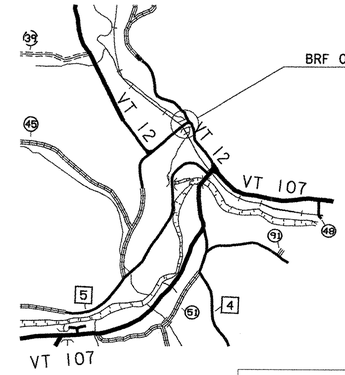
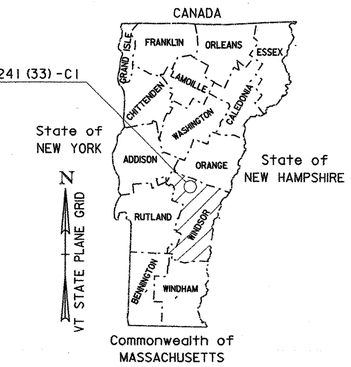
STATE OF VERMONT
AGENCY OF TRANSPORTATION

INDEX OF SHEETS

1. TITLE SHEET
2. INDEX OF SHEETS AND STANDARDS





PROPOSED IMPROVEMENT
BRIDGE PROJECT

TOWN OF BETHEL

COUNTY OF WINDSOR

ROUTE NO : VT 12 **BRIDGE NO : 31**

PROJECT LOCATION : BEGINNING AT A POINT ON VT 12 IN BETHEL APPROXIMATELY 0.75 KM FROM THE VT 107 JUNCTION AND EXTENDING SOUTHERLY ALONG VT 12 FOR A DISTANCE OF 130 METERS.

PROJECT DESCRIPTION : CONSTRUCTION OF A TEMPORARY BRIDGE WITH RELATED ROADWAY APPROACH AND CHANNEL WORK

LENGTH OF STRUCTURE :	60.960 METERS.
LENGTH OF ROADWAY :	69.040 METERS.
LENGTH OF PROJECT :	130.000 METERS.

RECORD PLANS

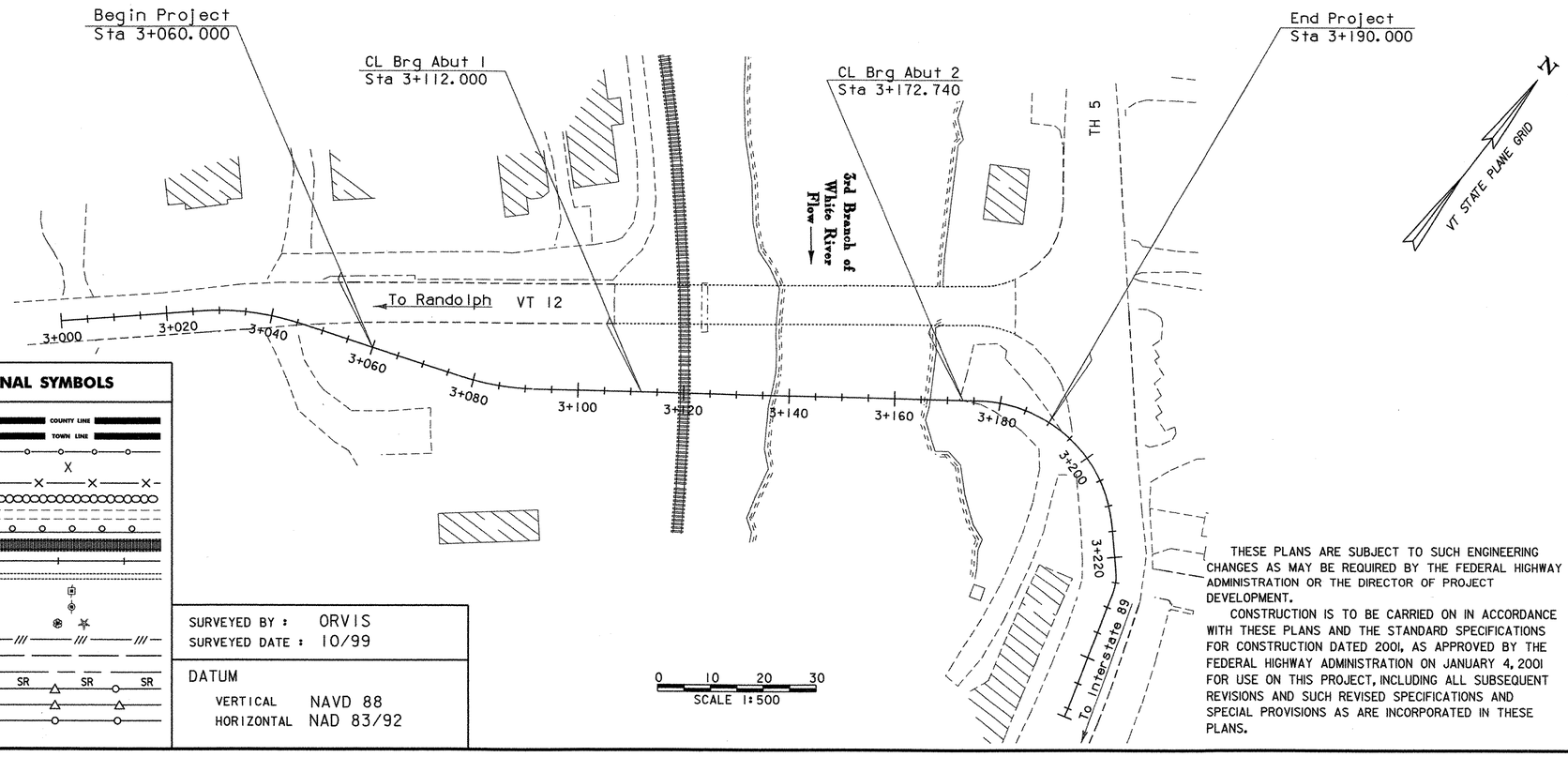
CONTRACTOR:	WINTERSET, INC. – LYNDONVILLE, VT
RESIDENT ENGINEER:	WILL STODDARD
CONSTRUCTION BEGAN:	SEPTEMBER 2, 2003
CONSTRUCTION COMPLETE:	AUGUST 12, 2004
RECORD PLANS BY:	WILL STODDARD & J. GIMORE

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

BY _____ RESIDENT ENGINEER

DATE 5-24-07

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



CONVENTIONAL SYMBOLS

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

SURVEYED BY : ORVIS
SURVEYED DATE : 10/99

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83/92

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.

VAOT Metric

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

DIRECTOR OF PROJECT DEVELOPMENT
APPROVED _____ DATE 7/3/03

PROJECT MANAGER : C. P. Williams

PROJECT NAME : Bethel
PROJECT NUMBER : BRF 0241(33)-C1

SHEET 1 OF 47 SHEETS

INDEX OF SHEETS:

1. TITLE SHEET
2. PRELIMINARY INFORMATION SHEET
3. TYPICAL SECTIONS
4-5. QUANTITY SHEET
6-7. SURVEY TIE INFORMATION
8-9. LAYOUT SHEETS
10-11. PROFILE SHEETS
12-13. TRAFFIC CONTROL SHEETS
14-15. TRAFFIC SIGN SUMMARY
16. DRAINAGE DETAIL SHEET
17-18. BORING LAYOUT
19. BORING LOGS
20. EROSION CONTROL SHEET
21. GUARD RAIL AND CURB LAYOUT
22. GENERAL NOTES
23. ABUTMENT #1 DETAILS
24. EXPANSION JOINT DETAILS
25. ABUTMENT #2 DETAILS
26. END OF BRIDGE DETAILS
27. ABUTMENT RETAINING STRUCTURE DETAILS
28. RAIL ATTACHMENT DETAIL
29. REINFORCING STEEL SCHEDULE
30-31. RIGHT-OF-WAY SHEETS
32-38. TEMPORARY DETOUR CROSS SECTIONS
39-40. TOWN HIGHWAY 5 CROSS SECTIONS
41-42. BETHEL MILLS DRIVE CROSS SECTIONS
43-47. CHANNEL CROSS SECTIONS

INDEX OF STANDARDS:

C-1M	01-03-00
C-2BM	01-03-00
C-3M	01-03-00
D-8M	01-03-00
D-9M	01-13-97
D-15M	01-13-97
E-100M	06-13-97
E-101M	06-13-97
E-102M	06-13-97
E-102AM	06-13-97
E-106M	06-13-97
E-107M	06-13-97
E-107AM	06-13-97
E-110M	06-13-97
E-121M	06-13-97
E-140M	06-13-97
E-143M	06-13-97
E-170M	06-13-97
E-171AM	06-13-97
E-171BM	06-13-97
E-171CM	06-13-97
E-172M	06-13-97
E-175M	06-13-97
F-2M	01-03-00
G-1M	06-13-97
G-1DM	06-13-97
SB-R6-82M	07-10-97
T-1M	06-13-97
T-2M	06-13-97

Metric

FINAL HYDRAULICS REPORT C-1:

Drainage Area: 352 sq.Km

Peak Flow Data:

Q2.33 - 169.9 cms
Q10 - 283.2 cms
Q25 - 348.3 cms
Q50 - 396.4 cms
Q100 - 509.7 cms

Temporary Bridge:
Structure Type: Mabey Bailey Truss
Clear Span (Normal To Stream): 59m
Vertical Clearance Above Streambed: 12.3m
Waterway Area: 522 sq.m

Water Surface Elevations at:
Q2.33 = 170.9m Velocity = 1.7 m/s
Q10 = 171.9m Velocity = 2.2 m/s
Q25 = 172.1m Velocity = 2.6 m/s
Q50 = 172.4m Velocity = 2.7 m/s
Q100 = 173.1m Velocity = 3.1 m/s

Average Low Elevation of Superstructure: 179.3m
Vertical Clearance @ Q100 = 6.2m
Roadway Overtopping Elevation: 175.7m

Permit Information:
Average Daily Flow: 8 cms
Ordinary Low Water: 4 cms 168.3m (Top of Dam controls low flow elevations)
Ordinary High Water: 73 cms 169.8m

Required Channel Protection: Type II Stone Fill

LOAD RATING TO BE PROVIDED BY MABEY UNIVERSAL BRIDGE SYSTEM

DESIGN CRITERIA:
1. DESIGN LIVE LOAD AASHTO MS-18
2. DESIGN SPAN 60.96 m
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL 190 Kpa ON LEDGE 476 Kpa
4. ALLOWABLE LOAD FOR PILING N/A TYPE ESTIMATED LENGTH
5. STRUCTURAL STEEL AASHTO GRADE N/A
6. REINFORCING STEEL GRADE 420
7. ~~CONCRETE CLASS A f_c = 30 MPa~~
CONCRETE CLASS B f_c = 25 MPa
~~SILICA FUME CONCRETE f_c = 35 MPa~~

TRAFFIC MAINTENANCE:
1. IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE YES OR ON TEMPORARY BRIDGE N/A
2. TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY N/A TRAFFIC CONTROL SIGNALS REQUIRED N/A
MINIMUM N/A
ARE SIDEWALKS REQUIRED? N/A IF SO, ON WHAT SIDE? N/A

TRAFFIC DATA

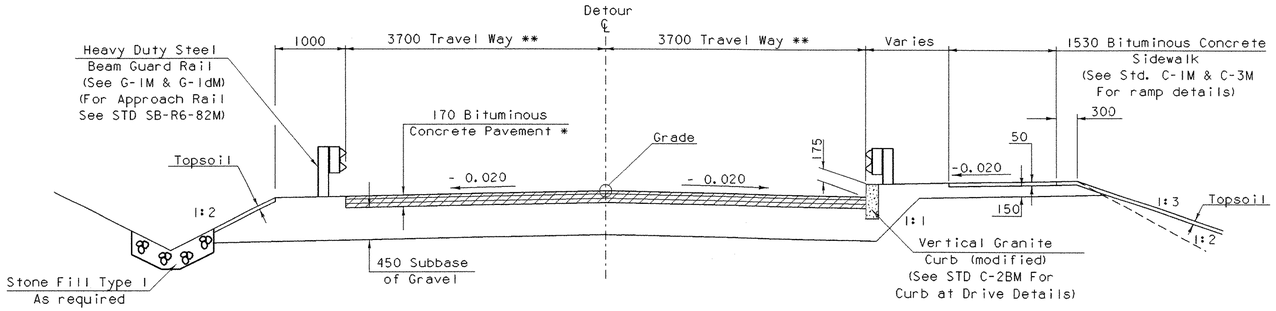
YEAR	ADT	DHV	% D	% T	ADTT
2004	6,300	820	52	3	200
2024	8,400	1,000	52	1	130

20 year ESAL for flexible pavement from 2004 to 2024: 1,350,000
40 year ESAL for flexible pavement from 2004 to 2044: 3,148,000
Design speed: 40 Km/h

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of Bethel	Bridge No. 31
Highway No. VT 12	Log Sta. / Surv. Sta.
VT 12 Over White River and NECR	
Preliminary Information for Contract 1	
Designed By K.M.HIGGINS	Drawn By K.M.HIGGINS
Checked By C.P.WILLIAMS Date 12/02	Bridge Design Supervisor C.P.WILLIAMS Date 12/02
PROJECT Bethel	PROJECT NO. BRF 0241(33)-C1
I.G.C.Info./96j250/s96j250pi-c1.dgn	s96j250pi-c1.i
Bridge Sheet No.	Sheet 2 of 47

Metric

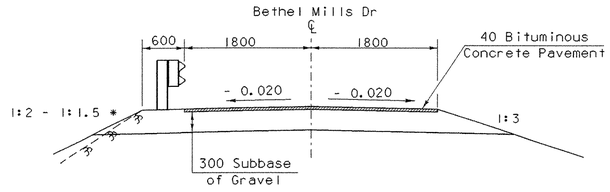


** Transition face of rail to meet face of rail on bridge in 5 meters

* 40 Type III over
65 Type I or Type II over
65 Type I or Type II

DETOUR ROADWAY TYPICAL SECTION

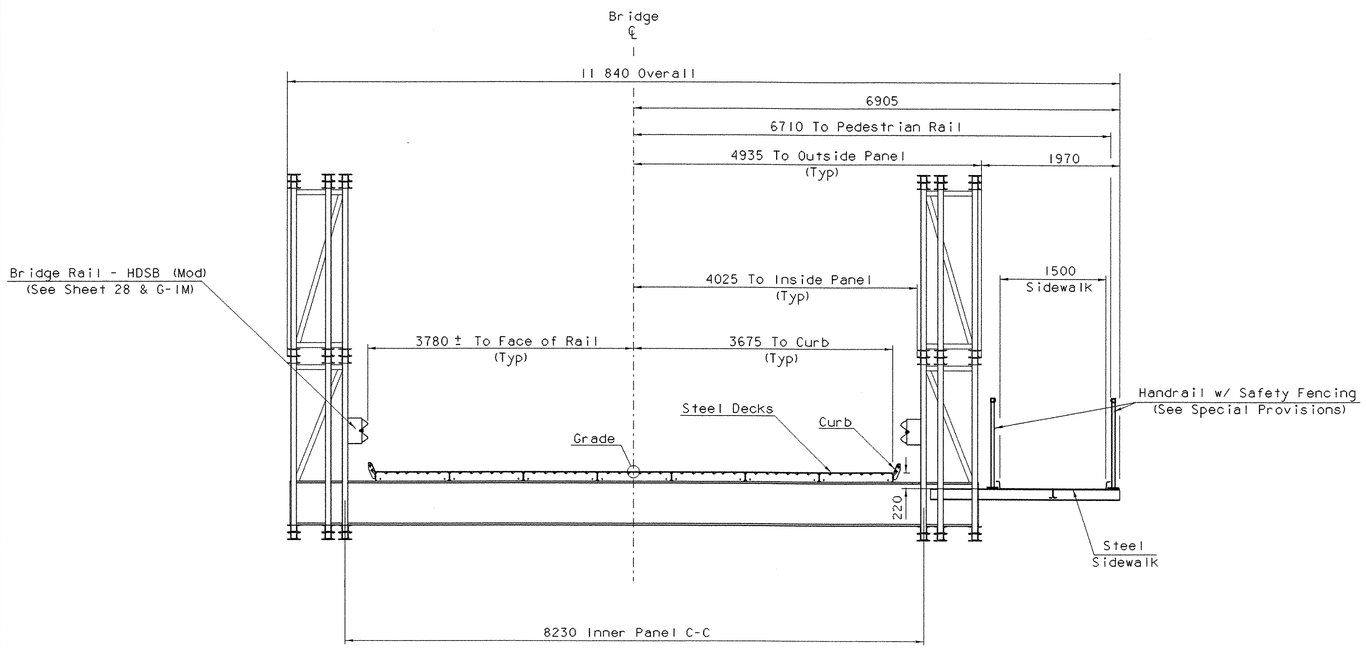
SCALE = 1 : 40



* On slopes greater than 1:2 use Stone Fill Type I

BETHEL MILLS DRIVE TYPICAL SECTION

SCALE = 1 : 40



TEMPORARY BRIDGE TYPICAL SECTION

SCALE = 1 : 40

MATERIAL ITEM	TOLERANCE
PAVEMENT	±5 mm TOTAL THICKNESS
AGGREGATE SURFACE COURSE	±10 mm
BASE COURSE	±10 mm
SUBBASE	±30 mm
SAND BORROW	±30 mm
GRANULAR BORROW	±30 mm

0 1 2 3 4

SCALE = 1:40

PROJECT: BETHEL	PROJECT NO.: BRF 0241 (33) -C1
DESIGN FILE NAME: 96j250/structures/s96j250typ-c1.dgn	
IPARM FILE NAME: s96j250typ-c1.i	PLOT DATE: 09-JUL-2003
DESIGNED BY: C. P. WILLIAMS	DRAWN BY: K.M.HIGGINS
SQUAD LEADER: C. P. WILLIAMS	CHECKED BY:
TYPICAL SECTIONS	SHEET: 3 OF 47

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET

Metric

SUMMARY OF ESTIMATED QUANTITIES																TOTALS				DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
		Super Struct.			Abut. #1			Abut. #2			Roadway		E & C Items		Erosion Control	BRIDGE QUANTITY	ROUND	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS
											1							1		LS	CLEARING AND GRUBBING (Including Individual Trees and Stumps)	201.10			
											320							320		CM	COMMON EXCAVATION	203.15			
											320							320		CM	EARTH BORROW	203.30			
															10			10		CM	TRENCH EXCAVATION OF EARTH	204.20			
								25										25		CM	STRUCTURE EXCAVATION	204.25			
					580			320			10							890		CM	GRANULAR BACKFILL FOR STRUCTURES	204.30			
											930							930		SM	COLD PLANING-BIT.PAVEMENT	210.10			
											500				10			510		CM	SUBBASE OF GRAVEL	301.15			
											~~150~~							~~150~~		~~KG~~	~~EMULSIFIED ASPHALT~~	404.65			
											497							497		T	BITUMINOUS CONCRETE PAVEMENT (PG 58-34)	406.25			
					23			23			5							51		CM	CONCRETE, CLASS B	501.25			
					1910			1910			190							4010		KG	REINFORCING STEEL	507.15			
		9																9		M	BRIDGE EXPANSION JOINT (MOD)	516.10			
		130																130		M	BRIDGE RAILING - HD STEEL BEAM/CURB MOUNTED (MOD)	525.40			
		1																1		LS	MAINTENANCE OF TRAFFIC FOR BRIDGE PROJECTS	527.10			
		1																1		LS	TWO-WAY TEMPORARY BRIDGE (MOD-1)	528.11			
		1																1		LS	TWO-WAY TEMPORARY BRIDGE (MOD-2)	528.11			
																					BEGIN PIPE OPTION				
											20							20		M	450 mm CSP 1.63 mm (68 mm X 12 mm)	601.0015			
											20							20		M	450 mm CAAP 1.52 mm (68 mm X 12 mm)	601.0215			
											20							20		M	450 mm CPEP	601.0815			
											2							2		EACH	450 mm CSP ELBOW 1.63 mm (68 mm X 12 mm)	601.5015			
											2							2		EACH	450 mm CAAP ELBOW 1.52 mm (68 mm X 12 mm)	601.5215			
											2							2		EACH	450 mm CPEP ELBOW	601.5814			
																					END PIPE OPTION				
											10							10		M	CLEANING CULVERT PIPE IN PLACE (0-600 mm INCLUSIVE)	601.995			
											1							1		EACH	CHANGING ELEV. OF DROP INLETS, CATCH BASINS OR MANHOLES	604.40			
											2							2		EACH	CAST IRON GRATE WITH FRAME TYPE E 604.48	~~604.62~~			
											2							2		EACH	CAPPING EXISTING DROP INLETS	604.60			
													1		5			5		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25			
											5							5		T	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15			
											10				10			20		CM	STONE FILL, TYPE I	613.10			
											100							100		M	VERTICAL GRANITE CURB (MOD)	616.21			
											21							21		T	BITUMINOUS CONCRETE SIDEWALK	618.15			
											31							31		M	CHAIN-LINK FENCE, 1.2 M	620.11			
											14							14		M	CHAIN LINK FENCE, 1.8 M	620.12			
											7							7		M	GATE FOR CHAIN-LINK FENCE, 1.8 M	620.16			
											25							25		M	REMOVAL OF EXISTING FENCE	620.55			
											150							150		M	HEAVY DUTY STEEL BEAM GUARD RAIL	621.21			
											3 ~~6~~							3 ~~6~~		EACH	ANCHOR FOR STEEL BEAM RAIL	621.80			
											20							20		M	TEMPORARY TRAFFIC BARRIER	621.90			
											200							200		HR	FLAGGERS	630.15			
													1					1		LS	FIELD OFFICE-ENGINEERS	631.10			
													1					1		LS	TESTING EQUIPMENT - CONCRETE	631.16			
													~~1~~					~~1~~		~~LS~~	~~TESTING EQUIPMENT - BITUMINOUS~~	~~631.17~~			
													1					1		LU	FIELD OFFICE - TELEPHONE (NABI)	631.25			

PROJECT NAME: **Bethel**
PROJECT NUMBER: **BRF 0241 (33)-C1**

FILE NAME: bethel_c1.xls
PROJECT LEADER: C.P. Williams
DESIGNED BY: K.M. Higgins
QUANTITY SHEET #1

PLOT DATE: 7/3/2003
DRAWN BY: K.M. Higgins
CHECKED BY: C.P. Williams
SHEET 4 OF 47

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET

Metric

SUMMARY OF ESTIMATED QUANTITIES																TOTALS				DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
		Super Struct.			Abut. #1			Abut. #2			Roadway		E & C Items		Erosion Control	BRIDGE QUANTITY	ROUND	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS
											1							1		LS	MOBILIZATION	635.10			
											420							420		M	100 mm WHITE LINE	646.20			
											460							460		M	100 mm YELLOW LINE	646.21			
											13							13		M	600 mm STOP BAR	646.26			
											4							4		EACH	LETTER OR SYMBOL	646.30			
											8							8		M	CROSSWALK MARKING W/DIAGONAL LINES	646.31			
											10							10		SM	REMOVAL OF EXISTING PAVEMENT MARKINGS	646.85			
															200			200		SM	GEOTEXTILE FOR SILT FENCE	649.51			
															40			40		SM	GEOTEXTILE FOR FILTER CURTAIN	649.61			
															40			40		KG	SEED	651.15			
															20			20		KG	SEED-WINTER RYE	651.17			
															1000			1000		KG	FERTILIZER	651.18			
															1			1		T	AGRICULTURAL LIMESTONE	651.20			
															1			1		T	HAY MULCH	651.25			
															50			50		EACH	HAY BALES FOR EROSION CONTROL	651.26			
															20			20		CM	TOPSOIL	651.35			
															1			1		LS	EROSION & SEDIMENT CONTROL PLAN	652.10			
															50			50		HR	MONITORING EROSION & SEDIMENT CONTROL PLAN	652.20			
															1			1		LU	FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN	652.30			
															40			40		SM	EROSION MATTING	654.10			
											4							4		SM	TRAFFIC SIGNS, TYPE A	675.20			
											48							48		M	FLANGED CHANNEL SIGN POST	675.301			
											5							5		EACH	REMOVING SIGNS	675.50			
											5							5		EACH	ERECTING SALVAGED SIGNS	675.60			
											1							1		EACH	REMOVE & RESETTING LIGHT POLE	679.25			

PROJECT NAME: **Bethel**

PROJECT NUMBER: **BRF 0241 (33)-C1**

FILE NAME:	bethel_c1.xls	PLOT DATE:	7/3/2003
PROJECT LEADER:	C.P. Williams	DRAWN BY:	K.M. Higgins
DESIGNED BY:	K.M. Higgins	CHECKED BY:	C.P. Williams
QUANTITY SHEET #2		SHEET 5	OF 47

GPS CONTROL POINTS

HVCTRL #1

STANDARD DISC STAMPED

CLEVELAND

N = 145575.6400

E = 488269.5070

ELEV. = 176.700

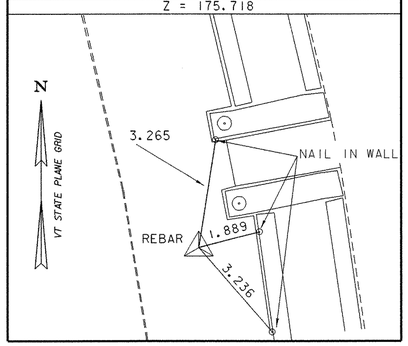
DESCRIBED BY VERMONT AGENCY OF TRANSPORTATION 1996 (DJM) GENERAL LOCATION BETHEL, 1.4 MILES (2.3 KM) SW OF BETHEL VILLAGE. TO REACH FROM THE JUNCTION OF VT 107 AND VT 12 SOUTH OF BETHEL, PROCEED EASTERLY ALONG VT 107 AND VT 12 FOR APPROX 0.3 M (1.0 FT) TO THE MARK ON THE LEFT. THE MARK IS DIRECTLY OPPOSITE CLEVELAND BROOK ROAD, 25.5 FT (7.8 M) NORTH FROM THE CENTERLINE OF VT 107 AND VT 12. OWNERSHIP STATE OF VERMONT STATION MARK IS A STATE OF VERMONT SURVEY MARK SET IN THE TOP OF A 12 INCH DIAMETER CONCRETE POST SET FLUSH WITH GROUND. IT IS 25.5 FT (7.8 M) NORTH OF CENTERLINE VT 107 AND VT 12, 4.5 FT (1.4 M) NORTH OF 3 CABLE GUARD RAIL, 45 FT (13.7 M) SOUTHEAST FROM COMBINATION POLE 4/49/57, 15 FT (4.6 M) SOUTH OF THE NORTH END OF A 4 FT (1.2 M) X 5 FT (1.5 M) CONCRETE BOX, 72 FT (21.9 M) NORTH OF THE SOUTH END OF A 4 FT (1.2 M) X 5 FT (1.5 M) CONCRETE BOX.

* HORIZONTAL CONTROL IS FROM: BETHEL BRF 022-1(14) BY. R.GILMAN FROM THAT FILE POINTS 8 AND 9 WERE USED TO CREATE POINT 18.
* DESCRIPTION PROVIDED BY VERMONT AGENCY OF TRANSPORTATION GEODETIC SURVEY UNIT

TRAVERSE TIES

HVCTRL #18

N = 148000.0693
E = 489255.6489
Z = 175.718



HVCTRL #19

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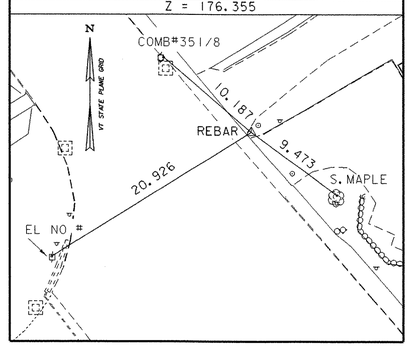
E = 489205.3391
Z = 176.355



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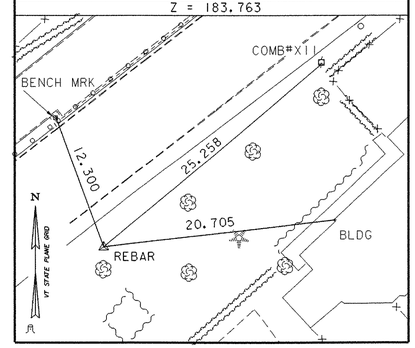
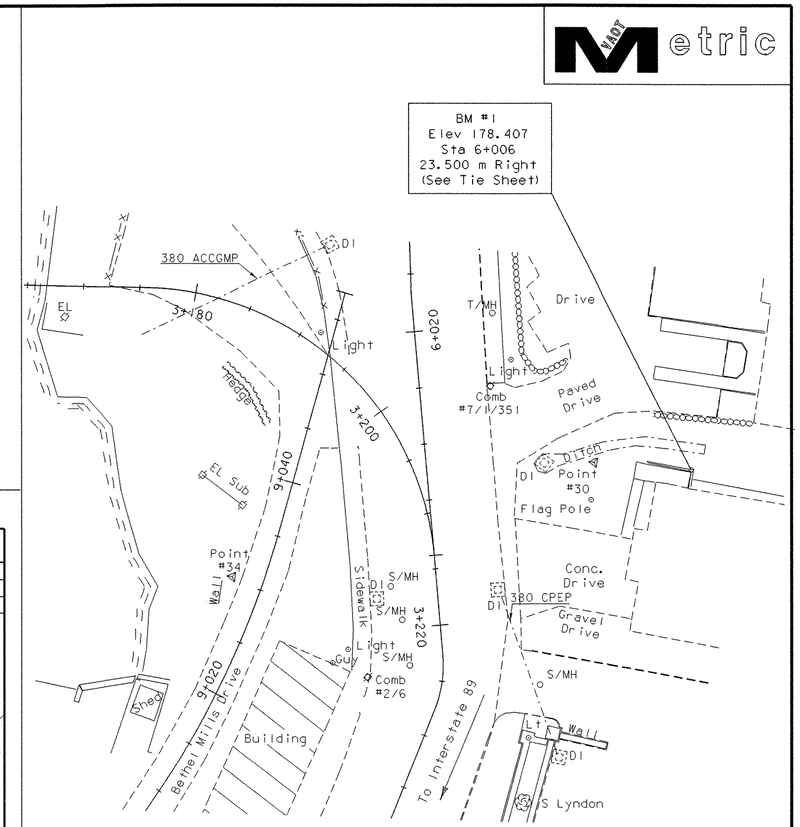


* MAIN TRAVERSE COMPLETED: OCTOBER 04, 1999 BY L.ORVIS & J.HULETT



BENCH MARK #1 LOCATION

ALIGNMENT TIES

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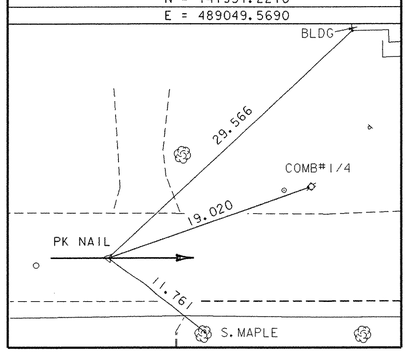
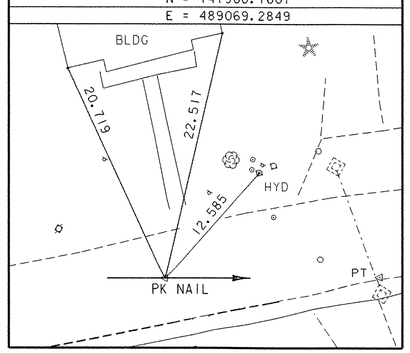
E = 489049.5690



PC 3+026.389

N = 147968.7607
E = 489069.2849



PT 3+045.617

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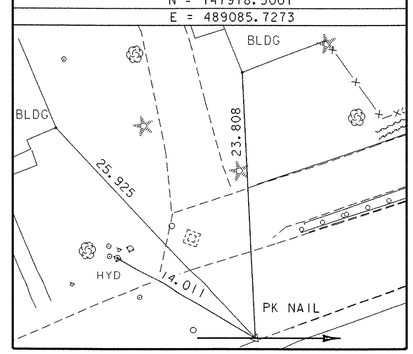
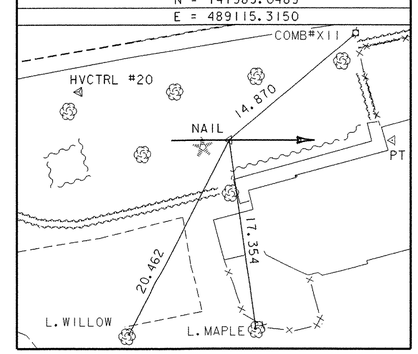


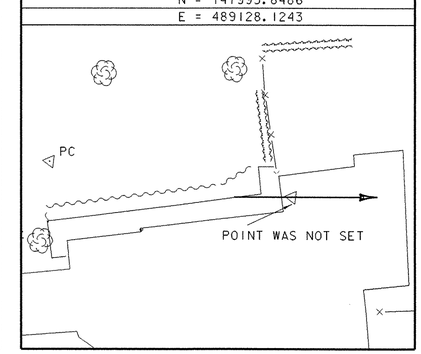
PC 3+077.029

N = 147989.0489
E = 489115.3150



PT 3+091.583

N = 147995.8486
E = 489128.1243



* ALIGNMENT STAKED ON JANUARY 19, 2002 BY R.GILMAN, P.WINTERS & D.BREER

DATUM

VERTICAL NAVD 88
HORIZONTAL NAD 83/92

PROJECT: BETHEL	PROJECT NO. : BRF 024(33)-C1
DESIGN FILE NAME: 96j250/STRUCTURES/s96j250tie-c1.dgn	
IPARM FILE NAME: s96j250tie2-c1.i	PLOT DATE: 09-JUL-2003
SURVEYED BY: ORVIS	SURVEY DATE: 10/99
SQUAD LEADER: C. P. WILLIAMS	DRAWN BY: J. HULET
ALIGNMENT TIE INFORMATION	SHEET: 6 OF 47

