REVIEWER NOTES:
1) WE DO NOT HAVE FINAL HYDRAULICS AT THIS TIME.

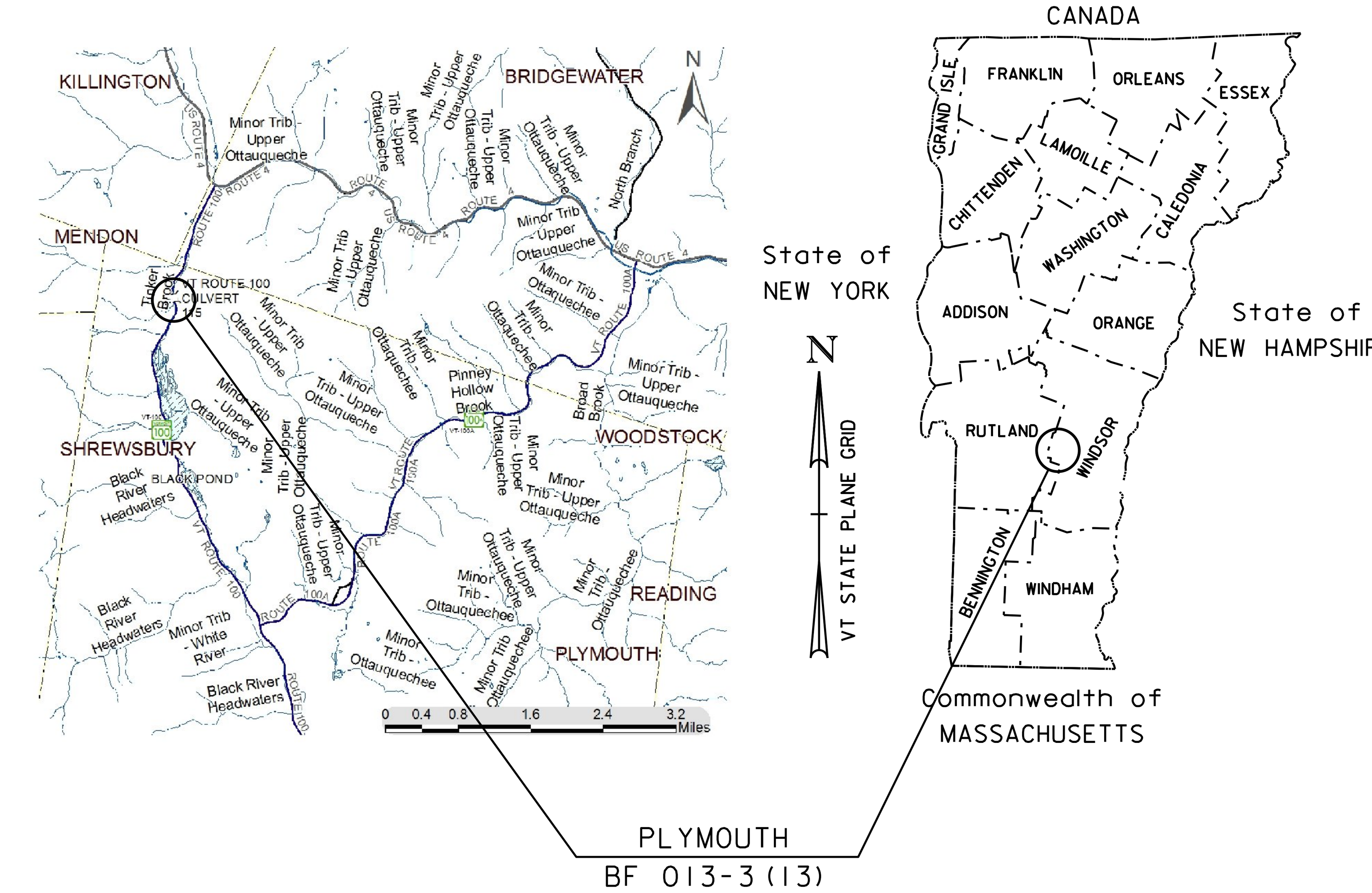
2) DESIGN PARAMETERS FROM THE PROJECT NOTES SHEET ARE BEING LOOKED AT BY GEOTECH CONCURRENT TO THIS REVIEW.

3) WHAT IS THE APPROPRIATE LEVEL OF STEEL FABRICATION INSPECTION FOR THIS STRUCTURE. (RYAN)

4) FOR INSTALATION, DTI'S DON'T SEEM APPROPRIATE HERE. SHOULD WE ALLOW NON-DTI HARDWARE. (RYAN)

5) THIS PROJECT WILL UTILIZE THE VT DEC LOW RISK SITE HANDBOOK FOR EPSC. NO SITE-SPECIFIC EPSC PLAN IS INCLUDED. THE CONTRACTOR SHALL SUBMIT A SITE-SPECIFIC EPSC PLAN TO VTRANS UPON CONTRACT AWARD IN ACCORDANCE WITH THEIR MEANS AND METHODS

STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT

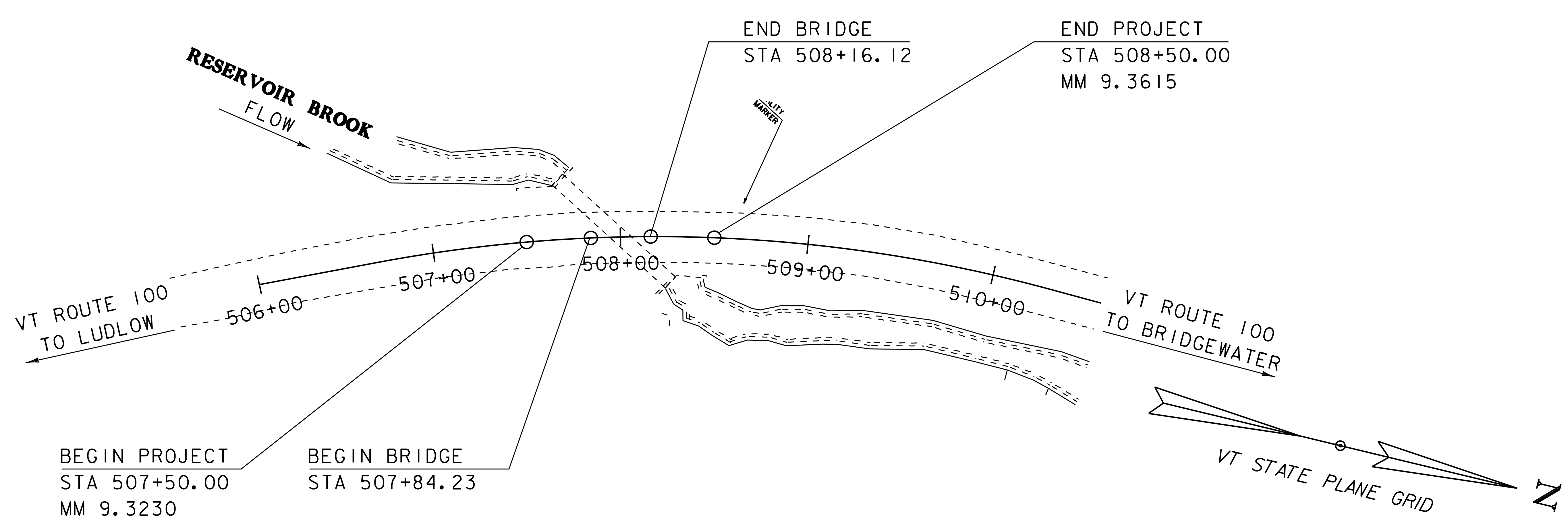
TOWN OF PLYMOUTH

ROUTE NO : VT ROUTE 100 (MINOR ARTERIAL) BRIDGE NO : 115

PROJECT LOCATION : APPROXIMATELY 1.4 MILES SOUTH OF THE JUNCTION OF VT ROUTE 100 AND US ROUTE 4

PROJECT DESCRIPTION : REMOVAL AND REPLACEMENT OF CULVERT 115 WITH A NEW STEEL PLATE ARCH CULVERT AND RELATED APPROACH AND CHANNEL WORK

LENGTH OF STRUCTURE : 31.89 FEET.
LENGTH OF ROADWAY : 68.11 FEET.
LENGTH OF PROJECT : 100.00 FEET.



FINAL PLANS
10-JUL-2019

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2018, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON APRIL 13, 2018 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL 2	
SURVEYED BY :	H. MCGOWAN
SURVEYED DATE :	12-22-2015
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (2011)

SCALE 1" = 50'-0"
50 0 50

HIGHWAY DIVISION, CHIEF ENGINEER
APPROVED ____________________ DATE ________
PROJECT MANAGER : ROB YOUNG P.E.
PROJECT NAME : PLYMOUTH
PROJECT NUMBER : BF 013-3(13)
SHEET 1 OF 37 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (CULVERT)

Version

LRFD

INDEX OF SHEETS

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G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	03-10-2017
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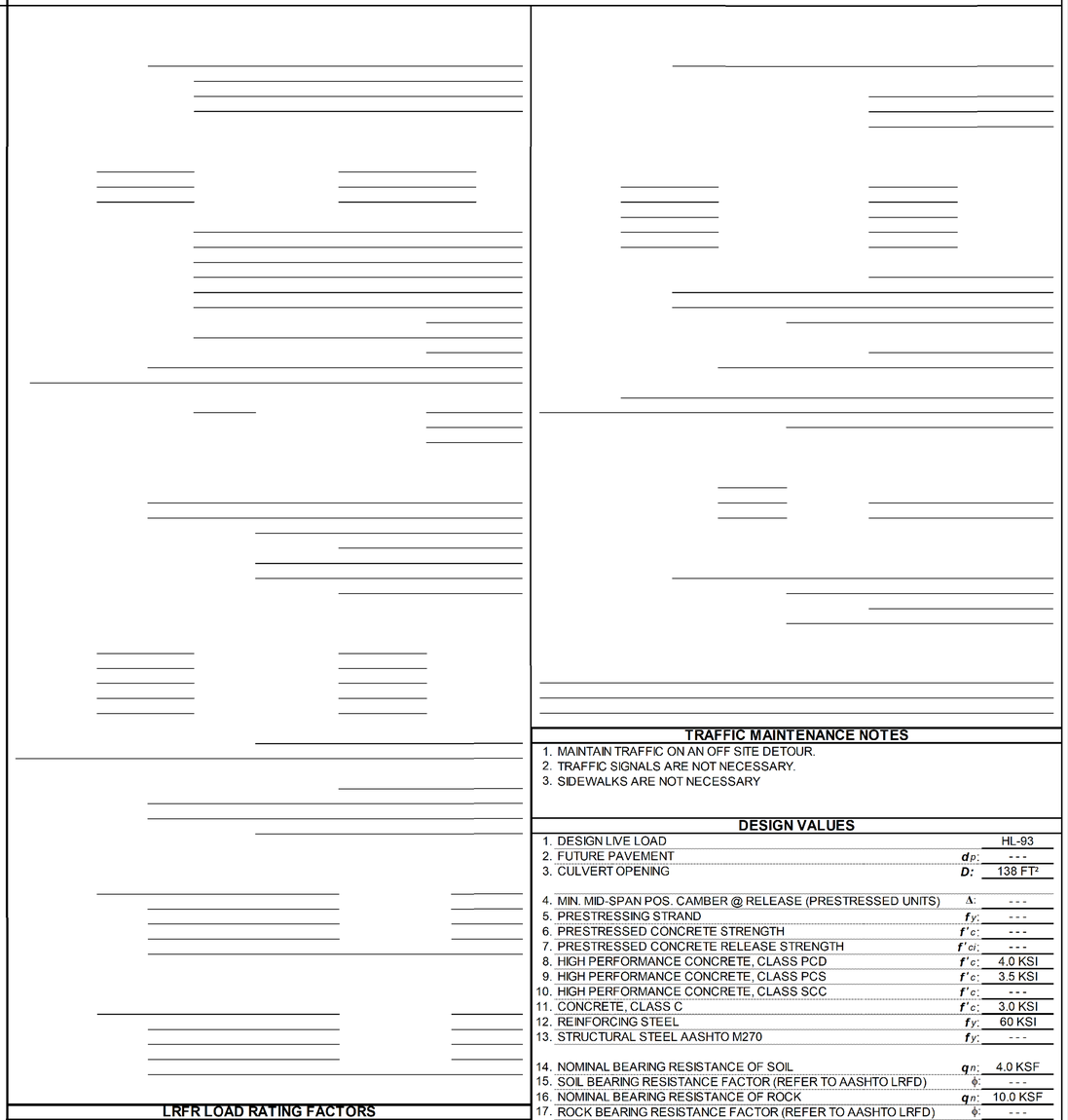
FINAL HYDRAULIC REPORT



TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON AN OFF SITE DETOUR.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	dp:	---
3. CULVERT OPENING	D:	138 FT²
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	---
5. PRESTRESSING STRAND	fy:	---
6. PRESTRESSED CONCRETE STRENGTH	$f'c$:	---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	$f'ci$:	---
8. HIGH PERFORMANCE CONCRETE, CLASS PCD	$f'c$:	4.0 KSI
9. HIGH PERFORMANCE CONCRETE, CLASS PCS	$f'c$:	3.5 KSI
10. HIGH PERFORMANCE CONCRETE, CLASS SCC	$f'c$:	---
11. CONCRETE, CLASS C	$f'c$:	3.0 KSI
12. REINFORCING STEEL	fy:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	fy:	---
14. NOMINAL BEARING RESISTANCE OF SOIL	qn:	4.0 KSF
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
16. NOMINAL BEARING RESISTANCE OF ROCK	qn:	10.0 KSF
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
18. PILE RESISTANCE FACTOR	ϕ:	---
19. LATERAL PILE DEFLECTION	Δ:	---
20. BASIC WIND SPEED	$V3s$:	---
21. MINIMUM GROUND SNOW LOAD	pg:	---
22. SEISMIC DATA PGA: ---	Ss:	---
	$S1$:	---
23.		
24.		---
25.		---
26.		---

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY							
POSTING							
OPERATING							
COMMENTS:	TABLE TO BE COMPLETED BY CONTRACTOR'S DESIGNER						

CULVERT DESIGN CRITERIA

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T
2018	920	130	51	7.4
2038	940	130	51	11.7

20 year ESAL for flexible pavement from 2018 to 2038 : 406000

40 year ESAL for flexible pavement from 2018 to 2058 : 916000

Design Speed : 50 mph

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

PROJECT NAME: **PLYMOUTH**

PROJECT NUMBER: **BF 013-3(13)**

FILE NAME: **12b596/s12b596forms.dgn**

PROJECT LEADER: **R. YOUNG**

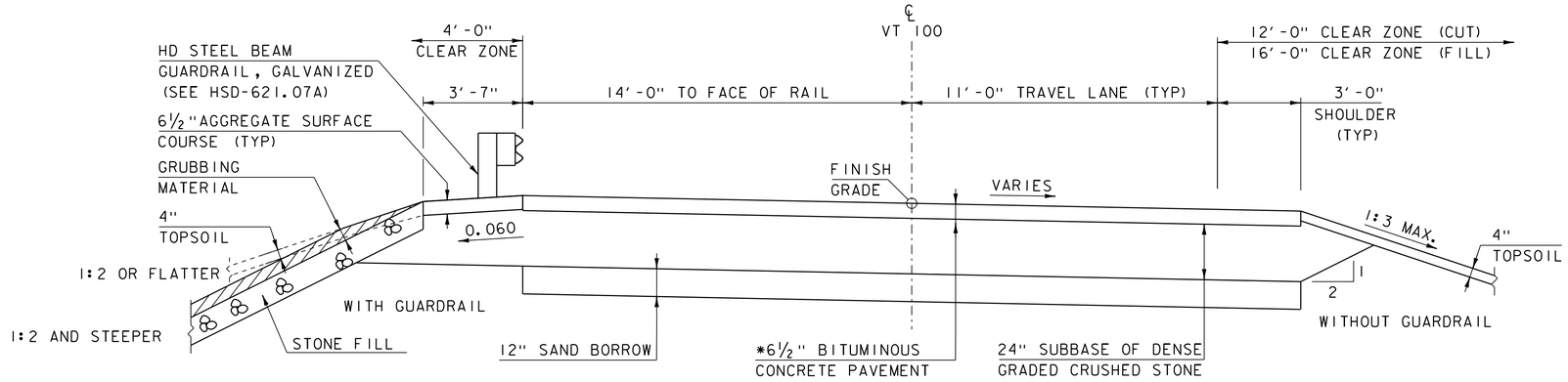
DESIGNED BY: **K. CHEVIOT**

PRELIMINARY INFORMATION SHEET

PLOT DATE:)/2019

DRAWN BY: **R. PELLETT**

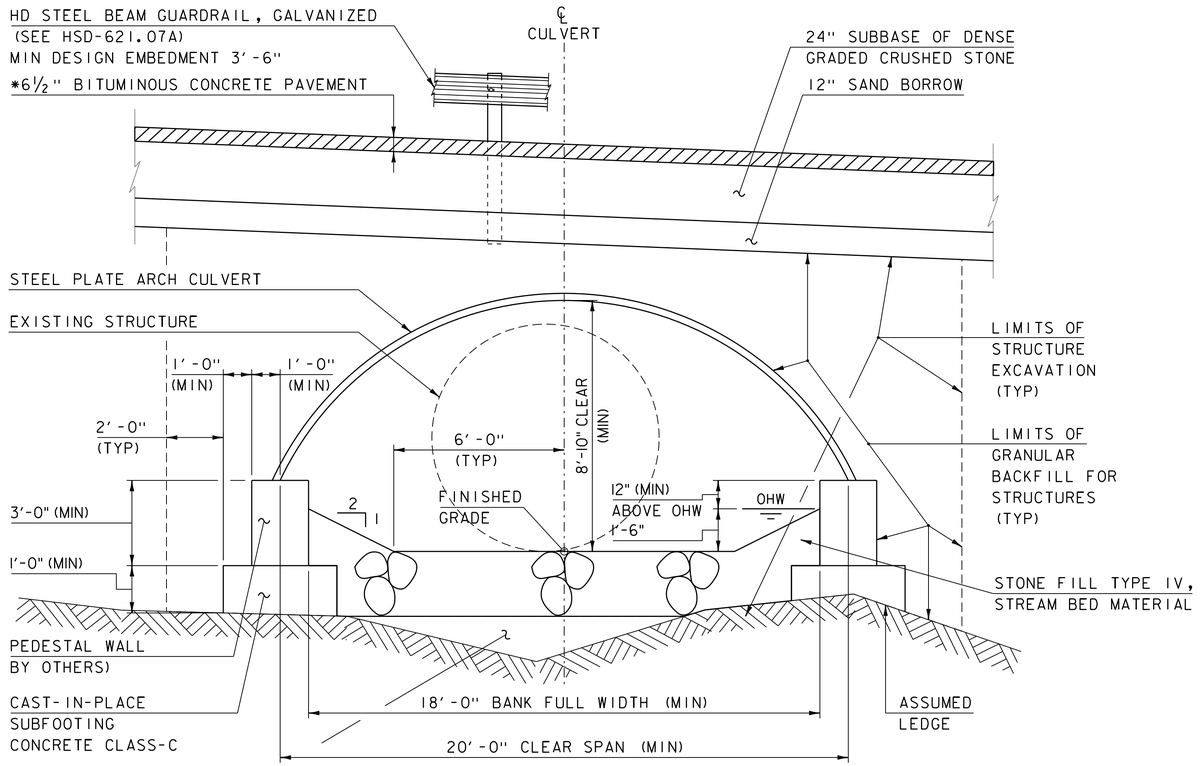
CHECKED BY: **C. MOONEY**



PROPOSED VT 100 TYPICAL SECTION

SCALE ⅜" = 1'-0"

* 1½" TYPE IVS OVER
1½" TYPE IVS OVER
3½" TYPE IIS



CULVERT TYPICAL SECTION

NOT TO SCALE

MATERIAL TOLERANCES

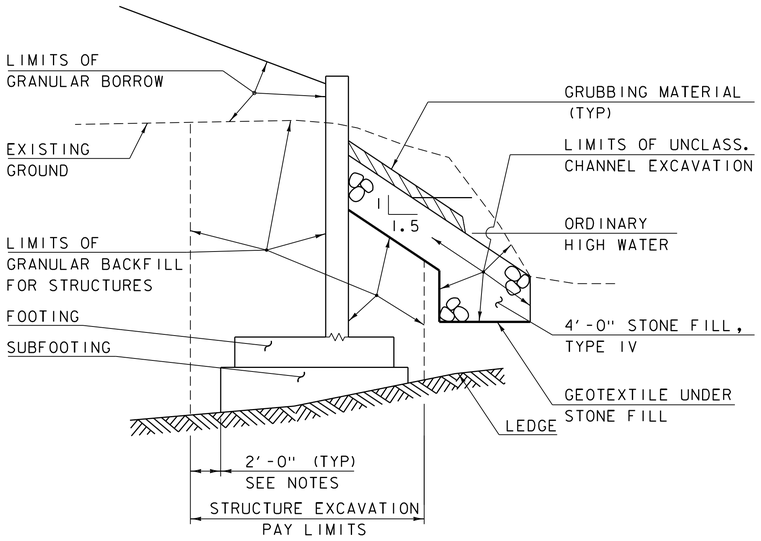
(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596typ.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
TYPICAL SECTIONS 1

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 3 OF 37



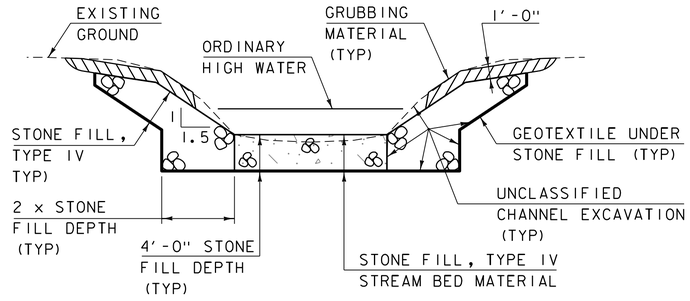
TYPICAL WINGWALL SECTION

(NOT TO SCALE)

THE CONTRACTOR SHALL SUBMIT A STRUCTURAL DESIGN MEETING THE MINIMUM REQUIREMENTS SPECIFIED HERE IN. DIMENSIONS LABELED MAY BE MODIFIED TO SUIT THE CONTRACTOR'S MEANS AND METHODS WHILE REMIANING IN ACCORDANCE WITH ALL CONTRACT REQUIREMENTS. THE GEOMETRY SHALL FIT ALL ASPECTS OF SITE DESIGN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MODICATION AT NO ADDITIONAL COST TO THE STATE.

DIMENSIONS NOT NOTED AS MINIMUM OR REQUIRED HERE IN ARE USED FOR PLAN GENERATION. THE FABRICATOR SHALL DETERMINE ALL FINAL STRUCTURAL DIMENSIONS.

ALL PORTIONS OF BURRIED BRIDGE AT OR BELOW 1FT ABOVE OHW MUST BE CONCRETE.



TYPICAL CHANNEL SECTION

(NOT TO SCALE)

1. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.

2. THE CONTRACTOR SHALL CREATE A LOW FLOW CHANNEL IN THE STREAM BED MATERIAL AS DIRECTED BY THE ENGINEER.

3. GRUBBING MATERIAL SHALL BE PLACED UNDERNEATH STRUCTURES WHERE THERE IS MORE THAN 6 FEET VERTICALLY FROM ORDINARY HIGH WATER (OHW) TO THE BOTTOM OF SUPERSTRUCTURE AND MORE THAN 6 FEET HORIZONTALLY FROM OHW LINE TO FRONT FACE OF ABUTMENT. THIS MATERIAL SHALL START JUST ABOVE THE OHW ELEVATION AND TERMINATE 3 FEET HORIZONTALLY FROM THE FRONT FACE OF THE ABUTMENT. THIS MATERIAL SHALL NOT BE PLACED IN AREAS THAT WILL SEE CONCENTRATED FLOWS RESULTING FROM SURFACE WATER RUNOFF. GRUBBING MATERIAL MAY BE OMITTED IF LESS THAN 3 FEET IN WIDTH BENEATH A STRUCTURE. SEE CHANNEL SECTIONS FOR ADDITIONAL DETAILING.

STONE FILL NOTES

1. WHENEVER BEDROCK IS ENCOUNTERED DURING EXCAVATION OF THE CHANNEL KEY OR FILL SLOPES, THE ENGINEER WILL COORDINATE WITH THE RIVER MANAGEMENT ENGINEER FOR APPROVAL OF HOW THE CHANNEL SHALL BE CONSTRUCTED.

2. STONE FILL, STREAM BED MATERIAL (E-STONE, TYPE IV) DESIGNATED TO BE PLACED WHERE THE DEPTH BETWEEN CHANNEL BOTTOM AND BEDROCK IS LESS THAN 3'-0"; MATERIALS MEETING THE REQUIREMENTS OF STONE FILL, STREAM BED MATERIAL (E-STONE, TYPE II) SHALL BE USED.

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596typ.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
TYPICAL SECTIONS 2

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 4 OF 37

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE 2017 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, AND THEIR LATEST REVISIONS.

2. CONTRACTOR IS RESPONSIBLE FOR COORDINATING CONSISTENCY BETWEEN THE FABRICATOR'S SHOP DRAWINGS AND ENSURING THAT ALL COMPONENTS FIT TOGETHER.

3. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.

UTILITIES

4. UTILITIES WITHIN THE PROJECT SITE ARE NOT BEING REMOVED OR RELOCATED AS PART OF THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THEIR WORK WITH THE APPROPRIATE UTILITY COMPANIES.

EARTHWORK

5. THE REMOVAL OF EXISTING STRUCTURE WILL BE PAID FOR UNDER ITEM 529.15, "REMOVAL OF STRUCTURE". THIS WORK SHALL INCLUDE REMOVAL OF THE ENTIRE CULVERT AND ANY PORTIONS OF THE EXISTING HEADWALLS THAT FALL OUTSIDE THE LIMITS OF STRUCTURE EXCAVATION OR UNCLASSIFIED CHANNEL EXCAVATION.

6. ANY TEMPORARY MEANS OF SUPPORTING EXCAVATION NECESSARY TO MAINTAIN TRAFFIC SHALL BE INCIDENTAL TO ITEM 641.11 TRAFFIC CONTROL, ALL-INCLUSIVE.

7. ALL EXCAVATION, PLATE ARCH ASSEMBLY, AND BACKFILLING SHALL BE CONDUCTED IN DRY CONDITIONS. DEWATERING SHALL BE CONTINUOUS UNTIL THE GALVANIZED STEEL STRUCTURAL PLATE STRUCTURE AND WINGWALLS ARE BACKFILLED TO THE SURROUNDING WATER TABLE, UNLESS OTHERWISE NOTED.

8. ABUTMENT STONE FILL: PLACE STONE FILL INSIDE THE ARCH BEFORE ASSEMBLING THE PLATE ARCH SYSTEM.

SUBSTRUCTURE ON BEDROCK

9. BEDROCK SHOWN IN THE PLANS IS NOT REPRESENTATIVE OF ACTUAL CONDITIONS BUT AN EXAMPLE OF HOW THE FOUNDATIONS CAN BE CONSTRUCTED ON BEDROCK. THE CONTRACTOR WILL BE RESPONSIBLE FOR ESTABLISHING ACTUAL ELEVATIONS.

