



COMMONWEALTH OF KENTUCKY  
TRANSPORTATION CABINET  
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Andy Beshear  
GOVERNOR

Jim Gray  
SECRETARY

March 22, 2022

CALL NO. 200  
CONTRACT ID NO. 221310  
ADDENDUM # 3

Subject: Clinton-Russell Counties, NHPP 1271 (122)  
Letting March 24, 2022

- (1) Revised - Material Summary - Pages 92-100(a) of 170
- (2) Revised - Proposal Bid Items - Pages 162-170 of 170
- (3) Added - Drilled Shaft Note - Pages 1-25 of 25
- (4) Revised - Plan Sheet - S1

Proposal revisions are available at <http://transportation.ky.gov/Construction-Procurement/>.

If you have any questions, please contact us at 502-564-3500.

Sincerely,

Rachel Mills,

A handwritten signature in black ink that reads "Rachel Mills".

Rachel Mills, P.E.  
Director  
Division of Construction Procurement

RM:mr  
Enclosures

# MATERIAL SUMMARY

**CONTRACT ID: 221310**

**NHPP 1271 (122)**

**DE02701272210**

US127 CONSTRUCT NEW ROAD BEGINNING 1.14 MILES NORTH OF INTERSECTION OF KY3063 AND US127 EXTENDING NORTH 1.437 MILES TO THE RUSSELL COUNTY LINE GRADE & DRAIN AND PAVEMENT ALTERNATES, A DISTANCE OF 1.44 MILES.

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0005	00003	CRUSHED STONE BASE	17,935.00	TON
0010	00100	ASPHALT SEAL AGGREGATE	142.00	TON
0015	00103	ASPHALT SEAL COAT	17.00	TON
0020	00190	LEVELING & WEDGING PG64-22	18.00	TON
0025	00212	CL2 ASPH BASE 1.00D PG64-22	12,745.00	TON
0030	00301	CL2 ASPH SURF 0.38D PG64-22	3,404.00	TON
0035	00356	ASPHALT MATERIAL FOR TACK	30.00	TON
0040	10203ND	PAVEMENT ADJUSTMENT	1.00	LS
0045	20071EC	JOINT ADHESIVE	13,055.00	LF
0050	24781EC	INTELLIGENT COMPACTION FOR ASPHALT	11,562.00	TON
0055	24891EC	PAVE MOUNT INFRARED TEMP EQUIPMENT	730,530.00	SF
0060	00003	CRUSHED STONE BASE	17,466.00	TON
0065	00100	ASPHALT SEAL AGGREGATE	142.00	TON
0070	00103	ASPHALT SEAL COAT	17.00	TON
0075	00190	LEVELING & WEDGING PG64-22	18.00	TON
0080	00212	CL2 ASPH BASE 1.00D PG64-22	3,617.00	TON
0085	00301	CL2 ASPH SURF 0.38D PG64-22	969.00	TON
0090	00356	ASPHALT MATERIAL FOR TACK	9.00	TON
0095	02078	JPC PAVEMENT-6 IN SHLD	7,966.00	SQYD
0100	02084	JPC PAVEMENT-8 IN	21,550.00	SQYD
0105	10203ND	PAVEMENT ADJUSTMENT	1.00	LS
0110	20071EC	JOINT ADHESIVE	2,559.00	LF
0115	00003	CRUSHED STONE BASE	17,724.00	TON
0120	00100	ASPHALT SEAL AGGREGATE	142.00	TON
0125	00103	ASPHALT SEAL COAT	17.00	TON
0130	00190	LEVELING & WEDGING PG64-22	18.00	TON
0135	00212	CL2 ASPH BASE 1.00D PG64-22	5,096.00	TON
0140	00301	CL2 ASPH SURF 0.38D PG64-22	1,626.00	TON
0145	00356	ASPHALT MATERIAL FOR TACK	12.00	TON
0150	02084	JPC PAVEMENT-8 IN	21,550.00	SQYD
0155	10203ND	PAVEMENT ADJUSTMENT	1.00	LS
0160	20071EC	JOINT ADHESIVE	2,559.00	LF
0165	24781EC	INTELLIGENT COMPACTION FOR ASPHALT	2,136.00	TON
0170	24891EC	PAVE MOUNT INFRARED TEMP EQUIPMENT	152,352.00	SF
0175	00078	CRUSHED AGGREGATE SIZE NO 2	20.00	TON
0180	01000	PERFORATED PIPE-4 IN	1,013.00	LF
0185	01010	NON-PERFORATED PIPE-4 IN	404.00	LF
0190	01020	PERF PIPE HEADWALL TY 1-4 IN	14.00	EACH
0195	01024	PERF PIPE HEADWALL TY 2-4 IN	1.00	EACH
0200	01028	PERF PIPE HEADWALL TY 3-4 IN	4.00	EACH
0205	01032	PERF PIPE HEADWALL TY 4-4 IN	1.00	EACH
0210	01691	FLUME INLET TYPE 2	2.00	EACH
0215	01984	DELINEATOR FOR BARRIER - WHITE	8.00	EACH

# MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0220	01987	DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	84.00	EACH
0225	02014	BARRICADE-TYPE III	8.00	EACH
0230	02159	TEMP DITCH	5,094.00	LF
0235	02160	CLEAN TEMP DITCH	2,547.00	LF
0240	02200	ROADWAY EXCAVATION	1,475,055.00	CUYD
0245	02242	WATER	145.00	MGAL
0250	02262	FENCE-WOVEN WIRE TYPE 1	16,782.00	LF
0255	02360	GUARDRAIL TERMINAL SECTION NO 1	14.00	EACH
0260	02367	GUARDRAIL END TREATMENT TYPE 1	6.00	EACH
0265	02371	GUARDRAIL END TREATMENT TYPE 7	1.00	EACH
0270	02381	REMOVE GUARDRAIL	3,375.00	LF
0275	02391	GUARDRAIL END TREATMENT TYPE 4A	3.00	EACH
0280	02397	TEMP GUARDRAIL	387.50	LF
0285	02429	RIGHT-OF-WAY MONUMENT TYPE 1	55.00	EACH
0290	02432	WITNESS POST	10.00	EACH
0295	02488	CHANNEL LINING CLASS IV	8,365.00	CUYD
0300	02545	CLEARING AND GRUBBING - (CLINTON-89 ACRES)	1.00	LS
0305	02555	CONCRETE-CLASS B	538.20	CUYD
0310	02562	TEMPORARY SIGNS	355.00	SQFT
0315	02585	EDGE KEY	41.40	LF
0320	02604	FABRIC-GEOTEXTILE CLASS 1A	8,850.00	SQYD
0325	02607	FABRIC-GEOTEXTILE CLASS 2 FOR PIPE	5,200.00	SQYD
0330	02650	MAINTAIN & CONTROL TRAFFIC - (CLINTON)	1.00	LS
0335	02651	DIVERSIONS (BY-PASS DETOURS) - (STA 34+50 - STA 39+50 OLD US 127)	1.00	LS
0340	02651	DIVERSIONS (BY-PASS DETOURS) - (STA 58+60 - STA 60+60 OLD US 127)	1.00	LS
0345	02671	PORTABLE CHANGEABLE MESSAGE SIGN	2.00	EACH
0350	02696	SHOULDER RUMBLE STRIPS	10,170.00	LF
0355	02697	EDGELINE RUMBLE STRIPS	4,854.00	LF
0360	02701	TEMP SILT FENCE	5,094.00	LF
0365	02703	SILT TRAP TYPE A	89.00	EACH
0370	02704	SILT TRAP TYPE B	89.00	EACH
0375	02705	SILT TRAP TYPE C	89.00	EACH
0380	02706	CLEAN SILT TRAP TYPE A	89.00	EACH
0385	02707	CLEAN SILT TRAP TYPE B	89.00	EACH
0390	02708	CLEAN SILT TRAP TYPE C	89.00	EACH
0395	02711	SEDIMENTATION BASIN	2,590.00	CUYD
0400	02712	CLEAN SEDIMENTATION BASIN	2,590.00	CUYD
0405	02726	STAKING - (CLINTON)	1.00	LS
0410	03171	CONCRETE BARRIER WALL TYPE 9T	80.00	LF
0415	05950	EROSION CONTROL BLANKET	21,720.00	SQYD
0420	05952	TEMP MULCH	289,600.00	SQYD
0425	05953	TEMP SEEDING AND PROTECTION	217,200.00	SQYD
0430	05963	INITIAL FERTILIZER	8.80	TON
0435	05964	MAINTENANCE FERTILIZER	14.70	TON
0440	05985	SEEDING AND PROTECTION	262,200.00	SQYD
0445	05992	AGRICULTURAL LIMESTONE	176.00	TON
0450	06514	PAVE STRIPING-PERM PAINT-4 IN	750.00	LF
0455	06542	PAVE STRIPING-THERMO-6 IN W	16,138.00	LF
0460	06543	PAVE STRIPING-THERMO-6 IN Y	14,904.00	LF

# MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0465	06547	PAVE STRIPING-THERMO-12 IN Y	22.00	LF
0470	06556	PAVE STRIPING-DUR TY 1-6 IN W	3,838.00	LF
0475	06557	PAVE STRIPING-DUR TY 1-6 IN Y	3,782.00	LF
0480	06568	PAVE MARKING-THERMO STOP BAR-24IN	50.00	LF
0485	06569	PAVE MARKING-THERMO CROSS-HATCH	1,998.00	SQFT
0490	20191ED	OBJECT MARKER TY 3	9.00	EACH
0495	20430ED	SAW CUT	72.00	LF
0500	20458ES403	CENTERLINE RUMBLE STRIPS	5,085.00	LF
0505	21289ED	LONGITUDINAL EDGE KEY	579.00	LF
0510	21802EN	G/R STEEL W BEAM-S FACE (7 FT POST)	6,650.00	LF
0515	23607EC	PAVE MARK THERMO-LANE REDUCTION ARROW	3.00	EACH
0520	24540	R/W MONUMENT TYPE 3	19.00	EACH
0525	24814EC	PIPELINE INSPECTION	2,088.00	LF
0530	25078ED	THRIE BEAM GUARDRAIL TRANSITION TL-3	4.00	EACH
0535	00440	ENTRANCE PIPE-15 IN	40.00	LF
0540	00441	ENTRANCE PIPE-18 IN	63.00	LF
0545	00462	CULVERT PIPE-18 IN	115.00	LF
0550	00466	CULVERT PIPE-30 IN	256.00	LF
0555	00468	CULVERT PIPE-36 IN	389.00	LF
0560	00469	CULVERT PIPE-42 IN	180.00	LF
0565	00470	CULVERT PIPE-48 IN	242.00	LF
0570	00472	CULVERT PIPE-60 IN	610.00	LF
0575	00528	STORM SEWER PIPE-36 IN	244.00	LF
0580	01204	PIPE CULVERT HEADWALL-18 IN	1.00	EACH
0585	01210	PIPE CULVERT HEADWALL-30 IN	2.00	EACH
0590	01212	PIPE CULVERT HEADWALL-36 IN	5.00	EACH
0595	01214	PIPE CULVERT HEADWALL-42 IN	2.00	EACH
0600	01216	PIPE CULVERT HEADWALL-48 IN	2.00	EACH
0605	01220	PIPE CULVERT HEADWALL-60 IN	2.00	EACH
0610	01452	S & F BOX INLET-OUTLET-30 IN	1.00	EACH
0615	01453	S & F BOX INLET-OUTLET-36 IN	3.00	EACH
0620	01490	DROP BOX INLET TYPE 1	3.00	EACH
0625	01493	DROP BOX INLET TYPE 2	4.00	EACH
0630	01580	DROP BOX INLET TYPE 15	1.00	EACH
0635	01644	JUNCTION BOX-30 IN	1.00	EACH
0640	20597EC	DITCH EXCAVATION	280.00	CUYD
0645	24575ES610	HEADWALL - CONC S&P - 18 IN	1.00	EACH
0650	24583EC	HDPE PIPE LINER - -	269.00	LF
0655	02603	FABRIC-GEOTEXTILE CLASS 2	909.00	SQYD
0660	02604	FABRIC-GEOTEXTILE CLASS 1A	4,465.00	SQYD
0665	02998	MASONRY COATING	3,140.00	SQYD
0670	03299	ARMORED EDGE FOR CONCRETE	96.00	LF
0675	08001	STRUCTURE EXCAVATION-COMMON	1,982.00	CUYD
0680	08002	STRUCTURE EXCAV-SOLID ROCK	9,513.00	CUYD
0685	08020	CRUSHED AGGREGATE SLOPE PROT	1,292.00	TON
0690	08033	TEST PILES	138.00	LF
0695	08051	PILES-STEEL HP14X89	3,093.00	LF
0700	08095	PILE POINTS-14 IN	69.00	EACH
0705	08100	CONCRETE-CLASS A	4,160.00	CUYD
0710	08104	CONCRETE-CLASS AA	1,992.00	CUYD

## MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0715	08150	STEEL REINFORCEMENT	740,246.00	LB
0720	08151	STEEL REINFORCEMENT-EPOXY COATED	722,594.00	LB
0725	08160	STRUCTURAL STEEL - (27542)	1.00	LS
0730	08170	SHEAR CONNECTORS - (27542-15,375)	1.00	LS
0735	23859EC	FINGER EXPANSION JOINT	96.00	LF
0740	24596EN	GRANULAR BACKFILL	1,142.00	CUYD
0745	25028ED	RAIL SYSTEM SINGLE SLOPE - 40 IN	2,643.00	LF
0750	02603	FABRIC-GEOTEXTILE CLASS 2	909.00	SQYD
0755	02604	FABRIC-GEOTEXTILE CLASS 1A	4,465.00	SQYD
0760	02998	MASONRY COATING	3,140.00	SQYD
0765	03299	ARMORED EDGE FOR CONCRETE	96.00	LF
0770	08001	STRUCTURE EXCAVATION-COMMON	1,982.00	CUYD
0775	08002	STRUCTURE EXCAV-SOLID ROCK	9,513.00	CUYD
0780	08020	CRUSHED AGGREGATE SLOPE PROT	1,292.00	TON
0785	08033	TEST PILES	138.00	LF
0790	08051	PILES-STEEL HP14X89	3,093.00	LF
0795	08095	PILE POINTS-14 IN	69.00	EACH
0800	08100	CONCRETE-CLASS A	3,188.00	CUYD
0805	08104	CONCRETE-CLASS AA	2,780.00	CUYD
0810	08150	STEEL REINFORCEMENT	937,144.00	LB
0815	08151	STEEL REINFORCEMENT-EPOXY COATED	722,594.00	LB
0820	08160	STRUCTURAL STEEL - (27542)	1.00	LS
0825	08170	SHEAR CONNECTORS - (27542-15,375)	1.00	LS
0830	23859EC	FINGER EXPANSION JOINT	96.00	LF
0835	24596EN	GRANULAR BACKFILL	1,142.00	CUYD
0840	25028ED	RAIL SYSTEM SINGLE SLOPE - 40 IN	2,643.00	LF
0845	06406	SBM ALUM SHEET SIGNS .080 IN	278.00	SQFT
0850	06407	SBM ALUM SHEET SIGNS .125 IN	123.00	SQFT
0855	06410	STEEL POST TYPE 1	779.00	LF
0860	24631EC	BARCODE SIGN INVENTORY	75.00	EACH
0865	02568	MOBILIZATION	1.00	LS
0870	02569	DEMOBILIZATION	1.00	LS
0875	02742	TRAINEE PAYMENT REIMBURSEMENT - GROUP 2, 3, 4 OPERATOR	1,400.00	HOUR
0880	02742	TRAINEE PAYMENT REIMBURSEMENT - GROUP 2, 3, 4, OPERATOR	1,400.00	HOUR

