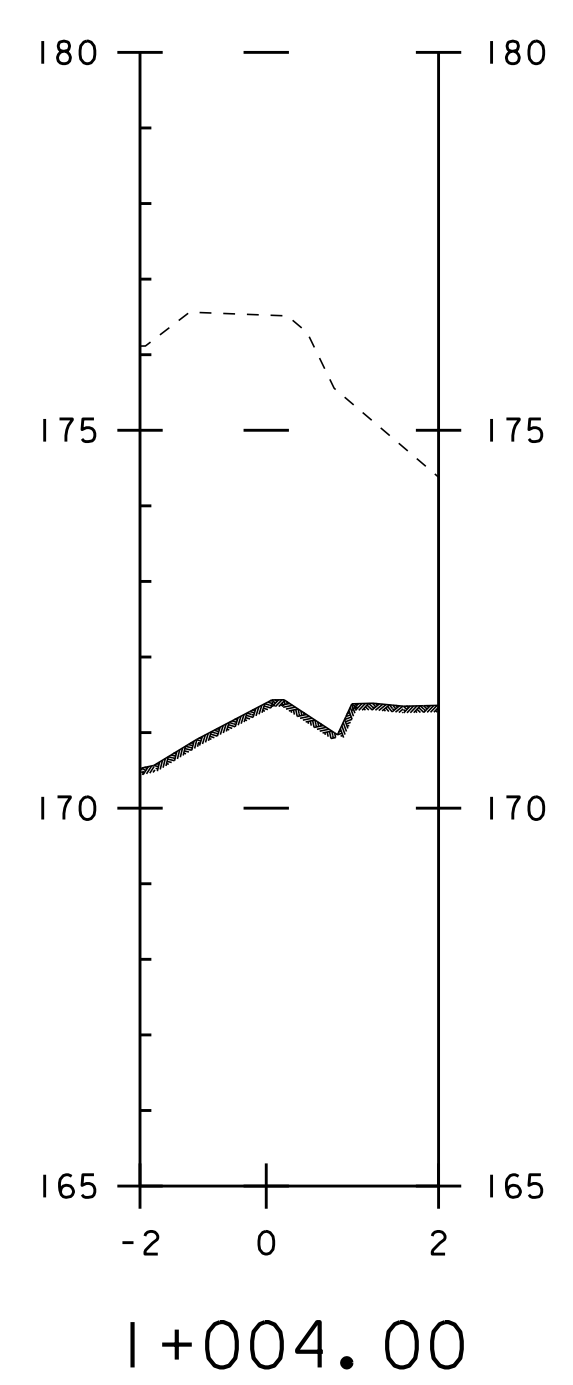
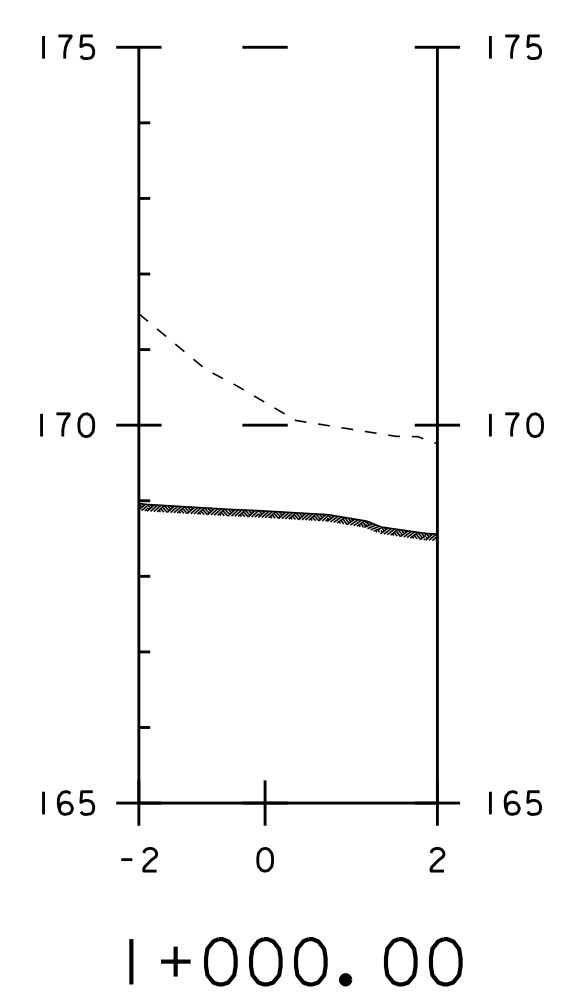
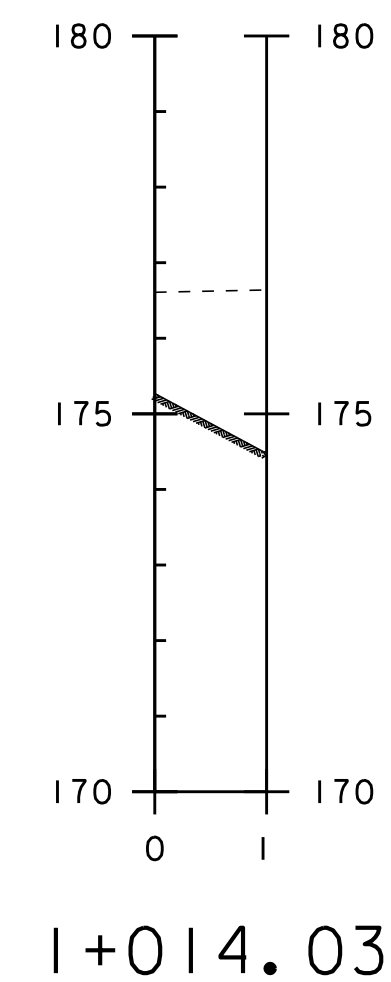
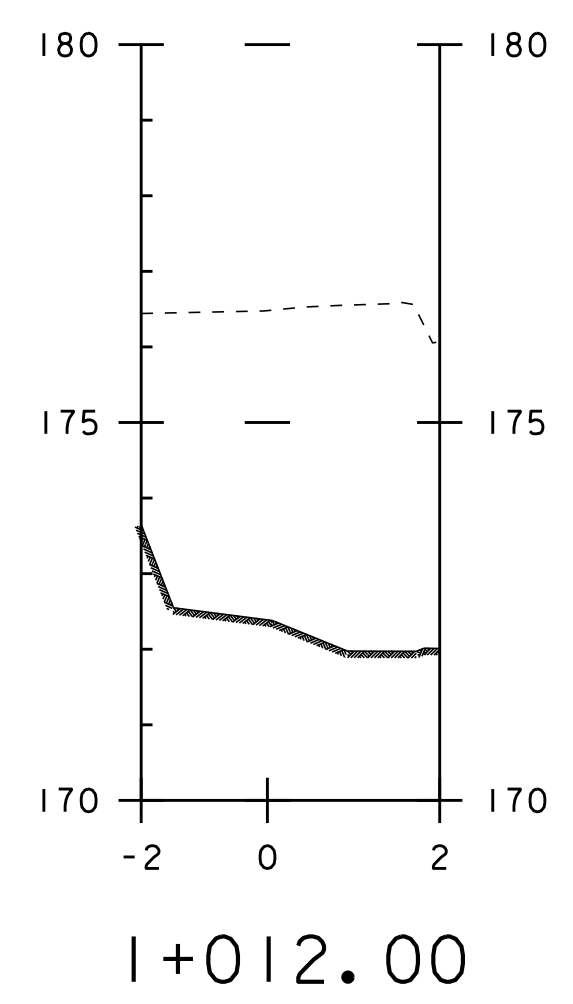
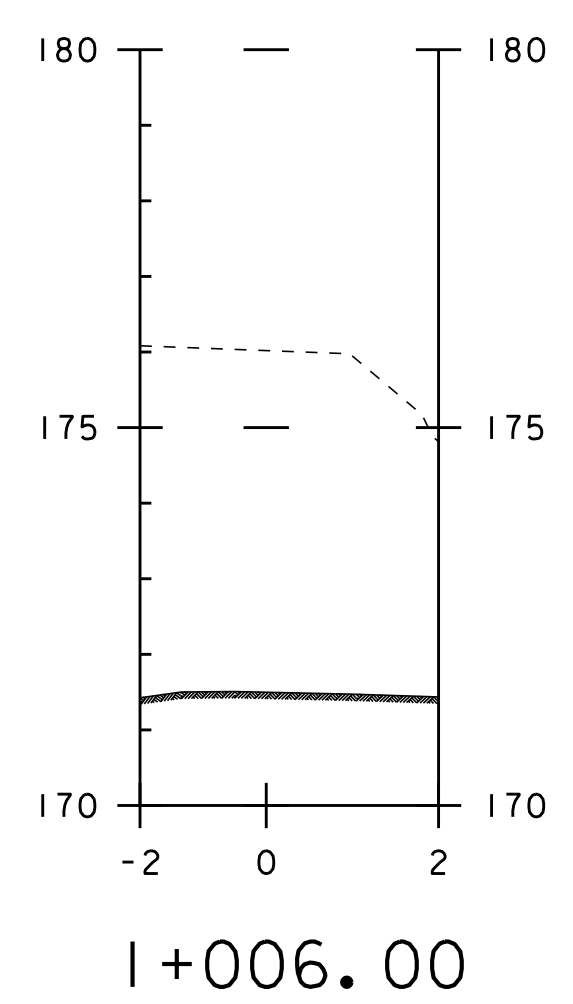
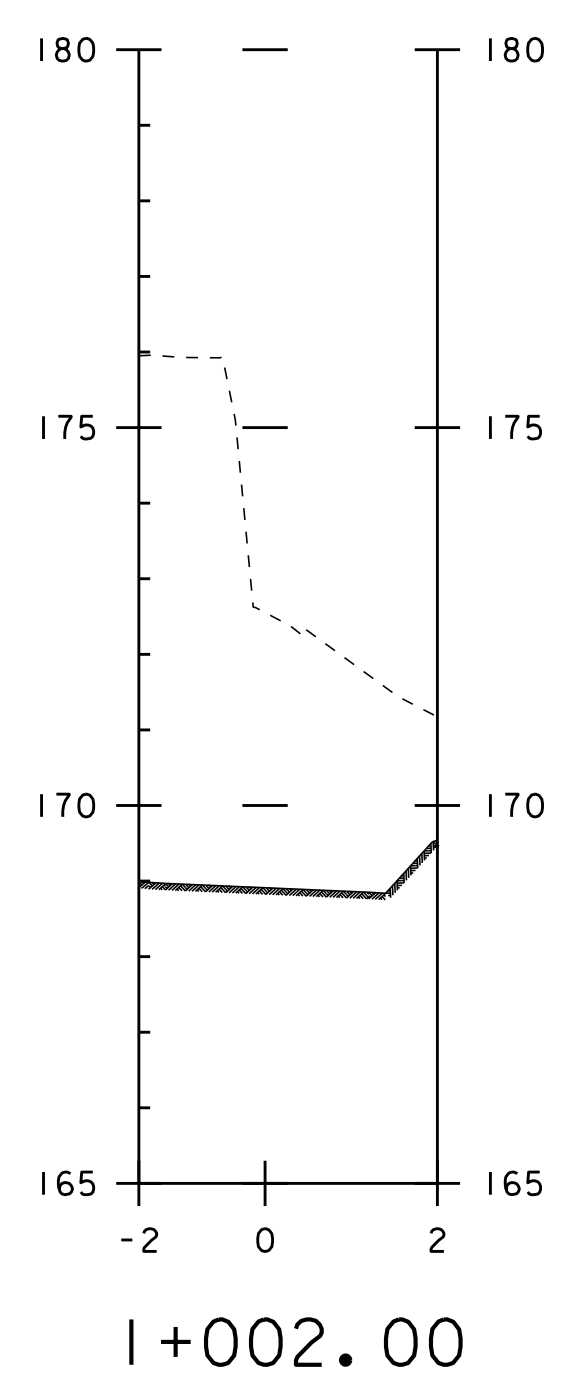
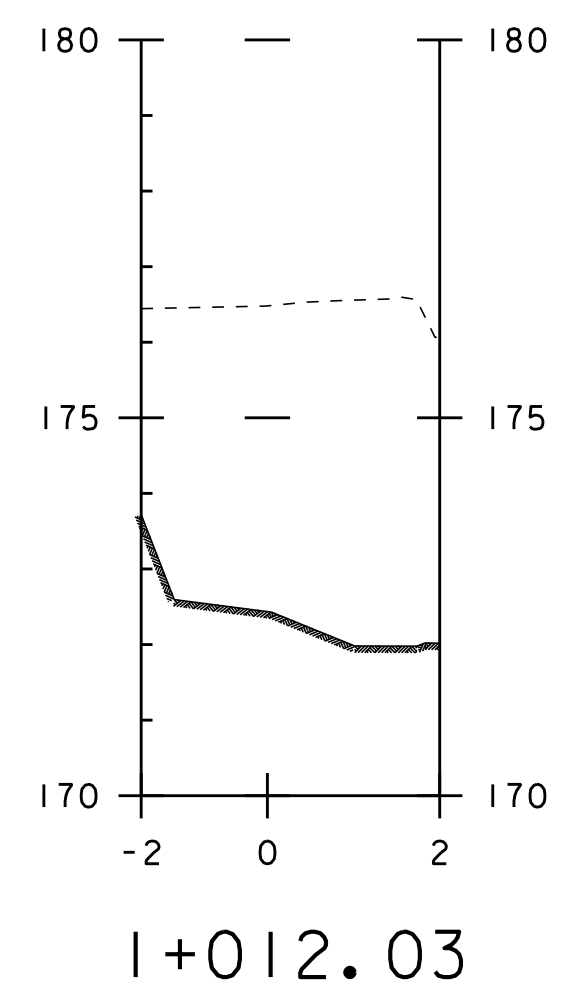
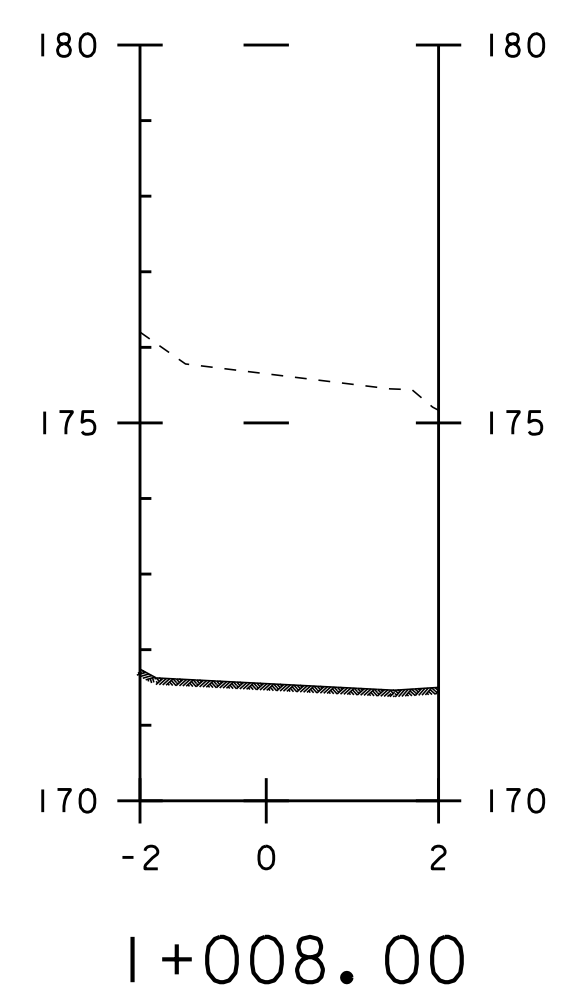
1+009.83

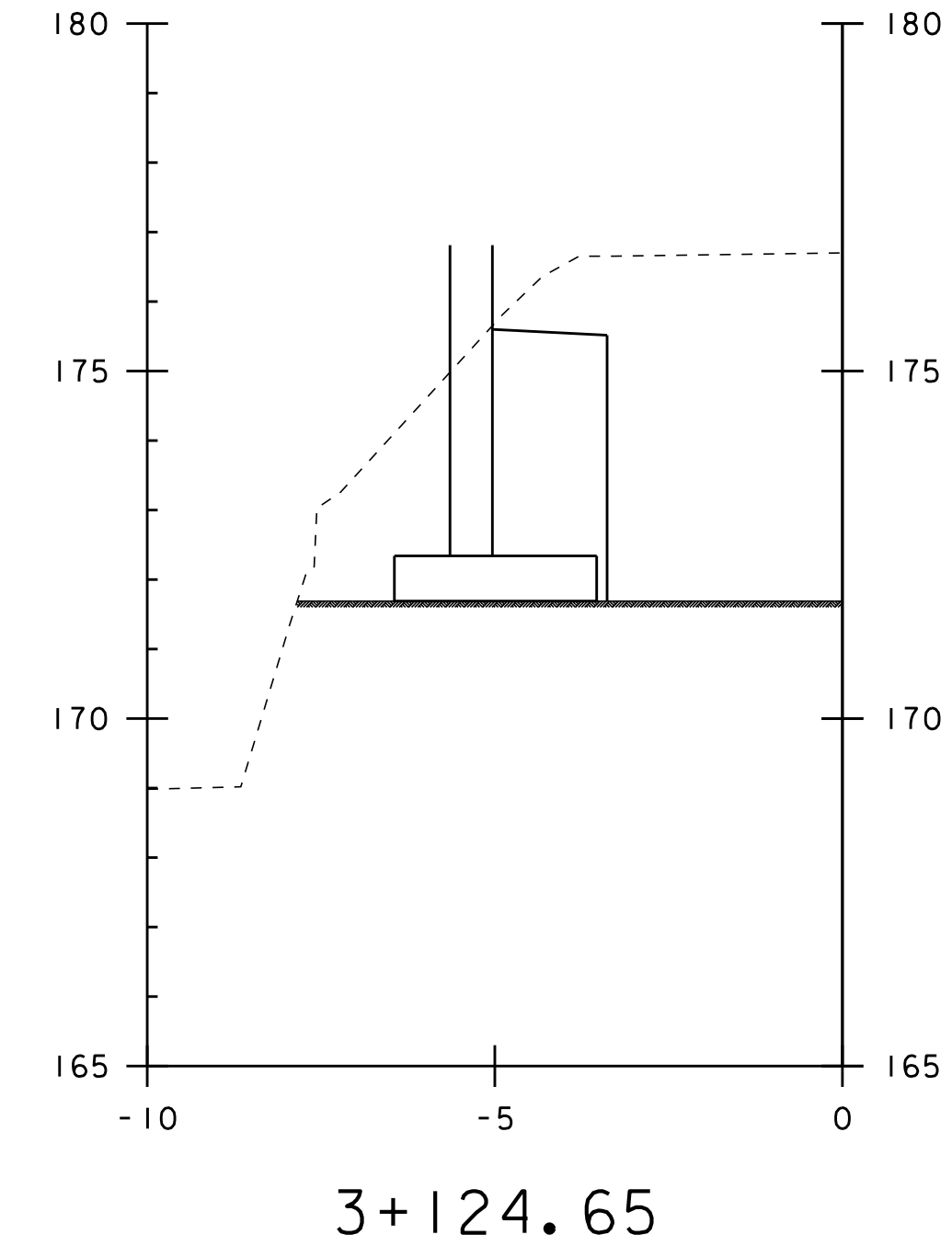
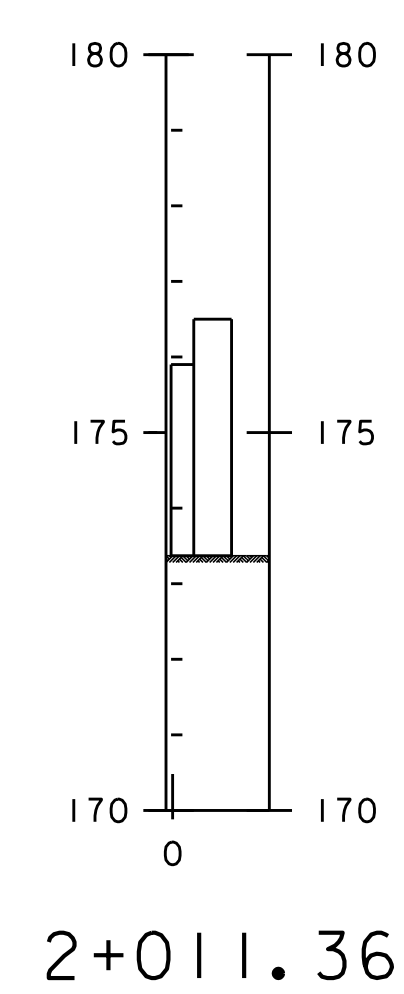
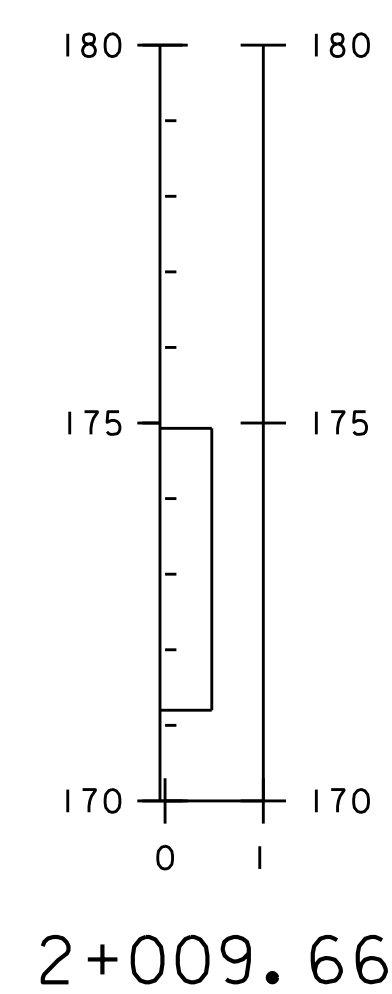
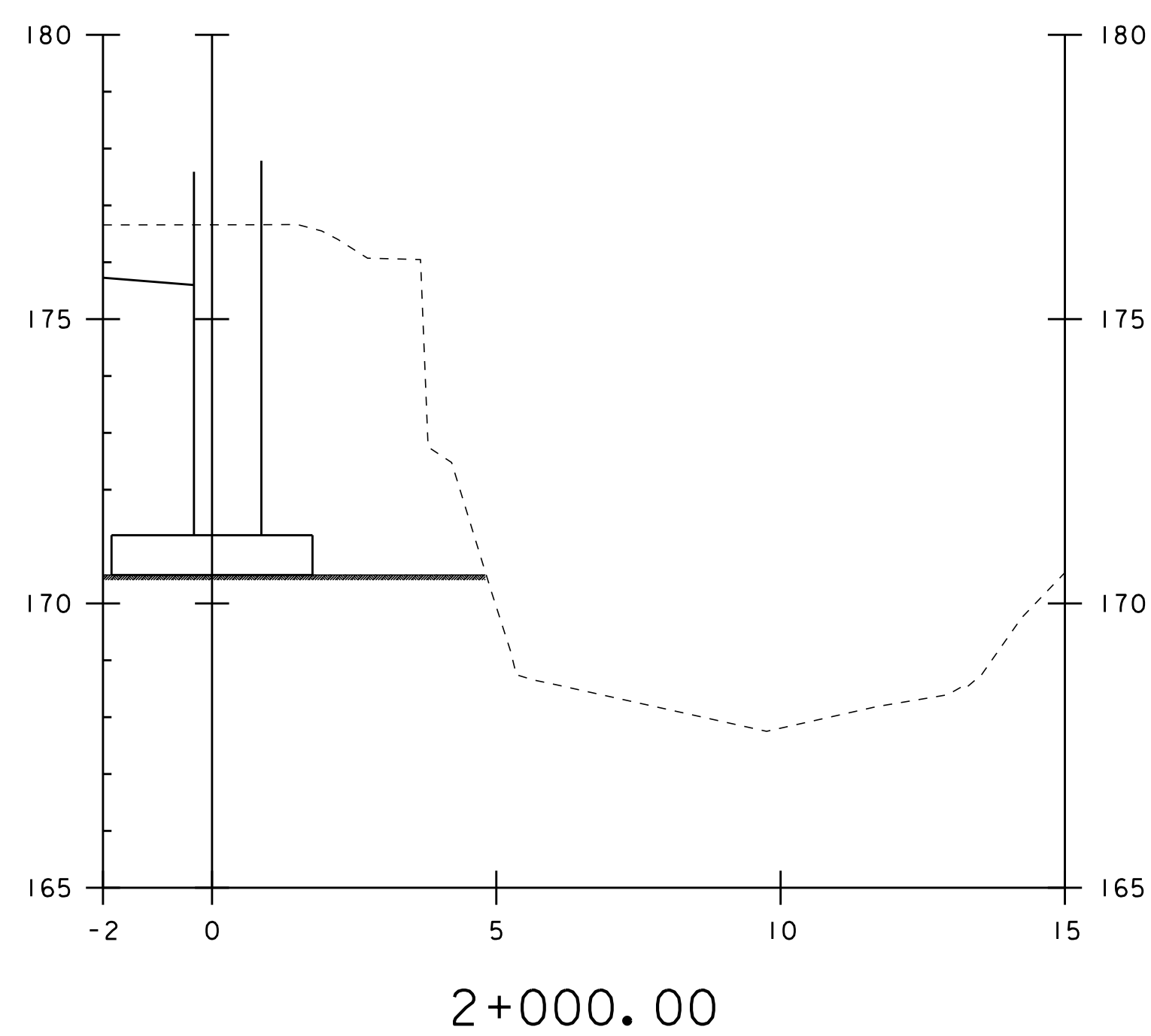
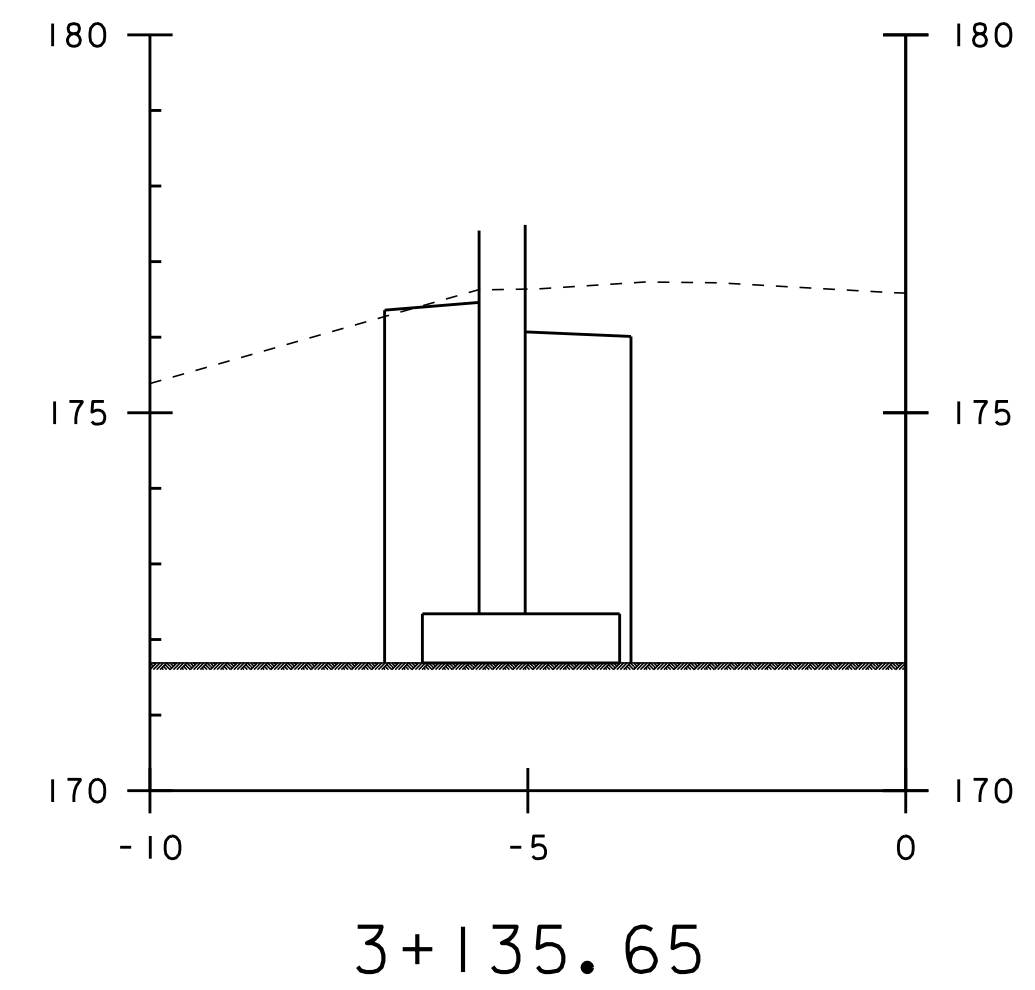
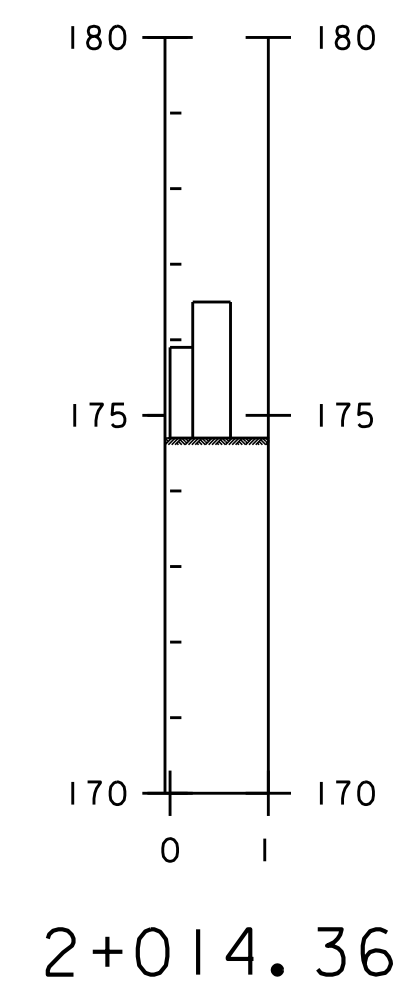
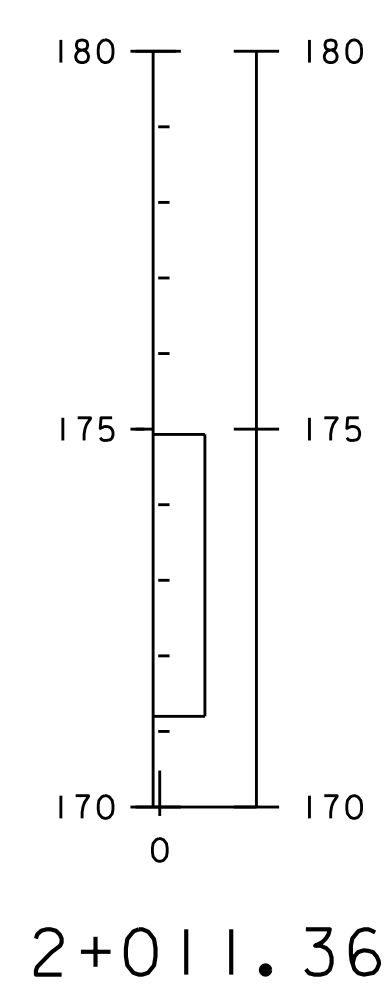
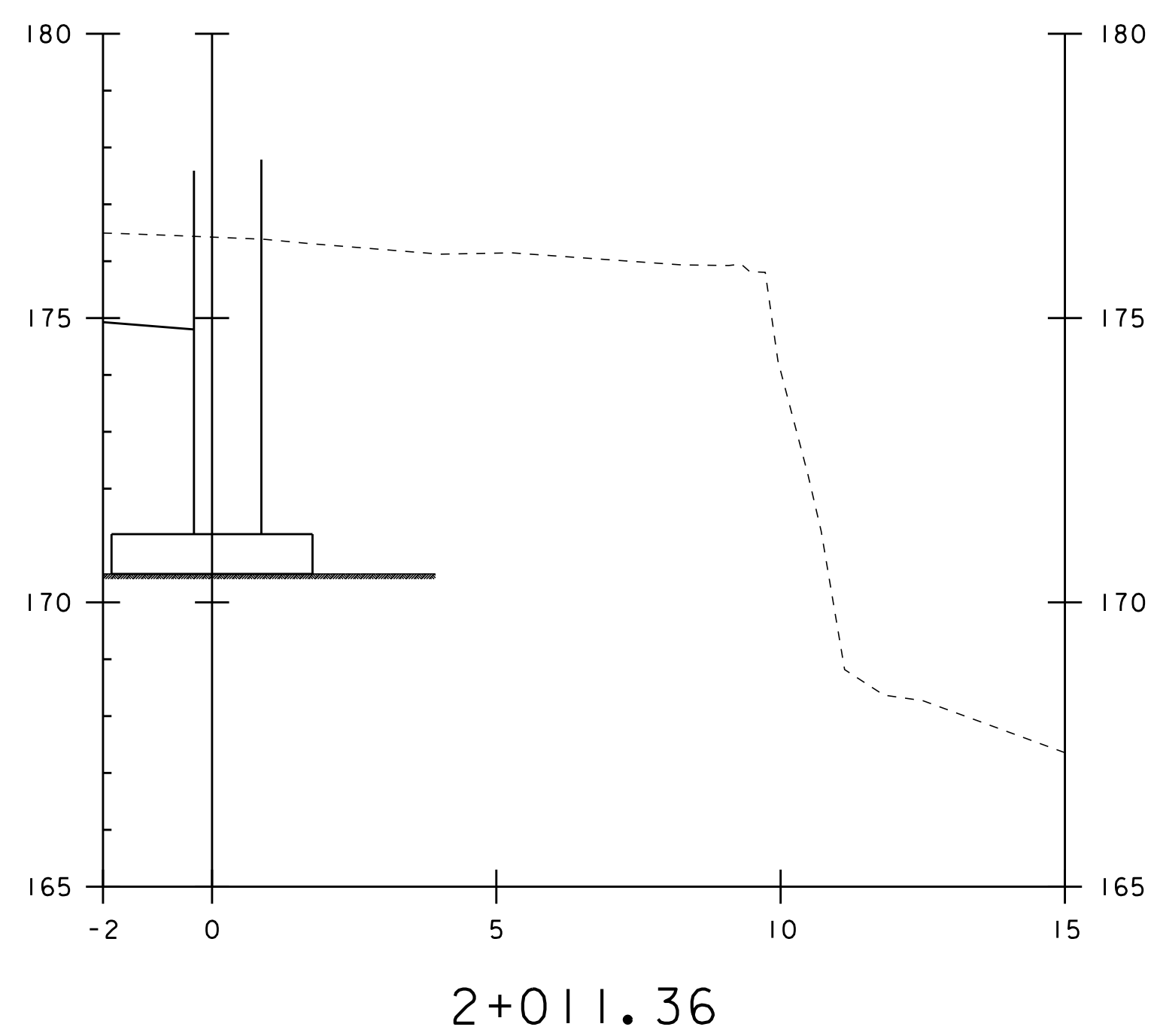


