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LIST OF STRUCTURES DETAILS

SD-516.10 BRIDGE JOINT ASHPHALTIC PLUG 05-07-2010

LIST OF STANDARDS

D-30 UNDERDRAIN CONSTRUCTION DETAILS 08-13-2007
 E-100 CONSTRUCTION APPROACH SIGNS 01-02-2004
 E-101 CONSTRUCTION SIGN DETAILS 01-02-2004
 E-102 CONSTRUCTION SIGN DETAILS 06-30-2003
 E-102A CONSTRUCTION SIGN DETAILS 05-01-2004
 G-1 STEEL BEAM GUARDRAIL DETAILS 01-03-2000

STATE OF VERMONT AGENCY OF TRANSPORTATION



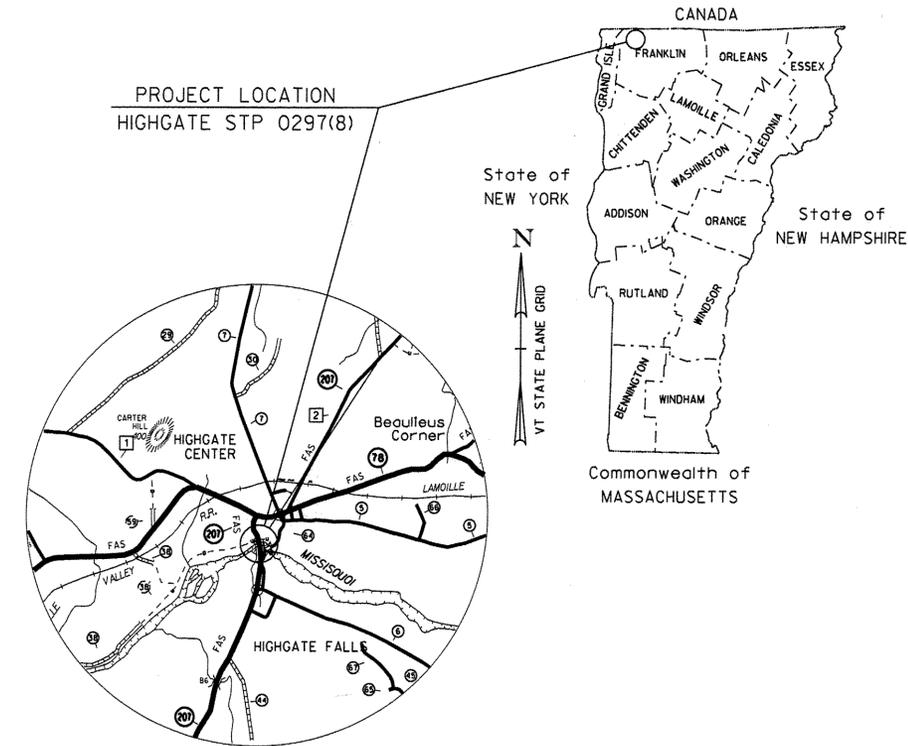
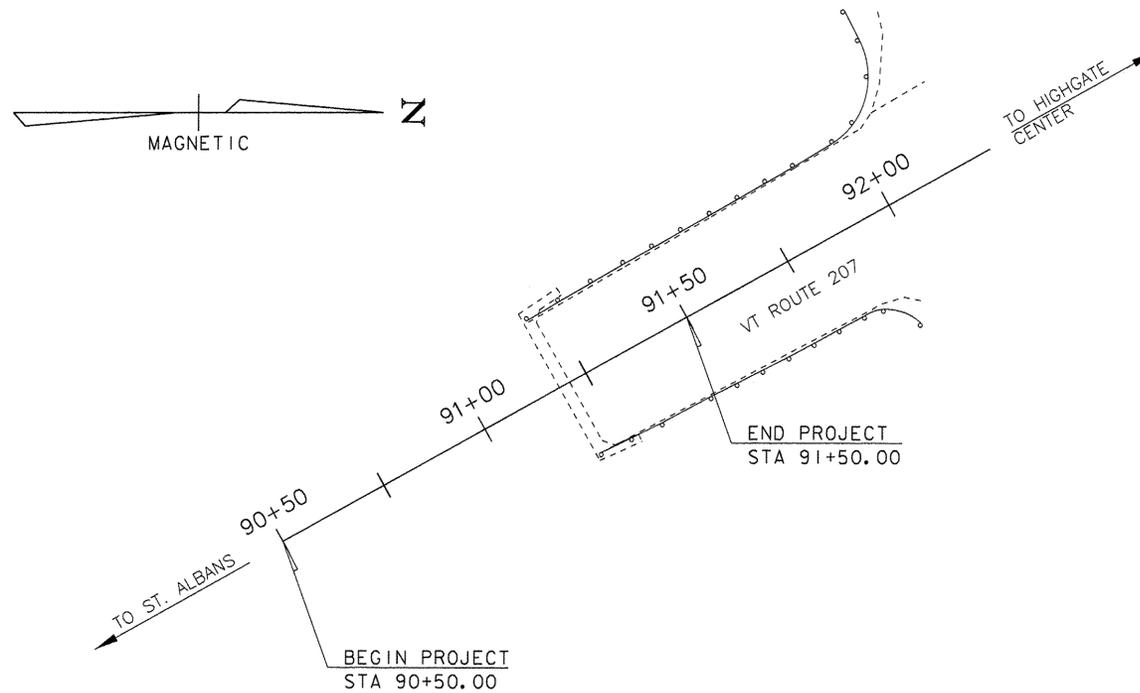
PROPOSED IMPROVEMENT BRIDGE PROJECT

TOWN OF HIGHGATE CENTER, FRANKLIN COUNTY BRIDGE #6, VERMONT ROUTE 207

PROJECT LOCATION : TRAVELLING SOUTH ON VERMONT ROUTE 207 FROM THE INTERSECTION OF VERMONT ROUTE 78 TO MM 1.714 (STA 90+50) AND PROCEEDING NORTH TO MM 1.733 (STA 91+50)

PROJECT DESCRIPTION : INSTALLATION OF SLOPE STABILIZATION AND UNDERDRAIN AT EXISTING BRIDGE ABUTMENT, WITH MINOR APPROACH WORK.

LENGTH OF PROJECT: 100.00 FEET



QUALITY ASSURANCE PROGRAM: LEVEL 2

CONVENTIONAL SYMBOLS

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

SURVEYED BY : CLD ENGINEERS
 SURVEYED DATE : JULY 2008

DATUM
 VERTICAL NAVD88
 HORIZONTAL NAD83/07

SCALE 1" = 20'-0"

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 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

DIRECTOR OF PROGRAM DEVELOPMENT
 APPROVED DATE 1-2-13
 PROJECT MANAGER : KRISTIN HIGGINS
 PROJECT NAME : HIGHGATE
 PROJECT NUMBER : STP 0297 (8) (RE-ADVERTISED)
 SHEET 1 OF 20 SHEETS

GENERAL

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE BEGINNING ANY CONSTRUCTION ACTIVITIES.
2. ITEM 404.65 "EMULSIFIED ASPHALT" IS TO BE APPLIED AT A RATE OF 0.025 GAL/SY BETWEEN SUCCESSIVE COURSES OF PAVEMENT, OR AS DIRECTED BY THE ENGINEER.
3. THERE ARE UNDERGROUND TELEPHONE LINES THAT RUN PARELLEL WITH VT 207 ON THE EAST SIDE. NO PROVISIONS HAVE BEEN MADE TO RELOCATE THESE LINES. THE CONTRACTOR SHALL WORK AROUND THESE LINES. ANY EXCAVATION REQUIRED TO LOCATE AND EXPOSE THE LINES, OUTSIDE THE LIMITS OF EXCAVATION PAID UNDER OTHER CONTRACT ITEMS AND ALL WORK REQUIRED ENSURING THAT THESE LINES ARE PROTECTED DURING CONSTRUCTION OF THIS PROJECT, WILL BE INCLUDED FOR PAYMENT UNDER CONTRACT ITEM 204.22. ANY DAMAGE DONE TO THE LINES AS A RESULT OF THE CONTRACTOR'S OPERATIONS, AS DETERMINED BY THE ENGINEER, WILL BE REPAIRED AT THE SOLE EXPENSE OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL REMOVE ACCUMULATED DEBRIS FROM THE BEARINGS AT FRAME LEG 2 AS DIRECTED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 201.10 CLEARING AND GRUBBING, (INCLUDING INDIVIDUAL TREES AND STUMPS).
5. THE LOCATIONS OF THE CONCRETE BASE AND GABION WALL SHOWN WERE SELECTED BASED ON THE BEDROCK SURFACE EXPOSED DURING THE 2008 SURVEY. THE FINAL WALL LOCATION SHALL BE DETERMINED BY THE ENGINEER FOLLOWING THE EXPOSURE OF BEDROCK TO SUIT FIELD CONDITIONS.
6. THE WIRE MESH SLOPE STABILIZATION AREA SHALL BE CLEARED AND GRUBBED TO THE SATISFACTION OF THE ENGINEER.
7. THE WELDED WIRE MESH IN THE CONCRETE BASE SHALL BE PAID FOR UNDER CONTRACT ITEM 507.11, STEEL REINFORCING, LEVEL I.

TRAFFIC CONTROL

8. THE CONTRACTOR WILL BE ALLOWED TO CLOSE THE BRIDGE COMPLETELY FOR ONE WEEKEND (TWO CONSECUTIVE DAYS) FOR THE INSTALLATION OF THE UNDERDRAIN, BEGINNING ON A FRIDAY AT 6PM AND REOPENING TO A MINIMUM OF ONE-WAY TRAFFIC THE FOLLOWING MONDAY AT 6AM. DURING THAT TIME THE CONTRACTOR SHALL BE ALLOWED TO WORK 24 HOURS PER DAY. THE CONTRACTOR SHALL SCHEDULE THEIR WORK SUCH THAT THE BRIDGE IS NOT CLOSED DURING HOLIDAY PERIODS. SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
9. THE CONTRACTOR SHALL SUBMIT A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR APPROVAL PER SUBSECTION 105.03. THE PLAN SHALL INCLUDE A LAYOUT SHOWING THE LOCATION OF ALL ON AND OFF PROJECT SIGNS AND BARRICADES, DETAILS FOR ANY LANE CLOSURES THAT MAY OCCUR AND ANY OTHER DETAILS ASSOCIATED WITH THE TRAFFIC CONTROL. PAYMENT WILL BE INCLUDED IN THE UNIT BID PRICE FOR CONTRACT ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).
10. WITH THE EXCEPTION OF THE TIME PERIOD SPECIFIED IN NOTE 8, THE BRIDGE SHALL BE OPEN TO A MINIMUM OF ONE-WAY TRAFFIC AT ALL TIMES.
11. THE CONTRACTOR SHALL ERECT ALL ON PROJECT SIGNAGE AND REQUIRED BARRICADES. THE SIGNS SHALL BE INSTALLED PER MUTCD, VTRANS STANDARD DRAWINGS AND SECTION 641 OF THE STANDARD SPECIFICATIONS.
12. ALL ITEMS REQUIRED TO IMPLEMENT THE CONTRACTOR'S TRAFFIC CONTROL PLAN, EXCEPT FOR ITEM 630.15 FLAGGERS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED INCLUDED IN THE BID PRICE FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).

EARTHWORK

13. PRIOR TO BEGINNING ANY EARTHWORK, THE EXISTING ROADWAY PROFILE SHALL BE DETERMINED. THE CONTRACTOR SHALL TAKE ELEVATIONS ALONG THE EXISTING CENTERLINE OF THE ROADWAY AT 10' -0" INTERVALS BETWEEN STATIONS 90+50 AND 92+00.

PROJECT NAME: HIGHGATE
PROJECT NUMBER: STP 0297(8)

FILE NAME: s10c218gen.dgn	PLOT DATE: 24-JAN-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: T. FILLBACH
GENERAL NOTES	SHEET 2 OF 20

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
								ROADWAY	EROSION CONTROL	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
								1			1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				
								300			300		CY	COMMON EXCAVATION	203.15				
								200			200		CY	SAND BORROW	203.31				
								40			40		CY	TRENCH EXCAVATION OF EARTH	204.20				
								1			1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				
								140			140		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
								90			90		CY	SUBBASE OF GRAVEL	301.15				
								1			1		CWT	EMULSIFIED ASPHALT	404.65				
								1			1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
								25			25		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
								2500			2500		LB	REINFORCING STEEL, LEVEL I	507.11				
								30			30		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
								10			10		CY	CONTROLLED DENSITY (FLOWABLE) FILL	541.45				
								70			70		LF	12 INCH UNDERDRAIN PIPE	605.13				
								30			30		LF	12 INCH UNDERDRAIN CARRIER PIPE	605.23				
								2			2		EACH	UNDERDRAIN FLUSHING BASIN	605.95				
								40			40		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25				
									1		1		MGAL	DUST CONTROL WITH WATER	609.10				
								90			90		CY	STONE FILL, TYPE I	613.10				
								5			5		CY	STONE FILL, TYPE II	613.11				
								190			190		CY	GABION WALL	613.25				
								63			63		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21				
								63			63		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
								400			400		HR	FLAGGERS	630.15				
										1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
										1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
								1			1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
								58			58		LF	4 INCH WHITE LINE	646.20				
								58			58		LF	4 INCH YELLOW LINE	646.21				
								460			460		SY	GEOTEXTILE UNDER STONE FILL	649.31				
									80		80		SY	GEOTEXTILE FOR SILT FENCE	649.51				
									10		10		LB	SEED	651.15				
									80		80		LB	FERTILIZER	651.18				
									1		1		TON	AGRICULTURAL LIMESTONE	651.20				
									1		1		TON	HAY MULCH	651.25				
									100		100		CY	TOPSOIL	651.35				
									1		1		LS	EPSC PLAN	652.10				
									40		40		HR	MONITORING EPSC PLAN	652.20				
									1		1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
									600		600		SY	TEMPORARY EROSION MATTING	653.20				

PROJECT NAME: HIGHGATE
PROJECT NUMBER: STP 0297(8)

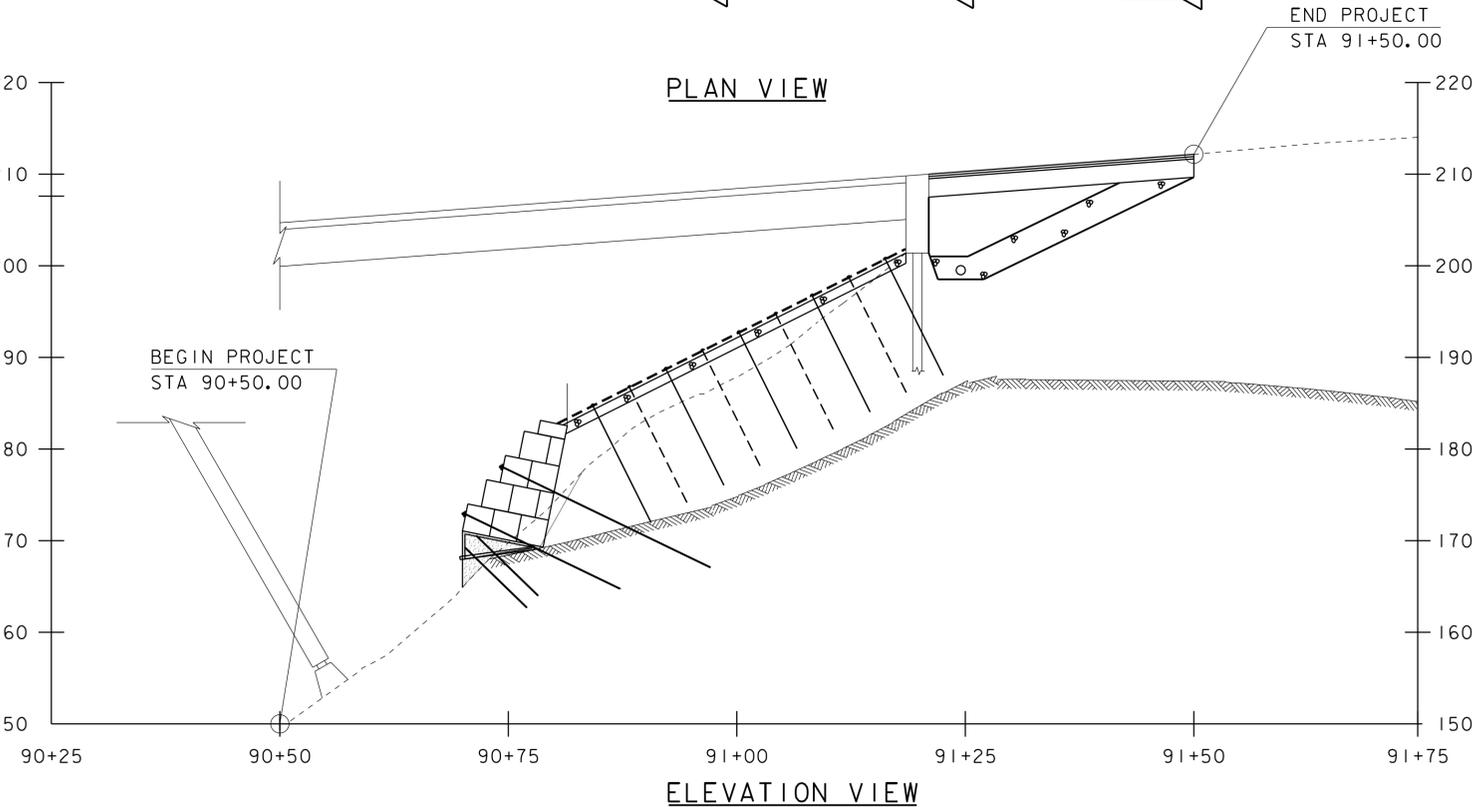
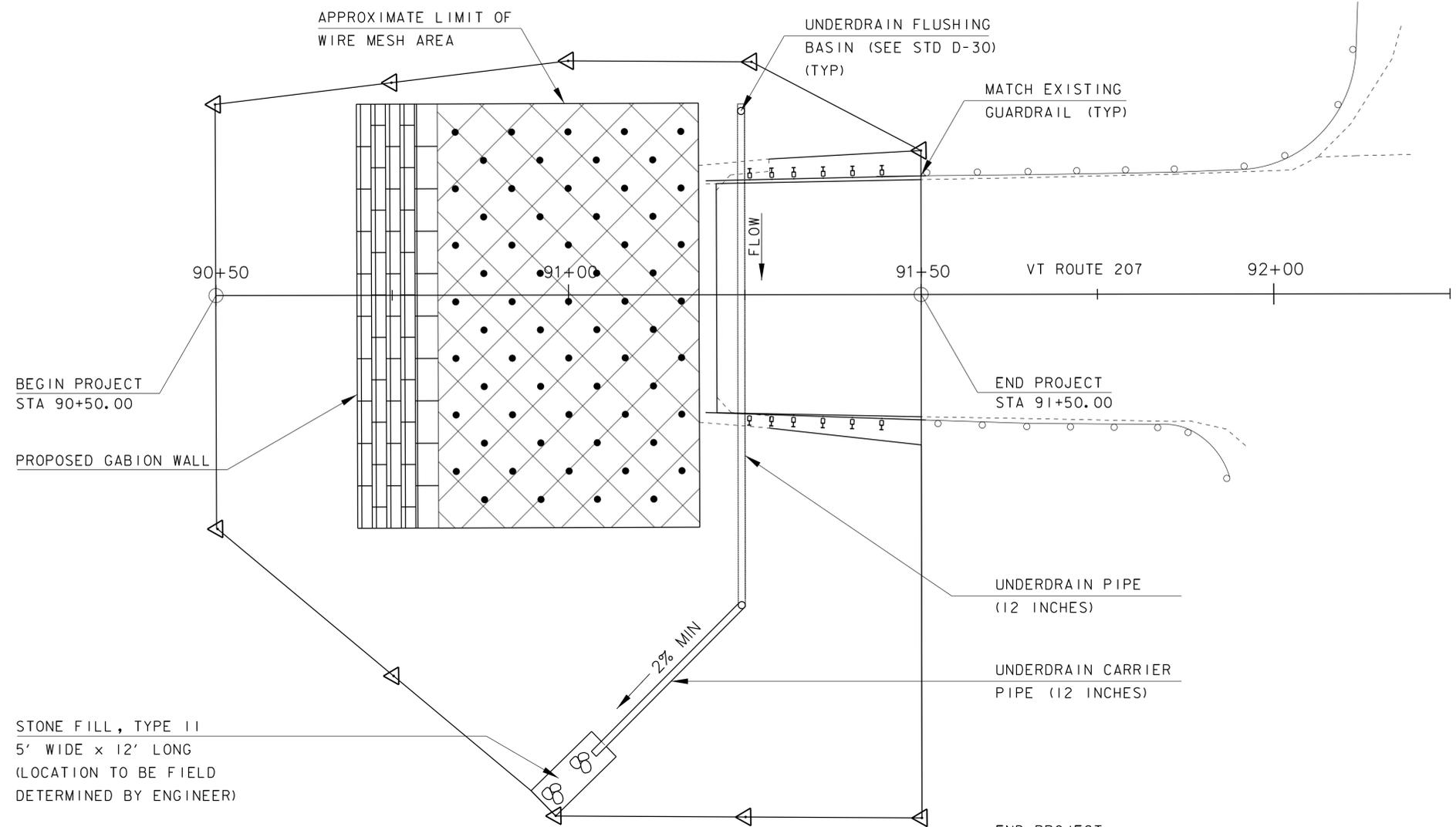
FILE NAME: s10c218qs.xls
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
QUANTITY SHEET - 1

