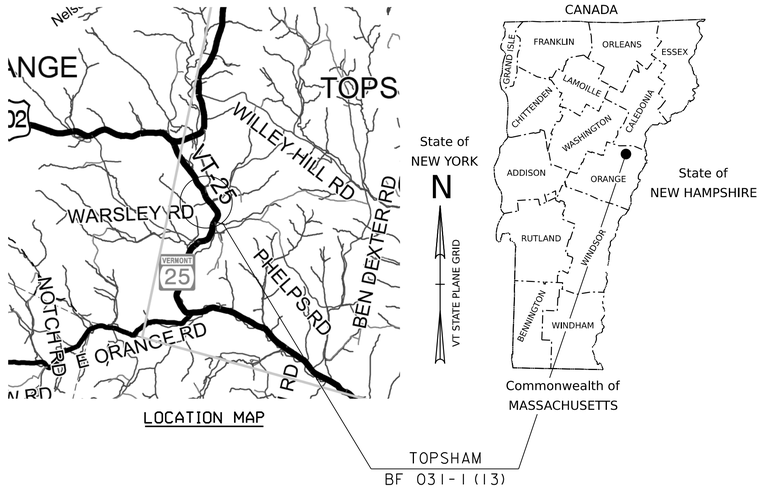
STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT

TOWN OF TOPSHAM

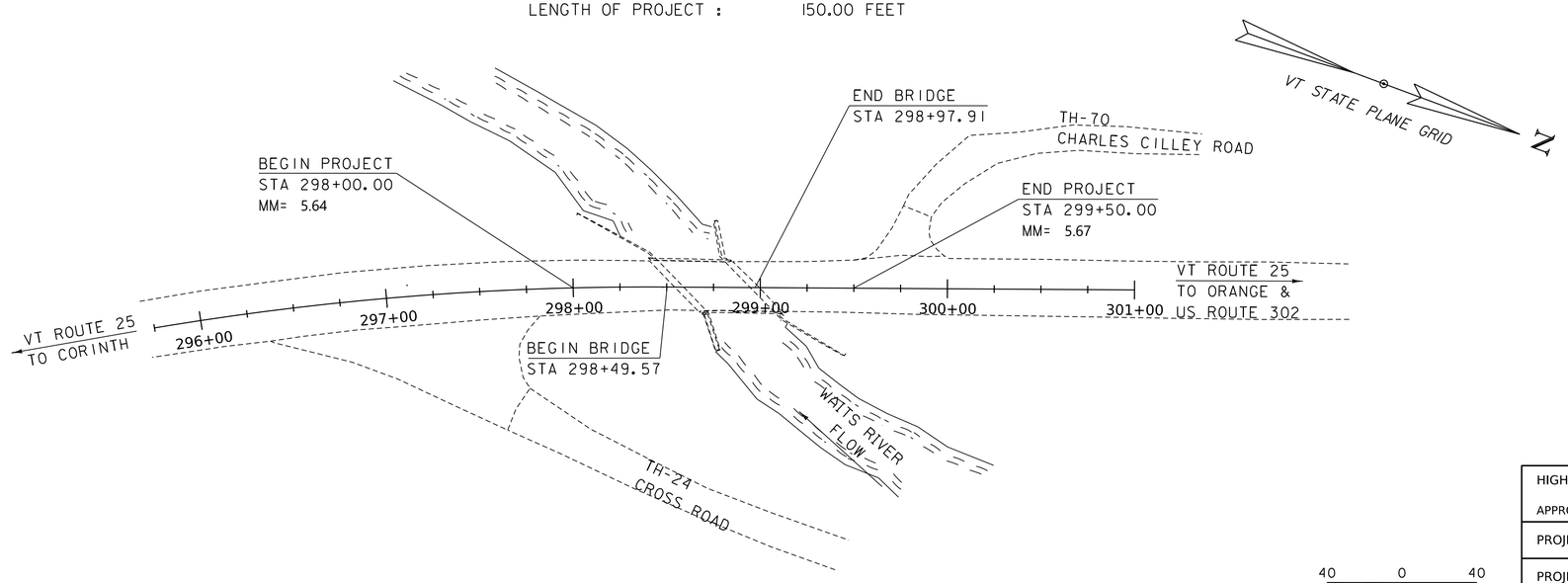
COUNTY OF ORANGE

ROUTE NO : VT 25 (MINOR ARTERIAL) BRIDGE NO : 23

PROJECT LOCATION : LOCATED IN THE TOWN OF TOPSHAM ON VT ROUTE 25 OVER WAITS RIVER APPROXIMATELY 1.1 MILES SOUTH OF THE INTERSECTION WITH US ROUTE 302 AND EXTENDING NORTHERLY 0.028 MILES.

PROJECT DESCRIPTION : REPLACEMENT OF EXISTING BRIDGE WITH A NEW BURIED STRUCTURE ON ALIGNMENT INCLUDING NECESSARY APPROACH AND CHANNEL WORK.

LENGTH OF STRUCTURE :	48.34 FEET
LENGTH OF ROADWAY :	101.66 FEET
LENGTH OF PROJECT :	150.00 FEET



CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2024, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 27, 2023 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, R. GILMAN, B. HERRING
SURVEYED DATE : 9/30/2019

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (2011)

40 0 40
SCALE: 1" = 40'-0"

HIGHWAY DIVISION, CHIEF ENGINEER
APPROVED Jeremy Reed DATE 9/1/2026

PROJECT MANAGER : CORY BURRALL, PE

PROJECT NAME : TOPSHAM
PROJECT NUMBER : BF 031-1(13)

SHEET 1 OF 47 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version
LRFD

INDEX OF SHEETS

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HSD-400.01	SAFETY EDGE DETAILS	01-05-2018

STANDARDS LIST

E-4	TUBELING PLANTING DETAIL	07-22-2026
E-10	ROLLED EROSION CONTROL PRODUCT, TYPE I	04-07-2020
E-11	CHECK DAM, TYPE I	04-07-2020
E-12	STABILIZED CONSTRUCTION ENTRANCE	04-07-2020
E-15	SILT FENCE	04-07-2020
T-56	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	03-10-2017
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	03-10-2017
G-19	GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS	10-02-2018
G-20	MIDWEST GUARDRAIL SYSTEM	07-22-2026
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G-25	MIDWEST GUARDRAIL SYSTEM (MGS) TRANSITION SECTION	07-22-2026
G-26	MOMENT SLAB FOR GUARDRAIL	07-22-2026
S-500	CONCRETE DETAILS AND NOTES	02-15-2023
S-501	CONCRETE DETAILS AND NOTES	02-15-2023
T-1	TRAFFIC CONTROL GENERAL NOTES	04-25-2016
T-2	TRAFFIC SIGN GENERAL NOTES	04-07-2020
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-17	TRAFFIC CONTROL MISCELLANEOUS DETAILS	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
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T-30	CONSTRUCTION SIGN DETAILS	02-17-2022
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T-42	BRIDGE NUMBER PLAQUE	04-09-2014
T-44	MILEMARKER DETAILS STATE AND TOWN HIGHWAYS	06-24-2025
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013
T-56	STANDARD SIGN PLACEMENT	06-24-2025

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: 8/30/2023

DRAINAGE AREA : 13.7 sqaure miles
CHARACTER OF TERRAIN : Mountainous, mostly forested with some open areas
STREAM CHARACTERISTICS : Sinuous with narrow floodpain
NATURE OF STREAMBED : Cobble and gravel

PEAK FLOW DATA - ANNUAL EXCEEDANCE PROBABILITY (AEP)

50% =	600 cfs	2% =	1,800 cfs
10% =	1,100 cfs	1% =	2,100 cfs
4% =	1,500 cfs	0.2% =	3,100 cfs

NATURAL STREAM VELOCITY : @ 2% AEP = 10.6 fps
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
IF YES, DESCRIBE:

WATERSHED STORAGE: 0.8%
HEADWATERS:
UNIFORM: X
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single span concrete T-beam
YEAR BUILT: 1946
CLEAR SPAN(NORMAL TO STREAM): 25 feet
VERTICAL CLEARANCE ABOVE STREAMBED: 19.3 feet
WATERWAY OF FULL OPENING: 490.1 square feet
DISPOSITION OF STRUCTURE: Full Replacement
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See Borings

WATER SURFACE ELEVATIONS AT:

50% AEP =	1,260.5 feet	VELOCITY =	7.2 fps
10% AEP =	1,262.1 feet	"	9.8 fps
4% AEP =	1,263.3 feet	"	11.9 fps
2% AEP =	1,264.1 feet	"	13.3 fps
1% AEP =	1,265.0 feet	"	14.5 fps

LONG TERM STREAMBED CHANGES: Unknown

IS THE EXISTING BRIDGE ON THE VTRANS SCOUR CRITICAL LIST? No

IS THE ROADWAY OVERTOPPED BELOW 1% AEP: No
FREQUENCY: N/A
RELIEF ELEVATION: N/A
DISCHARGE OVER ROAD @ 1% AEP:
BRIDGE LOW CHORD ELEVATION: 1,274.3 feet

UPSTREAM STRUCTURE

TOWN: Topsham
HIGHWAY # : US-302
CLEAR SPAN: 20 feet
YEAR BUILT: 1929
STRUCTURE TYPE: Single span bridge
DISTANCE: 6,340 feet
STRUCTURE #: 23
CLEAR HEIGHT: Unknown
FULL WATERWAY: Unknown

DOWNSTREAM STRUCTURE

TOWN: Topsham
HIGHWAY # : VT-25
CLEAR SPAN: 31 feet
YEAR BUILT: 1928, re-constrcuted in 1947
STRUCTURE TYPE:
DISTANCE:
STRUCTURE #:
CLEAR HEIGHT:
FULL WATERWAY:

ADDITIONAL INFORMATION

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:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Buried Structure

CLEAR SPAN(NORMAL TO STREAM): 35 feet
VERTICAL CLEARANCE ABOVE STREAMBED: 15 feet*
WATERWAY OF FULL OPENING: 523.0 SF

WATER SURFACE ELEVATIONS AT:

50% =	1,260.4 feet	VEL	6.6 fps
10% =	1,261.9 feet	"	8.5 fps
4% =	1,262.8 feet	"	9.7 fps
2% =	1,263.6 feet	"	10.6 fps
1% =	1,264.2 feet	"	11.4 fps

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: 1,270.78 feet*
FREEBOARD: @ 2% AEP = 7.2 feet*

SCOUR: 0.0 feet of contraction scour was calculated

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

TEMPORARY BRIDGE REQUIREMENTS

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

ADDITIONAL INFORMATION

*May vary with final bridge type and geometry

CALCULATIONS BY: KRF
CHECKED BY: CNB

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:	- - -
3.	DESIGN SPAN	L:	38.00 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:	4.0 KSI
9.	HIGH PERFORMANCE CONCRETE, CLASS PCS	f'_c:	3.5 KSI
10.	CONCRETE HIGH PERFORMANCE, CLASS SCC	f'_c:	4.0 KSI
11.	CONCRETE, CLASS C	f'_c:	3.0 KSI
12.	REINFORCING STEEL	f_y:	60 KSI
13.	STRUCTURAL STEEL AASHTO M270	f_y:	- - -
14.	NOMINAL BEARING RESISTANCE OF SOIL	q_n:	17.5 KSF
15.	SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
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.			- - -

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2024	1800	230	55	8.1	160
2044	2000	26	55	12.5	270

20 year ESAL for flexible pavement from 2024 to 2044 : 941000
40 year ESAL for flexible pavement from 2024 to 2064 : 2159000
Design Speed : 50 mph

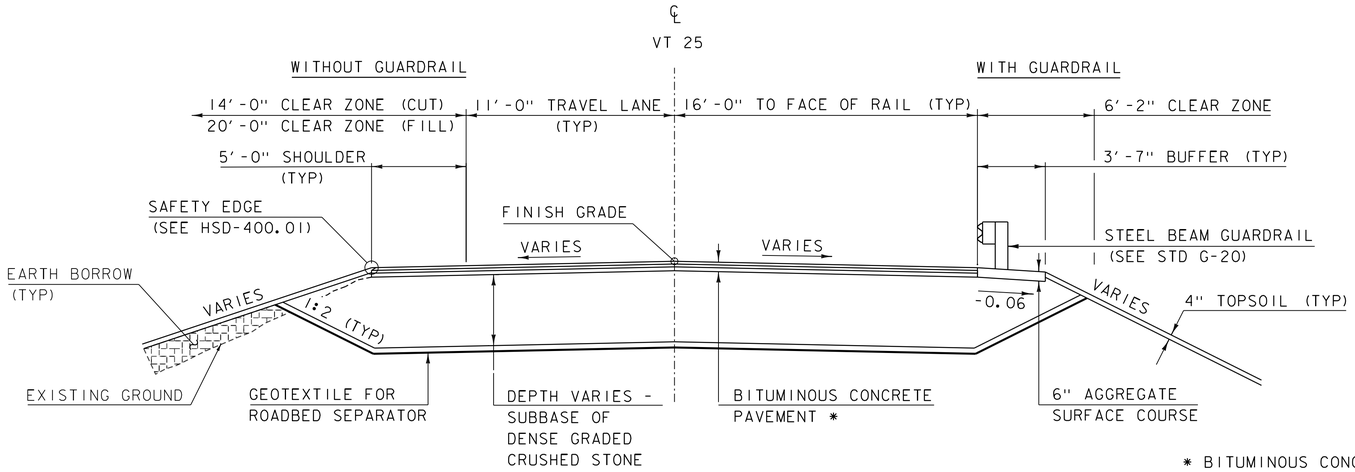
AS BUILT "REBAR" DETAIL

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

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210pi.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: A. VAN BUSKIRK
PRELLIMINARY INFORMATION SHEET

PLOT DATE: 28-SEP-2026
DRAWN BY: A. VAN BUSKIRK
CHECKED BY: C. BURRALL
SHEET 2 OF 47



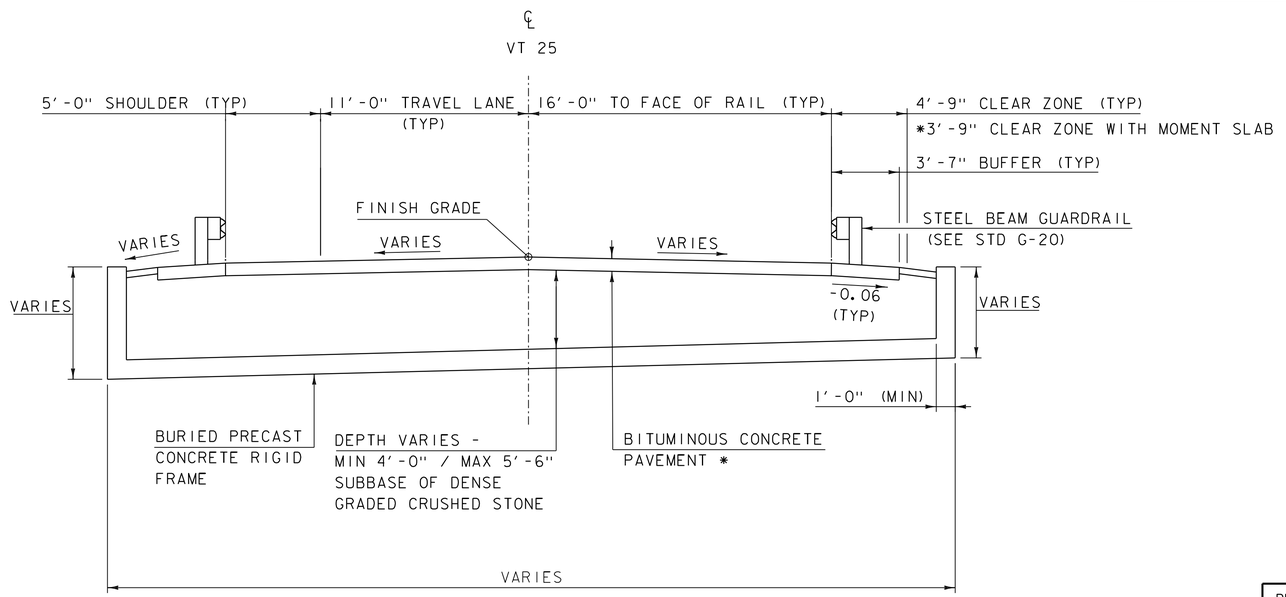
VT 25 ROADWAY TYPICAL SECTION

1/4" = 1'-0"

* BITUMINOUS CONCRETE PAVEMENT, QA TIER III:
1¾" BITUMINOUS CONCRETE PAVEMENT, IIIS (WEARING COURSE) OVER
1¾" BITUMINOUS CONCRETE PAVEMENT, IIIS (INTERMEDIATE COURSE) OVER
2½" BITUMINOUS CONCRETE PAVEMENT, IIS (BASE COURSE)

BITUMINOUS CONCRETE PAVEMENT, QA TIER III MATERIAL REQUIREMENTS

	DESIGN VALUE
DESIGN LANE/DESIGN LIFE ESALS	517,550
DESIGN # GYRATIONS	65
PERFORMANCE-GRADED ASPHALT BINDER, PAVER-PLACED	58E-34
PERFORMANCE-GRADED ASPHALT BINDER, NON PAVER-PLACED	58S-28 OR 58S-34



VT 25 BRIDGE TYPICAL SECTION

1/4" = 1'-0"

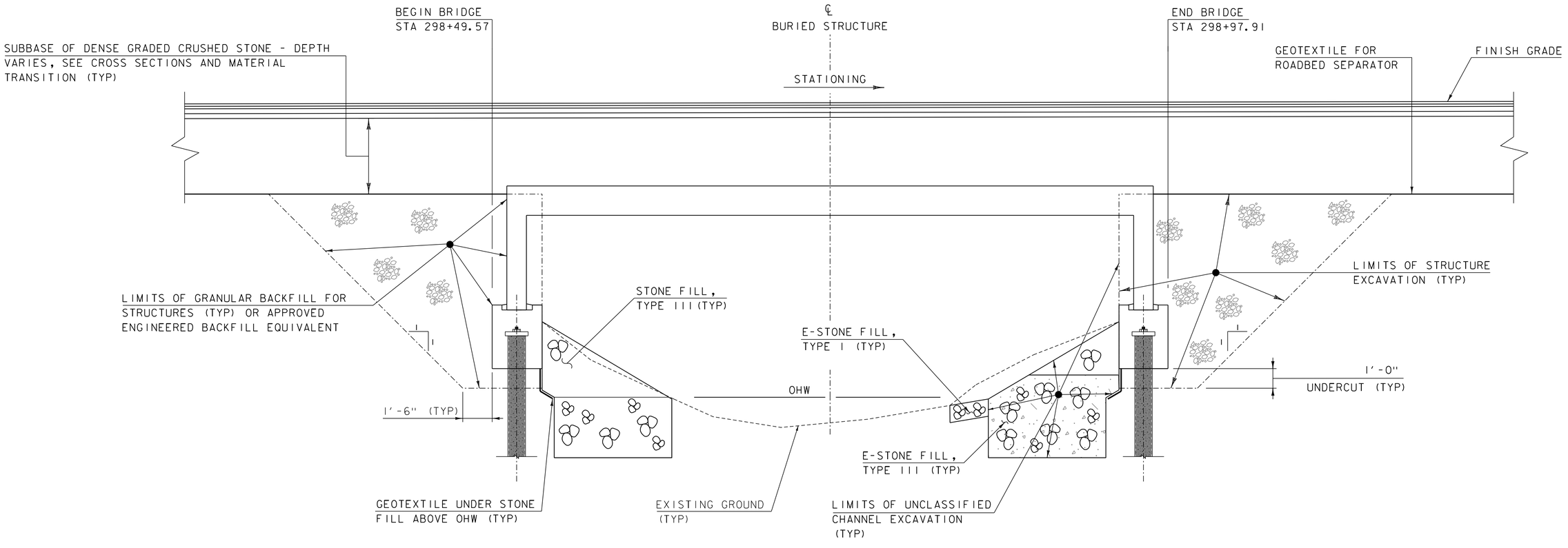
MATERIAL TOLERANCES
(IF USED ON PROJECT)

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

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

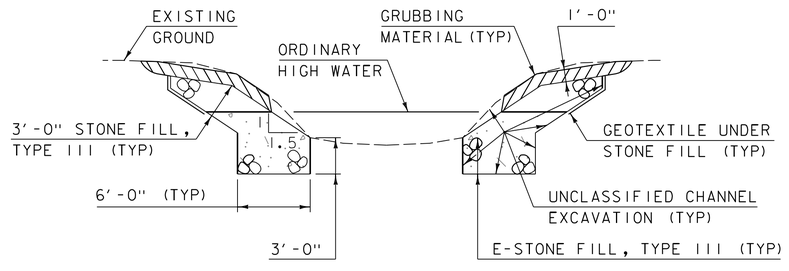
FILE NAME: sl9b210typ.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
TYPICAL SECTIONS 1

PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: C. BURRALL
SHEET 3 OF 47



BURIED STRUCTURE EARTHWORK TYPICAL CHANNEL SECTION

NOT TO SCALE



TYPICAL CHANNEL SECTION

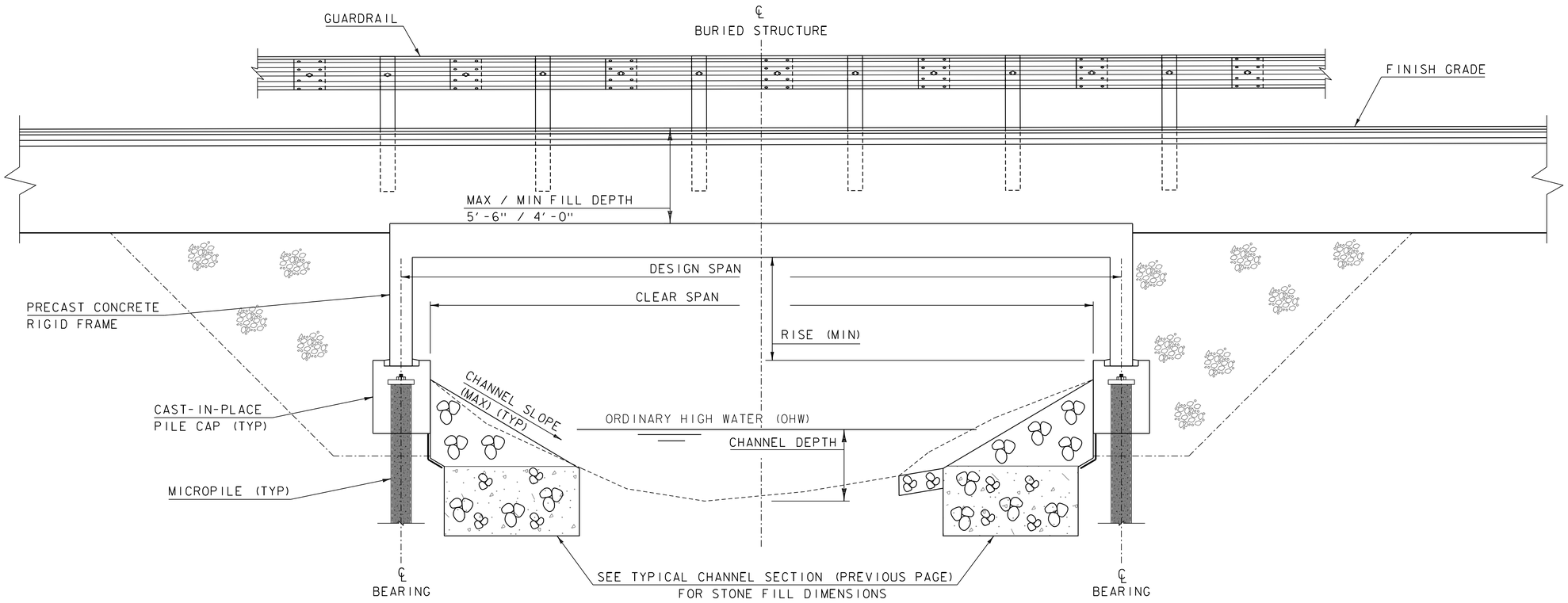
NOT TO SCALE

NOTES

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.

PROJECT NAME:	TOPSHAM
PROJECT NUMBER:	BF 031-1(13)
FILE NAME: sl9b210typ.dgn	PLOT DATE: 28-SEP-2026
PROJECT LEADER: C. BURRALL	DRAWN BY: G. DARGAN
DESIGNED BY: G. DARGAN	CHECKED BY: C. BURRALL
TYPICAL SECTIONS 2	SHEET 4 OF 47



BURIED STRUCTURE TYPICAL SECTION

NOT TO SCALE

BURIED STRUCTURE DESIGN PARAMETERS

STRUCTURE	
	DIMENSION
CLEAR SPAN	35'-0"
RISE (MIN)	12'-9½"
MAX/MIN FILL DEPTH	5'-6"/4'-0"
DESIGN SPAN	38'-0"
CHANNEL	
CHANNEL DEPTH	3'-0"
CHANNEL SLOPE (MAX)	1:1.5

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210typ.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
TYPICAL SECTIONS 3

PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: C. BURRALL
SHEET 5 OF 47

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION 2024, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 10TH EDITION, AND ITS LATEST REVISIONS.

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

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

EARTHWORK

4. COORDINATE WITH THE VT ANR RIVER MANAGEMENT ENGINEER – AS REQUIRED BY THE ANR RME CONSULTATION– A MINIMUM OF TWO WEEKS PRIOR TO ANY CONSTRUCTION ACTIVITIES THAT INCLUDE WORK IN OR ADJACENT TO THE CHANNEL. THIS COORDINATION REQUIREMENT INCLUDES APPROVAL OF STREAM BED MATERIAL AND FOR CONSULTATION REGARDING FINAL GRADING OF THE CHANNEL.

5. ALL STRUCTURE REMOVAL WITHIN THE LIMITS OF STRUCTURE EXCAVATION SHALL BE INCLUDED IN ITEM 204.2500 STRUCTURE EXCAVATION. STRUCTURE REMOVAL OUTSIDE THOSE LIMITS WILL BE PAID FOR AS ITEM 529.1500 REMOVAL OF STRUCTURE AND MAY INCLUDE REMOVAL BELOW THE PAY LIMITS OF STRUCTURE EXCAVATION.

TRAFFIC CONTROL

6. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF A SITE-SPECIFIC TRAFFIC CONTROL PLAN FOR ALL STAGES OF CONSTRUCTION. CLEARLY DETAIL HOW TRAFFIC WILL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION. SPECIFY ALL CONSTRUCTION ACTIVITIES REQUIRING ROAD CLOSURE, RELATE THOSE ACTIVITIES TO THE CONSTRUCTION SCHEDULE, AND SHOW APPROPRIATE TEMPORARY TRAFFIC CONTROL. PAYMENT FOR FLAGGERS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE PAID SEPARATELY UNDER THEIR RESPECTIVE BID ITEMS. PAYMENT FOR ALL OTHER ACTIVITIES AND MATERIALS ASSOCIATED WITH THIS WORK WILL BE INCLUDED IN ITEM 641.1100 "TRAFFIC CONTROL, ALL-INCLUSIVE."

7. ANY REMOVAL, COVERING AND/OR RESETTING OF EXISTING TRAFFIC SIGNS, AS DEEMED NECESSARY BY THE ENGINEER, WILL BE INCIDENTAL TO ITEM 641.1100 "TRAFFIC CONTROL, ALL-INCLUSIVE".

8. THE CONTRACTOR SHALL MAINTAIN ACCESS TO CROSSROAD AND CHARLES CILLEY ROAD DURING CONSTRUCTION.

CONCRETE/PRECAST CONCRETE

9. THE PILE CAP SHALL MEET THE REQUIREMENTS OF PERFORMANCE-BASED CONCRETE, CLASS PCS AND BE PAID FOR UNDER ITEM 501.3800 "PERFORMANCE-BASED CONCRETE, CLASS PCS."

10. ALL RECESSED LIFTING POINTS AND BLOCK OUTS SHALL BE FILLED WITH MORTAR, TYPE IV PER SUBSECTION 540.11 AND 707.01(e). PAYMENT WILL BE CONSIDERED INCIDENTAL TO THE CORRESPONDING PRECAST ITEM.

11. THE CONTRACTOR SHALL DETERMINE THE METHOD OF FORMING FOR SUBSEQUENT POURS AFTER PLACING ANY PRECAST UNIT. THE CONTRACTOR IS ENCOURAGED TO WORK WITH THE FABRICATOR IF ADDITIONAL SUPPORTS ARE REQUIRED. THE CONTRACTOR CANNOT ATTACH ADDITIONAL FORM OR SCREED SUPPORTS BY DRILLING OR SIMILAR MEANS INTO ANY PRECAST UNIT.

12. WATER REPELLENT, SILANE SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 514 AND SHALL BE FIELD APPLIED TO ALL EXPOSED EXTERIOR SURFACES OF ALL CONCRETE STRUCTURES. SILANE WILL BE PAID UNDER ITEM 514.1000 – WATER REPELLENT, SILANE.

13. ALL CORNERS OF CONCRETE SHALL BE CHAMFERED 1" PER SD-501.00, UNLESS NOTED OTHERWISE.

14. THE PRECAST CONCRETE RIGID FRAME AND HEADWALLS SHALL BE DESIGNED BY THE FABRICATOR IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS REFERENCED IN PROJECT NOTE 1. DESIGNS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF VERMONT. THE CONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS AND CALCULATIONS TO THE ENGINEER IN ACCORDANCE WITH SECTION 105. USE THE FOLLOWING DESIGN CRITERIA:
    - A. SOIL UNIT WEIGHT = 140 PCF
    - B. DESIGN LIVE LOAD = HL-93
    - C. AT-REST EARTH PRESSURE (K_O) = 0.44
    - D. REQUIRED DESIGN LIFE = 75 YEARS
    - E. FOUNDATIONS ARE NOT DESIGNED TO RESIST THRUST FORCES FROM THE RIGID FRAME. EVALUATE THE FRAME IN BOTH A PINNED-ROLLER AND PINNED-PINNED FOUNDATION CONNECTION CONFIGURATION.

15. PRECAST FRAME DETAILS ARE SHOWN FOR REFERENCE ONLY. THE ACTUAL DIMENSIONS AND CONFIGURATION WILL BE DEPENDENT ON THE FABRICATOR. THE SPAN, RISE, AND LENGTH OF THE RIGID FRAME SHALL BE NO LESS THAN SHOWN IN THE TYPICAL SECTIONS AND STRUCTURE DETAILS.

16. THE FABRICATOR SHALL SUPPLY THE STATE WITH THE LRFD LOAD RATING FACTORS FOR THE RIGID FRAME. COMPLETE AND SUBMIT THE LOAD RATING TABLE ON THE PRELIMINARY INFORMATION SHEET. SUBMIT THE LOAD RATING WITH THE BOX CULVERT DESIGN. INCLUDE LOAD RATING FACTORS FOR THE EV II AND EV III EMERGENCY VEHICLES.

17. THE ABUTMENTS HAVE NOT BEEN EVALUATED FOR CONSTRUCTION SURCHARGE. THE CONTRACTOR'S ERECTION PLAN SHALL INCLUDE CONSIDERATIONS FOR AVOIDING CONSTRUCTION SURCHARGE APPLIED TO THE PILE CAPS BY PLACING CRANES AT A DEPTH EQUAL OR GREATER THAN THE DEPTH OF THE BACKFILL ABOVE THE BOTTOM OF THE PILE CAP.

