GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011 AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 7TH EDITION WITH INTERIMS THROUGH 2016.

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

3. THE DETAILS AND DIMENSIONS SHOWN ON THE PROJECT SPECIFIC PLAN AND DETAIL SHEETS TAKE PRECEDENCE OVER THE MORE GENERAL "STRUCTURES DETAIL SHEETS" PROVIDED AFTER THE PLAN SHEETS.

4. BRIDGE #1 WAS DESIGNED FOR AN HL-93 LIVE LOAD.

EARTHWORK

5. "REMOVAL OF STRUCTURE" ITEMS SHALL INCLUDE:

   - ITEM 204.25 "STRUCTURE EXCAVATION" SHALL BE USED FOR EXCAVATION FOR INSTALLING THE NEW PRECAST CATTLE PASS STRUCTURE. THE REMOVAL AND DISPOSAL OF THE EXISTING CATTLE PASS WILL BE INCIDENTAL TO THIS ITEM.

   - ITEM 900.645 "SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE)" SHALL BE USED FOR THE REMOVAL AND SALVAGE OF THE EXISITING TEMPORARY BRIDGE ABOVE THE BRIDGE SEATS. REMOVAL OF THE EXISTING ABUTMENTS AND WINGWALLS WILL ALSO BE COVERED UNDER THIS ITEM.

ROADWAY

6. ITEM 625.10 "SLEEVES FOR UTILITIES" SHALL BE USED FOR PROJECT STP HES 030-2(28) IN AREAS ALONG VT 15 WHERE RESIDENTIAL WATER AND SEWER LINES EXIST. THE CONTRACTOR SHALL INSTALL EMPTY SLEEVES NEAR ANTICIPATED EXISTING PIPES AS SHOWN ON THE CONTRACT PLANS. THE INSTALLATION OF THE SLEEVES WILL ALLOW FOR FUTURE REPAIR OR REPLACEMENT OF THE PIPES WITHOUT EXCAVATING VT 15. THE LOCATION OF INSTALLED SLEEVES AND ANY ENCOUNTERED PIPES SHALL BE RECORDED AND REPORTED TO PROPERTY OWNER AND THE TOWN. DAMAGE TO ANY EXISITING PIPES DURING ROADWAY CONSTRUCTION SHALL BE REPAIRED WITH THE APPROPRIATE PIPE MATERIALS. ALL WORK AND MATERIALS NECESSARY TO REPAIR DAMAGED PIPES WILL BE INCIDENTAL TO THE APPROPRIATE ITEM 625.10.

7. ANY REMOVAL OF EXPOSED ROCK NECESSARY TO CONSTRUCT THE ROADWAY WILL BE PAID FOR UNDER ITEM 203.16 "SOLID ROCK EXCAVATION." ANY NECESSARY DRILLING AND BLASTING OF THIS ROCK WILL BE CONSIDERED INCIDENTAL TO ITEM 203.16. ADDITIONAL ROCK THAT IS LOCATED BELOW GRADE THAT NEEDS TO BE REMOVED WILL BE PAID FOR UNDER ITEM 205.20 "DRILLING AND BLASTING OF SOLID ROCK SUBGRADE".

CONCRETE AND REINFORCING STEEL

BRIDGE #1

8. ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A" SHALL BE USED FOR THE DECK, CANTILEVERED ABUTMENTS AND WINGWALLS ABOVE THE HORIZONTAL CONSTRUCTION JOINT.

9. ITEM 501.34 "CONCRETE, HIGH PERFORMANCE CLASS B" SHALL BE USED FOR THE APPROACH SLABS, SLEEPER SLABS, ABUTMENTS AND WINGWALLS BELOW THE HORIZONTAL CONSTRUCTION JOINT, AND THE PIERS WITH THE EXCEPTION OF ANY NECESSARY SUBFOOTING CONCRETE ON PIER #1.

10. ITEM 541.30" CONCRETE, CLASS C" SHALL BE USED FOR ANY NECESSARY SUBFOOTING CONCRETE NECESSARY FOR PIER #1.

11. CONCRETE, HIGH PERFORMANCE CLASS B WITHIN THE ABUTMENTS AND WINGWALLS SHALL BE CAST AND CURED A MINIMUM OF 72 HOURS AND UNTIL 85% OF THE DESIGN STRENGTH HAS BEEN REACHED PRIOR TO SETTING FORMWORK FOR DECK CONSTRUCTION. TO MAINTAIN THEORETICAL CAMBER AND BLOCKING HEIGHTS, NO VERTICAL LOADS IMPOSED ON THE GIRDERS WILL BE ALLOWED DURING THIS OPERATION.