1+012.03

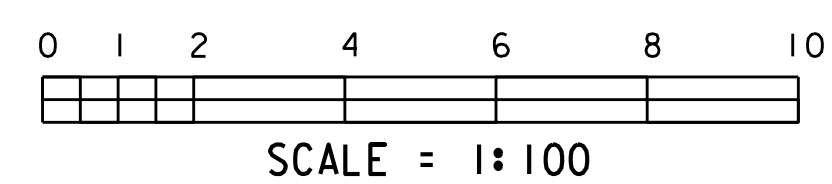
ABUTMENT ONE --- GRANULAR BACKFILL FOR STRUCTURES

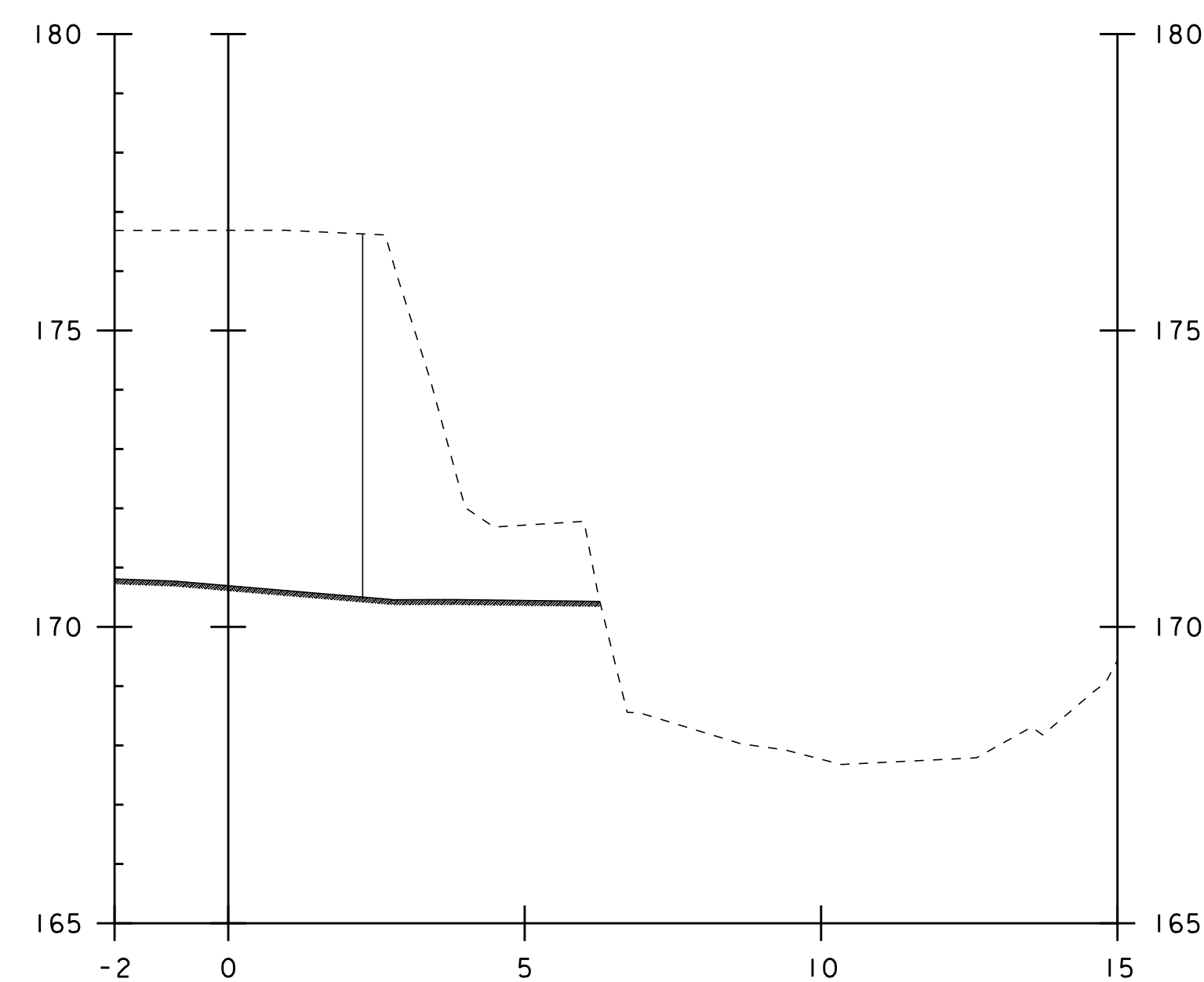




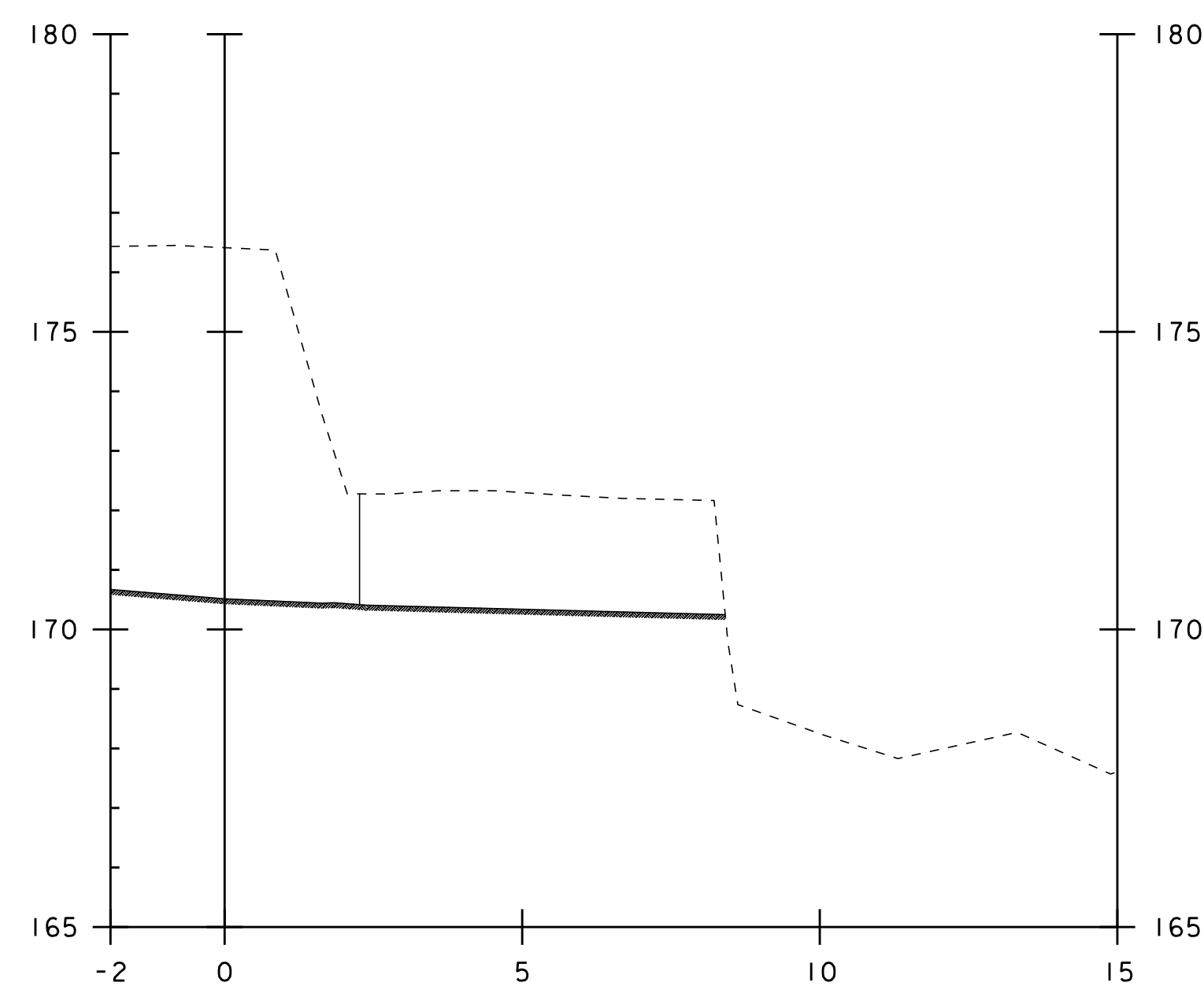


ABUTMENT TWO GRANULAR BACKFILL FOR STRUCTURES

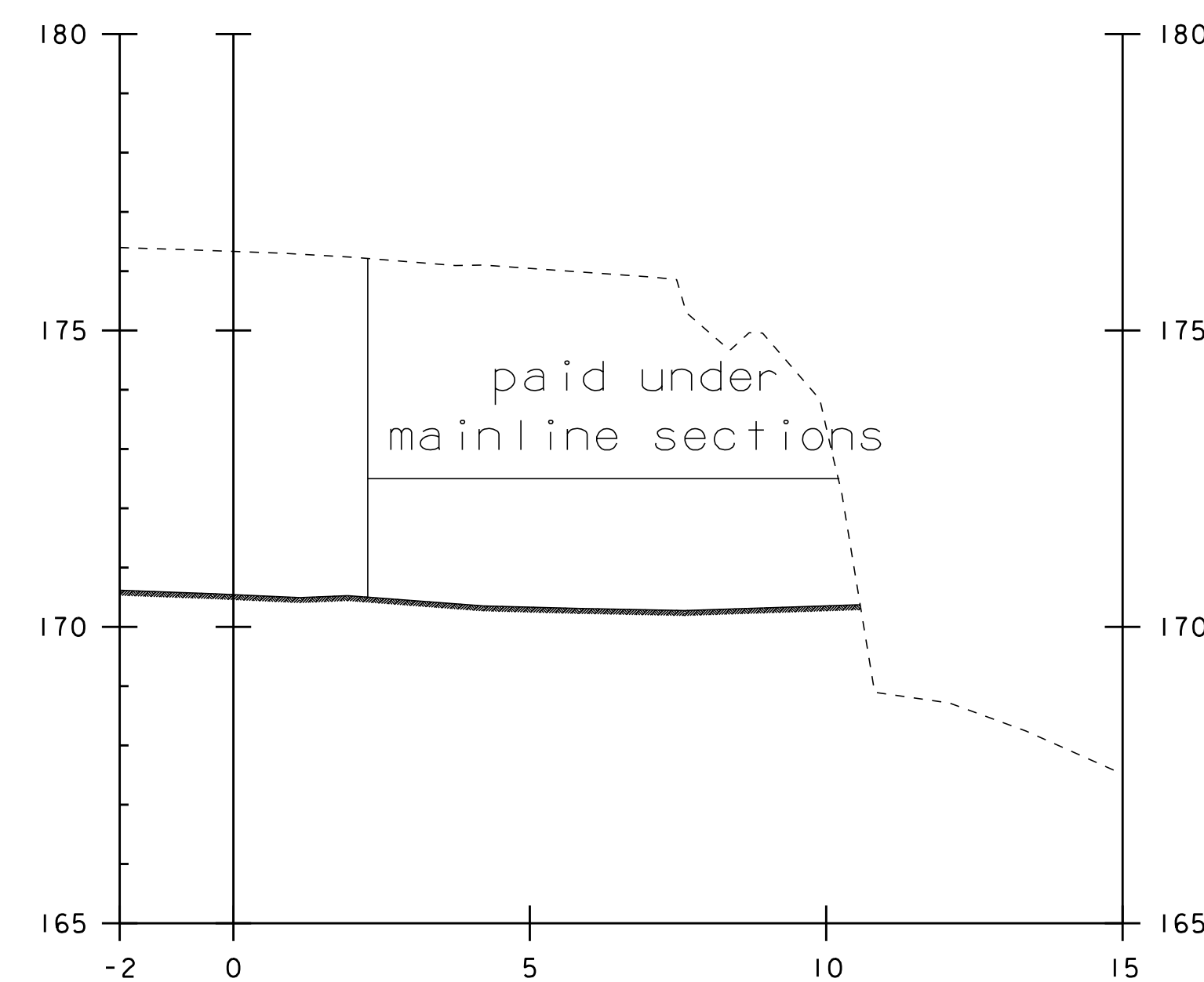




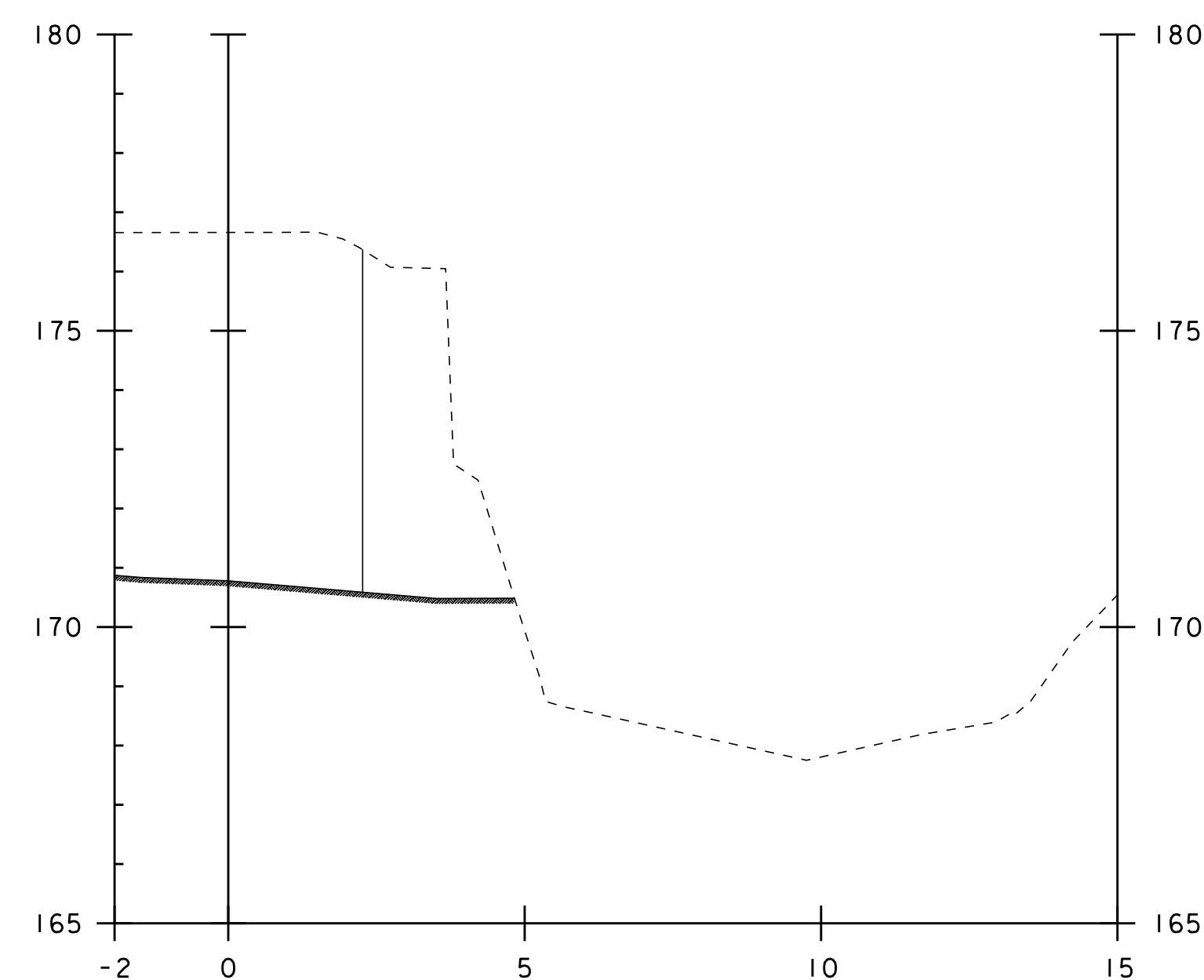
2+002.00



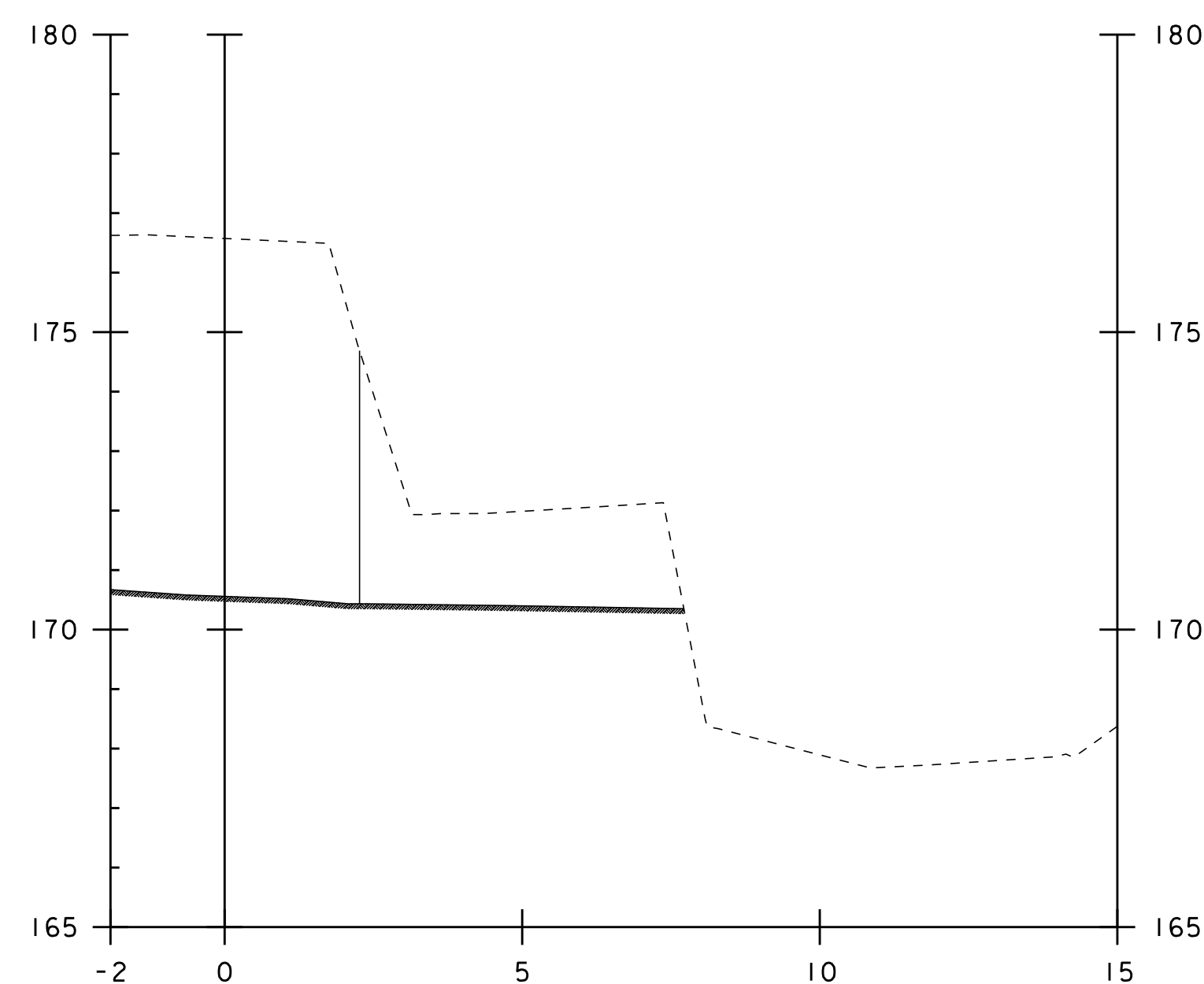
2+006.00



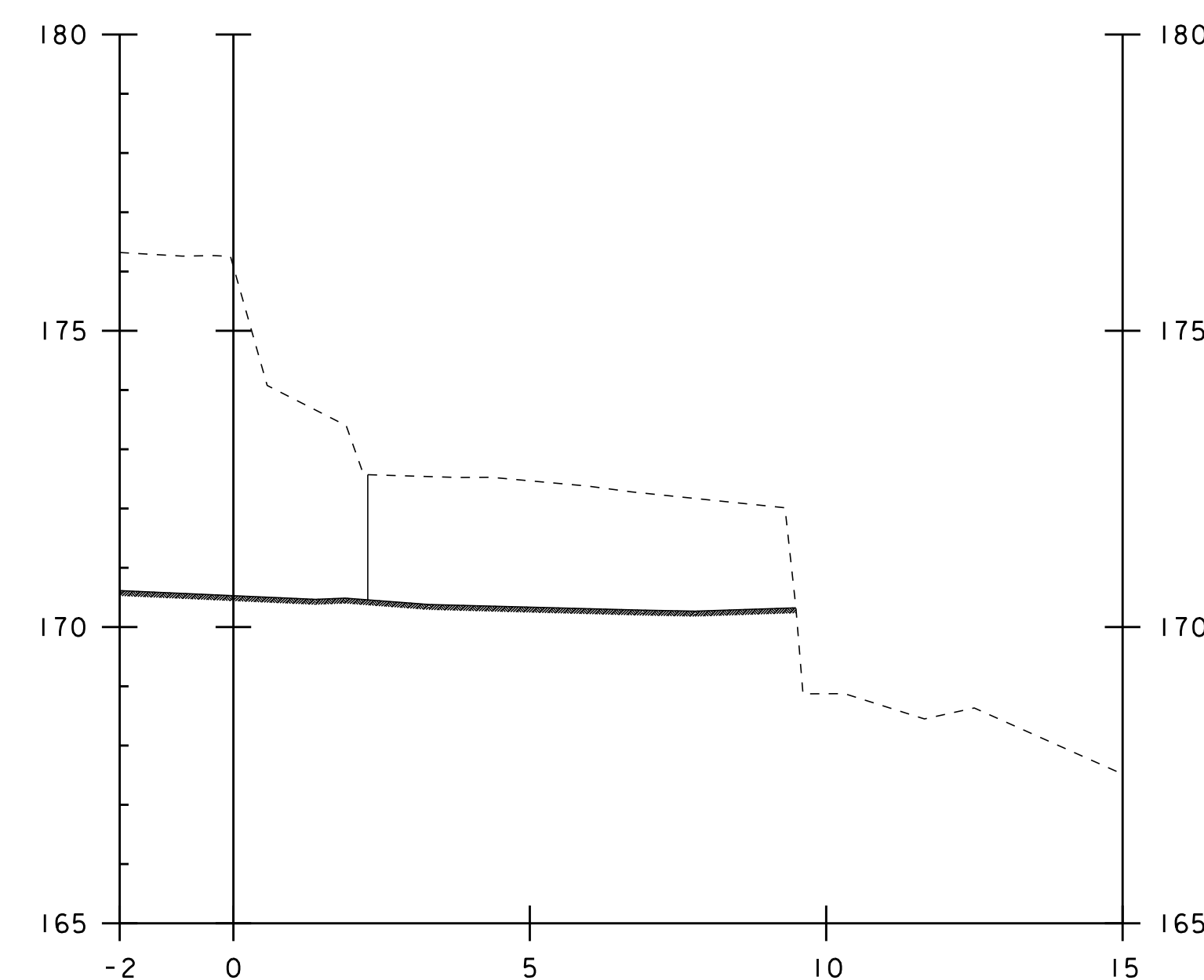
2+010.00



2+000.00

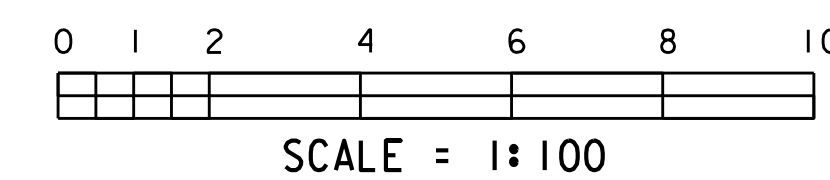


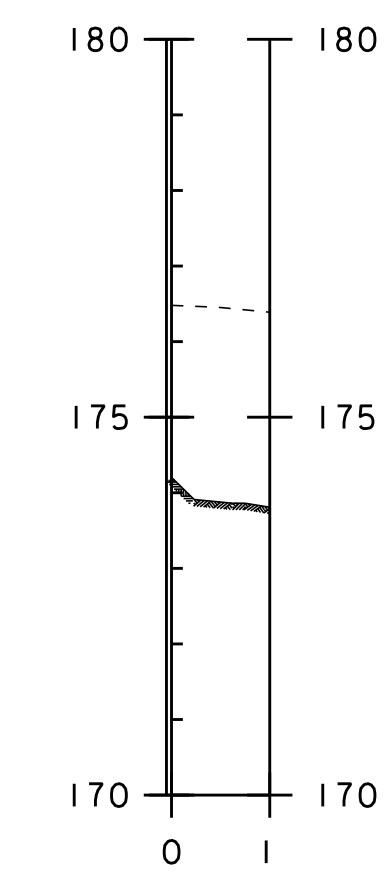
2+004.00



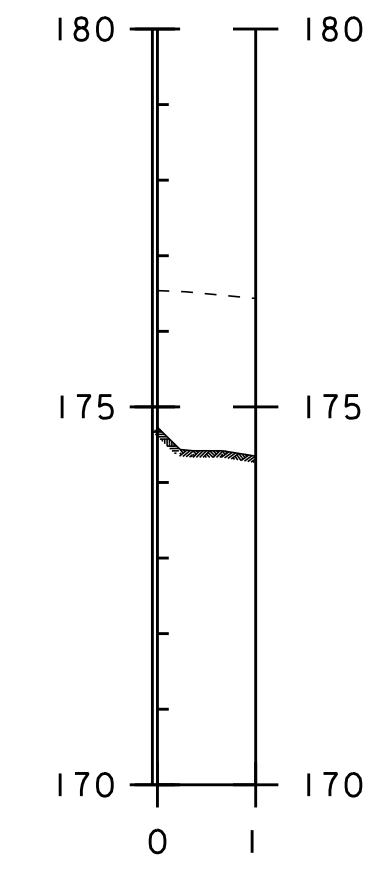
2+008.00

ABUTMENT TWO
STRUCTURE EXCAVATION
UNCLASSIFIED CHANNEL EXCAVATION

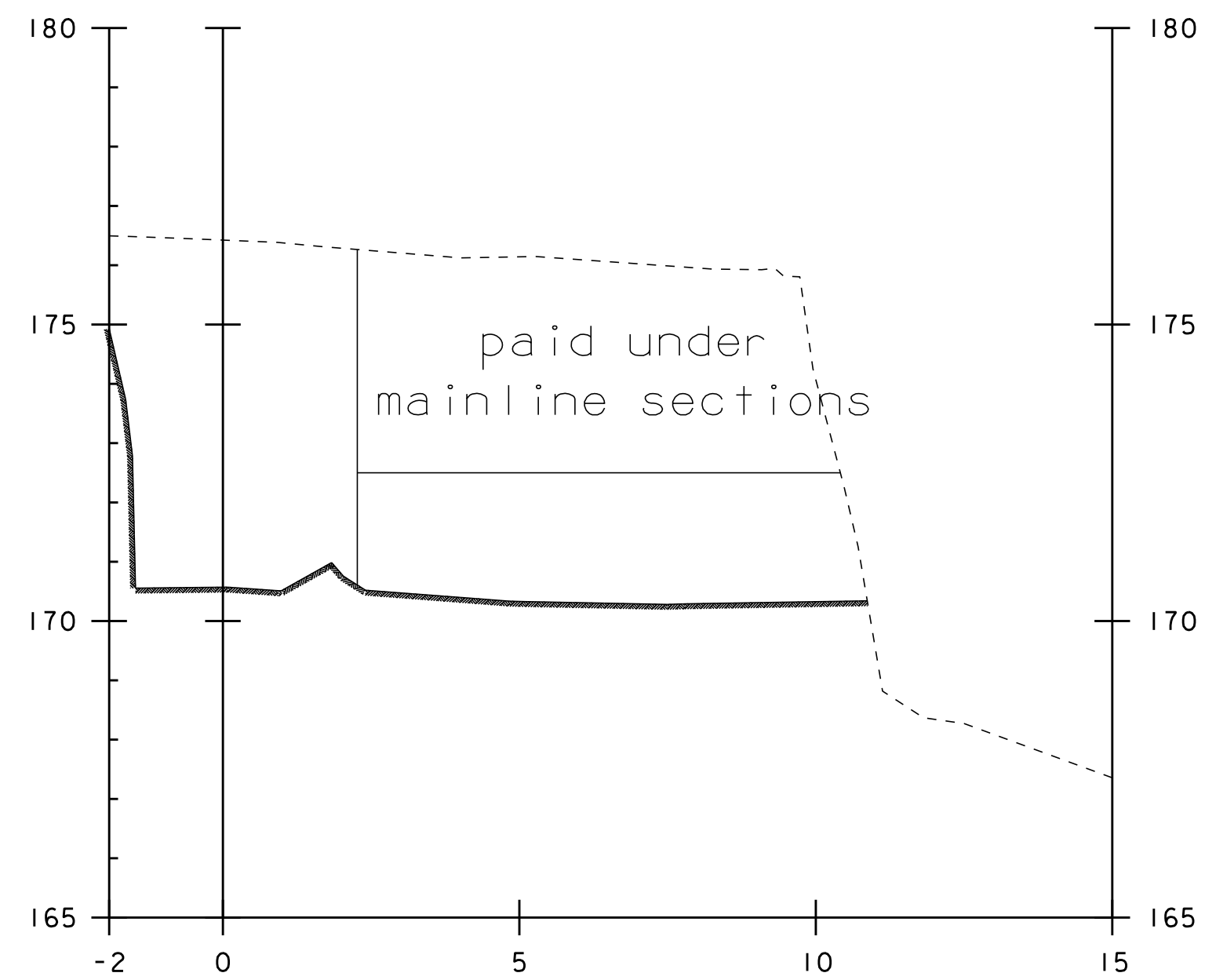




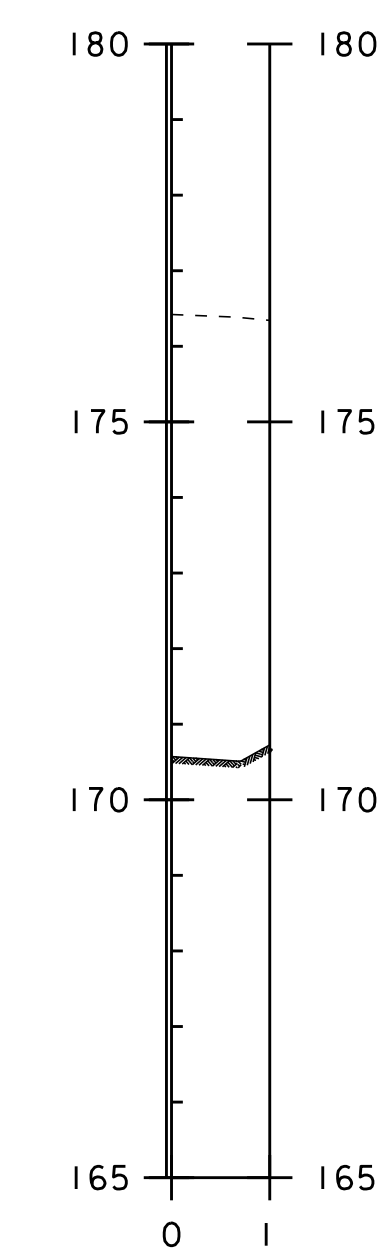
2+012.36



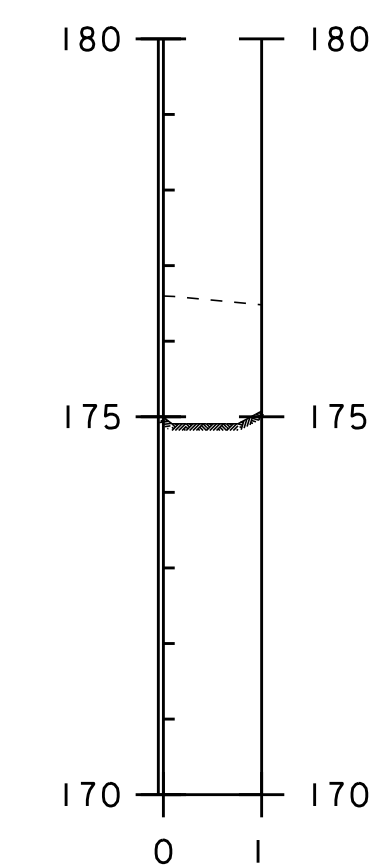
2+013.36



2+011.36

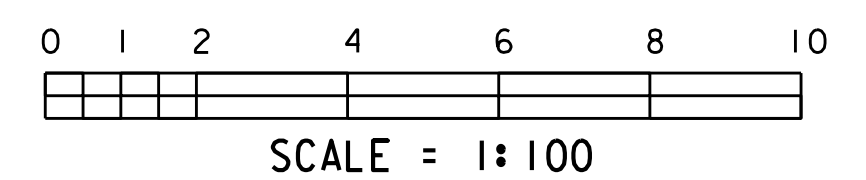


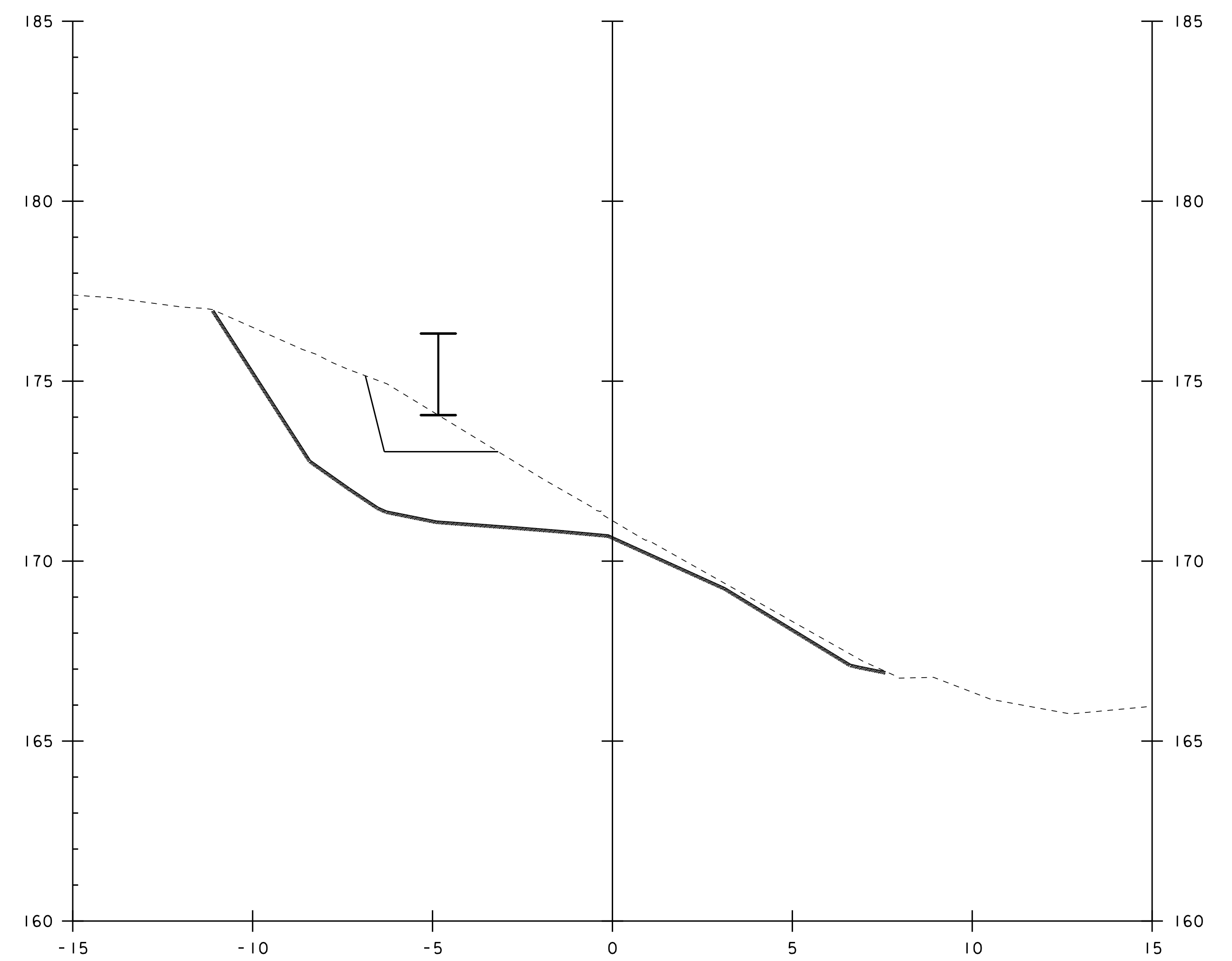
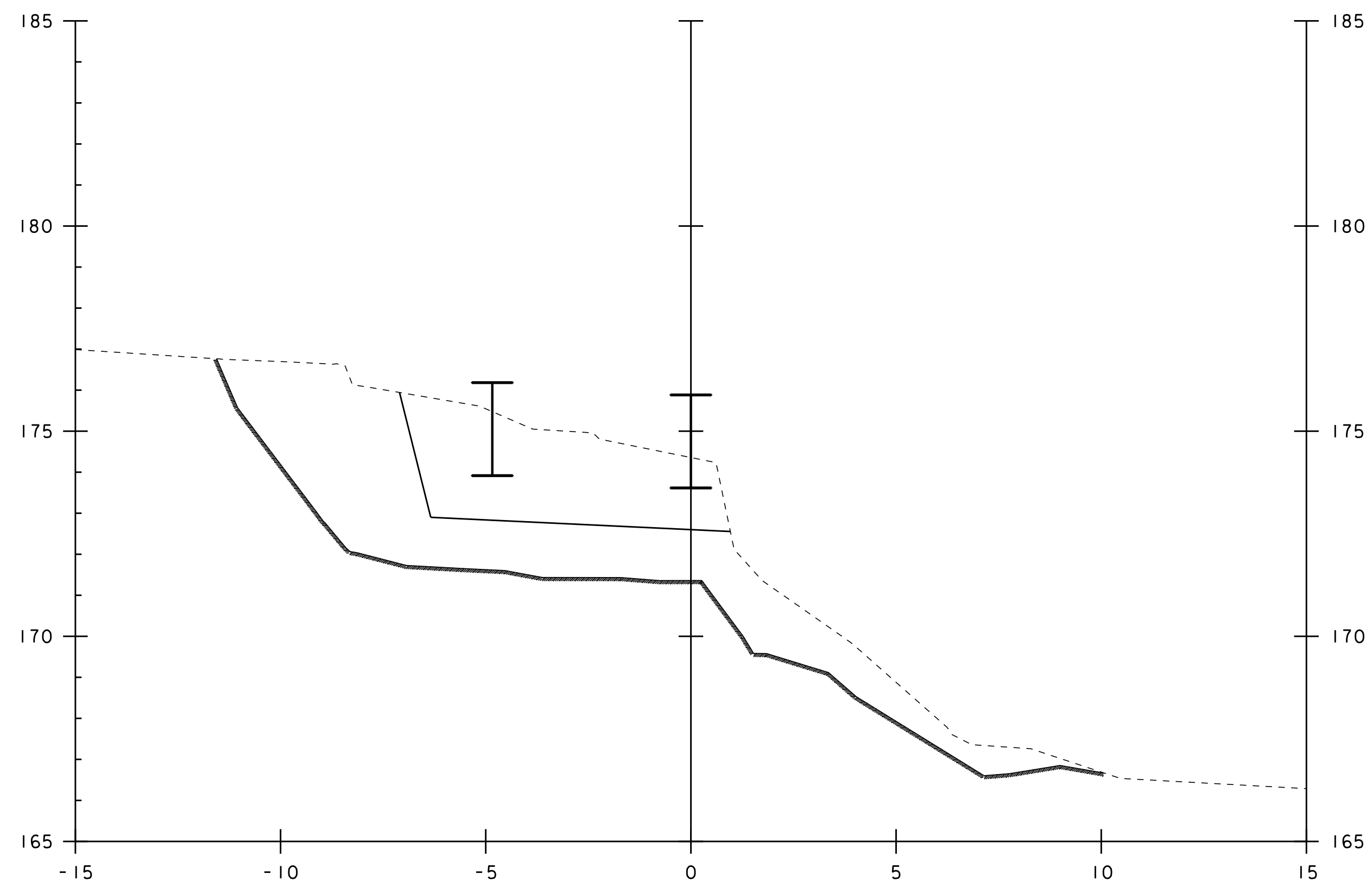
2+011.36



