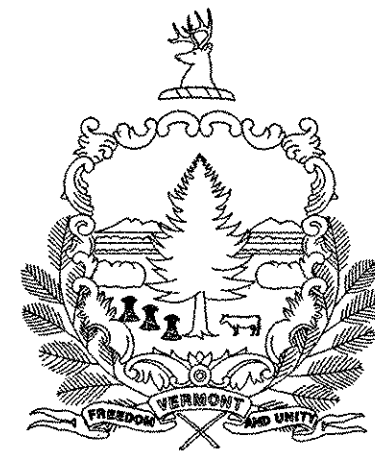


INDEX
SEE SHEET 2

STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT CITY OF SOUTH BURLINGTON COUNTY OF CHITTENDEN PROJECT AC IM CULV (9)

2007-2027 (20 YEAR) 18K ESAL = N/A

TRAFFIC DATA

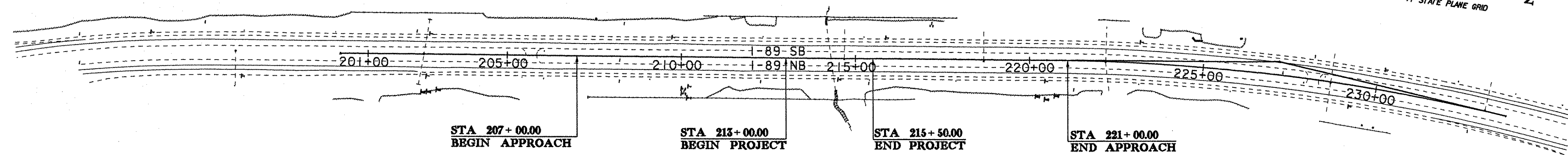
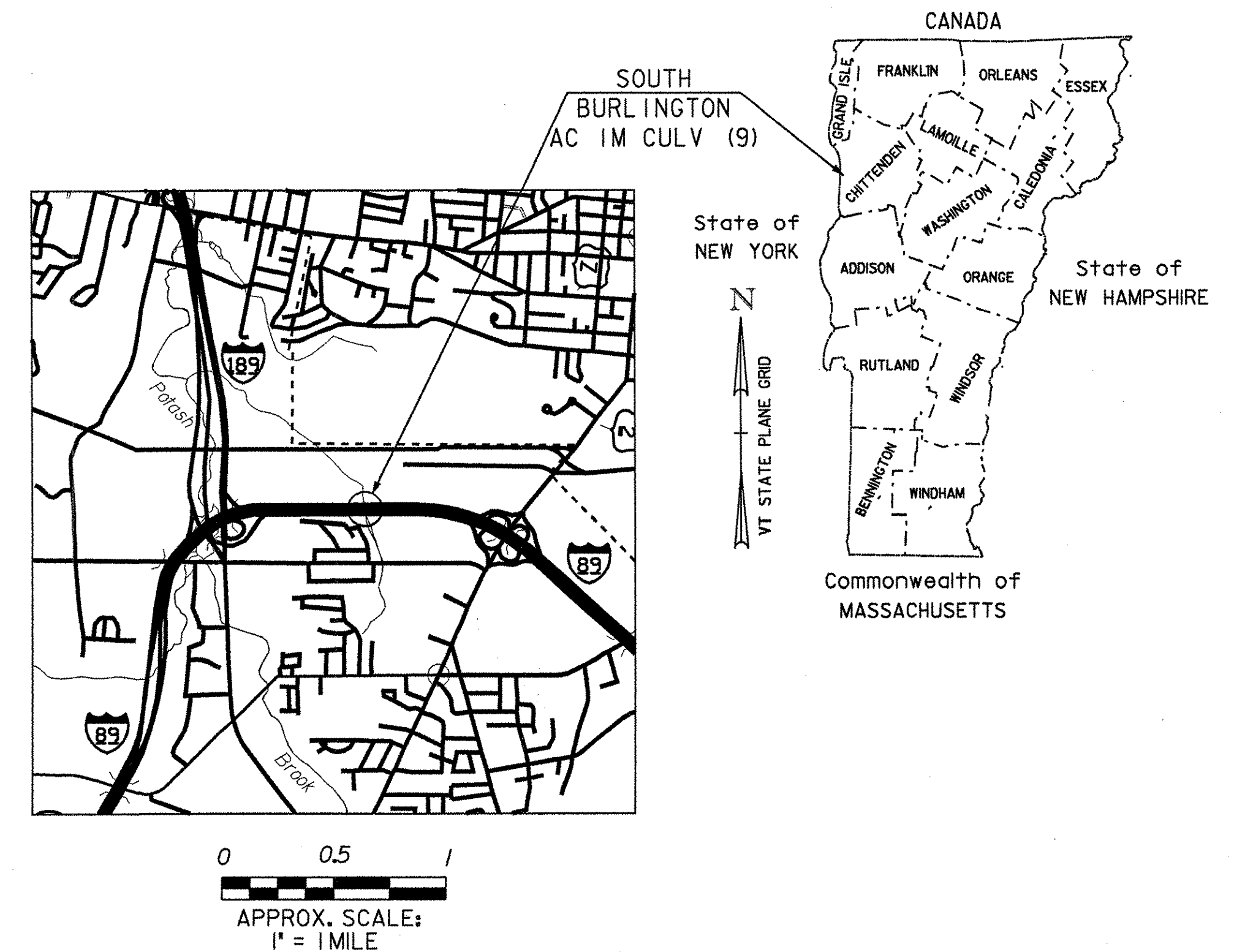
I-89 NORTHBOUND		I-89 SOUTHBOUND	
2007 ADT = 22,800	2027 ADT = 32,700	2007 ADT = 22,800	2027 ADT = 32,700
2007 DHV = 2,900	2027 DHV = 4,200	2007 DHV = 3,000	2027 DHV = 4,300
2007 ADTT = 1,860	2027 ADTT = 5,300	2007 ADTT = 1,960	2027 ADTT = 5,500
%T = 7.3%	%T = 14.5%	%T = 6.9%	%T = 13.7%
%D = N/A	%D = N/A	%D = N/A	%D = N/A
V = 55 MPH	V = 55 MPH	V = 55 MPH	V = 55 MPH
FLEXIBLE ESAL'S (NB)		FLEXIBLE ESAL'S (SB)	
2007 - 2017	2007 - 2027	2007 - 2017	2007 - 2027
7,991,000	22,366,000	8,628,000	24,455,000

BITUMINOUS CONCRETE PAVEMENT SUPERPAVE MIXTURE DESIGN CRITERIA		
	NORTHBOUND	SOUTHBOUND
DESIGN LANE / DESIGN LIFE ESAL	15,790,000	19,047,600
DESIGN NUMBER OF GYRATIONS	100	100
PERFORMANCE GRADE ASPHALT BINDER	64-28	64-28

PROJECT LOCATION:
THIS PROJECT IS LOCATED AT INTERSTATE 89 APPROXIMATELY 0.62 MILES NORTH
OF THE EXIT 13 INTERCHANGE

PROJECT DESCRIPTION:
WORK TO BE PERFORMED UNDER THIS CONTRACT INCLUDES TRAFFIC CONTROL, REPLACEMENT OF
STRUCTURE, AND REMOVAL OF TRAFFIC CONTROL.

LENGTH OF PROJECT = 250 FEET = 0.05 MILES

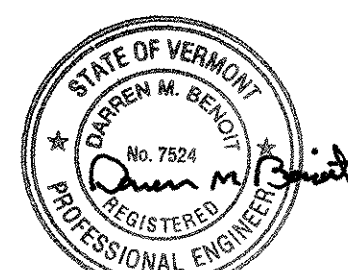


CONVENTIONAL SYMBOLS

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

SURVEYED BY : VTRANS
SURVEYED DATE : 9/2006
DATUM
VERTICAL : NAVD 88
HORIZONTAL : NAD 83 (96)

McFarland-Johnson, Inc.
53 REGIONAL DRIVE
CONCORD, NH 03301
PHONE (603) 225-2978
FAX (603) 225-0095



RECORD PLANS

CONTRACTOR: FW WHITCOMB CONSTRUCTION CORP. - WALPOLE, NH
RESIDENT ENGINEER: ROBERT SUCKERT
CONSTRUCTION BEGAN: OCTOBER 5, 2007
CONSTRUCTION COMPLETE: May 4, 2009
RECORD PLANS BY: R. SUCKERT & N. GARBACIK

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

BY *[Signature]* RESIDENT ENGINEER
DATE 6/26/09

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.

0 200 400
SCALE IN FEET
1" = 200'

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

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATOR
APPROVED *[Signature]* DATE 9-25-07
DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED *[Signature]* DATE 9-24-07
PROJECT MANAGER : LANDRY
PROJECT NAME : SOUTH BURLINGTON
PROJECT NUMBER : AC IM CULV (9)
SHEET 1 OF 63 SHEETS


INDEX OF SHEETS

1	TITLE SHEET
2	INDEX OF SHEETS AND LIST OF STANDARDS
3	TYPICAL SECTION - I-89
4	MISCELLANEOUS DETAIL SHEET
5	PRELIMINARY INFORMATION SHEET
6-7	QUANTITY SHEETS
8	DRAINAGE SUMMARY
9	EARTHWORK SHEET
10	TIE SHEET
11-12	LAYOUT AND STRIPING SHEETS
13	PROFILE SHEET
14	EROSION CONTROL NARRATIVE
15	RESOURCE PLAN
16-17	EXISTING CONDITIONS SITE PLANS
18-22	EROSION PREVENTION AND SEDIMENT CONTROL PLANS
23-24	FINAL CONDITIONS PLAN
25-31	EROSION CONTROL DETAILS
32	TRAFFIC CONTROL GENERAL NOTES
33-47	TRAFFIC CONTROL PLANS
48	BORING INFORMATION SHEET
49	BORING LOGS
50	CULVERT PLAN AND ELEVATION
51	GENERAL NOTES
52-54	CULVERT PHASING DETAILS
55	MISCELLANEOUS DETAILS
56-58	ROADWAY CROSS SECTIONS
59-63	CHANNEL CROSS SECTIONS

STANDARD SHEETS

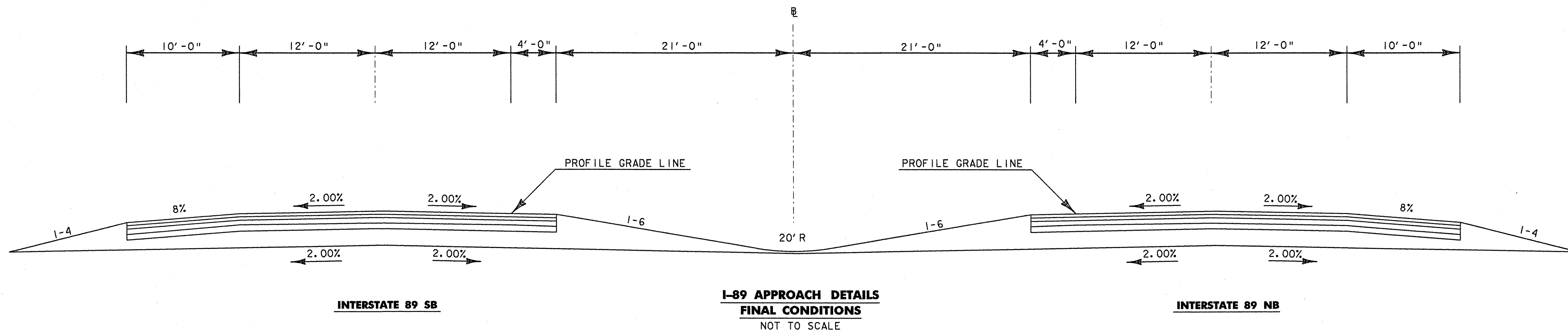
STANDARD	REVISION
B-17	02/23/95
D-1	06/01/94
D-30	08/13/07
E-100	01/02/04
E-101	05/30/03
E-102	06/30/03
E-103	03/01/04
E-104	02/03/99
E-106	03/01/04
E-107	06/30/03
E-107A	08/08/95
E-108	08/18/95
E-120	08/08/95
E-198	04/01/05
F-4	06/01/94
G-1	01/03/00
G-1d	01/03/00
G-18	06/01/94
G-19	11/15/02

DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)

 Mc FARLAND- JOHNSON, INC	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
	FILE NAME: INDEX.DGN	CHECKED BY: DMB
	PROJECT LEADER: LANDRY	SHEET 2 OF 63
	DESIGNED BY: MRP	
	INDEX OF SHEETS	

I-89 ROADWAY AND SHOULDERS

9 1/2" NOMINAL
 1 3/4" BITUMINOUS CONCRETE PAVEMENT, TYPE III-S
 1 1/4" BITUMINOUS CONCRETE PAVEMENT, TYPE III-S
 3" BITUMINOUS CONCRETE PAVEMENT, TYPE II-S
 3" BITUMINOUS CONCRETE PAVEMENT, TYPE II-S
 24" DENSE-GRADED CRUSHED STONE



SEEDING FORMULA *

RURAL AREAS

% WT	lb/ac	NAME	PUR %	GERM %
5.0	4	RED TOP	95	90
37.5	23	CREEPING RED FESCUE	98	85
15.0	9	BIRDSFOOT TREFOIL	98	85
37.5	23	TALL FESCUE	95	90
5.0	4	ANNUAL RYE GRASS	95	85
100.0	63			

* OR AS DIRECTED BY THE ENGINEER.

GENERAL NOTES

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

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

FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 lb/ac (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2.0 tons/ac, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2.0 tons/ac, OR AS DIRECTED BY THE ENGINEER.

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

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

SLOPE ROUNDING: ALL CUT SLOPES TO BE ROUNDED IN ACCORDANCE WITH STANDARD SHEET B-5.

TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT THE RATE OF 0.002 gal/ft². BETWEEN SUCCESSIVE COURSES OF PAVEMENT AS DIRECTED BY THE ENGINEER.

MATERIALS TOLERANCE TABLE

MATERIAL ITEM	THICKNESS TOLERANCE
PAVEMENT (TOTAL DEPTH)	+/- 1/4 INCH
SUBBASE (TOTAL DEPTH)	+/- 1 INCH

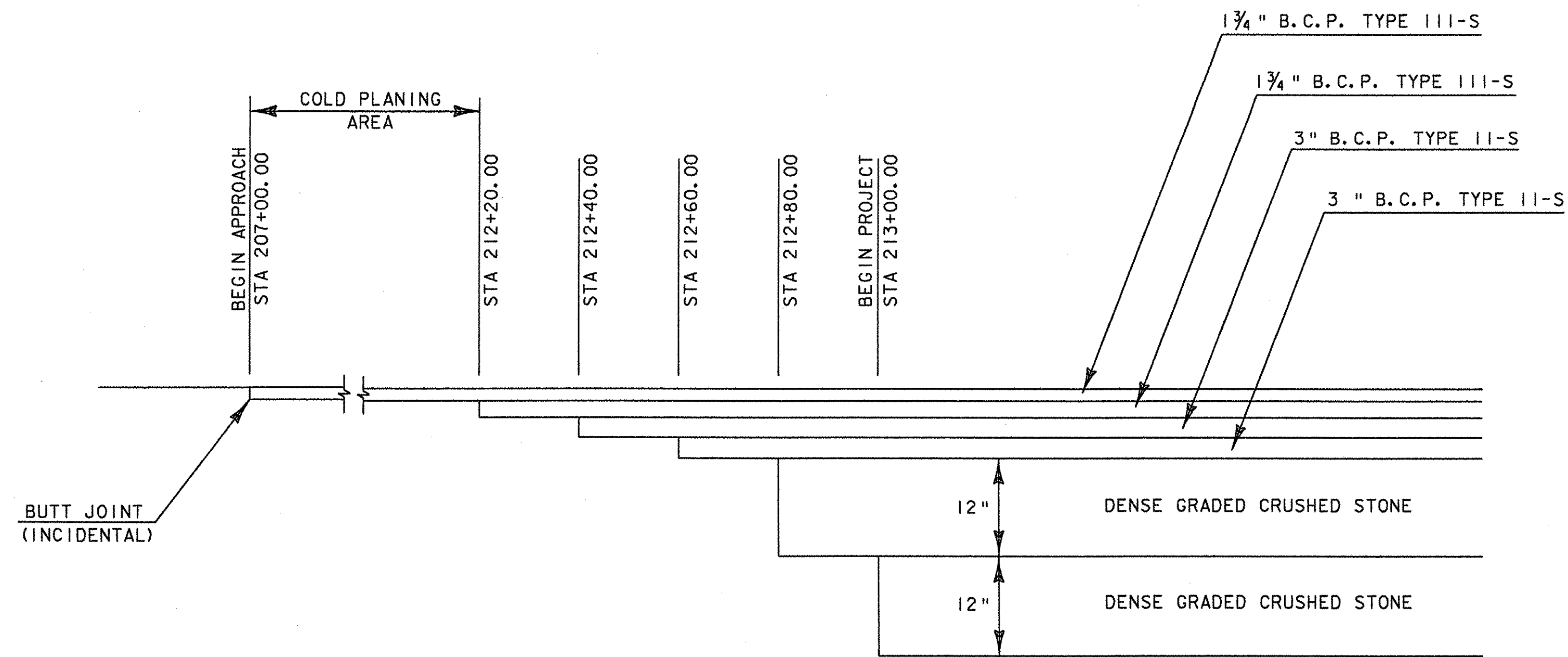
DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)



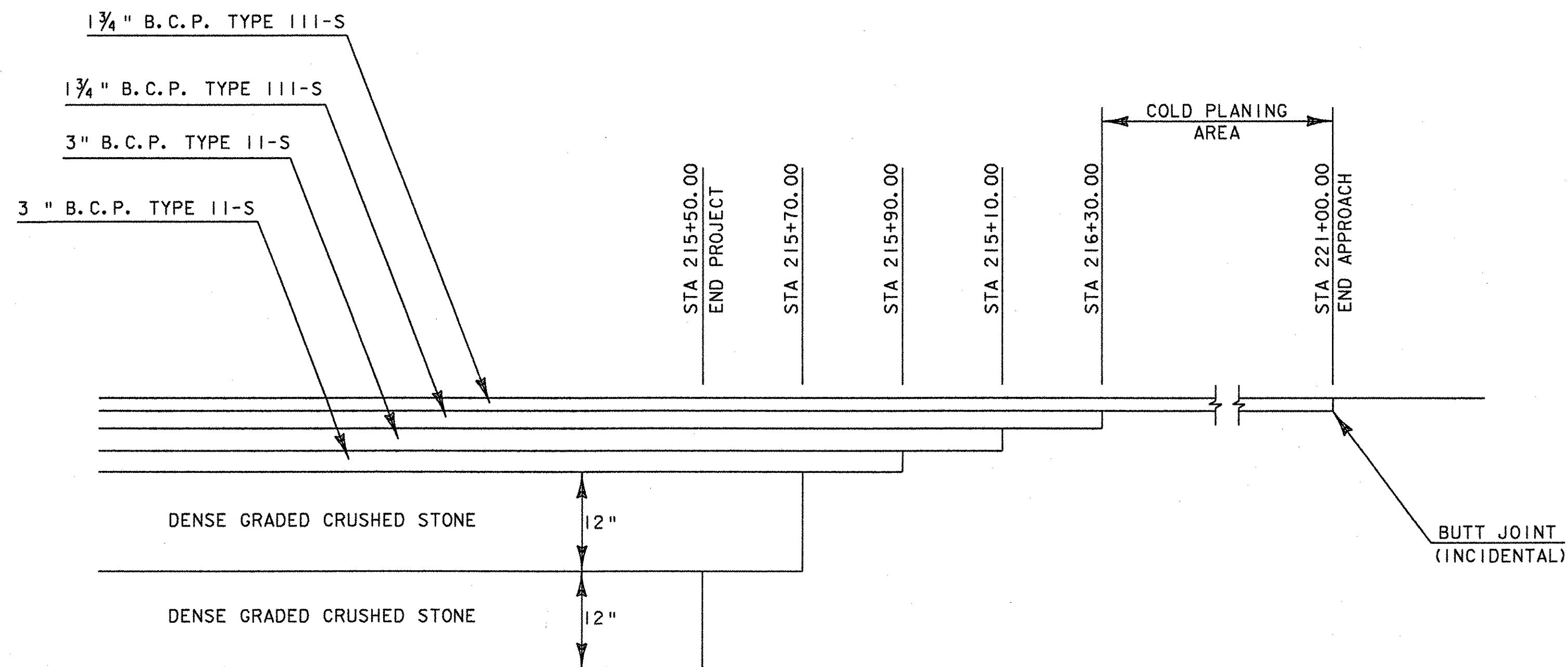
PROJECT NAME: SOUTH BURLINGTON
 PROJECT NUMBER: AC IM CULV (9)

FILE NAME: typ01.dgn
 PROJECT LEADER: LANDRY
 DESIGNED BY: MRP
 I-89 CULVERT TYPICAL

PLOT DATE: 21-SEP-2007
 DRAWN BY: MAL
 CHECKED BY: DMB
 SHEET 3 OF 63

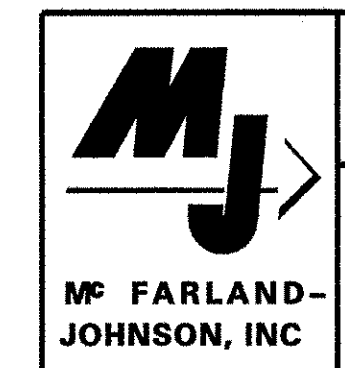


**INTERSTATE 99 NB AND SB
BEGIN PAVEMENT AND BASE COURSE TRANSITION**
NOT TO SCALE



**INTERSTATE 99 NB AND SB
END PAVEMENT AND BASE COURSE TRANSITION**
NOT TO SCALE

DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD83 (96)



PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
FILE NAME: z05k286d.tl.dgn	CHECKED BY: DMB
PROJECT LEADER: LANDRY	SHEET 4 OF 63
DESIGNED BY: MRP	
MISCELLANEOUS DETAILS	

FINAL HYDRAULICS REPORT

HYDROLOGIC DATA

DRAINAGE AREA = 0.5 SQUARE MILES
 CHARACTER OF TERRAIN: MOSTLY DEVELOPED, FLAT TO HILLY
 STREAM CHARACTERISTICS: SINUOUS
 NATURE OF STREAMBED: SAND AND GRAVEL
 02.33 = 65 cfs 050 = 190 cfs
 010 = 130 cfs 0100 = 230 cfs
 025 = 160 cfs 0500 = 330 cfs
 DATE OF FLOOD OF RECORD: UNKNOWN
 WATER SURFACE ELEV.: UNKNOWN ESTIMATED DISCHARGE: UNKNOWN
 NATURAL STREAM VELOCITY @ 0.50 = 4.7 f/s
 ICE CONDITIONS: MODERATE DEBRIS: LIGHT
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEVATION RAPIDLY? YES
 IS ORDINARY RISE RAPID? YES
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? NO
 IF YES, DESCRIBE.

PROPOSED STRUCTURE

STRUCTURE TYPE: PRECAST CONCRETE STRUCTURE (6'-0" X 6'-0" X 184'-0" BOX)
 CLEAR SPAN (NORMAL TO STREAM): 6'
 VERTICAL CLEARANCE ABOVE STREAMBED: 6'
 WATERWAY OF FULL OPENING: 36 sq.ft.
 WATER SURFACE ELEV. @ 02.33 = 292.0' VELOCITY = 8.7 f/s
 010 = 293.5' " 10.6 f/s
 025 = 294.1' " 11.1 f/s
 050 = 294.7' " 11.5 f/s
 0100 = 295.5' " 12.1 f/s
 IS THE ROADWAY OVERTOPPED BELOW THE Q100? NO FREQUENCY: N/A
 RELIEF ELEVATION: 302.5' DISCHARGE OVER ROAD @ Q100: NONE
 AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 295.4 feet
 VERTICAL CLEARANCE @ 0.50 = 0.7 feet
 SCOUR: REQUIRED CHANNEL PROTECTION: TYPE II STONE FILL

EXISTING STRUCTURE

STRUCTURE TYPE: CGMPP YEAR BUILT: _____
 CLEAR SPAN (NORMAL TO STREAM): 7'-3"
 VERTICAL CLEARANCE ABOVE STREAMBED: 5'-3"
 WATERWAY OF FULL OPENING: 31 sq.ft.
 DISPOSITION OF STRUCTURE: REMOVAL
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: UNKNOWN
 WATER SURFACE ELEV. @ 02.33 = 292.4' VELOCITY = 3.9 f/s
 010 = 294.1' " 5.4 f/s
 025 = 295.0' " 6.0 f/s
 050 = 295.9' " 6.7 f/s
 0100 = 298.5' " 7.7 f/s

PERMIT INFORMATION

AVERAGE DAILY FLOW: 1 cfs
 ORDINARY LOW WATER: > 1 cfs DEPTH: 0.5 feet
 ORDINARY HIGH WATER: 28 cfs DEPTH: 1.0 feet

ADDITIONAL INFORMATION

- SEE TITLE SHEET FOR TRAFFIC DATA AND ESAL INFORMATION.
- FINAL HYDRAULICS REPORT PREPARED BY VTRANS.

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT

18 kip ESAL for flexible pavement from _____ to _____
 18 kip ESAL for flexible pavement from _____ to _____
 Design speed: _____

BOX CULVERT

DESIGN CRITERIA:
 1. DESIGN LIVE LOAD AASHTO HL-93 PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
 2. DESIGN SPAN 6'
 3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL FACTORED SOIL BEARING RESISTANCE - 4400 psf (STRENGTH II) ON LEDGE
 4. ALLOWABLE LOAD FOR PILING N/A TYPE N/A ESTIMATED LENGTH N/A
 5. STRUCTURAL STEEL AASHTO GRADE N/A
 6. REINFORCING STEEL GRADE 60
 7. CONCRETE HIGH PERFORMANCE CLASS A: $f'_c = 4000$ PSI (NOT USED)
 CONCRETE HIGH PERFORMANCE CLASS B: $f'_c = 3500$ PSI (NOT USED)
 PRECAST CONCRETE: $f'_c = 5000$ PSI
 8. SOIL UNIT WEIGHT: 140 PCF
 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
 ARE SIDEWALKS REQUIRED? NO IF SO, ON WHAT SIDE? N/A

* LOAD RESISTANCE FACTOR RATING (TONS)

LOADING LEVELS	TRUCK				
	H	HS	3S2	6 AXLE	3A. STR. 4A. STR. 5A. SEMI
INVENTORY					
POSTED					
OPERATING					

STATE OF VERMONT
 AGENCY OF TRANSPORTATION

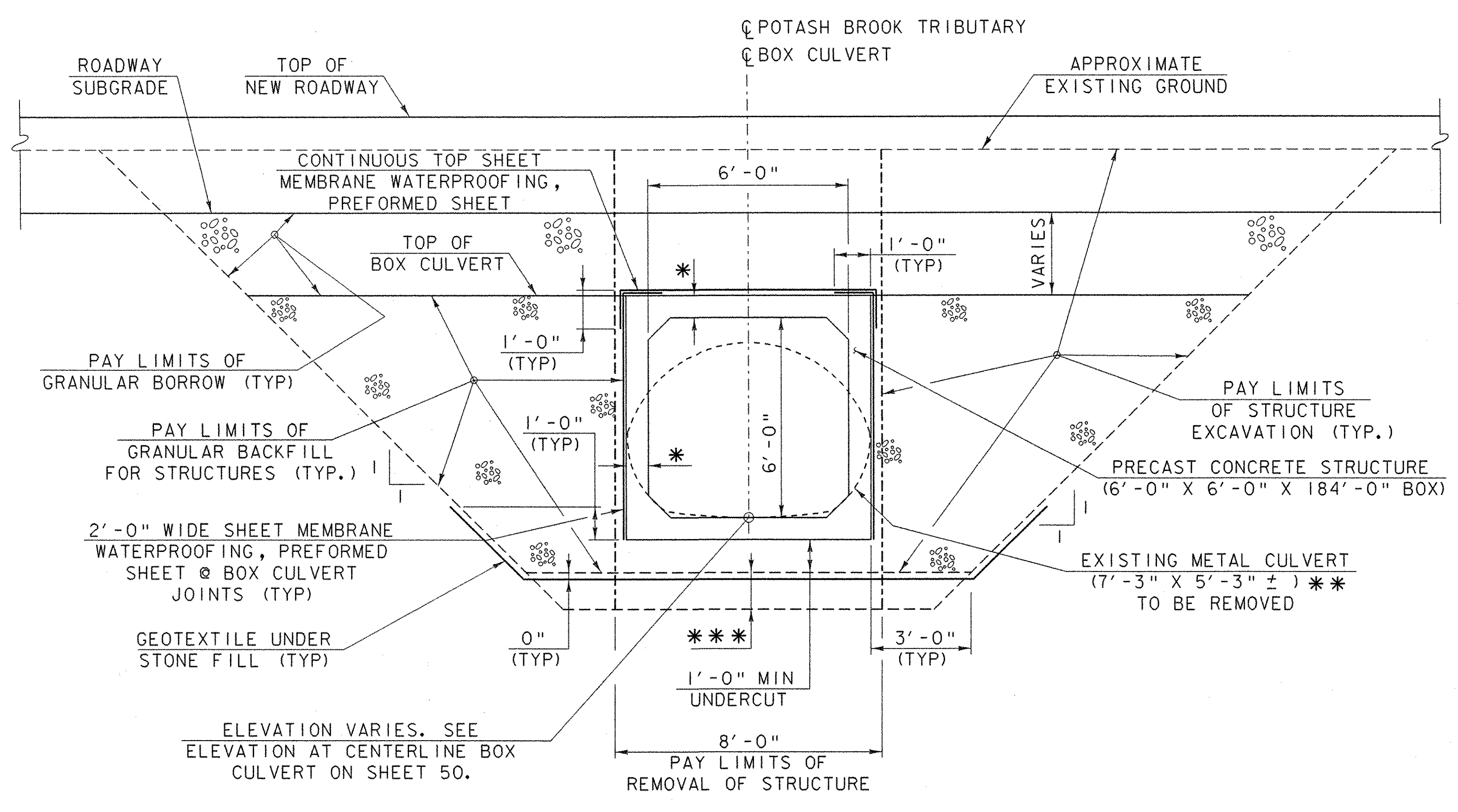
Town Of S. BURLINGTON Bridge No. 67-1
 Highway No. I-89 Log Sta. _____
 Surv. Sta. _____

I-89 OVER POTASH BROOK TRIBUTARY
 PRELIMINARY INFORMATION SHEET

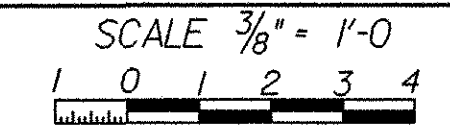
Designed By VTRANS/LKW Drawn By SFD
 Checked By Date Bridge Design Supervisor
 RLW 09/07 TTK Date 09/07

PROJECT SOUTH BURLINGTON PROJECT NO. AC 1M CULV (9)
 I.G.C. Info. m:\656310 I-89 Culvert\BRIDGE\20add\4final-prelim\205k286P\dgn
 Bridge Sheet No. Sheet 5 of 63

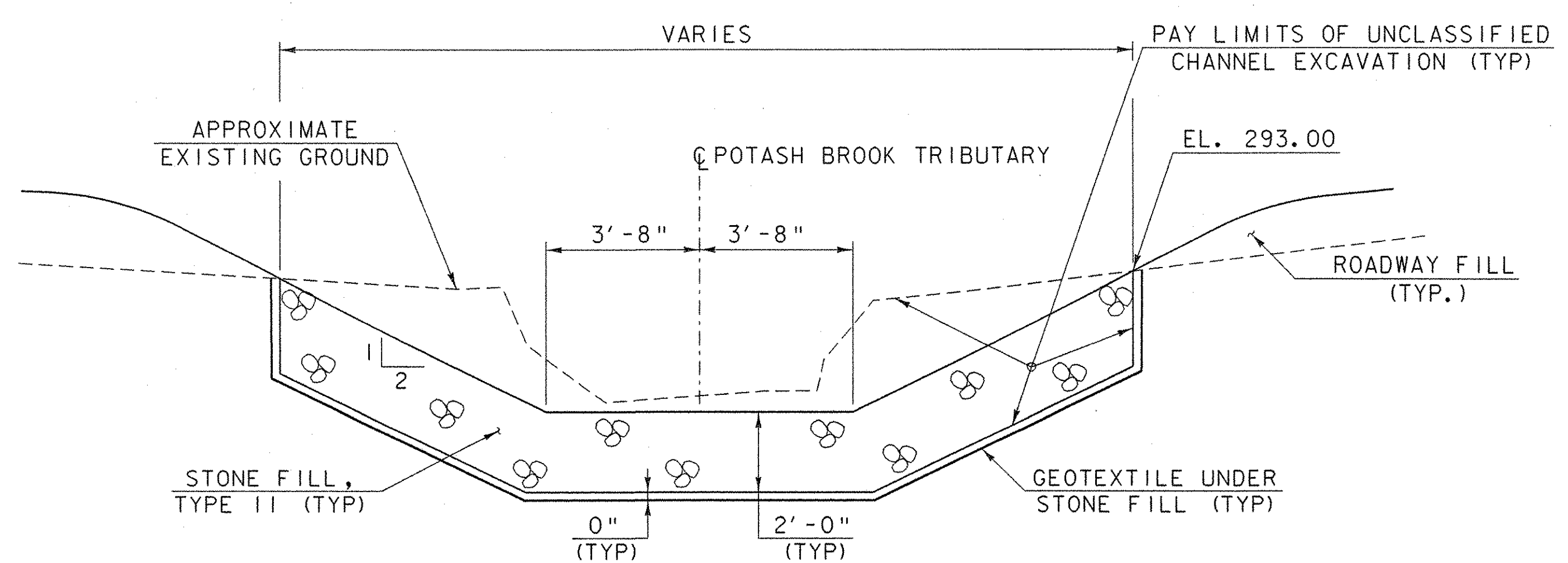
* TABLE TO BE COMPLETED BY CONTRACTOR'S DESIGNER. SEE STANDARD SPECIFICATIONS.



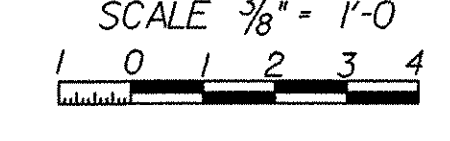
TYPICAL BOX CULVERT SECTION



- * PRECAST ELEMENTS TO BE DESIGNED BY THE CONTRACTOR'S PRECASTER.
- ** COST INCLUDED IN REMOVAL OF STRUCTURE.
- *** REMOVAL OF ADDITIONAL UNSUITABLE MATERIAL MAY BE REQUIRED AS ORDERED BY THE RESIDENT ENGINEER. SEE GENERAL NOTES.



TYPICAL CHANNEL SECTION



PLOTTED \$\$\$DATE\$\$\$

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES					TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES					
				ROADWAY	EROSION CONTROL	BOX CULVERT	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
				2400				2400		CY	COMMON EXCAVATION	203.15				
						100		100		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				
						1600		1600		CY	GRANULAR BORROW	203.32				
				4				4		CY	TRENCH EXCAVATION OF ROCK	204.21				
						3000		3000		CY	STRUCTURE EXCAVATION	204.25				
						2500		2500		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
				8300				8300		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
				4500				4500		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
				19.5				19.5		CWT	EMULSIFIED ASPHALT	404.65				
				1650				1650		TON	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT (64 - 28)	490.30				
						300		300		SY	SHEET MEMBRANE WATERPROFING, PREFORMED SHEET	519.21				
						1		1		LS	MAINTENANCE OF STRUCTURES AND APPROACHES	527.10				
						1		1		EACH	REMOVAL OF STRUCTURE (7'3" X 5'3" X 192' CMP)	529.15				
						1		1		LS	PRECAST CONCRETE STRUCTURE (6'-0" X 6'-0" X 184'-0" BOX)	540.10				
				11				11		LF	18" PCCSP .064 (2-2/3 X 1/2)	601.0415				
				1				1		EACH	PRECAST REINFORCED CONCRETE DROP INLET WITH CAST IRON GRATE	604.18				
				100				100		LF	6 INCH UNDERDRAIN PIPE	605.10				
				90				90		MGAL	DUST CONTROL WITH WATER	609.10				
				5				5		TON	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15				
						100		100		CY	STONE FILL, TYPE II	613.11				
				2				2		EACH	YIELDING MARKER POSTS	619.17				
				280				280		LF	CHAIN-LINK FENCE, 6 FEET	620.12				
				8				8		EACH	BRACING ASSEMBLY FOR CHAIN-LINK FENCE, 6 FEET	620.21				
				220				220		LF	REMOVAL OF EXISTING FENCE	620.55				
				12				12		EACH	ENERGY ABSORPTION ATTENUATOR	621.56				
				2150				2150		LF	TEMPORARY TRAFFIC BARRIER	621.90				
				3500				3500		LF	REMOVE AND RESET TEMPORARY TRAFFIC BARRIER	621.95				
				750				750		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
				80				80		HR	FLAGGERS	630.15				
							1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
				1				1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
				1				1		LS	TRAFFIC CONTROL	641.10				
				1				1		LS	PUBLIC RELATIONS OFFICER	641.12				
				5				5		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
				3500				3500		LF	6 INCH WHITE LINE	646.214				
				2800				2800		LF	6 INCH YELLOW LINE	646.215				
				16300				16300		LF	TEMPORARY 6 INCH WHITE LINE	646.620				
				8150				8150		LF	TEMPORARY 6 INCH YELLOW LINE	646.630				
				410				410		EACH	RAISED PAVEMENT MARKERS, TYPE II	646.75				
				600				600		EACH	LINE STRIPING TARGETS	646.76				

PROJECT NAME: **SOUTH BURLINGTON**
 PROJECT NUMBER: **AC IM CULV (9)**
 FILE NAME: **SOBU.dgn** PLOT DATE: **09/24/2007**
 PROJECT MANAGER: **Landry** DRAWN BY: **Weeber**
 DESIGNED BY: **Landry** CHECKED: **Landry**
 QUANTITY SHEET #1 SHEET **6** OF **63**

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES					TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES					
				ROADWAY	EROSION CONTROL	BOX CULVERT	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
				6500				6500		SF	REMOVAL OF EXISTING PAVEMENT MARKINGS	646.85				
						300		300		SY	GEOTEXTILE UNDER STONE FILL	649.31				
					235			235		SY	GEOTEXTILE FOR SILT FENCE	649.51				
					105			105		LB	SEED	651.15				
					105			105		LB	SEED, WINTER RYE	651.17				
					805			805		LB	FERTILIZER	651.18				
					4			4		TON	AGRICULTURAL LIMESTONE	651.20				
					4			4		TON	HAYMULCH	651.25				
				450				450		CY	TOPSOIL	651.35				
					1			1		LS	EPSC PLAN	652.10				
					55			55		HR	MONITORING EPSC PLAN	652.20				
					1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
					7800			7800		SY	TEMPORARY EROSION MATTING	653.20				
					1			1		EACH	INLET PROTECTION DEVICE, TYPE I	653.40				
					265			265		LF	BARRIER FENCE	653.50				
					550			550		LF	PROJECT DEMARCATION FENCE	653.55				
				20				20		SF	TRAFFIC SIGNS, TYPE A	675.20				
						180		180		CY	SPECIAL PROVISION (GABION RETAINING WALL)	900.608				
						1		1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)	900.645				
						1		1		LS	SPECIAL PROVISION (TEMPORARY STEEL SHEET PILING)	900.645				

GPS CONTROL POINTS

HVCTRL #1

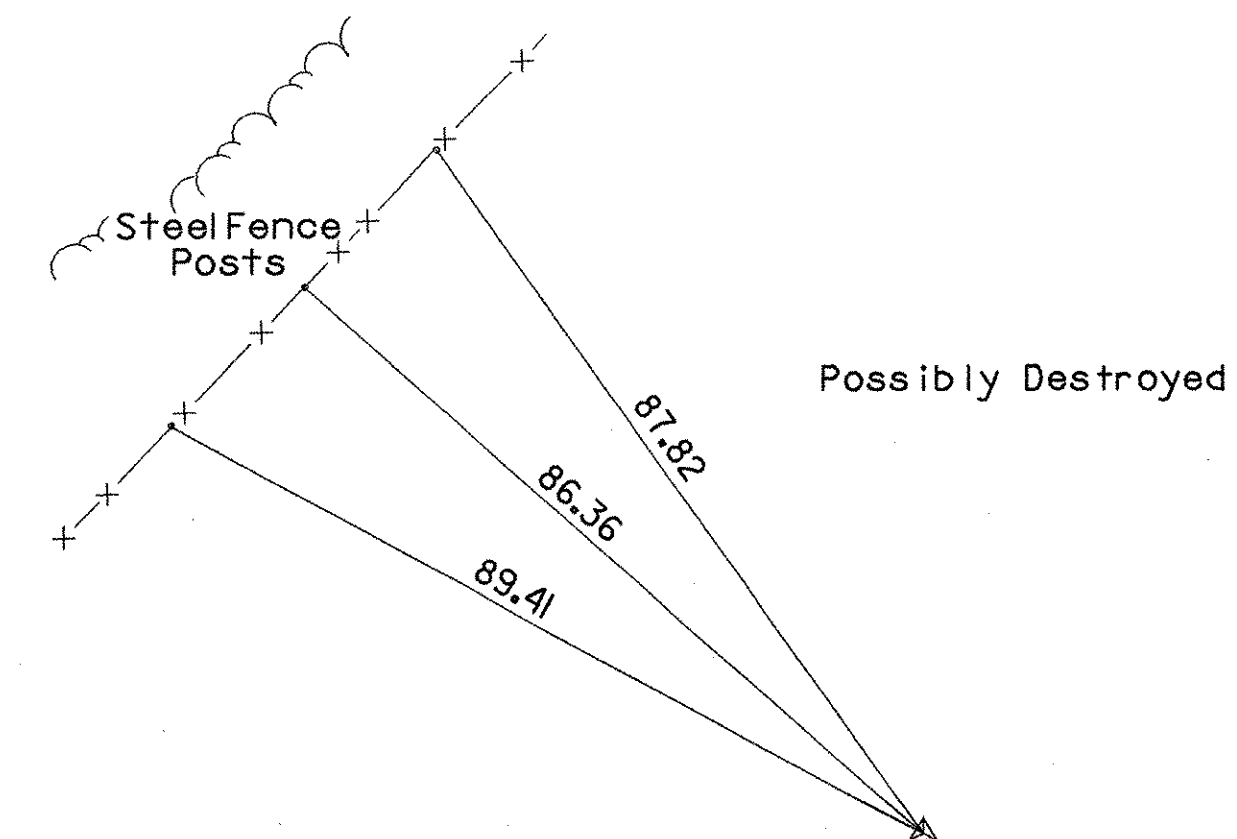
CW3 RESET 1991
 NORTH = 719709.85
 EAST = 1461835.18
 ELEV. = 312.40

GENERAL LOCATION, BURLINGTON, VT., ON THE BURLINGTON/SOUTH BURLINGTON CITY LINE. TO REACH FROM THE WEST END OF THE U.S.ROUTE 2 (WILLISTON ROAD) BRIDGE OVER I-89 AT EXIT 14 IN SOUTH BURLINGTON GO WEST ALONG U.S.ROUTE 2 FOR 0.2 MI(0.3 KM) TO THE INTERSECTION OF THE MAIN ENTRANCE DRIVE TO THE SHERITON INN RIGHT. TURN RIGHT AND GO NORTH ALONG ENTRANCE DRIVE FOR 0.1MI(0.2 KM) TO A FORK. BEAR LEFT AND GO NORTH ALONG PAVED ROAD FOR 0.05 MI(0.08 KM) TO THE T-INTERSECTION OF CATAMOUNT DRIVE, JUST PAST A GRAVEL DRIVE LEFT TO A 10 BAY WOODEN BARN/GARAGE. TURN LEFT AND GO WEST ALONG CATAMOUNT DRIVE FOR ABOUT 30 M (98.4 FT) TO A GATE. PARK VEHICLE AND WALK NORTH ALONG THE TOP OF A V-SHAPED WOODED PLATEAU FOR ABOUT 95 M (311.7 FT) TO THE SITE OF MARK. THE MARK IS SET 5 CM ABOVE GROUND SURFACE IN THE TOP OF A 20 CM SQUARE CONCRETE MONUMENT 1.4 M (4.6 FT) DEEP. IT IS 94.0 M (308.4 FT) NORTH OF AND ABOUT 3 M (9.8 FT) LOWER THAN THE CENTERLINE OF CATAMOUNT DRIVE, 88.8 M (291.3 FT) NORTH OF LIGHT POLE NO.GP2, 90.3 M (296.3 FT) NORTH-NORTHWEST OF THE MOST WESTERLY (OF 2) 1M (3.3 FT) SQUARE ELECTRICAL BOXES WHICH ARE FLUSH WITH GROUND SURFACE, AND 0.5 M (1.6 FT) NORTHWEST OF A STEEL WITNESS POST.

* Main Traverse Completed 06/16/06 by L.Orvis P.C. and R.Bullock

HVCTRL #2

TRAV PT#6 FILE 03A178 = REBAR
 NORTH = 719846.57
 EAST = 1462091.61
 ELEV. = 299.58



TRAVERSE TIES

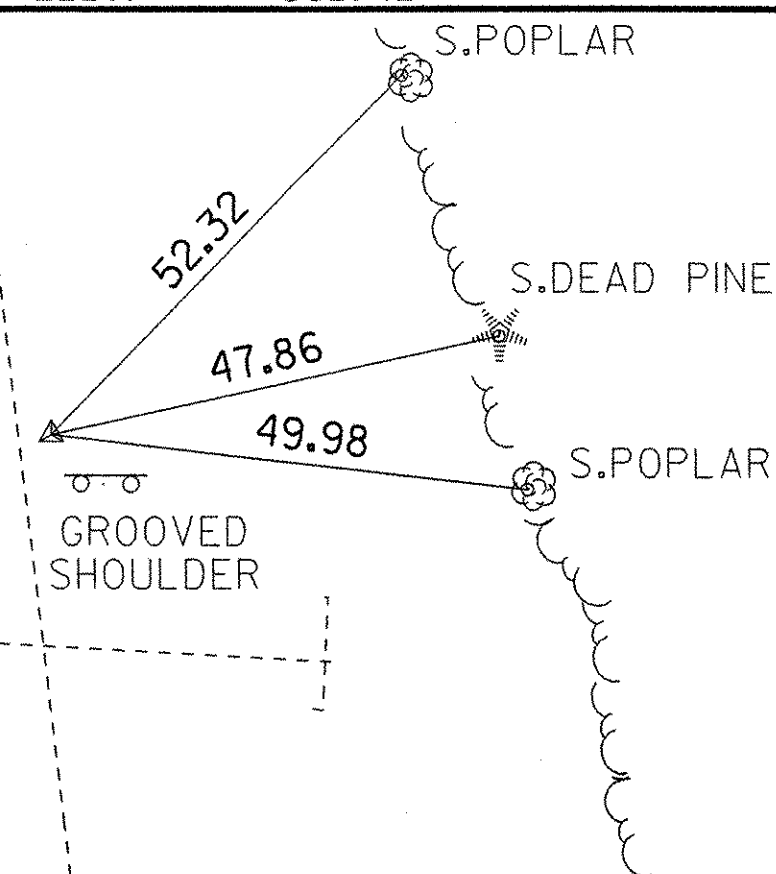
HVCTRL #3 - #10

NORTH =
 EAST =
 ELEV. =

NOT TIED

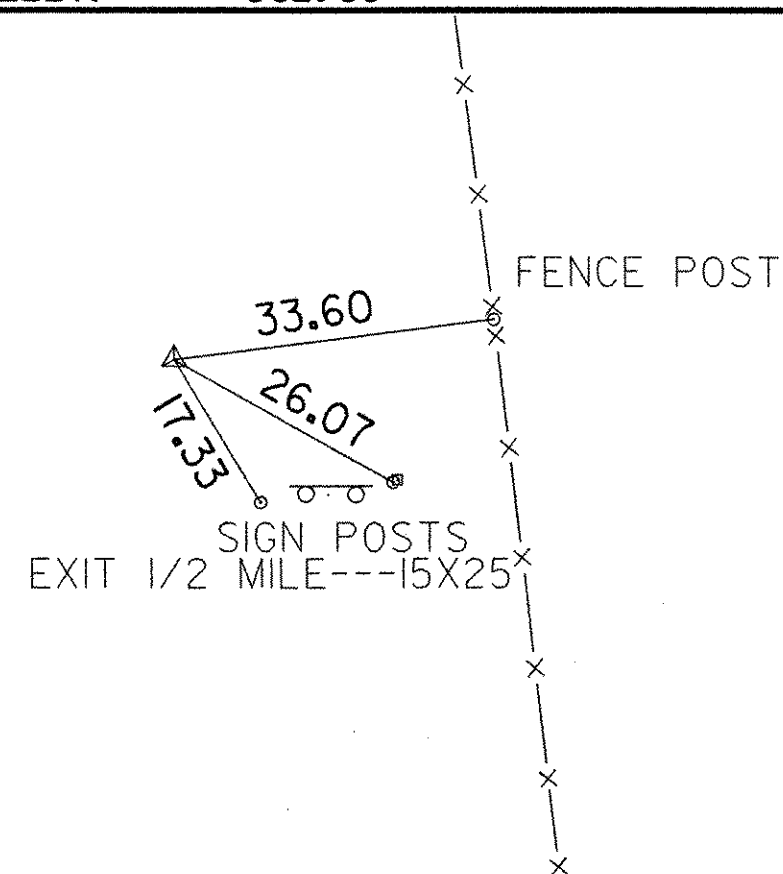
HVCTRL #11

NORTH = 714405.33
 EAST = 1461720.86
 ELEV. = 302.42



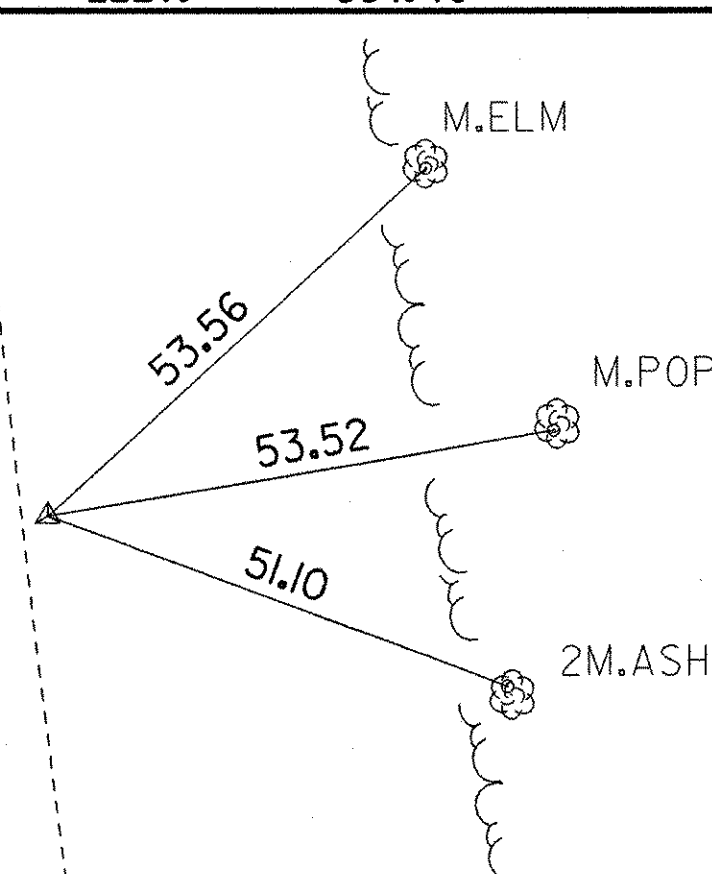
HVCTRL #12

NORTH = 715154.79
 EAST = 1461656.63
 ELEV. = 302.00



HVCTRL #13

NORTH = 716170.17
 EAST = 1461512.95
 ELEV. = 304.18



NORTH =
 EAST =
 ELEV. =

ALIGNMENT TIES

NORTH =
 EAST =

NORTH =
 EAST =

NORTH =
 EAST =

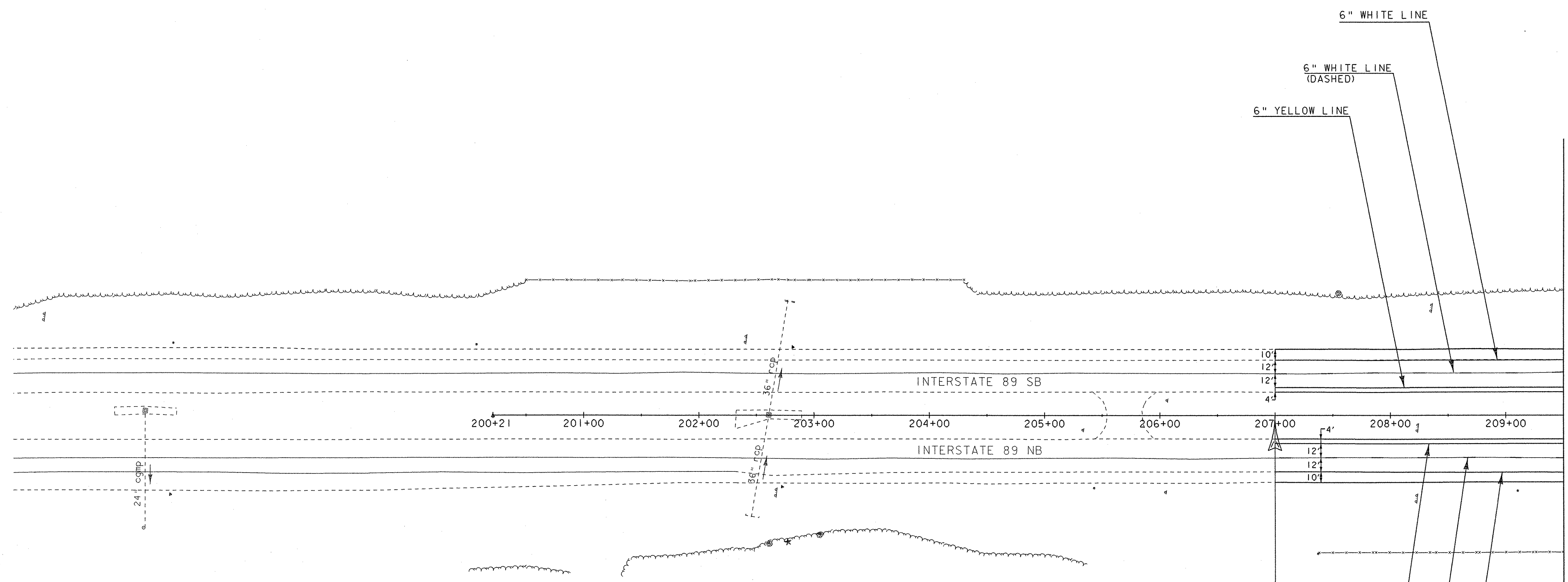
NORTH =
 EAST =

NORTH =
 EAST =

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



PROJECT NAME:	SOUTH BURLINGTON	PLOT DATE:	21-SEP-2007
PROJECT NUMBER:	AC 1M CULV (9)	DRAWN BY:	MAL
FILE NAME:	05k286\survey\05k286t1.dgn	CHECKED BY:	DMB
PROJECT LEADER:	LANDRY	DESIGNED BY:	MRP
		SHEET	10 OF 63

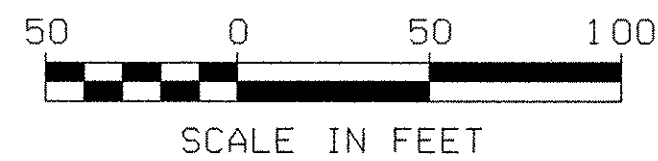


INTERSTATE 89
 CURVE #1
 PI STA = 227+18.52
 N = 716827.78
 E = 1461373.82
 $\Delta = 13^{\circ}18'53.5''$ RT
 R = 5729.58
 T = 668.75'
 L = 1331.48'
 E = 38.90'

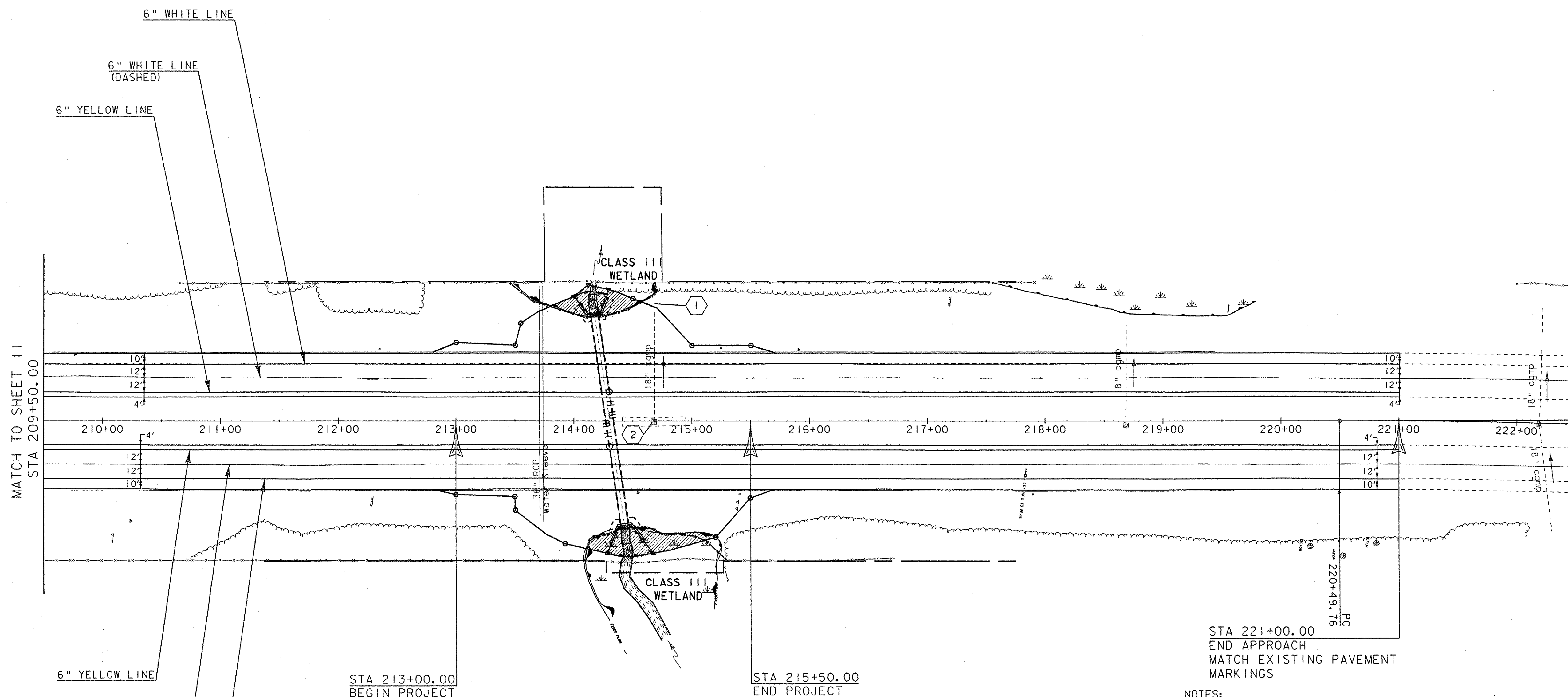
STA 207+00.00
 BEGIN APPROACH
 MATCH EXISTING PAVEMENT
 MARKINGS

NOTES:
 1. SEE MISCELLANEOUS DETAIL SHEET 4
 FOR PAVEMENT TRANSITION DETAILS.

DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)



 McFARLAND- JOHNSON, INC	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
FILE NAME: pg01.dgn	DESIGNED BY: MRP	CHECKED BY: DMB
PROJECT LEADER: LANDRY	LAYOUT AND STRIPING SHEET	SHEET 11 OF 63



STA 221+00.00
END APPROACH
MATCH EXISTING PAVEMENT
MARKINGS

NOTES:

INTERSTATE 89
CURVE #1
PI STA = 227+18.52
N = 716827.78
E = 1461373.82
 $\Delta = 13^{\circ}18'53.5''$ RT
R = 5729.58
T = 668.75'
L = 1331.48'
E = 38.90'


1. SEE MISCELLANEOUS DETAIL SHEET 4 FOR PAVEMENT TRANSITION DETAILS.
2. EXISTING UTILITY SLEEVE AT STATION 213+72 +/- TO REMAIN. ANY IMPACTS TO THE SLEEVE SHALL BE REPAIRED BY THE CONTRACTOR WITHOUT COMPENSATION.
3. CONSTRUCTION VEHICLES SHALL NOT EXIT OR ENTER MEDIAN AREA WITHOUT ACCOMMODATIONS FOR AN ACCELERATION LANE.