18. BEFORE SETTING FRAME SECTIONS, BACKFILL THE ABUTMENTS TO THEIR TOP SURFACES.

19. WATERPROOFING MEMBRANE SYSTEM, TYPE III - MEETING THE REQUIREMENTS OF SUBSECTION 726.08(c) - SHALL BE APPLIED IN TWO-FOOT, OR GREATER, WIDTH STRIPS OVER THE TOP OF THE JOINTS OF THE RIGID FRAME. EXTEND THE SHEET MEMBRANE DOWN THE ENTIRE SIDE AND ACROSS THE TOP OF EACH STRUCTURAL UNIT. COVER THE SIDES OF THE STRUCTURES PRIOR TO THE TOPS. ANY OVERLAPPING OF MEMBRANE SHALL BE DONE IN A SHINGLED STYLE WITH A MINIMUM OVERLAP OF ONE FOOT. A 1" THICK POLYSTYRENE INSULATION BOARD - MEETING THE REQUIREMENTS OF SUBSECTION 735.01 - SHALL BE PLACED OVER THE MEMBRANE PRIOR TO BACKFILLING. PAYMENT FOR THIS WORK AND MATERIALS IS INCIDENTAL TO THE RESPECTIVE PRECAST CONCRETE ITEM.

REINFORCING STEEL

20. REINFORCING STEEL IN HEADWALLS AND CONCRETE FRAME SHALL CONFORM TO THE REQUIREMENTS OF ITEM 507.1200 "REINFORCING STEEL, LEVEL II."

21. REINFORCING STEEL IN THE RETAINING WALLS AND ABUTMENTS SHALL CONFORM TO THE REQUIREMENTS OF ITEM 507.1100 "REINFORCING STEEL, LEVEL I (EPOXY COATED)."

22. REINFORCING STEEL CLEAR COVER REQUIREMENTS ARE STATED ACCORDING TO THE FOLLOWING, UNLESS OTHERWISE NOTED IN THE PLANS:

A.	INSIDE FACES OF FRAME	1.5 INCHES
B.	EXPOSED TO EARTH OR WEATHER	2.0 INCHES
C.	TOP OF OUTSIDE FACES OF FRAME	2.0 INCHES
D.	DIRECT EXPOSURE TO DEICING SALTS (HEADWALL FASCIA, CURB, ETC.)	3.0 INCHES
E.	CAST-IN-PLACE DIRECTLY AGAINST EARTH	3.0 INCHES

23. THE CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL REINFORCING STEEL SCHEDULES FOR ALL PRECAST AND CAST-IN-PLACE CONCRETE COMPONENTS.

24. TEST BARS SHALL BE PROVIDED IN ACCORDANCE WITH THE "VERMONT AGENCY OF TRANSPORTATION MATERIAL SAMPLING MANUAL" AVAILABLE ON THE AGENCY WEBSITE. ALL COSTS ASSOCIATED WITH PROVIDING BARS FOR TESTING WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE PRECAST ITEM.

WINGWALLS

25. CAST-IN-PLACE OR PRECAST WINGWALLS SHALL BE DESIGNED BY THE CONTRACTOR'S ENGINEER OR FABRICATOR, RESPECTIVELY. ALL DESIGN WORK SHALL BE IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS REFERENCED IN PROJECT NOTE 1. ALL DESIGN SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF VERMONT. THE CONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS AND CALCULATIONS TO THE ENGINEER IN ACCORDANCE WITH SECTION 105. USE THE FOLLOWING DESIGN CRITERIA:
    - A. SOIL UNIT WEIGHT = 140 PCF
    - B. DESIGN LIVE LOAD = HL-93
    - C. AT-REST EARTH PRESSURE (K_O) = 0.44
    - D. FOR BEARING RESISTANCE STRENGH LIMIT STATE, USING A FACTOR OF 0.45, THE FACTORED BEARING RESISTANCE IS 7.9 KSF.
    - E. FOR BEARING RESISTANCE SERVICE LIMIT STATE, USING A FACTOR OF 1.0, THE FACTORED BEARING RESISTANCE IS 9.8 KSF.

26. THE DESIGN OF THE WALLS MUST INCORPORATE PROVISIONS FOR ADJACENT OBSTRUCTIONS SUCH AS DRAINAGE FEATURES AND GUARDRAIL POSTS IF NECESSARY. DETAIL ANY CHANGES TO THE WALL SYSTEM IN THE FABRICATION DRAWINGS.

27. A BRIDGE PLAQUE FURNISHED BY THE AGENCY SHALL BE CAST INTO THE FACE OF THE FRAME UNIT ON THE WINGWALL #2 SIDE. SEE S-501 FOR FURTHER DETAILS.

MICROPILES

28. THE FACTORED AXIAL DESIGN LOAD PER PILE IS 184.3 KIPS AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH LOAD I LOAD COMBINATION. THE FACTORED STRUCTURAL RESISTANCE PER PILE IS 687 KIPS AND IS THE PRODUCT OF THE NOMINAL STRUCTURAL RESISTANCE OF 916 KIPS AND A RESISTANCE FACTOR OF 0.75.

29. DETERMINATION OF PILE RESISTANCE AND PILE INTEGRITY SHALL BE PERFORMED USING THE MICROPILE VERIFICATION LOAD TEST (ITEM 547.3000) METHOD WITH A RESISTANCE FACTOR OF 0.70 PER AASHTO 10.9.3.5.4. PILE SHALL BE INSTALLED TO ACHIEVE A FACTORED RESISTANCE EQUAL TO OR GREATER THAN THE FACTORED AXIAL LOAD.

30. A MINIMUM OF ONE VERIFICATION LOAD WILL BE REQUIRED TO BE PERFORMED FOR THE STRUCTURE AND ONE PROOF TEST FOR EACH ABUTMENT.

31. THE VERIFICATION PILE SHALL BE REMOVED OR ABANDONED SUCH THAT THE TOP OF THE MICROPILE IS A MINIMUM OF 3 FT BELOW THE FINAL GROUND SURFACE.

32. VERIFICATION MICROPILE SHALL BE SUBJECTED TO THE LOADING SCHEDULE AS NOTED IN THE SPECIFICATIONS AND TO THE DESIGN LOAD AS NOTED IN THE MICROPILE TABLE PROVIDED IN THE PLANS. THE VERIFICATION TENSION LOAD TEST SHALL HAVE A BOND ZONE LENGTH OF 10 FEET, AS NOTED IN THE VERIFICATION LOAD TEST PLAN. A PVC SLEEVE SHALL BE PLACED AROUND THE THREADED REINFORCING STEEL TO ISOLATE THE THREADED REINFORCING STEEL FROM THE MORTAR THROUGHOUT THE UNBONDED LENGTH.

33. THE MORTAR WITHIN A MIICROPILE MUST ATTAIN THE MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI PRIOR TO PERFORMING THE LOAD TESTING.

34. EXTEND MICROPILE CASING A MINIMUM OF 1 FOOT BELOW TOP OF BEDROCK. UNCASED PORTION OF THE MICROPILE A MINIMUM OF 10 FEET BELOW THE BOTTOM OF THE CASING. CONSTRUCTION OF PRODUCTION MICROPILES SHALL NOT BEGIN UNTIL THE VERIFICATION LOAD TEST RESULTS HAVE BEEN REVIEWED AND APPROVED BY THE ENGINEER. THE ENGINEER WILL PROVIDE A RESPONSE TO THE CONTRACTOR WITHIN 3 WORKING DAYS AFTER RECEIPT OF THE WRITTEN SUMMARY OF THE VERIFICATION LOAD TEST RESULTS.

35. ESTIMATED TOP OF BEDROCK AND PILE TIP LOCATIONS INDICATED WITHIN THESE PLANS MAY VARY AND SHALL BE CONFIRMED BY THE ENGINEER. APPROXIMATE ELEVATIONS PROVIDED ARE ESTIMATED BASED ON BORINGS AT OR NEAR THE PROPOSED SUBSTRUCTURE LOCATION. ACTUAL TOP OF BEDROCK ELEVATIONS AT EACH MICROPILE LOCATION MAY VARY. FINAL MICROPILE LENGTH SHALL BE ADJUSTED BASED ON ACTUAL TOP OF BEDROCK ELEVATION TO ENSURE REQUIRED BOND ZONE LENGTH IS ACHIEVED. IF TOP OF BEDROCK VARIES SIGNIFICANTLY FROM ESTIMATED, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

36. TENSION PROOF LOAD TESTS SHALL BE PERFORMED ON A MINIMUM OF TWO (2) PRODUCTION MICROPILES AT THE LOCATIONS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER.

MISCELLANEOUS

37. THE CONTRACTOR SHALL PROVIDE A SITE-SPECIFIC EROSION PREVENTION AND SEDIMENT CONTROL PLAN IN ACCORDANCE WITH SECTION 653 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. ESTIMATED QUANTITIES FOR EPSC WORK HAVE BEEN INCLUDED IN THE CONTRACT FOR BIDDING PURPOSES. IF THE CONTRACTOR'S EPSC PLAN REQUIRES ITEMS OF WORK THAT ARE NOT INCLUDED IN THE PLANS, THE EXTRA WORK WILL BE PAID FOR AS PART OF ITEM 653.0300 – MAINTENANCE OF EPSC PLAN.

38. METAL PLATES THAT HAVE BEEN INSTALLED ON THE EXISTING BRIDGE DECK SHALL BE SALVAGED AND RETURNED TO THE DISTRICT. SEE NOTICE TO BIDDERS NO. 19.

PROJECT NAME:	TOPSHAM
PROJECT NUMBER:	BF 031-1(13)
FILE NAME: s19b210notes.dgn	PLOT DATE: 28-SEP-2026
PROJECT LEADER: C. BURRALL	DRAWN BY: G. DARGAN
DESIGNED BY: G. DARGAN	CHECKED BY: C. BURRALL
GENERAL NOTES	SHEET 6 OF 47

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES

1011 - ROADWAY	1031 - TRAINING	1051 - EROSION CONTROL	1211 - BRIDGE NO. 1	1999 - FULL C.E. ITEMS
			156400	
1				
1100				
			1000	
1				
			1300	
			1300	
500				
			1	
			1	
			1	
			1	
1200				
60				
20				
230				
310				
150				
1				
1				
			45	
1				
			45	
			3900	
			30	
			1	
			1	
19				
			1776	
			480	
			100	
			1	
			1	
			2	
120				
10				
		25		
			20	
			500	
			460	
			1	
610				

TOTALS

GRAND TOTAL	FINAL
156400	
1	
1100	
1000	
1	
1300	
1300	
500	
1	
1	
1	
1	
1200	
60	
20	
230	
310	
150	
1	
1	
45	
3900	
30	
1	
1	
19	
1776	
480	
100	
1	
1	
2	
120	
10	
25	
20	
500	
460	
1	
610	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER	ROUND
DL	INCENTIVE OR DISINCENTIVE (N.A.B.I.)	199.8101	
LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.1000	
CY	COMMON EXCAVATION	203.1500	
CY	UNCLASSIFIED CHANNEL EXCAVATION	203.2700	
CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.2200	
CY	STRUCTURE EXCAVATION	204.2500	
CY	GRANULAR BACKFILL FOR STRUCTURES	204.3000	
SY	COARSE-MILLING, BITUMINOUS PAVEMENT	210.1000	
LS	RETAINING WALL, CONCRETE (WW3 - 200 SF)	225.0500	
LS	RETAINING WALL, CONCRETE (WW2 - 257 SF)	225.0500	
LS	RETAINING WALL, CONCRETE (WW1 - 712 SF)	225.0500	
LS	RETAINING WALL, CONCRETE (WW4 - 783 SF)	225.0500	
CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.3500	
CY	AGGREGATE SURFACE COURSE	401.1000	
CWT	TACK COAT, EMULSIFIED ASPHALT	404.1100	
TON	BITUMINOUS CONCRETE PAVEMENT, TYPE IIS, QA TIER III	406.0230	
TON	BITUMINOUS CONCRETE PAVEMENT, TYPE IIIS, QA TIER III	406.0330	
SY	BITUMINOUS CONCRETE PAVEMENT, NON-PAVER PLACED, TYPE IVS	406.3400	
DL	PAY ADJUSTMENT, BCP, MIXTURE PROPERTIES (N.A.B.I.)	406.9100	
DL	PAY ADJUSTMENT, BCP, MAT DENSITY (N.A.B.I.)	406.9200	
CY	PERFORMANCE-BASED CONCRETE, CLASS PCS	501.3800	
LB	REINFORCING STEEL, LEVEL I	507.1100	
GAL	WATER REPELLENT, SILANE	514.1000	
EACH	REMOVAL OF STRUCTURE ((1600 SF - EST) BRIDGE)	529.1500	
LS	PRECAST CONCRETE STRUCTURE (35FT X 13FT X 76FT RIGID FRAME)	540.1000	
LS	CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE (MOMENT SLABS)	543.1000	
LF	MICROPILE, CASED (10.75 INCH O.D.)	547.1000	
LF	MICROPILE, UNCASED (9.25 INCH DIA)	547.1500	
LF	MICROPILE OBSTRUCTION DRILLING AND REMOVAL	547.2000	
LS	FURNISHING EQUIPMENT FOR INSTALLING MICROPILES	547.2500	
EACH	MICROPILE VERIFICATION LOAD TEST	547.3000	
EACH	MICROPILE PROOF LOAD TEST	547.3500	
LF	CLEANING CULVERT PIPE, IN-PLACE (0 TO 24 INCHES, INCLUSIVE)	601.9950	
HR	ALL-PURPOSE EXCAVATOR RENTAL, TYPE I	608.2501	
MGAL	DUST CONTROL WITH WATER	609.1000	
CY	E-STONE FILL, TYPE I	613.0601	
CY	E-STONE FILL, TYPE III	613.0603	
CY	STONE FILL, TYPE III	613.1003	
EACH	TEMPORARY RELOCATION OF STREAM	614.1000	
LF	REMOVAL OF GUARDRAIL	621.0100	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		EARTHWORKS SUMMARY
		FILL AVAILABLE
1100	CY	COMMON EXCAVATION (1100 X 1.0)
300	CY	UNCLASSIFIED CHANNEL EXCAVATION (1000 X 0.3)
390	CY	STRUCTURES EXCAVATION (1300 X 0.3)
0	CY	ROUNDING
1790	CY	TOTAL FILL AVAILABLE
		FILL REQUIRED
575	CY	FACTORED FILL (500 X 1.15)
0	CY	ROUNDING
0	CY	TOTAL FILL REQUIRED
1215	CY	TOTAL WASTE

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF031-1(13)

FILE NAME: s19b210qty.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: A. VAN BUSKIRK
QUANTITY SHEET #1

PLOT DATE: 09/23/2026
DRAWN BY: A. VAN BUSK
CHECKED BY: C. BURRALL

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

| SUMMARY OF ESTIMATED QUANTITIES | | |

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 3

| SUMMARY OF ESTIMATED QUANTITIES | | |

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

- SEDIMENT ISOLOATION (IN-WATER)
- 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
- BAT — BAT HABITATE AREA
- RIPS — REGULATED INTRODUCED PLANT SPCIES
- 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
- Ⓗ 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: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: sl9b210legend.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
CONVENTIONAL SYMBOLOGY LEGEND

PLOT DATE: 28-SEP-2026
DRAWN BY: A.MANN
CHECKED BY: C. BURRALL
SHEET 10 OF 47

PRIMARY CONTROL

HVCTRL #1
CILLEY
NORTH = 592857.6630
EAST = 1690411.6650
ELEV = 1273.4690

TO REACH FROM THE INTERSECTION OF ROUTES 302 AND 25 IN ORANGE, GO SOUTHEAST ALONG ROUTE 25 FOR 1.1 MI (1.8 KM) TO THE SITE OF THE MARK ON THE RIGHT JUST SOUTH OF A GUARD RAIL AND THE INTERSECTION OF CROSSROAD.

THE MARK IS A SURVEY DISK IN THE TOP OF A FENO MONUMENT, SET 0.2 FT (6 CM) BELOW GROUND SURFACE.

IT IS ABOUT 110 FT (33.5 M) SOUTH OF THE INTERSECTION OF CROSSROAD, 22.3 FT (6.8 M) WEST-SOUTHWEST OF AND ABOUT 1 FT (0.3 M) LOWER THAN THE CENTERLINE OF ROUTE 25, 62 FT (18.9 M) SOUTHWEST OF AND ACROSS THE ROAD FROM A DRAINAGE INLET, AND 7.2 FT (2.2 M) SOUTH OF THE END OF A STEEL GUARD RAIL.

HVCTRL #2
REBAR WITH RED CAP
NORTH = 593555.8760
EAST = 1690169.0900
ELEV = 1284.9740

TO REACH FROM THE INTERSECTION OF ROUTES 302 AND 25 IN ORANGE, GO SOUTHEAST ALONG ROUTE 25 FOR 1.0 MI (1.6 KM) TO THE SITE OF THE MARK ON THE LEFT BEHIND A STEEL GUARD RAIL.

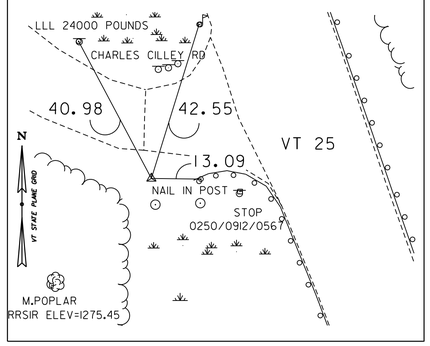
THE MARK IS A 3/4 INCH (19 MM) REBAR WITH RED CAP INSCRIBED 'VT AOT TRAV PT' SET FLUSH WITH GROUND SURFACE.

IT IS ABOUT 330 FT (100.6 M) NORTH OF CHARLES CILLEY ROAD, 18 FT (5.5 M) EAST OF AND LEVEL WITH THE CENTERLINE OF ROUTE 25, 90 FT (27.4 M) SOUTHEAST OF AND ACROSS THE ROAD FROM TELEPHONE PEDESTAL D/48, AND 2.0 FT (0.6 M) EAST OF THE STEEL GUARD RAIL.

SECONDARY CONTROL

HVCTRL 3

NORTH = 593218.7651
EAST = 1690229.3946
ELEV. = 1277.8090



HVCTRL

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

ALIGNMENT TIES

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

DATUM
VERTICAL NAVD88
HORIZONTAL NAD83(2011)
ADJUSTMENT COMPASS

TRAVERSE COMPLETED BY R. GILMAN B. HERRING AND H. MCGOWAN ON 9/30/2019

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210tie.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: H. MCGOWAN
TIE SHEET

PLOT DATE: 28-SEP-2026
DRAWN BY: VTRANS
CHECKED BY: G. HITCHCOCK
SHEET II OF 47

SOIL INFORMATION
CABOT SILT LOAM
K FACTOR = 0.32
HYDROLOGICAL GROUP= D

SOIL INFORMATION
POMFRET STONY LOAMY SAND
K FACTOR = 0.17
HYDROLOGICAL GROUP= A

SOIL INFORMATION
CABOT SILT LOAM
K FACTOR = 0.32
HYDROLOGICAL GROUP= D

SOIL INFORMATION
MERRIMAC FINE SANDY LOAM
K FACTOR = 0.24
HYDROLOGICAL GROUP= A

SOIL INFORMATION
COLRAINE EXTREMELY STONY FINE SANDY LOAM
K FACTOR = 0.24
HYDROLOGICAL GROUP= A

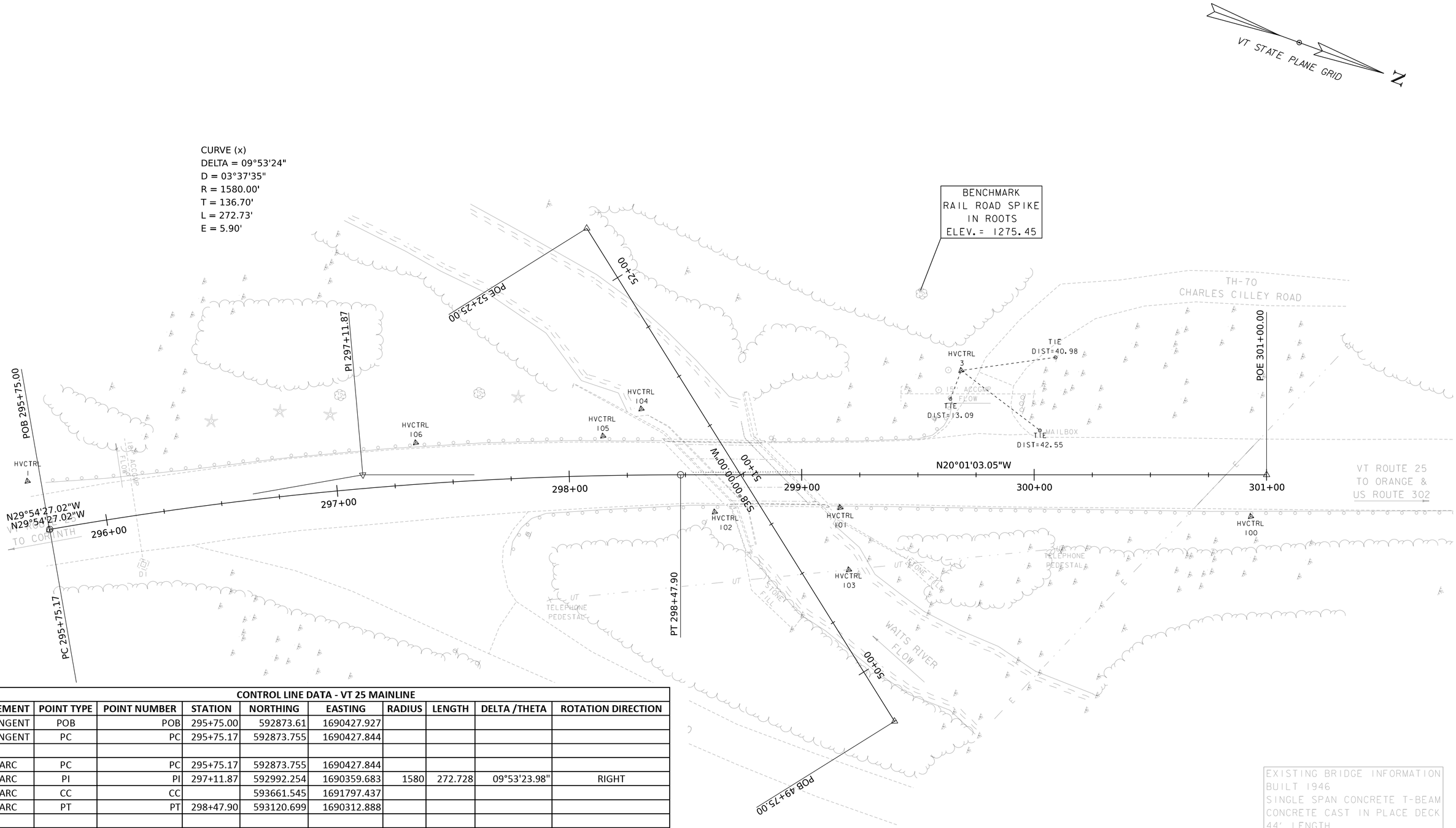
EXISTING BRIDGE INFORMATION
BUILT 1946
SINGLE SPAN CONCRETE T-BEAM
CONCRETE CAST IN PLACE DECK
44' LENGTH

VT STATE PLANE GRID
N

APPROX. EXISTING TOWN R.O.W.
APPROX. EXISTING STATE R.O.W.
EXISTING TOWN R.O.W.
TH-70
CHARLES CILLEY ROAD
15" ACCGMP
FLOW
MAILBOX
52+00
00+15
00+05
VT ROUTE 25
TO ORANGE &
US ROUTE 302
296+00
297+00
298+00
299+00
300+00
301+00
VT ROUTE 25
TO CORINTH
18" ACCGMP
FLOW
DI
UT
TELEPHONE
PEDESTAL
STONE
FILL
TELEPHONE
PEDESTAL
WAITS RIVER
FLOW
TH-24
CROSSROAD

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

PROJECT NAME:	TOPSHAM
PROJECT NUMBER:	BF 031-1(13)
FILE NAME: s19b210epsc.dgn	PLOT DATE: 28-SEP-2026
PROJECT LEADER: C. BURRALL	DRAWN BY: G. DARGAN
DESIGNED BY: G. DARGAN	CHECKED BY: A. MANN
EXISTING CONDITIONS	SHEET 12 OF 47



CONTROL LINE DATA - VT 25 MAINLINE									
ELEMENT	POINT TYPE	POINT NUMBER	STATION	NORTHING	EASTING	RADIUS	LENGTH	DELTA /THETA	ROTATION DIRECTION
TANGENT	POB	POB	295+75.00	592873.61	1690427.927				
TANGENT	PC	PC	295+75.17	592873.755	1690427.844				
ARC	PC	PC	295+75.17	592873.755	1690427.844				
ARC	PI	PI	297+11.87	592992.254	1690359.683	1580	272.728	09°53'23.98"	RIGHT
ARC	CC	CC		593661.545	1691797.437				
ARC	PT	PT	298+47.90	593120.699	1690312.888				
TANGENT	PT	PT	298+47.90	593120.699	1690312.888				
TANGENT	POE	POE	301+00.00	593357.574	1690226.591				

CONTROL LINE DATA - CHANNEL					
ELEMENT	POINT TYPE	POINT NUMBER	STATION	NORTHING	EASTING
TANGENT	POB	POB	49+75.00	593243.481	1690381.000
TANGENT	POE	POE	52+25.00	593046.478	1690227.085

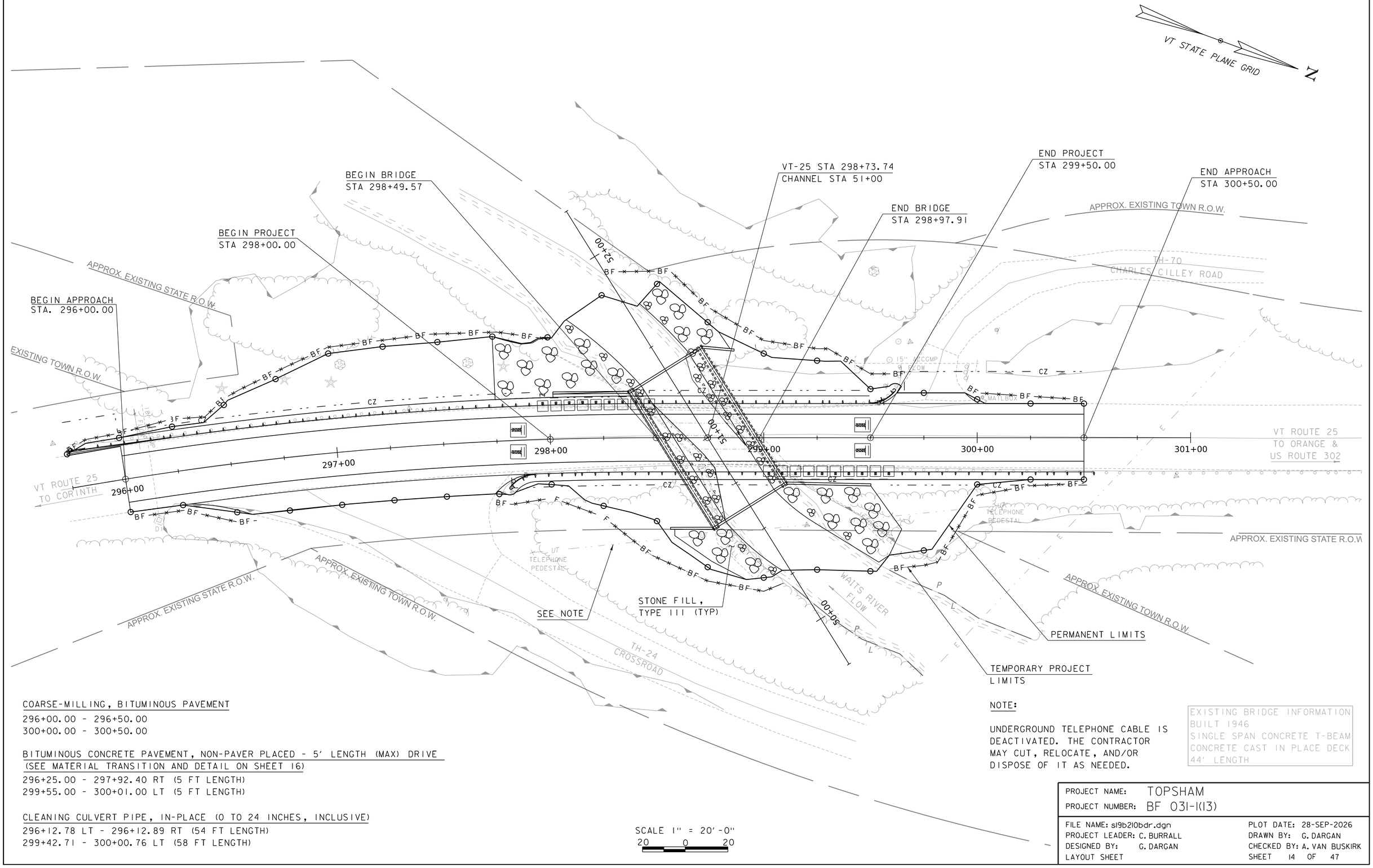
SCALE 1" = 20'-0"
20 0 20

EXISTING BRIDGE INFORMATION
BUILT 1946
SINGLE SPAN CONCRETE T-BEAM
CONCRETE CAST IN PLACE DECK
44' LENGTH

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: sl9b210align.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
ALIGNMENT SHEET

PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: A. VAN BUSKIRK
SHEET 13 OF 47



COARSE-MILLING, BITUMINOUS PAVEMENT
296+00.00 - 296+50.00
300+00.00 - 300+50.00

BITUMINOUS CONCRETE PAVEMENT, NON-PAVER PLACED - 5' LENGTH (MAX) DRIVE
(SEE MATERIAL TRANSITION AND DETAIL ON SHEET 16)
296+25.00 - 297+92.40 RT (5 FT LENGTH)
299+55.00 - 300+01.00 LT (5 FT LENGTH)

CLEANING CULVERT PIPE, IN-PLACE (0 TO 24 INCHES, INCLUSIVE)
296+12.78 LT - 296+12.89 RT (54 FT LENGTH)
299+42.71 - 300+00.76 LT (58 FT LENGTH)

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

NOTE:

UNDERGROUND TELEPHONE CABLE IS DEACTIVATED. THE CONTRACTOR MAY CUT, RELOCATE, AND/OR DISPOSE OF IT AS NEEDED.

