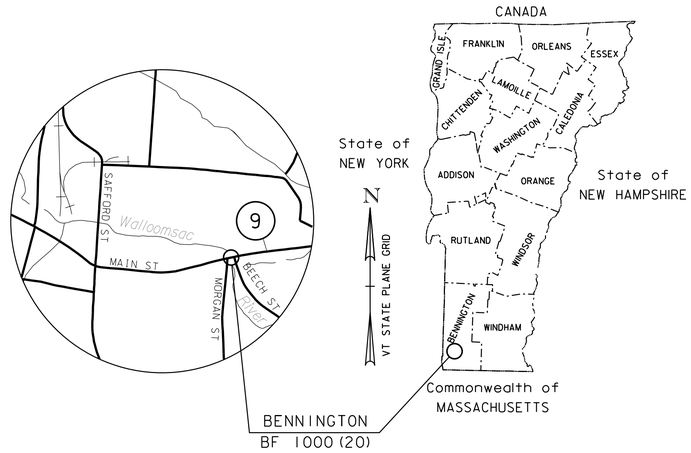
STATE OF VERMONT
AGENCY OF TRANSPORTATION



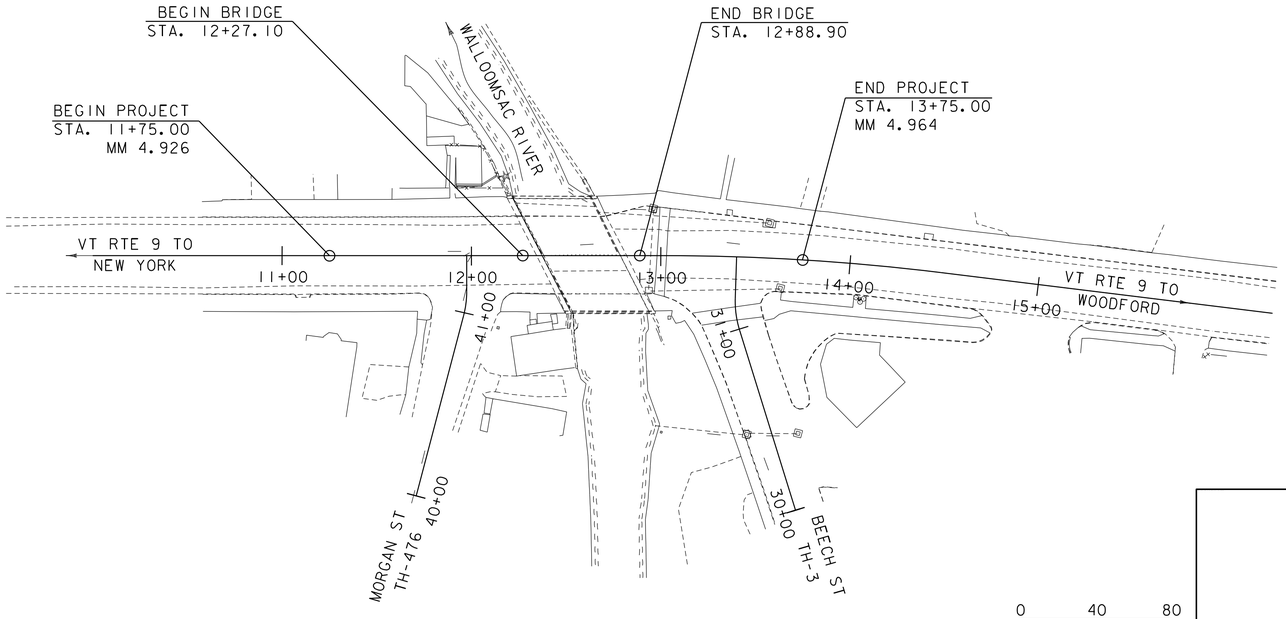
PROPOSED IMPROVEMENT

BRIDGE REPLACEMENT PROJECT
TOWN OF BENNINGTON
COUNTY OF BENNINGTON
VERMONT ROUTE 9 PRINCIPAL ARTERIAL
BRIDGE NO. 6

PROJECT LOCATION: IN THE TOWN OF BENNINGTON ON TOWN HIGHWAY 2 (VT ROUTE 9/MAIN ST) APPROXIMATELY 0.5 MILES EAST OF THE INTERSECTION WITH TOWN HIGHWAY 1 (US ROUTE 7/NORTH ST/SOUTH ST).

PROJECT DESCRIPTION: THIS PROJECT INVOLVES REPLACEMENT OF THE EXISTING BRIDGE, NEW SEWER MANHOLES, SEWER MAIN LINING, NEW WATER, NEW STORM DRAINAGE AND RELATED WORK.

LENGTH OF STRUCTURE:	61.80 FEET	0.012 MILES
LENGTH OF ROADWAY:	138.20 FEET	0.026 MILES
LENGTH OF PROJECT:	200.00 FEET	0.038 MILES



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.

FINAL
9/21/2022

QUALITY ASSURANCE PROGRAM : LEVEL 2

SURVEYED BY : C. CYR
SURVEYED DATE : 3/2017

DATUM
VERTICAL NAVD88
HORIZONTAL NAD83 (2011)

Stantec
Stantec Consulting Services Inc.
193 Tilley Drive, Suite 1
South Burlington VT U.S.A. 05403
Phone: (802) 864-0223
www.stantec.com

HIGHWAY DIVISION, CHIEF ENGINEER
APPROVED _____ DATE _____

PROJECT MANAGER : ROB YOUNG, PE

PROJECT NAME : BENNINGTON
PROJECT NUMBER : BF 1000(20)

SHEET 1 OF 76 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version
LRFD

INDEX OF SHEETS

PLAN SHEETS

1	TITLE SHEET	
2	PRELIMINARY INFORMATION SHEET	
3	TYPICAL SECTIONS	
4	EARTHWORK DETAILS	
5	PROJECT NOTES	
6 - 9	QUANTITY SHEET 1-4	
10	CONVENTIONAL SYMBOLOGY LEGEND SHEET	
11	TIE SHEET	
12	ALIGNMENT SHEET	
13	EXISTING CONDITIONS PLAN	
14	LAYOUT SHEET	
15	SIGNS & PAVEMENT MARKING SHEET	
16 - 17	PROFILE SHEET 1-2	
18	CURB LAYOUT PLAN	
19	DRAINAGE DETAIL SHEET	
20	DRAINAGE DETAILS	
21	PERM. POWER & COMM. UTILITY PLAN	
22	TRAFFIC SIGNAL PLAN SHEET	
23	TRAFFIC SIGNAL DETAILS	
24	TRAFFIC SIGNAL GENERAL NOTES	
25	TRAFFIC SIGNAL SYSTEM NOTES	
26	TRAFFIC CONTROL NOTES	
27	TYPICAL PHASING SECTIONS & NOTES	
28	PHASING LAYOUT SHEET	
29	TRAFFIC DETOUR	
30	PEDESTRIAN DETOUR	
31	BORING PLAN	
32 - 36	BORING LOGS 1-5	
37	FRAMING PLAN	
38	VOIDED SLAB DETAILS	
39 - 40	BOX BEAM DETAILS 1-2	
41	UTILITY SUPPORT DETAILS	
42	BEARING DETAILS	
43	DECK REINFORCING PLAN	
44	TYPICAL REINFORCING SECTION	
45	END OF BRIDGE DETAILS	
46	APPROACH SLAB DETAILS	
47	ABUTMENT 1 PLAN AND ELEVATION	
48	ABUTMENT 2 PLAN AND ELEVATION	
49	ABUTMENT REINFORCING	
50	RAILING AND CLOSURE WALL DETAILS	
51	APPROACH RAILING	
52	REINFORCING STEEL SCHEDULE SHEET	
53 - 55	ROUTE 9 CROSS SECTION SHEET 1-3	
56	MORGAN STREET CROSS SECTION SHEET	
57	BEECH STREET CROSS SECTION SHEET	
58 - 61	CHANNEL CROSS SECTION SHEET 1-4	
62	WATER AND SEWER GENRAL NOTES	
63	TEMPORARY WATER & SEWER UTILITY PLAN	
64	PERMANENT WATER & SEWER UTILITY PLAN	
65	WATER MAIN PROFILE	
66	SANITARY SEWER PROFILE	
67 - 69	TEMPORARY WATER & SEWER DETAILS 1-3	
70 - 73	WATER DETAILS 1-4	
74 - 76	SEWER DETAILS 1-3	

STANDARDS LIST

B-5	SLOPE GRADING, EMBANKMENTS, MUCK	6/1/1994
B -71a	STANDARD FOR RESIDENTIAL DRIVES	4/7/2020
C-2A	PORTLAND CEMENT CONCRETE SIDEWALK DRIVE ENTRANCES WITH SIDEWALK ADJACENT TO CURB	10/14/2005
C-2B	PORTLAND CEMENT CONCRETE SIDEWALK DRIVE ENTRANCES WITH SIDEWALK AND GREEN STRIP	10/14/2005
C-3A	SIDEWALK RAMPS	2/17/2022
C-3B	SIDEWALK RAMPS AND MEDIAN ISLANDS	2/17/2022
C-10	VARIOUS CURB DETAILS	2/17/2022
D-6	REINFORCED CONCRETE DROP INLET W/GRATE (DITCHES)	6/1/1994
D-8	REINFORCED CONCRETE DROP INLET WITH PRECAST COVER & GRATE	1/3/2000
D-9	REINFORCED CONCRETE DROP INLET WITH VERTICAL CURB & THROAT ADAPTER	6/1/1994
D-10	REINFORCED CONCRETE DROP INLET TOP FOR BITUMINOUS CONCRETE CURB & GRANITE SLOPE EDGING	6/1/1994
D-11	STEEL OR IRON GRATES& COVERS (TYPE A)	6/1/1994
D-15	PRECAST REINF CONC. MH-GRATES, CAST IRON GRATE WITH FRAME, TYPE D & E	6/1/1994
D-22	SANITARY SEWER SYSTEMS	3/10/1995
E-12	STABILIZED CONSTRUCTION ENTRANCE	4/7/2020
E-13	INLET PROTECTION DEVICE, TYPE I	4/7/2020
E-15	SILT FENCE	4/7/2020
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	8/8/1995
E-136B	STATE ROUTE MARKER SIGN DETAILS	8/8/1995
E-145A	REGULATORY SIGN DETAILS - LANE USE CONTROL SIGNS	12/23/1994
E-145B	REGULATORY SIGN DETAILS - LANE USE CONTROL SIGNS	12/23/1994
E-161	W-SHAPED STEEL SIGN POST	8/18/1995
E-162	TUBULAR ALUMINUM SIGN POST	5/20/1999
E-163	TUBULAR STEEL SIGN POST	4/7/2020
E-170	TRAFFIC CONTROL SIGNALS PEDESTAL POST MOUNTED	11/4/1999
E-171A	TRAFFIC CONTROL SIGNALS GENERAL NOTES & DETAILS	8/9/1995
E-171B	TRAFFIC CONTROL SIGNALS MISC. DETAILS	8/9/1995
E-171C	TRAFFIC CONTROL SIGNALS CANTILEVER MOUNTING DETAILS	8/9/1995
E-173	PULL BOXES AND JUNCTION BOXES	8/9/1995
E-175	POWER DROP STANCHIONS	6/8/2009
E-193	PAVEMENT MARKING DETAILS	8/18/1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	3/10/2017
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	3/10/2017
G-15	BREAKAWAY CABLE TERMINAL WITH STEEL POSTS	6/1/1994
S-400	BRIDGE JOINT ASPHALTIC PLUG	4/7/2020
S-500	CONCRETE DETAILS AND NOTES	4/7/2020
S-501	CONCRETE DETAILS AND NOTES	4/7/2020
T-1	TRAFFIC CONTROL GENERAL NOTES	4/25/2016
T-2	TRAFFIC SIGN GENERAL NOTES	4/7/2020
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	8/6/2012
T-28	CONSTRUCTION SIGN DETAILS	8/6/2012
T-30	CONSTRUCTION SIGN DETAILS	2/17/2022
T-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	8/6/2012
T-36	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING	8/6/2012
T-45	SQUARE TUBE SIGN POST AND ANCHOR	1/2/2013
T-56	STANDARD SIGN PLACEMENT	10/26/2015

DETAIL SHEETS

HSD400.01	SAFETY EDGE DETAILS	1/05/2018
HSD621.06	MISCELLANEOUS GUARDRAIL DETAILS	2/27/2017

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: 8/9/2021

DRAINAGE AREA : 30.0 sq. mi.
CHARACTER OF TERRAIN : Urban to Mountainous
STREAM CHARACTERISTICS : Sinous with narrow to wide floodplain
NATURE OF STREAMBED : Cobble with gravel substrate

PEAK FLOW DATA - ANNUAL EXCEEDANCE PROBABILITY (AEP)

43% =	880 cfs	2% =	2400 cfs
10% =	1600 cfs	1% =	2900 cfs
4% =	2000 cfs	0.2% =	4100 cfs

DATE OF FLOOD OF RECORD : Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ 43% AE = 8.7 fps
ICE CONDITIONS : Low to Moderate
DEBRIS: Low to Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Unknown
IS ORDINARY RISE RAPID? Unknown
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
IF YES, DESCRIBE: N/A

WATERSHED STORAGE: 6%
HEADWATERS:
UNIFORM: X
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Reinforced Concrete T-Beam
YEAR BUILT: 1923
CLEAR SPAN(NORMAL TO STREAM): 37.2 ft
VERTICAL CLEARANCE ABOVE STREAMBED: 6.7 ft +/-
WATERWAY OF FULL OPENING: 192.9 sq. ft
DISPOSITION OF STRUCTURE: Replacement
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See Borings

WATER SURFACE ELEVATIONS AT:

43% AEP =	726.1 ft	VELOCITY =	6.1 fps
10% AEP =	728.1 ft	"	6.9 fps
4% AEP =	730.3 ft	"	6.3 fps
2% AEP =	731.3 ft	"	6.7 fps
1% AEP =	732.0 ft	"	7.1 fps

LONG TERM STREAMBED CHANGES: Uknown

IS THE ROADWAY OVERTOPPED BELOW 1% AEP: Yes
FREQUENCY: 2% AEP
RELIEF ELEVATION: 730.93 ft
DISCHARGE OVER ROAD @ 1% AEP: 711 cfs +/-

UPSTREAM STRUCTURE

TOWN: Bennington — DISTANCE: 1.1 mi
HIGHWAY # : TH-51 — STRUCTURE #: 22
CLEAR SPAN: 25 ft — CLEAR HEIGHT: Unknown
YEAR BUILT: 1946 — FULL WATERWAY: Unknown
STRUCTURE TYPE: Concrete Slab

DOWNSTREAM STRUCTURE

TOWN: Bennington — DISTANCE: 330 ft
HIGHWAY # : TH-360 — STRUCTURE #: 44
CLEAR SPAN: 39 ft — CLEAR HEIGHT: Unknown
YEAR BUILT: 1921 — FULL WATERWAY: Unknown
STRUCTURE TYPE: Reinforced Concrete Arch

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEMI
TONNAGE	22	36	36	66	30	34.5	38
INVENTORY							
POSTING							
OPERATING							
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Single Span Presstressed Concrete

CLEAR SPAN(NORMAL TO STREAM): 37.2 ft *
VERTICAL CLEARANCE ABOVE STREAMBED: 6.7 ft
WATERWAY OF FULL OPENING: 241.7 sq. ft

WATER SURFACE ELEVATIONS AT:

43% AEP =	726.1 ft	VELOCITY=	6.1 fps
10% AEP =	727.8 ft	"	7.2 fps
4% AEP =	729.1 ft	"	7.6 fps
2% AEP =	730.5 ft	"	7.4 fps
1% AEP =	731.3 ft	"	8.0 fps

IS THE ROADWAY OVERTOPPED BELOW 1% AEP: NO
FREQUENCY: N/A
RELIEF ELEVATION: 730.93 ft
DISCHARGE OVER ROAD @ 1% AEP: 393 cfs

BRIDGE LOW CHORD ELEVATION: 728.54 ft
FREEBOARD: @ 2% AEP = Submerged

SCOUR: A depth of 2.3 ft was computed at the 1% AEP

REQUIRED CHANNEL PROTECTION: Stone Fill Type III*

PERMIT INFORMATION

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

TEMPORARY BRIDGE REQUIREMENTS

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

ADDITIONAL INFORMATION

*For Bank protection

TRAFFIC MAINTENANCE NOTES

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

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_P:	2.5 INCH
3. DESIGN SPAN	L:	59.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	- - -
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f_y:	270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	8.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	6.0 KSI
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 PSS	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 (WEATHERING)	f_y:	36 KSI
14. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	4.0 KSF
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	- - -
16. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	10.0 KSF
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	- - -
18. PILE RESISTANCE FACTOR	ϕ:	- - -
19. LATERAL PILE DEFLECTION	Δ:	- - -
20. BASIC WIND SPEED	V_{3s}:	- - -
21. MINIMUM GROUND SNOW LOAD	p_g:	- - -
22. SEISMIC DATA PGA: - - -	S_s:	- - -
	S_1:	- - -
23. REFER TO MICROPILE NOTES ON SHEET 6		
24.		- - -
25.		- - -
26.		- - -

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2018	8800	930	57	3.1	330
2038	9800	1000	57	4.6	550

20 year ESAL for flexible pavement from 2018 to 2038 : 2355000
40 year ESAL for flexible pavement from 2018 to 2058 : 5727000
Design Speed 30 mph

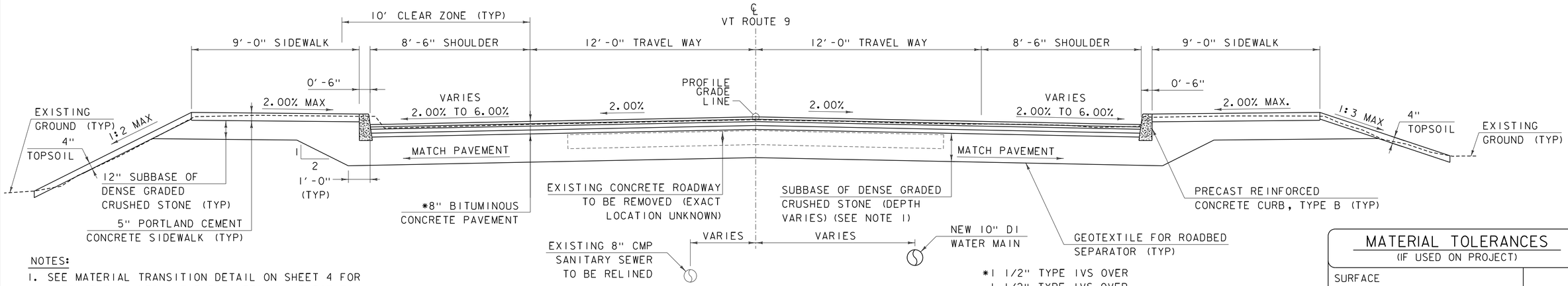
AS BUILT "REBAR" DETAIL

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

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606PI.xls
PROJECT LEADER: T. KNIGHT
DESIGNED BY: T. KNIGHT
PRELIMINARY INFORMATION SHEET

PLOT DATE: 9/19/2022
DRAWN BY: S. VERITY
CHECKED BY: T. KNIGHT



NOTES:

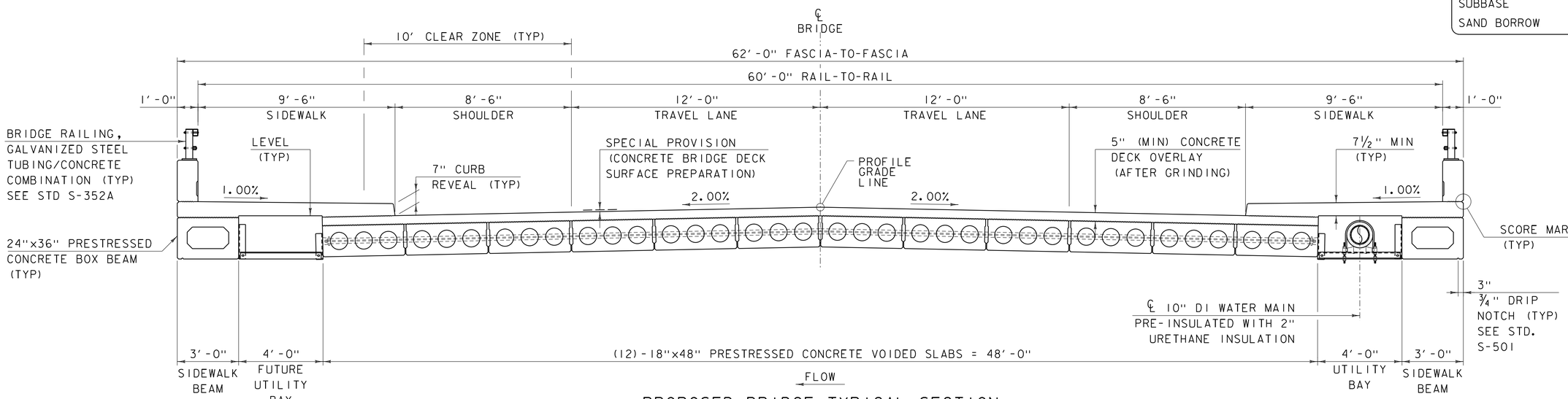
1. SEE MATERIAL TRANSITION DETAIL ON SHEET 4 FOR SUBBASE THICKNESS. THE ENGINEER MAY ELECT TO INCREASE THE SUBBASE THICKNESS IF UNSUITABLE SUBGRADE MATERIAL IS FOUND DURING CONSTRUCTION.

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

PROPOSED VT ROUTE 9 TYPICAL SECTION

NOT TO SCALE

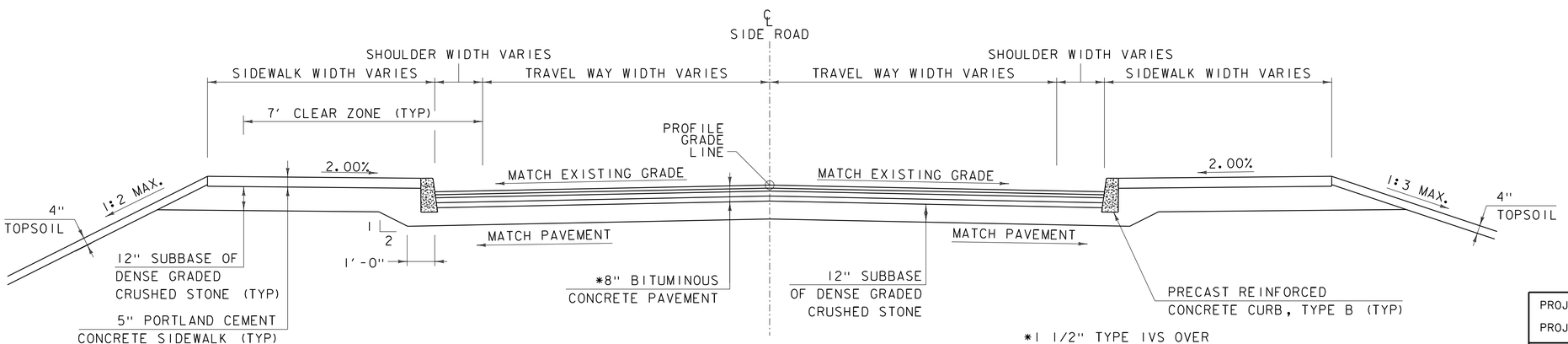
MATERIAL TOLERANCES (IF USED ON PROJECT)	
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"



PROPOSED BRIDGE TYPICAL SECTION

NOT TO SCALE

PAVEMENT DESIGN CRITERIA (SEE SHEET 2 FOR TRAFFIC DATA)	
PERFORMANCE GRADE ASPHALT BINDER	PG 70-28
DESIGN NUMBER OF GYRATIONS	65



PROPOSED SIDE ROAD TYPICAL SECTION

NOT TO SCALE

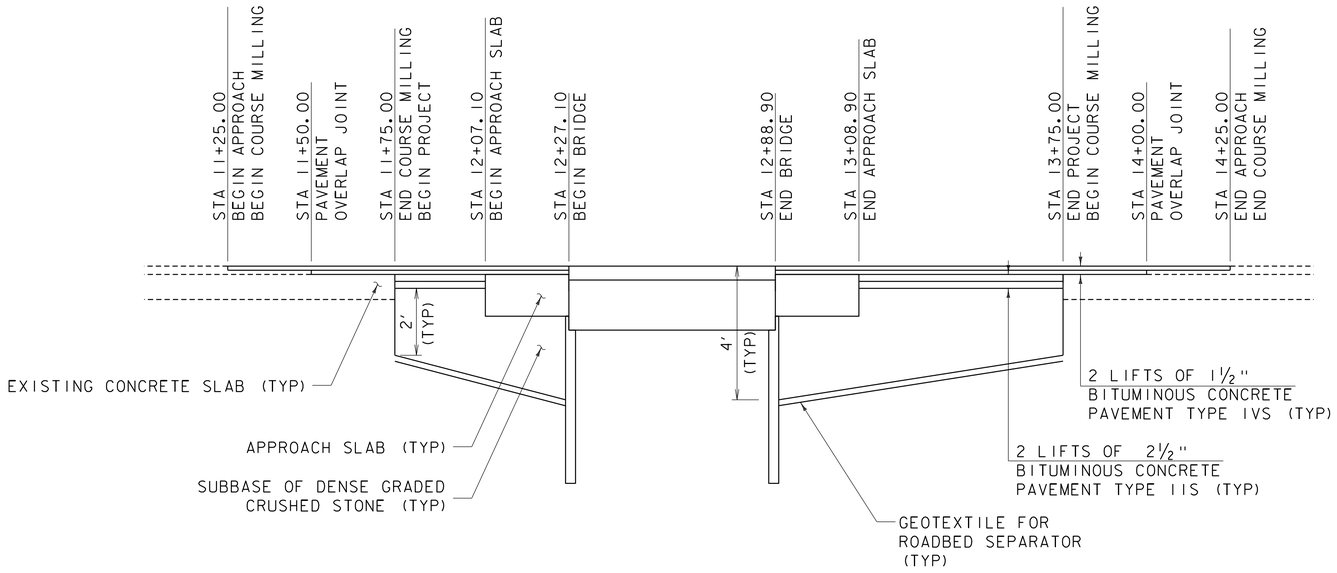
*1 1/2" TYPE IVS OVER
1 1/2" TYPE IVS OVER
2 1/2" TYPE IIS OVER
2 1/2" TYPE IIS

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

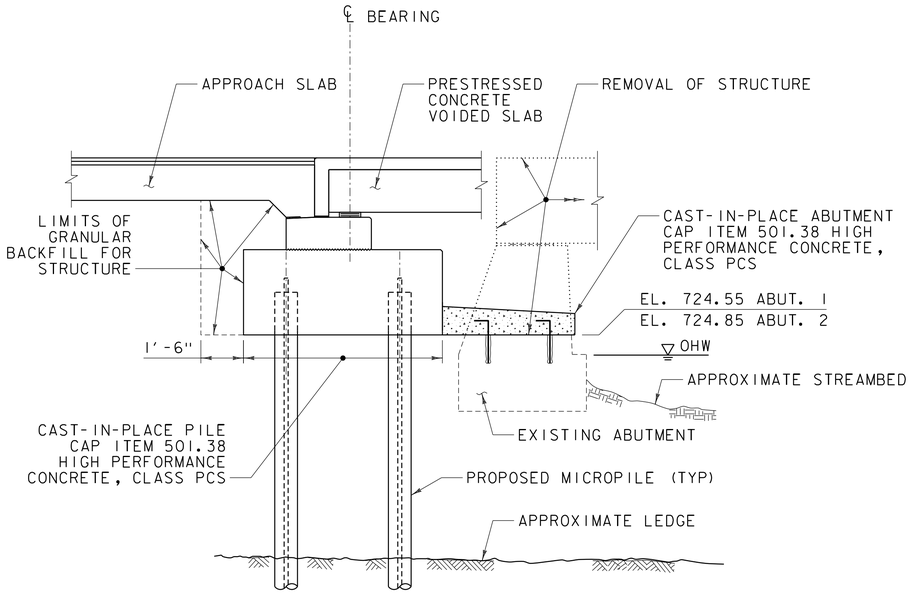
FILE NAME: z12j606typ.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: K. RICHARDSON
TYPICAL SECTIONS

PLOT DATE: 9/21/2022
DRAWN BY: G. BURGMEIER
CHECKED BY: G. SANTY
SHEET 3 OF 76



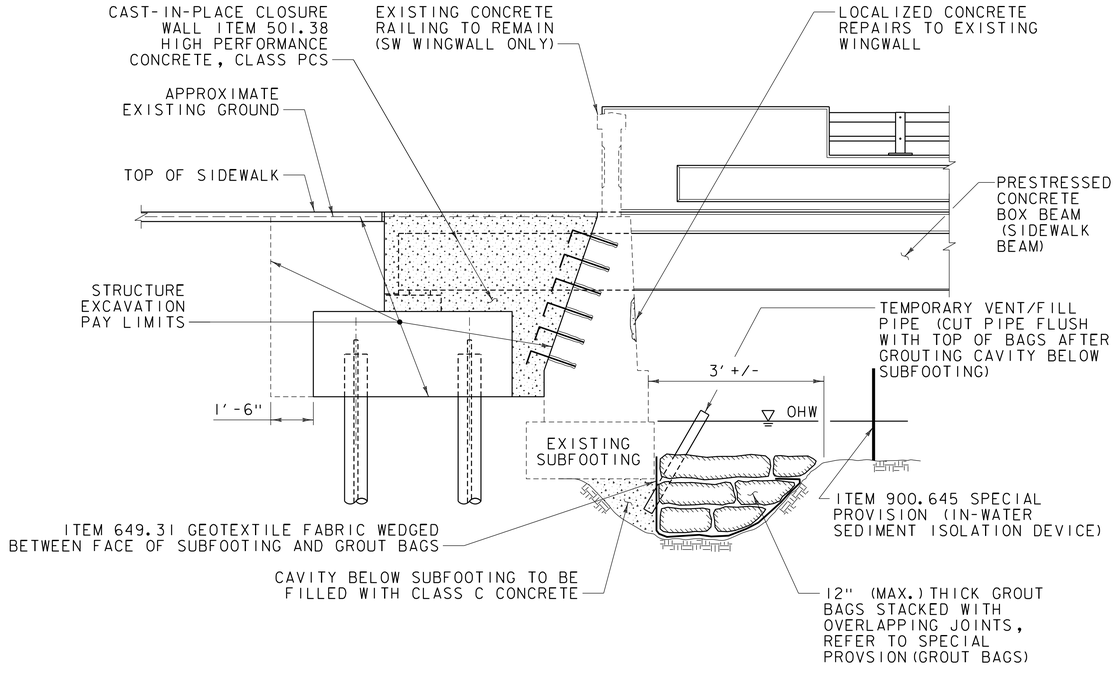
MATERIAL TRANSITION DETAIL

NOT TO SCALE



TYPICAL ABUTMENT EARTHWORKS DETAIL

NOT TO SCALE



TYPICAL WINGWALL EARTHWORKS UNDERPINNING DETAIL

NOT TO SCALE

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)

FILE NAME: z12j606typ.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: G. BURGMEIER
DESIGNED BY: K. RICHARDSON	CHECKED BY: T. KNIGHT
EARTHWORK DETAILS	SHEET 4 OF 76

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION, 2018 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS DATED 2020 AND ITS LATEST REVISIONS.

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

3. ALL WORK AND ANY ASSOCIATED ACTIVITY ON THIS PROJECT SHALL BE PERFORMED WITHIN THE EXISTING RIGHT-OF-WAY LIMITS.

4. DIMENSIONS SHOWN FOR EXISTING DETAILS ARE TAKEN FROM THE REFERENCE PLANS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND DETAILS NECESSARY FOR THE COMPLETION OF WORK BY FIELD MEASUREMENT AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY AND ACCURACY THEREOF, AND SHALL NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL THE CONTRACTOR HAS MADE THE REQUIRED MEASUREMENTS ON THE EXISTING STRUCTURE. FOR EMPHASIS, SOME PROPOSED DIMENSIONS ARE NOTED AS "VERIFY IN FIELD" OR "VIF". THIS IS DONE FOR EMPHASIS ONLY AND DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND DETAILS AS NOTED PREVIOUSLY.

5. ITEM 529.15, "REMOVAL OF STRUCTURE", SHALL INCLUDE ALL REMOVAL OF THE EXISTING STRUCTURE AS NECESSARY TO COMPLETE THE PROPOSED WORK, UNLESS NOTED OTHERWISE. THE FOLLOWING LIST IDENTIFIES MAJOR ITEMS OF WORK TO BE REMOVED UNDER ITEM 529.15:

   A. REMOVAL OF BRIDGE RAIL, BRIDGE PAVEMENT, CONCRETE DECK AND SIDEWALK, CONCRETE TEE BEAMS, CONCRETE-ENCASED STEEL I-BEAMS, EMBEDDED TROLLEY TRACKS AND RAIL, CURTAINWALLS AND BEARINGS.

   B. PARTIAL REMOVAL OF CONCRETE ABUTMENTS AND WINGWALLS TO THE LIMITS SHOWN.

MICROPILE FOUNDATIONS

6. MICROPILES ARE DESIGNED TO PROVIDE THE FOLLOWING AXIAL RESISTANCE:

	CASED	UNCASED
COMPRESSION:	880 KIPS	225 KIPS
TENSION:	955 KIPS	135 KIPS

7. EXTEND CASING A MINIMUM OF 2 FEET BELOW TOP OF LEDGE AND EXTEND UNCASED PORTION OF MICROPILE A MINIMUM OF 10'-0".

8. ESTIMATED PILE LENGTHS (FROM TOP OF CASING TO BOTTOM OF UNCASED PORTION):
   ABUTMENT 1: 22 FEET
   ABUTMENT 2: 21FEET

9. FOR INFORMATION REGARDING INSTALLATION, MICROPILE LOAD TESTING, AND MATERIAL SPECIFICATIONS SEE THE SPECIAL PROVISIONS.

CONCRETE AND REINFORCING STEEL

10. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1INCH BY 1INCH, UNLESS OTHERWISE NOTED.

11. WATER REPELLANT, SILANE SHALL BE APPLIED TO ALL CONCRETE SURFACES EXCEPT THE ROADWAY SURFACE OF THE DECK AND THE UNDERSIDE OF THE SUPERSTRUCTURE BETWEEN THE DRIP NOTCHES. THIS WORK SHALL BE PAID FOR UNDER ITEM 514.10 "WATER REPELLANT, SILANE".

12. CONCRETE FOR THE DECK OVERLAY, SIDEWALKS AND CURTAINWALLS SHALL BE ITEM 501.37, "HIGH PERFORMANCE CONCRETE, CLASS PCD".

13. CONCRETE FOR THE BRIDGE RAILING SHALL BE IN ACCORDANCE WITH ITEM 525.45, "BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION".

14. CONCRETE FOR THE PEDESTALS, PILE CAPS, APPROACH SLABS, CLOSURE WALLS, AND CAP OVER THE EXISTING ABUTMENT SHALL BE ITEM 501.38, "HIGH PERFORMANCE CONCRETE, CLASS PCS".

15. REINFORCING STEEL FOR THE DECK OVERLAY, SIDEWALKS AND CURTAINWALLS SHALL BE LEVEL III AND PAID FOR UNDER ITEM 507.13, "REINFORCING STEEL, LEVEL III".

16. REINFORCING STEEL FOR THE BRIDGE RAILING SHALL BE LEVEL III AND SHALL BE INCIDENTAL TO ITEM 525.45, "BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION".

17. ALL OTHER REINFORCING STEEL SHALL BE UNCOATED AND PAID FOR UNDER ITEM 507.11, "REINFORCING STEEL, LEVEL I".

18. THE DECK OVERLAY SHALL BE CAST TO A MINIMUM THICKNESS OF 5". AFTER THE DECK HAS BEEN CAST AND CURED, THE BRIDGE DECK SURFACE SHALL BE DIAMOND GROUND TO ACHIEVE A GROOVED TEXTURE. PAYMENT WILL BE MADE UNDER ITEM 900.670 SPECIAL PROVISION (CONCRETE BRIDGE DECK SURFACE PREPARATION). ALL DIMENSIONS SHOWN ON THESE PLANS ARE REFERENCED TO THE FINAL TOP OF DECK SURFACE AFTER GRINDING.

19. MINIMUM CLEAR COVER SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:

LOCATION	CLEAR COVER (INCHES)
TOP OF SUPERSTRUCTURE	2.0 *
UNDERSIDE OF SUPERSTRUCTURE	1.5
EXPOSED TO EARTH OR WEATHER	2.0
CAST AGAINST EARTH	3.0
LEVEL I REINFORCING WITH DIRECT EXPOSURE TO DEICING SALTS (TOP OF CLOSURE WALL)	3.0

* VALUE PROVIDED IS IN THE FINAL CONDITION AFTER GRINDING

PRESTRESSED CONCRETE

20. ALL PRETENSIONING ELEMENTS SHALL BE 0.6" DIA., UNCOATED, SEVEN-WIRE, LOW RELAXATION STEEL STRANDS AND SHALL CONFORM TO AASHTO M 203.

21. THE TENSILE STRENGTH OF THE PRETENSIONING STRANDS SHALL BE 270 KSI.

22. THE INITIAL TENSION PER 0.6" DIA. STRAND SHALL BE 44 KIPS.

23. THE MINIMUM 28 DAY COMPRESSIVE STRENGTH SHALL BE 8000 PSI.

24. NO PRESTRESS SHALL BE TRANSFERRED TO THE CONCRETE UNTIL IT HAS ATTAINED A COMPRESSIVE STRENGTH, AS SHOWN BY CYLINDER TEST, OF AT LEAST 6000 PSI.

25. THE TOP OF ALL BEAMS SHALL BE GIVEN A RAKE FINISH (1/4" AMPLITUDE) ACROSS THE WIDTH (PERPENDICULAR TO THE BEAM'S AXIS).

26. THE FABRICATOR IS FULLY RESPONSIBLE FOR THE DESIGN OF THE LIFTING DEVICES WHICH SHALL BE ADEQUATE FOR THE SAFETY FACTORS REQUIRED BY THE ERECTION PROCEDURE.

PRESTRESSED CONCRETE

27. CONSTRUCTION SEQUENCE FOR PRESTRESSED VOIDED SLABS:

   1. LAYOUT WORKING LINES:
      A. LAY OUT WORKING LINES FOR THE ENTIRE BRIDGE WIDTH ON THE PEDESTALS.
      B. MEASURE ALL WORKING LINES FROM A COMMON WORKING POINT.
      C. BASE THE WORKING LINES ON THE NOMINAL BEAM WIDTHS.

   2. VERIFY BEAM SEAT ELEVATIONS:
      A. MEASURE ELEVATIONS AT BEAM SEATS.
      B. IF SEATS ARE HIGH, GRIND TO CORRECT ELEVATIONS.
      C. IF SEATS ARE LOW, SHIM TO CORRECT ELEVATIONS.
      D. INSTALL BEARINGS.

   3. ERECT BEAMS:
      A. PLACE BEAMS TO FIT WITHIN THE WORKING LINES. AS WORK PROGRESSES, INSTALL HARDWOOD WEDGES BETWEEN ADJACENT BEAMS TO MAINTAIN PROPER JOINT OPENING (A MINIMUM OF ONE WEDGE AT EACH TRANSVERSE TENDON).
      B. DRILL ANCHOR BOLT HOLES.
      C. PLACE ANCHOR BOLTS.
      D. GROUT ANCHOR BOLTS IN ABUTMENT.

   4. INSTALL BACKER ROD:
      A. PLACE JOINT FILLER BELOW THE KEYWAY BOTTOM, AS SHOWN ON THE PLANS.

   5. INSTALL TRANSVERSE TENDONS:
      A. FEED TENDONS THROUGH DUCTS.
      B. VERIFY THAT HARDWOOD WEDGES ARE IN PLACE AS REQUIRED TO PREVENT SLIPPAGE OF BEAMS.
      C. POST-TENSION TENDONS USING A CALIBRATED JACK TO APPROXIMATELY 3.0 KIPS TO REMOVE SAG IN THE TENDON AND TO SEAT THE CHUCK.

   6. GROUT SHEAR KEYS:
      A. CLEAN JOINTS WITH AN OIL-FREE AIR-BLAST IMMEDIATELY BEFORE GROUT PLACEMENT. VERIFY THAT THE BACKER ROD IS STILL IN PLACE.
      B. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR ADDITIONAL JOINT PREPARATION AND GROUT PLACEMENT.
      C. CAREFULLY ROD JOINTS TO ELIMNATE POSSIBILITY OF VOIDS.

   7. POST-TENSION TRANSVERSE TENDONS:
      A. GROUT SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1.5 KSI, BASED ON THE MANUFACTURER'S RECOMMENDATIONS, PRIOR TO STRESSING.
      B. AFTER THE MORTAR HAS CURED (24 HOURS MINIMUM) TENSION EACH TRANSVERSE TIE TO 44 KIPS.

28. AFTER THE BEAMS HAVE BEEN ERECTED, TOP OF BEAM ELEVATIONS SHALL BE TAKEN AT QUARTER POINTS THROUGHOUT THE SPAN ALONG THE CROWN OF THE ROADWAY AND FACE OF CURBS UNDER THE DIRECTION OF THE AGENCY AND THE ENGINEER. THESE ELEVATIONS SHALL BE USED IN DETERMINING FINAL GRADE AND BLOCKING DISTANCES FROM THE TOP OF BEAM TO THE SCREED RAIL ELEVATION.

STRUCTURAL STEEL

29. THE EXISTING STEEL BEARING PLATES ON THIS PROJECT WERE COATED WITH WHITE LEAD AND TALLOW. IT IS UNKNOWN WHETHER THE REMAINING PORTIONS OF THE EXISTING STRUCTURAL STEEL MAY CONTAIN LEAD. ANY REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE, ITS OFFICERS AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSAL OF THE STRUCTURAL STEEL.

30. STRUCTURAL STEEL FOR THE STEEL UTILITY SUPPORTS WILL BE PAID FOR UNDER ITEM 506.50, "STRUCTURAL STEEL, ROLLED BEAM" AND SHALL CONFORM TO AASHTO M 270M/M 270 GRADE 36.

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606gennotes.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: P. GREENBERG
PROJECT NOTES

PLOT DATE: 9/21/2022
DRAWN BY: P. GREENBERG
CHECKED BY: T. KNIGHT

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES

1011 - ROADWAY	1051 - EROSION CONTROL	1081 - UTILITIES - BID ITEMS	1211 - BRIDGE NO. 1	1999 - FULL C.E. ITEMS	TOTALS GRAND TOTAL	TOTALS FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
1500					1500		CY	COMMON EXCAVATION	203.15	
120					120		CY	SOLID ROCK EXCAVATION	203.16	
90					90		CY	TRENCH EXCAVATION OF EARTH	204.20	
1		50			51		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	
			360		360		CY	STRUCTURE EXCAVATION	204.25	
70			90		160		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	
725					725		SY	COARSE-MILLING, BITUMINOUS PAVEMENT	210.10	
1360					1360		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	
8					8		CWT	EMULSIFIED ASPHALT	404.65	
70					70		SY	HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES	406.38	
1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	
			95		95		CY	HIGH PERFORMANCE CONCRETE, CLASS PCD	501.37	
			230		230		CY	HIGH PERFORMANCE CONCRETE, CLASS PCS	501.38	
			24450		24450		LB	REINFORCING STEEL, LEVEL I	507.11	
			11950		11950		LB	REINFORCING STEEL, LEVEL III	507.13	
			160		160		LF	DRILLING AND GROUTING DOWELS	507.16	
			130		130		EACH	MECHANICAL BAR CONNECTOR	507.19	
			122		122		LF	PRESTRESSED CONCRETE BOX BEAMS (24" X 36")	510.21	
			730		730		LF	PRESTRESSED CONCRETE VOIDED SLABS (18" X 48")	510.22	
			670		670		LF	GROUTING SHEAR KEYS	510.24	
			35		35		GAL	WATER REPELLENT, SILANE	514.10	
			46		46		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10	
			46		46		LF	JOINT SEALER, HOT POURED	524.11	
			116		116		LF	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	525.45	
			1		1		EACH	REMOVAL OF STRUCTURE (2950 SF - EST) (REMOVAL OF BRIDGE NO. 6)	529.15	
			56		56		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17	
			2		2		CY	CONCRETE, CLASS C	541.30	
			5		5		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	580.13	
			5		5		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14	
			2		2		CY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS III	580.15	
110					110		LF	18" CPEP(SL)	601.2615	
1					1		EACH	18" CPEPES	601.7015	
2					2		EACH	PRECAST REINFORCED CONCRETE CATCH BASIN WITH CAST IRON GRATE	604.20	
1					1		EACH	PRECAST REINFORCED CONCRETE CATCH BASIN WITH CAST IRON GRATE (DEEP SUM	604.20	
		1			1		EACH	CHANGING ELEVATION OF SEWER MANHOLES	604.42	
			35		35		CY	STONE FILL, TYPE III	613.12	
600					600		LF	CAST-IN-PLACE CONCRETE CURB, TYPE B	616.28	
410					410		SY	PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH	618.10	
54					54		SF	DETECTABLE WARNING SURFACE	618.30	
15					15		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		COMMON EXCAVATION
1,116	CY	US ROUTE 9
150	CY	MORGAN STREET
208	CY	BEECH STREET
26	CY	ROUNDING
1,500	CY	TOTAL

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606qty.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: P. GREENBERG
QUANTITY SHEET 1

PLOT DATE: 9/21/2022
DRAWN BY: S. VERITY
CHECKED BY: S. WINES
SHEET 6 OF 76

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES				TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
1011 - ROADWAY	1051 - EROSION CONTROL	1081 - UTILITIES - BID ITEMS	1211 - BRIDGE NO. 1	1999 - FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
1					1		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60				
			1		1		EACH	GUARDRAIL APPROACH SECTION TO CONCRETE BRIDGE RAILING, TL-2	621.746				
		1			1		EACH	ADJUST ELEVATION OF VALVE BOX	629.20				
800					800		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
5000					5000		HR	FLAGGERS	630.15				
				1	1		LS	FIELD OFFICE, ENGINEERS	631.10				
				1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
				1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
				1	1		LS	TESTING EQUIPMENT, GROUT	631.19				
				3000	3000		DL	FIELD OFFICE COMMUNICATIONS (N.A.B.I.)	631.26				
11					11		EACH	CPM SCHEDULE	633.10				
1					1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
1					1		LS	TRAFFIC CONTROL, ALL-INCLUSIVE	641.11				
5					5		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
970					970		LF	DURABLE 4 INCH WHITE LINE, EPOXY PAINT	646.403				
925					925		LF	DURABLE 4 INCH YELLOW LINE, EPOXY PAINT	646.413				
245					245		LF	DURABLE 8 INCH WHITE LINE, EPOXY PAINT	646.443				
50					50		LF	DURABLE 24 INCH STOP BAR, EPOXY PAINT	646.483				
8					8		EACH	DURABLE LETTER OR SYMBOL, EPOXY PAINT	646.493				
110					110		LF	DURABLE CROSSWALK MARKING, EPOXY PAINT	646.503				
1950					1950		LF	TEMPORARY 4 INCH WHITE LINE, PAINT	646.602				
1825					1825		LF	TEMPORARY 4 INCH YELLOW LINE, PAINT	646.612				
225					225		LF	TEMPORARY 8 INCH WHITE LINE, PAINT	646.642				
100					100		LF	TEMPORARY 24 INCH STOP BAR, PAINT	646.682				
16					16		EACH	TEMPORARY LETTER OR SYMBOL, PAINT	646.692				
220					220		LF	TEMPORARY CROSSWALK MARKING, PAINT	646.702				
570					570		EACH	LINE STRIPING TARGETS	646.76				
			10		10		SY	GEOTEXTILE UNDER STONE FILL	649.31				
	5				5		LB	SEED	651.15				
	35				35		LB	FERTILIZER	651.18				
	1				1		TON	AGRICULTURAL LIMESTONE	651.20				
	40				40		CY	TOPSOIL	651.35				
	1				1		LS	EPSC PLAN	653.01				
	90				90		HR	MONITORING EPSC PLAN	653.02				
	1				1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	653.03				
	1				1		TON	HAY MULCH	653.10				
	70				70		CY	STABILIZED CONSTRUCTION ENTRANCE	653.35				
	7				7		EACH	INLET PROTECTION DEVICE, TYPE II	653.41				
	4				4		EACH	FILTER BAG	653.45				
	680				680		LF	BARRIER FENCE	653.50				

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606qty.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: P. GREENBERG
QUANTITY SHEET 2

PLOT DATE: 9/21/2022
DRAWN BY: S. VERITY
CHECKED BY: S. WINES
SHEET 7 OF 76

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES						TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
1011 - ROADWAY	1051 - EROSION CONTROL	1081 - UTILITIES - BID ITEMS	1211 - BRIDGE NO. 1	1999 - FULL C.E. ITEMS		GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
13						13		SF	TRAFFIC SIGN, TYPE A	675.20				
70						70		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
8						8		EACH	REMOVING SIGNS	675.50				
8						8		EACH	RESETTING SIGNS	675.60				
1						1		EACH	TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION	678.15				
50						50		LF	WIRED CONDUIT (2")(SCH 80 PVC)	678.23				
			3			3		CY	SPECIAL PROVISION (GROUT BAGS)	900.608				
			150000			150000		DL	SPECIAL PROVISION (INCENTIVE/DISINCENTIVE)(N.A.B.I.)	900.615				
			2			2		EACH	SPECIAL PROVISION (MICROPILE VERIFICATION LOAD TEST)	900.620				
		1				1		EACH	SPECIAL PROVISION (GATE VALVE WITH VALVE BOX, ALL-INCLUSIVE) (4")	900.620				
		2				2		EACH	SPECIAL PROVISION (GATE VALVE WITH VALVE BOX, ALL-INCLUSIVE) (6")	900.620				
		1				1		EACH	SPECIAL PROVISION (GATE VALVE WITH VALVE BOX, ALL-INCLUSIVE) (8")	900.620				
		2				2		EACH	SPECIAL PROVISION (GATE VALVE WITH VALVE BOX, ALL-INCLUSIVE) (10")	900.620				
		2				2		EACH	SPECIAL PROVISION (CORPORATION STOP, ALL-INCLUSIVE)(1")	900.620				
		2				2		EACH	SPECIAL PROVISION (EXTENSION SERVICE BOX AND CURB STOP, ALL-INCLUSIVE) (1")	900.620				
		2				2		EACH	SPECIAL PROVISION (PERMANENT MANUAL AIR RELEASE, ALL-INCLUSIVE)	900.620				
		1				1		EACH	SPECIAL PROVISION (POST FLUSHING HYDRANT, ALL-INCLUSIVE)	900.620				
		1				1		EACH	SPECIAL PROVISION (REMOVAL OF EXISTING SANITARY SEWER MANHOLE, ALL-INCLUS	900.620				
		1				1		EACH	SPECIAL PROVISION (SANITARY SEWER MANHOLE WITH INSIDE DROP, ALL INCLUSIVE)	900.620				
2						2		EACH	SPECIAL PROVISION (JUNCTION BOX, HEAVY DUTY)	900.620				
		1				1		EACH	SPECIAL PROVISION (SANITARY SEWER MANHOLE WITH INSIDE DROP, ALL INCLUSIVE)	900.620				
2						2		EACH	SPECIAL PROVISION (JUNCTION BOX, HEAVY DUTY)	900.620				
			40			40		HR	SPECIAL PROVISION (UNEXPECTED OBSTRUCTION DRILLING)	900.630				
			450			450		LF	SPECIAL PROVISION (MICROPILE, CASED)(9.625 IN)	900.640				
			400			400		LF	SPECIAL PROVISION (MICROPILE, UNCASED)(8.535 IN)	900.640				
			250			250		LF	SPECIAL PROVISION (CRACK SEALING, HIGH MOLECULAR WEIGHT METHACRYLATE)	900.640				
		10				10		LF	SPECIAL PROVISION (SEAMLESS COPPER WATER TUBE)(3/4")	900.640				
		180				180		LF	SPECIAL PROVISION (SEAMLESS COPPER WATER TUBE)(1")	900.640				
		15				15		LF	SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE) (4")	900.640				
		75				75		LF	SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE) (6")	900.640				
		95				95		LF	SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE) (8")	900.640				
		180				180		LF	SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE) (10")	900.640				
		30				30		LF	SPECIAL PROVISION (SDR 35 PVC SEWER PIPE, ALL-INCLUSIVE)(6")	900.640				
		26				26		LF	SPECIAL PROVISION (SDR 35 PVC SEWER PIPE, ALL-INCLUSIVE)(8")	900.640				
		115				115		LF	SPECIAL PROVISION (CURED-IN-PLACE-PIPE LINING-SEWER MAIN) (8")	900.640				
			1			1		LS	SPECIAL PROVISION (FURNISHING EQUIPMENT FOR INSTALLING MICROPILES)	900.645				
			1			1		LS	SPECIAL PROVISION (IN-WATER SEDIMENT ISOLATION DEVICE)	900.645				
		1				1		LS	SPECIAL PROVISION (WATER MAIN ON BRIDGE)(10")	900.645				
		1				1		LS	SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, SEWER)	900.645				
		1				1		LS	SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, WATER)	900.645				
1						1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
1						1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606qty.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: P. GREENBERG
QUANTITY SHEET 3

PLOT DATE: 9/21/2022
DRAWN BY: S. VERITY
CHECKED BY: S. WINES
SHEET 8 OF 76

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 4

SUMMARY OF ESTIMATED QUANTITIES

1011 - ROADWAY	1051 - EROSION CONTROL	1081 - UTILITIES - BID ITEMS	1211 - BRIDGE NO. 1	1999 - FULL C.E. ITEMS
			3360	
600				

TOTALS

GRAND TOTAL	FINAL
3360	
600	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER	ROUND
SF	SPECIAL PROVISION (CONCRETE BRIDGE DECK SURFACE PREPARATION)	900.670	
TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY
156	TON	US ROUTE 9, TYPE IVS
170	TON	US ROUTE 9, TYPE IIS
54	TON	MORGAN STREET, TYPE IVS
60	TON	MORGAN STREET, TYPE IIS
62	TON	BEECH STREET, TYPE IVS
68	TON	BEECH STREET, TYPE IIS
30	TON	ROUNDING
600	TON	TOTAL

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606qty.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: P. GREENBERG
QUANTITY SHEET 4

PLOT DATE: 9/21/2022
DRAWN BY: S. VERITY
CHECKED BY: S. WINES
SHEET 9 OF 76

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.

ADDITIONAL WATER AND SEWER SYMBOLS

= NEW SANITARY SEWER MANHOLE

= NEW MANUAL AIR RELEASE/ CHLORINE INJECTION POINT (MAR/CIP)

= NEW DUCTILE IRON 90° BEND

= NEW DUCTILE IRON 45° BEND (OR AS REQUIRED)

MAR = MANUAL AIR RELEASE VALVE

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

IN-WATER SEDIMENT ISOLATION DEVICE
SILT FENCE
SILT FENCE WOVEN WIRE
CHECK DAM
DISTURBED AREAS REQUIRING RE-VEGETATION
EROSION MATTING

SEE EPSC DETAIL SHEETS FOR ADDITIONAL SYMBOLOGY

ENVIRONMENTAL RESOURCES

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

ARCHEOLOGICAL & HISTORIC

ARCH — ARCHEOLOGICAL BOUNDARY
HISTORIC DIST — HISTORIC DISTRICT BOUNDARY
HISTORIC — HISTORIC AREA
H — HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

EXISTING FEATURES

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

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606legend.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: VTRANS
CONVENTIONAL SYMBOLOGY LEGEND SHEET

PLOT DATE: 9/21/2022
DRAWN BY: VTRANS
CHECKED BY: T. KNIGHT
SHEET 10 OF 76

NETWORK CONTROL

HVCTRL #1
KUBRICKY
NORTH = 141793.3040
EAST = 1460101.3970
ELEV. = 965.810

GENERAL LOCATION, BENNINGTON VT.

TO REACH FROM THE INTERSECTION OF VT ROUTE 9 AND VT ROUTE 279, GO NORTH ALONG VT ROUTE 279 FOR 0.5 MI (0.8 KM) TO THE INTERSECTION OF A GATED GRAVEL ACCESS ROAD RIGHT. TURN RIGHT AND GO EAST AND THEN SOUTH ALONG THE ACCESS ROAD FOR 0.15 MI (0.2 KM) TO THE INTERSECTION OF A GRAVEL DRIVE LEFT LEADING TO A RETENTION POND AND THE SITE OF THE MARK JUST SOUTH OF THE DRIVE. THE ACCESS DRIVE MAY BE REACHED BY FOLLOWING VT ROUTE 279 SOUTH FOR 1.1 MI (1.8 KM) FROM THE BRANCH ROAD BRIDGE TO THE DRIVE. THE MARK IS SET 15 CM (6 INCHES) ABOVE GROUND SURFACE IN THE TOP OFAN 20 CM (8 INCH) DIAMETER CONCRETE MONUMENT IN A PLASTIC FOOTINGTUBE. IT IS 6.5 M (21.3 FT) EAST-NORTHEAST OF THE CENTERLINE OF THE ACCESSROAD, 10.4 M (34.1 FT) NORTHEAST OF THE MOST SOUTHERLY POST FOR A STEEL BEAM GUARD RAIL, 6.9 M (22.6 FT) SOUTHWEST OF THE SOUTHWEST CORNER OF THE CHAIN-LINK FENCE ENCLOSURE FOR THE POND, 9.4 M (30.8 FT) SOUTH-SOUTHEAST OF THE CENTERLINE OF THE DRIVE AND 5.2 M (17.1 FT) WEST-SOUTHWEST OF A RIGHT-OF-WAY FENCE AND A FIBERGLASS WITNESS POST.

HVCTRL #2
KUBRICKY AZ MK
NORTH = 139845.4540
EAST = 1460572.9290
ELEV. = 835.745

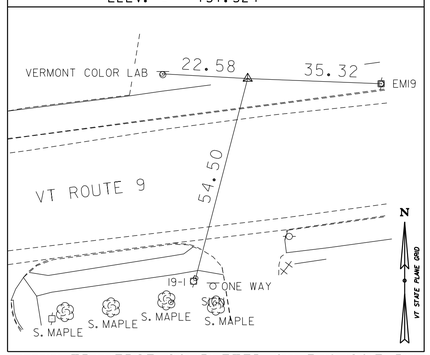
GENERAL LOCATION, BENNINGTON, VT

DP6153' TO REACH FROM THE INTERSECTION OF VT ROUTE 9 AND US ROUTE 7 GO EAST DP6153' ALONG VT ROUTE 9 FOR 2.0 MI (3.2 KM) TO THE SITE OF THE MARK ON THE DP6153' LEFT. THE MARK IS LOCATED IN THE GRASSY TRIANGLE FORMED BY THE VT DP6153' ROUTE 279 SOUTHBOUND OFF-RAMPS AND VT ROUTE 9. THE MARK IS SET 5 CM DP6153' (2 INCHES) ABOVE GROUND SURFACE IN THE TOP OF AN 20 CM (8 INCH) DP6153' DIAMETER CONCRETE MONUMENT IN A PLASTIC FOOTING TUBE. THE MARK IS DP6153' 11.6 M (38.1 FT) NORTH OF AND ABOUT 0.1 M (0.3 FT) HIGHER THAN THE VT DP6153' ROUTE 9 NORTH EDGE OF PAVEMENT, 19.5 M (64.0 FT) NORTHWEST OF A DP6153' TRAFFIC SIGNAL, 13.7 M (44.9 FT) WEST-SOUTHWEST OF THE CENTERLINE OF DP6153' THE OFF-RAMP TO VT ROUTE 9 EAST, 15.6 M (51.2 FT) SOUTH-SOUTHWEST OF DP6153' THE NORTH TIP OF THE TRIANGLE, 7.9 M (25.9 FT) EAST OF THE CENTERLINE DP6153' OF THE OFF-RAMP TO VT ROUTE 9 WEST, 13.2 M (43.3 FT) NORTHEAST OF THE DP6153' CENTER OF A 40 CM (16 INCH) SQUARE DRAIN AND 0.2 M (0.7 FT) SOUTHWEST DP6153' OF A FIBERGLASS WITNESS POST.