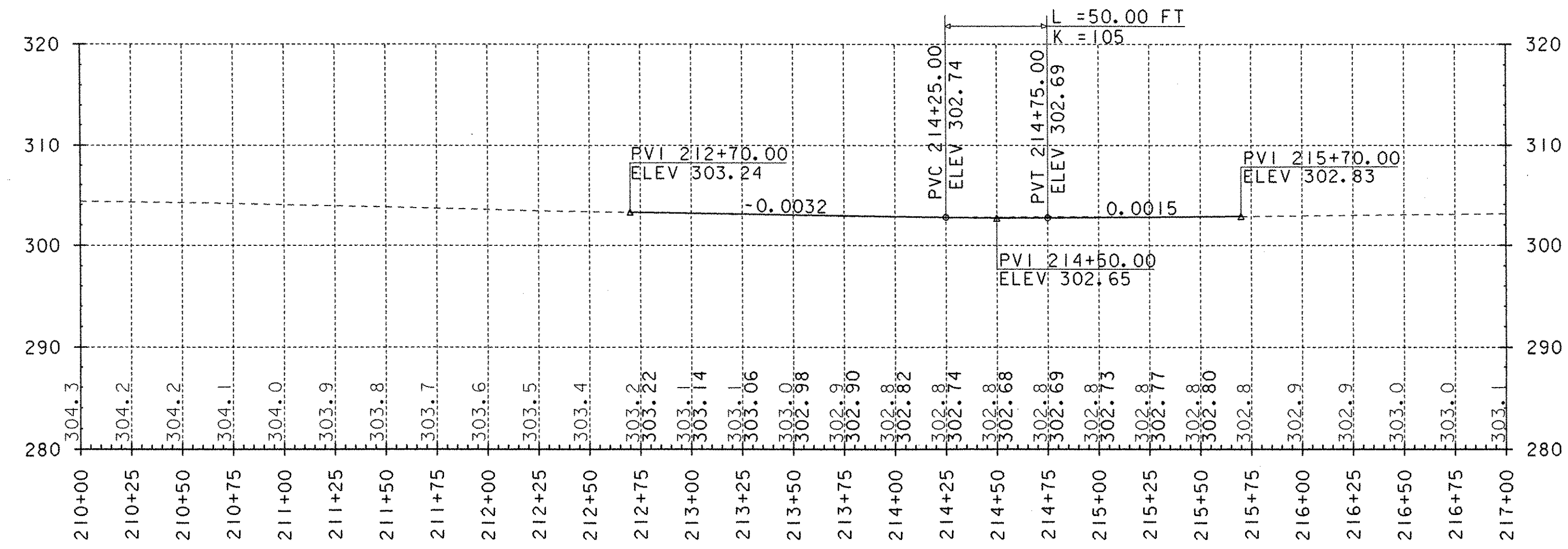
DRAINAGE NOTES

- ① STA 214+68.5, LT 105.6 TO STA 214+68.4 LT 96.4
CONSTRUCT 11 FT X 18 IN PCCSP
CONNECT TO EXISTING PIPE @ STA 214+68.4, LT 96.4 (INCIDENTAL)
INV. @ OUTLET = 292.54
- ② STA 214+68.2, RT 0.7
CONSTRUCT PRC D. I. WITH TYPE B GRATE
RIM ELEV. = 302.83
CONNECT TO EXISTING PIPE (INCIDENTAL)

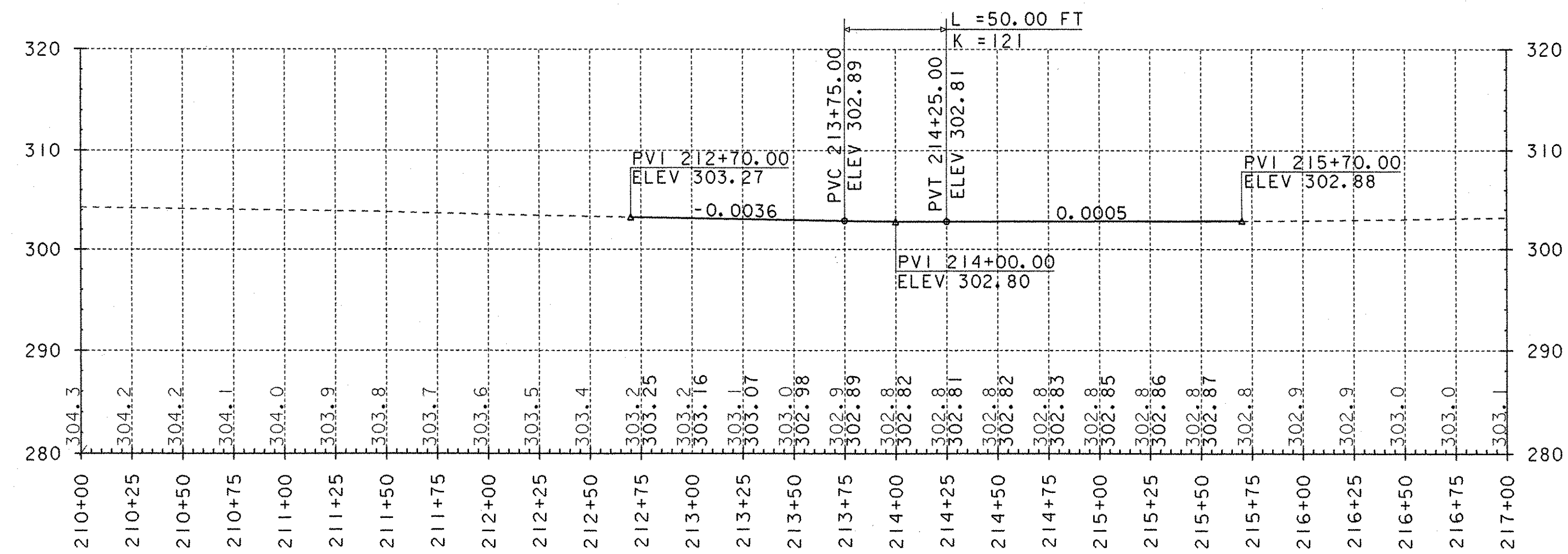
DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD83 (96)



 MC FARLAND- JOHNSON, INC	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
FILE NAME: pa02.dgn	DESIGNED BY: MRP	CHECKED BY: DMB
PROJECT LEADER: LANDRY	LAYOUT AND STRIPING SHEET	SHEET 12 OF 63



I-89 NORTHBOUND



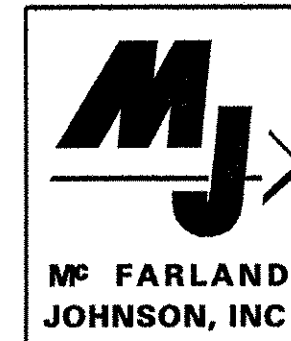
I-89 SOUTHBOUND

NOTE :

ELEVATIONS BASED UPON FIELD SURVEY BY VTRANS ON 9/2006
 DATUM = NAVD 88.

DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)

SCALE:
 1" = 50' HORIZ.
 1" = 10' VERT.



PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
FILE NAME: prof01.dgn	CHECKED BY: DMB
PROJECT LEADER: LANDRY	SHEET 13 OF 63
DESIGNED BY: MRP	
I-89 NORTHBOUND / SOUTHBOUND PROFILE	

EROSION CONTROL NARRATIVE

1.1. PROJECT DESCRIPTION

This project involves reconstruction of an existing culvert on Interstate 89 in the City of South Burlington. The existing pipe will be removed to facilitate the construction of the proposed culvert. Work includes construction of a 6' X 6' concrete box culvert with headwalls. The length of roadway construction is approximately 250 feet. Traffic will be detoured with the use of crossovers in three phases during construction of the culvert. Total disturbed area (excluding waste, borrow, and contractor's off-site staging areas) equals 3.13 acres.

Disturbed area breakdown:

Median Crossovers - 2.70 acres
Roadway Reconstruction - 0.43 acres

It is anticipated that this will be a single season project.

1.2. SITE INVENTORY

1.2.1. OFF-SITE DRAINAGE CHARACTERISTICS:

The property surrounding the project site consists of well established vegetation, flat to moderately sloping. The east side of Interstate 89 consists of mixed softwood and hardwood forest with well defined drainage ways. Due to the nature of the surrounding terrain, runoff water entering the project site will be primarily limited to that which is conveyed within this unnamed stream of Potash Brook tributary.

1.2.2. DRAINAGE, WATERWAYS, BODIES OF WATER:

The stream is located in the project area. The stream flows east to west and is approximately 250 ft. from the UVM farm at its bend. There are no other waterways or bodies of water within the project area. Runoff water entering the project area will be primarily limited to that which is conveyed via roadway ditches along Interstate 89.

1.2.3. TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES:

The topography of the project site consists of flat grasslands to the west of the interstate and a wooded area to the east. The project area does not encroach upon any buildings.

1.2.4. VEGETATION:

The vegetation in the project area consists of grasslands to the west of I-89 and a wooded fringe separating the project from commercial property to the east. The impact to the vegetation will be limited to that which is directly impacted by the replacement of the existing culvert. Upon completion the channel will be armored with stone fill as specified in the plans. Disturbed vegetation will be reestablished using standard seed and mulch practices.

1.2.5. SOILS:

The soil found west of Interstate 89 is primarily Covington silty clay (Cv), 0 to 2% slopes. The Covington series consists of deep, poorly drained soil and has an Erodibility Factor (K-Value) of 0.49. Typically Covington soil has a dark brown silty clay plow layer about 8" thick. The surface layer is hard and cloddy when dry and sticky when wet. The subsoil is dark grayish-brown or gray clay that is mottled with yellowish brown and approximately 20" thick. This layer is very sticky and plastic when wet and hard when dry. Under the subsoil is dark grayish-brown clay that is mottled with strong brown and is high in lime content. The soil to the east of Interstate 89 consists of Scarboro loam (Sd), 0 to 2% slopes. The Scarboro series consists of soils that are deep, very poorly drained (K-value = 0.17), and sandy throughout their profile. Typically Scarboro soils have a black loam surface about 10" thick. The soil layers underlying the surface layer are friable to very friable, dark-gray loamy fine sand and fine sand to a depth below 42".

Generally, K-Values indicate the following:

0.23 and lower - low erodibility
0.24 to 0.36 - moderate erodibility
0.37 and higher - high erodibility

1.2.6. SENSITIVE RESOURCE AREAS:

No Threatened & Endangered Species have been identified within the project limits and there will be no adverse effect to agricultural or archaeological features. Both upstream and downstream of the proposed culvert replacement there are Class III wetlands. Disturbance of soils near waterway consists of that which is necessary to construct the headwalls on both the west and east side of the culvert.

Archeological resources have been identified outside the right-of-way on the UVM farm west of Interstate I-89. The west right of way line extends outside the highway fence line as shown on the plans. The area within the Right-of-way has been cleared for archeological resources, but a temporary orange fence shall be constructed along the right-of-way line to prevent resource impacts outside the area that has been cleared.

1.3. RISK EVALUATION:

This project is under the jurisdiction of Construction General Permit 3-9020 based upon the impact area. This project has been determined to be 'Low Risk' as long as disturbed areas are stabilized within 7 days. As a low risk project, the low risk site handbook must be on site with the project in compliance at all times. Should project changes occur prior to or during construction, then the contractor will be responsible for additional permitting with VANR via filing the appropriate Notice of Intent under the Construction General Permit Process.

1.4. EROSION PREVENTION & SEDIMENT CONTROL

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

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

All measures shall be regularly maintained and shall be checked for sediment build up. Sediment shall be disposed at an approved site where it will not be subject to erosion.

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

1.4.1. Mark Site Boundaries

Project Demarcation fence, denoted -PDF- in the plans, is used to delineate the limits the contractor can access with construction equipment. This measure limits area that can be disturbed and exposed to erosion.

1.4.2. Limit Disturbance Area

Employ temporary stabilization practices in incremental stages (phasing) as construction proceeds. Additional measures may be needed due to the phasing of the project and as directed by the engineer. Areas are to be mulched within seven days of disturbance.

1.4.3. Stabilize Construction Exit

Stabilized construction entrances to be utilized as necessary.

1.4.4. Install Silt Fence

Silt fence shall be installed prior to any up slope work as shown on the plans or as necessary.

1.4.5. Divert Upland Flow

The existing stream will be diverted as described in the dewatering section below. No other upland flow diversion will be required.

1.4.6. Slow Down Channelized Runoff

Check dams to be utilized as necessary.

1.4.7. Construct Permanent Controls

Type II stone for slope lining and channel protection
Seed and Mulch
Drainage Inlet and Pipe

1.4.8. Stabilize Exposed Soils

Seed and Mulch

Tracking of all exposed slopes, combined with temporary mulching, will be utilized on a regular basis. Slopes shall be stabilized within 48 hours of forecasted rain. Seeding, mulching and biodegradable erosion matting or an equivalent shall be used to stabilize all slopes steeper than 1:3. These slopes shall be stabilized within 48 hours of reaching final grade.

1.4.9. Winter Stabilization

Areas that can not be grassed due to weather conditions are to be stabilized using erosion matting and seeded as directed by the engineer.

1.4.10. Stabilize Soil at Final Grade

Seed and Mulch


Seeding, Mulching and Biodegradable erosion control matting or equivalent shall be used to stabilize all slopes steeper than 1:3. These slopes shall be stabilized within 48 hours of reaching final grade.

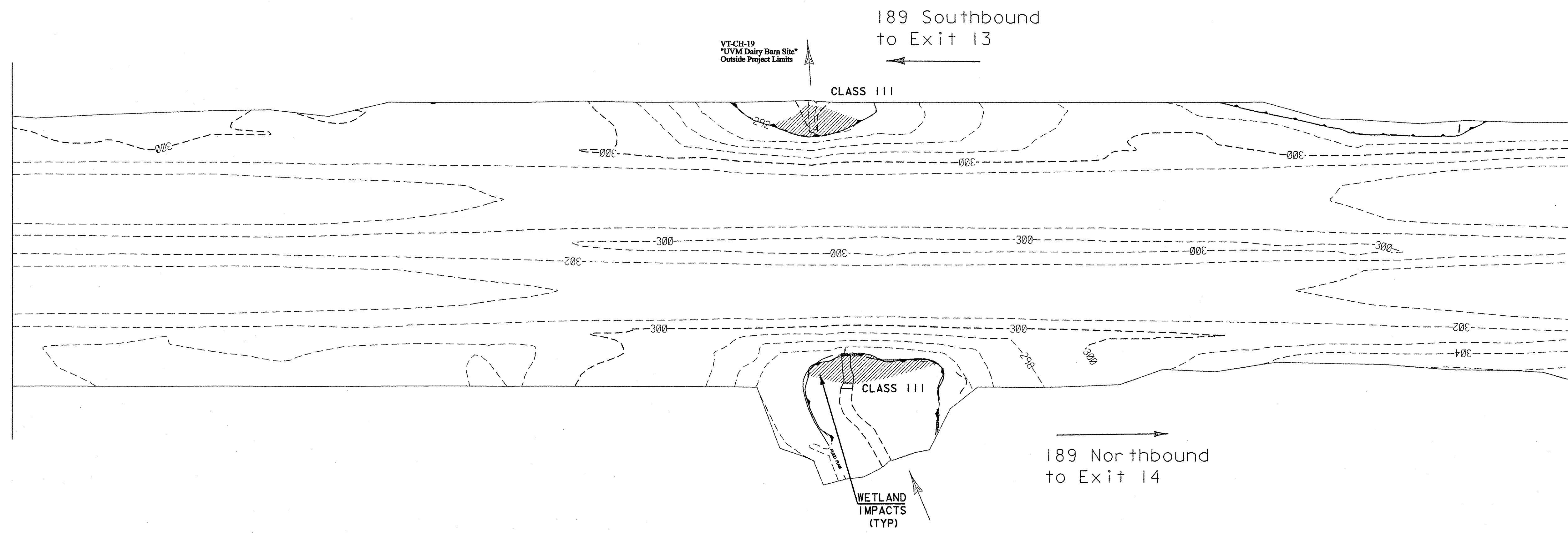
1.4.11. De-watering Activities

The project will be constructed in three phases working east to west with the stream temporarily rerouted in the manner shown on the culvert phasing detail plans. Sediment basins for culvert work shall be used as necessary when transitioning between phases and where trenches need to be dewatered.

1.4.12. Site Inspection

Inspect site based on permit authorization or special provision requirements.

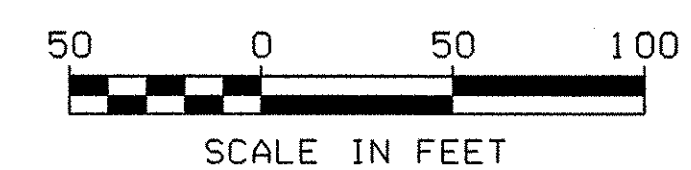
 MR FARLAND- JOHNSON, INC	PROJECT NAME: SOUTH BURLINGTON	
	PROJECT NUMBER: AC IM CULV (9)	
	FILE NAME: ec06.dgn	PLOT DATE: 21-SEP-2007
	PROJECT LEADER: LANDRY	DRAWN BY: MAL
DESIGNED BY: MRP	CHECKED BY: DMB	
EROSION & SEDIMENT CONTROL NARRATIVE	SHEET 14 OF 63	



South Burlington
AC IM CULV (9)

ENVIRONMENTAL RESOURCE	LEVEL	LINETYPE NAME	CHECKED BY	DATE
Wetlands	EWB_P	wetland-lt, wetland-rt	Glenn Gingras	10/04/2006
Historic/Historic District	MHBC	historic dist.	Catherine Quinn	10/11/06
Archaeological Site	LAAS	arch. area	Jen Russell	10/31/06
4f Property	MPL	4f property	Catherine Quinn	10/11/06
6f Property	MPL	6f property	Craig Digiammarino	10/11/06
Agricultural Land	LAPB	agricult. land	Glenn Gingras	10/04/2006
Fish & Wildlife Habitat	ENA	critical hab.	Glenn Gingras	10/04/2006
Flood Plains	EWB_P	fld. plains	Glenn Gingras	10/04/2006
Endangered Species	ERA	thr. & end. spec.	Glenn Gingras	10/04/2006
Hazardous Waste	EDEFAULT	hez. waste	Craig Digiammarino	10/11/06
Stormwater	DDEFAULT	Diamond		
USDA-Forest Service Lands	MJPB	Phantom	Craig Digiammarino	10/11/06

DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD83



<p>MJ FARLAND-JOHNSON, INC.</p>	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
	FILE NAME: rs01.dgn	CHECKED BY:
	PROJECT LEADER: LANDRY	SHEET 15 OF 63
DESIGNED BY: VTRANS	RESOURCE PLAN	

THE FOLLOWING IS AN ASSUMED TIME TABLE FOR THE "EROSION PREVENTION AND SEDIMENT CONTROL PLANS" AS PRESENTED IN THE FOLLOWING SHEETS.

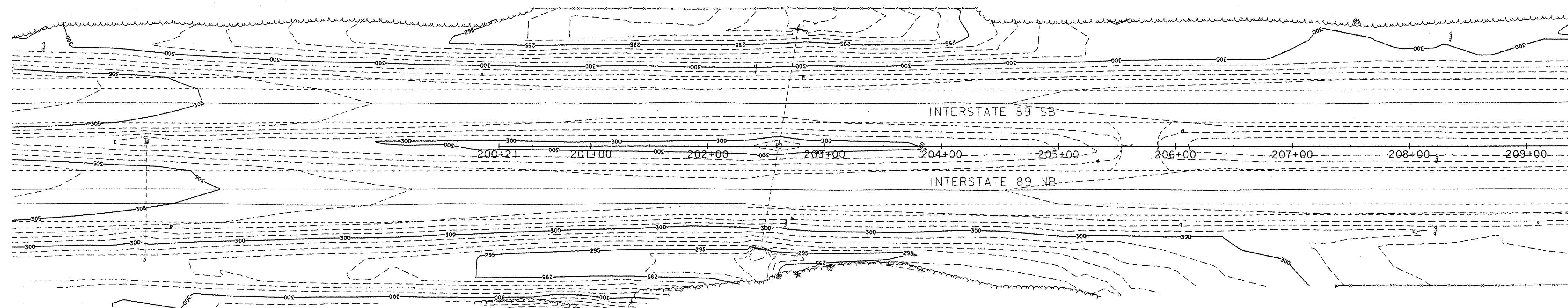
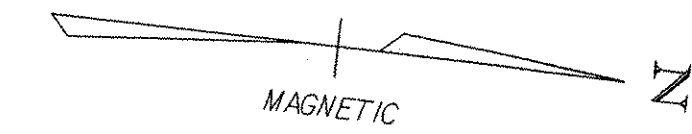
THIS IS A SINGLE SEASON PROJECT AND THE FOLLOWING WILL BE COMPLETED :

PHASE I

1. INSTALL PROJECT DEMARCATION FENCE (PDF), SILT FENCE, DROP INLET PROTECTION, CRUSHED STONE BERMS AS NEEDED IN MEDIAN AREAS FOR FIRST CROSSOVER.
2. SHIFT NORTHBOUND AND SOUTHBOUND TRAFFIC ONTO OUTER TRAVEL LANES AND SHOULDERS TO CREATE ROOM FOR PHASE I CROSSOVER CONSTRUCTION. CONSTRUCT PHASE I CROSSOVER, SOUTHBOUND TRAFFIC TO NORTHBOUND LANES. THIS INCLUDES PAVING CROSSOVERS.
3. PLACE EROSION MATTING ON ALL SLOPES AS PER TIME GUIDE LINES IN ITEM 652.10 "EROSION PREVENTION & SEDIMENT CONTROL PLAN". ALL SLOPES AND DITCHES ARE TO BE STABILIZED.
4. INSTALL TRAFFIC CONTROL PACKAGE TO DIVERT SOUTHBOUND TRAFFIC TO NORTHBOUND LANES AND THEN DIVERT SOUTHBOUND TRAFFIC THROUGH NORTHBOUND LANES.
5. INSTALL SILT FENCE, DROP INLET PROTECTION, CRUSHED STONE BERMS AS NEEDED AROUND SOUTHBOUND LANES AND ANY NEW ACCESS ROADS TO NORTHBOUND OR SOUTHBOUND LANES. THIS INCLUDES STABILIZED CONSTRUCTION ENTRANCES.
6. CONSTRUCT SEDIMENT SETTLING BASIN AND SOUTHBOUND COFFERDAM, DEWATER, AND DIVERT STREAM FLOW TO TEMPORARY PIPE (SEE CULVERT PHASING PLAN - PHASE I).
7. REMOVE EXISTING CULVERT BELOW SOUTHBOUND LANES AND BUILD FIRST SECTION OF NEW BOX CULVERT.
8. PLACE FILL OVER BOX CULVERT AND RECONSTRUCT ROADWAY.

PHASE II

9. PLACE PAVEMENT MARKINGS AND OPEN SOUTHBOUND LANES TO SOUTHBOUND TRAFFIC WITH TRAFFIC SHIFTED TO OUTER TRAVEL LANE AND SHOULDER, CONTINUE DIVERGING NORTHBOUND TRAFFIC ONTO NORTHBOUND OUTER TRAVEL LANE AND SHOULDER.
10. REMOVE TEMPORARY CONCRETE BARRIER AND TEMPORARY PAVEMENT FROM CROSSOVER.
11. CONSTRUCT COFFERDAM BETWEEN NORTHBOUND AND SOUTHBOUND LANES, DEWATER, AND DIVERT STREAM FLOW TO TEMPORARY PIPE (SEE CULVERT PHASING PLAN - PHASE II).
12. REMOVE EXISTING CULVERT BETWEEN NORTHBOUND AND SOUTHBOUND LANES AND BUILD AND SECOND SECTION OF NEW BOX CULVERT.
13. PLACE FILL OVER NEW SECTION OF BOX CULVERT AND REMOVE TEMPORARY CONCRETE BARRIERS.
14. INSTALL SILT FENCE, DROP INLET PROTECTION, AND CRUSHED STONE BERMS AS NEEDED IN MEDIAN AREAS FOR PHASE II CROSSOVER.
15. CONTINUE NORTHBOUND AND SOUTHBOUND TRAFFIC ON OUTER TRAVEL LANES AND SHOULDERS TO CREATE ROOM FOR CROSSOVER CONSTRUCTION. CONSTRUCT PHASE III CROSSOVER, NORTHBOUND TRAFFIC TO SOUTHBOUND LANES. THIS INCLUDES PAVING CROSSOVERS.
16. PLACE EROSION MATTING ON ALL SLOPES AS PER TIME GUIDE LINES IN ITEM 652.10 "EROSION PREVENTION AND SEDIMENT CONTROL PLAN". ALL SLOPES AND DITCHES ARE TO BE STABILIZED.
17. INSTALL TRAFFIC CONTROL PACKAGE TO DIVERT NORTHBOUND TRAFFIC TO SOUTHBOUND LANES AND THEN DIVERT NORTHBOUND TRAFFIC THROUGH SOUTHBOUND LANES.

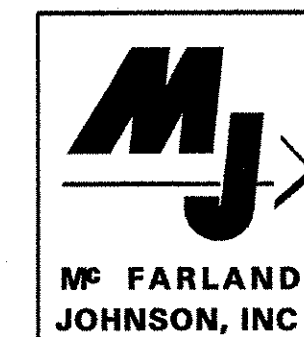


MATCH TO SHEET 17
STA 209+50.00

PHASE III

18. INSTALL SILT FENCE, DROP INLET PROTECTION, AND CRUSHED STONE BERMS AS NEEDED AROUND NORTHBOUND LANES AND ANY NEW ACCESS ROADS TO NORTHBOUND OR SOUTHBOUND LANES. THIS INCLUDES STABILIZED CONSTRUCTION ENTRANCES.
19. CONSTRUCT SEDIMENT SETTLING BASIN AND NORTHBOUND COFFERDAM, DEWATER, AND DIVERT STREAM FLOW TO TEMPORARY PIPE (SEE CULVERT PHASING PLAN - PHASE III)
20. REMOVE EXISTING CULVERT BELOW NORTHBOUND LANES AND BUILD FINAL SECTION OF NEW BOX CULVERT.
21. PLACE FILL OVER NEW BOX CULVERT AND RECONSTRUCT ROADWAY.
22. PLACE PAVEMENT MARKINGS AND OPEN NORTHBOUND LANES TO NORTHBOUND TRAFFIC, SHIFT NORTHBOUND AND SOUTHBOUND TRAFFIC BACK ONTO TRAVEL LANES.
23. REMOVE TEMPORARY CONCRETE BARRIER AND TEMPORARY PAVEMENT FROM CROSSOVER. REMOVE TEMPORARY FILL BETWEEN NORTHBOUND AND SOUTHBOUND LANES AND RETURN TO ORIGINAL SLOPES.
24. PLACE EROSION MATTING ON ALL SLOPES AS PER TIME GUIDE LINES IN ITEM 652.10 "EROSION PREVENTION AND SEDIMENT CONTROL PLAN". ALL SLOPES AND DITCHES ARE TO BE STABILIZED. ONLY REMOVE SILT FENCES FROM ESTABLISHED SLOPE AREA.

DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD83 (96)

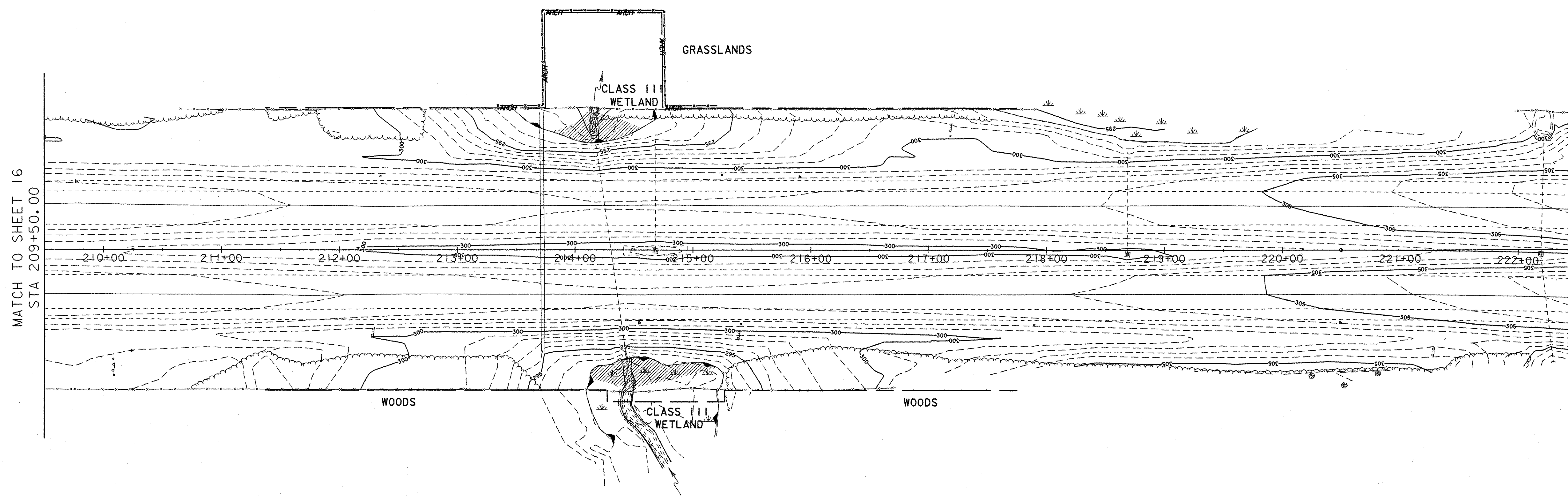


PROJECT NAME: SOUTH BURLINGTON
PROJECT NUMBER: AC IM CULV (9)
FILE NAME: ec01.dgn
PROJECT LEADER: LANDRY
DESIGNED BY: MRP
EXISTING CONDITIONS PLAN

PLOT DATE: 21-SEP-2007
DRAWN BY: MAL
CHECKED BY: DMB
SHEET 16 OF 63



ARCHEOLOGICALLY SENSITIVE (FIELDS)
DO NOT DISTURB

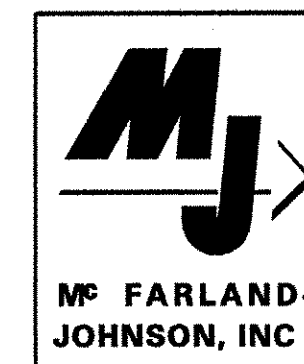
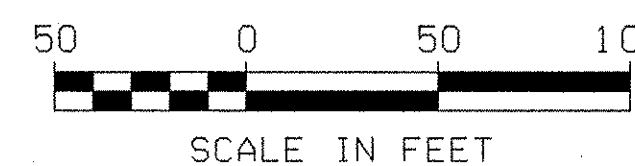


MATCH TO SHEET 16
STA 209+50.00

DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD83 (96)

NOTE:

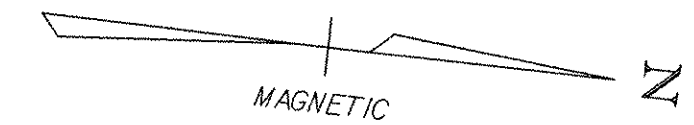
ANY IMPACTS WEST OF THE HIGHWAY OUTSIDE THE EXISTING ROW FENCE EXCEPT AREA SHOWN ADJACENT TO EXISTING CULVERT NEED TO BE CLEARED FOR ARCHEOLOGICAL RESOURCES.



PROJECT NAME: SOUTH BURLINGTON
PROJECT NUMBER: AC IM CULV (9)

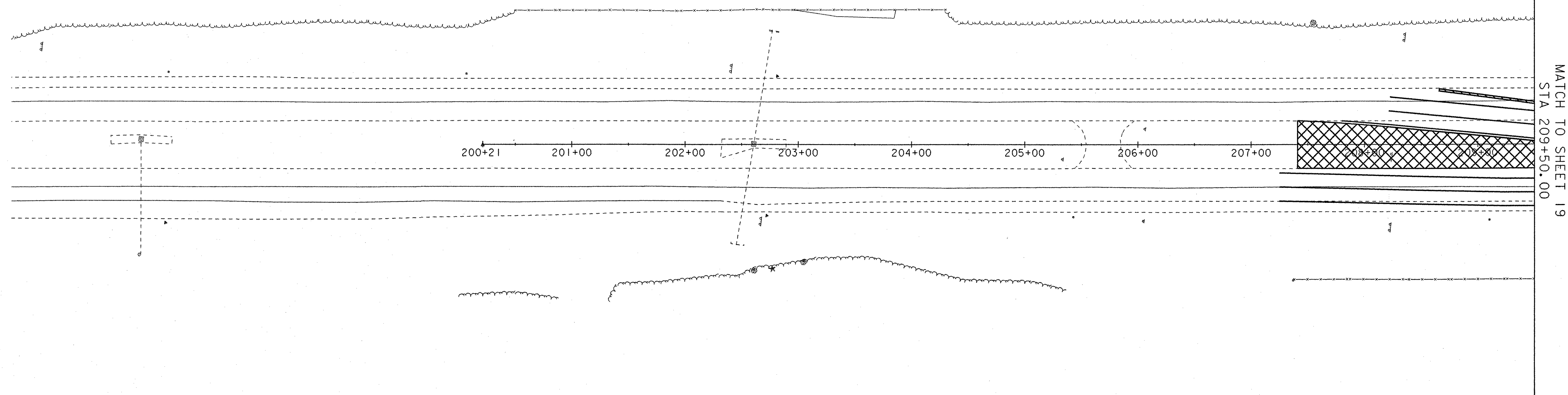
FILE NAME: ec02.dgn
PROJECT LEADER: LANDRY
DESIGNED BY: MRP
EXISTING CONDITIONS PLAN

PLOT DATE: 21-SEP-2007
DRAWN BY: MAL
CHECKED BY: DMB
SHEET 17 OF 63



NOTES:

1. SILT FENCE INSTALLATION WILL REQUIRE PHASING TO MAXIMIZE EFFECTIVENESS. INSTALL AND/OR MOVE SILT FENCE AS CONSTRUCTION PROGRESSES TO OBTAIN THE GREATEST PREVENTION OF SEDIMENT TRANSPORT. ALL SILT FENCE INSTALLATION SHALL BE PROPERLY KEYED ONTO THE GROUND AND SUPPORTED AS SHOWN ON THE 'EROSION PREVENTION & SEDIMENT CONTROL DETAILS' SHEET. SILT FENCE SHOULD BE INSTALLED PARALLEL TO THE CONTOURS TO PREVENT CONCENTRATION OF RUNOFF. THE ENDS OF EACH RUN OF SILT FENCE SHALL BE TURNED UPHILL TO PROVIDE A SMALL POOL FOR SILT, SHOULD WATER FLOW AROUND THE END OF THE SILT FENCE.
2. ALL ITEMS ASSOCIATED WITH STABILIZED CONSTRUCTION ENTRANCES, AND CROSSOVERS WILL BE INCIDENTAL TO ITEM #641.0, TRAFFIC CONTROL.
3. TEMPORARY STONE CHECK DAMS SHALL BE KEYED INTO THE GROUND AND CONSTRUCTED AS PER THE 'EROSION PREVENTION & SEDIMENT CONTROL DETAILS' SHEET. THE PURPOSE OF THE TEMPORARY CHECK DAMS IS TO REDUCE RUNOFF VELOCITIES THUS PREVENTING EROSION.
4. SURFACE ROUGHNESS HELPS REDUCE RUNOFF VELOCITIES AND INCREASES INFILTRATION RATES. ROUGHNESS MAY BE ACCOMPLISHED BY A NUMBER OF METHODS SUCH AS TRACKING UP AND DOWN THE SLOPE WITH A BULLDOZER, TRACKING ACROSS THE SLOPE WITH A WHEELED VEHICLE OR ANY METHOD OF SCARIFYING THE SLOPE SUCH THAT THE GROOVES CREATED RUN PERPENDICULAR TO THE DIRECTION OF THE WATER RUNOFF.
5. TEMPORARY STABILIZATION OF CROSSOVER SLOPES IS INCIDENTAL TO ITEM #641.0, TRAFFIC CONTROL.

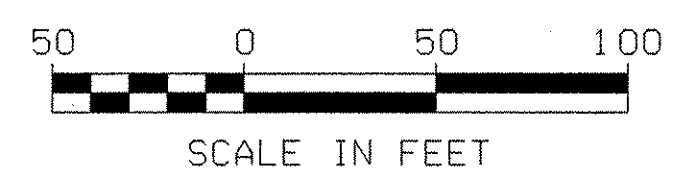


MATCH TO SHEET 19
STA 209+50.00

LEGEND	
	ORANGE FENCING
	ARCHEOLOGICAL SENSITIVITY
	PROJECT DEMARCATION FENCE
	SILT FENCE
	STAGING AREA
	APPROXIMATE LOCATION DEWATERING BASIN
	TEMPORARY STABILIZATION

PHASE I

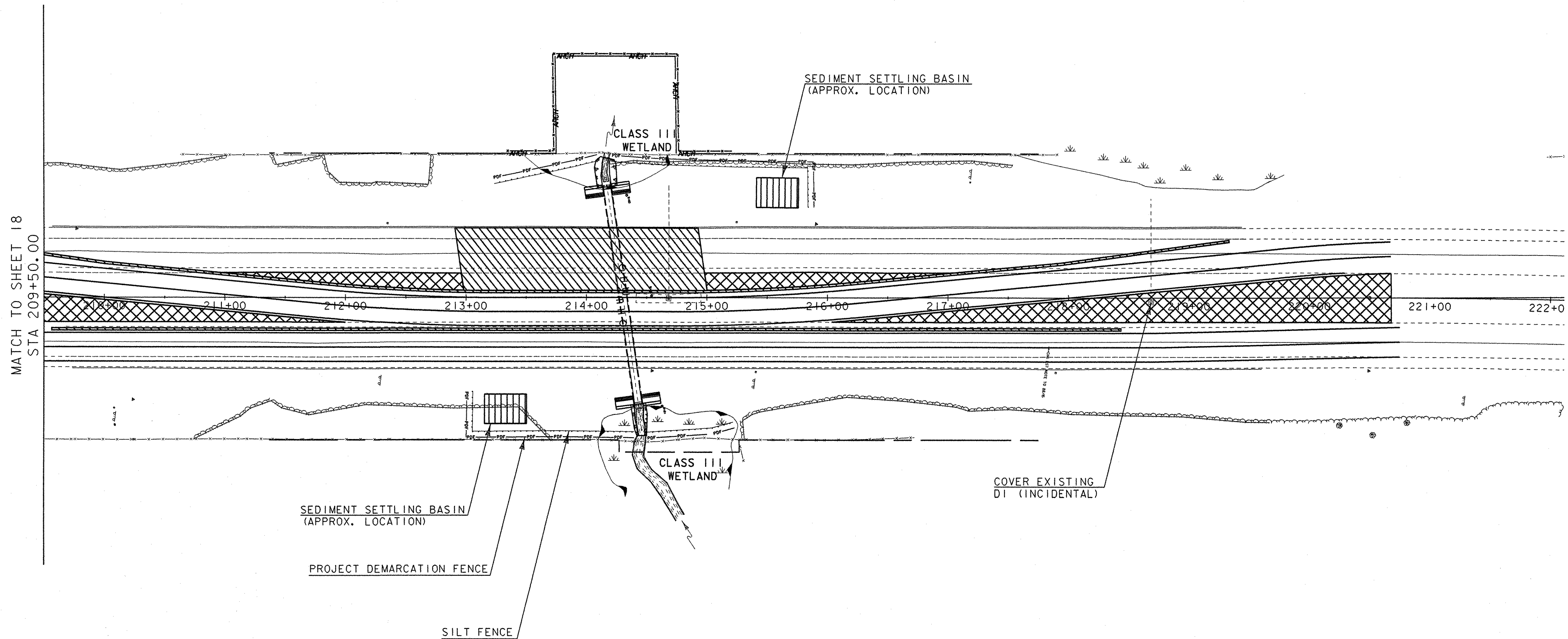
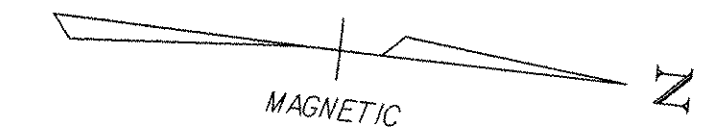
DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)



<p>Mc FARLAND- JOHNSON, INC</p>	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
	FILE NAME: ec04.dgn	CHECKED BY: DMB
	PROJECT LEADER: LANDRY DESIGNED BY: MRP	SHEET 18 OF 63
EROSION CONTROL PLAN PHASE I		

NOTES:

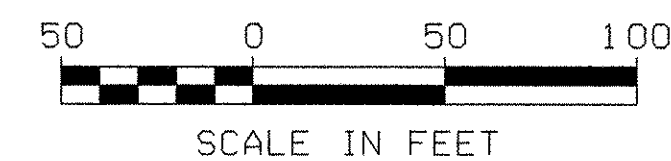
1. SILT FENCE INSTALLATION WILL REQUIRE PHASING TO MAXIMIZE EFFECTIVENESS. INSTALL AND/OR MOVE SILT FENCE AS CONSTRUCTION PROGRESSES TO OBTAIN THE GREATEST PREVENTION OF SEDIMENT TRANSPORT. ALL SILT FENCE INSTALLATION SHALL BE PROPERLY KEYED ONTO THE GROUND AND SUPPORTED AS SHOWN ON THE 'EROSION PREVENTION & SEDIMENT CONTROL DETAILS' SHEET. SILT FENCE SHOULD BE INSTALLED PARALLEL TO THE CONTOURS TO PREVENT CONCENTRATION OF RUNOFF. THE ENDS OF EACH RUN OF SILT FENCE SHALL BE TURNED UPHILL TO PROVIDE A SMALL POOL FOR SILT, SHOULD WATER FLOW AROUND THE END OF THE SILT FENCE.
2. ALL ITEMS ASSOCIATED WITH STABILIZED CONSTRUCTION ENTRANCES, AND CROSSOVERS WILL BE INCIDENTAL TO ITEM #64110, TRAFFIC CONTROL.
3. TEMPORARY STONE CHECK DAMS SHALL BE KEYED INTO THE GROUND AND CONSTRUCTED AS PER THE 'EROSION PREVENTION & SEDIMENT CONTROL DETAILS' SHEET. THE PURPOSE OF THE TEMPORARY CHECK DAMS IS TO REDUCE RUNOFF VELOCITIES THUS PREVENTING EROSION.
4. SURFACE ROUGHNESS HELPS REDUCE RUNOFF VELOCITIES AND INCREASES INFILTRATION RATES. ROUGHNESS MAY BE ACCOMPLISHED BY A NUMBER OF METHODS SUCH AS TRACKING UP AND DOWN THE SLOPE WITH A BULLDOZER, TRACKING ACROSS THE SLOPE WITH A WHEELED VEHICLE OR ANY METHOD OF SCARIFYING THE SLOPE SUCH THAT THE GROOVES CREATED RUN PERPENDICULAR TO THE DIRECTION OF THE WATER RUNOFF.
5. TEMPORARY STABILIZATION OF CROSSOVER SLOPES IS INCIDENTAL TO ITEM #64110, TRAFFIC CONTROL. PERMANENT STABILIZATION OF STREAM SIDESLOPES TO OCCUR UPON COMPLETION OF PHASE.
6. SEDIMENT SETTLING BASINS ARE TO BE USED DURING THE SWITCHOVERS FOR THE STREAM DIVERSIONS TO ENSURE THAT TURBIDITY REQUIREMENTS IN THE STREAM ARE MET. BASINS ARE ALSO TO BE USED WHEN TRENCHES NEED TO BE DEWATERED PRIOR TO CONSTRUCTION.



LEGEND	
	ORANGE FENCING ARCHEOLOGICAL SENSITIVITY
	PROJECT DEMARCATION FENCE
	SILT FENCE
	STAGING AREA
	APPROXIMATE LOCATION DEWATERING BASIN
	TEMPORARY STABILIZATION

PHASE I

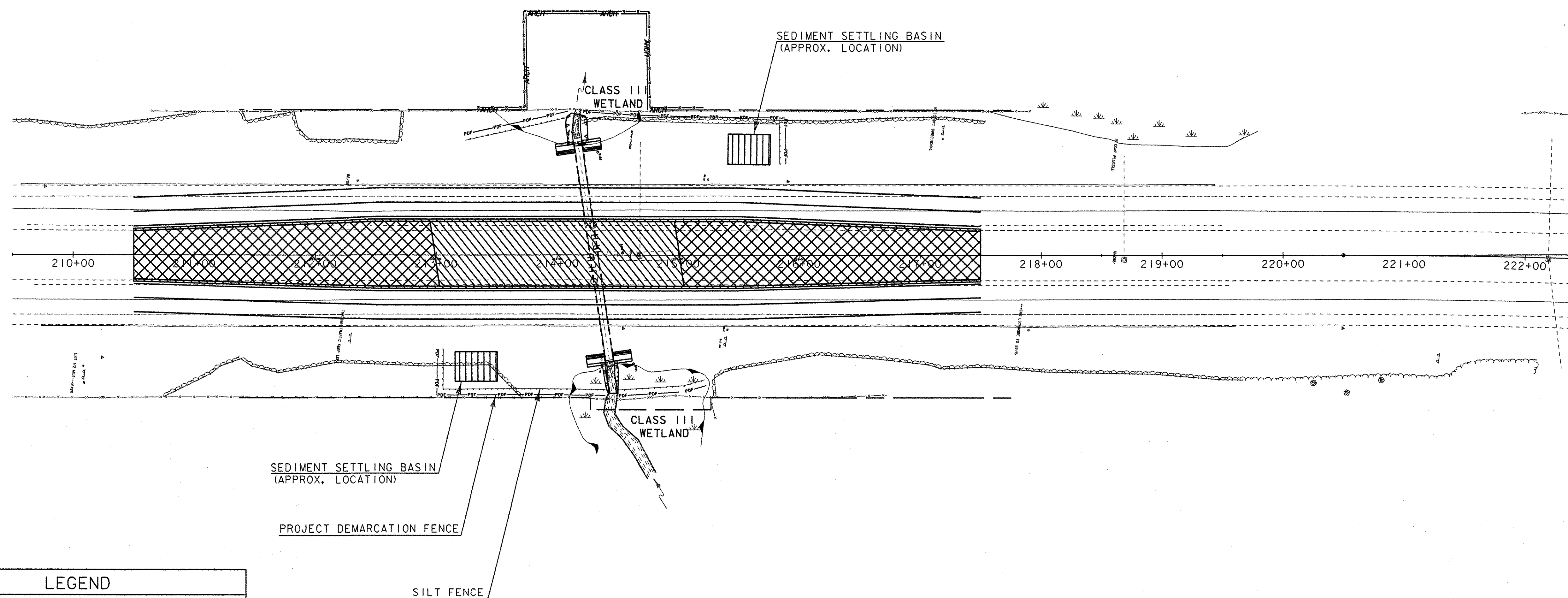
DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)



 M² FARLAND- JOHNSON, INC	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
	FILE NAME: ec05.dgn	CHECKED BY: DMB
	PROJECT LEADER: LANDRY DESIGNED BY: MRP	SHEET 19 OF 63
EROSION CONTROL PLAN PHASE I		

NOTES:

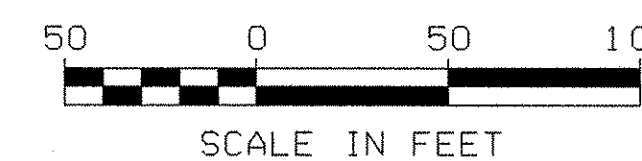
1. SILT FENCE INSTALLATION WILL REQUIRE PHASING TO MAXIMIZE EFFECTIVENESS. INSTALL AND/OR MOVE SILT FENCE AS CONSTRUCTION PROGRESSES TO OBTAIN THE GREATEST PREVENTION OF SEDIMENT TRANSPORT. ALL SILT FENCE INSTALLATION SHALL BE PROPERLY KEYED ONTO THE GROUND AND SUPPORTED AS SHOWN ON THE 'EROSION PREVENTION & SEDIMENT CONTROL DETAILS' SHEET. SILT FENCE SHOULD BE INSTALLED PARALLEL TO THE CONTOURS TO PREVENT CONCENTRATION OF RUNOFF. THE ENDS OF EACH RUN OF SILT FENCE SHALL BE TURNED UPHILL TO PROVIDE A SMALL POOL FOR SILT, SHOULD WATER FLOW AROUND THE END OF THE SILT FENCE.
2. ALL ITEMS ASSOCIATED WITH STABILIZED CONSTRUCTION ENTRANCES, AND CROSSOVERS WILL BE INCIDENTAL TO ITEM #641J0, TRAFFIC CONTROL.
3. TEMPORARY STONE CHECK DAMS SHALL BE KEYED INTO THE GROUND AND CONSTRUCTED AS PER THE 'EROSION PREVENTION & SEDIMENT CONTROL DETAILS' SHEET. THE PURPOSE OF THE TEMPORARY CHECK DAMS IS TO REDUCE RUNOFF VELOCITIES THUS PREVENTING EROSION.
4. SURFACE ROUGHNESS HELPS REDUCE RUNOFF VELOCITIES AND INCREASES INFILTRATION RATES. ROUGHNESS MAY BE ACCOMPLISHED BY A NUMBER OF METHODS SUCH AS TRACKING UP AND DOWN THE SLOPE WITH A BULLDOZER, TRACKING ACROSS THE SLOPE WITH A WHEELED VEHICLE OR ANY METHOD OF SCARIFYING THE SLOPE SUCH THAT THE GROOVES CREATED RUN PERPENDICULAR TO THE DIRECTION OF THE WATER RUNOFF.
5. TEMPORARY STABILIZATION OF CROSSOVER SLOPES IS INCIDENTAL TO ITEM #641J0, TRAFFIC CONTROL.
6. SEDIMENT SETTLING BASINS OR SILT BAGS ARE TO BE USED DURING THE SWITCHOVERS FOR THE STREAM DIVERSIONS TO ENSURE THAT TURBIDITY REQUIREMENTS IN THE STREAM ARE MET. BASINS OR SILT BAGS ARE ALSO TO BE USED WHEN TRENCHES NEED TO BE DEWATERED PRIOR TO CONSTRUCTION.



LEGEND	
	ORANGE FENCING
	ARCHEOLOGICAL SENSITIVITY
	PROJECT DEMARCATION FENCE
	SILT FENCE
	STAGING AREA
	APPROXIMATE LOCATION DEWATERING BASIN
	TEMPORARY STABILIZATION

PHASE II

DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)

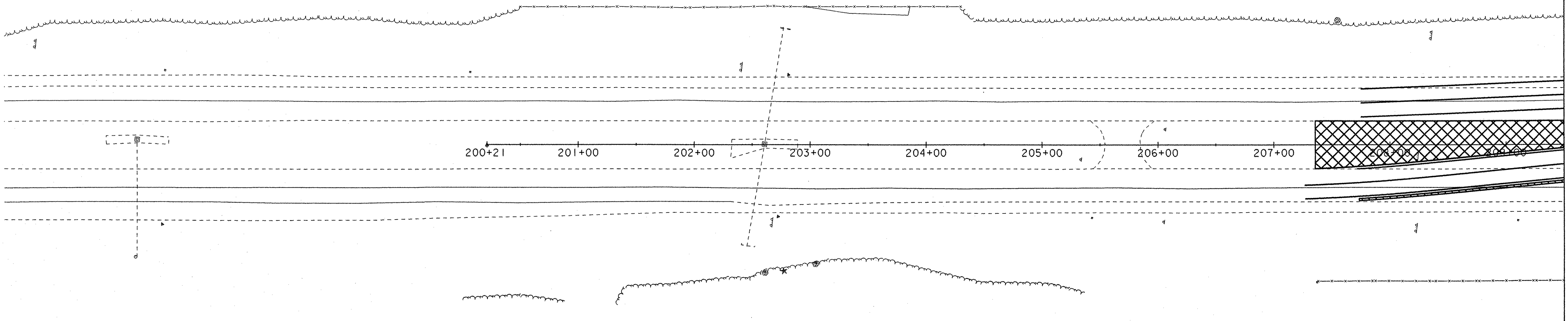


	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
	FILE NAME: ec05a.dgn	DESIGNED BY: MRP
	PROJECT LEADER: LANDRY	CHECKED BY: DMB
EROSION CONTROL PLAN PHASE II		SHEET 20 OF 63



NOTES:

1. SILT FENCE INSTALLATION WILL REQUIRE PHASING TO MAXIMIZE EFFECTIVENESS. INSTALL AND/OR MOVE SILT FENCE AS CONSTRUCTION PROGRESSES TO OBTAIN THE GREATEST PREVENTION OF SEDIMENT TRANSPORT. ALL SILT FENCE INSTALLATION SHALL BE PROPERLY KEYED ONTO THE GROUND AND SUPPORTED AS SHOWN ON THE 'EROSION PREVENTION & SEDIMENT CONTROL DETAILS' SHEET. SILT FENCE SHOULD BE INSTALLED PARALLEL TO THE CONTOURS TO PREVENT CONCENTRATION OF RUNOFF. THE ENDS OF EACH RUN OF SILT FENCE SHALL BE TURNED UPHILL TO PROVIDE A SMALL POOL FOR SILT, SHOULD WATER FLOW AROUND THE END OF THE SILT FENCE.
2. ALL ITEMS ASSOCIATED WITH STABILIZED CONSTRUCTION ENTRANCES, AND CROSSOVERS WILL BE INCIDENTAL TO ITEM *641.0, TRAFFIC CONTROL.
3. TEMPORARY STONE CHECK DAMS SHALL BE KEYED INTO THE GROUND AND CONSTRUCTED AS PER THE 'EROSION PREVENTION & SEDIMENT CONTROL DETAILS' SHEET. THE PURPOSE OF THE TEMPORARY CHECK DAMS IS TO REDUCE RUNOFF VELOCITIES THUS PREVENTING EROSION.
4. SURFACE ROUGHNESS HELPS REDUCE RUNOFF VELOCITIES AND INCREASES INFILTRATION RATES. ROUGHNESS MAY BE ACCOMPLISHED BY A NUMBER OF METHODS SUCH AS TRACKING UP AND DOWN THE SLOPE WITH A BULLDOZER, TRACKING ACROSS THE SLOPE WITH A WHEELED VEHICLE OR ANY METHOD OF SCARIFYING THE SLOPE SUCH THAT THE GROOVES CREATED RUN PERPENDICULAR TO THE DIRECTION OF THE WATER RUNOFF.
5. TEMPORARY STABILIZATION OF CROSSOVER SLOPES IS INCIDENTAL TO ITEM *641.0, TRAFFIC CONTROL.

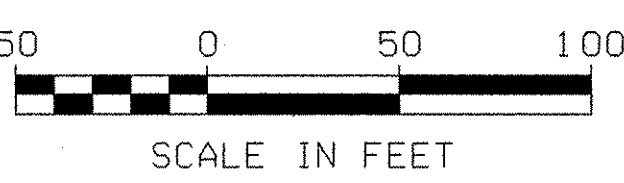


MATCH TO SHEET 22
STA 209+50.00

LEGEND	
	ORANGE FENCING ARCHEOLOGICAL SENSITIVITY
	PROJECT DEMARCATION FENCE
	SILT FENCE
	STAGING AREA
	APPROXIMATE LOCATION DEWATERING BASIN
	TEMPORARY STABILIZATION

PHASE III

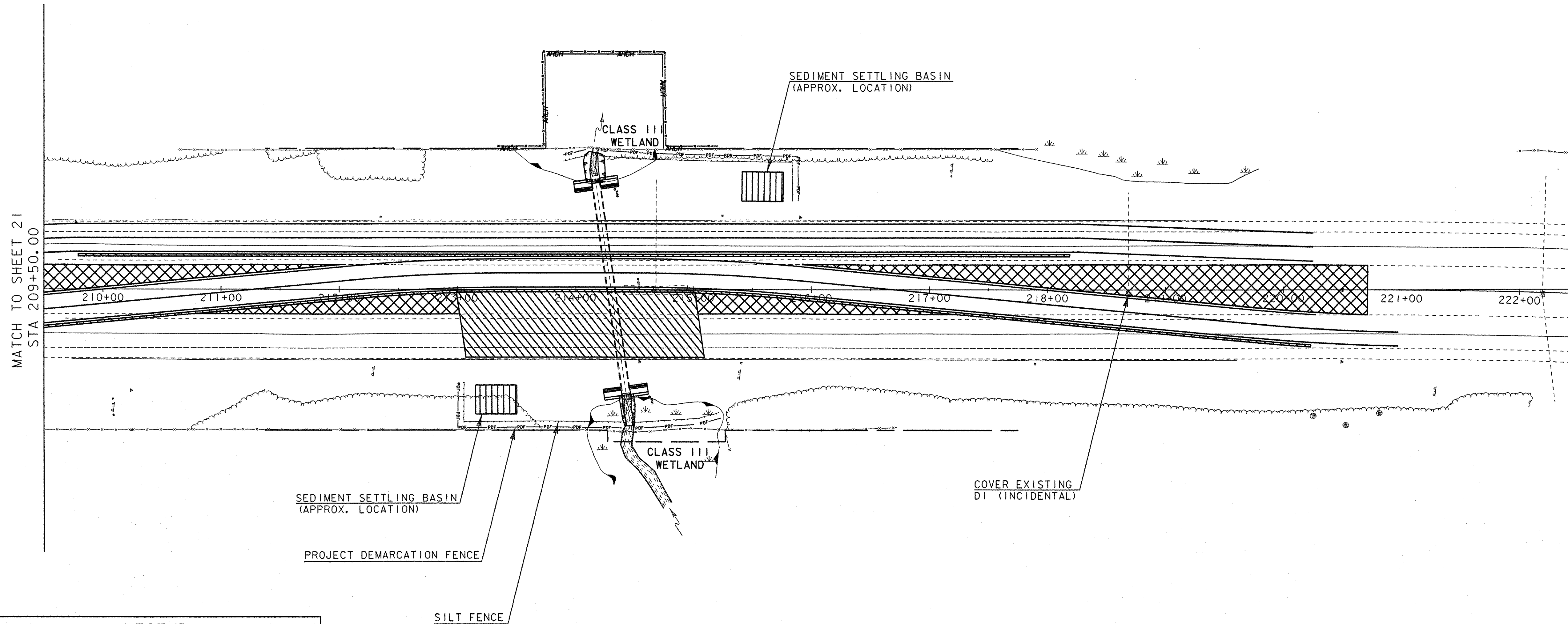
DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD83 (96)










 MR FARLAND- JOHNSON, INC	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
	FILE NAME: ec04a.dgn	CHECKED BY: DMB
	PROJECT LEADER: LANDRY DESIGNED BY: MRP	SHEET 21 OF 63
EROSION CONTROL PLAN PHASE III		

NOTES:

1. SILT FENCE INSTALLATION WILL REQUIRE PHASING TO MAXIMIZE EFFECTIVENESS. INSTALL AND/OR MOVE SILT FENCE AS CONSTRUCTION PROGRESSES TO OBTAIN THE GREATEST PREVENTION OF SEDIMENT TRANSPORT. ALL SILT FENCE INSTALLATION SHALL BE PROPERLY KEYED ONTO THE GROUND AND SUPPORTED AS SHOWN ON THE 'EROSION PREVENTION & SEDIMENT CONTROL DETAILS' SHEET. SILT FENCE SHOULD BE INSTALLED PARALLEL TO THE CONTOURS TO PREVENT CONCENTRATION OF RUNOFF. THE ENDS OF EACH RUN OF SILT FENCE SHALL BE TURNED UPHILL TO PROVIDE A SMALL POOL FOR SILT, SHOULD WATER FLOW AROUND THE END OF THE SILT FENCE.
2. ALL ITEMS ASSOCIATED WITH STABILIZED CONSTRUCTION ENTRANCES, AND CROSSOVERS WILL BE INCIDENTAL TO ITEM #641J0, TRAFFIC CONTROL.
3. TEMPORARY STONE CHECK DAMS SHALL BE KEYED INTO THE GROUND AND CONSTRUCTED AS PER THE 'EROSION PREVENTION & SEDIMENT CONTROL DETAILS' SHEET. THE PURPOSE OF THE TEMPORARY CHECK DAMS IS TO REDUCE RUNOFF VELOCITIES THUS PREVENTING EROSION.
4. SURFACE ROUGHNESS HELPS REDUCE RUNOFF VELOCITIES AND INCREASES INFILTRATION RATES. ROUGHNESS MAY BE ACCOMPLISHED BY A NUMBER OF METHODS SUCH AS TRACKING UP AND DOWN THE SLOPE WITH A BULLDOZER, TRACKING ACROSS THE SLOPE WITH A WHEELED VEHICLE OR ANY METHOD OF SCARIFYING THE SLOPE SUCH THAT THE GROOVES CREATED RUN PERPENDICULAR TO THE DIRECTION OF THE WATER RUNOFF.
5. TEMPORARY STABILIZATION OF CROSSOVER SLOPES IS INCIDENTAL TO ITEM #641J0, TRAFFIC CONTROL. PERMANENT STABILIZATION OF STREAM SIDE SLOPES TO OCCUR UPON COMPLETION OF THE CHANNEL WORK.
6. SEDIMENT SETTLING BASINS ARE TO BE USED DURING THE SWITCHOVERS FOR THE STREAM DIVERSIONS TO ENSURE THAT TURBIDITY REQUIREMENTS IN THE STREAM ARE MET. BASINS ARE ALSO TO BE USED WHEN TRENCHES NEED TO BE DEWATERED PRIOR TO CONSTRUCTION.




