

GENERAL 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 -

USE A PILE DRIVING HAMMER OF THE SIZE AND TYPE CAPABLE OF CONSISTENTLY DELIVERING THE EFFECTIVE DYNAMIC ENERGY TO DRIVE THE PILES TO THE REQUIRED TIP ELEVATION AND TO ACHIEVE AN AXIAL LOAD RESISTANCE EQUAL TO OR GREATER THAN THE FACTORED PILE REACTION WITHOUT EXCEEDING THE LIMITATIONS SET ON THE ALLOWABLE DRIVING STRESSES IN ACCORDANCE WITH SUBSECTION 514.03.A.(2) OF THE SPECIFICATIONS.

PILE CAPACITY -

THE REQUIRED PILE SIZE AND THE FACTORED PILE REACTION ARE SHOWN IN THE PLANS WITH THE FOUNDATION DATA. THE FOLLOWING FORMULA (GATES EQUATION) SHALL BE USED TO DETERMINE THE AXIAL LOAD RESISTANCE OF THE DRIVEN FOUNDATION PILES:

$$\text{AXIAL LOAD RESISTANCE} = \text{PHI} * [\text{SQRT}(E) * 0.875 * \text{LG}(10 * N) - 50] \quad (\text{TONS})$$

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.

SQRT = SQUARE ROOT

LG = LOGARITHM TO THE BASE 10

THE ABOVE FORMULA IS ONLY APPLICABLE WHEN CERTAIN CONDITIONS APPLY: 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IN CONNECTION WITH THE DRIVING, DETERMINE THE AXIAL LOAD RESISTANCE BY THE FORMULA SHOWN ONLY AFTER THE JETS HAVE BEEN WITHDRAWN.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 -

PROVIDE ALL PEDESTAL CONCRETE EDGES WITH A 3/4" CHAMFER. PROVIDE ALL OTHER EXPOSED CONCRETE EDGES OF THE SUBSTRUCTURE WITH A 1 1/2" CHAMFER UNLESS OTHERWISE SHOWN OR NOTED. PROVIDE ALL EXPOSED CONCRETE EDGES OF THE SUPERSTRUCTURE WITH A 3/4" CHAMFER UNLESS OTHERWISE SHOWN OR NOTED. USE SIZED LUMBER FOR ALL CHAMFER STRIPS.

EQUIP CONCRETE VIBRATORS WITH A SHEATH DESIGNED TO PREVENT DAMAGE TO EPOXY COATINGS WHEN VIBRATING CONCRETE CONTAINING EPOXY COATED REINFORCING STEEL.

STRUCTURAL STEEL -

PROVIDE STRUCTURAL STEEL FOR DIAPHRAGM BOLTS AND PLATE WASHERS IN ACCORDANCE WITH AASHTO M270 (ASTM A709), GRADE 50W (WEATHERING STEEL, CHARPY V-NOTCH TESTING NOT REQUIRED). THE CONTRACTOR MAY SUBSTITUTE A #10 REINFORCING BAR IN ACCORDANCE WITH AASHTO M31, GRADE 60, AND THREADED AT THE ENDS AS SHOWN IN THE PLANS AT NO ADDITIONAL COST TO THE DEPARTMENT. PROVIDE HEX NUTS IN ACCORDANCE WITH AASHTO M291 (ASTM A563).

PAINT EXPOSED DIAPHRAGM BOLTS, PLATE WASHERS, AND HEX NUTS WITH TWO (2) COATS OF ZINC-RICH PAINT (6 MIL MINIMUM THICKNESS) AFTER ASSEMBLY. INCLUDE ALL COST OF DIAPHRAGM BOLTS, PLATE WASHERS, AND HEX NUTS IN THE CONTRACT UNIT PRICE FOR STRUCTURAL STEEL.

STAY-IN-PLACE DECK FORMS -

STAY-IN-PLACE STEEL DECK FORMS WILL NOT BE ALLOWED.

DECK SLAB -

EPOXY-COAT OR GALVANIZE STEEL ITEMS USED TO FACILITATE CONSTRUCTION, SUCH AS DECK FORM HANGERS, TY-BAR CLIPS, INSERT WELD ANCHORS, OR OTHER APPURTENANCES, THAT WILL REMAIN IN PLACE IN THE DECK SLAB. EPOXY-COAT IN ACCORDANCE WITH AASHTO M284 OR GALVANIZE IN ACCORDANCE WITH AASHTO M111.