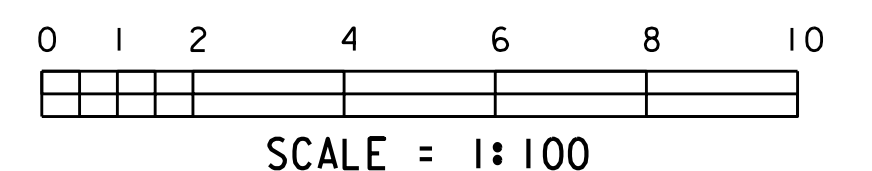
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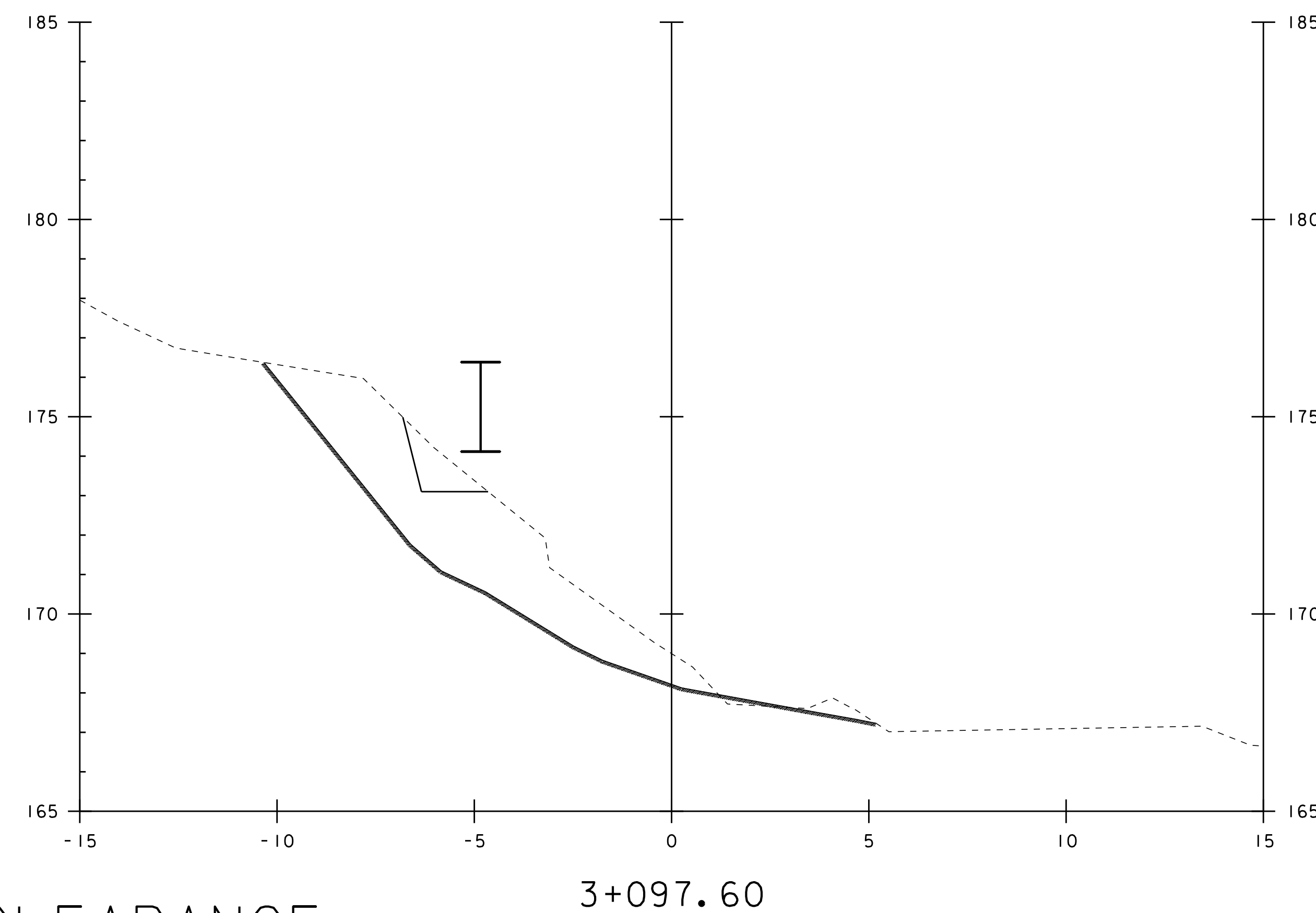
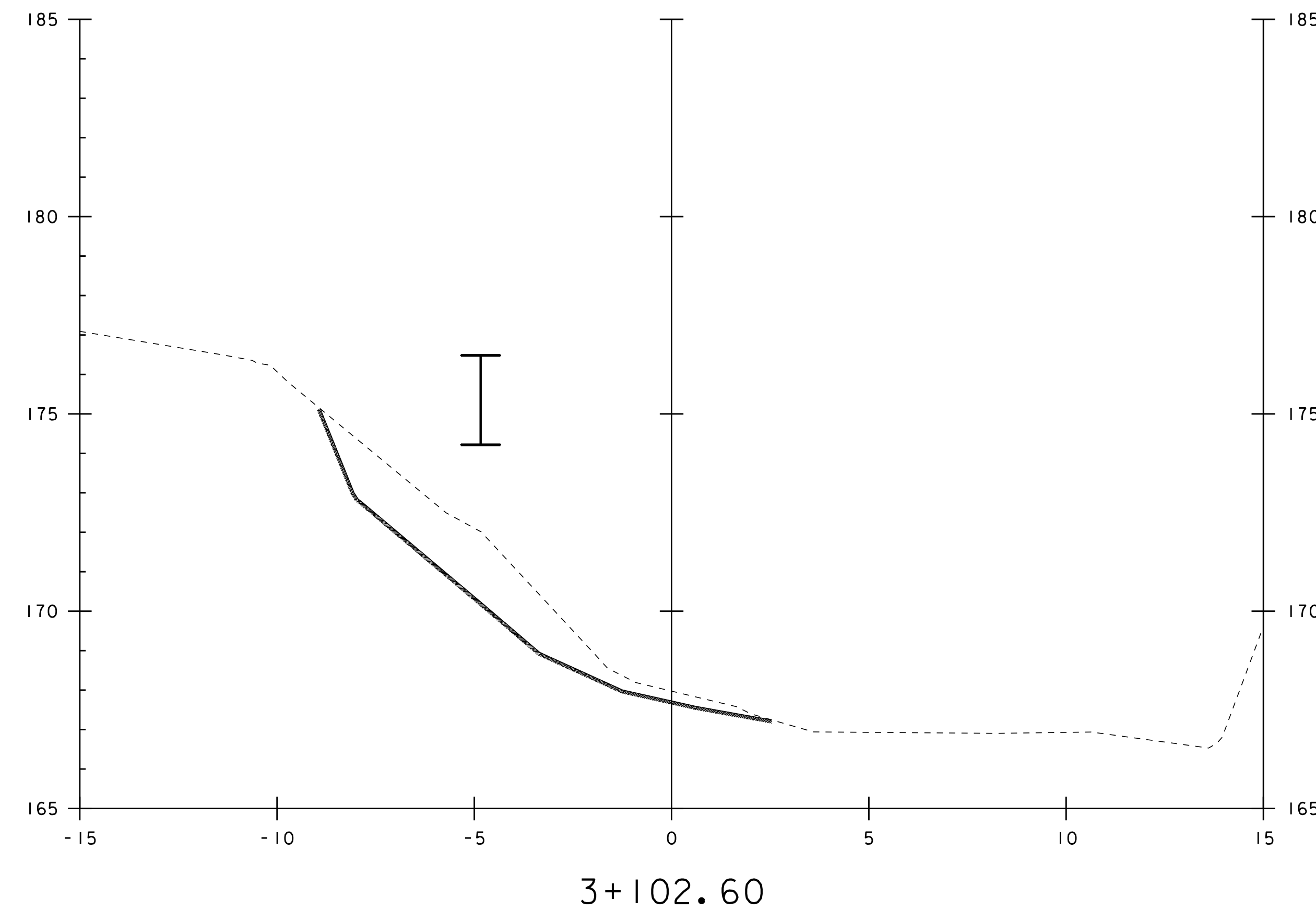
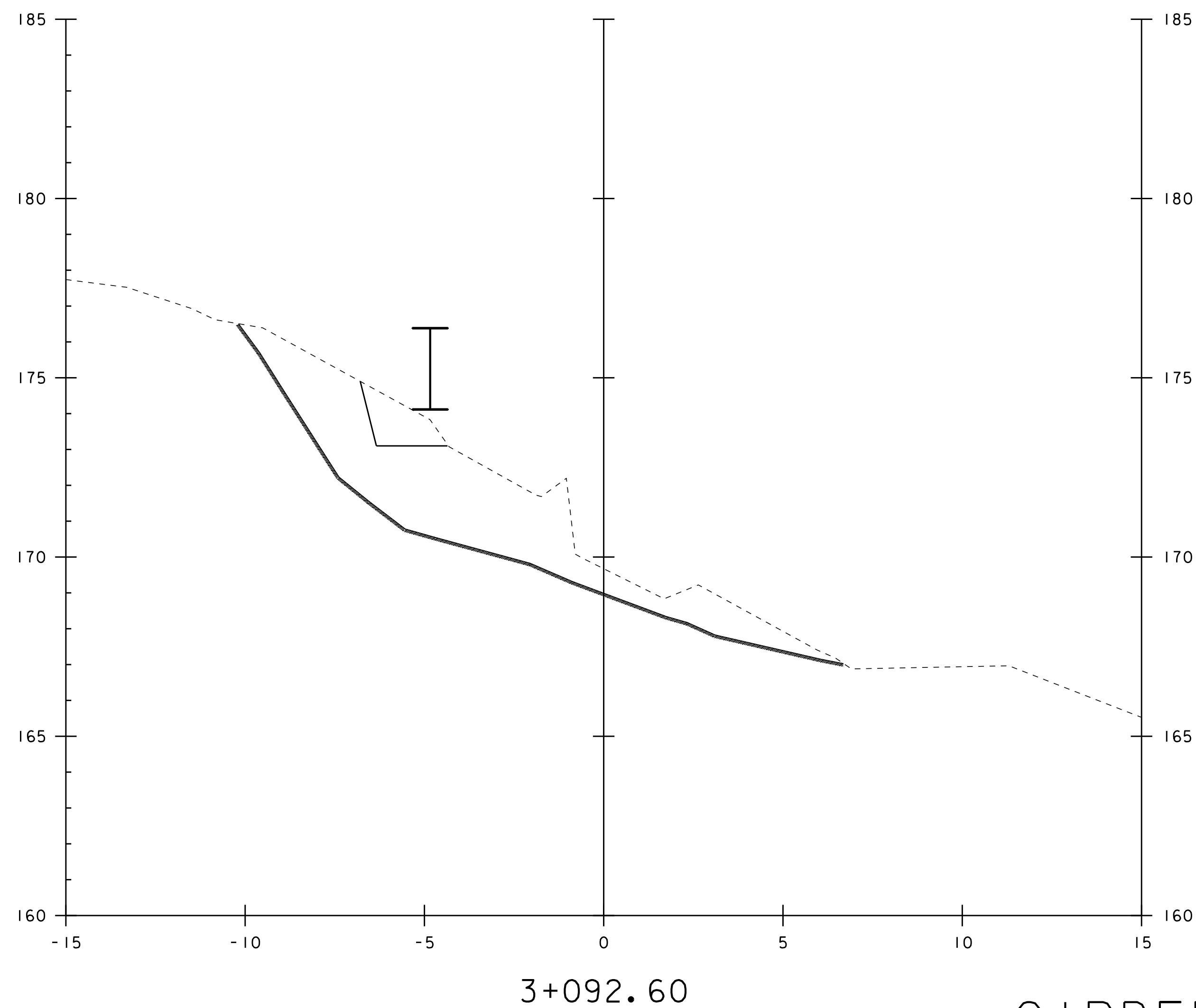
ABUTMENT TWO STRUCTURE EXCAVATION UNCLASSIFIED CHANNEL EXCAVATION



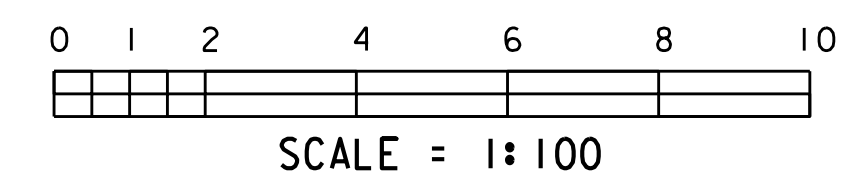


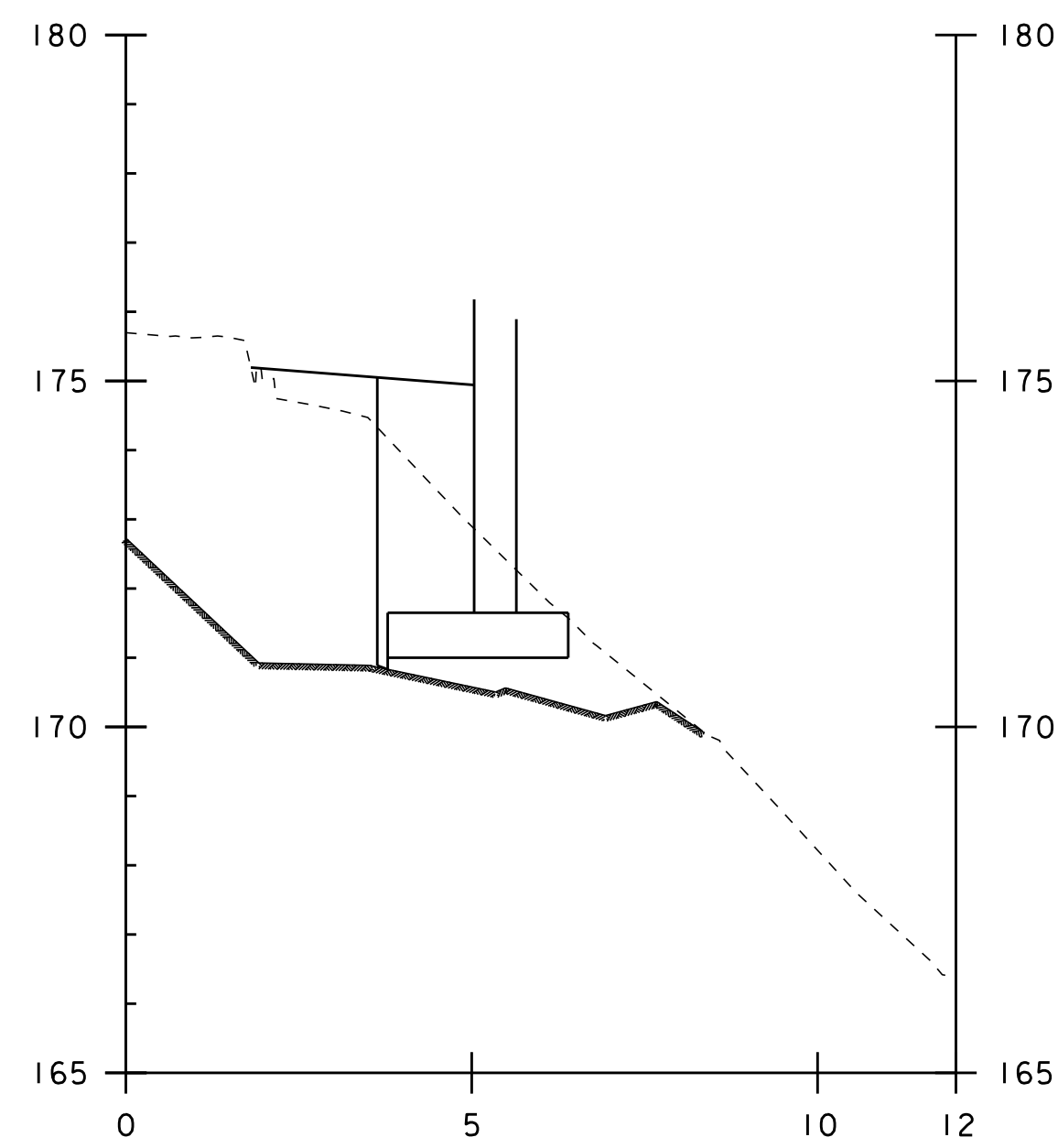
GIRDER I CLEARANCE
UNCLASSIFIED CHANNEL EXCAVATION



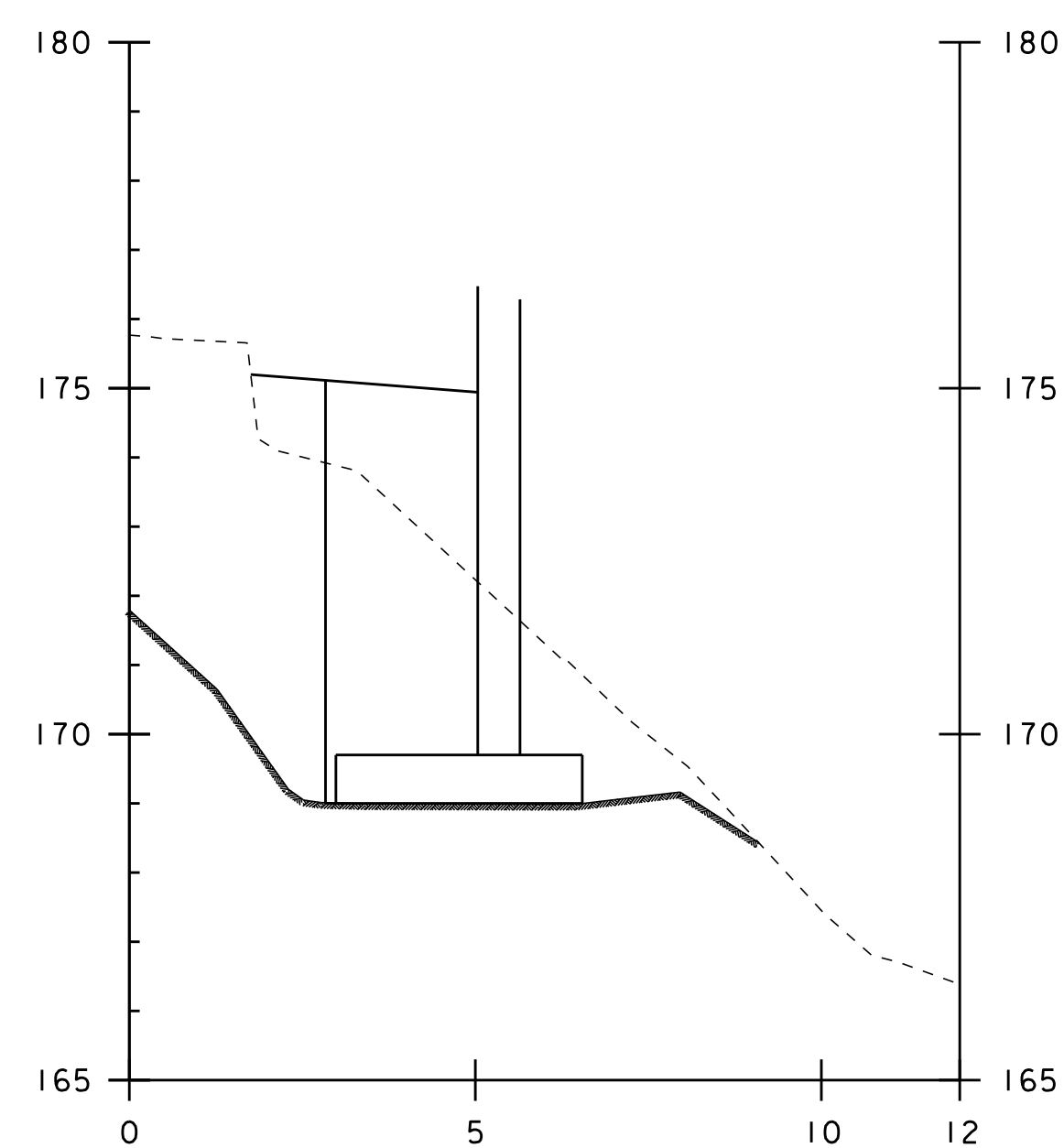


GIRDER I CLEARANCE UNCLASSIFIED CHANNEL EXCAVATION

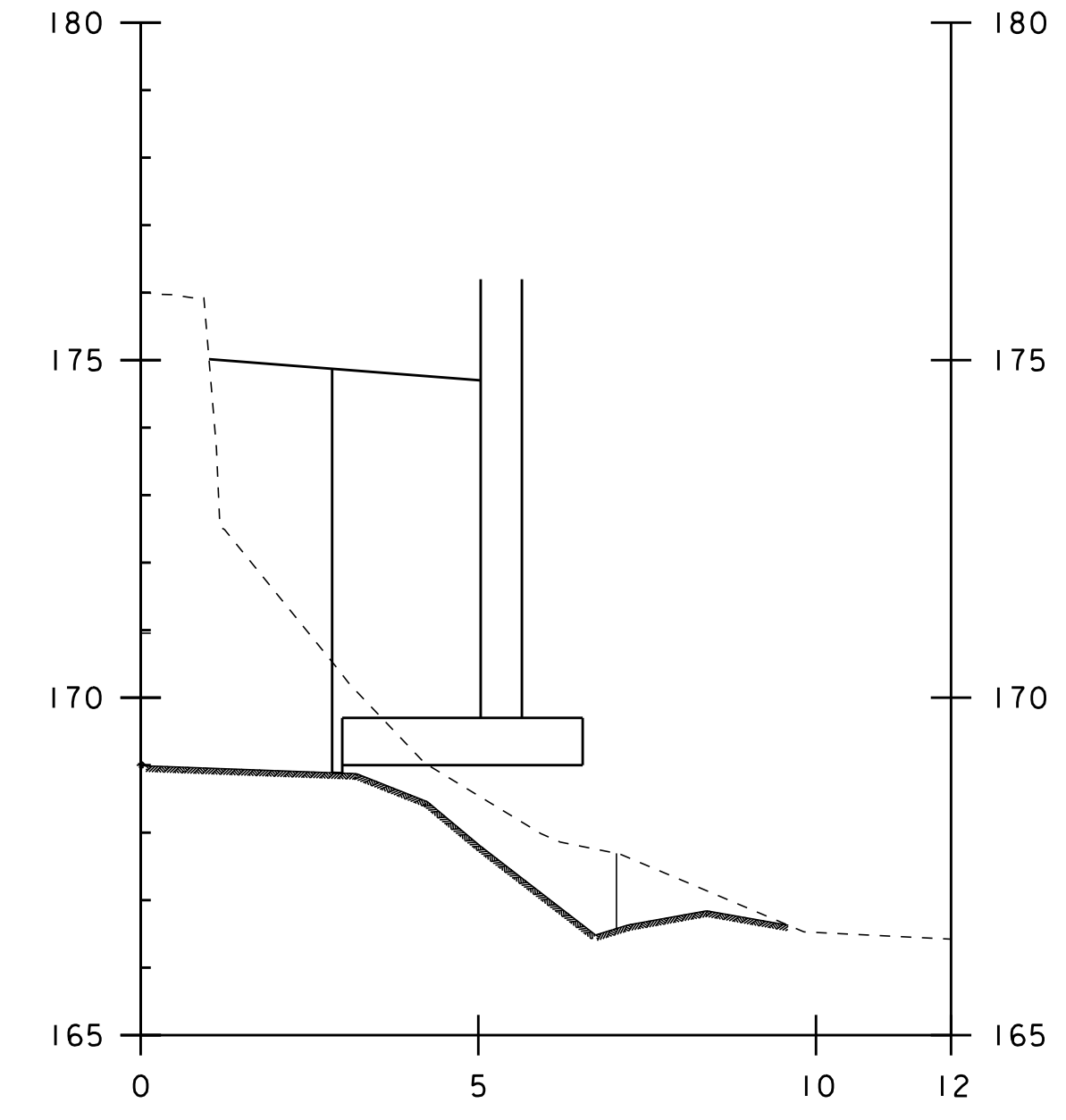




3+067.80

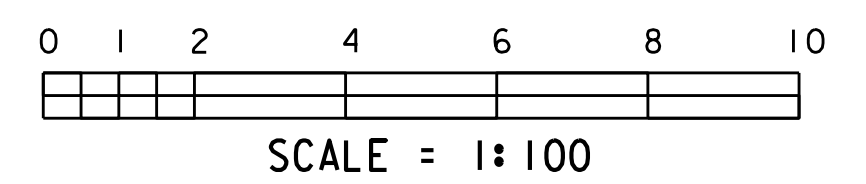


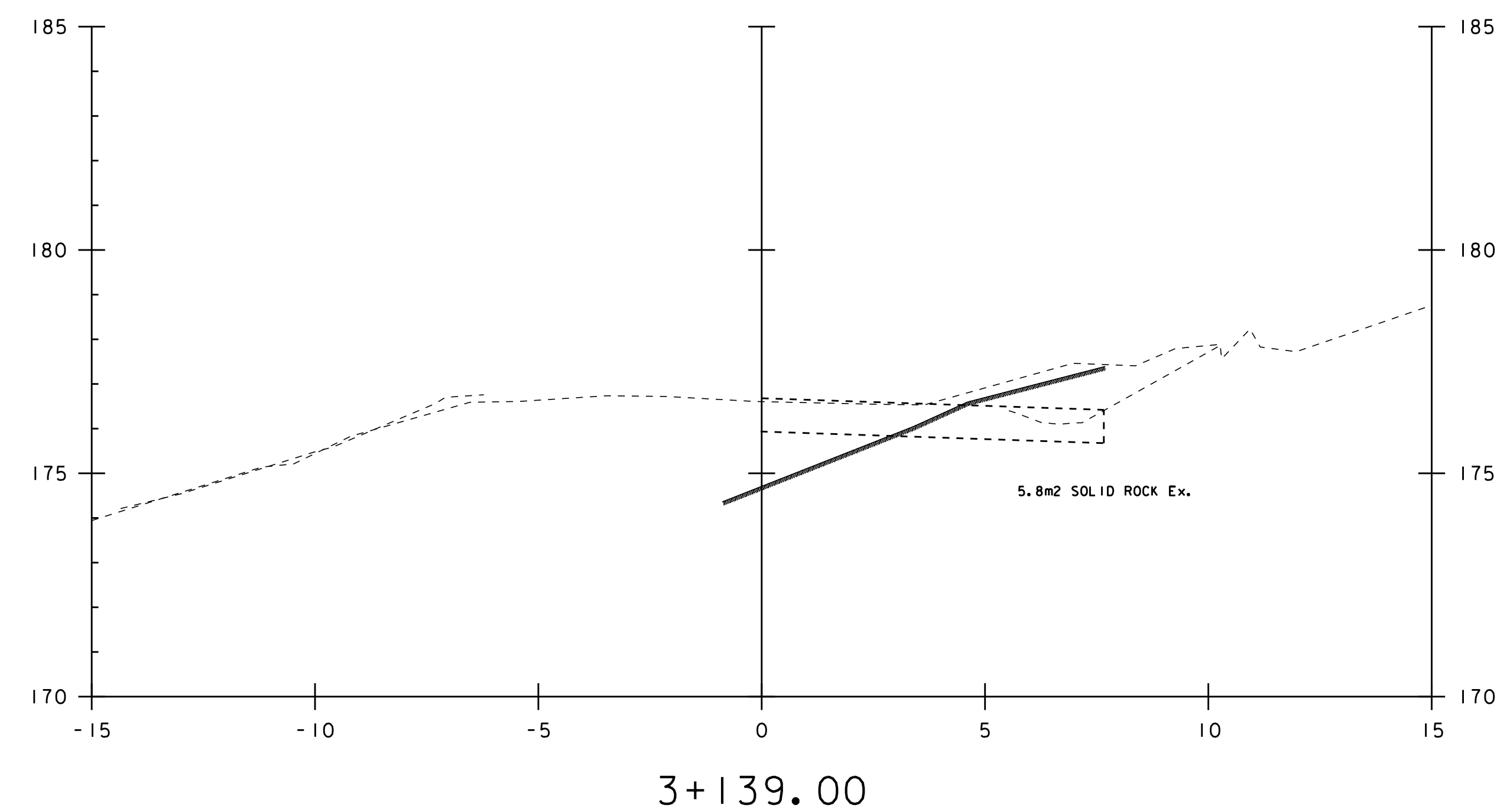
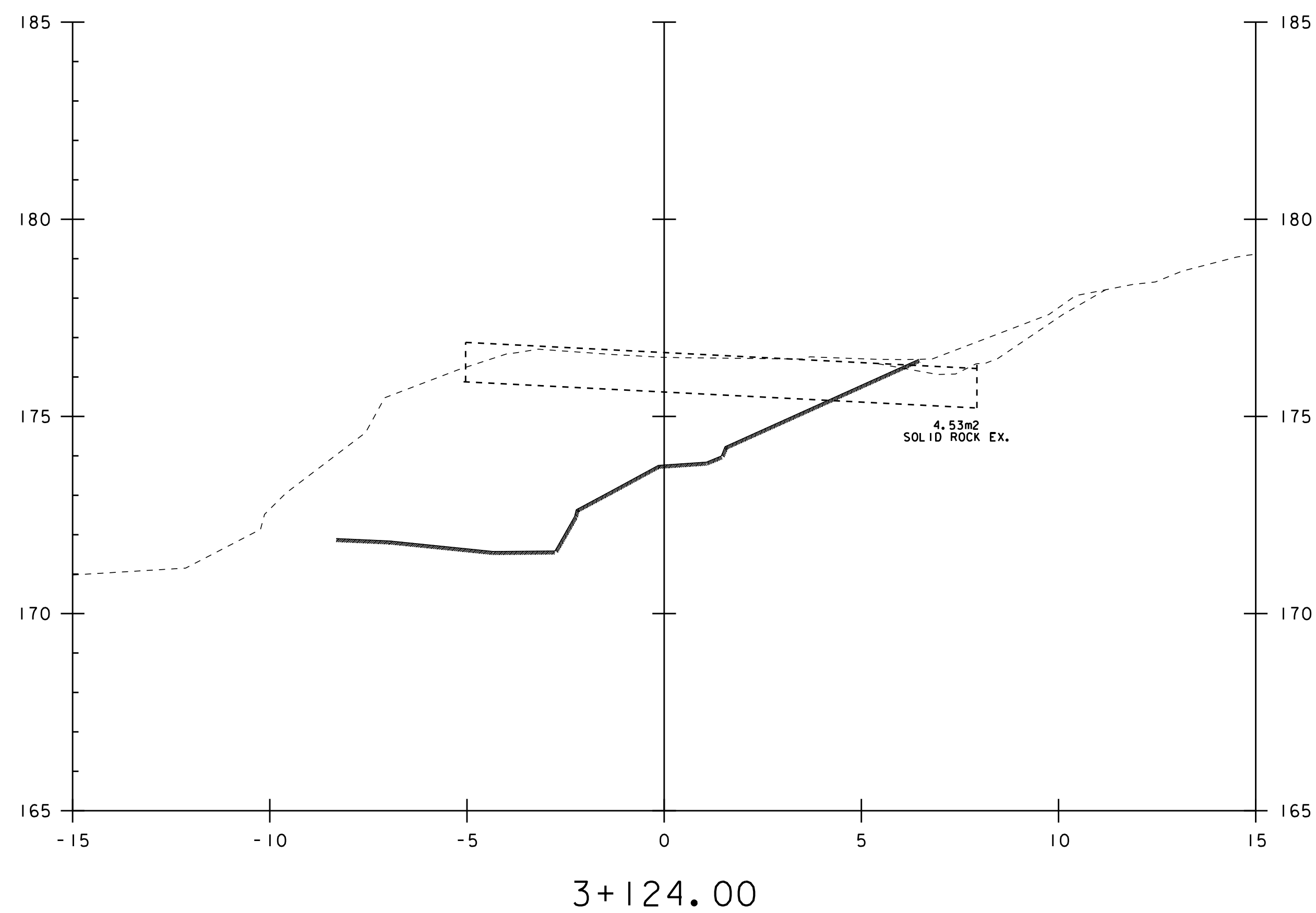
3+070.50