Metric

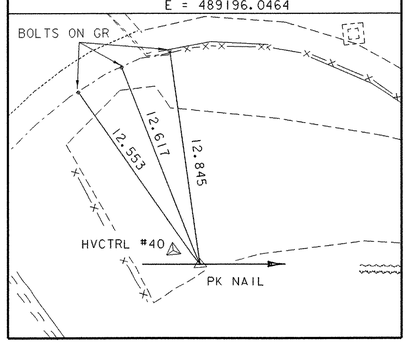
GPS CONTROL POINTS

TRAVERSE TIES

ALIGNMENT TIES

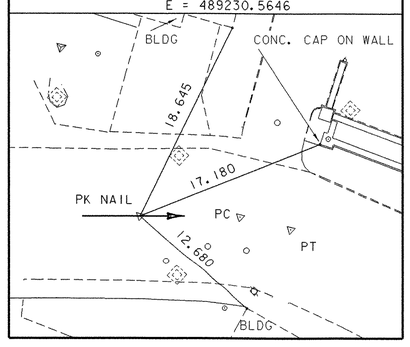
PC 3+175.860

N = 148045.7416
E = 489196.0464



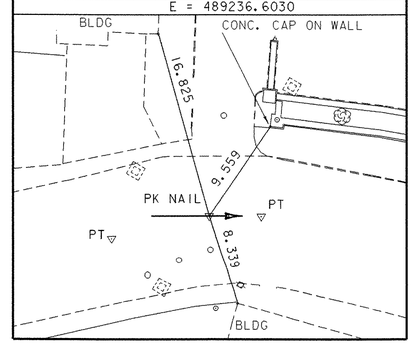
PT 3+213.824

N = 148042.3998
E = 489230.5646



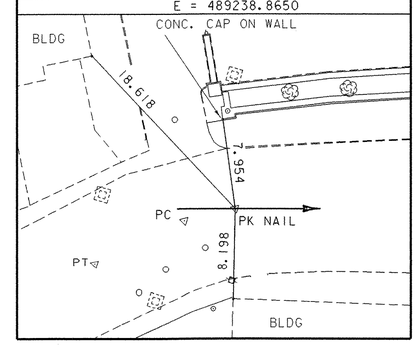
PC 3+222.738

N = 148035.8424
E = 489236.6030



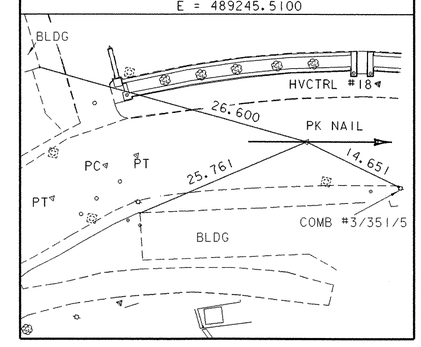
PT 3+227.407

N = 148031.8056
E = 489238.8650



POT 3+251.684

N = 148008.4560
E = 489245.5100



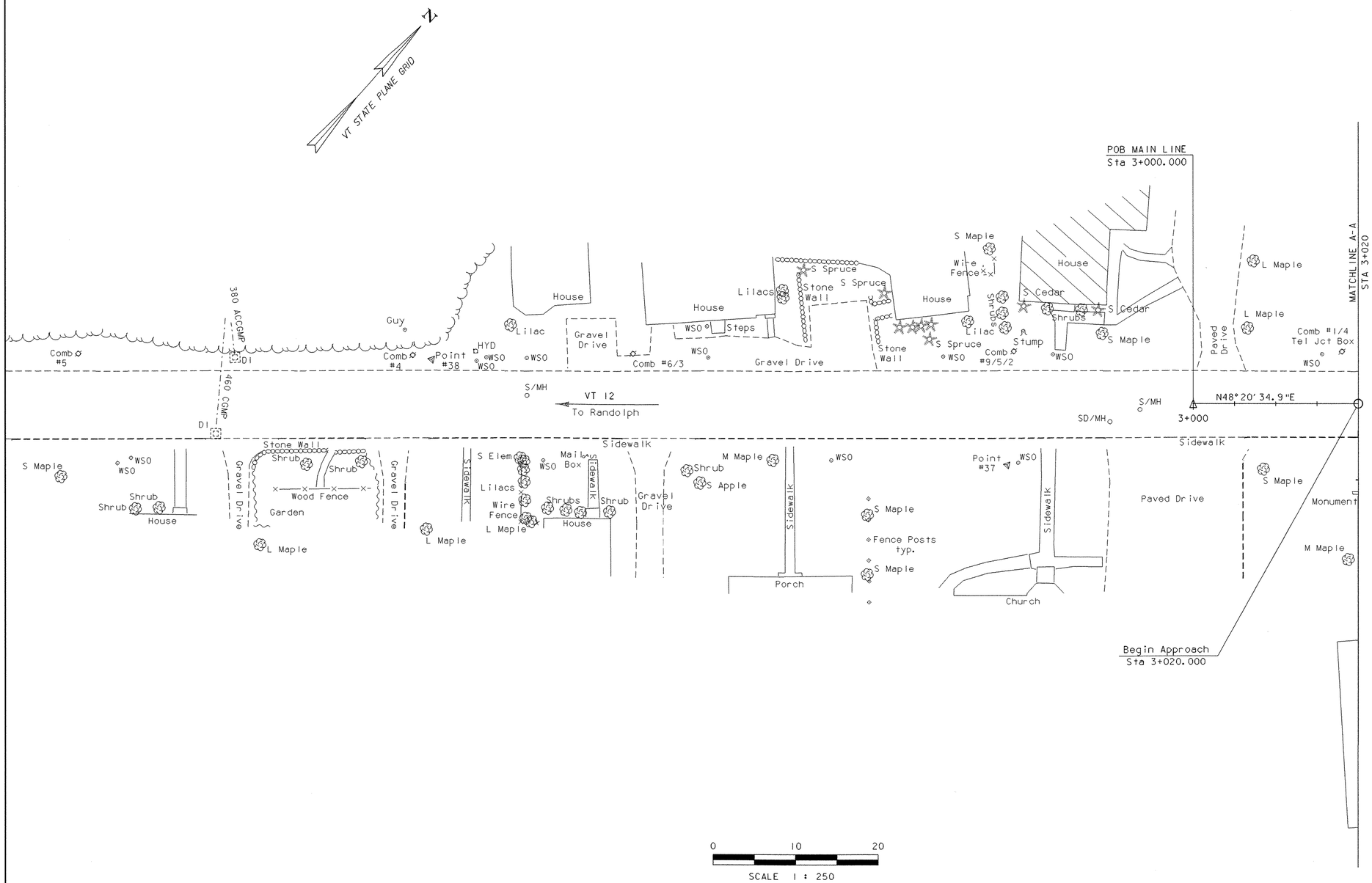
* ALIGNMENT STAKED ON JANUARY 19, 2002 BY R.GILMAN, P.WINTERS & D.BREER

DATUM

VERTICAL NAVD 88
HORIZONTAL NAD 83/92

PROJECT: BETHEL	PROJECT NO. : BRF 024(33)-CI
DESIGN FILE NAME: 96j250/STRUCTURES/s96j250tie-ci.dgn	
IPARM FILE NAME: s96j250tie3-ci.i	PLOT DATE: 09-JUL-2003
SURVEYED BY: ORVIS	SURVEY DATE: 10/99
SQUAD LEADER: C. P. WILLIAMS	DRAWN BY: J. HULET
ALIGNMENT/TRAVERSE TIE INFORMATION	SHEET: 7 OF 47

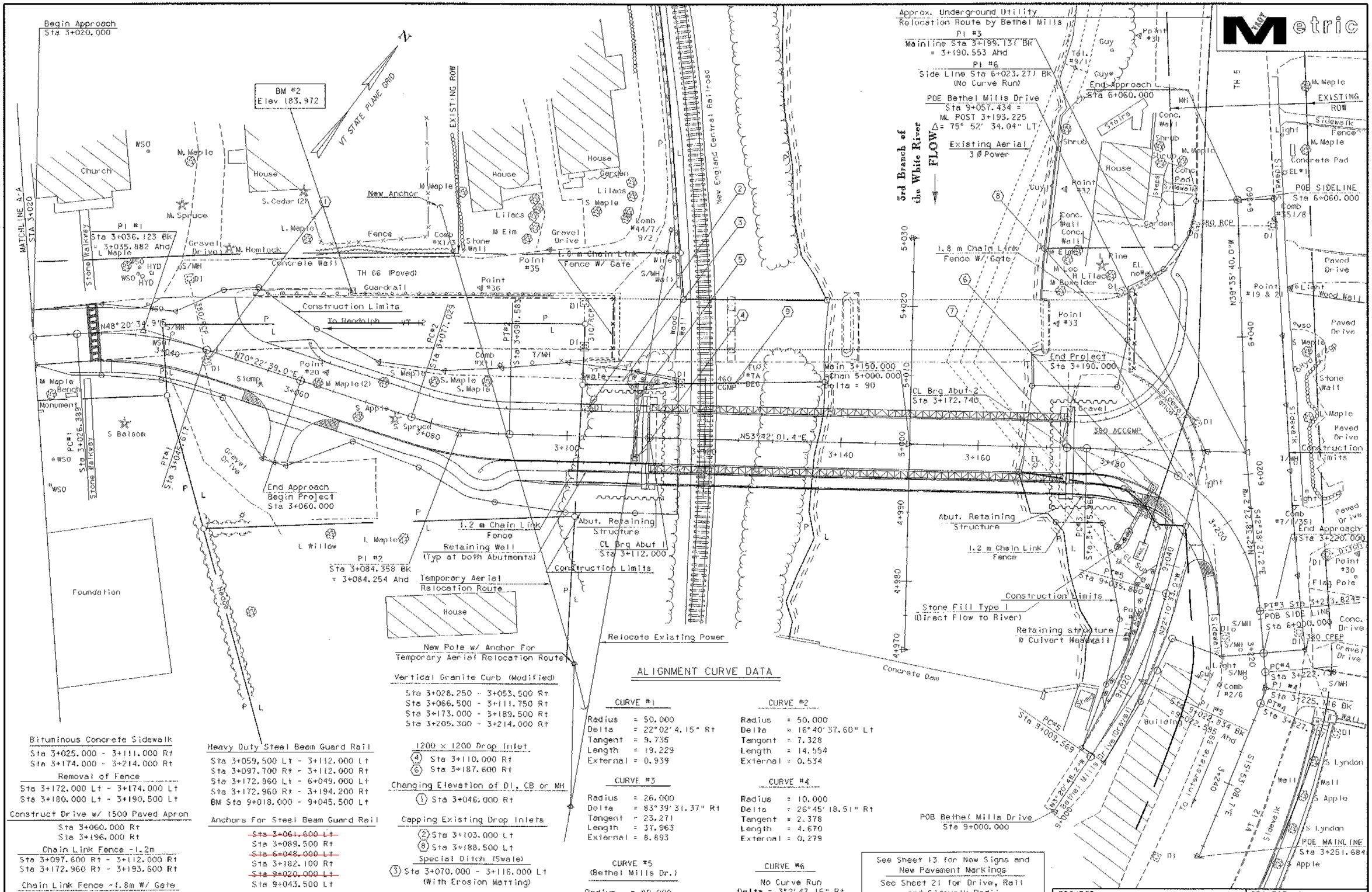
Metric



DATUM

VERTICAL	NAVD 88
HORIZONTAL	NAD 83/92

PROJECT: BETHEL	PROJECT NO. : BRF 0241(33)-C1
DESIGN FILE NAME: 96j250/structures/s96j250bdr-c1.dgn	
IPARM FILE NAME: s96j250la1-c1.i	PLOT DATE: 09-JUL-2003
SURVEYED BY: ORVIS	SURVEY DATE: 10/99
SQUAD LEADER: C. P. WILLIAMS	DRAWN BY: KMH
LAYOUT SHEET 1	SHEET: 8 OF 47



ALIGNMENT CURVE DATA

CURVE #1

Radius = 50.000
Delta = 22°02'4.15" Rt
Tangent = 9.735
Length = 19.229
External = 0.939

CURVE #2

Radius = 50.000
Delta = 16°40'37.60" Lt
Tangent = 7.328
Length = 14.554
External = 0.534

CURVE #3

Radius = 26.000
Delta = 83°39'31.37" Rt
Tangent = 23.271
Length = 37.963
External = 8.893

CURVE #4

Radius = 10.000
Delta = 26°45'18.51" Rt
Tangent = 2.378
Length = 4.670
External = 0.279

CURVE #5
(Bethel Mills Dr.)

Radius = 80.000
Delta = 18°49'44.8" Lt
Tangent = 13.265
Length = 26.290
External = 1.092

CURVE #6

No Curve Run
Delta = 3°2'47.16" Rt

Bituminous Concrete Sidewalk
Sta 3+025.000 - 3+111.000 Rt
Sta 3+174.000 - 3+214.000 Rt

Removal of Fence
Sta 3+172.000 Lt - 3+174.000 Lt
Sta 3+180.000 Lt - 3+190.500 Lt

Construct Drive w/ 150D Paved Apron
Sta 3+060.000 Rt
Sta 3+196.000 Rt

Chain Link Fence - 1.2m
Sta 3+097.600 Rt - 3+112.000 Rt
Sta 3+172.960 Rt - 3+193.600 Rt

Chain Link Fence - 1.8m W/ Gate
Chan. Sta 5+011.500 - 5+020.500 Lt
Chan. Sta 5+011.500 - 5+023.000 Rt

Heavy Duty Steel Beam Guard Rail
Sta 3+059.500 Lt - 3+112.000 Lt
Sta 3+097.700 Rt - 3+112.000 Rt
Sta 3+172.960 Lt - 6+049.000 Lt
Sta 3+172.960 Rt - 3+194.200 Rt
BM Sta 9+018.000 - 9+045.500 Lt

Anchors For Steel Beam Guard Rail
~~Sta 3+061.600 Lt~~
Sta 3+089.500 Rt
~~Sta 6+048.000 Lt~~
Sta 3+182.100 Rt
~~Sta 9+020.000 Lt~~
Sta 9+043.500 Lt

Bridge Rail - HDSB (Mod)
Sta 3+112.000 Lt - 3+172.960 Lt
Sta 3+112.000 Rt - 3+172.960 Rt

Remove & Salvage Light Pole
Sta 3+191.400 Lt

Vertical Granite Curb (Modified)
Sta 3+028.250 - 3+053.500 Rt
Sta 3+066.500 - 3+111.750 Rt
Sta 3+173.000 - 3+189.500 Rt
Sta 3+205.300 - 3+214.000 Rt

1200 x 1200 Drop Inlet
(4) Sta 3+110.000 Rt
(6) Sta 3+187.600 Rt

Changing Elevation of DI, CB or MH
(1) Sta 3+046.000 Rt

Capping Existing Drop Inlets
(2) Sta 3+103.000 Lt
(8) Sta 3+188.500 Lt

Special Ditch (Swale)
(3) Sta 3+070.000 - 3+116.000 Lt
(With Erosion Matting)

New 450 diameter - Option Pipes
PCCSP, CAAP or CPEP
(5) Sta 3+110.000 (w/2 Elbows)
(7) Sta 3+187.600 Rt

Cleaning Culvert Pipe in Place
(9) Sta 3+116.700 Lt - 3+125.000 Lt

BM #1
Elev 178.407
Sta 6+006
23.500 m Right
(See Tie Sheet)

See Sheet 13 for New Signs and New Pavement Markings
See Sheet 21 for Drive, Rail and Sidewalk Radii
See Sheet 16 for Drainage Details

0 10 20
SCALE 1 : 250

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83/92

PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) - C1
DESIGN FILE NAME: 96J250/structures/s96J250bdr-cl.dgn	
IPARM FILE NAME: s96J250la2-cl.i	PLOT DATE: 09-JUL-2003
SURVEYED BY: ORVIS	SURVEY DATE: 10/99
SQUAD LEADER: C.P. WILLIAMS	DRAWN BY: KMH
LAYOUT SHEET 2	SHEET: 9 OF 47

Metric

L = 30.000 m
K = 4
SSD = 39 m

PVC 3+085.000
ELEV 184.015

PVT 3+115.000
ELEV 182.719

Begin Bridge
Sta 3+111.000

Taper 0.020 Cross
Slope to Level

End Bridge
Sta 3+173.760

Taper Level Cross
Slope to 0.020

60.740 m

PVI 3+040.000
ELEV 184.060

END APPROACH
BEGIN PROJECT
STA 3+060.000

CL Brg Abut 1
Sta 3+112.000
FG=182.962

Sta 3+120.902
Elev 182.215

CL Brg Abut 2
Sta 3+172.740
FG=177.787

END PROJECT
BEGIN APPROACH
STA 3+190.000

-0.1000%

Exp

PVI 3+100.000
ELEV 184.000

Fill Required

Abut. Retaining
Structure

5.49m x 6.00m
RR Clearance

6.00m

Top Track
Sta 3+120.902
Elev 174.868

5.49m

-8.5417%

Fixed

L = 20.000 m
K = 2

PVC 3+186.000
ELEV 176.654

PVT 3+206.000
ELEV 175.757

PVI 3+210.000
ELEV 175.740

-0.4286%

PVI 3+196.000
ELEV 175.800

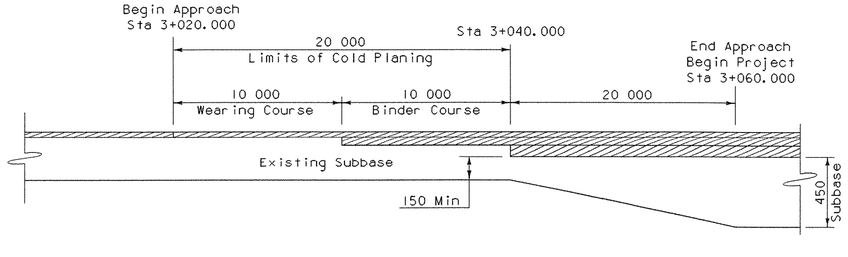
Abut. Retaining
Structure

Bridge length = 60.970 m

190 185 180 175 170 165 160

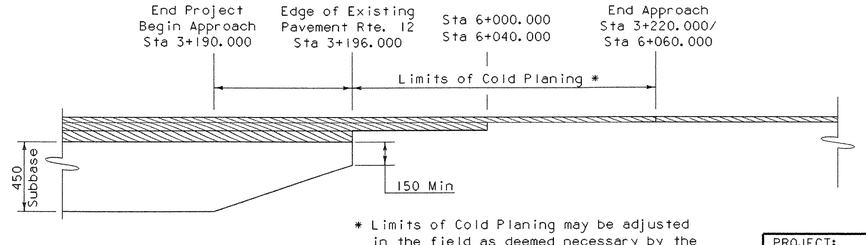
Station	Elevation	Grade
3+030	184.28	
3+040	184.06	184.060
3+050	183.95	184.050
3+060	183.87	184.040
3+070	183.82	184.030
3+080	183.90	184.020
3+090	184.00	183.975
3+100	182.27	183.683
3+110	177.68	183.111
3+120	174.65	182.292
3+130	174.12	181.438
3+140	167.76	180.583
3+150	166.94	179.729
3+160	166.84	178.875
3+170	174.95	178.021
3+180	175.77	177.167
3+190	175.68	176.345
3+200	175.72	175.856
3+210	175.72	175.740
3+220	175.79	

Profile Along Temporary Detour



SUBBASE TAPER AT BEGIN PROJECT

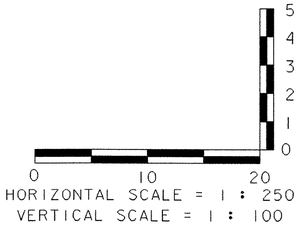
NTS



* Limits of Cold Planing may be adjusted in the field as deemed necessary by the resident engineer.

SUBBASE TAPER AT END PROJECT

NTS

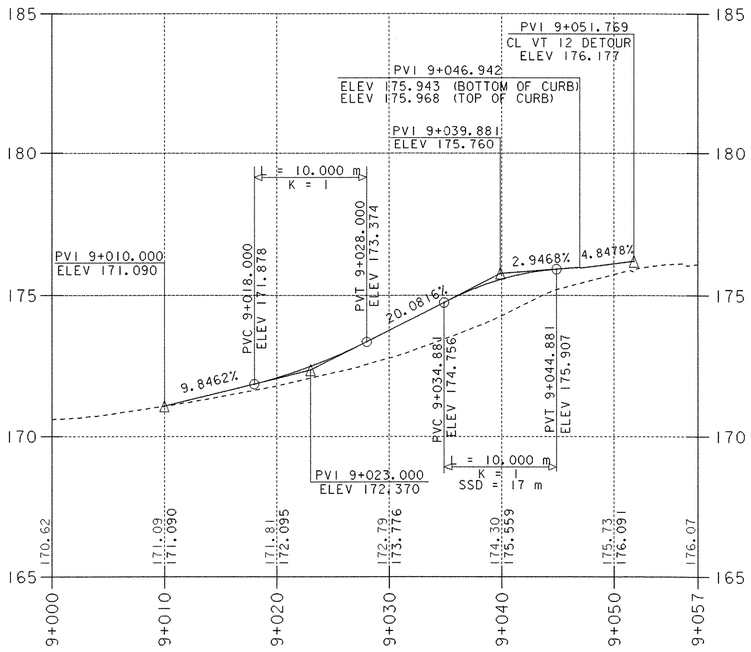


DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83/92

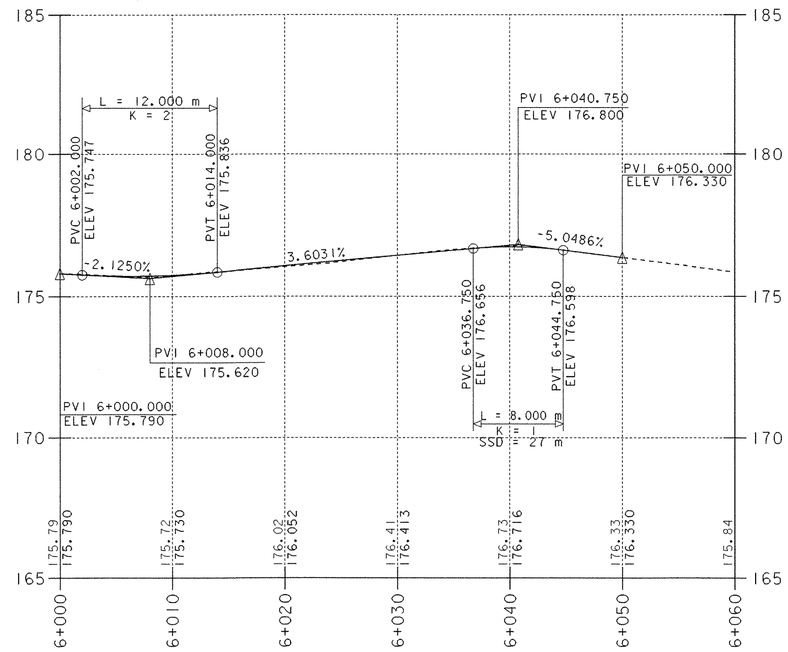
PROJECT:	PROJECT NO. :
BETHEL	BRF 0241(33)-C1

DESIGN FILE NAME: 96j250/structures/s96j250pro-c1.dgn
IPARM FILE NAME: s96j250pr1-c1.i
PLOT DATE: 09-JUL-2003
SURVEYED BY: ORVIS
SURVEY DATE: 10/99
SQUAD LEADER: C. P. WILLIAMS
DRAWN BY: KMH
TEMPORARY DETOUR PROFILE
SHEET: 10 OF 47

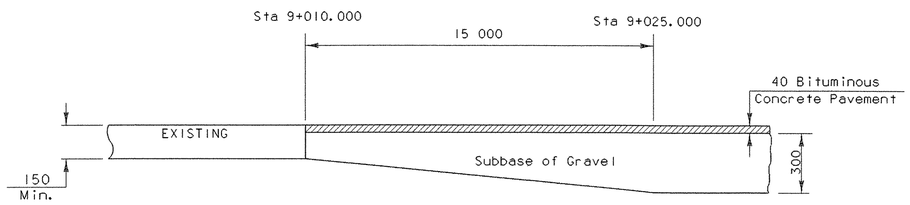
Metric



Profile Bethel Mills Drive

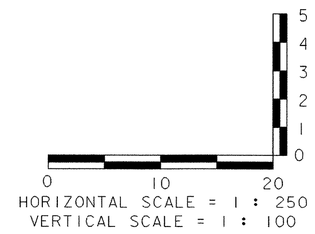


Profile Along TH 5



SUBBASE TAPER BETHEL MILLS DRIVE

NTS

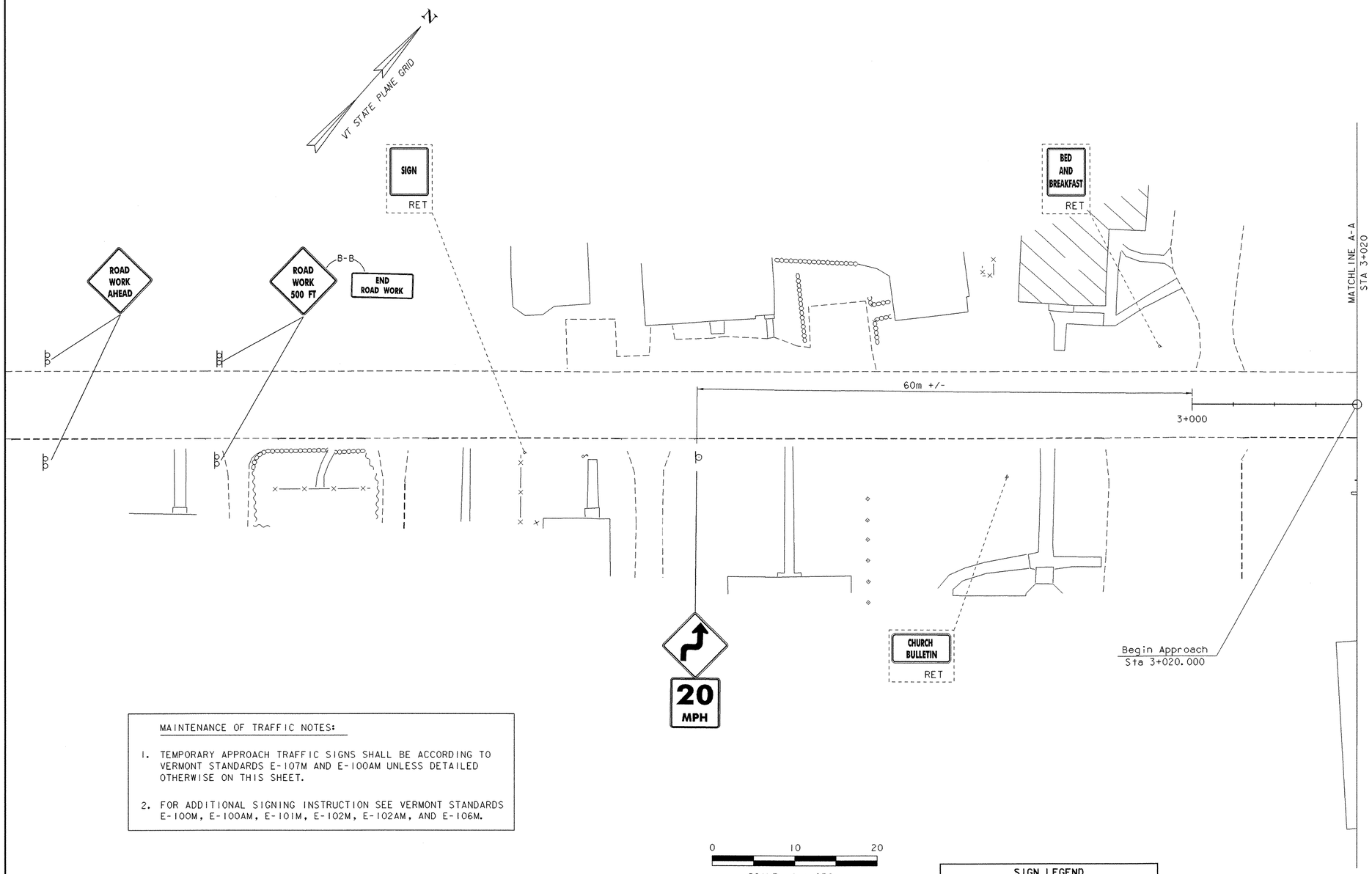


DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83/92

PROJECT:	PROJECT NO. :
BETHEL	BRF 0241 (33) -C1

DESIGN FILE NAME: 96j250/structures/s96j250pro-c1.dgn
IPARM FILE NAME: s96j250pr2-c1.i — PLOT DATE: 09-JUL-2003
SURVEYED BY: ORVIS — SURVEY DATE: 10/99
SQUAD LEADER: C. P. WILLIAMS — DRAWN BY: KMH
BETHEL MILLS DRIVE & TH5 PROFILE — SHEET: 11 OF 47

Metric



MAINTENANCE OF TRAFFIC NOTES:

1. TEMPORARY APPROACH TRAFFIC SIGNS SHALL BE ACCORDING TO VERMONT STANDARDS E-107M AND E-100AM UNLESS DETAILED OTHERWISE ON THIS SHEET.

2. FOR ADDITIONAL SIGNING INSTRUCTION SEE VERMONT STANDARDS E-100M, E-100AM, E-101M, E-102M, E-102AM, AND E-106M.

0 10 20

SCALE 1 : 250

SIGN LEGEND

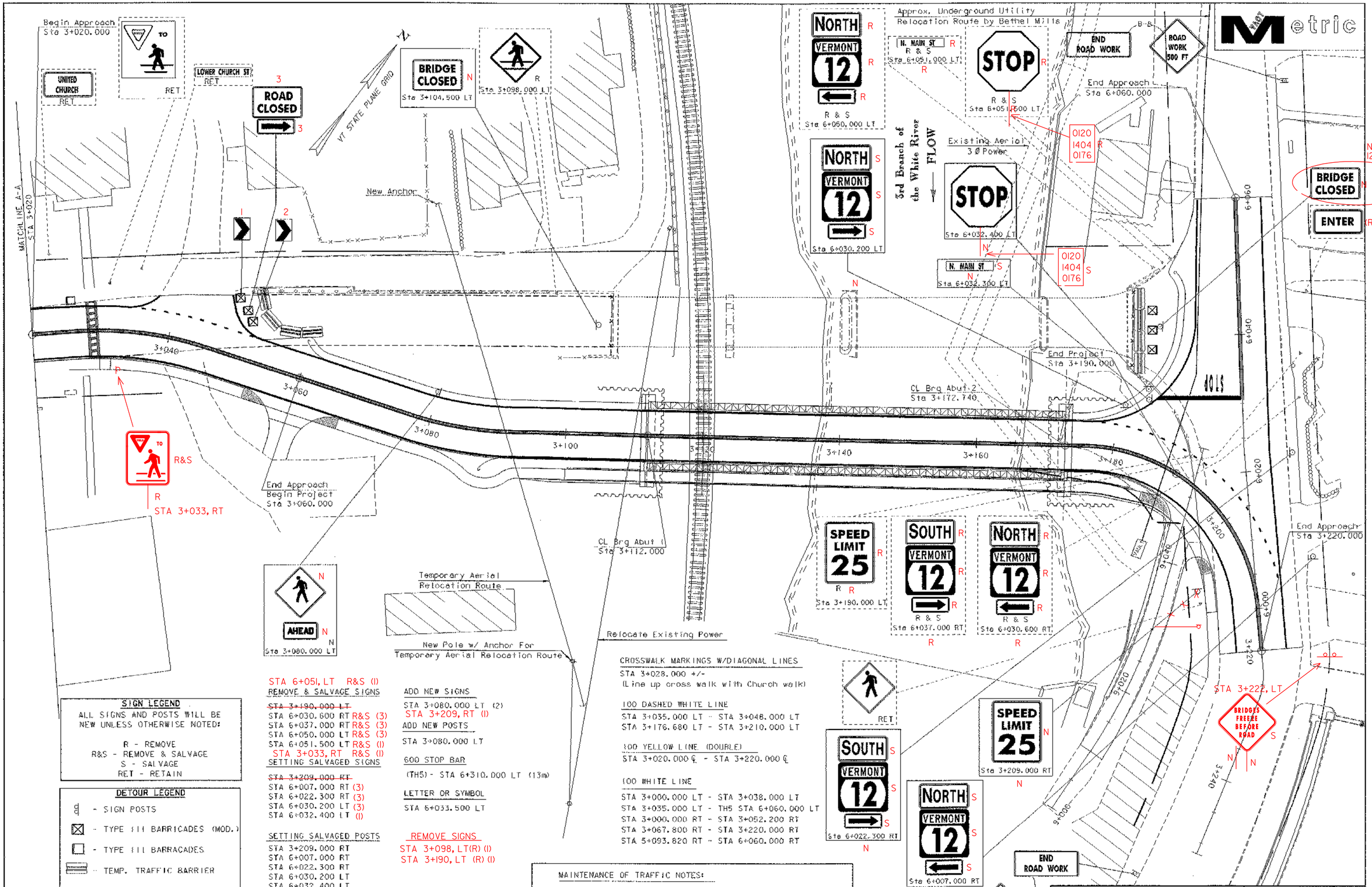
ALL SIGNS AND POSTS WILL BE NEW UNLESS OTHERWISE NOTED:

R - REMOVE
R&S - REMOVE & SALVAGE
S - SALVAGE
RET - RETAIN

DATUM

VERTICAL	NAVD 88
HORIZONTAL	NAD 83/92

PROJECT: BETHEL	PROJECT NO. : BRF 0241(33)-C1
DESIGN FILE NAME: 96j250/structures/s96j250bdr-c1.dgn	
IPARM FILE NAME: s96j250trfl-c1.i	PLOT DATE: 09-JUL-2003
SURVEYED BY: ORVIS	SURVEY DATE: 10/99
SQUAD LEADER: C. P. WILLIAMS	DRAWN BY: T. ANDERSON
TRAFFIC CONTROL SHEET 1	SHEET: 12 OF 47



SIGN LEGEND

ALL SIGNS AND POSTS WILL BE NEW UNLESS OTHERWISE NOTED:

R - REMOVE
R&S - REMOVE & SALVAGE
S - SALVAGE
RET - RETAIN

DETOUR LEGEND

- SIGN POSTS
- TYPE III BARRICADES (MOD.)
- TYPE III BARRACADES
- TEMP. TRAFFIC BARRIER

STA 6+051, LT R&S (I)

REMOVE & SALVAGE SIGNS

~~STA 3+190.000 LT~~
STA 6+030.600 RT R&S (3)
STA 6+037.000 RT R&S (3)
STA 6+050.000 LT R&S (3)
STA 6+051.500 LT R&S (I)
STA 3+033, RT R&S (I)

SETTING SALVAGED SIGNS

~~STA 3+209.000 RT~~
STA 6+007.000 RT (3)
STA 6+022.300 RT (3)
STA 6+030.200 LT (3)
STA 6+032.400 LT (I)

SETTING SALVAGED POSTS

STA 3+209.000 RT
STA 6+007.000 RT
STA 6+022.300 RT
STA 6+030.200 LT
STA 6+032.400 LT

ADD NEW SIGNS

STA 3+080.000 LT (2)
STA 3+209, RT (I)

ADD NEW POSTS

STA 3+080.000 LT

600 STOP BAR

(TH5) - STA 6+310.000 LT (13m)

LETTER OR SYMBOL

STA 6+033.500 LT

REMOVE SIGNS

STA 3+098, LT(R) (I)
STA 3+190, LT (R) (I)

CROSSWALK MARKINGS W/DIAGONAL LINES

STA 3+028.000 +/-
(Line up cross walk with Church walk)

100 DASHED WHITE LINE

STA 3+035.000 LT - STA 3+048.000 LT
STA 3+176.680 LT - STA 3+210.000 LT

100 YELLOW LINE (DOUBLE)

STA 3+020.000 ℄ - STA 3+220.000 ℄

100 WHITE LINE

STA 3+000.000 LT - STA 3+038.000 LT
STA 3+035.000 LT - TH5 STA 6+060.000 LT
STA 3+000.000 RT - STA 3+052.200 RT
STA 3+067.800 RT - STA 3+220.000 RT
STA 5+093.820 RT - STA 6+060.000 RT

NOTE:
THE RESIDENT ENGINEER SHALL DETERMINE THE FINAL LOCATION OF ALL CROSSWALK MARIKINGS AND SIGNS. NEW SIGNS MAY BE ADDED AS REQUIRED. ALL NEW OR SALVAGED SIGNS REQUIRED THAT HAVE NOT BEEN SHOWN ON THE PLANS SHALL BE PAID FOR UNDER THEIR APPROPRIATE PAY ITEMS.

