REVIEWER NOTES:

1. THE PROFILE AND CROSS SECTIONS WERE GENERATED USING OPENROADS AND HAVE HAD LITTLE MODIFICATION.

2. DETOUR INFORMATION:
THE PROJECT TEAM IS IN COMMUNICATION WITH THE TOWNS OF EDEN AND LOWELL FOR PERMISSION TO USE THE DETOUR ROUTES SHOWN IN THE PLANS.

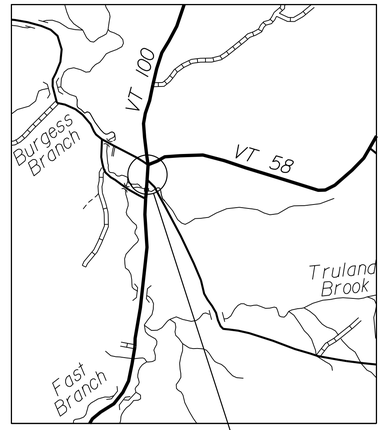
NORTHBOUND DETOUR (AND BICYCLE DETOUR) VIA LOWER VILLAGE ROAD
THROUGH DISTANCE: 0.2 MI
DETOUR DISTANCE: 0.8 MI
END-TO-END DISTANCE: 1.1 MI
ADDED MILES: 0.6 MI

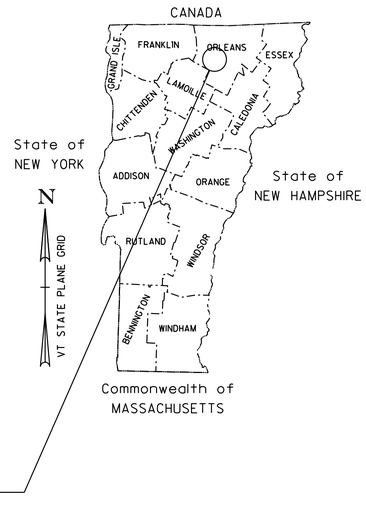
SOUTHBOUND DETOUR VIA MINES ROAD
THROUGH DISTANCE: 7.9 MI
DETOUR DISTANCE: 9.9 MI
END-TO-END DISTANCE: 17.6 MI
ADDED MILES: 2.0 MI

3. EXISTING UTILITIES INCLUDE AERIAL ELECTRIC AND TELEPHONE LINES OVER THE PROPOSED PIPE. THESE LINES WILL REMAIN IN PLACE THROUGH CONSTRUCTION. THE CONTRACTOR WILL NEED TO UTILIZE MEANS AND METHODS WHICH AVOID CONFLICTS WITH THESE UTILITIES.

4. THE PIPE IS PLANNED TO BE INSTALLED IN A FOUR-DAY CLOSURE, WITH NIGHT WORK ALLOWED. WE ANCICIPATE LANE CLOSURES FOR SEVERAL WEEKS PRIOR TO AND AFTER CONSTRUCTION, AND PLAN TO PERMIT RE-OPENING OF THE ROADWAY WITH A SUBBASE RIDING SURFACE AND TEMPORARY BARRIER. AN INCENTIVE/DISINCENTIVE IS PLANNED, WITH A CONCEPTUAL AMOUNT OF APPROXIMATELY $41,000.

STATE OF VERMONT
AGENCY OF TRANSPORTATION





PROPOSED IMPROVEMENT
BRIDGE PROJECT

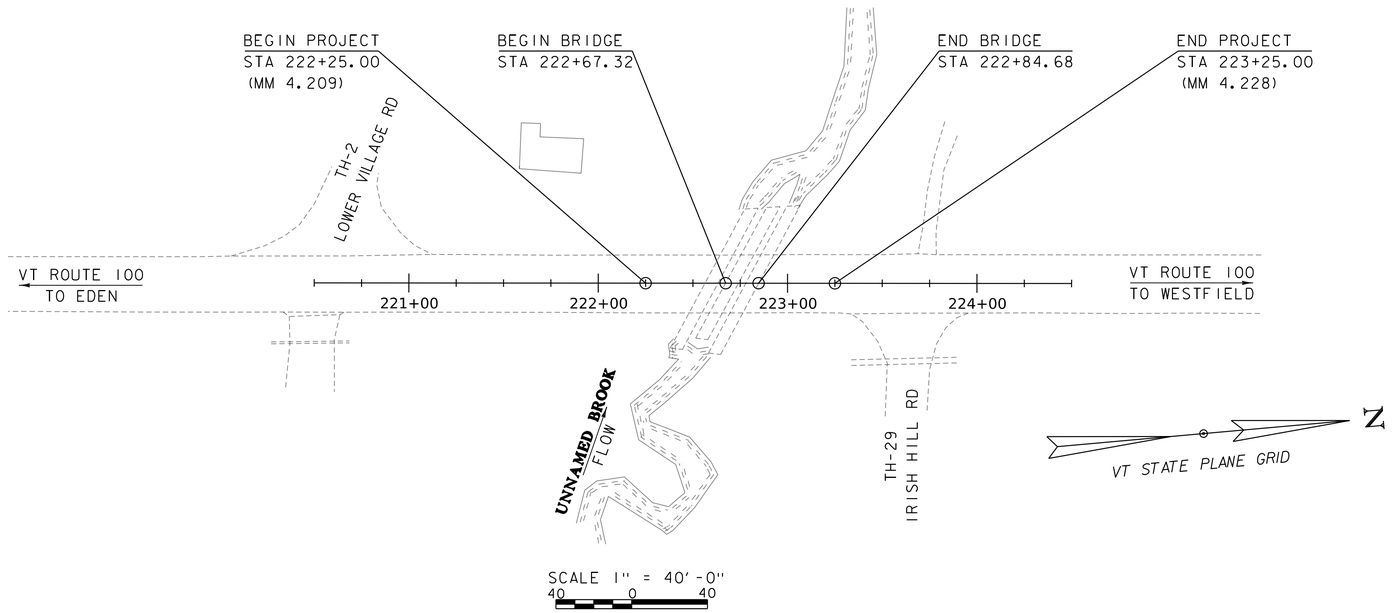
TOWN OF LOWELL
COUNTY OF ORLEANS

ROUTE NO : VT ROUTE 100, MINOR ARTERIAL BRIDGE NO: 237

PROJECT LOCATION: TOWN OF LOWELL IN ORLEANS COUNTY ON VT ROUTE 100 OVER UNNAMED BROOK. THE BRIDGE IS LOCATED APPROXIMATELY 0.2 MILES SOUTH OF THE JUNCTION WITH VT ROUTE 58.

PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 237 (CULVERT) ALONG WITH RELATED ROADWAY AND CHANNEL WORK.

LENGTH OF STRUCTURE: 17.36 FEET
LENGTH OF ROADWAY: 82.64 FEET
LENGTH OF PROJECT: 100.00 FEET



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 :	R. GILMAN
SURVEYED DATE :	11/18/2019
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (2011)

PRELIMINARY PLANS

18-MAY-2022

HIGHWAY DIVISION, CHIEF ENGINEER
APPROVED _____ DATE _____

PROJECT MANAGER : ROB YOUNG, P.E.

PROJECT NAME : LOWELL
PROJECT NUMBER : STP CULV(65)

SHEET 1 OF 21 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version
LRFD

INDEX OF SHEETS

PLAN SHEETS

DETAIL SHEETS

HSD-400.01	SAFETY EDGE DETAILS	1/5/2018
HSD-621.06	MISCELLANEOUS GUARDRAIL DETAILS	2/27/2017
HSD-621.07A	MGS	4/17/2019
HSD-621.07B	MGS COMPONENTS	4/17/2019
HSD-621.07F	MSG TRANSITION	4/17/2019

STANDARDS LIST

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: 3/7/2022

DRAINAGE AREA : 1
CHARACTER OF TERRAIN : Flat and Rurual Watershed
STREAM CHARACTERISTICS : Sinuous with wide floodplain
NATURE OF STREAMBED : Cobble

PEAK FLOW DATA - ANNUAL EXCEEDANCE PROBABILITY (AEP)

43% =	76	2% =	240
10% =	150	1% =	290
4% =	200	0.2% =	430

DATE OF FLOOD OF RECORD : Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ 2% AEP 5
ICE CONDITIONS : Moderate to Heavy
DEBRIS: Heavy
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Unknown
IS ORDINARY RISE RAPID? Unknown
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes
IF YES, DESCRIBE: Tailwater is influenced by the East Branch Missisquoi River

WATERSHED STORAGE: 1%
HEADWATERS:
UNIFORM: X
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Triple ACCGMPP
YEAR BUILT: 1948
CLEAR SPAN(NORMAL TO STREAM): 6
VERTICAL CLEARANCE ABOVE STREAMBED: 6
WATERWAY OF FULL OPENING: 85
DISPOSITION OF STRUCTURE: Full Replacement
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See Borings

WATER SURFACE ELEVATIONS AT:

43% AEP =	921	VELOCITY =	2
10% AEP =	922	"	3
4% AEP =	922	"	4
2% AEP =	923	"	5
1% AEP =	923	"	6

LONG TERM STREAMBED CHANGES: Sediment aggregation at inlet of exisiting structure

IS THE ROADWAY OVERTOPPED BELOW 1% AEP: No
FREQUENCY: N/A
RELIEF ELEVATION: N/A
DISCHARGE OVER ROAD @ 1% AEP: N/A

UPSTREAM STRUCTURE

TOWN: Lowell
HIGHWAY # : VT-58
CLEAR SPAN: 3.0 ft
YEAR BUILT: Unknown
STRUCTURE TYPE: Round CMP
DISTANCE: 500 ft.
STRUCTURE #: Unknown
CLEAR HEIGHT: 3.0 ft.
FULL WATERWAY: 28. 3 sq. ft.

DOWNSTREAM STRUCTURE

TOWN: Lowell
HIGHWAY # : TH-1
CLEAR SPAN: 52.0 ft.
YEAR BUILT: 1929
STRUCTURE TYPE: Single Span
DISTANCE: 2,400 ft.
STRUCTURE #: 8
CLEAR HEIGHT: Unknown
FULL WATERWAY: Unknown

PROPOSED STRUCTURE

STRUCTURE TYPE: Corrugated Metal Plate Pipe Arch

CLEAR SPAN(NORMAL TO STREAM): 15
VERTICAL CLEARANCE ABOVE STREAMBED: 8
WATERWAY OF FULL OPENING: 95

WATER SURFACE ELEVATIONS AT:

43% AEP =	920	VELOCITY=	2
10% AEP =	921	"	3
4% AEP =	921	"	4
2% AEP =	922	"	4
1% AEP =	922	"	5

IS THE ROADWAY OVERTOPPED BELOW 1% AEP: No
FREQUENCY: N/A
RELIEF ELEVATION: N/A
DISCHARGE OVER ROAD @ 1% AEP: N/A

BRIDGE LOW CHORD ELEVATION: 926
FREEBOARD: @ 2% AEP 4

SCOUR: N/A - Closed Bottom Burried Structure

REQUIRED CHANNEL PROTECTION: Stone Fill Type II*

PERMIT INFORMATION

AVERAGE DAILY FLOW:	-	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	-	-
ORDINARY HIGH WATER:	-	-

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: N/A
CLEAR SPAN (NORMAL TO STREAM): N/A
VERTICAL CLEARANCE ABOVE STREAMBED: N/A
WATERWAY AREA OF FULL OPENING: N/A

ADDITIONAL INFORMATION

*E-Stone Type II to be used for all in channel work

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TWO-WAY TRAFFIC ON THE EXISTING STRUCTURE.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	N/A INCH
3. DESIGN SPAN	L:	17.36 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	---
5. PRESTRESSING STRAND	f_y:	---
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	---
8. HIGH PERFORMANCE CONCRETE, CLASS PCD	f'_c:	---
9. HIGH PERFORMANCE CONCRETE, CLASS PCS	f'_c:	---
10. CONCRETE HIGH PERFORMANCE, CLASS SCC	f'_c:	---
11. CONCRETE, CLASS C	f'_c:	---
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)	f_y:	50 KSI
14. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	---
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
16. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	---
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
18. PILE RESISTANCE FACTOR	ϕ:	---
19. LATERAL PILE DEFLECTION	Δ:	---
20. BASIC WIND SPEED	V_{3s}:	---
21. MINIMUM GROUND SNOW LOAD	p_g:	---
22. SEISMIC DATA PGA: ---	S_s:	---
	S_1:	---
23.		
24.		---
25.		---
26.		---

LRFR LOAD RATING FACTORS

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

TRAFFIC DATA

YEAR	ADT	DHV	%D	%T	ADTT
2024	2600	300	62	8.8	260
2044	2900	340	62	12.9	420

20 year ESAL for flexible pavement from 2024 to 2044 : 1604000
40 year ESAL for flexible pavement from 2024 to 2064 : 3632000
Design Speed : 50 mph

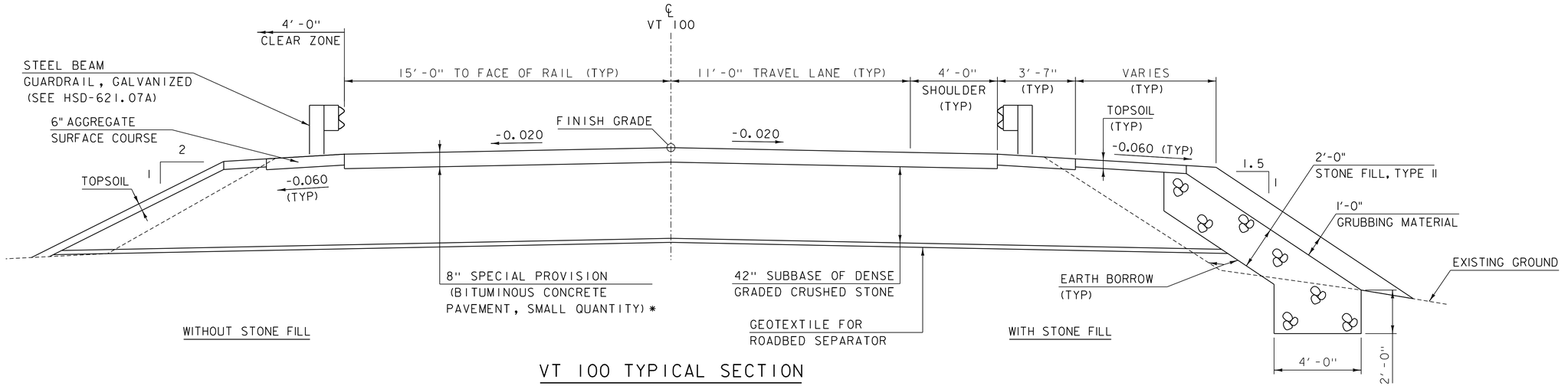
AS BUILT "REBAR" DETAIL

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

PROJECT NAME: **LOWELL**
PROJECT NUMBER: **STP CULV(65)**

FILE NAME: **s18b005pi.dgn**
PROJECT LEADER: **R. YOUNG**
DESIGNED BY: **A. LEMIEUX**
PRELIMINARY INFORMATION SHEET 1

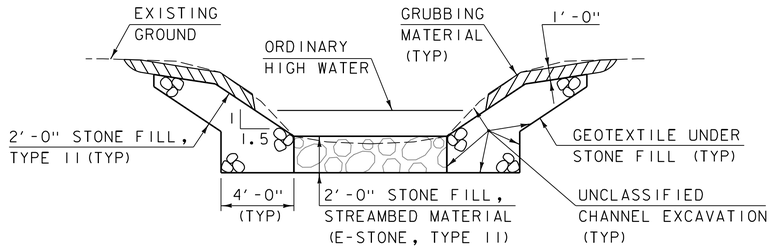
PLOT DATE: 5/17/2022
DRAWN BY: **R. PELLETT**
CHECKED BY: **A. LEMIEUX**
SHEET 2 OF 21



VT 100 TYPICAL SECTION

SCALE 3/8" = 1'-0"

