REVIEWER NOTES

1. THE BRIDGE WILL BE CLOSED FOR A MAXIMUM OF SIX WEEKS WHILE TRAFFIC IS MAINTAINED ON AN OFFSITE DETOUR. ONE-WAY ALTERNATING MAY BE REQUIRED FOR SOME WORK AFTER CLOSURE PERIOD. SIGNALS MAY BE REQUIRED.

2. PEDESTRIAN AND NON-MOTORIZED VEHICLE TRAFFIC WILL BE ACCOMMODATED USING LOCAL BYPASS ROUTES.

3. RIGHT-OF-WAY ACQUISITION WILL BE NECESSARY.

4. RELOCATION OF AERIAL UTILITIES WILL BE

5. THE UNDERGROUND WATER MAIN WILL NEED TO BE SUPPORTED DURING CONSTRUCTION.

6. A SIMPLIFIED PAVEMENT DESIGN HAS BEEN UTILIZED FOR THIS PROJECT.

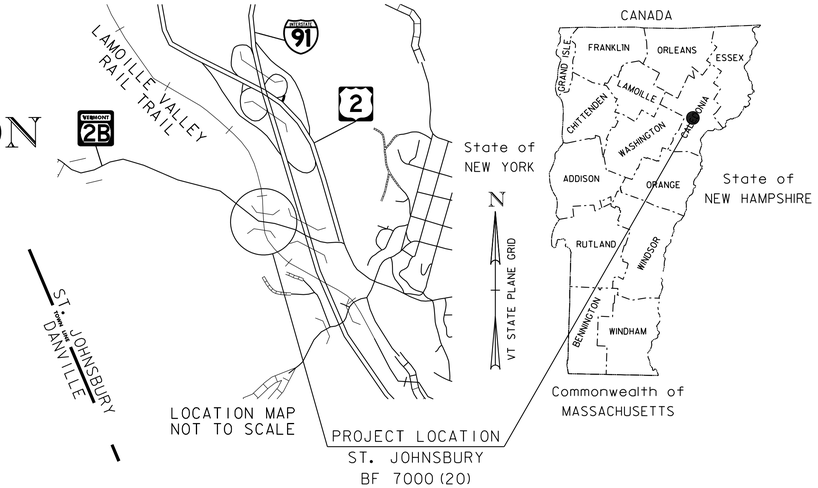
7. THIS PROJECT IS BEING DESIGNED AND BUILT AS A CATEGORY II EXPERIMENTAL PROJECT UTILIZING BIG-R BRIDGE VIST-A-WALL MECHANICALLY STABILIZED EARTH RETAINING SYSTEM AND BIG R BRIDGE SUPER-COR BURIED METAL STRUCTURAL PLATE ARCH.

8. THIS STRUCTURE SPANS A RAIL TRAIL. THERE IS CURRENTLY NO RAIL, TIES, OR BALLAST PRESENT. HOWEVER, CLEARANCES FOR SUCH MUST BE MAINTAINED SHOULD THE RAILROAD CHOOSE TO REACTIVATE THIS LINE.

9. THE RAIL TRAIL PROJECT HAS GONE HROUGH THE SITE SINCE THE INITIAL SURVEY WAS COMPLETED. ADDITIONAL SURVEY WAS OBTAINED AND IT WAS DETERMINED THAT THE RAIL TRAIL DID NOT FOLLOW THE HISTORIC RAILROAD ALIGNMENT. THEREFORE, THE STRUCTURE WAS CENTERED ON THE HISTORIC RAILROAD ALIGNMENT AND THE RAIL TRAIL AS CURRENTLY BUILT WAS WIDENED TO ACCOMMODATE THE POSSIBLE FUTURE RAILROAD.

10. PER VTRANS SCOPING REPORT DATED OCTOBER 4, 2013, LOW SPEED URBAN CHARTS WERE USED FOR SUPERELEVATION RATES TO MATCH THE EXISTING CURVES.

# STATE OF VERMONT
# AGENCY OF TRANSPORTATION




# PROPOSED IMPROVEMENT
# BRIDGE PROJECT

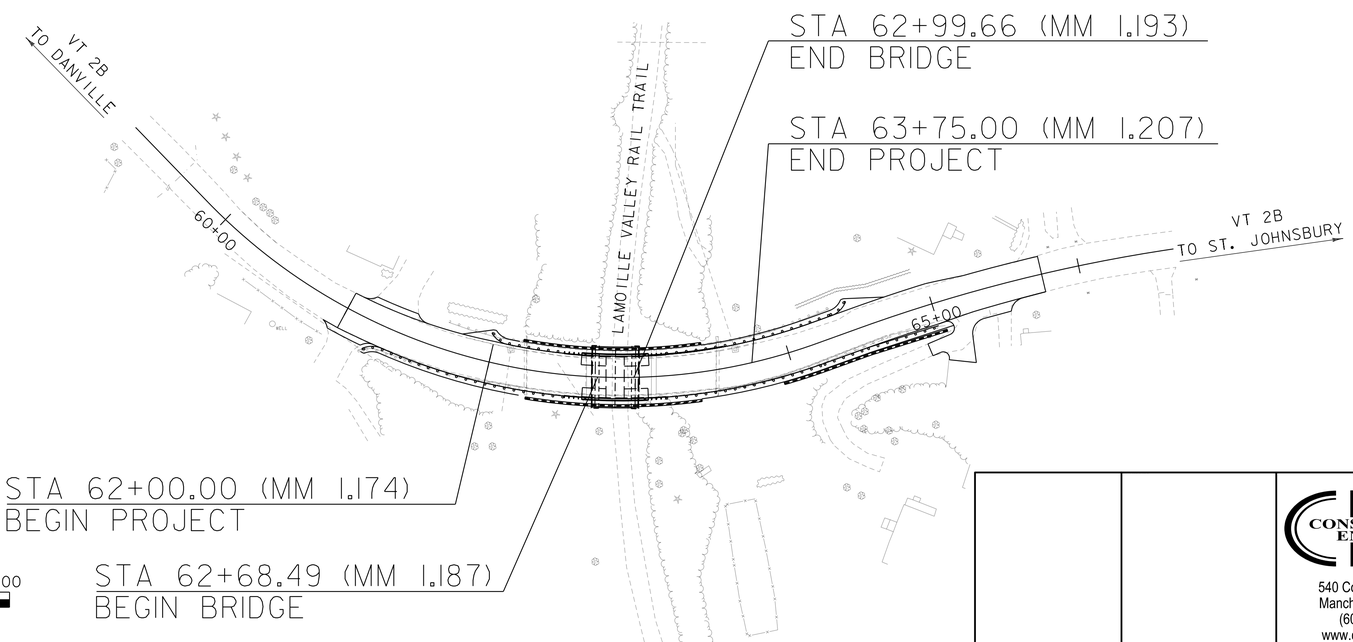
## TOWN OF ST. JOHNSBURY
## COUNTY OF CALEDONIA

## VT ROUTE 2B (URBAN MINOR ARTERIAL) BRIDGE NO. 6

PROJECT LOCATION: LOCATED IN THE TOWN OF ST. JOHNSBURY ON VT ROUTE 2B, APPROXIMATELY 0.353 MILES WESTERLY OF THE INTERSECTION OF US ROUTE 2 AND VT ROUTE 2B AND EXTENDING APPROXIMATELY 175 FEET TO THE END.

PROJECT DESCRIPTION: WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES REPLACEMENT OF THE EXISTING STRUCTURE WITH A NEW STRUCTURE INCLUDING RELATED ROADWAY AND RAIL TRAIL WORK.

LENGTH OF STRUCTURE: 31.17 FEET
LENGTH OF ROADWAY: 143.83 FEET
LENGTH OF PROJECT: 175.00 FEET




N
VT STATE PLANE GRID

# ST. JOHNSBURY
# BF 7000(20)
# PRELIMINARY PLANS
MAY 4, 2015

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL 2

SURVEYED BY : VTRANS
SURVEYED DATE : 03/26/2013 & 7/22/2014

DATUM
VERTICAL NAVD88
HORIZONTAL NAD 83 (96)

0 50 100
SCALE IN FEET


CONSULTING ENGINEERS
540 Commercial Street
Manchester, NH 03101
(603) 668-8223
www.cldengineers.com


DIRECTOR OF PROJECT DELIVERY
APPROVED _____ DATE _____

PROJECT MANAGER : JENNIFER FITCH, P.E.

PROJECT NAME : ST. JOHNSBURY
PROJECT NUMBER : BF 7000(20)

SHEET 1 OF 42 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 BRIDGE SECTIONS |
| 4 | TYPICAL ROADWAY SECTIONS |
| 5 | MATERIAL TRANSITION DIAGRAM |
| 6 | TYPICAL EARTHWORK SECTIONS |
| 7 | CONVENTIONAL SYMBOLOGY LEGEND SHEET |
| 8 - 9 | TIE SHEETS |
| 10 | LAYOUT SHEET |
| 11 | VT 2B PROFILE AND BANKING DIAGRAM |
| 12 | DETOUR MAP |
| 13 | DETOUR SIGNS AND NOTES |
| 14 | TRAFFIC CONTROL SHEET |
| 15 | UTILITY RELOCATION SHEET |
| 16 | BORING INFORMATION SHEET |
| 17 - 20 | BORING LOGS |
| 21 | PLAN AND ELEVATION |
| 22 - 27 | VT 2B CROSS SECTIONS |
| 28 - 34 | RAIL TRAIL SECTIONS |
| 35 | STONE LINED DITCH CROSS SECTIONS |
| 36 | EPSC NARRATIVE |
| 37 - 39 | EPSC PLAN SHEETS |
| 40 - 42 | EPSC DETAILS |


### STANDARDS LIST

## FINAL HYDRAULIC REPORT

### TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON AN OFF SITE DETOUR.
2. TRAFFIC SIGNALS MAY BE NECESSARY TO ACCOMMODATE ONE-WAY ALTERNATING TRAFFIC POST CLOSURE PERIOD.
3. SIDEWALKS ARE NOT NECESSARY

### DESIGN VALUES

| | | | |
|---|---|---|---|
| 1. | DESIGN LIVE LOAD | | HL-93 |
| 2. | FUTURE PAVEMENT | $d_p$: | 3.0 INCH |
| 3. | DESIGN SPAN | $L$: | 30.25 FT |
| 4. | MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS) | $\Delta$: | - - - |
| 5. | PRESTRESSING STRAND | $f_y$: | - - - |
| 6. | PRESTRESSED CONCRETE STRENGTH | $f'_c$: | - - - |
| 7. | PRESTRESSED CONCRETE RELEASE STRENGTH | $f'_{ci}$: | - - - |
| 8. | CONCRETE, HIGH PERFORMANCE CLASS AA | $f'_c$: | 4.0 KSI |
| 9. | CONCRETE, HIGH PERFORMANCE CLASS A | $f'_c$: | 4.0 KSI |
| 10. | CONCRETE, HIGH PERFORMANCE CLASS B | $f'_c$: | 3.5 KSI |
| 11. | CONCRETE, CLASS C | $f'_c$: | 3.0 KSI |
| 12. | REINFORCING STEEL | $f_y$: | 60 KSI |
| 13. | STRUCTURAL STEEL AASHTO M270 | $f_y$: | - - - |
| 14. | NOMINAL BEARING RESISTANCE OF SOIL | $q_n$: | 4.5 KSF |
| 15. | SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) | $\phi$: | 0.45 |
| 16. | NOMINAL BEARING RESISTANCE OF ROCK | $q_n$: | - - - |
| 17. | ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) | $\phi$: | - - - |
| 18. | PILE RESISTANCE FACTOR | $\phi$: | - - - |
| 19. | LATERAL PILE DEFLECTION | $\Delta$: | - - - |
| 20. | BASIC WIND SPEED | $V_{3s}$: | - - - |
| 21. | MINIMUM GROUND SNOW LOAD | $p_g$: | - - - |
| 22. | SEISMIC DATA | $PGA$: 0 | $S_s$: - - - |
| | | | $S_1$: - - - |
| 23. | | | |
| 24. | | | - - - |
| 25. | | | - - - |
| 26. | | | - - - |

### LRFR LOAD RATING FACTORS

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

### AS BUILT "REBAR" DETAIL

| LEVEL I | LEVEL II | LEVEL III |
|---|---|---|
| TYPE: | TYPE: | TYPE: |
| GRADE: | GRADE: | GRADE: |

### TRAFFIC DATA

| YEAR | ADT | DHV | % D | % T | ADTT |
|---|---|---|---|---|---|
| 2016 | 820 | 85 | 50 | 1.6 | 20 |
| 2036 | 860 | 90 | 50 | 2.2 | 30 |

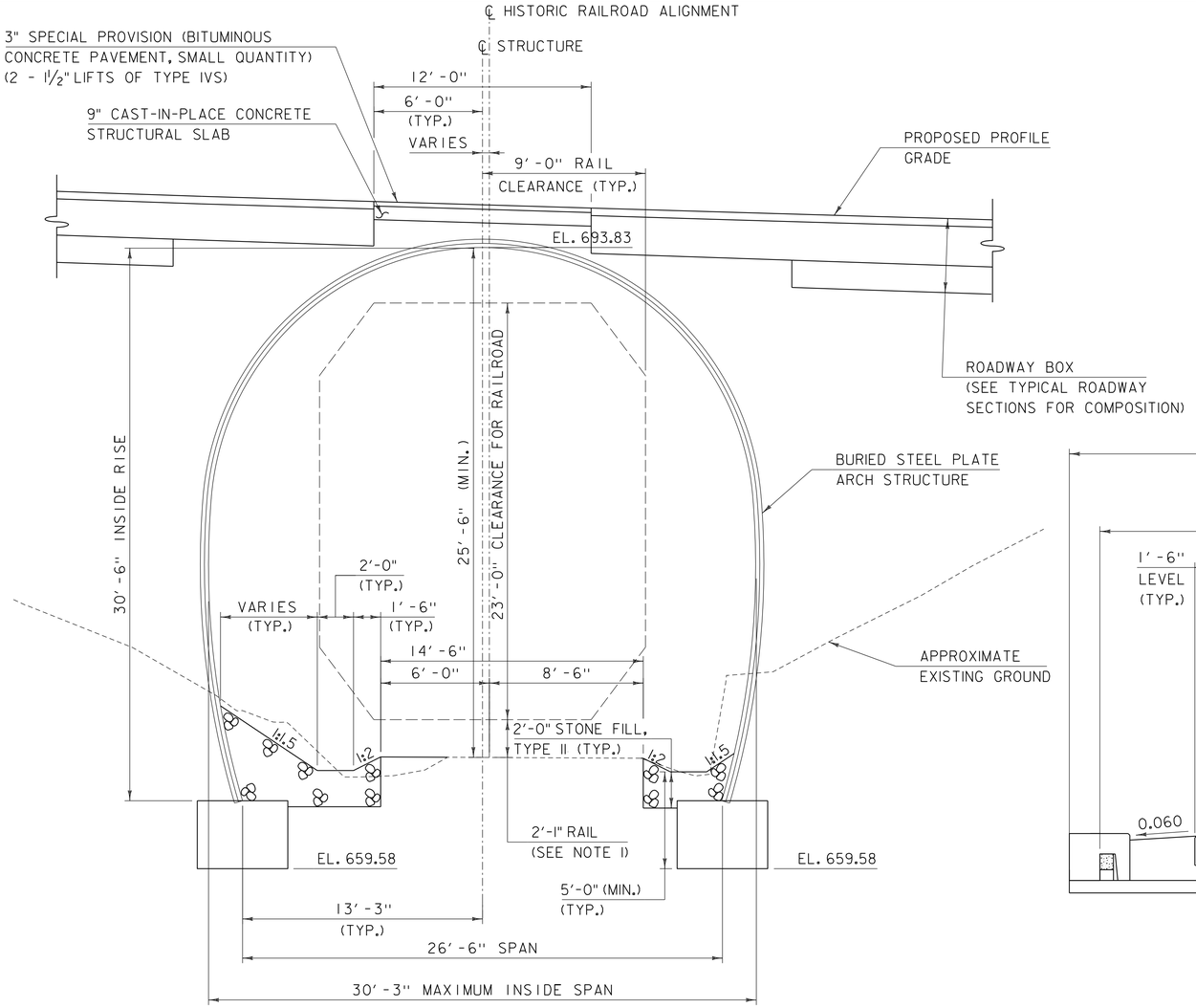
20 year ESAL for flexible pavement from 2016 to 2036 : 147000
40 year ESAL for flexible pavement from 2016 to 2056 : 341000
Design Speed : 35 mph

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BF 7000(20)

FILE NAME: 86e048/cos/z86e048pi.dgn
PROJECT LEADER: J.BYATT
DESIGNED BY: A.GIRALDI
PRELIMINARY INFORMATION SHEET

PLOT DATE: 5/4/2015
DRAWN BY: M.SMITH
CHECKED BY: S.BEAUMONT
SHEET 2 OF 42

MODEL: PI
CLD 14-0116



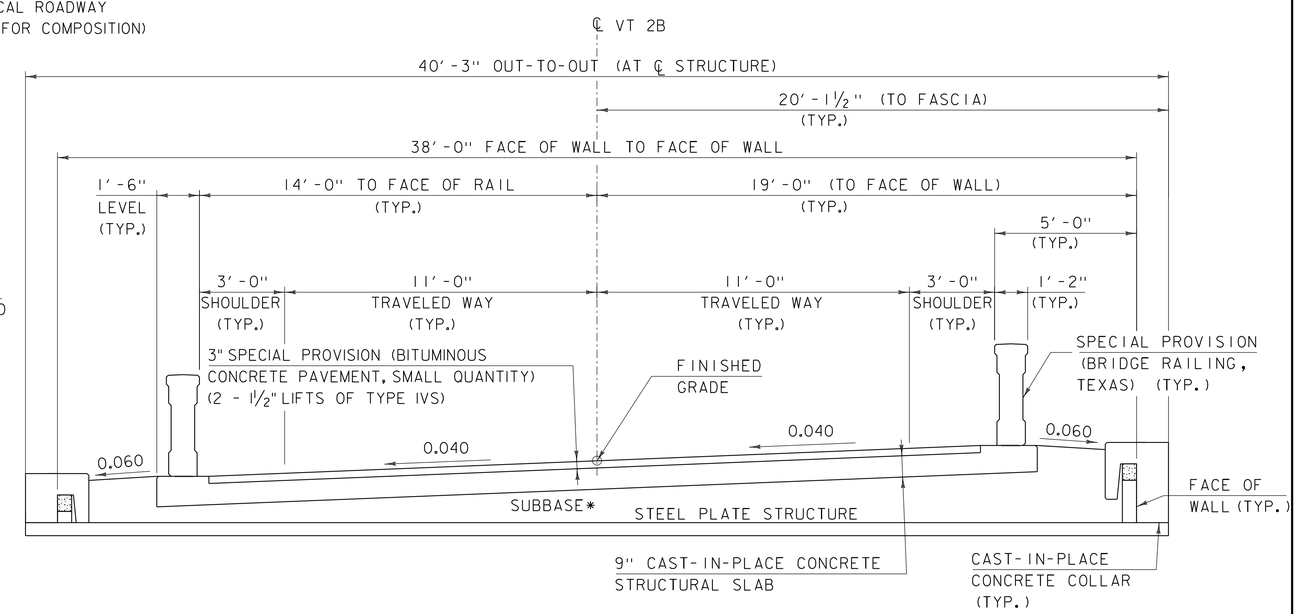

## STEEL PLATE STRUCTURE TYPICAL SECTION

SCALE: ¼" = 1'-0"

NOTES:

1. 2'-1" RAIL DEPTH INCLUDES 18" OF BALLAST AND 7" OF RAIL SHOULD THE LVRR BE REACTIVATED.

2. THE DESIGN AND DETAILING OF THE STEEL PLATE ARCH STRUCTURE SHALL BE PERFORMED BY BIG-R BRIDGE AND ALL STRUCTURE DIMENSIONS WERE PROVIDED BY BIG-R BRIDGE.




## TYPICAL LONGITUDINAL BRIDGE SECTION

SCALE: ⅜" = 1'-0"
(ALL DIMENSIONS RADIAL UNLESS OTHERWISE NOTED)

* SEE VT 2B MAXIMUM BANKED SECTION ON SHEET 4 FOR PAVEMENT AND SUBBASE COMPOSITION.

| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048sub.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J.BYATT | DRAWN BY: M.SMITH |
| DESIGNED BY: A. GIRALDI | CHECKED BY: S.BEAUMONT |
| TYPICAL BRIDGE SECTIONS | SHEET 3 OF 42 |

CONSULTING ENGINEERS

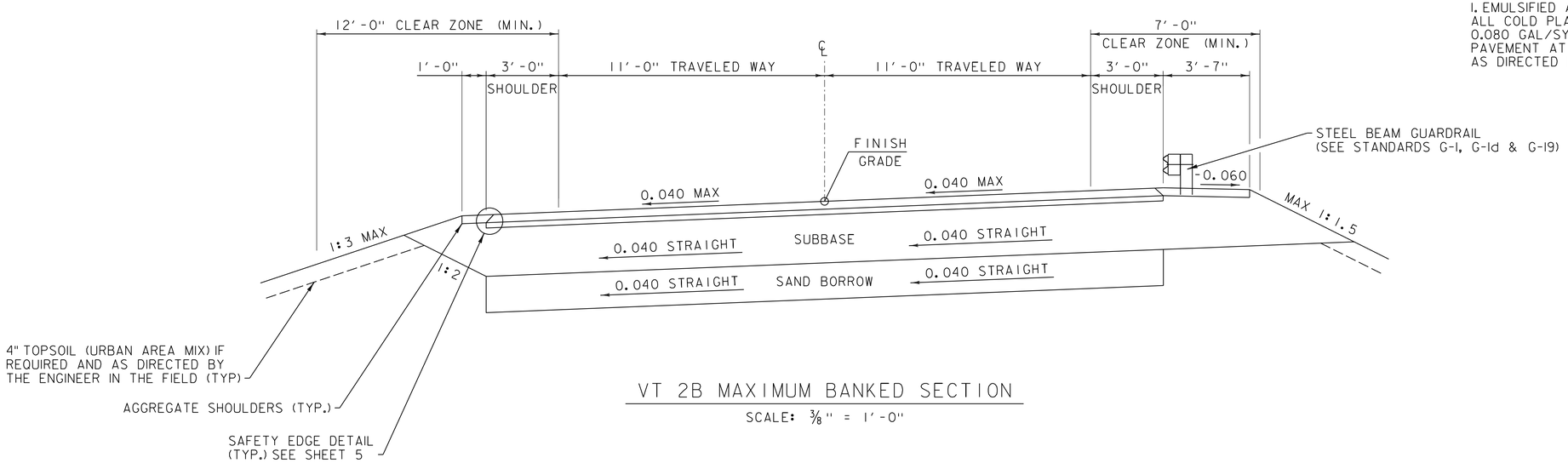
CLD 14-0116 MODEL: Sheet 01

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

NOTE

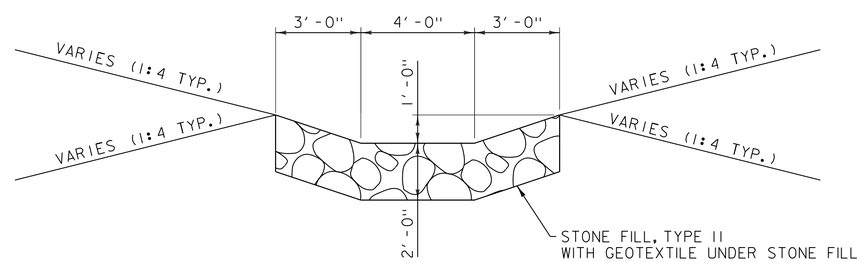
1. EMULSIFIED ASPHALT SHALL BE APPLIED TO ALL COLD PLANED SURFACES AT A RATE OF 0.080 GAL/SY AND BETWEEN EACH LIFT OF PAVEMENT AT A RATE OF 0.040 GAL/SY OR AS DIRECTED BY THE ENGINEER.

3" SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (2-1 1/2" LIFTS) (TYPE IVS)
2" SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (TYPE IIIS)
24" SUBBASE OF DENSE GRADED CRUSHED STONE
18" SAND BORROW




VT 2B MAXIMUM BANKED SECTION

SCALE: 3/8" = 1'-0"

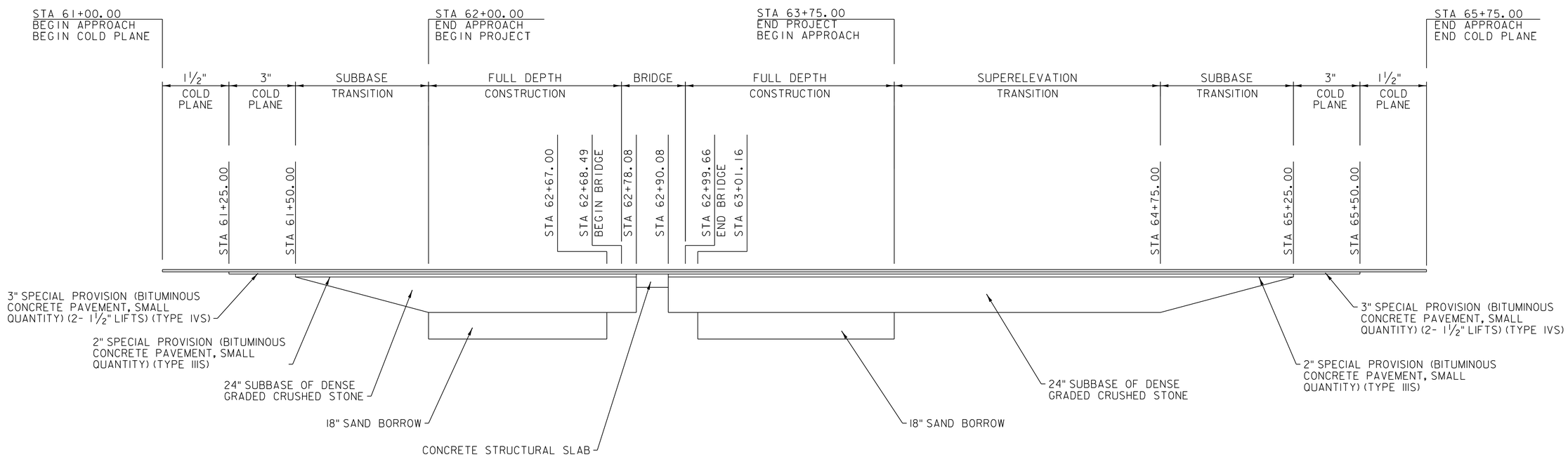



STONE LINED DITCH DETAIL

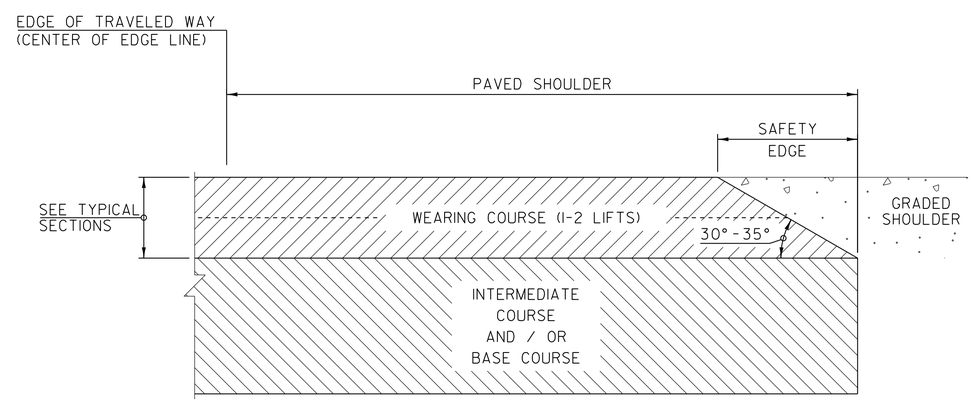
SCALE: 3/8" = 1'-0"

| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048frm.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J.BYATT | DRAWN BY: W.GORDON |
| DESIGNED BY: M.HALEY | CHECKED BY: P.SHEDD |
| TYPICAL ROADWAY SECTIONS | SHEET 4 OF 42 |

CLD 14-0116 MODEL: TYPICAL 01




MATERIAL TRANSITION DIAGRAM




SAFETY EDGE DETAIL

SAFETY EDGE NOTES

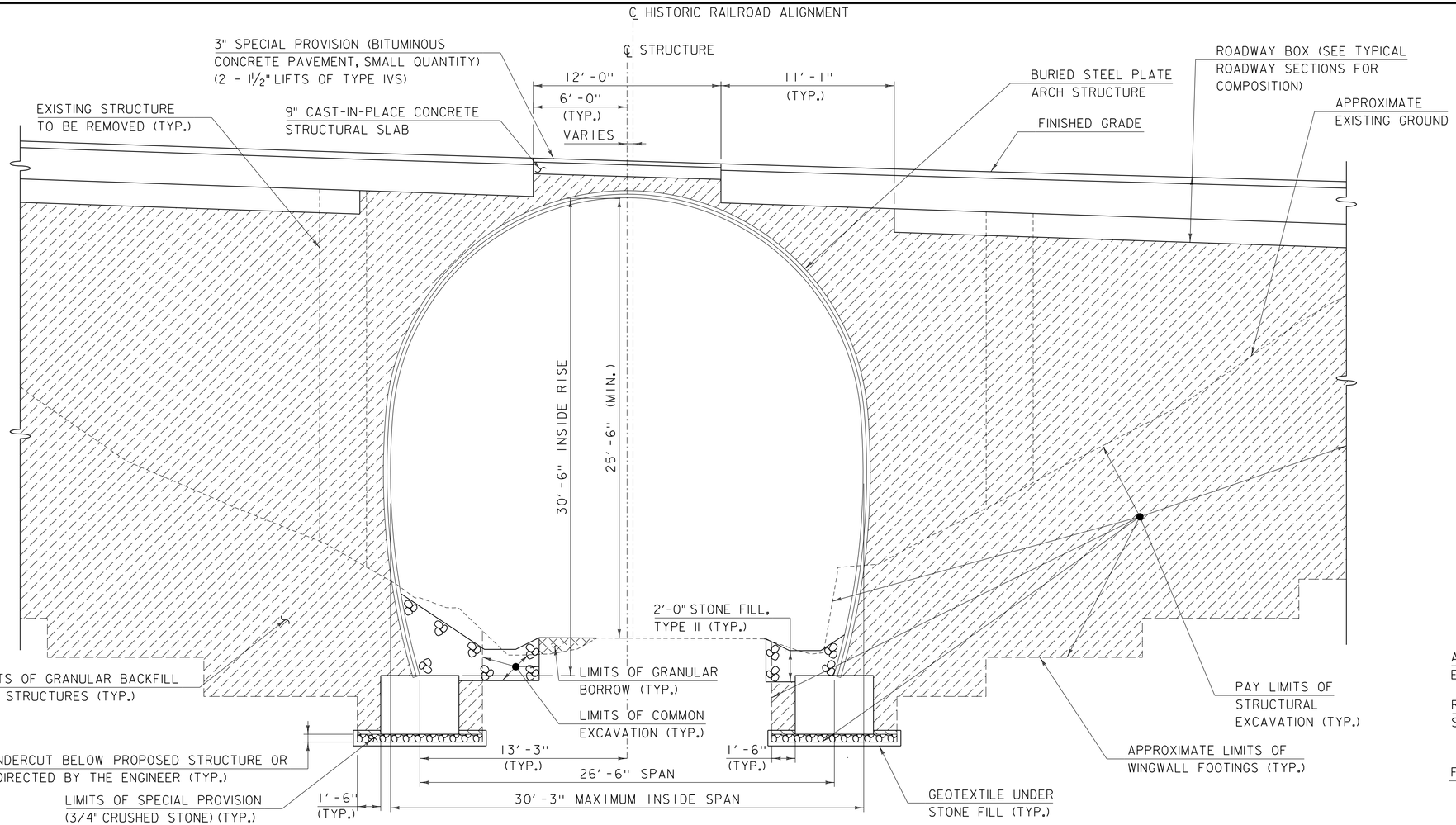
1. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.