PLOT DATE: 24-JAN-2013
DRAWN BY: J. SALVATORI
CHECKED BY: W. LAMMER
SHEET 3 OF 20

QUANTITY SHEET 2

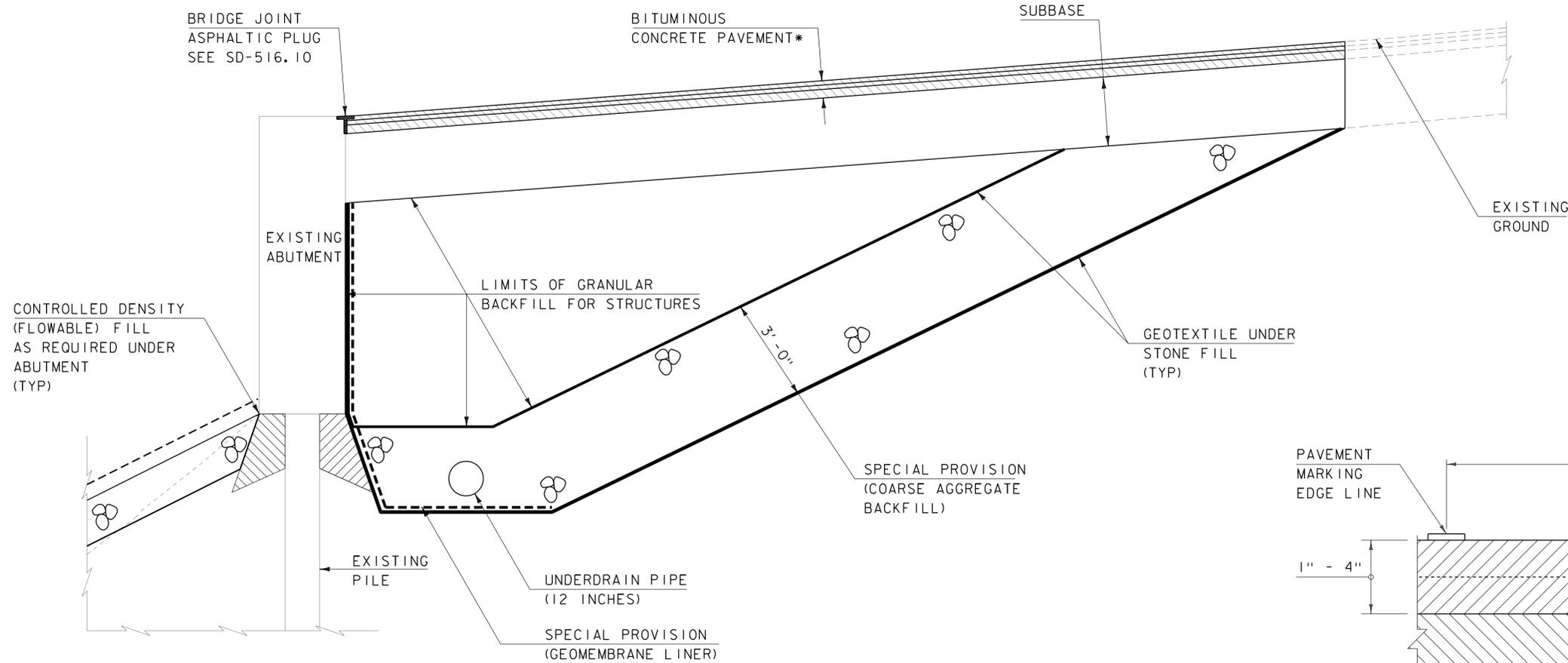
SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
								ROADWAY	EROSION CONTROL	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
									30		30		CY	VEHICLE TRACKING PAD	653.35				
									350		350		LF	PROJECT DEMARCATION FENCE	653.55				
								90			90		CY	SPECIAL PROVISION (COARSE AGGREGATE BACKFILL)	900.608				
								13			13		EACH	SPECIAL PROVISION (ROCK ANCHOR TESTING)	900.620				
								350			350		LF	SPECIAL PROVISION (ROCK ANCHOR)	900.640				
								312			312		LF	SPECIAL PROVISION (ROCK DOWELING)	900.640				
								1260			1260		LF	SPECIAL PROVISION (SOIL ANCHOR)	900.640				
								1			1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
								1			1		LU	SPECIAL PROVISION (INCENTIVE/DISINCENTIVE)(N.A.B.I.)	900.650				
								1			1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
								1			1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
								2500			2500		SF	SPECIAL PROVISION (WIRE MESH SLOPE STABILIZATION SYSTEM)	900.670				
								60			60		SY	SPECIAL PROVISION (GEOMEMBRANE LINER)	900.675				
								40			40		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME:	HIGHGATE	PLOT DATE:	24-JAN-2013
PROJECT NUMBER:	STP 0297(8)	DRAWN BY:	J. SALVATORI
FILE NAME:	sl0c2l8qs.xls	CHECKED BY:	W. LAMMER
PROJECT LEADER:	K. HIGGINS	QUANTITY SHEET - 2	SHEET 4 OF 20
DESIGNED BY:	J. SALVATORI		



PROJECT NAME:	HIGHGATE	PLOT DATE:	24-JAN-2013
PROJECT NUMBER:	STP 0297(8)	DRAWN BY:	J. SALVATORI
FILE NAME:	sl0c2l8pe.dgn	DESIGNED BY:	J. SALVATORI
PROJECT LEADER:	K. HIGGINS	CHECKED BY:	W. LAMMER
PLANNING & ELEVATION		SHEET	5 OF 20

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



MATERIAL TOLERANCES

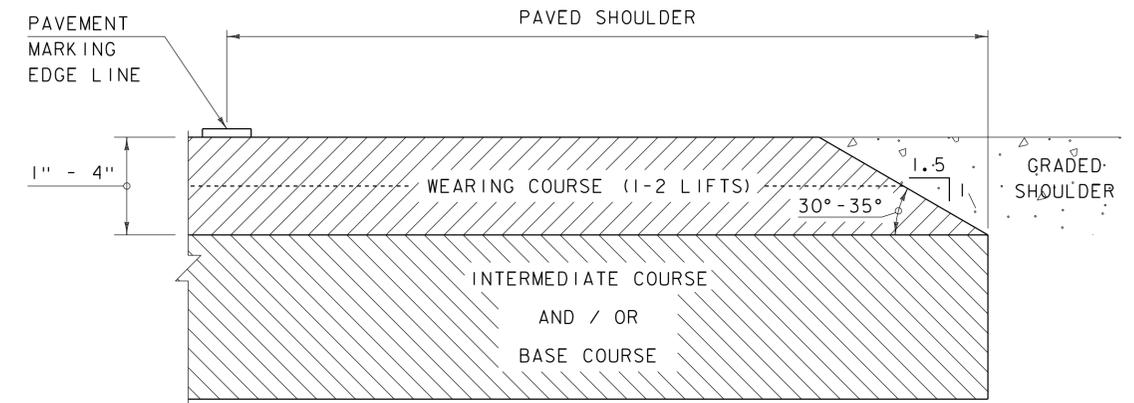
(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

EARTHWORK TYPICAL SECTION

SCALE 1/2" = 1'-0"

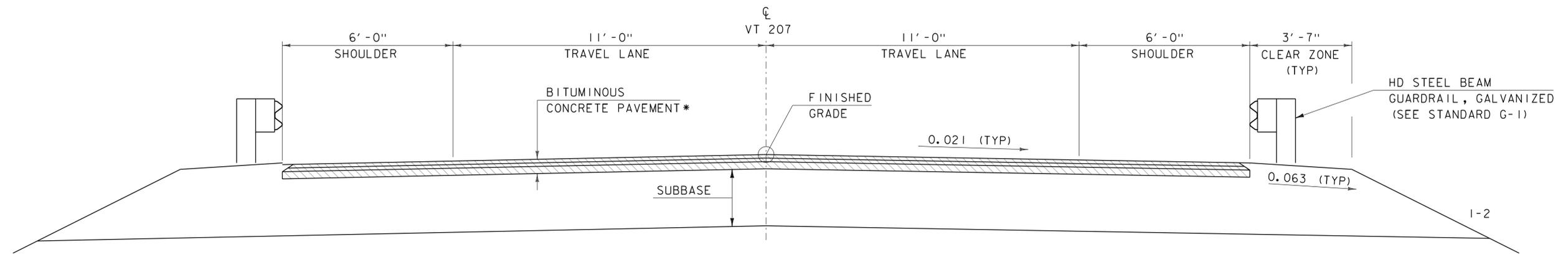
- * 1 1/2" SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IIIS
- 1 1/2" SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IIIS
- 3" SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IIIS
- 24" SUBBASE OF GRAVEL



SAFETY EDGE DETAIL

NOT TO SCALE

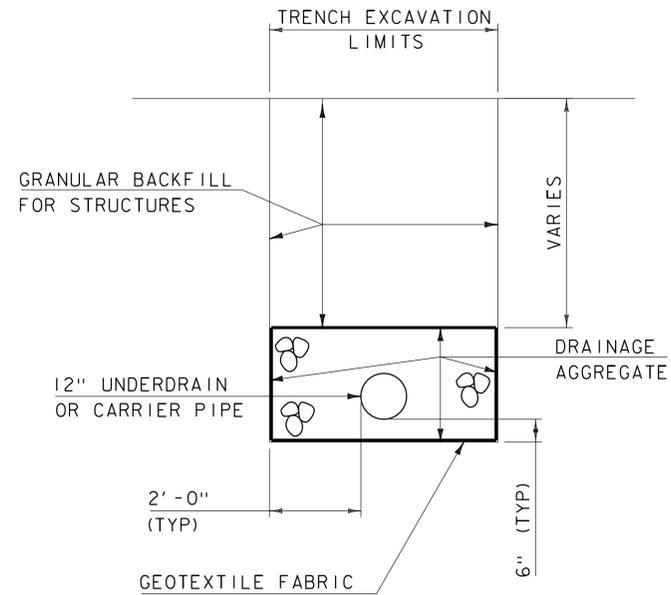
NOTE: LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.



ROADWAY TYPICAL SECTION

SCALE 1/2" = 1'-0"

PROJECT NAME: HIGHGATE	PLOT DATE: 24-JAN-2013
PROJECT NUMBER: STP 0297(8)	DRAWN BY: J. SALVATORI
FILE NAME: S+tr/sl0c218+yp.dgn	CHECKED BY: W. LAMMER
PROJECT LEADER: K. HIGGINS	SHEET 6 OF 20
DESIGNED BY: J. SALVATORI	TYPICAL SECTIONS - 1



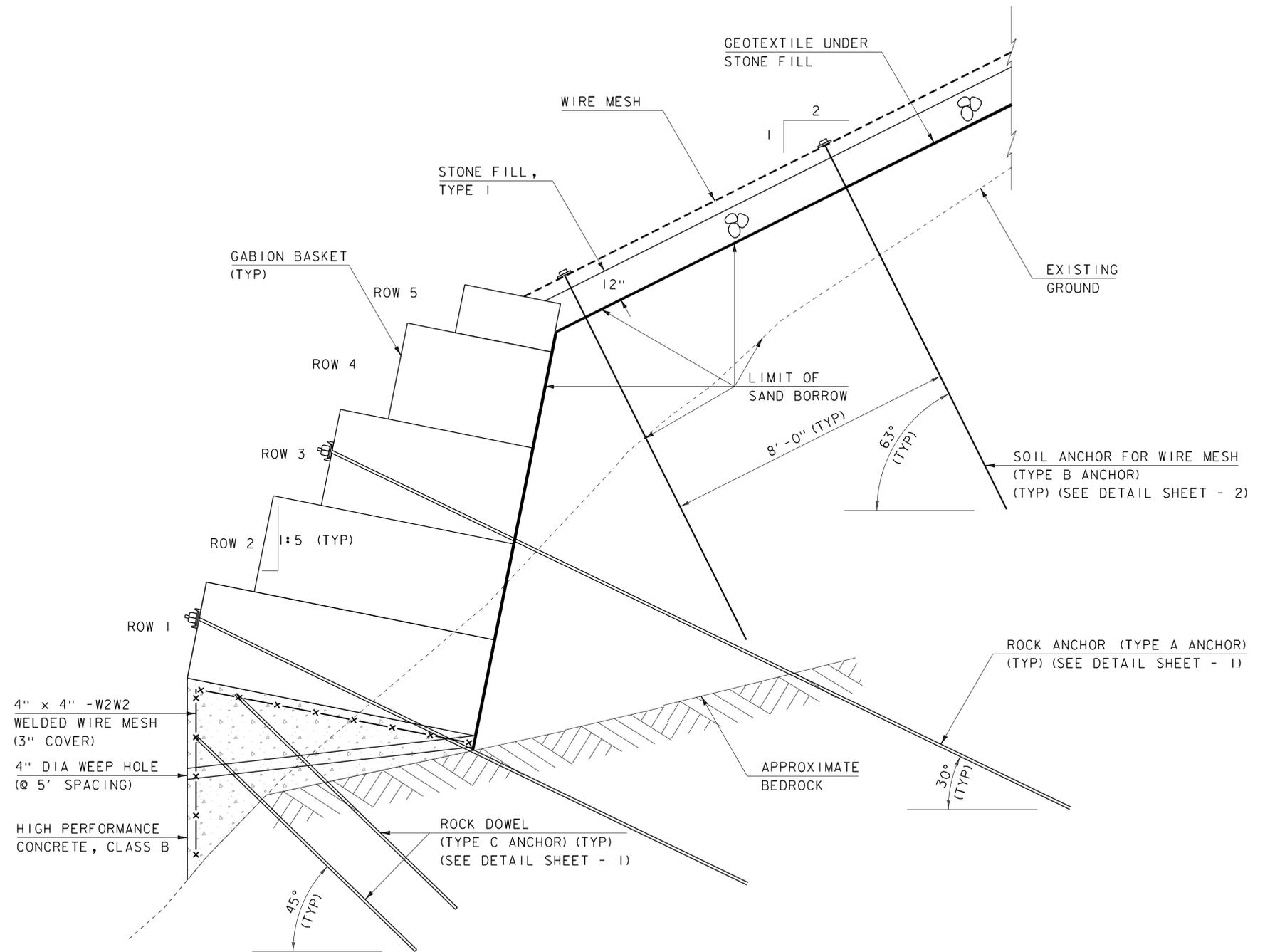
UNDERDRAIN TYPICAL
SCALE 1/2" = 1'-0"
0 1 2

GABION SCHEDULE

ROW FROM BOTTOM	WIDTH (MIN)
ROW 1	9'-0"
ROW 2	7'-6"
ROW 3	6'-0"
ROW 4	4'-6"
ROW 5	3'-0"

NOTES:

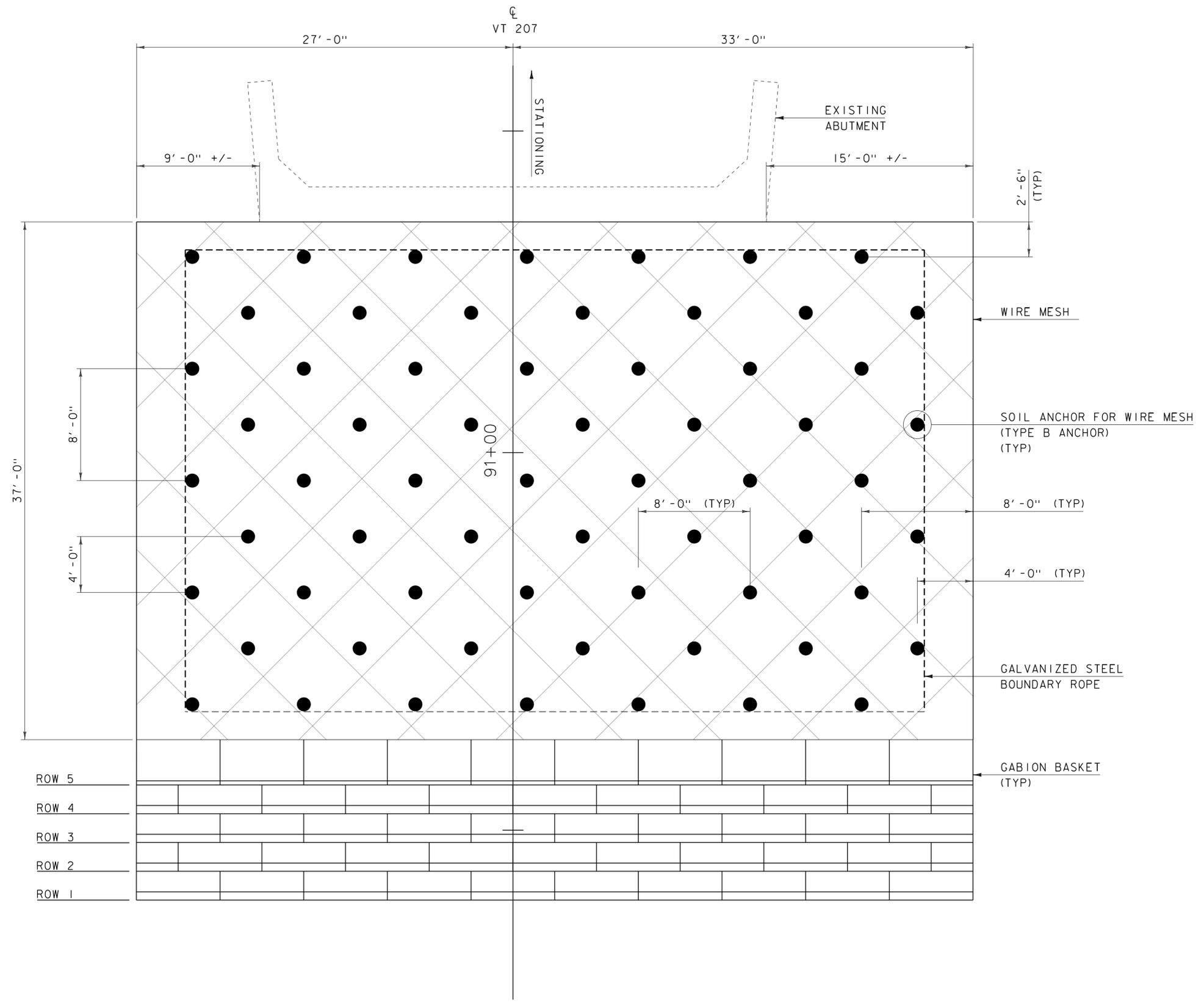
1. AT BOTH ENDS OF THE GABION WALL, THE CONCRETE BASE AND GABION BASKETS ALIGNMENT SHALL BE FIELD ADJUSTED TO FIRMLY ABUT THE WALL INTO THE EXISTING SLOPE. ALL ADJUSTMENTS SHALL BE SUBJECT TO ENGINEER'S APPROVAL.
2. ANY ADJUSTMENT TO SIZE OR LENGTH OF THE GABION BASKETS SHALL BE APPROVED BY THE ENGINEER.



GABION WALL TYPICAL

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

PROJECT NAME: HIGHGATE	PLOT DATE: 24-JAN-2013
PROJECT NUMBER: STP 0297(8)	DRAWN BY: J. SALVATORI
FILE NAME: S+tr/sl0c218+yp.dgn	CHECKED BY: W. LAMMER
PROJECT LEADER: K. HIGGINS	SHEET 7 OF 20
DESIGNED BY: J. SALVATORI	
TYPICAL SECTIONS - 2	



SLOPE STABILIZATION SYSTEM TYPICAL

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

PROJECT NAME: HIGHGATE	
PROJECT NUMBER: STP 0297(8)	
FILE NAME: Str/sl0c218+yp.dgn	PLOT DATE: 24-JAN-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: W. LAMMER
TYPICAL SECTIONS - 3	SHEET 8 OF 20

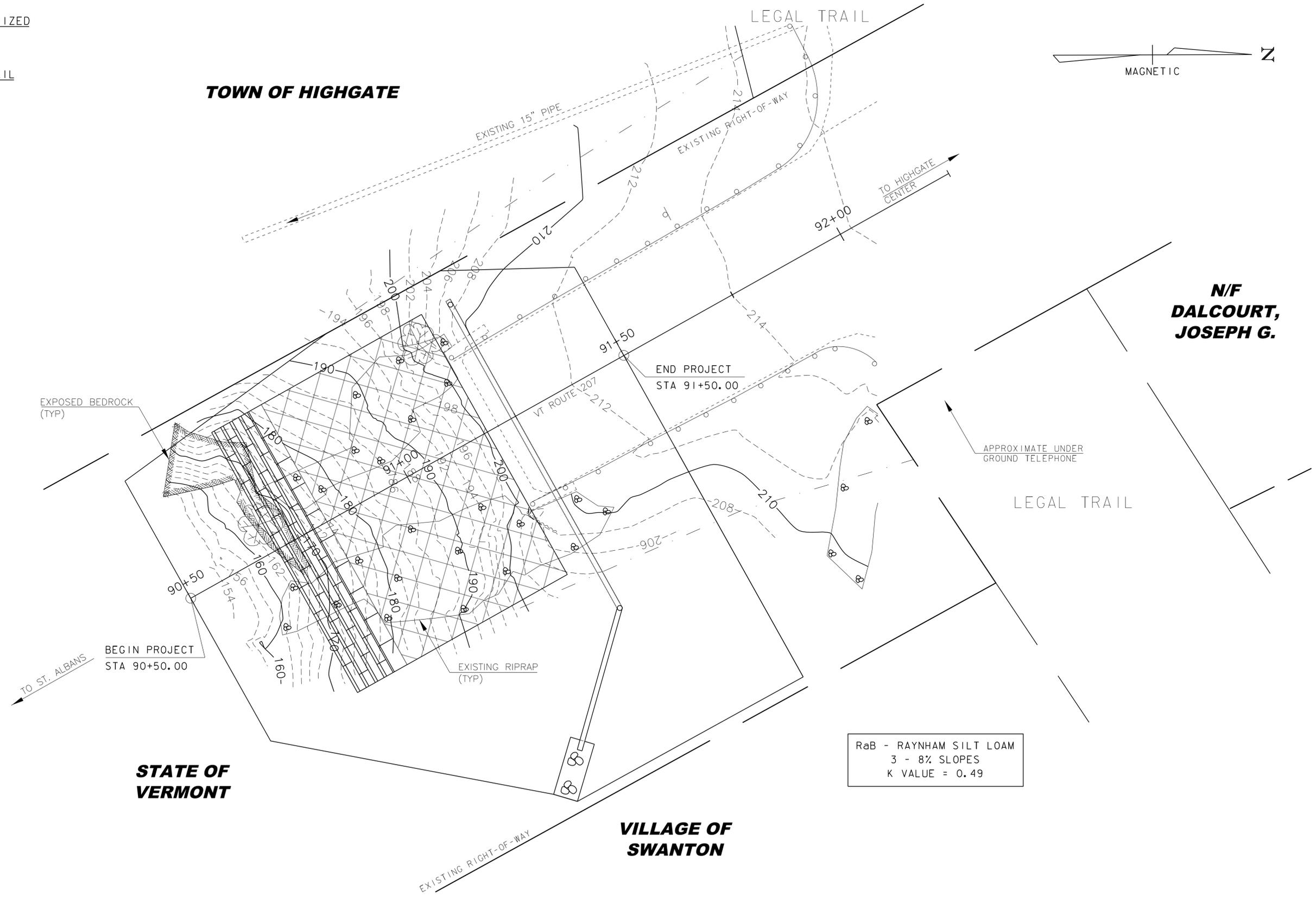
HD STEEL BEAM GUARDRAIL, GALVANIZED
 STA 91+18.50 TO 91+50.00 LT/RT

REMOVAL AND DISPOSAL OF GUARDRAIL
 STA 91+18.50 TO 91+50.00 LT/RT

4 INCH WHITE LINE
 STA 91+21.00 TO 91+50.00 LT/RT

4 INCH YELLOW LINE (DOUBLE)
 STA 91+18.50 TO 91+50.00

TOWN OF HIGHGATE



**N/F
 DALCOURT,
 JOSEPH G.**

**STATE OF
 VERMONT**

**VILLAGE OF
 SWANTON**

RaB - RAYNHAM SILT LOAM
 3 - 8% SLOPES
 K VALUE = 0.49

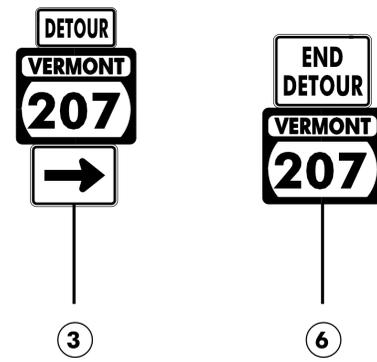
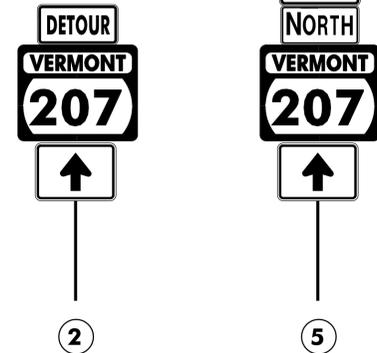
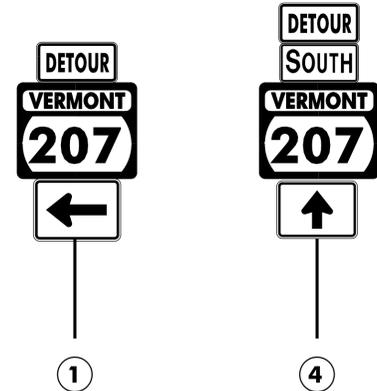
NOTES