LOCAL CONTROL

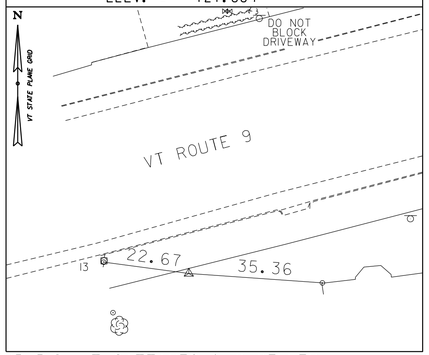
HVCTRL #6

NORTH = 138905.9028
EAST = 1456767.1785
ELEV. = 737.524



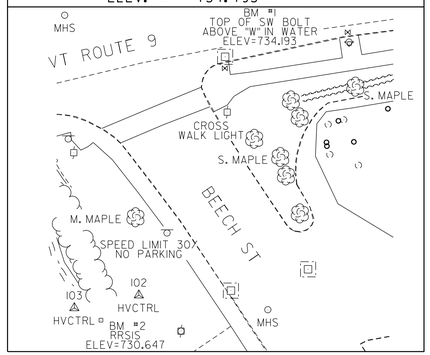
HVCTRL #7

NORTH = 138751.3988
EAST = 1456279.1074
ELEV. = 727.884



BM #1/BM #2

NORTH = 138839.1669
EAST = 1456592.5187
ELEV. = 734.193



NORTH = / EAST = / ELEV. =

NORTH = / EAST = / ELEV. =

ALIGNMENT TIES

NORTH = / EAST = / ELEV. =

SEE ALIGNMENT SHEET

NORTH = / EAST = / ELEV. =

NORTH = / EAST = / ELEV. =

NORTH = / EAST = / ELEV. =

NORTH = / EAST = / ELEV. =

* MAIN TRAVERSE COMPLETED ON 3/8/2017 BY C. CYR P.C. ...T. CATTANEO & K. KELLEY

DATUM
VERTICAL NAVD88
HORIZONTAL NAD83(2011)
ADJUSTMENT COMPASS

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: x12j606ti.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: VTRANS
TIE SHEET

PLOT DATE: 9/21/2022
DRAWN BY: C. CYR
CHECKED BY: G. HITCHCOCK
SHEET II OF 76

POB
STA 10+00.00

POB
N 138761.6064
E 1456194.4238

VT ROUTE 9
TO NY STATE

N75°41'01.48"E

10+00

11+00

MAINLINE STA. 12+58.00
N 138825.4030
E 1456444.4118
= CHANNEL STA. 21+71.95
N= 138825.4030
E= 1456444.4118
Δ=63°00'00"

VT ROUTE 9 STA. 11+97.47
N 138810.4364
E 1456385.7649
= MORGAN STREET STA. 41+30.27
N 138810.4364
E 1456385.7649

POE
N 138810.4364
E 1456385.7649

POE
STA 41+30.27

PT
STA 41+11.20

CURVE #2
PC
STA 40+98.33

90°

12+00

N14°18'58.52"W

41+00

N0°26'00.13"E

POB
STA 40+00.00

40+00

TH-476
MORGAN ST

POB
N 138680.8932
E 1456391.2874

CURVE #2 DATA
Δ = 14°44'58.65"
D = 114°35'29.61"
R = 50.00'
T = 6.47'
L = 12.87'
E = 0.42'
C = 12.84'

PC
N 138779.2187
E 1456392.0311

PT
N 138791.9606
E 1456390.4799

POE
N 138916.6072
E 1456354.9792

POE
STA 22+99.78

23+00

N46°04'26.41"W

WALLOOMSAC RIVER

PI
STA 22+15.91
N 138858.4241
E 1456415.3854

N41°18'58.52"W

22+00

63°

PI
STA 41+04.80
N 138785.6901
E 1456392.0801

PI
STA 21+32.92
N 138796.0894
E 1456470.1791

N17°02'33.34"W

21+00

20+00

POB
STA 20+00.00

POB
N 138669.0093
E 1456509.1348

POE
N 138845.0891
E 1456524.0547

POE
STA 31+38.61

13+00

90°

CURVE #1
N12°28'33.60"W

PI
STA 31+08.24
N 138815.2896
E 1456530.6480

31+00

PT
STA 31+16.50

PC
STA 30+99.83

CURVE #3

PC
STA 13+01.50

N31°34'11.13"W

30+00

POB
STA 29+99.96

TH-3
BEECH ST

POB
N 138723.0342
E 1456587.3368

VT ROUTE 9 STA. 13+40.04
N 138845.0891
E 1456524.0547
= BEECH STREET STA. 31+38.61
N 138845.0891
E 1456524.0547

PI
STA 13+74.98
N 13885.3290
E 1456557.7584

14+00

N82°41'29.67"E

15+00

PT
STA 14+48.27

VT ROUTE 9
TO WOODFORD

16+00

16+25

POE
STA 16+24.77

POE
N 138886.1277
E 1456805.6973

CURVE #3 DATA
Δ = 19°05'37.53"
D = 114°35'29.61"
R = 50.00'
T = 8.41'
L = 16.66'
E = 0.70'
C = 16.59'

PC
N 138808.1249
E 1456535.0505

PT
N 138823.5002
E 1456528.8314

CURVE #1 DATA
Δ = 7°00'28.19"
D = 4°46'28.73"
R = 1200.00'
T = 73.48'
L = 146.77'
E = 2.25'
C = 146.68'

PC
N 138836.1599
E 1456486.5628

PT
N 138863.6761
E 1456630.6390

N

VT STATE PLANE GRID

DATUM

VERTICAL	NAVD88
HORIZONTAL	NAD83(2011)
ADJUSTMENT	COMPASS

0 20 40
SCALE IN FEET

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606bdr_alg.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: J. BURKE
ALIGNMENT SHEET

PLOT DATE: 9/21/2022
DRAWN BY: J. BURKE
CHECKED BY: K. RICHARDSON
SHEET 12 OF 76

N

VT STATE PLANE GRID

SOIL CLASSIFICATION C

COPAKE GRAVELY FINE SANDY LOAM
0% TO 3% SLOPES
"K" FACTOR = 0.15
LOW EROSION POTENTIAL

VT ROUTE 9
TO NY STATE

VT ROUTE 9
TO WOODFORD

WALLOOMSAC RIVER

TH-476
MORGAN ST

TH-3
BEECH ST

0 20 40
SCALE IN FEET

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606bdr.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: G. BURGMEIER
DESIGNED BY: K. RICHARDSON	CHECKED BY: T. KNIGHT
EXISTING CONDITIONS PLAN	SHEET 13 OF 76

(200) VT ROUTE 9 STA. 13+55, LT. TO 13+56, RT.
NEW 18" X 33.0' CPEP(SL), INV. IN 726.79 INV. OUT 726.61

(201) BEECH ST STA. 30+91, LT. TO VT ROUTE 9 STA. 13+54, RT.
NEW 18" X 37.0' CPEP(SL), INV. IN 726.50 INV. OUT 726.30

(202) BEECH STREET STA. 30+91, LT. TO 31+00, LT.
NEW 18" X 36.0' CPEP(SL), INV. IN 726.20 INV. OUT 726.00

STRUCTURE

NO.	STATION	STATION	COMMENTS
CB201	VT ROUTE 9	13+55, LT	4' DIA. DEEP SUMP CATCH BASIN, TYPE "D" GRATE, RIM 731.1', OFFSET 17.7'
CB202	VT ROUTE 9	13+56, RT	4' DIA. CATCH BASIN, TYPE "D" GRATE, RIM 731.1', OFFSET 18.8'
CB203	BEECH ST	30+91, LT	4' DIA. CATCH BASIN, TYPE "D" GRATE, RIM 730.7', OFFSET 12.8'

SPECIAL PROVISION (GROUT BAGS)
STA. 21+30.00, LT. TO STA. 21+57.00, LT.

HD STEEL BEAM GUARDRAIL, GALVANIZED
STA. 31+00 TO 31+09, LT

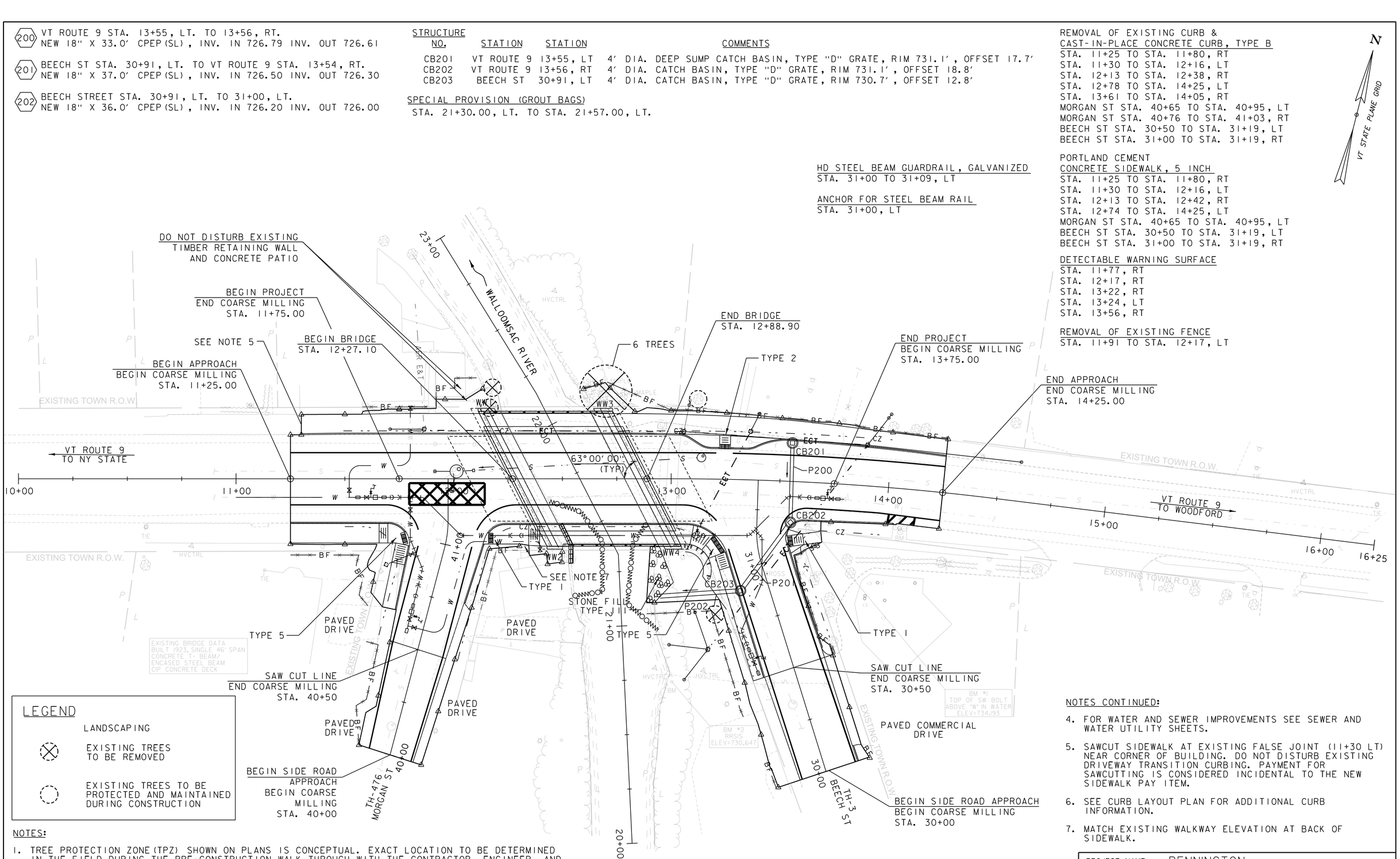
ANCHOR FOR STEEL BEAM RAIL
STA. 31+00, LT

REMOVAL OF EXISTING CURB & CAST-IN-PLACE CONCRETE CURB, TYPE B
STA. 11+25 TO STA. 11+80, RT
STA. 11+30 TO STA. 12+16, LT
STA. 12+13 TO STA. 12+38, RT
STA. 12+78 TO STA. 14+25, LT
STA. 13+61 TO STA. 14+05, RT
MORGAN ST STA. 40+65 TO STA. 40+95, LT
MORGAN ST STA. 40+76 TO STA. 41+03, RT
BEECH ST STA. 30+50 TO STA. 31+19, LT
BEECH ST STA. 31+00 TO STA. 31+19, RT

PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH
STA. 11+25 TO STA. 11+80, RT
STA. 11+30 TO STA. 12+16, LT
STA. 12+13 TO STA. 12+42, RT
STA. 12+74 TO STA. 14+25, LT
MORGAN ST STA. 40+65 TO STA. 40+95, LT
BEECH ST STA. 30+50 TO STA. 31+19, LT
BEECH ST STA. 31+00 TO STA. 31+19, RT

DETECTABLE WARNING SURFACE
STA. 11+77, RT
STA. 12+17, RT
STA. 13+22, RT
STA. 13+24, LT
STA. 13+56, RT

REMOVAL OF EXISTING FENCE
STA. 11+91 TO STA. 12+17, LT



LEGEND

LANDSCAPING

EXISTING TREES TO BE REMOVED

EXISTING TREES TO BE PROTECTED AND MAINTAINED DURING CONSTRUCTION

NOTES:

1. TREE PROTECTION ZONE (TPZ) SHOWN ON PLANS IS CONCEPTUAL. EXACT LOCATION TO BE DETERMINED IN THE FIELD DURING THE PRE-CONSTRUCTION WALK THROUGH WITH THE CONTRACTOR, ENGINEER, AND VTRANS ARBORIST.
2. MAXIMUM FILL WITHIN THE DRIP EDGE OF ALL EXISTING TREES TO BE TWO INCHS AND TAPER TO ZERO INCHES AT THE TREE TRUNK. FILL WITHIN DRIP ZONE SHALL BE PLACED BY HAND METHODS ONLY. REFER TO CROSS SECTIONS FOR GRADING.
3. CAREFULLY EXCAVATE FOR NEW WATER AND SEWER TO REDUCE IMPACT TO EXISTING TREES.

0 20 40
SCALE IN FEET

NOTES CONTINUED:

4. FOR WATER AND SEWER IMPROVEMENTS SEE SEWER AND WATER UTILITY SHEETS.
5. SAWCUT SIDEWALK AT EXISTING FALSE JOINT (11+30 LT) NEAR CORNER OF BUILDING. DO NOT DISTURB EXISTING DRIVEWAY TRANSITION CURBING. PAYMENT FOR SAWCUTTING IS CONSIDERED INCIDENTAL TO THE NEW SIDEWALK PAY ITEM.
6. SEE CURB LAYOUT PLAN FOR ADDITIONAL CURB INFORMATION.
7. MATCH EXISTING WALKWAY ELEVATION AT BACK OF SIDEWALK.

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606bdr.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: K. RICHARDSON
LAYOUT SHEET

PLOT DATE: 9/21/2022
DRAWN BY: G. BURGMEIER
CHECKED BY: T. KNIGHT
SHEET 14 OF 76

DURABLE 4 INCH WHITE LINE
STA. 11+25, LT TO STA. 13+21, LT (SOLID LANE LINE)
STA. 11+25, LT TO STA. 11+81, RT (SOLID LANE LINE)
STA. 12+14, LT TO STA. 13+21, RT (SOLID LANE LINE)
STA. 13+27, LT TO STA. 14+25, LT (SOLID LANE LINE)
STA. 13+51, RT TO STA. 14+25, RT (SOLID LANE LINE)
MORGAN ST STA. 40+00, LT TO STA. 40+96, LT (SOLID LANE LINE)
MORGAN ST STA. 40+00, RT TO STA. 41+03, RT (SOLID LANE LINE)
BEECH ST STA. 30+00, LT TO STA. 31+09, LT (SOLID LANE LINE)
BEECH ST STA. 30+00, RT TO STA. 31+06, RT (SOLID LANE LINE)

DURABLE 4 INCH YELLOW LINE
STA. 11+25 TO STA. 13+14, LT&RT DOUBLE SOLID CENTERLINES
STA. 13+54 TO STA. 14+25, LT&RT DOUBLE SOLID CENTERLINES
MORGAN ST STA. 40+00 TO STA. 40+96, LT&RT DOUBLE SOLID CENTERLINES (MORGAN STREET)
BEECH ST STA. 30+00 TO STA. 30+99, LT&RT DOUBLE SOLID CENTERLINES (BEECH STREET)

DURABLE 8 INCH WHITE LINE
STA. 11+80, RT TO STA. 12+14, RT (DONT BLOCK THE BOX MARKINGS)
STA. 14+00 TO 14+12, RT (HYDRANT MARKINGS)

DURABLE 24 INCH STOP BAR
STA. 12+72, RT (12 LF)
STA. 13+66, LT (12 LF)
MORGAN ST STA. 40+96, RT (14 LF) (MORGAN STREET)
BEECH ST STA. 30+99, RT (11 LF) (BEECH STREET)

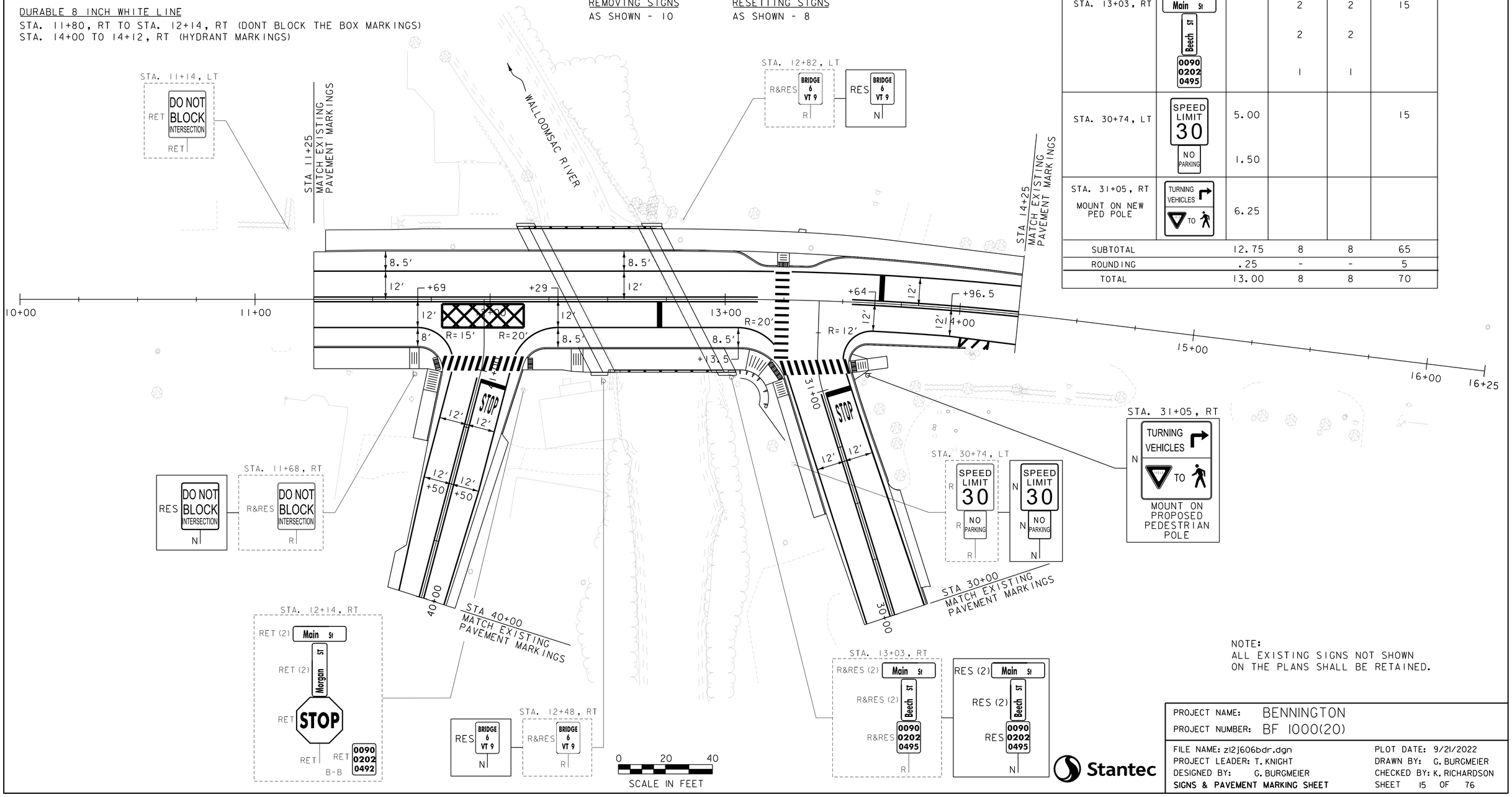
DURABLE LETTER OR SYMBOL
MORGAN ST STA. 40+87, RT "STOP" (MORGAN STREET)
BEECH ST STA. 30+90, RT "STOP" (BEECH STREET)

DURABLE CROSSWALK MARKING
STA. 13+23, LT TO STA. 13+24, RT (43 LF)
STA. 11+79, RT TO STA. 12+15, RT (35 LF) (MORGAN STREET)
STA. 13+27, RT TO STA. 13+54, RT (30 LF) (BEECH STREET)

REMOVING SIGNS
AS SHOWN - 10

RESETTING SIGNS
AS SHOWN - 8

		NEW SIGNS "A"	REMOVE SIGNS	RESET SIGNS	SQUARE STEEL (IN) (2.00)
STA. 11+68, RT	DO NOT BLOCK INTERSECTION		1	1	15
STA. 12+48, RT	BRIDGE 6 VT 9		1	1	10
STA. 12+82, LT	BRIDGE 6 VT 9		1	1	10
STA. 13+03, RT	Main St Beech ST 0090 0202 0495		2 2 1	2 2 1	15
STA. 30+74, LT	SPEED LIMIT 30 NO PARKING	5.00 1.50			15
STA. 31+05, RT MOUNT ON NEW PED POLE	TURNING VEHICLES TO	6.25			
SUBTOTAL		12.75	8	8	65
ROUNDING		.25	-	-	5
TOTAL		13.00	8	8	70



N
VT STATE PLANE GRID

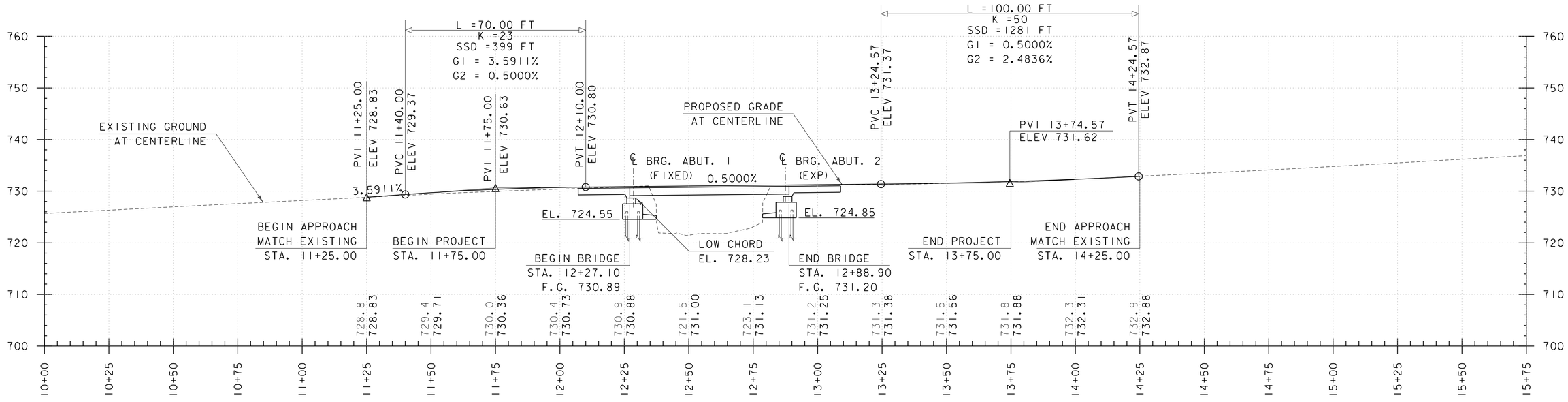
NOTE:
ALL EXISTING SIGNS NOT SHOWN ON THE PLANS SHALL BE RETAINED.

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606bdr.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: G. BURGMEIER
PLOT DATE: 9/21/2022
DRAWN BY: G. BURGMEIER
CHECKED BY: K. RICHARDSON

SIGNS & PAVEMENT MARKING SHEET
SHEET 15 OF 76

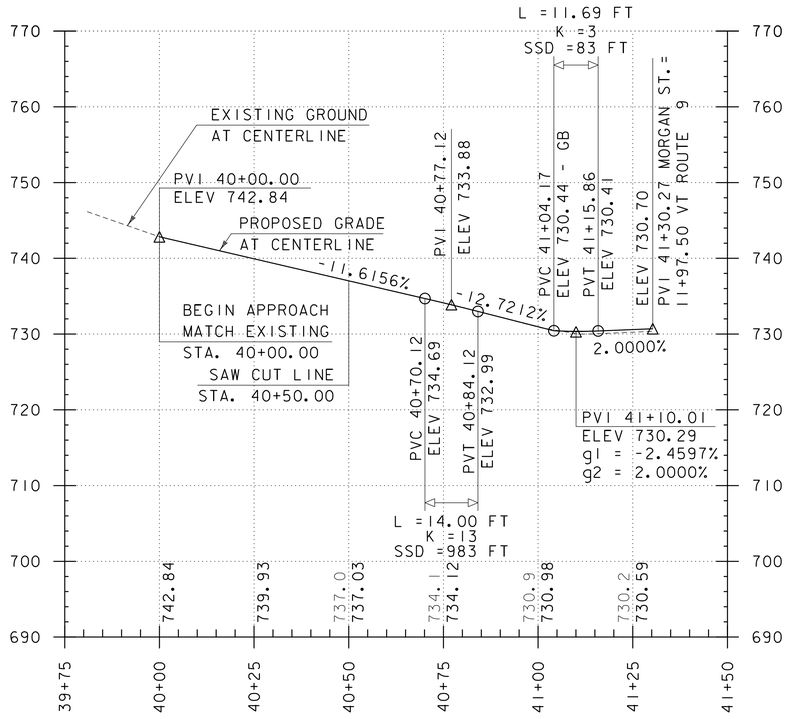


VT ROUTE 9 PROFILE

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

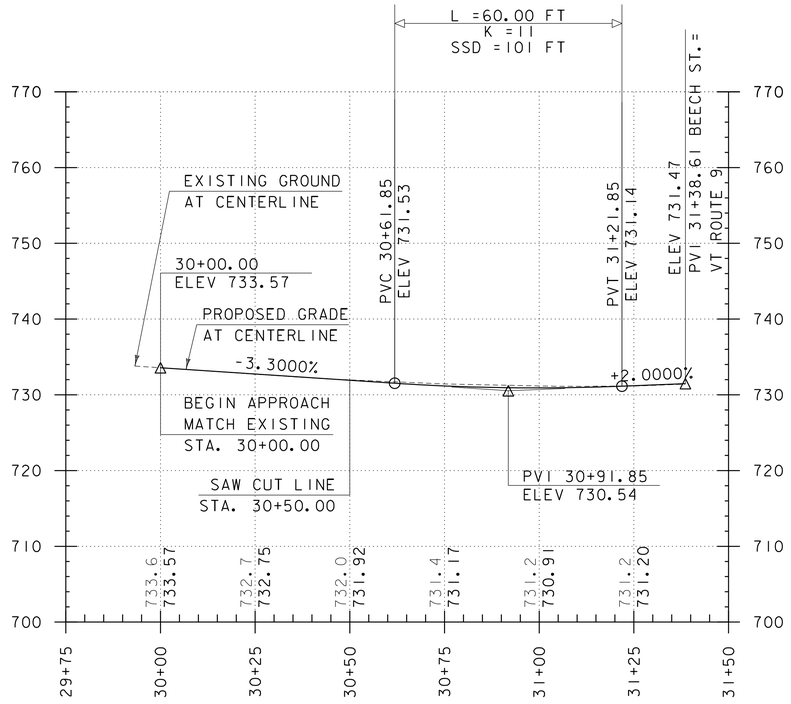
Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606pro.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: G. BURGMEIER
DESIGNED BY: I. MAYNARD	CHECKED BY: T. KNIGHT
PROFILE SHEET 1	SHEET 16 OF 76



MORGAN STREET PROFILE

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



BEECH STREET PROFILE

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

Stantec

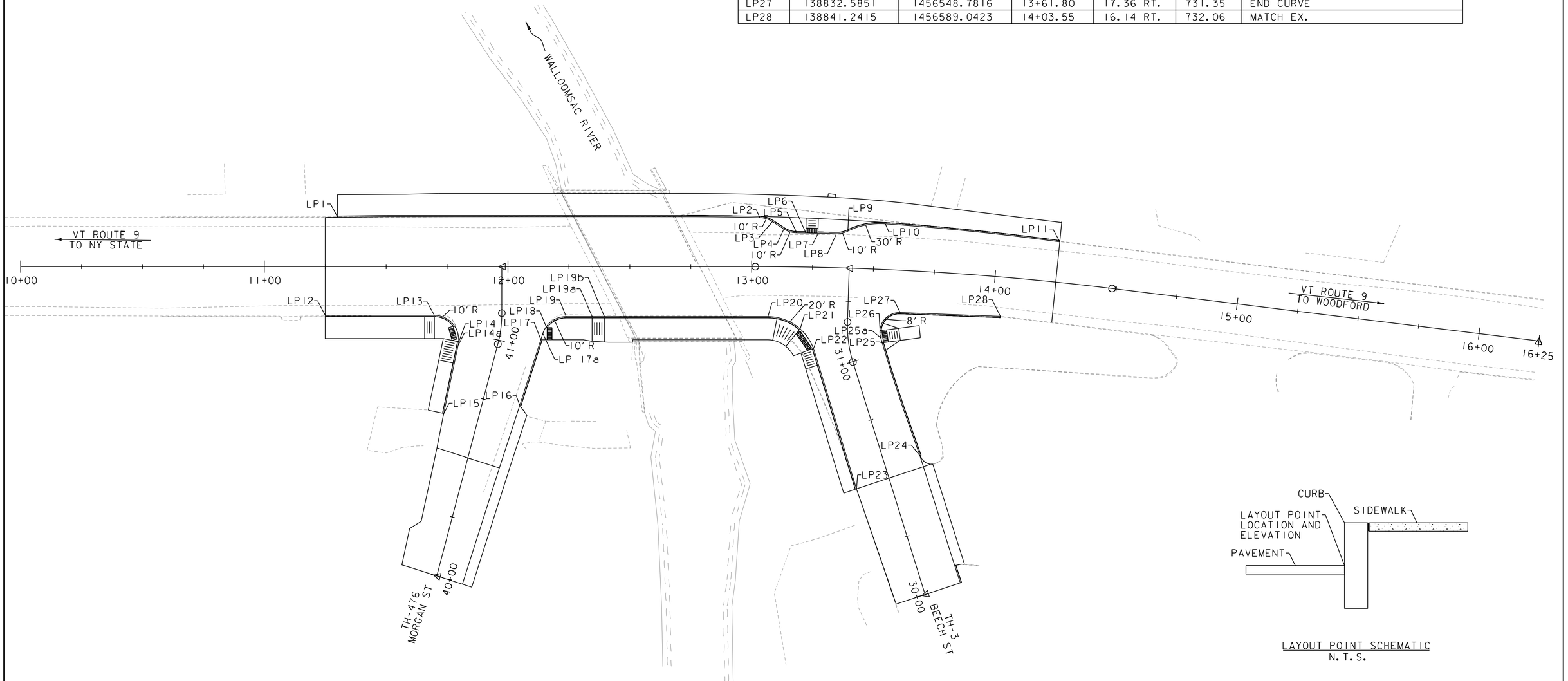
PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606pro.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: G. BURGMEIER
DESIGNED BY: G. BURGMEIER	CHECKED BY: T. KNIGHT
PROFILE SHEET 2	SHEET 17 OF 76

LAYOUT POINT	NORTHING	EASTING	STATION	OFFSET	ELEVATION	DESCRIPTION
LP1	138813.5462	1456315.3353	11+25.00	20.50 LT.	728.42	MATCH EX.
LP2	138856.0878	1456483.3490	13+03.29	20.11 LT.	730.87	BEGIN CURVE
LP3	138855.8182	1456488.7436	13+08.37	18.53 LT.	730.92	END CURVE
LP4	138854.0433	1456494.0397	13+13.02	15.54 LT.	731.01	BEGIN CURVE
LP5	138853.8091	1456499.5844	13+18.29	14.00 LT.	731.06	END CURVE
LP6	138854.6794	1456503.2299	13+21.99	14.00 LT.	731.08	FLUSH CURB
LP7	138855.8228	1456508.0974	13+26.94	14.00 LT.	731.11	FLUSH CURB
LP8	138857.5004	1456515.4073	13+34.35	14.00 LT.	731.15	BEGIN CURVE
LP9	138859.6554	1456519.7017	13+38.95	15.16 LT.	731.16	REVERSE CURVE
LP10	138866.3835	1456533.8792	13+54.02	18.75 LT.	731.23	END CURVE
LP11	138876.9289	1456605.1023	14+24.95	16.62 LT.	732.64	MATCH EX.
LP12	138773.1367	1456320.4875	11+25.00	20.00 RT.	728.44	MATCH EX.
LP13	138784.2084	1456363.8721	11+69.78	20.00 RT.	729.73	BEGIN CURVE/FLUSH CURB
LP14	138776.2504	1456376.1938	40+95.24	15.81 LT.	730.78	FLUSH CURB
LP14a	138774.9412	1456376.3359	40+93.93	15.66 LT.	730.95	END CURVE

LAYOUT POINT	NORTHING	EASTING	STATION	OFFSET	ELEVATION	DESCRIPTION
LP15	138746.1967	1456377.5507	40+65.20	14.23 LT.	734.61	END CURB
LP16	138757.0879	1456406.9716	40+76.31	15.11 RT.	734.08	BEGIN CURB
LP17	138785.3250	1456408.6885	41+02.99	16.90 RT.	730.90	FLUSH CURB
LP17a	138788.0047	1456408.8514	41+04.97	17.35 RT.	730.70	BEGIN CURVE
LP18	138790.9913	1456409.5010	12+15.66	24.71 RT.	730.56	FLUSH CURB
LP19	138797.0873	1456416.3602	12+23.82	20.50 RT.	730.46	END CURVE (2" CURB REVEAL)
LP19a	138799.7381	1456426.7476	12+34.54	20.50 RT.	730.51	BEGIN S/W RAMP (2" CURB REVEAL)
LP19b	138800.9745	1456431.5924	12+39.54	20.50 RT.	730.53	END S/W RAMP (7" CURB REVEAL)
LP20	138817.5564	1456496.5688	13+06.69	20.49 RT.	730.87	BEGIN CURVE
LP21	138815.9561	1456510.6752	13+20.27	25.40 RT.	730.85	FLUSH CURB
LP22	138809.5697	1456517.9527	31+07.74	14.62 LT.	730.83	FLUSH CURB
LP23	138758.0768	1456549.3090	30+49.73	14.05 LT.	731.72	END CURB
LP24	138777.6884	1456571.1887	30+54.98	14.86 RT.	731.97	BEGIN CURB
LP25	138818.7554	1456544.7430	31+05.32	13.60 RT.	731.25	FLUSH CURB
LP25a	138820.6366	1456543.6101	31+08.30	13.32 RT.	731.26	BEGIN CURVE
LP26	138823.2832	1456542.6015	31+12.15	13.26 RT.	731.30	FLUSH CURB
LP27	138832.5851	1456548.7816	13+61.80	17.36 RT.	731.35	END CURVE
LP28	138841.2415	1456589.0423	14+03.55	16.14 RT.	732.06	MATCH EX.

N

VT STATE PLANE GRID



LAYOUT POINT SCHEMATIC
N. T. S.

DATUM	
VERTICAL	NAVD88
HORIZONTAL	NAD83(2011)
ADJUSTMENT	COMPASS

0 20 40
SCALE IN FEET

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606bdr_layout.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: P. ARMATA
DESIGNED BY: P. ARMATA	CHECKED BY: K. RICHARDSON
CURB LAYOUT PLAN	SHEET 18 OF 76

STATE OF VERMONT
AGENCY OF TRANSPORTATION

DRAINAGE DETAIL SHEET 1

STATION	STATION	POS.	ASKEW	INLET/OUTLET TYPE		DITCH		PIPE ARCH			PIPE		ALLOWABLE OPTIONS						PIPE ELBOW	ES	CB	DMH	DEPTH DI	CONC CLASS B	REINF STEEL	DI GRATE	CHAN ELEV	CRM	TRENCH EXCAVATION		COMM EXC	UNC CHAN EXC	STRUCT EXCAV	GRAN BKFILL STRUCT	GRAN BORR	EROS MATT	STONE FILL		MARKER POSTS			PIPE NO.	REMARKS
			NO. DEG.	INLET	OUTLET	IN	OUT	SPAN IN	RISE IN	L FT	D IN	L* FT	CPEP PERF.	CPEP	RCP CL	CSP TH	CPEP SL	CPEP SL PERF.	NO. DEG.	EA	EA	EA	FT	CY	LBS	TYPE	EA	CY	EARTH CY	ROCK CY	CY	CY	CY	CY	CY	SY	CY	TYPE	LT EA	RT EA			
13+55	13+56	LT-RT		CB201	CB202						18	34					X				1				D			18.0													P200	4' DIA. DEEP SUMP CATCH BASIN AT INLET
30+91	13+54	LT-RT		CB202	CB203						18	38					X				1				D			32.0													P201	4' DIA. CATCH BASIN AT INLET
30+91	31+00	LT		CB203	SLOPE						18	36					X			1	1				D			37.0													P202	4' DIA. CATCH BASIN AT INLET
								TOTALS:			18	108					X			1-ES	3- CB'S (ONE DEEP SUMP)				3 TYPE 'D'			87 CY													

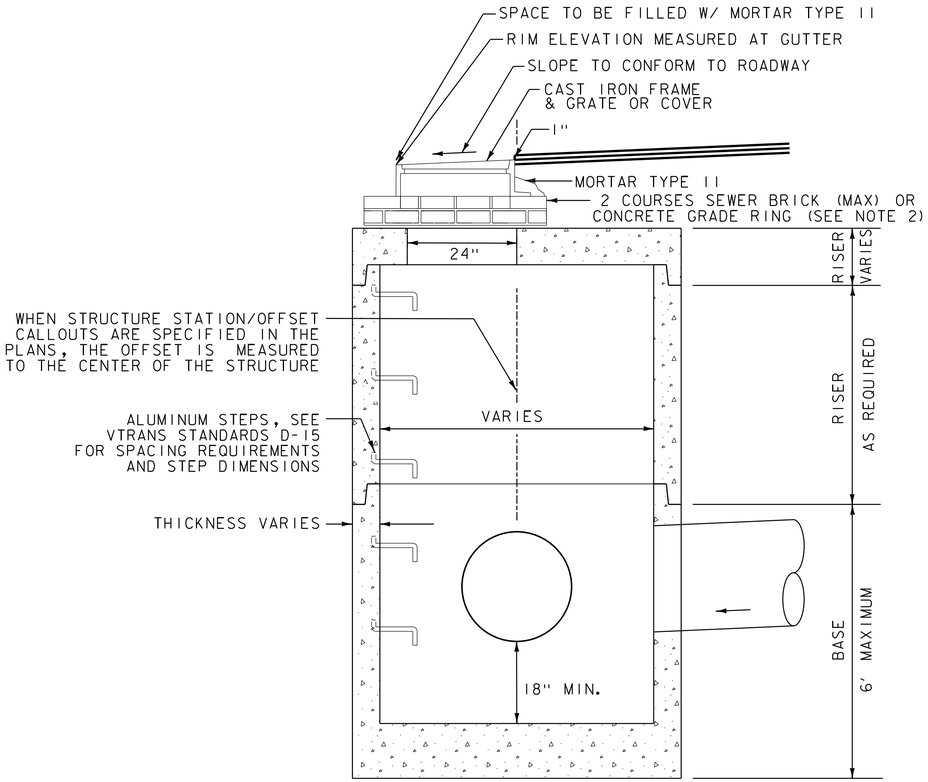
*NOTE: PIPE LENGTHS ROUNDED TO THE NEXT 2 FOOT INCREMENT

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606drn-det.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: K. RICHARDSON
DRAINAGE DETAIL SHEET

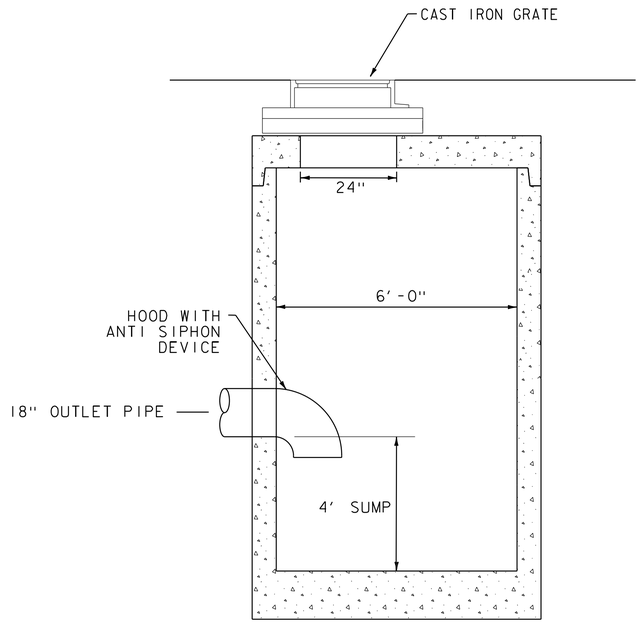
PLOT DATE: 9/21/2022
DRAWN BY: K. RICHARDSON
CHECKED BY: D. YOULEN
SHEET 19 OF 76



PRECAST CATCH BASIN

NOT TO SCALE

NOTES:
1. SEE DRAINAGE DETAIL SHEETS AND DRAINAGE PLAN FOR STRUCTURE SHAPE AND APPROXIMATE SIZE.
2. CONCRETE GRADE RINGS SHALL AT A MINIMUM MEET THE REQUIREMENTS OF SECTION 705.02.
3. PAID AS ITEM 604.20 PRECAST REINFORCED CONCRETE CATCH BASIN WITH CAST IRON GRATE.
4. SEE LAYOUT FOR ELEVATIONS.



PRECAST DEEP SUMP CATCH BASIN

NOT TO SCALE

NOTE:
WATERSTOP WITH PIPE GASKET, CAST IRON FRAME AND GRATES, MANHOLE RUNGS, HOOD WITH ANTI SIPHON DEVICE, ARE INCIDENTAL TO ITEM 604.20 PRECAST REINFORCED CONCRETE CATCH BASIN WITH CAST IRON GRATE (DEEP SUMP)

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606det.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: K. RICHARDSON
DRAINAGE DETAILS

PLOT DATE: 9/21/2022
DRAWN BY: K. RICHARDSON
CHECKED BY: K. RICHARDSON
SHEET 20 OF 76

N

VT STATE PLANE GRID

EXISTING ELECTRIC CABLE & TELEPHONE TO BE RELOCATED

NEW LOCATION ELECTRIC CABLE & TELEPHONE

EXISTING 8" ABANDONED GAS TO BE REMOVED

REMOVE EXISTING UTILITY POLE AND GUY WIRE

PROPOSED UTILITY POLE

RELOCATE EXIST. SPAN GUY

PROPOSED 50 FOOT POLE AND 18' DEAD ANCHOR

REMOVE EXISTING POLE

DOUBLE 18 FOOT ANCHORS

SERVICE LINE TO REMAIN

TEMPORARY UTILITY POLE AND 18' DEAD ANCHOR

TEMPORARY RELOCATION OF AERIAL ELECTRIC & TELEPHONE

WALLOOMSAC RIVER

EXISTING ELECTRIC CABLE & TELEPHONE TO BE RELOCATED

REPLACE GUY WITH SIDEWALK ANCHOR

EXISTING POLE TO REMAIN OR REPLACE IN KIND

NEW LOCATION ELECTRIC CABLE & TELEPHONE

PROPOSED UTILITY POLE AND 18' DEAD ANCHOR

SPAN GUY

18' DEAD ANCHOR

APPROX. 107' TO SMH #694

VT ROUTE 9 TO NY STATE

10+00

11+00

12+00

13+00

14+00

15+00

16+00

16+25

VT ROUTE 9 TO WOODFORD

APPROX. 36' TO SMH #792

EXISTING BRIDGE DATA
BUILT 1923, SINGLE 46' SPAN
CONCRETE T- BEAM/
ENCASED STEEL BEAM
CIP CONCRETE DECK

EXISTING COMM. /ELEC TO BE REMOVED

TEMPORARY SERVICE

UNDERGROUND AND COMMUNICATIONS TO BE RELOCATED TO OVERHEAD APPROXIMATE STA. 13+91.5 TO STA. 13+36

TEMPORARY RELOCATION OF AERIAL ELECTRIC & TELEPHONE

TEMPORARY SERVICE

TRIPLE 18 FOOT ANCHORS

TH-476 MORGAN ST

TH-3 BEECH ST

BM #2
RRSIS
ELEV=730.647

BM #1
TOP OF SW BOLT
ABOVE "W" IN WATER
ELEV=734.193

NOTE: UNLESS NOTED OTHERWISE, ALL PERMANENT RELOCATION OF OVERHEAD POWER AND COMMUNICATIONS UTILITIES WILL BE PERFORMED BY OTHERS PRIOR TO CONSTRUCTION.

0 20 40
SCALE IN FEET

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606bdr_util.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: J. BURKE
DESIGNED BY: T. KNIGHT	CHECKED BY: T. KNIGHT
PERM. POWER & COMM. UTILITY PLAN	SHEET 21 OF 76

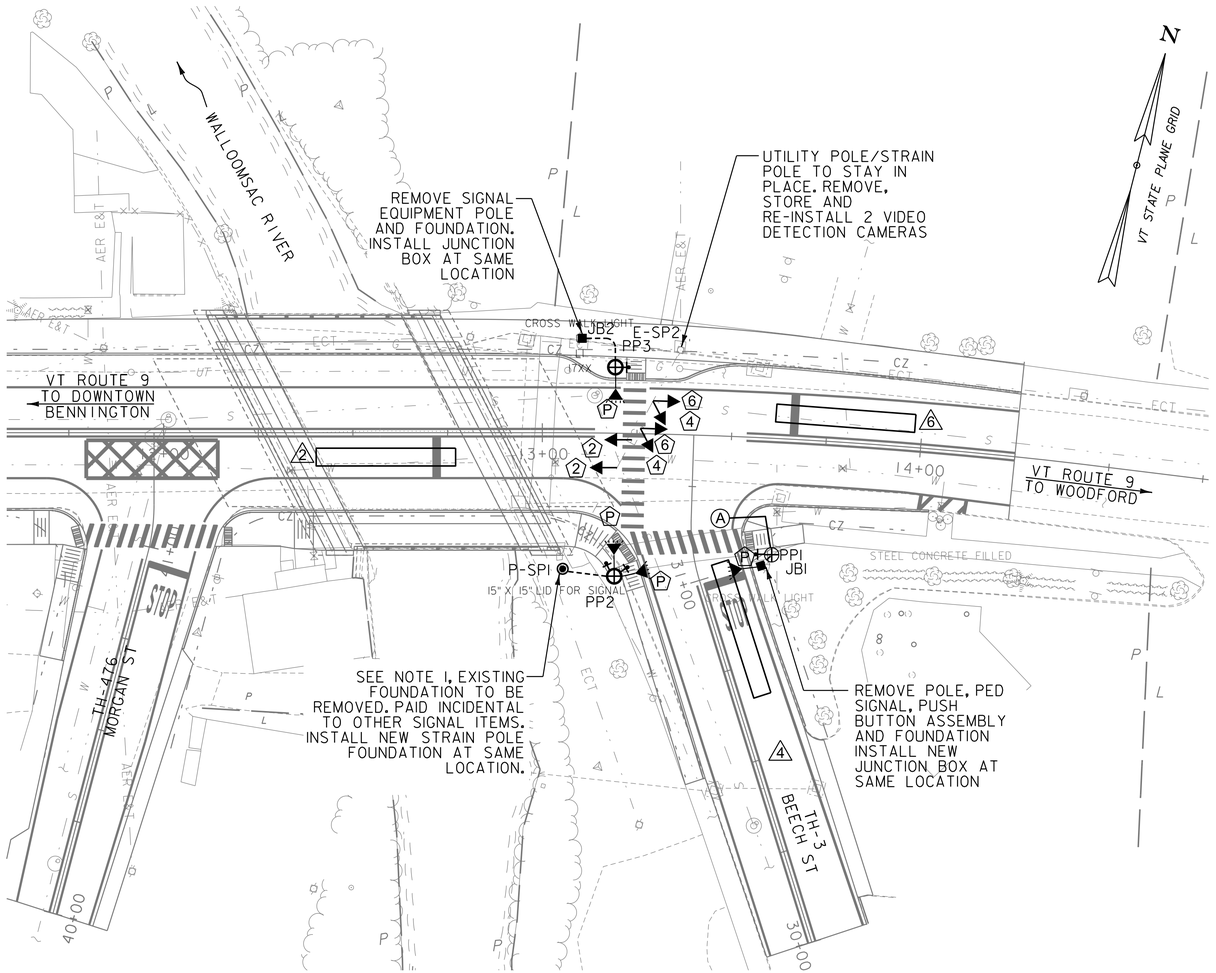
TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION
SEE LIST OF MAJOR EQUIPMENT, ON TRAFFIC SIGNAL DETAIL SHEET

WIRED CONDUIT (2") (SCH 80 PVC)
SEE CONDUIT SCHEDULE, ON TRAFFIC SIGNAL DETAIL SHEET

SPECIAL PROVISION (JUNCTION BOX, HEAVY DUTY)
STA. 30+99, 16.5' RT. (JB1)
STA. 13+10, 25' LT. (JB2)

PEDESTRIAN SIGNAL POLES
STA. 31+01, 20' RT. (PP1)
STA. 31+05, 22' LT. (PP2)
STA. 13+19, 17' LT. (PP3)

TEMPORARY TRAFFIC SIGNAL SYSTEM
SEE TRAFFIC SIGNAL SYSTEM NOTES, SECTION F



NOTES:
1. REMOVE AND STORE STRAIN POLE, SPAN WIRE, SIGNAL HEADS, CONTROLLER AND STOP BAR DETECTOR CAMERAS. PAID AS TRAFFIC SIGNAL ITEM 678.15, INTERSECTION (ROUTE 9 @ BEECH STREET).

2. TRAFFIC SIGNAL CONSTRUCTION SEQUENCE
   a. INSTALL TEMPORARY SIGNAL SYSTEM
   b. REMOVE EXISTING EQUIPMENT AND ACTIVATE TEMPORARY SIGNAL
   c. REMOVE EXISTING STRAIN POLE FOUNDATION
   d. AFTER BACKFILL FOR BRIDGE COMPLETED SUBMIT FOUNDATION DESIGN TO VTRANS
   e. AFTER FOUNDATION DESIGN APPROVED, CONSTRUCT NEW FOUNDATION
   f. REINSTALL SALVAGED SIGNAL EQUIPMENT. CONSTRUCT NEW PEDESTRIAN SIGNAL POLES/FOUNDATIONS, PEDESTRIAN SIGNALS AND PUSH BUTTON ASSEMBLY
   g. REMOVE TEMPORARY SIGNAL EQUIPMENT

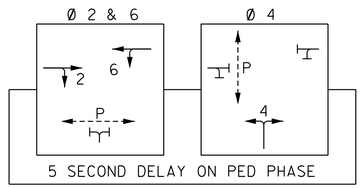
3. SIGNAL ITEMS SHOWN ARE APPROXIMATE LOCATIONS AND MAY BE MODIFIED BY THE ENGINEER IN THE FIELD.

4. EXISTING JUNCTION BOXES AND CONDUIT CAN BE USED FOR NEW WIRING UNLESS OTHERWISE NOTED IN THE PLANS OR SPECIFIED BY ENGINEER.

5. CONTRACTOR TO LOCATE EXISTING TRAFFIC SIGNAL CONDUIT AND POTENTIAL UTILITY CONFLICTS PRIOR TO ORDERING SIGNAL EQUIPMENT. INCIDENTAL TO CONTRACT ITEM 678.15.

6. RE-INSTALL SPAN WIRE AND SIGNAL HEADS PER VTRANS STANDARD DETAIL E-171A.

7. REPLACE ALL EXISTING ELECTRICAL WIRE FOR SALVAGED TRAFFIC SIGNALS, SALVAGED DETECTION CAMERAS AND NEW PEDESTRIAN SIGNALS/PUSH BUTTONS. PAID INCIDENTAL TO OTHER TRAFFIC SIGNAL ITEMS.



PHASING DIAGRAM

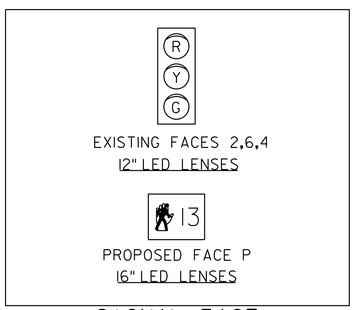
LEGEND

EXISTING	NEW	DESCRIPTION
		UTILITY POLE
		LUMINAIRE
		LIGHT POLE
		STRAIN POLE/CANTILEVER POLE
CT	CT	CONTROLLER CABINET
		PULLBOX/JUNCTION BOX
		PEDESTRIAN SIGNAL HEAD
		SIGNAL HEAD
		SIGNAL HEAD WITH LOUVERED PLATE
		CONDUIT (SIGNAL)
		VEHICLE LOOPS
		VEHICLE DETECTION AREA
		PEDESTAL POLE/LIGHTING POLE
		CANTILEVER
		DRAINAGE STRUCTURE
		VEHICLE DETECTOR
		SLEEVE
		PREEMPT OPTICAL DETECTOR
		PREEMPTION STROBE
		PEDESTRIAN PUSHBUTTON ASSEMBLY
		POWER DROP STANCHION
		ELECTRICAL WIRING
		L.E.D REGULATORY SIGN

LIST OF MAJOR EQUIPMENT

EQUIPMENT ITEMS - 678.15 TRAFFIC CONTROL SIGNAL DETAIL SYSTEM SHEET, INTERSECTION (ROUTE 9 @ BEECH ST.)	QUANTITY	REMARKS
REMOVE AND STORE EXISTING CONTROLLER CABINET, STRAIN POLE, TRAFFIC SIGNALS, SPAN WIRE AND STOP BAR DETECTION CAMERAS.	1	CONTRACTOR TO COORDINATE W/TOWN FOR STORAGE LOCATION.
REINSTALL EXISTING STRAIN POLE, CONTROLLER CABINET, TRAFFIC SIGNALS, SPAN WIRE AND STOP BAR DETECTION CAMERAS.	1	
ELECTRICAL WIRING	X	SEE SUMMARY ON TRAFFIC SIGNAL DETAIL SHEET
NEW STRAIN POLE FOUNDATION	1	SEE SECTION D IN TRAFFIC SIGNAL SYSTEM NOTES
REMOVE STRAIN POLE FOUNDATION	1	
ACCESSIBLE PEDESTRIAN PUSH BUTTON POLE MOUNTED WITH LOCATOR TONE, R10-3E SIGN, FLAT BLACK HOUSING.	4	ALL PEDESTRIAN PUSH BUTTONS TO BE LOCATED PER FIGURE 4E-3 AND 4E-4 OF MUTCD (2009)
ACCESSIBLE PEDESTRIAN SIGNAL HEADS, COUNTDOWN STYLE, FLAT BLACK HOUSING	4	
PEDESTRIAN PEDESTAL POLE ON NEW FOUNDATION	3	

SIGN DETAILS



SIGNAL FACE ARRANGEMENTS

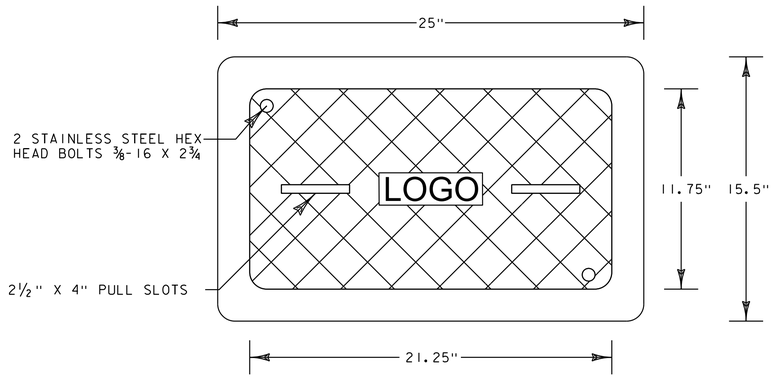
0 20 40
SCALE IN FEET

Stantec

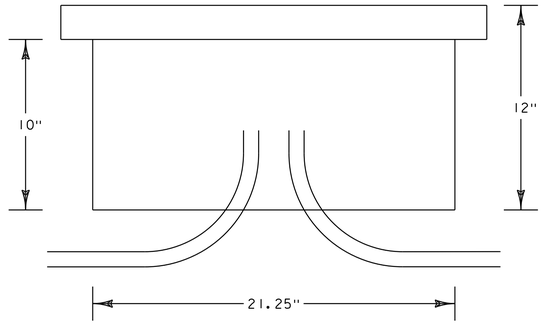
PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606bdr_sig.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: P. ARMATA
TRAFFIC SIGNAL PLAN SHEET

PLOT DATE: 9/21/2022
DRAWN BY: P. ARMATA
CHECKED BY: T. LUTHER
SHEET 22 OF 76



PLAN VIEW
NOT TO SCALE



ELEVATION VIEW
NOT TO SCALE

SPECIAL PROVISION (JUNCTION BOX, HEAVEY DUTY) NOTES:

1. JUNCTION BOX SHALL BE CONSTRUCTED WITH PRECAST MONOLITHIC POLYMER CONCRETE.
2. CONDUIT SIZE SHALL BE AS SHOWN ON THE PLANS.
3. EXCAVATION FOR JUNCTION BOX SHALL INCLUDE EXCAVATION OF AN AREA ONE FOOT OUTSIDE AND EXTENDING ONE FOOT BELOW THE FINISH GRADE OF THE BOTTOM OF THE JUNCTION BOX. ONE FOOT OF GRANULAR MATERIAL THAT MEETS THE REQUIREMENTS OF SUBSECTION 703.04, SHALL BE PLACED IN THE EXCAVATED AREA AND PROPERLY COMPACTED PRIOR TO INSTALLATION. COMPACTION SHALL MEET REQUIREMENTS OF SUBSECTION 301.06. WHERE NECESSARY AND AT THE DISCRETION OF THE ENGINEER.
4. COVER BOLTS SHALL BE STAINLESS STEEL.
5. A SUFFICIENT COVER GASKET SHALL BE PROVIDED TO REDUCE THE INFLOW OF FLUIDS. THE COVER GAPS SHALL BE FILLED WITH CAULKING JUST PRIOR TO PROJECT COMPLETION.
6. WHEN INSTALLING ON SLOPES, JUNCTION BOXES SHALL BE TIPPED TO MATCH THE EXISTING SLOPE UP TO A 1ON 4 SLOPE. EXCAVATED MATERIAL SHALL BE USED TO SHAPE AROUND THE LOW SIDE OF THE BOX TO THE SATISFACTION OF THE ENGINEER AND SHALL BE MOW-ABLE. IF SUFFICIENT MATERIAL IS NOT AVAILABLE, MATERIAL MEETING THE REQUIREMENTS OF EARTH BORROW (SUBSECTION 703.02) SHALL BE USED. PAYMENT SHALL BE CONSIDERED INCIDENTAL TO 900.620 SPECIAL PROVISION (JUNCTION BOX, HEAVY DUTY).
7. ALL COVERS SHALL BE FLUSH WITH THE BOXES AND FRAMES.
8. ALL CONDUIT ENTERING THE JUNCTION BOX THROUGH A CUTOUT SHALL HAVE BUSHINGS TO PROTECT THE CABLES.
9. ALL JUNCTION BOX COVERS SHALL BE SKID RESISTANT.
10. ALL COVERS SHALL HAVE THE LOGO PUNCHED, FORMED OR STAMPED INTO A FLAT RECTANGULAR AREA. MINIMUM LETTER HEIGHT IS ½". MINIMUM DEPTH IS 1/16". THE LOGO ON THE COVERS SHALL READ TRAFFIC SIGNAL UNLESS OTHERWISE NOTED ON THE PLANS.
11. DIMENSIONS SHOWN ARE MINIMUM SIZE REQUIRED. EQUIVALENT JUNCTION BOX OF LARGER DIMENSIONS MAY BE USED.
12. LOAD RATING SHALL BE NO LESS THAN 15,000 LBS.
13. ALL JUNCTION BOX SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 678.
14. ALL JUNCTION BOX SHALL MEET THE ANSI/SCTE 77-2007 SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY.INEER, A DRAINAGE PIPE (MINIMUM 3" PERFORATED PVC) SHALL BE PROVIDED FROM THE JUNCTION BOX TO THE NEAREST APPROPRIATE OUTLET. ANY EXCAVATION AND DRAINAGE SHALL BE INCIDENTAL TO 900.620 SPECIAL PROVISION (JUNCTION BOX, HEAVY DUTY).

