

PRECAST ABUTMENT

- 44. ABUTMENT STEMS SHALL BE PRECAST AND CONSTRUCTED WITH PRECAST CONCRETE FOOTINGS. ALL COST SHALL BE INCLUDED IN THE APPROPRIATE PRECAST CONCRETE ITEM. THIS SHALL INCLUDE ALL WORK NECESSARY TO FABRICATE, DELIVER, AND ASSEMBLE EACH UNIT COMPLETE AND IN-PLACE AS SHOWN ON THE PLANS. ALL APPURTENANCES SHALL BE INCIDENTAL.
- 45. THESE PLANS INCLUDE DETAILS AND GENERAL LAYOUT INFORMATION FOR PRECAST ABUTMENT STEMS, WINGWALLS, FOOTINGS, ARCH, AND ARCHITECTURAL PANELS. THE CONTRACTOR MAY INCLUDE ALTERNATIVE DETAILS AND JOINT LOCATIONS FOR APPROVAL AS PART OF THE FABRICATION DRAWING SUBMITTAL PROVIDED THE MODIFICATIONS ARE CONSISTENT WITH THE DESIGN DETERMINED BY THE ENGINEER. IF THE MODIFICATIONS ARE NOT CONSISTENT WITH THE DESIGN, THE CONTRACTOR SHALL SUBMIT ALL NECESSARY CALCULATIONS AND DRAWINGS CONSISTENT WITH THE MODIFICATIONS THAT ARE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT.
- 46. ALL COSTS FOR GROUTING MATERIALS USED IN PRECAST MEMBERS SHALL BE INCIDENTAL TO THE APPROPRIATE PRECAST CONCRETE PAY ITEM UNLESS OTHERWISE NOTED.
- 47. THE CONTRACTOR IS RESPONSIBLE FOR PROPER FIT-UP OF THE PRECAST AND CAST-IN-PLACE ELEMENTS, PER THE FABRICATOR'S RECOMMENDATIONS, APPROVED FABRICATION AND ENGINEERING DRAWINGS, AND TO THE SATISFACTION OF THE ENGINEER.
- 48. TEMPORARY SUPPORTS SHALL BE REQUIRED IF THE STRUCTURE IS BACKFILLED PRIOR TO ACHIEVING FULL MOMENT CAPACITY BETWEEN ALL CONNECTED ELEMENTS. ALL DETAILS SHALL BE INCLUDED IN THE FABRICATION DRAWINGS AND ERECTION PLAN.
- 49. MECHANICAL GROUTED SPLICES SHALL BE USED TO PROVIDE MOMENT CONNECTIONS BETWEEN MEMBERS AS SHOWN IN THE PLANS. GROUTED SPLICES SHALL DEVELOP A MINIMUM OF 125% OF THE SPECIFIED YIELD STRENGTH OF THE REINFORCING BAR BEING SPLICED. ALL COSTS FOR THE GROUTED SPLICES SHALL BE INCLUDED IN THE APPROPRIATE PRECAST CONCRETE PAY ITEM.
- 50. VERTICAL JOINTS BETWEEN ABUTMENT STEMS, WINGWALLS, AND FOOTINGS SHALL BE STAGGERED A MINIMUM OF SIX INCHES. ALL JOINT DETAILS SHALL BE SHOWN ON THE FABRICATION DRAWINGS.
- 51. NO VERTICAL JOINTS SHALL BE ALLOWED WITHIN 1'-0" FROM THE EDGE OF ANY BEARING DEVICE OF THE SUPERSTRUCTURE.
- 52. BARRIER MEMBRANE, IN ACCORDANCE WITH SECTION 540, SHALL BE PLACED ALONG THE FAR FACE OF THE VERTICAL JOINTS IN ABUTMENT STEMS AND WINGWALLS. ALL COST SHALL BE INCLUDED IN THE APPROPRIATE PRECAST CONCRETE PAY ITEM.
- 53. GALVANIZE ANCHOR ASSEMBLIES AFTER FABRICATION IN ACCORDANCE WITH ASSHTO M232M/M232.
- 54. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF  $f_c = 5,000$  PSI.
- 55. EXPOSED FACES OF WINGWALLS SHALL HAVE AN AESTHETIC FINISH IN ACCORDANCE WITH SECTION 501.
- 56. SURFACES OF BRIDGE SEATS UNDER BEARING DEVICES SHALL BE LEVEL. THE ENTIRE BRIDGE SEAT SURFACE SHALL BE SMOOTHED WITH A MAGNESIUM FLOAT.