10. UPON COMPLETION OF EXCAVATION FOR SUBSTRUCTURES FOUNDED ON BEDROCK AND PRIOR TO PLACING FORMWORK, THE ENGINEER SHALL NOTIFY THE PROJECT MANAGER AND THE VTRANS STATE GEOLOGIST. THE GEOLOGIST WILL DETERMINE IF THE BEDROCK IS COMPETENT TO OBTAIN THE REQUIRED NOMINAL BEARING RESISTANCE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 72 HOURS PRIOR TO WHEN THE ANALYSIS WILL BE NEEDED.

11. FOOTINGS AND SUBFOOTINGS SHALL BE FOUNDED UPON BEDROCK CLEANED OF ALL LOOSE ROCK AND DEBRIS.

12. BEDROCK THAT IS EXCAVATED FOR PLACEMENT OF FOOTINGS SHALL BE EXCAVATED TO PROVIDE A LEVEL SURFACE, AS INDICATED IN THE PLANS, OR AS DIRECTED BY THE ENGINEER.

13. THE HORIZONTAL LIMITS OF THE SUBFOOTING SHALL BE A MINIMUM OF 0'-6" OUTSIDE THE LIMITS OF THE FOOTING.

14. BEDROCK SHALL BE EXCAVATED DOWN (IF NECESSARY) TO ALLOW FOR THE INDICATED SUBFOOTING TO BE POURED USING ITEM 541.30 "CONCRETE, CLASS C" TO A MINIMUM THICKNESS OF 1'-0".

15. A MAXIMUM OF 6" OVERBREAKAGE SHALL BE REPLACED WITH ITEM 541.30 "CONCRETE, CLASS C". OVERBREAKAGE BEYOND 6" SHALL BE REPLACED WITH "CONCRETE, CLASS C" AT THE EXPENSE OF THE CONTRACTOR.

16. DOWELS SHALL BE DRILLED AND GROUTED INTO THE BEDROCK AS SHOWN ON THE PLANS. THE DOWELS SHALL HAVE A 2'-0" MINIMUM EMBEDMENT INTO BEDROCK. DRILLING AND GROUTING OF DOWELS SHALL BE PAID UNDER ITEM 507.16 "DRILLING AND GROUTING DOWELS".

CONCRETE AND REINFORCING STEEL

17. ITEM 514.10, "WATER REPELLENT, SILANE", SHALL BE APPLIED TO ALL EXPOSED CONCRETE ON THE BRIDGE SUPERSTRUCTURE AND SUBSTRUCTURE.

18. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:
    a. ELSEWHERE UNLESS OTHERWISE INDICATED: 3.0 INCH
    b. WALL FACES NOT EXPOSED TO DEICING SALTS: 2.0 INCH
    c. EXPOSURE TO DEICING SALTS 3.0 INCH
    d. CAST AGAINST EARTH: 3.0 INCH

DEEP CORRUGATED STEEL BURIED BRIDGE SYSTEM

19. FOR BURIED BRIDGE LOADING REQUIREMENT SEE "SPECIAL PROVISION (CORRUGATED STEEL BURIED BRIDGE) (7'3"X20'-0"X75'-0")"

20. THE SOIL PROPERTIES AND DESIGN PARAMETERS USED FOR THIS PROJECT ARE AS INDICATED BELOW.
    a. SOIL UNIT WEIGHT = 140 PCF
    b. DESIGN LIVE LOAD = HL-93
    c. NOMINAL BEARING RESISTANCE (BEDROCK) = 70 KSF
    d. NOMINAL BEARING RESISTANCE (IN-SITU) = 4 KSF
    e. BEARING RESISTANCE FACTOR = 0.45
    f. DESIGN FILL OVER FRAME = 4 - 5 FEET
    g. AT-REST EARTH PRESSURE (KO) = 0.44
    h. CONCRETE COMPRESSIVE STRENGTH = SEE SUBSECTION 540.05(E)
    i. REQUIRED DESIGN LIFE = 75 YEARS
    j. VEHICULAR SURCHARGE = PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

21. IF NOT IN REPORT. THE PLATE ARCH SYSTEM, SHALL BE DESIGNED PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 2014, AND ITS LATEST REVISIONS, AND CONSIDER THE FOLLOWING DESIGN CRITERIA:
    a. REINFORCING STEEL, LEVEL I: fy = 60,000 PSI
    b. EXISTING IN-SITU SOIL PROPERTIES:

MATERIAL	DENSITY (pcf)	INTERNAL SOIL FRICTION ANGLE (DEG)	NOMINAL BERAING RESISTANCE, qn (ksf)*
ABUTMENT 1 (TYPE)	140	34	4
ABUTMENT 1 (TYPE)	140	34	4
*ALL NOMINAL BEARING RESISTANCES CORRESPOND TO 2.5 INCHES OF SETTLEMENT.			

    c. FILL MATERIAL PROPERTIES:

MATERIAL	DENSITY (pcf)	INTERNAL SOIL FRICTION ANGLE (DEG)	ACTIVE EARTH PRESSURE COEFFICIENT, ka
GRANULAR BORROW	130	32	0.31
SELECT GRANULAR BACKFILL	140	34	0.28

22. THE DEEP CORRUGATED STEEL BURIED BRIDGE SYSTEM DESIGN SHALL TAKE INTO ACCOUNT GUARDRAIL AND SIGN POST LOCATIONS.

23. IT IS THE INTENTION OF THE DESIGNER THAT THE PAY ITEM FOR DEEP CORRUGATED STEEL BURIED BRIDGE SYSTEM SHALL INCLUDE THE HEADWALLS AND WINGWALLS. FOR ADDITIONAL WORK INCLUDED IN THE PAYMENT OF THIS ITEM SEE THE PROJECT SPECIAL PROVISION.

24. A BRIDGE PLAQUE FURNISHED BY THE AGENCY SHALL BE ATTACHED TO THE WINGWALL NO. 2. SEE SD-502.00 FOR FURTHER DETAILS. THIS CONNECTION SHALL BE SHOWN IN THE FABRICATION DRAWINGS.

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596forms.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
PROJECT NOTES 1

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	EROSION CONTROL	BRIDGE	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				**EARTHWORKS SUMMARY**
						800				800		CY	COMMON EXCAVATION	203.15				**FILL AVAILABLE**
						10				10		CY	SOLID ROCK EXCAVATION	203.16		553	CY	COMMON EXCAVATION (790 x 0.7)
								230		230		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27		84	CY	UNCLASSIFIED CHANNEL EXCAVATION (280 x 0.3)
						110				110		CY	SAND BORROW	203.31		0	CY	TRENCH EXCAVATION (0 x 0.9)
						1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22		0	CY	COFFERDAM EXCAVATION (0 x 0.3)
								1470		1470		CY	STRUCTURE EXCAVATION	204.25		3	CY	ROUNDING
								700		700		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		**640**	**CY**	**TOTAL FILL AVAILABLE**
						387				387		SY	COARSE-MILLING, BITUMINOUS PAVEMENT	210.10				**FILL REQUIRED**
						390				390		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35		0	CY	FACTORED FILL (960 x 1.15)
						50				50		CY	AGGREGATE SURFACE COURSE	401.10		0	CY	ROUNDING
						10				10		CWT	EMULSIFIED ASPHALT	404.65		**0**	**CY**	**TOTAL FILL REQUIRED**
						1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50		**640**	**CY**	**TOTAL WASTE**
								812		812		LB	REINFORCING STEEL, LEVEL I	507.11				
								156		156		LF	DRILLING AND GROUTING DOWELS	507.16				(N.A.B.I.) = NOT A BID ITEM
								10		10		GAL	WATER REPELLENT, SILANE	514.10				
								1		1		EACH	REMOVAL OF STRUCTURE (96" X 80' CGMP)	529.15				
								110		110		CY	CONCRETE, CLASS C	541.30				
						10				10		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25				
						10				10		HR	POWER BROOM RENTAL, TYPE I	608.30				
						10				10		HR	TRUCK RENTAL	608.37				
							1			1		MGAL	DUST CONTROL WITH WATER	609.10				
							1			1		TON	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15				
								210		210		CY	STONE FILL, STREAM BED MATERIAL (E-STONE)(TYPE IV)	613.06				
						20				20		CY	STONE FILL, TYPE I	613.10				
								150		150		CY	STONE FILL, TYPE IV	613.13				
						446				446		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21				
						2				2		EACH	MANUFACTURED TERMINAL SECTION, TANGENT	621.51				
						460				460		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
						80				80		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
						240				240		HR	FLAGGERS	630.15				
									1	1		LS	FIELD OFFICE, ENGINEERS	631.10				
									1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
									1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
									3000	3000		DL	FIELD OFFICE COMMUNICATIONS (N.A.B.I.)	631.26				
						6				6		EACH	CPM SCHEDULE	633.10				
						1				1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
						1				1		LS	TRAFFIC CONTROL, ALL-INCLUSIVE	641.11				
						3				3		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
						650				650		LF	DURABLE 4 INCH WHITE LINE, EPOXY PAINT	646.403				

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596forms.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
QUANTITY SHEET 1

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						650				650		LF	DURABLE 4 INCH YELLOW LINE, EPOXY PAINT	646.413				
								80		80		SY	GEOTEXTILE UNDER STONE FILL	649.31				
							10			10		LB	SEED	651.15				
							10			10		LB	SEED, WINTER RYE	651.17				
							100			100		LB	FERTILIZER	651.18				
							1			1		TON	AGRICULTURAL LIMESTONE	651.20				
							50			50		CY	TOPSOIL	651.35				
							150	150		300		SY	GRUBBING MATERIAL	651.40				
							1			1		LS	EPSC PLAN	653.01				
							50			50		HR	MONITORING EPSC PLAN	653.02				
							1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	653.03				
							1			1		TON	HAY MULCH	653.10				
							310			310		SY	ROLLED EROSION CONTROL PRODUCT, TYPE I	653.20				
							14			14		CY	CHECK DAM, TYPE I	653.25				
							70			70		CY	STABILIZED CONSTRUCTION ENTRANCE	653.35				
							1			1		EACH	FILTER BAG	653.45				
							544			544		LF	SILT FENCE, TYPE I	653.475				(N.A.B.I.) = NOT A BID ITEM
							620	710		1330		LF	PROJECT DEMARCATION FENCE	653.55				
						1				1		SF	TRAFFIC SIGN, TYPE A	675.20				
						20				20		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
						3				3		EACH	REMOVING SIGNS	675.50				
						2				2		EACH	DELINEATOR WITH STEEL POST	676.10				
						1				1		DL	SPECIAL PROVISION (INCENTIVE/DISINCENTIVE) (N.A.B.I.)	900.615				
								1		1		LS	SPECIAL PROVISION (DEEP CORRUGATED STEEL BURIED BRIDGE SYSTEM (7'-3"x20'-0"x75'-0"))	900.645				
								1		1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)	900.645				
						1				1		LU	SPECIAL PROVISION (MAT DENSITY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
						1				1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
						274				274		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: s12b596forms.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
QUANTITY SHEET 1

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 7 OF 37

GENERAL INFORMATION

SYMBOLOGY LEGEND NOTE

THE SYMBOLOGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLOGY. THE SYMBOLOGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLOGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R.O.W. ABBREVIATIONS (CODES) & SYMBOLS

POINT	CODE	DESCRIPTION
	CH	CHANNEL EASEMENT
	CONST	CONSTRUCTION EASEMENT
	CUL	CULVERT EASEMENT
	D&C	DISCONNECT & CONNECT
	DIT	DITCH EASEMENT
	DR	DRAINAGE EASEMENT
	DRIVE	DRIVEWAY EASEMENT
	EC	EROSION CONTROL
	HWY	HIGHWAY EASEMENT
	I&M	INSTALL & MAINTAIN EASEMENT
	LAND	LANDSCAPE EASEMENT
	R&RES	REMOVE & RESET
	R&REP	REMOVE & REPLACE
	R.T.& I.	RIGHT, TITLE, AND INTEREST
	SR	SLOPE RIGHT
	UE	UTILITY EASEMENT
	(P)	PERMANENT EASEMENT
	(T)	TEMPORARY EASEMENT
■	BNDNS	BOUND SET
⊡	BNDNS	BOUND TO BE SET
◎	IPNF	IRON PIN FOUND
●	IPNS	IRON PIN TO BE SET
⊠	CALC	EXISTING ROW POINT
○	PROW	PROPOSED ROW POINT
[LENGTH]		LENGTH CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT	CODE	DESCRIPTION
	APL	BOUND APPARENT LOCATION
	BM	BENCHMARK
	BND	BOUND
	CB	CATCH BASIN
	COMB	COMBINATION POLE
	DITHR	DROP INLET THROATED DNC
	EL	ELECTRIC POWER POLE
	FPOLE	FLAGPOLE
	GASFIL	GAS FILLER
	GP	GUIDE POST
	GSO	GAS SHUT OFF
	GUY	GUY POLE
	GUYW	GUY WIRE
	GV	GATE VALVE
	H	TREE HARDWOOD
	HCTRL	CONTROL HORIZONTAL
	HVCTRL	CONTROL HORIZ. & VERTICAL
	HYD	HYDRANT
	IP	IRON PIN
	IPIPE	IRON PIPE
	LI	LIGHT - STREET OR YARD
	MB	MAILBOX
	MH	MANHOLE (MH)
	MM	MILE MARKER
	PM	PARKING METER
	PMK	PROJECT MARKER
	POST	POST STONE/WOOD
	RRSIG	RAILROAD SIGNAL
	RRSL	RAILROAD SWITCH LEVER
	S	TREE SOFTWOOD
	SAT	SATELLITE DISH
	SHRUB	SHRUB
	SIGN	SIGN
	STUMP	STUMP
	TEL	TELEPHONE POLE
	TIE	TIE
	TSIGN	SIGN W/DOUBLE POST
	VCTRL	CONTROL VERTICAL
	WELL	WELL
	WSO	WATER SHUT OFF

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

CODE	DESCRIPTION
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
CC	CENTER OF CURVE
PT	POINT OF TANGENCY
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
STA	STATION PREFIX
AH	AHEAD STATION SUFFIX
BK	BACK STATION SUFFIX
D	CURVE DEGREE OF (100FT)
R	CURVE RADIUS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE
CB	CHORD BEARING

UTILITY SYMBOLOGY

UNDERGROUND UTILITIES

- UGU — UTILITY (GENERIC-UNKNOWN)
- UT — TELEPHONE
- UE — ELECTRIC
- UC — CABLE (TV)
- UEC — ELECTRIC+CABLE
- UET — ELECTRIC+TELEPHONE
- UCT — CABLE+TELEPHONE
- UECT — ELECTRIC+CABLE+TELEPHONE
- G — GAS LINE
- W — WATER LINE
- S — SANITARY SEWER (SEPTIC)

ABOVE GROUND UTILITIES (AERIAL)

- AGU — UTILITY (GENERIC-UNKNOWN)
- T — TELEPHONE
- E — ELECTRIC
- C — CABLE (TV)
- EC — ELECTRIC+CABLE
- ET — ELECTRIC+TELEPHONE
- AER E&T — ELECTRIC+TELEPHONE
- CT — CABLE+TELEPHONE
- ECT — ELECTRIC+CABLE+TELEPHONE
- UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

- CZ — CLEAR ZONE
- PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

- TOP OF CUT SLOPE
- TOE OF FILL SLOPE
- STONE FILL
- BOTTOM OF DITCH ℄
- CULVERT PROPOSED
- STRUCTURE SUBSURFACE
- PDF — PROJECT DEMARCATION FENCE
- BF — BARRIER FENCE
- TREE PROTECTION ZONE (TPZ)
- STRIPING LINE REMOVAL
- SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

- TOWN LINE — TOWN BOUNDARY LINE
- COUNTY LINE — COUNTY BOUNDARY LINE
- STATE LINE — STATE BOUNDARY LINE
- PROPOSED STATE R.O.W. (LIMITED ACCESS)
- PROPOSED STATE R.O.W.
- STATE ROW (LIMITED ACCESS)
- STATE ROW
- TOWN ROW
- PERMANENT EASEMENT LINE (P)
- TEMPORARY EASEMENT LINE (T)
- SURVEY LINE
- PROPERTY LINE (P/L)
- SR SR SR — SLOPE RIGHTS
- 6f — 6F PROPERTY BOUNDARY
- 4f — 4F PROPERTY BOUNDARY
- HAZ — HAZARDOUS WASTE

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

- FILTER CURTAIN
- SILT FENCE
- SILT FENCE WOVEN WIRE
- CHECK DAM
- DISTURBED AREAS REQUIRING RE-VEGETATION
- EROSION MATTING

SEE EPSC DETAIL SHEETS FOR ADDITIONAL SYMBOLOGY

ENVIRONMENTAL RESOURCES

- WETLAND BOUNDARY
- RIPARIAN BUFFER ZONE
- WETLAND BUFFER ZONE
- SOIL TYPE BOUNDARY
- T&E — THREATENED & ENDANGERED SPECIES
- HAZ — HAZ — HAZARDOUS WASTE AREA
- AG — AGRICULTURAL LAND
- HABITAT — FISH & WILDLIFE HABITAT
- FLOOD PLAIN — FLOOD PLAIN
- OHW — ORDINARY HIGH WATER (OHW)
- STORM WATER
- USDA FOREST SERVICE LANDS
- WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC

- ARCH — ARCHEOLOGICAL BOUNDARY
- HISTORIC DIST — HISTORIC DISTRICT BOUNDARY
- HISTORIC — HISTORIC AREA
- (H) HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

EXISTING FEATURES

- ROAD EDGE PAVEMENT
- ROAD EDGE GRAVEL
- DRIVEWAY EDGE
- DITCH
- FOUNDATION
- FENCE (EXISTING)
- FENCE WOOD POST
- FENCE STEEL POST
- GARDEN
- ROAD GUARDRAIL
- RAILROAD TRACKS
- CULVERT (EXISTING)
- STONE WALL
- WALL
- WOOD LINE
- BRUSH LINE
- HEDGE
- BODY OF WATER EDGE
- LEDGE EXPOSED

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596forms.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
SYMBOLOGY LEGEND SHEET

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 8 OF 37

CONTROL POINTS

HVCTRL #1

CEDAR BROOK
NORTH = 400948.9800
EAST = 1574460.5000
ELEV. = 1055.910

GENERAL LOCATION, WEST BRIDGEWATER, ABOUT 11 MI (17.7 KM) EAST OF RUTLAND, ABOUT 12 MI (19.3 KM) WEST OF WOODSTOCK. IN A MOWED AREA IN THE SOUTHEAST QUADRANT OF THE INTERSECTION OF U.S. ROUTE 4 AND VT ROUTE 100 SOUTH IN WEST BRIDGEWATER. THE MARK IS 20.3 M (66.6 FT) SOUTHWEST OF THE SOUTHWEST EDGE OF PAVEMENT OF U.S. ROUTE 4, 2.1 M (6.9 FT) SOUTHEAST OF THE SOUTHEAST EDGE OF PAVEMENT OF VT ROUTE 100, 7.6 M (24.9 FT) SOUTHWEST OF POLE NO. 1/403/96, 13.6 M (44.6 FT) NORTHWEST OF POLE NO. 403A, AND 0.4 M (1.3 FT) SOUTHEAST OF A FIBERGLASS WITNESS POST. IT IS SET IN THE TOP OF A 30-CM DIAMETER CONCRETE MONUMENT FLUSH WITH GROUND SURFACE.

HVCTRL #2

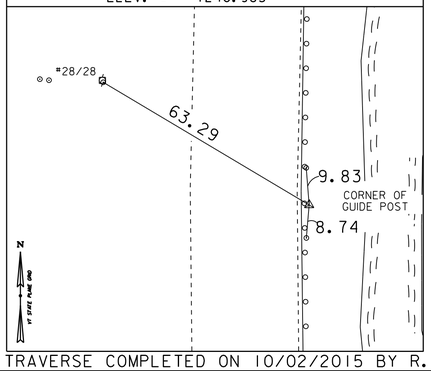
CEDAR BROOK AZ MK
NORTH = 399663.0200
EAST = 1573671.0200
ELEV. = 1070.400

GENERAL LOCATION, WEST BRIDGEWATER, ABOUT 11 MI (17.7 KM) EAST OF RUTLAND, ABOUT 12.5 MI (20.1 KM) WEST OF WOODSTOCK. TO REACH FROM THE INTERSECTION OF VT ROUTE 100 SOUTH AND U.S. ROUTE 4 IN WEST BRIDGEWATER; GO SOUTH ALONG VT ROUTE 100 FOR 0.25 MI (0.40 KM) TO THE MARK ON THE RIGHT IN A TREE AND GRASS ISLAND AREA, ABOUT 30 M (98.4 FT) SOUTH OF THE SOUTH EDGE OF THE PARKING AREA FOR THE SUNRISE LIFT OF THE KILLINGTON SKI AREA. THE MARK IS 22.9 M (75.1 FT) WEST OF AND ABOUT LEVEL WITH THE WEST EDGE OF PAVEMENT OF VT ROUTE 100, 4.1 M (13.5 FT) EAST OF THE EAST EDGE OF A GRAVEL DRIVE, 25.1 M (82.3 FT) SOUTH OF POLE NO. CTC 7, 31.7 M (104.0 FT) NORTHEAST OF POLE NO. 8/8, 13.5 M (44.3 FT) NORTHWEST OF THE NORTH (OUTLET) END OF A 40-CM DIAMETER METAL CULVERT, AND 10.3 M (33.8 FT) NORTHWEST OF A FIBERGLASS WITNESS POST. IT IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF A 30-CM DIAMETER CONCRETE MONUMENT POURED TO A DEPTH OF 1.8 M.

TRAVERSE TIES

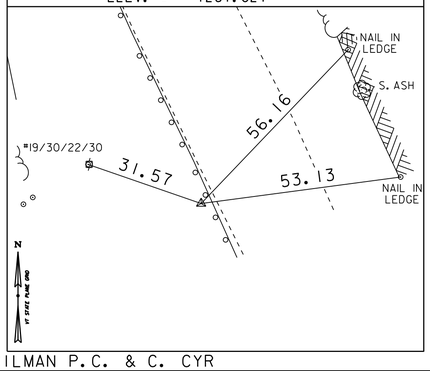
HVCTRL #8

NORTH = 394650.4070
EAST = 1571991.7222
ELEV. = 1240.983



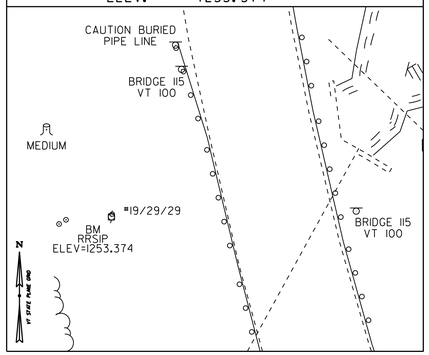
HVCTRL #9

NORTH = 394231.2251
EAST = 1572067.4578
ELEV. = 1261.021



BM #1

NORTH = 394460.1471
EAST = 1571953.1584
ELEV. = 1253.374



NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

TRAVERSE COMPLETED ON 10/02/2015 BY R. GILMAN P.C. & C. CYR

ALIGNMENT TIES

VT100

	STATION	NORTHING	EASTING
POB	506+05.78	1572070.6398	394264.9952
PC	506+70.09	1572044.3084	394323.6635
PI	508+53.18	1571969.3358	394490.7078
PT	510+30.08	1571974.4843	394673.7330

Delta:	25°46'57.81" Right
Degree of Curve:	7°09'43.10"
Radius:	800.00
Tangent:	183.10
Length:	359.99
External:	20.69

	STATION	NORTHING	EASTING
PC	510+30.08	1571974.4843	394673.7330
POE	510+59.28	1571975.3053	394702.9176

CHANNEL

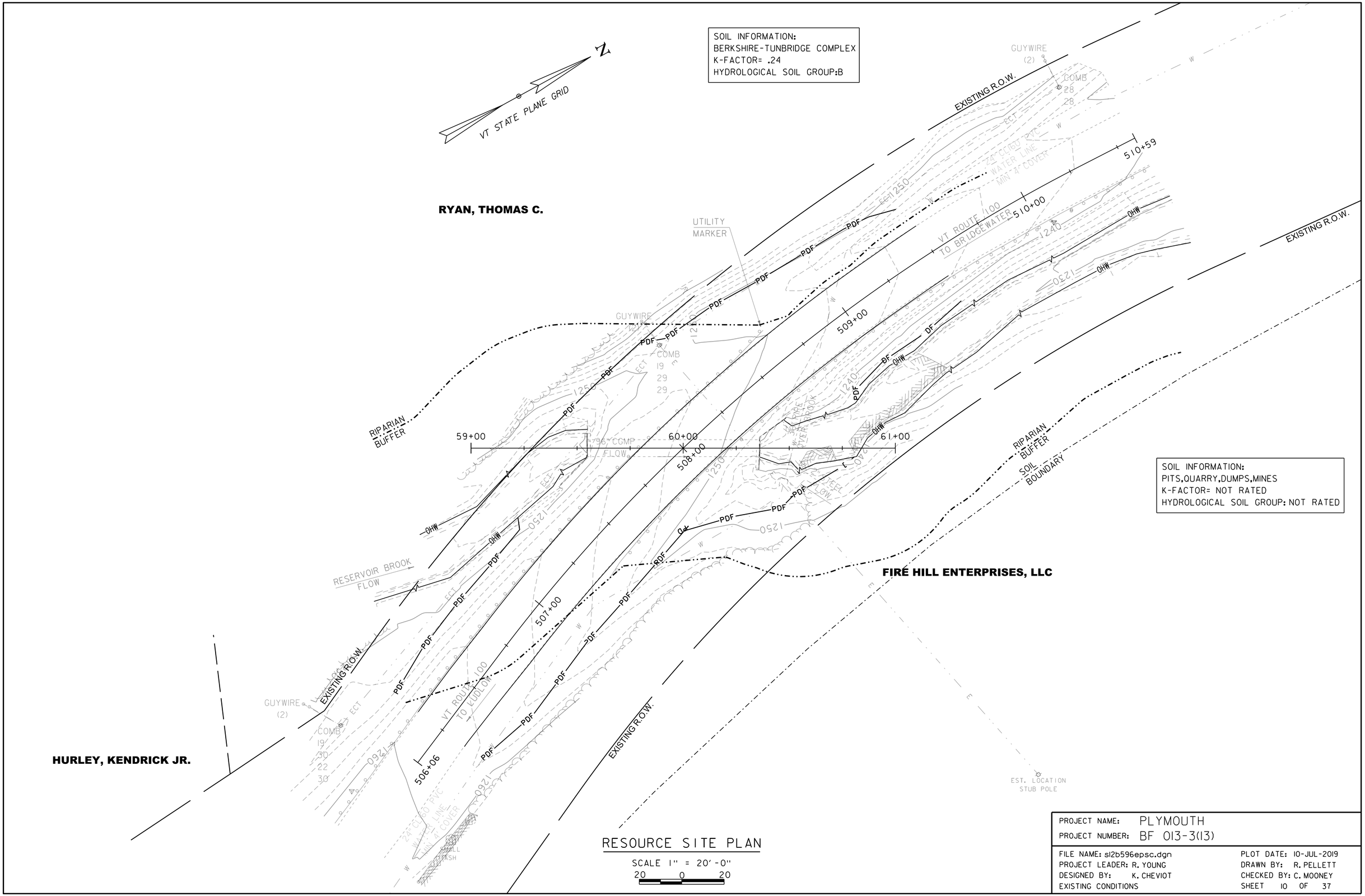
	STATION	NORTHING	EASTING
POB	59+00.00	1571952.8116	394358.3230
POE	61+00.00	1572049.0818	394533.6289