WIRED CONDUIT		
	LENGTH	DESCRIPTION
JB2 TO PP3	20′	
JB1 TO PP1	10′	
P-SP1 TO PP2	20′	
SUBTOTAL	50′	
ROUNDING	0	
TOTAL	50′	

ELECTRICAL WIRING		
	LENGTH	DESCRIPTION
E-SP2 TO CONTROLLER	116′	DETECTION
E-SP2 TO CONTROLLER	116′	DETECTION
P-SP1 TO CONTROLLER	25′	DETECTION
SIGNAL HEADS (6) TO CONTROLLER	420′	SIGNAL HEADS
EXTRA AS NEEDED (APPROX.)	100′	PED. SIGNAL HEADS OR OTHER
SUBTOTAL	777′	
ROUNDING	23′	(SEE NOTES BELOW)
TOTAL	800′	

ELECTRICAL WIRING NOTES:

1. TOTAL QUANTITY OF ELECTRICAL WIRING SHOWN IS APPROXIMATED FOR BIDDING PURPOSES. THE ACTUAL AMOUNT OF ELECTRICAL WIRING MAY VARY DUE TO FIELD CONDITIONS.
2. ELECTRICAL WIRING SHALL BE INCIDENTAL TO ITEM 678.15 TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION (ROUTE 9 @ BEECH ST.)

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606bdr_sig.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: P. ARMATA
TRAFFIC SIGNAL DETAILS

PLOT DATE: 9/21/2022
DRAWN BY: P. ARMATA
CHECKED BY: T. LUTHER
SHEET 23 OF 76

TRAFFIC SIGNAL GENERAL NOTES

A. DESIGN GUIDANCE

1. OVERHEAD SIGNAL SUPPORTS SHALL CONFORM TO AASHTO'S "SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRE'S, AND TRAFFIC SIGNALS", DATED 2013.

B. DESIGN CALCULATION CRITERIA

1. THE DESIGN CALCULATIONS SHALL TAKE INTO ACCOUNT THE FOLLOWING CRITERIA:

STRUCTURE CRITERIA

- DESIGN LIFE AND RECURRENCE INTERVAL: 50 YEARS
- WIND LOAD: 90 M.P. H.; REFER TO ASCE 7-05 TO VERIFY IF THE SITE IS WITHIN THE SPECIAL WIND REGION AND IF CONFIRMED, USE A WIND LOAD OF 120 MPH

FATIGUE CRITERIA

- FATIGUE CATEGORY: 2 FOR STRUCTURES LOCATED ON ROADWAYS WITH A SPEED LIMIT GREATER THAN 35 MPH, 3 FOR STRUCTURES LOCATED ON ROADWAYS WITH A SPEED LIMIT LESS THAN OR EQUAL TO 35 MPH.
- VORTEX SHEDDING: NOT REQUIRED
- NATURAL WIND GUSTS: INCLUDE
- TRUCK INDUCED WIND GUSTS: INCLUDE FOR ROADWAYS WHERE THE POSTED SPEED LIMIT FOR THE MAINLINE APPROACHES ARE 40 M.P.H. OR GREATER
- GALLOPING: DO NOT INCLUDE

FOUNDATION CRITERIA

- CONCRETE: CONCRETE, CLASS B, VTrans "STANDARD SPECIFICATIONS FOR CONSTRUCTION", DATED 2018, SECTION 541.
- REINFORCING STEEL: REINFORCING STEEL, LEVEL I VTrans "STANDARD SPECIFICATIONS FOR CONSTRUCTION", DATED 2018, SECTION 507.
- GEOTECHNICAL SOIL RESISTANCE'S TO BE DETERMINED BY CONTRACTOR;

C. ANCHOR BOLTS

1. GALVANIZED ANCHOR BOLTS WITH TWO HEXAGON NUTS AND TWO WASHERS PER BOLT SHALL BE FURNISHED WITH EACH POLE. ANCHOR BOLT PLATES, WHEN USED, SHALL ALSO BE GALVANIZED.
2. A MINIMUM OF SIX ANCHOR BOLTS SHALL BE PROVIDED AT EACH SINGLE UPRIGHT POLE FOUNDATION. ANCHOR BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 677.03.
3. ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF SUBSECTION 714.09
4. AFTER INSTALLATION, A MINIMUM OF TWO THREADS ON THE TOP OF THE BOLT SHALL BE EXPOSED ABOVE THE NUT.

D. FLANGE BOLTS

1. ALL FLANGE BOLTS, HEX NUTS, AND WASHERS SHALL CONFORM TO SUBSECTION 714.05.
2. FLANGE BOLTS SHALL BE CAPABLE OF RESISTING 133% OF THE FULL DESIGN STRESS OF THE TUBE AT ITS YIELD STRENGTH STRESS.
3. FLANGE BOLTS SHALL BE TENSIONED IN ACCORDANCE WITH SUBSECTION 506.19. DIRECT TENSION INDICATORS ARE REQUIRED.

E. U-BOLTS

1. U-BOLTS AND ASSOCIATED HARDWARE SHALL CONFORM TO SUBSECTION 714.04 AND GALVANIZED IN ACCORDANCE WITH SUBSECTION 726.08.

F. STEEL FOR SIGNAL STRUCTURES

1. ALL MATERIAL GREATER THAN 1/2" THICK SHALL MEET THE CHARPY V-NOTCH IMPACT REQUIREMENTS FOR THE SPECIFIED MATERIAL. TESTING AND SAMPLING SHALL BE IN ACCORDANCE WITH AASHTO T 243.
2. PIPE AND TUBES SHALL MEET THE REQUIREMENTS OF ONE OF THE FOLLOWING SPECIFICATIONS:

NON-CANTILEVERED OVERHEAD SIGNAL STRUCTURES

- ASTM A500, GRADE B: WELDED AND SEAMLESS STEEL PIPE (ROUNDS ONLY)
- API 5L GRADE X42: AMERICAN PETROLEUM INSTITUTE SPECIFICATION 5L

G. PROTECTIVE COATING

1. ALL STEEL COMPONENTS, EXCEPT CONCRETE REINFORCING, ARE TO BE HOT DIPPED GALVANIZED AND POWDER COATED AFTER FABRICATION. THE ASSEMBLIES SHALL BE DESIGNED AND FABRICATED TO PERMIT GALVANIZING ON ALL INTERIOR AND EXTERIOR SURFACES AND SHALL BE FREE OF POCKETS AND OTHER STRUCTURAL OBSTRUCTIONS THAT WILL NOT PERMIT PROPER DEPOSITION OF ZINC COATING.
2. GALVANIZING SHALL BE IN ACCORDANCE WITH SECTION 752.02. POWDER COATING SHALL BE IN ACCORDANCE WITH SECTION 753.07.

H. WELDING

1. ALL WELDING SHALL BE PERFORMED PER SECTION 506.10.
2. ALL WELDS SHALL BE AT LEAST AS STRONG AS THE MATERIAL(S) BEING WELDED.

I. FOUNDATIONS

1. FOOTINGS SHALL BE DESIGNED IN ACCORDANCE WITH VTRANS MATERIALS & RESEARCH ENGINEERING INSTRUCTIONS (MREI) 10-01 • GEOTECHNICAL DESIGN PROCEDURES FOR MAST ARM AND OVERHEAD SIGN SUPPORT FOUNDATIONS• AVAILABLE ON THE AGENCY'S WEBSITE AT THE FOLLOWING ADDRESS:

   https://outside.vermont.gov/agency/vtrans/external/docs/construction/03GeotechEng/Engineering/Mast%20Arm%20and%200verhead%20Sign%20Support%20Foundations%20MREI%2010-01%20Engineering.pdf

2. FOUNDATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING NOTES:

   a. A MINIMUM EMBEDMENT DEPTH OF FIVE FEET SHALL BE USED FOR ALL SPREAD FOOTING FOUNDATIONS; MEASURED FROM THE GROUND SURFACE ELEVATION TO THE BOTTOM OF THE FOOTING ELEVATION.
   b. FOR DRILLED SHAFT FOUNDATIONS, CONCRETE SHALL BE POURED AGAINST UNDISTURBED SOIL UNLESS A PERMANENT CASING IS DESIGNED FOR AND APPROPRIATE SUPPORTING CALCULATIONS ARE PROVIDED. THE TOP TWO FEET OF SOIL SHALL BE NEGLECTED FOR DESIGN PURPOSES. A DISPOSABLE CIRCULAR CONCRETE FORM, IF USED, SHALL NOT BE PLACED DEEPER THAN TWO FEET, IN ORDER NOT TO REDUCE THE FRICTION BETWEEN THE SOIL AND THE CONCRETE.
   c. AS AN ALTERNATIVE TO THE DRILLED HOLES, FOOTINGS MAY BE POURED IN EXCAVATED HOLES USING THE PROPER FORMS, WHICH MUST BE REMOVED. THE EXCAVATED HOLES SHALL BE AT LEAST TWO FEET CLEAR OF THE FOUNDATION SIDES AND ONE FOOT DEEPER THAN THE FOUNDATION. CARE SHALL BE TAKEN TO AVOID EXCAVATING AROUND THE TOP OF THE FOUNDATION. THE BACKFILL MATERIAL SHALL BE COMPACTED AS DESCRIBED IN SUBSECTION 204.05. DESIGN LIMITS AS FOR AUGURED FOOTINGS APPLIES.
   d. ANY BACKFILL PLACED ADJACENT TO THE FOOTING SHALL BE GRANULAR MATERIAL MEETING THE REQUIREMENTS FOR GRANULAR BACKFILL FOR STRUCTURES, SUBSECTION 704.08. IT SHALL BE COMPACTED AS DESCRIBED IN SUBSECTION 204.05.
   e. CONCRETE FOR THE FOUNDATION SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE, SECTION 541 STRUCTURAL CONCRETE. IF DRILLED SHAFT FOUNDATIONS ARE REQUIRED, THE CONCRETE SPECIFICATIONS MAY NEED TO BE ADJUSTED FOR CONSTRUCT-ABILITY ISSUES. HOWEVER, IF REQUIRED, THE CONTRACTOR SHALL SUBMIT ANY CHANGES TO THE CONCRETE SPECIFICATION FOR REVIEW BY THE VTRANS PROJECT MANAGER.
   f. STEEL PILES IF USED, SHALL MEET THE REQUIREMENTS OF SECTION 505.
   g. WHEN THE DESIGN DEPTH OF A FOUNDATION CANNOT BE OBTAINED DUE TO UNFORESEEN FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER FOR THE MANUFACTURER TO OBTAIN A REVISED FOUNDATION DESIGN. SUCH A REVISION SHALL BE SUBMITTED TO THE VTRANS PROJECT MANAGER AND MAY REQUIRE UP TO A FOUR- WEEK REVIEW PERIOD BY VTRANS.

3. SIGNAL POLES SHALL BE INSTALLED AND LEVELED. POLES SHALL BE PLUMB.
4. WIRE CLOTH SHALL BE USED TO SEAL OPENING BETWEEN THE BASE PLATE AND FOUNDATION. MATERIAL SHALL BE IN CONFORMANCE WITH SUBSECTION 678.09.

J. GROUNDING

1. EACH OVERHEAD TRAFFIC SIGNAL SUPPORT SHALL BE GROUNDED. THE GROUND SHALL CONSIST OF THE FOLLOWING:
   a. AN INTERNAL GROUND LUG OPPOSITE THE HAND HOLE.
   b. A #6 (MIN.) SOFT DRAWN COPPER GROUNDING ELECTRODE CONDUCTOR.
   c. A 5/8" X 8" (MIN.) COPPER CLAD GROUNDING ELECTRODE.
2. THE RESISTANCE TO GROUND SHALL BE 25 OHMS OR LESS.
3. ADDITIONAL GROUNDING ELECTRODES MAY BE REQUIRED. MINIMUM SPACING BETWEEN ELECTRODES SHALL BE 6'.
4. WHEN A POWER SERVICE, METER AND DISCONNECT ARE ATTACHED TO A POLE, THERE SHALL BE A CONTINUOUS GROUND WIRE FROM THE METER AND DISCONNECT WITH MAY RUN INTERNAL TO THE UPRIGHT, THROUGH THE 1/2" FLEXIBLE TUBING IN THE CONCRETE BASE TO THE REQUIRED GROUNDING ELECTRODE(S). THE GROUND WIRE FROM THE POLE GROUNDING LUG, CONTROLLER CABINET AND/OR LUMINAIRE MAY ATTACH TO THIS CONTINUOUS GROUNDING ELECTRODE CONDUCTOR FROM THE SERVICE METER AND DISCONNECT.
5. THE CONTRACTOR SHALL PERFORM A RESISTANCE TO GROUND TEST ON THE CONTINUOUS GROUNDING ELECTRODE CONDUCTOR FROM THE SERVICE METER AND DISCONNECT AND PROVIDE A WRITTEN STATEMENT TO THE AREA ELECTRICAL INSPECTOR THAT THE GROUNDING ELECTRODE CONDUCTOR IS CONTINUOUS FROM THE SERVICE METER AND DISCONNECT AND THE RESISTANCE TO GROUND IS 25 OHMS OR LESS.

K. POLE DETAILS

1. HORIZONTAL MEMBERS SHALL BE CAMBERED AND THE VERTICAL POLES BACK RAKED, WHERE APPLICABLE, TO THE ANTICIPATED DEAD LOAD DEFLECTION PLUS THE CAMBER, IF ANY, SPECIFIED ON THE PLANS.

L. DESIGN CALCULATION SUBMITTALS

1. AN EQUIVALENT ALTERNATE DESIGN MAY BE SUBSTITUTED FOR THE DETAILS AND MATERIALS SHOWN.
2. THE DETAILS OF DESIGN FOR THE STRUCTURE AND FOUNDATION ARE TO BE SUPPLIED BY THE CONTRACTOR AND/OR BY THE MANUFACTURER, THE STRUCTURE SHALL BE DESIGNED TO RESIST THE MAXIMUM LOADING AS OUTLINED IN THE AASHTO STANDARD SPECIFICATIONS LISTED. ALL DESIGN CALCULATIONS FOR THE STRUCTURE AND THE FOUNDATION SHALL BE CHECKED AND STAMPED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF VERMONT PRIOR TO SUBMITTAL OF THE FABRICATION DRAWINGS TO VTRANS.
3. THE CONTRACTOR SHALL SUBMIT ONE DIGITAL VERSION OF THE DESIGN CALCULATIONS TO VTRANS PROJECT MANAGER SHOWING THE FOLLOWING INFORMATION FOR EACH OF THE VERTICAL AND HORIZONTAL COMPONENTS OF THE STRUCTURE AND FOUNDATION:
   a. THE DESIGN AXIAL AND SHEAR FORCES AND BENDING AND TORSIONAL MOMENTS ACTING AT THE TOP OF THE FOUNDATION.
   b. THE DESIGN AXIAL, BENDING AND SHEAR STRESSES AND THE COMBINED STRESS RATIO.
   c. VIBRATION AND FATIGUE CALCULATIONS AS SET FORTH IN SECTION 11 OF THE AASHTO STANDARD LISTED.
   d. THE ALLOWABLE AXIAL, BENDING AND SHEAR STRESSES.
   e. ITEMS a, b AND d SHALL BE SHOWN FOR EACH OF THE GROUP LOADINGS (I, II, III) AND FOR THE BASIC WIND LOAD APPLIED TO THE TOW CASES OUTLINED IN THE AASHTO STANDARD LISTED, SECTION 1.2.5(D)(4)
4. FAILURE TO SUPPLY THE PROPER INFORMATION SHALL BE CAUSE FOR REJECTION OF THE STRUCTURE.
5. A MINIMUM OF TWO WEEKS SHALL BE REQUIRED FOR REVIEW BY VTRANS.
6. EVERY MEMBER AND CONNECTION IN A CANTILEVERED OVERHEAD TRAFFIC SIGNAL SUPPORT SHALL BE DESIGNED TO PROVIDE ADDITIONAL RESIDUAL CAPACITY FOR FUTURE MODIFICATION EQUIVALENT TO A 5-SECTION TRAFFIC SIGNAL HEAD WITH A 5-INCH LOUVERED BACKPLATE LOCATED ON THE OUTERMOST EXTENT OF THE MAST ARM.OVERHEAD SIGN STRUCTURES AND NON-CANTILEVERED TRAFFIC SIGNAL STRUCTURES SHALL BE DESIGNED TO A MAXIMUM DESIGN RATIO OF 85% FOR EVERY MEMBER AND CONNECTION.

M. FABRICATION DRAWING SUBMITTALS

1. FABRICATION DRAWINGS IN A DIGITAL FORMAT SHALL BE SUBMITTED TO VTRANS PROJECT MANAGER FOR APPROVAL PRIOR TO FABRICATION. THE FABRICATION DRAWINGS SHALL INCLUDE THE FOLLOWING INFORMATION:
   a. DETAILED DRAWING OF EACH COMPONENT OF THE STRUCTURE.
   b. MATERIAL SPECIFICATION FOR EACH COMPONENT OF THE STRUCTURE, EITHER BY COMPLETE SPECIFICATION OR REFERENCE TO THE APPLICABLE ASTM STANDARDS.
   c. NOTATION OF PROJECT NAME, PROJECT NUMBER, ROUTE NUMBER AND STRUCTURE STATIONING TO BE INCLUDED ON EACH SHEET.
   d. DETAILS FOR LOCATION OF SIGNS/SIGNALS AND ATTACHMENT HARDWARE FOR THE SUPPORT STRUCTURE.
   e. ALL ELEVATION AND DIMENSIONS NECESSARY TO PROVIDE A COMPLETE SET OF RECORD PLANS.
   f. DEAD LOAD DEFLECTION AND CAMBER INFORMATION.
   g. WELDING DETAILS AND PROCEDURES ARE REQUIRED FOR ALL WELDS. PROCEDURES SHALL BE SUBMITTED FOR APPROVAL WITH REFERENCE TO EACH WELD IDENTIFIED ON THE FABRICATION DRAWINGS. SEE SUBSECTION 506.10 FOR MORE INFORMATION.
   h. BOLT TENSIONING REQUIREMENTS.

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606bdr_sig.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: P. ARMATA
TRAFFIC SIGNAL GENERAL NOTES

PLOT DATE: 9/21/2022
DRAWN BY: P. ARMATA
CHECKED BY: T. LUTHER
SHEET 24 OF 76

TRAFFIC SIGNAL SYSTEM NOTES

A. NEW SIGNAL EQUIPMENT

1. THE TRAFFIC SIGNAL CONTROL CABINET SHALL BE ORIENTED SUCH THAT THE DOOR DOES NOT FACE THE ROADWAY.
2. ALL TRAFFIC SIGNAL EQUIPMENT AND SPAN WIRE MOUNTED SIGNS SHALL HAVE SAFETY CABLES
3. CONTRACTOR SHALL MAINTAIN EXISTING POWER SOURCE FOR FINAL CONDITIONS.

B. SIGNAL OPERATION

1. SIGNAL TIMINGS MAY REQUIRE FINE -TUNING IN THE FIELD BASED ON TRAFFIC OBSERVATIONS AND/OR ADDITIONAL FIELD STUDIES.
2. SWITCH OVER TO INSTALLED SIGNAL SYSTEM SHALL NOT OCCUR DURING PEAK TRAFFIC PERIODS. UNIFORMED TRAFFIC OFFICERS SHALL CONTROL TRAFFIC DURING THE SWITCH OVER.
3. ALL SIGNALS SHALL DWELL ON VT ROUTE 9 UNLESS OTHERWISE NOTED.
4. THE VT ROUTE 9 THRU PHASE SHALL BE USED FOR THE START-UP PHASE FOLLOWING FLASH OPERATIONS.

C. VEHICLE DETECTION

1. STOP BAR DETECTOR LOCATIONS SHALL MATCH EXISTING LOCATIONS.
2. ALL VEHICLE DETECTORS SHALL BE PLACED SUCH THAT OCCLUSION IS MINIMIZED AND PHASING IS NOT NEGATIVELY AFFECTED.
3. STOP BAR VEHICLE DETECTION ZONES SHALL EXTEND FIVE FEET PAST THE FINAL, PERMANENT STOP BAR.
4. THERE SHALL BE NO WIRING SPLICES BETWEEN THE VEHICLE DETECTORS AND THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT UNLESS IN A MANUFACTURER RECOMMENDED JUNCTION BOX.

D. STRAIN POLE FOUNDATIONS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FOUNDATION DESIGN. FOUNDATIONS SHALL BE DESIGNED IN ACCORDANCE WITH THE MRE 110-01 GUIDELINES. IN ADDITION TO FABRICATION DRAWINGS, THE BORING LOG DESIGN CRITERIA AND DESIGN CALCULATIONS SHALL BE SUBMITTED AS WORKING DRAWINGS IN ACCORDANCE WITH SECTION 105.03. ADDITIONAL REQUIREMENTS CAN BE FOUND IN THE TRAFFIC SIGNAL GENERAL NOTES.

E. TRAFFIC SIGNAL CONDUIT

1. WHEN CONDUIT IS PLACED BELOW THE ROADWAY OR ACROSS SIDE ROADS, IT SHALL BE PLACED IN A STEEL OR HDPE SLEEVE. SIZE AND PAYMENT METHOD ARE SHOWN IN THE LAYOUT SHEETS.
2. ALL CONDUIT SHALL BE FILLED WITH STEEL WOOL PRIOR TO BEING CAPPED.

F. TEMPORARY TRAFFIC SIGNALS

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION'S (VTrans) "STANDARD SPECIFICATIONS FOR CONSTRUCTION", DATED 2018, WITH CURRENT MODIFICATIONS AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), DATED 2009 AND ITS CURRENT MODIFICATION.
2. TEMPORARY TRAFFIC SIGNAL SYSTEM SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH CONTRACT ITEM 678.40-TEMPORARY TRAFFIC SIGNAL SYSTEM.
3. DESIGN OF THE SIGNAL SUPPORTS AND ANY REQUIRED GUYING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. POLES SUPPORTING SPAN WIRES AND/OR MAST ARMS SHALL BE ADEQUATELY BRACED OR GUYED AND SHALL NOT BE PLACED SO AS TO CREATE A HAZARD TO THE TRAVELING PUBLIC.
4. SIGNAL HEADS MAY BE HUNG ON A SPAN WIRE OR ON A CANTILEVER MAST ARM. THE CONTRACTOR SHALL HAVE THE OPTION OF INSTALLING PORTABLE TRAFFIC SIGNALS IN PLACE OF A STATIC SIGNAL SYSTEM. AT LEAST ONE SIGNAL HEAD SHALL BE IN LINE WITH THE CENTER OF APPROACHING TRAFFIC AT ALL TIMES.
5. ATTACHMENT TO UTILITY POLES SHALL BE COORDINATED BY THE CONTRACTOR WITH THE UTILITY COMPANY.
6. TEMPORARY POLES SHALL BE PLACED OUTSIDE OF THE CLEAR ZONE.
7. LUMINAIRE'S SHALL BE INSTALLED AT EACH OF THE APPROACHES TO ADEQUATELY ILLUMINATE THE STOP BAR AREAS. THE MOUNTING HEIGHT SHALL NOT BE LESS THAN 25 FEET ABOVE THE ROADWAY SURFACE OR AS DIRECTED BY THE ENGINEER. MEASURED NIGHTTIME ILLUMINANCE AT EACH STOP BAR SHALL NOT BE LESS THAN 1.0 FOOT-CANDLE. THE ENGINEER SHALL ORDER CHANGES TO THE LIGHTING COMPONENTS IF DETERMINED TO BE INSUFFICIENT.
8. ALL PERMANENT SIGNS THAT CONFLICT WITH THE TEMPORARY TRAFFIC SIGNAL SYSTEM SHALL BE COMPLETELY COVERED DURING CONSTRUCTION.
9. ALL TEMPORARY SIGNAL EQUIPMENT SHALL BELONG TO THE CONTRACTOR AT THE END OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR MAINTENANCE DURING THE PROJECT AND THE REMOVAL INCLUDING ANY TEMPORARY PAVEMENT MARKINGS, UTILITY, WIRES, ETC.

G. GENERAL

1. UNIFORMED TRAFFIC OFFICER WITH A BLUE LIGHT SHALL BE PRESENT DURING ALL LANE CLOSURES, WHEN THE SIGNAL IS IN FLASH OPERATION, AND WHEN THE SIGNAL IS DARK.
2. THE ENGINEER SHALL COORDINATE WITH THE PROJECT MANAGER TO SCHEDULE ONE PRE-FINAL INSPECTION AFTER THE CONTRACTOR HAS DEMONSTRATED TO THE ENGINEER THAT ALL TRAFFIC SIGNAL WORK THE EACH INTERSECTION HAS BEEN COMPLETED IN THEIR ENTIRETY. THE PRE-FINAL INSPECTION SHALL NOT OCCUR UNTIL AFTER FINAL STOP BARS ARE INSTALLED AND DETECTION ZONES ARE APPROPRIATELY ADJUSTED.
3. WHERE WORK WOULD LEAVE HOLES IN EXISTING SIGNAL EQUIPMENT, INCLUDING POLES, THOSE HOLES SHALL BE PLUGGED/REPAIRED USING METHODS APPROVED BY THE ENGINEER. THIS WORK SHALL BE PAID INCIDENTAL TO ALL OTHER SIGNAL ITEMS.

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606bdr_sig.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: P. ARMATA
DESIGNED BY: P. ARMATA	CHECKED BY: T. LUTHER
TRAFFIC SIGNAL SYSTEM NOTES	SHEET 25 OF 76

INTRODUCTION:

1. THE FOLLOWING TRAFFIC CONTROL INFORMATION IS INTENDED TO BE A GENERAL OUTLINE FOR HOW THE WORK SHOULD PROCEED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SPECIFIC DETAILS TO ADDRESS SPECIFIC SITUATIONS. THIS RESPONSIBILITY INCLUDES PROVIDING A PLAN DETAILING THE USE AND PLACEMENT OF SIGNS, CHANNELING DEVICES, ARROW PANELS, FLAGGERS AND UNIFORMED TRAFFIC OFFICERS (UTO'S) DURING LANE CLOSURES. ALL TRAFFIC CONTROL DETAILS MUST BE DESIGNED AND IMPLEMENTED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND IT'S LATEST REVISIONS AS WELL AS VTRANS STANDARD SHEETS. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN. THE COST OF PREPARING THIS PLAN (AND MAKING CHANGES IF NECESSARY) SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 641.11 TRAFFIC CONTROL, ALL-INCLUSIVE.

TEMPORARY PEDESTRIAN TRAFFIC CONTROL NOTES:

1. THE CONTRACTOR SHALL PROVIDE A TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) FOR REVIEW AND WRITTEN APPROVAL BY THE RESIDENT ENGINEER A MINIMUM OF THREE WEEKS BEFORE SUCH PLAN IS IMPLEMENTED. THIS PLAN SHALL DETAIL THE CONSTRUCTION PHASING AND SCHEDULE AND THE SPECIFIC METHODS OF MAINTAINING SAFE PEDESTRIAN ACCESS THROUGHOUT THE CONSTRUCTION AREA. THIS PLAN SHALL PROVIDE THE LOCATION AND DETAILS OF TEMPORARY CONSTRUCTION SIGNING, MARKINGS, BARRICADES, CHANNELIZING DEVICES, TPARS AND METHODS TO MAINTAIN ACCESS TO ADJACENT PROPERTIES, BUSINESSES, RESIDENCES, ETC.

2. EXCEPT DURING THE PERIOD OF COMPLETE BRIDGE CLOSURE, THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN THROUGH MOVEMENTS FROM ONE END OF THE CONSTRUCTION AREA TO THE OTHER, ON AT LEAST ONE SIDE OF THE STREET DURING CONSTRUCTION. ANY SIDEWALK CLOSURES SHALL MEET THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), PART 6.

3. PEDESTRIAN ACCESS SHALL BE PROVIDED TO ALL ADJACENT PROPERTIES, BUILDINGS, RESIDENCES, COMMERCIAL PROPERTIES AND TRANSIT STOPS. THIS MAY INCLUDE TEMPORARY WALKWAYS SPANNING THE CONSTRUCTION AREA.

4. IF SIDEWALKS ARE CLOSED, A TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) SHALL BE PROVIDED ON THE SAME SIDE OF THE ROAD AS THE CLOSED SIDEWALK, IF POSSIBLE. SIGNS AND BARRICADES SHALL BE USED TO PROVIDE ADVANCE NOTICE OF THE CLOSURE AND THE ROUTE OF ANY PEDESTRIAN DETOURS. THE TPAR SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4 FEET. IF THE TPAR IS LESS THAN 5 FEET IN WIDTH, A 5 FOOT BY 5 FOOT PASSING SPACE MUST BE PROVIDED AT LEAST EVERY 200 FEET. THE SURFACE OF THE TPAR SHALL BE FIRM, STABLE AND SLIP-RESISTANT AND CONTINUOUS WITH A MINIMUM 80 INCHES OVERHEAD CLEARANCE FOR THE LENGTH OF THE TPAR. THE TPAR SHALL MAINTAIN THE SAME LEVEL OF ACCESSIBILITY AND DETECTABILITY AS THE FACILITY THAT IS BEING CLOSED. THE TPAR SHALL NOT LEAD PEDESTRIANS INTO CONFLICTS WITH VEHICLES, EQUIPMENT, OR CONSTRUCTION OPERATIONS.

5. WHEN TEMPORARY CROSSWALKS ARE UTILIZED FOR THE TPAR, TEMPORARY DETECTABLE WARNINGS SHALL BE PLACED AT EACH END OF THE TEMPORARY CROSSWALKS. THE TEMPORARY CROSSWALK SHALL BE DELINEATED WITH TEMPORARY PAVEMENT MARKINGS OR TAPE. THE MARKINGS SHALL BE PARALLEL 12-INCH-WIDE WHITE LINES PLACE 7 FEET ON CENTER APART. IT SHOULD BE NOTED THAT CURB PARKING SHALL BE PROHIBITED FOR AT LEAST 20 FEET IN ADVANCE OF MIDBLOCK CROSSWALKS. TEMPORARY CROSSWALK SIGNS SHALL BE PROVIDED FOR THE CROSSWALK.

6. IF THERE IS WORK OCCURRING OVER AN OPEN SIDEWALK, PROTECTIVE OVERHEAD COVERING MUST BE PROVIDED AS NECESSARY TO ENSURE PROTECTION FROM FALLING OBJECTS AND DRIPPING FROM OVERHEAD STRUCTURES. COVERED WALKWAYS SHOULD BE STURDILY CONSTRUCTED AND ADEQUATELY LIGHTED FOR NIGHTTIME USE.

7. INDIVIDUAL CHANNELIZING DEVICES, TAPE, OR ROPE USED TO CONNECT INDIVIDUAL DEVICES AND OTHER DISCONTINUOUS BARRIERS AND DEVICES, PAVEMENT MARKINGS ARE NOT DETECTABLE BY PERSONS WITH VISUAL DISABILITIES. THESE MEASURES DO NOT PROVIDE ACCEPTABLE PATH GUIDANCE ON TEMPORARY OR RE-ALIGNED SIDEWALKS OR OTHER PEDESTRIAN FACILITIES. PEDESTRIAN CHANNELIZING DEVICES SHALL INCLUDE A CONTINUOUSLY DETECTABLE BOTTOM AND TOP EDGE THROUGHOUT THE LENGTH OF THE FACILITY SUCH THAT IT CAN BE FOLLOWED BY PEDESTRIANS USING LONG CANES FOR GUIDANCE.

8. CHANNELIZING DEVICES ON BOTH SIDES OF THE TPAR SHALL INCLUDE A CONTINUOUS SOLID TOP AND BOTTOM RAILS. THE TOP EDGE OF THE TOP RAIL SHALL BE BETWEEN 32 INCHES AND 38 INCHES ABOVE THE GROUND LEVEL. THE BOTTOM RAIL SHALL BE AT LEAST 6 INCHES WIDE, WITH THE BOTTOM EDGE OF THE BOTTOM RAIL SURFACE NO HIGHER THAN 2 INCHES ABOVE THE GROUND.

9. IF THE TPAR IS ADJACENT TO MOVING TRAFFIC, CONSTRUCTION OPERATIONS/EQUIPMENT, OR DROP- OFFS, THEN CRASHWORTHY CHANNELIZING DEVICES THAT MEET THE REQUIREMENTS OF THE MUTCD SHALL BE USED.

10. THE CONTRACTOR SHALL NOT STORE OR PLACE ANY CONSTRUCTION MATERIALS, EQUIPMENT OR SIGNS IN THE PEDESTRIAN PATH OF TRAVEL.

11. PROVISION OF THE TPAR AND ALL ITS ELEMENTS, INCLUDING BUT NOT LIMITED TO SIGNS, CHANNELIZING DEVICES, BARRICADES, TEMPORARY CURB RAMPS, TEMPORARY PAVEMENT MARKINGS AND OTHER TRAFFIC CONTROL DEVICES IS TO BE PAID FOR INCIDENTAL TO TRAFFIC CONTROL (ITEM 641.10.)

12. THE CONTRACTOR SHALL REVIEW AND USE THE VERMONT BICYCLE AND PEDESTRIAN WORK ZONE TRAFFIC CONTROL GUIDE, AVAILABLE ON VTRANS WEBSITE TO DESIGN AND IMPLEMENT TRAFFIC CONTROL FOR BICYCLE AND PEDESTRIAN INTO THEIR SITE-SPECIFIC TRAFFIC CONTROL PLAN FOR ALL STAGES OF CONSTRUCTION.

TRAFFIC CONTROL NOTES

1. THE CONTRACTOR MUST PROVIDE ACCESS THROUGH THE WORK ZONE FOR EMERGENCY VEHICLES AT ALL TIMES OR COORDINATE EMERGENCY ROUTES PRIOR TO THE START OF CONSTRUCTION.

2. SIGNS SHALL ONLY BE VISIBLE TO MOTORIST AT THE TIMES WHEN THE MESSAGE IS PERTINENT, I.E. A "FLAGGER AHEAD" SIGN SHALL ONLY BE VISIBLE TO MOTORIST WHEN THE FLAGGER IS ACTUALLY PRESENT PERFORMING THEIR DUTIES.

3. A MINIMUM LANE WIDTH OF 12 FT. SHALL BE MAINTAINED UNLESS NOTED OTHERWISE. IF TEMPORARY TRAVEL LANE WIDTHS ARE REDUCED BELOW 11 FT DMV WILL NEED TO BE CONTACTED FOR SUPER LOAD PERMITS THAT WILL REQUIRE REROUTING. ONCE A PERMIT HAS BEEN ISSUED THE APPLICANT / HAULER HAS 10 DAYS TO MOVE THEIR LOAD SO ADDITIONAL NOTICE WILL BE REQUIRED TO CAPTURE THE 10 DAY WINDOW. ALSO, IF LANE WIDTHS ARE REDUCED BELOW 11FT, BICYCLES SHOULD BE HELD TO THE END OF THE QUEUE WHEN TRAFFIC IS STOPPED SO THEY DO NOT COMPETE FOR LANE SPACE.

4. BICYCLIST ACCOMMODATIONS SHOULD BE CONSIDERED TO ENSURE THAT OBSTACLES, EQUIPMENT, CONSTRUCTION MATERIALS, TRAFFIC CONTROL DEVICES, ETC. DO NOT ENCROACH INTO THE CYCLIST'S PATH OF TRAVEL, IT IS IMPORTANT THAT CYCLIST'S ROUTES ARE FREE OF RUTS, SAND AND MUD TO PREVENT CYCLIST'S CRASHES.

5. WHEN COARSE-MILLED BITUMINOUS PAVEMENT IS OPEN TO TRAFFIC, A "MOTORCYCLES USE CAUTION" SIGN, AS PER VTRANS STANDARDS T-17, T-28 AND T-30, SHALL BE PROVIDED.

6. THE CONTRACTOR SHOULD LEAVE NO LONGITUDINAL DROP-OFFS DURING THE OVERNIGHT HOURS. THEREFORE, THE FULL ROADWAY WIDTH SHOULD BE COARSE MILLED OR PAVED DURING THE DAILY WORK PERIOD. WHEN NECESSARY, DROP-OFF PROTECTION IN THESE AREAS SHALL CONFORM TO VTRANS STANDARDS T-35 AND T-36.

TRAFFIC CONTROL NOTES (CONTINUED)

7. TRAFFIC SHALL NOT BE CHANGED FROM ONE TRAFFIC PATTERN TO THE NEXT TRAFFIC PATTERN UNTIL ALL TEMPORARY MARKINGS, SIGNING AND SIGNAL WORK ARE COMPLETED. ANY CONFLICTING MARKINGS SHALL BE REMOVED.

8. ALL NON-OPERATING SIGNAL HEADS AND PEDESTRIAN HEADS SHALL BE REMOVED OR COMPLETELY COVERED AS DIRECTED BY THE ENGINEER. COVERING SHALL NOT DETERIORATE FOR THE DURATION THAT THE SIGN/PEDESTRIAN HEADS ARE COVERED.

9. ALL PERMANENT SIGNS WHICH CONFLICT WITH TEMPORARY TRAFFIC CONTROL MUST BE COMPLETELY COVERED.

10. PLEASE NOTE THAT THE UTO (UNIFORMED TRAFFIC OFFICER), UNDER AUTHORITY GRANTED BY LAW (TITLE 23 VSA) MAY DIRECT AND CONTROL TRAFFIC. SUITABLE EXAMPLES IN WORK MIGHT INCLUDE THE DIRECTION AND CONTROLS OF TRAFFIC AT INTERSECTIONS WHERE SIGNALS ARE NOT FUNCTIONING OR ARE MALFUNCTIONING. IN THESE CASES, THE PRESENCE OF THE BLUE LIGHT MAY NOT BE SUITABLE OR NECESSARY. THE WEARING OF DEPARTMENTALLY REQUIRED AND APPROVED REFLECTIVE GARMENTS IS REQUIRED.

11. THE CONTRACTOR SHALL SUBMIT A SITE SPECIFIC TRAFFIC CONTROL PLAN TO THE ENGINEER PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL INCLUDE A CONSTRUCTION SIGN PACKAGE FOR EXPECTED LANE CLOSURES, WORK ZONE SPEED REDUCTIONS AND PEDESTRIAN ACCESS IN COMPLIANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). THE COST OF PREPARING THIS PLAN (AND MAKING CHANGES IF NECESSARY) SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 641.11 TRAFFIC CONTROL, ALL-INCLUSIVE.

12. MAINTAIN ACCESS TO ENTRANCES AND DRIVEWAYS TO PROPERTIES AT ALL TIMES FOR EMERGENCY VEHICLES. MAINTAIN ACCESS TO ALL COMMERCIAL AND MUNICIPAL PROPERTIES DURING BUSINESS HOURS. ACCESS TO RESIDENTIAL PROPERTIES SHALL BE COORDINATED WITH THE OWNER. COORDINATE MAJOR WORK ON COMMERCIAL OR MUNICIPAL ACCESSES WITH THE OWNER AT LEAST ONE WEEK PRIOR TO STARTING THE WORK. ALL ACCESSES SHALL ALSO BE KEPT FREE OF WORK AND TRAFFIC CONTROLLED BY UNIFORMED TRAFFIC OFFICERS OR FLAGGERS AS REQUIRED.

13. SIGNALIZED INTERSECTIONS SHALL BE IN RED FLASH MODE AND MUST BE CONTROLLED BY UNIFORMED TRAFFIC OFFICERS WHEN LANES ARE NOT IN NORMAL OPERATION.

14. THE CONTRACTOR SHALL POSITION PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) WARNING MOTORISTS OF THE EXPECTED ROADWAY CONDITIONS AHEAD. THE MESSAGE TO BE DISPLAYED, AND THEIR PROPOSED LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER IN ADVANCE FOR APPROVAL. THE PCMS SHOULD BE RELOCATED AS DETERMINED BY THE ENGINEER TO PROVIDE WORK ZONE TRAVEL INFORMATION THAT IS OTHERWISE DIFFICULT TO CONVEY WITH STATIC SIGNS. THE COST OF PROVIDING THESE MESSAGE SIGNS AND THEIR RELOCATION IF NECESSARY WILL BE PAID UNDER ITEM 641.15, PORTABLE CHANGEABLE MESSAGE SIGN.

15. THE BID PRICE FOR ITEM 641.11 TRAFFIC CONTROL, ALL-INCLUSIVE SHALL INCLUDE BUT IS NOT LIMITED TO ALL OF THE FOLLOWING, AS NEEDED: ANY TEMPORARY TRAFFIC BARRIERS, ENERGY ABSORPTION ATTENUATORS, PAVEMENT SAWCUTS, TEMPORARY PAVEMENT MARKINGS, ON-PROJECT CONSTRUCTION SIGNING, PORTABLE FLASHING ARROW BOARDS, BARRELS, CONES, BARRICADES, TEMPORARY REGULATORY AND WARNING SIGNS, AND POSTS AS DETAILED IN THE MUTCD AND VTRANS STANDARDS. ALL ADJUSTING, RELOCATING AND REMOVING OF THESE DEVICES AS DIRECTED BY THE ENGINEER SHALL ALSO BE INCLUDED. THE FOLLOWING ITEMS WILL BE PAID FOR SEPARATELY: 630.10 UNIFORMED TRAFFIC OFFICER, 630.15 FLAGGERS.

16. THE CURRENT EDITION OF THE MUTCD AND ITS LATEST REVISIONS SHALL BE THE STANDARD FOR ALL TRAFFIC CONTROL DEVICES. EXISTING SIGNS AND MARKINGS SHALL BE VALID UNTIL SUCH TIME AS THEY ARE REPLACED OR RECONSTRUCTED. WHEN NEW TRAFFIC DEVICES ARE ERECTED OR PLACED, OR EXISTING TRAFFIC CONTROL DEVICES ARE REPLACED OR REPAIRED, THE EQUIPMENT, DESIGN, METHOD OF INSTALLATION, PLACEMENT OR REPAIR SHALL CONFORM WITH SUCH STANDARDS.

17. NO CONSTRUCTION SIGNS SHALL BE INSTALLED AS TO INTERFERE OR OBSTRUCT THE VIEW OF EXISTING TRAFFIC CONTROL DEVICES, STOPPING SIGHT DISTANCE, AND CORNER SIGHT DISTANCE FROM DRIVES AND TOWN HIGHWAYS. EXISTING SIGNS WHICH CONFLICT WITH TEMPORARY TRAFFIC CONTROL SHALL BE COMPLETELY COVERED OR REMOVED.

18. CONSTRUCTION ZONE SIGN LAYOUT SHALL BE IN ACCORDANCE WITH SECTION 6 OF THE CURRENT EDITION OF THE MUTCD AND ITS LATEST REVISIONS, AND AS DIRECTED BY THE ENGINEER.

19. CONSTRUCTION SIGNS SHALL BE IN NEW OR LIKE NEW CONDITION PER VTRANS STANDARDS AND SPECIAL PROVISIONS.

21. WHERE TEMPORARY SIGNS ARE PLACED BEHIND GUARDRAIL, THEY SHALL BE ADJUSTED SUCH THAT THE BOTTOMS OF THE SIGNS ARE ABOVE THE TOP OF GUARDRAIL.

22. AS THE CONSTRUCTION OPERATION MOVES, FLAGGER SIGNS SHALL BE MOVED ACCORDINGLY. AT NO TIME SHOULD THE FLAGGER SYMBOL SIGN BE MORE THAN 500 FEET FROM THE FLAGGER STATION. FLAGGER SIGNS SHALL BE COVERED OR REMOVED FROM TRAFFIC WHEN FLAGGING OPERATIONS CEASE FOR LONGER THAN 15 MINUTES.

23. BARRELS AND CONES SHALL BE USED TO CLEARLY DEFINE THE TRAVEL SPACE AND PROVIDE SEPARATION FROM THE WORK SPACE ALONG ITS ENTIRE LENGTH. BARRELS SHOULD BE USED TO CHANNELIZE OR DELINEATE ROAD USERS FLOW AND CONES SHOULD BE USED TO DELINEATE THE COMMERCIAL DRIVES WITHIN THE WORK ZONE. THE TWO SHOULD NOT BE MIXED AS IT COULD CONFUSE THE MOTORIST NAVIGATING THE WORK ZONE.

24. FOR ADDITIONAL TRAFFIC CONTROL GENERAL NOTES, SEE VTRANS STANDARD T-1, T-10, T-17 AND T-28.

25. SIGN COVERING SHALL NOT DAMAGE THE RETRO-REFLECTIVITY OF THE SIGN FACE. ALSO, THE SIGN COVER SHALL NOT DETERIORATE FOR THE DURATION THAT THE SIGN IS COVERED.

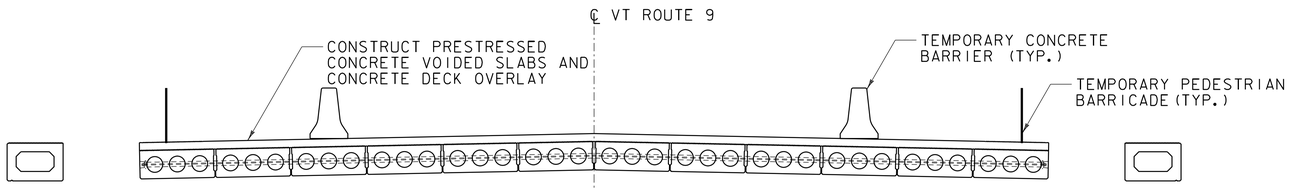
26. CONSTRUCTION SIGN COVERS SHALL CONSIST OF A PANEL, PAINTED FLAT BLACK, THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD, OR ANY OTHER MATERIAL SATIFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT.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

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

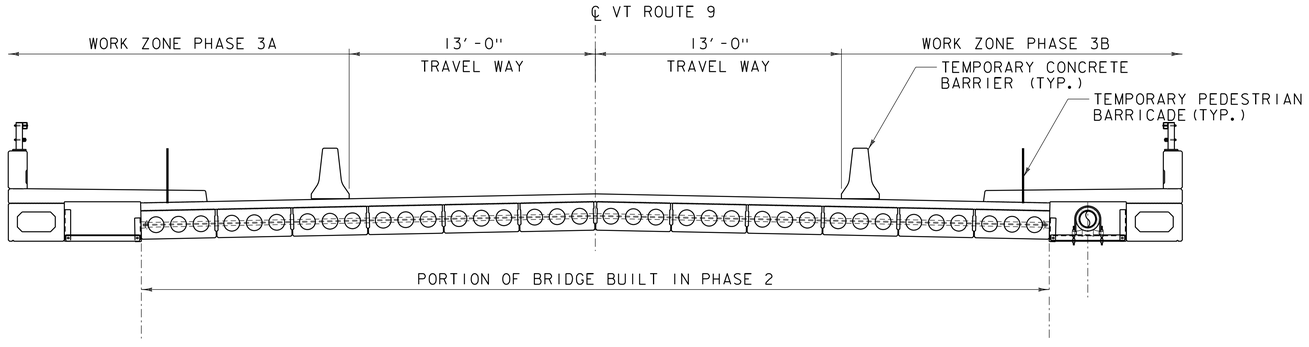
FILE NAME: zl2j606frm.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: G. EDWARDS
TRAFFIC CONTROL NOTES

PLOT DATE: 9/21/2022
DRAWN BY: G. BARRETT
CHECKED BY: D. YOULEN



PHASE 2 TYPICAL BRIDGE SECTION

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



PHASE 3 TYPICAL BRIDGE SECTION

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

TRAFFIC PHASING NOTES

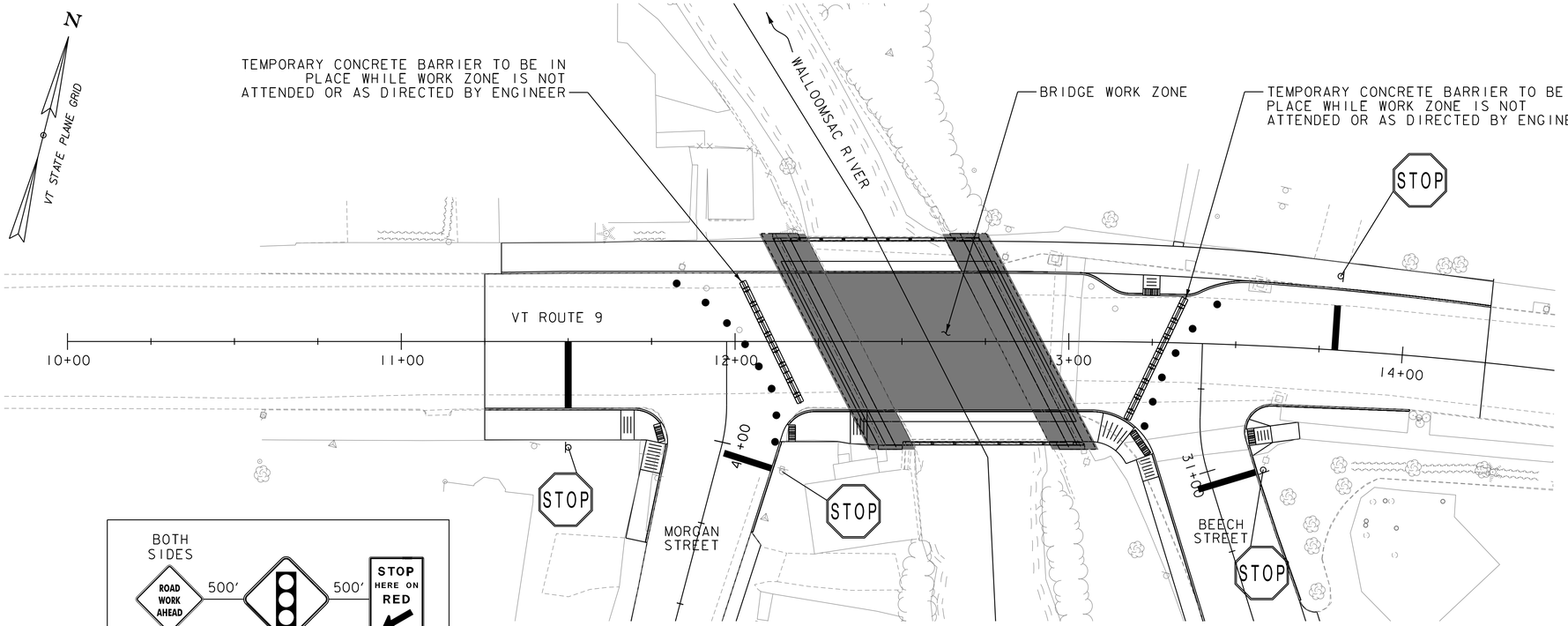
1. SEE TRAFFIC CONTROL SHEET FOR GENERAL TRAFFIC CONTROL NOTES.
2. REFER TO STANDARD T-10 FOR CONSTRUCTION APPROACH SIGNS CRITERIA.
3. ENERGY ABSORPTION ATTENUATORS SHALL BE DESIGNED FOR POSTED SPEED OF 30 MPH.
4. PHASE 1 SHALL INCLUDE THE INSTALLATION OF MICROPILES WHILE MAINTAINING ALTERNATING ONE LANE OF TRAFFIC WITH FLAGGERS OR UNIFORMED TRAFFIC OFFICERS ON THE EXISTING BRIDGE. CONTRACTOR SHALL DEVELOP AND IMPLEMENT A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR ONE LANE CLOSURES PER THE CURRENT VERSION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND ITS LATEST REVISIONS.
5. PHASE 2 CONSTRUCTION SHALL INCLUDE BRIDGE REPLACEMENT CONSTRUCTION BY IMPLEMENTING A DETOUR AS SHOWN ON THE TRUCK DETOUR AND PEDESTRIAN DETOUR PLAN SHEETS AND CLOSING THE EXISTING BRIDGE AS LIMITED BY THE SPECIAL PROVISIONS. THE CONTRACTOR SHALL PROVIDE FOR STOP CONTROL AT THE MORGAN AND BEECH STREET INTERSECTIONS. DURING PHASE 2 TEMPORARY CLOSURES OF THE SIDE STREETS MAY BE REQUIRED. THESE CLOSURES SHALL MEET THE REQUIREMENTS OF THE SPECIAL PROVISIONS.
6. PHASE 3 CONSTRUCTION SHALL INCLUDE COMPLETING THE BRIDGE REPLACEMENT WHILE MAINTAINING TWO LANES OF TRAFFIC AND PEDESTRIAN ACCESS ON THE NEW BRIDGE. THE CONTRACTOR SHALL PROVIDE A TEMPORARY TRAFFIC SIGNAL SYSTEM AT THE BEECH STREET INTERSECTION AND SHALL PROVIDE A TEMPORARY ACCESS ROUTE FOR PEDESTRIANS ACROSS THE BRIDGE BY PHASING THE CONSTRUCTION AS SHOWN AND UTILIZING THE OPPOSITE SIDE FOR PEDESTRIAN ACCESS.

Stantec

PROJECT NAME: BENNINGTON	
PROJECT NUMBER: BF 1000(20)	
FILE NAME: z12j606typ_phasing.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: G. BARRETT
DESIGNED BY: G. EDWARDS	CHECKED BY: D. YOULEN
TYPICAL PHASING SECTIONS & NOTES	SHEET 27 OF 76

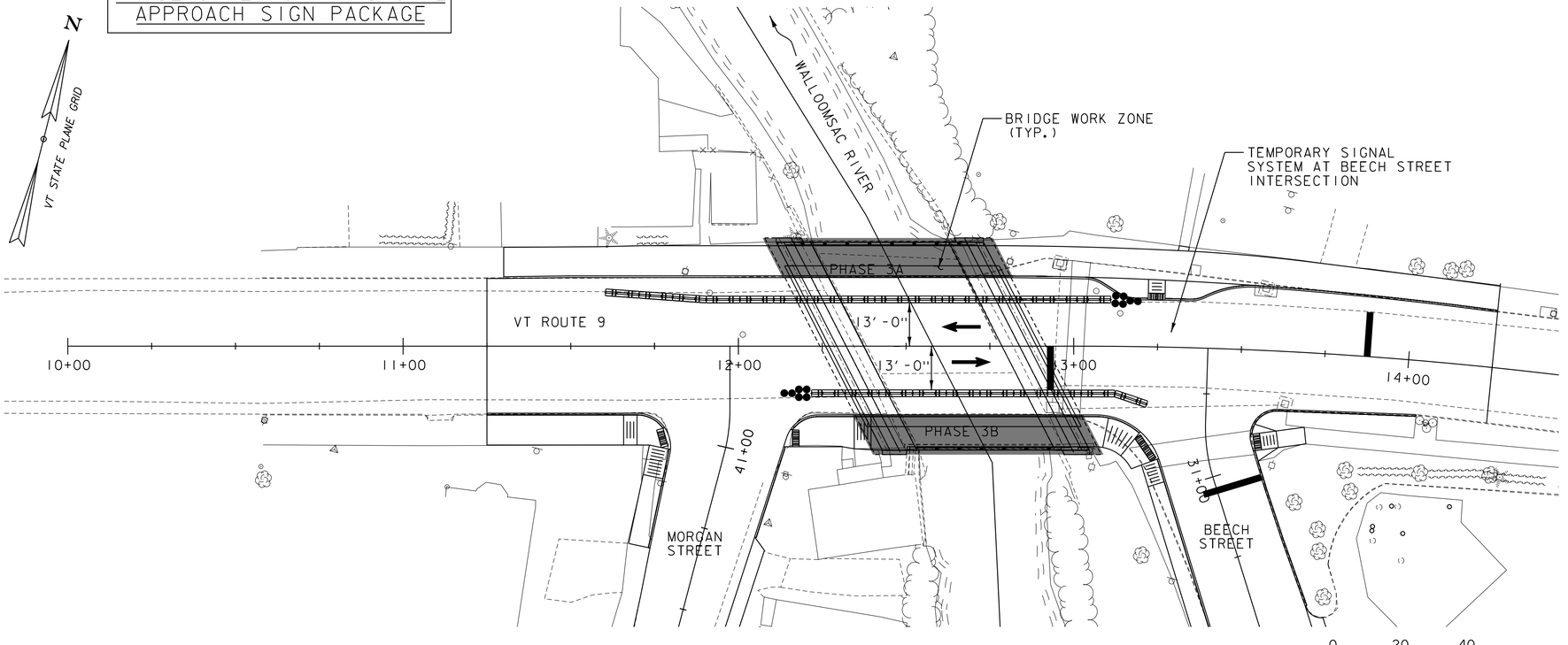
TEMPORARY TRAFFIC SIGNALS:

1. TEMPORARY TRAFFIC SIGNAL SYSTEM SHALL BE IN ACCORDANCE WITH SECTION 678, AND PAID FOR AS ITEM 678.40, TEMPORARY TRAFFIC SIGNAL SYSTEM.
2. TEMPORARY BARRIER IN THE PLAN SHALL BE IN ACCORDANCE WITH SECTION 621.
3. SUPPORT OF EXCAVATION LOCATED WITHIN THE DEFLECTION DISTANCE OF THE TRAFFIC BARRIER SHALL BE DESIGNED TO WITHSTAND A TRAFFIC BARRIER COLLISION LOAD. THE SUPPORT OF EXCAVATION SHALL EXTEND UP TO A HEIGHT THAT IS EQUAL TO OR HIGHER THAN THE TOP OF THE ADJACENT BARRIER.
4. CONCRETE BARRIER EXPOSED TO TRAFFIC SHALL BE DELINEATED TO MATCH THE CORRESPONDING TEMPORARY PAVEMENT MARKING. REFLECTORS SHALL BE MOUNTED EVERY 20 FEET ALONG THE SIDE OF THE BARRIER EXPOSED TO TRAFFIC.



PHASE 2 LAYOUT
SCALE: 1" = 20'-0"

PHASE 3 TEMPORARY SIGNAL APPROACH SIGN PACKAGE



PHASE 3 LAYOUT
SCALE: 1" = 20'-0"

0 20 40
SCALE IN FEET

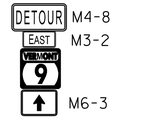
LEGEND
- RETROREFLECTIVE PLASTIC DRUM
- TEMPORARY TRAFFIC SIGNAL
- TEMPORARY CONSTRUCTION SIGN
- FLASHING BEACON
- TEMPORARY CONCRETE BARRIER
- ENERGY ABSORPTION ATTENUATOR

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606bdr_phasing.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: G. EDWARDS
PHASING LAYOUT SHEET

PLOT DATE: 9/21/2022
DRAWN BY: G. BARRETT
CHECKED BY: D. YOULEN
SHEET 28 OF 76



SIGN ASSEMBLY 'A'

SIGN 'B'

RII-03a & M4-10L MOUNTED ON TYPE III BARRICADE

SIGN ASSEMBLY 'C'

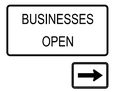
RII-03a & M4-10L MOUNTED ON TYPE III BARRICADE

SIGN ASSEMBLY 'D'

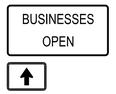
RII-2 MOUNTED ON TYPE III BARRICADE

SIGN ASSEMBLY 'E'

SIGN ASSEMBLY 'F'



SIGN ASSEMBLY 'G'



SIGN ASSEMBLY 'H'

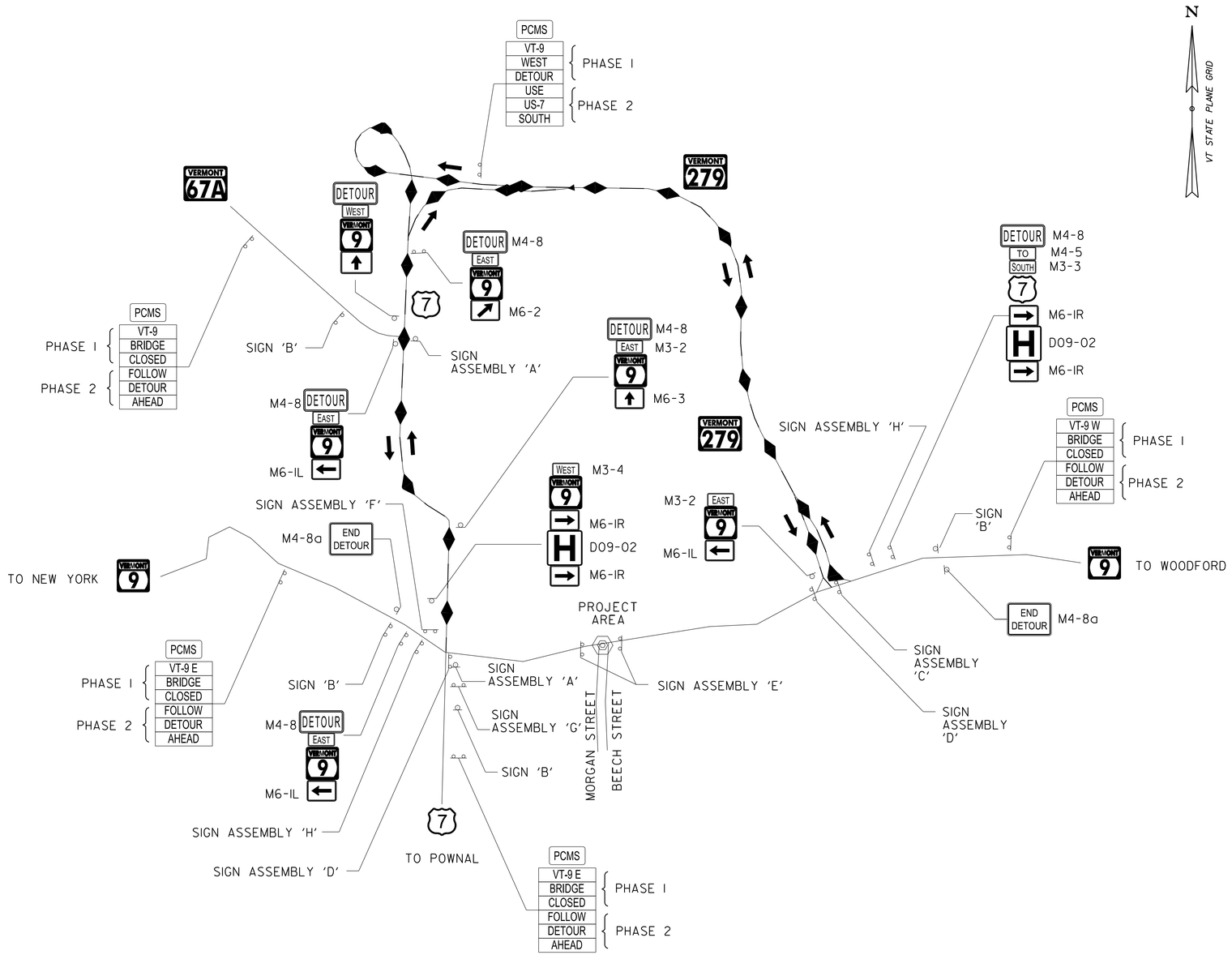
MESSAGES FOR PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS)

STARTING 2 WEEKS PRIOR TO CLOSURE

PHASE 1	**VT RTE 9**
	BRIDGE
	CLOSURE
PHASE 2	**(DATES)**
	PLAN
	AHEAD

NOTES:

1. ALL COSTS OF INSTALLING, MAINTAINING, AND REMOVING THE SIGNS AND BARRICADES IN THIS TRAFFIC CONTROL PLAN AS NECESSARY TO MEET PROJECT CONDITIONS WILL BE INCIDENTAL TO ITEM 641.11, "TRAFFIC CONTROL ALL-INCLUSIVE". PCMS WILL BE PAID FOR SEPARATELY UNDER CONTRACT ITEM 641.15.
2. ALL TRAFFIC SIGNS SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) 2009 EDITION, AND ITS LATEST REVISIONS.
3. "ROAD CLOSED" SIGNS SHALL BE MOUNTED AND MAINTAINED ON LIGHTED TYPE III BARRICADES, EXTENDING ACROSS THE WIDTH OF THE ROADWAY (CURB-TO-CURB)
4. TYPE III CONSTRUCTION BARRICADES SHALL BE PLACED SO AS TO PHYSICALLY EXCLUDE TRAFFIC FROM THE ENTIRE ROADWAY WIDTH OR AT THE DISCRETION OF THE ENGINEER.
5. SIGN SPACING IS FOR REFERENCE ONLY, FIELD ADJUSTMENTS WILL LIKELY BE NECESSARY, AS APPROVED BY THE ENGINEER.