12. THE FORMWORK USED TO CONSTRUCT THE ABUTMENTS AND WINGWALLS SHALL BE LATERALLY SECURED TO THE GIRDERS TO PREVENT THERMAL MOVEMENT OF THE GIRDERS WITHIN THE ABUTMENTS DURING THE INITIAL CONCRETE CURE PERIOD. THIS SAME FORMWORK SHALL NOT IMPOSE VERTICAL LOADS ON THE ENDS OF THE GIRDERS.

13. SUPERSTRUCTURE DECK CONCRETE SHALL BE PLACED IN A SINGLE CONTINUOUS OPERATION AND SHALL BE KEPT PLASTIC FOR THE ENTIRE DURATION OF THE POUR. WHEN POURING THE DECK, THE CONCRETE SHALL BE DEPOSITED PARALLEL TO THE CENTERLINE OF BEARING SO AS TO LOAD THE GIRDERS EQUALLY.

14. ITEM 514.10, "WATER REPELLENT, SILANE", SHALL BE APPLIED TO ALL EXPOSED CONCRETE ON THE BRIDGE SUPERSTRUCTURE AND SUBSTRUCTURE, WITH THE EXCEPTION OF THE BOTTOM OF THE BRIDGE DECK BETWEEN THE DRIP NOTCHES.

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

16. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

17. REINFORCING BARS AND THEIR DESIGNATIONS SHALL BE AS FOLLOWS:

   - BARS MARKED WITH A ".3" IN THEIR SUFFIX SHALL BE ITEM 507.13, "REINFORCING STEEL, LEVEL III."

   - BARS MARKED WITH A "G" IN THEIR SUFFIX SHALL BE THE APPROPRIATE 900.640, "SPECIAL PROVISION (REINFORCING BAR, GFRP)" ITEM.

   - ALL OTHER REINFORCEMENT SHALL MEET THE REQUIREMENTS OF ITEM 507.11 "REINFORCING STEEL, LEVEL I."

18. IN ADDITION TO THE REQUIREMENTS OF SPECIAL PROVISION (REINFORCING BAR, GFRP), GFRP REINFORCING BARS SHALL MEET THE FOLLOWING DESIGN VALUES:

   - MINIMUM TENSILE STRENGTH 100,000 PSI
   - MINIMUM TENSILE ELASTIC MODULUS 6,150,000 PSI
   - MAXIMUM BONDING COEFFICIENT, kb 1.0

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

   - ALONG TOP SURFACE OF SUPERSTRUCTURE: 1 ½ INCHES
   - ALONG BOTTOM SURFACE OF SUPERSTRUCTURE: 1 ½ INCHES
   - ALONG BACK FACES OF WALLS AGAINST EARTH: 2 INCHES
   - PIERS 4 INCHES
   - ELSEWHERE UNLESS OTHERWISE INDICATED: 3 INCHES

20. TEST BARS SHALL BE PROVIDED IN ACCORDANCE WITH THE "VERMONT AGENCY OF TRANSPORTATION MATERIAL SAMPLING MANUAL" AVAILABLE ON THE AGENCY WEBSITE.

CATTLE PASS

21. THE PRECAST CATTLE PASS CULVERT, HEADWALLS, WINGWALLS AND FOOTINGS SHALL BE PRECAST CONCRETE CONFORMING TO SECTION 540 OF THE SPECIFICATIONS, AND SHALL MEET THE DIMENSIONS INDICATED ON THE PLANS. ALL COMPONENTS OF THE STRUCTURE INCLUDING PRECAST CATTLE PASS, WINGWALLS, WINGWALL FOOTINGS, HEADWALLS, CUTOFF WALLS, REINFORCING STEEL, CONNECTIONS, AND MEMBRANE WATERPROOFING, WILL BE PAID FOR UNDER ITEM 540.10, "PRECAST CONCRETE STRUCTURE (8'-0" X 6'-0" X 64'-0" CATTLE PASS)".