MAINTENANCE OF TRAFFIC NOTES:

1. TEMPORARY APPROACH TRAFFIC SIGNS SHALL BE ACCORDING TO VERMONT STANDARDS E-107M AND E-100AM UNLESS DETAILED OTHERWISE ON THIS SHEET.
2. FOR ADDITIONAL SIGNING INSTRUCTION SEE VERMONT STANDARDS E-100M, E-100AM, E-101M, E-102M, E-102AM, AND E-106M.

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83/92

PROJECT: BETHEL

PROJECT NO.: BRF 0241(33)-C1

DESIGN FILE NAME: 96j250/structures/s96j250bdr-c1.dgn
IPARM FILE NAME: s96j250trf2-c1.i
SURVEYED BY: ORVIS
SQUAD LEADER: C.P. WILLIAMS
TRAFFIC SIGN SHEET 2

PLOT DATE: 09-JUL-2003
SURVEY DATE: 10/99
DRAWN BY: T. ANDERSON
SHEET: 13 OF 47

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET

Metric

KILOMETER MARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (mm)	HEIGHT (mm)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	SALVAGE	NO. OF POSTS	FLANGED CHANNEL kg/m 1.7	3.0	4.5	SQUARE STEEL (mm) 44 kg/m 3.4	50 kg/m 3.9	63 kg/m 5.0	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (mm) 75 kg/m 1.9	100 kg/m 2.5	100 MOD. 2.5	TUBULAR STEEL Ø (mm) FOUND-ATION	75 kg/m 11.3	89 kg/m 13.4	100 kg/m 16.1	125 kg/m 21.7	W-SHAPE STEEL FTG. SIZE 600 mm	750 mm	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
												OPTION ITEMS																								
6+022.3 ~~6+037.000~~ RT	SOUTH	1					1				1			X 4.27																			ERECT SALVAGED SIGN 6+022.300 RT		
6+022.3 ~~6+037.000~~ RT	VERMONT 12	1					1																										ERECT SALVAGED SIGN 6+022.300 RT		
6+022.3 ~~6+037.000~~ RT	→	1					1																										ERECT SALVAGED SIGN 6+022.300 RT		
6+032.4 ~~6+051.500~~ LT	STOP 0120 404 0176	1					2 +				1			X 3.66																			ERECT SALVAGED SIGN 6+032.400 LT		
6+032.3 ~~6+051.500~~ LT	N. MAIN ST	1					1				1			X 3.81																			ERECT SALVAGED SIGN 6+032.350 LT		
3+190.000 LT	SPEED LIMIT 25 REMOVAL	1																															REMOVE SIGN		
3+080.000 LT	⚠	1	750	750	0.563						1			X 4.45																			W11-2		E-152M
3+080.000 LT	AHEAD	1	600	200	0.120																												S4-3		E-153M
6+007 ~~6+030.600~~ RT	NORTH	1					1				1			X 4.27																			ERECT SALVAGED SIGN 6+007.000 RT		
6+007 ~~6+030.600~~ RT	VERMONT 12	1					1																										ERECT SALVAGED SIGN 6+007.000 RT		
6+007 ~~6+030.600~~ RT	←	1					1																										ERECT SALVAGED SIGN 6+007.000 RT		
6+030.2 ~~6+050.000~~ LT	NORTH	1					1				1			X 4.27																			ERECT SALVAGED SIGN 6+030.200 LT		
6+030.2 ~~6+050.000~~ LT	VERMONT 12	1					1																										ERECT SALVAGED SIGN 6+030.200 LT		
6+030.2 ~~6+050.000~~ LT	→	1					1																										ERECT SALVAGED SIGN 6+030.200 LT		
2+940, RT ~~SEE LAYOUT SHEET~~	↱		750	750	0.563						1			X 4.57																			COLOR SHALL BE BLACK ON REFLECTORIZED YELLOW W1-3R		E-101M
2+940, RT ~~SEE LAYOUT SHEET~~	20 MPH		450	450	0.203						~~1~~			~~X~~																			W13-1		E-155M
3+209.000 RT	SPEED LIMIT 25		600	750	0.450						1			X 3.96																			R2-1		E-142M
												m	m	m 39.5	m	m	m		EA	kg	kg	kg		kg	kg	kg	kg								
TOTALS					m² 1.90	m²	EA. ~~11~~ 12	m²				m 39.5			m					kg			EA.	kg				EA.	EA.	kg					

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

PROJECT NAME: BETHEL
PROJECT NUMBER: BRF 0241 (33)-C1

FILE NAME: 96J250/structures/a96j250tss-c1.dgn PLOT DATE: 09-JUL-2003
PROJECT LEADER: C. P. WILLIAMS DRAWN BY: T. G. ANDERSON
DESIGNED BY: K. M. HIGGINS CHECKED BY: K. M. HIGGINS
TRAFFIC SIGN SUMMARY SHEET 1 SHEET 14 OF 47

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET

Metric

KILOMETER MARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (mm)	HEIGHT (mm)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL kg/m 1.7	3.0	4.5	SQUARE STEEL (mm) kg/m 44 3.4	50 3.9	63 5.0	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (mm) kg/m 75 1.9	100 2.5	100 MOD 2.5	TUBULAR STEEL Ø (mm) FOUND-ATION	75 11.3	89 13.4	100 16.1	125 21.7	W-SHAPE STEEL FTG. SIZE 600 mm	750 mm	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
												OPTION ITEMS																								
3+104.500 LT	BRIDGE CLOSED		1200	750	0.900						1			X																			R11-2		E-102AM
3+182.000 LT	BRIDGE CLOSED		1200	750	0.900						1			X																			R11-2		E-102AM
2+960, RT	BRIDGES FREEZE BEFORE ROAD						1				2			4.27 X X 4.27																			SIGN FURNISHED BY VTRANS		
3+007, RT	TO						1				1			3.96 X																			SIGN SALVAGED FROM STA 3+033, RT		
3+222, LT	BRIDGES FREEZE BEFORE ROAD						1				2			4.27 X X 4.27																			SIGN FURNISHED BY VTRANS		
TOTALS					m² 1.80	m²	EA. 3	m²				m 8.5			m				EA	kg			EA.	kg				EA.	EA.	kg						

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

PROJECT NAME: BETHEL
PROJECT NUMBER: BRF 0241 (33)-C1

FILE NAME: 96J250/structures/a96J250tss-c1.dgn PLOT DATE: 09-JUL-2003
PROJECT LEADER: C. P. WILLIAMS DRAWN BY: T. G. ANDERSON
DESIGNED BY: K. M. HIGGINS CHECKED BY: K. M. HIGGINS
TRAFFIC SIGN SUMMARY SHEET 2 SHEET 15 OF 47

STATE OF VERMONT
AGENCY OF TRANSPORTATION

DRAINAGE DETAIL SHEET

Metric

STATION km + m	STATION km + m	POS.	ASKEW no. deg.	INLET/OUTLET TYPE INLET	INLET/OUTLET TYPE OUTLET	DITCH IN	DITCH OUT	PIPE ARCH SPAN mm	PIPE ARCH RISE mm	PIPE ARCH L m	PIPE D mm	PIPE L m	ALLOWABLE OPTIONS PCCSP mm	CAAP mm	RCP CL	CSP mm	CPEP mm	PCCSP PI mm	PIPE ELBOW no. deg.	ES ea	CB ea	PRCODI	DEPTH DI mm	CONC CLASS B m^3	REINF STEEL kg	DI GRATE type	CHAN ELEV ea	CRM m^3	TRENCH EXCAVATION EARTH m^3	TRENCH EXCAVATION ROCK m^3	COMM EXC m^3	UNC CHAN EXC m^3	STRUCT EXCAV m^3	GRAN BKFILL STRUCT m^3	GRAN BORR m^3	EROS MATT m^2	STONE FILL m^3	STONE FILL type	MARKER POSTS LT ea	MARKER POSTS RT ea			REMARKS
3+046.000		RT																																								1	CHANGE ELEVATION OF EXISTING DROP INLET
3+103.000		LT																																								2	CAPPING EXISTING DROP INLET
3+070.000	3+116.000	LT		DITCH	DI																															35	7	1				3	SPECIAL DITCH OUTLET AT EXISTING DROP INLET
3+110.000		RT			PIPE																		1650	3	110	E																4	NEW 1200 X 1200 CAST IN PLACE DROP INLET
3+110.000	3+110.000		90	DI	DITCH						450	14	2.01	2.67			X																									5	NEW 450 PIPE OPTION WITH 2 ELBOWS
3+187.600		RT			PIPE																		1050	2	80	E																6	NEW 1200 X 1200 CAST IN PLACE DROP INLET
3+187.600		RT		DI	DITCH						450	6	2.01	2.67			X																				3	1				7	NEW 450 OPTION PIPE w/STONE SPLASH PAD
3+188.500		LT																																								8	CAPPING EXISTING DROP INLET
3+116.700	3+125.000	LT																																								9	CLEANING CULVERT PIPE IN PLACE

NOTE: FINAL LOCATION AND ELEVATION OF DRAINAGE ITEMS MAY BE ADJUSTED IN THE FIELD AS DEEMED NECESSARY BY THE RESIDENT ENGINEER.

PROJECT NAME: **BETHEL**
PROJECT NUMBER: **BRF 0241 (33)-C1**

FILE NAME: s96j250drn-c1.xls
PROJECT LEADER: C. P. WILLIAMS
DESIGNED BY: K. M. HIGGINS
DRAINAGE DETAIL SHEET #1

PLOT DATE: 02/11/2003
DRAWN BY: K. M. HIGGINS
CHECKED BY: C. P. WILLIAMS
SHEET 17 OF 47

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)

N	DESCRIPTIVE TERM
<5	Very Loose
5-10	Loose
11-24	Med. Dense
25-50	Dense
>50	Very Dense

CONSISTENCY (COHESIVE SOILS)

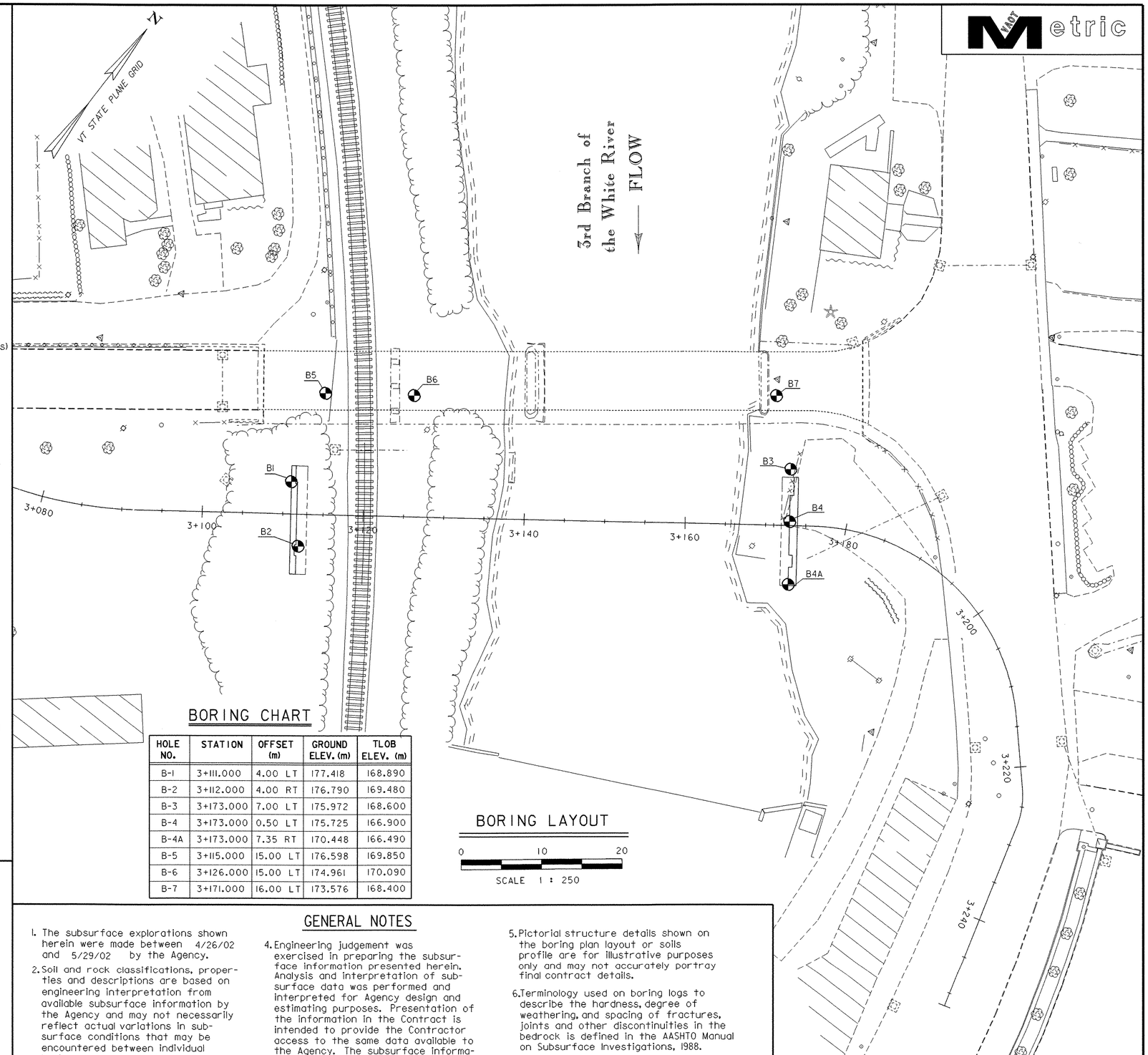
N	DESCRIPTIVE TERM
<2	Very Soft
2-4	Soft
5-8	Med. Stiff
9-15	Stiff
16-30	Very Stiff
31-60	Hard
>60	Very Hard

COMMONLY USED SYMBOLS

▼	Water Elevation
⊗	Standard Penetration Boring
⊕	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per 300 mm 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 Stem Auger
AX	Core Size 30.1mm
BX	Core Size 42.0 mm
NX	Core Size 54.7 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
%Rec.	Percent Recovery
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)

COLOR

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



BORING CHART

HOLE NO.	STATION	OFFSET (m)	GROUND ELEV. (m)	TLOB ELEV. (m)
B-1	3+111.000	4.00 LT	177.418	168.890
B-2	3+112.000	4.00 RT	176.790	169.480
B-3	3+173.000	7.00 LT	175.972	168.600
B-4	3+173.000	0.50 LT	175.725	166.900
B-4A	3+173.000	7.35 RT	170.448	166.490
B-5	3+115.000	15.00 LT	176.598	169.850
B-6	3+126.000	15.00 LT	174.961	170.090
B-7	3+171.000	16.00 LT	173.576	168.400

BORING LAYOUT

0 10 20

SCALE 1 : 250

DEFINITIONS (AASHTO)

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

BOULDER - A rock fragment with an average dimension > 304.8 mm.

COBBLE - Rock fragments with an average dimension between 76.2 and 304.8 mm.

GRAVEL - Rounded particles of rock < 76.2 mm and > 2 mm (#10 sieve).

SAND - Particles of rock < 2 mm (#10 sieve) and > 75 μm (#200 sieve).

SILT - Soil < 75 μm (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.

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

VARVED - Alternate layers of silt and clay.

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

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

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

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

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

DIP - Inclination of bed with a horizontal plane.

GENERAL NOTES

1. The subsurface explorations shown herein were made between 4/26/02 and 5/29/02 by the Agency.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

Metric

PROJECT: BETHEL	PROJECT NO.: BRF 0241 (33) - C1
DESIGN FILE NAME: 96j250/structures/s96j250bor.dgn IPARM FILE NAME: s96j250bor.i	PLOT DATE: 09-JUL-2003
US Rt12 Over The Third Branch Of The White River	
BORING LAYOUT SHEET	SHEET: 17 OF 47

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

HOLE NO.: B-1
SHEET 1 OF 1
DATE STARTED: 5/23/02
DATE COMPLETED: 5/28/02

PROJECT NAME: BETHEL
SITE NAME: BR 31
STATION: 3+111.00
GROUND EL.: 177.418

PROJECT NUMBER: BRF 0241(33) C/1
SITE NO.: VT 12
OFFSET: -4.00
G.W. DEPTH: Hole caved in

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: YOUNG
LOGGER: SOMERS
ADDITIONAL CREW:

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

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		A-2-4, SiSa, brn-gry, Moist, Rec. = 0.33m	4	16.9	10	66.4	23.6		
		A-4, SaSi, gry, Moist, Rec. = 0.50m	18	22	1.4	30.5	68.1		
5		A-4, SaSi, gry, Moist, Rec. = 0.56m	51	12.8	16	35.5	48.5		
		BXMDC, 5.48m-6.04m, Broke through Boulder							
		BXMDC, 6.24m-6.84m, Broke through Boulder							
		A-2-4, SiSaGr, gry, Moist, Rec. = 0.10m BXMDC, 7.80m-8.10m, Broke through Boulder	R	11.5	37.4	35.4	27.2		
		Top of bedrock @ 8.53 m							
		Run#1: BXMDC, 8.53m-10.05m, Rec. = 1.52m, See Geologist's Report.	RUN 1	REC% 100	RQD% 80	Dip° 50			
10		Run#2: BXMDC, 10.05m-11.57m, Rec. = 1.52m, See Geologist's Report.	2	100	95	50			
		Hole stopped @ 11.57m							

Driller's Notes:

1. No ground water elevavation. Hole caved in. 05/28/02
2. Moved hole 1.00m to the west.

GEOLOGISTS REPORT:

Run#1: Light gray hornblende gneiss, Hard to very hard, Unweathered, Competent.

Run#2: Light gray hornblende gneiss, Hard to very hard, Unweathered, Competent.

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

HOLE NO.: B-2
SHEET 1 OF 1
DATE STARTED: 5/21/02
DATE COMPLETED: 5/21/02

PROJECT NAME: BETHEL
SITE NAME: BR 31
STATION: 3+112.00
GROUND EL.: 176.790

PROJECT NUMBER: BRF 0241(33) C/1
SITE NO.: VT 12
OFFSET: 4.00
G.W. DEPTH:

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: TALLMAN
LOGGER: SOMERS
ADDITIONAL CREW:

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

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		A-4, SiSa, Lt/gry, Moist, Rec. = 0.40m	16	13.3	2.2	51.6	46.2		
		A-4, SiSa, brn-gry, Moist, Rec. = 0.28m	47	24.8	0.2	61.8	38		
5		A-4, SiSa, brn-gry, Moist, Rec. = 0.30m	42	21.5		56.1	43.9		
		A-2-4, SiGrSa, gry, Moist, Rec. = 0.25m Broken Rock or Possible Ledge at 6.40m	R	12.7	35.1	39.2	25.7		
		Top of bedrock @ 7.31 m							
		Run#1: BXMDC, 7.31m-8.83m, Rec. = 1.23m, See Geologist's Report.	RUN 1	REC% 81	RQD% 70	Dip° 50			
10		Run#2: BXMDC, 8.83m-10.35m, Rec. = 1.52m, See Geologist's Report.	2	100	95	50			
		Hole stopped @ 10.35m							

GEOLOGISTS REPORT:

Run#1: Gray hornblende gneiss, Hard to very hard, Unweathered, Competent.

Run#2: Gray hornblende gneiss, Hard to very hard, Unweathered, Competent.

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

HOLE NO.: B-3
SHEET 1 OF 1
DATE STARTED: 4/26/02
DATE COMPLETED: 4/26/02

PROJECT NAME: BETHEL
SITE NAME: BR 31
STATION: 3+173.00
GROUND EL.: 175.972

PROJECT NUMBER: BRF 0241(33) C/1
SITE NO.: VT 12
OFFSET: -7.00
G.W. DEPTH:

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: TALLMAN
LOGGER: SOMERS
ADDITIONAL CREW:

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

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		A-2-4, SiSa, brn, Moist, Rec. = 0.29m	2	17.9	14	62.4	23.6		
		A-2-4, Sa, brn, Moist, Rec. = 0.18m	4	16.5	7.6	72.6	19.8		
		A-2-4, SiSa, brn, Moist, Rec. = 0.28m	2	17.2	8.4	67.6	24		
		Visual Class: Broken Brick, red, Dry, Rec. = 0.31m	8	24.8					
5		Visual Class: Various Fill Material, red-brn, Moist, Rec. = 0.22m	10	13.9					
		A-4, SaSi, brn, Moist, Rec. = 0.53m	2	29.3	12.3	41.1	46.6		
		A-4,SaSi,brn,Moist,Rec.0.11m VC: Weathered Rock, gry, Dry, Rec. = 0.11m	R	32.7 13.7	0.1	46	53.9		
		Top of bedrock @ 7.37 m							
		Run#1: BXGDC, 7.37m-8.87m, Rec. = 1.47m, See Geologist's Report.	RUN 1	REC% 98	RQD% 56	Dip° 40			
10		Run#2: BXGDC, 8.87m-10.37m, Rec. = 1.42m, See Geologist's Report.	2	95	52	40			
		Hole stopped @ 10.37m							

GEOLOGISTS REPORT:

Run#1: Light gray hornblende gneiss, Hard to very hard, Unweathered, Competent.

Run#2: Same as Run#1, but with quartz veins, Competent.

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

HOLE NO.: B-4
SHEET 1 OF 1
DATE STARTED: 4/29/02
DATE COMPLETED: 4/29/02

PROJECT NAME: BETHEL
SITE NAME: BR 31
STATION: 3+173.00
GROUND EL.: 175.725

PROJECT NUMBER: BRF 0241(33) C/1
SITE NO.: VT 12
OFFSET: -0.50
G.W. DEPTH: No water found (04/29/02)

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

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

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		No Rec.	8						
		A-3, Sa, brn, Moist, Rec. = 0.23m	5	28.1	0.2	89.9	9.9		
5		A-1-b, SiSaGr, brn, Moist, Rec. = 0.07m, Particles of Brick were within sample.	3	12	48.8	29.7	21.5		
		A-4, SaSi, brn, Moist, Rec. = 0.25m	4	30	16.4	38.4	45.2		
		A-4, SaSi, gry, Moist, Rec. = 0.10m, Wood particles were within sample.	4	41.7	4	41	55		
		Top of bedrock @ 8.83 m							
		Run#1: BXMDC, 8.83m-10.35m, Rec. = 1.50m, See Geologist's Report.	RUN 1	REC% 99	RQD% 88	Dip° 40			
10		Run#2: BXMDC, 10.35m-11.87m, Rec. = 1.48m, See Geologist's Report.	2	97	92	40			
		Hole stopped @ 11.87m							

Driller's Notes:

1. No ground water elevation found. 04/29/02

GEOLOGISTS REPORT:

Run#1: Light gray hornblende gneiss with quartz veins, Hard to very hard, Unweathered, Competent.

Run#2: Light gray hornblende gneiss with quartz veins, Hard to very hard, Unweathered, Competent.

PROJECT:	PROJECT NO.:
BETHEL	BRF 0241(33) C/1

DESIGN FILE NAME: /M&R/96j250/mj250bor.dgn
IPARM FILE NAME: s96j250bor2.i
PLOT DATE: 09-JUL-2003
SURVEYED BY:
SURVEY DATE:
SQUAD LEADER: C.C. BENDA
DRAWN BY: J. TOUCHETTE
DATE: 06/02 BORING LOGS
SHEET: 18 OF 47

VAOT Metric

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

HOLE NO.: B-4A
SHEET 1 OF 1
DATE STARTED: 5/7/02
DATE COMPLETED: 5/10/02

PROJECT NAME: BETHEL
SITE NAME: BR 31
STATION: 3+173.00
GROUND EL.: 170.448

PROJECT NUMBER: BRF 0241(33) C/1
SITE NO.: VT 12
OFFSET: 7.35
G.W. DEPTH: 1.80 05/10/02

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

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

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		A-4, GrSiSa & Wood, brn, Moist Rec. = 0.05m	3	42.5	20.9	40.5	38.6		
		Into Wood at 2.10m							
		No sample, Wood sections							
				Top of bedrock @ 3.96 m					
		Run#1: BXMDC, 3.96m-5.48m, Rec. = 1.52m, See Geologist's Report.	RUN 1	REC% 100	RQD% 75	Dip° 40			
5		Run#2: BXMDC, 5.48m-7.00m, Rec. = 1.52m, See Geologist's Report.	2	100	90	40			
				Hole stopped @ 7.0m					
10									

Driller's Notes:

1. Drillers had a difficult time drilling through three sections of wood timber. Each timber was about six inches thick.
2. Ground water elevation was 1.80m on 05/10/02.

GEOLOGISTS REPORT:

Run#1: 3.96m-5.00m, Gray garnetiferous hornblende gneiss with greenstone, Highly deformed foliation, Moderately hard, Unweathered, Competent.
5.00m-5.45m, Light gray hornblende gneiss, Hard to very hard, Unweathered, Competent.
5.45m-5.48m, Same as beginning of Run#1.

Run#2: 5.48m-6.03m, Gray garnetiferous hornblende gneiss with greenstone and quartz veins, Highly deformed foliation, Moderately hard, Unweathered, Competent.
6.03m-7.00m, Light gray harnblende gneiss, Hard to very hard, Unweathered, Competent.

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

HOLE NO.: B-5
SHEET 1 OF 1
DATE STARTED: 5/29/02
DATE COMPLETED: 5/29/02

PROJECT NAME: BETHEL
SITE NAME: BR 31
STATION: 3+115.00
GROUND EL.: 176.598

PROJECT NUMBER: BRF 0241(33) C/1
SITE NO.: VT 12
OFFSET: -15.00
G.W. DEPTH: Hole caved in

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

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

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		A-1-b, Sa, gry, Moist, Rec. = 0.15m	4	16.8	15.2	73.5	11.3		
		A-4, SaSi, brn, Moist, Rec. = 0.40m	6	22.5	0.5	37.7	61.8		
5		A-4, SaSi, gry, Moist, Rec. = 0.32m	43	15.4	9.3	44.6	46.1		
		5.48m-5.79, Boulder							
		A-4, SiSa with rock fragments, gry, Moist, Rec. = 0.35m	61	14.6	10.1	51	38.9		
				Top of bedrock @ 6.75 m					
		Run#1: BXMDC, 6.75m-8.27m, Rec. = 1.50m, See Geologist's Report.	RUN 1	REC% 99	RQD% 50	Dip° 50			
		Run#2: BXMDC, 8.27m-9.79m, Rec. = 1.52m, See Geologist's Report.	2	100	94	50			
10				Hole stopped @ 9.79m					

Driller's Notes:

1. No ground water elevation found. Hole caved in.

GEOLOGISTS REPORT:

Run#1: Gray hornblende gneiss with quartz veins, Hard to very hard, Unweathered, Competent.

Run#2: Gray hornblende gneiss with quartz veins, Bottom 0.4m of Run is quartz, Hard to very hard, Unweathered, Competent.

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

HOLE NO.: B-6
SHEET 1 OF 1
DATE STARTED: 5/16/02
DATE COMPLETED: 5/16/02

PROJECT NAME: BETHEL
SITE NAME: BR 31
STATION: 3+126.00
GROUND EL.: 174.961

PROJECT NUMBER: BRF 0241(33) C/1
SITE NO.: VT 12
OFFSET: -15.00
G.W. DEPTH: No water found (05/16/02)

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

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

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		No sample. Possible GrSa.	2						
		A-2-4, GrSiSa, gry, Moist, Rec. = 0.15m	3	17	21.6	52	26.4		
		BXMDC, 4.06m-4.60m, Broke through Boulder.							
				Top of bedrock @ 4.87 m					
5		Run#1: BXMDC, 4.87m-6.39m, Rec. = 1.46m, See Geologist's Report.	RUN 1	REC% 96	RQD% 80	Dip° 50			
		Run#2: BXMDC, 6.39m-7.91m, Rec. = 1.06m, Lost part of core and could not retrieve it. See Geologist's Report.	2	70	54	50			
				Hole stopped @ 7.91m					
10									

Driller's Notes:

1. No ground water elevation found 05/16/02.
2. Could not retrieve part of Run#2's rock core.

GEOLOGISTS REPORT:

Run#1: Gray hornblende gneiss, Hard to very hard, Unweathered, Competent.

Run#2: Gray hornblende gneiss, Hard to very hard, Unweathered, Competent.

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

HOLE NO.: B-7
SHEET 1 OF 1
DATE STARTED: 5/1/02
DATE COMPLETED: 5/1/02

PROJECT NAME: BETHEL
SITE NAME: BR 31
STATION: 3+171.00
GROUND EL.: 173.576

PROJECT NUMBER: BRF 0241(33) C/1
SITE NO.: VT 12
OFFSET: -16.00
G.W. DEPTH:

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

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

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		No Rec., Piece of granite in the end of the barrel.	R						
		A-1-b, GrSa, brn, Moist, Rec. = 0.03m	5	15.8	45.7	48.7	5.6		
5		A-2-4, SiSaGr, gry, Moist, Rec. = 0.32m,	21 Broken	14.7 rock was within sample.	39.2	33.7	27.1		
				Top of bedrock @ 5.18 m					
		Run#1: BXMDC, 5.18m-6.70m, Rec. = 1.23m, See Geologist's Report.	RUN 1	REC% 81	RQD% 70	Dip° 40			
		Run#2: BXMDC, 6.70m-8.22m, Rec. = 1.52m, See Geologist's Report.	2	100	50	40			
				Hole stopped @ 8.22m					
10									

Driller's Notes:

1. Moved station three feet toward town.

GEOLOGISTS REPORT:

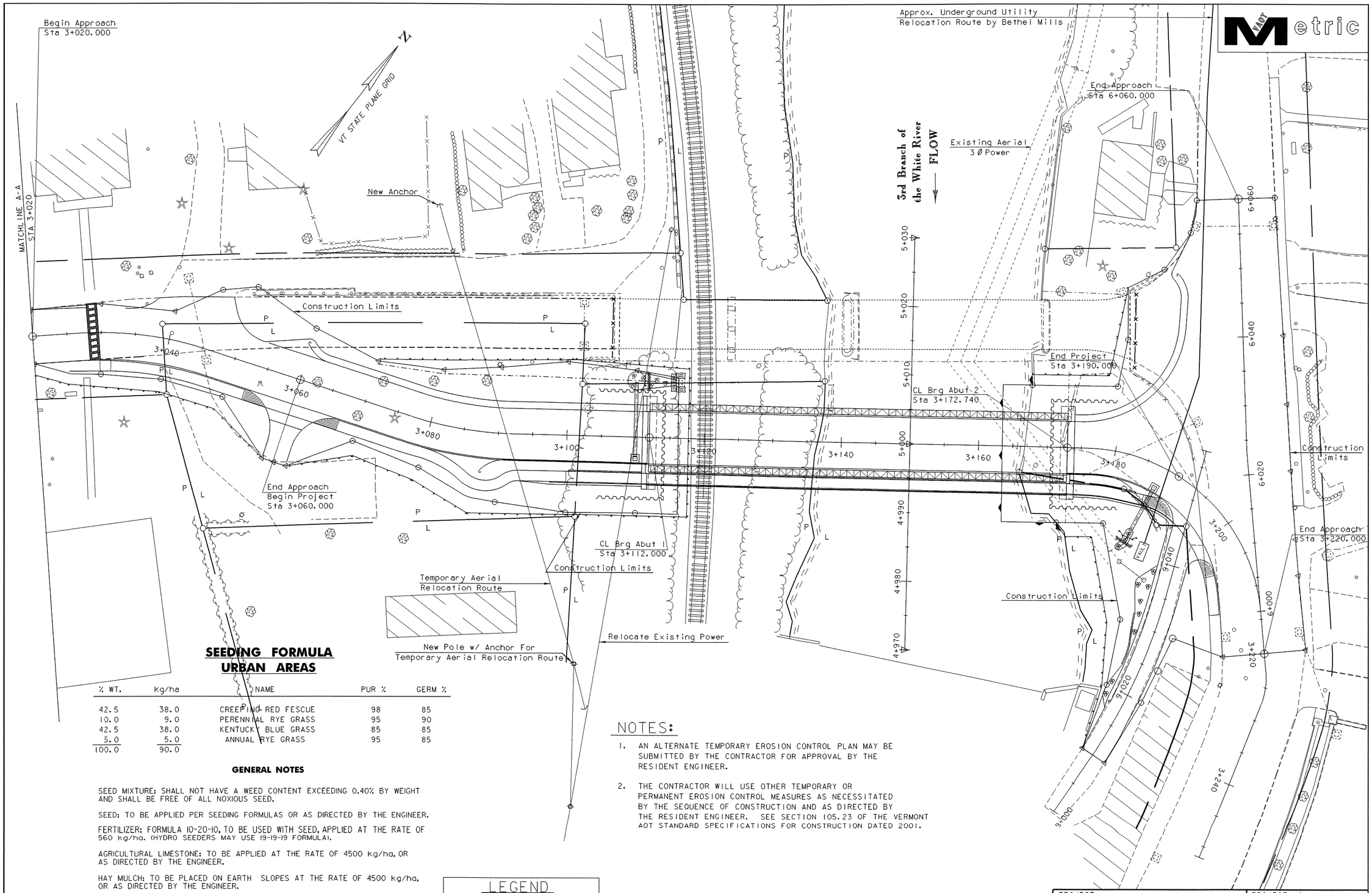
Run#1: Light gray biotite gneiss, Hard to very hard, Unweatherd, Competent.