TRAFFIC DETOUR

NOT TO SCALE

LEGEND

TRAFFIC DETOUR ROUTE

TRAFFIC TRAVEL DIRECTION

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606detour.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: K. RICHARDSON
DESIGNED BY: K. RICHARDSON	CHECKED BY: G. EDWARDS
TRAFFIC DETOUR	SHEET 29 OF 76

M4-9AR

SIGN 'A'

M4-9AL

SIGN 'B'

R9-9

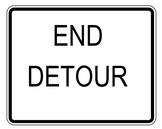
SIGN 'C'

R9-11

SIGN 'D'

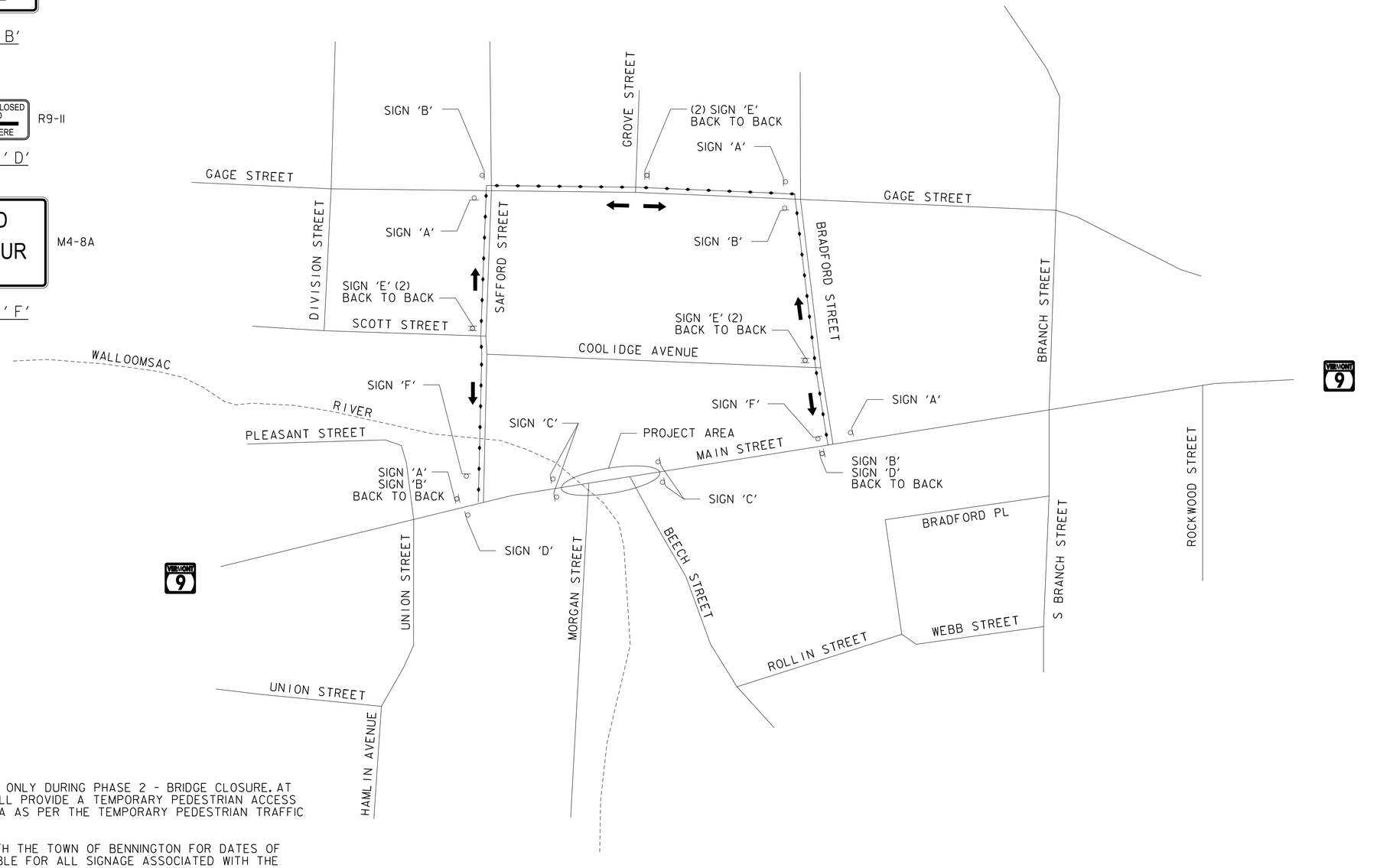
M4-9A

SIGN 'E'



M4-8A

SIGN 'F'



NOTE:

1. PEDESTRIAN DETOUR SHALL BE IN PLACE ONLY DURING PHASE 2 - BRIDGE CLOSURE. AT ALL OTHER TIMES THE CONTRACTOR SHALL PROVIDE A TEMPORARY PEDESTRIAN ACCESS ROUTE THROUGH THE CONSTRUCTION AREA AS PER THE TEMPORARY PEDESTRIAN TRAFFIC CONTROL NOTES.

2. THE CONTRACTOR SHALL COORDINATE WITH THE TOWN OF BENNINGTON FOR DATES OF BRIDGE CLOSURE. THE TOWN IS RESPONSIBLE FOR ALL SIGNAGE ASSOCIATED WITH THE BIKE/PEDESTRIAN DETOUR.

3. DETOUR ROUTE SHALL BE ADA ACCESSIBLE. TEMPORARY CURB RAMPS, PAVEMENT MARKINGS AND ADDITIONAL SIGNAGE MAY BE NEEDED AT THE MAIN STREET/ BRADFORD INTERSECTION, AND AT OTHER INTERSECTIONS AS NECESSARY TO PROVIDE AN ACCESSIBLE ROUTE.

4. CYCLISTS SHALL BE ENCOURAGED TO USE THE LOW-VOLUME STREETS INSTEAD OF THE SIDEWALKS TO REDUCE CONFILICS WITH PEDESTRIANS. THE CONTRACTOR AND ENGINEER SHALL MONITOR THE OPERATION OF THE DETOUR CLOSELY, AND MAKE ADJUSTMENTS TO SIGNAGE AS NECESSARY. ADDITIONAL PCMS'S MAY BE REQUIRED TO DIRECT BICYCLE TRAFFIC AS DEEMED NECESSARY BY THE ENGINEER. IF PCMS'S ARE REQUIRED BY THE ENGINEER FOR THE BIKE/PED DETOUR, THE PCMS'S WILL BE PAID AS ITEM 641.17 PORTABLE CHANGEABLE MESSAGE SIGN.

5. ALL WORK, MATERIALS, AND COORDINATION WITH THE TOWN TO INSTALL, MAINTAIN, MODIFY AND REMOVE TEMPORARY DETOUR, WITH THE EXCEPTION OF PCMS'S AS DESCRIBED IN NOTE 4, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 641.11 TRAFFIC CONTROL, ALL-INCLUSIVE.

PEDESTRIAN DETOUR

NOT TO SCALE

LEGEND

PEDESTRIAN DETOUR ROUTE

PEDESTRIAN TRAVEL DIRECTION

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606detour.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: K. RICHARDSON
DESIGNED BY: K. RICHARDSON	CHECKED BY: G. EDWARDS
PEDESTRIAN DETOUR	SHEET 30 OF 76

SOIL CLASSIFICATION

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

ROCK QUALITY DESIGNATION

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

SHEAR STRENGTH

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

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

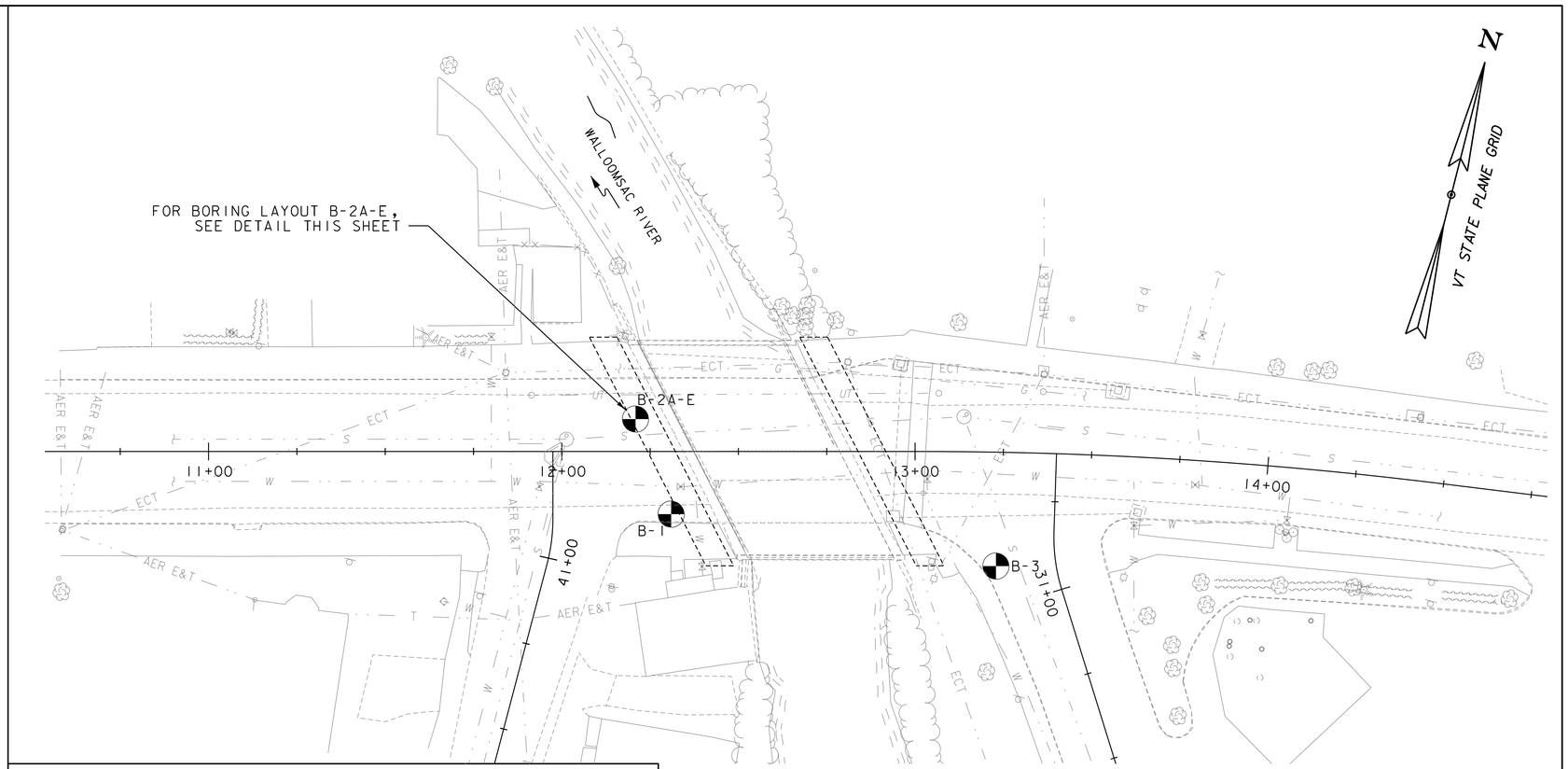
DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

COMMONLY USED SYMBOLS

▼	Water Elevation
⊗	Standard Penetration Boring
⊕	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per Foot For: 2" O.D. Sampler 1 3/8" I.D. Sampler Hammer Weight Of 140 Lbs. Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1 1/8"
BX	Core Size 1 5/8"
NX	Core Size 2 1/8"
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Si	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	Top of Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
ROD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)
VTSPG	NAD83 - See Note 7

COLOR

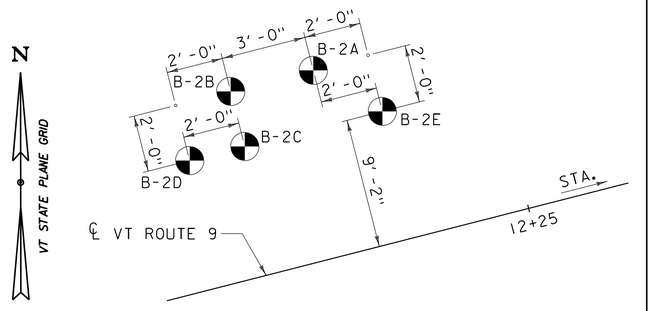
blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gry	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mltc	Multicolored
or	Orange		



BORING PLAN

0 20 40

SCALE



BORING LAYOUT B-2A-E DETAIL

NOT TO SCALE
(ALL DIMENSIONS ARE APPROXIMATE)

BORING CHART

BORING NUMBER	SURVEY STATION	OFFSET	NORTHING	EASTING	GROUND ELEVATION	TOP OF BEDROCK EL.
B-1	12+30.94	17.73' RT	138801.53	1456422.58	730.49'	716.49'
B-2A	12+18.86	11.17' LT	138826.55	1456403.72	730.61'	---
B-2B	12+15.86	11.17' LT	138825.81	1456400.81	730.56'	---
B-2C	12+15.86	9.17' LT	138823.87	1456401.31	730.58'	---
B-2D	12+13.86	9.17' LT	138823.37	1456399.37	730.56'	---
B-2E	12+20.86	9.17' LT	138825.10	1456406.15	730.67'	---
B-3	13+23.48	32.24' RT	138810.02	1456515.30	730.81'	717.81

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.

GENERAL NOTES

1. The subsurface explorations shown herein were made between October 12, 2020 and October 15, 2020 by the New England Boring Contractors under the supervision of Stantec.
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.

LEGEND:

⊗ BRIDGE BORING

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606borpln.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: T. DYKSTRA
BORING PLAN

PLOT DATE: 9/21/2022
DRAWN BY: J. BURKE
CHECKED BY: T. DYKSTRA
SHEET 31 OF 76

Stantec

EL. 724.55
ABUTMENT 1
BOT. OF PILE CAP

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

BENNINGTON
BF 1000 (20)
VT Rt 9, Bridge No. 6 Over Walloomsac

Boring No.: B-1
Page No.: 1 of 2
Pin No.: z12j606
Checked By: TAD

Boring Crew: New England Boring, Derry, NH, LGH (Stantec)
Date Started: 10/13/20 Date Finished: 10/15/20
VTSPG NAD83: N 138801.53 ft E 1456422.58 ft
Station: 12+30.94 Offset: 17.73' RT
Ground Elevation: 730.49 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	1.38 in
Hammer Wt:	300 lb.	140 lb.
Hammer Fall:	24 in	30 in.
Hammer/Rod Type:	Safety/N	
Rig:	Truck/Mobile B-53	CE = 1

Groundwater Observations

Date	Depth (ft)	Notes
10/12/20	7.5	
10/13/20	8.0	

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec.: % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft – 0.5 ft								
		Visual Classification, GrSa, brn, Dry, Rec. = 1.0 ft, –FILL–				8-7-6 (13)				
2.5		Visual Classification, GrSa, brn, Dry, Rec. = 1.1 ft, –FILL–				7-7-6-8 (13)				
5.0		Visual Classification, SiGrSa, brn, Dry, Rec. = 1.5 ft, –FILL–				8-7-5-5 (12)				
		Visual Classification, SiGrSa, brn, Dry, Rec. = 1.3 ft, –FILL–				6-6-2-3 (8)				
7.5		Field Note:, Boulder at 8 feet could not advance roller or casing, offset boring 3 feet east								
		Visual Classification, Rock Fragments, Rec. = 0.1 ft, –COBBLE/BOULDER LAYER–				20-18-16-22 (34)				
10.0		Field Note:, Based on drill action cobbles and boulders are present from approximately 8 to 14 feet., –COBBLE/BOULDER LAYER–								
12.5		14.0 ft – 15.0 ft, Advanced roller bit through bedrock from 14 to 15 feet.				Top of Bedrock @ 14.0 ft				
15.0		15.0 ft – 20.0 ft, Light gray, Dolomite, Moderately hard, Slightly weathered, Poor rock, NQDC, Joints are moderately dipping, rough, slightly discolored, partly open. Highly fractured zone from 17 to 18 feet. RMR = 27	1 (45)	84 (38)	2.5 1.5					
17.5					1.5 2 2					

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

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

BENNINGTON
BF 1000 (20)
VT Rt 9, Bridge No. 6 Over Walloomsac

Boring No.: B-1
Page No.: 2 of 2
Pin No.: z12j606
Checked By: TAD

Boring Crew: New England Boring, Derry, NH, LGH (Stantec)
Date Started: 10/13/20 Date Finished: 10/15/20
VTSPG NAD83: N 138801.53 ft E 1456422.58 ft
Station: 12+30.94 Offset: 17.73' RT
Ground Elevation: 730.49 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	1.38 in
Hammer Wt:	300 lb.	140 lb.
Hammer Fall:	24 in	30 in.
Hammer/Rod Type:	Safety/N	
Rig:	Truck/Mobile B-53	CE = 1

Groundwater Observations

Date	Depth (ft)	Notes
10/12/20	7.5	
10/13/20	8.0	

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 %
		20.0 ft – 25.0 ft, Light gray, Dolomite, Moderately hard, Slightly weathered, Fair rock, NQDC, Joints are moderately dipping, rough, slightly discolored, tight to partly open. RMR = 46	2 (45)	100 (60)	2 2 2 2 2					
25.0		25.0 ft – 30.0 ft, Light gray, Dolomite, Moderately hard, Fresh, Fair rock, NQDC, Joints are low angle to moderately dipping, rough, slightly discolored, tight to partly open. RMR = 46	3 (25)	100 (53)	2.5 2 2 2.5 2					
30.0		30.0 ft – 35.0 ft, Light gray, Dolomite, Moderately hard, Fresh, Fair rock, NQDC, Joints are moderately dipping to high angle, rough, slightly discolored, tight to partly open. Highly fractured zone from 33 to 34 feet. RMR = 49	4 (65)	98 (80)	2.5 2 2 1.5 1.5					
35.0		Hole stopped @ 35.0 ft								

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

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606borlogs.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: VTRANS
BORING LOGS 1

PLOT DATE: 9/21/2022
DRAWN BY: VTRANS
CHECKED BY: VTRANS
SHEET 32 OF 76

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

BENNINGTON
BF 1000 (20)
VT Rt 9, Bridge No. 6 Over Walloomsac

Boring No.: B-2A
Page No.: 1 of 1
Pin No.: z12j606
Checked By: TAD

Boring Crew: New England Boring, Derry, NH, LGH (Stantec)
Date Started: 10/14/20 Date Finished: 10/14/20
VTSPG NAD83: N 138826.55 ft E 1456403.72 ft
Station: 12+18.86 Offset: 11.17' LT
Ground Elevation: 730.61 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	1.38 in
Hammer Wt:	300 lb.	140 lb.
Hammer Fall:	24 in	30 in.
Hammer/Rod Type:	Safety/N	
Rig:	Truck/Mobile B-53	CE = 1

Groundwater Observations		
Date	Depth (ft)	Notes

EL. 724.55
ABUTMENT 1
BOT. OF PILE CAP

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft – 0.3 ft					
		Refusal on concrete, 0.3 ft					
		Hole stopped @ 0.3 ft					
2.5							
5.0							
7.5							
10.0							
12.5							
15.0							
17.5							

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

2010 COPY 179450053 - BENNINGTON BRIDGE REPLACEMENT.GPJ VERMONT AOT.GDT 11/4/20

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

BENNINGTON
BF 1000 (20)
VT Rt 9, Bridge No. 6 Over Walloomsac

Boring No.: B-2B
Page No.: 1 of 1
Pin No.: z12j606
Checked By: TAD

Boring Crew: New England Boring, Derry, NH, LGH (Stantec)
Date Started: 10/14/20 Date Finished: 10/14/20
VTSPG NAD83: N 138826.55 ft E 1456403.72 ft
Station: 12+15.86 Offset: 11.17' LT
Ground Elevation: 730.56 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	1.38 in
Hammer Wt:	300 lb.	140 lb.
Hammer Fall:	24 in	30 in.
Hammer/Rod Type:	Safety/N	
Rig:	Truck/Mobile B-53	CE = 1

Groundwater Observations		
Date	Depth (ft)	Notes

EL. 724.55
ABUTMENT 1
BOT. OF PILE CAP

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft – 0.3 ft					
		Refusal on steel plate, 0.3 ft					
		Hole stopped @ 0.3 ft					
2.5							
5.0							
7.5							
10.0							
12.5							
15.0							
17.5							

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

2010 COPY 179450053 - BENNINGTON BRIDGE REPLACEMENT.GPJ VERMONT AOT.GDT 11/4/20

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606borlogs.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: VTRANS
BORING LOGS 2

PLOT DATE: 9/21/2022
DRAWN BY: VTRANS
CHECKED BY: VTRANS
SHEET 33 OF 76

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

BENNINGTON
BF 1000 (20)
VT Rt 9, Bridge No. 6 Over Walloomsac

Boring No.: B-2C
Page No.: 1 of 1
Pin No.: z12j606
Checked By: TAD

Boring Crew: New England Boring, Derry, NH, LGH (Stantec)
Date Started: 10/14/20 Date Finished: 10/14/20
VTSPG NAD83: N 138826.55 ft E 1456403.72 ft
Station: 12+15.86 Offset: 9.17' LT
Ground Elevation: 730.58 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	1.38 in
Hammer Wt:	300 lb.	140 lb.
Hammer Fall:	24 in	30 in.
Hammer/Rod Type:	Safety/N	
Rig:	Truck/Mobile B-53	CE = 1

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft – 0.3 ft					
		5 inches of Concrete, 0.3 ft – 0.7 ft					
		22 inch diameter void, partially filled with soil, 0.7 ft – 2.5 ft					
2.5		Refusal on concrete, 2.5 ft					
		Hole stopped @ 2.5 ft					
5.0							
7.5							
10.0							
12.5							
15.0							
17.5							

EL. 724.55
ABUTMENT 1
BOT. OF PILE CAP

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

2010 COPY 179450053 – BENNINGTON BRIDGE REPLACEMENT.GPJ VERMONT AOT.GDT 11/4/20

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

BENNINGTON
BF 1000 (20)
VT Rt 9, Bridge No. 6 Over Walloomsac

Boring No.: B-2D
Page No.: 1 of 1
Pin No.: z12j606
Checked By: TAD

Boring Crew: New England Boring, Derry, NH, LGH (Stantec)
Date Started: 10/14/20 Date Finished: 10/14/20
VTSPG NAD83: N 138826.55 ft E 1456403.72 ft
Station: 12+13.86 Offset: 9.17' LT
Ground Elevation: 730.56 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	1.38 in
Hammer Wt:	300 lb.	140 lb.
Hammer Fall:	24 in	30 in.
Hammer/Rod Type:	Safety/N	
Rig:	Truck/Mobile B-53	CE = 1

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft – 0.3 ft					
		Refusal on concrete, 0.3 ft					
		Hole stopped @ 0.3 ft					
2.5							
5.0							
7.5							
10.0							
12.5							
15.0							
17.5							

EL. 724.55
ABUTMENT 1
BOT. OF PILE CAP

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

2010 COPY 179450053 – BENNINGTON BRIDGE REPLACEMENT.GPJ VERMONT AOT.GDT 11/4/20

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606borlogs.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: VTRANS
BORING LOGS 3

PLOT DATE: 9/21/2022
DRAWN BY: VTRANS
CHECKED BY: VTRANS
SHEET 34 OF 76

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

BENNINGTON
BF 1000 (20)
VT Rt 9, Bridge No. 6 Over Walloomsac

Boring No.: B-2E
Page No.: 1 of 1
Pin No.: z12j606
Checked By: TAD

Boring Crew: New England Boring, Derry, NH, LGH (Stantec)
Date Started: 10/14/20 Date Finished: 10/14/20
VTSPG NAD83: N 138826.55 ft E 1456403.72 ft
Station: 12+20.86 Offset: 9.17' LT
Ground Elevation: 730.67 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	1.38 in
Hammer Wt:	300 lb.	140 lb.
Hammer Fall:	24 in	30 in.
Hammer/Rod Type:		Safety/N
Rig:	Truck/Mobile B-53	CE = 1

Groundwater Observations

Date	Depth (ft)	Notes

EL. 724.55
ABUTMENT 1
BOT. OF PILE CAP

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft – 0.3 ft					
		5 inches of concrete, 0.3 ft – 0.7 ft					
		Auger encountered a void of unknown depth, partially filled with soil, 0.7 ft – 1.0 ft					
		Hole stopped @ 1.0 ft					
2.5							
5.0							
7.5							
10.0							
12.5							
15.0							
17.5							

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

2010 COPY 179450053 - BENNINGTON BRIDGE REPLACEMENT.GPJ VERMONT ADT.GDT 11/4/20

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606borlogs.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: VTRANS
BORING LOGS 4

PLOT DATE: 9/21/2022
DRAWN BY: VTRANS
CHECKED BY: VTRANS
SHEET 35 OF 76

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

BENNINGTON
BF 1000 (20)
VT Rt 9, Bridge No. 6 Over Walloomsac

Boring No.: B-3
Page No.: 1 of 2
Pin No.: z12j606
Checked By: TAD

Boring Crew: New England Boring, Derry, NH, LGH (Stantec)
Date Started: 10/12/20 Date Finished: 10/12/20
VTSPG NAD83: N 138810.02 ft E 1456515.30 ft
Station: 13+23.48 Offset: 32.24' RT
Ground Elevation: 730.81 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	1.38 in
Hammer Wt:	300 lb.	140 lb.
Hammer Fall:	24 in	30 in.
Hammer/Rod Type:	Safety/N	
Rig:	Truck/Mobile B-53	CE = 1

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft – 0.5 ft								
		Visual Classification, GrSa, brn, Dry, Rec. = 0.75 ft, –FILL–				18–16–12 (28)				
2.5		Visual Classification, GrSa, brn, Dry, Rec. = 0.3 ft, –FILL–				15–20–17–20 (37)				
		Visual Classification, SiGrSa, brn, Moist, Rec. = 0.25 ft, –FILL–				15–18–21–45 (39)				
5.0										
EL. 724.85 ABUTMENT 2 BOT. OF PILE CAP		Visual Classification, SiGrSa, brn, Wet, Rec. = 0.25 ft, –FILL–				10–7–9–10 (16)				
7.5										
		Field Note:, Cobbles/boulders								
		Visual Classification, GrSa, brn, Wet, Rec. = 0.3 ft, –COBBLE/BOULDER LAYER–				10–9–10–50/3" (19)				
10.0										
		Field Note:, Based on drill action cobbles and boulders are present from approximately 11 to 13 feet., Rec. = 0.0 ft, –COBBLE/BOULDER LAYER–				50/0" (R)				
12.5										
		13.0 ft – 15.0 ft, Advanced roller bit through bedrock from 13 to 15 feet.				Top of Bedrock @ 13.0 ft				
15.0		15.0 ft – 20.0 ft, Light gray, Dolomite, Moderately hard, Slightly weathered, Poor rock, NQDC, Joints are low angle to moderately dipping, rough, slightly discolored, partly open. RMR = 32	1 (30)	100 (23)	2.5 2.5 2 2 2.5					
17.5										

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

2010 COPY 179450053 - BENNINGTON BRIDGE REPLACEMENT.GPJ VERMONT AOT.GDT 12/5/20

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

BENNINGTON
BF 1000 (20)
VT Rt 9, Bridge No. 6 Over Walloomsac

Boring No.: B-3
Page No.: 2 of 2
Pin No.: z12j606
Checked By: TAD

Boring Crew: New England Boring, Derry, NH, LGH (Stantec)
Date Started: 10/12/20 Date Finished: 10/12/20
VTSPG NAD83: N 138810.02 ft E 1456515.30 ft
Station: 13+23.48 Offset: 32.24' RT
Ground Elevation: 730.81 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	1.38 in
Hammer Wt:	300 lb.	140 lb.
Hammer Fall:	24 in	30 in.
Hammer/Rod Type:	Safety/N	
Rig:	Truck/Mobile B-53	CE = 1

Groundwater Observations

Date	Depth (ft)	Notes

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 %
		20.0 ft – 25.0 ft, Light gray, Dolomite, Moderately hard, Fresh, Fair rock, NQDC, Joints are low angle to moderately dipping, rough, fresh, tight to partly open. RMR = 42	2 (15)	100 (83)	2.5 2 2.5 2 2					
22.5										
25.0		25.0 ft – 29.0 ft, Advanced roller bit through bedrock from 25 to 29 feet.								
27.5										
30.0		29.0 ft – 34.0 ft, Light gray, Dolomite, Moderately hard, Fresh, Fair rock, NQDC, Joints are low angle to moderately dipping, rough, fresh, tight. RMR = 42	3 (15)	96 (87)	3.5 3.5 2.5 2 2					
32.5										
35.0		34.0 ft – 39.0 ft, Light gray, Dolomite, Moderately hard, Fresh, Fair rock, NQDC, Joints are low angle to moderately dipping, rough, fresh, tight. RMR = 46	4 (15)	98 (92)	2.5 2.5 2.5 2 2					
37.5										
		Hole stopped @ 39.0 ft								

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

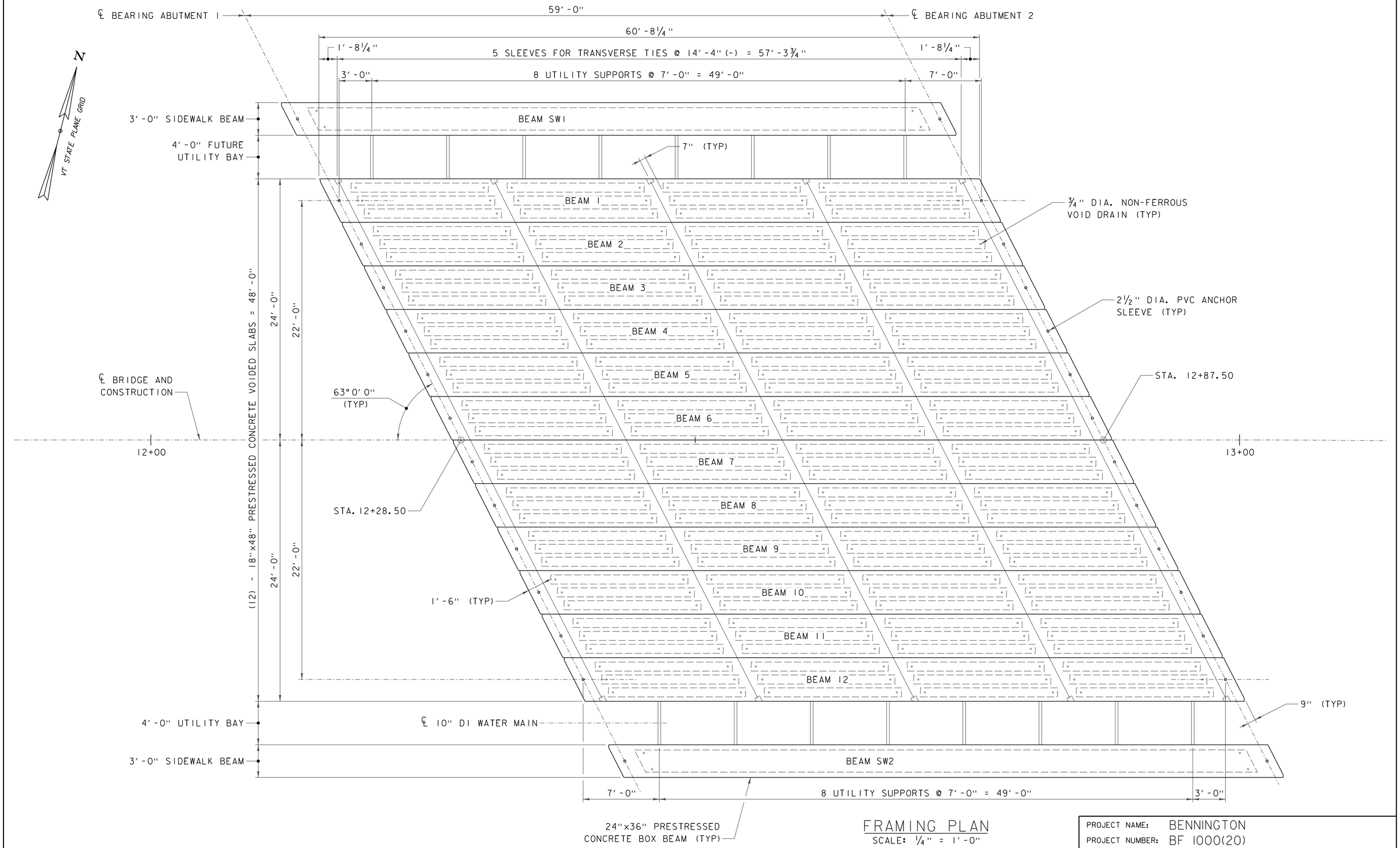
2010 COPY 179450053 - BENNINGTON BRIDGE REPLACEMENT.GPJ VERMONT AOT.GDT 12/5/20

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606borlogs.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: VTRANS
BORING LOGS 5

PLOT DATE: 9/21/2022
DRAWN BY: VTRANS
CHECKED BY: VTRANS
SHEET 36 OF 76



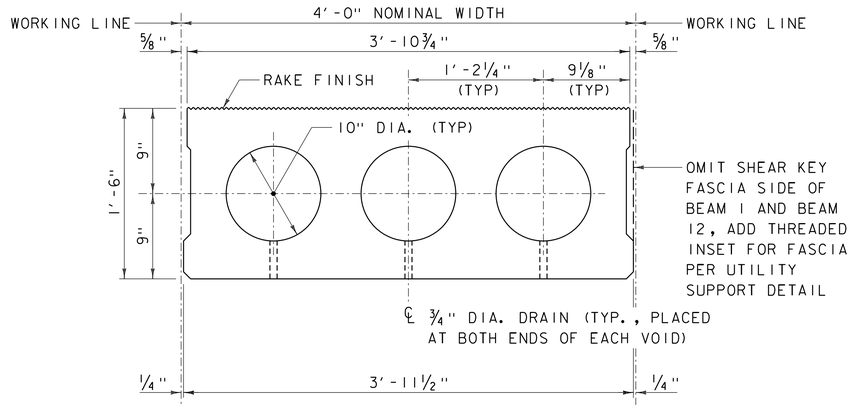
FRAMING PLAN

SCALE: ¼" = 1'-0"

Stantec

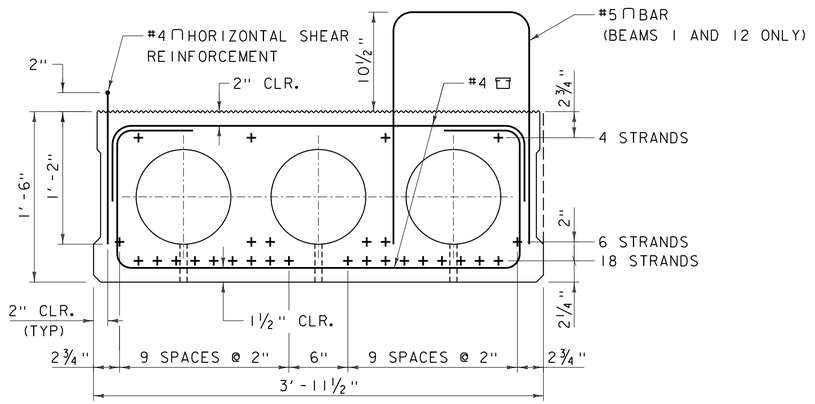
PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)

FILE NAME: z12j606fra.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: J. BURKE
DESIGNED BY: P. GREENBERG	CHECKED BY: P. GREENBERG
FRAMING PLAN	SHEET 37 OF 76



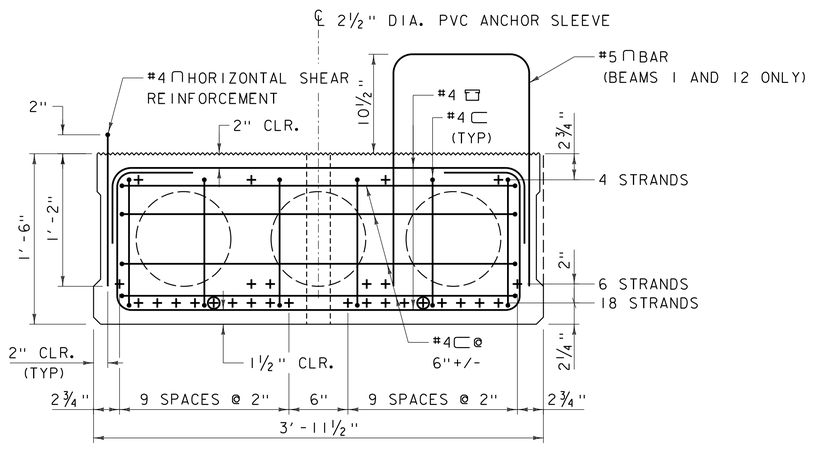
18"x48" VOIDED SLAB GEOMETRY

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



MIDSPAN SECTION

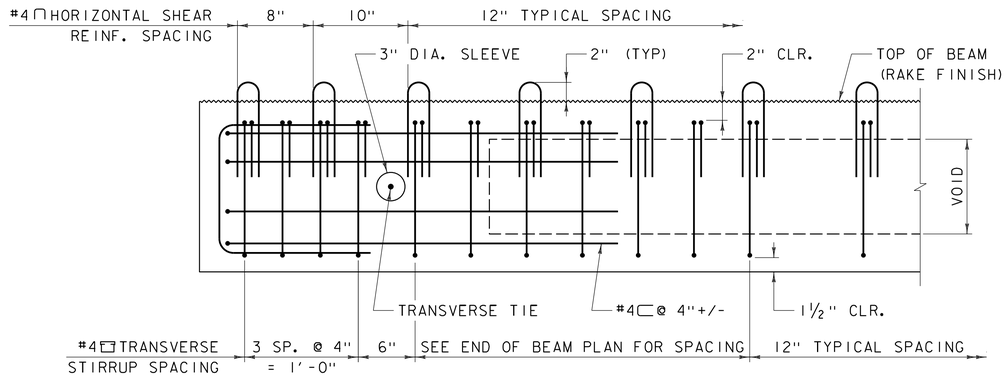
SCALE: 1 1/2" = 1'-0"



END SECTION

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

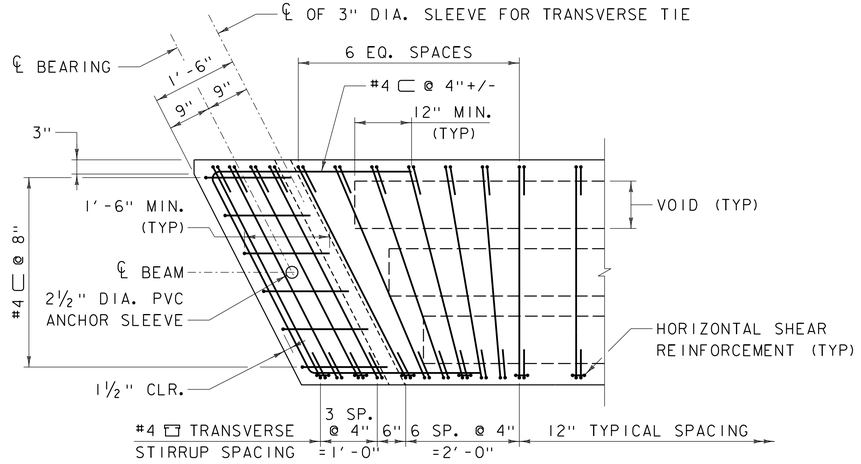
+ DENOTES STRAIGHT STRANDS
⊕ DENOTES DEBONDED STRANDS, 5'-0" EACH END (2 TOTAL)



NOTE:
STRANDS NOT SHOWN FOR CLARITY.

LONGITUDINAL SECTION

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



NOTE TO FABRICATOR:
BAR SPACING MAY BE SLIGHTLY ADJUSTED TO AVOID INTERFERENCE WITH ANCHOR SLEEVES AND SLEEVES FOR TRANSVERSE TIES.

END OF BEAM PLAN

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

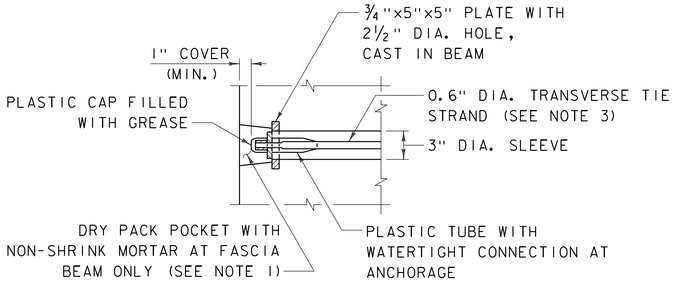
NOTE:

ALL BARS EXTENDING INTO THE SIDEWALK OR OVERLAY SHALL HAVE LEVEL III CORROSION RESISTANCE.

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)

FILE NAME: z12j606fra.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: S. VERITY
DESIGNED BY: P. GREENBERG	CHECKED BY: P. GREENBERG
VOIDED SLAB DETAILS	SHEET 38 OF 76

Stantec



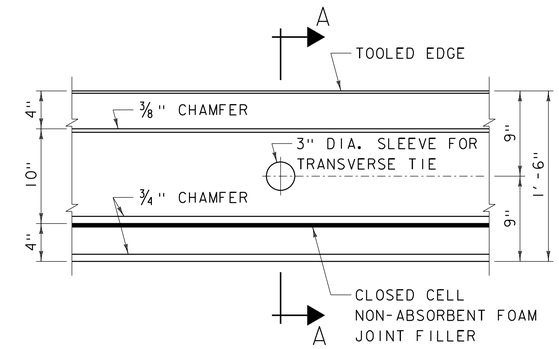
NOTES:

1. MORTAR FOR EXTERIOR POCKETS SHALL BE THE SAME COLOR AND TEXTURE AS THE BEAM CONCRETE.

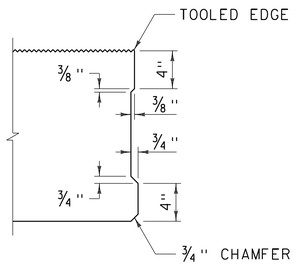
2. OTHER ANCHORAGE SYSTEMS MAY BE SUBSTITUTED WITH THE APPROVAL OF THE ENGINEER. ALTERNATE ANCHORAGE SYSTEMS SHALL BE WATERTIGHT AND CORROSION PROOF.

3. TRANSVERSE TIES SHALL BE COVERED BY A SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITING GREASE BETWEEN THE STRAND AND SHEATH) FOR THE FULL LENGTH OF THE STRAND, EXCEPT AT THE ANCHORAGE LOCATION.

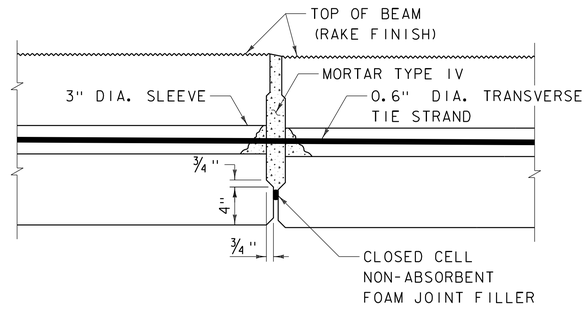
TRANSVERSE TIE ANCHORAGE
SCALE: 1½" = 1'-0"



TYPICAL BEAM ELEVATION AT TRANSVERSE TIE LOCATIONS
SCALE: 1½" = 1'-0"



SHEAR KEY DETAIL
SCALE: 1½" = 1'-0"

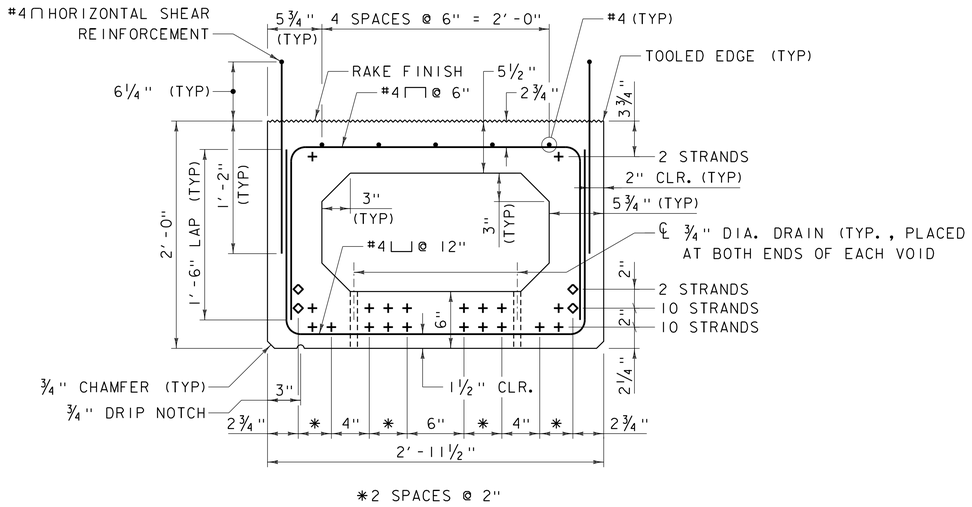


SECTION A-A
SCALE: 1½" = 1'-0"

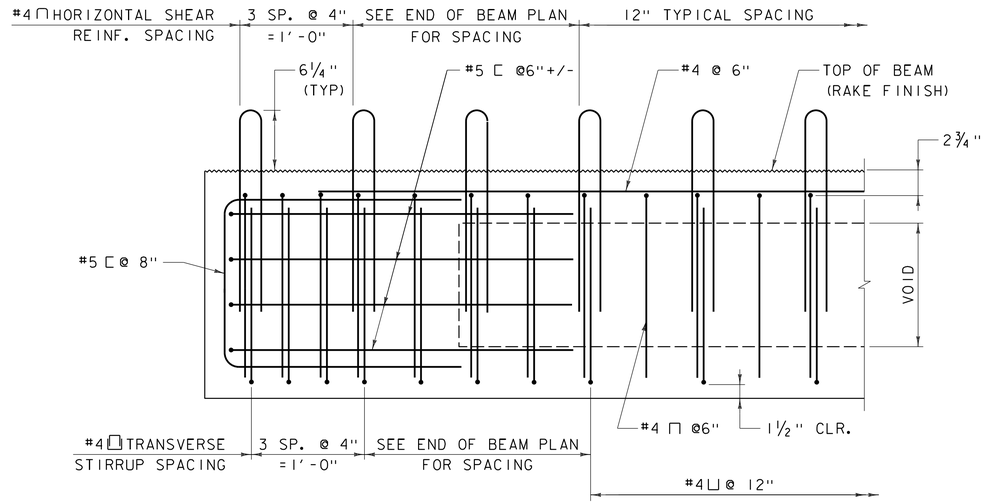
Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)

FILE NAME: z12j606fra.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: J. BURKE
DESIGNED BY: P. GREENBERG	CHECKED BY: P. GREENBERG
BOX BEAM DETAILS 1	SHEET 39 OF 76

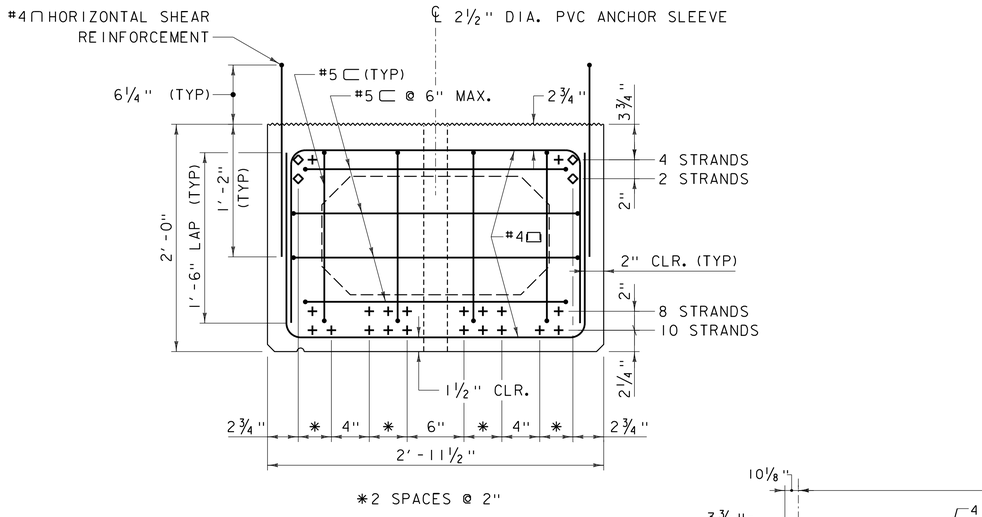


MIDSPAN SECTION
SCALE: 1½" = 1'-0"

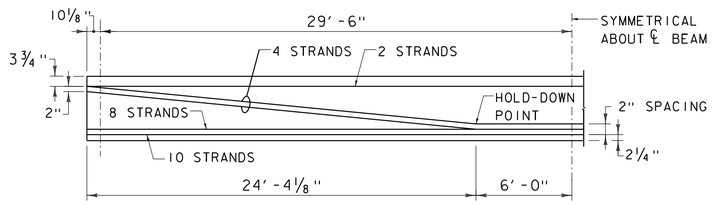


NOTE:
STRANDS NOT SHOWN FOR CLARITY.

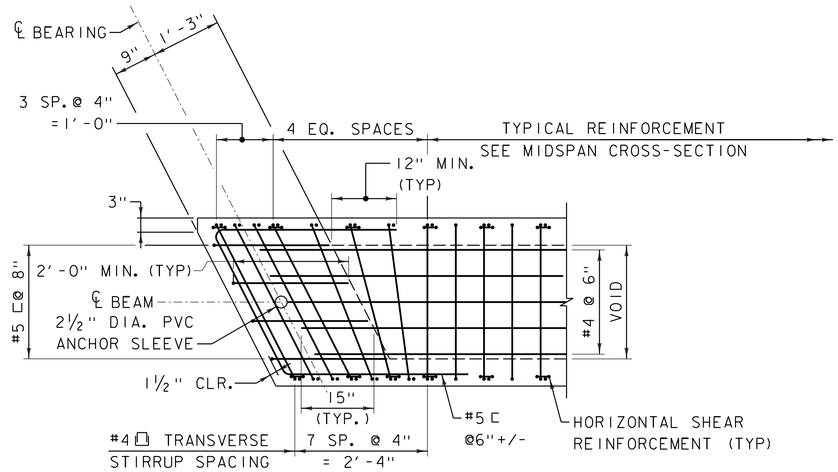
LONGITUDINAL SECTION
SCALE: 1½" = 1'-0"



END SECTION
SCALE: 1½" = 1'-0"



BOX BEAMS SW-1 AND SW-2
LONGITUDINAL STRAND PATTERN/HOLD-DOWN FOR DRAFTED STRANDS
NOT TO SCALE



NOTE TO FABRICATOR:
BAR SPACING MAY BE SLIGHTLY ADJUSTED TO AVOID INTERFERENCE WITH ANCHOR SLEEVES.

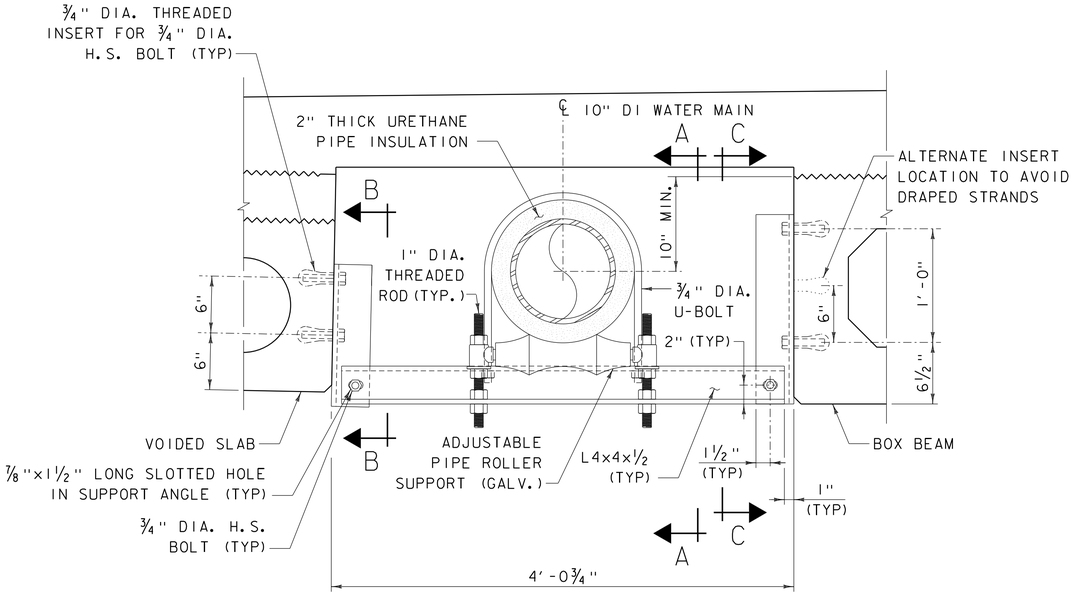
END OF BEAM PLAN
SCALE: ¾" = 1'-0"

NOTE:
ALL BARS EXTENDING INTO THE SIDEWALK OR OVERLAY SHALL HAVE LEVEL III CORROSION RESISTANCE.

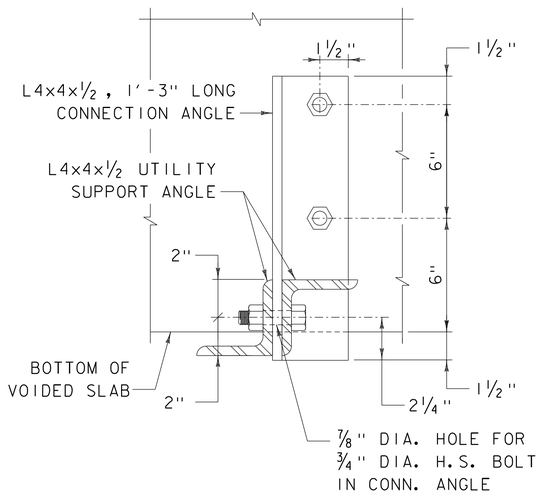
Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)

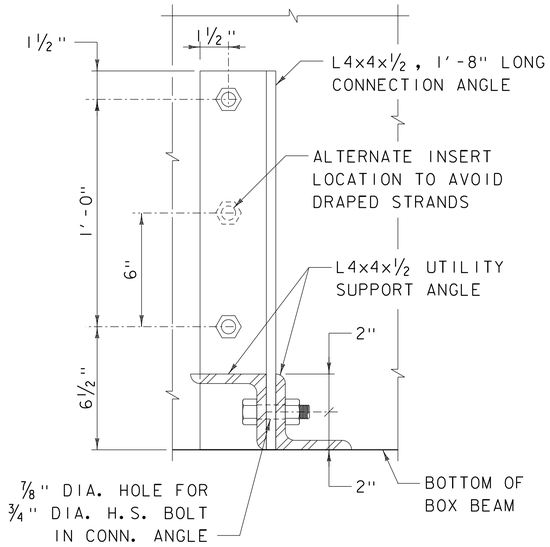
FILE NAME: z12j606fra.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: S. VERITY
DESIGNED BY: P. GREENBERG	CHECKED BY: P. GREENBERG
BOX BEAM DETAILS 2	SHEET 40 OF 76



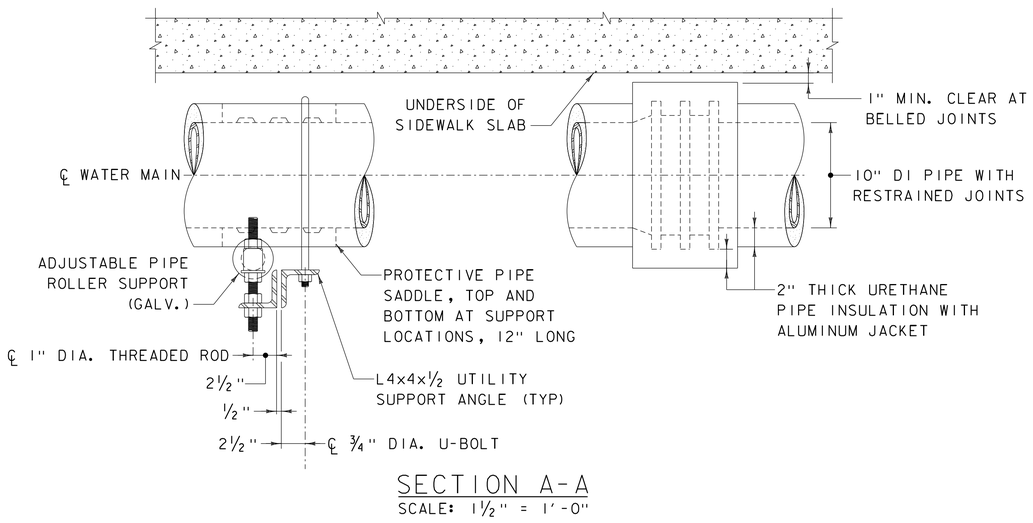
UTILITY SUPPORT ELEVATION
SCALE: 1½" = 1'-0"



SECTION B-B
SCALE: 3" = 1'-0"



SECTION C-C
SCALE: 3" = 1'-0"



SECTION A-A
SCALE: 1½" = 1'-0"

NOTES:

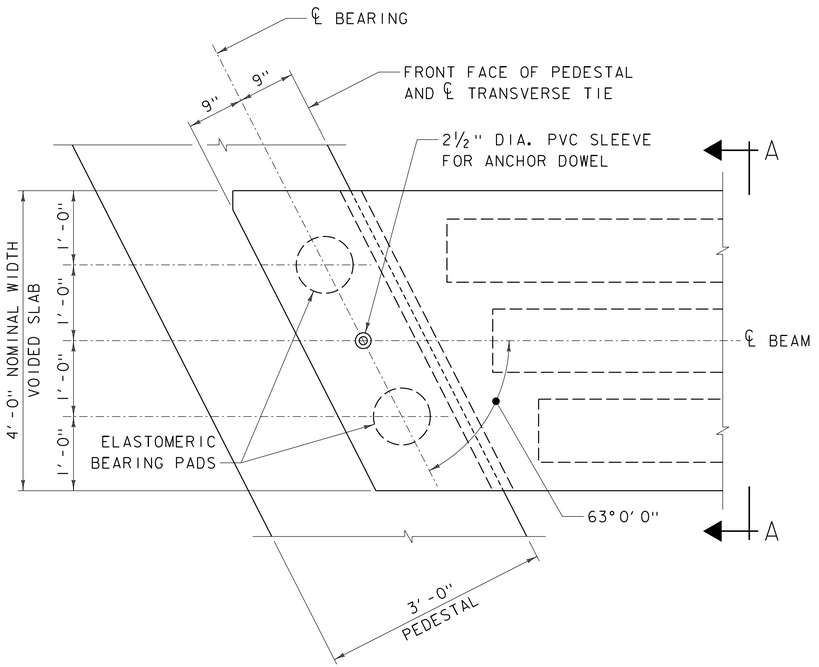
1. ALL STRUCTURAL STEEL AND FASTENERS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M 111 AND M 232.
2. THE ¾" DIA. THREADED INSERTS FOR ¾" DIA. BOLTS SHALL BE CAST INTO THE PRECAST BEAMS BY THE FABRICATOR AND SHALL PROVIDE A MINIMUM NOMINAL TENSILE RESISTANCE OF 6.0 KIPS AND MINIMUM NOMINAL SHEAR RESISTANCE OF 6.0 KIPS IN 3000 PSI CONCRETE.
3. INSERTS SHALL BE POSITIONED TO AVOID INTERFERENCE WITH PRESTRESSING STRANDS.