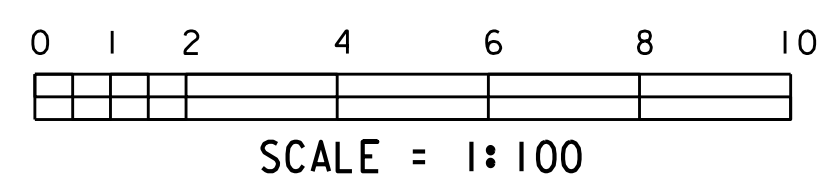
3+078.50

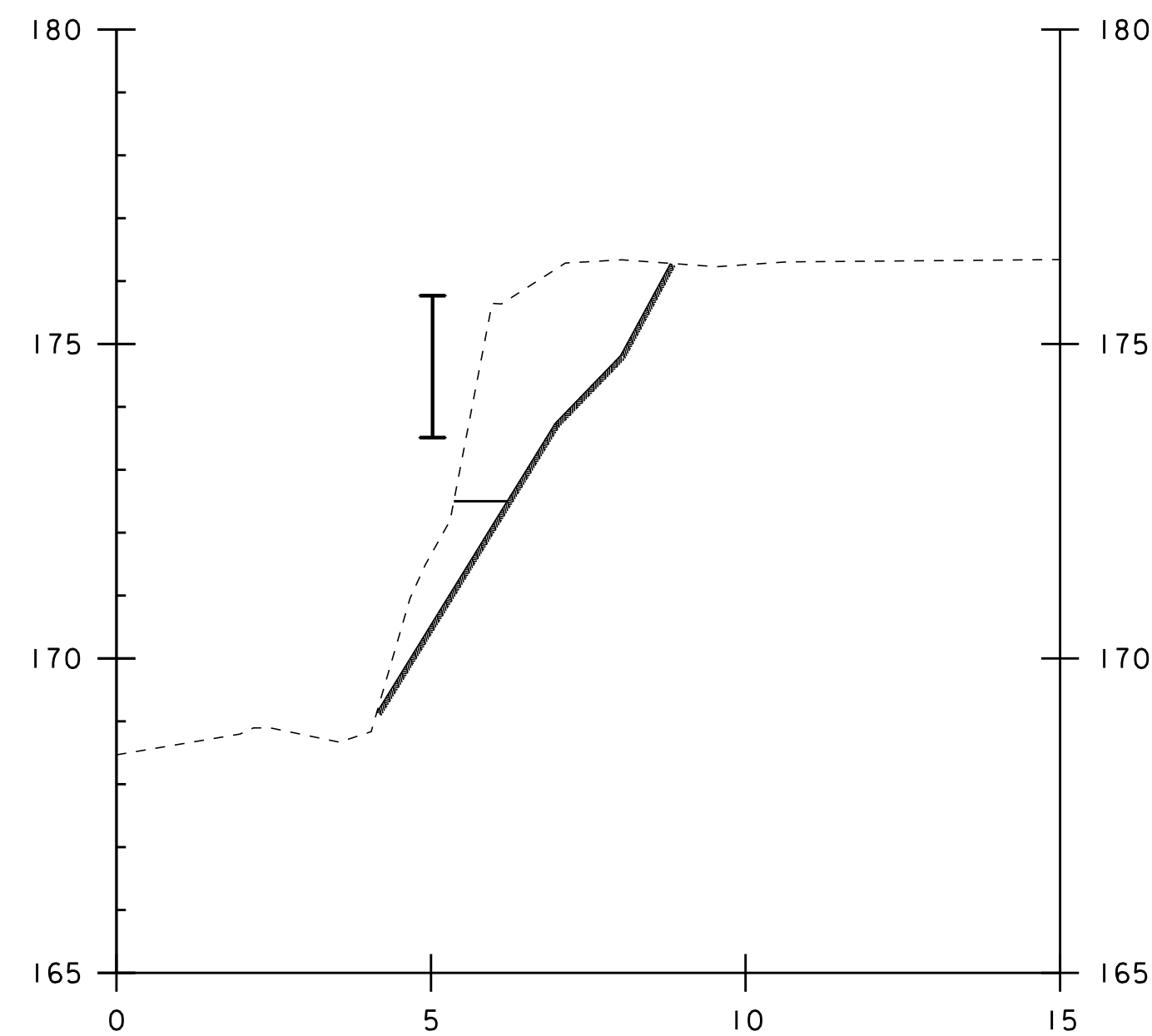
RT5 MAINLINE
GRANULAR BORROW



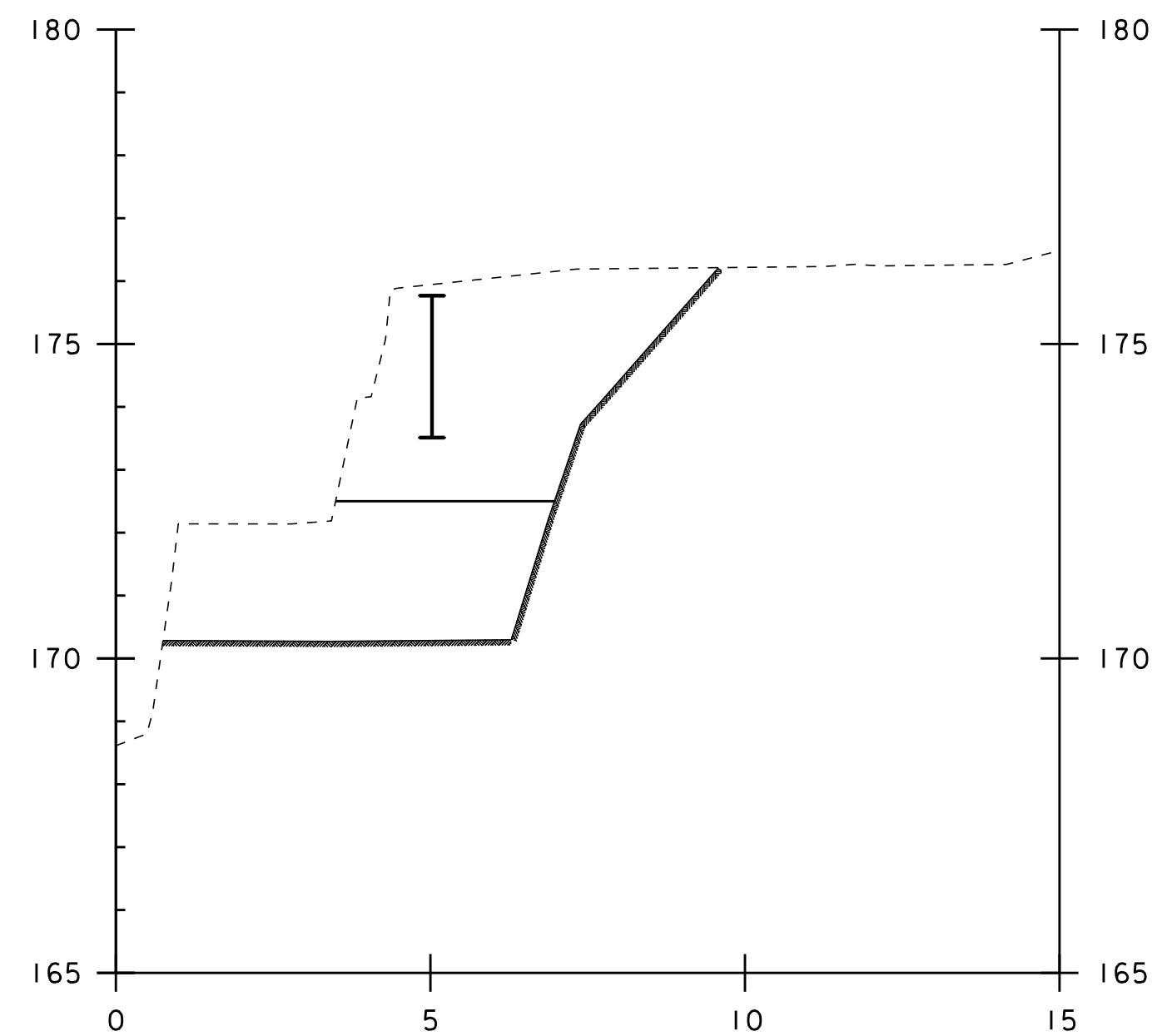


RT5 MAINLINE SOLID ROCK EXCAVATION

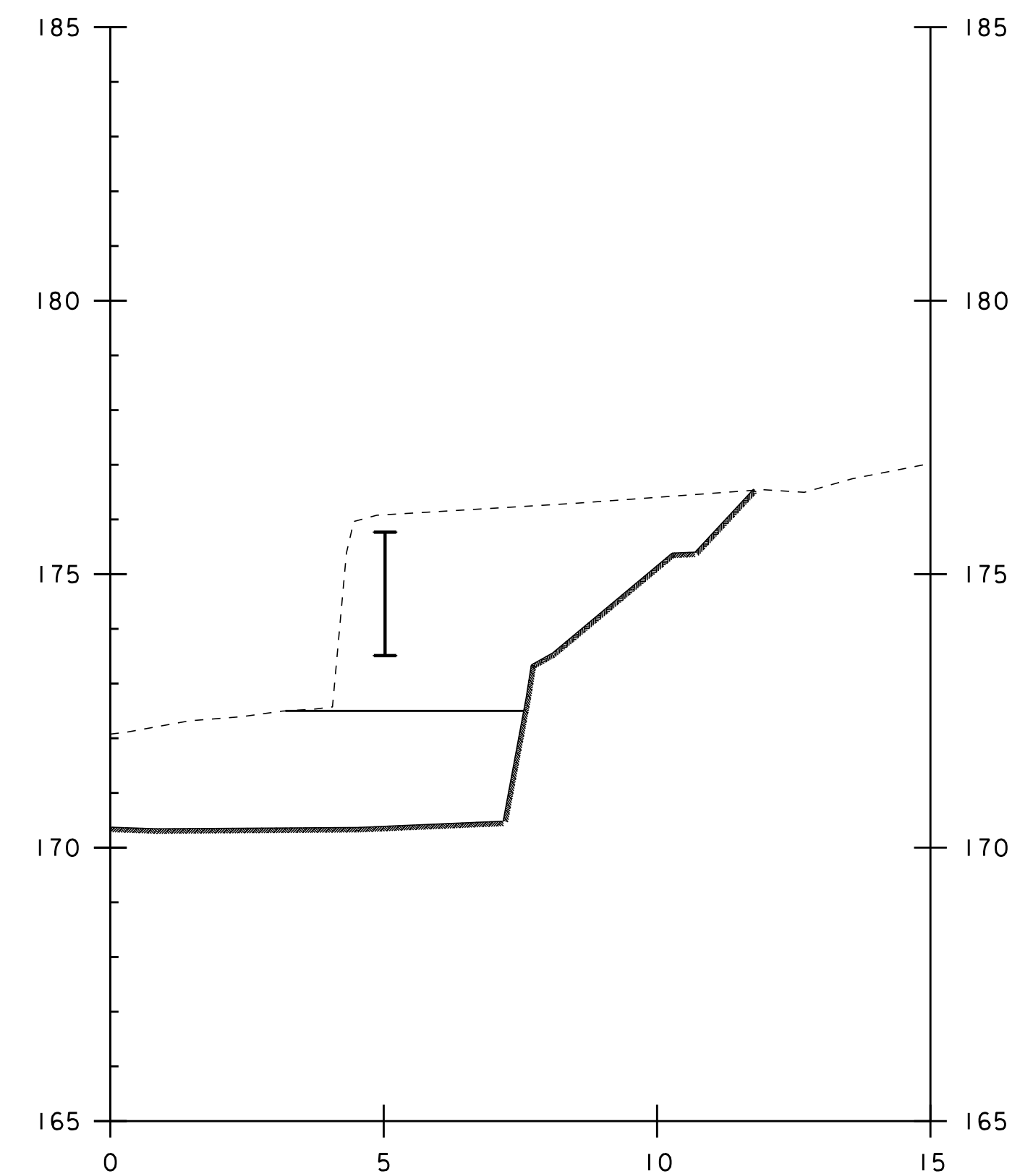




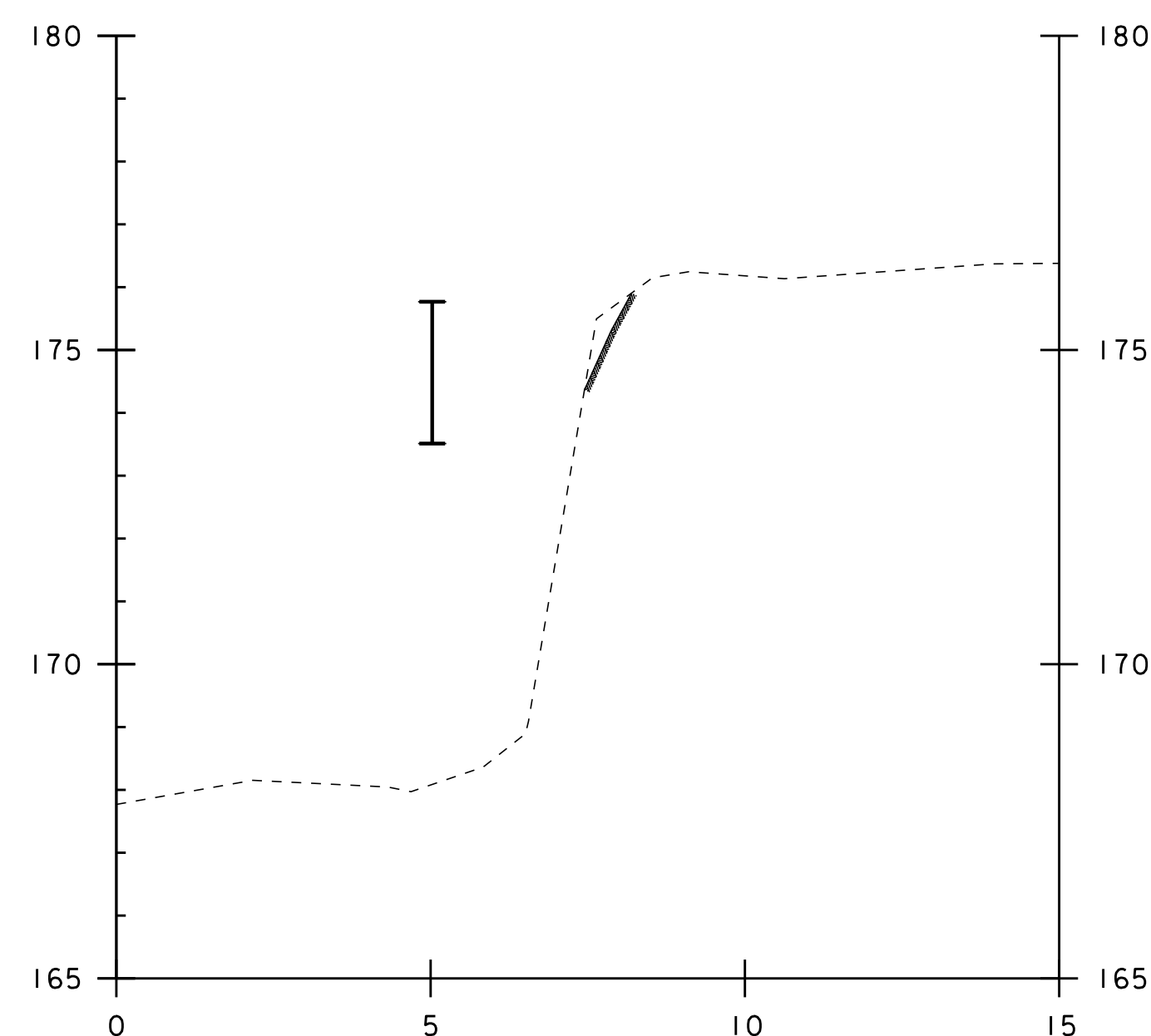
3+110.30



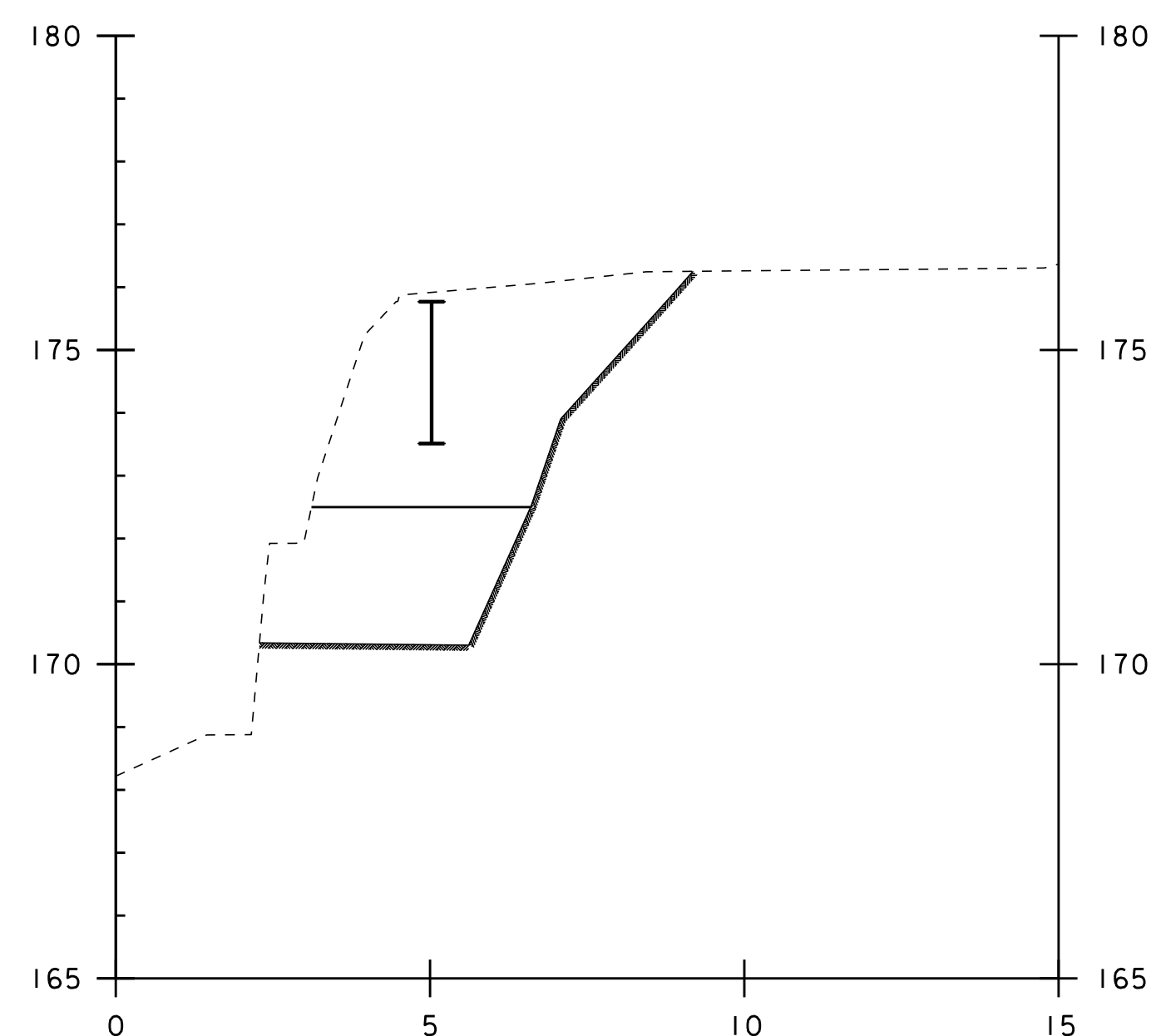
3+114.30



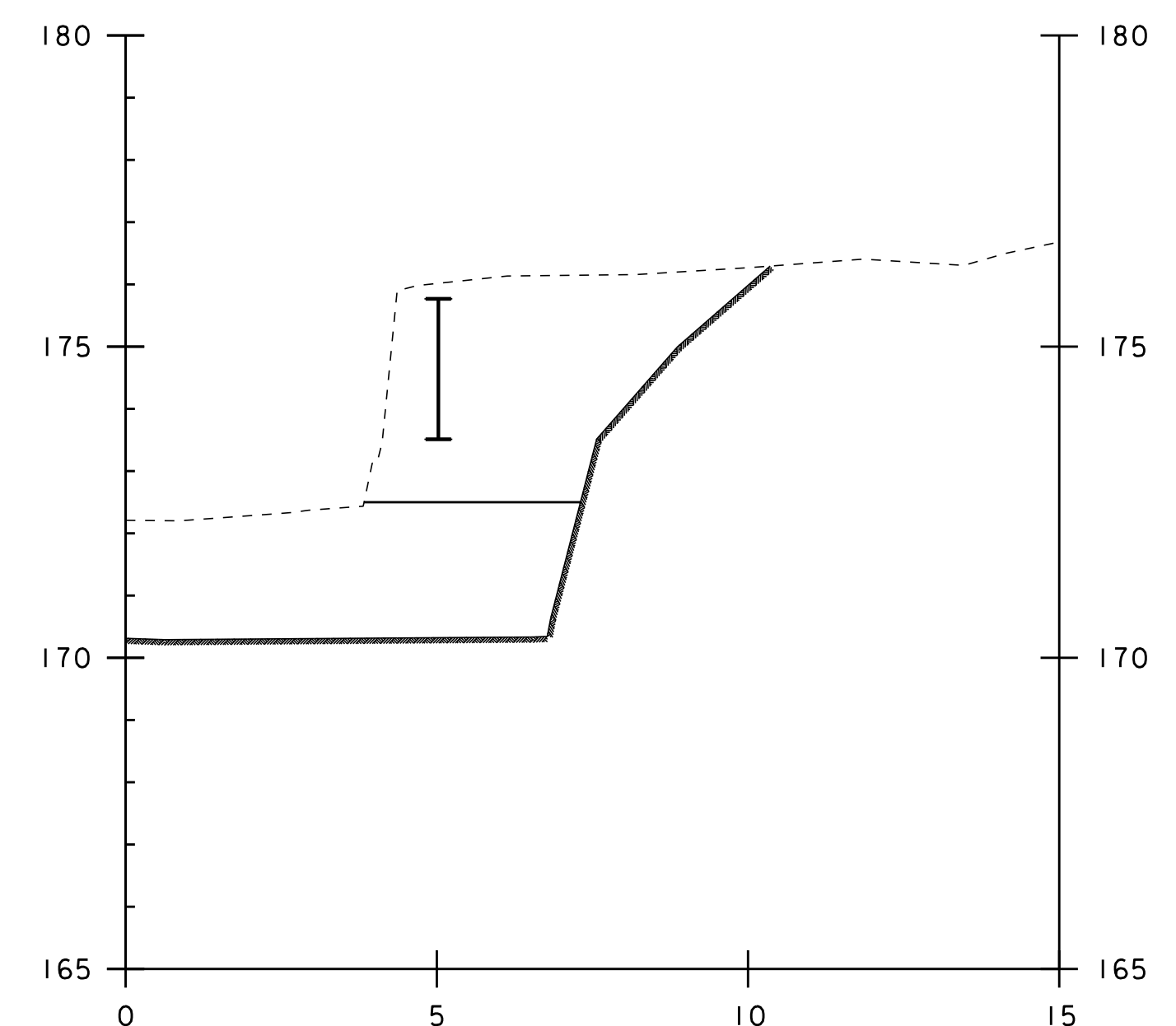
3+118.30



3+108.30

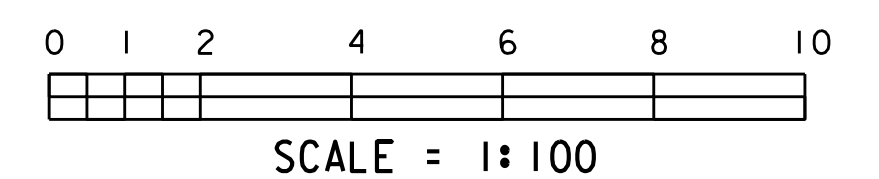


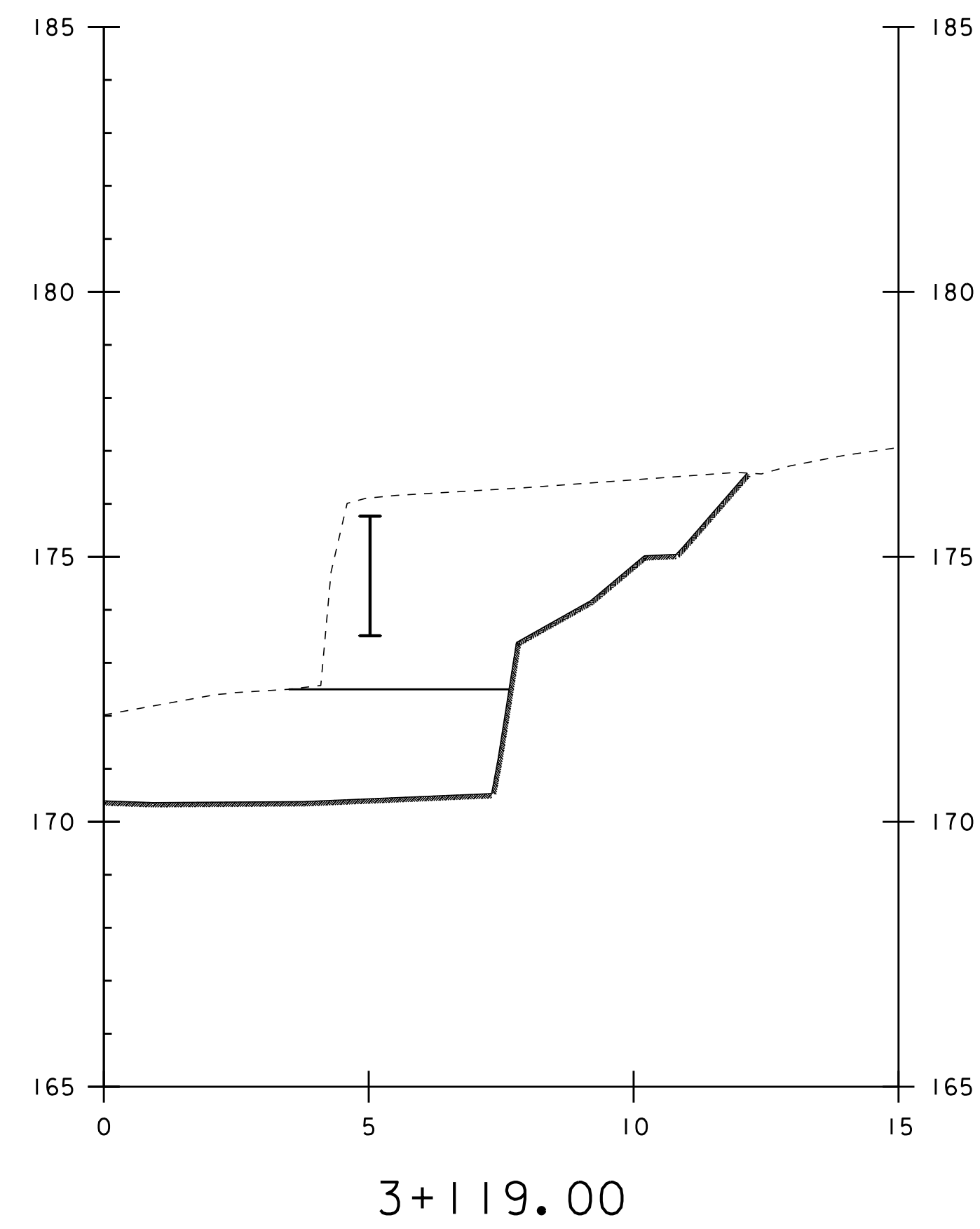
3+112.30



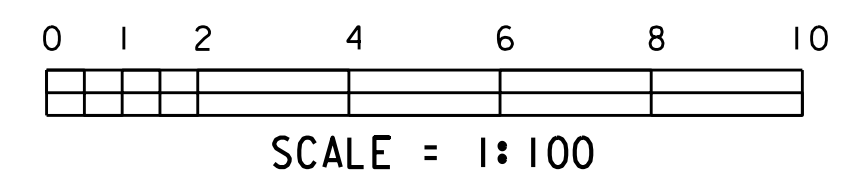
3+116.30

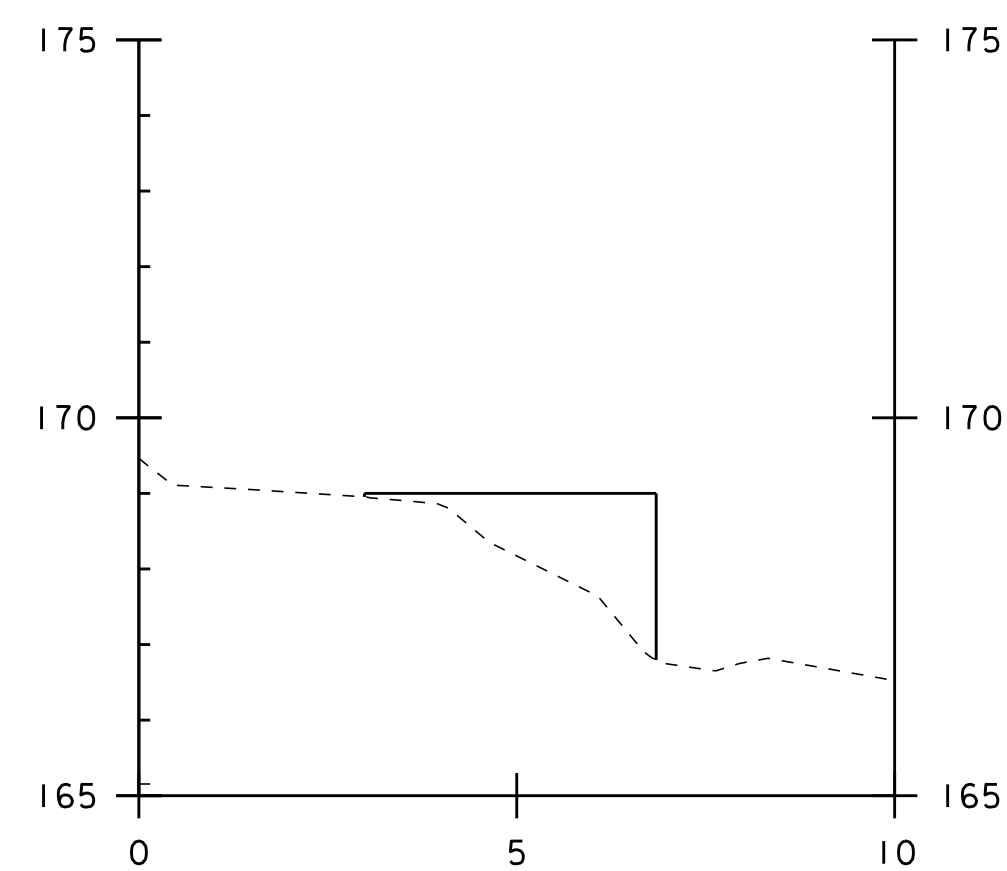
GIRDER 5 CLEARANCE UNCLASSIFIED CHANNEL EXCAVATION



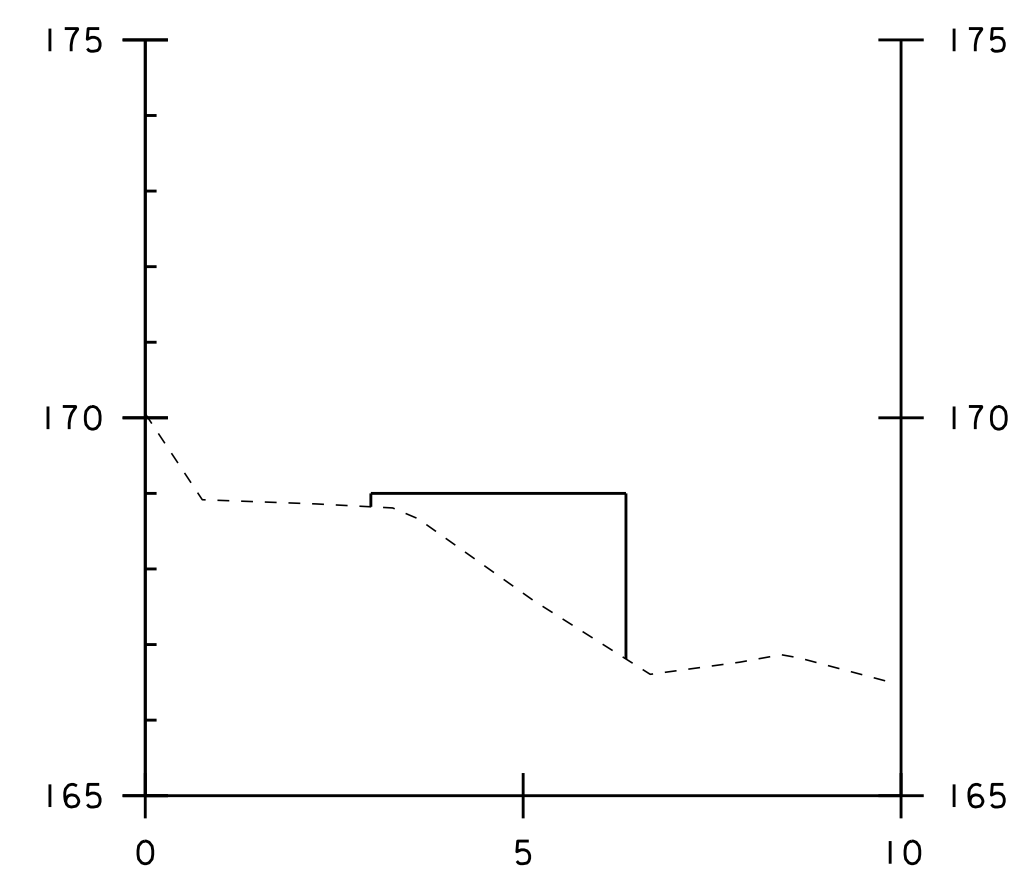


GIRDER 5 CLEARANCE
UNCLASSIFIED CHANNEL EXCAVATION

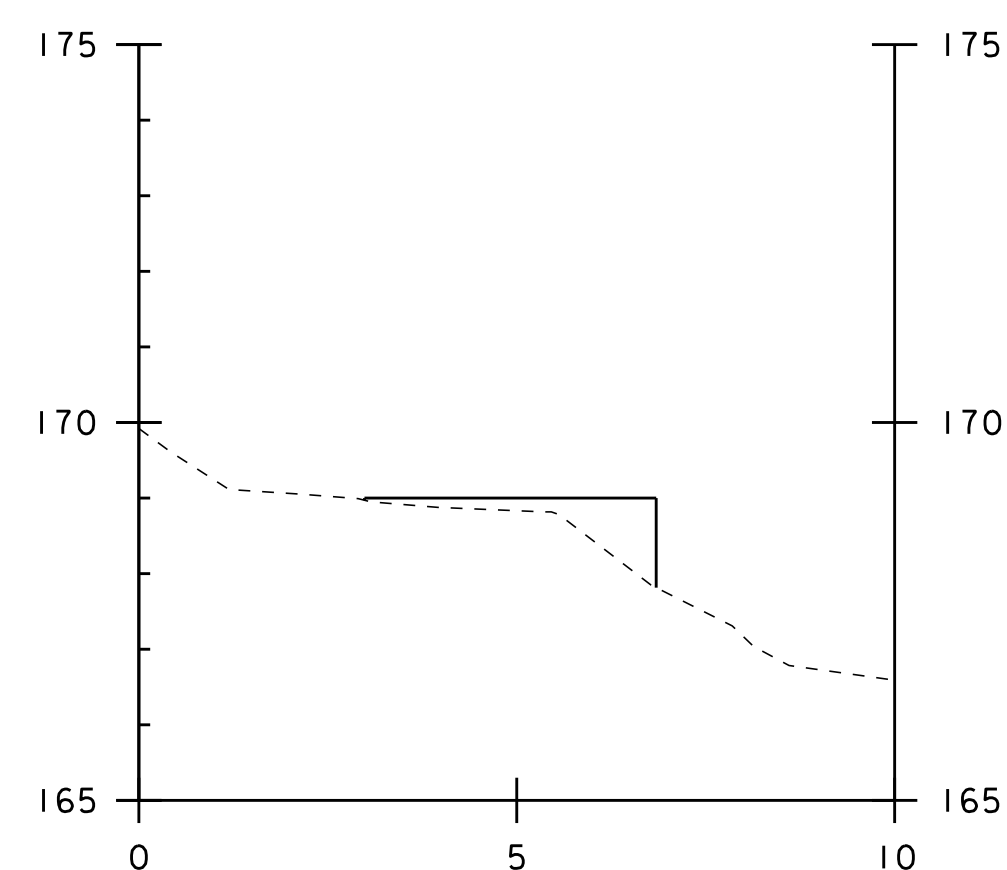




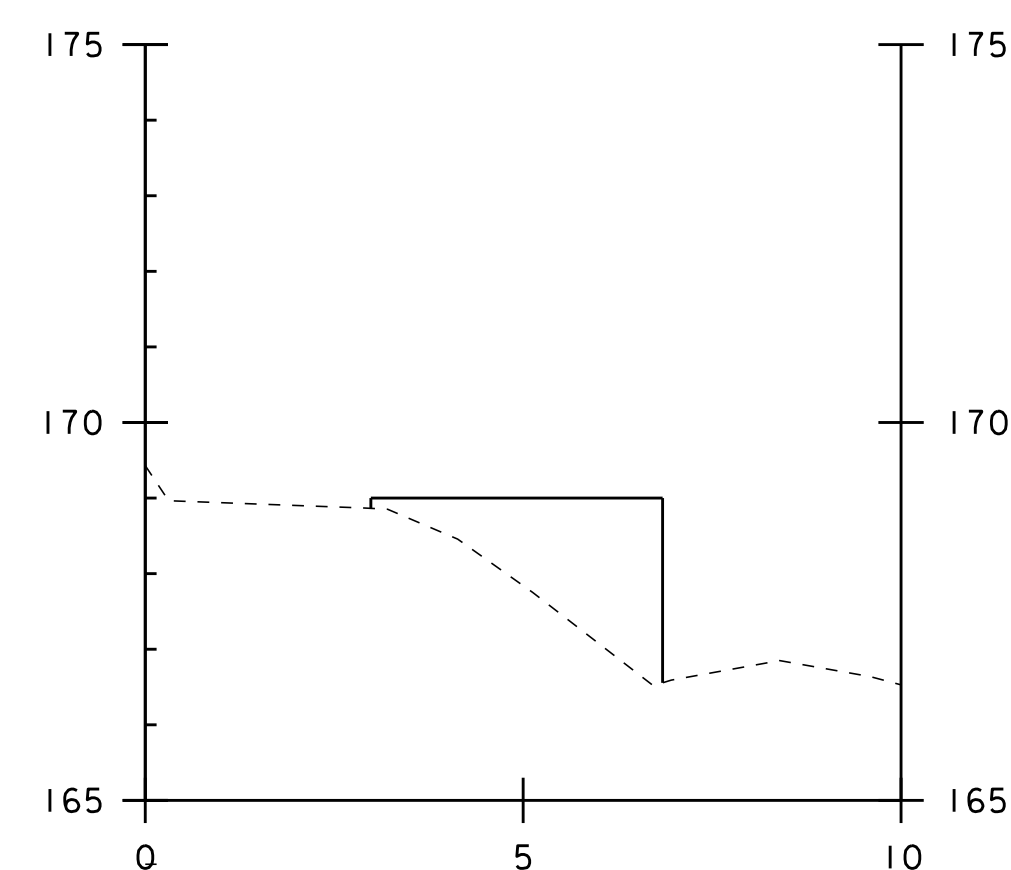
3+077.00



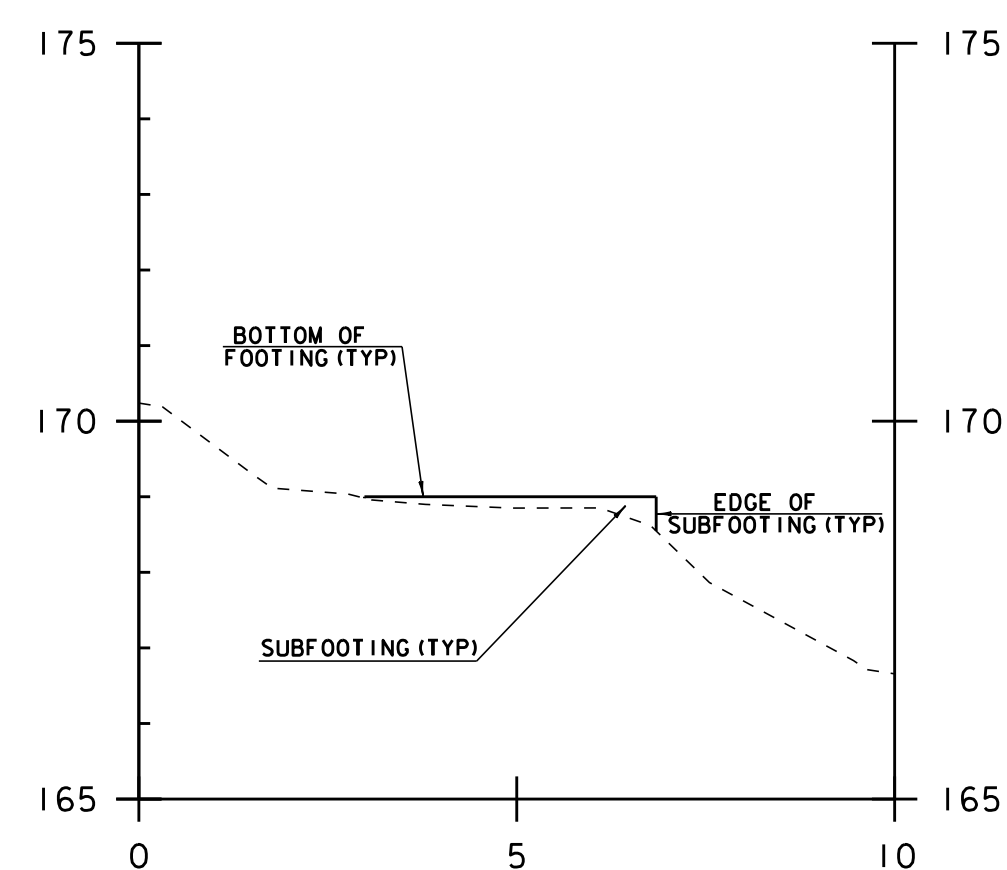
3+080.00



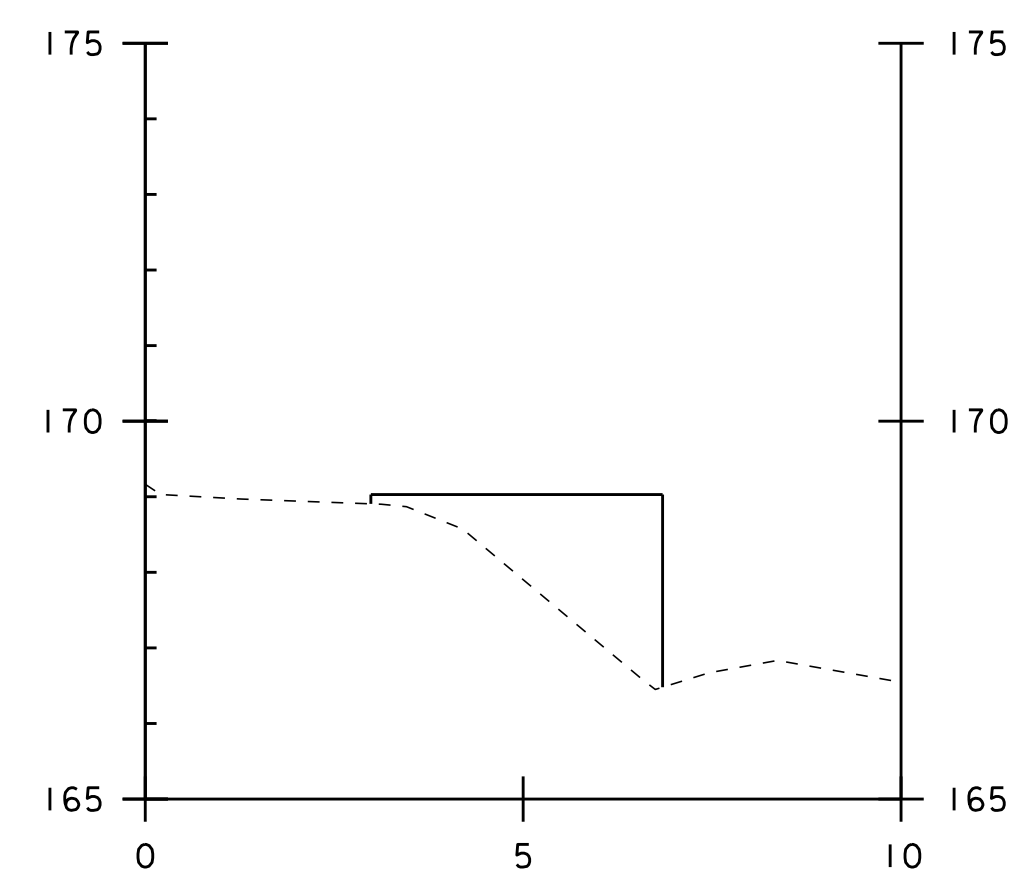
3+076.00



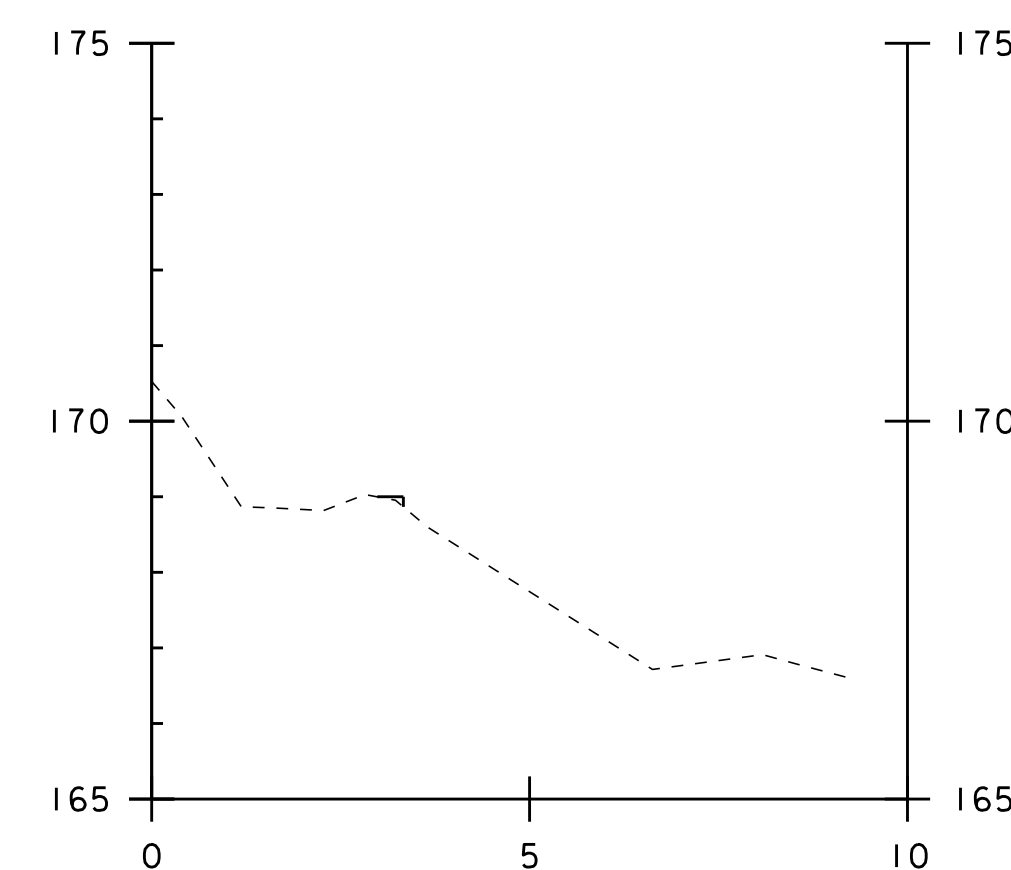
3+079.00



3+075.00

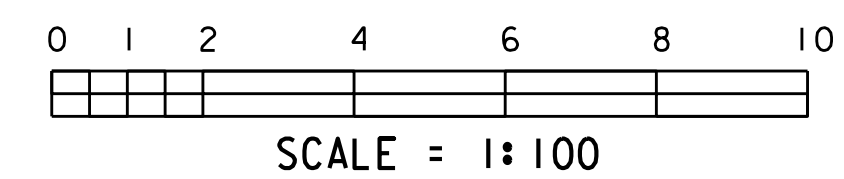


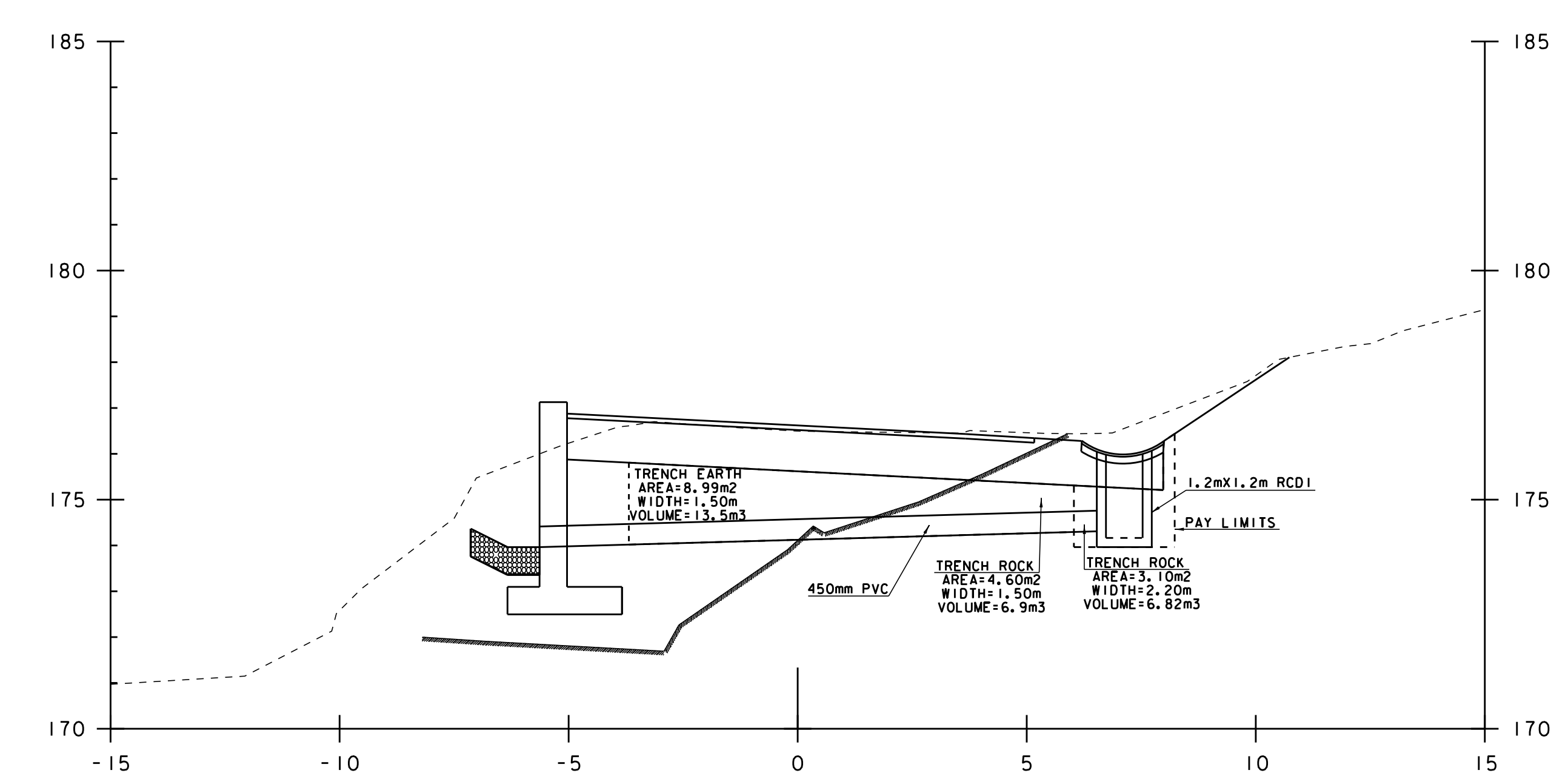
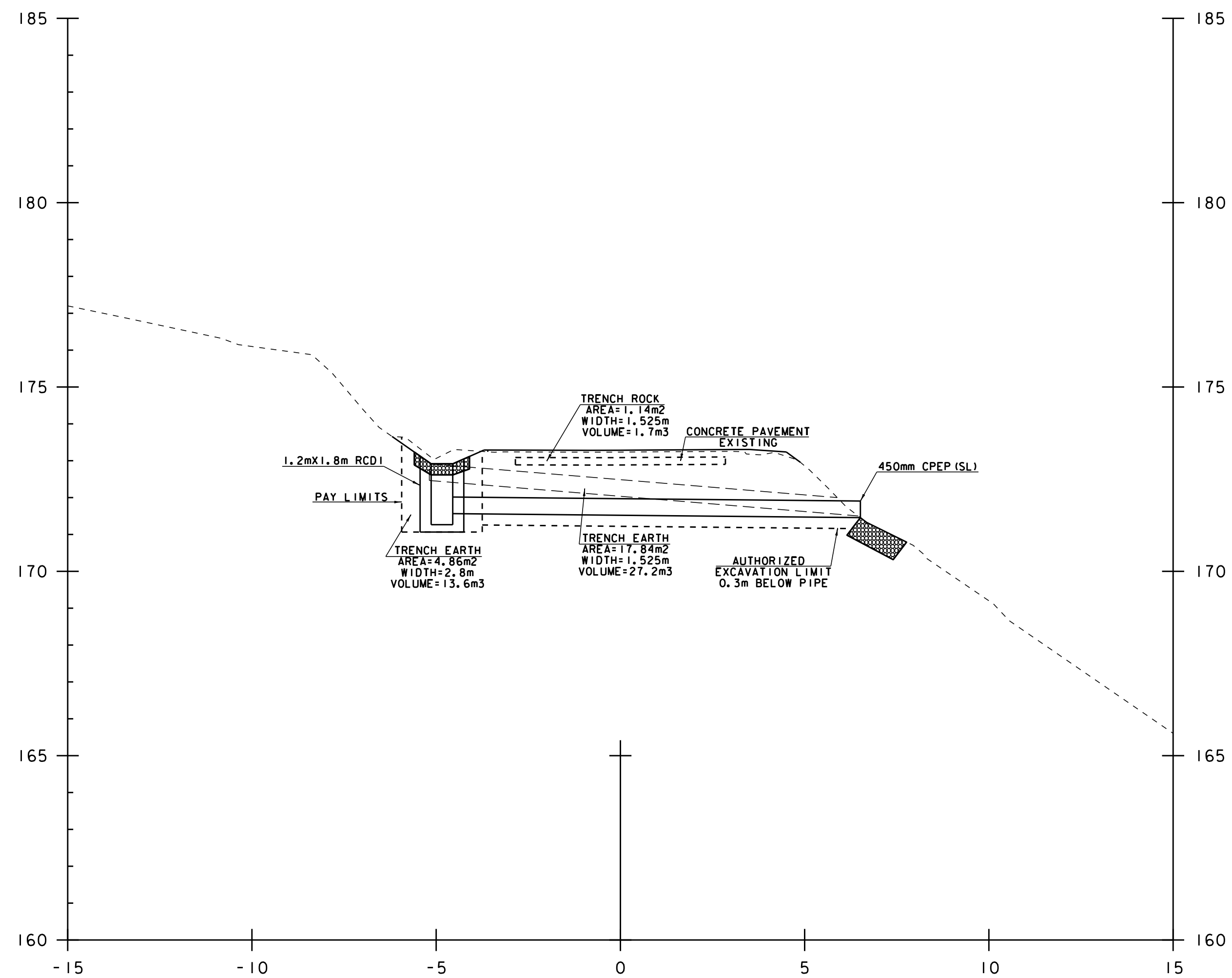
3+078.00



