PPPSCSA

CALL ORDER: 290
July 11, 2018

14

* * * * * * OKLAHOMA DEPARTMENT OF TRANSPORTATION * * * * * *

200 NE 21ST STREET OKLAHOMA CITY, OK 73105

* * * * * * P R O P O S A L * * * * * *
CONTRACT ID: 180251

STAPLE BID BOND TO BACK OF PROPOSAL

BIDS RECEIVED UNTIL 10:30 A.M. ON
July 19, 2018 AT ODOT, OKLAHOMA CITY

JOB PIECE NO. FEDERAL AID PROJECT NO.

1061807 (I-40/US-64) NHPPI-4000-(248)FP SEQUOYAH
2896104 (I-40/US-64) NHPPI-4000-(064)PM SEQUOYAH

DESCRIPTION: GRADE, DRAIN, SURFACE, BRIDGE, AND APPROACHES

LOCATION: I-40/US-64: I-40, FROM 1.1 MI EAST OF US-59, EXTEND EAST. US-64, AT THE I-40 INTERCHANGE, NEAR SALLISAW.

LENGTH: 2.867 MILES

AMOUNT OF PROPOSAL GUARANTEE: FIVE PERCENT (5%) OF THE BID.

NOTE: CAREFULLY REVIEW THE ENTIRE CONTENTS OF THIS PROPOSAL. ALL PROVISIONS OF THIS PROPOSAL REQUIRING SIGNATURE MUST BE SIGNED AND NOTARIZED. SUBMIT SCHEDULE OF ITEMS BY MEANS OF ELECTRONIC MEDIA PROVIDED. AFTER SCHEDULES OF ITEMS HAVE BEEN ADDED TO ELECTRONIC MEDIA, PRINT OUT ITEM SCHEDULE AND INSERT IN PROPOSAL. ELECTRONIC MEDIA AND SCHEDULE OF ITEMS PRINT OUT ARE TO BE PUT IN ENVELOPE WITH PROPOSAL.

SIGN: PROPOSAL MUST BE SIGNED TO COINCIDE WITH PRE-QUALIFICATION PAPERS.

BID PROPOSAL AFFIDAVIT

DBE PROGRAM AFFIDAVIT (WHEN APPLICABLE)

ALL PAPERS BOUND WITH OR STAPLED TO THIS PROPOSAL FORM ARE NECESSARY PARTS THEREOF AND PROPOSAL MUST NOT BE UNSTAPLED.

THIS PROPOSAL ISSUED TO: CONTRACTOR'S ID NO.

_____ _____

_____

PROPOSAL NO. _____

REVISED:

* *

BID RIGGING IS A SERIOUS CRIME. IF YOU HAVE ANY INFORMATION CONCERNING COLLUSIVE BIDDING, EVEN A REQUEST TO SUBMIT A COMPLIMENTARY BID, PLEASE CALL THE OKLAHOMA ATTORNEY GENERAL'S OFFICE AT TELE. NO. 405-521-3921.

July 11, 2018

Unless otherwise noted in the proposal, all bids must be submitted over the Internet via Bid Express. When written bids are allowed, sealed proposals sent by registered mail will be received through the ODOT Office Engineer Division until 30 minutes prior to the scheduled bid opening. From 30 minutes prior to the bid opening until the time of the bid opening, bid proposals must be turned in directly to the ODOT Commission Room located on the east side of the lobby. The scheduled bid opening is 10:30 A.M. , July 19, 2018 for the work listed below.

No Proposal for construction or maintenance work of the department will be issued to any contractor after 10:30 A.M. on the working day preceding opening of bids for any contract.

Each bid shall be accompanied by a Certified or Cashier's Check or Bid Bond equal to 5% of the bid made payable to the State of Oklahoma, Department of Transportation, as a proposal guaranty. Proposal checks will be held or returned by the Department as per Section 103.04 of the State Standard Specifications.

The minimum wage to be paid laborers and mechanics employed on this project shall be included in the proposal.

Bids must be prepared as directed by the State Standard Specifications.

Plans, proposals, and specifications may be examined in the plan room or in the Office Engineer Division at the Oklahoma Department of Transportation central office in Oklahoma City, Oklahoma.

This work will be done under the Oklahoma Department of Transportation applicable specifications for highway construction as depicted on the lower left corner of the plan's title sheet.

Plans and proposal forms may be ordered from the Office Engineer Division, Oklahoma Department of Transportation Building, 200 N.E. 21st Street, Oklahoma City, OK 73105. Cost of Bidding Documents is $ 50.00 + tax for each Bidding Proposal. State Standard Specifications may be purchased for $55.00 + tax. (Oklahoma tax is 8.375%).
Plans(Reduced Size Complete with X-Sec if applicable) $ 739.74 + postage/handling.
Make checks payable to Oklahoma Department of Transportation.
No refunds will be made for bidding documents or Specification books purchased.

Unless otherwise noted in the proposal, upon award of the contract to the successful bidder, the contract will be completely and correctly executed by the contractor and returned to the Department within ten (10) working days from the date of award. The Department will have fourteen (14) working days from the date of award to complete it's execution of the contract.

The Oklahoma Department of Transportation (ODOT) ensures that no person or groups of persons shall, on the grounds of race, color, sex, age, national origin, disability/handicap, or income status, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any and all programs, services, or activities administered by ODOT, it's recipients, sub-recipients, and contractors.

Description of work and location of project:			Job Piece No.
NHPPI-4000-(248)FP	I-40/US-64	SEQUOYAH	1061807
NHPPI-4000-(064)PM	I-40/US-64	SEQUOYAH	2896104

GRADE, DRAIN, SURFACE, BRIDGE, AND APPROACHES
I-40/US-64: I-40, FROM 1.1 MI EAST OF US-59, EXTEND EAST.
US-64, AT THE I-40 INTERCHANGE, NEAR SALLISAW.

STATE OF OKLAHOMA, DEPARTMENT OF TRANSPORTATION - By: Mike Patterson, Director.

O K L A H O M A D O T
BAMS/PES - PROPOSAL AND ESTIMATION SYSTEM

CONTRACT REQUIREMENTS July 11, 2018
CONTRACT ID: 180251

CA000001

11/25/2014

CONTRACT TIME ALLOTTED FOR THIS PROJECT IS 700 CALENDAR DAYS.

DISADVANTAGE BUSINESS ENTERPRISES: REQUIRED PARTICIPATION IS 4.00 %.

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* THE DEPARTMENT WILL CONSIDER A PROPOSAL NONRESPONSIVE AND MAY REJECT IT *
* IN ACCORDANCE WITH SUBSECTIONS 102.08 AND/OR 102.14 OF THE 2009 OKLAHOMA *
* DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. *
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OKLAHOMA DEPARTMENT OF TRANSPORTATION

DATE: July 11, 2018

SCHEDULE OF PRICES REVISED:

CONTRACT ID: 180251 PROJECT(S): 1061807
2896104 NHPPI-4000(248)FP /
NHPPI-4000(064)PM
J.P. NUMBER 2896104 I-40/US-64

BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0001 ROADWAY - NHPPI-4000(248)FP					
0001	201(A) 0102 CLEARING AND GRUBBING	1.000 LSUM		.		.
0002	202(A) 0183 UNCLASSIFIED EXCAVATION	87949.000 CY		.		.
0003	202(D) 0184 UNCLASSIFIED BORROW	33790.000 CY		.		.
0004	205(A) 4229 TYPE A-SALVAGED TOPSOIL	1.000 LSUM		.		.
0005	221(C) 2801 TEMPORARY SILT FENCE	23371.000 LF		.		.
0006	221(F) 0100 TEMPORARY SILT DIKE	891.000 LF		.		.
0007	221(H) 0450 (PL)TEMPORARY INLET SEDIMENT FILTER	44.000 EA		.		.
0008	230(A) 2806 SOLID SLAB SODDING	192675.000 SY		.		.
0009	232(A) 2813 SEEDING METHOD A	33.000 AC		.		.

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0010	233(A) 2817 VEGETATIVE MULCHING	41.000 AC		.		.
0011	241 2832 MOWING	40.000 AC		.		.
0012	303(A) 2100 AGGREGATE BASE TYPE A	16336.000 CY		.		.
0013	307(D) 4230 LIME	50.000 TON		.		.
0014	307(H) 4270 LIME STABILIZED SUBGRADE	1500.000 SY		.		.
0015	307(K) 4300 STABILIZED SUBGRADE	123340.000 SY		.		.
0016	317 4270 CEMENT TREATED BASE	94850.000 SY		.		.
0017	325 5271 SEPARATOR FABRIC	117960.000 SY		.		.
0018	402(E) 0225 TRAFFIC BOUND SURFACE COURSE TYPE E	11519.000 TON		.		.
0019	407(B) 0250 TACK COAT	249.000 GAL		.		.

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0020	408 5774 PRIME COAT	54813.000 GAL		.		.
0021	411(B) 5945 SUPERPAVE, TYPE S3(PG 64-22 OK)	114.000 TON		.		.
0022	411(C) 5960 SUPERPAVE, TYPE S4(PG 64-22 OK)	346.000 TON		.		.
0023	412 5267 COLD MILLING PAVEMENT	4018.000 SY		.		.
0024	414(A) 0210 P.C. CONCRETE PAVEMENT(PLACEMENT)	32781.000 SY		.		.
0025	414(B) 5725 DOWEL JOINTED P.C. CONCRETE PAVEMENT(PLACEMENT)	68899.000 SY		.		.
0026	414(C) 4425 CONT. REINF. P.C.C. PAVEMENT(PLACEMENT)	5016.000 SY		.		.
0027	414(G) 5275 P.C. CONCRETE FOR PAVEMENT	28455.000 CY		.		.
0028	501(A) 0313 STRUCTURAL EXCAVATION UNCLASSIFIED	15.000 CY		.		.
0029	504(E) 6190 42" F-SHAPED PARAPET	4397.000 LF		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0030	509(A) 0319 CLASS AA CONCRETE	39.000 CY		.		.
0031	509(D) 0325 CLASS C CONCRETE	1507.000 CY		.		.
0032	510(A) 6333 RETAINING WALL	1590.000 SY		.		.
0033	510(C) 6135 SLOPE WALL (5")	1216.000 SY		.		.
0034	511(A) 0332 REINFORCING STEEL	5997.000 LB		.		.
0035	601(B) 0536 TYPE I-A PLAIN RIPRAP	316.000 TON		.		.
0036	601(C) 0538 TYPE I-A FILTER BLANKET	103.000 TON		.		.
0037	609(A) 0300 CONCRETE CURB (6" BARRIER-INTEGRAL)	1236.000 LF		.		.
0038	609(A) 0380 CONCRETE CURB (8" BARRIER-INTEGRAL)	2328.000 LF		.		.
0039	610(A) 0650 4" DECORATIVE CONCRETE SIDEWALK	729.000 SY		.		.

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0040	610(B) 0604 6" CONCRETE DRIVEWAY	1332.000 SY		.		.
0041	610(C) 0609 6" CONCRETE DIVIDING STRIP	249.000 SY		.		.
0042	611(A) 2657 MANHOLE (4' DIAMETER)	3.000 EA		.		.
0043	611(B) 2680 ADD'L.DEPTH IN MANHOLE (4' DIAMETER)	2.000 VF		.		.
0044	611(G) 5112 INLET CI DES. 2 (STD)	9.000 EA		.		.
0045	611(G) 5113 INLET CI DES. 2 (B)	1.000 EA		.		.
0046	611(G) 5117 INLET CI DES. 2 (2B)	3.000 EA		.		.
0047	611(G) 5327 INLET GPI TYPE 1 (DES. 1)	7.000 EA		.		.
0048	611(G) 5331 INLET GPI TYPE 1 (DES. 5)	1.000 EA		.		.
0049	611(G) 5334 INLET GPI TYPE 2 (DES. 8)	2.000 EA		.		.

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0050	611(G) 5699 INLET - LONGITUDINAL BARRIER - TYPE I, DES. 2	4.000 EA		.		.
0051	611(G) 5870 INLET W/LRG. JCT. BOX, CI, DES.2	1.000 EA		.		.
0052	611(G) 5970 INLET W/SMALL JCT. BOX, CI, DES.2	1.000 EA		.		.
0053	611(G) 5976 INLET W/SMALL JCT. BOX, CI, DES.2(2B)	1.000 EA		.		.
0054	611(G) 6002 INLET (SMD-TYPE 2)	1.000 EA		.		.
0055	611(H) 5325 ADD'L DEPTH IN INLET CI DES. 2	41.000 VF		.		.
0056	611(H) 5374 ADD'L DEPTH IN INLET GPI TYPE 1	10.000 VF		.		.
0057	611(H) 5375 ADD'L DEPTH IN INLET GPI TYPE 2	1.000 VF		.		.
0058	611(H) 5697 ADD'L DEPTH IN INLET MED. BAR. DES. 2	24.000 VF		.		.
0059	611(H) 5870 ADD'L DEPTH IN INLET W/LJB, CI, DES. 2	9.000 VF		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0060	611(H) 5970 ADD'L DEPTH IN INLET W/SJB, CI, DES. 2	8.000 VF	.		.	
0061	611(H) 5976 ADD'L DEPTH IN INLET W/SJB, CI, DES. 2(2B)	8.000 VF	.		.	
0062	611(L) 0487 JUNCTION BOXES	324.000 CF	.		.	
0063	612(C) 0645 INLET ADJUST TO GRADE	1.000 EA	.		.	
0064	613(A) 0491 18" R.C. PIPE CLASS III	2286.000 LF	.		.	
0065	613(A) 0492 24" R.C. PIPE CLASS III	18.000 LF	.		.	
0066	613(A) 0493 30" R.C. PIPE CLASS III	445.000 LF	.		.	
0067	613(A) 0494 36" R.C. PIPE CLASS III	342.000 LF	.		.	
0068	613(A) 0495 42" R.C. PIPE CLASS III	165.000 LF	.		.	
0069	613(B) 0688 12" CORR. GALV. STEEL PIPE	3339.000 LF	.		.	

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0070	613(B) 0693 42" CORR. GALV. STEEL PIPE	126.000 LF		.		.
0071	613(H) 6204 6" PERFORATED PIPE UNDERDRAIN ROUND	990.000 LF		.		.
0072	613(I) 1096 6" NON-PERF. PIPE UNDERDRAIN RND.	330.000 LF		.		.
0073	613(J) 5915 EDGE DRAIN CONDUIT-PERFORATED	14523.000 LF		.		.
0074	613(K) 5916 EDGE DRAIN OUTLET LATERAL-NONPERFORATED	550.000 LF		.		.
0075	613(N) 7520 TYPE A6 SLOPED CONCRETE END SECTION	17.000 EA		.		.
0076	613(N) 7521 TYPE B6 SLOPED CONCRETE END SECTION	2.000 EA		.		.
0077	613(N) 7522 TYPE C6 SLOPED CONCRETE END SECTION	13.000 EA		.		.
0078	613(N) 7523 TYPE D6 SLOPED CONCRETE END SECTION	2.000 EA		.		.
0079	613(N) 7524 TYPE E6 SLOPED CONCRETE END SECTION	1.000 EA		.		.

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0080	613(Q) 5946 OUTLET LATERAL HEADWALL	6.000 EA		.		.
0081	619(A) 0920 REMOVAL OF STRUCTURES & OBSTRUCTIONS	1.000 LSUM		.		.
0082	619(B) 0291 REMOVAL OF HEADWALL	3.000 EA		.		.
0083	619(B) 4725 REMOVAL OF FENCE	14241.000 LF		.		.
0084	619(B) 4726 REMOVAL OF CURB AND GUTTER	3822.000 LF		.		.
0085	619(B) 4727 REMOVAL OF CONCRETE PAVEMENT	37309.000 SY		.		.
0086	619(B) 4728 REMOVAL OF ASPHALT PAVEMENT	50229.000 SY		.		.
0087	619(B) 4763 REMOVAL OF CONCRETE PAVEMENT W/ASPHALT OVERLAY	9498.000 SY		.		.
0088	619(B) 4780 REMOVAL OF GUARDRAIL	4618.000 LF		.		.
0089	619(B) 5881 REMOVAL OF CONCRETE DITCH LINER	170.000 LF		.		.

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0090	619(C) 0924 SAWING PAVEMENT	1036.000 LF		.		.
0091	623(A) 0932 BEAM GUARDRAIL W-BEAM SINGLE	1175.000 LF		.		.
0092	623(C) 5202 BEAM GUARDRAIL THRIE-BEAM SINGLE	187.500 LF		.		.
0093	623(G) 8571 GUARDRAIL END TREATMENT (GET)	8.000 EA		.		.
0094	623(I) 8700 GUARDRAIL BRIDGE CONN-THRIE BEAM (31")	8.000 EA		.		.
0095	624(A) 4281 FENCE-STYLE WWF	11932.000 LF		.		.
0096	624(C) 4459 FENCE-STYLE SWF (5 BARBED WIRE)	1387.000 LF		.		.
0097	627(A) 4317 CONCRETE LONGITUDINAL BARRIER, DESIGN 1	92.000 LF		.		.
0098	627(B) 4410 CONCRETE LONGITUDINAL BARRIER END SECTIONS	1.000 EA		.		.
0099	853 9066 GUARDRAIL DELINEATORS(TYPE 1, CODE 1)	32.000 EA		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0100	853 9069 GUARDRAIL DELINEATORS(TYPE 2, CODE 1)	3.000 EA		.		.
0101	871(A) 8325 (SP)IMPACT ATTENUATOR	4.000 EA		.		.
	SECTION 0001 TOTAL					.

SECTION 0002 BRIDGE 'A' - NBI 16045 - NHPPI-4000(248)FP

0102	202(D) 1302 UNCLASSIFIED BORROW	26.000 CY		.		.
0103	501(B) 1307 SUBSTRUCTURE EXCAVATION COMMON	66.000 CY		.		.
0104	501(G) 6309 CLSM BACKFILL	132.000 CY		.		.
0105	504(A) 1304 APPROACH SLAB	354.000 SY		.		.
0106	504(B) 1305 SAW-CUT GROOVING	1120.000 SY		.		.
0107	504(C) 6250 SEALED EXPANSION JOINT	52.500 LF		.		.

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0108	504(E) 6190 42" F-SHAPED PARAPET	402.700 LF		.		.
0109	506(A) 1322 STRUCTURAL STEEL	162950.000 LB		.		.
0110	507(A) 6170 STAINLESS STEEL FIXED BEARING ASSEMBLY	16.000 EA		.		.
0111	507(B) 6174 STAINLESS STEEL EXPANSION BEARING ASSEMBLY	32.000 EA		.		.
0112	509(A) 1326 CLASS AA CONCRETE	193.000 CY		.		.
0113	509(B) 1328 CLASS A CONCRETE	42.200 CY		.		.
0114	511(B) 6010 EPOXY COATED REINFORCING STEEL	58120.000 LB		.		.
0115	514(A) 6010 PILES, FURNISHED (HP 10X42)	52.500 LF		.		.
0116	514(A) 6011 PILES, FURNISHED (HP 12X53)	149.500 LF		.		.
0117	514(B) 6292 PILES, DRIVEN (HP 10X42)	52.500 LF		.		.

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0118	514(B) 6294 PILES, DRIVEN (HP 12X53)	149.500	LF		.		.
0119	514(L) 6220 PILE SPLICE, H-PILE (NON-BIDDABLE)	1.000	EA	400.00000		400.00	
0120	515(A) 6013 WATER REPELLENT (VISUALLY INSPECTED)	582.000	SY		.		.
0121	516(A) 6094 DRILLED SHAFTS 48" DIAMETER	40.000	LF		.		.
0122	516(C) 6200 CROSSHOLE SONIC LOGGING	2.000	EA		.		.
0123	521(A) 6210 PNEUMATICALLY PLACED MORTAR	30.000	SY		.		.
0124	523(A) 6550 SEALER CRACK PREPARATION	192.000	LF		.		.
0125	523(B) 6560 SEALER RESIN	2.400	GAL		.		.
0126	524(A) 6610 (SP)CARBON FIBER-REINFORCED POLYMER	200.000	SF		.		.
0127	540 4515 (PL)REPAIR BRIDGE ITEM (TYPE A)	12.000	EA		.		.

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J.P. NUMBER 2896104 I-40/US-64

BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0128	540 4525 (PL)REPAIR BRIDGE ITEM (TYPE B)	12.000 EA		.		.
0129	601(A) 1351 TYPE I PLAIN RIPRAP	240.000 TON		.		.
0130	613(H) 6204 6" PERFORATED PIPE UNDERDRAIN ROUND	26.000 LF		.		.
0131	613(I) 6207 6" NON-PERF. PIPE UNDERDRAIN RND.	100.000 LF		.		.
0132	619(B) 2500 REMOVAL OF BRIDGE ITEMS	1.000 LSUM		.		.
	SECTION 0002 TOTAL					.

SECTION 0003 BRIDGE 'B' - NBI 16046 - NHPPI-4000(248)FP

0133	501(G) 6309 CLSM BACKFILL	90.000 CY		.		.
0134	504(A) 1304 APPROACH SLAB	274.000 SY		.		.
0135	504(B) 1305 SAW-CUT GROOVING	851.000 SY		.		.

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J.P. NUMBER 2896104 I-40/US-64

BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0136	504(C) 6250 SEALED EXPANSION JOINT	40.500 LF		.		.
0137	504(E) 6190 42" F-SHAPED PARAPET	402.700 LF		.		.
0138	506(A) 1322 STRUCTURAL STEEL	122070.000 LB		.		.
0139	507(A) 6170 STAINLESS STEEL FIXED BEARING ASSEMBLY	12.000 EA		.		.
0140	507(B) 6174 STAINLESS STEEL EXPANSION BEARING ASSEMBLY	24.000 EA		.		.
0141	509(A) 1326 CLASS AA CONCRETE	150.000 CY		.		.
0142	511(B) 6010 EPOXY COATED REINFORCING STEEL	39150.000 LB		.		.
0143	515(A) 6013 WATER REPELLENT (VISUALLY INSPECTED)	560.000 SY		.		.
0144	521(A) 6210 PNEUMATICALLY PLACED MORTAR	30.000 SY		.		.
0145	523(A) 6550 SEALER CRACK PREPARATION	180.000 LF		.		.

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J.P. NUMBER 2896104 I-40/US-64

BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0146	523(B) 6560 SEALER RESIN	2.300 GAL		.		.
0147	524(A) 6610 (SP)CARBON FIBER-REINFORCED POLYMER	200.000 SF		.		.
0148	540 4515 (PL)REPAIR BRIDGE ITEM (TYPE A)	12.000 EA		.		.
0149	540 4525 (PL)REPAIR BRIDGE ITEM (TYPE B)	12.000 EA		.		.
0150	601(A) 1351 TYPE I PLAIN RIPRAP	100.000 TON		.		.
0151	619(B) 2500 REMOVAL OF BRIDGE ITEMS	1.000 LSUM		.		.
	SECTION 0003 TOTAL					.

SECTION 0004 BRIDGE 'C' - NBI 16079 - NHPPI-4000(248)FP

0152	202(D) 1302 UNCLASSIFIED BORROW	50.000 CY		.		.
0153	501(B) 1307 SUBSTRUCTURE EXCAVATION COMMON	192.000 CY		.		.

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BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0154	501(G) 6309 CLSM BACKFILL	330.000	CY	.		.	
0155	504(A) 1304 APPROACH SLAB	416.000	SY	.		.	
0156	504(B) 1305 SAW-CUT GROOVING	1504.000	SY	.		.	
0157	504(C) 6250 SEALED EXPANSION JOINT	52.600	LF	.		.	
0158	504(E) 6190 42" F-SHAPED PARAPET	711.800	LF	.		.	
0159	506(A) 1322 STRUCTURAL STEEL	378820.000	LB	.		.	
0160	507(A) 6170 STAINLESS STEEL FIXED BEARING ASSEMBLY	10.000	EA	.		.	
0161	507(B) 6174 STAINLESS STEEL EXPANSION BEARING ASSEMBLY	20.000	EA	.		.	
0162	509(A) 1326 CLASS AA CONCRETE	280.000	CY	.		.	
0163	509(B) 1328 CLASS A CONCRETE	238.000	CY	.		.	

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BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0164	510(C) 6138 SLOPE WALL (5")	1160.000 SY	.		.	
0165	511(B) 6010 EPOXY COATED REINFORCING STEEL	103410.000 LB	.		.	
0166	514(A) 6010 PILES, FURNISHED (HP 10X42)	178.500 LF	.		.	
0167	514(A) 6011 PILES, FURNISHED (HP 12X53)	767.000 LF	.		.	
0168	514(B) 6292 PILES, DRIVEN (HP 10X42)	178.500 LF	.		.	
0169	514(B) 6294 PILES, DRIVEN (HP 12X53)	767.000 LF	.		.	
0170	514(L) 6220 PILE SPLICE, H-PILE (NON-BIDDABLE)	1.000 EA	400.00000		400.00	
0171	515(A) 6013 WATER REPELLENT (VISUALLY INSPECTED)	1114.000 SY	.		.	
0172	516(A) 6096 DRILLED SHAFTS 60" DIAMETER	186.000 LF	.		.	
0173	516(C) 6200 CROSSHOLE SONIC LOGGING	2.000 EA	.		.	

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BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0174	523(A) 6550 SEALER CRACK PREPARATION	50.100 LF		.		.
0175	523(B) 6560 SEALER RESIN	0.700 GAL		.		.
0176	542 4600 (PL) INSTALLATION OF BRIDGE ITEMS	1.000 LSUM		.		.
0177	601(A) 1351 TYPE I PLAIN RIPRAP	580.000 TON		.		.
0178	613(H) 6204 6" PERFORATED PIPE UNDERDRAIN ROUND	110.000 LF		.		.
0179	613(I) 6207 6" NON-PERF. PIPE UNDERDRAIN RND.	100.000 LF		.		.
0180	619(D) 1397 REMOVAL OF EXISTING BRIDGE STRUCTURE	1.000 LSUM		.		.
	SECTION 0004 TOTAL					.

SECTION 0005 BRIDGE 'D' - NBI 16080 - NHPPI-4000(248)FP

0181	202(D) 1302 UNCLASSIFIED BORROW	50.000 CY		.		.

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BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0182	501(B) 1307 SUBSTRUCTURE EXCAVATION COMMON	232.000 CY		.		.
0183	501(G) 6309 CLSM BACKFILL	420.000 CY		.		.
0184	504(A) 1304 APPROACH SLAB	713.000 SY		.		.
0185	504(B) 1305 SAW-CUT GROOVING	2310.000 SY		.		.
0186	504(C) 6250 SEALED EXPANSION JOINT	75.900 LF		.		.
0187	504(E) 6190 42" F-SHAPED PARAPET	692.700 LF		.		.
0188	506(A) 1322 STRUCTURAL STEEL	456430.000 LB		.		.
0189	507(A) 6170 STAINLESS STEEL FIXED BEARING ASSEMBLY	12.000 EA		.		.
0190	507(B) 6174 STAINLESS STEEL EXPANSION BEARING ASSEMBLY	24.000 EA		.		.
0191	509(A) 1326 CLASS AA CONCRETE	397.000 CY		.		.

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BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0192	509(B) 1328 CLASS A CONCRETE	312.000	CY	.		.	
0193	510(C) 6138 SLOPE WALL (5")	1430.000	SY	.		.	
0194	511(B) 6010 EPOXY COATED REINFORCING STEEL	145600.000	LB	.		.	
0195	514(A) 6010 PILES, FURNISHED (HP 10X42)	173.500	LF	.		.	
0196	514(A) 6011 PILES, FURNISHED (HP 12X53)	1072.000	LF	.		.	
0197	514(B) 6292 PILES, DRIVEN (HP 10X42)	173.500	LF	.		.	
0198	514(B) 6294 PILES, DRIVEN (HP 12X53)	1072.000	LF	.		.	
0199	514(L) 6220 PILE SPLICE, H-PILE (NON-BIDDABLE)	1.000	EA	400.00000		400.00	
0200	515(A) 6013 WATER REPELLENT (VISUALLY INSPECTED)	1188.000	SY	.		.	
0201	516(A) 6096 DRILLED SHAFTS 60" DIAMETER	186.000	LF	.		.	

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BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0202	516(C) 6200 CROSSHOLE SONIC LOGGING	2.000 EA		.		.
0203	523(A) 6550 SEALER CRACK PREPARATION	73.400 LF		.		.
0204	523(B) 6560 SEALER RESIN	1.000 GAL		.		.
0205	601(A) 1351 TYPE I PLAIN RIPRAP	710.000 TON		.		.
0206	613(H) 6204 6" PERFORATED PIPE UNDERDRAIN ROUND	156.000 LF		.		.
0207	613(I) 6207 6" NON-PERF. PIPE UNDERDRAIN RND.	100.000 LF		.		.
0208	619(D) 1397 REMOVAL OF EXISTING BRIDGE STRUCTURE	1.000 LSUM		.		.
	SECTION 0005 TOTAL					.

SECTION 0006 BRIDGE 'E' - NBI 16152 - NHPPI-4000(248)FP

0209	202(D) 1302 UNCLASSIFIED BORROW	60.000 CY		.		.

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BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0210	501(B) 1307 SUBSTRUCTURE EXCAVATION COMMON	245.000 CY		.		.
0211	501(G) 6309 CLSM BACKFILL	409.000 CY		.		.
0212	503(A) 1313 PRESTRESSED CONCRETE BEAMS (TYPE IV)	1343.150 LF		.		.
0213	504(A) 1304 APPROACH SLAB	530.000 SY		.		.
0214	504(B) 1305 SAW-CUT GROOVING	1817.000 SY		.		.
0215	504(C) 6250 SEALED EXPANSION JOINT	63.000 LF		.		.
0216	504(E) 6190 42" F-SHAPED PARAPET	753.100 LF		.		.
0217	506(A) 1322 STRUCTURAL STEEL	2100.000 LB		.		.
0218	507(A) 6170 STAINLESS STEEL FIXED BEARING ASSEMBLY	10.000 EA		.		.
0219	507(B) 6174 STAINLESS STEEL EXPANSION BEARING ASSEMBLY	20.000 EA		.		.

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BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0220	509(A) 1326 CLASS AA CONCRETE	376.000 CY		.		.
0221	509(B) 1328 CLASS A CONCRETE	320.300 CY		.		.
0222	511(B) 6010 EPOXY COATED REINFORCING STEEL	135010.000 LB		.		.
0223	514(A) 6010 PILES, FURNISHED (HP 10X42)	129.000 LF		.		.
0224	514(A) 6011 PILES, FURNISHED (HP 12X53)	633.500 LF		.		.
0225	514(B) 6292 PILES, DRIVEN (HP 10X42)	129.000 LF		.		.
0226	514(B) 6294 PILES, DRIVEN (HP 12X53)	633.500 LF		.		.
0227	514(L) 6220 PILE SPLICE, H-PILE (NON-BIDDABLE)	1.000 EA	400.00000		400.00	
0228	515(A) 6013 WATER REPELLENT (VISUALLY INSPECTED)	1552.000 SY		.		.
0229	516(A) 6096 DRILLED SHAFTS 60" DIAMETER	126.000 LF		.		.

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BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0230	516(C) 6200 CROSSHOLE SONIC LOGGING	2.000 EA		.		.
0231	523(A) 6550 SEALER CRACK PREPARATION	62.000 LF		.		.
0232	523(B) 6560 SEALER RESIN	0.800 GAL		.		.
0233	601(B) 1353 TYPE I-A PLAIN RIPRAP	1750.000 TON		.		.
0234	601(C) 1355 TYPE I-A FILTER BLANKET	331.000 TON		.		.
0235	613(H) 6204 6" PERFORATED PIPE UNDERDRAIN ROUND	227.000 LF		.		.
0236	613(I) 6207 6" NON-PERF. PIPE UNDERDRAIN RND.	148.000 LF		.		.
0237	619(D) 1397 REMOVAL OF EXISTING BRIDGE STRUCTURE	1.000 LSUM		.		.
	SECTION 0006 TOTAL					.

SECTION 0007 BRIDGE 'E-1' - NBI 26662 - NHPPI-4000(248)FP

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BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0238	202(D) 1302 UNCLASSIFIED BORROW	50.000 CY		.		.
0239	501(B) 1307 SUBSTRUCTURE EXCAVATION COMMON	545.000 CY		.		.
0240	501(G) 6309 CLSM BACKFILL	200.000 CY		.		.
0241	503(A) 1313 PRESTRESSED CONCRETE BEAMS (TYPE IV)	1024.000 LF		.		.
0242	504(A) 1304 APPROACH SLAB	294.600 SY		.		.
0243	504(B) 1305 SAW-CUT GROOVING	1113.000 SY		.		.
0244	504(C) 6250 SEALED EXPANSION JOINT	40.200 LF		.		.
0245	504(E) 6190 42" F-SHAPED PARAPET	689.600 LF		.		.
0246	506(A) 1322 STRUCTURAL STEEL	1300.000 LB		.		.
0247	507(A) 6170 STAINLESS STEEL FIXED BEARING ASSEMBLY	8.000 EA		.		.

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BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0248	507(B) 6174 STAINLESS STEEL EXPANSION BEARING ASSEMBLY	16.000 EA		.		.
0249	509(A) 1326 CLASS AA CONCRETE	240.000 CY		.		.
0250	509(B) 1328 CLASS A CONCRETE	321.000 CY		.		.
0251	511(B) 6010 EPOXY COATED REINFORCING STEEL	98950.000 LB		.		.
0252	514(A) 6010 PILES, FURNISHED (HP 10X42)	381.000 LF		.		.
0253	514(A) 6011 PILES, FURNISHED (HP 12X53)	379.000 LF		.		.
0254	514(B) 6292 PILES, DRIVEN (HP 10X42)	381.000 LF		.		.
0255	514(B) 6294 PILES, DRIVEN (HP 12X53)	379.000 LF		.		.
0256	514(L) 6220 PILE SPLICE, H-PILE (NON-BIDDABLE)	1.000 EA	400.00000		400.00	
0257	515(A) 6013 WATER REPELLENT (VISUALLY INSPECTED)	1312.000 SY		.		.

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BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0258	516(A) 6096 DRILLED SHAFTS 60" DIAMETER	92.000 LF		.		.
0259	516(C) 6200 CROSSHOLE SONIC LOGGING	2.000 EA		.		.
0260	523(A) 6550 SEALER CRACK PREPARATION	41.000 LF		.		.
0261	523(B) 6560 SEALER RESIN	0.500 GAL		.		.
0262	601(B) 1353 TYPE I-A PLAIN RIPRAP	625.000 TON		.		.
0263	601(C) 1355 TYPE I-A FILTER BLANKET	135.000 TON		.		.
0264	613(H) 6204 6" PERFORATED PIPE UNDERDRAIN ROUND	172.000 LF		.		.
0265	613(I) 6207 6" NON-PERF. PIPE UNDERDRAIN RND.	140.000 LF		.		.
	SECTION 0007 TOTAL					.

SECTION 0008 BRIDGE 'F' - NBI 16153 - NHPPI-4000(248)FP

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BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0266	202(D) 1302 UNCLASSIFIED BORROW	60.000 CY		.		.
0267	501(B) 1307 SUBSTRUCTURE EXCAVATION COMMON	255.000 CY		.		.
0268	501(G) 6309 CLSM BACKFILL	410.000 CY		.		.
0269	503(A) 1313 PRESTRESSED CONCRETE BEAMS (TYPE IV)	1637.570 LF		.		.
0270	504(A) 1304 APPROACH SLAB	643.000 SY		.		.
0271	504(B) 1305 SAW-CUT GROOVING	2061.000 SY		.		.
0272	504(C) 6250 SEALED EXPANSION JOINT	72.600 LF		.		.
0273	504(E) 6190 42" F-SHAPED PARAPET	817.200 LF		.		.
0274	506(A) 1322 STRUCTURAL STEEL	2300.000 LB		.		.
0275	507(A) 6170 STAINLESS STEEL FIXED BEARING ASSEMBLY	12.000 EA		.		.

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BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0276	507(B) 6174 STAINLESS STEEL EXPANSION BEARING ASSEMBLY	24.000	EA	.		.	
0277	509(A) 1326 CLASS AA CONCRETE	432.000	CY	.		.	
0278	509(B) 1328 CLASS A CONCRETE	360.000	CY	.		.	
0279	511 6306 MECHANICAL SPLICES	112.000	EA	.		.	
0280	511(B) 6010 EPOXY COATED REINFORCING STEEL	150750.000	LB	.		.	
0281	514(A) 6010 PILES, FURNISHED (HP 10X42)	127.500	LF	.		.	
0282	514(A) 6011 PILES, FURNISHED (HP 12X53)	741.000	LF	.		.	
0283	514(B) 6292 PILES, DRIVEN (HP 10X42)	127.500	LF	.		.	
0284	514(B) 6294 PILES, DRIVEN (HP 12X53)	741.000	LF	.		.	
0285	514(L) 6220 PILE SPLICE, H-PILE (NON-BIDDABLE)	1.000	EA	400.00000		400.00	

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BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0286	515(A) 6013 WATER REPELLENT (VISUALLY INSPECTED)	1625.000 SY		.		.
0287	516(A) 6096 DRILLED SHAFTS 60" DIAMETER	194.000 LF		.		.
0288	516(C) 6200 CROSSHOLE SONIC LOGGING	2.000 EA		.		.
0289	523(A) 6550 SEALER CRACK PREPARATION	352.000 LF		.		.
0290	523(B) 6560 SEALER RESIN	4.400 GAL		.		.
0291	601(B) 1353 TYPE I-A PLAIN RIPRAP	1375.000 TON		.		.
0292	601(C) 1355 TYPE I-A FILTER BLANKET	260.000 TON		.		.
0293	613(H) 6204 6" PERFORATED PIPE UNDERDRAIN ROUND	254.000 LF		.		.
0294	613(I) 6207 6" NON-PERF. PIPE UNDERDRAIN RND.	160.000 LF		.		.
0295	619(D) 1397 REMOVAL OF EXISTING BRIDGE STRUCTURE	1.000 LSUM		.		.
	SECTION 0008 TOTAL					.

SECTION 0009 BRIDGE 'I' - NBI 09826 - NHPPI-4000(248)FP

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0296	501(B) 1307 SUBSTRUCTURE EXCAVATION COMMON	130.000 CY		.		.
0297	501(G) 6309 CLSM BACKFILL	280.000 CY		.		.
0298	503(A) 1312 PRESTRESSED CONCRETE BEAMS (TYPE III)	1354.500 LF		.		.
0299	504(A) 1304 APPROACH SLAB	363.600 SY		.		.
0300	504(B) 1305 SAW-CUT GROOVING	1782.000 SY		.		.
0301	504(D) 6245 CONCRETE RAIL (TR4)	486.000 LF		.		.
0302	506(A) 1322 STRUCTURAL STEEL	1850.000 LB		.		.
0303	507(A) 6172 WEATHERING STEEL FIXED BEARING ASSEMBLY	14.000 EA		.		.
0304	507(B) 6174 STAINLESS STEEL EXPANSION BEARING ASSEMBLY	28.000 EA		.		.
0305	507(C) 6282 ELASTOMERIC BEARING PADS	28.000 EA		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0306	509(A) 1326 CLASS AA CONCRETE	426.000 CY		.		.
0307	509(B) 1328 CLASS A CONCRETE	245.400 CY		.		.
0308	511 6306 MECHANICAL SPLICES	668.000 EA		.		.
0309	511(B) 6010 EPOXY COATED REINFORCING STEEL	119280.000 LB		.		.
0310	514(A) 6011 PILES, FURNISHED (HP 12X53)	459.000 LF		.		.
0311	514(B) 6294 PILES, DRIVEN (HP 12X53)	459.000 LF		.		.
0312	514(L) 6220 PILE SPLICE, H-PILE (NON-BIDDABLE)	1.000 EA	400.00000		400.00	
0313	515(A) 6013 WATER REPELLENT (VISUALLY INSPECTED)	1004.000 SY		.		.
0314	516(A) 6096 DRILLED SHAFTS 60" DIAMETER	184.000 LF		.		.
0315	516(C) 6200 CROSSHOLE SONIC LOGGING	2.000 EA		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0316	523(A) 6550 SEALER CRACK PREPARATION	510.000 LF		.		.
0317	523(B) 6560 SEALER RESIN	5.700 GAL		.		.
0318	601(B) 1353 TYPE I-A PLAIN RIPRAP	800.000 TON		.		.
0319	601(C) 1355 TYPE I-A FILTER BLANKET	160.000 TON		.		.
0320	613(H) 6204 6" PERFORATED PIPE UNDERDRAIN ROUND	136.000 LF		.		.
0321	613(I) 6207 6" NON-PERF. PIPE UNDERDRAIN RND.	60.000 LF		.		.
0322	619(D) 1397 REMOVAL OF EXISTING BRIDGE STRUCTURE	1.000 LSUM		.		.
	SECTION 0009 TOTAL					.

SECTION 0010 TRAFFIC SIGNING AND STRIPING - NHPPI-4000(248)FP

0323	413(C) 4868 RUMBLE STRIP-METHOD PCC-CON	29082.000 LF		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0324	804(A) 2915 STRUCTURAL CONCRETE	28.390 CY		.		.
0325	804(B) 2916 REINFORCING STEEL	4640.000 LB		.		.
0326	805(D) 8756 (PL)REMOVE & RESET EXISTING SIGNS	5.000 EA		.		.
0327	850(A) 8110 SHEET ALUMINUM SIGNS	552.720 SF		.		.
0328	850(B) 8112 EXTRUDED ALUMINUM PANEL SIGNS	1322.500 SF		.		.
0329	851(A) 3206 4"@13 GALV. STEEL WIDE FLANGE BEAM POST	90.000 LF		.		.
0330	851(A) 3208 6"@20 GALV. STEEL WIDE FLANGE BEAM POST	317.000 LF		.		.
0331	851(A) 3213 10"@45 GALV. STEEL WIDE FLANGE BEAM POST	142.000 LF		.		.
0332	851(B) 3215 1 1/2@2.72 GALV.STEEL PIPE POST	308.000 LF		.		.
0333	851(B) 3216 2"@3.65 GALV.STEEL PIPE POST	178.500 LF		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0334	851(B) 3217 2 1/2"@5.79 GALV.STEEL PIPE POST	402.000	LF	.		.	
0335	851(B) 3218 3"@7.58 GALV.STEEL PIPE POST	113.000	LF	.		.	
0336	851(B) 3219 3 1/2"@9.11 GALV.STEEL PIPE POST	40.000	LF	.		.	
0337	856(A) 8530 TRAFFIC STRIPE(MULTI-POLYMER)(4" WIDE)	16952.000	LF	.		.	
0338	856(A) 8535 TRAFFIC STRIPE(MULTI-POLY.)(6" WIDE)	45155.000	LF	.		.	
0339	856(A) 8540 TRAFFIC STRIPE(MULTI-POLY.)(8" WIDE)	3928.000	LF	.		.	
0340	856(A) 8548 TRAFFIC STRIPE(MULTI-POLY)(12" WIDE)	1558.000	LF	.		.	
0341	856(A) 8555 TRAFFIC STRIPE(MULTI-POLY.)(24" WIDE)	47.000	LF	.		.	
0342	856(B) 8860 TRAFFIC STRIPE(MULTI-POLY.)(ARROWS)	27.000	EA	.		.	
0343	857(F) 8006 PAVEMENT MARKING REMOVAL(TRAFFIC STRIPE)	2500.000	LF	.		.	

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0344	890 7700 (PL) TRAFFIC ITEMS	1.000 LSUM		.		.
	SECTION 0010 TOTAL					.

SECTION 0011 TRAFFIC LIGHTING - NHPPI-4000(248)FP

0345	509(A) 0319 CLASS AA CONCRETE	83.700 CY		.		.
0346	516(A) 6094 DRILLED SHAFTS 48" DIAMETER	180.000 LF		.		.
0347	610(A) 0602 4" CONCRETE SIDEWALK	126.000 SY		.		.
0348	802(A) 8300 3/4" GALV. STEEL ELECTRICAL CONDUIT EXPOSED	290.000 LF		.		.
0349	802(A) 8306 1 1/4" GALV. STEEL ELECTRICAL CONDUIT EXPOSED	1950.000 LF		.		.
0350	802(B) 8340 2" PVC SCH. 40 PLASTIC CONDUIT BORED	475.000 LF		.		.
0351	802(B) 8342 2" PVC SCH. 40 PLASTIC CONDUIT TRENCHED	7950.000 LF		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0352	802(E) 8372 JUNCTION BOX(8" X 8" X 6")	4.000 EA	.		.	
0353	803(A) 8065 PULL BOX(SIZE I)	22.000 EA	.		.	
0354	804(A) 2915 STRUCTURAL CONCRETE	42.640 CY	.		.	
0355	804(B) 2916 REINFORCING STEEL	21028.000 LB	.		.	
0356	805(A) 8708 REMOVAL OF HIGH MAST TOWER	7.000 EA	.		.	
0357	805(A) 8712 (PL)REMOVAL OF LIGHT POLE	9.000 EA	.		.	
0358	806(C) 8924 40' MTG & 10' HLMA(G.STL.)	30.000 EA	.		.	
0359	807 8092 BREAKAWAY BASE (DES. B)	26.000 EA	.		.	
0360	809(A) 8090 ROADWAY LUMINAIRE	30.000 EA	.		.	
0361	809(B) 8098 UNDERPASS LUMINIARE	14.000 EA	.		.	

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0362	809(E) 8103 HIGH MAST LUMINAIRE	15.000 EA		.		.
0363	810(A) 3118 SERVICE POLE	1.000 EA		.		.
0364	811 8038 1/C NO.4 ELECTRICAL CONDUCTOR	21790.000 LF		.		.
0365	811 8044 1/C NO.10 ELECTRICAL CONDUCTOR	610.000 LF		.		.
0366	811 8046 1/C NO.12 ELECTRICAL CONDUCTOR	3750.000 LF		.		.
0367	812 8068 140' HIGH MAST POLE(G.STL.)	6.000 EA		.		.
0368	813 8074 HIGH MAST LOWERING DEVICE TYPE I	6.000 EA		.		.
	SECTION 0011 TOTAL					.

SECTION 0012 TRAFFIC CONTROL - NHPPI-4000(248)FP

0369	104 0955 (SP) RAILROAD FLAGGING(NON-BIDDABLE)	210.000 DAY		475.00000		99750.00

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0370	857(A) 8839 CONSTRUCTION TRAFFIC STRIPE(PAINT)(4" WIDE)	31895.000 LF		.		.
0371	857(C) 8851 REMOVABLE PAVEMENT MARKING TAPE(4" WIDE)	272389.000 LF		.		.
0372	857(F) 8006 PAVEMENT MARKING REMOVAL(TRAFFIC STRIPE)	28737.000 LF		.		.
0373	871(B) 8705 (SP)CONST. ZONE IMPACT ATTEN.	7891.000 SD		.		.
0374	876(A) 8482 (PL)TRUCK MOUNTED ATTENUATOR	662.000 SD		.		.
0375	877(B) 8484 DELIVER PORTABLE LONGITUDINAL BARRIER	8557.000 LF		.		.
0376	877(C) 8486 RELOCATION OF PORTABLE LONGITUDINAL BARRIER	56267.000 LF		.		.
0377	878(B) 8487 MODULAR GLARE SCREEN (TEMPORARY)	468841.000 SD		.		.
0378	880(A) 8812 ARROW DISPLAY(TYPE C)	2927.000 SD		.		.
0379	880(B) 8818 CONSTRUCTION SIGNS 0 TO 6.25 SF	15635.000 SD		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0380	880(B) 8821 CONSTRUCTION SIGNS 6.26 SF TO 15.99 SF	9580.000 SD		.		.
0381	880(B) 8824 CONSTRUCTION SIGNS 16.0 SF TO 32.99 SF	10747.000 SD		.		.
0382	880(B) 8827 CONSTRUCTION SIGNS 33.0 SF & OVER	11054.000 SD		.		.
0383	880(C) 8842 CONSTRUCTION BARRICADES(TYPE III)	9775.000 SD		.		.
0384	880(D) 8854 VERTICAL PANELS	700.000 SD		.		.
0385	880(F) 8878 DRUMS	479412.000 SD		.		.
0386	880(G) 8890 CHANNELIZER CONES	203700.000 SD		.		.
0387	882(A) 8306 PORT. CHANGEABLE MESSAGE SIGN	7000.000 SD		.		.
	SECTION 0012 TOTAL					.

SECTION 0013 CABLE BARRIER - NHPPI-4000(248)FP

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0388	509(A) 0319 CLASS AA CONCRETE	47.000 CY		.		.
0389	509(D) 0325 CLASS C CONCRETE	518.000 CY		.		.
0390	619(B) 5190 REMOVAL OF CABLE BARRIER	3037.000 LF		.		.
0391	628(B) 5125 HIGH-TENSION CABLE BARRIER(TL-4)	5568.000 LF		.		.
0392	628(C) 5110 END ANCHORS	9.000 EA		.		.
0393	628(E) 5175 CABLE BARRIER TENSION METER	9.000 EA		.		.
	SECTION 0013 TOTAL					.

SECTION 0014 STAKING - NHPPI-4000(248)FP

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0394	642(B) 0096 CONSTRUCTION STAKING LEVEL II	1.000 LSUM		.		.
	SECTION 0014 TOTAL					.

SECTION 0015 CONSTRUCTION - NHPPI-4000(248)FP

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0395	220 2800 SWPPP DOCUMENTATION AND MANAGEMENT	1.000 LSUM		.		.
0396	641 1552 MOBILIZATION	1.000 LSUM		.		.
	SECTION 0015 TOTAL					.

SECTION 0016 ROADWAY - NHPPI-4000(064)PM

0397	201(A) 0102 CLEARING AND GRUBBING	1.000 LSUM		.		.
0398	202(A) 0183 UNCLASSIFIED EXCAVATION	28203.000 CY		.		.
0399	202(D) 0184 UNCLASSIFIED BORROW	161796.000 CY		.		.
0400	205(A) 4229 TYPE A-SALVAGED TOPSOIL	1.000 LSUM		.		.
0401	221(C) 2801 TEMPORARY SILT FENCE	6001.000 LF		.		.
0402	221(D) 2803 TEMPORARY SEDIMENT FILTER	2.000 EA		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0403	221(F) 0100 TEMPORARY SILT DIKE	553.000 LF		.		.
0404	221(G) 0152 TEMPORARY ROCK FILTER DAM TYPE 3	97.000 CY		.		.
0405	229 4318 DITCH LINER PROTECTION	4310.000 LF		.		.
0406	230(A) 2806 SOLID SLAB SODDING	87935.000 SY		.		.
0407	232(A) 2813 SEEDING METHOD A	18.170 AC		.		.
0408	233(A) 2817 VEGETATIVE MULCHING	18.170 AC		.		.
0409	241 2832 MOWING	72.680 AC		.		.
0410	242 0400 (PL) STABILIZED CONSTRUCTION EXIT	2.000 EA		.		.
0411	303(A) 2100 AGGREGATE BASE TYPE A	11381.000 CY		.		.
0412	307(K) 4300 STABILIZED SUBGRADE	55845.000 SY		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0413	317 4270 CEMENT TREATED BASE	45164.000 SY		.		.
0414	325 5271 SEPARATOR FABRIC	60098.000 SY		.		.
0415	402(E) 0225 TRAFFIC BOUND SURFACE COURSE TYPE E	8866.000 TON		.		.
0416	407(B) 0250 TACK COAT	392.000 GAL		.		.
0417	408 5774 PRIME COAT	34187.000 GAL		.		.
0418	411(B) 5945 SUPERPAVE, TYPE S3(PG 64-22 OK)	60.000 TON		.		.
0419	411(C) 5960 SUPERPAVE, TYPE S4(PG 64-22 OK)	396.000 TON		.		.
0420	412 5267 COLD MILLING PAVEMENT	1425.000 SY		.		.
0421	413(C) 4868 RUMBLE STRIP-METHOD PCC-CON	19377.000 LF		.		.
0422	414(A) 0210 P.C. CONCRETE PAVEMENT(PLACEMENT)	13178.000 SY		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0423	414(B) 5725 DOWEL JOINTED P.C. CONCRETE PAVEMENT(PLACEMENT)	27684.000 SY		.		.
0424	414(G) 5275 P.C. CONCRETE FOR PAVEMENT	12487.000 CY		.		.
0425	501(A) 0313 STRUCTURAL EXCAVATION UNCLASSIFIED	165.000 CY		.		.
0426	504(E) 6190 42" F-SHAPED PARAPET	495.000 LF		.		.
0427	509(A) 0319 CLASS AA CONCRETE	454.500 CY		.		.
0428	509(B) 0321 CLASS A CONCRETE	99.900 CY		.		.
0429	509(D) 0325 CLASS C CONCRETE	264.000 CY		.		.
0430	510(A) 6333 RETAINING WALL	201.400 SY		.		.
0431	510(A) 6334 RETAINING WALL	8.400 SY		.		.
0432	511(A) 0332 REINFORCING STEEL	93325.000 LB		.		.

OKLAHOMA DEPARTMENT OF TRANSPORTATION

DATE: July 11, 2018

SCHEDULE OF PRICES REVISED:

CONTRACT ID: 180251 PROJECT(S): 1061807
2896104 NHPPI-4000(248)FP /
NHPPI-4000(064)PM
J.P. NUMBER 2896104 I-40/US-64

BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0433	601(A) 0297 TYPE I PLAIN RIPRAP	241.000 TON		.		.
0434	601(C) 0538 TYPE I-A FILTER BLANKET	39.000 TON		.		.
0435	602(C) 4155 FILTER FABRIC	137.000 SY		.		.
0436	610(C) 0608 4" CONCRETE DIVIDING STRIP	55.000 SY		.		.
0437	611(G) 6002 INLET (SMD-TYPE 2)	1.000 EA		.		.
0438	613(A) 0492 24" R.C. PIPE CLASS III	83.000 LF		.		.
0439	613(L) 5730 24" PREFAB. CULVERT END SECTION, ROUND	1.000 EA		.		.
0440	619(A) 0920 REMOVAL OF STRUCTURES & OBSTRUCTIONS	1.000 LSUM		.		.
0441	619(B) 4727 REMOVAL OF CONCRETE PAVEMENT	42977.000 SY		.		.
0442	619(B) 4728 REMOVAL OF ASPHALT PAVEMENT	11382.000 SY		.		.

OKLAHOMA DEPARTMENT OF TRANSPORTATION

DATE: July 11, 2018

SCHEDULE OF PRICES REVISED:

CONTRACT ID: 180251 PROJECT(S): 1061807
2896104 NHPPI-4000(248)FP /
NHPPI-4000(064)PM
J.P. NUMBER 2896104 I-40/US-64

BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0443	619(B) 4780 REMOVAL OF GUARDRAIL	1758.000 LF		.		.
0444	619(B) 5881 REMOVAL OF CONCRETE DITCH LINER	2553.000 LF		.		.
0445	619(C) 0924 SAWING PAVEMENT	968.000 LF		.		.
0446	623 0100 (PL)GUARDRAIL CURBING	2.000 EA		.		.
0447	623(A) 0932 BEAM GUARDRAIL W-BEAM SINGLE	900.000 LF		.		.
0448	623(G) 8590 GUARDRAIL END TREATMENT (31")	6.000 EA		.		.
0449	623(I) 8700 GUARDRAIL BRIDGE CONN-THRIE BEAM (31")	6.000 EA		.		.
0450	624(A) 4281 FENCE-STYLE WWF	2015.000 LF		.		.
	SECTION 0016 TOTAL					.

SECTION 0017 BRIDGE "A" - NBI: 16174 - NHPPI-4000(064)PM

OKLAHOMA DEPARTMENT OF TRANSPORTATION

DATE: July 11, 2018

SCHEDULE OF PRICES REVISED:

CONTRACT ID: 180251 PROJECT(S): 1061807
2896104 NHPPI-4000(248)FP /
NHPPI-4000(064)PM
J.P. NUMBER 2896104 I-40/US-64

BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0451	501(B) 1307 SUBSTRUCTURE EXCAVATION COMMON	240.000 CY		.		.
0452	501(G) 6309 CLSM BACKFILL	242.600 CY		.		.
0453	504(A) 1304 APPROACH SLAB	348.900 SY		.		.
0454	504(B) 1305 SAW-CUT GROOVING	2414.400 SY		.		.
0455	504(C) 6250 SEALED EXPANSION JOINT	45.170 LF		.		.
0456	504(E) 6190 42" F-SHAPED PARAPET	1143.800 LF		.		.
0457	506(A) 1322 STRUCTURAL STEEL	875310.000 LB		.		.
0458	507(A) 6170 STAINLESS STEEL FIXED BEARING ASSEMBLY	12.000 EA		.		.
0459	507(B) 6174 STAINLESS STEEL EXPANSION BEARING ASSEMBLY	30.000 EA		.		.
0460	509(A) 1326 CLASS AA CONCRETE	547.800 CY		.		.

OKLAHOMA DEPARTMENT OF TRANSPORTATION

DATE: July 11, 2018

SCHEDULE OF PRICES REVISED:

CONTRACT ID: 180251 PROJECT(S): 1061807
2896104 NHPPI-4000(248)FP /
NHPPI-4000(064)PM
J.P. NUMBER 2896104 I-40/US-64

BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0461	509(B) 1328 CLASS A CONCRETE	428.600	CY	.		.	
0462	510(C) 6138 SLOPE WALL (5")	2626.000	SY	.		.	
0463	511(A) 1332 REINFORCING STEEL	4280.000	LB	.		.	
0464	511(B) 6010 EPOXY COATED REINFORCING STEEL	198190.000	LB	.		.	
0465	514(A) 6010 PILES, FURNISHED (HP 10X42)	196.000	LF	.		.	
0466	514(A) 6011 PILES, FURNISHED (HP 12X53)	811.000	LF	.		.	
0467	514(B) 6292 PILES, DRIVEN (HP 10X42)	196.000	LF	.		.	
0468	514(B) 6294 PILES, DRIVEN (HP 12X53)	811.000	LF	.		.	
0469	514(L) 6220 PILE SPLICE, H-PILE (NON-BIDDABLE)	2.000	EA	400.00000		800.00	
0470	515(A) 6013 WATER REPELLENT (VISUALLY INSPECTED)	2019.000	SY	.		.	

OKLAHOMA DEPARTMENT OF TRANSPORTATION

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SCHEDULE OF PRICES REVISED:

CONTRACT ID: 180251 PROJECT(S): 1061807
2896104 NHPPI-4000(248)FP /
NHPPI-4000(064)PM
J.P. NUMBER 2896104 I-40/US-64

BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0471	516(A) 6098 DRILLED SHAFTS 72" DIAMETER	190.000	LF	.		.	
0472	516(C) 6200 CROSSHOLE SONIC LOGGING	6.000	EA	.		.	
0473	523(A) 6550 SEALER CRACK PREPARATION	134.400	LF	.		.	
0474	523(B) 6560 SEALER RESIN	2.000	GAL	.		.	
0475	613(H) 6204 6" PERFORATED PIPE UNDERDRAIN ROUND	359.000	LF	.		.	
0476	613(I) 6207 6" NON-PERF. PIPE UNDERDRAIN RND.	280.000	LF	.		.	
0477	615(A) 6120 8" POLYVINYL CHLORIDE (PVC) PIPE	550.000	LF	.		.	
0478	619(D) 1397 REMOVAL OF EXISTING BRIDGE STRUCTURE	1.000	LSUM	.		.	
0479	624(E) 4298 FENCE-STYLE CLF (7' HIGH, CLASS B)	330.800	LF	.		.	
	SECTION 0017 TOTAL					.	

SECTION 0018 BRIDGE "B" - NBI: 16175 - NHPPI-4000(064)PM

OKLAHOMA DEPARTMENT OF TRANSPORTATION

DATE: July 11, 2018

SCHEDULE OF PRICES REVISED:

CONTRACT ID: 180251 PROJECT(S): 1061807
2896104 NHPPI-4000(248)FP /
NHPPI-4000(064)PM
J.P. NUMBER 2896104 I-40/US-64

BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0480	501(B) 1307 SUBSTRUCTURE EXCAVATION COMMON	240.000 CY		.		.
0481	501(G) 6309 CLSM BACKFILL	246.500 CY		.		.
0482	504(A) 1304 APPROACH SLAB	351.800 SY		.		.
0483	504(B) 1305 SAW-CUT GROOVING	2446.200 SY		.		.
0484	504(C) 6250 SEALED EXPANSION JOINT	45.530 LF		.		.
0485	504(E) 6190 42" F-SHAPED PARAPET	1158.900 LF		.		.
0486	506(A) 1322 STRUCTURAL STEEL	881840.000 LB		.		.
0487	507(A) 6170 STAINLESS STEEL FIXED BEARING ASSEMBLY	12.000 EA		.		.
0488	507(B) 6174 STAINLESS STEEL EXPANSION BEARING ASSEMBLY	30.000 EA		.		.
0489	509(A) 1326 CLASS AA CONCRETE	555.300 CY		.		.

OKLAHOMA DEPARTMENT OF TRANSPORTATION

DATE: July 11, 2018

SCHEDULE OF PRICES REVISED:

CONTRACT ID: 180251 PROJECT(S): 1061807
2896104 NHPPI-4000(248)FP /
NHPPI-4000(064)PM
J.P. NUMBER 2896104 I-40/US-64

BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0490	509(B) 1328 CLASS A CONCRETE	420.300 CY		.		.
0491	510(C) 6138 SLOPE WALL (5")	2587.000 SY		.		.
0492	511(A) 1332 REINFORCING STEEL	3940.000 LB		.		.
0493	511(B) 6010 EPOXY COATED REINFORCING STEEL	198430.000 LB		.		.
0494	514(A) 6010 PILES, FURNISHED (HP 10X42)	182.000 LF		.		.
0495	514(A) 6011 PILES, FURNISHED (HP 12X53)	748.000 LF		.		.
0496	514(B) 6292 PILES, DRIVEN (HP 10X42)	182.000 LF		.		.
0497	514(B) 6294 PILES, DRIVEN (HP 12X53)	748.000 LF		.		.
0498	514(J) 6390 TEMPORARY SHEET PILING	1.000 LSUM		.		.
0499	514(L) 6220 PILE SPLICE, H-PILE (NON-BIDDABLE)	2.000 EA	400.00000		800.00	

OKLAHOMA DEPARTMENT OF TRANSPORTATION

DATE: July 11, 2018

SCHEDULE OF PRICES REVISED:

CONTRACT ID: 180251 PROJECT(S): 1061807
2896104 NHPPI-4000(248)FP /
NHPPI-4000(064)PM
J.P. NUMBER 2896104 I-40/US-64

BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0500	515(A) 6013 WATER REPELLENT (VISUALLY INSPECTED)	2019.000 SY		.		.
0501	516(A) 6098 DRILLED SHAFTS 72" DIAMETER	184.000 LF		.		.
0502	516(C) 6200 CROSSHOLE SONIC LOGGING	6.000 EA		.		.
0503	523(A) 6550 SEALER CRACK PREPARATION	135.600 LF		.		.
0504	523(B) 6560 SEALER RESIN	2.000 GAL		.		.
0505	613(H) 6204 6" PERFORATED PIPE UNDERDRAIN ROUND	374.000 LF		.		.
0506	613(I) 6207 6" NON-PERF. PIPE UNDERDRAIN RND.	200.000 LF		.		.
0507	619(D) 1397 REMOVAL OF EXISTING BRIDGE STRUCTURE	1.000 LSUM		.		.
0508	624(E) 4298 FENCE-STYLE CLF (7' HIGH, CLASS B)	333.400 LF		.		.
	SECTION 0018 TOTAL					.

SECTION 0019 TRAFFIC SIGNING AND STRIPING - NHPPI-4000(064)PM

OKLAHOMA DEPARTMENT OF TRANSPORTATION

DATE: July 11, 2018

SCHEDULE OF PRICES REVISED:

CONTRACT ID: 180251 PROJECT(S): 1061807
2896104 NHPPI-4000(248)FP /
NHPPI-4000(064)PM
J.P. NUMBER 2896104 I-40/US-64

BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0509	804(A) 2915 STRUCTURAL CONCRETE	4.000 CY		.		.
0510	804(B) 2916 REINFORCING STEEL	1264.000 LB		.		.
0511	805(D) 8756 (PL)REMOVE & RESET EXISTING SIGNS	5.000 EA		.		.
0512	850(A) 8110 SHEET ALUMINUM SIGNS	61.000 SF		.		.
0513	850(B) 8112 EXTRUDED ALUMINUM PANEL SIGNS	367.000 SF		.		.
0514	851(A) 3210 8"@31 GALV. STEEL WIDE FLANGE BEAM POST	119.000 LF		.		.
0515	851(C) 8324 2" SQUARE TUBE POST	175.000 LF		.		.
0516	853 9066 GUARDRAIL DELINEATORS(TYPE 1, CODE 1)	30.000 EA		.		.
0517	856(A) 8535 TRAFFIC STRIPE(MULTI-POLY.)(6" WIDE)	27480.000 LF		.		.
	SECTION 0019 TOTAL					.

SECTION 0020 TRAFFIC CABLE BARRIER - NHPPI-4000(064)PM

OKLAHOMA DEPARTMENT OF TRANSPORTATION

DATE: July 11, 2018

SCHEDULE OF PRICES REVISED:

CONTRACT ID: 180251 PROJECT(S): 1061807
2896104 NHPPI-4000(248)FP /
NHPPI-4000(064)PM
J.P. NUMBER 2896104 I-40/US-64

BIDDER MUST ENTER ALL UNIT PRICES, MAKE ALL EXTENSIONS AND TOTAL THE BID.

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0518	509(A) 0319 CLASS AA CONCRETE	15.120 CY		.		.
0519	619(B) 5190 REMOVAL OF CABLE BARRIER	5112.000 LF		.		.
0520	628 5180 INSTALLATION OF CABLE BARRIER SYSTEM	4776.000 LF		.		.
0521	628(C) 5110 END ANCHORS	2.000 EA		.		.
	SECTION 0020 TOTAL					.
	TOTAL BID					.

DATE: July 11, 2018

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS - 2009 SPECIFICATION

CONTRACT ID : 180251
SPECIAL PROVISIONS FOR J.P. : 1061807 / 2896104 I-40/US-64
OKLAHOMA PROJECT NUMBER : NHPPI-4000-(248)FP / NHPPI-4000-(064)PM

	CONTRACTOR'S RIGHT OF ENTRY AGREEMENT
	THE KANSAS CITY SOUTHERN RAILWAY COMPANY GUIDELINES FOR THE DESIGN AND CONSTRUCTION OF RAILROAD OVERPASSES AND UNDERPASSES
104-1(a-b)09	RAILROAD FLAGGING
106-5(a-f)09	BUY AMERICA
107-8(a)09	RAILROAD INSURANCE
108-2(a-b)09	ADMINISTRATION AND EXTENSION OF CONTRACT TIME (WINTER TIME SUSPENSION)
108-23(a)09	FLEXIBLE NOTICE TO PROCEED
108-81(a)09	DISINCENTIVE FOR EXPOSED COLD-MILLED PAVEMENT
108-182(a)09	70% SUBLETTING OF CONTRACT
108-762(a)09	INCENTIVE/DISINCENTIVE
109-3(a-c)09	PRICE ADJUSTMENT FOR FUEL
109-7(a-c)09	PRICE ADJUSTMENT FOR ASPHALT BINDER
109-8(a-b)09	PAYMENTS TO SUBCONTRACTORS
303-1(a-d)09	AGGREGATE BASE
317-8(a-d)09	CEMENT TREATED BASE
411-12(a)09	LONGITUDINAL JOINT DENSITY ON ASPHALT CONCRETE PAVEMENT
411-13(a)09	WARM MIX ASPHALT
411-17(a)09	COMPACTION OF HOT MIX ASPHALT
414-18(a)09	OPTIMIZED GRADATION FOR PORTLAND CEMENT CONCRETE PAVEMENT
430-2QA(a-k)09	PAVEMENT AND BRIDGE DECK SMOOTHNESS
504-1(a-i)09	BRIDGE DECKS, APPROACHES, RAILS AND PARAPETS
504-6(a-b)09	RAILS, PARAPETS, AND CURBS
507-1(a-b)09	BEARING ASSEMBLIES
516-3(a-s)09	DRILLED SHAFT FOUNDATIONS
524-3(a-e)09	FIBER-REINFORCED POLYMER MATERIAL
656-4(a)09	AMERICAN BURYING BEETLE (ABB)
701-14(a-d)09	OPTIMIZED GRADATION FOR PORTLAND CEMENT CONCRETE PAVEMENT
708-22(a)09	WARM MIX ASPHALT MATERIAL REQUIREMENTS
708-23(a)09	HAMBURG RUT TESTING OF HOT MIX ASPHALT
708-26(a-f)09	PLANT MIX BITUMINOUS BASES AND SURFACES (SUPERPAVE)
708-28(a)09	MULTIPLE STRESS CREEP RECOVERY (MSCR) TESTING
724-1(a-b)09	BRIDGE BEARING STRUCTURAL STEEL
726-1(a)09	STRUCTURAL STEEL PLATE PIPE, PIPE ARCHES, AND ARCHES
733-1(a-b)09	ELASTOMERIC BEARING PADS
856-1(a-g)09	TRAFFIC STRIPE (MULTI-POLYMER)
857-2(a-c)09	CONSTRUCTION ZONE PAVEMENT MARKINGS
877-1(a-c)09	PORTABLE LONGITUDINAL BARRIER
880-1(a-b)09	PLASTIC DRUMS
OK180016	WAGE RATES
	CORPS OF ENGINEERS PERMIT
CF000050	REPORTING OF BID RIGGING
CF000101	TITLE VI - NON-DISCRIMINATION CLAUSE
CF000200	RESIDENCE REQUIREMENTS FOR LABOR ON FEDERAL AID PROJECTS
CF000501	CERTIFICATION FOR FEDERAL-AID CONTRACTS
CF000502	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION (FHWA 1273)
CF000503	CARGO PREFERENCE ACT (CPA) REQUIREMENTS
CF000800	NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION
CF000900	STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CF001000	ON-THE-JOB TRAINING (OJT) PROGRAM
CF001700	CONTRACTORS AFFIDAVIT
CX00210B	* DISADVANTAGED BUSINESS ENTERPRISES PROGRAMS
CX00220A	* D. B. E. ASSURANCE
CZ002300	CONTRACT DISPUTE RESOLUTION PROCEDURE
CZ002850	NO.2 PROPOSAL SHEET
CZ002975	* BIDDER'S AFFIDAVIT - STATEMENT UNDER PENALTY

ATTENTION CONTRACTOR

Kansas City Southern Railway Information

Project No. NHPPI-4000(064)PM, J/P No. 28961(04)

Sequoyah County

Please reference the following KCS Railway information on all correspondence with the railway:

DOT No. 330 679N RR MilePost 292.0

Railroad Subdivision: Heavener Railroad Folder No. N/A

Any contract let by the state for construction of the roadway or bridge involving Railroad property shall require the contractor to abide by the two special provisions attached, Railroad Flagging 104-1(a-2)09 and Railroad Insurance 107-8(a)09. The Contractor will be required to have **Railroad Protective Liability and Property Damage Insurance** and a **flagman** will be required by the Railroad when working within 25 feet of track.

Any contract let by the State for construction of the roadway or bridge involving Railroad property shall require the contractor to enter into the Railway's standard Right of Entry Agreement in substantially the same form as attached. Upon receipt of the **executed Contractor's Right-of-Entry Agreement**, the Contractor shall notify the Railroad ten (*10*) working days prior to entering onto the Railroad's right-of-way.

The Right of Entry Agreement must be filled out by the Contractor and the Railway prior to entering onto the railroad's right-of-way.

Prior to issuance of the Work Order, the Contractor must submit an original and one copy of the insurance policy to the Construction Division, Oklahoma Department of Transportation, 200 N.E. 21st Street, Oklahoma City, Oklahoma 73105-3204.

The Contractor shall notify:

Mr. Justin Crites
KCS Roadmaster
Kansas City Southern Railway
400 West First Street
Heavener, Oklahoma 74937
Phone: 318-465-9957

Mr. Sri Honnur
Director, Track & Bridge Construction
KCS Railway Company
427 West 12th Street
Kansas City, Missouri 64121
Phone: 816-983-1138
Prefers email: SHonnur@KCSouthern.com

To Arrange for Flagging Services on Projects that involves the Kansas City Southern Railway, Please Contact the following Kansas City Southern Railway approved flagging company:

Railpros, Inc.:
Jennifer Kazner
877-315-0513, Ext. 116
Jennifer.kazner@railpros.com
Gabe.medina@railpros.com

Please apply for KCS Railway Contractor's Right of Entry Agreement online by the link below.

Here is the link and instructions to the online application: **https://kcspermit.jllrpg.com**

Thanks,

Denise Case
Transaction Manager
Jones Lang Lasalle (JLL)
Rail Practice Group
4200 Buckingham, Suite 110
Fort Worth, Texas 76155
tel 1+8172302600 direct 1+8172302614
denise.case@am.jll.com
www.joneslanglasalle.com

THE KANSAS CITY SOUTHERN RAILWAY COMPANY

GUIDELINES FOR THE DESIGN AND CONSTRUCTION OF RAILROAD OVERPASSES AND UNDERPASSES

MAY 2008

GUIDELINES FOR THE DESIGN AND CONSTRUCTION OF RAILROAD OVERPASSES AND UNDERPASSES

Table of Contents

Section I

Design and Construction of Underpass Grade Separation Structures

Section I
Design and Construction of Underpass Grade Separation Structures

Table of Contents

Purpose and Scope

The intent of this guideline is to inform public agencies, design engineers and contractors of KCSRC's current standards and requirements concerning design and construction of grade separation underpass structures.

Design criteria shall not be less than required by the latest edition of the American Railway Engineering and Maintenance-of-Way Association's (AREMA) *Manual for Railway Engineering*. The KCSRC *Railroad Construction Guidelines* are not all inclusive and KCSRC requirements may be revised at any time by KCSRC.

Prior to any review submittal, KCSRC shall receive authorization from the agency agreeing to pay all of KCSRC's review and field-observation costs for the design and construction phases of the project.

Continuity of safe rail operations shall be required for the duration of the project and construction work shall in no way impede the train operations of the KCSRC.

The specific requirements addressed in this document should be followed for structures on which the KCSRC operates regardless of whether it is maintained by KCSRC or by others. Compliance with these requirements will help to expedite the completion of design and construction reviews.

Designs of all public works projects shall be prepared either by the engineering staff of that agency or a consulting engineer who has been approved by both KCSRC and that public agency. All final design documents shall be sealed by licensed professional engineers responsible for the design.

