

SUBSTRUCTURE ON BEDROCK

- 52. FOOTINGS AND SUB-FOOTINGS SHALL BE FOUNDED ON BEDROCK WHICH HAS BEEN CLEANED OF ALL LOOSE ROCK AND DEBRIS TO ENSURE THAT SUBSTRUCTURES ARE PLACED ON COMPETENT ROCK.
- 53. UPON COMPLETION OF THE EXCAVATION FOR SUBSTRUCTURES FOUNDED ON BEDROCK AND PRIOR TO PLACING FORMWORK, THE ENGINEER SHALL NOTIFY THE PROJECT MANAGER AND THE VTRANS STATE GEOLOGIST. THE GEOLOGIST WILL DETERMINE IF THE BEDROCK IS COMPETENT TO OBTAIN THE REQUIRED NOMINAL BEARING RESISTANCE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 72 HOURS PRIOR TO WHEN THE ANALYSIS WILL BE NEEDED.
- 54. BEDROCK THAT IS EXCAVATED FOR PLACEMENT OF FOOTINGS SHALL BE EXCAVATED TO PROVIDE A LEVEL SURFACE, OR AS DIRECTED BY THE ENGINEER.
- 55. A MAXIMUM OF 6" OVERBREAKAGE SHALL BE REPLACED WITH "CONCRETE, CLASS C". OVERBREAKAGE BEYOND 6" SHALL BE REPLACED WITH "CONCRETE, CLASS C" AT THE EXPENSE OF THE CONTRACTOR.
- 56. THE LIMITS OF THE SUBFOOTING SHALL BE 1'-0" OUTSIDE THE LIMITS OF THE FOOTING.
- 57. THE SUBSTRUCTURE UNITS HAVE BEEN DESIGNED FOR THE ELEVATIONS SHOWN ON THE PLANS. FOR ALL SUBSTRUCTURE UNITS, BEDROCK SHALL BE EXCAVATED DOWN (IF NECESSARY) TO ALLOW FOR THE INDICATED SUBFOOTING TO BE POURED USING "CONCRETE, CLASS C" TO A MINIMUM THICKNESS OF 1'-0".
- 58. #8 DOWELS SHALL BE DRILLED AND GROUTED INTO THE BEDROCK AS SHOWN ON THE PLANS. THE DOWELS SHALL HAVE A 2'-0" EMBEDMENT INTO THE BEDROCK AND SHALL EXTEND INTO THE SUBFOOTING 2'-0". WHERE THE SUBFOOTING DEPTH IS INSUFFICIENT TO OBTAIN A 2'-0" EMBEDMENT THE MAXIMUM EMBEDMENT SHALL BE 9" WHILE MAINTAINING 3" OF CLEAR COVER. #8 DOWELS WILL ALSO BE USED AT THE INTERFACE BETWEEN THE SUBFOOTING AND THE PRECAST CONCRETE FOOTING AS SHOWN ON THE PLANS. THE DRILLING AND GROUTING OF THESE DOWELS WILL BE PAID FOR UNDER ITEM 507.16, "DRILLING AND GROUTING DOWELS". DOWELS DRILLED AND GROUTED INTO BEDROCK AS WELL AS DOWELS DRILLED AND GROUTED INTO THE SUBFOOTING WILL BE PAID FOR UNDER ITEM 507.11, "REINFORCING STEEL, LEVEL I".