22. ALL PRECAST CONCRETE COMPONENTS INCLUDING THE PRECAST CATTLE PASS, HEADWALLS, WINGWALLS, FOOTINGS, AND ALL CONNECTIONS BETWEEN THESE COMPONENTS SHALL BE DESIGNED BY THE PRECAST FABRICATOR. THE SOIL PROPERTIES AND DESIGN PARAMETERS USED FOR THE PROJECT SITE ARE AS INDICATED BELOW:

DESIGN LIVE LOAD:	HL - 93
DESIGN LIFE:	75 YEARS
NOMINAL BEARING RESISTANCE:	4.0 KSF
SOIL UNIT WEIGHT:	140 LB/CF
SOIL FRICTION ANGLE:	34 DEGREES
BEARING RESISTANCE FACTOR:	0.45
SLIDING RESISTANCE FACTOR:	SEE AASHTO 10.6.3.4
DESIGN FILL OVER CATTLE PASS:	0"

23. ALL ELEMENTS OF THE PRECAST STRUCTURE(S) SHALL BE DESIGNED BY THE PRECAST SUPPLIER, INCLUDING THE ANCHORAGE AND CONNECTIONS BETWEEN ELEMENTS. ALL ELEMENTS SHALL BE INSTALLED IN ACCORDANCE WITH THE FABRICATOR'S RECOMMENDATIONS. THE CONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS FOR THE PRECAST CATTLE PASS IN ACCORDANCE WITH SECTION 105. IN ADDITION TO FABRICATION DRAWINGS, THE FABRICATOR SHALL PROVIDE A LOAD RATING AND SUPPORTING CALCULATIONS IN ACCORDANCE WITH THE AASHTO SPECIFICATIONS REFERENCED IN GENERAL NOTE 1 AND THE VTRANS STRUCTURES DESIGN MANUAL, 2010. THE RATING AND SUPPORTING CALCULATIONS SHALL BE SIGNED, STAMPED AND DATED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE ENGINEERING IN THE STATE OF VERMONT. NOTE THAT THE FABRICATOR ASSUMES ALL LIABILITY FOR THE ADEQUACY AND ACCURACY OF THE PRECAST CATTLE PASS DESIGN AND LOAD RATING.

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

25. TRANSVERSE GROOVING SHALL BE PROVIDED ALONG THE LENGTH OF THE PRECAST CATTLE PASS INVERT. THIS WORK SHALL BE PERFORMED BY THE PRECAST FABRICATOR AND WILL BE INCICENTAL TO ITEM 540.10.

26. JOINTS BETWEEN ALL ABUTTING PRECAST UNITS SHALL BE WATERTIGHT AND MECHANICALLY CONNECTED.

27. ALL REINFORCING STEEL IN THE PRECAST CATTLE PASS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL III, SOLID STAINLESS REINFORCING STEEL. REINFORCING STEEL WILL BE INCLUDED FOR PAYMENT UNDER CONTRACT ITEM 540.10.

28. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE ON THE PRECAST CATTLE PASS, INCLUDING HEADWALLS, WINGWALLS, CUTOFF WALLS, AND INTERIOR EXPOSED SURFACES. MATERIAL SHALL MEET THE REQUIREMENTS OF SECTION 514 IN THE SPECIFICATIONS. PAYMENT AND APPLICATION OF SILANE WILL BE PAID FOR UNDER ITEM 514.10 "WATER REPELLENT, SILANE."

29. MEMBRANE WATERPROOFING SHALL BE APPLIED TO THE ENTIRE TOP OF THE PRECAST CATTLE PASS. A TWO (2) FOOT WIDE STRIP OF MEMBRANE SHALL BE PLACED AT EACH VERTICAL JOINT (SIDES). MEMBRANE SHALL BE CENTERED ON THE JOINT AND COVER THE FULL HEIGHT. THE SIDES SHALL BE COVERED PRIOR TO THE TOP. ANY OVERLAPPING OF MEMBRANE SHALL BE DONE IN A SHINGLE TYPE STYLE TO SHED WATER AND SHALL OVERLAP A MINIMUM OF ONE FOOT. MATERIAL FOR MEMBRANE SHALL MEET THE REQUIREMENTS OF SUBSECTION 726.11. PAYMENT FOR MEMBRANE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE CONTRACT ITEM 540.10.

30. THE USE OF EQUIPMENT AND THE METHOD OF BACKFILLING AROUND THE BURIED STRUCTURE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. CARE SHALL BE TAKEN WHEN BACKFILLING AGAINST JOINT WATERPROOFING MATERIALS.