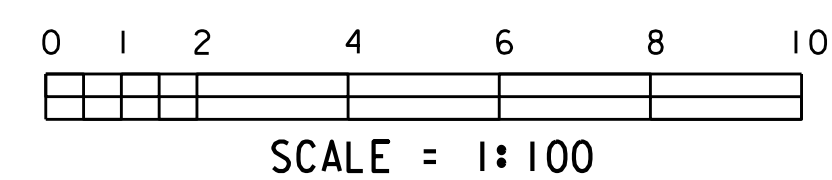
3+081.00

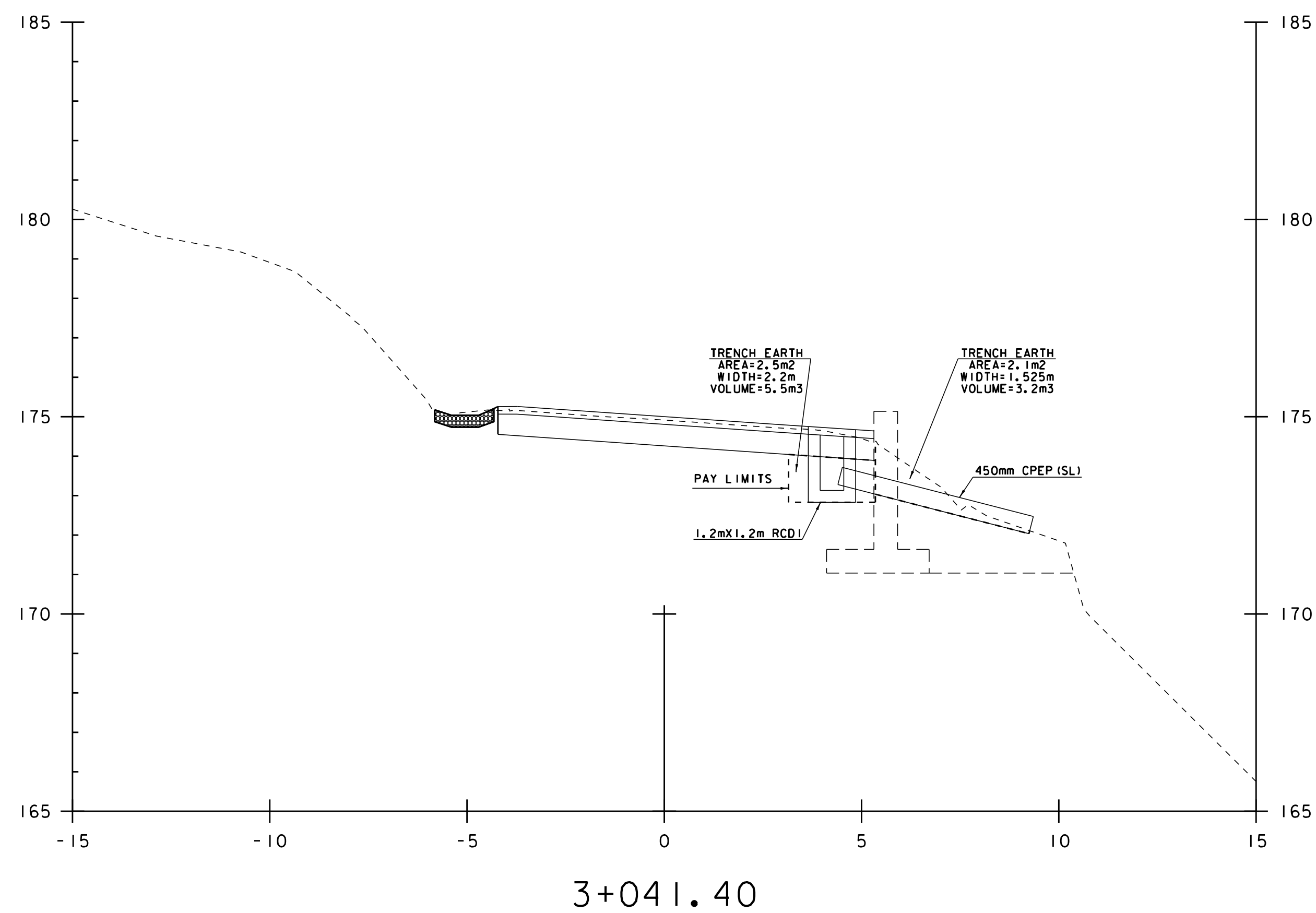
ABUTMENT ONE SUBFOOTING CONCRETE



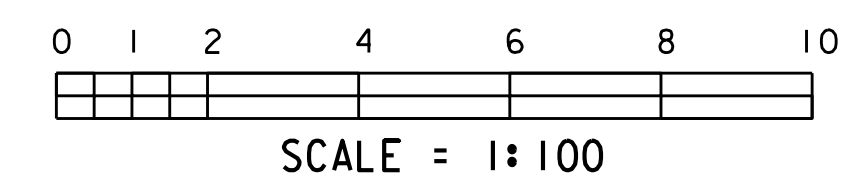


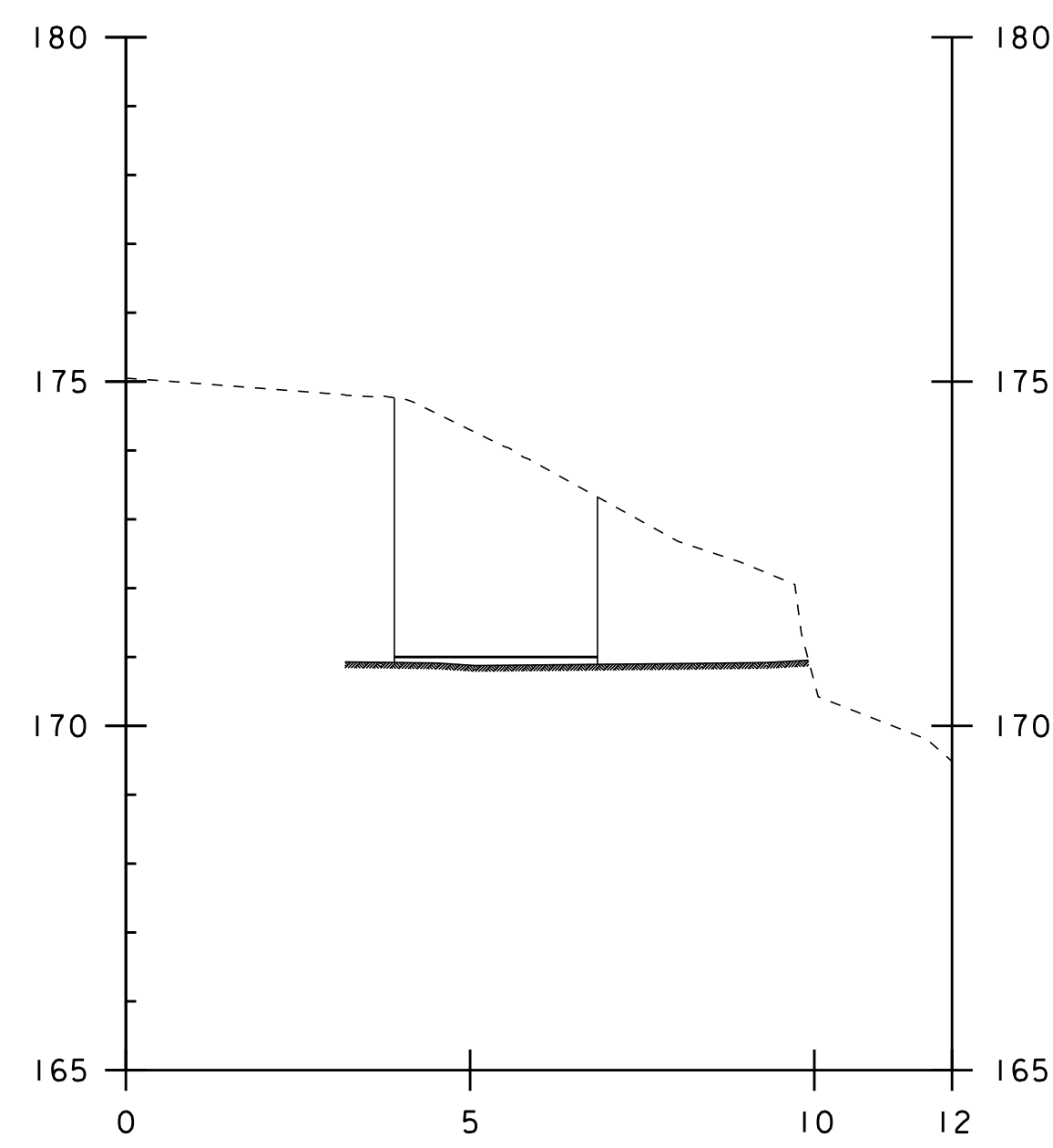
TRENCH EXCAVATION OF EARTH --- TRENCH EXCAVATION OF ROCK



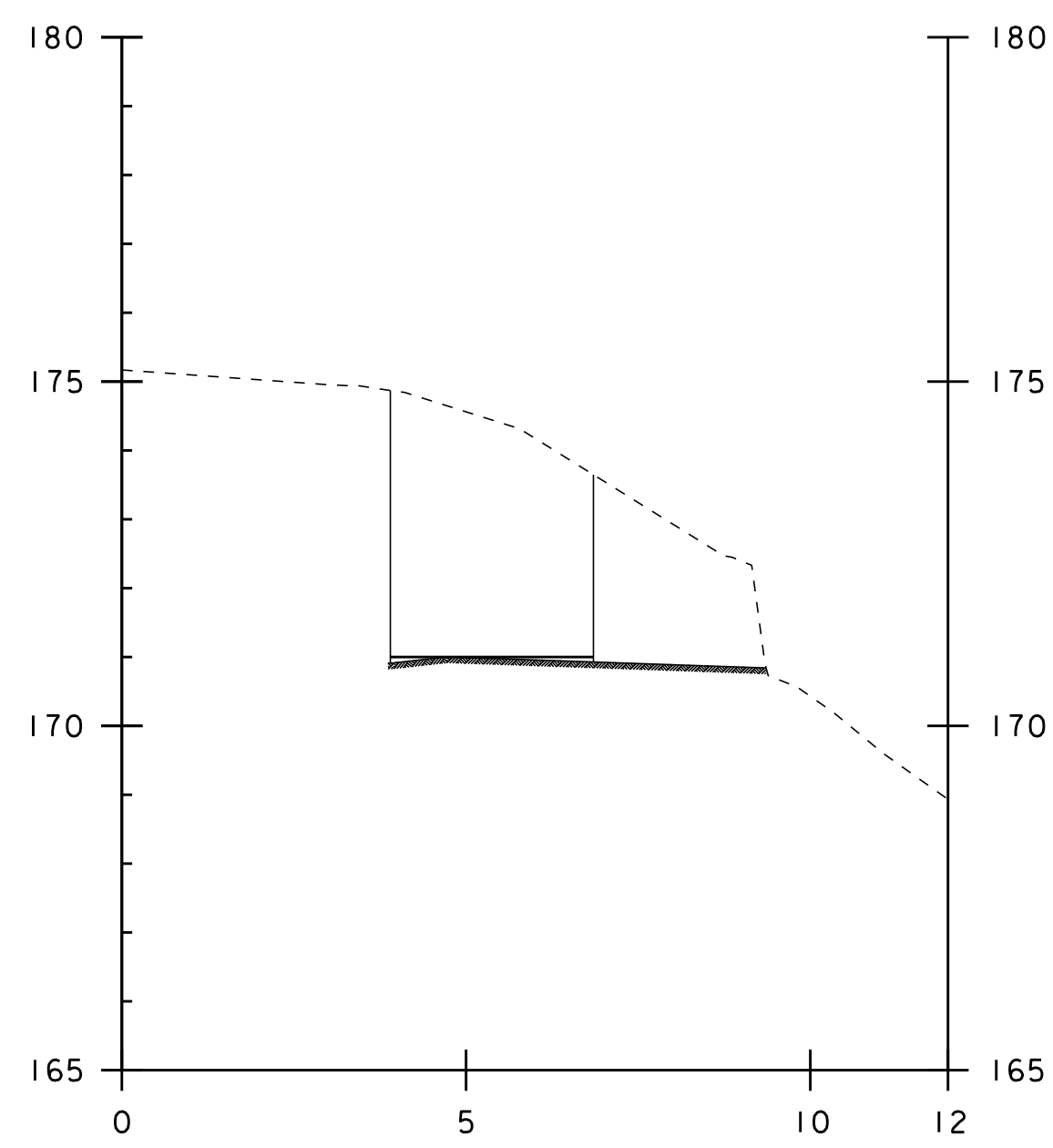


TRENCH EXCAVATION OF EARTH

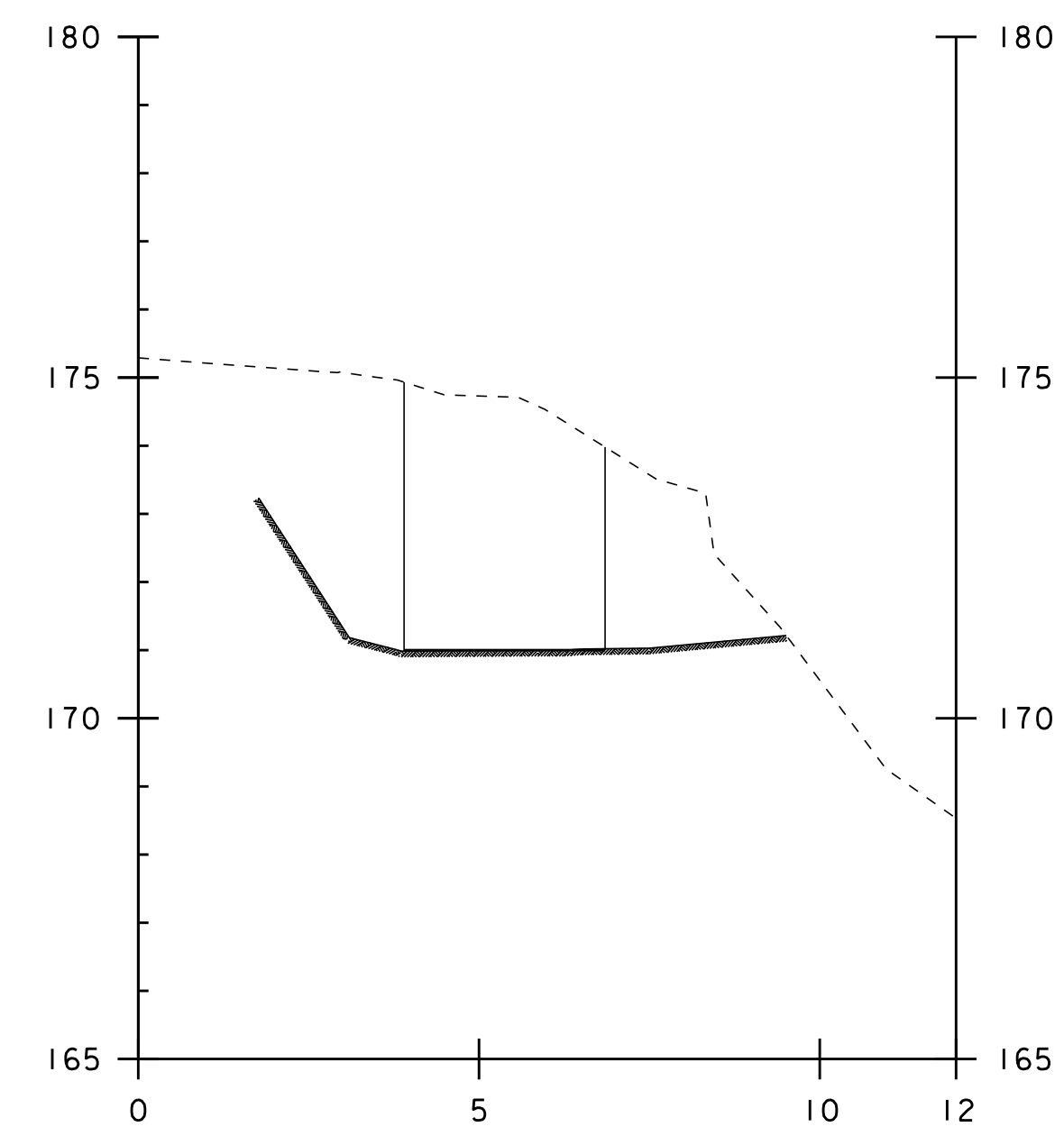




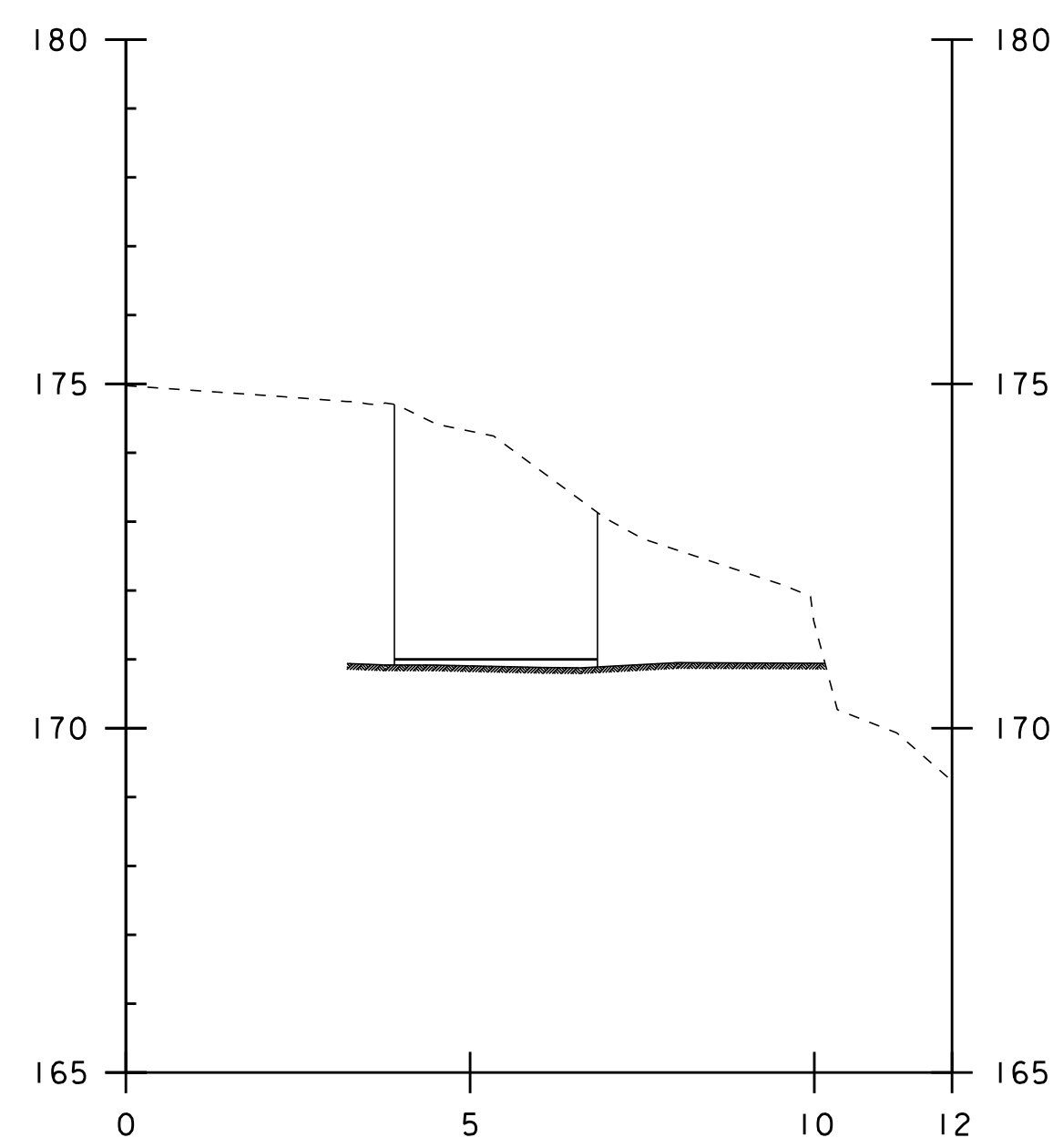
3+044.50



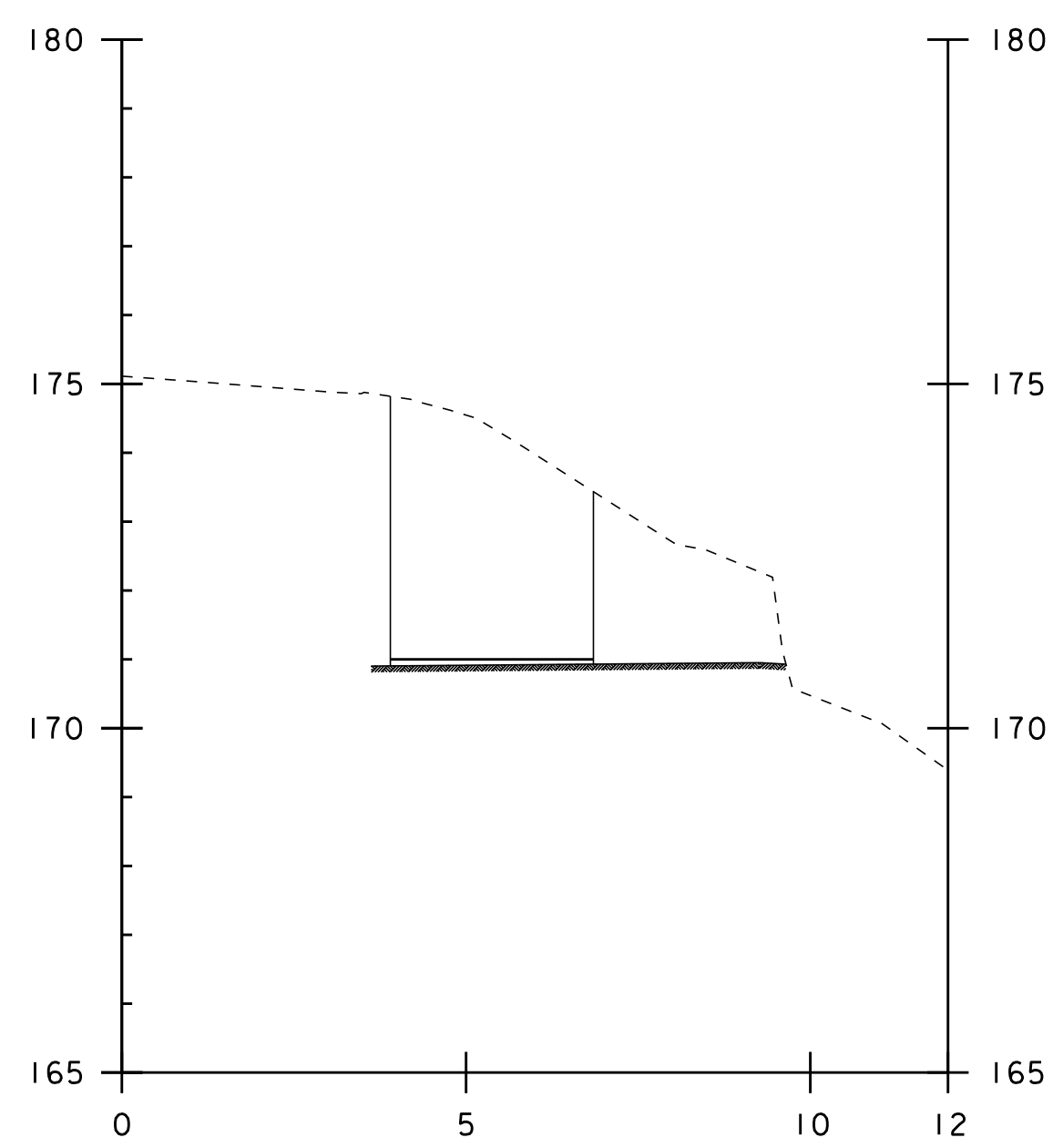
3+048.50



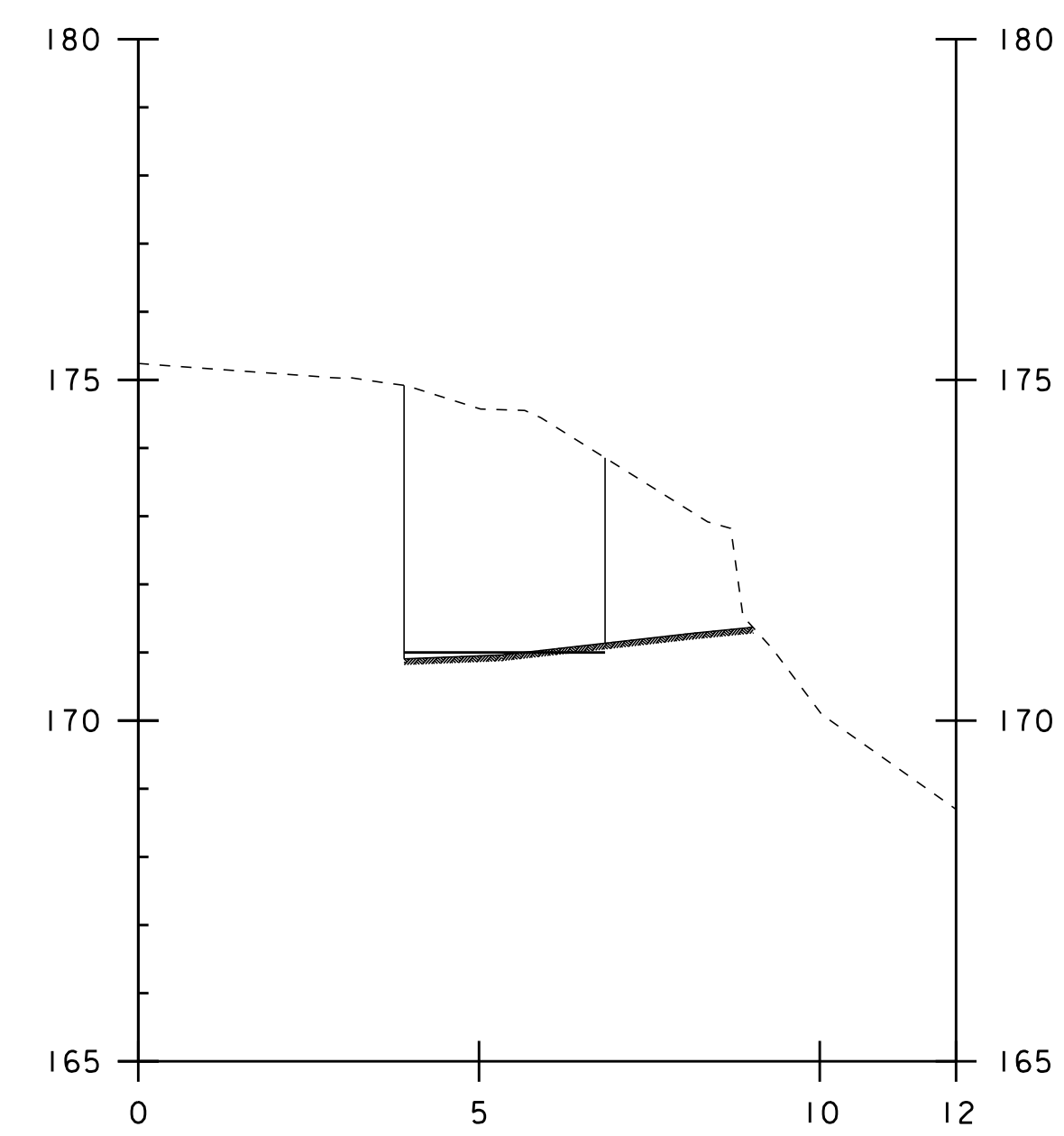
3+051.80



3+042.50

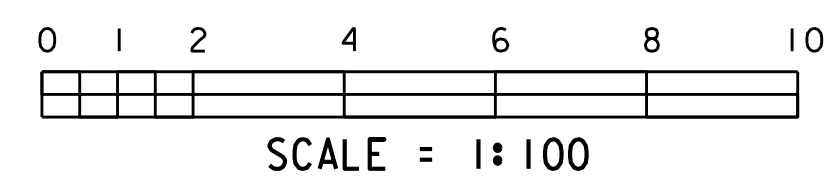


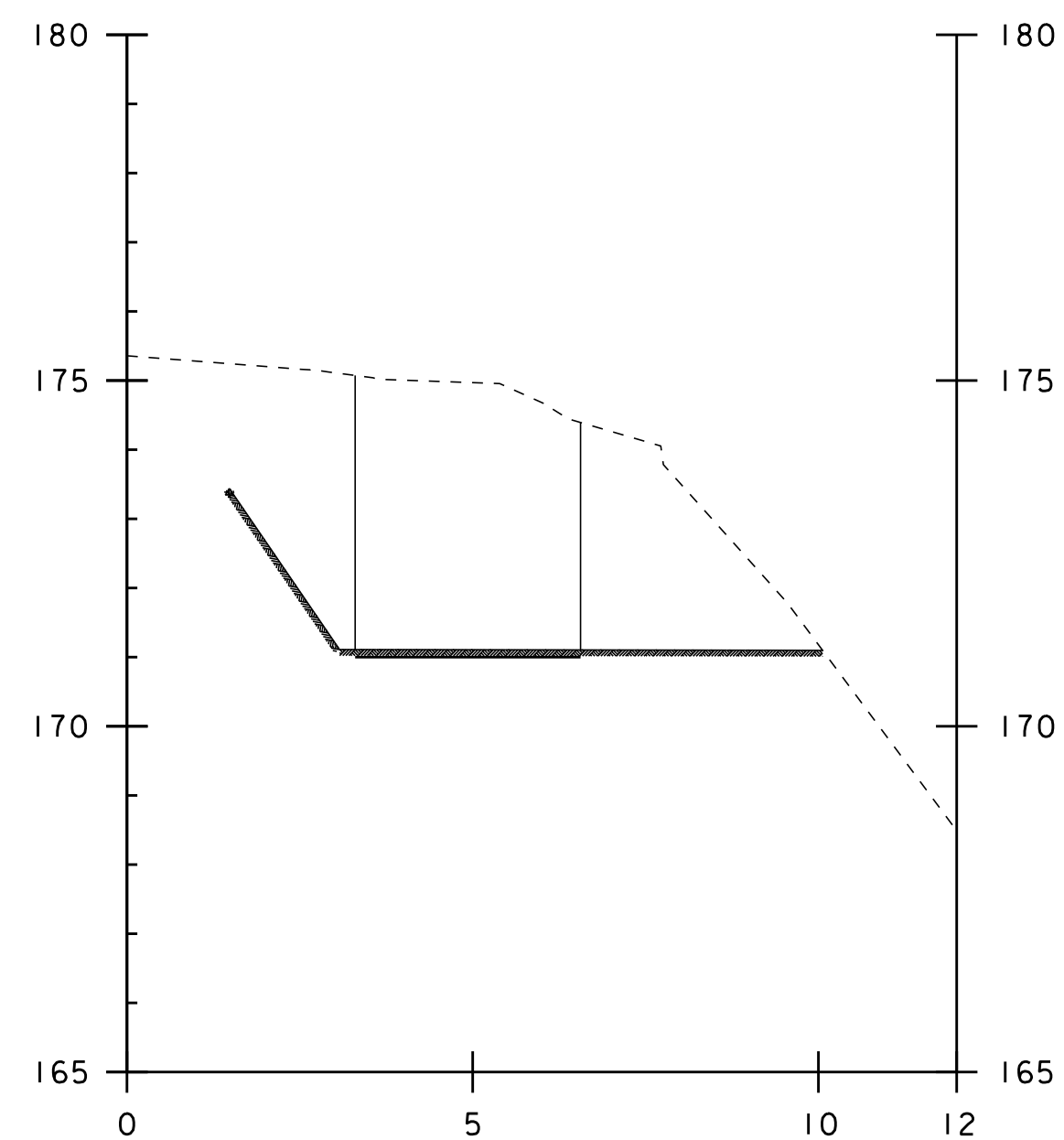