EXISTING BRIDGE INFORMATION
BUILT 1946
SINGLE SPAN CONCRETE T-BEAM
CONCRETE CAST IN PLACE DECK
44' LENGTH

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: sl9b210bdr.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
LAYOUT SHEET

PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: A. VAN BUSKIRK
SHEET 14 OF 47

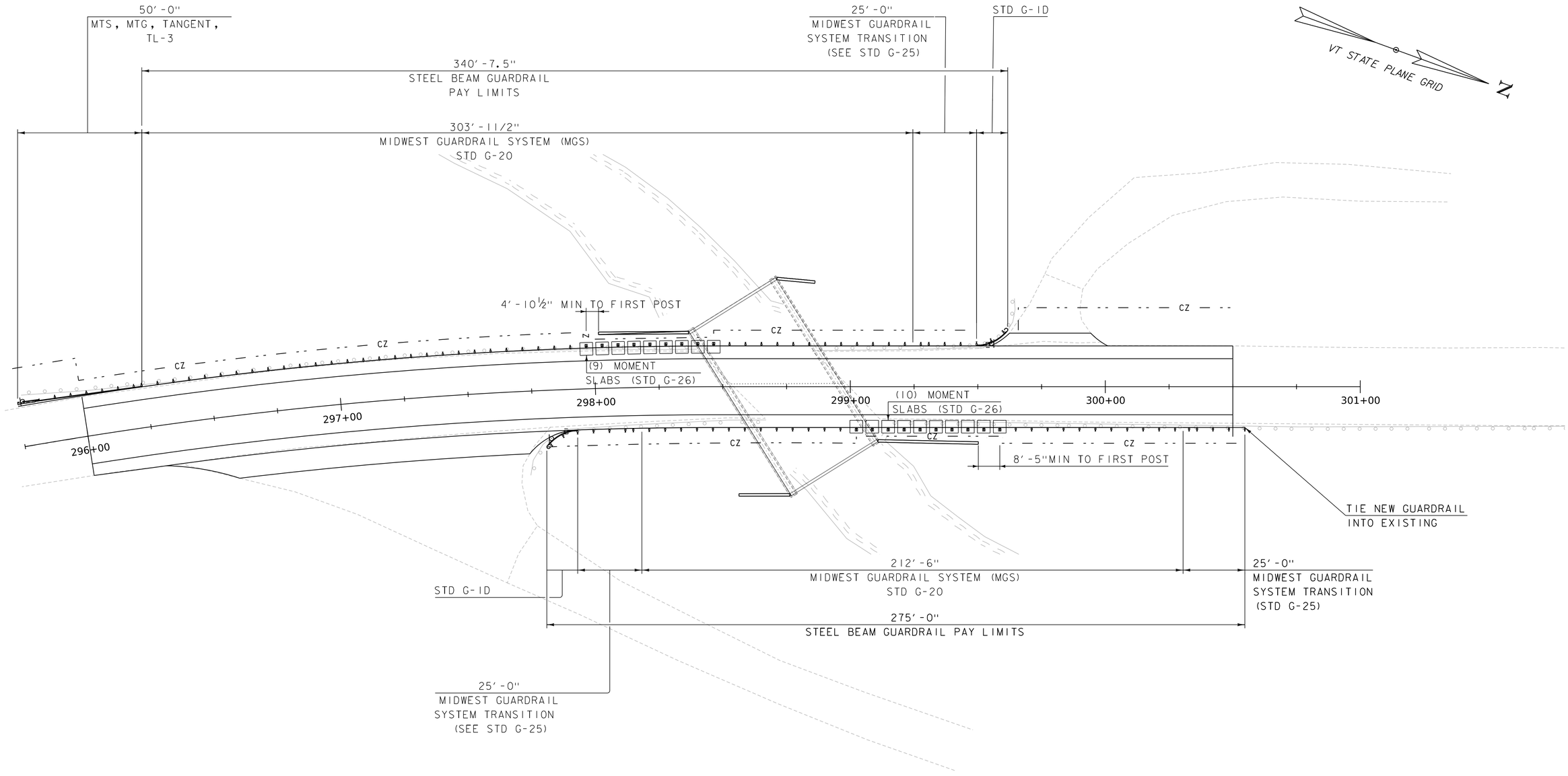
REMOVAL OF GUARDRAIL
STA 295+76.85 - STA 298+39.85 LT
STA 298+85.21 - STA 299+64.35 LT
STA 297+73.08 - STA 298+66.94 RT
STA 299+12.61 - STA 300+54.73 RT

MTS, MTG, TANGENT, TL-3
STA 295+75.02 - STA 296+23.65 LT

STEEL BEAM GUARDRAIL
STA. 297+80.22 - 300+54.73 RT
STA. 296+23.65 - 299+61.73 LT

ANCHOR FOR STEEL BEAM GUARDRAIL
STA. 297+88 RT
STA. 299+53 LT

DELINEATOR WITH STEEL POST
STA. 295+77.00 LT
STA. 297+82.00 RT
STA. 299+55.00 LT



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

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: sl9b210rail.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
RAIL LAYOUT

PLOT DATE: 28-SEP-2026
DRAWN BY: A. VAN BUSKIRK
CHECKED BY: C. BURRALL
SHEET 15 OF 47

LEGEND:

VAOT NATURALIZED AREA TYPE II

TUBELINGS W/ VAOT POLLINATOR WET

KEY	QUANTITY	SCIENTIFIC NAME	COMMON NAME	SIZE	CONTAINER	SPACING (ON CENTER)	NOTES
TUBELINGS							
AN	6	*Acer negundo*	Box elder	2-3' HEIGHT	TUBELING	8' O.C.	Straight species only. No cultivars.
AC	6	*Acer rubrum*	Red maple	2-3' HEIGHT	TUBELING	8' O.C.	Straight species only. No cultivars.
AL	6	*Alnus rugosa*	Speckled Alder	2-3' HEIGHT	TUBELING	8' O.C.	Straight species only. No cultivars.
CR	6	*Cornus racemosa*	Gray dogwood	2-3' HEIGHT	TUBELING	8' O.C.	Straight species only. No cultivars.
CS	6	*Cornus sericea*	Red twig dogwood	2-3' HEIGHT	TUBELING	8' O.C.	Straight species only. No cultivars.
PD	6	*Populus deltoides*	Eastern cottonwood	2-3' HEIGHT	TUBELING	8' O.C.	Straight species only. No cultivars.
RT	6	*Rhus typhina*	Staghorn sumac	2-3' HEIGHT	TUBELING	8' O.C.	Straight species only. No cultivars.
SC	6	*Sambucus canadensis*	Elderberry	2-3' HEIGHT	TUBELING	8' O.C.	Straight species only. No cultivars.
SD	6	*Salix discolor*	Common pussy willow	2-3' HEIGHT	TUBELING	8' O.C.	Straight species only. No cultivars.
SL	6	*Salix lucida*	Shining willow	2-3' HEIGHT	TUBELING	8' O.C.	Straight species only. No cultivars.
SS	6	*Salix sericea*	Silky willow	2-3' HEIGHT	TUBELING	8' O.C.	Straight species only. No cultivars.
VL	6	*Viburnum lentago*	Nannyberry	2-3' HEIGHT	TUBELING	8' O.C.	Straight species only. No cultivars.

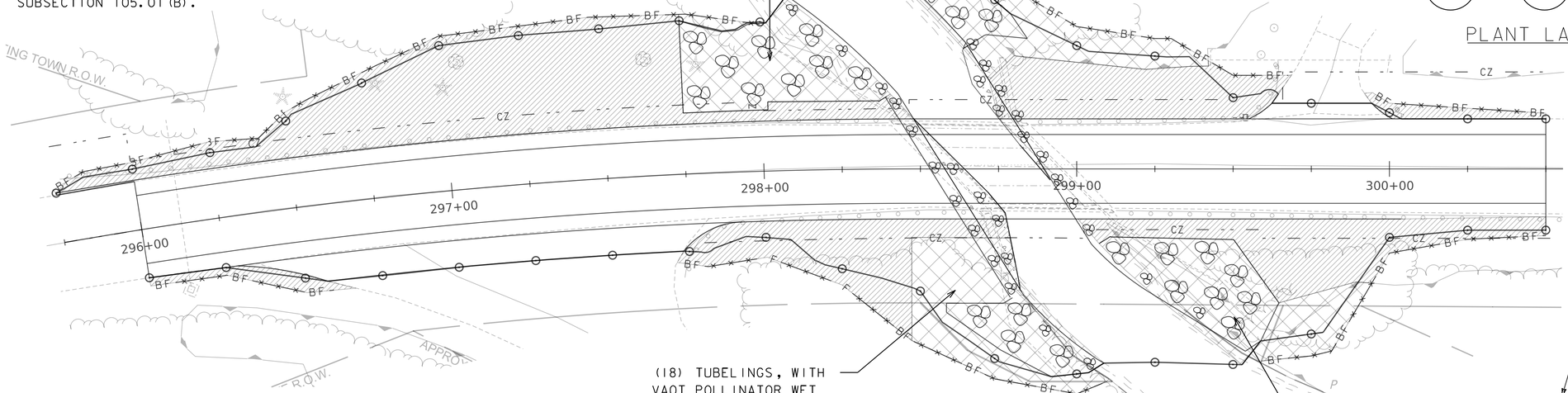
VT STATE PLANE GRID

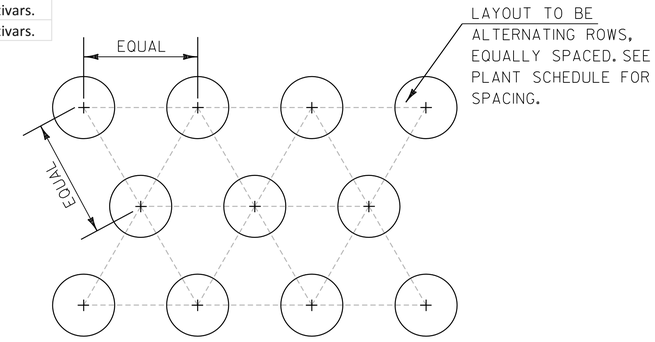
N

NOTES:

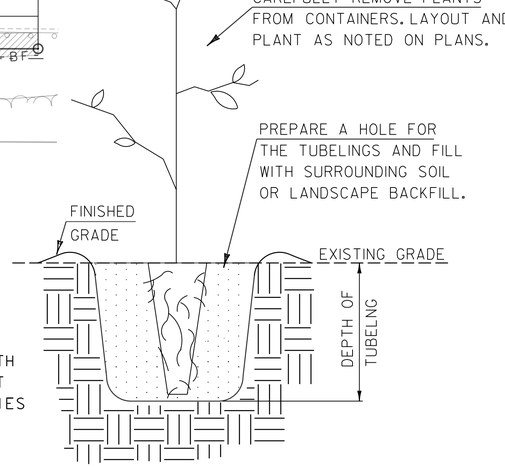
1. A LANDSCAPE-SPECIFIC COORDINATION MEETING WILL BE HELD AT LEAST 30 CALENDAR DAYS PRIOR TO LANDSCAPE INSTALLATION WITH THE LANDSCAPE SUBCONTRACTOR, PRIME CONTRACTOR, ENGINEER, AOT CONSTRUCTION ENVIRONMENTAL ENGINEER, AND EITHER THE AOT LANDSCAPE ARCHITECT OR THE CONSTRUCTION LANDSCAPE INSPECTOR

2. THE AOT LANDSCAPE ARCHITECT OR CONSTRUCTION LANDSCAPE INSPECTOR SHALL BE ON SITE TO CONFIRM PLANT SPECIES AND HEALTH, APPROVE PLANT LAYOUT, AND OBSERVE INSTALLATION. NOTIFY THE AOT LANDSCAPE ARCHITECT OR CONSTRUCTION LANDSCAPE INSPECTOR AT LEAST 7 CALENDAR DAYS PRIOR TO INSTALLATION. FAILURE TO INCLUDE THE AOT LANDSCAPE ARCHITECT OR CONSTRUCTION LANDSCAPE INSPECTOR MAY RESULT IN THE REJECTION OF PLANT MATERIAL AFTER INSTALLATION. NOTE: THE ENGINEER MAY EXERCISE THEIR AUTHORITY TO SUSPEND PLANT INSTALLATION UNTIL THE AOT LANDSCAPE ARCHITECT OR CONSTRUCTION LANDSCAPE INSPECTOR IS PRESENT, PER SUBSECTION 105.01(B).





PLANT LAYOUT DETAIL



TUBELING PLANTING DETAIL

3. SEEDED AREAS SHALL BE PROTECTED IN ACCORDANCE WITH SPECIFICATION SUBSECTION 651.07 PROTECTION. WHERE WETLANDS OR WETLAND BUFFERS ARE PRESENT, STRAW MULCH SHALL BE USED INSTEAD OF HAY MULCH.

4. IF AREAS WITHIN PDF OR BARRIER FENCE ARE NOT DISTURBED, THEY SHOULD REMAIN VEGETATED, AND ADDITIONAL REVEGETATION IS NOT REQUIRED.

5. PROVIDING SUFFICIENT MOISTURE IS CRITICAL DURING THE ENTIRE PLANT ESTABLISHMENT PERIOD. WATERING TO BE PAID FOR UNDER 656.6500 LANDSCAPE WATERING.

6. FOR WETLAND AREAS RECEIVING WET AREA SEED, NO TOPSOIL OR GRUBBINGS SHALL BE ADDED. SCARIFY SOIL SURFACE TO LOOSEN SOIL FOR BETTER SEED-SOIL CONTACT. FOR TREES AND SHRUBS IN WETLAND AREAS, LANDSCAPE BACKFILL SHALL BE USED PER VTRANS STANDARD E-1 TREE PLANTING AND E-2 SHRUB PLANTING.

7. IN AREAS RECEIVING PLANTINGS ON STONE FILL, THE CONTRACTOR SHALL VERIFY THAT THE GRUBBING LAYER, AFTER PLACEMENT, STILL MEETS THE SPECIFIED DEPTH AND HAS NOT DISAPPEARED INTO GAPS. TOP LAYER OF STONE FILL MAY BE BROKEN DOWN INTO SMALLER PIECES TO PREVENT SOIL LOSS AS DIRECTED BY THE ENGINEER.

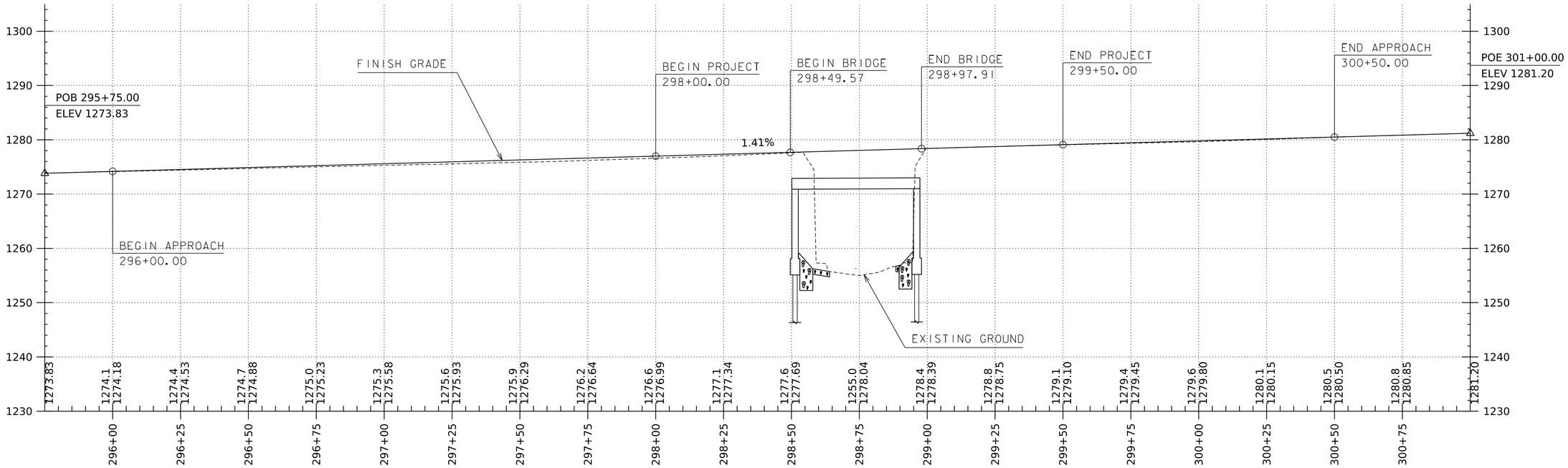
8. RIPARIAN TREES SHALL NOT BE PLANTED WITHIN 15' OF OVERHEAD POWER LINES.

9. APPLY MYCORRHIZAL FUNGI PER MANUFACTURERS RECOMMENDATIONS TO TREES AND SHRUBS.

0 20 40

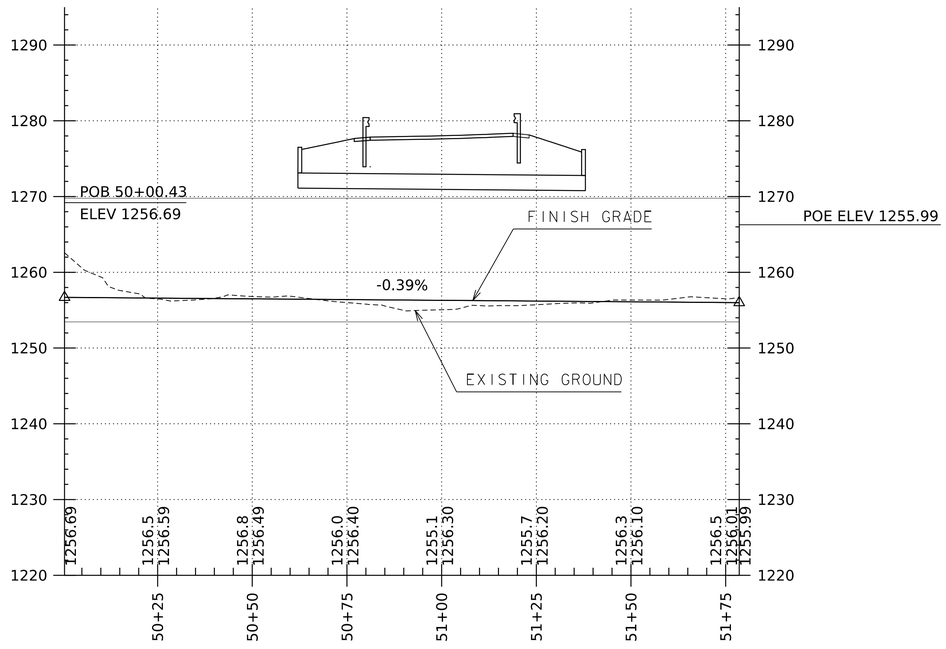
SCALE IN FEET

PROJECT NAME:	TOPSHAM		
PROJECT NUMBER:	BF 031-1(13)		
FILE NAME:	s19b210lbdr_lds.dgn	PLOT DATE:	28-SEP-2026
PROJECT LEADER:	C. BURRALL	DRAWN BY:	B. DONAHUE
DESIGNED BY:	B. DONAHUE	CHECKED BY:	G. DARGAN
LANDSCAPE PLAN		SHEET	16 OF 47



VT 25 PROFILE

SCALE: 1" = 20' - 0" (HORIZ.)
1" = 10' - 0" (VERT.)



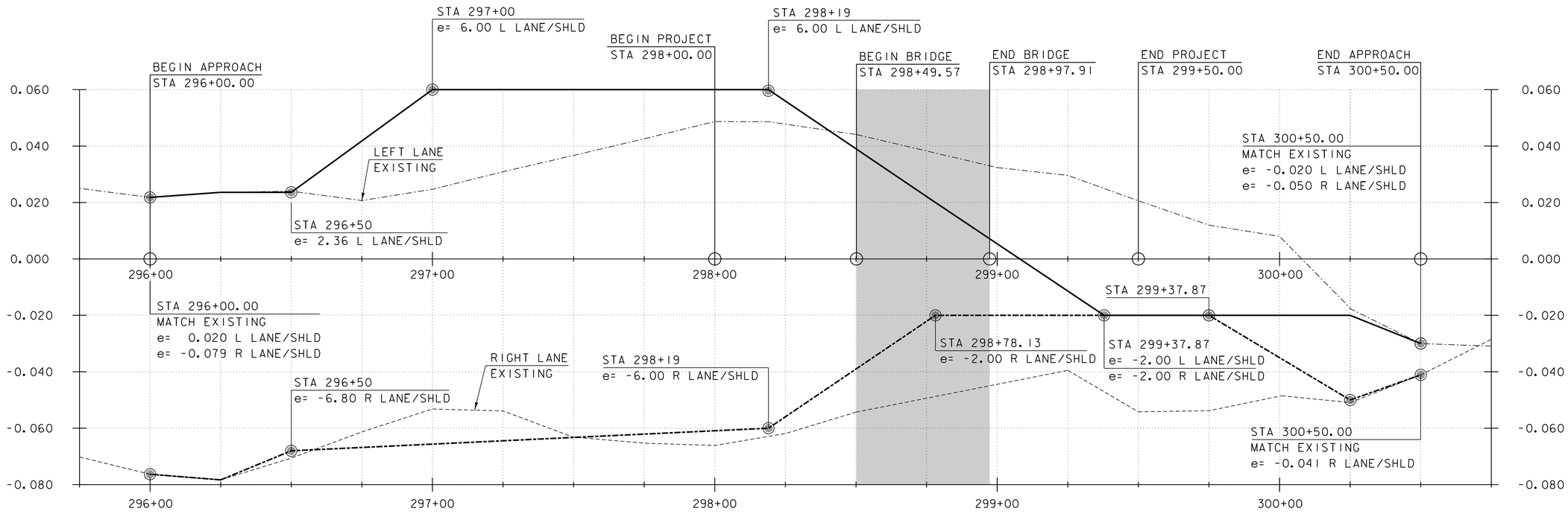
CHANNEL PROFILE

SCALE: 1" = 20' - 0" (HORIZ.)
1" = 10' - 0" (VERT.)

NOTES

1. ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.
2. ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADES ALONG PROPOSED CENTERLINE.

PROJECT NAME:	TOPSHAM		
PROJECT NUMBER:	BF 031-1(13)		
FILE NAME: s19b210profile		PLOT DATE:	28-SEP-2026
PROJECT LEADER:	C. BURRALL	DRAWN BY:	G. DARGAN
DESIGNED BY:	G. DARGAN	CHECKED BY:	C. BURRALL
PROFILES		SHEET	17 OF 47



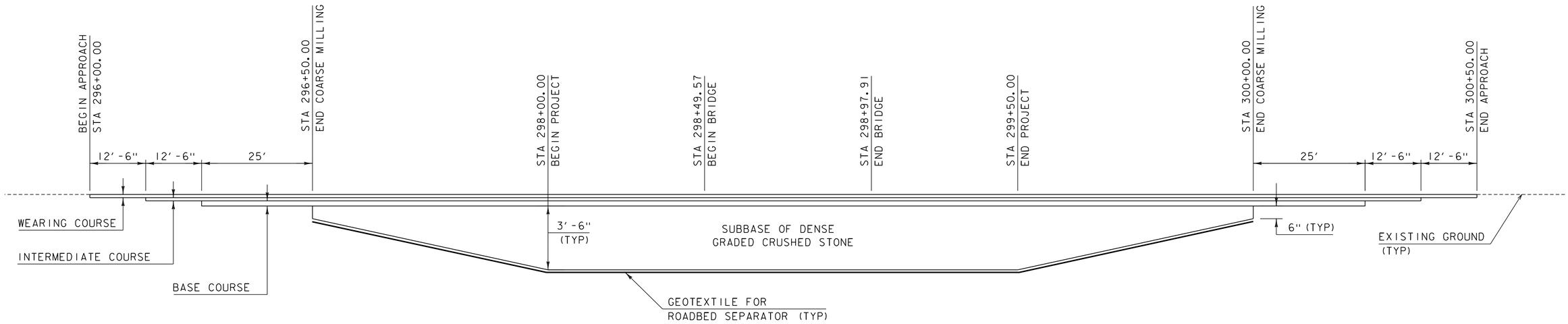
e= R EXISTING
e= R LANE/SHLD
e= L EXISTING
e= L LANE/SHLD

VT 25 SUPERELEVATION, 295+75 - 300+75

VERT: 1" = 2.00%
HOR: 1" = 20'

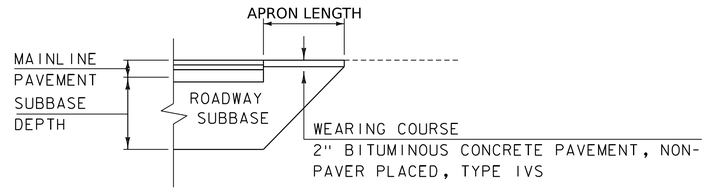
= PROPOSED BRIDGE

PROJECT NAME: TOPSHAM	
PROJECT NUMBER: BF 031-1(13)	
FILE NAME: sl9b210superelevation.dgn	PLOT DATE: 28-SEP-2026
PROJECT LEADER: C. BURRALL	DRAWN BY: A. VAN BUSKIRK
DESIGNED BY: G. DARGAN	CHECKED BY: G. DARGAN
SUPERELEVATION DIAGRAM	SHEET 18 OF 47



VT 25 MATERIAL TRANSITION

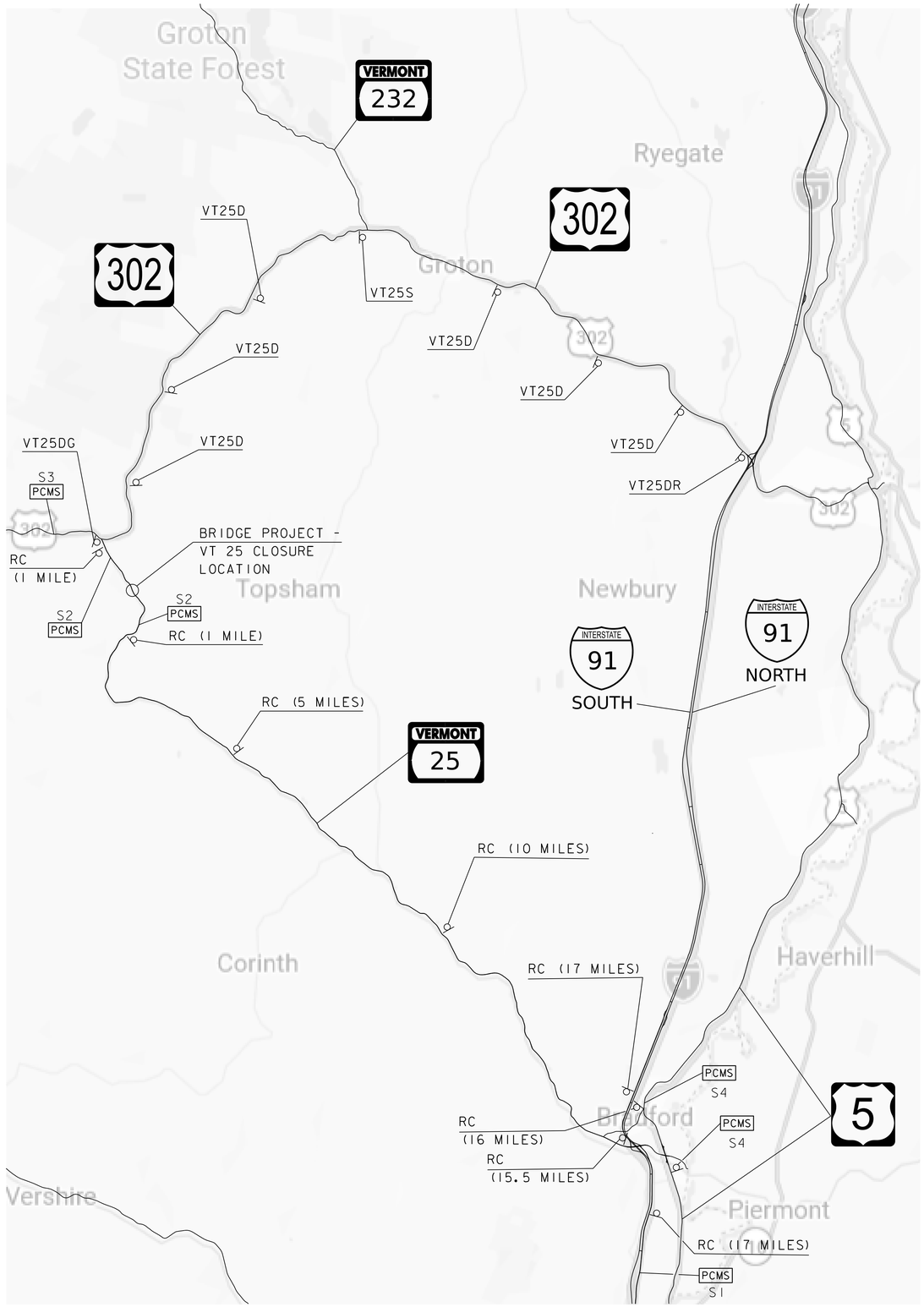
NOT TO SCALE



DRIVEWAY APRON DETAIL

NOT TO SCALE

PROJECT NAME:	TOPSHAM
PROJECT NUMBER:	BF 031-1(13)
FILE NAME: s19B210pro.dgn	PLOT DATE: 28-SEP-2026
PROJECT LEADER: C. BURRALL	DRAWN BY: G. DARGAN
DESIGNED BY: G. DARGAN	CHECKED BY: C. BURRALL
MATERIAL TRANSITION	SHEET 19 OF 47



V	T		2	5		T	O	
	U	S		3	0	2		
	C	L	O	S	E	D		

PORTABLE CHANGEABLE SIGN–S1–PHASE 1

V	T		2	5		T	O	
	U	S		3	0	2		
	C	L	O	S	E	D		

PORTABLE CHANGEABLE SIGN–S2–PHASE 1

V	T		2	5		T	O	
		I	–	9	1			
	C	L	O	S	E	D		

PORTABLE CHANGEABLE SIGN–S3–PHASE 1

V	T		2	5		T	O	
	U	S		3	0	2		
	C	L	O	S	E	D		

PORTABLE CHANGEABLE SIGN–S4–PHASE 1

*	M	M	M	M		D	D	–
*	M	M	M	M		D	D	

PORTABLE CHANGEABLE SIGN–S1–PHASE 2 BEFORE CLOSURE

*	M	M	M	M		D	D	–
*	M	M	M	M		D	D	

PORTABLE CHANGEABLE SIGN–S2–PHASE 2 BEFORE CLOSURE

*	M	M	M	M		D	D	–
*	M	M	M	M		D	D	

PORTABLE CHANGEABLE SIGN–S3–PHASE 2 BEFORE CLOSURE

*	M	M	M	M		D	D	–
*	M	M	M	M		D	D	

PORTABLE CHANGEABLE SIGN–S4–PHASE 2 BEFORE CLOSURE

		U	S	E				
E	X	I	T		1	7		

PORTABLE CHANGEABLE SIGN–S1–PHASE 2 DURING CLOSURE

		S	E	E	K			
		A	L	T				
	R	O	U	T	E			

PORTABLE CHANGEABLE SIGN–S2–PHASE 2 DURING CLOSURE

	D	E	T	O	U	R		
		U	S	E				
U	S		3	0	2		E	

PORTABLE CHANGEABLE SIGN–S3–PHASE 2 DURING CLOSURE

	D	E	T	O	U	R		
		U	S	E				
	I	–	9	1		N		

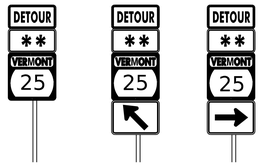
PORTABLE CHANGEABLE SIGN–S4–PHASE 2 DURING CLOSURE

* M = MONTH
D = DAY



RC

*SEE NOTE ON CALLOUT FOR MILE VALUE



VT25D VT25DG VT25R

**: VT 25 (EAST) OR (WEST) (AS APPLICABLE)

PCMS
PORTABLE CHANGEABLE MESSAGE SIGN

TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL COORDINATE ROUTES AROUND THE BRIDGE CLOSURE WITH EMERGENCY SERVICES PRIOR TO THE BCP.

2. WHERE PRACTICAL, DETOUR ROUTE MARKERS AND ANY ADDITIONAL PROJECT CONSTRUCTION SIGNS SHALL BE INSTALLED ADJACENT TO EXISTING ROUTE MARKERS. DETOUR ROUTE CONFIRMATION SIGNS ARE NEEDED AFTER EACH MAJOR INTERSECTION THROUGHOUT THE DETOUR ROUTE. FOLLOW-UP SIGNS SHOULD BE INSTALLED EVERY MILE OR TWO ALONG THE ROUTE IN BOTH DIRECTIONS OF TRAVEL AND CONFIRMATION MARKERS SHALL BE INSTALLED FOLLOWING EACH TURN AND AT ALL LOCATIONS ALONG THE DETOUR ROUTE WHERE ROUTE MARKERS EXIST FOR PARENT ROUTE.NO CONSTRUCTION SIGNS SHALL BE INSTALLED AS TO BLOCK THE EXISTING SIGHT DISTANCE OF DRIVES AND TOWN HIGHWAYS. THE CONTRACTOR SHALL MAINTAIN AT LEAST 200 FEET BETWEEN SIGN ASSEMBLIES WHENEVER POSSIBLE.