Selection of consultants shall be limited to those who are familiar with the design of railroad bridges, and particularly, with the special requirements and operating conditions of the KCSRC.

Public Agency or their representative shall provide information requested on attached data sheet to the Manager of Contacts in the preliminary stages of the project. See Data Sheet, Appendix A.

This guideline supplements the applicable sections of the American Railway Engineering Association (AREMA) Manual of Recommended Practice in connection with the design of ballast deck railway bridges.

1. Structure Selection Criteria

1.1. Grade separation underpass structures shall be ballast deck type structures. Open deck type structures shall not be used as permanent structures. Open deck type structures can be used only for temporary structures built in conjunction with shoofly construction.

1.2. When possible, simple span structures should be used.

1.3. Continuous spans deck or through truss type structures are to be avoided.

1.4. Through type post-tensioned structures, simple or continuous, are not acceptable.

1.5. Grade separation structures may require inside guard rail. Refer to Appendix B, KCSRC Standard Drawing No. 005098 (Double Inside Guard Rail) for details and requirements.

2. List Of Preferable Underpass Structures

Following is a list of underpass structures preferable to KCSRC in priority order. The KCSRC will require the most preferred alternative in all cases, unless the agency can provide sufficient reasons for proposing a less preferred alternative.

2.1. Steel plate girders, simply supported, with cast-in-place concrete deck. See Dwg. 005082, Appendix B.

2.2. Rolled beams, simply supported, with cast-in-place concrete deck. See Dwg. 005083, Appendix B.

2.3. Pre-stressed concrete box girders single or double cell, simply supported. See Dwg. 005084, Appendix B.

2.4. Pre-stressed concrete "AASHTO" type girders with cast-in-place concrete deck, simply supported. See Dwg. 005085, Appendix B.

2.5. Cast-in-place concrete box girders conventionally reinforced, simply supported. See Dwg. 005086, Appendix B.

2.6. Post-tensioned concrete box girders, simply supported. See Dwg. 005087, Appendix B.

2.7. Through type simple supported steel girder spans with concrete or steel deck will be considered by KCSRC when conditions preclude any other solution. See Dwg. 005088 or 005089, Appendix B.

2.8. Grade separation underpass structures of deck or through truss design are not preferable. However, in unusual circumstances, they will be considered by KCSRC if conditions preclude the use of any other type of structure.

3. Access to Underpass Structure

For all grade separation underpass structures, an access roadway or bridge maintenance structure shall be provided for KCSRC off-track maintenance equipment.

Access roadway with a turnaround shall be designed and constructed in conjunction with the grade separation bridge structure. Turnaround pad shall start no further than 30 ft. from the end of bridge structure and with embankment shoulder 60 ft. minimum from centerline of track. Roadway grade should not exceed 10% and shall terminate at the sub-ballast elevation. Roadway shall have sufficient width to provide for one 15-ft. wide road, drain ditch and shoulder. Roadway and turnaround shall be constructed on compacted material and have a 12-inch thick minimum base and 6-inch thick A.C. pavement. Turnaround pad and roadway shall be sloped to drain away from track sub-grade and dispose water to drainage system or existing right-of-way ditches. All down slopes of turnaround pad and roadway shall be protected with A.C. curbs to prevent embankment erosion.

Bridge maintenance structure may be part of the railway supporting structure or a completely separate structure. If bridge maintenance structure is part of the main railway structure, the

structure shall be designed for E-80 load to accommodate any future track needs or modifications. If bridge maintenance structure is totally separate structure, it shall be designed for HS20-44 live load. The bridge maintenance width shall accommodate one 12-ft. paved lane with curbs and railing. Deck of bridge structure shall be concrete with 6 inches thick A.C. pavement. Bridge deck shall provide curbs, railing, drainage, and joint seals as required. Pavement of deck shall extend 20 ft. past the end of the structure and be placed over a 12-inch thick minimum base.

Access roadway with turnaround or bridge maintenance structure shall be shown in the preliminary plans and complete design shall be included in all subsequent submittals.

4. Specifications

4.1. Design Specifications

Underpass grade separation structures shall be designed and constructed in accordance with guidelines stated in this document and the most current edition of the American Railway Engineering and Maintenance-of-Way Association, Manual for Railway Engineering (AREMA).

Separate bridge maintenance structure shall be designed and constructed in accordance with the current edition of the American Association of State Highway and Transportation Officials (AASHTO) standard specifications for highway bridges.

4.2. Construction Specifications

Technical specifications for bridge construction shall comply with the following:

4.2.1. AREMA Specifications for Fabrication and Erection of Structural Steel (Chapter 15)
4.2.2. AREMA Specifications for Concrete Structures and Foundations (Chapter 8)
4.2.3. AREMA Specifications for Waterproofing (Chapter 29)
4.2.4. The Standard Specifications of the State's Highway Department or local agency responsible for the design and construction of highway bridges
4.2.5. Standard Specifications of Public Works Department
4.2.6. American Association of State Transportation and Highway Officials (AASHTO)
4.2.7. KCSRC Railroad Construction Guidelines: *"Design and Construction of Underpass Grade Separation Structures"*, *"Bridge Demolition and Removal Plans for Structures over Railroad"*, *"Design and Construction of Overpass Grade Separation Structures"*, and *"Design and Construction of Shoring Adjacent to and on Railroad Right-of-Way"*.

5. Units

Grade separation underpass projects that require the use of metric units shall indicate all controlling dimensions, elevations, design criteria assumptions, and material stresses in dual units. English units are to be in parenthesis. Controlling dimensions refer to length of structure, span length, and thickness of all deck elements. Controlling elevations refer to top of rail, rail profile, bridge seats, and footings. Design criteria or assumptions refer to live load, design speed etc.

6. Bridge Layout

The following items shall be considered and adequately addressed in the layout of the grade separation underpass structure:

6.1. Layout of underpass structures shall indicate the limits of the Railroad right-of-way, exact locations of all existing and proposed overhead/underground utilities, pipeline locations, fiber optic locations, proposed drainage, proposed construction sequences including layout details for any temporary bridge structure such as shooflys etc at the entire project area. All construction must be scheduled to minimize the amount of track interference during construction.

6.2. NO utility attachments will be permitted on the new structure. Existing or future fiber optic lines shall be placed underground and away from bridge structure.

6.3. One new utility application permit application shall be submitted by the respective utility company when proposing a new crossing or relocating an existing line or abandoning an existing line. Relocation of any existing utilities must be performed by the owners of said utility at no cost to KCSRC. The public agency requesting the underpass structure from KCSRC shall be solely responsible for coordinating with these utility companies for all utility associated with the construction of the underpass structure.

6.4. Minimum longitudinal grade of 0.2% on structure shall be provided for drainage purposes. Designer may provide drainage toward one end of structure or, when structure length is excessive, provide adequate deck grades to drain the structure to both ends. If the top of rail grades remain constant over the length of structure, the depth of ballast may be varied but should be taken into account in the design.

6.5. For bridges located within a curve, the girders, abutments and piers shall be located with reference to chords.

6.6. Vandal fencing shall be provided on all underpass structures in urban areas and on underpass structures in rural areas where pedestrian traffic pattern, past history of vandalism, or other conditions near the project site may warrant.

6.7. Sloping embankments in front of abutments shall be paved.

6.8. The distance from the centerline of bridge to the nearest railroad milepost and to a nearest existing permanent railroad structure, like bridge, culvert, diamonds, etc shall be shown on the plans in a conspicuous manner.

6.9. Structures having multiple tracks shall be designed to accommodate any future shifting or relocation of track. Longitudinal members are to be evenly spaced, with no less than two support members per rail.

6.10. Cantilever-type abutment stems shall be at least 0.2H in thickness at the base.

6.11. Columns shall be at least 0.2H in thickness at the base.

6.12. Floor beams shall be a minimum of 21 inches in depth

6.13. The year of construction shall be shown at the face of back-wall. Numbers shall be embedded into the concrete and shall be 6 inches tall.

7. Skew of Bridge

The preferred angle of roadway crossing and bridge structure relative to the centerline of track is 90 degrees. However, in cases where a 90-degree crossing cannot be obtained, the maximum skew of bridge structure from 90 degrees shall not exceed the following for various types of structures:

Type of Structure	Skew in Degrees
Steel spans with concrete deck (Beams, Deck Girders, Through Girders)	30 degrees, max.
Pre-stressed concrete with concrete deck (AASHTO Beams)	30 degrees, max.
Pre-stressed concrete box girders	15 degrees, max.
Cast-in-place box girders conventionally Reinforced or post-tensioned	20 degrees, max.
Through-type pre-stressed girders	15 degrees, max.

Information on the alignments of roadway, bridge piers, and abutments as required to comply with the above maximum skew limitations.

Transverse tie rods in end blocks and interior diaphragms should be in the direction of skew. Multiple, pre-stressed concrete girders shall be bonded together with epoxy or grout. In addition, transverse tie rods shall be installed through the end blocks and interior diaphragms. See drawing 005090, Appendix B.

Where conditions preclude any other solution, the skew proposal will require special structural consideration and proof of adequacy. Skews in excess of 15 degrees are not permitted for continuous structures.

At the ends of a skewed bridge, support slabs shall be provided for each track. Ends of track slab shall be perpendicular to the centerline of the track and be 12 ft. minimum width placed symmetrically to the centerline of the track. Length of track slab shall be 12 ft. minimum beyond the back face of back wall as measured along track centerline.

8. Vertical Clearances

Underpass structures shall be designed and provide sufficient vertical clearances and protective devices to ensure that structure will be protected from oversized and unauthorized high loads. Designers and public agencies shall comply with the following vertical clearances;

Structure Over	Steel	Concrete
Freeways	16.5 ft.	17.5 ft.
Designated arterial routes	16.5 ft.	17.5 ft.
Local roads and streets	15.5 ft.	16.0 ft.
Rural roads	15.0 ft.	15.5 ft.
Pedestrian under crossing (no vehicles)	8.0 ft.	8.0 ft.
Recreational roads	12.5 ft.	12.5 ft.

All concrete structures in above table except pedestrian under crossing without vehicular traffic shall be protected with collision impact devices installed over the full width of traveled lanes and attached to the bridge soffit. All structures with vertical clearances less that 17.5 ft. shall be protected with a steel sacrificial beam. Sacrificial beam shall be installed a minimum of 5 ft. ahead of the collision impact device or ahead of the main supporting member and shall not carry railway loads. Sacrificial beam shall be of steel shape (wide flange or tubing) and of sufficient strength to limit horizontal deflection to 6 inches caused from the impact from oversized vehicle or load. Additionally, it shall be anchored sufficiently to bridge seat at an elevation of at least 6 inches below the bridge soffit. For more details see drawing 005097, Appendix B.

If resurfacing or any other activity is to be performed below the underpass structure, the owner of the roadway must submit a request for approval from KCSRC. This request must provide the existing **measured** and posted clearances of the structure and the proposed configuration after work is completed.

The owner of the roadway shall be responsible of posting and maintaining structure sign clearances and any advance street notifications as required.

9. Design Loads

9.1. Underpass bridge structures shall be designed for all loads specified in Chapters 8, 9, or 15 of the AREMA Specifications. The design of underpass structures shall also comply with the seismic criteria of the current edition of AREMA, Chapter 9 – *Seismic Design for Railway Structures.*

9.2. Live Load and Impact as specified in the AREMA Specifications.

9.3. All underpass structures shall be designed for a maximum thirty (30) inches of ballast (top of deck to bottom of tie) to account for future track raises. Structures shall be constructed to the required grades with the minimum depth of ballast under the tie of eight (8) inches for timber, and twelve (12) inches for concrete.

9.4. Under normal working loads, composite action may be expected between a concrete deck and its supporting steel members, when shear transfer devices are used. The bottom of the deck slab shall be placed at least one inch below top of supporting steel members. For design purposes, the supporting steel member shall be proportioned to carry E65 live, impact, and dead loads without taking into account any composite action, and E80 live, Impact, and dead loads taking into account composite action. Composite action may be taken into account when satisfying the deflection-length ratio requirement of Chapter 15; Article 1.2.5 of the AREMA Specifications provided shear transfer devices are installed.

9.5. Live load distribution for pre-cast pre-stressed single or double cell boxes shall be in accordance with Part 2, Reinforced Concrete Design, Article 2.2.3.c(1) of the AREMA specifications. Live load shall not be assumed to be distributed to the number of boxes supporting the tracks. For multiple track structures, live load shall be distributed based on the assumption of the track being in any location.

10. Special Requirements for Pre-cast, Pre-stressed Box or AASHTO-type Girders

10.1. Box-shaped (single or double void) or AASHTO-type pre-cast pre-stressed girders for all spans shall be designed with end and interior diaphragms. Interior diaphragms shall be spaced equally across the span length. Provide diaphragms as follows for various span lengths:

SPAN IN FEET	NUMBER OF INTERIOR DIAPHRAGMS
35-50	1
51-75	2
Over 76	3

Above number of diaphragms per span is minimum required. The definite number to be considered in each case depends on the particular design, span lengths, member rigidities, etc. Diaphragm spacing should not exceed 25 ft. center to center.

10.2. Transverse tie rods shall be installed at the end and each interior diaphragm. Minimum size of tie rod to be 1-1/4 inches in diameter. Tie rod to be protected in one of the following ways:

10.2.1. Rod, plates and nuts shall be hot dip galvanized per ASTM A123 and A153.

10.2.2. All assembly parts left plain, but void between rod and hole to be pressure grouted. Tie rod anchor assembly shall be recessed into the concrete and shall have one (1) inch minimum grout cover.

10.3. Strands at the ends of pre-cast pre-stressed members shall be cut one (1) inch minimum into the member and the resulting recessed pocket filled with grout.

10.4. For AASHTO beams, it is preferable that the designer provide eighteen (18) inches minimum gap between bottom flange of beams to accommodate inspections and repairs.

10.5. The keyway for pre-cast concrete box girders shall be bonded with high strength epoxy or non-shrink cementitious grout. Strength of epoxy or grout to be at least equal to the strength of concrete member being bonded. For details see drawing 005090, Appendix B.

11. Special Requirements for Post-Tensioned Concrete Structures

All post-tensioned structure ducts shall be bonded (grouted).

11.1. Simple Spans

11.1.1. Post-tensioned simple spans shall be designed such that a minimum compressive force of 100 psi is maintained in the topmost regions of the element, and to maintain a minimum compressive force of zero in the lower most regions of the element. At no time either during construction or under any load configuration shall these minimum requirements be violated. In addition, there shall be sufficient straight tendons top and bottom to produce a uniform compression of 200 psi over the cross-section. Pre-stress can be

applied in a single stage for spans 80ft. and under, stressing the straight tendons first, sequentially alternating between top and bottom tendons to maintain a uniform stress pattern over the cross-section, then continuing stressing operations on the draped tendons until all post-tensioning is complete.

11.1.2. Simple spans over 80 ft. in length shall be pre-stressed in two stages. The first stage of post-tensioning shall be applied when the most recent concrete has attained a minimum compressive strength of 1500 psi as determined by compression cylinder tests and shall consist of tensioning the straight tendons, alternating sequentially between top and bottom tendons, to maintain a relatively uniform compression of 200 psi over the cross-section. The second stage of post-tensioning shall be the application of the remaining portion of design pre-stress force when he last placed concrete reaches the minimum compressive strength as required at transfer by the AREMA Specifications.

11.2. Continuous Spans

11.2.1. Post-tensioned, continuous structures shall be designed for a minimum compressive force of 200 psi in the topmost regions of the element, and 50 psi minimum compressive force at lowermost regions of the element in the positive moment regions of the structure. In the negative moment regions of the structure, the requirement will be reversed such that a minimum compressive force of 50 psi will be required in the topmost regions of the element and a minimum compressive force of 200 psi in the lower most regions of the element. These minimum compressive force requirements must be maintained during any stage of construction or any loading case.

11.2.2. Cast-in-place, continuous, post-tensioned structures shall have sufficient straight tendons placed both in top and bottom fibers to produce a calculated uniform compression over the entire section of 200 psi. The pre-stress in the straight tendons (1^{st} stage pre-stress) to be applied when the most recent and final concrete has reached a minimum compressive strength of 1500 psi as determined by compression cylinder tests. The stressing of these straight tendons shall be applied by alternating sequentially between top and bottom tendons to maintain a relative uniform stress as possible over the cross-section during the post-tensioning operations. The second stage shall be the application of the remaining portion of design pre-stress force when the most recent concrete reaches the minimum compressive strength as required at transfer by the AREMA Specifications.

11.2.3. The above procedures are to be applied in conjunction with a concrete placement schedule for the structure in which the positive moment regions are placed first and the negative moment regions are placed second. This two-stage procedure applies to spans 100 ft. or less. Placement schedule shall be three-stage for longer spans; positive moment regions to within four (4) ft. of inflection point first; negative moment regions to within four (4) ft. of inflection point second; and closure section eight (8) ft. long at the inflection points last. On the longer spans it may be required to subdivide the sequence steps into placement sections depending on the structure type and amount of non-pre-stressed reinforcement used to control shrinkage cracking. For each stage of concrete placement, the entire structural cross-section shall be completed before moving to the next stage. When casting

the stage over supports, the concrete placement shall proceed from the outer ends to the support.

11.2.4. The radius of curvature for any post-tensioning duct must not be less than 60 ft.

12. Material Requirements for Steel Structures

12.1. Thickness of structural steel (except for fillers) shall not be less than 0.335 inch thick. Parts subject to corrosive influences shall be of greater thickness than otherwise specified or steps taken to protect same against such influences.

12.2. The thickness of gusset plates connecting the chords and web members of a truss shall be proportional to the force being transferred but not less than ½ inch.

12.3. Minimum size of high strength bolt for bolting structural members shall be 7/8-inch diameter.

12.4. The allowable bearing pressures as contained in AREMA Chapter 19 are to be used for steel superstructure bearing on concrete substructure.

12.5. All facture critical members shall be designated as FCM in the plans. Fracture critical members shall be designed for a minimum service temperature of –30 degrees F corresponding to Zone 2.

12.6. Designer shall provide details such that all exposed parts will be accessible for inspection, cleaning and painting. Preferably not less than 18 inches clear shall be provided between the flanges of parallel lines of beams having depths in excess of 38 inches.

12.7. All designs must provide drain holes for pockets or depressions that may hold water so that steel areas drain effectively. Structural members shall not be sealed by welding except as approved by KCSRC.

13. Painting of Steel Structures

KCSRC prefers the use of weathering or galvanized steel. In cases where weathering or galvanized steel is not used, steel structures must be painted.

Painting of steel structures shall comply with the requirements of current AASHTO specifications and recommendations of Steel Structures Painting Council Manual (SSPC).

Paint shall be applied in accordance with the manufacturer's recommendations or in compliance with the recommendations of SSPC, whichever is most restrictive.

Painting system including primer and top coats shall be submitted by the agency for review and approval by the Chief Engineer.

Painted structures must be maintained by agency proposing the underpass at no cost to KCSRC.

14. Ballast Deck Bridge Structure

For typical cross section of superstructures, see Dwgs. 005082 - 005090, Appendix B.

14.1. Deck Width

For single track bridge structures, the width of the deck shall be not less than 17ft. wide for tangent track and 18ft for track on curve measured from inside face of parapet to inside face of parapet. The clear distance from centerline of track to inside face of parapet shall not be less than 9'-0" for tangent track and 9'-6" for track on curve. For multiple tracks, an allowance of 20 ft. shall be provided for each additional existing or future track measured center to center of tracks.

14.2. Curb Height:

The top of ballast curb or walkway shall be approximately the same elevation as the base of highest rail plus eight (8) inches to accommodate possible future track raises.

14.3. Walkway:

In general, walkways shall not be less than 3 ft. wide. Ballast structures do not require walkway in most cases. Structural members (such as floor beam knee braces) shall not be considered an obstruction to the walkway.

Walkways on bridges over highways or other locations where spillage of ballast or lading is possible, they shall be constructed of solid material and a curb or toe board shall be provided. The clear distance from centerline of track to ballast retainer for bridges with walkway shall be 6'-6" minimum.

To prevent cracking under live loads, provide ¼ -inch wide joints at 10-ft. maximum spacing on concrete curbs, walkways, and ballast retainers.

14.4. Handrail:

Handrails shall be provided on both sides of deck. Horizontal clearances from the centerline of the nearest track shall not be less than 9'-0" for tangent track, and 9'-6" for track on curve. Handrails shall be simple designs that require minimum maintenance. KCSRC recommends the following types of handrails:

14.4.1. Chain link fencing. See Dwg. 005091, Appendix B
14.4.2. Tubular style fencing. See Dwg. 005092, Appendix B
14.4.3. Picket style fencing. See Dwg. 005093, Appendix B

Variations from the above suggested fencing shall be submitted for approval by KCSRC

14.5. Depth of Ballast:

The depth of ballast under the lowest rail shall be eight (8) inches minimum for timber ties and twelve (12) inches minimum for concrete ties. Structures shall be designed to accommodate thirty (30) inches of ballast for future track raises measured from top of deck to bottom of tie.

14.6. Drainage:

The top of concrete ballast trough for steel beams or multiple girders shall be sloped transversely not less than 1%. Low points on top of the trough shall be located not less than 6'-0" from the centerline of any track and shall be within the outside beams or girders. A longitudinal collection system shall be provided to dispose of drainage without permitting it to enter the ballast section and backfill beyond the limits of the bridge structure.

All concrete ballast troughs shall be sloped transversely not less than 1%. A longitudinal collection system shall be provided on top of waterproofing along the face of parapet or curb to drain water. Longitudinal drains shall be connected to the storm drain system or properly discharged at the toe of embankment slopes. See Dwg. 005094, Appendix B, for details.

If an approach grade descends toward the bridge, drainage from the approach shall be intercepted by appropriate means so that it will not drain onto the bridge.

14.7. Waterproofing and Protective Panels:

Waterproofing and protective panels shall comply with the recommendations of Chapter 29 of the AREMA Manual. The waterproofing shall be one layer of Butyl Rubber or EPDM membrane and shall be bonded to the bridge deck with adhesive applied to the entire surface in accordance with the recommendations of the membrane manufacturer. Butyl Rubber or EPDM membrane shall be 0.06" thick minimum. Field splices shall be the tongue and groove type per AREMA Chapter 29, Part 2, detail No. 3 Figure 2-2. Protective asphaltic panels shall be in two layers with total thickness not less than ¾ of an inch and shall be laid with joints staggered. Protective panels shall be bonded to the membrane and to each other with the same adhesive used for bonding the membrane and be compatible to materials. For waterproofing details see Dwgs. 005095 and 005096, Appendix B.

15. Abutments

The abutments shall be designed in accordance with the recommendations of Chapter 8, Part 5 of the AREMA Specifications. The Abutments shall be wide enough to satisfy KCSRC standard roadbed shown on Drawing 005099, Appendix B. For multiple track bridges, the abutment width shall be sufficient to provide for standard shoulder, plus 20ft. for each existing or future track.

Wing walls shall be designed to support 2:1 embankment slopes.

Handrails for ballast trough shall be returned on the back wall and/or wing walls.

Provide a minimum edge distance of six (6) inches from edge of the masonry plate or bearing to edge of concrete.

The top of the abutment seat should be sloped in order to facilitate drainage. If weathering steel is used for superstructure, details on top of abutment seat should indicate method of collecting and disposing of water without staining concrete surfaces.

16. Piers

Provide a minimum edge distance of six (6) inches from edge of masonry plate or bearing to edge of concrete.

Provide a minimum of 18 inches beyond the outside edge of outermost masonry plate or bearing to end of the pier.

Single column piers should not be considered for underpass structures. Piers with a minimum of two columns should be provided. A solid pier wall with minimum of four (4) ft. thickness is preferable.

Slope top of pier to drain. If weathering steel is used for superstructure, details on top of pier seat should indicate method of collecting and disposing of water without staining concrete surfaces.

Bridge piers adjacent to roadways shall be protected from vehicular traffic as required per AASHTO and States DOT standards.

17. Structure Separation

In order to satisfy maintenance requirements, parallel structures shall have a minimum separation of five (5) ft.

18. Drainage

Maintaining the existing drainage and providing for future drainage improvements is of the utmost importance. Existing track ditches must be maintained at all times.

Drainage plans must be included with the general plans submitted to KCSRC for approval. These plans must include hydrologic computations, indicating the rainfall intensity and duration of the design storm used, as well as the method of analysis. All designs shall be based on 100 (one hundred) year rainfall events.

Where project design calls for an increase in the flow through the railroad embankment, the flow shall be handled by means of separate drainage structures.

When the proposed construction will change the quantity and/or character of flow in the track ditches, the ditches shall be modified as required to handle the drainage. Ditches shall be designed in accordance with good engineering practices. A 50 and 100-year event study will be required along with the water surface elevations.

Approval of the drainage plan does not relieve the submitting agency and/or designer of ultimate responsibility and liability for a satisfactory drainage design.

19. Sequence of Construction

It is essential that the construction be performed with a minimum interference with rail traffic. **Continuity of safe rail operations will be required for the duration of the project.**

The most effective method of maintaining traffic is to temporarily re-route rail traffic around construction site using detour tracks. Shoofly shall be designed to comply with current rail operations and existing conditions. Designer shall submit shoofly design for review by KCSRC in the early stages of project design. Minimum of two (2) sets of plans are required.

The use of shoofly for construction of permanent structure will minimize the traffic interference with the railroad operations; however, if construction requires interruption of rail traffic or track time windows this shall require the approval of the KCSRC No design should advance without such approval. Prior to start of any construction on Railroad's right-of-way, written approval permits shall be secured from Contracts and Real Estate Department.

The agency should contact the Manager of Contracts in the preliminary design stages of design to determine the Railroad's operational requirements.

20. Construction Excavation

Excavations for construction of footings, piers, columns, walls or other facilities shall be designed and constructed in accordance with KCSRC Railroad Construction Guidelines, *Design and Construction of Shoring Adjacent to and on Railroad Right-of-Way*.

21. Erosion Control

The general plans for the bridge shall indicate the proposed methods of erosion control and must specifically address means to prevent silt accumulation in the ditches and culverts and to prevent fouling the track ballast, sub-ballast and existing drainage system. If the plans do not show erosion control, the contractor must submit a proposed method of erosion control and have the method approved by the office of the Chief Engineer prior to beginning any grading on the project site.

Existing track ditches shall be maintained at all times throughout the construction period. After the construction has been completed, all erosion control devices must be removed, all deposits of silt removed, and ditches restored.

Agency or Contractor shall furnish to Railroad all copies of Storm Water Pollution Plans and approved permitting if required.

Approval of the erosion control plan does not relieve the submitting agency and/or designer and contractor of the ultimate responsibility and liability for a satisfactory erosion control plan.

22. Construction Management Team Requirements

For construction of grade separation underpass structures, an experienced Construction Management Team will be required during the construction of bridge structure. Public agencies with qualifying bridge structure staff that can be placed on site during the construction shall be acceptable; otherwise, a qualifying outside team must be obtained.

The following are the minimum requirements for the Construction Management Team:

22.1. Agency to submit names of personnel to be used in the project and their assigned duties.

22.2. Provide list of projects for each person that has actively worked on including bridge structures (highway or rail), underground facilities and drainage structures.

22.3. Provide verifiable list of employment including a current resume for each person in the Construction Management Team.

22.4. Minimum personnel for Construction Management Team for a typical grade separation underpass structure will consist of:

22.4.1. Project Manager

22.4.2. Resident Engineer – The resident engineer for the project shall be a registered Civil Engineer with minimum 5 years experience in the field of bridge construction work.

22.4.3. Construction Inspector – Construction inspector to be familiar with concrete and steel construction and have current certifications in the fields that he will be inspection.

22.5. All field members of Construction Management Team are required to have passed the KCSRC Track Safety and Bridge Fall Protection class.

22.6. All submittals by the contractor shall be reviewed by the management team and then submitted to the project Design Engineer. After review is completed and found satisfactory by the Design Engineer, material shall be submitted to the Railroad for further review and comments (Reference the section titled Review Submittals). No work shall be performed inside the Railroad right-of-way without prior review by the Railroad.

23. Review Submittals

Submittals for design and construction of Grade Separation projects shall be coordinated and submitted through the Manager of Contracts. To expedite reviews, submittals must be complete, clearly explained and orderly. Design review for underpass structures will be done by KCSRC and/or through an outside consultant at the expense of the owner. Prior to any review, KCSRC shall receive written authorization from the agency agreeing to pay all review costs for the design and construction phases of the project. Once such an agreement is established, KCSRC will request and secure a proposal from an outside consultant to cover review expenses. Review expenses shall include all costs for in-house personnel and/or consultants retained by the Railroad. This estimated cost of Plan Review and the construction monitoring phase of the project shall be provided to the submitting agency for review and approval. Once KCSRC received the submitting agency's written acceptance of the estimated cost, the review of plans can begin. If, during the review process, the estimated costs are determined to be insufficient to cover said costs, the owner will be advised. The original estimated costs will not be the upper limit of the costs, but will provide a guideline for budgeting purposes. Regardless, all reasonable costs incurred during the plan review process and construction monitoring phase of the work will be fully recoverable from the agency.

23.1. Preliminary Plan Submittal

Preliminary conceptual underpass bridge plans shall include the following:

23.1.1. Plan view of proposed bridge structure and location of all existing facilities and utilities within the Railroad Right-of-Way. Plan view to indicate the span lengths, the alignment and skew angle of abutments and piers, site drainage, etc.

23.1.2. Elevation view indicating the abutment and pier elevations, track elevation to top of rail existing and proposed, minimum vertical clearance above roadway, footing elevations, type of footings, location of existing and/or relocated utilities, site drainage, etc.

23.1.3. Typical superstructure cross section showing deck and pier outline, if applicable, horizontal and vertical dimensions of deck structure, rail and ballast structure, waterproofing material, deck drainage, track spacing, horizontal clearances, railing, etc.

23.1.4. Existing and proposed track profile at the bridge location and at least 1000 ft. past the bridge ends.

23.1.5. Existing and proposed alignment including the proposed shoofly alignment design data.

23.1.6. General notes to indicate structure design criteria, construction methods, material compliance specifications, and construction sequencing.

23.1.7. Plans shall identify and specify the relocation of all utilities.

23.1.8. Bridge general plan shall show the location of shoofly, where needed, and indicate the footprint of structure in relation to centerline of shoofly. Minimum distances and location of shoring if required shall be shown on the general plan.

23.1.9. The presence of existing or proposed fiber optic cables on Railroad right-of-way shall be considered in the project design, and appropriate measures for the installation and protection of the fiber optic cables shall be addressed in the plans and contract documents.

23.1.10. Preliminary Submittal Procedure.

Two (2) sets of preliminary plans shall be submitted to the Manager of Contracts. Allow two (2) weeks for in-house review by the Director of Engineering. The Manager of contracts will then forward the plans along with the comments of the KCSRC to the outside consultant for review. Allow an additional three (3) weeks for review by the outside consultant once the plans are received.

23.2. 60% Plan Submittal

Submittal of 60% plans shall include a minimum of the following:

23.2.1. Complete design of superstructure and substructure

23.2.2. Bridge details

23.2.3. Bearing Details

23.2.4. Deck and waterproofing details

23.2.5. Geo-technical reports/recommendations should be submitted with professional seals and signatures.

23.2.6. Complete set of structural calculations shall be made available at the time of the submittal. Computer run output or data sheet calculations shall be supplemented with sample calculations and clearly defined sketches. All assumptions shall be clearly indicated. Structural calculations should be submitted with professional seals and signatures.

23.2.7. Hydraulic calculations if drainage is affected. Hydraulic calculations submitted should be submitted with professional engineer's seal and signatures.

23.2.8. Complete shoofly design, where needed.

23.2.9. Final construction sequence.

23.2.10. 60% Submittal Procedure:

Two (2) sets of 60% plans, two (2) sets of structural calculations, and two (2) sets of soil reports shall be submitted directly to the outside consultant for review. A copy of the letter submitting the plans will be sent to KCSRC. The consultant and Design Engineer will be free to communicate and resolve all design issues. Outside consultant will review and reply directly to the agency or its representative after consultation with KCSRC. Copies of all correspondences between KCSRC's outside counsultant and the agency or its representative shall be furnished to KCSRC. Correspondences via emails are preferred to expedite the exchange of information and followed up with hard copies. The KCSRC's approval of this phase varies depending on the extent of reviews and the required revisions to be done by the Agency.

23.3. 90% Submittal

Plans for 90% submittal shall include the following:

23.3.1. Revisions to plans and calculations as dictated by review of the 60% submittal. Revisions to plans and calculations should be resubmitted with professional seals and signatures.

23.3.2. Project Special Provisions

23.3.3. 90% Submittal Procedure:

Two (2) sets of 90% plans, two (2) sets of structural calculations, and two (2) sets of soil reports shall be submitted directly to the outside consultant for review. A copy of the letter submitting the plans will be sent to KCSRC. The consultant and Design Engineer will be free to communicate and resolve all design issues. Outside consultant will review and reply directly to the agency or its representative after consultation with KCSRC. Copies of all correspondences between KCSRC's outside counsultant and the agency or

its representative shall be furnished to KCSRC. Correspondences via emails are preferred to expedite the exchange of information and followed up with hard copies. The KCSRC's approval of this phase varies depending on the extent of reviews and the required revisions to be done by the Agency.

23.4. Final Submittal

Final submittal shall include:

23.4.1. Plans signed and sealed by professional registered project engineer in the state of the project.

23.4.2. Final calculations will be signed and sealed by professional registered engineer in the state of the project

23.4.3. Final signed hydraulic calculations

23.4.4. Final signed special provisions

23.4.5. Final Submittal Procedure:

Two (2) sets of 100% ***signed*** plans, two (2) sets of ***signed*** structural calculations, two (2) set of ***signed*** hydraulic calculations, and two (2) sets of ***signed*** special provisions shall be submitted. All material shall be submitted directly to the outside consultant for review. A copy of the transmittal letter will be sent to KCSRC. Consultant and Design Engineer will be free to communicate and resolve all remaining design issues. When review is complete, the consultant shall advise the agency or its representative that all issues have been addressed satisfactorily and recommending the release of structure for construction. The consultant shall forward two (2) sets of all final documents to the KCSRC for the final review by KCSRC. After the Contract is in place for the structure, the project shall be released for construction.

23.4.6 ROW Easement Agreement and Construction & Maintenance Agreement

The Construction & Maintenance Agreement is KCSRC's authorization to the Agency for the actual construction and future maintenance of the structure. The terms of this agreement will determine the methodology of the work required. This agreement will be coordinated by the KCSRC's engineering department.

After the final plans are approved, the agency and KCSRC will sign the ROW Easement agreement for the roadway under KCSRC's ROW which will require monetary compensation from the Agency. KCSRC's ROW department will coordinate with the agency for the execution of this agreement. This agreement will not be executed until the Construction and Maintenance agreement is executed.

23.5. Construction Submittals

During construction of the underpass bridge structure, the Railroad requires the review of material data sheets to determine compliance with the specifications. It is required that product information for all material specified in the table below be submitted by the

agency or their representative to the KCSRC for review following their own review and approval of the material. The ***signed*** submittal will then be forwarded to the outside consultant for review. The consultant may reply directly to the agency or its representative after consultation with the Director of Engineering. During the review process, the consultant and design engineer will be free to communicate and resolve issues. Following is a list of some of the material submittals by the Agency to KCSRC. KCSRC reserves the right to request for more submittals as need be.:

ITEM	REVIEW SUBMITTAL	SETS REQUIRED	NOTES
1	Shop Drawings	2	Steel and Concrete Members
2	Bearings	2	For all structures
3	Concrete Mix Designs	2	For superstructure only
4	Rebar & Strand Certifications	2	For superstructure only
5	28-day concrete strength	2	For superstructure only
6	Waterproofing material certification	2	Waterproofing & protective boards
7	Structural Steel certifications	2	All fracture critical members
8	Test reports	2	All fracture critical members
9	Foundation Construction Reports	2	Pile driving, drill shaft construction, bearing pressure test reports for spread footings
10	Shoring Plans and Calculations	2	KCSRC Railroad Construction Guidelines, Section IV

23.6. Site Observation During Construction

In addition to the office reviews, site observations will be performed at significant milestone events during construction, including following if applicable:

23.6.1. Pre-construction meeting
23.6.2. Acceptance inspection of any shoofly structure before placing it in service.
23.6.3. Reinforcement and concrete placement for main bridge substructure and/or superstructure.
23.6.4. Steel erection for main bridge structure.
23.6.5. Post tensioning of main bridge.
23.6.6. Erection of pre-cast concrete bridge superstructure.
23.6.7. Acceptance of waterproofing (prior to placing ballast).
23.6.8. Final observation and acceptance of the bridge structure.

Site observation is not limited to the milestone events listed above; rather site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by the Railroad.

A construction schedule shall be provided to the Manager of Contracts to inform the Kansas City Southern Railway Company of the anticipated dates when the listed events will occur. This schedule shall be updated as necessary, but at least monthly, so that site visits may be scheduled by the Railroad or its outside consultant.

23.7. As-Built Submittal

The Agency or their representative is required to submit As-Built documents to KCSRC at the completion of the bridge structure prior to closing project. The following is a list of these documents.

ITEM	AS BUILT	SETS REQUIRED	NOTES
1	Design Plans	1	Final as built bridge plans only
2	Shop Drawings	1	Final plans only

As-built design and shop drawings are to be in electronic PDF format only (no paper). As-built documents shall be mailed to the outside consultant for review and comment. The consultant and outside agency can communicate directly to resolve any issues. The consultant shall send to the KCSRC the final set of as-built drawings.

Appendix A

KCSRC Underpass Grade Separation Data Sheet

Appendix A

Underpass Grade Separation Data Sheet

1. Location: _____
   City County State

2. Distance and direction from nearest Milepost to centerline of Bridge: _____

3. Railroad Subdivision: _____

4. Description of Project:

_____

_____

_____

5. Utilities on Railroad Property:

Name	*Any Adjustments Required*	*Contact Person*

6. List all the at-grade crossings that will be eliminated by the construction of this grade separation:

DOT#	Milepost	Signalize?

7. How many spans are proposed: _____

8. Offset to temporary detour alignment _____

_____

9. Temporary detour alignment: _____
On Embankment, Trestle or Both

10. Drainage: (Describe how drainage from roadway is handled)

_____

_____

_____

_____

_____

_____

_____

Describe How drainage from Bridge is Handled:

_____

_____

_____

_____

_____

11. Scheduled Letting Date: _____

ALL INFORMATION ON THIS DATA SHEET TO BE SUBMITTED TO KCSRC.

Section II

Design and Construction of Overpass Grade Separation Structures

Section II

Design and Construction of Overpass Grade Separation Structures

Table of Contents

1. Purpose and Scope

The intent of this guideline is to inform public agencies, design engineers, and contractors of KCSRC's current standards and requirements concerning design and construction of new or modified existing grade separation overhead structures.

To avoid delays during construction, especially in corridor lines with large railroad traffic volumes, KCSRC recommends the use of prefabricated type structures that will minimize track interference and not require track outages during construction.

Design of overhead structures over corridor lines with large railroad traffic volume should include a sequence of construction, which does not require train service interruption. Agencies should consult with the Director of Engineering during the early stages of the design process to determine the operating requirements, volume of train traffic and the possibility of securing track windows for the proposed design and method of construction. If track windows are requested, the Director of Engineering shall consult with the Operating Department and submit to the Agency any arrangements for windows or schedules that are worked out during the plan submittal. **Keep in mind that KCSRC will not commit to something that it will not be able to keep in the future due to changes of traffic patterns or operation needs.**

The public agency or its representative shall provide information requested on the attached data sheet to the Manager of Contracts in the preliminary stages of the project. See Data Sheet, Appendix A.

It is recommended that the agency or its representative complete the attached Overhead Submittal Checklist and submit to the Manager of Contracts with preliminary and final plans of the Project. See Overhead Submittal Checklist, Appendix A.

The requirements addressed in this guideline should be followed for all structures over the KCSRC railroad tracks or structures constructed within the railroad right-of-way. Compliance with the requirements herein will expedite the design review approval, and construction review submittals.

2. Standard Drawings and Guidelines

Design and construction of overhead grade separation structures shall comply with the following standard drawings and guidelines:

2.1 Standard Drawings, Appendix B

2.1.1 KCSRC Dwg. No. 005103 "Barriers and Clearances to Be Provided at Highway, Street, and Pedestrian Overpasses", current issue. See Appendix B.

2.1.2 KCSRC Dwg. No. 005104 "Barriers, Fences, and Splashboards to Be Provided at Highway, Street, and Pedestrian Overpasses", current issue. See Appendix B.

2.1.3 KCSRC Dwg. No. 005105 "Typical Sections at Abutment Slope", current issue. See Appendix B.

2.2 References

The following KCSRC guidelines are separate documents and shall be used during the construction of the overhead structures as required.

Plans or special provisions of the project should refer to them or include them in the bid documents:

2.2.1 **Shoring** – "*Design and Construction of Shoring Adjacent to and on Railroad Right-of-Way".*

2.2.2 **Demolition** – "*Bridge Demolition and Removal Plans over the KCSRC Railroad."*

2.2.3 The requirements of American Railway Engineering and Maintenance –of-Way Association (AREMA) Manual of Railway Engineering, latest edition.

3. Units

Grade Separation overhead structures that require use of metric units shall indicate all controlling dimensions in dual units. English units are to be shown in parenthesis.

Controlling dimensions or elevations refer to, but are not limited to, the following:

3.1 Horizontal and vertical clearances

3.2 Track spacing, Railroad right-of-way, track stationing

3.3 Span length, width and depth of superstructure elements

3.4 Size and limits for barrier rail or splashboards, and fences

3.5 Location and elevation of underground or aerial utilities and their relocation adjustments if required

3.6 Size, elevation and location of pier or abutment footings for spans adjacent to railroad tracks

3.7 Size of structure supports (pier or abutment walls, columns)

3.8 Size and elevations of pier protection walls if required

3.9 Shoring location and their limit if required

3.10 Top of rail elevation under structure and grade profile

3.11 Size and location of drainage structures and ditches

3.12 Temporary construction vertical or horizontal clearances if required

Plans shall be rejected if required controlling dimensions are not shown or not shown properly.

4. New or Modified Structures

New overhead structures are defined as any structure being constructed over the Railroad tracks at a location where no crossing currently exists or replaces an existing at grade crossing. All new structures shall be designed to provide for one or more future tracks as required for long-range planning or other Railroad operating requirements and additional room for an access roadway. Where provisions are made for more than two tracks, space is to be provided for access roads. Designer should consult with Director of Engineering for the track requirements at each location. **The current issue of KCSRC standard drawing No. 005103 indicates only minimum requirements.**

Modified existing structures are defined as those structures being modified or replaced with a new structure. All modified structure shall comply with the applicable minimum requirements shown on the current issue of KCSRC standard drawing No. 005103, when the following modification to the structure is proposed:

STRUCTURE MODIFICATION	COMPLY WITH REQUIREMENTS FOR:
Total deck replacement	Fence, Splashboards, Lighting, if applicable
Total replacement of existing railing	Fence, Splashboards
Total replacement of superstructure	Vertical clearances, Fence, Splashboards, Lighting, if applicable
Total replacement of existing structure	Treat replacement structure as new structure
Widening deck of existing superstructure	Fence, Splashboards, Lighting, if applicable
Widening existing structure	Provide Pier projection walls if required or modify existing walls to comply with current AREMA requirements
Multiple parallel structures	Treat each structure as an individual structure

5. Permanent Clearances

It is required on all new overhead bridge structures to have all piers and abutments located outside the Railroad's right-of-way and parallel to the tracks. Piers and abutments can be located on Railroad's right-of-way if there is no other alternative. A KCS representative will determine if there is no other alternative. Permanent clearance shall comply with current issue of KCSRC standard drawing 005103, with provisions for future tracks, access roads, and drainage ditches.

Any variation of horizontal or vertical clearances shall be treated as a special case and will require approval by the Chief Engineer.

5.1 Vertical Clearances

Minimum permanent vertical clearance shall be 23'-6" above the top of rail for ALL tracks and at any location under the structure. Additional vertical clearances may be required for features beyond those shown in the standard drawing; such as correction of sag in the track, track raise, construction requirements, and future track raises (within the next five years).

Design plans shall prominently display a note stating: **"The elevations of the existing top-of-rail profile shall be verified prior to beginning construction."** All discrepancies shall be brought to the attention of the Director of Engineering and corrected prior to construction.

The minimum horizontal and vertical clearances as well as the existing clearances of structures to be rehabilitated or replaced shall be indicated on the General Plan and Elevation.

5.2 Horizontal Clearances

Layout of ALL overhead structures shall provide ample space for access roadway at least on one side of the track. For single track, design should accommodate a second track and access road. For multiple tracks, space is to be provided for access roadway on both sides and in between tracks if required by the Operating Department for servicing trains. Designer is to consult with the Director of Engineering for the requirements and location of a second track and access roadway.

Minimum horizontal clearance on tracks without access road shall be eighteen (18) ft. to the face of pier protection wall, and twenty-five (25) ft. on tracks with access road. Horizontal clearances are for tangent tracks and correspond to the perpendicular distance from centerline of the track to the face of support or pier protection wall.

The layout of proposed structure shall take into consideration the following:

5.2.1 Future tracks and their relative location.

5.2.2 Spreading of tracks on direction of spread.

5.2.3 Location of access road.

5.2.4 Location and size of drainage ditches.

5.2.5 Location of existing or relocated utilities.

5.2.6 The minimum horizontal clearance requirement is for tangent track layout. Horizontal clearances shall be increased per AREMA requirements when any part of the structure is located within eighty (80) ft of curved track.

6. Construction Clearances

6.1 Vertical Clearance

The minimum **temporary construction** clearance to any falsework part shall be twenty-one (21) ft. vertically above the highest rail. Falsework designers must check the supporting members for deflection and allow for said deflection, with a factor of safety, during erection of the falsework, construction, and the removal of falsework elements. **Dropping of falsework or any other construction material on the tracks is not permitted**.

6.2 Horizontal Clearance

The minimum **temporary construction** clearance to any falsework part shall be twelve (12) ft. from the centerline of the nearest track measured perpendicular to said track.

Temporary horizontal clearances shall be adjusted per AREMA requirements when structures are located within eighty (80) ft. of a curved track.

Greater clearances may be required for special cases to satisfy local operating conditions. Designer shall consult with the Director of Engineering for locations where additional clearance is required.

Temporary vertical and horizontal clearances shall be shown on the plans for all overhead structures.

No variation to any temporary clearances (vertical or horizontal) will be allowed without written authorization from the Chief Engineer Design.

7. Safety Barrier and Splashboards

Designers of overhead structures shall provide means of protecting Railroad facilities and to maintain the safety of employees below the structure from snow removal activities and errant vehicles.

All structures where snow removal is being performed shall have splashboards as indicated in KCSRC standard drawing No. 005103. Structures requiring snow protective devices shall have a high solid barrier railing of 3'-6" minimum height or a combination of a lower solid barrier railing and splashboard on top for a total height of five (5) ft. For details see current issue of KCSRC standard drawing Nos. 005103 and 005104, Appendix B.

A variance to the solid 3'-6" high barrier railing or splashboards which is based on not removing snow laterally from the bridge will require a clause to that effect in the agreement between the Agency and the Railroad. **Final plans shall not be approved without copy of such agreement between the Agency and Railroad.**

The limits of snow protective devices shall extend to the full length of Railroad's right-of-way or a minimum of twenty-five (25) ft. beyond the centerline of exterior track or access road. Addition of future tracks shall require the lengthening of the snow protective devices at the expense of the agency.

Standard solid barrier rail will be acceptable on structures where snow removal is not performed.

Types of barrier railing or combination of barrier railing and splashboards and their limits on the structure shall be clearly shown on the plans.

8. Safety Fences

Designers of overhead structures shall provide means of protecting Railroad facilities and the safety of their employees below from objects being thrown from above by pedestrians or passing motorists.

Fence shall be provided on both sides of ALL overhead structures. For types of fences see current issue of KCSRC standard drawings No. 005103 and 005104, Appendix B.

Designer shall provide eight (8) ft. high curved fence or ten (10) ft. high straight fence on the side of walkway and a combination of barrier rail and fence of total height of ten (10) ft. on the side without walkway.

Keep in mind that the protection and safety of rail operations and the KCSRC employees who may be working on the ground beneath the bridge is absolutely paramount. Any variance to the fence requirements above shall not be granted until the Director of Engineering consults with local Road master and his concurrence is submitted with the plans for approval.

If variance is granted, a clause in the Agreement between the Agency and the Railroad shall be included that the Agency shall provide for future installation of fencing at the Agency's expense if deemed necessary by the Railroad.

Aesthetics shall not be cause for not meeting the safety requirements.

The Chief Engineer will consider ornamental fencing with a maximum gap of four (4) inches and meeting the minimum height requirements above.

The limits of protective fence shall extend to the full-length of Railroad's right-of-way or a minimum of twenty-five (25) ft. beyond the centerline of outermost track or access road. Any addition of future tracks shall require the lengthening of the safety fences at the expense of the agency.

Types of fences and their limits shall be shown on the plans.

9. Parallel Structures

Parallel structures which are up to two (2) ft. apart shall not require safety fence or snow protective devices at their interface. Structures which are more than two (2) ft. apart shall be treated as individual structures and the required safety protective devices (barrier, splashboards, and fences) shall be provided.

10. Piers

All piers and abutment slopes shall be located so that they do not interfere with the drainage ditches or the natural drainage features of the area. Where conditions make this impractical, an explanation of such conditions shall be submitted along with the drainage plans and supporting calculations to the office of the Chief Engineer for approval.

Anticipated location of piers located within twenty-five (25) ft. from centerline of the nearest existing or future track shall be designed with pier protection wall. Excavations and shoring for foundations shall conform to KCSRC Railroad Construction Guidelines, Section IV, *Design and Construction of Shoring Adjacent to and on Railroad Right-of-Way.*

Pier footings within twenty-five (25) ft. of the nearest track centerline shall be a minimum of six (6) ft. below base of rail. This will not restrict Railroad from modifying longitudinal drainage system in the future or from providing unobstructed area for placing, signal, fiber optic lines or other buried utilities.

Drilled shafts within the influence of track surcharge shall be designed with temporary casing to protect track against cave-in, subsidence and/or displacement of surrounding ground. Casing shall be designed for live load due to the railroad surcharge in addition to all other loads.

Drilling of shafts or shoring construction for footings within the influence of track surcharge shall not proceed without the approval from the Chief Engineer. For limits of track surcharge influence refer to KCSRC Railroad Construction Guidelines, Section IV, *Design and Construction of Shoring Adjacent to and on Railroad Right-of-Way.*

11. Pier Protection Walls

Piers supporting bridges over railways and with a clear distance of less than twenty-five (25) ft. from centerline of nearest, or centerline of anticipated future track, shall be of heavy construction or shall be protected by a reinforced concrete protection wall.

Design of pier protection wall shall comply with the requirements of AREMA Chapter 8, Part 2, Section 2.1.5.1. See Commentary of this section on AREMA specifications and Figure C-1 for additional details.

In locations where tracks are on both sides of pier and are less than twenty-five (25) ft. from centerline of adjacent tracks, both sides of the pier shall be protected with protection walls.

If pier design requires column isolation, the pier protection wall shall be designed to resist the impact and redirection of equipment in case of derailment, supported on an independent footing.

All replacement or modified structures shall comply with the AREMA requirement for pier protection walls.

In locations where pier columns and protection walls interfere with drainage, openings must be provided in the wall for the drainage to ditches or drainage facilities must be provided to collect and dispose water to the drainage system. Openings in the pier protection wall must be lower than the track sub-grade elevation and must drain away from the track.

AREMA defines pier of heavy construction as: *"Piers shall be considered of heavy construction if they have a cross-sectional area equal to, or greater than that required for the pier protection wall and the larger of its dimensions is parallel to the track*". For single column, the minimum cross-sectional area is 30 square feet (12' length x 2.5' width = 30 sq. ft.). Columns with 30 sq. ft. area must have the larger dimension parallel to the track (such as 5' x 6' column with the 6' dimension parallel to the track is considered as heavy construction column). Round columns may not meet the heavy construction criteria.

12. Adjustment to Utilities

Existing underground or aerial facilities interfering with new structure shall be placed underground and away from the bridge structure. Relocation of utilities shall be performed by the owners of the utility at the sole expense of the Agency.

Relocation of non-railroad owned utilities or communication lines shall be coordinated with the owners and submitted to the KCSRC Real Estate Department for handling.

13. Abutment Slopes

To prevent embankment material from sloughing and drainage waters from undermining track sub-grade, end slopes of abutments adjacent to railroad tracks shall be protected with paved slopes.

Paved slopes shall extend two (2) ft. past the face of abutment wall and terminate with either a curb or gutter to divert runoff. Paving shall consist of a prepared sub-base and filter fabric with a minimum of four (4) inches thick reinforced concrete or grouted rip-rap placed on prepared sub-base and filter fabric. Asphalt pavement for slope protection shall be considered only if proper design and method of installation is submitted or covered in the special provisions.

Toe of slopes shall terminate at the bottom of drainage ditches and must have a cut-off wall as required to protect slope from drainage erosion.

Slope layout shall provide for a minimum drainage ditch or ditches required by hydraulic studies in the area. See KCSRC standard drawing No. 005105, Appendix B, for details. At all times, the toe of slope shall be below the finished track or roadway sub-grade and provide a ditch for positive track drainage.

If layout of abutments, piers, or columns with crash walls interfere with the drainage ditches, the designer shall provide other means of handling the longitudinal drainage issues based on the local drainage study.

Track drainage ditch limits shall be shown to scale on the project plans and show the distance from centerline of nearest track. A typical cross-section detail shall be shown on the plans depicting the intersection of slope and drainage ditch.

14. Drainage and Erosion Control from Structure

Maintaining the existing drainage and providing for future drainage improvements is of the utmost importance in layout of overhead structures.

Drainage from structure shall be diverted away from the Railroad right-of-way at all times. Scuppers from deck shall not be permitted to discharge water onto the track or roadway areas at any time. If drainage of deck uses downspouts in the columns, then they shall be connected to the storm drain system or allowed to drain into drainage ditches. Concrete splash block or aggregate ditch lining will be required at the discharge area of downspouts. Downspouts shall be behind the face of the piers and their outflows drain into drainage ditches.

If structure drainage is carried outside the Railroad right-of-way and does not change the drainage conditions within the Railroad right-of-way, then improvement of existing drainage will not be required.

If the proposed bridge structure will not change the quantity and/or characteristic of the flow in the railway's ditches and/or drainage structures; the plans shall include a general note stating so.

Drainage plans shall be included with the plan submitted for review. These plans must include hydrologic computations indicating the rainfall intensity and duration of the design storm used as well as the method of analysis. Drainage structures shall be designed for a 100-year flood event so that the water surface elevation does not exceed the track sub-grade elevation.

Where project design calls for the drainage flow to increase through the railroad right-of-way, methods must be developed to carry the additional flow.

Lateral clearances must provide sufficient space for construction of the required standard ditches parallel to the standard roadbed section.

When the proposed construction will change the quantity and/or characteristic of flow in the existing ditches, the ditches shall be modified as required to handle the increased runoff. The size of ditches will vary depending upon the flow and terrain and should be designed accordingly.

In order to evaluate the impact of the new structure relative to existing site drainage, cross sections perpendicular to the centerline of track shall be submitted along with the drainage plans. Cross-sections should be submitted to adequately depict the site condition; however, a minimum of five (5) cross sections on each side of the structure will be required at 50' intervals. The existing, or proposed, railroad ditch and the proposed toe of slope shall be shown on the applicable cross-sections.

Approval of the drainage plan does not relieve the submitting agency and/or designer of ultimate responsibility and liability for the adequacy of the drainage design.

15. Lights

Designer to provide lighting for ALL new overhead or modified structures exceeding eighty (80) ft. of superstructure width, except if such structures are located in rural area. Lighting shall be provided also for structures of less than eighty (80) ft. widths in areas that switching is performed, high vandalism or trespassing has been experienced.

Designer to provide temporary lighting for ALL falsework designs irrespective of the superstructure width in areas that switching is performed, trespassing or vandalism has been experienced in the past.

The minimum design criteria shall be that the designer maintain an average of one (1) foot-candle for area under the structure at the KCSRC tracks. Use Holophane module 600 under-decking type luminaries or equal as required. Fixtures shall be installed on the column walls or caps of the overhead structure without reducing the minimum clearances.

Maintenance of lights shall be the responsibility of the agency. Access to perform any maintenance for lights shall be coordinated with the local Road master or his representative.

Structures with separation over ten (10) ft. from each other shall be considered as independent structures for the purposes of lighting.

16. Review Submittals

Submittals for design and construction of grade separation projects shall be coordinated and submitted through the Manager of Contracts. To expedite reviews, submittals must be complete, clearly explained and orderly. Design review for grade separation structures shall be reviewed by the Director of Engineering in the office of the Chief Engineer and/or through an outside consultant at the expense of the owner. Prior to any review, Manager of Contracts shall receive authorization from the agency agreeing to pay all review costs for the design and construction phases of the project. Once such an agreement is established, Manager of

Contracts shall request and secure a proposal from an outside consultant to cover review expenses. Review expenses shall include all costs for in-house personnel and/or consultants retained by the Railroad. This estimated cost of Plan Review and the construction monitoring phase of the project shall be provided to the submitting agency for review and approval. Once the Manager of Contracts has received the submitting agency's written acceptance of the estimated cost, the review of plans can begin. If, during the review process, the estimated costs are determined to be insufficient to cover said costs, the owner will be advised. The original estimated costs will not be the upper limit of the costs, but will provide a guideline for budgeting purposes. Regardless, all reasonable costs incurred during the plan review process and construction monitoring phase of the work will be fully recoverable from the agency.

17. Preliminary Submittal

Plan for preliminary overpass bridge submittal shall include the following:

For each overhead structure the milepost and direction shall be shown on the plans. Items shown as left or right in the checklist are referenced facing the increasing milepost. Milepost and direction shall be shown on the General Layout Sheet. Designer is to consult with manager of contracts for the correct milepost and increasing direction.

17.1 Plan:

Plan view shall indicate at least the following items:

17.1.1 KCSRC right-of-way

17.1.2 Footprint of proposed structure including existing structure, if applicable

17.1.3 Indicate the position of all railroad tracks and identify each track as mainline, siding, spur, etc.

17.1.4 Indicate minimum horizontal clearances and track spacing of all existing and/or future tracks.

17.1.5 Indicate location of ALL access roadways

17.1.6 Footprint of footings with the minimum clearance from centerline of adjacent or future track shall be shown on the plans.

17.1.7 Indicate the minimum clearance requirement for shoring.

17.1.8 Locate and show all existing facilities and utilities and their proposed relocation if required.

17.1.9 Show drainage ditches and direction of flow.

17.1.10 Indicate minimum structure separation for parallel structures.

17.1.11 Indicate milepost and increasing direction.

17.1.12 Indicate point of minimum vertical clearance, and location from the nearest track.

17.2 Elevation:

Elevation view shall indicate at least the following items:

17.2.1 Minimum vertical track clearances taken from top of rail.

17.2.2 Track elevation for all tracks.

17.2.3 Pier footing within Railroad right-of-way shall be six (6) ft. below base of rail.

17.2.4 Indicate top pier protection wall elevation relative to top of rail elevation.

17.2.5 Show elevation of existing or relocated utilities.

17.2.6 Show slopes and specify type of paving. Toe of slope shall be shown relative to drainage ditch and top of sub-grade.

17.2.7 Show ditches for drainage. Provide enlarged scaled detail showing the correlation of slope pavement, ditch, and track or roadway sub-grade.

17.2.8 Limits of fencing and protective railing or splashboards.

17.3 Typical Sections:

Typical section shall indicate at least the following items:

17.3.1 Structural components of superstructure shall be shown on the plans.

17.3.2 Type of railing and fencing and their heights.

17.3.3 Indicate pier outline and pier protection wall. Additional cross-section may be required to show crash wall design.

17.4 Track Profiles:

The profile of the existing top of rail (1,000 ft. each side of proposed structure) shall be shown on the plans, at even-station (100 ft.) intervals.

17.5 General Notes:

General notes specifying material requirements, design data, temporary clearance requirements, stages of construction, etc.

Fill out and furnish the attached "Overhead Submittal Checklist" (see Appendix A) with your preliminary plan submission. For any exception to the minimum requirements on the attached checklist, a detailed explanation/reason why the minimum requirements cannot be met must be provided.

Revised submittals of plans or documents shall follow the same procedure as the initial submittal until all issues are resolved.

17.6 Preliminary Submittal Procedure:

Two (2) sets of preliminary plans shall be submitted to the Manager of Contracts. Allow two (2) weeks for in-house review by the Director of Engineering. The Manager of

Contracts will then forward the plans along with the comments of the KCSRC to the outside consultant for review. Allow three (3) additional weeks for review once the plans are received by the consultant.

18. Final Submittal

18.1 Final Plans

Final plans for overhead structures submitted to KCSRC should include only pertinent drawings that impact the railroad. Complete sets are not required. The following drawings should be submitted:

18.1.1 General plan and elevation view
18.1.2 Typical roadbed section and drainage ditches
18.1.3 Track profiles
18.1.4 Drainage plans and deck drains
18.1.5 Railing and fencing details
18.1.6 Crash wall plans

18.2 Drainage Calculations

Drainage design criteria for right-of-way drainage ditches, drainage structures parallel to or under the track shall comply with the following:

18.2.1 The 50-year flood water surface elevation should not come into contact with the crown of a culvert or the low chord of the drainage structure whichever is applicable.
18.2.2 The 100-year flood water surface elevation should not exceed the track sub-grade elevation.

If existing drainage facilities do not meet the design criteria above, an enlarged opening must be considered.

18.3 Special Provisions

18.4 Final Submittal Procedure

Three (3) sets of 100% ***signed*** plans, two (2) sets of ***signed*** structural calculations, two (2) set of ***signed*** hydraulic calculations, and two (2) sets of ***signed*** special provisions shall be submitted. All material shall be submitted directly to the outside consultant for review. A copy of the transmittal letter will be sent to the Manager of Contracts. Three (3) weeks shall be allowed for review. Consultant and Design Engineer will be free to communicate and resolve all remaining design issues. When review is complete, the consultant shall advise the agency or its representative that all issues have been addressed satisfactorily and recommending the release of structure for construction. The consultant shall forward two (2) sets of all final documents to the Manager of Contracts. After final review by the Director of Engineering and the contract is in place for the structure, the project shall be released for construction. Allow four (4) weeks for this final process.

19. Construction Submittals

During construction of the overpass structure, the Railroad requires the review of temporary structures such as falsework, shoring, demolition of existing structures if required, etc. PRIOR to any construction. It is required that all designs be submitted by the agency or their representative to the KCSRC for review following their own review and approval of the design. All submittal designs shall be **"signed by a registered engineer"** and shall be forwarded to Manager of Contracts, who, in turn, will send them to outside consultant for review of said submittals. If consultant performs said review, the consultant may reply directly to the agency or its representative after consultation with the Director of Engineering. Copy of reply will be mailed to Manager of Contracts. During the review process, the consultant and design engineer will be free to communicate and resolve issues. Review of design submittals will require minimum of four (4) weeks.

It is preferable to receive construction submittal plans in half-size.

Following is a list of construction design submittals:

SUBMITTAL	PLANS REQUIRED	CALCULATIONS REQUIRED	MINIMUM REVIEW TIME
Shoring	3	2	4 weeks
Falsework	3	2	3 weeks
Drainage	3	2	4 weeks
Demolition	3	2	4 weeks
Special Provisions	2	N/A	4 weeks

Appendix A

1. Overhead Grade Separation Data Sheet

2. Overhead Submittal Checklist

Appendix A

Overhead Grade Separation Data Sheet

1 Location: _____
City County State

2 Distance from nearest Milepost to centerline of Bridge: _____

3 Description of Project:

_____

_____

_____

4 Utilities on Railroad Property:

Name	*Any Adjustments Required*	*Contact Person*

5. List all the at-grade crossings that will be eliminated by the construction of this grade separation:

_____

_____

_____

6. Minimum horizontal clearance from centerline of the nearest track to face of Pier:

A. Proposed: _____ B. Existing (if applicable): _____

7. Minimum vertical clearance from centerline of the nearest track to face of Pier:

A. Proposed: _____ B. Existing (if applicable) _____

8. List piers where crash walls are provided:

Pier	*Distance from Centerline of Track:*

9. Describe how Drainage from approach roadway is handled: _____

10. Describe how drainage from bridge is handled: _____

11. List piers where shoring is required to protect track: _____

12. Scheduled Letting Date: _____

ALL INFORMATION ON THIS DATA SHEET TO BE FURNISHED BY THE SUBMITTING AGENCY TO THE MANAGER OF CONTRACTS

PRELIMINARY PLAN & ELEVATION VIEWS AS OUTLINED IN SECION 17 SHALL BE SUBMITTED WITH THIS FORM

Appendix A (Continued)

Overhead Submittal Checklist

Preliminary Plan Submittal Checklist	File: ____ Grade Separation: ____ State: Location:
Hwy/Street Name:	Hw/Street Name:
Loc. (City & State):	Rte: MP Sub:
County/Parish	DOT No.:
Project :	AWO:
Date:	

Item	Required Information	Min. Required	As Submitted	A/R	Railroad Remarks A = Approved	R = Rejected
	Abutment or Bent No.					
1	Horizontal Clearance (Left) (CL to Face)	18'-0"				
2	Horizontal Clearance (Right) (CL to face)	18'-0"				
3	Vertical Clearance (From Top of Rail)	23'-6"				
4	Horizontal Clearance to footing from CL	25'-0'				
5	Depth top of footing below base of rail	6'-0"				
6	Pier Protection wall required	25'-0" *				
7	Shoring required (CL to nearest Pt.)	12'-0"				
	Bent No.					
1	Horizontal Clearance (Left) (CL to Face)	18'-0"				
2	Horizontal Clearance (Right) (CL to face)	18'-0"				
3	Vertical Clearance (From Top of Rail)	23'-0"				
4	Horizontal Clearance to footing from CL	25'-0'				
5	Depth top of footing below base of rail	6'-0"				
6	Pier Protection wall required	25'-0" *				
7	Shoring required (CL to nearest Pt.)	12'-0"				
	Bent No.					
1	Horizontal Clearance (Left) (CL to Face)	18'-0"				
2	Horizontal Clearance (Right) (CL to face)	18'-0"				
3	Vertical Clearance (From Top of Rail)	23'-0"				
4	Horizontal Clearance to footing from CL	25'-0'				
5	Depth top of footing below base of rail	6'-0"				
6	Pier Protection wall required	25'-0" *				
7	Shoring required (CL to nearest Pt.)	12'-0"				
	Bent No.					
1	Horizontal Clearance (Left) (CL to Face)	18'-0"				
2	Horizontal Clearance (Right) (CL to face)	18'-0"				
3	Vertical Clearance (From Top of Rail)	23'-0"				
4	Horizontal Clearance to footing from CL	25'-0'				
5	Depth top of footing below base of rail	6'-0"				
6	Pier Protection wall required	25'-0" *				
7	Shoring required (CL to nearest Pt.)	12'-0"				
	Bent No.					
1	Horizontal Clearance (Left) (CL to Face)	18'-0"				
2	Horizontal Clearance (Right) (CL to face)	18'-0"				
3	Vertical Clearance (From Top of Rail)	23'-0"				
4	Horizontal Clearance to footing from CL	25'-0'				
5	Depth top of footing below base of rail	6'-0"				
6	Pier Protection wall required	25'-0" *				

7	Shoring required (CL to nearest Pt.)	12'-0"				

* *Pier protection required within KCSRC Right-of-Way*

Item	Required Information	Min. Required	As Submitted	A/R	Railroad Remarks A = Approved	Railroad Remarks R = Rejected
	Track Requirements					
1	Existing track centers	Required				
2	Track spreading taken into consideration	Required				
3	Future track centers	20'-0"				
	Safety Requirements					
1	Splashboards or barrier rail near Side NS	5'0" / 3'-6"				
2	Splashboards Far Side FS	5'0" / 3'-6"				
3	Splashboards limits adequate	R/W to R/W				
4	Fence w/pedestrian walkway, NS or FS	8'-0" / 10'-0"				
5	Fence w/o pedestrian walkway, NS or FS	10'-0"				
6	Fence limits adequate	R/W to R/W				
	Drainage Requirements					
1	Adequate Drainage (Left)	Required				
2	Adequate Drainage (Right)	Required				
3	Drain from Str. / Leaders at Bents	-				
	General Requirements					
1	Access road (25' from CL to face)	25'-0"				
2	RR R/W shown correctly	Required				
3	All tracks labeled correctly	Required				
4	Existing utilities aerial or underground	Required				
5	Maximum gap between structures	2'-0"				
6	Lights required for width of Str. Over 80'	80'-0"				
7	Track profile for 1000' on each side of Str.	1000'				
8	Demolition required	-				
9	Abutment slope protection	>2:1				
10	Temp. construction vertical clearance	21'-0"				
11	Temp. construction horizontal clearance	12'-0"				
12	Milepost number & direction of increase	Required				

Instructions

Milepost and direction of Milepost must be shown in the plans. Left and Right is the orientation of structure elements facing in the direction of increasing milepost.

Fill all applicable parts of table above: In Column "As Submitted" insert all applicable values from plans.

For any exception to the minimum requirements on the checklist, a detailed explanation/reason why the minimum requirements cannot be provided must be given.

PRELIMINARY PLAN REVIEW:

If items on above table show deficiencies, acceptance of preliminary plans will not be granted until deficiencies are resolved.

FINAL PLAN REVIEW:

Prior to structure construction signed final plans, special provisions and hydraulic calculations, if required, shall be submitted for final review. If all items are resolved and plans comply, will release structure for construction.

UNITS:

Units for the above checklist to be in English

Section III

Guidelines for Bridge Demolition and Removal Plan For Structures over Railroad

Section III
Bridge Demolition and Removal Plan for Structures over Railroad

Table of Contents

1. General

1.1 The Contractor's work shall in no way impede the train operations of the KCSRC.

1.2 The Contractor shall develop a work plan assuming that minimal track windows will be available.

1.3 The Contractor shall be responsible for planning and executing all procedures necessary to remove the overhead bridge in a safe and controlled manner.

1.4 The Railroad's tracks and property shall be protected at all times.

1.5 The contractor shall ensure the area immediately adjacent to operational tracks shall remain free from stumble or like hazards to the ground Railroad personnel to prevent injuries. All excavations shall be designed and constructed in accordance with KCSRC Railroad Construction Guidelines, Section IV, *Design and Construction of Shoring adjacent to and on Railroad Right-of-Way.*

1.6 The words "demolition" and "removal" will be used interchangeably.

1.7 All removed materials shall be disposed of outside the Railroad right-of-way at no expense to the Railroad.

1.8 No work is allowed within 50 feet of the nearest rail when trains pass the work site.

1.9 Staged demolition of the portions of structure immediately adjacent to operational tracks will not jeopardize the integrity of the structure over said tracks until actual removal of the portion of the structure over tracks is being done.

1.10 A flagman is required when any work is performed on any portion of the Railroad right-of-way.

1.11 No blasting will be permitted on Railroad's right-of-way.

2. Bridge Removal Plans

2.1 The Removal Plan shall include the following:

2.1.1 Plan, elevation and location of bridge, and the locations of any access roads needed for movement of the equipment. The as-built drawings may be used for the submittal provided the removal steps are clearly marked and legible.

2.1.2 Indicate the position of all railroad tracks below the bridge and identify each track as mainline, siding, spur, etc.

2.1.3 Bridge removal sequence and procedures for entire bridge including the staging for the removal of the superstructure and substructure.

2.1.4 List type and number of equipment required and their locations during demolition operations.

2.1.5 Locations and types of temporary supports, shoring or bracing required. These members shall be designed to meet the requirements of AREMA Manual for Railway Engineering, latest edition, and KCSRC Railroad Construction Guidelines, Section IV – *Design and Construction of Shoring Adjacent to and on Railroad Right-of-Way* and applicable local and national building codes.

2.1.6 The proposed vertical and horizontal clearance from all tracks to the temporary and permanent supports. The minimum vertical and horizontal clearances shall be as per attached frame protection details.

2.1.7 If any temporary supports interfere with the natural drainage along the Railroad right-of-way, a temporary drainage plan shall be submitted for review and comment prior to constructing temporary supports. The proposed drainage plan shall route all drainage away from the railroad tracks.

2.1.8 Details, limits, and locations of protective covers or other measures proposed to be used to protect the tracks. This includes any shields or other measures that will protect the tracks from falling debris during removal of the overhead bridge and from any debris rolling down the side slopes or otherwise coming into the area round the tracks which could affect train operations. Design loads, including impact loads, shall be noted. In addition equipment should be on site capable of removing debris and track shield from operational tracks.

2.1.9 All procedures necessary to remove the bridge in a safe and controlled manner. The estimated time for complete removal over the tacks shall be noted.

2.1.10 All overhead and underground utilities in the area affected by removal of the bridge shall be located on the drawings, including any fiber optic, railroad signal, and communication lines.

2.1.11 The location and details of track crossings required for moving of the equipment across the railroad tracks. ***Construction of temporary crossings requires a separate written agreement between KCSRC and the contractor.***

2.1.12 Limits of demolition of substructures.

2.1.13 Details of on-site fire suppression.

3. Procedure

3.1 During removal operations, the remaining structure shall be stable during all stages of the removal operations.

3.2 Prior to proceeding with bridge removal, the sealing Civil or Structural Engineer, or his authorized representative working for the Contractor, shall inspect the temporary

support shoring, including temporary bracing and protective coverings, for conformity with the working drawings. The Engineer shall certify in writing to the Railroad that the work is in conformance with the drawings and that the materials and workmanship are satisfactory. A copy of this certification shall be available at the site of work at all times.

3.3 Coordinate the removal schedule with the Railroad. All the removal work within the track area shall be performed during the time windows when the trains are not passing the work site.

3.4 All substructures shall be removed to at least 3 feet below the final finished grade or at least 2 feet below base of rail whichever is lower, unless otherwise specified by the Railroad.

3.5 All debris and refuse resulting from the work shall be removed from the right-of-way by the Contractor and the premises left in a neat and presentable condition.

3.6 The work progress shall be reviewed and logged by the Contractor's Engineer. Should an unplanned event occur, the Contractor shall inform the Railroad and submit procedure to correct or remedy the occurrence.