2. THE PAVED SHOULDER EXTENDS FROM THE EDGE OF TRAVELED WAY TO THE EDGE OF THE WEARING COURSE, INCLUDING THE "SAFETY EDGE".

NOT TO SCALE

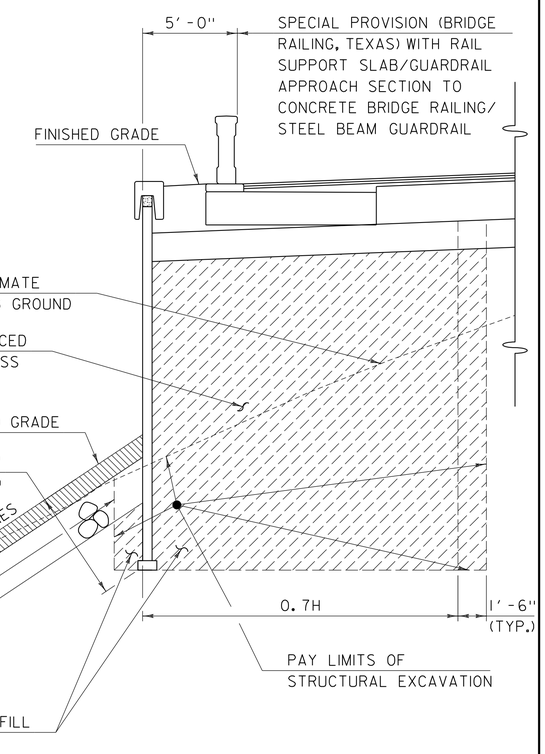
| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048frm.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J.BYATT | DRAWN BY: W.GORDON |
| DESIGNED BY: M.HALEY | CHECKED BY: P.SHEDD |
| MATERIAL TRANSITION DIAGRAM | SHEET 5 OF 42 |

CLD 14-0116 MODEL: TYPICAL 02



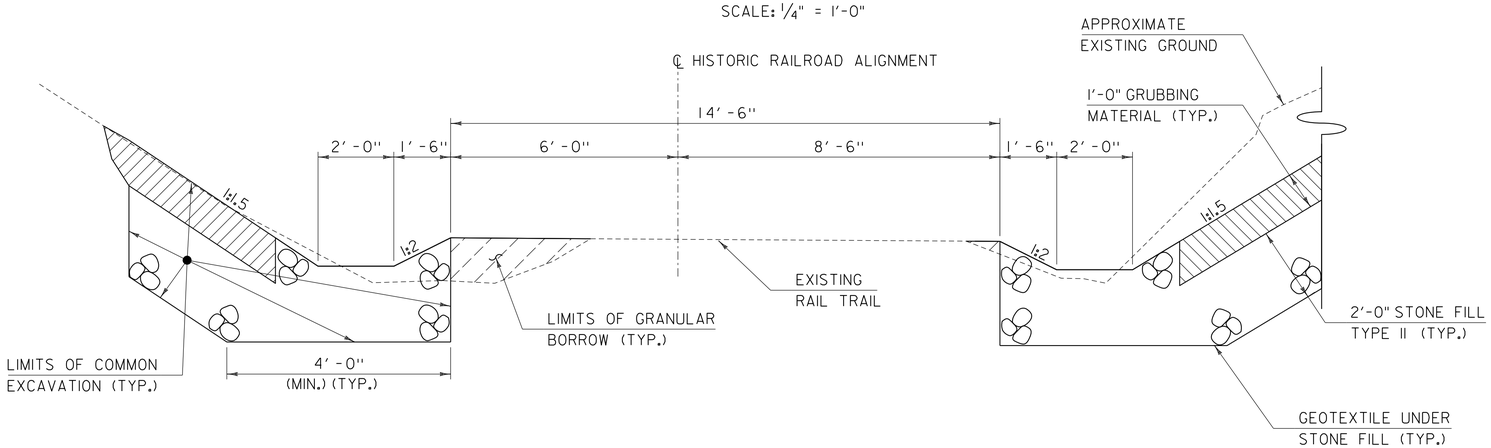

## TYPICAL BURIED STEEL PLATE STRUCTURE EARTHWORK SECTION

SCALE: ¼" = 1'-0"




## TYPICAL WINGWALL/RETAINING WALL EARTHWORK SECTION

SCALE: ¼" = 1'-0"




## TYPICAL RAIL TRAIL SECTION

SCALE: ½" = 1'-0"

| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048sub.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J.BYATT | DRAWN BY: M.SMITH |
| DESIGNED BY: A.GIRALDI | CHECKED BY: S.BEAUMONT |
| TYPICAL EARTHWORK SECTIONS | SHEET 6 OF 42 |

CONSULTING ENGINEERS

CLD 14-0116 MODEL: Sheet 02

## GENERAL INFORMATION

### SYMBOLOGY LEGEND NOTE

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

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

| POINT | CODE | DESCRIPTION |
|---|---|---|
| | CH | CHANNEL EASEMENT |
| | CONST | CONSTRUCTION EASEMENT |
| | CUL | CULVERT EASEMENT |
| | D&C | DISCONNECT & CONNECT |
| | DIT | DITCH EASEMENT |
| | DR | DRAINAGE EASEMENT |
| | DRIVE | DRIVEWAY EASEMENT |
| | EC | EROSION CONTROL |
| | HWY | HIGHWAY EASEMENT |
| | I&M | INSTALL & MAINTAIN EASEMENT |
| | LAND | LANDSCAPE EASEMENT |
| | R&RES | REMOVE & RESET |
| | R&REP | REMOVE & REPLACE |
| | SR | SLOPE RIGHT |
| | UE | UTILITY EASEMENT |
| | (P) | PERMANENT EASEMENT |
| | (T) | TEMPORARY EASEMENT |
| ■ | BNDNS | BOUND SET |
| ⊡ | BNDNS | BOUND TO BE SET |
| ● | IPNS | IRON PIN SET |
| ◎ | 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 VALUE |
| | 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 |

## UTILITY SYMBOLOGY

### UNDERGROUND UTILITIES

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

### ABOVE GROUND UTILITIES (AERIAL)

| | |
|---|---|
| | 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+TELEP. |
| | UTILITY POLE GUY WIRE |

## PROJECT CONSTRUCTION SYMBOLOGY

### PROJECT DESIGN & LAYOUT SYMBOLOGY

| | |
|---|---|
| CZ | CLEAR ZONE |
| | PLAN LAYOUT MATCHLINE |

### PROJECT CONSTRUCTION FEATURES

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

## CONVENTIONAL BOUNDARY SYMBOLOGY

### BOUNDARY LINES

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

## EPSC LAYOUT PLAN SYMBOLOGY

### EPSC MEASURES

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

### ENVIRONMENTAL RESOURCES

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

### ARCHEOLOGICAL & HISTORIC

| | |
|---|---|
| ARCH | ARCHEOLOGICAL BOUNDARY |
| HISTORIC DIST | HISTORIC DISTRICT BOUNDARY |
| HISTORIC | HISTORIC AREA |
| H | HISTORIC STRUCTURE |

## CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

### EXISTING FEATURES

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

| | |
|---|---|
| PROJECT NAME: | ST. JOHNSBURY |
| PROJECT NUMBER: | BF 7000(20) |

| | |
|---|---|
| FILE NAME: 86e048/cos/z86e048frm.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J.BYATT | DRAWN BY: W.GORDON |
| DESIGNED BY: M.HALEY | CHECKED BY: P.SHEDD |
| CONVENTIONAL SYMBOLOGY LEGEND SHEET | SHEET 7 OF 42 |

CONSULTING ENGINEERS

CLD 14-0116 MODEL: LEGEND

## GPS CONTROL POINTS

### HVCTRL #1

CCY 105
NORTH = 706017.958
EAST = 1762633.984
ELEV. = 787.400

GENERAL LOCATION, ST JOHNSBURY, VT.
TO REACH FROM THE I-91 SOUTHBOUND BRIDGE OVER THE I-91 ACCESS ROAD AT EXIT 22 GO SOUTH ALONG I-91 SOUTHBOUND FOR 1.3 MI (2.1 KM) TO MILE MARKER 131.20 AND THE SITE OF THE MARK ON THE RIGHT. IT IS 0.5 MI (0.8 KM) NORTH OF EXIT 21. THE MARK IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF A 15 CM SQUARE CONCRETE MONUMENT. IT IS 49.2 M (161.4 FT) (SLOPE) NORTH NORTHWEST OF AND ABOUT 15 M (49.2 FT) HIGHER THAN THE NORTH NORTHWEST EDGE OF PAVEMENT OF THE SOUTHBOUND LANE, 11.9 M (39.0 FT) SOUTH SOUTHEAST OF THE RIGHT-OF-WAY FENCE, 76.4 M (250.7 FT) EAST NORTHEAST OF A CONCRETE RIGHT-OF-WAY BOUND WHERE THE RIGHT-OF-WAY FENCE CHANGES FROM CHAIN LINK TO WOVEN WIRE, AND 0.3 M (1.0 FT) SOUTH SOUTHEAST OF A FIBERGLASS WITNESS POST. NOTE, MARK IS AT SOUTHBOUND STATION 825+37, 180 FT (54.9 M) LEFT.

### HVCTRL #2

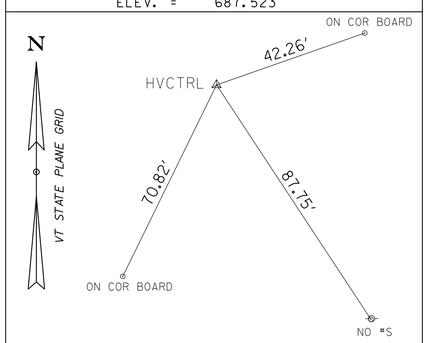
N 56
NORTH = 705217.451
EAST = 1762388.552
ELEV. = 714.480

RECOVERY NOTE BY VERMONT GEODETIC SURVEY 1996 (CHR)
GENERAL LOCATION, ST JOHNSBURY, VT. TO REACH FROM THE U.S.ROUTE 2 WESTBOUND BRIDGE OVER I-91 NORTHBOUND GO NORTHEAST ALONG I-91 NORTHBOUND FOR 0.4 MI (0.6 KM) TO THE MARK ON THE RIGHT. THE MARK IS SET IN THE TOP OF A LONG ROCK OUTCROP. IT IS 8.4 M (27.6 FT) SOUTHEAST OF AND ABOUT 1.5 M (4.9 FT) HIGHER THAN THE SOUTHEAST EDGE OF PAVEMENT OF I-91 NORTHBOUND LANE, 62.2 M (204.1 FT) EAST OF AND ACROSS THE HIGHWAY FROM THE SOUTHEAST LEG OF A ROAD SIGN STATING EXIT 21 ST JOHNSBURY MONTPELIER, 16.8 M (55.1 FT) NORTHEAST OF THE CENTER OF A DROP INLET, 22.9 M (75.1 FT) NORTHEAST OF A SIGN STATING NORTH 91, AND 1.4 M (4.6 FT) SOUTHEAST OF A FIBERGLASS WITNESS POST.

## TRAVERSE TIES

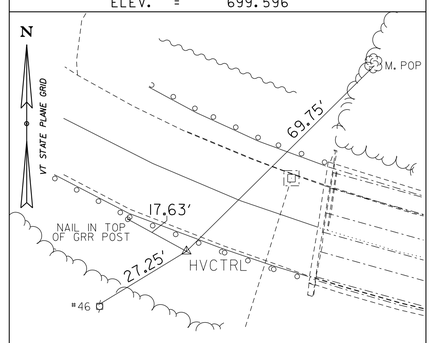
### HVCTRL #4

NORTH = 700856.716
EAST = 1762208.026
ELEV. = 687.523




### HVCTRL #10

NORTH = 700855.704
EAST = 1761565.942
ELEV. = 699.596




| | |
|---|---|
| NORTH = | |
| EAST = | |
| ELEV. = | |

| | |
|---|---|
| NORTH = | |
| EAST = | |
| ELEV. = | |

| | |
|---|---|
| NORTH = | |
| EAST = | |
| ELEV. = | |

## ALIGNMENT TIES

| | |
|---|---|
| NORTH = | |
| EAST = | |
| ELEV. = | |

| | |
|---|---|
| NORTH = | |
| EAST = | |
| ELEV. = | |

| | |
|---|---|
| NORTH = | |
| EAST = | |
| ELEV. = | |

| | |
|---|---|
| NORTH = | |
| EAST = | |
| ELEV. = | |

| | |
|---|---|
| NORTH = | |
| EAST = | |
| ELEV. = | |

| DATUM | |
|---|---|
| VERTICAL | NAVD 88 |
| HORIZONTAL | NAD 83(1996) |
| ADJUSTMENT | COMPASS |

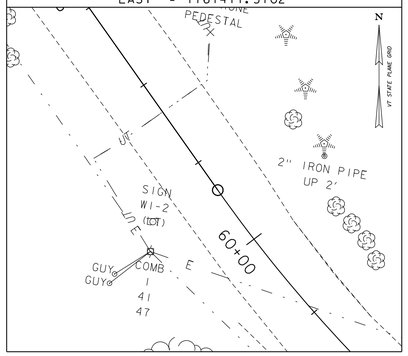
PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BRF 7000(20)

| | | | |
|---|---|---|---|
| FILE NAME: | X86E048TI.DGN | PLOT DATE: | 5/4/2015 |
| PROJECT LEADER: | J. FITCH | DRAWN BY: | S. DONOVAN |
| DESIGNED BY: | J. FITCH | CHECKED BY: | P. BEYOR |
| TIE SHEET 1 | | SHEET 8 OF 42 | |

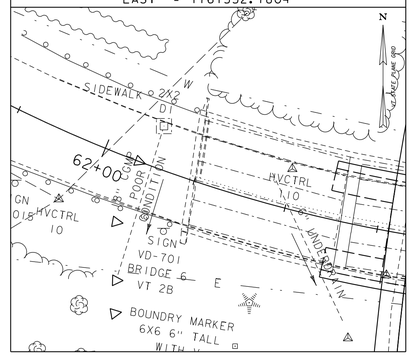
CLD 14-0116 MODEL: TIE 01

## ALIGNMENT TIES

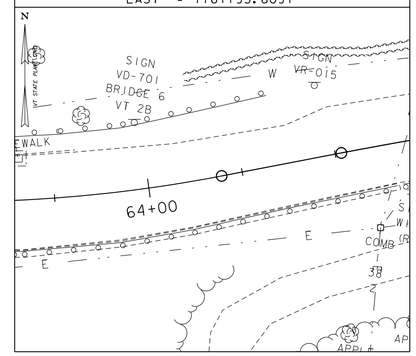
### PC 59+83.92
NORTH = 701001.8337
EAST = 1761411.3702



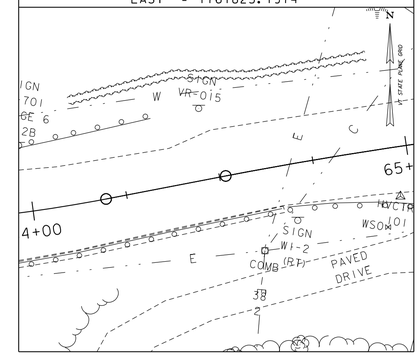

### PI 62+29.17
NORTH = 700801.4662
EAST = 1761552.7804



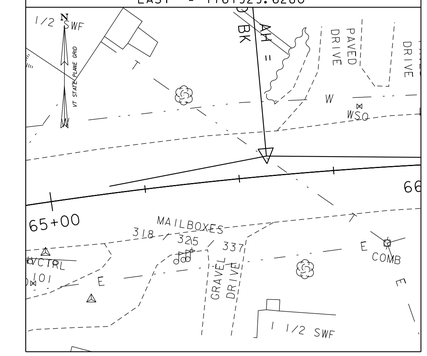

### PT 64+19.49
NORTH = 700847.7864
EAST = 1761793.6091




### PC 64+51.66
NORTH = 700853.8620
EAST = 1761825.1974

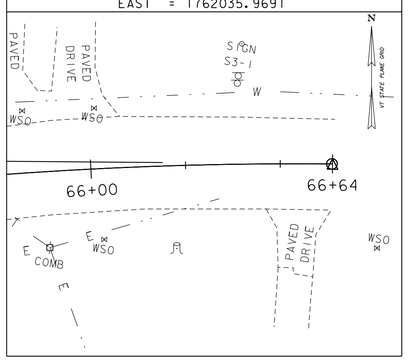



### PI 65+58.01
NORTH = 700873.9478
EAST = 1761929.6280



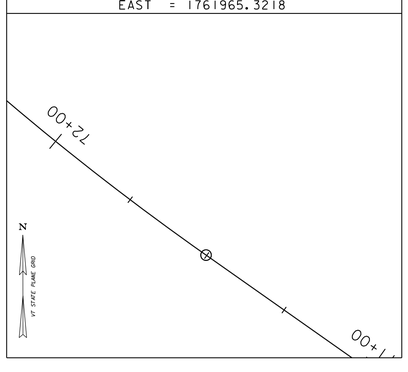

## ALIGNMENT TIES

### PT 66+63.65
NORTH = 700873.0856
EAST = 1762035.9691

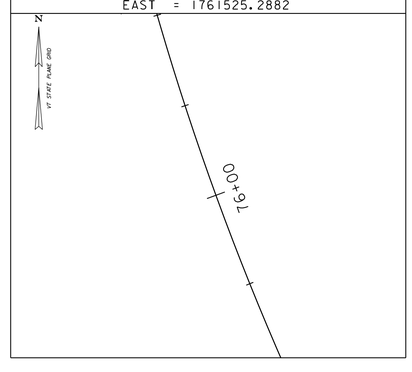



## ALIGNMENT TIES

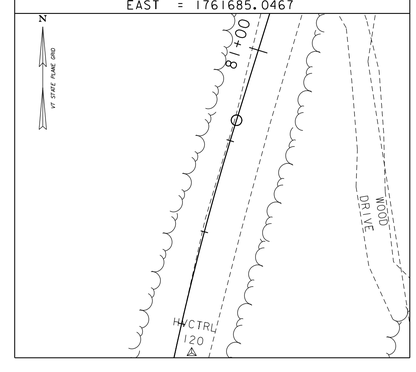
### PC 71+50.20
NORTH = 700138.9132
EAST = 1761965.3218




### PI 76+88.42
NORTH = 700448.8309
EAST = 1761525.2882




### PT 80+80.65
NORTH = 700962.7918
EAST = 1761685.0467




| | |
|---|---|
| PROJECT NAME: | ST. JOHNSBURY |
| PROJECT NUMBER: | BRF 7000(20) |

| | |
|---|---|
| FILE NAME: 86e048/cos/z86e048tie.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J. BYATT | DRAWN BY: W.GORDON |
| DESIGNED BY: M. HALEY | CHECKED BY: P. SHEDD |
| TIE SHEET 2 | SHEET 9 OF 42 |

CLD CONSULTING ENGINEERS

CLD 14-0116 MODEL: TIE 02

TEMPORARY 4 INCH WHITE LINE, PAINT
DURABLE 4 INCH WHITE LINE
61+00 TO 65+75 LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
DURABLE 4 INCH YELLOW LINE
61+00 TO 65+75 LT & RT

REMOVAL AND DISPOSAL OF GUARDRAIL
61+18 TO 62+25 RT
61+67 TO 62+20 LT
63+51 TO 65+04 RT
63+56 TO 64+35 LT

GUARDRAIL APPROACH SECTION TO
CONCRETE BRIDGE RAILING, TL-2
62+49 TO 62+64 LT
62+52 TO 62+66 RT
63+03 TO 63+16 RT
63+04 TO 63+19 LT

STEEL BEAM GUARDRAIL, GALVANIZED
61+20 TO 62+52 RT
61+98 TO 62+49 LT
63+16 TO 64+50 RT
63+19 TO 64+47 LT

MANUFACTURED
TERMINAL SECTION, TANGENT
64+50 TO 65+00 RT

ANCHOR FOR STEEL BEAM RAIL
61+20 RT
61+98 LT
64+47 LT

REMOVING SIGNS
AS SHOWN - 7

DELINEATOR WITH STEEL POST
61+20 RT
61+98 LT
65+00 RT
64+47 LT

RELOCATE MAILBOX, MULTIPLE SUPPORT
65+33 RT

CAST-IN-PLACE CONCRETE CURB, TYPE B
63+07 TO 63+58 LT

ADJUST ELEVATION OF
VALVE BOX (BY OTHERS)
64+92 RT

EXISTING DRAINAGE

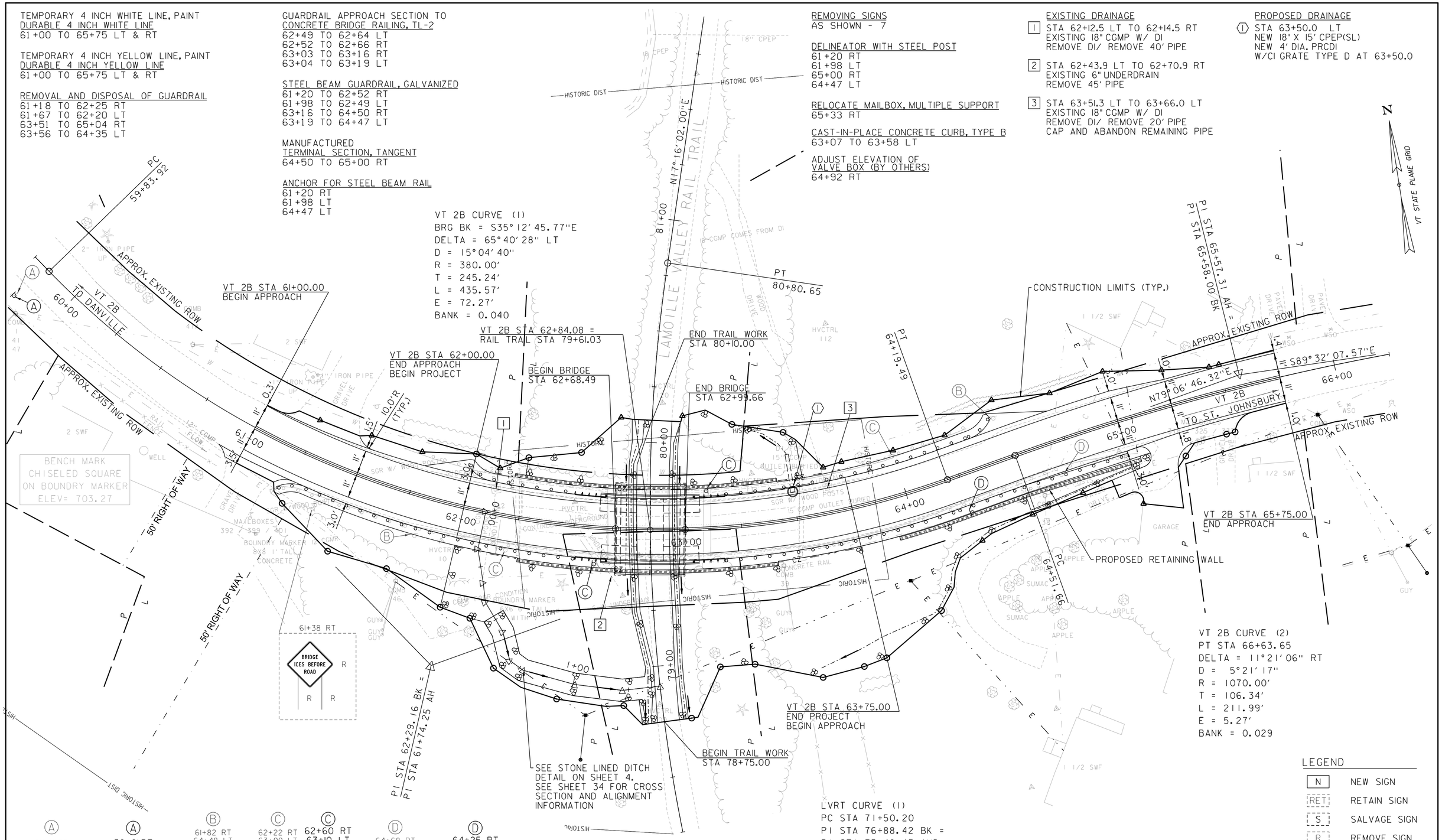
1 STA 62+12.5 LT TO 62+14.5 RT
EXISTING 18" CGMP W/ DI
REMOVE DI/ REMOVE 40' PIPE

2 STA 62+43.9 LT TO 62+70.9 RT
EXISTING 6" UNDERDRAIN
REMOVE 45' PIPE

3 STA 63+51.3 LT TO 63+66.0 LT
EXISTING 18" CGMP W/ DI
REMOVE DI/ REMOVE 20' PIPE
CAP AND ABANDON REMAINING PIPE

PROPOSED DRAINAGE

1 STA 63+50.0 LT
NEW 18" X 15' CPEP(SL)
NEW 4' DIA. PRCDI
W/CI GRATE TYPE D AT 63+50.0




LEGEND

| | |
|---|---|
| N | NEW SIGN |
| RET | RETAIN SIGN |
| S | SALVAGE SIGN |
| R | REMOVE SIGN |

LVRT CURVE (1)
PC STA 71+50.20
PI STA 76+88.42 BK =
PI STA 75+42.43 AHD
BRG BK = N 54°50'34.00"W
DELTA = 72°06'36" RT
D = 7°45'00"
R = 739.30'
T = 538.22'
L = 930.45'
E = 175.16'

EXISTING BRIDGE DATA

THREE SPAN ROLLED BEAM,
CONCRETE DECK BUILT 1936.
129' LENGTH, 42' MAX SPAN
26'-5" MIN UNDERCLEAR.

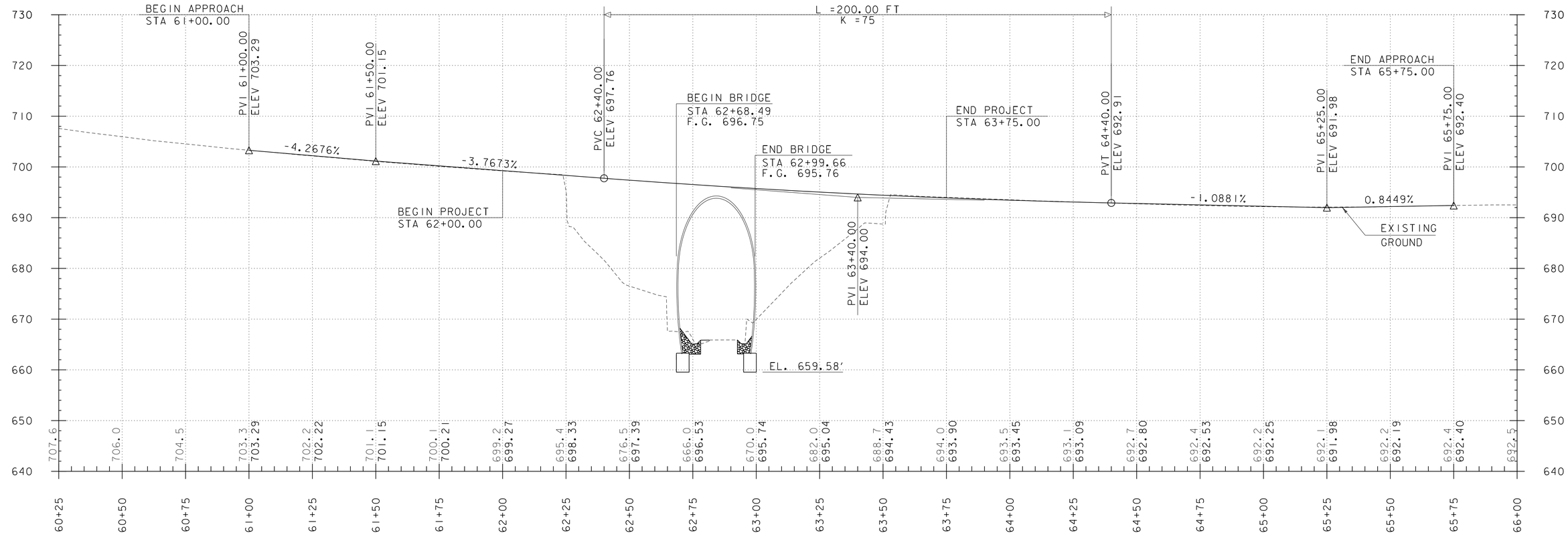
0 20 40
(SCALE 1" = 20')

CONSULTING ENGINEERS

| | |
|---|---|
| PROJECT NAME: | ST. JOHNSBURY |
| PROJECT NUMBER: | BF 7000(20) |

| | |
|---|---|
| FILE NAME: 86e048/cos/z86e048bdr.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J.BYATT | DRAWN BY: W.GORDON |
| DESIGNED BY: M.HALEY | CHECKED BY: P.SHEDD |
| LAYOUT SHEET | SHEET 10 OF 42 |

CLD 14-0116

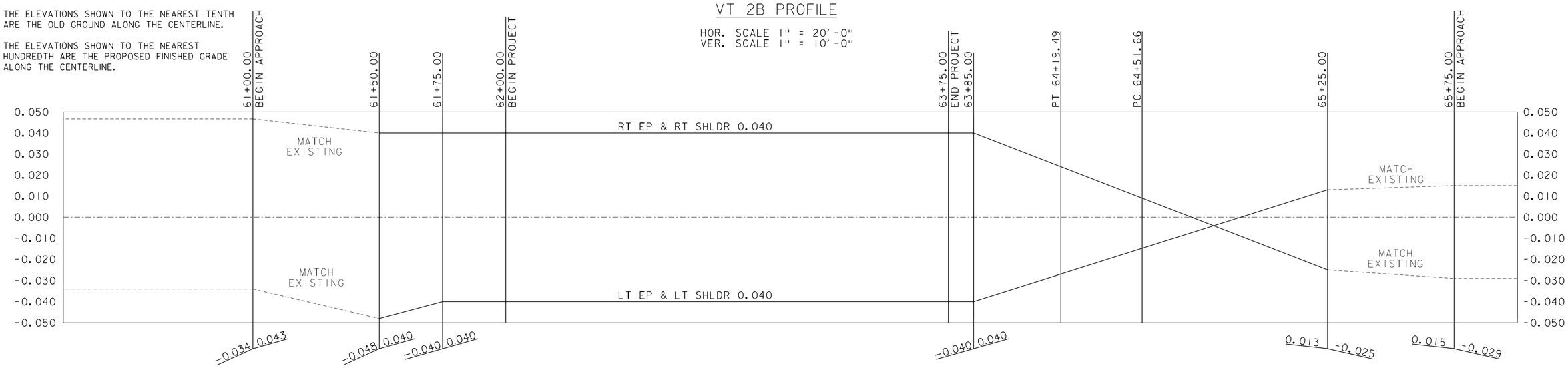



## VT 2B PROFILE

HOR. SCALE 1" = 20'-0"
VER. SCALE 1" = 10'-0"

THE ELEVATIONS SHOWN TO THE NEAREST TENTH ARE THE OLD GROUND ALONG THE CENTERLINE.

THE ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE THE PROPOSED FINISHED GRADE ALONG THE CENTERLINE.