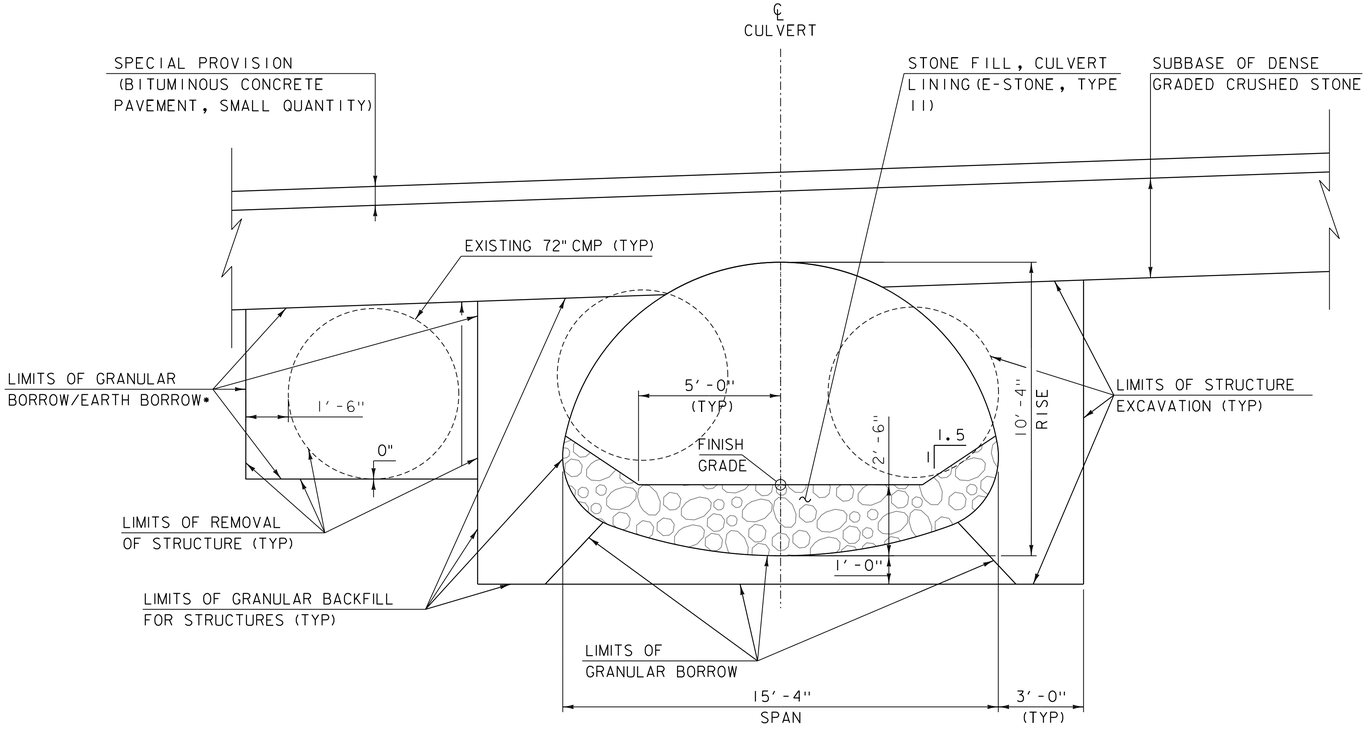
*TWO LIFTS 1 1/2" TYPE IVS OVER
TWO LIFTS 2 1/2" TYPE IIS



TYPICAL CHANNEL SECTION

(NOT TO SCALE)

1. GRUBBING MATERIAL SHALL BE PLACED OVER STONE FILL WHEN ABOVE THE OHW ELEVATION. SEE THE CHANNEL SECTIONS FOR ADDITIONAL DETAILING.
2. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.
3. THE CONTRACTOR SHALL CREATE A LOW FLOW CHANNEL IN THE STREAMBED MATERIAL AND IN THE CULVERT LINING AS DIRECTED BY THE ENGINEER.



CULVERT TYPICAL SECTION

SCALE 3/8" = 1'-0"

• GRANULAR BORROW SHALL USED WITHIN THE LIMITS OF THE CLEAR ZONE.

MATERIAL TOLERANCES

(IF USED ON PROJECT)

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

PAVEMENT DESIGN VALUES	
DESIGN LANE/DESIGN LIFE ESALS	995,000
PERFORMANCE GRADE ASPHALT BINDER	70-28
DESIGN NUMBER OF GYRATIONS	65

PROJECT NAME: LOWELL
PROJECT NUMBER: STP CULV(65)

FILE NAME: sl8b005typ.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: A. LEMIEUX
TYPICAL SECTIONS

PLOT DATE: 18-MAY-2022
DRAWN BY: A. LEMIEUX
CHECKED BY: R. HOOD
SHEET 3 OF 21

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
	BF	BARRIER FENCE
	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
	PDF	PROJECT DEMARCATION FENCE
	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 — PDF — PROJECT DEMARCATION FENCE
- BF — 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
- P/L — PROPERTY LINE (P/L)
- SR SR SR — SLOPE RIGHTS
- 6f — 6f — 6F PROPERTY BOUNDARY
- 4f — 4f — 4F PROPERTY BOUNDARY
- HAZ — 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: LOWELL
PROJECT NUMBER: STP CULV(65)

FILE NAME: s18b005legend.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: R. PELLETT
CONVENTIONAL SYMBOLOGY LEGEND

PLOT DATE: 18-MAY-2022
DRAWN BY: R. PELLETT
CHECKED BY: A. LEMIEUX
SHEET 4 OF 21

NETWORK CONTROL

HVCTRL #1
RICKABY AZ MK
NORTH = 827975.4300
EAST = 1651451.9500
ELEV. = 1051.7710

GENERAL LOCATION, LOWELL, VT.
TO REACH FROM THE INTERSECTION OF VT ROUTE 100 AND VT ROUTE 58 IN LOWELL, GO SOUTH ON VT ROUTE 100 FOR 2.0 MI (3.2 KM) TO THE INTERSECTION OF MINK FARM ROAD RIGHT. CONTINUE STRAIGHT AHEAD AND GO SOUTH ALONG VT ROUTE 100 FOR 0.1 MI (0.2 KM) TO THE MARK ON THE RIGHT ON THE TOP OF A BANK AT THE NORTH EDGE OF A FIELD.

THE MARK IS SET FLUSH WITH THE GROUND SURFACE IN THE TOP OF A 30 CM (12 INCH) DIAMETER CONCRETE MONUMENT POURED 1.3 M (4.3 FT) DEEP. IT IS 11.9 M (39.0 FT) WEST OF AND ABOUT 2 M (6.6 FT) HIGHER THAN THE CENTERLINE OF VT ROUTE 100, 36.0 M (118.1 FT) NORTH OF THE CENTERLINE OF A FIELD DRIVE, 10.9 M (35.8 FT) SOUTH OF A 12 CM (5 INCH) POPLAR AND 0.3 M (1.0 FT) (1.0 FT) EAST OF A FIBERGLASS WITNESS POST.

HVCTRL #2
RICKABY
NORTH = 829374.4700
EAST = 1651600.3100
ELEV. = 1004.0800

GENERAL LOCATION, LOWELL, VT.
TO REACH FROM THE INTERSECTION OF VT ROUTE 100 AND VT ROUTE 58 IN LOWELL, GO SOUTH ON VT ROUTE 100 FOR 1.8 MI (2.9 KM) TO THE MARK ON THE RIGHT IN A LAWN OF A 1 1/2 STORY WOOD FRAME HOUSE, ABOUT 70 M (229.7 FT) (229.7 FT) NORTH OF THE INTERSECTION OF RICKABY ROAD RIGHT.

THE MARK IS SET FLUSH WITH THE GROUND SURFACE IN THE TOP OF A 30 CM (12 INCH) DIAMETER CONCRETE MONUMENT POURED 1.3 M (4.3 FT) DEEP. IT IS 7.8 M (25.6 FT) WEST OF AND ABOUT 0.4 M (1.3 FT) LOWER THAN THE CENTERLINE OF VT ROUTE 100, 20.5 M (67.3 FT) EAST OF THE NORTHEAST CONCRETE PORCH CORNER OF THE 1 1/2 STORY HOUSE, 22.6 M (74.1 FT) (74.1 FT) NORTHEAST OF THE SOUTHEAST CORNER OF THE CONCRETE PORCH AND 16.8 M (55.1 FT) SOUTH OF A TELEPHONE POLE AND A FIBERGLASS WITNESS POST.

HVCTRL #12
IGNATIUS
NORTH = 841691.4990
EAST = 1654378.5090
ELEV. = 980.9100

GENERAL LOCATION, LOWELL, VT.

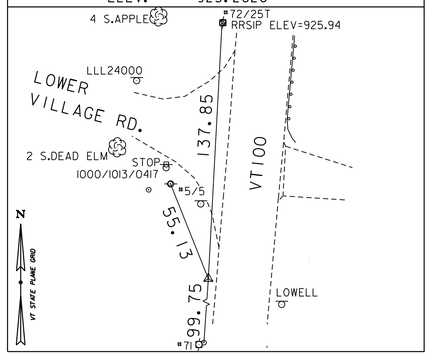
TO REACH FROM THE INTERSECTION OF VT ROUTE 100 AND VT ROUTE 58 GO NORTH ALONG VT ROUTE 100 FOR 0.7 MI (1.1 KM) TO THE ST IGNATIUS CEMETERY AND THE SITE OF THE MARK ON THE LEFT.

THE MARK IS SET 15 CM (6 INCHES) BELOW GROUND SURFACE IN THE TOP OF A FENO STYLE MONUMENT. IT IS 6.9 M (22.6 FT) SOUTHEAST OF AND 0.4 M (1.3 FT) LOWER THAN THE CENTERLINE OF VT ROUTE 100, 6.3 M (20.7 FT) NORTHEAST OF THE CENTERLINE OF THE MAIN ENTRANCE DRIVE TO THE CEMETERY, 46.2 M (151.6 FT) SOUTHWEST OF THE CENTERLINE OF THE MOST NORTHERLY DRIVE AND 3.5 M (11.5 FT) NORTHWEST OF A CHAIN-LINK FENCE

LOCAL CONTROL

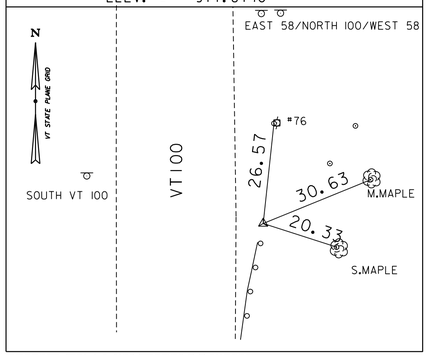
HVCTRL #8

NORTH = 836932.5335
EAST = 1653919.6390
ELEV. = 923.2620



HVCTRL #9

NORTH = 837945.1037
EAST = 1654040.1507
ELEV. = 971.8140



NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

* MAIN TRAVERSE COMPLETED ON 11/18/2019 BY R.GILMAN B.HERRING H.MCGOWAN

ALIGNMENT TIES

CONTROL LINE DATA - VT 100

POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)	PC	PI	PT	DELTA	R	L	T
1	N5.150°E	400.000 '	836991.900	1653943.406		22050.000					
2			837390.286	1653979.312		22450.000					

CONTROL LINE DATA - CHANNEL

POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)	PC	PI	PT	DELTA	R	L	T
	N56.850°W	150.000 '	837179.257	1654021.463		5000					
			837261.282	1653895.876		5150					

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD83 (2011)
ADJUSTMENT COMPASS

PROJECT NAME: LOWELL
PROJECT NUMBER: STP CULV(65)

FILE NAME: sl8b005ti.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: H. McGOWAN
TIE SHEET

PLOT DATE: 18-MAY-2022
DRAWN BY: H. McGOWAN
CHECKED BY: R. GILMAN

N

VT STATE PLANE GRID

SOIL INFORMATION:
MEDOMAK MUCKY SILT LOAM
MODERATE EROSION POTENTIAL
K-FACTOR = 0.28, 0%-2%
HYDROLOGICAL SOIL GROUP: B/D

SOIL INFORMATION:
SHEEPSCOT GRAVELLY FINE
(NOT HIGHLY ERODIBLE)
K-FACTOR = 0.17, 3%-8%
HYDROLOGICAL SOIL GROUP: A/D

WELLS, EDMUND

TETREAULT, GERTRUDE

N/F
GEOFFROY, RAYMOND

APPROX. EXISTING TOWN R.O.W.

APPROX. EXISTING R.O.W.

SIGN VR-017 (24,000)

SIGN D3-1 (LOWER VILLAGE RD)

SIGN VD-018 1000 1013 0417 SIGN R1-1

GUY WIRE

SUB RISER

TH-2 LOWER VILLAGE RD

SEPTIC TANK (APPROX.)

UNNAMED BROOK FLOW

OHW

4X4 CONCRETE BOUNDARY MARKER 1.7' BGS

WELL 3' DIA CONC TILE

TEL

FIELD DRIVE

GUY WIRE

COMB 72 25T

COMB 73

COMB 74

SIGN R2-1 (50)

51+00 BRIDGE 23' (VT-100)

3 - 72" CSMP FLOW

VT ROUTE 100 TO EDEN

VT ROUTE 100 TO WESTFIELD

221+00

222+00

223+00

224+00

SIGN VD-018A (LOWELL WESTFIELD 6)

12" CSMP FLOW

GRAVEL DRIVE

50+00 BRIDGE 23' (VT-100)

SIGN VD-700 1000 1013 0424

SIGN R2-1 (35)

SIGN D3-1 (IRISH HILL RD)

36" RCP FLOW

SIGN VR-017 (24,000)

SIGN (D) PION TRANSPORT

TH-29 IRISH HILL RD

TELE

ELEC

PION, DARREN M. & CHRISTY M.

N/F
COTA, BRIAN JR.

PION, DARREN M.

APPROX. EXISTING TOWN R.O.W.

SOIL INFORMATION:
MOOSILAUKE VERY FINE SAND
MODERATE EROSION POTENTIAL
K-FACTOR = 0.24, 0%-3%
HYDROLOGICAL SOIL GROUP: A/D

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

PROJECT NAME:	LOWELL
PROJECT NUMBER:	STP CULV(65)
FILE NAME: sl8b005bdr_existing.dgn	PLOT DATE: 18-MAY-2022
PROJECT LEADER: R. YOUNG	DRAWN BY: A. VANBUSKIRK
DESIGNED BY: A. LEMIEUX	CHECKED BY: R. HOOD
EPSC EXISTING CONDITIONS	SHEET 6 OF 21

STEEL BEAM GUARDRAIL, GALVANIZED/NESTED
222+40.2 - 223+27.7 LT
222+24.3 - 223+11.8 RT

MANUFACTURED TERMINAL SECTION, FLARED
221+68.3 - 222+05.8 LT

MANUFACTURED TERMINAL SECTION, TANGENT
220+77.4 - 221+27.4 RT

REMOVAL AND DISPOSAL OF GUARDRAIL
221+74.7 - 223+62.7 LT
220+66.1 - 223+47.0 RT

DELINEATOR WITH STEEL POST
221+82.0 LT (GREEN)
223+51.0 LT (BLUE)
220+74.0 RT (BLUE)
223+23.0 RT (GREEN)

STEEL BEAM GUARDRAIL, GALVANIZED
222+05.8 - 222+40.2 LT
223+27.7 - 223+64.3 LT
221+27.4 - 222+24.3 RT
223+11.8 - 223+49.8 RT