3.7 Preferably all demolition and beam removal shall be from above. In the case that the beams require removal from below, the beams may temporarily straddle the tracks. The following steps shall be taken:

3.7.1 The work shall be scheduled with the Railroad's Service Unit Superintendent subject to the Railroad's operational requirements for continuous train operations. The beams shall be removed in sufficient time for train passage.

3.7.2 The tracks shall be protected and no equipment placed on the tracks.

3.7.3 The beams shall be blocked and not come in contact with the tracks. Blocking shall not be placed on the tracks.

3.7.4 The beams and all equipment will be moved a minimum of 15 feet from the nearest rail of the tracks when a train is passing.

4. Track Protection

4.1 The track protective cover shall be constructed before beginning bridge removal work and may be supported by falsework or members of the existing structure. See the attached Track Shield Detail and Frame Protection Detail for additional requirements. Types of protective covers that may be acceptable methods for protecting the tracks are:

4.1.1 A decking supported by the bridge or a suspended cover from the bridge above the track clearance envelope.

4.1.2 A track shield cover over the tracks per the attached detail.

4.1.3 A framed cover outside the track clearance envelope.

4.1.4 A catcher box or loader bucket under decking and parapets overhanging the exterior girders.

4.2 Construction equipment shall not be placed on the tracks unless tracks are protected.

4.3 Temporary haul-road crossings shall be of either Section Timbers or Pre-cast Concrete Panels. The type of crossing shall be determined by the Director of Engineering. Solid timbers or ballast with timber headers shall be used between multiple tracks. If temporary crossing is accessible to public, crossing shall be protected with barricades or locked gates when contractor is not actively working at the site.

4.4 Track protection is required for all equipment including rubber-tired equipment operating within 25 ft. or over the tracks.

5. Cranes

5.1 When cranes are operating near the tracks, the following is required:

5.1.1 Only cranes with the capacity to handle the loads may be used. Front-end loaders and backhoes cannot be used to lift over the tracks.

5.1.2 The Contractor shall verify that the foundations under the crane can support the loads.

5.1.3 The size and material type of crane mats shall be submitted to the Railroad for review and comment. No mat substitution will be allowed. The mats shall be rigid and of sufficient capacity to distribute the crane loads and prevent tipping of the crane.

5.1.4 Installation of temporary track crossings for equipment shall be scheduled with the Roadmaster for that territory. This crossing shall be installed and removed by a track contractor selected by the KCSRC.

5.1.5 Additional track protection is required when crossing with a crane. The protection methods shall be submitted to the Railroad for review and comment.

5.1.6 Equipment shall not place outriggers on the tracks or ballast.

5.1.7 Cranes shall not be placed within the track clearance envelope without flagman protection.

6. Cutting Torches

6.1 When a cutting torch is used near the tracks or any timber, the following steps shall be taken:

6.1.1 Fire suppression equipment is required on-site.

6.1.2 Do not use a torch over, between, or adjacent to the tracks unless a steel plate protective cover is used. Care shall be taken to make certain the use of a steel plate does not come in contact with the rails. See "Track Shield Details" for other requirements. Details of the shield shall be submitted to the Railroad for approval.

6.1.3 Wet the ties and other timber below the cutting area.

6.1.4 Monitor the work site for at least three (3) hours after cutting for a smoldering fire

6.2 Extensive overhead cutting will not be performed over the track area without the proper fire suppression equipment on-site and proper protection.

7. Utilities

The demolition operations shall be planned such that the utility lines are operating safely at all times. The utility lines shall be protected if affected by demolition operations. All the work associated with the utility lines should be coordinated by the contractor with the respective utility companies.

8. Hazardous Material

If any hazardous materials are found, provide material protection as specified in local hazardous material codes and immediately contact the Railroad.

9. Review Submittals

Submittals for design and construction of Bridge Demolition and Removal projects shall be coordinated and submitted through the Manager of Contracts. To expedite reviews, submittals must be complete, clearly explained and orderly. Design review for demolition projects shall be reviewed by the Director of Engineering in the office of the Chief Engineer and/or through an outside consultant at the expense of the owner. Prior to any review, Manager of Contracts shall receive authorization from the agency agreeing to pay all review costs for the document review and field demolition phases of the project. Once such an agreement is established, Manager of Contracts shall request and secure a proposal from outside consultant to cover review expenses. Review expenses shall include all costs for in-house personnel and/or consultants retained by the Railroad. This estimated cost of Plan Review and the construction-monitoring phase of the project shall be provided to the submitting agency for review and approval. Once the Manager of Contracts has received the submitting agency's written acceptance of the estimated cost, the review of plans can begin. If, during the review process, the estimated costs are determined to be insufficient to cover said costs, the owner will be advised. The original estimated costs will not be the upper limit of the costs, but will provide a guideline for budgeting purposes. Regardless, all reasonable costs incurred during the plan review process and construction-monitoring phase of the work will be fully recoverable from the agency.

9.1 Two (2) sets of plans shall be submitted to the Manager of Contracts. Allow two (2) weeks for in-house review by the Director of Engineering. The Manager of Contracts will then forward the plans along with KCSRC comments to the outside consultant for review. Allow three (3) weeks for review by the outside consultant.

Appendix A

KCSRC Bridge Demolition Checklist

Appendix A

KCSRC Bridge Demolition Checklist

1. All materials removed to outside Railroad right-of-way. Work site neat and safe.
2. No work within 50 ft. while trains pass the work area.
3. Flagman required when work is performed on Railroad right-of-way.
4. Plan and elevation of bridge and all access road locations.
5. Location of Railroad tracks noted and type of track noted.
6. Bridge removal sequence noted.
7. Type of equipment, number and location noted.
8. Clearances to temporary shoring noted.
9. Site drainage considered.
10. Details limits and location of protective covers.
11. Estimated time of removal of structures over tracks noted.
12. Utilities protected and noted.
13. Location and details of track crossing noted.
14. Limits of demolition of substructures (greater of 3 ft. below grade or 2 ft. below base of rail).
15. Details of on-site fire suppression.
16. Stability of existing structure checked (esp. removal of last girder).
17. Plans sealed by registered engineer. Inspection of shoring, bracing and protective covers noted in documents and certifications on site.
18. Coordination with railroad noted.
19. Work progress reviewed and logged by Contractor's Engineer and any deviations noted to KCSRC
20. Debris and equipment moved a minimum distance of 8 ft.–6 in. from nearest rail during train passage, and to an elevation no higher than the top of rail. Debris and equipment are to be moved a minimum distance of 10 ft.-0 in. from nearest rail and down to original grade at the end of the day.
21. Track protection acceptable.
22. No construction equipment permitted on tracks, unless protected.
23. Temporary track crossing for haul roads meet KCSRC standards and placement scheduled with Road master.
24. Track protection required for all equipment operating within 25 ft. of tracks, including rubber-tired equipment.

25. Crane capacity sufficient.
26. Crane mats submitted for comment.
27. Protective covers extend 20 ft. beyond the edge of the structure.
28. Geo fabric placed over existing ballast to keep fine demolition material from ballast.

Section IV

Design and Construction of Shoring Adjacent to and on Railroad Right-of-Way

Section IV

Design and Construction of Shoring Adjacent to and on Railroad Right-of-Way

Table of Contents

1. Scope

The scope of this guideline is to inform public Agencies, design engineers, Contractors and inspectors KCSRC current standards and requirements concerning the design and construction of temporary shoring, supporting active Railroad tracks.

The term Contractor is defined as any party gaining access to work on KCSRC right-of way or other operating locations.

These guidelines supplement the American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual of Recommended Practice.

The specific requirements for shoring addressed in this document shall be followed for all locations that KCSRC operates on FRA track Class 1 through 5, regardless of track ownership.

Safe rail operations shall be required for the duration of the project. The Railroad's personnel, tracks and property shall be protected at all times.

To expedite the review process of shoring plans, it is required that the drawings submitted by the Contractors adhere to the project specifications, AREMA and other KCSRC requirements.

2. General Criteria

The Contractor must not begin construction of any component of the shoring system affecting the Railroad Right-of-Way until such time that the Railroad approval has been received.

2.1 The Contractor shall be responsible for planning and executing all procedures necessary to construct the shoring in a safe and controlled manner. Before work can begin on the Railroad right-of-way, the Agreement between the Railroad and the Owner must be fully executed; the Contractor must obtain a right-of-entry permit and understand all railroad requirements. All structures that support or impact the Railroad tracks or operations, shall be designed and constructed to provide safe and adequate rigidity.

2.2 The Railroad requirements, construction submittal review times and review criteria should be discussed at the pre-construction meeting with the contractor.

2.3 A flagman is required when any work is performed on Railroad right-of-way. If the Railroad provides flagging or other services, the Contractor shall not be relieved of any responsibilities or liabilities as set forth in any document authorizing the work. No work is allowed within 50 ft. of the nearest rail when a train passes the work site and all personnel and equipment must clear the area within 25 ft. of track centerline when trains are present.

2.4 All removed materials will become the responsibility of the Contractor and shall be disposed of outside the Railroad right-of-way at no expense to the Railroad.

2.5 Appropriate measures for the installation and protection of fiber optic cables shall be addressed in the plans and contract documents.

2.6 Relocation of non-Railroad owned utilities or communications lines shall be coordinated with the owners and submitted to KCSRC Real Estate Department for handling. The design plans must show all underground and overhead utilities.

3. Specifications

3.1 AREMA specifications are available at:

American Railway Engineering and Maintenance-of-Way Association
8201 Corporate Drive, Suite 1125
Landover, MD 20785-2230
Phone: 301.459.3200 / Fax: 301.459.8077
www.arema.org

3.2 The following KCSRC Guidelines shall be used in conjunction with this document during the design and construction of structures:

Underpass Structures – *"Guidelines for Design and Construction of Grade Separation Underpass Structures."*

Overhead Grade Separation – *"Guidelines for Design of Highway Separation Structures over Railroad (Overhead Grade Separation)."*

Demolition – *"Guidelines for Preparation of a Bridge Demolition and Removal Plan for Structures over Railroad."*

4. Contractor Responsibility

The Contractor shall be solely responsible for the design, construction and performance of the temporary structure (AREMA 8.28.1.3)

4.1 The Contractor's work shall in no way impede the train operations of KCSRC and must be coordinated with the local operating department and Road master.

4.2 The Contractor shall develop a work plan assuming that track windows will not be available.

4.3 The Contactor's responsibility includes compliance with all state and Federal laws, county or municipal ordinances and regulations, which in any manner affect the work.

4.4 The Project Engineer for the Contractor shall evaluate the quality of materials furnished and work performed. It is ultimately the Contractor's responsibility to properly evaluate the quality of materials and the work performed.

4.5 The Contractor must monitor and record top of rail elevations and track alignment for the duration of the project.

5. Information Required

Shoring system design plans and calculations shall be in English units. If Metric units are used, all controlling dimensions, elevations, design criteria assumptions, and material stresses shall

be expressed in dual units, with English units to be in parentheses. Information shall be assembled concerning right-of-way boundary, clearances, proposed grades of tracks and roads, and all other factors that may influence the controlling dimensions of the proposed shoring system. All shoring plans, sections and details shall be drawn to scale and the scale shown.

5.1 Field Survey

Sufficient information shall be furnished in the form of a profile, cross-sections and topographical maps to determine general design and structural requirements. Existing and proposed grades and alignment of tracks and roads shall be indicated together with a record of controlling elevation of water surfaces or ground water. Indicate location of existing/proposed utilities and construction history of the area which might hamper proper installation of the piping, soldier beams, ground anchors, depth of scour or allowance for over-dredging.

5.2 Soil (AREMA 8.22.3.1.1)

For a new structure, the site investigation shall provide sufficient information to determine:

5.2.1. Location of groundwater level, at least to the extent that it is within the zone of influence, beneath the footing.

5.2.2. Bearing capacity of the soil.

5.2.3. Data on soil and/or rock properties relative to shallow and deep foundations.

5.2.4. Settlement predictions.

5.2.5. Selection of alternative types and/or depth of foundations.

5.2.6. In seismic area, evaluation of liquefaction potential of various soil strata.

5.2.7. Global site stability (massive earth movements).

5.2.8. Any backfill material required shall be specified and the method and amount of compaction or consolidation shall be shown on the drawings. All backfill shall be, at a minimum, suitable for railway embankment fill.

5.3 Loads (AREMA 8.20.2.3)

5.3.1 All design criteria, temporary and permanent loading, boring and laboratory test results, and properties of construction materials, including yield stress, should be clearly stated in the design calculations and on the contract and record plans. Temporary loads include, but are not limited to: construction equipment, construction materials, and lower water levels adjoining the bulkhead causing unbalanced hydrostatic pressure. Permanent loads include, but are not limited to: future grading and paving, Railroads or highways, structures, material storage piles, snow and earthquake.

5.3.2 The allowable live load after construction should be clearly shown in the plans and painted on the pavements behind the bulkheads or shown on signs at the site and also recorded on the record plans.

5.3.3 The "loads" listed above are external to the total bulkhead system. There are also internal effects that are treated as loads in the design of individual members of the bulkhead system. These internal loads are active and passive soil pressures, acting separately or combined algebraically, saturated or dry as appropriate, for granular or cohesive soil or a combination thereof.

5.4 Drainage (AREMA 8.20.2.4)

5.4.1 The drainage pattern of the site before and after construction should be analyzed, and adequate drainage provisions incorporated into the plans and specifications. Consideration should be given to under-drainage as well as surface drainage.

5.4.2 Drainage provisions for backfill should be compatible with the assumed water conditions in design.

5.5 Structural Design Calculations

5.5.1 Computerized calculations and programs must clearly indicate the input and output data. List all equations used in determining the output.

5.5.2 Handwritten calculations must be provided to support computerized output.

5.5.3 A simple free body diagram showing all applied loads on a temporary shoring system should be included.

5.5.4 Documents and manufacturer's recommendations which support the design assumptions must be included with the calculations.

5.6 Work Plan

A work plan that includes the following shall be submitted:

5.6.1 Time and date when the track is requested to perform work.

5.6.2 Time and date when no work will be performed.

5.6.3 Anticipated date to begin shoring installation.

5.6.4 Anticipated date to remove shoring.

Note: While driving piles, track time will be necessary as the leads may foul the tracks in the event of a mechanical failure or operator error.

6. General Shoring Requirements

For general shoring requirements and specific applications of the following items refer to Drawing 005106 "General Shoring Requirements".

6.1 Evaluate existing slope and stability conditions to ensure the railroad embankment will not be adversely affected.

6.2 Lateral clearances must provide sufficient space for construction of the required standard ditches parallel to the standard roadbed section. The size of ditches will vary depending upon the flow and terrain and should be designed accordingly.

6.3 For main line and branch track, no excavation shall be permitted closer than 12'-0", perpendicular distance, from the centerline of track to the trackside of shoring system. For industry track, no excavation shall be permitted closer than 7'-0". If existing conditions preclude the installation of shoring at the required minimum distance, the shifting of tracks or temporary removal of tracks shall be investigated prior to any approval. All costs associated with track shifting or traffic interruption shall be at Contractor's expense.

6.4 Vertical overhead clearance from the top of the rail to temporary shoring shall be a minimum of 21'-0".

6.5 All shoring within the limits of Zone A or Zone B must be placed prior to the start of excavation.

6.6 The top of the shoring wall must have an elevation equal to or greater than the elevation required to meet the limits of Zone B.

6.7 Shoring types which place lagging elements as the excavation proceeds are not permitted within the limits of Zone A.

6.8 Standard handrails, fence, or other barrier methods meeting OSHA and FRA requirements must be used around open excavations on or near Railroad right-of-way.

6.9 The most stringent project specifications of the Public Utilities Commission Orders, Department of Industrial Safety, OSHA, FRA, AREMA, KCSRC or other governmental agencies shall be used.

6.10 Second-hand material is not acceptable unless the Engineer of Record submits a full inspection report, which verifies the material properties and condition of the second-hand material. The report must be signed and sealed by the Engineer of Record.

6.11 If cantilever sheet pile is used for shoring adjacent to any operating track the shoring system should be at least twelve (12) feet away from the centerline of track and its maximum height shall not exceed ten (10) feet from the base of the excavation to the top of Zone "B". Cantilever sheet pile walls shall be used only in granular soils or stiff clays. Material at the excavation line, near the bulkhead, shall be kept free of water and shall not be disturbed by men or equipment. If the above conditions cannot be met, cantilevered sheet pile shoring shall not be used.

6.12 All components of the shoring system are to be removed and all soil voids filled. The Contractor may request to abandon in-place specific elements of the shoring system, which are a minimum of six (6) feet below grade provided specific justifications are given.

6.13 Slurry type materials are not acceptable for soldier beams in drilled holes. Concrete and flowable backfill will prevent removal of the shoring system.

7. Types of Shoring

7.1 The following shoring systems are acceptable for use where KCSRC equipment is operating. Definitions are included for clarity from AREMA 28.1.4.1.

7.1.1 A cantilever sheet pile wall is a structure designed to provide lateral support for a soil mass and derives stability from passive resistance of the soil in which the sheet pile is embedded.

7.1.2 An anchored sheet pile wall is a structure designed to provide lateral support for a soil mass and derives stability from passive resistance of the soil in which the sheet pile is embedded and the tensile resistance of the ground anchors.

7.1.3 A cantilever soldier beam with lagging wall is a structure designed to provide lateral support for a soil mass and derives stability from passive resistance of the soil in which the soldier beam is embedded.

7.1.4 An anchored soldier beam with lagging wall is a structure designed to provide lateral support or a soil mass and derives stability from passive resistance of the soil in which the soldier beam is embedded and the tensile resistance of the ground anchors.

7.1.5 For purposes of these specifications, soldier beams include steel H-piles, wide flange sections or other fabricated sections that are driven or set in concrete in drilled holes. Lagging refers to the members spanning between soldier beams.

7.1.6 For purposes of these specifications, ground anchors shall be cement-grouted tiebacks designed, furnished, installed, tested and stressed in accordance with these specifications.

7.1.7 Anchored soldier beams with lagging walls are generally designed as flexible structures, which have sufficient, lateral movement to mobilize active earth pressures and a portion of the passive pressure.

7.1.8 A braced excavation is a structure designed to provide lateral support for a soil mass and derives stability from passive resistance of the soil in which the vertical members are embedded and from the structural capacity of the bracing members.

7.1.9 For purposes of these specifications, the vertical members of the braced excavation system include steel sheet piling or soldier beams comprised of steel H-piles, wide flange sections, or other fabricated sections that are driven or installed in drilled holes. Wales are horizontal structural members designed to transfer lateral loads from the vertical members to the struts. Struts are structural compression members that support the lateral loads from the wales.

7.1.10 A cofferdam is an enclosed temporary structure used to keep water and soil out of an excavation for a permanent structure such as a bridge pier or abutment or similar structure. Cofferdams may be constructed of timber, steel, concrete or a combination of these. These specifications consider cofferdams primarily constructed with steel sheet piles.

7.2 Variance to use other shoring systems such as shoring box requires KCSRC Chief Engineer's review and approval. A shoring box is a prefabricated shoring system, which

is installed as the excavation progresses. Soil is typically removed from the inside of the shoring box. The shoring box is moved down into the excavation by gravity or by applying vertical loading from excavation equipment. This shoring system is not preferred by KCSRC. The system is allowed in special applications only where Railroad live load surcharge is not present.

8. Computation of Applied Forces

The following variables are used in the following section:

q = intensity of strip load (Live load) (in units of pounds per square foot)

$$q = \frac{80{,}000 \text{ lbs}}{(5 \text{ feet})\ (8.5 \text{ feet})}$$

Axle spacing = 5 feet

Typical tie length = 8.5 feet

γ = unit weight of soil

$$K_A = \tan^2 \left(45 - \frac{\phi}{2} \right)$$

$$K_P = \tan^2 \left(45 + \frac{\phi}{2} \right)$$

ϕ = angle of internal friction in degrees

α and β are angles measured in radians

8.1 Live load pressure due to E80 loading for track parallel to shoring system. Strip Load q (AREMA 8.20.3.2.2).

A continuous strip of surcharge load q (pounds per square foot) parallel to the bulkhead is shown in AREMA Figure 8-20-2 "Pressure Distribution for Strip Load" (See Appendix B). The intensity of pressure at a given point may be computed by:

$$P_S = \frac{2q}{\pi} (\beta + \sin\beta \sin^2\alpha - \sin\beta \cos^2\alpha)$$

Chart A provided in Appendix B shows the results of this equation for E80 live load. Overlapping surcharge live loads from the adjacent tracks are not cumulative.

8.2 Live load pressure due to E80 loading for tracks at right angle to the shoring system use the following equation to determine the applied loading:

$$P_S = K_A q$$

The entire load shall be taken as distributed uniformly on the surface of the ballast immediately below the tie, over a width equal to the length of the tie, typically 8.5 feet).

8.3 Active Earth Pressure Due to Weight of Backfill:

8.3.1 The active earth pressure due to the weight of the backfill may be computed by the Coulomb Theory and is represented in the loading diagram by Area 1, AREMA Figure 8-20-1 "Lateral Pressure Diagrams" (see Appendix B).

8.3.2 The active earth pressure at depth "z" is:

$$p_A = K_A \gamma z$$

z = depth of soil influencing the passive pressure

8.4 Active Earth Pressure Due to Unbalanced Water Pressure (AREMA 8.20.3.3)

8.4.1 When bulkheads are used for waterfront construction, the bulkhead is subjected to a maximum earth pressure at the low water stage. During a rainstorm or a rapidly receding high water, the water level behind the bulkhead may be several feet higher than in front, as shown in AREMA Figure 8-20-5. The unbalanced water pressure is represented by Area III in AREMA Figure 8-20-1 (see Appendix B).

8.4.2 Drained conditions in backfill apply when clean sand or clean sand and gravel, as defined in AREMA Article 20.2.5 are used and adequate permanent drainage outlets are provided. Where drained conditions exist, the design water level may be assumed at the drainage outlet elevation.

8.5 Active Earth Pressure Due to Surcharge Load

The active earth pressure due to a uniform surcharge load q (pounds per square foot) is:

$$p_u = K_A q$$

which is represented by Area II, AREMA Figure 8-20-1 (see Appendix B)

8.6 Passive Earth Pressure

The passive earth pressure, p_ρ, in front of the bulkhead may also be computed by the Coulomb Theory. This pressure is also shown in AREMA Figure 8-20-1 (see Appendix B)

$$P\rho - K\rho\ \gamma\ z$$

z = vertical distance not to exceed embedment depth.

8.7 Include and compute other loading that is impacting the shoring system.

9. Structural Integrity

Structures and structural members shall be designed to have design strengths at all sections at least equal to the required strengths calculated for the factored loads and forces in such combinations as stipulated in AREMA Chapter 8, Article 2.2.4, which represents various combinations of loads and forces to which a structure may be subjected. Each part of the structure shall be proportioned for the group loads that are applicable, and the maximum design required shall be used.

9.1 Stability (AREMA 8.20.4)

The stability requirements of AREMA 8.20.4 shall be met and shown in the submitted calculations. For well-defined loading conditions and thoroughly determined soil parameters, the minimum factor of safety is 1.3 (AREMA 8.20.4.1). Geotechnical investigations shall consider global stability and massive earth movements as shown in AREMA Figure 8-20-6.

9.2 Depth of Embedment

The total depth of embedment is equal to 1.3 times the minimum calculated depth of embedment. (AREMA 8.20.5.1).

9.3 The allowable stresses based on AREMA requirements are as follows:

9.3.1 Sheet Pile Sections – 2/3 Tensile Yield Strength for Steel (AREMA 8.20.5.7)

9.3.2 Concrete – 1/3 Compressive Strength (AREMA 8.20.5.7)

9.3.3 Structural Steel – 0.55 Fy Compression in extreme fiber (AREMA Ch. 15, Table 15-1-11, page 15-1-36, 2004 Edition)

9.3.4 Anchor Rods – 1/2 Tensile yield strength for steel (AREMA 8.20.5.7)

9.4 AISC allowances for overstressing due to temporary loading conditions are not acceptable.

9.5 Proposed deflections of temporary shoring system and top of rail elevation shall not exceed the following criteria in Table 1 below:

Table 1 – Deflection Criteria

Horizontal Distance from Shoring to Track CL	Maximum Horizontal Movement of Shoring System	Maximum Acceptable Horizontal or Vertical Movement of Rail
12' < X < 18'	3/8"	3/16"
18' < X < 24'	1/2"	1/4"

10. Soil Characteristics

10.1 Subsurface Exploration (AREMA 8.5.2.2)

10.1.1 Sufficient borings shall be made along the length of the structure to determine, with a reasonable degree of certainty, the subsurface conditions. Irregularities found during the initial soil boring program may dictate that additional borings be taken.

10.1.2 The subsurface investigation shall be made in accordance with the provisions of AREMA Chapter 8, Part 22, Geotechnical Sub-surface Investigation.

10.2 Type of Backfill (AREMA 8.5.2.5)

10.2.1 Backfill is defined as all material behind the wall, whether undisturbed ground or fill, that contributes to the pressure against the wall.

10.2.2 The backfill shall be investigated and classified with reference to the soil types described in Table 8-5-1.

10.2.3 Types 4 and 5 backfill shall be used only with the permission of the Engineer. In all cases the wall design shall be based on the type of backfill used.

AREMA Table 8-5-1. Types of Backfill for Retaining Walls

BACKFILL TYPE	BACKFILL DESCRIPTION
1	Coarse-grained soil without admixture of fine soil particles, very free-draining (clean sand, gravel or broken stone).
2	Coarse-grained soil of low permeability due to admixture of particles of silt size.
3	Fine silty sand; granular materials with conspicuous clay content; or residual soil with stones
4	Soft or very soft clay, organic silt; or soft silty clay.
5	Medium or stiff clay that may be placed in such a way that a negligible amount of water will enter the spaces between the chunks during floods or heavy rains

10.3 Computation of Backfill Pressure (AREMA 8.5.3.2.a)

10.3.1 Values of the unit weight, cohesion, and angle of internal friction of the backfill material shall be determined directly by means of soil tests or, if the expense of such tests is not justifiable, by means of Table 8-5-2 referring to the soil types defined in Table 8-5-1. Unless the minimum cohesive strength of the backfill material can be evaluated reliably, the cohesion shall be neglected and only the internal friction considered. (See Part 20, Flexible Sheet Pile Bulkheads, Table 8-20-3).

AREMA Table 8-5-2 Properties of Backfill Materials

TYPE OF BACKFILL	UNIT WEIGHT LBS. PER CU.FT.	COHESION "C"	ANGLE OF INTERNAL FRICTION
1	105	0	33° 42' (38° for broken stone)
2	110	0	30°
3	125	0	28°
4	100	0	0°
5	120	240	0°

Loads exclusive of Earth Pressure (AREMA 8.5.3.1)

10.3.2 In the analysis of piers, retaining walls and abutments, due account shall be taken of all superimposed loads carried directly on them, such as building walls, columns, or bridge structures; and of all loads from surcharges caused by railroad tracks, highways, building foundations, or other loads supported on the backfill. Piers must also be designed for stream flow pressures as well as ice flow pressures and collision forces where applicable.

10.3.3 In calculating the surcharge due to track loading on an abutment and on wing walls that are in line with the abutment back walls, the entire load shall be taken as distributed uniformly on the surface of the ballast immediately below the tie, over a width equal to the length of the tie. With increased depth, the width for distribution can be increased on slopes of 1 horizontal to 2 vertical with surcharge loads from the adjacent tracks not being permitted to overlap.

10.3.4 To account for variability in backfilling and the dynamic effects of axle loads, abutment back walls above bridge seats shall be designed for earth pressures and live load surcharge increased by 100%. This does not apply to the portion of the abutment below the bridge seat or the stability of the abutment.

10.3.5 In calculating the surcharge due to track loading above a wall and parallel, or roughly parallel, to the wall, the entire load shall be taken as distributed uniformly over a width equal to the length of the tie.

10.3.6 The stability of the abutment or wall as a whole unit, regardless of the distribution of the loads and surcharges, shall always be checked and shall conform to the requirement of AREMA Section 8.5.4, Stability Computation.

10.3.7 Live Load impact shall not be considered in the design of an abutment or pier unless the bridge bearings are supported by a structural beam, such as the seat of a spill-through abutment or a pier cap supported by individual columns, piles or shafts. In such a case, the impact shall be applied to the beam only, and not to footings or piles.

11. Shoring Design

Shoring design shall conform to AREMA Section 8.28.5

12. Submittals

Submittals for design and construction of shoring projects shall be coordinated and submitted through the Manager of Contracts. To expedite reviews, submittals must be complete, clearly explained and orderly. Design review for shoring shall be reviewed by the Director of Engineering in the office of the Chief Engineer and/or through an outside consultant at the expense of the owner. Prior to any review, Manager of Contracts shall receive authorization from the agency agreeing to pay all review costs for the design and construction phases of the project. Once such an agreement is established, Manager of Contracts shall request and secure a proposal from an outside consultant to cover review expenses. Review expenses shall include all costs for in-house personnel and/or consultants retained by the Railroad. This estimated cost of Plan Review and the construction monitoring phase of the project shall be provided to the submitting agency for review and approval. Once the Manager of Contracts has received the submitting agency's written acceptance of the estimated cost, the review of plans can begin. If, during the review process, the estimated costs are determined to be insufficient to cover said costs, the owner will be advised. The original estimated costs will not be the upper limit of the costs, but will provide a guideline for budgeting purposes. Regardless, all reasonable costs incurred during the plan review process and construction monitoring phase of the work will be fully recoverable from the agency.

12.1. Two (2) sets of plans and two (2) sets of the calculations shall be submitted to the Manager of Contracts. Drawings and calculations for excavations which encroach into railroad live load surcharge Zone "A" (see General Shoring Requirements Sheet S1.0) shall be sealed by a registered professional engineer in the applicable state. Allow two (2) weeks for in-house review by the Director of Engineering. The Manager of Contracts will then forward the plans along with KCSRC comments to the outside consultant for review. Allow three (3) additional weeks for review by the outside consultant.

Appendix A

Shoring Design Checklist

Appendix A

Shoring Design Checklist

The checklist is intended to act as a reminder to design or check for specific important aspects of the shoring system. It is not a substitute for plan and/or design criteria or specification requirements.

Instructions:

Respond to every question on the checklist. Submit the checklist with the design plans and calculations to KCSRC. Attach to the checklist detailed explanation of any negative response.

	QUESTIONS	YES	NO	N/A
1.	Are the steps for method of installation and removal of shoring system given?			
2.	Are the shoring design plans and calculations prepared by, stamped, and signed by an engineer registered to practice engineering in the jurisdiction in which the project is being constructed?			
3.	Are shoring plans in compliance with the requirements of the construction plans, project specifications and general notes?			
4.	Are all existing, adjusted or new utilities in proximity with the proposed shoring shown on the shoring plans and is protection of these utilities addressed?			
5.	Are minimum construction clearance requirements of 12 feet horizontal at right angle to centerline of track and 21 feet vertical from top of rail satisfied and shown on the shoring plans?			
6.	Has E80 loading been used to design the shoring system?			
7.	Has the pressure of E80 live load from continuous strip of surcharge load q (psf) parallel to shoring been computed using the equation shown below? $P_S = \frac{2q}{\pi}(\beta + \sin\beta \sin^2\alpha - \sin\beta \cos^2\alpha)$ where $q = \frac{80{,}000 \text{ lbs}}{(5 \text{ feet})(8.5 \text{ feet})}$			
8.	Are the magnitude and location of all loads incorporated into the design plans and calculations?			
9.	Are the material properties used to determine design stresses for each different shoring member shown on the shoring plans?			
10.	Are all components of shoring system designed per AREMA and KCSRC requirements?			
11.	Are the allowable stress and the calculated stress listed in the summary for each different shoring member?			
12.	If "finished' lumber is specified for shoring by the shoring designer, are the actual lumber dimensions used in calculation shown?			
13.	Have ground water elevation and seepage into the excavation been addressed?			
14.	Are steel structural shapes and plates identified by ASTM specification number on the shoring plan and in the calculations?			
15.	Have steel beams been checked for bending, shear, web crippling and buckling of the compression flange and any other potential failure mode?			
16.	Has buckling been evaluated for all compression members?			
17.	Has bracing been provided at all points of assumed support for compression members?			
18.	Are bracing strength and stiffness sufficient for the intended purpose?			
19.	Has the deflection of the shoring system been calculated and found to meet the			

	requirements of Table 1?			
20.	Do the shoring plans indicate the Contractor will monitor top-of-rail elevation and track alignment?			

	QUESTIONS	YES	NO	N/A
21.	Have seismic concerns been considered and addressed?			
22.	Are all construction components clearly shown on the plans?			
23.	Do the drawings show all controlling dimensions and elevations of shoring system?			
24.	If second-hand material will be utilized, is the inspection report included?			
25.	Are protective fencing height and limits shown on the plans? If a fence is not practical, is an alternative closure system provided?			
26.	Do the plans and specifications identify the backfill material and the compaction requirements?			
27.	Are two (2) copies of the shoring design plans and two (2) copies of the complete design calculations included in the submittal package to KCSRC?			
28.	For excavations in Zone "A", are drawings and calculations sealed by a registered professional engineer?			

Section V

Drawings and AREMA Exhibits

Index

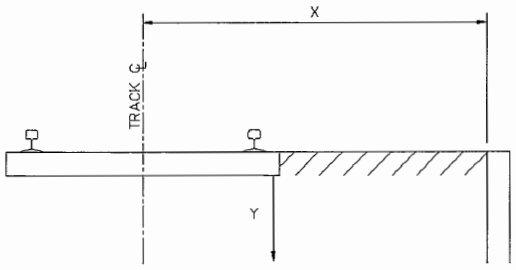
Chart A

Boussinesq Surcharge Pressure Due to E80 Live Load (psf) For Shoring Parallel to the Track

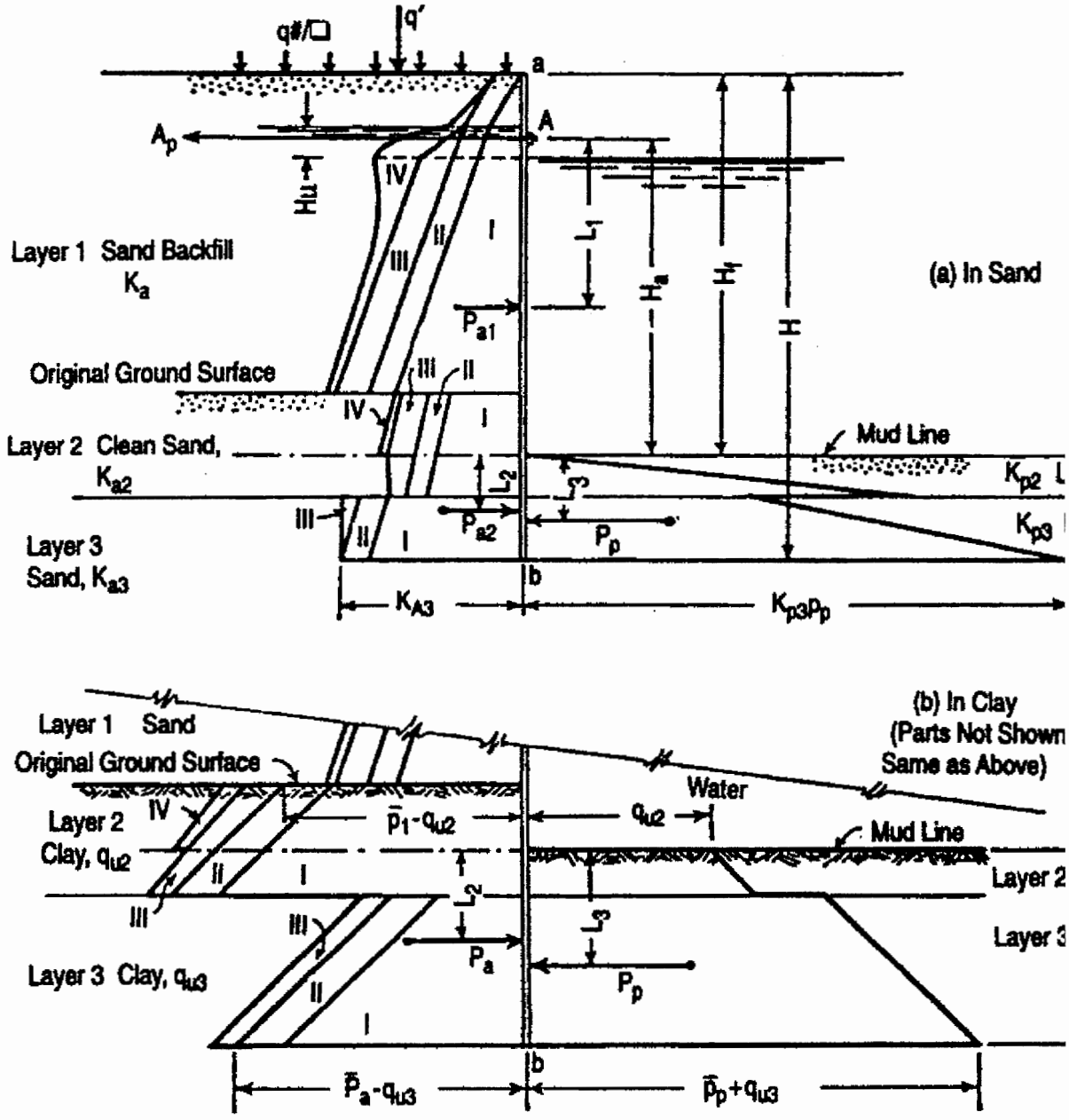
Depth (y) Below Base of Rail (ft.)	Distance (x) from Track Side of Shoring System to Track Centerline (ft)																	
	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	157	131	112	97	84	74	66	59	53	48	43	40	36	33	31	28	26	25
2	299	252	216	188	164	145	129	115	104	94	86	78	72	66	61	57	52	49
3	415	355	307	268	236	210	187	168	152	138	126	115	106	97	90	84	78	72
4	499	434	380	335	298	266	239	215	195	178	163	149	137	127	118	109	102	95
5	552	489	434	387	347	312	282	256	233	214	196	180	167	154	143	133	124	116
6	577	520	469	424	384	348	317	290	266	244	225	208	193	179	166	155	145	136
7	579	532	487	446	408	374	344	316	291	269	249	231	215	200	187	175	164	154
8	565	527	491	455	422	390	362	335	311	289	269	251	234	219	205	192	181	170
9	539	512	483	454	426	398	372	348	325	304	284	266	249	234	220	207	195	184
10	506	488	468	445	422	399	376	354	333	313	295	278	261	246	232	219	207	196
11	469	460	447	430	412	394	374	355	337	319	302	285	270	256	242	229	218	206
12	432	429	422	411	398	384	368	352	336	320	305	290	276	262	249	237	225	215
13	395	398	396	390	381	371	359	346	332	319	305	292	279	266	254	242	231	221
14	360	367	369	367	362	355	346	336	326	314	302	291	279	268	257	246	235	225
15	327	337	342	343	342	338	332	325	317	307	298	288	277	267	257	247	238	228
16	297	308	316	320	322	320	317	312	306	299	291	283	274	265	256	247	239	230
17	269	282	291	298	301	302	301	299	295	289	283	276	269	261	254	246	238	230
18	244	258	268	276	281	284	285	284	282	279	274	269	263	257	250	243	236	229
19	221	235	247	256	262	267	269	270	269	267	264	260	256	251	245	239	233	227
20	201	215	227	237	244	250	254	256	256	256	254	251	248	244	239	235	229	224
21	182	196	209	219	227	234	238	242	243	244	243	242	240	237	233	229	225	220
22	166	180	192	202	211	218	224	228	231	232	233	232	231	229	226	223	220	216
23	151	164	176	187	196	204	210	215	218	221	222	223	222	221	219	217	214	211
24	138	151	162	173	182	190	197	202	206	209	212	213	213	213	212	210	208	206
25	126	138	150	160	169	177	184	190	195	199	201	203	204	205	204	203	202	200
26	115	127	138	148	157	165	173	179	184	188	191	194	195	196	197	196	196	194
27	106	117	127	137	146	154	162	168	173	178	182	185	187	188	189	189	189	188
28	97	108	118	127	136	144	151	158	163	168	172	176	178	180	182	182	183	182
29	89	99	109	118	127	135	142	148	154	159	163	167	170	172	174	175	176	176
30	82	92	101	110	118	126	133	139	145	150	155	159	162	165	167	168	169	170

Notes:

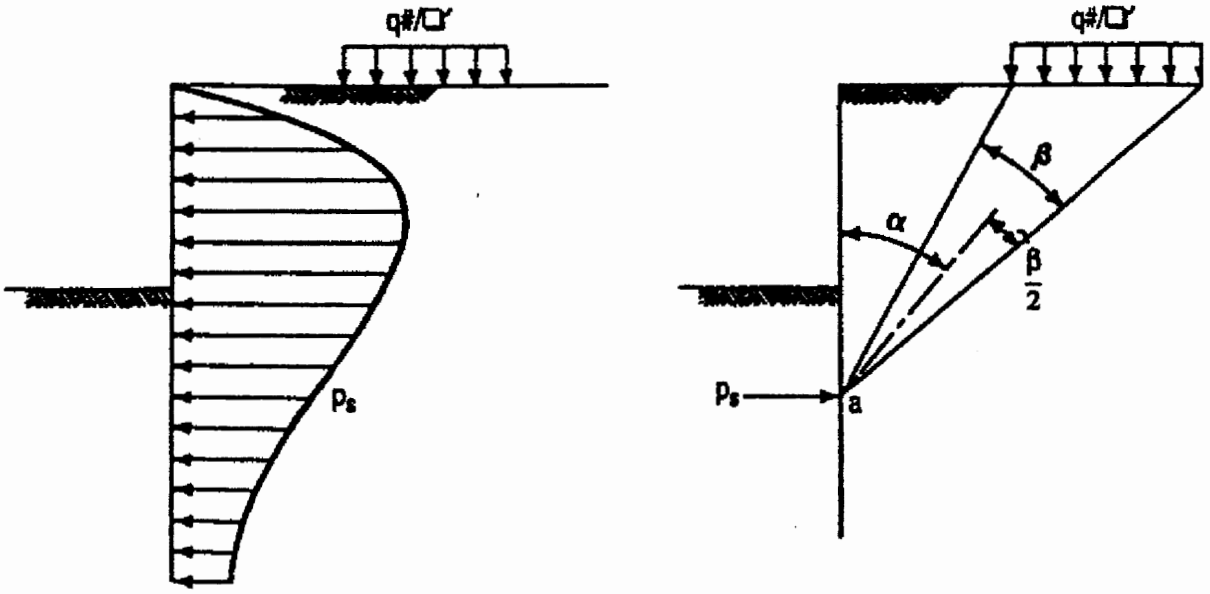
1. This chart assumes the top of shoring elevation is equal to the base of rail elevation. Additional surcharge due to the earth load above top of shoring must be added if this is not the case.
2. Use the Boussinesq equation to calculate pressures past 29 ft. or deeper than 30 ft. (see Section IV, item 8.1)
3. No shoring is allowed within 12'-0" of track centerline.



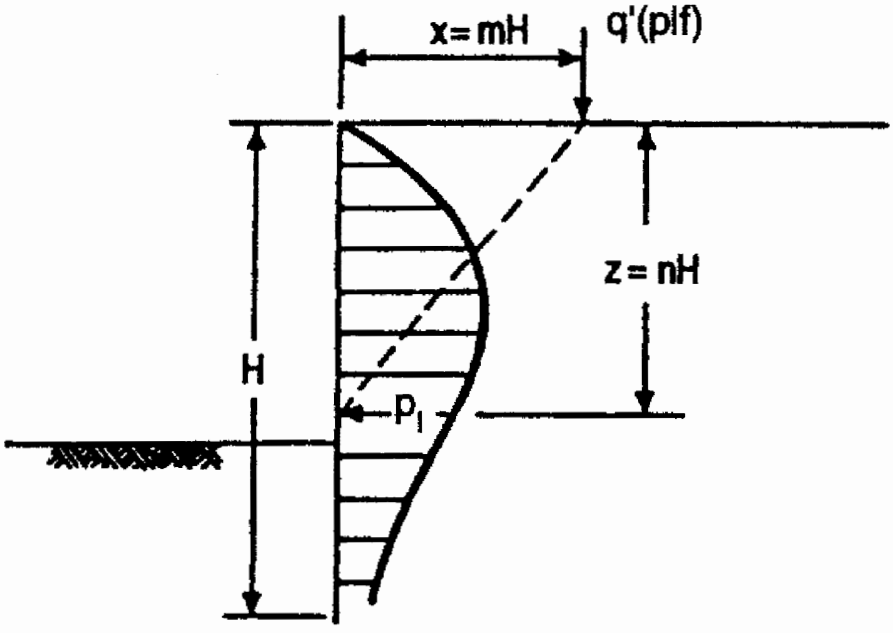
AREMA Figure 8-20-1 - Lateral Pressure Diagrams

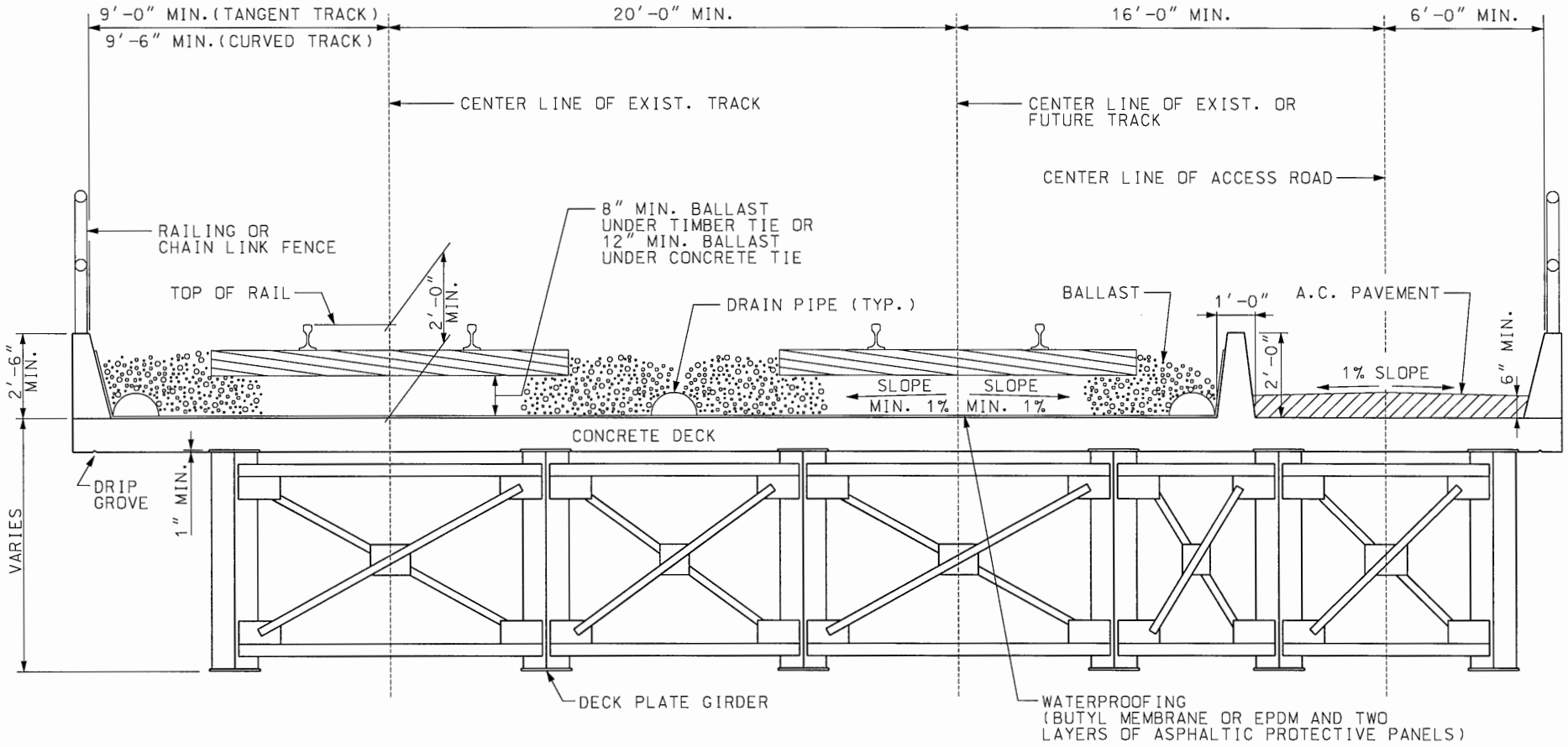


AREMA Figure 8-20-2 - Pressure Distribution for Strip Load



AREMA Figure 8-20-3 - Pressure Distribution for Line Load

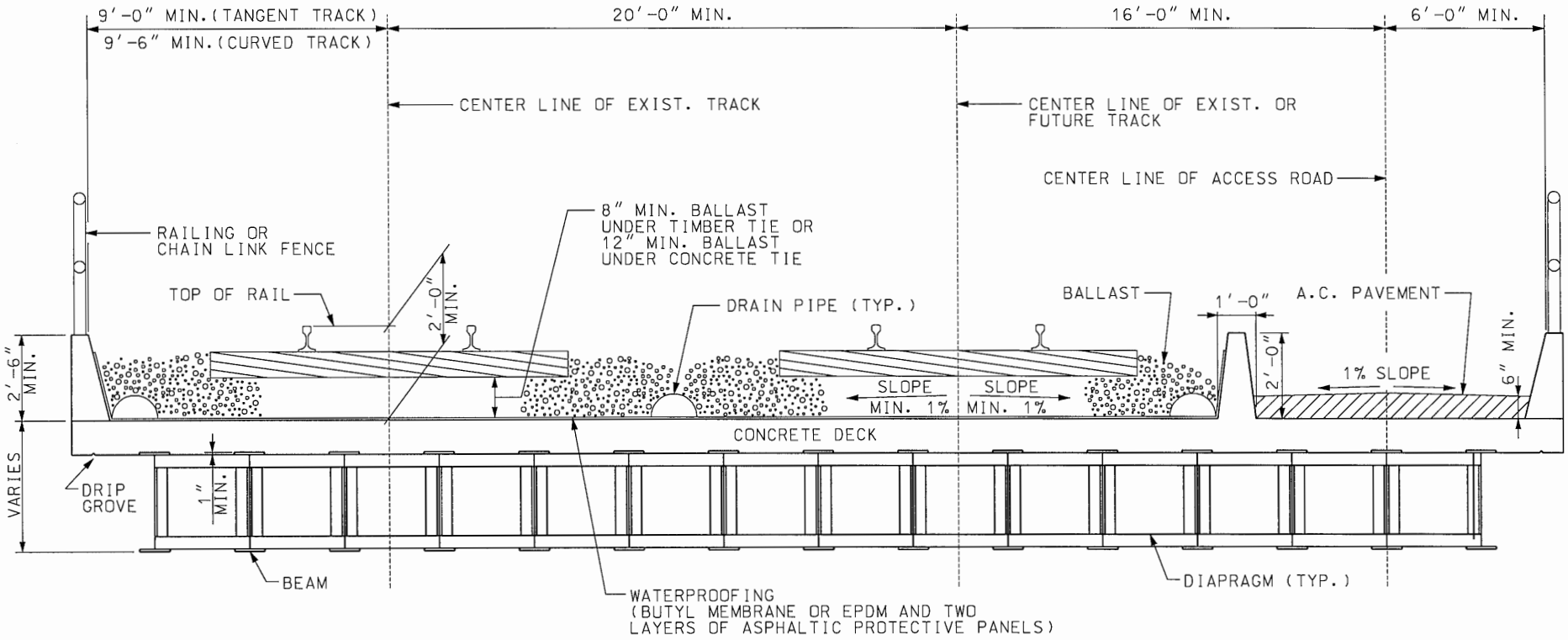




STEEL DECK PLATE GIRDERS WITH CONCRETE DECK
NO SCALE

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.
	STEEL DECK PLATE GIRDER SPAN WITH CONCRETE DECK

DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005082

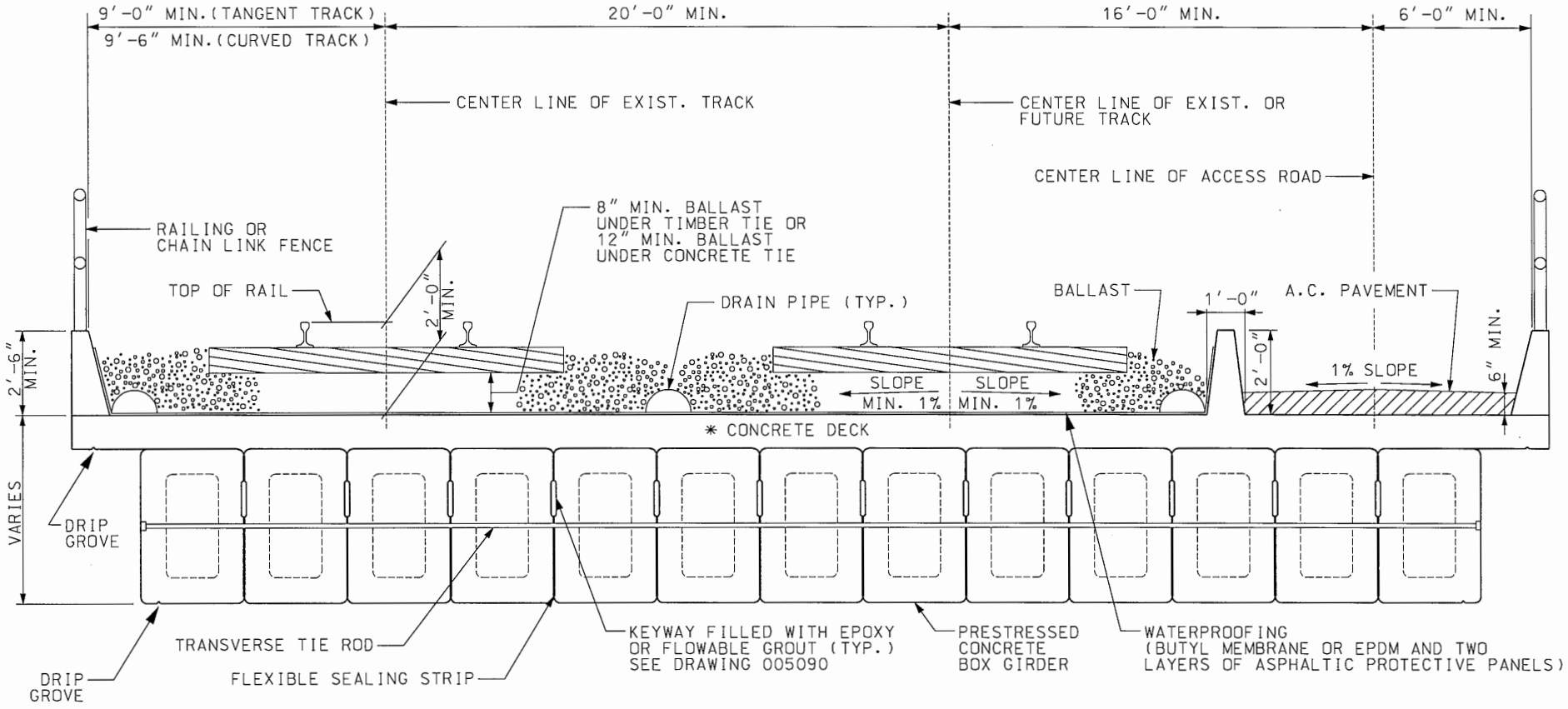


STEEL BEAMS WITH CONCRETE DECK
NO SCALE

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.

STEEL BEAM SPAN WITH CONCRETE DECK

DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005083



PRECAST CONCRETE BOX GIRDERS WITH CAST IN PLACE CONCRETE DECK

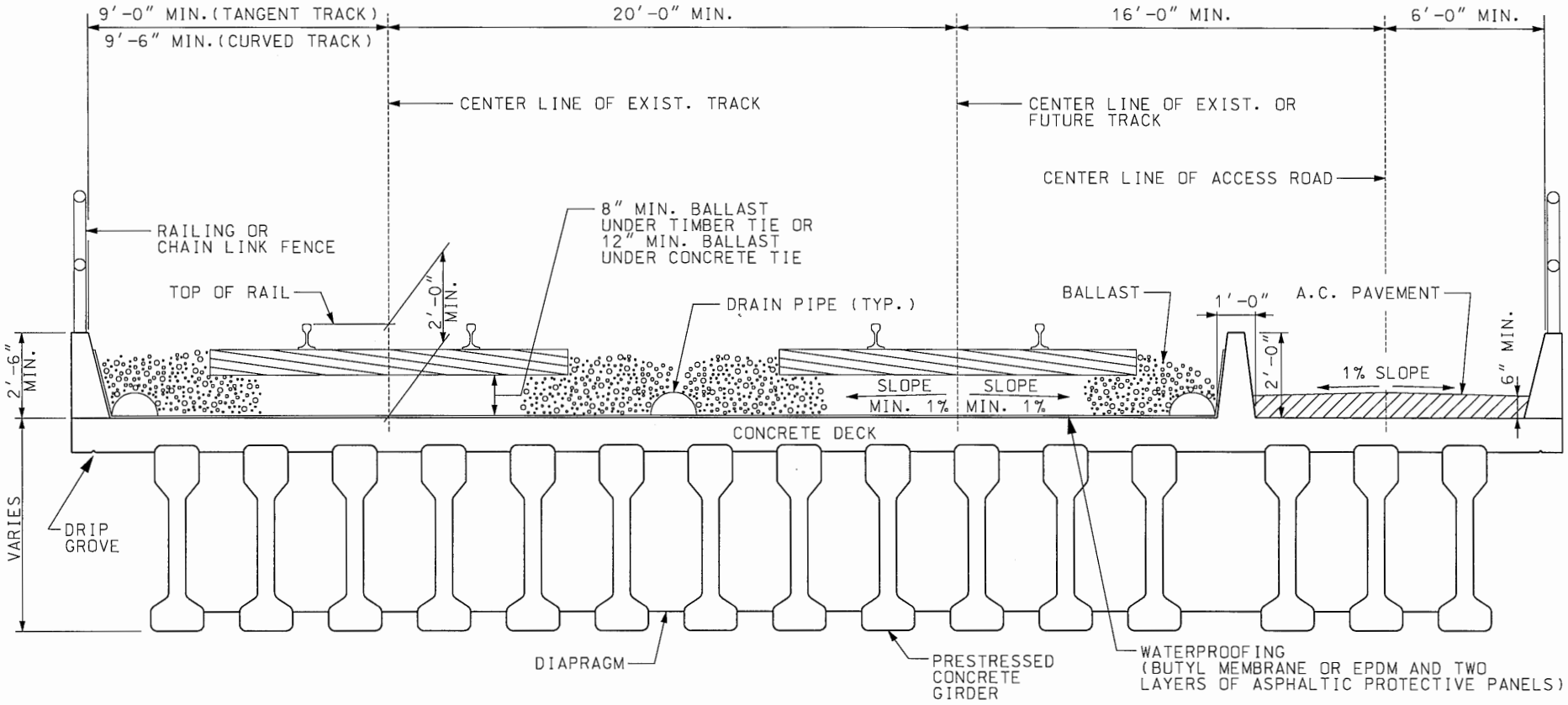
NO SCALE

* CONCRETE DECK IS OPTIONAL

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.

PRE-STRESSED PRE-CAST CONCRETE BOX GIRDER SPAN WITH OR WITHOUT CONCRETE DECK

DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005084



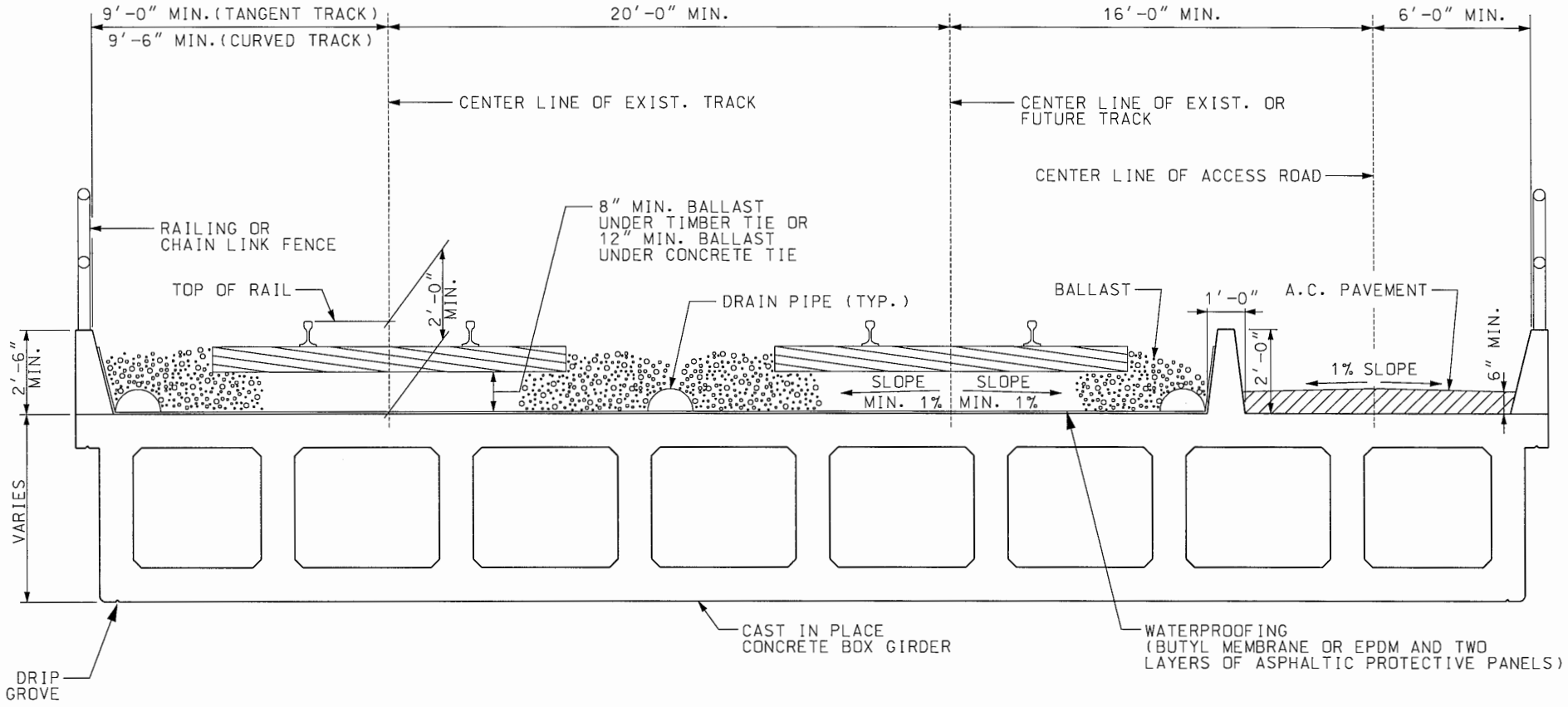
PRECAST CONCRETE BEAMS WITH CAST IN PLACE CONCRETE DECK

NO SCALE

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.

PRE-STRESSED PRE-CAST AASHTO- TYPE BEAM SPAN WITH CONCRETE DECK

DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005085

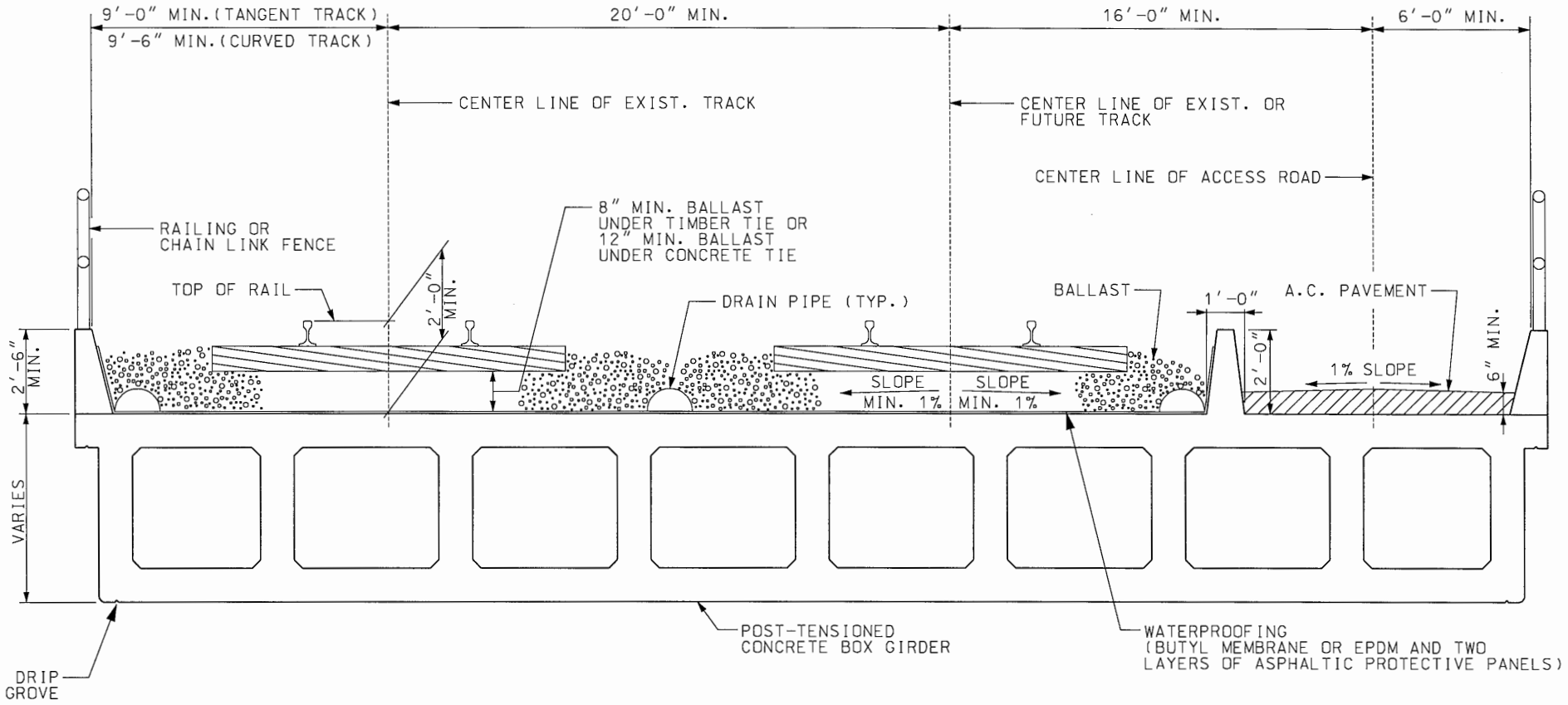


CONVENTIONAL REINFORCED CONCRETE BOX GIRDERS
NO SCALE

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.

CAST-IN PLACE CONCRETE BOX GIRDER SPAN CONVENTIONAL REINFORCED

DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005086

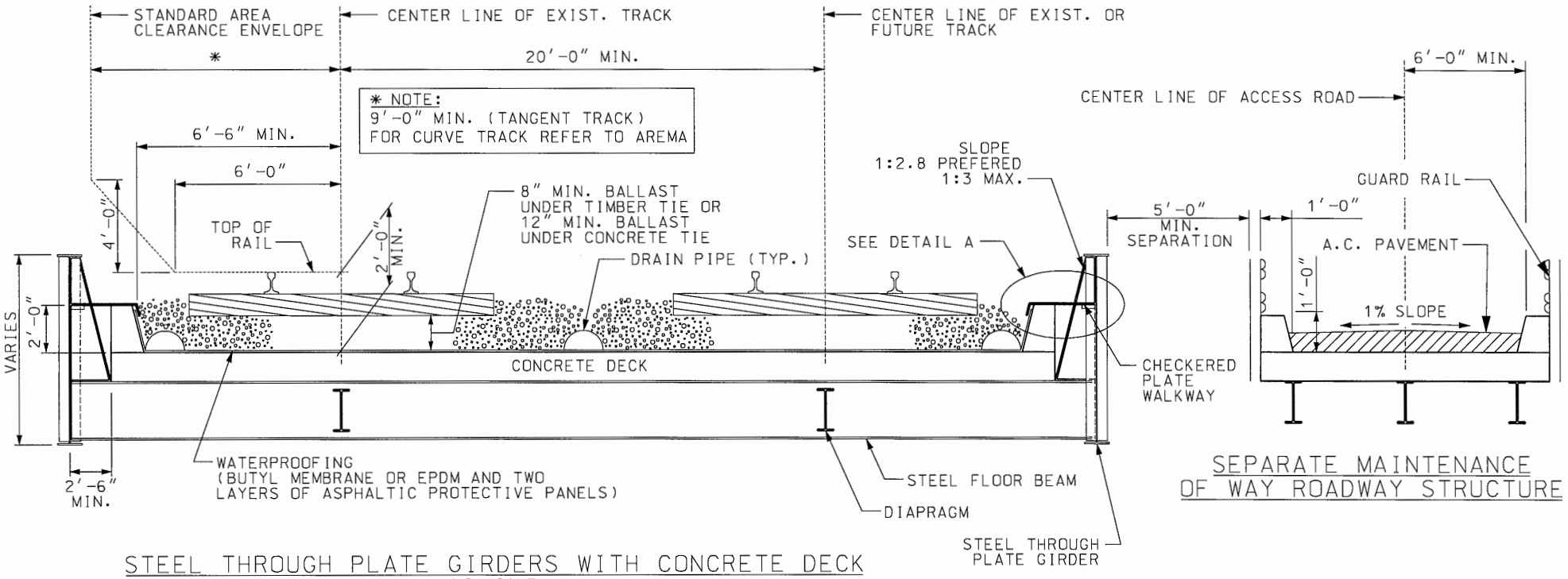


POST-TENSIONED CONCRETE BOX GIRDERS
NO SCALE

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.

CAST-IN PLACE POST-TENSIONED CONCRETE BOX GIRDER SPAN

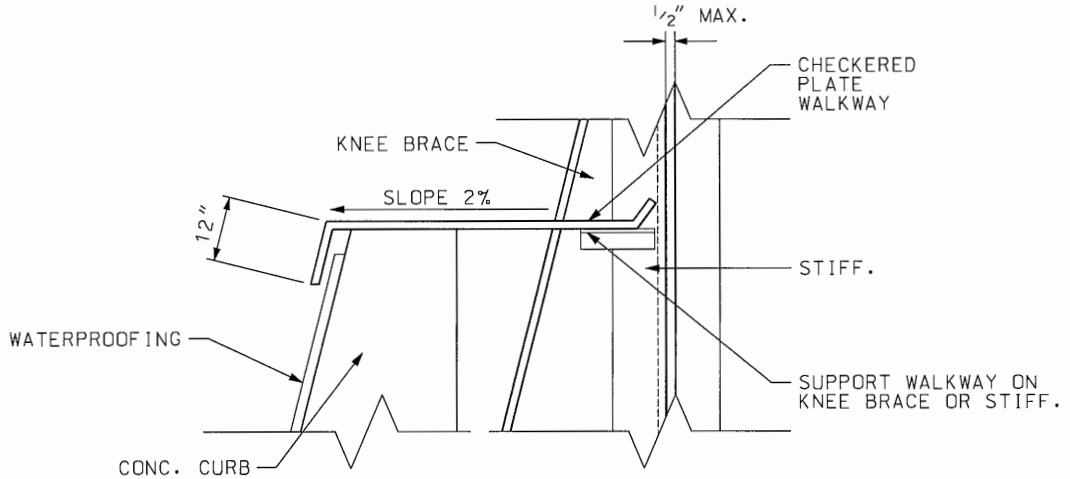
DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005087



STEEL THROUGH PLATE GIRDERS WITH CONCRETE DECK

NO SCALE

SEPARATE MAINTENANCE OF WAY ROADWAY STRUCTURE

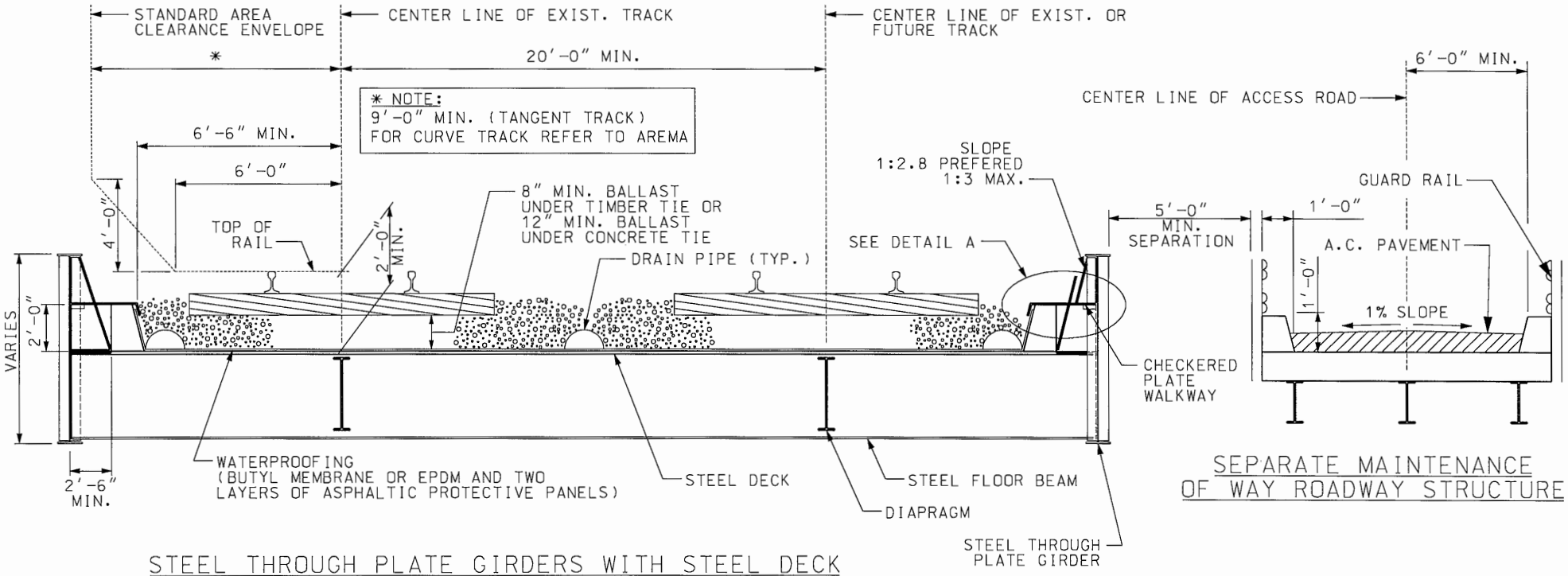


DETAIL A

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.