PRECAST ARCH

- 57. THE PRECAST ARCH AND CAST-IN-PLACE CROWN BEAM SYSTEM SHALL BE COMPATIBLE WITH THE REQUIREMENTS OF THIS SPECIFIC PROJECT, INCLUDING BUT NOT LIMITED TO GEOMETRICS, AESTHETICS, AND COMPATIBILITY WITHIN THE CONFINEMENTS OF THE NEXT BEAM SUPERSTRUCTURE AND SUBSTRUCTURE WITH APPURTENANCES, INCLUDING THE WATERLINE, PRECAST ARCHITECTURAL PANELS, AND PANEL SUPPORT BEAM. THE PRECAST ARCH SYSTEM PROPOSED BY THE CONTRACTOR SHALL BE SUBMITTED TO VTRANS FOR APPROVAL. NO DEVIATIONS FROM THE GEOMETRIC LAYOUT OF THE ARCH ARE ALLOWED.
- 58. THE CENTERLINE OF FOOTING IS BASED ON A 1'-0" THICK PRECAST ARCH AND IS CALCULATED FROM THE INSIDE FACE OF THE ARCH, WHICH IS THE CONTROL, AT THE TOP OF FOOTING ELEVATION. IF, BASED ON THE MANUFACTURER'S DESIGN, THE ARCH THICKNESS IS OTHER THAN 1'-0", THE CENTERLINE OF FOOTING SHALL BE REPOSITIONED AS NEEDED TO PLACE THE CENTER OF THE FOOTING DIRECTLY UNDER THE CENTER OF THE PRECAST ARCH WALL AS CALCULATED AT THE TOP OF FOOTING.
- 59. THE PRECAST ARCH SHALL BE DESIGNED FOR SELF-WEIGHT DEAD LOAD OF THE ARCH ONLY, AND SHALL NOT BEAR ANY VERTICAL LIVE LOADS OR DEAD LOADS FROM THE ABOVE NEXT BEAM SUPERSTRUCTURE OR PRECAST ARCHITECTURAL FACE PANELS OR APPURTENANCES. THE CAST-IN-PLACE ARCH FOOTINGS HAVE BEEN DESIGNED FOR THE FOLLOWING LOADS:  
  

PRECAST ARCH DEAD LOAD = 4.5 KIPS/FOOT (VERTICAL)  
 HORIZONTAL THRUST FROM ARCH DEAD LOAD = 1.75 KIPS/FOOT
- 60. THE CONTRACTOR IS RESPONSIBLE FOR PROPER FIT-UP OF THE PRECAST AND CAST-IN-PLACE ELEMENTS, PER THE FABRICATOR'S RECOMMENDATIONS, APPROVED FABRICATION AND ENGINEERING DRAWINGS, AND TO THE SATISFACTION OF THE ENGINEER.
- 61. PRECAST ARCH AND COMPONENTS SHALL BE DESIGNED BY THE FABRICATOR AND DESIGN CALCULATIONS SUBMITTED WITH THE FABRICATION DRAWINGS STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT.
- 62. ARCH-TO-FOOTING CONNECTION TO BE CONFIGURED AND GROUTED PER MANUFACTURER'S RECOMMENDATION.
- 63. SEE PRECAST ARCHITECTURAL FACE PANELS FOR ADDITIONAL DETAILS AND INFORMATION.
- ~~64. INSPECTION RUNGS SHALL BE CAST INTO THE ARCH AT LOCATIONS SHOWN ON THE PLANS. SEE VTRANS STD. D-15 FOR RUNG DIMENSIONS AND INFORMATION. ALL COSTS FOR RUNGS SHALL BE INCLUDED IN ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ARCH)".~~

ARCH LIGHTING

- 65. LIGHTING SHALL BE PROVIDED BETWEEN THE ARCH AND NEXT BEAM SUPERSTRUCTURE TO FACILITATE ACCESS AND SAFE PASSAGE INSIDE OF THE ARCH DURING FUTURE MAINTENANCE AND INSPECTION. ALL COSTS FOR WORK ASSOCIATED WITH LIGHTING, INCLUDING, BUT NOT LIMITED TO, LUMINAIRES, LIGHTING ENCLOSURES, CONDUIT, WIRING, JUNCTION BOXES, AND RECEPTACLES SHALL BE PAID FOR UNDER ITEM 900.645 SPECIAL PROVISION (ARCH LIGHTING).