1. BRIDGE SUPERSTRUCTURE IS NOT SHOWN FOR CLARITY.

LAYOUT SHEET

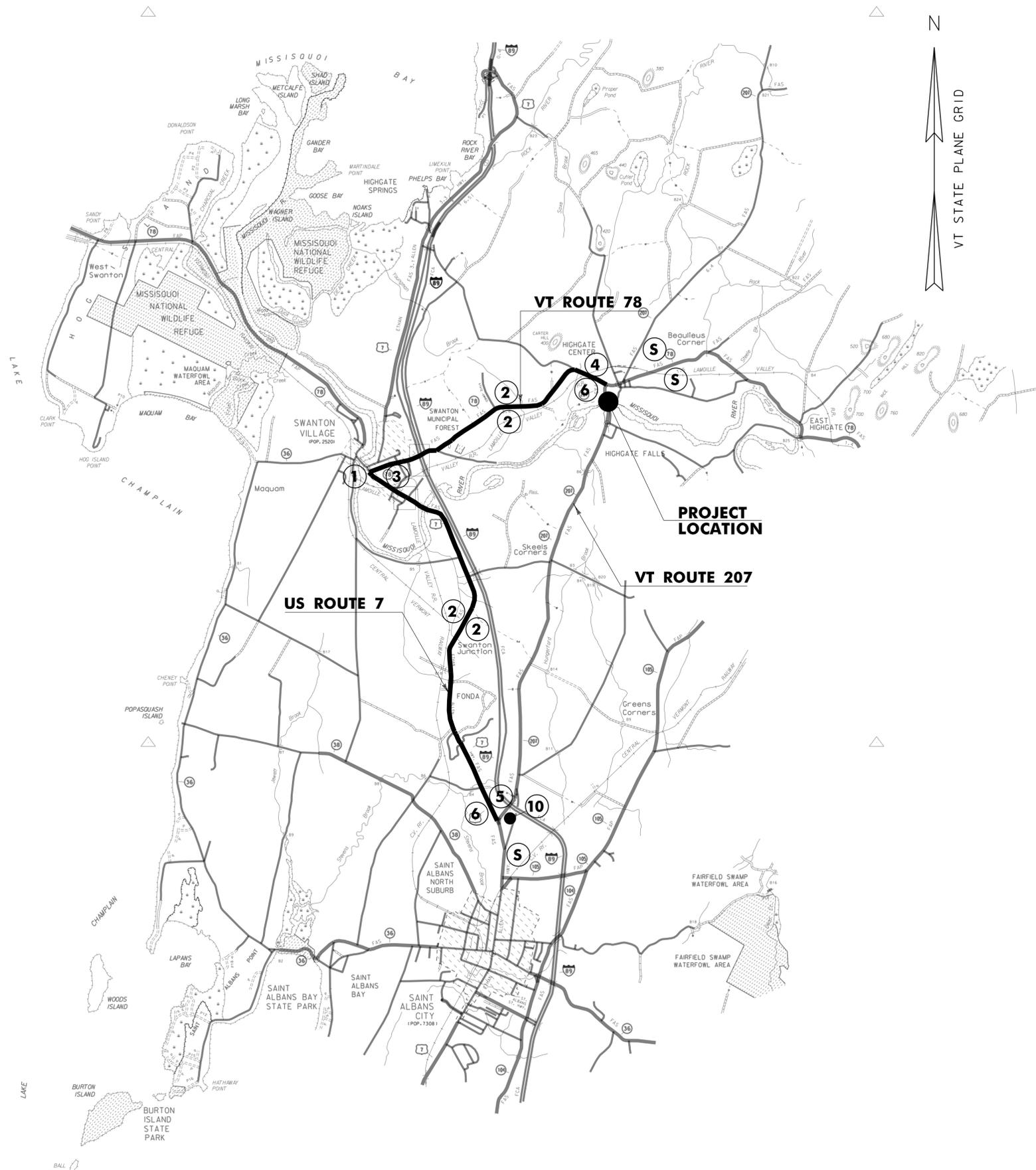
SCALE 1" = 10' - 0"

PROJECT NAME: HIGHGATE	PLOT DATE: 24-JAN-2013
PROJECT NUMBER: STP 0297(8)	DRAWN BY: J. SALVATORI
FILE NAME: I0c218/str/s10cl28bdr.dgn	CHECKED BY: W. LAMMER
PROJECT LEADER: K. HIGGINS	SHEET 9 OF 20
DESIGNED BY: J. SALVATORI	
LAYOUT SHEET	



ROAD CLOSED
10 MILES AHEAD
LOCAL TRAFFIC ONLY

10



DETOUR PLAN
 NOT TO SCALE

NOTES:

THE PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE FULLY OPERATIONAL A MINIMUM OF TWO WEEKS PRIOR TO THE CLOSURE OF VT 207.

V	T	2	0	7		
C	L	O	S	E	D	

PORTABLE CHANGEABLE SIGN - PHASE 1

T	O	T	H	R	U	
T	R	A	F	F	I	C

PORTABLE CHANGEABLE SIGN - PHASE 2

*	M	M	M		D	D	-
*	M	M	M		D	D	

PORTABLE CHANGEABLE SIGN - PHASE 3

* M=MONTH
 D=DAY



PROJECT NAME: HIGHGATE
 PROJECT NUMBER: STP 0297(8)

FILE NAME: I0c218/str/s10c128bdr.dgn	PLOT DATE: 24-JAN-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: W. LAMMER
DETOUR PLAN	SHEET 10 OF 20

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE INSTALLATION OF SLOPE STABILIZATION AND UNDERDRAIN AT AN EXISTING BRIDGE ABUTMENT, WITH MINOR APPROACH WORK.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.22 ACRES.

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

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS STEEP WITH WELL ESTABLISHED FOREST & VEGETATION BELOW AND TO EITHER SIDE OF THE PROJECT SITE. THE PROJECT SITE BELOW THE ABUTMENT CONSISTS OF EXPOSED EARTH WITH NO VEGETATION. VT ROUTE 207 IS WITHIN THE PROJECT SITE.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

THE MISSISQUOI RIVER IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE RIVER IS CLASSIFIED AS STEEP WITH A STREAM BED THAT CONSISTS OF GRAVEL, COBBLES AND BOULDERS. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF WATER FROM NEARBY SLOPES. THERE IS AN EXISTING 15" CULVERT ON THE WEST SIDE OF THE PROJECT THAT WILL NOT BE AFFECTED.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF TREES AND UNDERGROWTH TO EITHER SIDE OF THE PROJECT AREA. THE VEGETATION LOCATED DIRECTLY BELOW THE PROJECT SITE CONSISTS OF UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY CONSTRUCTION OF THE CONCRETE BASE AND PLACEMENT OF THE GABION BASKETS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF FRANKLIN, VERMONT.

SOILS ON THE PROJECT SITE ARE RAYNHAM SILT LOAM, 3% TO 8% SLOPES, "K FACTOR" = 0.49. THE SOIL IS CONSIDERED HIGHLY ERODIBLE DUE TO SIGNIFICANT SLOPES.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:

0.0-0.23 = LOW EROSION POTENTIAL
0.24-0.36 = MODERATE EROSION POTENTIAL
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: NO
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: MISSISQUOI RIVER
WETLANDS: NO

1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM

WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES.

1.4.2 LIMIT DISTURBANCE AREA

PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

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.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR'S PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

SILT FENCE WILL BE INSTALLED TO THE SATISFACTION OF THE ENGINEER.

1.4.5 DIVERT UPLAND RUNOFF

DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

THE NEED TO DIVERT UPLAND RUNOFF IS NOT ANTICIPATED ON THIS PROJECT.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSION POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

THE USE OF CHECK STRUCTURES IS NOT ANTICIPATED ON THIS PROJECT

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.9 WINTER STABILIZATION

VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

1.4.10 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

1.4.11 DE-WATERING ACTIVITIES

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

NO DE-WATERING ACTIVITIES ARE ANTICIPATED ON THIS PROJECT.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES

IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SUBSECTIONS 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

1.5.3 UPDATES

PROJECT NAME: HIGHGATE
PROJECT NUMBER: STP 0297(8)

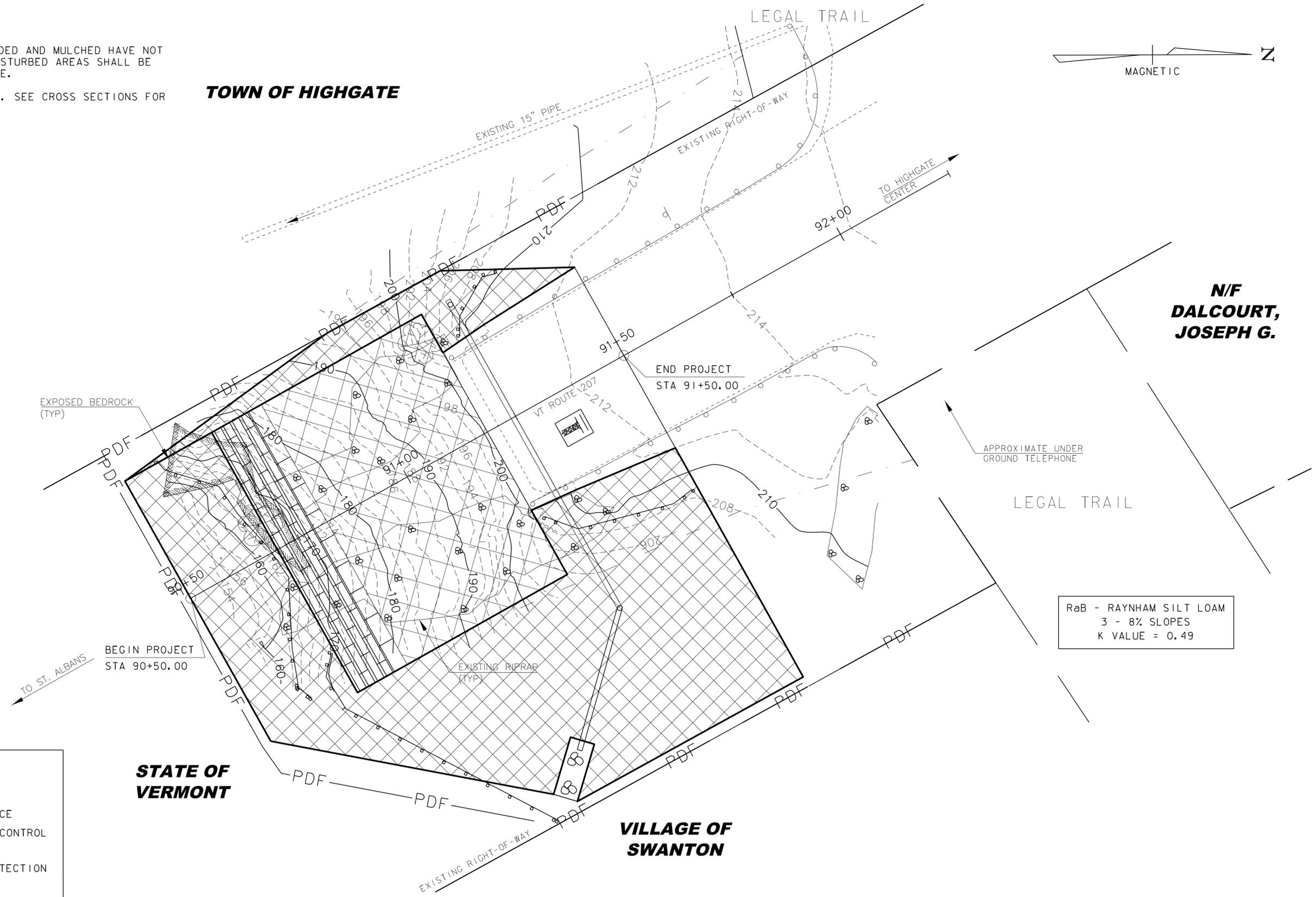
FILE NAME: s10c218epsc_nar.dgn
PROJECT LEADER: K.HIGGINS
DESIGNED BY: J.SALVATORI
EPSC NARRATIVE

PLOT DATE: 24-JAN-2013
DRAWN BY: K. FRIEDLAND
CHECKED BY: J. SALVATORI
SHEET II OF 20

NOTES:

1. FOR CLARITY, AREAS TO BE SEEDED AND MULCHED HAVE NOT BEEN INDICATED; HOWEVER, ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED AS APPLICABLE.
2. EXISTING CONTOURS ARE SHOWN. SEE CROSS SECTIONS FOR FINAL CONDITIONS.

TOWN OF HIGHGATE



**N/F
DALCOURT,
JOSEPH G.**

RaB - RAYNHAM SILT LOAM
3 - 8% SLOPES
K VALUE = 0.49

LEGEND

	CUT/FILL LIMITS
	PROJECT DEMARCATION FENCE
	ROLLED EROSION CONTROL PRODUCT (RECP)
	ROCK OUTLET PROTECTION
	SILT FENCE
	STABILIZED CONSTRUCTION ENTRANCE

STATE OF VERMONT

VILLAGE OF SWANTON

EPSC PLAN
SCALE 1" = 10'-0"

PROJECT NAME: HIGHGATE	PLOT DATE: 24-JAN-2013
PROJECT NUMBER: STP 0297(8)	DRAWN BY: J. SALVATORI
FILE NAME: I0c218/str/s10cl28bdr.dgn	CHECKED BY: W. LAMMER
PROJECT LEADER: K. HIGGINS	SHEET 12 OF 20
DESIGNED BY: J. SALVATORI	
EPSC PLAN	

VAOT RURAL AREA MIX					
	LBS/AC				
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
37.5%	22.5	45	CREeping RED FESCUE	85%	98%
37.5%	22.5	45	TALL FESCUE	90%	95%
5.0%	3	6	RED TOP	90%	95%
15.0%	9	18	BIRDSFOOT TREFOIL	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	85%	95%
100%	60	120			

VAOT URBAN AREA MIX					
	LBS/AC				
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
42.5%	34	68	CREeping RED FESCUE	85%	98%
10.0%	8	16	PERENNIAL RYE GRASS	90%	95%
42.5%	34	68	KENTUCKY BLUE GRASS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	85%	95%
100%	80	160			

SOIL AMENDMENT GUIDANCE			
FERTILIZER		LIME	
BROADCAST	HYDROSEED	BROADCAST	HYDROSEED
10-20-10	FOLLOW	PELLETIZED	FOLLOW
500 LBS/AC	MANUFACTURER	2 TONS/AC	MANUFACTURER

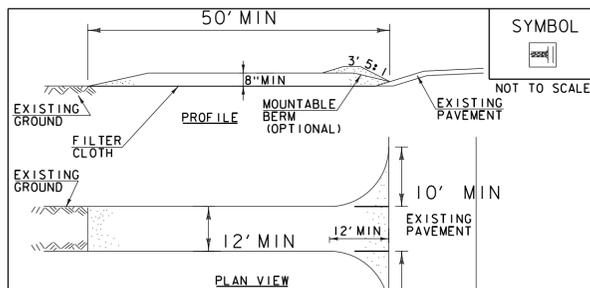
CONSTRUCTION GUIDANCE

- RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
- URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN AREAS DISTURBED BY THE CONTRACTOR.
- ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
- FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.
- HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
- TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED.
- TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

REVISIONS	
JUNE 23, 2009	WHF
JANUARY 15, 2010	WHF
FEBRUARY 16, 2011	WHF



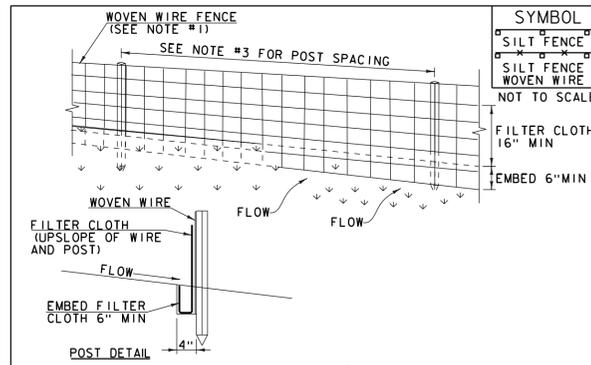
CONSTRUCTION SPECIFICATIONS

- STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
- THICKNESS- NOT LESS THAN 8".
- WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
- GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
- SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STABILIZED CONSTRUCTION ENTRANCE

NOTES:	
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006-" FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.	
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR VEHICLE TRACKING PAD.	
REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF



CONSTRUCTION SPECIFICATIONS

- WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
- FILTER CLOTH SHALL BE EITHER FILTER X, MIRAF1100X, STABILINKA T140N OR APPROVED EQUIVALENT.
- POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
- WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

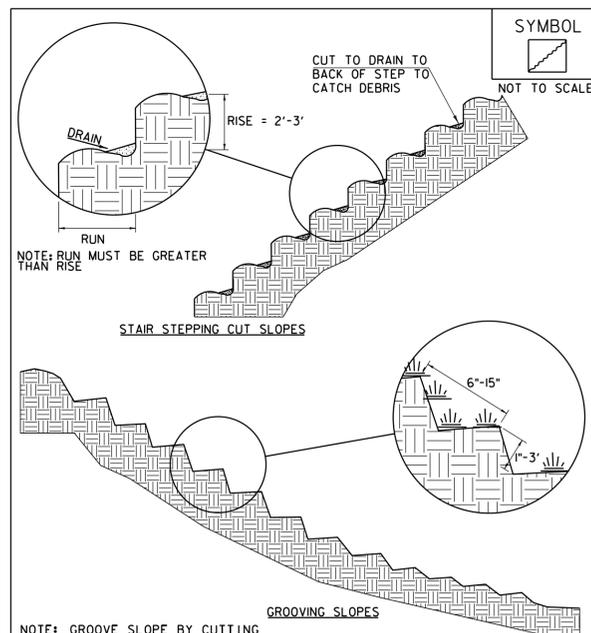
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SILT FENCE

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

REVISIONS	
MARCH 21, 2008	WHF
DECEMBER 11, 2008	WHF
JANUARY 13, 2009	WHF

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 FOR GEOTEXTILE OR SILT FENCE OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED.



NOTE: GROOVE SLOPE BY CUTTING FURROWS ALONG THE CONTOUR. IRREGULARITIES IN THE SOIL SURFACE CATCH RAINWATER AND RETAIN LIME, FERTILIZER AND SEED.

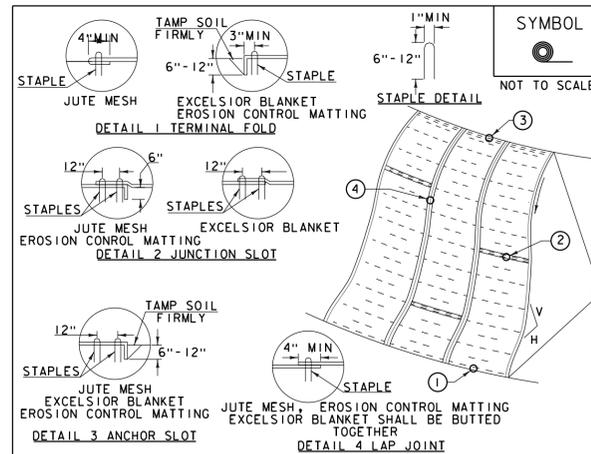
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SURFACE ROUGHENING

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

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF



CONSTRUCTION SPECIFICATIONS

- APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
- APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
- STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4' X 225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4' X 150' ROLL OF MATERIAL.
- DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
- ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

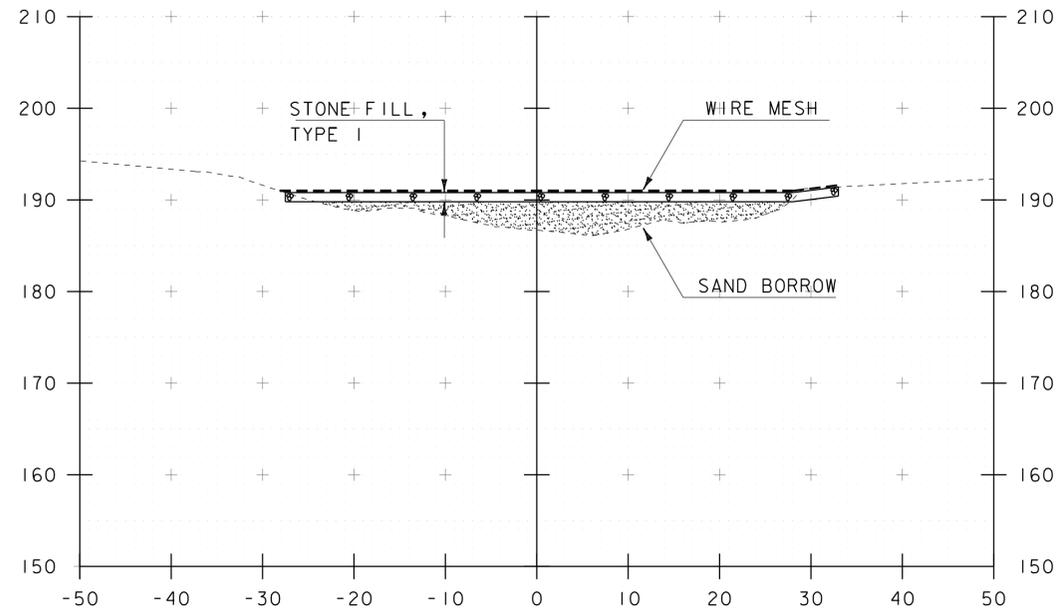
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006-" FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY EROSION MATTING OR PERMANENT EROSION MATTING.