## BANKING DIAGRAM

NOT TO SCALE

| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048pro.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J.BYATT | DRAWN BY: W.GORDON |
| DESIGNED BY: M.HALEY | CHECKED BY: P.SHEDD |
| VT 2B PROFILE AND BANKING DIAGRAM | SHEET 11 OF 42 |

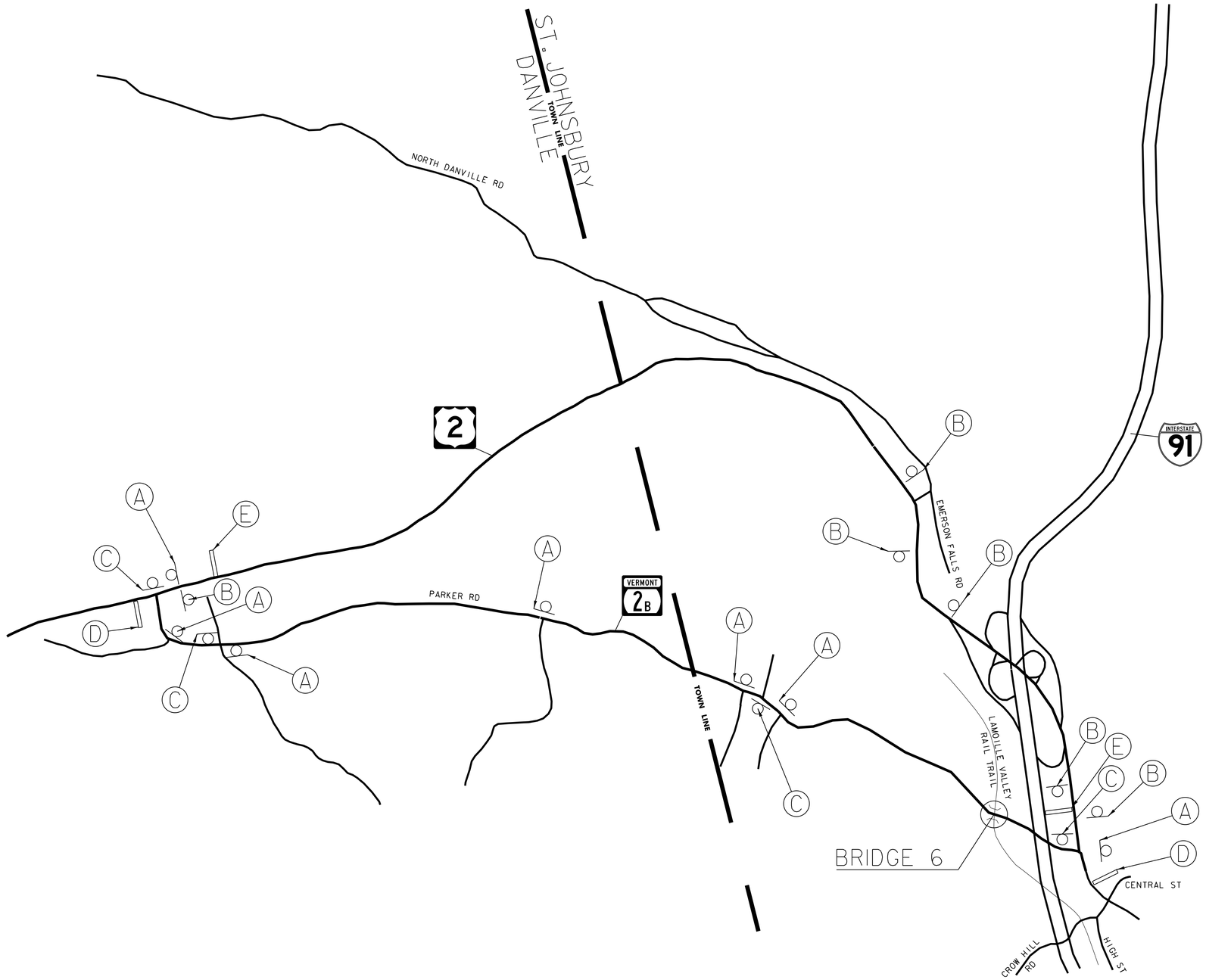
CLD CONSULTING ENGINEERS

MODEL: MAINLINE PROFILE

CLD 14-0116

NOTES

1. SEE SHEET 13 FOR ADDITIONAL SIGN AND DETOUR INFORMATION.
2. SEE TRAFFIC CONTROL PLAN FOR SIGN INFORMATION AT THE BRIDGE SITE.




DETOUR MAP

NOT TO SCALE

| | |
|---|---|
| PROJECT NAME: | ST. JOHNSBURY |
| PROJECT NUMBER: | BF 7000(20) |

FILE NAME: 86e048/cos/z86e048bdrtcp.dgn PLOT DATE: 5/4/2015
PROJECT LEADER: J.BYATT DRAWN BY: W.GORDON
DESIGNED BY: M.HALEY CHECKED BY: P.SHEDD
DETOUR MAP SHEET 12 OF 42

CONSULTING ENGINEERS

CLD 14-0116 MODEL: DETOUR MAP

| | | | | |
|---|---|---|---|---|
| A (7) B/O G/W G/W G/W | B (6) B/O G/W G/W G/W | C (4) B/O G/W G/W G/W | D (2) BRIDGE / CLOSED / VT 2B<br>PORTABLE CHANGEABLE SIGN – PHASE 1<br>FOLLOW / DETOUR<br>PORTABLE CHANGEABLE SIGN – PHASE 2 | E (2) BRIDGE / CLOSED / VT 2B<br>PORTABLE CHANGEABLE SIGN – PHASE 1<br>LOCAL / TRAFFIC / ONLY<br>PORTABLE CHANGEABLE SIGN – PHASE 2 |
| | | | SIGN COLORS<br>B/W: BLACK LETTERING ON WHITE BACKGROUND<br>G/W: GREEN LETTERING ON WHITE BACKGROUND<br>B/O: BLACK LETTERING ON ORANGE BACKGROUND<br>THE ESTIMATED NUMBER OF EACH SIGN PACKAGE REQUIRED IS REPRESENTED BY THE NUMBER UNDERNEATH EACH LETTER DESIGNATOR | |

TRAFFIC CONTROL NOTES

1. TRAFFIC WILL BE MAINTAINED ON A DETOUR VIA US ROUTE 2.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DETOUR AND CONSTRUCTION SIGNING. THE EXACT LOCATION WILL BE COORDINATED WITH THE ENGINEER AND SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD.

3. TRAFFIC CONTROL WARNING SIGNS SHALL BE PROVIDED PER STANDARDS T-1 AND T-10 AND THE LATEST EDITION OF THE MUTCD. ADDITIONAL PROJECT CONSTRUCTION SIGNS SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. ALL ON AND OFF PROJECT SIGNS AND BARRICADES AS REQUIRED FOR THE DETOUR WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE PAID FOR UNDER THE ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)". ALL SIGNS AND BARRICADES SHALL BE INSPECTED DAILY AND REPAIRED AS NECESSARY. ALL SIGNS AND BARRICADES SHALL BE CLEARED OF DUST AND DEBRIS WEEKLY.

4. PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE PLACED AT THE APPROXIMATE LOCATIONS SHOWN ON THE PLANS OR WHERE DIRECTED BY THE ENGINEER. TWO PCMS SHALL BE PLACED AT THE PROJECT LOCATION 14 DAYS PRIOR TO THE START OF CONSTRUCTION TO WARN OF THE IMPENDING DETOUR. THESE PCMS SHALL THEN BE REMOVED AND DEPLOYED TO THE LOCATIONS SHOWN ONCE CONSTRUCTION HAS BEGUN. PAYMENT FOR THESE SIGNS, INCLUDING ANY RELOCATING REQUIRED, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 641.15 "PORTABLE CHANGEABLE MESSAGE SIGN".

5. THE ROUTE MARKERS USED FOR THE DETOUR AS SHOWN ON THE PLANS SHALL FOLLOW STANDARDS E-127 AND E-136B. THESE SIGNS SHALL BE REMOVED AT THE END OF THE CONSTRUCTION PERIOD. THESE SIGNS AND THEIR REMOVAL SHALL BE PAID FOR UNDER ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

6. ACCESS TO ALL EXISTING DRIVES AND SIDE ROADS SHALL BE MAINTAINED AT ALL TIMES DURING ALL PHASES OF CONSTRUCTION.

7. INSTALLATION OF DETOUR SIGNS SHALL NOT BLOCK ANY EXISTING TRAFFIC CONTROL SIGN ASSEMBLIES AND SHALL MODIFY OR BE PLACED ADJACENT TO EXISTING SIGN ASSEMBLIES WHEN POSSIBLE. THE CONTRACTOR SHALL MAINTAIN AT LEAST 200 FEET BETWEEN SIGN ASSEMBLIES WHENEVER POSSIBLE.

8. EXISTING SIGNS THAT ARE IN CONFLICT WITH THE TRAFFIC FLOW OF THE DETOUR SHALL BE REMOVED OR COVERED BY THE CONTRACTOR. ALL SIGNS REMOVED OR COVERED SHALL BE REPLACED OR UNCOVERED WHEN THE TRAFFIC CONTROL PLAN IS DISASSEMBLED. PAYMENT FOR THIS WORK SHALL BE INCIDENTAL TO ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

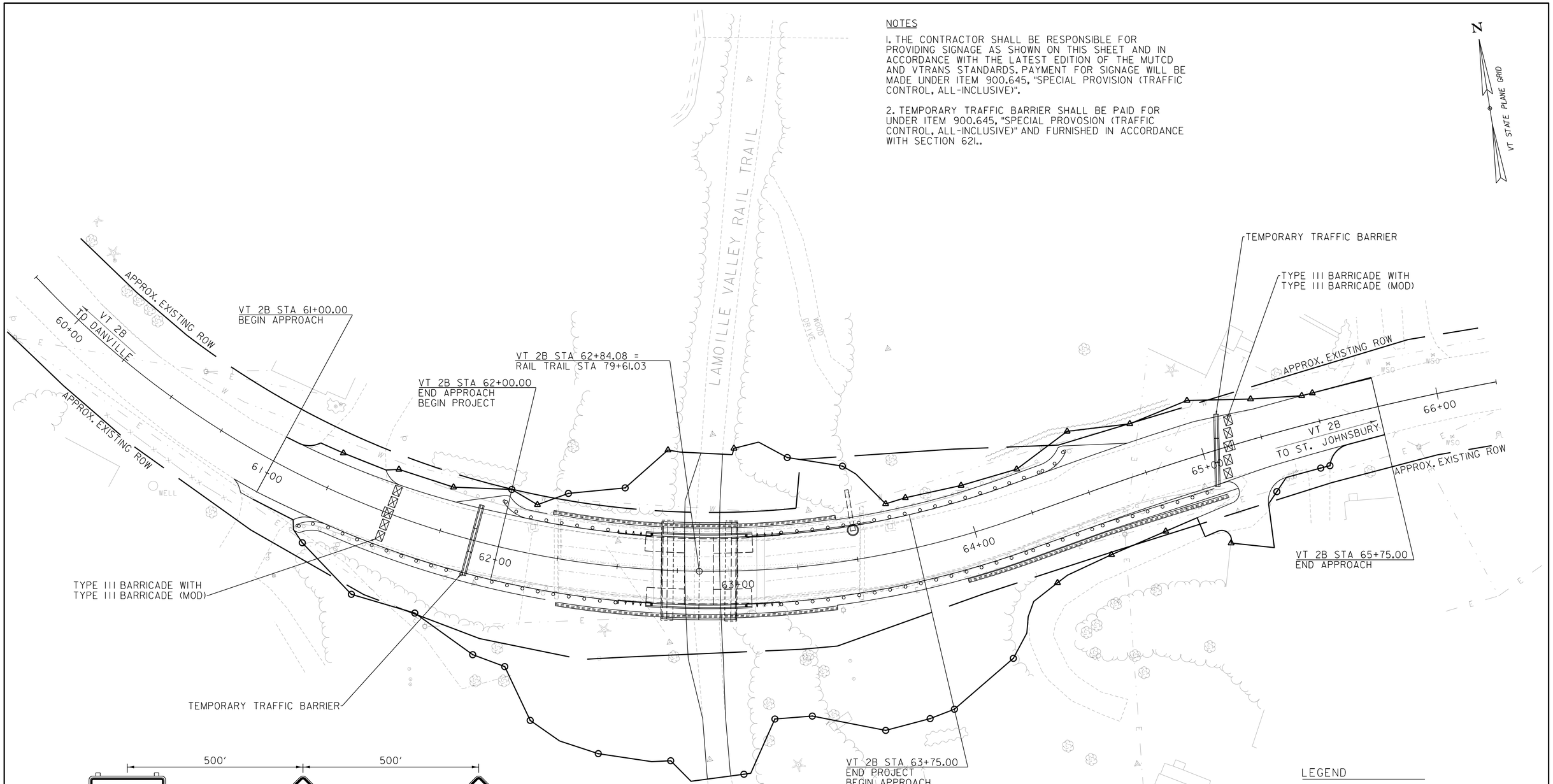
9. CONTACT DIG-SAFE AT LEAST 48 HOURS PRIOR TO BREAKING GROUND TO INSTALL ANY SIGN POSTS.

10. TEMPORARY TRAFFIC BARRIER SHALL BE PAID FOR UNDER ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)" AND SHALL BE USED FOR THE CLOSURE OF THE BRIDGE. CONTRACTOR SHALL INSTALL BARRIER AS NECESSARY TO PREVENT THE TRAVELLING PUBLIC FROM ENTERING THE CONSTRUCTION SITE.

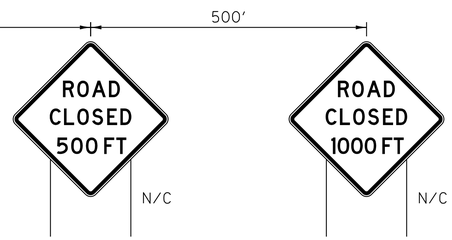
NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SIGNAGE AS SHOWN ON THIS SHEET AND IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD AND VTRANS STANDARDS. PAYMENT FOR SIGNAGE WILL BE MADE UNDER ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

2. TEMPORARY TRAFFIC BARRIER SHALL BE PAID FOR UNDER ITEM 900.645, "SPECIAL PROVOSION (TRAFFIC CONTROL, ALL-INCLUSIVE)" AND FURNISHED IN ACCORDANCE WITH SECTION 621..



R11-2 B/W SIGN MOUNTED ON TYPE III BARRICADE (MODIFIED)




W20-3 B/O W20-3 B/O

LEGEND

| | |
|---|---|
| N/C | NEW SIGN/CONSTRUCTION ONLY |
| B/O | BLACK/ORANGE |
| B/W | BLACK/WHITE |
| ⊠ | TYPE III BARRICADE |
| ⊠ | TYPE III BARRICADE (MOD.) |
| ▬ | TEMPORARY TRAFFIC BARRIER |

0 20 40
(SCALE 1" = 20')

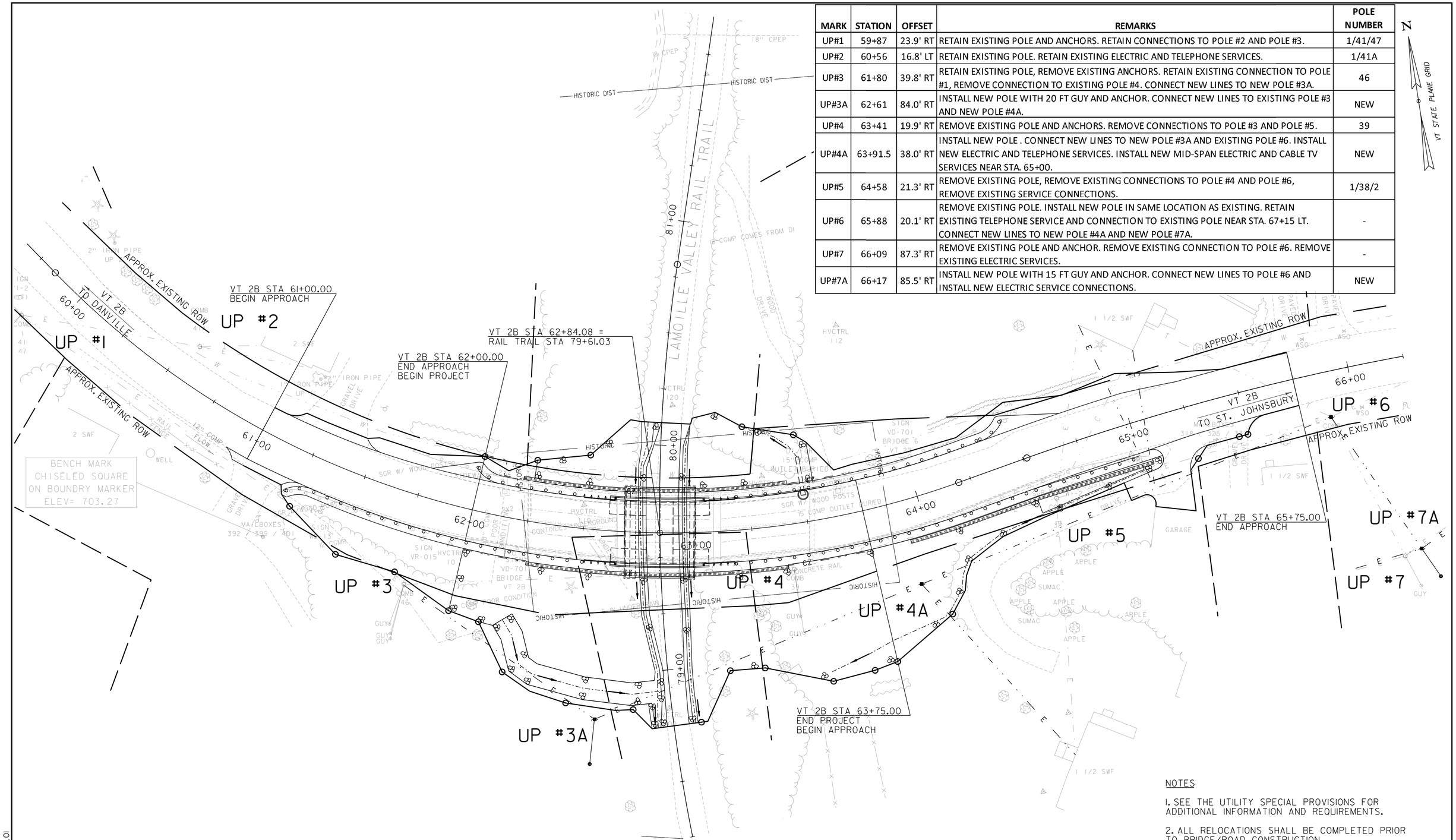
CONSULTING ENGINEERS

| | |
|---|---|
| PROJECT NAME: | ST. JOHNSBURY |
| PROJECT NUMBER: | BF 7000(20) |

FILE NAME: 86e048/cos/z86e048bdrtcp.dgn PLOT DATE: 5/4/2015
PROJECT LEADER: J.BYATT DRAWN BY: W.GORDON
DESIGNED BY: M.HALEY CHECKED BY: P.SHEDD
TRAFFIC CONTROL SHEET SHEET 14 OF 42

MODEL: TCP
CLD 14-0116

| MARK | STATION | OFFSET | REMARKS | POLE NUMBER |
|---|---|---|---|---|
| UP#1 | 59+87 | 23.9' RT | RETAIN EXISTING POLE AND ANCHORS. RETAIN CONNECTIONS TO POLE #2 AND POLE #3. | 1/41/47 |
| UP#2 | 60+56 | 16.8' LT | RETAIN EXISTING POLE. RETAIN EXISTING ELECTRIC AND TELEPHONE SERVICES. | 1/41A |
| UP#3 | 61+80 | 39.8' RT | RETAIN EXISTING POLE, REMOVE EXISTING ANCHORS. RETAIN EXISTING CONNECTION TO POLE #1, REMOVE CONNECTION TO EXISTING POLE #4. CONNECT NEW LINES TO NEW POLE #3A. | 46 |
| UP#3A | 62+61 | 84.0' RT | INSTALL NEW POLE WITH 20 FT GUY AND ANCHOR. CONNECT NEW LINES TO EXISTING POLE #3 AND NEW POLE #4A. | NEW |
| UP#4 | 63+41 | 19.9' RT | REMOVE EXISTING POLE AND ANCHORS. REMOVE CONNECTIONS TO POLE #3 AND POLE #5. | 39 |
| UP#4A | 63+91.5 | 38.0' RT | INSTALL NEW POLE . CONNECT NEW LINES TO NEW POLE #3A AND EXISTING POLE #6. INSTALL NEW ELECTRIC AND TELEPHONE SERVICES. INSTALL NEW MID-SPAN ELECTRIC AND CABLE TV SERVICES NEAR STA. 65+00. | NEW |
| UP#5 | 64+58 | 21.3' RT | REMOVE EXISTING POLE, REMOVE EXISTING CONNECTIONS TO POLE #4 AND POLE #6, REMOVE EXISTING SERVICE CONNECTIONS. | 1/38/2 |
| UP#6 | 65+88 | 20.1' RT | REMOVE EXISTING POLE. INSTALL NEW POLE IN SAME LOCATION AS EXISTING. RETAIN EXISTING TELEPHONE SERVICE AND CONNECTION TO EXISTING POLE NEAR STA. 67+15 LT. CONNECT NEW LINES TO NEW POLE #4A AND NEW POLE #7A. | - |
| UP#7 | 66+09 | 87.3' RT | REMOVE EXISTING POLE AND ANCHOR. REMOVE EXISTING CONNECTION TO POLE #6. REMOVE EXISTING ELECTRIC SERVICES. | - |
| UP#7A | 66+17 | 85.5' RT | INSTALL NEW POLE WITH 15 FT GUY AND ANCHOR. CONNECT NEW LINES TO POLE #6 AND INSTALL NEW ELECTRIC SERVICE CONNECTIONS. | NEW |




NOTES

1. SEE THE UTILITY SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

2. ALL RELOCATIONS SHALL BE COMPLETED PRIOR TO BRIDGE/ROAD CONSTRUCTION.

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BF 7000(20)

FILE NAME: 86e048/cos/z86e048bdrut1.dgn PLOT DATE: 5/4/2015
PROJECT LEADER: J.BYATT DRAWN BY: W.GORDON
DESIGNED BY: M.HALEY CHECKED BY: P.SHEDD
UTILITY RELOCATION SHEET SHEET 15 OF 42

CLD CONSULTING ENGINEERS

CLD 14-0116 MODEL: L01

## SOIL CLASSIFICATION

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

## ROCK QUALITY DESIGNATION

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

## SHEAR STRENGTH

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

## CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

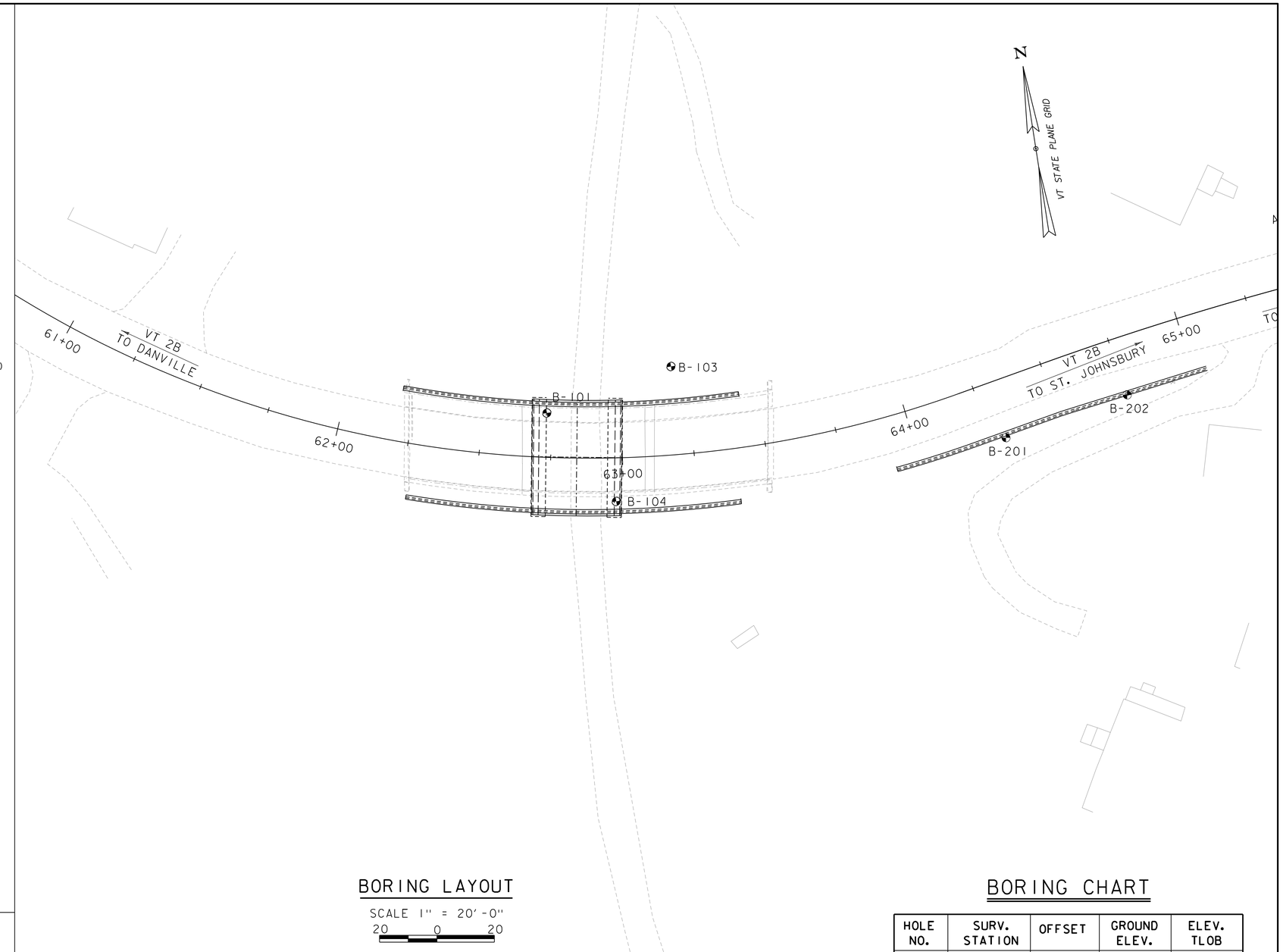
| DENSITY (GRANULAR SOILS) | | CONSISTENCY (COHESIVE SOILS) | |
|---|---|---|---|
| N | DESCRIPTIVE TERM | N | DESCRIPTIVE TERM |
| <5 | Very Loose | <2 | Very Soft |
| 5-10 | Loose | 2-4 | Soft |
| 11-24 | Med. Dense | 5-8 | Med. Stiff |
| 25-50 | Dense | 9-15 | Stiff |
| >50 | Very Dense | 16-30 |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

## COMMONLY USED SYMBOLS

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

### COLOR

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




## BORING LAYOUT

SCALE 1" = 20'-0"

20 0 20

## BORING CHART

| HOLE NO. | SURV. STATION | OFFSET | GROUND ELEV. | ELEV. TLOB |
|---|---|---|---|---|
| B-101 | 62+73 | 15.5 LT | 666.6 | 610.2 |
| B-103 | 63+19 | 30.8 LT | 675.4 | 609.0 |
| B-104 | 62+95 | 15.5 RT | 664.6 | 606.9 |
| B-201 | 64+30 | 7.9 RT | 692.9 | - |
| B-202 | 64+75 | 7.7 RT | 692.3 | - |

## 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 June 2, 2014 and June 18, 2014 by the Agency.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering judgment was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.
7. Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BF 7000(20)

FILE NAME: 86e048/cos/z86e048bor.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: A. GIRALDI
BORING INFORMATION SHEET

PLOT DATE: 5/4/2015
DRAWN BY: M. SMITH
CHECKED BY: S. BEAUMONT
SHEET 16 OF 42

CLD 14-0116 MODEL: BOR01

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

# BORING LOG

**ST. JOHNSBURY**
**BF 7000(20)**
**VT-2B BR-6**

Boring No.: **B-101**
Page No.: 1 of 2
Pin No.: 86E048
Checked By: END

Boring Crew: JUDKINS, HOOK, NIETO
Date Started: 6/02/14 Date Finished: 6/04/14
VTSPG NAD83: N 700863.33 ft E 1761651.05 ft
Station: 62+73 Offset: -13.50
Ground Elevation: 666.56 ft

| | Casing | Sampler |
|---|---|---|
| Type: | WB | SS |
| I.D.: | 4 in | 1.5 in |
| Hammer Wt: | N.A. | 140 lb. |
| Hammer Fall: | N.A. | 30 in. |
| Hammer/Rod Type: | Auto/AWJ | |
| Rig: | CME 55 TRACK | $C_E$ = 1.46 |

Groundwater Observations

| Date | Depth (ft) | Notes |
|---|---|---|
| 06/03/14 | 5.3 | While drilling. |
| 06/04/14 | 5.5 | While drilling. |

| Depth (ft) | Strata (1) | CLASSIFICATION OF MATERIALS (Description) | Run (Dip deg.) | Core Rec. % (RQD %) | Drill Rate minutes/ft. | Blows/6" (N Value) | Moisture Content % | Gravel % | Sand % | Fines % | LL % | PI % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A-2-4, GrSiSa, brn, Wet, Rec. = 0.5 ft | | | | WH-WH-WH-WH (WH) | 19.7 | 23.5 | 41.0 | 35.5 | | |
| | | A-4, SaSi, gry, Wet, Rec. = 1.8 ft, Cleaned out with roller cone. | | | | WH-2-2-WH (4) | 23.6 | 8.5 | 30.7 | 60.8 | | |
| 5 | | A-6, SiCl, gry, MTW, Rec. = 2.0 ft, Lab Note: Material from Triaxial test "A". | | | | | 37.7 | | 1.5 | 98.5 | 38 | 15 |
| | | A-7-6, Cl, gry, MTW, Rec. = 2.0 ft, Lab Note: Sample was taken right after Consolidation sample. | | | | | 43.2 | | 0.2 | 99.8 | 41 | 20 |
| APPROX. BOTTOM OF FOOTING EL. 659.58' | | A-7-6, Cl, gry, MTW, Material from Triaxial sample "B". | | | | | 39.6 | | 0.3 | 99.7 | 41 | 20 |
| | | A-4, Si, gry, MTW, Rec. = 2.0 ft | | | | WH-WH-1-2 (1) | 40.8 | 5.4 | 4.4 | 90.2 | 27 | 6 |
| 10 | | A-6, SiCl, gry, MTW, Rec. = 2.0 ft, Cleaned out with roller cone. | | | | WH-WH-WH-1 (WH) | 40.0 | 0.3 | 3.8 | 95.9 | 36 | 14 |
| | | A-6, SiCl, gry, MTW, Rec. = 2.0 ft, Artesian conditions at 14.0 feet. Cleaned out casing with roller cone. | | | | WH-1-1-2 (2) | 37.4 | | 5.0 | 95.0 | 34 | 14 |
| 15 | | A-6, SiCl, gry, MTW, Rec. = 2.0 ft | | | | WH-1-1-2 (2) | 37.0 | | 4.5 | 95.5 | 32 | 12 |
| | | A-4, Si, gry, MTW, Rec. = 2.0 ft | | | | WH-1-WH-2 (1) | 33.0 | | 1.8 | 98.2 | 28 | 5 |
| | | A-4, Si, gry, MTW, Rec. = 1.7 ft | | | | WH-1-1-2 (2) | 32.4 | | 1.7 | 98.3 | 27 | 2 |
| 20 | | A-4, Si, gry, MTW, Rec. = 1.8 ft | | | | 4-4-4-4 (8) | 23.2 | 9.8 | 11.5 | 78.7 | | |
| | | Field Note:, Roller coned ahead | | | | | | | | | | |
| 25 | | A-2-4, SiSaGr, gry, Wet, Rec. = 0.6 ft, Lab Note: Broken Rock was within sample. | | | | 29-11-9-6 (20) | 9.6 | 37.3 | 35.4 | 27.3 | | |
| | | Field Note:, NXDC | | | | | | | | | | |

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

BORING LOG 2 ST JOHNSBURY BF 7000(20).GPJ VERMONT AOT.GDT 1/22/15

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

# BORING LOG

**ST. JOHNSBURY**
**BF 7000(20)**
**VT-2B BR-6**

Boring No.: **B-101**
Page No.: 2 of 2
Pin No.: 86E048
Checked By: END

Boring Crew: JUDKINS, HOOK, NIETO
Date Started: 6/02/14 Date Finished: 6/04/14
VTSPG NAD83: N 700863.33 ft E 1761651.05 ft
Station: 62+73 Offset: -13.50
Ground Elevation: 666.56 ft

| | Casing | Sampler |
|---|---|---|
| Type: | WB | SS |
| I.D.: | 4 in | 1.5 in |
| Hammer Wt: | N.A. | 140 lb. |
| Hammer Fall: | N.A. | 30 in. |
| Hammer/Rod Type: | Auto/AWJ | |
| Rig: | CME 55 TRACK | $C_E$ = 1.46 |