DATUM
VERTICAL NAVD88
HORIZONTAL NAD83(2011)
ADJUSTMENT COMPASS

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596tie.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: G. HITCHCOCK
TIE SHEET

PLOT DATE: 10-JUL-2019
DRAWN BY: G. HITCHCOCK
CHECKED BY: C. MOONEY
SHEET 9 OF 37



RESOURCE SITE PLAN

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

PROJECT NAME:	PLYMOUTH
PROJECT NUMBER:	BF 013-3(13)
FILE NAME: sl2b596epsc.dgn	PLOT DATE: 10-JUL-2019
PROJECT LEADER: R. YOUNG	DRAWN BY: R. PELLETT
DESIGNED BY: K. CHEVIOT	CHECKED BY: C. MOONEY
EXISTING CONDITIONS	SHEET 10 OF 37

COARSE MILLING, BITUMINIOUS PAVEMENT
506+25 - 507+00
509+00 - 509+50

DURABLE 4 INCH WHITE LINE, EPOXY PAINT
506+25 - 509+50 RT
506+25 - 509+50 LT

DURABLE 4 INCH YELLOW LINE, EPOXY PAINT (DOUBLE)
506+25 - 509+50 RT
506+25 - 509+50 LT

REMOVAL AND DISPOSAL OF GUARDRAIL
506+25 - 508+64 LT
507+30 - 509+50 RT

HD STEEL BEAM GUARDRAIL, GALVANIZED
506+25 - 508+29 LT
507+08 - 509+50 RT

MANUFACTURED TERMINAL SECTIONS
506+58 - 507+08 RT
508+29 - 508+79 LT

REMOVING SIGNS
508+10 RT
508+57 LT
508+63 LT

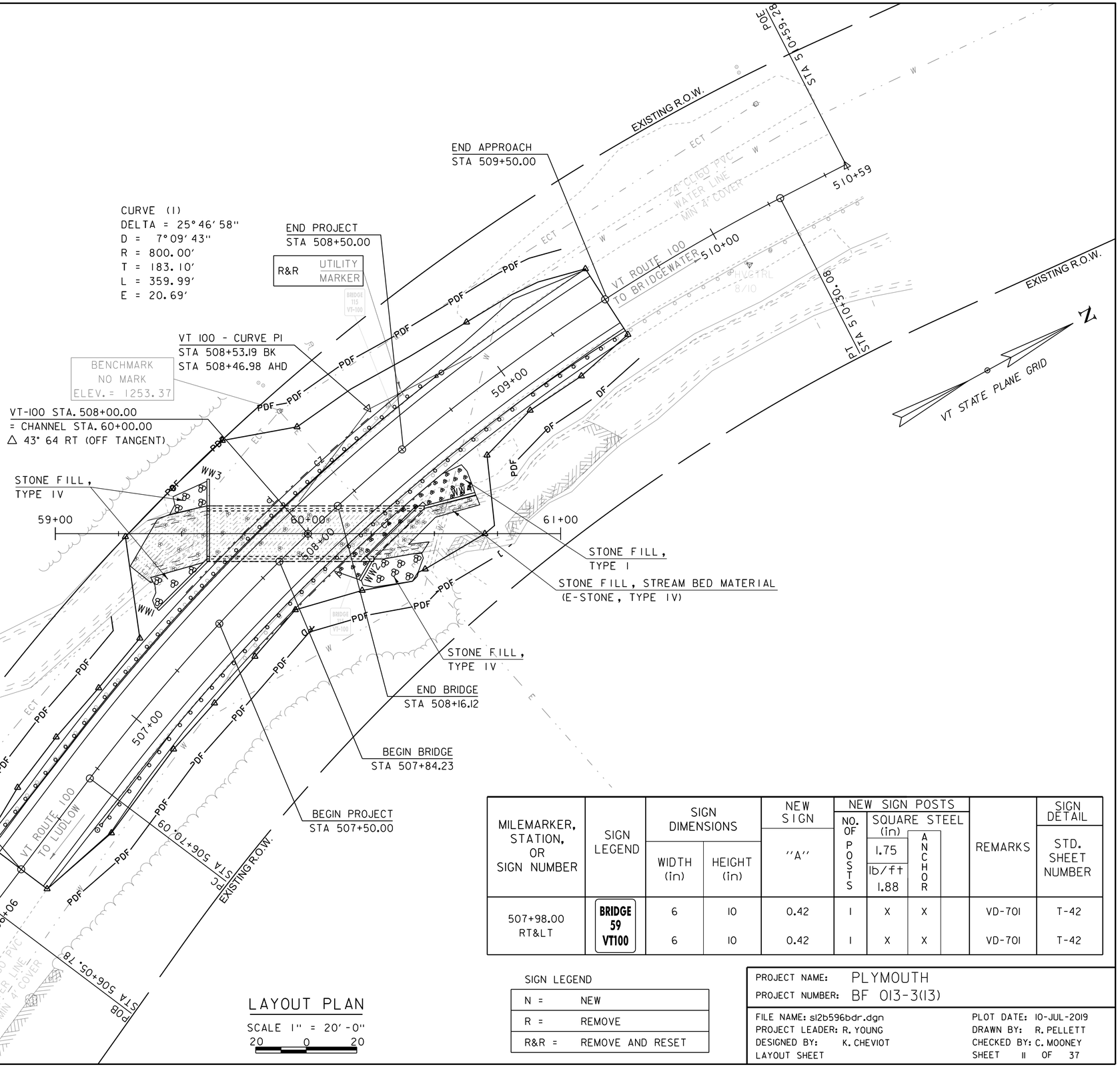
STONE FILL, TYPE I
60+10 - 60+66

STONE FILL, TYPE IV
59+38 - 59+60 RT
59+45 - 59+60 LT
60+21 - 60+46 RT

STONE FILL, STREAM BED MATERIAL
(E-STONE, TYPE IV)
59+30 - 60+68

TRAFFIC SIGN, TYPE A
507+98 LT & RT

DELINEATOR WITH STEEL POST
506+55.6 (BLUE)
508+81 (BLUE)



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

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS		NEW SIGN	NEW SIGN POSTS				REMARKS	SIGN DETAIL
		WIDTH (in)	HEIGHT (in)	"A"	NO. OF POSTS	SQUARE STEEL (in)	ANCHOR			STD. SHEET NUMBER
						1.75 lb/ft 1.88				
507+98.00 RT&LT	BRIDGE 59 VT100	6	10	0.42	1	X	X		VD-701	T-42
		6	10	0.42	1	X	X		VD-701	T-42

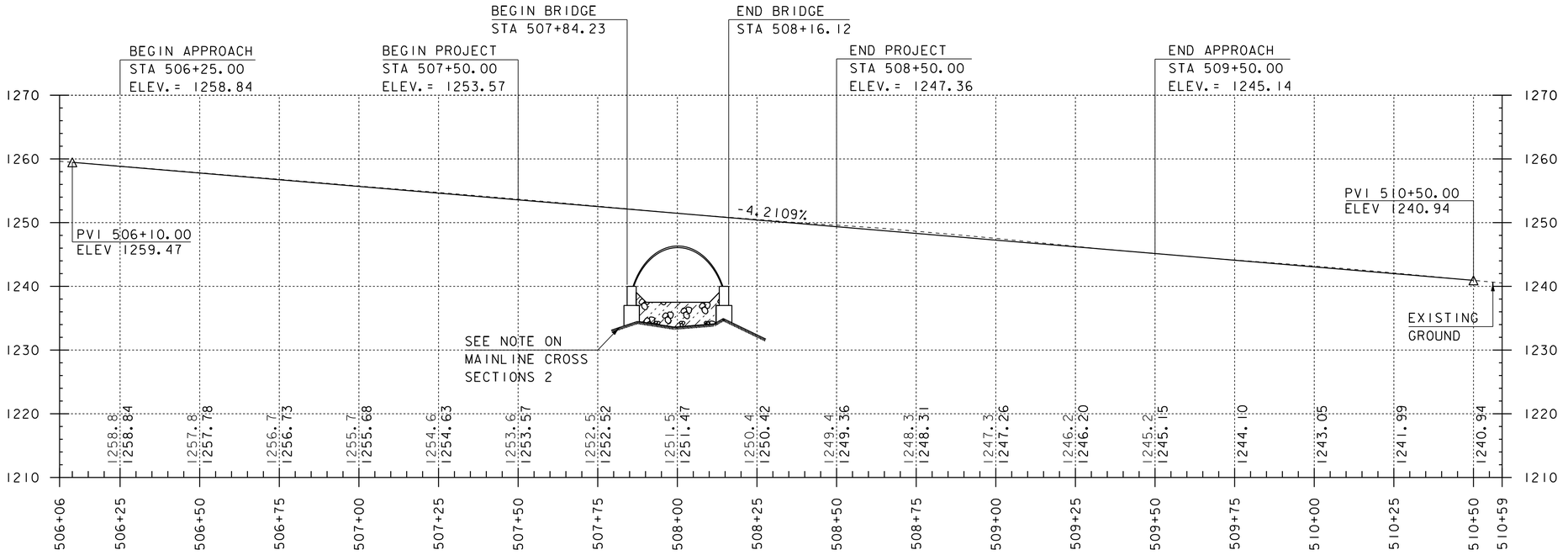
SIGN LEGEND

N =	NEW
R =	REMOVE
R&R =	REMOVE AND RESET

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

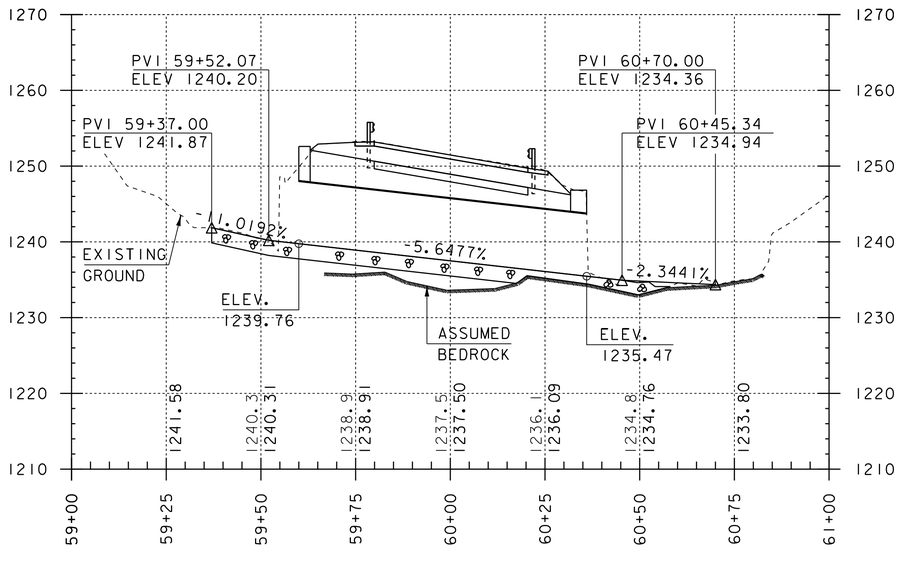
FILE NAME: sl2b596bdr.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
LAYOUT SHEET

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 11 OF 37



VT ROUTE 100 PROFILE

SCALE: HORIZONTAL 1"=20'-0"
VERTICAL 1"=10'-0"

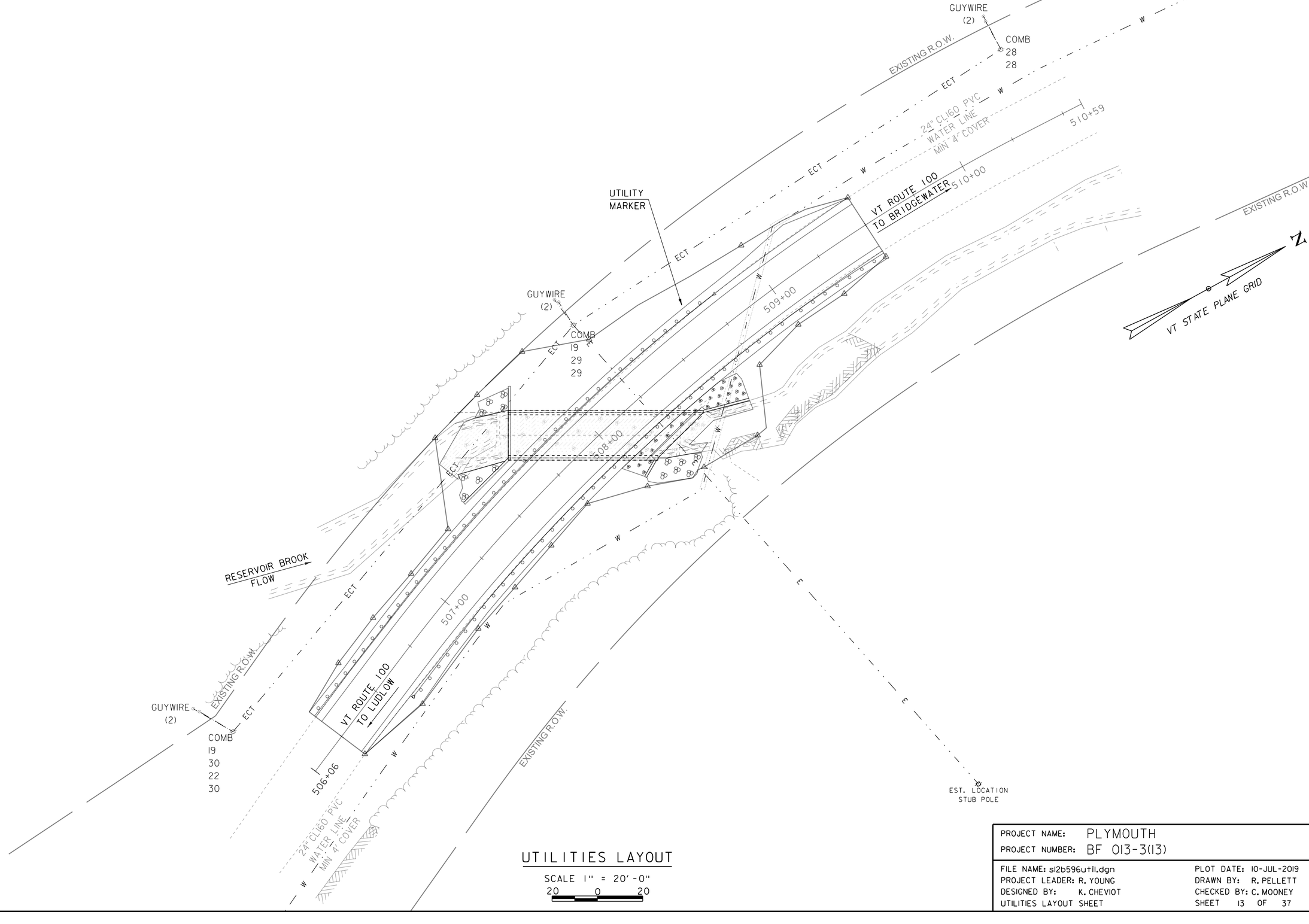


CULVERT 115 PROFILE

SCALE: HORIZONTAL 1"=20'-0"
VERTICAL 1"=10'-0"

NOTE:
GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG ℄
GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE ALONG ℄

PROJECT NAME:	PLYMOUTH
PROJECT NUMBER:	BF 013-3(13)
FILE NAME: sl2b596pro.dgn	PLOT DATE: 10-JUL-2019
PROJECT LEADER: R. YOUNG	DRAWN BY: R. PELLETT
DESIGNED BY: K. CHEVIOT	CHECKED BY: C. MOONEY
PROFILE SHEET	SHEET 12 OF 37

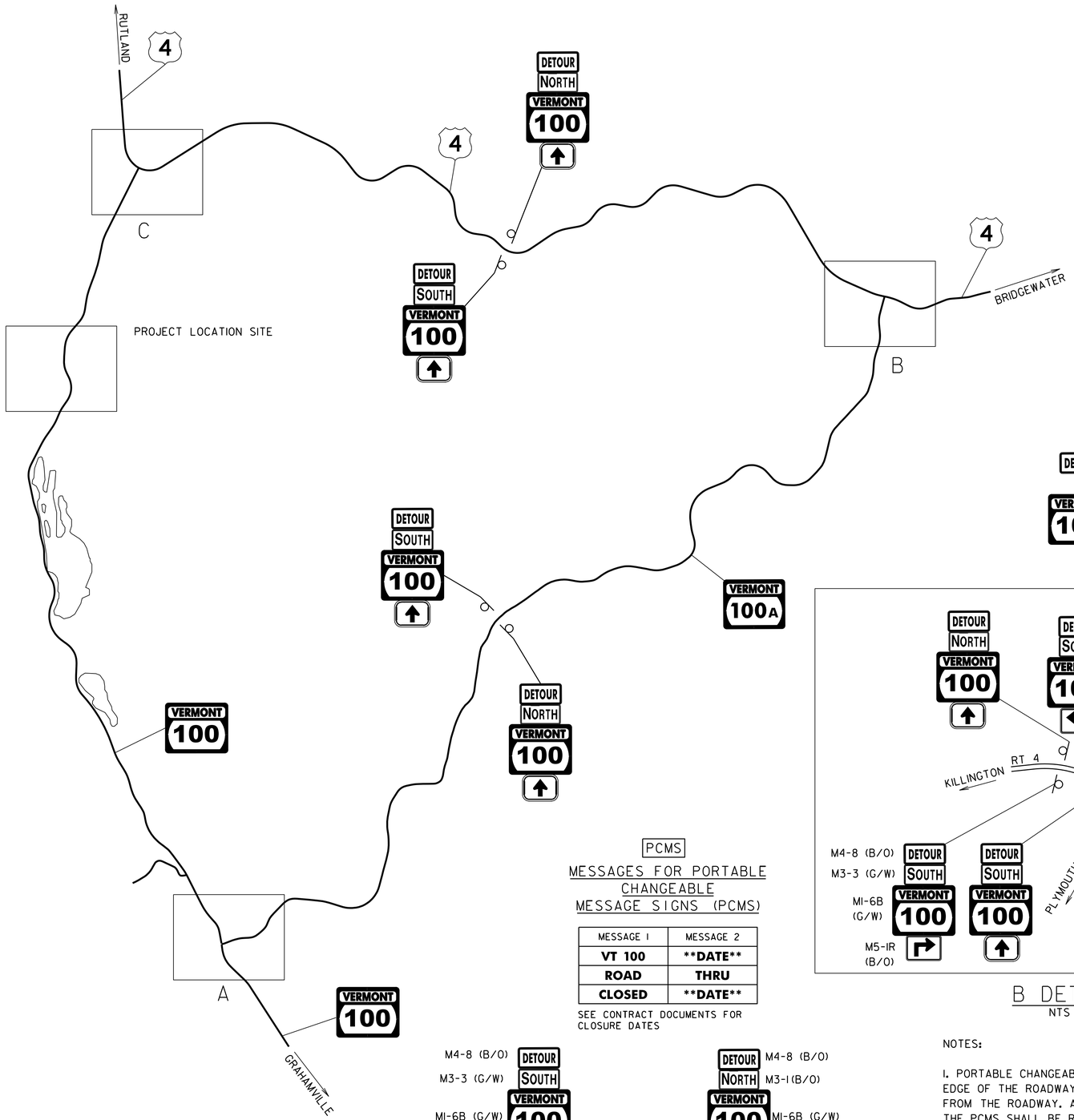


UTILITIES LAYOUT

SCALE 1" = 20'-0"

20 0 20

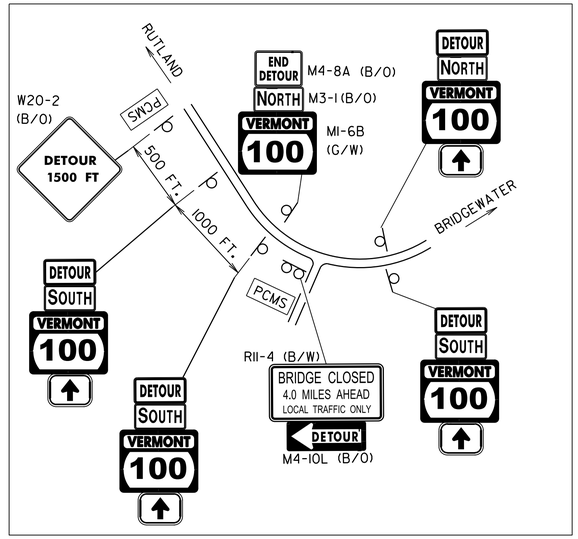
PROJECT NAME:	PLYMOUTH
PROJECT NUMBER:	BF 013-3(13)
FILE NAME: s12b596util.dgn	PLOT DATE: 10-JUL-2019
PROJECT LEADER: R. YOUNG	DRAWN BY: R. PELLETT
DESIGNED BY: K. CHEVIOT	CHECKED BY: C. MOONEY
UTILITIES LAYOUT SHEET	SHEET 13 OF 37



LAYOUT VIEW

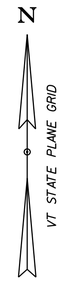
SCALE 1" = 2000'

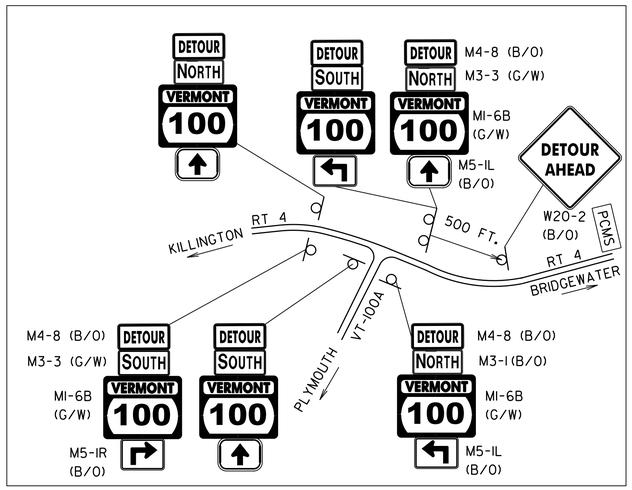
2000 0 2000



C DETAIL

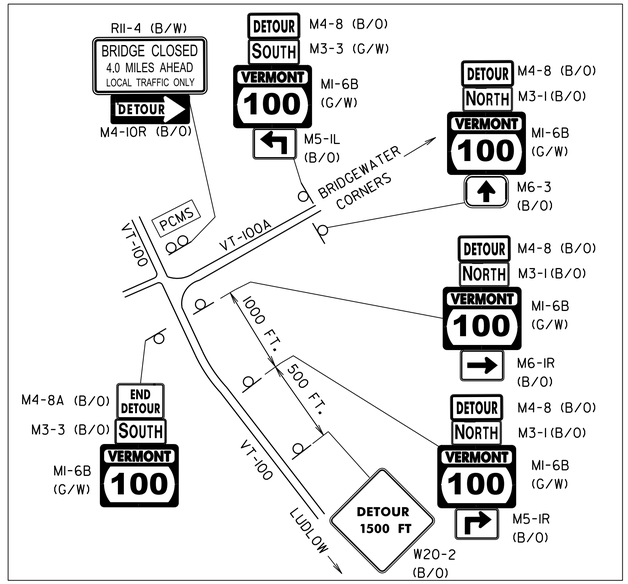
NTS





B DETAIL

NTS



A DETAIL

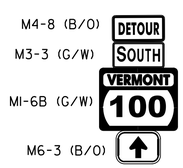
NTS

PCMS

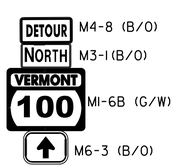
MESSAGES FOR PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS)

MESSAGE 1	MESSAGE 2
VT 100	**DATE**
ROAD	THRU
CLOSED	**DATE**

SEE CONTRACT DOCUMENTS FOR CLOSURE DATES



TYPICAL SOUTH DETOUR ASSEMBLY



TYPICAL SOUTH DETOUR ASSEMBLY

NOTES:

1. PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE PLACED OFF THE EDGE OF THE ROADWAY, OUTSIDE THE CLEAR ZONE, BUT SHALL BE VISIBLE FROM THE ROADWAY. ANY VEGETATION THAT INTERFERES WITH VISIBILITY OF THE PCMS SHALL BE REMOVED. REMOVAL OF THE VEGETATION WILL BE INCIDENTAL TO ITEM 641.15, "PORTABLE CHANGEABLE MESSAGE SIGN".

2. ORANGE FLAGS SHALL BE USED WITH TEMPORARY DETOUR SIGNS WITH BLACK LETTERING ON WHITE BACKGROUNDS TO HIGHLIGHT INFORMATION FOR THE TRAVELING PUBLIC.

3. SEE CONTRACT DOCUMENTS FOR CLOSURE DATES.

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596det.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
OFFSITE DETOUR LAYOUT

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 14 OF 37

SOIL CLASSIFICATION

AASHTO	
A1	Gravel and Sand
A3	Fine Sand
A2	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
A6	Clayey Soil - Low Compressibility
A7	Clayey Soil - Highly Compressible

ROCK QUALITY DESIGNATION

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

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN 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 5/8"
NX	Core Size 2 1/8"
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Si	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	Top of 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)
VTSPG	NAD83 - See Note 7
TP#	Test Pit

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 > 0.0787" (#10 sieve).

SAND - Particles of rock < 0.0787" (#10 sieve) and > 0.0029" (#200 sieve).

SILT - Soil < 0.0029" (#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.

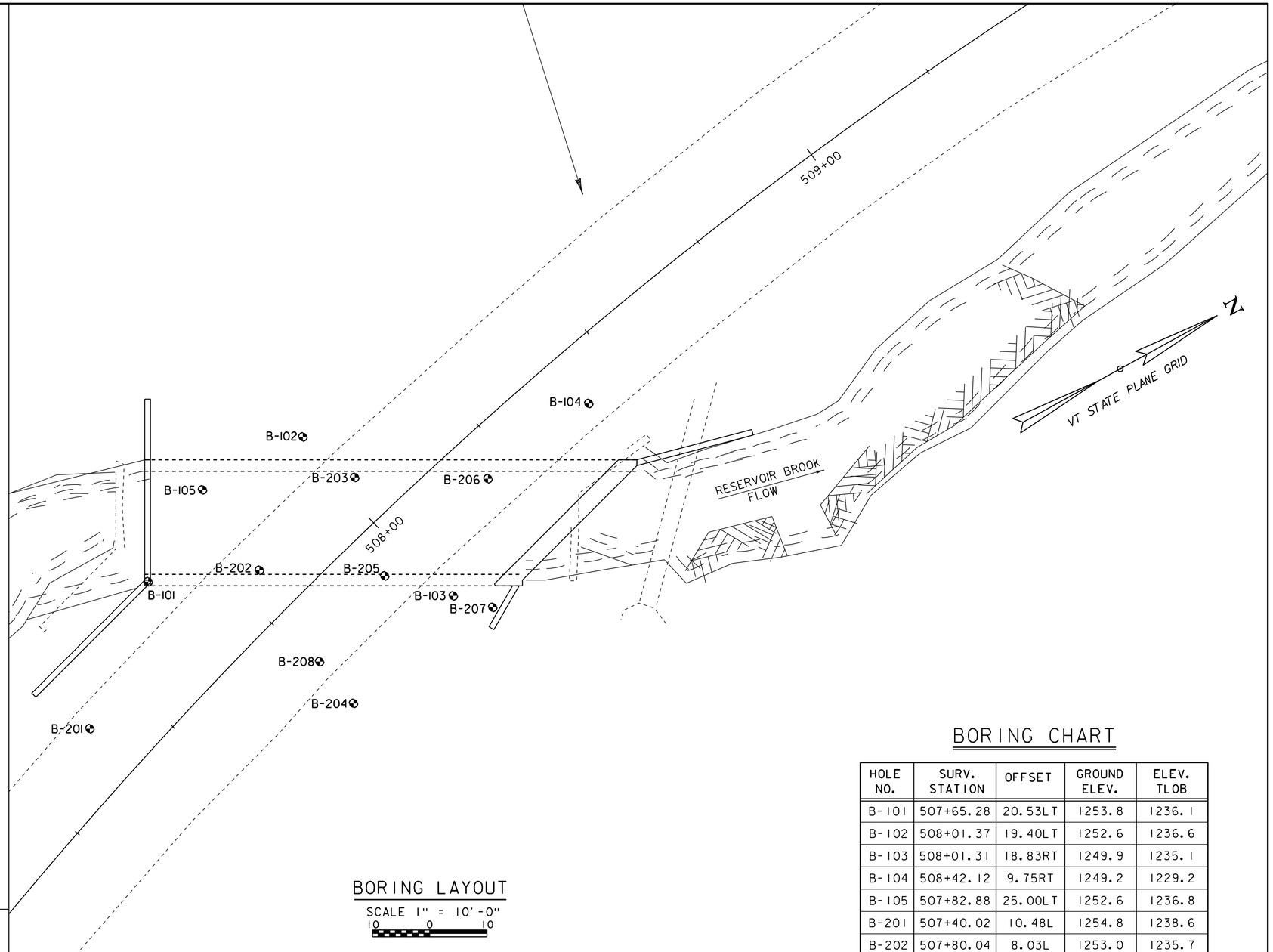
MUCK - Soft organic soil (containing > 10% organic material.