3. ALL SIGNING SHALL BE IN ACCORDANCE WITH THE 11TH EDITION OF THE MUTCD AND ITS LATEST REVISIONS. REFER TO THE SPECIFIC TABLES WITHIN THE CURRENT EDITION OF THE MUTCD FOR THE CORRECT SIZE OF THE SIGN TO BE INSTALLED AND THE T-SERIES OF STANDARD DRAWINGS. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN.

4. THE DETOUR ROUTE MARKER ASSEMBLIES SHALL BE INSTALLED ADJACENT TO THE EXISTING ROUTE MARKER ASSEMBLIES AND ANY CONFLICTING SIGNAGE SHALL BE COVERED.SIGN COVERING SHALL NOT DAMAGE THE RETRO-REFLECTIVITY OF THE SIGN FACE NOR SHALL THE SIGN COVERING BE ALLOWED TO DETERIORATE. TREES AND SHRUBS WITHIN THE EXISTING RIGHT OF WAY OR INTERFERING WITH VISIBILITY OF PROPOSED DETOURS SIGNS SHALL BE TRIMMED. PAYMENT FOR COVERING SIGNS AND TRIMMING FOR VISIBILITY WILL BE MADE UNDER ITEM 641.1100 - TRAFFIC CONTROL, ALL-INCLUSIVE.DETOUR ROUTE CONFIRMATIONS SIGNS ARE NEEDED AFTER EACH MAJOR INTERSECTION THROUGHOUT THE DETOUR ROUTE. ALSO, FOLLOW-UP SIGNS SHOULD BE INSTALLED EVERY MILE OR TWO ALONG THE ROUTE IN BOTH DIRECTIONS OF TRAVEL. DETOUR ROUTE CONFIRMATION ROUTE MARKERS SHALL BE INSTALLED IMMEDIATELY FOLLOWING EACH TURN AND AT ALL LOCATIONS ALONG DETOUR WHERE ROUTE MARKERS EXIST FOR THE PARENT ROUTE

5. PCMS BOARDS SHALL BE PLACED 14-DAYS PRIOR TO THE START OF BCP AT LOCATIONS SHOWN. DURING THE BCP, PCMS SIGNS SHALL BE UPDATED TO THE PHASING SHOWN. WHEN MOUNTING A PCMS ON A TRAILER, A LARGE TRUCK, OR A SERVICE PATROL TRUCK, THE BOTTOM OF THE MESSAGE SIGN SHALL BE A MINIMUM OF 7 FEET ABOVE THE ROADWAY IN URBAN AREAS AND 5 FEET ABOVE THE ROADWAY IN RURAL AREAS WHEN IT IS IN OPERATING MODE.

6. BICYCLE ACCOMMODATIONS SHALL BE MADE TO ENSURE THAT OBSTACLES, EQUIPMENT, CONSTRUCTION MATERIALS, TRAFFIC CONTROL DEVICES, ETC. DO NOT ENCROACH INTO CYCLE ROUTES OF TRAVEL. MAINTAIN CYCLE ROUTES THAT THEY ARE FREE OF RUTS, SAND AND MUD.

SCALE 1" = 6,000'
6,000 0 6,000

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210detour
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
REGIONAL DETOUR SHEET

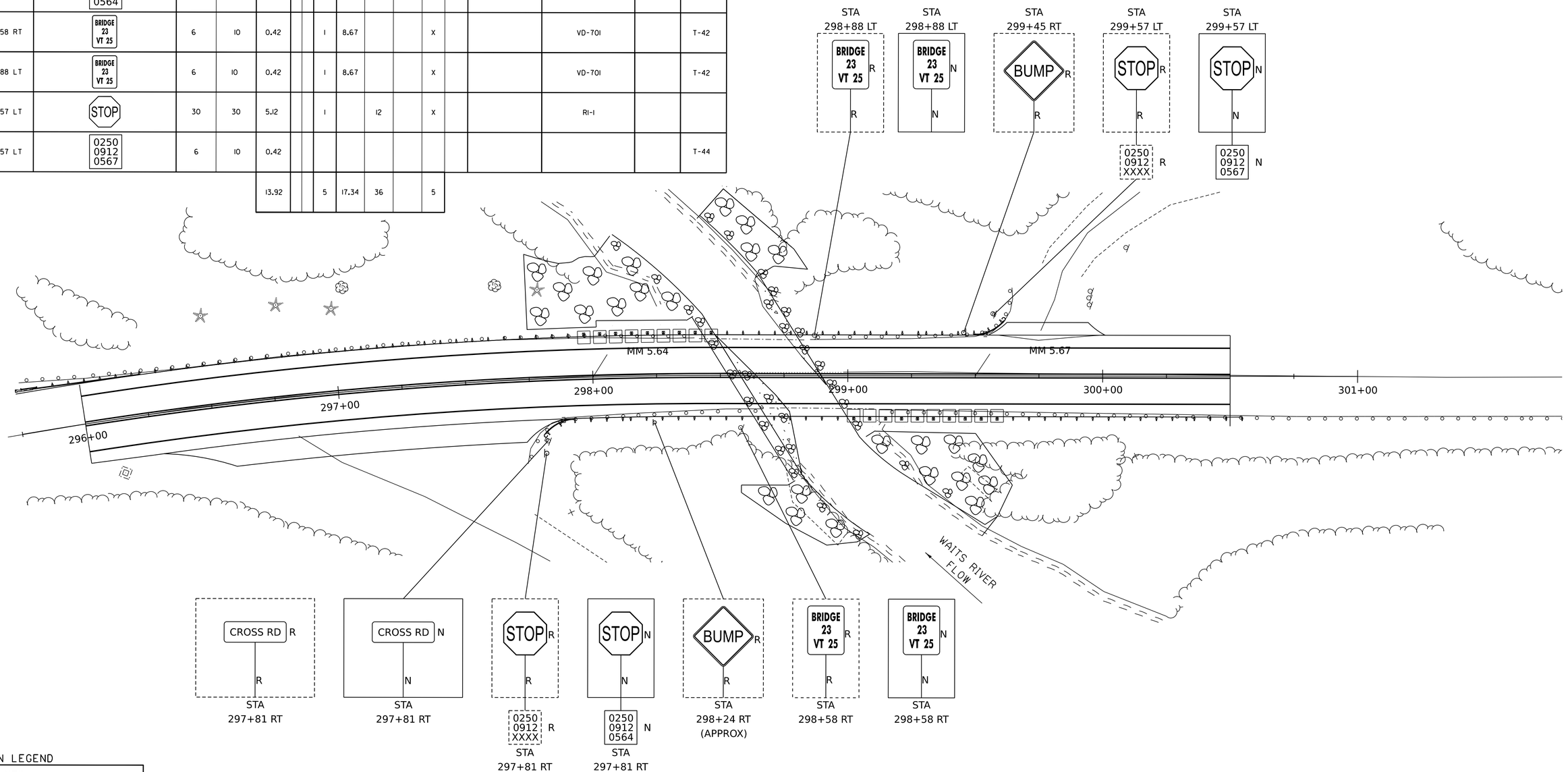
PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: C. BURRALL
SHEET 20 OF 47

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS		NEW SIGN	EXIST POST		NEW SIGN POSTS							REMARKS	SIGN DETAIL	
							NO. OF POSTS	SQUARE STEEL (in)			ANCHOR	SLEEVE	TUBULAR STEEL (in)		DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
		WIDTH (in)	HEIGHT (in)	"A"	RETAIN	SALVAGE		1.75	2.0	2.5			3.0			
								1.88	lb/ft 2.42	3.35			lb/ft 7.6			
297+81 RT	CROSS RD	24	12	2.0			1		12		X			D3-1		
297+81 RT	STOP	30	30	5.12			1		12		X			R1-1		
297+81 RT	0250 0912 0564	6	10	0.42												T-44
298+58 RT	BRIDGE 23 VT 25	6	10	0.42			1	8.67			X			W8-7D1		T-42
298+88 LT	BRIDGE 23 VT 25	6	10	0.42			1	8.67			X			W8-7D1		T-42
299+57 LT	STOP	30	30	5.12			1		12		X			R1-1		
299+57 LT	0250 0912 0567	6	10	0.42												T-44
				13.92			5	17.34	36		5					

ITEM	BEGIN STA	END STA	OFFSET
4 INCH YELLOW LINE, WATERBOME PAINT	296+00	300+50	CL
4 INCH WHITE LINE, WATERBORNE PAINT	296+00	300+50	LT AND RT

VT STATE PLANE GRID

N



SIGN LEGEND

N = NEW
R = REMOVE
R+R = REMOVE + RESET
RET = RETAIN

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

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: sl9b210sign.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
SIGNS & LINE LAYOUT

PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: A. MANN
SHEET 21 OF 47

SOIL CLASSIFICATION

AASHTO

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

ROCK QUALITY DESIGNATION

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

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN 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) N	DESCRIPTIVE TERM	CONSISTENCY (COHESIVE SOILS) 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 1⅜" 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 1⅛"
BX	Core Size 1⅝"
NX	Core Size 2 ⅛"
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

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.

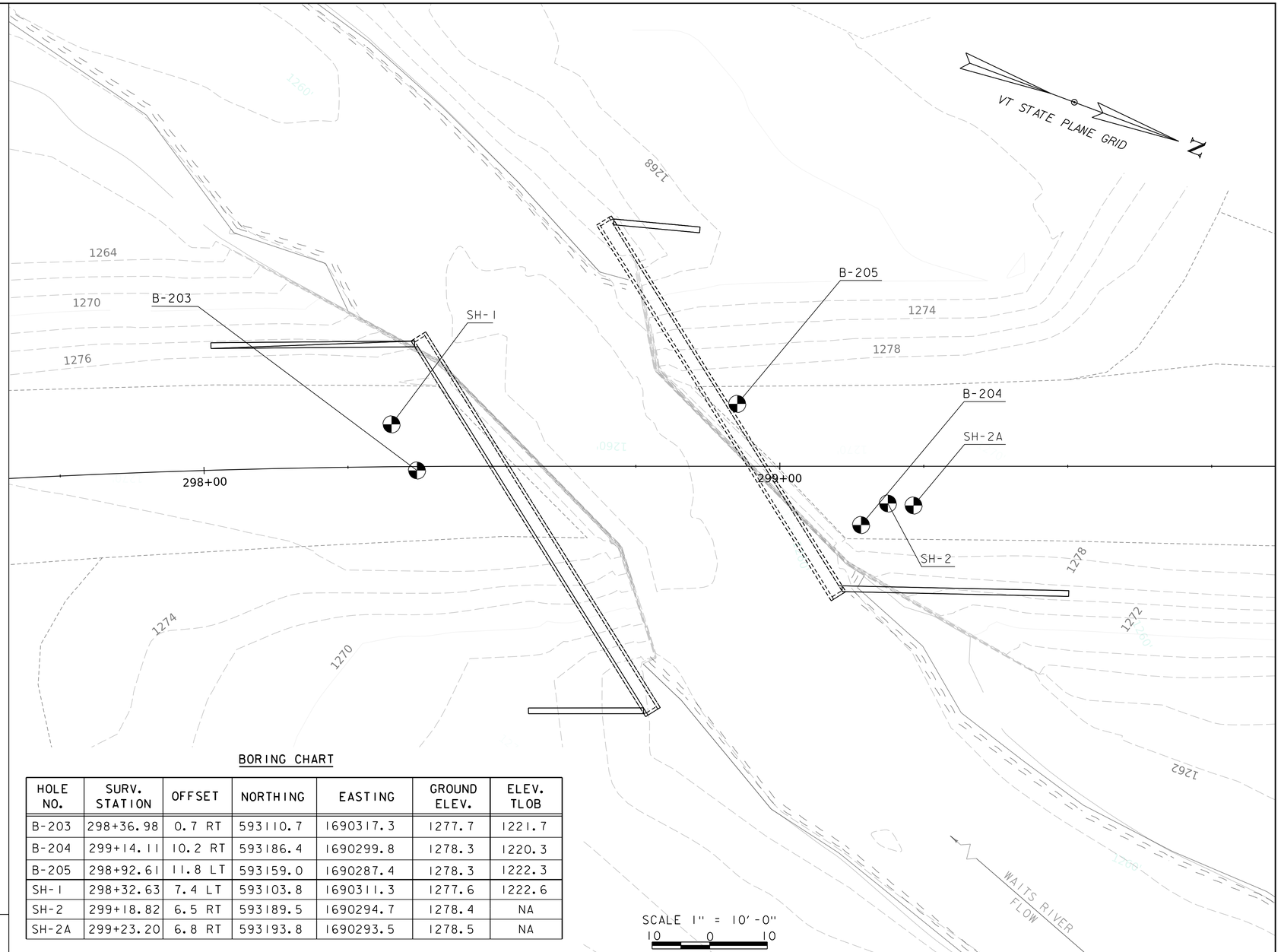
MUCK - Soft organic soil (containing > 10% organic material.

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.



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

BORING CHART

HOLE NO.	SURV. STATION	OFFSET	NORTHING	EASTING	GROUND ELEV.	ELEV. TLOB
B-203	298+36.98	0.7 RT	593110.7	1690317.3	1277.7	1221.7
B-204	299+14.11	10.2 RT	593186.4	1690299.8	1278.3	1220.3
B-205	298+92.61	11.8 LT	593159.0	1690287.4	1278.3	1222.3
SH-1	298+32.63	7.4 LT	593103.8	1690311.3	1277.6	1222.6
SH-2	299+18.82	6.5 RT	593189.5	1690294.7	1278.4	NA
SH-2A	299+23.20	6.8 RT	593193.8	1690293.5	1278.5	NA

GENERAL NOTES

1. The subsurface explorations shown herein were made between 8/26/2025 and 9/4/2025 by the Agency and 3/7/2023 to 3/13/2023 by the Consultant.
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: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: sl9b210boring.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
BORING LAYOUT

PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: A. MANN
SHEET 22 OF 47

VERMONT AGENCY OF TRANSPORTATION

HIGHWAY DIVISION
CONSTRUCTION MATERIALS BUREAU
GEOTECHNICAL ENGINEERING SECTION

SOIL BORING

Topsham
BF 031-1(13)
VT 25 Bridge 23

Boring No.: B-203
Page No.: 1 of 3
Pin No.: 19B210
Checked By: MNM

Boring Crew: McGinley, Lubas, Degener
Date Started: 09/03/2025 Date Finished: 09/04/2025
Coordinates: N:591310.7, E:1690317.3
Station: 298+56 Offset: 7.5 ft
Ground Elevation: 1277.7 ft

	Casing	Sampler
Type:	WB,NW	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:	Acker Renegade	C_E = 1.3

Groundwater Observations

Date	Depth (ft)	Status
09/04/25	6.6'	After Drilling (AD)

Depth (ft)	Graphic Log	AASHTO Classification	Material Description and Notes	Field Data: Recovery (ft) (%)	Field Data: Blow Counts (N-Value)	Field Data: Run Number	Lab Data: Moisture Content (%)	Lab Data: Gravel (%)	Lab Data: Sand (%)	Lab Data: Fines (%)
			0.0 ft - 0.8 ft, Field Note: ASPHALT							
			8.0 ft - 10.0 ft, Field Note: Roller rock clean out barrel used.							
			10.0 ft - 12.0 ft, Field Description: Dry to Moist, Brown, Medium Dense, SAND and GRAVEL	0.7	7-8-4-5 (12)					
			18.5 ft - 20.0 ft, Field Note: Roller rock clean out barrel used.							
			20.0 ft - 21.5 ft, Field Description: Dry to Moist, Brown, Medium Grained, SAND and GRAVEL, trace Silt 1.0 in of wood in sample Refusal at 21.5 ft. 10 blows, no movement	0.9	10-13-17-10/0" (30)					
			26.0 ft - 28.0 ft, Field Note: Clean out barrel used. Concrete found in clean out barrel.							

BOTTOM OF CAP ABUT. I
EL= 1255.00

Notes:
1. Stratification lines represent approximate boundary between material types. Transitions 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. Water levels are likely to vary.

VERMONT AGENCY OF TRANSPORTATION

HIGHWAY DIVISION
CONSTRUCTION MATERIALS BUREAU
GEOTECHNICAL ENGINEERING SECTION

SOIL BORING

Topsham
BF 031-1(13)
VT 25 Bridge 23

Boring No.: B-203
Page No.: 2 of 3
Pin No.: 19B210
Checked By: MNM

Boring Crew: McGinley, Lubas, Degener
Date Started: 09/03/2025 Date Finished: 09/04/2025
Coordinates: N:591310.7, E:1690317.3
Station: 298+56 Offset: 7.5 ft
Ground Elevation: 1277.7 ft

	Casing	Sampler
Type:	WB,NW	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:	Acker Renegade	C_E = 1.3

Groundwater Observations

Date	Depth (ft)	Status
09/04/25	6.6'	After Drilling (AD)

Depth (ft)	Graphic Log	AASHTO Classification	Material Description and Notes	Field Data: Recovery (ft) (%)	Field Data: Blow Counts (N-Value)	Field Data: Run Number	Lab Data: Moisture Content (%)	Lab Data: Gravel (%)	Lab Data: Sand (%)	Lab Data: Fines (%)
			28.0 ft - 30.0 ft, Field Note: Roller rock clean out barrel used.							
			30.0 ft - 31.8 ft, Field Description: Dry to Moist, Gray, Very Dense, GRAVEL, some Silt, trace fine grained Sand, Refusal at 31.8 ft. 10 blows, no movement. 1.0 ft of wash in sampler. 31.8 ft, Field Note: Consistent material, casing was spun to bedrock.	0.5	13-22-25-10/4" (47)					
			46.0 ft - 48.0 ft, Field Note: Roller rock clean out barrel used.							
			52.0 ft - 56.0 ft, Field Note: Roller rock clean out barrel used.							

Notes:
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PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210boring.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
BORING LOGS 1

PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: C. BURRALL
SHEET 23 OF 47

VERMONT
AGENCY OF TRANSPORTATION

HIGHWAY DIVISION
CONSTRUCTION MATERIALS BUREAU
GEOTECHNICAL ENGINEERING SECTION

SOIL BORING

Topsham
BF 031-1(13)
VT 25 Bridge 23

Boring No.: B-203
Page No.: 3 of 3
Pin No.: 19B210
Checked By: MNM

Boring Crew: McGinley, Lubas, Degener
Date Started: 09/03/2025 Date Finished: 09/04/2025
Coordinates: N:591310.7, E:1690317.3
Station: 298+56 Offset: 7.5 ft
Ground Elevation: 1277.7 ft

	Casing	Sampler
Type:	WB,NW	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:	Acker Renegade	C_E = 1.3

Groundwater Observations

Date	Depth (ft)	Status
09/04/25	6.6'	After Drilling (AD)

ESTIMATED PILE TIP ABUT. I
EL= 1209.00

Depth (ft)	Graphic Log	AASHTO Classification	Material Description and Notes	Field Data: Recovery (ft) (%)	Field Data: Blow Counts (N-Value)	Field Data: Run Number	Lab Data: Moisture Content (%)	Lab Data: Gravel (%)	Lab Data: Sand (%)	Lab Data: Fines (%)
60			56.0 ft, Field Note: Casing suspected to be on bedrock. 56.3 ft - 66.3 ft, Bluish-gray micaceous quartz rich METALIMESTONE, interbedded with dark-gray to silvery-gray carbonaceous and sulfidic garnet-biotite-muscovite-quartz SCHIST. Moderately weathered from 61.9 ft to 62.5 ft, rust stains on natural breaks. Close to moderately close joint spacing. Moderately hard, fresh to very slightly weathered. NXDC. RQD=64.0%	7.5 (75%)		R1				
65										
70			66.3 ft - 76.3 ft, Dark-gray to silvery-gray carbonaceous and sulfidic garnet-biotite-muscovite-quartz SCHIST, interbedded with bluish-gray micaceous quartz rich METALIMESTONE, and white to gray QUARTZITE. 76.3 ft to 76.6 ft rock is rust stained with moderately severe weathering. Moderate to slight rust staining throughout rest of core run along natural breaks. Moderately close to close joint spacing. Moderately hard, fresh to very slightly weathered. NXDC. RQD=61.0%	8.3 (83%)		R2				
75										

End of Boring at 76.3 ft.
Hole collapse at 7.2 ft.

Notes:
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PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210boring.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
BORING LOGS 2

PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: C. BURRALL
SHEET 24 OF 47

VERMONT AGENCY OF TRANSPORTATION

HIGHWAY DIVISION
CONSTRUCTION MATERIALS BUREAU
GEOTECHNICAL ENGINEERING SECTION

SOIL BORING

Topsham
BF 031-1(13)
VT 25 Bridge 23

Boring No.: B-204
Page No.: 1 of 3
Pin No.: 19B210
Checked By: MNM

Boring Crew: McGinley, Thurston, Degener
Date Started: 08/19/2025 Date Finished: 08/26/2025
Coordinates: N:593186.4, E:1690299.8
Station: 299+14 Offset: 10.3 ft
Ground Elevation: 1278.3 ft

	Casing	Sampler
Type:	Wash Bore	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/ NWJ	
Rig:	Acker Renegade	C_E = 1.3

Groundwater Observations

Date	Depth (ft)	Status
08/20/25	13.9'	At Time of Drilling (ATD)
08/25/25	7.5'	Before Drilling
08/26/25	14.8'	Before Drilling

Depth (ft)	Graphic Log	AASHTO Classification	Material Description and Notes	Field Data: Recovery (ft) (%)	Field Data: Blow Counts (N-Value)	Field Data: Run Number	Lab Data: Moisture Content (%)	Lab Data: Gravel (%)	Lab Data: Sand (%)	Lab Data: Fines (%)
			0.0 ft - 5.0 ft, Field Note: Hammered 5.0 ft of casing. Telescoped 4.0 in casing inside of 6.0 in casing with advancer.							
5			4.8 ft, Field Note: Drilled through suspected boulder or cobble at 4.8 ft. 5.0 ft - 8.0 ft, Field Description: Dry to Moist, Grayish Brown, Dense, Fine to Medium Grained, SAND and GRAVEL. 0.2 ft of wash in sample.	1.2	17-11-9-7 (20)					
10			9.0 ft - 11.0 ft, Field Description: Dry to Moist, Grayish Brown, Loose, SAND and GRAVEL Field Note: Casing was advanced to 9.0 ft instead of 10.0 ft.	0.7	3-1-WOH-1 (1)					
15			15.0 ft - 17.0 ft, Field Description: Dry to Moist, Grayish Brown, Medium Dense, Gap Graded SAND and GRAVEL	0.5	3-6-7-5 (13)					
20			20.0 ft, Field Note: Lost water return out of top of boring. 20.0 ft - 22.0 ft, Field Description: Moist, Gray, Loose, Fine Grained, SAND and GRAVEL	0.6	5-3-WOH-1 (3)					

BOTTOM OF CAP ABUT. 2
EL= 1255.00

Notes:
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3. Water level readings have been made at times and under conditions stated. Water levels are likely to vary.

VERMONT AGENCY OF TRANSPORTATION

HIGHWAY DIVISION
CONSTRUCTION MATERIALS BUREAU
GEOTECHNICAL ENGINEERING SECTION

SOIL BORING

Topsham
BF 031-1(13)
VT 25 Bridge 23

Boring No.: B-204
Page No.: 2 of 3
Pin No.: 19B210
Checked By: MNM

Boring Crew: McGinley, Thurston, Degener
Date Started: 08/19/2025 Date Finished: 08/26/2025
Coordinates: N:593186.4, E:1690299.8
Station: 299+14 Offset: 10.3 ft
Ground Elevation: 1278.3 ft

	Casing	Sampler
Type:	Wash Bore	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/ NWJ	
Rig:	Acker Renegade	C_E = 1.3

Groundwater Observations

Date	Depth (ft)	Status
08/20/25	13.9'	At Time of Drilling (ATD)
08/25/25	7.5'	Before Drilling
08/26/25	14.8'	Before Drilling

Depth (ft)	Graphic Log	AASHTO Classification	Material Description and Notes	Field Data: Recovery (ft) (%)	Field Data: Blow Counts (N-Value)	Field Data: Run Number	Lab Data: Moisture Content (%)	Lab Data: Gravel (%)	Lab Data: Sand (%)	Lab Data: Fines (%)
			25.0 ft - 25.0 ft, Field Note: Refusal at 25.0 ft. 10 blows, no movement. NO RECOVERY. Suspected boulder or cobble.	0	10/0" (R)					
30			30.0 ft - 32.0 ft, Field Description: Dry to Moist, Gray, Very Dense, Fine Grained, SAND and GRAVEL	0.9	9-19-14-15 (33)					
			32.0 ft, Field Note: Casing advancer stuck in casing. Casing was spun below the road. Casing was pulled at 32.0 ft. 08/19/2025:Drilling operations concluded for the day.							
35			08/20/2025: Last 10.0 ft of casing was filled with water. Discharge reached the river through wingwall crack. Unexplained water, with possible flowing sand. Casing was hammered to 30.0 ft. Roller rock clean out barrel was used 25.0 ft-35.0 ft.	0.8	28-37-29-32 (66)					
			35.0 ft - 38.0 ft, Field Description: Dry to Moist, Gray, Very Dense, Fine to Coarse Grained Gap Graded, SAND and GRAVEL 1.2 ft of wash in sample. Mud was added to drilling water.							
40			40.0 ft - 40.9 ft, Field Description: Dry to Moist, Very Dense, Fine to Coarse Grained Gap Graded SAND, some Gravel, Refusal at 40.9 ft. 50 blows in 6 in.	0.4	6-50/5" (R)					
			42.0 ft - 45.0 ft, Field Note: Roller rock clean out barrel used.							
45			45.0 ft - 45.4 ft, Field Description: Very Dense, Fine to Coarse Grained Gap Graded, SAND and GRAVEL 0.4 ft of wash in sample. Refusal at 45.4 ft. 50 blows in 6 in.	0.3	50/5" (R)					
			47.0 ft - 53.0 ft, Field Note: 08/21/2025: Crew switched to NWJ rod type. Roller rock clean out barrel was used.							

Notes:
1. Stratification lines represent approximate boundary between material types. Transitions may be gradual.
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3. Water level readings have been made at times and under conditions stated. Water levels are likely to vary.

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210boring.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
BORING LOGS 3

PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: C. BURRALL
SHEET 25 OF 47

VERMONT AGENCY OF TRANSPORTATION

HIGHWAY DIVISION
CONSTRUCTION MATERIALS BUREAU
GEOTECHNICAL ENGINEERING SECTION

SOIL BORING

Topsham
BF 031-1(13)
VT 25 Bridge 23

Boring No.: B-204
Page No.: 3 of 3
Pin No.: 19B210
Checked By: MNM

Boring Crew: McGinley, Thurston, Degener
Date Started: 08/19/2025 Date Finished: 08/26/2025
Coordinates: N:593186.4, E:1690299.8
Station: 299+14 Offset: 10.3 ft
Ground Elevation: 1278.3 ft

	Casing	Sampler
Type:	Wash Bore	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/ NWJ	
Rig:	Acker Renegade	C_E = 1.3

Groundwater Observations

Date	Depth (ft)	Status
08/20/25	13.9'	At Time of Drilling (ATD)
08/25/25	7.5'	Before Drilling
08/26/25	14.8'	Before Drilling

Depth (ft)	Graphic Log	AASHTO Classification	Material Description and Notes	Field Data: Recovery (ft) (%)	Field Data: Blow Counts (N-Value)	Field Data: Run Number	Lab Data: Moisture Content (%)	Lab Data: Gravel (%)	Lab Data: Sand (%)	Lab Data: Fines (%)
			47.0 ft - 53.0 ft, Field Note: 08/21/2025: Crew switched to NWJ rod type. Roller rock clean out barrel was used.							
55			53.7 ft - 58.7 ft, Probable BOULDERS. Not competent bedrock. NXDC. RQD=0.0% Field Note: Soil on pieces of core, suspected boulder or cobble.	1.3 (26%)		R1				
60			58.7 ft - 63.7 ft, Bluish-gray micaceous quartz rich METALIMESTONE, interbedded with dark-gray to silvery-gray carbonaceous sulfidic-muscovite-biotite-quartz SCHIST. Rust stains throughout along joint surfaces. Very close to close joint spacing. Moderately hard, moderately weathered. NXDC. RQD=0.0%	2.3 (46%)		R2				
65			63.7 ft - 68.7 ft, Bluish-gray micaceous quartz rich METALIMESTONE, interbedded with dark-gray to silvery-gray carbonaceous sulfidic-muscovite-biotite-quartz SCHIST. Moderately weathered and rust stained along joint surfaces from 64.7 ft to 66.9 ft and again from 65.6 ft to 66.3 ft. Close joint spacing. Moderately hard, slightly to moderately weathered. NXDC. RQD=36.0%	4.3 (86%)		R3				
70			68.7 ft - 72.7 ft, Bluish-gray micaceous quartz rich METALIMESTONE. Rust stains along joint surfaces. Moderately close joint spacing. Moderately hard, very slightly weathered. NXDC. RQD=76.0% Field Note: Recovery greater than run.	4 (100%)		R4				
			End of Boring at 72.7 ft. Backfill with gravel and cold patch 0.0 ft-5.0 ft. Backfill with grout 5.0 ft-23.0 ft. Backfill with bentonite 23.0 ft-72.7 ft.							

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PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210boring.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
BORING LOGS 4

PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: C. BURRALL
SHEET 26 OF 47

VERMONT AGENCY OF TRANSPORTATION

HIGHWAY DIVISION
CONSTRUCTION MATERIALS BUREAU
GEOTECHNICAL ENGINEERING SECTION

SOIL BORING

Topsham
BF 031-1(13)
VT 25 Bridge 23

Boring No.: B-205
Page No.: 1 of 3
Pin No.: 19B210
Checked By: MNM

Boring Crew: McGinley, Lubas, Thurston, Degener
Date Started: 08/27/2025 Date Finished: 08/28/2025
Coordinates: N:593159, E:1690287.4
Station: 298+93 Offset: -10.9 ft
Ground Elevation: 1278.3 ft

	Casing	Sampler
Type:	Wash Bore	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/ NWJ	
Rig:	Acker Renegade	C_E = 1.3

Groundwater Observations

Date	Depth (ft)	Status
08/28/25	12.9'	After Drilling (AD)

Depth (ft)	Graphic Log	AASHTO Classification	Material Description and Notes	Field Data: Recovery (ft) (%)	Field Data: Blow Counts (N-Value)	Field Data: Run Number	Lab Data: Moisture Content (%)	Lab Data: Gravel (%)	Lab Data: Sand (%)	Lab Data: Fines (%)
			0.0 ft - 0.8 ft: ASPHALT							
5			5.0 ft - 7.0 ft, Field Description: Dry to Moist, Brown, Medium Dense, Gap Graded SAND, some Gravel, trace Silt, 6 in diameter casing was spun to 5.0 ft to control drilling backwash.	1.4	10-10-10-10 (20)					
10			10.0 ft - 10.9 ft, Field Description: Dry to Moist, Gray, Very Dense, GRAVEL and Medium Grained SAND Refusal at 10.9 ft. 50 blows in 6.0 in.	0.2	10-50/5" (R)					
			13.5 ft - 15.0 ft, Field Note: Clean out barrel used.							
15			15.0 ft - 16.8 ft, Field Description: Dry to Moist, Gray, Very Dense, Well-graded, SAND and GRAVEL, trace Silt Refusal at 16.8 ft. 10 blows, no movement.	1.2	3-5-23-10/4" (28)					
			16.8 ft - 20.0 ft, Field Note: Clean out barrel used.							
20			20.0 ft - 20.4 ft, Field Description: Dry to Moist, Gray, Very Dense, GRAVEL and Medium Grained SAND Refusal at 20.4 ft. 50 blows in 6 in.	0.4	10/5" (R)					
25			26.0 ft - 28.0 ft, Field Note: Clean out barrel used.							