LEGEND

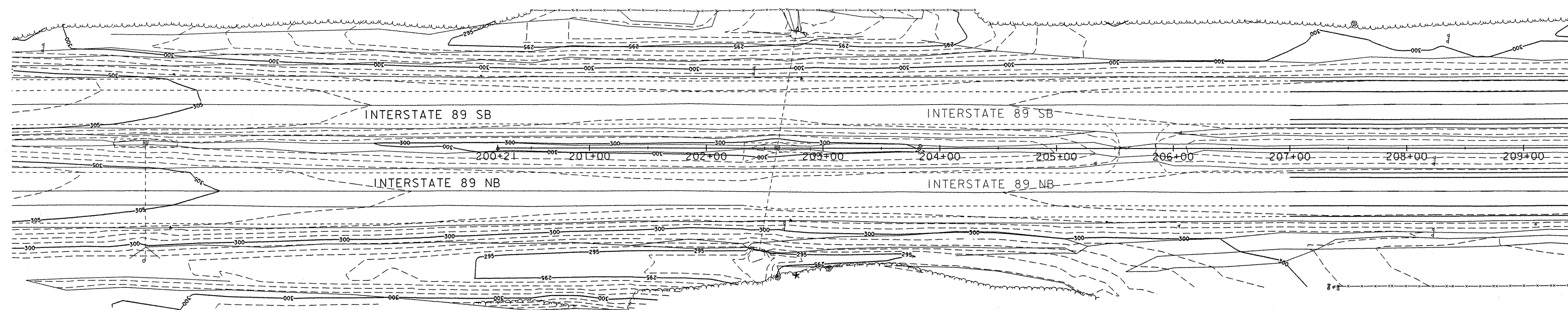
-  ORANGE FENCING
-  ARCHEOLOGICAL SENSITIVITY
-  PROJECT DEMARCATION FENCE
-  SILT FENCE
-  STAGING AREA
-  APPROXIMATE LOCATION DEWATERING BASIN
-  TEMPORARY STABILIZATION

PHASE III

DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)

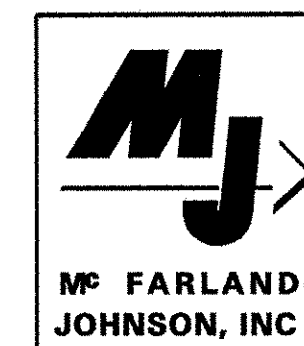


 MR FARLAND- JOHNSON, INC	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
FILE NAME: ec05b.dgn	DESIGNED BY: MRP	CHECKED BY: DMB
PROJECT LEADER: LANDRY	EROSION CONTROL PLAN PHASE III	SHEET 22 OF 63



MATCH TO SHEET 24
STA 209+50.00

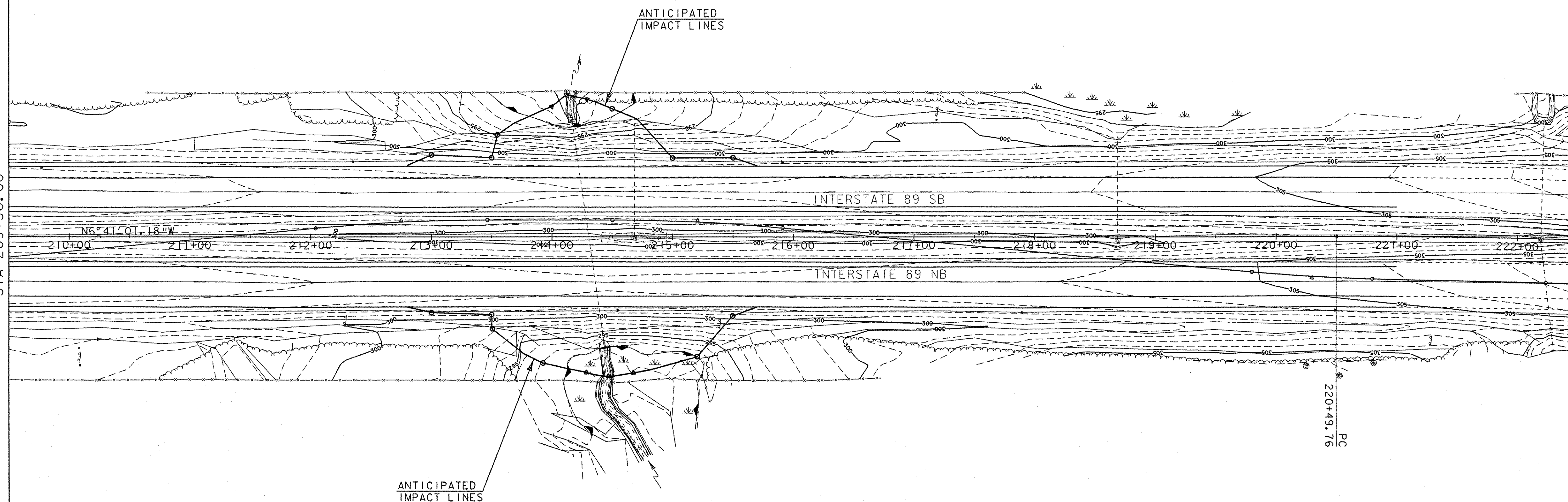
DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD83 (96)



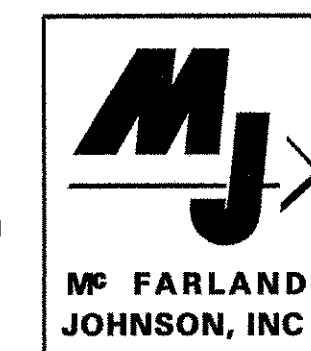
PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
FILE NAME: ec07.dgn	CHECKED BY: DMB
PROJECT LEADER: LANDRY	SHEET 23 OF 63
DESIGNED BY: MRP	
FINAL CONDITIONS	



MATCH TO SHEET 23
STA 209+50.00



DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD83 (96)



PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
FILE NAME: ec08.dgn	CHECKED BY: DMB
PROJECT LEADER: LANDRY	SHEET 24 OF 63
DESIGNED BY: MRP	
FINAL CONDITIONS	

SILT FENCE

APPLICATION NOTES:

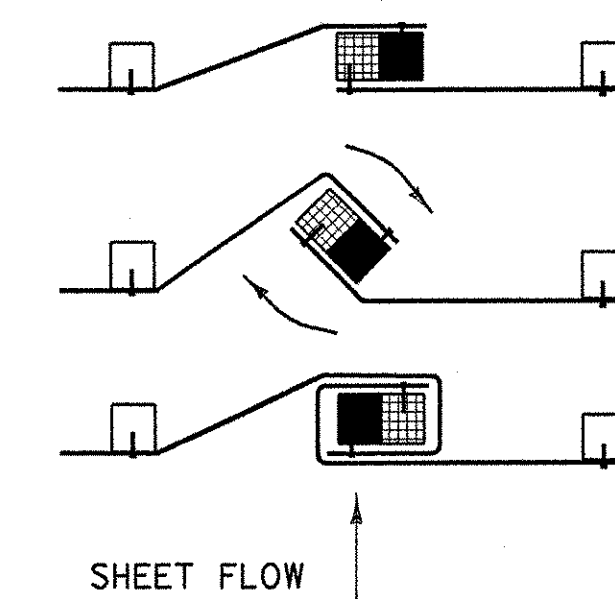
- THE PRIMARY PURPOSE OF SILT FENCE IS TO REDUCE RUNOFF VELOCITY AND TRAP SEDIMENT. VELOCITY IS REDUCED, WATER IS IMPOUNDED BEHIND THE MEASURE, AND SEDIMENT FALLS OUT OF SUSPENSION.
- SILT FENCE SHALL NOT BE USED ACROSS CONCENTRATED FLOW.

GENERAL NOTES:

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

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

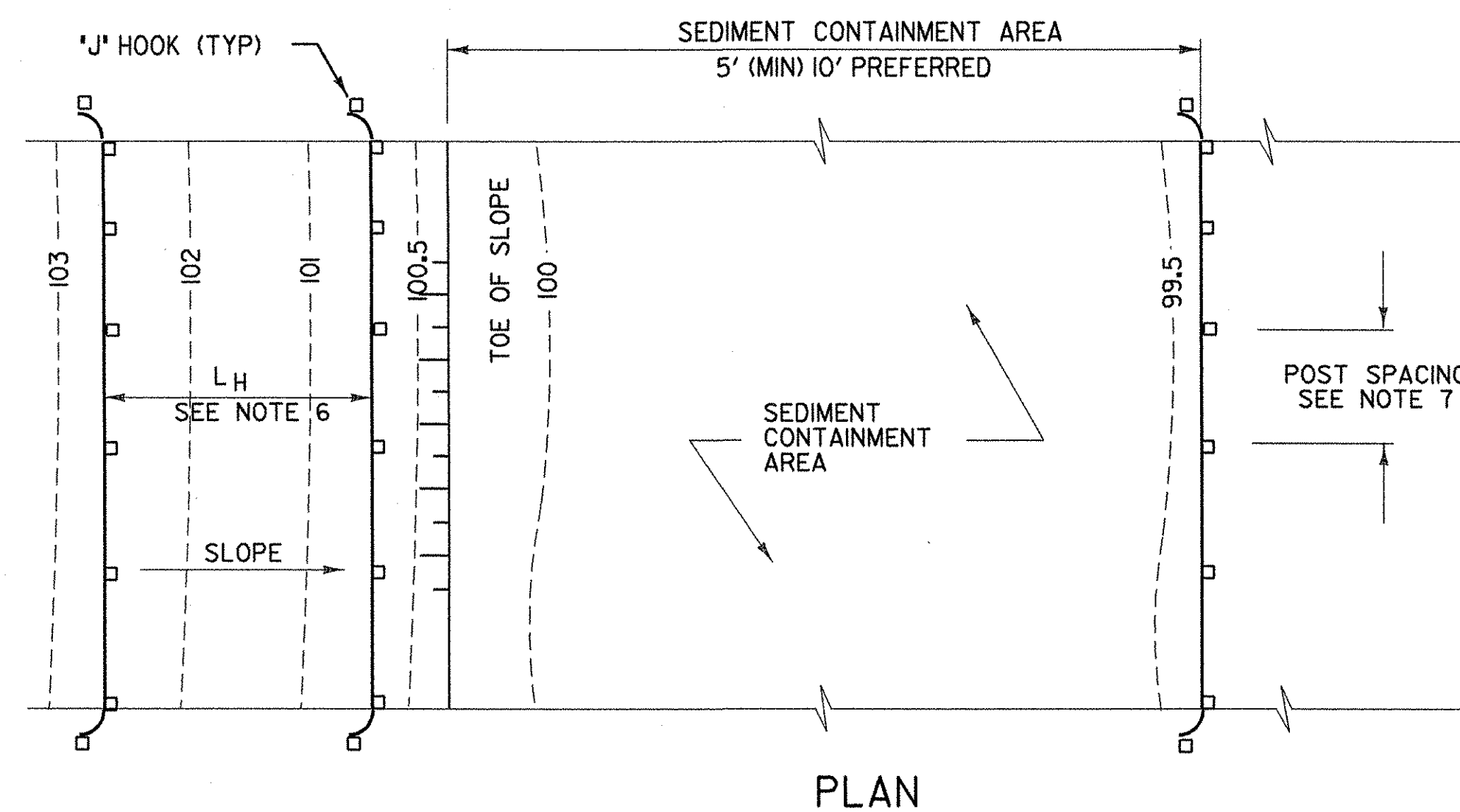
- WHERE ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4 FEET. WHERE ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6 FEET.
- SILT FENCE SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
- SILT FENCE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



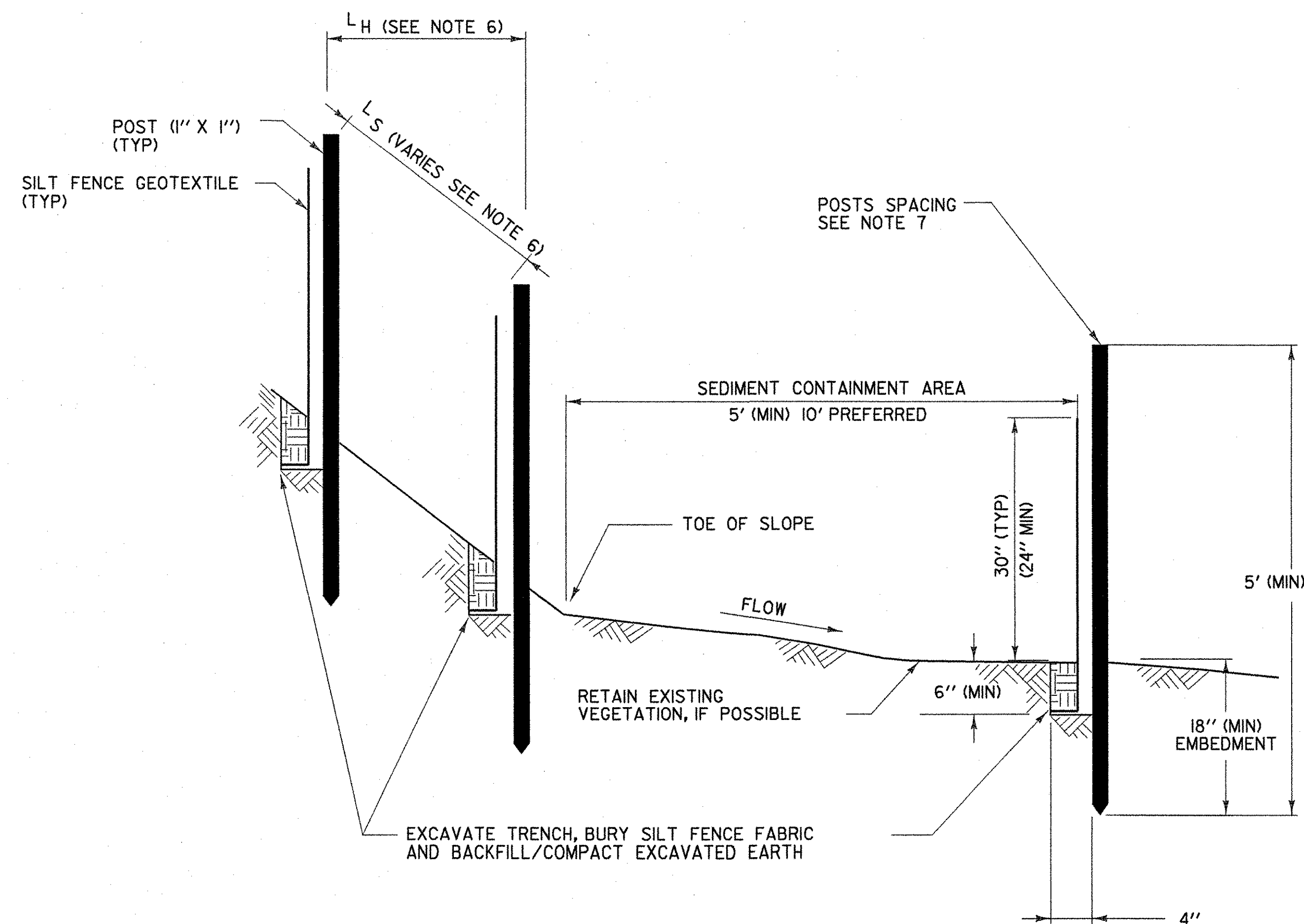
- PLACE THE END POST OF ONE FENCE INSIDE THE END POST OF THE OTHER FENCE.
- ROTATE BOTH POSTS AT LEAST 180 DEGREES IN A CLOCKWISE DIRECTION TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL.
- DRIVE BOTH POSTS 18 INCHES INTO THE GROUND AND BURY THE FLAP IN THE TRENCH.

SPlicing DETAIL

NOT TO SCALE



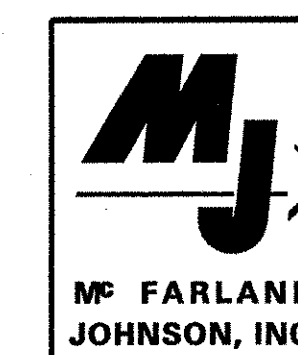
PLAN



SECTION SILT FENCE - TEMPORARY

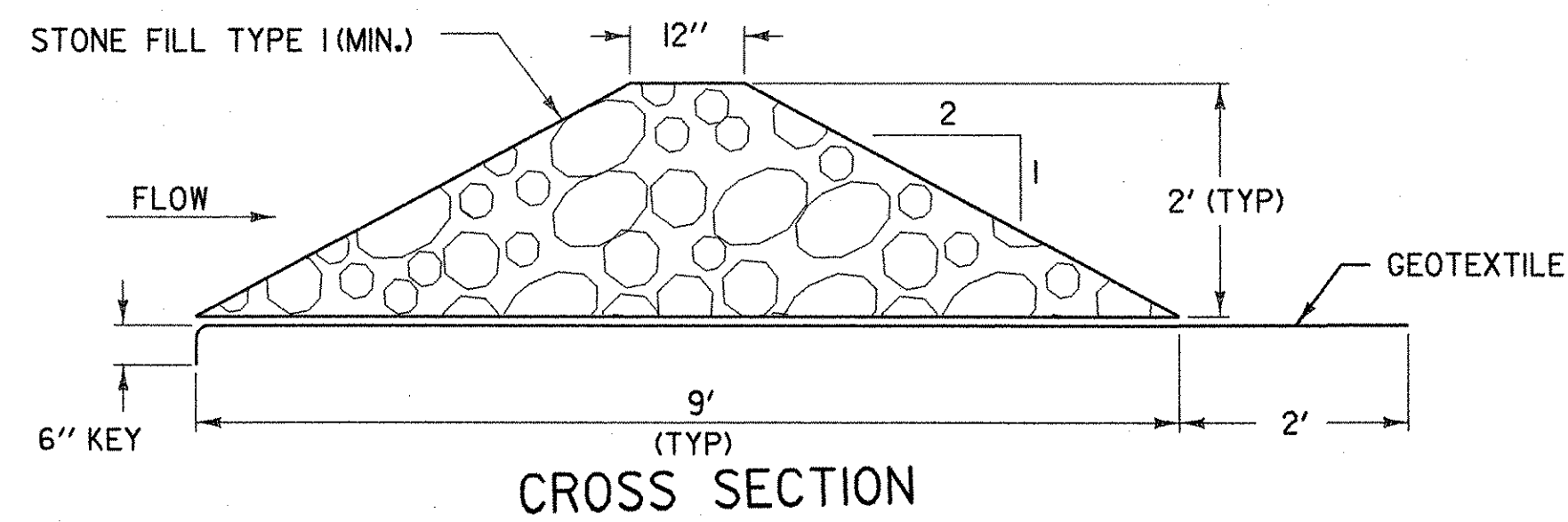
NOT TO SCALE

DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD83 (96)

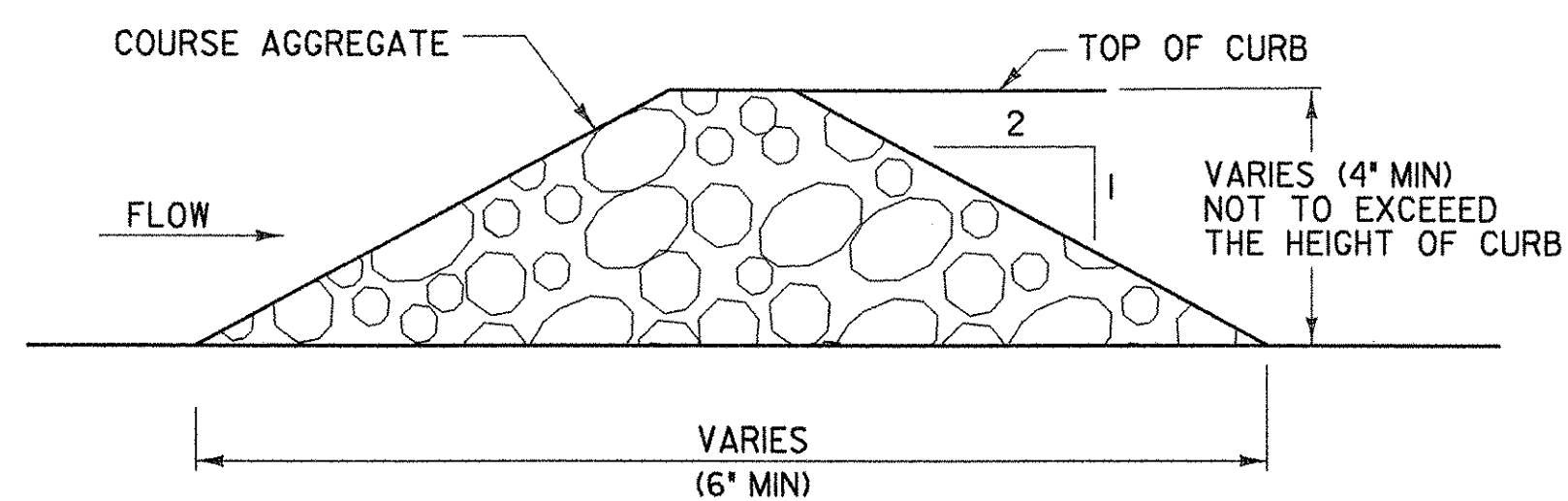


PROJECT NAME: SOUTH BURLINGTON
PROJECT NUMBER: AC IM CULV (9)
FILE NAME: EPSC-I.DGN
PROJECT LEADER: LANDRY
DESIGNED BY: MRP
EPSC DETAILS

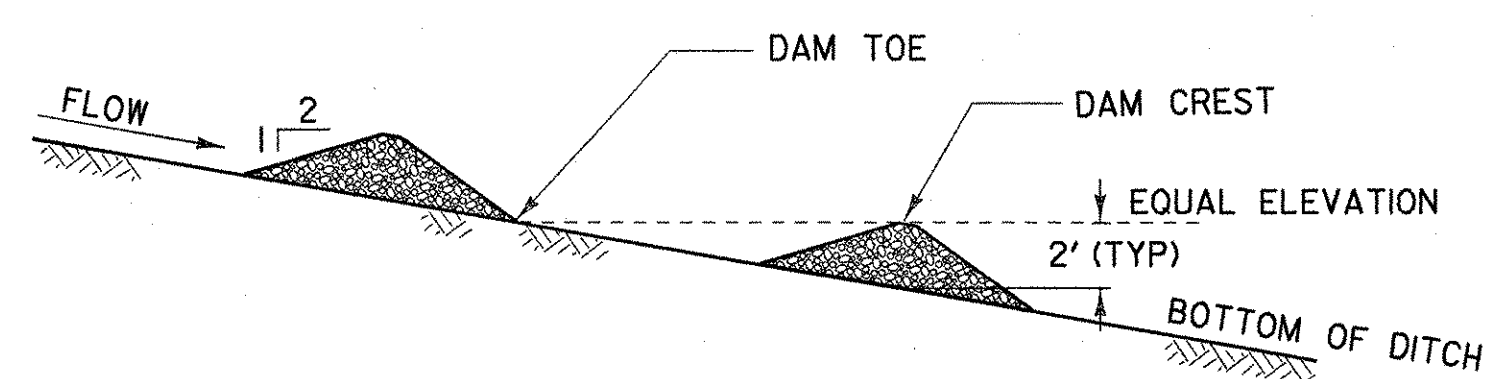
PLOT DATE: 21-SEP-2007
DRAWN BY: MAL
CHECKED BY: DMB
SHEET 25 OF 63



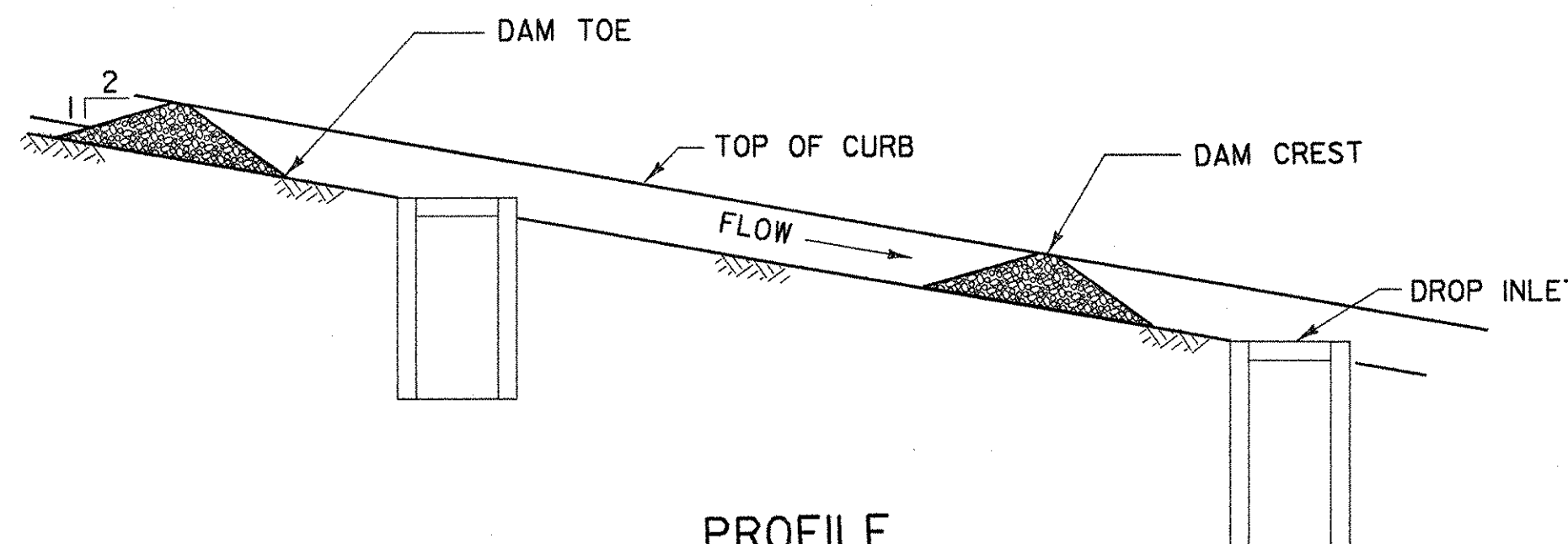
CROSS SECTION



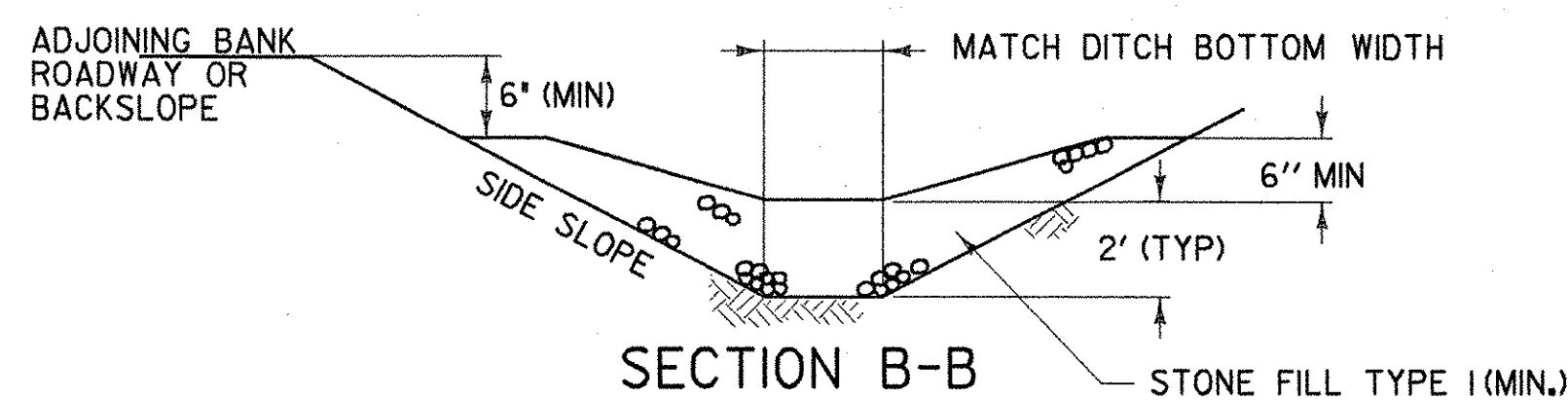
CROSS SECTION



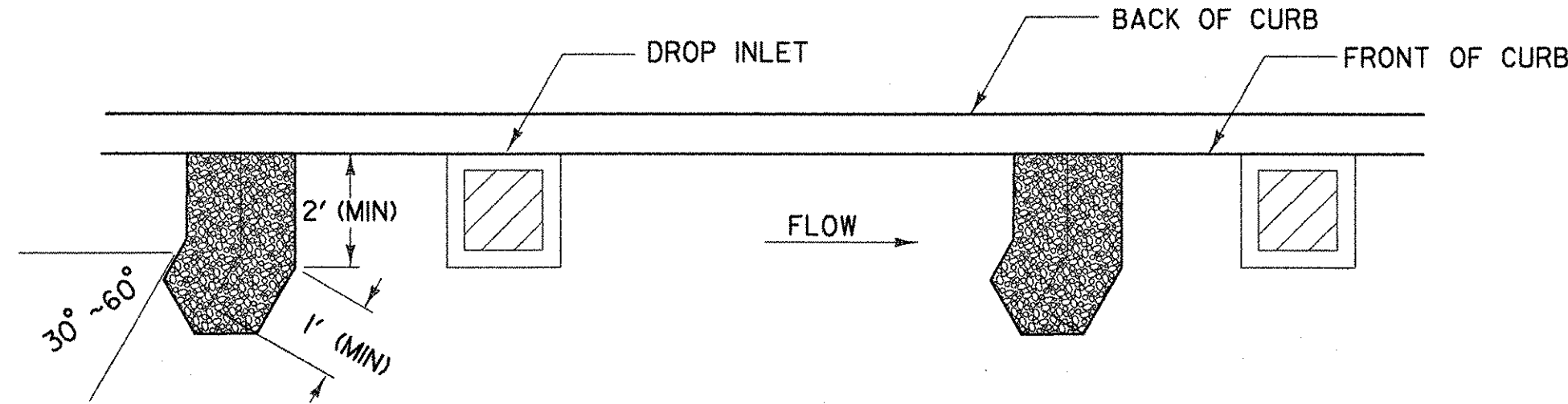
PROFILE



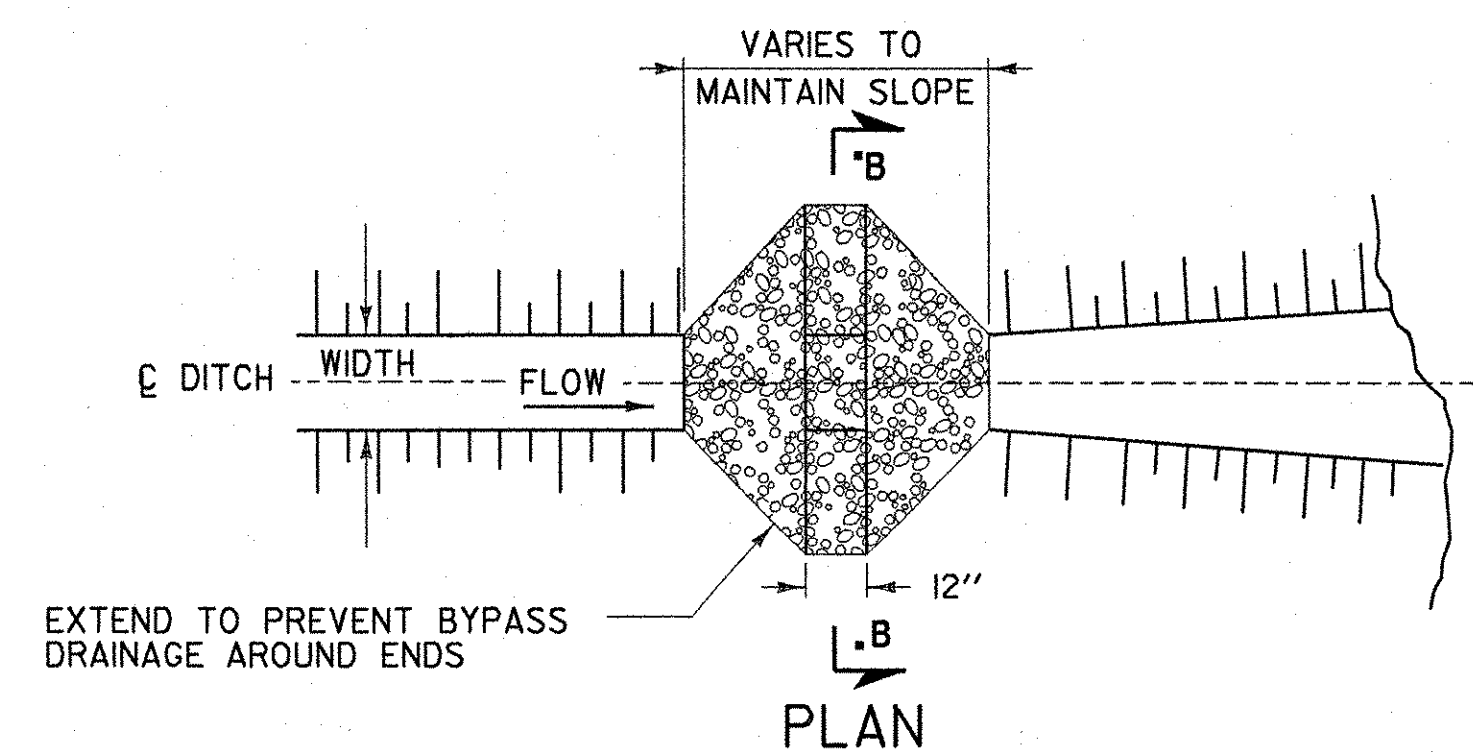
PROFILE



SECTION B-B



PLAN



PLAN

TEMPORARY STONE CHECK DAM TYPE I

NOT TO SCALE

TEMPORARY STONE CHECK DAM TYPE II

NOT TO SCALE

TEMPORARY CHECK DAMS

APPLICATION NOTES:

- TEMPORARY CHECK DAM TYPE I IS USED FOR CHANNEL FLOW, CHECK DAM TYPE II IS USED FOR FLOW ALONG A CURB.
- THE PRIMARY PURPOSE OF A TEMPORARY STONE CHECK DAM (TYPE I) IS TO REDUCE EROSION IN A CHANNEL BY REDUCING FLOW VELOCITY.
- THE PRIMARY PURPOSE OF A TEMPORARY STONE CHECK DAM (TYPE II) IS TO LIMIT THE AMOUNT OF SEDIMENT ENTERING A CLOSED DRAINAGE SYSTEM WITH STORMWATER RUNOFF.
- TEMPORARY CHECK DAMS WILL CAPTURE SEDIMENT THAT FALLS OUT OF SUSPENSION BEHIND THE CHECK DAMS DUE TO DECREASED VELOCITY. CHECK DAMS ARE NOT INTENDED TO FILTER SEDIMENT FROM STORMWATER.
- DETAILS SHOWN SHALL BE USED FOR TEMPORARY INSTALLATION ONLY.
- USE OF PREFABRICATED TEMPORARY CHECK DAMS SHALL BE AS APPROVED IN THE EPSC.

GENERAL NOTES:

- GEOTEXTILE SHALL BE INSTALLED UNDER TEMPORARY STONE CHECK DAMS TYPE I. IT SHALL BE KEYED IN ON THE UPHILL END AND SHALL EXTEND 2 FEET BEYOND THE STONE ON THE DOWNHILL END.
- STONE FOR TEMPORARY STONE CHECK DAMS SHALL MEET THE GRADATION REQUIREMENTS SPECIFIED IN THE CONTRACT DOCUMENTS.
- PREFABRICATED TEMPORARY CHECK DAMS SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.
- TEMPORARY CHECK DAMS SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
- TEMPORARY CHECK DAMS SHALL BE CLEANED AND REPAIRED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE HEIGHT OR AS RECOMMENDED BY THE MANUFACTURER. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED WASTE SITE.
- AT TIME OF REMOVAL OF THE TEMPORARY CHECK DAM, THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.

STONE CHECK DAM PLACEMENT INTERVAL

DITCH SLOPE	PLACEMENT INTERVAL **
1 ½ %	200 FT
2 ½ %	100 FT
3 ½ %	65 FT
4 ½ %	50 FT
5 ½ %	40 FT
6 ½ %	30 FT
8 ½ %	25 FT
10 ½ %	20 FT

** BASED ON 2' TYPICAL HEIGHT

DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD83 (96)



PROJECT NAME: SOUTH BURLINGTON
PROJECT NUMBER: AC IM CULV (9)

FILE NAME: EPSC-2.DGN
PROJECT LEADER: LANDRY
DESIGNED BY: MRP
EPSC DETAILS

PLOT DATE: 21-SEP-2007
DRAWN BY: MAL
CHECKED BY: DMB
SHEET 26 OF 63

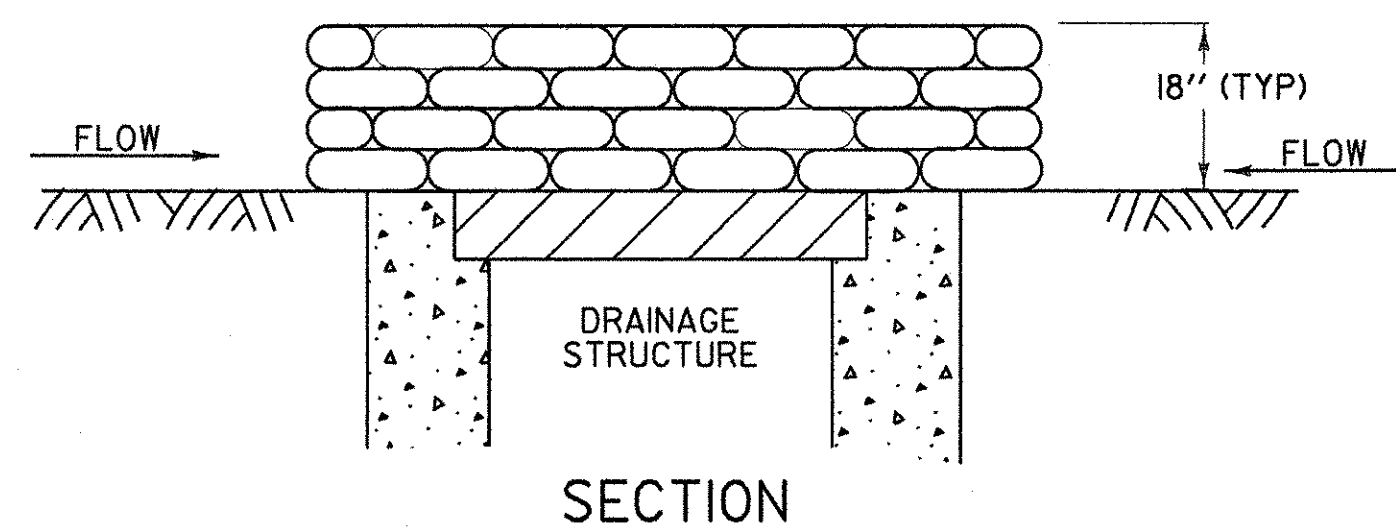
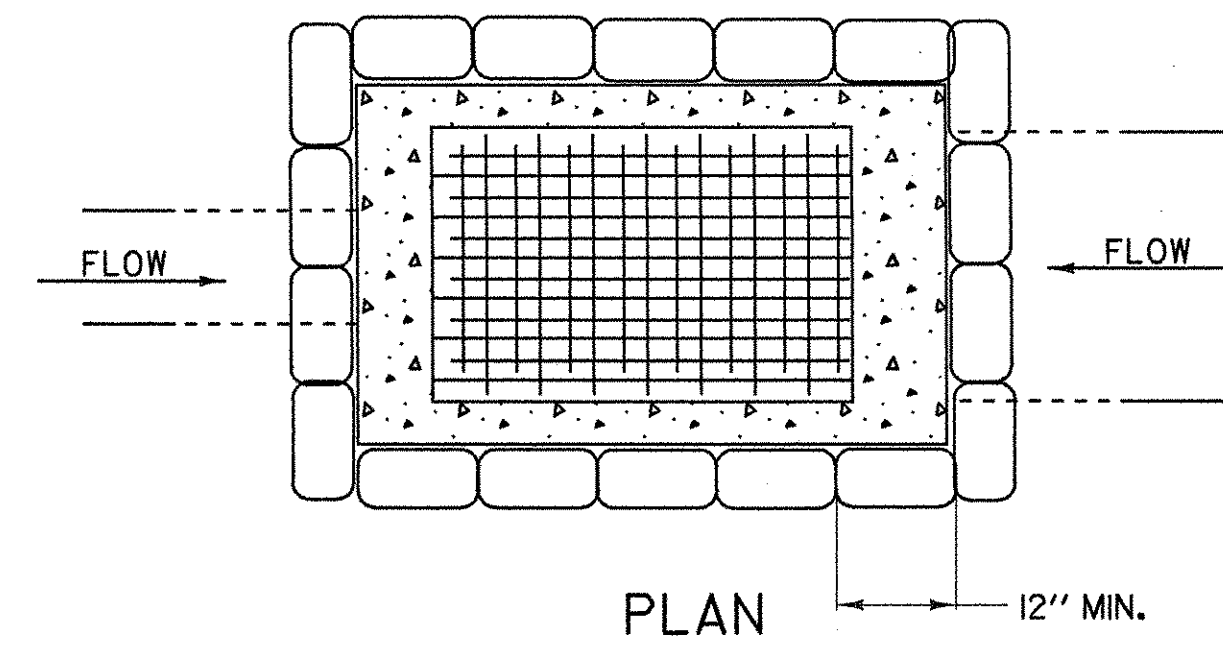
INLET PROTECTION

APPLICATION NOTES:

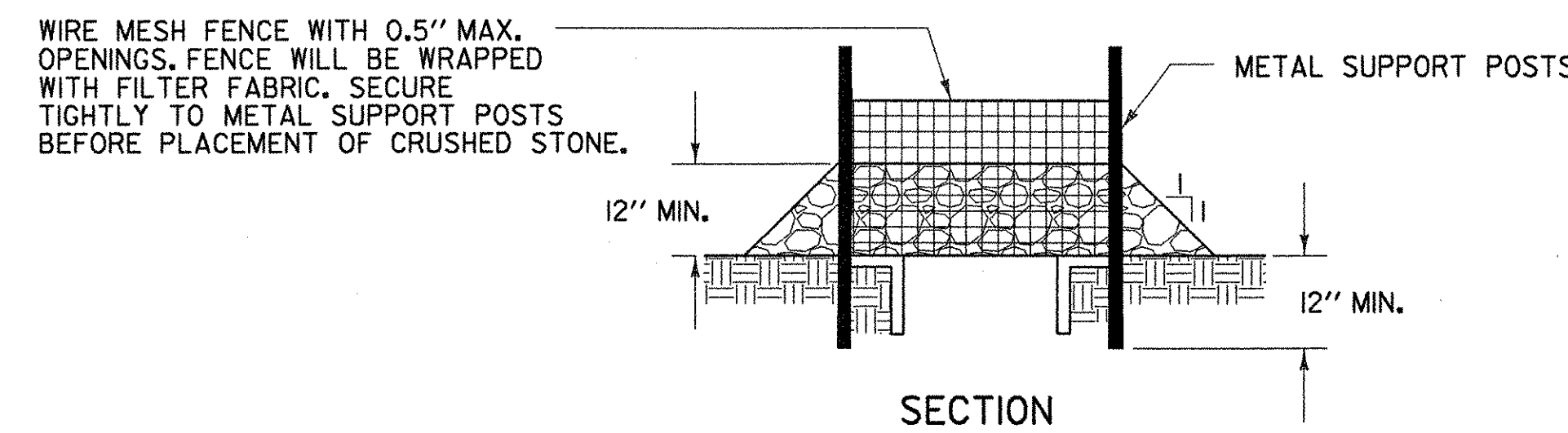
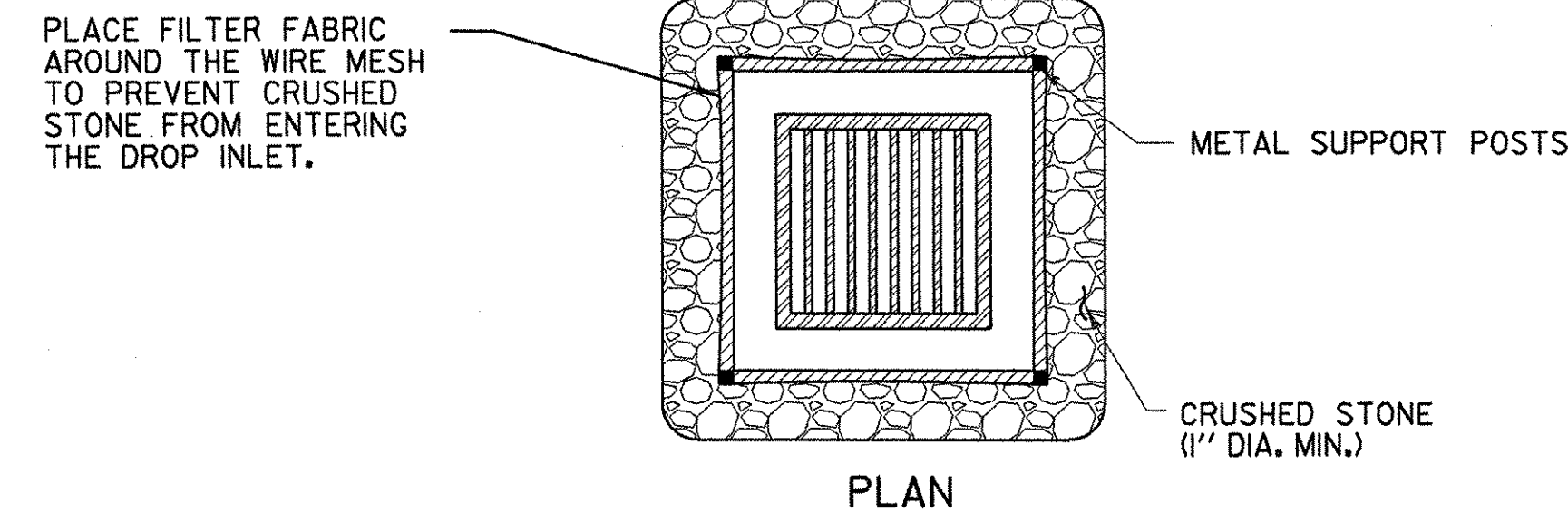
- A. THE PRIMARY PURPOSE OF INLET PROTECTION IS TO PREVENT SEDIMENT FROM ENTERING A DRAINAGE STRUCTURE, WHILE STILL ALLOWING THE WATER TO DRAIN. THIS WORKS BY PONDING THE WATER, WHICH WILL ALLOW THE SEDIMENT TO FALL OUT OF SUSPENSION, BEFORE THE WATER ENTERS THE STRUCTURE.
- B. THESE EXAMPLES OF INLET PROTECTION ARE NOT INTENDED TO CAUSE STORMWATER TO BYPASS THE STRUCTURE AND CREATE ADDITIONAL EROSION OR FLOODING. IN THE CASE WERE THE INLET PROTECTION STRUCTURE HAS CAUSED WATER TO BYPASS THE DRAINAGE STRUCTURE, ADDITIONAL PROTECTION DEVICES WILL BE REQUIRED. POSSIBLE MODIFICATIONS MAY INCLUDE ADDING CHECK DAMS UPSTREAM OF THE INLET TO CREATE MORE PONDING AND TO SLOW VELOCITIES. A BERM DOWNSTREAM OF THE INLET TO CREATE ADDITIONAL PONDING MAY ALSO BE UTILIZED.
- C. DETAILS SHOWN SHALL BE USED FOR TEMPORARY INSTALATION ONLY.
- D. USE OF PREFABRICATED INLET PROTECTION SHALL BE AS APPROVED IN THE EPSCP.

GENERAL NOTES:

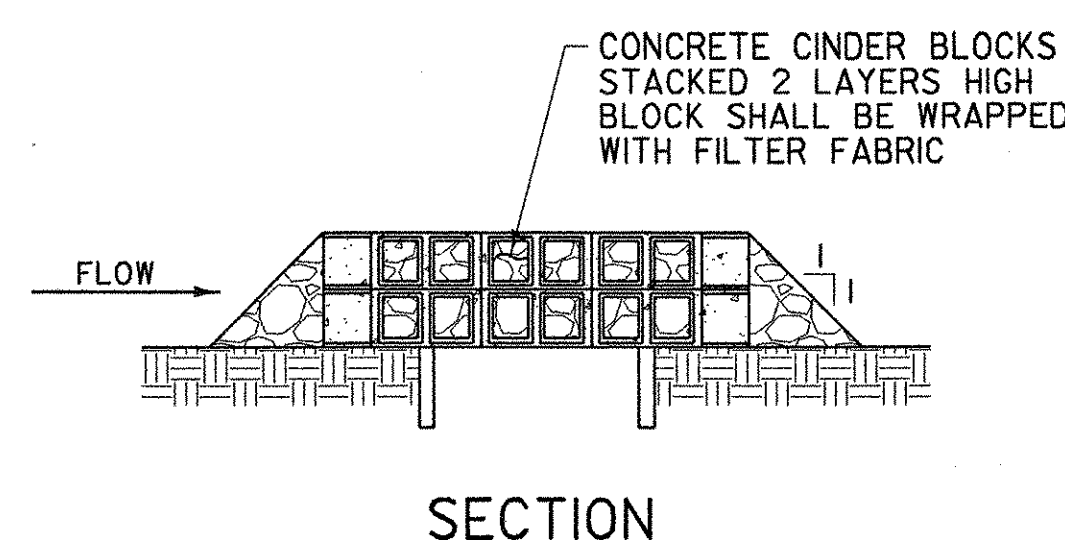
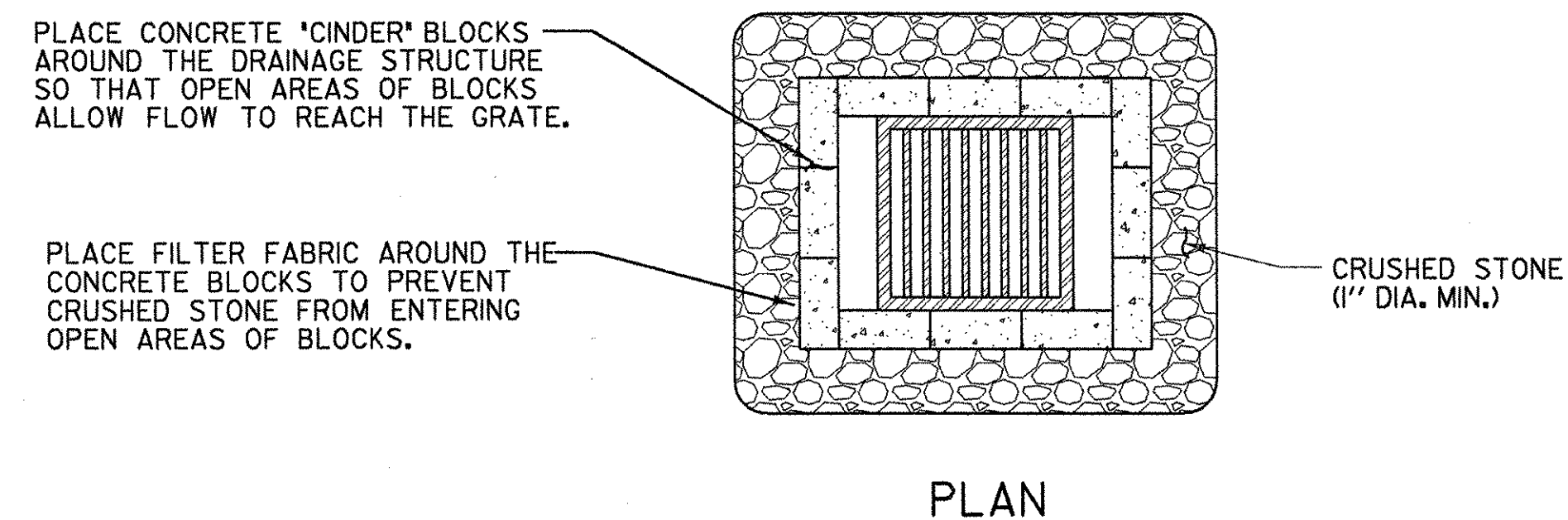
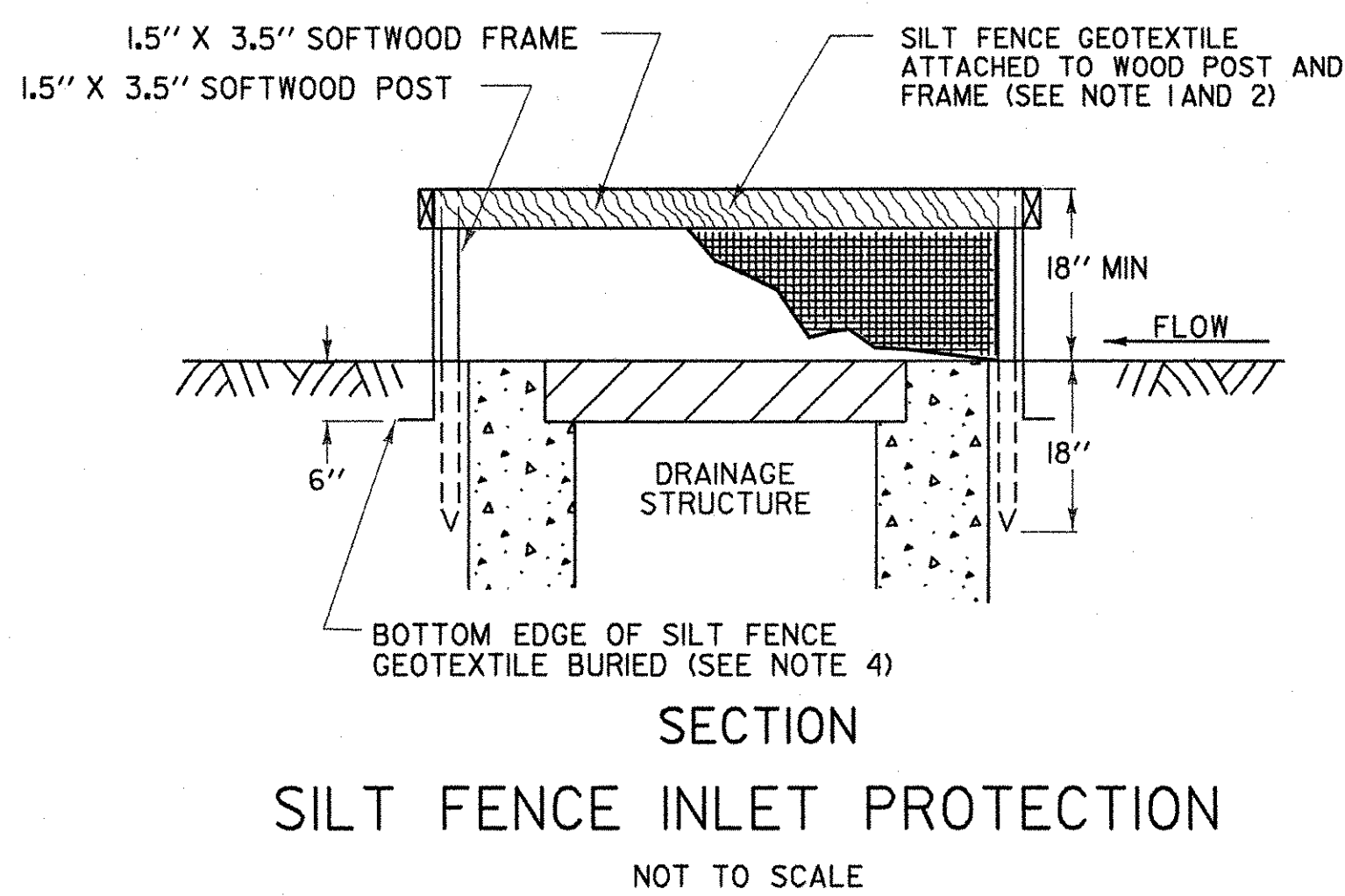
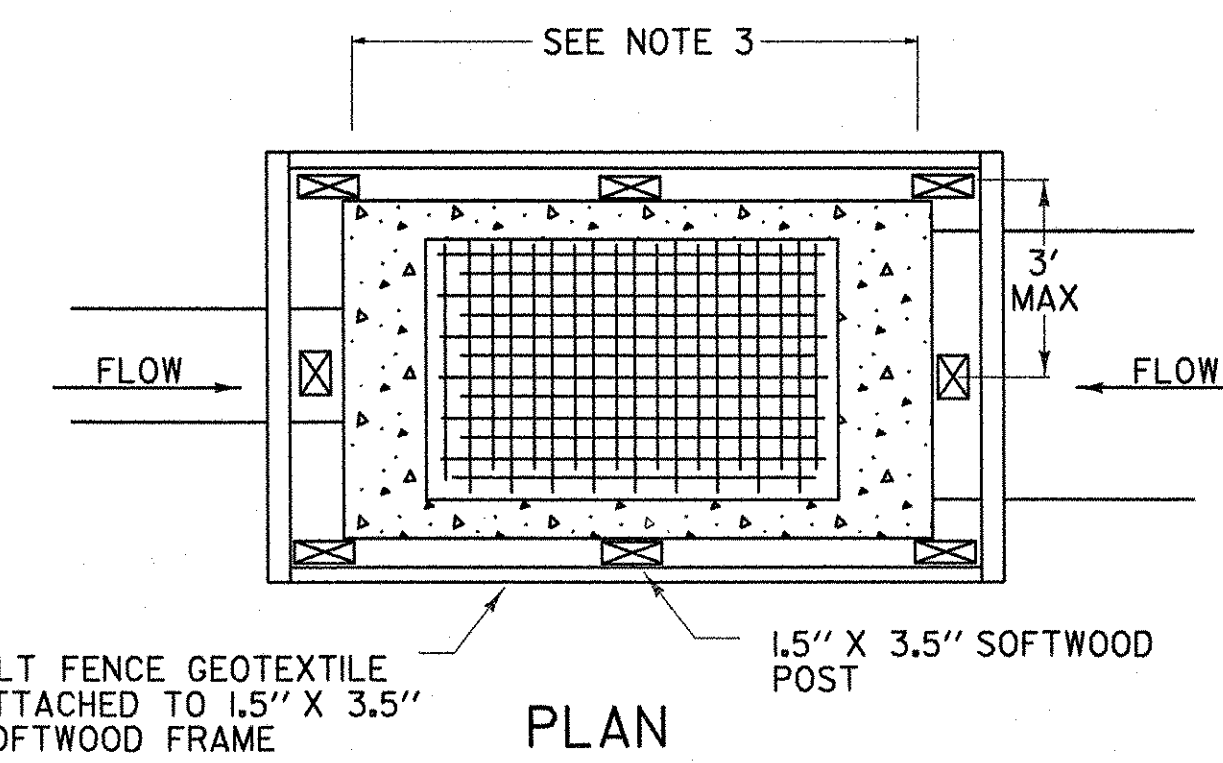
1. THE TOP OF THE INLET PROTECTION SHALL BE SET AT THE MAXIMUM DESIRED WATER LEVEL BASED ON FIELD LOCATION AND CONDITIONS.
2. SILT FENCE GEOTEXTILE SHALL BE A SINGLE CONTINUOUS PIECE TO MINIMIZE UNNECESSARY JOINTS.
3. SPACE SILT FENCE POSTS EVENLY AROUND INLET WITH A MAXIMUM SPACING OF 3 FEET. DRIVE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