Run#2: Light gray biotite gneiss, Hard to very hard, Unweatherd, Competent.

PROJECT:	PROJECT NO.:
BETHEL	BRF 0241(33) C/1

DESIGN FILE NAME: /M&R/96j250/mj250.bor.dgn
IPARM FILE NAME: s96j250bor3.i
PLOT DATE: 09-JUL-2003
SURVEYED BY:
SURVEY DATE:
SQUAD LEADER: C.C. BENDA
DRAWN BY: J. TOUCHETTE
DATE: 06/02 BORING LOGS
SHEET: 19 OF 47

VAOT Metric



SEEDING FORMULA
URBAN AREAS

% 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			

GENERAL NOTES

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

SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 560 kg/ha. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.

TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

NOTES:

1. AN ALTERNATE TEMPORARY EROSION CONTROL PLAN MAY BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL BY THE RESIDENT ENGINEER.
2. THE CONTRACTOR WILL USE OTHER TEMPORARY OR PERMANENT EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION AND AS DIRECTED BY THE RESIDENT ENGINEER. SEE SECTION 105.23 OF THE VERMONT AOT STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2001.

LEGEND

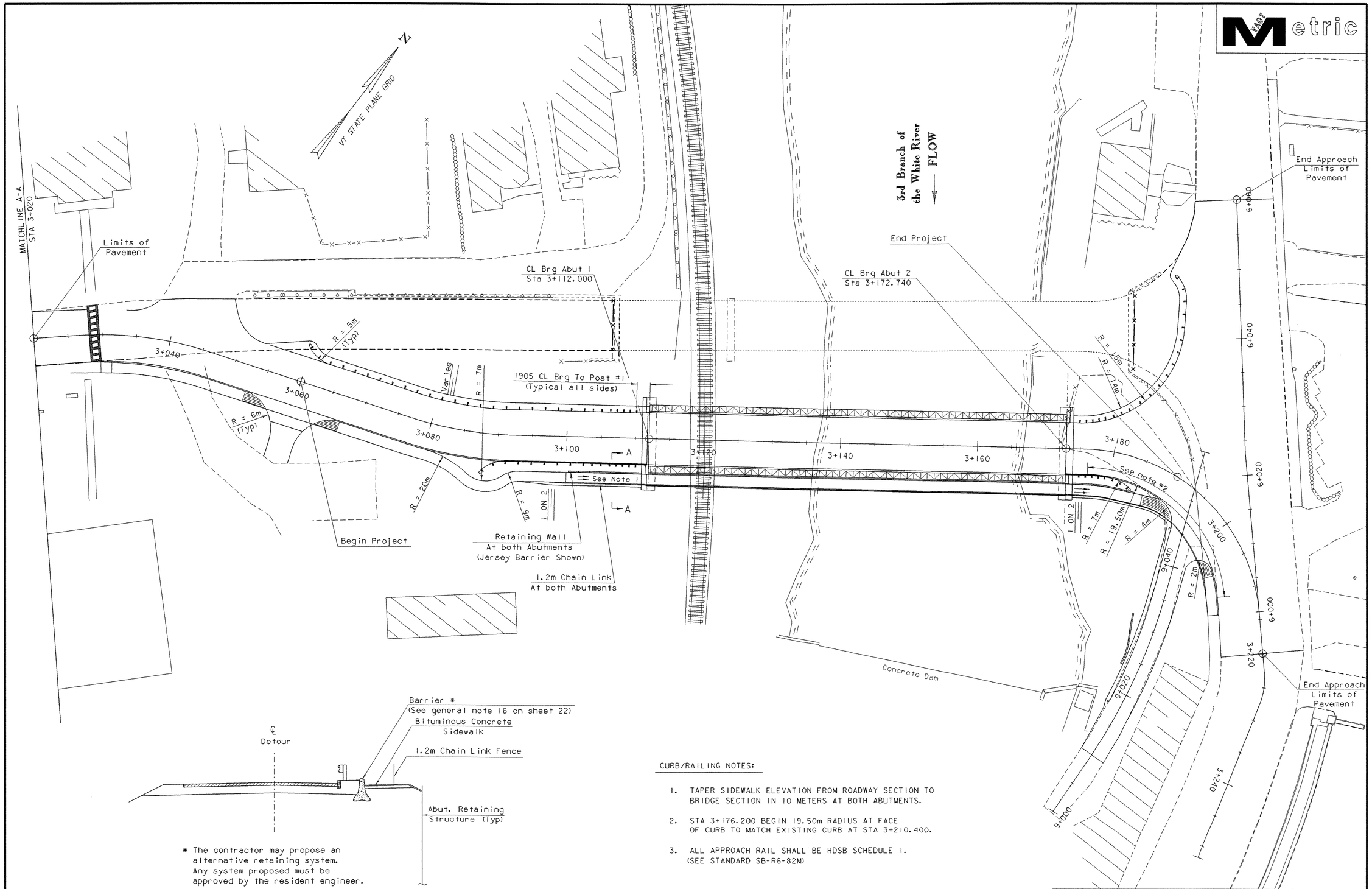
- FABRIC CURTAIN
- SILT FENCE
- HAY BALES

DATUM

VERTICAL	NAVD 88
HORIZONTAL	NAD 83/92

0 10 20
SCALE 1 : 250

PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) -C1
DESIGN FILE NAME: 96j250/structures/s96j250ero-c1.dgn	
IPARM FILE NAME: s96j250ero-c1.i	PLOT DATE: 09-JUL-2003
SURVEYED BY: ORVIS	SURVEY DATE: 10/99
SQUAD LEADER: C.P. WILLIAMS	DRAWN BY: T.G. Anderson
EROSION CONTROL SHEET	SHEET: 19 OF 47



* The contractor may propose an alternative retaining system. Any system proposed must be approved by the resident engineer.

SECTION A-A

NTS

CURB/RAILING NOTES:

1. TAPER SIDEWALK ELEVATION FROM ROADWAY SECTION TO BRIDGE SECTION IN 10 METERS AT BOTH ABUTMENTS.
2. STA 3+176.200 BEGIN 19.50m RADIUS AT FACE OF CURB TO MATCH EXISTING CURB AT STA 3+210.400.
3. ALL APPROACH RAIL SHALL BE HDSB SCHEDULE 1. (SEE STANDARD SB-R6-82M)

0 10 20

SCALE 1 : 250

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83/92

PROJECT: BETHEL	PROJECT NO. : BRF 0241(33)-C1
DESIGN FILE NAME: 96j250/structures/s96j250rail-c1.dgn	
IPARM FILE NAME: s96j250rail-c1.i	PLOT DATE: 09-JUL-2003
SURVEYED BY: ORVIS	SURVEY DATE: 10/99
SQUAD LEADER: C.P. WILLIAMS	DRAWN BY: T.G. Anderson
RAIL AND CURB LAYOUT	SHEET: 21 OF 47

PROJECT NOTES

1. All materials and construction shall conform to state of Vermont Agency of Transportation Standard Specifications for Construction, dated 2001, and its latest revisions, and the AASHTO standard specifications for highway bridges, dated 1996, and its latest revisions.

2. Design is for MS-18 live loading.

3. All dimensions shown on these drawings are horizontal or vertical and are given at 20 degrees C unless noted otherwise.

4. The purpose of this project is to install a Mabey bridge downstream from the existing bridge. The existing bridge and all utilities attached to it shall not be removed as part of this contract and shall not be disturbed. The resident engineer may require additional barricades, at both ends of the existing bridge, for increased safety at no additional cost to the state.

5. The superstructure depth has been assumed for the purpose of setting the vertical alignment. Adjustment in the vertical alignment grade may be necessary in order to maintain the 6.0 meter clearance required over the rail road. Any change in grade must be approved by the project manager.

6. The contractor shall notify the District Transportation Administrator for District 4 (Ann Kreis, telephone no. 802-295-8888) a minimum of two weeks prior to launching the temporary bridge.

7. A detail has been provided on these plans for connecting the heavy duty steel beam guard rail to the temporary bridge. The contractor may provide an alternate attachment subject to the approval of the resident engineer. This work shall be paid under the item 525.40 Bridge Railing - HDSB/Curb Mounted (Mod).

8. The contractor is responsible for making adjustments to water shutoffs and sewer manholes as required.

9. All traffic control items to remain in place after project completion shall be included in the item 527.10 "Maintenance of Traffic for Bridge Projects". All type III barricades to remain in place after project completion shall be anchored to the ground to prevent removal while in use. Anchorage shall meet the approval of the resident engineer. All costs associated with anchoring the barricades shall be paid for under the lump sum price bid for item 527.10 "Maintenance of Traffic for Bridge Projects".

10. The contractor shall notify the town of Bethel two weeks prior to diverting traffic onto the temporary bridge. Contact Delbert Cloud at 234-7340.

11. Access to all existing side roads, drives, and parking areas shall be maintained at all times during construction.

12. The intent of the signing package is to reuse all signs currently within the project limits. Any deviation from the signing plan as shown on the plans must meet the approval of the resident engineer. Any signs needing replacement or not shown on the plans shall be paid for under the appropriate contract items as shown on sheet 4.

13. All on and off project construction signs and barricades required for this project and/or ordered by the resident engineer will be the responsibility of the contractor and shall be paid for under the item 527.10 "Maintenance of Traffic for Bridge Projects". All signs and barricades shall be inspected and repaired as necessary daily. All signs and barricades shall be cleaned of dust and debris weekly.

14. The existing light pole at station 1+260 right will be carefully removed and stockpiled on the project for removal by town forces.

15. All granite curbing for this project shall be furnished by the Vermont Agency of Transportation. The contractor is responsible for loading and transporting the granite curb from the District 6 garage in Middlesex to the project location and its installation. All costs associated with loading, transporting and installing the curb is paid for under the item 616.21 Vertical Granite Curb (Mod). Contact Ernie Englehardt at 828-2693 to make arrangements for obtaining granite curb.

16. A retaining wall adjacent to the proposed sidewalk will be necessary from approximately 3+100 to 3+111 and 3+174 to 3+185. The plans have been developed assuming that concrete "Jersey" barrier be used for this wall. The contractor may elect to propose another type of wall at these locations to the Project Manager for approval. In any case, the required retaining wall will be paid under the item 621.90 "Temporary Traffic Barrier" and shall become the property of the State of Vermont.

TWO-WAY TEMPORARY BRIDGE (MOD 1)

17. Item 528.11 Two-Way Temporary Bridge (Mod 1) shall include the following:

18. The contractor will be responsible for obtaining the design and all drawings from Mabey Bridge & Shore. All drawings and loads obtained shall be submitted to the project manager for review.

19. The contractor will be responsible for the cost of all Mabey bridge components that are not in State inventory, including parts for the foot bridge (see list of components in Special Provisions). All new components will become the property of the State of Vermont after installation.

20. The contractor will be responsible for the cost of loading and transporting all necessary Mabey bridge components that are in State inventory, from the Mendon garage to the project site. All existing components will remain the property of the State of Vermont.

21. The contractor will be responsible for loading and transporting the deck panels from the Mendon garage to the coating applicator and having the panels coated with an anti-skid surface. See Special Provisions for more detail.

22. The contractor will be responsible for launching the Mabey bridge and for the cost of having a representative from Mabey Bridge & Shore at the site at the time of launching.

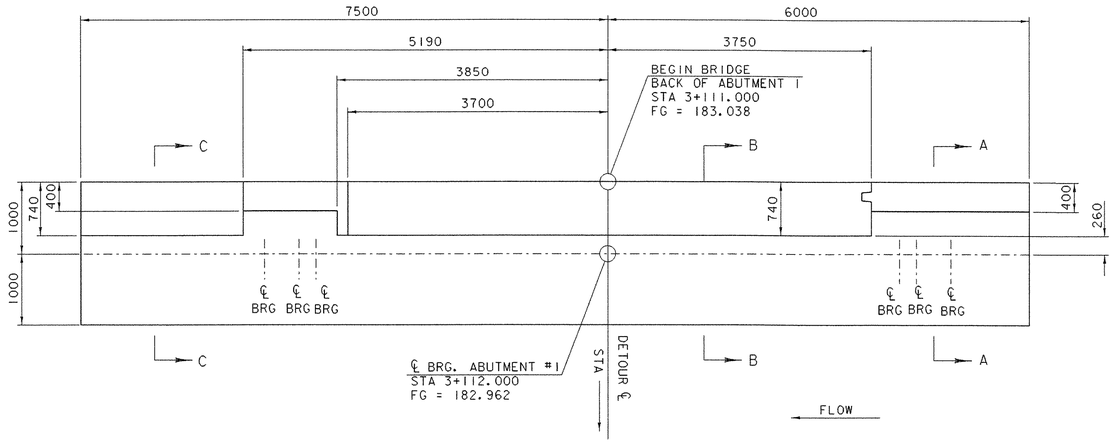
TWO-WAY TEMPORARY BRIDGE (MOD 2)

23. Item 528.11 Two-Way Temporary Bridge (Mod 2) shall include the following:

24. The contractor will be responsible for the cost of designing and constructing retaining structures to retain the roadway fill and support the bridge foundation at the abutment 1 and abutment 2 locations. See Special Provisions for more detail.

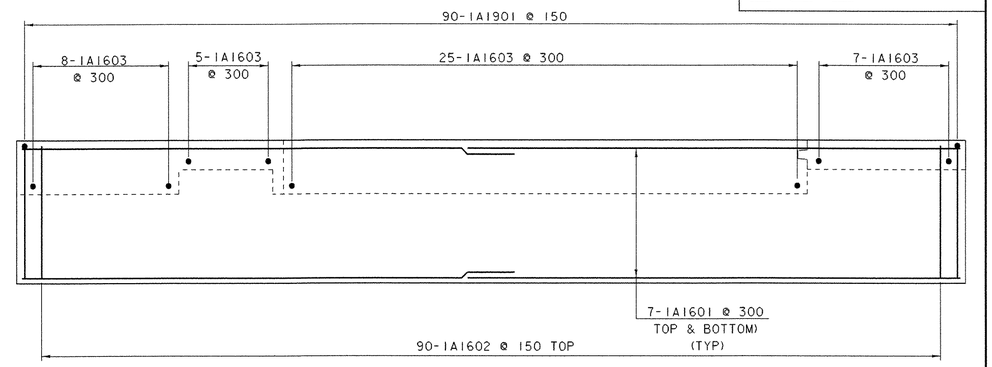
25. The contractor will be responsible for all communication and coordination with Mabey Bridge & Shore to obtain the loads applied from the Mabey bridge to the abutment foundation and retaining structure.

26. The upstream limits of the retaining structures must not extend beyond 7.5 meters from the Centerline of the detour so as not to interfere with the future construction of the permanent bridge.



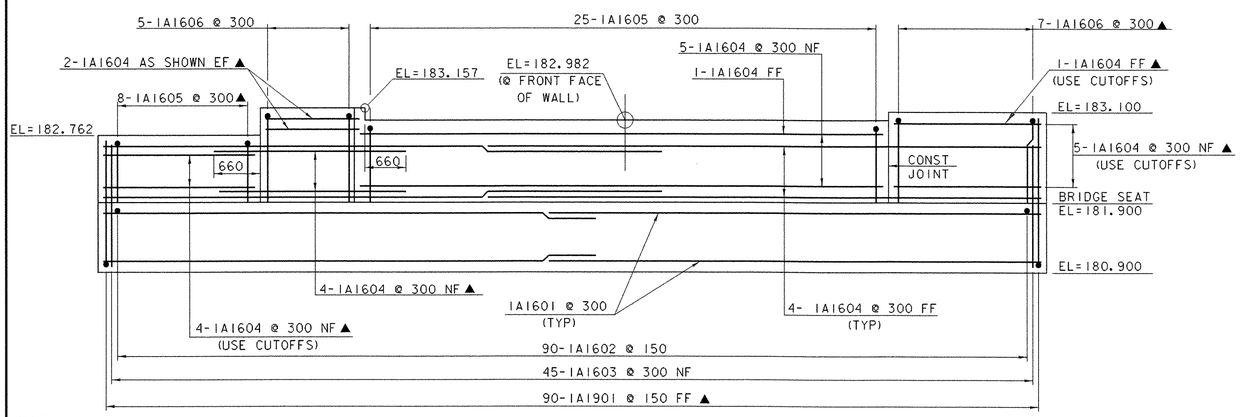
ABUTMENT NO. 1 DIMENSION PLAN

SCALE = 1:40



BRIDGE SEAT NO. 1 REINFORCEMENT PLAN

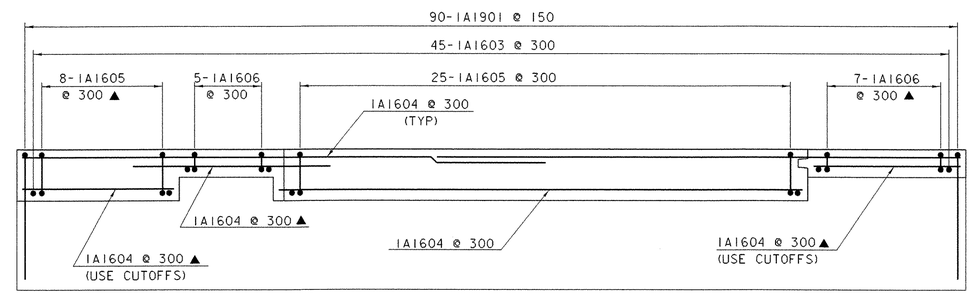
SCALE = 1:40



NOTE:
ALL DIMENSIONS AND ELEVATIONS SHOWN ALONG BACKWALL ARE THEORETICAL. AFTER THE BRIDGE IS IN PLACE ALL DIMENSIONS SHALL BE VERIFIED AND ADJUSTED AS REQUIRED.

ABUTMENT NO. 1 ELEVATION

SCALE = 1:40

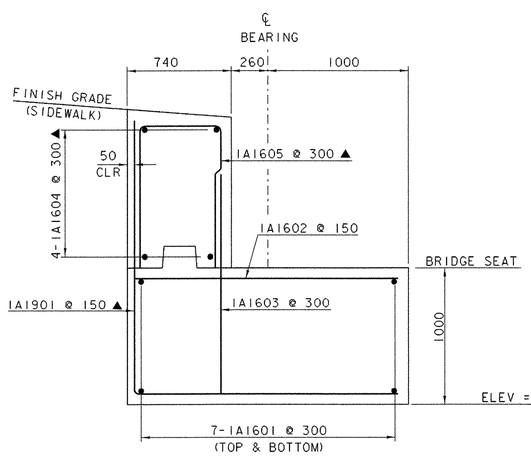


BACKWALL NO. 1 REINFORCEMENT PLAN

SCALE = 1:40

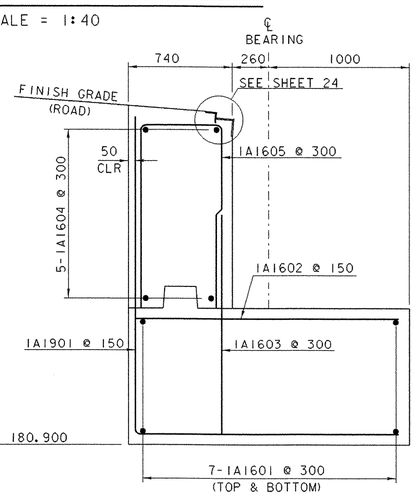
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
75 CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS.
ALL LAPS 660 UNLESS OTHERWISE SPECIFIED ON THE PLANS.



SECTION C-C

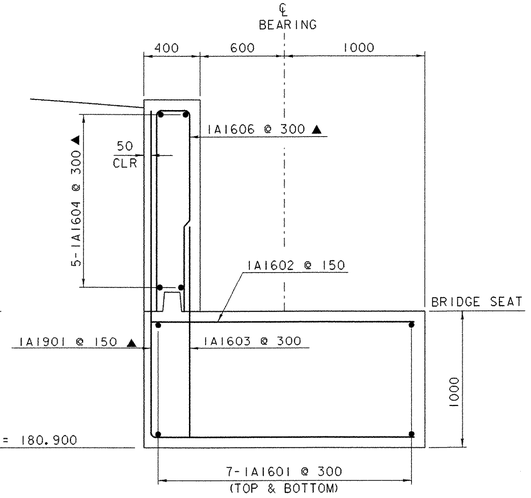
SCALE = 1:20



SECTION B-B

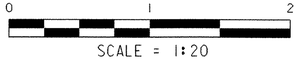
SCALE = 1:20

NOTE:
POUR BACKWALL AFTER BRIDGE IS IN PLACE



SECTION A-A

SCALE = 1:20



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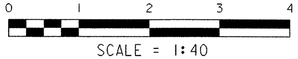
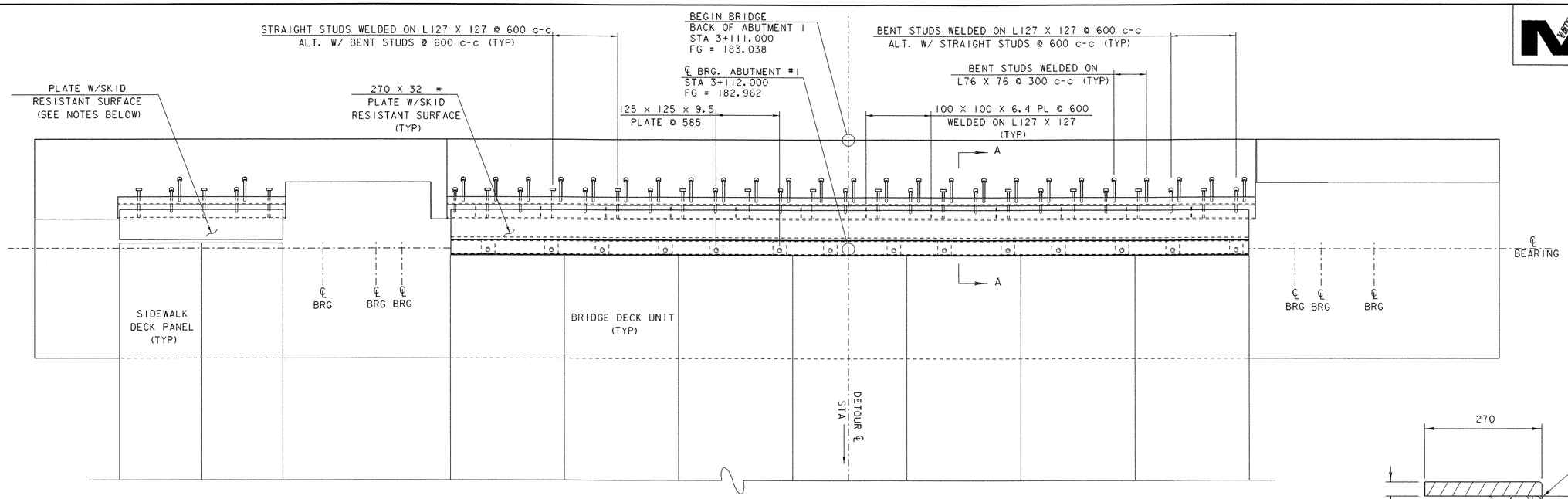


SCALE = 1:40

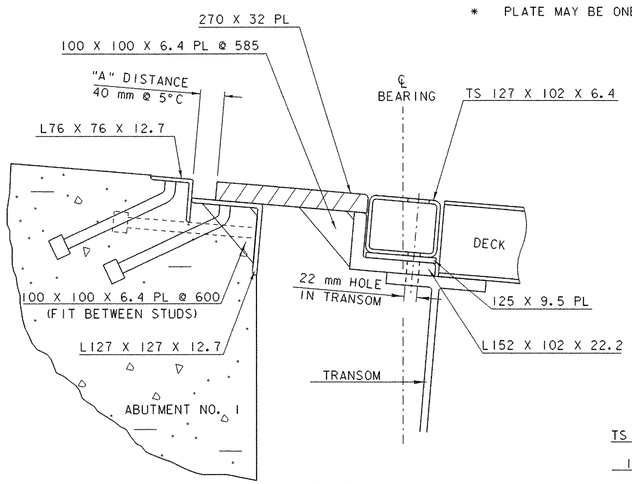
PROJECT: BETHEL	PROJECT NO.: BRF 0241(33)-C1
DESIGN FILE NAME: 96j250/structures/sj250ab-c1.dgn	
IPARM FILE NAME: s96j250ab1.i	PLOT DATE: 09-JUL-2003
DESIGNED BY: K.M. HIGGINS	DRAWN BY: K. M. HIGGINS
SQUAD LEADER: C.P. WILLIAMS	CHECKED BY: C. P. WILLIAMS
ABUTMENT NO. 1 DETAILS	SHEET: 23 OF 47



* PLATE MAY BE ONE OR TWO PIECES.

BRIDGE EXPANSION JOINT PLAN AT ABUTMENT NO. 1

SCALE = 1:20



SECTION A-A

SCALE = 1:5

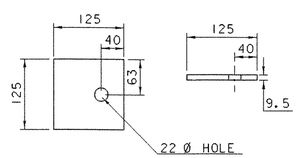
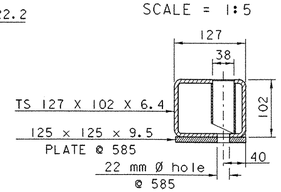


PLATE DETAIL

SCALE = 1:5



STRUCTURAL TUBE DETAIL

SCALE = 1:5

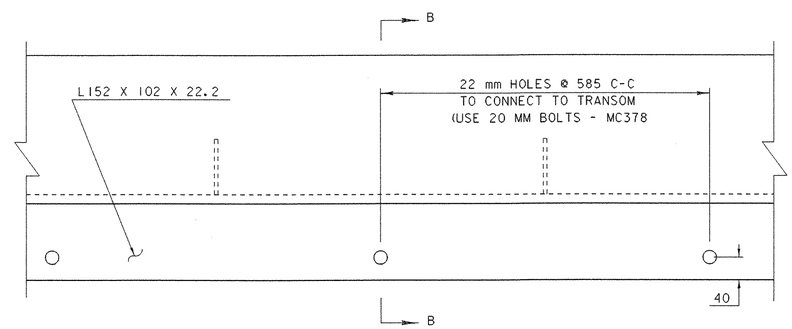
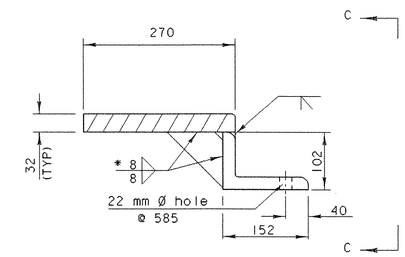


PLATE PLAN

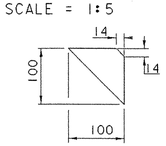
SCALE = 1:5



* SAME WELD FOR GUSSET PLATE IN BACKWALL

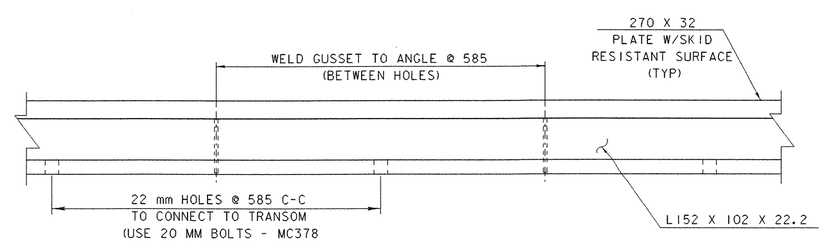
SECTION B-B

SCALE = 1:5



GUSSET PLATE DETAIL

SCALE = 1:5



SECTION C-C

SCALE = 1:5

NOTES:

1. DETAILS ON THIS SHEET ARE FOR ITEM 516.10 "BRIDGE EXPANSION JOINT-MOD".
2. AN ALTERNATIVE JOINT CONFIGURATION MAY BE SUBMITTED FOR APPROVAL.
3. DETAILS FOR THE EXPANSION JOINT ON THE SIDEWALK SHALL BE SUPPLIED BY THE CONTRACTOR. ALL MATERIALS REQUIRED FOR THE SIDEWALK JOINT SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 516.10 "BRIDGE EXPANSION JOINT-MOD".
4. ALL STEEL COMPONENTS SHALL BE AASHTO M270 GRADE 36 GALVANIZED OR METALIZED AS PER SUBSECTION 506.15 (a) OR (b) UNLESS OTHERWISE SPECIFIED.
5. THE ITEM "BRIDGE EXPANSION JOINT-MOD" SHALL INCLUDE THE FABRICATION AND ERECTION OF THE COMPLETE JOINT ASSEMBLY INCLUDING ALL STEEL PLATES, ANGLES, WELDED STUDS AND ANY OTHER MISCELLANEOUS MATERIAL NECESSARY TO INSTALL JOINT.
6. DIMENSIONS FOR HOLE SPACINGS SHALL BE VARIFIED AND SHOP DRAWINGS SHALL BE PROVIDED TO THE PROJECT MANAGER FOR APPROVAL PRIOR TO FABRICATION.
7. COAT CONCRETE CONTACT SURFACES WITH EPOXY BONDING COMPOUND MEETING THE REQUIREMENTS OF SUBSECTION 719.02. PAYMENT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 516.10 "BRIDGE EXPANSION JOINT-MOD".
8. THE EXPANSION JOINT SHALL BE SHOP ASSEMBLED AND SHIPPED AS ONE UNIT.