STEEL THROUGH PLATE GIRDER SPAN WITH CONCRETE DECK

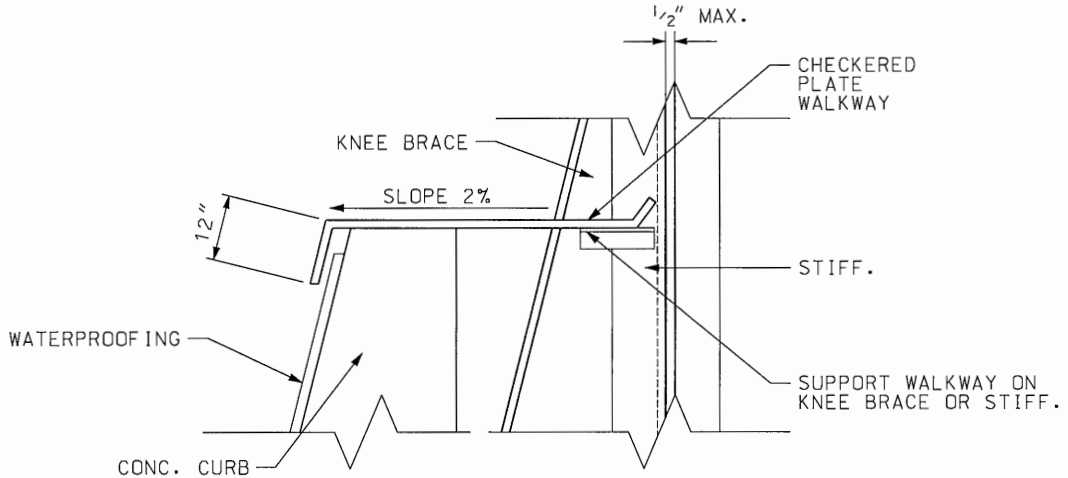
DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005088



STEEL THROUGH PLATE GIRDERS WITH STEEL DECK

NO SCALE

SEPARATE MAINTENANCE OF WAY ROADWAY STRUCTURE



DETAIL A

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.

STEEL THROUGH PLATE GIRDER SPAN WITH STEEL DECK

DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005089

PROCEDURE FOR GROUTING BETWEEN GIRDERS
(EPOXY GROUT)

1. BEFORE SETTING GIRDERS, THOROUGHLY WIRE BRUSH THE ENTIRE CONTACT SURFACES OF EACH GIRDER.

2. INSTALL 2 LAYERS OF 3" x 4" FLEXIBLE SEALING STRIPS (POLY-URETHANE-ETHER TYPE DENSITY 1.5) AT THE BOTTOM OF THE GAP AND AROUND TIE ROD HOLES AND ENDS OF GIRDERS TO PREVENT GROUT LEAKAGE. THE MAXIMUM GAP BETWEEN GIRDERS SHOULD BE 3/4".

3. INSTALL TIE RODS AND TENSION 50%.

4. PLACE 4" SAND ON TOP OF SEALING STRIPS TO PROTECT SEALING STRIPS FROM EPOXY HEAT.

5. FILL THE GAP WITH DRY CLEAN PEA GRAVEL (1/2" MAXIMUM SIZE). IN COLD WEATHER, HEAT THE PEA GRAVEL.

6. POUR EPOXY GROUT TO FILL ALL VOIDS IN GAP. THIS MAY TAKE 2 TO 3 SUCCESSIVE POURINGS.

7. TENSION TIE RODS 100%.

PROCEDURE FOR GROUTING BETWEEN GIRDERS
(NON SHRINK CEMENTITIOUS FLOWABLE GROUT

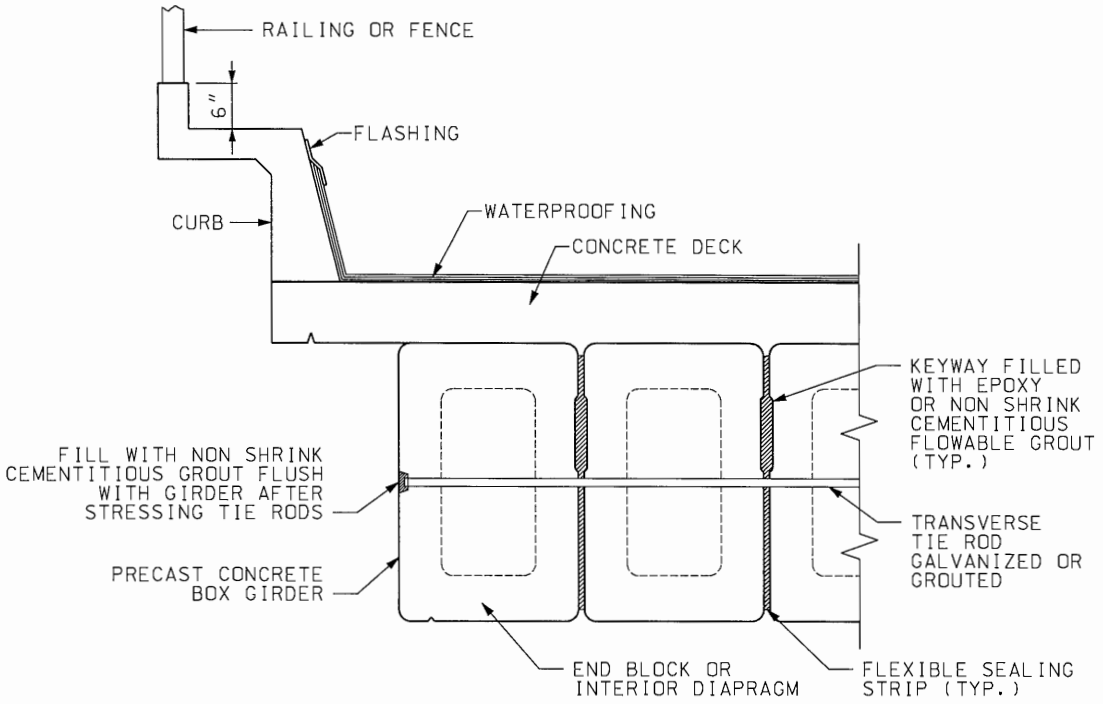
1. BEFORE SETTING GIRDERS, THOROUGHLY WIRE BRUSH THE ENTIRE CONTACT SURFACES OF EACH GIRDER.

2. INSTALL 2 LAYERS OF 3" x 4" FLEXIBLE SEALING STRIPS (POLY-URETHANE-ETHER TYPE DENSITY 1.5) AT THE BOTTOM OF THE GAP AND AROUND TIE ROD HOLES AND ENDS OF GIRDERS TO PREVENT GROUT LEAKAGE. THE MAXIMUM GAP BETWEEN GIRDERS SHOULD BE 3/4".

3. INSTALL TIE RODS AND TENSION 50%.

4. PLACE FLOWABLE NON SHRINK CEMENTITIOUS GROUT BETWEEN GIRDERS. (GROUT TO BE MIXED TO A POURABLE CONSISTENCY. THE MATERIAL SHALL BE MIXED TO A COMBINATION BETWEEN FLOWABLE AND FLUID SO AS NOT TO FORM AIR POCKETS BETWEEN GIRDERS WHILE BEING POURED).

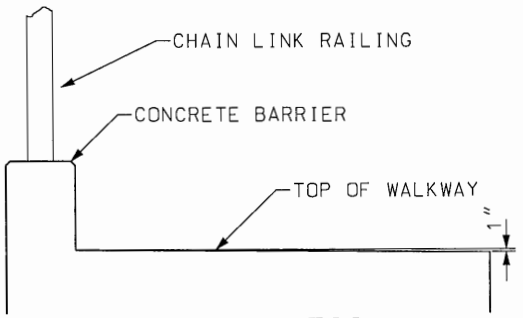
5. AFTER GROUT HAS REACHED A COMPRESSIVE STRENGTH OF 3000 P.S.I., TENSION TIE RODS 100%.



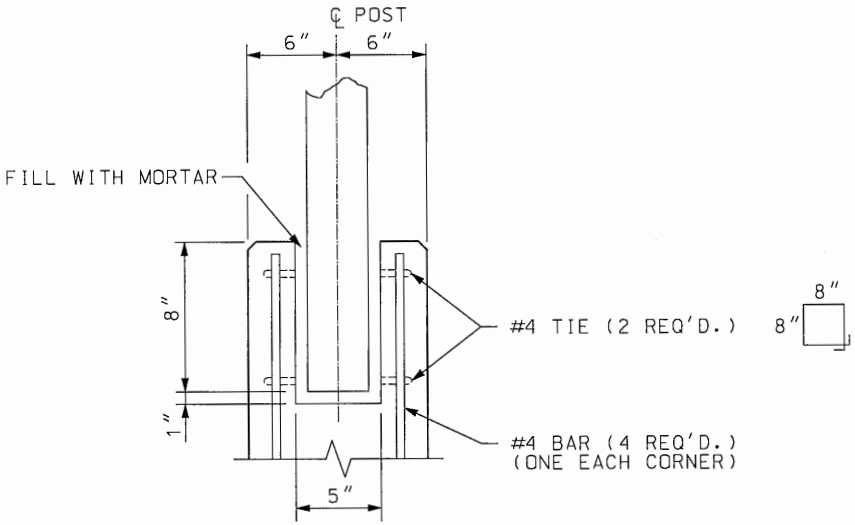
MULTIPLE PRESTRESSED CONCRETE GIRDER BONDING DETAIL
NO SCALE

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.
	BONDING DETAILS FOR MULTIPLE PRE-STRESSED PRE-CAST CONCRETE GIRDERS

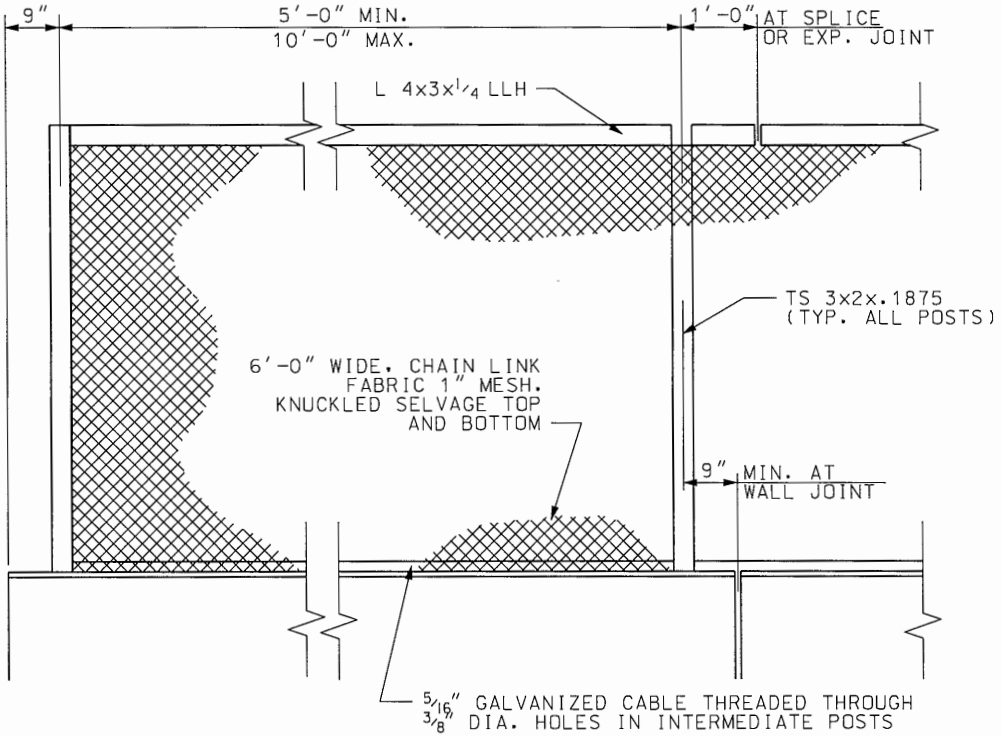
DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005090



TYPICAL SECTION
NO SCALE



POST ANCHORAGE DETAIL
NO SCALE



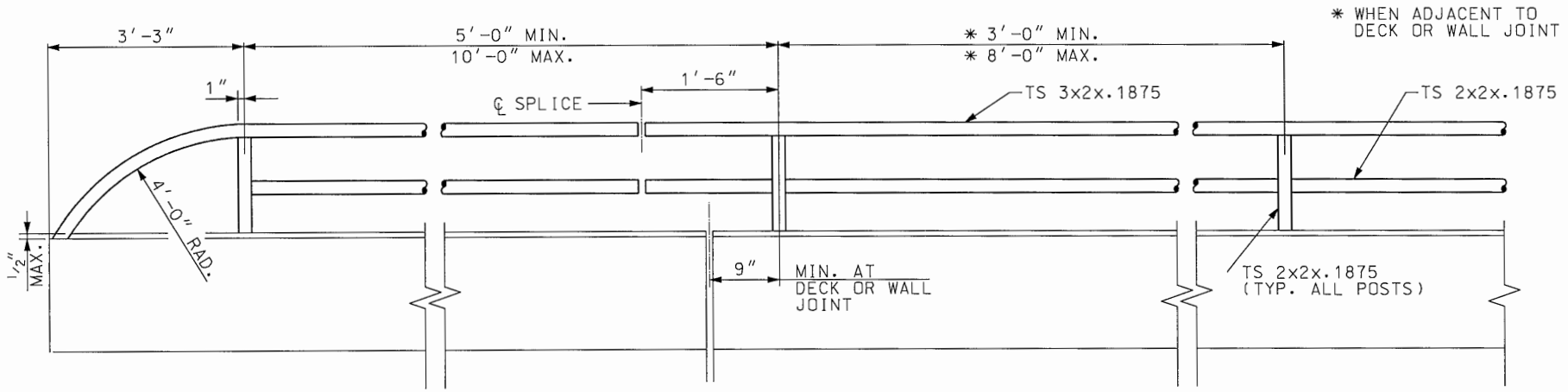
RAILING ELEVATION
NO SCALE

NOTES:

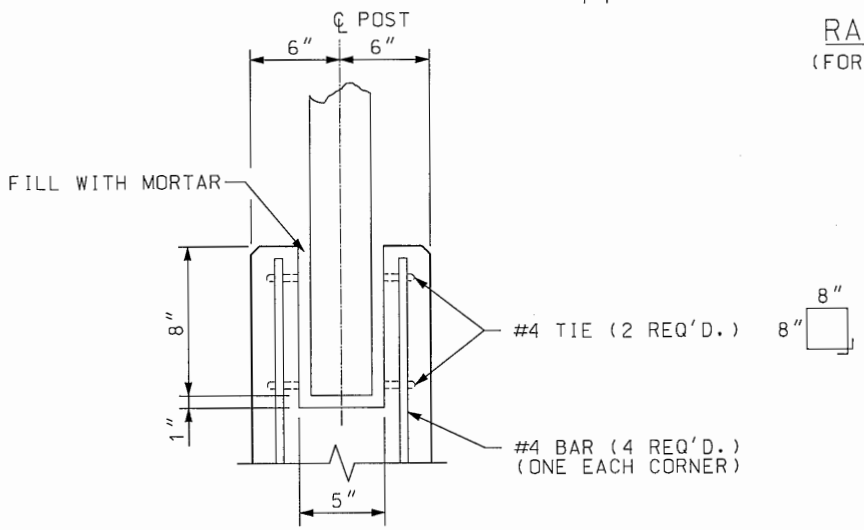
1. RAILING ASSEMBLY EXCEPT CHAIN LINK FABRIC TO BE GALVANIZED AFTER FABRICATION.
2. POSTS SHALL BE VERTICAL.
3. PROVIDE HARDWARE AND DETAILS FOR ATTACHMENTS TO CABLE, POSTS, AND TOP RAILING.
4. PROVIDE SPLICE AND EXPANSION JOINT DETAILS.

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.
	CHAIN LINK RAILING DETAILS

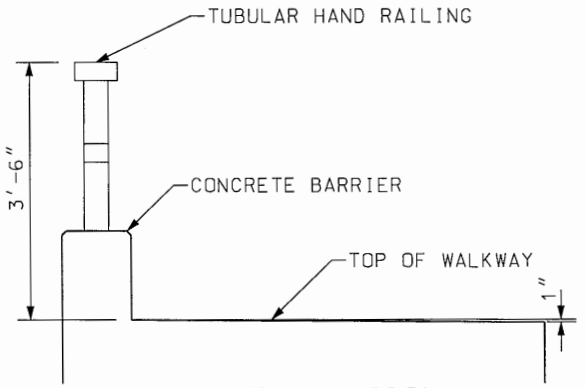
	DRAWN BY	DATE	VAL. SEC.	SHEET NO.
Kansas City Southern Lines	RGT	1/27/05		1
	CHECKED BY	SCALE	FILE	DRAWING NO.
		NTS		005091



RAILING ELEVATION
(FOR USE IN RURAL LOCATIONS)
NO SCALE



POST ANCHORAGE DETAIL
NO SCALE



TYPICAL SECTION
NO SCALE

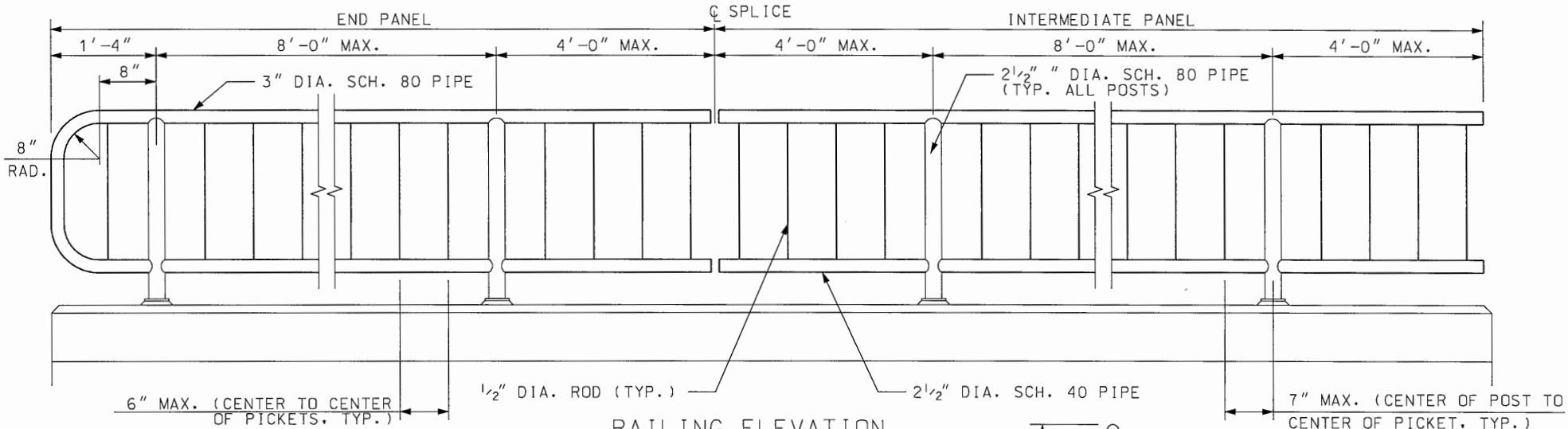
NOTES:

1. GALVANIZE RAIL ASSEMBLY AFTER FABRICATION.
2. POSTS SHALL BE VERTICAL.
3. PROVIDE RAILING CONNECTION DETAILS.
4. PROVIDE SPLICE AND EXPANSION JOINT DETAILS.

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.

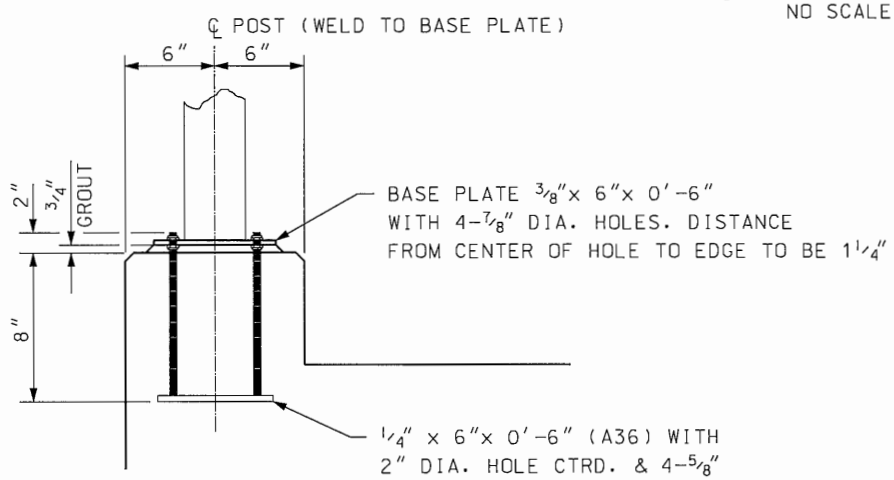
TUBULAR HAND RAILING DETAILS

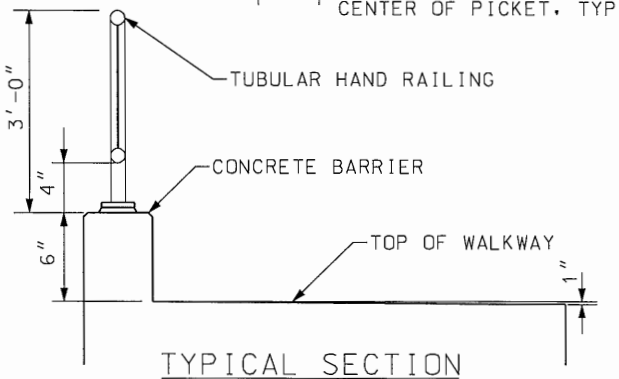
DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005092



RAILING ELEVATION

(FOR USE IN RURAL LOCATIONS)
NO SCALE





TYPICAL SECTION

NO SCALE

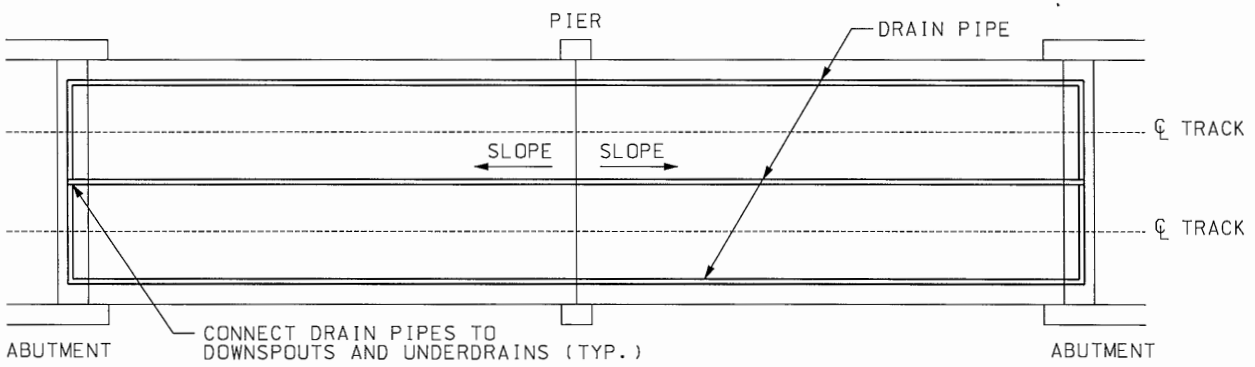
NOTES:

1. GALVANIZE RAIL ASSEMBLY AFTER FABRICATION.
2. POSTS SHALL BE VERTICAL.
3. PROVIDE RAILING CONNECTION DETAILS.
4. PROVIDE SPLICE AND EXPANSION JOINT DETAILS.

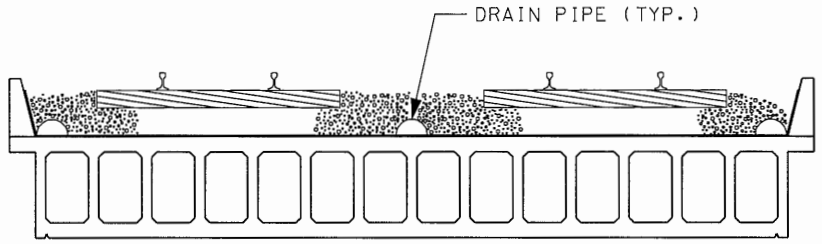
REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.

PICKET HAND RAILING DETAILS

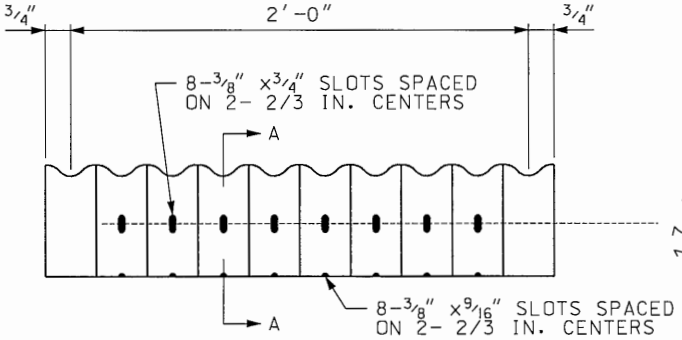
DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005093

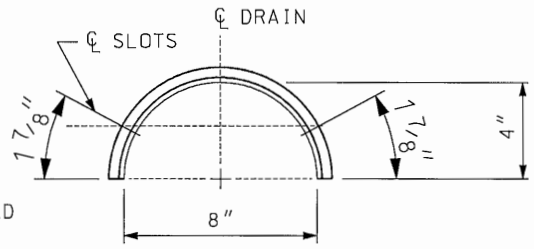


DECK PLAN
NO SCALE



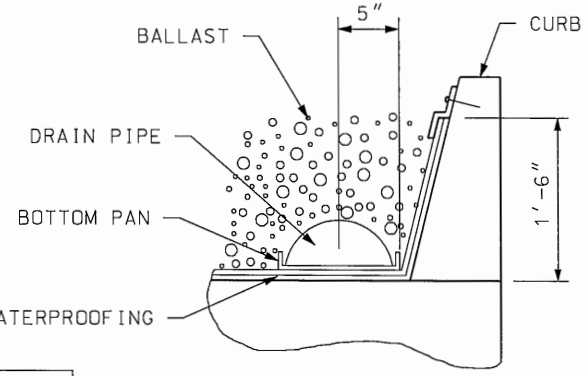
TYPICAL DECK SECTION
NO SCALE





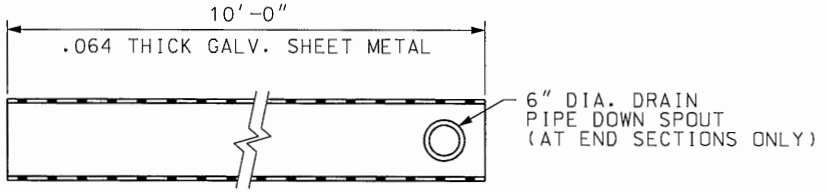
SECTION A-A

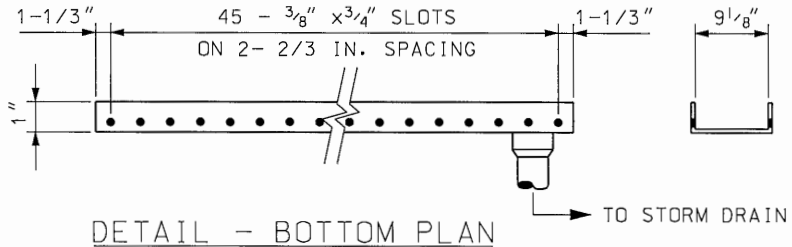
DETAIL - DRAIN PIPE
NO SCALE



NOTE: LAP DRAIN PIPE ONE CORRUGATION AT EACH END.

LOCATION OF DRAIN PIPE
NO SCALE





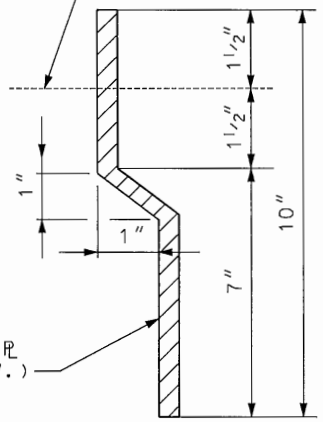
DETAIL - BOTTOM PLAN
NO SCALE

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.

DECK DRAIN DETAILS

DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005094

℄ LONG SLOTTED HOLE @ 2'-0" MAX. CENTERS FOR ½" DIA. A-325 BOLT

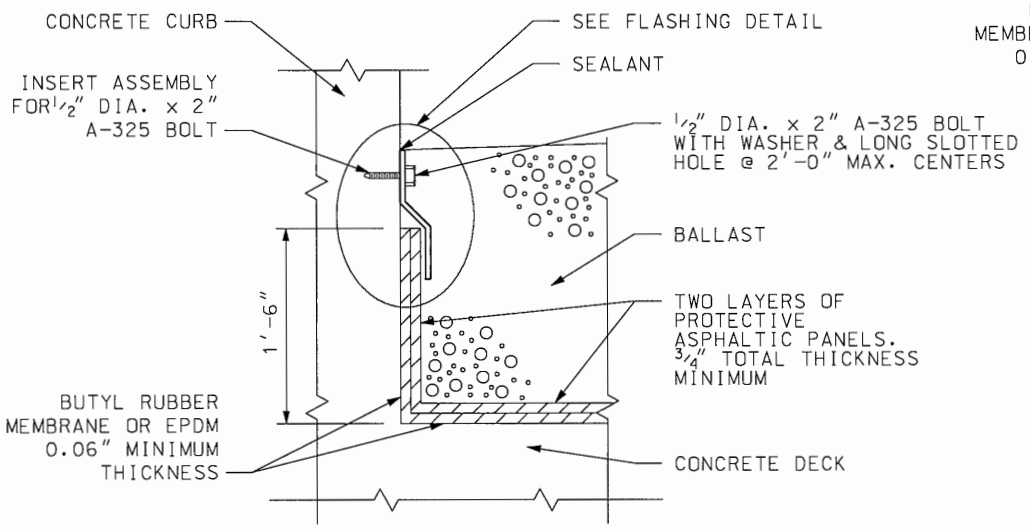


¼" STEEL PL (A36, GALV.)

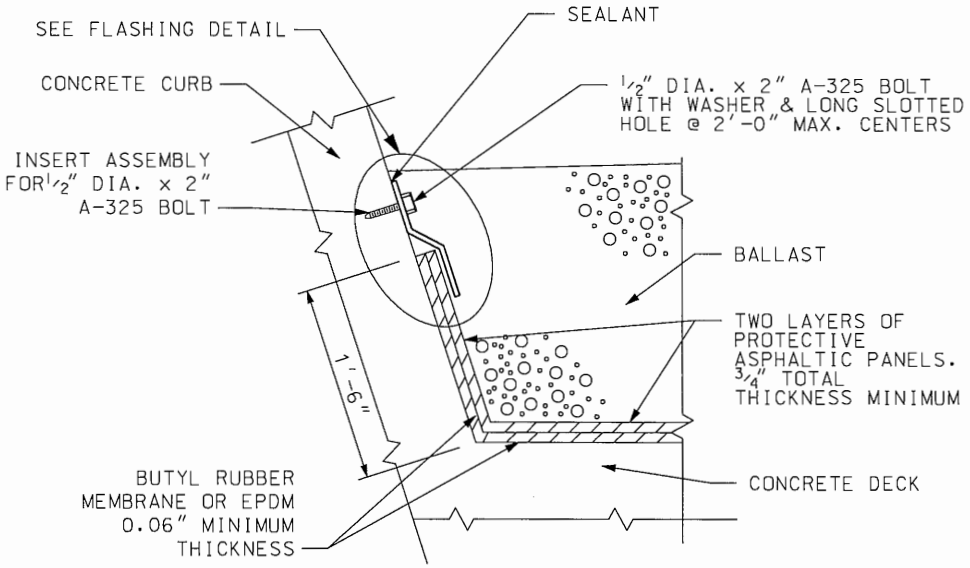
FLASHING DETAIL
NO SCALE

NOTES:

1. ALL STRUCTURAL STEEL PLATES, BOLTS AND WASHERS SHALL BE GALVANIZED.
2. DISCONTINUE FLASHING OVER PIERS AND ABUTMENTS.



ALTERNATIVE 1
NO SCALE

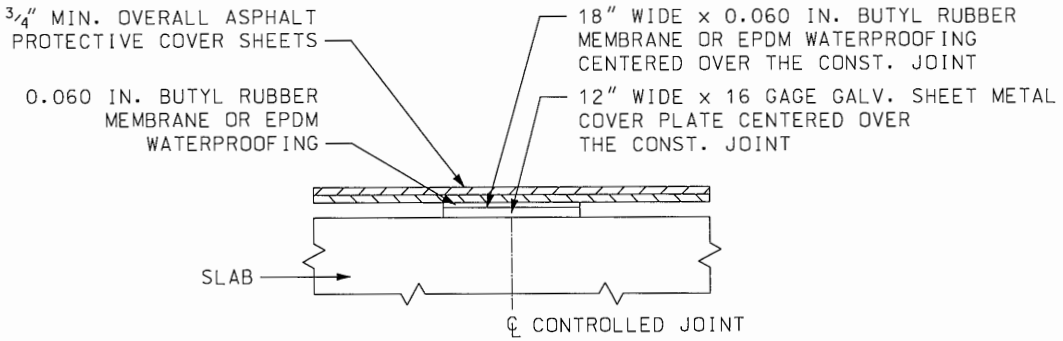


ALTERNATIVE 2
NO SCALE

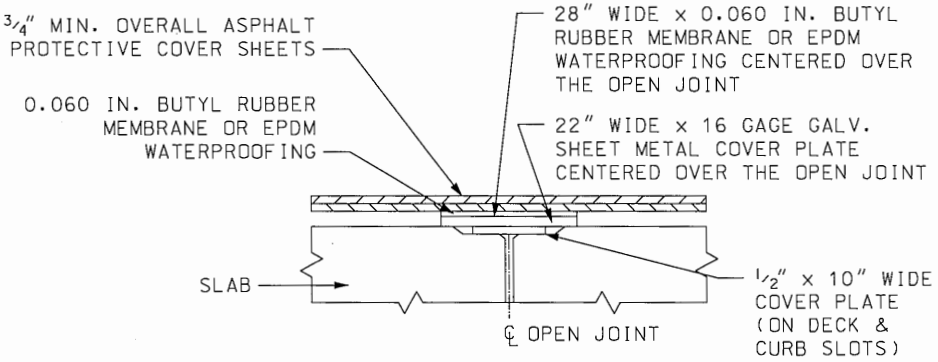
REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.

FLASHING DETAILS FOR WATER-PROOFING

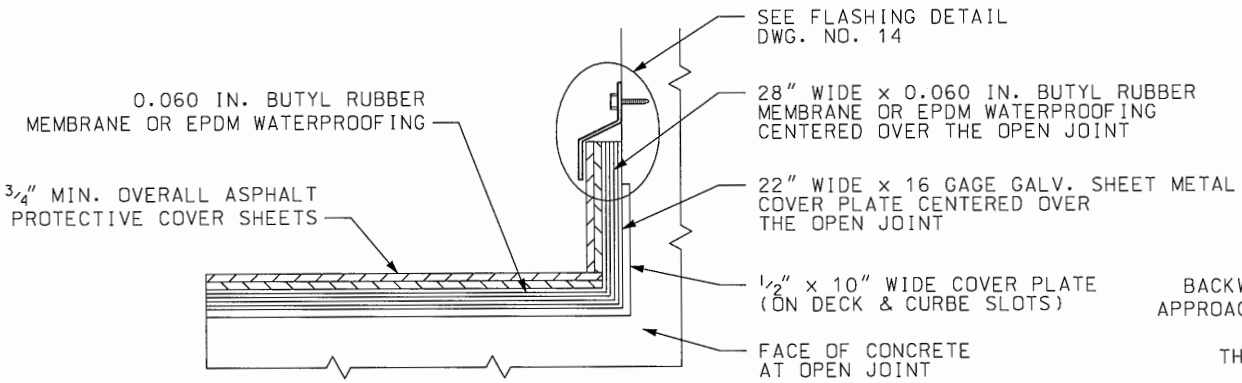
DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005095



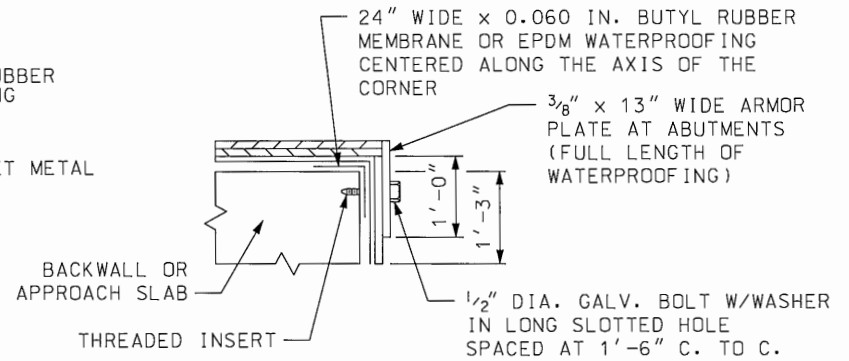
TYPICAL LONGITUDINAL SECTION
AT CONTROLLED JOINT
NO SCALE



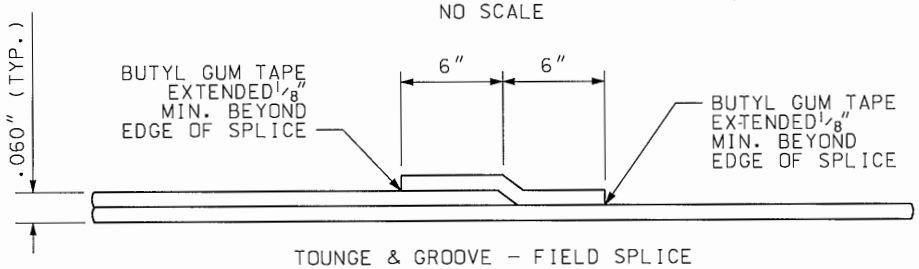
TYPICAL LONGITUDINAL SECTION
AT CONTROLLED JOINT
NO SCALE



TYPICAL TRANSVERSE SECTION
AT OPEN JOINT
NO SCALE



TYPICAL LONGITUDINAL SECTION
AT END OF BACKWALL / APPROACH SLABS
NO SCALE

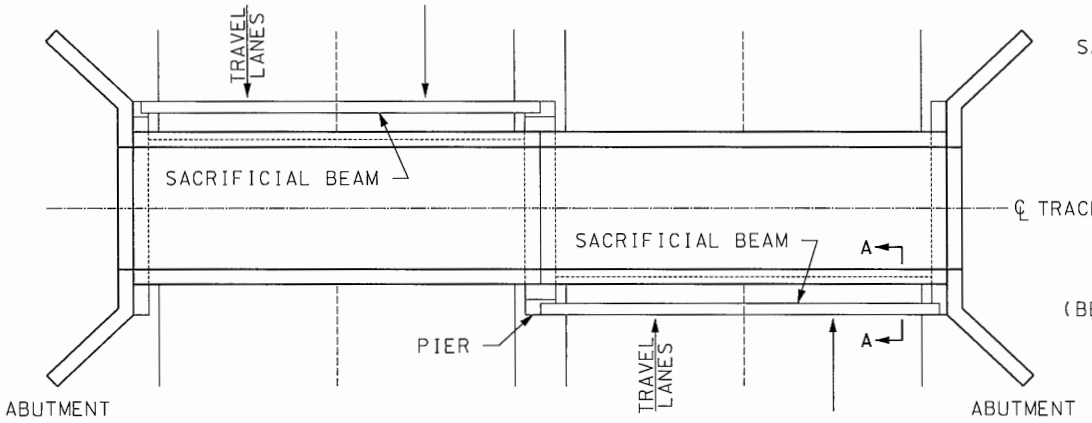


BUTYL RUBBER MEMBRANE OR EPDM
WATERPROOFING SPLICE DETAIL
NO SCALE

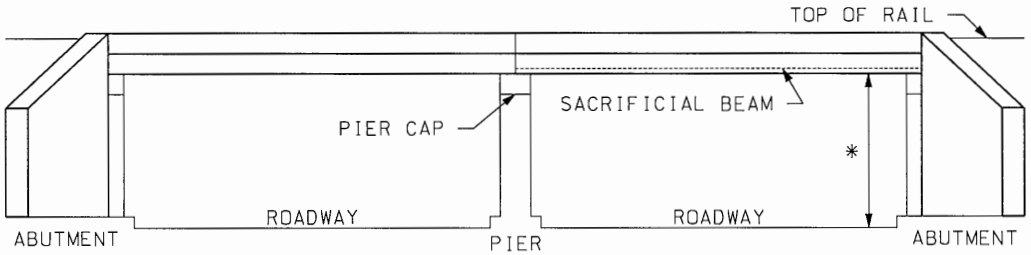
REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.

WATER-PROOFING DETAILS

DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005096



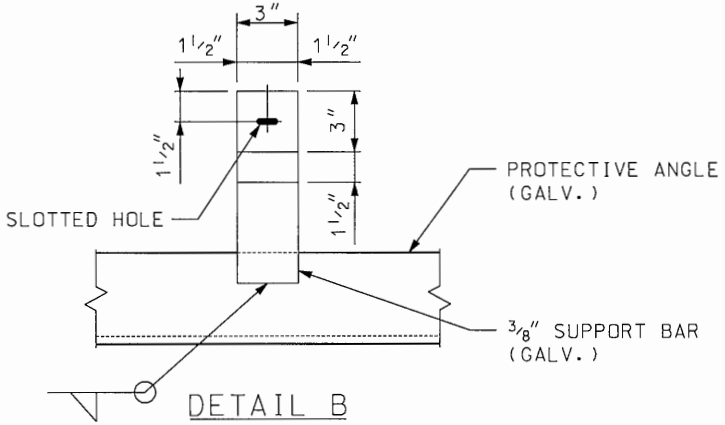
PLAN



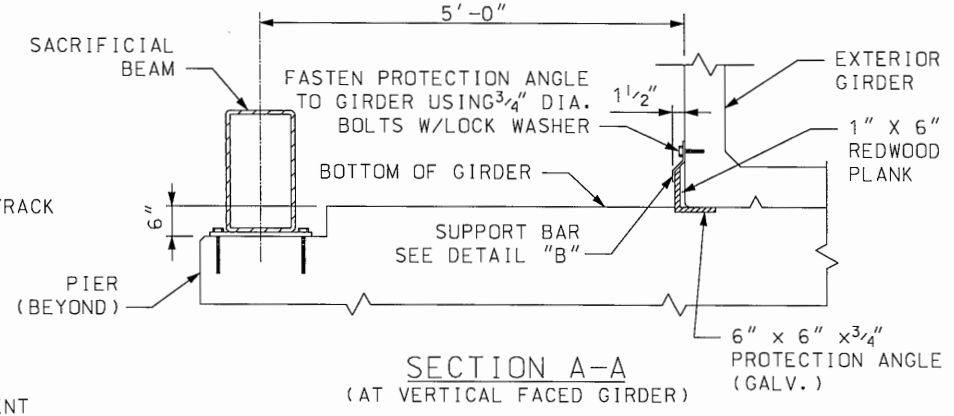
ELEVATION

LAYOUT OF COLLISION IMPACT DEVICES & SACRIFITIAL BEAM

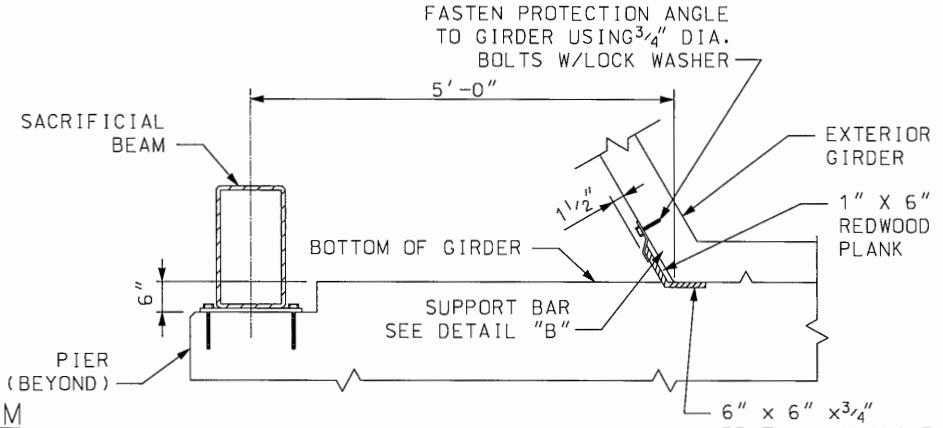
* MIN. VERTICAL CLEARANCE REFER TO TEXT



DETAIL B



SECTION A-A
(AT VERTICAL FACED GIRDER)

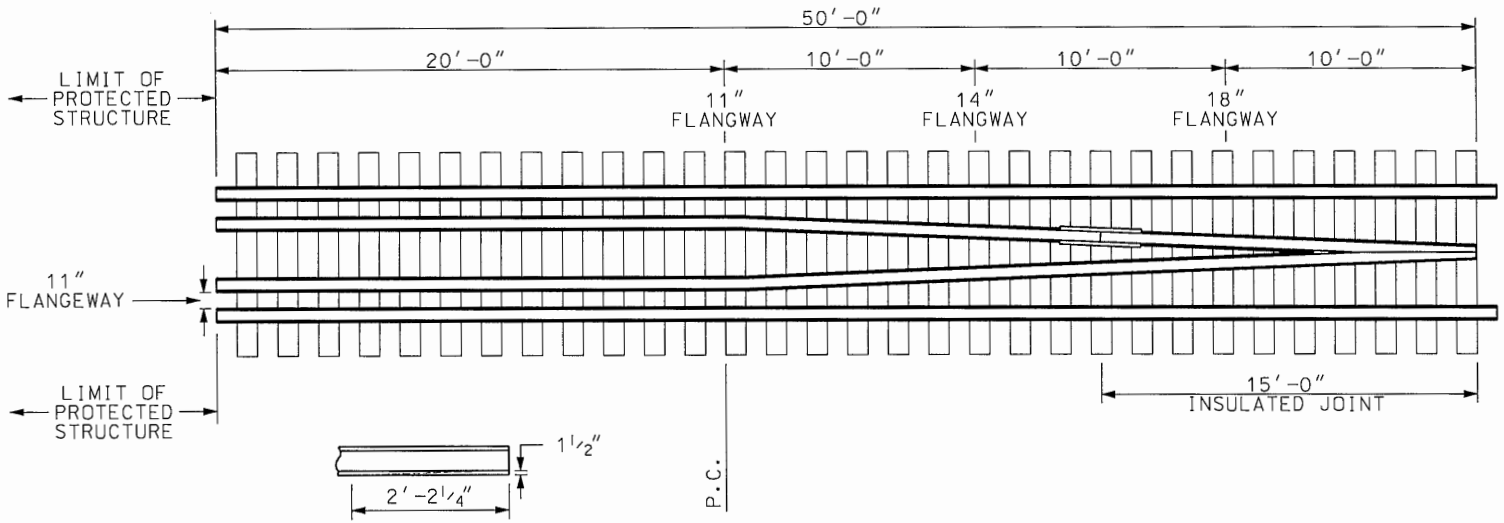


SECTION A-A
(AT SLOPED FACED GIRDER)

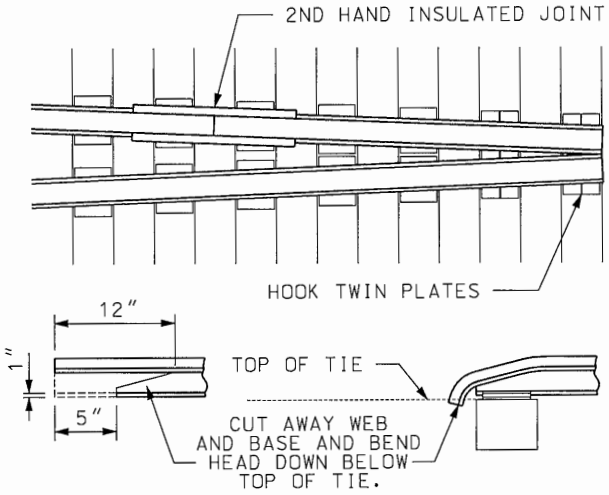
REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.
	COLLISION IMPACT DEVICES AND SACRIFICIAL BEAM

DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005097

GENERAL ARRANGEMENT



CUT RAIL BASE AT POINT END OF GUARD



DEPRESSED RAIL HEAD DETAIL

INSTALLATION

GRADE SEPARATION STRUCTURES:
DOUBLE INSIDE GUARD RAILS ARE TO BE INSTALLED ON ALL F.R.A. CLASS 4 AND 5 TRACK WHERE HORIZONTAL CLEARANCES ON BOTH SIDES ARE LESS THAN 18 FEET FROM THE CENTERLINE OF TRACK TO A SUPPORTING MEMBER. CLASS 2 CARRYING MORE THAN 20 M.G.T. TRAFFIC AND ALL CLASS 3 TRACK SHALL HAVE DOUBLE INSIDE GUARD RAILS INSTALLED WHERE HORIZONTAL CLEARANCE ON BOTH SIDES IS LESS THAN 12'-6" FROM THE CENTERLINE OF TRACK TO A STRUCTURE SUPPORTING MEMBER.

BRIDGES LOCATED ON CLASS 3, 4, AND 5 TRACK, ALONG WITH BRIDGES LOCATED ON CLASS 2 TRACK WITH OVER 20 M.G.T.

DOUBLE INSIDE GUARD RAILS ARE TO BE INSTALLED ON:
ALL THROUGH OR DECK TRUSSES AND THROUGH PLATE GIRDER SPANS.
ALL BRIDGES THAT ARE 40 FEET OR HIGHER AND 150 FEET IN LENGTH, AND ON ALL BRIDGES 30 FEET OR MORE IN LENGTH WHERE CURVATURE EXCEEDS 5 DEGREES; UNLESS EXCEPTION IS APPROVED BY CHIEF ENGINEER.

NOTES:
INSIDE GUARD RAILS SHALL BE MADE FROM SECOND HAND RAIL AND MAY BE OF THE SAME RAIL SECTION AS THE RUNNING RAILS BUT MUST NOT BE MORE THAN 23 LBS. LIGHTER THAN THE RUNNING RAILS.

NO INSIDE GUARD RAIL LIGHTER THAN 70 LBS. SHALL BE USED.

INSIDE GUARD RAILS ARE TO BE FULLY TIE PLATED WITH SECOND HAND TIE PLATES, WHERE CLEARANCES PREVENTS THE USE OF TIE PLATES, HOOK TWIN PLATES CAN BE USED IN GUARD RAIL CONVERGENCE AREA.

MINIMUM CLEARANCE BETWEEN THE RUNNING RAIL PLATES AND THE GUARD RAIL PLATES MUST NOT BE LESS THAN 1".

INSTALL GUARD RAIL PLATES SO AS TO CANT THE GUARD RAIL OUTWARD TOWARD THE RUNNING RAIL. WHEN SINGLE SHOULDER FLAT GUARD RAIL PLATES ARE USED, INSTALL THE PLATES WITH THE SHOULDERS ON THE INSIDE TOWARD THE CENTER OF THE TRACK.

INSIDE GUARD RAILS TO BE SPIKED TO THEIR FULL LENGTH WITH 2 SPIKES PER TIE. WHERE NECESSARY, PARTICULARLY ON CURVES, DOUBLE SPIKE GUARD RAIL BOTH INSIDE AND OUT.

ALL GUARD RAIL JOINTS TO BE FULLY BOLTED AND WHEN AVAILABLE, SECOND HAND JOINTS SHOULD BE USED.

GUARD RAIL TO BE LAID WITH FULL RAIL (NO JOINTS) IN THE CURVED POSITION.

GRADE SEPARATION SUPPORTING MEMBER REFERS TO POSTS, COLUMNS, BENTS, PIERS, ABUTMENTS, ETC. SUPPORTING BRIDGES, VIADUCTS, ETC. OVER OR ADJACENT TO THE TRACK.

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.
	DOUBLE INSIDE GUARDRAIL

DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
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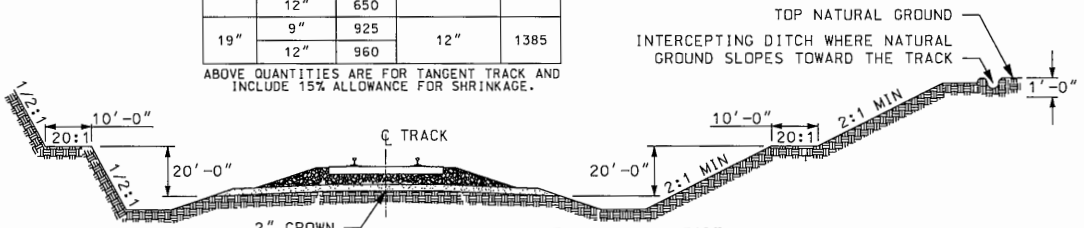
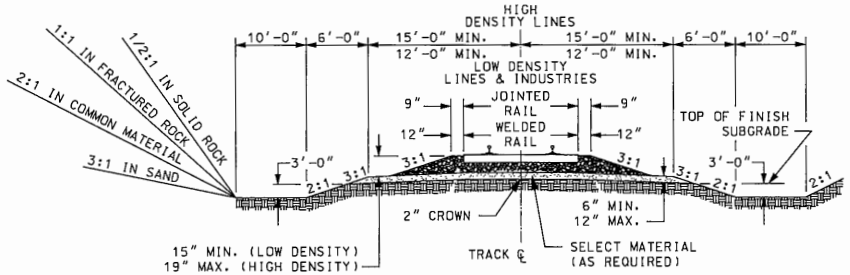
	NTS		005098

MATERIAL REQUIRED FOR 1000 FEET OF SINGLE TRACK				
DEPTH	SHOULDER	CUBIC YARDS	DEPTH ABOVE TOP SUBGRADE	CUBIC YARDS
15"	9"	625	6"	700
	12"	650		
19"	9"	925	12"	1385
	12"	960		

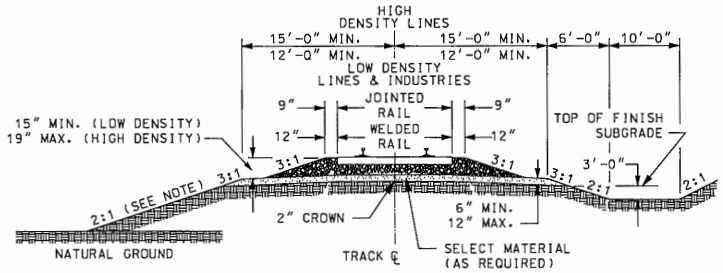
ABOVE QUANTITIES ARE FOR TANGENT TRACK AND INCLUDE 15% ALLOWANCE FOR SHRINKAGE.



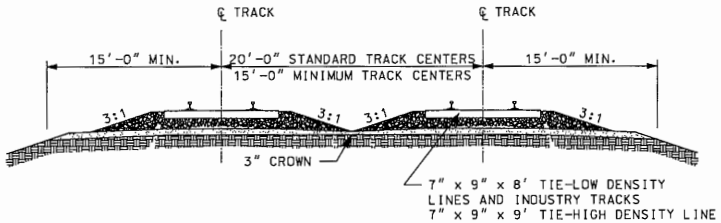
DEEP CUT SECTIONS



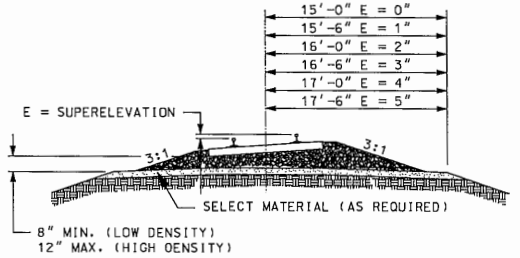
ROADBED SECTIONS IN CUTS



ROADBED SECTIONS AT FILLS



BALLAST SECTION FOR TWO TRACKS



ROADBED SECTION AT CURVED TRACK

FOR DETAILS NOT SHOWN, SEE CUT AND FILL SECTIONS ELSEWHERE ON THIS SHEET

NOTES:

THE DEPTH OF BALLAST AND DEPTH OF SELECTED MATERIAL SHALL BE DECIDED ON THE BASIS OF VOLUME OF TRAFFIC AND THE QUALITY OF SELECTED MATERIAL AND SUBGRADE DETERMINED BY THE RAILROAD'S ENGINEER SUBJECT TO THE APPROVAL OF THE CHIEF ENGINEER.

SLOPES SHOWN FOR BANKS IN CUTS AND ON FILLS SHALL BE CONSIDERED STANDARD AND GENERALLY USED, BUT MAY BE MODIFIED AS REQUIRED BY LOCAL CONDITIONS AND CHARACTER OF MATERIAL.

BALLAST MUST BE EQUALIZED IN ADVANCE OF DRESSING SO THAT FINAL SECTION WILL CONFORM TO SLOPE REQUIREMENTS AND CHARACTER OF MATERIAL.

WHERE OFF-TRACK ROADWAY IS TO BE PROVIDED, ADD 8'-0" ADDITIONAL WIDTH TO THE ROADBED SECTION AT TOP OF SUBGRADE ELEVATION.

ALL FILL SLOPES SHALL BE FACED WITH COVER OF MATERIAL SUITABLE FOR GROWING GRASS AND HAVING A THICKNESS OF APPROXIMATELY 6 INCHES. THE OUTER SURFACE OF THIS COVER SHALL COINCIDE WITH THE DESIGN SLOPE OF THE EMBANKMENT. MATERIAL FOR THIS COVER MAY BE OBTAINED FROM STRIPPING.

FLOW LINE ON 0.2% MINIMUM GRADE DITCHES AND BENCHES.

FLAT BOTTOM DITCHES ARE REQUIRED FOR HIGH DENSITY LINES. HOWEVER A "V" DITCH IS ACCEPTABLE FOR INDUSTRY TRACKS WHEN RIGHT-OF-WAY IS LIMITED AND WHERE LOCAL CONDITIONS AND CHARACTER OF MATERIAL SO REQUIRE.

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.

ROADBED SECTION FOR WOOD TIE TRACK CONSTRUCTION

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RGT	1/27/05		1
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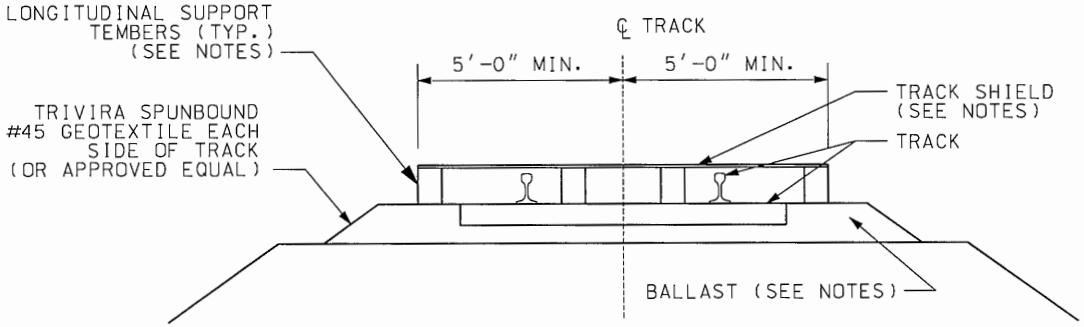
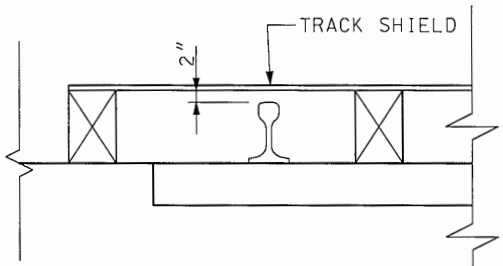
	NTS		005099



TRACK SHIELD DETAIL
FOR DEBRIS FALLING FROM BRIDGE DECK REMOVAL
(WHEN TRACK TIME WINDOW IS AVAILABLE)



BLOCKING DETAIL

NOTES:

1. A FLAGMAN IS REQUIRED AT ALL TIMES DURING THE USE OF A TRACK SHIELD.
2. THE TRACK SHIELD SHALL BE DESIGNED BY THE CONTRACTOR AND SHALL BE OF SUFFICIENT STRENGTH TO SUPPORT THE ANTICIPATED LOADS, INCLUDONG IMPACT. THE SHIELD SHALL PREVENT ANY MATERIALS, EQUIPMENT OR DEBRIS FROM FALLING ONTO THE RAILROAD TRACK. ADDITIONAL LAYERS OF MATERIAL SHALL BE FURNISHED AS NECESSARY TO PREVENT FINE MATERIALS OR DEBRIS FROM SIFTING DOWN UPON THE TRACK.
3. THE SHIELD SHOULD PREFERABLY BE PREFABRICATED AND FURNISHED WITH LIFTING HOOKS TO SIMPLFY REMOVAL.
4. THE SHIELD SHALL BE OF SUFFICIENT STRENGTH TO SPAN BETWEEN IT'S SUPPORT WITHOUT BEARING UPON THE RAILS AND TO WITHSTAND DROPPING RUBBLE.
5. BEFORE REMOVAL, THE SHIELD SHALL BE CLEANED OF ALL DEBRIS AND FINE MATERIAL.
6. THE TRACK SHIELD SHALL EXTAND AT LEAST 20 FEET BEYOND THE LIMITS OF DEMOLITION TRANSVERSE TO THE EDGE OF THE BRIDGE.
7. LONGITUDINAL SUPPORT TIMBERS FOR THE SHIELD SHALL NOT EXTEND ABOVE THE TOP OF RAIL WHEN THE SHIELD IE REMOVED. BLOCKING FROM THE TOP OF RAIL TO THE BOTTOM OF THE SHIELD MEY BE ATTACKED TO THE SHIELD. REMANINIG TIMBERS SHALL BE ANCHORED.
8. FOR TRAIN PASSAGE, THE RUBBLE SHALL BE REMOVED TO A MINIMUM OF 8'-6" FROM THE NEAREST RAIL AND TO AN ELEVATION NO HIGHRT THAN THE TOP OF RAIL.
9. AT THE END OF THE DAY, THE RUBBLE SHALL BE REMOVED COMPLETELY TO A MINIMUM OF 10'-0" FROM THE NEAREST RAIL AND DOWN TO ORIGINAL GRADE.
10. CARE SHALL BE TAKEN TO NOT PLACE METAL ACROSS THE TRACK RAILS. RAILROAD COMMUNICATIONS ARE SENT THROUGH THE RAILS AND WILL BE DISRUPTED BY A SHORT BETWEEN RAILS.
11. DETAILS SHOWN APPLY FOR TIMBER TIES. SPECIAL DETAILS ARE REQUIRED FOR CONCRETE TIES.

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.
	TRACK SHIELD DETAIL

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RGT	1/27/05		1
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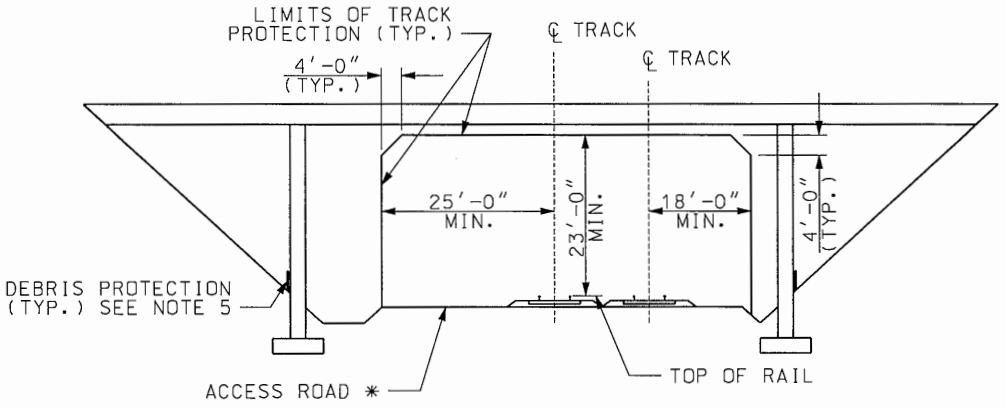
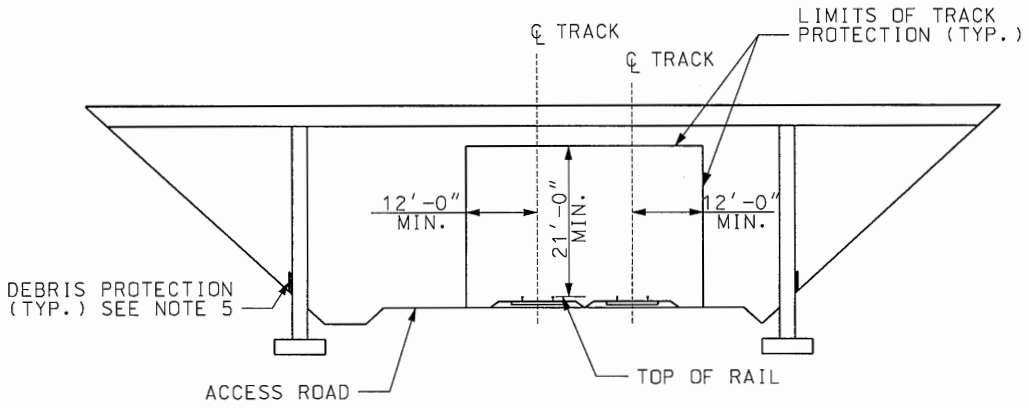
	NTS		005100



BRIDGE ELEVATION
STANDARD LIMITS OF PROTECTION FOR FRAME PROTECTION

* IF NO ACCESS ROAD, USE MIN. DIMENSION FROM OTHER SIDE OF DETAIL.



BRIDGE ELEVATION
MINIMUM LIMITS OF PROTECTION FOR FRAME PROTECTION

(SPECIAL PERMISSION REQUIRED, SEE NOTE 1)

1. THE STANDARD LIMITS OF PROTECTION NOTED ARE THE MIN. CLEARANCES ALLOWED WITHOUT SPECIAL PERMISSION FROM THE RAILROAD. THE REDUCED CLEARANCES NOTED MAY BE ALLOWED BY THE RAILROAD. SPECIAL PERMISSION FOR THE REDUCED CLEARANCES IS REQUIRED FROM THE RAILROAD SERVICE UNIT SUPERINTENDENT.
2. THE PROTECTION FRAME SHALL, AS A MINIMUM, MATCH THE DEMOLITION LIMITS SHOWN AND EXTEND PAST THE BRIDGE WIDTH AS SHOWN ON THE ATTACHED DEMOLITION SHEET.
3. FOR ADDITIONAL CLEARANCE AND PROTECTION INFORMATION SEE STANDARD DRAWING NO. 005104.
4. THE PROTECTION FRAME SHALL PREVENT DEMOLITION DEBRIS, DUST AND FINE MATERIAL FROM FALLING ONTO THE RAILROAD TRACKS, ACCESS ROADS OR TRAINS. THE FRAME SHALL BE DESIGNED BY THE CONTRACTOR TO SUPPORT THE ANTICIPATED DEMOLITION LOADS AND IN ACCORDANCE WITH AREMA GUIDELINES FOR DESIGN OF FALSEWORK FOR STRUCTURES OVER THE RAILROAD.
5. DEBRIS PROTECTION IS REQUIRED NEAR THE BASE OF THE SIDE SLOPES AND ADJACENT TO ROADS USED BY DEMOLITION EQUIPMENT TO PREVENT DEBRIS FROM ROLLING ONTO THE TRACK, ACCESS ROAD OR DITCH. USE TIMBERS AS REQUIRED TO STOP LARGE PIECES OF ROLLING DEBRIS.
6. ANY ACTIVITY WITHIN 25 FEET OF THE NEARAST RAIL OF A TRACK REQUIRES A FLAGMAN.

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.
	FRAME PROTECTION DETAILS

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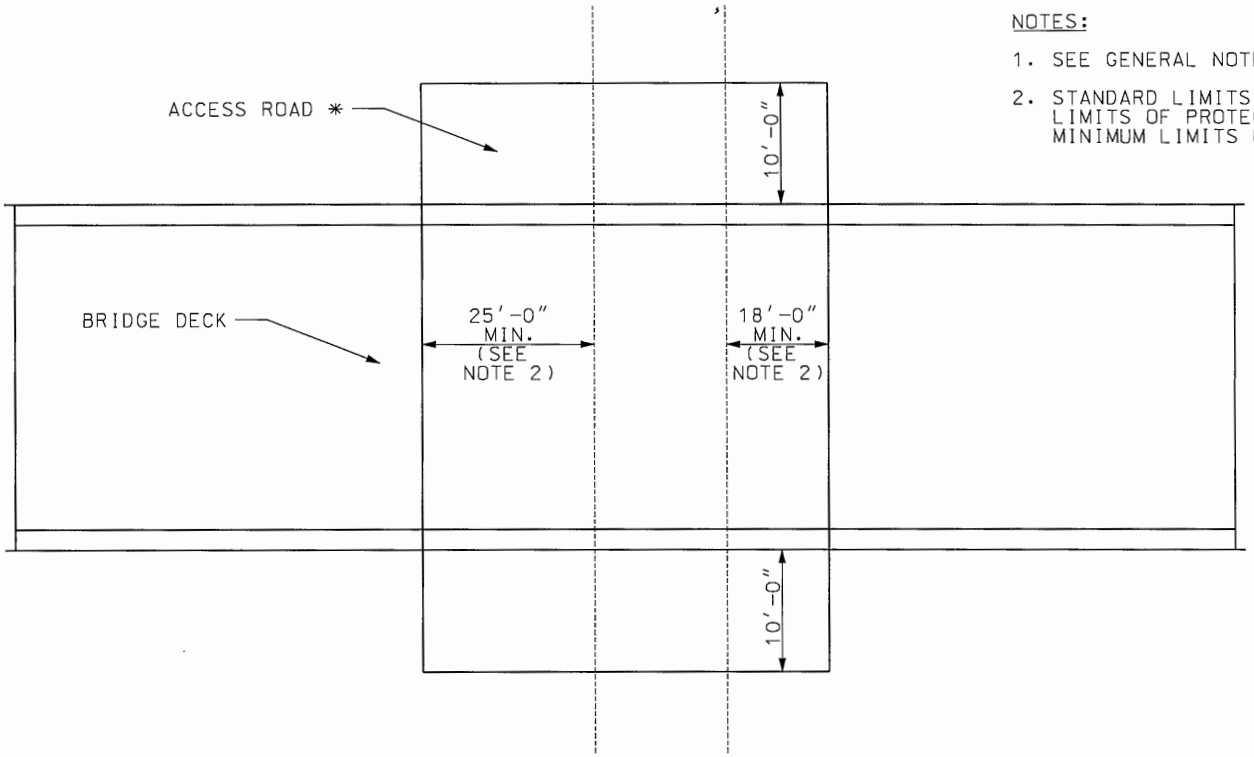
RGT	1/27/05		1 OF 2
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005101

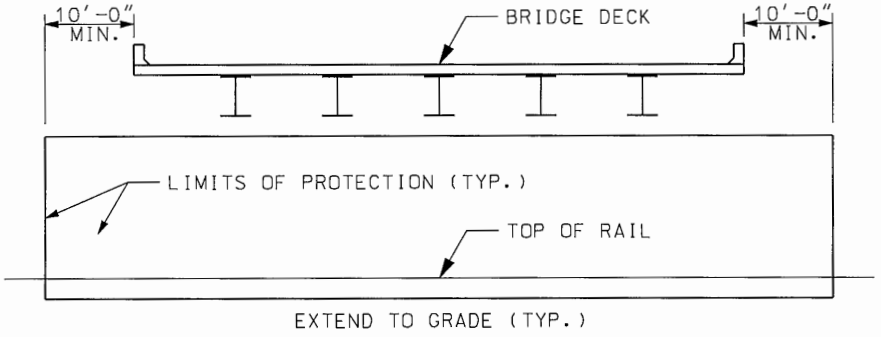
NOTES:

1. SEE GENERAL NOTES ON BRIDGE ELEVATION SHEET.
2. STANDARD LIMITS OF PROTECTION ARE SHOWN. FOR MINIMUM LIMITS OF PROTECTION DIMENSIONS, SEE BRIDGE ELEVATION, MINIMUM LIMITS OF PROTECTION.



BRIDGE ELEVATION
STANDARD LIMITS OF PROTECTION FOR FRAME PROTECTION

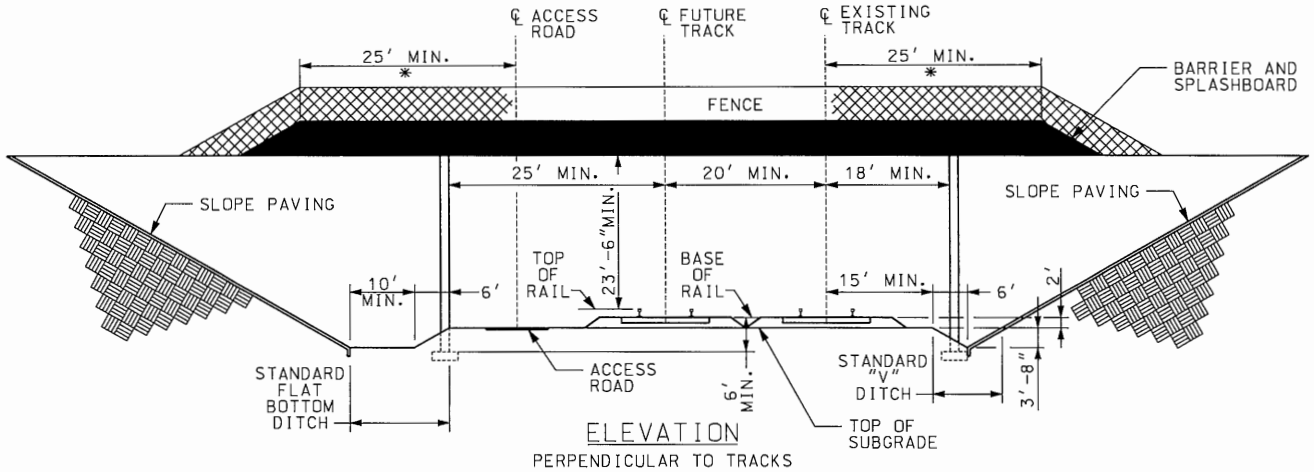
* IF NO ACCESS ROAD, USE MIN. DIMENSION FROM OTHER SIDE OF DETAIL.