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF

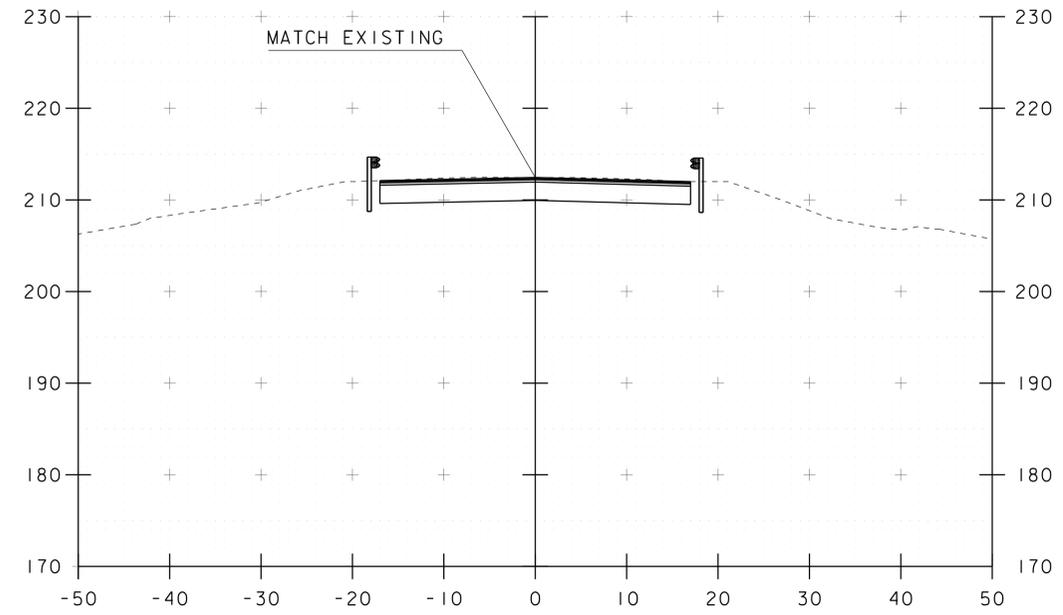
PROJECT NAME: HIGHGATE
PROJECT NUMBER: STP 0297(8)

FILE NAME: s10c218det.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
EPSC - DETAILS

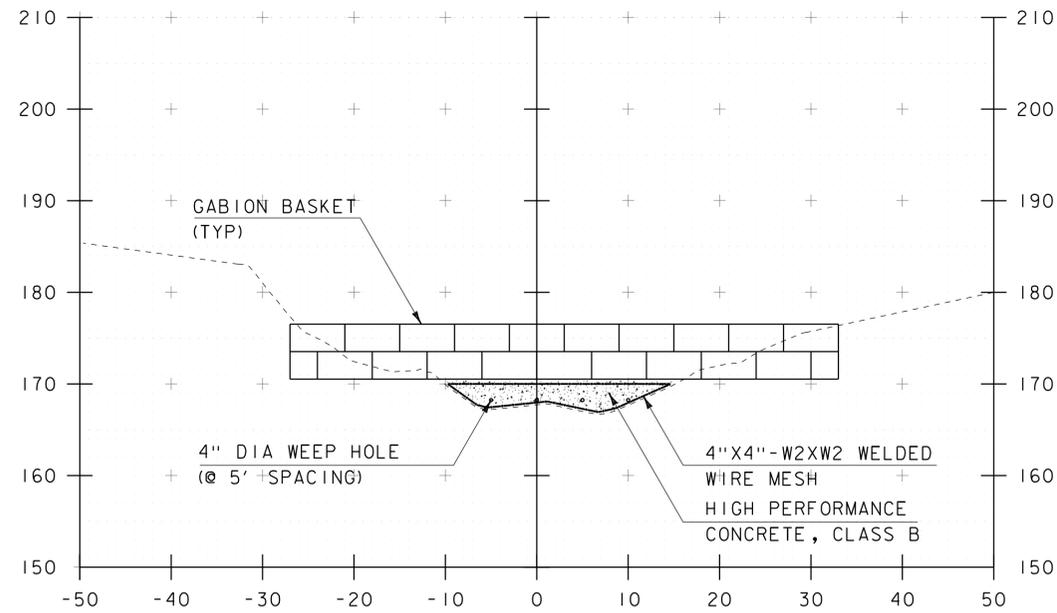
PLOT DATE: 24-JAN-2013
DRAWN BY: K. FRIEDLAND
CHECKED BY: J. SALVATORI
SHEET 13 OF 20



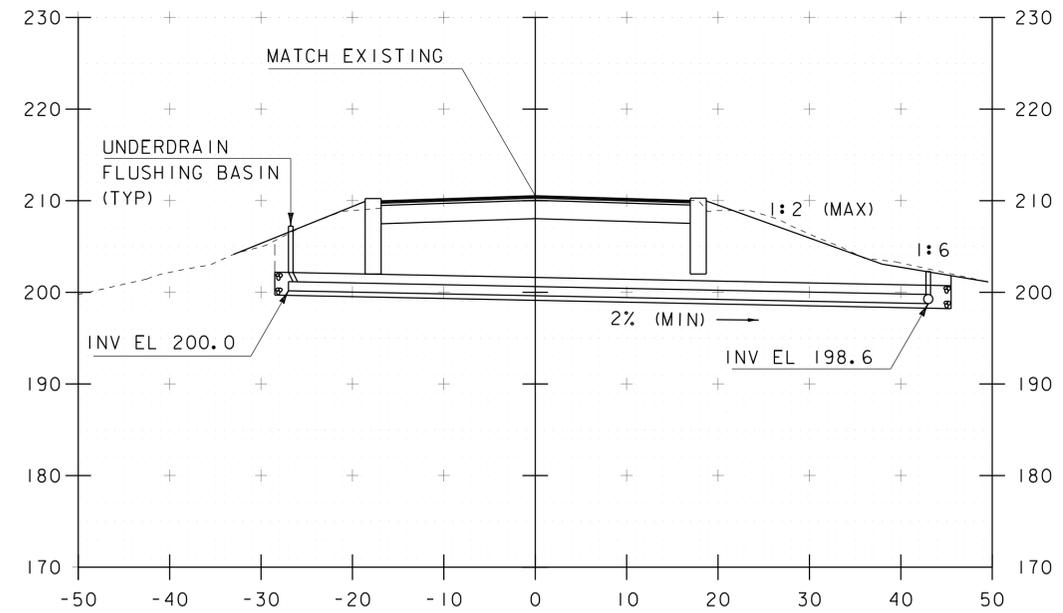
91+00



91+50
END PROJECT



90+75
BEGIN PROJECT @ 90+50.00



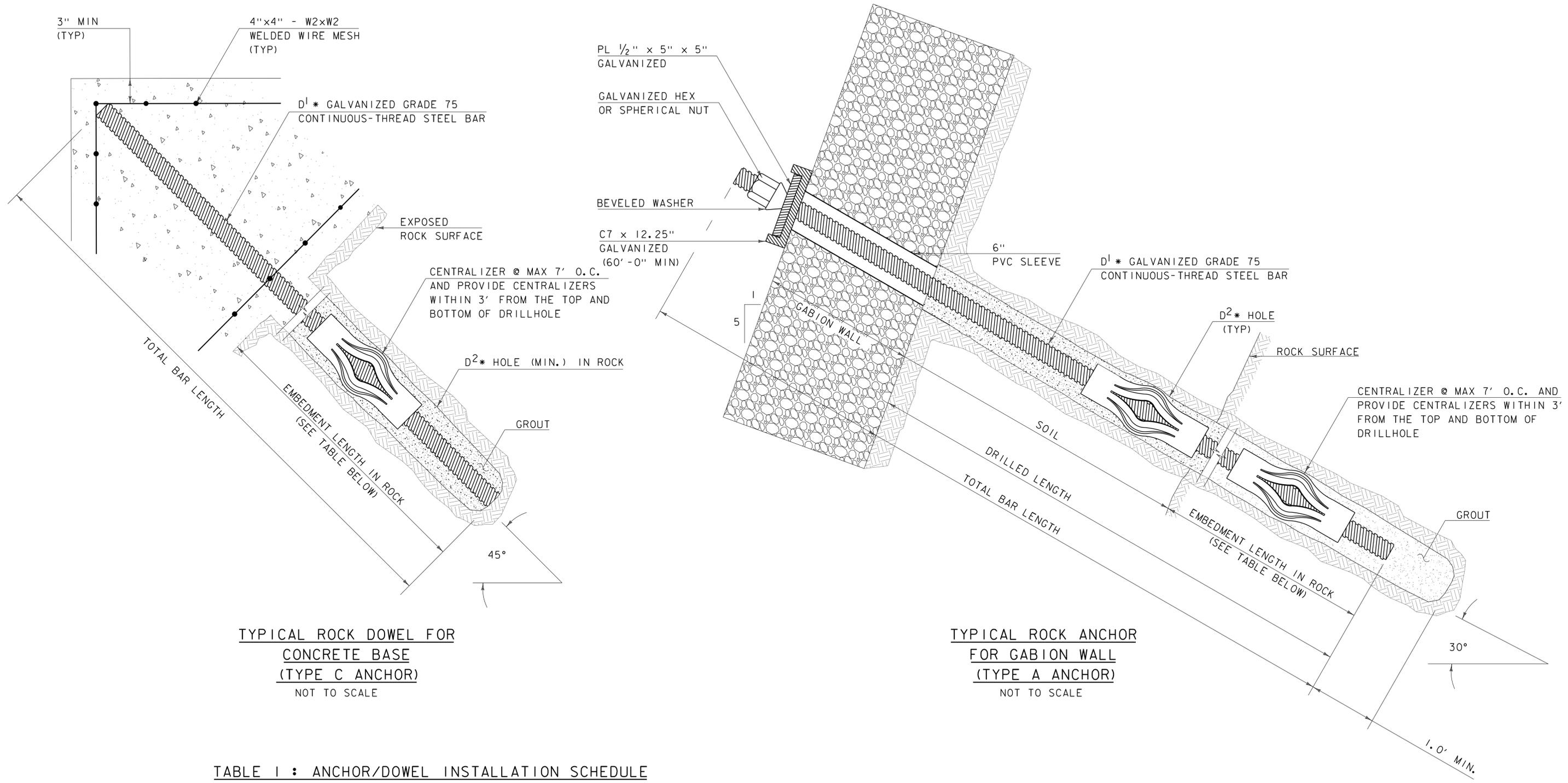
91+25

SCALE 1" = 10' - 0"

PROJECT NAME: HIGHGATE
PROJECT NUMBER: STP 0297(8)

FILE NAME: s10c218xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
MAINLINE CROSS SECTIONS

PLOT DATE: 24-JAN-2013
DRAWN BY: J. SALVATORI
CHECKED BY: W. LAMMER
SHEET 14 OF 20



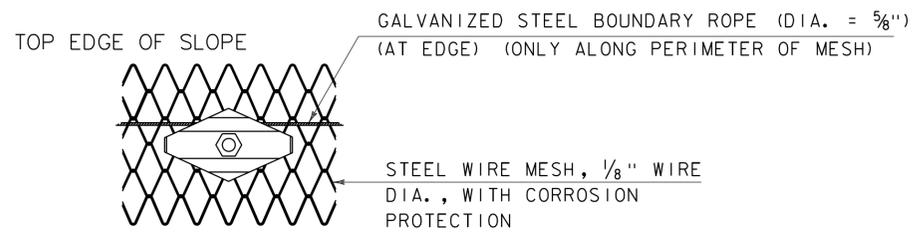
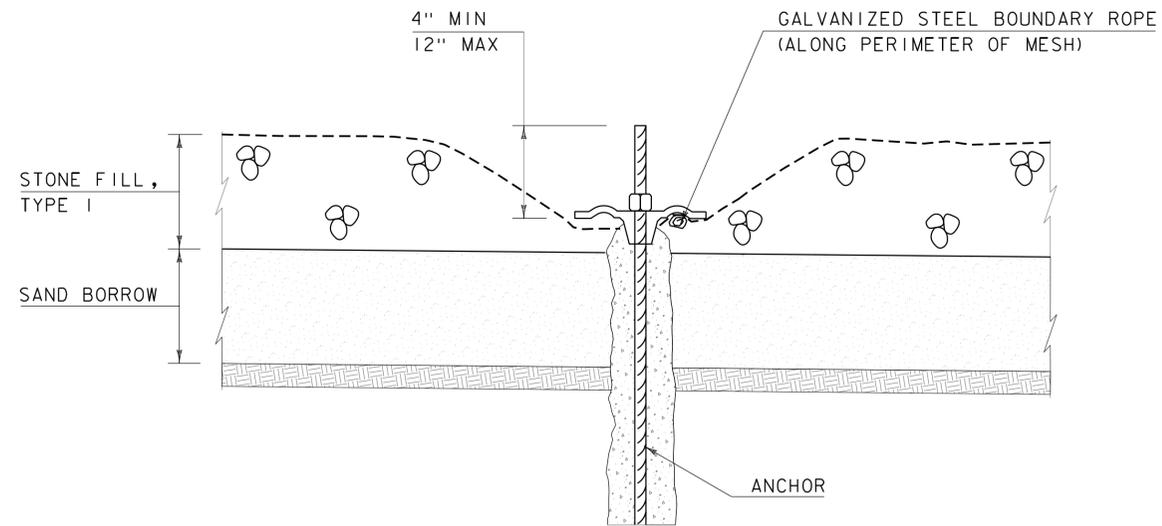
TYPICAL ROCK DOWEL FOR CONCRETE BASE (TYPE C ANCHOR)
NOT TO SCALE

TYPICAL ROCK ANCHOR FOR GABION WALL (TYPE A ANCHOR)
NOT TO SCALE

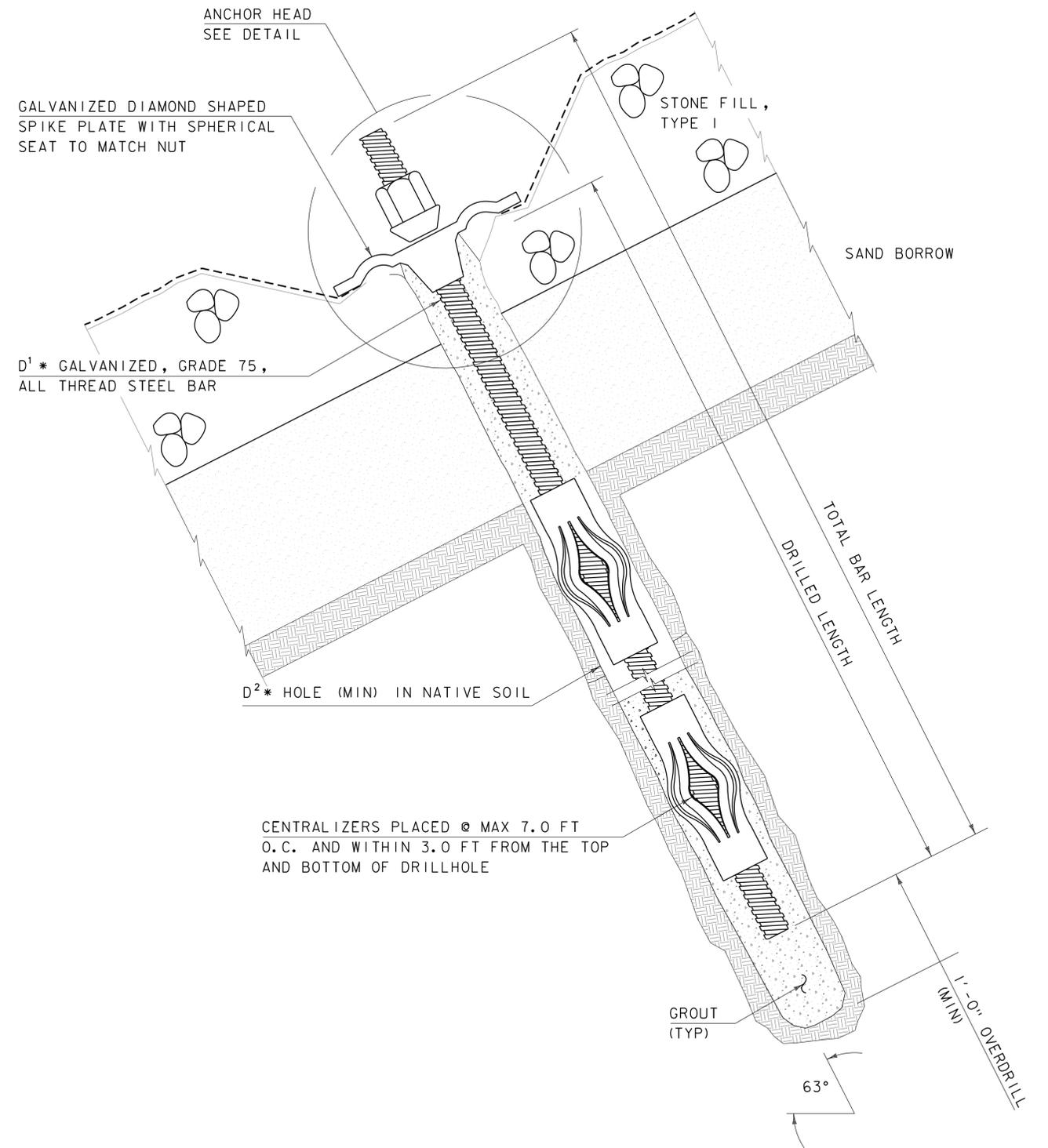
TABLE I : ANCHOR/DOWEL INSTALLATION SCHEDULE

TYPE	DESCRIPTION	HOLE DIAMETER (D ²) (IN)	BAR DIAMETER (D ¹) (IN)	DOWEL SPACING (FT)	INCLINATION (DEGREES) TO HORIZONTAL	EMBEDMENT LENGTH (FT) IN SOUND ROCK	EMBEDMENT LENGTH (FT) IN SOIL	DOWEL PRE-TENSIONING LOAD (DL)
A	ROCK ANCHOR (FOR GABION)	4" MIN	1"	8'	30° FROM HORIZONTAL	10 (MIN.)	VARIES	11.2Kips
B	SOIL ANCHOR (FOR WIRE/MESH)	4" MIN	1"	8'	63° FROM HORIZONTAL	0	14'	5.6Kips
C	ROCK DOWEL (FOR CONCRETE)	4" MIN	1"	5'	45° FROM HORIZONTAL	10 (MIN.)	0	0

PROJECT NAME: HIGHGATE
 PROJECT NUMBER: STP 0297(8)
 FILE NAME: s10c218det.dgn
 PROJECT LEADER: K. HIGGINS
 DESIGNED BY: J. SALVATORI
 DETAIL SHEET - 1
 PLOT DATE: 24-JAN-2013
 DRAWN BY: J. SALVATORI
 CHECKED BY: W. LAMMER
 SHEET 15 OF 20



TYPE B ANCHOR HEAD DETAIL
NOT TO SCALE



**TYPICAL SOIL ANCHOR
FOR WIRE MESH
(TYPE B ANCHOR)**
NOT TO SCALE

NOTES:

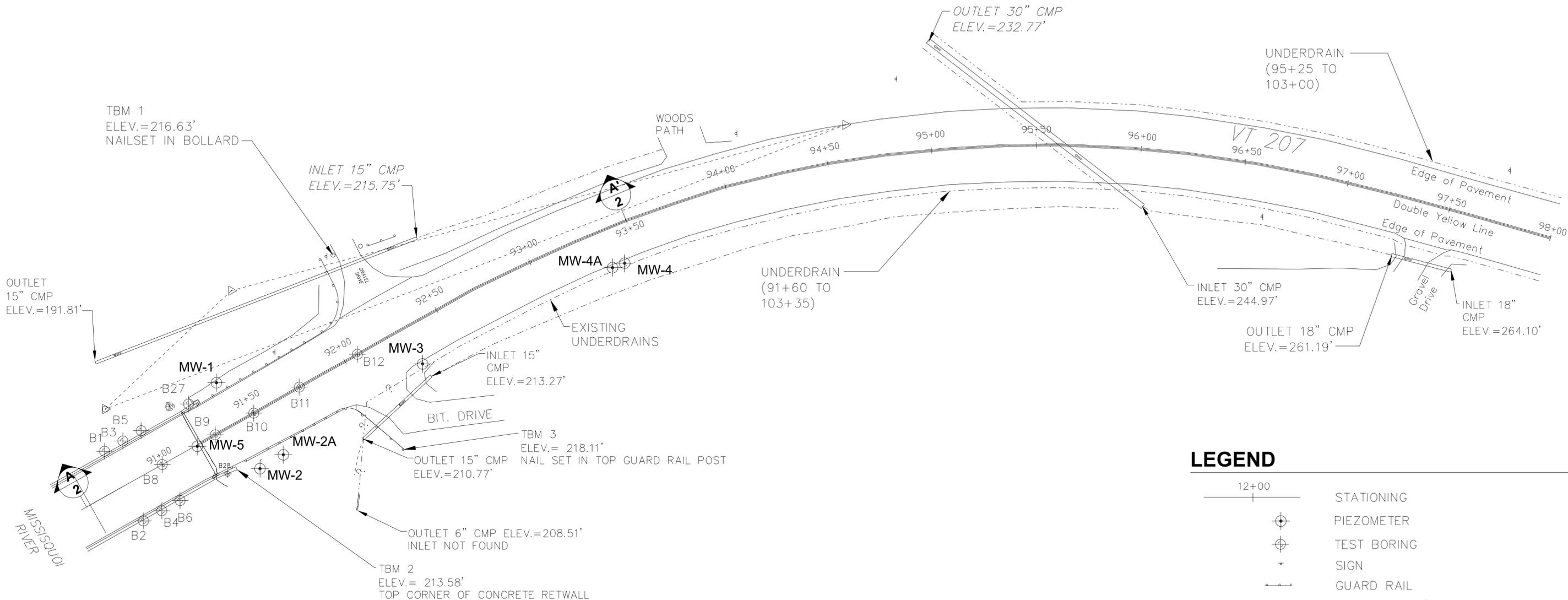
- SEE TABLE I ON DETAIL SHEET - 1 FOR ANCHOR PARAMETERS.

PROJECT NAME: HIGHGATE	PLOT DATE: 24-JAN-2013
PROJECT NUMBER: STP 0297(8)	DRAWN BY: J. SALVATORI
FILE NAME: s10c218det.dgn	DESIGNED BY: J. SALVATORI
PROJECT LEADER: K. HIGGINS	CHECKED BY: B. LAMMER
DETAIL SHEET - 2	SHEET 16 OF 20

REFERENCE

1.) BASE PLAN WAS PROVIDED BY CLD CONSULTING ENGINEERS, INC., TITLED "HIGHWAY 2007 AND MISSISQUOI RIVER EMBANKMENT SURVEY WORKSHEET", DATED AUGUST 2008.

2.) UNDERDRAIN LAYOUT WAS OBTAINED FROM DRAWINGS ENTITLED, "RECORD PLANS-MATERIAL" DATED 1975, PROVIDED BY VTRANS.



NOTES

1.) THE APPROXIMATE STATIONING SHOWN WAS OBTAINED FROM VAOT RECORD PLANS.

1) THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS OF A PORTION OF THE MISSISQUOI RIVER EMBANKMENT AND HIGHWAY 207 AS SHOWN HEREON.

2) THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY PERFORMED ON THE GROUND DURING JULY 2008.

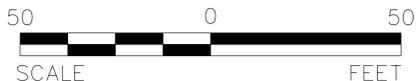
3) BASIS OF BEARING IS VT GRID NORTH.

4) HORIZONTAL DATUM IS NAD83/07 AND VERTICAL DATUM IS NAVD88.