Groundwater Observations

| Date | Depth (ft) | Notes |
|---|---|---|
| 06/03/14 | 5.3 | While drilling. |
| 06/04/14 | 5.5 | While drilling. |

| Depth (ft) | Strata (1) | CLASSIFICATION OF MATERIALS (Description) | Run (Dip deg.) | Core Rec. % (RQD %) | Drill Rate minutes/ft. | Blows/6" (N Value) | Moisture Content % | Gravel % | Sand % | Fines % | LL % | PI % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Field Note:, No Recovery. | | | | R@0.0" (R) | | | | | | |
| | | Field Note:, NXDC | | | | | | | | | | |
| 35 | | A-4, SaSi, gry, Wet, Rec. = 0.5 ft, Lab Note: Broken Rock was within sample. | | | | R@6.0" (R) | 9.8 | 15.5 | 34.7 | 49.8 | | |
| | | Field Note:, NXDC | | | | | | | | | | |
| 40 | | A-4, GrSaSi, gry, Moist, Rec. = 0.9 ft, Lab Note: Broken Rock was within sample. | | | | 48-R@5.0" (R) | 8.6 | 20.0 | 27.9 | 52.1 | | |
| | | Field Note:, NXDC | | | | | | | | | | |
| 45 | | Visual Description:, SaSiGr, gry, Moist, Rec. = 0.1 ft, Lab Note: Broken Rock was within sample. | | | | R@1.0" (R) | 9.3 | | | | | |
| | | Field Note:, NXDC | | | | | | | | | | |
| 50 | | A-4, SiSa, gry, Moist, Rec. = 0.2 ft, Lab Note: Broken Rock was within sample. | | | | R@2.5" (R) | 7.0 | 19.2 | 43.6 | 37.2 | | |
| | | 50.9 ft - 55.9 ft, Bluish-gray, Silicous Meta-Limestone, Hard, Unweathered, Good rock, NXMDC, Rock is Micaceous from 50.9 to 54.0 feet. RMR = 72 | 1 (?) | 100 (62) | 5 | Top of Bedrock @ 50.9 ft | | | | | | |
| | | | | | 4 | | | | | | | |
| | | | | | 3 | | | | | | | |
| 55 | | | | | 2 | | | | | | | |
| | | | | | 2 | | | | | | | |
| | | Hole stopped @ 55.9 ft | | | | | | | | | | |
| | | Remarks:<br>Hole collapsed at 25.5 ft. | | | | | | | | | | |

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

BORING LOG 2 ST JOHNSBURY BF 7000(20).GPJ VERMONT AOT.GDT 1/22/15

CLD 14-0116 MODEL: BOR02

CONSULTING ENGINEERS

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BF 7000(20)

FILE NAME: 86e048/cos/z86e048bor.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: A. GIRALDI
BORING LOGS (1 OF 4)

PLOT DATE: 5/4/2015
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 17 OF 42

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

# BORING LOG

**ST. JOHNSBURY**
**BF 7000(20)**
**VT-2B BR-6**

Boring No.: **B-103**
Page No.: 1 of 3
Pin No.: 86E048
Checked By: END

Boring Crew: HOOK, DAIGNEAULT
Date Started: 6/16/14 Date Finished: 6/18/14
VTSPG NAD83: N 700872.66 ft E 1761696.27 ft
Station: 63+25 Offset: -38.60
Ground Elevation: 672.38 ft

| | Casing | Sampler |
|---|---|---|
| Type: | WB | SS |
| I.D.: | 4 in | 1.5 in |
| Hammer Wt: | N.A. | 140 lb. |
| Hammer Fall: | N.A. | 30 in. |
| Hammer/Rod Type: | Auto/AWJ | |
| Rig: | CME 55 TRACK | $C_E$ = 1.46 |

Groundwater Observations

| Date | Depth (ft) | Notes |
|---|---|---|
| 06/17/14 | 11.8 | While drilling. |
| 06/18/14 | 11.2 | While drilling. |

| Depth (ft) | Strata (1) | CLASSIFICATION OF MATERIALS (Description) | Run (Dip deg.) | Core Rec. % (RQD %) | Drill Rate minutes/ft | Blows/6" (N Value) | Moisture Content % | Gravel % | Sand % | Fines % | LL % | PI % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A-4, SaSi, brn, Moist, Rec. = 0.4 ft, Cleaned out with roller cone. | | | | WH-WH-1-1 (1) | 21.9 | 3.0 | 48.3 | 48.7 | | |
| | | A-4, ClSi, brn-gry, Moist, Rec. = 1.8 ft, Cleaned out with roller cone. | | | | 1-1-1-2 (2) | 31.5 | | 3.4 | 96.6 | 28 | 8 |
| 5 | | A-6, SiCl, gry, Moist, Rec. = 2.0 ft, Cleaned out with roller cone. | | | | WH-WH-WH-WH (WH) | 37.6 | | 0.2 | 99.8 | 32 | 13 |
| | | A-6, SiCl, gry, Moist, Rec. = 2.0 ft, Cleaned out with roller cone. Material from Consolidation sample & Triaxial T-208 tube sample "A". | | | | | 42.4 | | 0.2 | 99.8 | 39 | 19 |
| | | A-7-6, Cl, gry, Moist, Material from Triaxial T-208 "B & C" tube samples. | | | | | 49.0 | | 0.8 | 99.2 | 47 | 24 |
| | | A-7-6, Cl, gry, Moist, Rec. = 2.0 ft, Material from Consolidation sample & Triaxial T-208 tube sample "A". | | | | | 45.7 | | 0.9 | 99.1 | 45 | 22 |
| 10 | | A-7-6, Cl, gry, Moist, Material from Triaxial T-208 "B & C" tube samples. | | | | | 48.8 | | 0.5 | 99.5 | 50 | 25 |
| | | Visual Description:, SiCl, gry, Moist, Rec. = 2.0 ft, Lab Note: Material similar as 12-14 ft. | | | | (WH) | 42.7 | | | | | |
| | | A-6, SiCl, gry, Moist, Rec. = 2.0 ft, Cleaned out with roller cone. | | | | (WH) | 41.0 | | 0.3 | 99.7 | 36 | 16 |
| 15 | | Visual Description:, SiCl, gry, Moist, Rec. = 2.0 ft, Lab Note: Material similar as 16-18 ft. | | | | (WH) | 40.5 | | | | | |
| | | A-6, SiCl, gry, Moist, Rec. = 2.0 ft, Cleaned out with roller cone. | | | | (WH) | 41.3 | 7.3 | 0.2 | 92.5 | 39 | 18 |
| | | Visual Description:, SiCl, gry, Moist, Rec. = 2.0 ft, Lab Note: Material similar as 20-22 ft. | | | | WH-2-2-1 (4) | 34.5 | | | | | |
| 20 | | A-6, SiCl, gry, Moist, Rec. = 2.0 ft | | | | WH-1-2-1 (3) | 37.7 | | 0.4 | 99.6 | 36 | 16 |
| | | Field Note:, Cleaned out with roller cone | | | | | | | | | | |
| 25 | | A-4, ClSi, gry, Moist, Rec. = 2.0 ft | | | | WH-1-1-2 (2) | 30.6 | | 0.3 | 99.7 | 28 | 9 |

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

BORING LOG 2 ST JOHNSBURY BF 7000(20).GPJ VERMONT ADT.GDT 1/22/15

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

# BORING LOG

**ST. JOHNSBURY**
**BF 7000(20)**
**VT-2B BR-6**

Boring No.: **B-103**
Page No.: 2 of 3
Pin No.: 86E048
Checked By: END

Boring Crew: HOOK, DAIGNEAULT
Date Started: 6/16/14 Date Finished: 6/18/14
VTSPG NAD83: N 700872.66 ft E 1761696.27 ft
Station: 63+25 Offset: -38.60
Ground Elevation: 672.38 ft

| | Casing | Sampler |
|---|---|---|
| Type: | WB | SS |
| I.D.: | 4 in | 1.5 in |
| Hammer Wt: | N.A. | 140 lb. |
| Hammer Fall: | N.A. | 30 in. |
| Hammer/Rod Type: | Auto/AWJ | |
| Rig: | CME 55 TRACK | $C_E$ = 1.46 |

Groundwater Observations

| Date | Depth (ft) | Notes |
|---|---|---|
| 06/17/14 | 11.8 | While drilling. |
| 06/18/14 | 11.2 | While drilling. |

| Depth (ft) | Strata (1) | CLASSIFICATION OF MATERIALS (Description) | Run (Dip deg.) | Core Rec. % (RQD %) | Drill Rate minutes/ft | Blows/6" (N Value) | Moisture Content % | Gravel % | Sand % | Fines % | LL % | PI % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | | Visual Description:, Broken Rock with silt & little clay, gry, MTW, Rec. = 0.5 ft, Insufficient sample for testing. | | | | 3-5-3-6 (8) | 13.2 | | | | | |
| 35 | | A-4, GrSiSa (HP), gry, Moist, Rec. = 0.3 ft | | | | R@3.5" (R) | 8.0 | 21.7 | 39.7 | 38.6 | | |
| | | Field Note:, Cleaned out with roller cone | | | | | | | | | | |
| 40 | | A-4, SiSa (HP), gry, Moist, Rec. = 0.3 ft | | | | R@3.5" (R) | 8.6 | 18.2 | 41.5 | 40.3 | | |
| | | Field Note:, Cleaned out with roller cone | | | | | | | | | | |
| 45 | | A-4, SaSi (HP), gry, Moist, Rec. = 0.9 ft | | | | 35-R@5.0" (R) | 9.2 | 14.7 | 36.2 | 49.1 | | |
| | | Field Note:, Cleaned out with roller cone | | | | | | | | | | |
| 50 | | A-2-4, SaSiGr, gry, Moist, Rec. = 0.7 ft, Lab Note: Broken Rock was within sample. | | | | 35-R@2.5" (R) | 7.1 | 41.5 | 26.4 | 32.1 | | |
| | | Field Note:, Cleaned out with NXDC | | | | | | | | | | |

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

BORING LOG 2 ST JOHNSBURY BF 7000(20).GPJ VERMONT ADT.GDT 1/22/15

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

# BORING LOG

**ST. JOHNSBURY**
**BF 7000(20)**
**VT-2B BR-6**

Boring No.: **B-103**
Page No.: 3 of 3
Pin No.: 86E048
Checked By: END

Boring Crew: HOOK, DAIGNEAULT
Date Started: 6/16/14 Date Finished: 6/18/14
VTSPG NAD83: N 700872.66 ft E 1761696.27 ft
Station: 63+25 Offset: -38.60
Ground Elevation: 672.38 ft

| | Casing | Sampler |
|---|---|---|
| Type: | WB | SS |
| I.D.: | 4 in | 1.5 in |
| Hammer Wt: | N.A. | 140 lb. |
| Hammer Fall: | N.A. | 30 in. |
| Hammer/Rod Type: | Auto/AWJ | |
| Rig: | CME 55 TRACK | $C_E$ = 1.46 |

Groundwater Observations

| Date | Depth (ft) | Notes |
|---|---|---|
| 06/17/14 | 11.8 | While drilling. |
| 06/18/14 | 11.2 | While drilling. |

| Depth (ft) | Strata (1) | CLASSIFICATION OF MATERIALS (Description) | Run (Dip deg.) | Core Rec. % (RQD %) | Drill Rate minutes/ft | Blows/6" (N Value) | Moisture Content % | Gravel % | Sand % | Fines % | LL % | PI % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | | A-4, SaGrSi, gry, Moist, Rec. = 0.4 ft | | | | R@5.0" (R) | 8.2 | 33.1 | 30.2 | 36.7 | | |
| | | Field Note:, Cleaned out with NXDC | | | | | | | | | | |
| 60 | | A-4, GrSaSi, gry, Moist, Rec. = 1.0 ft, Lab Note: Broken Rock was within sample. | | | | 44-48-R@1.0" (R) | 8.1 | 25.1 | 31.7 | 43.2 | | |
| 65 | | 63.4 ft - 68.4 ft, Bluish-gray, Micaceous silicous Meta-Limestone, Hard, Unweathered, Good rock, NXMDC, RMR = 72 | 1 (30) | 96 (56) | 4 5 5 7 5 | | Top of Bedrock @ 63.4 ft | | | | | |
| 70 | | 68.4 ft - 73.4 ft, Bluish-gray, Micaceous silicous Meta-Limestone, Hard, Unweathered, Very good rock, NXMDC, RMR = 84 | 2 (?) | 100 (100) | 2 2 2 2 2 | | | | | | | |
| | | Hole stopped @ 73.4 ft | | | | | | | | | | |
| 75 | | Remarks: Hole collapsed at 59.2 ft. | | | | | | | | | | |
| 80 | | | | | | | | | | | | |

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

BORING LOG 2 ST JOHNSBURY BF 7000(20).GPJ VERMONT ADT.GDT 1/22/15

CLD 14-0116 MODEL: BOR03

CONSULTING ENGINEERS

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BF 7000(20)

FILE NAME: 86e048/cos/z86e048bor.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: A. GIRALDI
BORING LOGS (2 OF 4)

PLOT DATE: 5/4/2015
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 18 OF 42

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

# BORING LOG

**ST. JOHNSBURY**
**BF 7000(20)**
**VT-2B BR-6**

Boring No.: **B-104**
Page No.: 1 of 2
Pin No.: 86E048
Checked By: END

Boring Crew: JUDKINS, HOOK, DAIGNEAULT
Date Started: 6/04/14 Date Finished: 6/05/14
VTSPG NAD83: N 700829.18 ft E 1761670.17 ft
Station: 62+95 Offset: 15.50
Ground Elevation: 664.61 ft

| | Casing | Sampler |
|---|---|---|
| Type: | WB | SS |
| I.D.: | 4 in | 1.5 in |
| Hammer Wt: | N.A. | 140 lb. |
| Hammer Fall: | N.A. | 30 in. |
| Hammer/Rod Type: | Auto/AWJ | |
| Rig: | CME 55 TRACK | $C_E$ = 1.46 |

Groundwater Observations

| Date | Depth (ft) | Notes |
|---|---|---|
| 06/05/14 | 2.2 | While drilling. |

APPROX. BOTTOM OF FOOTING EL. 659.58'

| 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 % | LL % | PI % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A-4, SaSi, brn, Moist, Rec. = 0.4 ft, Lab Note: Sticks & Wood were within sample. | | | | WH-1-WH-1 (1) | 33.3 | 14.2 | 25.7 | 60.1 | | |
| | | A-2-4, SiSa, brn, Moist, Rec. = 1.4 ft, Cleaned out with roller cone. Lab Note: Wood & Broken Rock were within sample. | | | | 8-3-3-6 (6) | 18.6 | 17.6 | 54.4 | 28.0 | | |
| 5 | | A-1-a, SaGr, brn, Moist, Rec. = 0.5 ft, Lab Note: Broken Rock was within sample. | | | | 11-R@5.0" (R) | 8.3 | 61.3 | 25.5 | 13.2 | | |
| | | Field Note:, Cleaned out with roller cone | | | | | | | | | | |
| | | A-6, SiCl, gry, MTW, Rec. = 2.0 ft | | | | 5-2-1-2 (3) | 41.3 | 0.2 | 0.4 | 99.4 | 36 | 16 |
| | | Field Note:, Attempted Shelby Tube sample, No Recovery. | | | | | | | | | | |
| 10 | | Field Note:, Attempted Shelby Tube sample, No Recovery. | | | | | | | | | | |
| | | A-7-6, Cl, gry, MTW, Rec. = 2.0 ft, Cleaned out with roller cone. | | | | 5-6-2-2 (8) | 45.0 | 3.8 | 0.4 | 95.8 | 45 | 23 |
| 15 | | A-6, SiCl, gry, MTW, Rec. = 2.0 ft, Cleaned out with roller cone. | | | | WR-WR-2-2 (2) | 40.3 | 4.6 | 0.5 | 94.9 | 38 | 17 |
| | | A-4, ClSi, gry, MTW, Rec. = 2.0 ft, Cleaned out with roller cone. | | | | WH-WH-2-2 (2) | 34.0 | 3.7 | 0.1 | 96.2 | 29 | 9 |
| | | A-4, ClSi, gry, MTW, Rec. = 2.0 ft | | | | WH-1-1-2 (2) | 30.7 | | 0.4 | 99.6 | 27 | 7 |
| 20 | | A-4, Si, gry, MTW, Rec. = 2.0 ft, Lab Note: A very thin layer of clay was noticeable. | | | | WH-1-2-3 (3) | 30.9 | | 0.7 | 99.3 | | |
| | | Field Note:, Cleaned out with roller cone | | | | | | | | | | |
| 25 | | A-4, SaGrSi, gry, Moist, Rec. = 0.5 ft, Lab Note: Broken Rock was within sample. | | | | 16-16-10-17 (26) | 10.6 | 32.0 | 31.4 | 36.6 | | |
| | | Field Note:, Cleaned out with NXDC | | | | | | | | | | |
| 30 | | Field Note:, No Recovery | | | | R@0.0" (R) | | | | | | |
| | | Field Note:, Cleaned out with NXDC | | | | | | | | | | |
| 35 | | A-4, SaSi, gry, Moist, Rec. = 0.3 ft | | | | R@3.5" (R) | 8.3 | 10.0 | 36.9 | 53.1 | | |

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

BORING LOG 2 ST JOHNSBURY BF 7000(20).GPJ VERMONT AOT.GDT 1/22/15

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

# BORING LOG

**ST. JOHNSBURY**
**BF 7000(20)**
**VT-2B BR-6**

Boring No.: **B-104**
Page No.: 2 of 2
Pin No.: 86E048
Checked By: END

Boring Crew: JUDKINS, HOOK, DAIGNEAULT
Date Started: 6/04/14 Date Finished: 6/05/14
VTSPG NAD83: N 700829.18 ft E 1761670.17 ft
Station: 62+95 Offset: 15.50
Ground Elevation: 664.61 ft

| | Casing | Sampler |
|---|---|---|
| Type: | WB | SS |
| I.D.: | 4 in | 1.5 in |
| Hammer Wt: | N.A. | 140 lb. |
| Hammer Fall: | N.A. | 30 in. |
| Hammer/Rod Type: | Auto/AWJ | |
| Rig: | CME 55 TRACK | $C_E$ = 1.46 |

Groundwater Observations

| Date | Depth (ft) | Notes |
|---|---|---|
| 06/05/14 | 2.2 | While drilling. |

| Depth (ft) | Strata (1) | CLASSIFICATION OF MATERIALS (Description) | Run (Dip deg.) | Core Rec. % (RQD %) | Drill Rate minutes/ft | Blows/6" (N Value) | Moisture Content % | Gravel % | Sand % | Fines % | LL % | PI % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Field Note:, Cleaned out with NXDC | | | | | | | | | | |
| 40 | | A-2-4, GrSiSa, gry, Moist, Rec. = 0.3 ft, Lab Note: Broken Rock was within sample. | | | | R@3.5" (R) | 7.5 | 31.2 | 36.4 | 32.4 | | |
| | | Field Note:, Cleaned out with NXDC | | | | | | | | | | |
| 45 | | A-4, SaGrSi, gry, Moist, Rec. = 0.9 ft, Lab Note: Broken Rock was within sample. | | | | 24-R@5.0" (R) | 7.9 | 33.7 | 27.0 | 39.3 | | |
| | | Field Note:, Cleaned out with NXDC | | | | | | | | | | |
| 50 | | A-4, GrSaSi, gry, Moist, Rec. = 0.4 ft, Lab Note: Broken Rock was within sample. | | | | R@5.0" (R) | 9.1 | 28.4 | 32.7 | 38.9 | | |
| | | Field Note:, Cleaned out with NXDC | | | | | | | | | | |
| 55 | | A-4, SaSi, gry, Moist, Rec. = 1.2 ft | | | | 17-49-R@2.5" (R) | 9.3 | 12.8 | 40.7 | 46.5 | | |
| 60 | | 57.7 ft - 62.7 ft, Bluish-gray, Silicous Meta-Limestone, Hard, Unweathered, Good rock, NXMDC, RMR = 76 | 1 (?) | 90 (90) | 3<br>4<br>3<br>3<br>3 | | | Top of Bedrock @ 57.7 ft | | | | |
| 65 | | 62.7 ft - 67.7 ft, Bluish-gray, Silicous Meta-Limestone, Hard, Unweathered, Good rock, NXMDC, RMR = 76 | 2 (?) | 92 (92) | 3<br>2<br>3<br>2<br>2 | | | | | | | |
| | | Hole stopped @ 67.7 ft | | | | | | | | | | |
| 70 | | Remarks:<br>Hole collapsed at 54.0 ft. | | | | | | | | | | |
| 75 | | | | | | | | | | | | |

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

BORING LOG 2 ST JOHNSBURY BF 7000(20).GPJ VERMONT AOT.GDT 1/22/15

CLD 14-0116 MODEL: BOR04

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BF 7000(20)

FILE NAME: 86e048/cos/z86e048bor.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: A. GIRALDI
BORING LOGS (3 OF 4)

PLOT DATE: 5/4/2015
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 19 OF 42

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

# BORING LOG

**ST. JOHNSBURY**
**BF 7000(20)**
**VT-2B BR-6**

Boring No.: **B-201**
Page No.: 1 of 1
Pin No.: 86E048
Checked By: END

Boring Crew: DAIGNEAULT, HOOK
Date Started: 9/15/14 Date Finished: 9/16/14
VTSPG NAD83: N 700842.01 ft E 1761805.42 ft
Station: 64+30 Offset: 7.90
Ground Elevation: 692.94 ft

| | Casing | Sampler |
|---|---|---|
| Type: | WB | SS |
| I.D.: | 4 in | 1.5 in |
| Hammer Wt: | N.A. | 140 lb. |
| Hammer Fall: | N.A. | 30 in. |
| Hammer/Rod Type: | Auto/AWJ | |
| Rig: | CME 45C TRACK | $C_E$ = 1.34 |

| Groundwater Observations | | |
|---|---|---|
| Date | Depth (ft) | Notes |
| 09/16/14 | 5.8 | Casing removed. |

| Depth (ft) | Strata (1) | CLASSIFICATION OF MATERIALS (Description) | Blows/6" (N Value) | Moisture Content % | Gravel % | Sand % | Fines % | LL % | PI % |
|---|---|---|---|---|---|---|---|---|---|
| | | Asphalt Pavement, 0.0 ft - 0.35 ft | | | | | | | |
| | | Concrete, 0.35 ft - 0.95 ft | | | | | | | |
| | | A-2-4, Sa, brn, Moist, Rec. = 1.1 ft, Lab Note: Some Broken Rock was within sample. | 1-1-1-3 (2) | 5.0 | 18.6 | 70.8 | 10.6 | | |
| | | A-2-4, SiGrSa, brn, Moist, Rec. = 0.9 ft, Lab Note: Broken Rock was within sample. | 4-8-12-15 (20) | 5.5 | 24.8 | 53.9 | 21.3 | | |
| | | Visual Description:, Broken Concrete & Rock with sand, gry, Moist, Rec. = 0.4 ft | | 5.0 | | | | | |
| 5 | | A-2-4, SiSa, brn, Moist, Rec. = 1.2 ft | 7-7-5-3 (12) | 10.7 | 10.2 | 68.5 | 21.3 | | |
| | | A-4, SiSa, brn, Moist, Rec. = 1.0 ft, Cleaned out with roller cone. | 6-4-4-3 (8) | 16.6 | 1.0 | 61.7 | 37.3 | | |
| 10 | | A-4, SiSa, brn, Moist, Rec. = 0.9 ft, Cleaned out with roller cone. | 4-3-3-2 (6) | 22.2 | 5.1 | 53.0 | 41.9 | | |
| | | A-4, Si, brn, MTW, Rec. = 1.2 ft, Cleaned out with roller cone. | 1-1-2-2 (3) | 29.9 | | 13.8 | 86.2 | | |
| | | A-4, Si, brn, MTW, Rec. = 1.4 ft, Cleaned out with roller cone. | 1-WH-WH-1 (WH) | 33.0 | | 1.6 | 98.4 | 25 | 1 |
| 15 | | A-4, Si, brn, MTW, Rec. = 1.1 ft, Cleaned out with roller cone. | 2-2-2-2 (4) | 29.0 | | 1.5 | 98.5 | 27 | 2 |
| | | Field Note:, Pushed Shelby Tube, brn, Moist, Rec. = 2.0 ft, Appears to be Silty Clay. | | | | | | | |
| 20 | | Field Note:, Pushed Shelby Tube, Lt/brn, Moist, Rec. = 1.5 ft, Appears to be Silt. | | | | | | | |
| | | A-4, Si, brn, Moist, Rec. = 1.1 ft, Cleaned out with roller cone. | 1-1-4-4 (5) | 28.4 | | 1.1 | 98.9 | 28 | 4 |
| | | A-4, Si, brn, Moist, Rec. = 1.5 ft | 3-3-4-4 (7) | 29.1 | | 2.1 | 97.9 | | |
| 25 | | A-4, Si, brn, Moist, Rec. = 1.1 ft | 2-2-2-3 (4) | 28.7 | 0.1 | 4.6 | 95.3 | | |
| 30 | | A-4, Si, gry, Moist, Rec. = 1.4 ft | WH-3-1-2 (4) | 27.8 | | 3.1 | 96.9 | 25 | 2 |
| | | Hole stopped @ 32.0 ft | | | | | | | |
| 35 | | Remarks:<br>Hole collapsed at 29.1 ft. | | | | | | | |

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

BORING LOG 2 ST JOHNSBURY BF 7000(20).GPJ VERMONT AOT.GDT 12/11/14

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

# BORING LOG

**ST. JOHNSBURY**
**BF 7000(20)**
**VT-2B BR-6**

Boring No.: **B-202**
Page No.: 1 of 1
Pin No.: 86E048
Checked By: END

Boring Crew: NIETO, DAIGNEAULT, HOOK
Date Started: 9/19/14 Date Finished: 9/19/14
VTSPG NAD83: N 700850.43 ft E 1761849.45 ft
Station: 64+75 Offset: 7.70
Ground Elevation: 692.28 ft

| | Casing | Sampler |
|---|---|---|
| Type: | WB | SS |
| I.D.: | 4 in | 1.5 in |
| Hammer Wt: | N.A. | 140 lb. |
| Hammer Fall: | N.A. | 30 in. |
| Hammer/Rod Type: | Auto/AWJ | |
| Rig: | CME 45C TRACK | $C_E$ = 1.34 |

| Groundwater Observations | | |
|---|---|---|
| Date | Depth (ft) | Notes |
| 09/19/14 | 3.3 | Casing in ground. |

| Depth (ft) | Strata (1) | CLASSIFICATION OF MATERIALS (Description) | Blows/6" (N Value) | Moisture Content % | Gravel % | Sand % | Fines % | LL % | PI % |
|---|---|---|---|---|---|---|---|---|---|
| | | Asphalt Pavement, 0.0 ft - 0.95 ft | | | | | | | |
| | | A-2-4, Sa, brn, Moist, Rec. = 1.4 ft, Cleaned out casing with roller cone. | 9-9-15-R@2.5" (24) | 11.1 | 19.9 | 62.5 | 17.6 | | |
| | | Field Note:, No Recovery. Appears to be Gravelly Sand, Cleaned out casing with roller cone. | 21-8-3-4 (11) | | | | | | |
| 5 | | A-2-4, SiSa, brn, Moist, Rec. = 1.1 ft, Cleaned out casing with roller cone. | 3-3-4-4 (7) | 15.4 | 3.5 | 70.8 | 25.7 | | |
| | | A-4, SaSi, brn, Moist, Rec. = 1.0 ft, Cleaned out casing with roller cone. | 5-3-3-4 (6) | 22.5 | 0.2 | 43.3 | 56.5 | | |
| 10 | | A-4, Si, brn, Moist, Rec. = 1.0 ft | 1-2-1-2 (3) | 29.4 | | 5.5 | 94.5 | 28 | 2 |
| | | A-4, Si, brn, Moist, Rec. = 1.5 ft, Cleaned out casing with roller cone. | 2-2-2-1 (4) | 29.4 | 0.2 | 5.5 | 94.3 | | |
| | | A-4, Si, brn, MTW, Rec. = 1.6 ft, Cleaned out casing with roller cone. | 1-1-1-1 (2) | 31.8 | | 1.4 | 98.6 | | |
| 15 | | A-4, Si, brn, MTW, Rec. = 1.5 ft, Cleaned out casing with roller cone. | WH-1-1-WH (2) | 31.6 | 0.1 | 2.2 | 97.7 | | |
| | | A-4, Si, brn, MTW, Rec. = 1.9 ft, Cleaned out casing with roller cone. | WR-1-1-WH (2) | 34.0 | | 0.8 | 99.2 | 27 | 3 |
| 20 | | A-4, Si, brn, MTW, Rec. = 1.8 ft, Cleaned out casing with roller cone. | WR-WR-3-1 (3) | 31.6 | | 1.0 | 99.0 | 26 | 2 |
| | | A-4, Si, brn, MTW, Rec. = 1.1 ft, Cleaned out casing with roller cone. | 1-2-1-3 (3) | 29.5 | | 4.4 | 95.6 | | |
| | | A-4, Si, Lt/brn, MTW, Rec. = 1.0 ft, Lab Note: Sample was brownish-orange in color. | 3-3-3-3 (6) | 29.6 | | 3.2 | 96.8 | | |
| 25 | | A-4, Si, brn, MTW, Rec. = 0.8 ft, Cleaned out casing with roller cone. | 3-3-2-3 (5) | 29.9 | | 1.1 | 98.9 | | |
| 30 | | A-4, Si, gry, MTW, Rec. = 1.5 ft | 1-2-1-1 (3) | 28.7 | | 4.5 | 95.5 | 23 | 2 |
| | | Hole stopped @ 32.0 ft | | | | | | | |
| 35 | | Remarks:<br>Hole collapsed at 28.7 ft. | | | | | | | |

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

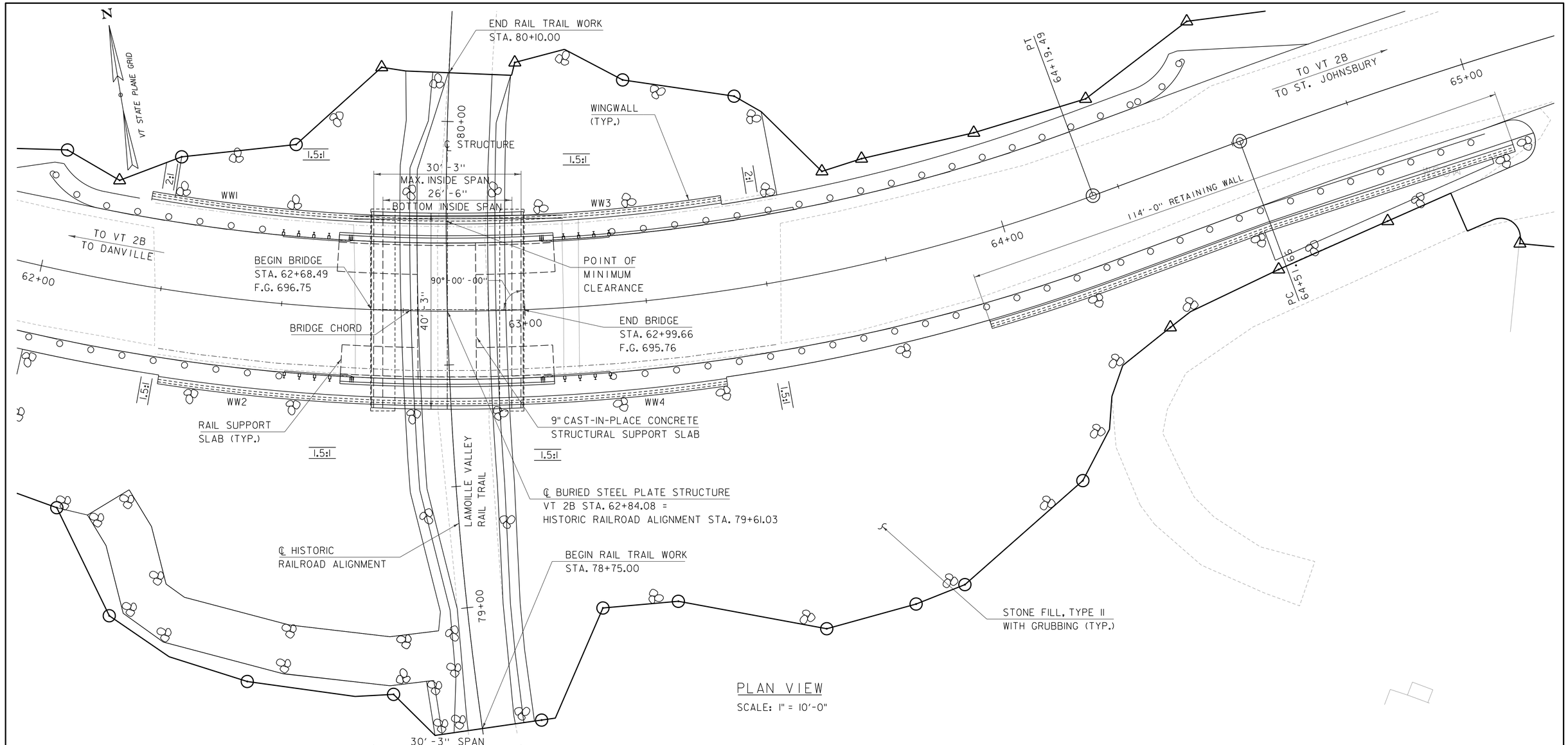
BORING LOG 2 ST JOHNSBURY BF 7000(20).GPJ VERMONT AOT.GDT 12/11/14

