

GENERAL NOTES

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PLAN NO. BR-52-86

ITEM SPECIAL: BULKHEAD, SHEET PILING, WALER AND CAP ASSEMBLY

A. DESCRIPTION

THIS WORK SHALL CONSIST OF FURNISHING AND DRIVING THE STEEL SHEET PILE BULKHEAD AND FURNISHING AND INSTALLING THE WALER AND CAP ASSEMBLIES AND PROVIDING 10'-6" SPACING 1" DIAMETER WEEPHOLES ALONG THE BULKHEAD, STEEL PLATE AND BOLTS WITH NON SHRINKING EPOXY MORTAR ATTACHED TO THE EXISTING CONCRETE WINGWALL AS DETAILED ON THE PLANS.

B. MATERIALS

THE STEEL SHEET PILING, WALER AND MISCELLANEOUS PLATES AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A572, GRADE 50.

THE ANGLES AND PLATES FOR THE BULKHEAD CAP ASSEMBLY AND ATTACHMENT TO THE WINGWALL SHALL CONFORM TO ASTM A36. ALL HIGH STRENGTH BOLTS AND NUTS SHALL BE ASTM A325.

GROUT ANCHORING WITH NONSHRINKING EPOXY MORTAR SHALL CONFORM TO THE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 853 AND 956.

WELDED CONNECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY, STRUCTURAL WELDING CODE D1.1-79, AND ANY APPLICABLE REVISIONS OF ODOT SUPPLEMENTAL 1027.

C. PILING PROPERTIES

THE SHEET PILING SHALL BE Z PILES SIMILAR TO OR AND APPROVED EQUAL TO BETHLEHEM STEEL CORPORATION SECTION PZ-32.

D. CORROSION PROTECTION

THE STEEL SHEET PILING, WALER AND CAP ASSEMBLIES AND STEEL PLATE CONNECTIONS SHALL BE COATED WITH COAT TAR EPOXY AS SPECIFIED IN THE PLANS. THE COST OF THIS COATING SHALL BE INCLUDED IN THE PRICE BID FOR BULKHEAD, WALER AND CAP ASSEMBLIES.

E. MEASUREMENT AND PAYMENT

THE QUANTITY SHALL BE MEASURED BY LINEAR FEET OF BULKHEAD, WALER AND CAP ASSEMBLIES COMPLETED AND IN PLACE AS REQUIRED BY THE PLANS. PAYMENT WILL BE MADE AT THE CONTRACT PRICE BID FOR ITEM SPECIAL: BULKHEAD, WALER AND CAP ASSEMBLIES. THIS PRICE SHALL BE PAYMENT IN FULL FOR FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND INCIDENTALS TO COMPLETE THE WORK AS SPECIFIED INCLUDING THE COAL TAR EPOXY COATING AND GROUT ANCHORING WITH NON SHRINKING EPOXY MORTAR.

ITEM SPECIAL: BULKHEAD ANCHORAGE SYSTEM

A. DESCRIPTION

THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING THE TIE ROD ANCHORS BETWEEN THE BULKHEAD AND THE CAST-IN-PLACE REINFORCED CONCRETE DEADMAN ANCHORS SUPPORTED ON STEEL "H" PILES AS DETAILED ON THE PLANS.

B. MATERIAL

THE TIE RODS AND MISCELLANEOUS PLATES AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A572, GRADE 50.

THE PLATES AT THE REINFORCED CONCRETE CAP BEAM SHALL CONFORM TO ASTM A36. ALL HIGH STRENGTH BOLTS AND NUTS SHALL BE ASTM A325.

TURNBUCKLES SHALL CONFORM TO ASTM A235 WHICH PROVIDES THE SAME STRENGTH AS ASTM A572, GRADE 50.

WELDED CONNECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY, STRUCTURAL WELDING CODE D1.1-79, AND ANY APPLICABLE REVISIONS OF ODOT SUPPLEMENT 1027.

STEEL PILE POINTS SHALL BE USED TO PROTECT THE TIPS OF THE PROPOSED STEEL "H" PILING. THE STEEL POINTS SHALL BE FURNISHED BY ASSOCIATED PILE AND FITTING CORPORATION, 262 RUTHERFORD BOULEVARD, CLIFTON, NEW JERSEY 07014; INTERNATIONAL CONSTRUCTION EQUIPMENT, INC. 301 WAREHOUSE DRIVE, MATTHEWS, NORTH CAROLINA 28015; DOUGHERTY FOUNDATION PRODUCTS, INC., P.O. BOX 688, FRANKLYN LAKES, NEW JERSEY 07417; VERSA STEEL, INC., 3601 N.W. YEON AVENUE, P.O. BOX 10559, PORTLAND, OREGON 97210 OR BY A MANUFACTURER THAT CAN FURNISH A STEEL POINT THAT IS ACCEPTABLE TO THE DIRECTOR. THE PILE POINTS SHALL SATISFY OR EXCEED THE REQUIREMENTS OF ASTM A27 (GRADE 65/30) OR ASTM A148 (GRADE 90/60).

