

CORRUGATED STEEL BURIED BRIDGE SYSTEM

- 19. ITEM 900.645, "SPECIAL PROVISION (CORRUGATED STEEL BURIED BRIDGE, 47'-11" X 26'-9" X 40'-3") (SUPER COR ARCH)" WILL INCLUDE ALL MATERIALS AND HARDWARE NECESSARY TO ASSEMBLE THE STRUCTURAL PLATE ARCH IN ITS ENTIRETY, INCLUDING, BUT NOT LIMITED TO:
 - A. STRUCTURAL STEEL PLATES AND RIBS
 - B. GALVANIZING
 - C. ATTACHMENT DEVICES AND FASTENERS
 - D. THE DRAIN SYSTEM ON EITHER SIDE OF THE ARCH FOOTINGS
- 20. DESIGN AND DETAILING OF THE SUPER COR ARCH AND ALL DETAILS, APPURTENANCES, AND CONNECTIONS FOR THE ARCH, INCLUDING THE CONNECTION BETWEEN THE ARCH AND CAST-IN-PLACE CONCRETE COLLAR, SHALL BE THE CONTRACTOR'S RESPONSIBILITY. BIG R BRIDGE SHALL PROVIDE STAMPED DESIGN CALCULATIONS PREPARED BY A REGISTERED VERMONT PROFESSIONAL ENGINEER. BIG R BRIDGE SHALL CONSIDER STRENGTH, SERVICEABILITY, AND STABILITY OF THE STEEL PLATE ARCH ELEMENTS FOR LOADS GENERATED DURING FABRICATION, TRANSPORTATION, ERECTION, CONSTRUCTION OPERATIONS, AND ULTIMATE TRAFFIC CONDITIONS. THE DESIGN SHALL INCLUDE A LOAD RATING COMPLETED USING THE LOAD AND RESISTANCE FACTOR RATING METHOD AND CONFORMING TO STANDARD VTRANS PRACTICE. ALL COSTS WILL BE CONSIDERED INCIDENTAL TO ITEM 900.645, "SPECIAL PROVISION (CORRUGATED STEEL BURIED BRIDGE, 47'-11" X 26'-9" X 40'-3") (SUPER COR ARCH)".
- 21. THE CORRUGATED STEEL ARCH SHALL BE DESIGNED PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 2014, AND ITS LATEST REVISIONS, AND SHALL CONSIDER THE FOLLOWING DESIGN CRITERIA:
 - A. DESIGN LOADING: HL-93
 - B. WEIGHT OF BACKFILL MATERIAL: 140 PCF
- 22. A 6" DIAMETER PERFORATED PVC DRAIN PIPE CONFORMING TO THE REQUIREMENTS OF SECTION 605 SHALL BE INSTALLED BEHIND THE ARCH WALLS JUST ABOVE THE FOOTING HEELS AND SHALL OUTLET THROUGH THE PRECAST CONCRETE WALL PANELS ON EITHER SIDE OF THE ROAD. NO WEEPHOLES SHALL BE PROVIDED THROUGH THE CORRUGATED STEEL ARCH. THESE DRAIN PIPES SHALL BE PLACED WITHIN A MINIMUM 30" THICK ZONE OF DRAINAGE AGGREGATE CONFORMING TO SUBSECTION 704.16. STONE SHALL BE COMPLETELY SEPARATED FROM THE IN SITU SOILS BY GEOTEXTILE CONFORMING TO THE REQUIREMENTS OF SECTION 649, GEOTEXTILE FOR ROADBED SEPARATOR. PERFORATED PVC PIPE SHALL BE LAID WITH PERFORATIONS DOWN. THIS WORK AND MATERIALS WILL BE CONSIDERED INCIDENTAL TO ITEM 900.645, "SPECIAL PROVISION (CORRUGATED STEEL BURIED BRIDGE, 47'-11" X 26'-9" X 40'-3") (SUPER COR ARCH)".