BOTTOM OF CAP ABUT. 2
EL. = 1255.00

Notes:
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VERMONT AGENCY OF TRANSPORTATION

HIGHWAY DIVISION
CONSTRUCTION MATERIALS BUREAU
GEOTECHNICAL ENGINEERING SECTION

SOIL BORING

Topsham
BF 031-1(13)
VT 25 Bridge 23

Boring No.: B-205
Page No.: 2 of 3
Pin No.: 19B210
Checked By: MNM

Boring Crew: McGinley, Lubas, Thurston, Degener
Date Started: 08/27/2025 Date Finished: 08/28/2025
Coordinates: N:593159, E:1690287.4
Station: 298+93 Offset: -10.9 ft
Ground Elevation: 1278.3 ft

	Casing	Sampler
Type:	Wash Bore	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/ NWJ	
Rig:	Acker Renegade	C_E = 1.3

Groundwater Observations

Date	Depth (ft)	Status
08/28/25	12.9'	After Drilling (AD)

Depth (ft)	Graphic Log	AASHTO Classification	Material Description and Notes	Field Data: Recovery (ft) (%)	Field Data: Blow Counts (N-Value)	Field Data: Run Number	Lab Data: Moisture Content (%)	Lab Data: Gravel (%)	Lab Data: Sand (%)	Lab Data: Fines (%)
			28.0 ft - 30.0 ft, Field Note: Roller cone clean out barrel on NWJ rod type due to poor clean out.							
30			30.0 ft, Field Note: Switched to 10.0 ft sampling intervals due to consistent material. 30.0 ft - 30.9 ft, Field Description: Dry to Moist, Gray, Very Dense, GRAVEL, some Fine Grained Sand, trace Silt 1.0 ft of wash in sample. Refusal at 30.9 ft. 50 blows in 6.0 in.	0.2	23-50/5" (R)					
35			38.0 ft - 40.0 ft, Field Note: 08/28/2025: Clean out barrel used.							
40			40.0 ft - 40.1 ft, Field Description: Moist, Gray, Very Dense, Poorly Graded, Medium Grained SAND and GRAVEL Refusal at 40.1 ft. 10 blows, no movement.	0.3	10/2" (R)					
45			48.0 ft - 50.0 ft: Clean our barrel used.							
50			50.0 ft - 50.6 ft, Field Description: Dry to Moist, Grayish Brown, Very Dense, Poorly Graded, Fine Grained SAND and GRAVEL, little Silt Refusal at 50.6 ft. 10 blows, no movement.	0.3	8-10/2" (R)					
55										

Notes:
1. Stratification lines represent approximate boundary between material types. Transitions 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. Water levels are likely to vary.

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210boring.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
BORING LOGS 5

PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: C. BURRALL
SHEET 27 OF 47

VERMONT
AGENCY OF TRANSPORTATION

HIGHWAY DIVISION
CONSTRUCTION MATERIALS BUREAU
GEOTECHNICAL ENGINEERING SECTION

SOIL BORING

Topsham
BF 031-1(13)
VT 25 Bridge 23

Boring No.: B-205
Page No.: 3 of 3
Pin No.: 19B210
Checked By: MNM

Boring Crew: McGinley, Lubas, Thurston, Degener
Date Started: 08/27/2025 Date Finished: 08/28/2025
Coordinates: N:593159, E:1690287.4
Station: 298+93 Offset: -10.9 ft
Ground Elevation: 1278.3 ft

	Casing	Sampler
Type:	Wash Bore	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/ NWJ	
Rig:	Acker Renegade	C_E = 1.3

Groundwater Observations

Date	Depth (ft)	Status
08/28/25	12.9'	After Drilling (AD)

ESTIMATED PILE TIP ABUT. 2
EL= 1208.00

Depth (ft)	Graphic Log	AASHTO Classification	Material Description and Notes	Field Data: Recovery (ft) (%)	Field Data: Blow Counts (N-Value)	Field Data: Run Number	Lab Data: Moisture Content (%)	Lab Data: Gravel (%)	Lab Data: Sand (%)	Lab Data: Fines (%)
60			56.3 ft, Field Note: Casing won't advance. 56.3 ft - 66.3 ft, Bluish-gray micaceous quartz rich METALIMESTONE. Rust stains along joint surfaces. Moderately close joint spacing. Moderately hard, fresh to very slightly weathered. NXDC. RQD=53.0%	6.6 (66%)		R1				
65										
70			66.3 ft - 76.3 ft, Dark-gray to silvery-gray carbonaceous-sulfidic-garnet-biotite-muscovite-quartz SCHIST, interbedded with bluish-gray micaceous quartz rich METALIMESTONE, and white QUARTZITE. Moderately weathered from 67.8 ft to 67.95 ft and again from 70.95 ft to 71.45 ft, rust stains along joint surfaces. Close to moderately close joint spacing. Moderately hard, fresh to very slightly weathered. NXDC. RQD=71.0% Field Note: Voids 70.8 ft-71.8 ft.	8.7 (87%)		R2				
75										
			End of Boring at 76.3 ft. Hole Collapse at 48.5 ft.							

Notes:
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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. Water levels are likely to vary.

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210boring.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
BORING LOGS 6

PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: C. BURRALL
SHEET 28 OF 47

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

BORING LOG

TOPSHAM
BF 031-1(13)
Bridge No. 23 on VT Route 25

Boring No.: **SH-1**
Page No.: 1 of 3
Pin No.: 19b210
Checked By: S. Kelley

Boring Crew: A. Lulias (Sanborn Head), P. Schofield (NEBC)
Date Started: 3/07/23 Date Finished: 3/09/23
VTSPG NAD83: N 593103.8 ft E 1690311.3 ft
Station: 298 + 32 Offset: LT 8.7
Ground Elevation: 1277.5 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	2 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:		Auto
Rig:MOBILE B-48 TRUCK	C_E = 1.3	

Groundwater Observations

Date	Depth (ft)	Notes
03/08/23	21.2	Stabilized 16 hours
03/09/23	21.4	Stabilized 16 hours

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 %
		Field Note:, Approximately 6 inches of ASPHALT								
		A-1-b, GrSa, brn, Moist, Rec. = 0.7 ft, **-FILL-**				26-45-45 (90)	9.6	35.4	48.9	15.7
5		A-1-b, GrSa, brn, Moist, Rec. = 0.8 ft, **-FILL-**				2-10-8-15 (18)	10.4	43.0	46.4	10.6
		A-1-b, GrSa, brn, Moist, Rec. = 0.7 ft, **-FILL-**				15-8-6-5 (14)	13.5	41.5	55.4	3.1
		A-1-b, GrSa, brn, Moist, Rec. = 0.6 ft, **-FILL-**				6-3-3-3 (6)	12.6	26.8	62.4	10.8
10		A-2-4, Sa, brn, Moist, Rec. = 0.7 ft, **-FILL-**				4-3-4-3 (7)	14.8	18.6	71.8	9.6
		Field Note:, No recovery., **-FILL-**				6-17-15-15 (32)				
15		A-1-b, GrSa, brn-gry, Moist, Rec. = 0.6 ft, **-FILL-**				16-9-6-5 (15)	14.3	38.0	57.7	4.3
		Field Note:, No recovery., **-FILL-**				4-1-1-1 (2)				
20		A-1-b, GrSa orange staining, gry-brn, Wet, Rec. = 0.7 ft				3-4-5-5 (9)	15.8	35.3	56.5	8.2
		A-1-b, GrSa, gry-brn, Wet, Rec. = 0.7 ft				3-4-5-5 (9)	11.3	38.2	49.8	12.0

BOTTOM OF CAP ABUT. I
EL = 1255.00

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.
4. Soil descriptions are based on modified burmister system when no soil laboratory testing was performed. AASHTO classifications are included where soil laboratory testing was performed.

BORING LOG 5696.00 LOGS.GPJ VERMONT AOT.GDT 5/17/23

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

BORING LOG

TOPSHAM
BF 031-1(13)
Bridge No. 23 on VT Route 25

Boring No.: **SH-1**
Page No.: 2 of 3
Pin No.: 19b210
Checked By: S. Kelley

Boring Crew: A. Lulias (Sanborn Head), P. Schofield (NEBC)
Date Started: 3/07/23 Date Finished: 3/09/23
VTSPG NAD83: N 593103.8 ft E 1690311.3 ft
Station: 298 + 32 Offset: LT 8.7
Ground Elevation: 1277.5 ft

Type: WASH BORE / SS
I.D.: 4 in / 2 in
Hammer Wt: N.A. / 140 lb.
Hammer Fall: N.A. / 30 in.
Hammer/Rod Type: Auto
Rig:MOBILE B-48 TRUCK C_E = 1.3

Groundwater Observations

Date	Depth (ft)	Notes
03/08/23	21.2	Stabilized 16 hours
03/09/23	21.4	Stabilized 16 hours

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 %
		Field Note:, Difficulty advancing casing at approximately 28 ft bgs. Driller indicated apparent boulder from approximately 27.5 to 29 ft bgs.								
30		A-1-b, SaGr, gry, Wet, Rec. = 0.7 ft				8-13-12-17 (25)	7.7	46.7	37.1	16.2
		Field Note:, Increase in drilling difficulty at approximately 33 ft bgs.								
35		A-2-4, SiGrSa, gry, Wet, Rec. = 0.8 ft, **-TILL-**				6-19-38-35 (57)	8.3	32.2	41.7	26.1
40		A-2-4, SiGrSa, gry, Moist, Rec. = 0.7 ft, **-TILL-**				73-84-100/2" (184)	8.0	29.6	45.7	24.7
45		Field Note:, Difficulty advancing roller bit at approximately 40.5 feet bgs. Advanced roller bit to approximately 41.5 ft bgs prior to coring. Core barrel advanced from approximately 41.5 to 46.5 ft bgs through apparent boulder and cobbly material.								
		Field Note:, Drillers advanced 3" diameter casing and roller bit through 4" casing (bottom 39 feet bgs) and through boulder.								
		Field Note:, Difficulty advancing 3" casing at approximately 48 feet bgs.								
50		A-1-b, GrSa pulverized rock, white, Moist, Rec. = 0.5 ft **-TILL-**				95-100/2"	10.6	44.1	44.3	11.6
		Field Note:, Advanced roller bit through apparent boulder at approximately 50.5 ft bgs.								

Notes:
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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.
4. Soil descriptions are based on modified burmister system when no soil laboratory testing was performed. AASHTO classifications are included where soil laboratory testing was performed.

BORING LOG 5696.00 LOGS.GPJ VERMONT AOT.GDT 5/17/23

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210bor_logs
PROJECT LEADER: C. BURRALL
DESIGNED BY: A. VAN BUSKIRK
BORING LOGS 7

PLOT DATE: 28-SEP-2026
DRAWN BY: A. VAN BUSKIRK
CHECKED BY: C. BURRALL
SHEET 29 OF 47

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

BORING LOG

TOPSHAM
BF 031-1(13)
Bridge No. 23 on VT Route 25

Boring No.: **SH-1**
Page No.: 3 of 3
Pin No.: 19b210
Checked By: S. Kelley

Boring Crew: A. Lulias (Sanborn Head), P. Schofield (NEBC)
Date Started: 3/07/23 Date Finished: 3/09/23
VTSPG NAD83: N 593103.8 ft E 1690311.3 ft
Station: 298 + 32 Offset: LT 8.7
Ground Elevation: 1277.5 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	2 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:		Auto
Rig:MOBILE B-48 TRUCK	C_E = 1.3	

Groundwater Observations

Date	Depth (ft)	Notes
03/08/23	21.2	Stabilized 16 hours
03/09/23	21.4	Stabilized 16 hours

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 %
55		Field Note:, Drilling action indicates top of bedrock at approximately 55 ft bgs.								
60		56.0 ft - 61.0 ft, Gry, Fine-grained PHYLLITE, joints very close to close, shallow to moderately dipping. Moderately soft to moderately hard, Slightly to moderately weathered, Fair rock, moderately fractured to slightly fractured, RMR = 42	C-1	55 (34)	3 3 2.5 2.5 2.7					
65		61.0 ft - 66.0 ft, Gry, Fine-grained PHYLLITE, close joints, near horizontal to shallow. Moderately hard to hard, Fair rock, Moderately weathered to fresh, moderately fractured to slightly fractured, RMR = 50	C-2	70 (53)	5.5 5.5 4 5.2 5.1					
70		Hole stopped @ 66.0 ft								
75										

Notes:
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4. Soil descriptions are based on modified burmister system when no soil laboratory testing was performed. AASHTO classifications are included where soil laboratory testing was performed.

BORING LOG 5696.00 LOGS.GPJ VERMONT AOT.GDT 5/17/23

BOTTOM OF CAP ABUT. 2
EL= 1255.00

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

BORING LOG

TOPSHAM
BF 031-1(13)
Bridge No. 23 on VT Route 25

Boring No.: **SH-2**
Page No.: 1 of 1
Pin No.: 19b210
Checked By: S. Kelley

Boring Crew: A. Lulias (Sanborn Head), P. Schofield (NEBC)
Date Started: 3/09/23 Date Finished: 3/10/23
VTSPG NAD83: N 593189.5 ft E 1690294.7 ft
Station: 299 + 20 Offset: RT 6.9
Ground Elevation: 1278.4 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	2 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:		Auto
Rig:MOBILE B-48 TRUCK	C_E = 1.3	

Groundwater Observations

Date	Depth (ft)	Notes
03/10/23	15.0	Wet samples

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Field Note:, Approximately 6 inches of ASPHALT					
5		A-1-b, SiGrSa, brn, Moist, Rec. = 0.7 ft, **-FILL-**	7-8-8-10 (16)	6.4	34.3	45.3	20.4
10		A-1-b, GrSa, gry-brn, Moist, Rec. = 0.8 ft, **-FILL-** Field Note:, Casing bouncing at approximately 11.5 feet bgs. Driller indicated apparent boulder.	4-4-4-5 (8)	12.0	30.8	51.0	18.2
15		Visual Description:, Very loose GRAVEL, some Sand, trace Silt, gry, Moist, Rec. = 0.2 ft, **-FILL-**	3-1-1-4 (2)				
20		A-1-b, GrSa few organic fragments, gry, Wet, Rec. = 0.4 ft Field Note: Split-spoon sampler bent after sampling. High blow counts due to apparent cobble/boulder.	1-65-18-8 (83)	15.8	28.1	59.4	12.5
25		Hole stopped @ 21.0 ft Remarks: Boring terminated due to broken casing as a result of an apparent boulder at approximately 19 feet.					

Notes:
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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.
4. Soil descriptions are based on modified burmister system when no soil laboratory testing was performed. AASHTO classifications are included where soil laboratory testing was performed.

BORING LOG 5696.00 LOGS.GPJ VERMONT AOT.GDT 5/17/23

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210bor_logs
PROJECT LEADER: C. BURRALL
DESIGNED BY: A. VAN BUSKIRK
BORING LOGS 8

PLOT DATE: 28-SEP-2026
DRAWN BY: A. VAN BUSKIRK
CHECKED BY: C. BURRALL
SHEET 30 OF 47

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

BORING LOG

TOPSHAM
BF 031-1(13)
Bridge No. 23 on VT Route 25

Boring No.: **SH-2A**
Page No.: 1 of 2
Pin No.: 19b210
Checked By: S. Kelley

Boring Crew: A. Lulias (Sanborn Head), P. Schofield (NEBC)
Date Started: 3/10/23 Date Finished: 3/13/23
VTSPG NAD83: N 593193.8 ft E 1690293.5 ft
Station: 299 + 25 Offset: RT 6.9
Ground Elevation: 1278.3 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	5 in	2 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:		Auto
Rig:MOBILE B-48 TRUCK	C_E = 1.3	

Groundwater Observations

Date	Depth (ft)	Notes
03/10/23	19.0	Wet samples

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Approximately 6 inches of ASPHALT, 0.0 ft - 0.5 ft					
		Field Note:, Roller bit and casing advanced to approximately 19 ft bgs.					
5							
		Field Note:, Difficulty advancing roller bit from approximately 9 to 11 feet bgs. Driller indicated apparent boulder.					
10							
15							
20		A-1-b, GrSa, gry, Moist, Rec. = 0.5 ft Field Note: Split-spoon sampler bent while collecting sample S-1. High blow counts due to apparent cobble/boulder.	69-41-7-4 (48)	15.9	24.7	66.1	9.2
		A-1-b, GrSa few Organic particles, gry-brn, MTW, Rec. = 0.9 ft	6-6-4-7 (10)	17.0	21.7	69.0	9.3
25		A-1-b, GrSa orange staining, gry-brn, Wet, Rec. = 1.4 ft	17-21-26-24 (47)	14.2	29.7	61.9	8.4

BOTTOM OF CAP ABUT. 2
EL= 1255.00

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.
4. Soil descriptions are based on modified burmister system when no soil laboratory testing was performed. AASHTO classifications are included where soil laboratory testing was performed.

BORING LOG 5698.00 LOGS.GPJ VERMONT AOT.GDT 5/17/23

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

BORING LOG

TOPSHAM
BF 031-1(13)
Bridge No. 23 on VT Route 25

Boring No.: **SH-2A**
Page No.: 2 of 2
Pin No.: 19b210
Checked By: S. Kelley

Boring Crew: A. Lulias (Sanborn Head), P. Schofield (NEBC)
Date Started: 3/10/23 Date Finished: 3/13/23
VTSPG NAD83: N 593193.8 ft E 1690293.5 ft
Station: 299 + 25 Offset: RT 6.9
Ground Elevation: 1278.3 ft

Type: WASH BORE (Casing) SS (Sampler)
I.D.: 5 in 2 in
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto
Rig:MOBILE B-48 TRUCK C_E = 1.3

Groundwater Observations: 03/10/23 | 19.0 | Wet samples

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
30		Field Note:, No recovery.	100/4" (100)				
		Field Note:, Difficulty advancing roller bit from approximately 29 to 32 feet bgs, driller indicated probable boulder.					
35		Field Note:, Difficulty advancing casing past approximately 36 ft bgs. Apparent boulder between approximately 36 to 37.5 feet bgs. Roller bit advanced to approximately 39 ft bgs, but practical refusal encountered due to casing being out of plumb.					
		Hole stopped @ 39.0 ft					
40		Remarks: Boring terminated due to out of plumb casing as a result of apparent boulders.					
45							
50							

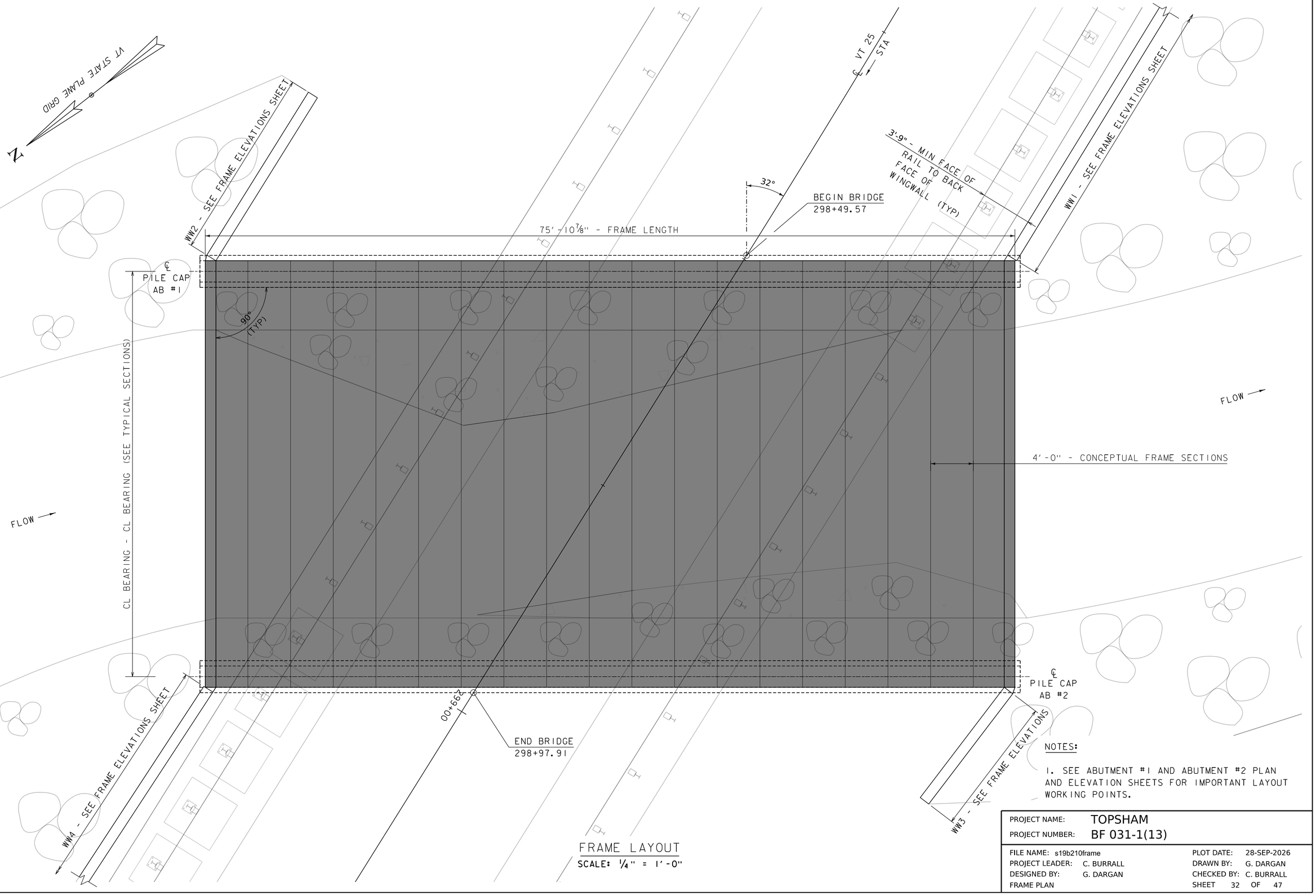
Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.
4. Soil descriptions are based on modified burmister system when no soil laboratory testing was performed. AASHTO classifications are included where soil laboratory testing was performed.

BORING LOG 5698.00 LOGS.GPJ VERMONT AOT.GDT 5/17/23

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210bor_logs
PROJECT LEADER: C. BURRALL
DESIGNED BY: A. VAN BUSKIRK
BORING LOGS 9

PLOT DATE: 28-SEP-2026
DRAWN BY: A. VAN BUSKIRK
CHECKED BY: C. BURRALL
SHEET 31 OF 47



FRAME LAYOUT

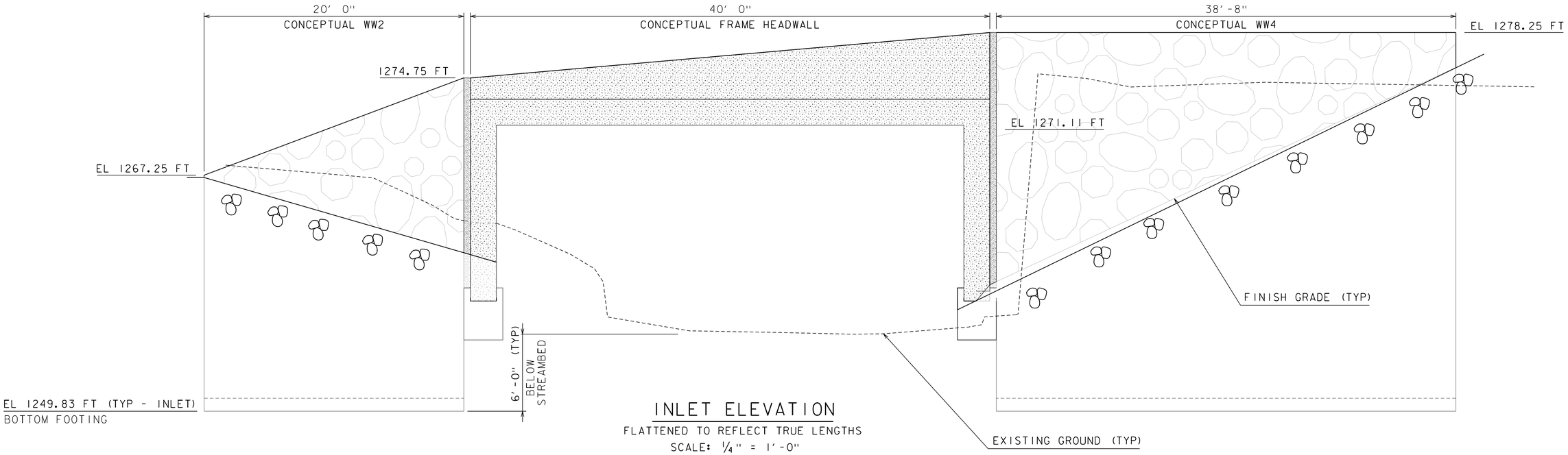
SCALE: ¼" = 1'-0"

NOTES:

1. SEE ABUTMENT #1 AND ABUTMENT #2 PLAN AND ELEVATION SHEETS FOR IMPORTANT LAYOUT WORKING POINTS.

PROJECT NAME:	TOPSHAM
PROJECT NUMBER:	BF 031-1(13)

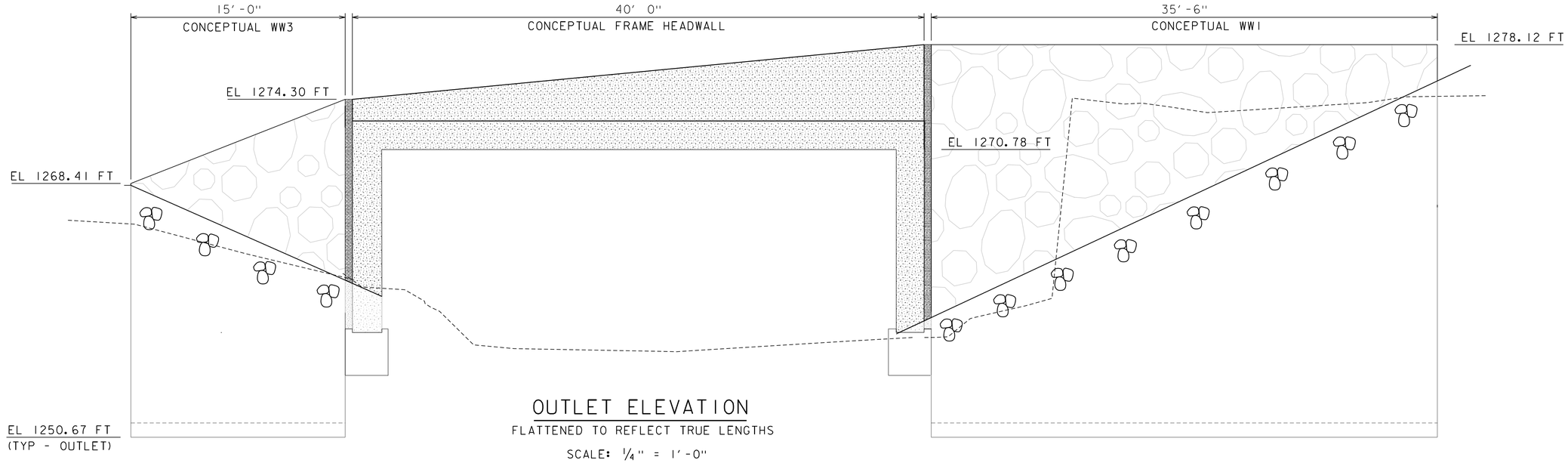
FILE NAME: s19b210frame		PLOT DATE:	28-SEP-2026
PROJECT LEADER:	C. BURRALL	DRAWN BY:	G. DARGAN
DESIGNED BY:	G. DARGAN	CHECKED BY:	C. BURRALL
FRAME PLAN		SHEET	32 OF 47



INLET ELEVATION

FLATTENED TO REFLECT TRUE LENGTHS

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



OUTLET ELEVATION

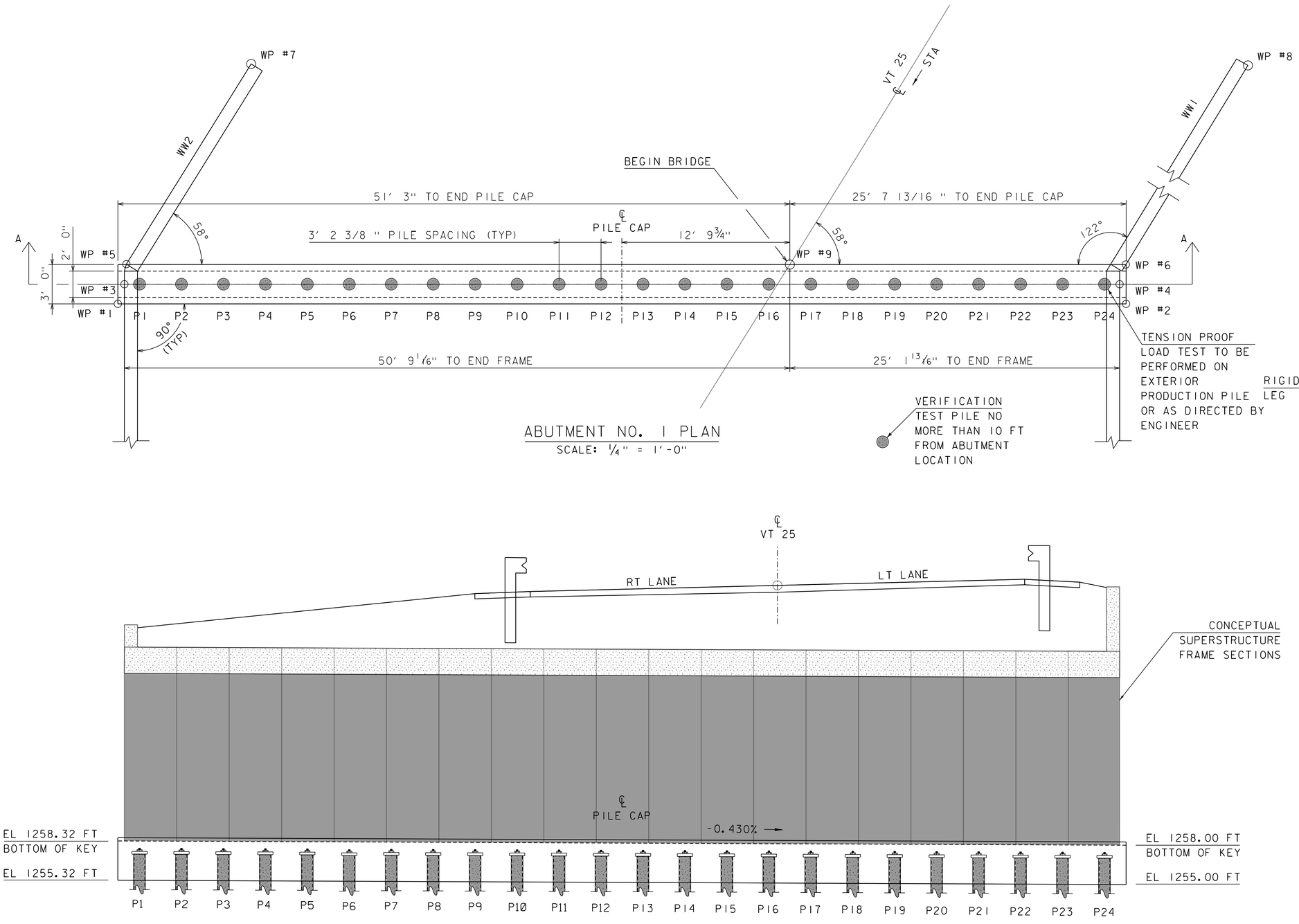
FLATTENED TO REFLECT TRUE LENGTHS

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

NOTES

1. DIMENSIONS MEASURED ALONG EXPOSED FACE OF RETAINING WALLS.
2. CONNECTIONS BETWEEN FRAME/HEADWALL AND RETAINING WALLS SHALL MATCH HORIZONTALLY AND VERTICALLY. MINIMIZE OR ELIMINATE WALL BATTER AS MUCH AS POSSIBLE.

