

GENERAL NOTES (BRIDGE "A")

SPECIFICATIONS:

COMPLY WITH THE REQUIREMENTS OF THE ODOT 2009 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EXCEPT AS MODIFIED BY THE PLANS AND SPECIAL PROVISIONS.

ABUTMENT PILING CAPACITY:

THE FACTORED REACTION FOR EACH HP12x53 PILE AT EACH ABUTMENT ON BRIDGE "A" IS 103.0 TONS.

THE FOLLOWING FORMULA (GATES EQUATION) SHALL BE USED TO DETERMINE THE AXIAL LOAD RESISTANCE OF THE DRIVEN FOUNDATION PILES:

$$\text{AXIAL LOAD RESISTANCE} = \phi [(0.875 \sqrt{E} \text{ LOG}_{10} (10N)) - 50] \quad (\text{TONS})$$

WHERE:

- ϕ = RESISTANCE FACTOR OF 0.4
- E = ENERGY PRODUCED BY THE HAMMER PER BLOW IN FOOT-POUNDS. FOR GRAVITY AND SINGLE ACTING DIESEL HAMMERS, THE VALUE IS BASED ON THE ACTUAL RAM STROKE OBSERVED IN THE FIELD AND MEASURED IN FEET MULTIPLIED BY THE RAM WEIGHT IN POUNDS.
- N = AVERAGE NUMBER OF HAMMER BLOWS PER INCH OF PILE PENETRATION FOR THE LAST 10 TO 20 BLOWS DELIVERED TO THE PILE HEAD.

THE ABOVE FORMULA IS ONLY APPLICABLE WHEN:

- THE PILE DRIVING HAMMER HAS A FREE FALL (GRAVITY & SINGLE ACTING HAMMERS ONLY).
- THE HEAD OF THE PILE IS NOT BROOMED, CRUSHED OR OTHERWISE DAMAGED.
- THE PENETRATION IS QUICK AND UNIFORM.
- THERE IS NO APPRECIABLE REBOUND OF THE HAMMER, AND
- A FOLLOWER IS NOT USED.

THE NUMBER OF BLOWS PER INCH OF PILE PENETRATION MAY BE MEASURED EITHER DURING INITIAL DRIVING OR BY RE-DRIVING WITH A WARM HAMMER OPERATED AT FULL ENERGY AFTER A PILE SET PERIOD, AS DETERMINED BY THE ENGINEER.

IF WATER JETS ARE USED IN CONNECTION WITH THE DRIVING, DETERMINE THE AXIAL LOAD RESISTANCE BY THE FORMULA SHOWN ONLY AFTER THE JETS HAVE BEEN WITHDRAWN.

PILE DRIVING EQUIPMENT:

USE A PILE DRIVING HAMMER OF THE SIZE AND TYPE CAPABLE OF CONSISTENTLY DELIVERING THE EFFECTIVE DYNAMIC ENERGY SUFFICIENT TO DRIVE THE PILES TO THE REQUIRED TIP ELEVATION AND TO ACHIEVE THE FACTORED PILE CAPACITY WITHOUT EXCEEDING THE LIMITATIONS SET ON THE ALLOWABLE DRIVING STRESSES IN ACCORDANCE WITH SECTION 514.03.A.2.

PILOT HOLES FOR ABUTMENT PILING - ABUTMENT NO. 1:

16" DIAMETER PILOT HOLES SHALL BE DRILLED FOR EACH HP12x53 PILING. PILOT HOLES SHALL BE DRILLED TO A MINIMUM ELEVATION OF 1710.00 FEET AND SHALL BE NO LESS THAN 5'-0" INTO THE BEDROCK. ONCE EACH PILE WITHIN THE PILOT HOLE HAS BEEN SEATED INTO THE BEDROCK AND VERIFIED FOR REQUIRED BEARING CAPACITY, THE CONTRACTOR SHALL THEN ENCASE EACH ESTIMATED CLASS "A" CONCRETE TO THE BOTTOM OF PILOT HOLE. SEE ODOT STANDARD DRAWING HP1-2. AN ESTIMATED QUANTITY OF 1.40 CY OF CLASS "A" CONCRETE QUANTITY IS REQUIRED PER HP12x53 PILE. ALL COSTS INCLUDING LABOR, EQUIPMENT, CLASS "A" CONCRETE, AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE BID FOR FOR "(PL) PILOT HOLES".