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 LAYOUT

SCALE 1" = 10'-0"

10 0 10

GENERAL NOTES

1. The subsurface explorations shown herein were made between 10/03-10/19/16 and 12/04-12/14/17 by the Agency.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering judgment 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 judgment by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.
7. Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.

BORING CHART

HOLE NO.	SURV. STATION	OFFSET	GROUND ELEV.	ELEV. TLOB
B-101	507+65.28	20.53LT	1253.8	1236.1
B-102	508+01.37	19.40LT	1252.6	1236.6
B-103	508+01.31	18.83RT	1249.9	1235.1
B-104	508+42.12	9.75RT	1249.2	1229.2
B-105	507+82.88	25.00LT	1252.6	1236.8
B-201	507+40.02	10.48L	1254.8	1238.6
B-202	507+80.04	8.03L	1253.0	1235.7
B-203	508+03.06	8.03L	1252.0	1233.9
B-204	507+75.05	20.01R	1251.3	1234.8
B-205	507+94.94	8.02R	1251.2	1233.3
B-206	508+19.98	7.95R	1250.1	1234.4
B-207	508+05.02	25.02R	1247.1	1237.9
B-208	507+76.11	10.68R	1246.6	1229.4

PROJECT NAME: PLYMOUTH

PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596bor.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
BORING INFORMATION SHEET

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 15 OF 37

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-101**
Page No.: 1 of 1
Pin No.: 12b596
Checked By: END

Boring Crew: Emerson, Garrow, Gomes
Date Started: 10/04/16 Date Finished: 10/05/16
VTSPG NAD83: N 394406.50 ft E 1571990.99 ft
Station: 507+65 Offset: -20.00
Ground Elevation: 1253.8 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	C_e = 1.42

Groundwater Observations

Date	Depth (ft)	Notes
10/05/16	12.5	W.T. before drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-1-b, GrSa, brn, Moist, Rec. = 0.4 ft, Lab Note: Plant material was within sample				WH-1-2-1 (3)	10.5	34.8	46.6	18.6
		A-1-b, GrSa, brn, Moist, Rec. = 1.3 ft				2-6-6-5 (12)	6.4	34.3	46.9	18.8
5		A-1-b, SiGrSa, brn, Moist, Rec. = 1.4 ft Field Note:, Rollercone, cleaned out casing				8-8-8-8 (16)	7.4	31.7	44.1	24.2
		A-2-4, SaSiGr, brn, Moist, Rec. = 0.3 ft Field Note:, Rollercone, cleaned out casing				7-15-7-7 (22)	12.9	47.1	24.8	28.1
		A-1-b, SiGrSa, brn, Moist, Rec. = 0.6 ft				5-5-8-9 (13)	13.2	32.1	45.6	22.3
10		Field Note:, No Recovery				12-13-9-6 (22)				
		A-2-4, SiSa, Dk/brn, Moist, Rec. = 0.9 ft, Lab Note: Decomposing wood was within sample				3-1-1-1 (2)	43.1	12.3	53.6	34.1
15		A-1-b, SaGr, brn, Moist, Rec. = 0.4 ft, Lab Note: A small amount of decomposing wood was within sample Field Note:, NXDC, cleaned out casing				WH-3-R@3.5" (R)	16.1	52.8	34.2	13.0
		A-1-b, SiSaGr, brn, Moist, Rec. = 0.7 ft, Lab Note: Broken and weathered rock was within sample				5-17-R@3.5" (R)	13.3	39.7	38.3	22.0
20		17.7 ft - 21.7 ft, Gray, Carbonaceous muscovite-biotite-quartz PHYLLITE, with dolomitic laminae and rare pyrite. Rust staining along joints. Moderately hard, Slightly weathered, Poor rock, NX, RMR=39	1 (50)	85 (23)	6 4 6 8	Top of Bedrock @ 17.7 ft				
25		21.7 ft - 26.7 ft, Gray, Carbonaceous muscovite-biotite-quartz PHYLLITE, with dolomitic laminae and rare pyrite. Faint brown staining along joints. Moderately hard, Unweathered, Fair rock, NX, RMR=51	2 (50)	92 (68)	3 4 2 3 4					
		26.7 ft - 27.7 ft, Gray, Carbonaceous muscovite-biotite-quartz PHYLLITE, with dolomitic laminae and rare pyrite. Rust and brown staining along joints. Moderately hard, Unweathered, Fair rock, NX, RMR=44	3 (40-50)	100 (40)	5					
30		Hole stopped @ 27.7 ft								

Remarks:
Hole collapsed at 8.5 feet.

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_e is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 PLYMOUTH BF 013-3(13).GPJ VERMONT AOT.GDT 11/2/16

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-102**
Page No.: 1 of 1
Pin No.: 12b596
Checked By: END

Boring Crew: Gomes, Garrow
Date Started: 10/05/16 Date Finished: 10/06/16
VTSPG NAD83: N 394442.36 ft E 1571981.84 ft
Station: 508+00 Offset: -20.00
Ground Elevation: 1252.6 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	C_e = 1.42

Groundwater Observations

Date	Depth (ft)	Notes
10/06/16		No W.T. recorded

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-2-4, SiGrSa, brn, Moist, Rec. = 0.9 ft, Lab Note: Plant material was within sample				WH-1-2-6 (3)	12.0	25.6	54.2	20.2
		A-1-b, GrSa, brn, Moist, Rec. = 1.2 ft				5-9-10-12 (19)	6.4	41.4	41.4	17.2
5		A-1-b, GrSa, brn, Moist, Rec. = 1.6 ft, Lab Note: Broken rock was within sample				12-18-16-11 (34)	5.8	36.1	44.3	19.6
		A-1-a, SaGr, brn, Moist, Rec. = 0.3 ft, Lab Note: Broken rock was within sample Field Note:, NXDC, Cleaned out casing				9-5-3-5 (8)	4.0	59.5	28.1	12.4
		Field Note:, No Recovery Field Note:, NXDC, Cleaned out casing				8-7-5-5 (12)				
10		A-1-b, GrSa, brn, Moist, Rec. = 0.4 ft Field Note:, NXDC, Cleaned out casing				5-4-4-3 (8)	13.6	32.9	48.4	18.7
		Field Note:, No Recovery Field Note:, NXDC, Cleaned out casing				5-2-2-1 (4)				
15		A-1-b, SaGr, brn, Moist, Rec. = 0.8 ft Field Note:, NXDC, Cleaned out casing				3-3-14-11 (17)	11.1	49.1	38.4	12.5
		16.0 ft - 21.0 ft, Gray, Muscovite-biotite-quartz PHYLLITE, with dolomitic and quartz laminae and rare pyrite. Rust staining along joints. Moderately hard, Slightly weathered, Poor rock, NX, RMR=36	1 (30-40)	78 (14)	5 5 5 5 5	Top of Bedrock @ 16.0 ft				
20										
25		21.0 ft - 26.0 ft, Gray, Muscovite-biotite-quartz PHYLLITE, with few dolomitic lenses/laminae and rare pyrite. Rust and brown staining along joints. Moderately hard, Slightly weathered, Fair rock, NX, RMR=53	2 (30-40)	100 (76)	5 5 3 4 5					
30		Hole stopped @ 26.0 ft								

Remarks:
Hole collapsed at 8.8 feet.

1. Stone was stuck in end of sampler in 6 foot to 8 foot sample.

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_e is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 PLYMOUTH BF 013-3(13).GPJ VERMONT AOT.GDT 11/2/16

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596bor.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
BORING LOG 1

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 16 OF 37

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-103**
Page No.: 1 of 1
Pin No.: 12b596
Checked By: END

Boring Crew: Gomes, Judkins, Emerson
Date Started: 10/07/16 Date Finished: 10/18/16
VTSPG NAD83: N 394452.04 ft E 1572018.82 ft
Station: 508+01 Offset: 20.00
Ground Elevation: 1249.9 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	3 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	Diedrich 25	C_e = Unkown

Groundwater Observations

Date	Depth (ft)	Notes
10/18/16	11.7	W.T. before drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-1-b, GrSa, brn, Dry, Rec. = 0.8 ft, Lab Note: Plant material was within sample				2-3-3-4 (6)	8.7	40.1	43.3	16.6
		A-2-4, GrSa, brn, Dry, Rec. = 1.0 ft				5-5-5-4 (10)	7.3	31.9	51.8	16.3
5		A-1-b, GrSa, brn, Dry, Rec. = 0.8 ft				5-4-5-8 (9)	6.4	42.7	44.0	13.3
		A-2-4, SiGrSa, brn, Dry, Rec. = 0.2 ft, Lab Note: Broken rock was within sample				9-6-5-7 (11)	7.2	33.7	42.2	24.1
		A-1-b, GrSa, brn, Dry, Rec. = 1.5 ft				4-7-9-6 (16)	10.4	39.3	42.1	18.6
10		Field Note:, No Recovery				11-5-2-4 (7)				
		A-1-b, GrSa, brn, Moist, Rec. = 0.4 ft, Lab Note: Large pieces of wood were within sample Field Note:, NXDC, Cleaned out casing				21-R@3.5" (R)	53.4	36.6	49.5	13.9
		A-2-4, GrSiSa, blk-brn, Moist, Rec. = 0.4 ft, Lab Note: Broken and weathered rock was within sample				18-R@3.5" (R)	15.7	25.1	43.0	31.9
15		14.8 ft - 19.8 ft, Silvery-gray, Carbonaceous muscovite-biotite-quartz-pyrite PHYLLITE, with dolomitic lenses/laminae. Yellow and rust staining along joints. Moderately hard, Unweathered, Poor rock, BX, RMR=36 Low RQD could be due to mechanical breakage	1 (50)	56 (0)	7 6 6 8 8					
20		19.8 ft - 23.8 ft, Silvery-gray, Carbonaceous muscovite-biotite-quartz-pyrite PHYLLITE, with dolomitic lenses/laminae. Rust and orange staining along joints. Medium to moderately hard, Very slightly weathered, Poor rock, BX, RMR=36 Low RQD could be due to mechanical breakage	2 (40-50)	58 (0)	6 6 5 15					
25		23.8 ft - 28.8 ft, Silvery-gray, Carbonaceous muscovite-biotite-quartz-pyrite PHYLLITE, with few dolomitic lenses/laminae. Faint brown and rust staining along joints. Moderately hard, Very slightly weathered, Poor rock, BX, RMR=39 Low RQD could be due to mechanical breakage	3 (40-50)	40 (0)	5 4 4 10 6					
30		Hole stopped @ 28.8 ft								

Remarks:
Hole collapsed at 10.6 feet.

1. Top of Bedrock 14.8 feet.

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_e is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 PLYMOUTH BF 013-3(13).GPJ VERMONT AOT.GDT 11/2/16

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-104**
Page No.: 1 of 1
Pin No.: 12b596
Checked By: END

Boring Crew: Emerson, Garrow, Gomes
Date Started: 10/03/16 Date Finished: 10/04/16
VTSPG NAD83: N 394488.95 ft E 1572000.76 ft
Station: 508+42 Offset: 9.80
Ground Elevation: 1249.2 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	C_e = 1.42

Groundwater Observations

Date	Depth (ft)	Notes
10/04/16	11.4	W.T. before drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 1.0 ft								
		A-1-b, GrSa, brn, Moist, Rec. = 1.3 ft				8-13-15-14 (28)	7.1	36.2	46.8	17.0
		A-2-4, SiSa, brn, Moist, Rec. = 1.7 ft				12-9-8-9 (17)	8.6	19.0	60.3	20.7
5		A-2-4, SiSa, brn, Moist, Rec. = 1.5 ft Field Note:, Rollercone, cleaned out casing				6-6-4-4 (10)	11.1	14.0	64.5	21.5
		A-1-b, GrSa, brn, Moist, Rec. = 0.3 ft				4-4-4-4 (8)	15.4	34.8	48.4	16.8
		Field Note:, No Recovery				4-2-1-WH (3)				
10		Field Note:, Rollercone, cleaned out casing								
		A-1-a, SaGr, brn-blk, Moist, Rec. = 1.2 ft, Lab Note: Broken rock and a small amount of asphalt pavement was within sample Field Note:, NXDC, cleaned out casing				14-5-13-18 (18)	12.8	54.7	34.4	10.9
		Field Note:, Cobbles and Boulder								
15		A-1-b, GrSa, Lt/brn, Moist, Rec. = 0.7 ft, Lab Note: A small amount of broken rock was within sample Field Note:, NXDC, cleaned out casing				13-13-R@3.5" (R)	13.9	39.1	41.3	19.6
20		20.0 ft - 25.0 ft, Gray, Carbonaceous muscovite-biotite-quartz-pyrite PHYLLITE, with dolomitic laminae. Rust and brown staining along joints. Moderately hard, Very slightly weathered, Fair rock, NX, RMR=46	1 (50)	96 (56)	5 3 3 3 3	Top of Bedrock @ 20.0 ft				
25		25.0 ft - 30.0 ft, Gray, Carbonaceous muscovite-biotite-quartz-pyrite PHYLLITE, with dolomitic laminae. Faint brown staining along joints. Moderately hard, Unweathered, Fair rock, NX, RMR=54	2 (50)	96 (72)	3 3 3 4 3					
30		Hole stopped @ 30.0 ft								

Remarks:
Hole Collapsed at 7.1 feet.

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_e is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 PLYMOUTH BF 013-3(13).GPJ VERMONT AOT.GDT 11/2/16

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596bor.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
BORING LOG 2

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 17 OF 37

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-105**
Page No.: 1 of 1
Pin No.: 12b596
Checked By: END

Boring Crew: Emerson, Judkins, Gomes
Date Started: 10/18/16 Date Finished: 10/19/16
VTSPG NAD83: N 394422.55 ft E 1571981.50 ft
Station: 507+83 Offset: -24.30
Ground Elevation: 1252.6 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	3 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	Diedrich 25	C_e = Unkown

Groundwater Observations		
Date	Depth (ft)	Notes
10/19/16		No W.T. observed

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-1-b, SaGr, brn, Dry, Rec. = 0.7 ft, Lab Note: Plant material was within sample				3-3-5-8 (8)	6.4	53.7	34.6	11.7
		A-1-b, GrSa, brn, Dry, Rec. = 1.0 ft				4-3-4-7 (7)	7.1	41.2	44.5	14.3
5		A-1-b, GrSa, brn, Dry, Rec. = 1.5 ft				9-9-7-7 (16)	5.8	28.2	53.0	18.8
		A-1-b, GrSa, brn, Dry, Rec. = 1.6 ft				6-7-5-7 (12)	6.3	32.5	47.9	19.6
		A-2-4, SiSa, brn, Dry, Rec. = 0.6 ft				7-7-6-6 (13)	8.3	17.9	56.3	25.8
10		Field Note:, No Recovery Field Note:, BXDC, cleaned out casing				6-9-9-7 (18)				
		A-1-b, SaGr, brn, Moist, Rec. = 0.6 ft Field Note:, Rollercone, cleaned out casing				5-3-3-5 (6)	13.4	42.8	39.8	17.4
15		A-1-b, SaGr, gry-brn, Moist, Rec. = 0.9 ft, Lab Note: Sample was rust colored				8-8-19-R@2.5" (27)	12.2	43.0	37.7	19.3
		Field Note:, BXDC, cleaned out casing								
		A-1-b, SiSaGr, gry-brn, Moist, Rec. = 0.8 ft, Lab Note: Broken rock and a lot of weathered rock was within sample. Sample was rust colored				35-R@3.5" (R)	13.5	39.9	36.5	23.6
		16.8 ft - 20.8 ft, Silvery-gray to light gray, Carbonaceous muscovite-biotite-quartz-pyrite PHYLLITE, with dolomitic laminae and rare magnetite. Brown staining along joints. Moderately hard, Unweathered, Fair rock, BX, RMR=44 Low RQD could be due to mechanical breakage	1 (40-50)	55 (0)	4 3 4 6					
20		20.8 ft - 25.8 ft, Silvery-gray to light gray, Carbonaceous muscovite-biotite-quartz PHYLLITE, with dolomitic lenses/laminae and rare magnetite. Faint rust staining along joints. Moderately hard, Unweathered, Fair rock, BX, RMR=49	2 (30)	80 (42)	3 3 4 4 4					
25		Hole stopped @ 25.8 ft								
		Remarks: Hole collapsed at 12.5 feet. 1. Top of Bedrock 16.8 feet.								
30										

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_e is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 PLYMOUTH BF 013-3(13).GPJ VERMONT AOT.GDT 11/2/16

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-201**
Page No.: 1 of 1
Pin No.: 12b596
Checked By:

Boring Crew: Nieto, Garrow, Olden
Date Started: 12/14/17 Date Finished: 12/14/17
VTSPG NAD83: N 394385.2 ft E 1572008.6 ft
Station: 507+40 Offset: -10.50
Ground Elevation: 1254.8 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	C_e = 1.42

Groundwater Observations		
Date	Depth (ft)	Notes
12/14/17	5.5	W.T. after drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 1.0 ft								
		Field Note:, Appears to be Gr Sa								
5		Field Note:, NXDC, cleaned out casing, Cobbles and Boulders								
10		Field Note:, Appears to be Sa Gr								
15		Field Note:, NXDC, cleaned out casing, Cobbles and Boulders								
		16.2 ft - 21.2 ft, Silvery-gray, Carbonaceous, sulfidic PHYLLITE, with calcareous, siliceous, and dolomitic laminae. Open joints are rust stained, pitted, and friable with finger pressure. Moderately hard, Slightly to moderately weathered, Fair rock, NX, RMR=46	1 (35)	92 (74)	2 1 2 2 2	Top of Bedrock @ 16.2 ft				
20		21.2 ft - 22.5 ft, White, DOLOMITE, with phyllitic inclusions. NX 22.5 ft - 26.2 ft, Silvery-gray, Carbonaceous, sulfidic PHYLLITE, with dolomitic and calcareous laminae. Moderately hard, Unweathered, Good rock, RMR=62	2 (35-40)	90 (91)	2 3 3 2 3					
25		Hole stopped @ 26.2 ft								
		Remarks: Hole collapsed at 8.8 feet.								
30										

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_e is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 PLYMOUTH BF 013-3(13).GPJ VERMONT AOT.GDT 12/20/17

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596bor.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
BORING LOG 3

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 18 OF 37

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-202**
Page No.: 1 of 1
Pin No.: 12b596
Checked By:

Boring Crew: Gonyaw, Judkins, Nieto
Date Started: 12/05/17 Date Finished: 12/05/17
VTSPG NAD83: N 394424.5 ft E 1571998.6 ft
Station: 507+80 Offset: -8.00
Ground Elevation: 1253.0 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	C_e = 1.42

Groundwater Observations

Date	Depth (ft)	Notes
12/05/17	8.3	W.T. after drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 0.72 ft								
5										
10										
15										
20		17.3 ft - 20.1 ft, Silver-gray, Highly sulfidic, silicic, biotite/sericite/chlorite PHYLLITE, with thicker irregular laminae of dolomitic quartzite. Foliation dipping ~65 degrees. NX	1 (65&35)	84 (14)	3					
					2					
					2					
		20.1 ft - 22.3 ft, Silver-gray, Highly sulfidic, silicic, biotite/sericite/chlorite PHYLLITE, with dolomitic quartzite layers becoming more regular, which shows a rheological change represented by a shallower ~35 degree dip. Joints are slightly open and show deep orange oxidation with cubic weathering patterns. Moderately hard, Slightly weathered, Poor rock, RMR=39			3					
					4					
		Hole stopped @ 22.3 ft								
25		Remarks: Hole collapsed at 9.9 feet.								

Top of Bedrock @ 17.3 ft

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_e is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 PLYMOUTH BF 013-3(13).GPJ VERMONT AOT.GDT 12/20/17

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-203**
Page No.: 1 of 1
Pin No.: 12b596
Checked By:

Boring Crew: Judkins, Gonyaw
Date Started: 12/06/17 Date Finished: 12/06/17
VTSPG NAD83: N 394446.9 ft E 1571992.4 ft
Station: 508+03 Offset: -8.00
Ground Elevation: 1252.0 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	C_e=1.42

Groundwater Observations

Date	Depth (ft)	Notes
12/06/17	11.1	W.T. during drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 0.85 ft								
5										
10		Field Note:, NXDC, cleaned out casing, cobbles								
		12.2 ft - 17.2 ft, Concrete. NX	1	100	3					
					3					
					3					
15					3					
					3					
20		18.1 ft - 23.1 ft, Silvery gray to dark gray, Carbonaceous sulfidic PHYLLITE, with calcareous and dolimitic laminae. Extensive rust staining and brown staining along joints and open foliation planes. Medium hard, Moderately weathered, Poor rock, NX, RMR=27	2 (45)	80 (20)	4					
					4					
					4					
					7					
					5					
		Hole stopped @ 23.1 ft								
25		Remarks: Hole collapsed at 2.3 feet.								

Top of Bedrock @ 18.1 ft

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_e is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 PLYMOUTH BF 013-3(13).GPJ VERMONT AOT.GDT 12/20/17

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596bor.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
BORING LOG 4

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 19 OF 37

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-204**
Page No.: 1 of 1
Pin No.: 12b596
Checked By: _____

Boring Crew: Emerson, Olden, Garrow
Date Started: 12/07/17 Date Finished: 12/07/17
VTSPG NAD83: N 394427.7 ft E 1572026.9 ft
Station: 507+75 Offset: 20.00
Ground Elevation: 1251.3 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	Diedrich D25	C_r= Unknown

Groundwater Observations		
Date	Depth (ft)	Notes
12/07/17	7.5	W.T. during drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
5		Field Note:, Appears to be Gr Sa								
10										
		Field Note:, NXDC, Cleaned out casing, cobbles								
15										
		Field Note:, NXDC, Cleaned out casing, cobbles								
20		16.5 ft - 21.5 ft, Silver-dark grey, Silicic, white mica, biotite, chlorite PHYLLITE, layered with thicker layers of carbonate bearing quartzite and "dirty" limestone. Lenses of sandy dolostone +/- calcite obliquely cut across fabric. Rock emanates a sulfur odor. Joints are slightly open and show deep orange oxidation and cubic pitting. Moderately hard, Slightly weathered, Fair rock, NX, RMR=44	1 (35)	92 (30)	3 2 3 2 3					
25		21.5 ft - 26.5 ft, Silver-dark grey, Silicic, white mica, biotite, chlorite PHYLLITE, layered with thicker layers of carbonate bearing quartzite and "dirty" limestone. Lenses of sandy dolostone +/- calcite obliquely cut across fabric. Rock emanates a sulfur odor. Joints are slightly open and show deep orange oxidation and cubic pitting. Moderately hard, Slightly weathered, Fair rock, NX, RMR=44	2 (35)	90 (27)	4 3 4 4 4					
30		Hole stopped @ 26.5 ft Remarks: Hole collapsed at 11.0 feet.								

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_r is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 PLYMOUTH BF 013-3(13).GPJ VERMONT AOT.GDT 12/20/17

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
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CENTRAL LABORATORY

BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-205**
Page No.: 1 of 1
Pin No.: 12b596
Checked By: _____

Boring Crew: Judkins, Gonyaw
Date Started: 12/04/17 Date Finished: 12/04/17
VTSPG NAD83: N 394443.2 ft E 1572010.0 ft
Station: 507+95 Offset: 8.00
Ground Elevation: 1251.2 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	C_r = 1.42

Groundwater Observations		
Date	Depth (ft)	Notes
12/04/17	10.2	W.T. during drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 0.85 ft								
5										
10		NXDC, cleaned out casing, Boulder, 11.5 ft - 13.5 ft								
15										
20		17.9 ft - 22.9 ft, Silvery-gray, Carbonaceous sulfidic PHYLLITE, with calcareous and dolomitic laminae. Faint rust and brown staining along joints. Moderately hard, Slightly weathered, Fair rock, NX, RMR=46	1 (35-40)	100 (64)	4 4 3 3 3					
25		Hole stopped @ 22.9 ft Remarks: Hole collapsed at 8.0 feet.								

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_r is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 PLYMOUTH BF 013-3(13).GPJ VERMONT AOT.GDT 12/20/17

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596bor.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
BORING LOG 5

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 20 OF 37

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-206**
Page No.: 1 of 1
Pin No.: 12b596
Checked By: _____

Boring Crew: Nieto, Judkins, Gonyaw
Date Started: 12/04/17 Date Finished: 12/05/17
VTSPG NAD83: N 394467.2 ft E 1572003.8 ft
Station: 508+20 Offset: 8.00
Ground Elevation: 1250.1 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID C_e = 1.42	

Groundwater Observations

Date	Depth (ft)	Notes
12/05/17	11.2	W.T. before drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0		Asphalt Pavement, 0.0 ft - 0.85 ft								
15.0		15.7 ft - 20.7 ft, Silvery-gray, Carbonaceous sulfidic PHYLLITE, with calcareous and dolomitic laminae. Rust staining along joints. Moderately hard, Very slightly weathered, Fair rock, NX, RMR=53	1 (25-30)	86 (86)	4 5 4 3 4	Top of Bedrock @ 15.7 ft				
		Hole stopped @ 20.7 ft								
		Remarks: Hole collapsed at 13.1 feet.								