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

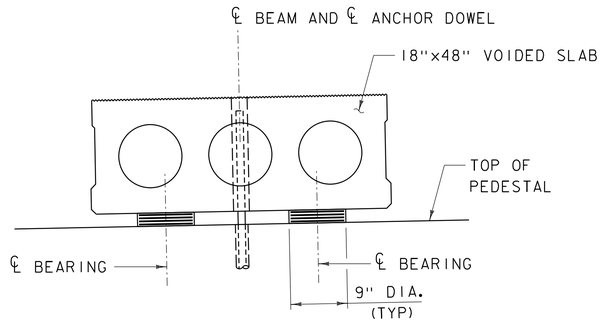
FILE NAME: z12j606fra.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: P. GREENBERG
UTILITY SUPPORT DETAILS

PLOT DATE: 9/21/2022
DRAWN BY: S. VERITY
CHECKED BY: P. GREENBERG
SHEET 41 OF 76



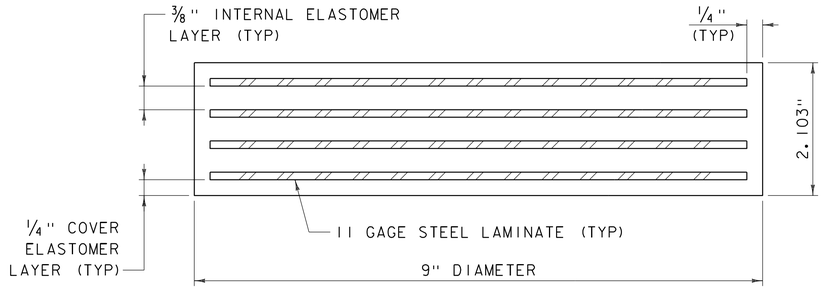
BEARING LAYOUT - VOIDED SLABS

SCALE: 1" = 1'-0"



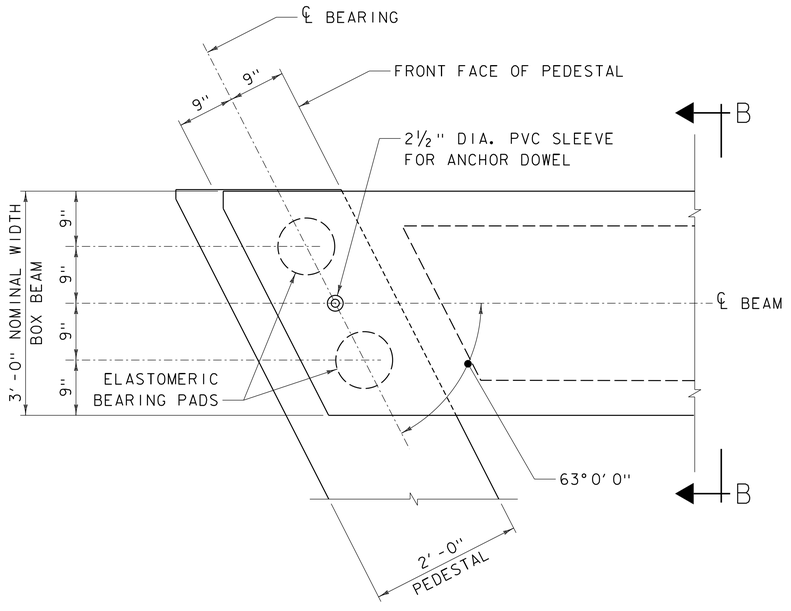
SECTION A

SCALE: 1" = 1'-0"



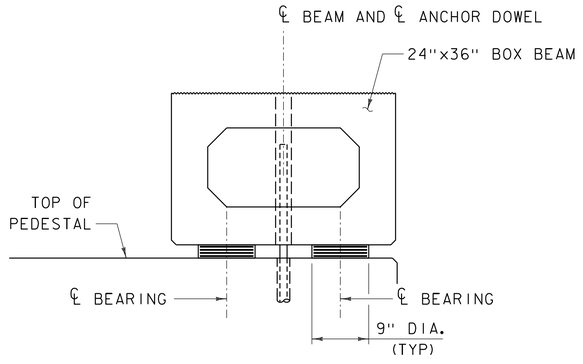
ELASTOMERIC BEARING PAD

NOT TO SCALE



BEARING LAYOUT - BOX BEAMS

SCALE: 1" = 1'-0"



SECTION B

SCALE: 1" = 1'-0"

NOTES:

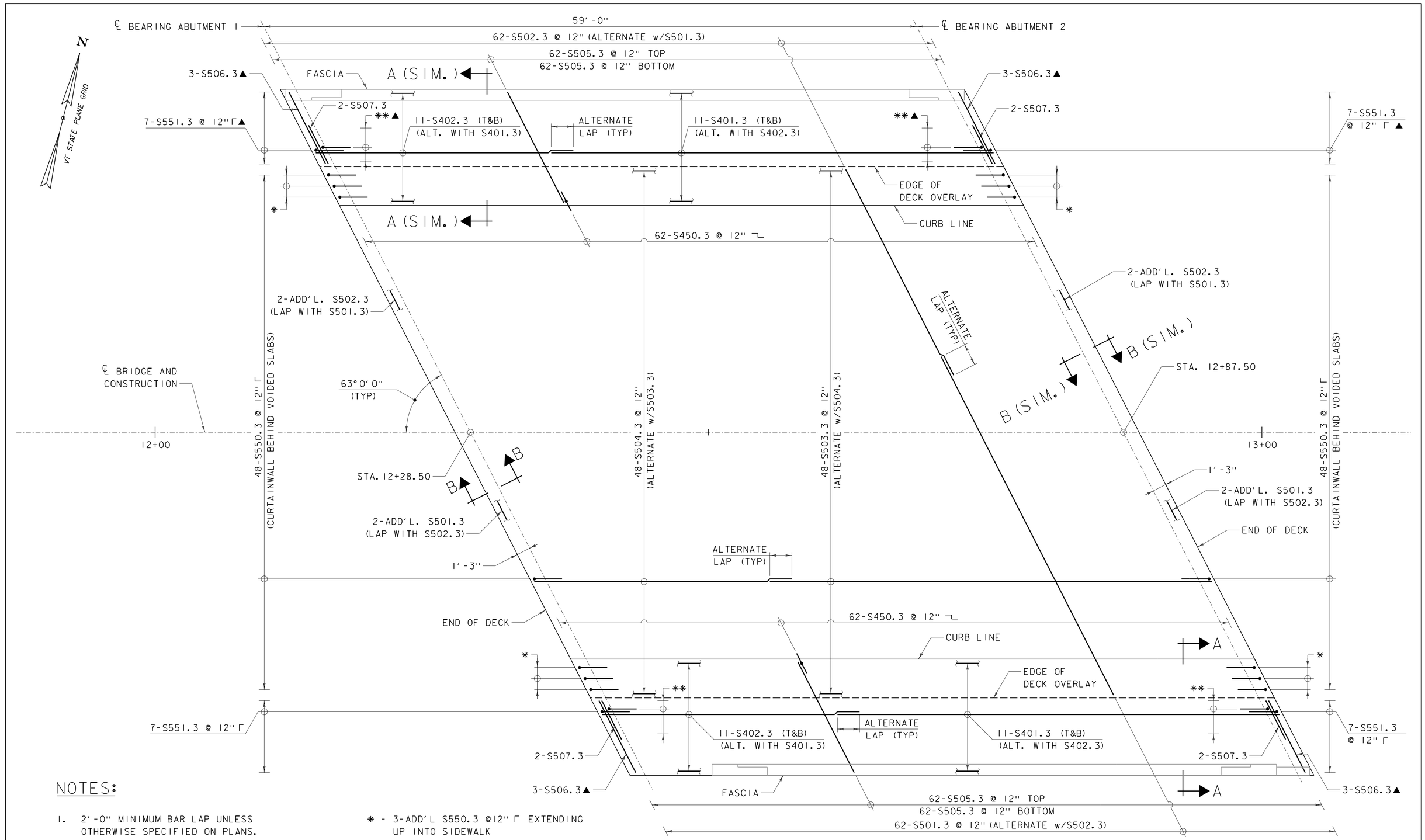
1. ELASTOMER SHALL BE GRADE 4, 60 DUROMETER, VIRGIN NATURAL RUBBER. ELASTOMER SHALL HAVE A SHEAR MODULUS OF 0.160 KSI.
2. STEEL LAMINATES SHALL CONFORM TO ASTM A 1011 GRADE 36.
3. THE COMPRESSIVE DESIGN LOAD ON THE BEARING PAD IS 51 KIPS. THE COMPRESSIVE DESIGN STRESS IS THE RESULT OF DIVIDING THE COMPRESSIVE DESIGN LOAD BY THE AREA OF THE PAD AND IS EQUAL TO 0.80 KSI.
4. THE CONTRACTOR IS ADVISED TO HAVE A MINIMUM OF 24 - ⅛"x10"x10" GALVANIZED STEEL SHIMS AVAILABLE FOR USE FOR ELEVATION ADJUSTMENTS UPON THE SETTING OF THE SUPERSTRUCTURE UNITS. THE SHIMS SHALL BE FABRICATED ACCORDING TO SECTIONS 531 AND SHALL BE INCLUDED UNDER ITEM 531.17, "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD".

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606brg.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: P. GREENBERG
BEARING DETAILS

PLOT DATE: 9/21/2022
DRAWN BY: J. BURKE
CHECKED BY: T. KNIGHT
SHEET 42 OF 76



NOTES:

1. 2'-0" MINIMUM BAR LAP UNLESS OTHERWISE SPECIFIED ON PLANS.
2. SEE NEXT SHEET FOR SECTIONS.

* - 3-ADD'L S550.3 @12" Γ EXTENDING UP INTO SIDEWALK

** - 4-ADD'L S551.3 @ 12" Γ FRONT FACE OFCURTAINWALL AT UTILITY BAY

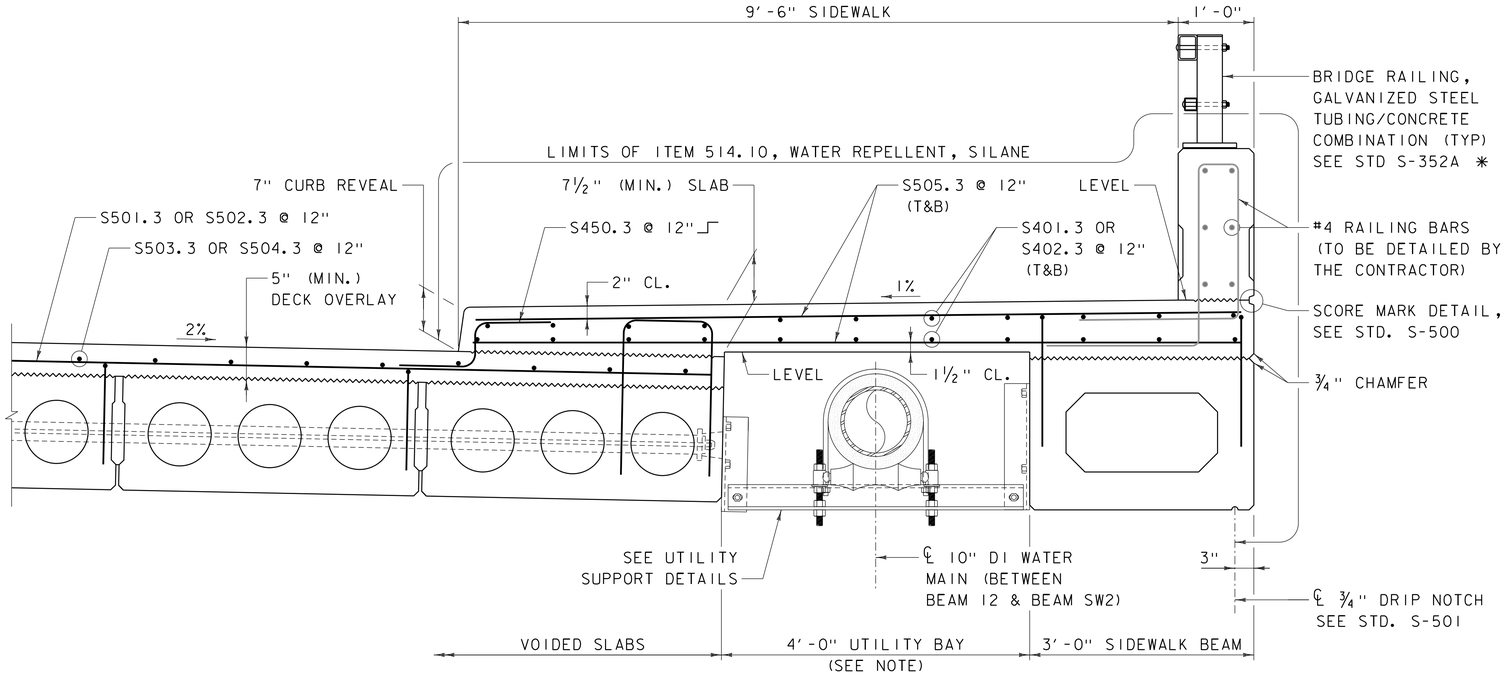
▲ - DENOTES CUT IN FIELD

DECK OVERLAY AND SIDEWALK REINFORCING PLAN

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

Stantec

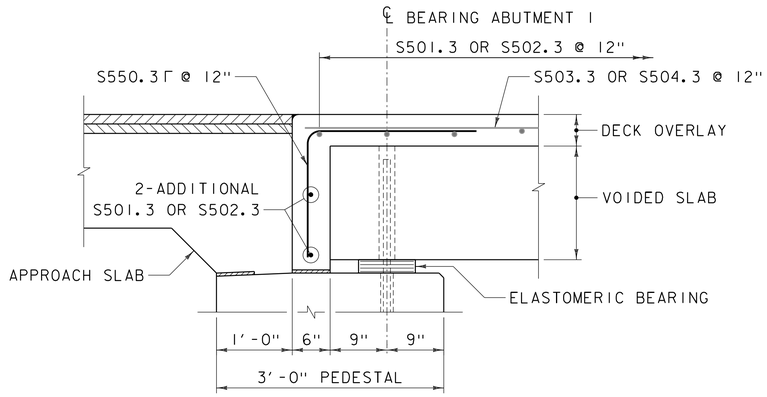
PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606deckreinf.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: J. BURKE
DESIGNED BY: P. GREENBERG	CHECKED BY: T. KNIGHT
DECK REINFORCING PLAN	SHEET 43 OF 76



NOTE:
SECTION AT WATER MAIN UTILITY BAY SHOWN. BAY BETWEEN BEAM 1 AND BEAM SW1 SHALL BE RESERVED FOR FUTURE UTILITIES.

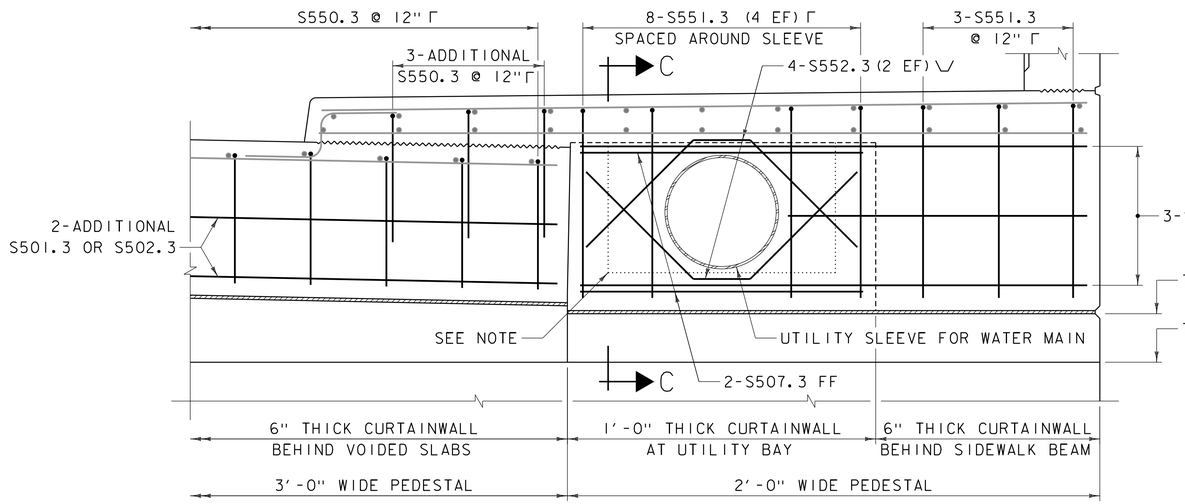
SECTION A-A
SCALE: 1" = 1'-0"

* AESTHETIC DETAIL APPLIES TO BOTH INTERIOR AND FASCIA SIDES OF BOTH CONCRETE BRIDGE RAILINGS. SEE STD. S-352A



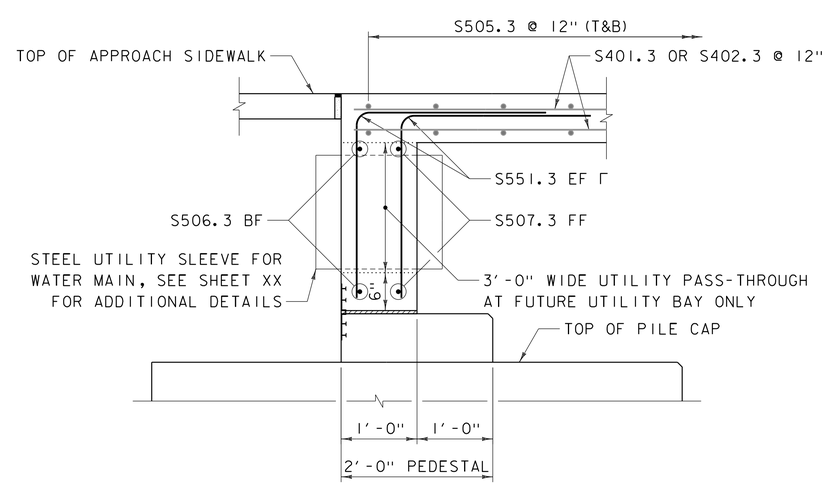
NOTE:
SECTION AT ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR.

SECTION B-B
SCALE: 1" = 1'-0"



NOTE:
ELEVATION AT WATER MAIN UTILITY BAY SHOWN. AT FUTURE UTILITY BAY CAST 3'-0" WIDE UTILITY PASS-THROUGH AND BRICK UP OPENING.

CURTAINWALL ELEVATION
SCALE: 1" = 1'-0"

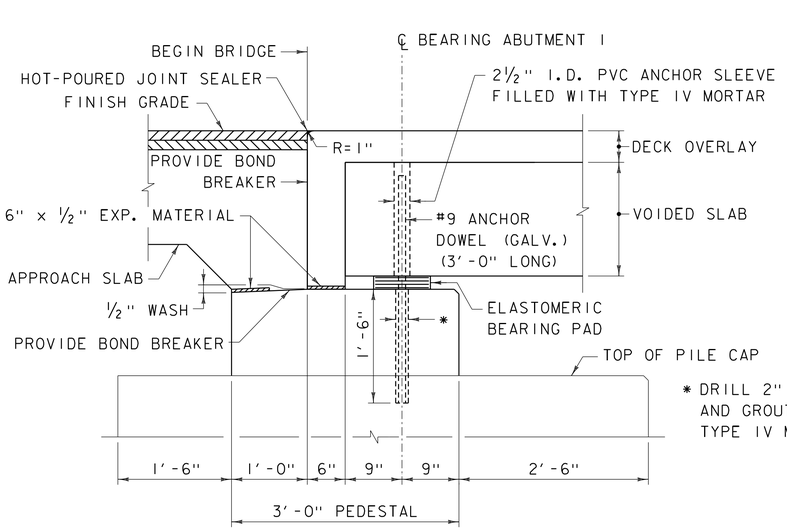


SECTION C-C
SCALE: 1" = 1'-0"

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)

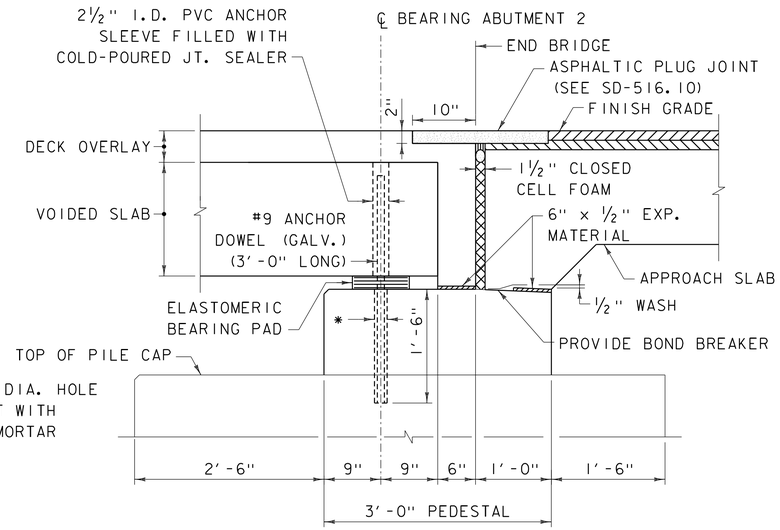
FILE NAME: z12j606deckreinf.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: J. BURKE
DESIGNED BY: P. GREENBERG	CHECKED BY: T. KNIGHT
TYPICAL REINFORCING SECTION	SHEET 44 OF 76

Stantec



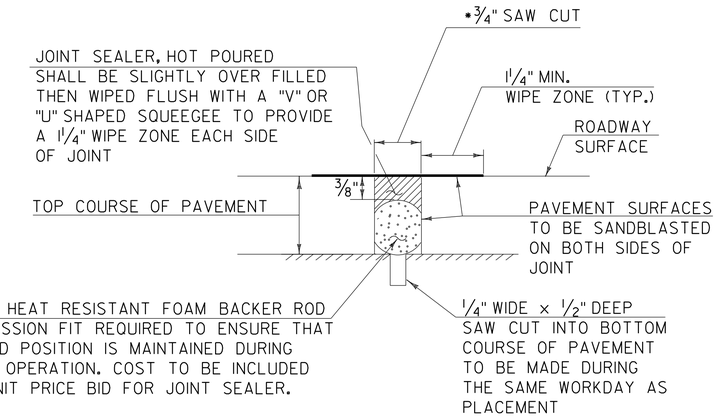
END OF BRIDGE ROADWAY SECTION ABUTMENT 1

SCALE: 1" = 1'-0"



END OF BRIDGE ROADWAY SECTION ABUTMENT 2

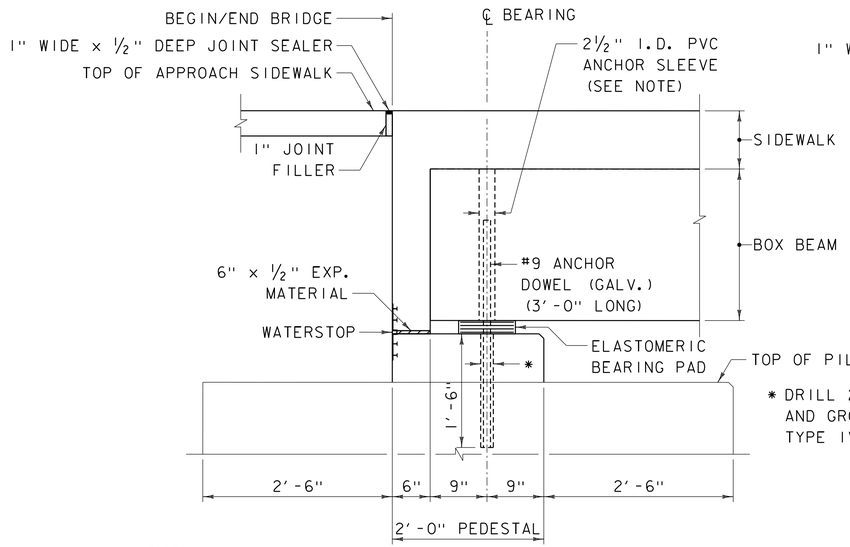
SCALE: 1" = 1'-0"



* JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUTS WILL BE MADE DIRECTLY OVER THE END OF THE APPROACH SLAB. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING THE JOINT SEALER.

SAWED PAVEMENT JOINT DETAIL

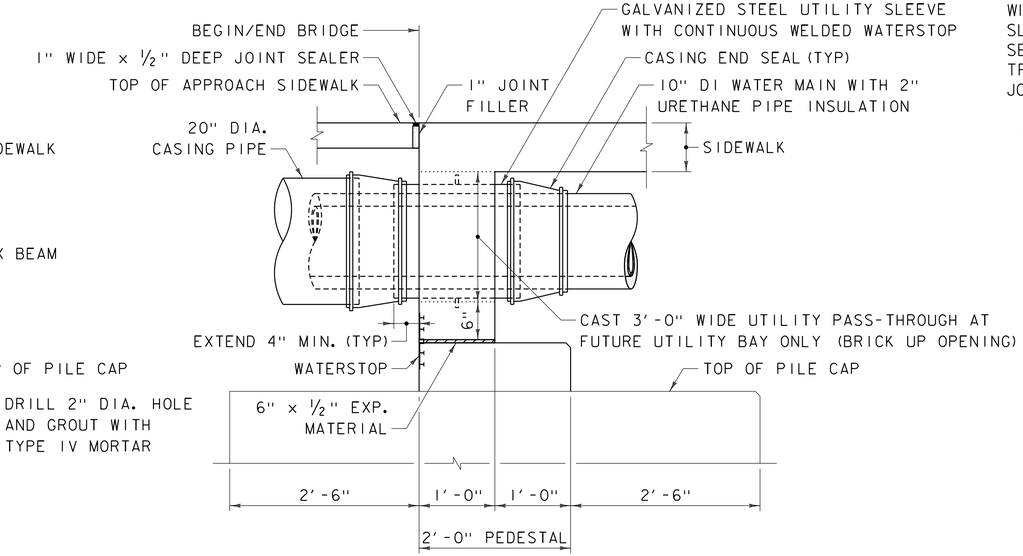
NOT TO SCALE



NOTE:
PVC ANCHOR SLEEVE TO BE FILLED WITH TYPE IV MORTAR AT ABUTMENT 1 AND FILLED WITH COLD-POURED JOINT SEALER AT ABUTMENT 2.

END OF BRIDGE SIDEWALK SECTION AT SIDEWALK BEAM

SCALE: 1" = 1'-0"



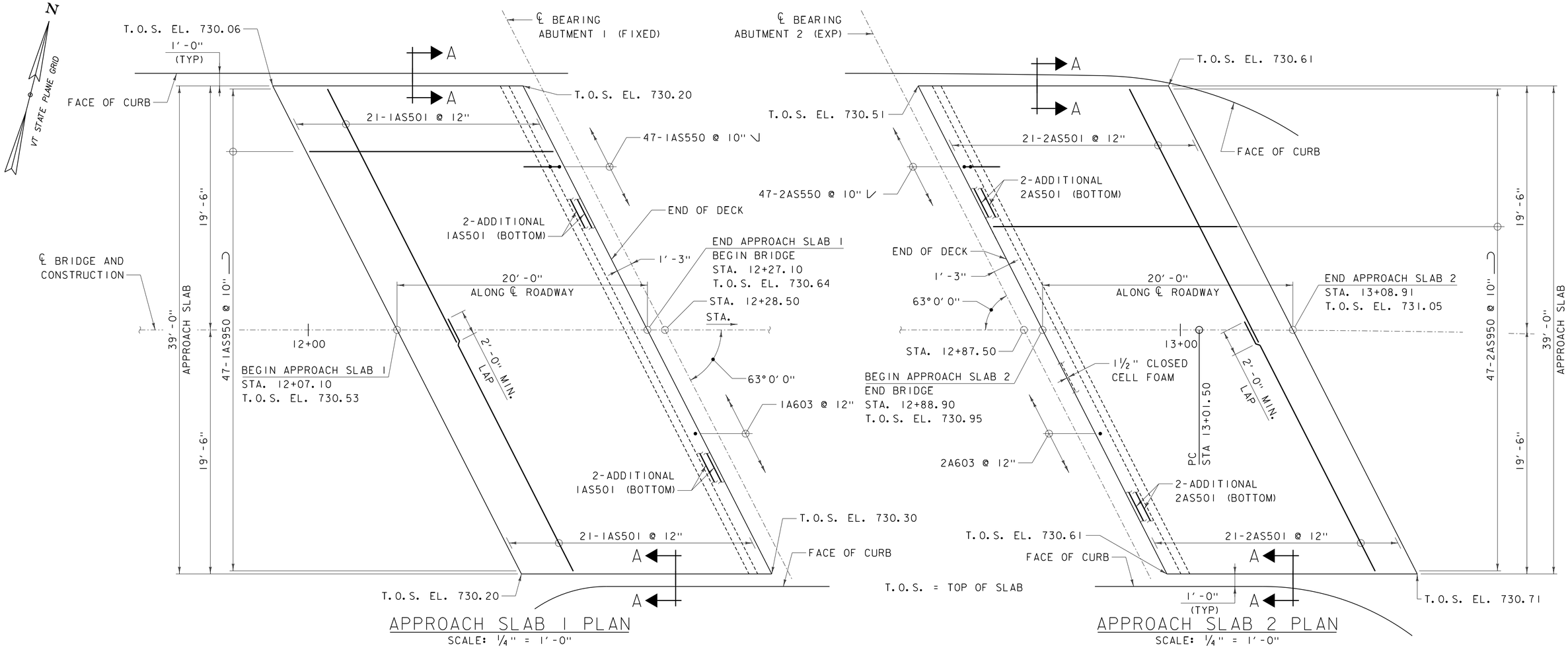
NOTE:
WATER MAIN UTILITY BAY SHOWN EXCEPT AS NOTED.

END OF BRIDGE SIDEWALK SECTION AT UTILITY BAY

SCALE: 1" = 1'-0"

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606abutdets.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: S. VERITY
DESIGNED BY: P. GREENBERG	CHECKED BY: T. KNIGHT
END OF BRIDGE DETAILS	SHEET 45 OF 76



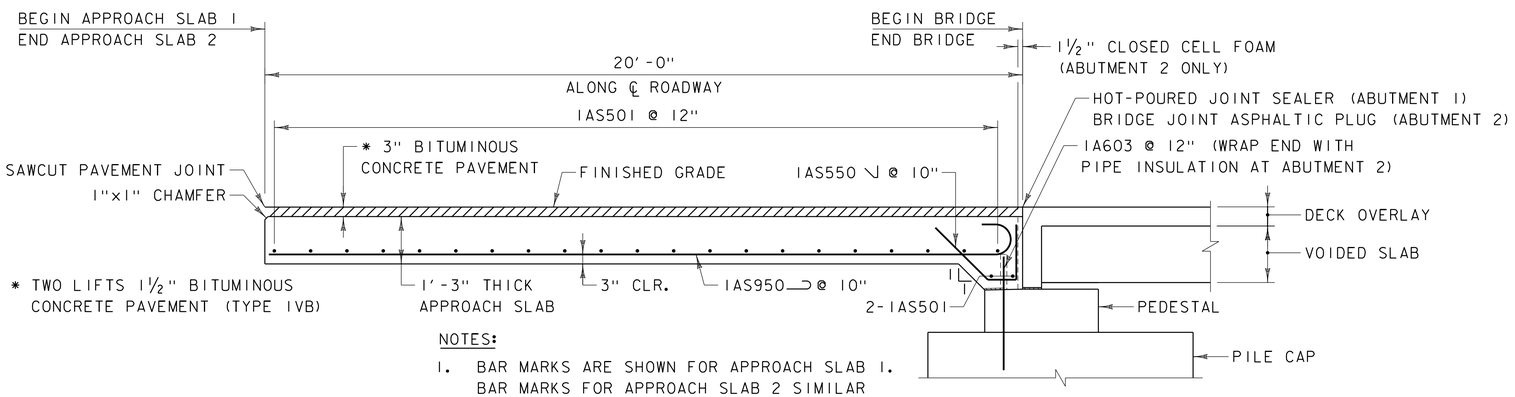
T.O.S. = TOP OF SLAB

APPROACH SLAB 1 PLAN

SCALE: ¼" = 1'-0"

APPROACH SLAB 2 PLAN

SCALE: ¼" = 1'-0"

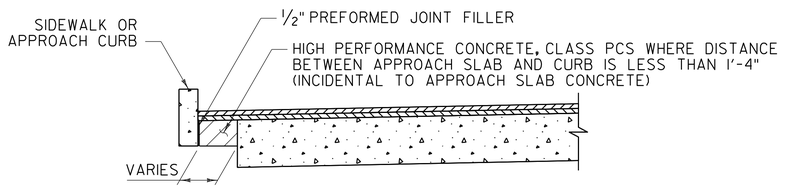


NOTES:

1. BAR MARKS ARE SHOWN FOR APPROACH SLAB 1. BAR MARKS FOR APPROACH SLAB 2 SIMILAR EXCEPT FOR PREFIX.
2. SEE END OF BRIDGE ROADWAY SECTIONS ON SHEET XX FOR ADDITIONAL INFORMATION.

APPROACH SLAB TYPICAL SECTION

SCALE: ½" = 1'-0"

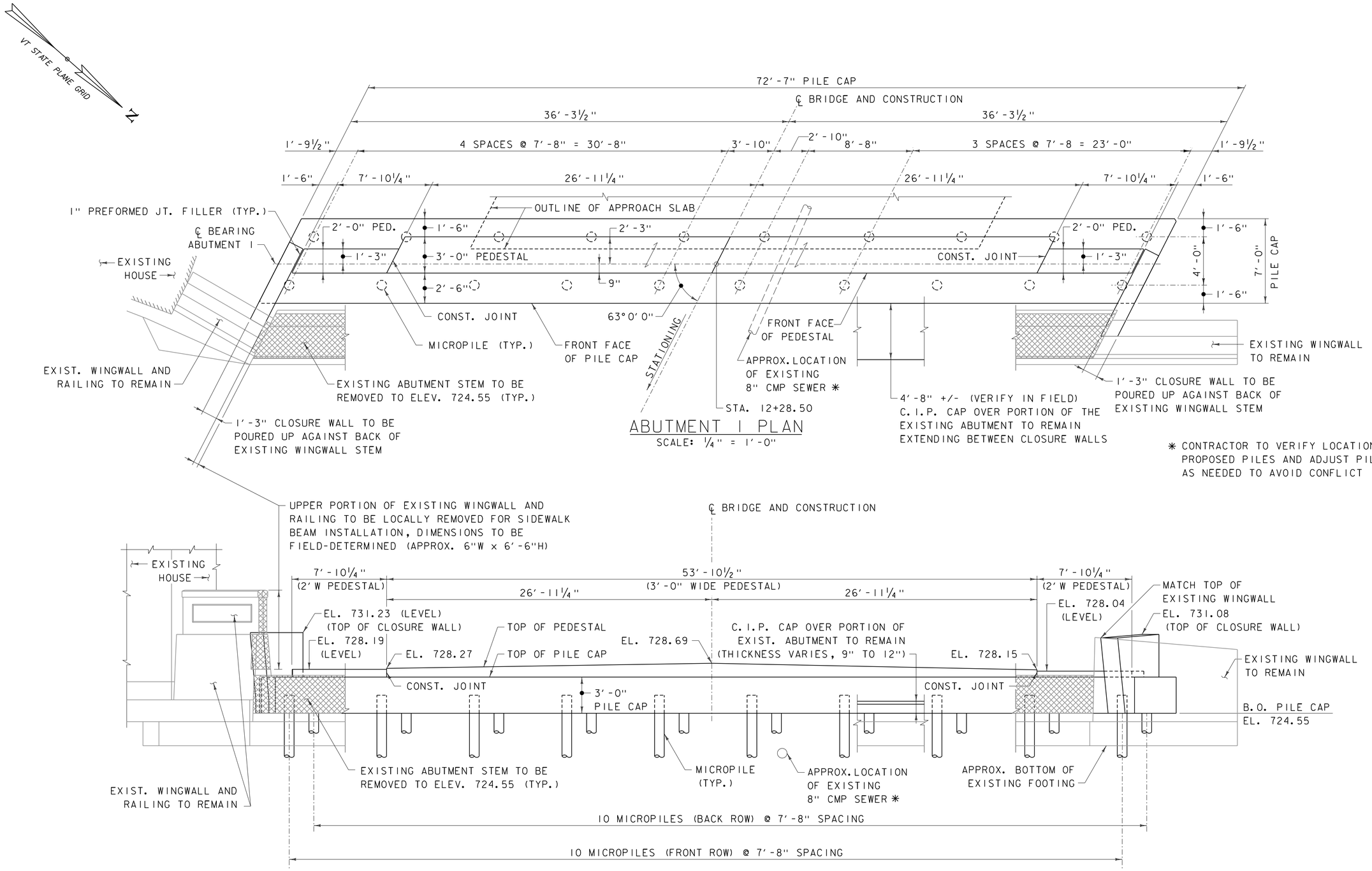


SECTION A-A

SCALE: ½" = 1'-0"

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606appslab.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: S. VERITY
DESIGNED BY: P. GREENBERG	CHECKED BY: P. GREENBERG
APPROACH SLAB DETAILS	SHEET 46 OF 76



ABUTMENT 1 PLAN

SCALE: ¼" = 1'-0"

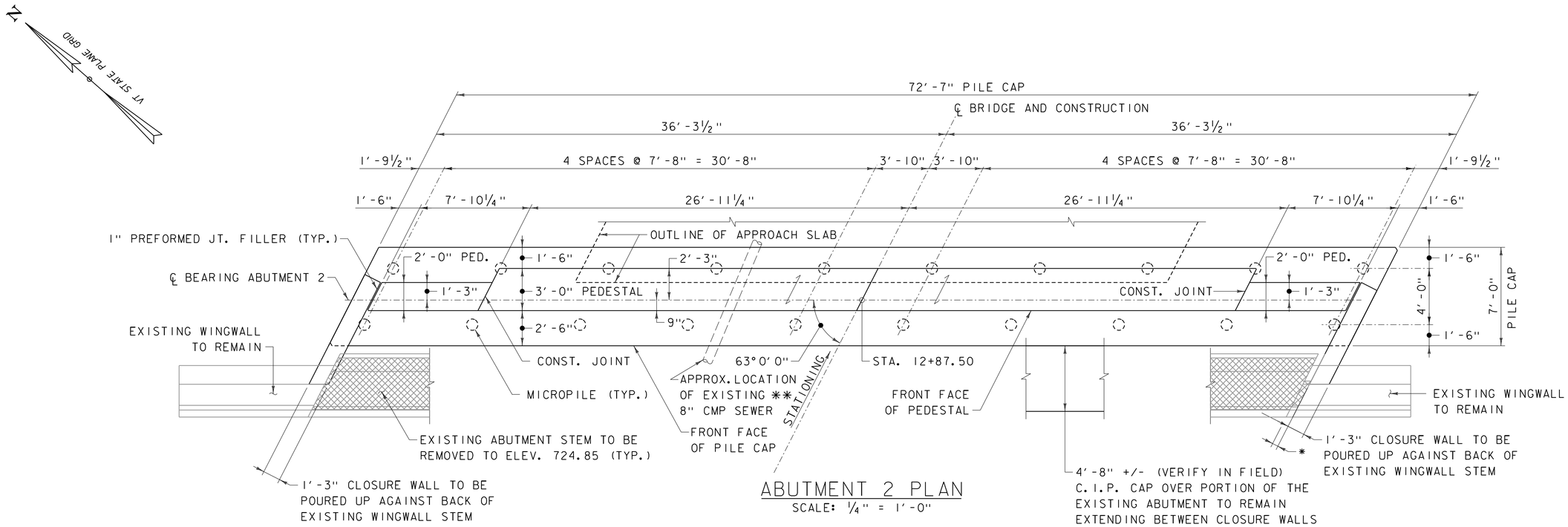
* CONTRACTOR TO VERIFY LOCATION RELATIVE TO PROPOSED PILES AND ADJUST PILE LOCATION AS NEEDED TO AVOID CONFLICT

ABUTMENT 1 ELEVATION

SCALE: ¼" = 1'-0"

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606abut1.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: S. VERITY
DESIGNED BY: P. GREENBERG	CHECKED BY: P. GREENBERG
ABUTMENT 1 PLAN AND ELEVATION	SHEET 47 OF 76

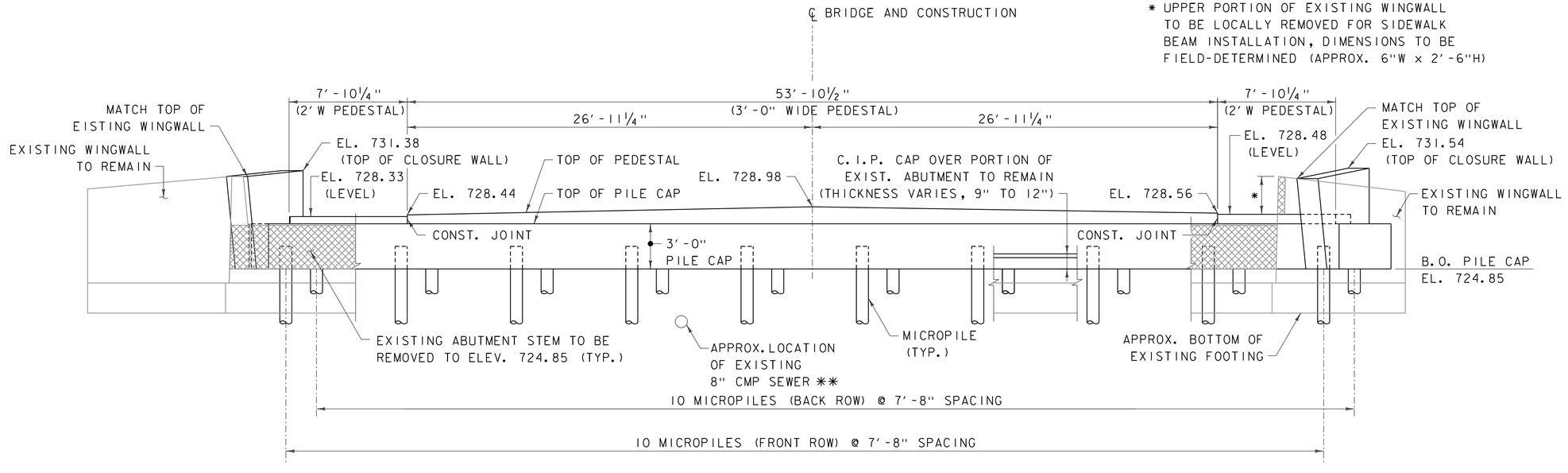
Stantec



ABUTMENT 2 PLAN
SCALE: ¼" = 1'-0"

** CONTRACTOR TO VERIFY LOCATION RELATIVE TO PROPOSED PILES AND ADJUST PILE LOCATION AS NEEDED TO AVOID CONFLICT

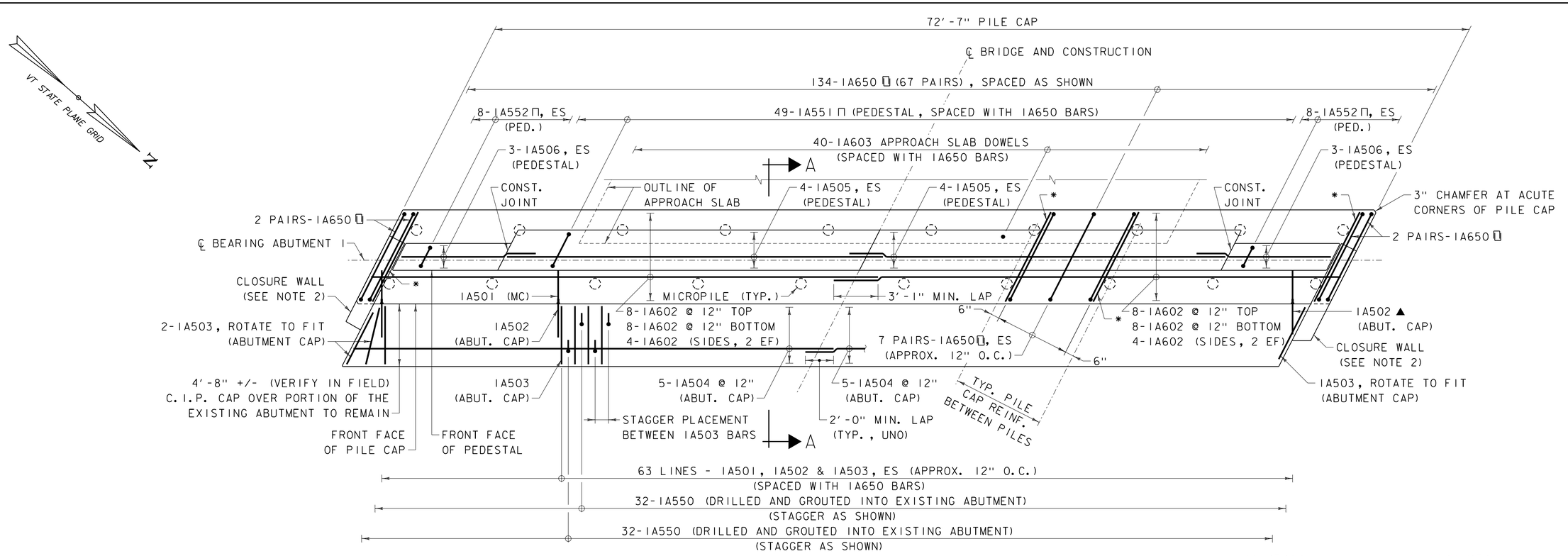
* UPPER PORTION OF EXISTING WINGWALL TO BE LOCALLY REMOVED FOR SIDEWALK BEAM INSTALLATION, DIMENSIONS TO BE FIELD-DETERMINED (APPROX. 6"W x 2'-6"H)



ABUTMENT 2 ELEVATION
SCALE: ¼" = 1'-0"

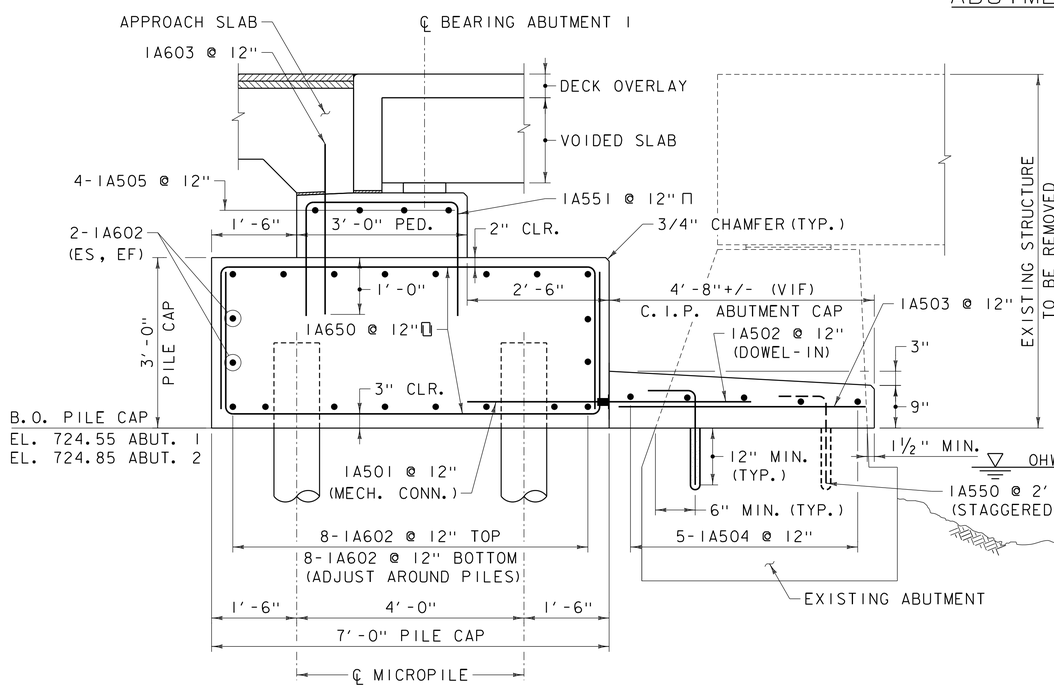
Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606abut2.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: S. VERITY
DESIGNED BY: P. GREENBERG	CHECKED BY: P. GREENBERG
ABUTMENT 2 PLAN AND ELEVATION	SHEET 48 OF 76



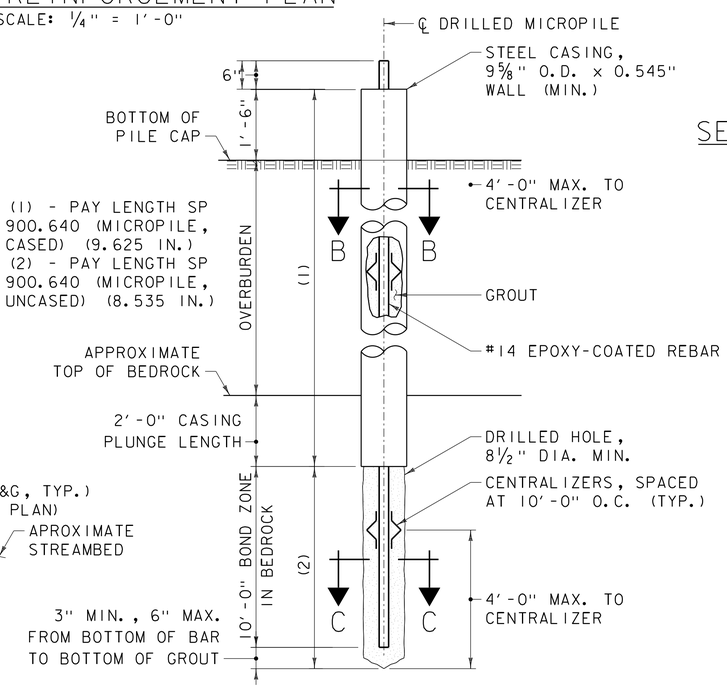
ABUTMENT REINFORCEMENT PLAN

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



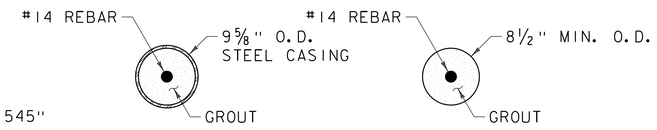
SECTION A-A

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



MICROPILE DETAIL

NOT TO SCALE



SECTION B-B

NOT TO SCALE

SECTION C-C

NOT TO SCALE

NOTES:

1. PLAN, SECTION AND BAR MARKS ARE SHOWN FOR ABUTMENT 1. BAR MARKS FOR ABUTMENT 2 SIMILAR EXCEPT FOR PREFIX.
2. CLOSURE WALL REINFORCEMENT NOT SHOWN FOR CLARITY, SEE TYPICAL CLOSURE WALL ELEVATION.

LEGEND

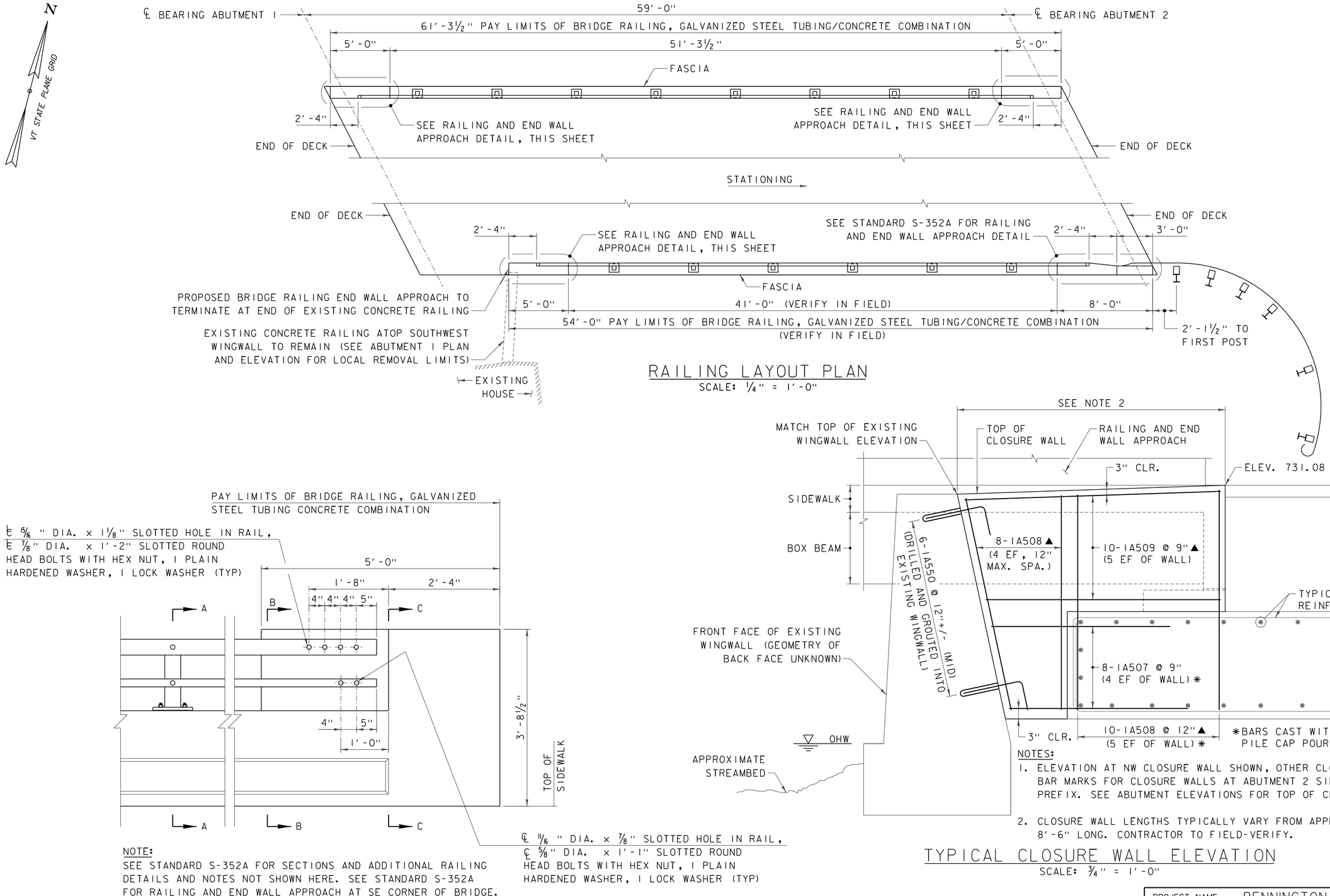
D&G DRILL AND GROUT
ES EQUALLY SPACED
EF EACH FACE
MC MECHANICAL CONNECTOR
▲ DENOTES CUT IN FIELD
* ADDITIONAL 1A601 (BOTTOM) BUNDLED WITH 1A650 AT PILE (20 BARS EACH ABUTMENT)

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606abutreinf.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: P. GREENBERG
ABUTMENT REINFORCING

PLOT DATE: 9/21/2022
DRAWN BY: S. VERITY
CHECKED BY: T. KNIGHT
SHEET 49 OF 76



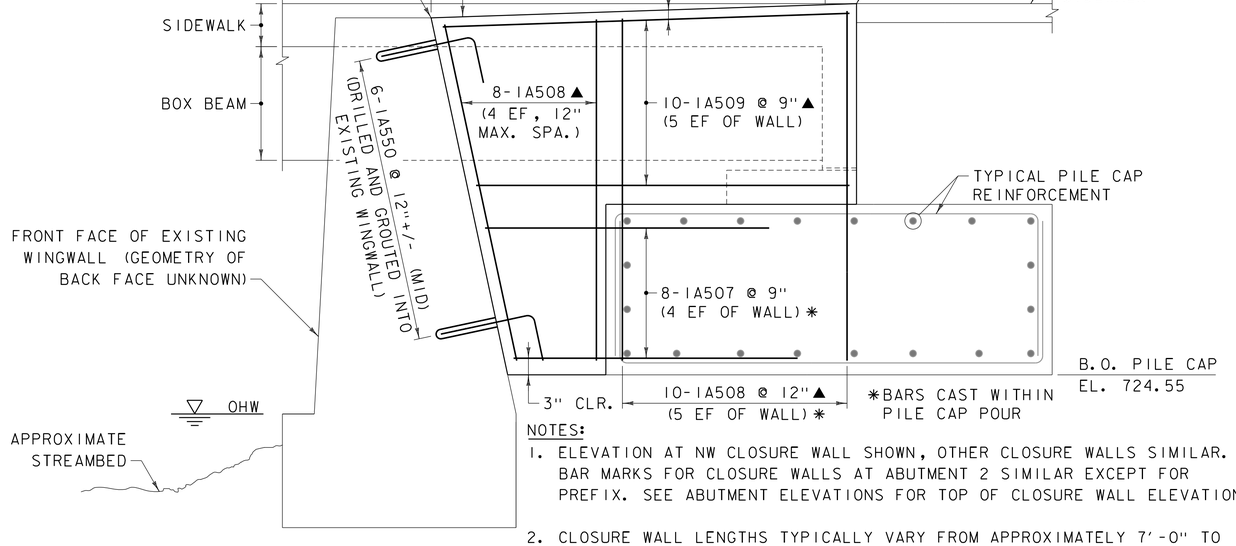
RAILING LAYOUT PLAN

SCALE: ¼" = 1'-0"

NOTE:
SEE STANDARD S-352A FOR SECTIONS AND ADDITIONAL RAILING DETAILS AND NOTES NOT SHOWN HERE. SEE STANDARD S-352A FOR RAILING AND END WALL APPROACH AT SE CORNER OF BRIDGE.

RAILING AND END WALL APPROACH NE, NW AND SW CORNERS OF BRIDGE

SCALE: 1" = 1'-0"



NOTES:

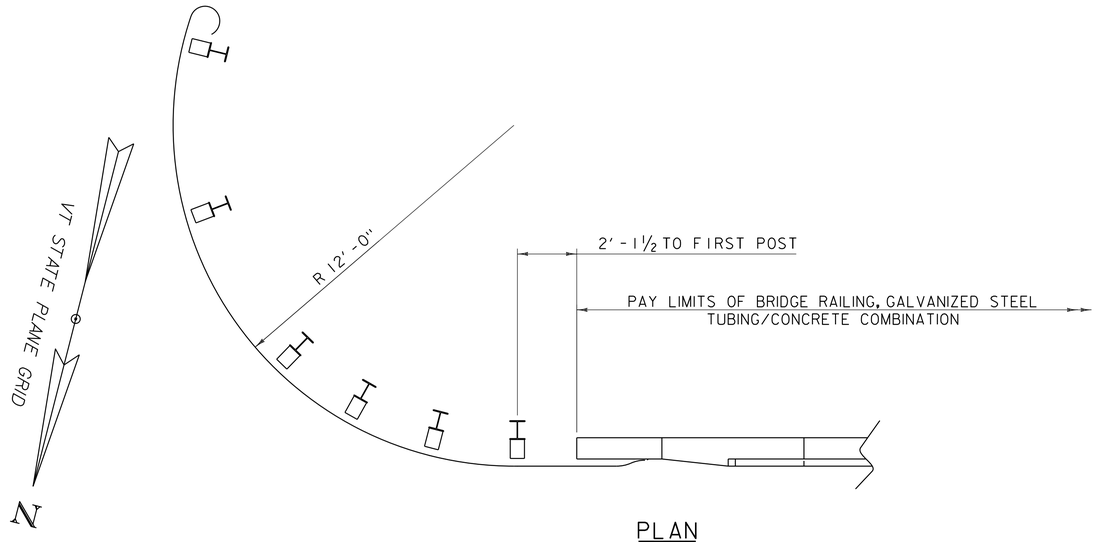
1. ELEVATION AT NW CLOSURE WALL SHOWN, OTHER CLOSURE WALLS SIMILAR. BAR MARKS FOR CLOSURE WALLS AT ABUTMENT 2 SIMILAR EXCEPT FOR PREFIX. SEE ABUTMENT ELEVATIONS FOR TOP OF CLOSURE WALL ELEVATIONS.
2. CLOSURE WALL LENGTHS TYPICALLY VARY FROM APPROXIMATELY 7'-0" TO 8'-6" LONG. CONTRACTOR TO FIELD-VERIFY.