3+046.50



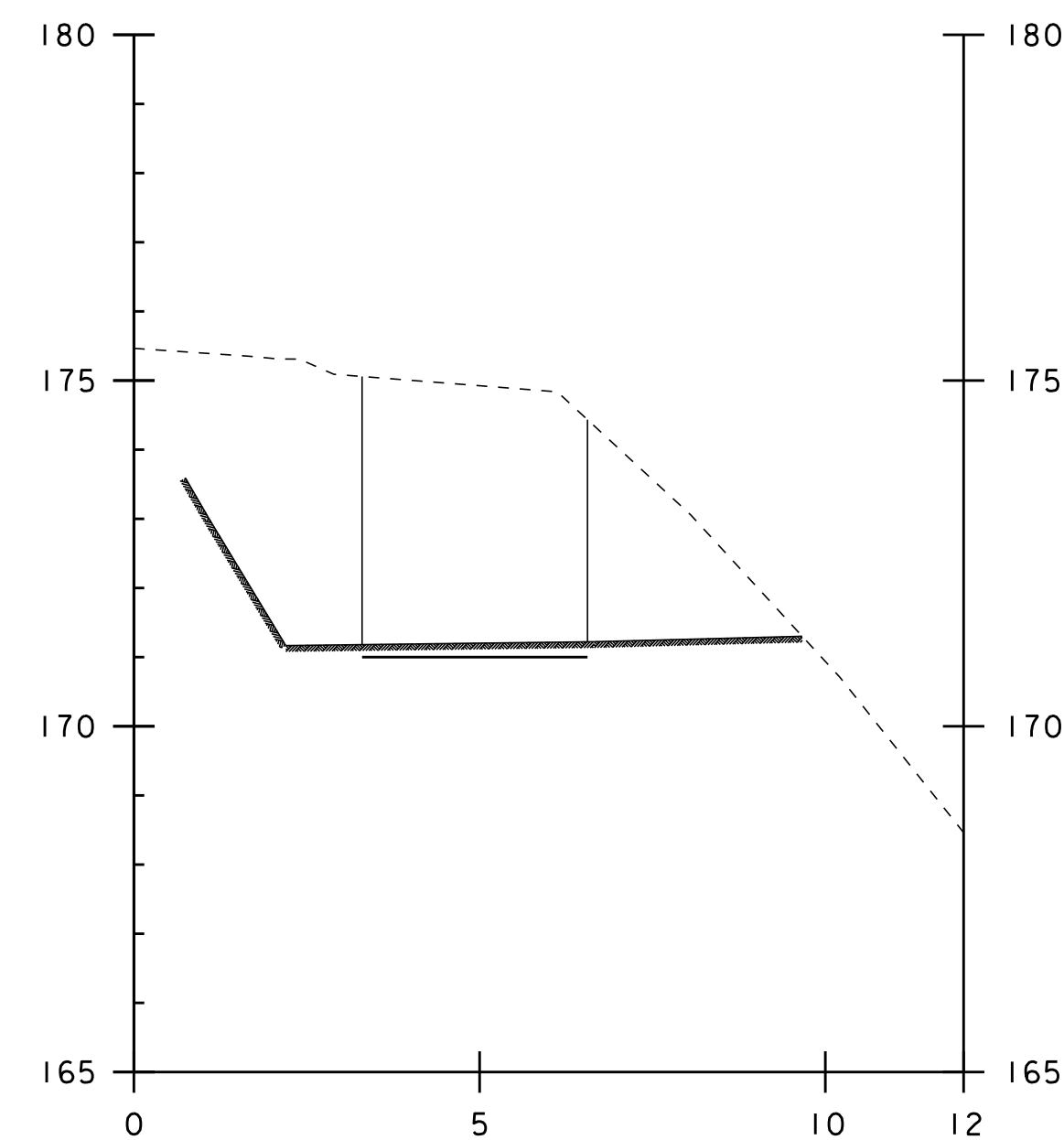
3+050.50

WINGWALL TWO
STRUCTURE EXCAVATION
UNCLASSIFIED CHANNEL EXCAVATION

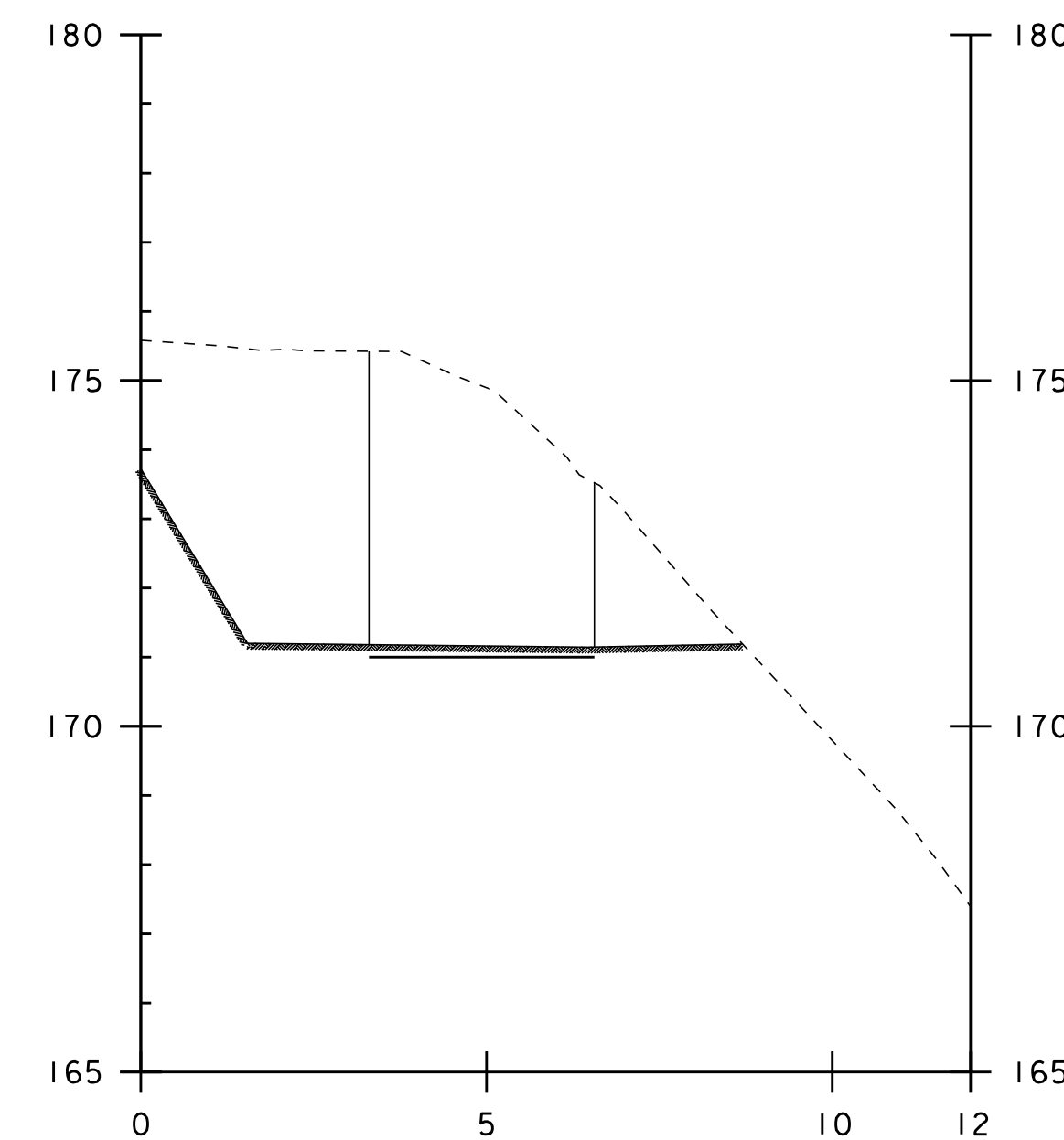




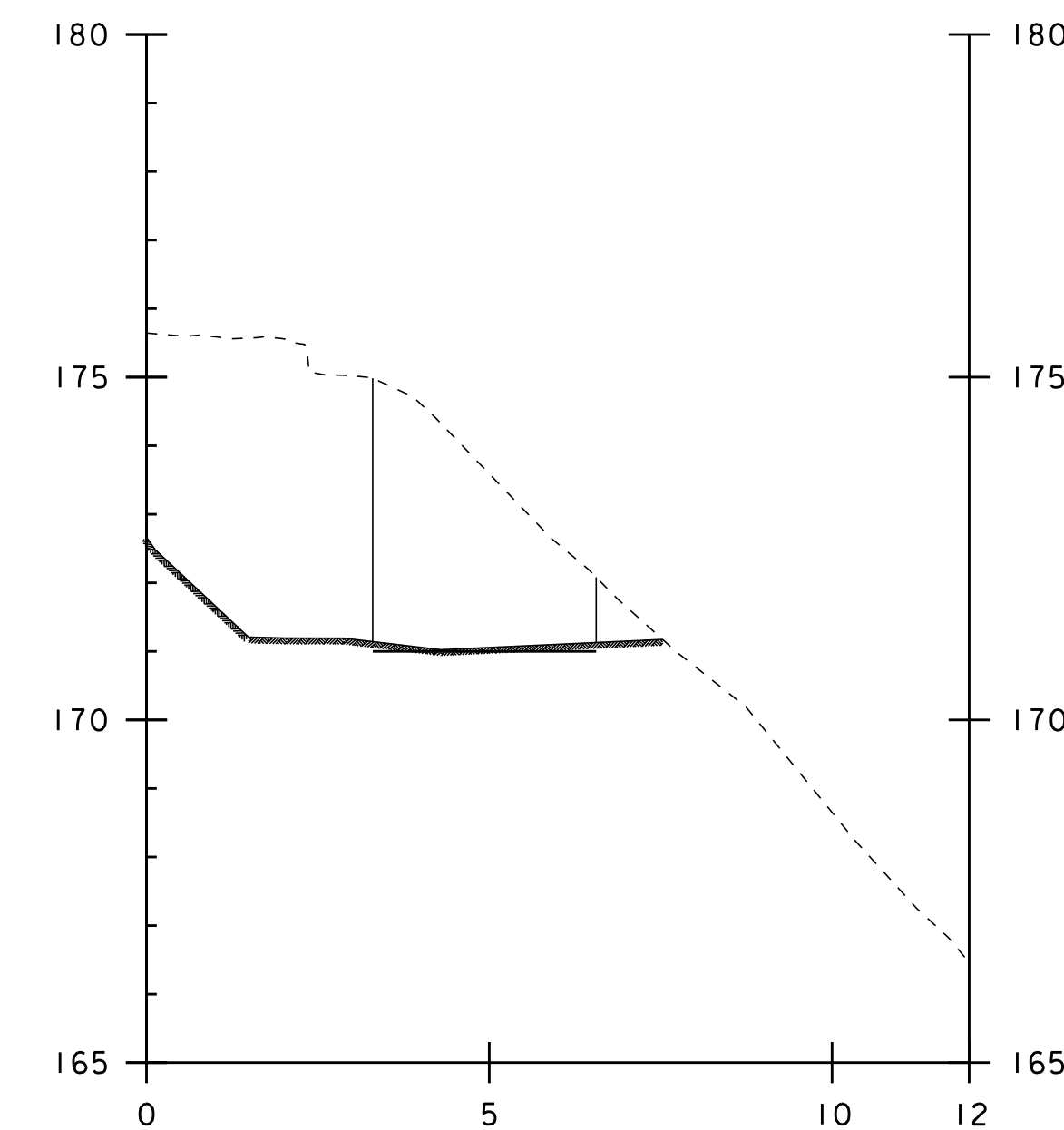
3+053.80



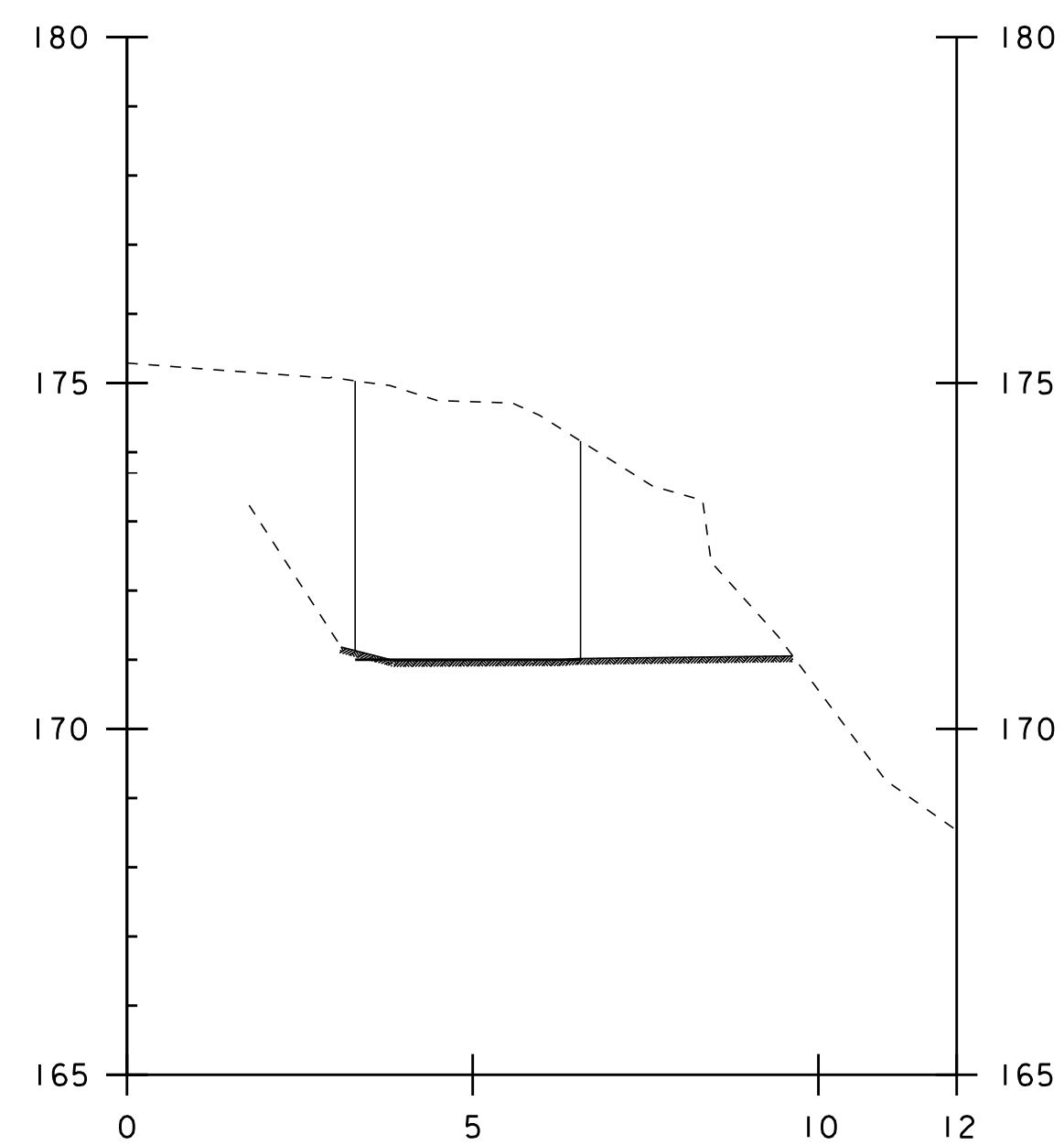
3+057.80



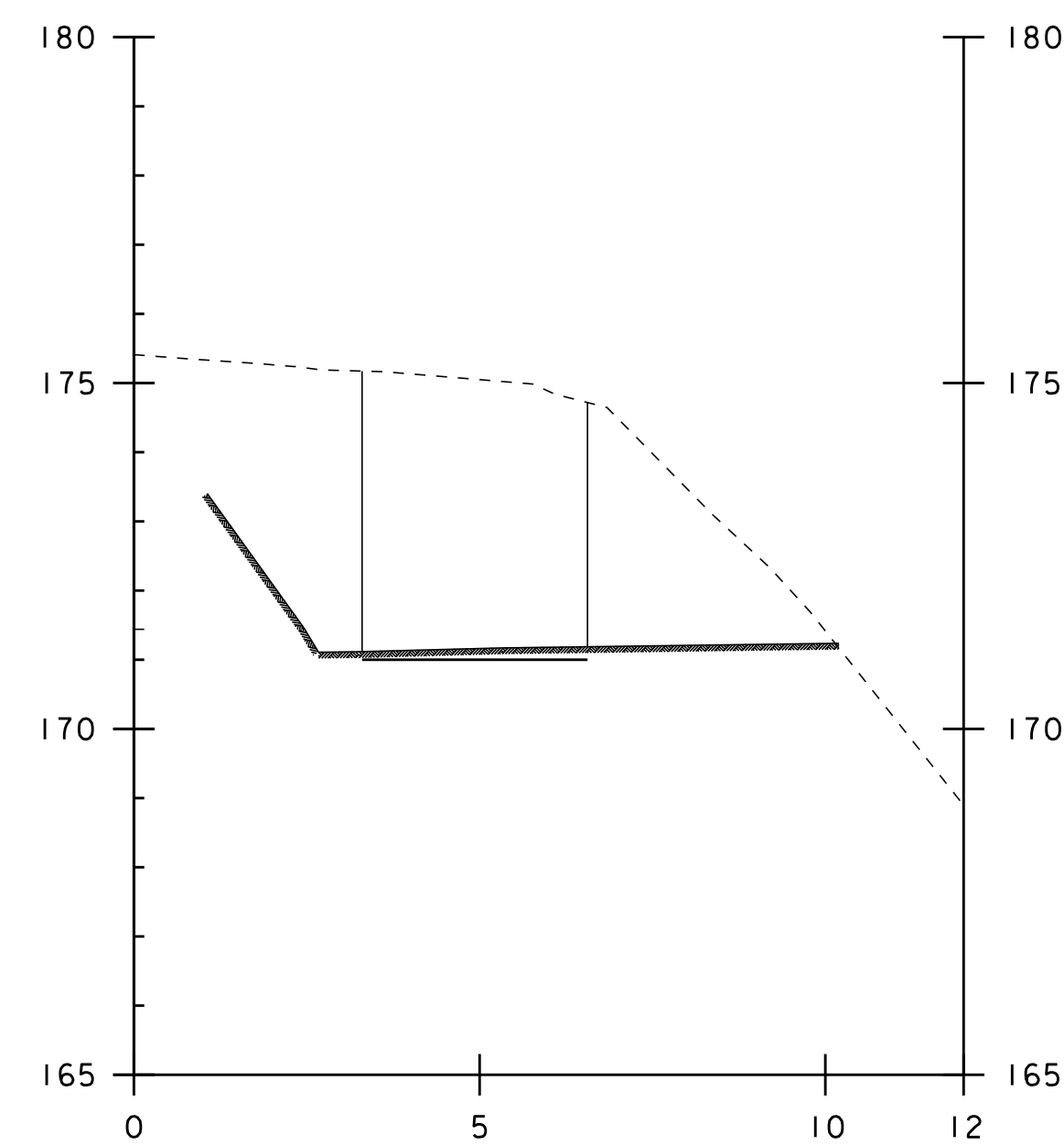
3+061.80



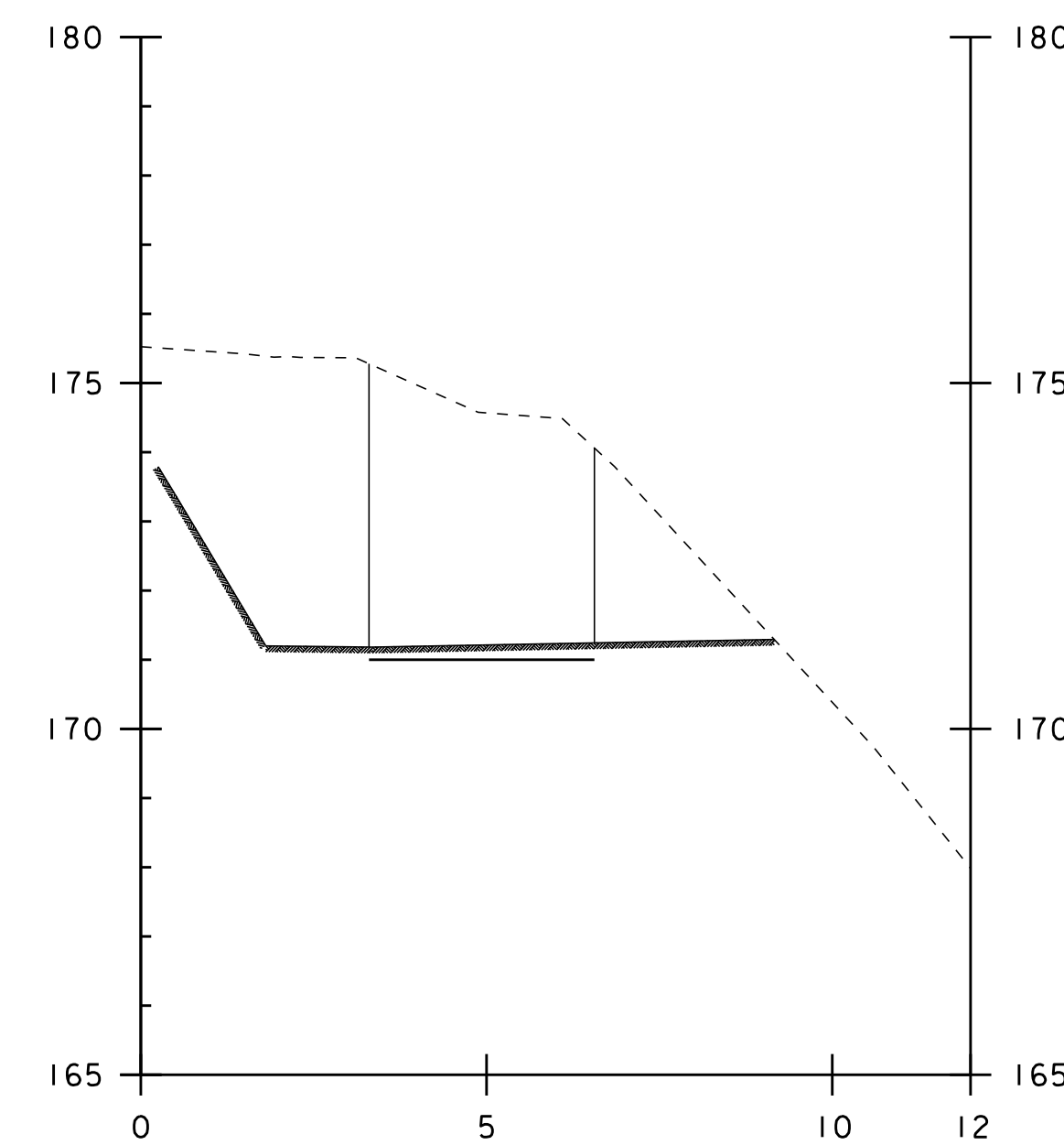
3+065.80



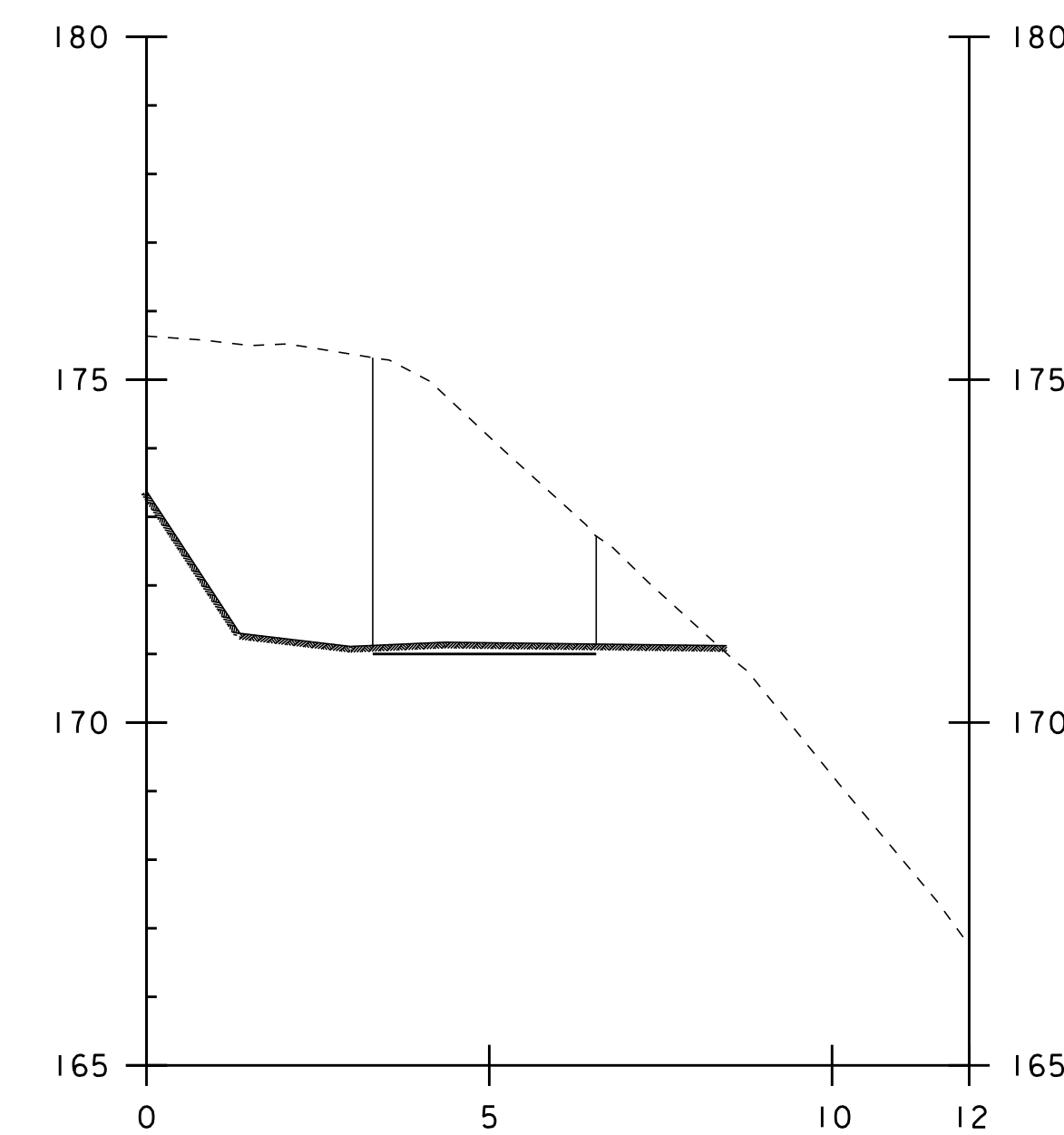
3+051.80



3+055.80

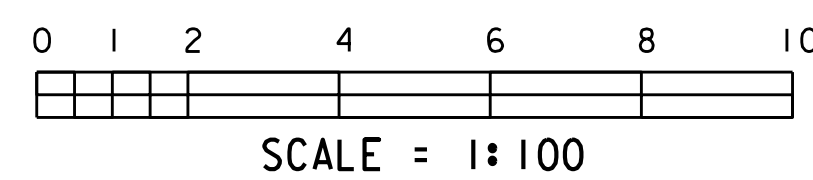


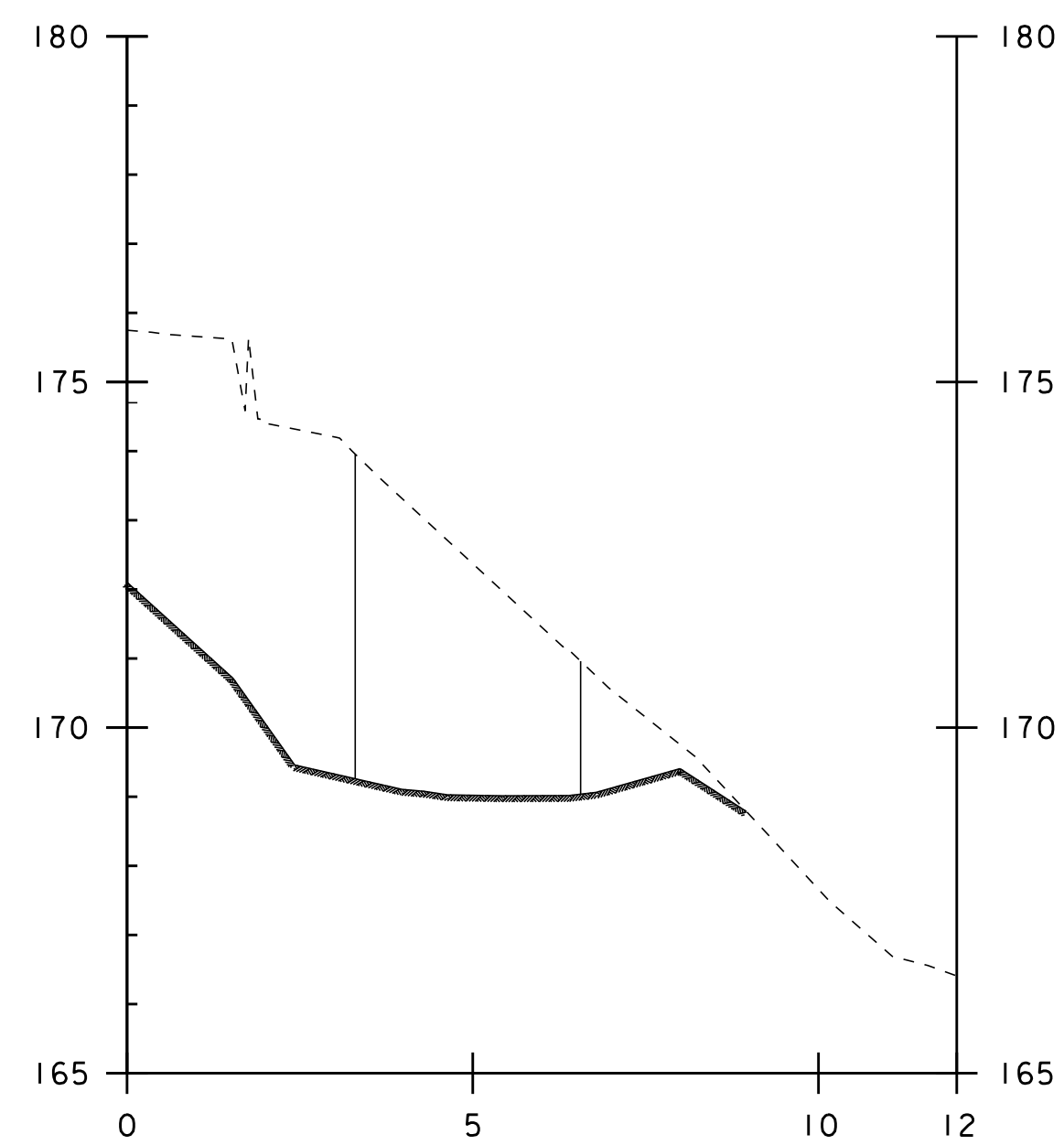
3+059.80



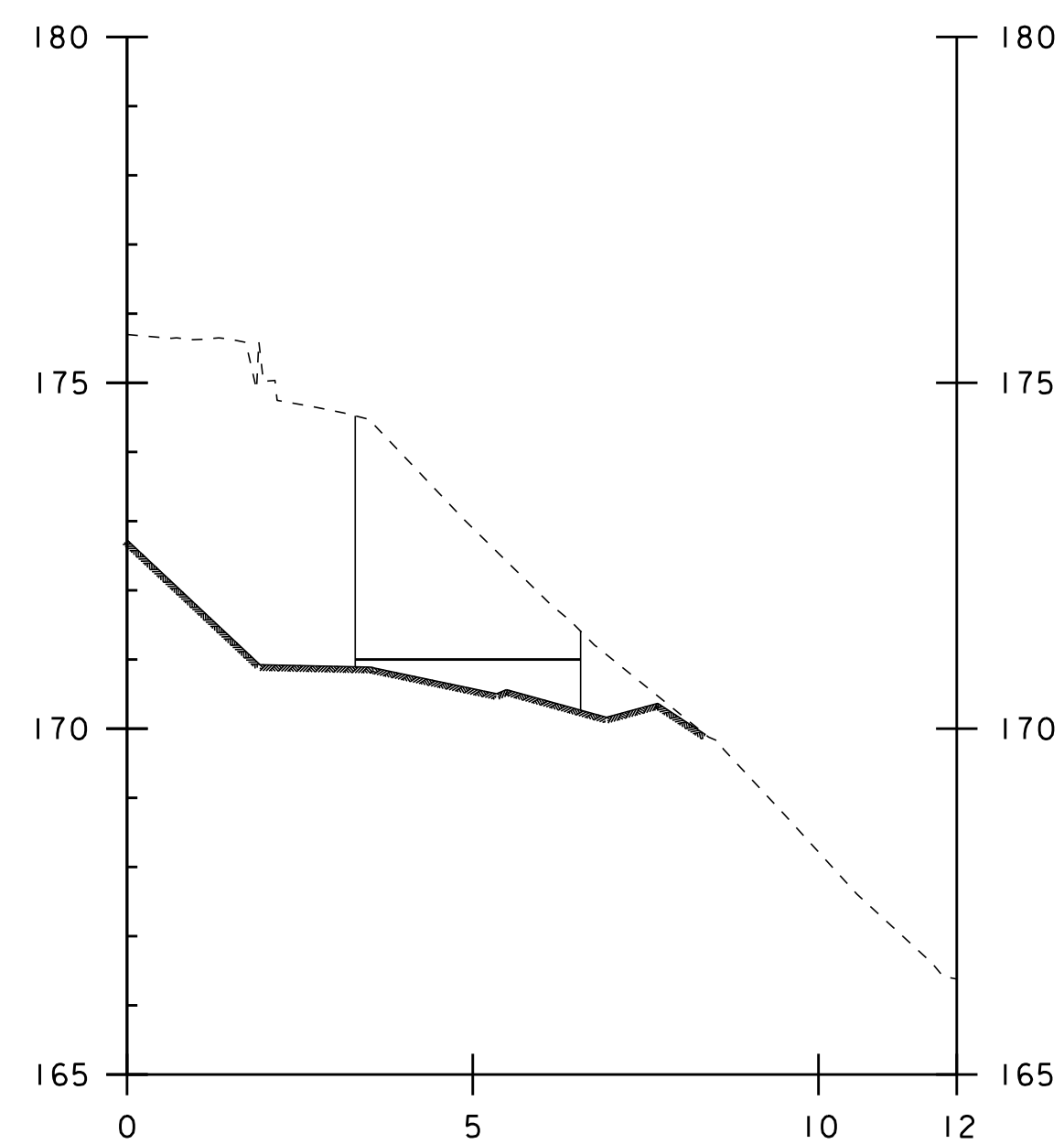
3+063.80

WINGWALL TWO
STRUCTURE EXCAVATION