DECK SLAB CONSTRUCTION AND STAY-IN-PLACE FORMS:

IN THE EVENT OF AN EMERGENCY, HALT THE PLACEMENT OF CONCRETE BY FORMING A CONSTRUCTION JOINT MADE PERPENDICULAR TO THE DIRECTION OF TRAFFIC OR AS DIRECTED BY THE ENGINEER. DO NOT PLACE ANY HEAVY EQUIPMENT ON THE FINISHED DECK SLAB WITHIN 5' OF ANY CONSTRUCTION JOINT UNTIL CONCRETE IS IN PLACE ON BOTH SIDES OF THE RESPECTIVE JOINT AND AT LEAST 48 HOURS HAS ELAPSED SINCE CONCRETE PLACEMENT.

SEAL ALL DECK SLAB CONSTRUCTION JOINTS WITH HIGH MOLECULAR WEIGHT METHACRYLATE IN ACCORDANCE WITH SECTION 523 OF THE STANDARD SPECIFICATIONS. INCLUDE ALL COST OF EQUIPMENT AND LABOR FOR THE INSTALLATION OF THE HIGH MOLECULAR WEIGHT METHACRYLATE SEALER IN THE PRICE BID FOR "SEALER CRACK PREPARATION". INCLUDE ALL COST OF THE HIGH MOLECULAR WEIGHT METHACRYLATE SEALER IN THE PRICE BID FOR "SEALER RESIN". THE DEPARTMENT WILL NOT MEASURE THE PREPARATION AND SEALER OF EMERGENCY CONSTRUCTION JOINTS FOR PAYMENT.

THE DECK SLAB SHALL BE POURED ONE SPAN AT A TIME. A SPAN ADJACENT TO A FIXED OR CONTINUOUS EXPANSION PIER SHALL NOT BE POURED UNTIL AT LEAST 48 HOURS AFTER THE POUR OF ANY ADJACENT SPAN HAS BEEN COMPLETED.

DO NOT PLACE THE CONCRETE FOR THE DECK SLAB OR APPLY OTHER MASSIVE LOADS TO THE BEAMS OR DIAPHRAGMS UNTIL THE CONCRETE IN THE DIAPHRAGMS HAS BEEN IN PLACE FOR A MINIMUM OF 10 DAYS OR AT THE DISCRETION OF THE ENGINEER. THE ENGINEER MAY APPROVE SHORTENED TIME IF THE BEAMS AND DIAPHRAGM CONCRETE HAS ATTAINED 80% OF THE SPECIFIED COMPRESSIVE STRENGTH.

STAY-IN-PLACE DECK FORMS WILL NOT BE ALLOWED FOR USE ON THIS PROJECT.

CONCRETE END DIAPHRAGM VENT HOLES:

3" Ø PVC PIPE SLEEVES SHALL BE CAST IN THE CONCRETE END DIAPHRAGMS OVER THE PIERS. COST TO BE INCLUDED IN PRICE BID FOR "CLASS AA CONCRETE". SEE SHEET NO. 53 FOR DETAILS.

PENETRATING WATER REPELLENT SURFACE TREATMENT:

A PENETRATING WATER REPELLENT SURFACE TREATMENT SHALL BE APPLIED TO THE FOLLOWING CONCRETE SURFACES OF THE BRIDGE:

- (A) THE TOP OF SLAB FROM THE ROADWAY FACE OF THE TR4 POSTS OUTWARD, THE OUTSIDE EDGE OF SLAB CANTILEVER, UNDERSIDE CANTILEVER PORTION OF THE BRIDGE SLAB, THE OUTER FACE AND BOTTOM OF THE EXTERIOR P.C. BEAMS, THE ROADWAY FACE AND INSIDE FACES OF THE TR4 POSTS AND THE TOP, ROADWAY FACE AND BOTTOM SURFACES OF THE TR4 RAILS ON THE BRIDGE SLAB.
- (B) THE ROADWAY FACES OF THE TR4 RAILS AND POSTS, AND THE TOP AND BOTTOM SURFACES OF THE TR4 RAILS ON THE APPROACH SLABS.