31. NO HOLES SHALL BE DRILLED IN THE PRECAST CATTLE PASS WITHOUT THE APPROVAL OF THE FABRICATOR AND VTRANS.

32. FABRICATOR SHALL BE RESPONSIBLE FOR SUPPLYING THE STATE WITH THE LRFR LOAD RATING RESULTS.

33. NO BORINGS WERE TAKEN IN THE AREA FOR THE PROPOSED PRECAST CATTLE PASS. IT IS ANTICIPATED THAT NO BEDROCK WILL BE ENCOUNTERED IN THIS AREA SINCE AN EXISTING CATTLE PASS IS LOCATED HERE. IF BEDROCK IS ENCOUNTERED DURING EXCAVATION THE PROJECT MANAGER SHALL BE CONTACTED IMMEDIATELY BEFORE PROCEEDING.

STRUCTURAL STEEL

34. UNLESS NOTED OTHERWISE, ALL NEW STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270 GRADE 50W AND SHALL BE PAID UNDER ITEM 506.56, "STRUCTURAL STEEL, CURVED PLATE GIRDER."

35. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, LOWER PORTIONS OF THE ABUTMENTS AND WINGWALLS CAST AND CURED, AND BEFORE ANY FORMWORK OR OTHER LOADS ARE ADDED TO THE GIRDERS, ELEVATIONS ALONG THE TOP OF THE GIRDER FLANGES SHALL BE TAKEN AS DIRECTED BY THE ENGINEER FOR USE IN DETERMINING DECK FORMWORK ELEVATIONS.

36. FLEMING BRACKETS OR SIMILAR FALSEWORK SHALL BE SPACED AS REQUIRED BY DESIGN, BUT SHALL BE LIMITED TO A MAXIMUM SPACING OF 4'-0". THE DESIGN OF THE FALSEWORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. DEPTH OF FLEMING BRACKETS SHALL EXTEND AS NEAR AS POSSIBLE TO THE BOTTOM FLANGE AND SHALL BE A MINIMUM OF 75% OF THE WEB DEPTH.

37. STEEL PLATES, SHAPES, AND BARS MARKED "(CVN)" SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01.

38. UNLESS OTHERWISE NOTED, ALL BOLTS SHALL BE 7/8" DIA ASTM A325 TYPE 3 AND MEET THE REQUIREMENTS OF SUBSECTION 714.05. HOLE DIAMETERS SHALL BE 15/16".

39. OVERSIZED AND SLOTTED CONNECTION HOLES ARE NOT PERMITTED. PUNCHING CONNECTION HOLES FULL SIZE WILL NOT BE ALLOWED.

40. BEARING STIFFENERS SHALL BE PLUMB AFTER ERECTION AND DEAD LOADING OF STRUCTURE; INTERMEDIATE CONNECTOR PLATES MAY EITHER BE ALL PLUMB OR ALL NORMAL TO THE TOP FLANGE.

41. CROSS FRAMES SHALL BE DETAILED AND FABRICATED TO FIT UNDER FULL DEAD LOAD. ALL CROSS FRAMES ARE RADIAL.

42. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.

PILE FOUNDATIONS

43. ITEM 505.20 "STEEL PILING, HP 14 X 117" SHALL BE USED FOR ALL PILING NECESSARY FOR THE CONSTRUCTION OF PIER #2.

44. THE PILES SHALL BE DRIVEN TO BEDROCK AND ATTAIN A NOMINAL RESISTANCE OF 460 KIPS. THE ENGINEER WILL VERIFY THE PILE CAPACITY, AS DETERMINED BY WAVE EQUATION ANALYSES PERFORMED BY VTRANS, IN ACCORDANCE WITH 505.04(D)(3).

45. REINFORCED DRIVING TIPS SHALL BE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04(F) OF THE STANDARD SPECIFICATIONS.

46. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AND ARE SHOWN ON THE BORING LOGS. THE ACTUAL IN PLACE LENGTHS MAY VARY.

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PROJECT NUMBER:	BRS 0240(3)S/STP HES 030-2(28)
FILE NAME: s78f329forms.dgn	PLOT DATE: 12-APR-2017
PROJECT LEADER: C. CARLSON	DRAWN BY: C. BURRALL
DESIGNED BY: C. BURRALL	CHECKED BY: J. LACROIX
GENERAL NOTES SHEET 1	SHEET 10 OF 175