CLD I4-0116 MODEL: BOR05

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BF 7000(20)

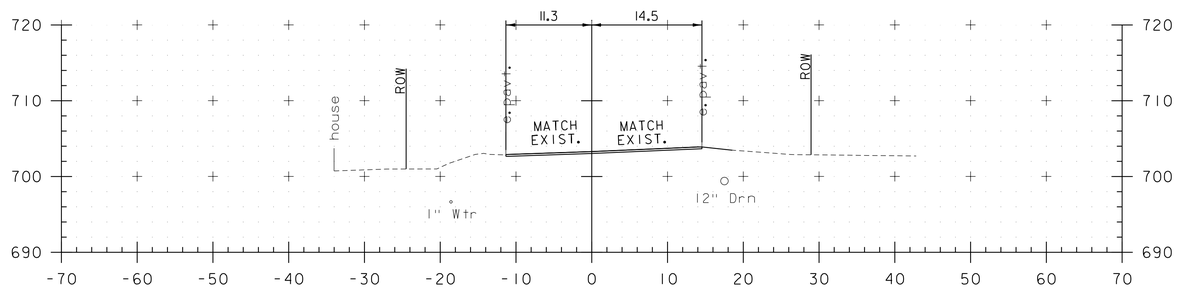
FILE NAME: 86e048/cos/z86e048bor.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: A. GIRALDI
BORING LOGS (4 OF 4)

PLOT DATE: 5/4/2015
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 20 OF 42

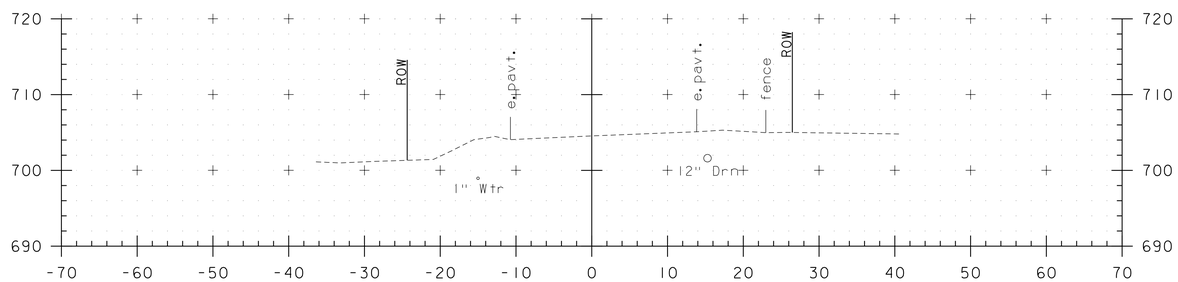



| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048pe.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J.BYATT | DRAWN BY: M.SMITH |
| DESIGNED BY: A.GIRALDI | CHECKED BY: S.BEAUMONT |
| PLAN AND ELEVATION | SHEET 21 OF 42 |

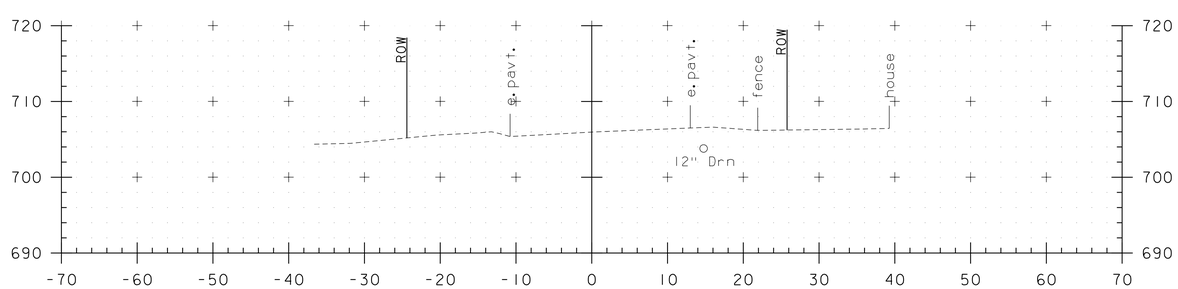
CLD 14-0116 MODEL: Sheet



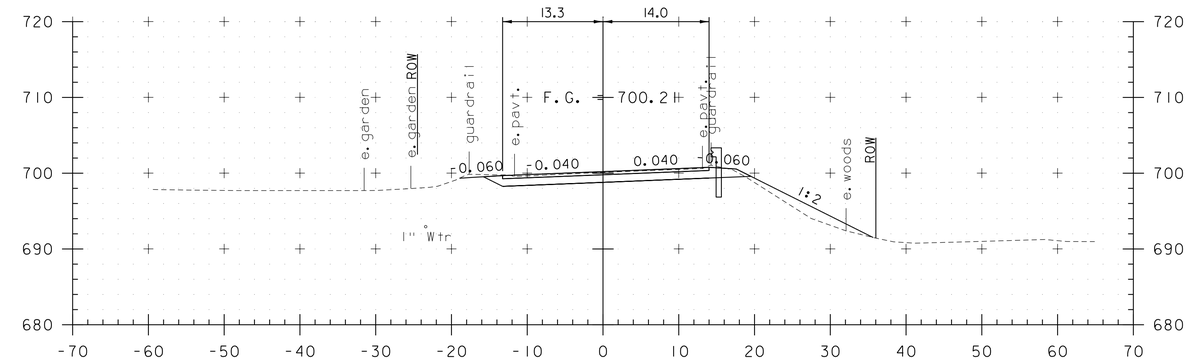

61+00
DRIVE RT
BEGIN APPROACH



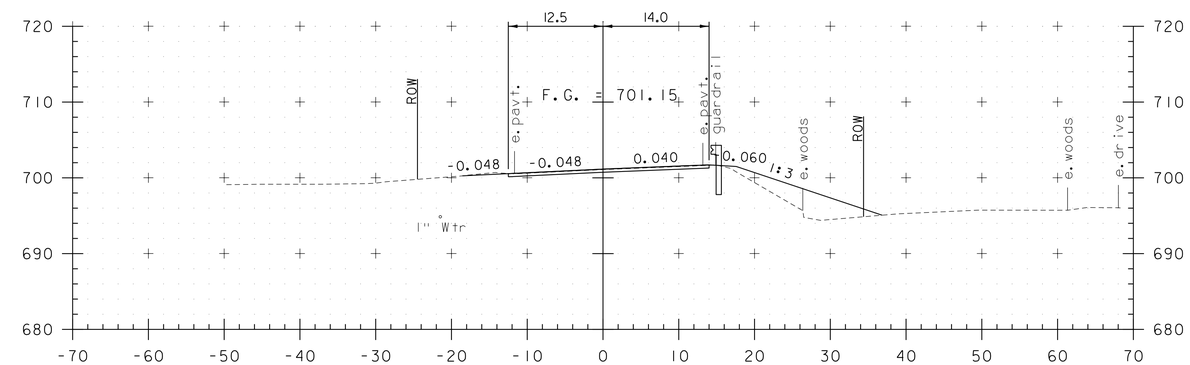

60+75



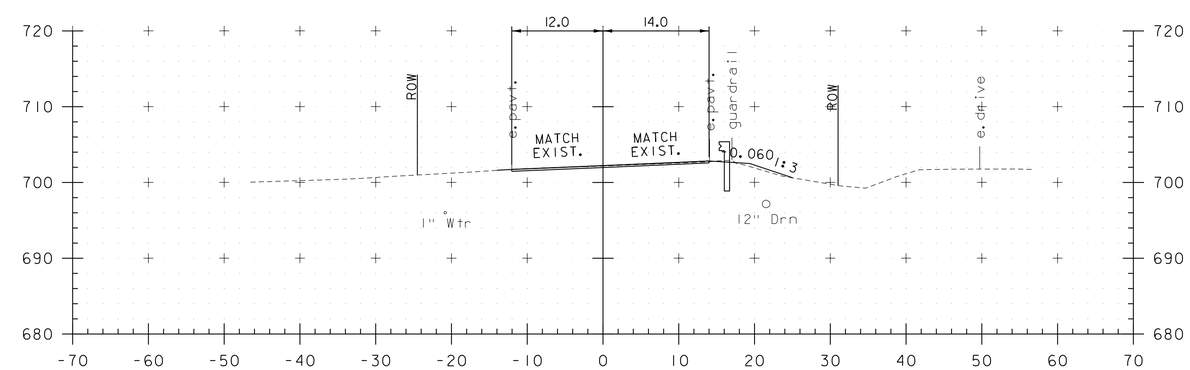

60+50




61+75




61+50




61+25
DRIVE LT

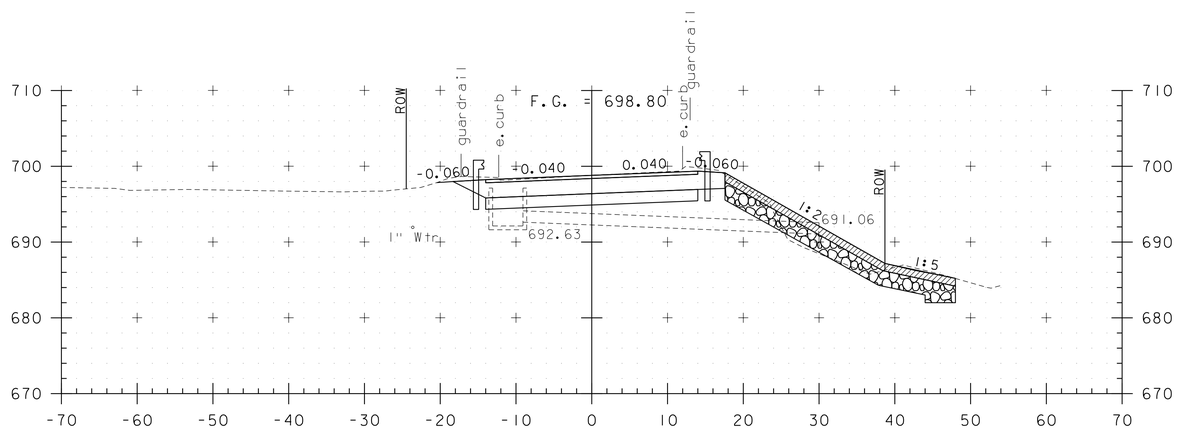
STA. 60+50 TO STA. 61+75

0 10 20
(SCALE 1" = 10')

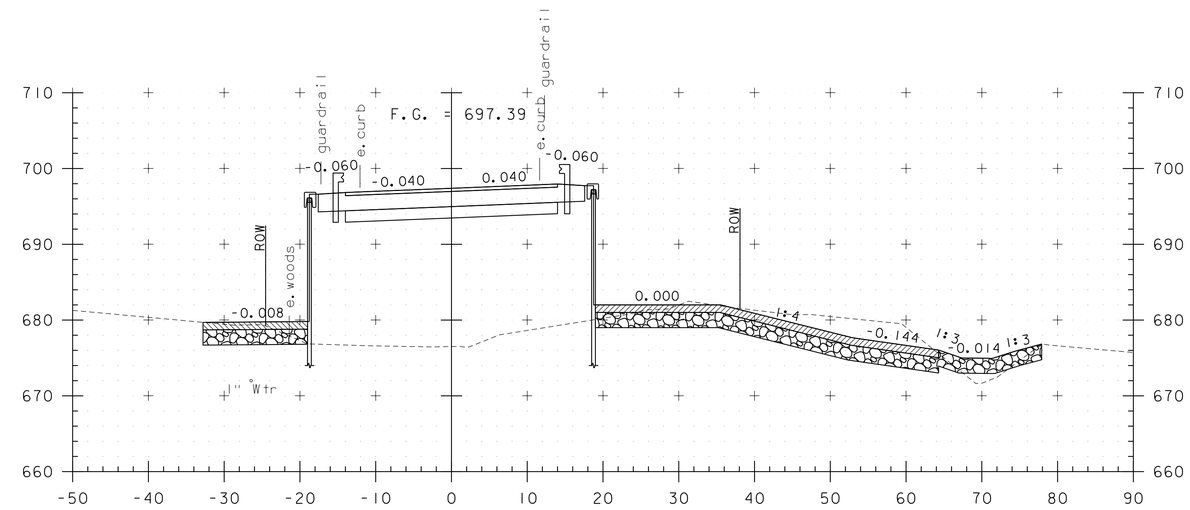
CONSULTING ENGINEERS

| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048xs.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J. BYATT | DRAWN BY: M. HALEY |
| DESIGNED BY: M. HALEY | CHECKED BY: P.SHEDD |
| VT 2B CROSS SECTIONS 1 | SHEET 22 OF 42 |

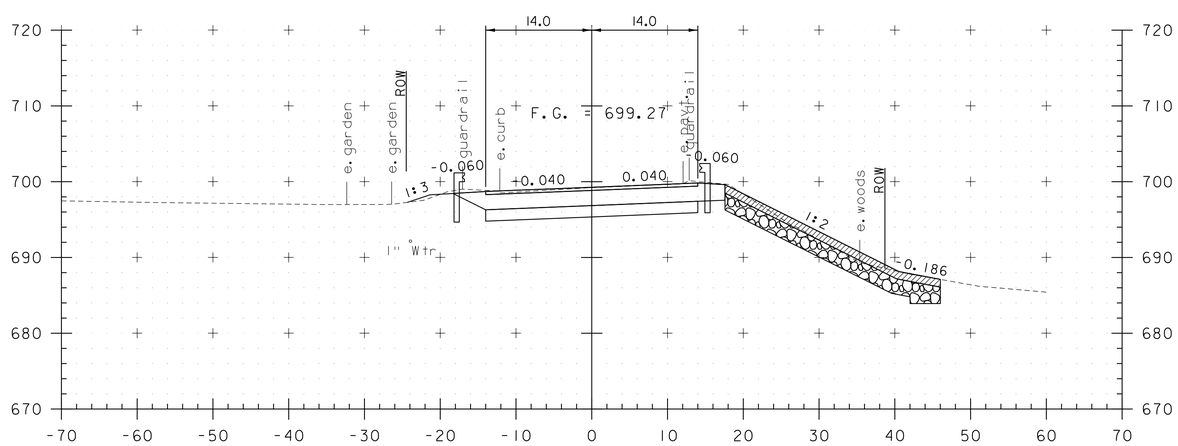
CLD 14-0116 MODEL: MAINLINE XSOI



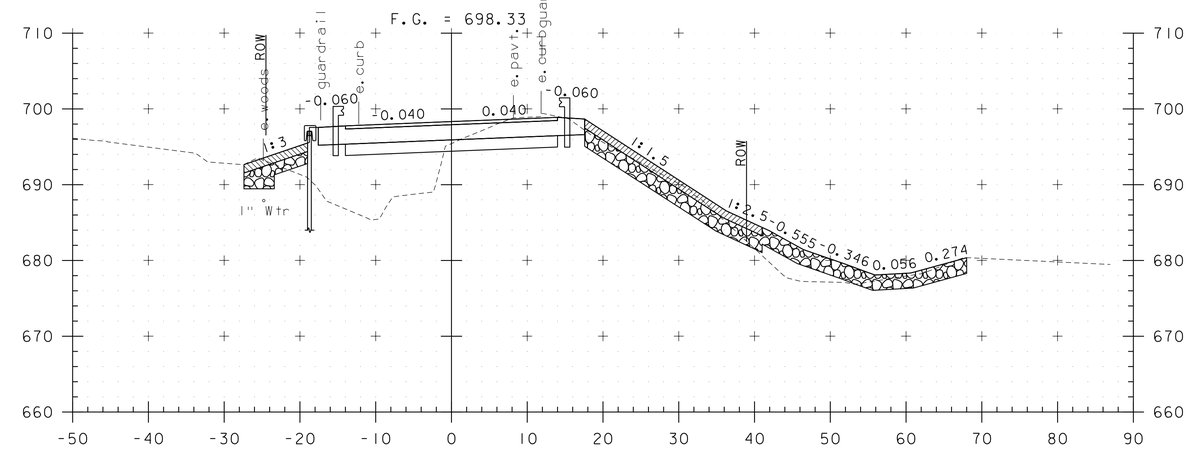

62+12




62+50




62+00
BEGIN PROJECT




62+25

STA. 62+00 TO STA. 62+50

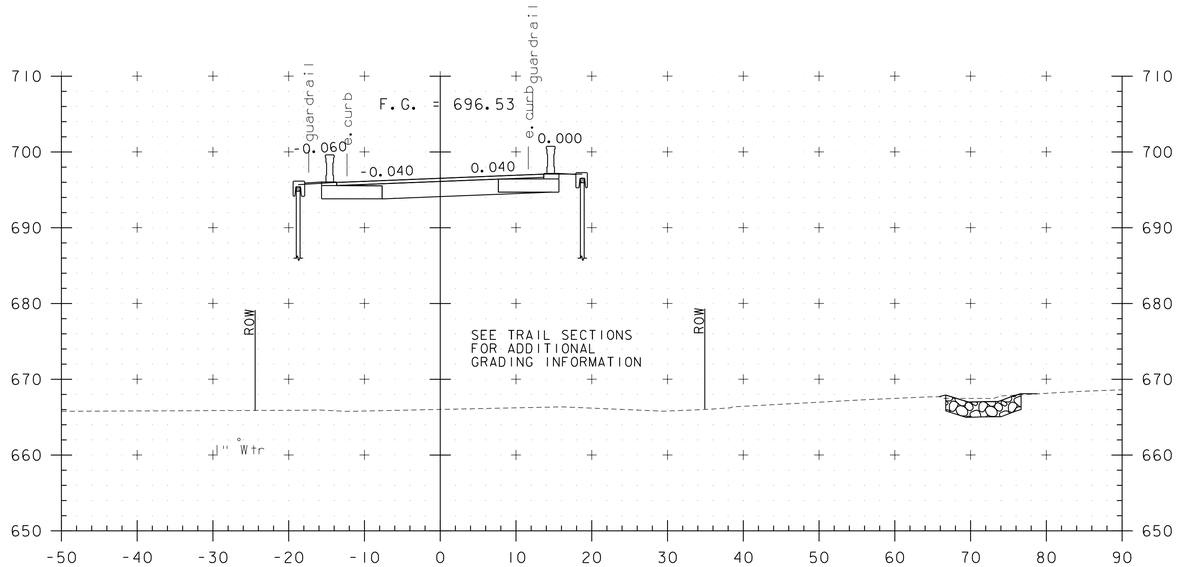
0 10 20
(SCALE 1" = 10')

CONSULTING ENGINEERS

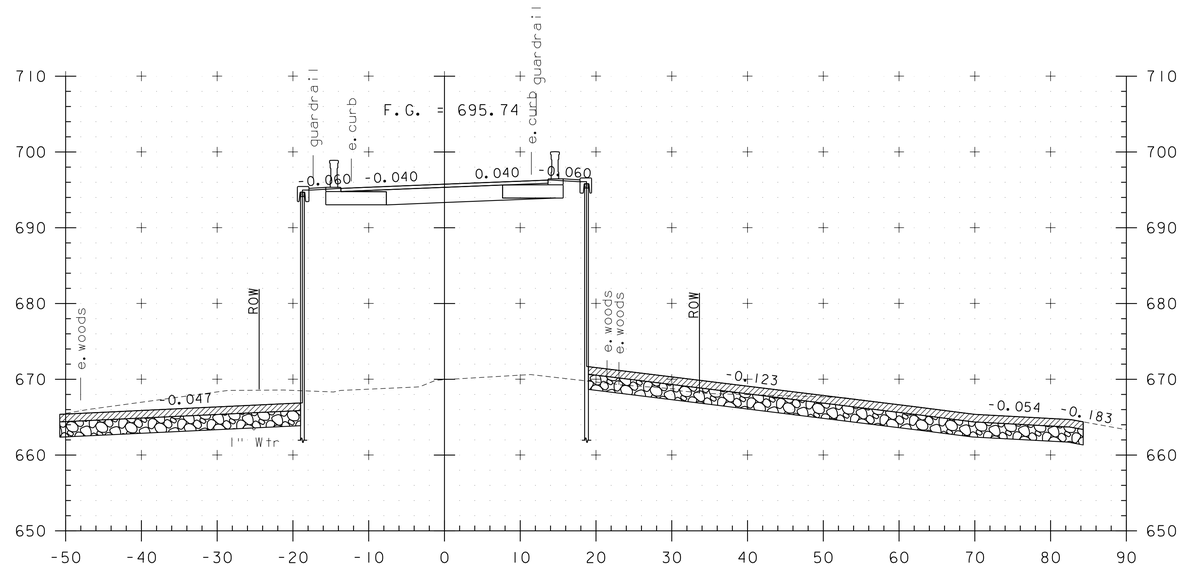
| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048xs.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J. BYATT | DRAWN BY: M. HALEY |
| DESIGNED BY: M. HALEY | CHECKED BY: P.SHEDD |
| VT 2B CROSS SECTIONS 2 | SHEET 23 OF 42 |

MODEL: MAINLINE XS02

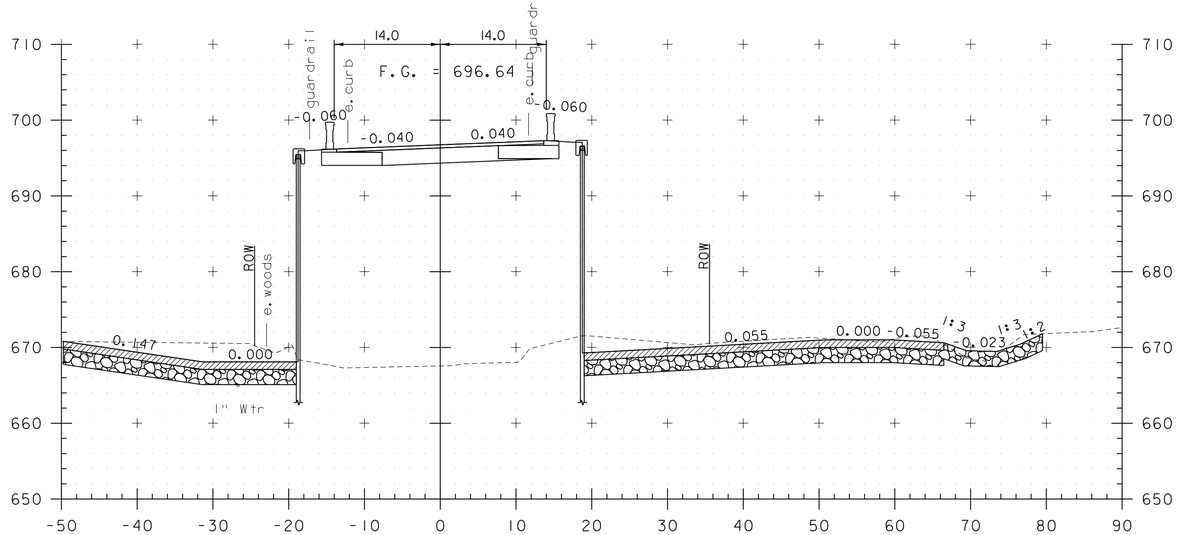
CLD 14-0116



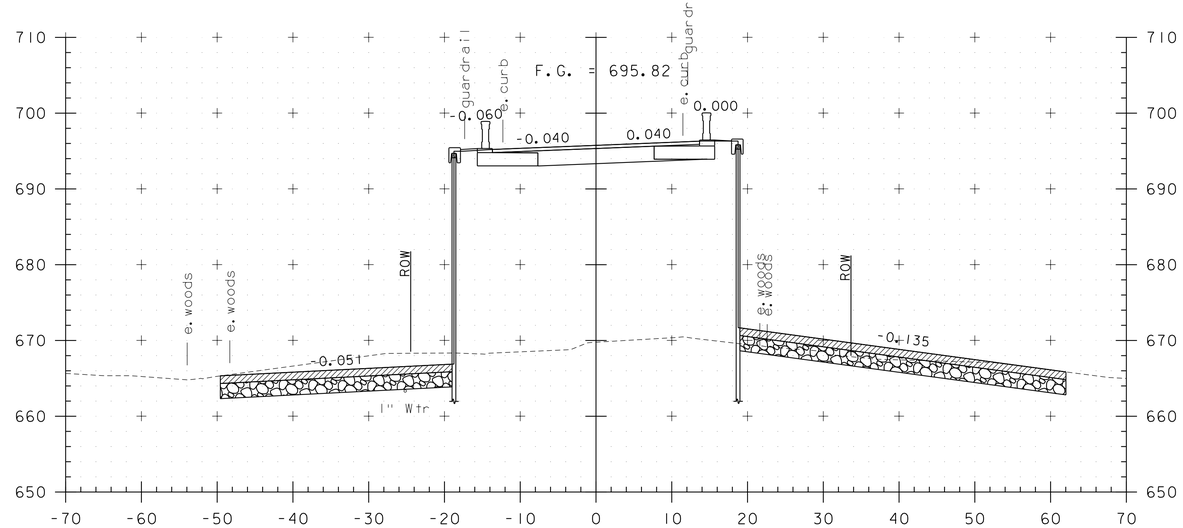

62+75




63+00




62+68.49
BEGIN BRIDGE




62+99.66
END BRIDGE

STA. 62+68 TO STA. 63+00

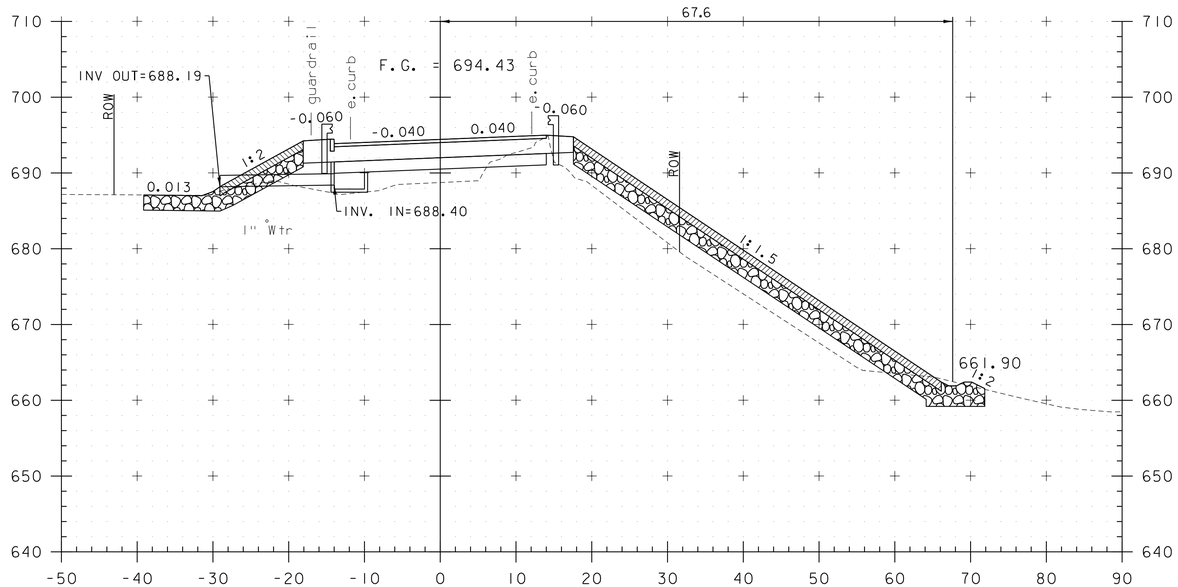
0 10 20
(SCALE 1" = 10')

| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048xs.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J. BYATT | DRAWN BY: M. HALEY |
| DESIGNED BY: M. HALEY | CHECKED BY: P.SHEDD |
| VT 2B CROSS SECTIONS 3 | SHEET 24 OF 42 |

