

PROJECT NOTES

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, LRFD FIFTH EDITION, DATED 2010 AND ITS LATEST REVISIONS.
2. THE BRIDGE IS DESIGNED FOR AN HL-93 LIVE LOADING WITH A 3 INCH ALLOWANCE FOR FUTURE PAVEMENT.
3. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT.
4. ITEM 529.15, "REMOVAL OF STRUCTURE" SHALL BE USED FOR THE REMOVAL OF THE EXISTING STRUCTURE INCLUDING THE SUPERSTRUCTURE, AND ANY PORTION OF THE ABUTMENTS OUTSIDE THE LIMITS OF STRUCTURE EXCAVATION. THE ABUTMENTS SHALL BE REMOVED TO ELEVATION 1132 FEET OR BOTTOM OF STONE FILL.
5. THE EXISTING STRUCTURAL STEEL IS PAINTED WITH A MATERIAL THAT MAY CONTAIN LEAD. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE REGULATIONS WHEN HANDLING AND WORKING WITH THIS STEEL. THE REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL IDENTIFY AND HOLD THE STATE, ITS OFFICERS, AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSAL OF THE REMOVED EXISTING STRUCTURAL STEEL.
6. ALL PRECAST CONCRETE ELEMENTS SHALL BE FABRICATED TO THE SPECIFIED DIMENSIONS WITHIN THE TOLERANCES DICTATED IN THE PRECAST/PRESTRESSED CONCRETE INSTITUTE TOLERANCE MANUAL FOR PRECAST AND PRESTRESSED CONCRETE CONSTRUCTION, MNL 135-00 AND ITS LATEST REVISIONS.
7. FOR TRAFFIC CONTROL NOTES, SEE SHEET 14.
8. THE STATE HAS INSTALLED STEEL PLATES ON THE EXISTING BRIDGE DECK. PRIOR TO BRIDGE DECK REMOVAL, THE CONTRACTOR SHALL STOCKPILE THE PLATES ON THE PROJECT SITE AND LOAD ON A TRUCK SUPPLIED BY THE DISTRICT. CONTACT BILL SARGENT, MAINTENANCE BRIDGE MANAGER AT (802) 828-2699 TO ARRANGE REMOVAL FROM THE PROJECT SITE. ALL COSTS SHALL BE INCLUDED UNDER ITEM 529.15, "REMOVAL OF STRUCTURE".

EARTHWORK

9. THE "STONE FILL, TYPE IV" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE PREFABRICATED BRIDGE UNITS ARE SET. EXISTING ABUTMENTS TO BE REMOVED TO BOTTOM OF STONE FILL OR AS DIRECTED BY THE ENGINEER.
10. SUITABLE EXCAVATION MATERIAL TO BE MATERIAL FROM COMMON EXCAVATION WHICH HAS BEEN APPROVED BY THE ENGINEER.

CONCRETE

11. ALL CONCRETE PLACED IN THE DECK CLOSURE POURS, BACKWALL, APPROACH SLAB CLOSURE POURS AND PILE VOID CLOSURE POURS SHALL BE ITEM 900.608 "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)".
12. ALL CONCRETE PLACED IN THE DECK OF THE PREFABRICATED BRIDGE UNITS SHALL MEET THE REQUIREMENTS OF ITEM 900.675 "SPECIAL PROVISION (PREFABRICATED BRIDGE UNIT SUPERSTRUCTURE)".
13. ALL PRECAST SUBSTRUCTURE CONCRETE AND APPROACH SLAB CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 540 - PRECAST CONCRETE.
14. ALL REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR REINFORCING STEEL, LEVEL II. ALL REINFORCING STEEL PLACED IN THE BACKWALL WILL BE PAID FOR UNDER ITEM 507.12 REINFORCING STEEL, LEVEL II. ALL OTHER REINFORCING STEEL WILL BE INCLUDED IN THE UNIT BID PRICE FOR THE APPROPRIATE PRECAST CONCRETE PAY ITEM.
15. ITEM 514.10, "WATER REPELLENT, SILANE", SHALL BE APPLIED TO ALL EXPOSED CONCRETE SUPERSTRUCTURE AND SUBSTRUCTURE SURFACES, EXCEPT THE UNDERSIDE OF THE DECK BETWEEN DRIP NOTCHES.
16. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH X 1 INCH UNLESS OTHERWISE NOTED.
17. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING STEEL INSTITUTE". A REINFORCING STEEL SCHEDULE SHALL BE SUBMITTED TO THE RESIDENT ENGINEER FOR REVIEW.
18. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT AT NO POINT DURING FABRICATION, DELIVERY, OR ERECTION OF THE PRECAST BRIDGE UNITS THAT THE CONCRETE DECK IS IN TENSION WHICH CAUSES CRACKING IN THE CONCRETE.

19. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:
 ALONG BACK FACES OF WALLS AGAINST EARTH 2.0 INCH
 ALONG TOP SURFACE OF DECK SLAB 2.5 INCH
 ALONG BOTTOM SURFACE OF DECK SLAB 1.5 INCH
 ELSEWHERE UNLESS OTHERWISE NOTED 3.0 INCH

PRECAST ABUTMENTS AND POST-TENSIONING

20. VERTICAL CONSTRUCTION JOINTS REQUIRED BY THE CONTRACTOR FOR SHIPMENT OF THE ABUTMENTS SHALL BE KEVED AND MATCH CAST. A JOINT DETAIL SHALL BE SHOWN ON THE FABRICATION DRAWINGS.
21. POST-TENSIONING AND ASSOCIATED ITEMS ARE ONLY REQUIRED IF THE ABUTMENT CAP IS CONSTRUCTED OF MORE THAN ONE UNIT. ANY POST-TENSIONING STRANDS AND CONDUIT SHALL ADHERE TO THE REQUIREMENTS OF SECTION 510 - PRESTRESSED CONCRETE. GALVANIZED ANCHOR ASSEMBLIES, CONDUIT AND POST-TENSIONING STRANDS SHALL BE INCLUDED UNDER ITEM 540.10 "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1) OR ITEM 540.10 "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)" AS APPROPRIATE. POST TENSIONING STRANDS SHALL BE COVERED WITH SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND STRAND) FOR THE LENGTH OF THE STRAND, EXCEPT AT ANCHORAGE LOCATIONS.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND DETAILING OF POST TENSIONING ELEMENTS. THE POST TENSIONING DESIGN SHALL FOLLOW CURRENT LRFD GUIDELINES.
23. GALVANIZE ANCHOR ASSEMBLIES (SUPPORT BOLTS, NUTS, WASHERS AND LEVELING PLATES) AFTER FABRICATION ACCORDING TO AASHTO M232M/M232.
24. ANCHOR BOLTS, LEVELING PLATE, NUTS AND WASHERS EXPANDABLE JOINT FILLER AND ELASTOMERIC PADS SHALL BE INCLUDED UNDER ITEM 540.10 "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1) OR ITEM 540.10 "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)" AS APPROPRIATE.
25. DESIGN VALUES:
 A. CONCRETE COMPRESSIVE STRENGTH: $f'_c = 5000$ psi
 B. POST-TENSIONING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW RELAXATION 7-WIRE STRANDS.
 C. ASSUMED MODULUS OF ELASTICITY IS 28,500 KSI.
 D. THERE SHALL BE 2 STRANDS PER CONDUIT.
 E. THE JACKING FORCE PER STRAND = 44 KIPS.
26. THE CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF SUBSECTION 711.01. ALL COSTS ASSOCIATED WITH PLACING THE CORRUGATED STEEL PIPE SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 540.10 "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)" OR ITEM 540.10 "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)" AS APPROPRIATE.
27. SUGGESTED SEQUENCE OF CONSTRUCTION:
 A. PRE-DRILL 2' DIA. HOLES FOR PILES AND BACKFILL WITH SAND BORROW PRIOR TO ROAD CLOSURE USING ALTERNATING ONE-WAY TRAFFIC ON THE BRIDGE
 B. CLOSE ROADWAY AND DEMO EXISTING BRIDGE.
 C. PREPARE AND GRADE FOUNDATION TO REQUIRED ELEVATION.
 D. DRIVE PILES IN PRE-AUGERED HOLES.
 E. APPLY EPOXY BONDING COMPOUND TO MATCH CAST CONSTRUCTION JOINT FACES. PLACE PRECAST ABUTMENTS.
 F. USE A CALIBRATED JACK TO TENSION TO 3 KIPS TO REMOVE SAG IN STRANDS.
 G. CHECK ALIGNMENT OF ABUTMENT CAPS.
 H. STRESS POST-TENSIONING STRANDS USING A CALIBRATED JACK OPERATED BY QUALIFIED PERSONNEL WHO HAVE PREVIOUS EXPERIENCE IN POST-TENSIONING.
 I. FILL PILE CAVITIES WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)".
 J. BACKFILL BEHIND ABUTMENTS.
28. BOTH ABUTMENTS SHALL BE BACKFILLED SIMULTANEOUSLY. NO MORE THAN 12" DIFFERENTIAL BACKFILL HEIGHT SHALL BE PERMITTED. BACKFILLING SHALL NOT BEGIN UNTIL THE BACKWALL CLOSURE POUR IS COMPLETE.