GRAVEL BAG INLET PROTECTION



**ROCK BARRIER INLET PROTECTION
TEMPORARY UNPAVED AREAS**



**ROCK BARRIER INLET PROTECTION
TEMPORARY PAVED AREAS**

NOT TO SCALE

DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)



PROJECT NAME: SOUTH BURLINGTON
 PROJECT NUMBER: AC IM CULV (9)

FILE NAME: EPSC-3.DGN
 PROJECT LEADER: LANDRY
 DESIGNED BY: MRP
 EPSC DETAILS

PLOT DATE: 21-SEP-2007
 DRAWN BY: MAL
 CHECKED BY: DMB
 SHEET 27 OF 63

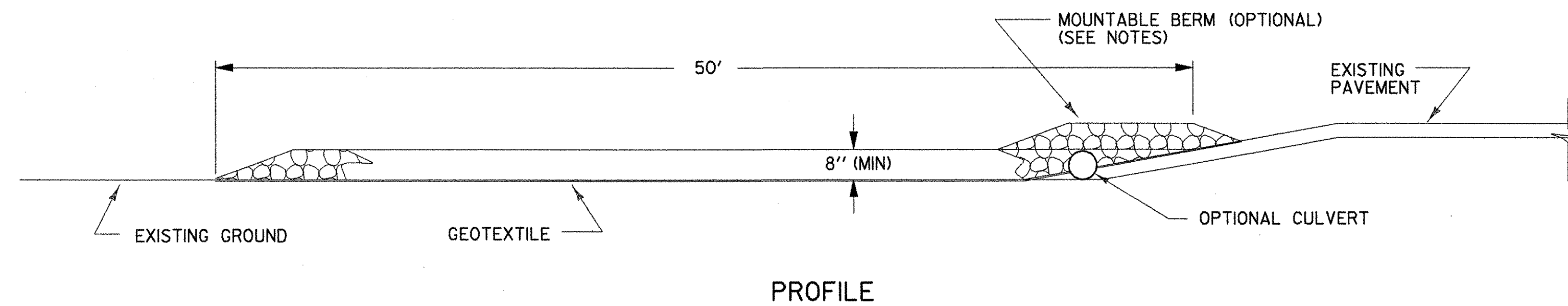
VEHICLE TRACKING PAD

APPLICATION NOTES:

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

GENERAL NOTES:

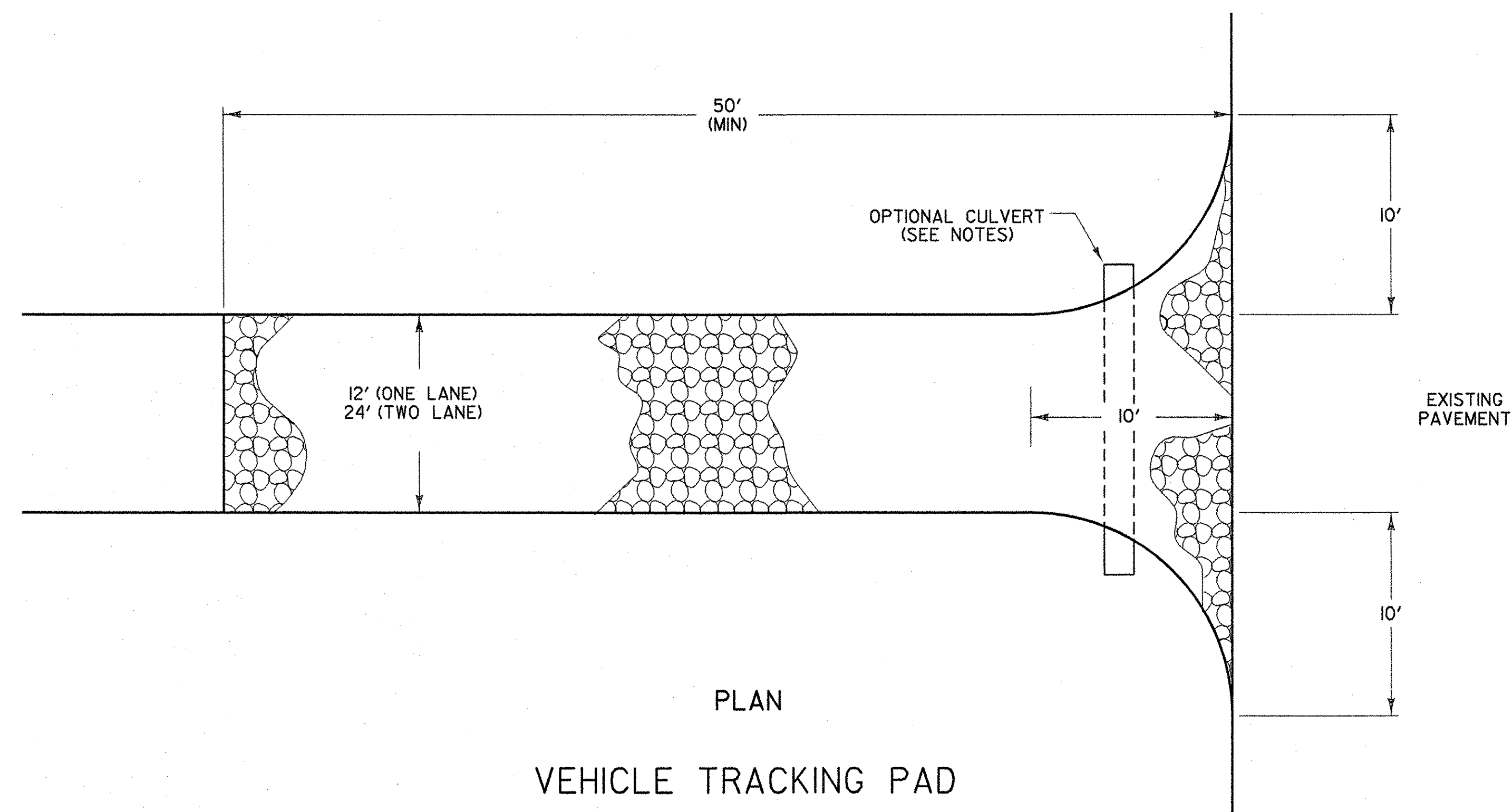
1. STONE SIZE - USE CLEAN STONE THAT MEETS THE GRADATION REQUIREMENTS SPECIFIED IN THE CONTRACT DOCUMENTS.
2. LENGTH - 50 FEET (MIN.)
3. THICKNESS - 8 INCHES (MIN.)
4. WIDTH - 12 FEET (MIN.)
5. GEOTEXTILE UNDER STONE SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL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



PROFILE

VEHICLE TRACKING PAD

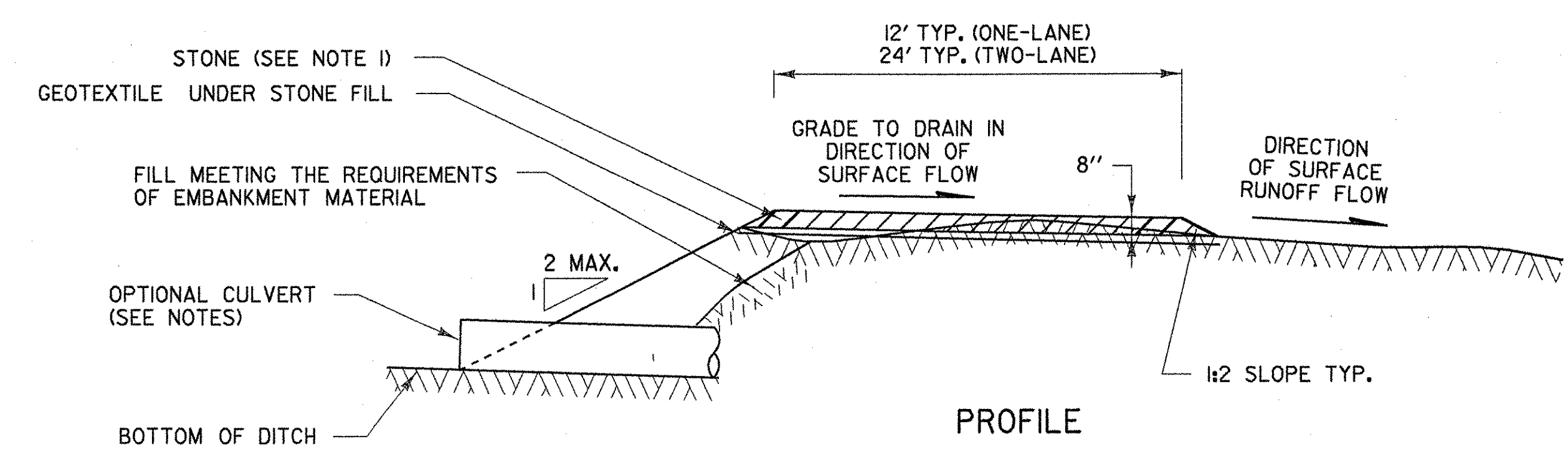
NOT TO SCALE



PLAN

VEHICLE TRACKING PAD

NOT TO SCALE



PROFILE

VEHICLE TRACKING PAD

NOT TO SCALE

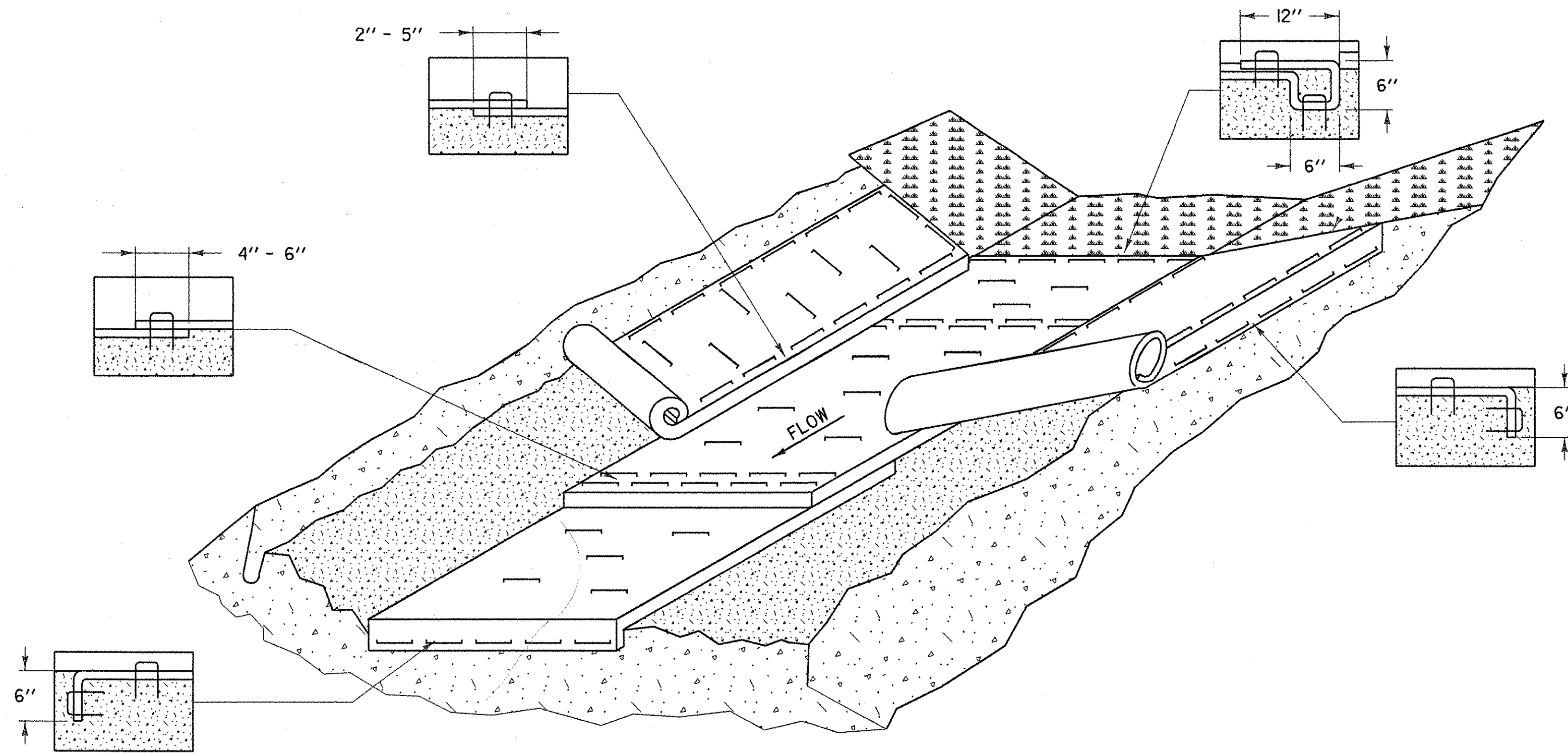
DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD83 (96)



PROJECT NAME: SOUTH BURLINGTON
PROJECT NUMBER: AC IM CULV (9)

FILE NAME: EPSC-4.DGN
PROJECT LEADER: LANDRY
DESIGNED BY: MRP
EPSC DETAILS

PLOT DATE: 21-SEP-2007
DRAWN BY: MAL
CHECKED BY: DMB
SHEET 28 OF 63



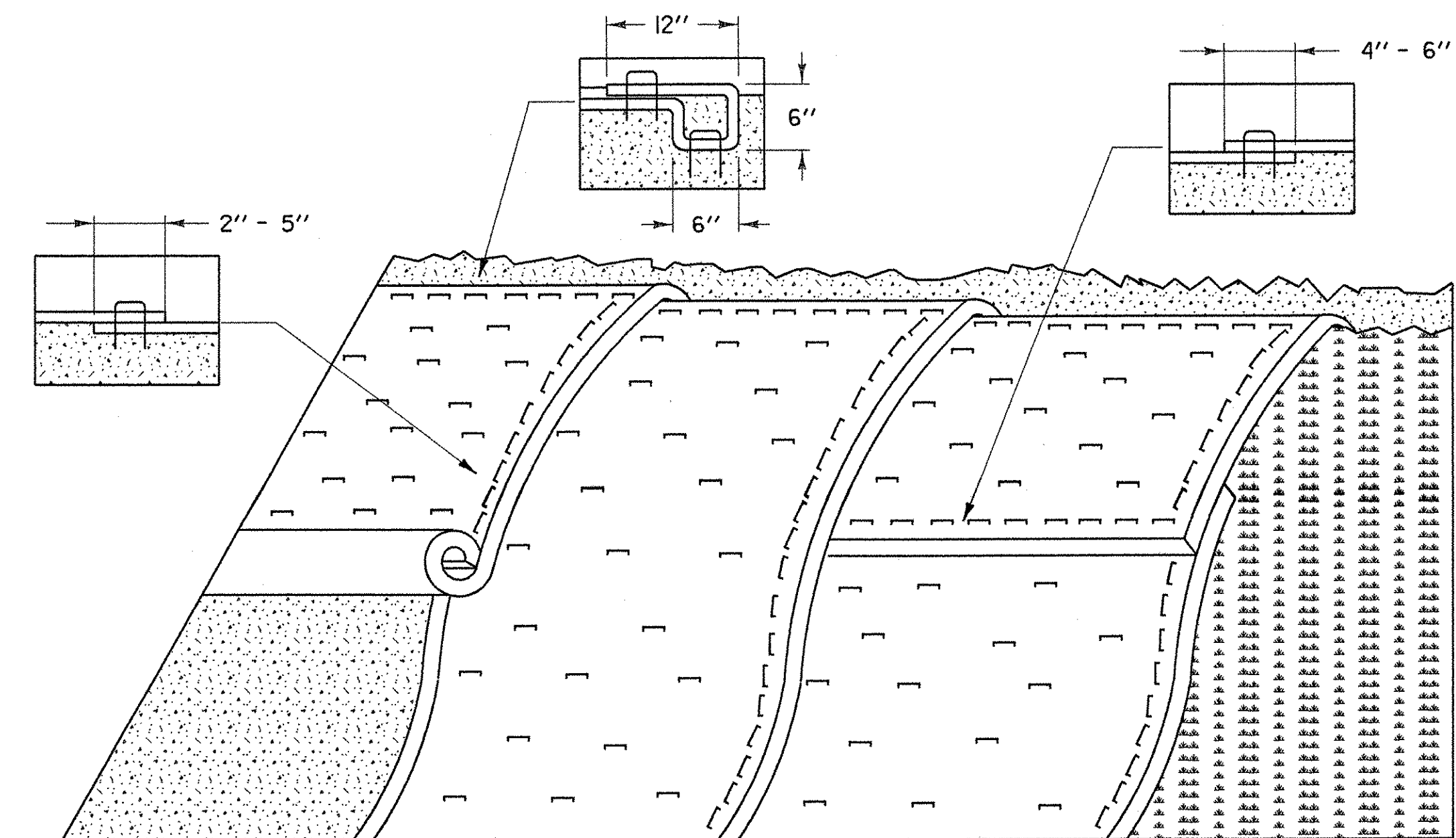
EROSION MATTING FOR DITCHES

APPLICATION NOTES:

- A. THE PURPOSE OF LINING THE DITCH WITH EROSION MATTING IS TO REDUCE EROSION AND AID THE ESTABLISHMENT OF VEGETATION AT LOW VELOCITIES.
- B. TYPE OF EROSION MATTING TO BE USED SHOULD BE BASED ON FACTORS SPECIFIC TO EACH APPLICATION. SEE SPECIFICATIONS AND PRODUCT RECOMMENDATIONS FOR SUITABILITY.

GENERAL NOTES:

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



EROSION MATTING FOR SLOPES

APPLICATION NOTES:

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

GENERAL NOTES:

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

DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)



PROJECT NAME: SOUTH BURLINGTON

PROJECT NUMBER: AC IM CULV (9)

FILE NAME: EPSC-5.DGN

PROJECT LEADER: LANDRY

DESIGNED BY: MRP

EPSC DETAILS

PLOT DATE: 21-SEP-2007

DRAWN BY: MAL

CHECKED BY: DMB

SHEET 29 OF 63

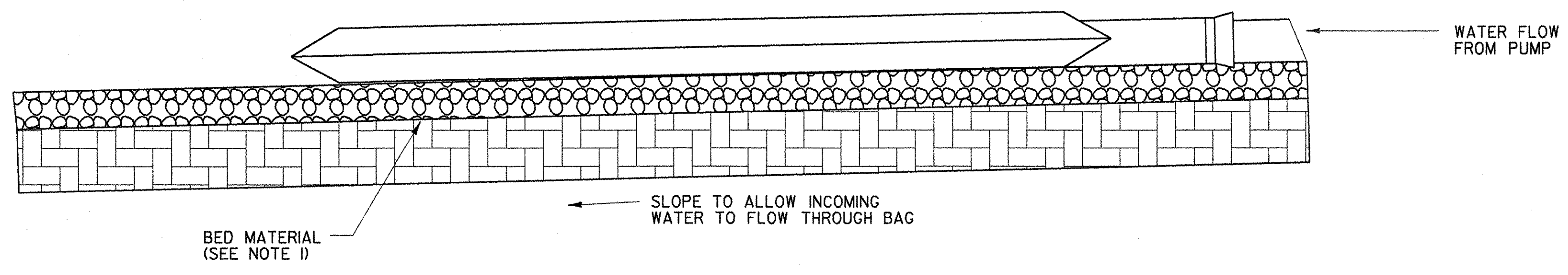
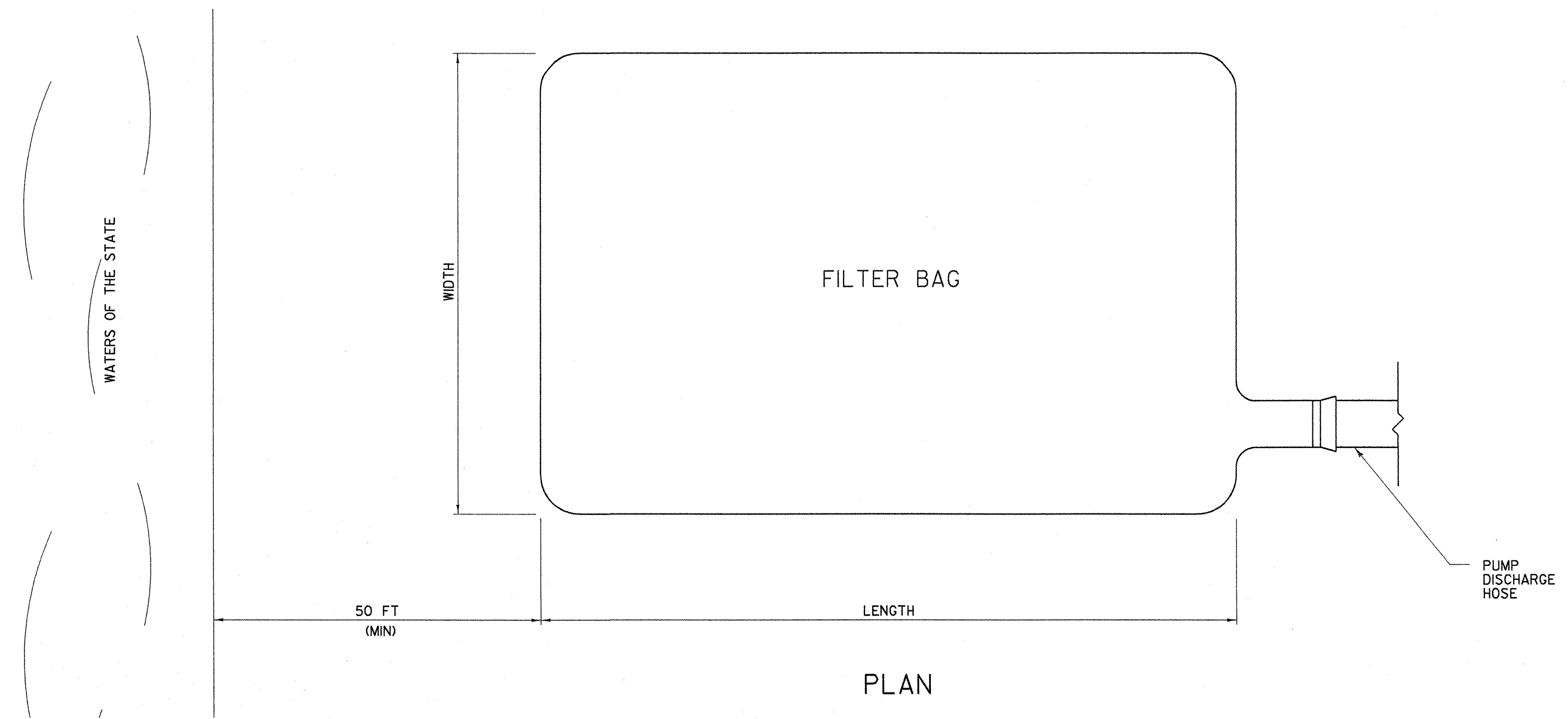
FILTER BAG

APPLICATION NOTES:

A. THE PRIMARY PURPOSE OF THE FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS WHILE ALLOWING WATER TO PASS THROUGH THE BAG.

GENERAL NOTES:

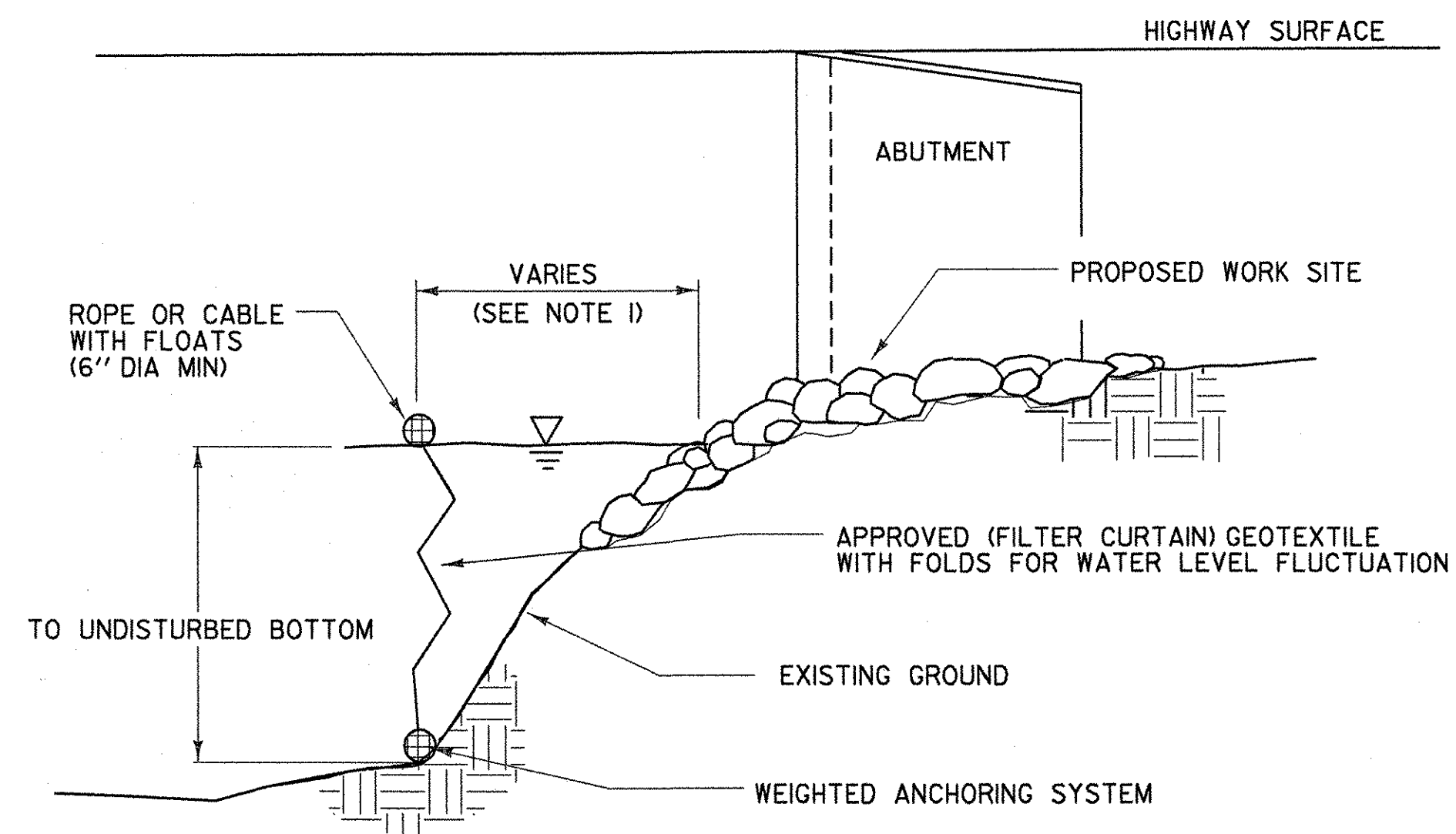
1. FILTER BAG SHALL BE INSTALLED ON A VEGETATED SLOPE TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG. FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION EFFICIENCY.
2. FILTER BAG SHALL BE LOCATED A MINIMUM OF 50 FEET FROM WATERS OF THE STATE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
3. THE NECK OF THE FILTER BAG SHALL BE STRAPPED TIGHTLY TO THE DISCHARGE HOSE.
4. FILTER BAG SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE STORMWATER TO LEAVE THE CONSTRUCTION SITE.
5. A FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE. FILTER BAG SHALL BE DISPOSED OF AS APPROVED IN THE EPSCP OR AS DIRECTED BY THE ENGINEER.



PROFILE
FILTER BAG
NOT TO SCALE

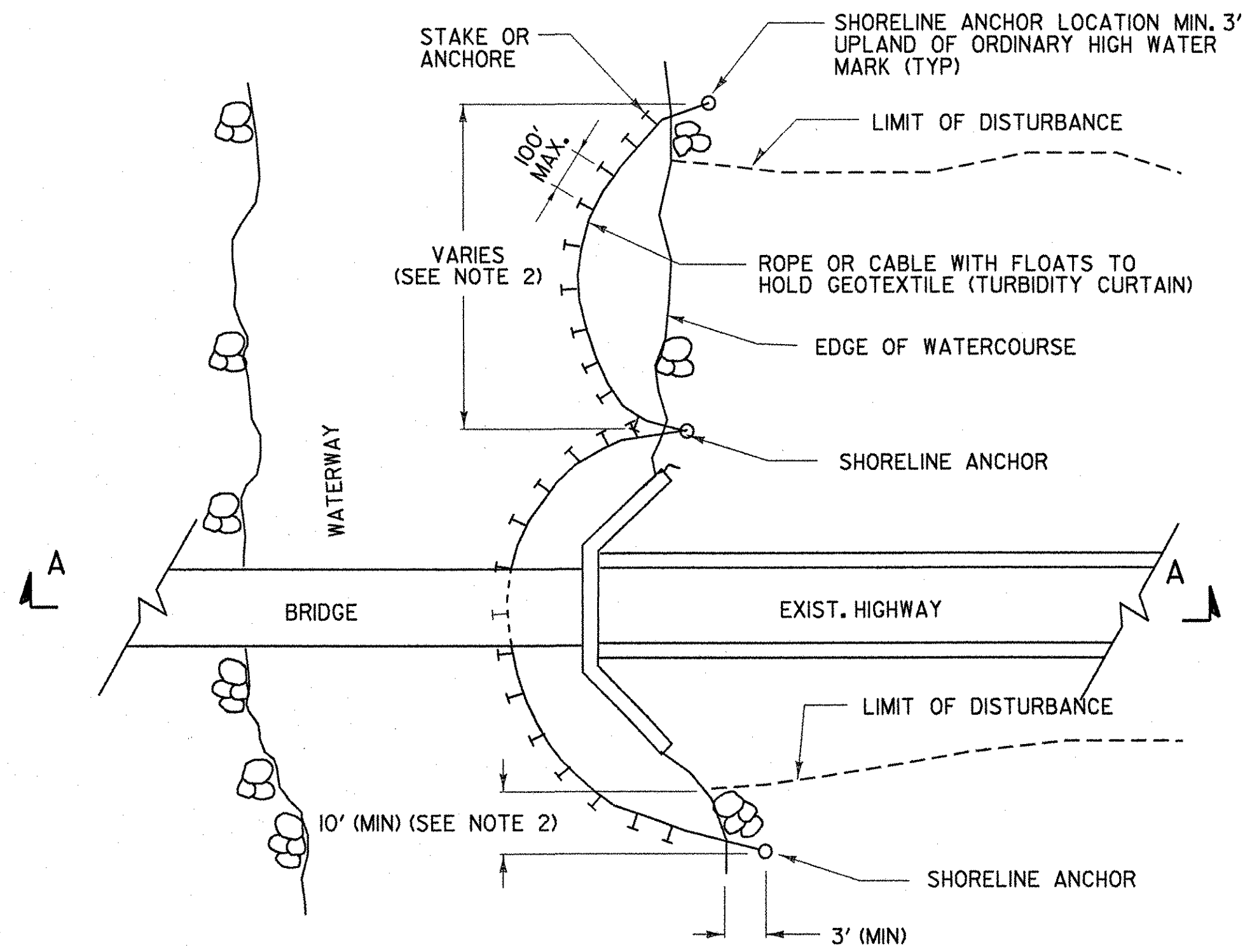
DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD83 (96)

 MR FARLAND- JOHNSON, INC	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
	FILE NAME: EPSC-6.DGN	CHECKED BY: DMB
	PROJECT LEADER: LANDRY DESIGNED BY: MRP EPSC DETAILS	SHEET 30 OF 63



SECTION A-A

NOT TO SCALE



PLAN
FILTER CURTAIN

NOT TO SCALE

FILTER CURTAIN


APPLICATION NOTES:

- A. THE PRIMARY PURPOSE OF A FILTER CURTAIN IS TO PROVIDE SEDIMENTATION PROTECTION FOR A WATERCOURSE FROM UP-SLOPE LAND DISTURBANCE OR FROM DREDGING OR FILLING WITHIN WATERCOURSE.
- B. FILTER CURTAINS SHALL NOT BE PLACED ACROSS A FLOWING WATERWAY, OR IN A WATERWAY WITH VELOCITIES GREATER THAN MANUFACTURER'S RECOMMENDATIONS.
- C. FILTER CURTAINS SHOULD NOT BE PLACED AT THE OUTLET OF A CULVERT OR DITCH UNLESS THE VELOCITY DOES NOT EXCEED 1.5 FT/SEC.
- D. DETAILS DEPICT WORK AT A BRIDGE LOCATION, BUT FILTER CURTAINS MAY BE APPLIED AT OTHER LOCATIONS.

GENERAL NOTES:

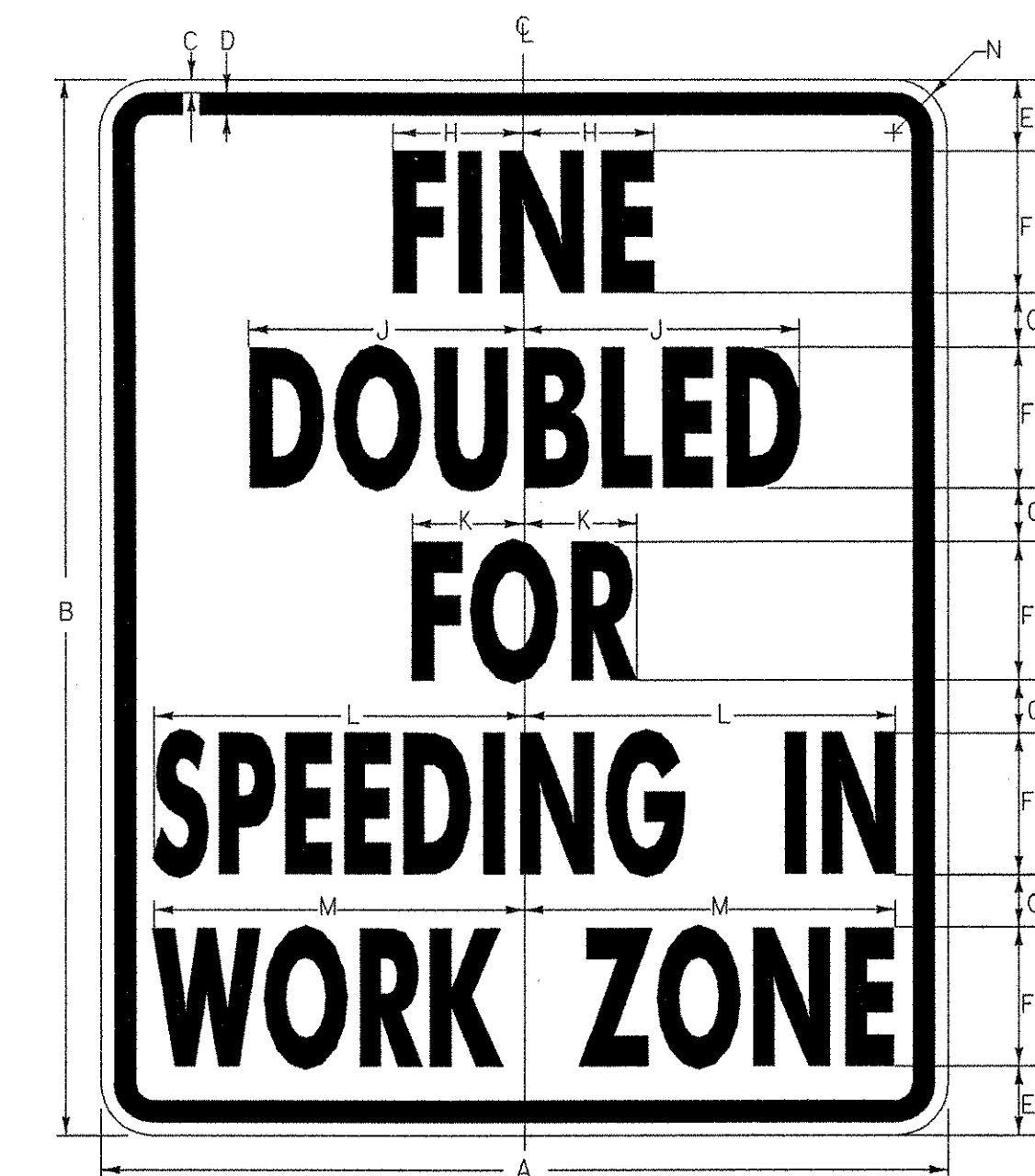
1. FILTER CURTAINS SHALL BE PLACED AS CLOSE TO THE WORK AS POSSIBLE WITHOUT INTERFERING WITH CONSTRUCTION OPERATIONS.
2. FILTER CURTAINS SHALL BE A MAXIMUM OF 100 FEET LONG BETWEEN SHORELINE ANCHORS. LAST SECTION SHALL TERMINATE A MINIMUM OF 10 FEET BEYOND THE LIMIT OF DISTURBANCE.
3. THE CONTRACTOR SHALL MONITOR THE FILTER CURTAIN, TAKING INTO ACCOUNT WEATHER PATTERNS AND PREVAILING WIND DIRECTIONS THAT MAY AFFECT WATER LEVELS, VELOCITY AND MOVEMENT OF THE TURBIDITY CURTAIN.
4. SEAMS IN THE FILTER CURTAIN FABRIC SHALL BE EITHER VULCANIZED WELDED OR SEWN, AND SHALL DEVELOP THE FULL STRENGTH OF THE FABRIC.
5. SOIL PARTICLES TRAPPED BY THE FILTER CURTAIN SHOULD ONLY BE REMOVED IF THERE HAS BEEN A SIGNIFICANT CHANGE IN THE ORIGINAL CONTOURS OF THE AFFECTED AREA IN THE WATERCOURSE.
6. SOIL PARTICLES SHALL BE ALLOWED 6-12 HOURS TO SETTLE PRIOR TO THEIR REMOVAL OR THE REMOVAL OF THE FILTER CURTAIN.
7. FILTER CURTAINS SHALL BE REMOVED BY SLOWLY PULLING TOWARDS THE SHORE TO MINIMIZE ESCAPE OF SEDIMENTS INTO THE WATERWAY.

DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD83 (96)

 MR FARLAND- JOHNSON, INC	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
	FILE NAME: EPSC-7.DGN	CHECKED BY: DMB
	PROJECT LEADER: LANDRY DESIGNED BY: MRP EPSC DETAILS	SHEET 31 OF 63

I-89 TRAFFIC CONTROL NOTES

1. ALL TRAFFIC CONTROL DEVICES AND PLANS SHALL CONFORM TO THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO "GREEN BOOK", THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), NCHRP REPORT 476 - GUIDELINES FOR DESIGN AND OPERATION OF NIGHTTIME TRAFFIC CONTROL FOR HIGHWAY MAINTENANCE AND CONSTRUCTION AND VERMONT AGENCY OF TRANSPORTATION (VAOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION 2006. THE RESIDENT ENGINEER SHALL HAVE THE AUTHORITY TO ALTER ALL TRAFFIC CONTROL PLANS IN THE FIELD AS NECESSARY.
2. TRAFFIC SHALL BE CONTROLLED AND MAINTAINED AT ALL TIMES THROUGHOUT ALL PHASES OF THIS PROJECT IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER. FOUR LANES SHALL BE MAINTAINED BETWEEN 6 AM AND 7 PM.
3. THE CONTRACTOR SHALL SUBMIT TRAFFIC CONTROL PLANS AND SCHEDULES FOR ALL WORK ASSOCIATED WITH THIS PROJECT TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO ANY CONSTRUCTION ACTIVITY.
4. THE NUMBER AND LOCATION OF REFLECTORIZED PLASTIC DRUMS, TYPE III BARRICADES AND DELINEATORS SHOWN ON THESE PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS IN ACCORDANCE WITH THE APPLICABLE STANDARDS PRIOR TO PLACEMENT.
5. MILE MARKERS REFERENCED IN THE DRAWINGS SHALL NOT BE USED FOR LAYOUT PURPOSES; THEY ARE INTENDED FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL MILE MARKERS AND STATIONING NECESSARY TO DESIGN AND CONSTRUCT ALL TRAFFIC CONTROL RELATED ITEMS.
6. NO PRIVATE VEHICLES BELONGING TO THE CONTRACTOR'S EMPLOYEES SHALL BE PARKED ON THE INTERSTATE RIGHT-OF-WAY AND/OR THE TRAVELED WAY OF ANY PUBLIC THOROUGHFARE AT ANY TIME THROUGHOUT THE CONSTRUCTION PERIOD.
7. ALL EXISTING PAVEMENT MARKINGS IN CONFLICT WITH TEMPORARY PAVEMENT MARKINGS AS SHOWN IN THE STANDARD E-103, E-104 AND E-104A SHALL BE REMOVED. ITEM 646.85 - REMOVAL OF EXISTING PAVEMENT MARKINGS.
8. TEMPORARY PAVEMENT MARKINGS THROUGHOUT THE TRAFFIC CONTROL PACKAGE SHALL BE PAID AS ITEMS 646.62 *TEMPORARY 6" WHITE LINE (PAINT) AND 646.63 *TEMPORARY 6" YELLOW LINE (PAINT).
9. IN ACCORDANCE WITH STD E-103, ITEM 646.75 *RAISED PAVEMENT MARKERS, TYPE II* SHALL BE PLACED AT 20 FOOT INTERVALS.
10. PAYMENT FOR PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE UNDER ITEM 641J5 *PORTABLE CHANGEABLE MESSAGE SIGN*. PAYMENT FOR TRAFFIC CONTROL SIGNS, PLASTIC DRUMS, DELINEATORS, FLEXIBLE TUBULAR MARKERS, TYPE III BARRICADES AND TYPE III (MOD.) BARRICADES SHALL BE UNDER ITEM 641J0 *TRAFFIC CONTROL*. PAYMENT SHALL INCLUDE ALL NECESSARY MAINTENANCE AND REPAIRS TO THESE TRAFFIC CONTROL DEVICES ON A DAILY BASIS. THE ENGINEER MAY ADD TRAFFIC CONTROL SIGNS AS NECESSARY. ADDITIONAL SIGNS, INCLUDING POSTS AND FOUNDATIONS, SHALL BE PAID FOR AS ITEM 675.20, *TRAFFIC SIGNS, TYPE A*.
11. THE CONTRACTOR SHALL KEEP AN EXTRA PORTABLE CHANGEABLE MESSAGE BOARD ON SITE TO BE USED AS A *BACK-UP* IN THE EVENT THAT A PORTABLE CHANGEABLE MESSAGE BOARD IS RENDERED INOPERATIVE. PAYMENT FOR ADDITIONAL PORTABLE CHANGEABLE MESSAGE BOARD SHALL BE PAID FOR UNDER ITEMS 641J5.
12. FOR CLARITY, NOT ALL EXISTING SIGNS ARE SHOWN ON THE PLANS. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING SIGNS IN THE FIELD. PLACEMENT OF CONSTRUCTION SIGNS SHALL BE DIRECTED BY THE RESIDENT ENGINEER WHERE CONFLICTS WITH EXISTING SIGNS OCCUR.
13. THE CONTRACTOR SHALL COVER OR REMOVE ANY SIGNS THAT CONTRADICT TEMPORARY TRAFFIC CONTROL SIGNS. ALL SIGNS REMOVED OR COVERED BY THE CONTRACTOR SHALL BE PLACED OR UNCOVERED BY THE CONTRACTOR WHEN THE TRAFFIC CONTROL PLAN IS DISASSEMBLED. PAYMENT FOR REMOVAL AND REPLACEMENT, COVERING AND UNCOVERING OF SIGNS AND PLACEMENT AND REMOVAL OF TEMPORARY OVERLAYS SHALL BE INCIDENTAL TO ITEM 641J0, *TRAFFIC CONTROL*. ANY DAMAGE TO EXISTING SIGNS BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR WITH NO EXTRA COMPENSATION.
14. WHERE CROSSOVERS ARE TO BE PLACED, EXISTING SLOPES SHALL BE STRIPPED OF TOPSOIL AND BENCHED AS DIRECTED BY THE ENGINEER. FILL MATERIAL SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT AND SHALL BE FREE OF EXCESSIVE AMOUNTS OF MOISTURE, ORGANICS, AND SILTS. SUBBASE MATERIAL SHALL BE APPROVED BY THE RESIDENT ENGINEER PRIOR TO PLACEMENT AND SHALL BE PLACED TO A MAXIMUM DEPTH OF 12 INCHES. PAVING OF CROSSOVER DETOURS SHALL BE PAID FOR AS ITEM 490.30, *BITUMINOUS PAVEMENT, TYPE III*. THE PAVEMENT SHALL BE PLACED IN A SINGLE COURSE OF 3-1/2 INCHES OF DEPTH. THE COST OF ALL OTHER WORK REQUIRED FOR THE DESIGN, CONSTRUCTION AND REMOVAL OF CROSSOVERS SHALL BE INCIDENTAL TO ITEM 641J0, *TRAFFIC CONTROL*.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING, MAINTAINING AND REMOVING TEMPORARY DRAINAGE STRUCTURES AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE TO EXISTING DRAINAGE STRUCTURES (IE: CATCH BASINS, CULVERTS) WHICH COULD BECOME BLOCKED FROM INSTALLATION OF THE CROSSOVERS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING DRAINAGE STRUCTURES AND SUBMIT A TEMPORARY DRAINAGE PLAN FOR EACH CROSSOVER TO THE RESIDENT ENGINEER FOR APPROVAL. PAYMENT FOR DEVELOPMENT OF THIS PLAN AND ALL CONSTRUCTION ACTIVITIES ASSOCIATED WITH TEMPORARY DRAINAGE SHALL BE CONSIDERED INCIDENTAL TO ITEM 641J0, *TRAFFIC CONTROL*.
16. WHERE CROSSOVERS TRAVERSE AN EXISTING U-TURN, THE CONTRACTOR SHALL MAINTAIN A SMOOTH TRANSITION THROUGHOUT THE CROSSOVER. ANY EXCAVATION OR FILL NECESSARY TO PROVIDE A SMOOTH TRANSITION DURING CONSTRUCTION AND RETURN THE U-TURN TO IT'S ORIGINAL CONDITION AS DIRECTED BY THE RESIDENT ENGINEER SHALL BE INCIDENTAL TO ITEM 641J0 *TRAFFIC CONTROL*.
17. THE CONTRACTOR SHALL REPLACE ALL DELINEATOR POSTS AND DELINEATORS THAT ARE DAMAGED OR DESTROYED BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION. SEE STANDARD E-198 FREEWAY-EXPRESSWAY DELINEATORS AND MILEPOSTS FOR DETAILS.
18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF THE CROSSOVERS AND RE-ESTABLISHMENT OF TURF AND VEGETATION ON ALL PORTIONS OF THE SITE THAT HAVE BEEN DISTURBED DURING CONSTRUCTION. ALL COSTS FOR THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 641J0, *TRAFFIC CONTROL*.
19. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE FOR ALL EXISTING DRAINAGE STRUCTURES AND SYSTEMS. NO STAGNATION OF OR EROSION FROM STORMWATER SHALL BE PERMITTED ON ACCOUNT OF TEMPORARILY CONSTRUCTED TRAFFIC CONTROL STRUCTURES OR DEVICES. PAYMENT FOR THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 641J0, *TRAFFIC CONTROL*.
20. PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE IN PLACE TWO WEEKS PRIOR TO CONSTRUCTION TO PROVIDE ADVANCE WARNING OF CONSTRUCTION. MESSAGES SHOULD BE CHANGED PERIODICALLY TO MAINTAIN THE ATTENTION OF THE TRAVELING MOTORISTS AND TO DISPLAY CURRENT WORK ZONE CONDITIONS.
21. CONTRACTOR TO COORDINATE WITH THE RESIDENT ENGINEER LOCATIONS AND MESSAGES FOR THE PORTABLE CHANGEABLE SIGNS. CARE SHOULD BE TAKEN TO NOT CONFLICT WITH MESSAGES FROM ANY ADJACENT PROJECTS.
22. PRIOR TO THE OPENING OF THE PHASE I CROSSOVER, SHOULDER SLOPES SHALL BE SHIMMED TO A MAXIMUM CROSS SLOPE OF 2% RUMBLE STRIPS REMOVED AND LANES LEVELLED TO REMOVE ANY RUTTING BETWEEN STATION 207+00 AND STATION 221+00 FOR BOTH NORTHBOUND AND SOUTHBOUND PAVEMENT. THIS WORK WILL BE PAID AS ITEM 490.30.

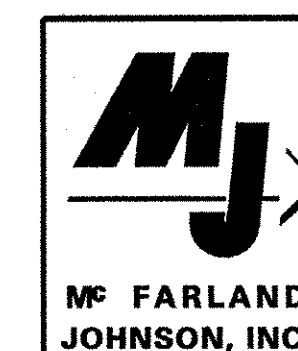


VR 355
COLORS: BLACK TEXT & BORDER
WITH WHITE BACKGROUND

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L*	M*	N	
STD	30	36	1/2	3/4	3 1/2	4C	2 1/4	4 1/2	9 7/8	4	13	13	1 7/8	
EXPWY Fwy	48	60	3/4	1 1/4	4	8B	3	7 3/8	15 3/8	6 1/2	21	21	3	

STD L* REDUCE SPACING BY 9.3%
STD M* REDUCE SPACING BY 17.8%
EXPWY Fwy L* REDUCE SPACING BY 12%
EXPWY Fwy M* REDUCE SPACING BY 7.7%

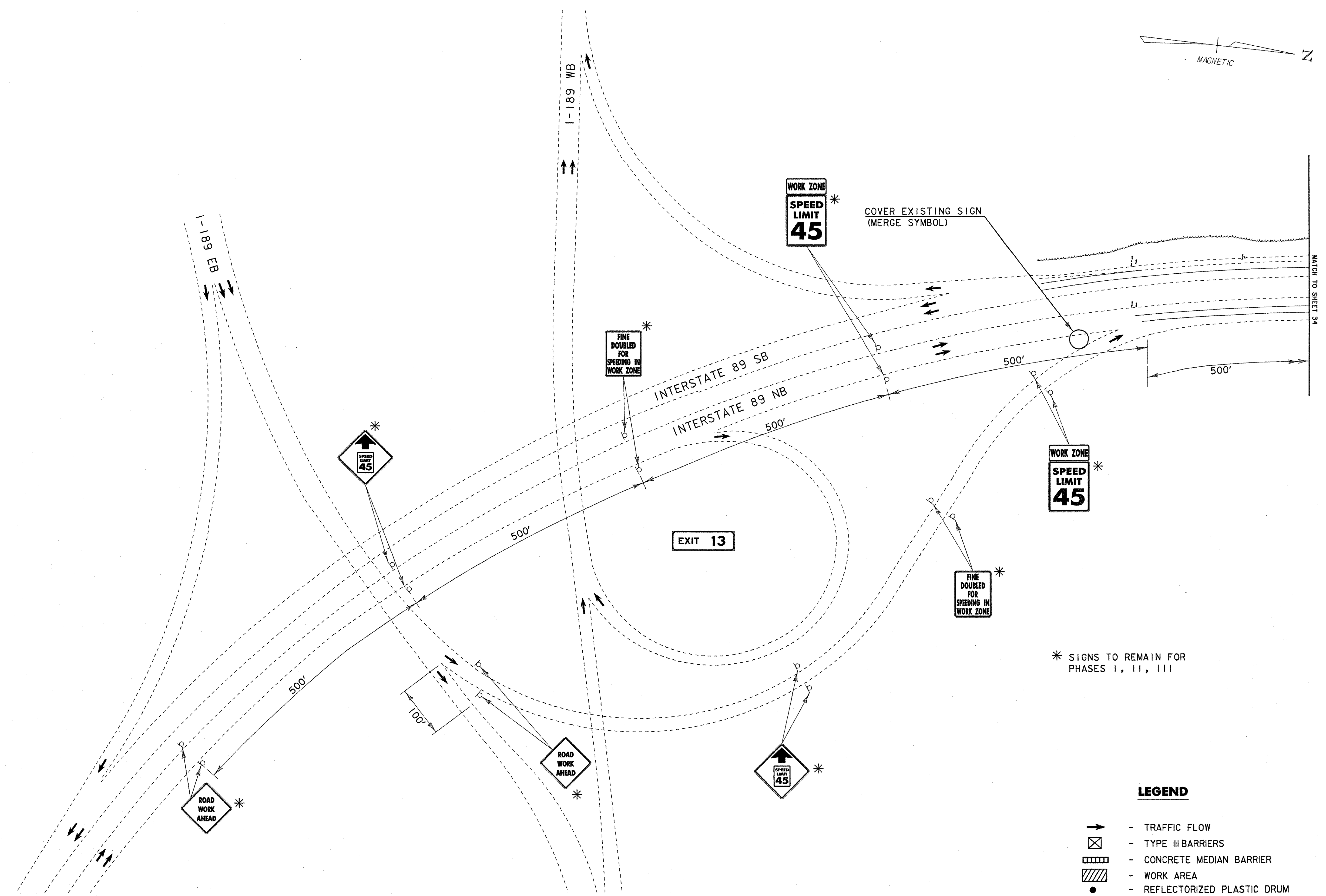
DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD83 (96)



PROJECT NAME: SOUTH BURLINGTON
PROJECT NUMBER: AC IM CULV (9)

FILE NAME: TCPnotes.DGN
PROJECT LEADER: LANDRY
DESIGNED BY: MRP
TRAFFIC CONTROL NOTES

PLOT DATE: 21-SEP-2007
DRAWN BY: MAL
CHECKED BY: DMB
SHEET 32 OF 63



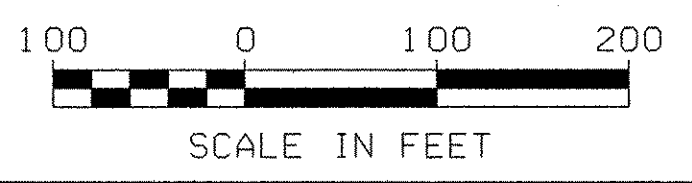
* SIGNS TO REMAIN FOR PHASES I, II, III

LEGEND

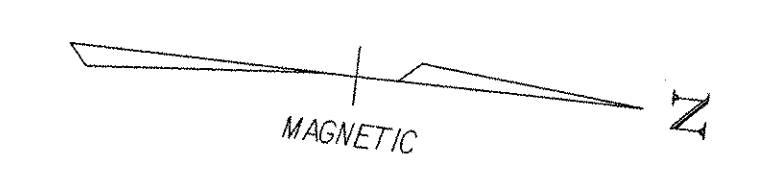
- - TRAFFIC FLOW
- ⊠ - TYPE III BARRIERS
- ▬ - CONCRETE MEDIAN BARRIER
- ▨ - WORK AREA
- - REFLECTORIZED PLASTIC DRUM
- ▬ - ATTENUATOR

PHASE I

	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
	FILE NAME: ts01.dgn	CHECKED BY: DMB
	PROJECT LEADER: LANDRY DESIGNED BY: MRP	SHEET 33 OF 63
TRAFFIC CONTROL PLAN - PHASE I		



DATUM	
VERTICAL:	NAVD 88
HORIZONTAL:	NAD83 (96)

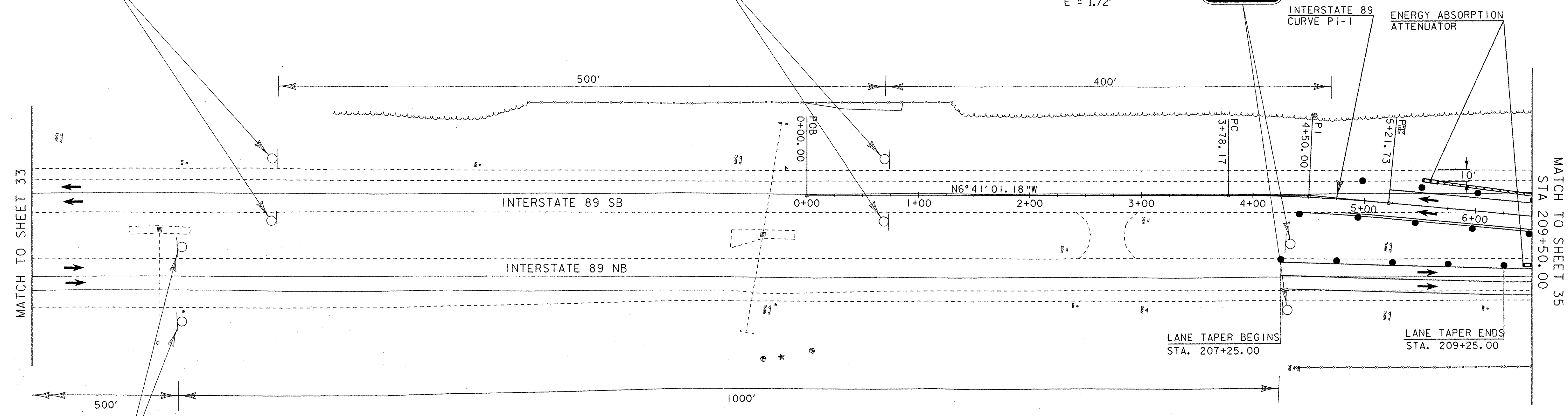


**SPEED
LIMIT
55**

**END
ROAD
WORK**

**STAY
IN
LANE**

INTERSTATE 89 (PHASE I)
CURVE #P1-1
PI STA = 4+50.00
N = 714868.44
E = 1461567.18
 $\Delta = 5^{\circ}29'00.9''$ RT
R = 1500.00
T = 71.83'
L = 143.56'
E = 1.72'



MATCH TO SHEET 33

MATCH TO SHEET 35
STA 209+50.00

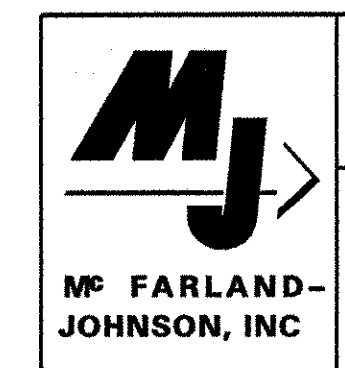
1000 FEET

LEGEND

- TRAFFIC FLOW
- TYPE III BARRIERS
- CONCRETE MEDIAN BARRIER
- WORK AREA
- REFLECTORIZED PLASTIC DRUM
- ATTENUATOR

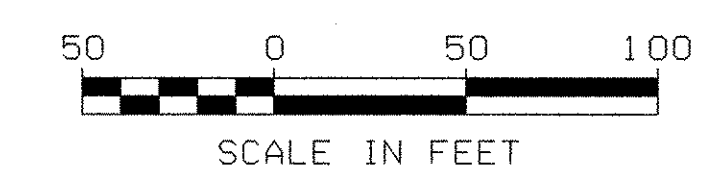
NOTE
DRUM SPACING IS 50 FEET.