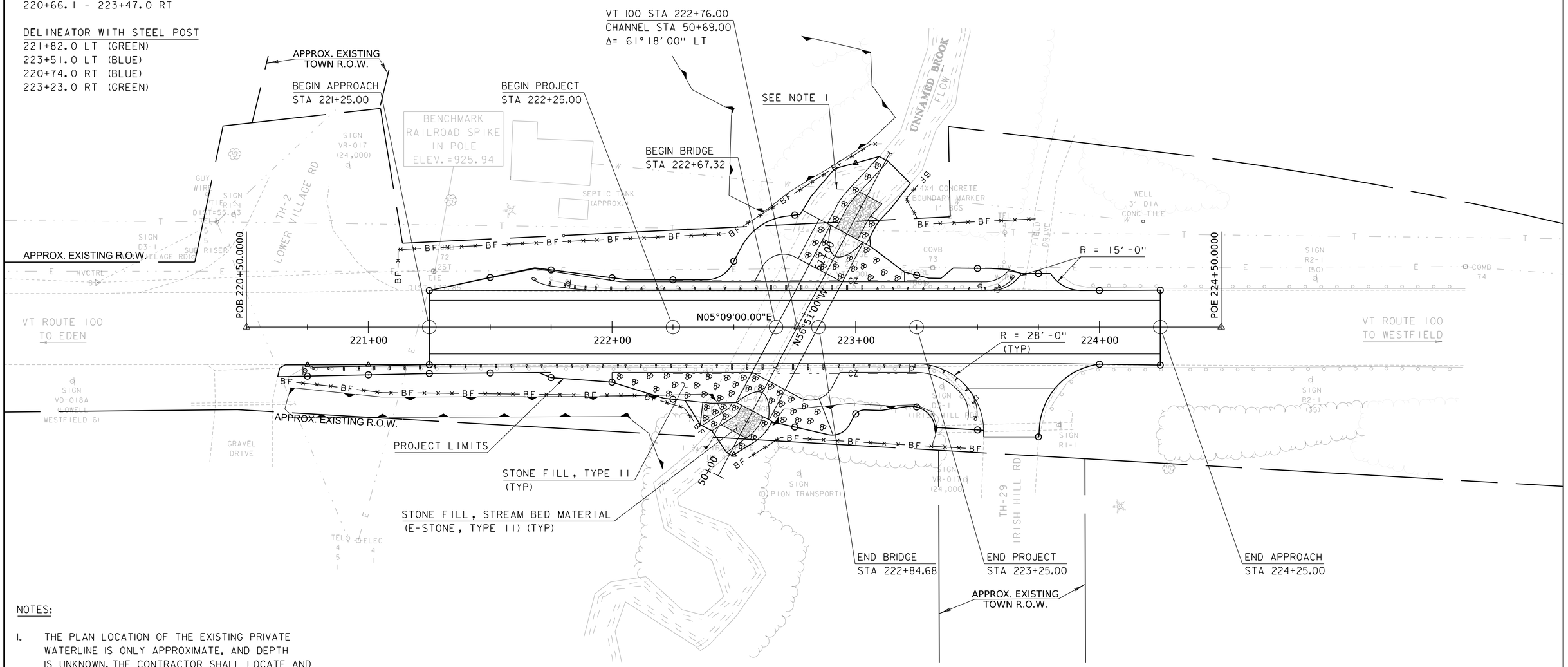
ANCHOR FOR STEEL BEAM RAIL
223+58.0 LT
223+49.0 RT

COARSE MILLING, BITUMINOUS PAVEMENT
221+25.0 - 221+75.0
223+85.0 - 224+25.0

CONSTRUCT DRIVE (PAVED)
223+55.3 - 223+92.7 LT
223+24.6 - 224+00.0 RT

STONE FILL, TYPE II
222+76.4 - 223+20.0 LT
222+00.0 - 222+90.7 RT

N
VT STATE PLANE GRID



NOTES:

1. THE PLAN LOCATION OF THE EXISTING PRIVATE WATERLINE IS ONLY APPROXIMATE, AND DEPTH IS UNKNOWN. THE CONTRACTOR SHALL LOCATE AND PROTECT THE WATERLINE WHEN WORKING IN PROXIMITY. THIS WORK WILL BE PAID UNDER ITEM 204.22 "TRENCH EXCAVATION OF EARTH, EXPLORATORY."

2. EXISTING PROPERTY MARKER, LOCATED AT STA 222+43.6 (OFFSET 46.4' RT), TO BE REPLACED BY AOT SURVEY.

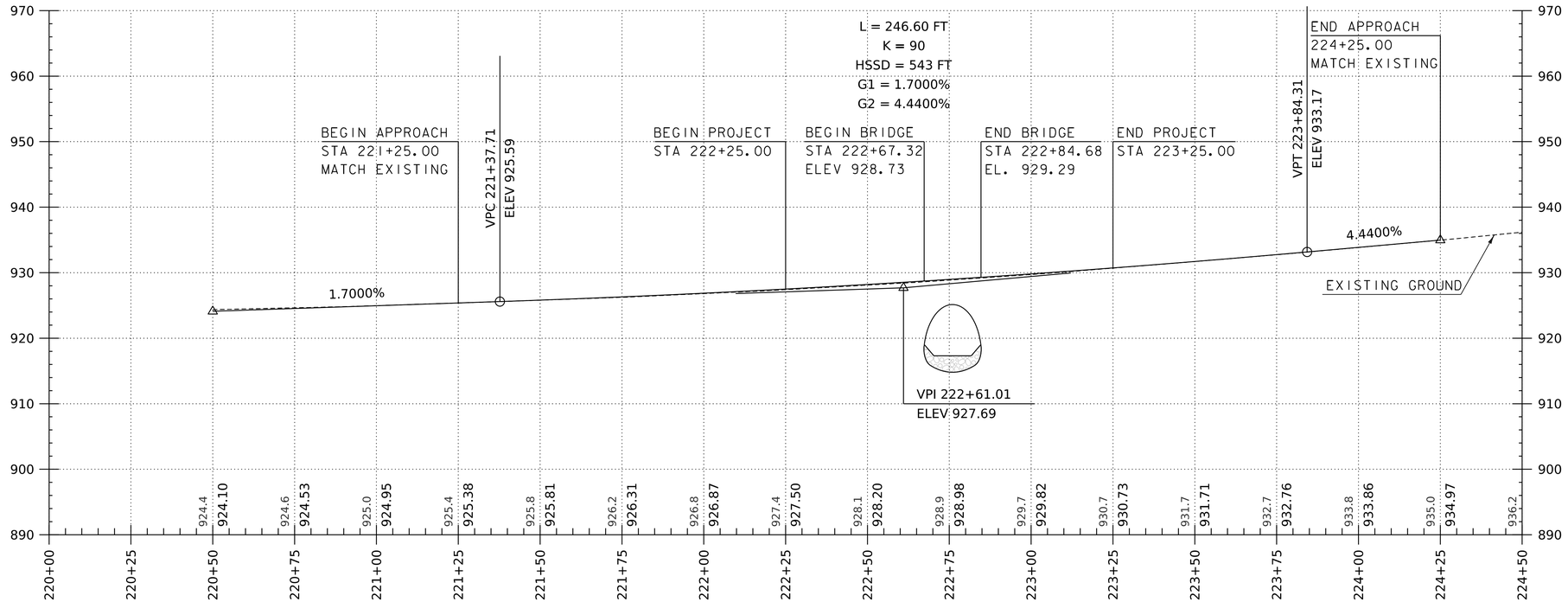
EXISTING BRIDGE INFORMATION
TRIPLE 6' DIA ACCGMPP
BUILT 1948
TOTAL WATERWAY AREA= 84 SQFT.
7 FOOT AVERAGE COVER

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

PROJECT NAME: LOWELL
PROJECT NUMBER: STP CULV(65)

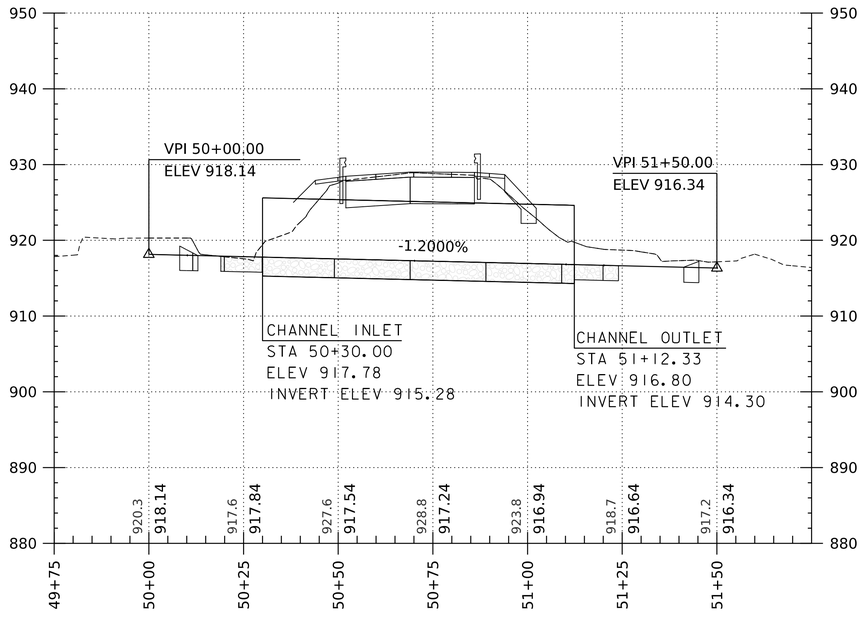
FILE NAME: sl8b005bdr.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: A. LEMIEUX
LAYOUT

PLOT DATE: 18-MAY-2022
DRAWN BY: A. LEMIEUX
CHECKED BY: R. HOOD
SHEET 7 OF 21



VT 100 PROFILE

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

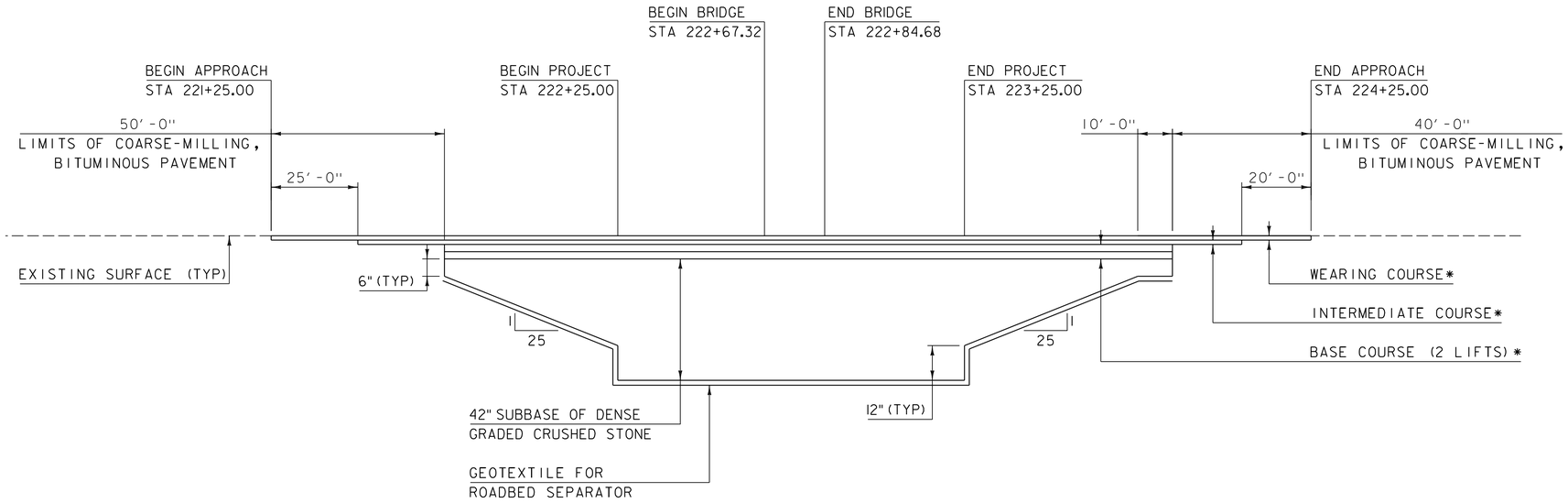


CHANNEL PROFILE

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

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

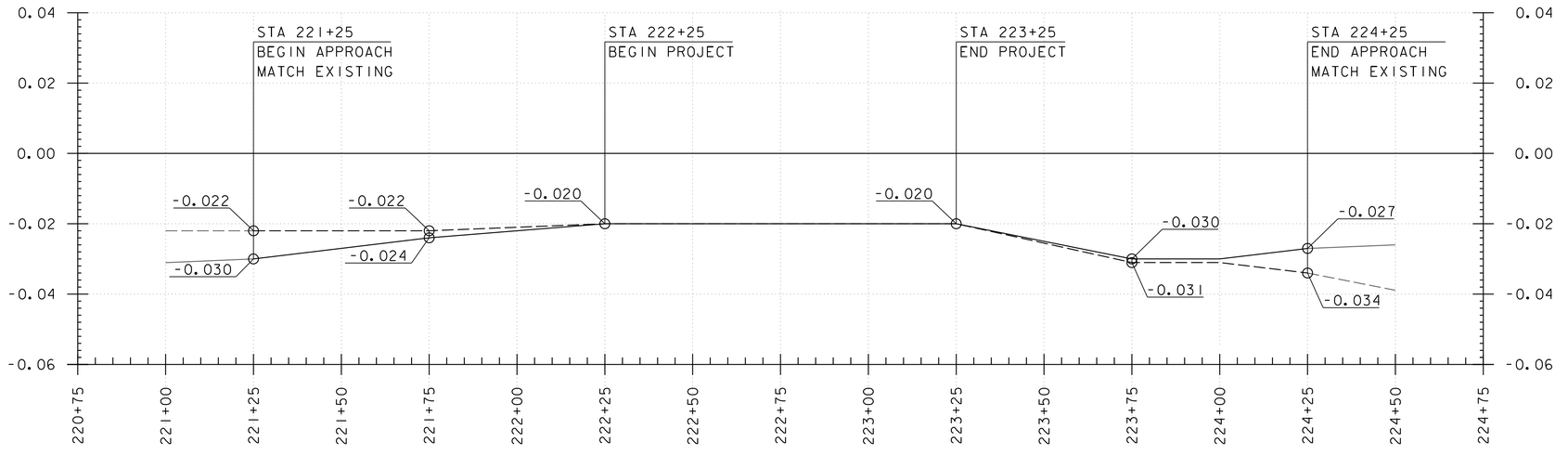
PROJECT NAME:	LOWELL
PROJECT NUMBER:	STP CULV(65)
FILE NAME: sl8b005profile.dgn	PLOT DATE: 18-MAY-2022
PROJECT LEADER: R. YOUNG	DRAWN BY: R. HOOD
DESIGNED BY: R. HOOD	CHECKED BY: A. LEMIEUX
VT 100 PROFILE	SHEET 8 OF 21



MATERIAL TRANSITION

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 2'-0"

*SEE TYPICAL SECTIONS SHEET FOR
BITUMINOUS CONCRETE PAVEMENT INFORMATION



VT 100 BANKING DIAGRAM

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 0.02

——— LEFT
– – – – RIGHT

PROJECT NAME:	LOWELL
PROJECT NUMBER:	STP CULV(65)
FILE NAME: sl8b005mattrans.dgn	PLOT DATE: 18-MAY-2022
PROJECT LEADER: R. YOUNG	DRAWN BY: R. HOOD
DESIGNED BY: R. HOOD	CHECKED BY: A. LEMIEUX
MATERIAL TRANSITION & BANKING DIAGRAM	SHEET 9 OF 21

NOTES:

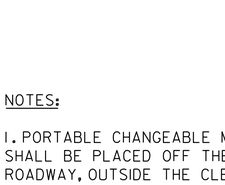
1. PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE PLACED OFF THE EDGE OF THE ROADWAY, OUTSIDE THE CLEAR ZONE, BUT SHALL BE VISIBLE FROM THE ROADWAY. ANY VEGETATION THAT INTERFERES WITH VISIBILITY OF THE PCMS SHALL BE REMOVED. REMOVAL OF THE VEGETATION WILL BE INCIDENTAL TO ITEM 641.15, "PORTABLE CHANGEABLE 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 EXCEPT THOSE ATTACHED TO TYPE 3 BARRICADES.

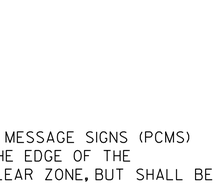
3. SEE CONTRACT DOCUMENTS FOR CLOSURE DATES.

4. CONFLICTING SIGNS SHALL BE COVERED FOR THE DURATION THAT DETOUR SIGNS ARE IN PLACE.

5. ALL SIGN COVERINGS SHALL NOT DAMAGE THE RETROREFLECTIVITY OF THE COVERED SIGN FACE.
SIGN COVERING SHALL NOT DETERIORATE FOR THE DURATION THAT SIGN IS COVERED.