TYPICAL CLOSURE WALL ELEVATION

SCALE: ¾" = 1'-0"

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606MiscellaneousDetails.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: S. VERITY
DESIGNED BY: P. GREENBERG	CHECKED BY: T. KNIGHT
RAILING AND CLOSURE WALL DETAILS	SHEET 50 OF 76



PLAN

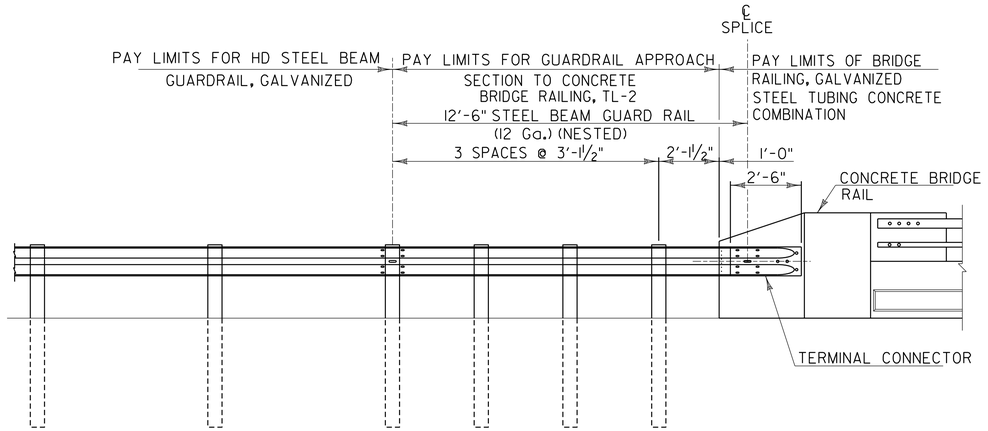
NOT TO SCALE

NOTES:

1. A COMPOSITE MATERIAL POST AND/ OR BLOCKOUT FROM THE AGENCY'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED FOR A POST AND/ OR BLOCKOUT OF SIMILAR DIMENSIONS

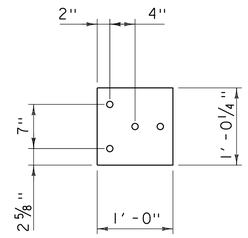
2. REFER TO STANDARD DRAWINGS G-1 AND G-1D FOR ADDITIONAL DETAILS.

3. THE TERMINAL CONNECTOR WILL BE INCLUDED IN THE BID PRICE FOR ITEM 621.746 "GUARDRAIL APPROACH SECTION TO CONCRETE BRIDGE RAILING, TL-2". THE CONNECTION PLATE WILL BE INCLUDED IN THE BID PRICE FOR ITEM 525.45. "BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION".



DEVELOPED ELEVATION

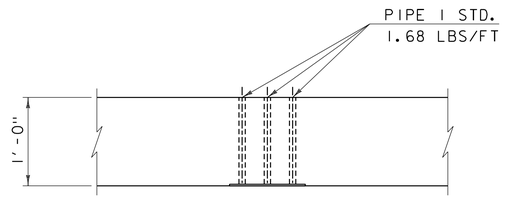
NOT TO SCALE



CONNECTION PLATE

DETAIL - ELEVATION

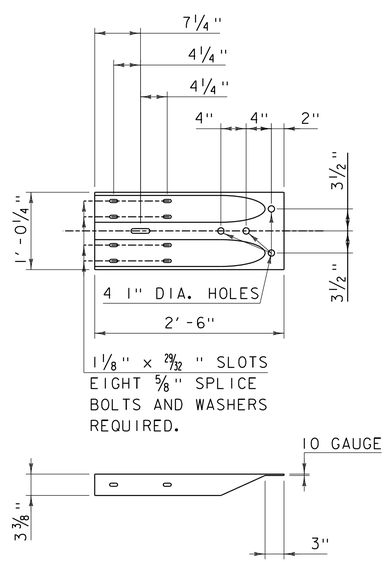
SCALE 1" = 1'-0"



CONNECTION PLATE

DETAIL - PLAN

SCALE 1" = 1'-0"



TERMINAL CONNECTOR

SCALE 1" = 1'-0"

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)

FILE NAME: z12j606rail.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: T.KNIGHT
DESIGNED BY: P. GREENBERG	CHECKED BY: P. GREENBERG
APPROACH RAILING	SHEET 51 OF 76

Stantec

STATE OF VERMONT
AGENCY OF TRANSPORTATION

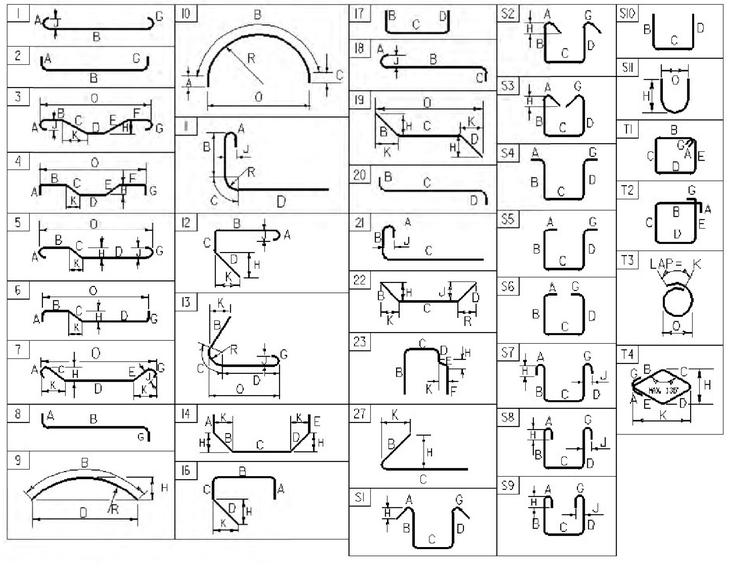
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
DECK OVERLAY AND SIDEWALK																	
	22	4	40'- 0"	S401.3	STR												
	22	4	23'- 6"	S402.3	STR												
	124	4	2'- 8"	S450.3	20		1'- 0"	0'- 8"	1'- 0"								
	66	5	34'- 6"	S501.3	STR												
	66	5	21'- 0"	S502.3	STR												
	48	5	40'- 0"	S503.3	STR												
	48	5	23'- 6"	S504.3	STR												
	248	5	11'- 3"	S505.3	STR												
✳ ▲	13	5	7'- 4"	S506.3	STR												
	8	5	4'- 0"	S507.3	STR												
	108	5	4'- 2"	S550.3	17		1'- 8"	2'- 6"	---								
	44	5	5'- 0"	S551.3	17		2'- 6"	2'- 6"	---								
	8	5	5'- 2"	S552.3	22		2'- 1"	1'- 0"	2'- 1"				1'- 6"	1'- 6"	1'- 6"	1'- 6"	
APPROACH SLAB 1																	
	46	5	22'- 9"	1AS501	STR												
	47	5	4'- 3"	1AS550	12	---	1'- 5"	0'- 10"	2'- 0"				1'- 5"	---	1'- 5"		
	47	9	20'- 8"	1AS950	1	1'- 1"	19'- 7"					---		0'- 10"			
APPROACH SLAB 2																	
	46	5	22'- 9"	1AS501	STR												
	47	5	4'- 1"	1AS550	12	---	1'- 5"	0'- 8"	2'- 0"				1'- 5"	---	1'- 5"		
	47	9	20'- 6"	1AS950	1	1'- 1"	19'- 5"					---		0'- 10"			
ABUTMENT 1																	
	63	5	2'- 6"	1A501	STR												
▲	63	5	2'- 6"	1A502	STR												
	65	5	4'- 4"	1A503	STR												
	10	5	35'- 9"	1A504	STR												
	8	5	28'- 0"	1A505	STR												
	6	5	10'- 0"	1A506	STR												
	16	5	5'- 0"	1A507	STR												
✳ ▲	37	5	6'- 3"	1A508	STR												
▲	20	5	8'- 0"	1A509	STR												
	76	5	2'- 4"	1A550	17		0'- 10"	1'- 6"	---								
	49	5	7'- 0"	1A551	17		2'- 0"	3'- 0"	2'- 0"								
	16	5	4'- 10"	1A552	17		1'- 6"	1'- 10"	1'- 6"								
	20	6	7'- 5"	1A601	STR												
	40	6	37'- 9"	1A602	STR												
	40	6	3'- 0"	1A603	STR												
	134	6	12'- 5"	1A650	17		2'- 6"	7'- 5"	2'- 6"								
ABUTMENT 2																	
	63	5	2'- 6"	2A501	STR												
▲	63	5	2'- 6"	2A502	STR												
	65	5	4'- 4"	2A503	STR												
	10	5	35'- 9"	2A504	STR												
	8	5	28'- 0"	2A505	STR												
	6	5	10'- 0"	2A506	STR												
	16	5	5'- 0"	2A507	STR												
▲	36	5	6'- 3"	2A508	STR												
▲	20	5	8'- 0"	2A509	STR												
	76	5	2'- 4"	2A550	17		0'- 10"	1'- 6"	---								
	49	5	7'- 0"	2A551	17		2'- 0"	3'- 0"	2'- 0"								
	16	5	4'- 10"	2A552	17		1'- 6"	1'- 10"	1'- 6"								
	20	6	7'- 5"	2A601	STR												
	40	6	37'- 9"	2A602	STR												
	40	6	3'- 0"	2A603	STR												
	134	6	12'- 5"	2A650	17		2'- 6"	7'- 5"	2'- 6"								

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O

~ NOTES ~

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-SI). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



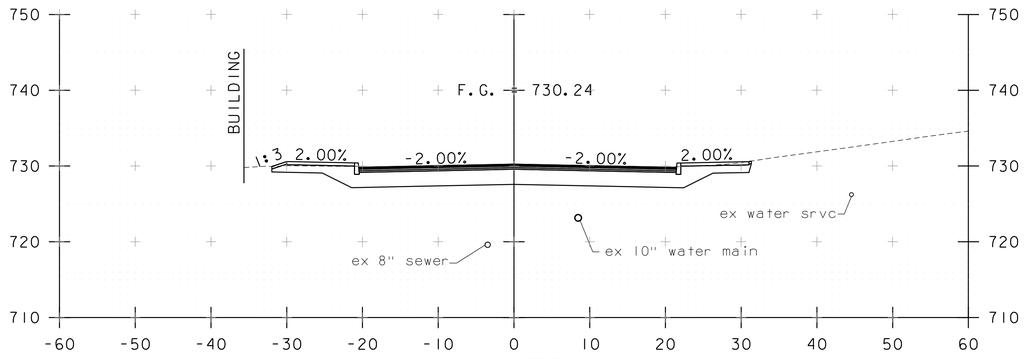
ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION DIAMETER INCHES	AREA INCHES 2	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.04	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.14
#9	3.400	1.13	1.00	3.54
#10	4.3	1.270	1.27	3.990
#11	5.31	1.410	1.56	4.430
#14	7.65	1.69	2.25	5.32
#18	13.60	2.26	4.00	7.09

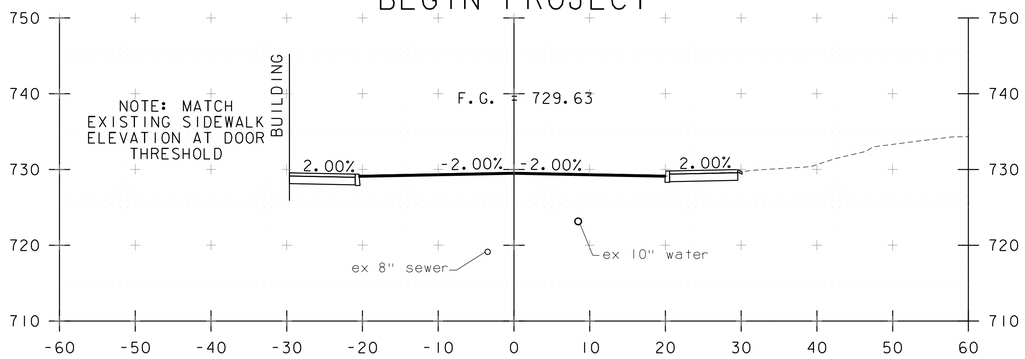
~ REINFORCING STEEL CORROSION RESISTANCE LEVEL ~

THE REINFORCING STEEL MARKS IN THIS SCHEDULE INDICATE THE REQUIRED BAR CORROSION RESISTANCE LEVEL. CORROSION RESISTANCE LEVEL IS DENOTED WITH A .2 FOR LEVEL TWO SUFFIX OR .3 FOR LEVEL THREE SUFFIX, .1 FOR LEVEL ONE IS TO BE OMITTED. THE BAR MATERIAL TYPE AND BAR STEEL GRADE PROVIDED FOR EACH CORROSION LEVEL WILL BE RECORDED ON THE PLAN SET PI SHEET FOR AS-BUILT RECORD PLAN ARCHIVES.

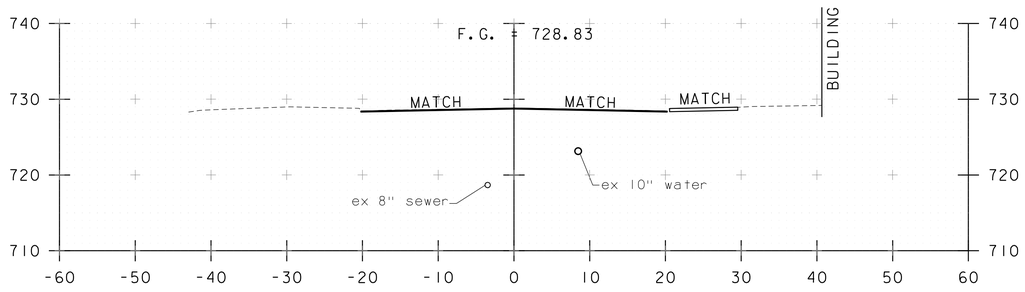
PROJECT NAME:	**BENNINGTON**
PROJECT NUMBER:	**BF 1000(20)**
FILE NAME: **z12j606abutreinf.dgn**	PLOT DATE: **5/11/2022**
PROJECT MANAGER: **T. KNIGHT**	DRAWN BY: **S. VERITY**
DESIGNED BY: **P. GREENBERG**	CHECKED BY: **T. KNIGHT**
REINFORCING STEEL SCHEDULE SHEET	SHEET **52** OF **76**



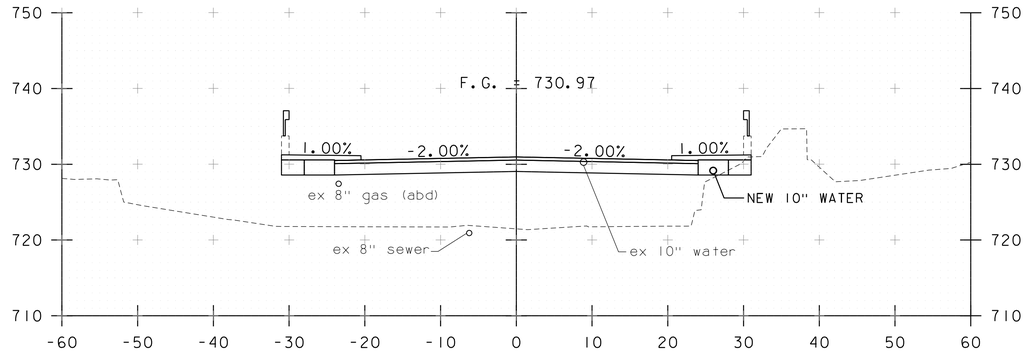
11+75
END COARSE MILLING
BEGIN PROJECT



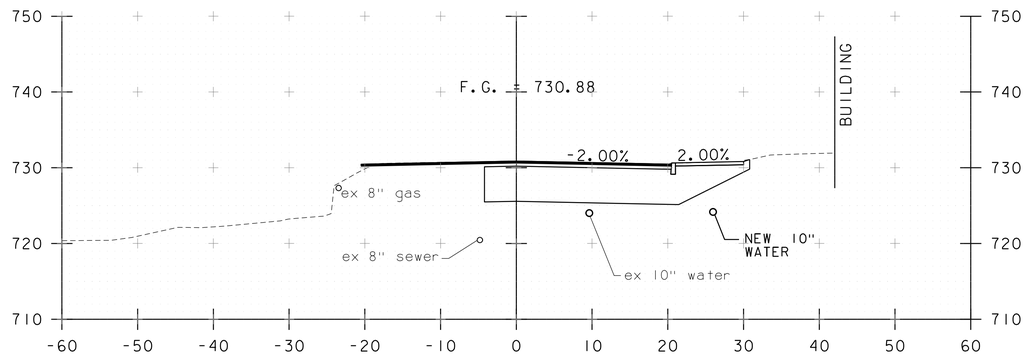
11+50



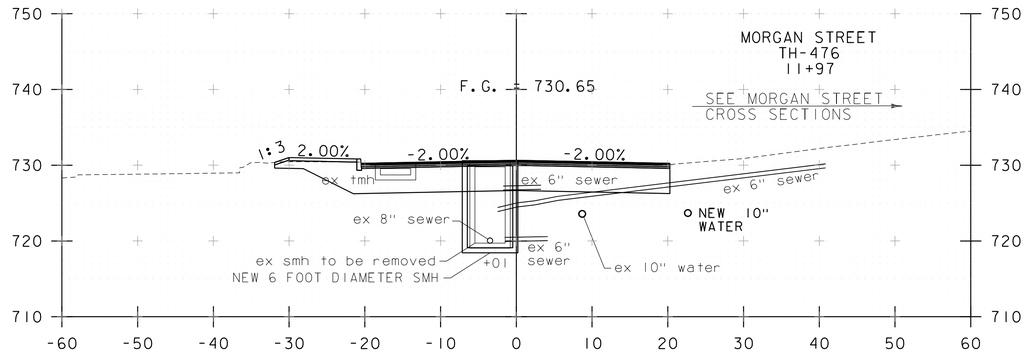
11+25
BEGIN APPROACH
BEGIN COARSE MILLING



12+50
12+27.10 BEGIN BRIDGE



12+25

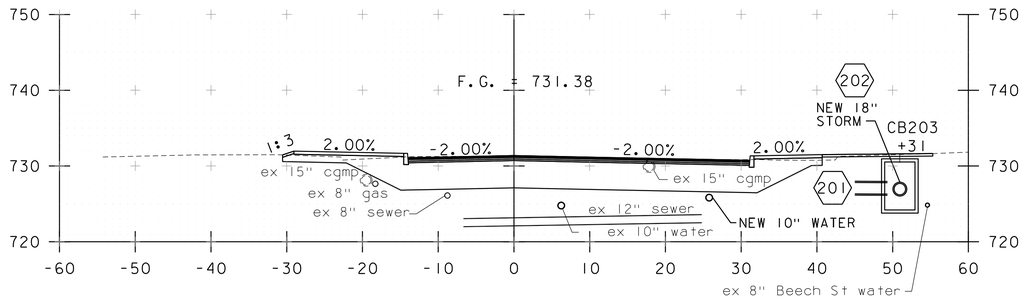


12+00

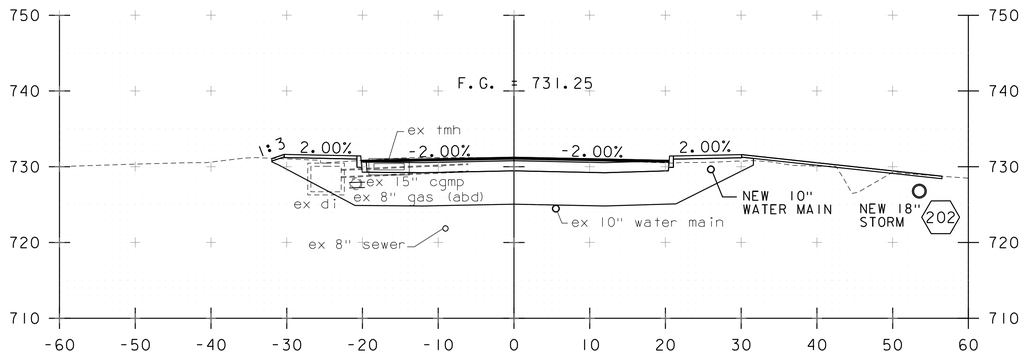
STA. 11+25 TO STA. 12+50

Stantec

PROJECT NAME: BENNINGTON	
PROJECT NUMBER: BF 1000(20)	
FILE NAME: z12j606xs.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: G. BURGMEIER
DESIGNED BY: K. RICHARDSON	CHECKED BY: K. RICHARDSON
ROUTE 9 CROSS SECTION SHEET 1	SHEET 53 OF 76

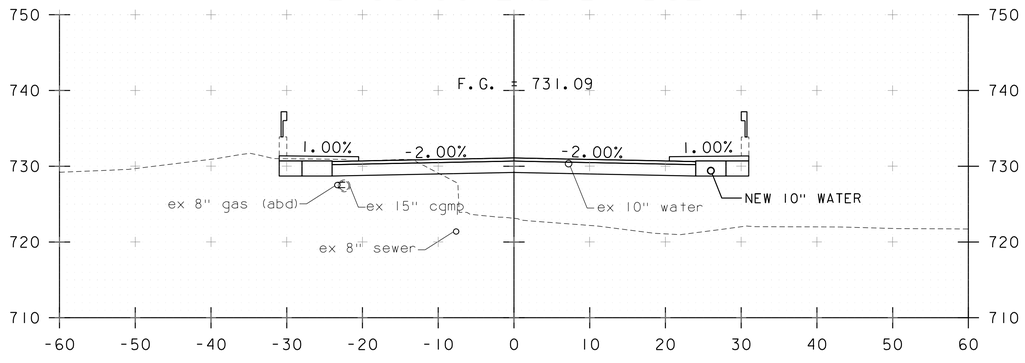


13+25

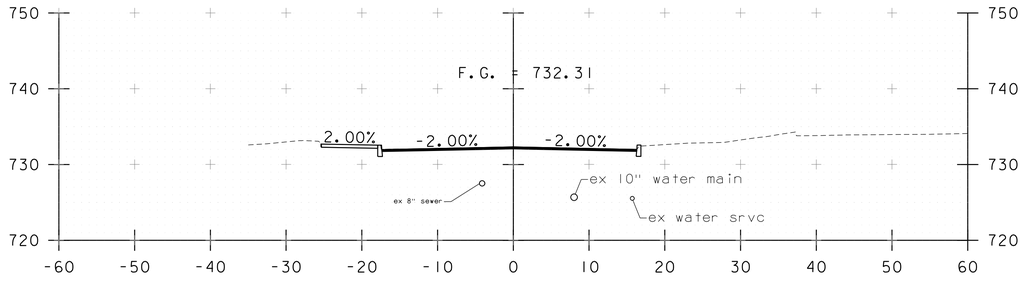


13+00

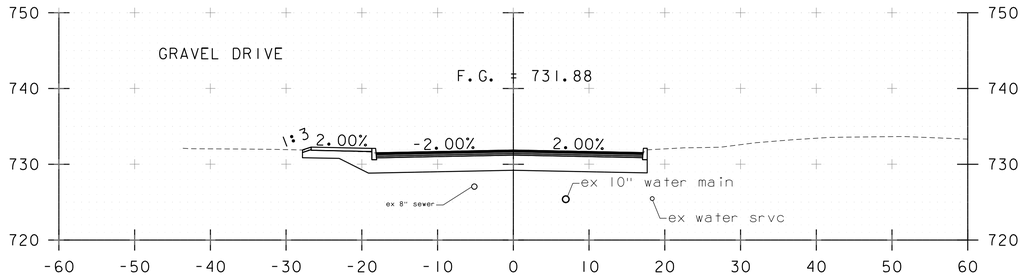
12+88.90 END BRIDGE



12+75



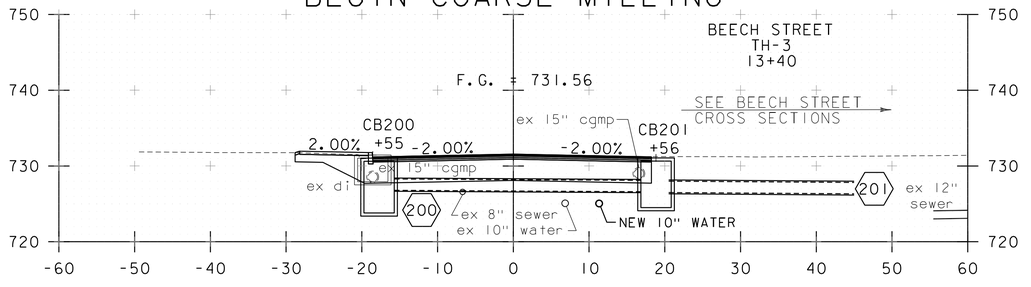
14+00



13+75

END PROJECT

BEGIN COARSE MILLING



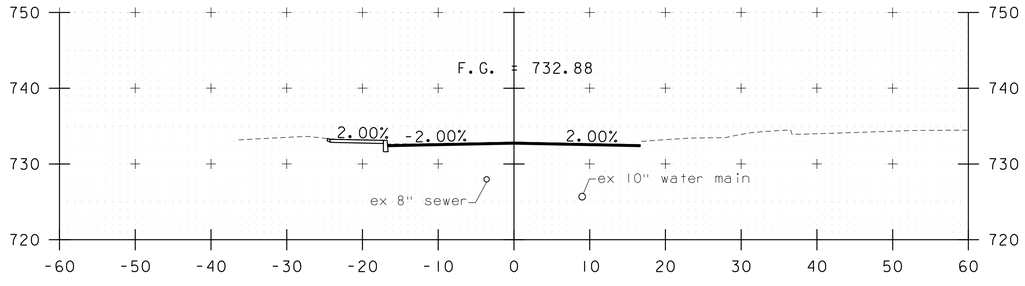
13+50

STA. 12+75 TO STA. 14+00

Stantec

PROJECT NAME:	K. RICHARDSON
PROJECT NUMBER:	BF 1000(20)

FILE NAME: z12j606xs.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: G. BURGMEIER
DESIGNED BY: K. RICHARDSON	CHECKED BY: K. RICHARDSON
ROUTE 9 CROSS SECTION SHEET 2	SHEET 54 OF 76



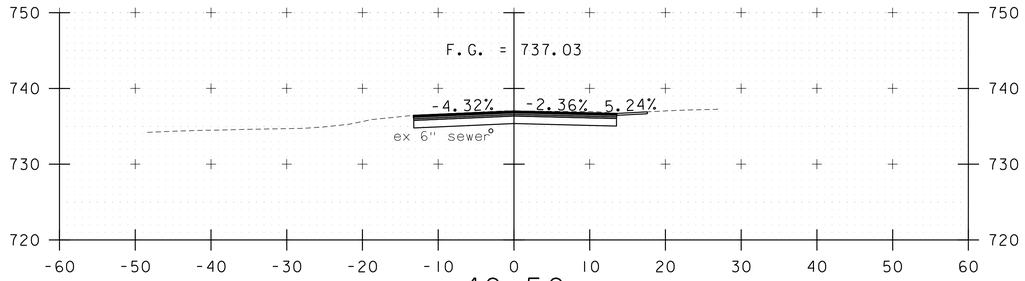
14+25
END APPROACH
END COARSE MILLING

STA. 14+25

Stantec

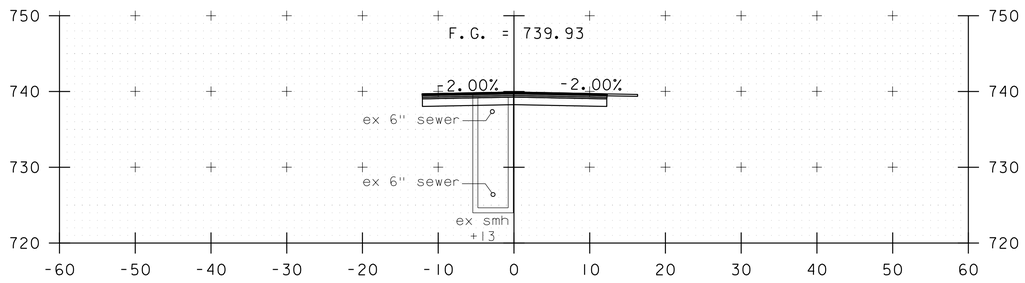
PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)

FILE NAME:	zI2j606xs.dgn	**PLOT DATE:**	9/21/2022
PROJECT LEADER:	T. KNIGHT	**DRAWN BY:**	G. BURGMEIER
DESIGNED BY:	K. RICHARDSON	**CHECKED BY:**	K. RICHARDSON
ROUTE 9 CROSS SECTION SHEET 3		**SHEET**	55 **OF** 76

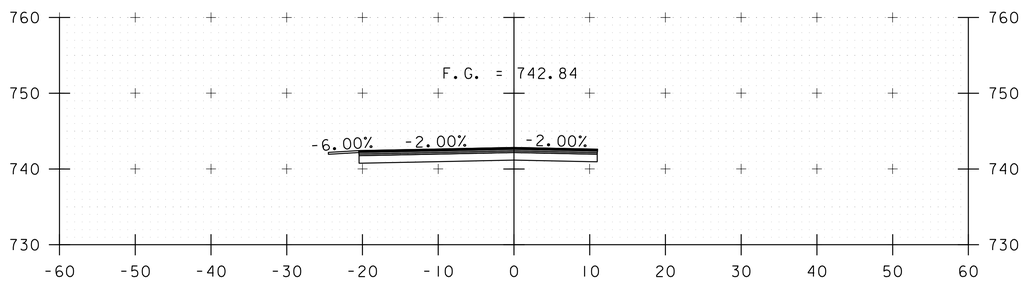


40+50

END COARSE MILLING

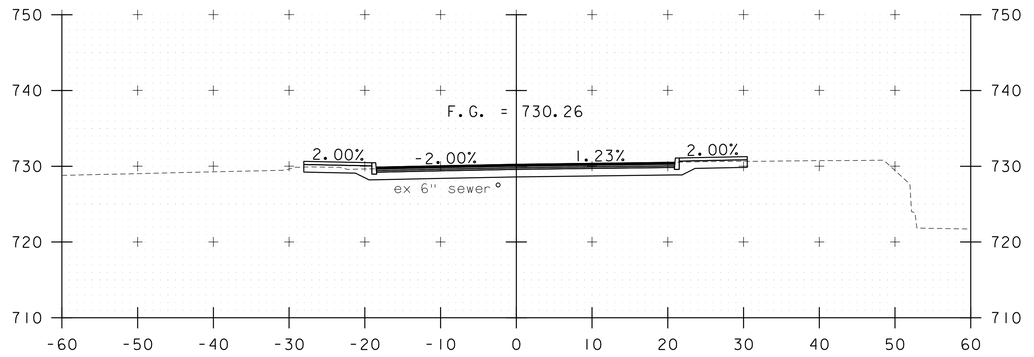


40+25



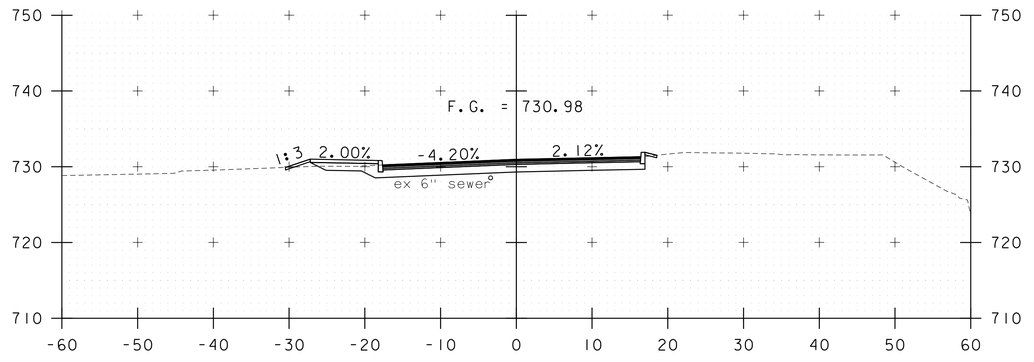
40+00

BEGIN SIDELINE APPROACH
(MORGAN STREET)

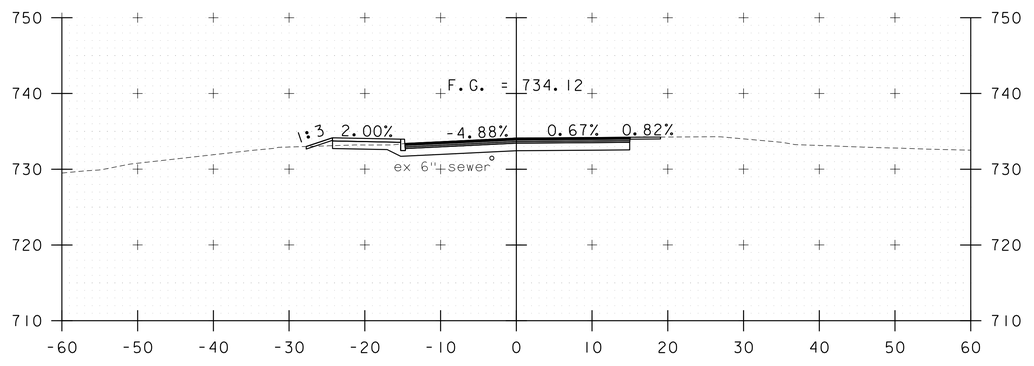


41+09

MATCHLINE - SEE VT ROUTE 9 SECTIONS



41+00

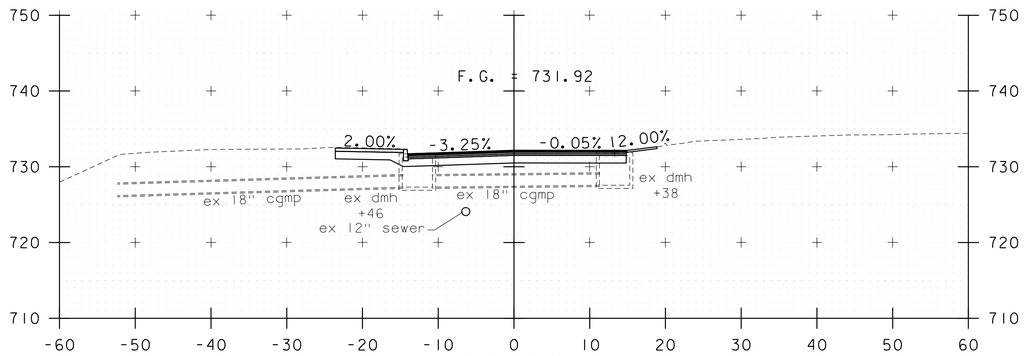


40+75

STA. 40+00 TO STA. 41+09

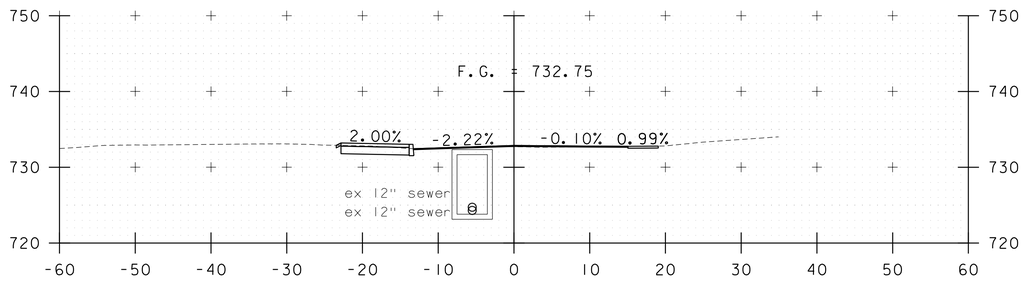
Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606xs.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: G. BURGMEIER
DESIGNED BY: G. BURGMEIER	CHECKED BY: K. RICHARDSON
MORGAN STREET CROSS SECTION SHEET	SHEET 56 OF 76

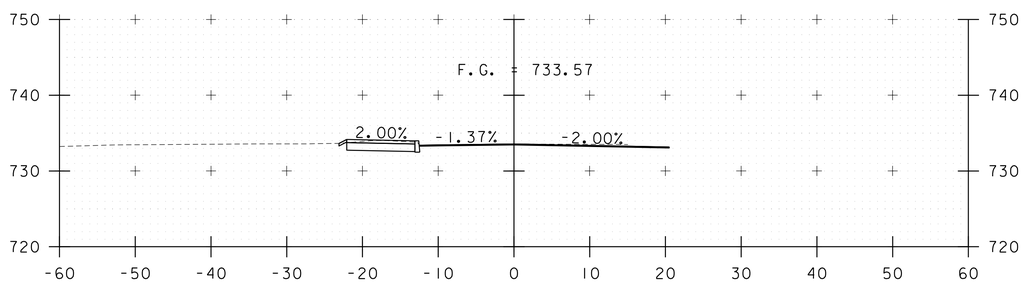


30+50

END COARSE MILLING

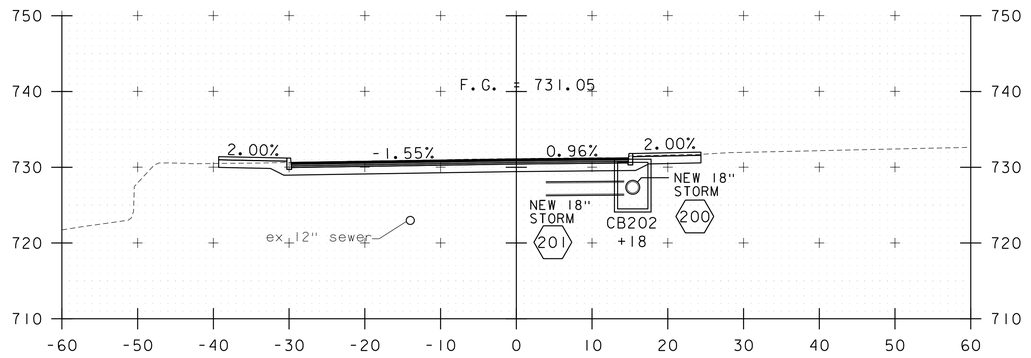


30+25



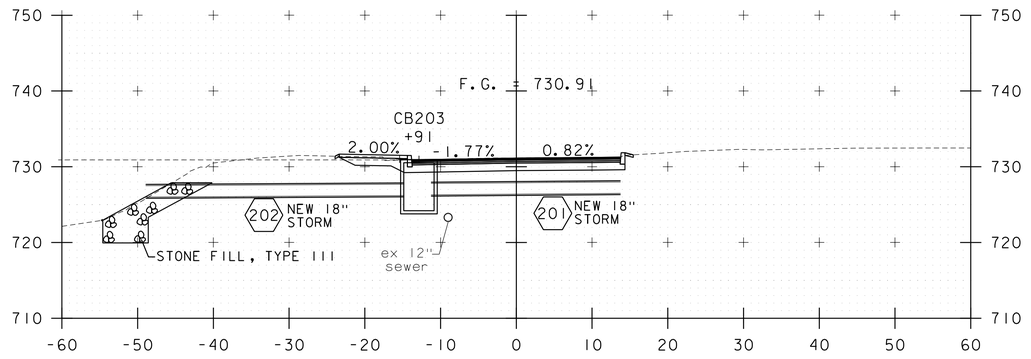
30+00

BEGIN SIDELINE APPROACH
(BEECH STREET)

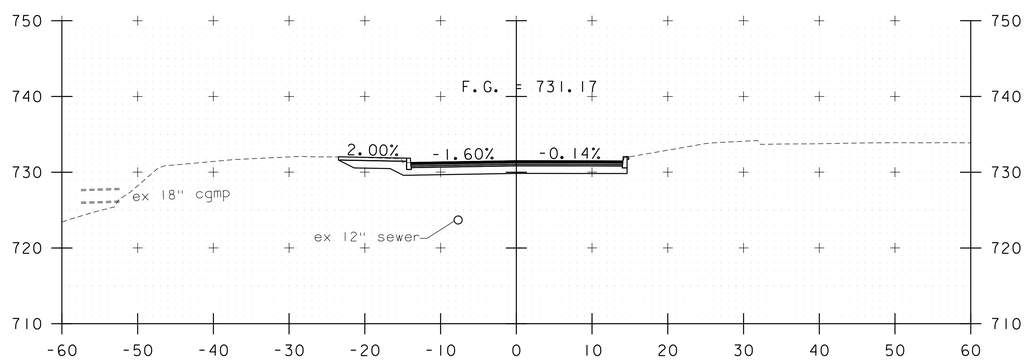


31+17

MATCHLINE - SEE VT ROUTE 9 SECTIONS



31+00

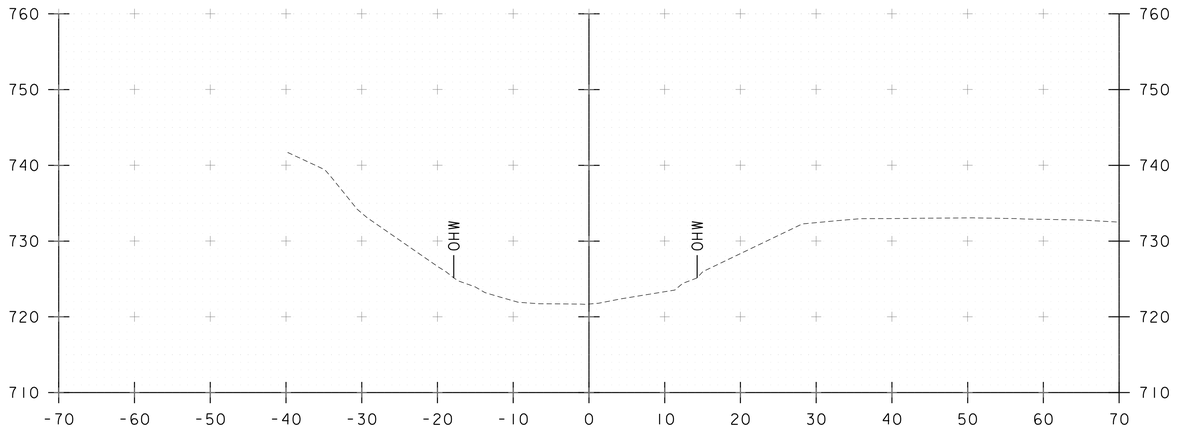


30+75

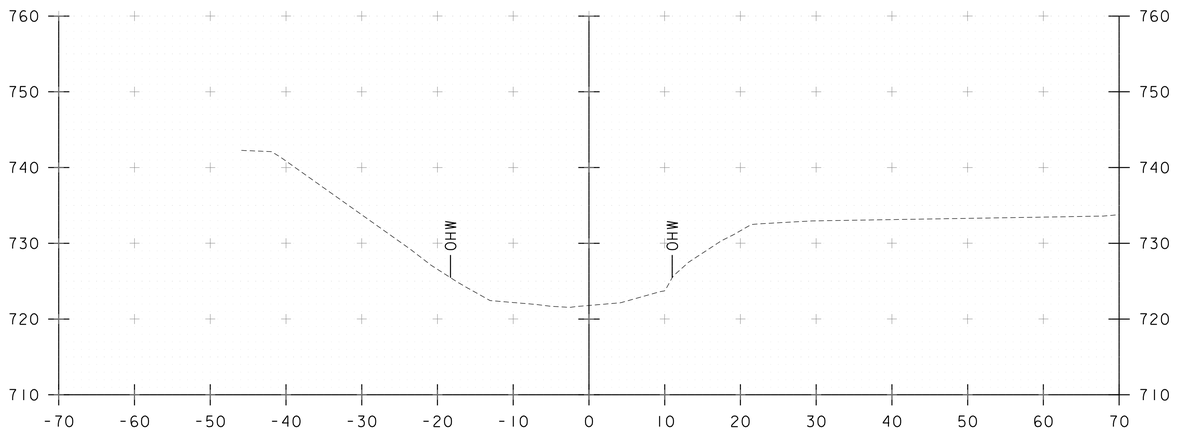
STA. 30+00 TO STA. 31+17

Stantec

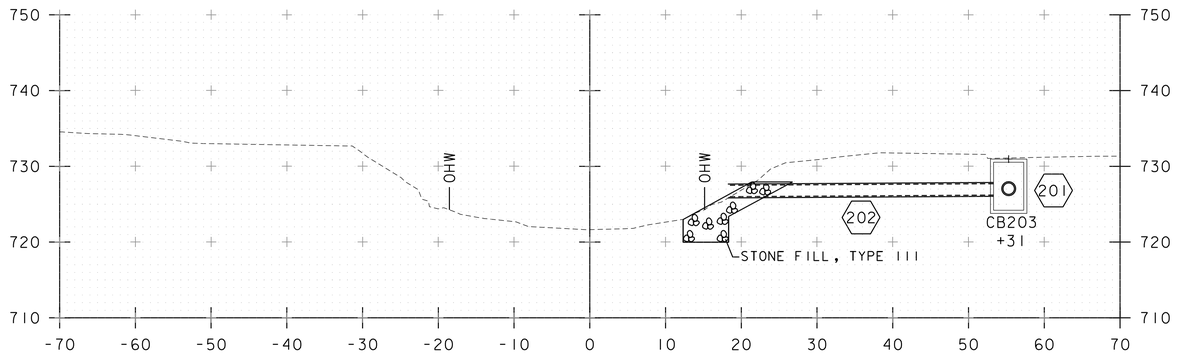
PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606xs.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: G. BURGMEIER
DESIGNED BY: G. BURGMEIER	CHECKED BY: K. RICHARDSON
BEECH STREET CROSS SECTION SHEET	SHEET 57 OF 76



20+50

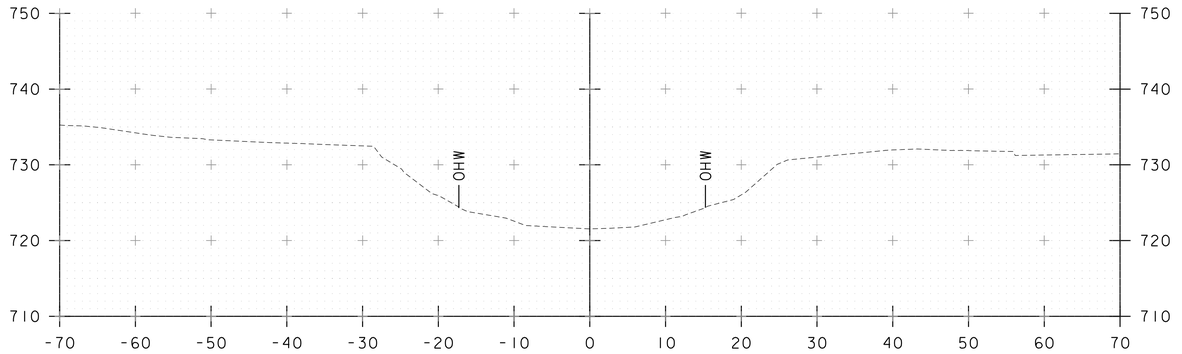


20+25

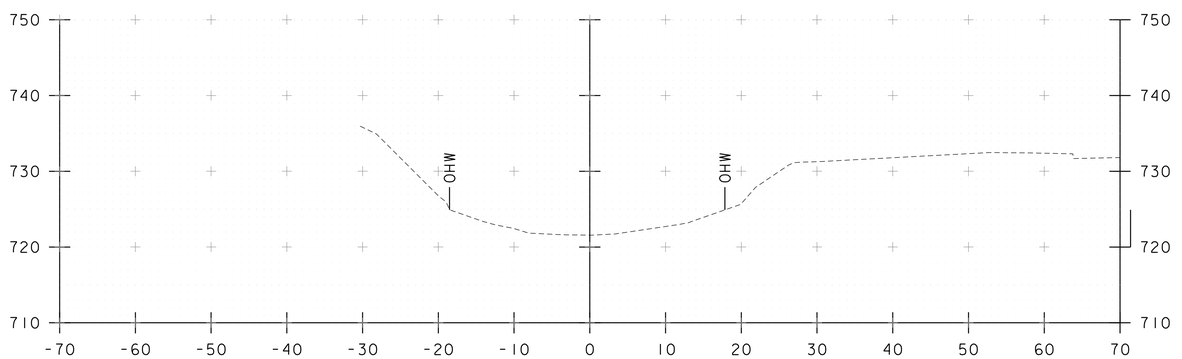


BEGIN STONE FILL, TYPE III STA. 21+10 RT.

21+10



21+00

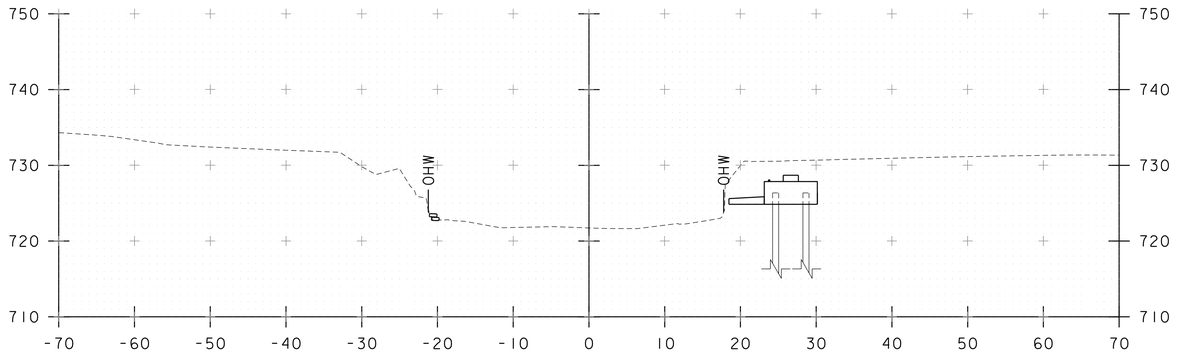


20+75

STA. 20+25 TO STA. 21+10

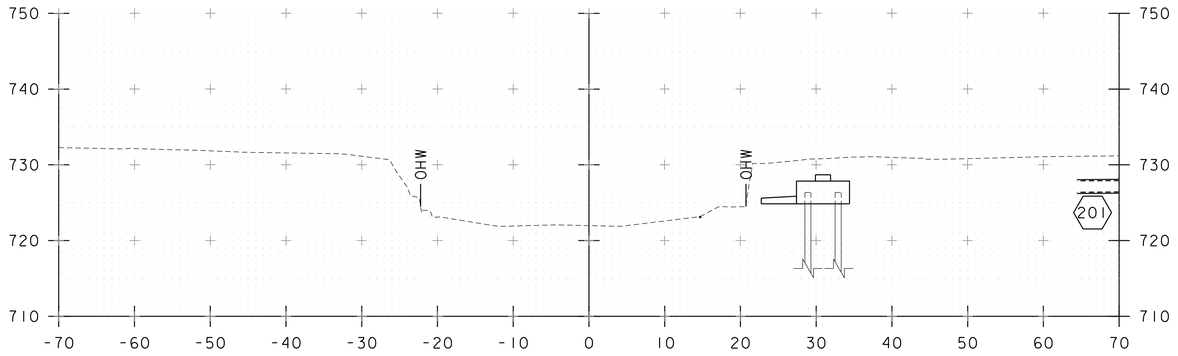
Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606xs.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: I. MAYNARD
DESIGNED BY: I. MAYNARD	CHECKED BY: T. KNIGHT
CHANNEL CROSS SECTION SHEET I	SHEET 58 OF 76



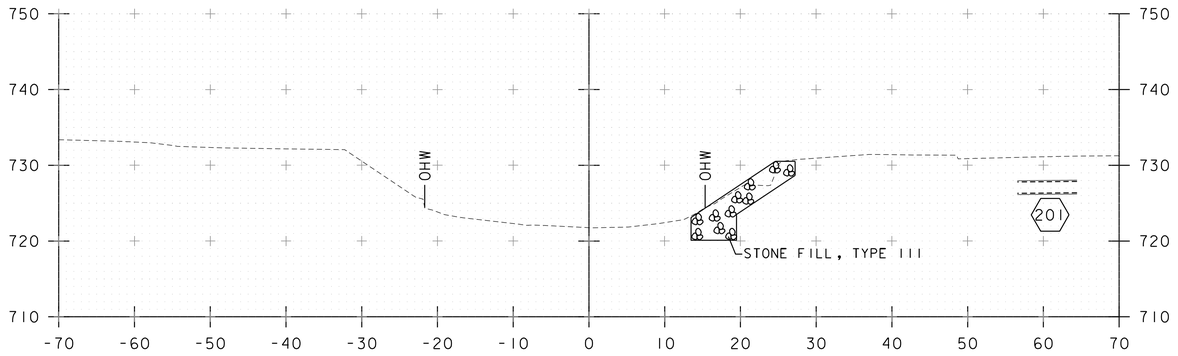
BEGIN GROUT BAGS STA. 21+39 LT.

21+40

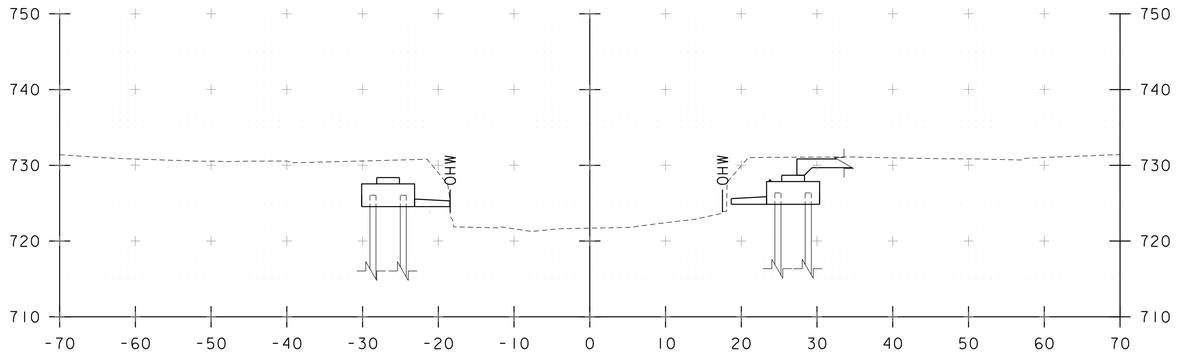


END STONE FILL, TYPE III STA. 21+33 RT.

21+30

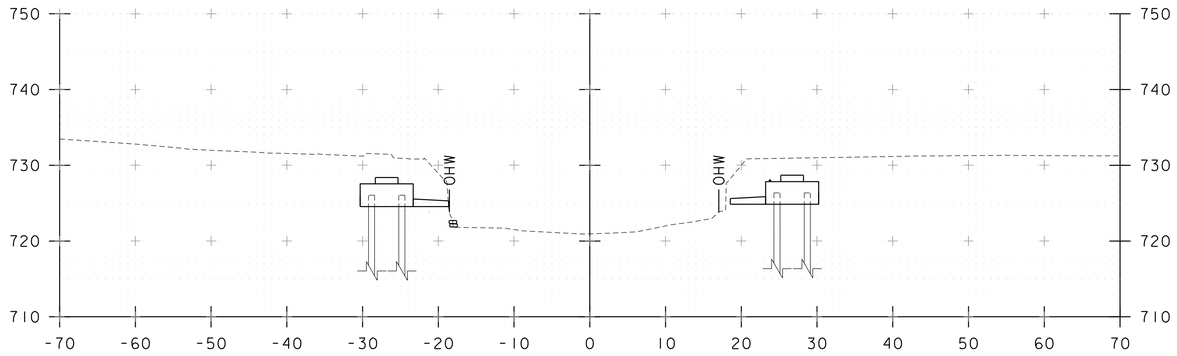


21+20



END GROUT BAGS STA. 21+57 LT.