PILES FOR THE DEADMAN ANCHORAGE SYSTEM SHALL BE STEEL "H" PILES (HP10x42) AND SHALL CONFORM TO CMS 507 REINFORCING STEEL SHALL CONFORM TO ODOT CMS 509.

CONCRETE SHALL BE CLASS C AND CONFORM TO ODOT CMS 511.

PIPE SLEEVE SHALL BE WELDED AND SEAMLESS STEEL PIPE SLEEVE AND CONFORM TO CMS 707.08

POROUS BACKFILL SHALL MEET THE REQUIREMENTS OF CMS 518 INCLUDING 2 CUBIC FEET OF FILTER FABRIC BAGGED NO. 3 AGGREGATE AT EACH WEEPHOLE.

C. CONSTRUCTION REQUIREMENTS AND CONSIDERATIONS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SLOPE STABILITY OF THE ROADWAY.

2. PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK. REFUSAL SHALL BE CONSIDERED AS ATTAINED BY PENETRATING SOFT BEDROCK WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH, OR REFUSAL SHALL BE CONSIDERED AS ATTAINED AFTER THE PILE HAS CONTACTED HARD BEDROCK AND THE PILE HAS BEEN RECEIVED AT LEAST 20 BLOWS.

THE DESIGN LOAD IS 43 TONS PER PILE FOR THE TENSION PILES AND COMPRESSION PILES.

AN ESTIMATED AVERAGE PAY LENGTH FOR THE PILES IS 33 FEET.

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4. THE TIE ROD CONNECTIONS SHALL BE SNUG TIGHTENED PRIOR TO ANY PLACEMENT OF POROUS BACKFILL AND EMBANKMENT AGAINST THE BULKHEAD.

D. CORROSION PROTECTION

THE BULKHEAD ANCHORAGE SYSTEM SHALL BE COATED WITH COAL TAR EPOXY AS SPECIFIED IN THE PLANS. THE COST OF THIS COATING SHALL BE INCLUDED IN THE PRICE BID FOR BULKHEAD ANCHORAGE SYSTEM. THE STEEL "H" PILES HP10x42 SHALL BE COATED WITH COAL TAR EPOXY FOR THE TOP 20 FEET. THE COST OF THIS COATING SHALL BE INCLUDED IN THE PRICE BID FOR STEEL "H" PILES.

E. MEASUREMENT AND PAYMENT

THE BULKHEAD ANCHORAGE SYSTEM SHALL BE MEASURED AS A UNIT AND WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE BID FOR ITEM SPECIAL: BULKHEAD ANCHORAGE SYSTEM. THIS PRICE SHALL BE PAYMENT IN FULL FOR FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND INCIDENTALS TO COMPLETE THE WORK AS SPECIFIED OR APPROVED INCLUDING THE COAL TAR EPOXY COATING. STEEL "H" PILES AND STEEL POINTS ARE INCLUDED FOR PAYMENT WITH ITEM 507. THE REINFORCING STEEL IS INCLUDED FOR PAYMENT WITH ITEM 509. THE CONCRETE IS INCLUDED FOR PAYMENT WITH ITEM 511. EXCAVATION AND EMBANKMENT ARE INCLUDED FOR PAYMENT WITH ITEM 503.

TIEBACK WALL OPTION

THE CONTRACTOR MAY CHOOSE TO PROVIDE AN ALTERNATE TYPE OF ANCHORAGE SYSTEM IN LIEU OF THE H-PILE DEADMEN DETAILED IN THESE PLANS. THE ALTERNATE SYSTEM MAY UTILIZE THE SAME SHEETPILE WALL DETAILS (EXCEPT WALER MAY BE PLACED ON THE OUTSIDE OF THE WALL); HOWEVER, THE ANCHORAGE SHALL BE PROVIDED BY GROUND ANCHOR DEVICES IN ACCORDANCE WITH THE SPECIAL PROVISIONS ENTITLED "TIEBACK WALLS". THIS ALTERNATE SYSTEM SHALL HAVE DOUBLE CORROSION PROTECTION AND SHALL BE CAPABLE OF A DESIGN LOAD OF 82 KIPS PER ANCHOR BASED ON A 10'-6" ANCHOR SPACING (OR A COMPARABLE DESIGN). IF CHOSEN, THE PAYMENT FOR THE DESIGN, LABOR, MATERIALS AND EQUIPMENT TO INSTALL THE ANCHORS WILL BE THE SAME AS, AND IN LIEU OF, THE LUMP SUM OF THE TOTAL BID PRICES FOR THE BULKHEAD ANCHORAGE SYSTEM BID ITEMS MENTIONED IN PARAGRAPH "E" ABOVE.