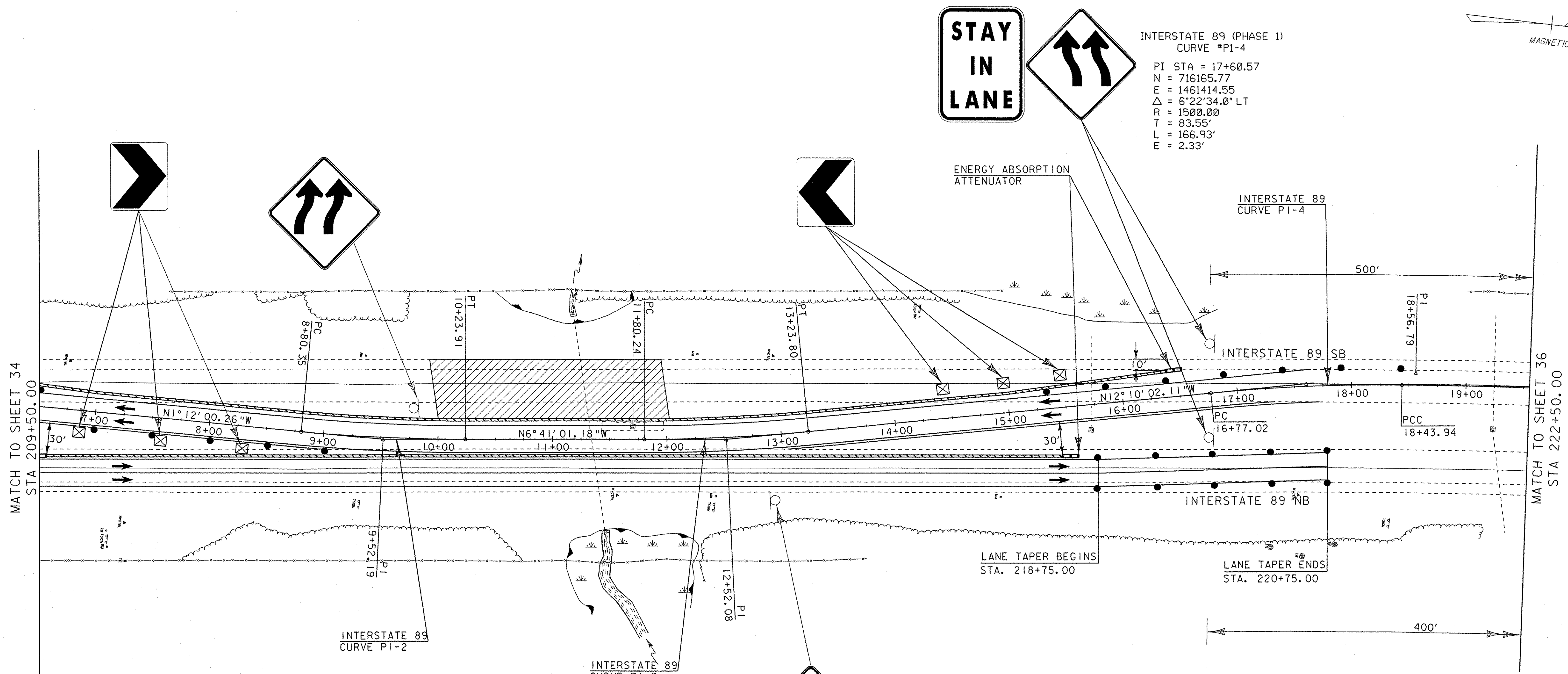
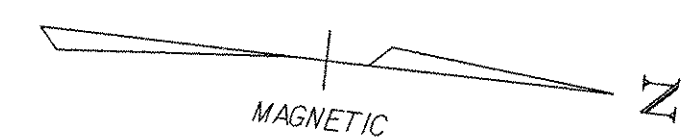
PHASE I



PROJECT NAME: SOUTH BURLINGTON
 PROJECT NUMBER: AC IM CULV (9)
 FILE NAME: +s02.dgn
 PROJECT LEADER: LANDRY
 DESIGNED BY: MRP
 TRAFFIC CONTROL PLAN - PHASE I
 PLOT DATE: 21-SEP-2007
 DRAWN BY: MAL
 CHECKED BY: DMB
 SHEET 34 OF 63

DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)



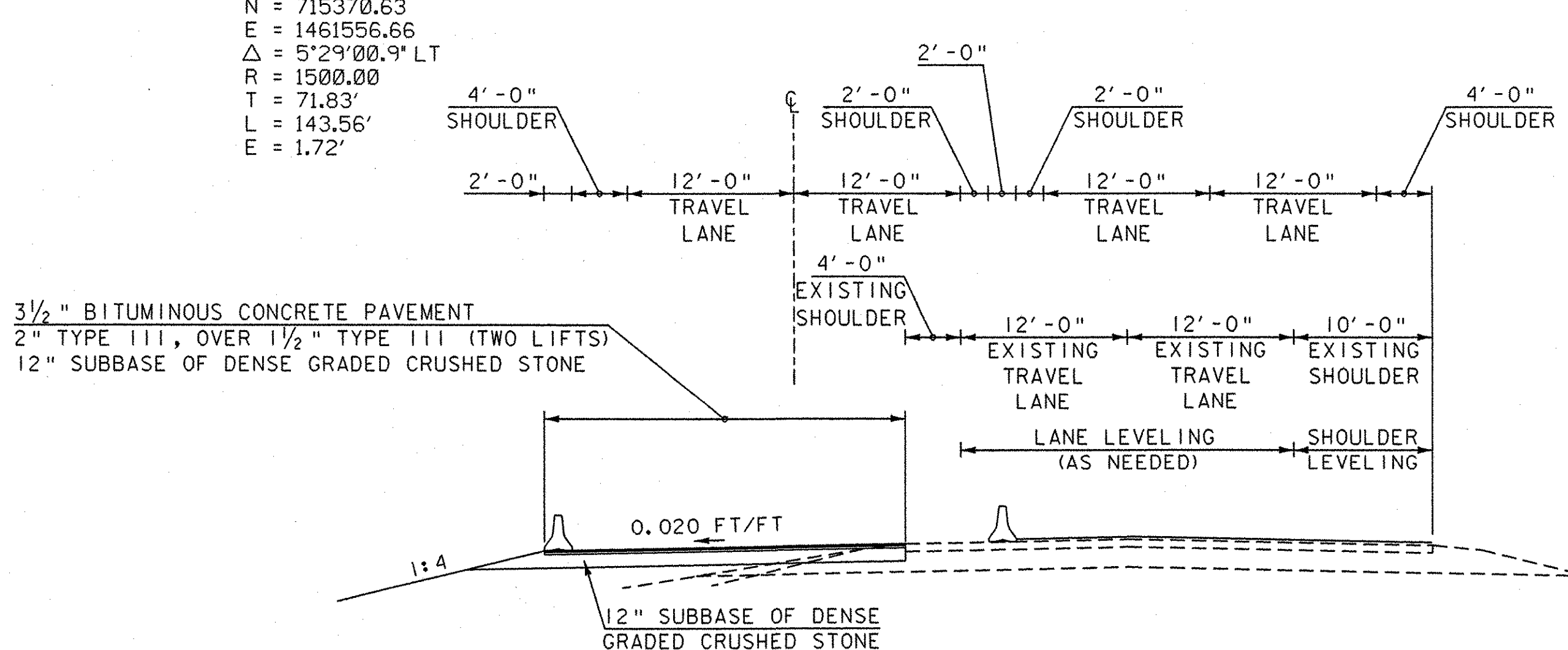


STAY IN LANE

INTERSTATE 89 (PHASE I)
 CURVE *P1-4
 PI STA = 17+60.57
 N = 716165.77
 E = 1461414.55
 Δ = 6°22'34.0" LT
 R = 1500.00
 T = 83.55'
 L = 166.93'
 E = 2.33'

INTERSTATE 89 (PHASE I)
 CURVE *P1-2
 PI STA = 9+52.19
 N = 715370.63
 E = 1461556.66
 Δ = 5°29'00.9" LT
 R = 1500.00
 T = 71.83'
 L = 143.56'
 E = 1.72'

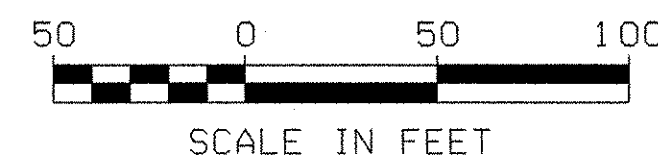
INTERSTATE 89 (PHASE I)
 CURVE *P1-3
 PI STA = 12+52.08
 N = 715668.59
 E = 1461521.74
 Δ = 5°29'00.9" LT
 R = 1500.00
 T = 71.83'
 L = 143.56'
 E = 1.72'



LEGEND

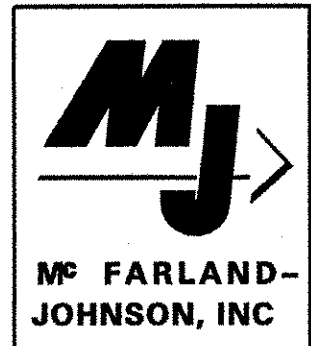
- - TRAFFIC FLOW
- ⊠ - TYPE III BARRIERS
- ▨ - CONCRETE MEDIAN BARRIER
- ▨ - WORK AREA
- - REFLECTORIZED PLASTIC DRUM
- - ATTENUATOR

NOTE
 DRUM SPACING IS 50 FEET.

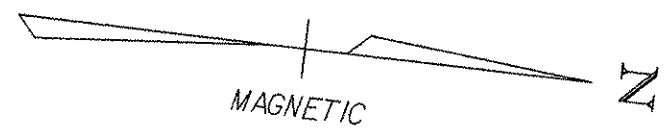


DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)

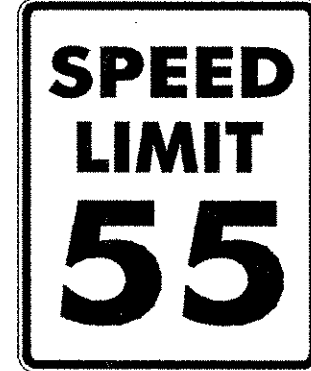
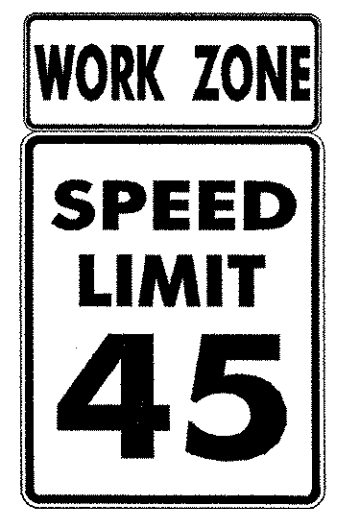
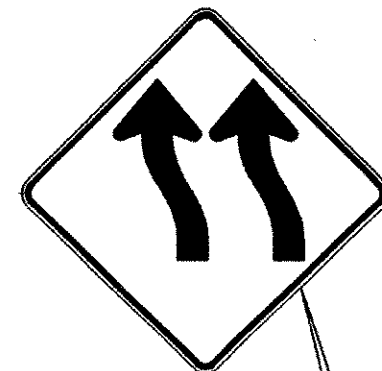
PHASE I
 NOT TO SCALE



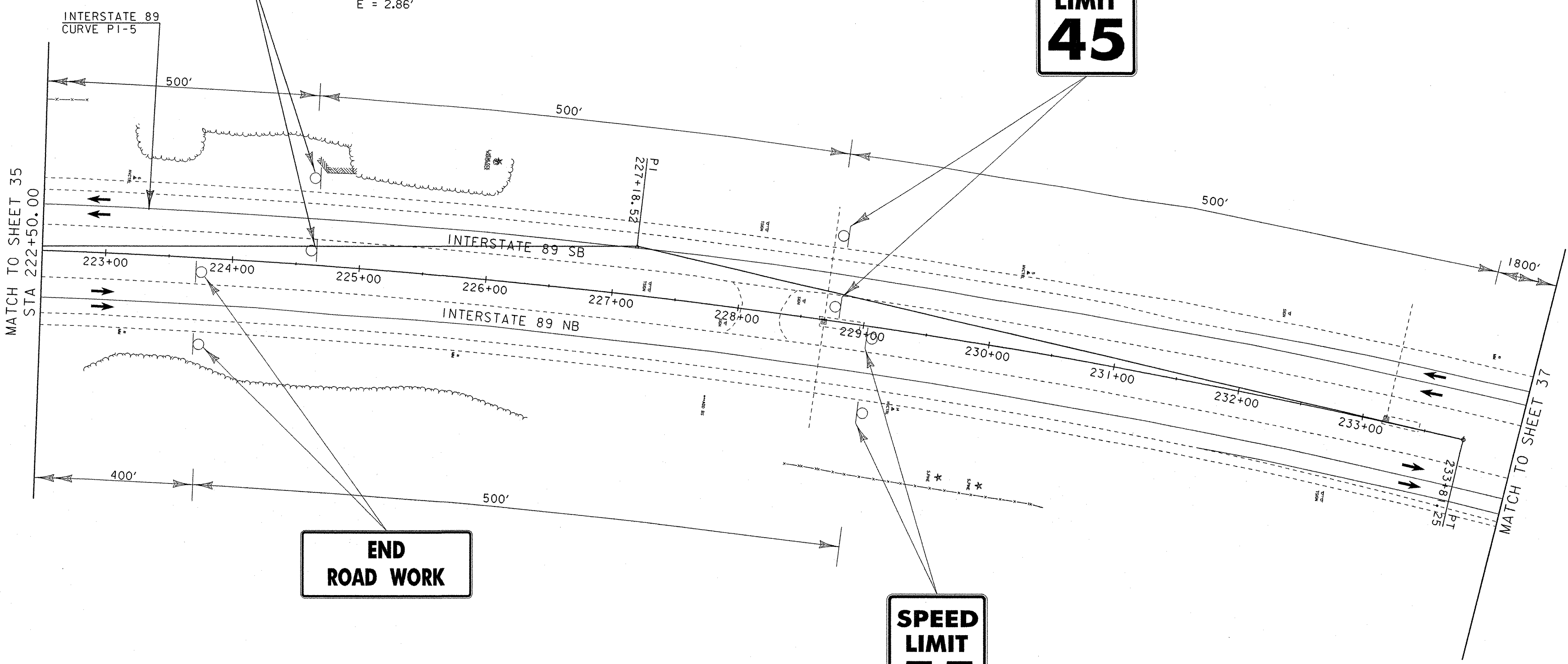
PHASE I
 PROJECT NAME: SOUTH BURLINGTON
 PROJECT NUMBER: AC IM CULV (9)
 FILE NAME: ts03.dgn
 PROJECT LEADER: LANDRY
 DESIGNED BY: MRP
 TRAFFIC CONTROL PLAN - PHASE I
 PLOT DATE: 21-SEP-2007
 DRAWN BY: MAL
 CHECKED BY: DMB
 SHEET 35 OF 63



INTERSTATE 89 (PHASE I)
 CURVE #PI-5
 PI STA = 20+25.51
 N = 716429.53
 E = 1461387.80
 Δ = 3°36'27.0" RT
 R = 5765.58
 T = 181.57'
 L = 363.02'
 E = 2.86'



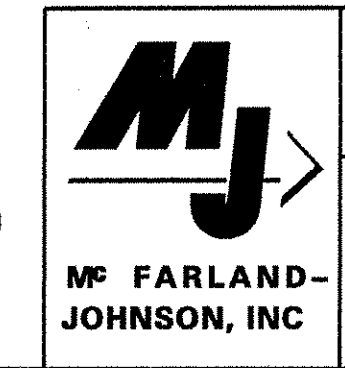
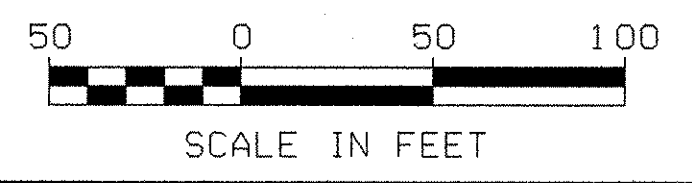
**END
 ROAD WORK**



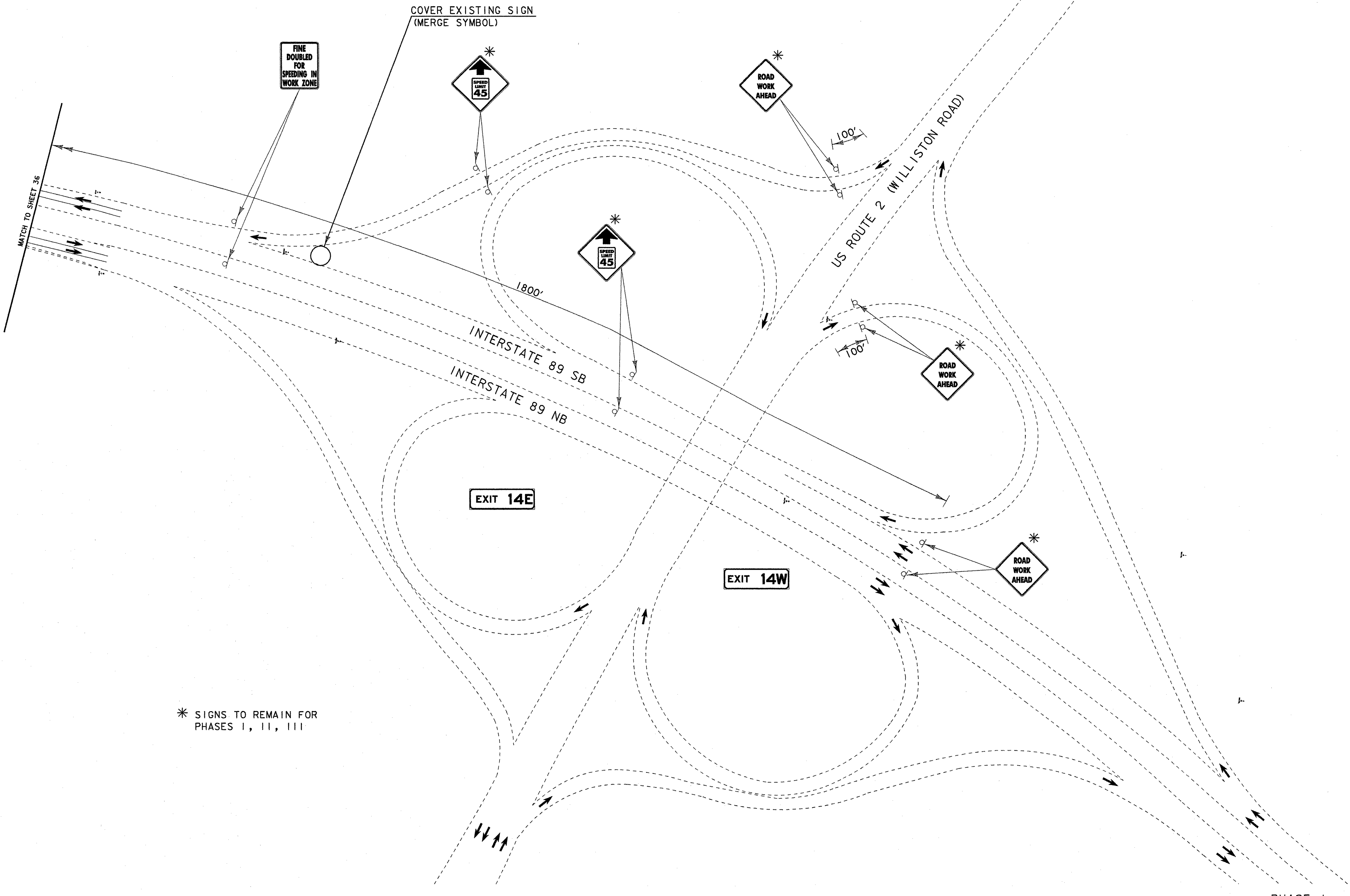
LEGEND

- TRAFFIC FLOW
- TYPE III BARRIERS
- CONCRETE MEDIAN BARRIER
- WORK AREA
- REFLECTORIZED PLASTIC DRUM
- ATTENUATOR

DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)



PHASE I
 PROJECT NAME: SOUTH BURLINGTON
 PROJECT NUMBER: AC IM CULV (9)
 FILE NAME: ts04.dgn
 PROJECT LEADER: LANDRY
 DESIGNED BY: MRP
 TRAFFIC CONTROL PLAN - PHASE I
 PLOT DATE: 21-SEP-2007
 DRAWN BY: MAL
 CHECKED BY: DMB
 SHEET 36 OF 63



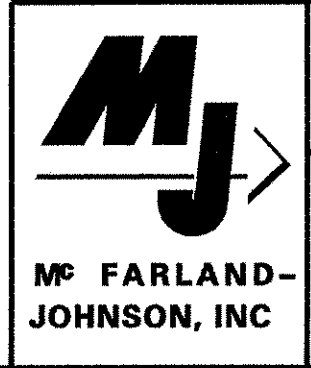
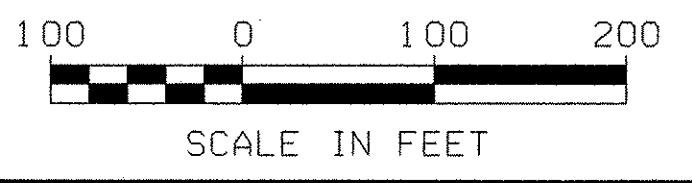
* SIGNS TO REMAIN FOR PHASES I, II, III

LEGEND

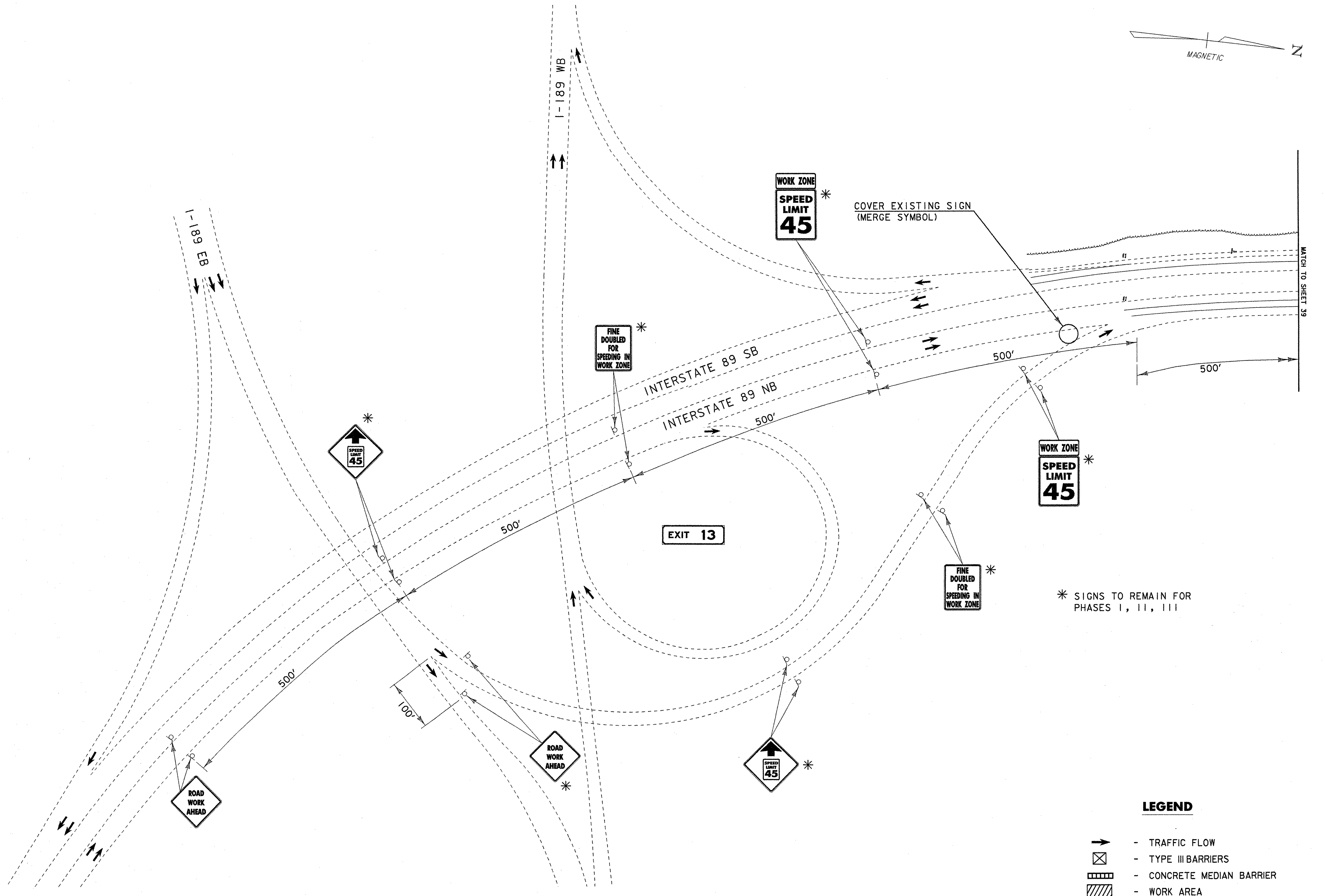
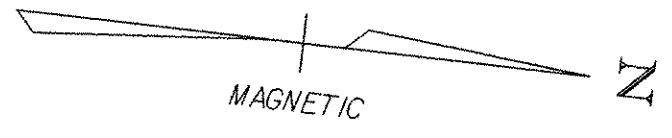
- - TRAFFIC FLOW
- ⊠ - TYPE III BARRIERS
- ▬ - CONCRETE MEDIAN BARRIER
- ▨ - WORK AREA
- - REFLECTORIZED PLASTIC DRUM
- ▬ - ATTENUATOR

PHASE I

DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)



PROJECT NAME: SOUTH BURLINGTON
 PROJECT NUMBER: AC IM CULV (9)
 FILE NAME: ts05.dgn
 PROJECT LEADER: LANDRY
 DESIGNED BY: MRP
 TRAFFIC CONTROL PLAN PHASE I
 PLOT DATE: 21-SEP-2007
 DRAWN BY: MAL
 CHECKED BY: DMB
 SHEET 37 OF 63



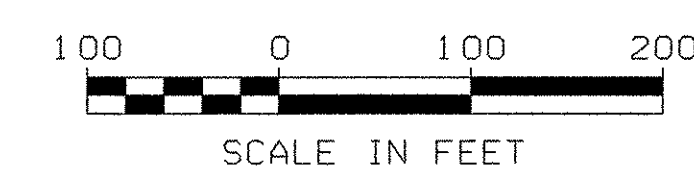
* SIGNS TO REMAIN FOR PHASES I, II, III

LEGEND

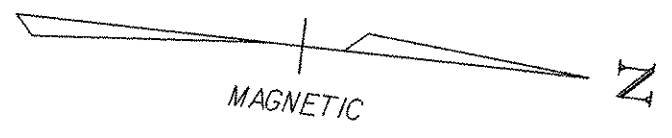
- - TRAFFIC FLOW
- ⊠ - TYPE III BARRIERS
- ▨ - CONCRETE MEDIAN BARRIER
- ▨ - WORK AREA
- - REFLECTORIZED PLASTIC DRUM
- ▨ - ATTENUATOR

PHASE II

MJ MC FARLAND- JOHNSON, INC	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
	FILE NAME: ts06.dgn	CHECKED BY: DMB
	DESIGNED BY: MRP	SHEET 38 OF 63
	TRAFFIC CONTROL PLAN - PHASE II	

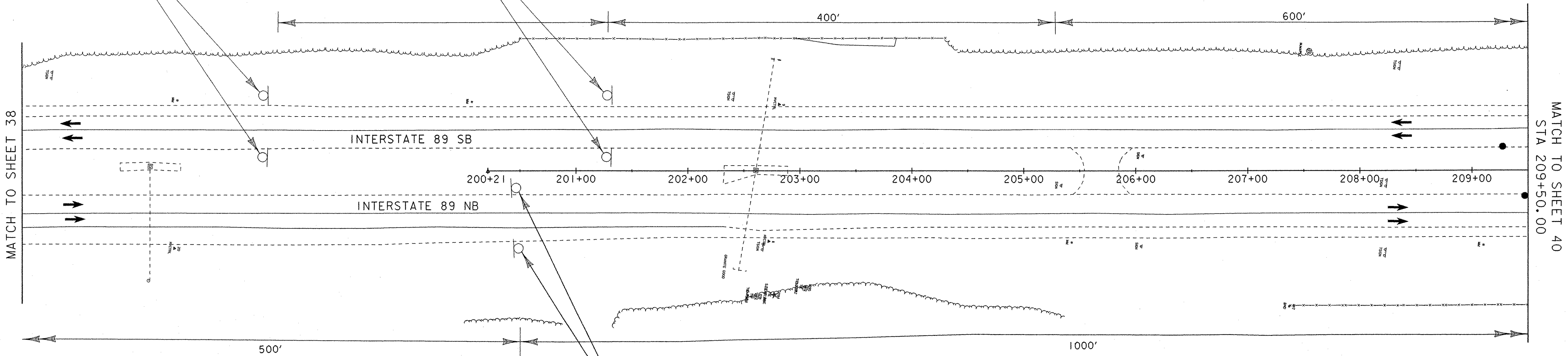


DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)



**SPEED
LIMIT
55**

**END
ROAD WORK**



↑↑

1000 FEET

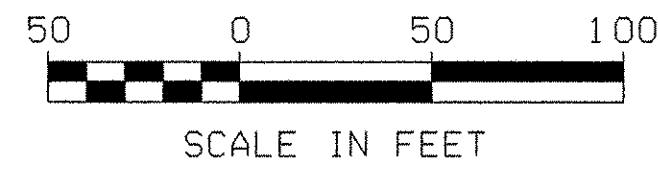
LEGEND

- - TRAFFIC FLOW
- ⊠ - TYPE III BARRIERS
- ▤ - CONCRETE MEDIAN BARRIER
- ▨ - WORK AREA
- - REFLECTORIZED PLASTIC DRUM
- ⋈ - ATTENUATOR

PHASE II

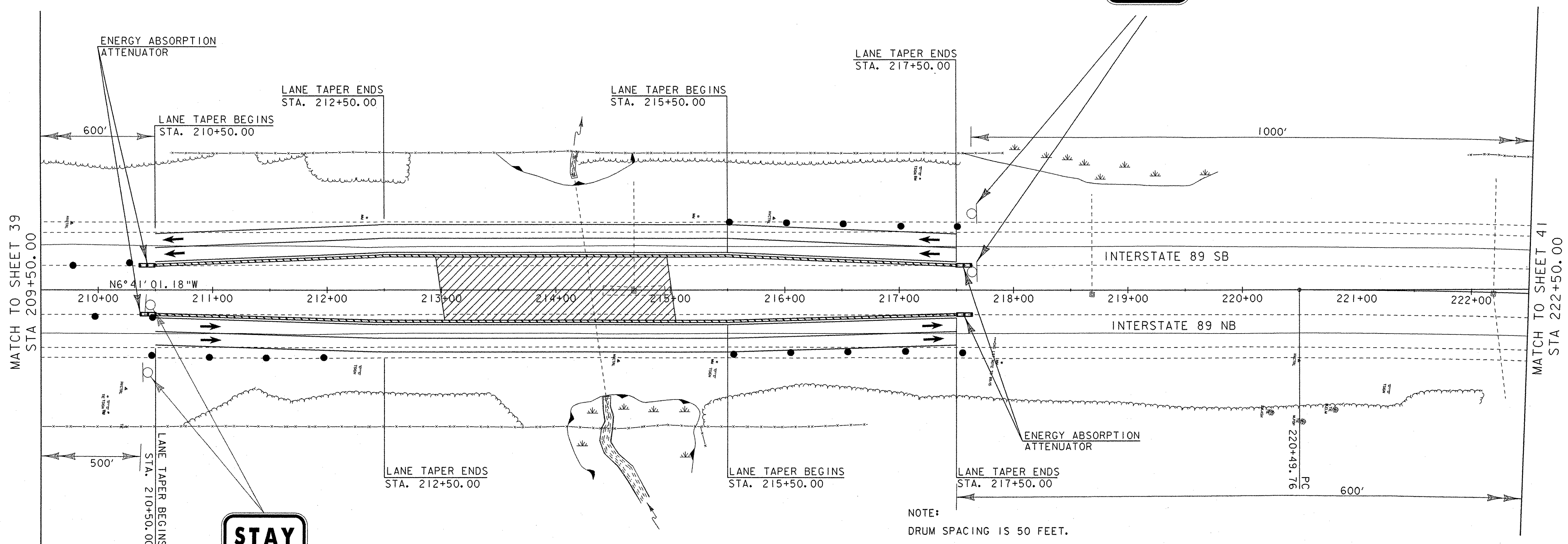
MJ M ^o FARLAND- JOHNSON, INC	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
	FILE NAME: +s07.dgn	CHECKED BY: DMB
	PROJECT LEADER: LANDRY	DESIGNED BY: MRP
TRAFFIC CONTROL PLAN - PHASE II		SHEET 39 OF 63

DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)





**STAY
IN
LANE**

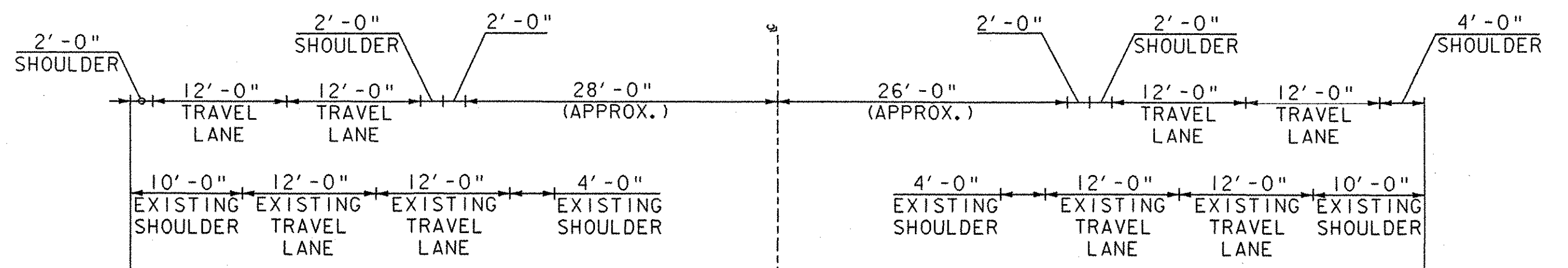


**STAY
IN
LANE**

NOTE:
DRUM SPACING IS 50 FEET.

- NOTES:
1. SEE MISCELLANEOUS DETAIL SHEET 4 FOR PAVEMENT TRANSITION DETAILS.
 2. EXISTING UTILITY SLEEVE AT STATION 213+72 +/- TO REMAIN. ANY IMPACTS TO THE SLEEVE SHALL BE REPAIRED BY THE CONTRACTOR WITHOUT COMPENSATION.
 3. CONSTRUCTION VEHICLES SHALL NOT EXIT OR ENTER MEDIAN AREA WITHOUT ACCOMMODATIONS FOR AN ACCELERATION LANE.

INTERSTATE 89
CURVE #1
 PI STA = 227+18.52
 N = 716827.78
 E = 1461373.82
 $\Delta = 13^{\circ}18'53.5''$ RT
 R = 5729.58
 T = 668.75'
 L = 1331.48'
 E = 38.90'



LEGEND

- TRAFFIC FLOW
- TYPE III BARRIERS
- CONCRETE MEDIAN BARRIER
- WORK AREA
- REFLECTORIZED PLASTIC DRUM
- ATTENUATOR

PHASE II

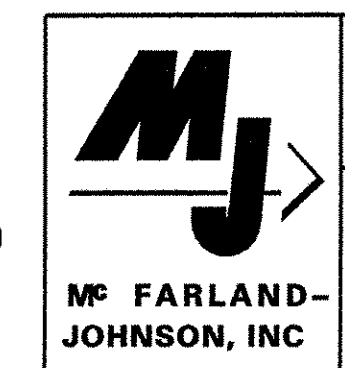
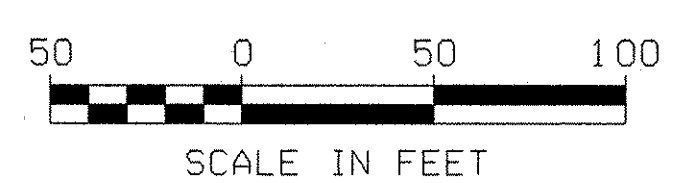
PROJECT NAME: SOUTH BURLINGTON
 PROJECT NUMBER: AC IM CULV (9)

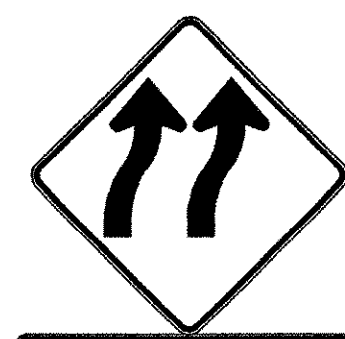
FILE NAME: ts08.dgn
 PROJECT LEADER: LANDRY
 DESIGNED BY: MRP
 TRAFFIC CONTROL PLAN - PHASE II

PLOT DATE: 21-SEP-2007
 DRAWN BY: MAL
 CHECKED BY: DMB
 SHEET 40 OF 63

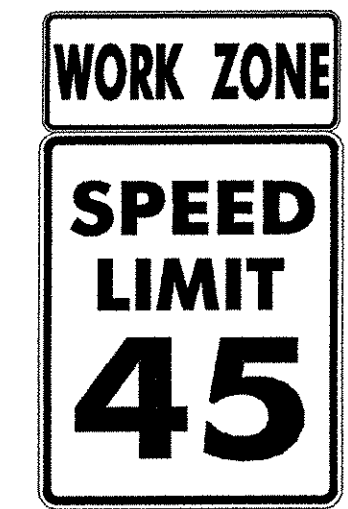
DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)

PHASE 2
 NOT TO SCALE

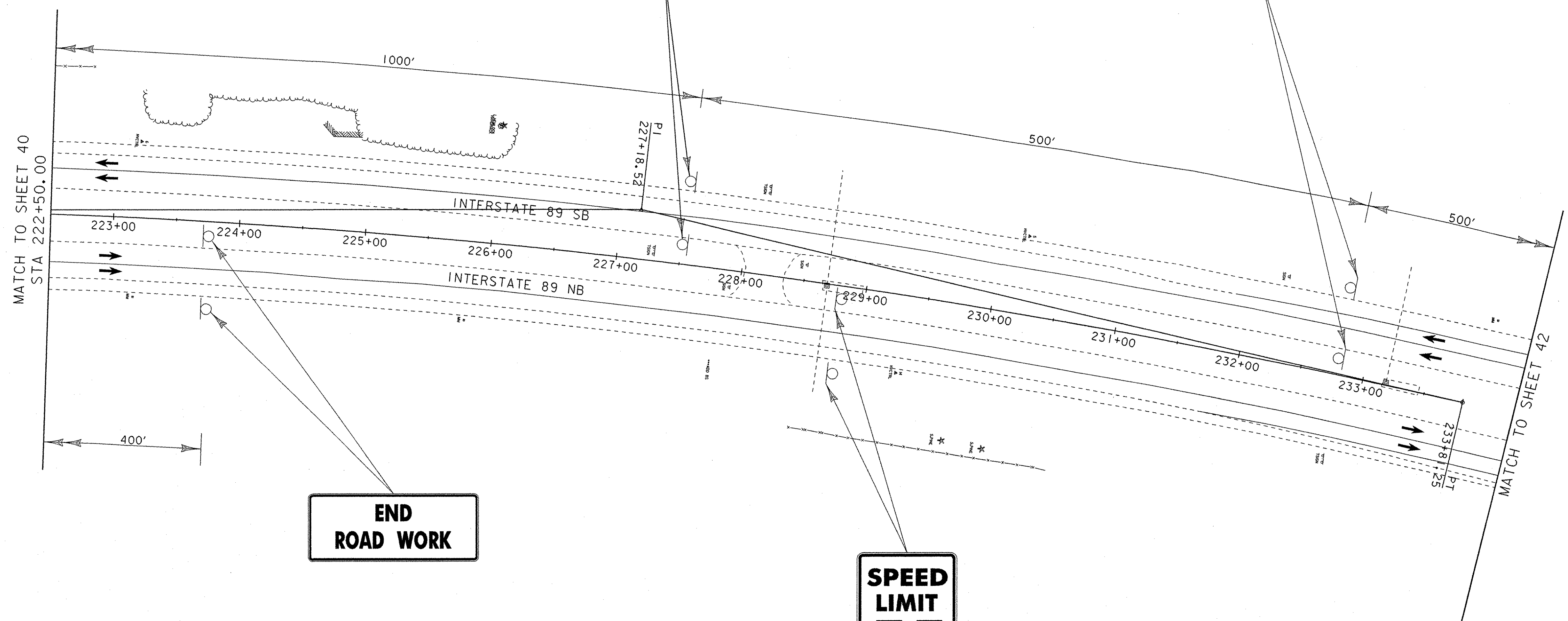




1000 FEET



END ROAD WORK



MATCH TO SHEET 40
STA 222+50.00

MATCH TO SHEET 42

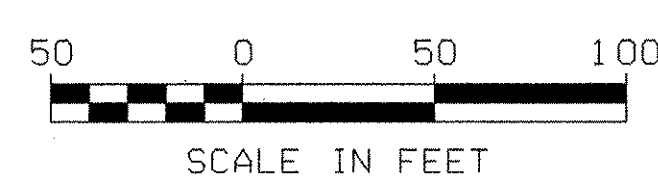
LEGEND

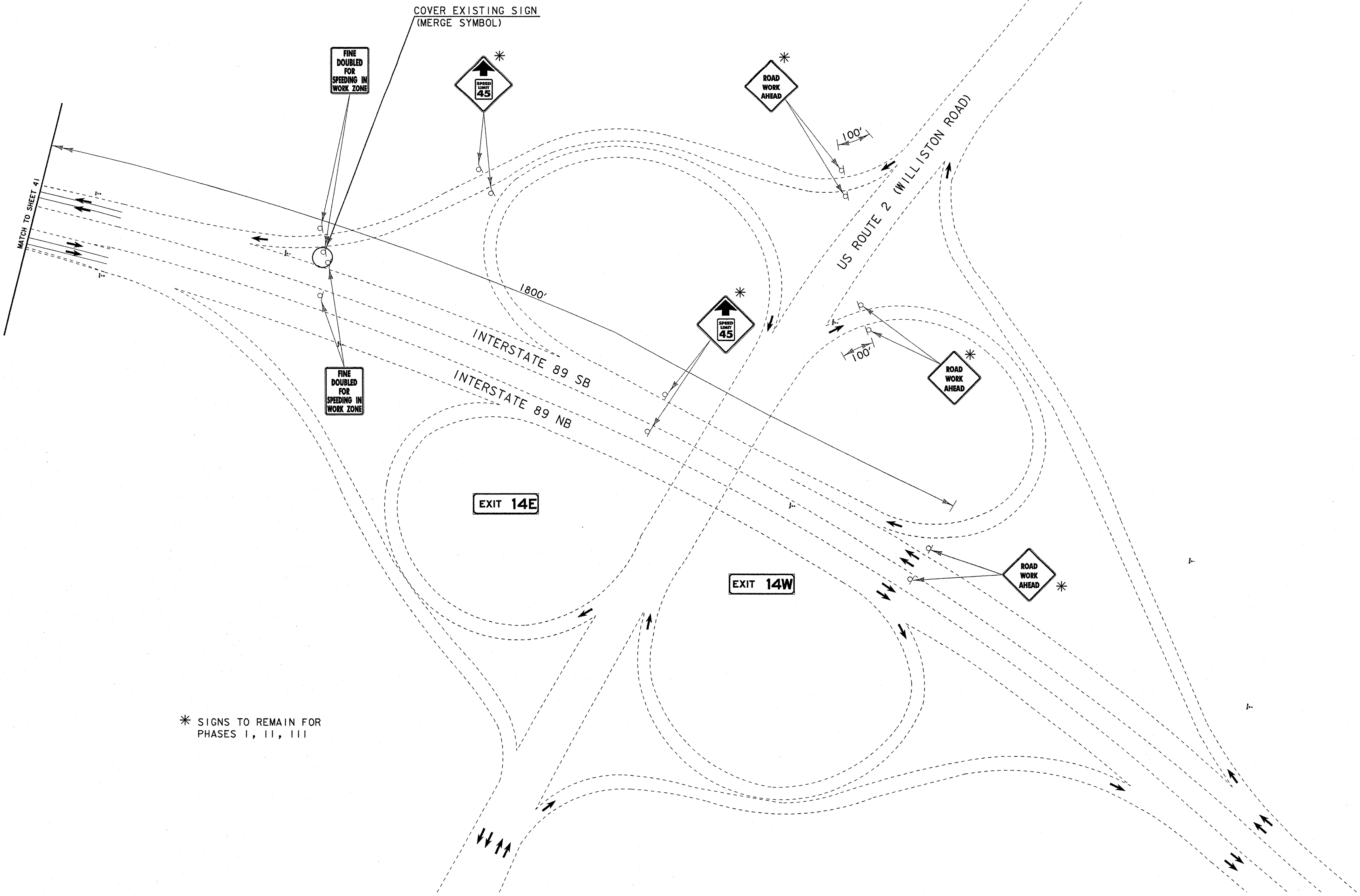
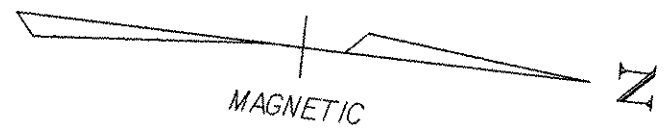
- TRAFFIC FLOW
- TYPE III BARRIERS
- CONCRETE MEDIAN BARRIER
- WORK AREA
- REFLECTORIZED PLASTIC DRUM
- ATTENUATOR

PHASE II

 MR FARLAND-JOHNSON, INC	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
FILE NAME: ts09.dgn	DESIGNED BY: MRP	CHECKED BY: DMB
PROJECT LEADER: LANDRY	TRAFFIC CONTROL PLAN - PHASE II	SHEET 41 OF 63

DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)





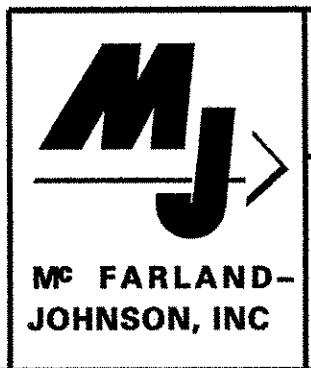
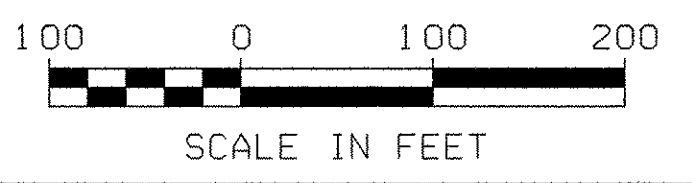
* SIGNS TO REMAIN FOR PHASES I, II, III

LEGEND

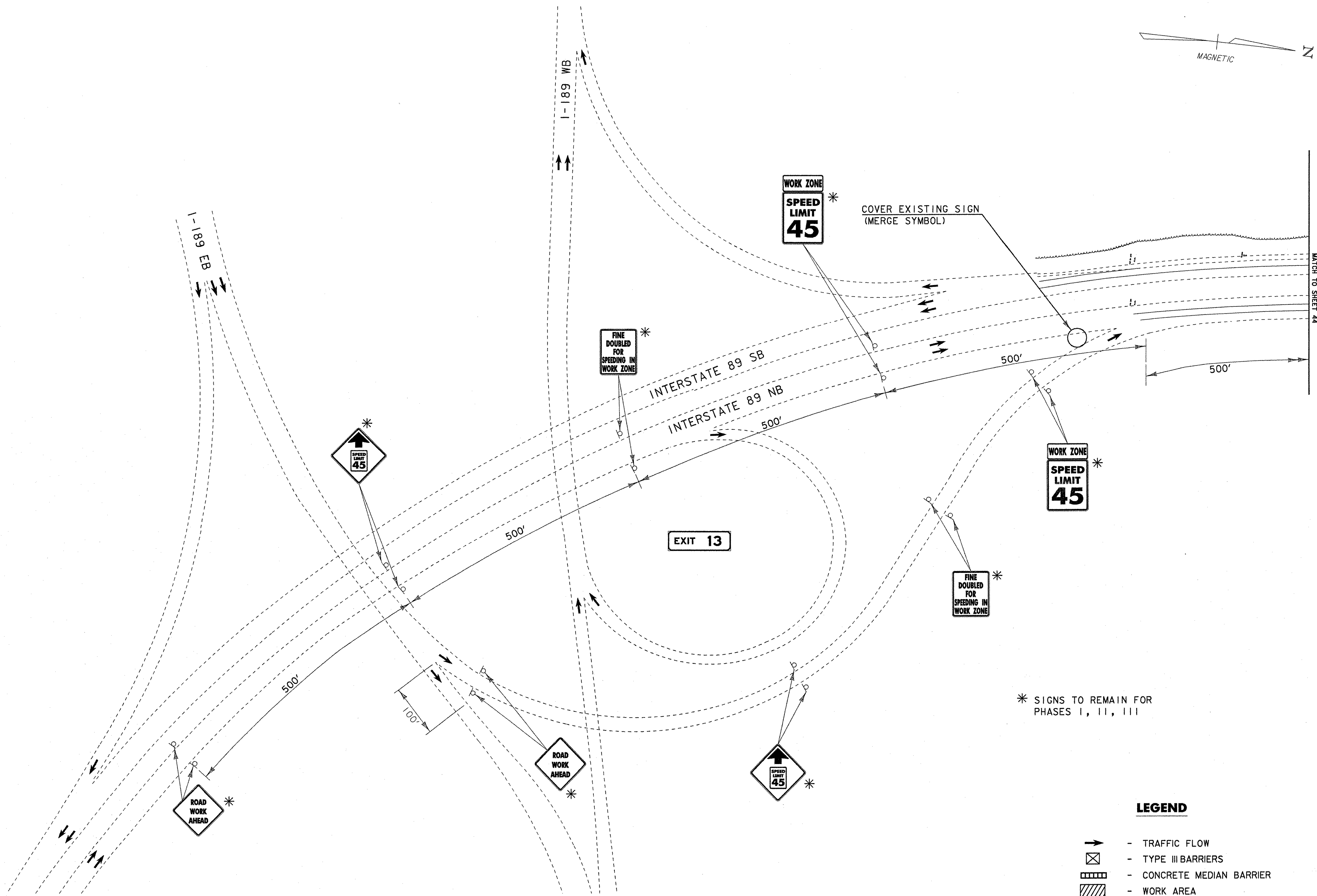
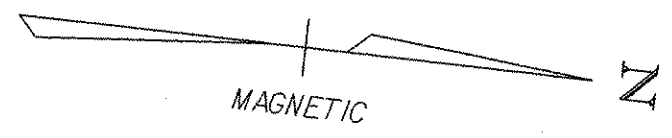
- - TRAFFIC FLOW
- ☒ - TYPE III BARRIERS
- ▬▬▬ - CONCRETE MEDIAN BARRIER
- ▨▨▨ - WORK AREA
- - REFLECTORIZED PLASTIC DRUM
- ▬▬▬ - ATTENUATOR

PHASE II

DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)



PROJECT NAME: SOUTH BURLINGTON
 PROJECT NUMBER: AC IM CULV (9)
 FILE NAME: tsl0.dgn
 PROJECT LEADER: LANDRY
 DESIGNED BY: MRP
 TRAFFIC CONTROL PLAN - PHASE II
 PLOT DATE: 21-SEP-2007
 DRAWN BY: MAL
 CHECKED BY: DMB
 SHEET 42 OF 63



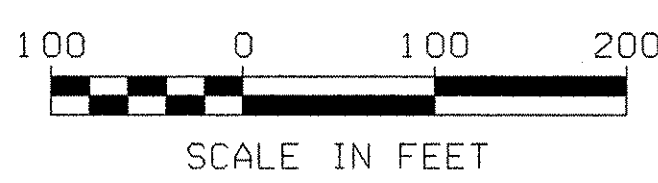
* SIGNS TO REMAIN FOR PHASES I, II, III

LEGEND

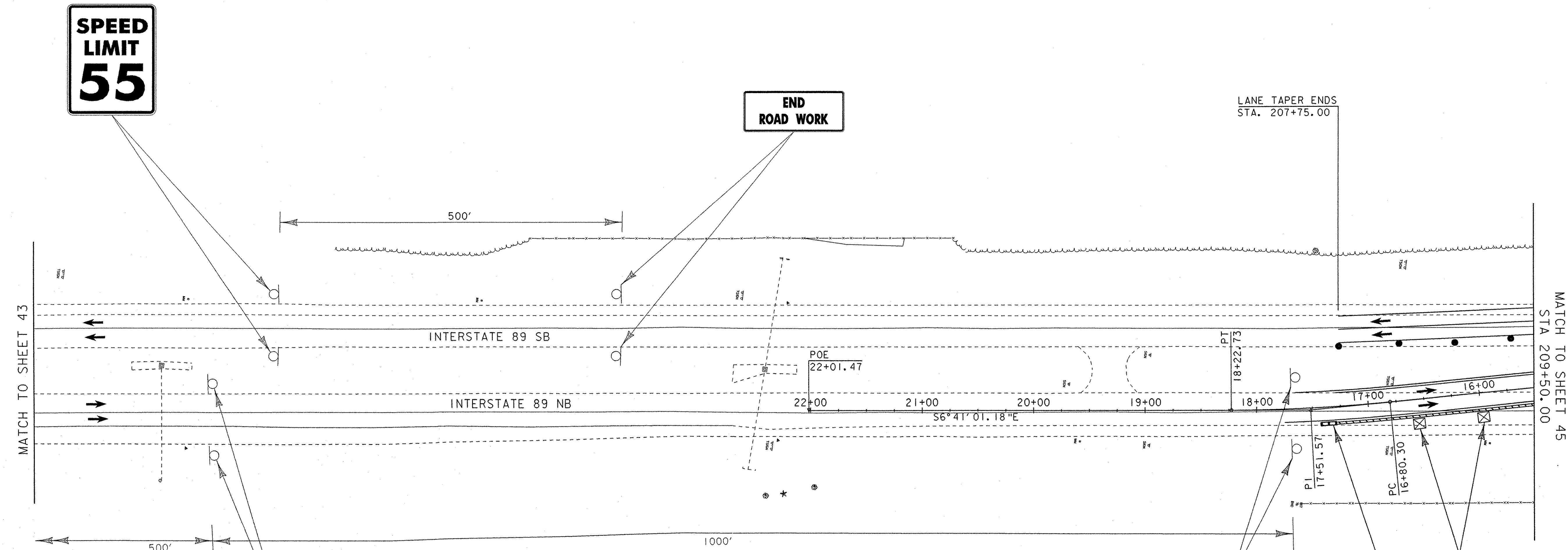
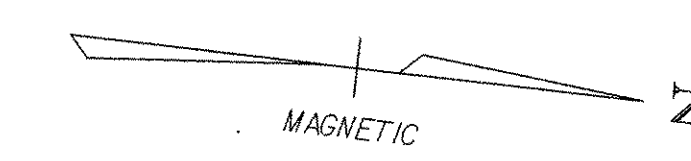
- TRAFFIC FLOW
- TYPE III BARRIERS
- CONCRETE MEDIAN BARRIER
- WORK AREA
- REFLECTORIZED PLASTIC DRUM
- ATTENUATOR

PHASE III

DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)



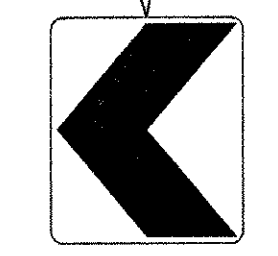
<p>Mc FARLAND- JOHNSON, INC</p>	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 2I-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
	FILE NAME: tsl.dgn	CHECKED BY: DMB
	PROJECT LEADER: LANDRY DESIGNED BY: MRP TRAFFIC CONTROL PLAN - PHASE III	SHEET 43 OF 63



SPEED LIMIT
55

END ROAD WORK

STAY IN LANE



ENERGY ABSORPTION ATTENUATOR

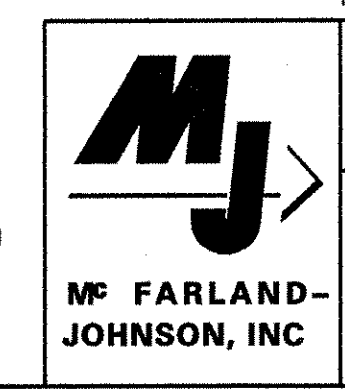
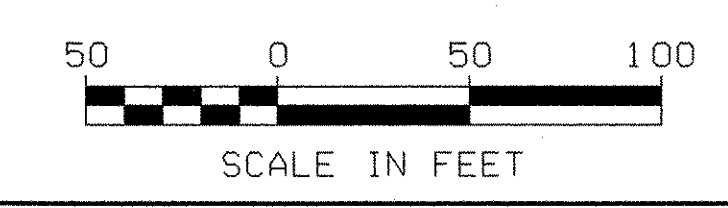
1000 FEET

INTERSTATE 89 (PHASE 3)
CURVE #P3-5
PI STA = 17+51.57
N = 714876.83
E = 1461638.69
Δ = 5°26'25.2" RT
R = 1500.00
T = 71.27'
L = 142.43'
E = 1.69'

NOTE:
DRUM SPACING IS 50 FEET.

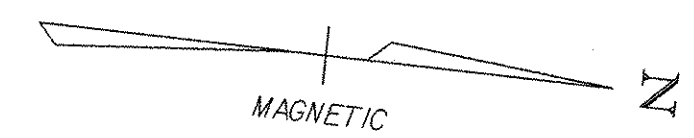
LEGEND

- - TRAFFIC FLOW
- ⊠ - TYPE III BARRIERS
- ▤ - CONCRETE MEDIAN BARRIER
- ▨ - WORK AREA
- - REFLECTORIZED PLASTIC DRUM
- ⊞ - ATTENUATOR



PHASE III	
PROJECT NAME:	SOUTH BURLINGTON
PROJECT NUMBER:	AC IM CULV (9)
FILE NAME:	tsl2.dgn
PROJECT LEADER:	LANDRY
DESIGNED BY:	MRP
TRAFFIC CONTROL PLAN - PHASE III	
PLOT DATE:	21-SEP-2007
DRAWN BY:	MAL
CHECKED BY:	DMB
SHEET	44 OF 63

DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD83 (96)



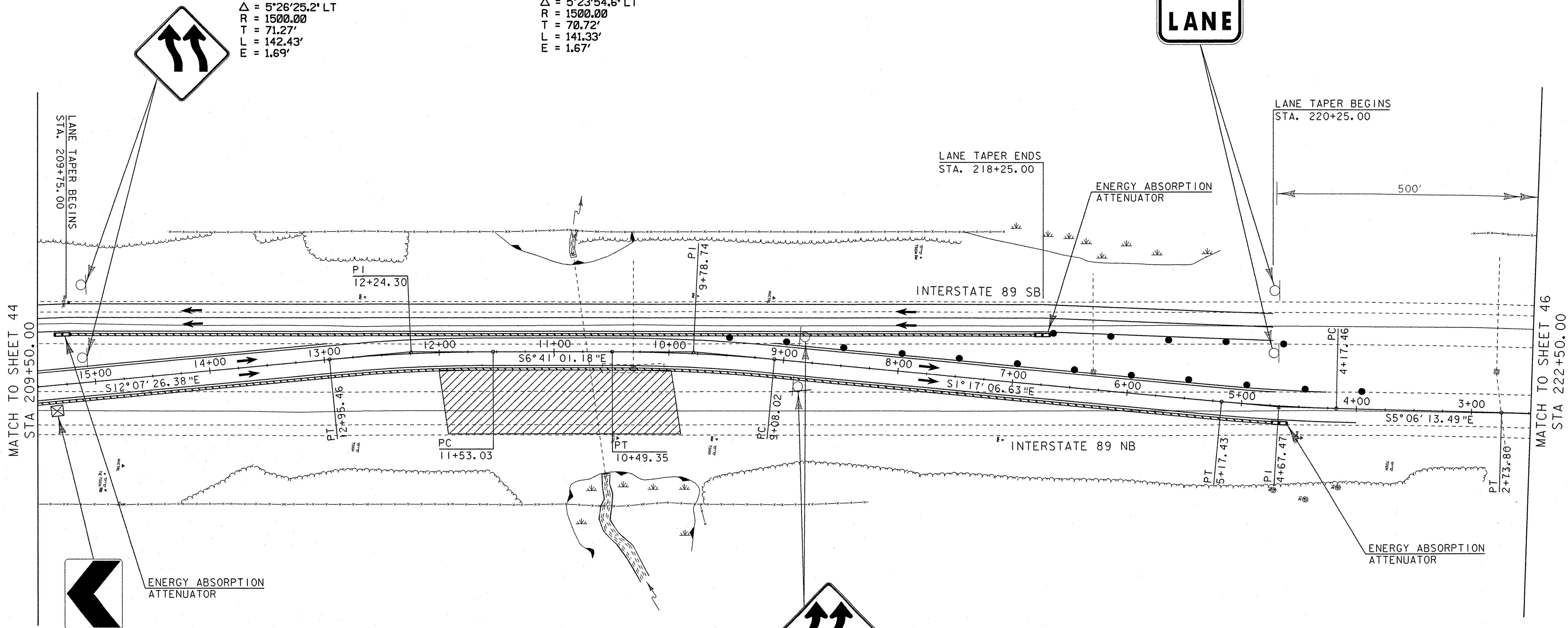
INTERSTATE 89 (PHASE 3)
CURVE #P3-4

PI STA = 12+24.30
N = 715392.44
E = 1461527.93
 $\Delta = 5^{\circ}26'25.2''$ LT
R = 1500.00
T = 71.27'
L = 142.43'
E = 1.69'

INTERSTATE 89 (PHASE 3)
CURVE #P3-3

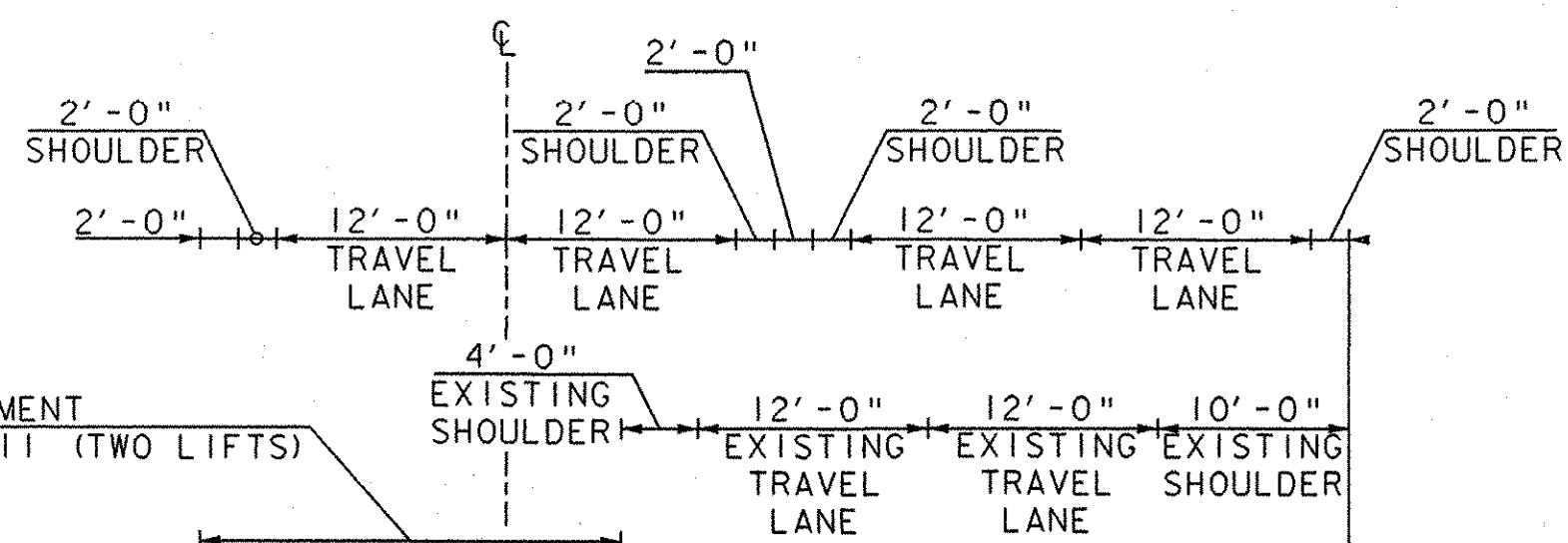
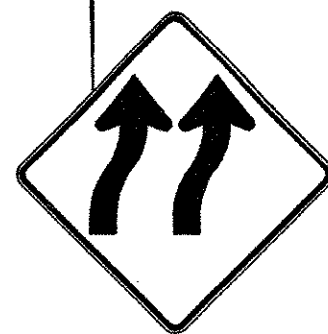
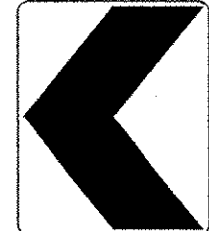
PI STA = 9+78.74
N = 715636.44
E = 1461499.33
 $\Delta = 5^{\circ}23'54.6''$ LT
R = 1500.00
T = 70.72'
L = 141.33'
E = 1.67'

STAY
IN
LANE

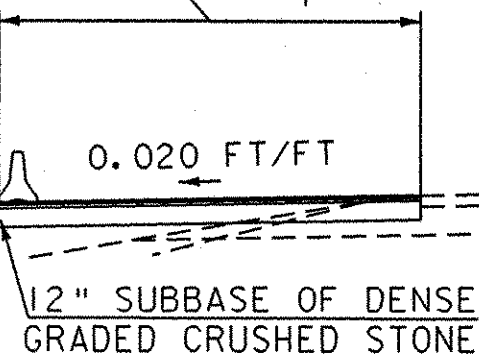


MATCH TO SHEET 44
STA 209+50.00

MATCH TO SHEET 46
STA 222+50.00



3 1/2" BITUMINOUS CONCRETE PAVEMENT
2" TYPE III, OVER 1 1/2" TYPE III (TWO LIFTS)
12" SUBBASE OF DENSE
GRADED CRUSHED STONE



PHASE 3
NOT TO SCALE

INTERSTATE 89 (PHASE 3)
CURVE #P3-2

PI STA = 4+67.47
N = 716147.62
E = 1461487.86
 $\Delta = 3^{\circ}49'06.9''$ RT
R = 1500.00
T = 50.00'
L = 99.97'
E = .83'

NOTE:
DRUM SPACING IS 50 FEET.