PROJECT NAME:	TOPSHAM		
PROJECT NUMBER:	BF 031-1(13)		
FILE NAME: s19b210sub		PLOT DATE:	28-SEP-2026
PROJECT LEADER:	C. BURRALL	DRAWN BY:	G. DARGAN
DESIGNED BY:	G. DARGAN	CHECKED BY:	C. BURRALL
FRAME ELEVATIONS		SHEET	33 OF 47

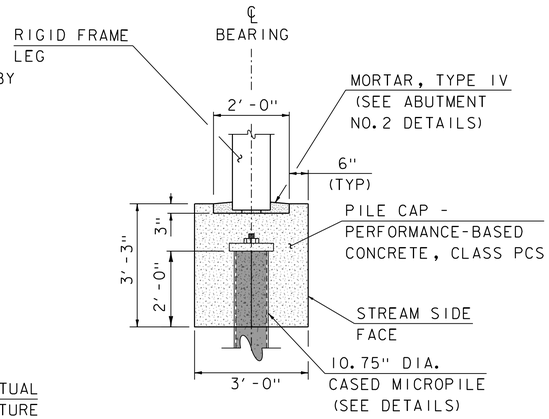


ABUTMENT NO. 1 PLAN

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

	STATION	OFFSET
WP1	298+79.26	R 41.89 FT
WP2	298+38.66	L 23.37 FT
WP3	298+77.72	R 42.25 FT
WP4	298+37.66	L 22.16 FT
WP5	298+76.35	R 42.94 FT
WP6	298+36.15	L 21.78 FT
WP7	298+58.35	R 42.95 FT
WP8	298+01.81	L 22.13 FT
WP9	298+49.57	0.00 FT

ABUTMENT NO. 1 WORKING POINT SUMMARY



ABUTMENT NO. 1/NO. 2 TYPICAL SECTION

NOT TO SCALE

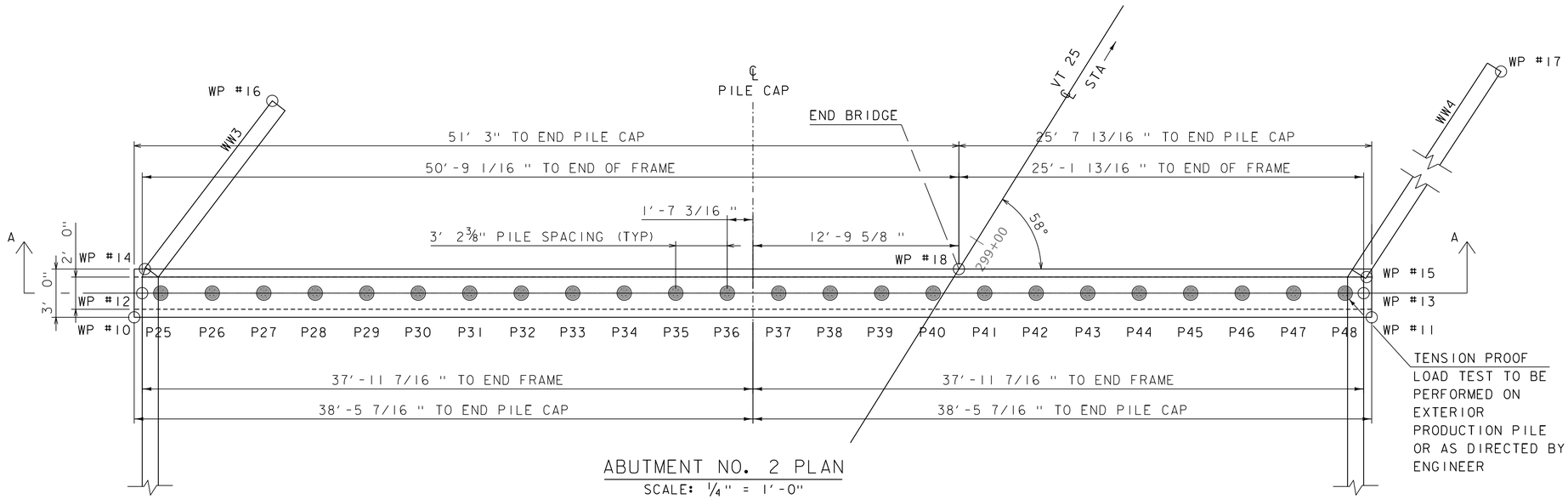
ABUTMENT NO. 1 ELEVATION - SECTION A-A

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

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210sub.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
ABUTMENT #1 PLAN AND ELEVATION

PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: C. BURRALL
SHEET 34 OF 47

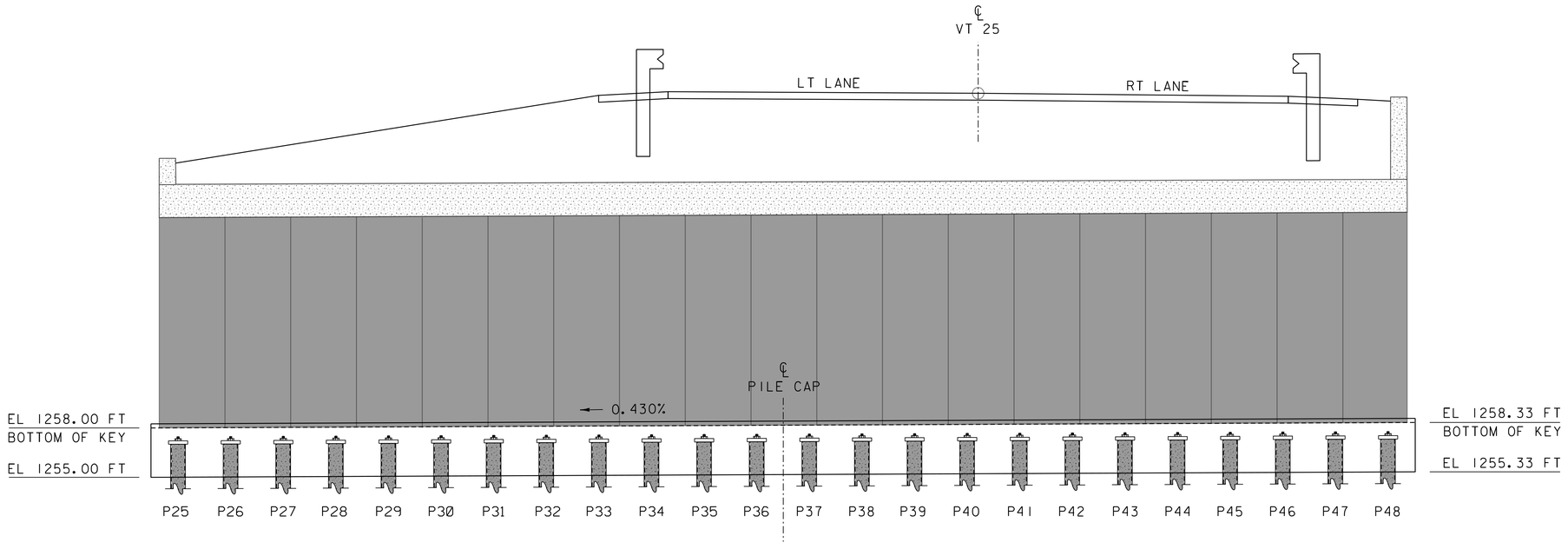


ABUTMENT NO. 2 PLAN

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

	STATION	OFFSET
WP10	298+68.21	LT 41.88
WP11	299+08.95	RT 23.35
WP12	298+69.75	LT 42.26
WP13	299+09.95	RT 22.13
WP14	298+71.11	LT 42.91
WP15	299+10.90	RT 21.75
WP16	298+84.17	LT 41.73
WP17	299+50.17	RT 22.58
WP18	299+97.91	0.00

ABUTMENT NO. 2 WORKING POINT SUMMARY



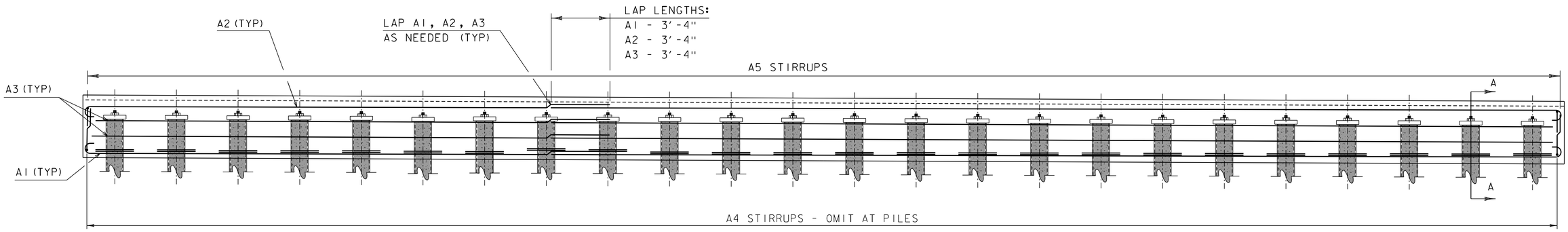
ABUTMENT NO. 2 ELEVATION - SECTION A-A

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

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210sub.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
ABUTMENT #2 PLAN AND ELEVATION

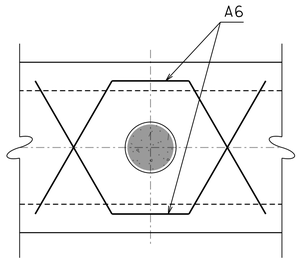
PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: C. BURRALL
SHEET 35 OF 47

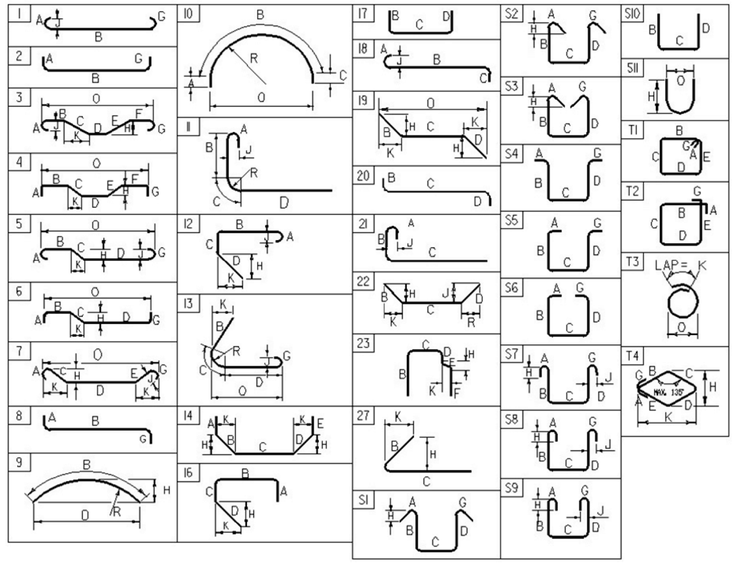


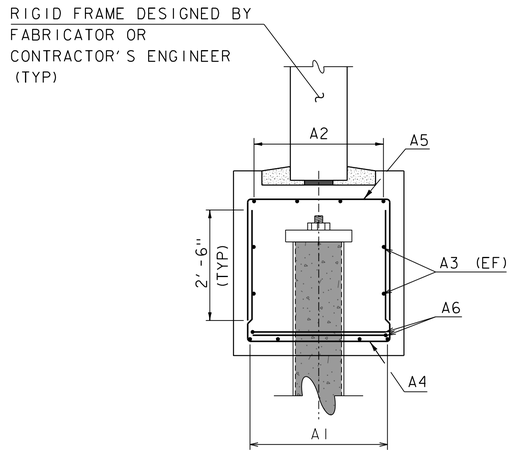
BAR	SIZE	SPACING	TYPE
A1	5	AS SHOWN	STR WITH STD HOOK
A2	5	AS SHOWN	STR WITH STD HOOK
A3	5	12"	STR
A4	5	6"	S10
A5	5	6"	S10
A6	5	AS SHOWN	14

TYPICAL ABUTMENT REINFORCING - ELEVATION

NOT TO SCALE





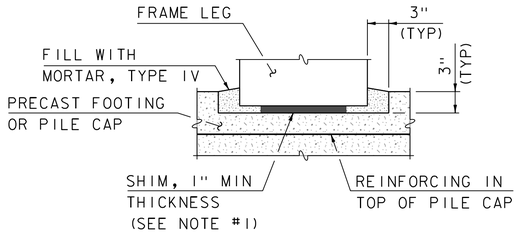


A-A - ABUTMENT REINFORCING TYPICAL SECTION

NOT TO SCALE

TYPICAL PILE REINFORCEMENT DETAIL - PLAN

NOT TO SCALE



FOOTING TO STEM CONNECTION DETAIL

NOT TO SCALE

NOTES:

1. SHIMS SHALL BE MADE OF A MATERIAL THAT IS RESISTANT TO CORROSION AND CAPABLE OF SUPPORTING THE WEIGHT OF THE PRECAST UNITS. SHIMS SHALL BE SPACED AS REQUIRED TO PROVIDE A 1" MINIMUM GAP TO ALLOW FOR THE PLACEMENT OF 1" OF MORTAR, TYPE IV. SHIMS SHALL ALSO ALLOW FOR FINAL GRADE ADJUSTMENTS AS NECESSARY.

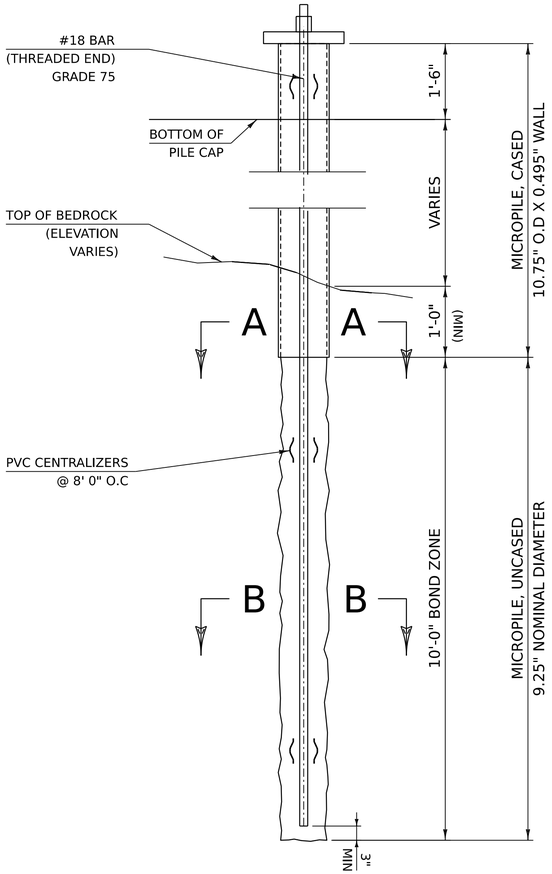
NOTES:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR UNLESS OTHERWISE NOTED
3'-4" BAR LAP UNLESS OTHERWISE NOTED

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

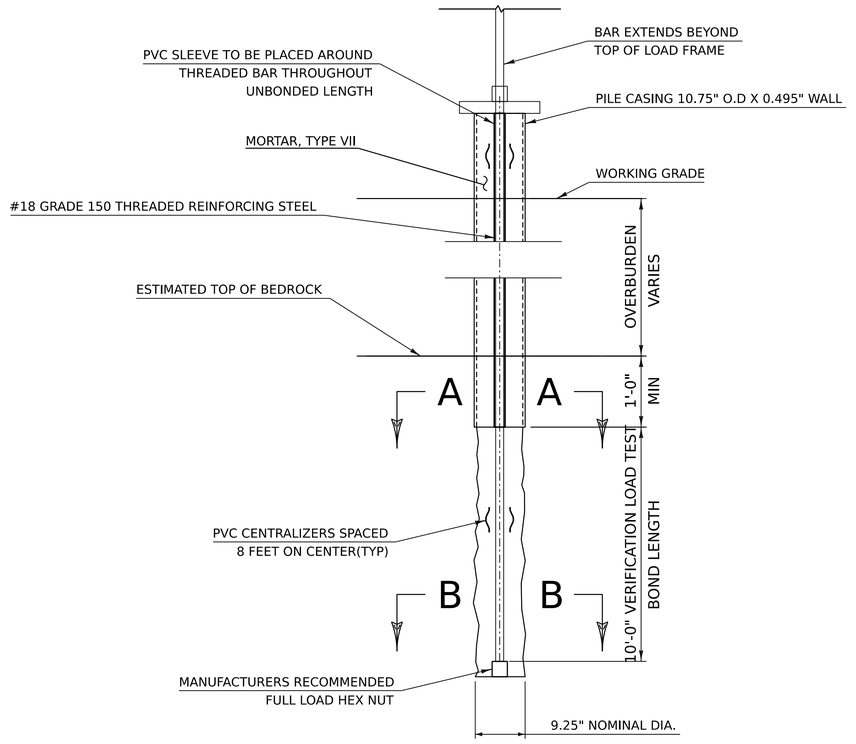
FILE NAME: s19b210sub.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
ABUTMENT REINFORCING

PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: C. BURRALL
SHEET 36 OF 47



MICROPILE DETAIL AND PAY LIMITS

NOT TO SCALE

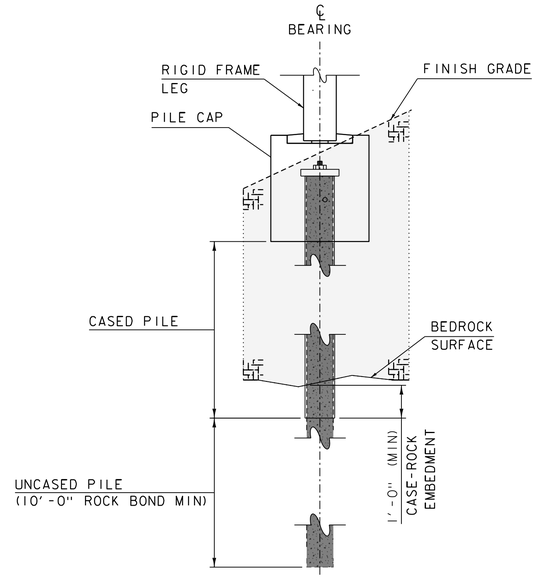


MICROPILE VERIFICATION LOAD TEST DETAIL

NOT TO SCALE

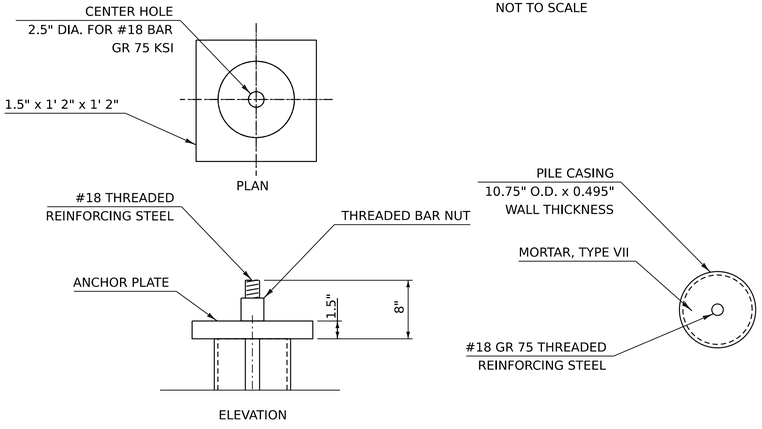
NOTES:

1. WORKING GRADE TO BE ESTABLISHED BY THE CONTRACTOR AND WILL BE ALLOWED BETWEEN EXISTING GRADE AND THE BOTTOM OF THE FOOTING
2. TOP OF ROCK ELEVATIONS ARE BASED ON BORING SH-1,SH2/2A, B-204, B-205. ACTUAL TOP OF ROCK ELEVATIONS SHALL BE ESTABLISHED DURING VERIFICATION TEST PILE INSTALLATION.



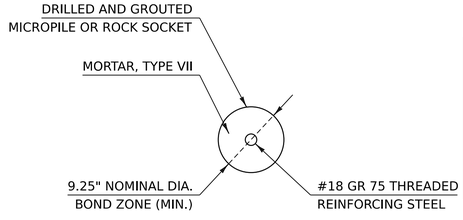
TYPICAL MICROPILE FOUNDATION

NTS



MICROPILE HEAD DETAIL

NOT TO SCALE



CASED MICROPILE SECTION A-A

NOT TO SCALE

UNCASED MICROPILE SECTION B-B

NOT TO SCALE

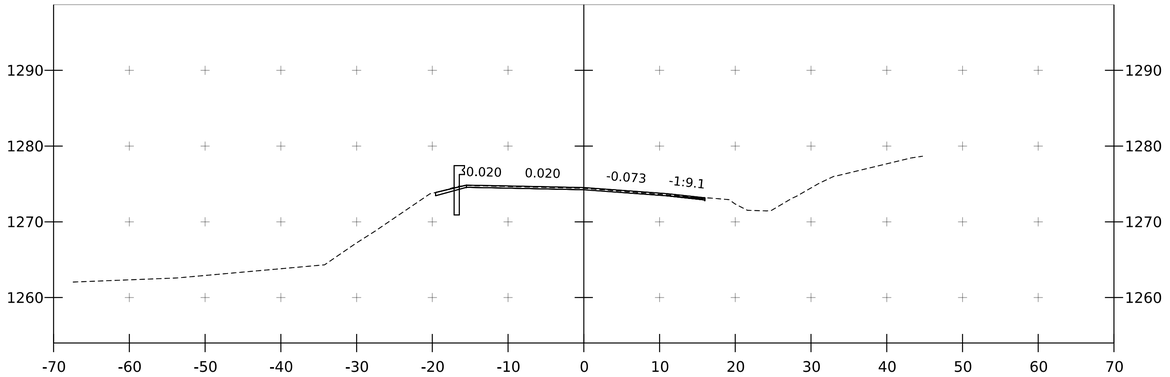
MICROPILE TABLE

SUBSTRUCTURE UNIT	REQUIRED NOMINAL RESISTANCE		FACTORED DESIGN LOAD (FDL)		ESTIMATED BOND ZONE LENGTH (FT)
	COMPRESSION	TENSION	COMPRESSION	TENSION	
ABUTMENT 1	275 KIPS	0 KIPS	193 KIPS	0 KIPS	10
ABUTMENT 2	275 KIPS	0 KIPS	193 KIPS	0 KIPS	10

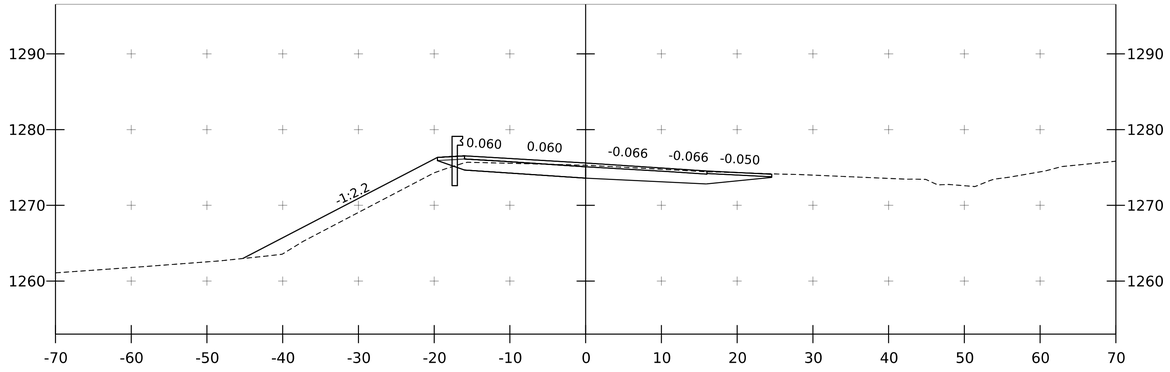
PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210det_micropile
PROJECT LEADER: C. BURRALL
DESIGNED BY: A. VAN BUSKIRK
MICROPILE DETAIL

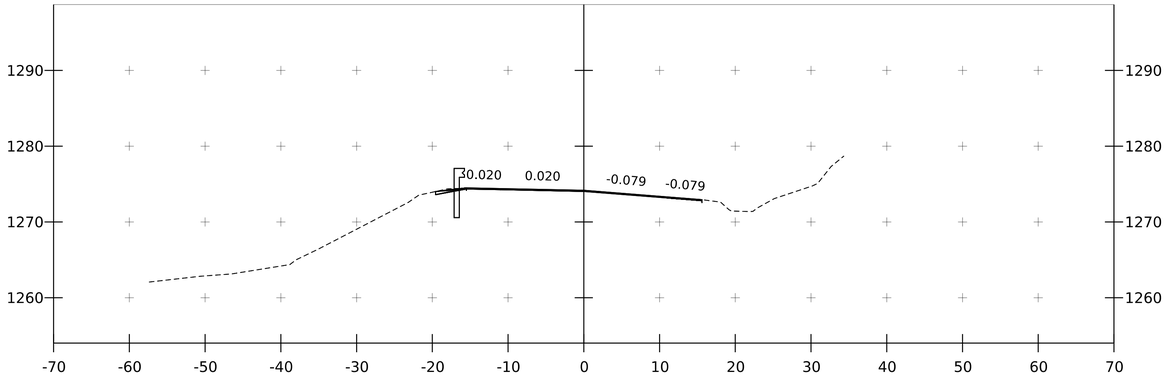
PLOT DATE: 28-SEP-2026
DRAWN BY: A. VAN BUSKIRK
CHECKED BY: C. BURRALL
SHEET 37 OF 47



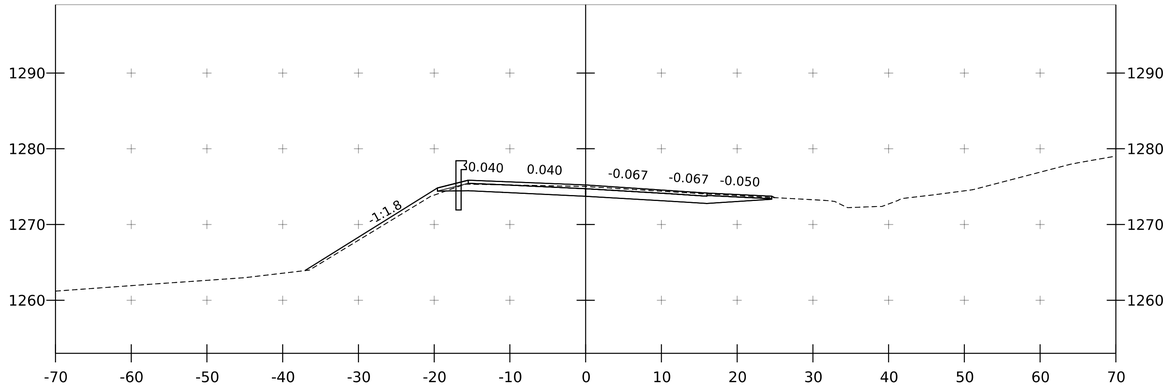
296+25



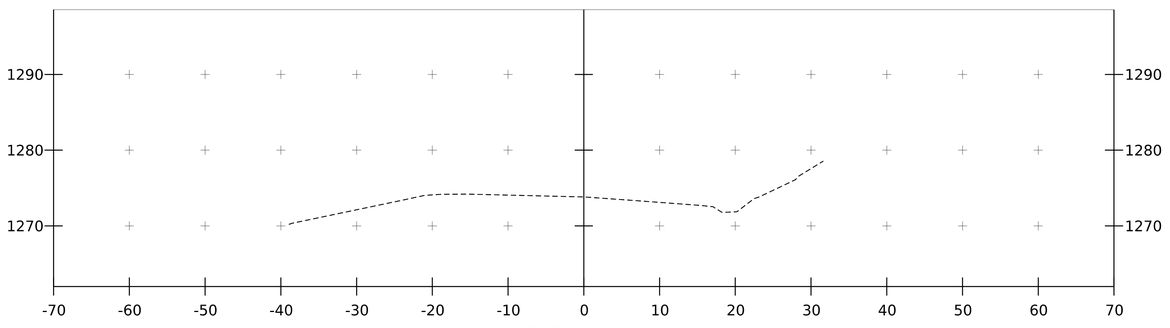
297+00



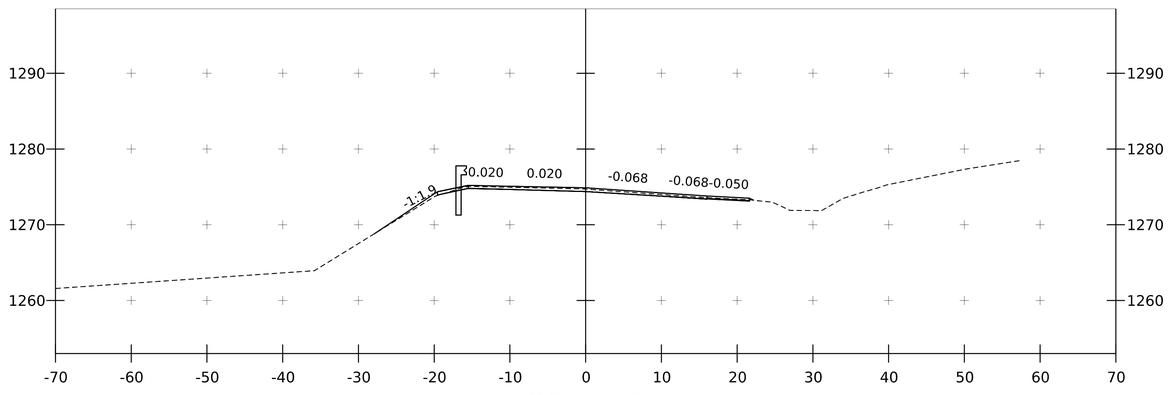
296+00



296+75



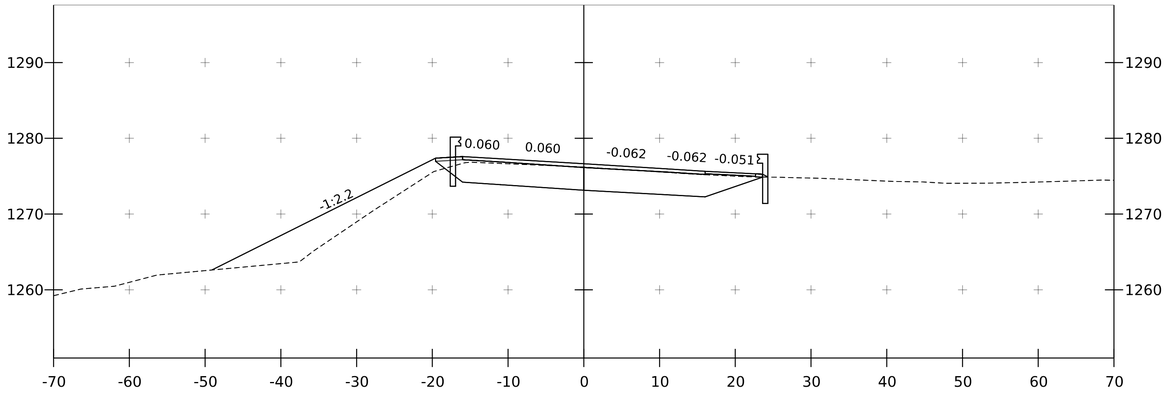
295+75



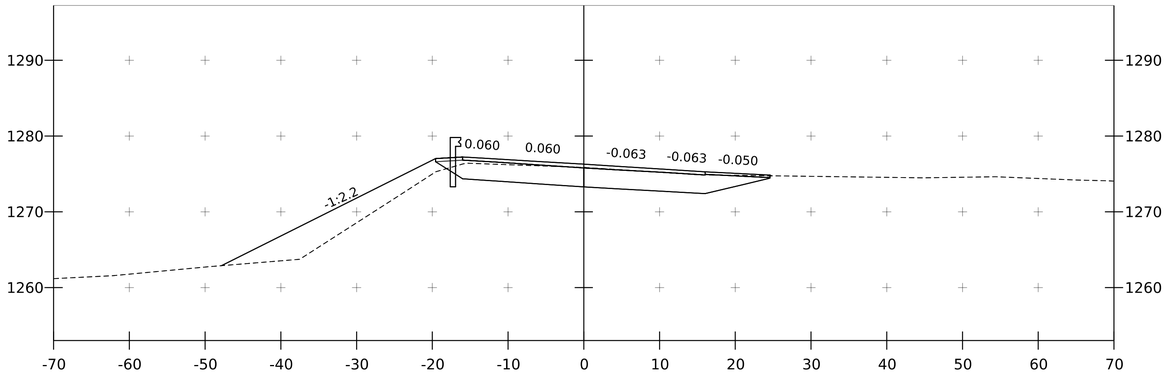
296+50

PROJECT NAME:	TOPSHAM
PROJECT NUMBER:	BF 031-1(13)