PRECAST ARCHITECTURAL PANEL

- 66. THE CONSTRUCTION AND ASSEMBLY OF THE PRECAST ARCHITECTURAL PANELS SHALL BE IN ACCORDANCE WITH SECTION 540. HANDLING AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE FABRICATOR'S RECOMMENDATIONS.
- 67. ALTERNATIVE PANEL JOINT LAYOUT MAY BE PROPOSED BY THE PANEL FABRICATOR TO FACILITATE HANDLING AND ERECTION. JOINT SYMMETRY SHALL BE MAINTAINED AT EACH FASCIA TO ENSURE ACCEPTABLE AESTHETICS OF THE ASSEMBLED STRUCTURE. FINAL JOINT LAYOUT IS SUBJECT TO VTRANS APPROVAL. A MAXIMUM OF SIX (6) PRIMARY PANELS AND TWO (2) SECONDARY PANELS ARE ALLOWED PER FASCIA.
- 68. FABRICATION DRAWINGS FOR THE PRECAST ARCHITECTURAL PANELS SHALL INCLUDE A PLAN FOR SHIPPING AND ERECTING CONCRETE PANELS.
- 69. THE CONTRACTOR IS RESPONSIBLE FOR PROPER FIT-UP OF THE PRECAST AND ANY CAST-IN-PLACE ELEMENTS, PER THE FABRICATOR'S RECOMMENDATIONS, APPROVED FABRICATION AND ENGINEERING DRAWINGS, AND TO THE SATISFACTION OF THE ENGINEER.
- 70. SEE PROJECT NOTE 36 FOR REINFORCING STEEL REQUIREMENTS.
- 71. ATTACHMENTS, ANCHOR ASSEMBLIES, ACCESS HATCHES, AND LOUVERED VENTS SHALL BE GALVANIZED AFTER FABRICATION ACCORDING TO ASSHTO M232M/M232.
- 72. CONCRETE FOR PRECAST ARCHITECTURAL PANELS SHALL OBTAIN A 28 DAY COMPRESSIVE STRENGTH OF  $f'c = 5,000$  PSI.
- 73. TWO INSPECTION ACCESS HATCHES SHALL BE PROVIDED ON THE EAST (UPSTREAM) FASCIA, ONE AT EACH ABUTMENT AT LOCATIONS SHOWN ON THE EAST ARCHITECTURAL PANEL ELEVATION. ACCESS HATCHES SHALL BE 32" WIDE BY 48" TALL AND SHALL BE INWARD SWINGING, AND HAVE HINGED, SOLID GALVANIZED STEEL DOORS WITH LOCKING SYSTEM. INSPECTION ACCESS DOORS SHALL BE DETAILED AND SUBMITTED TO VTRANS FOR APPROVAL. COST OF INSPECTION ACCESS DOORS TO BE INCIDENTAL TO THE PRECAST ARCHITECTURAL PANELS.
- 74. GALVANIZED STEEL LOUVERED VENTS SHALL BE PROVIDED ON THE EAST (UPSTREAM) FASCIA AT THE LOCATIONS SHOWN ON THE EAST PRECAST ARCHITECTURAL PANEL ELEVATION. LOUVERED VENTS SHALL BE 1'-6" IN DIAMETER AND SHALL BE SURFACE MOUNTED PER MANUFACTURER'S RECOMMENDATION. INSECT SCREENS SHALL BE PROVIDED BEHIND EACH VENT TO PREVENT ACCESS OF BIRDS AND INSECTS. COSTS OF LOUVERED VENTS AND INSECT SCREEN, WITH ATTACHMENTS, SHALL BE INCIDENTAL TO THE PRECAST ARCHITECTURAL PANELS.
- 75. EXPOSED FACES OF ARCHITECTURAL PANELS SHALL RECEIVE AN AESTHETIC FINISH IN ACCORDANCE WITH SECTION 501.



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