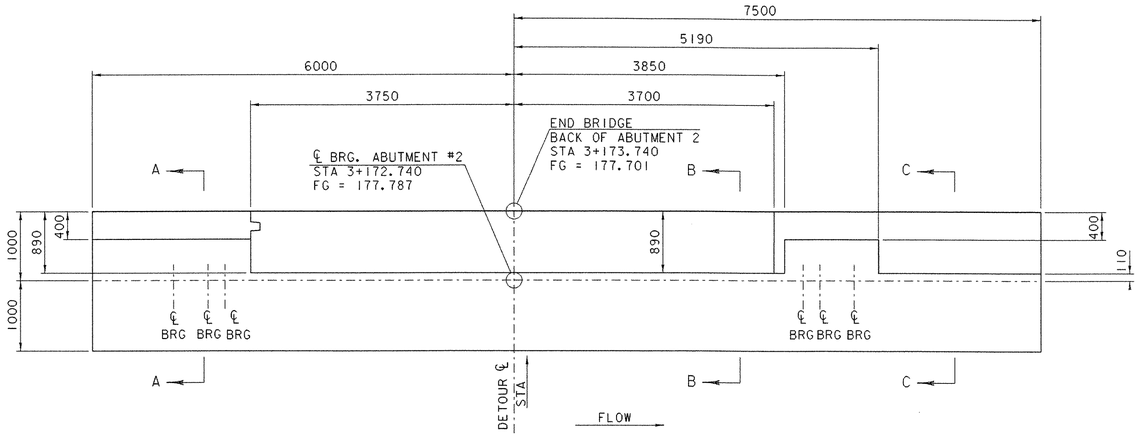
TEMP	"A" DIST.
-15°C	54
-5°C	47
5°C	40
15°C	33
25°C	27
35°C	19
45°C	10

0 1 2
SCALE = 1:20

0 0.25 0.5
SCALE = 1:5

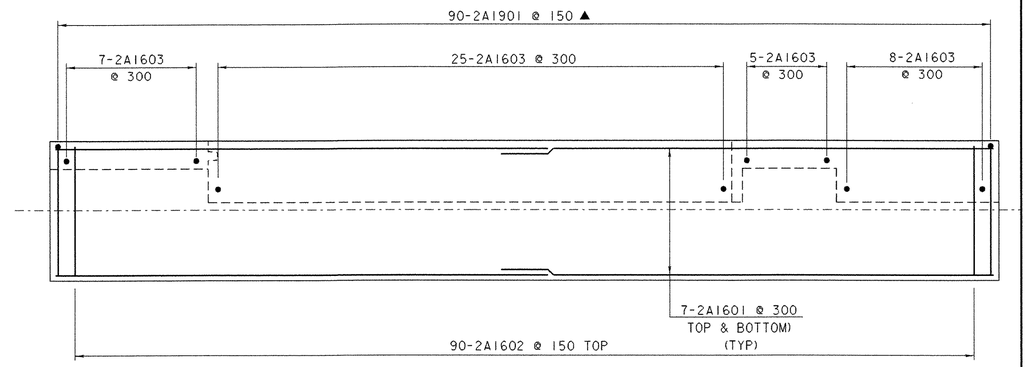
PROJECT: BETHEL	PROJECT NO.: BRF 0241(33)-C1
DESIGN FILE NAME: 96j250/structures/sj250ab-c1.dgn	
IPARM FILE NAME: s96j250exp.i	PLOT DATE: 09-JUL-2003
DESIGNED BY: K.M. HIGGINS	DRAWN BY: K. M. HIGGINS
SQUAD LEADER: C.P. WILLIAMS	CHECKED BY: C. P. WILLIAMS
EXPANSION JOINT DETAILS	SHEET: 24 OF 47

Metric



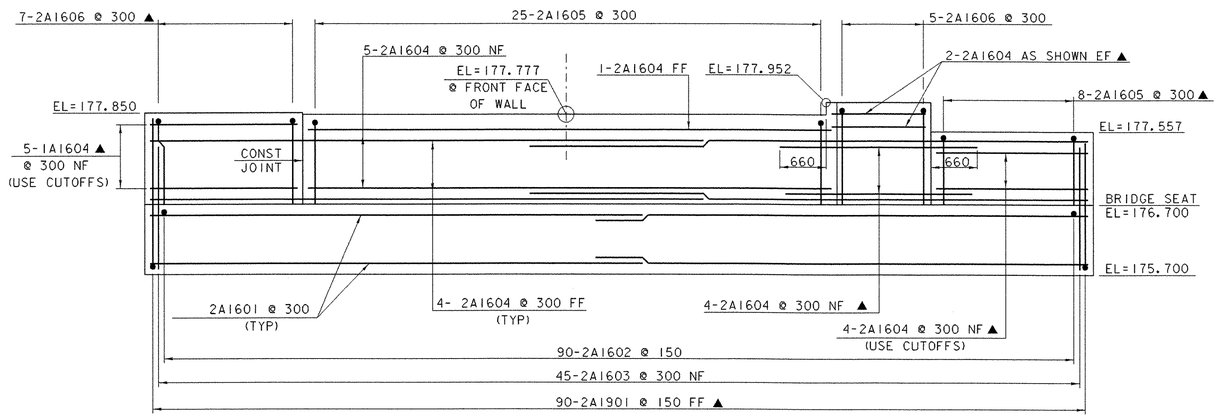
ABUTMENT NO. 2 DIMENSION PLAN

SCALE = 1:40



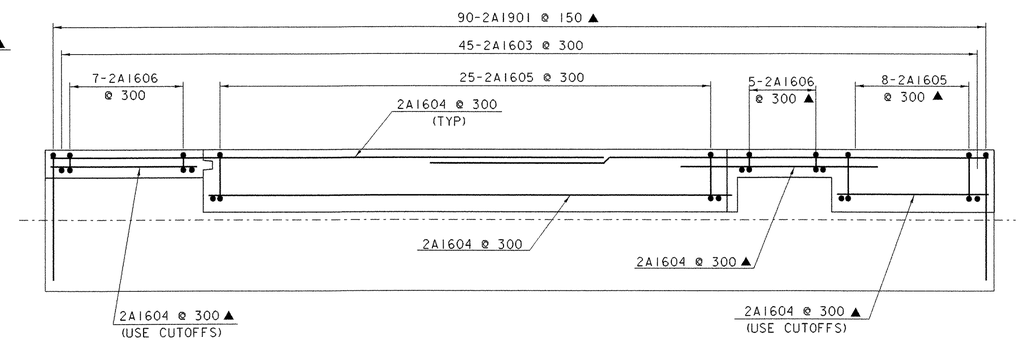
BRIDGE SEAT NO. 2 REINFORCEMENT PLAN

SCALE = 1:40



ABUTMENT NO. 2 ELEVATION

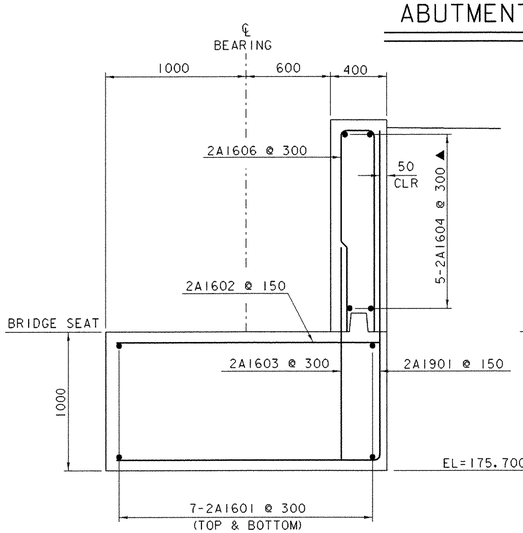
SCALE = 1:40



BACKWALL NO. 2 REINFORCEMENT PLAN

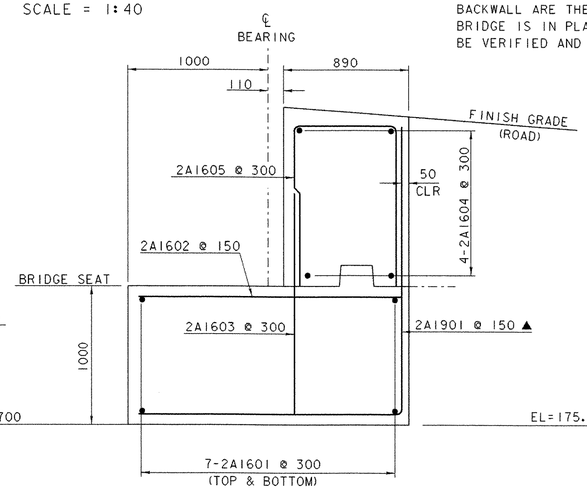
SCALE = 1:40

NOTE:
ALL DIMENSIONS AND ELEVATIONS SHOWN ALONG BACKWALL ARE THEORETICAL. AFTER THE BRIDGE IS IN PLACE ALL DIMENSIONS SHALL BE VERIFIED AND ADJUSTED AS REQUIRED.



SECTION A-A

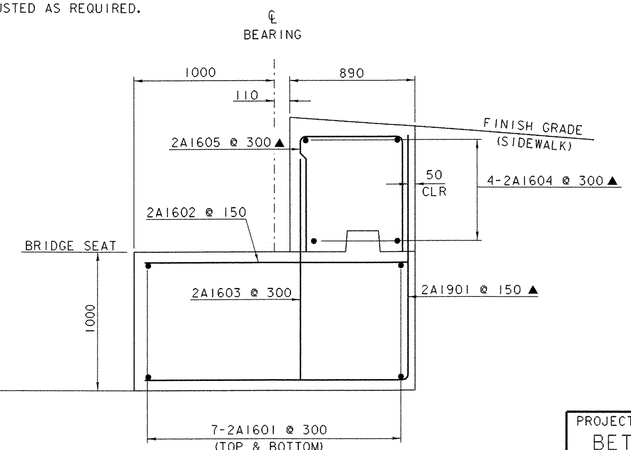
SCALE = 1:20



SECTION B-B

SCALE = 1:20

NOTE:
POUR BACKWALL AFTER BRIDGE IS IN PLACE



SECTION C-C

SCALE = 1:20

NOTE:

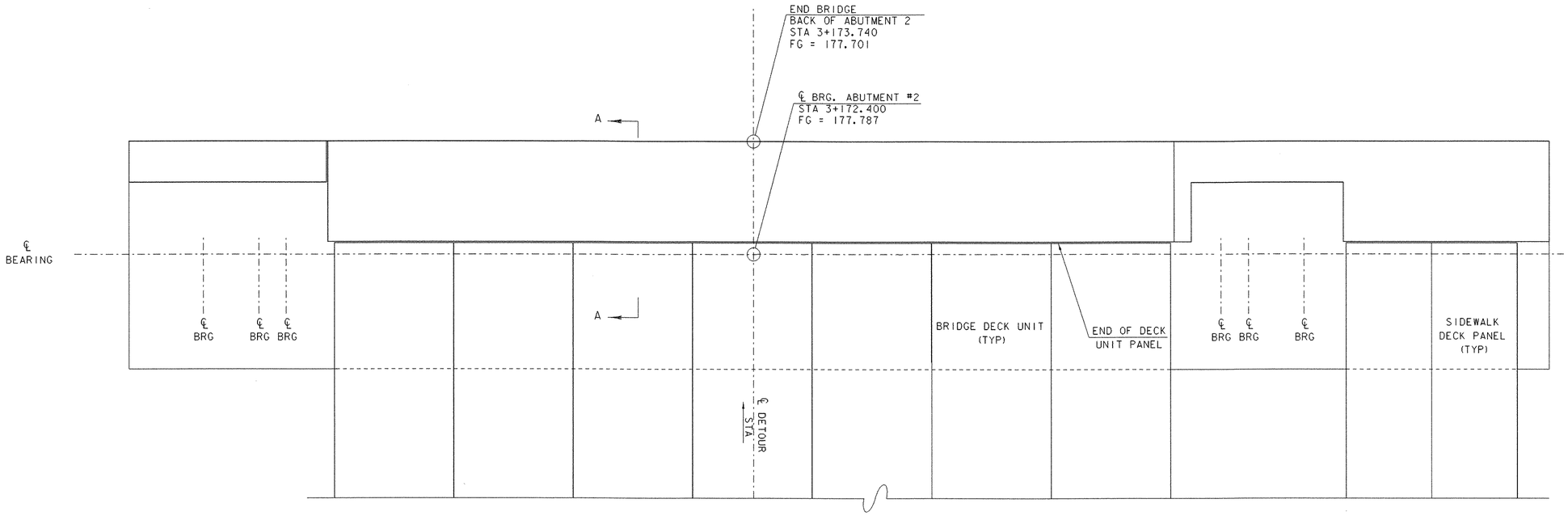
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
75 CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS.
ALL LAPS 660 UNLESS OTHERWISE SPECIFIED ON THE PLANS.

0 1 2
SCALE = 1:20

0 1 2 3 4
SCALE = 1:40

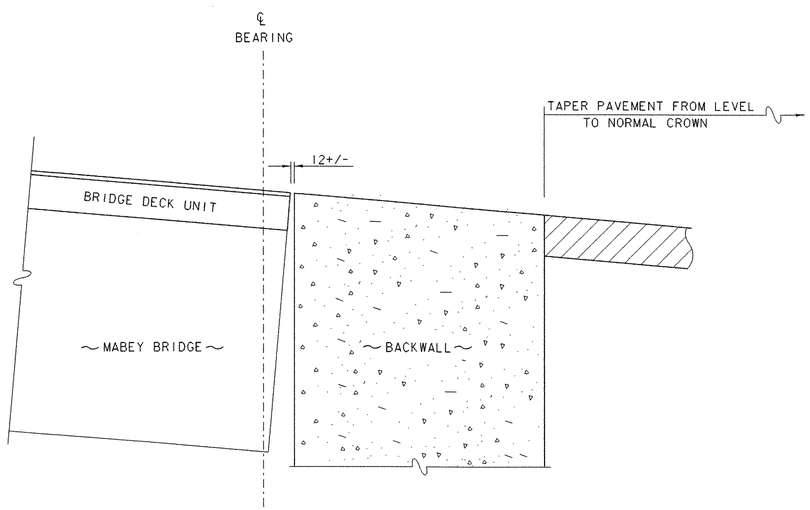
PROJECT: BETHEL	PROJECT NO.: BRF 0241(33)-C1
DESIGN FILE NAME: 96j250/structures/sj250ab-c1.dgn	
IPARM FILE NAME: s96j250ab2.i	PLOT DATE: 09-JUL-2003
DESIGNED BY: K.M. HIGGINS	DRAWN BY: K. H. HIGGINS
SQUAD LEADER: C.P. WILLIAMS	CHECKED BY: C. P. WILLIAMS
ABUTMENT NO. 2 DETAILS	SHEET: 25 OF 47

Metric



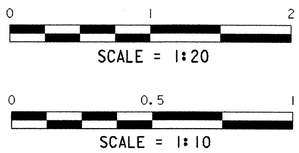
END OF BRIDGE PLAN

SCALE = 1:20



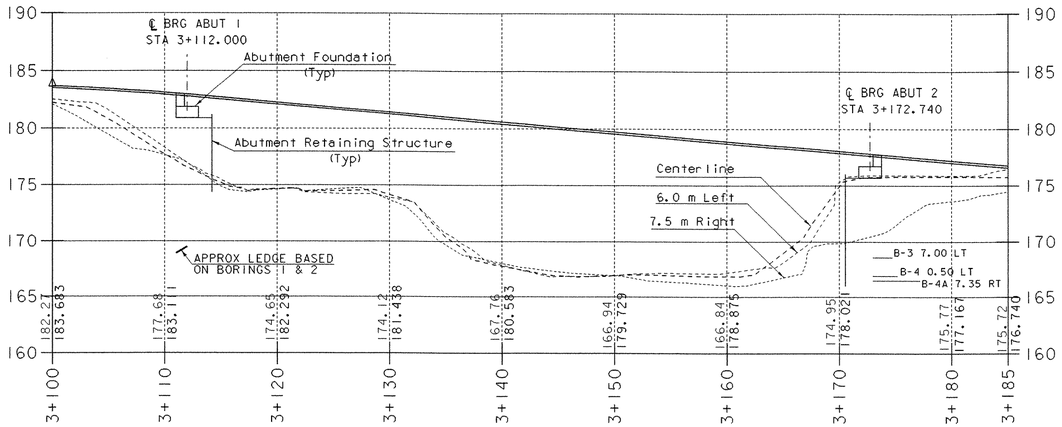
SECTION A-A

SCALE = 1:10



PROJECT: BETHEL	PROJECT NO.: BRF 0241(33)-C1
DESIGN FILE NAME: 96j250/structures/sj250ab-c1.dgn	
IPARM FILE NAME: s96j250eb.i	PLOT DATE: 09-JUL-2003
DESIGNED BY: K.M. HIGGINS	DRAWN BY: K. M. HIGGINS
SQUAD LEADER: C.P. WILLIAMS	CHECKED BY: C. P. WILLIAMS
END OF BRIDGE DETAILS	SHEET: 26 OF 47

Metric



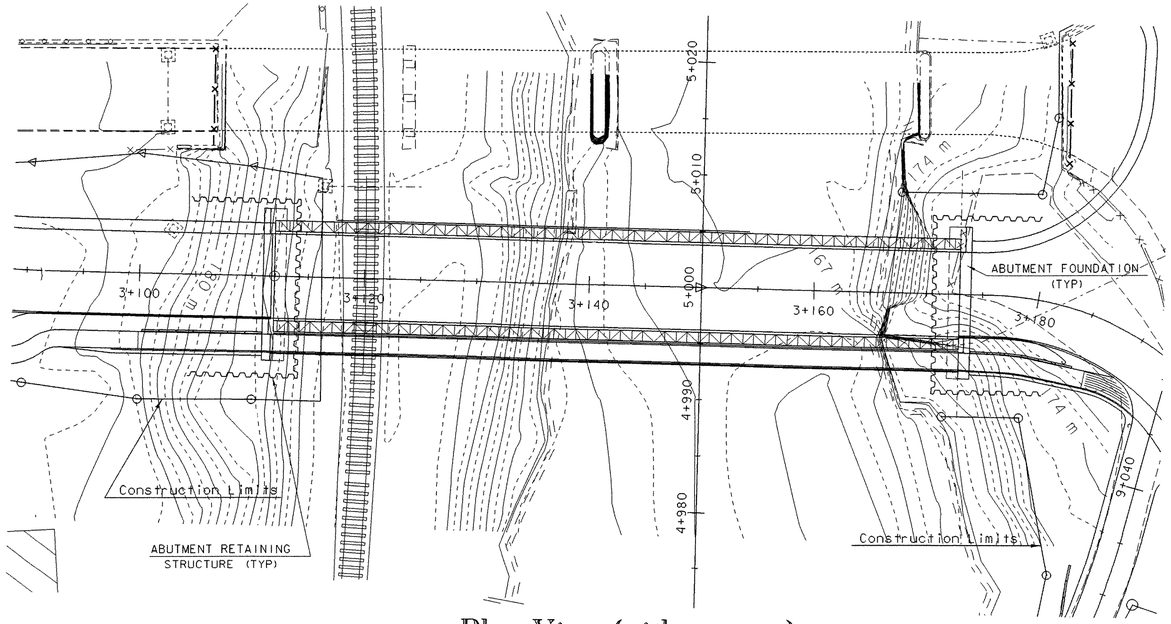
Profile Along Detour Centerline (with offsets)

0 10 20

SCALE 1 : 250

Abutment Retaining Structure Notes

1. All fill required within the limits of the abutment retaining structure and up to the bottom of subbase elevation, shall be Granular Backfill for Structures and be paid under item 204.30 Granular Backfill for Structures.
2. All existing material within a horizontal distance of 1 meter from the abutment foundation shall be removed down to 600 millimeters below the proposed bottom of abutment foundation and filled with Granular Backfill for Structures. The excavation for the abutment foundation shall be paid for under the item 204.25 "Structure Excavation".
3. The abutment retaining structure shall extend a minimum of 0.3 meters and a maximum of 1.0 meters above the fill that it is retaining.
4. At the abutment 1 location, the abutment retaining structure shall extend a minimum of 1.0 meter into the existing ground. At the abutment 2 location, the abutment retaining structure shall extend to elevation 166.0 or to ledge, whichever is higher.
5. To avoid a potential conflict with the bridge constructed under contract 2, no portion of the abutment retaining structure shall extend further than 7.5 meters left of the proposed centerline.
6. See Special Provisions for more information.



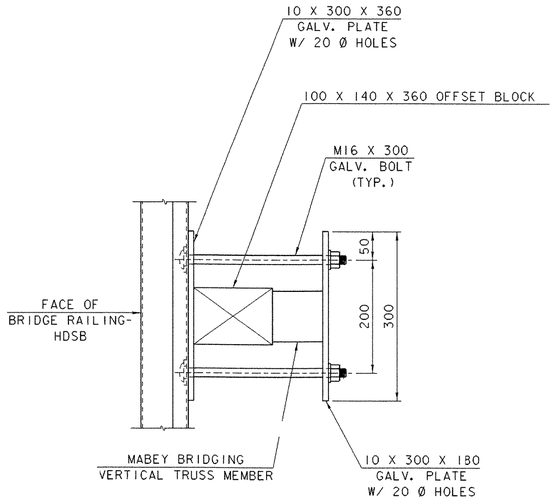
Plan View (with contours)

Contour interval 0.5 meters

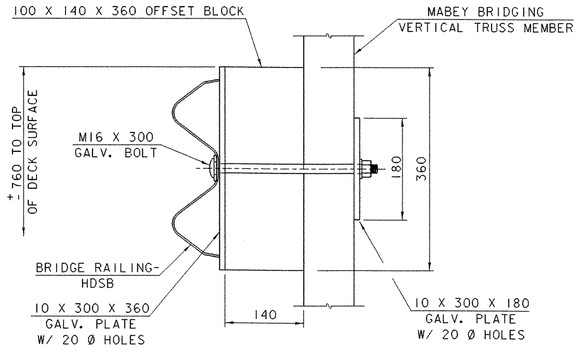
0 10 20

SCALE 1 : 250

PROJECT NAME: Bethel	
PROJECT NUMBER: BRF 0241(33) - C1	
FILE NAME: s96j250abutret.dgn	PLOT DATE: 09-JUL-2003
PROJECT LEADER: C. Williams	DRAWN BY: C. Williams
DESIGNED BY: K. Higgins	CHECKED BY: K. Higgins
Abutment Retaining Structure	SHEET 27 OF 47



PLAN



ELEVATION

RAIL ATTACHMENT DETAILS

0 0.25 0.5

SCALE = 1:5

PROJECT: BETHEL	PROJECT NO.: BRF 0241 (33)
DESIGN FILE NAME: 96j250/Structures/s96j250mis.dgn	
IPARM FILE NAME: s96j250misc.i	PLOT DATE: 09-JUL-2003
DESIGNED BY: K.M.HIGGINS	DRAWN BY: C.P.WILLIAMS
SQUAD LEADER: C.P. WILLIAMS	CHECKED BY: K.M.HIGGINS
RAIL ATTACHMENT DETAIL	SHEET: 28 OF 47

STATE OF VERMONT
AGENCY OF TRANSPORTATION

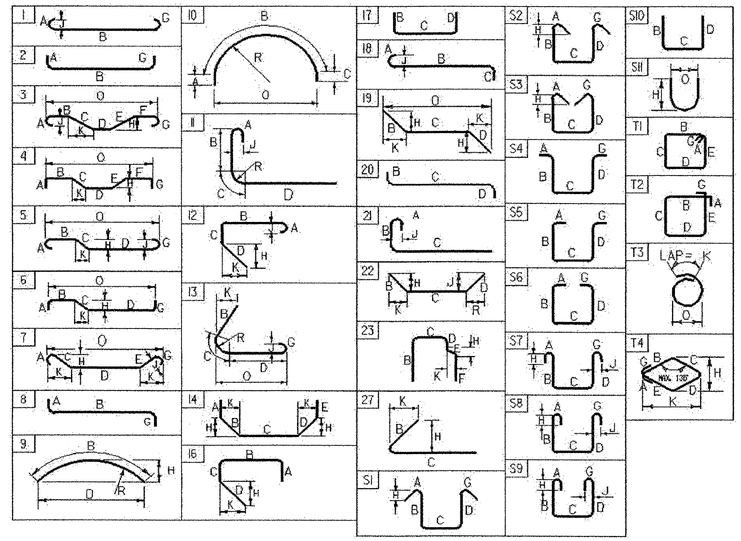
REINFORCING STEEL SCHEDULE

Metric

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
ABUTMENT #1																	
	28	16	7010	1A1601	STR												
△	92	16	1850	1A1602	STR												
	45	16	1590	1A1603	STR												
▲	22	16	7450	1A1604	STR												
▲	33	16	2610	1A1605	S10		1000	610	1000								
▲	12	16	2630	1A1606	S10		1180	270	1180								
△ ▲	92	19	3970	1A1901	17		1870	2100	----								
ABUTMENT #2																	
	28	16	7010	2A1601	STR												
△	92	16	1850	2A1602	STR												
	45	16	1590	2A1603	STR												
▲	22	16	7450	2A1604	STR												
▲	33	16	2600	2A1605	S10		920	760	920								
▲	12	16	2410	2A1606	S10		1070	270	1070								
△ ▲	92	19	3970	2A1901	17		1870	2100	----								

~ NOTES ~

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING 55M SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31M (ASTM A 615M-SI). ALL BARS SHALL BE GRADE 420, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E DENOTES EPOXY COATED REINFORCING STEEL.



ASTM STANDARD REINFORCING BARS

BAR SIZE	NOMINAL MASS (Kg/m)	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER (mm)	CROSS SECTIONAL AREA (mm²)	PERIMETER (mm)
#10	0.560	9.5	71	29.84
#13	0.994	12.7	129	39.90
#16	1.552	15.9	199	49.95
#19	2.235	19.1	284	60.00
#22	3.042	22.2	387	69.74
#25	3.973	25.4	510	79.80
#29	5.060	28.7	645	90.16
#32	6.404	32.3	819	101.47
#36	7.907	35.8	1006	112.47
#43	11.380	43.0	1452	135.09
#57	20.240	57.3	2581	180.01

PROJECT NAME: **BETHEL**
PROJECT NUMBER: **BRF 0241 (33)-c1**

FILE NAME: s96j250rss-c1.xls
PROJECT MANAGER: C.P. WILLIAMS
DESIGNED BY: K.M. HIGGINS
REINFORCING STEEL SCHEDULE SHEET #1

PLOT DATE: 1/3/2003
DRAWN BY: T. ANDERSON
CHECKED BY: C.P. WILLIAMS
SHEET 29 OF 47

STATE OF VERMONT
AGENCY OF TRANSPORTATION
RIGHT OF WAY PLANS
DETAIL SHEET

TABLE OF PROJECT PROPERTY ACQUISITION

PARCEL NO.	GRANTOR	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKING	REM.	RIGHTS	TITLE TAKEN	DATE	TOWN OR CITY RECORDED	BK.	PG.	REMARKS
1	TOWN OF BETHEL	11	3+038.61 LT.	3+102.40 LT.	0.12HA±			QCD	12/13/2001	BETHEL	82	317-	FORMERLY STATE OF VERMONT
												318	(0.30A±)
2	PRATT, FRANK E. &	11	3+060.00 RT.										3.6M GRAVEL(12')
	PLACY, DIANE L.												ROW OVER PARCEL NO. 1
3	C.V. PROPERTIES, INC. JOINED BY:	11	3+101.39 RT.	3+137.41 LT.			DETOUR (T) .08HA±						0.19A±
	NEW ENGLAND CENTRAL RAILROAD, INC.												TEMP. DETOUR
													INCLUDES TEMPORARY
													INSTALLATION OF BRIDGE,
													PILINGS, ABUTMENTS, EROSION
													CONTROL, DRAINAGE DEVICES,
													AND SIDEWALK.
			3+101.77 RT.	3+102.87 LT.			REMOVE (T)						FENCE
			3+103.00 LT.				INSTALL (T)						CAPPING DROP INLET
4	BETHEL MILLS, INC.	11	3+165.99 RT.	3+213.82 RT.			CONST. EASE. (T) 67 SM±						INCLUDES EROSION CONTROL
													721 S.F.±
			3+165.99 RT.	3+194.53 RT.			DETOUR (T) 140 SM±						INCLUDES TEMPORARY
													INSTALLATION OF BRIDGE,
													PILINGS, ABUTMENTS, EROSION
													CONTROL, AND SIDEWALK.
													1,507 S.F.±
			3+187.60 RT.				CUL., DIT. & DR. (T)						
			3+189.00 RT.	3+199.16 RT.			REMOVE (T)						ELECTRICAL LINES &
													SUB STATION
			3+196.00 RT.				DRIVE (T)						3.6M PAVED(12')
			3+213.82 RT.	3+243.04 RT.			INSTALL (T) 24 SM±						EROSION CONTROL, 258 S.F.±
5	CENTRAL VERMONT PUBLIC SERVICE CORP.												UTILITY
6	VERIZON NEW ENGLAND, INC.												UTILITY
7	ADELPHIA CABLE COMMUNICATIONS												UTILITY

REVISION NO.	SHEET	DESCRIPTION OF REVISION	DATE	MADE BY	APPROVED BY
		ELECTRONIC REPRODUCIBLES TO STRUCTURES	07-07-03		

ACCT.rdrown
\\vaot_cadd\filingcabinet$\96j250\RightOfWay\rj250d.dgn
DATE PLOTTED 09-JUL-2003

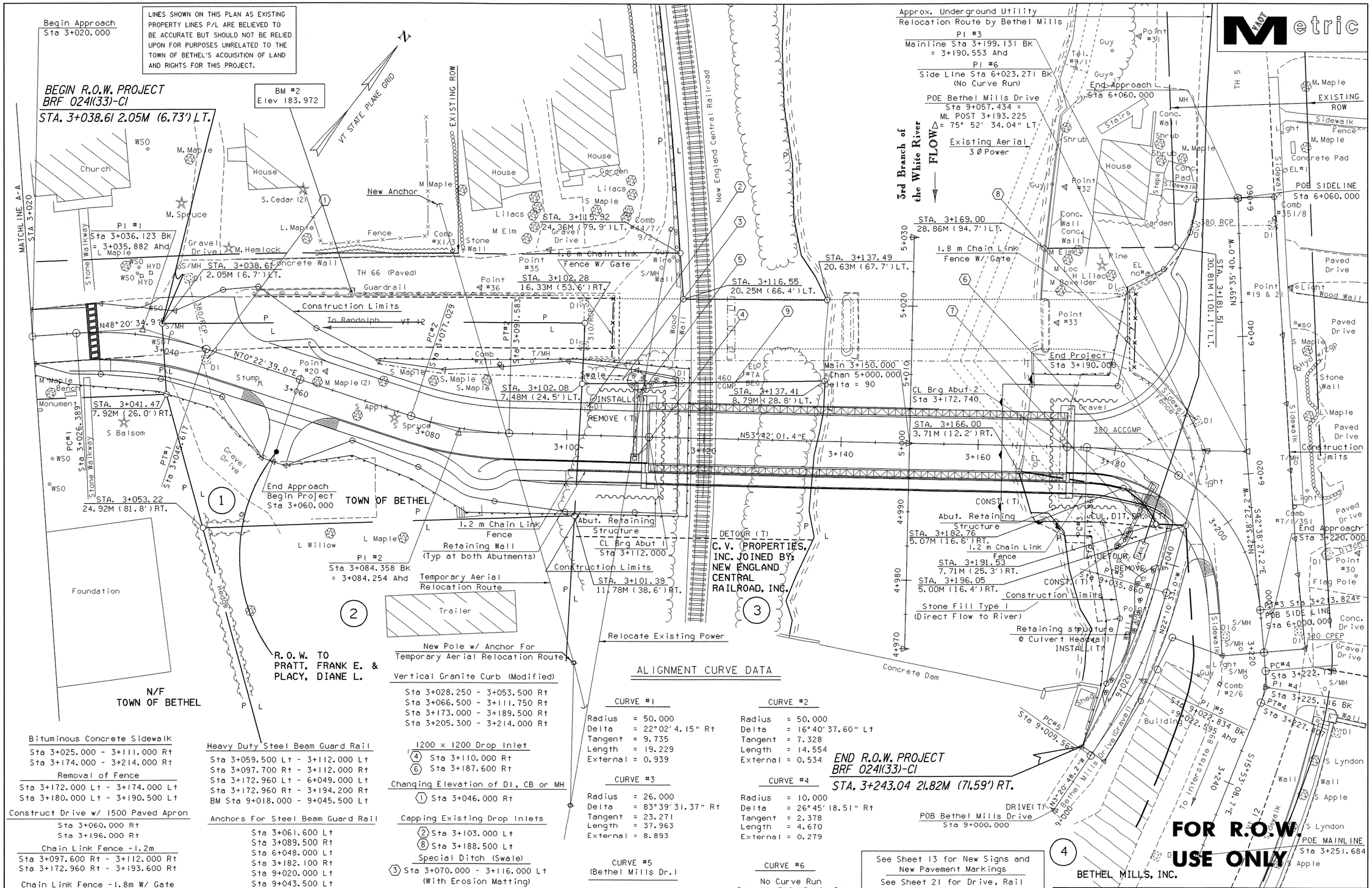
DR.(P)- DRAINAGE RIGHT
DIT.(P)- DITCHING RIGHT
CH.(P)- CHANNEL RT.
DRIVE (T)- DRIVE RIGHT
CUL.(P)- CULVERT RIGHT
[W]- WATER SOURCES

PRESENT R.O.W.
TAKING WITHOUT ACCESS
TAKING WITHOUT ACCESS ALONG PROPERTY LINE
TAKING WITH ACCESS
(P) PERMANENT EASEMENT
(T) TEMPORARY EASEMENT

LEGEND
C&T (P) CLEARING & TRIMMING
CZ (P) CLEAR ZONE
CONST. (T) CONSTRUCTION EASEMENT
SR SLOPE RIGHTS
P L PROPERTY LINE
TOP OF CUT
TOE OF SLOPE
UE (P) PERMANENT UTILITY EASEMENT

APPROVED: ROGER P. DUMAS DATE: 08/29/02
CHIEF, PLANS & TITLES

R.O.W. PLANS
BETHEL
BRF 0241(33)-C1
10 11
SHEET 30 OF 47



ALIGNMENT CURVE DATA

CURVE #1
Radius = 50.000
Delta = 22°02'4.15" Rt
Tangent = 9.735
Length = 19.229
External = 0.939

CURVE #2
Radius = 50.000
Delta = 16°40'37.60" Lt
Tangent = 7.328
Length = 14.554
External = 0.534

CURVE #3
Radius = 26.000
Delta = 83°39'31.37" Rt
Tangent = 23.271
Length = 37.963
External = 8.893

CURVE #4
Radius = 10.000
Delta = 26°45'18.51" Rt
Tangent = 2.378
Length = 4.670
External = 0.279

CURVE #5
(Bethel Mills Dr.)
Radius = 80.000
Delta = 18°49'44.8" Lt
Tangent = 13.265
Length = 26.290
External = 1.092

CURVE #6
No Curve Run
Delta = 3°2'47.16" Rt

BM #1
Elev 178.407
Sta 6+006
23.500 m Right
(See Tie Sheet)

See Sheet 13 for New Signs and New Pavement Markings
See Sheet 21 for Drive, Rail and Sidewalk Radii
See Sheet 16 for Drainage Details

0 10 20
SCALE 1 : 250

Bituminous Concrete Sidewalk
Sta 3+025.000 - 3+111.000 Rt
Sta 3+174.000 - 3+214.000 Rt

Removal of Fence
Sta 3+172.000 Lt - 3+174.000 Lt
Sta 3+180.000 Lt - 3+190.500 Lt

Construct Drive w/ 1500 Paved Apron
Sta 3+060.000 Rt
Sta 3+196.000 Rt

Chain Link Fence -1.2m
Sta 3+097.600 Rt - 3+112.000 Rt
Sta 3+172.960 Rt - 3+193.600 Rt

Chain Link Fence -1.8m W/ Gate
Chan. Sta 5+011.500 - 5+020.500 Lt
Chan. Sta 5+011.500 - 5+023.000 Rt

Heavy Duty Steel Beam Guard Rail
Sta 3+059.500 Lt - 3+112.000 Lt
Sta 3+097.700 Rt - 3+112.000 Rt
Sta 3+172.960 Lt - 6+049.000 Lt
Sta 3+172.960 Rt - 3+194.200 Rt
BM Sta 9+018.000 - 9+045.500 Lt

Anchors For Steel Beam Guard Rail
Sta 3+061.600 Lt
Sta 3+089.500 Rt
Sta 6+048.000 Lt
Sta 3+182.100 Rt
Sta 9+020.000 Lt
Sta 9+043.500 Lt

Bridge Rail - HDSB (Mod)
Sta 3+112.000 Lt - 3+172.960 Lt
Sta 3+112.000 Rt - 3+172.960 Rt

Remove & Salvage Light Pole
Sta 3+191.400 Lt

New Pole w/ Anchor For Temporary Aerial Relocation Route

Vertical Granite Curb (Modified)
Sta 3+028.250 - 3+053.500 Rt
Sta 3+066.500 - 3+111.750 Rt
Sta 3+173.000 - 3+189.500 Rt
Sta 3+205.300 - 3+214.000 Rt

1200 x 1200 Drop Inlet
(4) Sta 3+110.000 Rt
(6) Sta 3+187.600 Rt

Changing Elevation of DI, CB or MH
(1) Sta 3+046.000 Rt

Capping Existing Drop Inlets
(2) Sta 3+103.000 Lt
(8) Sta 3+188.500 Lt

Special Ditch (Swale)
(3) Sta 3+070.000 - 3+116.000 Lt
(With Erosion Matting)