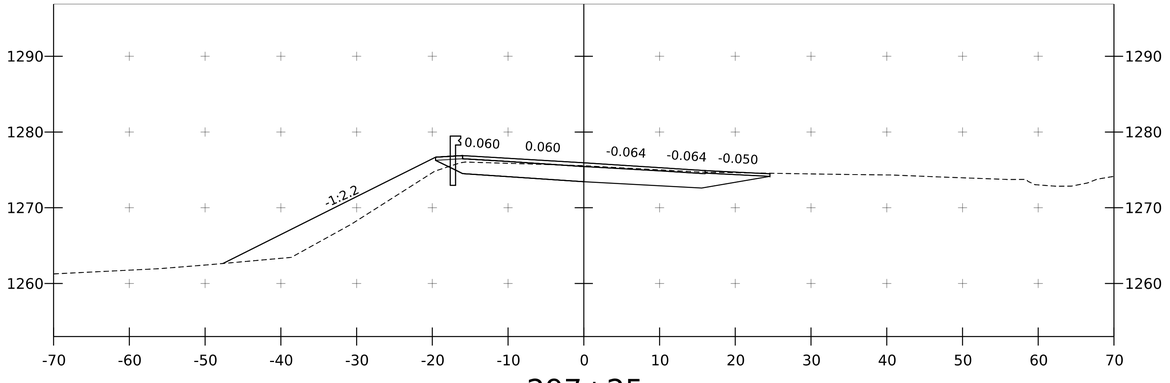
FILE NAME:	s19b210xsVT25.dgn	PLOT DATE:	28-SEP-2026
PROJECT LEADER:	C. BURRALL	DRAWN BY:	G. DARGAN
DESIGNED BY:	G. DARGAN	CHECKED BY:	C. BURRALL
VT 25 CROSS SECTIONS 1		SHEET	38 OF 47



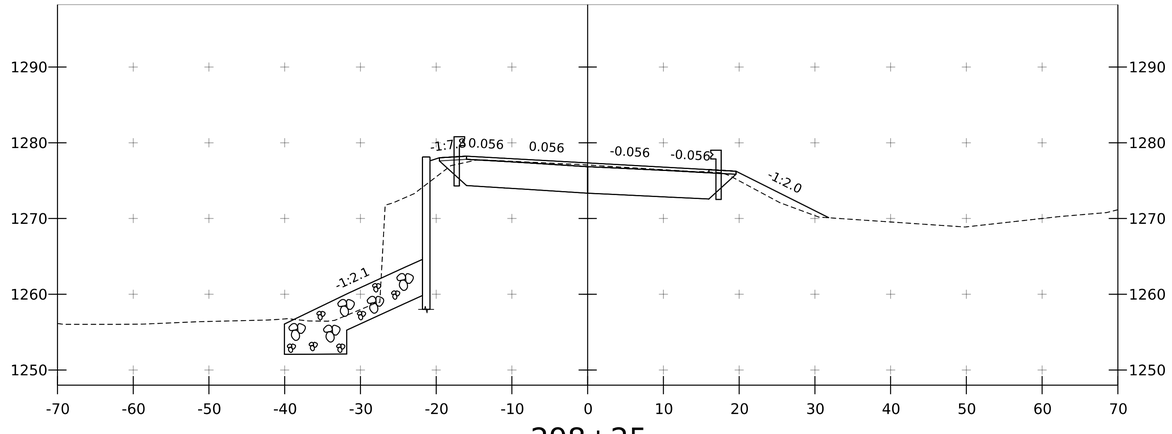
297+75



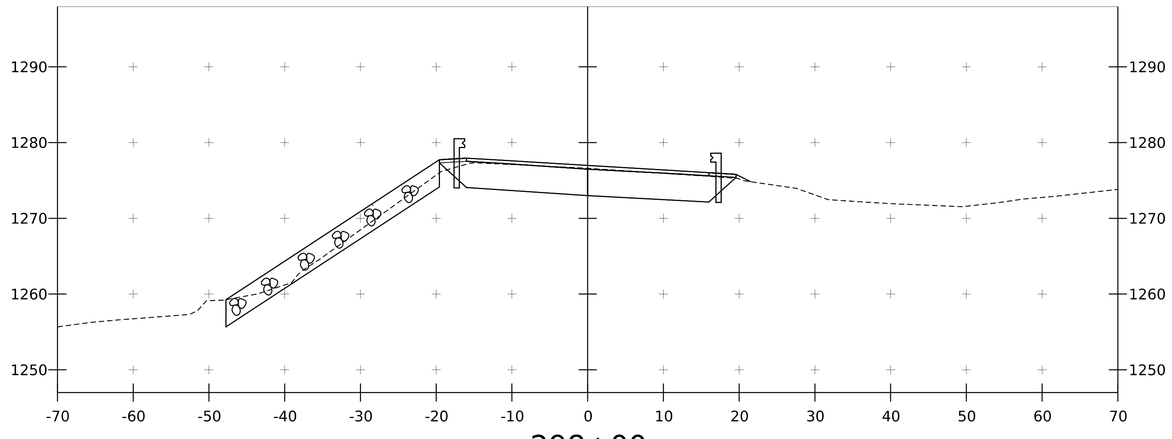
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297+25



298+25

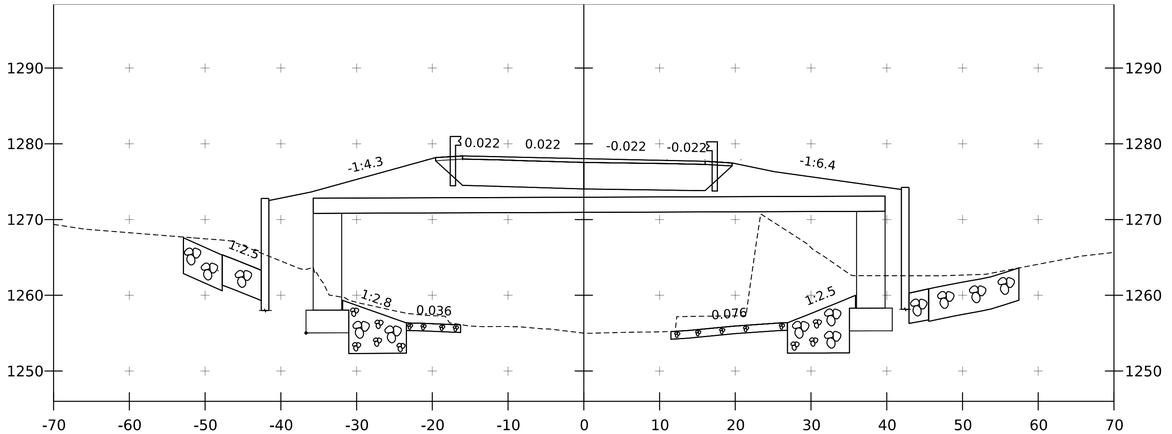


298+00

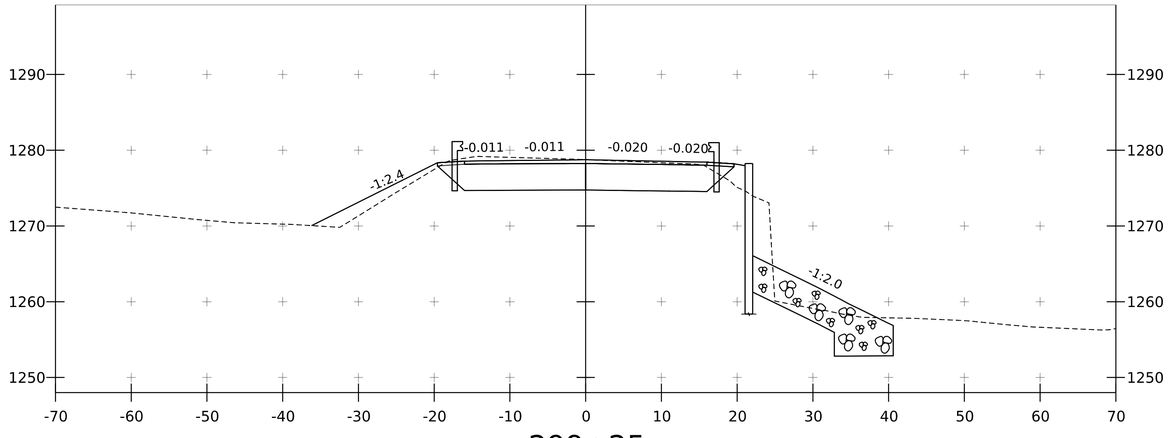
PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210xsVT25.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
VT25 CROSS SECTION SHEET 2

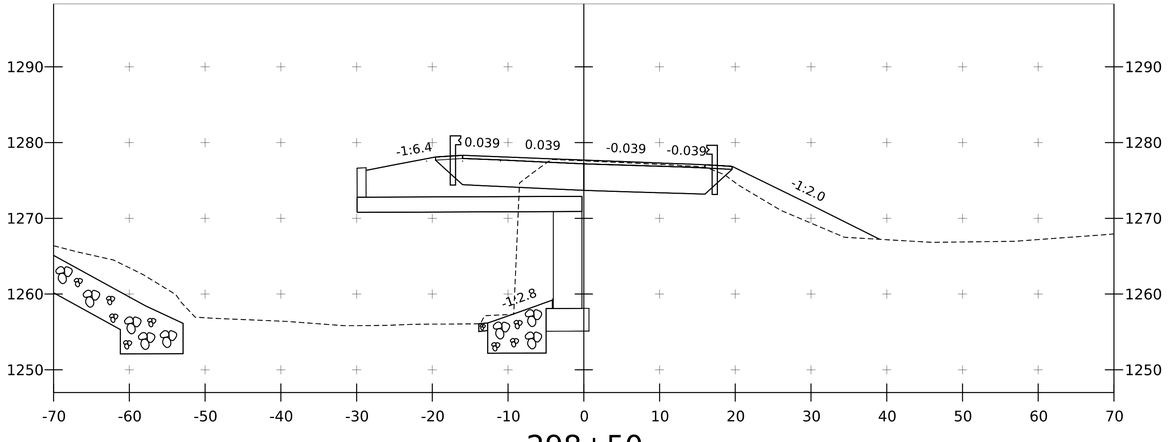
PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: C. BURRALL
SHEET 39 OF 47



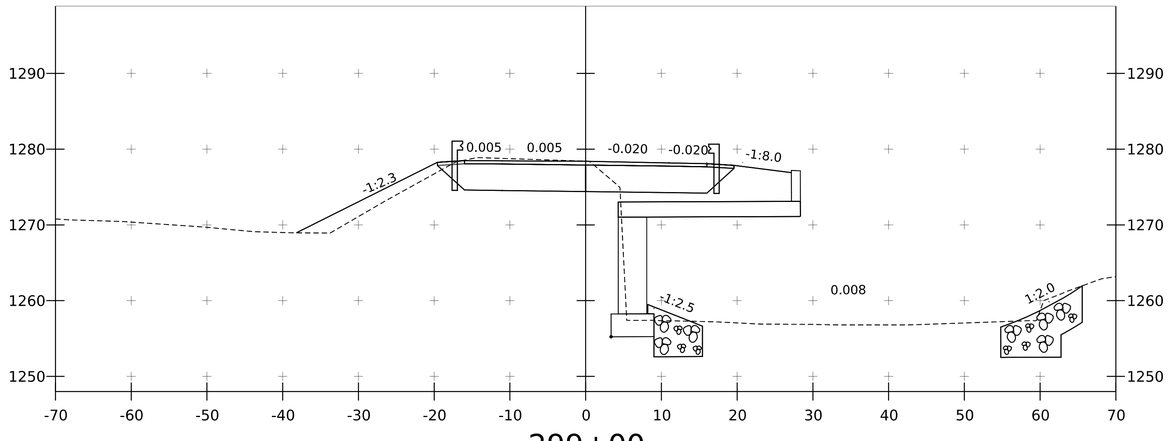
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299+25



298+50

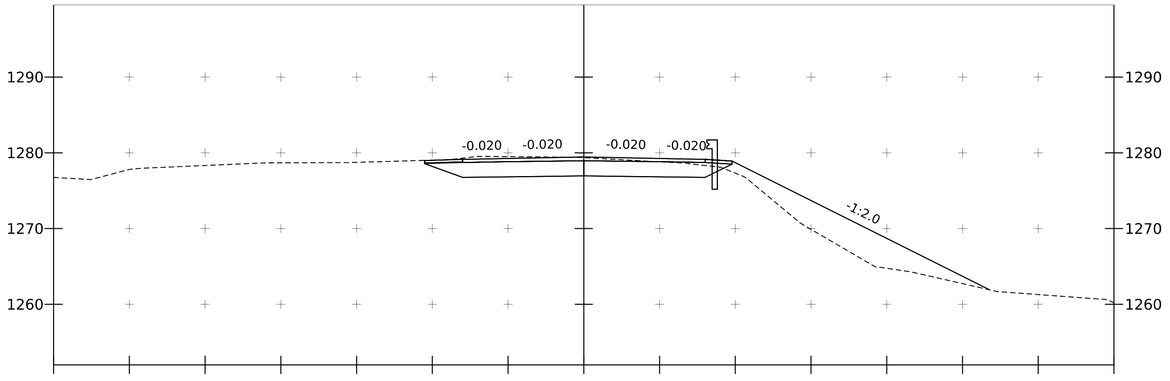


299+00

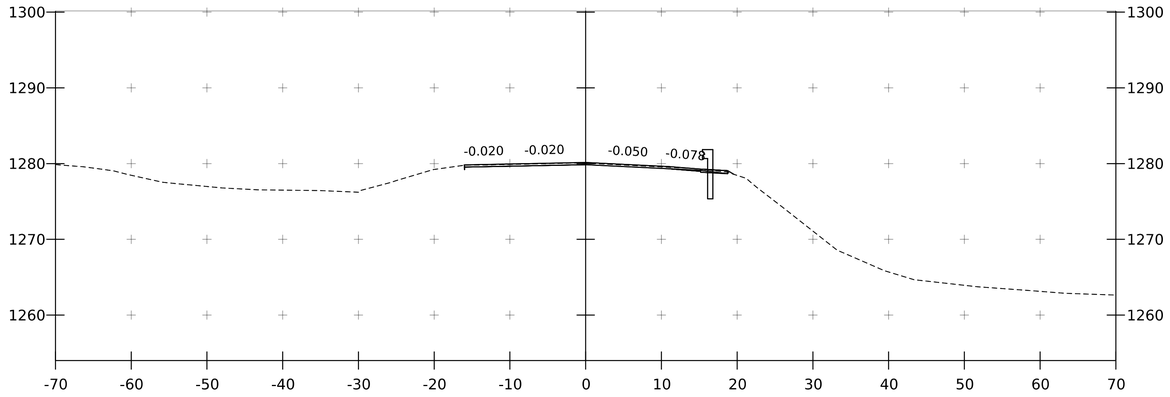
PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210xsVT25.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
VT25 CROSS SECTION SHEET 3

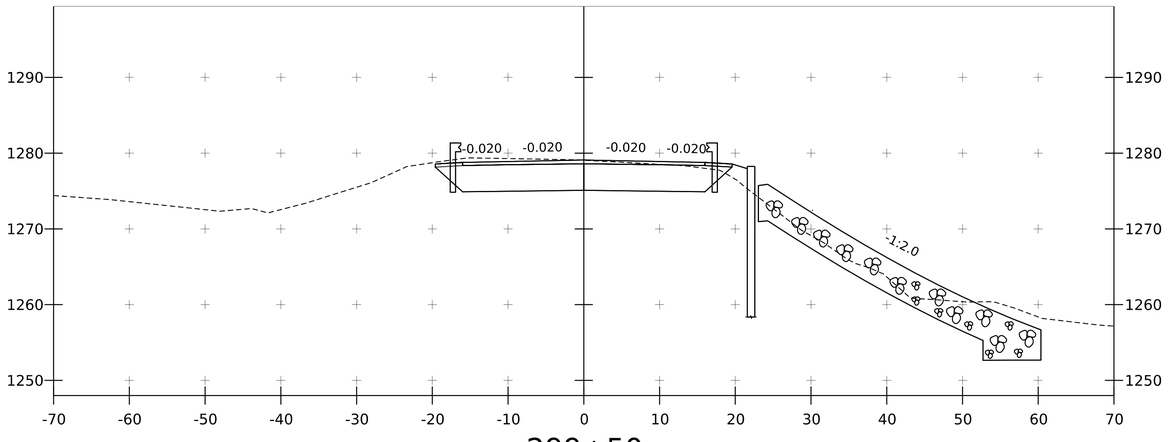
PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: C. BURRALL
SHEET 40 OF 47



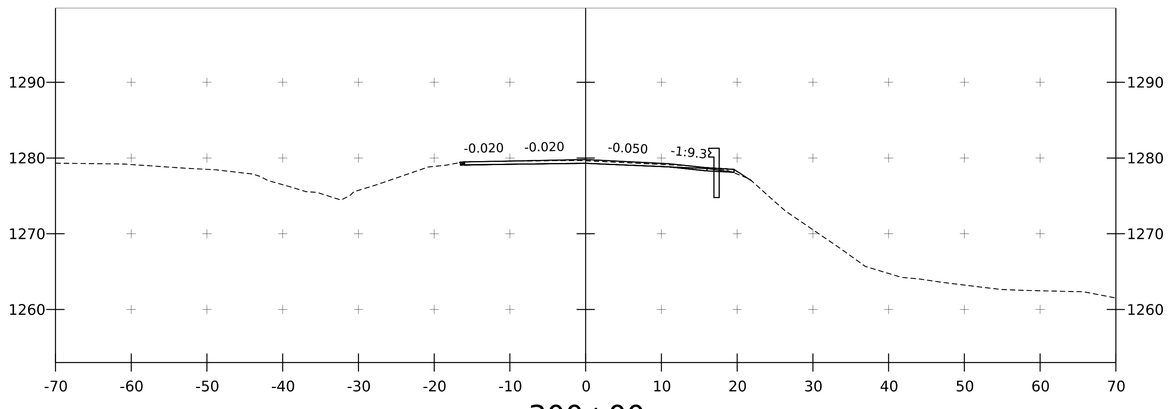
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300+25



299+50

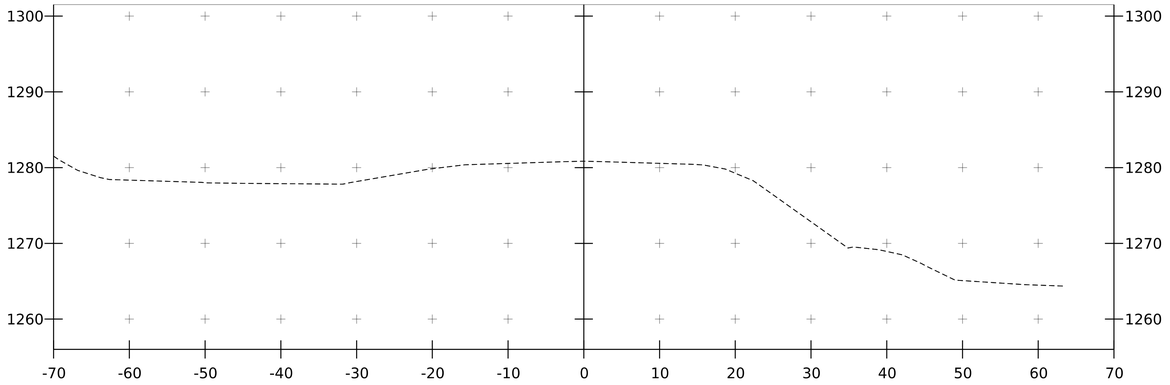


300+00

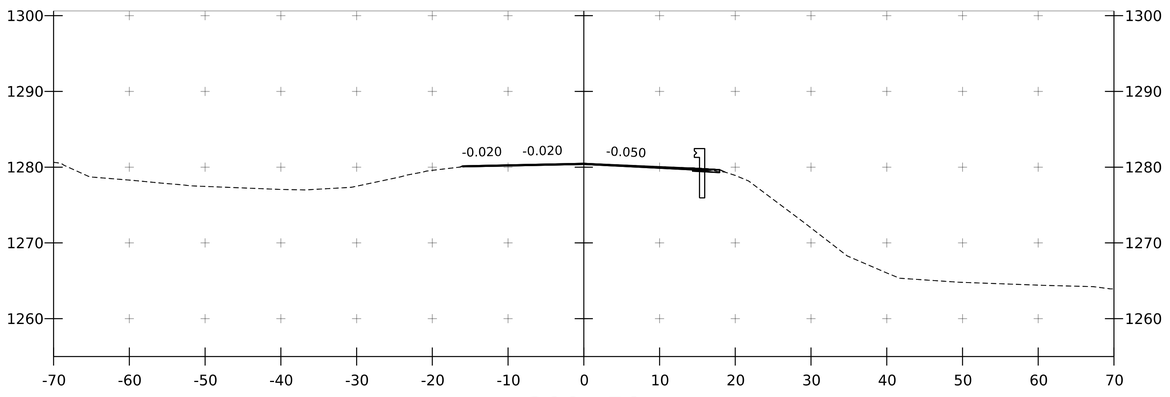
PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210xsVT25.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: G. DARGAN
VT25 CROSS SECTION SHEET 4

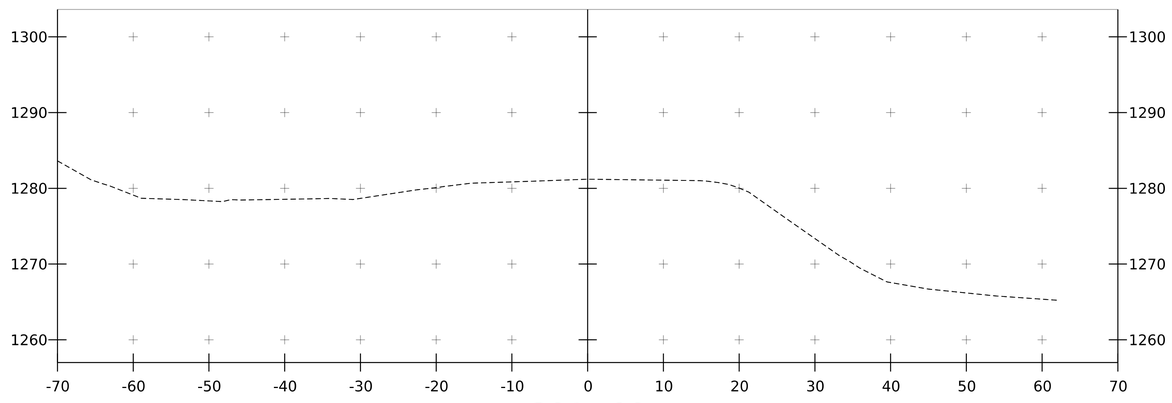
PLOT DATE: 28-SEP-2026
DRAWN BY: G. DARGAN
CHECKED BY: C. BURRALL
SHEET 41 OF 47



300+75



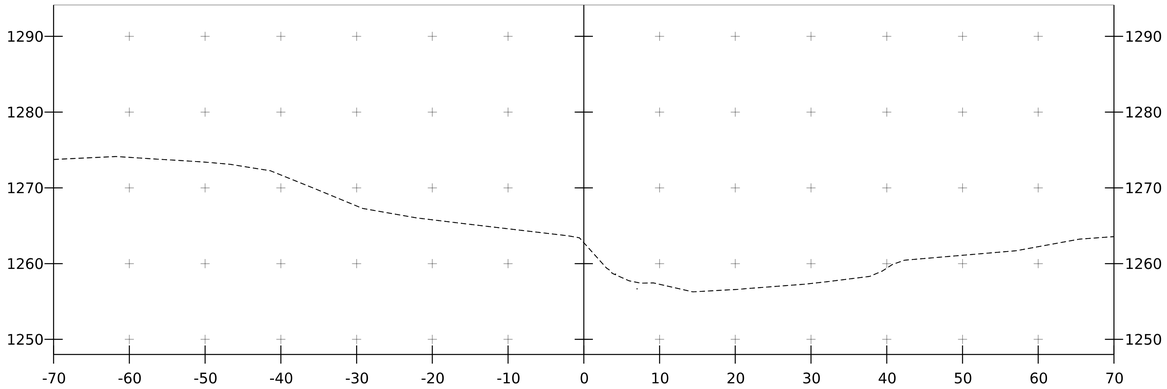
300+50



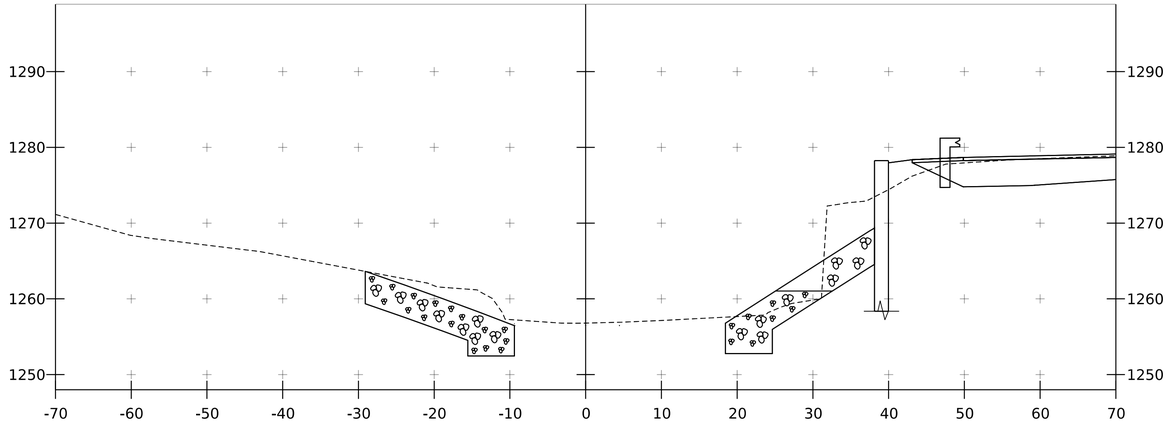
301+00

PROJECT NAME:	TOPSHAM
PROJECT NUMBER:	BF 031-1(13)

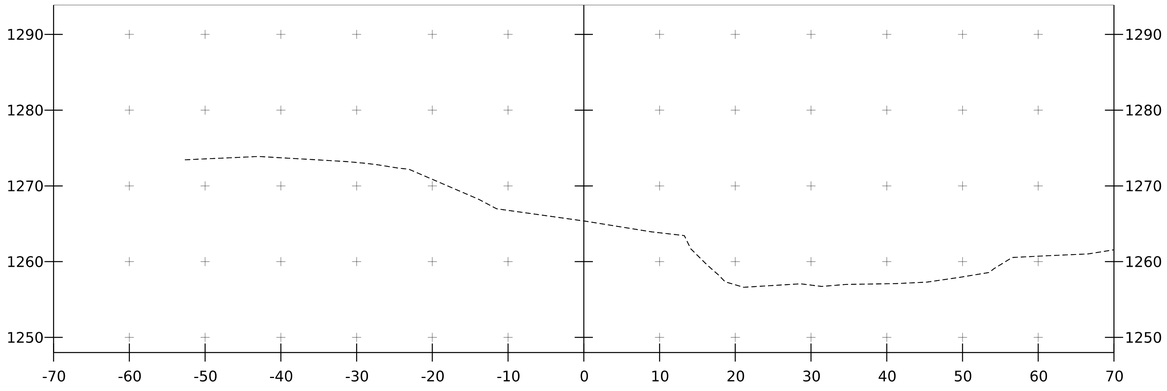
FILE NAME:	s19b210xsVT25.dgn	PLOT DATE:	28-SEP-2026
PROJECT LEADER:	C. BURRALL	DRAWN BY:	G. DARGAN
DESIGNED BY:	G. DARGAN	CHECKED BY:	C. BURRALL
VT25 CROSS SECTION SHEET 5		SHEET	42 OF 47



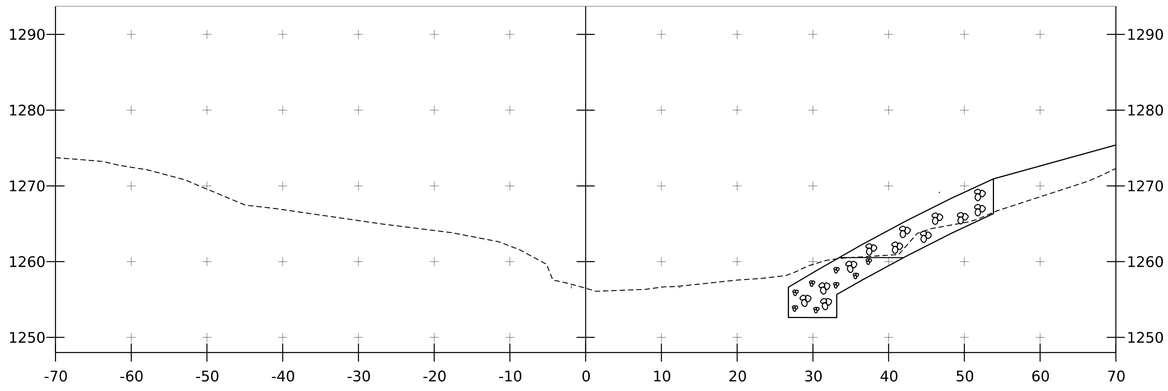
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50+50