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_e is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 PLYMOUTH BF 013-3(13).GPJ VERMONT AOT.GDT 12/20/17

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
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CENTRAL LABORATORY

BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-207**
Page No.: 1 of 1
Pin No.: 12b596
Checked By: _____

Boring Crew: Gonyaw, Garrow
Date Started: 12/08/17 Date Finished: 12/08/17
VTSPG NAD83: N 394457.1 ft E 1572023.9 ft
Station: 508+05 Offset: 25.00
Ground Elevation: 1247.1 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	Diedrich D25 C_e = Unknown	

Groundwater Observations

Date	Depth (ft)	Notes
12/08/17	3.0	W.T. during drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0		Field Note:, NXDC, cleaned out casing								
2.5		Field Note:, Appears to be Sa Gr								
7.5		Field Note:, NXDC, cleaned out casing								
9.2		9.2 ft - 14.2 ft, Silver-dark grey, Silicic, white mica, biotite, chlorite PHYLLITE, layered with thicker layers of carbonate bearing quartzite and "dirty" limestone. Lenses of sandy dolostone +/- calcite obliquely cut across fabric. Rock emanates a sulfur odor. Joints are slightly open and show deep orange oxidation and cubic pitting. Moderately hard, Slightly weathered, Fair rock, NX, RMR=44	1 (35)	92 (30)	4 4 2 4 4	Top of Bedrock @ 9.2 ft				
		Hole stopped @ 14.2 ft								
		Remarks: Hole collapsed at 8.8 feet.								

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_e is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 PLYMOUTH BF 013-3(13).GPJ VERMONT AOT.GDT 12/20/17

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596bor.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
BORING LOG 6

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 21 OF 37

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-208**
Page No.: 1 of 1
Pin No.: 12b596
Checked By: _____

Boring Crew: Nieto, Judkins, Gonyaw
Date Started: 12/07/17 Date Finished: 12/07/17
VTSPG NAD83: N 394531.0 ft E 1571995.4 ft
Station: 508+85 Offset: 12.00
Ground Elevation: 1246.6 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	C_e = 1.42

Groundwater Observations

Date	Depth (ft)	Notes
12/07/17	8.6	W.T. after drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 0.55 ft								
5										
10										
		Field Class:, NXDC, cleaned out casing, Cobbles and Boulders								
15										
		17.2 ft - 19.4 ft, Silver-gray, Laminae of highly sulfidic, silicic, biotite/sericite/chlorite PHYLLITE, with thicker irregular laminae of dolomitic quartzite steeply dipping ~90 degrees. Joints are slightly open and show deep orange oxidation with cubic weathering patterns. NX	1 (90&40)	100 (58)	2 2 2 2 3	Top of Bedrock @ 17.2 ft				
20		19.4 ft - 22.2 ft, Silver-gray, Rhythmic laminae of sulfidic PHYLLITE, and sericitic/dolomitic QUARTZITE. Foliation is dipping ~40 degrees. Quartzite laminae releases a strong sulfur odor when scratched, while large ~1/4 inch blocky sulfides, orthogonal to foliation, are seemingly restricted to thicker laminae of phyllite.. Moderately hard, Slightly weathered, Fair rock, RMR=52	2 (50)	100 (92)	2 2 2 2 2					
		NX 22.7 ft - 27.2 ft, Silver-gray, Evenly distributed, rhythmic laminae of sulfidic PHYLLITE, and sericitic/dolomitic QUARTZITE. Thin, tightly foldedand stylitic dolomite layers unevenly cross-cut rhythmic laminae. Quartzite laminae releases a strong sulfur odor when scratched while large ~1/4 inch blocky sulfides in phyllite laminae. Moderately hard, Slightly weathered, Good rock, RMR=64								
25		Hole stopped @ 27.2 ft								
30		Remarks: Hole collapsed at 11.8 feet.								

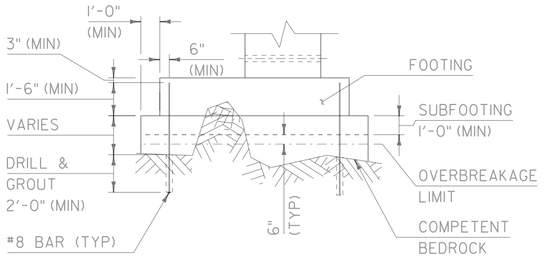
Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_e is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 PLYMOUTH BF 013-3(13).GPJ VERMONT AOT.GDT 12/20/17

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

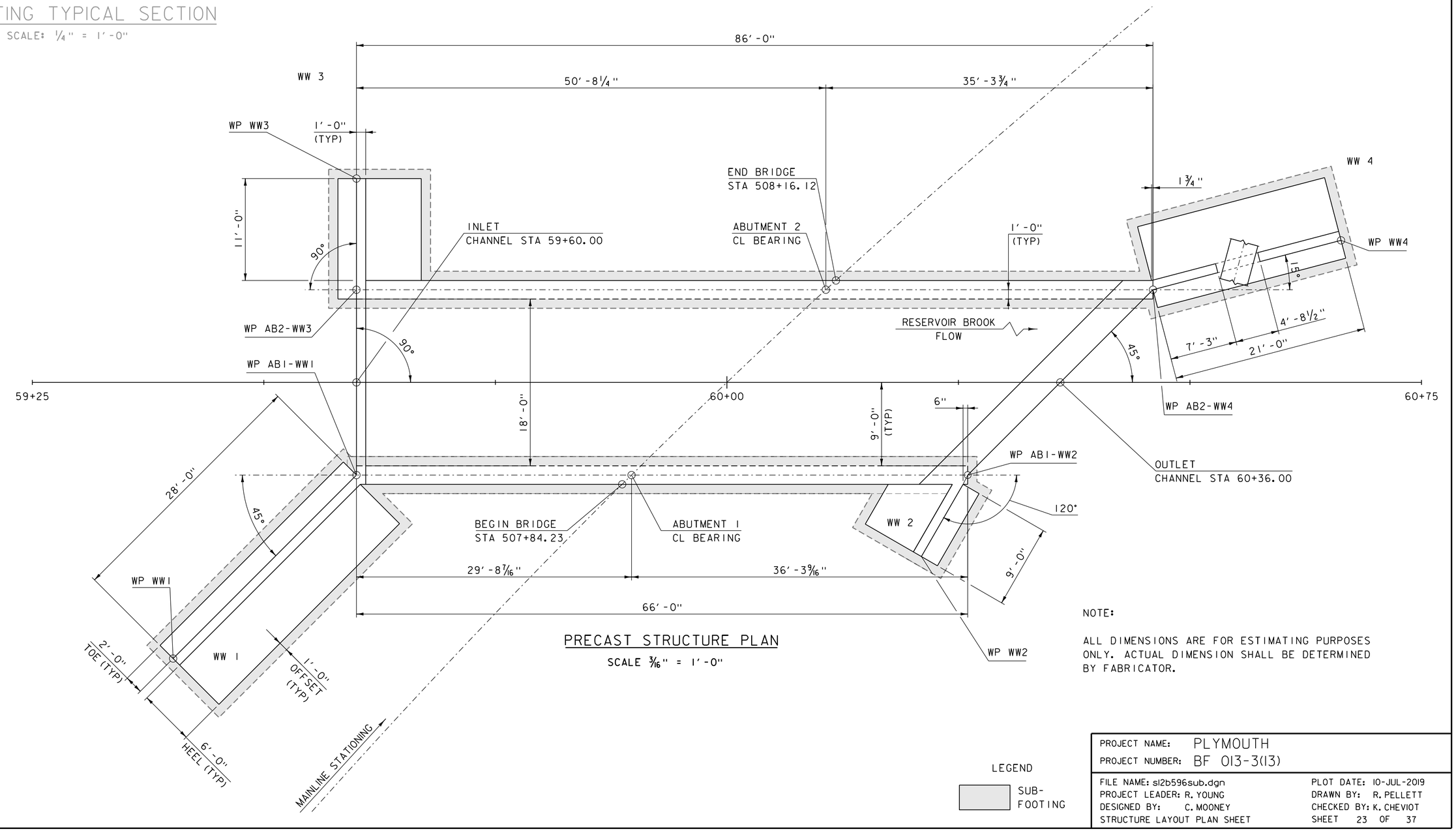
FILE NAME: sl2b596bor.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
BORING LOG 7

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 22 OF 37



SUBFOOTING TYPICAL SECTION

SCALE: 1/4" = 1'-0"



PRECAST STRUCTURE PLAN

SCALE 3/16" = 1'-0"

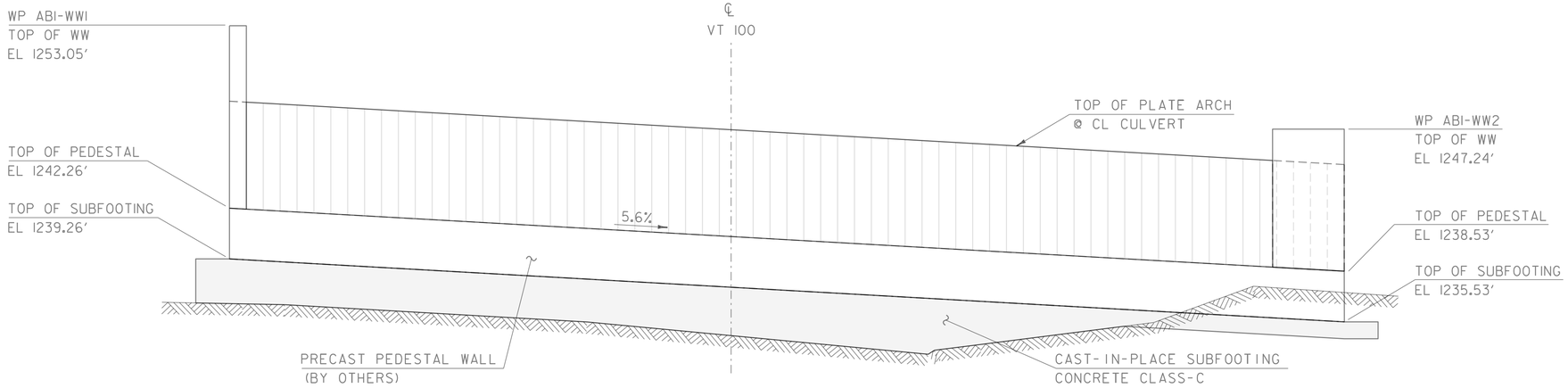
NOTE:

ALL DIMENSIONS ARE FOR ESTIMATING PURPOSES ONLY. ACTUAL DIMENSION SHALL BE DETERMINED BY FABRICATOR.

LEGEND

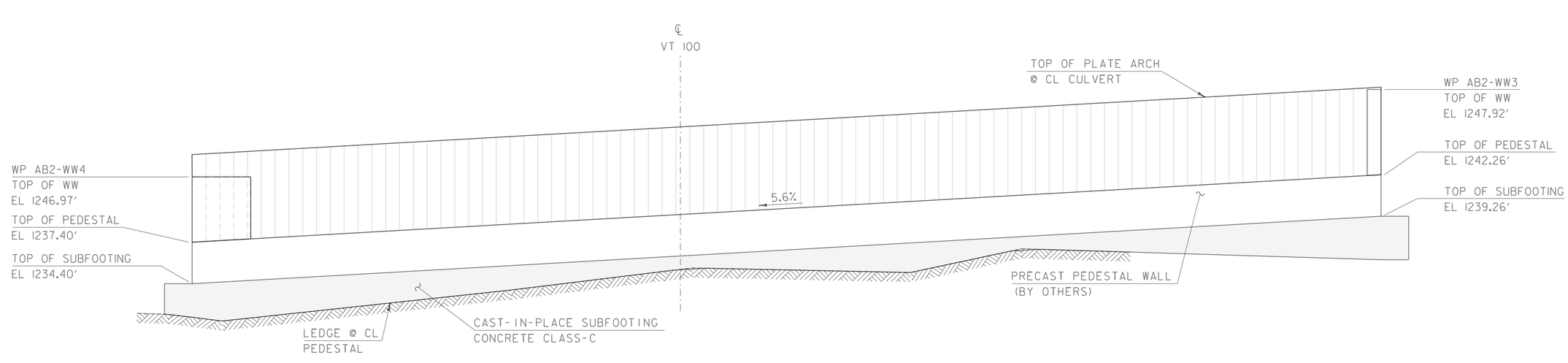
SUB-FOOTING

PROJECT NAME: PLYMOUTH	
PROJECT NUMBER: BF 013-3(13)	
FILE NAME: sl2b596sub.dgn	PLOT DATE: 10-JUL-2019
PROJECT LEADER: R. YOUNG	DRAWN BY: R. PELLETT
DESIGNED BY: C. MOONEY	CHECKED BY: K. CHEVIOT
STRUCTURE LAYOUT PLAN SHEET	SHEET 23 OF 37



ABUTMENT NO. 1 BEDROCK PROFILE

SCALE: 1/4" = 1'-0"
(SHOWN FOR PURPOSES OF QUANTITY ESTIMATION
AND COMMUNICATION OF SCOPE OF WORK.)



ABUTMENT NO. 2 BEDROCK PROFILE

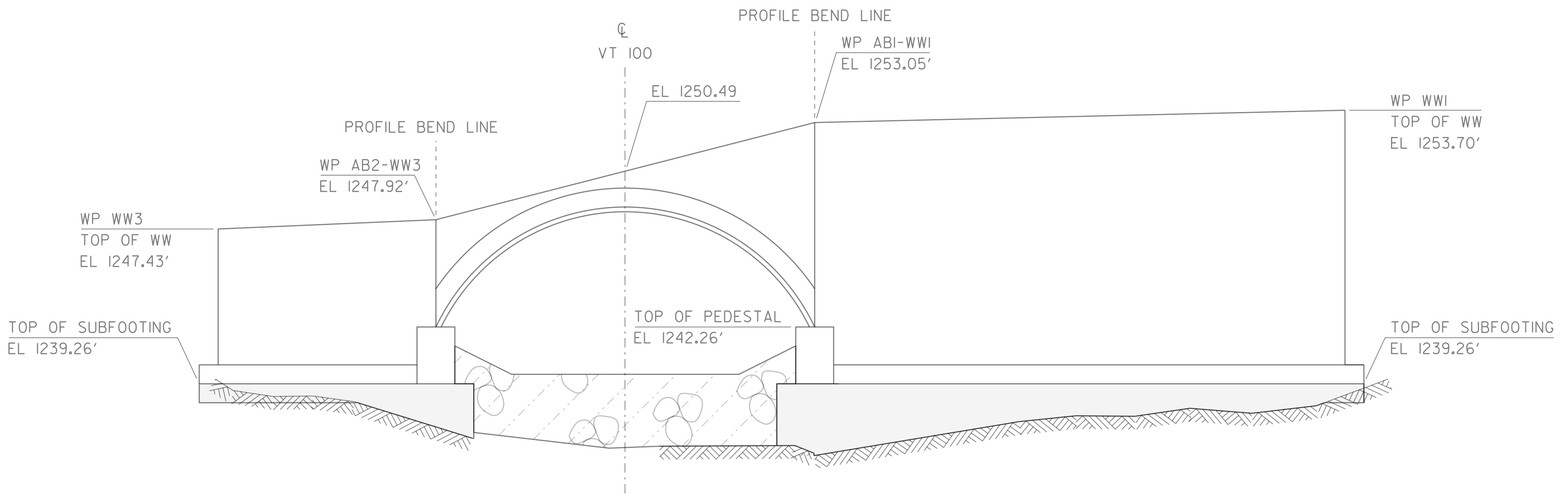
SCALE: 1/4" = 1'-0"
(SHOWN FOR PURPOSES OF QUANTITY ESTIMATION
AND COMMUNICATION OF SCOPE OF WORK.)

LEGEND

SUB-FOOTING

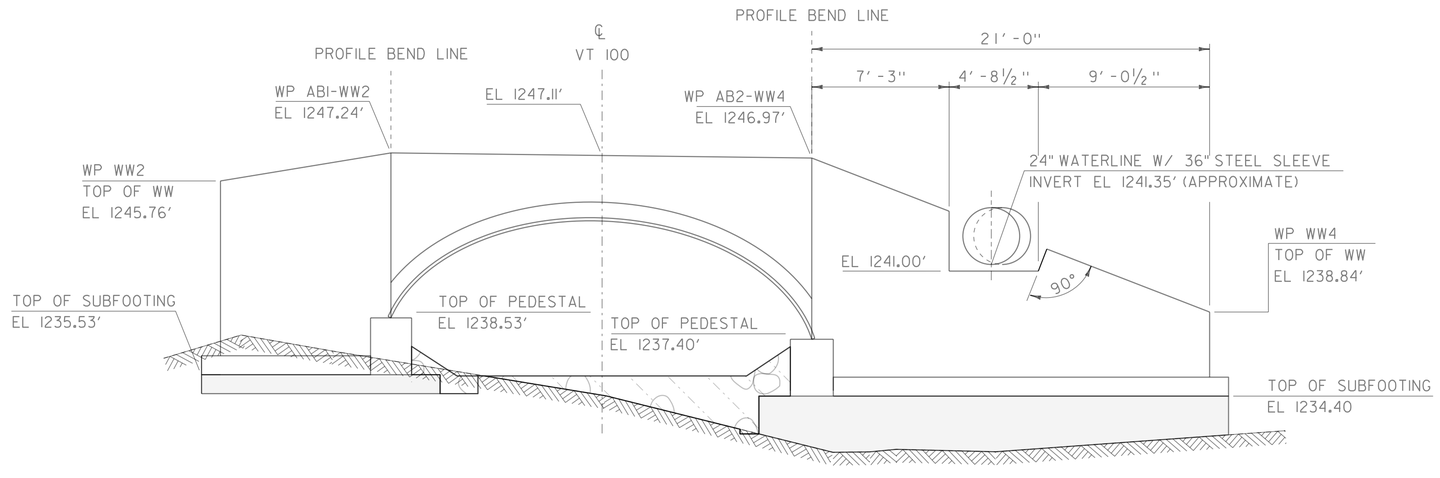
PLATE ARCH

PROJECT NAME:	PLYMOUTH
PROJECT NUMBER:	BF 013-3(13)
FILE NAME: sl2b596sub.dgn	PLOT DATE: 10-JUL-2019
PROJECT LEADER: R. YOUNG	DRAWN BY: R. PELLETT
DESIGNED BY: K. CHEVIOT	CHECKED BY: C. MOONEY
ABUTMENT BEDROCK PROFILES	SHEET 24 OF 37



HEADWALL INLET BEDROCK PROFILE

SCALE: 1/4" = 1'-0"
(SHOWN FOR PURPOSES OF QUANTITY ESTIMATION
AND COMMUNICATION OF SCOPE OF WORK.)



HEADWALL OUTLET BEDROCK PROFILE

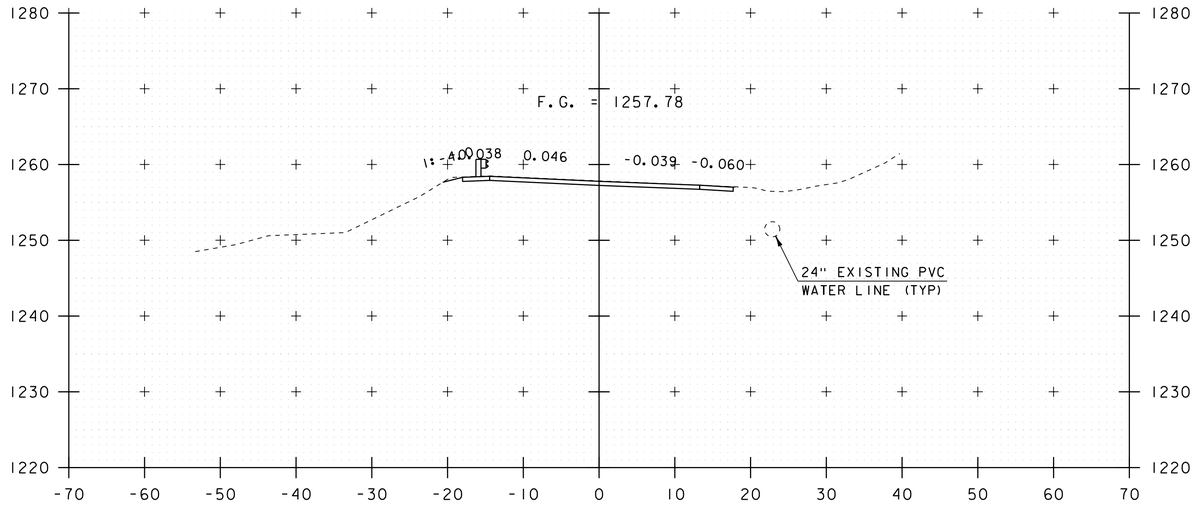
SCALE: 1/4" = 1'-0"
(SHOWN FOR PURPOSES OF QUANTITY ESTIMATION
AND COMMUNICATION OF SCOPE OF WORK.)

WATERLINE WILL BE ON SITE AND ACTIVE DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR WORKING AROUND IT AND SHORING IT IF NECESSARY

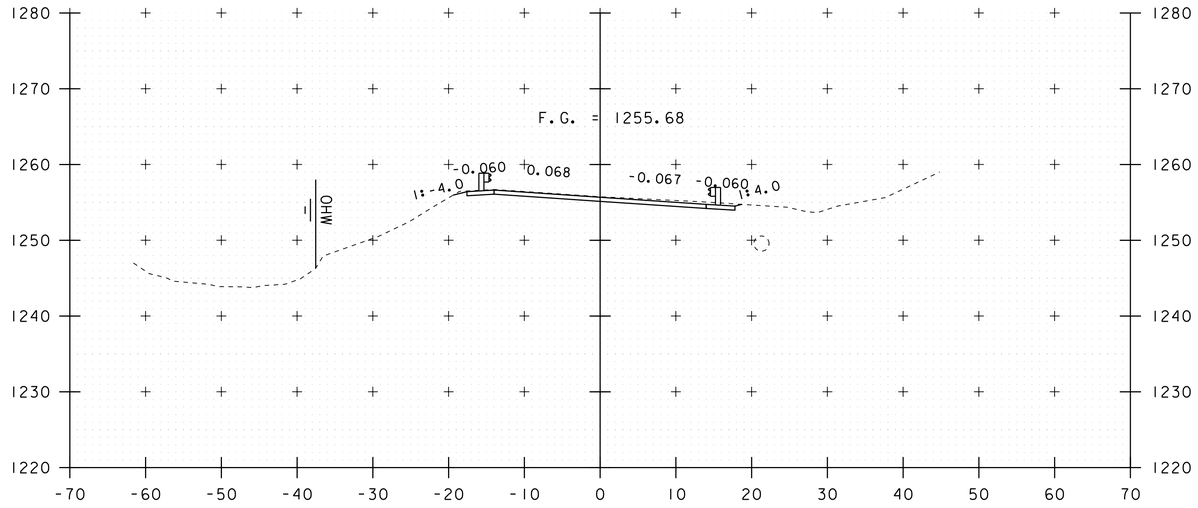
LEGEND

SUB-FOOTING

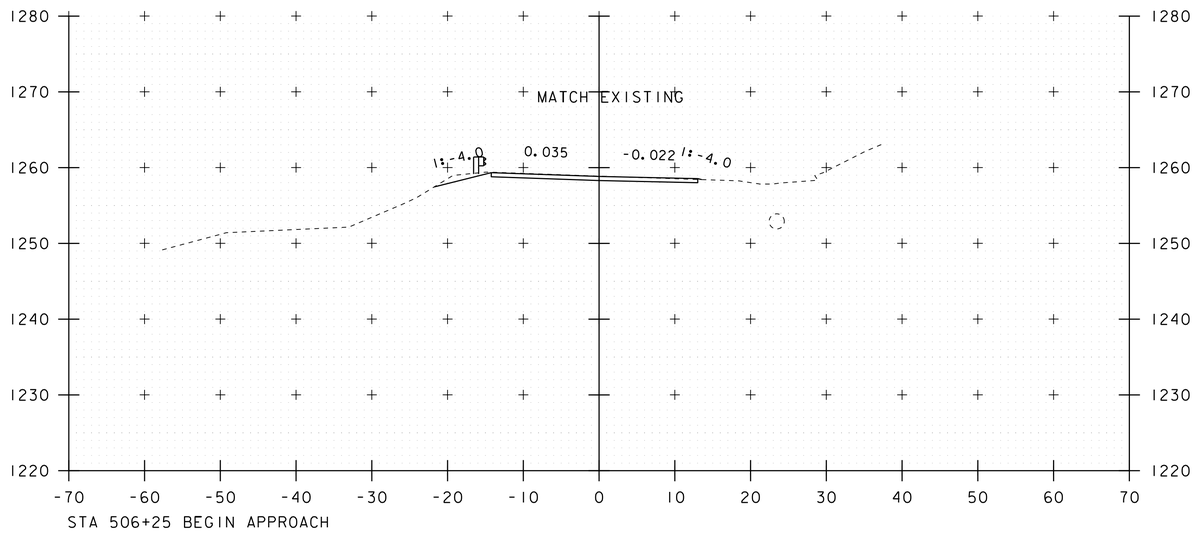
PROJECT NAME: PLYMOUTH	
PROJECT NUMBER: BF 013-3(13)	
FILE NAME: sl2b596sub.dgn	PLOT DATE: 10-JUL-2019
PROJECT LEADER: R. YOUNG	DRAWN BY: R. PELLETT
DESIGNED BY: K. CHEVIOT	CHECKED BY: C. MOONEY
HEADWALL BEDROCK PROFILES	SHEET 25 OF 37