BRIDGE DECK CROSS SECTION
STANDARD LIMITS OF PROTECTION

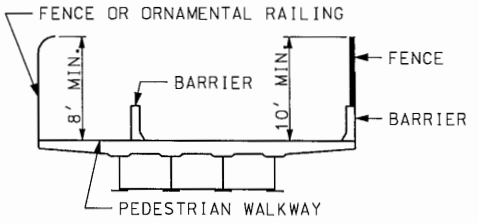
REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.
	FRAME PROTECTION DETAILS

	DRAWN BY	DATE	VAL. SEC.	SHEET NO.
Kansas City Southern Lines	RGT	1/27/05		2 OF 2
	CHECKED BY	SCALE	FILE	DRAWING NO.
		NTS		005102

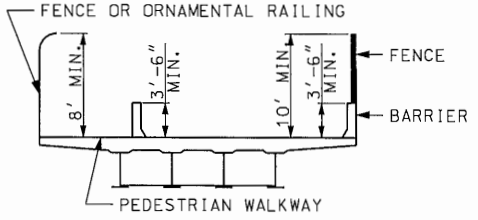


ELEVATION
PERPENDICULAR TO TRACKS

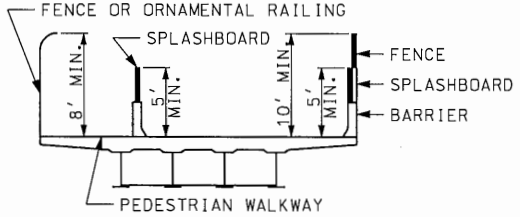
* FENCES, SPLASHBOARDS, OR SOLID BARRIERS IF REQUIRED SHALL EXTEND 25FT. BEYOND CENTERLINE OF OUTER MOST TRACK OR ACCESS ROADWAY.



VIADUCT CROSS SECTION
NO SNOW REMOVAL AREAS



VIADUCT CROSS SECTION
WITH 3'-6" SOLID BARRIER AND FENCE
FOR SNOW REMOVAL AREAS



VIADUCT CROSS SECTION
WITH SPLASH BOARD AND FENCE
FOR SNOW REMOVAL AREAS

GENERAL
FENCE SHALL BE PROVIDED AS INDICATED ON THE CROSS SECTIONS AND ELEVATION VIEW ON BOTH SIDES OF THE VIADUCT IN ALL NEW OR MODIFIED STRUCTURES.

SPLASHBOARDS OR SOLID 3'-6" HIGH BARRIER RAIL SHALL BE PROVIDED AS INDICATED ON THE CROSS SECTIONS AND ELEVATION VIEW ON BOTH SIDES OF THE VIADUCT IN ALL NEW OR MODIFIED STRUCTURES WHERE SNOW REMOVAL IS BEING PERFORMED.

LIGHTS ARE TO BE INSTALLED ON THE UNDERSIDE OF THE VIADUCT WHERE SHADOWS CAST BY THE STRUCTURE WOULD INTERFERE WITH RAILROAD OPERATIONS.

SLOPE PAVING SHALL BE PROVIDED WHERE END SLOPES EQUAL TO, OR EXCEED, 2 HORIZONTAL TO 1 VERTICAL.

FALSEWORK FOR CONSTRUCTION OF OVERHEAD STRUCTURES SHALL COMPLY TO AREMA GUIDELINES.

DEMOLITION OF EXISTING OVERHEAD STRUCTURES SHALL COMPLY TO KCSRC GUIDELINES.

TEMPORARY SHORING SHALL BE DESIGNED IN ACCORDANCE WITH KCSRC SHORING REQUIREMENTS.

APPLICANT SHALL BE RESPONSIBLE FOR IDENTIFICATION LOCATION, AND PROTECTION OF EXISTING UTILITIES.

CONTACT KCSRC'S "CALL BEFOR YOU DIG" AT LEAST 48 HOURS PRIOR TO COMMENCING WORK TO DETERMINE LOCATION OF FIBER OPTICS.

EXCEPTIONS TO THESE STANDARDS MUST BE APPROVED BY KCSRC'S CHIEF ENGINEER DESIGN.

CLEARANCES
MINIMUM VERTICAL CLEARANCE SHALL BE 23'-6" ABOVE THE PLANE OF TOP-OF-RAILS. ADDITIONAL CLEARANCE MAY BE REQUIRED FOR CONSTRUCTION PURPOSES OR IF SAG OF VERTICAL CURVE MUST BE ADJUSTED, OR IF FUTURE TRACK RAISE FOR FLOOD CONSIDERATIONS OR MAINTENANCE IS PROBABLE.

MINIMUM HORIZONTAL CLEARANCES, MEASURED AT RIGHT ANGLE FROM CENTERLINE OF TRACK, SHALL BE AS SHOWN IN ELEVATION VIEW.

MINIMUM CONSTRUCTION CLEARANCES SHALL BE 21 FEET VERTICAL ABOVE THE PLANE OF TOP-OF-RAILS AND 12 FEET HORIZONTAL AT RIGHT ANGLE FROM CENTERLINE OF TRACK.

FUTURE TRACKS
SPACE IS TO BE PROVIDED FOR ONE OR MORE FUTURE TRACKS AS REQUIRED FOR LONG RANGE PLANNING OR OTHER OPERATING REQUIREMENTS. WHERE PROVISION IS MADE FOR MORE THAN TWO TRACKS, SPACE IS TO BE PROVIDED FOR ACCESS ROAD ON BOTH SIDES OF TRACK.

PIERS
PIER PROTECTION WALLS SHALL BE PROVIDED IN ACCORDANCE WITH AREMA, CHAPTER 8, PART 2.1.5 FOR PIERS WITHIN 25 FEET OF THE CENTERLINE OF TRACK.

TOP OF FOOTINGS WITHIN 25 FT. FROM CENTERLINE OF TRACK SHALL BE A MINIMUM OF 6 FEET BELOW BASE OF RAIL AND A MINIMUM OF 1 FOOT BELOW FLOW LINE OF DITCH.

DRAINAGE
DRAINAGE FROM THE OVERPASS SHALL BE DIVERTED AWAY FROM KCSRC'S TRACKS AND NOT DISCHARGED ONTO THE TRACKS OF ROADBED.

A STANDARD "V" SHAPED OR FLAT-BOTTOM DITCH SHALL BE PROVIDED ON EACH SIDE OF THE TRACKS AS NECESSARY. CULVERTS MAY BE INSTALLED ON OPPOSITE SIDE OF COLUMN FROM TRACK IN LIEU OF STANDARD RAILROAD DITCHES WHEN APPROVED BY CHIEF ENGINEER DESIGN. MAINTENANCE OF CULVERTS IS TO BE AT APPLICANT'S EXPENSE.

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.

BARRIERS AND CLEARANCES TO BE PROVIDED AT HIGHWAY, STREET AND PEDESTRIAN OVERPASSES

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RGT	1/27/05		1
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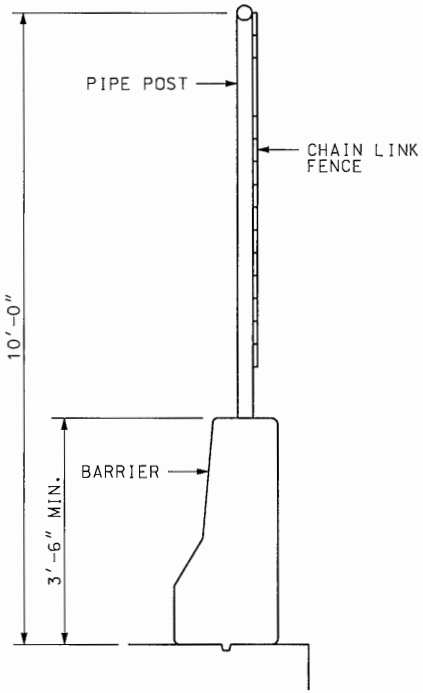
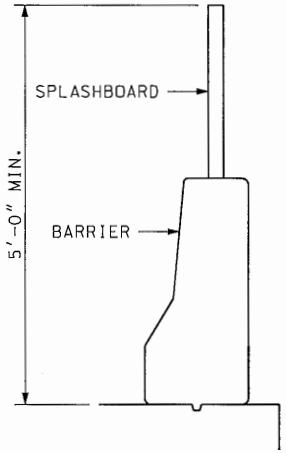
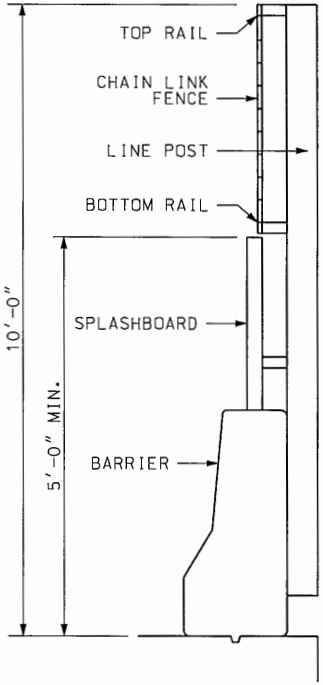
	NTS		005103



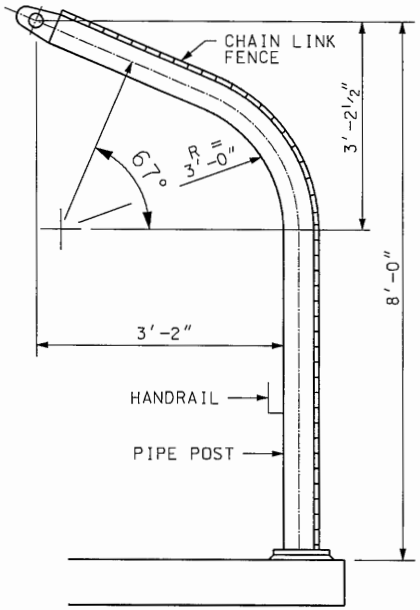
BARRIER WITH FENCE
NO SCALE



BARRIER WITH SPLASHBOARD
NO SCALE



BARRIER WITH SPLASHBOARD AND FENCE
NO SCALE

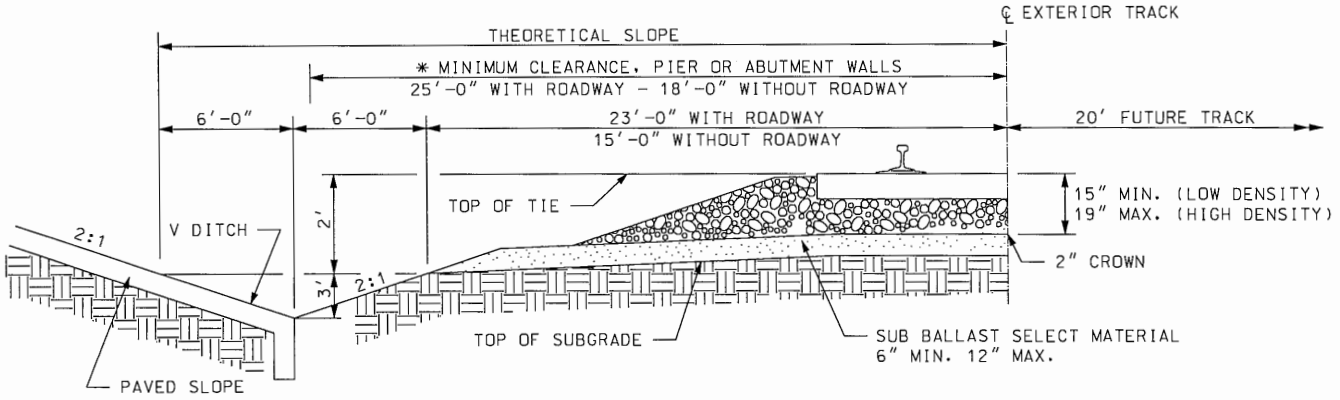


FENCE FOR WALKWAYS
NO SCALE

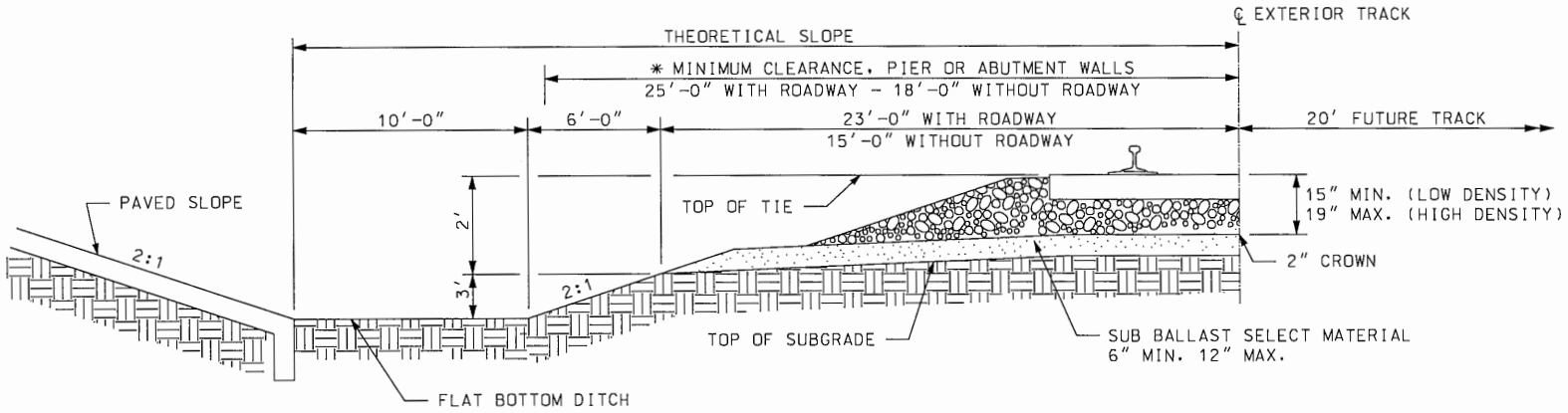
REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.

BARRIERS, FENCES AND SPLASHBOARDS TO BE PROVIDED AT HIGHWAY, STREET AND PEDESTRAIN OVERPASES

DRAWN BY	DATE	VAL. SEC.	SHEET NO.
RGT	1/27/05		1
CHECKED BY	SCALE	FILE	DRAWING NO.
	NTS		005104



TYPICAL SECTION AT ABUTMENT SLOPES WITH STANDARD "V" DITCH



TYPICAL SECTION AT ABUTMENT SLOPES WITH STANDARD FLAT BOTTOM DITCH

NOTE: MINIMUM DITCH SIZES ARE SHOWN. DITCH SIZE TO BE INCREASED AS REQUIRED BY LOCAL CONDITIONS BASED ON HYDRAULIC STUDIES.

* LOCATION OF PIER, BENT COLUMNS OR ABUTMENT WALLS SHOULD NOT INTERFERE WITH THE DRAINAGE IN THE AREA. IF MINIMUM STANDARD DITCHES ARE NOT PROVIDED IN THE LAYOUT, LONGITUDINAL CULVERTS SHOULD BE SHOWN THAT WILL HANDLE THE DRAINAGE AS REQUIRED BY THE HYDRAULIC STUDIES.

REVISIONS	EXHIBIT A
-	THE KANSAS CITY SOUTHERN RY. CO.

TYPICAL SECTIONS AT ABUTMANT SLOPE

DRAWN BY	DATE	VAL. SEC.	SHEET NO.
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	NTS		005105

TRACK PROTECTION SHORING:

ALL DIMENSIONS ARE MEASURED PERPENDICULAR TO C OF TRACK.

PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE RAILROAD ENGINEER, DETAILED PLANS INDICATING THE NATURE AND EXTENT OF THE TRACK PROTECTION SHORING PROPOSED. THE CONTRACTOR SHALL PROVIDE AND INSTALL TRACK PROTECTION SHORING BEFORE COMMENCING EXCAVATION.

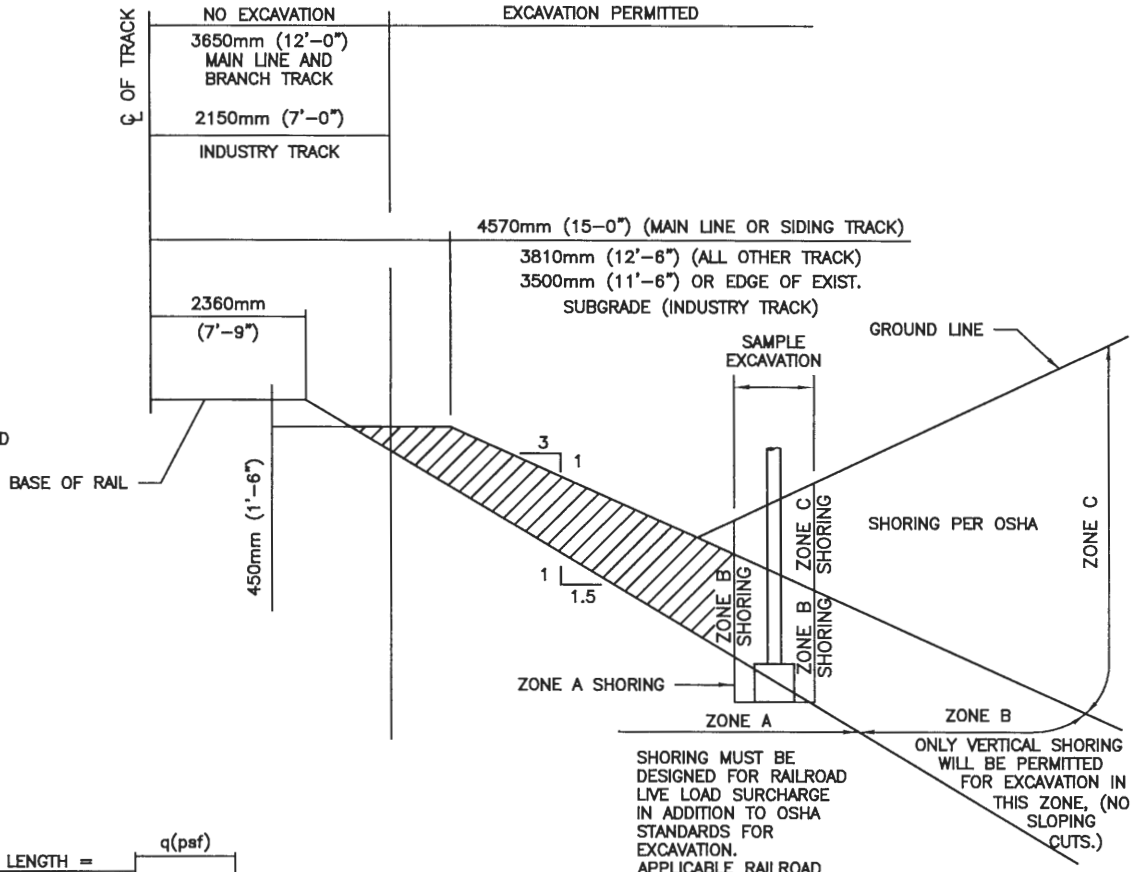
SHORING WITHIN ZONE A SHALL BE DESIGNED FOR COOPER E80 LIVE LOAD SURCHARGE, IN ADDITION TO ALL OTHER APPLICABLE LOADS. THE RAILROAD MAY IMPOSE MORE STRINGENT REQUIREMENTS AS CONDITIONS WARRANT.

FOR EXCAVATIONS WHICH ENCROACH INTO RAILROAD LIVE LOAD SURCHARGE ZONE A, SHORING PLANS WILL BE ACCOMPANIED BY A COPY OF DESIGN CALCULATIONS, AND BOTH MUST BE STAMPED BY A REGISTERED PROFESSIONAL ENGINEER IN THE APPLICABLE STATE.

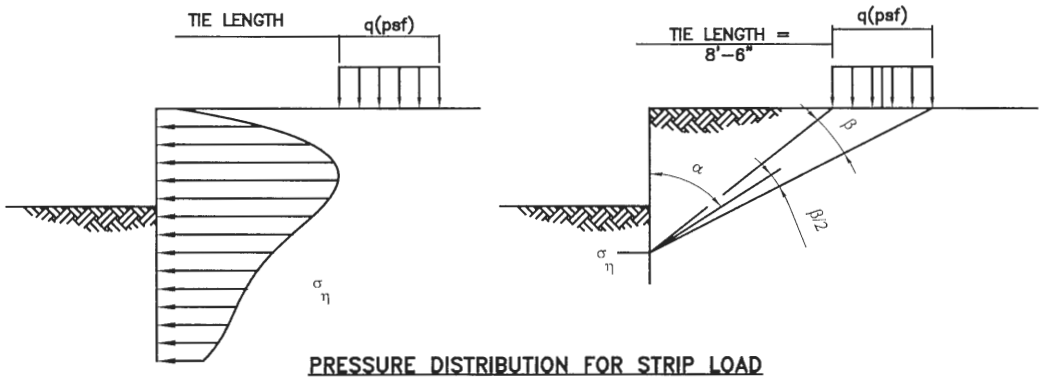
THE PRESSURE AT A GIVEN POINT OF A CONTINUOUS STRIP OF SURCHARGE LOAD q(psf) PARALLEL TO SHORING SHALL BE COMPUTED BY:

$$\sigma_\eta = \frac{2q}{\pi}\,[\beta - \sin\beta\cos 2\alpha]$$

WHERE ANGLES α AND β ARE EXPRESSED IN RADIANS.



$$q = \frac{80{,}000 \text{ lbs}}{(5 \text{ FEET})(8.5 \text{ FEET})}$$



PRESSURE DISTRIBUTION FOR STRIP LOAD
(AREMA FIGURE 8.20-2)

Kansas City Southern Lines / Kansas City Southern de Mexico / Panama Canal Railway	K.C.S. STANDARDS	DATE: 4-21-06 REV: 4-27-07 SCALE: NONE DRAWN BY: RED	APPROVED BY: CHIEF ENGINEER
GENERAL SHORING REQUIREMENTS			DRAWING NO. BR-122

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
RAILROAD FLAGGING
NHPPI-4000-(064)PM, JP NO. 28961(04), SEQUOYAH COUNTY

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

104.18 RAILROAD FLAGGING *(Add the following:)*

Execute and return the right of entry agreement (if required by the railroad) with the contract to the Department within the time period provided for contract execution. Reimburse Kansas City Southern Approved Flagging Company, hereinafter referred to as the Railroad Company, directly for the cost of all railroad flagging required by the Railroad Company due to construction on their property.

The Railroad Company's requirements for flagging and right of entry may vary significantly from those implied by other contract documents. Therefore be informed of the individual Railroad Company's requirements for flagging and right of entry.

For the purpose of bidding, the following information is furnished by the Railroad Company covering the estimated flagging schedule and the estimated cost thereof:

A. Flagging Services

Flagging services will be required:

(1) In the event it is necessary for the Contractor to operate his crane or other heavy machinery in the vicinity of the track, as defined by the Railroad Company, which may endanger railroad operations.
(2) At any time the Contractor is within 25 feet of the track.
(3) As specified in the right of entry agreement (if required).
(4) At any other time deemed appropriate by the Railroad Company.

B. Flaggers

The total cost for one flagger, supervisory personnel, vacation allowances, and retirement and unemployment insurance is $950 per ten hour day. This rate is based on current wage scales for an eight hour basic day, including any additional pay for overtime, rest days and holidays, and is subject to any increases which may result from railroad employees-railroad management negotiations, or which may be authorized by Federal authorities. No additional payment will be made for increases in the above rate if such increases should occur.

Furthermore, the Contractor's final estimate will not be paid until satisfactory evidence that the Railroad Company has been fully reimbursed for their flagging services is provided.

C. Utilities

Fiber optic, communications, control systems, and other types of cables may be buried on Railroad Company property. Contact Call Okie at 1-800-522-6543 to assist in determining if cable systems are buried on Railroad Company property to be used before beginning work. Contact the appropriate personnel to have cables located, and make arrangements with the owner of the facility to ascertain the protective measures that must be adhered to prior to the commencement of any work on the Railroad Company's property.

D. Railroad Operations

Normal train operations over the crossing consists of Twenty-two (22) trains daily. Details regarding train operations required or desired may be obtained by consulting the Railroad Company's office located at Kansas City Southern Railway Company, 427 W. 12th Street, Kansas City, MO 64105, (816) 983-1138.

E. Measurement of Railroad Flagging

The Engineer will measure *Railroad Flagging (Non-Biddable)* as billed by the Railroad Company prorated to an eight hour day, as a single operation, regardless of the actual number of railroad personnel needed. For example, if the Contractor is billed by the Railroad Company for twelve hours of flagging, this will constitute 1.5 days of *Railroad Flagging*.

For progressive payment to be made, the Contractor will present an original, notarized confirmation that the Railroad Company has been reimbursed for the number of eight hour flagging days billed.

F. Payment for Railroad Flagging

Approved *Railroad Flagging*, as described above, will be paid for at the contract unit price as follows:

Pay Item:	**Pay Unit:**
RAILROAD FLAGGING (NON-BIDDABLE)	Day

Payment for *Railroad Flagging (Non-Biddable)* is considered full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified. Any additional costs incurred for railroad flagging will be included in other items bid in the Contract.

It is the intent of this provision that the Contractor be reimbursed by the Department at a rate of $475 per eight hour day (approximately 50% of the rate specified in Subsection 104.18.B above).

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
BUY AMERICA

These Special Provisions amend, revise, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

106.01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS

B. Buy America *(Replace with the following :)*

Comply with the Buy America provisions of Title 23 CFR 635.410 which states that all manufacturing processes, including the application of a coating, for all steel or iron products permanently incorporated into the project shall have occurred in the United States (U.S.). These requirements are in effect on all Contracts regardless of the use of federal funds. All referenced forms and letters must be obtained from the current version of the ODOT Construction Control Directive (CCD) No. 20140620 – Buy America.

"All manufacturing processes" are defined as any process required to change the raw ore or scrap metal into the finished steel or iron product (e.g. smelting, rolling, extruding, bending, etc.).

"Coating" is defined as any process which protects or enhances the value of the steel or iron product to which the coating is applied (e.g. epoxy, galvanizing, painting, etc.).

(1) Exemptions

The following materials are exempt, unless processed or refined to include substantial amounts of steel or iron material, and may be used regardless of source in the domestic manufacturing process for steel or iron material:

- Raw materials (iron ore or alloys)
- Scrap
- Pig iron
- Processed, pelletized, and reduced iron ore material
- Aluminum
- Brass
- Copper

For recycled steel, only the manufacturing processes to produce steel products must occur domestically, beginning at the point where the recycled steel is melted.

(2) Minimal Use Request

Federal regulations allow a minimal use of foreign steel or iron if the cost of the steel and iron products as they are delivered to the project does not exceed 0.1 percent of the total Contract

amount, or $2,500, whichever is greater. This threshold applies to the cumulative amount of all foreign steel and iron used on the project. The Contractor must submit a written request to the Resident Engineer which includes the origin and value of any foreign material to be used. This request must be submitted prior to the work being performed and preferably at the preconstruction conference. The Contractor must track the amount of incorporated foreign steel and iron throughout the life of a project to ensure the minimal use threshold amount is not exceeded.

(3) Preconstruction Conference Discussion

The Department will host a project preconstruction conference. At this conference, the Contractor should be prepared to present and/or discuss the following items as part of the Buy America requirements for all steel and iron products permanently incorporated into projects:

- Project Specific Certification letters from the Contractor and Subcontractors demonstrating their understanding and intent to comply with the Buy America Requirements (see Subsection 106.B.(4).(a)).
- A list of all steel products and suppliers to be used on the project
- Required documentation verifying compliance with Buy America for each known steel or iron product at the time of the meeting (see Subsection 106.B.(4).(b)).
- Minimal use requests (see Subsection 106.B.(2))
- Change order work involving steel must be in compliance and documented similarly to Contract work.

(4) Compliance with Buy America Requirements

Steel or iron products incorporated into the project that the origin was not domestic the Contractor may be subject to removal and replacement of the work, forfeiture of payment for the work, and/or assessment of penalty.

(a) *Certification Letters*

Before any work begins that incorporates steel or iron products into the project, the Contractor shall submit a project specific certification letter stating that all manufacturing processes involved with the production of these products will occur in the U.S., along with project specific certification letters from each Subcontractor for each steel or iron products to be used on the project. Acceptable language for these letters can be found in the ODOT CCD for Buy America. Alternative statements will not be considered.

(b) *Submittals and Forms*

For each steel or iron product, the Contractor and Subcontractor will be responsible for providing to the Department all documentation required to verify that each product complies with Buy America in accordance with the requirements of the corresponding category listed below. The Contractor must provide a completed:

- Material Use Statement & Certifications (MDT-1) for each steel or iron product in Category 1 incorporated into the project.

- Certificate of Materials Origin (MDT-2) for each steel or iron product in Categories 1 and 2 incorporated into the project.
- Programmatic Certificate of Materials Origin (MDT-3) for each steel or iron product in Category 3 incorporated into the project.

In most instances, determination of compliance with Buy America requirements should be achieved prior to incorporating the product into the work. If not, the Resident Engineer will be responsible for withholding payment for this work until compliance has been determined.

(5) Product Categories

The various steel and iron products (referred to herein as 'steel') that are permanently incorporated into projects have been grouped into the following categories with the roles and responsibilities listed to ensure compliance with the Buy America requirements:

(a) ***Category 1***

Steel products covered in this category are as follows:

- Products used in pavements, bridges, or other structures cast at the project site:
  - Structural steel (girders, diaphragms, anchor bolts, high-strength bolts, sealed expansion joints, etc.)
  - Reinforcing steel (epoxy coated or black)
  - Welded wire fabric
  - Steel spiral wire (drilled shaft cages, bridge rail, etc.)
  - Steel piling
  - Drill shaft casing (permanent)
  - Dowel bars and baskets for paving
  - Steel sheet piling (permanent)
  - Bridge bearing assemblies (fixed and expansion)
  - Post-tensioning steel (strands, wedges, anchor plates, etc.)
- Steel monotube structures
- Galvanized steel supports for overhead and cantilevered sign structures
- Sign posts and bases (2 ½" diameter and larger and wide flange posts)

For items in this category, the Contractor is responsible for the following:

- Submitting completed MDT-1 and MDT-2 forms for each item with steel to both the Resident Engineer and Materials Engineer.
- The MDT-1 will include the Mill Test Reports, and the MDT-2 will list each corporate entity involved in the manufacturing of the steel item from melting through all fabrication processes.
  - Mill test reports and certification letters must include a statement similar to the following: *"All manufacturing processes for these steel and iron products, including the application of coatings have occurred in the United States."*
  - Certifications for a particular item should be retained in one location to allow easy access for auditing purposes.

- Certifications should be retained by the Contractor until final acceptance of the project.

(b) ***Category 2***

Steel and iron products covered in this category are as follows:

- Cast iron products (frames, grates, hoods, manhole covers, etc.)
- Fencing materials
- Corrugated steel pipe
- Corrugated steel pipe end treatments
- Steel pipe
- Ductile iron pipe
- Underground utility encasement conduit
- Stay-in-place forms

For items in this category, the Contractor is responsible for the following:

- Submitting completed MDT-2 forms for each item with steel to the Resident Engineer.
- The MDT-2 will list each corporate entity involved in the manufacturing of the steel item from melting through all fabrication processes.
  - The MDT-2 forms should be retained by the Contractor until final acceptance of the project.

(c) ***Category 3***

This category covers traffic related items which typically have been placed on the ODOT Traffic Engineering Division's Qualified Products List (QPL). For items in this category listed on the QPL, the MDT-3 will be on file with the Traffic Division. For items in this category that are not listed on the QPL, the Contractor is responsible for submitting a completed MDT-3 form for each pay item with steel to the Resident Engineer. The MDT-3 lists all corporate entities involved throughout the manufacturing process for each steel and iron product used on the project.

The steel products covered in this category are as follows:

- Traffic signal poles and mast arm
- Highway lighting poles and mast arm
- High mast lighting towers
- Cable barrier
- Guardrail, guardrail posts, end sections, terminals, impact attenuators
- Sign posts and bases (less than 2 ½" in diameter and square tubing)
- Steel electrical conduit

(d) ***Category 4***

This category covers pre-stressed and precast concrete items receiving full-time inspection by ODOT as the concrete items are cast. Items in this category are required to have a signed and dated project specific certification for each corporate entity involved in the manufacturing of the steel item from melting through all fabrication processes. This includes the Mill Test Reports with a certification from the supplier/fabricator that references the Buy America requirements and lists each corporate entity involved throughout the manufacturing processes. Mill test reports and certification letters must include a statement similar to the following:

"All manufacturing processes for these steel and iron products, including the application of coatings, have occurred in the United States."

The pre-stressed and precast concrete items covered in this category are as follows:

- Pre-stressed concrete beams and girders
- Precast panels
- Precast MSE and sound walls
- Precast bridge arches

(e) ***Category 5***

This category covers non-structural precast concrete items that do not receive full-time inspection by ODOT. Fabricators for items in this category have been placed on the ODOT Materials Division Approved Products List (APL). The fabricator is required to provide a signed and dated project specific certification which lists each corporate entity involved in the manufacturing process, including melting and all fabrication processes. The certification must reference the Buy America requirements using a statement similar to the following:

"All manufacturing processes for these steel and iron products, including the application of coatings, have occurred in the United States."

The steel used in the fabrication of these items will be certified by the fabricator for general use in production and cannot be tied specifically to any individual item.

The pre-stressed and precast concrete items covered in this category are as follows:

- Precast box culverts
- Reinforced concrete pipe and precast end sections
- Precast inlets and catch basins
- Precast manholes

(f) ***Category 6***

This category covers miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct certain highway products and manufactured products. For items in this category, the Contractor is responsible for the following:

- Ensure that all manufacturing processes for these steel and iron products including the application of coatings have occurred in the United States.
- Provide documentation to verify compliance upon request.
- Certifications should be retained by the Contractor/supplier until final acceptance of the project.

The following items are included in this category:

- Cabinets
- Covers
- Clamps
- Fittings
- Sleeves
- Miscellaneous hardware (washers, bolts, nuts, and screws)
- Tie wire
- Spacers
- Chairs or other steel reinforcement supports
- Lifting hooks
- Pipe Valves
- Electronic components
- Temporary falsework
- Mailbox and installation assembly

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
RAILROAD INSURANCE
NHPPI-4000-(064)PM, JP NO. 28961(04), SEQUOYAH COUNTY

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

107.12 RESPONSIBILITY FOR DAMAGE CLAIMS

E. Railroads' Protective Liability and Property Damage Insurance *(Add the following:)*

The amount of insurance to be provided for and on behalf of the Kansas City Southern Railway is $5,000,000 for all damages arising out of bodily injury, death, and property damage for each occurrence with an aggregate limit of $10,000,000 for the term of the policy.

Prior to issuance of the Notice to Proceed, submit the original copy of the insurance policy, along with one additional copy, to:

Oklahoma Department of Transportation
Construction Division
200 NE 21st Street
Oklahoma City, Oklahoma 73105-3204

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
ADMINISTRATION AND EXTENSION OF CONTRACT TIME
(WINTER TIME SUSPENSION)

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

108.07 ADMINISTRATION AND EXTENSION OF CONTRACT TIME

B. Calendar Day Contract (*Replace the 2nd paragraph with the following:*)

The Contractor may request a winter time suspension of time charges and work during the time period between December 21st and the following February 15th. The Contractor must make this request in writing to the Engineer at least ten (10) working days prior to the beginning date of the winter time suspension.

Upon receipt of the Contractor's written request, the Engineer will perform a field review of the project to determine if a winter time suspension is suitable. As part of the review, consideration will be given to the following applicable project components:

- more than 85% complete
- adverse impacts to the prosecution and progress of other projects
- on the interstate system
- lane or ramp closures
- lane or edge drop offs without a recoverable slope
- areas that require patching,
- obstructions (i.e. manholes, valve boxes, etc.) in the roadway that could hamper snow and ice removal
- exposed structural surfaces or subgrade
- areas that could pond water
- construction debris, materials, or equipment in the roadway clear zone
- temporary erosion control measures in place
- proper signage and striping in place
- driveways and side roads are accessible
- scheduled project deliveries and services (i.e. materials, inspections, etc.)
- expiring permits
- environmental mitigation as required by the contract
- items of work which, if left undone or unattended, would not be in the best interest of the Department or traveling public

After this review, the Engineer will notify the Contractor in writing that the request for suspensions is approved, or that the request for suspension is denied, citing the justification for such denial.

If the Resident Engineer approves the request, make all necessary arrangements to leave the project in a safe manner. The Contractor will continue to maintain the project work site during this time suspension in accordance with Subsection 105.14, "Maintenance During Construction." Items which do not affect the operational capacity or safety of the roadway that is open to traffic will not be subject to the 24 hour correction requirement. Any maintenance performed during the winter time suspension will be performed by the Contractor at no additional cost to the Department.

Upon completion of the winter time suspension, the Engineer will perform a field review of the project to ensure that any previously constructed elements of the project have not been damaged. If any damage is discovered, the Contractor will return these elements to their condition prior to the winter time suspension at no additional cost to the Department.

The winter time suspension is not to be used as a means for the Contractor to avoid time charges for weekends and holidays. If the Contractor chooses to perform work during the winter time suspension, the suspension will cease to be in effect and time charges will resume.

Notify the Resident Engineer if work is to resume prior to February 15th.

Liquidated damages will not be assessed for any portion of a winter time suspension that occurs after expiration of the contract time.

A winter time suspension will not suspend time charges subject to an incentive/disincentive provision.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
FLEXIBLE NOTICE TO PROCEED

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

108.03 PROSECUTION AND PROGRESS *(Add the following:)*

The Notice to Proceed for this project will be issued in the normal time period (approximately 30 days after the award). The Contractor may begin work any time after the issuance of the Notice to Proceed, but no later than **January 7, 2019**. Time charges will begin on the date the Contractor begins work, or at the date specified in the Notice to Proceed, and will continue until the project is completed. Once the work begins, construction is expected to continue at an optimum rate until the work is done.

Notify the Resident Engineer, and when applicable the County Commissioner, at least 14 calendar days prior to beginning work.

There will be no additional compensation for any increased costs due to beginning work at or near the end of the flexible period.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
DISINCENTIVE FOR EXPOSED COLD-MILLED PAVEMENT

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

(Add the following:)

108.14 DISINCENTIVE FOR EXPOSED COLD-MILLED PAVEMENT

The intent of this provision is to minimize the time of exposure of milled paving surfaces. The following items set forth the Contract requirements for this portion of work, and disincentive(s) for non-compliance with these specifications.

A disincentive of $0.02 per square yard per hour will be assessed for all cold-milled surfaces not overlayed within 48 hours of being exposed by cold-milling operations. The disincentive will be assessed each hour after the 48 hours, and continue until the cold-milled surfaces are no longer exposed to the elements as determined by the Engineer. (Fog sealing cold-milled surfaces will not exempt the Contractor from this disincentive.)

The Engineer may allow cold-milled surfaces to remain exposed for up to 96 hours if the Contractor, at no additional cost to the Department, covers the exposed cold-milled surfaces with an approved trackless tack coat meeting the requirements of Special Provision 708-25 within 48 hours of being exposed by cold-milling operations. The trackless tack coat layer must be maintained, ensuring that the trackless tack is of sufficient adhesion or tack coat must be reapplied prior to overlaying the cold-milled surface(s). In the event that trackless tack is used, the above disincentive will be assessed each hour after the 96 hours, and continue until the cold-milled surfaces are overlayed.

Extents of cold-milling required to provide a smooth transition to bridge approaches or to existing pavements will be exempt from this provision. However, if these extents are to be left exposed for more than 48 hours, they must be fog sealed or the disincentive set forth in this provision will apply for each hour in excess of the 48 hours until the fog seal or surfacing is placed.

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1-4-10

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
70% SUBLETTING OF CONTRACT

These special provisions amend and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

108.01 SUBLETTING OF CONTRACT (*Replace paragraph one with the following:*)

The Department will not allow the Contractor to sublet, sell, assign, or otherwise dispose of the Contract, or any portion thereof, or any of the Contractor's rights, title, or interest therein without the written or electronic consent of the State Construction Engineer or an authorized representative. The Contractor shall perform at least 30 percent of the Contract amount, based on the contract unit prices, using its own organization, unless the Contract allows a greater percentage.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
INCENTIVE/DISINCENTIVE
NHPPI-4000-(248)FP, JP NO. 10618(07), SEQUOYAH COUNTY
NHPPI-4000-(064)PM, JP NO. 28961(04), SEQUOYAH COUNTY

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

108.08 INCENTIVE/DISINCENTIVE FOR EARLY/LATE COMPLETION *(Add the following:)*

The following items set forth the contract time for completion of a critical milestone in the construction of this project and monies due to or from the Contractor for early or late completion of this critical milestone.

The Contractor is allowed 700 calendar days to complete this project. Time will begin the day work begins, or the Effective Date of the Notice to Proceed, whichever is earlier, and continue until project completion is achieved in accordance with Subsection 105.17.B.

The incentive/disincentive rate for this project is $5,000 per calendar day. The Contractor will be paid the incentive amount for each day less than 700 calendar days that the project is complete up to a maximum of 100 days. A disincentive will be assessed for each day over 700 calendar days that the project is not complete.

The time to complete the project includes all working and non-working days, weekends, special events, holidays, normal adverse and unusually adverse weather days, and lost time resulting from such weather conditions. Claims for delay or lost time will be considered by the Engineer on the basis of actual delay, and adjustments to the contract time may be made as appropriate for purposes of calculating incentive and disincentive payments. In order to consider any delay it must be shown to affect the critical path of the project schedule. Unusually severe weather days may be recognized only for the purpose of identifying time not subject to liquidated damages, unless these delays are the result of a natural disaster as declared by the State or Federal Government. Disincentive charges will continue to be assessed until the project is complete.

The time required by the Engineer for performing normal inspections, testing, and review duties will be considered as included in the number of calendar days specified in this special provision. Every effort will be made by the Engineer to perform normal inspection, testing and review in a manner which will not delay work.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
PRICE ADJUSTMENT FOR FUEL

These special provisions revise, amend and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

(Add the following:)

109.13 PRICE ADJUSTMENT FOR FUEL

A price adjustment clause is included in this contract to provide additional compensation to the Contractor or a credit to the Department for fluctuations in fuel prices. This price adjustment is dependent upon a change in the average price of fuel which results in an increase or decrease in the price of products utilized on this project.

A. Payment

Payment will be made to the Contractor for monthly fluctuation in the price of diesel fuel used in performing the applicable items of earthwork as listed in Table 109:1 below when the fuel price fluctuates by more than 3% from the base price defined below. Payments may be positive, negative, or nonexistent depending on the circumstances. Payments or deductions will only be calculated on that portion of the fuel price fluctuation that exceeds the 3% specified above. Payments or deductions for the fuel price adjustment will be included in the Contractor's progressive estimates, and the payment or deduction authorized for each estimate will be based upon the algebraic difference between the quantities for applicable items of work.

The Fuel Price Adjustment will be a dollar amount paid as compensation to the Contractor, or as a credit to the Department as reflected on the Progressive (or Final) Estimate Summary Report as Line Item Adjustments.

B. Fuel Price Adjustment (FPA)

The Fuel Price Adjustment for the current estimate will be computed according to the following formula:

$$FPA = Q \times F \times D$$

where

FPA	=	Fuel Price Adjustment, in dollars.
Q	=	The algebraic difference between the quantities for the applicable items on the current estimate and the quantities shown on the previous estimate.
F	=	The Fuel Use Factor for the applicable items of work subject to this price adjustment, as listed in Table 109:1.
D	=	Allowable price differential, in dollars.

Table 109:1 Fuel Use Factors			
ITEM OF WORK	SPECIFICATION NUMBER	FUEL USE FACTOR PER UNIT (English and Metric units)	
Unclassified Excavation	202(A)	0.30 gal. per cubic yard	0.39 gal. per cubic meter
Unclassified Borrow	202(D)		
Embankments	202(F)		

When the units of measure in this contract for the items of work listed in the table do not correspond with the units shown in the table (i.e. Embankment paid lump sum, etc.), those items will not be subject to the terms of this special provision or any fuel price adjustment.

The allowable price differential, "D", for the current estimate will be computed according to the following formulas:

When the current price, P, is greater than the base price, $P_{(b)}$. $D = P - [1.03 \times P_{(b)}]$, but not less than zero.
When the current price, P, is less than the base price, $P_{(b)}$. $D = P - [0.97 \times P_{(b)}]$, but not greater than zero.
P, the fuel current price, in dollars per gallon, is the Monthly Fuel Price Index for the month in which the estimate pay period ends. $P_{(b)}$, the fuel base price in dollars per gallon, is the Monthly Fuel Price Index for the month in which the bids for the work were received.

The Department will establish the Monthly Fuel Price Index each month and post the information to the ODOT website at:

http://www.okladot.state.ok.us/contractadmin/pdfs/fuel-index.pdf

C. Fuel Price Index Determination

The Monthly Fuel Price Index will be determined by using the 5-Day Average rack price for No. 2 Red-Dyed Distillate (Diesel Fuel) - ULS (Ultra Low Sulfur), as listed for Oklahoma City, in the Weekly Newsletter published by the Oil Price Information Service (OPIS). The issue of the Weekly Newsletter used will be for the last full week in the previous month received by the Department prior to the first day of the index month. If the specified publication ceases to be available for any reason, the Department, at its discretion, will select and begin using a substitute price source or index to establish the Monthly Fuel Price Index.

D. Differing Quantities

Items included in the contract that are listed in the table above are subject to adjustment in accordance with this provision, regardless of any amount of overrun to the plan quantity.

If the final audited quantity for an item deviates from the total quantity previously paid to date on the last progressive estimate for that item by ten percent (10%) or less, then the quantity for the item will be considered acceptable for the purposes of this provision only and no further fuel price adjustments, neither increase nor decrease, will be made.

If the final audited quantity deviates from the total quantity previously paid to date on the last progressive estimate by more than ten percent (10%) for an item, then the entire amount of the deviation will either be added for that item, or deducted in the case of an overpayment in quantities, based on prorating the amount of deviation in relation to the partial quantities and the index used for each specific pay period previously paid on each progressive estimate.

E. Extra Work

Any new earthwork items added to the contract by supplemental agreement that are listed in the table above, will be subject to the fuel price adjustments in accordance with this provision. The fuel base price, $P_{(b)}$, for any newly added eligible items will be the same $P_{(b)}$ as the eligible items in the contract and the new unit price established by supplemental agreement will be determined accordingly.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
PRICE ADJUSTMENT FOR ASPHALT BINDER

These special provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

(Add the following:)

109.12 PRICE ADJUSTMENT FOR ASPHALT BINDER

A price adjustment clause is included in this Contract to provide additional compensation to the Contractor or a credit to the Department for fluctuations in asphalt binder prices. This price adjustment is dependent upon a change in the average price of asphalt binder which results in an increase or decrease in the price of products utilized on this project.

A. Payment

Payment will be made to the Contractor for monthly fluctuation in the price of asphalt binder used in performing the applicable items of Asphalt Concrete work as listed in the table below when the asphalt binder price fluctuates by more than 3% from the base price defined below. Payments may be positive, negative, or nonexistent depending on the circumstances. Payments or deductions will only be calculated on that portion of the asphalt binder price fluctuation that exceeds the 3% specified above. Payments or deductions for the asphalt binder price adjustment will be included in the Contractor's progressive estimates; and the payment or deduction authorized for each estimate will be based upon the algebraic difference between the quantities for applicable items of work.

The Asphalt Binder Price Adjustment will be a dollar amount paid as compensation to the Contractor, or as a credit to the Department as reflected on the Progressive (or Final) Estimate Summary Report as Line Item Adjustments.

B. Asphalt Binder Price Adjustment (ABPA)

The Asphalt Binder Price Adjustment (ABPA) for the current estimate will be computed according to the following formula:

$$ABPA = Q \times F \times D$$

where

ABPA	=	Asphalt binder price adjustment, in dollars;
Q	=	The algebraic difference between the quantities for the applicable items on the current estimate and the quantities shown on the previous estimate, in tons of mix;
F	=	The Asphalt Binder Use Factor for the applicable items of work subject to this price adjustment, as listed in Table 109:1;
D	=	Allowable price differential, in dollars.

Table 109:1 Asphalt Binder Use Factor		
ITEM OF WORK	SPECIFICATION NUMBER	ASPHALT BINDER USE FACTOR PER UNIT (English and Metric units)
Permeable Friction Course	405	0.062 ton of binder per ton of mix
Open Graded Friction Surface Course	406	0.058 ton of binder per ton of mix
Asphalt Concrete, Type S-2	411(A)	0.037 ton of binder per ton of mix
Asphalt Concrete, Type S-3	411(B)	0.042 ton of binder per ton of mix
Asphalt Concrete, Type S-4	411(C)	0.048 ton of binder per ton of mix
Asphalt Concrete, Type S-5	411(D)	0.053 ton of binder per ton of mix
Asphalt Concrete, Type S-6	411(E)	0.058 ton of binder per ton of mix
SMA	411(F)	0.062 ton of binder per ton of mix
Asphalt Concrete, Type RBL	411(G)	0.054 ton of binder per ton of mix
Asphalt Concrete, Type RIL	411(J)	0.054 ton of binder per ton of mix

When the units of measure in this contract for the items of work listed in the table do not correspond with the units shown in the table (i.e. Asphalt Concrete paid by the square yard, etc.), those items will not be subject to the terms of this special provision or any asphalt binder price adjustment.

The allowable price differential, "D", for the current estimate will be computed according to the following formulas:

When the current price, P, is greater than the base price, $P_{(b)}$. $D = P - [1.03 \times P_{(b)}]$, but not less than zero.
When the current price, P, is less than the base price, $P_{(b)}$. $D = P - [0.97 \times P_{(b)}]$, but not greater than zero.
P, the asphalt binder current price in dollars per ton (mton), is the Monthly Asphalt Binder Price Index for the month in which the estimate pay period ends. $P_{(b)}$, the asphalt binder base price in dollars per ton (mton), is the Monthly Asphalt Binder Price Index for the month in which the bids for the work were received.

The Department will establish the Monthly Asphalt Binder Price Index each month and post the information to the Department website at:

http://www.okladot.state.ok.us/contractadmin/pdfs/binder-index.pdf

C. Asphalt Binder Index Determination

The Monthly Asphalt Binder Price Index will be determined by calculating the average of the minimum and maximum prices for performance-graded binder using the Selling Price of PG64-22 paving grade, as listed under "Midwest/Mid-Continent Markets - MISSOURI/KANSAS/OKLAHOMA - Tulsa, Oklahoma/Southern Kansas". The publication used to establish each Monthly Asphalt Binder Price Index will be the Asphalt Weekly Monitor® furnished by Poten & Partners, Inc. The issue of the Asphalt Weekly Monitor® used will be for the last full week in the previous month received by the Department prior to the first day of the index month. If the specified publication ceases to be available for any reason, the Department at its discretion will select and begin using a substitute price source or index to establish the Monthly Asphalt Binder Price Index.

D. Supplemental Items Subject to Adjustment

Items included in the contract that are listed in the table above are subject to adjustment in accordance with this provision, regardless of any amount of overrun to the plan quantity. Any new items of work added to the Contract by supplemental agreement that are listed in the table above, will be subject to the asphalt binder price adjustments in accordance with this provision. The base asphalt binder price, $P_{(b)}$, for any newly added eligible items will be the same $P_{(b)}$ as the eligible items in the Contract and the new unit price established by supplemental agreement will be determined accordingly.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
PAYMENTS TO SUBCONTRACTORS

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

109.11 PAYMENTS TO SUBCONTRACTORS (*Replace with the following:*)

The Code of Federal Regulations requires that Contractors pay subcontractors, suppliers, and vendors promptly for work performed or materials provided, and release retainage promptly after the subcontractor, supplier, or vendor completes the work or provides materials certifications. The Department has established that, when criteria for payments are met, 15 calendar days is a reasonable time to make payment or release retainage, and requires that payment be made within that time. The 15 calendar day period for subcontracted work or materials and services provided will commence on the date the Contractor receives payment from the Department for the work. If the Contractor holds retainage for subcontracted work or materials/services provided, the 15 calendar day period shall commence on the date that the Resident Engineer determines that the subcontracted unit or portion of the Contract has been completed in accordance with Subsection 105.17, "Project Completion and Acceptance," or the project is deemed complete by the Department. Services provided to a Contractor for support of construction operations or as deemed necessary by the Contractor for upkeep of machinery or facilities used directly or indirectly for construction operations shall be paid within 15 calendar days of the last service provided. If payment is not made for work, material or services, or if retainage is not released within the required 15 calendar day period, the subcontractor will be entitled to make a formal written complaint to the Department detailing the amounts and date due, and the work performed or material provided. The Department will then institute a formal investigation and, if warranted, conduct a formal hearing. Upon a finding that the Contractor failed to perform in accordance with the terms of the Contract requirements, the Department may impose sanctions as provided in Subsection 102.04, "Refusal of Proposals," Subsection 102.14, "Rejection of Proposal," or both.

A subcontractor may initiate a request for a determination that a subcontracted unit or portion of the Contract has been completed by making a written request for such determination to the Resident Engineer, with a copy to the Contractor, as provided in Subsection 105.17, "Project Completion and Acceptance." At the time the written request is made, the subcontractor shall have submitted to the Resident Engineer required documentation including material certifications, payrolls, and other such documents as may be required to audit the completed work. If the Resident Engineer, upon inspection, finds that a unit or portion of the Contract has been satisfactorily completed, the Resident Engineer will report the fully audited final quantities to the Contractor and the subcontractor. Upon receipt from the Resident Engineer of a determination that the subcontracted work is deemed complete, the audited final quantities and payment for those quantities, the Contractor shall release any retainage held within 15 calendar days. However, if the Contractor or Subcontractor working under the direction of the Contractor damages the work, the Contractor shall repair or replace the damaged work at no additional cost to the Department to the satisfaction of the Contract requirements and the Resident Engineer.

Failure of the Contractor to complete Contract work within the designated Contract Time or accumulation by the Contractor of deductions due to producing non-specification work may result in the

assessment of negative progressive estimates representing the Department's overpayment to the Contractor for a given Contract period. The assessment of negative progressive estimates does not relieve the Contractor of the requirements for prompt payment of subcontractors and for timely release of retainage. However, if the subcontractor's work is directly responsible for the liquidated damage or non-specification work deduction, such deduction may be assessed against that subcontractor. Amounts thereafter due to the subcontractor will be the balance owed for the work less the imposed deductions.

Payment disputes between the Contractor and subcontractors relating to allocation of chargeable Contract Time and any resultant Liquidated Damages, quantity or quality of items of work subject to a subcontract or other agreement shall be referred to a neutral alternative dispute resolution forum for hearing and decision with the costs for such mediation or arbitration to be shared equally by the parties. Funding for mediation of payment disputes involving Disadvantaged Business Enterprises is available from the Department through the DBE Supportive Service Program. Such services are reimbursed by the Federal Highway Administration and are authorized by 23 CFR § 230, Subpart B. The Contractor shall include a clause in any subcontract notifying the subcontractor of their right to resolution of payment disputes through alternative dispute resolution mechanisms.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
AGGREGATE BASE

These Special Provisions revise, amend, and where in conflict, supersede applicable Sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

(Replace with the following:)

303.01 DESCRIPTION

This work consists of providing and placing one or more layers of aggregates, and specified additives, on a prepared subgrade or subbase using conventional equipment and methods for incorporating water into the aggregate base material and spreading it onto the subgrade.

303.02 MATERIALS

Provide aggregate material for the gradation type shown on the Plans (Type A, Type B or Type C) in accordance with Subsection 703.01, "Aggregate for Aggregate Base."

During aggregate production, do not change the approved gradation type or source, unless the Engineer approves another gradation type or source in writing.

303.03 EQUIPMENT

A. Stationary Plant

Provide a central mixing plant of the pugmill type, rotary drum type, or continuous type of mixer. Establish stationary plant location within reasonable proximity to the project in order to deliver the aggregate base material at the proper moisture and consistency requirements.

B. Traveling Plant

Provide a traveling plant of the type that picks up the material from a windrow or from a blanket of loose material. The mixer may be of the pugmill or auger type, or of the transverse shaft type that mixes the materials by means of revolving paddles that lift all the loose material from the working area.

Ensure the traveling plant has provisions for introducing the water at the time of mixing, through a metering device, or by other approved methods, and can apply the water by means of controls which will supply a uniform ratio of water in the approximate amount required for optimum moisture.

Ensure the device by which the mixing machine picks up the material can be controlled and operated on each pass of the mixer as to pick up all the material to be treated and at the same time avoid cutting into the working area.

C. Compactor

Provide a self propelled, steel wheeled compactor weighing at least 10 ton [9 metric ton].

303.04 CONSTRUCTION METHODS

A. Preparation of Subgrade

Prepare the subgrade in accordance with Subsection 310.04.B, "Subgrade Method B for All Other Subbases, Bases, Pavement, or Surface," or as required by the Contract.

B. Preparation of Existing Base Course

Prepare existing aggregate base course in accordance with Section 311, "Processing Existing Base and Surface," or as required by the Contract.

C. Mixing Aggregate Base

Uniformly mix aggregate base materials and water using a stationary or traveling plant at outside locations, or using on-grade mixing methods to achieve a uniform material near optimum moisture. On-grade mixing methods must not cause instability to the underlying subgrade material due to moisture saturation. If instability is caused, the methods must be suspended and improved to eliminate that condition.

(1) Stationary Plant

Uniformly mix the aggregate and water in an approved central mixing plant (pugmill, rotary drum, or continuous mixer). Add water during the mixing operation to achieve the proper moisture content for compaction in accordance with Subsection 303.04.E, "Shaping and Compaction."

(2) Traveling Plant

Perform the following steps to uniformly mix the aggregate and water using a traveling plant:

- Clean the specified area of vegetation and deleterious materials.
- Overlay the specified area with at least 3 in [75 mm] of base material and compact to achieve a work table for mixing operations.
- If the mixing machine requires a blanket of material, spread the windrow to a uniform depth and width consistent with the machine's capability.
- Add water during the mixing operation to achieve the proper moisture content for compaction in accordance with Subsection 303.04.E, "Shaping and Compaction." Avoid

using excess water during mixing and compaction to prevent undue softening of the subgrade.

- Ensure the device used to pick up the material does not contaminate the mixture by cutting into the work table.
- Continue mixing until the aggregate and water are evenly distributed and a uniform mixture is produced, meeting specification requirements.
- During the mixing process, adjust the mixing equipment to prevent material from moving in a longitudinal direction.

(3) On-Grade Mixing

During the mixing of the aggregate base material and water, moisten the base material as close to optimum moisture content as practical prior to its placement to minimize the amount of water that must be uniformly mixed on the subgrade. Apply additional water as needed accurately and uniformly throughout the length of the section being placed so that no excess wet or dry spots exist in the finished aggregate base. Avoid application of excess water, during both mixing and compaction, so that undue softening of the subgrade will not develop.

D. Spreading

Transport the mixed aggregate base materials to the roadbed and place using equipment and methods that will not damage the underlying subgrade or separator fabric. Spread the aggregate base material so that once compacted, the base will be within acceptable tolerances to the final slope and elevation shown in the plans. Make adjustments to equipment and methods as needed to:

- minimize segregation and degradation of aggregate base material,
- provide sufficient moisture content of aggregate base material (near optimum moisture content) without over saturating the underlying subgrade material, and
- obtain final slope and elevations within acceptable tolerances.

Place aggregate base material in layers of from 4 in to 8 in [100 mm to 200 mm] compacted thickness.

Spread and compact the aggregate base material over the full width of the roadbed before placing a succeeding layer. Finish compacted layers to the grades, elevations, and thicknesses shown on the Plans. Correct segregated areas at no additional cost to the Department. Stagger longitudinal and transverse joints at least 1 ft [0.3 m] in each succeeding layer.

When constructing successive layers of aggregate base, minimize disturbance to the surface of the previously placed layer. Adjust placement procedures or equipment to ensure compliance with the Contract requirements.

E. Compaction

Compact each layer to the proper density: no less than 98 percent of maximum density for Type A Aggregate Base, and 95 percent for Types B and C Aggregate Base. Determine maximum density in

accordance with AASHTO T-180, Method D. Measure the in-place field density in accordance with AASHTO T-310; direct transmission is the preferred method (rod projected into base as opposed to back-scatter mode). Provide sufficient moisture content in the aggregate base material at the time of placement near the optimum moisture content to enable proper compaction. Prevent damage to aggregate particles during compaction. Moisture content will aid in the base compaction and reduce the compactive effort necessary and minimize the breakdown of the gradation of the material.

If during compaction the moisture content drops below optimum moisture such that the required percent compaction cannot be obtained, apply water uniformly over the base materials as needed to ensure a uniform texture, firmly keyed aggregates, and proper consolidation of layers.

Cure the aggregate base material such that there is no free standing water before applying the prime coat or the succeeding layer of aggregate base or pavement section. If the density required by the Contract is achieved, the Department will not consider moisture content as an acceptance criterion.

F. Tolerances

Finish the aggregate base in accordance with Subsection 301.04.A, "Tolerances."

303.05 METHOD OF MEASUREMENT

The Engineer will measure the volume of the compacted in-place *Aggregate Base Type A*, *Type B*, and *Type C* by multiplying the completed length of aggregate base by the area of the typical section shown on the Plans.

303.06 BASIS OF PAYMENT

The Department will pay for each pay item at the contract unit price per the specified pay unit as follows:

Pay Item:	Pay Unit:
(A) AGGREGATE BASE TYPE A	Cubic Yard [Cubic Meter]
(B) AGGREGATE BASE TYPE B	Cubic Yard [Cubic Meter]
(C) AGGREGATE BASE TYPE C	Cubic Yard [Cubic Meter]

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
CEMENT TREATED BASE

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

(Replace with the following:)

317.01 DESCRIPTION

This work consists of constructing a cement treated base (CTB) using a soil, aggregate, and cement mixture.

317.02 MATERIALS

Provide material in accordance with the following subsections:

Material:	Subsection:
Portland Cement	701.02
Water	701.04
Fly Ash	702.01
Curing Agents	701.07.C
Aggregates	703.02

Provide aggregates that conform to the requirements of Subsection 703.02, except ensure that the aggregate has an Aggregate Durability Index of at least 30, tested in accordance with AASHTO T 210.

Provide a separator fabric in accordance with Section 712.05, "Geotextiles for Bases," except ensure the fabric meets the requirements of AASHTO M288, Class 1 and weighs at least 15 oz/yd^2 [500 g/m^2].

317.03 EQUIPMENT

Use equipment for producing and placing the CTB in accordance with Subsection 301.03, "Equipment," except only use stationary plants and equipment that combines placement and initial compaction.

317.04 CONSTRUCTION METHODS

A. Mix Design and Proportioning

Design CTB mixtures in accordance with OHD L-53. Ensure Portland cement is at least 75% of the total cementitious materials in the mix. Submit a CTB mix design to the Engineer at least seven (7) days prior to the beginning of paving.

At a minimum, include the following information with each CTB mix design:

- Project identification
- Name and address of the Contractor and producer
- A unique mix design name
- Aggregate sources
- Gradations for each aggregate source. Sieve sizes shall include the 1 ½ in [37.5 mm], 1 in [25 mm], ½ in [12.5 mm], No. 4 [4.75 mm], No. 40 [150 µm], and the No. 200 [75 µm]
- Hydraulic cement type and source
- Types of cement replacement, if used, and sources
- Types of admixtures and sources, if used
- Material proportions
- Combined gradation charts
- Unit weight
- Compressive strength at 7 days

B. Mixing

Handle and measure materials, batching, and mixing in accordance with Subsection 414.04.C, "Mixing Concrete," except only use a central mix plant which has been approved by the Engineer.

C. Placement

Before spreading the CTB, moisten the surface of the compacted subgrade unless the subgrade has been primed. Finish and compact the CTB to produce a smooth, dense surface that is free of surface compaction planes, cracks, ridges, or loose material.

Compact the CTB within two (2) hours of adding water to the aggregate and cement. Follow the recommendations of the mix design. Compact the CTB to at least 95% of the maximum density and test in accordance with OHD L-54. Place the CTB in a single layer. Ensure the compacted thickness is in accordance with the dimensions shown on the plans and in compliance with Subsection 301.04.A, "Tolerances." After strike off and consolidation, finish the CTB to meet the required elevation and cross section, and to create a smooth surface. Use equipment that automatically controls both grade and line to trim the surface of the CTB.

Keep the CTB surface moist during finishing operations, and until the application of the curing agent. Apply a curing agent on the finished CTB surface at the rate of at least 1 gal per 150 ft^2 [2 L per 7 m^2].

Use butt or sawed longitudinal construction joints; those between the driving lanes shall match the longitudinal joint of overlying pavement. Place other longitudinal joints within 3 ft [1 m] of the longitudinal joint of the overlying pavement and construct transverse joints as butt joints. Before placing the separator fabric, sweep the CTB surface. Place and secure the separator fabric onto the surface of the CTB in such a manner that the fabric remains free of wrinkles and cracks. Secure the separator fabric with asphalt binder, mechanical fasteners, or other method approved by the Engineer. Overlap the fabric 8 in [20 cm] both longitudinally and transversely.

Limit construction traffic on the CTB to that necessary to apply the separator fabric and overlying pavement. Do not use the CTB layer as a haul road. Allow only concrete delivery trucks necessary to deposit fresh concrete directly in front of the paver. Place overlying pavement on the base after compressive strengths reach at least 600 psi [4,150 kPa] in accordance with OHD L-54. Repair damage to the CTB at no additional cost to the Department.

D. Weather Limitations

Do not mix CTB if the aggregate or subgrade is frozen. Mix and place CTB when the ambient air temperature is at least 40 °F [5 °C] and rising. Protect CTB from freezing for seven (7) days after placement.

E. Tolerances

Finish the CTB in accordance with Subsection 301.04.A, "Tolerances."

F. Acceptance

The Engineer will base pay adjustments for strength on a lot by lot basis. A lot will normally be defined as 10,000 yd^2 [10,000 m^2] (four sublots of 2,500 yd^2 [2,500 m^2] each).

The Contractor will be responsible for making test cylinders and determining compressive strength of the CTB in accordance with OHD L-54. At least one cylinder will be made for testing from a random location in each sublot in accordance with OHD L-54. Strength of plant mix CTB shall be between 600 psi [4,150 kPa] and 2,000 psi [13,800 kPa].

The Engineer is responsible for performing compaction tests during placement of the CTB using a nuclear density gauge in accordance with OHD L-54. At least one (1) test will be performed from a random location in each sublot in accordance with OHD L-54.

The Engineer will reject any load of mixture that is visually unacceptable for reasons of being too wet, excessively segregated, or otherwise obviously deficient.

Replace rejected CTB at no additional cost to the Department. When replacing rejected CTB, remove a width of at least one lane and a length of at least 15 ft [4.5 m]. If the removal is within 15 ft [4.5 m] of any transverse joint, remove to the joint.

317.05 METHOD OF MEASUREMENT

The Engineer will measure the surface area of the completed *Cement Treated Base* placed at the thickness shown on the Plans.

317.06 BASIS OF PAYMENT

The Department will pay for each pay item at the contract unit price per the specified pay unit as follows:

Pay Item:	**Pay Unit:**
CEMENT TREATED BASE	Square Yard [Square Meter]

The Department will consider the cost of separator fabric and method of fastening to be included in the contract unit price for *Cement Treated Base*.

The Department will utilize Table 317:1 to calculate the strength pay factor for CTB extents with strengths less than or greater than the specified requirements:

Table 317:1
Acceptance Pay Factors

Strength	**Pay Factor**
< 600 psi	Remove & Replace
600 psi - 2,000 psi	1.00
2,000 psi - 4,000 psi	$1.00 - ((\text{Actual Strength} - 2{,}000) \div 2{,}000)^2$
> 4,000 psi	Remove & Replace

Multiply the contract price by the Strength Pay Factor for the represented CTB extent. Check any outlying concrete cylinder breaks in accordance with ASTM E 178 Table 1, "Upper 10% Significance Level."

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OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
LONGITUDINAL JOINT DENSITY ON ASPHALT CONCRETE PAVEMENT

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

411.04 CONSTRUCTION METHODS

J. Joints *(Add the following:)*

(1) Longitudinal Joint Density

For each lot, or sublot at locations where roadway density tests are to be taken, perform a joint density evaluation at each pavement edge that is or will become a longitudinal joint. Determine the joint density in accordance with OHD L-14, Appendix B. The joint density is considered failing if the density at the joint is more than 3.0 pcf below the density at the random sample location at the same station and the measured (by core or correlation) joint density is less than 90%.

Investigate joint density failures and take corrective actions during production and placement to improve the joint density. Suspend production if two (2) consecutive evaluations fail unless otherwise approved. Resume production after the Engineer approves changes to production or placement methods.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
WARM MIX ASPHALT

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

411.01 DESCRIPTION *(Add the following:)*

Warm Mix Asphalt (WMA) is defined as an asphalt binder and aggregate mixture which, by additive or process, can be produced and placed at a reduced temperature from normal HMA temperatures. WMA requirements are the same as for HMA except where noted.

411.04 CONSTRUCTION METHODS

K. Compaction

(1) General *(Add the following:)*

Ensure that the WMA immediately behind the paver is at least 215°F [102°C].

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
COMPACTION OF HOT MIX ASPHALT

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

(Revise as follows:)

411.04 CONSTRUCTION METHODS

K. Compaction

(2) Acceptance

(a) Layers At Least 1½ in [38 mm] Thick *(Replace the first paragraph with the following:)*

Ensure the target density of each lot is 94 percent of the Maximum Theoretical Density, determined by the specific gravity of the HMA in accordance with AASHTO T 209.

(Replace Table 411:2 with the following:)

Table 411:2
Pay Adjustments for Lot Density

Pay Adjustment Factor (PAF) [a] % of Maximum Theoretical Density	Average Lot Density (ALD)
> 97.0	Unacceptable [b]
92.0 – 97.0	1.00
91.0 – 91.9	1.00 - (0.07)(92.0 - ALD)
88.1 – 90.9	0.93 - (0.15)(91.0 - ALD)
< 88.1	Unacceptable [b]

[a] Use PAF for Roadway Density in the Combined Pay Factor equation in accordance with Subsection 411.04.N.(2).(a), "Basis of Acceptance and Payment."

[b] Unless otherwise directed by the Engineer, remove and replace unacceptable lots at no additional cost to the Department.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
OPTIMIZED GRADATION FOR PORTLAND CEMENT CONCRETE PAVEMENT

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

414.04 CONSTRUCTION METHODS

R. Acceptance of Pavement *(Amend to include the following:)*

Combined Pay Factor for optimized gradation concrete;

$$CPF = \frac{4T + 2(S + OG + AC)}{10}$$

Where:

CPF = Combined pay factor,
S = Pay factor for strength,
T = Pay factor for thickness,
G = Pay factor for standard gradation,
OG = Pay factor for optimized gradation,
AC = Pay factor for air content

(a) Engineer's Acceptance Procedures

Table 414:2
Acceptance Schedule

Characteristic	1 Test	Pay Factor [a]
Optimized Gradation [f] - Deviation from the target (without regard to signs):		
Combined aggregates % retained on any sieve above Target Spec. Range, %	0	1.00
	0.01 - 1.00	1 - 0.10x
	1.01 - 2.00	1.03 - 0.15x
	> 2.00	1.13 - 0.20x
[f] One specimen and one test for each combined gradation per lot.		

To determine the combined aggregate deviation used for optimized gradation concrete, the Engineer will use the largest deviation from the target range of any individual sieve or gradation equation.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
PAVEMENT AND BRIDGE DECK SMOOTHNESS

These Special Provisions amend and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

430.01 DESCRIPTION

This section establishes procedures for determining acceptability and pay adjustments as they relate to smoothness requirements of pavements and bridge decks. The equipment and testing applicable to this section shall be provided and/or operated by the party or parties specified in Appendix A of this provision.

Except as noted herein, these special provisions apply to all types of Portland cement and asphalt concrete pavements, as well as bridge decks constructed as part of this contract, or as specified on the plans.

430.03 EQUIPMENT AND PERSONNEL

Provide an approved profiler as described below. Ensure the equipment is certified by the Oklahoma Highway Construction Materials Technician Certification Board, and is capable of running on Portland cement pavements having a compressive strength of 2,500 psi without causing any damage to the pavement.

A. Profilograph

(1) California Profilograph

Use a California profilograph supported on multiple wheels arranged in a staggered pattern so that no two wheels cross the same bump simultaneously and without a common axle. Mount the strip chart recorder on a lightweight frame 25 ft long. Measure the relative smoothness of the pavement or bridge deck by recording the vertical movement of a sensing wheel at least 6" in diameter attached to the midpoint of the frame. Record the graphical traces of the profilogram on a 1" to 1" scale for the vertical motion of the sensing wheel. Ensure the profilogram is driven by the chart drive on a scale of 1" of chart paper equal to 25 ft of longitudinal movement of the profilograph.

(2) Light Weight Profilometer

Provide lightweight profilometer equipment meeting the following requirements:

(a) Mounted on a lightweight, motorized vehicle such as an all-terrain vehicle, golf car, or other Engineer-approved vehicle,
(b) Capable of running on concrete that has not achieved its design strength without causing damage,
(c) Contains an onboard, precision accelerometer that measures movement of the light weight profilometer,

(d) Contains an infrared or laser type non-contact vertical distance sensor mounted on the vehicle,
(e) Measures and provides the information as specified in subsection 430.04.B, "Evaluation," and
(f) Measures the road profile in accordance with ASTM E950-98, Class I.

(3) High Speed Profilometer

Provide high speed profilometer equipment meeting the requirements of AASHTO M 328-14 *Standard Equipment Specification for Inertial Profiler*.

B. Calibration

Calibrate the profilograph or profilometer within the following limits:

- Horizontal measurements shall be within ±5 feet per 1,000 feet of distance tested.
- Vertical measurements shall be the same as those of the calibration blocks measured.

Submit a profilograph or profilometer calibration report to the Engineer after every calibration using the appropriate form provided by the Engineer. Calibrate the profilograph or profilometer the day of the testing prior to collecting the smoothness data. Repeat the calibration as directed by the Engineer.

C. Provision and Operation of the Profilograph/Profilometer

If specified, provide a profilograph or profilometer operator, certified by the Oklahoma Highway Construction Materials Technician Certification Board, to perform profilograph or profilometer measurements, and to interpret and analyze the produced profilograms.