PILES

29. THE PILES SHALL BE HP 12X74 WITH THE FOLLOWING STRUCTURAL AND PILE DRIVING PROPERTIES:
 A. PILE AXIAL PILE RESISTANCE = 1090 KIPS
 B. PILE MONITORING METHOD = STATIC ANALYSIS
 C. PILE TEST RESISTANCE FACTOR = $\phi=0.45$
 D. NOMINAL PILE DRIVING RESISTANCE (RNDR) = 466.7 KIPS
30. PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04(F).

31. THE TOPS OF THE PILES AFTER DRIVING SHALL NOT VARY FROM THE LOCATION SHOWN ON THE PLANS BY MORE THAN 3 INCHES. THE PILE ORIENTATION SHALL NOT VARY BY MORE THAN 5 DEGREES. THE CONTRACTOR SHALL DEMONSTRATE HOW TOLERANCE WILL BE MET TO THE SATISFACTION OF THE ENGINEER REGARDLESS OF INSTALLATION METHOD.
32. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL LENGTHS MAY VARY.
33. THE PILES SHALL BE DRIVEN TO BEDROCK AND SHALL BE EMBEDDED IN THE GROUND A MINIMUM OF 19 FEET BELOW THE BOTTOM OF THE PILE CAP.
34. DUE TO THE PRESENCE OF COBBLES AND BOULDERS, THE CONTRACTOR IS REQUIRED TO PRE-EXCAVATE MATERIAL TO BEDROCK PRIOR TO DRIVING PILES. THIS WORK SHALL BE COMPLETED PRIOR TO THE BRIDGE CLOSURE PERIOD. REFERENCE TRAFFIC CONTROL SHEET 14 FOR ADDITIONAL INFORMATION.
35. PAYMENT FOR PRE-EXCAVATION FOR PILES SHALL BE UNDER ITEM 900.640 "SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES)"

PREFABRICATED BRIDGE UNITS

36. PREFABRICATED BRIDGE UNITS SHALL BE PAID UNDER ITEM 900.675, "SPECIAL PROVISION (PREFABRICATED BRIDGE UNIT SUPERSTRUCTURE)".
37. PREFABRICATED BRIDGE UNITS SHALL BE FABRICATED TO THE DIMENSIONS SHOWN ON THE PLANS. PRECAST BACKWALL DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
38. THE CAST IN PLACE BACKWALL AS SHOWN ON THE PLANS IS OPTIONAL AND MAY BE PRECAST BY THE CONTRACTOR.
39. PRECAST BACKWALLS, IF USED, SHALL INCLUDE AN EQUIVALENT AMOUNT OF DOWEL BARS AS IS CURRENTLY PROVIDED BY THE SUPPORT BOLTS AT THE CONSTRUCTION JOINT. THE DOWELS CAN BE LOCATED ANYWHERE ALONG THE CENTERLINE OF BEARING PROVIDED THAT THE MAXIMUM SIZE OF THE DOWELS DOES NOT EXCEED TWO INCHES IN DIAMETER.
40. UNLESS OTHERWISE NOTED, ALL NEW STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270/M270M GRADE 50W AND SHALL BE PAID FOR UNDER ITEM 900.675 "SPECIAL PROVISION (PREFABRICATED BRIDGE UNIT SUPERSTRUCTURE)".
41. AFTER SUPERSTRUCTURE STEEL ELEMENTS HAVE BEEN SET UP AT THE SHOP, ELEVATIONS ALONG THE TOP OF THE GIRDERS SHALL BE TAKEN FOR USE IN DETERMINING FINISHED GRADES.
42. ENDS OF GIRDERS ARE TO BE VERTICAL IN FINAL POSITION.

PRECAST APPROACH SLABS

43. PRECAST CONCRETE STRENGTH: $f'_c = 5,000$ PSI.
44. SLAB EDGES IN CONTACT WITH HPC RAPID SET CONCRETE SHALL BE SANDBLASTED PRIOR TO DELIVERY AND POWER WASHED WITH WATER PRIOR TO INSTALLATION.
45. FILL APPROACH SLAB CLOSURE POURS WITH HPC RAPID SET CONCRETE IN ACCORDANCE WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)". CONCRETE SHALL HAVE A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 7,000 PSI.
46. THE FABRICATOR MAY ALTER THE DESIGN DETAILED WITHIN THESE PLANS TO ACCOMMODATE THEIR SPECIFIC OPERATION. THIS ALTERATION SHALL BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT.

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FILE NAME: z10b424frm.dgn PLOT DATE: 03-OCT-2013
PROJECT LEADER: R. YOUNG DRAWN BY: P. DUSTIN
DESIGNED BY: D. KULL CHECKED BY: T. KENDRICK
PROJECT NOTES SHEET 3 OF 42