TYPICAL NORTH DETOUR ASSEMBLY

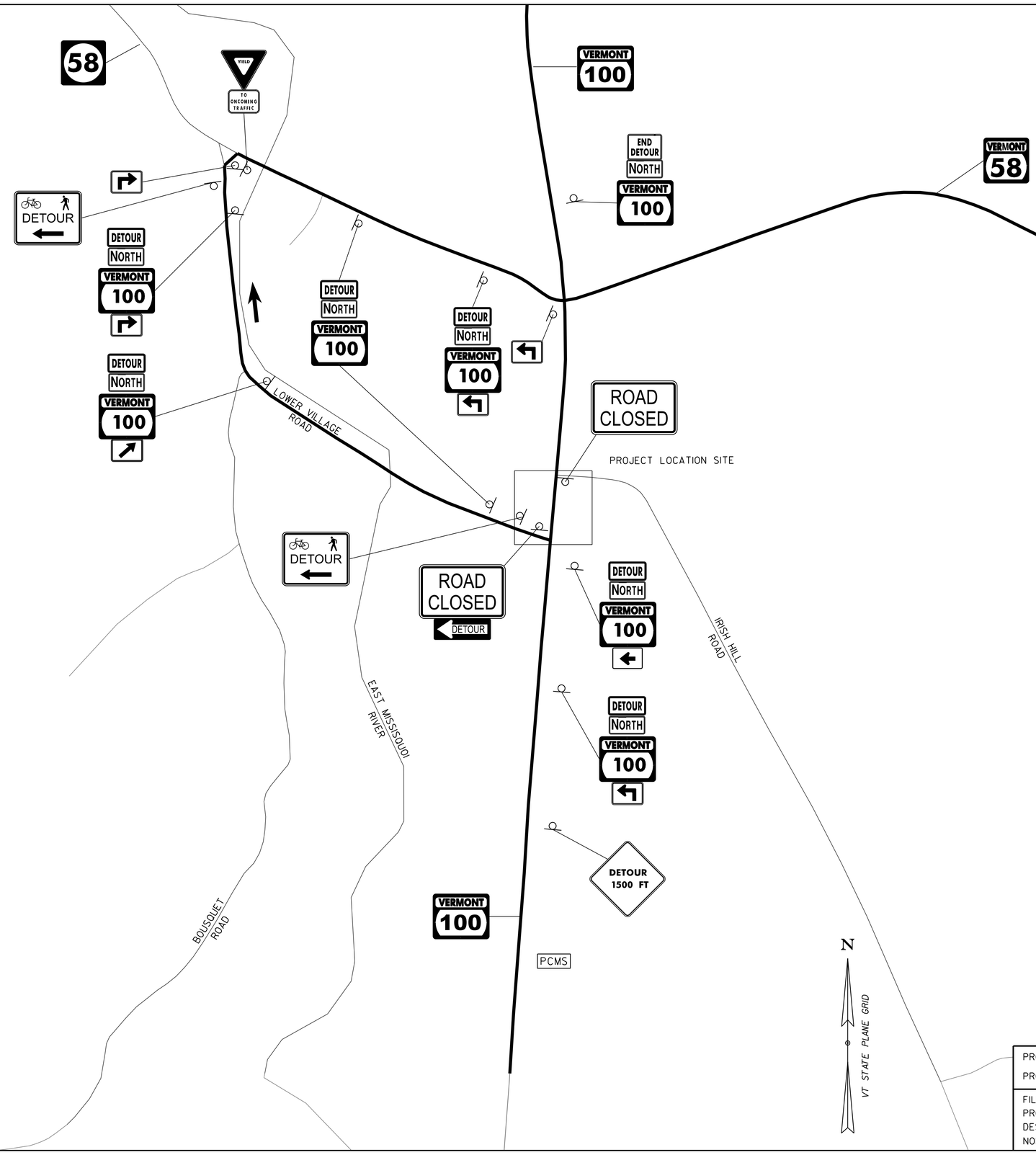


TYPICAL SOUTH DETOUR ASSEMBLY

PCMS

MESSAGES FOR PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS)

MESSAGE 1	MESSAGE 2
PRE-CLOSURE	DURING CLOSURE
X MI AHEAD VT 100 CLOSED MMMM DD- MMMM DD	VT 100 CLOSED IN X MI DETOUR AHEAD

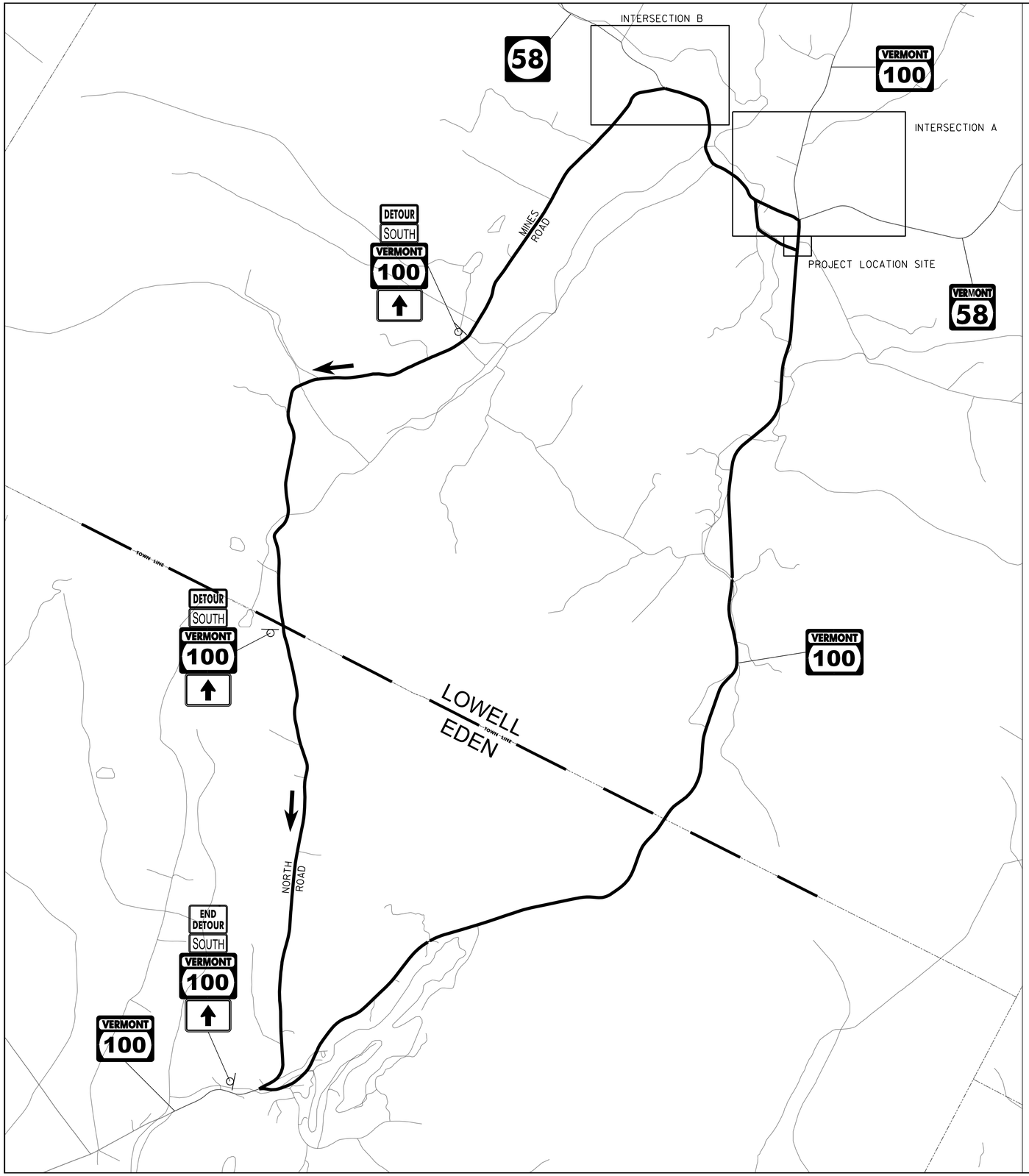


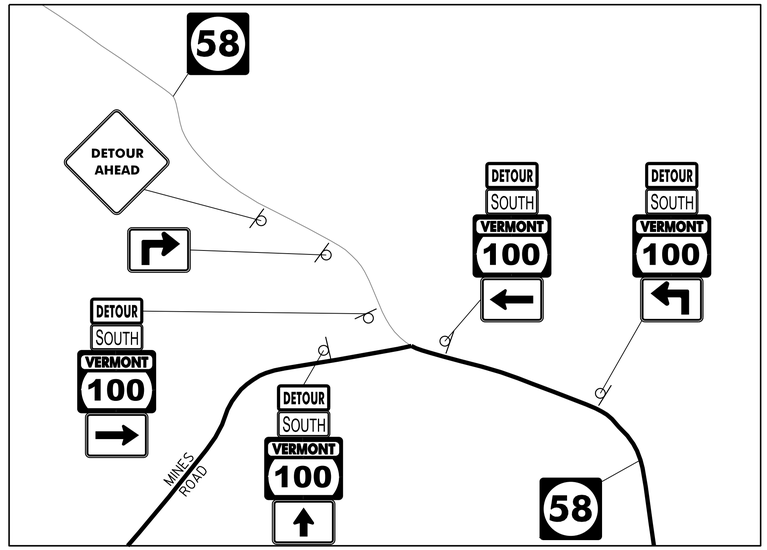
NORTHBOUND DETOUR ROUTE

250 0 250

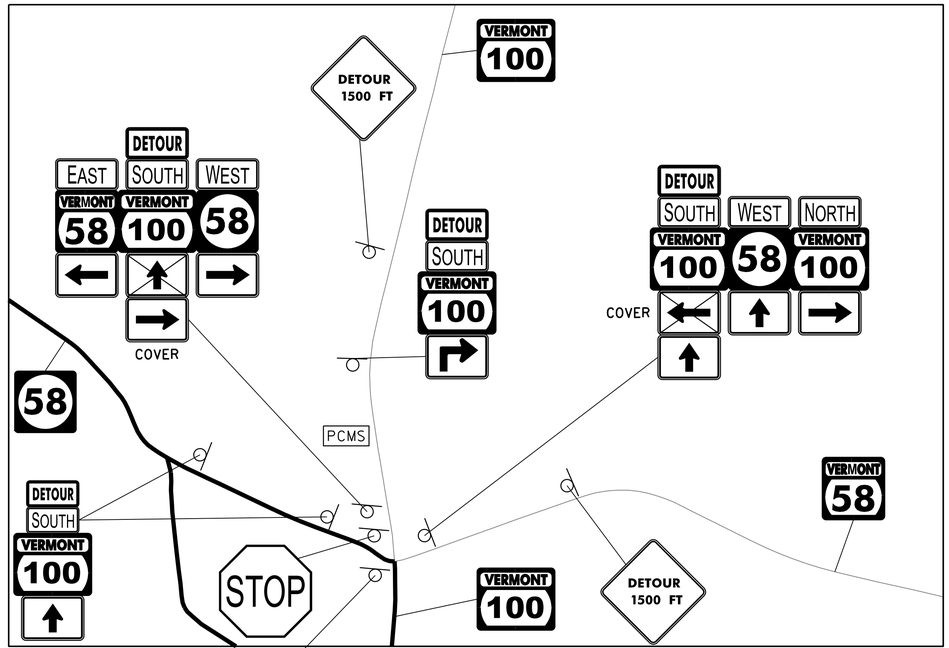
SCALE: 1" = 250'-0"

PROJECT NAME:	LOWELL
PROJECT NUMBER:	STP CULV(65)
FILE NAME: s18b005detour-nb.dgn	PLOT DATE: 18-MAY-2022
PROJECT LEADER: R. YOUNG	DRAWN BY: R. PELLETT
DESIGNED BY: A. LEMIEUX	CHECKED BY: A. LEMIEUX
NORTHBOUND DETOUR SHEET	SHEET 10 OF 21





INTERSECTION B
(N.T.S.)



INTERSECTION A
(N.T.S.)

N

VT STATE PLANE GRID

SOUTHBOUND DETOUR ROUTE

2000 0 2000

SCALE: 1" = 2000'-0"

PROJECT NAME: LOWELL
PROJECT NUMBER: STP CULV(65)

FILE NAME: sl8b005detour-sb.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: ------
SOUTHBOUND DETOUR SHEET

PLOT DATE: 18-MAY-2022
DRAWN BY: D.D.BEARD
CHECKED BY: ------
SHEET 11 OF 21

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY

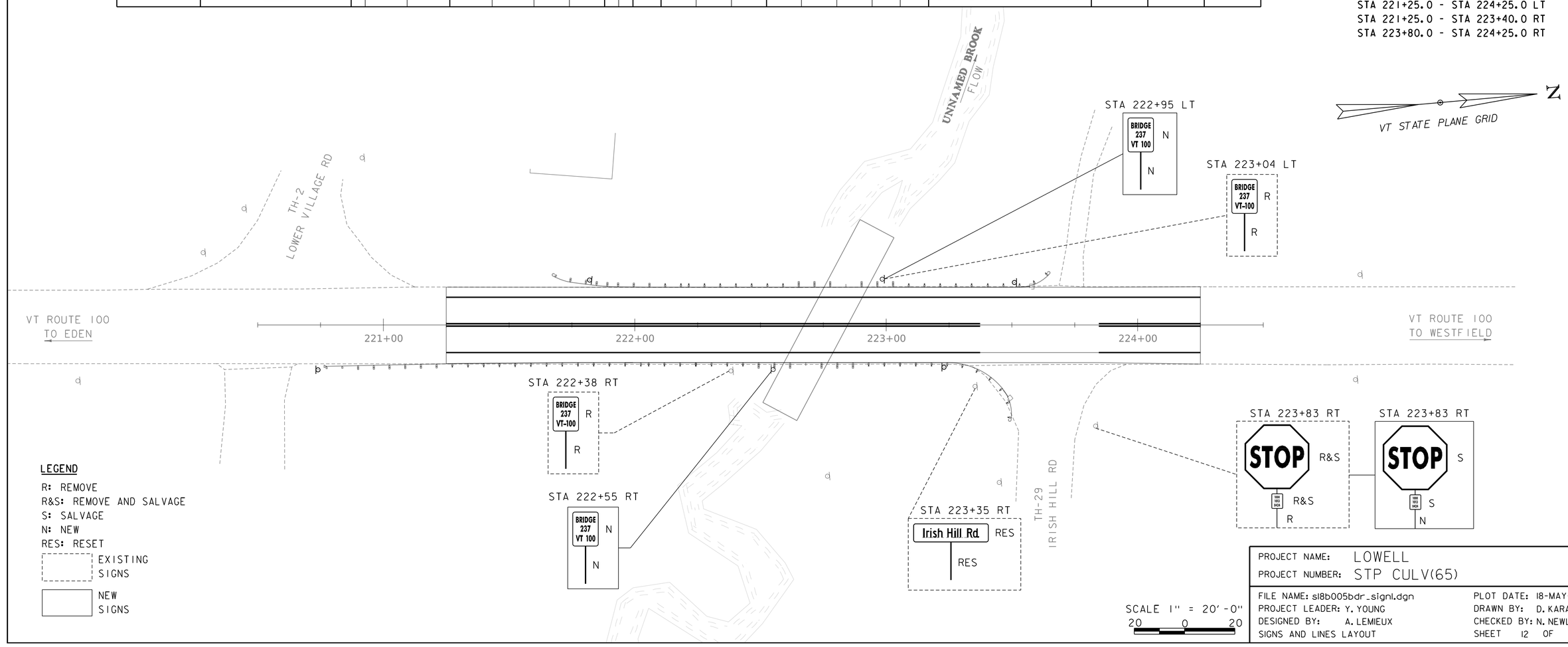
MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) lb/ft 1.75 / 1.88	2.0 / 2.42	2.5 / 3.35	ANCHOR	SLEEVE	REMARKS	SIGN DETAIL DETAIL IN SHS	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
											OPTION ITEMS												
222+98 LT	BRIDGE 237 VT 100	1	6	10	0.42						1				10			X		VD-701 LINE 2: 237 LINE 3: VT 100			T-42
222+55 RT	BRIDGE 237 VT 100	1	6	10	0.42						1				10			X		VD-701 LINE 2: 237 LINE 3: VT 100			T-42
223+35 RT	Irish Hill Rd.	1					1			X										REMOVE AND RESET			
223+83 RT	STOP	1	30	30			1				1					15		X		RI-1 REMOVE AND SALVAGE			
	1000 1013 0424	1	6	10			1													VD-700 REMOVE AND SALVAGE BACK-BACK WITH STOP SIGN			

NOTES:
1. ALL LEGEND SHALL BE CENTERED VERTICALLY AND HORIZONTALLY UNLESS OTHERWISE NOTED.
2. CORNERS SHALL BE ROUNDED TO 1 7/8 INCHES.
3. BORDERS SHALL BE 3/4 INCH.
4. MARGINS SHALL BE 1/2 INCH.
5. ALL DIMENSIONS IN INCHES.
6. ALL SIGNS NOT NOTED ON THIS SHEET SHALL REMAIN IN PLACE.