430.04 CONSTRUCTION

A. Surface Testing

Notify the Engineer by phone 24 hours before performing any surface testing. If the Engineer is unable to be reached by phone, notify the Engineer in writing by email. Surface testing performed without proper notification or coordination with the Engineer will not be accepted.

Provide traffic control for smoothness measurements regardless of the provider or operator of the equipment. If specified, use an acceptable and approved profilograph or profilometer to measure pavement smoothness. Collect profilometer readings or profilograph traces beginning at a location 25 ft prior to the beginning point of a project, including any exception areas, and through all bridges and changes in the pavement types to a location 25 ft beyond the ending point of a project, including any exception areas. The surface will be tested as soon as possible after the completion of the work.

If milling is not required for overlay projects, the surface will be tested immediately before construction and as soon as possible after completion of the work to determine the percent reduction in the profile index in accordance with Table 430:2. However, the Contractor may request in writing the elimination of the before construction testing requirement. Elimination of such testing will also eliminate the Contractor's option of using Table 430:2 for pay purposes.

For full depth asphalt pavement, test the next to last lift and perform any corrective action on bumps and dips in accordance with subsection 425.04.A(1) prior to placing the final lift. Test the final lift to determine the pay adjustment.

For concrete pavement where a longitudinal construction joint is within 6 inches of the wheel path, provide an additional test along the joint for the purpose of determining corrective action. The pay adjustment will be based on the test within the wheel path.

The Engineer will include smoothness deviations at construction and expansion joints when calculating the profile index and when identifying bumps.

Remove objects and foreign material on the surface before testing. Remove any protective covers before testing. Properly replace protective covers after testing. While testing for smoothness, produce a final trace. Produce a second trace for segments on which allowable surface corrections have been made. The second trace must contain a minimum of 50 feet on either end of the corrected area and it must have the correct stationing.

Propel the profilograph at a speed no greater than 3 mph. Gather data at lower speeds if the pavement or bridge deck is rough or profilograms are not being produced clearly.

Operate the profilometer at a constant speed as recommended by the manufacturer, but no greater than 20 mph for a light-weight profilometer.

The testing sequence of the pavement or bridge deck to be tested will be one pass per driving lane in the wheel path farthest from the edge of a pavement or bridge deck. The profilograph/profilometer must be within the planned driving lane when making a pass.

Provide the profilogram evaluations to the Department, including at a minimum:

- Company name,
- Operator name,
- Federal/state project number,
- Job piece number,
- Route number/name,
- Lane description (NB, SB, EB, WB)
- Lane location (left, center, right)
- Pass description (1^{st}, 2^{nd}, etc.)
- Correct time and date,
- The electronic files from which the profilograms were derived, and
- An evaluation summary extended to include pay adjustments per segment and totaled, in spread sheet format, within 14 days after the final trace is run.

A continuous graphical trace may consist of a single trace or multiple traces including the minimum overlap, and may be submitted as an electronic file to the Engineer.

Take additional profiles only to define the limits of an out-of-tolerance surface variation. The Department reserves the right to verify the testing, the evaluation, or both. The Department's test results will be considered final. If the Contractor's test results contain significant errors, the Department may assess the cost of the verification efforts.

B. Evaluation

For pay adjustment purposes, evaluation of the surface testing results will be limited to the following specifications:

(1) Profile Index

The Department defines an "extent" as a segment of driving lane of pavement or bridge deck 528 ft long or the entire length of bridge, including approach slabs, whichever is less. Use ProVAL or other ODOT approved computerized profilogram reduction system to calculate a profile index for an extent. Other computerized profilogram reduction systems must be submitted in writing to the Resident Engineer for approval. Calculate the index by summing the vertical deviations using a zero blanking band (0.2 for bridge decks) as indicated on the profile trace. The Engineer may require additional field surveys to establish bump locations. Convert the measurements from inches into inch per mile. When the quantity represented is less than a full extent in length, the Contractor may combine the quantity with an adjacent full extent or treat it as a separate extent.

(2) Bumps

Bumps will appear as high points on the profile trace and correspond to high points on the pavement or bridge deck surfaces. The Department defines unacceptable bumps as bumps with vertical deviations greater than 0.60 in, without using a blanking band, in a 25 ft span.

(3) Exceptions

The following areas will be considered as exceptions:

- Shoulders,
- Ramps,
- Two-way, left turn lanes,
- Acceleration, deceleration, climbing, and turn lanes less than 528 ft,
- Tapered transitions associated with shoulders, ramps, acceleration, deceleration, climbing and turn lanes,
- Pavement with horizontal centerline curves with radii less than 1,000 ft and the super elevation transitions of these curves,
- In overlays only, areas in roadway within a 10 ft radius of existing inlets, street returns, and utility covers (this exception does not apply to full depth pavements), and
- Pavement areas requiring handwork (this exception does not apply to areas placed by hand for the Contractor's convenience).

These exception areas will not require testing for smoothness, however the requirements for tolerances defined in subsection 401.04 of the Standard Specifications will remain in effect. For the

above exceptions, the profile index, calculations and associated adjustments specified in this special provision will not apply.

(4) Special Evaluation Requirements

The Engineer will evaluate bridge approach slabs in accordance with bridge deck smoothness requirements. There will be no exceptions made for any portion of bridge decks or approach slabs. The profile measurements for the entire length of the bridge deck and approach slabs will be used for the determination of the pay adjustments.

The Engineer will exclude the following from the profile index calculation used for determining pay adjustments for new pavements and overlays:

- For a secondary street, the 25 ft that ties into an existing primary street as determined by the Engineer,
- The 25 ft that ties into existing bridges or approach slabs (this does not apply to new bridge construction), and
- The 25 ft at the beginning and ending stations of the project (this does not apply to multiple adjoining projects in a single contract)

These excluded areas will be tested for smoothness, and the requirements for mandatory correction of bumps as defined in this special provision and tolerances defined in subsection 401.04 of the Standard Specifications will remain in effect. Such corrections (including grinding) will not affect pay adjustments of individual extents or a possible incentive for overall smoothness.

C. Surface Correction

Ensure all ground surfaces exhibit good workmanship and are neat in appearance. Ensure all ground final surfaces are in accordance with subsection 425.04.A.(1) of the Standard Specifications. Fog seal the surfaces of ground asphalt pavements. Cores for thickness determination, as applicable, will be taken subsequent to all corrective work. Perform all corrective actions, including identifying locations needing correction, and all work associated with the correction, at no additional cost to the Department.

Grind the concrete in the vicinity of the joint as part of the corrective process when correcting bridge decks and approach slabs. Do not grind metal expansion joints. Do not reduce the concrete cover over reinforcing steel to less than 2 inches. Retexture the surfaces of corrected areas in accordance with subsection 504.04.G of the Standard Specifications.

(1) Pavements

Unless otherwise permitted in writing by the Engineer, correct all new pavement surfaces to acceptable limits as specified below:

- Reduce pavement extents having indices in excess of acceptable limits in Table 430:1 (greater than 46.9 in/mi), not including areas defined in subsection 430.04.B.(3) "*Exception*" or 430.04.B.(4) "*Special Evaluation Requirements,*" to a Profile Index of 35.0 in/mi or less.

- Reduce surfaces having individual bumps in excess of 0.60 inch in a 25 foot span, including any areas defined as *"Exception"* (subsection 430.04.B.(3)) or *"Special Evaluation Requirements"* (subsection 430.04.B.(4)), to a Profile Index below 0.60 inch in 25 foot span.

- When an unacceptable pavement extent or bump is permitted to be excluded from correction in writing by the Engineer, the location will be considered a "ground area" for the purposes of incentive determination in accordance with 430.06 "BASIS OF PAYMENT" of this provision.

(2) Bridge Decks and Approach Slabs

Unless otherwise permitted in writing by the Engineer, correct all new bridge decks and approach slabs to acceptable limits as specified below:

- Reduce extent of bridge decks and approach slabs having indices in excess of acceptable limits in Table 430:3 Class I to a Profile Index of 36.0 in/mi or less, or Table 430:3 Class II to a Profile Index of 40.0 in/mi or less as applicable.

- Reduce surfaces having individual bumps in excess of 0.60 inch in a 25 foot span to a Profile Index below 0.60 inch in 25 foot span.

430.06 BASIS OF PAYMENT

There will be no separate payment for providing and/or operating a profilograph or profilometer. Include such costs, and any other costs related to smoothness measurements or evaluations, in the price for *Contractor's Quality Control* when the proposal contains a pay item for quality control and acceptance. Otherwise include such costs in the prices of other items.

Failure to provide the information listed in subsection 430.04.A for profilogram evaluations will result in a $500 pay deduction per instance to be applied on the pay adjustment.

The pay adjustments shown in the following tables are for extents of 528 feet in length. Pay adjustments for extents of different lengths will be reduced or increased proportionally. (i.e. adjustment for a 792 feet extent is equal to the pay adjustment from the Table multiplied by 1.5).

The pay adjustments shown in the following tables are for extents of 12 feet in width. Pay adjustments will not be made for extents of different widths.

A. Pay Adjustment for Pavements

The Department will base pay adjustments for smoothness of pavements on the initial profile indices determined before corrective actions.

The Department will base smoothness pay adjustments for pavement sections removed and replaced or overlaid as approved by the Engineer on the profile indices determined after the corrective actions, but before grinding. The Department will not increase pay for pavements with grinding.

The smoothness pay adjustment will be determined for each extent in accordance with Table 430:1 or, when applicable, Table 430:2. In the event that the pay adjustment from Table 430:2 results in less pay than that established by using Table 430:1, the adjustment will be derived from Table 430:1.

Table 430:1
SMOOTHNESS PAY ADJUSTMENTS
Pavements

Profile Index (in/mi) [2] (greater than 45 mph)	Adjustment [1] ($ / Extent)	Profile Index (in/mi) [2] (45 mph or less and ramps)	Adjustment [1] ($ / Extent)
15.0 or less	1,250	19.0 or less	1,250
15.1 to 25.0	3,125 - 125*x*	19.1 to 29.0	3,625 - 125*x*
25.1 to 35.0	0	29.1 to 39.0	0
35.1 to 41.0	14,000 - 400*x*	39.1 to 45.0	15,600 - 400*x*
41.1 to 46.9	32,450 - 850*x*	45.1 to 50.9	35,850 - 850*x*
47.0 or more	-7,500 [3]	51.0 or more	-7,500 [4]

Where "*x*" is the profile index (in/mi.)

[1] These pay adjustments are for 10" thick asphalt and 8" thick P.C. concrete pavements. Pay adjustments for pavements or overlays of different thicknesses will be reduced or increased proportionally, based on the typical section for the extent. (i.e. pay adjustment for a 12" P.C. concrete pavement is equal to the adjustment from the Table multiplied by 1.5).

[2] Except as noted in subsection 430.04.B.(4) pay adjustments for roadways (including ramps and service roads) will be based on posted speed limits.

[3] Correct pavement extents with profile indices greater than 46.9 in/mi to 35.0 in/mi or less at no additional expense to the Department. The required correction will not increase payment unless deficient sections are removed or overlaid. Failure to correct to 35.0 in/mi will result in zero payment for the affected extents.

[4] Correct pavement extents with profile indices greater than 50.9 in/mi to 39.0 in/mi or less at no additional expense to the Department. The required correction will not increase payment unless deficient sections are removed or overlaid. Failure to correct to 39.0 in/mi will result in zero payment for the affected extents.

TABLE 430:2 SMOOTHNESS PAY ADJUSTMENTS Overlays - No Milling Required	
Total Nominal Thickness > 1.5 inches	
Reduction in Profile Index (%)	Adjustment ($ / Extent) [1]
90.0 or more	140
90.0 through 60.0	10*x* - 760
60.0 through 50.0	40*x* - 2,560
Less than 50.0	Unacceptable
Total Nominal Thickness ≤ 1.5 inches	
Reduction in Profile Index (%)	Adjustment ($ / Extent) [1]
85.0 or more	140
85.0 through 55.0	10*x* - 710
55.0 through 45.0	40*x* - 2,360
Less than 45.0	Unacceptable

Where "*x*" is the reduction in the Profile Index (%)

[1] The above adjustments are for 1" thick asphalt or concrete overlays. Adjustments for overlays of different thicknesses will be reduced or increased proportionally, based on the typical section for the extent (i.e. adjustment for a 2" overlay is equal to the adjustment from the Table multiplied by 2).

B. Pay Adjustments for Bridge Decks and Approach Slabs

For those sections corrected or ground in a manner approved by the Engineer pay adjustments for smoothness of bridge decks will be based on the profile indices determined after corrective actions. Pay for a bridge deck or approach slab extent that is corrected or ground for any reason will be limited to a maximum of full pay, including extents whose profile indices would otherwise justify incentive pay.

For projects with multiple bridges, the bridges will be evaluated independently. Corrective action on any bridge will not affect the pay adjustment on any other bridge.

The smoothness pay adjustments will be determined for each extent in accordance with Table 430:3.

TABLE 430:3 SMOOTHNESS PAY ADJUSTMENTS Bridge Decks and Approach Slabs	
CLASS I	
Profile Index (in/mi)	Adjustment ($ / Extent) [1,3]
6 or less	7,500
6.1 through 24	10,500 - 500*x*
24.1 through 36	55,500 - 2,375*x*
More than 36	Unacceptable [2]
CLASS II	
10 or less	7,500
10.1 through 24	12,850 - 535*x*
24.1 through 40	45,010 - 1,875*x*
More than 40	Unacceptable [2]

Where "*x*" is the profile index (in/mi.)

1 These adjustments for the bridge decks and approach slabs are independent of thickness of the bridge deck.

2 Failure to correct to maximum acceptable profile index will result in zero payment for the affected extents.

APPENDIX A
SMOOTHNESS SPECIFICATION INFORMATION SHEET
FOR
NHPPI-4000-(248)FP, JP NO. 10618(07), SEQUOYAH COUNTY
NHPPI-4000-(064)PM, JP NO. 28961(04), SEQUOYAH COUNTY

Equipment -

The profilograph/profilometer is to be ***provided*** by the *(select one)*:

☐ DEPARTMENT ☒ CONTRACTOR

The profilograph/profilometer is to be ***operated*** by the *(select one)*:

☐ DEPARTMENT ☒ CONTRACTOR

Roadway -

☒ - The requirements specified in this special provision ***will*** govern the smoothness requirements for the paving on this project.

☐ - The requirements specified in this special provision ***will not*** govern the smoothness requirements for the paving on this project.

Bridge -

☒ - The requirements specified in this special provision ***will*** govern the smoothness requirements for the following bridges according to each bridge's classification:

Bridge Number	Class I or II [1]
☒ - All Bridges	I

[1] - Class I bridge decks are those that do not present significant special problems due to geometry.
- Class II bridge decks are those that do present significant special problems due to geometry.
Geometric features include but are not limited to skews, variable widths, variations in super elevation, sharp horizontal curves, or multiple profiles. The classification specified herein is final and will be used as a basis for payment.

☐ - The requirements specified in this special provision ***will not*** govern the smoothness requirements for the bridges on this project.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
BRIDGE DECKS, APPROACHES, RAILS AND PARAPETS
NHPPI-4000-(248)FP, J/P 1061807, Sequoyah County
NHPPI-4000-(064)PM, J/P 2896104, Sequoyah County

These Special Provisions amend and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

(Add the following:)

504.01 DESCRIPTION

This item of work consists of furnishing materials, services, labor, tools, equipment, and incidentals necessary to design, fabricate, inspect, test, and install the expansion joint system as specified. The supervision of installation and incidental visits of a manufacturer's representative are also included in this work.

The expansion joint assembly consists of a modular, multiple seal joint system that will allow movements as shown and noted in the Plans. The configuration of the expansion joint system shall consist of preformed neoprene strip seals mechanically held in place by steel edge and separation beams. Each separation beam shall be supported by an independent support bar which is welded to the separation beam. The support bars shall be suspended over the joint opening by sliding elastomeric bearings. An equidistant control system shall be incorporated which develops its maximum compressive force when the joint is at its maximum opening. The expansion joint system shall not incorporate any bolted connections between the separator beams and support bars.

The expansion joint system shall be continuous across the full width of the roadway and continue into the traffic barriers as shown in the Plans.

The design of the expansion joint system is according to the AASHTO LRFD Specification, 2nd Edition, using HS 20 truck loading plus Impact, and appropriate load and distribution factors.

504.02 MATERIALS

(A) Acceptable Manufacturers

Only manufacturers who have successfully completed the fatigue testing requirements described later in this Special Provision will be permitted to design and supply bridge modular expansion joint assemblies. The following manufacturers have completed fatigue testing in accordance with the requirements of this Special Provision:

The D. S. Brown Company
P. O. Box 158
300 E. Cherry Street
North Baltimore, Ohio 45872-0158

Phone: 419-257-3561; FAX: 419-257-2200

Harris Speciality Chemicals, Inc.
Watson Bowman Acme Division
95 Pineview Drive
Amherst, New York 14228
Phone: 716/691-7566; FAX: 716/691-9239

It is the contractor's responsibility to ensure that any other manufacturer being considered to provide the joint assembly has completed fatigue testing in accordance with the requirements of "Fatigue Testing", stated below. The contractor is cautioned against selecting a modular expansion joint assembly manufacturer based solely on the lowest price. Carefully review the expansion joint manufacturer's experience in designing, fabricating, and installing modular expansion joint systems.

Fabricate the expansion joints at facilities owned and operated by the manufacturer; the manufacturer being the single entity that designs, fabricates, and installs (or supervises the installation of) the joint assemblies. Ensure that the fabrication shop is certified by the American Institute of Steel Construction as a Quality Certified Fabricator in the category of Simple Steel Bridge Structures (Sbr).

(B) Submittals

Select a manufacturer that has a minimum of three years experience in designing and fabricating modular bridge expansion joint systems of the type and size required by this project. Provide written certification of the manufacturer's experience and provide a list of a minimum of five expansion joint systems that have been installed with an owner and contact person for each system indicated.

Ensure that the shop plans and calculations are prepared, reviewed, and approved by a registered Professional Engineer and carry the Engineer's signature and seal. Ensure that the registered Professional Engineer is either a full-time employee of the manufacturer or has designed modular joint systems for a minimum of three years.

(C) Shop Plans

Submit details of the expansion joint system to be used together with installation and waterproofing plans to the Engineer for approval prior to fabrication of the joint assembly. Include but do not be limited to the following information on the drawings:

- Plans, elevations and sections of the joint system for each movement rating and roadway width showing dimensions and tolerances.
- All ASTM, AASHTO, or other material designations.
- Method of installation including but not limited to sequence, setting relative to temperature, anchorage during setting, and installation at curbs.
- Corrosion protection system.
- Details of temporary supports for shipping and handling.
- Design calculations for all structural elements. Include in the design calculations a fatigue design and a strength design for all structural elements, connections, and splices. Illustrate all welded centerbeam splices on the shop plans.

- Use welding procedures in accordance with AASHTO/AWS D1.5-95 Bridge Welding Code and interim supplements.

(D) Certificates of Compliance

Along with the shop plans, submit the following certifications, for review and approval:

- Manufacturer's certificate of compliance with the AISC Quality Certification Program.
- Certification that welding inspection personnel are qualified and certified as welding inspectors under AWS QC1, Standard for Qualification and Certification of Welding Inspectors.
- Record of previous completed projects with contact persons.

(E) Shipping and Handling

To avoid field splices in the modular expansion joint system, design, fabricate, and deliver each assembly to the job site as a continuous unit. The maximum length of completed expansion joint assemblies will be determined by practical shipping limitations. At the site, store the expansion joint system in accordance with the manufacturer's written recommendations and as approved by the engineer.

Indicate lifting locations and lifting mechanisms on the shop plans.

Damage to the joint system during shipping or handling will be cause for rejection of the joint system.

Damage to the corrosion protection system shall be repaired to the satisfaction of the Engineer.

Do not cut seals except as recommended by the manufacturer and approved by the Engineer. Perform all splices to the seal in the shop using methods approved by the seal manufacturer. Splices to the seal are not permitted in the field.

(F) Structural Steel

Provide all structural steel conforming to the requirements of AASHTO M 270 (ASTM A709), Grade 50W or AASHTO M 222 (ASTM A588). Do not use aluminum components.

Provide Charpy V-Notch testing for structural steel that is used to fabricate the following main components: edge beams, center beams and support bars. Perform the CVN testing on the H (heat, i.e. one test per each heat from which these three major joint components are fabricated) basis at a 70 degree F testing temperature. The minimum average energy is 20 foot-pounds. Ensure that weathering-type steel is used for all other components of the joint system, unless noted.

Provide parapet and median barrier overlapping plates - ASTM A 588 or ASTM A 572.

Provided galvanize structural steel ASTM A 123 (AASHTO M 111).

(G) Stainless Steel

Provide ASTM A 240, Type 304, with 2B finish.

Provide SS flat headed bolts into concrete inserts - Type 304 or other approved alloy.

Provide Anti-Seize Lubricant. Submit product literature to the Engineer for approval prior to use.

(H) Polytetrafluorethylene (PTFE)

Provide 100% virgin Teflon(PTFE), woven PTFE fabric, or dimpled PTFE conforming to the requirements of Section 18.8.2, AASHTO LRFD Bridge Construction Specifications, First Edition, 1998.

(I) Expansion Joint Seals

The maximum movement range of the expansion joint strip seals shall be 3.15 inches. "Box" seals or seals utilizing double webs will not be acceptable.

Material Tests Physical Properties	Test Method	Range of Values
Hardness, Durometer A	ASTM D 2240	50-70
Tensile Strength	ASTM D 412	2000 psi [13.8 mPa](Min)
Elongation at break	ASTM D 412	250% (Min)
Compression Set		
Set at 72 hr. @ 212°F	ASTM D 395	40% (Max)
Oven Aging - 70 hours @ 212°F		
Tensile Strength, max, % loss	ASTM D 573	20
Elongation, max, % loss	ASTM D 573	20
Hardness, Type A Durometer, points change	ASTM D 573	0 to +10
Oil Swell, ASTM Oil #3, 70 hours @ 212°F		
Weight change, max, %	ASTM D 471	45
Ozone Resistance, 20% Strain		
300pphm in air 70 hours @ 104°F(40°C)	ASTM D 1149 modified	No cracks
Low Temperature Stiffening 7 days @ 14°F(-10°C)		
Hardness, Type A Durometer, points change	ASTM D 2240	0 to +15

(J) Lubricant Adhesive

Provide material to bond the polychloroprene seal to the steel shapes that is one part moisture curing polyurethane and hydrocarbon solvent mixture meeting the requirements of ASTM D 4070.

(K) Headed Studs

Provide headed studs meeting the requirements of ASTM A 108 (uncoated).

(L) Hardware (Bolts, Nuts, Washers)

Provide hardware conforming to the following requirements:

- Bolts - AASHTO M 164, Type 3
- Nuts - AASHTO M 291, Type C3
- Hardened Washers, Type 3
- Galvanize in accordance with AASHTO M298

504.04 CONSTRUCTION METHODS

(C) Expansion Joints

(1) Modular Expansion Joints

(a) General

Design and fabricate the expansion joint systems as one continuous unit without field splices.

Design the expansion joint system to accommodate all expected longitudinal movements (i.e. thermal, creep, shrinkage, elastic shortening, etc.) as well as vertical and horizontal rotations. Incorporate the design strip seal glands with a maximum movement range of 3.15 inches (80 mm)per seal.

Ensure that the expansion joint assembly seals do not protrude above the top of the joint into the level of the roadway.

Design the elastomeric springs and bearings so that they are removable and replaceable. Ensure that the removal and reinstallation of the strip seal can be easily accomplished from above the joint with a 1.25 inch (32 mm)minimum gap width. These operations would be performed with partial closure of the roadway.

Ensure that the expansion joint system is water tight.

1) Fatigue Limit State Wheel Loads

Design the transverse separation beams, support bars, bearings and other structural elements for the simultaneous application of the vertical and horizontal fatigue limit state wheel load ranges shown below:

Vertical Wheel Load Range (Normal to the Roadway Surface)	Horizontal Wheel Load Range (Parallel to the Roadway)
26.0 kips(9072 kg)/wheel	8.0 kips(3629 kg)/wheel

Include impact with these fatigue limit state wheel ranges.

Alternate wheel load ranges may be used providing that the absolute magnitude of the wheel load ranges (e.g. sum of positive and negative loads along the same axis) is not less than the total wheel load ranges shown above.

2) Application of Fatigue Limit State Wheel Load Ranges.

For design of the separation beams, space two vertical and horizontal load ranges described above six feet apart and apply at the roadway surface as a rectangular patch loading. Use a rectangular patch with a 9 inch (230 mm) length in the direction of traffic and a 20 inch (500 mm) width perpendicular to the direction of traffic.

As shown below, the percentage of the loads applied to the seal separation beams and edge beams is based on the midrange position of the seals and the width of the seal separation beams.

Width of Seal Separation or Edge Beams	Percentage
2.25 inch (57 mm) or less	40%
3.125 inch (79 mm)	50%
4.0 inch (102 mm)	60%

3) Fatigue Limit State Design

By performing a structural analysis of the modular expansion joint assembly using the fatigue limit state load ranges specified above in subsection 504.04.C.(1).*(a).2)*, "Fatigue Limit State Wheel Loads", obtain nominal stress ranges ($f_{SR\,Calc}$) at all fatigue critical details. To ensure an infinite fatigue life, ensure that all modular expansionjoint assembly structural steel members, welded connections, splices, and miscellaneous steel attachments satisfy the following:

$f_{SR\ Calc} \pounds F_{SR\ Test}$	Fatigue Limit State Equation
where	
$f_{SR\ Calc}$ =	Calculated stress range based on the simultaneous application of the vertical and horizontal fatigue limit state wheel ranges.
$F_{SR\ Test}$ =	Constant-amplitude fatigue limit of component as determined from testing.

4) Fatigue Testing

Perform constant-amplitude fatigue testing on multiple spans of one or more full-scale separation beams with load applied near the center of the spans and the support bars supported only at the ends. Ensure that the tests determine the lower-bound AASHTO Category ($F_{SR\ Test}$) for all modular expansion joint assembly structural steel members, welded connections, shop splices, and miscellaneous steel attachments. Obtain at least 10 data points for each detail and that no data points fall below the AASHTO Category. Do not take the welded separator beam to support bar connections as having a fatigue strength greater than Category C.

Apply the test loading so that a vertical and horizontal loading are applied simultaneously. Perform the testing so that the horizontal load shall be 20% of the vertical load.

Conduct fatigue testing by an independent testing laboratory.

(b) Fabrication

1) General

Fabricate the expansion joint system in accordance with the dimensions, shapes, designs, and details shown in the approved shop plans and in conformance with the Standard Specifications and the Special Provisions.

Fabricate all expansion joint assemblies by the same AISC Certified manufacturer.

2) PTFE Sliding Surface

Bond the PTFE under controlled conditions and in accordance with the written instructions of the manufacturer of the PTFE.

After completion of the bonding operation, ensure that the PTFE surface is smooth and free from bubbles.

3) Corrosion Protection

Hot-dip galvanize all structural steel components of the expansion joint and overlapping parapet and median barrier plates.

Portions of the expansion joint may be masked as required by the joint manufacturer.

4) Installation

To aid in assuring proper installation of each expansion joint system in the field, provide the services of a qualified installation technician who is employed full-time by the manufacturer of the expansion system to be installed in this project. Adhere to the recommendations made by the expansion joint manufacturer's installation technician, on or off the job site, and approved by the Engineer.

The expansion joint manufacturer's installation technician shall advise the contractor and certify to the Engineer that the proper installation procedures are being followed. All certifications to the Engineer shall be in writing, signed and dated by the manufacturer's installation technician.

Install the modular expansion joint system in strict accordance with the manufacturer's instructions, and the advice of the manufacturer's installation technician. Provide to the Engineer, two weeks prior to the intended installation, with two copies of the written instructions. Ensure that the permanently installed expansion joint system matches the finished roadway profile and grades.

Water test the expansion joint system after installation. Repair any leaks to the satisfaction of the Engineer.

Take precautions to protect the expansion joint system from damage. Exercise special care at all times to ensure protection of the expansion joint system. Prior to installation of the expansion joint assembly, protect the blockout and supporting system from damage and construction traffic. After installation of the joint system, do not permit construction loads on the expansion joint device. Provide a temporary bridge over the expansion joint assembly in a manner approved by the Engineer.

Set the modular expansion joint system to the proper width for the ambient temperature at the time of setting. Indicate this information on the shop plans.

Remove all forms and debris that tend to interfere with the free action of the expansion joint system.

5) Watertightness

After the expansion joint system has been completely installed, flood for a minimum of one hour to a minimum depth of 3 inches (75 mm). If leakage is observed, repair the

expansion joint system at the contractor's expense. Use the repair procedure that is recommended by the manufacturer and approved by the Engineer.

504.05 METHOD OF MEASUREMENT

The *Modular Expansion Joints* will be measured by the linear foot along the centerline of joint (at the top of the joint cross-section) from end to end of the joint. Modular expansion joint assemblies at both locations on the structure will be included in this payment item. Parapet and median barrier plates, as well as deck haunch plates, will not be measured for payment.

504.06 BASIS OF PAYMENT

The contract price per linear foot for *Modular Expansion Joints* is full compensation for all materials, labor, tools, equipment, testing, inspection, services, and incidentals necessary to furnish and install the expansion joint systems as specified. The detailing and fabrication of any miscellaneous steel components (i.e., parapet plates and median barrier plates, and deck haunch forming plates) are included in this pay item.

Pay Item:	**Pay Unit:**
(I) MODULAR EXPANSION JOINT	LF [M]

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
RAILS, PARAPETS, AND CURBS
NHPPI-4000-(248)FP, J/P 1061807, Sequoyah County
NHPPI-4000-(064)PM, J/P 2896104, Sequoyah County

These Special Provisions amend and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

(Replace Section 504.04(I), "Rails, Parapets, and Curbs" *with the following:)*

I. Rails, Parapets, and Curbs

For concrete rails, parapets, and curbs, comply with Sections 509 and 511. For cast-in-place superstructures, such as, slab spans, pan girders, and post tensioned spans, do not place railing, parapets, and curbs until the falsework for the span has been released and the span swung.

(1) Method of placement for cast-in-place methods comply with Section 502. For slip form methods comply with Section 502 and the following:

(a) Submit specifications on equipment to be used including the following:

- Identify rates of placement
- Cover needed over reinforcement for the equipment
- Proper vibration frequency and amplitude
- Clearance to edge of deck
- Concrete slump limitations

(b) Submit plans in accordance with section 105.02 for any details that must change to accommodate slip form equipment or processes.

(c) Conduct pre-placement conference and dry run in the presence of the Engineer. Check equipment operation, reinforcement stiffness, reinforcement, and preformed joint clearance for the entire length of rail to be placed. Do not start placement until the Engineer approves dry run.

(d) Assure that all placement rates, reinforcement cover, vibration frequency and amplitude, and concrete slump are maintained throughout the placement. Make sure preformed joints remain vertical during slip form operation. Saw cut joints within four hours of placement. Stop placement and address any deficiencies that may cause lack of cover over reinforcement, reinforcement cage to move, concrete to honeycomb, joint movement, or rail misalignment.

(e) Take a minimum of three 2 inch (50 mm) diameter cores per 100 feet (30 m) of rail or parapet. Each core must penetrate at least ¾ of the thickness of the rail or parapet, and at least one of the 3 cores must be in the bottom 1/4 of the rail or parapet height. Equally distribute the three cores along the length of each placement. Separate parapets or rails placed on the same date shall be considered separate placements. Cores will not be measured for payment.

(f) The Engineer will mark additional locations for cores where, in the sole opinion of the Engineer, the quality of the slip formed rail or parapet is suspect. Any cores taken from parapet sections where the quality is suspect that are later shown to be sound, free of defects, and accepted will be paid for according to Section 109.04.

(g) Any cores showing voids of any size adjacent to the reinforcement bars, or voids not adjacent to reinforcement bars of 1/4 square inch (160 square millimeters) in area or more, or showing signs of segregation or cracking shall be considered failures and the rail or parapet section from which it was taken will be rejected. A rail or parapet section shall be defined as the length represented by the cores.

(f) Remove the entire section of rejected rail or take additional cores at a maximum of 10 foot intervals at no additional payment to determine the longitudinal extent of removal and replacement. After additional coring, the minimum lengths of rail or parapet removal and replacement will be 3 feet (1 m). Remove and replace any rail or parapet section in its entirety with more than one half of its length rejected. Remove segments less than 10 feet (3m) long from failed areas to expansion joints or the end of rail.

(h) Replace damaged reinforcement and ensure minimum splice length by performing additional concrete removal if necessary. Repair damage to epoxy coating in accordance with Section 511.04.

(i) Fill all core holes with a non-shrink grout meeting the requirements of Section 509.04(h). Grouting will not be measured for payment.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
BEARING ASSEMBLIES

These special provisions amend and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

507.02 BEARING ASSEMBLIES (*Replace with the following:*)

A. General

Provide materials in accordance with the following section and subsections:

Material:	Section or Subsection:
Welding of Weathering Steel	724.03
Stainless Steel Bearing Assemblies	724.05.A
Welding of Stainless Steel	724.05.A
Weathering Steel Bearing Assemblies	724.05.B
Elastomeric Bearing Pads	733.06

B. Steel Laminates

Provide steel laminates in accordance with AASHTO M 270 Grade 36 or ASTM A 1011 Grade 40.

C. Stainless Steel

Provide stainless steel for Stainless Steel Bearing Assemblies in accordance with Subsection 724.05.A, "Stainless Steel Bearing Assemblies," for bearing plates and bearing assemblies, including anchor bolts, nuts, washers, contact plates, and contact angles.

D. Weathering Steel

Provide weathering steel for Weathering Steel Bearing Assemblies in accordance with Subsection 724.05.B, "Weathering Steel Bearing Assemblies," for bearing plates and bearing assemblies, including anchor bolts, nuts, washers, contact plates, and contact angles.

507.06 BASIS OF PAYMENT *(Replace with the following)*

The Department will pay for each pay item at the contract unit price per the specified pay unit as follows:

Pay Item:	**Pay Unit:**
(A) STAINLESS STEEL FIXED BEARING ASSEMBLY	Each
(A) WEATHERING STEEL FIXED BEARING ASSEMBLY	Each
(B) STAINLESS STEEL EXPANSION BEARING ASSEMBLY	Each
(B) WEATHERING STEEL EXPANSION BEARING ASSEMBLY	Each
(C) ELASTOMERIC BEARING PADS	Each

The Department considers the cost of anchor bolts, bearing plates, contact plates, nuts, contact angles, plain or laminated elastomeric bearing pads, and welding to be included in the contract unit price for *Fixed Bearing Assemblies and Expansion Bearing Assemblies*.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
DRILLED SHAFT FOUNDATIONS

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

(Replace with the following:)

516.01 DESCRIPTION

This work consists of constructing drilled shafts and providing and placing reinforcing steel, concrete, and procedures for integrity testing of drilled shafts including remedial actions.

516.02 MATERIALS

A. General

Use materials in accordance with the following sections:

Material:	Section:
Structural Concrete	509
Reinforcing Steel for Structures	511

B. Concrete

Provide and modify Class AA concrete as follows:

- Limit the maximum aggregate size to ¾ in [19 mm],
- Ensure that water/cement ratio is 0.44 or lower,
- Use a high range water reducing admixture to achieve 6 to 8 in [150 mm to 200 mm] of slump at the placement start. Ensure at least 4 in [100 mm] of slump exists at the completion of placement and casing or reinforcement alignment,
- Maintain the concrete temperature below 85 °F [30 °C] during placement.
- For concrete placed under water or slurry, use cementitious material such as slag or fly ash (not cement) to increase the minimum cementitious content 10%, and
- Submit optional anti-washout additives to the Engineer for approval.

C. Casings

For exterior casings, provide smooth, clean, watertight, steel casings that can withstand handling, driving, driving stresses, and pressures from the concrete and surrounding earth. Provide permanent

casing with the dimensions specified by the American Pipe Institute tolerances for regular steel pipe. If only a single casing is used in a shaft, the casing is considered an exterior casing.

Permanent exterior casings, use steel in accordance with AASHTO M 270 Grade 36 (ASTM A709M Grade 250), unless otherwise specified by the Contract. Weld permanent exterior casings in accordance with Section 506. "Structural Steel." The Department defines permanent exterior casing diameters shown on the Plans as outside diameters.

When the Contract requires permanent exterior casings, or if the electing to provide a permanent exterior casing, ensure that a Registered Professional Engineer in the State of Oklahoma stamps and designs the design and calculations for these casings. Submit permanent casings and design calculations to the Engineer. Provide casing thicknesses not less than shown in Table 516:1.

Table 516:1
Minimum Permanent Casing Wall Thickness

<48" [<1220 mm]	0.375" [10 mm]
48" - 78" [1220 - 1980 mm]	0.500" [13 mm]
> 78" [1980 mm]	0.625" [16 mm]

For permanent interior casings, use round corrugated galvanized steel pipe with 3 in x 1 in [75 mm x 25 mm] corrugations in accordance with AASHTO M 36. Ensure the pipe gauge stays round and can withstand the concrete pressure.

516.04 CONSTRUCTION METHODS

A. Plan for Drilled Shaft Installation

Use personnel experienced in constructing drilled shafts.

Submit an installation plan or work plan for approval to the Engineer that includes the following details before constructing drilled shafts:

- List of personnel experienced in constructing drilled shafts including resumes of project experiences and documentation that verifies the information;
- Concrete mix design including results of concrete trial mix and tests for slump loss over time. Include procedures for introducing admixtures during mixing operations including set retarders;
- List of proposed equipment to be used, including cranes, drills, augers, bailing buckets, final cleaning equipment slurry pumps, core sampling equipment, tremies, and concrete pumps;
- List types of casings to be used by the contractor in accordance with Subsection 516.02C. "Casings." Include diameters and thicknesses for all permanent, temporary, and surface casings;
- Details of shaft excavation methods and procedures for maintaining horizontal and vertical alignment of the excavation;
- When the slurry is used, include details of the methods to mix, circulate, desand, and dispose of the slurry;

- Details of methods to clean the shaft excavation including the method to clean the bottom of the hole;
- Use or disposal of the excavated materials;
- Placement of reinforcing steel including support and centering methods required to minimize lateral movement of the steel cage including bolsters and the type of spacers: plastic rollers, concrete rollers, or sleds (when permitted). Provide any required material documentation for bolsters and spacers;
- Concrete placement, including proposed operational procedures for tremie and pumping methods. Include procedure that will be used to verify the outlet end is at least 10 ft (3 m) into the fluid concrete;
- Type and/or method of shaft inspection device to be used; and
- The format of the video that will be provided to the Engineer, and method of delivery.

Revise and resubmit the installation plan if it does not produce Contract required results. Submit requests for changing the top of shaft elevations with the installation plan.

B. Trial Drilled Shafts

If the Contract requires trial drilled shafts, construct them adjacent to the permanent shafts before constructing the permanent drilled shafts. Demonstrate that the methods and equipment can construct the Contract required drilled shafts. Include reinforcement and CSL tubes for the most heavily reinforced drilled shafts as noted on the Plans.

Construct the trial shaft to the size and tip elevation of the deepest shaft shown on the Plans. To monitor excavation stability and groundwater seepage, leave completed excavation open for at least 4 hr before concreting. Clean the excavation and fill the hole completely with mix design concrete. Remove the concrete 2 ft [0.6 m] below the finished grade. Perform all nondestuctive testing including CSL testing as shown on the plans or as directed by the Engineer.

If the Engineer determines that trial drilled shaft is unsatisfactory based on results of CSL other nondestructive testing, and/or coring, modify and resubmit the installation plan and drill a new trial shaft. The Engineer will not allow changes to the installation plan without resubmission.

C. Drilled Shafts

(1) Hole Excavation

Excavate holes in accordance with the installation plan. Before drilling, excavate for structure footings supported on drilled shafts and construct embankments and fills.

Place the drilled shaft horizontally at the top of the shaft elevation within 3 in [75 mm] of the position shown on the Plans. Ensure the vertical shaft alignment does not vary by more than 1 percent of shaft depth.

Use excavation equipment and methods that provide a shaft bottom normal to the axis of the shaft within 5 percent of the shaft diameter. Measurement of the shaft bottom tolerance will be left to the discretion of the Engineer. Use excavation equipment that provides a drilled shaft diameter larger than or equal to the plan diameter minus 1 in [25 mm].

Excavate below the elevation shown on the Plans if the load bearing material does not satisfy Plan requirements. Immediately notify the Engineer of deviations in subsurface conditions that may change the shaft depth or result in a reduced capacity for the bearing area. When excavated material is substantially different than soundings shown on the plans as determined by the Engineer, take soil samples or rock cores consistent with soundings shown in the Plans to determine the character of the material directly below the shaft excavation. Extend cores a minimum of two shaft diameters, or as specified by the Engineer, below the drilled shaft plan elevation logging the type of material and rock quality. Use a geotechnical engineer approved by the Bridge Division.

Check dimensions and alignment of shaft excavations in the presence of the Engineer. The Engineer will measure final shaft depth after final cleaning. If the sidewall of the hole softens due to excavation methods, swells due to delays in concreting, or degrades due to slurry cake buildup, over-ream the sidewall from ½ in to 3 in [12 mm to 75 mm] to sound material. When a shaft constructed using the mineral slurry technique sets more than 4 hours without agitation, ream the shaft to remove the cake build up.

Immediately before placing the reinforcing steel cage or concrete, clean the hole so 50 percent of each hole bottom has less than ½ in [12 mm] of sediment. Ensure the remaining 50 percent of the hole has no greater than 1 ½ in [38 mm] of sediment or debris. For dry holes, reduce the water depth to 6 in [150 mm] or less before placing concrete.

Verify that the hole bottom has been adequately cleaned using a shaft inspection device. Use a device with a high-resolution camera mounted in a watertight chamber and fitted with a depth gauge(s) to indicate the thickness of the debris on the shaft bottom. Furnish all equipment necessary to conduct the inspection. Use air, gas, or other means to pump the water out of the interior of the chamber such that the bottom of the shaft is visible. Do a minimum of five (5) drops as follows: north, south, east, west, and center (Attachment 516:1). As directed by the Engineer, the number of drops may increase for diameters larger than 8 ft [2.4 m], and the number of drops may decrease for diameters less than 4 ft [1.2 m]. Operate the camera and supporting equipment under the direction of the Engineer in such a manner as to obtain optimum clarity from the equipment. Use television cameras and lighting equipment capable of operating in dry or submerged conditions encountered during the inspection. Record the observations for the shaft bottom on a DVD or flash drive in .mov, .avi or other acceptable electronic format specified by the Engineer to become the property of the Department upon completion of the project. Store DVD's or flash drives in proper containers with dust tight closures. Label DVD's or flash drives as to shaft number, project number, job piece, contract number, and contractor name. Furnish DVD's or flash drives to the Engineer upon completion of the inspection. Continue cleaning until the Engineer is satisfied that the hole bottom is adequately cleaned and the excavation is approved.

Use at least one of the following methods for excavation:

(a) ***Dry Method***

Use the dry construction method at sites where the Engineer can visually inspect the shaft before concrete placement. For dry method:

- Drill the shaft,

- Remove accumulated water
- Remove loose material from the excavation,
- Place the reinforcing cage, and
- Concrete the shaft in dry conditions.

If caving, sloughing, or swelling conditions exist or if depth of groundwater seepage exceeds 6 in [150 mm] within one-half hour after pumping is stopped, discontinue the dry construction method and use an alternative method approved by the Engineer.

(b) ***Wet Method***

Use the wet construction method or a casing construction method for shafts that do not meet the requirements for dry construction. For the wet method, use water or slurry with the proper hydraulic head to maintain the stability of the hole while advancing the excavation to final depth, placing the reinforcing cage, and concreting the shaft. The wet method involves the following work:

- De-sanding and cleaning the slurry,
- Final cleaning of the excavation,
- Placing the shaft concrete with a watertight tremie or pumping concrete into a watertight tremie beginning at the shaft bottom,
- Providing temporary surface casings to aid shaft alignment and positioning, and
- Providing temporary surface casings to prevent sloughing of the top of the shaft excavation.
- Refer to subsection 516.04C.(2) for slurry requirements

(c) ***Casing Methods***

1) *General*

The Department will not allow casing to the bottom of the shaft. Discontinue the casing at the top of the founding stratum as shown on the Plans. Excavate below the casing using the dry or wet method. To provide design frictional load capacity, excavate into the founding stratum to the deepest length or depth shown on the Plans. Install casing in accordance with Subsection 516.04.C.3. "Exterior Casings." Do not use the double casing method when a rock socket is not present.

2) *Temporary Casing Method*

If unable to use the dry or wet methods, use the temporary casing construction method. For temporary casing:

- Use the wet method to advance the excavation through caving material into an impervious formation and set the temporary casing or use a vibratory hammer to drive the casing into the impervious formation prior to excavation,
- Complete excavation and seat the casing into rock by twisting the casing,
- Place the reinforcing cage, and
- Concrete the shaft while removing the casing.

3) *Permanent Casing Method*

Use the permanent casing construction method if shown on the Plans or where drilled shafts are in open water. For the permanent casing method, advance the excavation through caving material by driving or drilling a permanent casing to the Contract required depth or into a nearly impervious formation, whichever is deepest. Excavate to the final depth, or into a nearly impervious formation, whichever is deepest. Excavate to the final depth, place the reinforcing cage, and concrete the shaft. If full penetration cannot be attained during casing installation, excavate within the embedded portion of the casing. Drill a pilot hole if necessary. Ensure continuous casing from the top of the shaft to the elevation shown on the Plans. If the drilled shafts are in open water, extend casings from above the water elevation into the ground to protect the shaft concrete from the water during concrete placement and curing.

4) *Double Casing Method*

Use the double casing construction method if the Contract requires or, as an alternative for the temporary casing method, in the presence of severe groundwater or unstable soil conditions. Make the temporary exterior casing larger than the Contract required shaft diameter and set a permanent interior casing into the top of the founding stratum after excavation completion.

Supply the interior casing with a permanent inner diameter equal to the shaft diameter shown on the Plans. Use a temporary exterior casing with an inner diameter at least 6 in [150 mm] larger than the interior casing, but not more that 12 in [300 mm] larger. After placing the exterior casing, complete the excavation as shown on the Plans. Set the interior casing into the top of the founding stratum and brace it at the top. Remove the temporary casing after filling interior casing with concrete. Add concrete to maintain top of shaft elevation during removal. After the concrete initially sets, do not adjust the interior casing position.

(d) *Obstructions*

The Department defines an obstruction as unexpected manmade materials through which excavation cannot advance. The Department does not consider removal of tools, lost in the excavation, obstructions. Removal of naturally-occurring material, regardless of difficult or removal method, is not considered an obstruction.

Remove obstructions encountered during excavation. Notify the Engineer, in advance, of the proposed obstruction removal method. Include a cost estimate for excess costs in accordance with Subsection 104.03. "Differing Site Conditions," for obstruction removal compensation.

(2) Slurry

Before introducing it into the shaft, hydrate the slurry by premixing the material with fresh water in accordance with the slurry manufacturer's instructions. Provide slurry tanks with the capacity for

slurry circulation, storage and treatment. The Department will not allow the use of excavated slurry pits. Use either mineral (bentonite or attapulgite) or polymer slurry.

Provide de-sanding equipment to limit slurry sand content at any point in the bore hole. Ensure slurry sand content is less than 4 percent by volume for mineral slurry, and less than 1 percent for polymer slurry. The Engineer does not require de-sanding to set temporary casings.

During drilling, maintain a slurry surface in the shaft at least 5 ft [1.5 m] above the highest expected water table elevation or piezometric head and at a level that prevents the hole from caving.

When there is a sudden loss of slurry from the hole, stop drilling and take corrective action to prevent slurry loss. If the slurry construction method fails to produce the Contract required results, stop and use an alternative method approved by the Engineer.

When the excavation reaches the elevation shown on the Plans and clean, allow at least 30 min for polymer slurry to stand undisturbed. Clean the excavation base with a submersible pump or air lift.

Maintain the density, velocity, and pH of the slurry during shaft excavation in accordance with Table 516:2 for mineral slurry, and Table 516:3 for polymer slurry.

Table 516:2
Acceptable Range of Mineral Slurry

Property, Method	At the time of Slurry Introduction	In Hole at Time of Concreting
Density, [a] Density Balance (lb/ft^3 [kg/m^3])	64.3 - 69.1 [1,030 - 1,107]	64.3 - 75.0 [1,030 - 1,200]
Viscosity, Marsh Cone (s/qt [s/L])	28 - 45 [30 - 48]	28 - 45 [30 - 48]
pH, pH paper or meter	8 - 11	8 - 11

Note: Perform tests when slurry temperatures are above 40° F [4° C].
[a] Density values are for fresh water. Increase density values 2.0 lb/ft^3 [32 kg/m^3] for salt water

Table 516:3
Acceptable Range of Polymer Slurry

Property, Method	At the time of Slurry Introduction	In Hole at Time of Concreting
Density, [a] Density Balance (lb/ft^3 [kg/m^3])	62.4 - 63.0 [1,000 - 1,010]	62.4 - 63.5 [1,000 - 1,017]

Table 516:3 Acceptable Range of Polymer Slurry		
Property, Method	**At the time of Slurry Introduction**	**In Hole at Time of Concreting**
Viscosity, Marsh Cone (s/qt [s/L])	30 - 40 [32 - 42]	30 - 40 [32 - 42]
pH, pH paper or meter	9 - 11	9 - 11
Note: Perform tests when slurry temperatures are above 40° F [4° C]. [a] Density values are for fresh water. Increase density values 2.0 lb/ft^3 [32 kg/m^3] for salt water		

Take slurry samples using an Engineer approved sampling tool. Extract slurry samples from the base of the shaft and from 10 ft [3 m] above the shaft base. Perform four sets of tests during the first 8 hr of slurry use. When the results are acceptable and consistent, perform one test set for every 4 hr of slurry use.

Make corrections if the test results indicate unacceptable slurry samples. Place concrete when the resampling and retesting indicate acceptable values.

Provide test reports to the Engineer, signed by an authorized technical representative, after completion of each drilled shaft.

Dispose of slurry at approved locations.

(3) Exterior Casings

Ensure casings produce a positive seal that prevents water or other material from piping into or out of the hole. If substituting a casing with a longer or larger diameter casing through caving soils, stabilize the excavation with slurry or backfill before installing the new casing.

Consider subsurface exterior casings as temporary unless designated in the Contract as permanent casing. Remove temporary casing before completing placement of concrete in cased drilled shaft. While removing casing from the hole, maintain at least 5 ft [1.5 m] of fresh concrete in the casing above the surrounding level of water or slurry. Ensure the excess concrete within the casing displaces fluid trapped behind the casing upward and discharges it at the ground surface without contaminating or displacing the shaft concrete.

The Department defines defects in the drilled shaft as temporary casings that are bound or fouled during shaft construction and cannot be practically removed, as determined by the Engineer.

Extend casings above the surface to keep the excavation clean through concrete placement. Cut the casing off of permanent casings at the elevation shown on the Plans and leave in place after concrete placement.

(4) Reinforcing Steel Cages for Drilled Shafts

(a) ***General***

When tying the drilled shaft cage, support the reinforcing steel off the ground. Protect epoxy coated reinforcing steel from exposure to the sun and ensure that the surface of the bars is free of excessive rust, soil, oil, and as specified in subsection 511.04. Place the reinforcing steel cage as a unit only after the shaft excavation is approved by the Engineer and before concrete placement. Tie reinforcing steel lap splices together using wire.

Tie and support the reinforcing steel to keep it within the Contract required tolerances. Tie spacing devices at least at fifth points around the cage perimeter or one per 12 in [300 mm] of shaft diameter. Provide spacers at intervals no greater than 10 ft [3 m] along the length of the cage. Place spacers within 18 in [450 mm] of the top and bottom of the shaft. Use concrete spacers that equal the shaft concrete in quality and durability. Concrete sleds are acceptable in lieu of the rollers but only when casing is used down to the rock line.

Alternate reinforced or non-reinforced virgin plastic spacers may be used provided the plastic spacers meet the following requirements:

- Use spacers of adequate strength to withstand a 300 lb [1,335 N] concentrated load without permanent deformation or breakage
- Limit deformation under a 300 lb [1,335 N] load to a maximum of 5% of the support height.
- Use spacers able to meet the concentrated load requirements within a working temperature range of 20 to 150°F [-7 to 65°C], and have a maximum water absorption rate of 0.5%, as per ASTM D 570.
- Provide reinforced or non-reinforced virgin plastic when tested in accordance with ASTM D695 having a compressive strength greater 4,000 psi at 1% deformation based on a 2"x2"x2" cubic test specimen.

Protect plastic spacers from exposure to sunlight until placed in the reinforcing steel cage. Remove and replace any broken, cracked, or damaged spacers.

Temporarily strengthen the reinforcing steel cage to resist the lifting forces when the cage is lifted from a horizontal position to a vertical position. Use multiple pick-up points, strongbacks, slings or other means to support the reinforcing cage while it is being lifted. If there is evidence of excessive bending of the steel cage and/or if slippage of the spiral or tie bars occurs, repair or replace the reinforcing steel cage as needed, including CSL tubes.

During concrete placement, provide positive support from the top for the reinforcing steel cage. Support the cage concentrically to prevent racking and distortion. Maintain the top of the reinforcing steel cage no greater than 6 in [150 mm] above and no greater than 3 in [75 mm] below the Contract required position. Make corrections if the reinforcing steel cage is not maintained in that position. Do not construct additional shafts until the method of reinforcing steel cage support has been approved by the Engineer. Alternately, support the bottom of the reinforcing steel cage using footing attachments consisting of concrete, mortar, or plastic bolsters as approved by the Engineer. Use bolsters capable of supporting a 1,000 pound [4,450 N] load

without breakage. Do not use bolsters which will extend above the bottom of the reinforcing steel as it may interfere with the CSL testing.

Provide additional reinforcing steel if conditions require shafts longer than shown on the Plans.

(b) ***Access Tubes for Crosshole Sonic Logging***

When the Contract requires Crosshole Sonic Logging (i.e. CSL testing) to be performed, include CSL access tubes in the construction of each drilled shaft. Use access tubes with 2 in [50 mm] inner diameters that are made of schedule 40 steel pipe. Provide tubes, including pipe joints, with a round regular internal diameter that allows a 1.3 in [33 mm] diameter source and receiver probes to pass unobstructed. Make the tubes and joints watertight and corrosion free, with clean surfaces that allow a good bond between the concrete and the tubes.

Install access tubes to the full depth of each shaft for CSL testing equipment. Unless otherwise required by the Contract, install the number of access tubes in each drilled shaft in accordance with Table 516:4.

Table 516:4
Minimum Number of Access Tubes per Drilled Shaft

Planned Shaft Diameter, ft [m]	*Minimum Number of Access Tubes*
$D \leq 3.0$ [$D \leq 0.9$]	3
$3.0 < D \leq 4.0$ [$0.9 < D \leq 1.2$]	4
$4.0 < D \leq 5.0$ [$1.2 < D \leq 1.5$]	5
$5.0 < D \leq 6.0$ [$1.5 < D \leq 1.8$]	6
$6.0 < D \leq 8.0$ [$1.8 < D \leq 2.4$]	7
$8.0 < D \leq 10.0$ [$2.4 < D \leq 3.0$]	8
$10.0 < D \leq 12.0$ [$3.0 < D \leq 3.7$]	9

Fit tubes with a watertight shoe on the bottom and a removable cap on the top. Attach the tubes to the interior of the reinforcement cage in a regular, symmetric pattern, equally spaced around the perimeter of the cage. Install the tubes parallel to each other and vertical. Start the tubes from the shaft bottom and end at least 3 ft [0.9 m] above the ground, water surface, or both.

Avoid bending the CSL tubes during lifting of steel cage, and ensure tubes remain parallel during installation operations in the drilled shaft hole. Before concrete placement, fill the access tubes with clean water and cap the tube tops. Ensure that the tubes remain full of water until CSL testing is complete. When temperatures below freezing are anticipated, protect the access tubes against freezing by wrapping the exposed tubes with insulating material, adding antifreeze

to the water in the tubes, or other methods as approved by the Engineer. After concrete placement, avoid breaking the bond between the access tubes and the concrete.

(5) Concrete for Drilled Shafts

In the presence of the Engineer and immediately prior to concrete placement, inspect the hole for caving material falling from the sides or a change in the water elevation. Unless otherwise approved by the Engineer, place drilled shaft concrete within two hours after excavation for the shaft has been approved and the reinforcing cage has been placed. If the concrete placement is delayed or if the hole has become contaminated, remove the cage and verify the integrity of the excavated area, and ensure loose material is removed from the bottom of the hole in accordance with 516.04C.(4) Hole Excavation before resetting the reinforcing steel cage. Complete concreting in a shaft and remove the temporary casing within 2 hr of beginning concrete placement. The Department will not allow retempering concrete that has developed an initial set.

When the wet method is used and prior to placing concrete, ensure that the static water or slurry level is properly maintained in the excavation.

Using a watertight tremie, place concrete in one continuous operation from the bottom to the top of the shaft. Place concrete until acceptable quality concrete reaches the top of the shaft. For a dry shaft, overflow the top with at least 1 ft [300 mm] of concrete. For a wet shaft, overflow the top with at least 5 ft [1.5 m] of concrete. Continue overflow of concrete in shafts until uncontaminated concrete is evident. Before initial concrete sets, consolidate the top 10 ft [3 m] of the shaft using Engineer approved vibratory equipment. Finish the top of the shaft from 3 in [75 mm] lower to 1 in [25 mm] higher than the elevation shown on the Plans. In wet holes, consolidate after removing water above the concrete surface.

Place the discharge end of the watertight tremie at one tremie diameter above the shaft base elevation. Keep the discharge end immersed at least 10 ft [3 m] below the surface of the fluid concrete except when concrete is initially placed. Maintain a positive head of concrete in the tremie during concrete placement. If the discharge end is removed from the fluid concrete column during the concrete placement and concrete is discharged above the rising concrete surface into displaced water, remove the reinforcing cage and concrete, complete sidewall removal as directed by the Engineer, and reconstruct the shaft.

If the top of the shaft is above ground, form the shaft from the top to at least 2 ft [0.6 m] below finished ground. If the top of the shaft is below ground, use a temporary oversize surface casing to control material caving into the freshly placed concrete.

The Engineer will sample concrete for acceptance at the point of discharge into the tremie or concrete pump hopper. Cure exposed concrete surfaces in accordance with Section 509, "Structural Concrete."

During concrete placement and curing, ensure that the concrete temperature does not exceed 150 °F [65 °C]. When drilled shaft diameter exceeds 6 ft [1,830 mm], use recording thermometers, maturity meters, or other means as directed by the Engineer to monitor temperatures inside the drilled shaft. Ensure that the temperature difference between the core of the shaft and the outer edges does not exceed 36 °F [20 °C]. When drilled shaft concrete temperatures exceed 150 °F [65 °C] or when

the temperature difference between the core and the outer edges exceed 36 °F [20 °C], reject the shaft.

Record and document the volume of concrete used in each drilled shaft and provide this information to the Engineer.

(a) ***Tremies***

The Department defines tremies as tubes that discharge concrete at the shaft base. Use watertight tremies to place concrete in wet or dry holes. Ensure the bottom of the tremie can be sealed and charged with concrete in the dry, and then opened in place at the bottom of the shaft. The Department will not allow the use of tremies containing aluminum parts that will come in contact with concrete. Ensure that the tremie can be lowered rapidly to retard or stop the flow of concrete. In order to ensure tremie is lowered to the proper depth, mark tremie prior to lowering.

Provide a watertight tremie with an inner diameter from 10 in to 14 in [254 mm to 350 mm], clean and smooth surfaces, and a wall that prevents crimping or sharp bends. Fit the top with a hopper. Ensure that joints are water tight. Construct the discharge end of the tremie to allow free radial concrete flow during placement.

(b) ***Concrete Pumps***

Pump concrete into a watertight tremie as specified above. Pump concrete in one continuous operation from the bottom to the top of the shaft. For wet holes, use a device at the end of the discharge tremie to seal out water while the tremie fills with concrete. If a plug is used, remove it from the hole. Alternatively, use a plug of Engineer approved material that will prevent a defect in the shaft.

(c) ***Acceptance***

The Department may accept drilled shafts with low concrete strengths in accordance with Subsection 105.03, "Conformity with Plans and Specifications." In such cases the Department will use the strength reduction equation as noted in Subsection 509.06, "Basis of Payment."

(6) Application of Construction Loads

If the Contract requires Integrity Testing, the shaft must pass the Integrity testing before application of any loads or proceeding with the construction of the pier. If the Contract does not require Integrity Testing or the Integrity Testing passes the test, wait a minimum of 24 hours and meet the requirements of 509.04C.(2)(b) before application of construction loads. Determine strengths from test cylinders cured at the work site under similar environmental conditions in accordance with Section 701, "Portland Cement Concrete."

(7) Integrity Testing of Drilled Shafts

The Department shall make the determination to conduct non-destructive testing on drilled shafts based on one or more of the following criteria:

- ADT > 750, ADTT > 100
- Bridge deck area > 10,000 ft^2
- Span length > 100 ft
- Drilled shaft depth > 50 ft
- Drilled shaft diameter > 60 in
- Emergency Detour length > 20 miles
- Bridge contains three (3) or more piers
- The pier is located in greater than fifteen feet (15 ft) of water (e.g. a lake).
- Construction of the project involves grade separation.
- The bridge is on either the Interstate, the National Highway System (NHS), or Defense Route.
- The bridge is categorized as an essential or critical structure by either the owner or designer.
- The design of the drilled shaft(s) foundation is based solely on friction.
- The Contract requires the drilled shaft(s) to be constructed using the slurry method, or the Contractor elects to construct the drilled shaft(s) using the slurry method.
- The geological formation is such that voids are present in the rock formation, water is flowing within the soil or rock layers, Artesian water is present, or significant layers of material are suspect to caving and sloughing (e.g. loose sand, loose gravel, etc.).

(a) ***General***

The requirement for non-destructive testing is specified in the Contract documents. When required, perform CSL testing on the first production shaft of each diameter specified in the plans. No additional shafts may be placed until:

- The Contractor demonstrates that the drilled shafts can be constructed in accordance with the Contractor's drilled shaft installation plan, and to the satisfaction of the Engineer, and

- An integrity testing consultant, provided by the Contractor and registered in the State of Oklahoma, has provided the analysis of the tests results, including their recommendation to the Engineer.

If the Engineer concurs with the consultant's recommendation for acceptance, then construction may continue on the remaining shafts using the same construction methods which were used to produce the tested shaft. Construct all subsequent shafts with CSL tubes for the purposes of additional testing.

Provided that all procedures are followed and repeated from the tested shaft, perform additional CSL testing on every sixth drilled shaft. ODOT may require testing, at no additional cost to the Department, on any subsequent shaft not constructed in the same manner as the tested shaft, or where a construction incident occurs which could compromise the shaft's integrity. If defects are discovered, but the Engineer determines that the defects are structurally adequate, the Engineer may accept the shaft in accordance with Subsection 105.03 of the Standard Specifications. Otherwise, repair defective shafts in accordance with Subsection 516.04.C.(8).

Except for the initial shaft, CSL testing is not required on any shaft constructed using the dry method.

(b) ***PIT (Pile Integrity Testing - Pulse Echo)***

Provide Pile Integrity Testing (PIT) only when no other means of testing is readily available and when CSL tubes are not provided. When the Engineer does approve PIT testing, test in accordance with ASTM D5882 and as specified below. After placing concrete in a drilled shaft, wait a minimum of 7 days or ensure the drilled shaft concrete obtains 75% of its design strength prior to the start of the test. Limit PIT to drilled shafts having L/D ratio ≤ 30, where L is the length of the drilled shaft and D is the diameter of the drilled shaft. The Engineer will reject the shaft when PIT testing shows voids or discontinuities.

(c) ***Crosshole Sonic Logging (CSL)***

1) *General*

Provide Crosshole Sonic Logging (CSL) in accordance with ASTM D6760 and as specified in the contract or as required by the Engineer. Wait a minimum of three (3) days or four (4) days if retarders are used before starting CSL testing. Provide the Engineer a minimum of three (3) days notice prior to starting the testing.

2) *CSL Test Equipment*

Use CSL test equipment that can perform the following functions:

- display individual CSL records,
- record CSL data,
- analyze receiver responses,
- print logs,
- test in 2 in [50 mm] inside diameter (ID) access tubes,
- generate an ultrasonic voltage pulse to excite the source with a synchronized triggering system to start the recording system,
- measure and record the depths of probes as the time signals are recorded, and
- filter and amplify signals.

3) *CSL Logging Procedures*

Inspect CSL tubes to ensure that probes will freely pass through the entire tube length. Replace tubes with cored holes that restrict the passage of the probes at no expense to the Department. To ensure that cored holes do not damage the reinforcing steel cage, locate cored holes approximately 6" inside the cage. Should the cored holes encounter any voids, poor quality concrete, or any other findings; document the finding and elevations and make this information available to the Engineer.

Test all possible combinations of perimeter tube pairs and diagonal tube pairs. Perform CSL tests with the source and receiver probes in the same horizontal plane. Make CSL measurements at depth intervals of 2 in [50 mm]. Pull the probes, starting from the bottom of the tubes, over a depth-measuring device. Remove slack from the cables before pulling to provide accurate depth measurements. Report indicated defects to the Engineer and conduct further tests to evaluate the extent of the defects.

4) *CSL Testing Results*

In the final report, include the CSL logs with analyses of the initial pulse arrival time versus depth and pulse energy (or amplitude) versus depth. Present a CSL log for each tube pair tested with significant anomalies and/or defects indicated on the logs and discussed in the test report. Unless otherwise specified by the Engineer, accept test results in accordance with Table 516:5. Include the following in the report:

- a summary of the test results that covers drilled shaft identification,
- test date,
- shaft age at time of CSL testing,
- drilled shaft diameter,
- number of CSL tubes tested,
- test length,
- average compression velocity, and
- "waterfall" diagram plotted as a function of time versus depth

In the report include the following items for any significant anomalies and/or defect descriptions:

- the CSL tube number or tube combinations,
- depth below concrete top,
- percent concrete wave velocity reduction, and
- description of anomalies and/or defects.

The Engineer will evaluate the CSL test results and determine the acceptability of the drilled shaft construction in accordance with Table 516:5, "Acceptance of Drilled Shafts."

Table 516:5
Acceptance of Drilled Shafts

Concrete Condition Rating	Rating Symbol	Velocity Reduction	Results
Good	G	0 to 10%	Acceptable Concrete
Questionable	Q	10 to $\leq$ 20%	Minor concrete contamination
Poor	P/D	> 20%	Unacceptable
Water	W	V= 4760 to 5005 ft/sec [1,450 to 1,525 m/sec]	Water or water with gravel, Unacceptable
No Signal	NS	No signal received	* Soil intrusion or tube debonding

* Additional testing is required to determine cause for no signal, soil intrusion into the drilled shaft is unacceptable, debonding leads to false readings.

The percent velocity reduction (VR) based on measured tube spacing is determined using the following equation:

$$VR = (1 - V / V_b) \times 100\%$$

where,

V = theoretical compressional wave velocity in concrete
V_b = baseline velocity (running average of velocity over a 10 ft depth, generally 5 ft above and 5 ft below excluding anomalous zones in the running average; $V_b \geq$ 13,000 ft/s)

(Reference: Publication No. FHWA-NHI-10-016, equation 20-4)

5) *Abandoning CSL Access Tubes*

After completing CSL testing and obtaining the Engineer's approval to continue construction above the shafts, dewater the tubes and use portland cement grout to fill the access tubes in the drilled shafts. Submit the grout mix design and grouting method for the Engineer's approval. Saw cut the top of the CSL tubes even with the top of the drilled shaft.

(d) Core Drilling of Drilled Shaft Concrete

If nondestructive testing indicates voids or discontinuities, or if there are other concerns about a drilled shaft, the Engineer may require full depth coring to determine the soundness of a drilled shaft using continuous coring with a 3" interior diameter core barrel in accordance with ASTM D2113. The Engineer will specify the number, depth, and location of cores.

Submit the methods and equipment for coring and grouting to the Engineer for approval before coring. Place the cores in a commercially available core box and mark the shaft depth at each core recovery interval. Submit the cores and a log for recovered cores.

When the Engineer determines that the quality of the concrete in the shaft, represented by the core samples, is acceptable, construction may proceed. The drilled shaft will be considered defective if the Engineer determines that the quality of the concrete in the core is unacceptable.

(8) Defective Shafts

If the Engineer determines a drilled shaft to be potentially defective based on CSL test results, construction inspection records, and/or structural evaluation, the Contractor may do additional testing and/or investigations. The additional testing may include, but is not limited to crosshole tomography imaging using vertically offset crosshole sonic measurements and recordings to evaluate the extent of anomalous zones, gamma-gamma testing to evaluate differences in relative density surrounding suspected tube debonding, secondary CSL testing 7 to 10 days after the initial test to investigate for

improved concrete condition due to delayed curing, or continuous coring of the drilled shaft. All test procedures must be accepted and approved by the Engineer. Regardless of the test results, all additional integrity testing will be done at the Contractor's expense and in accordance with the procedure noted above. No allowance for an increase in contract time or extension of the contract completion date will be made.

Submit a plan for further investigation or remedial action to the Engineer for approval. Provide written procedures or drawings as appropriate to the Engineer for approval showing any modifications to shaft dimensions, plans for remedial actions of the shafts, or proposed testing. When the anomalous zone is near the surface, repair plan may show the mechanical removal and replacement of the concrete. Straddle shafts must be designed by a Professional Engineer registered in Oklahoma and reviewed by the Bridge Engineer. Provide qualifications for subcontractors doing mitigation procedures such as pressure grouting, micro piles, perimeter grouting, or other procedures. At a minimum, provide the following for grouting mitigation: any proposed cutting of high pressure inspection tubes, high pressure washing, water flow testing, flushing (high volume, low pressure washing), down-hole camera observations, grouting procedures, conformance testing, and required documentation. Once the plan has been reviewed and approved by the Engineer, proceed with the remedial action or testing as directed by the Engineer.

The Engineer will make the determination of final shaft acceptance or rejection based on initial and supplemental integrity testing results or repairs done by the Contractor. The Engineer will provide a determination of acceptance of any remedial action proposed by the Contractor. The Engineer may require the complete replacement of the shaft, addition of straddle shafts to compensate for capacity loss, or additional integrity testing including coring. Any remedial action necessary will be done at the Contractor's expense.

516.05 METHOD OF MEASUREMENT

The Engineer will measure the length of *Drilled Shafts* and *Trial Drilled Shafts* from the shaft base to the top of the shaft. The Engineer will base measurements on elevations shown on the plans or approved by the Engineer. The Engineer will not measure corrective work or miscellaneous items, such as, soil samples and rock cores required by the Contract, rebar splices, permanent casings, lost tools and equipment, overreamed excavation, surface excavation and backfill, overflow concrete and concrete placed outside the neat lines of the shaft. If required by the Contract, the Engineer will measure CSL testing per drilled shaft tested. The Engineer will not measure tests for determining the extent of defects. The Engineer will not make reductions in drilled shaft measurements due to obstructions.

516.06 BASIS OF PAYMENT

The Department will pay for each pay item at the contract unit price per the specified pay units as follows:

Pay Item:	**Pay Unit:**
(A) DRILLED SHAFTS	Linear Foot [Meter]
(B) TRIAL DRILLED SHAFTS	Linear Foot [Meter]

(C) CROSSHOLE SONIC LOGGING	Each
(E) OBSTRUCTIONS	Lump Sum
(F) CORE DRILLING	Linear Foot [Meter]

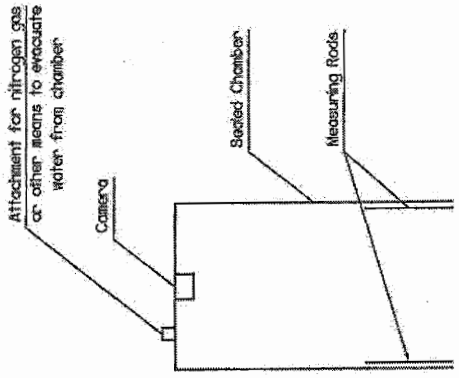
The Department will pay for the following under a Supplemental Agreement:

- Approved obstructions,
- Additional nondestructive testing or core drilling required by the Engineer that reveals no structural defects, and
- Contractor soil sampling or rock coring directed by the Engineer.

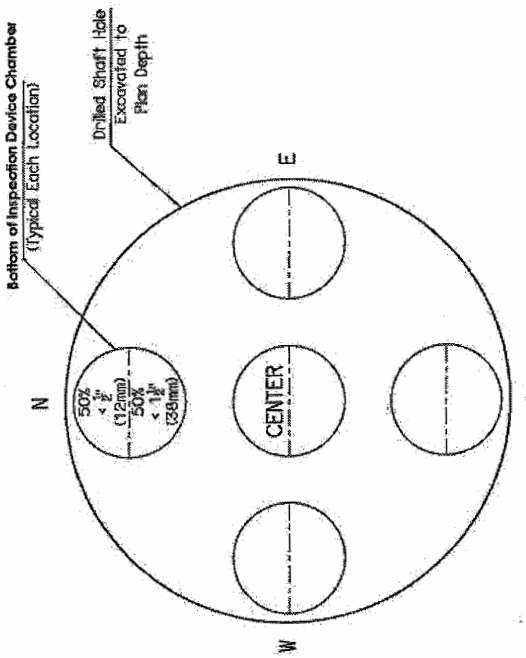
The Department will not pay for the following:

- Nondestructive testing or core drilling directed by the Engineer that reveals structural defects.
- Additional NDT testing or core drilling requested by the Contractor done after a shaft has been rejected regardless of the results,
- CSL tubes (all costs for CSL tubes will be included in price bid for drilled shafts), and
- Shaft inspection devices used to inspect the shaft bottom

ATTACHMENT 516:1



SHAFT INSPECTION DEVICE



NOTE:
Use five (5) drop locations, as noted, to verify bottom of hole has been properly cleaned. Additional drops may be required as directed by the Engineer to verify proper cleaning and acceptance.