PENETRATING WATER REPELLENT SURFACE TREATMENT (CONT'D):

- (C) THE FRONT FACE OF THE BACKWALL, TOP OF BRIDGE SEAT, AND ALL SURFACES OF THE PEDESTALS AT THE ABUTMENTS. THE FRONT FACE AND ENDS OF THE BRIDGE SEAT AND THE OUTSIDE SURFACES AND TOPS OF THE WINGS ABOVE THE FINISHED GROUND LINE.
- (D) THE TOP OF THE PIER CAPS INCLUDING ALL SURFACES OF THE PEDESTALS, AND ALL VERTICAL SURFACES OF THE PIER CAPS.

APPROACH SLABS:

CLASS "AA" CONCRETE SHALL BE USED IN THE APPROACH SLABS. THE QUANTITY GIVEN IS BASED ON THE ACTUAL SQUARE YARDS OF THE APPROACH SLABS. THE PRICE BID FOR "APPROACH SLAB" SHALL BE FULL COMPENSATION FOR ALL CONCRETE, EPOXY COATED REINFORCING STEEL (INCLUDING SR1 BARS IN TRAFFIC RAILS), BACKER RODS, HIGH MOLECULAR WEIGHT METHACRYLATE, POLYSTYRENE, PAVEMENT SAWING, EXCAVATION, BASE PREPARATION, LABOR, EQUIPMENT AND OTHER INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED IN THE PLANS. FOR APPROACH SLAB CONSTRUCTION NOTES, SEE STD. B40-C-AS-03E.

RIPRAP AND SPUR DIKES:

A 24" THICK LAYER OF TYPE I-A PLAIN RIPRAP WITH A 6" THICK LAYER OF TYPE I-A FILTER BLANKET SHALL BE PLACED AT THE ABUTMENTS AND SPUR DIKES AS SHOWN ON THE PLANS. THE FILTER BLANKET SHALL BE PLACED IN ONE LAYER.

REFER TO ROADWAY PLANS FOR THE CONSTRUCTION OF THE SPUR DIKES AND THE ASSOCIATED EARTHWORK QUANTITIES.

ROADWAY EARTHWORK QUANTITIES INCLUDE THE EXCAVATION REQUIRED FOR THE RIPRAP LADLES ALONG THE SPUR DIKES. ANY OTHER EXCAVATIONS REQUIRED FOR THE PLACEMENT OF RIPRAP, NOT INCLUDED IN THE ROADWAY QUANTITIES, SHALL BE CONSIDERED INCIDENTAL TO THE PRICE BID FOR "TYPE I-A PLAIN RIPRAP".

PERFORATED AND NON-PERFORATED PIPE UNDERDRAINS:

FOR LOCATIONS OF 6" PERFORATED AND NON-PERFORATED PIPE UNDERDRAINS, SEE SHEET NOS. 30 AND 31, AND REFER TO STD. PUD-3-2 FOR INSTALLATION DETAILS AND NOTES.

STRUCTURAL STEEL:

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 (GRADE 50W), UNLESS OTHERWISE NOTED.

DRILLED SHAFT CONCRETE:

CEMENT FOR DRILLED SHAFT CONCRETE SHALL BE TYPE V PORTLAND CEMENT IN ACCORDANCE WITH SECTION 701 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. AS AN OPTION, TYPE II PORTLAND CEMENT MAY BE USED IN DRILLED SHAFT CONCRETE WITH THE ADDITION OF CLASS F FLY ASH TO THE DESIGN MIX. IF TYPE II PORTLAND CEMENT IS USED WITH THE ADDITION OF CLASS F FLY ASH, THE CONCRETE DESIGN SHALL BE APPROVED BY THE ENGINEER. ALL COSTS ASSOCIATED WITH THE USAGE OF TYPE V PORTLAND CEMENT, TYPE II PORTLAND CEMENT AND CLASS F FLY ASH INCLUDING LABOR, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN PRICE BID FOR "DRILLED SHAFTS 72" DIAMETER".