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND VTRANS "SIGN POST DESIGN GUIDELINE."
SHS = STANDARD HIGHWAY SIGNS

4 INCH YELLOW LINE (DOUBLE)
STA 221+25.0 - STA 223+40.0
STA 223+80.0 - STA 224+25.0

4 INCH WHITE LINE
STA 221+25.0 - STA 224+25.0 LT
STA 221+25.0 - STA 223+40.0 RT
STA 223+80.0 - STA 224+25.0 RT



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

PROJECT NAME: LOWELL
PROJECT NUMBER: STP CULV(65)

FILE NAME: si8b005bdr_signl.dgn
PROJECT LEADER: Y. YOUNG
DESIGNED BY: A. LEMIEUX
SIGNS AND LINES LAYOUT

PLOT DATE: 18-MAY-2022
DRAWN BY: D. KARABEGOVIC
CHECKED BY: N. NEWLAND
SHEET 12 OF 21

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
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)
VTSPG	NAD83 - See Note 7

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.

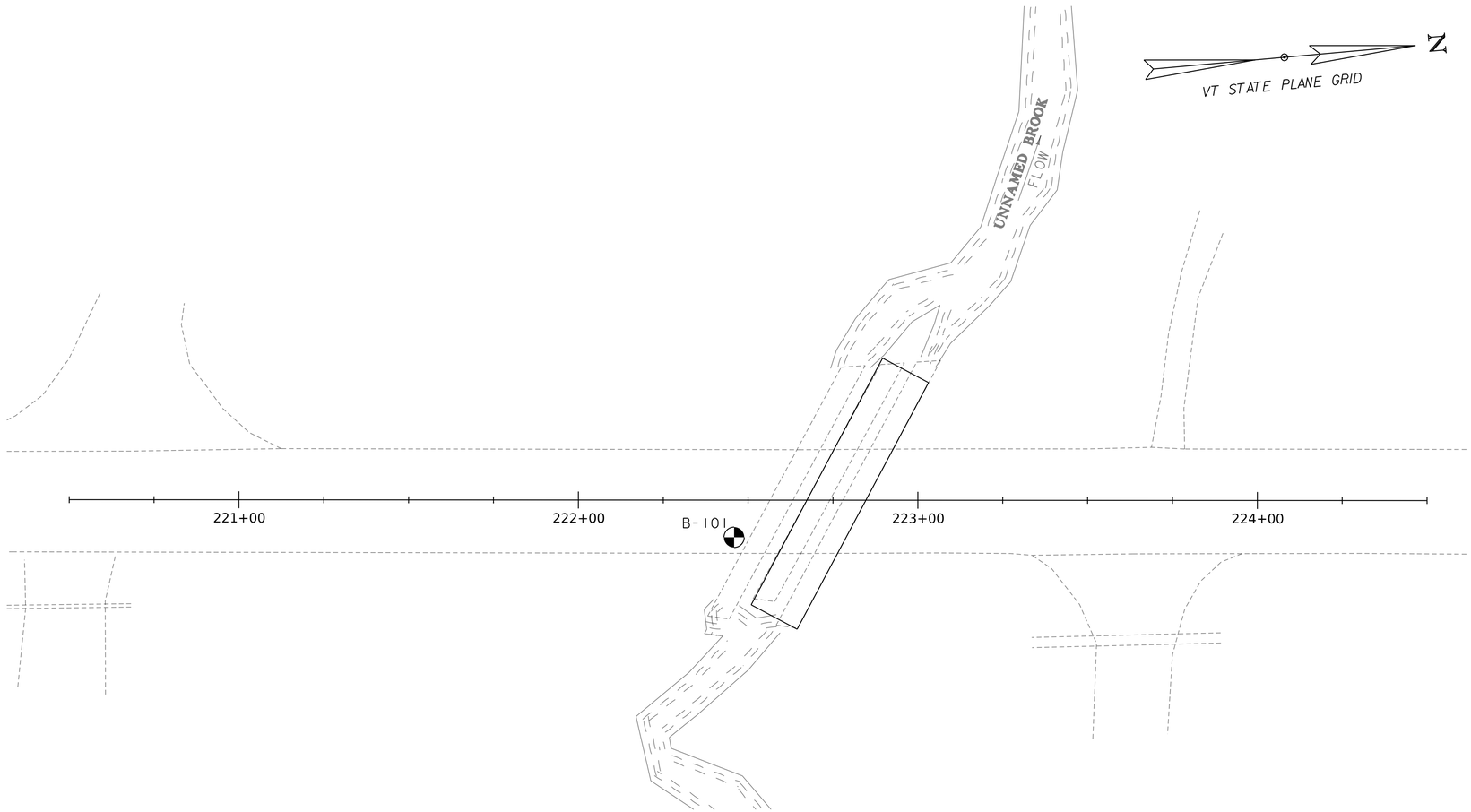
MUCK - Soft organic soil (containing > 10% organic material.

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" = 20'-0"
20 0 20

BORING CHART

HOLE NO.	STATION	OFFSET	NORTHING	EASTING	GROUND ELEV.	BEDROCK ELEV.
B-101	222+45	11	837186.0	1653971.9	927.4	---

GENERAL NOTES

1. The subsurface explorations shown herein were made between 08/04/21 and 08/04/21 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.

PROJECT NAME: LOWELL
PROJECT NUMBER: STP CULV(65)

FILE NAME: sl8b005bor.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: A. LEMIEUX
BORING INFORMATION

PLOT DATE: 18-MAY-2022
DRAWN BY: A. LEMIEUX
CHECKED BY: R. HOOD
SHEET 13 OF 21

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

BORING LOG

LOWELL
STP CULV(77)
VT-100 Br 237

Boring No.: B-101
Page No.: 1 of 1
Pin No.: 18B005
Checked By: END

Boring Crew: JUDKINS, BROCHU
Date Started: 8/04/21 Date Finished: 8/04/21
VTSPG NAD83: N 837184.60 ft E 1653972.50 ft
Station: 222+45 Offset: 11.70
Ground Elevation: 927.4 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	CE = 1.56

Groundwater Observations

Date	Depth (ft)	Notes
08/04/21	9.0	WT after drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Field Note:, Asphalt 0.0' – 0.6'					
		Field Class:, Gravelly Sand, brn, Moist, Rec. = 1.0 ft, RC cleanout 2.4'–3.0'	8-8-10-7 (18)				
		A-2-4, SiSa, brn, Moist, Rec. = 0.9 ft	5-5-4-4 (9)	12.1	17.2	60.2	22.6
5		Field Class:, Sand, brn, Moist, Rec. = 0.8 ft, RC cleanout 6.4'–7.0'	3-4-4-5 (8)				
		A-1-b, GrSa, brn, MTW, Rec. = 0.4 ft, RC cleanout 8.5'–9.0'	4-5-4-4 (9)	14.2	27.8	59.7	12.5
10		Field Class:, Silty Gravelly Sand, brn, MTW, Rec. = 0.4 ft, RC cleanout 13.9'–15.0'	4-3-4-6 (7)				
15		Field Class:, Sand, gry, MTW, Rec. = 0.2 ft	4-3-2-2 (5)				
20		A-2-4, Sa, brn, Moist, Rec. = 0.8 ft	4-4-3-4 (7)	22.4	0.8	86.9	12.3
25		Field Note:, No Recovery	5-6-7-9 (13)				
30		Field Class:, Sand, brn, Moist, Rec. = 0.7 ft	2-5-6-5 (11)				
35		A-2-4, SiSa, brn, MTW, Rec. = 0.85 ft, NXDC cleanout 39.0'–40.0'	1-2-2-4 (4)	25.0	0.1	67.2	32.7
40		Field Class:, Sandy Gravel, gry, Moist, Rec. = 1.0 ft	8-14-15-32 (29)				
		Hole stopped @ 42.0 ft					
45		Remarks: Hole collapsed at 10.7'					

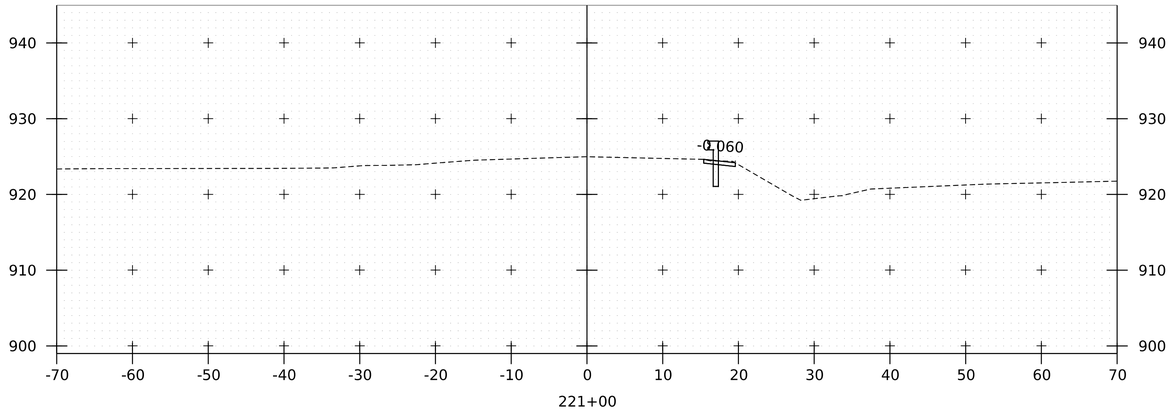
Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. CE is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations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

BORING LOG LOWELL STP CULV(65).GPJ VERMONT AOT.GDT 9/22/21

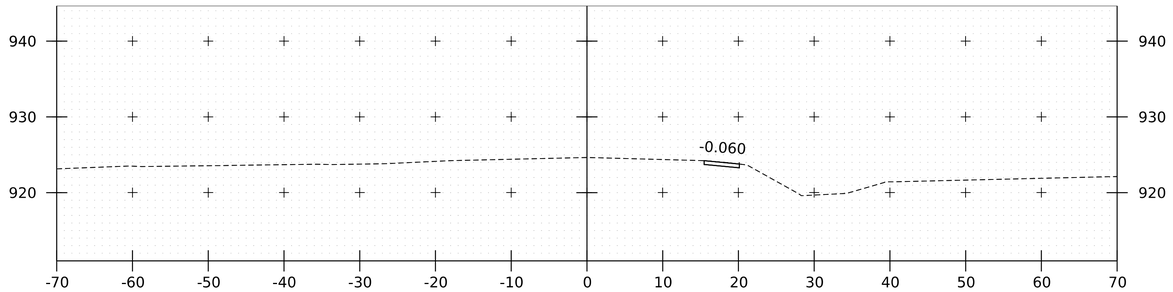
PROJECT NAME: LOWELL
PROJECT NUMBER: STP CULV(65)

FILE NAME: sl8b005bor.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: A. LEMIEUX
BORING LOG

PLOT DATE: 18-MAY-2022
DRAWN BY: A. LEMIEUX
CHECKED BY: R. HOOD
SHEET 14 OF 21



221+00



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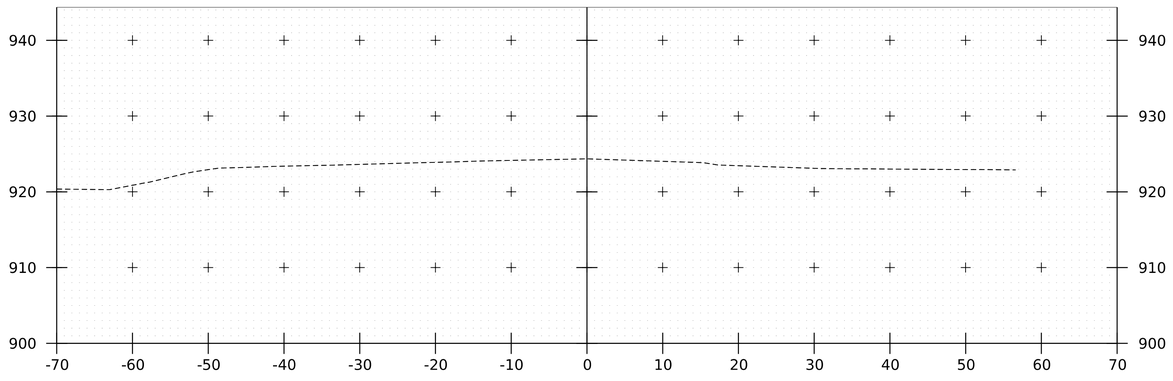

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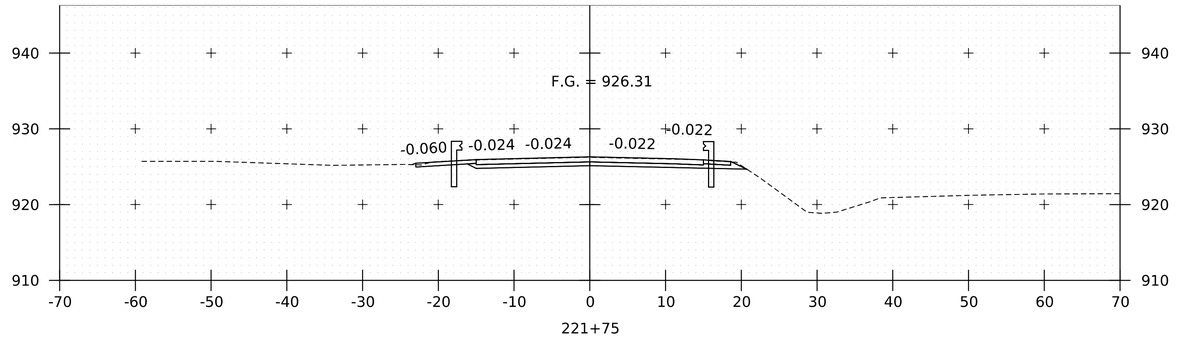

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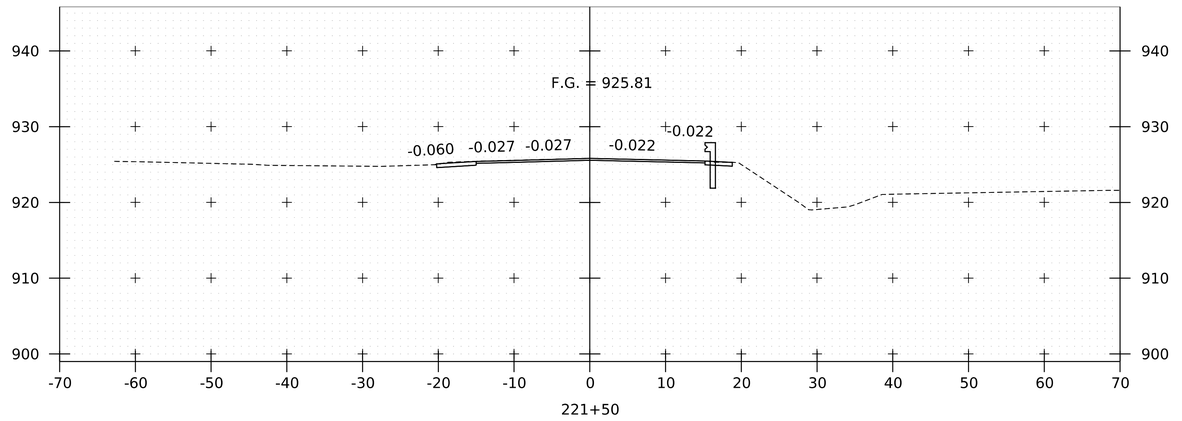