LEGEND

- TRAFFIC FLOW
- TYPE III BARRIERS
- CONCRETE MEDIAN BARRIER
- WORK AREA
- REFLECTORIZED PLASTIC DRUM
- ATTENUATOR

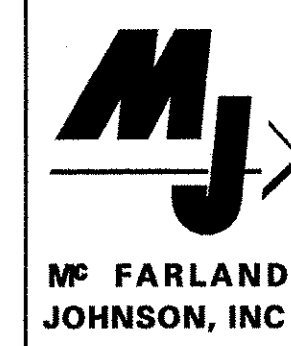
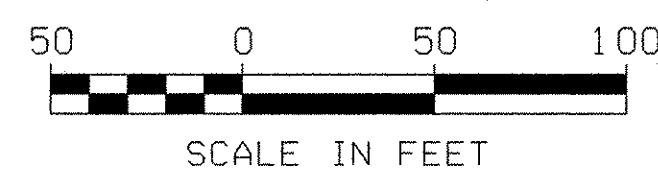
PHASE III

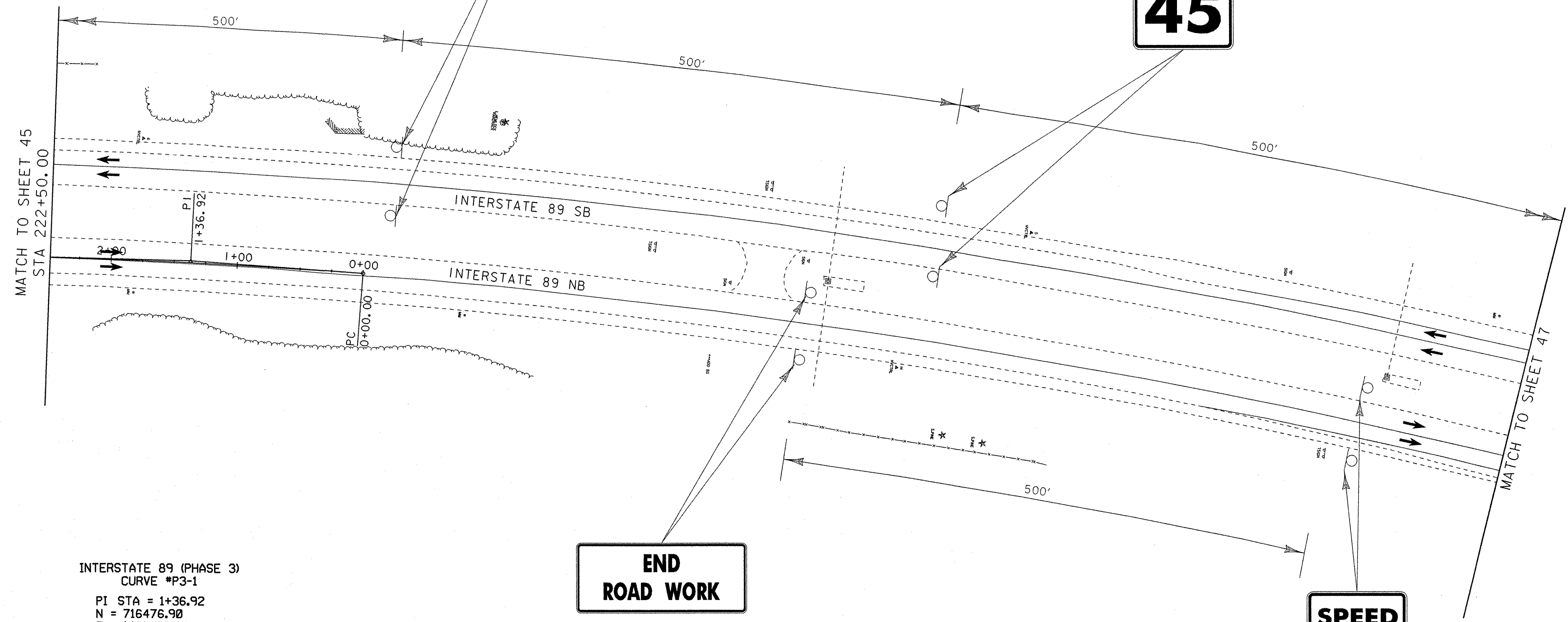
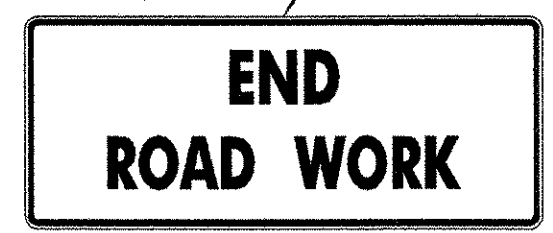
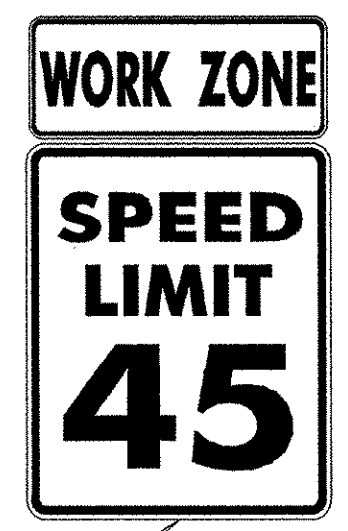
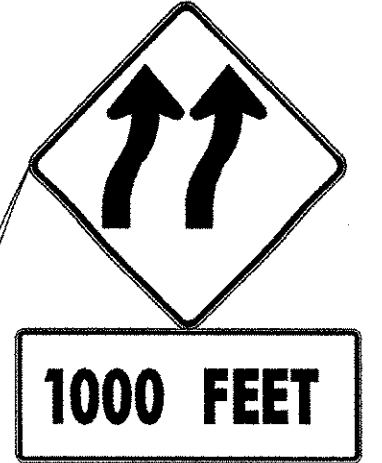
PROJECT NAME: SOUTH BURLINGTON
PROJECT NUMBER: AC IM CULV (9)

FILE NAME: ts13.dgn
PROJECT LEADER: LANDRY
DESIGNED BY: MRP
TRAFFIC CONTROL PLAN - PHASE III

PLOT DATE: 21-SEP-2007
DRAWN BY: MAL
CHECKED BY: DMB
SHEET 45 OF 63

DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD83 (96)





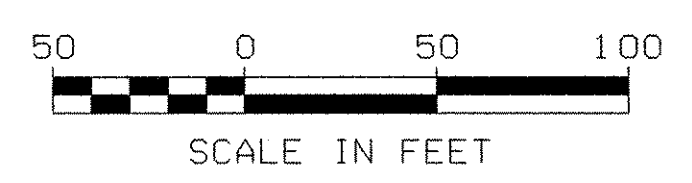
INTERSTATE 89 (PHASE 3)
 CURVE #P3-1
 PI STA = 1+36.92
 N = 716476.90
 E = 1461458.45
 $\Delta = 2^{\circ}45'18.9''$ LT
 R = 5693.58
 T = 136.92'
 L = 273.80'
 E = 1.65'

LEGEND

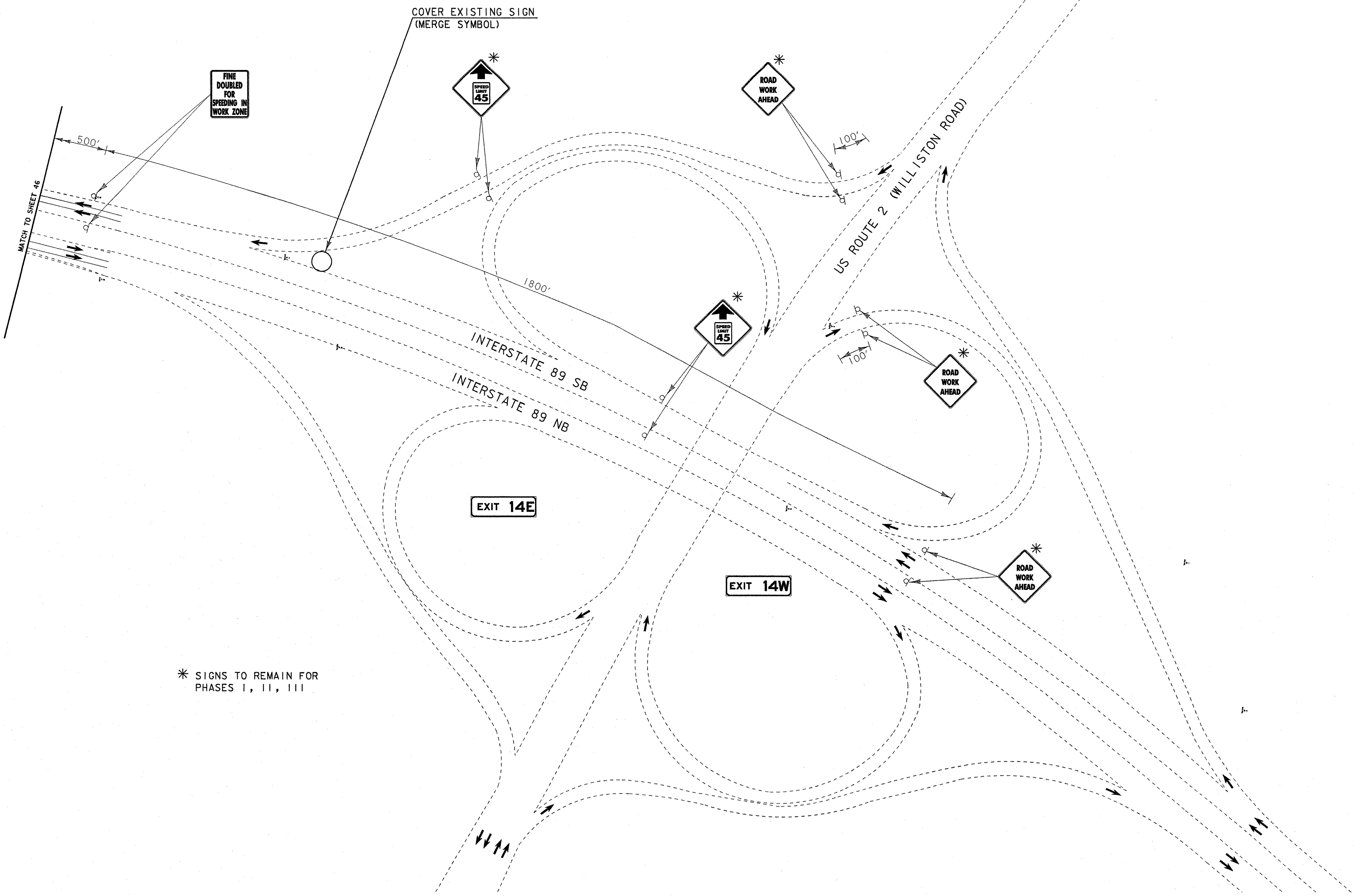
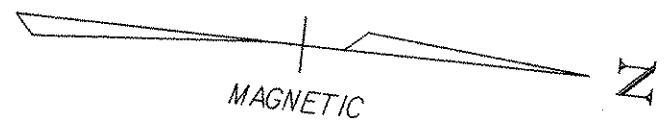
- TRAFFIC FLOW
- TYPE III BARRIERS
- CONCRETE MEDIAN BARRIER
- WORK AREA
- REFLECTORIZED PLASTIC DRUM
- ATTENUATOR

PHASE III

 Mc FARLAND- JOHNSON, INC	PROJECT NAME: SOUTH BURLINGTON	PLOT DATE: 21-SEP-2007
	PROJECT NUMBER: AC IM CULV (9)	DRAWN BY: MAL
FILE NAME: tsl4.dgn	DESIGNED BY: MRP	CHECKED BY: DMB
PROJECT LEADER: LANDRY	TRAFFIC CONTROL PLAN - PHASE III	
		SHEET 46 OF 63



DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)



* SIGNS TO REMAIN FOR PHASES I, II, III

COVER EXISTING SIGN (MERGE SYMBOL)

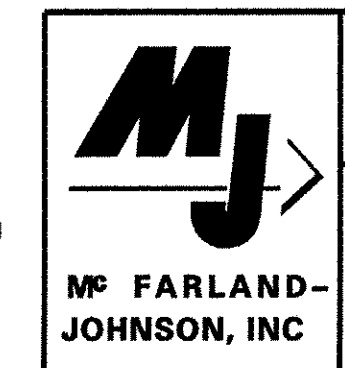
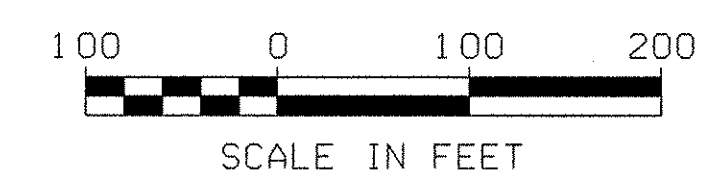
FINE DOUBLED FOR SPEEDING IN WORK ZONE

LEGEND

- TRAFFIC FLOW
- TYPE III BARRIERS
- CONCRETE MEDIAN BARRIER
- WORK AREA
- REFLECTORIZED PLASTIC DRUM
- ATTENUATOR

PHASE III

DATUM
 VERTICAL: NAVD 88
 HORIZONTAL: NAD83 (96)



PROJECT NAME: SOUTH BURLINGTON
 PROJECT NUMBER: AC IM CULV (9)
 FILE NAME: +sl5.dgn
 PROJECT LEADER: LANDRY
 DESIGNED BY: MRP
 TRAFFIC CONTROL PLAN - PHASE III

PLOT DATE: 21-SEP-2007
 DRAWN BY: MAL
 CHECKED BY: DMB
 SHEET 47 OF 63

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

SHEAR STRENGTH

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

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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

COMMONLY USED SYMBOLS

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

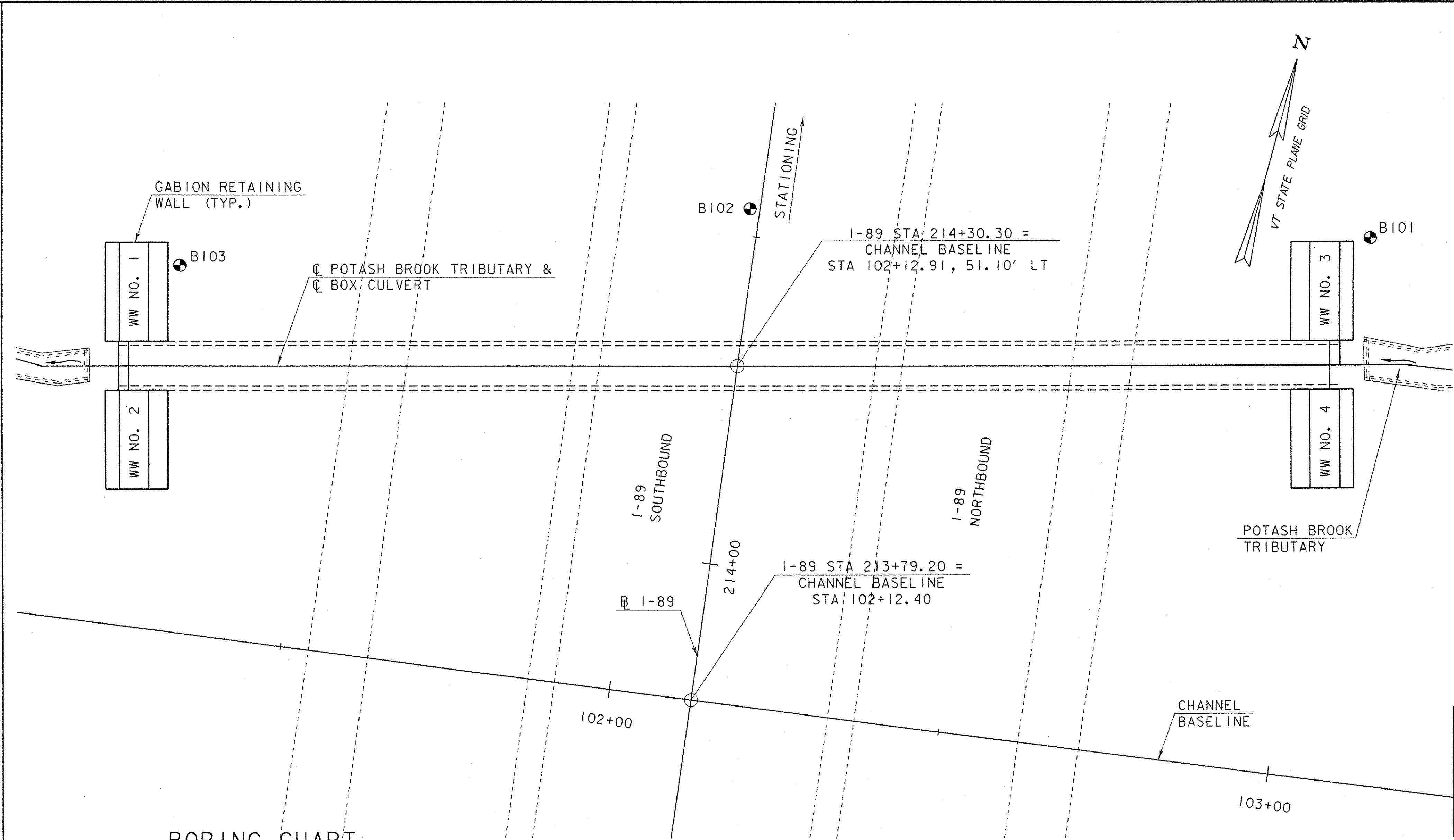
COLOR

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

DEFINITIONS (AASHTO)

- BEDROCK (LEDGE)** - Rock in its native location of indefinite thickness.
- BOULDER** - A rock fragment with an average dimension > 12 inches.
- COBBLE** - Rock fragments with an average dimension between 3 and 12 inches.
- GRAVEL** - Rounded particles of rock < 3" and > 0.075" (#10 sieve).
- SAND** - Particles of rock < 0.075" (#10 sieve) and > 0.0025" (#200 sieve).
- SILT** - Soil < 0.0025" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.
- CLAY** - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.

- VARVED** - Alternate layers of silt and clay.
- HARDPAN** - Extremely dense soil, cemented layer, not softened when wet.
- MUCK** - Soft organic soil (containing > 10% organic material).
- MOISTURE CONTENT** - Weight of water divided by dry weight of soil.
- FLOWING SAND** - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.
- STRIKE** - Angle from magnetic north to line of intersection of bed with a horizontal plane.
- DIP** - Inclination of bed with a horizontal plane.



BORING CHART

HOLE NO.	SURV. STATION	OFFSET (ft)	GROUND ELEV. *	ELEV. TLOB
B101	214+62.83	91.6 RT	292.0	N/A
B102	214+54.01	1.5 LT	299.0	N/A
B103	214+33.44	85.4 LT	295.0	N/A

BORING LAYOUT

SCALE 1" = 10'-0"

* GROUND ELEVATIONS ARE APPROXIMATE AND WERE INTERPOLATED TO NEAREST 1 FOOT CONTOUR LINE FROM THE EXISTING PLAN SHEET.

GENERAL NOTES

- The subsurface explorations shown herein were made between 10/26/2006 and 11/01/2006 by the Agency.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
- Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
- Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
- Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
- Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.



STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	S. BURLINGTON	Bridge No.	67-1
Highway No.	I-89	Log Sta.	
		Surv. Sta.	
I-89 OVER POTASH BROOK TRIBUTARY			
BORING INFORMATION SHEET			
Designed By	VTRANS/LKW	Drawn By	SFD
Checked By	RLJ	Date	09/07
		Bridge Design Supervisor	TTK
		Date	09/07
PROJECT	SOUTH BURLINGTON	PROJECT NO.	AC 1M CULV (9)
I.G.C. Info: V656310 I-89 Culvert\BRIDGE\2Cadd\41\nd-prelim\mz05k286Bl.dgn			
Bridge Sheet No.		Sheet	48 of 63

PLOTTED: 09/20/07 10:55:00 AM

VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING NUMBER: B-101 SHEET 1 of 1 DATE STARTED: 10/26/06 DATE COMPLETED: 10/26/06					
PROJECT NAME: SOUTH BURLINGTON		PROJECT NUMBER: IM CULV(9)		SITE NUMBER: MM 88.1					
SITE NAME: I-89		STATION: 214+62.83		GROUND ELEVATION:					
OFFSET: 91.56		VTSPG: N 715591.28 ft E 1461610.91 ft		GROUNDWATER DEPTH: Hole caved in.					
PROJECT PIN NUMBER: 06A136		BORING RIG: LAG TRACK RIG w/AUTO HAMMER		BORING TYPE: HOLLOW STEM AUGER					
BORING CREW		CREW CHIEF: HOLT		SAMPLE TYPE: SPLIT BARREL					
DRILLER: GARROW		LOGGER: WERNER		CHECKED BY: CAA					
DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)	LL (%)	PI (%)
292.0		A-2-4, GrSa, brn, Moist, Rec. = 0.6 ft	16	10.4	27.9	54.2	17.9		
		Visual Class: A-2-4, SoSiGr, brn, Moist, Rec. = 0.1 ft	7						
		No Recovery, Rock in end of sampler., 4.0 ft - 6.0 ft	3						
5		A-2-4, SiSa, gry, Moist, Rec. = 0.6 ft	2	24.1	5.1	69.6	25.3	24	2
		A-4, Si, gry, Moist, Rec. = 0.9 ft		31.3	0.0	6.5	93.5		
		A-4, Si, gry, Wet, Rec. = 1.2 ft	2	31.4	0.3	11.1	88.6	25	3
10		No Recovery, Rock in end of sampler., 10.0 ft - 12.0 ft	2						
		A-4, Si, gry, Wet, Rec. = 2.0 ft	2	30.8	0.0	1.3	98.7	28	5
15		A-6, SiCl, gry, Wet, Rec. = 2.0 ft	1	35.7	0.0	1.6	98.4	32	11
20		A-7-6, Cl, gry, MTW, Rec. = 2.0 ft	1	61.2	0.0	4.8	95.2	65	38
25		A-7-6, Cl, gry, MTW, Rec. = 2.0 ft	1	65.4	0.0	1.9	98.1	68	39
30		A-7-6, Cl, gry, MTW, Rec. = 2.0 ft	1	59.5	0.6	4.2	95.2	64	38
35		A-7-6, Cl, gry, MTW, Rec. = 2.0 ft	WH	43.6	0.2	4.7	95.1	45	24
		Hole stopped @ 37.0 ft							
		DRILLER'S NOTES: 1. Hole stopped at 37.0 feet on possible Boulder or ledge. 2. The Kelly Bar broke on the drill rig when we reached 37.0 feet.							
40									
45									

VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING NUMBER: B-102 SHEET 1 of 1 DATE STARTED: 10/31/06 DATE COMPLETED: 10/31/06					
PROJECT NAME: SOUTH BURLINGTON		PROJECT NUMBER: IM CULV(9)		SITE NUMBER: MM 88.1					
SITE NAME: I-89		STATION: 214+54.01		GROUND ELEVATION:					
OFFSET: -1.50		VTSPG: N 715571.69 ft E 1461519.51 ft		GROUNDWATER DEPTH: Hole caved in.					
PROJECT PIN NUMBER: 06A136		BORING RIG: LAG TRACK RIG w/AUTO HAMMER		BORING TYPE: HOLLOW STEM AUGER					
BORING CREW		CREW CHIEF: GARROW		SAMPLE TYPE: SPLIT BARREL					
DRILLER: GARROW		LOGGER: WERNER		CHECKED BY: CAA					
DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)	LL (%)	PI (%)
299.0		A-4, SiSa, brn, Moist, Rec. = 1.1 ft	3	20.0	0.4	58.5	41.1		
5		A-4, SiSa, gry-brn, Moist, Rec. = 1.7 ft	13	21.5	0.1	54.3	45.6		
10		A-4, SoSi, gry, Moist, Rec. = 1.8 ft	6	28.1	0.1	40.9	59.0		
15		A-2-4, SiSa, gry, Moist, Rec. = 0.6 ft	3	25.1	0.5	73.4	26.1		
20		A-2-4, Sa, gry, MTW, Rec. = 0.5 ft	WH	25.2	2.9	78.1	19.0	29	5
		A-4, Si, gry, MTW, Rec. = 1.5 ft		32.6	0.0	1.0	99.0		
25		A-6, Cl, gry, MTW, Rec. = 1.8 ft	WH	41.5	0.0	6.1	93.9	39	20
30		A-7-6, Cl, gry, MTW, Rec. = 2.0 ft	WH	55.4	3.6	15.0	81.4	53	30
35		A-7-6, Cl, gry, MTW, Rec. = 2.0 ft	WH	68.8	0.7	5.0	94.3	70	41
40		A-7-6, Cl, gry, MTW, Rec. = 2.0 ft	WH	47.9	0.5	5.8	93.7	49	27
		Hole stopped @ 42.0 ft							
		DRILLER'S NOTES: 1. No Ground Water Elevation. Hole caved in.							
45									

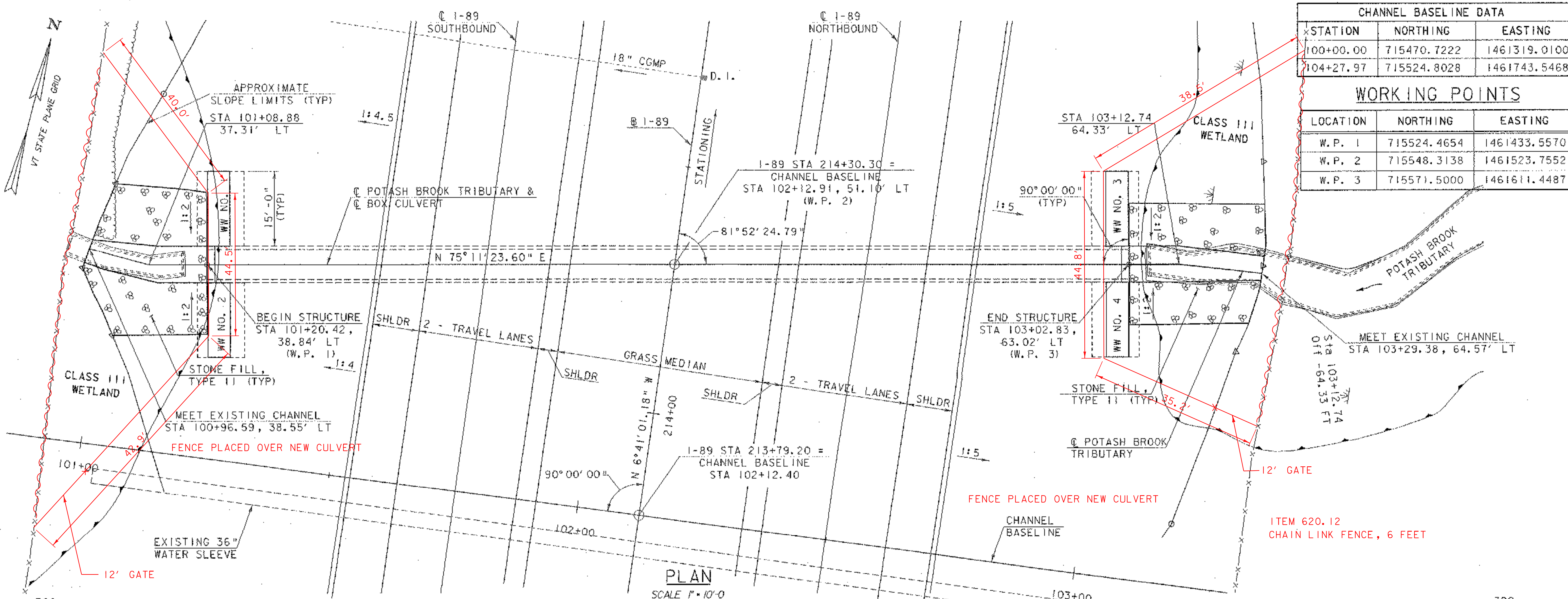
VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING NUMBER: B-103 SHEET 1 of 1 DATE STARTED: 11/01/06 DATE COMPLETED: 11/01/06					
PROJECT NAME: SOUTH BURLINGTON		PROJECT NUMBER: IM CULV(9)		SITE NUMBER: MM 88.1					
SITE NAME: I-89		STATION: 214+33.44		GROUND ELEVATION:					
OFFSET: -85.37		VTSPG: N 715541.50 ft E 1461438.60 ft		GROUNDWATER DEPTH: 3.9 ft 11/01/06					
PROJECT PIN NUMBER: 06A136		BORING RIG: LAG TRACK RIG w/AUTO HAMMER		BORING TYPE: HOLLOW STEM AUGER					
BORING CREW		CREW CHIEF: GARROW		SAMPLE TYPE: SPLIT BARREL					
DRILLER: GARROW		LOGGER: WERNER		CHECKED BY: CAA					
DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)	LL (%)	PI (%)
295.0		A-4, SiSa, brn, Moist, Rec. = 1.3 ft	5	32.2	0.5	60.7	38.8		
		A-4, SiSa, brn, Moist, Rec. = 0.8 ft	2	27.8	1.7	59.6	38.7		
5		A-4, SiSa, brn, Wet, Rec. = 0.4 ft	WH	29.1	0.7	52.6	46.7		
		A-4, SiSa, gry, Wet, Rec. = 1.1 ft	5	27.0	0.9	50.8	48.3		
		A-4, SoSi, gry, Wet, Rec. = 1.0 ft	2	30.3	0.0	23.7	76.3		
10		A-4, Si, gry, Wet, Rec. = 1.2 ft	WH	33.6	0.0	5.2	94.8	27	4
15		A-4, Si, gry, Wet, Rec. = 1.7 ft	WH	32.4	0.0	1.5	98.5	28	3
20		A-4, ClSi, gry, Wet, Rec. = 2.0 ft	WH	34.5	0.0	0.6	99.4	31	8
25		A-7-6, Cl, gry, Wet, Rec. = 2.0 ft	WH	48.3	0.0	6.1	93.9	55	32
30		A-7-6, Cl, gry, Wet, Rec. = 2.0 ft	WH	65.8	-1.1	3.8	95.1	73	45
35		A-7-6, Cl, gry, Wet, Rec. = 2.0 ft	WH	48.7	0.0	2.1	97.9	57	30
40		A-7-6, Cl, gry, Wet, Rec. = 2.0 ft	WH	51.4	0.0	2.4	97.6	54	31
		Hole stopped @ 42.0 ft							
45									

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	S. BURLINGTON	Bridge No.	67-1
Highway No.	I-89	Log Sta.	
		Surv. Sta.	
I-89 OVER POTASH BROOK TRIBUTARY			
BORING LOGS			
Designed By	VTRANS/LKW	Drawn By	SFD
Checked By	RLJ	Bridge Design Supervisor	TTK
Date	09/07	Date	09/07
PROJECT	SOUTH BURLINGTON	PROJECT NO.	AC IM CULV (9)
I.G.C. Info. m:\656310 I-89 Culvert\BRIDGE\2Cadd\41Inal-pre\mz05k286LOG.dgn			
Bridge Sheet No.		Sheet	49 of 63



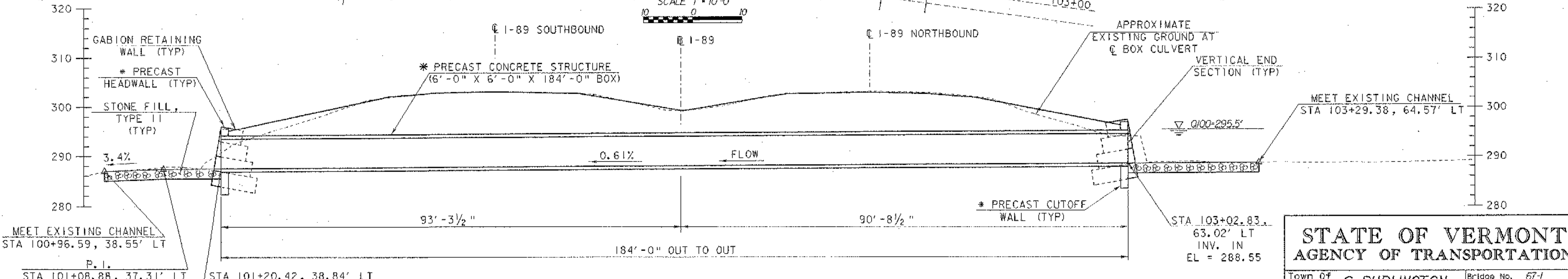
PLOTTED DATE: 11/29/06



CHANNEL BASELINE DATA		
STATION	NORTHING	EASTING
100+00.00	715470.7222	1461319.0100
104+27.97	715524.8028	1461743.5468

WORKING POINTS		
LOCATION	NORTHING	EASTING
W.P. 1	715524.4654	1461433.5570
W.P. 2	715548.3138	1461523.7552
W.P. 3	715571.5000	1461611.4487

PLAN
SCALE 1" = 10'-0"



ELEVATION AT CENTERLINE BOX CULVERT

SCALE 1" = 10'-0"

CHANNEL VERTICAL ALIGNMENT DATA	
PVI STATION	ELEVATION
100+96.72, 38.91' LT	286.86
101+08.88, 37.31' LT	287.34
103+29.38, 64.58' LT	288.71

* COST OF PRECAST BOX CULVERT, HEADWALLS AND PRECAST CUTOFF WALLS INCLUDED IN ITEM 540.10

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town of **S. BURLINGTON** Bridge No. **67-1**
 Highway No. **1-89** Log Sta. **Surv. Sta.**
1-89 OVER POTASH BROOK TRIBUTARY
CULVERT PLAN AND ELEVATION

Designed By **LKW/MAH** Drawn By **SFD**
 Checked By **RLJ** Date **09/07** Bridge Design Supervisor **TTK** Date **09/07**

PROJECT **SOUTH BURLINGTON** PROJECT NO. **AC 1M CULV (9)**
 Bridge Sheet No. **Sheet 50 of 63**



PLOTTED DATE: 09/07/07

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, DATED 2006, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 17TH EDITION, DATED 2002, AND ITS LATEST REVISIONS.
2. GABION WALL LAYOUT AND WORKING POINTS WERE DEVELOPED BASED ON THE DIMENSIONS DETAILED IN THE PLANS. IF ACTUAL ELEMENT/SYSTEM LAYOUT DIMENSIONS VARY FROM THOSE SHOWN IN THE PLANS, THE CONTRACTOR SHALL ADJUST AFFECTED DIMENSIONS ACCORDINGLY, AND SUBMIT REVISED DIMENSIONS TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. ALL ASSOCIATED COSTS SHALL BE INCIDENTAL TO ITEM 540.10.
3. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SAFETY DURING CONSTRUCTION.
4. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 20 DEGREES CELSIUS, UNLESS NOTED OTHERWISE.
5. THE CONTRACTOR SHALL REVIEW AND UNDERSTAND ALL APPLICABLE ENVIRONMENTAL PERMITS AND ENSURE THAT ALL CONSTRUCTION CONDITIONS ARE MET.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO PRIVATE OR PUBLIC PROPERTY CAUSED BY THE CONTRACTOR AT HIS EXPENSE TO THE SATISFACTION OF THE RESIDENT ENGINEER.
7. THE LOCATION OF ANY UTILITY INFORMATION SHOWN ON THE PLANS IS APPROXIMATE. NO CLAIMS ARE MADE AS TO THE ACCURACY OR COMPLETENESS OF THE UTILITIES SHOWN. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR LOCATING AND PROTECTING FROM DAMAGE ALL UTILITIES ON SITE DURING ALL STAGES OF CONSTRUCTION.
8. THE CONTRACTOR SHALL USE CAUTION WHEN WORKING AROUND OVERHEAD UTILITIES, AND COORDINATE TEMPORARY AND/OR PERMANENT UTILITY RELOCATION WITH THE UTILITY COMPANIES.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER FIT-UP OF THE PRECAST ELEMENTS WITH THE GABION WALL ELEMENTS PER THE MANUFACTURER'S RECOMMENDATIONS AND TO THE SATISFACTION OF THE RESIDENT ENGINEER.

TEMPORARY RELOCATION OF STREAM NOTES

1. ITEM 900.645, TEMPORARY RELOCATION OF STREAM, SHALL BE USED TO DIVERT THE POTASH BROOK FLOW AROUND THE CONSTRUCTION AREA OF THE NEW STRUCTURE. THE CONTRACTOR MAY USE A 3 FOOT MINIMUM DIAMETER PIPE FOR DIVERTING THE BROOK, OR MAY SUBMIT AN ALTERNATIVE METHOD FOR ALLOWING THE NEW STRUCTURE TO BE BUILT IN THE DRY. THE TEMPORARY RELOCATION OF THE STREAM HAS BEEN DETAILED TO BE INSTALLED ON THE SOUTHERLY SIDE OF THE EXISTING METAL CULVERT FOR ILLUSTRATIVE PURPOSES ONLY. ANY METHOD USED SHALL BE PAID AS ITEM 900.645.
2. ITEM 900.645, TEMPORARY RELOCATION OF STREAM, SHALL INCLUDE, BUT IS NOT LIMITED TO, THE FOLLOWING WORK:
 - A. THE TEMPORARY PIPE AND HARDWARE.
 - B. FLOWABLE FILL TO PLUG THE TEMPORARY PIPE ONCE THE WATER IS DIVERTED INTO THE NEW PRECAST CULVERT.
 - C. ANY EXCAVATION NEEDED TO PLACE THE TEMPORARY PIPE AND CONSTRUCT THE TEMPORARY EARTH BERM AND DITCH THAT FALLS OUTSIDE THE PAY LIMITS OF STRUCTURE EXCAVATION.
 - D. ANY BACKFILL NEEDED TO PLACE THE TEMPORARY PIPE AND CONSTRUCT THE TEMPORARY DITCH SUCH THAT THE EXISTING STREAM ELEVATIONS WILL MAINTAIN THE FLOW OF WATER AT ALL TIMES.
 - E. MATERIAL AND LABOR TO PLACE THE BACKFILL WHICH FALLS OUTSIDE THE PAY LIMITS OF STRUCTURE EXCAVATION.
 - F. TEMPORARY STONE AND GEOTEXTILE FABRIC USED FOR THE CONSTRUCTION OF TEMPORARY DITCHES (IF REQUIRED).
 - G. INCIDENTALS USED WHILE DIVERTING THE WATER TO THE TEMPORARY PIPES AND DITCH. (SANDBAGS, ETC..)

PRECAST CONCRETE BOX CULVERT NOTES

1. THE LUMP SUM COST FOR ITEM 540.10 SHALL INCLUDE THE DESIGN, FABRICATION, DELIVERY, HANDLING, REPAIR AND CONSTRUCTION OF THE PRECAST BRIDGE ELEMENTS, INCLUDING THE BOX CULVERT, HEADWALLS, AND CUTOFF WALLS.
2. THE MANUFACTURER SHALL DESIGN THE PRECAST BRIDGE ELEMENTS, INCLUDING, BUT NOT LIMITED TO, THE BOX CULVERT, HEADWALLS, AND CUT-OFF WALLS. THE MANUFACTURER SHALL PROVIDE STAMPED DESIGN CALCULATIONS PREPARED BY A REGISTERED VERMONT PROFESSIONAL ENGINEER. THE MANUFACTURER SHALL CONSIDER STRENGTH, SERVICABILITY, STIFFNESS AND STABILITY OF THE PRECAST ELEMENTS FOR LOADS GENERATED DURING FABRICATION, TRANSPORTATION, ERECTION, CONSTRUCTION OPERATIONS, AND ULTIMATE TRAFFIC CONDITIONS. THE MANUFACTURER SHALL OBTAIN WRITTEN APPROVAL FROM THE VERMONT AGENCY OF TRANSPORTATION STRUCTURES DIVISION PRIOR TO FABRICATION. ALL COST SHALL BE INCLUDED IN ITEM 540.10.
3. THE PRECAST BRIDGE SYSTEM SHALL BE DESIGNED PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 2007, AND SHALL CONSIDER THE FOLLOWING DESIGN CRITERIA:
 - A. DESIGN LOADING = HL-93
 - B. FACTORED SOIL BEARING RESISTANCE = 4400 PSF (STRENGTH I)
 - C. WEIGHT OF BACKFILL MATERIAL = 140 PCF
4. THE LENGTH OF EACH BOX CULVERT SEGMENT SHALL BE DETERMINED BY THE CONTRACTOR. THE BOX CULVERT SEGMENT LENGTHS SHALL BE COMPATIBLE WITH THE CONTRACTOR'S TRAFFIC CONTROL PLAN AND HIS/HER PHASING DETAILS.
5. JOINTS BETWEEN ABUTTING PRECAST UNITS SHALL BE WATERTIGHT. THE EXTERIOR (TOP AND SIDES) AND INTERIOR (SIDES AND BOTTOM) JOINTS SHALL BE FILLED WITH MORTAR, TYPE IV AFTER BEING SET IN THEIR FINAL POSITION. MORTAR SHALL BE WET CURED A MINIMUM OF 24 HOURS PRIOR TO APPLYING WATERPROOFING MEASURES. MORTAR SHALL BE INCIDENTAL TO ITEM 540.10.
6. BOX CULVERTS SHALL BEAR ON COMPACTED GRANULAR BACKFILL FOR STRUCTURES. ANY UNSUITABLE MATERIALS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATION FOR THE BOX CULVERT SHALL BE REMOVED AND REPLACED WITH GRANULAR BACKFILL FOR STRUCTURES AS DIRECTED BY THE RESIDENT ENGINEER.
7. THE CONTRACTOR SHALL FOLLOW THE MANUFACTURER'S RECOMMENDATIONS REGARDING BACKFILL AND COMPACTION LIMITS, PROPERTIES, AND PROCEDURES, INCLUDING RESTRICTIONS OF CONSTRUCTION MACHINERY AND OPERATIONS.
8. THE CONTRACTOR SHALL PROVIDE EQUIPMENT CAPABLE OF UNLOADING, LIFTING, AND PLACING PRECAST UNITS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND UNDER THE DIRECTION OF THE MANUFACTURER'S FIELD REPRESENTATIVE. COST SHALL BE INCLUDED IN ITEM 540.10.
9. PRIOR TO SHIPPING THE PRECAST ELEMENTS, THE CONTRACTOR SHALL SUPPLY CERTIFICATION STATING THAT THE BACKFILL SOIL MEETS THE REQUIREMENTS OF THE MANUFACTURER'S RECOMMENDATIONS AND PROJECT SPECIFICATIONS. NO BACKFILL SHALL BE PLACED AGAINST ANY STRUCTURAL ELEMENTS UNTIL THE RESIDENT ENGINEER HAS APPROVED THIS.
10. THE DRILLING OF HOLES IN THE PRECAST ELEMENTS SHALL NOT BE PERMITTED, UNLESS APPROVED IN WRITING BY THE VERMONT AGENCY OF TRANSPORTATION STRUCTURES DIVISION. ANY LIFTING HOLES SHALL BE FILLED WITH MORTAR, TYPE IV. COST FOR MORTAR SHALL BE INCIDENTAL TO ITEM 540.10.
11. THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO PRECAST CONCRETE ELEMENTS AT HIS EXPENSE TO THE SATISFACTION OF THE RESIDENT ENGINEER.
12. A 2 FOOT WIDE STRIP OF SHEET MEMBRANE WATERPROOFING, PREFORMED SHEET (ITEM 519.21) SHALL BE SECURED TIGHTLY TO BOX CULVERT SECTIONS AT EACH OUTER SIDE JOINT. THE MEMBRANE SHALL BE CENTERED ON THE JOINT AND COVER THE FULL HEIGHT OF THE SIDE JOINTS. THE ENTIRE TOP SHALL THEN BE COVERED WITH MEMBRANE. THE SHEETS SHALL OVERLAP THE EDGES BY 1 FOOT ON EACH SIDE.
13. ALL REINFORCEMENT WITHIN THE PRECAST BRIDGE ELEMENTS SHALL BE EPOXY COATED AND HAVE 2-INCHES OF CLEAR COVER TO ALL CONCRETE SURFACES.

14. WATER REPELLENT SHALL BE APPLIED TO ALL EXPOSED SURFACES OF THE HEADWALLS, AND EXPOSED INTERIOR SURFACES OF THE ENTIRE BOX CULVERT, INCLUDING THE BOTTOM SURFACE OF THE TOP SLAB, THE TOP SURFACE OF THE BOTTOM SLAB, AND THE VERTICAL WALLS. WATER REPELLENT SHALL MEET THE REQUIREMENTS OF ITEM 514.10, WATER REPELLENT, SILANE. COST SHALL BE INCIDENTAL TO ITEM 540.10. WATER REPELLENT SHALL BE APPLIED IN THE SHOP.

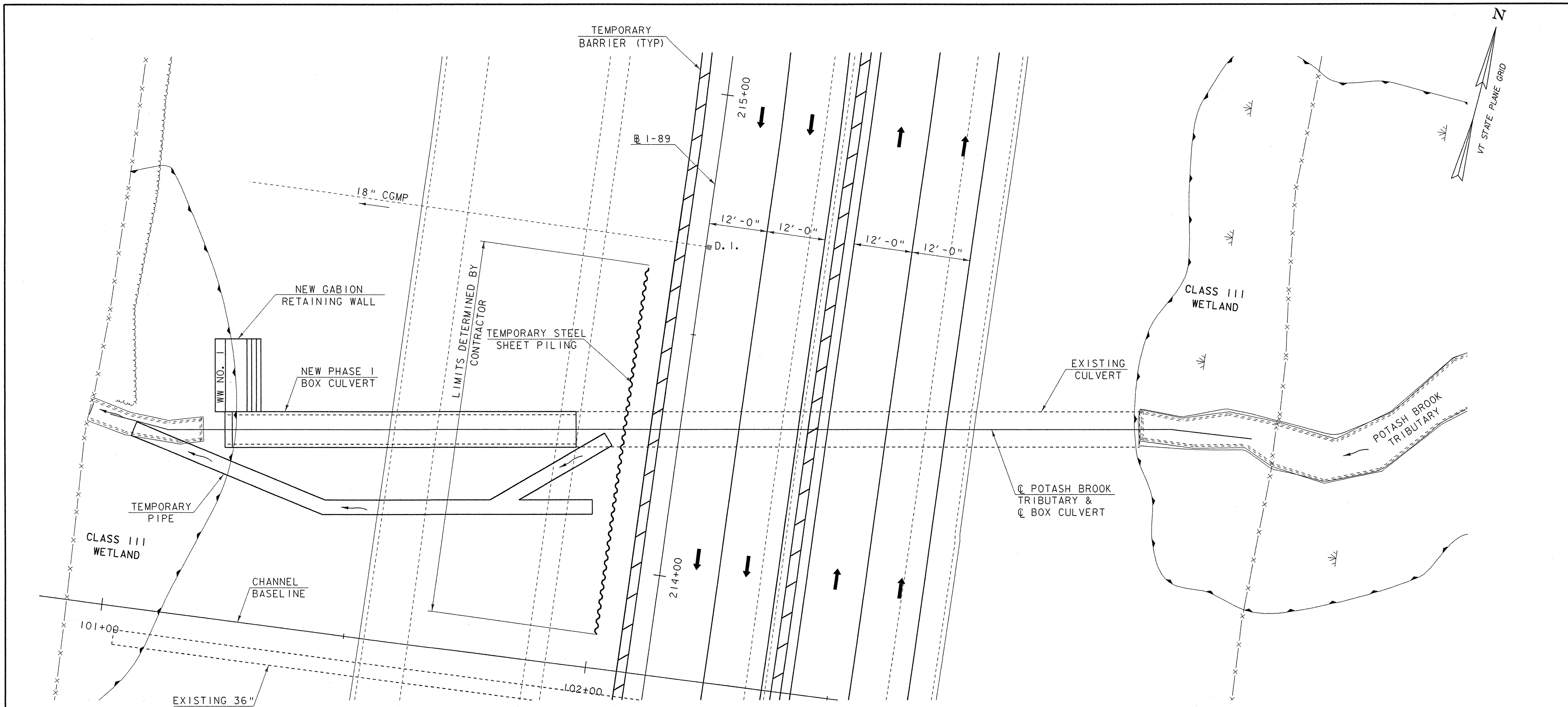
CULVERT PHASING NOTES

1. TRAFFIC SHALL BE CONTROLLED AND MAINTAINED AT ALL TIMES THROUGHOUT ALL PHASES OF THIS PROJECT IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.
2. THE CULVERT PHASING DETAILS DEPICTED ON SHEETS 52, 53 AND 54 ARE CONCEPTUAL AND SCHEMATIC ONLY. THE CONTRACTOR SHALL PREPARE A DETAILED TRAFFIC CONTROL PLAN THAT INCLUDES THEIR PLAN FOR PHASED CONSTRUCTION OF THE BOX CULVERT. THE CONTRACTOR SHALL SUBMIT HIS/HER TRAFFIC CONTROL PLAN FOR REVIEW AND APPROVAL TO THE RESIDENT ENGINEER.

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	<i>S. BURLINGTON</i>	Bridge No.	<i>67-1</i>
Highway No.	<i>I-89</i>	Log Sta.	
		Surv. Sta.	
<i>I-89 OVER POTASH BROOK TRIBUTARY</i>			
GENERAL NOTES			
Designed By	<i>LKW</i>	Drawn By	<i>SFD</i>
Checked By	Date	Bridge Design Supervisor	Date
<i>RLJ</i>	<i>09/07</i>	<i>TTK</i>	<i>09/07</i>
PROJECT	PROJECT NO.		
<i>SOUTH BURLINGTON</i>	<i>AC IM CULV (9)</i>		
I.G.C. Info. <i>m:\656310 I-89 Culvert\BRIDGE\2Cadd\41Inal-pre\Imz05k286NT.s.dgn</i>			
Bridge Sheet No.	Sheet <i>51</i> of <i>63</i>		





PHASE I - PLAN

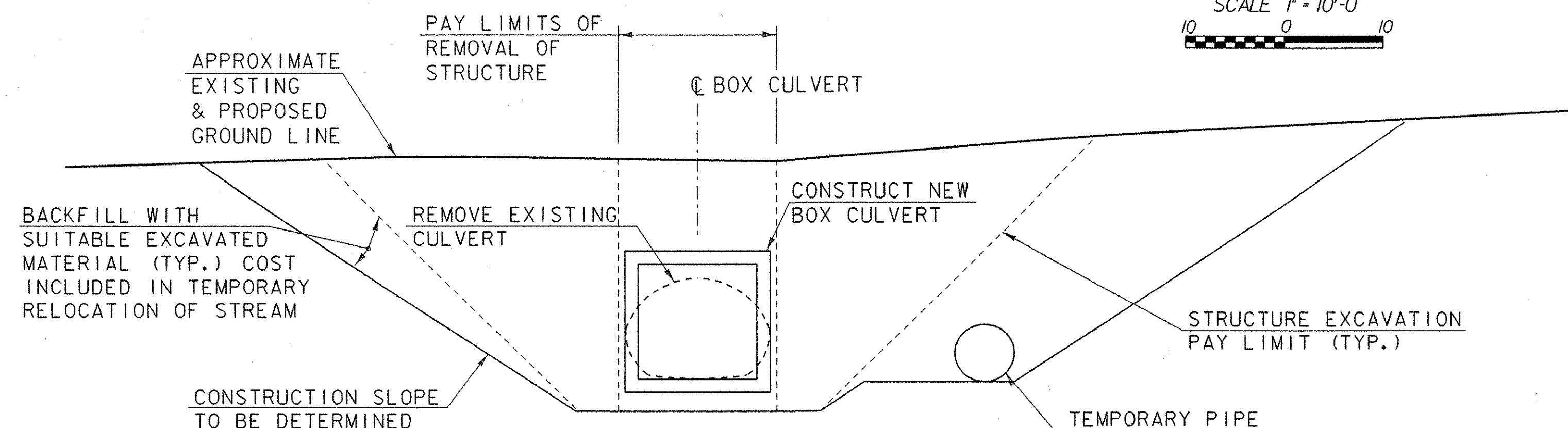
SCALE 1" = 10'-0"

PHASE I NOTES

1. INSPECT EXISTING METAL CULVERT AREA TO DETERMINE LIMITS OF TEMPORARY SHORING OR REPAIR.
2. DIVERT TRAFFIC PER THE TRAFFIC CONTROL PLANS.
3. INSTALL TEMPORARY STEEL SHEET PILING OR OTHER REQUIRED EXCAVATION SUPPORTS.
4. EXCAVATE AND INSTALL TEMPORARY PIPE.
5. DIVERT FLOW OF WATER TO TEMPORARY PIPE.
6. REMOVE PORTION OF EXISTING CULVERT.
7. CONSTRUCT PHASE I CUTOFF WALL, BOX CULVERT AND HEADWALL.
8. CONSTRUCT WINGWALL NO. 1 GABION RETAINING WALL.
9. CONSTRUCT ROADWAY.