REMOVAL OF EXISTING BRIDGE STRUCTURE:

THE PRICE BID FOR "REMOVAL OF EXISTING BRIDGE STRUCTURE" CONSISTS OF THE REMOVAL OF THE EXISTING 942.33' LG. BY 27.0' WIDE BRIDGE, CONSISTING OF THIRTEEN (13) STEEL I-BEAM SPANS (1-40' & 6-DOUBLE 75' CONTINUOUS SPANS) WITH A CONCRETE DECK AND CURBS, ASPHALT OVERLAY, CONCRETE POSTS AND RAILS, AND CONCRETE ABUTMENTS AND PIERS AT C SURVEY STA. 587+31.59.

THE PRICE BID SHALL ALSO INCLUDE THE REMOVAL OF ANY ELEMENTS OF THE ORIGINAL BRIDGE, BUILT IN 1933 AND 1936, THAT INTERFERE WITH CONSTRUCTION OR THE FINAL GROUND LINE. EXISTING JETTIES SHALL NOT BE DISTURBED UNLESS DIRECTED BY THE ENGINEER.

THE EXISTING BRIDGE SHALL NOT BE REMOVED UNTIL THE NEW BRIDGE AND ROADWAY ARE OPENED TO TRAFFIC. THE REMOVAL OF THE EXISTING BRIDGE SHALL BE IN ACCORDANCE WITH SECTION 619.04.B.2 OF THE STANDARD SPECIFICATIONS AND IN A MANNER APPROVED BY THE ENGINEER. THE 27" X 40' LONG EXISTING STEEL I-BEAMS AT SPAN 1 SHALL BE SALVAGED AND STORED ON THE RIGHT OF WAY TO BECOME THE PROPERTY OF HARMON COUNTY. ALL OTHER MATERIALS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

THE EXISTING STEEL BEAMS ARE COATED WITH A LEAD BASED PAINT. MEASURES SHALL BE TAKEN TO ENSURE WORKER SAFETY IN ACCORDANCE WITH 29 CFR 1926.62 AND ALL APPLICABLE OSHA STANDARDS. ANY PAINT REMOVED DURING THE SEQUENCE OF WORK SHALL BE COLLECTED AND DISPOSED OF IN ACCORDANCE WITH SECTION 512 OF THE STANDARD SPECIFICATIONS. ALL COSTS TO BE INCLUDED IN THE PRICE BID FOR "REMOVAL OF EXISTING BRIDGE STRUCTURE".

DRAINS AT END OF BRIDGE:

ASPHALT SHOULDER WIDENING, CURBS, SLOPE DRAINS AND SPLASH BASINS SHALL BE CONSTRUCTED AS SHOWN ON SHEET NO. 59. ASPHALT SHOULDER WIDENING FOR THE BRIDGE GUARD RAIL SHALL BE IN ACCORDANCE WITH STANDARDS THRI-1 AND GHW1-1 EXCEPT AS SHOWN IN THE PLANS. ALL COSTS OF ASPHALT SHOULDER WIDENING SHALL BE INCLUDED IN THE ROADWAY PAY ITEMS.

THERE IS 23.1 CUBIC YARDS OF CLASS "C" CONCRETE REQUIRED TO CONSTRUCT THE SLOPE DRAINS, SPLASH BASINS AND 6" CONCRETE CURBS AT THE ENDS OF THE BRIDGE. ALL COSTS FOR THE SLOPE DRAINS, SPLASH BASINS, 6" CONCRETE CURBS, CONCRETE, REINFORCING STEEL, EXCAVATIONS, AND BACKFILL INCLUDING ALL MATERIALS, LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN IN THE PLANS SHALL BE INCLUDED IN THE PRICE BID FOR "CLASS C CONCRETE".

