

**GENERAL BRIDGE NOTES**

**SPECIFICATIONS:**

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

**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 AXIAL LOAD RESISTANCE WITHOUT EXCEEDING THE LIMITATIONS SET ON THE ALLOWABLE DRIVING STRESSES IN ACCORDANCE WITH SECTION 514.03.A(2)(a)

**VENT HOLES:**

THE CONTRACTOR SHALL PROVIDE 2 INCH DIAMETER VENT HOLES IN THE DECK, ONE HOLE BETWEEN EACH BEAM LINE NEAR THE HIGH END OF EACH SPAN.

**ABUTMENT PILING CAPACITY:**

THE FACTORED REACTION FOR EACH HP 10X42 PILE AT ABUTMENT NO. 1 IS 78.0 TONS PER PILE AND AT ABUTMENT NO. 2 IS 73.50 TONS PER PILE. DRIVE ALL PILING UNTIL THE AXIAL LOAD RESISTANCE IS GREATER THAN THE FACTORED REACTION OF EACH PILE. THE FOLLOWING FORMULA (GATES EQUATION) SHALL BE USED TO DETERMINE THE AXIAL LOAD RESISTANCE OF THE DRIVEN PILES:

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

WHERE:

$\phi$  = 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IN CONNECTION WITH THE DRIVING, DETERMINE THE AXIAL LOAD RESISTANCE BY THE FORMULA SHOWN ONLY AFTER THE JETS HAVE BEEN WITHDRAWN.

**CONCRETE INTERMEDIATE DIAPHRAGMS:**

ONCE THE CONCRETE HAS BEEN PLACED FOR THE CONCRETE INTERMEDIATE DIAPHRAGMS, WAIT A MINIMUM OF 24 HOURS BEFORE REMOVING THE SIDE FORMS. DO NOT REMOVE THE BOTTOM FORM FOR A MINIMUM OF 3 DAYS, OR AT THE DISCRETION OF THE ENGINEER. THIS TIME CAN BE SHORTENED IF THE CONCRETE HAS ATTAINED 80% OF THE SPECIFIED COMPRESSIVE STRENGTH. 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. THIS TIME MAY BE SHORTENED IF THE CONCRETE HAS ATTAINED 80% OF THE SPECIFIED COMPRESSIVE STRENGTH.

**APPROACH SLAB:**

CLASS AA CONCRETE SHALL BE USED IN THE APPROACH SLABS. THE QUANTITY GIVEN IS BASED ON THE ACTUAL SQUARE YARDS OF THE APPROACH SLABS. ALL COSTS OF CONCRETE, REINFORCING STEEL, RAPID CURE JOINT SEALANT, EXCAVATION, LABOR, EQUIPMENT, AND OTHER INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED SHALL BE INCLUDED IN THE PRICE BID PER SQUARE YARD OF "APPROACH SLAB".

**RIPRAP:**

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

**PERFORATED PIPE UNDERDRAIN:**

ITEM "6" PERFORATED PIPE UNDERDRAIN - ROUND" INCLUDES 26 FEET OF PERFORATED PIPE AND 5 CUBIC YARDS OF PIPE UNDERDRAIN COVER MATERIAL FOR EACH ABUTMENT. THE INSTALLATION OF THE PERFORATED PIPE AND PIPE UNDERDRAIN MATERIAL SHALL BE AS SHOWN IN THE PLANS AND ON STANDARD PUD-3.

ALL COSTS OF THE PERFORATED PIPE UNDERDRAIN INSTALLATION INCLUDING BACKFILLING, MATERIAL, LABOR, EQUIPMENT, AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF "6" PERFORATED PIPE UNDERDRAIN - ROUND".

**NON-PERFORATED PIPE UNDERDRAIN:**

ITEM "6" NON-PERFORATED PIPE UNDERDRAIN - ROUND" INCLUDES 20 FEET OF NON-PERFORATED PIPE AND 10 CUBIC YARDS OF TRENCH EXCAVATION AND 10 CUBIC YARDS OF STANDARD BEDDING MATERIAL FOR EACH ABUTMENT. THE INSTALLATION OF THE PERFORATED PIPE AND PIPE UNDERDRAIN COVER MATERIAL SHALL BE AS SHOWN ON THE PLANS AND ON STANDARD PUD-3.

ALL COSTS OF THE NON-PERFORATED PIPE UNDERDRAIN INSTALLATION INCLUDING BACKFILLING, MATERIAL, LABOR, EQUIPMENT, AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF "6" NON-PERFORATED PIPE UNDERDRAIN - ROUND".