PLACE THE DECK SLAB CONCRETE ONE SECTION AT A TIME CONSISTENT WITH THE DECK SLAB POURING SEQUENCE DIAGRAM SHOWN IN THE PLANS. 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 FEET 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 SPECIFICATIONS. INCLUDE ALL COST OF EQUIPMENT AND LABOR FOR THE INSTALLATION OF THE HIGH MOLECULAR WEIGHT METHACRYLATE SEALER IN THE CONTRACT UNIT PRICE OF "SEALER CRACK PREPARATION". INCLUDE ALL COST OF THE HIGH MOLECULAR WEIGHT METHACRYLATE SEALER IN THE CONTRACT UNIT PRICE OF "SEALER RESIN". THE DEPARTMENT WILL NOT MEASURE THE PREPARATION AND SEALER OF EMERGENCY CONSTRUCTION JOINTS FOR PAYMENT.

WATER REPELLENT TREATMENT -

APPLY WATER REPELLENT TREATMENT TO THE BRIDGE IN MANNER CONSISTENT WITH THE DETAILS SHOWN IN THE PLANS.

SOFTWARE -

THE FOLLOWING COMPUTER SOFTWARE WAS USED IN THE ANALYSIS AND DESIGN OF THE STRUCTURE(S) DETAILED IN THE PLANS:

- (1) WHITE ENGINEERING ASSOCIATES, INC. DECK SLAB DESIGN (VERSION 2.06, 10-12-07)
- (2) WHITE ENGINEERING ASSOCIATES, INC. DECK CLOSURE SLAB ANALYSIS (VERSION 1.01, 08-31-04)
- (3) WHITE ENGINEERING ASSOCIATES, INC. BRIDGE LOAD DISTRIBUTION (VERSION 1.10, 12-23-04)
- (4) WHITE ENGINEERING ASSOCIATES, INC. PRECAST BEAM DESIGN (VERSION 2.01, 04-27-09)
- (5) WHITE ENGINEERING ASSOCIATES, INC. ELASTOMERIC BEARING PAD DESIGN (VERSION 3.00, 12-30-09)
- (6) WHITE ENGINEERING ASSOCIATES, INC. PIER DESIGN (VERSION 2.02, 09-24-07)
- (7) IES VISUALANALYSIS (VERSION 4.01.013, 02-01-02)
- (8) STRUCTUREPOINT, LLC SPCOL (VERSION 4.60, 2010)
- (9) WHITE ENGINEERING ASSOCIATES, INC. ABUTMENT/RETAINING WALL DESIGN (VERSION 2.00, 10-19-07)