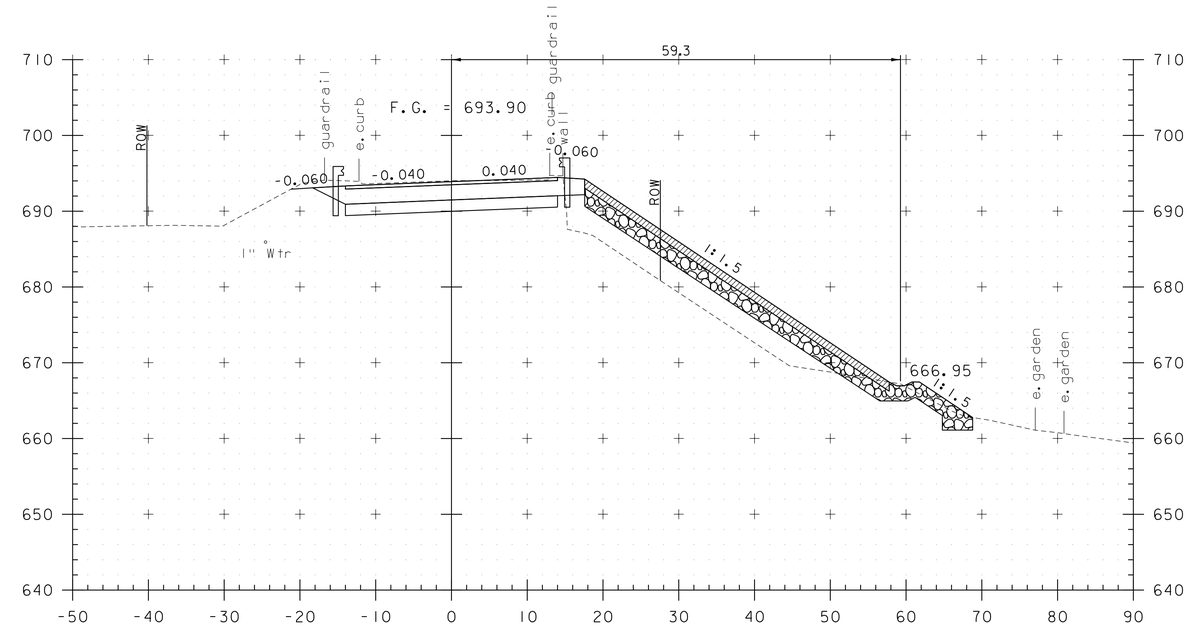
CONSULTING ENGINEERS

MODEL: MAINLINE XS03

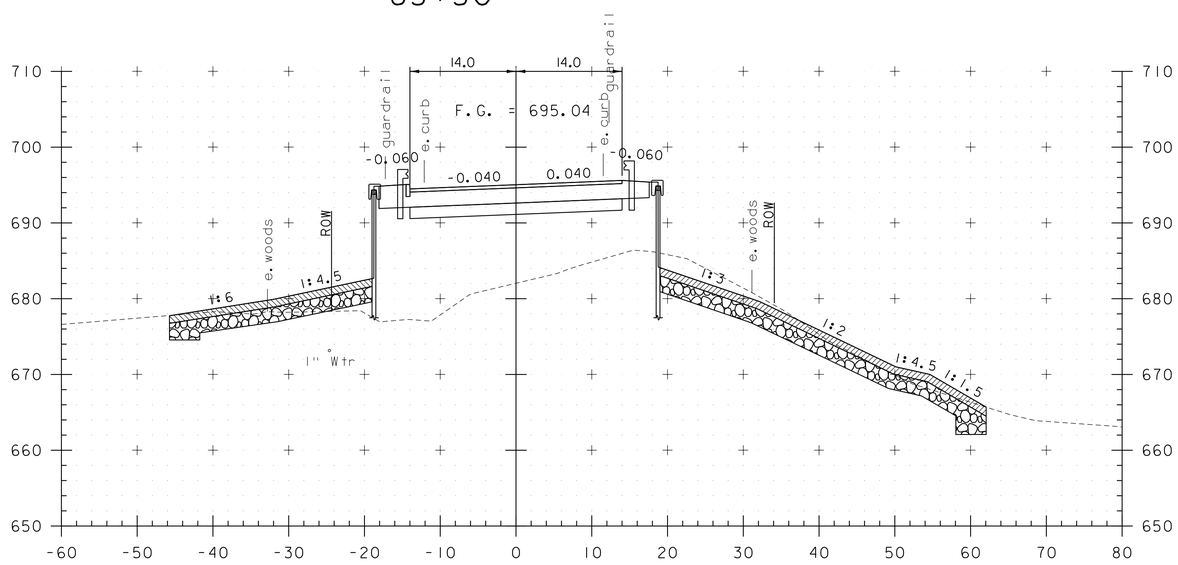
CLD 14-0116



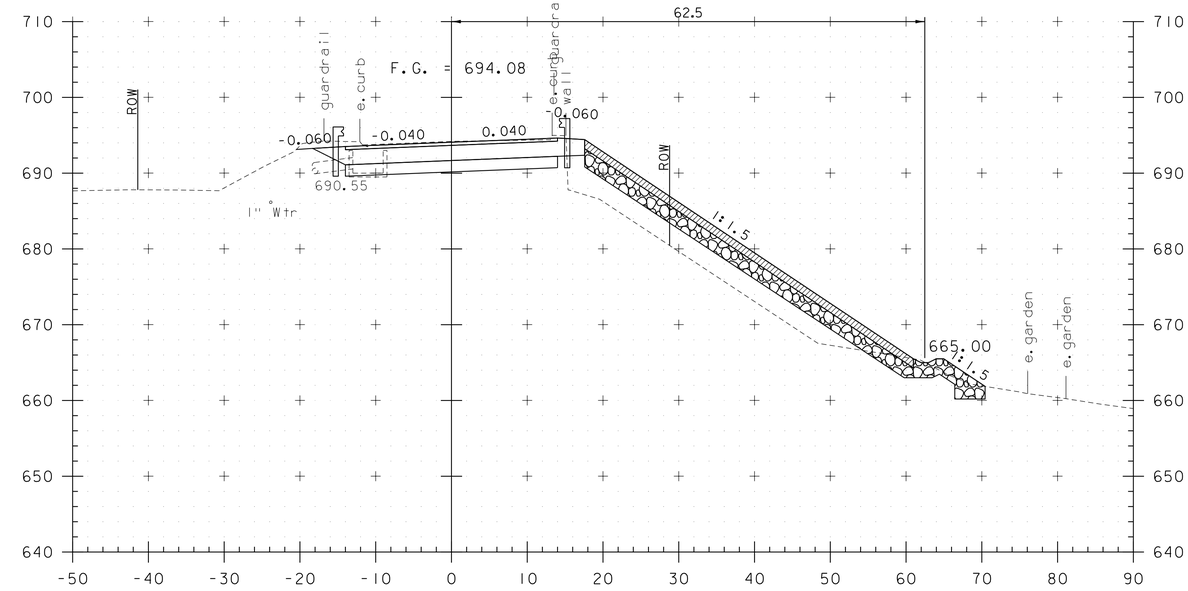

63+50




63+75
END PROJECT




63+25




63+66

STA. 63+25 TO STA. 63+75

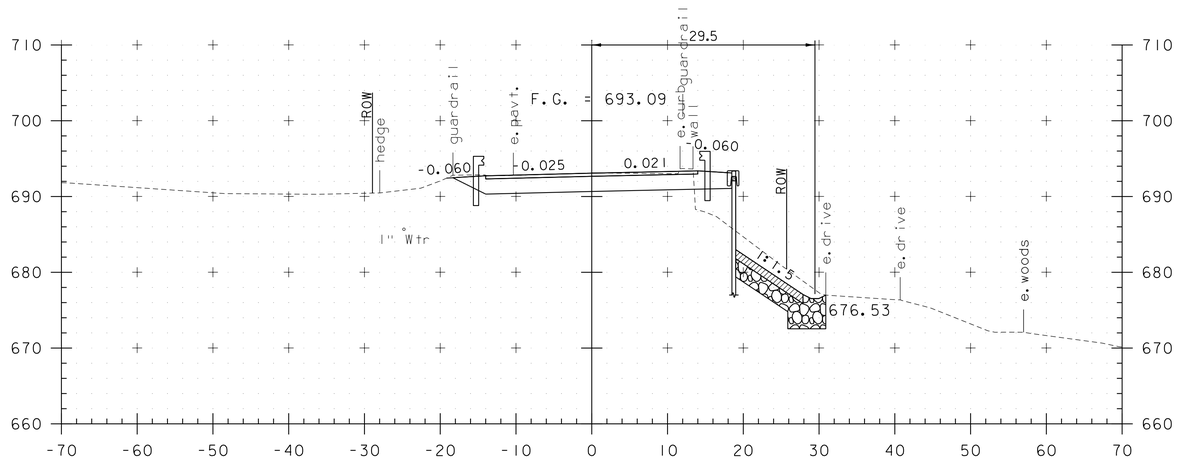
0 10 20
(SCALE 1" = 10')

CONSULTING ENGINEERS

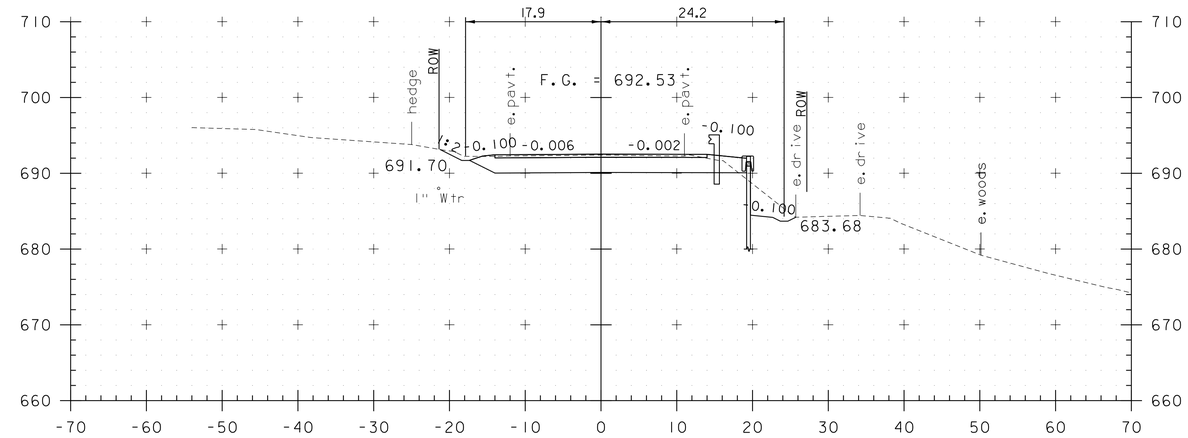
| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048xs.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J. BYATT | DRAWN BY: M. HALEY |
| DESIGNED BY: M. HALEY | CHECKED BY: P.SHEDD |
| VT 2B CROSS SECTIONS 4 | SHEET 25 OF 42 |

MODEL: MAINLINE XS04

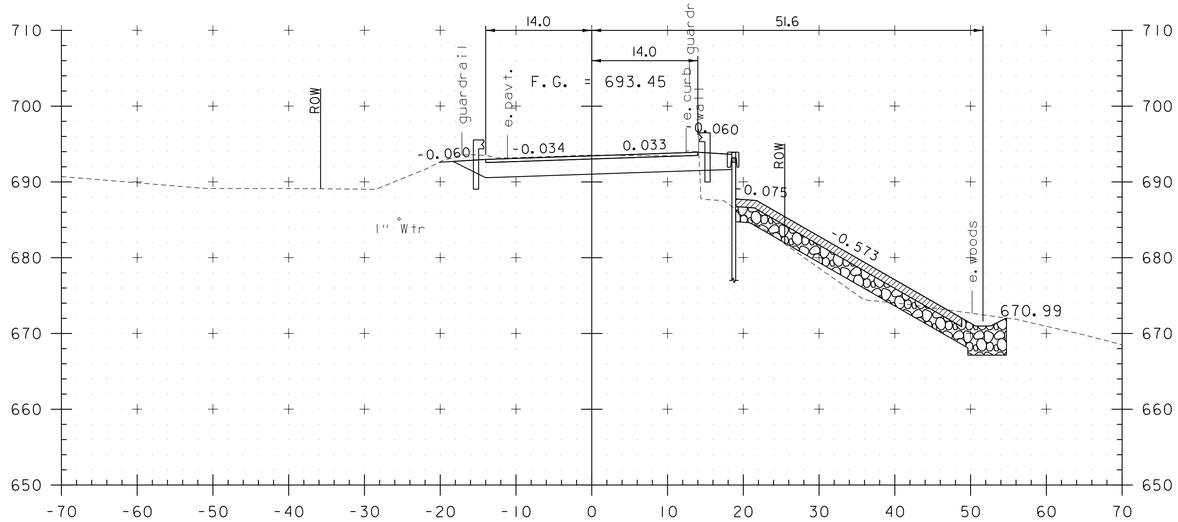
CLD 14-0116



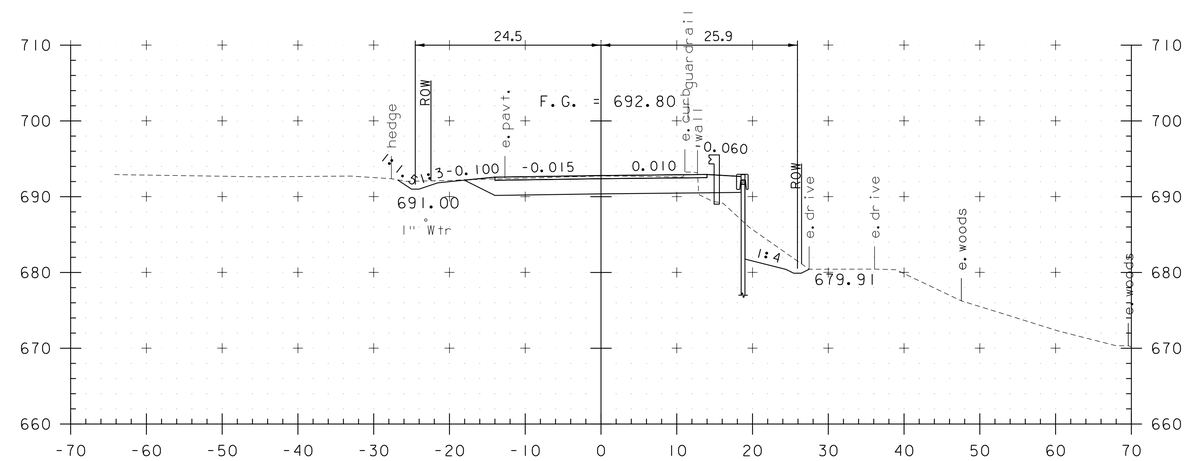

64+25




64+75




64+00



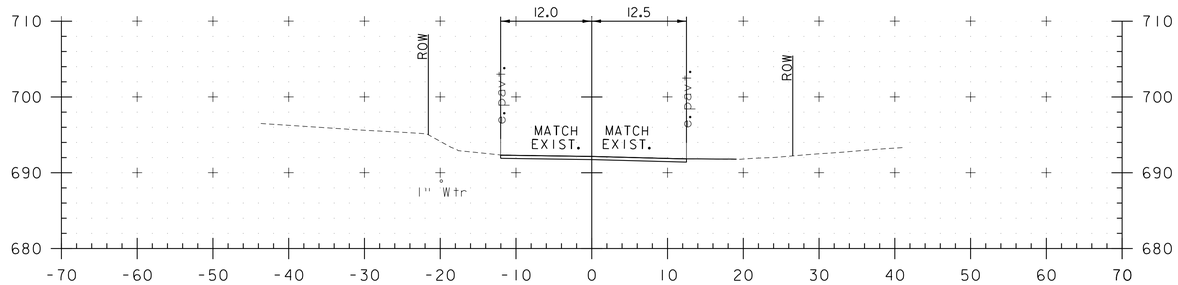

64+50

STA. 64+00 TO STA. 64+75

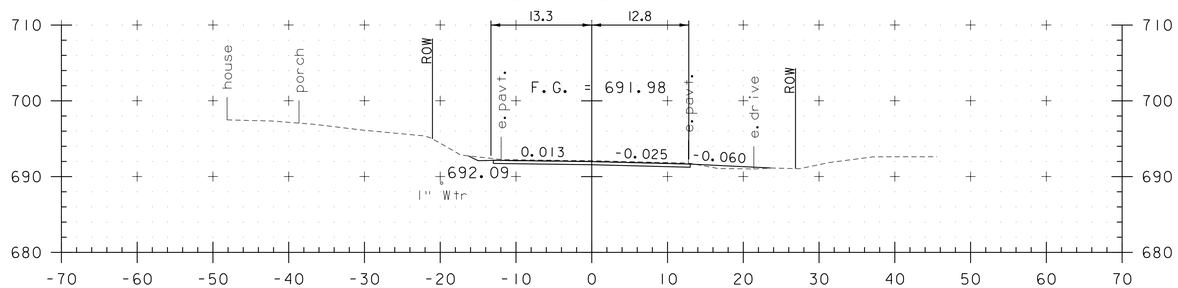
0 10 20
(SCALE 1" = 10')

| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048xs.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J. BYATT | DRAWN BY: M. HALEY |
| DESIGNED BY: M. HALEY | CHECKED BY: P.SHEDD |
| VT 2B CROSS SECTIONS 5 | SHEET 26 OF 42 |

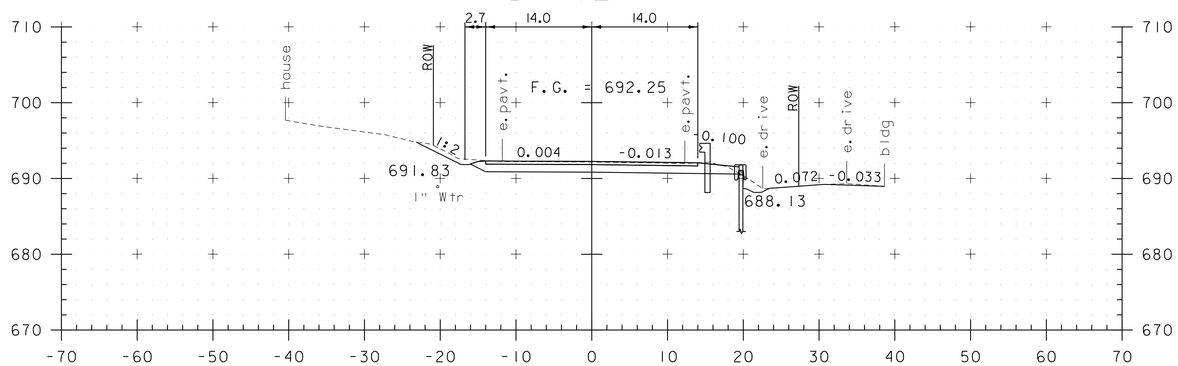
CLD 14-0116 MODEL: MAINLINE XS05



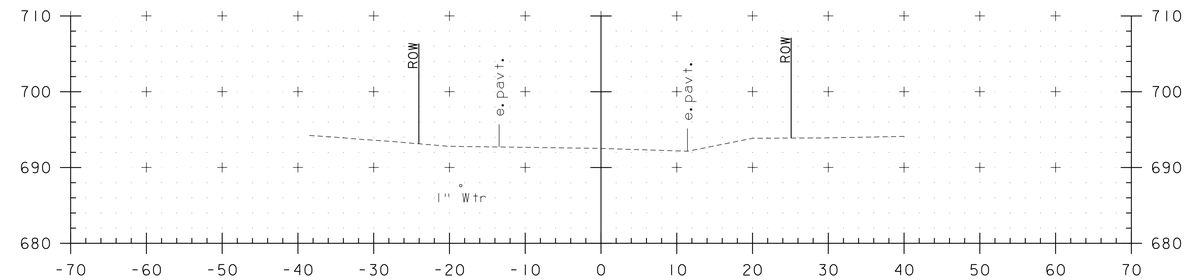

65+46
DRIVE RT



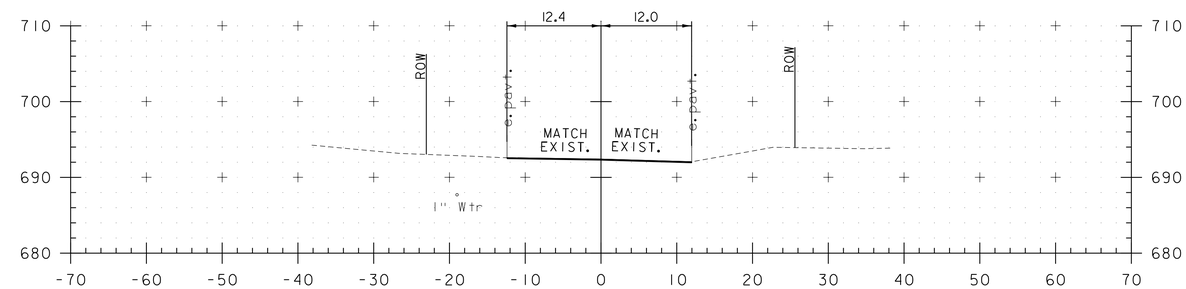

65+25
DRIVE RT



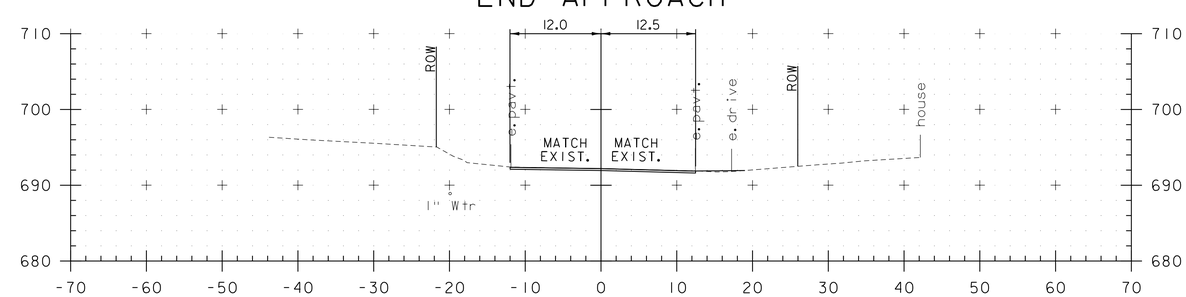

65+00




66+00




65+75
DRIVE LT
END APPROACH




65+50

STA. 65+00 TO STA. 66+00

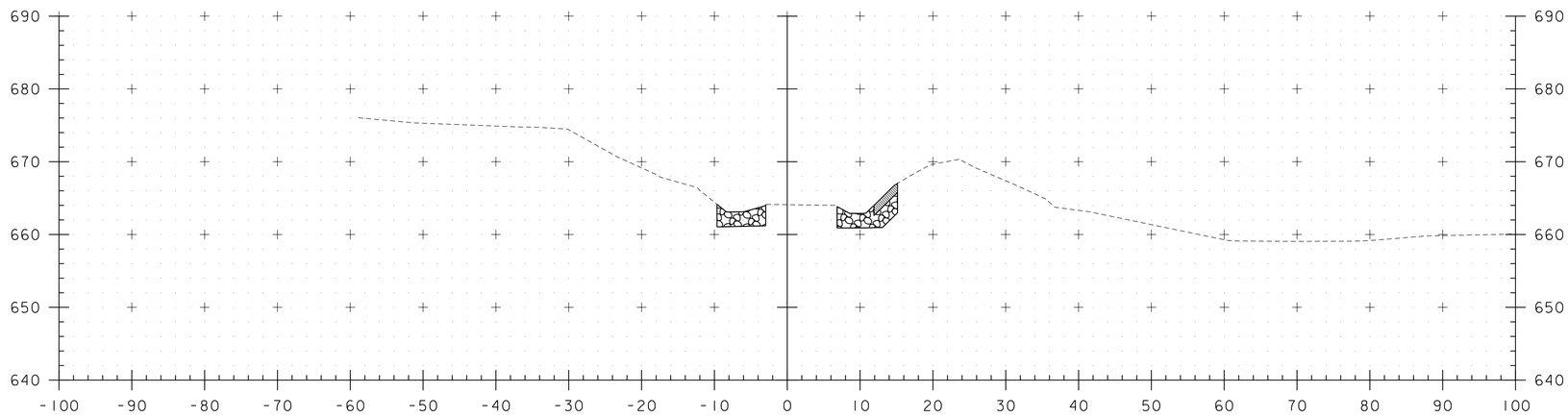
0 10 20
(SCALE 1" = 10')

| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048xs.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J. BYATT | DRAWN BY: M. HALEY |
| DESIGNED BY: M. HALEY | CHECKED BY: P.SHEDD |
| VT 2B CROSS SECTIONS 6 | SHEET 27 OF 42 |

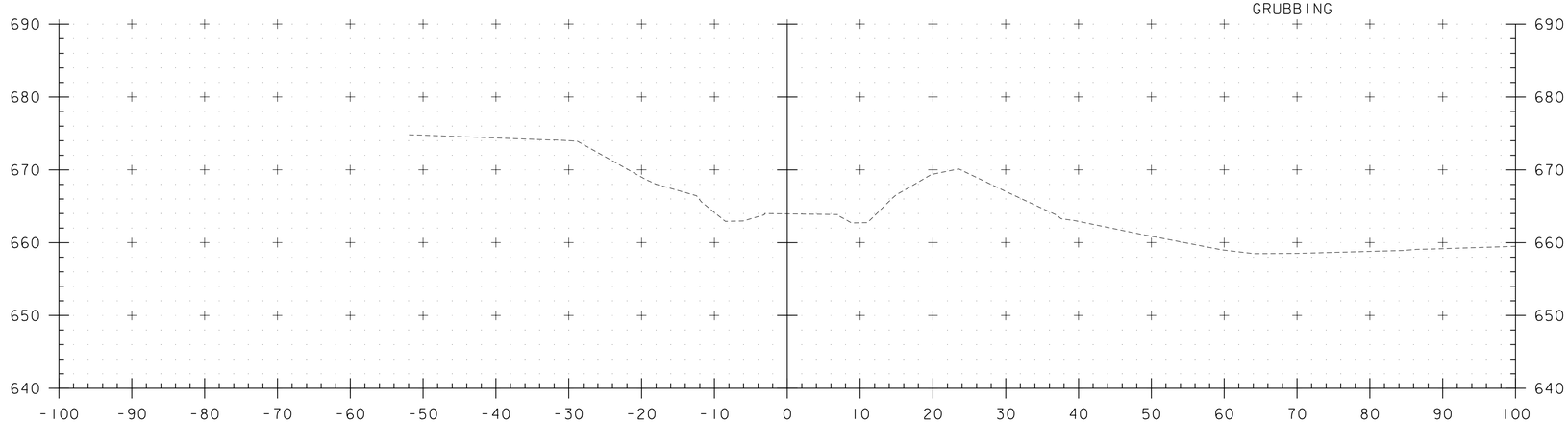
CONSULTING ENGINEERS

MODEL: MAINLINE XS06

CLD 14-0116




78+75




78+70

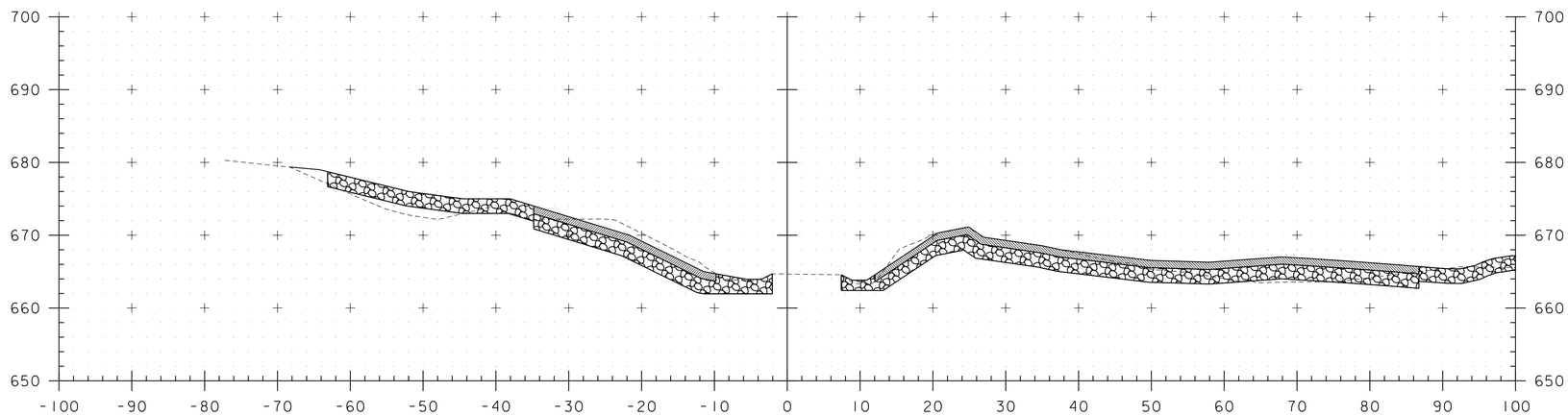
STA. 78+70 TO STA. 78+75

| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048xstrail.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J. BYATT | DRAWN BY: M. SMITH |
| DESIGNED BY: A. GIRALDI | CHECKED BY: S. BEAUMONT |
| RAIL TRAIL CROSS SECTIONS I | SHEET 28 OF 42 |

CONSULTING ENGINEERS

MODEL: Default

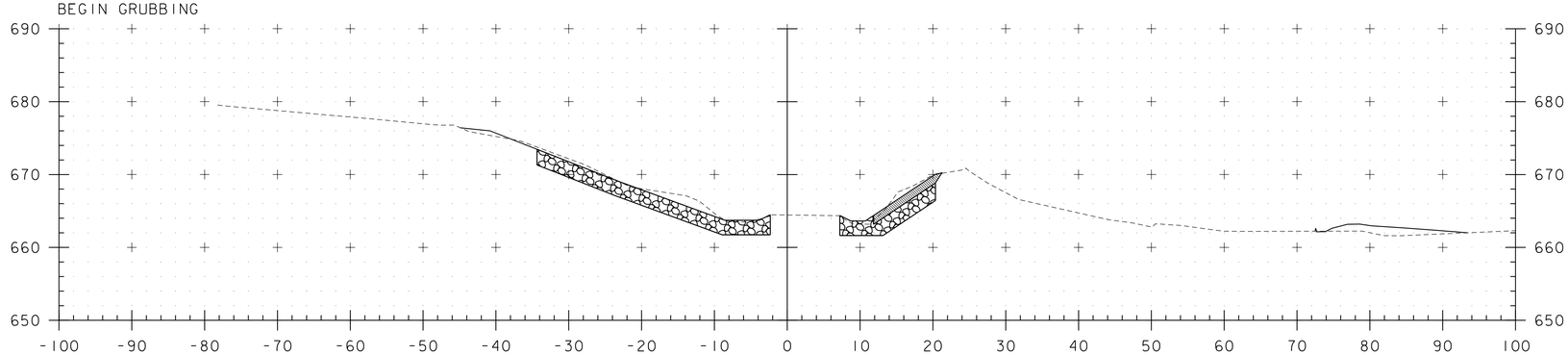
CLD 14-0116




STA. 79+00 LT & RT
BEGIN GRANULAR BORROW

79+00

STA. 78+96 LT
BEGIN GRUBBING



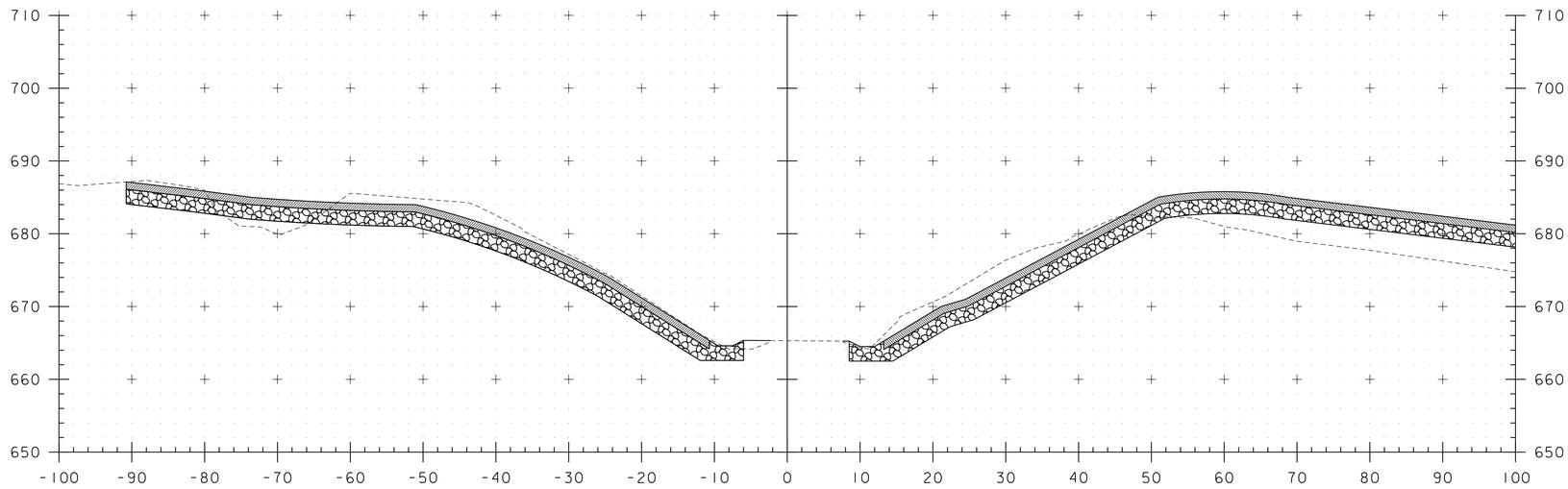

78+90

STA. 78+90 TO STA. 79+00

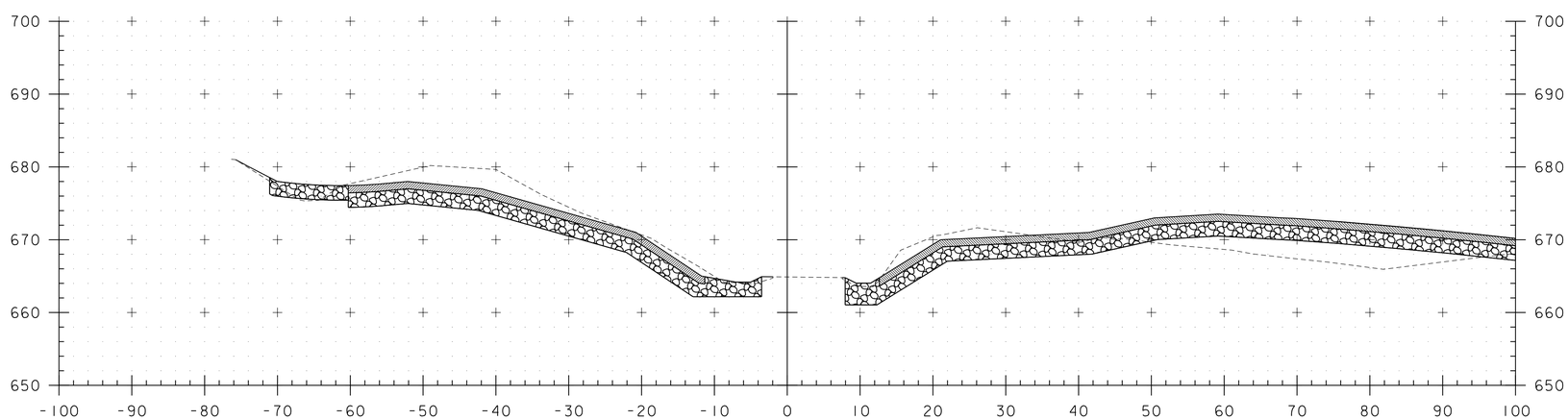
CONSULTING ENGINEERS

| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048xstrail.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J. BYATT | DRAWN BY: M. SMITH |
| DESIGNED BY: A. GIRALDI | CHECKED BY: S. BEAUMONT |
| RAIL TRAIL CROSS SECTIONS 2 | SHEET 29 OF 42 |