UNCLASSIFIED CHANNEL EXCAVATION

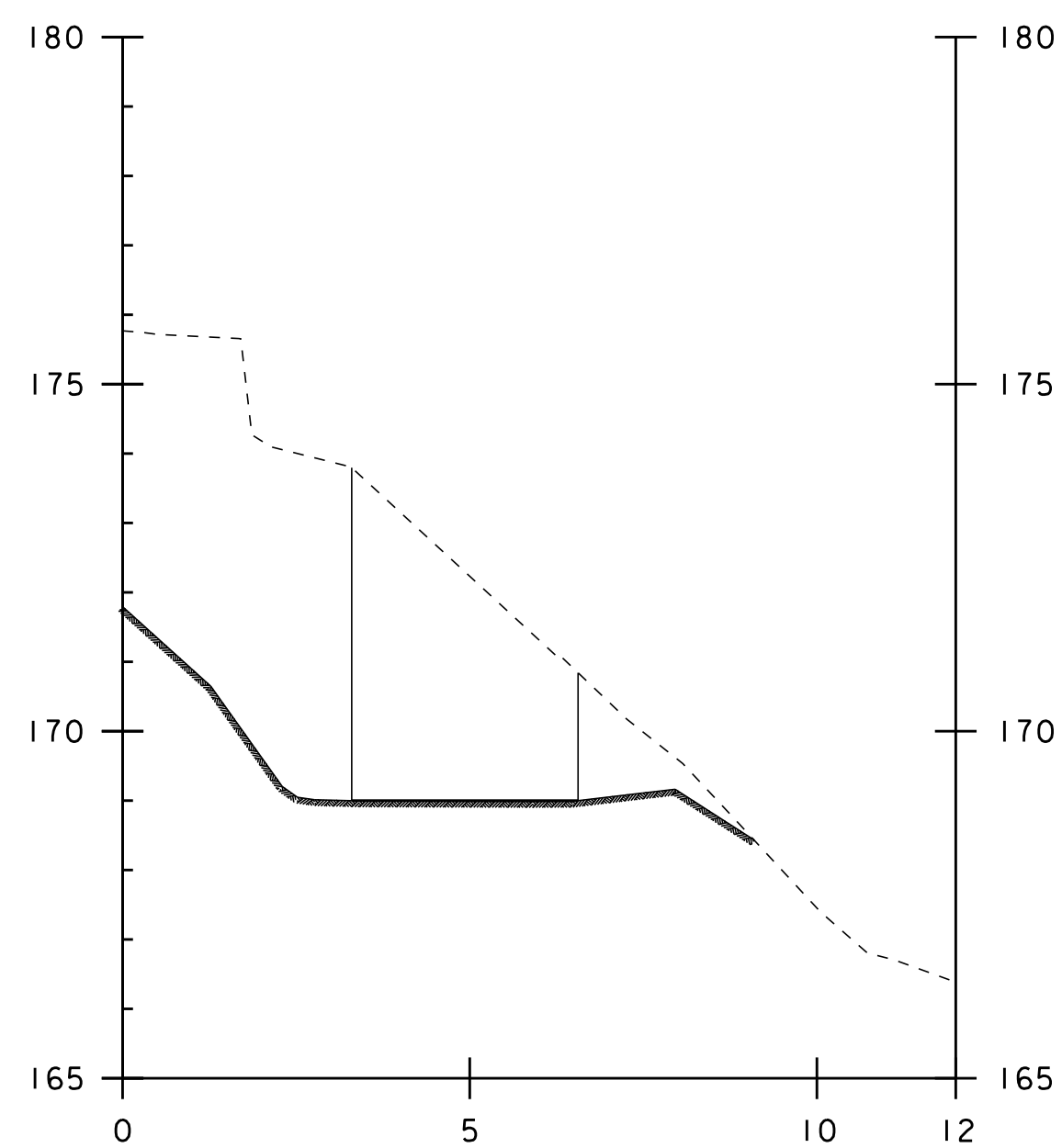




3+069.80

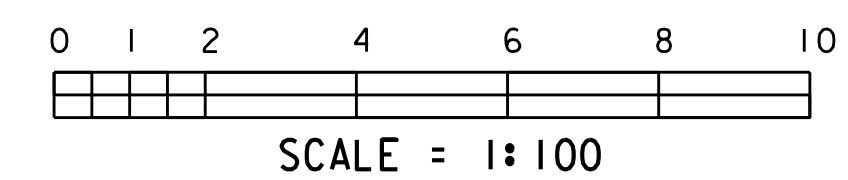


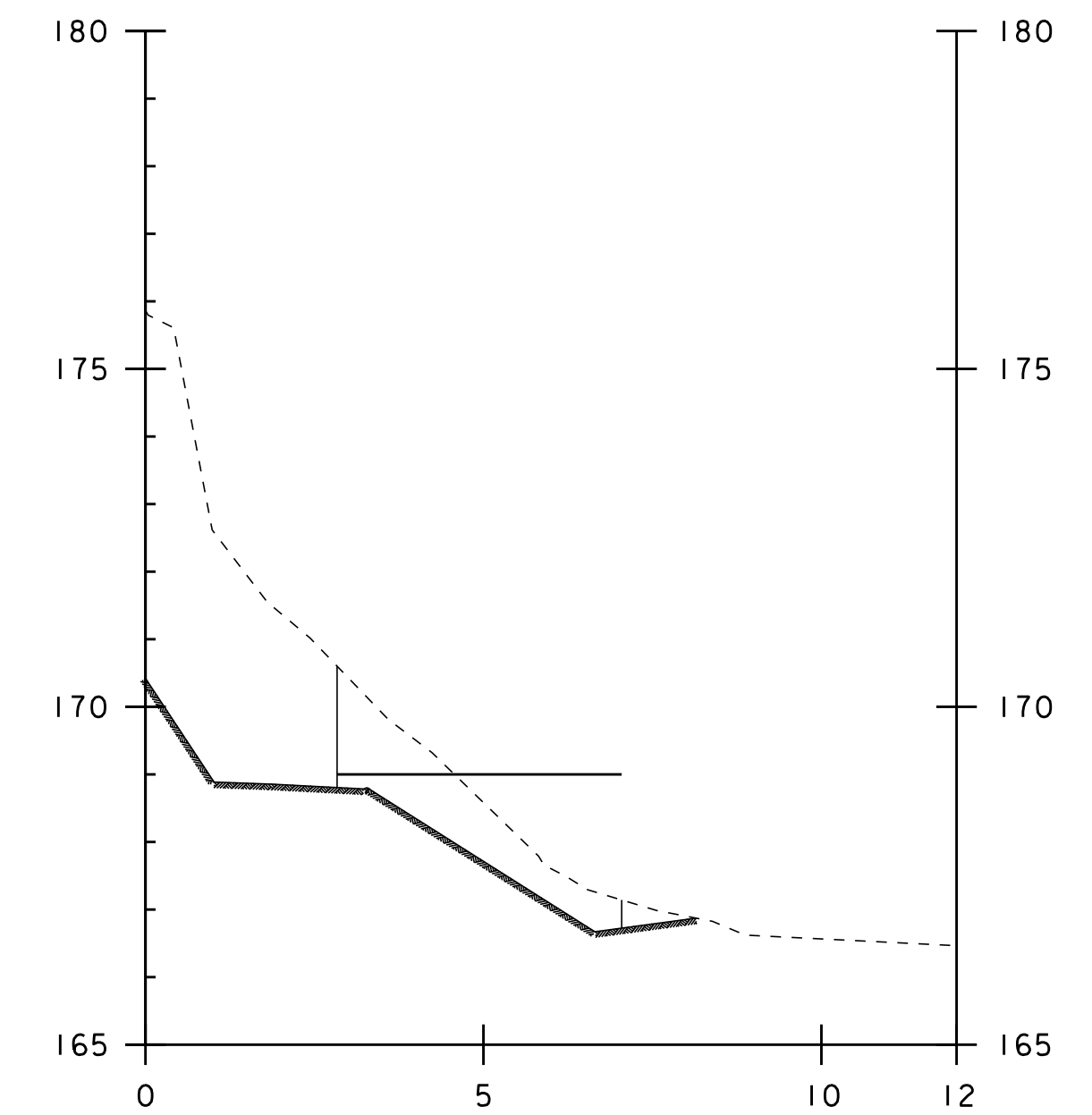
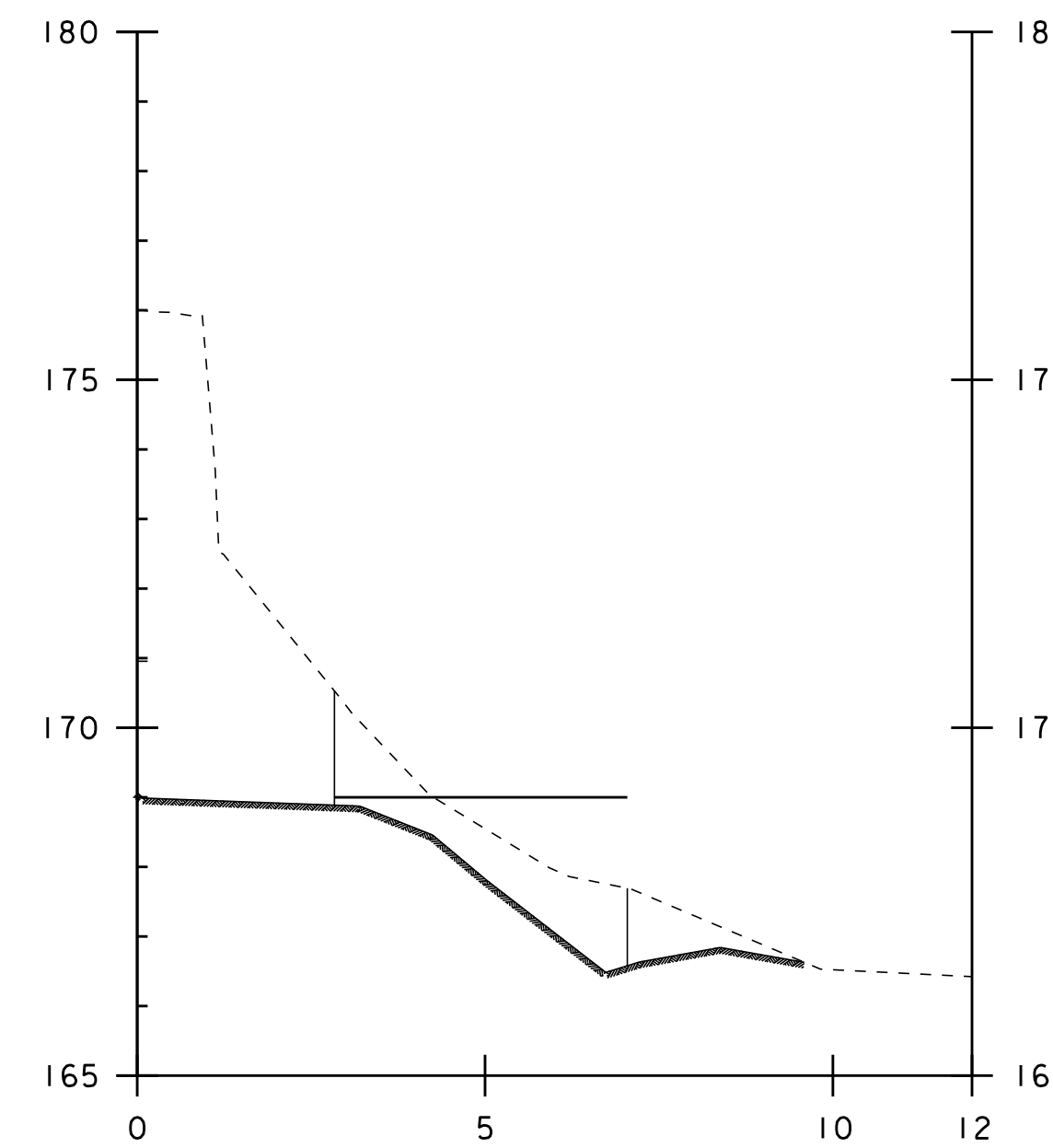
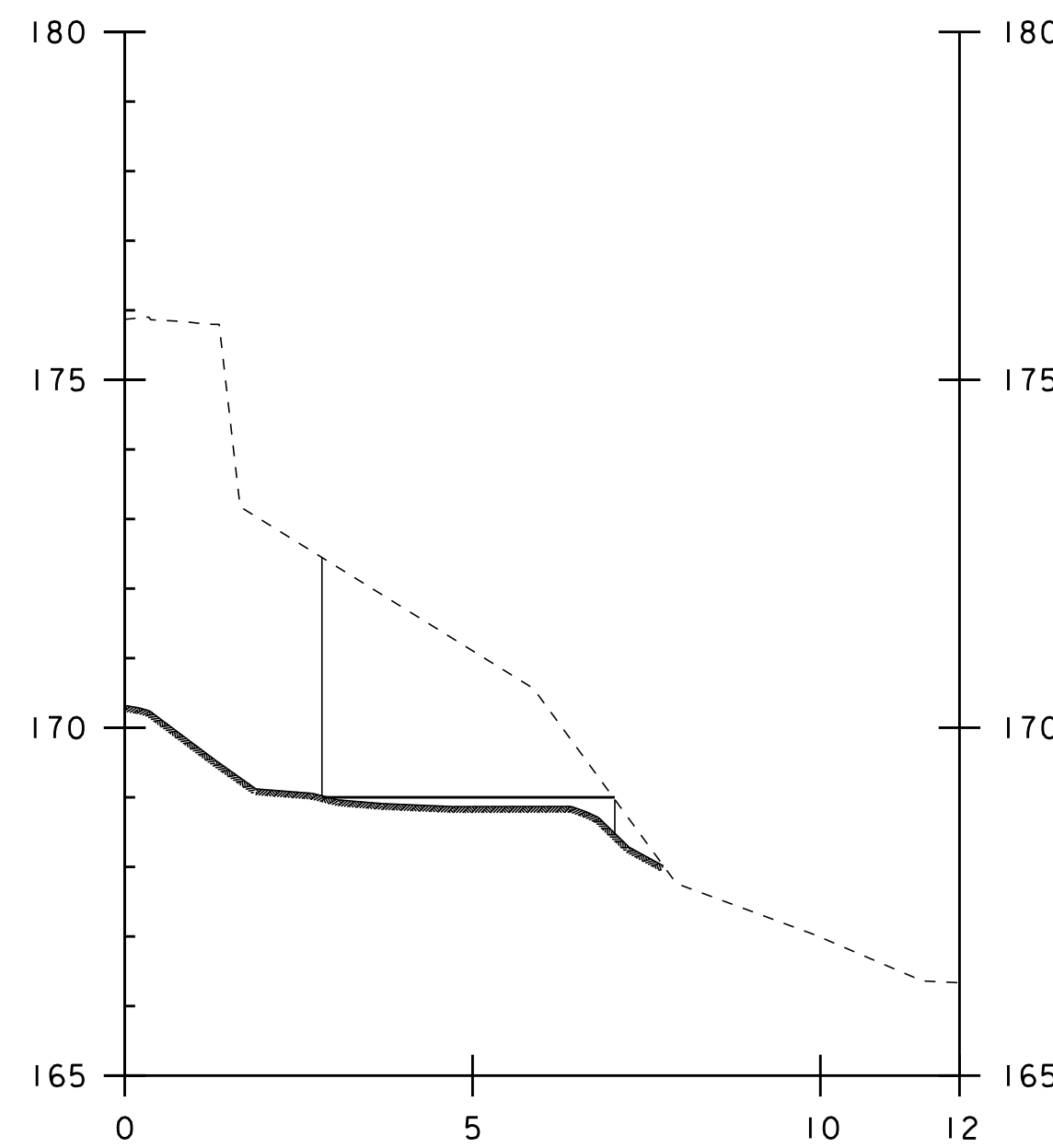
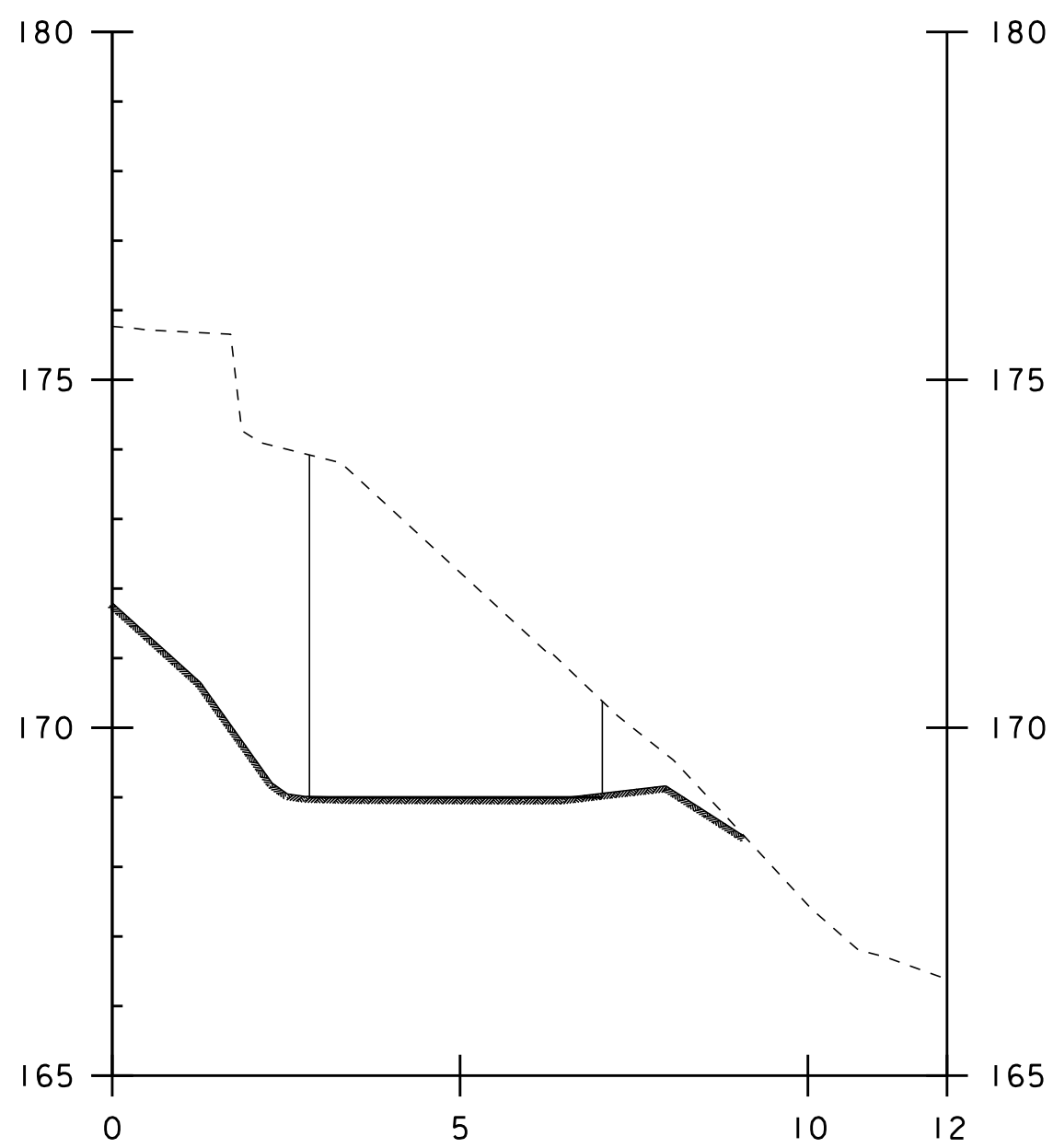
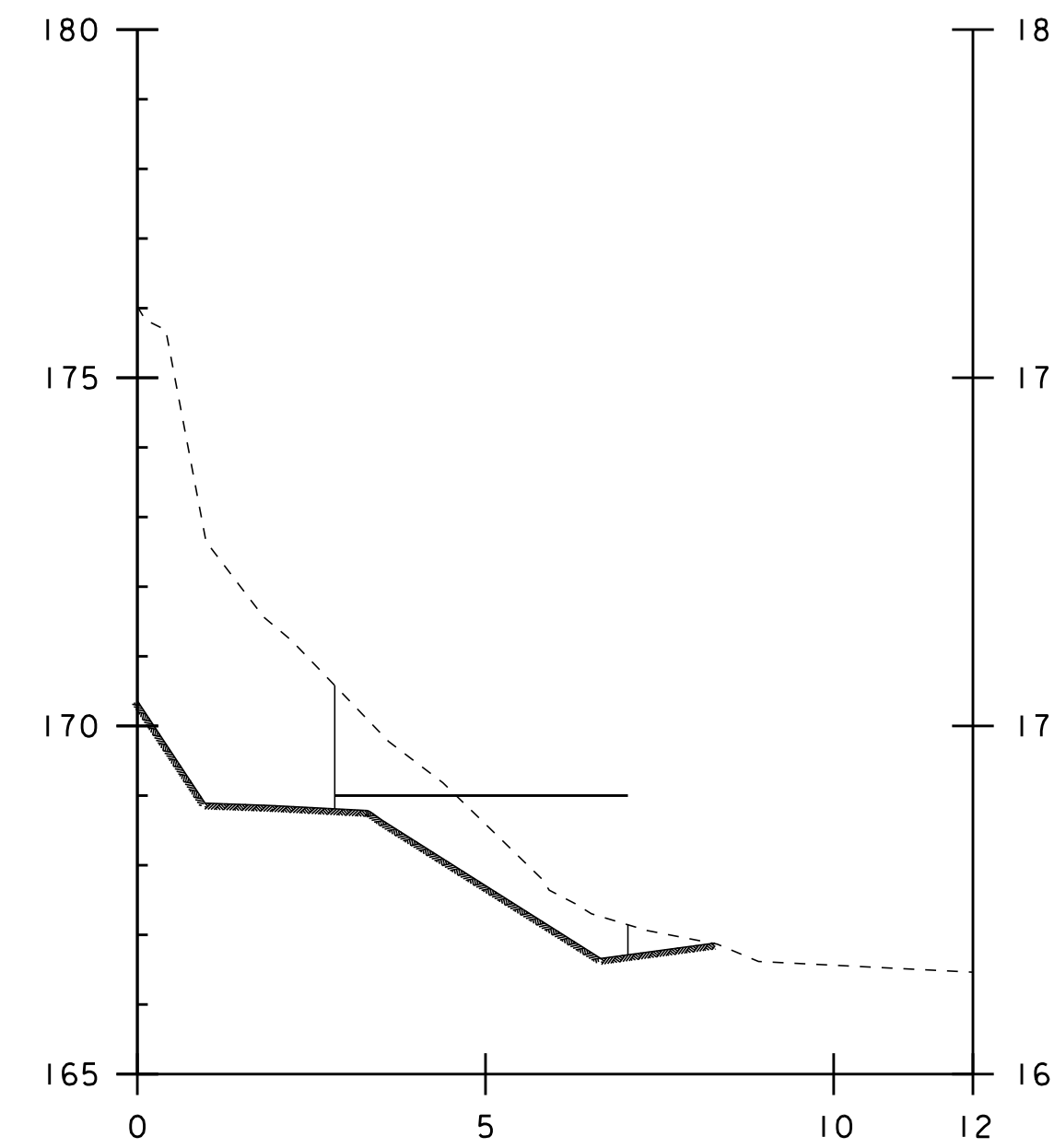
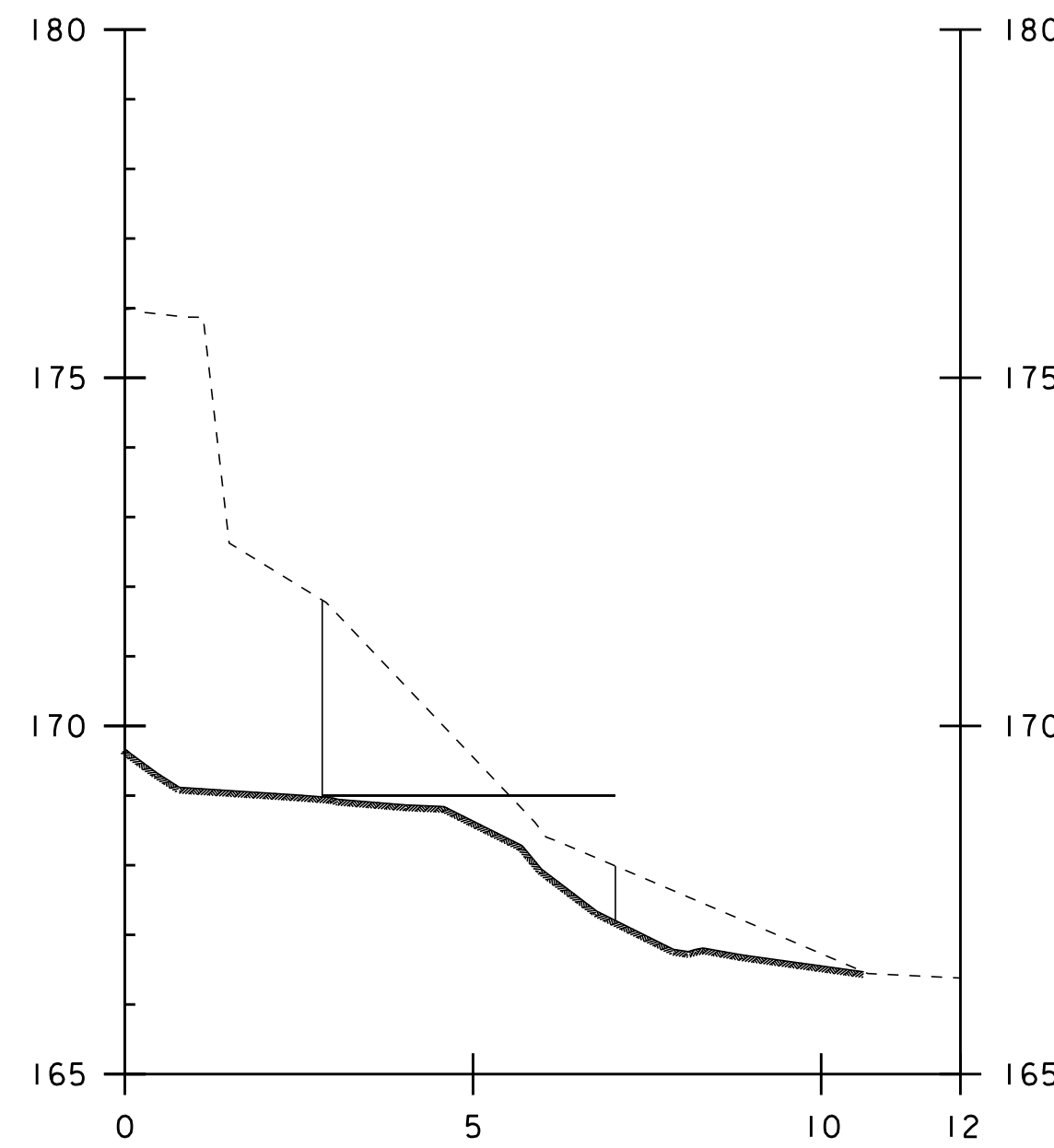
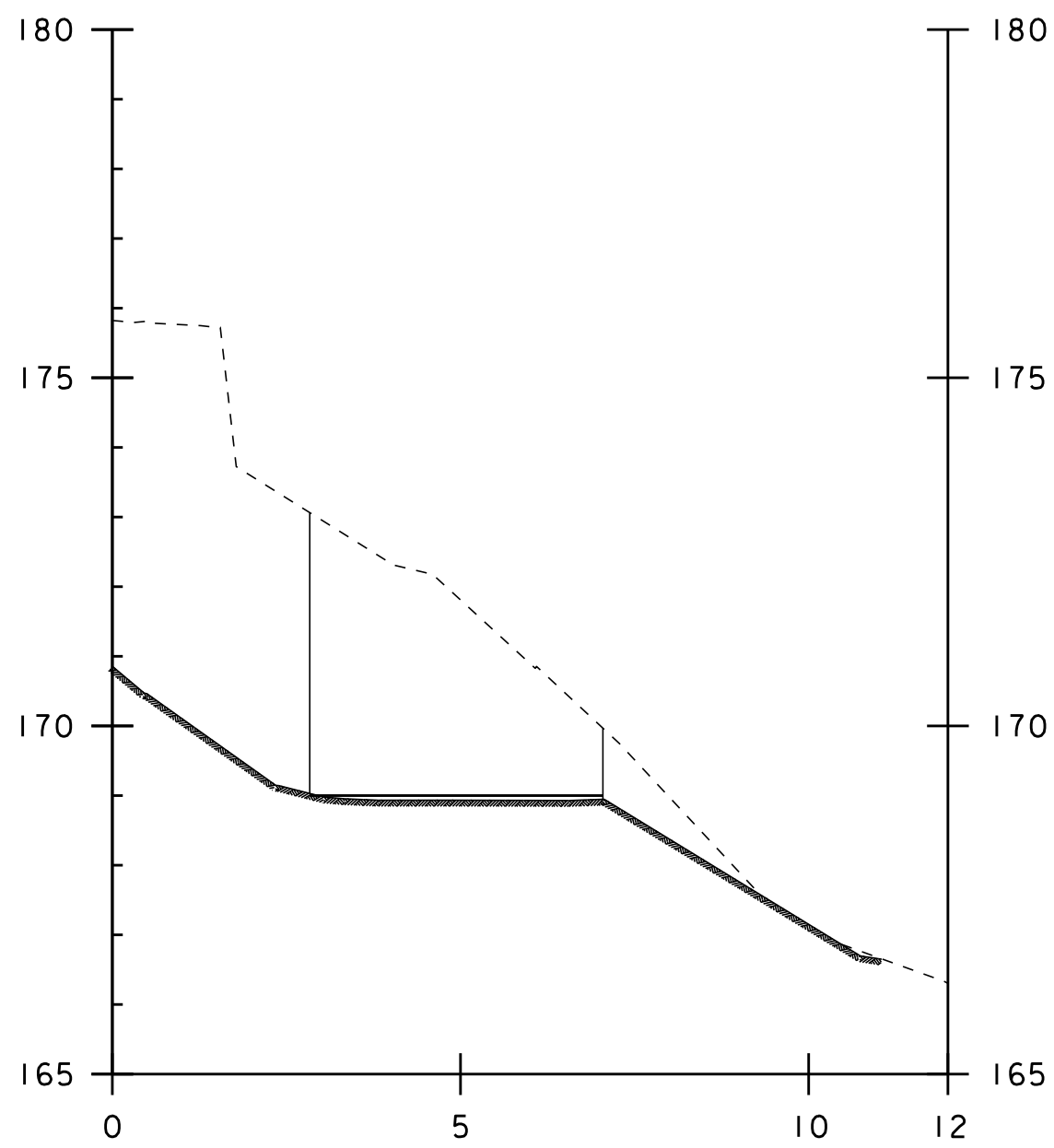
3+067.80



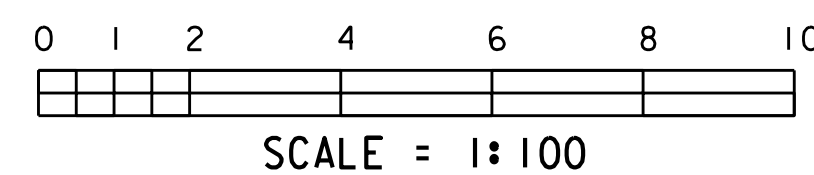
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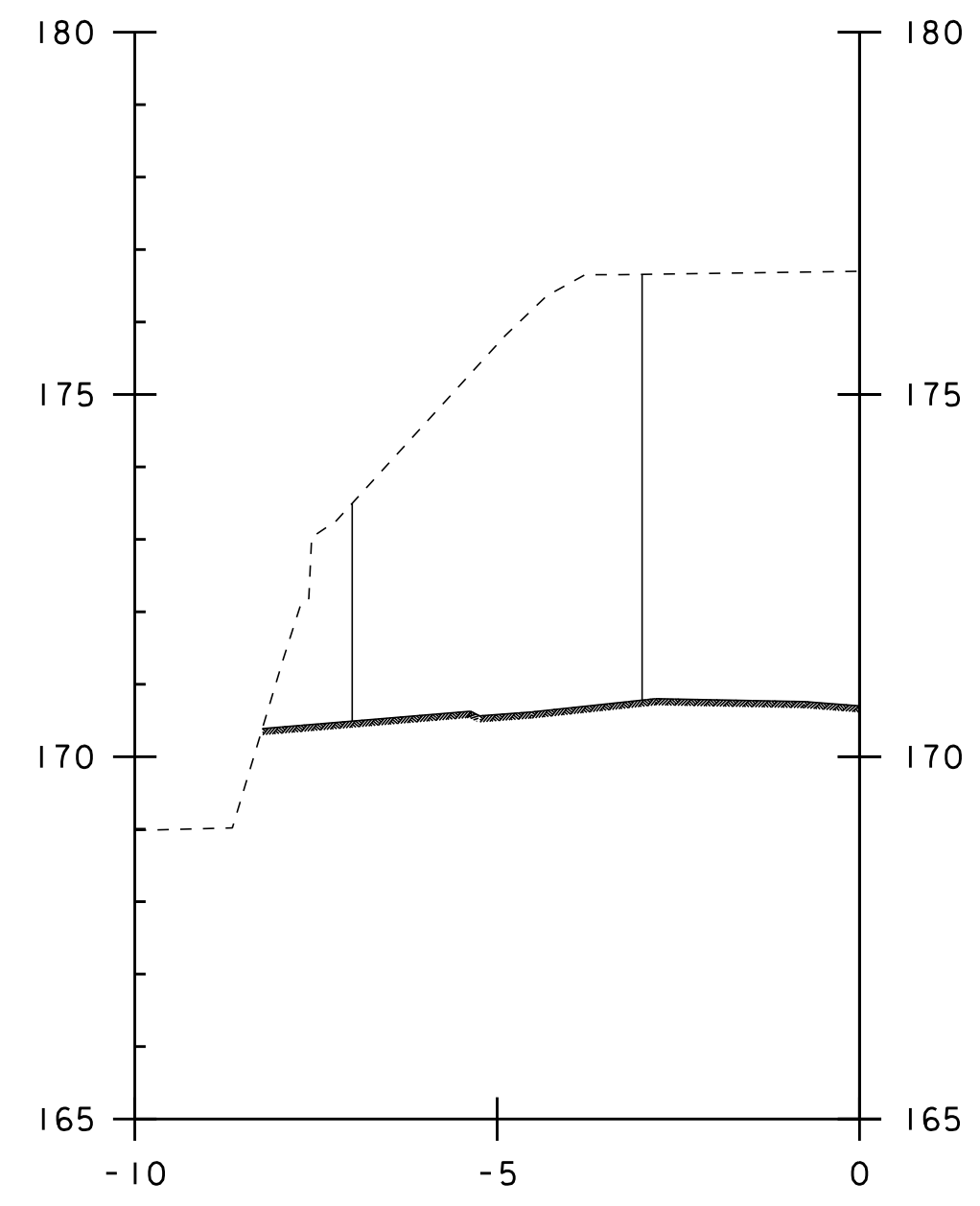
WINGWALL TWO STRUCTURE EXCAVATION UNCLASSIFIED CHANNEL EXCAVATION