**BRIDGE PAY QUANTITY NOTES**

(R-1) PAYMENT FOR THIS ITEM WILL BE BASED ON PLAN QUANTITIES ONLY. SEE SECTION 109.01B OF THE OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

- 1) CONSTRUCTION STAKING SHALL INCLUDE ESTABLISH AND RE-ESTABLISH STAKING OF CENTERLINE, BENCHMARKS, AND RIGHT-OF-WAY. INCLUDES SLOPE STAKING, STRUCTURE AND BRIDGE STAKING, ROADWAY STAKING (DRIVEWAYS INCLUDED), BLUETOPPING, AND CHECKING ALIGNMENTS AND ELEVATIONS AS REQUIRED.
- 2) ALL PILES SHALL BE EQUIPPED WITH CAST STEEL-DRIVING TIPS. ALL COSTS FOR FURNISHING AND INSTALLING CAST STEEL-DRIVING TIPS TO BE INCLUDED IN OTHER ITEMS OF WORK.
- 3) 501(G) CLSM BACKFILL SHALL REPLACE GRANULAR BACKFILL ON STANDARD CB26-I-SK0-ABUT-PC3 AND CB26..32-C-SK0-ABUT-MISC.
- 4) ITEM "REMOVAL OF EXISTING BRIDGE STRUCTURE" CONSISTS OF REMOVAL AND DISPOSAL OF AN 72' PONY TRUSS SPANS, 13.7' CLEAR ROADWAY AT CL STA. 61+39.05 THE REMOVAL SHALL BE IN ACCORDANCE WITH SECTION 619.04.B(2) OF THE 2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND IN A MANNER APPROVED BY THE ENGINEER.
- 5) 24" THICKNESS

DESCRIPTION	REVISIONS	DATE
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29407(04)					
PAY QUANTITIES					
0200 BRIDGE ITEMS - BRIDGE A: 65'-85' TYPE III P.C. BEAM SPAN x 26'-0"CLR. RDY., SK00, TR-3 RAILS					
ITEM		DESCRIPTION	PAY NOTES	UNIT	QUANTITY
501(B)	1307	SUBSTRUCTURE EXCAVATION COMMON	R-1	C.Y.	100
501(G)	6309	CLSM BACKFILL	R-1,3	C.Y.	56
503(A)	1312	PRESTRESSED CONCRETE BEAMS (TYPE III)	R-1	L.F.	448
504(A)	1304	APPROACH SLAB	R-1	S.Y.	115
504(B)	1305	SAW-CUT GROOVING	R-1	S.Y.	452
504(D)	6239	CONCRETE RAIL (TR3)	R-1	L.F.	357
506(A)	1322	STRUCTURAL STEEL	R-1	LB.	380
507(A)	6172	WEATHERING STEEL FIXED BEARING ASSEMBLY	R-1	EA.	6
507(B)	6176	WEATHERING STEEL EXPANSION BEARING ASSEMBLY	R-1	EA.	6
507(C)	6282	ELASTOMERIC BEARING PADS	R-1	EA.	6
509(A)	1326	CLASS AA CONCRETE	R-1	C.Y.	135
509(B)	1328	CLASS A CONCRETE	R-1	C.Y.	60
511(A)	1332	REINFORCING STEEL	R-1	LB.	38,580
514(A)	6010	PILES, FURNISHED (HP 10x42)	2	L.F.	324
514(B)	6292	PILES, DRIVEN (HP 10x42)		L.F.	324
514(K)	6260	(P.L) PILOT HOLES		L.F.	96
514(L)	6220	PILE SPLICE, H-PILE (NON-BIDDABLE)		EA.	1
516(A)	6094	DRILLED SHAFTS 48" DIAMETER		L.F.	108
601(B)	1353	TYPE I-A PLAIN RIPRAP	5	TON	1,163
601(C)	1355	TYPE I-A FILTER BLANKET		TON	124
613(H)	6204	6" PERFORATED PIPE UNDERDRAIN ROUND	R-1	L.F.	52
613(I)	6207	6" NON-PERF. PIPE UNDERDRAIN RND.		L.F.	40
619(D)	1397	REMOVAL OF EXISTING BRIDGE STRUCTURE	4	L. SUM	1
623(F)	5686	GUARDRAIL ANCHOR UNIT (TYPE D-BF)		EA.	4

29407(04)					
PAY QUANTITIES					
0600 STAKING					
ITEM		DESCRIPTION	PAY NOTES	UNIT	QUANTITY
642(B)	0096	CONSTRUCTION STAKING LEVEL II	1	L. SUM	1

29407(04)					
PAY QUANTITIES					
0640 CONSTRUCTION					
ITEM		DESCRIPTION	PAY NOTES	UNIT	QUANTITY
220	2800	SWPPP DOCUMENTATION AND MANAGEMENT		L. SUM	1
641	1399	MOBILIZATION		L. SUM	1

BR. 181A OVER LITTLE DEEP FORK CREEK COUNTY		Design	BSF	07/17
BRIDGE "A"		Detail	BLP	07/17
SUMMARY OF PAY QUANTITIES & NOTES (BRIDGE)		Check	JRW	07/17
		Squad Engr.	GUY	
<b>STATE OF OKLAHOMA</b>	GUY ENGINEERING SERVICES, INC.			
JOB PIECE NO.	29407(04)		SHEET NO. ABO1	