**FOR INFORMATIONAL PURPOSES ONLY
NOT FOR CONSTRUCTION**

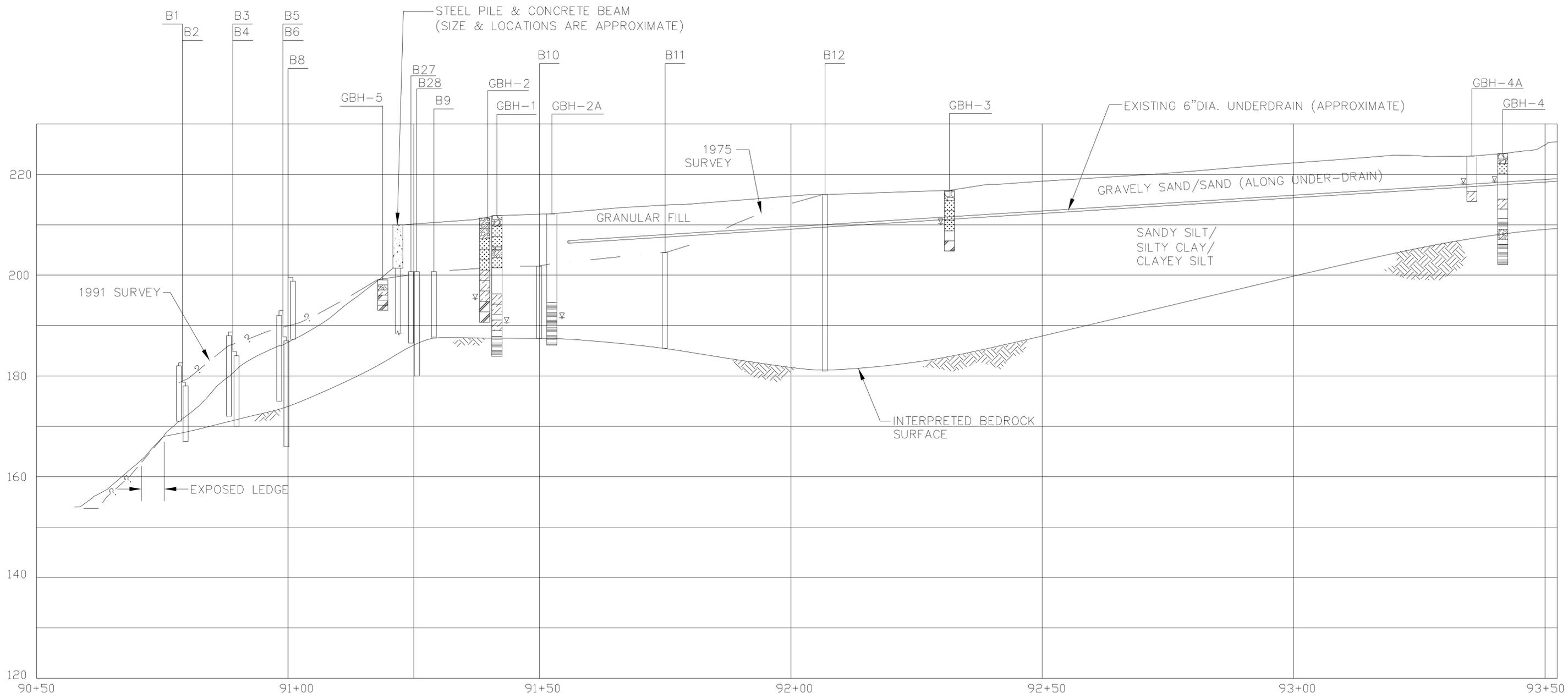
LEGEND

	STATIONING
	PIEZOMETER
	TEST BORING
	SIGN
	GUARD RAIL
	UNDERDRAIN (APPROX.)
	ASSUMED UNDERDRAIN
	CROSS SECTION LOCATION



BORING & MONITORING LAYOUT SHEET

PROJECT NAME:	HIGHGATE	PLOT DATE:	24-JAN-2013
PROJECT NUMBER:	STP 0297(8)	DRAWN BY:	MIKE BOISVERT
FILE NAME:	cl0c2l8lay.dgn	DESIGNED BY:	MAHENDRA THILLIYAR
PROJECT LEADER:	K. HIGGINS	CHECKED BY:	-----
BORING & MONITORING LAYOUT SHEET		SHEET	17 OF 20



SOIL LITHOLOGY GRAPHICS LEGEND

	A-1-b	Gr-Sa
	A-4	Cl-Si
	A-3	Sa
	A-6	Si-Cl
	A-2-4	Sa-Si-Gr
	LIMESTONE	

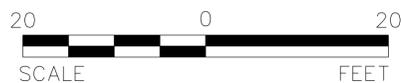
	2008 SURVEY
	1991 SURVEY
	ASSUMED PROFILES
	1975 SURVEY

NOTES

- 1.) INFORMATION FROM THE BORINGS IS PROJECTED TO CENTERLINE OF THE ROAD TO CREATE THIS PROFILE.
- 2.) PIEZOMETERS (MH-1 THROUGH MH-5) INSTALLED AT GBH SERIES BORINGS.
- 3.) BORINGS B1 THROUGH B6 WERE COMPLETED IN APRIL 1991. B8, B9, B10, B11, B12, B27 AND B28 WERE COMPLETED IN 1975 AND GBH-1 THROUGH GBH-5 WERE COMPLETED IN JULY 2008.
- 4.) UNDER-DRAIN LOCATIONS / DEPTHS WERE OBTAINED FROM DRAWINGS ENTITLED "RECORD PLANS - MATERIAL" DATED 1975, PROVIDED BY VTRANS.

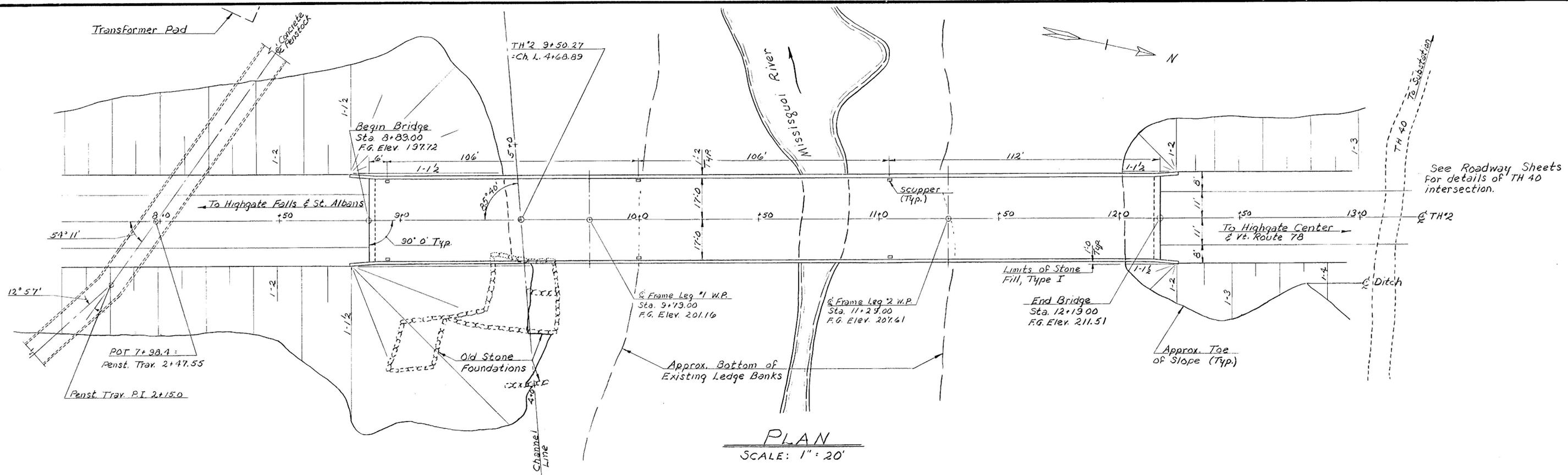
A SECTION A-A'

**FOR INFORMATIONAL PURPOSES ONLY
NOT FOR CONSTRUCTION**

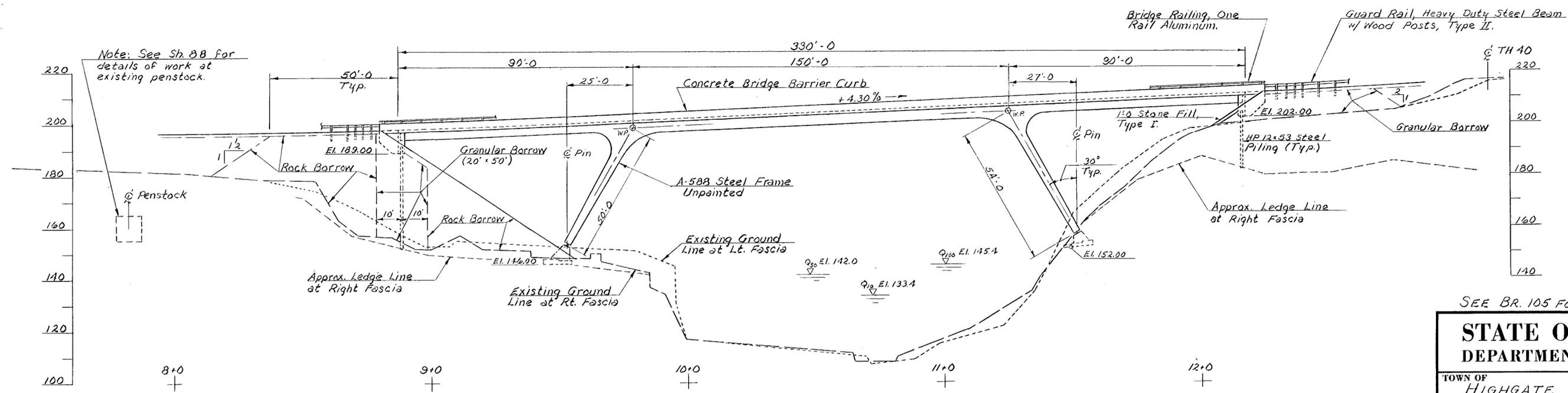


SUBSURFACE PROFILE

PROJECT NAME: HIGHGATE	PLOT DATE: 24-JAN-2013
PROJECT NUMBER: STP 0297(8)	DRAWN BY: MIKE BOISVERT
FILE NAME: 07386908B008.dwg	DESIGNED BY: MAHENDRA THILLIYAR
PROJECT LEADER: K. HIGGINS	CHECKED BY: -----
SUBSURFACE PROFILE	SHEET 18 OF 20



PLAN
SCALE: 1" = 20'

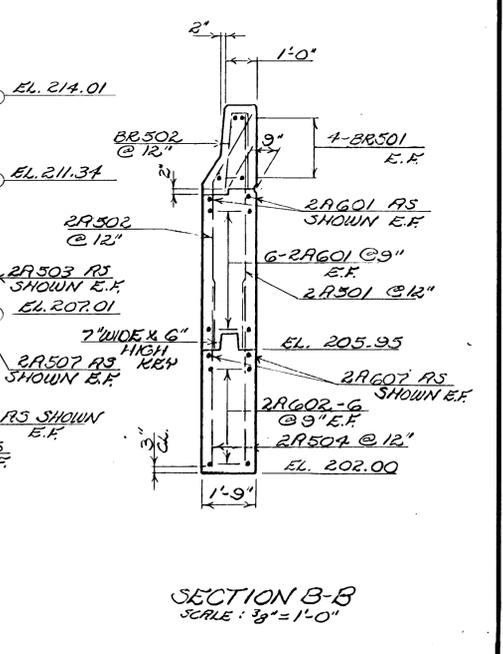
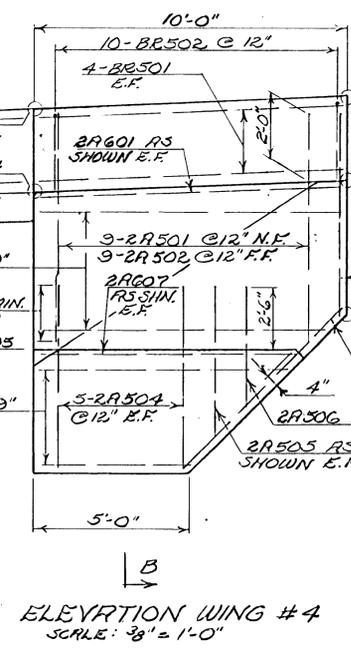
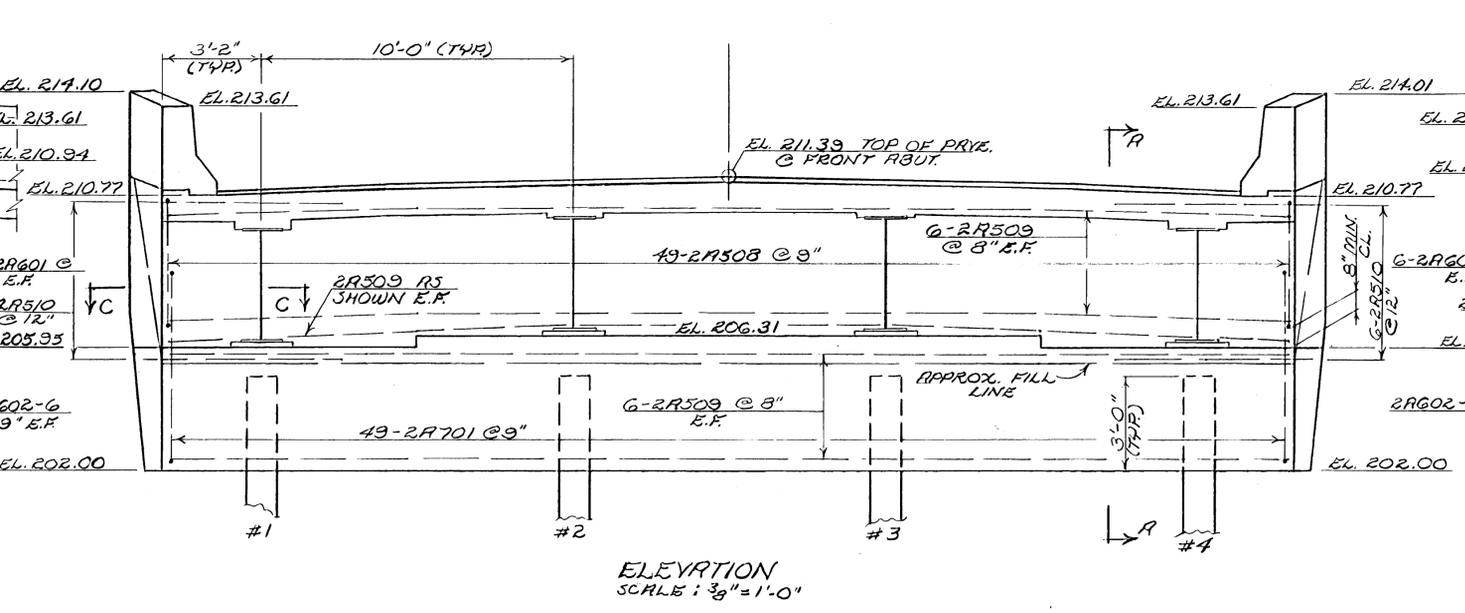
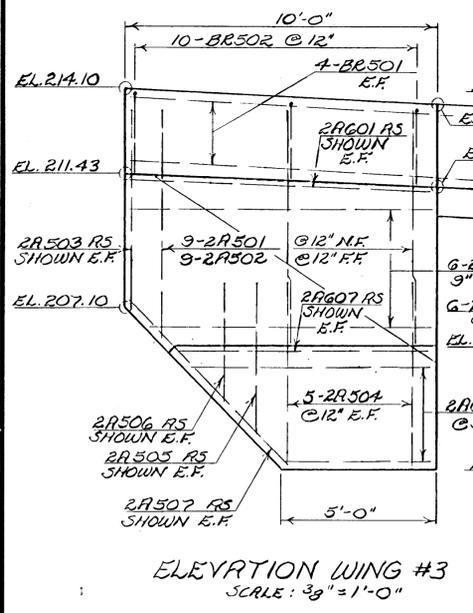
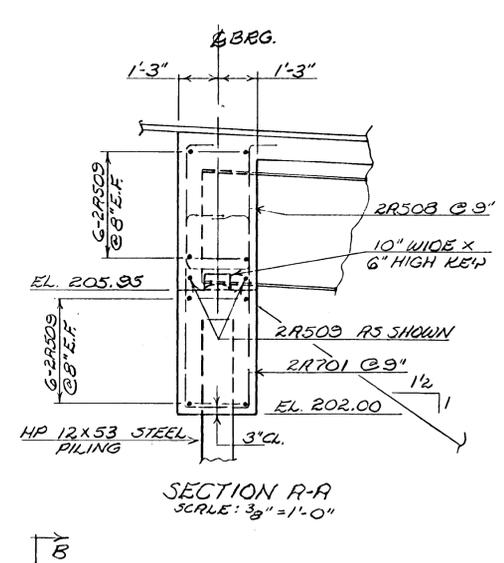
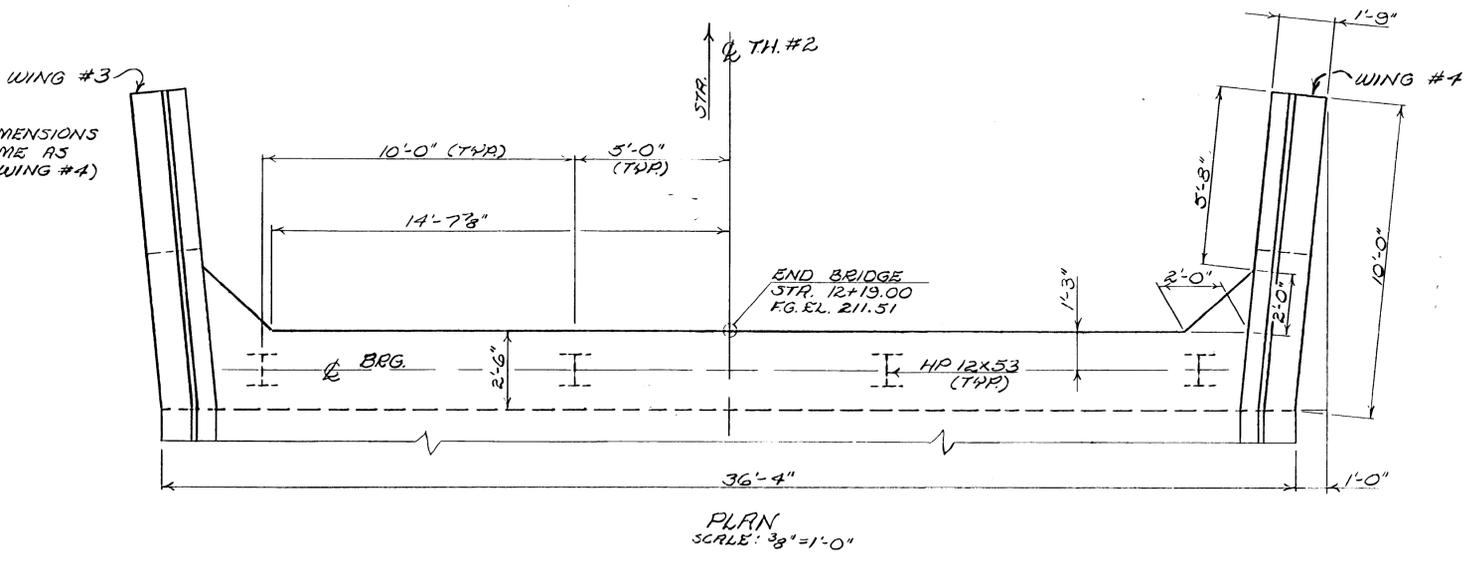
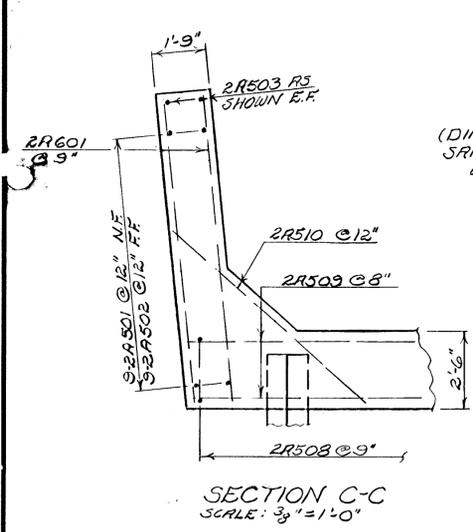


ELEVATION @ RT. FASCIA
SCALE: 1" = 20'

HIGHGATE STP 0297(8)
SHEET 19 OF 20
FOR INFORMATION ONLY

SEE BR. 105 FOR GENERAL NOTES

STATE OF VERMONT DEPARTMENT OF HIGHWAYS	
TOWN OF HIGHGATE	Bridge No. 8
HIGHWAY NO. CL. 2, TH. 2	Log Sta.
	Surv. Sta. 10+50±
TH. 2 OVER MISSISQUOI RIVER PLAN & ELEVATION	
Designed by W. TRIPP	Drawn by W. TRIPP
Checked by D. PERKINS date 1-75	Bridge Design Supervisor J. WOOD date
PROJECT HIGHGATE	PROJECT NO. BRS-0297(6)SA
Bridge Sheet No. 102	Sheet 19 of 104



LOCATION	NO. PILES	SIZE	ESTIMATED LENGTH OF PILES	SPLICES ESTIMATED FOR PILES EXCEEDING PLAN LENGTH (TO BE PRID FOR ONLY IF USED)
ABUT.#1	4	HP 12x53	45'	1
ABUT.#2	4	HP 12x53	25'	1

PILING TABLE

1. ALL PILES TO HAVE REINFORCED TIPS
2. FOR ABUTMENT NOTES SEE BR. 113.

HIGHGATE STP 0297(8)
SHEET 20 OF 20
FOR INFORMATION ONLY

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF HIGHGATE Bridge No. 8
 HIGHWAY NO. CL. 2 T.H. #2 Log Sta.
 T.H. #2 OVER MISSISQUOI RIVER Surv. Sta. 10+50±

ABUTMENT #2 DETAILS
 Designed by W. TRIPP Drawn by J. WEYER
 Checked by J. WEYER Bridge Design Supervisor
W. TRIPP date J. WOOD date

PROJECT HIGHGATE PROJECT NO. BR5 0297 (6) SR
 Bridge Sheet No. 114 Sheet 31 of 104

ASPHALTIC PLUG JOINT NOTES

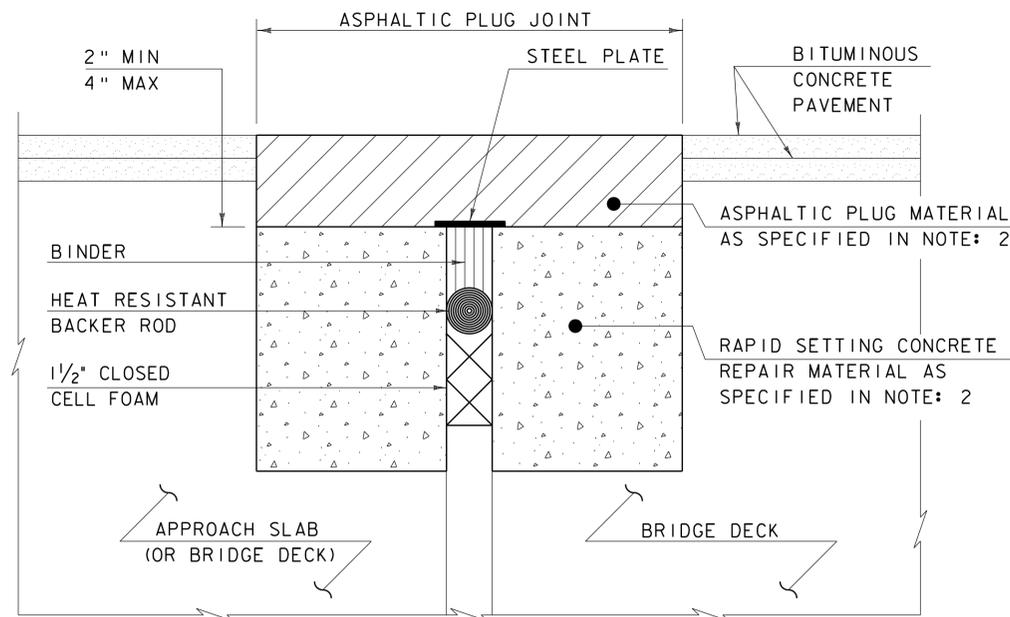
INSTALLATION:

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT, MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNEUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.
3. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
4. REPAIR MATERIAL GREATER THAN 4 INCHES FROM FINISHED GRADE WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.
5. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
6. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
7. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.
8. HEAT AND MIX THE BINDER MATERIAL AND AGGREGATE AS RECOMMENDED BY THE MANUFACTURER.
9. INSTALLATION OF MATERIAL, COMPACTION, AND TOP COATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
10. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.
11. ONCE THE JOINT REACHES 82 DEG C (180 DEG F) +/-, WATER MAY BE USED TO EXPEDITE THE COOLING PROCESS.
12. PROTECT JOINT FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 51 DEG C (125 DEG F) +/-.