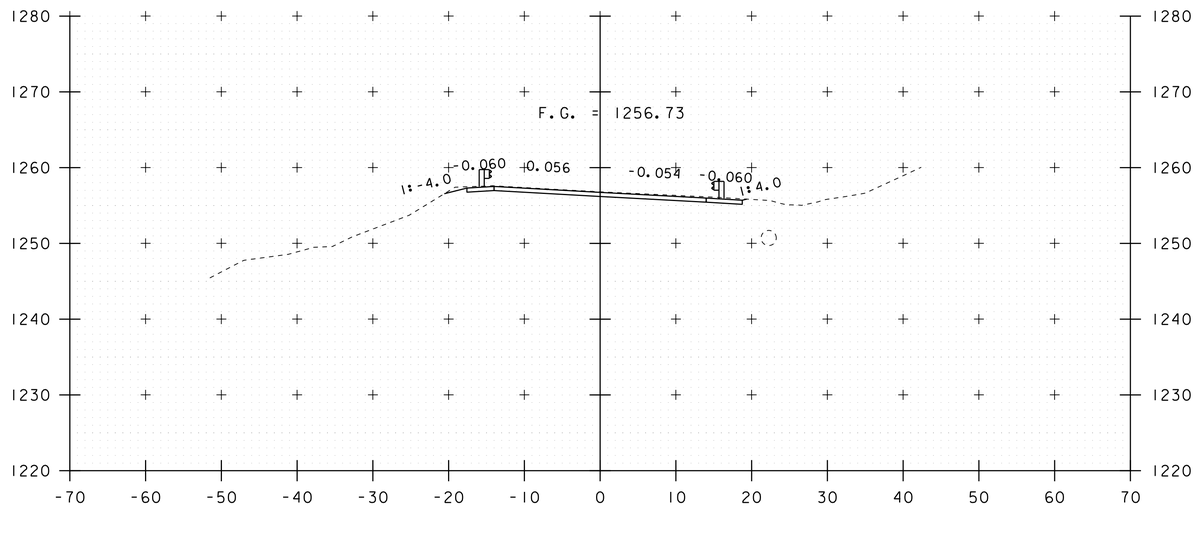
506+50



507+00



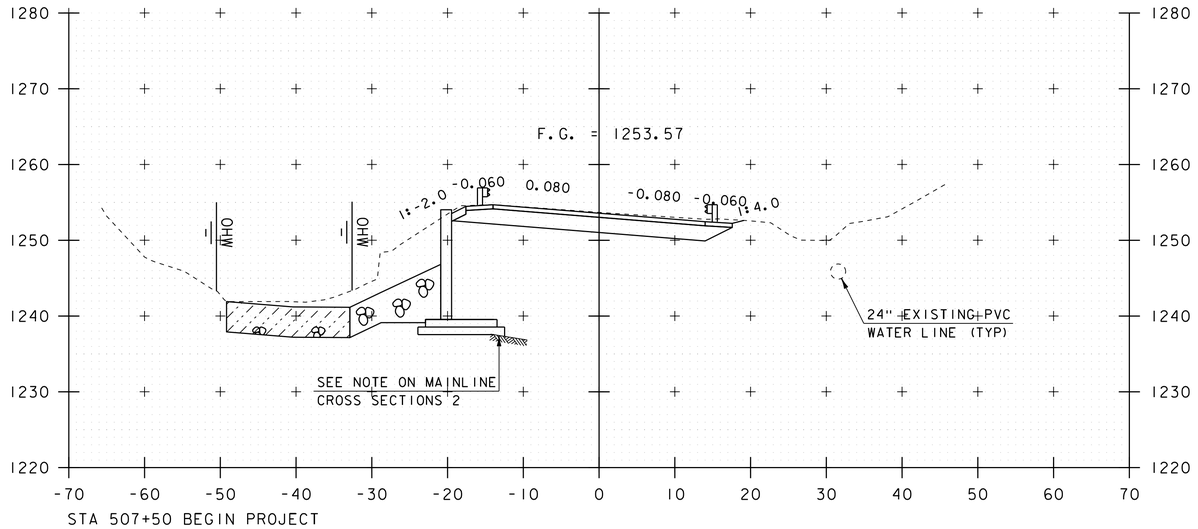
506+25



506+75

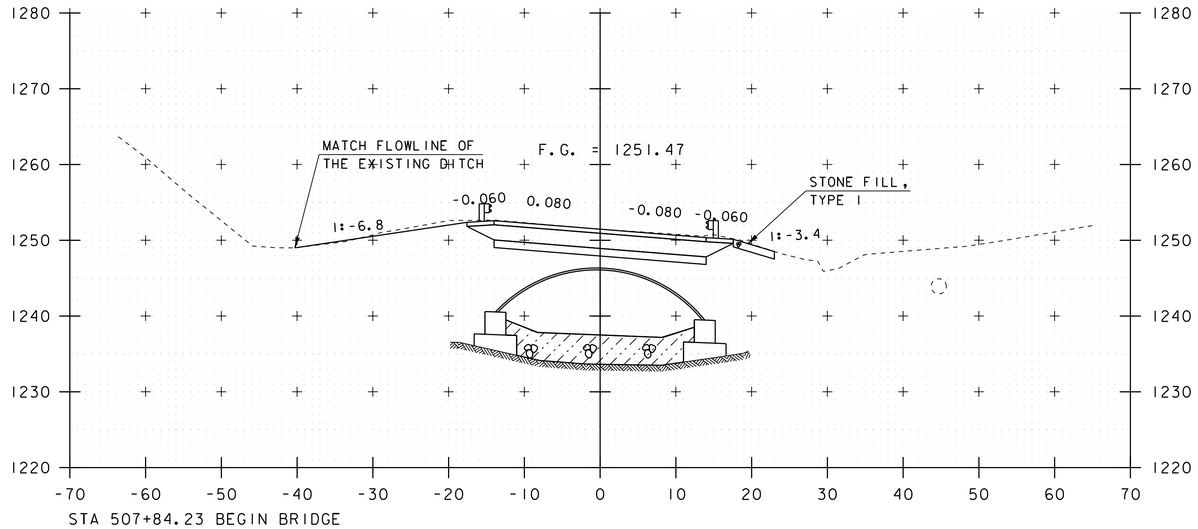
STA. 506+25 TO STA. 507+00

PROJECT NAME: PLYMOUTH	
PROJECT NUMBER: BF 013-3(13)	
FILE NAME: sl2b596xs.dgn	PLOT DATE: 10-JUL-2019
PROJECT LEADER: R. YOUNG	DRAWN BY: R. PELLETT
DESIGNED BY: K. CHEVIOT	CHECKED BY: C. MOONEY
MAINLINE CROSS SECTIONS 1	SHEET 26 OF 37



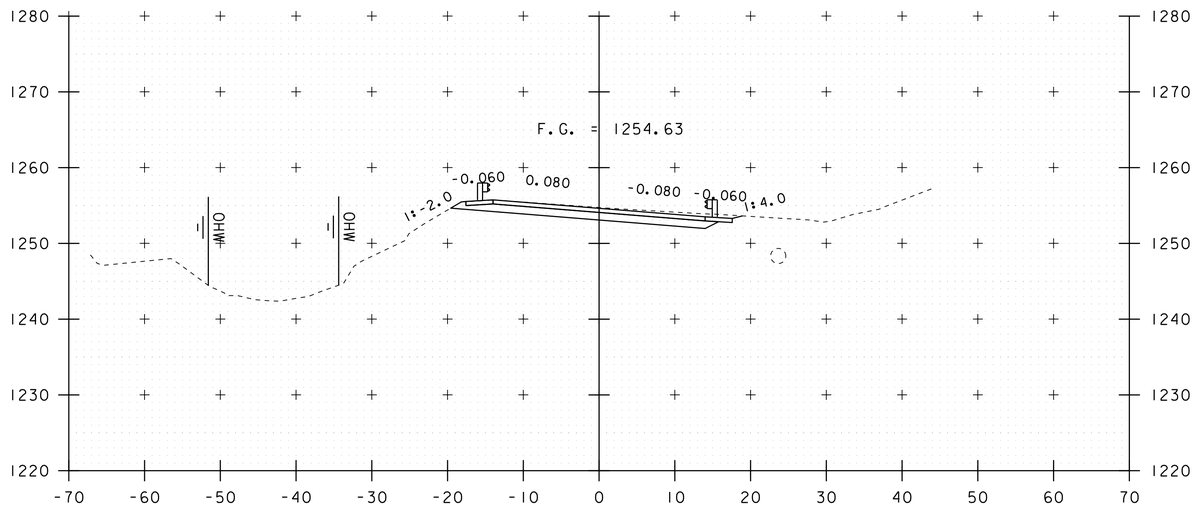
STA 507+50 BEGIN PROJECT

507+50

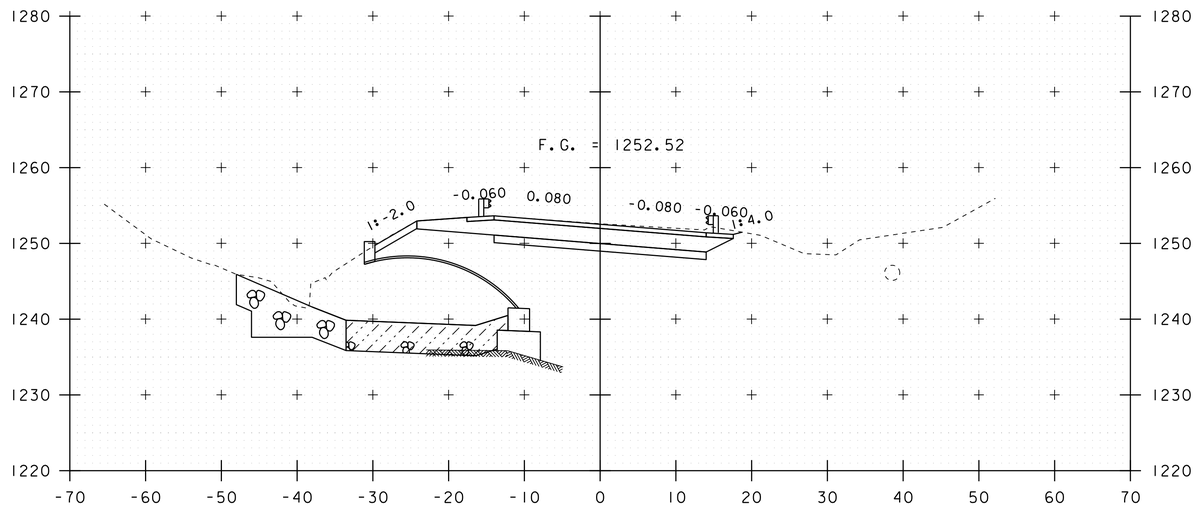


STA 507+84.23 BEGIN BRIDGE

508+00



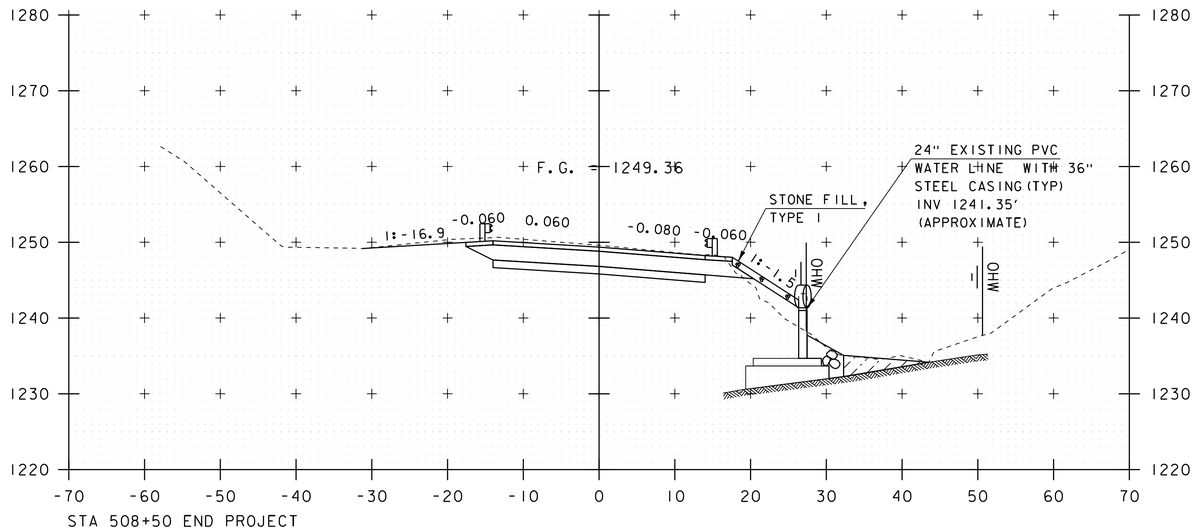
507+25



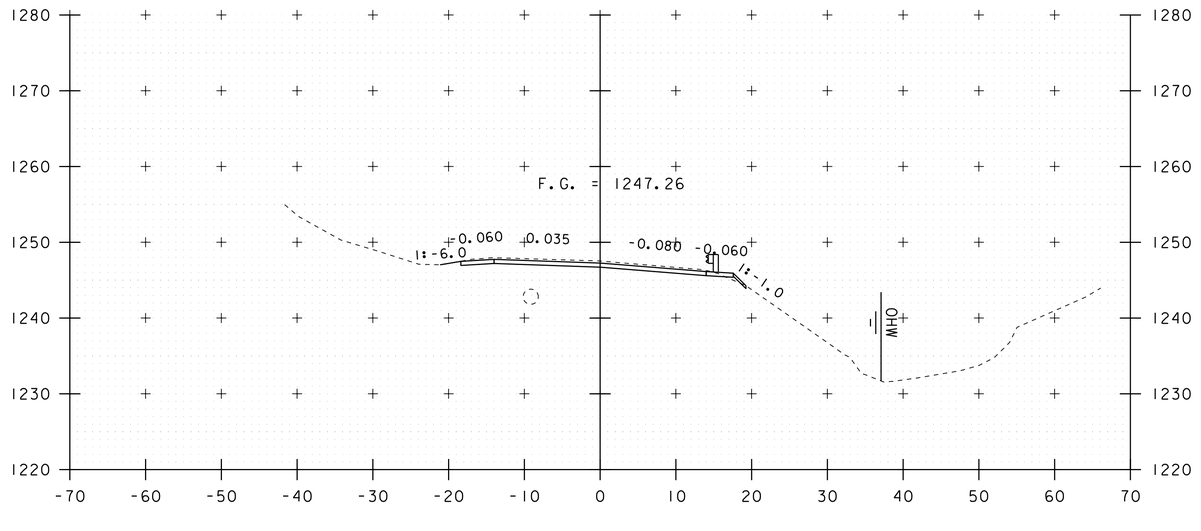
507+75

STA. 507+25 TO STA. 508+00

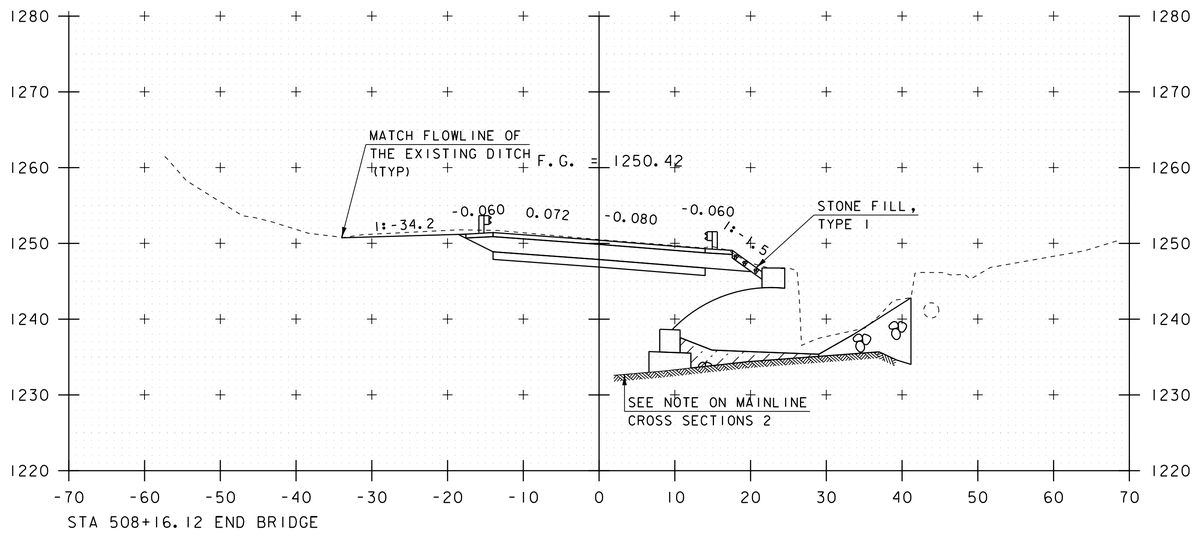
PROJECT NAME:	PLYMOUTH
PROJECT NUMBER:	BF 013-3(13)
FILE NAME: sl2b596xs.dgn	PLOT DATE: 10-JUL-2019
PROJECT LEADER: R. YOUNG	DRAWN BY: R. PELLETT
DESIGNED BY: K. CHEVIOT	CHECKED BY: C. MOONEY
MAINLINE CROSS SECTIONS 2	SHEET 27 OF 37



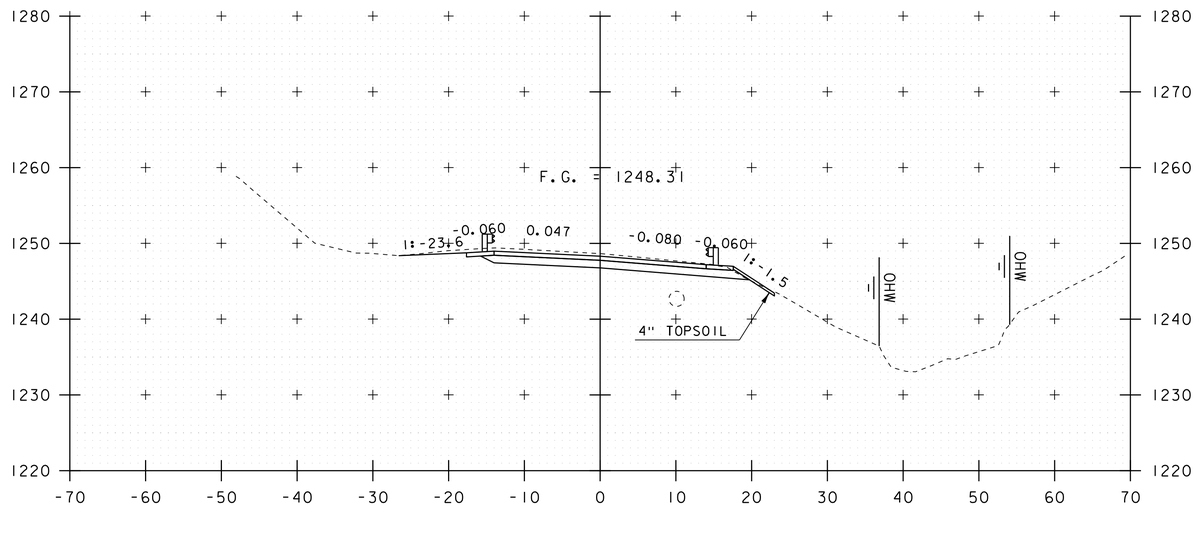
508+50



509+00



508+25

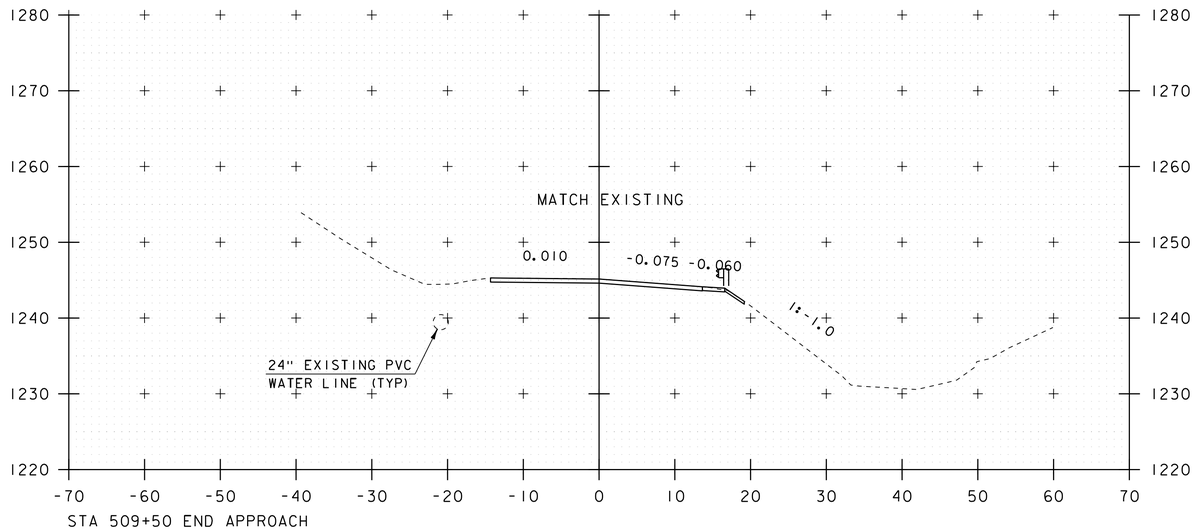


508+75

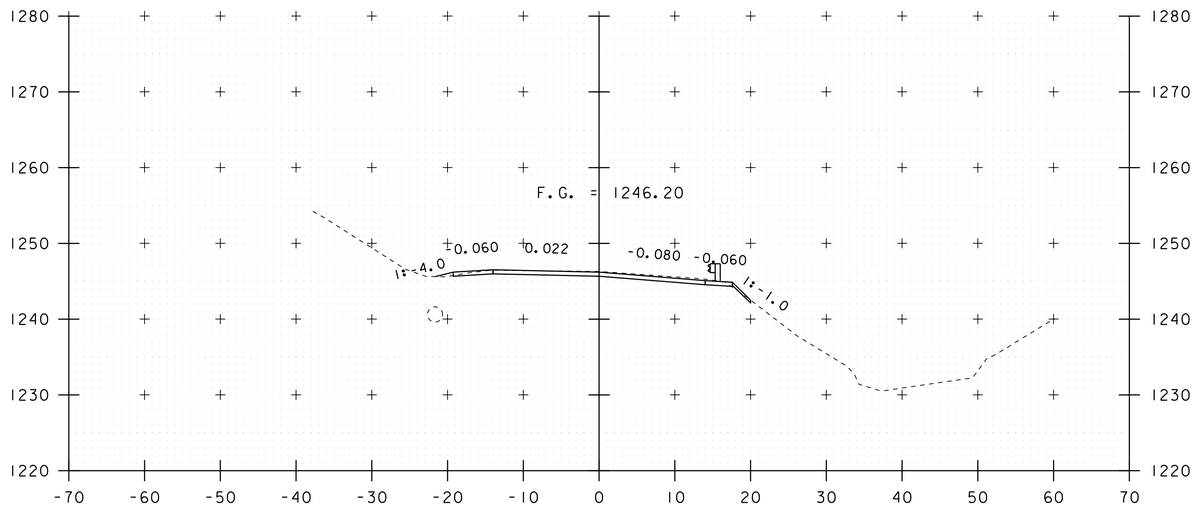
PROJECT NAME:	PLYMOUTH
PROJECT NUMBER:	BF 013-3(13)

FILE NAME: sl2b596xs.dgn	PLOT DATE: 10-JUL-2019
PROJECT LEADER: R. YOUNG	DRAWN BY: R. PELLETT
DESIGNED BY: K. CHEVIOT	CHECKED BY: C. MOONEY
MAINLINE CROSS SECTIONS 3	SHEET 28 OF 37

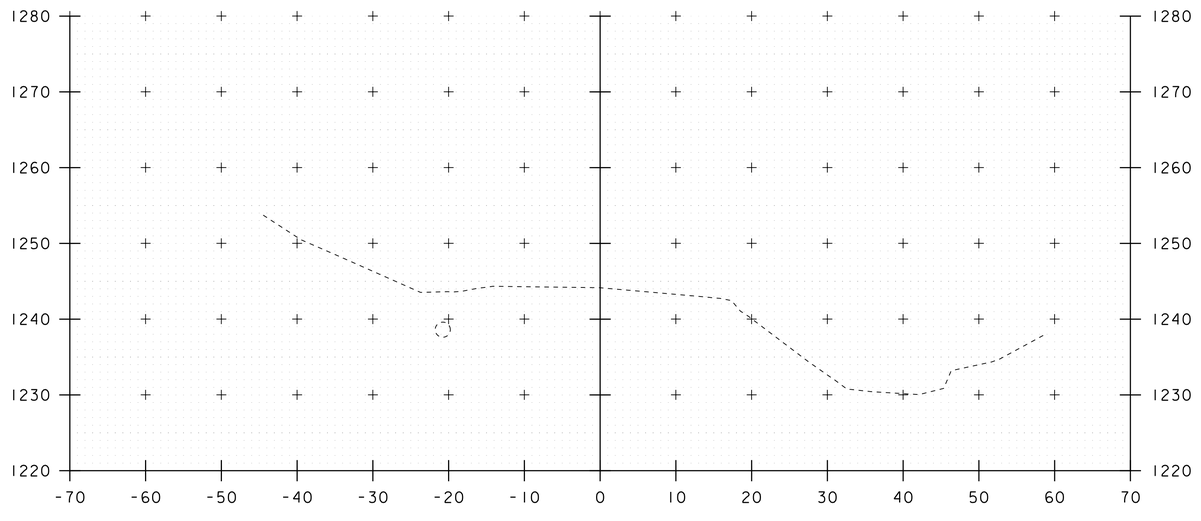
STA. 508+25 TO STA. 509+00



509+50



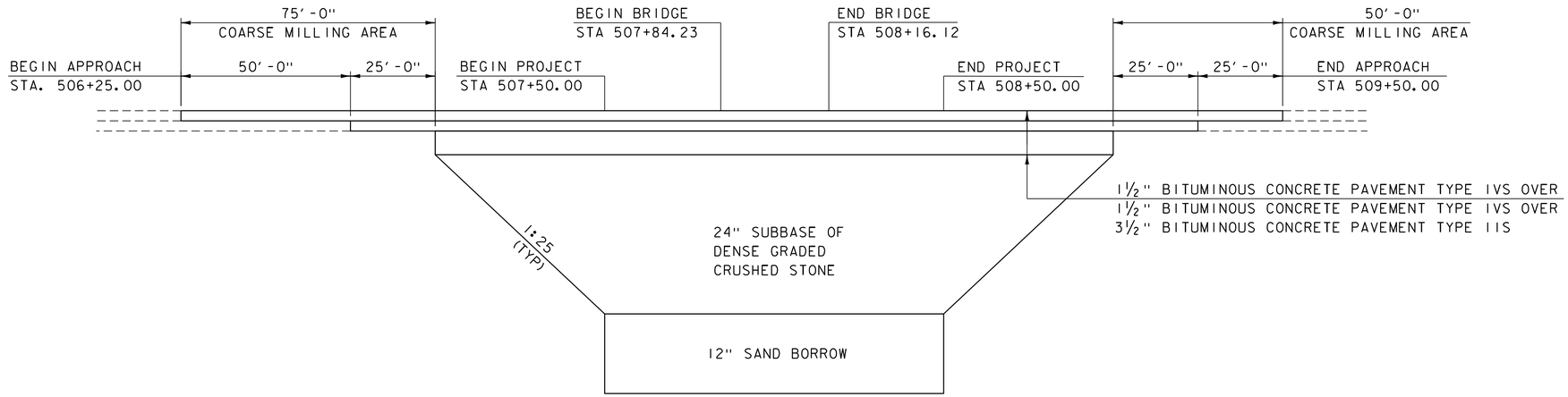
509+25



509+75

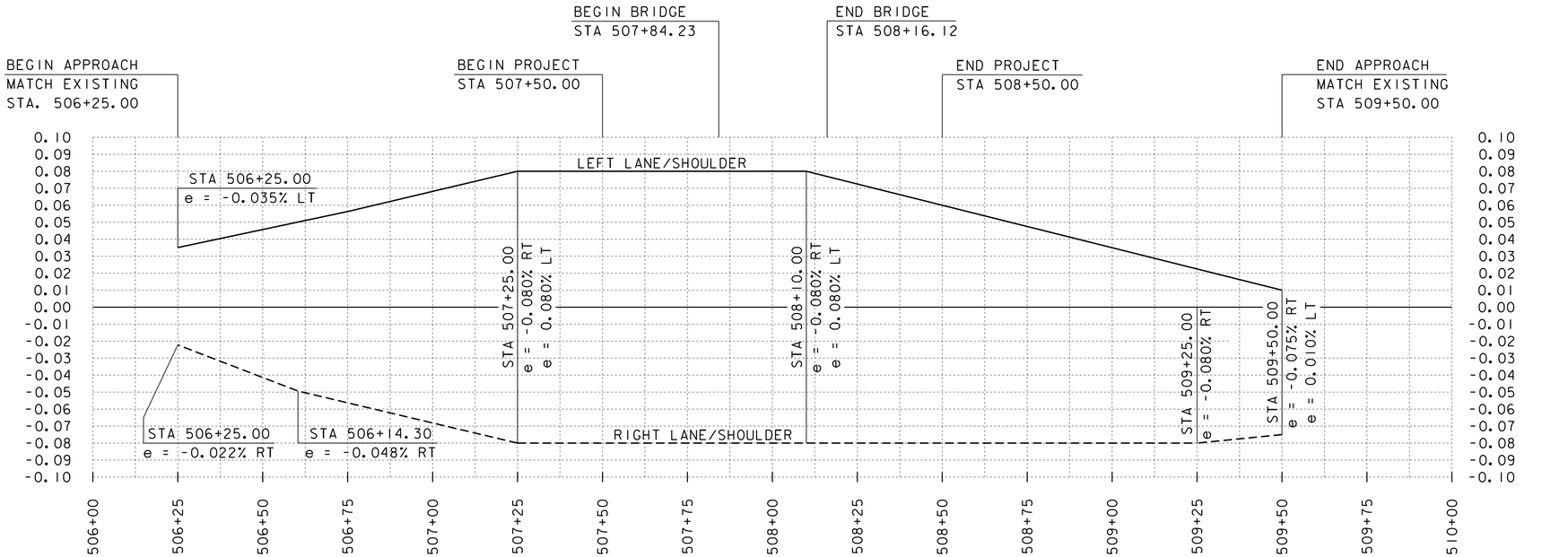
STA. 509+25 TO STA. 509+75

PROJECT NAME: PLYMOUTH	
PROJECT NUMBER: BF 013-3(13)	
FILE NAME: sl2b596xs.dgn	PLOT DATE: 10-JUL-2019
PROJECT LEADER: R. YOUNG	DRAWN BY: R. PELLETT
DESIGNED BY: K. CHEVIOT	CHECKED BY: C. MOONEY
MAINLINE CROSS SECTIONS 4	SHEET 29 OF 37