CLD 14-0116 MODEL: Default




79+30




79+10

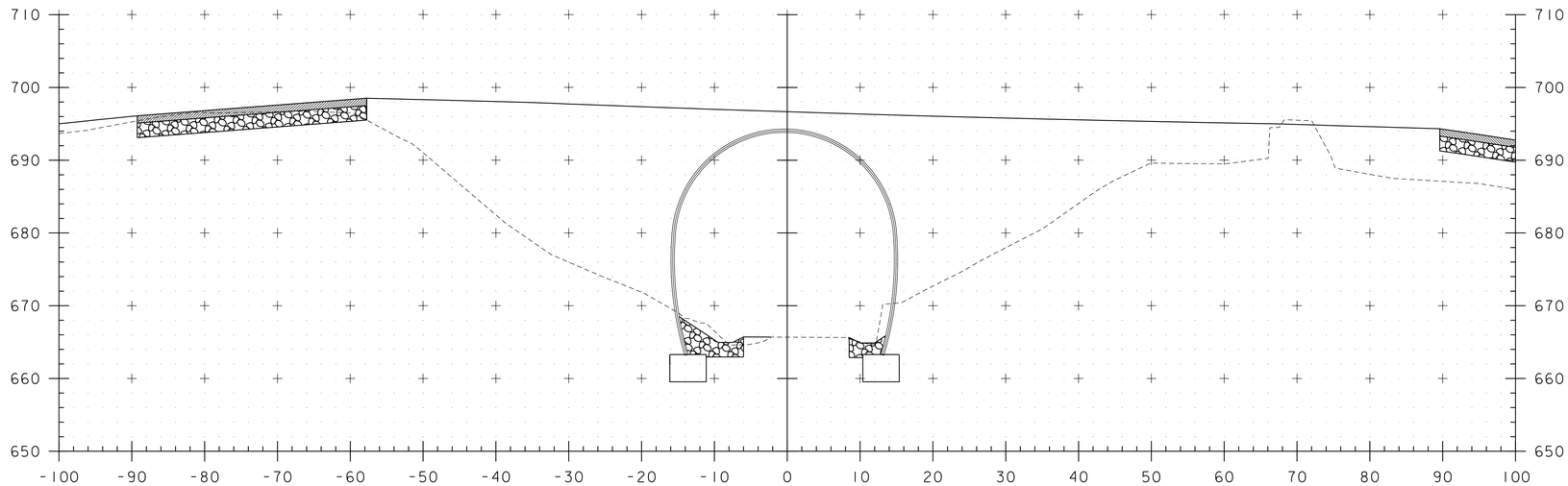
STA. 79+10 TO STA. 79+30

| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048xstrail.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J. BYATT | DRAWN BY: M. SMITH |
| DESIGNED BY: A. GIRALDI | CHECKED BY: S. BEAUMONT |
| RAIL TRAIL CROSS SECTIONS 3 | SHEET 30 OF 42 |

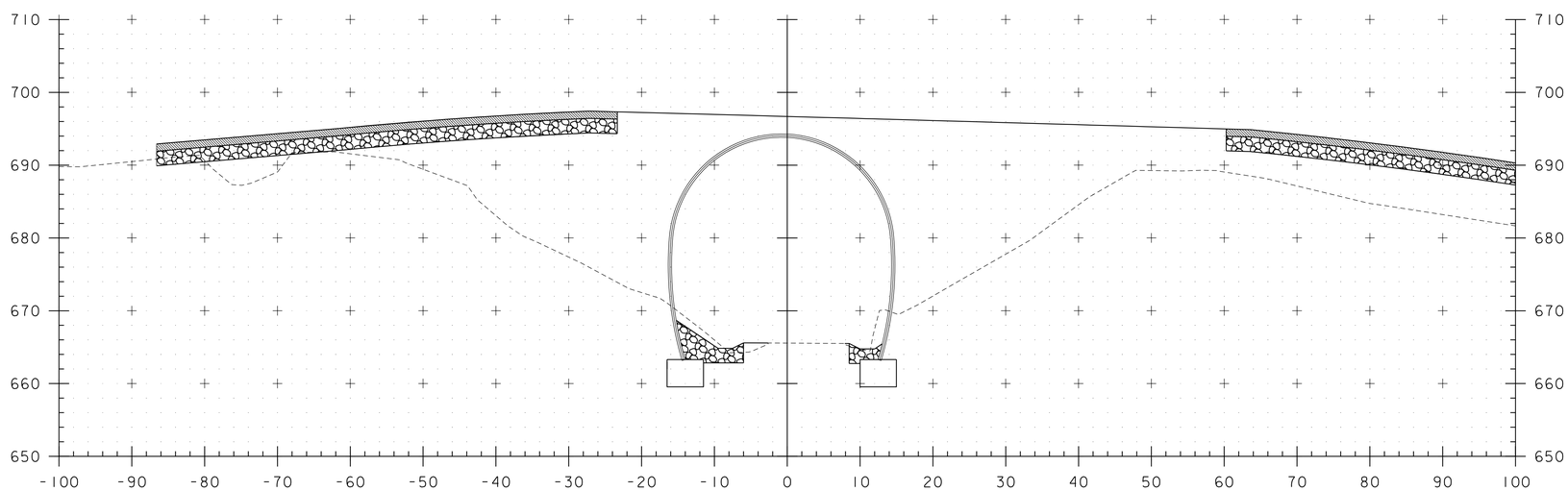
CLD CONSULTING ENGINEERS

MODEL: Default

CLD 14-0116




79+50




79+40.89 INVERT IN

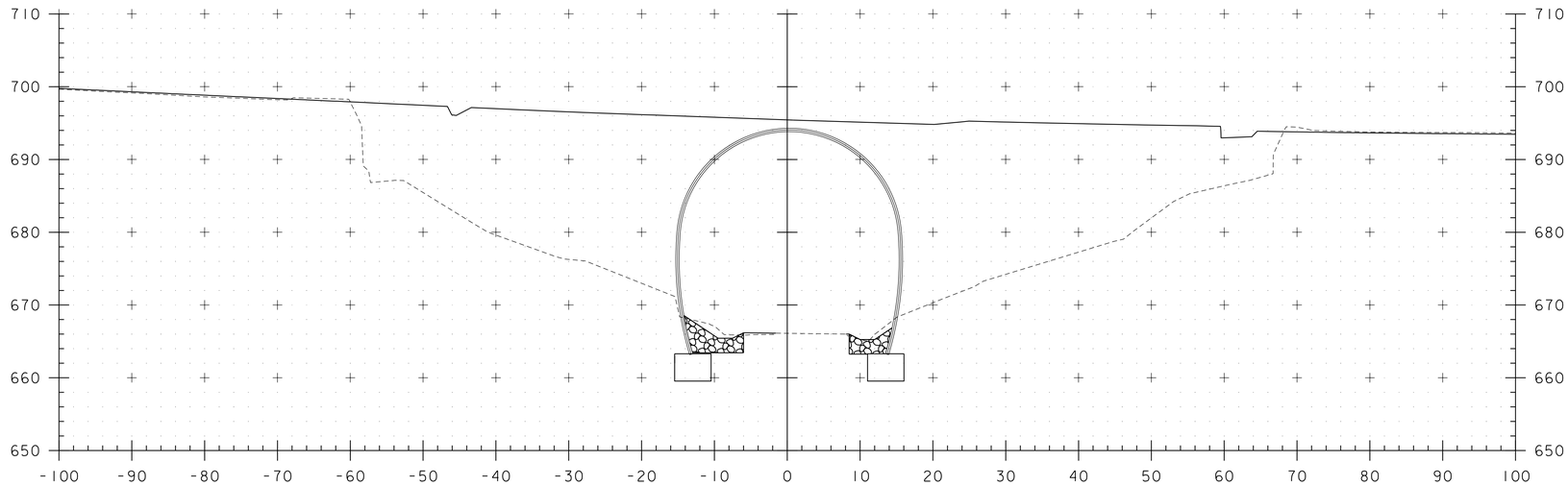
STA. 79+40.89 TO STA. 79+50

CONSULTING ENGINEERS

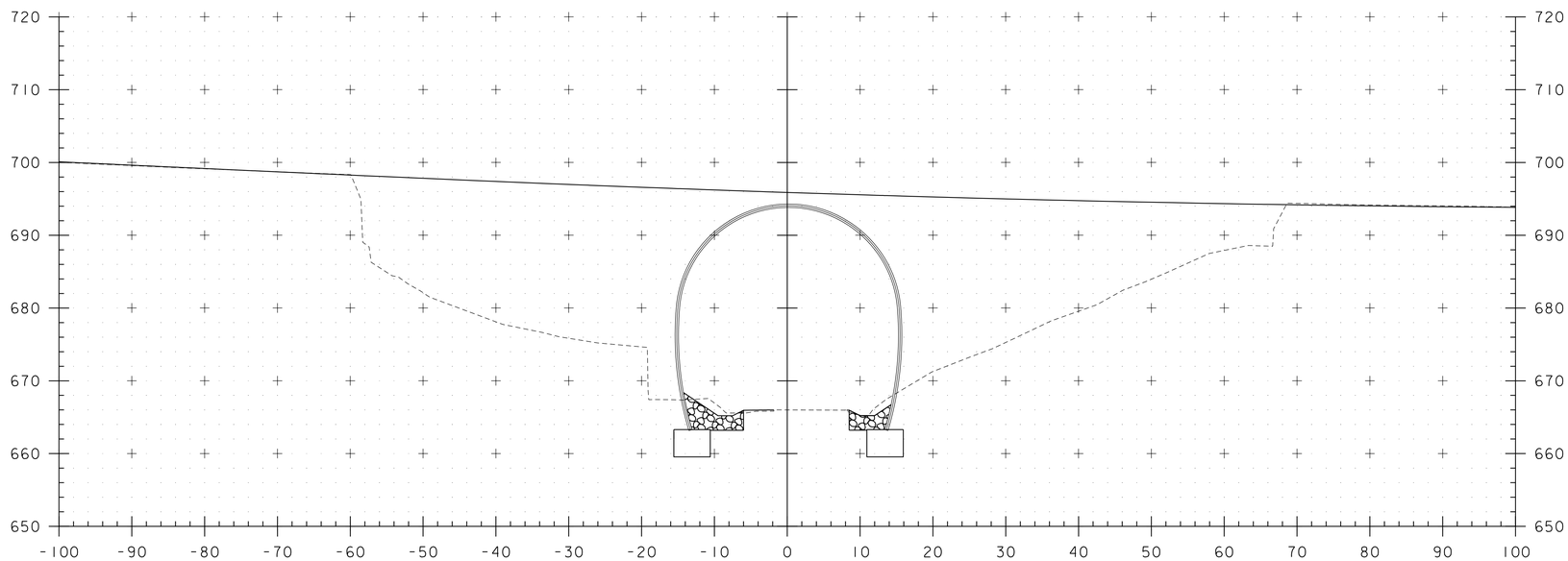
| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048xstrail.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J. BYATT | DRAWN BY: M. SMITH |
| DESIGNED BY: A. GIRALDI | CHECKED BY: S. BEAUMONT |
| RAIL TRAIL CROSS SECTIONS 4 | SHEET 31 OF 42 |

MODEL: Default

CLD 14-0116




79+81.16 INVERT OUT



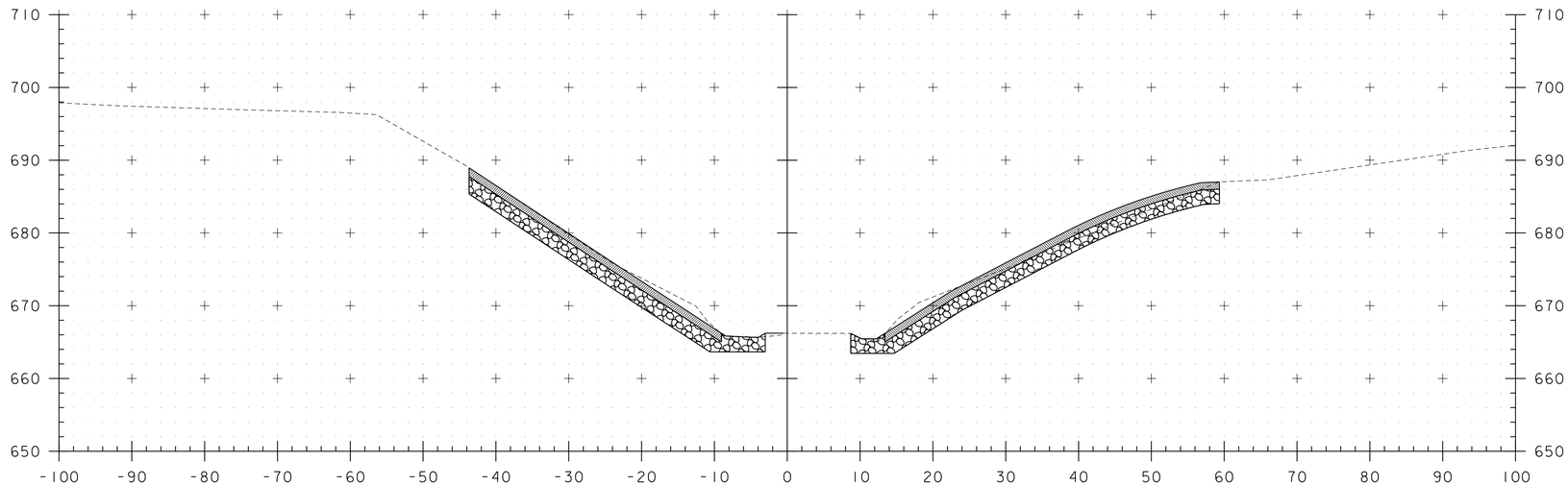

79+70

STA. 80.16 TO STA. 79+81.16

| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048xstrail.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J. BYATT | DRAWN BY: M. SMITH |
| DESIGNED BY: A. GIRALDI | CHECKED BY: S. BEAUMONT |
| RAIL TRAIL CROSS SECTIONS 5 | SHEET 32 OF 42 |

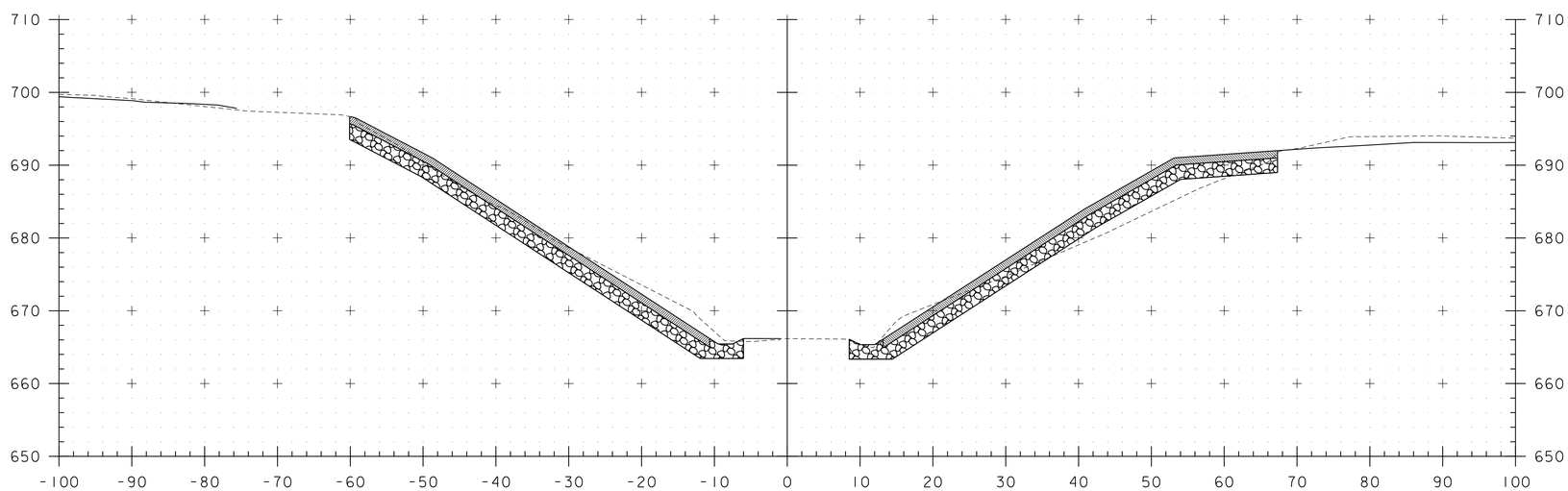
CONSULTING ENGINEERS

CLD 14-0116 MODEL:Default




STA. 80+00 LT & RT
END GRANULAR BORROW

80+00



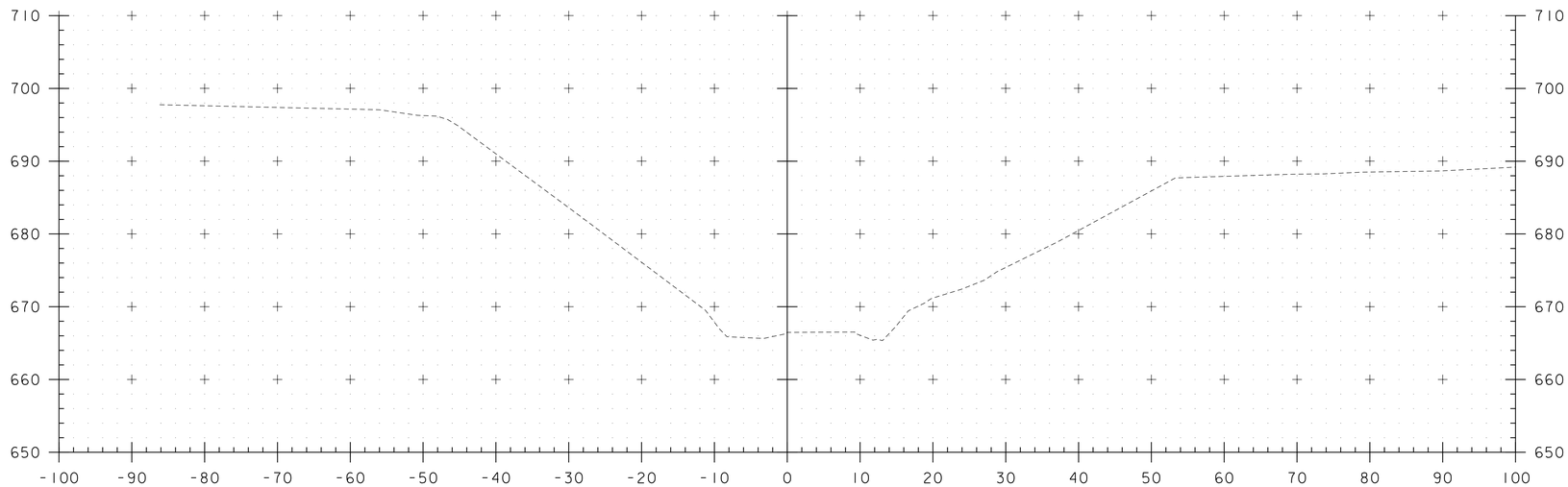

79+90

STA. 79+90 TO STA. 80+00

| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048xstrail.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J. BYATT | DRAWN BY: M. SMITH |
| DESIGNED BY: A. GIRALDI | CHECKED BY: S. BEAUMONT |
| RAIL TRAIL CROSS SECTIONS 6 | SHEET 33 OF 42 |

CONSULTING ENGINEERS

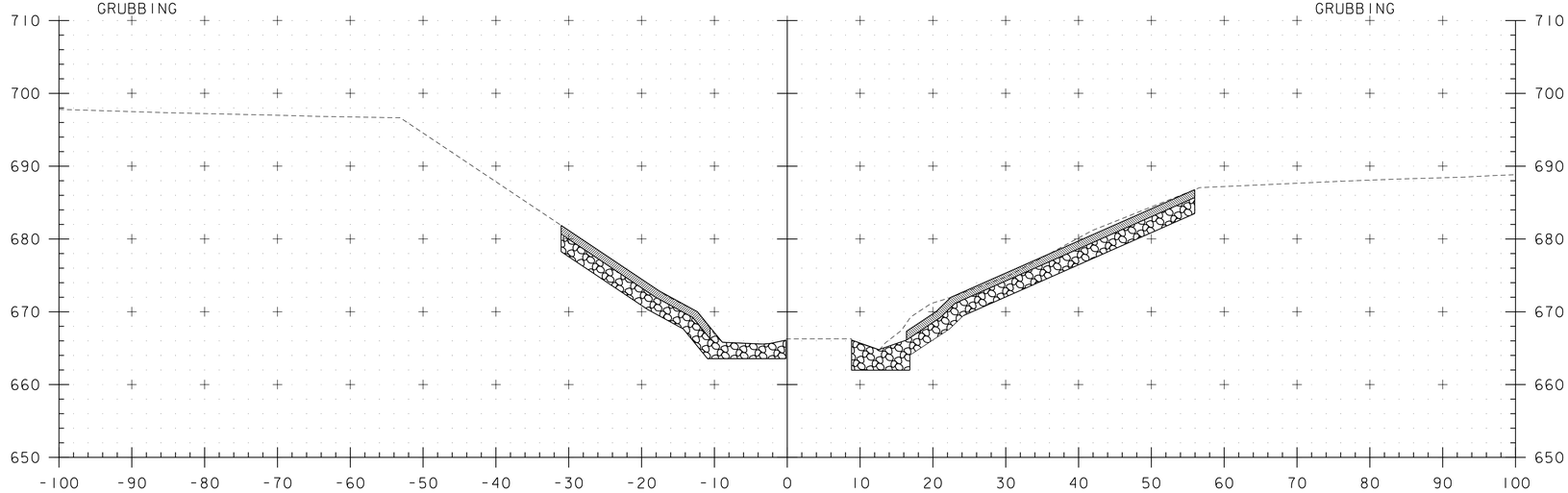
CLD 14-0116 MODEL: Default




STA. 80+11 LT
END COMMON EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE II
GRUBBING

80+30

STA. 80+16 RT
END COMMON EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE II
GRUBBING



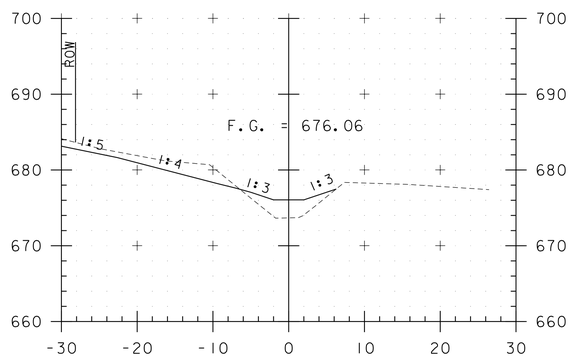

80+10

STA. 80+10 TO STA. 80+30

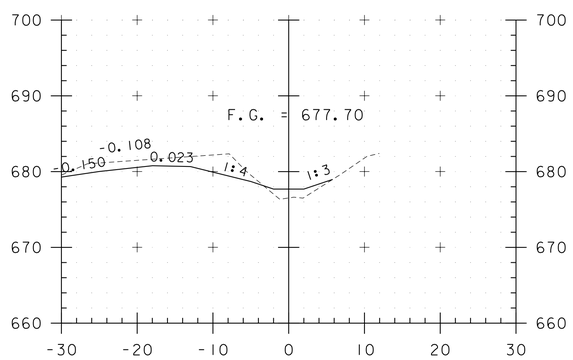
CONSULTING ENGINEERS

| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/cos/z86e048xstrail.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J. BYATT | DRAWN BY: M. SMITH |
| DESIGNED BY: A. GIRALDI | CHECKED BY: S. BEAUMONT |
| RAIL TRAIL CROSS SECTIONS 7 | SHEET 34 OF 42 |

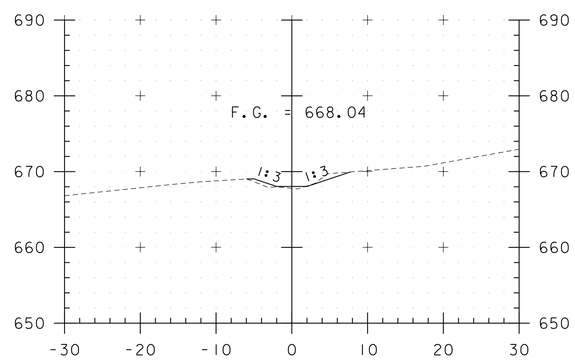
CLD 14-016 MODEL: Default



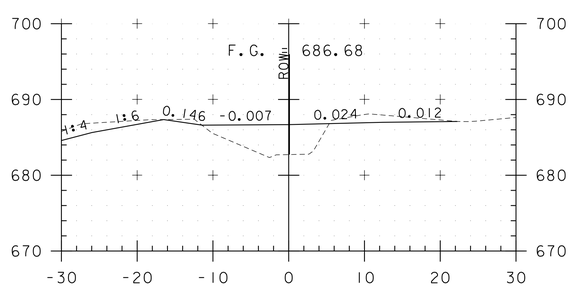

0+80



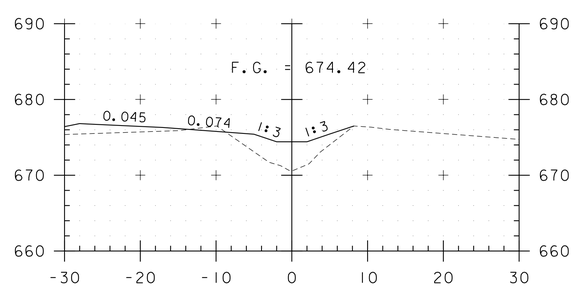

0+60




1+20




0+40




1+00

## DITCH HORIZONTAL ALIGNMENT

| | | STATION | NORTHING | EASTING |
|---|---|---|---|---|
| Element: Linear | | | | |
| | POB ( 36) | 0+00.00 | 700865.4782 | 1761587.5159 |
| | POB ( 36) | 0+00.00 = VT 2B STA 62+10.00 | | |
| | PI ( 37) | 0+16.98 | 700849.5961 | 1761581.5145 |
| | Tangent Direction: | S 20°42'00.17" W | | |
| | Tangent Length: | 16.98 | | |
| Element: Linear | | | | |
| | PI ( 37) | 0+16.98 | 700849.5961 | 1761581.5145 |
| | PI ( 38) | 0+32.31 | 700834.2628 | 1761581.5145 |
| | Tangent Direction: | S 0°00'00.00" E | | |
| | Tangent Length: | 15.33 | | |
| Element: Linear | | | | |
| | PI ( 38) | 0+32.31 | 700834.2628 | 1761581.5145 |
| | PI ( 39) | 0+40.94 | 700825.6431 | 1761581.1112 |
| | Tangent Direction: | S 2°40'44.19" W | | |
| | Tangent Length: | 8.63 | | |
| Element: Linear | | | | |
| | PI ( 39) | 0+40.94 | 700825.6431 | 1761581.1112 |
| | PI ( 40) | 0+56.25 | 700811.4244 | 1761586.7797 |
| | Tangent Direction: | S 21°44'07.32" E | | |
| | Tangent Length: | 15.31 | | |
| Element: Linear | | | | |
| | PI ( 40) | 0+56.25 | 700811.4244 | 1761586.7797 |
| | PI ( 41) | 0+69.51 | 700798.2038 | 1761587.8857 |
| | Tangent Direction: | S 4°46'55.43" E | | |
| | Tangent Length: | 13.27 | | |
| Element: Linear | | | | |
| | PI ( 41) | 0+69.51 | 700798.2038 | 1761587.8857 |
| | PI ( 42) | 0+76.90 | 700792.9673 | 1761593.0987 |
| | Tangent Direction: | S 44°52'16.14" E | | |
| | Tangent Length: | 7.39 | | |
| Element: Linear | | | | |
| | PI ( 42) | 0+76.90 | 700792.9673 | 1761593.0987 |
| | PI ( 43) | 1+00.84 | 700783.1341 | 1761614.9265 |
| | Tangent Direction: | S 65°44'55.62" E | | |
| | Tangent Length: | 23.94 | | |
| Element: Linear | | | | |
| | PI ( 43) | 1+00.84 | 700783.1341 | 1761614.9265 |
| | PI ( 30) | 1+22.23 | 700777.2533 | 1761635.4875 |
| | Tangent Direction: | S 74°02'19.52" E | | |
| | Tangent Length: | 21.39 | | |
| Element: Linear | | | | |
| | PI ( 30) | 1+22.23 | 700777.2533 | 1761635.4875 |
| | POE ( 24) | 1+39.23 | 700776.4912 | 1761652.4704 |
| | POE ( 24) | 1+39.23 = LVRT STA 78+91.00 | | |
| | Tangent Direction: | S 87°25'49.49" E | | |
| | Tangent Length: | 17.00 | | |

## DITCH VERTICAL ALIGNMENT

| | | STATION | ELEVATION |
|---|---|---|---|
| Element: Linear | | | |
| | POB | 0+30.80 | 690.82 |
| | PVI | 0+60.00 | 677.70 |
| | Tangent Grade: | -44.91% | |
| | Tangent Length: | 29.20 | |
| Element: Linear | | | |
| | PVI | 0+60.00 | 677.70 |
| | PVI | 1+00.00 | 674.42 |
| | Tangent Grade: | -8.20% | |
| | Tangent Length: | 40.00 | |
| Element: Linear | | | |
| | PVI | 1+00.00 | 674.42 |
| | POE | 1+25.00 | 666.44 |
| | Tangent Grade: | -31.91% | |
| | Tangent Length: | 25.00 | |

STA. 0+40 TO STA. 1+20

0 10 20
(SCALE 1" = 10')

CONSULTING ENGINEERS

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BF 7000(20)

FILE NAME: 86e048/cos/z86e048xs.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY
STONE LINED DITCH CROSS SECTIONS

PLOT DATE: 5/4/2015
DRAWN BY: M. HALEY
CHECKED BY: P.SHEDD
SHEET 35 OF 42

MODEL: DITCH XS01
CLD 14-0116

# EPSC PLAN NARRATIVE

## 1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL OF BRIDGE 6, ITS ABUTMENTS, PIERS, AND FOUNDATIONS, AND THE REPLACEMENT OF A RETAINING WALL SOUTHEAST OF THE EXISTING BRIDGE. BRIDGE 6 WILL BE REPLACED WITH A PRECAST CONCRETE RIGID FRAME STRUCTURE WITH A 28 FOOT CLEAR HEIGHT AND 22 FOOT SPAN OVER THE LAMOILLE VALLEY RAIL TRAIL ALONG THE SAME ALIGNMENT AS THE EXISTING BRIDGE. THE RETAINING WALL WILL BE REMOVED AND REPLACED WITH A 114 FOOT WALL ADJACENT TO THE DRIVE AT STA 65+25 RT. BRIDGE 6 IS LOCATED IN THE TOWN OF ST. JOHNSBURY, ON VT ROUTE 2B, APPROXIMATELY 0.35 MILES WEST OF THE INTERSECTION OF US ROUTE 2 AND VT ROUTE 2B. ROADWAY TYPICAL SECTION WILL BE TWO 11' FEET LANES AND TWO 3 FEET SHOULDERS.

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

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.81 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON UTILIZING THE ACCELERATED BRIDGE CONSTRUCTION PROGRAM.

## 1.2 SITE INVENTORY

### 1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS HILLY WITH MOSTLY WOODED AREAS WITH OCCASIONAL MAINTAINED LAWN AREAS. VT ROUTE 2B AND MULTIPLE DRIVEWAYS ARE WITHIN THE PROJECT SITE. THERE ARE TWO RESIDENCES ON THE NORTH, AND THREE RESIDENCES ON THE SOUTH WITHIN THE PROJECT LIMITS. THE LAMOILLE VALLEY RAIL TRAIL CROSSES UNDER VT ROUTE 2B. THE RAIL TRAIL IS PRIMARILIY GRASS WITH WOODED AREAS ALONG THE EAST AND WEST SIDES.