WEATHER LIMITATIONS

APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

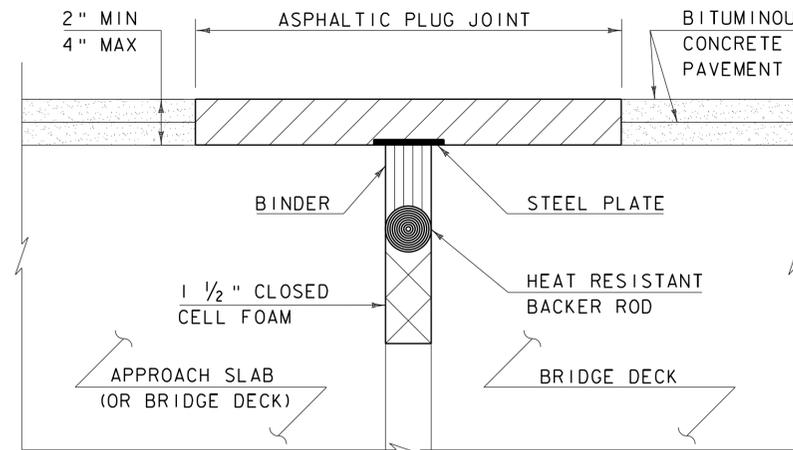
1. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.
2. THE ROAD SURFACE IS DRY.
3. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.



ASPHALTIC PLUG-TYPE JOINT DETAIL - REHAB

NOTES: (NOT TO SCALE)

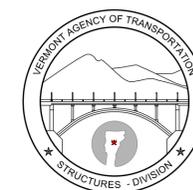
1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL BE INCLUDED IN THE BID PRICE OF ITEM 580.20 RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE.
2. THE CONTRACTOR SHALL REPLACE REMOVED MATERIAL THAT IS LESS THAN 4" FROM FINISHED GRADE WITH ASPHALTIC PLUG JOINT MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 707.15. ALL REMOVED MATERIAL THAT IS GREATER THAN 4 INCHES FROM FINISHED GRADE SHALL BE REPLACED WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.
3. REINFORCING STEEL NOT SHOWN FOR CLARITY.



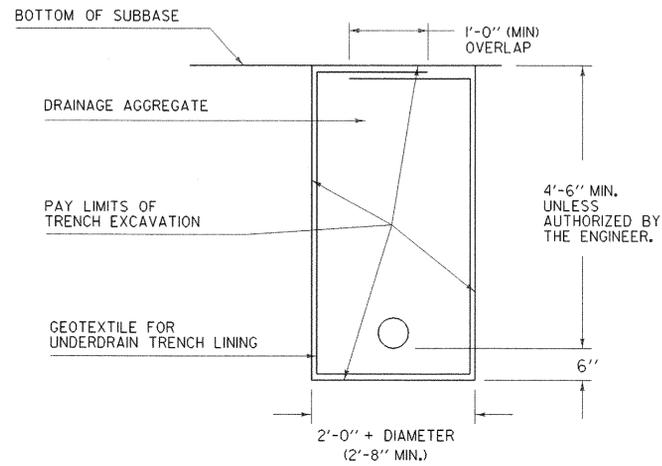
ASPHALTIC PLUG-TYPE JOINT DETAIL - NEW
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION

BRIDGE JOINT
ASPHALTIC PLUG

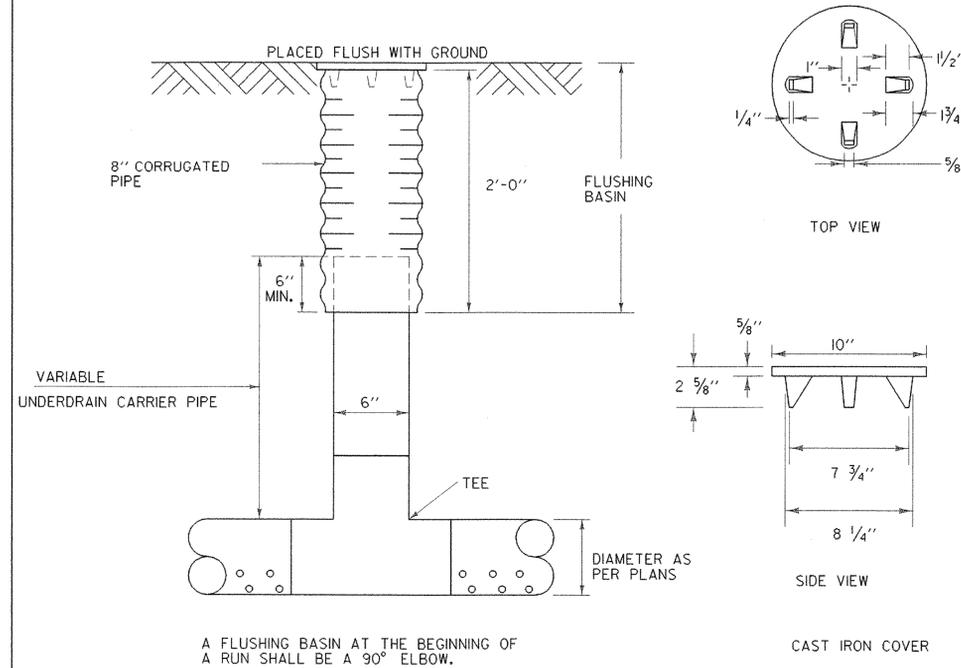


STRUCTURES
DETAIL
SD-516.10

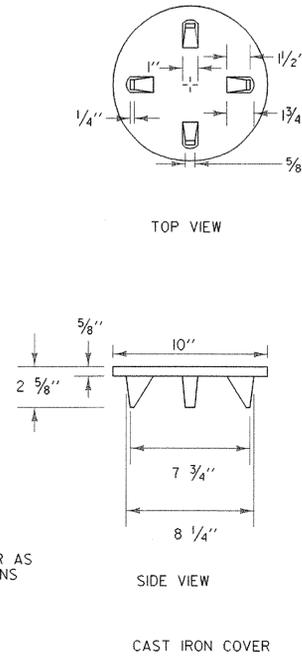


DRAINAGE AGGREGATE SHALL MEET THE REQUIREMENTS OF SECTION 704.

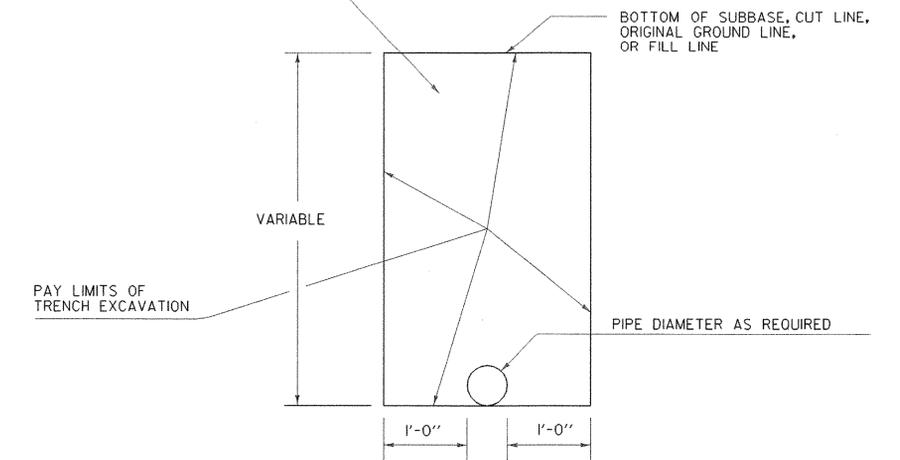
UNDERDRAIN



UNDERDRAIN FLUSHING BASIN

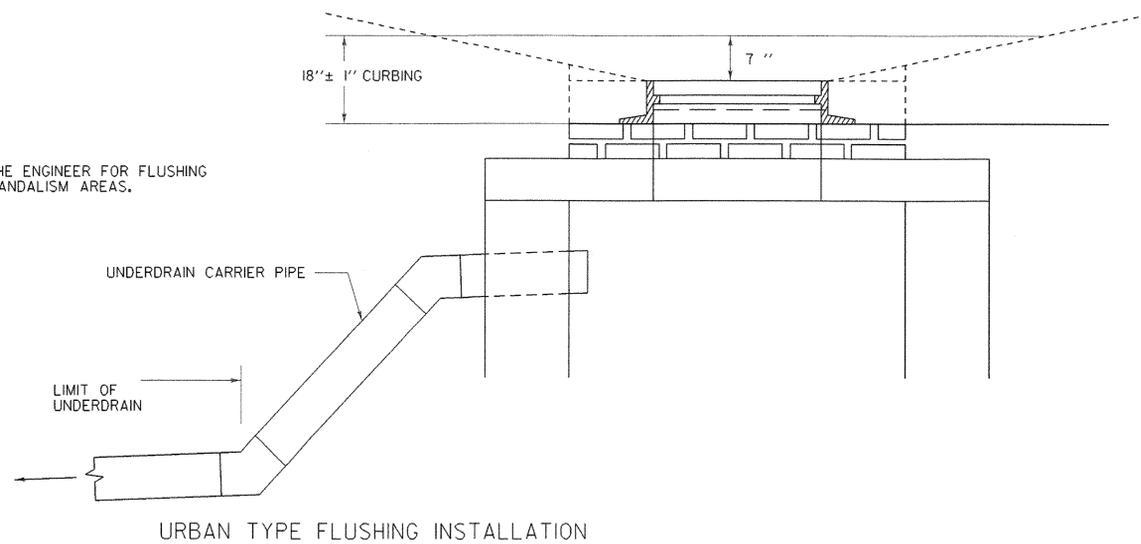


BACKFILL SHALL BE FROM EXCAVATION, SUITABLE MATERIAL OR AS DIRECTED BY THE ENGINEER

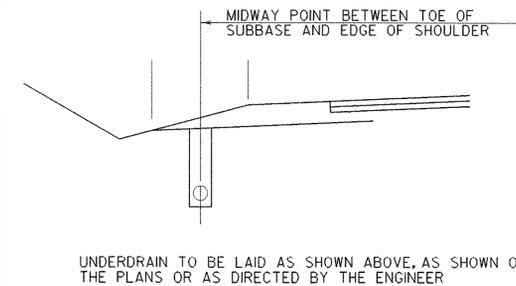


UNDERDRAIN CARRIER PIPE

TO BE USED AS SHOWN OR AS DIRECTED BY THE ENGINEER FOR FLUSHING IN AREAS OF LAWNS, SCHOOLS, AND POSSIBLE VANDALISM AREAS.



URBAN TYPE FLUSHING INSTALLATION



UNDERDRAIN LOCATION

GENERAL NOTES

1. GRADE FOR UNDERDRAIN PIPE SHALL BE PARALLEL WITH THE GRADE OF THE ROAD UNLESS OTHERWISE SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
2. THE UNDERDRAIN SHALL BE TAKEN TO A PROPER OUTLET AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
3. ELBOWS, T'S, AND OTHER JUNCTION UNITS NECESSARY FOR PROPER INSTALLATION OF THE UNDERDRAIN, AS DIRECTED BY THE ENGINEER, SHALL BE INCLUDED IN THE UNIT BID PRICE FOR UNDERDRAIN OR CARRIER PIPE.
4. A YIELDING MARKER POST SHALL BE PLACED NEXT TO THE FLUSHING BASIN OR AS DIRECTED BY THE ENGINEER.

NOT TO SCALE

REVISIONS AND CORRECTIONS
AUG 13, 2007 - ORIGINAL APPROVAL DATE

APPROVED

Kim A. Marheis
ROADWAY, TRAFFIC & SAFETY ENGINEER
Richard F. Schaub
DIRECTOR OF PROGRAM DEVELOPMENT
Mark D. Richter
FEDERAL HIGHWAY ADMINISTRATION

UNDERDRAIN CONSTRUCTION DETAILS



STANDARD
D - 30

NOTES CONT.

MAINTENANCE

SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED, OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

GENERAL

THE COST OF FURNISHING, INSTALLING, MAINTAINING AND REMOVING ALL CONSTRUCTION APPROACH SIGNS WILL BE CONSIDERED INCIDENTAL WORK PERTAINING TO THE PROJECT AS A WHOLE AND SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR VARIOUS ITEMS INVOLVED IN THE CONTRACT. DURING ALL PHASES OF CONSTRUCTION THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE MET.

SIGN COVERS

SIGN COVERS SHALL CONSIST OF A PANEL PAINTED FLAT BLACK, THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.

CONTRACTORS SHALL COORDINATE THEIR SIGNING ACTIVITIES WITH OTHER CONTRACTORS WITHIN THE PROJECT LIMITS, AS DIRECTED BY THE REGIONAL CONSTRUCTION ENGINEER.

SIGN POSTS

WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARD RAIL OR OTHER APPROVED TRAFFIC BARRIERS, THE POSTS ON WHICH THE SIGNS ARE MOUNTED SHALL BE YIELDING METAL POSTS AS DESIGNATED IN THE E SERIES OF STANDARD DRAWINGS OR YIELDING WOODEN POSTS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

WOODEN POSTS ARE ACCEPTABLE FOR USE WITH CONSTRUCTION SIGNS. THESE POSTS SHALL HAVE A UNIFORM CROSS-SECTION AND SHALL BE MADE FROM GRADE 2, AIR-DRIED SOUTHERN YELLOW PINE OR ANOTHER EQUIVALENT SOFTWOOD. AN ACCEPTABLE EQUIVALENT SOFTWOOD SHALL HAVE AN EXTREME FIBER IN BENDING "FB" DESIGN VALUE NOT TO EXCEED 1400 PSI AND HORIZONTAL SHEAR "FV" DESIGN VALUE NOT TO EXCEED 90 PSI SPECIFICATION. "DESIGN VALUES FOR WOOD CONSTRUCTION" AND RELATED SUPPLEMENT, LATEST EDITION.

AS ESTABLISHED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION IN THEIR NATIONAL DESIGN. THE FOLLOWING ARE CONSIDERED TO BE ACCEPTABLE WOODEN POSTS:

- 1. 4" X 4" (ACTUAL DIMENSIONS ARE S4S 3.5" X 3.5")
- A) ACCEPTABLE FOR SINGLE OR DUAL POSTS INSTALLATION WITH NO MODIFICATIONS.

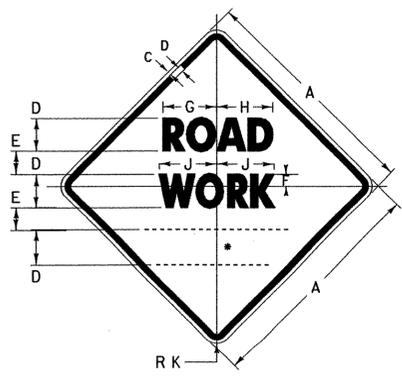
ALL WOODEN POSTS SHALL HAVE AN EMBEDMENT DEPTH OF 4 FEET. NO CROSS-BRACING OR BACK-BRACING TO KEEP THE POSTS PLUMB WILL BE ALLOWED. CONCRETE FOUNDATIONS, COLLARS, OR SOIL BEARING PLATES ARE NOT PERMITTED. CONSTRUCTION SIGNS SHALL BE PLACED ON TWO OR MORE POSTS WHEN ANY OF THE FOLLOWING CONDITIONS GOVERN:

- A) THE SIGN WIDTH (HORIZONTAL DIMENSIONS FOR DIAMOND SHAPED SIGNS) EXCEEDS 3 1/2 FEET.
- B) THE EXPOSED SIGN AREA OF ANY SINGLE SIGN OR ASSEMBLY EXCEEDS 7 SQ. FEET.
- C) THE Sv OF A SINGLE POST IS 64.

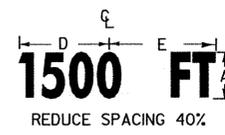
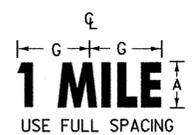
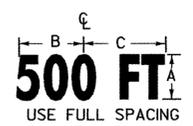
OTHER STDS. REQUIRED: E-100A, E-101, E-102



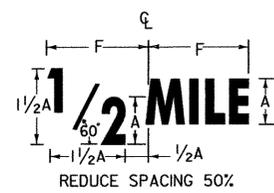
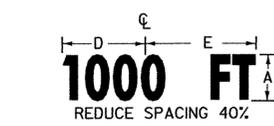
**STANDARD
E-100**



W20-1
• SEE DISTANCE DETAILS



1500 FT
REDUCE SPACING 40%



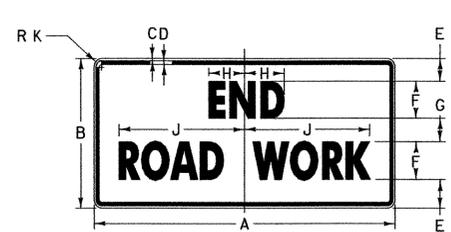
AHEAD
USE FULL SPACING

DISTANCE DETAILS

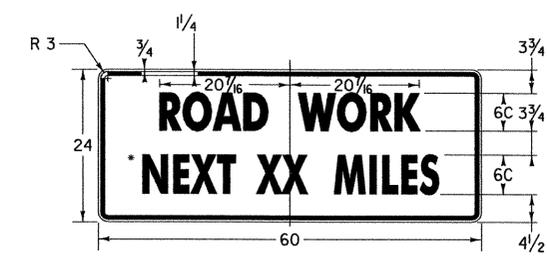
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN.	36	3/8	7/8	5D	3 1/2	3 1/4	8 3/8	8 7/8	9	2 1/4
STD.	48	3/4	1 1/4	7D	4 3/4	4 1/2	11 1/8	12 1/8	12 5/8	3

DIMENSIONS (INCHES)							
A	B	C	D	E	F	G	H
5D	10 3/16	10 3/16	11 5/8	11 1/4	11 1/4	9 1/2	10 7/8
7D	14 1/4	15 1/8	14 7/8	15 3/4	15 3/4	13 1/16	15 1/2

(ALL DIMENSIONS SHOWN IN INCHES)



G20-2A



G20-1

• OPTICALLY CENTER

THIS SIGN TO BE USED WHEN PROJECT LENGTH EXCEEDS 2 MILES OR AS REQUESTED BY THE RESIDENT ENGINEER. SHOW MILEAGE TO NEAREST 1/4 MILE USING FRACTIONS, NOT DECIMALS. HAND LETTERING OF MILEAGE WILL NOT BE ALLOWED.

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	
MIN.	36	18	3/8	7/8	3 3/4	4C	2 1/2	4	12 5/8	2 1/4	
STD.	48	24	3/4	1 1/4	4 1/8	6C	3 3/4	5 7/8	22	3	

NOTES

THE SIGNS SHOWN ON THIS SHEET ARE INTENDED FOR USE IN PROVIDING ADVANCE WARNING AND INFORMATION ON CONSTRUCTION PROJECTS OVER WHICH TRAFFIC WILL BE MAINTAINED. WHEN ADDITIONAL APPROACH SIGNS OR OTHER TYPES OF ADVANCE SIGNING OR CONTROL ARE NECESSARY, THE PLANS AND/OR THE SPECIFICATIONS FOR THAT PROJECT WILL GIVE THE DETAILS OF THE SIGNS AND DEVICES REQUIRED. FOR ON-PROJECT CONSTRUCTION SIGNS, REFER TO APPROPRIATE STANDARD SHEETS.

APPLICATION OF STANDARDS

SINCE IT IS NOT POSSIBLE TO PRESCRIBE DETAILED STANDARDS OF APPLICATION FOR ALL OF THE SITUATIONS THAT MAY CONCEIVABLY ARISE ON A CONSTRUCTION PROJECT, REFERENCE SHALL BE MADE TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" FOR THE PRINCIPLES, PROCEDURES, AND STANDARDS THAT WILL BE REQUIRED IN CONNECTION WITH ADVANCED WARNING AND ON-PROJECT CONSTRUCTION SIGNS AND BARRICADES. THE SIGNS SHOWN IN E-101 AND E-102 REPRESENT A SAMPLE OF THOSE MORE COMMONLY USED.

LOCATION

THE SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET OR AS OTHERWISE SHOWN ON THE PLANS. THEY SHALL APPEAR AT EACH END OF THE HIGHWAY UNDER CONSTRUCTION AND ON ALL INTERSECTING PUBLIC HIGHWAYS. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

DESIGN

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD HIGHWAY SIGNS BOOK" AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION (FHWA).

MATERIALS

THE SIGN BASE MATERIAL USED FOR THE SIGNS ON THIS SHEET MAY BE ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED.
 FLAT SHEET ALUMINUM 0.125 INCHES
 HIGH DENSITY OVERLAYED PLYWOOD 5/8 INCHES

REFLECTORIZATION

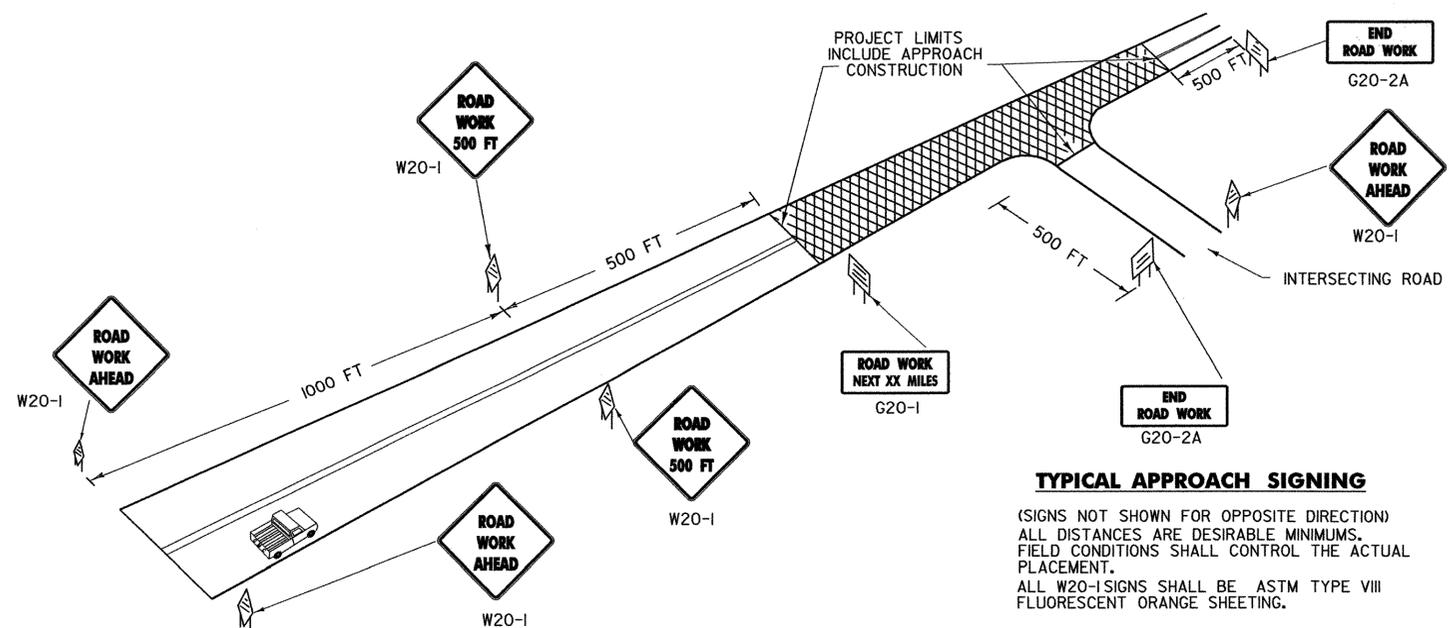
ALL LEAD SIGNS (W20-1) ON THIS SHEET SHALL BE ASTM TYPE VIII FLUORESCENT ORANGE SHEETING. ALL OTHER SIGNS ON THIS SHEET SHALL BE ASTM TYPE III RETROREFLECTORIZED SHEETING.