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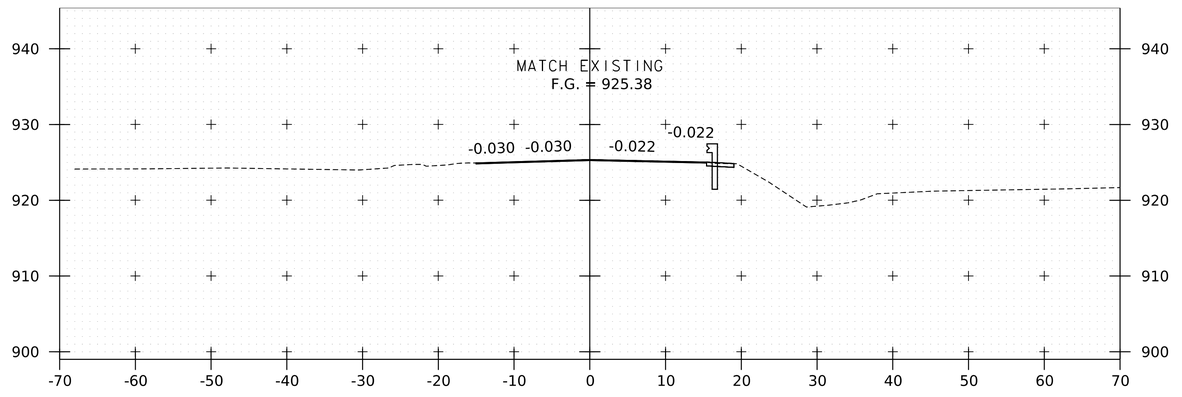
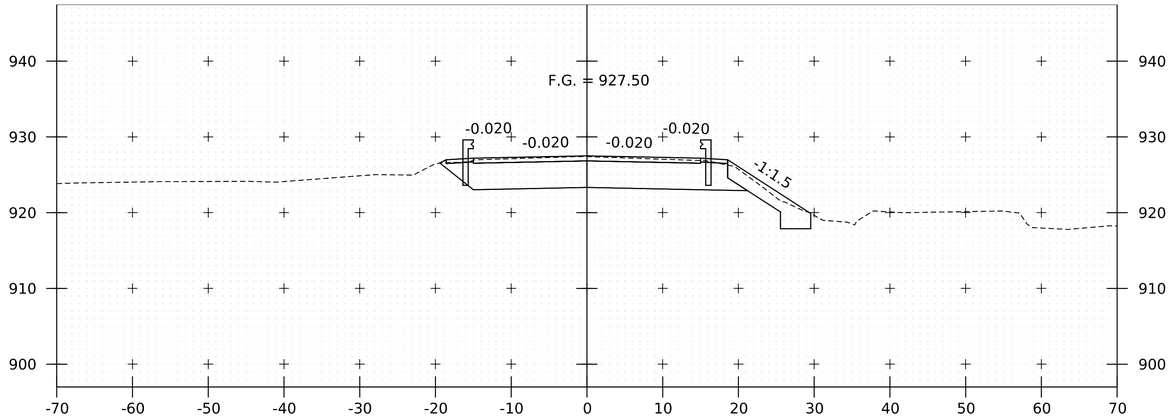
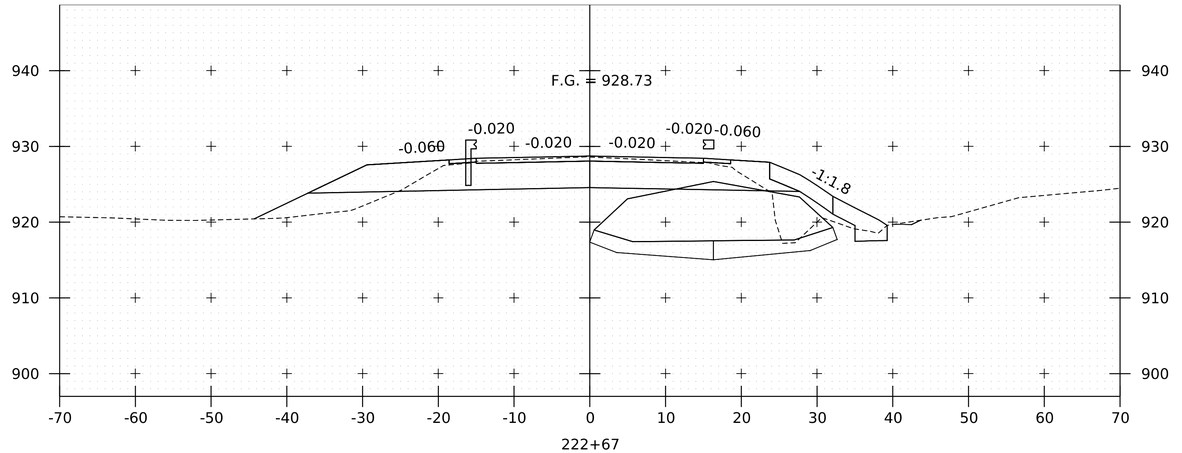


221+25
BEGIN APPROACH

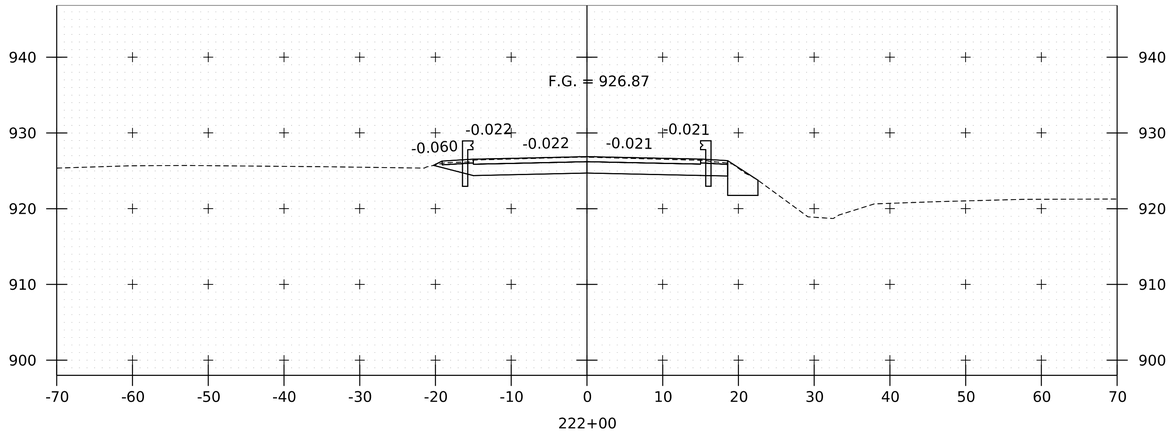
PROJECT NAME:	LOWELL
PROJECT NUMBER:	STP CULV(65)
FILE NAME: sl8b005xs.dgn	PLOT DATE: 18-MAY-2022
PROJECT LEADER: R. YOUNG	DRAWN BY: R. HOOD
DESIGNED BY: R. HOOD	CHECKED BY: A. LEMIEUX
MAINLINE CROSS SECTIONS 1	SHEET 15 OF 21



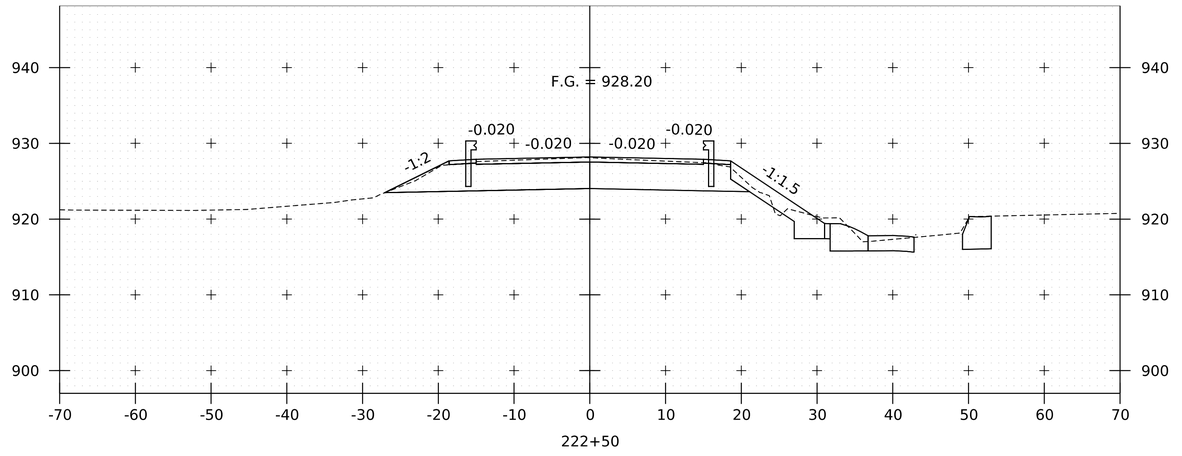
222+25
BEGIN PROJECT



222+67
BEGIN BRIDGE
STA 222+67.32

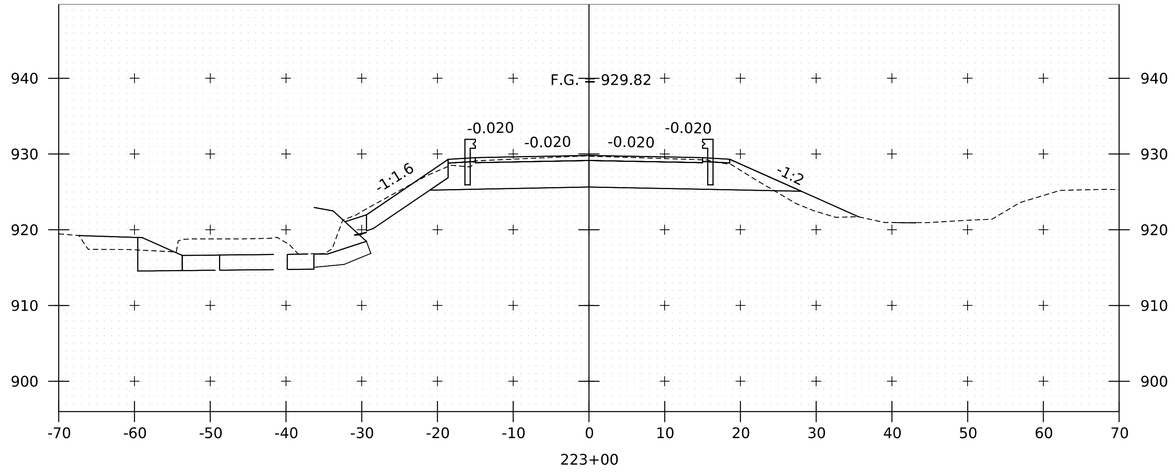


222+00

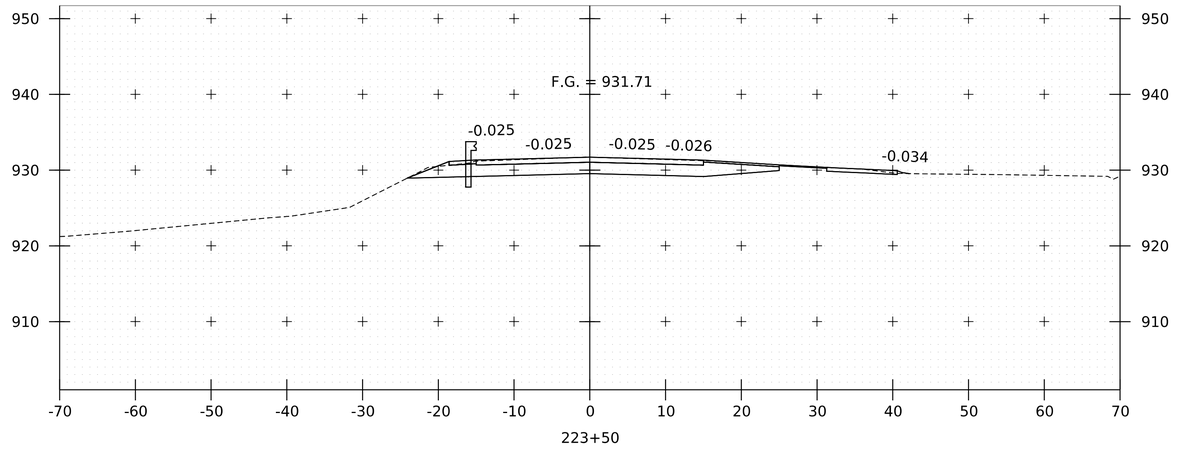


222+50

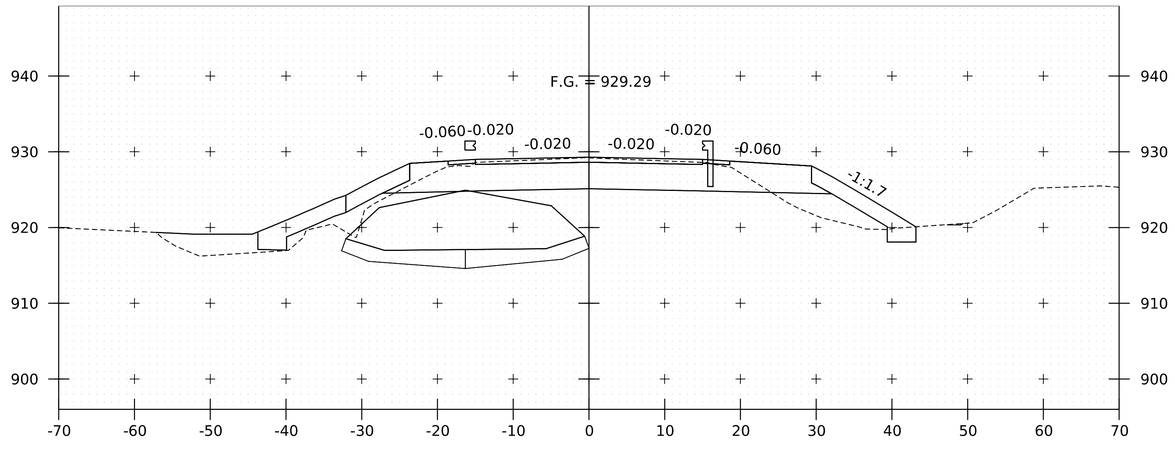
PROJECT NAME:	LOWELL
PROJECT NUMBER:	STP CULV(65)
FILE NAME: sl8b005xs.dgn	PLOT DATE: 18-MAY-2022
PROJECT LEADER: R. YOUNG	DRAWN BY: R. HOOD
DESIGNED BY: R. HOOD	CHECKED BY: A. LEMIEUX
MAINLINE CROSS SECTIONS 2	SHEET 16 OF 21