APPROACH SLABS

- 59. PRECAST CONCRETE COMPRESSIVE STRENGTH: $f'_c = 5,000$ PSI.
- 60. CORRUGATED POST-TENSIONING DUCTS IN THE PRECAST APPROACH SLABS FOR DOWEL CONNECTIONS SHALL BE CONSTRUCTED FROM EITHER POLYETHYLENE OR POLYPROPYLENE. THE DUCT SHALL HAVE A MINIMUM MATERIAL THICKNESS OF 0.080 IN. +/- 0.010 IN. AND SHALL HAVE A WHITE COATING ON THE OUTSIDE OR SHALL BE OF WHITE MATERIAL WITH ULTRAVIOLET STABILIZERS ADDED. POLYETHYLENE DUCT SHALL BE FABRICATED FROM RESINS MEETING OR EXCEEDING THE REQUIREMENTS OF ASTM D 3350 WITH A CELL CLASSIFICATION OF 345464A. POLYPROPYLENE DUCT SHALL BE FABRICATED FROM RESINS MEETING OR EXCEEDING THE REQUIREMENTS OF ASTM D 4101 WITH A CELL CLASSIFICATION RANGE OF PP0340B44544 TO PP340B65884. ALL COSTS ASSOCIATED WITH PLACING THE DUCTS WILL BE INCLUDED IN THE BID PRICE FOR THE APPROPRIATE PRECAST APPROACH SLAB.
- 61. GROUT USED TO FILL DOWEL DUCTS IN THE PRECAST APPROACH SLABS FOR DOWEL CONNECTION SHALL BE MORTAR TYPE IV IN ACCORDANCE WITH SECTION 540 - PRECAST CONCRETE OR OTHER PRODUCT FROM THE "VERMONT AGENCY OF TRANSPORTATION APPROVED PRODUCTS LIST" (APL) AS APPROVED BY THE ENGINEER. ALL COSTS ASSOCIATED WITH PROVIDING AND PLACING GROUT FOR THE APPROACH SLAB DOWEL CONNECTION WILL BE INCLUDED IN THE BID FOR THE APPROPRIATE PRECAST APPROACH SLAB.
- 62. THE CONCRETE EDGES ALONG THE LONGITUDINAL CLOSURE POURS SHALL BE TREATED TO PROVIDE A ROUGHENED/EXPOSED AGGREGATE SURFACE. THE AMPLITUDE OF THE EXPOSED AGGREGATE SURFACE SHALL BE A MINIMUM OF 1/8" AND BE COMPLETED PRIOR TO ERECTION OF THE APPROACH SLABS. THE FABRICATOR SHALL INDICATE THE METHOD USED TO ACHIEVE THIS PROFILE ON THE FABRICATION DRAWINGS AND METHOD USED TO PROTECT THE REINFORCING STEEL.

PRECAST CONCRETE RETAINING WALL

- 63. THE DESIGN, CONSTRUCTION, HANDLING, AND ASSEMBLY OF THE PRECAST CONCRETE RETAINING WALL SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS. HANDLING AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AS APPLICABLE.
 - 64. THE PRECAST CONCRETE RETAINING WALL SHALL BE SELECTED FROM THE LIST OF WALLS ON THE APPROVED RETAINING WALL DOCUMENT AVAILABLE FROM VAOT GEOTECHNICAL SECTION WEBSITE: (https://outside.vermont.gov/agency/vtrans/external/docs/construction/03GeotechEng/Engineering/MandRSoilAPPROVED_Retaining_Walls_8-2012_Final%20Engineering.pdf)
 - 65. THE PRECAST CONCRETE RETAINING WALL WILL BE PAID FOR UNDER ITEM 900.670, "SPECIAL PROVISION (RETAINING WALL)".
 - 66. THE PRECAST CONCRETE RETAINING WALL SHALL BE DESIGNED BY THE FABRICATOR IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS REFERENCED IN PROJECT NOTE 1. THE DESIGN SHALL INCLUDE THE EFFECTS OF ALL APPLICABLE LOADS INCLUDING VEHICULAR SURCHARGE. DESIGN CALCULATIONS SHALL BE SUBMITTED WITH FABRICATION DRAWINGS STAMPED BY AN ENGINEER REGISTERED IN THE STATE OF VERMONT.
 - 67. THE DESIGN OF THE WALL SHALL INCORPORATE PROVISIONS FOR ADJACENT OBSTRUCTIONS SUCH AS DRAINAGE FEATURES AND GUARDRAIL POSTS IF NECESSARY. ANY CHANGES TO THE WALL SYSTEM SHALL BE DETAILED IN THE FABRICATION DRAWINGS.
 - 68. DESIGN VALUES:
 - A. BACKFILL SOIL PARAMETERS (704.08 - GRANULAR BACKFILL FOR STRUCTURES)
 - i. UNIT WEIGHT = 140 LB/FT³
 - ii. FRICTION ANGLE = 34°
 - B. BEARING STRATUM AND RETAINED SOIL PARAMETERS
 - i. UNIT WEIGHT = 110 LB/FT³
 - ii. FRICTION ANGLE = 32°
 - C. REQUIRED DESIGN LIFE = 75 YEARS
 - D. FACTORED BEARING RESISTANCE AT STRENGTH LIMIT STATE (EFFECTIVE FOOTING WIDTH) = 7.5 KIPS/FT² (6- FEET)
 - E. VEHICULAR SURCHARGE = PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
- WALL DESIGN SHALL INCLUDE DRAINAGE PROVISIONS TO PREVENT HYDROSTATIC PRESSURE BEHIND WALL