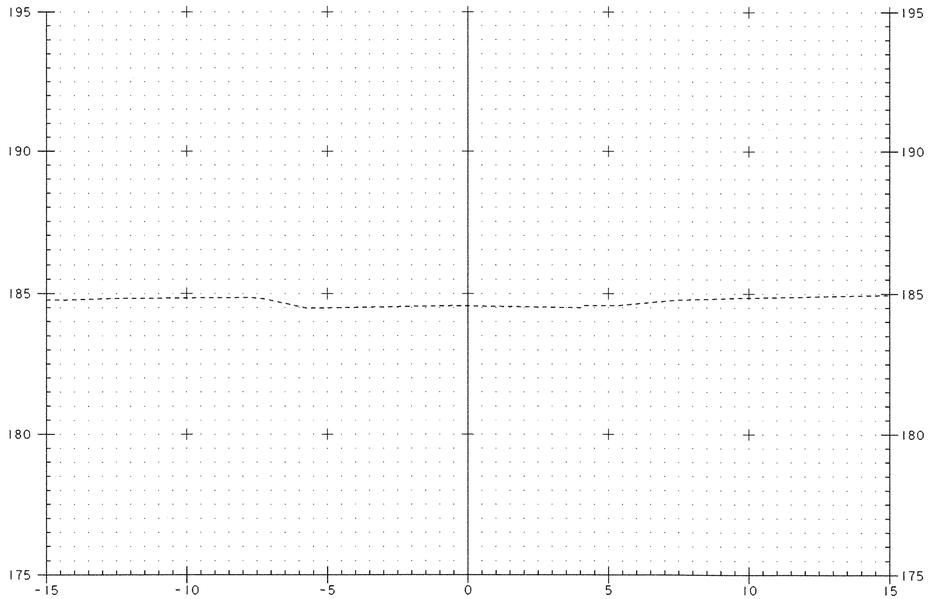
New 450 diameter - Option Pipes PCCSP, CAAP or CPEP
(5) Sta 3+110.000 (w/2 Elbows)
(7) Sta 3+187.600 Rt

Cleaning Culvert Pipe in Place
(9) Sta 3+116.700 Lt - 3+125.000 Lt

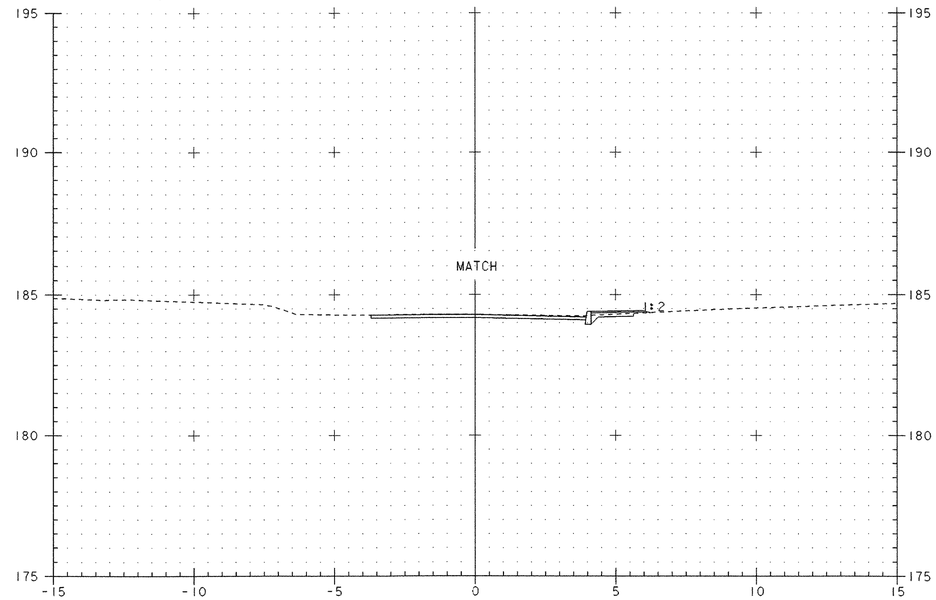
DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83/92

PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) -CI
DESIGN FILE NAME: 96j250/structures/s96j250bdr-cl.dgn	
IPARM FILE NAME: s96j250la2-cl.i	PLOT DATE: 09-JUL-2003
SURVEYED BY: ORVIS	SURVEY DATE: 10/99
SQUAD LEADER: C.P. WILLIAMS	DRAWN BY: KMH
R.O.W. SHEET 11 OF 11 SHEETS	SHEET 31 OF 47

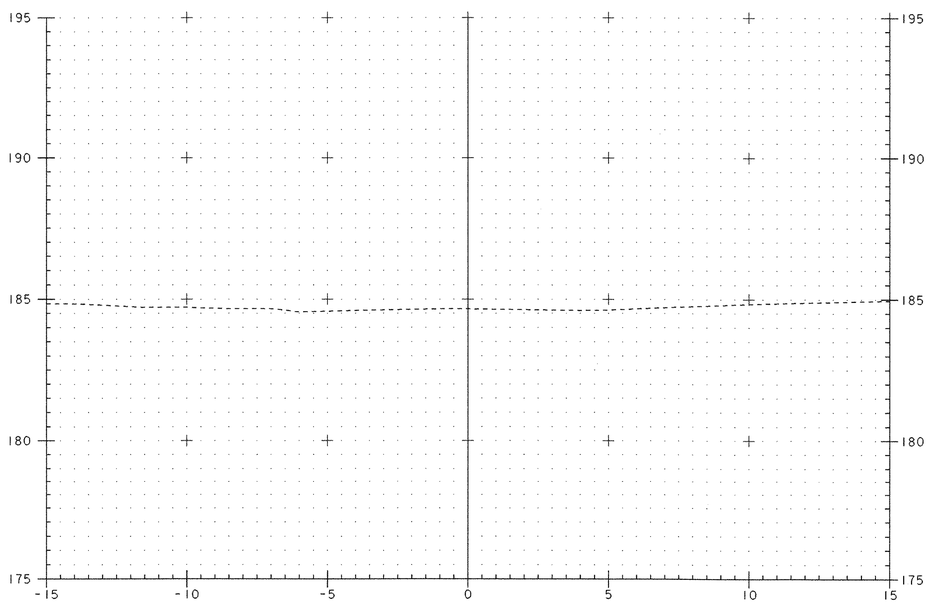
Metric



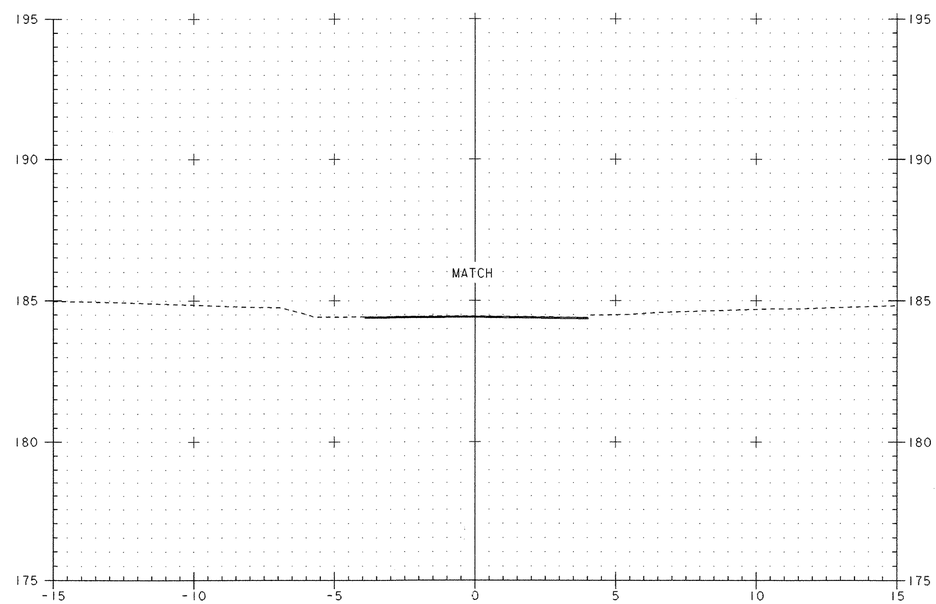
3+010



3+030



3+000



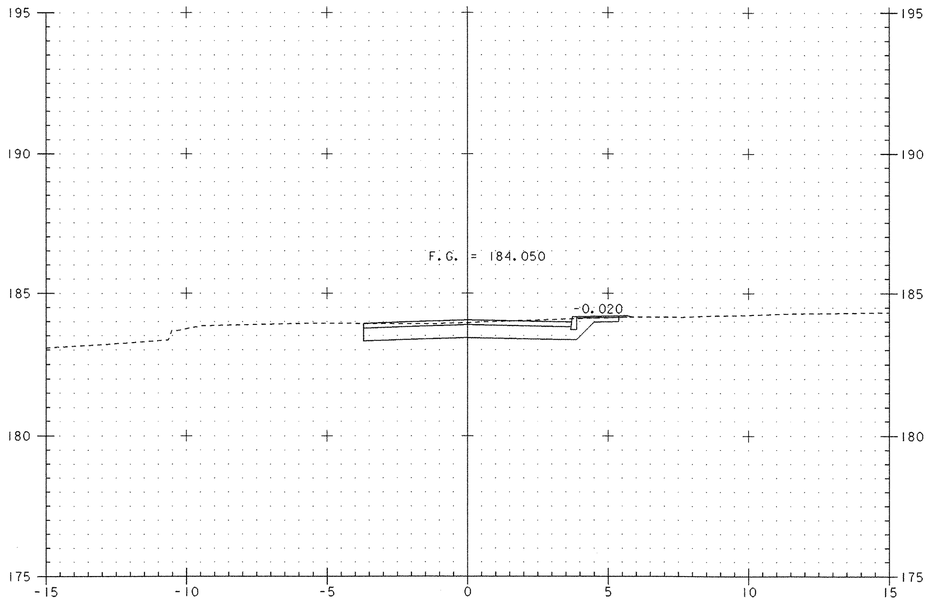
3+020

BEGIN APPROACH

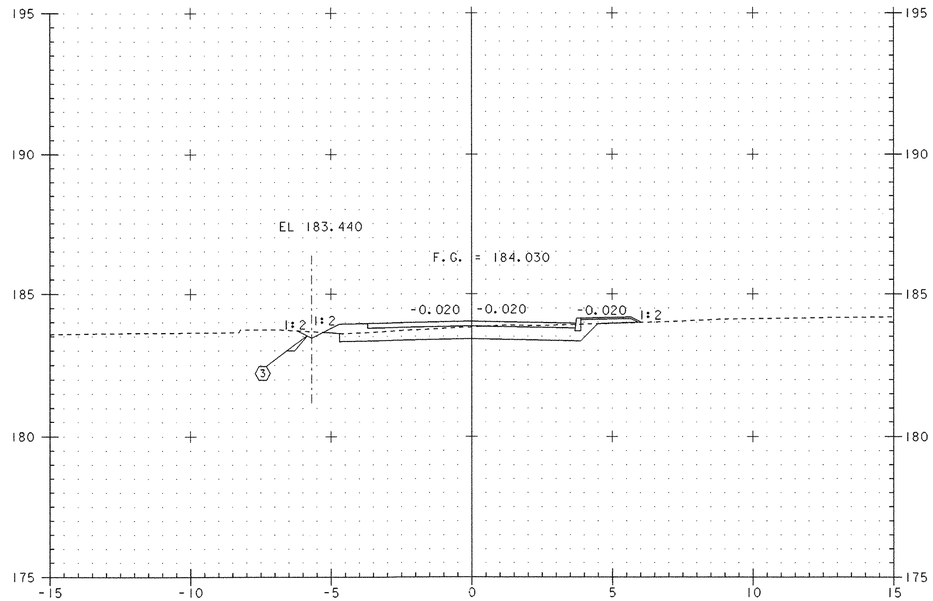
0 2 4 6 8 10

SCALE 1 : 100

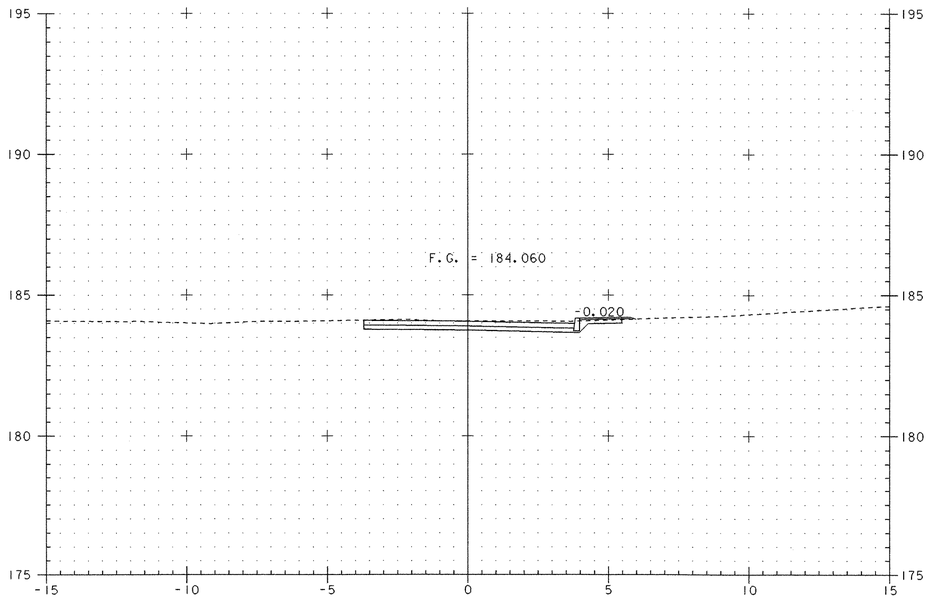
PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) -C1
DESIGN FILE NAME: 96j250/structures/s96j250xsec-c1.dgn IPARM FILE NAME: sj250xdetl.i	PLOT DATE: 09-JUL-2003
TEMPORARY DETOUR CROSS SECTIONS	
STA 3+000 Thru STA 3+030	SHEET: 32 OF 47



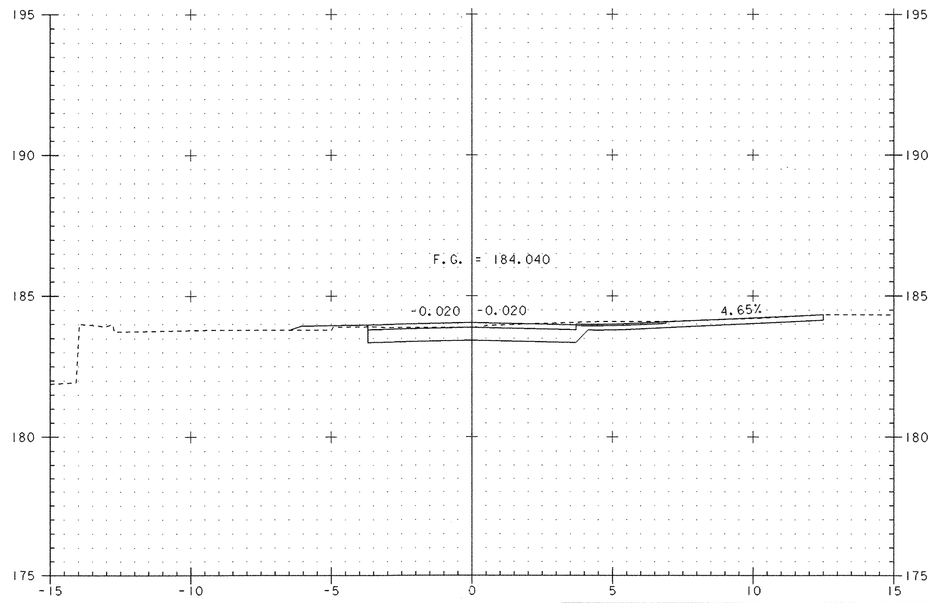
3+050



3+070



3+040

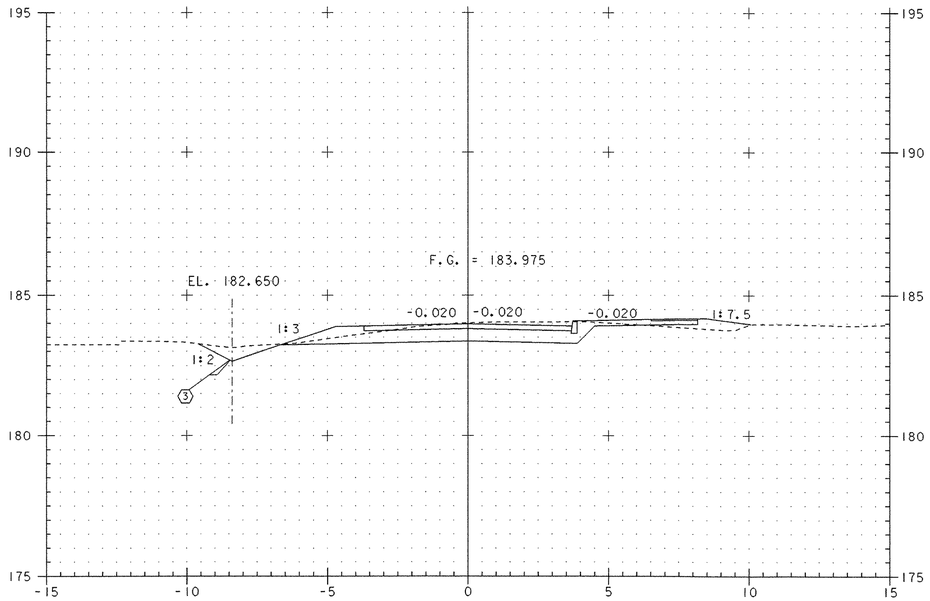


3+060
END APPROACH
BEGIN PROJECT

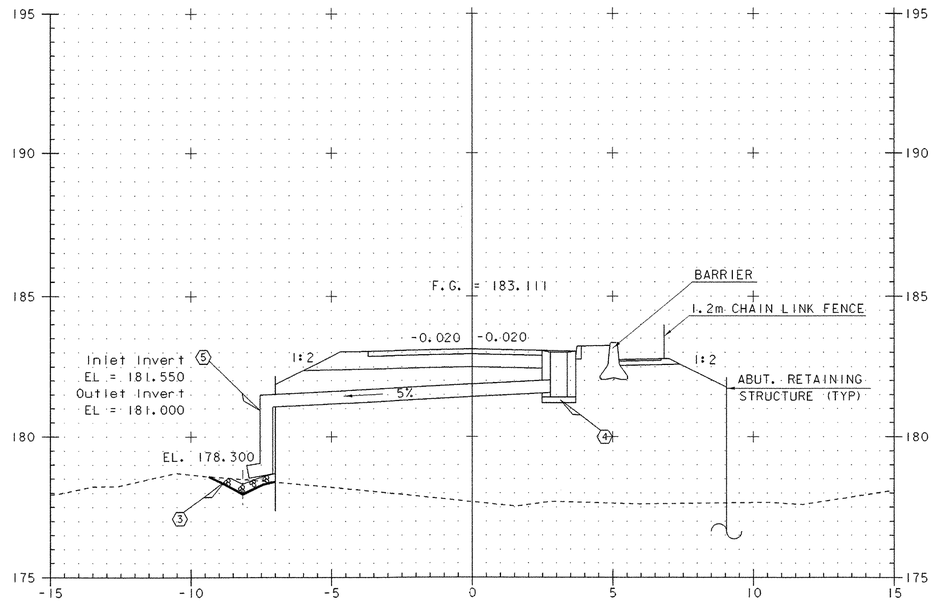
0 2 4 6 8 10
SCALE 1 : 100

PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) -C1
DESIGN FILE NAME: 96j250/structures/s96j250xsec-cl.dgn IPARM FILE NAME: sj250xdet2.i	PLOT DATE: 09-JUL-2003
TEMPORARY DETOUR CROSS SECTIONS	
STA 3+040 Thru STA 3+070	SHEET: 33 OF 47

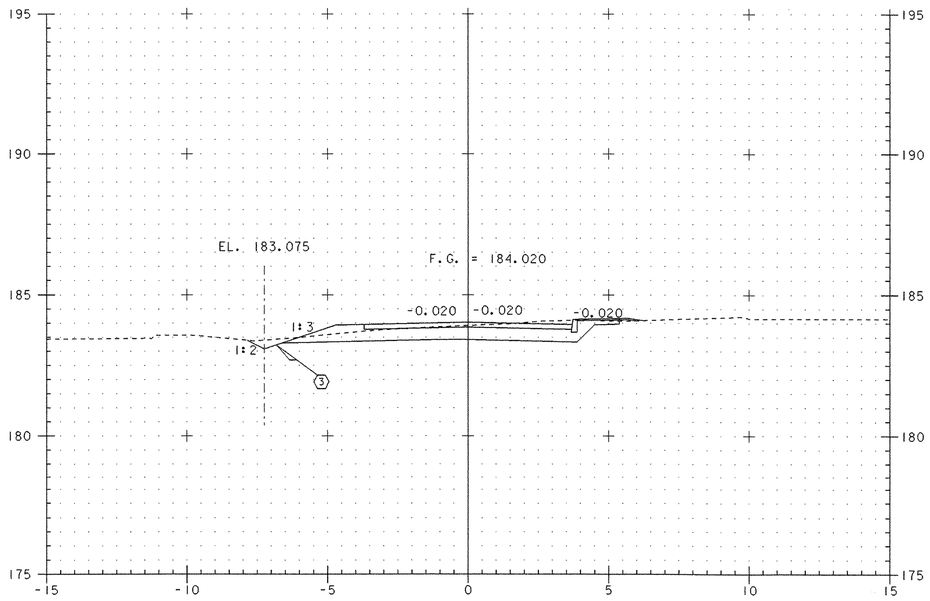
Metric



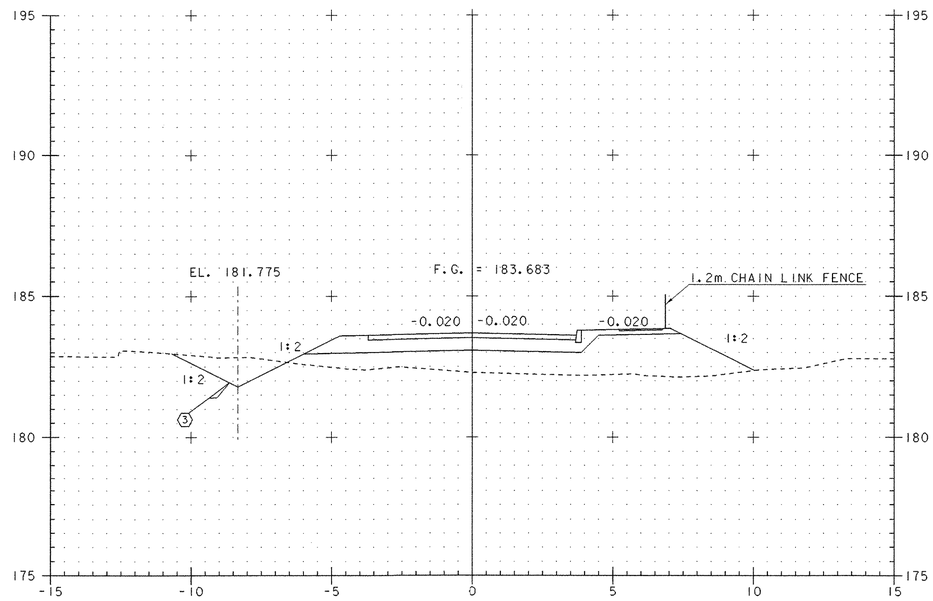
3+090



3+110



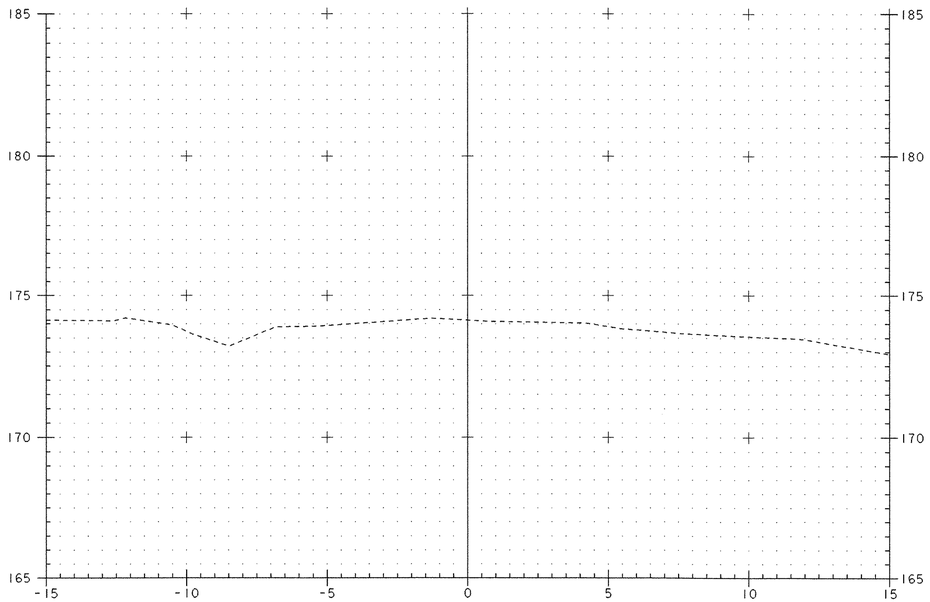
3+080



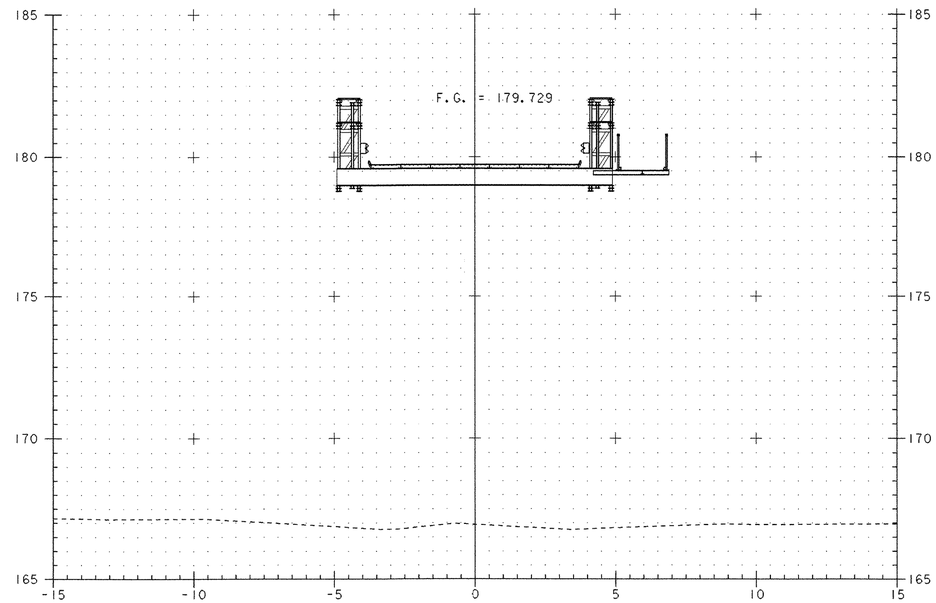
3+100

0 2 4 6 8 10
SCALE 1 : 100

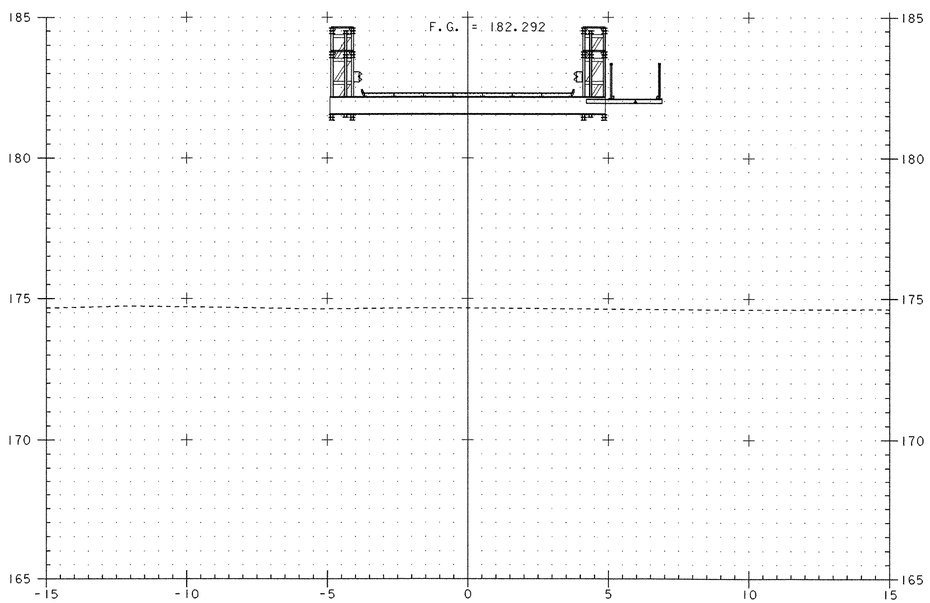
PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) -C1
DESIGN FILE NAME: 96j250/structures/s96j250xsec-c1.dgn IPARM FILE NAME: sj250xdet3.i	PLOT DATE: 09-JUL-2003
TEMPORARY DETOUR CROSS SECTIONS	
STA 3+080 Thru STA 3+110	SHEET: 34 OF 47



3+130

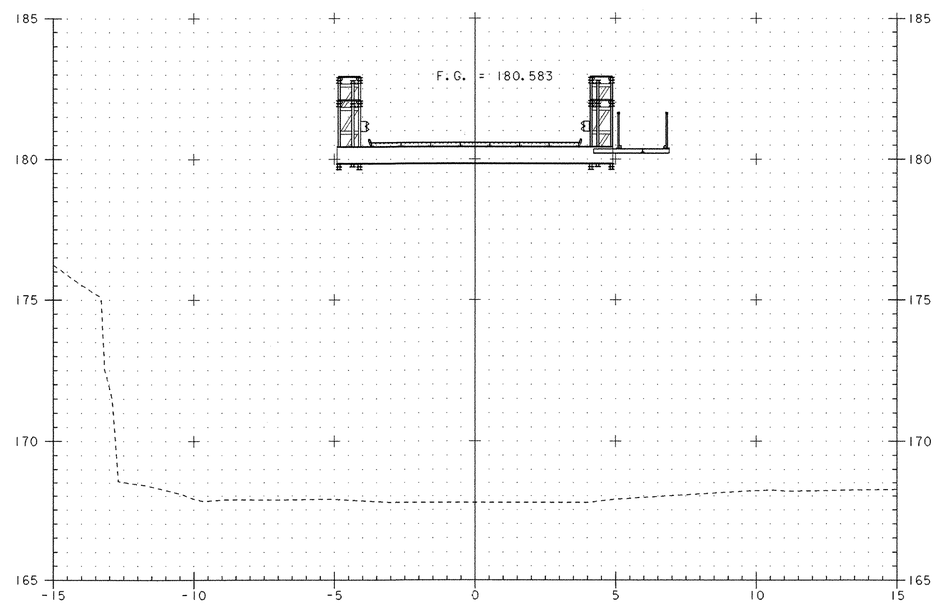


3+150



3+120

Begin Bridge
Sta 3+111.000

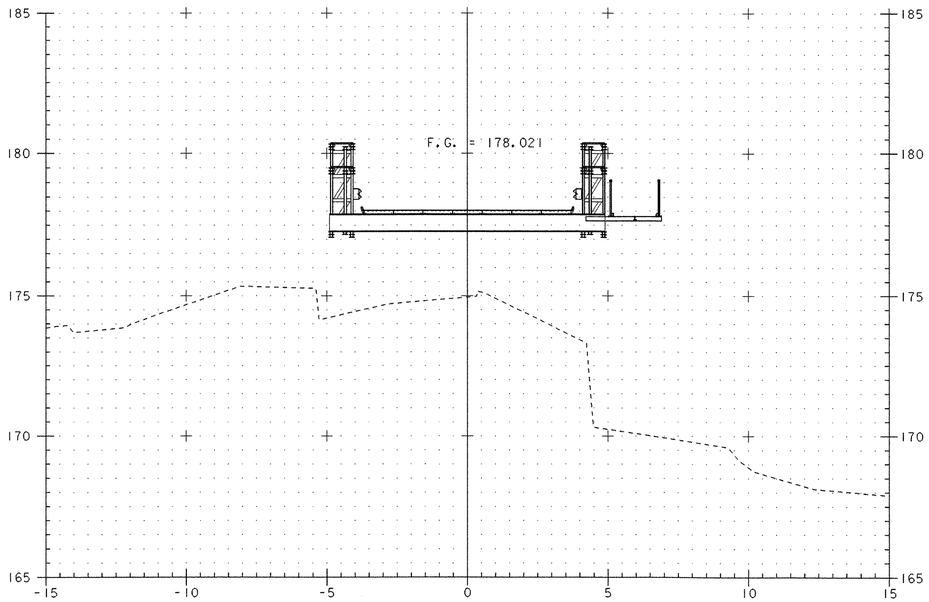


3+140

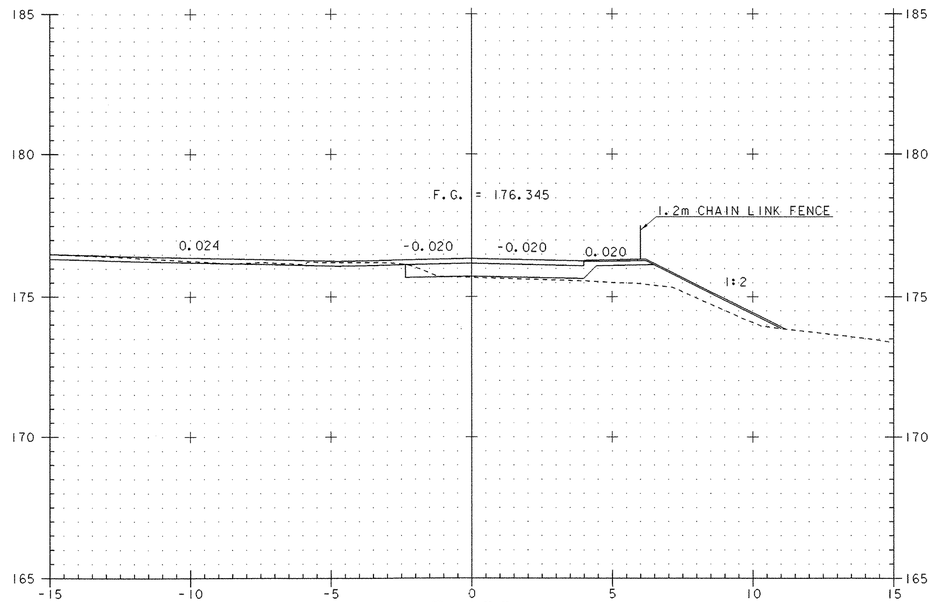
0 2 4 6 8 10
SCALE 1 : 100

PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) - C1
DESIGN FILE NAME: 96j250/structures/s96j250xsec-c1.dgn	
IPARM FILE NAME: sj250xdet4.i	PLOT DATE: 09-JUL-2003
TEMPORARY DETOUR CROSS SECTIONS	
STA 3+120 Thru STA 3+150	SHEET: 35 OF 47