VIST-A-WALL RETAINING WALL SYSTEM

- 23. ITEM 900.670, "SPECIAL PROVISION (MECHANICALLY STABILIZED EARTH RETAINING WALL, VIST-A-WALL)" SHALL INCLUDE ALL MATERIALS AND HARDWARE NECESSARY TO INSTALL THE VIST-A-WALL WINGWALLS AND DRIVE RETAINING WALL IN THEIR ENTIRETY, INCLUDING, BUT NOT LIMITED TO:
 - A. SELECT GRANULAR BACKFILL
 - B. PRECAST CONCRETE WALL PANELS
 - C. CAST-IN-PLACE CONCRETE LEVELING PAD
 - D. TENSILE REINFORCEMENT
 - E. ARCHITECTURAL PATTERN
 - F. ATTACHMENT DEVICES AND FASTENERS
 - G. 6" PERFORATED PIPE (WRAPPED WITH GEOTEXTILE)
 - H. DRAINAGE AGGREGATE
 - I. GEOMEMBRANE LINER
- 24. THE DESIGN, INTERNAL STABILITY, AND DETAILING OF THE WINGWALLS, DRIVE RETAINING WALL, TENSILE REINFORCEMENT, CONCRETE FACING PANELS, LEVELING PAD, GEOMEMBRANE LINER, PERFORATED PIPE, AND DRAINAGE AGGREGATE SHALL BE THE CONTRACTOR'S RESPONSIBILITY. BIG R BRIDGE SHALL PROVIDE STAMPED DESIGN CALCULATIONS PREPARED BY A REGISTERED VERMONT PROFESSIONAL ENGINEER. BIG R BRIDGE SHALL CONSIDER STRENGTH, SERVICEABILITY, AND STABILITY OF THE VIST-A-WALL ELEMENTS FOR LOADS GENERATED DURING FABRICATION, TRANSPORTATION, ERECTION, CONSTRUCTION OPERATIONS, AND ULTIMATE TRAFFIC CONDITIONS. ALL COSTS WILL BE CONSIDERED INCIDENTAL TO ITEM 900.670, "SPECIAL PROVISION (MECHANICALLY STABILIZED EARTH RETAINING WALL, VIST-A-WALL)".

VIST-A-WALL RETAINING WALL SYSTEM (CONTINUED)

- 25. VIST-A-WALL LAYOUT AND DIMENSIONS ARE REFERENCED TO THE FRONT FACE OF THE WALL PANEL AS DEFINED BY THE 5/2" THICKNESS.
- 26. DIMENSIONS FOR THE REINFORCED SOIL ZONE SHALL BE PROVIDED BY BIG R BRIDGE. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE CHANGES TO OTHER COMPONENTS AND DIMENSIONS TO FIT THE VIST-A-WALL DESIGN.
- 27. THE VIST-A-WALL SYSTEM, INCLUDING ALL CAST-IN-PLACE AND PRECAST CONCRETE ELEMENTS, SHALL BE DESIGNED PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 2014, AND ITS LATEST REVISIONS, AND CONSIDER THE FOLLOWING DESIGN CRITERIA:
 - A. DESIGN LOADING: HL-93
 - B. PRECAST CONCRETE COMPRESSIVE STRENGTH: $f'c = 5,000$ PSI
 - C. CAST-IN-PLACE CONCRETE COMPRESSIVE STRENGTH: $f'c = 3,500$ PSI
 - D. REINFORCING STEEL, LEVEL I: $fy = 60,000$ PSI
 - E. EXISTING IN-SITU SOIL PROPERTIES:

MATERIAL	DENSITY (pcf)	INTERNAL SOIL FRICTION ANGLE (deg)	NOMINAL BEARING RESISTANCE, qn (ksf) *
ABUTMENT 1 SANDY SILT DEPOSITS	100	29	6.7
ABUTMENT 2 SILTY SAND DEPOSITS	100	30	4.1
DRIVE RETAINING WALL SILT DEPOSITS	105	29	4.3

* ALL NOMINAL BEARING RESISTANCES CORRESPOND TO 2.5 INCHES OF SETTLEMENT.