COLORS

THE COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY AASHTO AND APPROVED BY THE FHWA. COLORS SHOWN ON THIS SHEET CONSIST OF BLACK TEXT AND BORDER ON A RETROREFLECTORIZED ASTM TYPE III OR TYPE VIII ORANGE BACKGROUND.

INSTALLATION

THE SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY, OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON POSTS SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST 7 FEET ABOVE THE EDGE OF PAVEMENT, AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT, 4 FEET OUTSIDE GUARD RAIL, OR 2 FEET OUTSIDE CURBING, OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER, IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST 7 FEET ABOVE THE SIDEWALK. SIGNS MAY BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.



TYPICAL APPROACH SIGNING

(SIGNS NOT SHOWN FOR OPPOSITE DIRECTION)
 ALL DISTANCES ARE DESIRABLE MINIMUMS.
 FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
 ALL W20-1 SIGNS SHALL BE ASTM TYPE VIII FLUORESCENT ORANGE SHEETING.

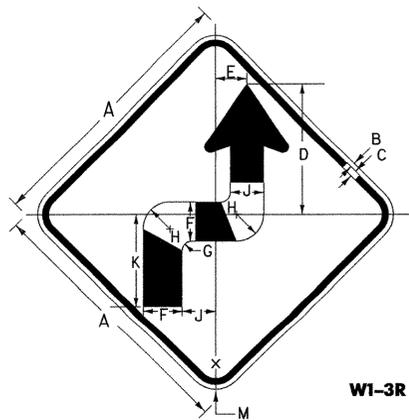
REVISIONS AND CORRECTIONS

- MAY 26, 1989 - DATE OF ORIGINAL ISSUE
- OCT 21, 1992 - REVISED WOOD POST REQUIREMENTS, ADDED SIGN DETAILS, & REVISED TITLE BLOCK
- AUG. 08, 1995 - MINOR NOTE REVISIONS
- JAN. 06, 1997 - MINOR NOTE AND DIMENSION REVISIONS
- JAN. 2, 2004 - CHANGED REFLECTIVE SHEETING TO ASTM TYPE III OR TYPE VIII

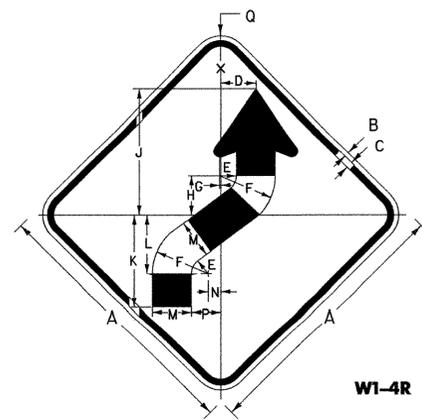
APPROVED

DIRECTOR OF PROGRAM DEVELOPMENT
 TRAFFIC OPERATIONS ENGINEER
 FEDERAL HIGHWAY ADMINISTRATION

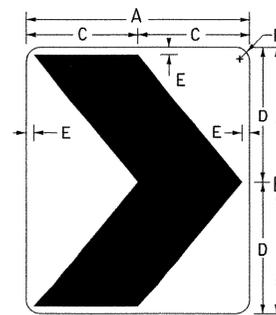
**CONSTRUCTION APPROACH
SIGNS**



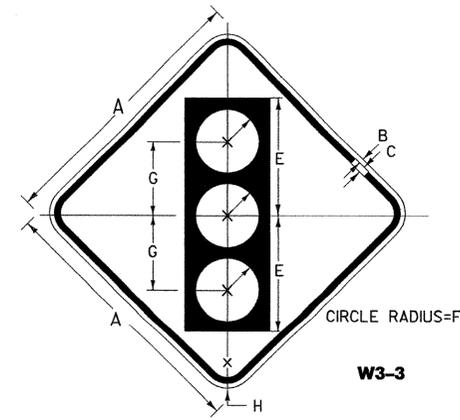
W1-3R



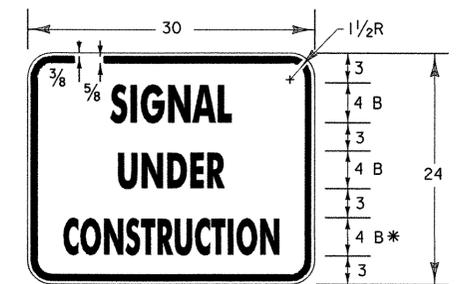
W1-4R



W1-8



W3-3



* REDUCE SPACING 50%

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	
STD. & MIN.	36	5/8	7/8	17 1/16	4 1/32	5 1/4	1 1/4	3 5/8	4 1/2	12 5/32	1 7/32	2 1/4	
SPECIAL	48	3/4	1 1/4	23 3/16	5 5/8	7	1 5/8	4 7/8	6	16 5/8	2 3/16	3	

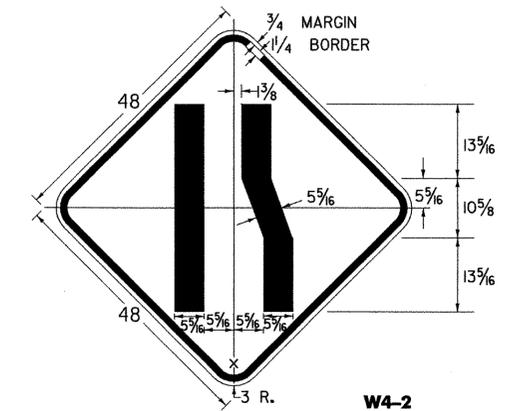
SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	
STD. & MIN.	36	5/8	7/8	4 2/32	2 1/4	7 1/2	5 3/2	5 1/4	16 7/8	12 3/8	7 7/8	5 1/4	1 1/16	3 15/16	2 1/4	
SPECIAL	48	3/4	1 1/4	6 5/16	3	10	3 1/6	7	22 1/2	16 1/2	10 1/2	7	2 1/4	5 1/4	3	

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD.	18	24	9	12	3/4	1 1/2
SPECIAL	24	30	12	15	1	1 7/8
EXPWY. FRWY.	30	36	15	18	1	1 7/8
FRWY.	36	48	18	24	1 1/8	2 1/4

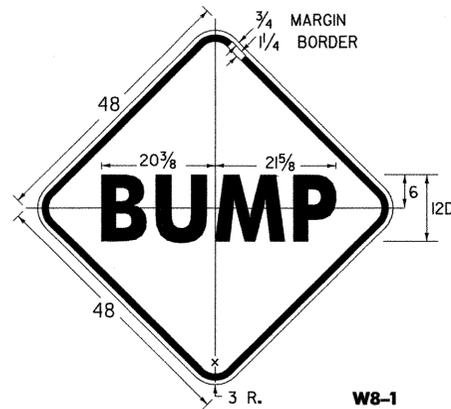
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
STD. & MIN.	36	5/8	7/8	5 3/4	15 3/4	4 1/4	10	2 1/4
SPECIAL	48	3/4	1 1/4	7 1/2	20	5	12 1/2	3

COLORS

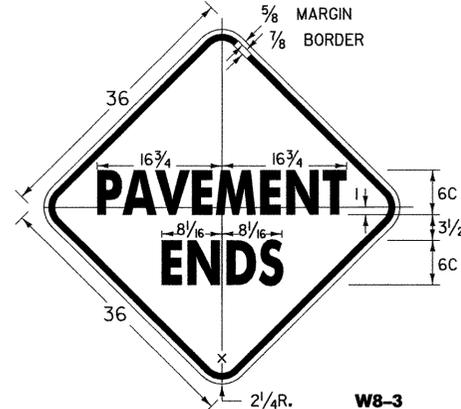
SYMBOL & LEGEND - BLACK (NON-REFL)
 BACKGROUND - ORANGE (REFL)
 TOP CIRCLE - RED (REFL)
 MIDDLE CIRCLE - YELLOW (REFL)
 BOTTOM CIRCLE - GREEN (REFL)



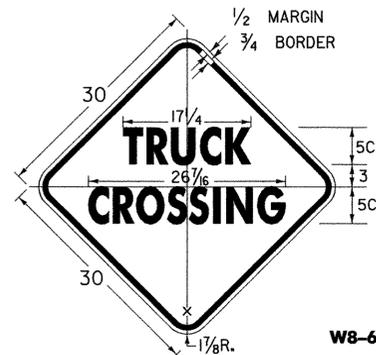
W4-2



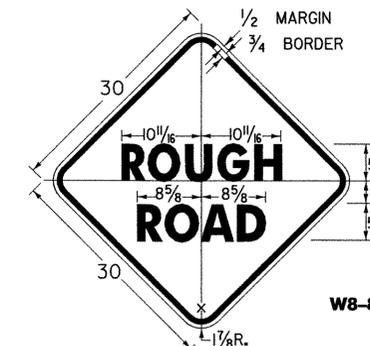
W8-1



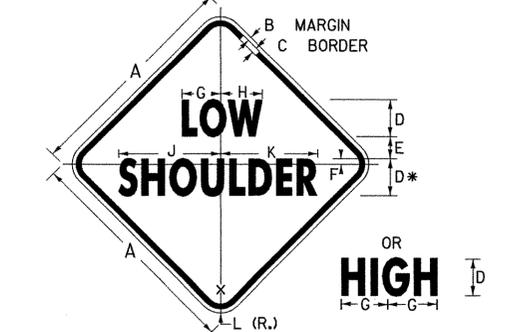
W8-3



W8-6



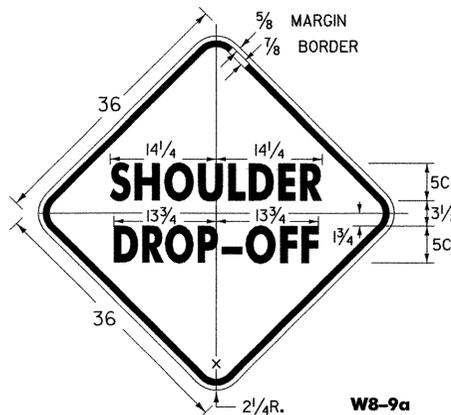
W8-8



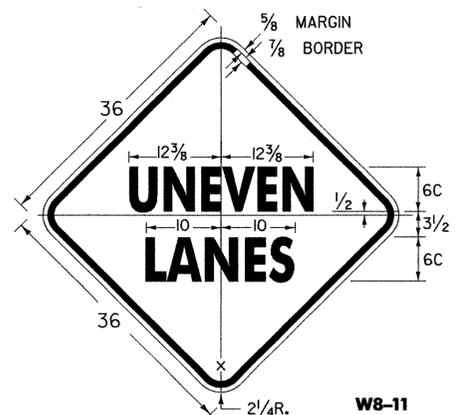
W8-9

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
STD.	30	1 1/2	3/4	5C	3	3/4	5 5/8	5 5/8	13 1/16	13 1/16	1 7/8
FRWY.	48	3/4	1 1/4	8C	5	1 1/4	8 1/4	9	21 5/8	20 5/8	3

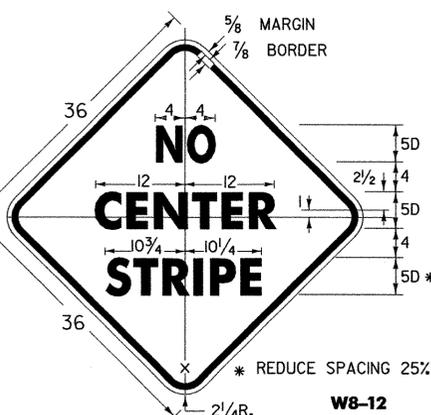
* REDUCE SPACING 25%



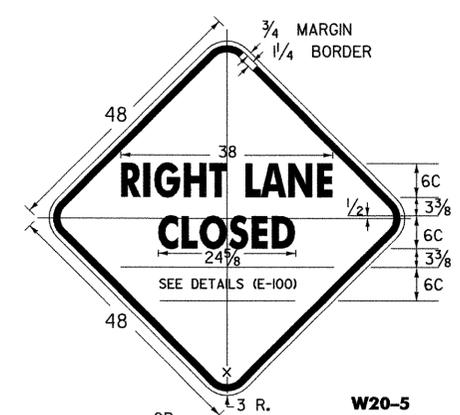
W8-9a



W8-11



W8-12



W20-5

(ALL DIMENSIONS SHOWN IN INCHES) LEFT LANE

OTHER STDS. E-100 REQUIRED:

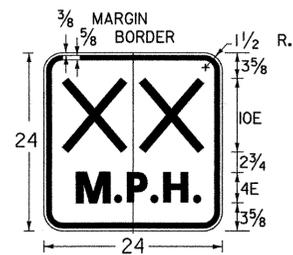
REVISIONS AND CORRECTIONS
 OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
 OCT. 21, 1992 - ADDED ADDITIONAL SIGN DIMENSIONS, REVISED CHEVRON BACKGROUND TO ORANGE, & REVISED TITLE BLOCK
 AUG. 08, 1995 - ADDED AND DELETED VARIOUS SIGN DETAILS
 MAR., 10 1997 - REVISED SIGN DETAILS
 MAY 30, 2003 - CHANGED REFLECTIVE SHEETING TO ASTM TYPE III OR TYPE VI

APPROVED
John H. Kell
 DIRECTOR OF PROGRAM DEVELOPMENT
 TRAFFIC OPERATIONS ENGINEER
Michael L. ...
 FEDERAL HIGHWAY ADMINISTRATION

CONSTRUCTION SIGN DETAILS

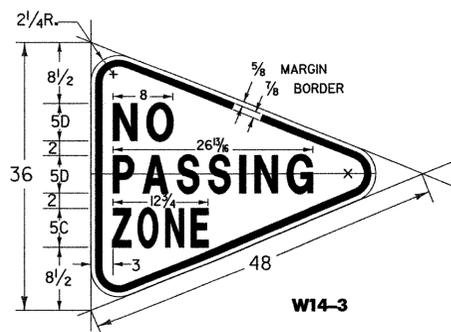


STANDARD E-101

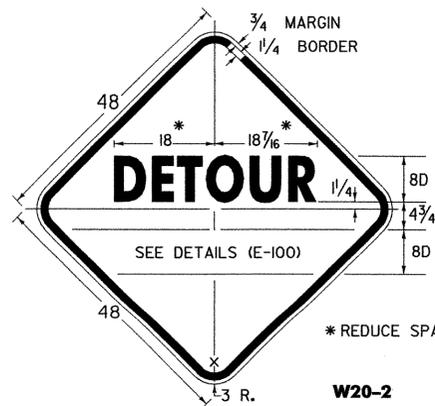


XX DENOTES ADVISORY SPEED AS SHOWN ON THE PLANS

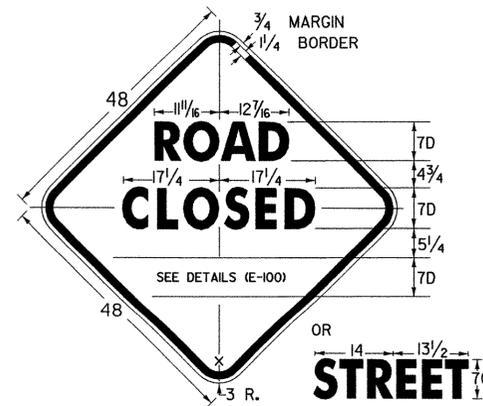
W13-1



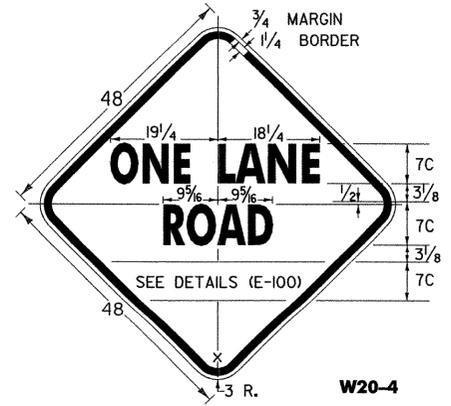
W14-3



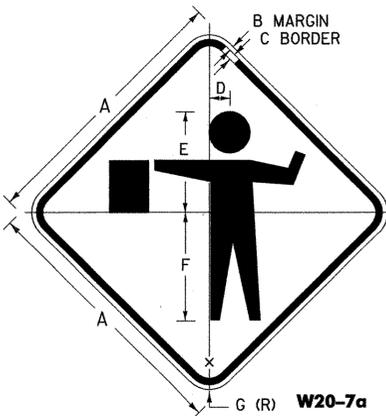
W20-2



W20-3



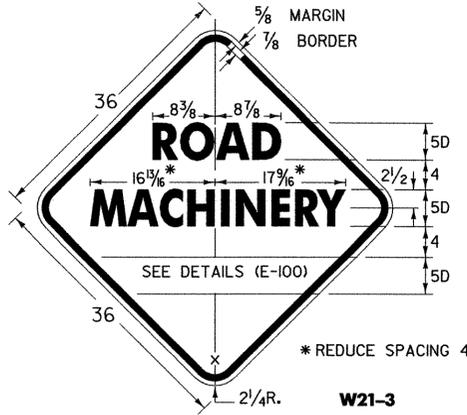
W20-4



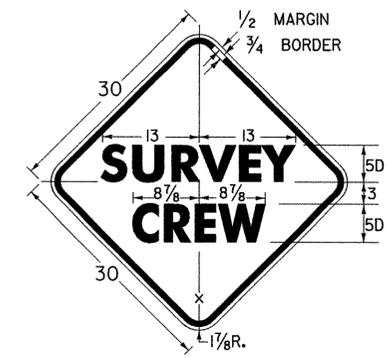
W20-7a



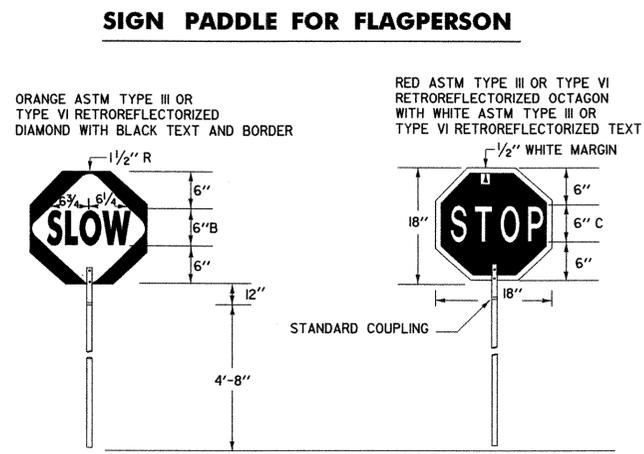
W20-7b



W21-3



W21-6



SIGN PADDLE FOR FLAGPERSON

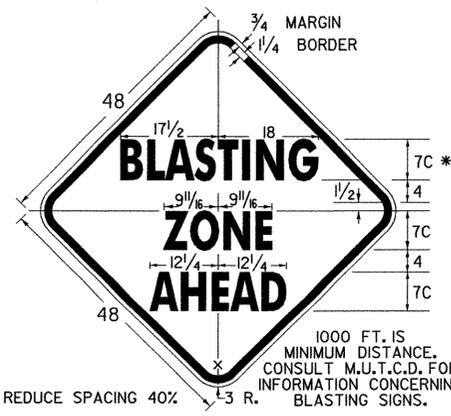
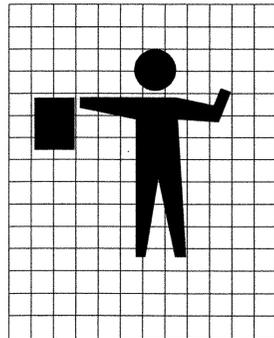
SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	F	G
STD.	36	5/8	7/8	2 3/4	13 1/2	14 5/8	2 1/4
FWY.	48	3/4	1 1/4	3 3/4	18	19 1/2	3

COLORS:
BLACK BORDER AND TEXT (NON RETRORFL.)
ORANGE BACKGROUND (RETRORFL.)

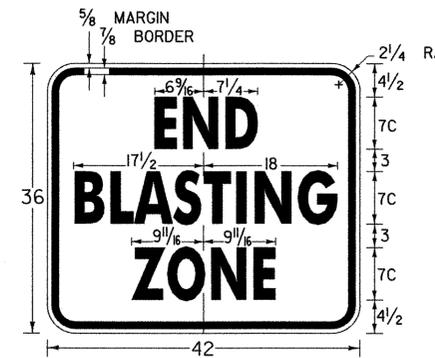
W3-4

COLORS:
BLACK BORDER AND TEXT (NON RETRORFL.)
YELLOW BACKGROUND (RETRORFL.)

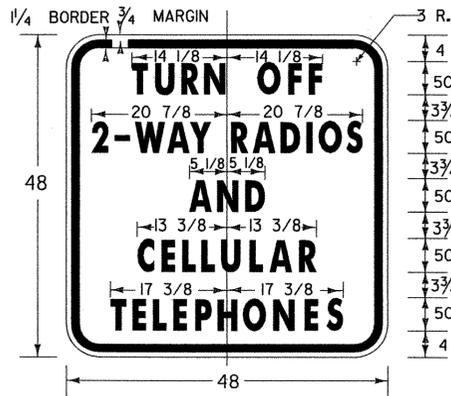
SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	
MIN.	36	5/8	7/8	6C	3 3/8	7/8	3 3/4	16 3/8	13	13 3/8	2 1/4	
STD.	48	3/4	1 1/4	8C	4 7/8	1 1/4	5	21 7/8	17 3/8	18 1/2	3	
EXPWY.	60	3/4	1 1/4	9C	5 3/8	1 3/8	5 5/8	24 3/4	19 3/8	20 1/4	3	



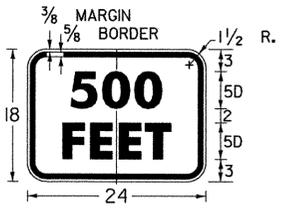
W22-1



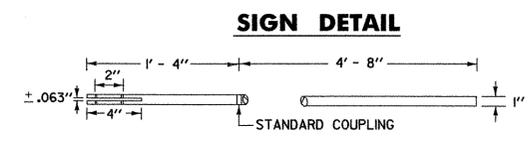
W22-3



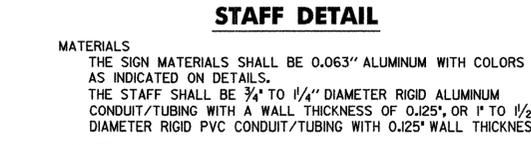
VW22-1



W16-2a



SIGN DETAIL



STAFF DETAIL

MATERIALS
THE SIGN MATERIALS SHALL BE 0.063" ALUMINUM WITH COLORS AS INDICATED ON DETAILS.
THE STAFF SHALL BE 3/4" TO 1 1/4" DIAMETER RIGID ALUMINUM CONDUIT/TUBING WITH A WALL THICKNESS OF 0.125", OR 1" TO 1 1/2" DIAMETER RIGID PVC CONDUIT/TUBING WITH 0.125" WALL THICKNESS

MOUNTING
THE STAFF SHALL BE MOUNTED WITH EITHER TWO 1/4" DIAMETER ALUMINUM BOLTS OR TWO 1/4" DIAMETER ALUMINUM RIVETS.

NOTES

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS
COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS ON ASTM TYPE III OR TYPE VI RETROREFLECTORIZED ORANGE BACKGROUND, UNLESS OTHERWISE NOTED
SIGN DETAILS INDICATE THE APPROPRIATE COLOR.