NOTE

1. FOR ADDITIONAL CULVERT PHASING NOTES, SEE GENERAL NOTES.



PHASE I - SECTION

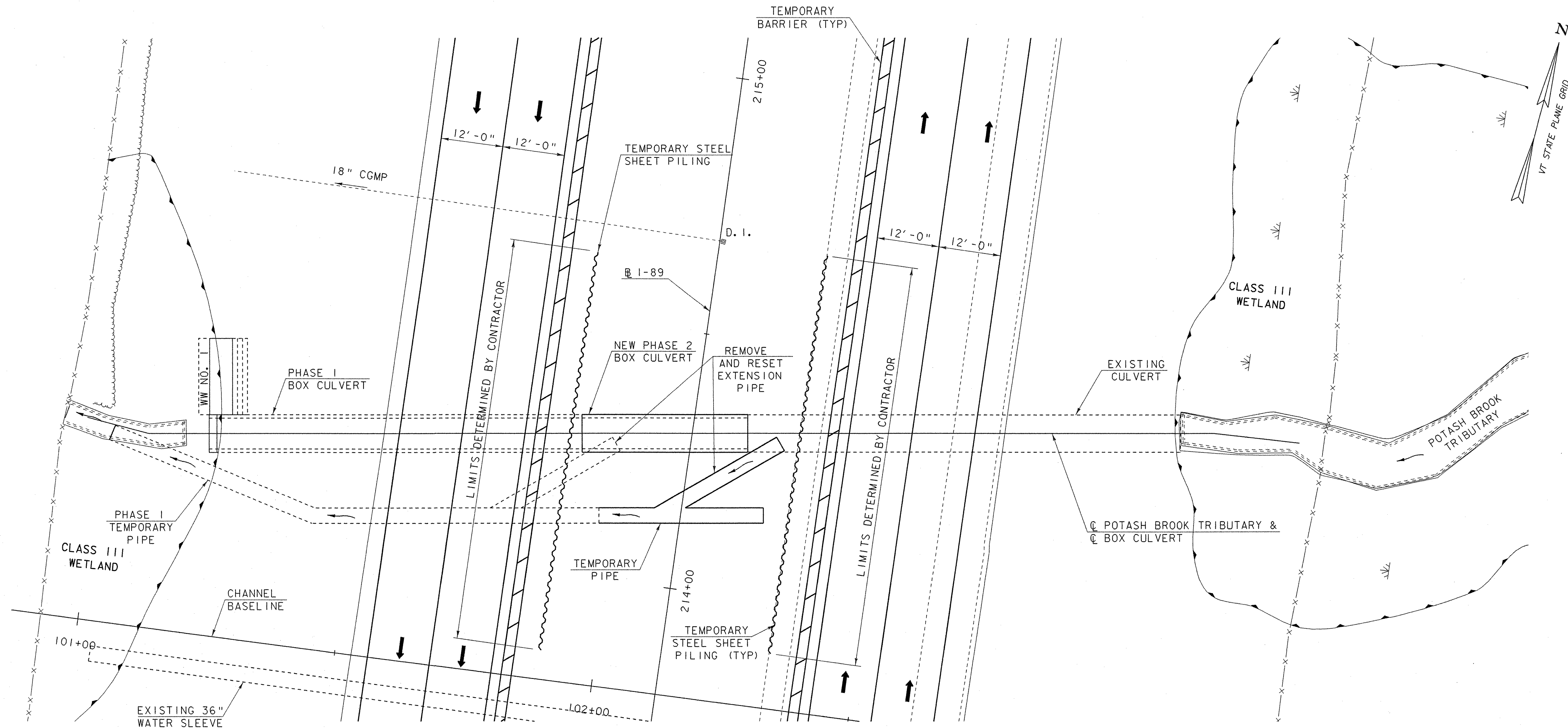
SCALE 1" = 5'-0"

STATE OF VERMONT
 AGENCY OF TRANSPORTATION

Town Of	S. BURLINGTON	Bridge No.	67-1
Highway No.	1-89	Log Sta.	
		Surv. Sta.	
1-89 OVER POTASH BROOK TRIBUTARY			
CULVERT PHASING DETAILS (1 OF 3)			
Designed By	LKW	Drawn By	SFD
Checked By	RLJ	Bridge Design Supervisor	TTK
Date	09/07	Date	09/07
PROJECT	SOUTH BURLINGTON		PROJECT NO.
			AC IM CULV (9)
I.G.C. Info. m:\656310 1-89 Culvert\BRIDGE\2Cadd\41\Inal-prelim\205k286TCl.dgn			
Bridge Sheet No.			Sheet 52 of 63



PLOTTED DATE: 09/07/07



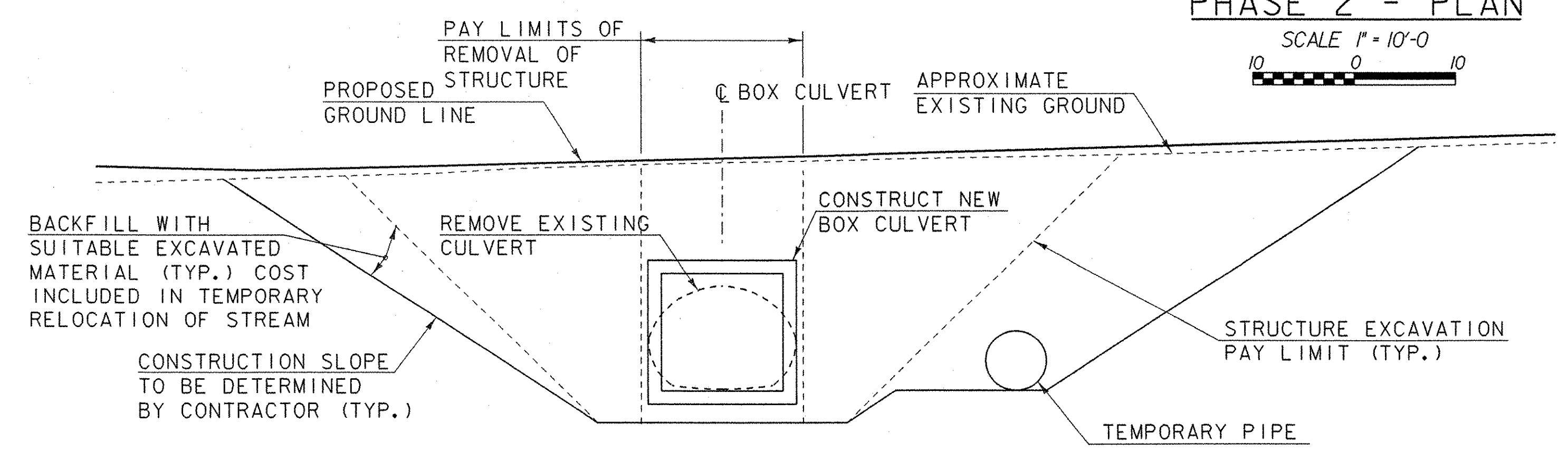
PHASE 2 - PLAN

PHASE 2 NOTES

NOTE

1. INSPECT EXISTING CULVERT AREA TO DETERMINE LIMITS OF TEMPORARY SHORING OR REPAIR.
2. DIVERT TRAFFIC PER THE TRAFFIC CONTROL PLANS.
3. INSTALL TEMPORARY STEEL SHEET PILING OR OTHER REQUIRED EXCAVATION SUPPORTS.
4. EXCAVATE AND INSTALL EXTENSION TO TEMPORARY PIPE.
5. DIVERT FLOW OF WATER THROUGH TEMPORARY PIPE.
6. REMOVE EXISTING CULVERT.
7. CONSTRUCT PHASE 2 BOX CULVERT.
8. CONSTRUCT ROADWAY.

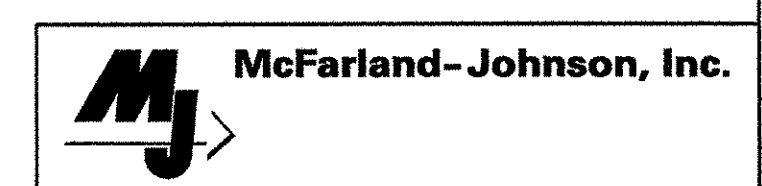
1. FOR ADDITIONAL CULVERT PHASING NOTES, SEE GENERAL NOTES.



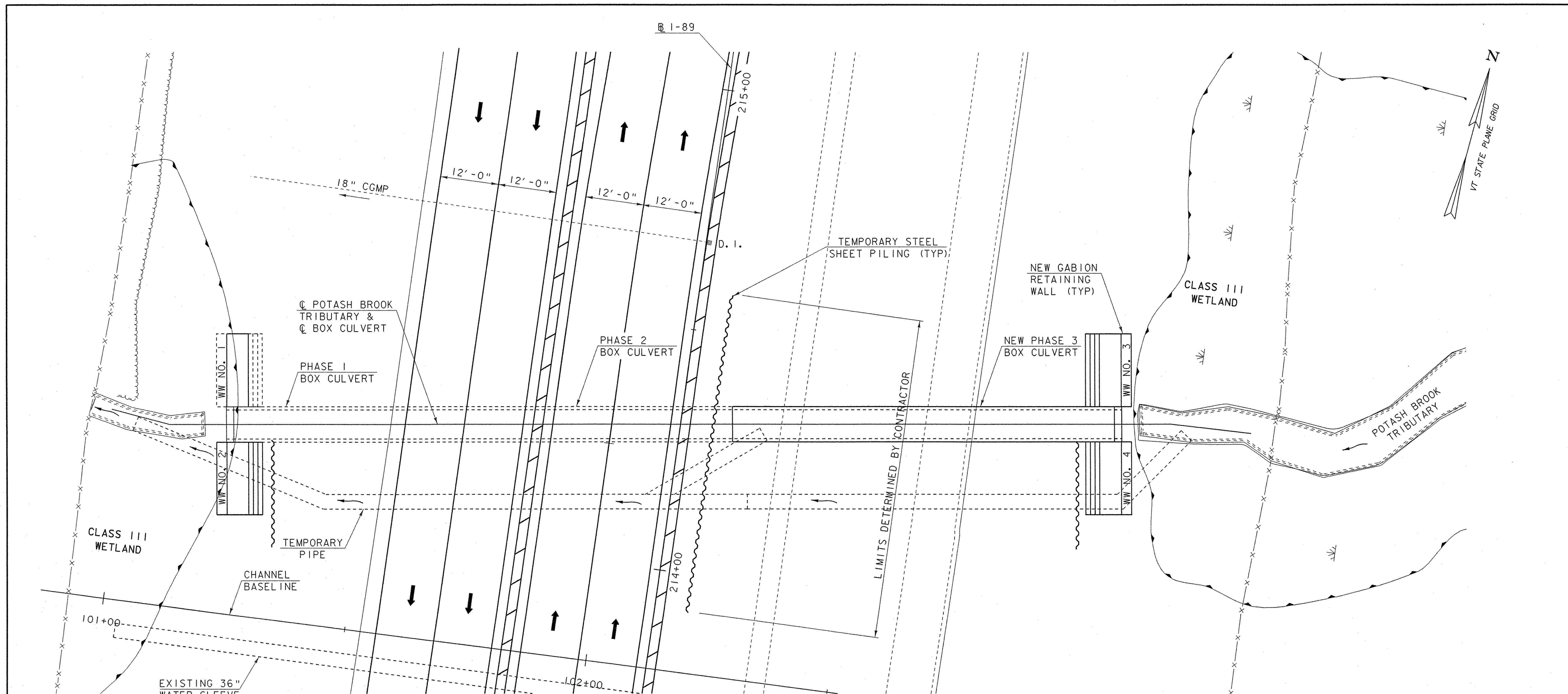
PHASE 2 - SECTION

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of	S. BURLINGTON	Bridge No.	67-1
Highway No.	1-89	Log Sta.	
		Surv. Sta.	
1-89 OVER POTASH BROOK TRIBUTARY CULVERT PHASING DETAILS (2 OF 3)			
Designed By	LKW	Drawn By	SFD
Checked By		Bridge Design Supervisor	
RLJ	09/07	TTK	Date 09/07
PROJECT	SOUTH BURLINGTON		PROJECT NO. AC 1M CULV (9)
I.G.C. Info. m:\656310 1-89 Culvert\BRIDGE\2Cadd\final-prelim\z05k286TC2.dgn			
Bridge Sheet No.	Sheet 53 of 63		



PLOTTED DATE: 09/07/07



PHASE 3 - PLAN

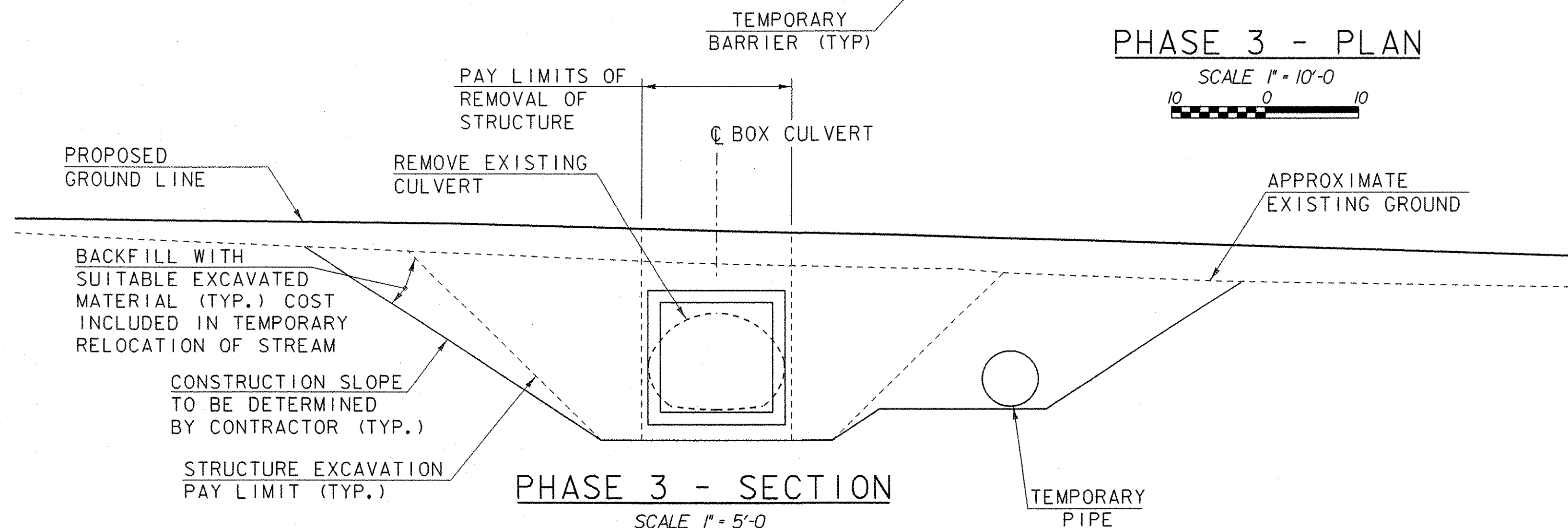
SCALE 1" = 10'-0"
 10 0 10

PHASE 3 NOTES

1. INSPECT EXISTING METAL CULVERT AREA TO DETERMINE LIMITS OF TEMPORARY SHORING OR REPAIR.
2. DIVERT TRAFFIC PER THE TRAFFIC CONTROL PLANS.
3. INSTALL TEMPORARY STEEL SHEET PILING OR OTHER REQUIRED EXCAVATION SUPPORTS.
4. EXCAVATE AND INSTALL EXTENSION TO TEMPORARY PIPE.
5. DIVERT FLOW OF WATER THROUGH THE TEMPORARY PIPE.
6. REMOVE EXISTING CULVERT.
7. CONSTRUCT PHASE 3 CUT OFF WALL, BOX CULVERT AND HEADWALL.
8. CONSTRUCT WINGWALL NO. 3 GABION RETAINING WALL.
9. REDIRECT FLOW OF WATER TO NEW BOX CULVERT.
10. CONSTRUCT ROADWAY.
11. REMOVE PORTIONS OF TEMPORARY PIPES IN AREA OF WINGWALL NO. 2 AND WINGWALL NO. 4.
12. FILL ABANDONED PIPES WITH FLOWABLE FILL.
13. INSTALL TEMPORARY STEEL SHEET PILING OR OTHER REQUIRED EXCAVATION SUPPORTS.
14. CONSTRUCT WINGWALL NO. 2 AND 4 GABION RETAINING WALLS.
15. COMPLETE ROADWAY GRADING IN FRONT OF WINGWALL NO. 2 AND WINGWALL NO. 4.

NOTE

1. FOR ADDITIONAL CULVERT PHASING NOTES, SEE GENERAL NOTES.



PHASE 3 - SECTION

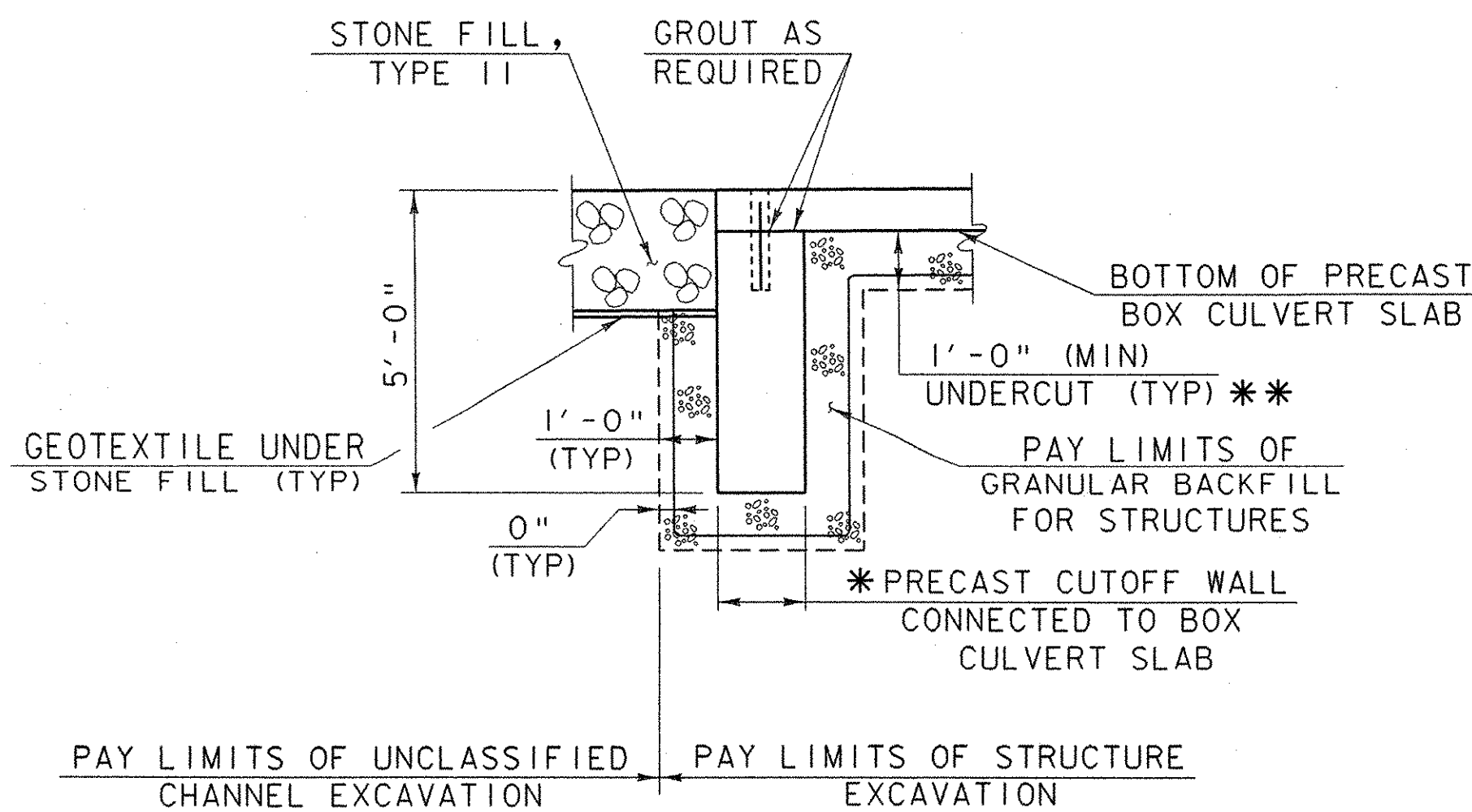
SCALE 1" = 5'-0"
 5 0 5

STATE OF VERMONT
 AGENCY OF TRANSPORTATION

Town of	S. BURLINGTON	Bridge No.	67-1
Highway No.	1-89	Log Sta.	
		Surv. Sta.	
1-89 OVER POTASH BROOK TRIBUTARY			
CULVERT PHASING DETAILS (3 OF 3)			
Designed By	LKW	Drawn By	SFD
Checked By	RLJ	Bridge Design Supervisor	TTK
	Date 09/07		Date 09/07
PROJECT	SOUTH BURLINGTON		PROJECT NO.
			AC 1M CULV (9)
I.G.C. Info. m:\656310 1-89 Culvert\BRIDGE\2Cadd\41\1nal-prelim\205k286TC3.dgn			
Bridge Sheet No.	Sheet 54 of 63		



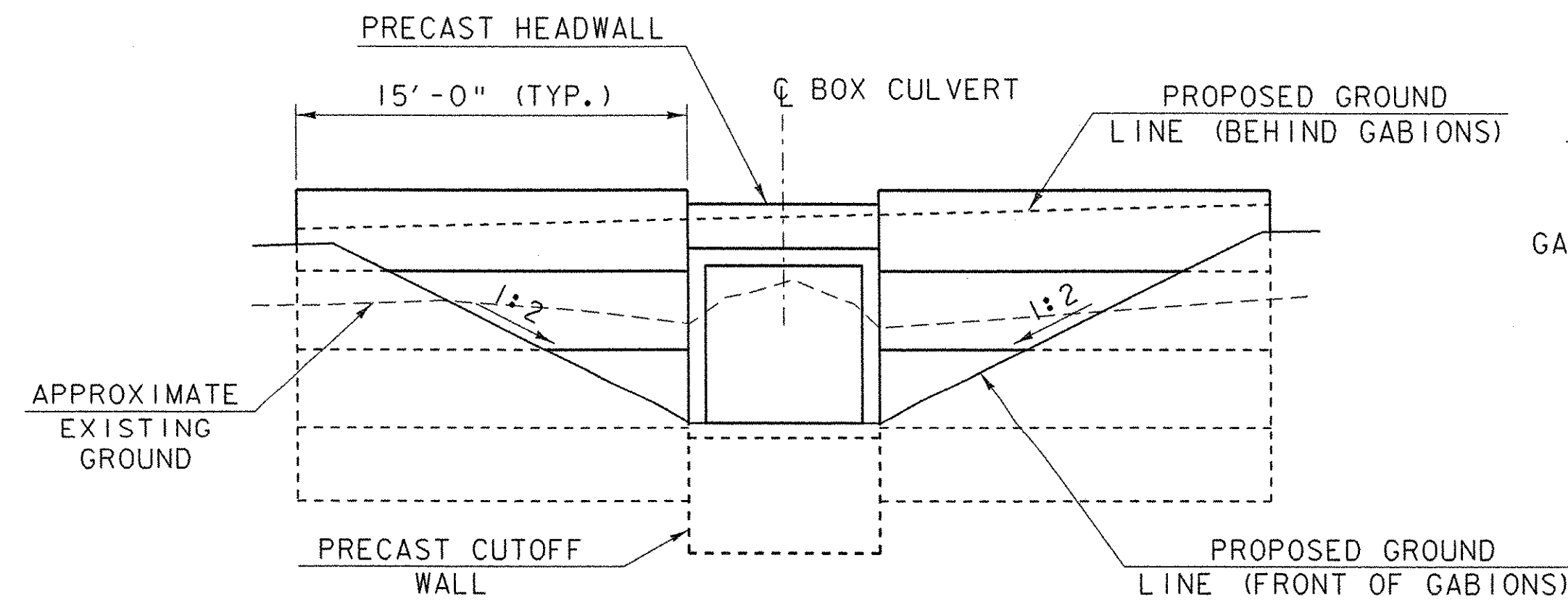
PLOTTED DATE: 09/07/07



CUTOFF WALL DETAIL

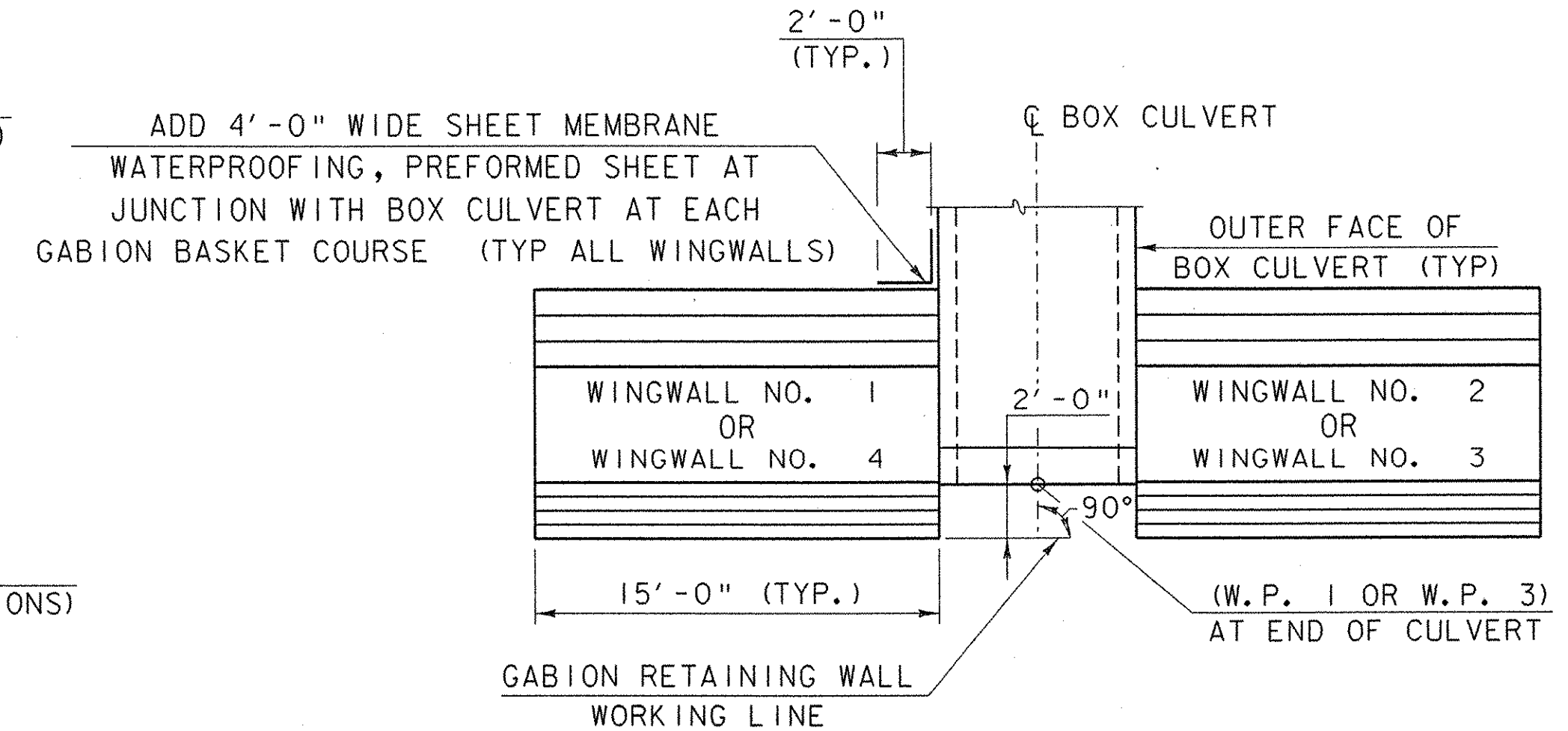
SCALE 3/8" = 1'-0"
1 0 1 2 3 4

** REMOVAL OF ADDITIONAL UNSUITABLE MATERIAL MAY BE REQUIRED AS ORDERED BY THE RESIDENT ENGINEER. SEE GENERAL NOTES.



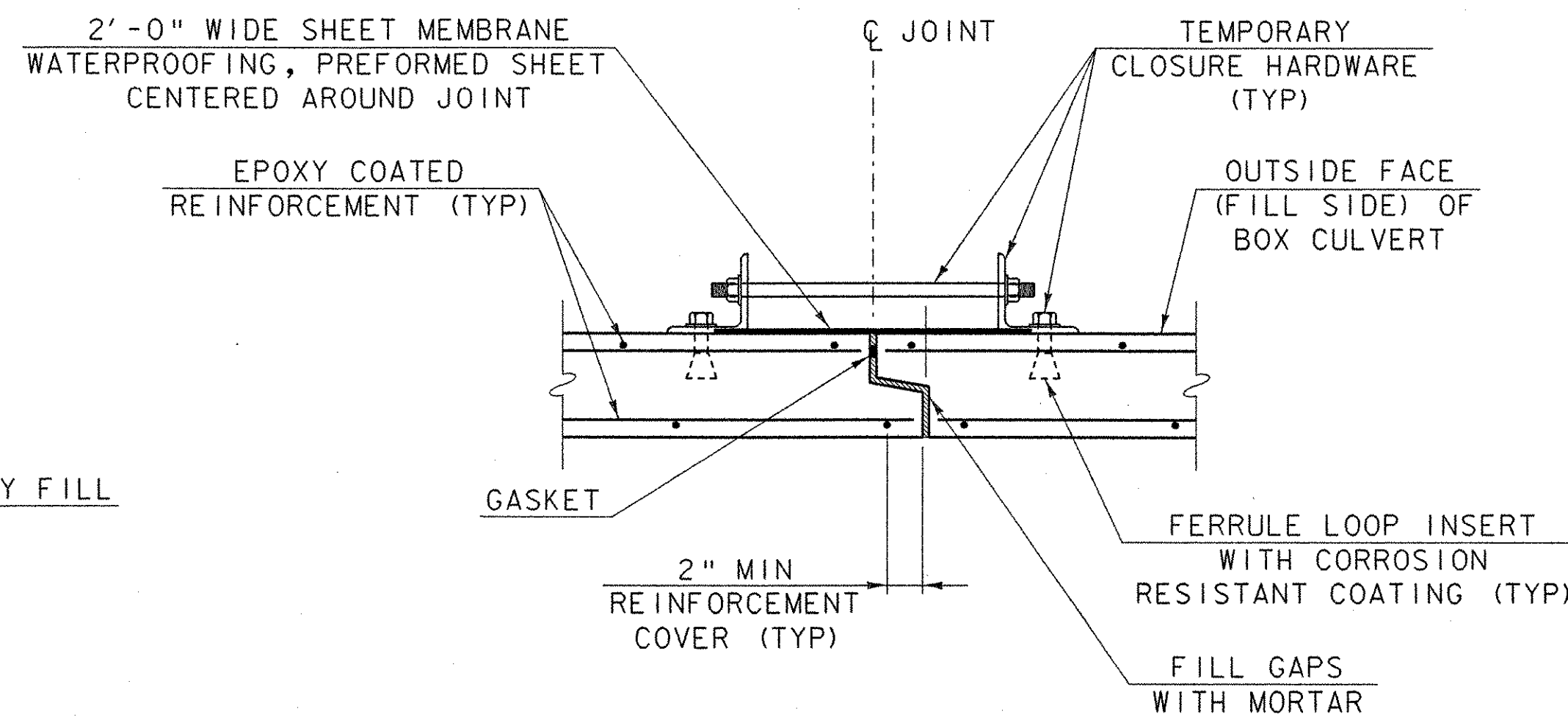
TYPICAL GABION RETAINING ELEVATION

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



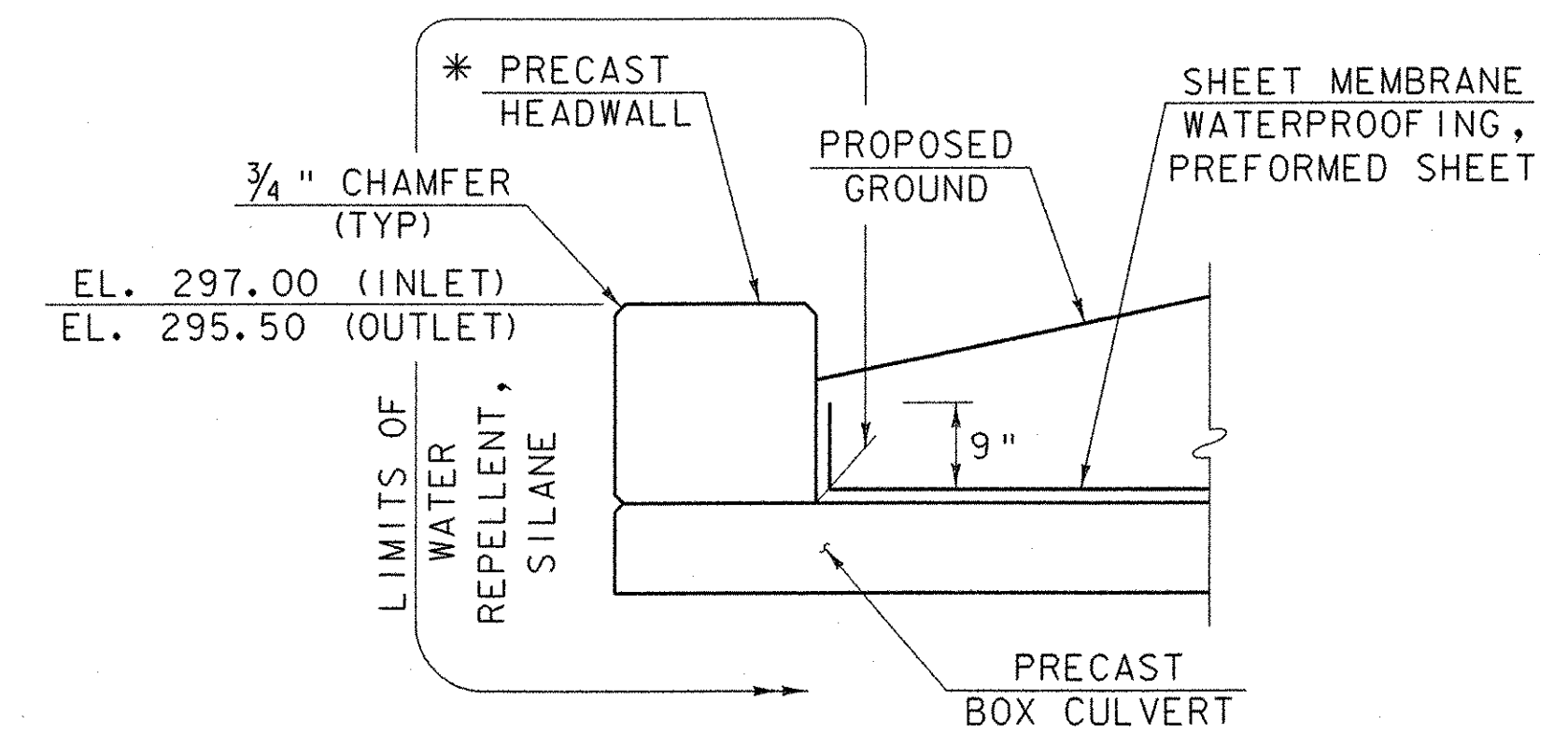
GABION RETAINING WALL LAYOUT

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



BOX CULVERT JOINT DETAIL

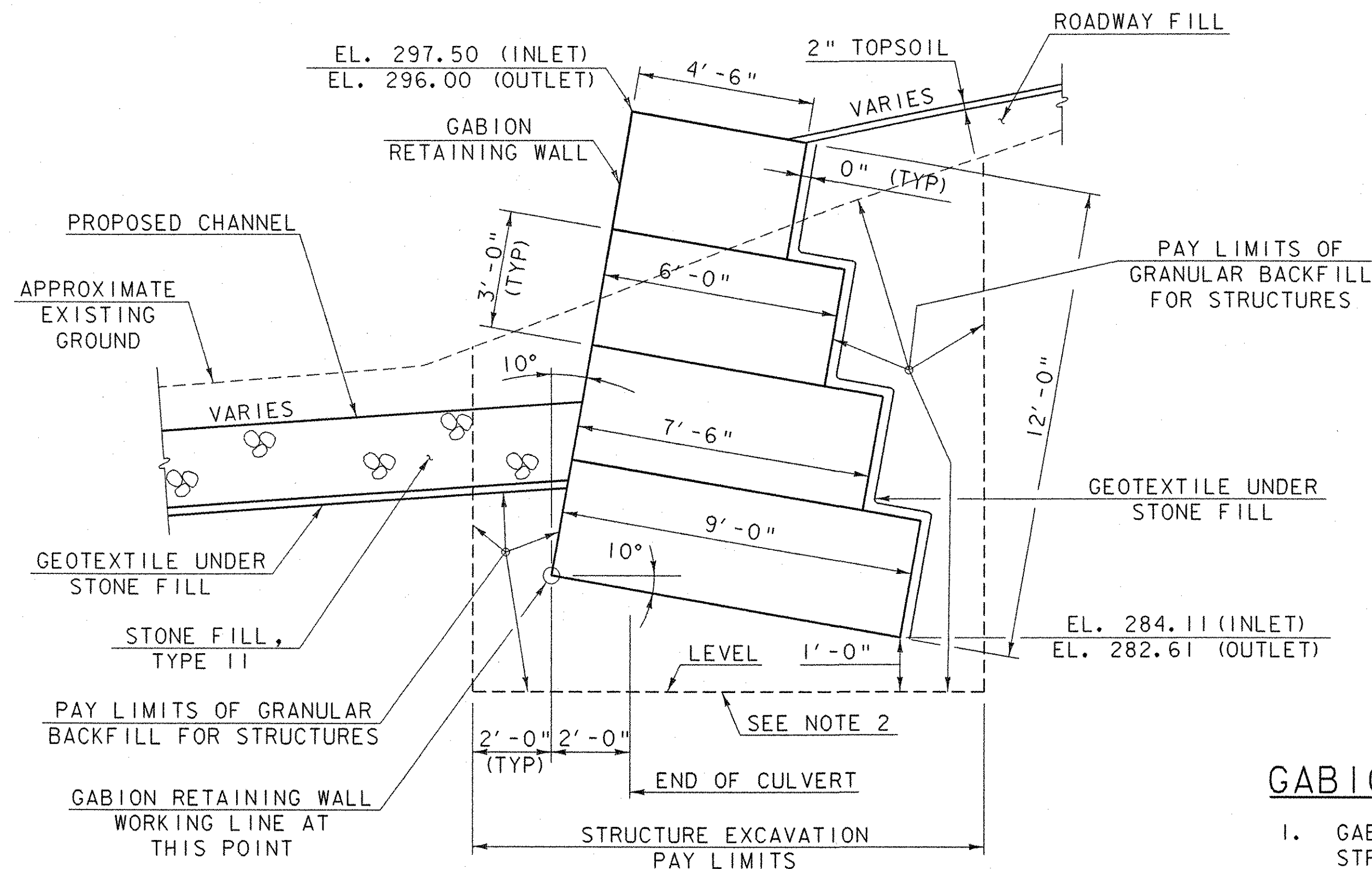
N.T.S.
ALL JOINTS SHALL BE WATER TIGHT



HEADWALL DETAIL

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

* PRECAST ELEMENTS TO BE DESIGNED BY THE CONTRACTOR'S PRECASTER. COST OF PRECAST HEADWALLS & CUTOFF WALLS INCLUDED IN ITEM 540.10.



TYPICAL GABION RETAINING WALL SECTION

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

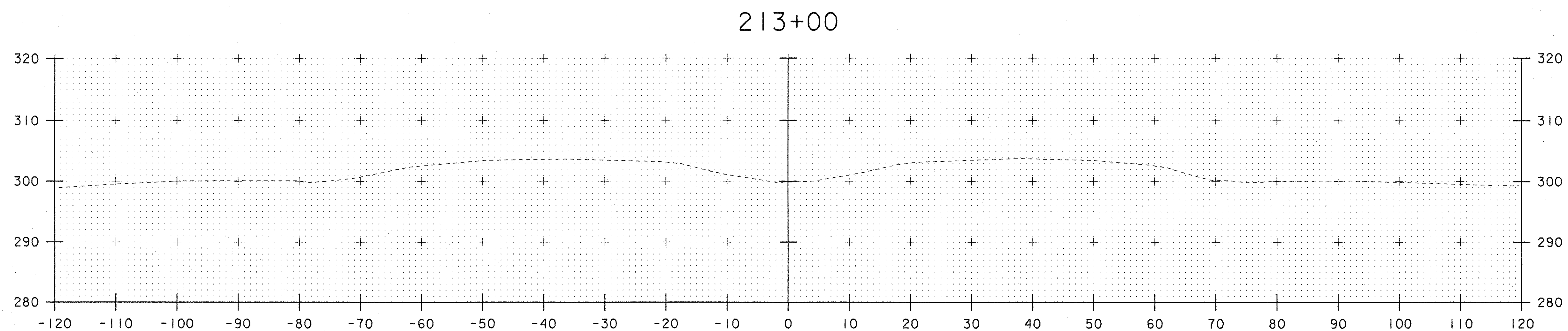
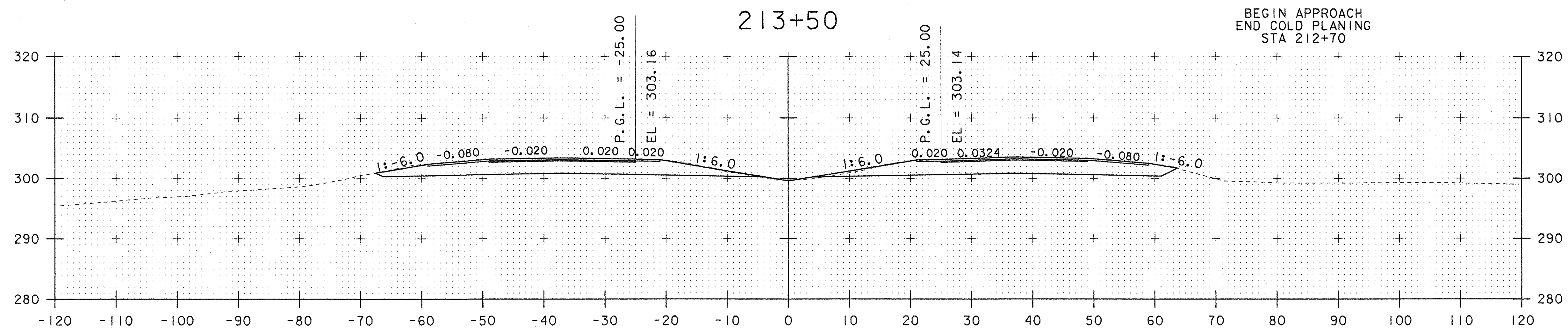
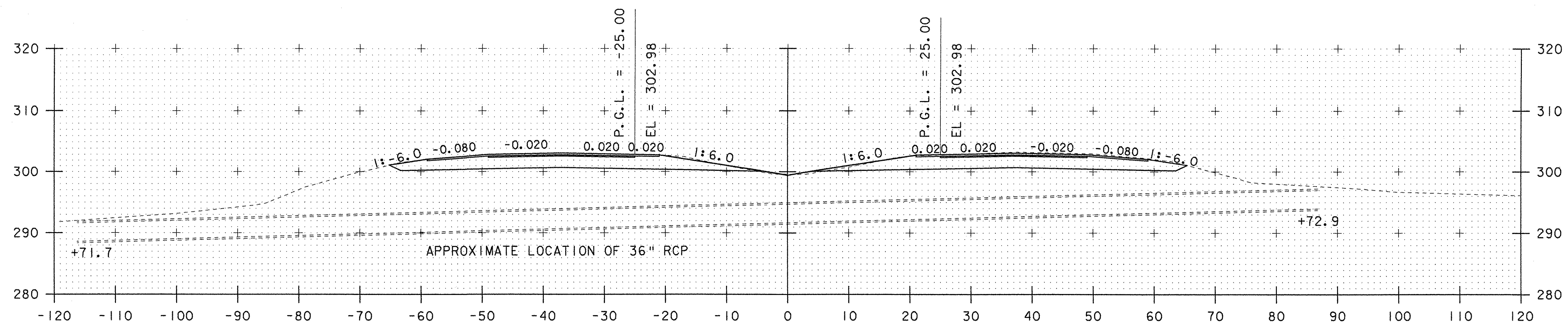
GABION RETAINING WALL NOTES

- GABION RETAINING WALL WAS DESIGNED USING ALLOWABLE STRESS DESIGN CRITERIA.
- ANY UNSUITABLE MATERIALS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATION FOR THE GABION RETAINING WALLS SHALL BE REMOVED AND REPLACED WITH GRANULAR BACKFILL FOR STRUCTURES, AS DIRECTED BY THE RESIDENT ENGINEER.

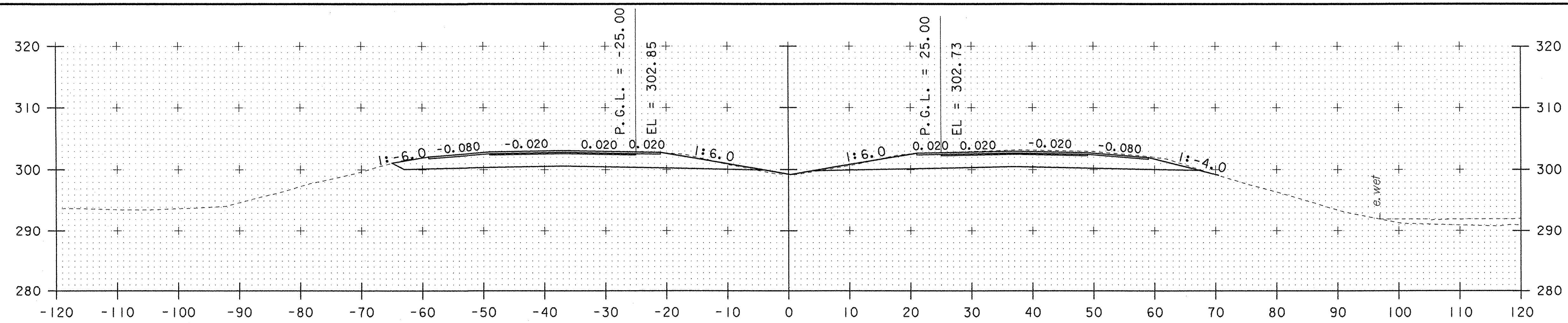


STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town of	<i>S. BURLINGTON</i>	Bridge No.	67-1
Highway No.	1-89	Log Sta.	
		Surv. Sta.	
<i>1-89 OVER POTASH BROOK TRIBUTARY</i>			
MISCELLANEOUS DETAILS			
Designed By	<i>LKW / WLD</i>	Drawn By	<i>SFD</i>
Checked By		Bridge Design Supervisor	
<i>RLJ</i>	Date <i>09/07</i>	<i>TTK</i>	Date <i>09/07</i>
PROJECT	<i>SOUTH BURLINGTON</i>	PROJECT NO.	<i>AC 1M CULV (9)</i>
I.G.C. Info. m\656310 1-89 Culvert\BRIDGE\2Cadd\1Inal-pre\1mz05k286MOT.dgn			
Bridge Sheet No.		Sheet	55 of 63

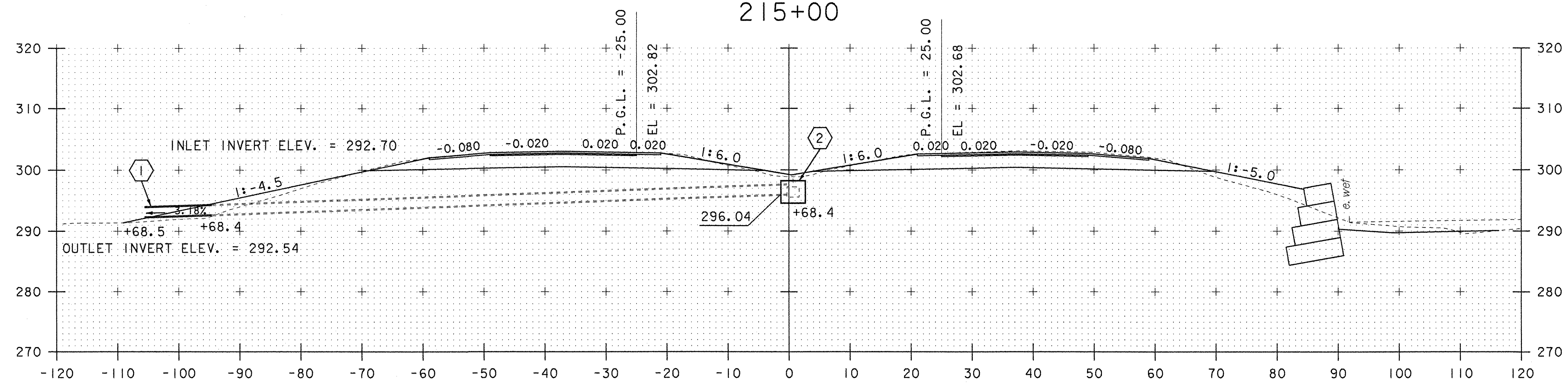
PLOTTED DATE: 09/07/07



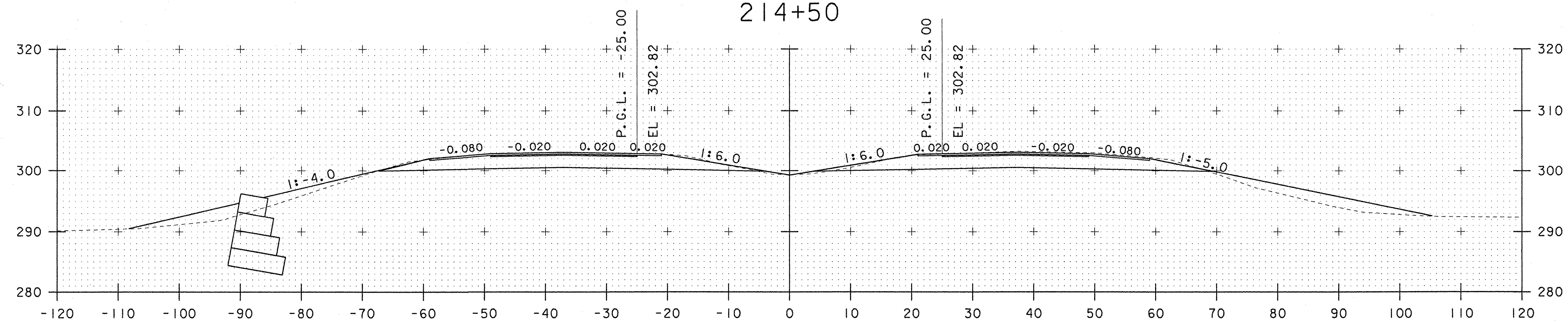
SHEET NAME: I-89 CROSS SECTIONS			
PROJECT NAME: SOUTH BURLINGTON		PROJECT NUMBER: AC IM CULV(9)	
PROJECT LEADER: LANDRY	DESIGNED BY: MAH	DRAWN BY: MAH	CHECKED BY: DMB
FILE NAME: Z05K286WRK.DGN		PLOT DATE: 21-SEP-2007	
STA 212+50 TO STA 213+50		SHEET 56 OF 63	



215+00

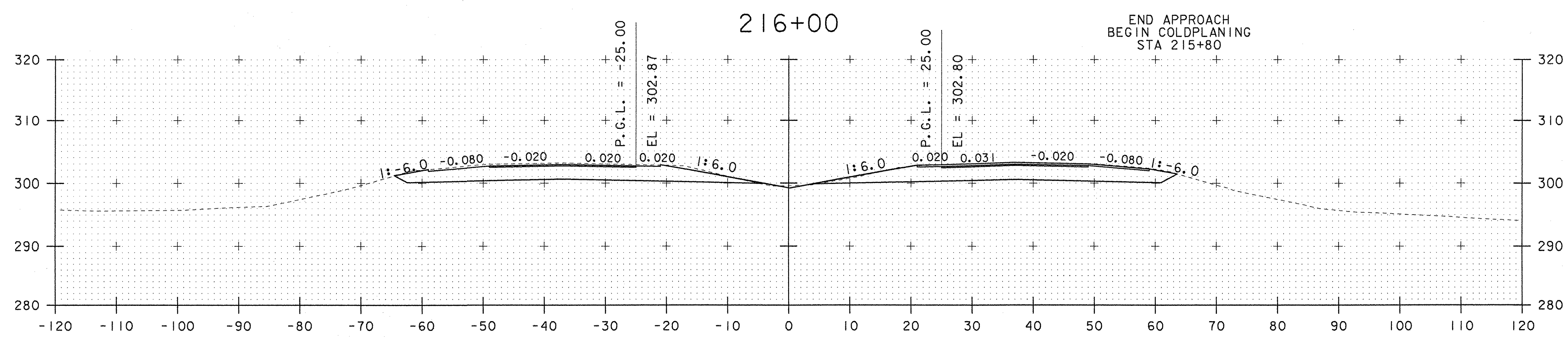
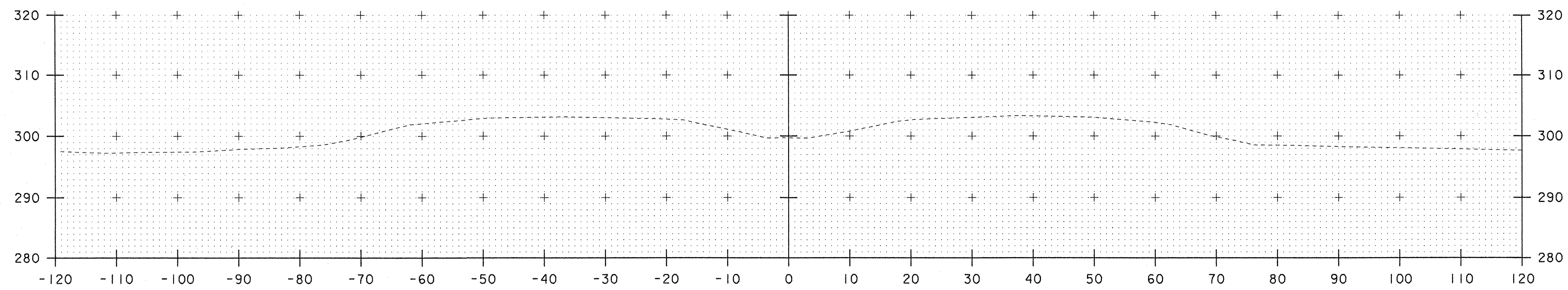


214+50

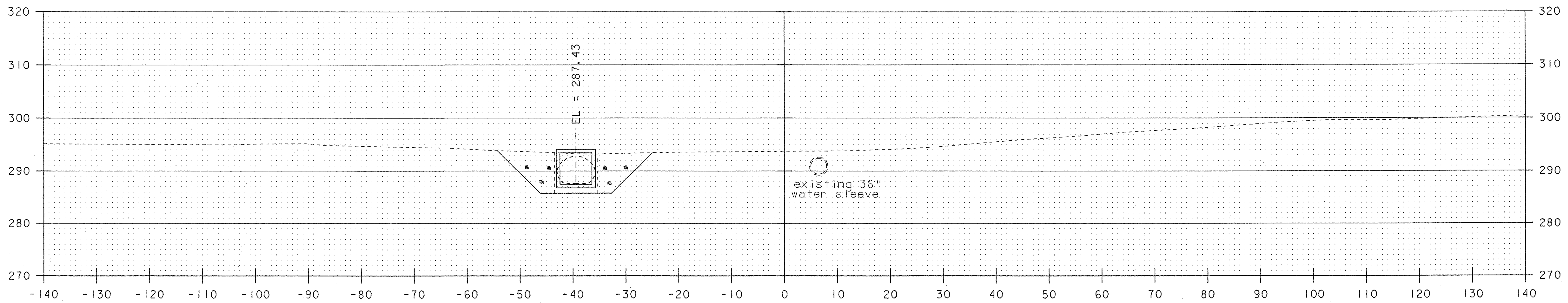


214+00

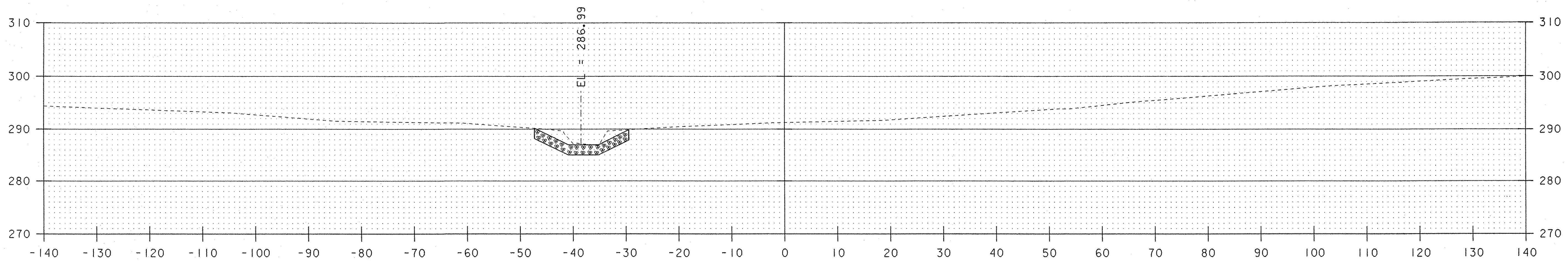
SHEET NAME: I-89 CROSS SECTIONS			
PROJECT NAME: SOUTH BURLINGTON		PROJECT NUMBER: AC IM CULV(9)	
PROJECT LEADER: LANDRY	DESIGNED BY: MAH	DRAWN BY: MAH	CHECKED BY: DMB
FILE NAME: Z05K286WRK.DGN		PLOT DATE: 21-SEP-2007	
STA 214+00 TO STA 215+00		SHEET 57 OF 63	



SHEET NAME: I-89 CROSS SECTIONS			
PROJECT NAME:	SOUTH BURLINGTON		
PROJECT NUMBER:	AC IM CULV(9)		
PROJECT LEADER:	LANDRY	DRAWN BY:	MAH
DESIGNED BY:	MAH	CHECKED BY:	DMB
FILE NAME:	Z05K286WRK.DGN	PLOT DATE:	21-SEP-2007
STA 215+50 TO STA 216+00		SHEET	58 OF 63



101+25



101+00

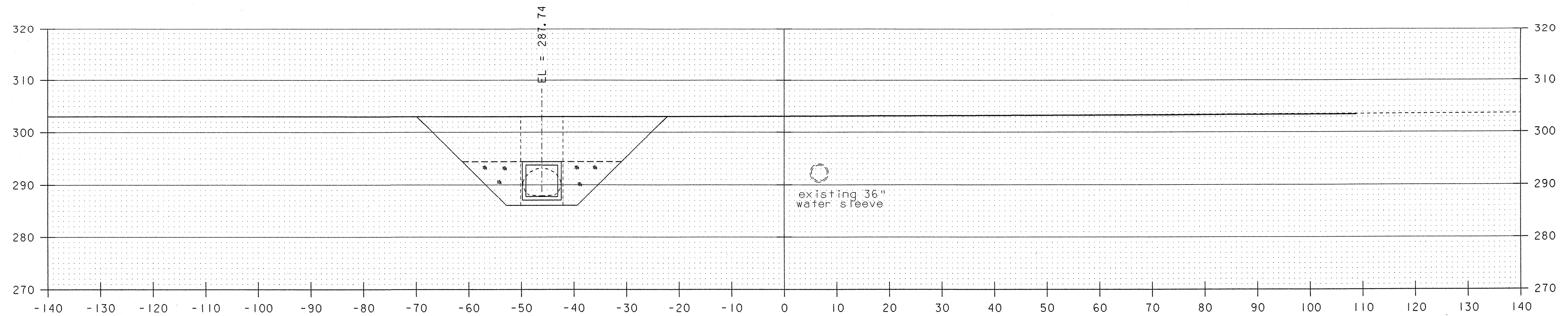
NOTES:

1. CHANNEL AND TOP OF BOTTOM SLAB ELEVATIONS ARE PROVIDED AT CENTERLINE POTASH BROOK TRIBUTARY AND CENTERLINE BOX CULVERT.

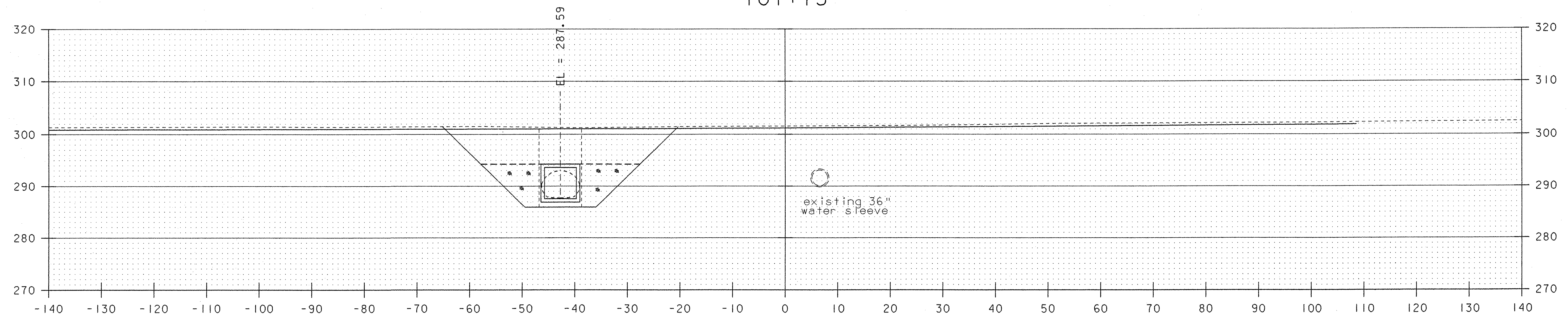
SCALE 1" = 10'-0"



STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town of	<i>S. BURLINGTON</i>	Bridge No.	<i>67-1</i>
Highway No.	<i>I-89</i>	Log Sta.	
		Surv. Sta.	
<i>I-89 OVER POTASH BROOK TRIBUTARY</i>			
CHANNEL CROSS SECTIONS (1 OF 5)			
Designed By	<i>LKW/MAH</i>	Drawn By	<i>MAH</i>
Checked By	Date	Bridge Design Supervisor	Date
<i>RLJ</i>	<i>09/07</i>	<i>TTK</i>	<i>09/07</i>
PROJECT	PROJECT NO.		
<i>SOUTH BURLINGTON</i>	<i>AC 1M CULV (9)</i>		
I.G.C. Info. <i>M:\656310 I-89 Culvert\BRIDGE\2\Cadd\final-prelim\mz05k286CXS.dgn</i>			
Bridge Sheet No.	Sheet <i>59</i> of <i>63</i>		



101+75



101+50

NOTES:

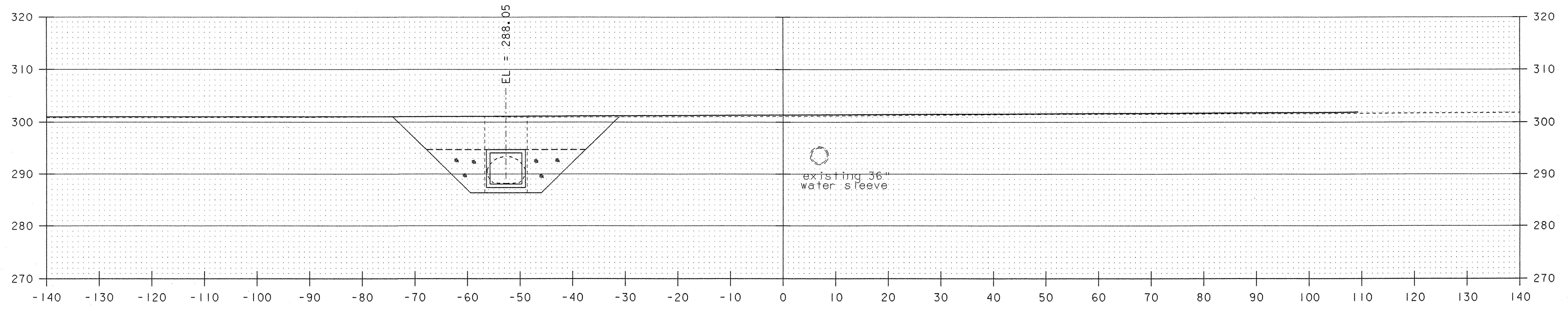
1. CHANNEL AND TOP OF BOTTOM SLAB ELEVATIONS ARE PROVIDED AT CENTERLINE POTASH BROOK TRIBUTARY AND CENTERLINE BOX CULVERT.