F. FILL MATERIAL PROPERTIES:

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

- 28. EXPOSED VIST-A-WALL PANELS SHALL HAVE A PATTERN AS SHOWN ON THE PLANS. THE FORM LINER SHALL BE AS SPECIFIED IN THE SPECIAL PROVISIONS, AND SHALL EXTEND A MINIMUM OF 1'-0" BELOW THE PROPOSED GRADE AT THE FACE OF THE WALL. THE COST OF THE FORM LINER WILL BE CONSIDERED INCIDENTAL TO ITEM 900.670, "SPECIAL PROVISION (MECHANICALLY STABILIZED EARTH RETAINING WALL, VIST-A-WALL)".
- 29. AN ACRYLIC GRAY TINT STAIN AND SEALANT SYSTEM SHALL BE FIELD APPLIED TO ALL VIST-A-WALL PANEL SURFACES WITH THE PATTERN. THE COST OF THE STAIN WILL BE PAID FOR UNDER ITEM 900.625, "SPECIAL PROVISION (CONCRETE STAINING AND SEALING)". THE SEALANT WILL BE CONSIDERED INCIDENTAL TO ITEM 900.625, "SPECIAL PROVISION (CONCRETE STAINING AND SEALING)".
- 30. LOCATIONS OF DRIVEN POSTS BEHIND THE WALL SHALL BE DETERMINED IN THE FIELD PER THE PLANS, AND 12" SONO TUBES SHALL BE PLACED AT THE POST LOCATIONS DURING BACKFILL OPERATIONS. TENSILE REINFORCING STRIPS SHALL BE LAID AROUND THE SONO TUBES. THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 900.670, "SPECIAL PROVISION (MECHANICALLY STABILIZED EARTH RETAINING WALL, VIST-A-WALL)".
- 31. A GEOMEMBRANE LINER, 30 MILS THICK, SHALL BE PROVIDED WITHIN THE VIST-A-WALL REINFORCED SOIL ZONE AREAS AS DETAILED ON THE PLANS AND SPECIFIED IN THE SPECIAL PROVISIONS AND SHALL EXTEND OVER THE TOP OF THE ARCH STRUCTURE. PRIOR TO PLACING THE GEOMEMBRANE LINER, THE SUBGRADE SHALL BE GRADED SMOOTH WITH NO IRREGULARITIES OR STONE PROTUSIONS. GEOMEMBRANE LINER SHALL BE LOCATED A MINIMUM OF 6" BELOW BOTTOM OF GUARDRAIL POSTS TO AVOID DAMAGE DURING INSTALLATION OF THE POSTS. LIMITS OF GEOMEMBRANE LINER SHALL EXTEND 5'-0" BEYOND THE END OF THE VIST-A-WALL.

VIST-A-WALL RETAINING WALL SYSTEM (CONTINUED)

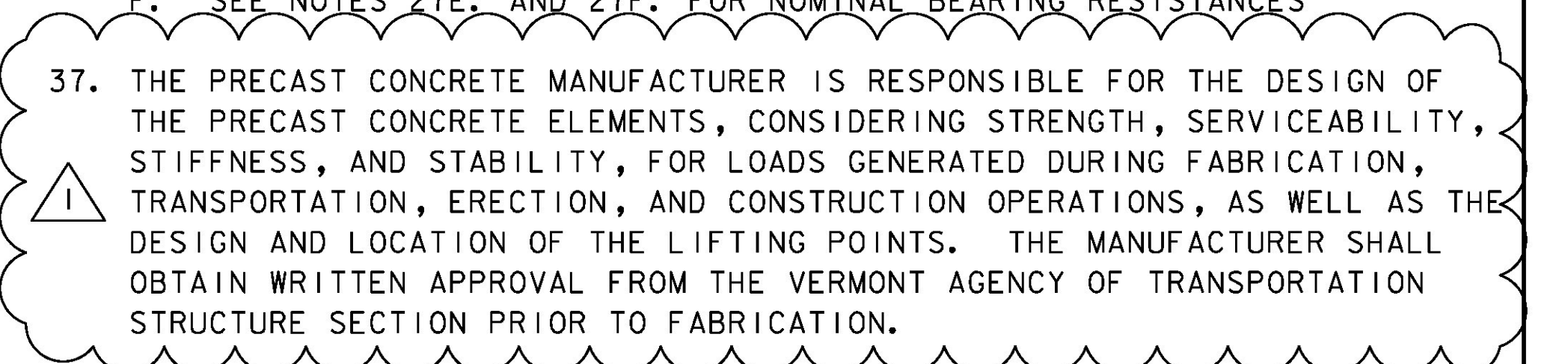
- 32. A DRAIN SYSTEM SHALL BE PROVIDED AND CONSIST OF A 6" DIAMETER PERFORATED PVC DRAIN PIPE CONFORMING TO THE REQUIREMENTS OF SECTION 605 WRAPPED IN GEOTEXTILE CONFORMING TO THE REQUIREMENTS OF SECTION 649, GEOTEXTILE FOR ROADBED SEPARATOR. A 6" LAYER OF DRAINAGE AGGREGATE CONFORMING TO SUBSECTION 704.16 SHALL BE PLACED OVER THE GEOMEMBRANE LINER. SEE SHEET 17 FOR LAYOUT OF 6" DIAMETER PERFORATED PIPE DRAIN. ALL PIPE, INCLUDING SECTIONS OF CARRIER PIPE BEYOND THE LIMITS OF THE RETAINING WALL, WILL BE CONSIDERED INCIDENTAL TO ITEM 900.670, "SPECIAL PROVISION (MECHANICALLY STABILIZED EARTH RETAINING WALL, VIST-A-WALL)", ALONG WITH ANY ASSOCIATED EXCAVATION.
- 33. THE DRILLING OF HOLES IN THE PRECAST CONCRETE ELEMENTS SHALL NOT BE PERMITTED UNLESS APPROVED IN WRITING BY THE VERMONT AGENCY OF TRANSPORTATION STRUCTURES SECTION. ANY LIFTING HOLES SHALL BE FILLED WITH MORTAR, TYPE IV CONFORMING TO THE REQUIREMENTS OF SUBSECTION 707.03. COST FOR MORTAR WILL BE CONSIDERED INCIDENTAL TO ITEM 900.670, "SPECIAL PROVISION (MECHANICALLY STABILIZED EARTH RETAINING WALL, VIST-A-WALL)".
- 34. A 6" DIAMETER WEEPHOLE SHALL BE PROVIDED THROUGH THE FACE OF THE VIST-A-WALL PANELS AT THE FOUR CORNERS OF THE ARCH STRUCTURE TO OUTLET THE 6" PERFORATED PIPE RUNNING PARALLEL TO THE PROPOSED ARCH ABOVE THE FOOTING. COST SHALL BE INCIDENTAL TO ITEM 900.670, "SPECIAL PROVISION (MECHANICALLY STABILIZED EARTH RETAINING WALL, VIST-A-WALL)".