OBSTRUCTIONS:

EXISTING SUBSTRUCTURE COMPONENTS FROM THE FIRST BRIDGE CONSTRUCTED AT THIS SITE, BUILT IN 1933 AND 1936 UNDER PROJECT NUMBERS NRS 352-B AND SAP 887-SEC. "A", MAY BE ENCOUNTERED WHILE EXCAVATING THE DRILLED SHAFTS FOR THE PIERS ON THIS PROJECT. THE CONTRACTOR SHALL ANTICIPATE POSSIBLE DELAYS AND SHALL INCLUDE THE REMOVAL OF SUCH COMPONENTS OR OTHER MANMADE OBSTRUCTIONS ENCOUNTERED IN THE PRICE BID FOR "DRILLED SHAFTS 72" DIAMETER".

THE 1933/1936 BRIDGE WAS LOCATED ROUGHLY ALONG THE CRL ALIGNMENT FOR THIS PROJECT, WITHIN THE FOOT-PRINT OF THE PROPOSED BRIDGE.

OBSTRUCTIONS (CONT'D):

THE SUBSTRUCTURE COMPONENTS FROM THAT BRIDGE, SHOWN ON THE GENERAL PLAN AND ELEVATION SHEETS, WERE DRAWN AND LOCATED FROM AS-BUILT DATA, AND ONLY THOSE PORTIONS ORIGINALLY ABOVE THE GROUND LINE ARE SHOWN. FOUNDATION MATERIALS, SIZES AND DEPTHS FOR THE SOUTH ABUTMENT AND PIERS 1-4 ARE UNKNOWN, WHILE BENTS 5-21 AND THE NORTH ABUTMENT WERE SUPPORTED ON VERTICAL TIMBER PILES, THE DEPTHS OF WHICH ARE UNKNOWN. THE ENGINEER MAKES NO GUARANTEE THAT THE ORIGINAL SUBSTRUCTURE COMPONENTS ARE IN THE EXACT LOCATIONS INDICATED, THOUGH THEY WERE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE EXISTING SUBSTRUCTURE COMPONENTS FROM THE 1933/1936 BRIDGE WERE NOT PHYSICALLY LOCATED DURING THE FIELD SURVEY.