SCALE 1" = 10'-0"

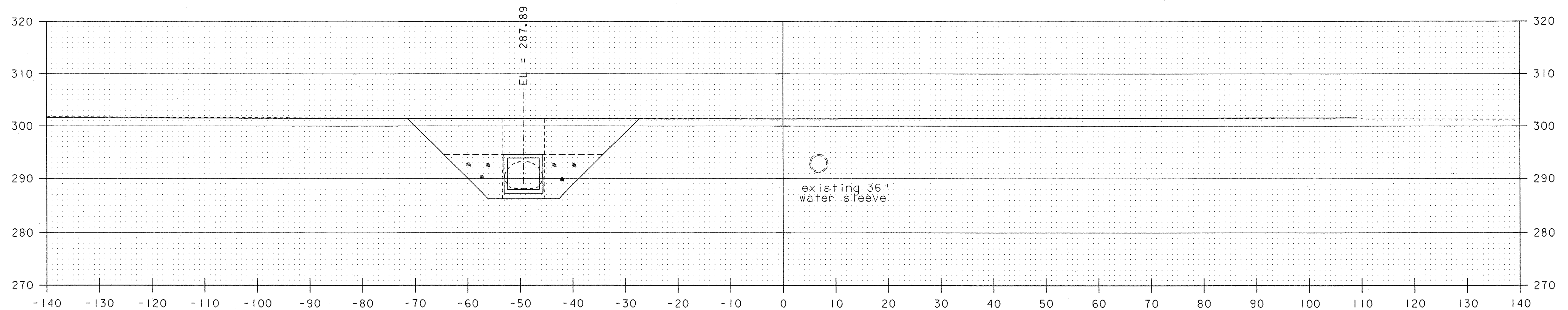


**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of	S. BURLINGTON	Bridge No.	67-1
Highway No.	I-89	Log Sta.	
		Surv. Sta.	
I-89 OVER POTASH BROOK TRIBUTARY			
CHANNEL CROSS SECTIONS (2 OF 5)			
Designed By	LKW/MAH	Drawn By	MAH
Checked By	RLJ	Bridge Design Supervisor	TTK
	Date 09/07	Date	09/07
PROJECT	SOUTH BURLINGTON		PROJECT NO. AC IM CULV (9)
I.G.C. Info. M:\656310 I-89 Culvert\BRIDGE\2Cadd\41Inal-pre\1m\205k286CX.dgn			
Bridge Sheet No.			Sheet 60 of 63



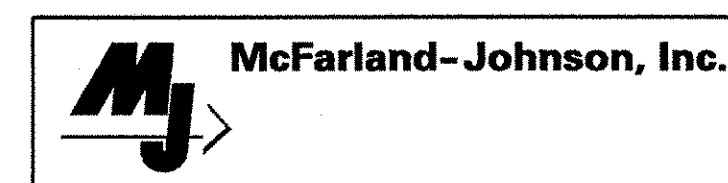
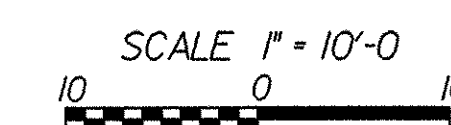
102+25



102+00

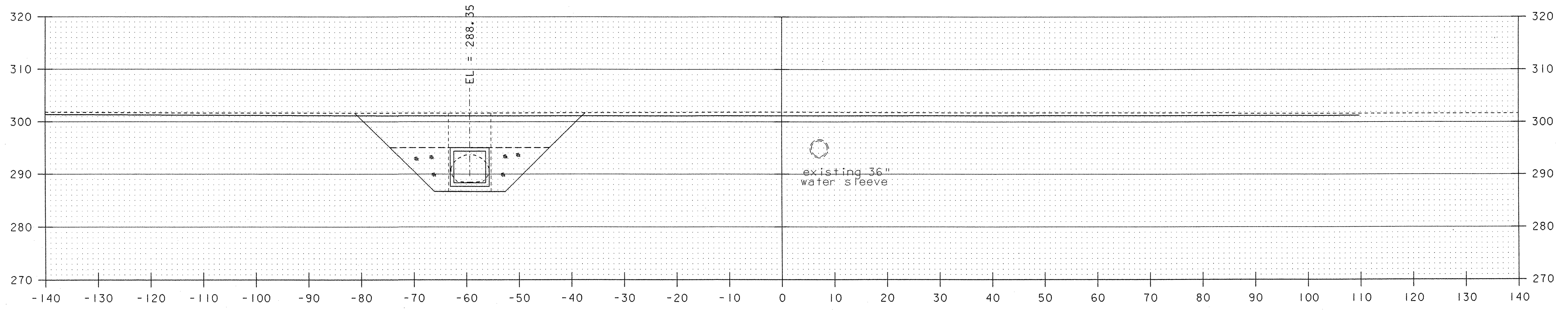
NOTES:

1. CHANNEL AND TOP OF BOTTOM SLAB ELEVATIONS ARE PROVIDED AT CENTERLINE POTASH BROOK TRIBUTARY AND CENTERLINE BOX CULVERT.

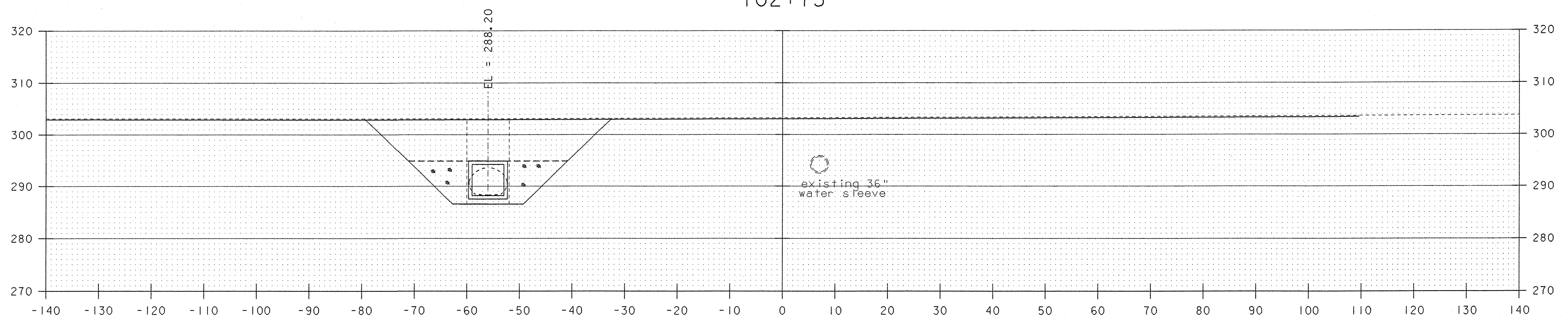


STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town of	<i>S. BURLINGTON</i>	Bridge No.	<i>67-1</i>
Highway No.	<i>I-89</i>	Log Sta.	
		Surv. Sta.	
<i>I-89 OVER POTASH BROOK TRIBUTARY</i>			
CHANNEL CROSS SECTIONS (3 OF 5)			
Designed By	<i>LKW/MAH</i>	Drawn By	<i>MAH</i>
Checked By	Date	Bridge Design Supervisor	Date
<i>RLJ</i>	<i>09/07</i>	<i>TTK</i>	<i>09/07</i>
PROJECT	<i>SOUTH BURLINGTON</i>		PROJECT NO.
			<i>AC IM CULV (9)</i>
I.G.C. Info. <i>M:\656310 I-89 Culvert\BRIDGE\2Cadd\4Final-prelim\mz05k286CXS.dgn</i>			
Bridge Sheet No.			Sheet <i>61</i> of <i>63</i>

PLOTTED DATE: 09/25/07



102+75

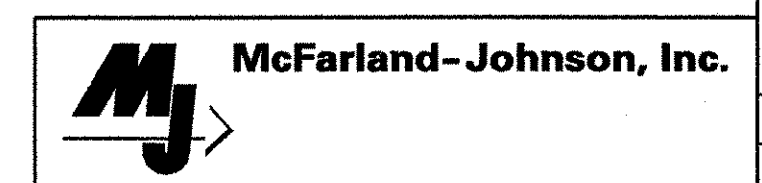


102+50

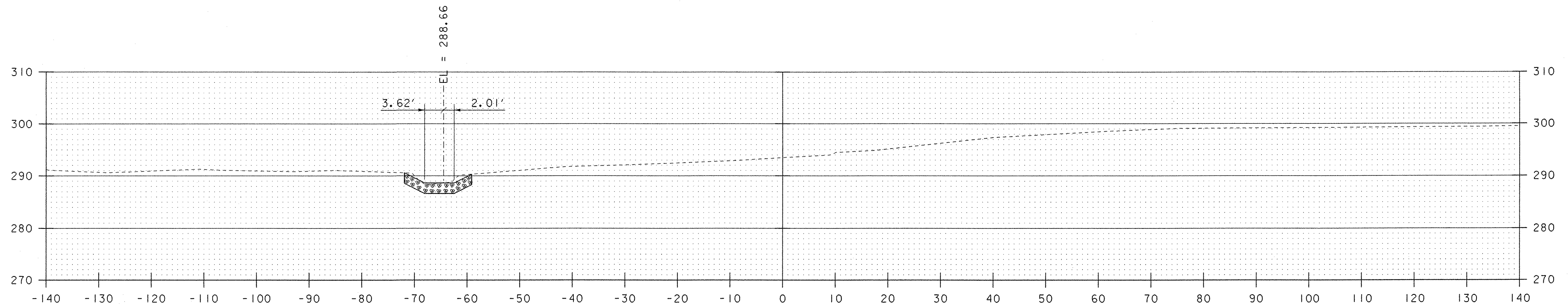
NOTES:

1. CHANNEL AND TOP OF BOTTOM SLAB ELEVATIONS ARE PROVIDED AT CENTERLINE POTASH BROOK TRIBUTARY AND CENTERLINE BOX CULVERT.

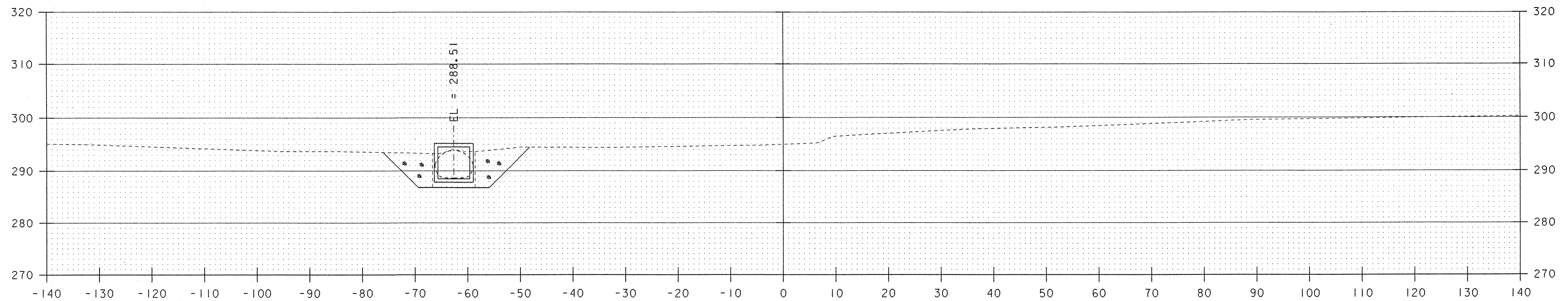
SCALE 1" = 10'-0"



STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of	<i>S. BURLINGTON</i>	Bridge No.	<i>67-1</i>
Highway No.	<i>I-89</i>	Log Sta.	
		Surv. Sta.	
<i>I-89 OVER POTASH BROOK TRIBUTARY</i>			
CHANNEL CROSS SECTIONS (4 OF 5)			
Designed By	<i>LKW/MAH</i>	Drawn By	<i>MAH</i>
Checked By	<i>RLJ</i>	Bridge Design Supervisor	<i>TTK</i>
	<i>09/07</i>	Date	<i>09/07</i>
PROJECT	<i>SOUTH BURLINGTON</i>	PROJECT NO.	<i>AC 1M CULV (9)</i>
I.G.C. Info. <i>M:\656310 I-89 Culvert\BRIDGE\2Cadd\41Inal-prelim\205k286CXS.dgn</i>		Bridge Sheet No. <i>62</i> of <i>63</i>	



103+25



103+00

NOTES:

1. CHANNEL AND TOP OF BOTTOM SLAB ELEVATIONS ARE PROVIDED AT CENTERLINE POTASH BROOK TRIBUTARY AND CENTERLINE BOX CULVERT.

SCALE 1" = 10'-0"



STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town of	<i>S. BURLINGTON</i>	Bridge No.	<i>67-1</i>
Highway No.	<i>I-89</i>	Log Sta.	
		Surv. Sta.	
<i>I-89 OVER POTASH BROOK TRIBUTARY</i>			
CHANNEL CROSS SECTIONS (5 OF 5)			
Designed By	<i>LKW/MAH</i>	Drawn By	<i>MAH</i>
Checked By	<i>RLJ</i>	Date	<i>09/07</i>
		Bridge Design Supervisor	<i>TTK</i>
		Date	<i>09/07</i>
PROJECT	<i>SOUTH BURLINGTON</i>		PROJECT NO.
			<i>AC 1M CULV (9)</i>
I.G.C. Info. <i>MN656310 I-89 Culvert\BRIDGE\2Cadd\4\1nal-prelim\z05k286CXS.dgn</i>			
Bridge Sheet No.			Sheet <i>63</i> of <i>63</i>

53 Regional Drive
Concord, NH 03301



Telephone: (603) 225-2978
Fax: (603) 225-0095
www.mjinc.com

McFARLAND-JOHNSON, INC.
Established 1946

SUBMITTAL MEMORANDUM

DATE: October 8, 2007 TO: Danny Landry, PE FROM: Ron Joy
RE: South Burlington AC IM CULV (9) - I-89 over Potash Brook Tributary
A. Box Culvert Shop Drawing C188861-L01 - Box Culvert Layout & Details - (1 of 1)
B. BOXCAR Concrete Box Culvert Computer Program Output (11 Pages)
MJ SUBMITTAL #: 001

- | | |
|----------------------------------------------|-----------------------------------------------------------|
| <input checked="" type="checkbox"/> Reviewed | <input checked="" type="checkbox"/> Furnish as Corrected |
| <input type="checkbox"/> Rejected | <input type="checkbox"/> Revise and Resubmit (For Record) |
| | <input type="checkbox"/> Submit Specified Item |

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

McFarland-Johnson, Inc. (MJ) By _____ RLJ

REVIEW COMMENTS:

PRECASTER & BOX CULVERT DESIGNER: Concrete Systems Inc (Attention: Chris Vick)

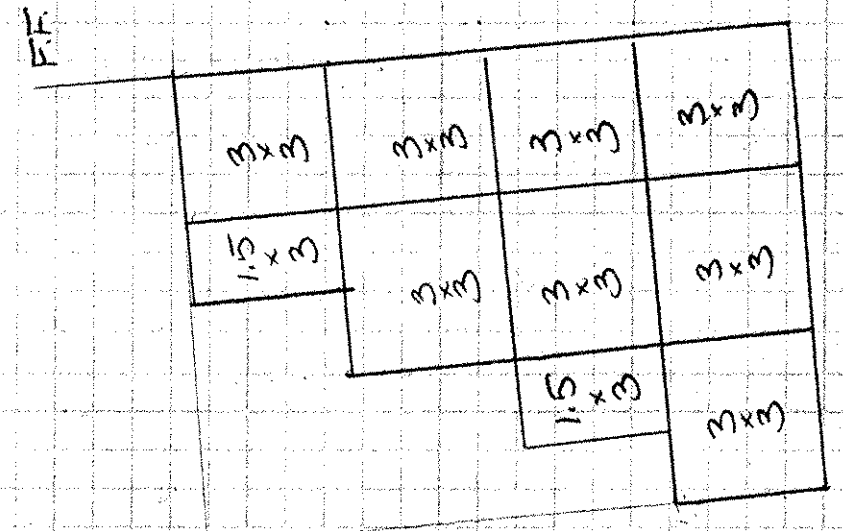
MJ RECOMMENDS THAT THE ISSUES LISTED BELOW BE ADDRESSED PRIOR TO FABRICATION OF THE BOX CULVERT ELEMENTS

- A. Box Culvert Shop Drawing
1. ELEVATION
 - a. Interstate and median elevations should be verified by the Contractor.
 - b. The plans call out for the cut-off wall to be placed 5 feet below the inverts. Bottom of cut-off wall elevations shall be updated.
 2. NOTES
 - a. Should ASTM C1433-07 (Standard Specification for Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers) be replaced or supplemented with ASTM C1577-07 (Standard Specification for Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers Designed According to AASHTO LRFD)?
 - b. As noted in the pre-construction conference, the concrete should achieve its 5000 psi design strength before leaving the shop.
 - c. Does the "silane siloxane" mentioned in note 4 meet the water repellent requirements of Item 514.10?

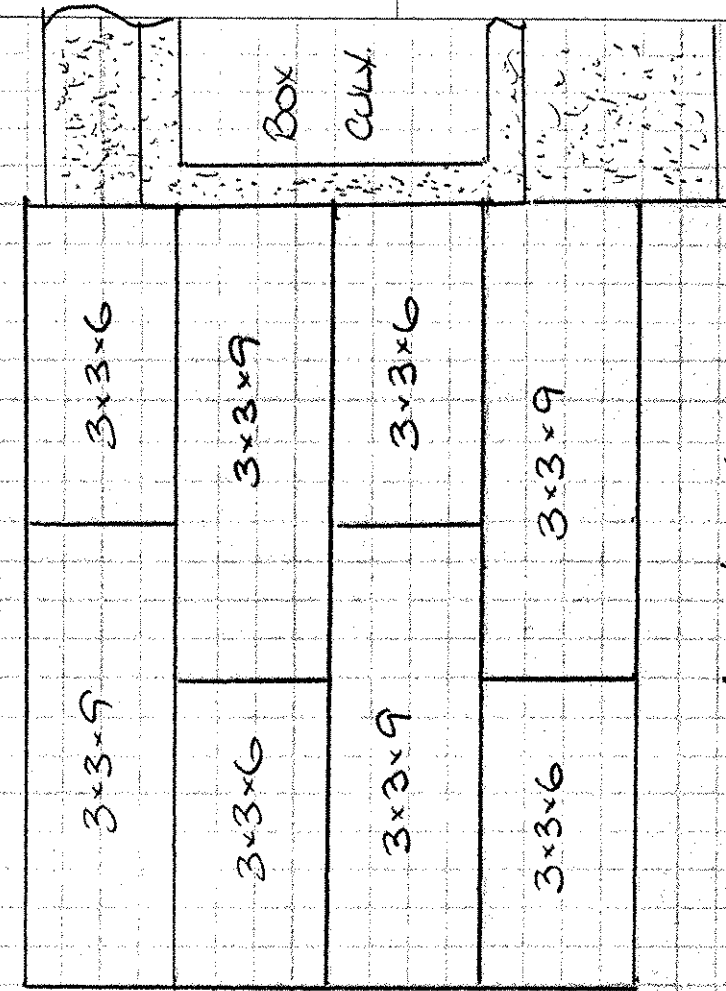
- d. The Contractor should check the lengths and layouts of the box culvert segment lengths for compatibility with the overall traffic control plan vs. “making adjustments in field” as described in note 9.
 - e. The Contractors’ attention is directed to the Precast Concrete Box Culvert Notes on Sheet 51 where he/she is directed to work closely with the Manufacturer, including his/her field representation.
3. DETAILS
- a. Sections A & B
 - The depth of the precast cut-off wall should be 4’-4” vs. 4’-0”.
 - Please provide material information for the “grout pad”.
 - How deep into the cut-off wall should the #6 bar be embedded?
 - b. Lifting Detail
 - What material will be used to fill the lifting device voids?
 - What is the size of the utility anchor and overall capacity of the lifting device?
 - c. Closure Hardware Detail
 - What does “watertight joints by others” mean? What are the limits and type of recommended joint material (in addition to the gasket) to assure that the joints will be watertight?
 - Should the closure hardware be placed on the outside face of the box?
- B. Box Culvert Design Calculations
- 1. General – Per recent discussions with the American Concrete Pipe Association (ACPA), BOXCAR Version 2.03 is based on the 2003/2004 LRFD code, and does not incorporate the requirements of the current LRFD code. The Contractor’s designer shall confirm and include appropriate statements and calculations (if required) that the box culvert design satisfies the requirements of the current LRFD code.
 - 2. In reviewing the BOXCAR output, it appears that the sidewall steel with 2.75 inches of cover is affected by the latest LRFD crack control equation, and may require more steel than what the BOXCAR program calculated.
 - 3. Should the lane loading portion of the HL-93 loading be included, vs. the HS-20 truck alone?
 - 4. For shorter clear spans, would the tandem vehicle produce slightly larger (10%) loads than and HS-20 truck?
 - 5. Does the program investigate the fatigue limit state combination?
 - 6. Given the presence of poor soil at the site, MJ contacted CSI and requested maximum Service I and Strength I foundation pressures. Though values were roughed out via email correspondences, we would like the Contractor’s designer to include something formally with their calculations.
 - 7. Calculations should include the load rating of the box culvert for the 7 standard axle configurations shown on Sheet 5, as detailed in Section 540.04 of the standard specifications. The load rating calculations may be provided after the fabrication of the elements, if allowed by the Agency Project Manager.
 - 8. All calculations and plans shall be stamped by a PE prior to fabrication.

SOUTH BURLINGTON I.M. 89 CURBSET

GABION - NING DETAILS



TYP SECTION
1" = 5'0

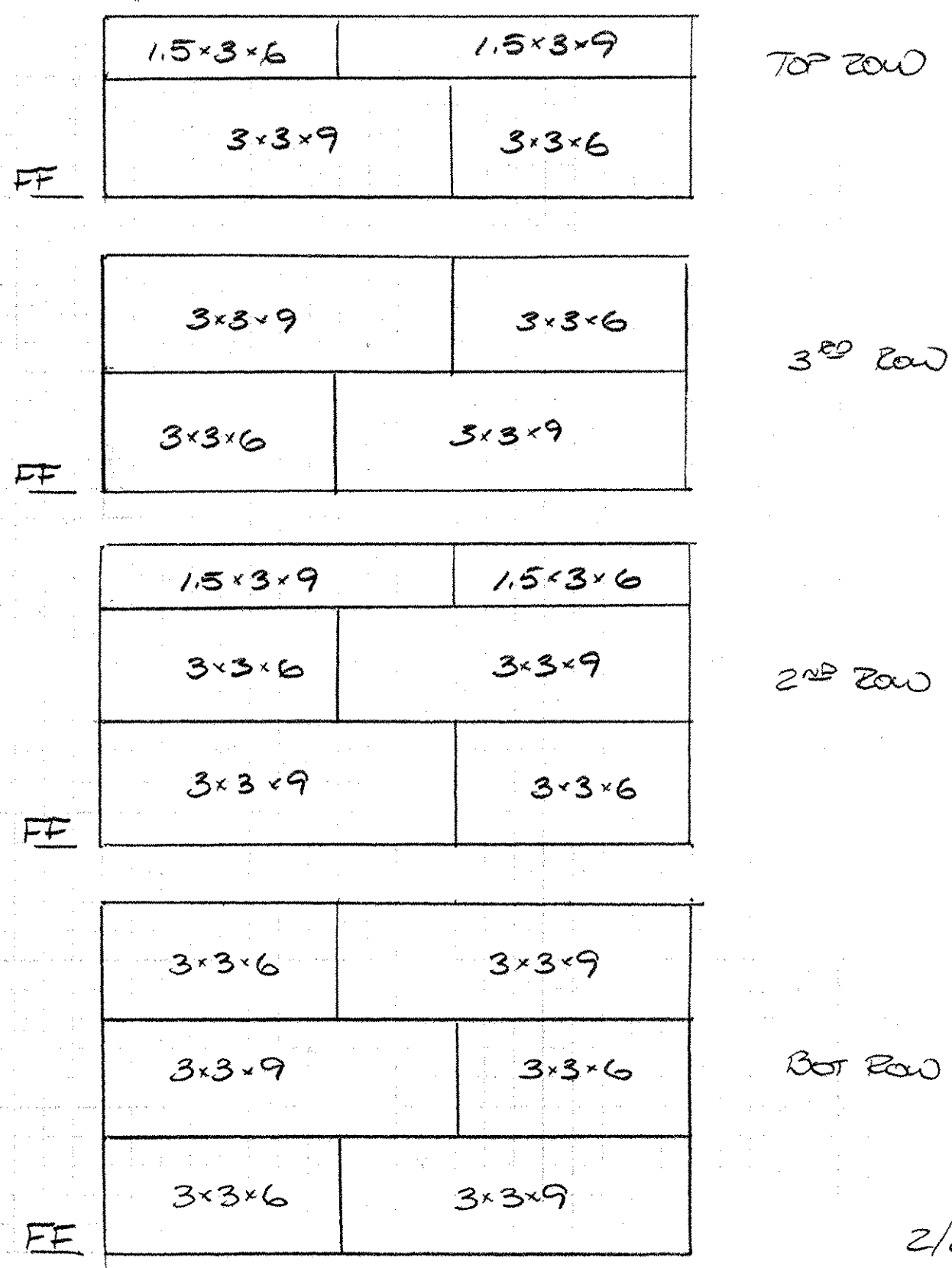


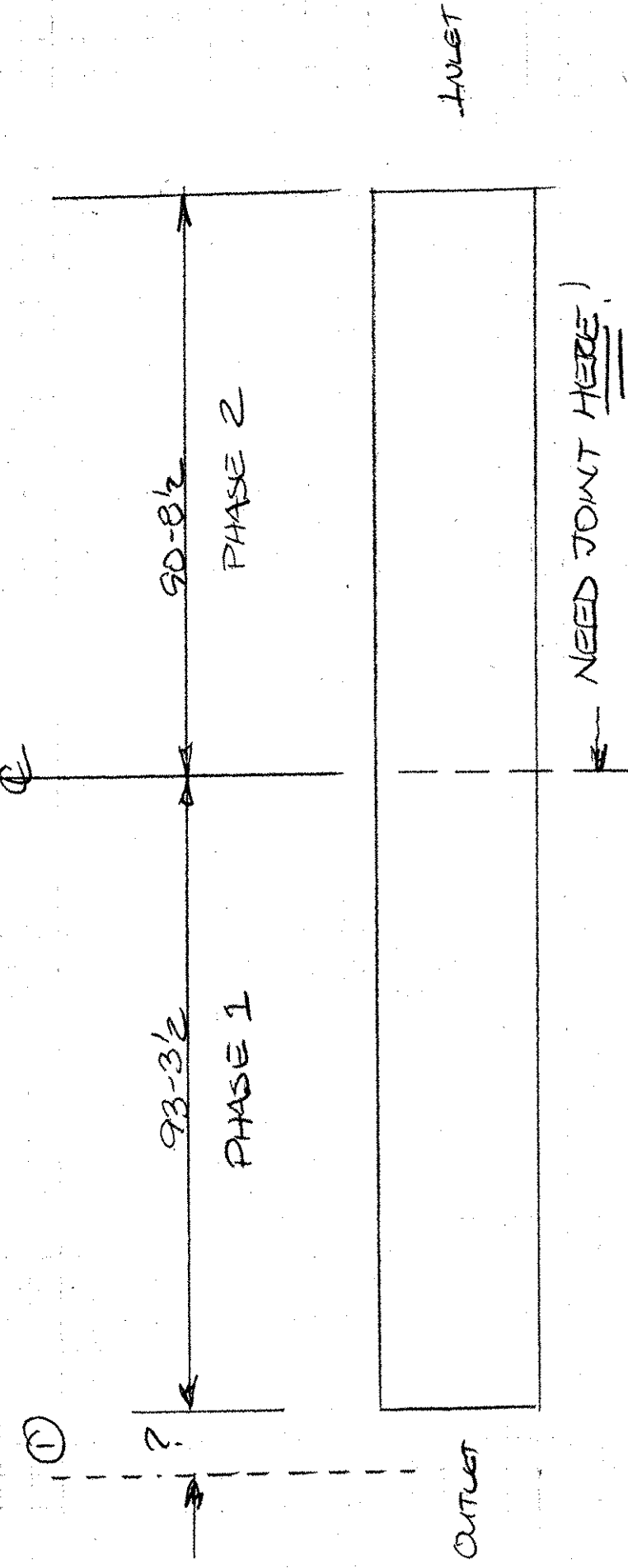
ELEVATION - TYP.
1" = 5'0

Box
CLW

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS

SO. BURLINGTON LM - CLW/A)
TYP GABION WINGWALL - PLAN





① COULD EXTEND OUTLET/
LENGTHEN COLLECT IF REQUIRED

50. BURLINGTON IM
F.W. NH ITOM'S CONST.

GABION

Material Delivery

Gabions are manufactured with all components mechanically connected at the production facility, as per ASTM A975-97. All gabions are supplied in the collapsed form, either folded and bundled or rolled. The bundles are compressed and strapped together at the factory for easy shipping and handling. Lacing wire is shipped in coils. Fasteners are shipped in boxes. Preformed corner stiffeners are shipped in boxes.

Assembly

Open and unfold each gabion on a flat, hard surface and remove any shipping hold if necessary. This can be done by placing the fold over a 2" x 4" board and walking along the sides. Lift up the sides, ends and diaphragms into a vertical position to form an open box shape (Fig. 1). Connect the back and the front panels of the gabion to the end panels and center diaphragms. The top corner of the end panels and center diaphragms have the selvage wire extending out approximately 4 in. (102 mm) from these panel edges. Raise the end panels and the diaphragms to a vertical position and wrap the selvage wire around the edge wire of the top and back panels.

Connect the edges of the gabion and diaphragms by using either lacing wire or ring fasteners (Fig. 2). Ring fasteners shall not be spaced more than 6 in. (150 mm) apart. The procedure for using lacing wire consists of cutting a sufficient length of wire, and first looping and/or twisting the lacing wire to the wire mesh. Proceed to lace with alternating double and single loops through every mesh opening approximately every 6 in. (150 mm) pulling each loop tight and finally securing the end of the lacing wire to the wire mesh by looping and/or twisting. The use of pliers to aid assembly and tying of the units using the lacing wire supplied with the gabions is normally recommended.

Erect the diaphragms into the vertical position, and tie them to the side panels in the same manner.

Fastening Procedure

When using lacing wire, cut off a piece of wire approximately 1.5 times the length of the edge to be tied. Longer edges shall be joined by several lengths of wire. Tie wires shall be secured around the selvage wire or heavier edge wire, where present, by looping and twisting the lacing wire around itself. Proceed tying with alternate double and single loops. Double loops shall be made at intervals not greater than 6 in. (150 mm). The baskets should be pulled lightly together during the tying operation. The other end of the tie wire shall be secured by again looping and twisting the wire around itself. When using lacing wire to assemble the units, pliers may be used to create tight joints. Care should be taken to avoid damaging the wire coating.

When steel ring fasteners are used, the use of either a mechanical or a pneumatic fastening tool is required. Spacing of the rings shall be in accordance with ASTM A975-97 Table 2, Panel to Panel connection, Pull-Apart Resistance. In any case, ring fasteners spacing shall not exceed 6 in. (150 mm). Rings shall be installed at the end and center diaphragms and along all edges. Care should be taken to ensure the steel ring fastener is completely closed after installation. When this is not possible, connection must be complemented with lacing wire.

Foundation Preparation

The foundation on which the gabions are to be placed shall be level, and graded to the elevations as shown on the project construction drawings. The foundation for gabions shall be level, smooth, and free of surface irregularities, loose material, and vegetation in accordance with the project specifications. Appropriate measures shall be taken for filtering and drainage of the foundation, as per the project specifications (filter cloth, drain works, etc.). Geotextiles required to be installed behind gabion structures shall comply with the requirements for subsurface drainage applications.

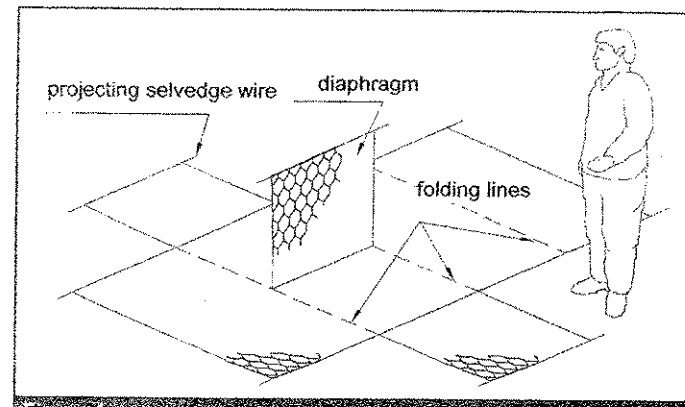


Figure 1

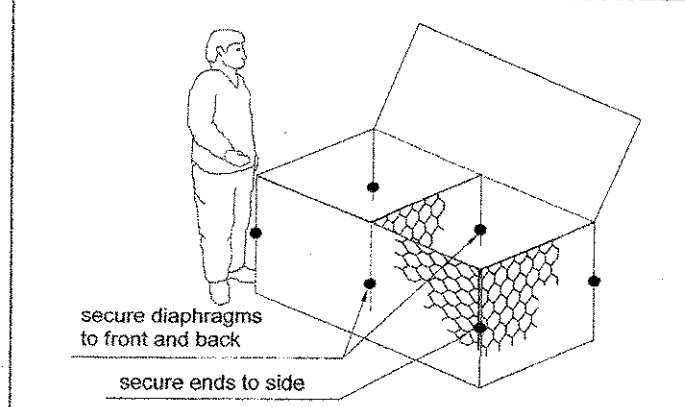


Figure 2

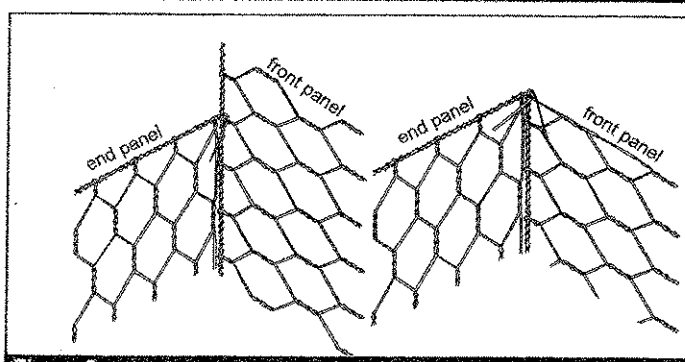


Figure 3

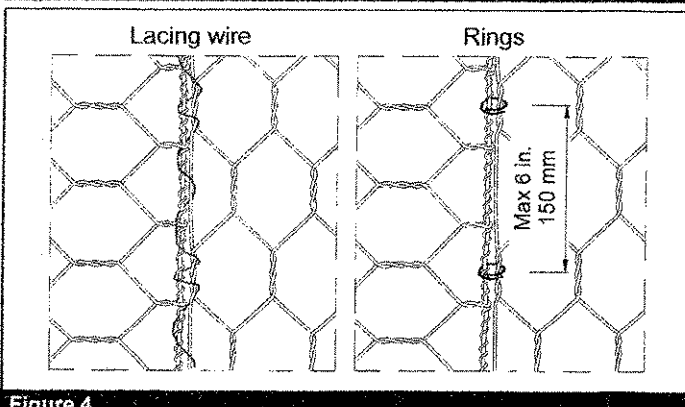


Figure 4

MACCAFERRI

Maccaferri reserves the right to amend product specifications without notice and specifiers are requested to check as to the validity of the specifications they are using.

Installation and Filling

After the foundation has been prepared, the pre-assembled gabions are placed in the desired location to form the structure. Gabions shall be connected together and aligned before filling the baskets with rock. All connections (panel-to-panel and basket-to-basket) shall be already carried out as described in the assembly operations.

Rocks for gabions may be produced by any suitable quarrying method, and by the use of any device that yields the required sizes within the gradation limits chosen. Rocks shall be hard, angular to round, durable and of such quality that they shall not disintegrate on exposure to water or weathering during the life of the structure.

Gabion rocks shall range between 4-8 in. (100-200 mm). The range in sizes may allow for a variation of 5% oversize and/or 5% undersize rock, provided it is not placed on the gabion's exposed surface. In all cases, the oversize rock shall not be larger than 10 in. (250 mm), and the undersize rock shall not be smaller than 2 in. (50 mm).

During the filling operation some manual stone placement is required to minimize voids. The exposed faces of vertical structures may be carefully hand placed to give a neat, flat, and compact appearance. The cells shall be filled in stages so that local deformation may be avoided. That is, at no time, shall any cell be filled to a depth exceeding 1 ft (300 mm) higher than the adjoining cell (Fig. 7). When using PVC gabions, care should be taken when placing the stone to assure that the PVC coating on gabions will not be damaged.

Stiffeners or crossies shall be installed as indicated (Fig. 6), fixed at 1/3 and 2/3 of the height for 3 ft or 1 m gabions as the cell is being filled. In 1.5 ft (500 mm) high units stiffeners may be fixed at the half height level, if required. Preformed corner stiffeners are installed at 45° to the face/ side of the unit, extending an equal distance along each side being braced (approximately 1 ft (300 mm)). Minimize the number of voids by using a well-graded stone and avoid large stones in order to achieve a dense, compact stone fill. All corners should be securely connected to the neighboring gabions of the same layer before filling the units.

When more than one layer of gabions is required, in order for the individual units to become incorporated into one continuous structure, the next layer of gabions must be connected to the layer underneath after this layer has been securely closed (Fig. 8).

Gabion placement should be from front and back to back, so that pairs of facing lids can be wired down in one process.

Secure the end from which the work is to start, by partially filling the end unit with rock.

Closing

To allow for settlement, level off the fill 1-1.5 in. (25-40 mm) above the top of the mesh. In slow protection aprons downstream of weirs and places where water will fall directly on the gabions, install bracing wires vertically between the top and bottom mesh. Be sure to keep the top edge of the diaphragm exposed. Fold the lid down and pull the edges of the panels to be connected using an appropriate tool such as a lid closer (Fig. 9). The lids shall be tightly laced along all edges, ends and diaphragms in the same manner as described for assembling units (Fig. 4). Adjacent lids may be securely attached simultaneously. All end wires should then be turned in to avoid protrusions.

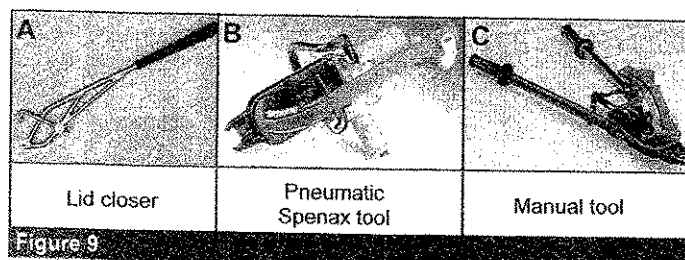


Figure 9

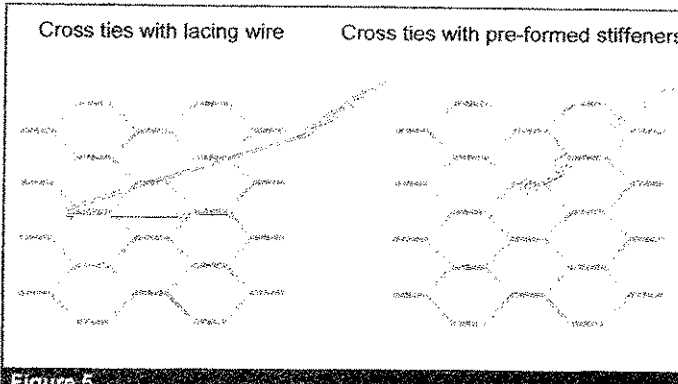


Figure 6

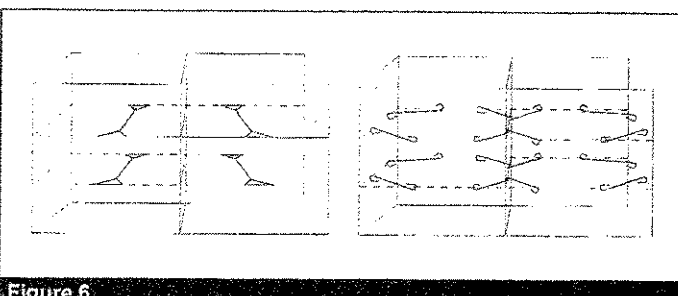


Figure 6

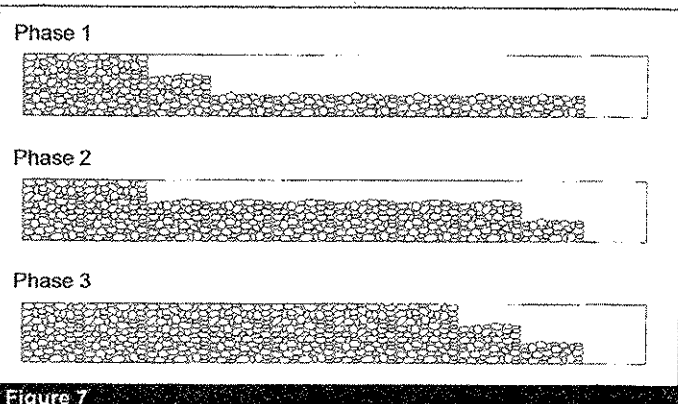


Figure 7

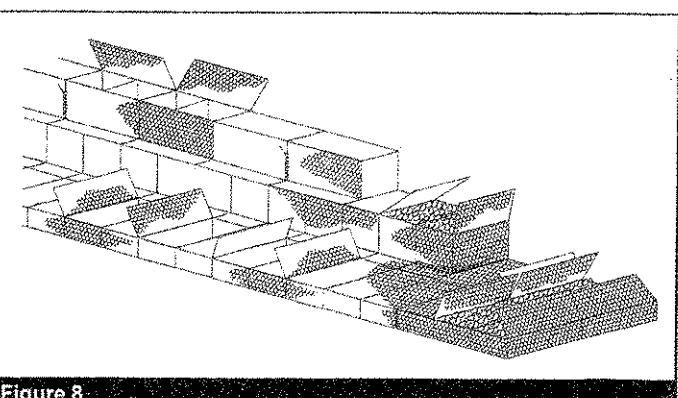


Figure 8

MACCAFERRI
 Headquarters:
 10303 Governor Lane Boulevard
 Williamsport, MD 21795-3119
 Tel. 301-223-8910
 Fax: 301-223-8134
 email: hq@maccaferri.com
 website: www.maccaferri-usa.com

MACCAFERRI INC.
 AZ, Phoenix
 CA, Sacramento
 FL, Coral Gables
 KY, Lexington
 MD, Williamsport
 NJ, Ramsey
 NM, Albuquerque
 PR, Capuas
 TX, Lewisville

Contractor is to verify that all information shown on drawings has been thoroughly checked, compiled with the contract documents and is adequate to meet the requirements of the contract. Some dimensions and details may differ slightly from contract drawings to accommodate the manufacturing or design process. Approval of this drawing indicates that any deviation from the contract documents has been reviewed and found to be acceptable. Production will not commence until receipt of signed, approved shop drawings.

This drawing contains information proprietary to CONCRETE SYSTEMS, INC. This drawing is released with the understanding that it will be retained in CONFIDENTIALITY and its use limited solely to the purpose for which it is prepared. It is understood that no reproduction of this drawing is authorized without the permission of CONCRETE SYSTEMS, INC. and that it will be returned to CONCRETE SYSTEMS, INC. upon request.

Stamp for structural culvert design only

Rev.	Date	DESCRIPTION
1	10/12/07	Revised Reinforcing Detail; culvert wall thickness; cut-off walls; overall length of culvert; Misc. MS
2	10/16/07	End sections to be plumb; MK 401 @ 10"; Permanent closure hardware; Misc. revisions MS
3		
4		
5		

REV	DATE	DESCRIPTION
2	10/03/2007	Box Culvert Layout and Details
1	10/16/2007	Project No. AC IM CULV (9)

This drawing is based upon information provided from the following documents and/or sources:

Other Sources:
 Pages 1 through 17
 Special Provisions for South Burlington AC IM CULV (9)
 Sheets 50 through 55 of 55 sheets

Engineer:
 VAOT
 1-89 Over Pot Ash Brook Tributary

Project No.:
 1-89 Over Pot Ash Brook Tributary

Drawings:
 1-89 Over Pot Ash Brook Tributary

Specifications:
 1-89 Over Pot Ash Brook Tributary

By: MS

Concrete Systems Inc.
 9 Commercial St., Hudson, NH 03051
 Phone 603-889-4163
 Fax 603-889-2417

Checked By: M. SCOTT
 Date: 10/03/2007

Checked By: C. WICK
 Date: 10/16/2007

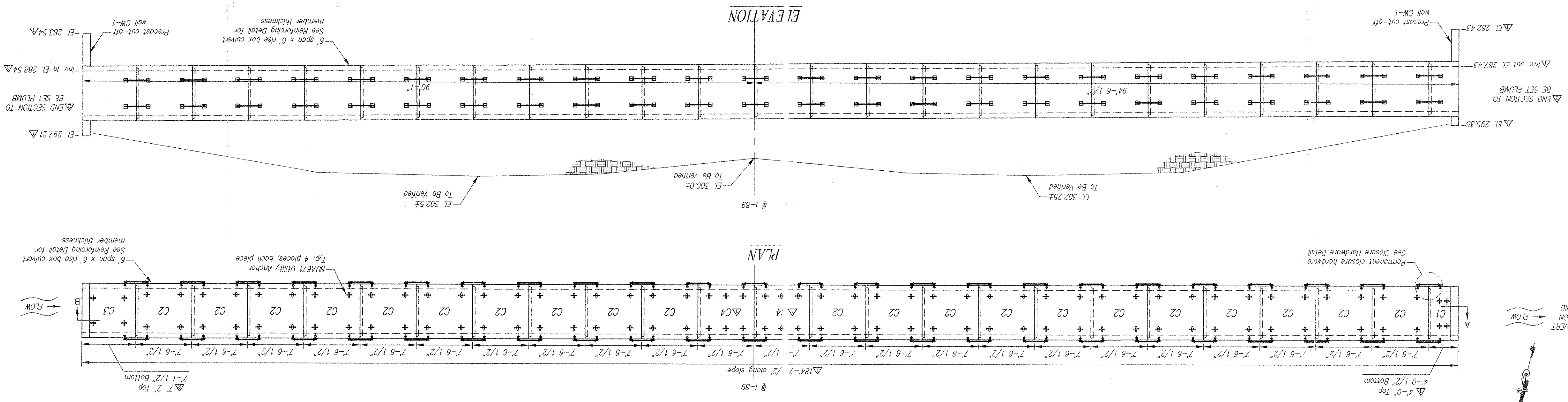
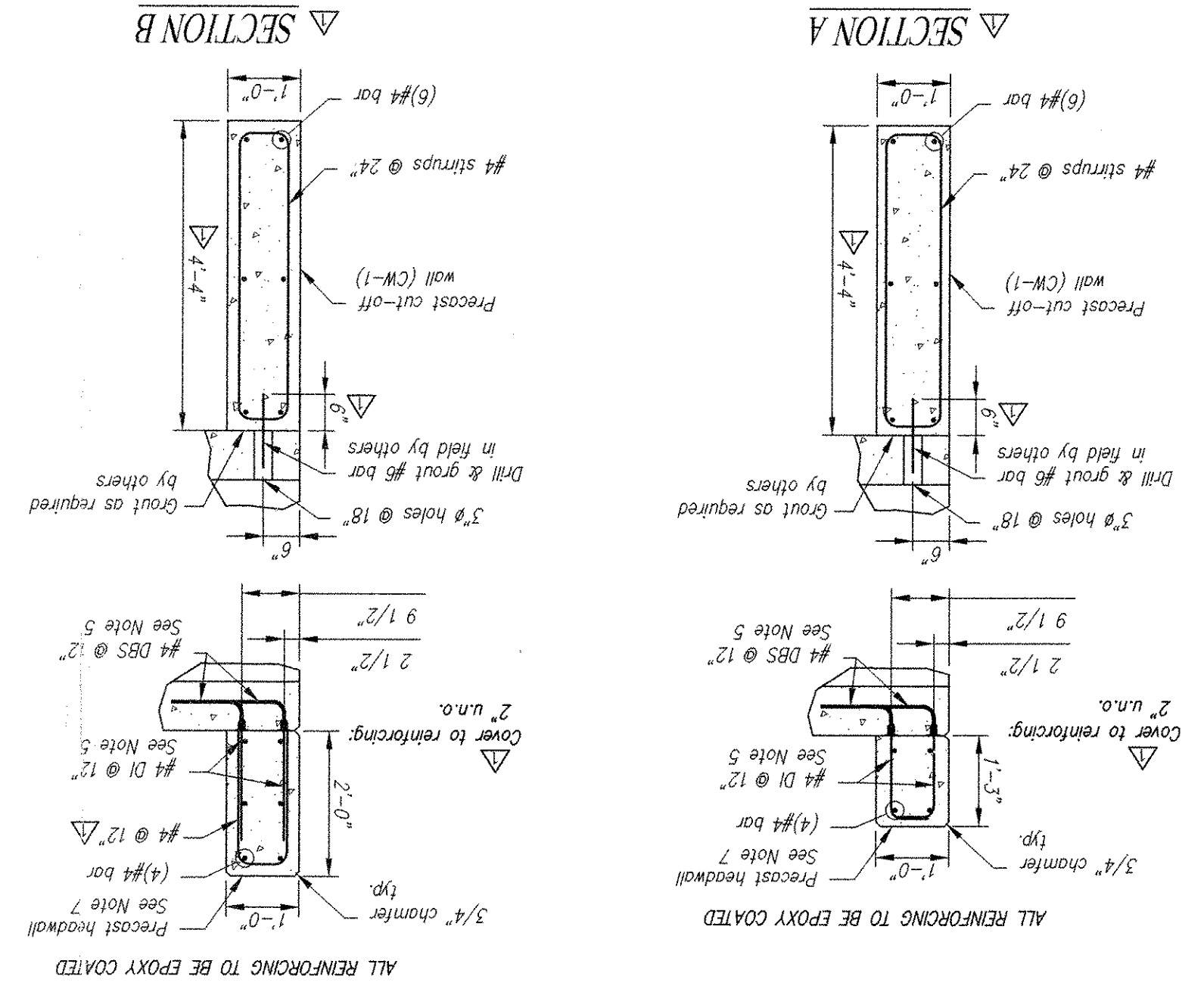
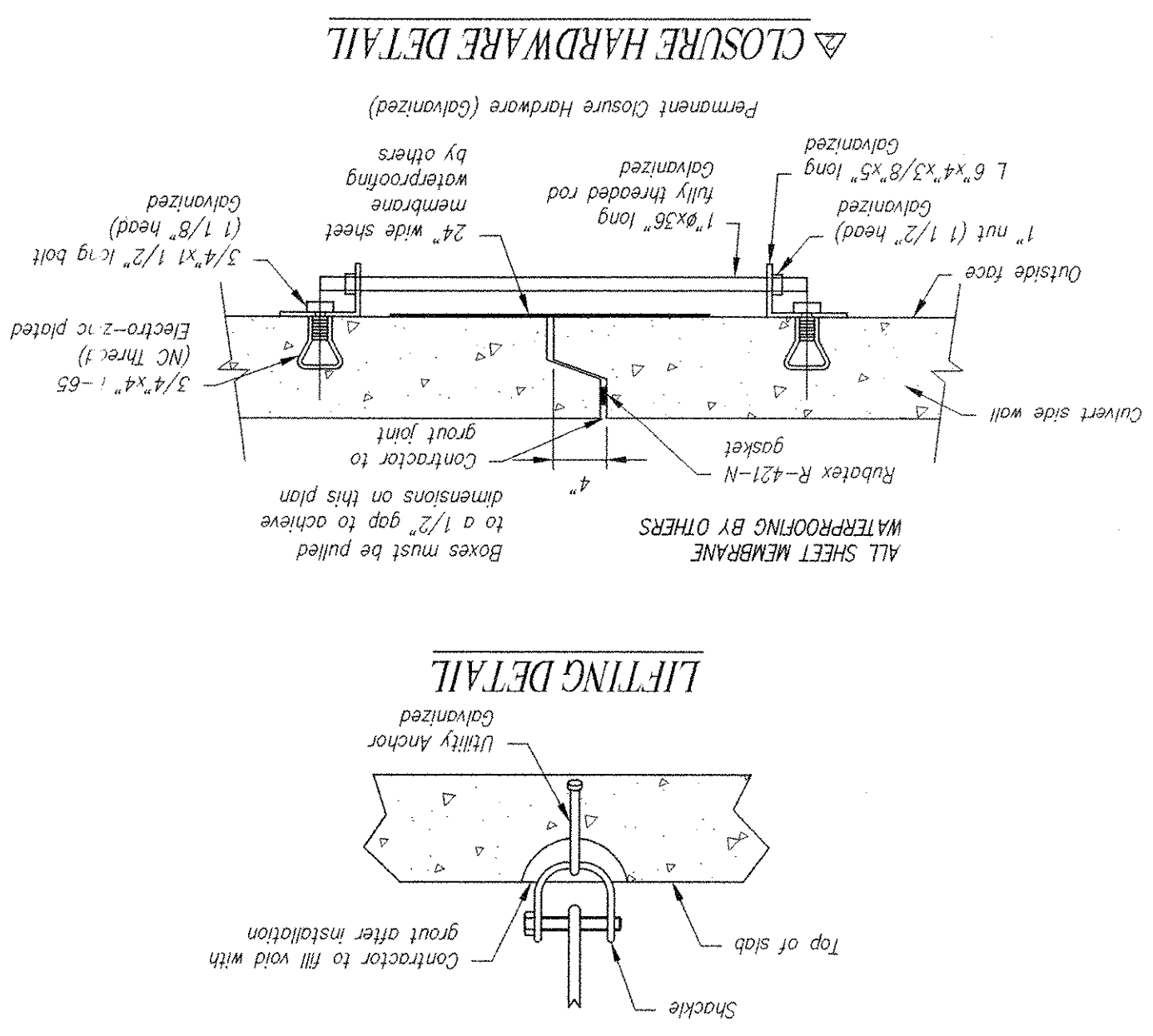
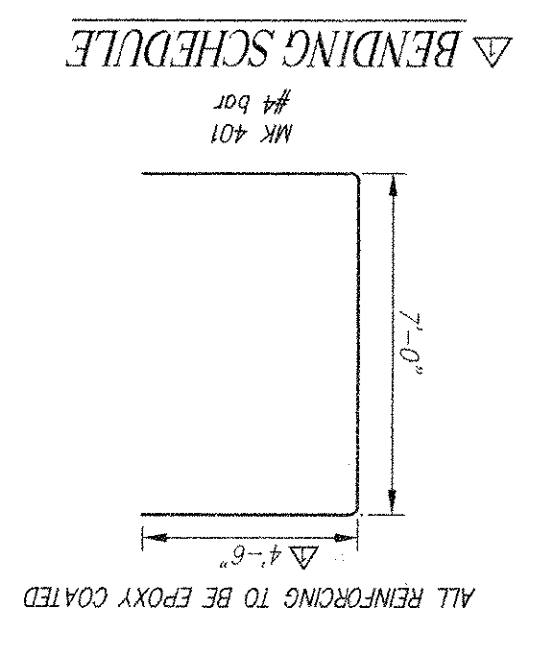
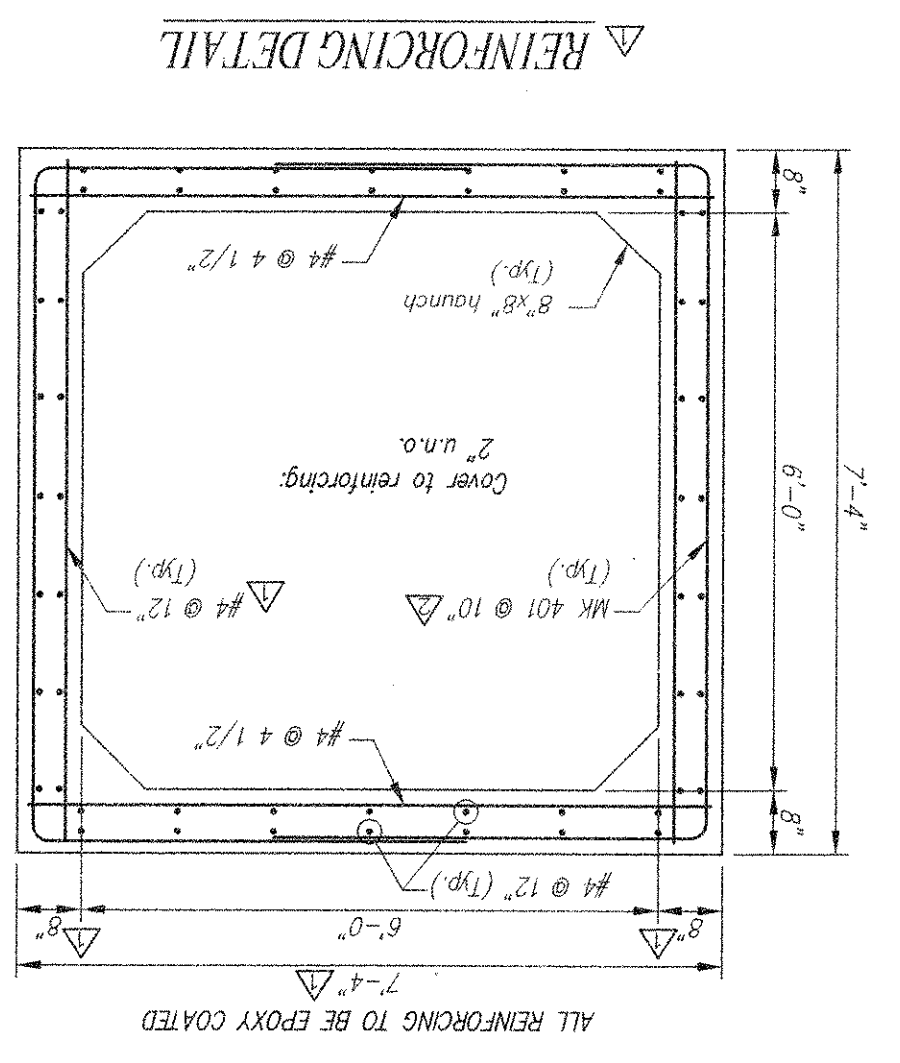
Quantity: 1
 Project No.: AC IM CULV (9)

Drawing No.: C18861-LOT1

SHEET 1 OF 1

FRANK W. WHITCOMB CONSTRUCTION CORP.
 1-89 OVER POT ASH BROOK TRIBUTARY (BRIDGE NO. 67-1)
 SOUTH BURLINGTON, VT

STATE AGENCY: VAOT



- GENERAL NOTES:
- Reference Standards:
 - ASTM C1433
 - ASTM Formers:
 - Live load: HS25
 - Earth Cover: 5' to 8'
 - Concrete: Design strength $f_c = 5000$ psi
 - Unit weight = 150 pcf
 - Reinforcing: ASTM A775 (rebar), grade 60, Epoxy Coated
 - Unit weight = 140 pcf
 - Minimum lateral pressure coefficient: .25
 - Maximum lateral pressure coefficient: .50
 - Cover to reinforcing: 2" u.a.
 - Dimensions include a joint gap. Actual culvert piece length is shorter (i.e. $C-2 = 7'-6"$).
 - Water repellent (Stone Siloxane) to be applied to all exposed surfaces of the headwalls and exposed interior surfaces of the culvert including the bottom surface of the top slab, the surface of the bottom slab, and the vertical walls. Water repellent applied at location of manufacture by CSI.
 - DBS are Dowel Bar Spacers and DL are Dowel Pins.
 - All inserts to be corrosion resistant or to have a corrosion resistant coating (i.e. epoxy coated, galvanized, electro-zinc plated, etc.).
 - Headwalls not designed for impact load.
 - Mingwills by others.
 - End sections, C-1 & C-3, to be set plumb.

Handwritten signature and date: 10/16/07

STRUCTURAL DESIGN ONLY

11/16/07
 11/16/07
 11/16/07

Submitted as Corrected
 Revised and Resubmitted
 Submit Specified Item