CONCRETE		REINFORCING STEEL	
STRUCTURAL ELEMENT:	CONTRACT ITEM:	TO MEET THE REQUIREMENTS FOR:	PAYMENT TO BE INCLUDED IN:
CAST-IN-PLACE SUBFOOTING	ITEM 541.30, "CONCRETE, CLASS C".	REINFORCING STEEL, LEVEL I	ITEM 507.11, "REINFORCING STEEL, LEVEL I".
ABUTMENT NO. 1 PRECAST PILE CAP AND CHEEKWALLS	ITEM 540.10, "PRECAST CONCRETE STRUCTURE" OR ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)", AS APPROPRIATE.	REINFORCING STEEL, LEVEL I (EPOXY)	ITEM 540.10, "PRECAST CONCRETE STRUCTURE" OR ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)", AS APPROPRIATE.
ABUTMENT NO. 2 PRECAST FOOTING, ABUTMENT STEM, CHEEKWALLS AND WINGWALL STEMS	ITEM 540.10, "PRECAST CONCRETE STRUCTURE" OR ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)", AS APPROPRIATE.	REINFORCING STEEL, LEVEL I (FOOTINGS) REINFORCING STEEL, LEVEL I (EPOXY) (STEMS AND CHEEKWALLS)	ITEM 540.10, "PRECAST CONCRETE STRUCTURE" OR ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)", AS APPROPRIATE.
ABUTMENT NO. 1 PILE CAP VOIDS AND ABUTMENT NO. 2 REINFORCING VOIDS	ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)"	N/A	N/A
APPROACH SLAB CLOSURE POUR CONCRETE	ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)"	REINFORCING STEEL, LEVEL I (EPOXY)	ITEM 540.10, "PRECAST CONCRETE STRUCTURE" OR ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)", AS APPROPRIATE.
PRECAST APPROACH SLABS	ITEM 540.10, "PRECAST CONCRETE STRUCTURE" OR ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)", AS APPROPRIATE.	REINFORCING STEEL, LEVEL I (EPOXY)	ITEM 540.10, "PRECAST CONCRETE STRUCTURE" OR ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)", AS APPROPRIATE.
WINGWALLS NO. 1 AND 2	ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A (FPQ)" *	REINFORCING STEEL, LEVEL I (EPOXY)	ITEM 507.11, "REINFORCING STEEL, LEVEL I" *
CAST-IN-PLACE WINGWALLS/CHEEKWALLS, ABOVE THE OPTIONAL HORIZONTAL CONSTRUCTION JOINT (IF USED)	ITEM 540.10, "PRECAST CONCRETE STRUCTURE" OR ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)", AS APPROPRIATE.	REINFORCING STEEL, LEVEL I (EPOXY)	ITEM 540.10, "PRECAST CONCRETE STRUCTURE" OR ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)", AS APPROPRIATE.
CAST-IN-PLACE DECK AND BACKWALLS	ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A (FPQ)"	REINFORCING STEEL, LEVEL I (EPOXY)	ITEM 507.11, "REINFORCING STEEL, LEVEL I"

NOTE: PAYMENT FOR REINFORCING STEEL PROJECTING FROM A PRECAST CONCRETE ELEMENT AND PLACED WITHIN A PRECAST CONCRETE ELEMENT REINFORCING VOID WILL BE MADE UNDER THE APPROPRIATE ADJACENT PRECAST CONCRETE ITEM.

SEE CONTRACTOR RFI #2 FOR ADDED 540.10 PRE-CAST ITEMS



PROJECT NAME:	HUNTINGTON	PLOT DATE:	8/15/2016
PROJECT NUMBER:	BF 0211(32)	DRAWN BY:	K.C. BARRY
FILE NAME:	z13J080pn.dgn	CHECKED BY:	S.E. BURBANK
PROJECT LEADER:	S.E. BURBANK	SHEET	7 OF 62
DESIGNED BY:	K.C. BARRY		
PROJECT NOTES (2 OF 2)			