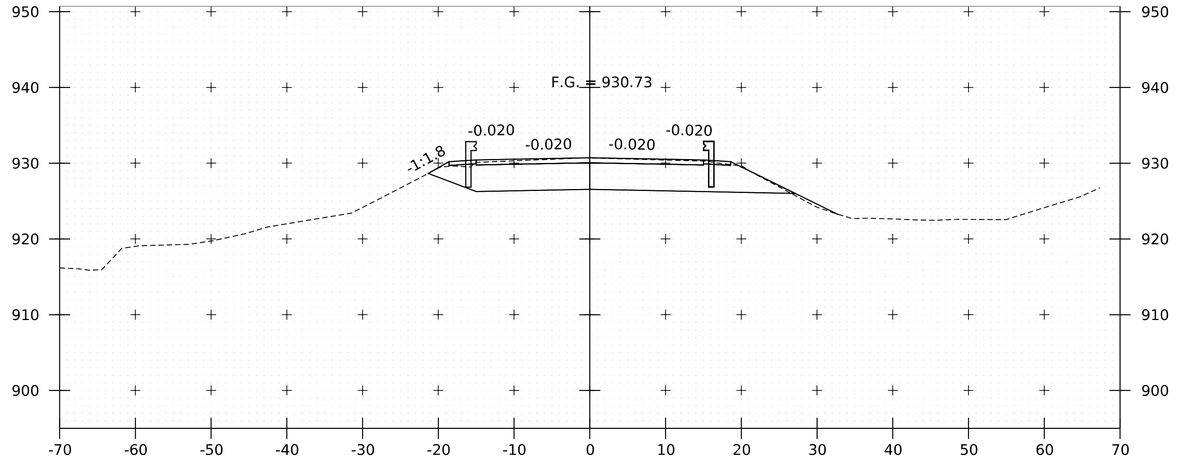
223+00



223+50



222+85
END BRIDGE
STA 222+84.68

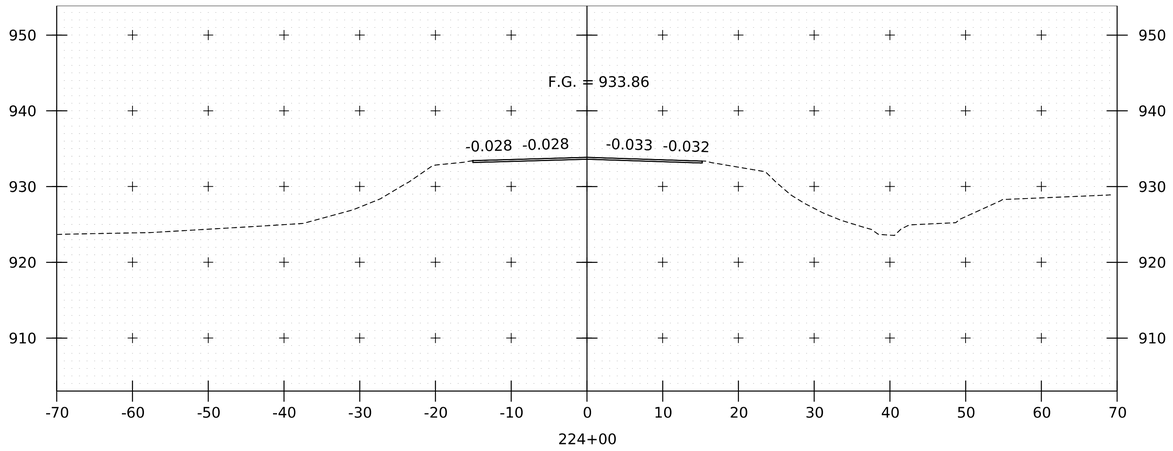


223+25
END PROJECT

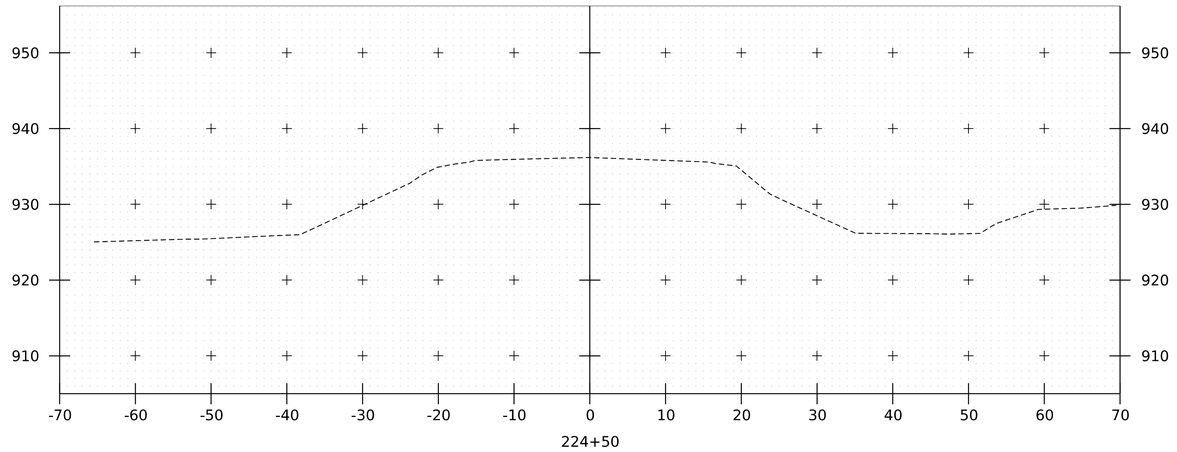
PROJECT NAME: LOWELL
PROJECT NUMBER: STP CULV(65)

FILE NAME: sl8b005xs.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: R. HOOD
MAINLINE CROSS SECTIONS 3

PLOT DATE: 18-MAY-2022
DRAWN BY: R. HOOD
CHECKED BY: A. LEMIEUX
SHEET 17 OF 21



224+00



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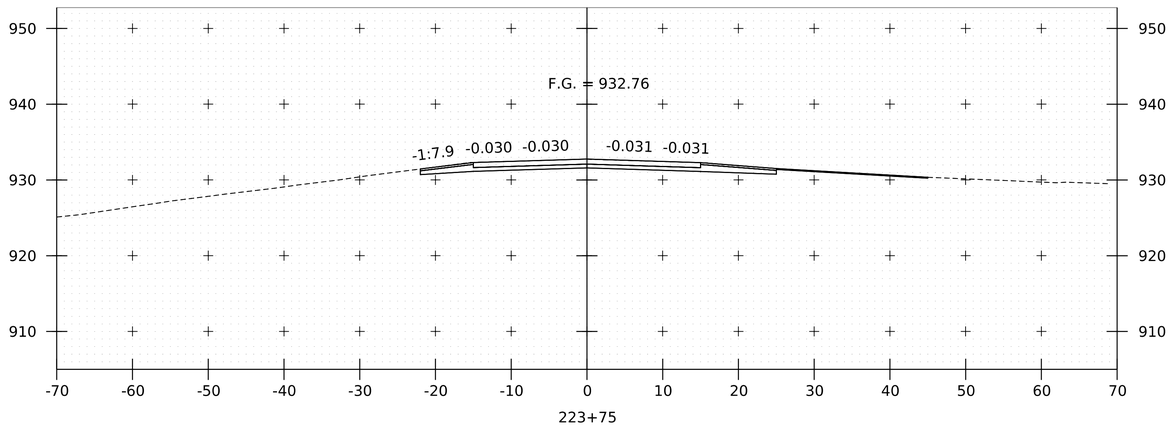
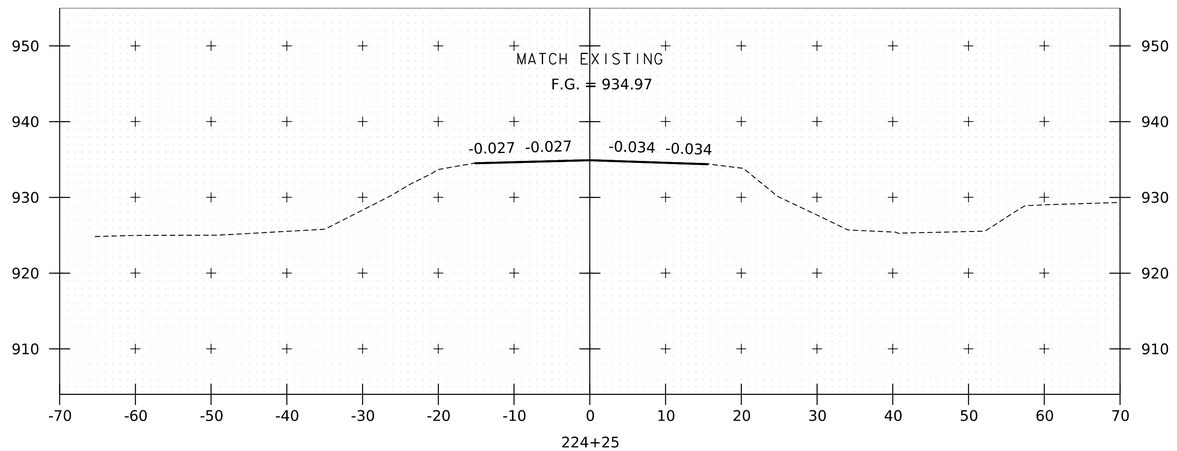
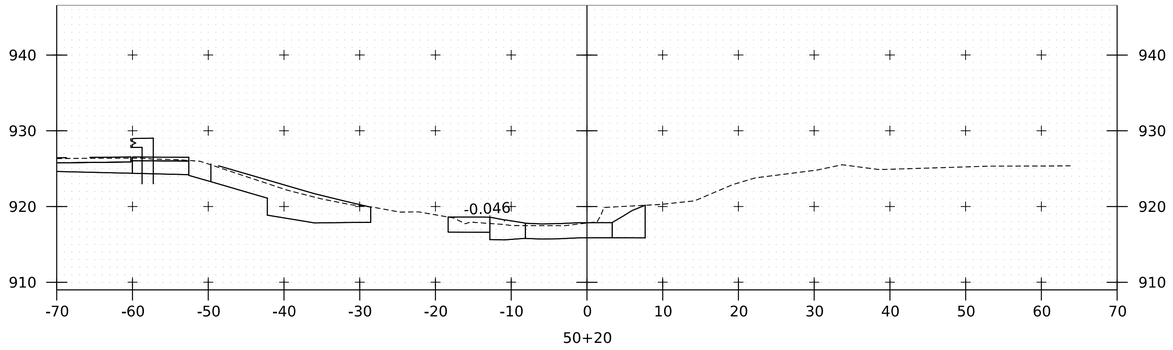


223+75



224+25
END APPROACH

PROJECT NAME:	LOWELL
PROJECT NUMBER:	STP CULV(65)
FILE NAME: sl8b005xs.dgn	PLOT DATE: 18-MAY-2022
PROJECT LEADER: R. YOUNG	DRAWN BY: R. HOOD
DESIGNED BY: R. HOOD	CHECKED BY: A. LEMIEUX
MAINLINE CROSS SECTIONS 4	SHEET 18 OF 21



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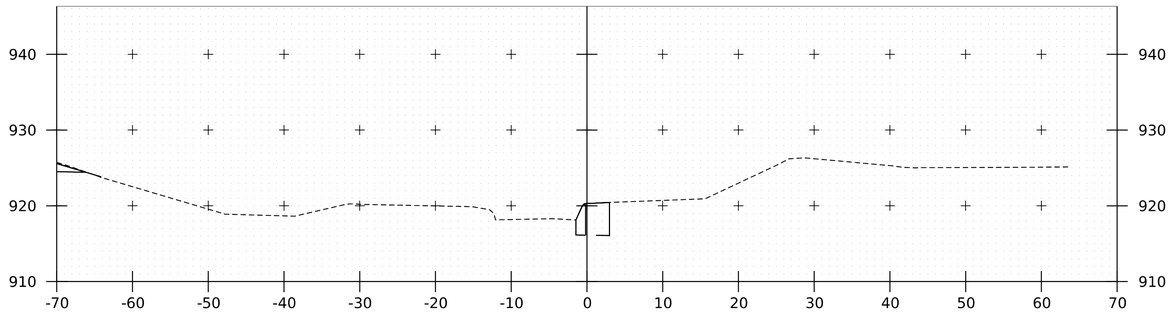
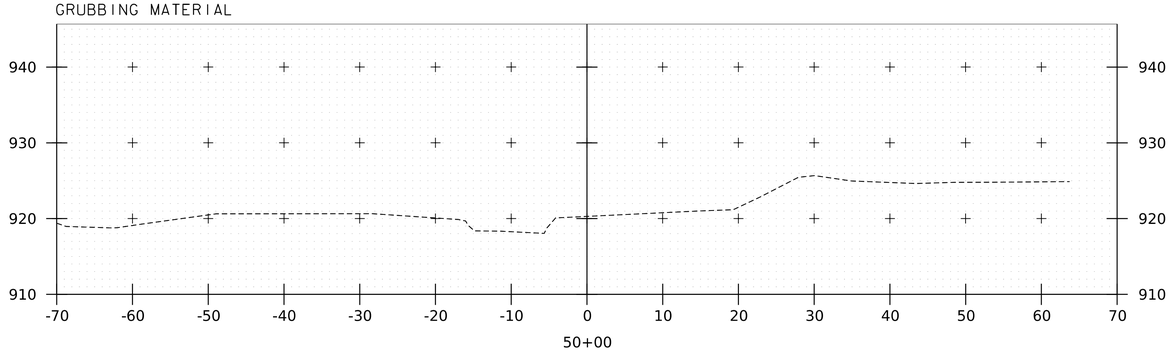
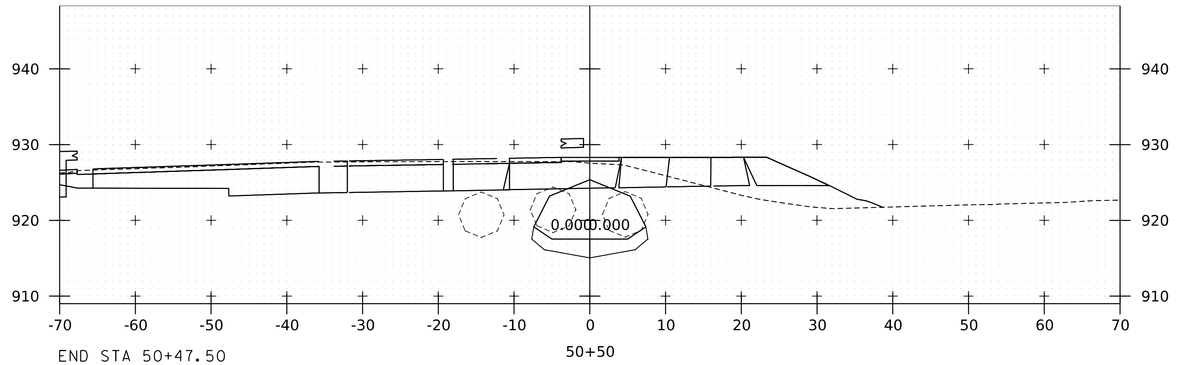