VT 100 MATERIAL TRANSITION DIAGRAM

NOT TO SCALE



VT 100 BANKING DIAGRAM

NOT TO SCALE

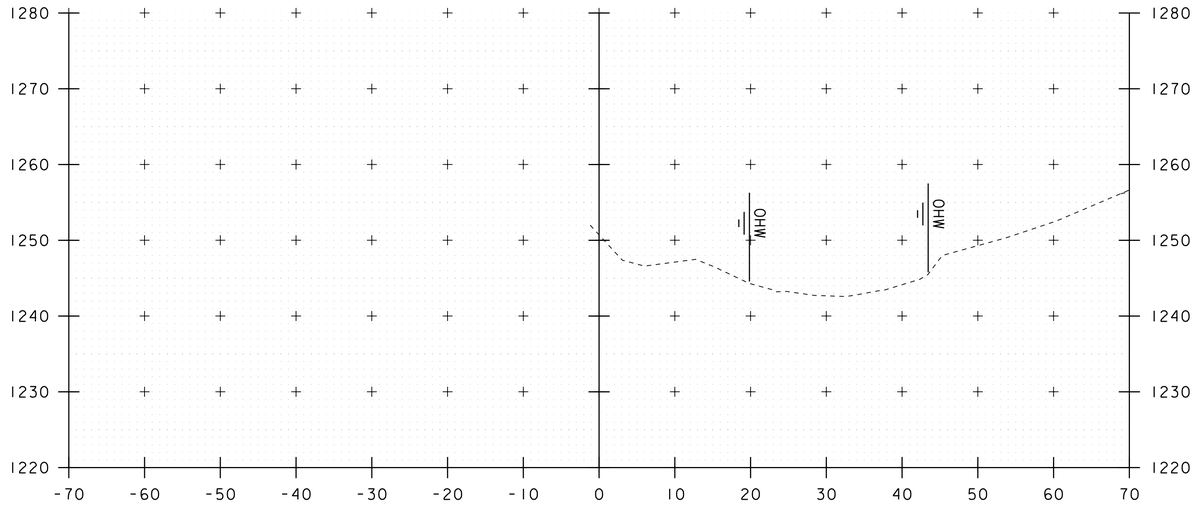
LEGEND

--- RIGHT LANE/SHOULDER

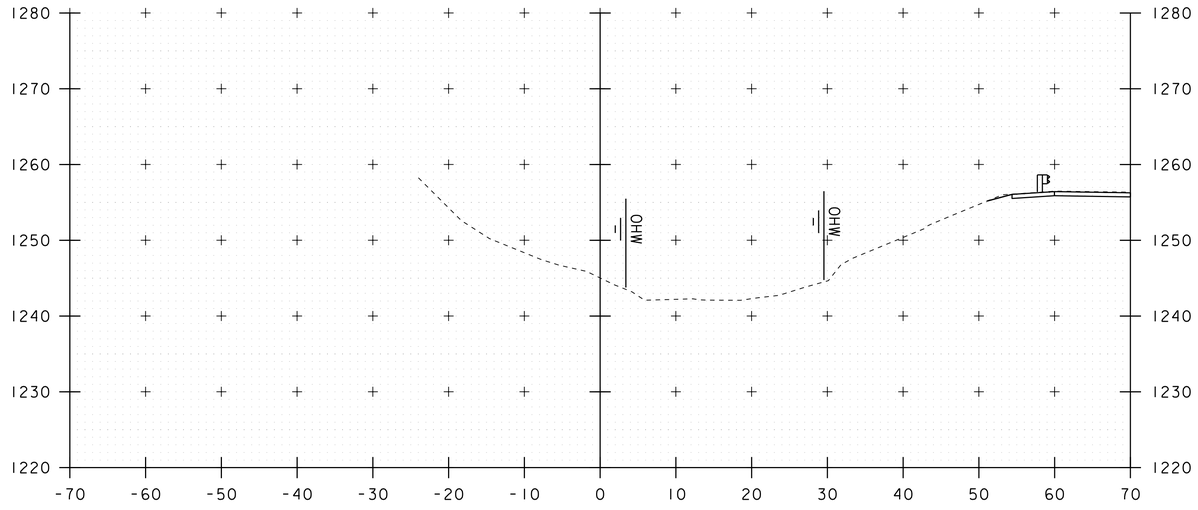
—— LEFT LANE/SHOULDER

NOTE:
GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG ℄
GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE ALONG ℄

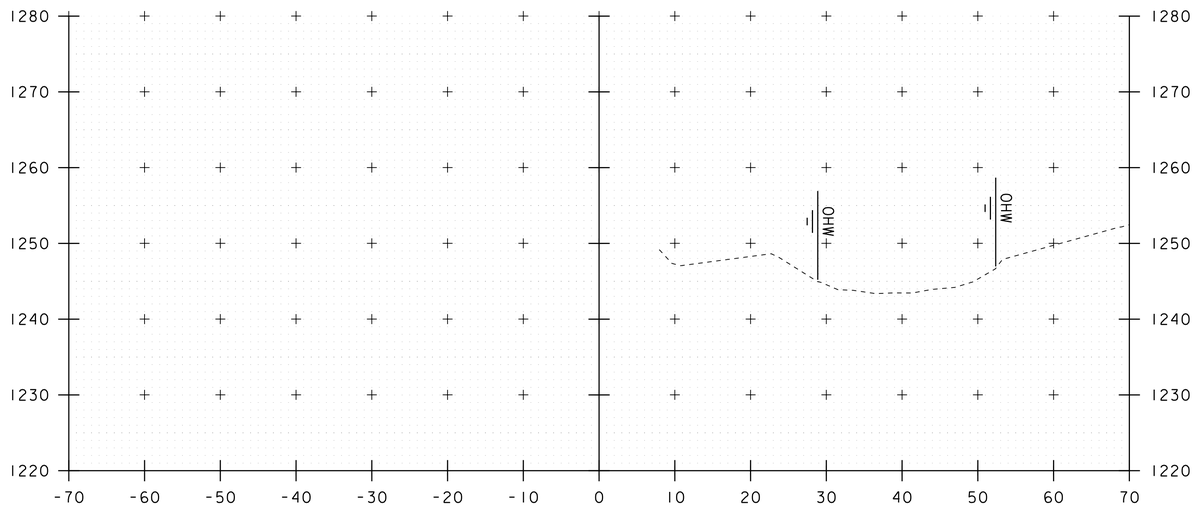
PROJECT NAME:	PLYMOUTH
PROJECT NUMBER:	BF 013-3(13)
FILE NAME: sl2b596pro.dgn	PLOT DATE: 10-JUL-2019
PROJECT LEADER: R. YOUNG	DRAWN BY: R. PELLETT
DESIGNED BY: K. CHEVIOT	CHECKED BY: C. MOONEY
BANKING-MATERIAL TRANSITION	SHEET 30 OF 37



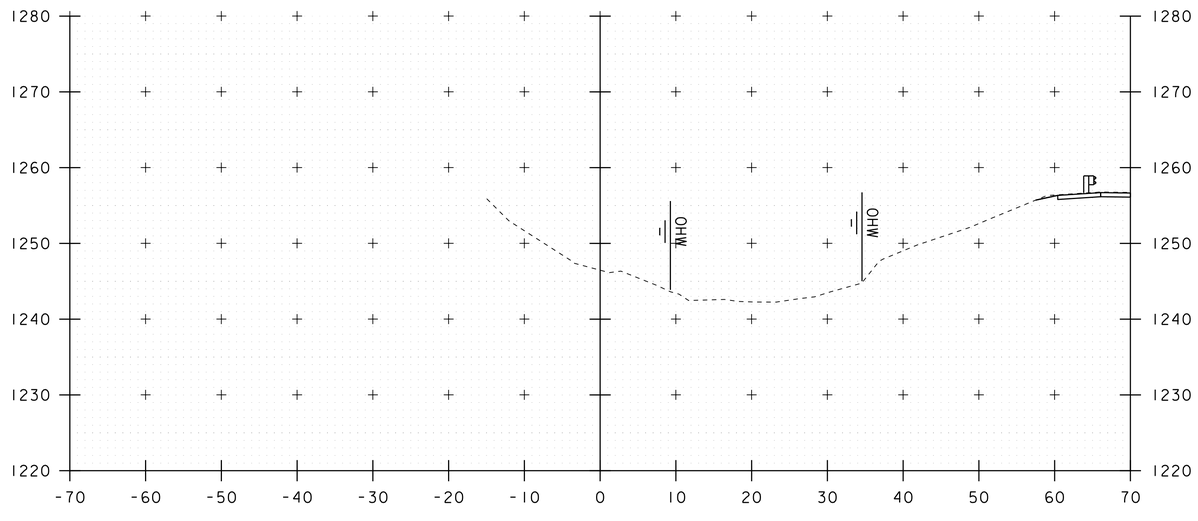
59+10



59+25



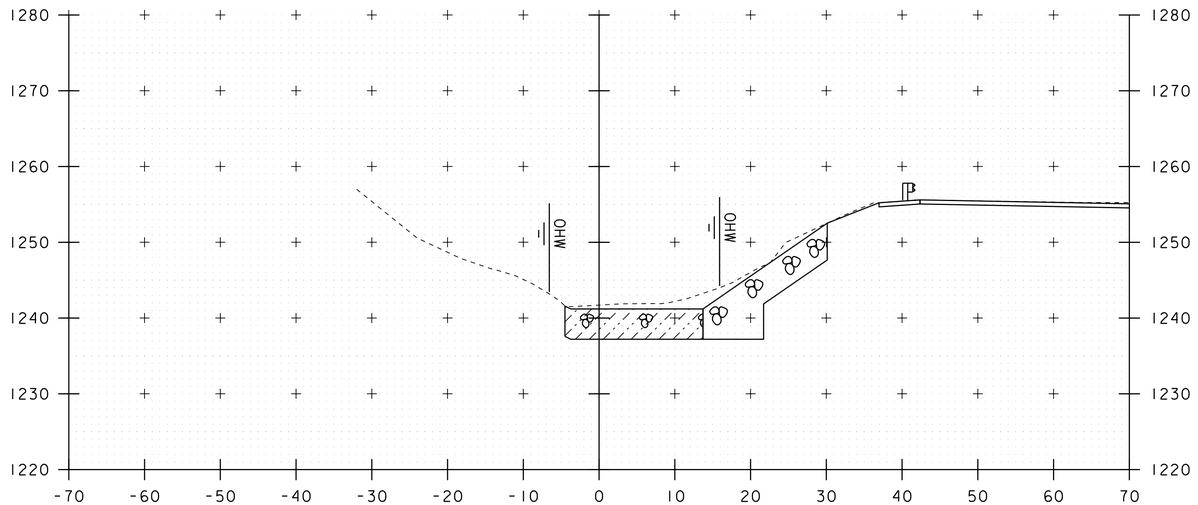
59+00



59+20

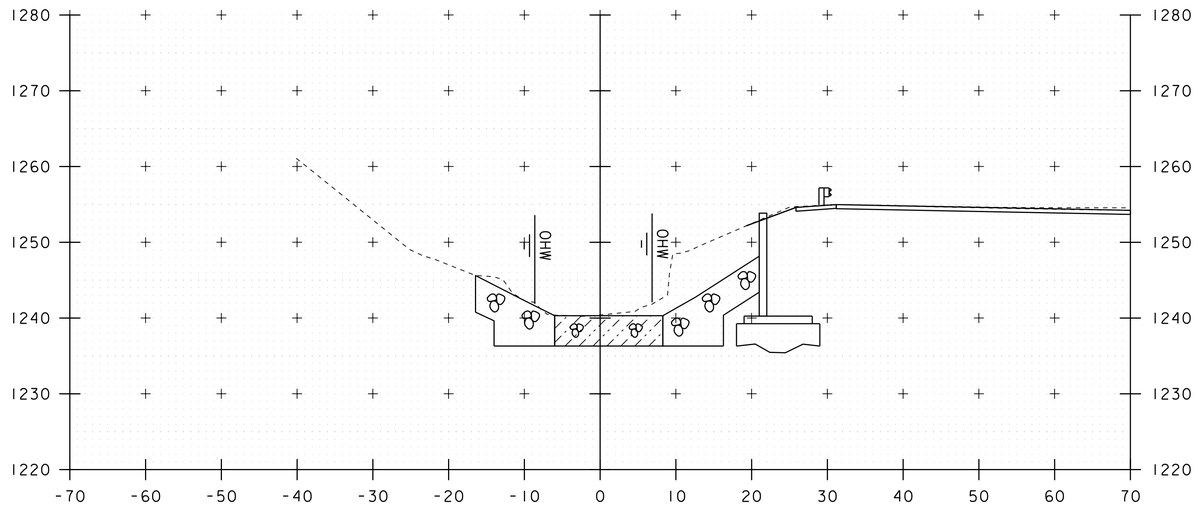
PROJECT NAME:	PLYMOUTH
PROJECT NUMBER:	BF 013-3(13)
FILE NAME: sl2b596xs.dgn	PLOT DATE: 10-JUL-2019
PROJECT LEADER: R. YOUNG	DRAWN BY: R. PELLETT
DESIGNED BY: K. CHEVIOT	CHECKED BY: C. MOONEY
CHANNEL CROSS SECTIONS 1	SHEET 31 OF 37

STA. 59+00 TO STA. 59+25

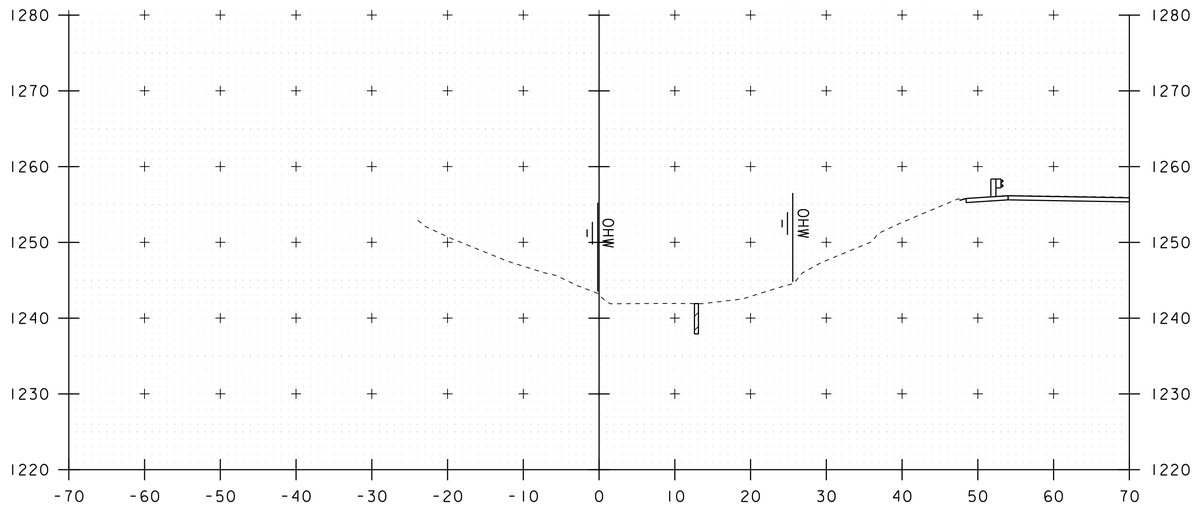


59+40

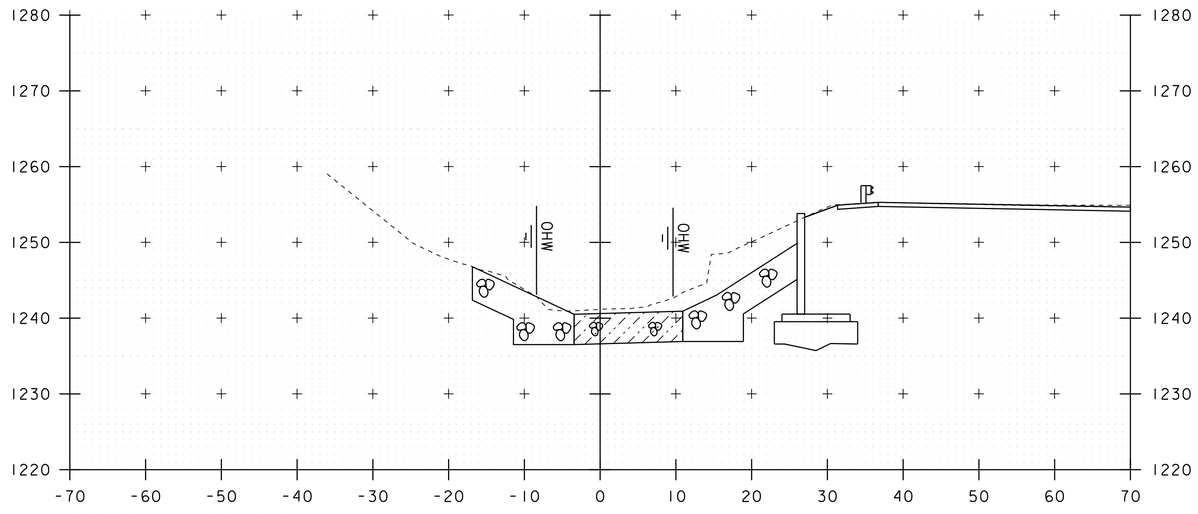
BEGIN RIGHT - STA 59+55
UNCLASSIFIED CHANNEL
SPECIAL PROVISION (E-STONE) (TYPE IV)
STONE FILL TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL



59+50



59+30



BEGIN LEFT - STA 59+45
UNCLASSIFIED CHANNEL
SPECIAL PROVISION (E-STONE) (TYPE IV)
STONE FILL TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

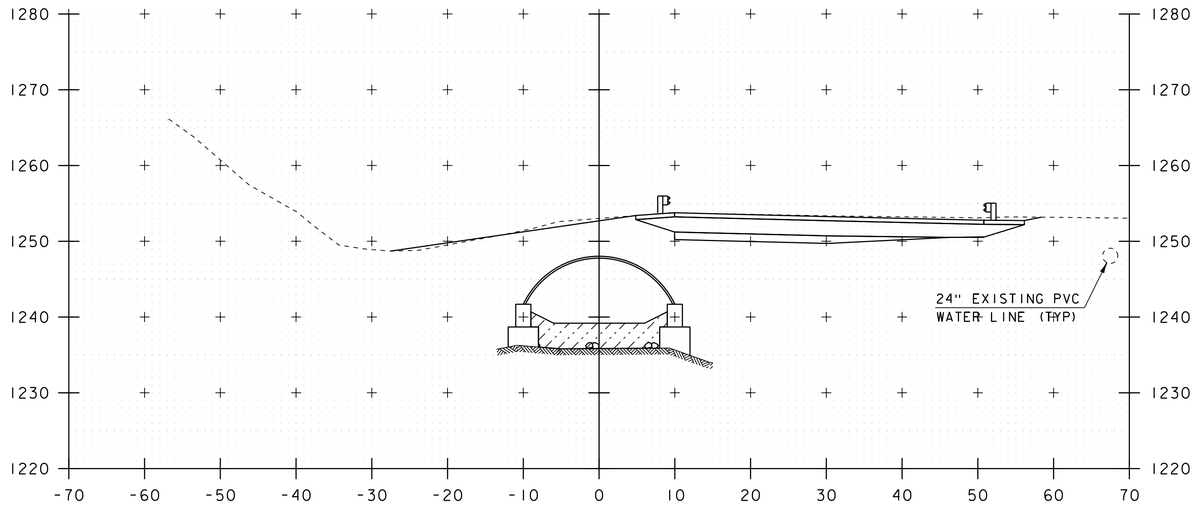
59+45

STA. 59+30 TO STA. 59+50

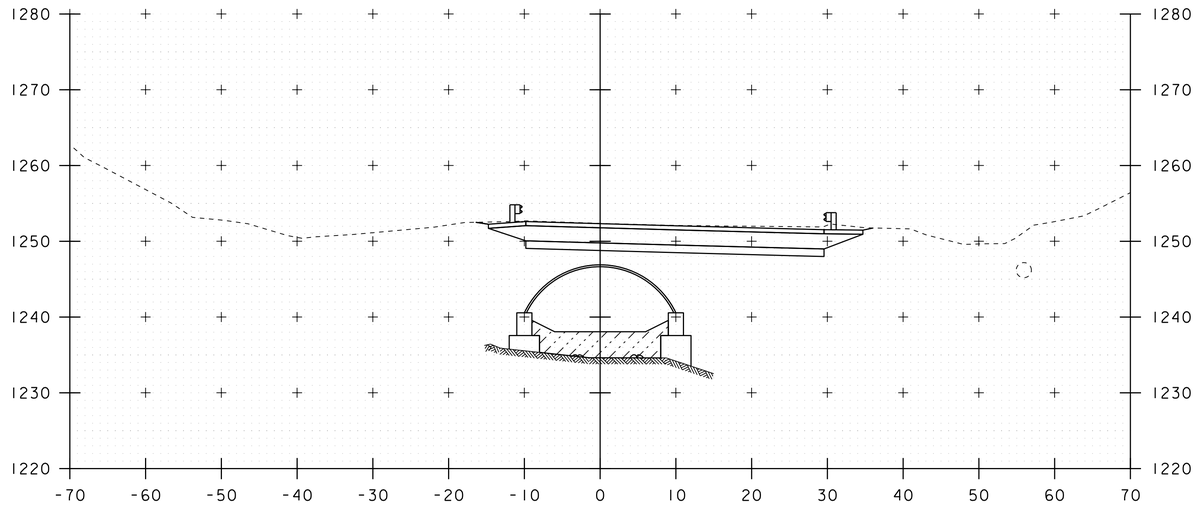
PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596xs.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
CHANNEL CROSS SECTIONS 2

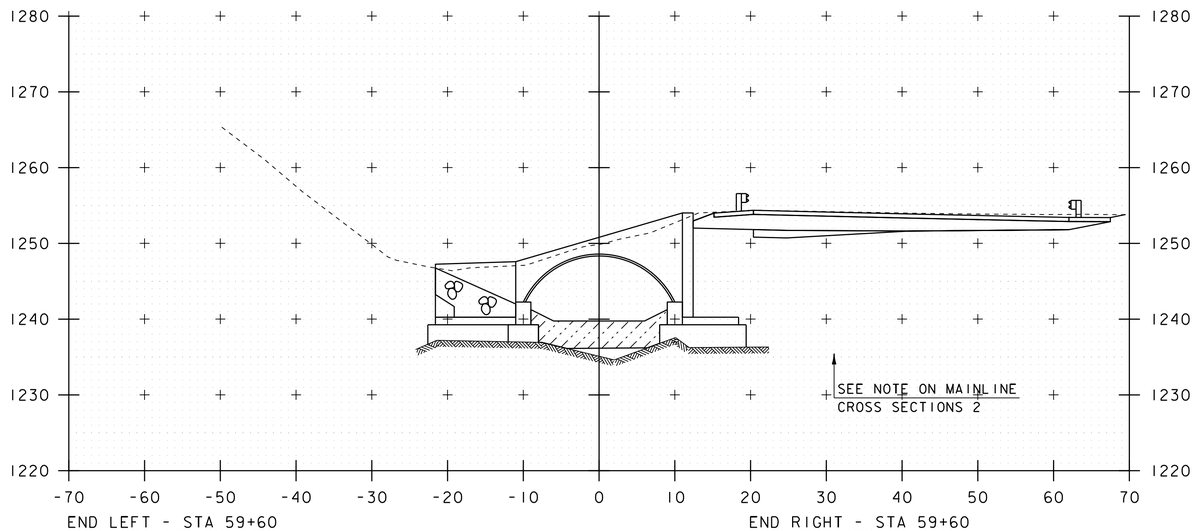
PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 32 OF 37