PAY ITEM NOTES

- (BR-1) PAYMENT TO THE CONTRACTOR WILL BE BASED ON PLAN QUANTITIES.
- (BR-2) THE CONTRACTOR MAY PLACE CONCRETE AGAINST THE LIMITS OF EXCAVATION IF THE MATERIAL IS EXCAVATED TO THE NEAT LINES OF THE SUBSTRUCTURE AND APPROVED BY THE ENGINEER. IF NECESSARY, USE FORMS AT VERTICAL FACES AND REMOVE THE FORMS AFTER CONCRETE HARDENS. IF THE CONTRACTOR CHOOSES TO PLACE CONCRETE AGAINST THE SOIL, THE DEPARTMENT WILL PAY FOR SUBSTRUCTURE EXCAVATION COMMON IN ACCORDANCE WITH THE DIAGRAMS SHOWN IN THE PLANS.
- (BR-3) THE APPROACH SLABS CONTAIN AN ESTIMATED TOTAL OF 81.2 C.Y. OF CLASS AA CONCRETE AND 15,820 LB. OF EPOXY COATED REINFORCING STEEL. INCLUDE THE COST OF BOND BREAKER, CONCRETE, REINFORCING STEEL, BACKER ROD, RAPID CURE JOINT SEALANT, POLYSTYRENE, POLYETHYLENE SHEETING, LABOR, EQUIPMENT AND INCIDENTALS IN THE CONTRACT UNIT PRICE OF "APPROACH SLABS".
- (BR-4) THE FIXED BEARING ASSEMBLIES CONTAIN AN ESTIMATED TOTAL OF 700 LB. OF STRUCTURAL STEEL.
- (BR-5) THE EXPANSION BEARING ASSEMBLIES CONTAIN AN ESTIMATED TOTAL OF 4,740 LB. OF STAINLESS STEEL.
- (BR-6) QUANTITY SHOWN FOR CLASS AA CONCRETE INCLUDES AN ESTIMATED 24.6 C.Y. FOR BEAM HAUNCHES.
- (BR-7) PAYMENT TO THE CONTRACTOR WILL BE BASED ON PLAN QUANTITIES UNLESS ADDITIONAL PILING LENGTH IS REQUIRED. ADDITIONAL PILES, FURNISHED, AS AUTHORIZED BY THE ENGINEER, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE.
- (BR-8) PROVIDE TYPE I PORTLAND CEMENT FOR ALL DRILLED SHAFTS. OPTIONALLY, TYPE II PORTLAND CEMENT MAY BE USED IN THE DRILLED SHAFT CONCRETE WITH THE ADDITION OF CLASS F FLY ASH TO THE MIX DESIGN. IF TYPE II PORTLAND CEMENT IS USED WITH THE ADDITION OF CLASS F FLY ASH, THE CONCRETE MIX DESIGN WILL BE APPROVED BY THE ENGINEER. INCLUDE ALL COSTS ASSOCIATED WITH THE USE OF TYPE I PORTLAND CEMENT OR TYPE II PORTLAND CEMENT WITH CLASS F FLY ASH IN THE CONTRACT UNIT PRICE OF "DRILLED SHAFT 60" DIAMETER".
- (BR-9) QUANTITY SHOWN FOR SEALER RESIN ESTIMATED AT 0.011 GALLONS PER FOOT OF CONSTRUCTION JOINT.
- (BR-10) QUANTITY SHOWN FOR RIPRAP ESTIMATED AT 120 LB. PER CUBIC FOOT. QUANTITY INCLUDES 398 TONS FOR SPECIAL INLET SHOWN ON SHEET 8.
- (BR-11) QUANTITY SHOWN FOR FILTER BLANKET ESTIMATED AT 105 LB. PER CUBIC FOOT. QUANTITY INCLUDES 127 TONS FOR SPECIAL INLET SHOWN ON SHEET 8.
- (BR-12) INCLUDE THE COST OF PIPE UNDERDRAIN COVER MATERIAL (BOTH FILTER SAND AND COARSE) AND FILTER FABRIC IN THE CONTRACT UNIT PRICE OF "6" PERFORATED PIPE UNDERDRAIN ROUND". INSTALL AS SHOWN IN THE PLANS AND ON STD. PUD-3.
- (BR-13) THE ENGINEER MAY ADJUST THE EXTENT, LOCATION AND DEPTH OF NON-PERFORATED PIPE UNDERDRAIN DURING CONSTRUCTION. INCLUDE THE COST OF TRENCH EXCAVATION AND STANDARD BEDDING MATERIAL IN THE CONTRACT UNIT PRICE OF "6" NON-PERF. PIPE UNDERDRAIN RND". INSTALL AS SHOWN IN THE PLANS AND ON STD. PUD-3.
- (BR-14) ITEM "REMOVAL OF EXISTING BRIDGE STRUCTURE" CONSISTS OF REMOVING AND DISPOSING OF THE SUPERSTRUCTURE AND SUBSTRUCTURE OF THE EXISTING BRIDGE IN ACCORDANCE WITH SUBSECTION 619.04.B OF THE SPECIFICATIONS AND IN A MANNER APPROVED BY THE ENGINEER. EXISTING STEEL I-BEAMS SHALL BECOME PROPERTY OF KIOWA COUNTY. ALL OTHER REMOVED MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR. STOCKPILE EXISTING STEEL I-BEAMS WITHIN RIGHT-OF-WAY TO BE PICKED UP BY KIOWA COUNTY. THE EXISTING BRIDGE IS DESCRIBED AS 3 - 70' I BEAM SPANS WITH 28' CLEAR ROADWAY.
- (BR-15) ITEM "REMOVAL OF EXISTING BRIDGE STRUCTURE" CONSISTS OF REMOVING AND DISPOSING OF THE SUPERSTRUCTURE AND SUBSTRUCTURE OF THE EXISTING BRIDGE IN ACCORDANCE WITH SUBSECTION 619.04.B OF THE SPECIFICATIONS AND IN A MANNER APPROVED BY THE ENGINEER. ALL REMOVED MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THE EXISTING BRIDGE IS DESCRIBED AS 7 - 25' CONCRETE SLAB SPANS WITH 28' CLEAR ROADWAY.