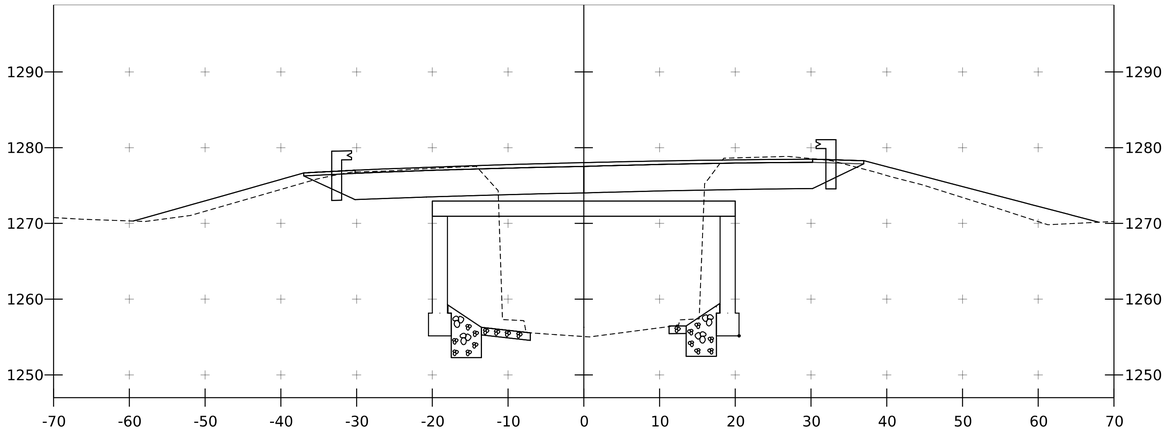
49+75



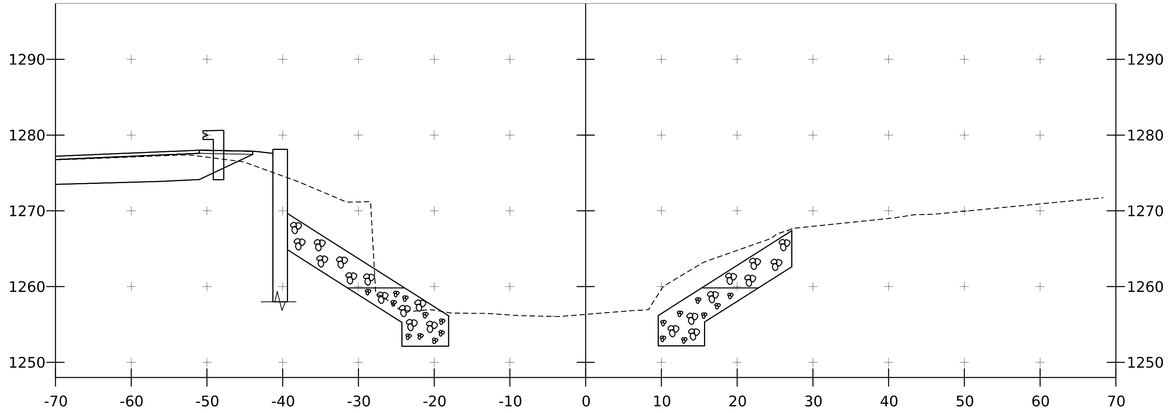
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PROJECT NAME:	TOPSHAM
PROJECT NUMBER:	BF 031-1(13)

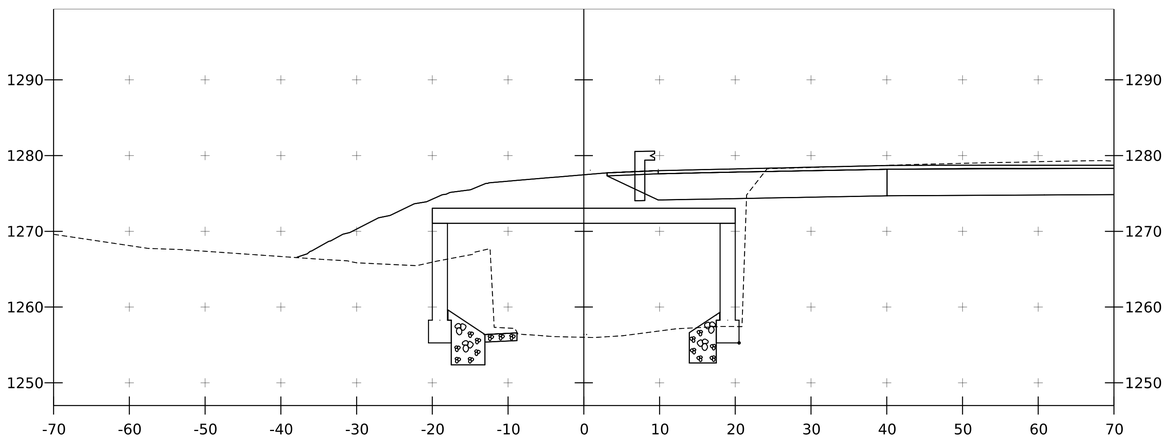
FILE NAME:	s19b210xsChannel_1.dgn	PLOT DATE:	28-SEP-2026
PROJECT LEADER:	C. BURRALL	DRAWN BY:	G. DARGAN
DESIGNED BY:	G. DARGAN	CHECKED BY:	C. BURRALL
CHANNEL CROSS SECTIONS 2		SHEET	43 OF 47



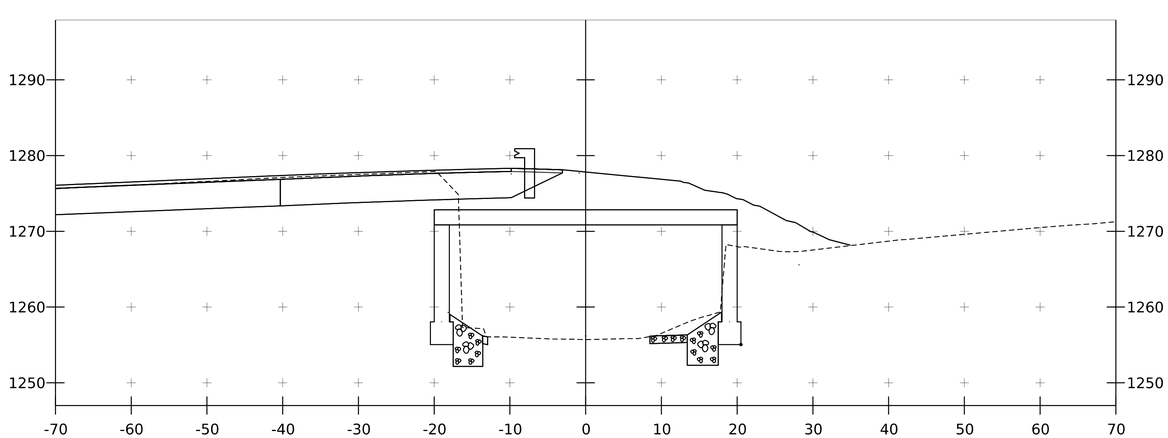
51+00



51+50



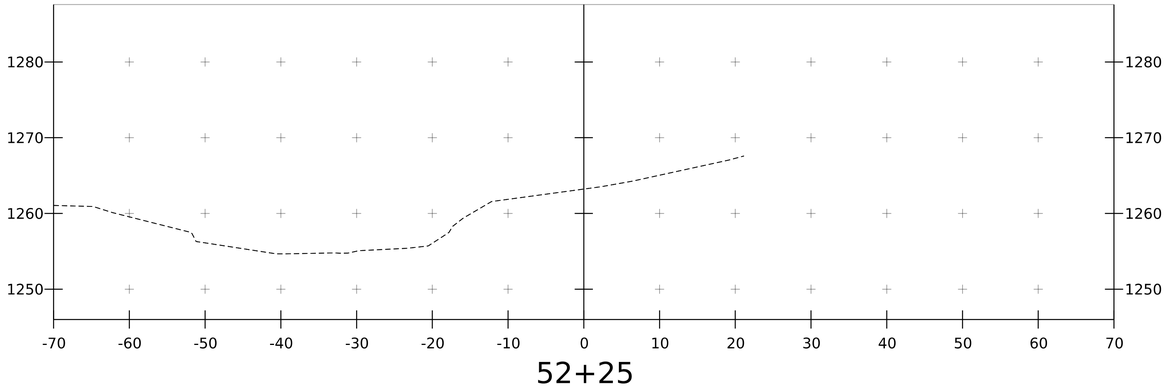
50+75



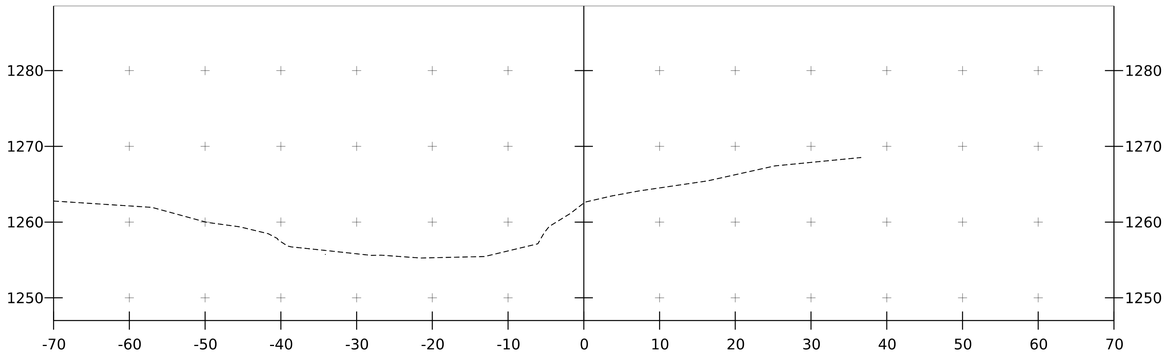
51+25

PROJECT NAME:	TOPSHAM
PROJECT NUMBER:	BF 031-1(13)

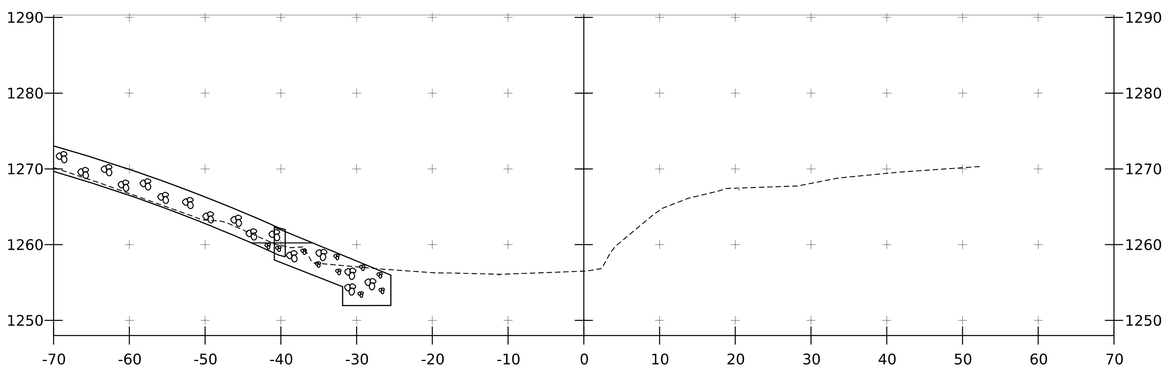
FILE NAME:	s19b210xsChannel_1.dgn	PLOT DATE:	28-SEP-2026
PROJECT LEADER:	C. BURRALL	DRAWN BY:	G. DARGAN
DESIGNED BY:	G. DARGAN	CHECKED BY:	C. BURRALL
CHANNEL CROSS SECTIONS 2		SHEET	44 OF 47



52+25



52+00



51+75

PROJECT NAME:	TOPSHAM
PROJECT NUMBER:	BF 031-1(13)

FILE NAME:	s19b210xsChannel_1.dgn	PLOT DATE:	28-SEP-2026
PROJECT LEADER:	C. BURRALL	DRAWN BY:	G. DARGAN
DESIGNED BY:	G. DARGAN	CHECKED BY:	C. BURRALL
CHANNEL CROSS SECTIONS 2		SHEET	45 OF 47

VAOT NATURALIZED AREA TYPE I				
WEIGHT	NAME	LATIN NAME	GERM	PURITY
38%	CREEPING RED FESCUE	FESTUCA RUBRA VAR. RUBRA	90%	98%
29%	HARD FESCUE	FESTUCA LONGIFOLIA	85%	95%
15%	CHEWINGS FESCUE	FESTUCA RUBRA VAR. COMMUTATA	87%	95%
15%	ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	90%	95%
3%	INERTS			
100%				

VAOT NATURALIZED AREA TYPE II				
WEIGHT	NAME	LATIN NAME	GERM	PURITY
37.5%	CREEPING RED FESCUE	FESTUCA RUBRA VAR. RUBRA	85%	98%
37.5%	TALL FESCUE	FESTUCA ARUNDINACEA	90%	95%
5.0%	RED TOP	AGROSTIS GIGANTEA	90%	95%
15.0%	WHITE FIELD CLOVER	TRIFOLIUM REPENS	85%	98%
5.0%	ANNUAL RYE GRASS	LOLIUM MULTIFLORUM	85%	95%
100%				

SEED RATE: BROADCAST: 75 LBS/ACRE
HYDROSEED: PER MANUFACTURER'S RECOMMENDATIONS

APPLY AMENDMENTS PER SOIL TEST RESULTS

FERTILIZER (755.06):
IF NO SOIL TEST IS PERFORMED, A SLOW OR CONTROLLED RELEASE FERTILIZER SHALL BE APPLIED AT A RATIO OF 1:1:1 (N:P:K). NITROGEN AND PHOSPHORUS SHALL BE APPLIED AT NO MORE THAN 1 LB. PER 1,000 SQ.FT.

LIMESTONE (755.08 & 755.09):
IF NO SOIL TEST IS PERFORMED, APPLY LIMESTONE PER MANUFACTURER'S RECOMMENDATIONS.

COMPOST (755.05):
COMPOST MAY BE APPLIED PER SOIL TEST RESULTS.

CONSTRUCTION GUIDANCE

1. THESE SEED MIXES SHALL BE USED IN AREAS THAT WILL NATURALIZE, RECEIVING LIMITED ANNUAL MOWING THROUGH THE GROWING SEASON.
2. USE SEED MIX AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON-WETLAND) AREAS DISTURBED BY THE CONTRACTOR. IF THE PLANS DO NOT SPECIFY A SEED TYPE, NATURALIZED AREA TYPE I OR TYPE II SHALL BE USED.
3. SEED MIXES SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. HAY MULCH TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE. ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
5. FERTILIZER SHOULD NOT BE APPLIED WITHIN 2 WEEKS OF APPLYING LIMESTONE.
6. FOR BEST ESTABLISHMENT, REAPPLY FERTILIZER 2-3 WEEKS AFTER GERMINATION.

TURF ESTABLISHMENT

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651.1500 TURF ESTABLISHMENT, GENERAL SEED)

REVISIONS	
JANUARY 12, 2015	WHF
JUNE 15, 2023	BKD

VAOT POLLINATOR WET			
% OF MIX	LATIN NAME	COMMON NAME	CULTIVAR/ECOTYPE
2	AGROSTIS PERENNANS	AUTUMN BENTGRASS	NORTHEAST ECOTYPE
2	ASCLEPIAS INCARNATA	SWAMP MILKWEED	NORTHEAST ECOTYPE
0.6	ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	NORTHEAST ECOTYPE
0.2	ASTER PUNICEUS	PURPLE STEMMED ASTER	NORTHEAST ECOTYPE
0.2	ASTER UMBELLATUS	WHITE FLAT-TOPPED ASTER	NORTHEAST ECOTYPE
1	BIDENS CERNUA	NODDING BUR MARIGOLD	NORTHEAST ECOTYPE
30	CAREX VULPINOIDEA	FOX SEDGE	NORTHEAST ECOTYPE
0.3	CHELONE GLABRA	TURTLEHEAD	NORTHEAST ECOTYPE
20	ELYMUS VIRGINICUS	VIRGINIA WILDRYE	NORTHEAST ECOTYPE
1	EUPATORIUM PERFOLIATUM	BONESET	NORTHEAST ECOTYPE
3.9	JUNCUS EFFUSUS	SOFT RUSH	NORTHEAST ECOTYPE
3.8	JUNCUS TENUIS	PATH RUSH	NORTHEAST ECOTYPE
30	PANICUM CLANDESTINUM	DEERTONGUE	NORTHEAST ECOTYPE
4	VERBENA HASTATA	BLUE VERVAIN	NORTHEAST ECOTYPE
1	ZIZIA AUREA	GOLDEN ALEXANDERS	NORTHEAST ECOTYPE
100%			

SEED RATE: 15 LBS/ACRE PURE LIVE SEED (PLS)
30 LBS/ACRE OF NURSE CROP.
60 LBS/ACRE OF BULKING AGENT

*PREFERRED SEEDING PERIOD FOR POLLINATOR SEED MIX IS BEFORE MAY 1 (AFTER SNOWMELT) AND AFTER SEPTEMBER 15 (BEFORE SNOWPACK). IF SEEDING OCCURS DURING THE PREFERRED PERIOD, SEEDING RATE SHALL BE REDUCED BY 30%. NO ADJUSTMENT IS REQUIRED FOR NURSE CROPS OR BULKING AGENTS).

DESIGN GUIDANCE

1. THIS SEED MIX SHALL BE USED IN AREAS THAT WILL NATURALIZE, RECEIVING MOWING ONCE EVERY 3 YEARS OR LESS.
2. USE SEED MIX FOR AREAS THAT EXPERIENCE OCCASIONAL INNUNDATION OF WATER (EX. DETENTION BASINS OR SWALES), OR AS INDICATED IN THE PLANS.

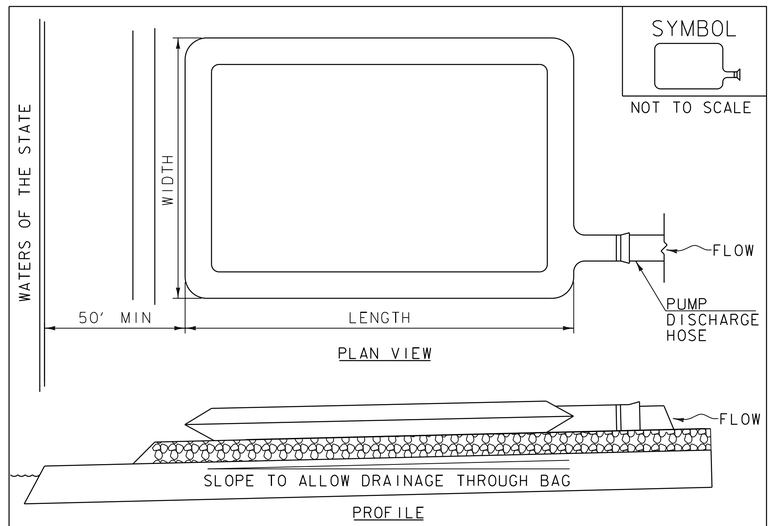
CONSTRUCTION GUIDANCE

1. SEE VAOT POLLINATOR SEED CONSTRUCTION GUIDANCE DETAIL FOR MORE INFORMATION ON INSTALLATION AND BULKING AGENT.

TURF ESTABLISHMENT

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651.1600 TURF ESTABLISHMENT, SPECIALTY SEED)

REVISIONS	
JANUARY 29, 2025	BKD



CONSTRUCTION SPECIFICATIONS

1. THE PRIMARY PURPOSE OF FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS.
2. FILTER BAGS SHALL BE INSTALLED ON A VEGETATED SLOPE GRADED TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.
3. FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAY BALES TO INCREASE FILTRATION EFFICIENCY.
4. FILTER BAGS SHALL BE LOCATED A MINIMUM OF 50' FROM WATERS OF THE STATE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. THE NECK OF THE FILTER BAG SHALL BE STRAPPED TIGHTLY TO THE DISCHARGE HOSE.
6. A FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE.
7. FILTER BAG SHALL BE DISPOSED OF AS APPROVED IN THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

FILTER BAG

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2020- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR FILTER BAG (PAY ITEM 653.4500).

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF
July 26, 2024	CMMJ

PROJECT NAME: TOPSHAM
PROJECT NUMBER: BF 031-1(13)

FILE NAME: s19b210epsc_det.dgn
PROJECT LEADER: C. BURRALL
DESIGNED BY: VTRANS
EPSC DETAILS

PLOT DATE: 28-SEP-2026
DRAWN BY: A. VAN BUSKIRK
CHECKED BY: C. BURRALL
SHEET 46 OF 47

STATE OF VERMONT
AGENCY OF TRANSPORTATION

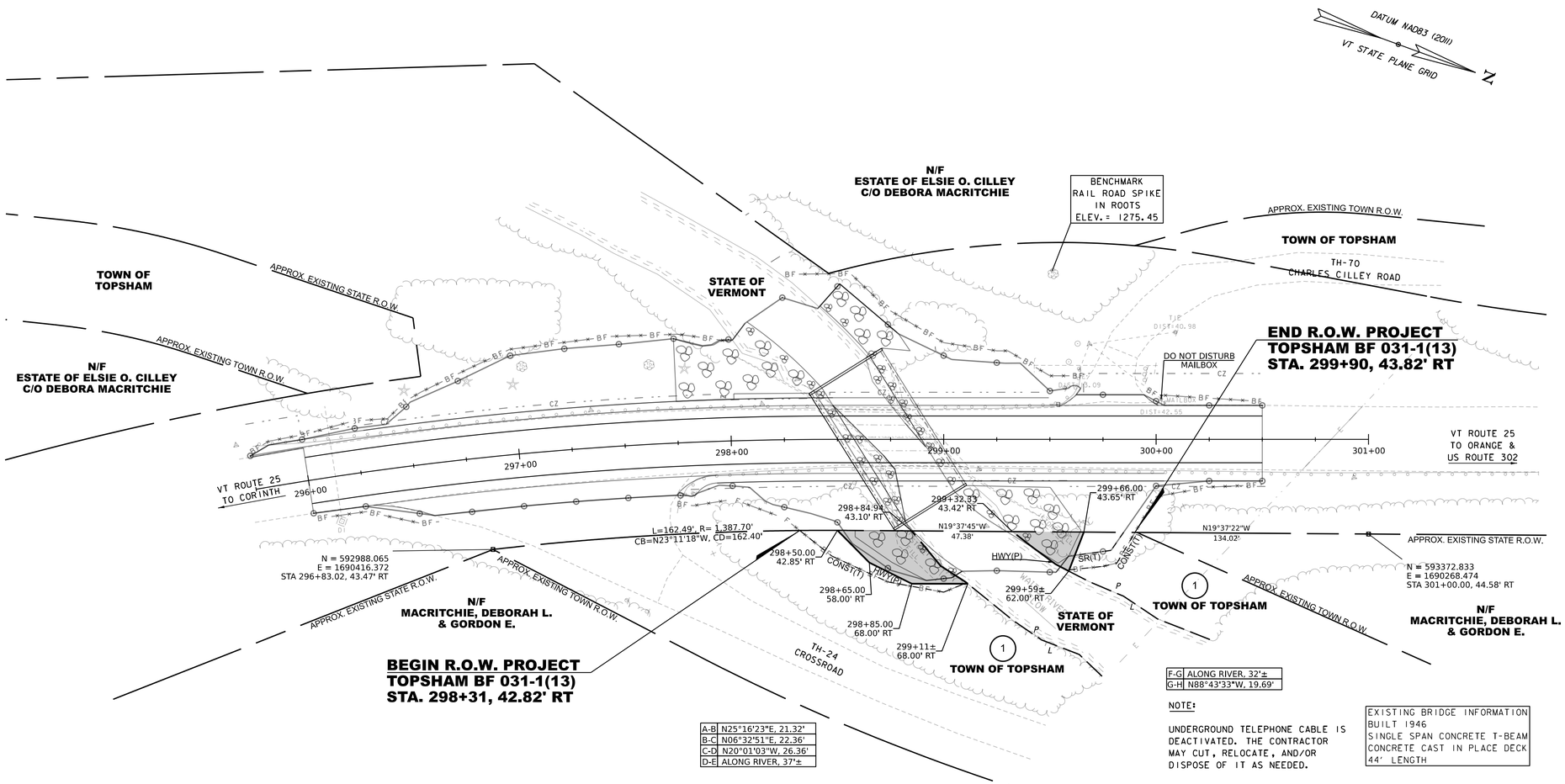
RIGHT - OF - WAY PLAN SHEET

TABLE OF PROPERTY ACQUISITION

PARCEL NO.	PROPERTY OWNER	BEGINNING STATION	ENDING STATION	FEE ACQUISITION	REMAINDER	RIGHT			RECORDING DATA					REMARKS
				AREA±	AREA±	TYPE	T / P	AREA ±	TITLE	DATE	TOWN / CITY	BOOK	PAGE	
1	TOWN OF TOPSHAM	298+50.00 RT	299+11± RT			HIGHWAY	P	793 SF	QCD	11/11/24	TOPSHAM	89	511-512	
		299+32.33 RT	299+66.00 RT			HIGHWAY	P	326 SF						
		298+31 RT	299+11± RT			CONSTRUCTION	T	397 SF						INCL. BF
		299+59 RT	299+90 RT			CONSTRUCTION	T	201 SF						INCL. BF
		299+61 RT	299+85 RT			SLOPE	T	168 SF						INCL. EC

WORK TO BE DONE: REPLACE BRIDGE NO. 23 ON VT-25 IN TOPSHAM CROSSING THE WAITS RIVER.

LENGTH OF R.O.W. PROJECT: 159.00 FEET



SCALE 1" = 30'-0"
30 0 30

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.

ALL DRIVES AS INDICATED ON PLANS ARE SUBJECT TO PERMITS PURSUANT TO TITLE 19 V.S.A. § 1111.

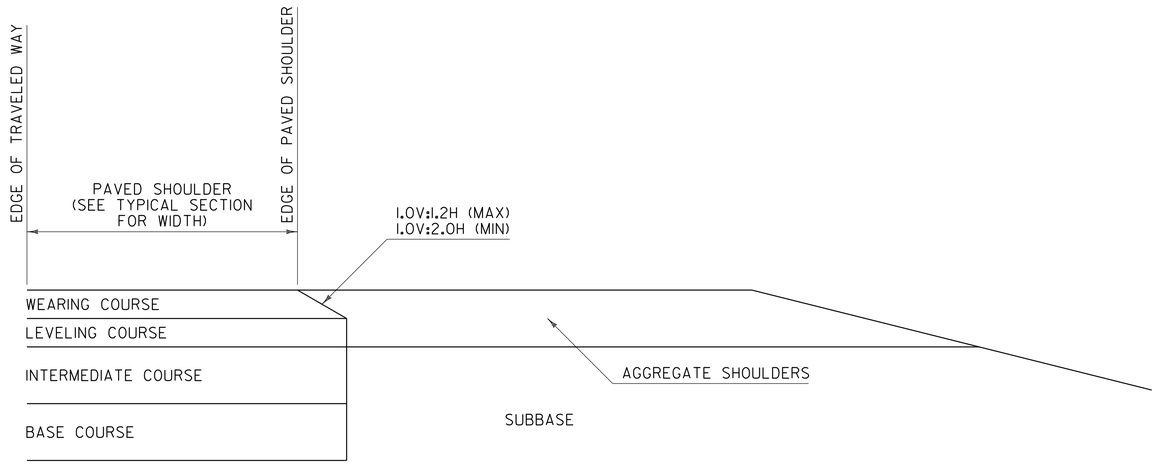
FOR R.O.W. USE ONLY

LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

RIGHT OF WAY LAND SURVEY MANAGER
APPROVED LLOYD MacCORMACK DATE 08/23/2024

PROJECT MANAGER : CORY BURRALL, P.E.

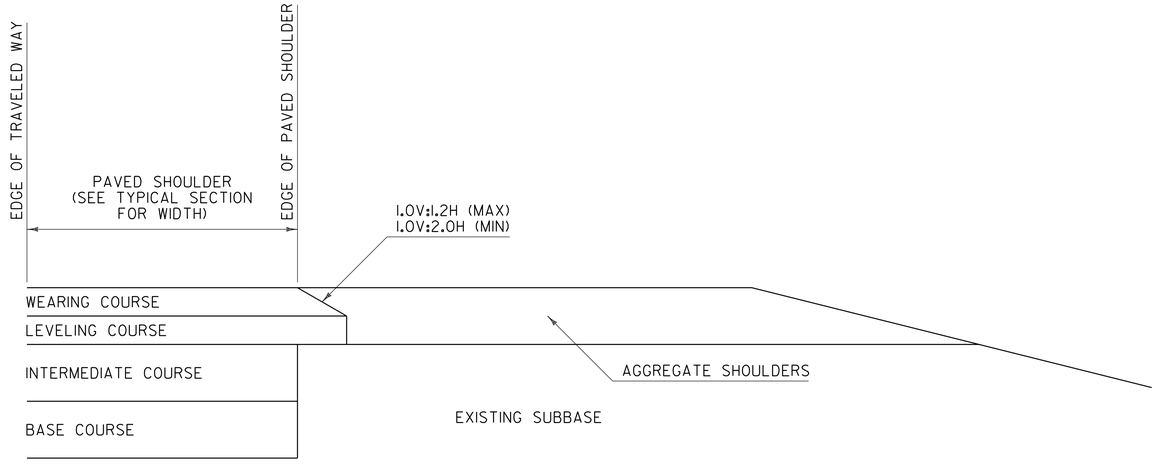
PROJECT NAME : TOPSHAM
PROJECT NUMBER : BF 031-1(13)
PIN: 19b210 PLOT DATE: 28-SEP-2026
SHEET 47 OF 47 SHEETS



SAFETY EDGE DETAIL
FOR PAVING BELOW WEARING COURSE

NOTES:

1. THIS DETAIL IS INTENDED FOR WHEN PAVING EXTENDS BELOW THE WEARING COURSE.
2. PRIOR TO PLACEMENT OF THE LEVELING AND/OR WEARING COURSE, THE SUBBASE LOCATED BENEATH THE AGGREGATE SHOULDERS SHALL BE PREPARED FLUSH WITH THE BOTTOM OF THE LEVELING COURSE.
3. BASE COURSE LIMITS MAY VARY, SEE TYPICAL SECTIONS FOR WIDTH.



SAFETY EDGE DETAIL
FOR PAVING WEARING COURSE ONLY

NOTES:

1. THIS DETAIL IS INTENDED FOR WHEN ONLY THE LEVELING AND/OR WEARING COURSE IS TO BE PLACED.
2. PAVEMENT COURSES MAY VARY, SEE TYPICAL SECTIONS FOR ACTUAL PAVEMENT COURSES REQUIRED.

SAFETY EDGE WIDTH BASED ON WEARING COURSE THICKNESS AND A 1V:1.6H SLOPE	
WEARING COURSE THICKNESS (INCHES)	NOMINAL SAFETY EDGE WIDTH (INCHES)
1.25	2.000
1.50	2.375
1.75	2.750
2.00	3.125
2.25	3.500
2.50	4.000

GENERAL NOTES:

1. PLACEMENT OF THE WEARING COURSE SHALL INCLUDE THE SAFETY EDGE, UNLESS THE FOLLOWING APPLIES:
   - A. THE ADJACENT SLOPE IS STEEPER THAN THE SAFETY EDGE.
   - B. THE EDGE OF PAVEMENT BEING PLACED ABUTS BOUND MATERIAL.
   - C. VEHICLES ARE RESTRICTED FROM LEAVING THE PAVED SURFACE (EXAMPLE: GUARDRAIL).
2. THE SAFETY EDGE SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE SLOPE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.
3. THE SAFETY EDGE SHALL NOT BE CONSIDERED PART OF THE PAVED SHOULDER.
4. THIS WORK SHALL BE INCIDENTAL TO THE RESPECTIVE BITUMINOUS CONCRETE PAVEMENT ITEM.

REV.	DATE	DESCRIPTION
0	MAR. 29, 2016	ORIGINAL APPROVAL
1	JAN. 5, 2018	ANNOTATION CORRECTIONS

OTHER DETAILS REQUIRED: NONE

DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN

SAFETY EDGE DETAILS

VTrans Working to Get You There
VERMONT AGENCY OF TRANSPORTATION

HIGHWAY SAFETY & DESIGN DETAIL

HSD-400.01