OTHER STDS. E-100 REQUIRED:
NOTE: ALL DIMENSIONS SHOWN IN INCHES EXCEPT WHERE NOTED

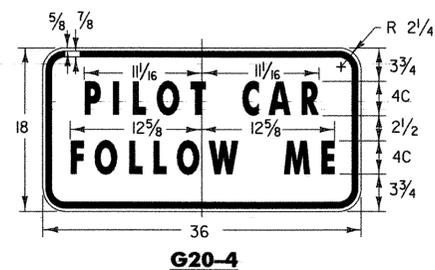
REVISIONS AND CORRECTIONS
OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - DELETE MOTORCYCLE SYMBOL SIGN AND SPEED SIGN, ADDED TWO SIGNS
OCT. 21, 1992 - ADDED A SIGN, REVISED A SIGN DIMENSION & TYPE ERROR & REVISED TITLE BLOCK
AUG. 08, 1995 - ADDED FLAGGER GRID
JUNE 30, 2003 - CHANGED REFLECTIVE SHEETING TO ASTM TYPE III OR TYPE VI CHANGED TEXT ON W20-7b SIGN

APPROVED
[Signature]
DIRECTOR OF PROGRAM DEVELOPMENT
[Signature]
TRAFFIC OPERATIONS ENGINEER
[Signature]
FEDERAL HIGHWAY ADMINISTRATION

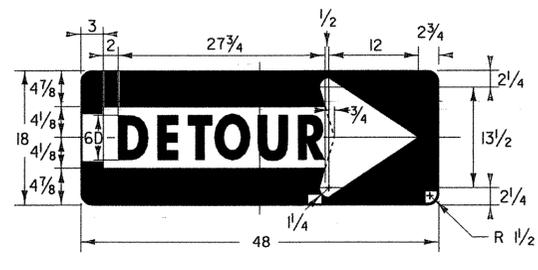
CONSTRUCTION SIGN DETAILS



STANDARD E-102



G20-4

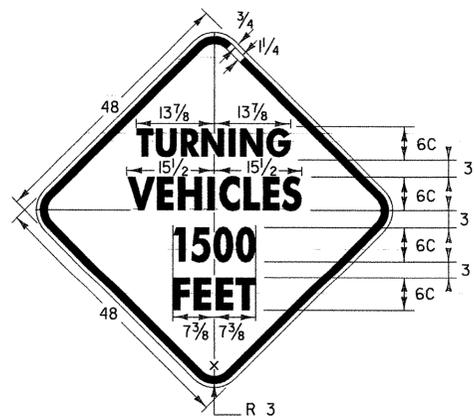


M4-10(R)

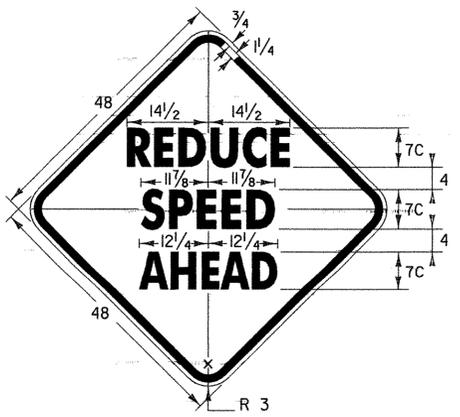


R11-2

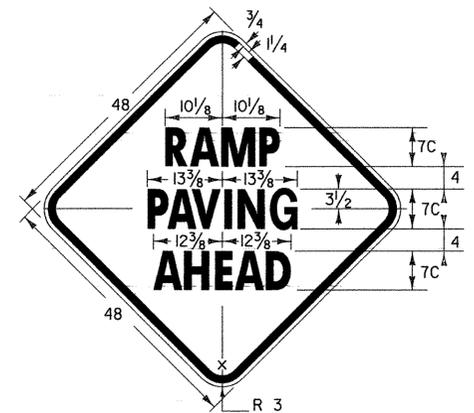
COLORS:
BLACK TEXT AND BORDER
WHITE RETROREFLECTORIZED BACKGROUND



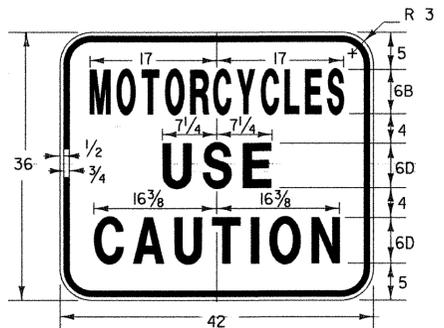
VC-001



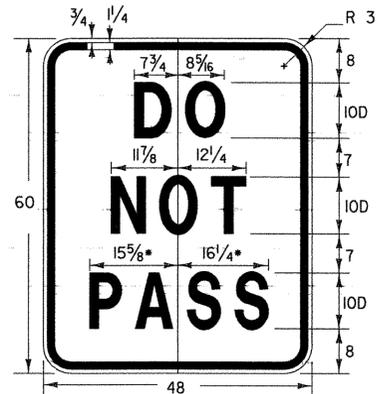
VC-002



VC-003

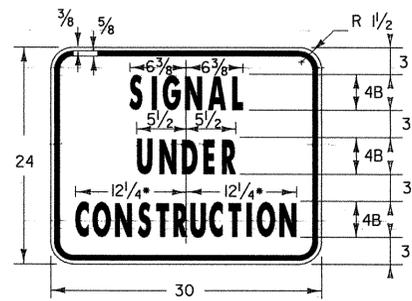


VC-004



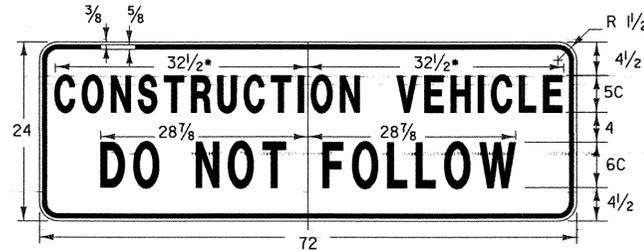
VC-005

* REDUCE SPACING BY 40%



VC-820

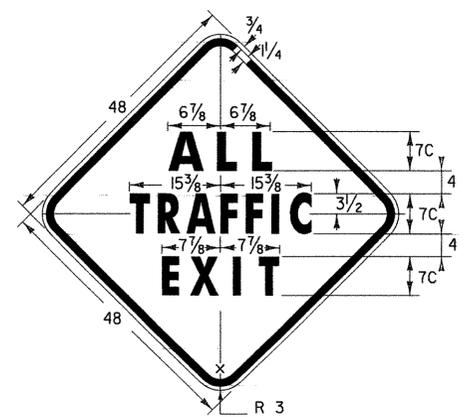
* REDUCE SPACING 25%



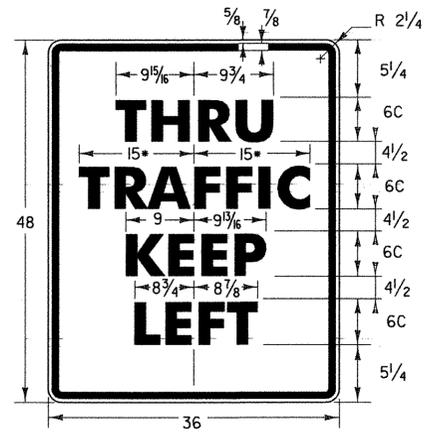
VC-007

* REDUCE SPACING 20%

IT IS SUGGESTED THAT THIS SIGN BE DESIGNED TO FOLD, (DOWN OR ACROSS), BE COVERED, OR BE REMOVED WHEN NOT IN USE. THE SIGN SHOULD ALSO BE MOUNTED AS TO NOT INTERFERE WITH THE VISIBILITY OF DIRECTIONAL OR TAIL LIGHTS AS REQUIRED BY LAW.



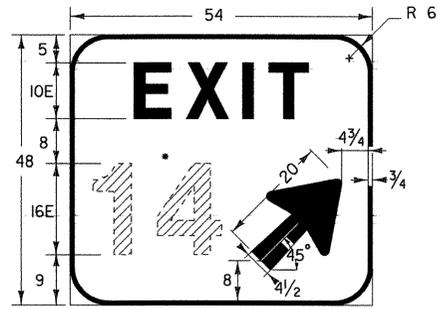
VC-008



VR-118L

* REDUCE SPACING 25 %

COLORS:
BLACK TEXT AND BORDER
WHITE (RETROREFLECTORIZED) BACKGROUND



E5-1a

* EXIT NUMBER AS PER PLANS OPTICALLY SPACED
COLORS:
WHITE RETROREFLECTORIZED BORDER, ARROW AND LEGEND
GREEN RETROREFLECTORIZED BACKGROUND

(ALL DIMENSIONS SHOWN IN INCHES EXCEPT WHERE NOTED)

NOTES

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS

COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS ON ASTM TYPE III OR TYPE VIII RETROREFLECTIVE ORANGE BACKGROUND, UNLESS OTHERWISE NOTED.

SIGN DETAILS INDICATE THE PROPER COLOR.

OTHER STDS. E-100, E-151 REQUIRED:

REVISIONS AND CORRECTIONS
AUG 08, 1995 - DATE OF ORIGINAL ISSUE
MAY 01, 2004 - CHANGED REFLECTIVE SHEETING TO TYPE III

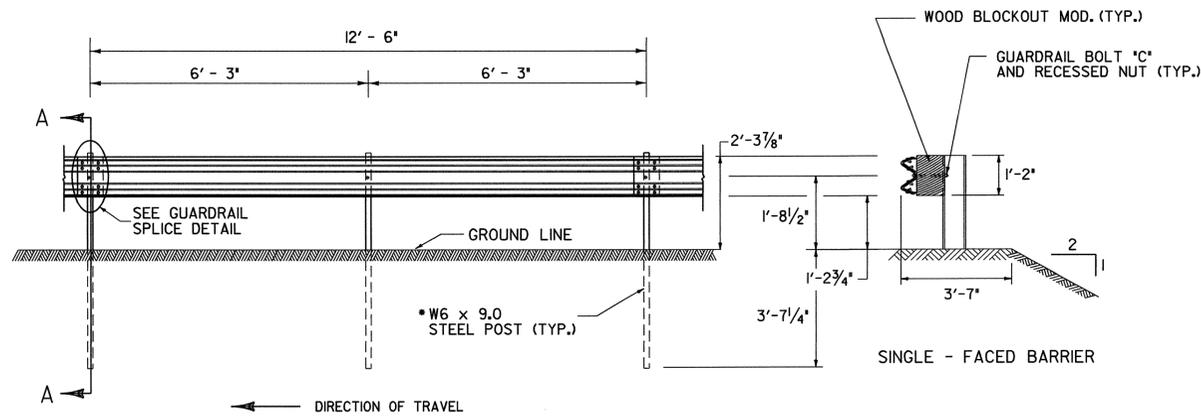
APPROVED
DIRECTOR OF PROGRAM DEVELOPMENT
TRAFFIC OPERATIONS ENGINEER
FEDERAL HIGHWAY ADMINISTRATION

CONSTRUCTION SIGN
DETAILS



STANDARD
E-102A

"W" BEAM GUARDRAIL WITH STEEL POSTS

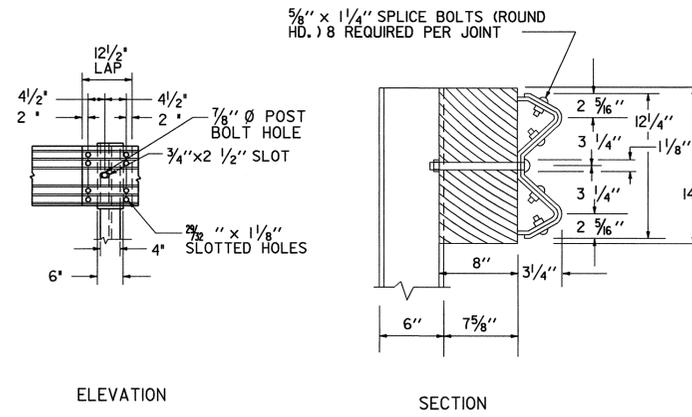


ELEVATION FROM ϕ OF ROAD

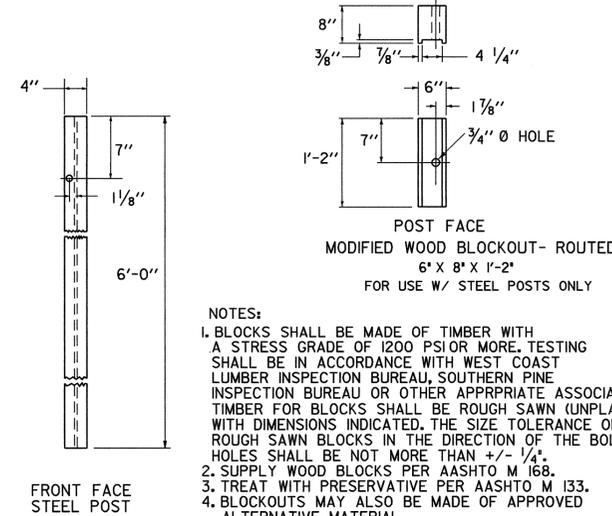
SECTION A - A

DOUBLE - FACED BARRIER

PLAN

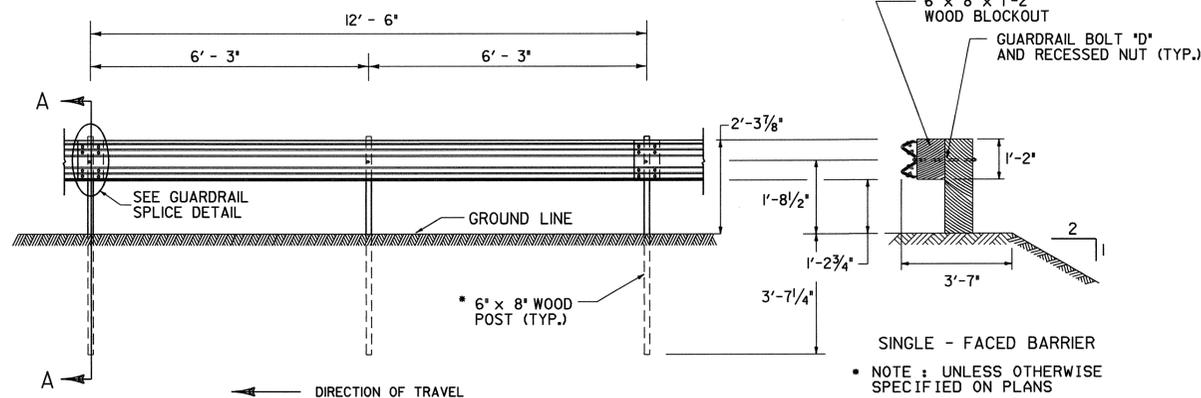


GUARDRAIL SPLICE DETAIL



- NOTES:
- BLOCKS SHALL BE MADE OF TIMBER WITH A STRESS GRADE OF 1200 PSIOR MORE. TESTING SHALL BE IN ACCORDANCE WITH WEST COAST LUMBER INSPECTION BUREAU, SOUTHERN PINE INSPECTION BUREAU OR OTHER APPROPRIATE ASSOCIATION. TIMBER FOR BLOCKS SHALL BE ROUGH SAWN (UNPLANED) WITH DIMENSIONS INDICATED. THE SIZE TOLERANCE OF ROUGH SAWN BLOCKS IN THE DIRECTION OF THE BOLT HOLES SHALL BE NOT MORE THAN +/- 1/4".
 - SUPPLY WOOD BLOCKS PER AASHTO M 168.
 - TREAT WITH PRESERVATIVE PER AASHTO M 133.
 - BLOCKOUTS MAY ALSO BE MADE OF APPROVED ALTERNATIVE MATERIAL.

"W" BEAM GUARDRAIL WITH WOOD POSTS

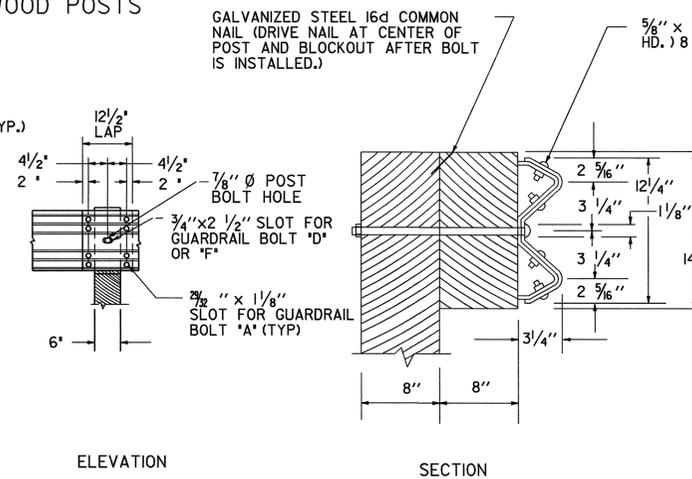


ELEVATION FROM ϕ OF ROAD

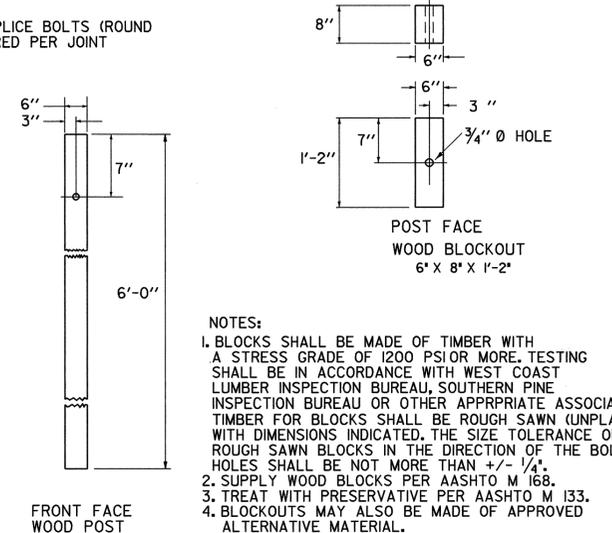
SECTION A - A

DOUBLE - FACED BARRIER

PLAN

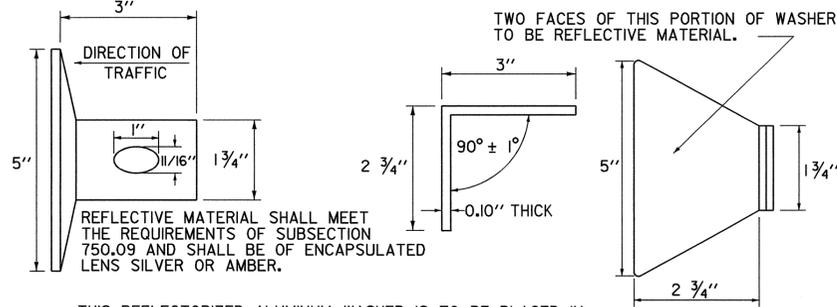


GUARDRAIL SPLICE DETAIL

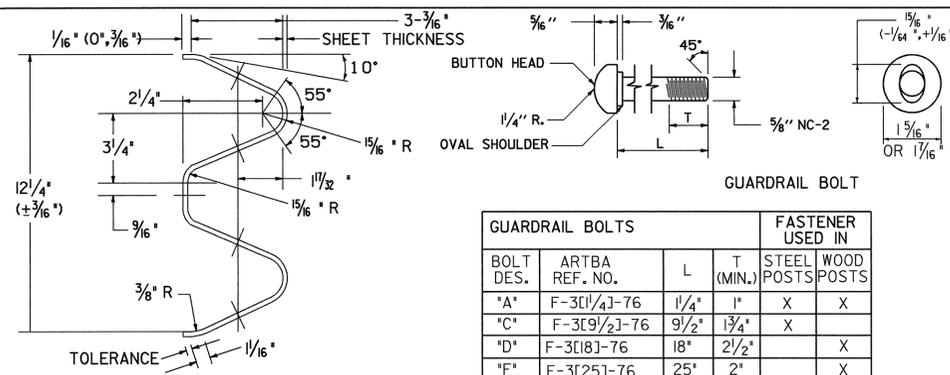


- NOTES:
- BLOCKS SHALL BE MADE OF TIMBER WITH A STRESS GRADE OF 1200 PSIOR MORE. TESTING SHALL BE IN ACCORDANCE WITH WEST COAST LUMBER INSPECTION BUREAU, SOUTHERN PINE INSPECTION BUREAU OR OTHER APPROPRIATE ASSOCIATION. TIMBER FOR BLOCKS SHALL BE ROUGH SAWN (UNPLANED) WITH DIMENSIONS INDICATED. THE SIZE TOLERANCE OF ROUGH SAWN BLOCKS IN THE DIRECTION OF THE BOLT HOLES SHALL BE NOT MORE THAN +/- 1/4".
 - SUPPLY WOOD BLOCKS PER AASHTO M 168.
 - TREAT WITH PRESERVATIVE PER AASHTO M 133.
 - BLOCKOUTS MAY ALSO BE MADE OF APPROVED ALTERNATIVE MATERIAL.

GUARDRAIL DELINEATOR

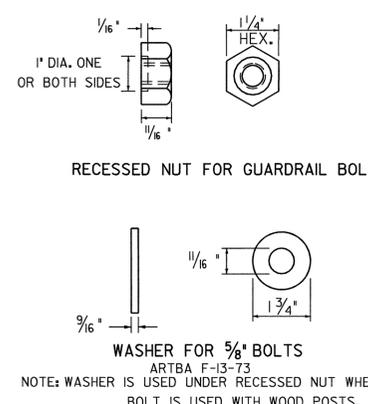


THIS REFLECTORIZED ALUMINUM WASHER IS TO BE PLACED IN VALLEY OF BEAM WHEN MOUNTING BEAM ONTO EACH FIFTH POST. WASHER SHALL MEET SPECIFICATION REQUIREMENTS FOR A.S.T.M. B-209 ALLOY 5052-H32



ARTBA RE-3[206]-3[12]-6" CLASS A, TYPE IJ-73 TYPICAL GUARDRAIL SECTION

GUARDRAIL BOLTS		FASTENER USED IN			
BOLT DES.	ARTBA REF. NO.	L	T (MIN.)	STEEL POSTS	WOOD POSTS
"A"	F-3[1/4]-76	1 1/4"	1"	X	X
"C"	F-3[9/2]-76	9 1/2"	1 3/4"	X	
"D"	F-3[18]-76	18"	2 1/2"	X	
"F"	F-3[25]-76	25"	2"		X



GENERAL NOTES:

- GUARDRAIL SHALL MEET THE REQUIREMENTS OF AASHTO M 180, CLASS A, TYPE I, UNLESS OTHERWISE DESIGNATED
- GUARDRAIL SHALL BE SINGLE FACED UNLESS OTHERWISE DESIGNATED
- GUARDRAIL SECTIONS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW FOR THE LANE NEAREST THE GUARDRAIL.
- FOR DESCRIPTION AND SPECIFICATION OF PARTS IDENTIFIED BY (ARTBA ...) AND OTHER DETAILS OF BOLTS, POST ACCESSORIES, FASTENERS & RAIL ELEMENTS, SEE AASHTO-AGC-ARTBA JOINT TASK FORCE NO. 13, TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE", LATEST EDITION.
- STANDARD STEEL BEAM TO BE 1/8" AND THE HEAVY DUTY TO BE 3/4" THICK.

OTHER STANDARD REQUIRED G-1d

REVISIONS AND CORRECTIONS
 JUNE 1, 1994 - REISSUED, WITHOUT CHANGE,
 UNDER NEW SIGNATURES.
 JAN. 3, 2000 - UPDATED TO REFLECT METRIC STD.
 CHANGES

APPROVED

[Signature]
 DIRECTOR OF PROJECT DEVELOPMENT
[Signature]
 ROADWAY AND TRAFFIC DESIGN ENGINEER

STEEL BEAM GUARDRAIL WITH STEEL POSTS
 STEEL BEAM GUARDRAIL WITH WOOD POSTS



STANDARD
 G-1