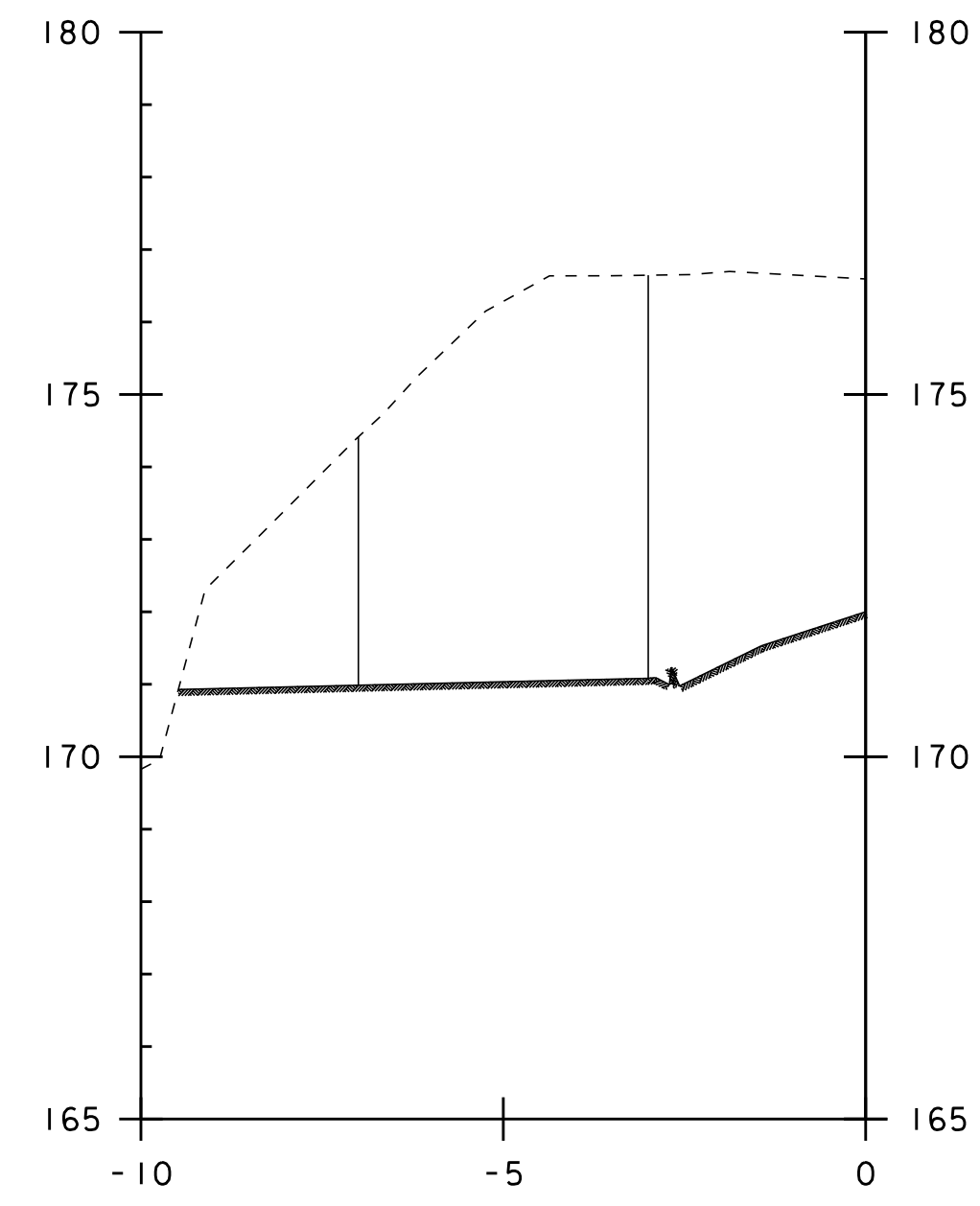


WINGWALL TWO
STRUCTURE EXCAVATION
UNCLASSIFIED CHANNEL EXCAVATION

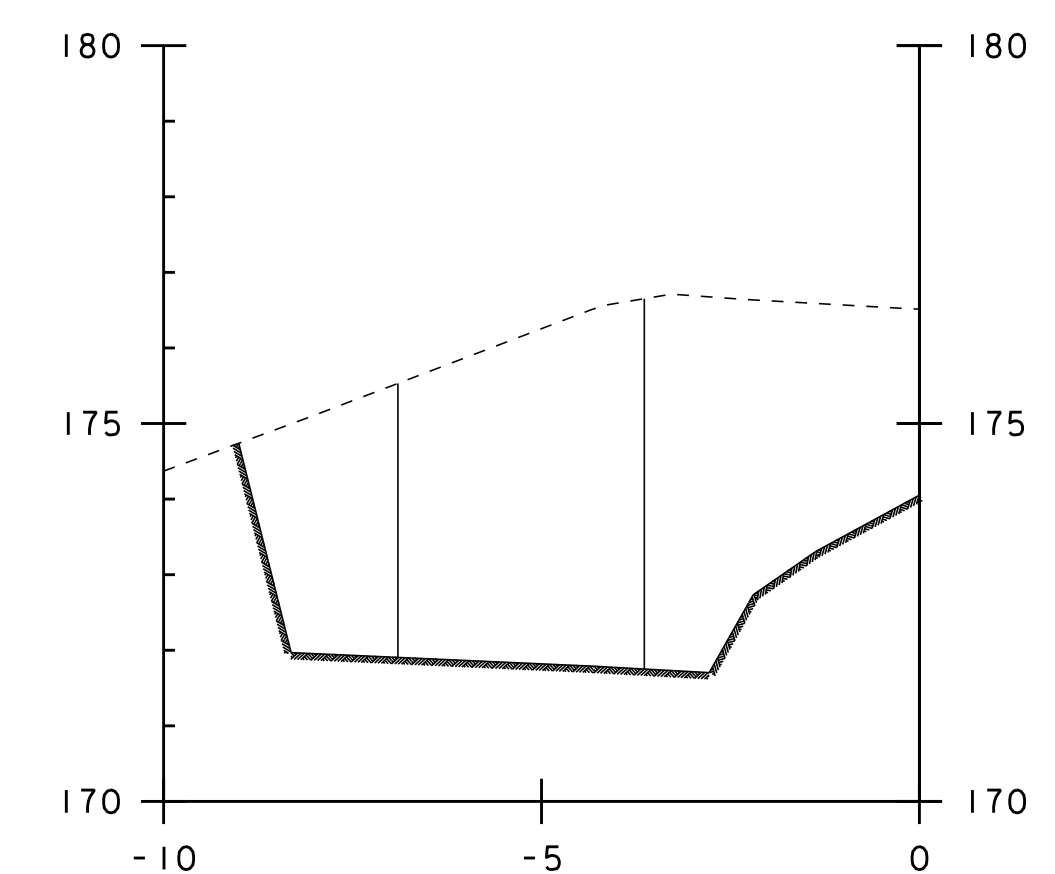




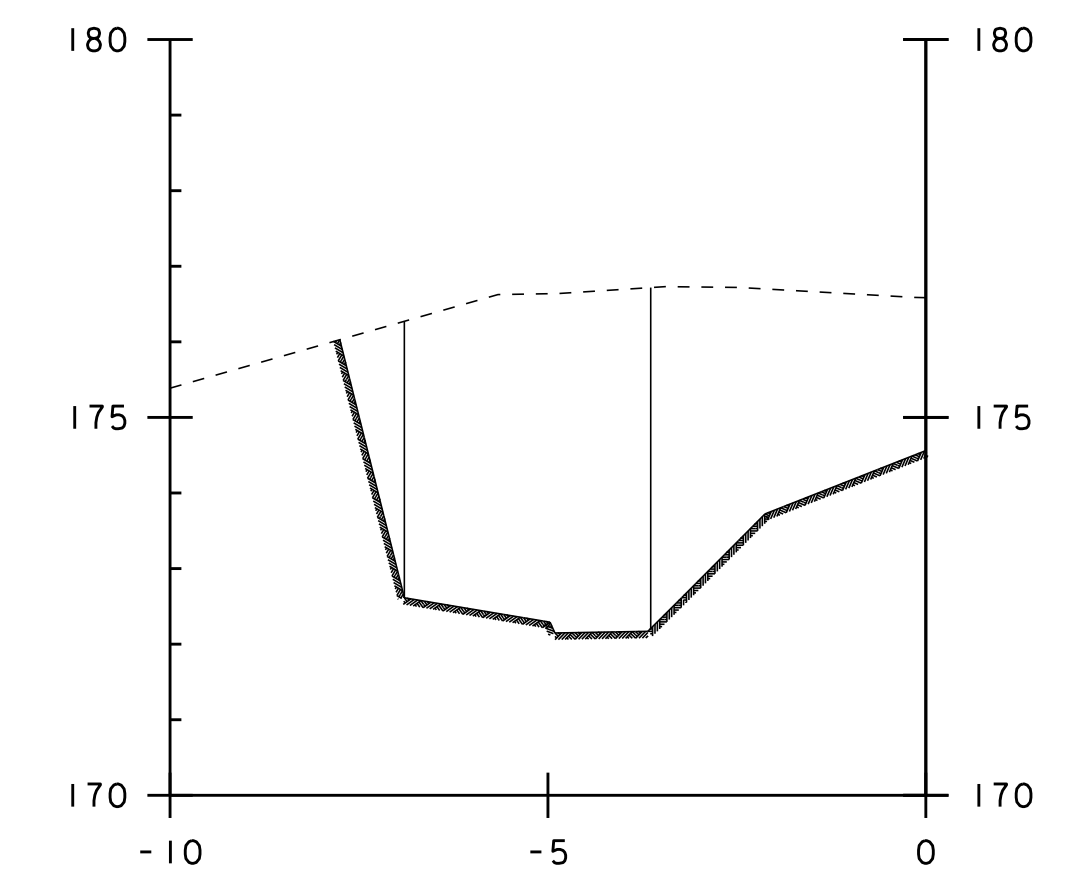
3+124.65



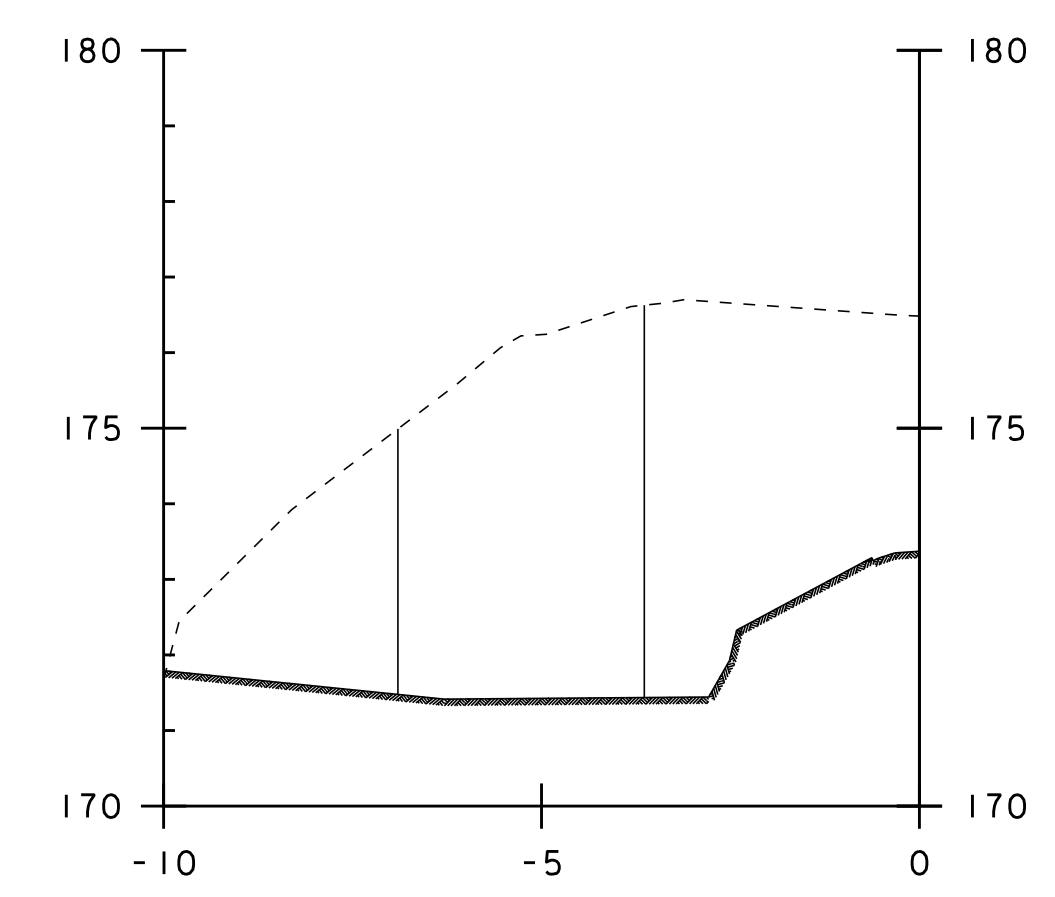
3+127.00



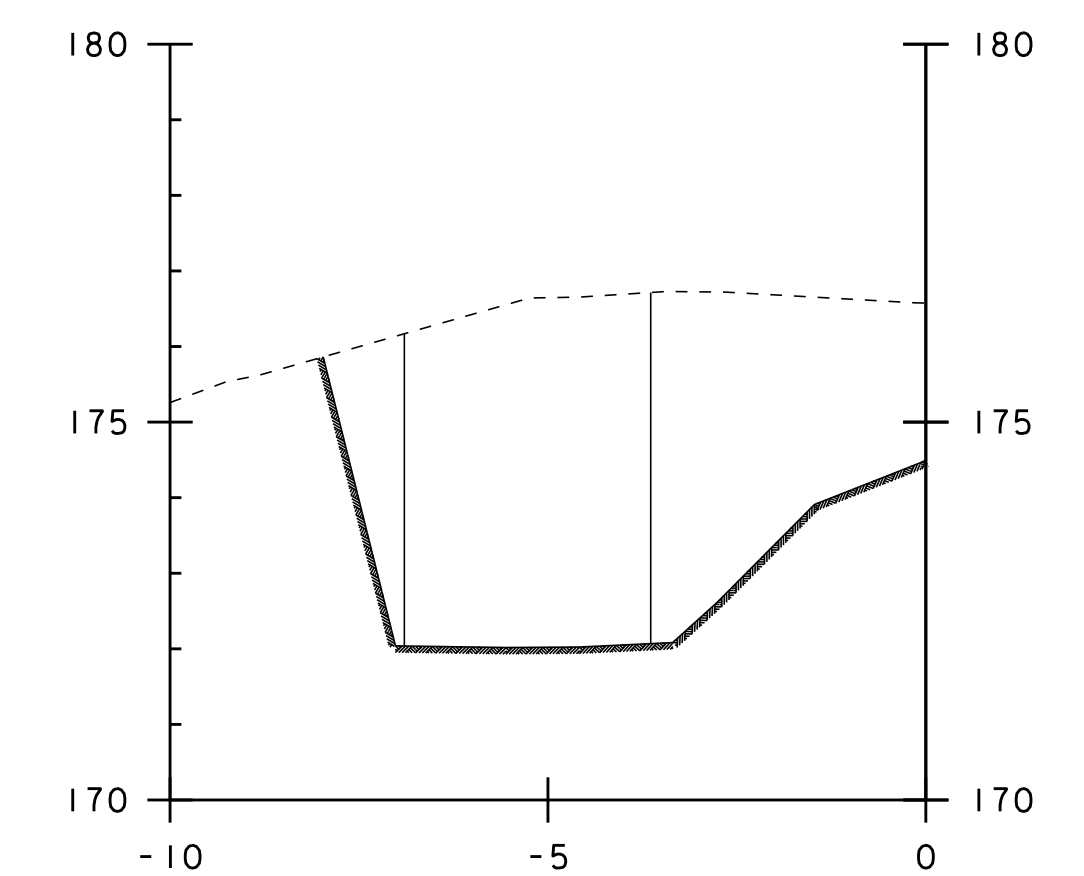
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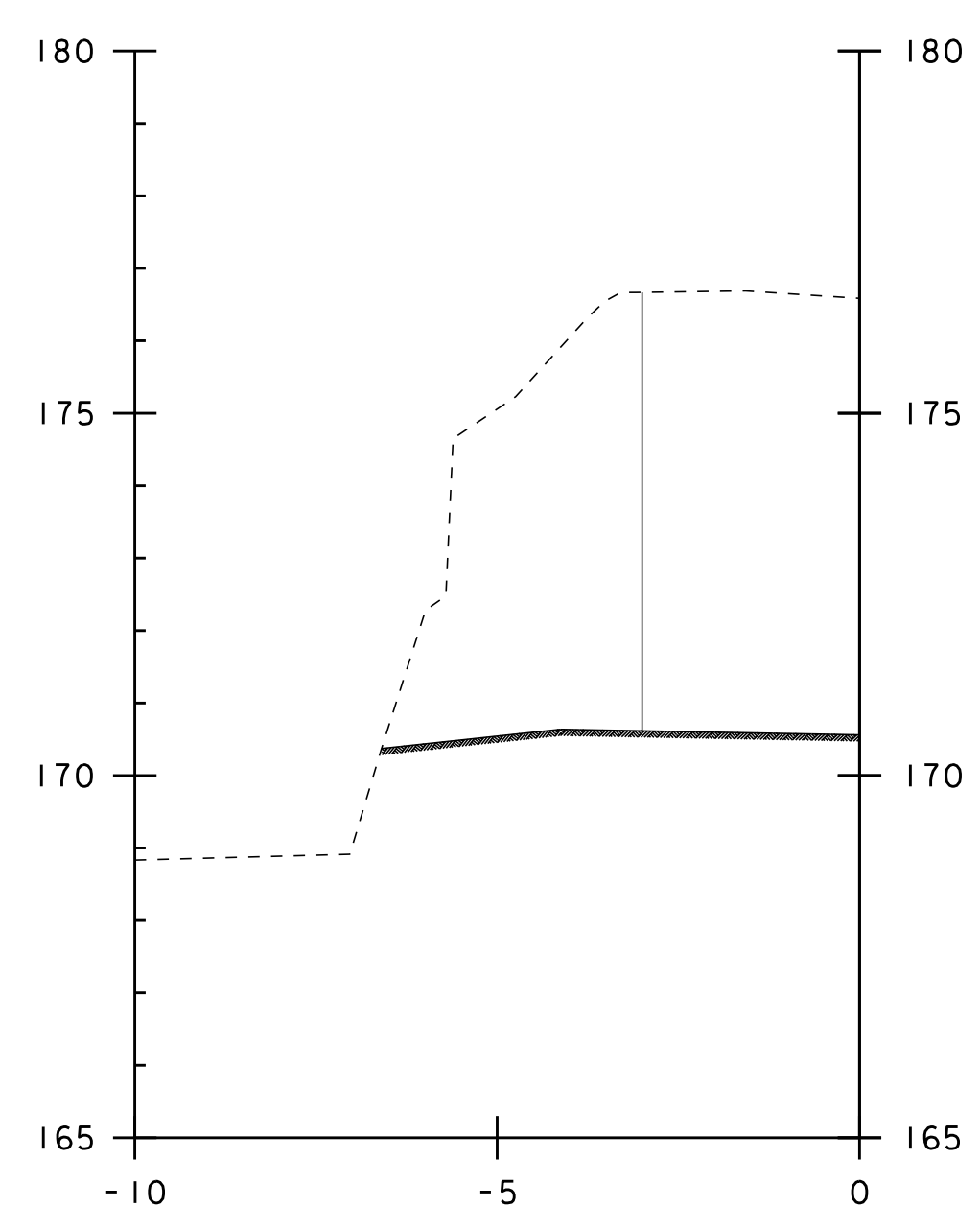
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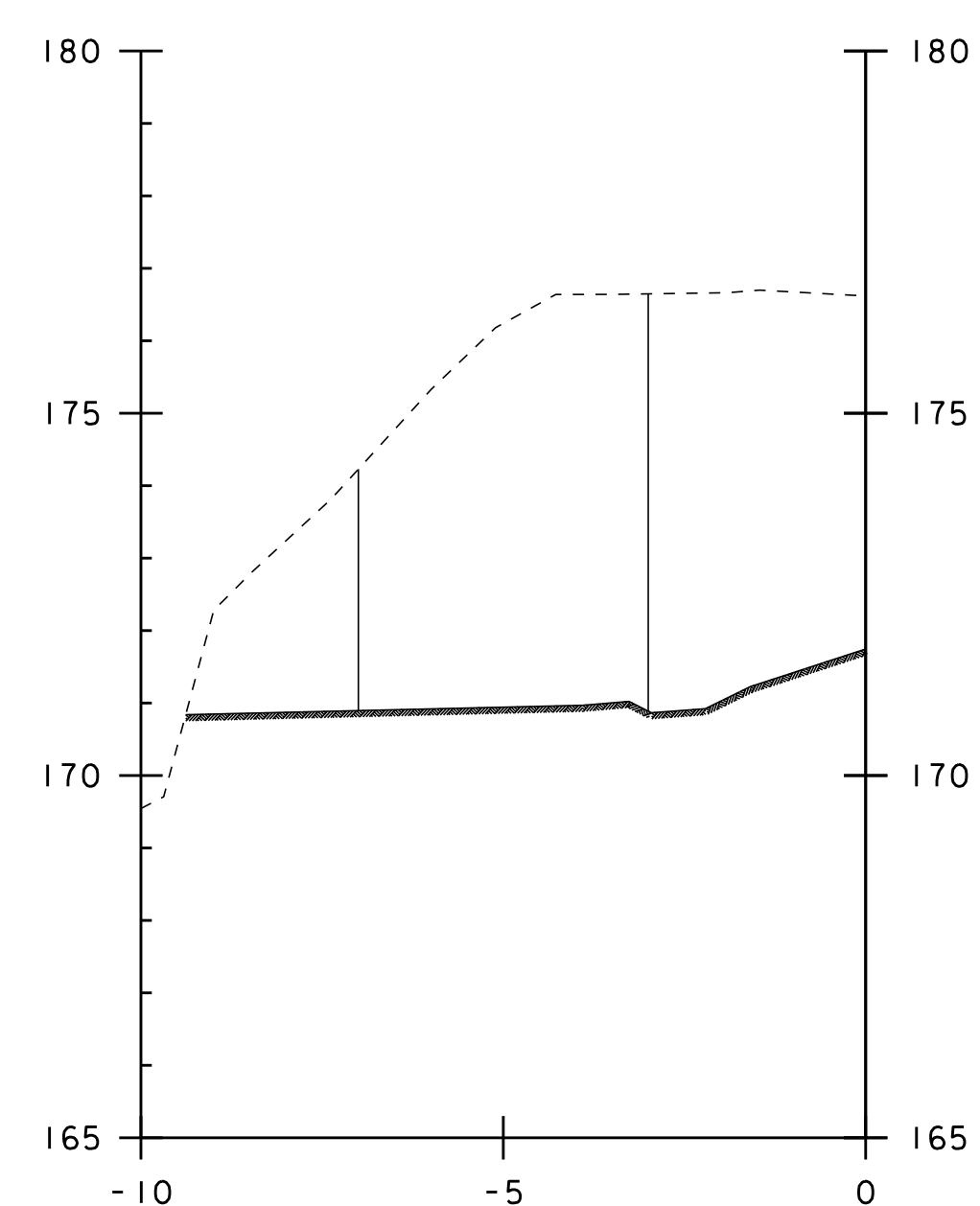
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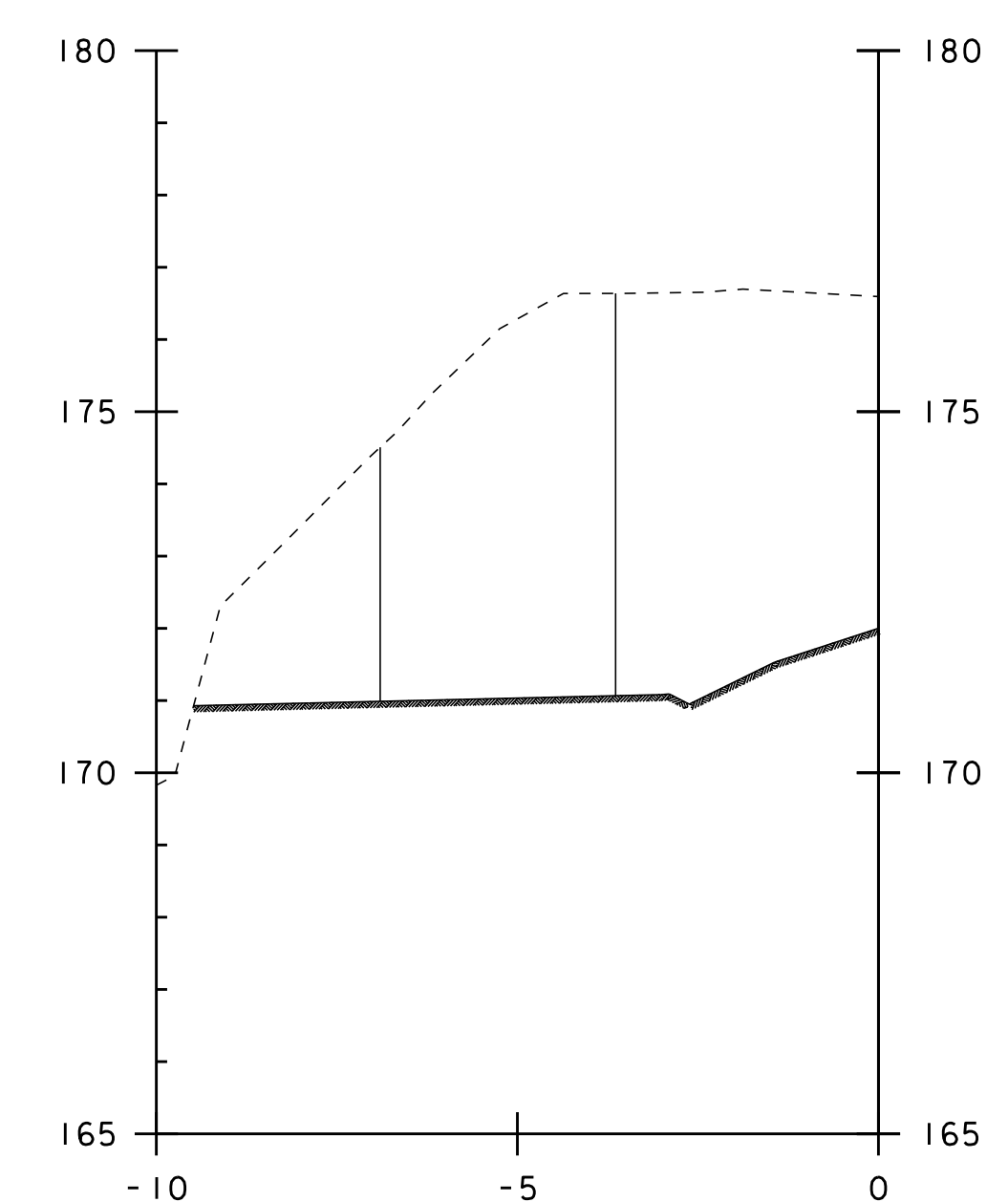
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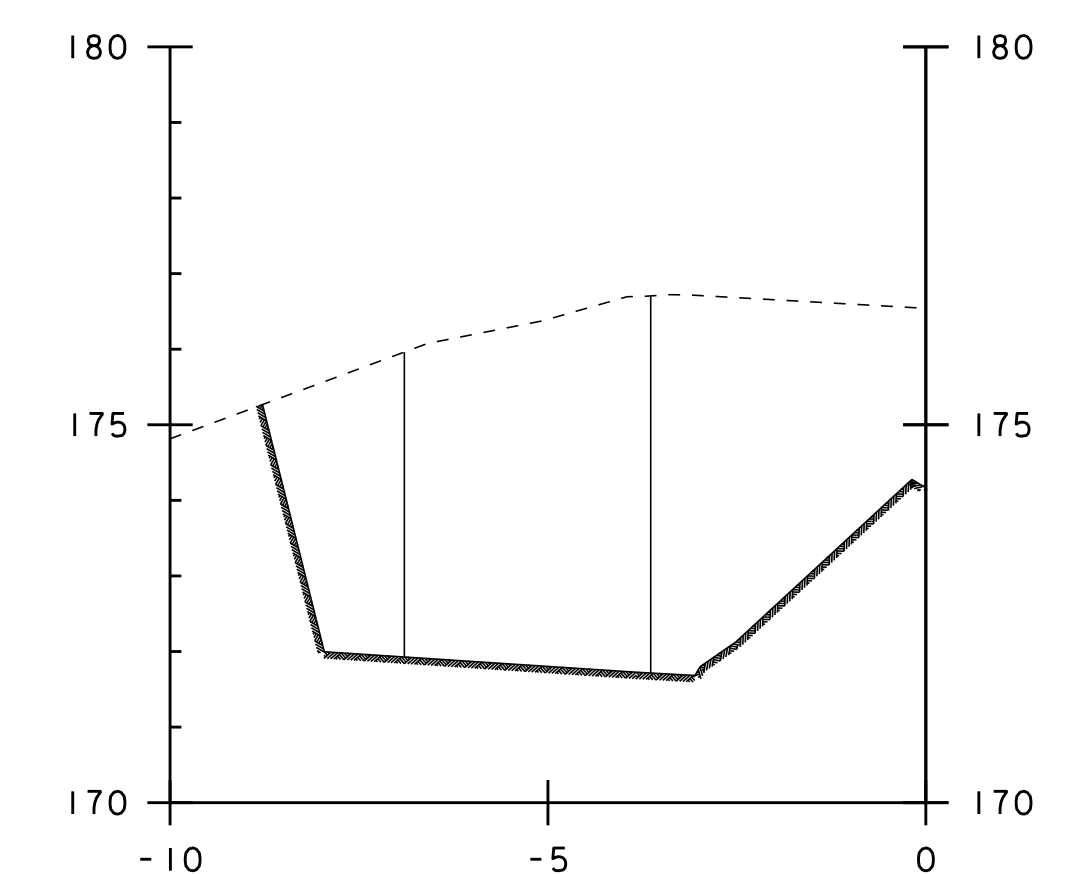
3+122.65



3+126.65

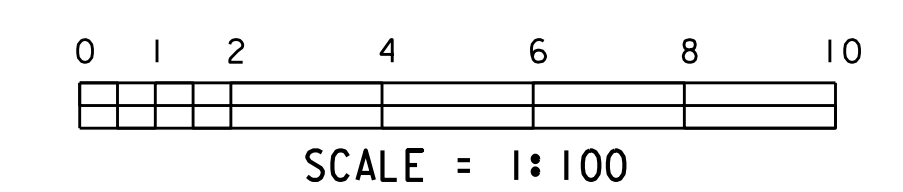


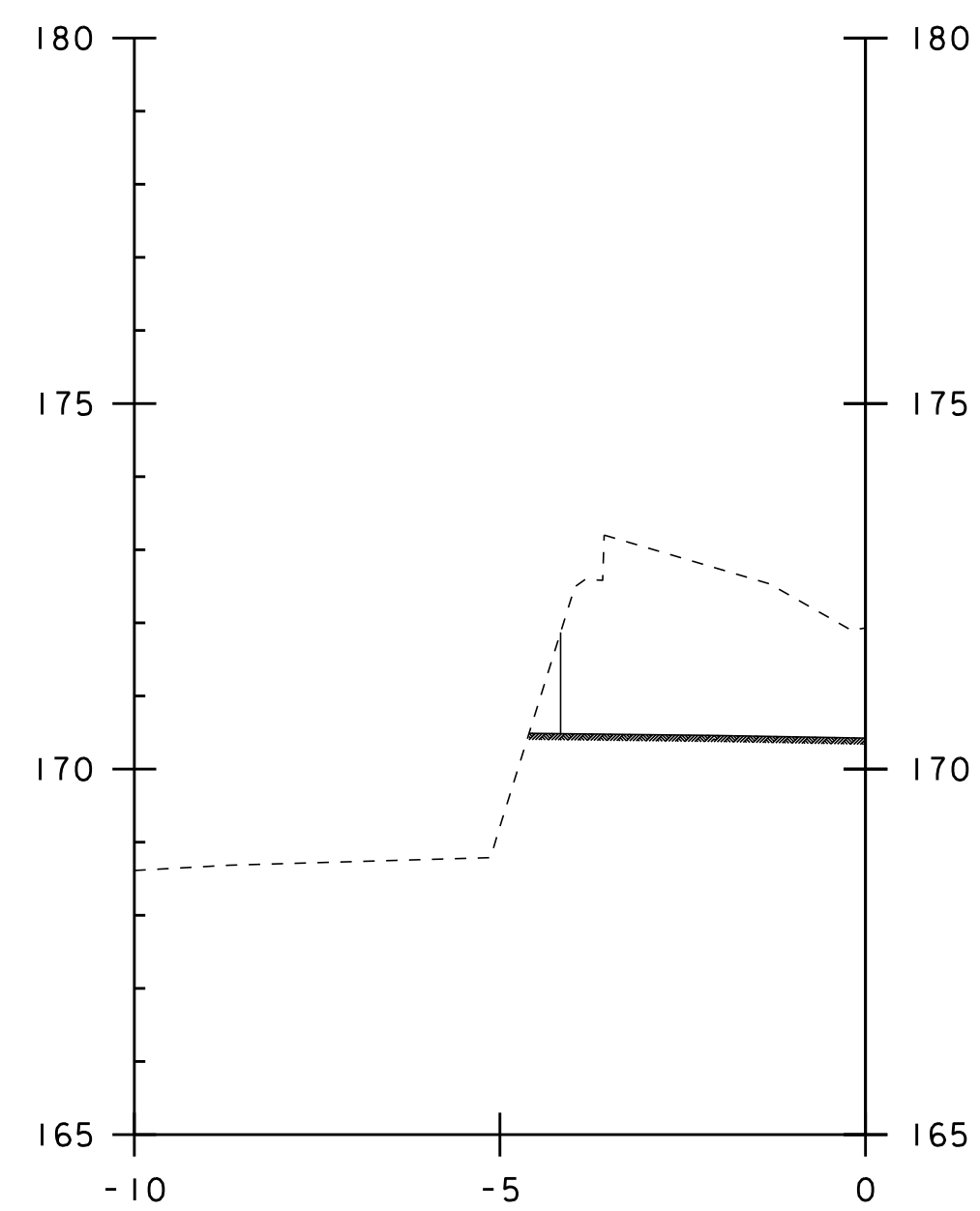
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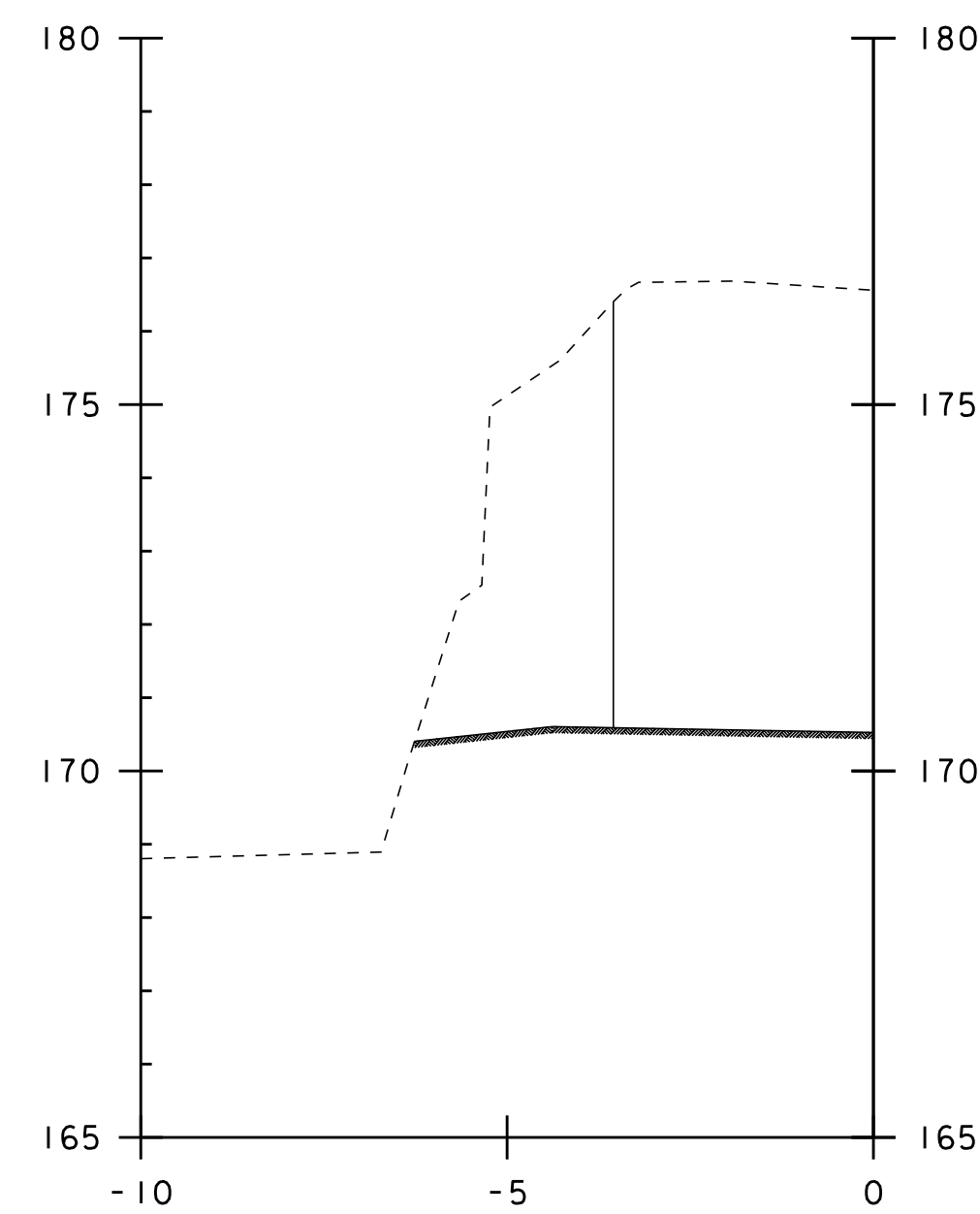
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WINGWALL THREE
STRUCTURE EXCAVATION
UNCLASSIFIED CHANNEL EXCAVATION

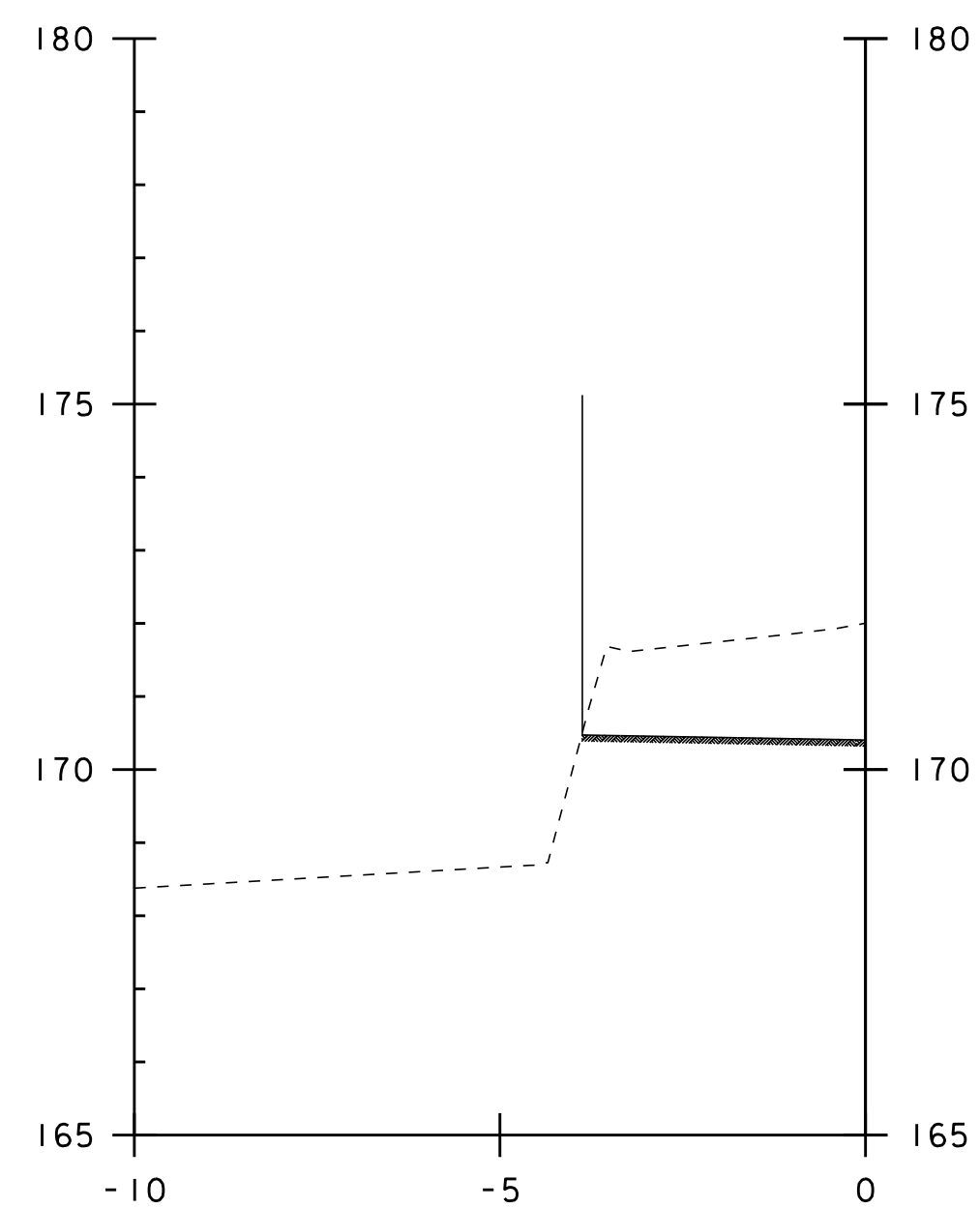




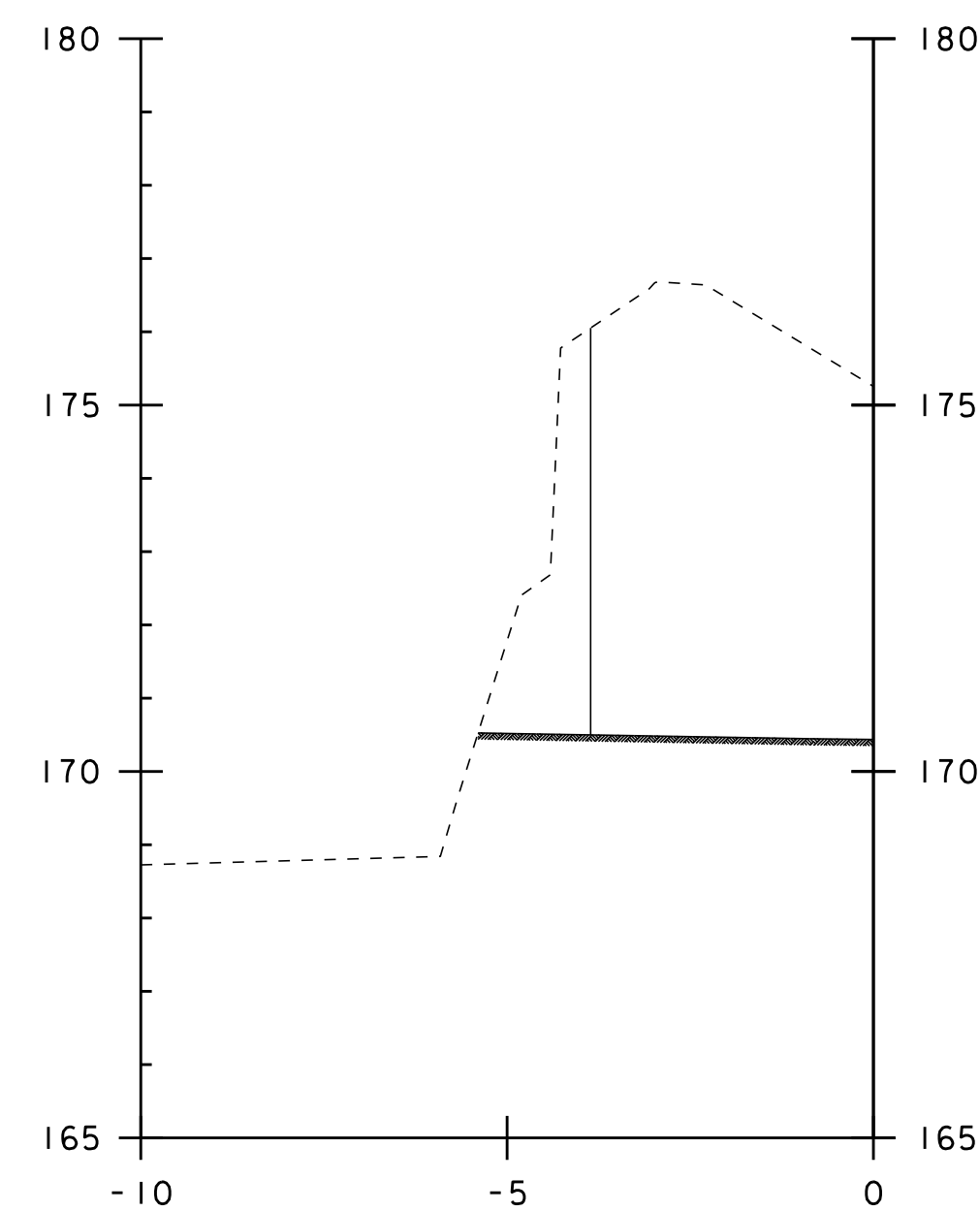
3+120.27



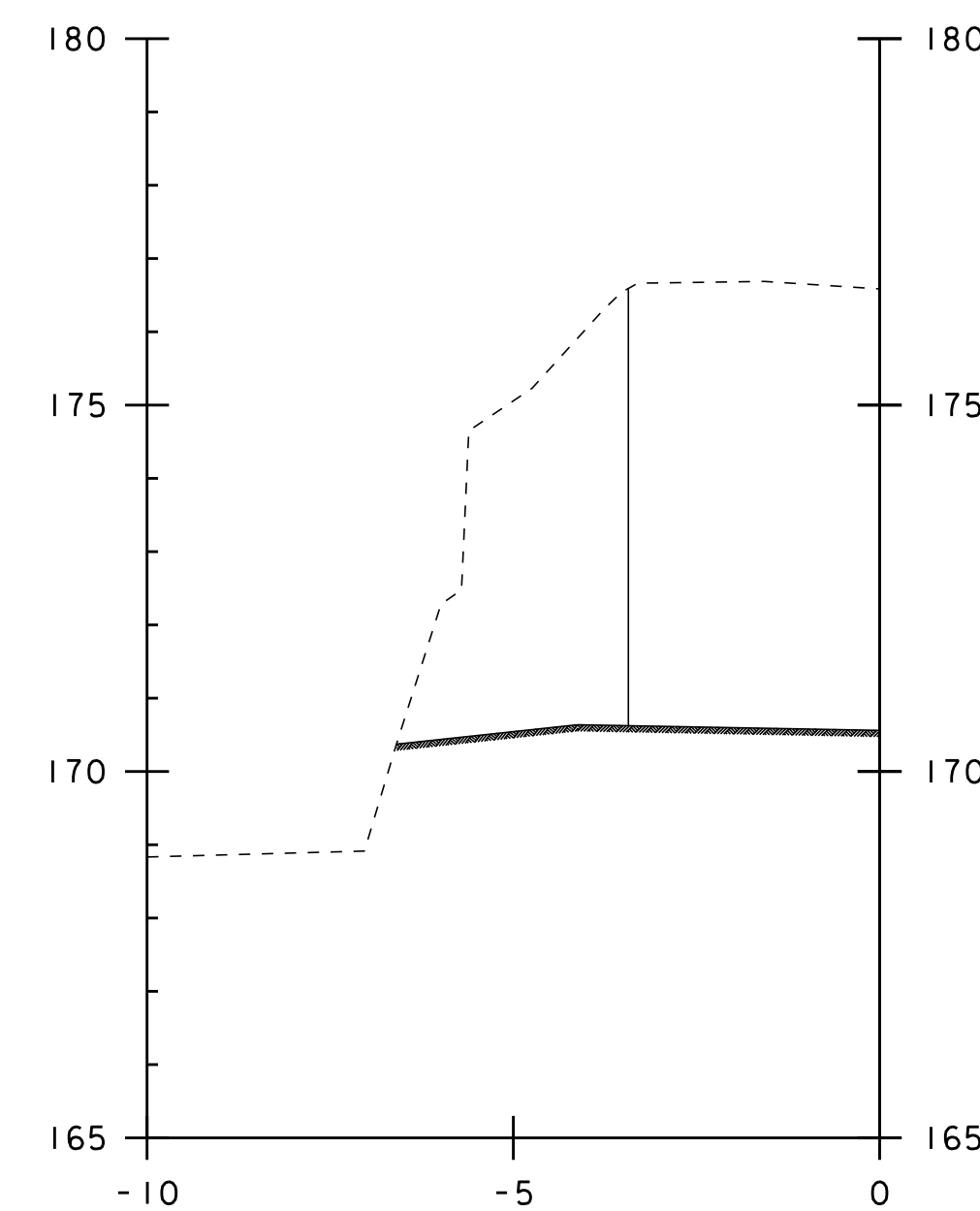
3+122.27



3+119.27



3+121.27



3+122.65

WINGWALL THREE
STRUCTURE EXCAVATION
UNCLASSIFIED CHANNEL EXCAVATION