Metric



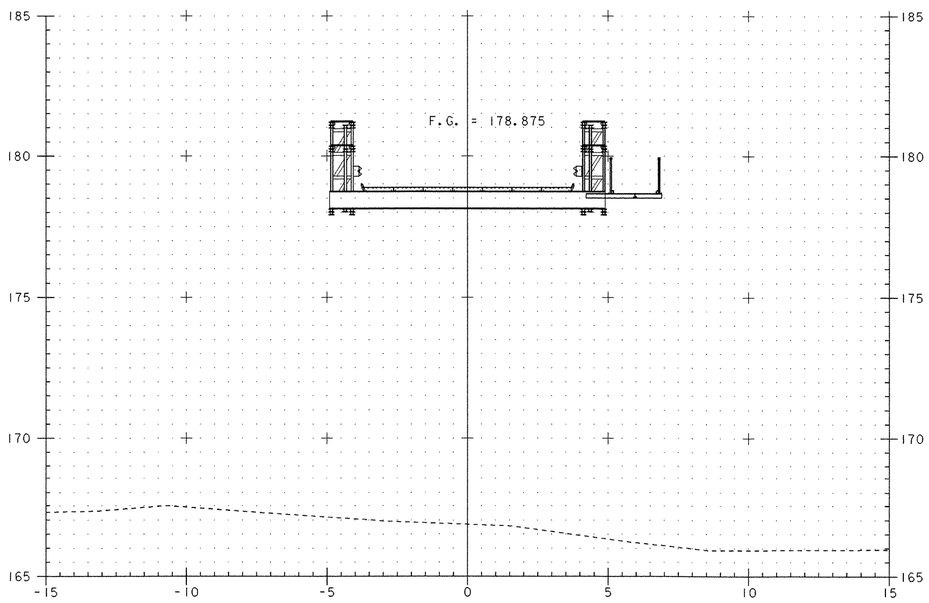
3+170



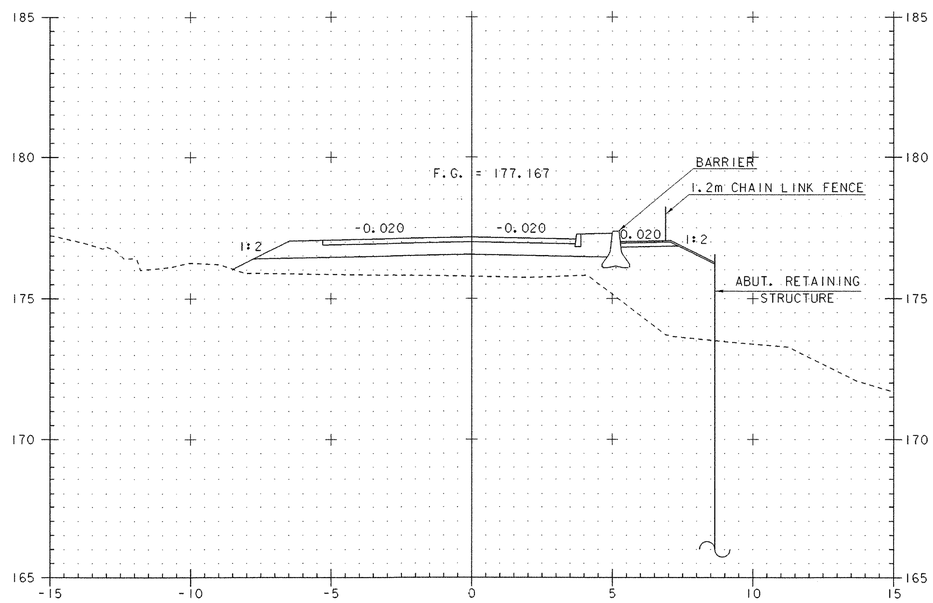
3+190

END PROJECT/BEGIN APPROACH

SEE PAGE 38 FOR SECTION @ DI & PIPE



3+160



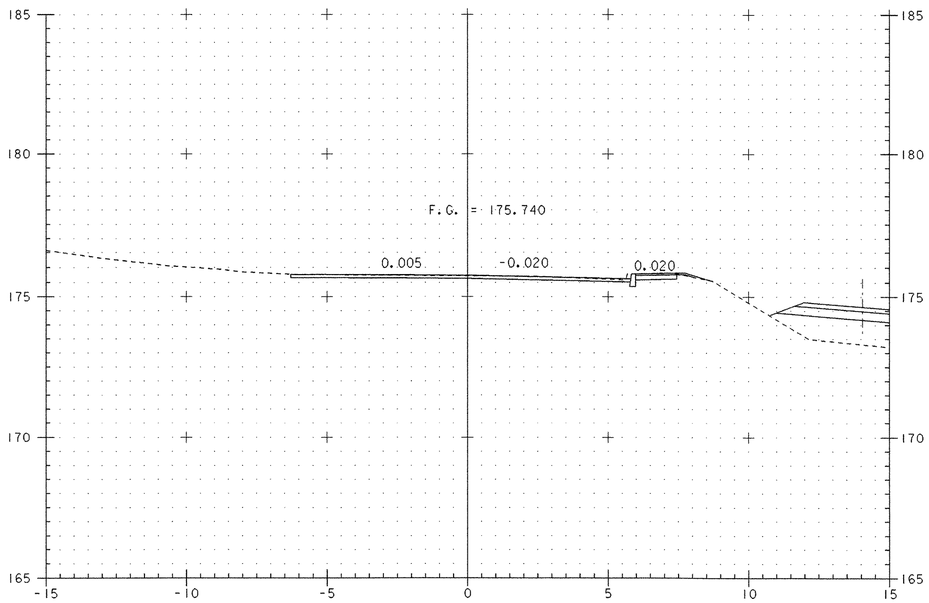
3+180

End Bridge
Sta 3+173.770

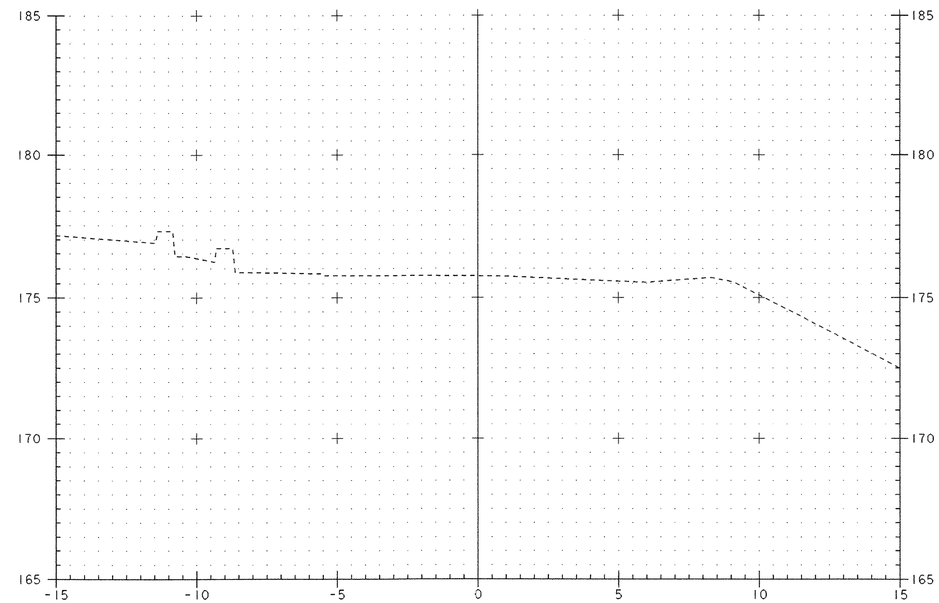
0 2 4 6 8 10
SCALE 1 : 100

PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) -C1
DESIGN FILE NAME: 96j250/structures/s96j250xsec-c1.dgn IPARM FILE NAME: sj250xdet5.i	PLOT DATE: 09-JUL-2003
TEMPORARY DETOUR CROSS SECTIONS	
STA 3+160 Thru STA 3+190	SHEET: 36 OF 47

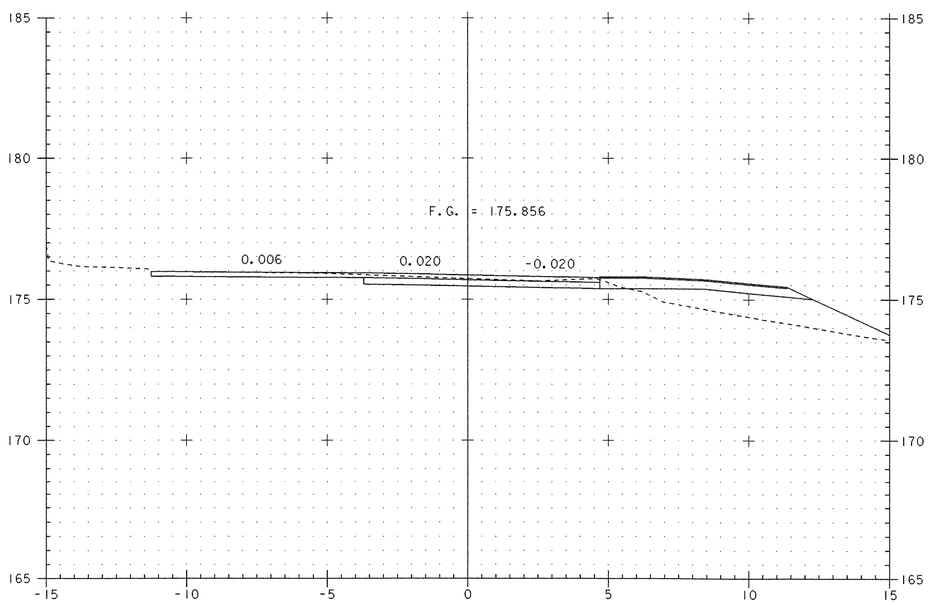
Metric



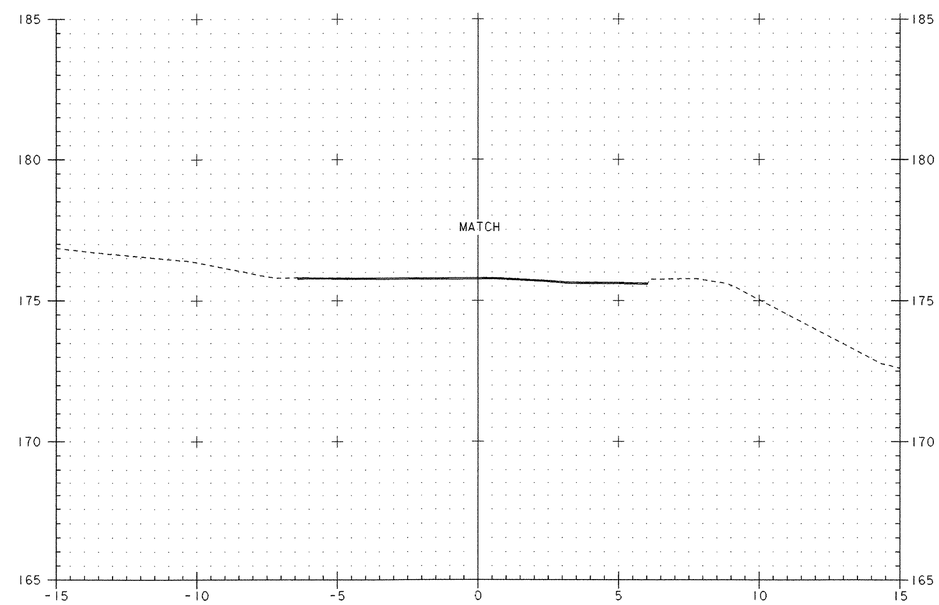
3+210



3+230



3+200

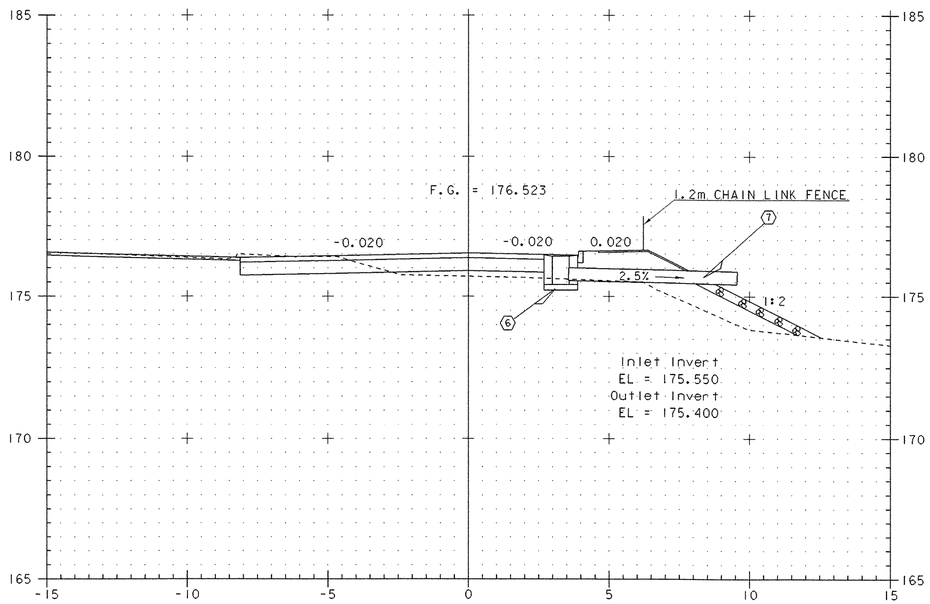


3+220
End Approach

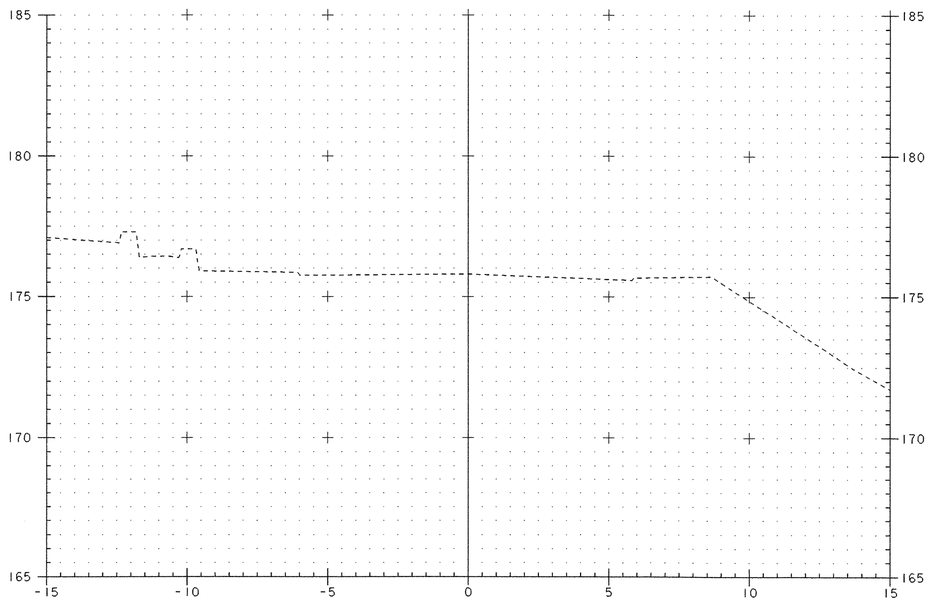
0 2 4 6 8 10
SCALE 1 : 100

PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) - C1
DESIGN FILE NAME: 96j250/structures/s96j250xsec-c1.dgn IPARM FILE NAME: sj250xdet6.i	PLOT DATE: 09-JUL-2003
TEMPORARY DETOUR CROSS SECTIONS	
STA 3+200 Thru STA 3+230	SHEET: 37 OF 47

Metric



3+187.600
SECTION AT PIPE

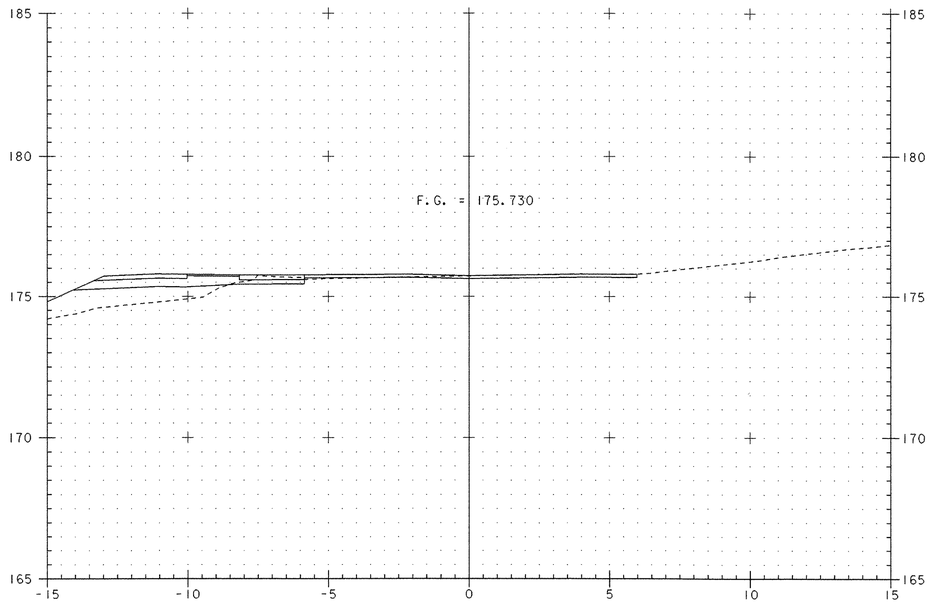


3+240

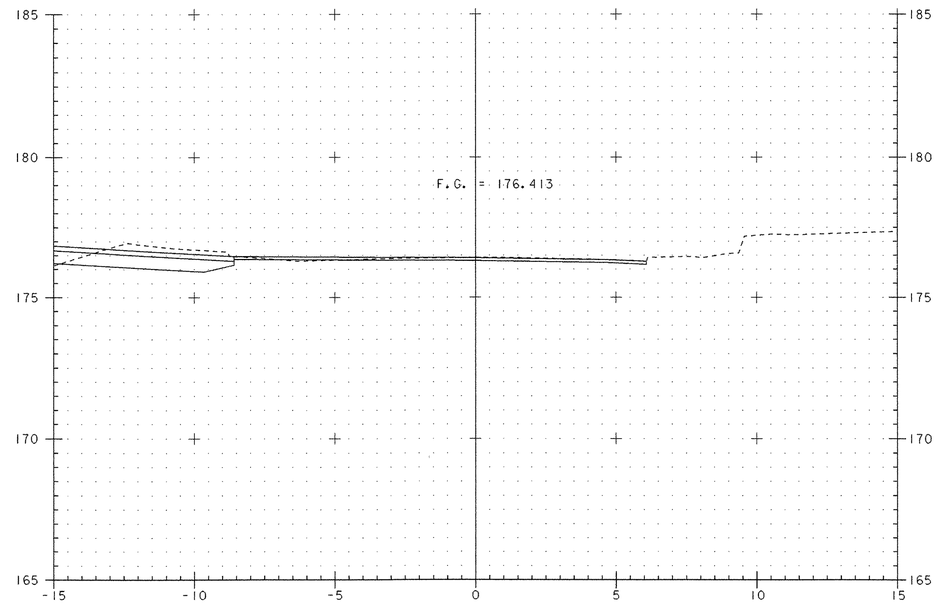
0 2 4 6 8 10
SCALE 1 : 100

PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) - C1
DESIGN FILE NAME: 96j250/structures/s96j250xsec-c1.dgn IPARM FILE NAME: sj250xdet7.i	PLOT DATE: 09-JUL-2003
TEMPORARY DETOUR CROSS SECTIONS	
STA 3+240 & 3+187.600	SHEET: 38 OF 47

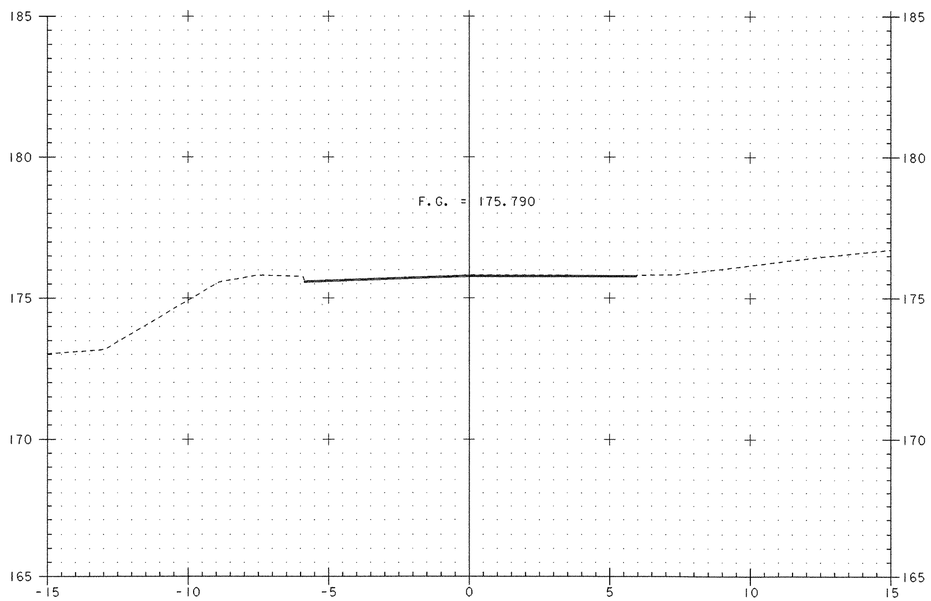
Metric



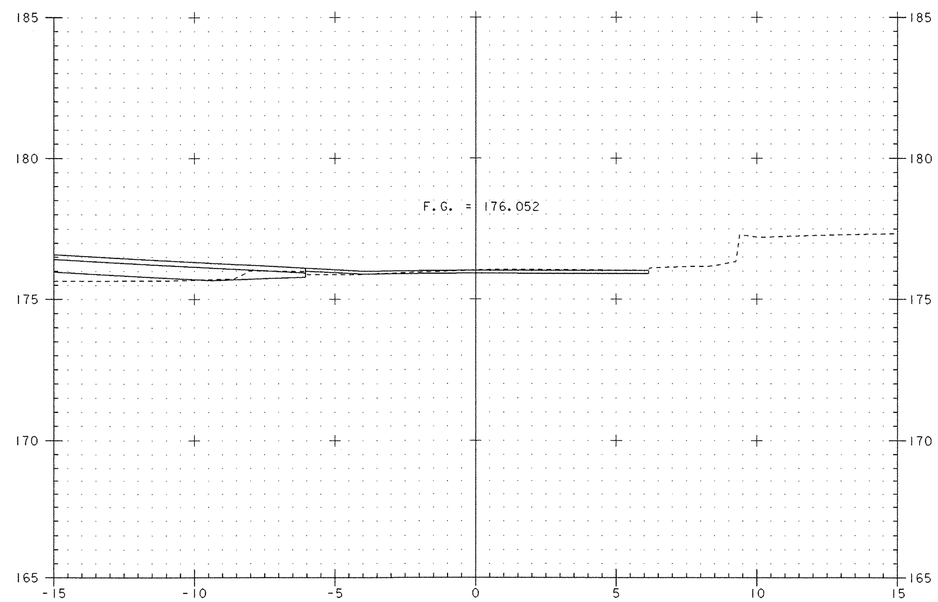
6+010



6+030



6+000



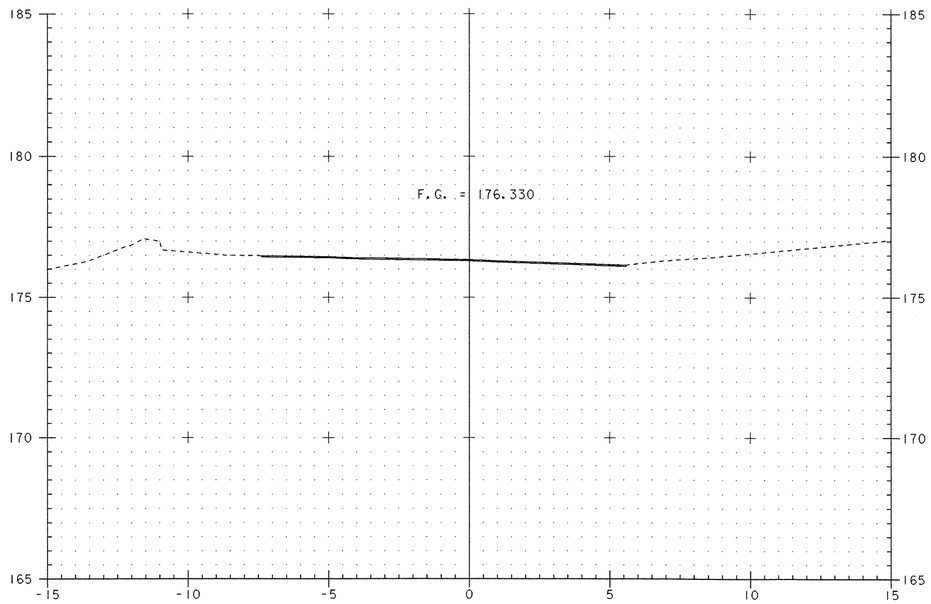
6+020

0 2 4 6 8 10

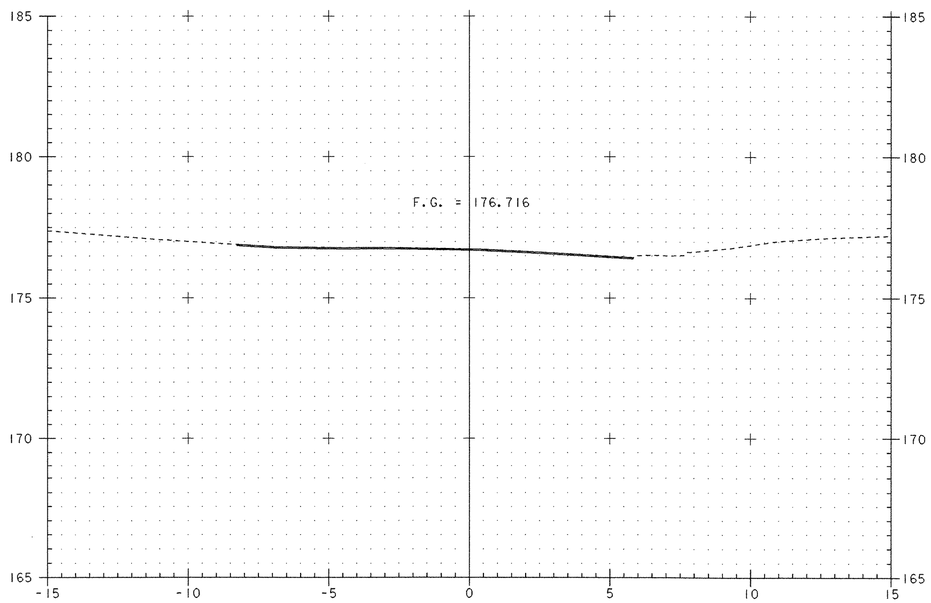
SCALE 1 : 100

PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) -C1
DESIGN FILE NAME: 96j250/structures/s96j250xsec-c1.dgn IPARM FILE NAME: s96j250xth51.i	PLOT DATE: 09-JUL-2003
TH5 Cross Sections	
STA 6+000 THRU STA 6+030	SHEET: 39 OF 47

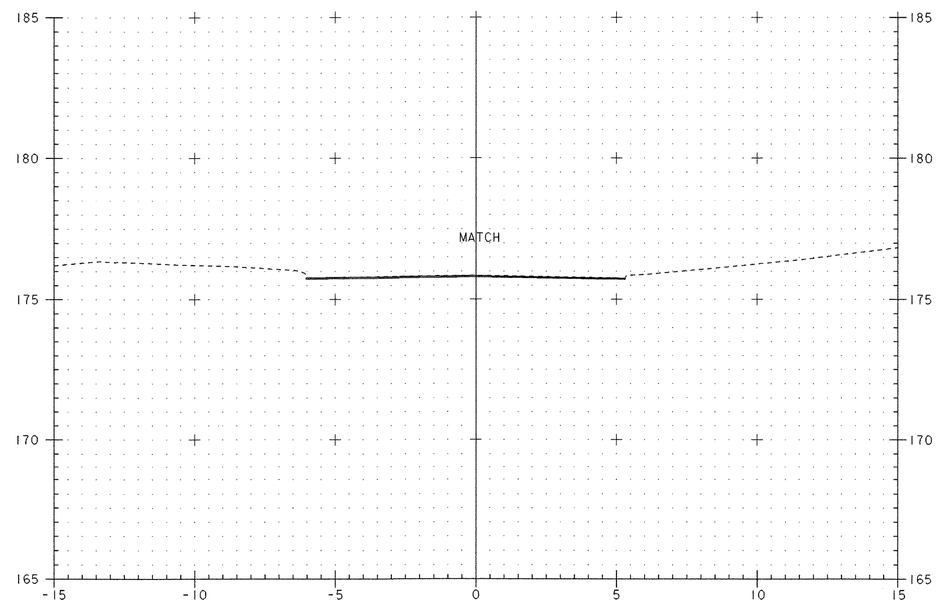
Metric



6+050



6+040

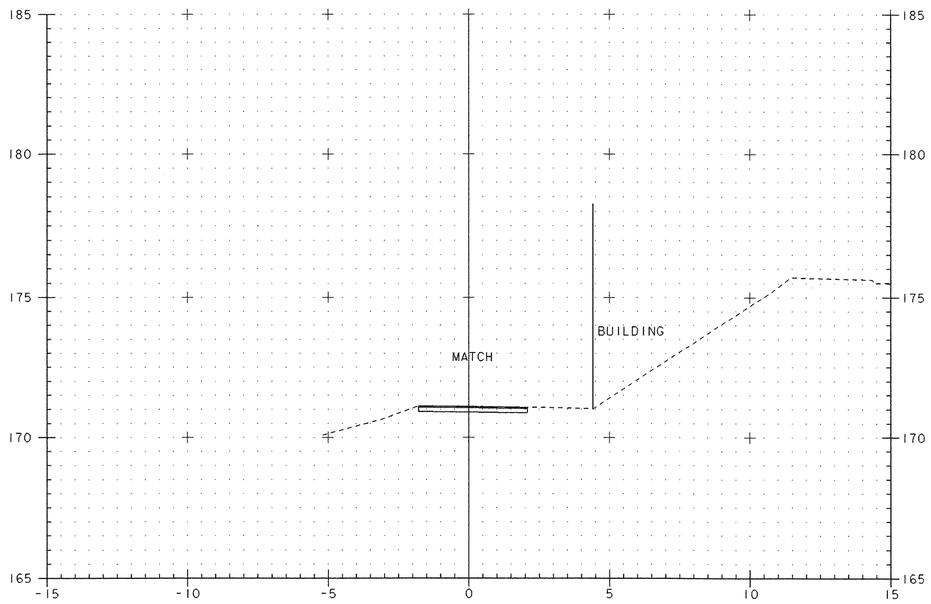


6+060

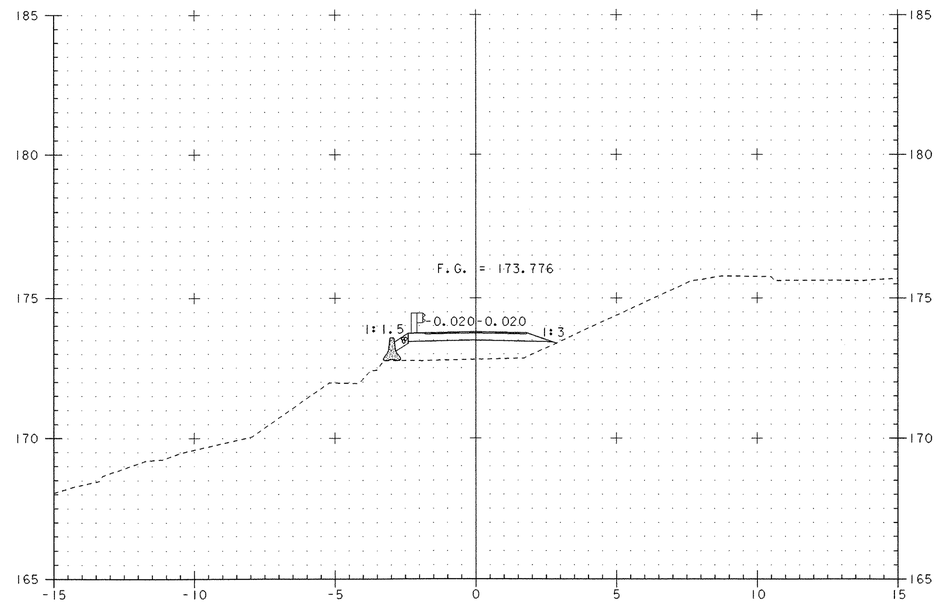
0 2 4 6 8 10
SCALE 1 : 100

PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) -C1
DESIGN FILE NAME: 96j250/structures/s96j250xsec-c1.dgn IPARM FILE NAME: s96j250xth52.i	PLOT DATE: 09-JUL-2003
TH5 Cross Sections	
STA 6+040 THRU STA 6+060	SHEET: 40 OF 47