59+70



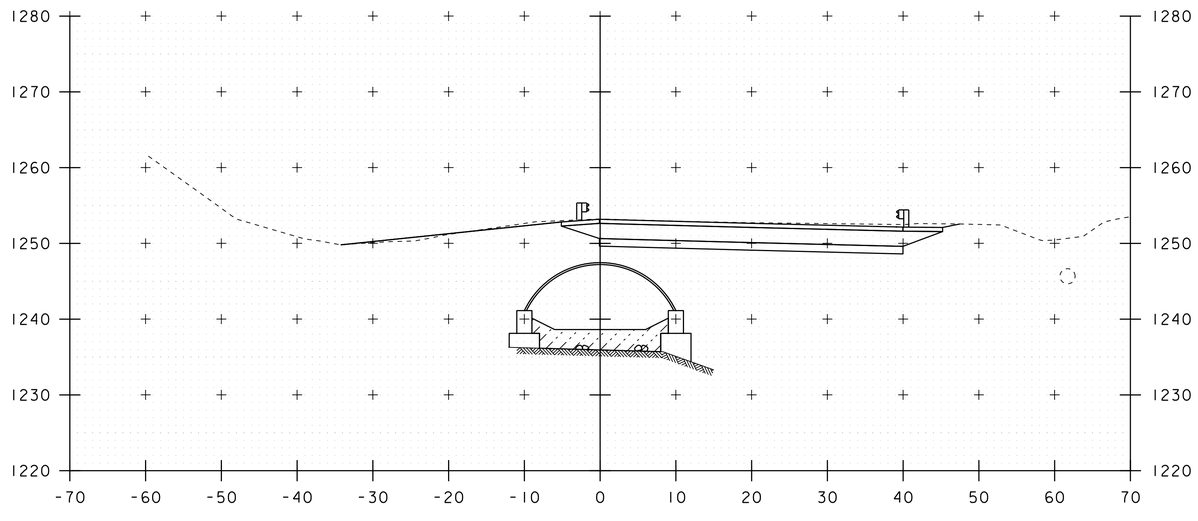
59+90



END LEFT - STA 59+60
UNCLASSIFIED CHANNEL
STONE FILL TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

59+60

END RIGHT - STA 59+60
UNCLASSIFIED CHANNEL
STONE FILL TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL



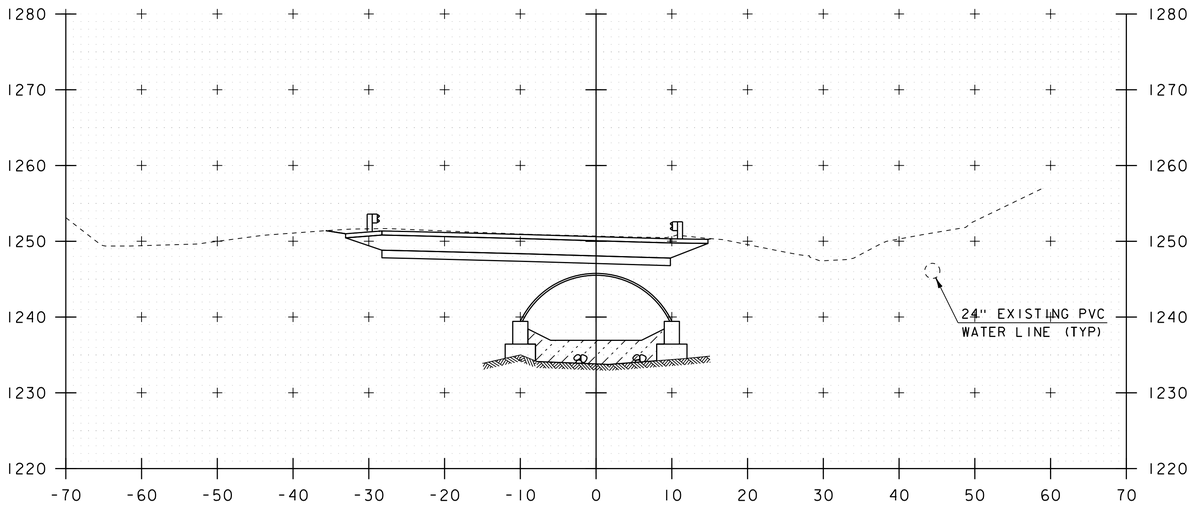
59+80

STA. 59+60 TO STA. 59+90

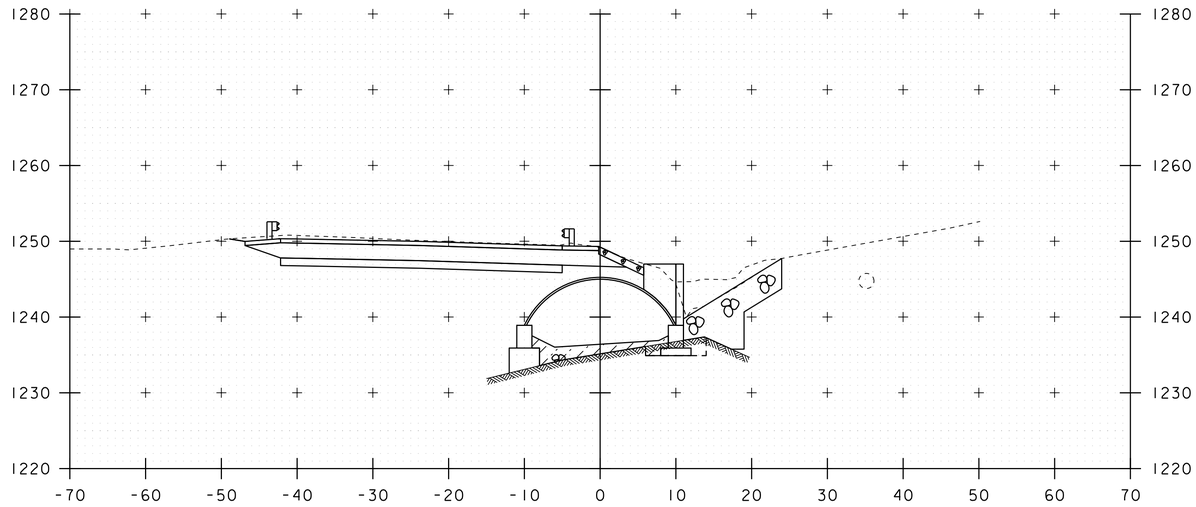
PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596xs.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
CHANNEL CROSS SECTIONS 3

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 33 OF 37



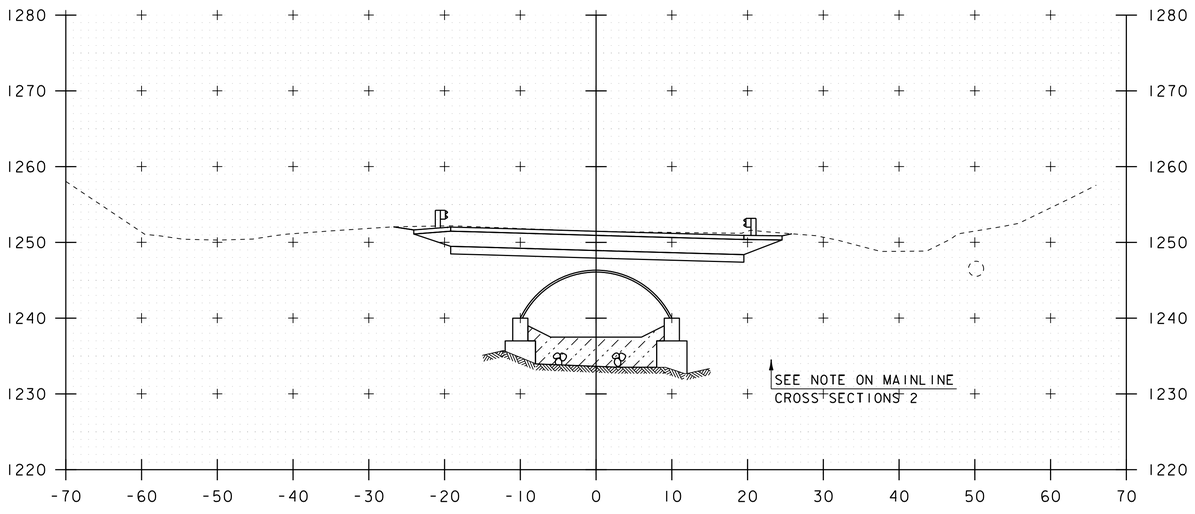
60+10



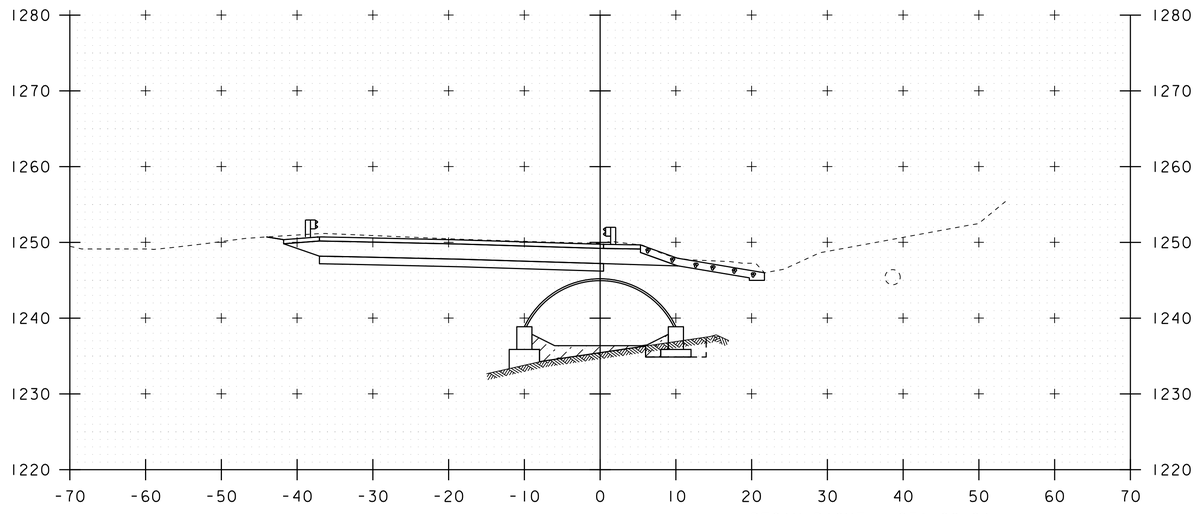
BEGIN LEFT - STA 60+26
UNCLASSIFIED CHANNEL
STONE FILL TYPE I
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

60+26

BEGIN RIGHT - STA 60+26
UNCLASSIFIED CHANNEL
STONE FILL TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL



60+00



BEGIN RIGHT - STA 60+21
UNCLASSIFIED CHANNEL
STONE FILL TYPE I
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

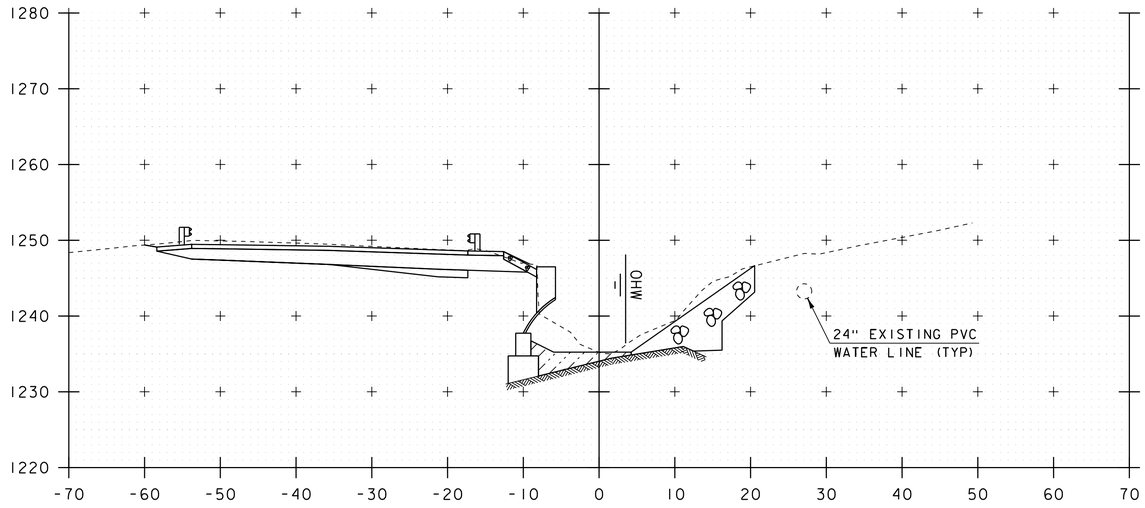
60+20

STA. 60+00 TO STA. 60+26

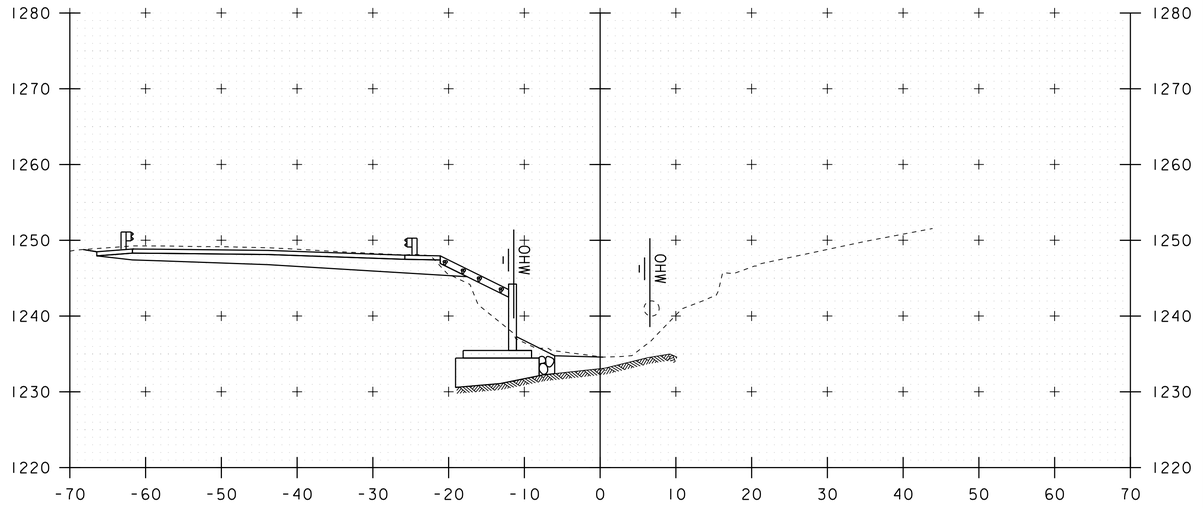
PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596xs.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
CHANNEL CROSS SECTIONS 4

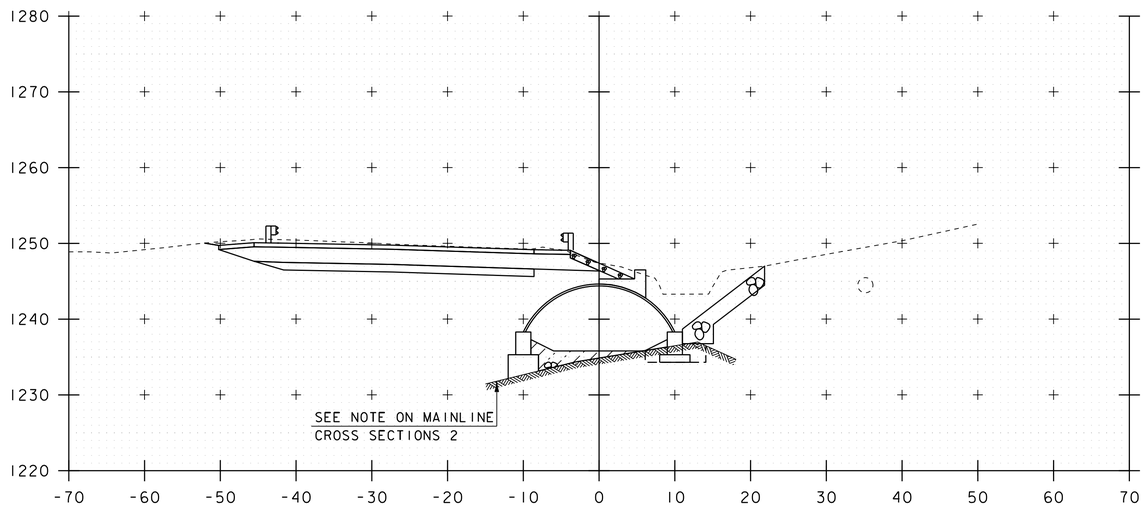
PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 34 OF 37



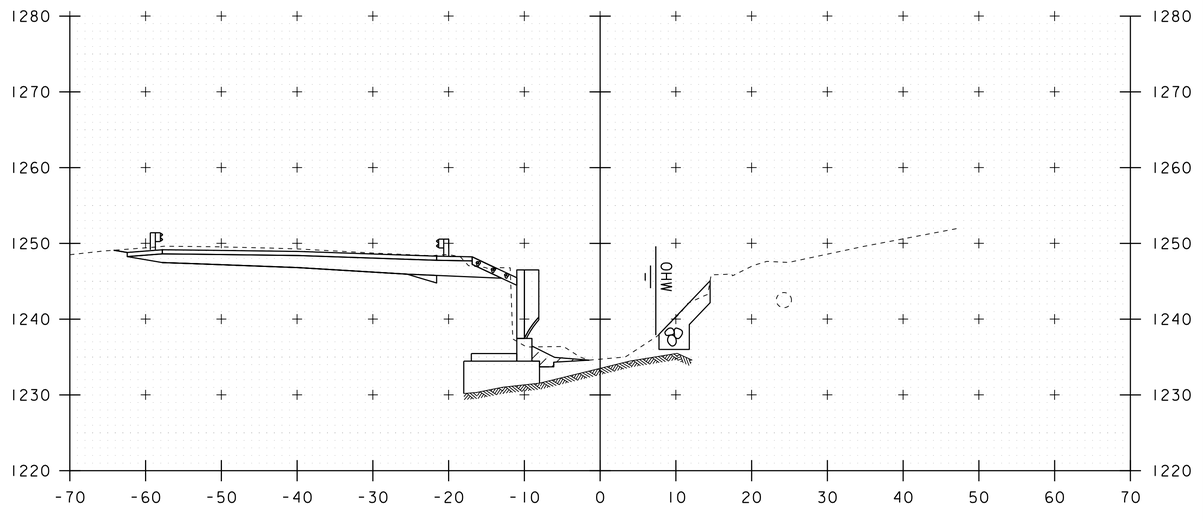
60+40



60+50



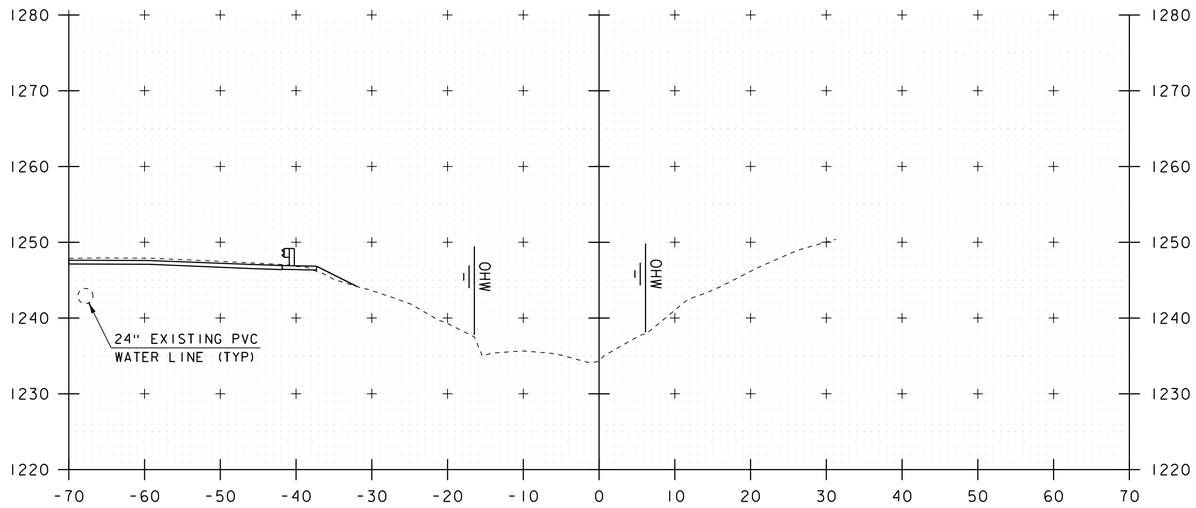
60+30



60+45

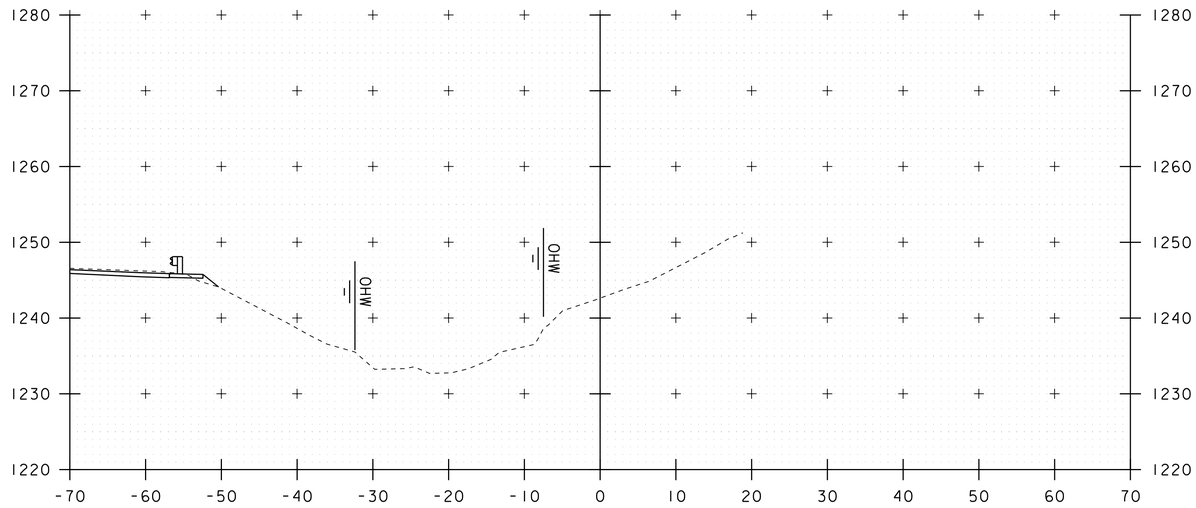
STA. 60+30 TO STA. 60+50

PROJECT NAME: PLYMOUTH	
PROJECT NUMBER: BF 013-3(13)	
FILE NAME: sl2b596xs.dgn	PLOT DATE: 10-JUL-2019
PROJECT LEADER: R. YOUNG	DRAWN BY: R. PELLETT
DESIGNED BY: K. CHEVIOT	CHECKED BY: C. MOONEY
CHANNEL CROSS SECTIONS 5	SHEET 35 OF 37

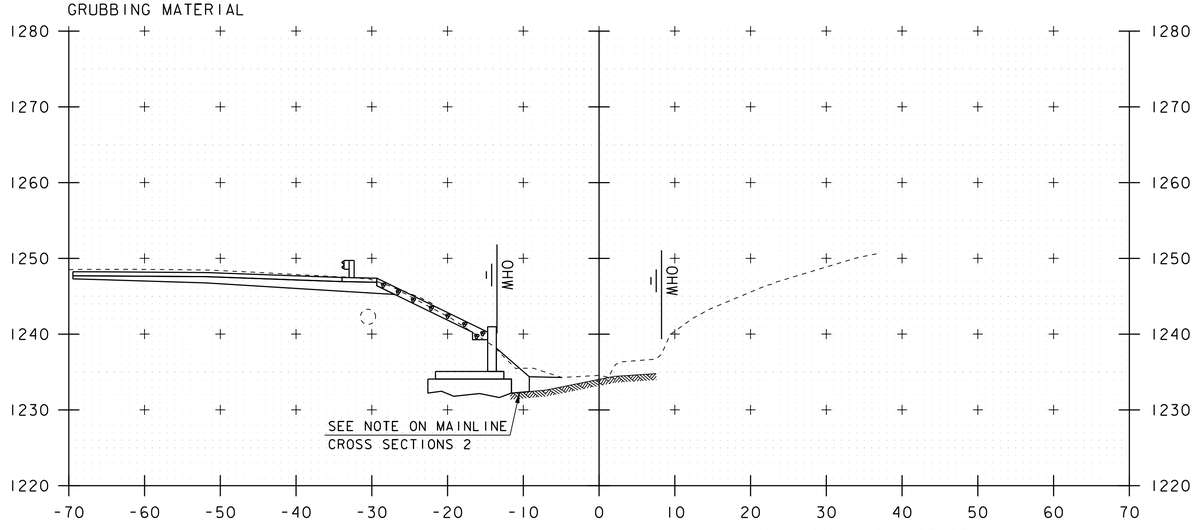


60+70

END LEFT - STA 60+76
UNCLASSIFIED CHANNEL
SPECIAL PROVISION (E-STONE) (TYPE IV)
STONE FILL TYPE I
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

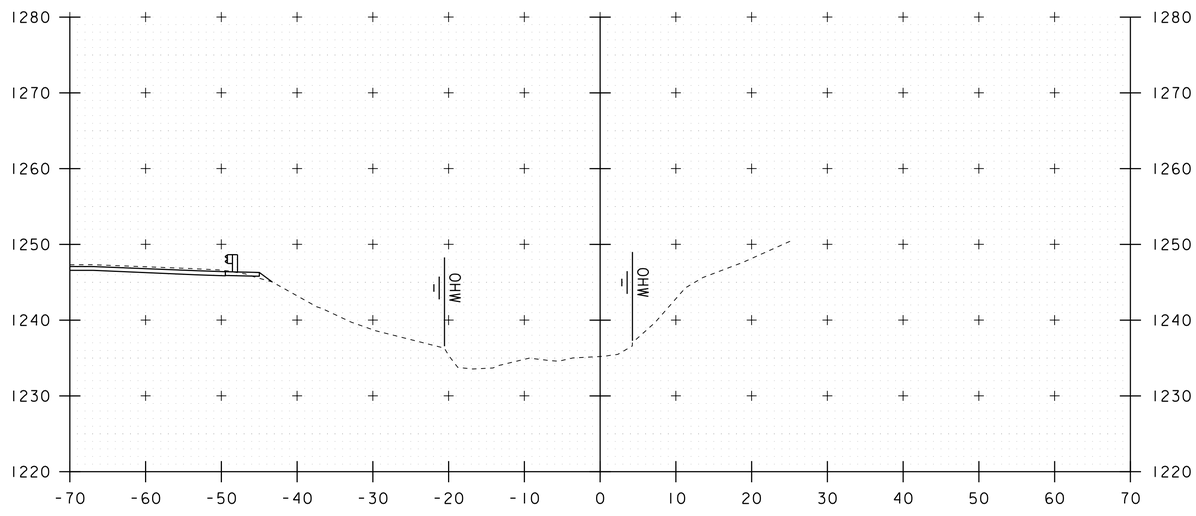


60+90



60+60

END RIGHT - STA 60+60
UNCLASSIFIED CHANNEL
STONE FILL, STREAM BED MATERIAL (TYPE IV)
STONE FILL TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL



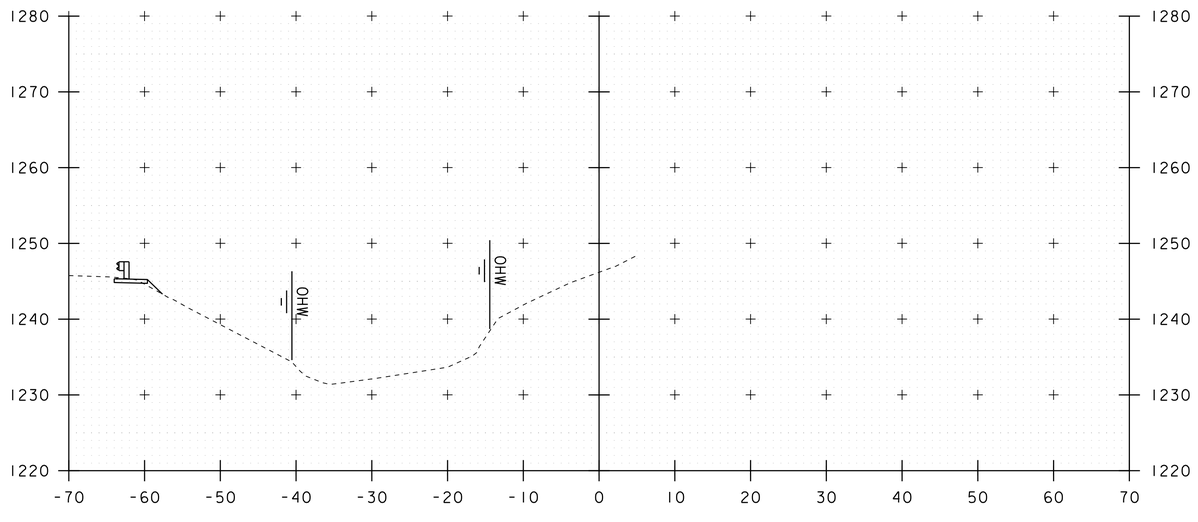
60+80

STA. 60+60 TO STA. 60+90

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: BF 013-3(13)

FILE NAME: sl2b596xs.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: K. CHEVIOT
CHANNEL CROSS SECTIONS 6

PLOT DATE: 10-JUL-2019
DRAWN BY: R. PELLETT
CHECKED BY: C. MOONEY
SHEET 36 OF 37



61+00

STA. 61+00 TO STA. 61+00

PROJECT NAME: PLYMOUTH	
PROJECT NUMBER: BF 013-3(13)	
FILE NAME: sl2b596xs.dgn	PLOT DATE: 10-JUL-2019
PROJECT LEADER: R. YOUNG	DRAWN BY: R. PELLETT
DESIGNED BY: K. CHEVIOT	CHECKED BY: C. MOONEY
CHANNEL CROSS SECTIONS 7	SHEET 37 OF 37