21+60

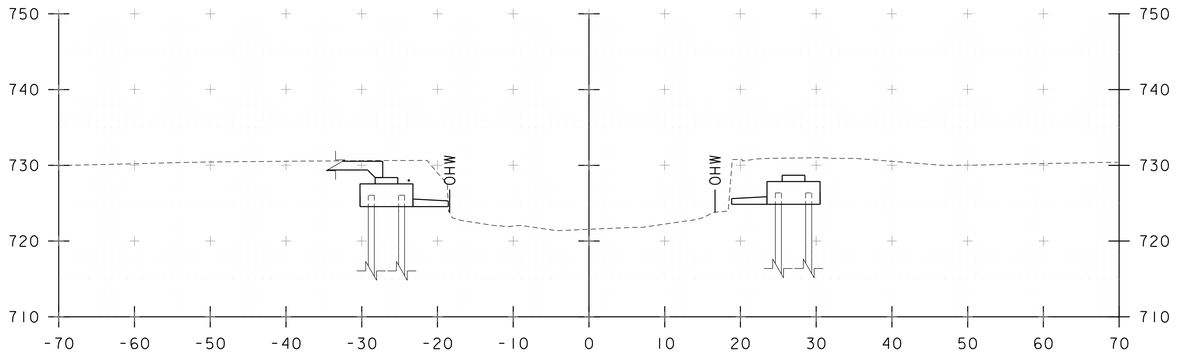


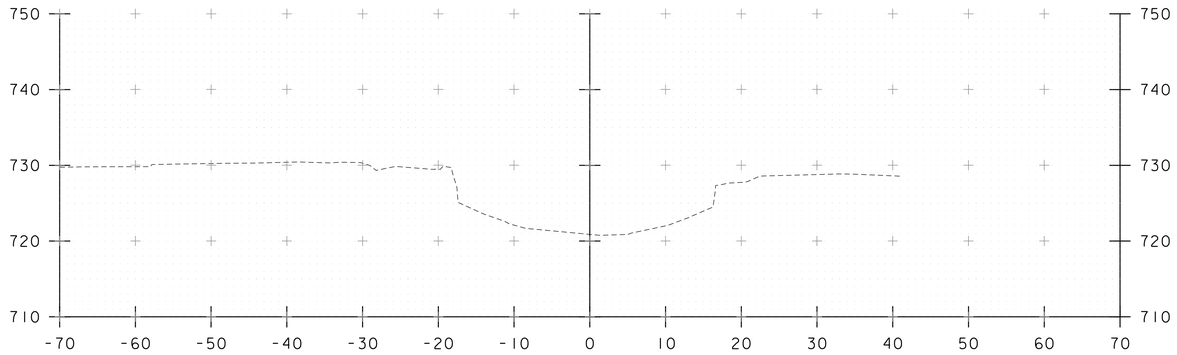
21+50

STA. 21+20 TO STA. 21+70

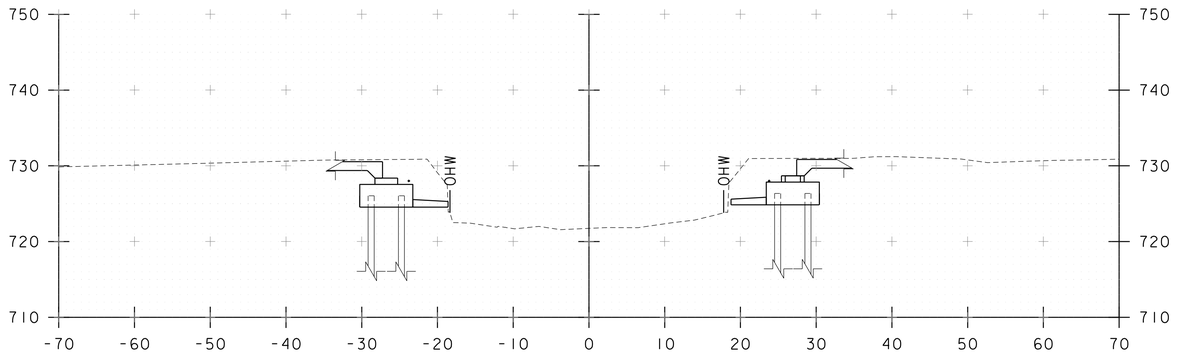
Stantec

PROJECT NAME: BENNINGTON	
PROJECT NUMBER: BF 1000(20)	
FILE NAME: z12j606xs.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: I. MAYNARD
DESIGNED BY: I. MAYNARD	CHECKED BY: T. KNIGHT
CHANNEL CROSS SECTION SHEET 2	SHEET 59 OF 76

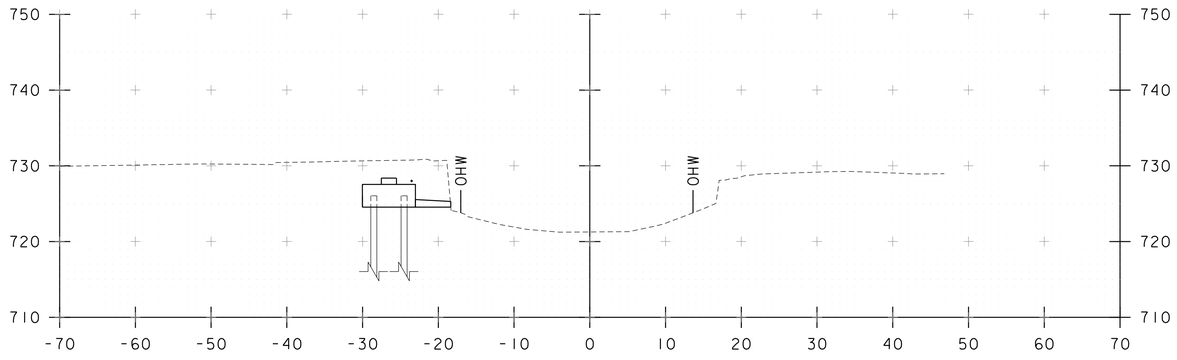




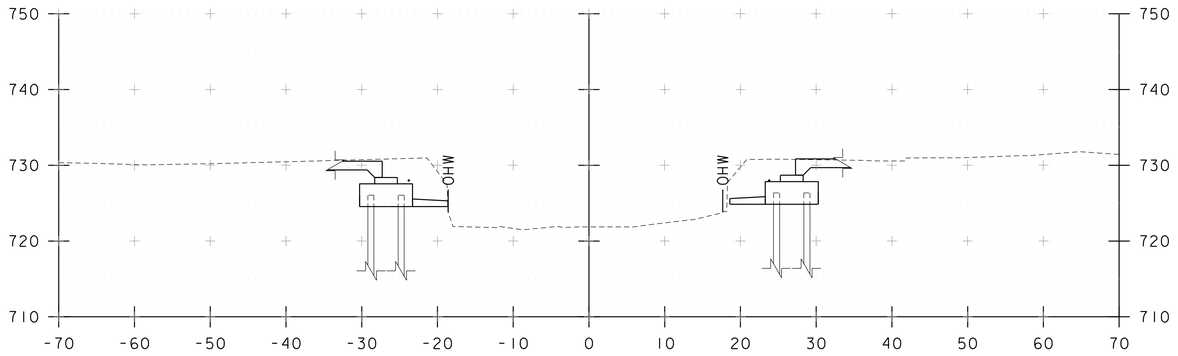
22+00



22+30

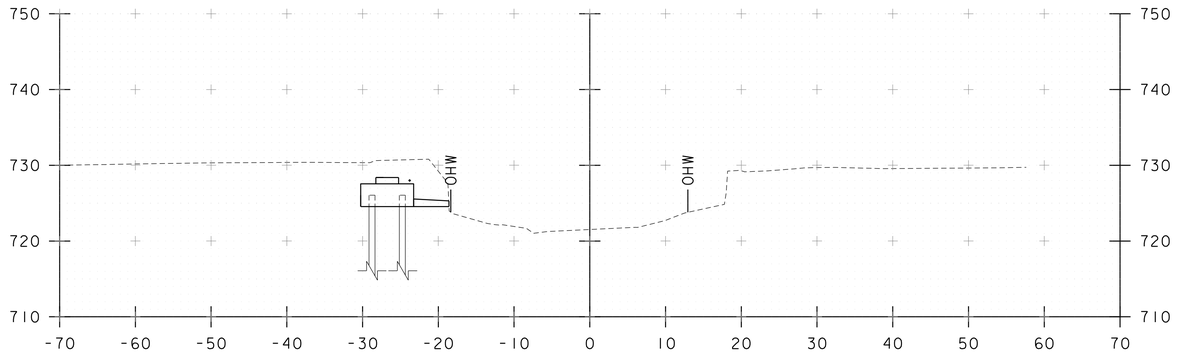


21+90



21+80

22+20

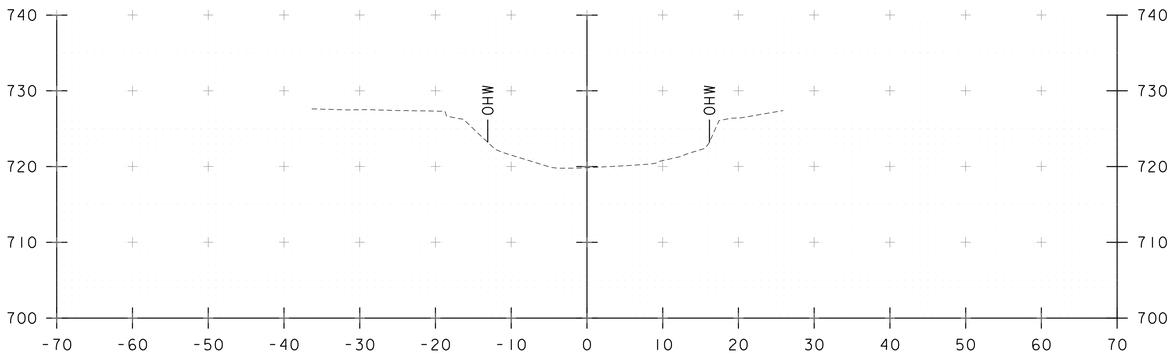


22+10

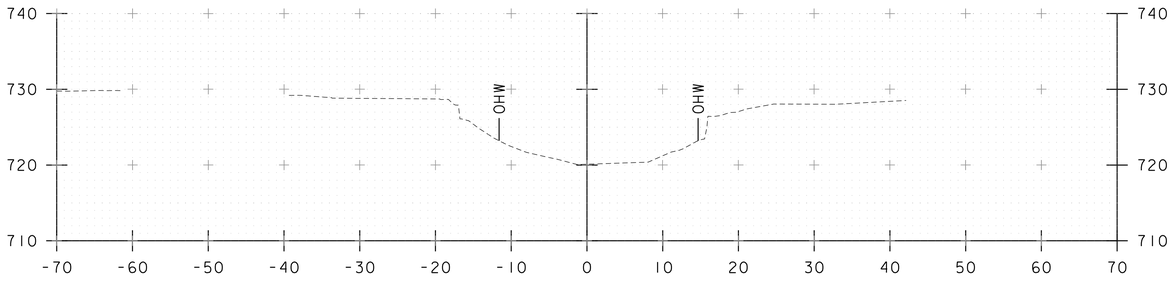
STA. 21+80 TO STA. 22+30

Stantec

PROJECT NAME: BENNINGTON	
PROJECT NUMBER: BF 1000(20)	
FILE NAME: z12j606xs.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: I. MAYNARD
DESIGNED BY: I. MAYNARD	CHECKED BY: T. KNIGHT
CHANNEL CROSS SECTION SHEET 3	SHEET 60 OF 76



22+75



22+50

STA. 22+50 TO STA. 22+75

Stantec

PROJECT NAME: BENNINGTON	
PROJECT NUMBER: BF 1000(20)	
FILE NAME: z12j606xs.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: I. MAYNARD
DESIGNED BY: I. MAYNARD	CHECKED BY: T. KNIGHT
CHANNEL CROSS SECTION SHEET 4	SHEET 61 OF 76

WATER AND SEWER GENERAL NOTES

1. THE CONTRACTOR SHALL PERFORM EXPLORATORY EXCAVATION TO VERIFY LOCATION, ORIENTATION, SIZES, INVERTS, STATUS OF THE EXISTING PIPE, WHETHER ACTIVE OR ABANDONED, AND ASSOCIATED BURIED FITTINGS OF ALL EXISTING SEWER MAINS ENTERING SANITARY SEWER MANHOLE SMH #696 PRIOR TO CONSTRUCTION OF THE MANHOLE. THE CONTRACTOR SHALL USE EXTREME CAUTION TO PREVENT DAMAGE TO EXISTING UTILITIES. PAYMENT FOR EXPLORATORY EXCAVATION FOR CONFIRMING EXISTING SANITARY SEWER MAIN DATA SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, SEWER). PAYMENT FOR ALL OTHER REQUIRED EXPLORATORY EXCAVATION, AS DEPICTED ON THE PLANS OR AS DIRECTED BY THE ENGINEER, SHALL BE MADE UNDER ITEM 204.22 TRENCH 1EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.).

2. THE EXACT LOCATIONS AND DEPTHS OF EXISTING WATER AND SEWER SERVICES ARE UNKNOWN. CONTRACTOR SHALL ANTICIPATE AT LEAST ONE WATER AND ONE SEWER SERVICE FOR EACH BUILDING AND/OR PARCEL, OR AS DEPICTED OTHERWISE ON THE PLANS. WHEN ABLE, THE TOWN OF BENNINGTON, PUBLIC WORKS DEPARTMENT PERSONNEL WILL TRY TO ASSIST THE CONTRACTOR IN LOCATING EXISTING WATER AND SEWER SERVICES DURING CONSTRUCTION. HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE LOCATIONS AND SIZES OF ALL EXISTING WATER AND SEWER BUILDING SERVICES AT THE RIGHT-OF-WAY LINE BY EXPLORATORY EXCAVATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING WATER AND SEWER MAINS AND SERVICES. PAYMENT FOR EXPLORATORY EXCAVATION TO DETERMINE LOCATIONS AND DEPTHS OF EXISTING WATER AND SEWER BUILDING SERVICES SHALL BE MADE UNDER ITEM 204.22 TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.).

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF EXISTING WATER AND SANITARY SEWER FLOWS AT ALL TIMES DURING CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, BYPASS PUMPING, TEMPORARY RELOCATION OF EXISTING PIPING, AND INSTALLATION OF NEW PIPING AS REQUIRED. PAYMENT FOR MAINTENANCE OF EXISTING WATER AND SANITARY SEWER FLOWS SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, WATER) AND ITEM 900.645 SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, SEWER), RESPECTIVELY.

   THE CONTRACTOR'S SCHEDULE SHALL TAKE INTO CONSIDERATION THE TIME TO CROSS AND, IF REQUIRED, TO RELOCATE EXISTING SANITARY SEWER/WATER MAINS AND SERVICES AFFECTED BY THE WORK OR TO INSTALL NEW PIPING AS REQUIRED, AND THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL TIME OR COSTS ASSOCIATED WITH THESE ROUTINE RELOCATIONS.

4. CONTRACTOR SHALL ESTABLISH CONSTRUCTION PHASING SUCH THAT THE EXISTING SANITARY SEWER MAINS INCLUDING ALL MANHOLES AND LATERAL PIPES REMAIN IN SERVICE DURING RELINING OF THE EXISTING SANITARY SEWER MAIN AND CONSTRUCTION OF THE NEW MANHOLE. IN LOCATIONS OF CONFLICT BETWEEN NEW SANITARY SEWER MAINS AND EXISTING LATERAL SERVICES, CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY SEWER SERVICE PIPING. PAYMENT FOR TEMPORARY SEWER SERVICE PIPING SHALL BE INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, SEWER). UPON SUCCESSFUL TESTING OF NEW SANITARY SEWER MAIN AND MANHOLE, EXISTING LATERAL SERVICES MAY BE TRANSFERRED OVER TO THE NEW SYSTEM AND THE EXISTING SYSTEM PIPING DECOMMISSIONED AS REQUIRED.

5. THE LOCATION OF EXISTING PIPES, DUCTS, AND OTHER UNDERGROUND STRUCTURES SHOWN ON THESE PLANS ARE NOT WARRANTED TO BE EXACT NOR IS IT WARRANTED THAT ALL UNDERGROUND STRUCTURES ARE SHOWN.

6. ALL WORK TO BE COMPLETED, UNLESS OTHERWISE NOTED, SHALL BE WITHIN THE PUBLIC RIGHT OF WAY (ROW) OR EASEMENT.

7. THE CONTRACTOR SHALL INSTALL 4" POLYSTYRENE RIGID INSULATION (2 LAYERS AT 2" THICK EACH) AT ALL WATER MAIN/WATER SERVICE AND STORM DRAIN CROSSINGS, AND AS DIRECTED BY THE ENGINEER. PAYMENT FOR POLYSTYRENE RIGID INSULATION AND SAND BEDDING SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.640, SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT LINED, ALL INCLUSIVE) AND ITEM 900.640, SPECIAL PROVISION (SEAMLESS COPPER WATER TUBE, ALL INCLUSIVE), RESPECTIVELY.

8. ALL NEW DUCTILE IRON WATER MAIN PIPE SHALL BE CLASS 52. THE CONTRACTOR SHALL FURNISH AND INSTALL NITRILE GASKETS AT ALL NEW WATER PIPING JOINTS AND FITTINGS. ALL BRASS FITTINGS, INCLUDING CORPORATIONS AND CURB STOPS, SHALL BE FURNISHED WITH NITRILE O-RINGS.

9. ALL NEW COPPER WATER SERVICE TUBING SHALL BE 1" COPPER UNLESS OTHERWISE NOTED ON THE PLANS.

10. ALL NEW PVC SANITARY SEWER PIPE SHALL BE SDR 35 UNLESS OTHERWISE NOTED ON THE PLANS.

11. THE CONTRACTOR SHALL INSTALL ALL WATER AND SEWER PIPE WITH THE SEPARATION REQUIREMENTS, BOTH HORIZONTALLY AND VERTICALLY, IN ACCORDANCE WITH THE VERMONT ENVIRONMENTAL PROTECTION RULES, CHAPTER 1, WASTEWATER SYSTEM AND POTABLE WATER SUPPLY RULES, EFFECTIVE APRIL 12, 2019 (OR LATEST EDITION), AND CHAPTER 21, WATER SUPPLY RULE, AS REVISED ON APRIL 12, 2019 (OR LATEST EDITION).

12. THE LOCATION OF NEW SANITARY SEWER, OR WATER MAINS, AND SERVICES SHALL NOT DISTURB ROOT SYSTEMS OF EXISTING TREES OR SHRUBS. CONTRACTOR SHALL EXERCISE CARE TO PREVENT DAMAGE THERETO.

13. WHEN REPLACING STRUCTURES AND/OR CONNECTING TO EXISTING PIPING SYSTEMS, CONFIRM EXISTING LOCATIONS, SIZES, AND ELEVATIONS OF INVERTS PRIOR TO ORDERING PRECAST CONCRETE STRUCTURES.

14. EXISTING GATE VALVES AND CURB STOPS OPEN RIGHT OR CLOCKWISE (CW). THE CONTRACTOR SHALL NOT BE ALLOWED TO OPERATE ANY EXISTING GATE VALVES OR CURB STOPS. THE TOWN OF BENNINGTON WATER RESOURCES DEPARTMENT PERSONNEL WILL PERFORM THIS TASK IN ALL CASES. THE CONTRACTOR SHALL COORDINATE HIS/HER ACTIVITIES FOR VALVE CLOSURE AND OPENING WITH THE TOWN OF BENNINGTON WATER RESOURCES DEPARTMENT. IN THE EVENT OF A PLANNED TEMPORARY WATER SERVICE SHUTDOWN, THE CONTRACTOR SHALL NOTIFY ALL CUSTOMERS TO BE TEMPORARILY OUT OF WATER A MINIMUM OF 48 HOURS PRIOR TO THE SHUTDOWN ACTIVITY. AT NO TIME SHALL A CUSTOMER BE WITHOUT WATER FOR MORE THAN 4 HOURS.

15. THE CONTRACTOR SHALL PROVIDE A TEMPORARY 4" BLOWOFF FOR FLUSHING ALL NEW WATER MAIN PIPING AS NOTED ON THE PLANS. FLUSHING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C651 (LATEST EDITION), *DISINFECTING WATER MAINS*. THE CONTRACTOR SHALL ALSO INSTALL A NEW TEMPORARY 1" CHLORINATION INJECTION POINT (CIP) AT ALL WATER MAIN INTERCONNECTION POINTS INCLUDING VALVES V1, V2, V3, AND V4.

   INTERCONNECTION PIPING, VALVES, AND FITTINGS AT NEW WATER MAIN TIE-IN POINTS INCLUDING TEMPORARY END CAPS AND COUPLINGS SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C651(LATEST EDITION), *DISINFECTING WATER MAINS*.

   UPON SUCCESSFUL FLUSHING, PRESSURE TESTING, AND DISINFECTION OF THE NEW WATER MAINS IN ACCORDANCE WITH AWWA C651, CLOSE CIP CORPORATION STOP AND REMOVE CIP COPPER TUBING. INSTALL 1" COPPER CAP ON A 6" LONG STUB OF COPPER TUBING AT THE 'CLOSED' CORPORATION STOP PRIOR TO BACKFILL.

   PAYMENT FOR ALL WORK NECESSARY TO COMPLETE THE FINAL INTERCONNECTION OF NEW TO EXISTING WATER MAIN PIPING (EXCLUDING NEW GATE VALVES AND NEW DUCTILE IRON PIPE AS DEPICTED ON THE DRAWINGS) SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, WATER)

   ALL TEMPORARY WATER SYSTEM SHUTDOWNS REQUIRED FOR COMPLETION OF WATER MAIN INTERCONNECTIONS AT VALVES V1, V3 AND V4, INCLUDING CUTTING EXISTING WATER MAIN PIPING AND INSTALLING NEW PIPING, COUPLINGS, GATE VALVES, PIPE RESTRAINTS AND END CAPS, SHALL BE COMPLETED AT NIGHT BETWEEN 11:00 PM AND 3:00 AM UNLESS PROVIDED PRIOR WRITTEN APPROVAL BY THE TOWN OF BENNINGTON, OR THE ENGINEER.

16. UPON SUCCESSFUL TESTING, CHLORINATION, AND TRANSFER TO NEW SYSTEM, ALL EXISTING SANITARY SEWER AND WATER MAIN PIPING TO BE ABANDONED OR NO LONGER REMAINING ACTIVE SHALL BE REMOVED. PAYMENT FOR REMOVAL OF EXISTING PIPING SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, WATER) AND ITEM 900.645 SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, SEWER), RESPECTIVELY.

17. ALL EXISTING CAST IRON FRAMES, GRATES, COVERS, AND POST FLUSHING HYDRANTS SHALL BE SALVAGED BY THE CONTRACTOR AND TURNED OVER TO THE TOWN OF BENNINGTON, PUBLIC WORKS DEPARTMENT, AT A LOCATION TO BE DESIGNATED BY THE TOWN.

18. THE CONTRACTOR SHALL PROMPTLY RESTORE ALL GRASS AREAS DISTURBED AS DIRECTED BY THE ENGINEER.

19. UPON COMPLETION OF SUCCESSFUL LINING OF THE EXISTING 8" CORRUGATED METAL PIPE (CMP) SEWER MAIN LOCATED UNDER THE WALLOOMSAC RIVER STREAMBED, THE CONTRACTOR SHALL PROVIDE VTRANS AND THE VILLAGE OF BENNINGTON WITH A COPY OF THE CALIBRATED TELEVISION INSPECTION REPORTS AND ASSOCIATED VIDEO RECORDINGS.

20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AS-BUILT RECORDS TO VTRANS AND THE TOWN OF BENNINGTON FOR NEW UTILITY INSTALLATIONS INCLUDING ALL NEW WATER, SANITARY SEWER, ELECTRICAL, AND COMMUNICATIONS WORK.

21. CONTRACTOR SHALL MAINTAIN DETOURED TRAFFIC AND ACCESS TO AFFECTED COMMERCIAL AND RESIDENTIAL PROPERTIES AT ALL TIMES DURING CONSTRUCTION. SEE TRAFFIC CONTROL PLANS FOR FURTHER DETAILS.

22. THE CONTRACTOR SHALL ORIENT NEW SANITARY SEWER MANHOLE CAST IRON FRAME AND COVER AS DEPICTED ON THE DRAWINGS SUCH THAT THEY WILL NOT BE LOCATED IN THE NORMAL WHEEL PATH OF VEHICLES.

23. FLOW FROM EXISTING SANITARY SEWER MAINS AND SERVICE CONNECTIONS SHALL BE MAINTAINED AT ALL TIMES BY PUMPING OR OTHER METHODS APPROVED BY THE ENGINEER. UNDER NO CIRCUMSTANCES WILL THE DUMPING OF RAW SEWAGE ON PRIVATE PROPERTY, IN MUNICIPAL STREETS, EXCAVATIONS, OR INTO WATERWAYS, BE ALLOWED.

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606notes_util.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: D. CAMPBELL
WATER AND SEWER GENERAL NOTES

PLOT DATE: 9/21/2022
DRAWN BY: J. BURKE
CHECKED BY: J. MYERS
SHEET 62 OF 76

N

VT STATE PLANE GRID

STA. 12+01, LT.
EXISTING SMH #696 TO BE REMOVED AND REPLACED BY CONTRACTOR.

STA. 11+90, LT. AND STA. 11+95, LT.
INSTALL TWO-6" SEWER SADDLES ON EXISTING 8" CI SEWER MAIN FOR MAINTENANCE OF EXISTING SEWAGE SYSTEM FLOWS. PAYMENT SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, SEWER).

STA. 12+01, LT. - STA. 13+14, LT.
CONTRACTOR SHALL MAINTAIN EXISTING SEWAGE SYSTEM FLOWS DURING LINING OF EXISTING 8" CMP SANITARY SEWER MAIN AND REPLACEMENT OF EXISTING SMH #696. PAYMENT SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, SEWER).

STA. 12+01, LT. - STA. 13+14, LT.
INSTALL TEMPORARY 4" HDPE SEWER BYPASS FORCE MAIN BETWEEN SMH #713 AND NEW 6" SEWER SADDLE. PAYMENT SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, SEWER).

STA. 13+14, LT.
EXISTING SMH #713 WITH OUTSIDE DROP.

STA. 11+57, RT. - STA. 13+73, RT.
REMOVE EXISTING 10", 8" AND 6" WATER MAIN AND APPURTENANCES AFTER INSTALLATION OF FOUR NEW SYSTEM ISOLATION GATE VALVES. PAYMENT SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, WATER).

STA. 11+52, RT. - STA. 11+80, LT.
NEW PERMANENT 1" COPPER WATER SERVICE. TRANSITION TO 3/4" COPPER WATER TUBING AT CONNECTION TO EXISTING.

STA. 11+60, RT. (VALVE V1)
CUT EXISTING 10" CI WATER MAIN AND INSTALL NEW 10" GATE VALVE, 10" DI SPOOL, MAR/CIP, CONCRETE PIPE RESTRAINT, AND TEMPORARY 10" DI END CAP.

STA. 11+95, LT. - STA. 11+98, RT.
INSTALL TEMPORARY 6" SDR 35 PVC SEWER PIPE TO CONVEY EXISTING FLOWS FROM MORGAN STREET AROUND SMH #696. CONNECT TO EXISTING 6" CI SEWER AND NEW 6" SEWER SADDLE. PAYMENT SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, SEWER).

STA. 11+80, RT. (VALVE V3)
CUT EXISTING 6" CI WATER MAIN AND INSTALL NEW 6" GATE VALVE, 6" DI SPOOL, MAR/CIP, CONCRETE PIPE RESTRAINT , AND TEMPORARY 6" DI END CAP.

STA. 12+34, RT.
EXISTING GATE VALVE (EX-V1) TO BE REMOVED

STA. 11+93, RT.
EXISTING GATE VALVE (EX-V3) TO BE REMOVED

STA. 11+79, RT. - STA. 12+40, RT.
NEW PERMANENT 1" COPPER WATER SERVICE. TRANSITION TO 3/4" COPPER WATER TUBING AT CONNECTION TO EXISTING.

STA. 13+80, RT.
EXISTING GATE VALVE (EX-V2) TO BE RETAINED

STA. 13+74, RT. (VALVE V2)
CUT EXISTING 10" CI WATER MAIN AND INSTALL NEW 10" GATE VALVE, 10" DI SPOOL, MAR/CIP, CONCRETE PIPE RESTRAINT, AND TEMPORARY 10" DI END CAP.

STA. 13+03, RT.
EXISTING GATE VALVE (EX-V4) TO BE REMOVED

STA. 13+40, RT. (VALVE V4)
CUT EXISTING 8" DI WATER MAIN AND INSTALL NEW 8" GATE VALVE, 8" DI SPOOL, MAR/CIP, CONCRETE PIPE RESTRAINT, AND TEMPORARY 8" DI END CAP.

EXISTING BRIDGE DATA
BUILT 1923, SINGLE 46' SPAN CONCRETE T- BEAM/ ENCASED STEEL BEAM CIP CONCRETE DECK

BM #1
TOP OF SW BOLT ABOVE "W" IN WATER
ELEV=734.193

BM #2
RRSIS
ELEV=730.647

LEGEND

//////// DENOTES EXISTING PIPING TO BE REMOVED

PLAN - TEMPORARY WATER AND SEWER MAINTENANCE

0 20 40
SCALE IN FEET

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606bdr_util.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: J. BURKE
DESIGNED BY: D. CAMPBELL	CHECKED BY: J. MYERS
TEMPORARY WATER & SEWER UTILITY PLAN	SHEET 63 OF 76

N

VT STATE PLANE GRID

STA. 12+01, LT.
REMOVE EXISTING SMH #696 AND REPLACE WITH NEW 6' DIAMETER INSIDE DROP SANITARY SEWER MANHOLE INCLUDING TWO NEW 8" SDR 35 PVC SPOOL PIECES (APPROX. 8' LONG) AND TWO NEW 6" SDR 35 PVC SPOOL PIECES (APPROX. 8' LONG) FOR CONNECTION TO THE EXISTING SEWER PIPING. CONNECT TO EXISTING WITH FLEXIBLE RUBBER COUPLINGS. UPON SUCCESSFUL TESTING AND TRANSFER TO NEW SYSTEM, REMOVE TEMPORARY GRAVITY AND FORCE MAIN SEWER BYPASS PIPING.

STA. 11+67, RT. - STA. 12+19, RT.
(INTERCONNECTION AT VALVE V1)
REMOVE TEMPORARY 10" DI END CAP AND INSTALL NEW PERMANENT 10" CLASS 52 DI WATER MAIN. CONNECT TO VALVE V1 SPOOL PIECE WITH LONG SOLID SLEEVE COUPLING AND 2-10" DI 45° ELBOWS FOR VERTICAL DOWNWARD TRANSITION. INSTALL 1-10" X 6" DI TEE, 2-10" DI 45° ELBOWS FOR HORIZONTAL TRANSITION, AND 2-10" DI 45° ELBOWS FOR VERTICAL ELEVATION ADJUSTMENT INTO NEW 20" O.D. STEEL SLEEVE AT BRIDGE. FURNISH PRE-INSULATED PIPE FOR NEW DI WATER MAIN WITH LESS THAN 6' OF COVER AT VERTICAL ELEVATION ADJUSTMENT.

STA. 11+80, RT.
NEW 10"x6" DI TEE

STA. 12+01, LT. - STA. 13+14, LT.
LINE EXISTING 8"CMP SEWER MAIN WITH NEW CURED-IN-PLACE-PIPE LINING BETWEEN SMH #696 AND SMH #713.

STA. 13+14, LT.
ADJUST ELEVATION OF EXISTING SANITARY SEWER MANHOLE (#713). FRAME AND COVER TO MATCH FINISH GRADE

STA. 12+34, RT. - STA. 13+09, RT.
INSTALL NEW 10" CLASS 52 DI WATER MAIN SUSPENDED UNDER THE SOUTH UTILITY BAY OF THE NEW BRIDGE DECK.

STA. 13+13, RT.
INSTALL NEW PERMANENT MANUAL AIR RELEASE (MAR) AT HIGH POINT IN NEW 10" DI WATER MAIN.

STA. 13+80, RT.
ADJUST ELEVATION OF EXISTING VALVE BOX (EX-V2) TO MATCH FINISH GRADE

STA. 11+60, RT.
VALVE V1

STA. 13+74, RT.
VALVE V2

STA. 11+80, RT.
NEW 6" GATE VALVE (VALVE V5) FOR PRESSURE ZONE ISOLATION. NORMALLY CLOSED.

STA. 11+80, RT.
NEW DI ELBOW (TYP.)

STA. 11+81, RT. - STA. 11+83, RT.
(INTERCONNECTION AT VALVE V3)
REMOVE TEMPORARY 6" DI END CAP AND INSTALL NEW PERMANENT 6" CLASS 52 DI WATER MAIN. CONNECT TO VALVE V3 SPOOL PIECE WITH LONG SOLID SLEEVE COUPLING AND 2-6" DI 45° ELBOWS FOR VERTICAL DOWNWARD TRANSITION. INSTALL 1-6" DI 45° ELBOW AND 1-6" DI 22.5° ELBOW FOR HORIZONTAL TRANSITION AND 6" GATE VALVE (VALVE V5). INSTALL 6" X 4" DI TEE AND 4" GATE VALVE (VALVE V6) FOR FLUSHING HYDRANT.

STA. 11+80, RT.
INSTALL 6" X 4" DI TEE WITH 4" GATE VALVE (VALVE V6), 4" DI PIPE, AND 2-1/2" POST FLUSHING HYDRANT WITH 4" M.J. INLET.

STA. 11+80, RT.
VALVE V3

STA. 12+26, RT. - STA. 12+31, RT.
TWO NEW 10" DI 45° ELBOWS FOR VERTICAL TRANSITION (TYP. 2 LOCATIONS)

STA. 12+34, RT. - STA. 12+40.5, RT.
NEW 20" O.D. STEEL SLEEVE, 6'-6" +/- LONG (TYP. OF 2).

STA. 12+34 STA. 13+09
LIMITS OF PAYMENT
ITEM 900.645 SPECIAL PROVISION (WATER MAIN ON BRIDGE) (10")
(75.0 L.F.)

STA. 13+40, RT.
VALVE V4

STA. 13+40, RT.
NEW 10"x8" DI TEE

STA. 13+65, RT.
CUT AND CAP EXISTING ABANDONED 6" CI WATER MAIN

STA. 13+36, RT. - STA. 13+40, RT.
(INTERCONNECTION AT VALVE V4)
REMOVE TEMPORARY 8" DI END CAP AND INSTALL NEW PERMANENT 8" CLASS 52 DI WATER MAIN. CONNECT TO VALVE V4 SPOOL PIECE WITH LONG SOLID SLEEVE COUPLING AND 2-8" DI 45° ELBOWS FOR VERTICAL DOWNWARD TRANSITION. INSTALL 2-8" DI 45° ELBOWS AND 1-8" DI 22.5° ELBOW FOR HORIZONTAL TRANSITION.

STA. 13+24, RT. - STA. 13+67, RT.
(INTERCONNECTION AT VALVE V2)
REMOVE TEMPORARY 10" DI END CAP AND INSTALL NEW PERMANENT 10" CLASS 52 DI WATER MAIN. CONNECT TO VALVE V2 SPOOL PIECE WITH LONG SOLID SLEEVE COUPLING AND 2-10" DI 45° ELBOWS FOR VERTICAL DOWNWARD TRANSITION. INSTALL 1-10" X 8" DI TEE, 2-10" DI 45° ELBOWS FOR HORIZONTAL TRANSITION, AND 2-10" DI 45° ELBOWS FOR VERTICAL ELEVATION ADJUSTMENT INTO NEW 20" O.D. STEEL SLEEVE AT BRIDGE. FURNISH PRE-INSULATED PIPE FOR NEW DI WATER MAIN WITH LESS THAN 6' OF COVER AT VERTICAL ELEVATION ADJUSTMENT.

WALLOOMSAC RIVER
TH-476 MORGAN ST
TH-3 BEECH ST
VT ROUTE 9 TO NY STATE
VT ROUTE 9 TO WOODFORD
APPROX. 107' TO SMH #694
APPROX. 36' TO SMH #792
SMH #697 (APPROX. LOCATION)
SMH #696
SMH #713
SMH #714
BM #1 TOP OF SW BOLT ABOVE "W" IN WATER ELEV=734.193
BM #2 RRSIS ELEV=730.647

PLAN - PERMANENT WATER AND SEWER UTILITY PLAN

0 20 40
SCALE IN FEET

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606bdr_util.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: J. BURKE
DESIGNED BY: D. CAMPBELL	CHECKED BY: J. MYERS
PERMANENT WATER & SEWER UTILITY PLAN	SHEET 64 OF 76

NOTES
1. MAINTAIN 18" MINIMUM VERTICAL SEPARATION.
2. INSTALL 4" OF RIGID INSULATION ABOVE WATER PIPE AT CROSSING.

NEW 10" DI WATER MAIN PRE-INSULATED WITH 2" URETHANE INSULATION INSIDE 20" O.D. STEEL SLEEVE.

LIMITS OF PAYMENT (75.0 L.F.)
ITEM 900.645 SPECIAL PROVISION (WATER MAIN ON BRIDGE) (10").

NEW 10" DI WATER MAIN PRE-INSULATED WITH 2" URETHANE INSULATION INSIDE 20" O.D. STEEL SLEEVE.

NEW 45° DI ELBOWS FOR ELEVATION ADJUSTMENT THROUGH NEW BRIDGE STEEL SLEEVE. FURNISH PRE-INSULATED PIPE WITH 2" URETHANE INSULATION FOR NEW DI WATER MAIN WITH LESS THAN 6' OF COVER.

MAINTAIN 6'-0" MINIMUM COVER

NEW 10" CLASS 52 DI WATER MAIN.

BEGIN PROJECT
STA. 11+75.00

ASSUMED 4'-6"+/- PIPE DEPTH

BEGIN APPROACH
STA. 11+25.00

WATERLINE STA. WL1+00.00
= ROADWAY CONSTRUCTION CENTERLINE STA. 11+00.00

1" CORPORATION FOR 1" COPPER WATER SERVICE TO THE COMMERCIAL BUILDING LOCATED AT 716 MAIN STREET.

EXISTING 6" VC SEWER

STA. 12+34.00

BEGIN BRIDGE
STA. 12+27.10

END BRIDGE
STA. 12+88.90

STA. 13+09.00

INSTALL NEW PERMANENT 1" MANUAL AIR RELEASE (MAR) AT HIGH POINT IN NEW 10" DI WATER MAIN.

NEW 45° DI ELBOWS FOR ELEVATION ADJUSTMENT THROUGH NEW BRIDGE STEEL SLEEVE. FURNISH PRE-INSULATED PIPE WITH 2" URETHANE INSULATION FOR NEW DI WATER MAIN WITH LESS THAN 6' OF COVER.

FINISH GRADE ALONG WATERLINE

EXISTING GRADE ALONG WATERLINE

END PROJECT
STA. 13+75.00

EXISTING 10" GATE VALVE FOR SYSTEM ISOLATION (EX-V2). ADJUST ELEVATION OF VALVE BOX.

EXISTING FIRE HYDRANT

END APPROACH
STA. 14+25.00

WATERLINE STA. WL4+65.00
= ROADWAY CONSTRUCTION CENTERLINE STA. 14+50.00

740
730
720
710

SEE NOTE 1

10" CI

4'-4"+/-

NEW 18" STORM

SEE NOTE 1

10" CI

SEE NOTE 1

SEE NOTE 2

10" LONG SOLID SLEEVE COUPLING

NEW 10" GATE VALVE (V1) WITH VALVE BOX.

NEW 10" LONG SOLID SLEEVE COUPLING

NEW 10" GATE VALVE (V2) WITH VALVE BOX.

WL1+00 WL1+25 WL1+50 WL1+75 WL2+00 WL2+25 WL2+50 WL2+75 WL3+00 WL3+25 WL3+50 WL3+75 WL4+00 WL4+25 WL4+50 WL4+75

NEW PERMANENT MANUAL AIR RELEASE (MAR).

NEW CONCRETE PIPE RESTRAINT.

REMOVE TEMPORARY 10" DI END CAP AND INSTALL NEW PERMANENT 10" CLASS 52 DI WATER MAIN. CONNECT TO VALVE V1 SPOOL PIECE WITH LONG SOLID SLEEVE COUPLING.

NEW 10" X 6" DI TEE WITH 6" GATE VALVE (VALVE V5) FOR CONNECTION TO EXISTING 6" CI WATER MAIN ON MORGAN STREET.

NEW 10" DI WATER MAIN PRE-INSULATED WITH 2" URETHANE INSULATION SUSPENDED UNDER NEW BRIDGE DECKING AT SOUTH UTILITY BAY.

EXISTING 12" CI SEWER

NEW 10" X 8" DI TEE FOR CONNECTION TO EXISTING 8" DI WATER MAIN ON BEECH STREET.

NEW 10" CLASS 52 DI WATER MAIN.

NEW 45° DI ELBOWS FOR ELEVATION TRANSITION DOWNWARD

TEMPORARY CHLORINE INJECTION POINT (CIP). REMOVE WHEN NO LONGER NEEDED.

NEW CONCRETE PIPE RESTRAINT.

REMOVE TEMPORARY 10" DI END CAP AND INSTALL NEW PERMANENT 10" CLASS 52 DI WATER MAIN. CONNECT TO VALVE V2 SPOOL PIECE WITH LONG SOLID SLEEVE COUPLING.

ALL STATION REFERENCES ARE WITH RESPECT TO ROADWAY CONSTRUCTION CENTERLINE, UNLESS NOTED OTHERWISE.
WL = WATERLINE STATIONING

APPROACH SLAB LOCATIONS:
BEGIN APPROACH SLAB, STA. 12+07.10
END APPROACH SLAB, STA. 12+27.10
BEGIN APPROACH SLAB, STA. 12+88.90
END APPROACH SLAB, STA. 13+08.90

NEW WATER MAIN PROFILE

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

0 20 40
10 5 0
SCALE IN FEET

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606pro_util.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: D. CAMPBELL
WATER MAIN PROFILE

PLOT DATE: 9/21/2022
DRAWN BY: J. BURKE
CHECKED BY: J. MYERS
SHEET 65 OF 76

STA. 12+01, 3' LT.
NEW 6' I.D. SANITARY SEWER MANHOLE (SMH # 696) WITH INSIDE DROP
RIM ELEVATION = 730.47
NEW 8" SDR 35 PVC INV. IN = 719.75 (EAST)
NEW 6" SDR 35 PVC INV. IN = 726.60 (SOUTH) AT UPPER CLEANOUT INVERT
NEW 6" SDR 35 PVC INV. IN = 723.70 (SOUTH, ACTIVE MORGAN STREET SEWER MAIN) AT UPPER CLEANOUT INVERT
NEW 6" SDR 35 PVC INV. IN = 720.25 (SOUTH) AT LOWER INVERT
NEW 8" SDR 35 PVC INV. OUT = 719.70 (WEST)

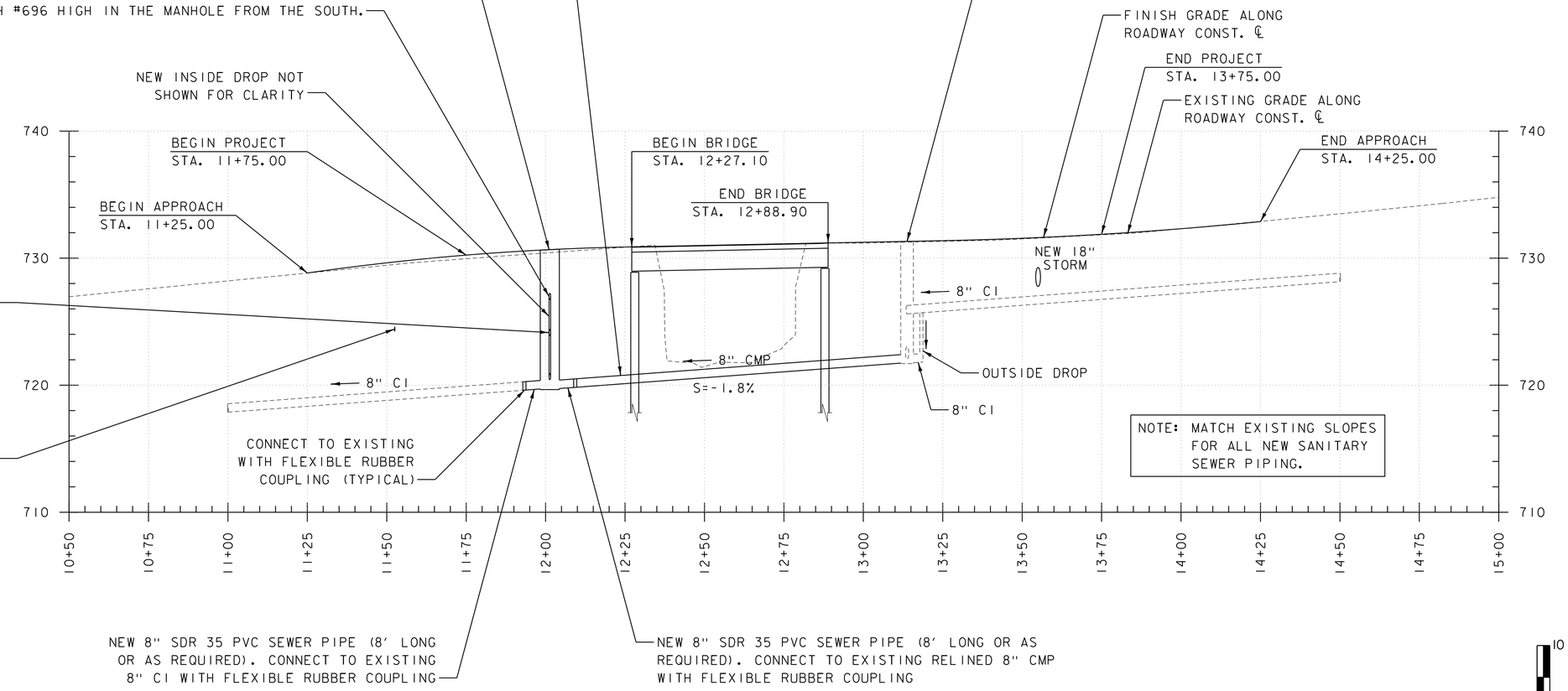
NEW 6" SDR 35 PVC SEWER PIPE (8' LONG, OR AS REQUIRED) CONNECT TO EXISTING 6" VC SEWER PIPE FROM MORGAN STREET WITH FLEXIBLE RUBBER COUPLING. FURNISH AND INSTALL NEW 6" - 45° PVC ELBOW(S) AS REQUIRED. NOTE THAT THE EXISTING 6" VC SEWER PIPE ENTERS THE EXISTING SMH #696 HIGH IN THE MANHOLE FROM THE SOUTH.

NEW INSIDE DROP NOT SHOWN FOR CLARITY

NEW 6" SDR 35 PVC SEWER PIPE (8' LONG, OR AS REQUIRED). CONNECT TO EXISTING 6" VC ACTIVE SEWER MAIN FROM MORGAN STREET WITH FLEXIBLE RUBBER COUPLING. FURNISH AND INSTALL NEW 6" - 45° PVC ELBOW(S) AS REQUIRED. NOTE THAT THE ACTIVE MORGAN STREET SEWER MAIN ENTERS THE EXISTING SMH #696 HIGH IN THE MANHOLE FROM THE WEST AND HAS TWO OR MORE ELBOWS PRIOR TO ENTRY INTO THE EXISTING MANHOLE.

STA. 12+01, LT. - STA. 13+14, LT.
LINE EXISTING 8" CMP SEWER MAIN WITH NEW CURED-IN-PLACE-PIPE LINING BETWEEN SMH #696 AND SMH #713. SEE ITEM 900.645 SPECIAL PROVISION (CURED-IN-PLACE-PIPE LINING-SEWER MAIN, ALL-INCLUSIVE) (8") FOR DETAILS.

STA. 13+14, 10' LT.
EXISTING 4' I.D. SANITARY SEWER MANHOLE (SMH # 713) WITH OUTSIDE DROP
RIM ELEVATION = 731.3
EXISTING 8" CI INV. IN = 721.8 (EAST)
EXISTING 12" CI INV. IN = 722.0 (SOUTH FROM BEECH)
EXISTING 8" CI INV. IN = 725.6 (EAST ON MAIN) AT UPPER CLEANOUT INVERT
EXISTING 8" CMP INV. OUT = 721.7 (WEST)



NOTE: MATCH EXISTING SLOPES FOR ALL NEW SANITARY SEWER PIPING.

NEW 8" SDR 35 PVC SEWER PIPE (8' LONG OR AS REQUIRED). CONNECT TO EXISTING 8" CI WITH FLEXIBLE RUBBER COUPLING

NEW 8" SDR 35 PVC SEWER PIPE (8' LONG OR AS REQUIRED). CONNECT TO EXISTING RELINED 8" CMP WITH FLEXIBLE RUBBER COUPLING

NEW SANITARY SEWER PROFILE

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

0 20 40
10 5 0
SCALE IN FEET

ALL STATION REFERENCES ARE WITH RESPECT TO ROADWAY CONSTRUCTION CENTERLINE.

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606pro_util.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: D. CAMPBELL
SANITARY SEWER PROFILE

PLOT DATE: 9/21/2022
DRAWN BY: J. BURKE
CHECKED BY: J. MYERS
SHEET 66 OF 76

TEMPORARY WATER MAINTENANCE NOTES:

1. THE PROPOSED TEMPORARY WATER MAINTENANCE PLAN CONFIGURATION DOES NOT, AND IS NOT INTENDED TO, COVER ALL REQUIREMENTS FOR MAINTAINING TEMPORARY WATER SERVICE DURING CONSTRUCTION AND IS PROVIDED TO ASSIST THE CONTRACTOR IN DEVELOPING HIS/HER COMPREHENSIVE MAINTENANCE OF WATER FLOW PLAN.

2. THE FOLLOWING IS INTENDED TO BE A SUGGESTED CONSTRUCTION SEQUENCE FOR THE MAINTENANCE OF WATER SERVICE DURING CONSTRUCTION OF WATER MAIN ISOLATION VALVE INSTALLATIONS:

- THE TOWN OF BENNINGTON WATER DISTRIBUTION SYSTEM IS 'LOOPED' IN THE AREA OF THE BRIDGE #6 CONSTRUCTION INCLUDING MAIN STREET, MORGAN STREET, AND BEECH STREET.

- INSTALL A NEW 1" PERMANENT COPPER WATER SERVICE FROM STA. 11+52, RT., TO STA. 11+80, LT., AND FROM STA. 11+79, RT., TO STA. 12+40, RT., TO THE COMMERCIAL BUILDING LOCATED AT 716 MAIN STREET AND TO THE RESIDENTIAL BUILDING LOCATED AT 731 MAIN STREET, RESPECTIVELY.

- PRIOR TO DEMOLITION OF THE EXISTING BRIDGE #6 OVER THE WALLOOMSAC RIVER ON MAIN STREET, CUT THE EXISTING 10", 8", AND 6" WATER MAINS ALONG MAIN STREET, MORGAN STREET, AND BEECH STREET IN FOUR LOCATIONS AT SEPARATE TIMES AND INSTALL ONE (1) NEW GATE VALVE AND APPURTENANCES AT EACH LOCATION FOR ISOLATION OF THE EXISTING 'LOOPED' WATER DISTRIBUTION SYSTEM DURING CONSTRUCTION OF THE NEW BRIDGE.

- CUT THE EXISTING 10" CAST IRON WATER MAIN ALONG MAIN STREET IN TWO LOCATIONS (STA. 11+60, RT. AND STA. 13+74, RT.) AND INSTALL ONE (1) NEW 10" GATE VALVES AT EACH LOCATION FOR ISOLATION OF THE EXISTING WATER DISTRIBUTION SYSTEM. NOTE THE FOLLOWING:

  - INSTALLATION OF THE NEW VALVE (V1) AT STA. 11+60, RT., MAY BE ACCOMPLISHED WITH CUSTOMER INTERRUPTION BY ISOLATING THE EXISTING 10" CI PIPE SEGMENT BY CLOSING EXISTING VALVE EX-V1, AND THE NEAREST VALVE ON MAIN STREET WESTERLY OF MORGAN STREET. NOTE THAT VALVE 'EX-V3' ON BEECH STREET REMAINS NORMALLY CLOSED.

  - INSTALLATION OF THE NEW VALVE (V2) AT STA. 13+74, RT., MAY BE ACCOMPLISHED WITHOUT CUSTOMER INTERRUPTION BY ISOLATING THE EXISTING 10" CI PIPE SEGMENT BY CLOSING EXISTING VALVES 'EX-V1', 'EX-V2', AND 'EX-V4'.

- CUT THE EXISTING 6" CAST IRON WATER MAIN ALONG MORGAN STREET IN ONE LOCATION (STA. 11+80, RT.) AND INSTALL ONE (1) NEW 6" GATE VALVE FOR ISOLATION OF THE EXISTING WATER DISTRIBUTION SYSTEM. NOTE THE FOLLOWING:

  - INSTALLATION OF THE NEW VALVE (V3) AT STA. 11+80, RT., MAY BE ACCOMPLISHED WITH CUSTOMER INTERRUPTION BY ISOLATING THE EXISTING 6" CI PIPE SEGMENT BY LEAVING EXISTING VALVE 'EX-V3' CLOSED, AND CLOSING THE NEAREST VALVE ON MORGAN STREET SOUTHERLY OF MAIN STREET.

- CUT THE EXISTING 8" DUCTILE IRON WATER MAIN ALONG BEECH STREET IN ONE LOCATION (STA. 13+40, RT.) AND INSTALL ONE (1) NEW 8" GATE VALVE FOR ISOLATION OF THE EXISTING WATER DISTRIBUTION SYSTEM. NOTE THE FOLLOWING:

  - INSTALLATION OF THE NEW VALVE (V4) AT STA. 13+40, RT., MAY BE ACCOMPLISHED WITH CUSTOMER INTERRUPTION BY ISOLATING THE EXISTING 8" DI PIPE SEGMENT BY CLOSING EXISTING VALVE 'EX-V4', AND CLOSING THE NEAREST VALVE ON BEECH STREET SOUTHERLY OF MAIN STREET.

- EACH ISOLATION VALVE INSTALLATION SHALL INCLUDE A NEW GATE VALVE, DUCTILE IRON PIPE SPOOL, CONCRETE RESTRAINT, TEMPORARY END CAP, MANUAL AIR RELEASE / TEMPORARY CHLORINATION INJECTION POINT (MAR/CIP), AND A LONG SOLID SLEEVE COUPLING FOR CONNECTION TO THE EXISTING WATER MAIN PIPING.

- ALL NEW ISOLATION VALVES SHALL BE LEFT IN THE CLOSED POSITION DURING CONSTRUCTION OF THE NEW BRIDGE AND ASSOCIATED NEW WATER MAIN.

- REMOVE EXISTING WATER MAIN PIPING AS DEPICTED ON THE DRAWINGS.

3. ALL NEW DUCTILE IRON WATER MAIN PIPE SHALL BE CLASS 52. NEW GATE VALVES SHALL BE RESILIENT WEDGE TYPE.

4. COORDINATE SYSTEM SHUTDOWN WITH THE TOWN OF BENNINGTON DEPARTMENT OF PUBLIC WORKS AND THE ENGINEER PRIOR TO SHUTDOWN AND VALVE INSTALLATIONS. A MAXIMUM SHUTDOWN PERIOD OF 4 HOURS WILL BE ALLOWED TO PERFORM THE INSTALLATION OF EACH NEW GATE VALVE, CONCRETE RESTRAINT, MAR/CIP, AND END CAP.

5. DISINFECTION OF NEW GATE VALVES, PIPING AND APPUTENANCES INSTALLED FOR MAINTENANCE OF TEMPORARY WATER SERVICE FLOWS SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C651 (LATEST EDITION).

6. ONCE THE PROJECT WORK SEGMENT HAS BEEN SUCCESSFULLY ISOLATED, REMOVE EXISTING WATER MAIN PIPE AND VALVES AS DEPICTED ON THE DRAWINGS AND CONSTRUCT NEW WATER MAIN PIPING AND APPURTENANCES.

7. UPON SUCCESSFUL PRESSURE TESTING AND DISINFECTION OF ALL NEW WATER MAIN PIPING, VALVES V1, V2, V3, AND V4 SHALL BE LEFT IN THE 'NORMALLY OPEN' POSITION. VALVE V5 SHALL BE LEFT IN THE 'NORMALLY CLOSED' POSITION.

8. PAYMENT FOR ALL WORK REQUIRED FOR TEMPORARY MAINTANENCE OF WATER FLOWS SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, WATER).

TEMPORARY SEWER MAINTENANCE NOTES:

1. THE PROPOSED TEMPORARY SEWER MAINTENANCE PLAN CONFIGURATION DOES NOT, AND IS NOT INTENDED TO, COVER ALL REQUIREMENTS FOR MAINTAINING TEMPORARY SEWER SERVICE DURING CONSTRUCTION AND IS PROVIDED TO ASSIST THE CONTRACTOR IN DEVELOPING HIS/HER COMPREHENSIVE SEWER MAINTENANCE PLAN.

2. THE FOLLOWING IS INTENDED TO BE A SUGGESTED CONSTRUCTION SEQUENCE FOR THE MAINTENANCE OF EXISTING SEWAGE FLOWS DURING CONSTRUCTION OF SEWER MAIN RELINING AND REPLACEMENT OF EXISTING SANITARY SEWER MANHOLES:

SEWER MAIN LINING FROM STA. 12+01, LT., - STA. 13+14, LT. (SMH #696 TO SMH #713)

- INSTALL ONE NEW 6" SEWER SADDLE AT STA. 11+90, LT., ON THE EXISTING 8" CI SEWER MAIN TO FACILITATE DISCHARGE OF EXISTING SEWAGE FLOWS ORIGINATING FROM SMH #713.

- INSTALL TEMPORARY 4" HDPE SEWER FORCE MAIN FROM STA. 11+90, LT, INTO SMH #713. CONNECT TEMPORARY 4" HDPE FORCE MAIN INTO NEW 6" SEWER SADDLE.

- THE CONTRACTOR SHALL NOTE THAT INSTALLATION OF THE TEMPORARY FORCE MAIN MAY BE SCHEDULED SUCH THAT THE EXISTING BRIDGE MAY BE USED TO SUPPORT THE TEMPORARY PIPING, OTHERWISE, A STEEL BEAM MAY BE REQUIRED TO SUPPORT THE PIPING ACROSS THE WALLOOMSAC RIVER. AT NO TIME SHALL ACTIVE TEMPORARY SEWER PIPING BE ALLOWED TO BE LAYED IN THE RIVER BED.

- FURNISH TRAILER MOUNTED SUBMERSIBLE BYPASS PUMP SIZED APPROPRIATLY TO HANDLE ALL ANTICIPATED UPSTREAM SEWAGE FLOWS. PUMP SHALL REMAIN IN SERVICE 24 HOURS/DAY AND 7 DAYS/WEEK DURING LINING OF EXISTING 8" CMP SEWER MAIN LOCATED UNDER THE WALLOOMSAC RIVER AND REPLACEMENT OF SMH #696. PROTECT TRAILER MOUNTED PUMP AND ASSOCIATED PIPING FROM VEHICULAR TRAFFIC AT ALL TIMES. SEE SPECIAL PROVISIONS FOR DETAIL.

- INSTALL BARRIER INSIDE SMH #713 TO PREVENT FLOW INTO THE EXISTING DOWNSTREAM 8" CMP.

- LINE EXISTING 8" CMP SEWER MAIN BETWEEN SMH #696 TO SMH #713 FROM STA. 12+01, LT., - STA. 13+14, LT.

REPLACEMENT OF EXISTING SANITARY SEWER MANHOLE SMH #696 AT STA. 12+01, LT.

- INSTALL ONE NEW 6" SEWER SADDLE AT STA. 11+95, LT., ON TH EXISTING 8" CI SEWER MAIN TO FACILITATE DISCHARGE OF EXISTING SEWAGE FLOWS ORIGINATING FROM MORGAN STREET INCLUDING UPLAND SMH #697.

- INSTALL NEW TEMPORARY 6" SDR 35 PVC SEWER PIPE FROM STA. 11+95, LT. - STA. 11+98, RT. CONNECT TO EXISTING 6" CI SEWER MAIN AND NEW 6" SEWER SADDLE.

- PROVIDE FOR 6" X 6" PVC WYE AS REQUIRED TO CONNECT IN EXISTING 6" VC SEWER PIPE ENTERING HIGH INTO SMH #696 FROM THE SOUTHWEST.

- REMOVE EXISTING SMH #696 AND ANCILLARY PIPING AS REQUIRED.

- INSTALL NEW SMH #696 AND RECONNECT ALL ACTIVE PIPING.

DEMOBILIZE TEMPORARY SANITARY SEWER PIPING

- UPON SUCCESSFUL INSTALLATION AND TESTING OF SMH #696 AND THE RELINED 8" SEWER PIPE, REMOVE TEMPORARY 6" SDR 35 GRAVITY PIPING, 4" HDPE FORCE MAIN PIPING, BARRIER WALL WITHIN SMH #713, AND TEMPORARY BYPASS PUMP. INSTALL CAPPED STUB AT EACH OF THE 6" SEWER SADDLES AND CONCRETE ENCASE BOTH 6" SEWER SADDLES PRIOR TO FINAL BACKFILL.

3. PAYMENT FOR ALL WORK REQUIRED FOR TEMPORARY MAINTANENCE OF EXISTING SEWAGE FLOWS AS NOTED ABOVE (EXCLUDING INSTALLATION OF THE NEW SMH #696) INCLUDING BYPASS PUMPING AND PUMP MAINTENANCE, INSTALLATION OF TEMPORARY GRAVITY AND FORCE MAIN PIPING, BARRIER WALLS, SEWER SADDLES, COUPLINGS, CONCRETE, AND APPURTENANCES AS REQUIRED TO COMPLETE THE WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645, SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, SEWER).

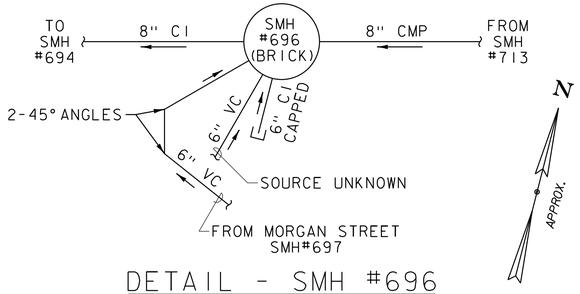
Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME:	z12j606utildets.dgn
PROJECT LEADER:	T. KNIGHT
DESIGNED BY:	D. CAMPBELL
TEMPORARY WATER & SEWER DETAILS I	
PLOT DATE:	9/21/2022
DRAWN BY:	J. BURKE
CHECKED BY:	J. MYERS
SHEET	67 OF 76

SANITARY SEWER MANHOLE SMH #696

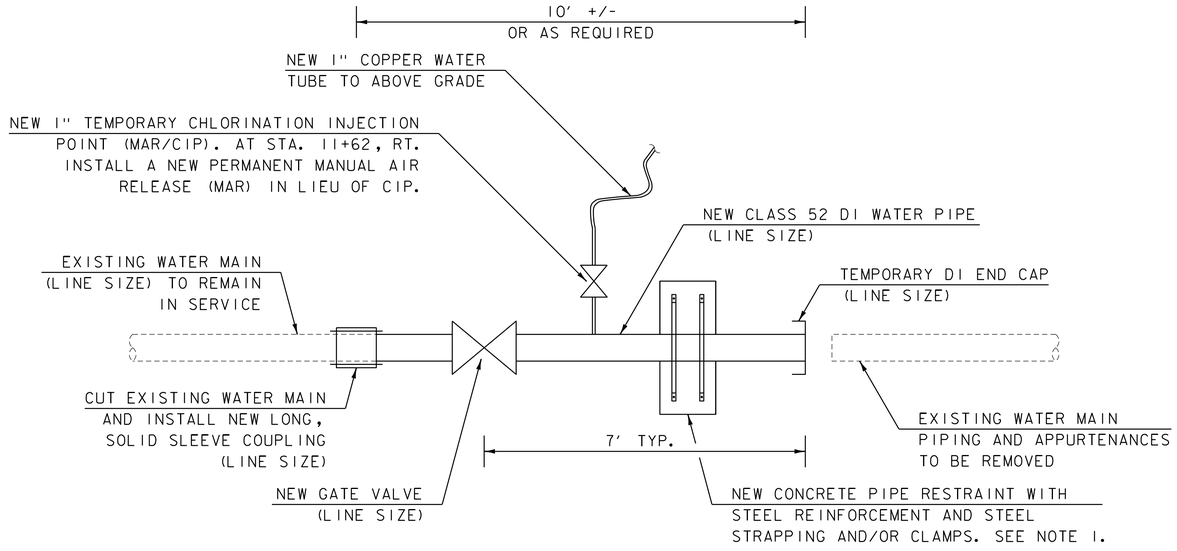
LOCATION: WEST SIDE OF BRIDGE AT MAIN STREET/MORGAN STREET INTERSECTION

PIPE SIZE & ORIENTATION	INV. EL. (FT)
SURVEYED RIM ELEV.	730.5
8" CI INV. IN (EAST FROM MAIN)	719.7
6" CI INV. IN (SOUTH FROM MORGAN) NOTE: PIPE IS CAPPED	720.0
6" VC INV. IN (WEST ON MAIN) HIGH w/2+/- ELBOWS FROM MORGAN	723.9
6" VC INV. IN (SOUTHWEST FROM MORGAN) VERY HIGH	726.7
8" CI INV. OUT (WEST ON MAIN)	719.7



DETAIL - SMH #696

NOT TO SCALE



DETAIL - TYPICAL WATER MAIN ISOLATION VALVE INSTALLATION

NOT TO SCALE

NOTE: LINE SIZES: 10", TYPICAL OF 2 LOCATIONS
8", TYPICAL OF 1 LOCATION
6", TYPICAL OF 1 LOCATION

NOTES:

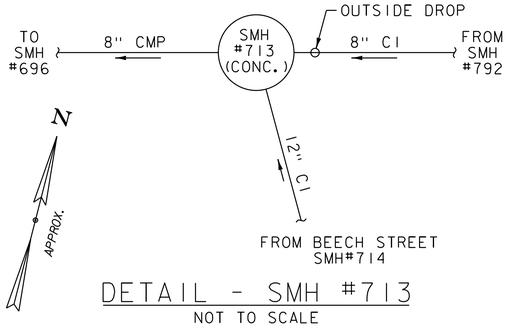
1. THE CONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS FOR ALL NEW CONCRETE PIPE RESTRAINTS INCLUDING DESIGN COMPUTATIONS FOR OVERALL CONCRETE BLOCK SIZING, STEEL REINFORCEMENT, STEEL STRAPPING AND/OR CLAMPING, AND PLACEMENT LOCATION OF THE CONCRETE BLOCK WITH RESPECT TO THE CORRESPONDING GATE VALVE AND WATER MAIN END CAP AS DEPICTED ON THE DRAWINGS. ALL COMPUTATIONS SHALL BE STAMPED BY A LICENSED PROFESSIONAL STRUCTURAL OR CIVIL ENGINEER REGISTERED IN THE STATE OF VERMONT. SUBMITTALS SHALL BE REVIEWED BY THE ENGINEER FOR CONFORMANCE IN ACCORDANCE WITH SECTION 105.03(b)(2)b. OF THE STANDARD SPECIFICATIONS.
2. NORMAL WATER PRESSURE AT THE MAIN STREET BRIDGE #6 IS APPROXIMATELY 110 PSI.
3. PAYMENT FOR NEW CONCRETE PIPE RESTRAINTS SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645, SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, WATER).
4. PAYMENT FOR NEW PERMANENT DUCTILE IRON WATER PIPE SHALL BE MADE UNDER ITEM 900.640, SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE) (LINE SIZE).
5. PAYMENT FOR NEW LONG SOLID SLEEVE AND TEMPORARY DUCTILE IRON END CAP SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645, SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE) (LINE SIZE).
6. PAYMENT FOR NEW TEMPORARY CHLORINATION INJECTION POINT (MAR/CIP) AND REMOVAL OF EXISTING WATER MAIN PIPING AND APPURTENANCES SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645, SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, WATER).