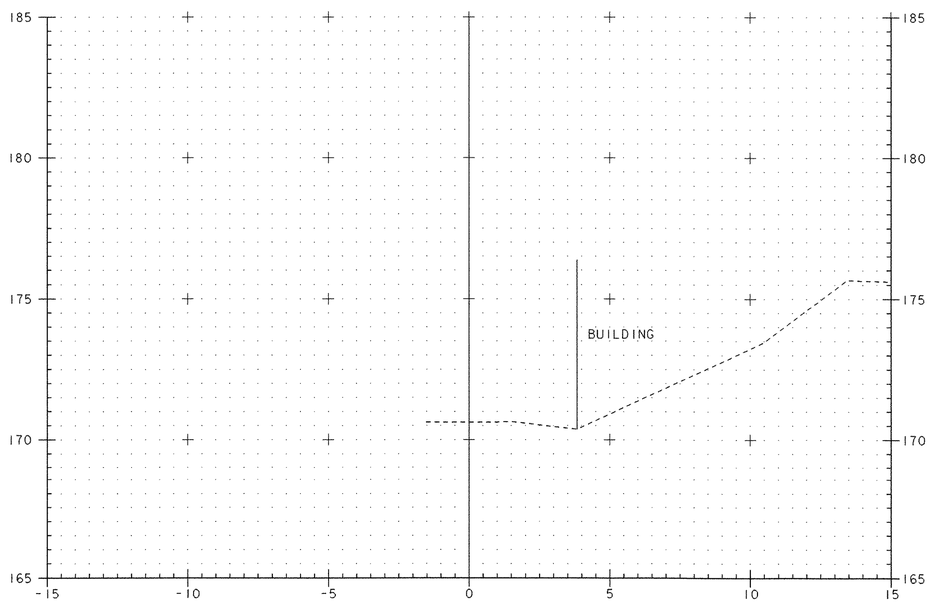
Metric



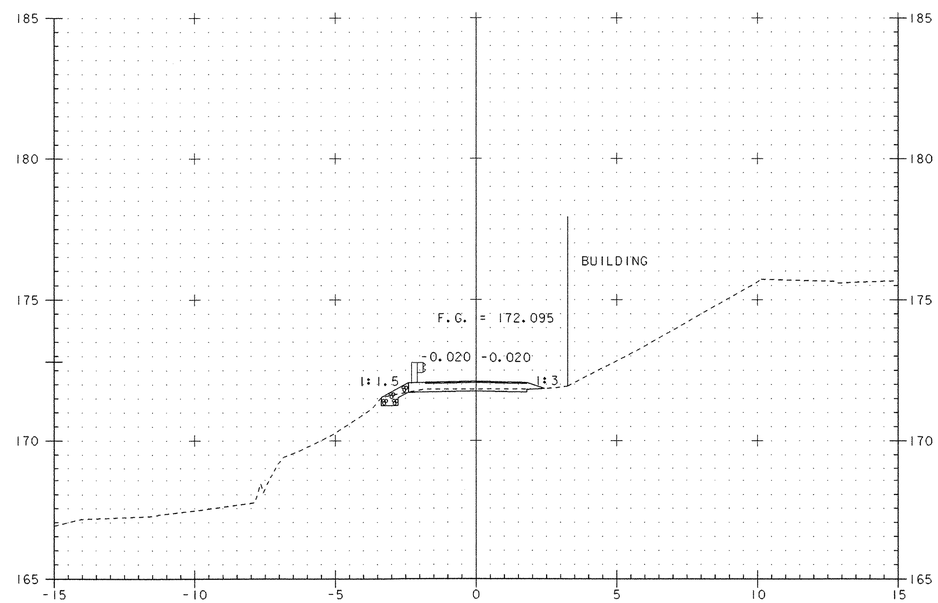
9+010



9+030



9+000



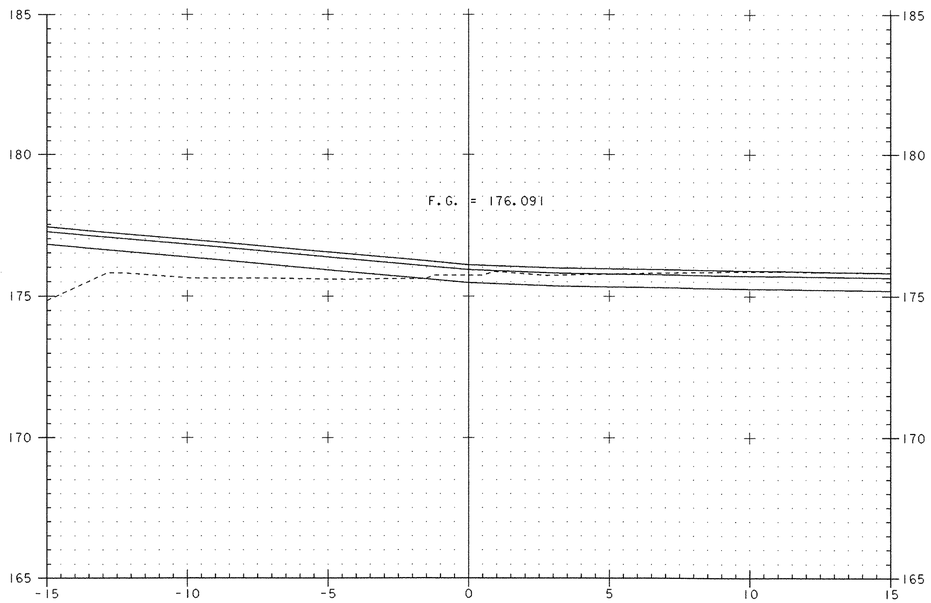
9+020

0 2 4 6 8 10

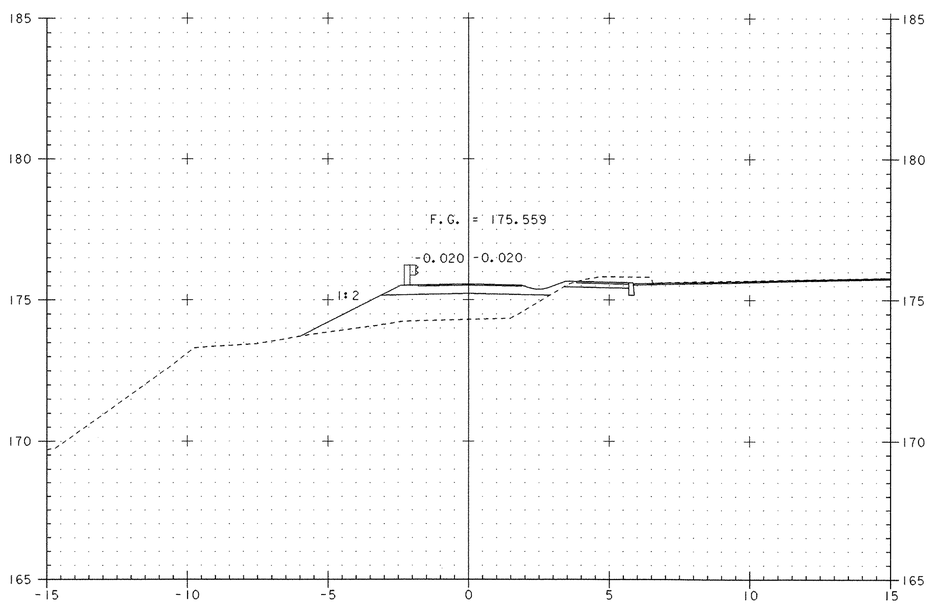
SCALE 1 : 100

PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) -C1
DESIGN FILE NAME: 96j250/structures/s96j250xsec-c1.dgn IPARM FILE NAME: s96j250xbmi.i	PLOT DATE: 09-JUL-2003
BETHEL MILLS DRIVE CROSS SECTIONS	
STA 9+000 THRU STA 9+030	SHEET: 41 OF 47

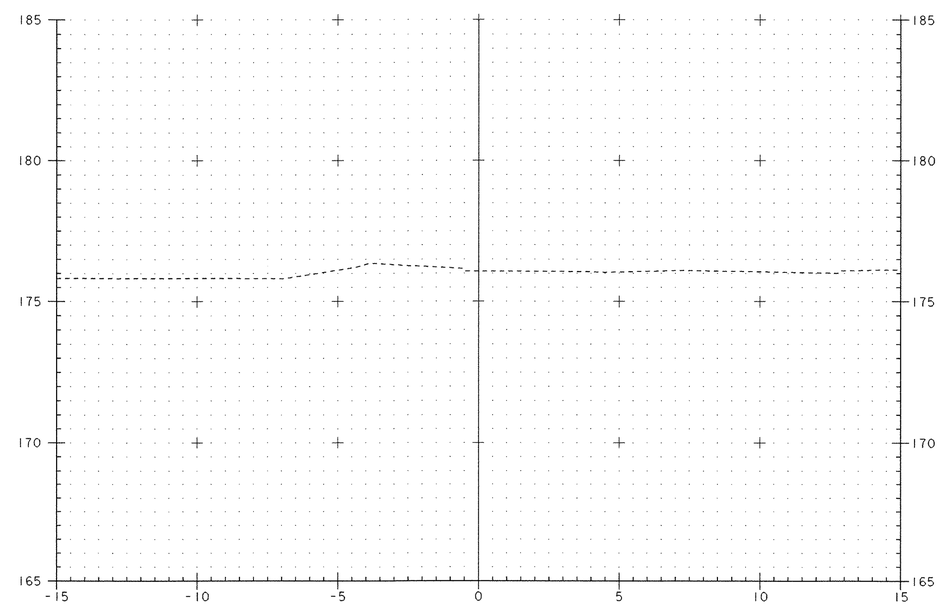
Metric



9+050



9+040

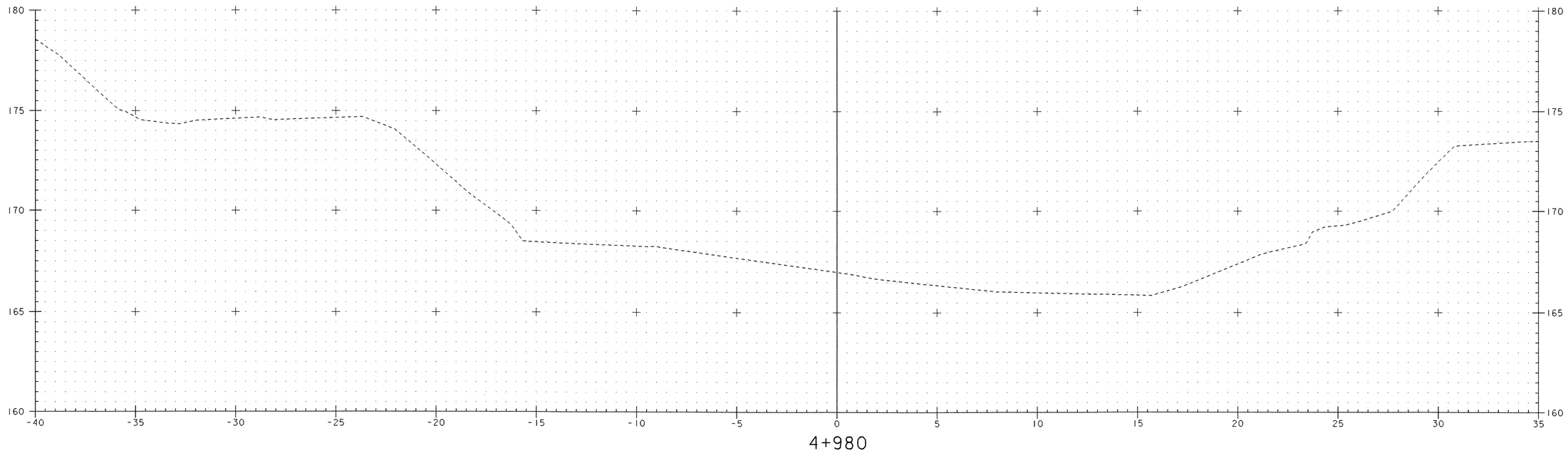


9+057

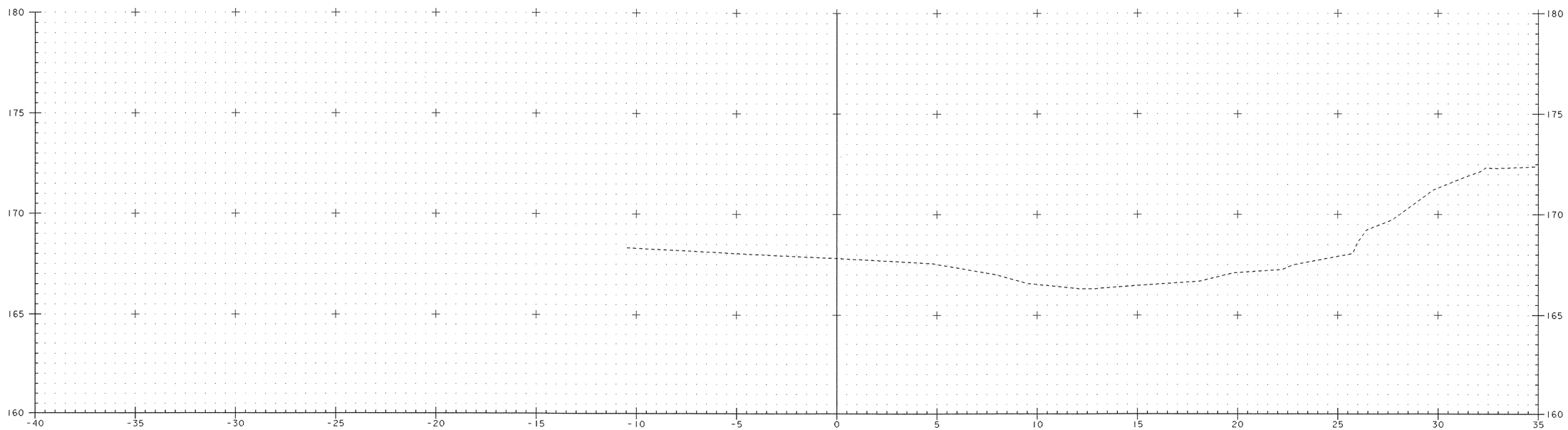
0 2 4 6 8 10
SCALE 1 : 100

PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) - C1
DESIGN FILE NAME: 96j250/structures/s96j250xsec-c1.dgn	
IPARM FILE NAME: s96j250xbm2.i	PLOT DATE: 09-JUL-2003
BETHEL MILLS DRIVE CROSS SECTIONS	
STA 9+040 THRU STA 9+057	SHEET: 42 OF 47

Metric



4+980

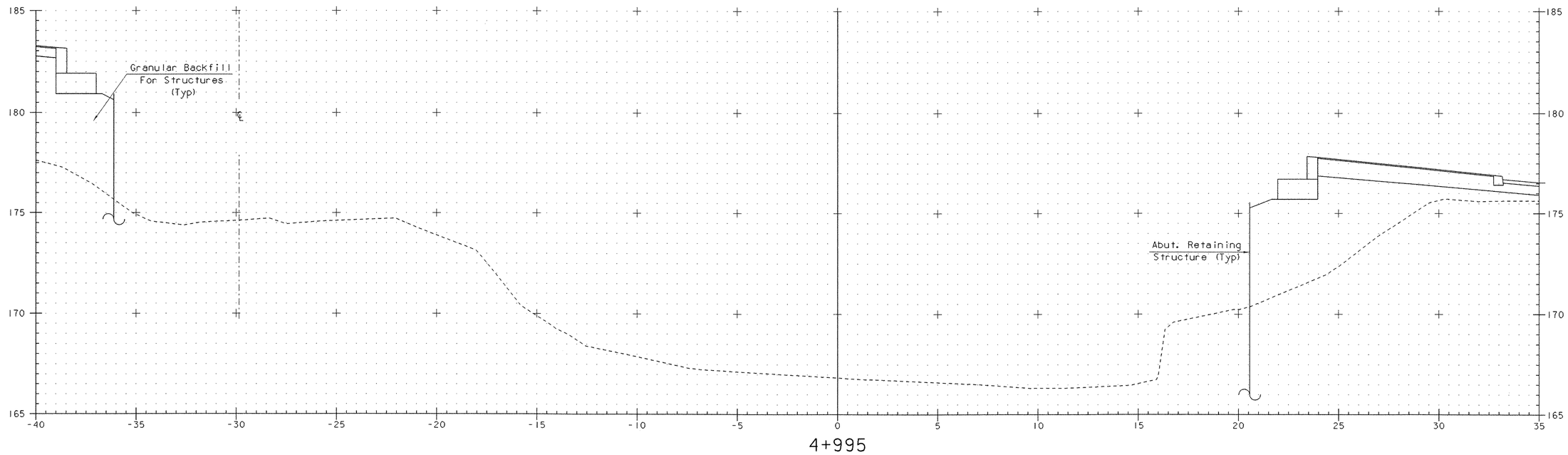


4+970

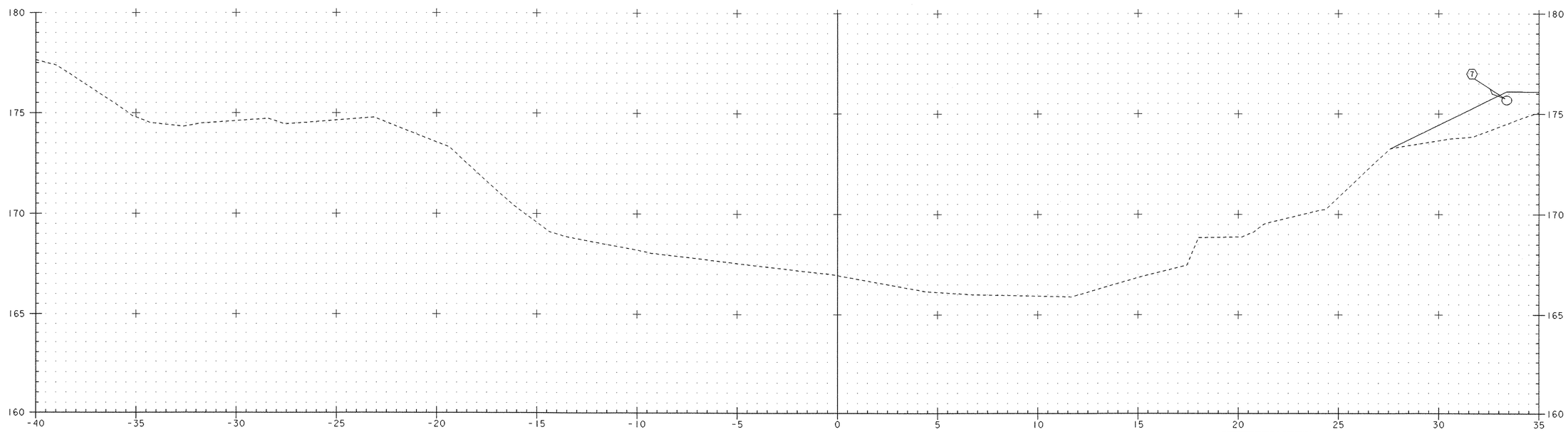
0 2 4 6 8 10
SCALE 1 : 100

PROJECT: BETHEL	PROJECT NO. : BRF 0241(33)-C1
DESIGN FILE NAME: 96j250/structures/s96j250xsec-c1.dgn	
IPARM FILE NAME: s96j260ch1.i	PLOT DATE: 09-JUL-2003
CHANNEL CROSS SECTIONS	
STA 4+970 AND STA 4+980	SHEET: 43 OF 47

Metric



4+995

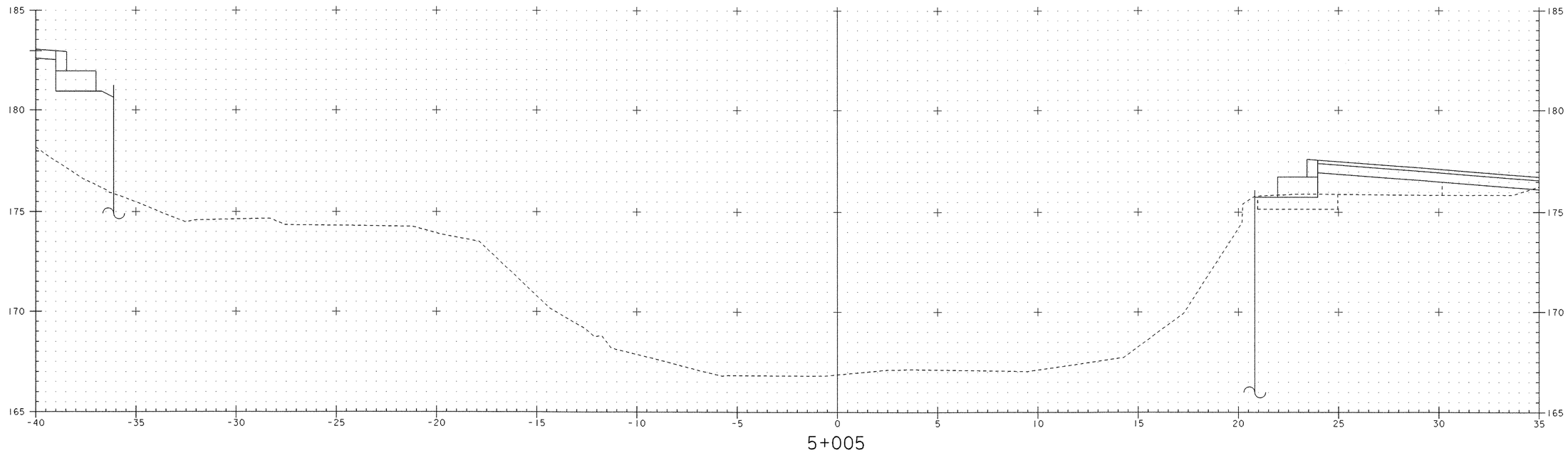


4+990

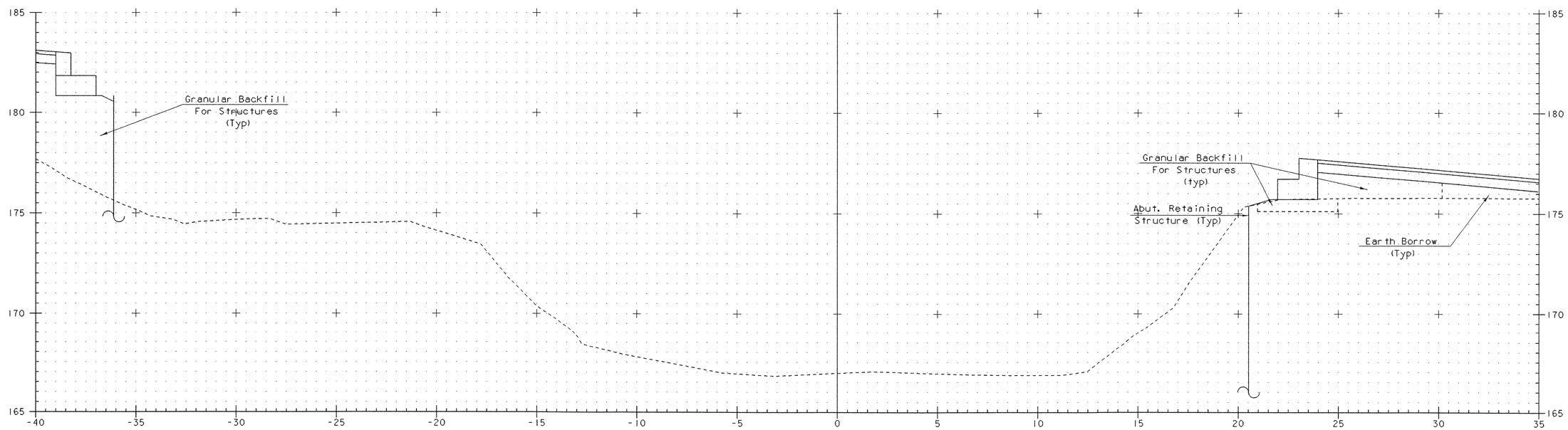
0 2 4 6 8 10
SCALE 1 : 100

PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) -C1
DESIGN FILE NAME: 96j250/structures/s96j250xsec-c1.dgn	
IPARM FILE NAME: s96j250ch2.i	PLOT DATE: 09-JUL-2003
CHANNEL CROSS SECTIONS	
STA 4+990 AND STA 4+995	SHEET: 44 OF 47

Metric



5+005

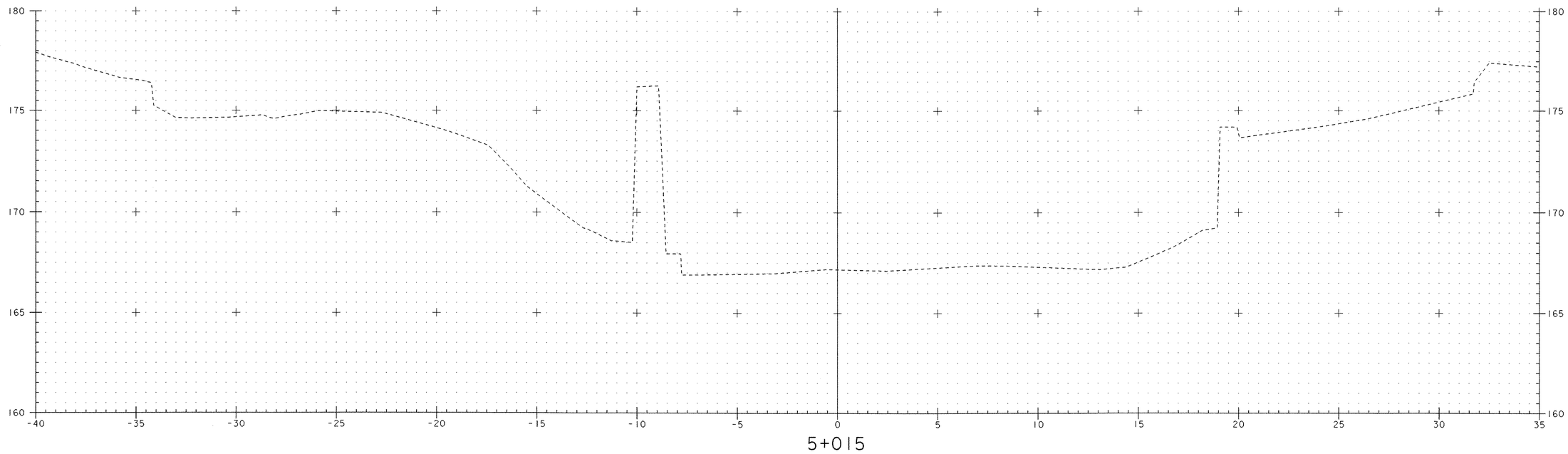


5+000

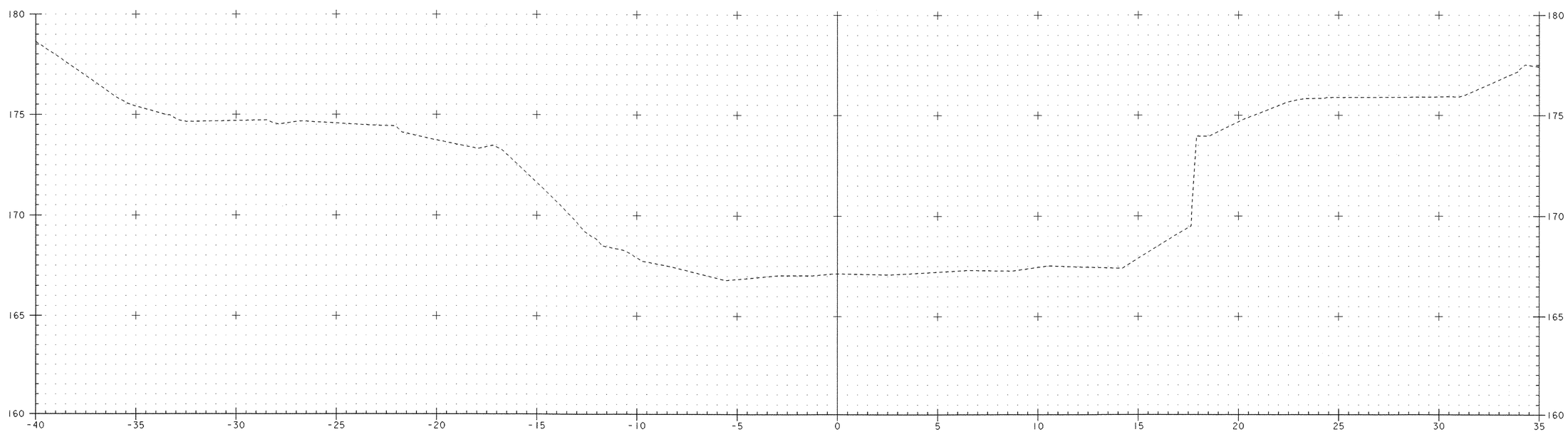
0 2 4 6 8 10
SCALE 1 : 100

PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) - C1
DESIGN FILE NAME: 96j250/structures/s96j250xsec-c1.dgn IPARM FILE NAME: s96j250ch3.i	PLOT DATE: 09-JUL-2003
CHANNEL CROSS SECTIONS	
STA 5+000 AND STA 5+005	SHEET: 45 OF 47

Metric



5+015

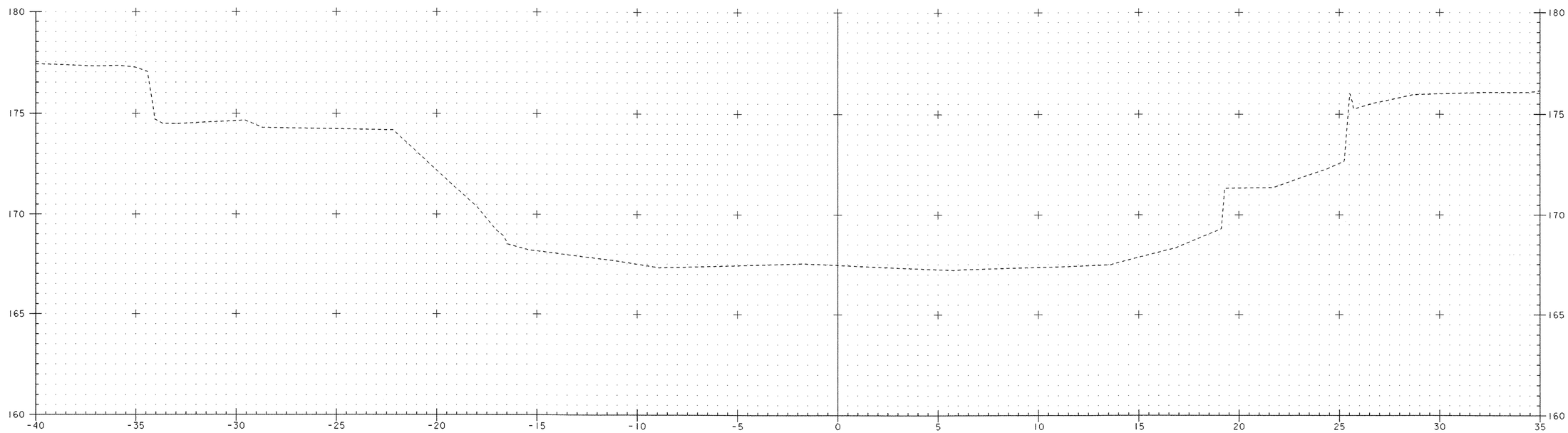


5+010

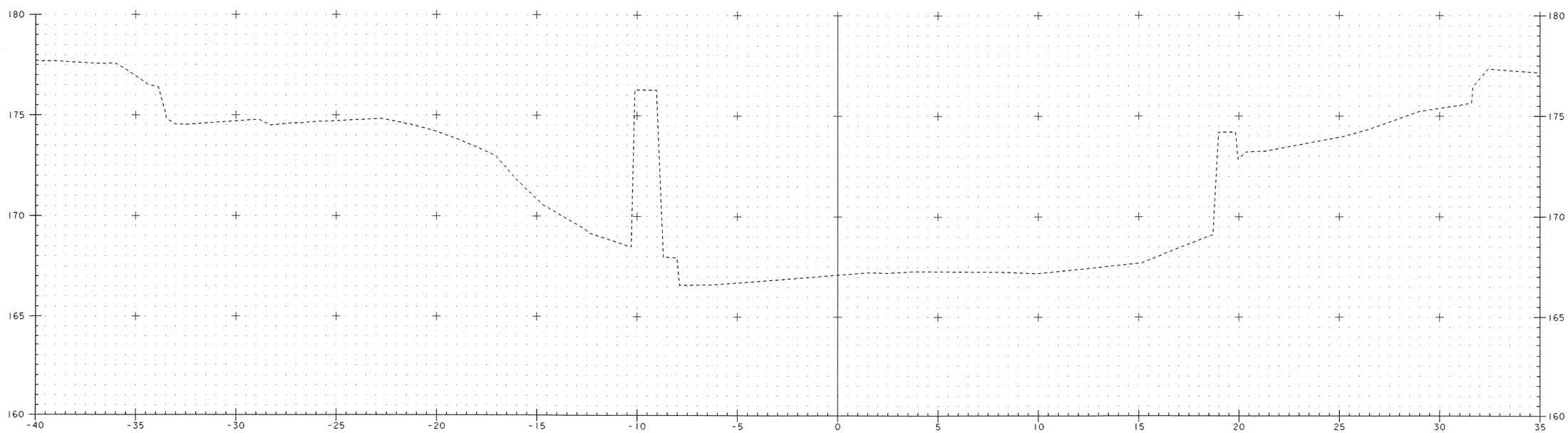
0 2 4 6 8 10
SCALE 1 : 100

PROJECT: BETHEL	PROJECT NO. : BRF 0241(33)-C1
DESIGN FILE NAME: 96j250/structures/s96j250xsec-c1.dgn	
IPARM FILE NAME: s96j250ch4.i	PLOT DATE: 09-JUL-2003
CHANNEL CROSS SECTIONS	
STA 5+010 AND STA 5+015	SHEET: 46 OF 47

Metric



5+030



5+020

0 2 4 6 8 10
SCALE 1 : 100

PROJECT: BETHEL	PROJECT NO. : BRF 0241 (33) -C1
DESIGN FILE NAME: 96j250/structures/s96j250xsec-c1.dgn IPARM FILE NAME: s96j250ch5.i	PLOT DATE: 09-JUL-2003
CHANNEL CROSS SECTIONS	
STA 5+020 AND STA 5+030	SHEET: 47 OF 47