PRECAST CONCRETE ELEMENTS

- 35. AS DETAILED ON THE QUANTITY SUMMARY SHEETS ON SHEETS 11-13, THE PRECAST CONCRETE RAIL SUPPORT SLABS, WALL CAPS, AND SPREAD FOOTINGS ARE OPTION ITEMS. THE CONTRACTOR SHALL CHOOSE EITHER CONTRACT ITEM 540.10, "PRECAST CONCRETE STRUCTURE" FOR ALL OPTIONS OR CONTRACT ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)" FOR ALL OPTIONS. MIXING OPTION ITEMS SHALL NOT BE ALLOWED.

REVISION	DATE	DESCRIPTION	BY
1	11-23-2016	MODIFY NOTE	SRB

- 36. DESIGN VALUES:
 - A. DESIGN LOADING: HL-93
 - B. WEIGHT OF BACKFILL MATERIAL: 140 PCF
 - C. PRECAST CONCRETE COMPRESSIVE STRENGTH: $f'c = 5,000$ PSI
 - E. REINFORCING STEEL, LEVEL I: $fy = 60,000$ PSI
 - F. SEE NOTES 27E. AND 27F. FOR NOMINAL BEARING RESISTANCES
- 37. THE PRECAST CONCRETE MANUFACTURER IS RESPONSIBLE FOR THE DESIGN OF THE PRECAST CONCRETE ELEMENTS, CONSIDERING STRENGTH, SERVICEABILITY, STIFFNESS, AND STABILITY, FOR LOADS GENERATED DURING FABRICATION, TRANSPORTATION, ERECTION, AND CONSTRUCTION OPERATIONS, AS WELL AS THE DESIGN AND LOCATION OF THE LIFTING POINTS. THE MANUFACTURER SHALL OBTAIN WRITTEN APPROVAL FROM THE VERMONT AGENCY OF TRANSPORTATION STRUCTURE SECTION PRIOR TO FABRICATION.
- 38. THE COST OF ALL REINFORCING BARS THAT ARE CAST INTO THE PRECAST CONCRETE ELEMENTS WILL BE INCLUDED IN THE APPROPRIATE PRECAST CONCRETE PAY ITEM.
- 39. THE CONCRETE FOR THE RAIL SUPPORT SLAB CLOSURE POURS SHALL CONFORM TO THE REQUIREMENTS OF ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)".
- 40. THE DRILLING OF HOLES IN THE PRECAST CONCRETE ELEMENTS SHALL NOT BE PERMITTED, UNLESS APPROVED IN WRITING BY THE VERMONT AGENCY OF TRANSPORTATION STRUCTURES SECTION. ANY LIFTING HOLES SHALL BE FILLED WITH MORTAR, TYPE IV CONFORMING TO THE REQUIREMENTS OF SUBSECTION 707.03. COST FOR MORTAR WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST CONCRETE PAY ITEM.



MODEL: Sheet 02
CLD 14-016



PROJECT NAME:	ST. JOHNSBURY
PROJECT NUMBER:	BF 7000(20)
FILE NAME: 86e048/cos/z86e048gennotes.dwg	DATE: 11/22/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT	CHECKED BY: A. GIRALDI
PROJECT NOTES SHEET 2	SHEET 10 OF 70