SANITARY SEWER MANHOLE SMH #713

LOCATION: EAST SIDE OF BRIDGE AT MAIN STREET/BEECH STREET INTERSECTION

PIPE SIZE & ORIENTATION	INV. EL. (FT)
SURVEYED RIM ELEV.	731.3
8" CI INV. IN (EAST FROM MAIN)	721.8
12" CI INV. IN (SOUTH FROM BEECH)	722.0
8" CI INV. IN (EAST ON MAIN) HIGH, AT UPPER CLEANOUT INVERT	725.6
8" CI INV. OUT (WEST ON MAIN)	721.7

NOTE: DISTANCE BETWEEN MANHOLES IS APPROXIMATELY 112.5 FEET.

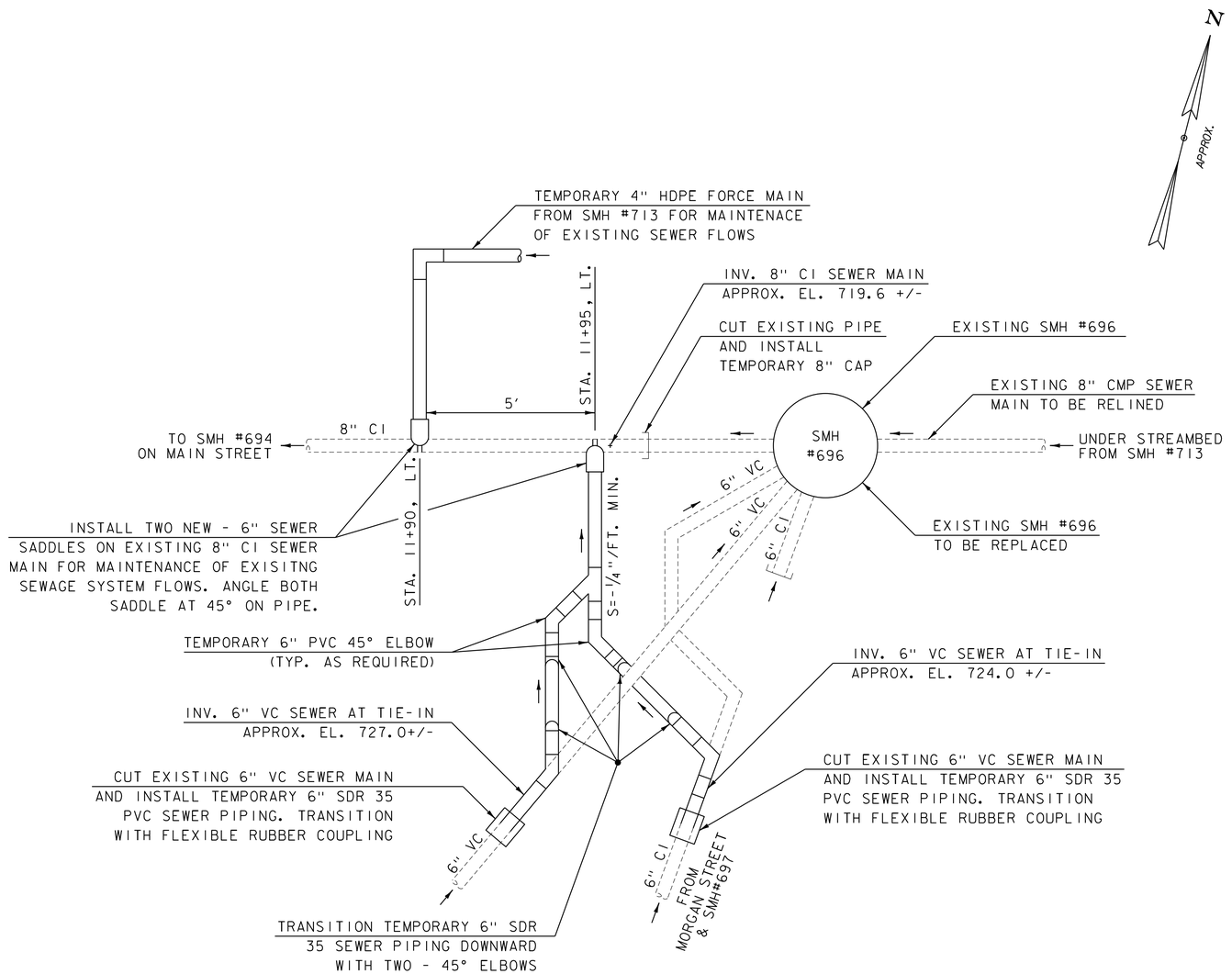


DETAIL - SMH #713

NOT TO SCALE

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: zi2j606utildets.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: J. BURKE
DESIGNED BY: D. CAMPBELL	CHECKED BY: J. MYERS
TEMPORARY WATER & SEWER DETAILS 2	SHEET 68 OF 76



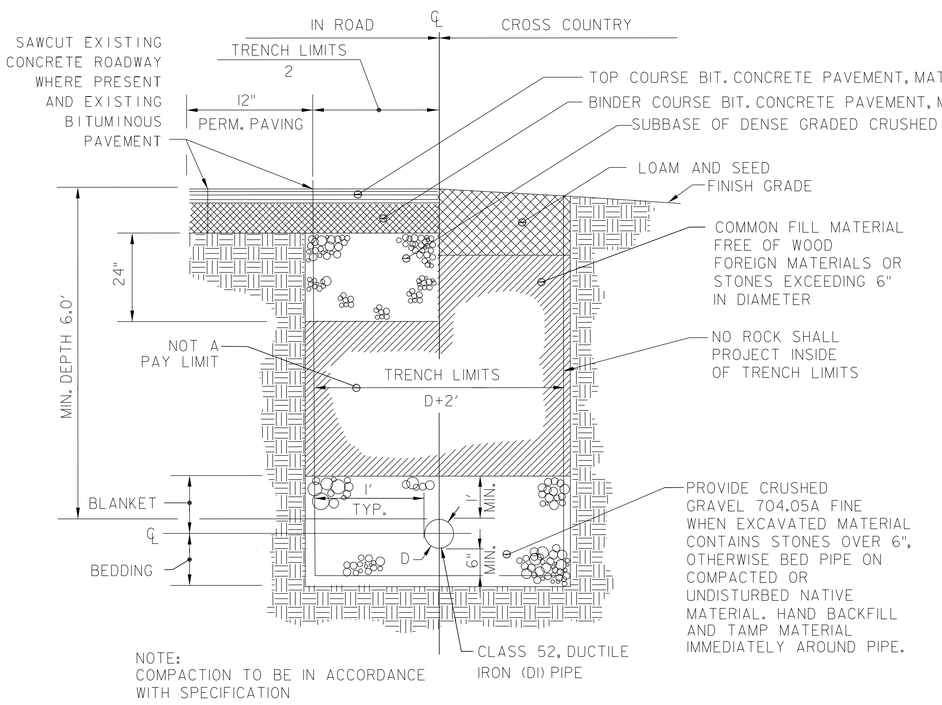
SUGGESTED TEMPORARY SEWER BYPASS PIPING AT SMH #696

NOT TO SCALE

NOTE: PAYMENT FOR ALL WORK REQUIRED FOR MAINTENANCE OF EXISTING SEWER FLOWS SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, SEWER).

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606utildets.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: J. BURKE
DESIGNED BY: D. CAMPBELL	CHECKED BY: J. MYERS
TEMPORARY WATER & SEWER DETAILS 3	SHEET 69 OF 76

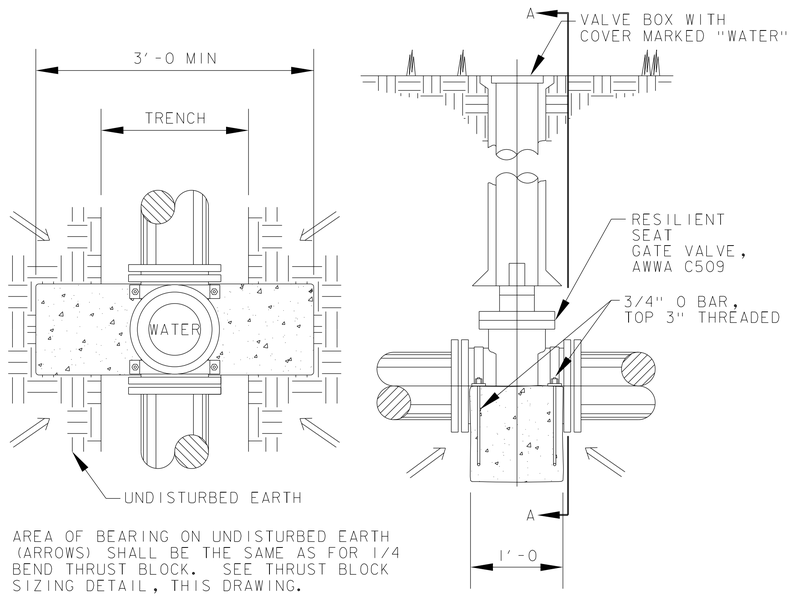


NOTES:

1. PAYMENT FOR SAWCUTTING OF EXISTING CONCRETE ROADWAY AND EXISTING BITUMINOUS PAVEMENT WILL BE CONSIDERED INCIDENTAL TO ITEM 900.640 SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL INCLUSIVE).
2. PAYMENT FOR FURNISHING AND INSTALLING POLYSTYRENE INSULATION IN CASES WHERE THE WATER PIPE DEPTH IS LESS THAN 6'-0" IN DEPTH WILL BE CONSIDERED INCIDENTAL TO ITEM 900.640 SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL INCLUSIVE).
3. PAYMENT FOR PERMANENT DUCTILE IRON WATER PIPE WILL BE MADE UNDER ITEM 900.640. SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT LINED, ALL INCLUSIVE).
4. PAYMENT FOR REMOVAL OF EXISTING CONCRETE ROADWAY WHERE PRESENT SHALL BE MADE UNDER ITEM 203.16, SOLID ROCK EXCAVATION.
5. PAYMENT FOR TRENCH EXCAVATION OF EARTH SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.640 SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE).
6. PAYMENT FOR REMOVAL OF SOLID ROCK OR BOULDERS GREATER THAN ICY SHALL BE MADE UNDER ITEM 203.16 SOLID ROCK EXCAVATION.

TYPICAL PERMANENT DUCTILE IRON TRENCH DETAIL

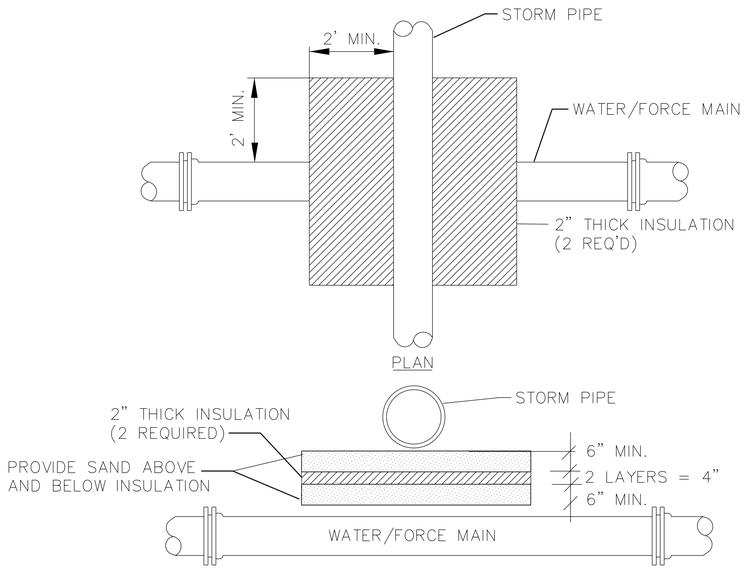
NOT TO SCALE



PAYMENT FOR VALVE ANCHOR RESTRAINTS WILL BE CONSIDERED INCIDENTAL TO ITEM 900.620, SPECIAL PROVISION (GATE VALVE WITH VALVE BOX, ALL INCLUSIVE) (SIZE).

VALVE ANCHOR RESTRAINT DETAILS

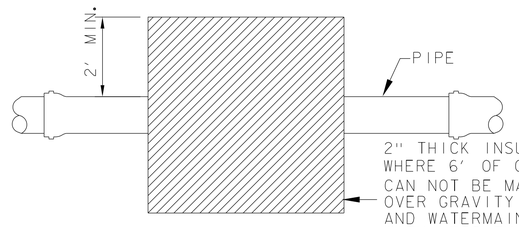
NOT TO SCALE



SECTION

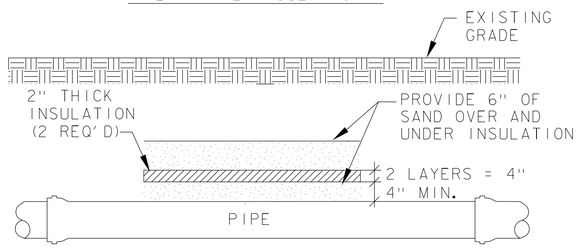
STORM SEWER CROSSING INSULATION DETAIL

NOT TO SCALE



2" THICK INSULATION (2 LAYERS REQ'D=4") WHERE 6' OF COVER OVER WATER MAIN OR FORCEMAIN CAN NOT BE MAINTAINED, WHERE 5' OF COVER OVER GRAVITY SEWER CAN NOT BE MAINTAINED, AND WATERMAIN/FORCEMAIN/STORM PIPE CROSSINGS WITH LESS THAN 2' VERTICAL CLEARANCE AND WHERE SPECIFIED ON PLANS OR PROFILES

PLAN-PIPE INSULATION



SECTION-PIPE INSULATION

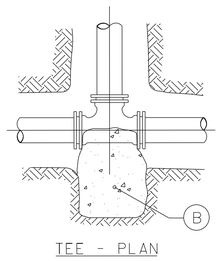
RIGID BOARD INSULATION

NOT TO SCALE

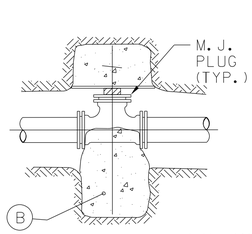
NOTE:
PAYMENT FOR POLYSTYRENE RIGID BOARD INSULATION AND SAND BEDDING WILL BE CONSIDERED INCIDENTAL TO ITEM 900.640, SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT LINED, ALL INCLUSIVE)

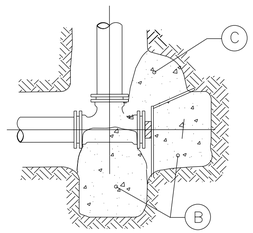
Stantec

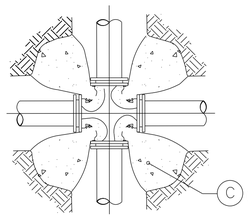
PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606utildets.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: J. BURKE
DESIGNED BY: D. CAMPBELL	CHECKED BY: J. MYERS
WATER DETAILS 1	SHEET 70 OF 76



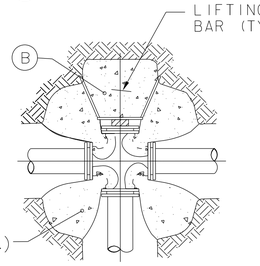
TEE - PLAN

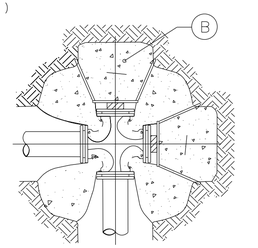


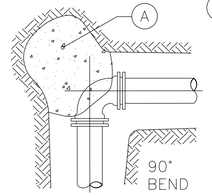




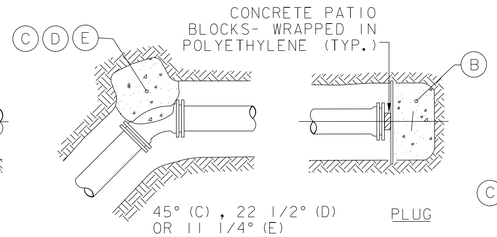
CROSS - PLAN



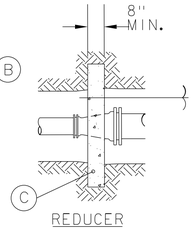




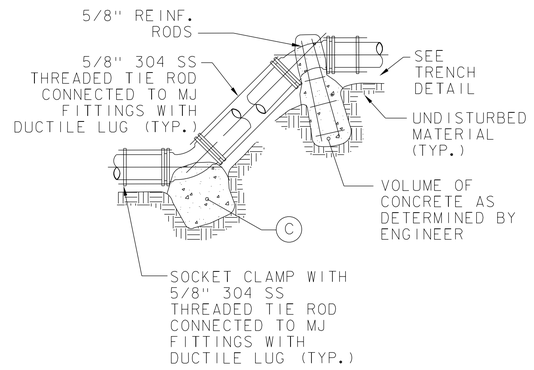
BENDS - PLAN



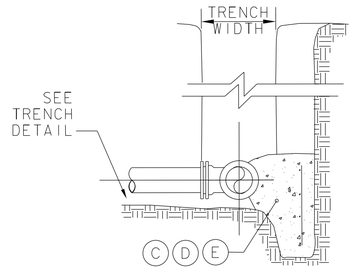
PLUG



REDUCER



VERTICAL BENDS - SECTION



TEE OR BEND - SECTION

THRUST BLOCK DETAILS

NOT TO SCALE

THRUST BLOCK SCHEDULE
SQUARE FEET OF CONCRETE THRUST
BLOCKING BEARING ON UNDISTURBED MATERIAL

REACTION TYPE		PIPE SIZE											
		4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"
TEST PRESSURE = 100 PSIG	(A)	0.89	2.19	3.92	5.57	8.62	10.91	15.41	18.02	24.06	34.64	53.83	77.39
	(B)	0.65	1.55	2.76	4.19	6.09	8.37	10.89	13.87	17.01	24.49	38.06	54.72
	(C)	0.48	1.19	2.12	3.01	4.66	5.91	8.34	9.71	13.02	18.75	29.13	41.88
	(D)	0.25	0.60	1.08	1.54	2.37	3.01	4.25	4.97	6.64	9.56	14.85	21.35
	(E)	0.13	0.30	0.54	0.77	1.19	1.52	2.12	2.51	3.33	4.79	7.45	10.71
OTHER TEST PRESSURES FOR THE ABOVE REACTIONS		TEST PRESSURE TO BE 200 PSI MIN. AT LOW END OF THE TEST SECTION. SEE SPECIAL PROVISIONS FOR ADDITIONAL DETAIL. SQUARE FEET OF CONCRETE THRUST BLOCKING FOR OTHER TEST PRESSURES IS DIRECTLY PROPORTIONAL TO THE ABOVE TABLE. FOR INSTANCE, AT 200 PSI TEST PRESSURE FOR ABOVE NUMBERS DOUBLE.											

NOTES:

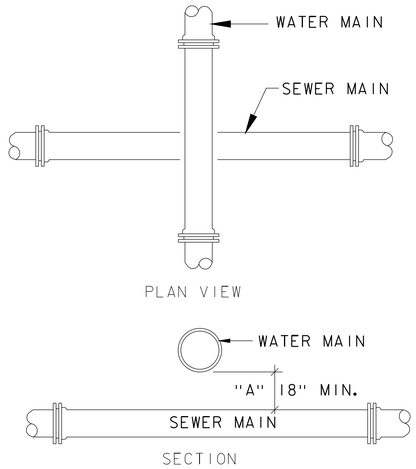
1. THRUST BLOCKS SHALL BE CONSTRUCTED WITH CLASS B CONCRETE. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL. WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
2. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
3. PLACE CONCRETE PATIO BLOCKS IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCK.
4. REQUIREMENTS OF THE ABOVE TABLE PRESUME MINIMUM SOIL BEARING OF ONE TON PER SQUARE FOOT=13.9 psi, AND MAY BE VARIED BY THE ENGINEER TO MEET OTHER CONDITIONS ENCOUNTERED.
5. RETAINER GLANDS ARE REQUIRED FOR ALL MECHANICAL JOINTS. THESE GLANDS DO NOT REDUCE THE REQUIREMENTS FOR THRUST RESTRAINT.
6. ALL FITTINGS SHALL BE WRAPPED IN POLYETHYLENE OR BUILDING PAPER PRIOR TO INSTALLATION OF CONCRETE RESTRAINT.
7. THREADED ROD SHALL BE ANSI A242 FY50 PIPE RESTRAINT NUTS TO MATCH AWWA C111. THREADED RODS AND NUTS TO BE FIELD COATED WITH BITUMINOUS PAINT.
8. THRUST RESTRAINT IS REQUIRED FOR ALL TEES, BENDS, REDUCERS, CAPS, PLUGS, OR CROSSES. ALL BENDS LESS THAN 22.5 DEGREES SHALL BE RESTRAINED BY USE OF RETAINER GLANDS AT EACH BEND, AND AT ALL JOINTS WITHIN THREE(3) PIPE LENGTHS ON EACH SIDE OF THE BEND WITH DUCTILE IRON PIPE JOINT RESTRAINT HARNESSES.
9. INSTALL LIFT HOOKS INTO THRUST BLOCKS AT END CAPS AND PLUGS.
10. PAYMENT FOR THRUST RESTRAINT INCLUDING CONCRETE, RETAINER GLANDS, JOINT RESTRAINT HARNESSES, AND REINFORCED THREADED RODS SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.640 SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE)

Stantec

PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606utildets.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: D. CAMPBELL
WATER DETAILS 2

PLOT DATE: 9/21/2022
DRAWN BY: J. BURKE
CHECKED BY: J. MYERS
SHEET 71 OF 76



CONSTRUCTION RESTRICTIONS

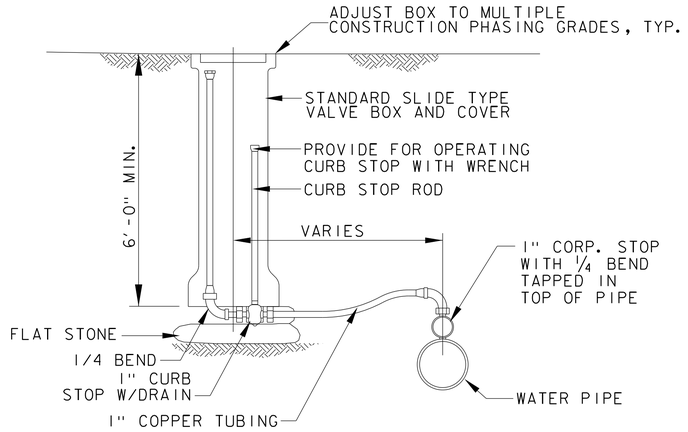
1. IN ALL NEW CONSTRUCTION, DIMENSION "A" SHALL NEVER BE LESS THAN 18 INCHES FOR WATERLINE AND SANITARY SEWER CROSSING, AND NEVER LESS THAN 18 INCHES FOR WATERLINE AND STORM DRAIN CROSSING.

2. WITH ALL NEW CONSTRUCTION, THE CROSSING SHALL BE ARRANGED AS SHOWN IN THE DIAGRAM, SO THAT THE SEWER OR STORM JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS.

3. IF THE WATER MAIN MUST PASS BENEATH THE SEWER OR STORM DRAIN IN NEW CONSTRUCTION, THEN ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER OR STORM. THE FIRST SEWER PIPE JOINT ON EACH SIDE OF THE WATER MAIN SHALL BE CONCRETE ENCASED.

WATER AND SEWER CROSSING

NOT TO SCALE



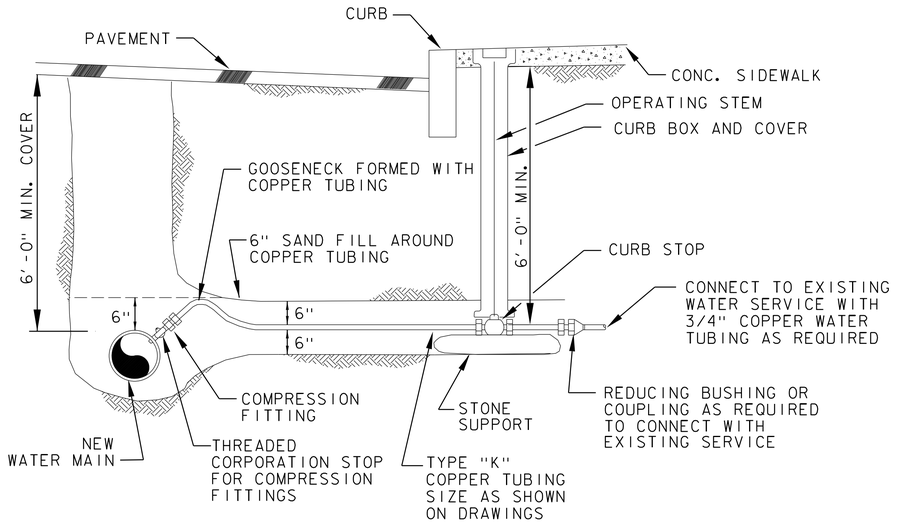
NOTES:

1. PAYMENT FOR PERMANENT MANUAL AIR RELEASE WILL BE MADE UNDER ITEM 900.620, SPECIAL PROVISION (PERMANENT MANUAL AIR RELEASE, ALL INCLUSIVE).

2. PAYMENT FOR TEMPORARY CHLORINATION INJECTION POINT WILL BE CONSIDERED INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (TRANSFER TO NEW SYSTEM, WATER).

TYPICAL INSTALLATION FOR PERMANENT MANUAL AIR RELEASE AND TEMPORARY CHLORINATION INJECTION POINT (MAR/CIP)

NOT TO SCALE



NOTES:

1. PAYMENT FOR EXTENSION SERVICE BOX AND CURB STOP WILL BE MADE UNDER ITEM 900.620 SPECIAL PROVISION (EXTENSION SERVICE BOX AND CURB STOP, ALL INCLUSIVE) (1").

2. PAYMENT FOR CORPORATION STOP WILL BE MADE UNDER ITEM 900.620 SPECIAL PROVISION (CORPORATION STOP, ALL INCLUSIVE) (1").

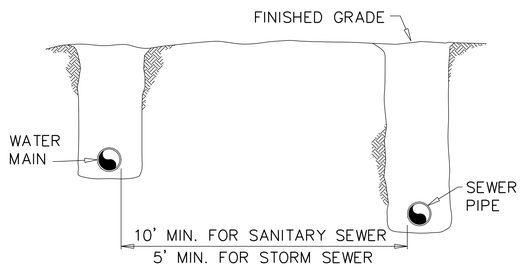
3. PAYMENT FOR SEAMLESS COPPER TUBING WILL BE MADE UNDER ITEM 900.640 SPECIAL PROVISION (SEAMLESS COPPER WATER TUBE, ALL INCLUSIVE) (1") AND ITEM 900.640 SPECIAL PROVISION (SEAMLESS COPPER WATER TUBE, ALL-INCLUSIVE) (3/4").

4. PAYMENT FOR TRENCH EXCAVATION OF EARTH SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.640 SPECIAL PROVISION (SEAMLESS COPPER WATER TUBE, ALL-INCLUSIVE).

5. PAYMENT FOR SAWCUTTING OF EXISTING CONCRETE ROADWAY WHERE PRESENT AND EXISTING BITUMINOUS PAVEMENT SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.640 SPECIAL PROVISION (SEAMLESS COPPER WATER TUBE, ALL-INCLUSIVE).

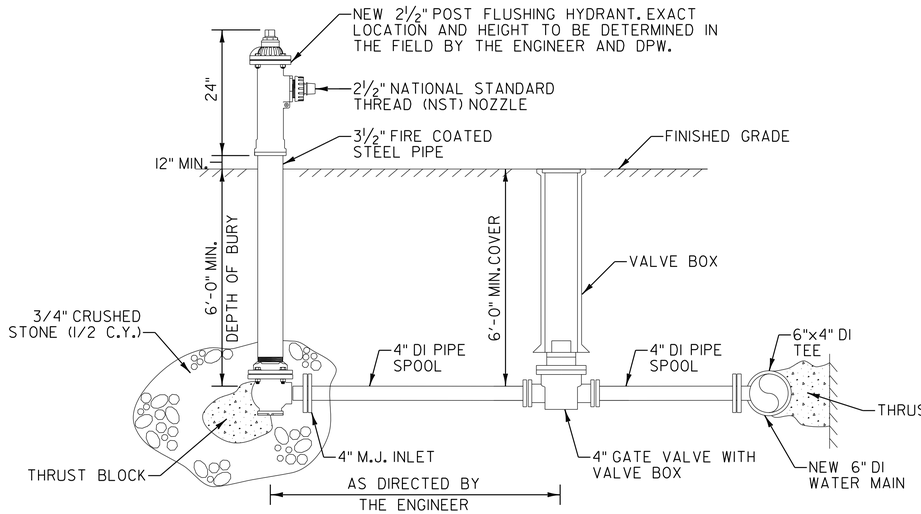
TYPICAL WATER SERVICE CONNECTION

NOT TO SCALE



SEWER-WATER PARALLEL INSTALLATION

NOT TO SCALE



POST FLUSHING HYDRANT DETAIL

NOT TO SCALE

NOTES:

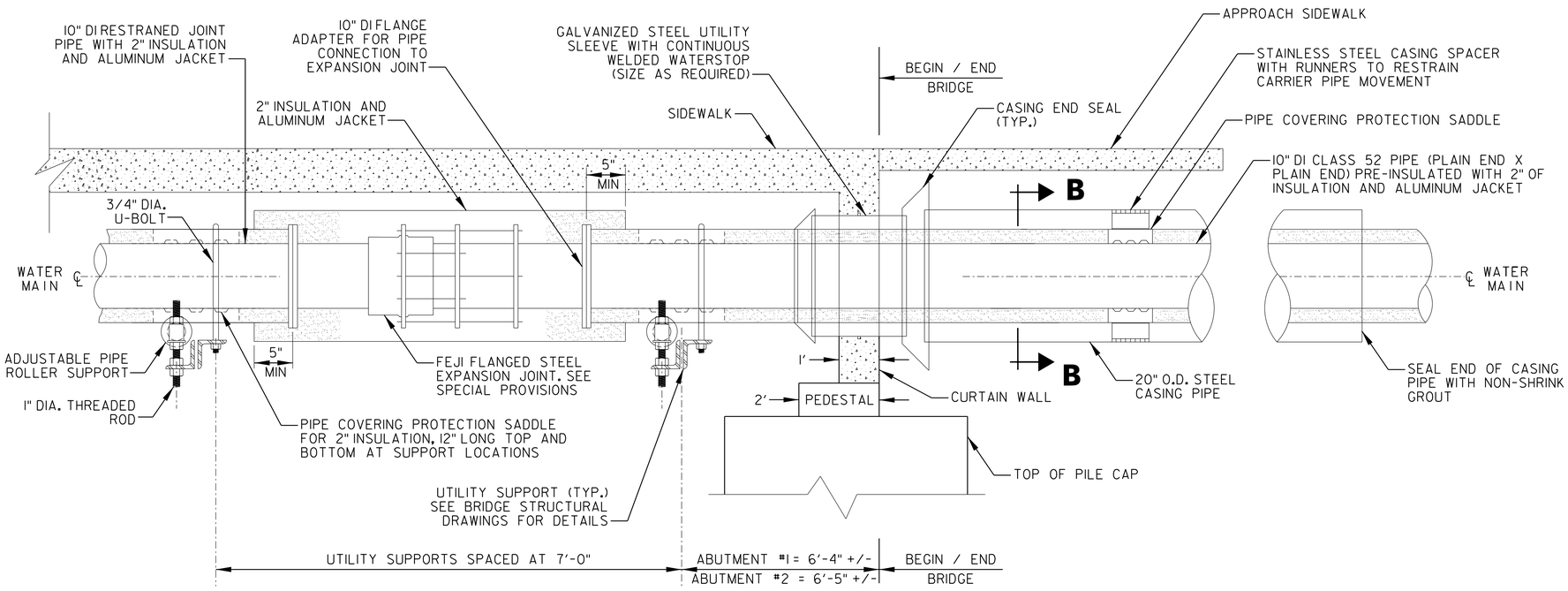
1. PAYMENT FOR NEW 4" GATE VALVE SHALL BE MADE UNDER ITEM 900.620 SPECIAL PROVISION (GATE VALVE WITH VALVE BOX, ALL-INCLUSIVE) (4").

2. PAYMENT FOR 4" DI PIPE SHALL BE MADE UNDER ITEM 900.640 SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT LINED, ALL INCLUSIVE) (4")

3. PAYMENT FOR FLUSHING HYDRANT SHALL BE MADE UNDER ITEM 900.620 SPECIAL PROVISION (POST FLUSHING HYDRANT, ALL INCLUSIVE)

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606utildets.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: J. BURKE
DESIGNED BY: D. CAMPBELL	CHECKED BY: J. MYERS
WATER DETAILS 3	SHEET 72 OF 76



SECTION A-A: EXPANSION JOINT AND SUPPORT DETAIL

NOT TO SCALE

NOTES:

1. ALL STRUCTURAL STEEL FOR UTILITY SUPPORTS SHALL CONFORM TO AASHTO M270M/M270 GRADE 50W. ALL STRUCTURAL STEEL AND FASTENERS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M 111 AND M 232.

2. ALL PIPE FITTINGS, RESTRAINED JOINTS, AND EXPANSION JOINTS WILL BE INSTALLED WITH 2" THICK PRE-INSULATED URETHANE PIPE INSULATION WITH ALUMINUM JACKET.

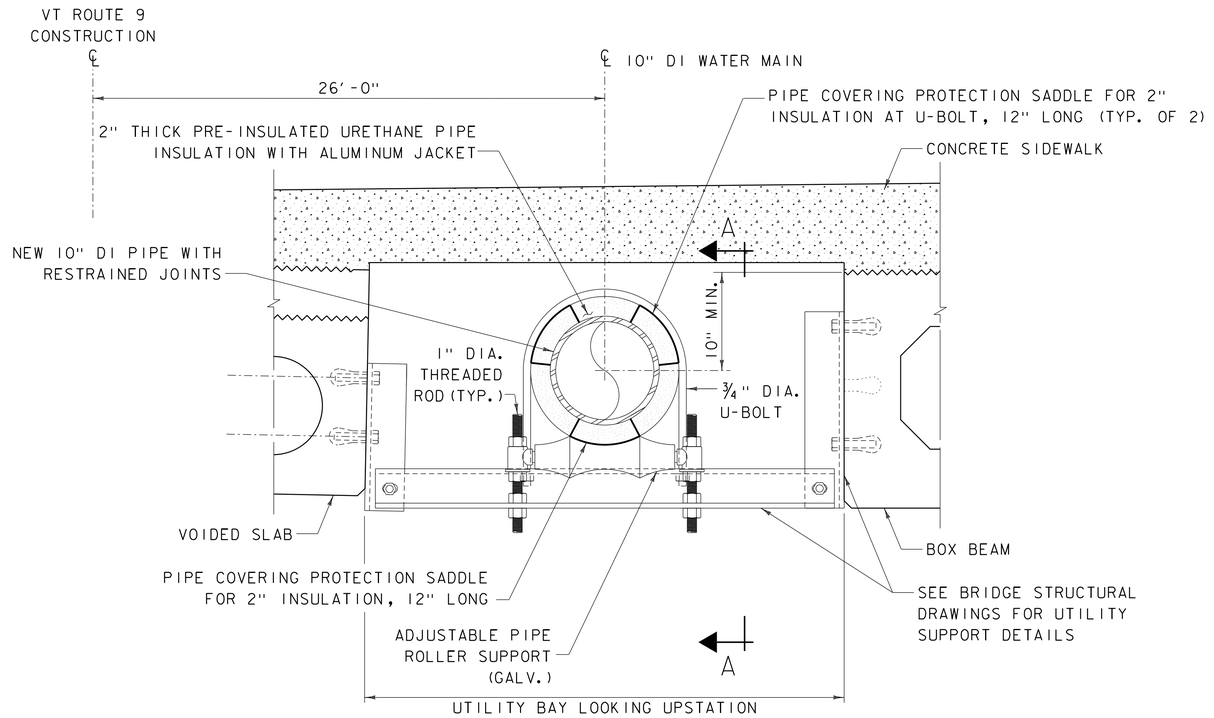
3. CONTRACTOR SHALL CONFIRM FLANGED EXPANSION JOINT CONNECTION PRIOR TO ORDERING MATERIALS.

4. PAYMENT FOR NEW BRIDGE PIPE SUPPORTS INCLUDING PIPE AND INSULATION WILL BE MADE UNDER ITEM 900.645, SPECIAL PROVISION (WATER MAIN ON BRIDGE) (10")

GENERAL NOTES:

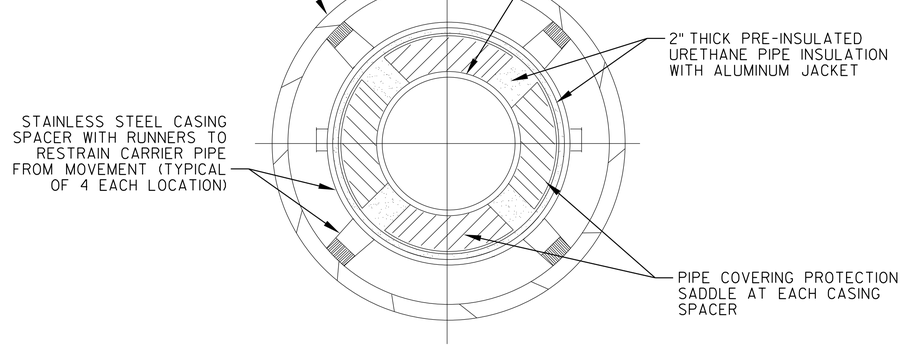
1. INFORMATION ON THIS SHEET SHOULD ONLY BE CONSTRUED TO REPRESENT WATER MAIN AND APPURTENANCES. OTHER INFORMATION SHOWING STRUCTURAL ITEMS, IS SHOWN ONLY FOR RELATIVE RELATIONSHIPS ONLY. THIS INFORMATION SHOULD BE OBTAINED FROM OTHER DRAWINGS.

2. DUCTILE IRON PIPE FOR BRIDGE CROSSING SHALL BE ANSI/AWWA C151/A21.51, CLASS 52, CEMENT LINED WITH SEAL COATING INSIDE AND OUTSIDE. PIPE SHALL BE RESTRAINED JOINT PIPE. JOINTS SHALL BE LAYED OUT TO AVOID HANGER LOCATIONS WITH PIPE LENGTHS MODIFIED, IF NECESSARY.



BRIDGE PIPE SUPPORT DETAIL

NOT TO SCALE



NOTES:

1. INSTALL 3 STAINLESS STEEL SPACERS INSIDE STEEL CASING PIPE PER LENGTH OF DUCTILE IRON PIPE AT BOTH ENDS OF BRIDGE.

2. PAYMENT FOR STEEL CASING PIPE INCLUDING DI WATER PIPE AND INSULATION WILL BE MADE UNDER ITEM 900.645, SPECIAL PROVISION (WATER MAIN ON BRIDGE) (10")

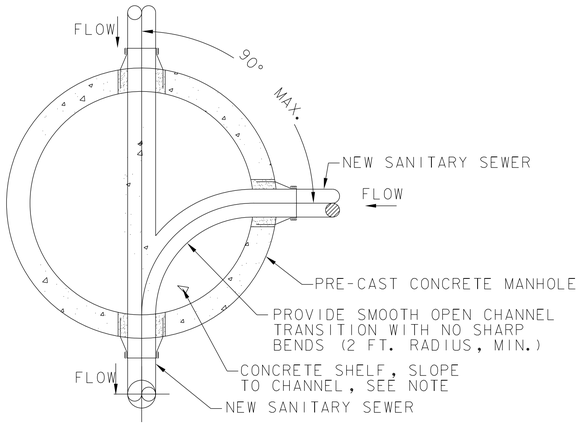
SECTION B-B: STEEL SLEEVE UNDER CONCRETE SIDEWALK

NOT TO SCALE

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)

Stantec

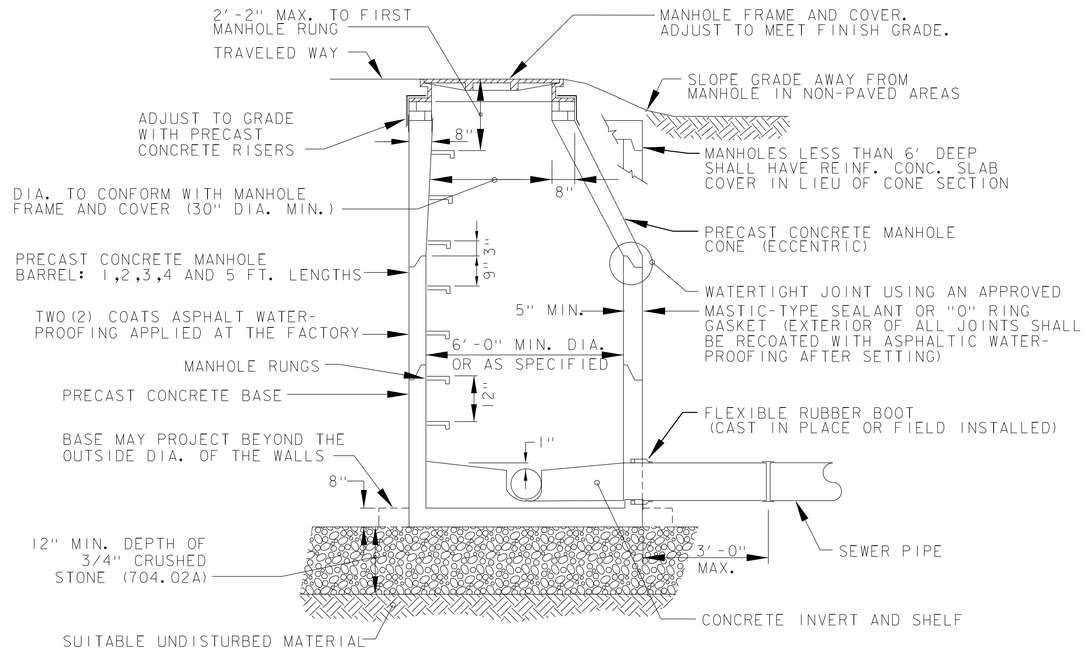
FILE NAME: z12j606utildets.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: G. BARRETT
DESIGNED BY: D. CAMPBELL	CHECKED BY: J. MYERS
WATER DETAILS 4	SHEET 73 OF 76



NOTE:
SHELVES SHALL BE CONSTRUCTED OF CLASS B CONCRETE, IN ACCORDANCE WITH SECTION 541 OF THE STANDARD SPECIFICATIONS. INVERTS FOR SEWER MANHOLES SHALL BE AS SHOWN ON THE PLANS AND DETAILS, AND SHALL BE CONSTRUCTED OF CLASS B CONCRETE. OR FOR STRAIGHT RUNS, THE INVERT SHALL BE SEGMENTS OF PIPE CUT IN HALF LONGITUDINALLY. INVERTS SHALL HAVE THE EXACT SHAPE AND SLOPE TO THAT OF THE SEWER TO WHICH THEY ARE CONNECTED. ANY CHANGE IN SIZE OR DIRECTION SHALL BE GRADUAL AND EVEN.

TYPICAL SANITARY SEWER MANHOLE CHANNEL

NOT TO SCALE



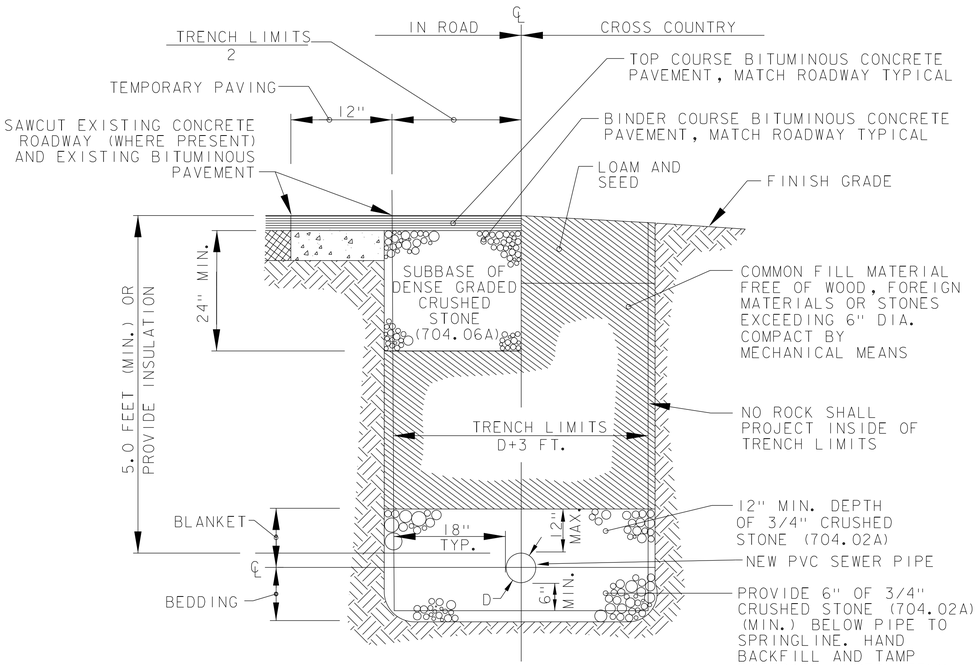
PRECAST CONCRETE SANITARY SEWER MANHOLE

NOT TO SCALE

PAYMENT FOR NEW PRECAST CONCRETE SANITARY SEWER MANHOLE WILL BE MADE UNDER ITEM 900.620 SPECIAL PROVISION (SANITARY SEWER MANHOLE WITH INSIDE DROP, ALL-INCLUSIVE) (6' I.D.).

NOTES:

1. MANHOLE STRUCTURE TO BE CAPABLE OF SUPPORTING AASHTO H-20 LOADING.
2. PAYMENT FOR TRENCH EXCAVATION OF EARTH SHALL BE INCIDENTAL TO ITEM 900.620 SPECIAL PROVISION (SANITARY SEWER MANHOLE WITH INSIDE DROP, ALL-INCLUSIVE) (6' I.D.).
3. PAYMENT FOR REMOVAL OF SOLID ROCK OR BOULDERS GREATER THAN 1 CY SHALL BE MADE UNDER ITEM 203.16, SOLID ROCK EXCAVATION.



PVC SEWER PIPE TYPICAL TRENCH DETAIL

NOT TO SCALE

PAYMENT FOR NEW PVC SEWER PIPE WILL BE MADE UNDER ITEM 900.640 SPECIAL PROVISION (SDR 35 PVC SEWER PIPE, ALL-INCLUSIVE), RESPECTIVE OF THE PVC SEWER PIPE SIZE INSTALLED.

NOTES:

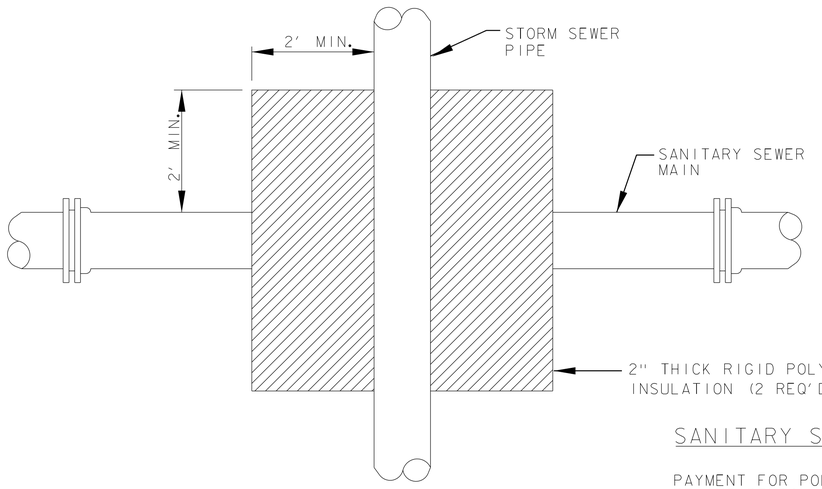
1. PAYMENT FOR SAWCUTTING OF EXISTING CONCRETE ROADWAY AND EXISTING BITUMINOUS PAVEMENT SHALL BE CONSIDERED INCIDENTAL TO PVC SEWER PIPE, ALL-INCLUSIVE, ITEMS NOTED BELOW LEFT.
2. PAYMENT FOR FURNISHING AND INSTALLING FOUR INCH THICK POLYSTYRENE INSULATION IN CASES WHERE THE SEWER PIPE DEPTH IS LESS THAN 5'-0", SHALL BE CONSIDERED INCIDENTAL TO PVC SEWER PIPE, ALL-INCLUSIVE, ITEMS NOTED BELOW LEFT.
3. PAYMENT FOR TRENCH EXCAVATION OF EARTH SHALL BE CONSIDERED INCIDENTAL TO PVC SEWER PIPE, ALL-INCLUSIVE, ITEMS NOTED BELOW LEFT.
4. PAYMENT FOR REMOVAL OF SOLID ROCK OR BOULDERS GREATER THAN 1 CY SHALL BE MADE UNDER ITEM 203.16, SOLID ROCK EXCAVATION.
5. PAYMENT FOR REMOVAL OF EXISTING CONCRETE ROADWAY WHERE PRESENT WILL BE MADE UNDER ITEM 203.16, SOLID ROCK EXCAVATION.
6. COMPACTION TO BE IN ACCORDANCE WITH SPECIAL PROVISION.

Stantec

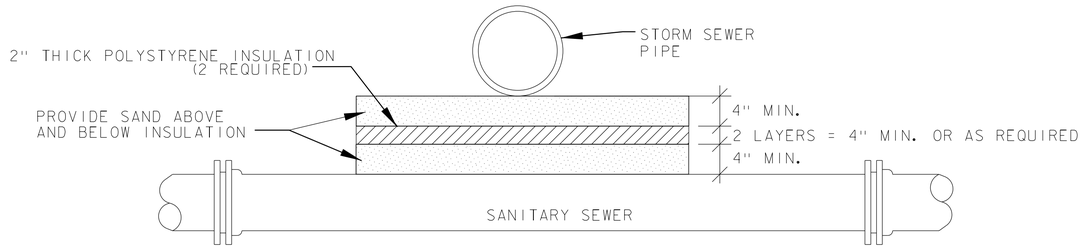
PROJECT NAME: BENNINGTON
PROJECT NUMBER: BF 1000(20)

FILE NAME: z12j606utildets.dgn
PROJECT LEADER: T. KNIGHT
DESIGNED BY: D. CAMPBELL
SEWER DETAILS 1

PLOT DATE: 9/21/2022
DRAWN BY: J. BURKE
CHECKED BY: J. MYERS
SHEET 74 OF 76



PLAN



SECTION

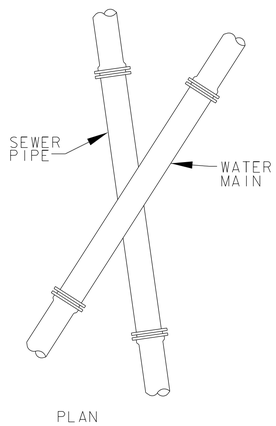
SANITARY SEWER INSULATION DETAIL

NOT TO SCALE

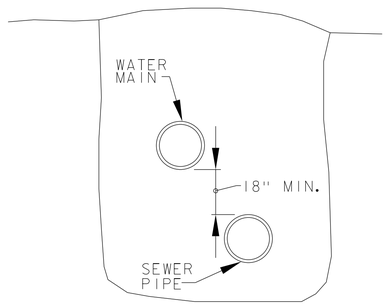
PAYMENT FOR POLYSTYRENE INSULATION AND SAND BLANKET ARE TO BE INCIDENTAL TO PVC SEWER PIPE, ALL-INCLUSIVE, ITEMS.

NOTES:

1. SAND BLANKET MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 703.03 AND POLYSTYRENE INSULATION BOARD SHALL MEET THE REQUIREMENTS OF SUBSECTION 735.01 AS STATED IN THE VTRANS STANDARD SPECIFICATIONS FOR CONSTRUCTION.
2. INSTALL TWO INCH THICK INSULATION (TWO LAYERS REQ. D=FOUR INCH) WHERE FIVE FOOT OF COVER OVER GRAVITY SEWER CAN NOT BE MAINTAINED, AND SEWER MAIN/STORM PIPE CROSSINGS WITH LESS THAN TWO FOOT VERTICAL CLEARANCE AND WHERE SPECIFIED ON PLANS OR PROFILES.



PLAN



SECTION

NOTE:

SEWERS CROSSING WATER MAINS SHALL BE LAID BENEATH THE WATER MAIN WITH AT LEAST 18 INCHES VERTICAL CLEARANCE BETWEEN THE OUTSIDE OF THE SEWER AND THE OUTSIDE OF THE WATER MAIN. WHEN IT IS IMPOSSIBLE TO MAINTAIN THE 18" VERTICAL SEPARATION:

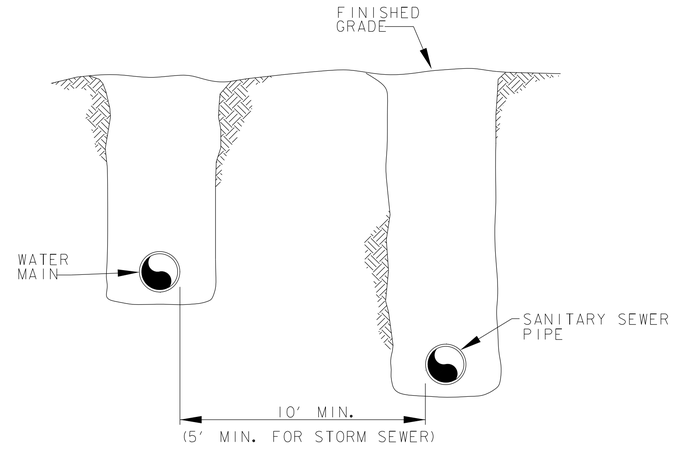
1) THE CROSSING SHALL BE ARRANGED SO THAT ONE FULL LENGTH OF SEWER PIPE IS CENTERED ABOVE OR BELOW THE WATER LINE WITH SEWER JOINTS AS FAR AS POSSIBLE FROM WATER JOINTS;
2) THE SEWER PIPE MUST BE CONSTRUCTED TO WATER MAIN STANDARDS FOR A MINIMUM DISTANCE OF 20 FEET EITHER SIDE OF THE CROSSING OR A TOTAL OF THREE PIPE LENGTHS, WHICHEVER IS GREATER;
3) THE SECTION CONSTRUCTED TO WATER MAIN STANDARDS MUST BE PRESSURE TESTED TO MAINTAIN 50 PSI FOR 15 MINUTES WITHOUT LEAKAGE PRIOR TO BACKFILLING BEYOND ONE FOOT ABOVE THE PIPE TO ASSURE WATER TIGHTNESS;
4) WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE WATER MAIN.

SEWER PIPE AND WATER MAIN CROSSING

NOT TO SCALE

NOTE:

SEWER PIPE SHALL MEAN SANITARY SEWER PIPE OR STORM SEWER PIPE.

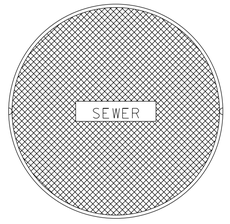


SEWER-WATER PARALLEL INSTALLATION

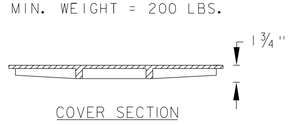
NOT TO SCALE

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606utildets.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: J. BURKE
DESIGNED BY: D. CAMPBELL	CHECKED BY: J. MYERS
SEWER DETAILS 2	SHEET 75 OF 76



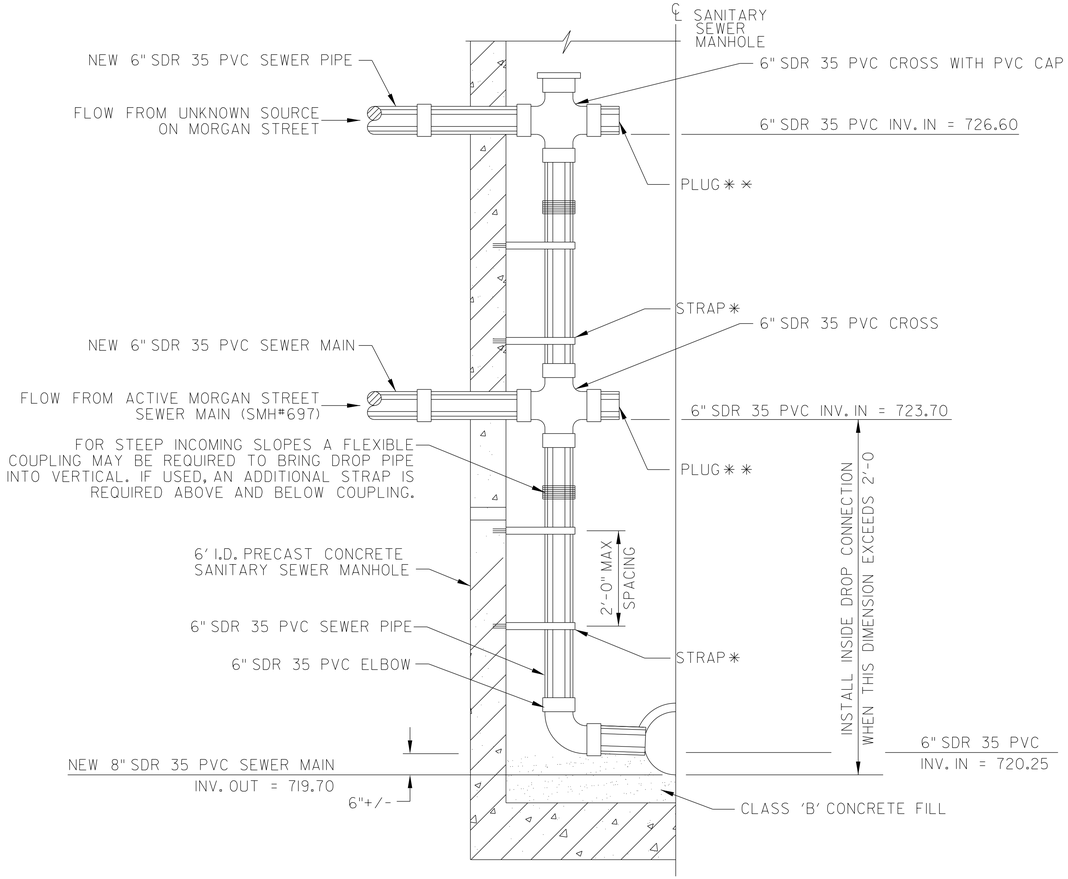
COVER PLATE
MIN. WEIGHT = 200 LBS.



COVER SECTION

FRAME SECTION
MIN. WEIGHT = 350 LBS.

SANITARY SEWER MANHOLE FRAME AND COVER DETAIL
NOT TO SCALE



* 1/2" THICK X 2" WIDE 316 S.S. STRAP ANCHORED TO WALL WITH (2) 5/8" DIA. X3" MIN. EMBEDMENT HEX HEAD ANCHOR BOLTS.

* * REMOVEABLE EXPANDING PLUG WITH MIN. (3) -1" DIAMETER HOLES IN UPPER HALF TO VENT.

INSIDE DROP MANHOLE DETAIL
NOT TO SCALE

NOTE: PAYMENT FOR ALL INTERIOR PVC PIPING, FITTINGS, FLEXIBLE COUPLINGS, STRAPS, ANCHORS, CONCRETE FOR INVERT, AND APPURTENANCES SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.620 SPECIAL PROVISION (SANITARY SEWER MANHOLE WITH INSIDE DROP, ALL INCLUSIVE) (6' I.D.).

Stantec

PROJECT NAME:	BENNINGTON
PROJECT NUMBER:	BF 1000(20)
FILE NAME: z12j606utildets.dgn	PLOT DATE: 9/21/2022
PROJECT LEADER: T. KNIGHT	DRAWN BY: J. BURKE
DESIGNED BY: D. CAMPBELL	CHECKED BY: J. MYERS
SEWER DETAILS 3	SHEET 76 OF 76