SHAFT INSPECTION DEVICE INSPECTION LOCATIONS

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
FIBER-REINFORCED POLYMER MATERIAL

These special provisions amends and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

(*Add the following:*)

524.01 DESCRIPTION

This work consists of structural strengthening using Fiber-Reinforced Polymer (FRP) composite wrap. Fiber may be either Carbon (CFRP) or E-Glass (EGFRP) as specified in the plans. Reference is made to *ACI 440.2R-02 Guide for the Design and Construction of Externally Bonded FRP Systems for Strengthening Concrete Structures.*

524.02 MATERIALS

A. Material Properties

Provide a unidirectional, high-strength fiber fabric fully saturated with compatible epoxy resin per manufacturer's recommendations. Provide FRP which meets or exceeds the following requirements:

Table 524:1
FRP Cured Laminate Properties

Property	CFRP	EGFRP
Tensile Strength*	550 ksi [3,800 MPa]	330 ksi [2,270 MPa]
Tensile Modulus*	33,000 ksi [227 GPa]	10,500 ksi [72.4 GPa]
Ultimate Elongation*	1.50%	4.00%
Weight	9 oz/yd^2 [300g/m^2]	27 oz/yd^2 [900g/m^2]

*Verified by ASTM D3039 test procedure

Provide flexible, waterproofing, non-vapor barrier protective top coating compatible with the FRP manufacturer's recommendations to protect the FRP from ultraviolet radiation and mild abrasion. Match the color and texture of the protective top coating to adjacent concrete.

B. Product Data

Provide to the Engineer a copy of the Manufacturer's Safety Data Sheets (MSDS) for all materials to be used on site and certification that the materials conform to local, state, and federal environmental and worker safety laws and regulations. Include mechanical, physical, and chemical properties, and material specifications for the proposed primer, putty, resin, saturant, fiber, and protective top coating. Provide to the Engineer the manufacturer's maintenance recommendations for the protective top coating and the complete FRP system.

524.03 EQUIPMENT

Furnish all materials, tools, equipment, transportation, necessary storage, access, labor and supervision required for the proper application of the composite system.

524.04 CONSTRUCTION METHODS

Provide a technical representative from the composite system manufacturer at the start of work. Use a contractor certified by the manufacturer by means of written verification to install the composite system. In addition, provide the names of the applicator's key personnel (superintendent and assistant) who will perform the actual work with the written verification from the manufacturer. The Engineer may suspend the work if an unauthorized composite system is substituted for an authorized composite system, or if unauthorized personnel is substituted for authorized personnel during construction.

A. Shop Drawings

Provide complete shop drawings for each installation of the composite system. Show details of the number and thickness of layers, orientation of the layers, joint and end details, and locations to be applied in accordance with the plans and specifications. Show locations of all gaps and laps.

B. Calculations

When plans show a minimum and/or maximum required strength for shear or flexure, provide complete calculations to the Bridge Engineer for approval. Design the composite system, per *ACI 440.2R-02 Guide for the Design and Construction of Externally Bonded FRP Systems for Strengthening Concrete Structures* to achieve the structural performance shown on the structural drawings for required tensile forces and strain limits. Provide calculations stamped by a Registered Professional Engineer, registered in the state of Oklahoma.

C. Delivery and Storage

Deliver epoxy materials in factory-sealed containers. Verify that the manufacturer's labels are intact and legible (including brand, system identification number, and batch number) with verification of date of manufacture and shelf life. Store materials in a protected area at a temperature between 35°F [2°C] and 100°F [38°C]. Store products according to the manufacturer's requirements and avoid contact with moisture. Do not use components that have exceeded their shelf life.

D. Concrete Repairs

Epoxy inject all cracks in the concrete surface wider than 0.01 in. [0.3 mm] in accordance with Section 520 "Structural Concrete Repair by Sealing and Injection". Allow epoxy used for crack sealing to cure in accordance with the manufacturer's recommendations. Apply pneumatically placed mortar to the dimensions shown on the plans or as specified by the Engineer in accordance with Section 521. Ensure that pneumatically applied mortar is cured as specified in subsection 521.04.D.(4).

E. Surface Preparation

Once all concrete repairs are made and cured, prepare concrete substrate surfaces to promote continuous intimate contact between the FRP and the concrete by providing a clean, smooth, and flat or convex surface. Grind away all irregularities, unevenness, and sharp protrusions to provide less than 1/16 in [2 mm] surface profile deviation. Fill all voids or depressions of diameters larger than ½ in or depths greater than 1/8 in with a type G epoxy in accordance with 701.13.B.(7), or as approved by the fiber-reinforced polymer (FRP) manufacturer. At a minimum, allow all patching materials to cure a minimum of 2 days and reach a minimum of 3,000 psi [21 MPa] compressive strength prior to installation of the FRP wraps. Round or chamfer all inside and outside corners and sharp edges to a minimum radius of ½ in [13 mm]. Remove all laitance, dust, dirt, oil, foreign particles, disintegrated materials, and any other matter that could interfere with the bond of the concrete to the FRP using abrasive or water blasting techniques. Apply corrosion inhibitor in accordance with Special Provision 535-1, " Surface Applied Penetrating Corrosion Inhibitors." Ensure that the inhibitor product will not interfere with the bond of the fiber-reinforced polymer material using techniques recommended by the inhibitor manufacturer.

F. Application of Composite Fabric

Insure that all patch work is complete and cured. Verify ambient and concrete temperatures are between 35°F [2°C] and 100°F [38°C]. Maintain epoxy curing temperatures in the temperature range designated for the formulation used. Temperature cure ranges and times to be determined by manufacturer. Protect the composite system from contact by moisture for a minimum of 24 hours. Prepare the epoxy matrix by combining components at a weight (or volume) ratio specified on the manufacturer's labeled units, with an allowable tolerance of ± 10%. Mix the components of epoxy resin with a mechanical mixer until uniformly mixed, typically 5 minutes at 400-600 rpm. Saturate and monitor the fabric according to manufacturer's specified fiber-resin ratio. A previously calibrated saturator can be used to achieve the specified ratio. Completely saturate fabric prior to application of contact surfaces in order to assure complete impregnation of fabric. Have a properly trained supervisor verify that saturation is correct. Measure and combine the epoxy resin and fabric and deposit uniformly at the rates shown on the approved working drawings and per manufacturer's recommendations. Completely saturate all fibers of the composite system with epoxy resin per proper ratio.

G. Installation

Unless otherwise provided by the manufacturer, install the FRP fabric as follows:

(1) Broom clean surfaces to receive the FRP.

(2) Use a roller or trowel, apply one prime coat of thickened epoxy resin to the concrete surface [2 mil minimum [50 μm]]. Allow primer to become tacky to the touch.

(3) Saturate fabric with epoxy matrix through calibrated saturator or according to manufacturer's specified fiber-resin ratio.

(4) Apply saturated fabric to concrete surface by hand lay-up, using methods that produce a uniform, constant tensile force that is distributed across the entire width of fabric. Under certain application conditions the system may be placed entirely by hand methods assuring a uniform, even final appearance. Provide gaps when the length of member to be wrapped exceeds 5 ft

[1.5 m]. Use 2 in [50 mm] gaps spaced at 2 ft [0.6 m] centers. The gaps should only occur parallel to the primary fiber direction (the material would need to be continuous in the primary fiber direction). In cases where the primary direction of the fibers are placed both horizontally and vertically, provide a 2 in [50 mm] square gap every 2 ft [0.6 m] in both directions. Ensure that the gaps are completely free of all epoxy resin products used to bond FRP. Provide a lap length of at least 6" [150 mm] at all necessary over-laps in the longitudinal direction of the fabric.

(5) Apply subsequent layers, continuously or spliced, until designed number of layers is achieved, per project drawings.

(6) Using a roller or hand pressure, insure proper orientation of fibers, release or roll out entrapped air, and ensure that each individual layer is firmly bedded and adhered to the preceding layer or substrate.

(7) Apply a final coat of thickened epoxy. Detail all fabric edges, including butt splice, termination points, and jacket edges, with epoxy.

(8) Apply fire coating (if required) per manufacturer's published installation procedures in accordance with UL and Warnock Hersey testing and per ICBO ES Evaluation Report.

(9) Apply top coat of paint as specified between 24 and 72 hours after final application of epoxy. Use paints that allow vapor transmission at gaps. Remove dust and residue prior to application of paint coats. If after 72 hours the epoxy is cured, the surface must be roughened by sanding or brush blasting.

(10) System may incorporate structural fasteners but limitations and detailing must be verified with composite system manufacturer.

(11) Record batch numbers for fabric and epoxy used each day, and note locations of installation. Measure square footage of fabric and volume of epoxy used each day.

H. Testing

After the initial resin has cured at least 24 hours, perform the following test:

- Visually inspect for any defects in the FRP wrap.
- Tap or sound any areas suspected to contain air pockets.
- Perform two direct pull-off tests for every 300 square feet wrapped in accordance with ASTM D7522. Ensure when testing prestress beams not to score the substrate more than ¼ in [6 mm]. Accept pull-off tests which fail in the concrete substrate (failure mode G) and not at the interface between the FRP and the concrete. At the discretion of the Engineer, pull-off tests may be performed at locations of similar substrate near the FRP installation area. Prepare test samples using identical application procedures at the same time that the project FRP is installed. Repair the damaged FRP and concrete at test areas after testing is complete.

I. Repairs

Repair all defects (including bubbles, delaminations, and fabric tears) spanning more than 5% of the surface area as directed by the Engineer. Perform two types of repairs as follows:

- Inject or back-fill small defects (on the order of 6 inches [150mm] diameter) with epoxy.
- Inject bubbles less than 12" [300 mm] in diameter with epoxy by drilling two small holes into the bubble. The holes will allow injection of the epoxy and escape of entrapped air.
- Repair bubbles and delaminations greater than 12" [300 mm] in diameter by removing and re-applying the required number of layers of the composite and the required finish coatings. Small entrapped air pockets and voids naturally occur in mixed resin systems and do not require repair or treatment.

524.05 METHOD OF MEASUREMENT

Measure by the square foot of FRP applied for the specified thickness or number of layer as indicated on the plans.

524.06 BASIS OF PAYMENT

The Department will pay for each pay item at the contract unit price per the specified pay unit as follows:

Pay Item:	Pay Unit:
CARBON FIBER-REINFORCED POLYMER	Square Feet [Square Meter]
E-GLASS FIBER-REINFORCED POLYMER	Square Feet [Square Meter]

The Department will consider the cost of all materials, equipment, labor, and incidentals necessary for proportioning, mixing, delivery, storage, handling, surface preparation, installation, sampling, testing, repairs and curing of the fiber-reinforced epoxy composite system to be included in the unit price bid for fiber-reinforced polymer.

Payment for epoxy injection will be in accordance with 520.06.

Payment for *Pneumatically Placed Mortar* will be in accordance with 521.06.

Payment for type G epoxy and surface applied penetrating corrosion inhibitor to be including in price bid for fiber-reinforced polymer (FRP).

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
AMERICAN BURYING BEETLE (ABB)

These Special Provisions revise, amend, and where in conflict, supersede applicable Sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

(Add the following:)

SECTION 656
AMERICAN BURYING BEETLE (ABB)

656.01 DESCRIPTION

The Contractor shall be familiar with the ABB to insure compliance with the Endangered Species Act. If any dead or injured ABB is found on site, immediately contact the Department Biologist in Environmental Programs Division at (405) 521-2515. Care must be taken in handling dead or injured beetles in order to preserve biological material for later analysis. The finder must insure that evidence intrinsic to the specimen is not unnecessarily disturbed. Information regarding the ABB, including photographic images and life history characteristics, is available at the USFWS website at URL http://www.fws.gov/southwest/es/oklahoma/OKESFO%20Permit%20Home.htm

If the positive presence of ABB is confirmed by ODOT Biologist, the Contractor will be required to cease earthwork operations until the end of the ABB season which runs from May 20th, to September 20th. With the exception of the extension of contract time, no compensation will be considered for delays caused by the positive presence of ABB. Extensions of contract time will be administered in accordance with Subsection 108.07.B.(2) for calendar day contracts, and Subsection 108.07.C for complete by date projects.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
OPTIMIZED GRADATION FOR PORTLAND CEMENT CONCRETE PAVEMENT

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

701.01 MIX DESIGN AND PROPORTIONING

A. Classes of Concrete *(Add the following:)*

If Class A or AP concrete utilizing an Optimized Gradation Concrete Mix Design (OGCMD) procedure is provided for use in Portland cement concrete pavements, integral curb, combined curb and gutter, concrete sidewalk, concrete driveways and divider strip, then the minimum cement content for Class A concrete may be reduced to 470 lbs/yd3 [279 kg/m3], and Class AP concrete may be reduced to 450 lbs/yd3 [267 kg/m3]. Ensure Class A concrete used in OGCMD pavements has a minimum flexural strength of 700 psi [4.83 MPa] at 28 days when tested in accordance with AASHTO T 97. Flexural strength testing will only be required for optimized gradation concrete mix design approval and field testing of flexural strength will not be required. At the option of the Department's Materials Engineer, the Department may test flexural strength for acceptance or verification purposes.

C. Proportioning *(Add the following:)*

For Class A and AP concrete utilizing an OGCMD procedure, ensure the concrete mix design is based on an absolute volume method for the class of concrete specified. Ensure the consistency of the concrete used for concrete pavement or curb and gutter is suitable for satisfactory placement of the concrete by slipform paving. Ensure OGCMD concrete mixtures are designed and produced in conformance with Subsections 414, 609, 610, 701, this Special Provision, and all appropriate Special Provisions in the Contract. Ensure the OGCMD concrete used for high early strength concrete meets the minimum 28 day compressive strength requirement within 72 hours of placement. Submit an optimized gradation mix design at least 30 days before production to the Department's Materials Engineer. Do not place any optimized gradation concrete until the mix design is reviewed and approved by the Materials Engineer.

Include at least the following information with each Optimized Gradation Concrete Mix Design:

- Project identification
- Name and address of the Contractor and producer
- A unique mix design name along with the mix designs class designation
- Aggregate sources
- Gradations for each aggregate source. Sieve sizes to include: 1 ½ in. [37.5mm], 1 in. [25mm], ¾ in.[19mm], ½ in. [12.5mm], ⅜ in. [9.5mm], No. 4 [4.75mm], No. 8 [2.36mm], No. 16 [1.18mm], No. 30 [600µm], No. 50 [300µm], No. 100 [150µm], and No. 200 [75µm].
- Hydraulic cement type and source
- Types of cement replacement (if used) and sources
- Types of admixtures, sources, and dosage rates

- Material proportions
- Combined gradation charts
  - Tarantula Curve
  - Individual and Combined Gradation Charts
- Air content
- Slump
- Unit weight
- Water/cementitious materials ratio
- Compressive and flexural strengths at 7 and 28 days
- Compressive strength at 72 hours for high early strength concrete
- The results of the acid insoluble residue test described in OHDL-25 for the combined aggregate that passes the No. 4 [4.75mm] sieve.

The optimized gradation concrete mix design and optimized gradation are the responsibility of the Contractor. Ensure the mix design provided has a combined aggregate gradation that plots within the limits of the Tarantula Curve as described in OHDL-60. Ensure that all necessary quality control steps are taken to maintain control of the combined aggregates used in the mix design.

Ensure the combined aggregate that is retained on each individual sieve, when tested in accordance with T-11 and T-27, meets the requirements specified in Table 701:3A, and Equations 701:1 and 701:2 below.

Table 701:3A
Combined Aggregate Gradation

Sieve Size	Percent Retained
1 ½ inch [37.5 mm]	0.0
1 inch [25 mm]	0.0 - 16
¾ inch [19 mm]	4.0 - 20
½ inch [12.5 mm]	4.0 - 20
⅜ inch [9.5 mm]	4.0 - 20
No. 4 [4.75 mm]	0.0 - 20
No. 8 [2.36 mm]	0.0 - 12
No. 16 [1.18 mm]	0.0 - 12
No. 30 [600 µm]	4.0 - 20
No. 50 [300 µm]	4.0 - 20
No. 100 [150 µm]	0.0 - 10
No. 200 [75 µm]	0.0 - 3.0

$N8 + N16 + N30 \geq 15\%$ Equation 701:1

$N30 + N50 + N100 + N200 = 29\% \pm 5\%$ Equation 701:2

Where:

$N8$ = percent (%) retained on the No. 8 sieve

$N16$ = percent (%) retained on the No. 16 sieve

$N30$ = percent (%) retained on the No. 30 sieve

$N50$ = percent (%) retained on the No. 50 sieve

$N100$ = percent (%) retained on the No. 100 sieve

$N200$ = percent (%) retained on the No. 200 sieve

Ensure the combined aggregate that passes the No. 4 [4.75mm] sieve has an acid insoluble residue of at least 60% by weight when tested in accordance with OHDL-25.

Minor changes to the aggregate source proportioning percentages may be made to the mix design during production, in order to maintain compliance with the specification, if requested in writing and approved by the Resident Engineer. If the OGMCD has a manufactured fine aggregate source, ensure that any proportion increase greater than 5% to the percent of material from that source has the approval of the Materials Engineer.

A new mix design must be submitted if any of the following occur:

- The optimized gradation concrete mix design is rejected by the Materials Engineer,
- The source of any material changes,
- Greater than a 5% increase in the proportion of the manufactured fine aggregate (if used), or
- The mix design produces unacceptable workability or production test results.

701.05 FINE AGGREGATE

B. General Requirements *(Add the following:)*

Fine Aggregates used for an OGCMD Class A or AP concrete for Portland Cement Concrete Pavement do not have to meet the gradation requirements of Subsection 701.05.C. All OGCMD aggregate sources that have no material retained on or above the ½ inch [12.5 mm] sieve will be considered fine aggregate. All natural sand sources of fine aggregate shall be from a fine aggregate source on the Approved Materials List for use in hydraulic cement concrete or limited use. All crushed fine aggregate (manufactured sand) in the mix shall be obtained from a coarse aggregate source on the Approved Materials List for use in hydraulic cement concrete.

701.06 COARSE AGGREGATE *(Add the following:)*

Coarse Aggregates used for an OGCMD Class A or AP concrete for Portland cement concrete pavement do not have to meet the gradation requirements of section 701.06. All OGCMD aggregate sources that have material retained on or above the ½ inch [12.5 mm] sieve will be considered coarse aggregate. Ensure all coarse aggregate is obtained from a source on the Approved Materials List for use in hydraulic cement concrete.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
WARM MIX ASPHALT MATERIAL REQUIREMENTS

These Special Provisions amend and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

708.04 COMPOSITION OF MIXTURES *(Add the following:)*

F. Warm Mix Asphalt

Unless otherwise shown on the plans, mixtures produced as Warm Mix Asphalt (WMA) will be accepted at the Contractor's option. For WMA, mixing temperatures may be reduced. Unless otherwise directed, use only WMA additives or processes listed on the Department's approved list maintained by the Materials Division. The Materials Division Engineer may accept new additives or processes with sufficient evidence of performance.

Prepare WMA mix designs in general accordance with AASHTO R 35 except where modified by these specifications. WMA requirements are the same as for HMA except where noted. When using the technology during a mix design, increase the oven aging period to four hours before preparing samples for moisture susceptibility and rut testing. Report the supplier's recommended temperatures for plant mixing and roadway compaction on the mix design. Report the supplier's recommended temperatures for laboratory mixing and compaction on the mix design.

For WMA using an additive technology, perform the mix design using the additive. For WMA designs that use a plant process, perform the mix design as an HMA mix design. If the laboratory has a foamer, the design may be performed using that process. Alternatively, use an existing approved HMA mix design except when the percent binder absorbed exceeds 1.00 percent. The percent binder absorbed formula is shown at the end of this paragraph. When the percent binder absorbed exceeds 1.00 percent, use the plant-produced WMA material for moisture susceptibility and rut testing. Report the additive or process used by name, supplier source, and application rate (if applicable) on the mix design.

$$P_{ba} = \frac{100 G_b (G_{se} - G_{sb})}{G_{se} G_{sb}}$$

Where:
P_{ba} = Percent binder absorbed by total mass of aggregate,
G_b = Specific gravity of the binder,
G_{se} = Effective specific gravity of the combined aggregates, and
G_{sb} = Bulk specific gravity of the combined aggregates.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
HAMBURG RUT TESTING OF HOT MIX ASPHALT

These special provisions amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

708.04 COMPOSITION OF MIXTURES *(Revise the following:)*

Remove references to APA rut depth in Tables 708:8, 708:9, 708:10, and 708:11.

Add the following Table between Tables 708:11 and 708:12:

Table 708:11a
Hamburg Rut Test Requirements[a, b]

Binder Grade	Minimum Number of Passes to 12.50 mm Rut Depth, Tested at 122 °F
PG 64	10,000
PG 70	15,000
PG 76	20,000

Note: For the purposes of this table PG64, PG70, and PG76 refer to the high temperature grade of the binder.
[a] Rut test requirements apply to Superpave, SMA, and RIL mixes only.
[b] Pre-existing mix designs meeting the APA rut requirements may be accepted by the Materials Engineer.

708.06 SAMPLING AND TESTING *(Amend Table 708:13 to include the following:)*

Table 708:13
Sampling and Testing of Aggregates, Bituminous Mixtures, and Asphalt Materials

Materials	Testing Method
Bituminous Mixtures	
Rutting susceptibility using the Hamburg Rut Tester	OHD L-55

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
PLANT MIX BITUMINOUS BASES AND SURFACES (SUPERPAVE)

These special provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

708.02 MINERAL AGGREGATE *(Replace Table 708:1 with the following:)*

Table 708:1
Physical Properties of Aggregates

Test	Aggregates to be used in:							
	Superpave			Stone Matrix Asphalt	Permeable Friction Course	Rich Bottom Layer	Open Graded Friction Surface Course	Open Graded Bituminous Base
	PG64	PG70	PG76	PG76	PG76	PG64	PG76	PG64
L.A. Abrasion [a], % wear	≤ 40	≤ 40	≤ 40	≤ 30	≤ 30	≤ 40	≤ 30	≤ 40
Micro-Deval [a], % wear	—	—	≤25	≤25	≤25	—	≤ 25	—
Sand equivalent [b]	≥ 40	≥ 45	≥ 50	—	—	≥ 40	—	—
Mechanically Fractured Faces [b, c, h], %	≥ 85/80	≥ 95/90	≥ 98/95	≥ 98/95	≥ 98/95	≥ 85/80	≥ 98/95	≥ 85/80
Aggregate Durability Index [a]	≥ 40	≥ 40	≥ 40	≥ 40	≥ 40	≥ 40	≥ 40	≥ 40
Insoluble Residue [d, e], %	≥ 30	≥ 40	≥ 40	≥ 40	≥ 40	—	≥ 40	—
Flat and Elongated [b, c, f], %	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10
Natural Sand and Gravel [b], %	≤ 15	≤ 15	≤ 15	0	0	≤ 15	0	0
Clay Balls and Friable Particles [g], %	≤ 1.0	≤ 1.0	≤ 1.0	0	0	≤ 1.0	0	0
Soft Particles [a], %	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Sticks or Roots [a], %	≤ 0.5	≤ 0.5	≤ 0.5	0	0	≤ 0.5	0	0

Table 708:1
Physical Properties of Aggregates

Note: For this table: PG64, PG70, and PG76 refer to the high temperature grade of the binder. Unless otherwise noted, specifications for PG binder grades higher than PG76 will use PG76 specifications.

[a] Applies to each source.

[b] Applies to the combined aggregate.

[c] Applies to the aggregate retained on the No. 4 [4.75 mm] sieve.

[d] Applies to the combined coarse aggregate.

[e] Applies to the coarse aggregate in the surface course. Does not apply to shoulders, driveways, and temporary detours.

[f] A flat and elongated piece has a length greater than five times the thickness.

[g] Applies to combined aggregate. If the maximum for the combined aggregate is not exceeded, the Department will allow 1.5% for one source.

[h] In the mechanically fractured faces requirement format "xx/yy," "xx" is the minimum percentage of coarse aggregate requiring one fractured face, and "yy" is the percentage requiring two fractured faces.

708.04 COMPOSITION OF MIXTURES

A. Asphalt Mix Design and Initial Job-Mix Formula *(Replace the 3rd paragraph with the following:)*

Ensure the initial JMF is in accordance with Tables 708:6, 708:8, and 708:9, or Tables 708:7, 708:8, and 708:9 for the type of mix required by the Contract. Prepare a trial mixture in accordance with Subsection 411.04.C. Propose changes to the JMF if the trial, prepared at the initial JMF proportions, fails to meet the requirements of Tables 708:6, 708:10, 708:11, and 708:12, or Tables 708:7, 708:10, 708:11, and 708:12. If the changes do not produce a mix design in accordance with these tables, the Resident Engineer will require a new mix design. If the changes do produce a mix design in accordance with these tables, the Department's Materials Engineer will approve the changes for adjustment of the JMF.

B. Plant Produced Mixtures *(Replace the 1st and 2nd paragraphs with the following:)*

Provide a uniform, plant produced mixture of the combined aggregate and asphalt in accordance with Tables 708:6, 708:10, and 708:11, or Tables 708:7, 708:10, and 708:11 within the specification limits established by the JMF with allowable tolerances.

After the plant is in operation, propose any necessary adjustments to the JMF in accordance with Table 708:6 or Table 708:7. If test results indicate the adjustments are in accordance with Tables 708:10 and 708:11, adjust the JMF accordingly.

C. Reclaimed Asphalt Pavement *(Replace the 2nd paragraph with the following:)*

Regardless of the layer or binder type, the Department's Materials Engineer will accept superpave mixtures with no greater than 25 percent RAP for shoulders, driveways, and layers serving as a bond breaker under PCC pavements if the mixture meets the Contract requirements for the type or grade. Superpave mixtures containing up to 35 percent RAP will be accepted in temporary detours if the mixture meets the Contract requirements for the type or grade, and if the mixture can be produced meeting air quality standards set forth by the Oklahoma Department of Environmental Quality. Temporary is defined as any material that will not become part of any permanent pavement. Temporary material must be removed before the end of the project.

(Replace Table 708:6 with the following:)

Table 708:6
Mixtures for Superpave

Sieve Size [a]	Percent Passing per Superpave Mixture Type				
	S2	**S3**	**S4**	**S5**	**S6**
1½ in [37.5 mm]	100	—	—	—	—
1 in [25.0 mm]	90 – 100	100	—	—	—
3/4 in [19.0 mm]	≤ 90	90 – 100	100	—	—
1/2 in [12.5 mm]	—	≤ 90	90 – 100	100	—
3/8 in [9.5 mm]	—	—	≤ 90	90 – 100	100
No. 4 [4.75 mm]	≥ 40	—	—	≤ 90	80 – 100
No. 8 [2.36 mm]	29 – 45	31 – 49	34 – 58	37 – 67	54 – 90
No. 16 [1.18 mm]	—	—	—	—	—
No. 30 [0.600 mm]	—	—	—	—	—
No. 50 [0.300 mm]	—	—	—	—	—
No. 100 [0.150 mm]	—	—	—	—	—
No. 200 [0.075 mm]	1.0 – 7.0 [b]	2.0 – 8.0 [b]	2.0 – 10.0 [b]	2.0 – 10.0 [b]	5.0 – 15.0
Other Mixture Requirements					
NMS [c]	1 in [25 mm]	¾ in [19 mm]	½ in [12.5 mm]	⅜ in [9.5 mm]	No. 4 [4.75 mm]
Asphalt Cement [d], % of mix mass	≥ 3.9	≥ 4.3	≥ 4.8	≥ 5.3	≥ 5.8
Performance grade asphalt cement	[e]	[e]	[e]	[e]	[e]

[a] Table 708:6 reflects the sieve size boundaries for design and JMF purposes. After the design is established, the JMF will designate combined aggregate sieve requirements with tolerances in Table 708:12.

[b] Ensure the ratio of the percent passing the No. 200 [75 µm] sieve to the percent effective asphalt cement is from 0.6 to 1.6.

[c] Nominal Maximum Size (NMS) is defined as one size larger than the first sieve to retain more than 10 percent.

[d] The Department's Materials Engineer may adjust the lower limit if the effective specific gravity of the combined aggregates is greater than 2.65. The Department's Materials Engineer may allow adjustments if a theoretical lab molded specimen at the JMF asphalt content meets the VMA requirement at 4% air voids.

[e] The Contractor may substitute a higher grade of asphalt than that shown on the Plans at no additional cost to the Department.

(Replace Table 708:8 with the following:)

Table 708:8
Mix Design Properties of Laboratory Molded Specimens

Property	Superpave			SMA	PFC	RBL
	PG64	PG70	PG76	PG76	PG76	PG64
Number of SGC Gyrations						
N_{ini}	6	7	8	—	—	—
N_{des}	50	65	80	50	50	50
Required Density, % of G_{mm}						
N_{ini}	85.5 – 91.5	85.5 – 90.5	85.5 – 89.0	—	—	—
N_{des}	96.0	96.0	96.0	96.0	≤ 82.0	98.0
VMA, %	See Table 708:9					
VFA, %	See Table 708:9					
Lab Permeability, cm/s × 10^{-5}	≤ 12.5	≤ 12.5	≤ 12.5	≤ 12.5	—	≤ 12.5
TSR, Min.	0.80	0.80	0.80	0.80	—	0.80
ITS [a], psi	—	—	≥75	—	—	—
Draindown, %	—	—	—	≤ 0.20	≤ 0.20	—
Hamburg Rut Test, Min. No. of Cycles to 12.50 mm, 122 °F	10,000	15,000	20,000	20,000	—	5,000

Note: For this table: PG64, PG70, and PG76 refer to the high temperature grade of the binder. Unless otherwise noted, specifications for PG binder grades higher than PG76 will use PG76 specifications.

[a] Indirect Tensile Strength from AASHTO T 283, preconditioned specimen average, in psi.

(Replace Table 708:9 with the following:)

Table 708:9
Mix Design Properties of Laboratory Molded Specimens

Property	Superpave					SMA	PFC	RBL
	S2	S3	S4	S5	S6			
VMA [a], %	≥ 12.5	≥ 13.5	≥ 14.5	≥ 15.5	≥ 16.5	≥ 17.0	—	≥ 14.0
VFA, [b], %	67 - 73	70 - 75	72 - 77	73 - 78	75 - 79	—	—	—

[a] VMA is based on the bulk specific gravity of the aggregates.

[b] VFA is defined as the percentage of VMA containing asphalt binder.

(Replace Table 708:10 with the following:)

Table 708:10
Field Properties of Laboratory Molded Specimens

Property	Superpave			SMA	PFC	RBL
	PG64	PG70	PG76	PG76	PG76	PG64
Number of SGC Gyrations						
N_{ini}	6	7	8	—	—	—
N_{des}	50	65	80	50	50	50
Required Density, % of G_{mm}						
N_{ini}	85.5 – 91.5	85.5 – 90.5	85.5 – 89.0	—	—	—
N_{des}	94.5 - 97.4	94.5 - 97.4	94.5 - 97.4	94.5 - 97.4	≤ 82.0	96.5 - 99.4
VMA , %	See Table 708:11					
VFA, %	See Table 708:11					
Lab Permeability, cm/s × 10^{-5}	—	—	—	—	—	—
TSR, Min.	0.75	0.75	0.75	0.75	—	0.75
ITS [a], psi	—	—	—	—	—	—
Draindown, %	—	—	—	—	—	—
Hamburg Rut Test, Min. No. of Cycles to 12.50 mm, 122 °F	—	—	—	—	—	—

Note: For this table: PG64, PG70, and PG76 refer to the high temperature grade of the binder. Unless otherwise noted, specifications for PG binder grades higher than PG76 will use PG76 specifications.

[a] Indirect Tensile Strength from AASHTO T 283, preconditioned specimen average, in psi.

(Add the following:)

Table 708:11
Field Properties of Laboratory Molded Specimens

Property	Superpave					SMA	PFC	RBL
	S2	S3	S4	S5	S6			
VMA [a], %	≥ 12.0	≥ 13.0	≥ 14.0	≥ 15.0	≥ 16.0	≥ 16.5	—	≥ 13.5
VFA, [b], %	—	—	—	—	—	—	—	—

[a] VMA is based on the bulk specific gravity of the aggregates. Compute a new bulk specific gravity from each AASHTO T 209 test. Calculate the value by multiplying the aggregate Effective Specific Gravity (G_{se}) calculated from the latest AASHTO T 209 test by the aggregate Bulk Specific Gravity (G_{sb}) from the design. Afterwards, divide the product by the aggregate G_{se} from the design.

[b] VFA is defined as the percentage of VMA containing asphalt binder.

708.06 SAMPLING AND TESTING

(Delete the following row from Table 708:13 under the "Aggregates" section:)

Uncompacted void content of fine aggregate	AASHTO T 304, Method A

(Delete the following row to Table 708:13 under the "Bituminous Mixtures" section :)

Rutting susceptibility using the asphalt pavement analyzer	OHD L-43

(Add the following row to Table 708:13 under the "Bituminous Mixtures" section :)

Rutting susceptibility using the Hamburg Rut Tester	OHD L-55

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
MULTIPLE STRESS CREEP RECOVERY (MSCR) TESTING

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

708.03 ASPHALT MATERIALS *(Replace Table 708:2 with the following:)*

Table 708:2
Additional Requirements to AASHTO M 320 for Asphalt Cement

Test	PG 64-22 OK	PG 70-28 OK	PG 76-28 OK
MSCR Recovery [a], 147.2°F [64°C], %	—	≥50	≥80
Separation [b], %	—	≤10	≤10
Original DSR G*/sin(δ), kPa	≤2.50	≤2.50	≤2.50
RTFO DSR G*/sin(δ), kPa	≤5.50	≤5.50	≤5.50
PAV DSR Change in testing temperature, °F [°C]	—	77 [25]	77 [25]
Spot test [c]	Negative	—	—
Flash point, °F [°C]	≥500 [260]	≥500 [260]	≥500 [260]
Solubility in trichloroethylene, %	≥99	≥99	≥99

Note: Asphalt binder suppliers will provide handling requirements and recommended field mixing and compaction temperatures for their product to the hot-mix producer.
[a] AASHTO TP 70 average percent recovery at 3.2 kPA, $R_{3.2}$.
[b] Separation test samples are prepared in accordance with ASTM D 5976, but are reported as the difference in G* between the top and bottom samples.
[c] Spot test using solvent blend of 65 percent heptane and 35 percent xylene by volume.

708.06 SAMPLING AND TESTING

(Revise Table 708:13 to add the following row to the Asphalt Materials section):

Table 708:13
Sampling and Testing of Aggregates, Bituminous Mixtures, and Asphalt Materials

Materials	Testing Method
Multiple Stress Creep Recovery (MSCR) Test of Asphalt Binder Using a Dynamic Shear Rheometer (DSR)	AASHTO TP 70

(Revise Table 708:13 to remove the following row, and its associated footnote:)

Elastic recovery test by means of ductilometer [c]	ASTM D 6084

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
BRIDGE BEARING STRUCTURAL STEEL

These special provisions amend and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

724.05 BRIDGE BEARING ASSEMBLIES (*Replace with the following*:)

A. Stainless Steel Bearing Assemblies

For bridge structure anchor plates, provide austenitic stainless steel plate in accordance with ASTM A 240, UNS Designation S31600 (Type 316) or S31603 (Type 316L). Charpy V-Notch (CVN) Impact Testing will not be required.

For bridge structure anchor bolts, provide continuously threaded austenitic stainless steel bars in accordance with ASTM A 320, Class 2, Grade B8M, UNS Designation S31600 (Type 316) or S31600 (Type 316L). As an option, anchor bolts manufactured from duplex stainless steel meeting the following requirements may be provided:

- Use Duplex (UNS S32304) solid stainless steel
- Provide 58ksi (400MPa) minimum yield strength when tested in accordance with the requirements of ASTM A276.
- Provide steel meeting the requirements of ASTM A276 and ASTM A955 from an ISO9001 certified manufacturing facility.
- Remove rolling scale from the surface of the duplex stainless steel bar by acid pickling.

Provide austenitic stainless steel nuts for anchor bolts in accordance with ASTM A 194, Grade 8M, Class 1. Charpy V-Notch (CVN) Impact Testing will not be required.

Provide austenitic stainless steel washers for anchor bolts in accordance with ASTM A 320, UNS Designation S31600 (Type 316) or S31600 (Type 316L). Charpy V-Notch (CVN) Impact Testing and strain hardening will not be required.

When welding stainless steel or welding to stainless steel, ensure all welding complies with ANSI/AASHTO/AWS D1.6, "Structural Welding Code - Stainless Steel," and ensure the deposited weld metal has an atmospheric corrosion resistance and coloring characteristics similar to the base metal. Comply with the steel manufacturer's recommendations, Table 724:5, and ANSI/AASHTO/AWS D1.6, "Structural Welding Code - Stainless Steel."

Table 724:5 Filler Metal Specifications for Stainless Steel	
Filler Metal	Specification
Shielded metal arc welding (SMAW) electrodes	ANSI/AWS A5.4
Electrodes and fluxes for submerged arc welding (SAW)	ANSI/AWS A5.9
Electrodes for gas metal arc welding (GMAW)	ANSI/AWS A5.9
Electrodes for flux-cored arc welding (FCAW)	ANSI/AWS A5.22

Ensure electrodes and electrode-flux combinations are compatible with the type and thickness of the welded steel. Use electrodes and electrode-flux combinations with the type current, polarity, and positions in accordance with ANSI/AASHTO/AWS D1.6, "Structural Welding Code - Stainless Steel."

B. Weathering Steel Bearing Assemblies

For bridge structure anchor plates, provide structural steel plate and angles in accordance with AASHTO M270 (ASTM A 709), Grade 50W. Charpy V-Notch (CVN) Impact Testing will not be required. Paint the structural steel anchor plates after all welding in accordance with Section 512. Use a category "N", IZ-E-U paint system in accordance with subsection 512.04.B.(2). Coat all faying surfaces with inorganic zinc primer only. Apply the primer coat at the fabrication facility, and the intermediate and top coats at the project site.

For bridge structure anchor bolts, provide continuously threaded steel bars in accordance with AASHTO M 270 (ASTM A 709), Grade 50W. Charpy V-Notch (CVN) Impact Testing will not be required. Galvanize the anchor bolts in accordance with subsection 724.06.

Provide steel nuts for anchor bolts in accordance with AASHTO M 291 (ASTM A 563), Grade C3 or DH3. Galvanize the nuts in accordance with subsection 724.06.

Provide steel washers for anchor bolts in accordance with AASHTO M293 (ASTM F 436), Type 3, circular. Galvanize the washers in accordance with subsection 724.06.

Welding of weathering steel bearing assemblies will be in accordance with Section 724.03.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
STRUCTURAL STEEL PLATE PIPE, PIPE ARCHES, AND ARCHES

These Special Provisions amend and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

726.02 FLEXIBLE CONDUITS

Table 726:3, footnote d *(Replace with the following:)*

[d] Design in accordance with the applicable section of the AASHTO LRFD Bridge Design Specifications. Assemble and construct in accordance with the applicable section of the AASHTO LRFD Bridge Construction Specifications.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
ELASTOMERIC BEARING PADS

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

(Replace with the following:)

733.06 ELASTOMERIC BEARING PADS

A. Description

Provide plain and laminated elastomeric bearing pads for bearings used in, on, or under structural members with the dimensions and physical test parameters shown in the contract documents. Provide shop drawings to the Engineer for review and approval before beginning pad manufacture.

B. Materials

Provide materials, fabrication, fabrication tolerances, markings, certification testing, and installation for elastomeric bearing pads in accordance with ***AASHTO LRFD Bridge Construction Specifications***. Provide low temperature Grade 2 elastomer compounds made containing only virgin crystallization resistant polychloroprene (neoprene) as the raw polymer. Provide ⅛ in [3.2 mm] embedded laminate edge covers or connection members for steel reinforced bearing pads. Provide steel laminates in accordance with AASHTO M270 Grade 50 or ASTM A 1011 Grade 40. If the contract documents require the anchor plate to be bonded to the bearing pad, ensure a heat-bonded connection is made by the pad manufacturer during the vulcanization process. Ensure the steel anchor plate meets the requirements for the appropriate sub-section of Section 724 and the contract documents before beginning the vulcanization process.

An elastomeric bearing pad is tested and accepted in one of two ways based on the manner in which the contract documents specify the pad.

(1) Pad specified with Shear Modulus

When the contract documents specify the elastomeric bearing pad by the Shear Modulus only, or the Shear Modulus and Durometer Hardness, provide the bearing pad in accordance with AASHTO M251. When the Durometer Hardness is specified, ensure the Durometer Hardness meets the tolerances of AASHTO M251 Appendix X1 for Hardness when tested in accordance with ASTM D 2240.

(2) Pad specified by Durometer only

When the contract documents specify the elastomeric bearing pad by the Durometer Hardness only, provide the bearings pad in accordance with AASHTO M251 using Appendix X1, and ensure

the Shear Modulus when tested in accordance with AASHTO M251 meets the requirements in Table 733:1

Table 733:1
Shear Modulus for Durometer Hardness

Durometer Hardness	Shear Modulus, psi [Mpa], minimum
50	110 [0.76]
60	150 [1.03]
70	235 [1.62]

C. Acceptance

The Engineer will accept elastomeric bearing pads on the following:

- Submit to the Engineer a Type A certification showing compliance with the contract requirements.
- Submit to the Engineer one full-size finished bearing pad, per lot, size, type or shipment, for physical testing by the Department's Materials Division or it's representative. The Department's Materials Division may conduct on-site inspection of bearing pads for slab bridges or other pads deemed by the Materials Engineer to be too cumbersome for submission to the laboratory.
- Upon test completion, approved bearing pads may be collected by the Contractor or the pad manufacturer from the Department's Materials Laboratory or it's representatives test facility. The Department will not return failed bearing pads.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
TRAFFIC STRIPE (MULTI-POLYMER)

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

856.02 MATERIALS

A. Physical Properties of the Mixed Compound

(Replace Table 856:1 with the following:)

Table 856:1
Color Requirements

Federal 595 Color		Chromaticity Coordinates								Brightness (Y)
		1		2		3		4		
		x	y	x	y	x	y	x	y	
White	17886	0.355	0.355	0.305	0.305	0.285	0.325	0.335	0.375	80 min
Yellow	13538	0.560	0.440	0.490	0.510	0.420	0.440	0.460	0.400	60 min - 70 min

B. Multi-Polymer Composition

(Replace Table 856:4 with the following:)

Table 856:4
Multi-Polymer Composition

Pigment Composition	Percent by Weight
White:	
Titanium Dioxide Rutile (94% minimum purity, ASTM D476, Type III)	33 - 38
Multi-Polymer Resin	60.0 - 82.0
Yellow:	
Organic Non-Lead Yellow	7.0 - 8.0
Titanium Dioxide (ASTM D476, Type III)	14.0 - 17.0
Multi-Polymer Resin	77.0 - 79.0

C. Sampling and Certification *(Replace with the following:)*

Submit a Type A certification to the Department's Materials Division for each batch of stripe used on every project along with the Pretest Report for the glass beads.

- The Engineer may require a one (1) qt sample representing each batch of multi-polymer resin material be submitted to the Department's Materials Division.
- Ensure the manufacturer's multi-polymer striping is listed on the Department's Traffic Engineering Division's Qualified Products List (QPL).
- If the manufacturer makes any formulation changes to the multi-polymer striping material, ensure the manufacturer submits a written explanation of the changes to the formulation, the new physical and chemical properties for the resin, and a new material safety data sheet (MSDS) for the stripe to the Department's Traffic Engineer for re-evaluation and approval at least 30 days prior to its use.

D. Non-Reflectorized Contrast or Shadow Markings *(Replace with the following:)*

Ensure the marking material used for the contrast or shadow marking conforms to the same formulation, material, and pre-approved sampling requirements, except for the following items:

- Color pigments used
- Color requirements listed
- Use 24 lb per 100 ft^2 min [10.8 kg per 10 m^2], of a black, color-fast, medium mesh, anti-skid material

856.03 EQUIPMENT *(Add the following:)*

Use equipment fitted with a functional data logging system equipment listed on the Department's qualified products list (http//www.okladot.state.ok.us/traffic/qpl/index.php). Ensure the data logging system is operational, calibrated, and in use prior to striping operations. Provide the Engineer with a certification that the data logging system equipment meets the manufacturer's recommended calibration, along with the manufacturer's recommendations for equipment calibration frequency.

856.04 CONSTRUCTION METHODS

A. Surface Preparation *(Replace with the following:)*

Remove foreign material from the road surface before applying the dual component material. Ensure the pavement surface is dry.

Use abrasive blasting, grinding, or high-pressure water jet to remove existing, temporary, or permanent traffic markings until at least 95 percent of the underlying pavement is visible, unless otherwise specified by the manufacturer. Minimize interference between temporary pavement markings and the permanent dual-component pavement marking materials.

Remove the curing compound at least 1 in [25 mm] beyond the width of the marking. After removing the curing compound, sweep and use a high-pressure air spray.

B. Pavement Temperature and Condition *(Replace with the following:)*

Apply dual component pavement markings to Portland cement concrete pavement surfaces at least 30 calendar days after paving, and new asphalt concrete pavement a minimum of three (3) calendar days after paving under the following conditions:

- On a dry roadway (no standing water or significant dampness),
- At a pavement surface temperature of at least 40 °F [4.4 °C] and rising, and
- At wind chill temperature of at least 35 °F [1.7 °C].

Measure the pavement surface temperatures 30 minutes before beginning striping installation. If critical temperatures exist, as determined by the Engineer, measure the pavement surface temperature every 1 hr to 2 hr, or at shorter intervals as directed by the Engineer, until the end of the day. Measure the pavement surface temperature with a standard surface temperature or infrared non-contact thermometer.

In the event that temperatures and conditions are not conducive to the installation of permanent pavement markings within the specified time frame, including time for curing of PC pavement, the Engineer may allow and accept the installation of temporary pavement markings in lieu of permanent markings at no additional cost to the Department until such time as the permanent markings can be installed. Maintain the temporary markings until temperatures and conditions are conducive for permanent striping. Furthermore, the Engineer may suspend the contract and/or milestone time until temperatures and/or conditions improve such that the permanent markings can be placed. In order for time suspension to be considered all contract work which is unaffected by the inability to place the permanent paving markings must be completed.

C. Application *(Replace with the following:)*

Apply large glass beads at a coverage rate of at least 12 lb per 100 ft^2 [5.4 kg per 10 m^2] before applying standard beads. Apply standard glass beads at a coverage rate of at least 12 lb per 100 ft^2 [5.4 kg per 10 m^2]. For hand-machine applied markings, apply large glass beads at a coverage rate of at least 12 lb per 100 ft^2 [5.4 kg per 10 m^2] before applying standard beads. Apply standard glass beads at a coverage rate of at least 12 lb per 100 ft^2 [5.4 kg per 10 m^2].

Alternatively, for Portland cement concrete pavement apply a non-reflectorized contrast marking, of the same dimensions as the white skip lines shown on the plans, immediately after each upstream white skip line.

Use a computerized data logging system for monitoring the application of multi-polymer stripe to measure the thickness of the multi-polymer stripe. Collect data for any pavement marking application of 1,000 linear feet or greater. Report the following data as an average for each 1,000 feet:

- Application speed to the nearest 0.1 mph

- Weight (lbs) and/or volume (gallons as measured through a piston displacement pump mechanism) amount of material used by color
- Weight (lbs) of glass beads/elements used
- Pavement surface temperature (°F)
- Air temperature (°F)
- Dew point (°F)
- Humidity (%)
- Material application rates and film thickness over the section painted.

In addition to the above data, record the highway number with the beginning and ending reference point rounded to the nearest hundredth of a mile, project number, and job piece number.

Provide an electronic or printed record of the data to the Engineer daily. The Engineer may determine that more frequent submission is necessary, particularly if equipment malfunctions occur. Produce either the printed or electronic records in their final form prior to the records being removed from the striping equipment (i.e. the Contractor presents this to the Engineer in the field). If only one record is produced at the striping equipment, the other may be produced in an office. However, present the first record to the Engineer prior to any of the data entering an office environment. Ensure the electronic record is a comma or space delimited text file, adequate for insertion into a computerized spreadsheet software package, or a spreadsheet format acceptable to the Engineer.

Provide the Engineer the above records for all longitudinal non-handwork line painted.

Prior to the start of striping operations, travel a distance of 100 ft to verify the consistency of physical and electronic measurements of distance traveled.

Ensure longitudinal and edge line markings meet the minimum mil thickness values in accordance with Table 856:5 for concrete pavement, and Table 856:6 for asphalt pavement:

Table 856:5
Minimum Mil Thickness (PC Pavement)

mils	Contract Unit Price Adjustment
≥ 20	100%
19 - 18	90%
17 - 16	75%
15 - 14	50%
< 14	Remove and replace

Table 856:6 Minimum Mil Thickness (AC Pavement)	
mils	**Contract Unit Price Adjustment**
≥ 25	100%
24 - 23	90%
22 - 21	75%
20 - 19	50%
< 19	Remove and replace

E. Retro-reflectivity *(Replace with the following:)*

Measure stripes with a portable reflectometer that uses 30 m geometry in accordance with ASTM E1710 and the manufacturer recommendations. Ensure the manufacturer calibrates the reflectometer annually. Keep the annual calibration certification with the reflectometer. All reflectometer readings must be in conjunction with line thickness gauge measurements.

(1) Minimum Retro-reflectivity

Ensure longitudinal markings on Portland cement concrete and asphalt concrete pavement surfaces meet the minimum retro-reflectivity values in accordance with Table 856:7.

(2) Measurement

Measure retro-reflectivity of markings within 7 to 21 calendar days of placement, after removing loose beads.

Measure marking retro-reflectivity in the direction of traffic, except the Department will allow yellow skip stripes to be measured in either direction of travel. One measurement (multiple readings) will represent each 2,500 ft [762 m] lot of single-color longitudinal stripe. The Department will not allow readings for adjacent lots to be taken closer than 1,000 ft [305 m] from each other.

For solid longitudinal stripes, one measurement represents the average of five readings per lot, taken at 3 ft [1 m] intervals along a randomly selected 15 ft [4.5 m] section of solid stripe.

For longitudinal skip stripes, one measurement represents the average of six readings per lot, two readings taken from each of three adjacent skip stripes. The Department will not allow readings taken within the first or last 1 ft [0.3 m] of skip stripes.

For non-compliant measurements, the Engineer will require additional measurements to determine the extent of non-compliance.

The Department will not require measurements of the following:

- Stop-bars, crosswalks, gores, words, symbols;
- Longitudinal striping installed using hand line machines; and
- Projects less than 1 mi [1.6 km] long.

Obtain the Engineer's approval in writing before using a mobile retro-reflectometer system as an alternative measurement method.

(3) Acceptance

(Replace Table 856:6 with the following:)

Table 856:7 **Minimum Retro-reflectivity (PC Pavement)**			
White		**Yellow**	
mcd/m²/lx	**Pay Adjustment**	**mcd/m²/lx**	**Pay Adjustment**
≥ 500 *	100%	≥ 325 *	100%
450 - 499 *	75%	275 - 324 *	75%
300 - 449 *	50%	225 - 274 *	50%
< 300	Remove and replace	< 225	Remove and replace

* The Contractor has the option to replace the stripe at no additional cost to the Department, or take the deduction.

(Add the following:)

Table 856:8 **Minimum Retro-reflectivity (AC Pavement)**			
White		**Yellow**	
mcd/m²/lx	**Pay Adjustment**	**mcd/m²/lx**	**Pay Adjustment**
≥ 400 *	100%	≥ 250 *	100%
350 - 399 *	75%	225 - 249 *	75%
200 - 349 *	50%	175 - 224 *	50%
< 200	Remove and replace	< 175	Remove and replace

* The Contractor has the option to replace the stripe at no additional cost to the Department, or take the deduction.

856.05 BASIS OF PAYMENT *(Replace the second paragraph with the following:)*

The Department will consider the cost of preparing the pavement to be included in the contract unit price for the relevant pay item.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
CONSTRUCTION ZONE PAVEMENT MARKINGS

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

857.01 DESCRIPTION *(Add the following:)*

This work consists of removing pavement markings along with other debris from asphalt concrete and Portland cement concrete pavement surfaces.

857.02 MATERIALS *(Add the following:)*

Provide potable water. Lake or river water will not be allowed. Use of chemicals, abrasive materials, grinders, detergents or salt water will not be allowed.

857.03 EQUIPMENT *(Revise as follows:)*

A. General

Apply pavement markings in accordance with the manufacturer's recommendations. Use a paint machine and a bead dispenser in accordance with Subsection 854.03, "Equipment," to apply the painted construction traffic stripe. Use equipment for removing pavement markings that will not damage the pavement surface or pavement material texture.

(Add the following:)

B. Hydroblasting Equipment

Use cleaning or pavement marking removal equipment capable of removing 100% of the pavement marking using high-pressure water. Ensure the equipment is capable of maintaining 36,000 psi water pressure at a maximum flow rate of 16 gpm. Provide a self-propelled vehicle with all functions programmable and repeatable for long lines of road marking removal. The removal head must be capable of rotating at a minimum of 1,500 rpm. Ensure the equipment is capable of removing a minimum of 1,200 linear feet of 4 inch strip per hour.

Use trolley mounted water jetting equipment to remove pavement markings in areas inaccessible to the truck mounted equipment such as hatched areas, words, arrows and symbols. Ensure the equipment is capable of maintaining 36,000 psi water pressure. The removal head must be capable of rotating at a minimum of 1,500 rpm.

Use equipment capable of removing the traffic stripe from the surface, including cracks, to thoroughly remove all dust, dirt, and other foreign materials without causing damage to the surface by etching or exposing coarse aggregate. Use a wet vacuum in conjunction with the removal head to remove all debris to a secure holding tank on the truck. After removal of the pavement markings leave the surface clean and ready to accept the new road marking once drying has occurred.

Operate all equipment in the same direction as traffic flow.

Ensure all equipment meets applicable OSHA requirements.

857.04 CONSTRUCTION METHODS

D. Removal *(Replace with the following :)*

If a detour or permanent pavement markings conflict with the permanent pavement markings of the next traffic control phase, remove as approved by the Engineer before switching traffic. Remove existing pavement markings and replace with temporary markings before roadway opens to traffic. Remove temporary pavement markings before installing final striping.

When additional pavement marking is necessary due to overlays, redirection of traffic, restoration, or Engineer direction, start the pavement marking within 24 hr of notification from the Engineer.

Remove the removable pavement marking and adhesive, as directed by the Engineer. Install additional pavement markings according to traffic conditions, as approved by the Engineer. Immediately dispose of removed pavement marking tape and pavement markers.

Remove pavement markings without damaging the pavement surface, or pavement material texture. Pavement material texture will be considered damaged if more than 5 mils are removed below the original stripe. Repair any damage to the pavement surface and joints caused by the Contractor's operation at no additional cost to the Department. Obtain the Engineer's approval of the proposed method of repair prior to performing the repair.

The Department will not allow painting over or blotting out the existing pavement markings. When removing pavement markings, immediately remove the residue using a vacuum attachment operated concurrently with the operation, or by other methods approved by the Engineer.

When the method of Hydro-blasting is utilized, the work shall be performed at locations shown on the plans or as directed by the Engineer. Thoroughly remove the specified pavement markings such that the markings are no longer visible to highway users, and/or to the satisfaction of the Engineer.

Operation of the ultra-high pressure water jets shall be performed and supervised by qualified personnel certified by the equipment manufacture. Do not perform work unless the ambient temperature and pavement temperature is a minimum of 34 degrees Fahrenheit.

Use collection systems to prevent the escape of debris. If spills or releases occur, immediately cease operations, clean up the debris, and take appropriate corrective actions to prevent similar releases from occurring.

Properly dispose of wastes generated during the pavement marking removal, in compliance with all applicable federal, state and local laws, regulations, and rules.

Ensure the work site is clear of visible debris at the end of each work day.

857.05 METHOD OF MEASUREMENT *(Add the following:)*

Pavement Marking Removal (Traffic Stripe) will be measured by linear foot of four inch wide traffic stripe where a narrower or wider stripe is to be removed, that is, prorated to a four inch strip. Count each unit of arrows, words or symbols to be removed.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
PORTABLE LONGITUDINAL BARRIER

These special provisions amend and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

877.02 MATERIALS *(Replace with the following:)*

Provide materials in accordance with the following sections:

Material:	Section:
Portland Cement Concrete, Class A	701
White Concrete	701.14
Reinforcing Steel	723

Submit alternative designs for approval by the Engineer before starting the manufacture of concrete barriers. The Engineer will consider alternative and special design features influencing the casting of a section, and attachments or holes that facilitate the handling and lifting of a section. Ensure alternative designs meet the exterior dimensions as shown on the Plans and performance criteria in accordance with NCHRP 350 test level three (TL-3) guidelines.

The Contractor may choose to utilize a steel barrier section in lieu of a concrete barrier section. The steel barrier system must be approved for use and listed on the ODOT Traffic Division Qualified Products List (QPL). Ensure the steel barrier system meets all performance criteria in accordance with NCHRP-350 test level three (TL-3) guidelines.

Ensure all structural elements for the steel barrier system are fabricated from galvanized steel. Ensure all bolts, nuts and washers are galvanized.

877.04 CONSTRUCTION METHODS *(Replace with the following:)*

At the locations shown on the Plans, or as directed by the Engineer, provide crashworthy impact attenuators or end treatments for portable longitudinal barrier systems. Ensure the portable longitudinal barrier systems and end treatments satisfy the NCHRP Report 350 for test level three (TL-3) guidelines. Submit certified test results meeting the test and performance criteria in accordance with NCHRP 350 guidelines.

Deliver, locate, and align the portable longitudinal barrier system as shown on the Plans, or as directed by the Engineer. Ensure the surface between the portable longitudinal barrier system and the edge of the traveled way is smooth, without edge drop-offs, holes, depressions, or slope changes.

When the Project no longer requires portable longitudinal barriers to protect the work site or traveling public, remove the barriers and hardware from the Project.

If utilizing Department owned portable longitudinal barrier, deliver it to the Department storage facility shown on the Plans upon completion of the work requiring its use. At the storage facility, stockpile the barrier sections and store hardware in sturdy containers marked for future use.

A. Concrete Longitudinal Barrier

Before casting the portable longitudinal barrier, notify the Engineer of the casting site and start date. Mix, place, finish, and cure the longitudinal barriers in accordance with Subsection 627.04, "Construction Methods."

Submit written certification indicating barrier fabrication in accordance with the Specifications before delivering portable longitudinal barriers to the Project.

Prevent damage to longitudinal barrier sections and hinges during fabrication, storage, handling, and placement. Repair minor chipping, spalling, and scars as directed by the Engineer. Make repairs, or replace damaged sections and hinges at no additional cost to the Department.

Finish surfaces supporting the portable longitudinal barrier units to provide a full and uniform bearing over the entire bearing area. Correct bearing defects as approved by the Engineer. Connect or join units as shown on the Plans. Align joint units horizontally and vertically to present a uniform appearance.

B. Steel Longitudinal Barrier

Construct the steel barrier system from a series of individual sections. Ensure each barrier section is no longer than 50 ft [15.24 m] and no shorter than 13 ft [4 m]. Anchor each end section of the barrier to the roadway in accordance with the manufacturer's recommendations. Accomplish barrier system section connections in accordance with the manufacturer's recommendations.

877.05 METHOD OF MEASUREMENT *(Add the following:)*

Measure *Deliver Portable Longitudinal Barrier* as the quantity of Department approved Contractor owned barrier delivered to the project, and placed in its first functional location and removed from its last functional location on the project.

Measure *Relocation of Longitudinal Barrier* as the quantity of barrier moved from one functional location to another functional location on the project site, when specified on the plans.

877.06 BASIS OF PAYMENT *(Replace with the following:)*

The Department will pay for each pay item at the contract unit price per the specified pay unit as follows:

Pay Item:	**Pay Unit:**
(A) Deleted	
(B) DELIVER PORTABLE LONGITUDINAL BARRIER	Linear Foot [Meter]
(C) RELOCATION OF PORTABLE LONGITUDINAL BARRIER	Linear Foot [Meter]

The Department will pay 80 percent of the contract unit price for *Deliver Portable Longitudinal Barrier* upon delivery and placement of the portable longitudinal barrier to the project in its first functional location, as shown on the Plans. The Department will pay the remaining 20 percent after removal of the barrier from its last functional location on the Project.

For *Relocation of Portable Longitudinal Barrier*, the Department will pay the contract unit price after the barrier is moved from one functional location to another functional location within the project limits, as shown on the Plans.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FOR
PLASTIC DRUMS

These special provisions amend, and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

880.02 MATERIALS *(Replace with the following:)*

B. Construction Signing and Traffic Control Materials

(10) Plastic Drums

Provide two-piece breakaway drums in accordance with the MUTCD. The drums must accommodate conventional barricade warning lights that are in accordance with the NCHRP 350, Category I device requirements. These drums will be used as channelizing devices for construction and maintenance operations.

Provide plastic drums at least 36 in [900 mm] high and at least 18 in [450 mm] wide regardless of orientation. The plastic drum must be capable of withstanding 60 mph [100 km/h] winds, turbulence created by vehicles, and repeated movements during construction and maintenance operations. Ensure the top portion of the unit deforms and breaks away from the base upon vehicular impact. Ensure the base remains in place, allowing the vehicle to pass over it. Ensure the base weighs at least 40 lb, and the outside edge does not exceed 4 in [100 mm]. Provide rubber base collars that are clean cut, the proper size, black in color, and not curved at the top edges. Ensure the maximum diameter of the base does not exceed 36 in [900 mm].

Provide bright orange plastic drums that resist color fading. Ensure the plastic drum is crash worthy in accordance with the NCHRP 350. Ensure sheeting surfaces provide maximum adhesion of reflective sheeting to the drum body.

Provide weather tight drums designed to accept horizontal, circumferential bands of reflectorized sheeting, 4 in to 6 in [100 mm to 150 mm] wide. Provide drums with a D-shaped configuration at the base attachment point to minimize rolling after impact. Provide drums with enclosed tops, and drains to prevent water accumulation. Ensure that stacking the drums will not damage the reflective surface. Ensure each drum allows the attachment of two Type A or Type C conventional barricade warning lights. Provide warning lights capable of remaining attached during repeated impacts at speeds of at least 55 mph [88 km/h] and in accordance with NCHRP 350.

Provide drums that have alternating fluorescent orange and white horizontal circumferential stripes of retro-reflectorized sheeting. Ensure there shall be a minimum of two fluorescent orange and two white stripes, beginning with a fluorescent orange stripe at the top of the drum. If there are non-reflectorized spaces between the horizontal orange and white stripes, ensure they are no more than 2 in [50 mm] wide. Ensure the non-reflectorized portions of the drum are orange. Provide reflective sheeting that meets the requirements of the latest ASTM D4956, and the Federal Highway

Administration Luminance Factor for fluorescent orange, Type VI reboundable sheeting (see Table 880:2).

Table 880:2
Luminance Factor, Y_T

Sheeting Type	Min	Max	Fluorescence Luminance Factor Limit Y_F
Fluorescent Orange	25	None	15

General Decision Number: OK180016 01/05/2018 OK16

Superseded General Decision Number: OK20170016

State: Oklahoma

Construction Type: Highway

Counties: Le Flore and Sequoyah Counties in Oklahoma.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018

SUOK2011-003 04/18/2011

	Rates	Fringes
Traffic signal installer	$ 18.04	
CARPENTER (Includes Form Work)	$ 12.81	
CEMENT MASON/CONCRETE FINISHER	$ 13.43	
IRONWORKER, REINFORCING	$ 15.38	
IRONWORKER, STRUCTURAL	$ 14.21	
LABORER		
Asphalt Raker and Shoveler	$ 10.85	
Common or General		
Le Flore County	$ 10.05	
Sequoyah County	$ 10.91	
Landscape	$ 8.67	
Pipelayer	$ 12.35	
Power Tool Operator (Includes Chipping Guns and Handheld Concrete Saws)	$ 12.89	
Traffic Control (Includes Flagger, Setting Up and Moving Cones/Barrels)	$ 10.93	
POWER EQUIPMENT OPERATOR:		
Asphalt Paver Screed	$ 12.96	
Asphalt Paving Machine	$ 13.32	
Backhoe/Trackhoe	$ 15.83	
Bobcat/Skid Loader	$ 12.24	
Broom	$ 11.97	
Bulldozer		
Le Flore County	$ 15.14	
Sequoyah County	$ 14.72	
Concrete Paving Machine	$ 14.11	
Concrete Saw	$ 11.94	
Crane	$ 17.42	
Distributor Truck	$ 13.34	
Excavator	$ 14.99	
Grader/Blade	$ 16.95	
Loader (Front End)	$ 13.73	

Mechanic.....$ 17.46
Milling Machine.....$ 14.56
Mixer.....$ 14.43
Oiler.....$ 15.28
Roller (Asphalt).....$ 12.70
Roller (Dirt Compaction)....$ 11.71
Scraper.....$ 13.34
Striping Machine.....$ 11.94
Tractor/Box Blade.....$ 13.67
Trencher.....$ 13.87

TRUCK DRIVER
Dump Truck
Le Flore County.....$ 13.75
Sequoyah County.....$ 14.07
Flatbed Truck.....$ 14.69
Lowboy/Float.....$ 13.91
Off the Road Truck.....$ 13.40
Pickup Truck.....$ 12.32
Tandem Axle/Semi Trailer....$ 13.28
Water Truck.....$ 12.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

SEQUOYAH COUNTY
DIVISION 1

J/P: 28961(04)

I-40
BRIDGE OVER CO. RD. (OLD US-64) & KCS R.R.
1.40 MI. EAST OF JCT. US-59

U.S. ARMY CORPS OF ENGINEERS
IDENTIFICATION NUMBER: SWT-2018-245
NATIONWIDE PERMIT 14
LINEAR TRANSPORTATION PROJECTS

PRE-CONSTRUCTION NOTICE REQUIRED PERMIT
ADHERE TO GENERAL CONDITIONS 2, 3, 8, 9, 12, 13
DETAILS OF CONDITIONS WITHIN ATTACHMENT

DATE OF AUTHORIZATION: **April 10, 2018**
DATE OF EXPIRATION: **March 18, 2022**

INDEX OF ATTACHMENTS
Permittee Construction Schedule Worksheet
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Tulsa District Regional Conditions

Jared Bechtol

From: Charlson, D Shane CIV USARMY CESWT (US) <D.Shane.Charlson@usace.army.mil>
Sent: Tuesday, April 10, 2018 6:57 AM
To: Jared Bechtol; Rachel Hanigan; Kaitlyn M. Taylor
Cc: Jared Schwennesen
Subject: SWT-2018-245, ODOT JP 28961(04), I 40 RCB Widening, Sequoyah County

Project Name: ODOT JP 28961(04), I 40 RCB Widening, Sequoyah County

Corps Case No.: SWT-2018-245

Corps POC: Shane Charlson, 918-669-7395

Please reference your email regarding the above listed project.

Please review the Nationwide Permit (NWP) Linear Transportation Projects concerning your proposed placement of dredged or fill material into aquatic areas. Provided ODOT ensures compliance with the terms of the NWP and General Conditions 2, 3, 8, 9, 12, 13, and compliance with all the terms and conditions therein, the project may proceed at any time. If you cannot comply with these conditions, please reply.

The Nationwide Permit verification for this project is based on the proposed impacts to aquatic resources. No approved jurisdictional determination (AJD) is necessary unless jurisdictional questions arise. Should jurisdictional questions arise, you may request an AJD. Only an AJD, which may be appealed, may make a definitive, official determination that there are, or that there are not, jurisdictional aquatic resources on a parcel. Unless an AJD has been issued which identified applicable aquatic resources to be non-jurisdictional, undertaking any activity in reliance on any form of Corps permit authorization constitutes agreement that all aquatic resources in the review area, affected in any way by that activity, will be treated as jurisdictional.

This NWP is scheduled to expire on March 18, 2022. It is incumbent on you to remain informed of changes to the NWP. The Corps will issue a public notice announcing the changes as they occur. Furthermore, if you commence, or are under contract to commence, the activity before the date the NWP is modified or revoked, you will have 12 months from the date of the modification or revocation to complete the activity under the present terms and conditions of this NWP.

Shane Charlson, PWS
Regulatory Transportation Program Manager

US Army Corps of Engineers
ATTN: Regulatory Office (Shane)
2488 E 81st Street
Tulsa, OK 74137-4290

918-669-7395 FAX 918-669-4306
d.shane.charlson@usace.army.mil

You are invited to complete our Regulatory Service Survey at:
http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey

PERMITTEE CONSTRUCTION SCHEDULE WORKSHEET

* MAIL TO ADDRESS ON REVERSE WITHIN 30 DAYS OF THE AWARD DATE

PERMIT NO.: SWT-2018-245

USACE PROJECT MANAGER: Shane Charlson

PERMITTEE NAME: Oklahoma Department of Transportation

DATE OF ISSUANCE: 4/10/2018

----------(fold here so that address shows on outside)--------

Please provide the following information:

Anticipated/Known Construction Start Date: _____

Anticipated Completion Date: _____

I have read and understand the obligations and requirements of this authorization.

_____ _____

Oklahoma Dept. of Transportation DATE

----------(fold here and tape closed)----------

(FOR AGENCY USE ONLY - DO NOT WRITE BELOW THIS LINE)

RECEIVED IN CESWT-RO: _____

INSPECTION NEEDED: Y / N

CONSTRUCTION INSPECTION SCHEDULED: _____

FINAL INSPECTION SCHEDULED: _____

_____County

Place
Postage
Here

U.S. Army Corps of Engineers
Regulatory Office (Shane)
2488 E 81st Street
Tulsa, OK 74137-4290

PERMITTEE COMPLIANCE CERTIFICATION

Upon completion of the activity authorized by this permit and any mitigation required by this permit, sign and complete this certification form and return it to the address on the reverse side within 30 days of completion of the work.

PERMIT NO.: SWT-2018-245

USACE PROJECT MANAGER: Shane Charlson

PERMITTEE NAME: Oklahoma Department of Transportation

DATE OF ISSUANCE: 4/10/2018

----------(fold here so that address shows on outside)--------

(Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.)

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____ _____

Oklahoma Department of Transportation DATE

DATE WORK COMPLETED: _____

----------(fold here and tape closed)----------

(FOR AGENCY USE ONLY - DO NOT WRITE BELOW THIS LINE)

RECEIVED IN CESWT-RO: _____

INSPECTION NEEDED: Y / N

FINAL INSPECTION SCHEDULED: _____

_____County

Place
Postage
Here

U.S. Army Corps of Engineers
Regulatory Office (Shane)
2488 E 81st Street
Tulsa, OK 74137-4290

Nationwide Permit 14 - Linear Transportation Projects
Effective Date: March 19, 2017; Expiration Date: March 18, 2022
(NWP Final Notice, 82 FR 1860)

Nationwide Permit 14 - Linear Transportation Projects. Activities required for crossings of waters of the United States associated with the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds 1/10-acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 32.) (Authorities: Sections 10 and 404)

Note 1: For linear transportation projects crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Linear transportation projects must comply with 33 CFR 330.6(d).

Note 2: Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under section 404(f) of the Clean Water Act (see 33 CFR 323.4).

Note 3: For NWP 14 activities that require pre-construction notification, the PCN must include any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings that require Department of the Army authorization but do not require pre-construction notification (see paragraph (b) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, "District Engineer's Decision." The district engineer may require mitigation to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

A. Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/ or

Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. **Navigation.** (a) No activity may cause more than a minimal adverse effect on navigation. (b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States. (c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. **Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. **Spawning Areas.** Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. **Migratory Bird Breeding Areas.** Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. **Shellfish Beds.** No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. **Suitable Material.** No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. **Water Supply Intakes.** No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. **Adverse Effects from Impoundments.** If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. **Management of Water Flows.** To the maximum extent practicable, the preconstruction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the preconstruction course, condition, capacity, and location of open waters if it

benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. **Fills Within 100-Year Floodplains.** The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. **Equipment.** Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. **Soil Erosion and Sediment Controls.** Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. **Removal of Temporary Fills.** Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. **Proper Maintenance.** Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. **Single and Complete Project.** The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. **Wild and Scenic Rivers.**
(a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre- construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. The permittee shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. **Tribal Rights.** No NWP activity may cause more than minimal adverse effects on tribal rights (including treaty rights), protected tribal resources, or tribal lands.

18. **Endangered Species.**
(a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the

critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the effects of the proposed activity has been completed. Direct effects are the immediate effects on listed species and critical habitat caused by the NWP activity. Indirect effects are those effects on listed species and critical habitat that are caused by the NWP activity and are later in time, but still are reasonably certain to occur.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. If preconstruction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed activity or that utilize the designated critical habitat that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non- Federal applicant of the Corps' determination within 45 days of receipt of a complete pre- construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species or critical habitat, or until ESA section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether

additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide Web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. **Migratory Birds and Bald and Golden Eagles.** The permittee is responsible for ensuring their action complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. **Historic Properties.** (a) In cases where the district engineer determines that the activity may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act. If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the preconstruction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect. Where the non-Federal applicant has identified historic properties on which the activity might have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed.

(d) For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt

of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. **Discovery of Previously Unknown Remains and Artifacts.** If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. **Designated Critical Resource Waters.** Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. **Mitigation.** The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require preconstruction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require preconstruction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation to ensure that the activity results in no more than minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. Restored riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f)).

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee

begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2- acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee- responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee responsible mitigation may be environmentally preferable if there are no mitigation banks or in- lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. **Safety of Impoundment Structures.** To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. **Water Quality.** Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. **Coastal Zone Management.** In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. **Regional and Case-By-Case Conditions.** The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. **Use of Multiple Nationwide Permits.** Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3- acre.

29. **Transfer of Nationwide Permit Verifications.** If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____

(Transferee)

_____

(Date)

30. **Compliance Certification.** Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation. The completed certification document must be submitted to the district engineer within 30 days of completion of the

authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a preconstruction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission is not authorized by NWP until the appropriate Corps office issues the section 408 permission to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. **Pre-Construction Notification.** (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and

other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures. For single and complete linear projects, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);
(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-Federal permittees, if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed activity or utilize the designated critical habitat that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-Federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an activity that requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from the Corps office having jurisdiction over that USACE

project.
(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is an NWP PCN and must include all of the applicable information required in paragraphs (b)(1) through (10) of this general condition. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) All NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of stream bed; (iii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iv) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or email that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the preconstruction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of preconstruction notifications to expedite agency coordination.