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

THE ONLY OPEN WATER SOURCE NEAR THE PROJECT SITE IS A SMALL, UNNAMED POND APPROXIMATELY 200 FEET NORTH OF BRIDGE 6 ON THE WEST SIDE OF THE RAIL TRAIL. A MUNICIPAL WATER LINE IS LOCATED ON THE NORTH SIDE OF VT 2B WITHIN THE PROJECT LIMITS. AN UNNAMED TRIBUTARY TO THE SLEEPER'S RIVER IS LOCATED APPROXIMATELY 550 FEET SOUTH OF BRIDGE 6. THERE ARE TWO DROP INLETS ON SITE DRAINING FROM THE ROADWAY TO THE RAIL TRAIL.

### 1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD TREES, UNDERGROWTH AND MAINTAINED LAWN AREAS. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING BRIDGE, RETAINING WALL, AND SLOPE GRADING. DISTURBED VEGETATION THAT DOES NOT RECEIVE STONE FILL WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

### 1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF CALEDONIA, VERMONT. SOILS ON THE PROJECT SITE ARE SALMON-ADAMANT COMPLEX, 15% TO 25% SLOPES, VERY ROCKY, AND SALMON-ADAMANT COMPLEX, 25% TO 50% SLOPES, VERY ROCKY, "K FACTOR" = 0.64. THE SOIL IS CONSIDERED HIGHLY ERODIBLE DUE TO SIGNIFICANT SLOPES.

**NOTE**: K-VALUES GENERALLY INDICATE THE FOLLOWING:
0.0-0.23 = LOW EROSION POTENTIAL
0.24-0.36 = MODERATE EROSION POTENTIAL
0.37 AND HIGHER = HIGH EROSION POTENTIAL

### 1.2.5 SENSITIVE RESOURCE AREAS
CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: YES. THE PROJECT IS LOCATED WITHIN A HISTORIC DISTRICT. BRIDGE 6 IS CONSIDERED HISTORIC.
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: NO
WETLANDS: NO

THERE ARE 4(f) PROPERTIES LOCATED NEAR THE PROJECT SITE.

## 1.3 RISK EVALUATION

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

## 1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

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

### 1.4.1 MARK SITE BOUNDARIES

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

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

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

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

### 1.4.3 SITE ENTRANCE/EXIT STABILIZATION
TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR'S PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES ARE ANTICIPATED. THE EXISTING ROADWAY WILL BE CLOSED TO ALL TRAFFIC AND WILL BE UTILIZED TO ACCESS THE BRIDGE. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED FOR ANY EQUIPMENT THAT ACCESSES AND UTILIZES THE RAIL TRAIL DURING CONSTRUCTION. THE CONTRACTOR SHALL ENSURE THAT ANY EQUIPMENT THAT UTILIZES THE RAIL TRAIL DURING CONSTRUCTION IS CLEAR OF SEDIMENT PRIOR TO ENTERING THE PAVED ROADWAY.

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

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

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

DIVERSION MEASURES ARE NOT ANTICIPATED TO BE NEEDED AS DESIGNED.

### 1.4.6 SLOW DOWN CHANNELIZED RUNOFF
CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSIVE POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

STONE CHECK DAMS WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN, AT A MINIMUM.

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

PERMANENT STORMWATER TREATMENT DEVICES ARE NOT ANTICIPATED TO BE NEEDED AS DESIGNED.

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

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

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

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

WINTER STABILIZATION IS NOT ANTICIPATED TO BE NEEDED AS DESIGNED.

### 1.4.10 STABILIZE SOIL AT FINAL GRADE
EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

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

TEMPORARY EROSION MATTING AND STONE FILL SHALL BE USED TO STABILIZE ROADWAY SLOPES AS SHOWN ON THE PLANS.

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

TREATMENT OF DISCHARGE FROM DEWATERING ACTIVITIES IS ANTICIPATED. THE SPECIFIC MEANS FOR TREATMENT OF DISCHARGE SHALL BE PROVIDED BY THE CONTRACTOR. ALL COSTS FOR TREATMENT OF DEISCHARE SHALL BE PAID FOR UNDER CONTRACT ITEM 653.45.

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

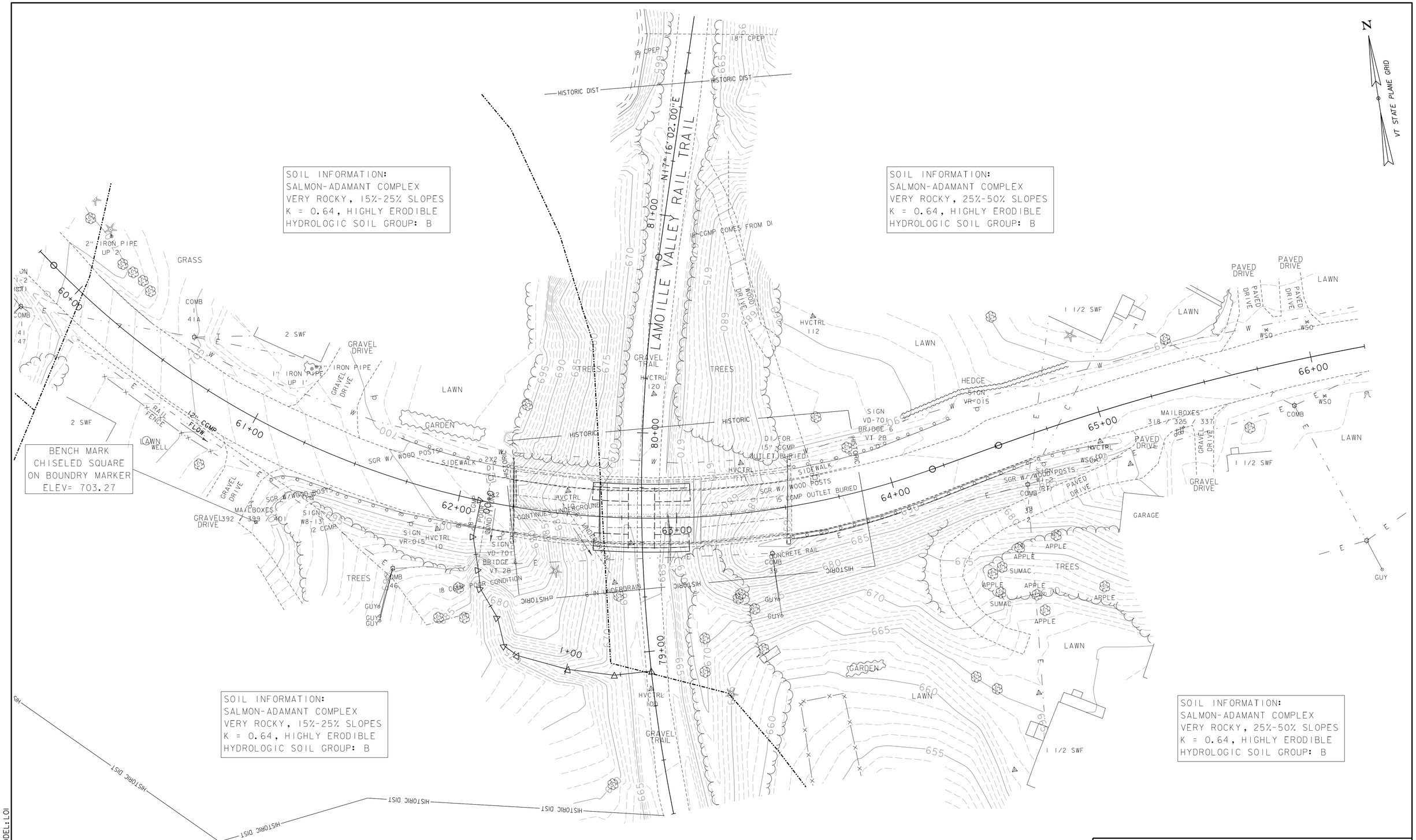
## 1.5 SEQUENCE AND STAGING

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

### 1.5.1 CONSTRUCTION SEQUENCE

### 1.5.2 OFF-SITE ACTIVITIES
IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SPECIFICATION 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

### 1.5.3 UPDATES

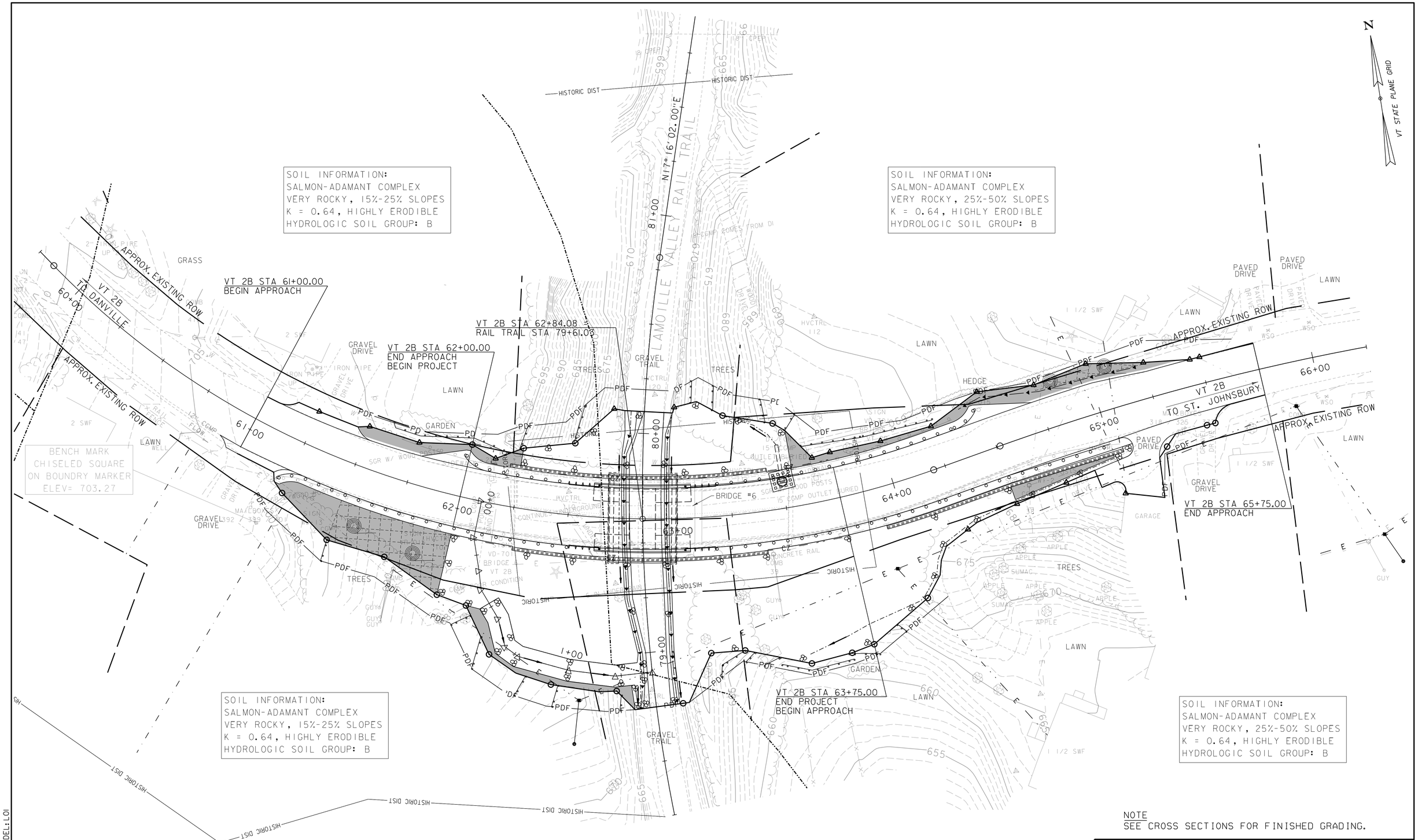



| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/z86e048bdreroex.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J.BYATT | DRAWN BY: W.GORDON |
| DESIGNED BY: M.HALEY | CHECKED BY: P.SHEDD |
| EPSC EXISTING PLAN SHEET | SHEET 37 OF 42 |

CONSULTING ENGINEERS

MODEL: L01

CLD 14-0116




NOTE
SEE CROSS SECTIONS FOR FINISHED GRADING.

0 20 40
(SCALE 1" = 20')

| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/z86e048bdrerocn.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J.BYATT | DRAWN BY: W.GORDON |
| DESIGNED BY: M.HALEY | CHECKED BY: P.SHEDD |
| EPSC CONSTRUCTION PLAN SHEET | SHEET 38 OF 42 |

CONSULTING ENGINEERS

MODEL: L01

CLD 14-0116

SOIL INFORMATION:
SALMON-ADAMANT COMPLEX
VERY ROCKY, 15%-25% SLOPES
K = 0.64, HIGHLY ERODIBLE
HYDROLOGIC SOIL GROUP: B

SOIL INFORMATION:
SALMON-ADAMANT COMPLEX
VERY ROCKY, 25%-50% SLOPES
K = 0.64, HIGHLY ERODIBLE
HYDROLOGIC SOIL GROUP: B

VT 2B STA 61+00.00
BEGIN APPROACH

VT 2B STA 62+84.08
RAIL TRAIL STA 79+61.03

VT 2B STA 62+00.00
END APPROACH
BEGIN PROJECT

VT 2B STA 65+75.00
END APPROACH

VT 2B STA 63+75.00
END PROJECT
BEGIN APPROACH

BENCH MARK
CHISELED SQUARE
ON BOUNDRY MARKER
ELEV= 703.27

SOIL INFORMATION:
SALMON-ADAMANT COMPLEX
VERY ROCKY, 15%-25% SLOPES
K = 0.64, HIGHLY ERODIBLE
HYDROLOGIC SOIL GROUP: B

SOIL INFORMATION:
SALMON-ADAMANT COMPLEX
VERY ROCKY, 25%-50% SLOPES
K = 0.64, HIGHLY ERODIBLE
HYDROLOGIC SOIL GROUP: B

NOTE
SEE CROSS SECTIONS FOR FINISHED GRADING.

0 20 40
(SCALE 1" = 20')

| | |
|---|---|
| PROJECT NAME: ST. JOHNSBURY | |
| PROJECT NUMBER: BF 7000(20) | |
| FILE NAME: 86e048/z86e048bdrerofl.dgn | PLOT DATE: 5/4/2015 |
| PROJECT LEADER: J.BYATT | DRAWN BY: W.GORDON |
| DESIGNED BY: M.HALEY | CHECKED BY: P.SHEDD |
| EPSC FINAL PLAN SHEET | SHEET 39 OF 42 |

CLD 14-0116 MODEL: L01

| VAOT LOW GROW/FINE FESCUE MIX | | | | | | |
|---|---|---|---|---|---|---|
| | LBS/AC | | | | | |
| WEIGHT | BROADCAST | HYDROSEED | NAME | LATIN NAME | GERM | PURITY |
| 38% | 57 | 95 | CREEPING RED FESCUE | FESTUCA RUBRA VAR. RUBRA | 90% | 98% |
| 29% | 43.5 | 72.5 | HARD FESCUE | FESTUCA LONGIFOLIA | 85% | 95% |
| 15% | 22.5 | 37.5 | CHEWINGS FESCUE | FESTUCA RUBRA VAR. COMMUTATA | 87% | 95% |
| 15% | 22.5 | 37.5 | ANNUAL RYEGRASS | LOLIUM MULTIFLORUM | 90% | 95% |
| 3% | 4.5 | 7.5 | INERTS | | | |
| 100% | 150 | 250 | | | | |

| VAOT RURAL AREA MIX | | | | | | |
|---|---|---|---|---|---|---|
| | LBS/AC | | | | | |
| WEIGHT | BROADCAST | HYDROSEED | NAME | LATIN NAME | GERM | PURITY |
| 37.5% | 22.5 | 45 | CREEPING RED FESCUE | FESTUCA RUBRA VAR. RUBRA | 85% | 98% |
| 37.5% | 22.5 | 45 | TALL FESCUE | FESTUCA ARUNDINACEA | 90% | 95% |
| 5.0% | 3 | 6 | RED TOP | AGROSTIS GIGANTEA | 90% | 95% |
| 15.0% | 9 | 18 | WHITE FIELD CLOVER | TRIFOLIUM REPENS | 85% | 98% |
| 5.0% | 3 | 6 | ANNUAL RYE GRASS | LOLIUM MULTIFLORUM | 85% | 95% |
| 100% | 60 | 120 | | | | |

| GENERAL AMENDMENT GUIDANCE | | |
|---|---|---|
| FERTILIZER | LIME | |
| 10/20/10 | AG LIME | PELLITIZED |
| 500 LBS/AC | 2 TONS/AC | 1 TONS/AC |

## CONSTRUCTION GUIDANCE

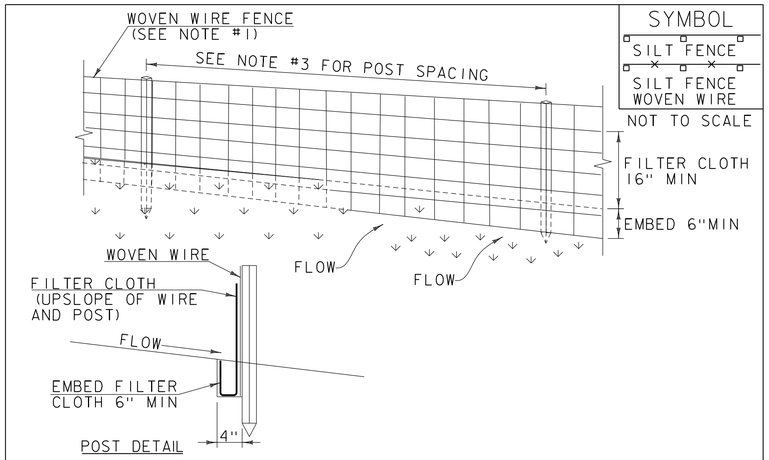
1. SEED MIX: THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER ON WHICH SEED MIX TO USE.
2. SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT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

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

# TURF ESTABLISHMENT

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651FOR SEED (PAY ITEM 651.15)

| REVISIONS | |
|---|---|
| JANUARY 12, 2015 | WHF |




## CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

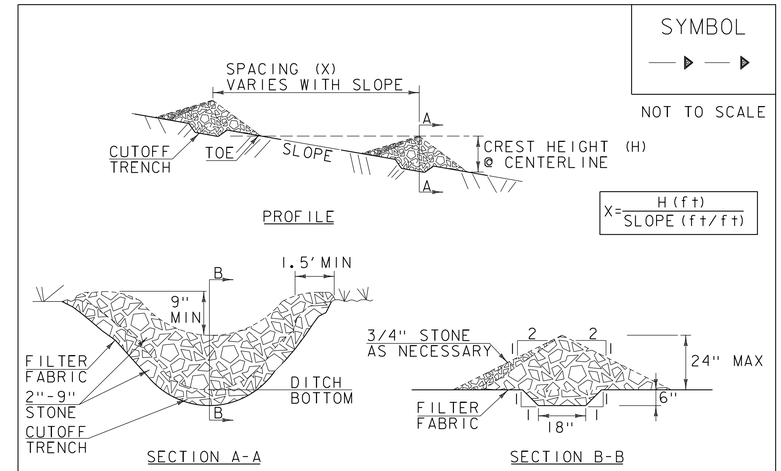
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

# SILT FENCE

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

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) ~~OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).~~

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




## CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OFTHE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
7. MAXIMUM DRAINAGE AREA 2 ACRES.

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

# CHECK DAM

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

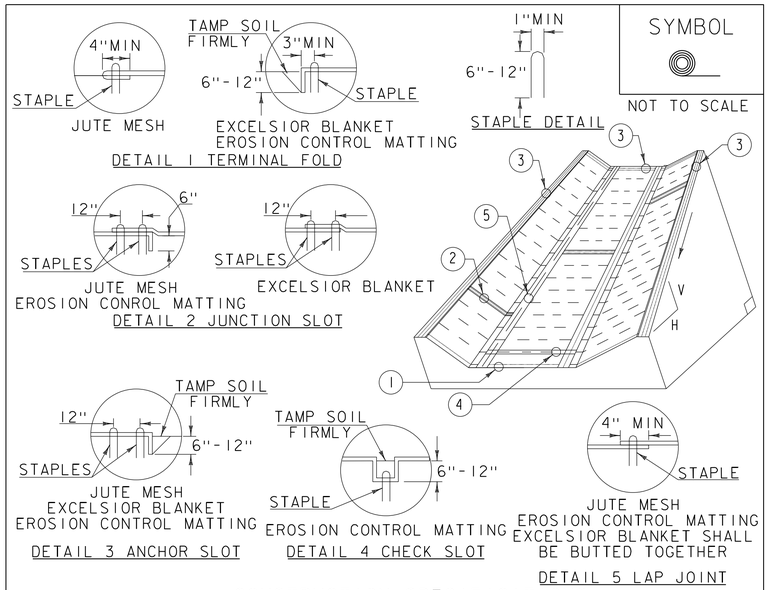
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE I(PAY ITEM 653.25)

| REVISIONS | |
|---|---|
| MARCH 21, 2008 | WHF |
| JANUARY 8, 2009 | WHF |

CLD 14-0116 MODEL: EC02

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BF 7000(20)

FILE NAME: 86e048/cos/z86e048erodet.dgn PLOT DATE: 5/4/2015
PROJECT LEADER: J.BYATT DRAWN BY: W.GORDON
DESIGNED BY: M.HALEY CHECKED BY: P.SHEDD
EPSC DETAILS 1 SHEET 40 OF 42




## CONSTRUCTION SPECIFICATIONS

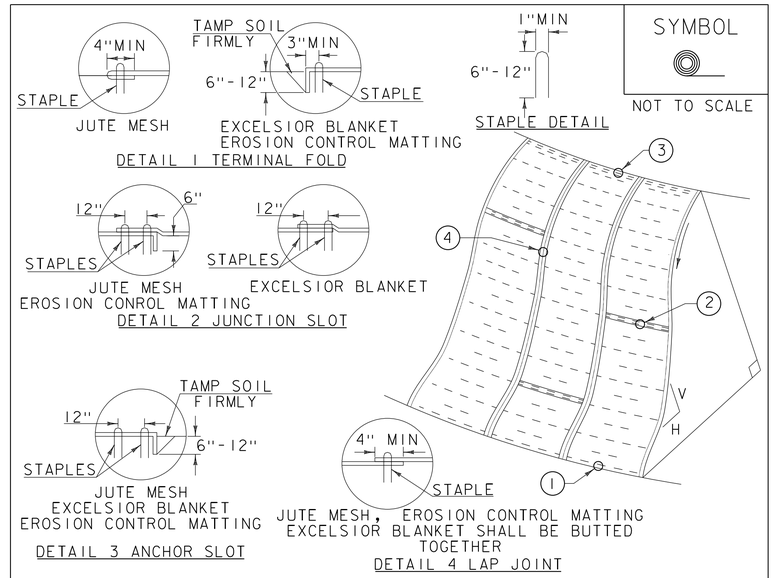
1. EROSION MATTING, CHECK SLOTS, SHALL BE SPACED IN DITCH CHANNEL SO THAT ONE OCCURS WITHIN EACH 50′ ON SLOPES OF MORE THAN 4% AND LESS THAN 6%. ON SLOPES OF 6% OR MORE, THEY SHALL BE SPACED SO THAT ONE OCCURS WITHIN EACH 25′.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2′ APART AND IN ROWS APPROXIMATELY 3′ APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4′X225′ ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4′X150′ ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

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

**ROLLED EROSION CONTROL PRODUCT (RECP) DITCH**

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) ~~OR PERMANENT EROSION MATTING (PAY ITEM 653.21).~~

| REVISIONS | |
|---|---|
| MARCH 8, 2007 | JMF |
| APRIL 16, 2007 | WHF |
| JANUARY 13, 2009 | WHF |




## CONSTRUCTION SPECIFICATIONS

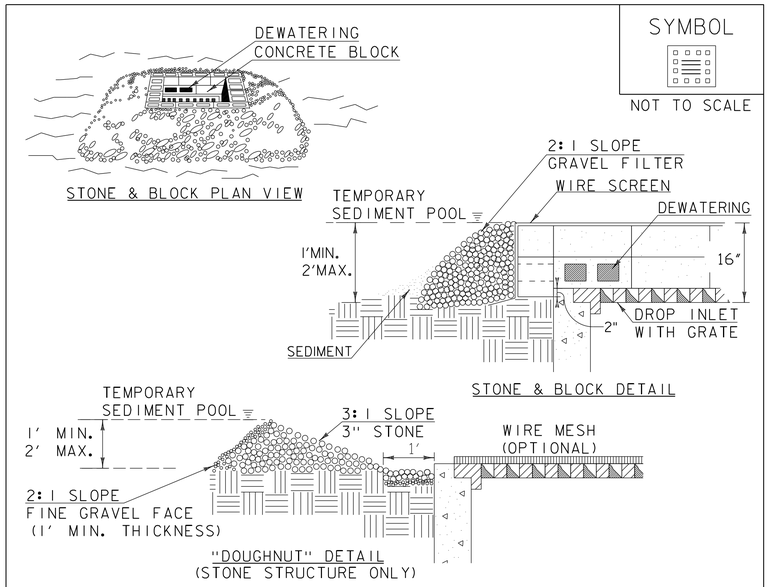
1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2′ APART AND IN ROWS APPROXIMATELY 3′ APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4′X225′ ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4′X150′ ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

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

**ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE**

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) ~~OR PERMANENT EROSION MATTING (PAY ITEM 653.21).~~

| REVISIONS | |
|---|---|
| APRIL 16, 2007 | JMF |
| JANUARY 13, 2009 | WHF |




## CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2" MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR ½" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL ½"- ¾" IN DIAMETER PLACED 2" BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1′ THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3" STONE AS SHOWN ON THE DRAWINGS.
5. MAXIMUM DRAINAGE AREA 1 ACRE

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

**STONE & BLOCK DROP INLET PROTECTION**

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR INLET PROTECTION DEVICE, TYPE I (PAY ITEM 653.40).

| REVISIONS | |
|---|---|
| MARCH 6, 2008 | WHF |
| JANUARY 13, 2009 | WHF |

CLD 14-0116 MODEL: EC03

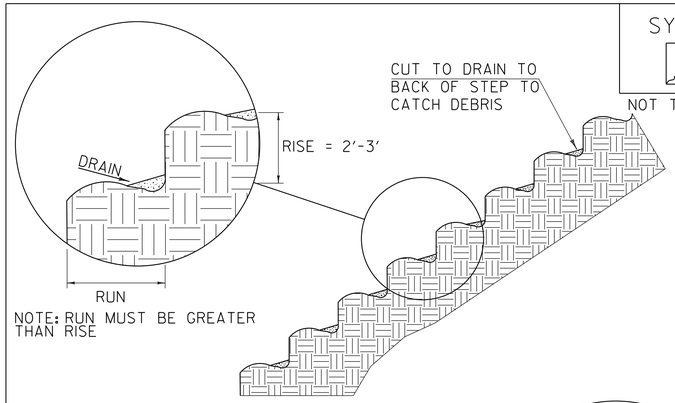
PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BF 7000(20)

CONSULTING ENGINEERS

FILE NAME: 86e048/cos/z86e048erodet.dgn PLOT DATE: 5/4/2015
PROJECT LEADER: J.BYATT DRAWN BY: W.GORDON
DESIGNED BY: M.HALEY CHECKED BY: P.SHEDD
EPSC DETAILS 2 SHEET 41 OF 42

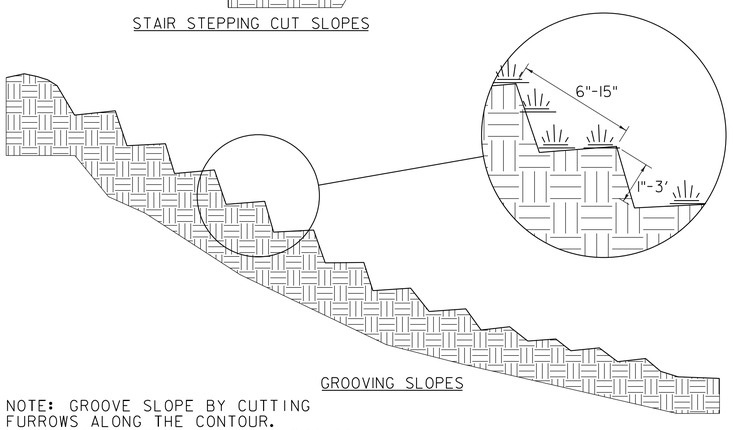
SYMBOL

NOT TO SCALE




NOTE: RUN MUST BE GREATER THAN RISE

STAIR STEPPING CUT SLOPES




GROOVING SLOPES

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

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

## SURFACE ROUGHENING

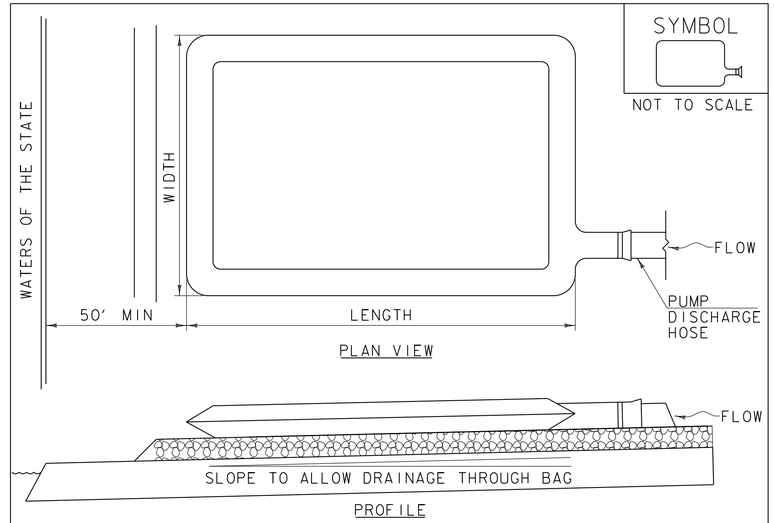
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT

| REVISIONS | |
|---|---|
| APRIL 1, 2008 | WHF |
| JANUARY 13, 2009 | WHF |

SYMBOL

NOT TO SCALE




## CONSTRUCTION SPECIFICATIONS

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

## FILTER BAG

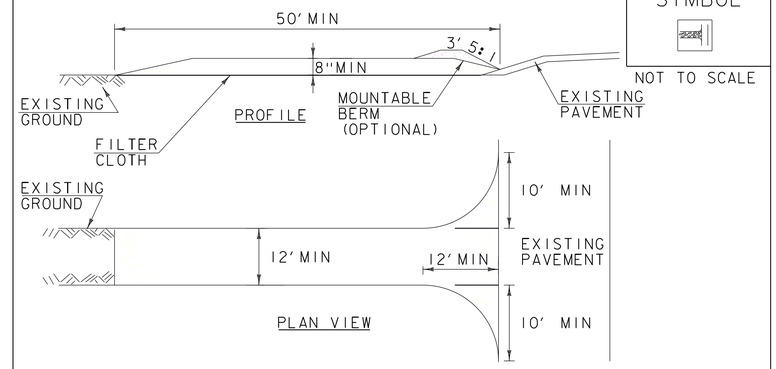
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR FILTER BAG (PAY ITEM 653.45) AND AS SPECIFIED IN THE CONTRACT.

| REVISIONS | |
|---|---|
| MARCH 24, 2008 | WHF |
| JANUARY 13, 2009 | WHF |

SYMBOL

NOT TO SCALE




## CONSTRUCTION SPECIFICATIONS

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

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

## STABILIZED CONSTRUCTION ENTRANCE

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

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35).

| REVISIONS | |
|---|---|
| MARCH 24, 2008 | WHF |
| JANUARY 13, 2009 | WHF |

CLD 14-016 MODEL: EC04

CONSULTING ENGINEERS

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BF 7000(20)

FILE NAME: 86e048/cos/z86e048erodet.dgn PLOT DATE: 5/4/2015
PROJECT LEADER: J.BYATT DRAWN BY: W.GORDON
DESIGNED BY: M.HALEY CHECKED BY: P.SHEDD
EPSC DETAILS 3 SHEET 42 OF 42