50+10

BEGIN STA 50+10.00
UNCLASSIFIED CHANNEL EXCAVATION
STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

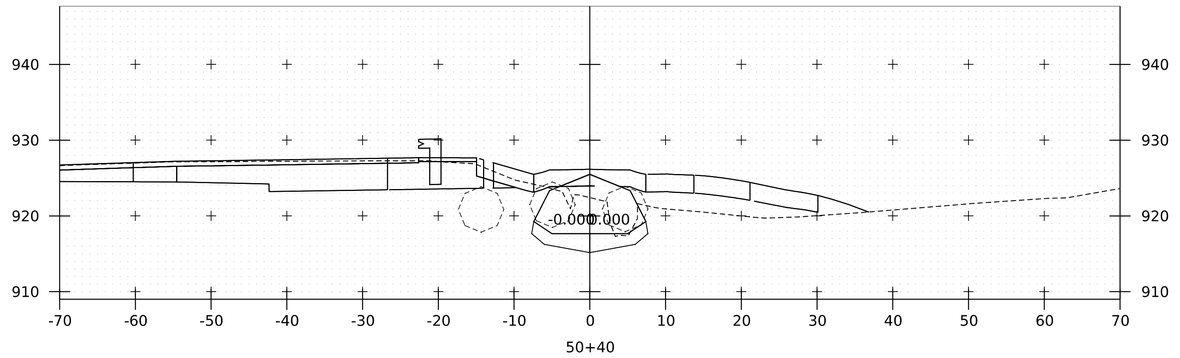


50+00

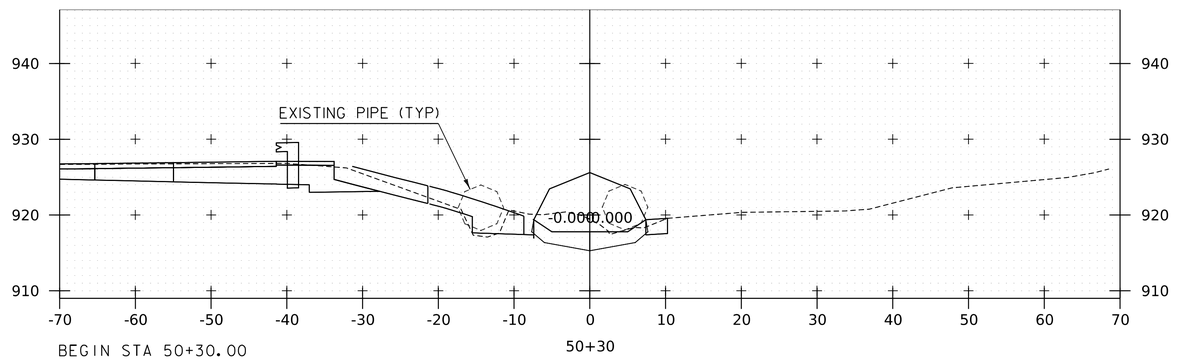


50+50

END STA 50+47.50
UNCLASSIFIED CHANNEL EXCAVATION
STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL



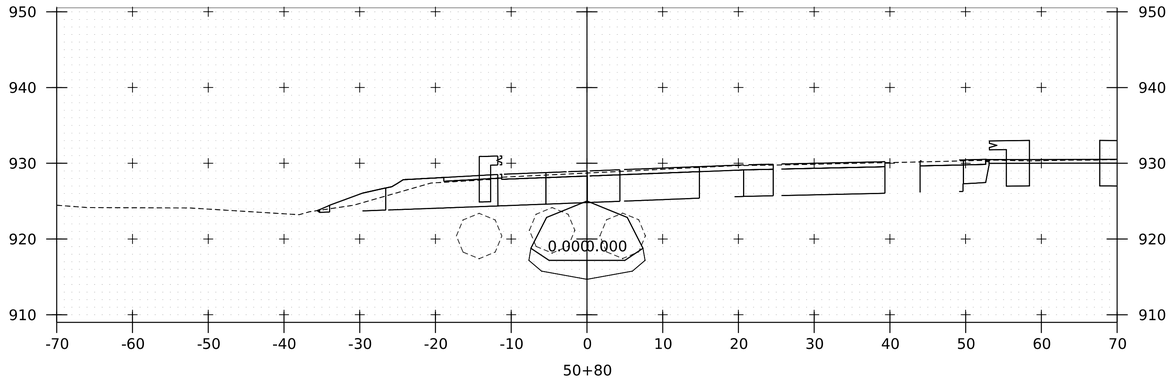
50+40



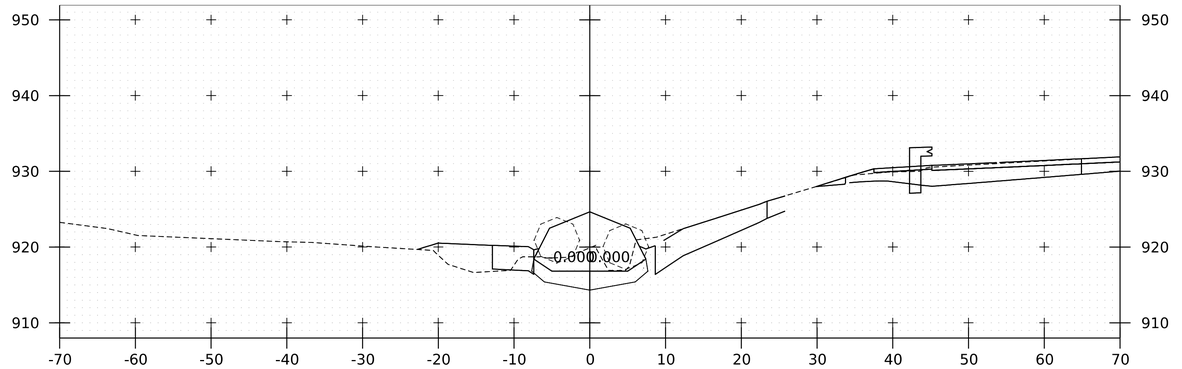
50+30

BEGIN STA 50+30.00
STONE FILL, STREAM BED MATERIAL (E-STONE, TYPE II)

PROJECT NAME:	LOWELL
PROJECT NUMBER:	STP CULV(65)
FILE NAME: sl8b005xs_chan.dgn	PLOT DATE: 18-MAY-2022
PROJECT LEADER: R. YOUNG	DRAWN BY: R. HOOD
DESIGNED BY: R. HOOD	CHECKED BY: A. LEMIEUX
CHANNEL CROSS SECTIONS I	SHEET 19 OF 21

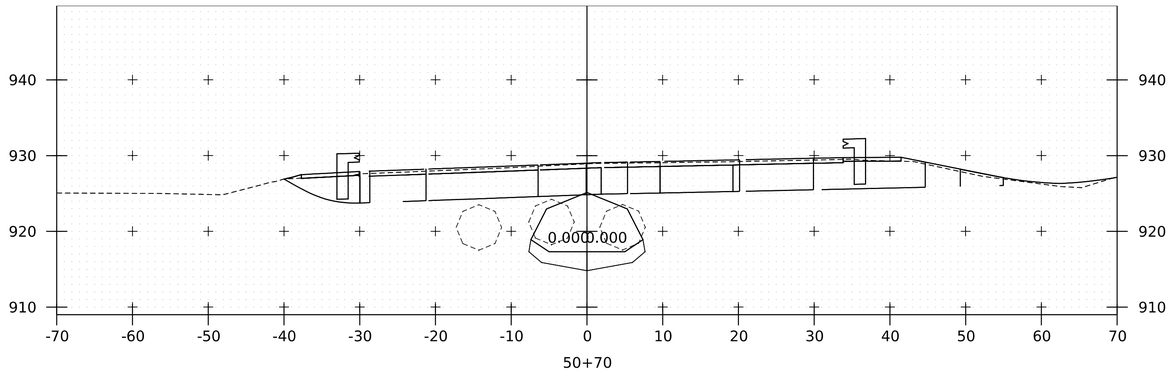


50+80

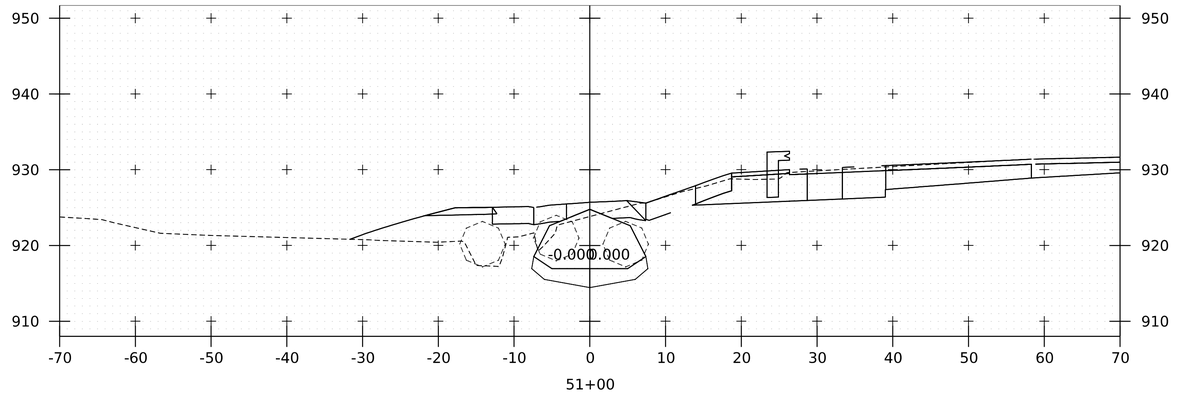


51+10

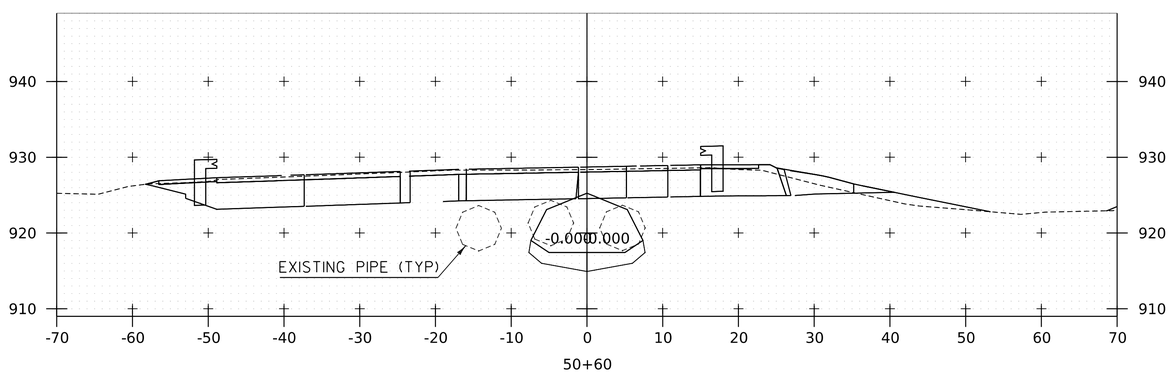
END STA 51+12.00
STONE FILL, STREAM BED MATERIAL (E-STONE, TYPE II)



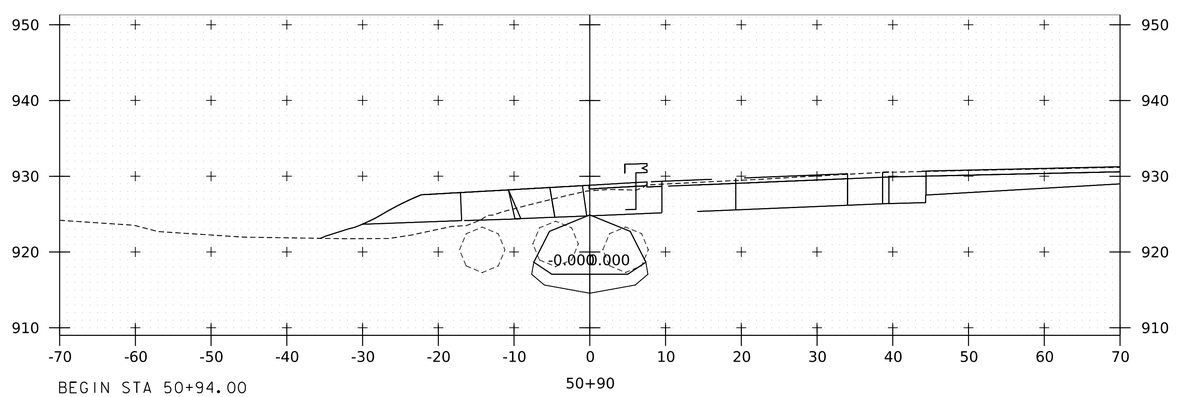
50+70



51+00



50+60



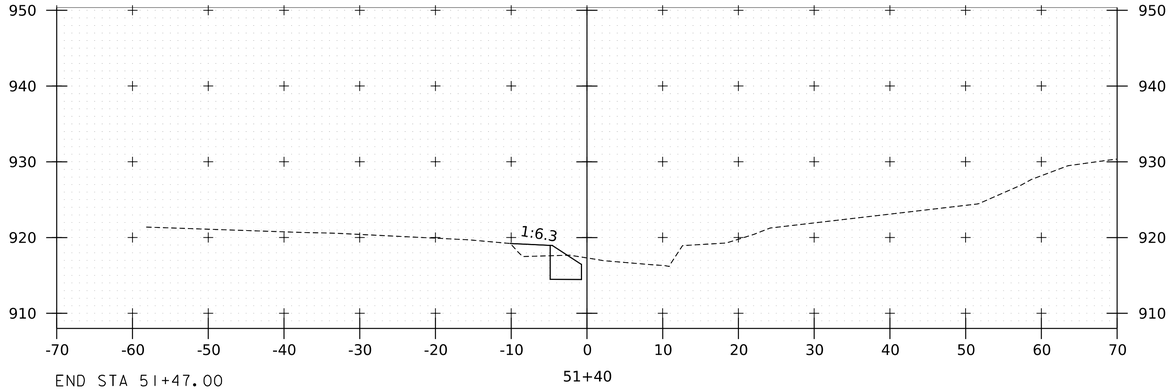
50+90

BEGIN STA 50+94.00
UNCLASSIFIED CHANNEL EXCAVATION
STONE FILL, TYPE II
STONE FILL, STREAM BED MATERIAL (E-STONE, TYPE II)
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

PROJECT NAME: LOWELL
PROJECT NUMBER: STP CULV(65)

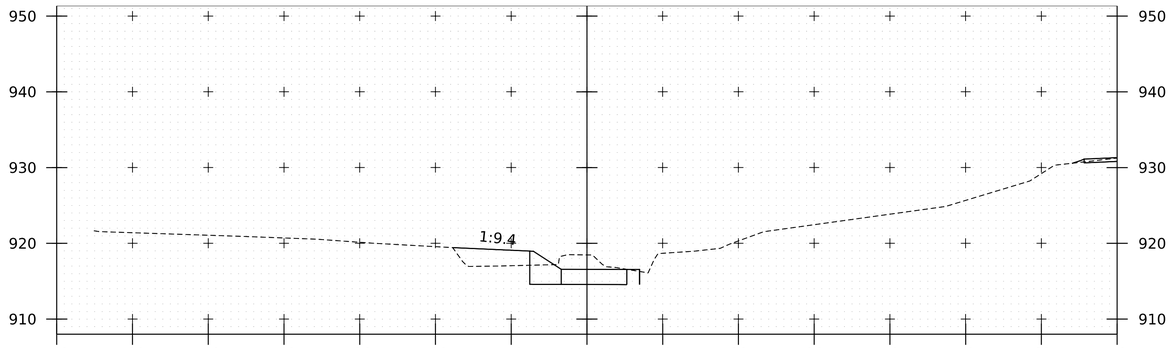
FILE NAME: sl8b005xs_chan.dgn
PROJECT LEADER: R. YOUNG
DESIGNED BY: R. HOOD
CHANNEL CROSS SECTIONS 2

PLOT DATE: 18-MAY-2022
DRAWN BY: R. HOOD
CHECKED BY: A. LEMIEUX
SHEET 20 OF 21



51+40

END STA 51+47.00
UNCLASSIFIED CHANNEL EXCAVATION
STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL



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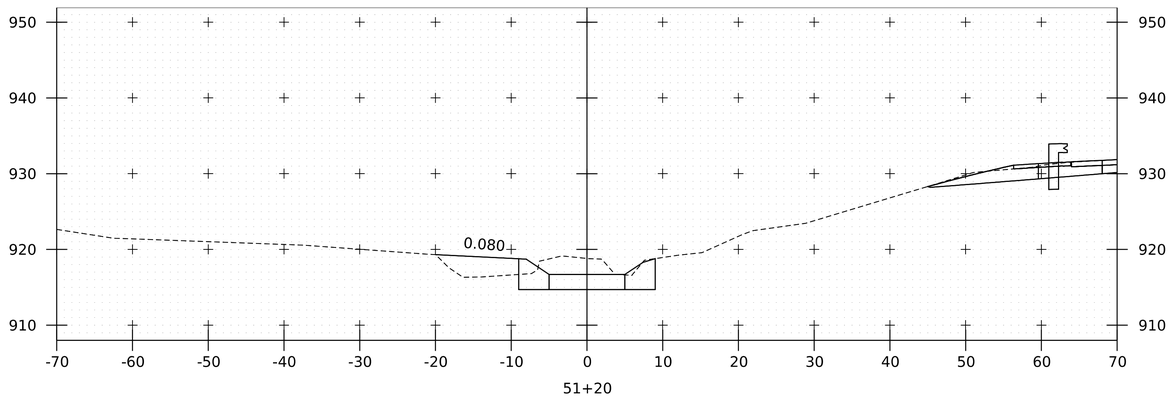

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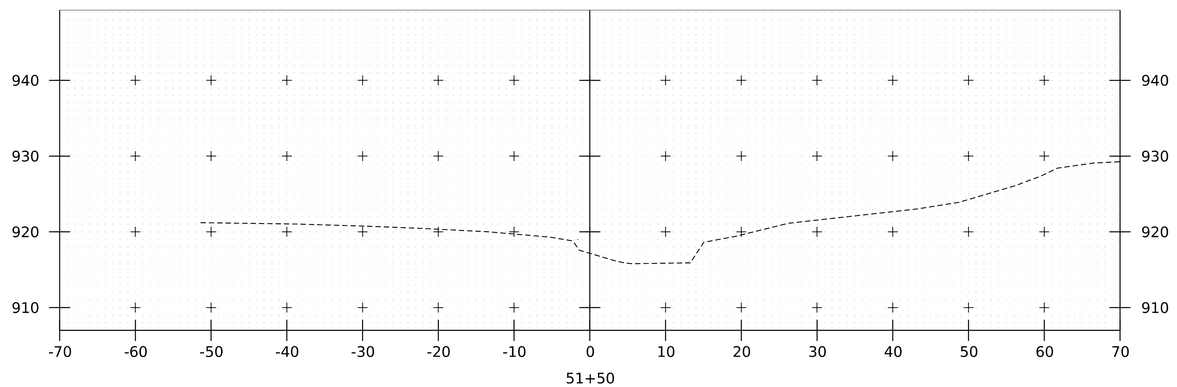

51+50

PROJECT NAME:	LOWELL
PROJECT NUMBER:	STP CULV(65)
FILE NAME: s18b005xs_chan.dgn	PLOT DATE: 18-MAY-2022
PROJECT LEADER: R. YOUNG	DRAWN BY: R. HOOD
DESIGNED BY: R. HOOD	CHECKED BY: A. LEMIEUX
CHANNEL CROSS SECTIONS 3	SHEET 21 OF 21