REV. NO.	REVISIONS DESCRIPTION	DATE

J.P. NO. 28999(04)
0200 BRIDGE "A" **PAY QUANTITIES**

S.H. 44 OVER ELK CREEK
4 - 100' TYPE IX P.C.B. SPAN
40' CLEAR ROADWAY WITH TR4 RAILS
0° SKEW, @ STA. 400+66.43

ITEM NO.	ITEM	UNIT	TOTAL
501(B) 1307	SUBSTRUCTURE EXCAVATION COMMON (BR-1, 2)	C.Y.	90
501(G) 6309	CLSM BACKFILL (BR-1)	C.Y.	200
503(A) 1313	PRESTRESSED CONCRETE BEAMS (TYPE IX) (BR-1)	L.F.	1,596
504(A) 1304	APPROACH SLAB (BR-1, 3)	S.Y.	224.8
504(B) 1305	SAW-CUT GROOVING (BR-1)	S.Y.	2,002.2
504(D) 6245	CONCRETE RAIL (TR4) (BR-1)	L.F.	897.0
506(A) 1322	STRUCTURAL STEEL (BR-1)	LB.	1,500
507(A) 6172	WEATHERING STEEL FIXED BEARING ASSEMBLY (BR-1, 4)	EA.	8
507(B) 6174	STAINLESS STEEL EXPANSION BEARING ASSEMBLY (BR-1, 5)	EA.	24
507(C) 6282	ELASTOMERIC BEARING PADS (BR-1)	EA.	24
509(A) 1326	CLASS AA CONCRETE (BR-1, 6)	C.Y.	501.0
509(B) 1328	CLASS A CONCRETE (BR-1)	C.Y.	181.7
511(B) 6010	EPOXY COATED REINFORCING STEEL (BR-1)	LB.	135,490
514(A) 6010	PILES, FURNISHED (HP 10x42) (BR-7)	L.F.	880
514(B) 6292	PILES, DRIVEN (HP 10x42)	L.F.	880
514(L) 6220	PILE SPLICE, H-PILE (NON-BIDDABLE)	EA.	1
515(A) 6013	WATER REPELLENT (VISUALLY INSPECTED) (BR-1)	S.Y.	1,748
516(A) 6096	DRILLED SHAFTS 60" DIAMETER (BR-8)	L.F.	286
516(C) 6200	CROSSHOLE SONIC LOGGING	EA.	2
523(A) 6550	SEALER CRACK PREPARATION (BR-1)	L.F.	244.5
523(B) 6560	SEALER RESIN (BR-1, 9)	GAL.	3
601(B) 1353	TYPE I-A PLAIN RIPRAP (BR-10)	TON	1,454
601(C) 1355	TYPE I-A FILTER BLANKET (BR-11)	TON	288
613(H) 6204	6" PERFORATED PIPE UNDERDRAIN ROUND (BR-12)	L.F.	84
613(I) 6207	6" NON-PERF. PIPE UNDERDRAIN RND. (BR-13)	L.F.	48
619(D) 1397	REMOVAL OF EXISTING BRIDGE STRUCTURE (BR-14)	L.SUM	1

J.P. NO. 28999(04)
0201 BRIDGE "B" **PAY QUANTITIES**

S.H. 44 OVER ELK CREEK OVERFLOW
@ STA. 410+10.00

ITEM NO.	ITEM	UNIT	TOTAL
619(D) 1397	REMOVAL OF EXISTING BRIDGE STRUCTURE (BR-15)	L.SUM	1



S.H. 44 OVER ELK CREEK	KIOWA COUNTY	Design	AFW
SUMMARY OF PAY QUANTITIES AND NOTES (BRIDGE)		Detail	DRB
		Check	AFW
WHITE ENGINEERING ASSOCIATES		STATE OF OKLAHOMA DEPARTMENT OF TRANSPORTATION	
JOB PIECE NO. 28999(04)		SHEET NO. 4	