B. District Engineer's Decision.

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than

minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the individual crossings of waters of the United States to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51, 52, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects. For those NWPs that have a waivable 300 linear foot limit for losses of intermittent and ephemeral stream bed and a 1/2-acre limit (i.e., NWPs 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52), the loss of intermittent and ephemeral stream bed, plus any other losses of jurisdictional waters and wetlands, cannot exceed 1/2- acre.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters (e.g., streams). The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) That the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an

individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31, or to evaluate PCNs for activities authorized by NWPs 21, 49, and 50), with activity specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

C. Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

D. Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the

proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the acres or linear feet of stream

bed that are filled or excavated as a result of the regulated activity. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Preconstruction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where preconstruction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Protected tribal resources: Those natural resources and properties of traditional or customary religious or cultural importance, either on or off Indian lands, retained by, or reserved by or for, Indian tribes through treaties, statutes, judicial decisions, or executive orders, including tribal trust resources.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Reestablishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic

resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: Reestablishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in an NWP authorization. Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: (1) Held in trust by the United States for the benefit of any Indian tribe or individual; or (2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a jurisdictional water of the United States. If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.

ADDITIONAL INFORMATION

Information about the U.S. Army Corps of Engineers regulatory program, including nationwide permits, may also be accessed at http://www.swt.usace.army.mil/Missions/Regulatory.aspx or http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx

SCOTT A. THOMPSON
Executive Director

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

MARY FALLIN
Governor

February 24, 2017

Mr. Andrew R. Commer
Chief, Regulatory Office
U.S. Army Corps of Engineers, Tulsa District
1645 South 101st East Avenue
Tulsa, OK 74128-4609

Re: Water Quality Certification for the U.S. Army Corps of Engineers (Corps) Nationwide Permits

Dear Mr. Commer:

The Department of Environmental Quality (DEQ) has received your request for a Water Quality Certification under Section 401 of the Federal Clean Water Act [33 U.S.C. §1251 et seq. (1972)], for activities to be permitted under the Nationwide Permits issued pursuant to Section 404 of the Act with an effective date of March 19, 2017. The Department of Environmental Quality rules governing 401 Certification are contained in Oklahoma Administrative Code (OAC) 252:611-3-1 through 252:611-3-6 pursuant to 27A Oklahoma Statue, Section 2-6-103(C)(2). For copies of the DEQ rules and regulations related to the 401 procedures, please access it online at www.deq.state.ok.us/rules/611.pdf or contact the DEQ Office of External Affairs at (800) 869-1400.

This Water Quality Certification supersedes all previous Water Quality Certifications for the Nationwide Permits in the State of Oklahoma.

The DEQ requests that all Pre-Construction Notifications (PCN) and information pertaining to any project, regardless of size, located within any designated Critical Resource Water which is proposed to be authorized under NWP 19, 20, 23, 27, 33, or 37 be provided to the DEQ. Additionally, the DEQ requests the opportunity to review and comment on these proposed actions following the time frames specified in the NWP General Condition 32. The DEQ will expedite the review and notification process when practicable. This request is not a condition of certification.

Water Quality Certification for Nationwide Permits 3, 13, 18, 41, 45, 46, and 53 is denied for all activities located within any designated Critical Resource Water.

Water Quality Certification for Nationwide Permits 49 and 50 are denied for all activities in all watersheds of Oklahoma. We are concerned that use of these permits could lead to more than minimal impacts on waters of the State.

For Nationwide Permit 16, *Return Water From Upland Contained Disposal Areas*, the certification is conditioned as follows: a DEQ approved set of Best Management Practices for sediment control in return water shall be submitted to the DEQ, approved, and implemented before commencing any discharge.

The DEQ acknowledges that the potential to use NWP 34, 48 or 54 in Oklahoma is not likely. However, for administrative clarity the Water Quality Certification is denied for NWP 34, 48, and 54.

Subject to the exceptions noted above, the DEQ grants Clean Water Act 401 Water Quality Certification for the Corps Nationwide Permits subject to the following conditions:

1. All spills of fuel or other pollutants in excess of five gallons shall be reported to the DEQ, within twenty-four (24) hours, to the pollution prevention hotline at 1-800-522-0206.
2. All fueling and servicing of vehicles and equipment shall be done above the Ordinary High Water Mark (OHWM).
3. The permittee shall provide access to the property for DEQ inspection purposes.
4. Any material and fuels used in the project shall be stored and/or stockpiled above the Ordinary High Water Mark (OHWM) and shall be removed from a likely flood zone prior to any predicted flood.
5. If a stormwater discharge permit for construction activities is required, one can be obtained from the DEQ at (405) 702-6100.
6. If the project is located on or may affect water impaired for turbidity and/or sediment, Best Management Practices and other controls shall be selected and implemented in order to control soil erosion and maintain compliance with Water Quality Standards (Oklahoma Administrative Code, Chapter 45). The permittee shall maintain sufficient records to document the type of practices implemented to maintain compliance with this condition, during the term of the permit. A copy of the current EPA-approved list of impaired waters (303(d) list) can be viewed at http://www.deq.state.ok.us/wqdnew/305b_303d/index.html
7. For any project involving bank stabilization, the permittee shall consider installing bioengineering practices in lieu of structural practices (e.g. riprap) to minimize impacts to an aquatic resource and enhance aquatic habitat.

If you have any questions regarding this Certification, please contact Elena Jigoulina at (405) 702-8200.

Sincerely,

Joe Long, Environmental Programs Manager
Watershed Planning Section
Water Quality Division

cc: David Carraway, Regulatory Project Manager, Regulatory Branch, Corps, Tulsa
J.D. Strong, Director, Oklahoma Department of Wildlife Conservation
Lauren Poulos, Life Scientist, Wetland Section, EPA Region 6
Julie Bays, Public Protection Unit Chief, Attorney General of Oklahoma
Brooks Tramell, Director, Monitoring, Assessment & Wetlands Programs, Oklahoma Conservation Commission
William Cauthron, Interim Director, Water Quality Programs Division, Oklahoma Water Resources Board,
Darrell Townsend II, Ph.D., Director, Ecosystems Management, Grand River Dam Authority

Regional Conditions for all Nationwide Permits in Oklahoma
March 21, 2017

1. Unique Wetlands: For all discharges proposed for authorization under nationwide permits (NWP) 3, 6, 7, 12, 14, 18, 19, 21, 23, 25, 27, 29, 39, 40, 41, 42, 43, 44, 49, 51, 52, 53, and 54, into the following habitat types or specific areas, the applicant shall notify the Tulsa District Engineer in accordance with the NWP General Condition 32, Pre-Construction Notification (PCN). The Corps of Engineers (Corps) will coordinate with the resource agencies as specified in NWP General Condition 32(d) (PCN). The habitat types or areas are:

a. Pitcher Plant Bogs: Wetlands typically characterized by an organic surface soil layer and include vegetation such as pitcher plants (*Sarracenia spp.*), sundews (*Drosera spp.*), and/or sphagnum moss (*Sphagnum spp.*).

b. Bald Cypress-Tupelo Swamps: Wetlands dominated by bald cypress (*Taxodium distichum*) and/or water tupelo (*Nyssa aquatic*).

2. Designated Critical Resource Waters (CRWs): CRWs are Outstanding Resource Waters (ORWs) and their watersheds, and High Quality Waters (HQWs) designated by the State of Oklahoma in Appendix A of the Water Quality Standards (OAC 785, Chapter 45). The ORWs include all waters in the supporting watersheds, HQWs do not. Both ORWs and HQWs include adjacent wetlands. The current list of CRWs is available on the Corps website: http://www.swt.usace.army.mil/portals/41/docs/missions/regulatory/wqc/crw.pdf (See GC 22 Designated CRWs).

3. Upland Disposal: Except where authorized by Nationwide Permit 16, material disposed of in uplands shall be placed in a location and manner that prevents discharge of the material and/or return water into waters or wetlands unless otherwise authorized by the Tulsa District Engineer.

4. Major Rivers: The prospective permittee shall notify the Tulsa District Engineer for all NWP 14 verifications which cross major rivers within Tulsa District. For the purposes of this condition, major rivers include the following: Arkansas River, Canadian River, North Canadian River, Cimarron River, Grand-Neosho River, Illinois River, Red River, Verdigris River, and Washita River.

"Indian Country" WQC: In its letter dated March 2, 2017, EPA, Region 6 denied water quality certification (WQC) of the 2017 NWPs for use in Indian Country[1] in the State of Oklahoma where a tribe has not received treatment in the same manner as a state for the Clean Water Act (CWA) Section 401 program. Rather, EPA is requiring anyone wanting to perform work, which may result in a discharge, on such Tribal land to obtain an activity-specific water quality certification or waiver from EPA before proceeding under the NWP. If the Corps receives a request for a NWP verification on Indian Country lands, for an activity which may result in a discharge, and the request is not accompanied by EPA's WQC, we will review and, if applicable, issue a provisional NWP verification with instructions for the applicant to contact EPA Region 6 for a site-specific WQC. A request to the Corps for NWP verification on Indian Country lands, for an activity which may result in a discharge, should be accompanied with an individual 401 water quality certification from EPA or a copy of the application to EPA for such certification. Requests for Indian Country WQC may be directed to EPA Region 6 via the following address:

Chief Wetlands Section
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200 (6WQ-EM)
Dallas, TX 75202

Pawnee Nation WQC: Tulsa District requested water quality certification (WQC) from the water quality certifying agencies in January 2017. As of the date of this document, the Corps has not received WQC from the Pawnee Nation, which is authorized to address WQC for the Trust lands as it has received treatment in the same manner as a state for the water quality standards and 401 certification programs. In the absence of a WQC from the Pawnee Nation, when the Corps receives a request for a NWP verification on Pawnee Nation lands, for an activity which may result in a discharge, and the request is not accompanied by Pawnee Nation's WQC, we will review and, if applicable, issue a provisional NWP verification with instructions for the applicant to contact the Pawnee Nation for a site-specific WQC. A request to the Corps for NWP verification on Pawnee Nation Trust lands, for an activity which may result in a discharge, should be accompanied with an individual 401 water quality certification from Pawnee Nation or a copy of the application to Pawnee Nation for such certification. Requests for Pawnee Nation WQC may be directed to the following address:

[1] "Indian Country", as defined in 18 U.S.C. 1151, means: (1) all land within the limits of any Indian reservation under the jurisdiction of the United States government, not withstanding the issuance of any patent, and including rights-of-way running through the reservation; (2) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a State; and (3) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

Pawnee Nation of Oklahoma
Division of Natural Resources and Safety
301 Agency Rd.
Pawnee, OK 74058

State of Oklahoma WQC: The Oklahoma Department of Environmental Quality (ODEQ) has denied WQC for NWPs 3, 13, 18, 41, 45, 46, and 53 in Critical Resource Waters (CRWs); and 34, 48, 49, 50, and 54 in all waters. If the Corps receives a request for such a verification (without WQC), for an activity which may result in a discharge, and the request is not accompanied by ODEQs WQC, we will review and, if applicable, issue a provisional NWP verification with instructions for the applicant to contact ODEQ for a site-specific WQC. Such a request to the Corps for NWP verification, for an activity which may result in a discharge, should be accompanied with an individual 401 water quality certification from ODEQ or a copy of the application to ODEQ for such certification.

Subject to the exceptions referenced above, ODEQ granted Water Quality Certification (WQC) to the NWPs subject to the following conditions. The Corps has determined the following WQC standard conditions issued by the ODEQ on February 24, 2017, pursuant to Section 401 of the CWA, are acceptable for CWA Section 404 NWPs.

1. All spills of fuel or other pollutants in excess of five gallons shall be reported to the ODEQ, within twenty-four (24) hours, to the pollution prevention hotline at 1-800-522-0206.

2. All fueling and servicing of vehicles and equipment shall be done above the Ordinary High Water Mark

3. The permittee shall provide access to the property for ODEQ inspection purposes.

4. Any material and fuels used in the project shall be stored and/or stockpiled above the Ordinary High Water Mark and shall be removed from a likely flood zone prior to any predicted flood.

5. If a stormwater discharge permit for construction activities is required, one can be obtained from the ODEQ at (405) 702-6100.

6. If the project is located on or may affect water impaired for turbidity and/or sediment, Best Management Practices and other controls shall be selected and implemented in order to control soil erosion and maintain compliance with Water Quality Standards (Oklahoma Administrative Code, Chapter 45). The permittee shall maintain sufficient records to document the type of practices implemented to maintain compliance with this condition, during the term of the permit. A copy of the current EPA-approved list of impaired waters [303(d) list] can be viewed at http://www.deq.state.ok.us/wqdnew/305b_303d/index.html

7. For any project involving bank stabilization, the permittee shall consider installing bioengineering practices in lieu of structural practices (e.g. riprap) to minimize impacts to the aquatic resource and enhance aquatic habitat.

For Nationwide Permit 16, the ODEQ WQC is conditioned as follows: an ODEQ approved set of Best Management Practices (BMPs) for sediment control in return water shall be submitted to the ODEQ, approved, and implemented before commencing any discharge.

NOTE: Invasive Species - For all activities proposed for authorization under NWP, the applicant shall consider utilizing Best Management Practices (BMPs) to reduce the risk of transferring invasive plant and animal species to or from project sites. The following BMPs, as a minimum, shall be considered:

a. Clean: Clean both the inside and outside of equipment and gear by removing all plants, animals, and mud and thoroughly washing the equipment using a high pressure spray nozzle. Equipment should be decontaminated in accordance with State of Oklahoma procedures prior to relocation.

b. Drain: Drain all water from receptacles before leaving the area, including livewells, bilges, ballast, and engine cooling water on boats.

c. Dry: Allow time for your equipment to dry completely before relocating in other waters. Equipment should be dried a minimum of 20 days prior to relocation. High temperature pressure washing (at least 140 degrees Fahrenheit) or professional cleaning may be substituted for drying time.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SECTION 404 PRE-CONSTRUCTION NOTIFICATION FORM FOR STATE PROJECTS

DATE: 9/28/2015

Project No.:	NHPP1-4000-(064)PM	J/P:	28961(04)	Facility:	I-40	County:	Sequoyah County
Description:	Bridges and approaches E.B. & W.B. I-40 over E. Delaware Ave. & K.C.S. R.R.						
Let Date:		Division:	1	Programmed Construction Project Cost:	$15,329,435		

Sta or Str. No.	Location			Waterbody	Type	Description		Calculations			
	Latitude	Longitude	Legal	Critical Resource Water?		Existing Structure/Condition	New Structure	Area acre	Cubic Yards of Fill*	Linear Feet of Impacts	Notes
2	35° 26' 49"	94° 47' 05"	Sec. 5, R24E, T11N	Unnamed Creek, Critical Resource Water doesn't apply	RCB	(2) 8' x 8' RCB	(2) 8' x 8' RCB Ext. 41' LG. LT. & 49' LG. RT.	0.06	N/A	172	1, 2
3	35° 26' 52"	94° 46' 53"	Sec. 5, R24E, T11N	Unnamed Creek, Critical Resource Water doesn't apply	RCB Wet	8' x 6' RCB	8' x 6' RCB Ext. 40' LG. LT. & 56' LG. RT.	0.11	N/A	140	3, 4

AVOIDANCE AND MINIMIZATION: The RCBs were extended to account for the grade change of the proposed road. Channel grading and clean-out were minimized to just that which was necessary to tie in the proposed RCB aprons. Additional disturbance was avoided by limiting the grading downstream of the proposed extensions.

Types: BP--Bank Protection, CC—Channel Change, Chan--Channel Work, RCB--Reinforced Concrete Box, SB--Span Bridge,** Wet--Wetlands, Misc—Miscellaneous
**Wetland Information will be added from the delineation report by ODOT

*Only necessary if impacts are over 0.1 acres

Notes:

1) The entrance and outlet ends of the boxes will be extended 41' and 49' respectively.
2) Area based on Q2 OHWM is a depth of 2.43'.
3) The entrance and outlet ends of the box will be extended 40' and 56' respectively.
4) Area based on Q2 OHWM is a depth of 1.58'.

FHWA Approved Clearance type: CE: ____ FONSI/EA: ____ EIS: ____ Date: ____ Pending: ____ None: ____

Applicant: Name: Oklahoma Department of Transportation Phone No: (405) 522-0734

Address: 200 Northeast 21st Street, Oklahoma City, OK 73105-3204

Application Prepared By: Name: Leidos Engineering, LLC Phone No: (918) 492-1600

Processing Agent: Oklahoma Department of Transportation

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS

CF000050 REPORTING OF BID RIGGING

NOTICE TO ALL BIDDERS

To report bid rigging activities call:

1-800-424-9071

The U.S. Department of Transportation (DOT) operates the above toll-free "hotline" Monday Through Friday, 8:00 a.m. to 5:00 p.m., eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS

CF000101 TITLE VI - NON-DISCRIMINATION CLAUSE

07/12/10

During the performance of this Agreement, the Contractor, for itself, its assignees and successors in interest, agrees as follows:

1. Compliance with Regulations:
   The Contractor shall comply with the regulations relative to nondiscrimination in federally-assisted programs of the Department of Transportation, 49 CFR, Part 21, as they may be amended from time to time (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

2. Nondiscrimination:
   The Contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, sex, age, national origin, disability/handicap, or income status, in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor shall not participate, either directly or indirectly, in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

3. Solicitations for Subcontracts, Including Procurement of Materials and Equipment:
   In all solicitations, either by competitive bidding or negotiation, made by the Contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Contractor of the Contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, sex, age, national origin, disability/handicap, or income status.

4. Information and Reports:
   The Contractor shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information and its facilities as may be determined by the Oklahoma Department of Transportation or the Federal Highway Administration to be pertinent to ascertain compliance with such Regulations or directives. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the Oklahoma Department of Transportation, or the Federal Highway Administration, as appropriate, and shall set forth what efforts it has made to obtain the information.

5. Sanctions for Noncompliance:
   In the event of the Contractor's noncompliance with the nondiscrimination provision of this contract, the Oklahoma Department of Transportation shall impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including but not limited to:

   a. Withholding of payments to the Contractor under the contract until the Contractor complies and/or

   b. Cancellation, termination, or suspension of the contract in whole or in part.

6. Incorporation of Provisions:
The Contractor shall include the provisions of paragraphs 1 through 6 in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The Contractor shall take such action with respect to any subcontract or procurement as the Oklahoma Department of Transportation or the Federal Highway Administration may direct as a means of enforcing such provisions, including sanctions for noncompliance provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation by a subcontractor or supplier as a result of such direction, the Contractor may request the Oklahoma Department of Transportation to enter into such litigation to protect the interests of the State; and, in addition, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS

CF000200 RESIDENCE REQUIREMENTS FOR LABOR ON FEDERAL AID PROJECTS

9-7-76
This is a Federal Aid Project and
the provisions of 40 O.S.
Supplemental 1959 Sect. 193 and 194
relative to residence requirements
are not applicable to the
contractor's employees.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS

CF000501 CERTIFICATION FOR FEDERAL-AID CONTRACTS

02-07-90

The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such sub-recipients shall certify and disclose accordingly.

DATE: August 22, 2012

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS
CF000502 REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION

FHWA-1273--Revised May 1, 2012

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or

request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.
Note: The U.S. Department of Labor has exclusive authority to determine

compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who

are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is

expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability.
The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as

permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable

minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply

to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage

determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit

as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially

responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH?347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under SS 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under Sect. 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than

permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio

permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee

program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for

debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked

in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from

the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after

the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors,

suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuantto provisions of the Federal-aid Roads Act approved July 1,1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of

Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more - as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification - First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any

covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly

enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/ proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered

into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate

in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal

agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE
FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR
APPALACHIAN LOCAL ACCESS ROAD CONTRACTS
This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:
a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5.The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

January 6, 2016

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS
CF000503 REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION

Addendum to FHWA-1273--Revised May 1, 2012

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

These requirements apply to materials or equipment secured by the Contractor for a specific Federal-aid highway project. In general, the requirements are not applicable to materials and equipment that come into Contractor or supplier inventories independent of a Federal-aid contract.

XII. Cargo Preference Act (CPA) Requirements

Federal Grant, Guaranty, Loan and Advance of Funds Agreements.

In order to insure a fair and reasonable participation by privately owned United States-flag commercial vessels in transporting cargoes which are subject to the Cargo Preference Act of 1954 and which are generated by U.S. Government Grant, Guaranty, Loan and/or Advance of Funds Programs, the head of each affected Department or Agency shall require appropriate clauses to be inserted in those Grant, Guaranty, Loan and/or Advance of Funds Agreements and all third party Contracts executed between the borrower/grantee and other parties, where the possibility exists for ocean transportation of items procured, contracted for or otherwise obtained by or on behalf of the grantee, borrower, or any of their contractors or subcontractors. The clauses required by this part shall provide that at least fifty percent (50%) of the freight revenue and tonnage of cargo generated by the U.S. Government Grant, Guaranty, Loan or Advance of Funds be transported on privately owned United States-flag commercial vessels. These clauses shall also require that all parties provide to the Maritime Administration the necessary shipment information as set forth in § 381.3. A copy of the appropriate clauses required by this part shall be submitted by each affected Agency or Department to the Secretary, Maritime Administration, for approval no later than thirty (30) days after the effective date of this part. The following are suggested acceptable clauses with respect to the use of United States-flag vessels to be incorporated in the Grant, Guaranty, Loan and/or Advance of Funds Agreements as well as contracts and subcontracts resulting therefrom:

(a) Agreement Clauses. Use of United States-flag vessels:

(1) Pursuant to Pub. L. 664 (43 U.S.C. 1241(b)) at least fifty percent (50%) of any equipment, materials or commodities procured, contracted for or otherwise obtained with funds granted, guaranteed, loaned, or advanced by the U.S. Government under this agreement, and which may be transported by ocean vessel, shall be transported on privately owned United States-flag commercial vessels, if available.

(2) Within twenty (20) days following the date of loading for shipments originating within the United States or within thirty (30) working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (a)(1) of this

section shall be furnished to both the Contracting Officer (through the Prime Contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(b) Contractor and Subcontractor Clauses. Use of United States-flag vessels: The Contractor agrees-

(1) To utilize privately owned United States-flag commercial vessels to ship at least fifty percent (50%) of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

(2) To furnish within twenty (20) days following the date of loading for shipments originating within the United States or within thirty (30) working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the Prime Contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this Contract.

(Reorganization Plans No. 21 of 1950 (64 Stat. 1273) and No. 7 of 1961 (75 Stat. 840) as amended by Pub. L. 91-469 (84 Stat. 1036) and Department of Commerce Organization Order 10-8 (38 FR 19707, July 23, 1973)) [42 FR 57126, Nov. 1, 1977]

DATE: January 02, 2013

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS

CF000800 NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION
(Executive Order 11246) 10-27-97
Rev. 11-30-99

The enforcement authority for Executive Order 11246 is 'THE OFFICE OF FEDERAL CONTRACT COMPLIANCE':
U.S. Department of Labor/Office of Federal Contract Compliance
525 S. Griffin St., Room 512
Dallas, TX 75202
Phone: (972) 850-2650

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows: The covered area is in the county or counties as indicated in the description on the proposal.

Timetables	Goals for minority participation for each trade by county and percentage	Statewide Goals for female participation
Until Further Notice	17.2 - Bryan	6.9
	11.0 - Beaver, Cimarron & Texas	
	14.8 - Comanche	
	10.8 - Cotton, Greer, Harmon, Jackson, Jefferson, Kiowa, Stephens & Tillman	
	10.2 - Canadian, Cleveland, McClain Oklahoma, & Pottawatomie	
	9.0 - Alfalfa, Atoka, Beckham, Blaine, Caddo, Carter, Coal, Custer, Dewey, Ellis, Garfield, Garvin, Grady, Grant, Harper, Hughes, Johnston, Kingfisher, Lincoln, Logan, Love, Major, Marshall, Murray, Okfuskee, Pontotoc, Roger Mills, Seminole, Washita, Woods, Woodward	
	10.2 - Creek, Mayes, Osage, Rogers, Tulsa & Wagoner	
	10.0 - Cherokee, Kay, McIntosh, Muskogee, Noble, Nowata, Okmulgee, Pawnee, Payne, & Washington	
	3.3 - Adair & Delaware	
	5.6 - LeFlore & Sequoyah	
	6.6 - Choctaw, Haskell, Latimer, McCurtain, Pittsburg & Pushmataha	
	2.3 - Craig & Ottawa	

(Executive Order 11246) 10-27-97
Rev. 11-30-99

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 days of award of any construction subcontract in excess of $10,000. at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS

CF000900 STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
11-20-80

CONSTRUCTION CONTRACT SPECIFICATIONS *
EXECUTIVE ORDER 11246

1. As used in these specifications:
a. "Covered areal! means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U. S. Treasury Department Form 941;

d. "Minority" includes: (I) Black (all persons having origins in any of the black African racial groups not of Hispanic origin); (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race); (iii) Asian or Pacific Islander (all persons having origins in any of the original peoples of Far East, Southeast Asia, The Indian Subcontinent, or the Pacific Islands); (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR-4.5) in a Hometown Plan approved by the U. S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action

standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U. S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and

female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations responses. c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken. d . Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations. e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above. f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations: by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed. g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents. General Foreman, etc. prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter. h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business. I. Direct its recruitment efforts, both oral and

written, to minority female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process. j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce. k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3 1. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities. m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these Specifications are being carried out. n. Insure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes. o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations. p. Conduct a review, at least annually, if all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling anyone or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligations to comply, however, is the Contractor's and failure of such a group to fulfill an

obligation shall not be a defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women has been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records 'shall at least include for each employee, the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be

11-20-80

required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of

local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program). 16. In addition to the reporting requirements set forth elsewhere in this contract, the Contractor and subcontractors holding subcontracts not including material suppliers, of $10,000 or more, shall submit for every month of July during which work is performed employment data as contained under Form PR-1391 (Appendix C to 23 CFR Part 230), and in accordance with the instructions included thereon.

* THESE STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246) SHALL BE INCLUDED IN, AND SHALL BE A PART OF, ALL SOLICITATIONS FOR OFFERS AND BIDS ON ALL FEDERAL AND FEDERALLY ASSISTED CONSTRUCTION CONTRACTS OR SUBCONTRACTS IN EXCESS OF $10,000. EXECUTION OF THE CONTRACT BY THE SUCCESSFUL BIDDER AND ANY SUBSEQUENT SUBCONTRACTS WILL BE CONSIDERED THE CONTRACTOR'S AND SUBCONTRACTOR'S COMMITMENT TO THE EEO PROVISIONS CONTAINED IN THESE STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246).

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
ON-THE JOB TRAINING PROGRAM

1. Purpose. The purpose of the On-The-Job Training (OJT) Program is to provide training for minority, female, and socially and economically disadvantaged individuals, in order that they may develop marketable skills and gain journeyman status in the skilled classifications in which they are being trained.

A copy of the OJT Training Program may be obtained from the Oklahoma Department of Transportation Civil Rights Division, or the Association of Oklahoma General Contractors (AOGC). It is the Contractor's responsibility to familiarize themselves with the OJT Program requirements to ensure compliance with the program when assigned an annual goal.

2. Description. The training of minorities, women, and socially and economically disadvantaged individuals toward journeymen status is a primary objective of this OJT Program. Accordingly, the Contractor shall make every effort to enroll eligible Trainees to the extent that such persons are available within a reasonable area of recruitment. The Contractor is responsible for demonstrating the steps taken in pursuance thereof prior to a determination of compliance with this Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether the applicant is a member of a minority group or not. The prospective Trainee must express interest in entering the OJT Program, as well as exhibit sufficient commitment to completing the training.

3. Trainee Assignment. Training assignments are determined based on a three year average of the Contract volume of State and Federally funded work awarded to a Contractor by the Oklahoma Department of Transportation during the three previous state fiscal years (July 1st to June 30th). The Oklahoma Department of Transportation Civil Rights Division will notify Contractors meeting the selection criteria of their annual training goal assignment prior to January 1st.

ANNUAL GOAL BASED ON THREE (3) YEAR AVERAGE CONTRACT (STATE & FEDERALLY FUNDED) VALUE WITH THE DEPARTMENT

Contract Amount	Minimum Trainees Required Annually
> $50,000,000	3
$30,000,000 to $50,000,000	2
$15,000,000 to $30,000,000	1

No employee of the Contractor shall be employed as a Trainee in any classification in which they have successfully completed a training course leading to journeyman status, or in which they have been employed as a journeyman. The Contractor should satisfy this requirement by including appropriate questions in the employee application, or by other suitable means. Regardless of the method used, the Contractor's records should document the findings in each case.

4. Program Requirements. Fulfill all of the requirements of the OJT Program including the maintenance of records and submittal of monthly reports documenting program performance. Trainees shall be paid at least sixty percent (60%) of the appropriate minimum journeyman's rate specified in the Contract for the first half of the training period, seventy-five percent (75%) for the third quarter, and ninety percent (90%) for the last quarter. Contractors will be reimbursed for each training hour in accordance with the OJT Program Manual.

Furnish the Trainee with a copy of the program that will be followed during the training. Maintain Trainee performance records, and furnish periodic reports which document the Trainee's performance in accordance with the OJT Program Manual. Upon completion of the training, provide each Trainee with a certification showing the type and length of training completed.

5. Compliance. Fulfillment of contractual responsibilities is achieved by having provided acceptable training to the number of Trainees required by the annual goal assignment within the calendar year (January 1st to December 31st).

When the annual training goal cannot be achieved with female or minority Trainees, the Contractor must produce adequate documentation of a Good Faith Effort to the Oklahoma Department of Transportation Civil Rights Division. Good faith efforts are those efforts designed to achieve equal opportunity through positive, aggressive, and continuous resulted measures (23 CFR 230.409(g)(4)). Good faith efforts should be taken as Trainee hiring opportunities arise.

Noncompliance with this Special Provision or the OJT Program may be cause for corrective measures in accordance with the ODOT Standard Specifications Subsection 102.04, "Refusal of Proposals," and Subsection 108.10, "Default of Contract."

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS

CF001700 CONTRACTORS AFFIDAVIT
9-7-76
Rev. 01/88
09/89

Section 112(c) of Title 23 USC requires as a condition precedent to approval, by the Federal Highway Administration, of the contract for this work that there be filed a sworn affidavit or as unsworn statement subject to Federal perjury laws executed by, or on behalf of, the person, firm, association, or corporation to whom such contract is to be awarded, certifying that such person, firm, association, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract.

The sworn affidavit shall be in the form provided and executed by the bidder before a person who is authorized by the laws of this state to administer oaths. The original of such affidavit shall be filed with the Oklahoma Department of Transportation prior to award of the contract. The unsworn statement shall be in the form provided and subject to Federal perjury statutes. The original of such statement shall be filed with the Oklahoma Department of Transportation prior to award of the contract.

TO COMPLY WITH ABOVE REFERENCED SECTION 112(c) OF TITLE 23 USC -

BIDDERS SHALL EXECUTE THE BIDDERS AFFIDAVIT OR UNSWORN STATEMENT

SUBJECT TO FEDERAL PERJURY LAWS INCLUDED IN THIS PROPOSAL.

DATE: February 25, 2015

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS

NEWCX00210B * DISADVANTAGED BUSINESS ENTERPRISES PROGRAMS
CX00210B
11-30-99

Rev. 03-31-14
POLICY STATEMENT

The Oklahoma Department of Transportation is committed to implementing the Disadvantaged Business Enterprise Program (DBE) as mandated in 49 CFR Part 26. The stated objectives of the program are:

* To ensure nondiscrimination in the award and administration of U.S. DOT assisted contracts;

* To create a level playing field on which DBEs can compete fairly for U.S. DOT assisted contracts;

* To ensure that the program is narrowly tailored in accordance with the applicable law;

* To ensure that only firms that fully meet the eligibility standards are permitted to participate as DBEs;

* To help remove barriers to the participation in U.S. DOT assisted contracts;

* To assist in the development of DBE firms so that they may compete successfully in the marketplace outside of the DBE program.

Failure of the contractor, subcontractor, material supplier or service contractor to carry out the requirements set forth shall constitute a breach of contract, and after notification by the Department, may result in termination of the contract by the State or such action as the State deems appropriate.

BIDDER'S ACTION

When ODOT has established a Disadvantaged Business Enterprise (DBE) contract goal, ODOT will award a U.S. DOT assisted contract only to a bidder who makes good faith efforts to meet the goal.

All bidders shall, with the submissions of their bid, show their intent to meet or exceed the DBE goal established for the project, or propose an adjusted goal accompanied by their submission of good faith efforts. Failure to make the written assurance which includes the names of the DBEs used, the work they will perform, and the price for the work, or failure to demonstrate good faith efforts acceptable to the Department to meet or exceed the DBE goal shall render a bid non responsive.

If a bidder cannot meet the established DBE goal, the bidder shall document and submit with their bid proposal, justification stating why he or she could not meet the established DBE goal and demonstrate its good faith efforts. To demonstrate good faith efforts to meet the DBE goal, the bidder shall document the steps taken to obtain DBE participation. This means that the bidder must show that it took all necessary and reasonable steps to achieve a DBE goal which, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. ODOT will review and determine that the information is complete and accurate and adequately documents the bidder's good faith efforts before committing to the award of the contract to the bidder. ODOT will make a fair and reasonable judgment whether the bidder that did not meet the goal made adequate good faith efforts by considering the quality, quantity, and intensity of the different kinds of efforts that the bidder made. The efforts employed by the bidder should be those that one could reasonably expect a bidder to take if the bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract goal. Mere pro forma efforts are not good faith efforts.

If the bidder to whom ODOT proposes to award the contract is able to demonstrate good faith efforts, ODOT may reduce the contractual DBE goal to the bidder's proposed adjusted goal. Acceptance by ODOT of the bidder's proposed adjusted goal does not release the bidder from its contractual obligation to continue to make efforts throughout the duration of the project to utilize DBEs on the project.

If ODOT determines that the bidder to whom ODOT proposes to award the U.S. DOT assisted contract fails to meet the requirements stated above, the bidder will be provided an opportunity for administrative reconsideration. The bidder will be notified by fax within two working days following the bid opening.

As part of this reconsideration, the bidder will have the opportunity to provide written documentation or argument concerning whether it met the goal or made adequate good faith efforts to do so. The bidder will have two working days within which to present their case. The decision on reconsideration will be made by an official who did not take part in the original determination that the bidder failed to meet the goal or make adequate good faith efforts to do so. The determination will be made by the General Counsel or his designee. The General Counsel or his designee will provide a decision prior to the award of the U.S. DOT assisted contract or the award will be delayed.

The bidder will have the opportunity to meet in person with the reconsideration official to discuss the issue of whether it met the goal or made adequate good faith efforts to do so.

A written decision on reconsideration will be sent to the bidder, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so.

The result of the reconsideration is not administratively appealable to the U.S. Department of Transportation.

All bidders shall submit with their bid, completed, signed, and notarized pages 15 of 16 and 16 of 16 of the Special Provision. All bidders shall also complete and submit the DBE pages of the Expedite System(electronic bidding). All listed DBE firms must be currently certified by ODOT as eligible to participate in the DBE program. Failure to submit the forms will render the bid non responsive. In the event of a conflict between the Expedite DBE submission and pages 15 of 16 and 16 of 16, the written submissions on pages 15 of 16 and 16 of 16 will control.

The DBEs submitted on this form shall be considered binding and changes of committed DBEs may only be made after the contract is fully executed, and may only be changed through the procedures established in the DBE Program Manual, VII Contract Performance, Substitution/Replacement of DBEs.

The steps taken by the bidder to obtain DBE participation shall be documented and shall include, but is not limited to the good faith efforts found in this Special Provision.

It is the contractor's responsibility to submit the information necessary for ODOT to ascertain compliance with the good faith efforts requirement. Extra cost involved in finding and utilizing DBEs will not be accepted as an adequate reason for the bidder's failure to meet the project DBE goal as long as such costs are reasonable.

The bidder must submit to the Office Engineer Division written confirmation from the DBE that it is participating in the contract as provided in the prime contractor's commitment. Prime contractors that are DBE certified are also required to submit a written confirmation on the amount of work they will commit to themselves on the contract. This shall be submitted in the form of DBE Confirmation of Intent to Subcontract (DBE 6). The DBE 6 shall be submitted for each DBE listed in the bidder's proposal to meet the advertised goal. The submission of your DBE 6 form must include the names and addresses of DBE firms that will participate in the contract; a full description of the

contract work that each DBE will perform; and the dollar amount of the participation of each DBE firm that is supported by the DBE bid. Each item description, quantity, price, amount, and total must be mathematically reflected and equal the total participation amount identified in the bid documents. This form must be received no later than ODOT's close of business on the Wednesday following the bid opening. Otherwise, the bid shall be considered nonresponsible and shall be rejected by ODOT. The Office Engineer Division and the Civil Rights Division will review each of the apparent low bidders' submittals to determine compliance with 49 CFR Section 26.53(b)(2)(v). In instances where a DBE is participating in a contract as a joint venture, the joint venture must submit the specific units of work which will be performed by the DBE joint venturer. The DBE joint venturer's portion of the contract work will be submitted as the Contractors' commitment and the advertised goal of the contract becomes the contractual obligation.

In instances where a successful bidder's DBE commitment exceeds the actual DBE contract goal, the advertised goal of the contract remains the contractual obligation.

ASSURANCE OF NON DISCRIMINATION

The contractor, sub recipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of U.S. DOT assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Oklahoma Department of Transportation deems appropriate.

GOOD FAITH EFFORTS

The steps taken by the bidder to obtain DBE participation shall be documented and shall include, but are not limited to the following good faith efforts: (APPENDIX ~ TO PART 26)

A. Soliciting through all reasonable and available means(e.g. attendance at pre bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

B. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into

economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.

C. Providing interested DBEs with adequate information about the plans, specifications and requirements of the contract in a timely manner to assist them in responding to a solicitation.

D. (1) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

(2)A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not sufficient justification for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from DBEs to fulfill the DBE contract requirement if the price difference is excessive or unreasonable.

E. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within the industry, membership in specific groups, organizations, or associations and political or social affiliations are not legitimate causes for the rejection or non solicitation of DBE bids in the contractor's efforts to meet the project goal.

F. Making efforts to assist interested DBEs in obtaining bonding,lines of credit or insurance as required by the recipient or contractor.

G. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

H. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

THE CONTRACT

Counting DBE Participation Toward the Goal 26.55

When a DBE participates in a contract, only the value of the work actually performed by the DBE is counted toward the contract goal. The entire amount of that portion of a contract that is performed by the DBE's own forces is counted, including the cost of supplies and materials obtained by the DBE for the work on the contract, including supplies purchased or equipment leased by the DBE(except supplies and equipment the DBE purchases or leases from a prime contractor or its affiliate).

Fees or commissions charged by a DBE firm for providing a bona fide service such as professional, technical, consultant or managerial services, or for providing bonds or insurance specifically required for the performance of a U.S. DOT assisted contract, count toward the goal, provided those fees are determined to be reasonable and not excessive compared with fees customarily allowed for similar services.

When a DBE performs as a participant in a joint venture, the portion of the total dollar value of the contract equal to the clearly defined portion of the work that the DBE performs with its own forces may be counted toward the goal.

Only expenditures to a DBE contractor who performs a commercially useful function may be counted toward a DBE goal.

COMMERCIALLY USEFUL FUNCTION

A DBE performs a commercially useful function (CUF) when it is responsible for the execution of the work of its contract and is carrying out its responsibilities by actually performing, managing and supervising the work involved. The DBE must be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself.

To determine whether a DBE is performing a CUF, ODOT will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid is commensurate with the work it is actually performing and the DBE credit claimed, and other relevant factors.

A DBE does not perform a CUF if its role is limited to that of an extra participant in a transaction through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is acting as a pass-through, ODOT will examine similar transactions, particularly those in which DBEs do not participate.

Use of Joint Checks

A joint check is a two party check between a DBE, a prime contractor, and the regular dealer of materials/supplies. Typically, the prime contractor issues the check as payor to the DBE and supplier jointly to guarantee payment to the supplier for materials/supplies used by the DBE.

A joint check may be used when the following conditions are met:

* The second party (typically the prime contractor) acts solely as a guarantor
* The DBE must release the check to the supplier

* The use of joint checks is a commonly recognized business practice in the industry
* ODOT approves the practice before it is used

The use of joint checks will not be approved if it conflicts with the commercially useful function (CUF) requirements of 49 CFR Section 26.55. All aspects of the CUF requirements must be fulfilled by the DBE to include negotiating the purchase and delivery of the materials required for the performance of the contract.

The use of joint checks should be short term in nature and there shall be no exclusive ongoing relationship between one prime and one DBE in the use of joint checks, which may bring the DBE's independence into question.

The DBE shall notify the Civil Rights Office prior to the use of joint checks, providing full and prompt disclosure of the circumstances and a request for approval. The Civil Rights Office will review the request and determine whether approval will be granted.

Lease of Use of Prime Contractors' Equipment

The DBE may lease equipment necessary to perform work, where the lease does not involve a relationship with a prime contractor or other party that compromises the independence of the DBE firm. 49 CFR Section 26.55(a)(1) does not allow materials purchased or equipment leased from a prime contractor to count toward the DBE goal. If a DBE uses or leases equipment from the prime contractor, the prime contractor cannot claim credit for the value of that equipment lease toward the DBE goal. If a DBE uses a prime contractor's equipment, it shall be for an unusual circumstance of limited duration, and the DBE shall provide the ODOT a written agreement between the DBE and the prime contractor.

TRUCKING

The certified DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.

The DBE must, itself, must own and operate at least one fully licensed, insured, and operational truck used on the contract.

The DBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.

The DBE may lease trucks from another DBE firm including owner-operators certified as DBEs. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

The DBE may also lease trucks from a non-DBE or non-DBE owner operators. The DBE who leases from a non-DBE is entitled to credit for the total value of the transportation services provided by the non-DBE lessee not to exceed the value of transportation services provided by DBE-owned trucks on the contract. Additional participation by non-DBE lessees receives credit only for the fee or commission it receives as a result of the lease arrangement.

The lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

Consistent with normal industry practice, a DBE may lease trucks from a regular equipment dealer whose primary business is sales and leasing of trucks(as opposed to a trucking firm or individual). This cannot be on an ad-hoc basis, but must be long term and the trucks must be under the control of the DBE firm and must be operated in a manner consistent with the CUF requirements of the regulation. The total value of transportation services performed using such trucks can be credited toward meeting a contract goal.

DATE: February 25, 2015

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS

MANUFACTURERS AND MATERIAL SUPPLIERS

If the materials or supplies are obtained from a certified DBE manufacturer, 100 percent of the cost of the materials or supplies will be counted toward the DBE goal. A manufacturer is a firm that operates the or maintains a factory or establishment that produces, on the premises, materials required under the contract as described by the specifications.

If the materials or supplies are purchased from a certified DBE regular dealer, 60 percent of the cost of the materials or supplies will be counted toward the DBE goal. A regular dealer is a firm that owns, operates or maintains a store, warehouse, or other establishment in which the materials, supplies, articles, or equipment described by the specification and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question. A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating or maintaining a place of business as provided for in the above paragraph if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement and not on an ad-hoc or contract-by-contract basis.

In order for a firm to qualify as a DBE supplier of metal and/or concrete pipe, the firm must also fabricate the pipe. Metal or concrete pipe is specialty pipe which is project specific and is inspected during the manufacturing process. This arrangement provides for no warehousing of metal or concrete pipe and essentially requires the manufacturer to be the supplier. Merely ordering pipe from the fabricator, and in turn selling it to contractors is not consistent with normal industry practice. Contractors normally purchase pipe directly from the manufacturer, thus eliminating the middleman. Supplying metal or concrete pipe is viewed as brokering and is considered inconsistent with DBE program requirements.

SUBSTITUTION/REPLACEMENT OF DBEs

Substitution or replacement of a DBE will only be permitted or allowed after award and execution of the U.S. DOT assisted contract.

A prime contractor may not terminate for convenience a DBE listed in their contract (or an approved substitute DBE firm) and then perform the work of the terminated subcontract with its own forces or those of an affiliate, without ODOT's prior written consent and concurrence. In any instance, a prime contractor cannot terminate a DBE firm listed in their

contract without good cause. Good cause includes the following:

* The listed DBE subcontractor fails or refuses to execute a written Contract;

* The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided; however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract to perform its work on the subcontract results from the bad faith or discriminatory action of the prime contractor;

* The listed DBE subcontractor fails or refuses to meet the prime contractor's reasonable nondiscriminatory bond requirements.

* The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;

* The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR parts 180, 215 and 1200 or applicable state law;

* ODOT has determined that the listed DBE subcontractor is not a responsible contractor;
* The listed DBE subcontractor voluntarily withdraws from the project and provides to you in written notice of its withdrawal.

* The listed DBE is ineligible to receive DBE credit for the type of work required;

* A DBE owner dies or becomes disabled with the result that the listed DBE contractor is unable to complete its work on the contract.

* Other documented good cause that ODOT determines compels the termination of the DBE subcontractor. Provided, that good cause does not exist if the Prime contractor seeks to terminate a DBE it relied upon to obtain the contract so that the prime contractor can self-perform the work for which the DBE contractor was engage or so that the prime contractor can substitute another DBE or non-DBE contractor after contract award.

Before sending a request to terminate or substitute a DBE firm, the prime contractor must give notice in writing to the DBE subcontractor, with a copy to ODOT's Civil Rights Division and the Construction Division, of the intent to request to terminate or substitute, and the reason for the request.

The prime contractor must give the DBE five (5) working days to respond to the prime contractor's notice and advise ODOT and the contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why ODOT should not approve the prime contractors

action.

If required in a particular case as a matter of public necessity or safety, ODOT may reduce the response period shorter than five (5) working days.

When a DBE is terminated, or fails to complete the work of the contract for any reason, the prime contractor must make good faith efforts to find another DBE to substitute for the original DBE. These good faith efforts shall be directed at finding another DBE to perform at least the same amount of work(not necessarily the same work) under the contract as the DBE that was terminated, to the extent needed to meet the DBE goal established in the contract.

When the contractor obtains a substitute DBE, the contractor shall provide the Civil Rights Division and the Construction Division with copies of the substitute's subcontract, the Notification Change of DBE Participant(DBE Form 4), and supporting documentation.

If the contractor is unable to replace the DBE with another DBE, then the contractor must provide ODOT with evidence that they have made a good faith effort (Appendix B). The prime contractor must submit to the Civil Rights Division and the Construction Division a Request for Waiver of DBE Requirements(DBE Form 5) along with documentation to support they have made a good faith effort. ODOT may adjust the goal as appropriate.

If a contractor fails to comply with this section, appropriate administrative remedies as listed in the section titled Administrative Remedies may be taken.

PROMPT PAYMENTS

To ensure that all prime contractors' obligations under U.S. DOT contracts are met, the prime contractor shall pay all subcontractors for satisfactory performance of their contracts no later than fifteen calendar days after receipt of each progressive payment from ODOT. The prime contractor must further make prompt return of retainage held to the subcontractor or DBE within fifteen days after the subcontractor's work is satisfactorily completed, whether the prime contractor's work is complete or not. The term "satisfactorily completed" is defined as when; 1)ODOT finds the work completed in accordance with the Plans and Specifications, 2)any required paperwork, including material certification, payrolls, etc., have been received and approved by ODOT and 3)the Department has determined the final quantities on the subcontractor's portion of the work. Failure to comply with the prompt payment and return of retainage provisions of the contract may result in sanctions under the contract, as listed in Administrative Remedies.

Any delay or postponement of payment among the parties may take place only for good cause, with ODOT's written approval. The explanation from the prime contractor must be made in writing to the Resident Engineer. ODOT will provide internal controls to expedite the determination and processing of the final quantities for the satisfactorily completed subcontracted portions of the contract in accordance with Special Provision 109 8(a b)09.

Prime contractors must include in their subcontract agreements notifying subcontractors of their right to prompt payment and return of retainage under 49 CFR part 26.29.

Prime contractors must include in their subcontracts language providing that prime contractors will utilize the alternative dispute resolution program to resolve payment differences. ODOT will provide the parties with a list of approved mediators and the parties must agree on a mediator within five days. ODOT will provide an approved mediator at no charge for disputes between DBEs and prime contractors. If the parties cannot agree to use one of the mediators from the list provided by the Department, then the subcontractor and prime contractor will be responsible for the costs incurred for the services of another mediation service.

GOAL WAIVERS

In the case where a contractor cannot meet the DBE goal of a contract, they should request a waiver of that portion of the DBE goal which will not be met. The request will be subject to the following:

* A request for waiver will be initiated by the prime contractor at the time he or she reasonably knows that despite good faith efforts the contract goal will not be achieved. The request will be in writing and will document all good faith efforts made to meet the goal.

* The request for waiver will be submitted for review to the Resident Engineer and will be submitted on the Request for Waiver of DBE Requirements(DBE Form 5). The Resident Engineer will forward the request to the Civil Rights Division and the Construction Division. DBE goal waivers will be approved or denied by the Civil Rights Division - External Program. ODOT will make the decision on the waiver and inform the Division Office of FHWA on full oversight projects.

* If at the completion of the project the contractor has failed to meet the DBE goal, does not have an approved waiver, and has not demonstrated good faith efforts to meet the goal, the contractor will be assessed liquidated damages for the difference between the contract goal and the actual DBE participation achieved. The Department shall deduct the liquidated damages from subsequent progressive estimates. In the event

insufficient earnings remain for the deduction of liquidated damages, the Department may claim against the contractor's bond, suspend the contractor under performance suspension, withhold further proposals, or suspend prequalification.

* In those instances when the goal is not met due to a change in quantity which occurs through no fault of the contractor, but due to ODOT, a goal waiver will not be required for the contractor. Instead, a brief explanation from the Residency at the time the DBE Final Payment Form(DBE Form 3) is submitted, along with the statement of overruns and underruns, will suffice as documentation.

Administrative Remedies

The following administrative remedies may be invoked when the federal DBE contractual requirements are not met by a contractor, and if the contractor has failed to provide evidence of a sufficient good faith effort to meet said provisions:

- Suspension of processing progressive estimates
- Refusal to issue proposals
- Refuse to award or approve subcontractors or material suppliers
- Suspension of work on the project
- Suspension of prequalification
- Contractor Performance suspension
- Contractor Debarment
- Removal of DBE Certification

RECORD KEEPING REQUIREMENTS

The prime contractor will keep such records as are necessary to determine compliance with the DBE contract obligations. The records kept by the contractor will indicate:

1. The name(s) of DBEs or other subcontractors, the type of work being performed, and payment for work, services and procurement.

2. Documentation of correspondence, verbal contracts, telephone calls, etc., to obtain services of DBEs on the project.

3. The prime contractor shall maintain a copy of the DBE trucking firm's list of trucks to be used on that project. This shall be provided to the prime by the DBE prior to the DBE beginning the work of their hauling agreement. This list will be sent along with the actual hauling agreement to the Construction Division for approval, and the prime

contractor will also furnish it to the Resident Engineer for monitoring activities.

Upon request, the prime contractor shall submit all subcontracts, purchase orders, contracts, agreements, and financial transactions, including canceled checks, executed with DBEs with the reference to records referred to in this provision, in such form, manner, content prescribed by ODOT.

Once the project begins, prime contractors will be required to submit Monthly Payment Log Forms (DBE Forms 2A or 2B) to the Resident Engineer each month for the duration of the project. The DBE Form 2A, completed by non-DBE prime contractors, will record payments made to all DBE firms providing materials or services to the project, whether listed in the Contract to meet a project goal or not. The Form 2B, completed by DBE prime contractors, will record payment made to all non-DBE subcontractors. Listed on the forms should be all payments made, including final payment and return of retainage. These forms must be received by the Resident Engineer no later than the 15th of the following month.

For contracts with a specified project DBE goal, the contractor shall submit to the Resident Engineer a DBE Final Payment Report(DBE Form 3A), which replaces the Summary Form 1. The contractor should list all DBEs as in the contract and summarize total amounts paid to DBEs and the project goal amount for each DBE. In instances where the contract is performed as a joint venture and one of the members of the joint venture is a DBE, the joint venture should summarize the total amounts paid to the DBE joint venturer for work performed. If the contractual goal is not met, the goal waiver procedures set forth in Section VII, Contract Performance, Goal Waivers, will apply.

DISPUTE RESOLUTION PROGRAM

Any dispute or disagreement which may arise between a DBE and a prime contractor related to that DBE's participation in or exclusion from an ODOT project, or any adverse action of non-action taken by a contractor with regards to a DBE may be subject to the ODOT DBE Dispute Resolution Program. The contractor and the DBE shall participate in good faith to resolve the dispute or disagreement.

DATE: February 25, 2015

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS

SUPPLEMENT TO PROPOSAL
FOR PROPOSED
DISADVANTAGED BUSINESS ENTERPRISE

THIS FORM SHALL BE COMPLETED BY BIDDER AS PART OF THIS PROPOSAL

As provided in this Special Provision, "DISADVANTAGED BUSINESS ENTERPRISES PROGRAMS" the undersigned bidder will use the Department certified DBE service/suppliers/subcontractors listed below to meet the percentage goals of the total contract amount for this project:

CONSULTANTS, SUBCONTRACTORS, SERVICE, REGULAR DEALERS
(MATERIAL SUPPLIERS), & FABRICATORS

NAME	DESCRIPTION OF WORK	AGREEMENT AMOUNT(1)

NOTE: ONLY THOSE DBEs LISTED ON THE CERTIFIED LIST IN THEIR AREA(S) OF EXPERTISE CAN BE USED TO FULFILL DBE GOAL REQUIREMENTS.

SUBTOTAL (1) _____

DATE: February 25, 2015

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS

REGULAR DEALERS (MATERIAL SUPPLIERS)

NAME	DESCRIPTION OF MATERIAL	60% OF AGREEMENT(2)

NOTE: BROKERAGE, PACKAGERS, AND PASS THROUGHS DO NOT QUALIFY AS DBE PARTICIPATION. MATERIAL SUPPLIERS AND OWNER/OPERATORS DO NOT QUALIFY AS SUBCONTRACTORS.

SUBTOTAL (2) _____

TOTAL (1+2) _____

% OF BID _____

_____
COMPANY NAME

BY: _____

TITLE: _____

Subscribed and sworn before me this _____ day of _____ year _____.

Notary Public _____.

My commission expires _____.

SEAL

DATE: February 25, 2015

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS

NEWCX00220A * D. B. E. ASSURANCE
CX00220A

Rev. 03/31/14

All bidders shall, with the submission of their bid, show their intent to meet or exceed the Disadvantaged Business Enterprise(DBE) goal established for the project, or propose an adjusted goal accompanied by their submission of good faith efforts. Failure to make the written assurance which includes the names of the DBE's used, the work they will perform, and the price for the work, or failure to demonstrate good faith efforts acceptable to the Department to meet or exceed the DBE goal shall render a bid non responsive.

In accordance with 49 CFR Part 23, and the applicable Special Provisions the undersigned (check box a. or b.):

( ) a. Assures to meet or exceed the established DBE goal as set forth on pages 15 of 16 and 16 of 16 of Special Provision CX00210B, "Disadvantaged Business Enterprise Programs".
( ) b. Cannot meet the established DBE goal and assures to meet a DBE goal of ___% as set forth on pages 15 of 16 and 16 of 16 of Special Provision CX00210B, "Disadvantaged Business Enterprise Programs". A letter, along with evidence, is submitted with the bid indicating the good faith efforts to meet the established DBE goal and denoting therein how the new DBE goal is achieved.

All bidders shall submit with their bid, completed, signed, and notarized pages 15 of 16 and 16 of 16 of Special Provisions CX00210B, "Disadvantaged Business Enterprise Programs". All listed DBE firms must currently be certified by ODOT as eligible to participate in the DBE Program. They also must be listed only in the categories of work as shown in the DBE Directory attached to the back of that month's ODOT Short Form Notice. Failure to submit the completed, signed and notarized form at the time of the bid submission will render the bid non responsive.

The DBEs submitted on this form shall be considered binding and may only be exchanged through the procedures established in the DBE Program Policy Manual.

_____
Organization

By: _____ Title: _____

Subscribed and sworn to me this ___ day of _____, _____.

Notary Public _____

My Commission Expires: _____

APPENDIX E 3

GOOD FAITH EFFORTS

To demonstrate good faith efforts to meet the DBE goal, the bidder shall document the steps taken to obtain DBE participation.

Good Faith Efforts should include, but not be limited to:

a. Attending any pre bid meetings at which DBEs could be informed of contracting and subcontracting opportunities:

b. Advertising in general circulation, trade association, and minority focus media concerning the subcontracting opportunities:

c. Providing written notice to a reasonable number of certified DBEs, who have capabilities and expertise pertinent to the work of the required subcontract, that their interest in the contract is being solicited. This notice shall be in sufficient time to allow the DBEs to respond to the written solicitation:

d. Following up initial solicitations of interest by contacting DBEs to determine with certainty if the DBEs are interested:

e. Selecting portions of the work to be performed by DBEs in order to increase the likelihood of the DBE goals being achieved. This may include, where appropriate, breaking down contracts into economically feasible units to facilitate DBE participation;

f. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract;

g. Negotiating in good faith with interested DBEs. The evidence of such negotiations should include the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specification for the work selected for subcontracting; and a statement as to why additional agreements could not be reached for DBEs to perform the work;

h. Not rejecting DBEs as unqualified without sound reasons based on a thorough investigation of their capabilities;

i. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.

j. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials or related assistance or services; and

k. Effectively using the services of available minority community organizations; minority contractors' groups; local, state and federal minority business assistance offices; and other organizations as allowed on a case by case basis to provide assistance in the recruitment and placement of DBEs.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
CONTRACT DISPUTE RESOLUTION PROCEDURE

Rev. 09-27-12

This Special Provision supplements and where in conflict supersedes the provisions of Sections 104.06, 105.18, 108.07, 109.04 and 109.10 of the 2009 Standard Specifications for Highway Construction, English and Metric, as applicable. Units of measurement are provided in the subsections in both English and Metric equivalents. The units applicable for this project will be those specified in the project plans.

CONTRACT DISPUTE RESOLUTION PROCEDURE

SECTION 1.

(a) Contractors and Resident Engineers should use all reasonable efforts to reach accord as to changes and perceived changes in the nature and quantity of work to be performed. However, if the Contractor and the Resident Engineer cannot reach an immediate agreement which can be supported by a supplemental agreement under the contract or a change in plans, it will be the responsibility of the Contractor to initiate a claim. Claims must be initiated by providing oral notice of intent to file a claim followed, with written confirmation of the notice within seven(7) calendar days as provided in the Standard Specifications Section 104.06. The Contractor must provide written notice of intent to file a claim to the Resident Engineer identifying work which the Contractor believes is not covered by the contract before starting on the disputed work. If the Contractor believes that work in progress may, due to changed conditions, have become subject to a claim, the Contractor must submit his written notice of intent to file a claim before continuing with the affected work. The submission of a notice of intent to file a claim by a contractor in accordance with the Standard Specification Section 104.06 is a mandatory prerequisite for the consideration by the Department of any claim submitted under the terms of this contract. Failure to provide the required notice of intent to file a claim shall constitute a waiver of the claim. It is a condition precedent to any recovery on a claim under this Contract, that the Contractor must provide a written notice of intent to file a claim to the Resident Engineer pursuant to this Section 1.

(b) The claim must be submitted in the form required by Section 105.18 within ninety (90) calendar days of completion of the disputed or affected work. Failure to submit the claim within ninety (90) calendar

days will preclude recovery of extra compensation or award of additional time for the disputed or affected work.

(c) The claim will be complete and will contain all of the information and the certification required by Section 105.18 when submitted. Requests for additional compensation will be documented as required by Section 109.04. Only those items listed in Section 109.04 will be considered as compensable for disputed or affected work. Requests for extension of contract time for completion of disputed or affected work will be considered in accordance with Section 108.07. Requests for extension of contract time must be supported by a critical path method (CPM) schedules prepared in accordance with the Standard Specification Section 108.03(b) reflecting both the planned construction schedule and the actual sequence of the construction. Compensation for delays caused by disputed or affected work will be paid only for those items listed in Section 109.10.

(d) The Resident Engineer will review and respond to the claim pursuant to the provisions of Section 105.18(D). Time for claims review by the Resident Engineer as specified in Section 105.18 will begin upon receipt of the claim by the Resident Engineer and determination by the Resident Engineer that the claim is complete. A claim is complete when the claim contains all information specified by Section 105.18 and such additional supporting information or documents as the Resident Engineer may deem necessary for proper evaluation of a specific claim. If the Resident Engineer requires additional information or documentation, the Contractor shall have fifteen (15) calendar days from the date of the Resident Engineer's request to provide the required information or documentation. Failure to provide requested information or documentation within the specific time will preclude recovery of extra compensation or award of additional time for the disputed or affected work. It is specifically agreed by the parties herein that, as a condition precedent to appeal the denial of a Contractor's claim to the Director of Operations, the Resident Engineer must deny the Contractor's claim in whole or in part pursuant to, and in compliance with, the provisions of this Section 1.

SECTION 2.

(a) In the event that a Contractor's claim is denied in whole or in part by the Resident Engineer, the Contractor may appeal this denial to the Director of Operations by:

1. Forwarding a copy of his claim in person or by certified mail with all supporting documents, the written response of the Resident Engineer if any, or a statement by the Contractor that no written response was issued by the Resident Engineer pursuant to Section 105.18(D), and any written agreement concerning the claim.

2. Submit a statement setting forth in detail the grounds upon which the Contractor appeals the Resident Engineer's decision.

3. The appeal must be submitted to the Director of Operations within thirty (30)calendar days of the denial of the claim. If the appeal is not submitted within this time frame, the decision of the Resident Engineer shall become final and binding.

4. It is a condition precedent to any recovery on a written appeal of any denial of a Contractor's claim under this Contract, that the Contractor must provide a written appeal to the Director of Operations at the Department of Transportation at 200 NE 21st St., Oklahoma City, OK 73105-3204

(b) Upon receipt of the appeal and all documents set forth in Subsection (a) of this section, the Director of Operations shall review the Contractor's claim and determine if additional documentation, information, or other factual data are required to make a final decision on the Contractor's claim. If additional information is required, the Director of Operations shall, within thirty (30) calendar days, notify the Contractor in writing stating what additional information is required. The Contractor shall thereafter have fifteen (15) calendar days to provide the requested information unless otherwise agreed in writing. Failure to provide the requested information within the time provided shall void any claims dependent upon such additional information and shall result in the decision of the Resident Engineer becoming final and binding as to all matters for which additional information was requested. Within forty-five (45) calendar days of receipt of the requested additional information, or if additional information is not requested within forty-five (45) calendar days of the receipt of the appeal, the Director of Operations may dispose of the claim by change order or supplemental agreement in accordance with Section 104.04 of the Standard Specifications. If no agreement is executed between the Department and the Contractor within that forty-five (45) calendar days, the Director of Operations within five (5) calendar days thereafter shall issue his decision on each item of the Contractor's appeal. The decision shall state, as to each item of the appeal, whether the item is approved in whole or in part, or disapproved. If all or part of an item is disapproved, the Director of Operations shall cite his basis for disapproval. The Director of Operations' decision shall be mailed to the Contractor by certified mail. In the event that the Director of Operations shall fail to issue his decision in the time provided in this section and any extensions agreed to in writing by the Department and the Contractor, the claim shall be deemed denied as to any matter not previously agreed to in writing and the Contractor may proceed with his claim as set forth in Section 3 to mediate the claim dispute or the Contractor will forfeit any further

right to pursue the claim in any forum. It is specifically agreed by the parties herein that, as a condition precedent to mediating a Contractors claim, the Contractor's appeal must be denied in whole or in part by the Director of Operations pursuant to, and in compliance with, the provisions of this Section 2.

SECTION 3.

(a) If the Contractor is dissatisfied with the final decision of the Director of Operations, the Contractor must request mediation of his claim in accordance with the most current Edition of the Construction Industry Mediation Rules of the American Arbitration Association, as such rules are herein modified. The request for mediation shall be made within forty-five (45) calendar days of the date of the Director of Operations' final decision or denial of the claim pursuant to the provisions of Section 2.

(b) The Construction Industry Mediation Rules of the American Arbitration Association as applicable to Contractor's claims resulting from contracts with the Department are modified and amended to provide that the mediation shall be held at the Department of Transportation Building in Oklahoma City, Oklahoma, or at any other convenient location agreeable to the mediator and the parties.

(c) Mediation may be continued as required to promote optimum utilization and success with this dispute resolution procedure. If mediation is considered at an impasse by the mediator, the mediator may terminate mediation as provided by the Mediation Rules. It is specifically agreed by the parties herein that, as a condition precedent to filing any legal action in the District Court of the State of Oklahoma, the Contractor's claim must be mediated pursuant to this Section 3, and the mediation must have been terminated under the Mediation Rules without a settlement agreement of the parties.

SECTION 4.

(a) If mediation is unsuccessful and the Contractor desires to further pursue resolution of a disputed claim, the Contractor may seek relief by filing an action in district court within ninety (90) days of the termination of mediation as provided by the laws of the State of Oklahoma. In all such instances, only those claims which have been presented for consideration in accordance with the Standard Specifications and the dispute resolution procedure provided in these special provisions may be the subject of an action in district court. In all such actions, venue shall be the District Court in Oklahoma County. It is specifically agreed by the parties to this contact that, as an exception to 12 O.S. Section 936, actions brought under this contract shall not be subject to the award of costs or attorney's fees to the prevailing party. It is specifically agreed by the parties that,

as a condition precedent to the filing of any Contractor claim, counterclaim, third-party claim or set off, and any recovery thereon in a legal action in district court, such Contractor claim, counterclaim, third-party claim or set off must have been included as part or all of the Contractor's claim presented pursuant to Sections 1, 2, and 3 of this Contract Dispute Resolution Procedure or it will be waived by the Contractor in any further action.

(b) The Department and the Contractor may agree to jointly petition for any action to be referred for binding arbitration by order of the district court. As a part of any joint petition for binding arbitration, the parties shall stipulate that such arbitration shall be conducted under the most current Edition of Construction Industry Arbitration Rules of the American Arbitration Association and that such rules shall be modified and amended as follows:

1. Hearings shall be held at the Department of Transportation building in Oklahoma City, Oklahoma, except as may be otherwise agreed by the arbitrator and the parties.

2. Except as mutually agreed by the parties, the dispute shall be heard and determined by one neutral arbitrator.

3. The arbitrator shall not award interest, costs of the prosecution, or defense of the claim, or attorney fees.

4. The decision or award by the arbitrator when made shall be final and non-appealable except as provided in the Uniform Arbitration Act, 12 OS Section 1851 et seq. Both the Contractor and the Department of Transportation shall be bound by the arbitration award for all purposes, and judgment may be entered upon it in accordance with applicable law.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS

CZ002850 NO.2 PROPOSAL SHEET

Jan., 1962
Rev. October 1986
Rev. January 1988

The undersigned, as bidder, declares under oath that the only person or parties interested in the foregoing proposal as principals are those named herein: that this proposal is made without either, directly or indirectly, entering into any agreement, participating in any collusion or otherwise taking any action in restraint of free competitive bidding in connection therewith; that the undersigned has no financial interest in, or other affiliations in a business way with any other bidder for the contract on this project; that careful examination of the form of contract, instructions to bidders, profiles, grades, specifications, an the plans has been made, and that careful examination of the locations, conditions and classes of materials of the proposed work has been made; and the undersigned agrees to provide all the necessary machinery, tools, apparatus, and other means of construction, and will do all the work and furnish all the materials called for in the contract and specifications in the manner prescribed therein and according to the requirements of the Engineer, at the unit price as above set forth.

It is understood that in case of any discrepancy between the plans, general specifications and the special provisions, the plans will govern over Standard Specifications and Supplemental Specifications; Supplemental Specifications will govern over Standard Specifications; Special Provisions will govern over Standard Specifications, Supplemental Specifications and plans.

The undersigned further proposes to enter into the contract and furnish satisfactory bond to the Department of Transportation within ten days of award to the undersigned; to commence work as directed by the work order from the Construction Engineer; and to complete the entire work within the allotted contract time after work is authorized. The time limit and other limiting conditions herein set forth are hereby accepted and if such requirements are changed by bidder, it is understood that such change will invalidate this bid.

In considering award of contract the Oklahoma Transportation Commission may require a s c hedule of equipment the bidder proposes to use on this project and a schedule showing progress to be made during construction.

Attached is a Certified or Cashier's Check or Bid Bond equal to five percent (5%) of the bid made payable to the Oklahoma Department of Transportation as a guarantee of good faith and which if the contract is awarded to the undersigned, it is agreed will be forfeited as liquidate damages to the State of Oklahoma in the event of failure of the undersigned to enter into contract and furnish satisfactory bond to the Department of Transportation within ten days after award.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS

CZ002975 * BIDDER'S AFFIDAVIT - STATEMENT UNDER PENALTY
BID PROPOSAL AFFIDAVIT
STATEMENT UNDER PENALTY OF PERJURY OF PERJURY
09/29/11

I _____ , as the prospective participant or as the authorized agent of _____ the Firm, Association or Corporation submitting this bid, and with full knowledge and authority, do hereby make and sign this unsworn statement under penalty of perjury:

A. I have read and agree to be bound by the provisions of Special Provisions Text CZ002300, Special Provisions For Contract Dispute Resolution which provides a required succession of actions for contract dispute resolution which is incorporated with this bid and made a part of this bid proposal.

B. I have read and agree to comply with and be bound by the provisions of Special Provisions Text 109-8(a-b)09, Special Provisions For Payments To Subcontractors, to which requires prompt payment for services or materials provided by subcontractors, service companies or material suppliers which is incorporated with this bid and made a part of this bid proposal. (49 CFR 26.29)

C. I understand that the provisions of FHWA Form 1273 are incorporated by reference into this agreement and that all subcontracts which may be entered into for the purposes of performing work required in this bid shall be subject to the provisions of FHWA Form 1273 shall have FHWA Form 1273 incorporated therein.

D. I state under penalty of perjury that neither I nor any owner, officer or employee of the above named firm, association or corporation I represent, have either directly or indirectly entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with the bid submitted herewith.(23 CFR 635.112)

E. I hereby make the following disclosures concerning business relationships:

1. As the prospective participant or as the authorized agent of the above named firm, association or corporation, I am authorized to submit this bid. As the maker of this unsworn statement, I hereby disclose the nature and existence of any partnership, joint venture, or other business relationship presently in effect or which existed within one (1) year prior to the date of this statement with the architect, consulting engineer, or other party to the project, or any of their employees is as follows: _____

2. That any such business relationship presently in effect or which existed within one (1) year prior to the date of this statement between any officer or director of the above named company, and any officer or director of the architectural or engineering firm, or other party to the project is as follows: _____

3. That the names of all persons having any such business relationship and the positions they hold with their respective companies or firms are as follows: _____

(If none of the business relationships herein above mentioned exist, maker of this unsworn statement should so state by entering the word NONE after each statement.(61 O.S. Section 108))

F. For purposes of submission of this competitive bid, I certify:

1. I am the duly authorized agent of the above named firm, the bidder submitting the competitive bid which is attached to this statement, for the purpose of certifying the fact pertaining to the existence of collusion among bidders and between bidders and state officials or employees, as well as facts pertaining to the giving or offering of things of value to government personnel in return for special consideration in the letting of any contract pursuant to the bid to which this statement is attached;

2. I am fully aware of the facts and circumstances surrounding the making of Lhe bid to which this statement is attached and have been personally and directly involved in the proceedings leading to the submission of such bid; and

3. Neither the bidder nor anyone subject to the bidder's direction or control has been a party:

a. to any collusion among bidders in a restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding,

b. to any collusion with any state official or employee as to quantity, quality or price in the prospective contract, or as to any other terms of such prospective contract, nor

c. in any discussions between bidders and any state official concerning exchange of money or other thing of value for special consideration in the letting of a contract.

4. I certify, if awarded the contract, whether competitively bid or not, neither the Contractor nor anyone subject to the Contractor's direction or control has paid, given or donated, or agreed to pay, give or donate to any officer or employee of the State of Oklahoma any money or other thing of value, either directly or indirectly, in procuring the contract to which this statement is attached.(74 O.S. Section 85.22)

G. I certify that neither I nor any owner, officer or other principal of the firm, organization or corporation submitting this bid;

1. Are presently excluded or disqualified;

2. Are presently indicted for or otherwise criminally charged by a governmental entity, (Federal, State or local) with commission of, or have been convicted or subject to civil judgment within the past three (3) years for, any of the following offenses:

a. Commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public or private agreement or transaction;

b. Violation of Federal or State antitrust statutes, including those proscribing price fixing between competitors, allocation of customers between competitors, and bid rigging;

c. Commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, receiving stolen property, making false claims, or obstruction of justice; or

d. Commission of any other offense indicating a lack of business integrity or business honesty that seriously and directly affects my present responsibility;

3. Have had one or more public transactions, (Federal, State or local), terminated within the preceding three (3) years for cause or default.(49 CFR 29.335)

H. I understand that if the project which is subject to this bid proposal is financed in whole or part by federally furnished funds, that if I or the firm, association or corporation I represent or any owner, officer, employee or agent thereof knowingly makes a false statement, representation, report or claim as to the character, quality, quantity or cost of materials used or to be used, the quantity or quality of work performed or to be performed, or make any false statement or representation as to a material fact in any statement, certificate or report, that I, other responsible individual, or the firm, association or corporation I represent, may be subject to prosecution under the laws of the United States. (18 USC Sections 1001, 1020)

_____
Name of Contractor as shown on
Prequalification Application

_____
Date and Place

_____
Signature of Prospective Participant

_____
Printed name of Prospective Participant

_____
The Maker of this Statement's title or
position with Prequalified Contractor

UNSWORN STATEMENT UNDER PENALTY OF PERJURY INFORMATION:

By affixing his/her signature to this unsworn statement, the bidder understands that he/she is under penalty of perjury and is fully bound thereby.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
BAMS/LAS - LETTING AND AWARD SYSTEM
SPECIAL PROVISIONS

STATUS VERIFICATION SYSTEM AFFIDAVIT

STATE OF _____)
) SS:
COUNTY OF_____)

I, _____,
of lawful age, and having been first duly sworn, on oath states:

1. That I am the agent authorized by the bidder to submit the attached bid proposal to the State of Oklahoma. I am fully aware of the facts and circumstances surrounding the making of the bid to which this statement is attached and have been personally and directly involved in the preparation of this bid.

2. That the bidder has registered and fully participates in the Status Verification System, as required by Title 25 O.S. Section 1313(B)(1), to verify the work eligibility status of all new employees of the bidder.

FURTHER AFFIANT SAITH NOT.

_____
AFFIANT

Subscribed and sworn before me this ____ day of _____ , 20 ___.

_____
NOTARY PUBLIC

My Commission Expires: _____
My Commission Number: _____