28768(04) PAY QUANTITIES - BRIDGE "A"					
0200	BRIDGE "A" 10 - 100' PC BEAM SPANS, 40'-0" CLR. RDWY. W/ CONC. TRAFFIC RAILS (TR4) SKEWED 0°				
ITEM	PES NO.	DESCRIPTION	UNIT	QUANTITY	
501(B)	1307	SUBSTRUCTURE EXCAVATION COMMON	(1)(2) CY	202.00	
501(G)	6309	CLSM BACKFILL	(1) CY	188.00	
503(A)	1313	PRESTRESSED CONCRETE BEAMS (TYPE IV)	(1) LF	4,983.30	
504(A)	1304	APPROACH SLAB	(1) SY	281.20	
504(B)	1305	SAW-CUT GROOVING	(1) SY	4,718.60	
504(C)	6250	SEALED EXPANSION JOINT	(1) LF	172.80	
504(D)	6245	CONCRETE RAIL (TR4)	(1) LF	2,139.40	
506(A)	1322	STRUCTURAL STEEL	(1) LB	4,500.00	
507(A)	6170	STAINLESS STEEL FIXED BEARING ASSEMBLY	(1)(3) EA	40.00	
507(B)	6174	STAINLESS STEEL EXPANSION BEARING ASSEMBLY	(1)(3) EA	60.00	
509(A)	1326	CLASS AA CONCRETE	(1) CY	1,144.90	
509(B)	1328	CLASS A CONCRETE	(1) CY	607.80	
509(D)	1331	CLASS C CONCRETE	CY	23.10	
511(A)	1332	REINFORCING STEEL	(1) LB	4,970.00	
511(B)	6010	EPOXY COATED REINFORCING STEEL	(1) LB	423,390.00	
513(B)	6019	CLASS B BRIDGE DECK REPAIR	(4) SY	75.00	
513(C)	6020	CLASS C BRIDGE DECK REPAIR	(4) SY	25.00	
514(A)	6010	PILES, FURNISHED (HP10x42)	(5) LF	274.00	
514(A)	6011	PILES, FURNISHED (HP12x53)	(5) LF	907.00	
514(B)	6292	PILES, DRIVEN (HP10x42)	LF	274.00	
514(B)	6294	PILES, DRIVEN (HP12x53)	LF	907.00	
514(K)	6260	(PL) PILOT HOLES	LF	196.00	
514(L)	6220	PILE SPLICE, H-PILE (NON-BIDDABLE)	EA	1.00	
515(A)	6013	WATER REPELLENT (VISUALLY INSPECTED)	(1) SY	4,588.00	
516(A)	6098	DRILLED SHAFTS 72" DIAMETER	LF	878.00	
516(C)	6200	CROSSHOLE SONIC LOGGING	EA	4.00	
523(A)	6550	SEALER CRACK PREPARATION	(1) LF	204.00	
523(B)	6560	SEALER RESIN	(1) GAL	3.00	
601(B)	1353	TYPE I-A PLAIN RIPRAP	TON	3,590.00	
601(C)	1355	TYPE I-A FILTER BLANKET	TON	680.00	
613(H)	6204	6" PERFORATED PIPE UNDERDRAIN ROUND	(1) LF	84.00	
613(I)	6207	6" NON-PERF. PIPE UNDERDRAIN RND.	LF	80.00	
619(D)	1397	REMOVAL OF EXISTING BRIDGE STRUCTURE	LSUM	1.00	

PAY QUANTITY NOTES

- (1) PAYMENT FOR THIS ITEM WILL BE BASED ON PLAN QUANTITIES. SEE THE 2009 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION SECTION 109.01.B "PLAN QUANTITIES".
- (2) ROCK MAY BE ENCOUNTERED WITHIN THE LIMITS SHOWN FOR SUBSTRUCTURE EXCAVATION AT ABUTMENT NO. 1. PRICE BID FOR SUBSTRUCTURE EXCAVATION COMMON SHALL INCLUDE ALL REQUIRED ROCK EXCAVATION WITHIN THESE LIMITS. REFER TO FOUNDATION REPORT SHEET NO. 35 FOR ADDITIONAL INFORMATION.
- (3) PROVIDE AND INSTALL BEARING ASSEMBLIES OF THE SIZE, SHAPE AND LOCATION DETAILED IN THE PLANS AT THE ABUTMENTS AND PIERS. THERE IS AN ESTIMATED 10,000.00 LBS. OF STAINLESS STEEL FOR THE FIXED BEARING ASSEMBLIES AND 15,500.00 LBS. OF STAINLESS STEEL FOR THE EXPANSION BEARING ASSEMBLIES. INCLUDE ALL COSTS ASSOCIATED WITH PROVIDING AND INSTALLING THE ANCHOR PLATES, ANCHOR BOLTS, CONTACT PLATES, NUTS, WASHERS, AND ELASTOMERIC BEARING PADS, INCLUDING ALL MATERIALS, LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN IN THE PLANS, IN THE PRICE BID FOR "STAINLESS STEEL FIXED BEARING ASSEMBLY" OR "STAINLESS STEEL EXPANSION BEARING ASSEMBLY" AS APPLICABLE.
- (4) ESTIMATED QUANTITY ONLY, TO BE USED FOR REPAIRING THE EXISTING BRIDGE DECK DURING CONSTRUCTION OF THE NEW BRIDGE, AS DIRECTED BY THE ENGINEER.
- (5) ALL ABUTMENT PILING SHALL BE AASHTO M270 GRADE 50 STEEL.

PAY QUANTITIES AND GENERAL NOTES (BRIDGE "A")