**CONTRACT ID: 221310**

**NHPP 1271 (122)**

**DE10401272210**

US127 CONSTRUCT NEW ROAD BEGINNING AT THE CLINTON COUNTY LINE EXTENDING N 3.859 MI TO THE NORTH BANK OF THE CUMBERLAND RI (SURFACE ONLY-BEGINNING AT THE NORTH BANK OF THE CUMBERLAND RI EXTENDING N 2.184 MI TO THE INTERSECTION OF KY55 AND US127 AT FREEDOM) GRADE

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0885	00003	CRUSHED STONE BASE	86,822.00	TON
0890	00100	ASPHALT SEAL AGGREGATE	626.00	TON
0895	00103	ASPHALT SEAL COAT	75.00	TON
0900	00190	LEVELING & WEDGING PG64-22	136.00	TON

# MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0905	00212	CL2 ASPH BASE 1.00D PG64-22	37,655.00	TON
0910	00214	CL3 ASPH BASE 1.00D PG64-22	15,740.00	TON
0915	00301	CL2 ASPH SURF 0.38D PG64-22	10,961.00	TON
0920	00339	CL3 ASPH SURF 0.38D PG64-22	4,051.00	TON
0925	00356	ASPHALT MATERIAL FOR TACK	128.00	TON
0930	10203ND	PAVEMENT ADJUSTMENT	1.00	LS
0935	20071EC	JOINT ADHESIVE	52,823.00	LF
0940	24781EC	INTELLIGENT COMPACTION FOR ASPHALT	60,772.00	TON
0945	24891EC	PAVE MOUNT INFRARED TEMP EQUIPMENT	3,862,242.00	SF
0950	00003	CRUSHED STONE BASE	82,818.00	TON
0955	00100	ASPHALT SEAL AGGREGATE	626.00	TON
0960	00103	ASPHALT SEAL COAT	75.00	TON
0965	00190	LEVELING & WEDGING PG64-22	136.00	TON
0970	00212	CL2 ASPH BASE 1.00D PG64-22	5,876.00	TON
0975	00301	CL2 ASPH SURF 0.38D PG64-22	1,759.00	TON
0980	00339	CL3 ASPH SURF 0.38D PG64-22	472.00	TON
0985	00356	ASPHALT MATERIAL FOR TACK	15.00	TON
0990	02078	JPC PAVEMENT-6 IN SHLD	44,702.00	SQYD
0995	02084	JPC PAVEMENT-8 IN	110,940.00	SQYD
1000	10203ND	PAVEMENT ADJUSTMENT	1.00	LS
1005	20071EC	JOINT ADHESIVE	6,597.00	LF
1010	00003	CRUSHED STONE BASE	85,570.00	TON
1015	00100	ASPHALT SEAL AGGREGATE	626.00	TON
1020	00103	ASPHALT SEAL COAT	75.00	TON
1025	00190	LEVELING & WEDGING PG64-22	136.00	TON
1030	00212	CL2 ASPH BASE 1.00D PG64-22	13,430.00	TON
1035	00301	CL2 ASPH SURF 0.38D PG64-22	5,437.00	TON
1040	00339	CL3 ASPH SURF 0.38D PG64-22	472.00	TON
1045	00356	ASPHALT MATERIAL FOR TACK	35.00	TON
1050	02084	JPC PAVEMENT-8 IN	110,338.00	SQYD
1055	10203ND	PAVEMENT ADJUSTMENT	1.00	LS
1060	20071EC	JOINT ADHESIVE	6,597.00	LF
1065	24781EC	INTELLIGENT COMPACTION FOR ASPHALT	11,704.00	TON
1070	24891EC	PAVE MOUNT INFRARED TEMP EQUIPMENT	858,510.00	SF
1075	00078	CRUSHED AGGREGATE SIZE NO 2	32.00	TON
1080	01000	PERFORATED PIPE-4 IN	1,363.00	LF
1085	01010	NON-PERFORATED PIPE-4 IN	783.00	LF
1090	01020	PERF PIPE HEADWALL TY 1-4 IN	11.00	EACH
1095	01024	PERF PIPE HEADWALL TY 2-4 IN	1.00	EACH
1100	01028	PERF PIPE HEADWALL TY 3-4 IN	17.00	EACH
1105	01032	PERF PIPE HEADWALL TY 4-4 IN	3.00	EACH
1110	01310	REMOVE PIPE	24.00	LF
1115	01691	FLUME INLET TYPE 2	7.00	EACH
1120	01984	DELINEATOR FOR BARRIER - WHITE	13.00	EACH
1125	01987	DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	245.00	EACH
1130	01987	DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	97.00	EACH
1135	02014	BARRICADE-TYPE III	28.00	EACH
1140	02091	REMOVE PAVEMENT	1,517.00	SQYD
1145	02159	TEMP DITCH	13,407.00	LF
1150	02160	CLEAN TEMP DITCH	6,704.00	LF

# MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
1155	02200	ROADWAY EXCAVATION	3,558,451.00	CUYD
1160	02230	EMBANKMENT IN PLACE	7,981.00	CUYD
1165	02242	WATER	329.00	MGAL
1170	02262	FENCE-WOVEN WIRE TYPE 1	40,843.00	LF
1175	02360	GUARDRAIL TERMINAL SECTION NO 1	22.00	EACH
1180	02367	GUARDRAIL END TREATMENT TYPE 1	13.00	EACH
1185	02367	GUARDRAIL END TREATMENT TYPE 1	12.00	EACH
1190	02369	GUARDRAIL END TREATMENT TYPE 2A	9.00	EACH
1195	02381	REMOVE GUARDRAIL	400.00	LF
1200	02391	GUARDRAIL END TREATMENT TYPE 4A	14.00	EACH
1205	02397	TEMP GUARDRAIL	3,850.00	LF
1210	02429	RIGHT-OF-WAY MONUMENT TYPE 1	144.00	EACH
1215	02432	WITNESS POST	14.00	EACH
1220	02475	PLUG WATER WELL	1.00	EACH
1225	02483	CHANNEL LINING CLASS II	4,779.00	TON
1230	02488	CHANNEL LINING CLASS IV	24,431.00	CUYD
1235	02545	CLEARING AND GRUBBING - (RUSSELL 8-108.00)	1.00	LS
1240	02545	CLEARING AND GRUBBING - (RUSSELL 8-8601.21)	1.00	LS
1245	02555	CONCRETE-CLASS B	612.20	CUYD
1250	02562	TEMPORARY SIGNS	770.00	SQFT
1255	02585	EDGE KEY	596.30	LF
1260	02601	FINAL DRESSING CLASS B	10,533.00	LF
1265	02602	FABRIC-GEOTEXTILE CLASS 1	532.00	SQYD
1270	02603	FABRIC-GEOTEXTILE CLASS 2	12,450.00	SQYD
1275	02604	FABRIC-GEOTEXTILE CLASS 1A	98,550.00	SQYD
1280	02607	FABRIC-GEOTEXTILE CLASS 2 FOR PIPE	13,363.00	SQYD
1285	02610	RETAINING WALL-GABION	1,006.00	CUYD
1290	02650	MAINTAIN & CONTROL TRAFFIC - (RUSSELL 8-108.00)	1.00	LS
1295	02650	MAINTAIN & CONTROL TRAFFIC - (RUSSELL 8-8601.21)	1.00	LS
1300	02671	PORTABLE CHANGEABLE MESSAGE SIGN	3.00	EACH
1305	02692	SETTLEMENT PLATFORM	2.00	EACH
1310	02696	SHOULDER RUMBLE STRIPS	34,570.00	LF
1315	02696	SHOULDER RUMBLE STRIPS	19,863.00	LF
1320	02701	TEMP SILT FENCE	13,407.00	LF
1325	02703	SILT TRAP TYPE A	217.00	EACH
1330	02704	SILT TRAP TYPE B	217.00	EACH
1335	02705	SILT TRAP TYPE C	217.00	EACH
1340	02706	CLEAN SILT TRAP TYPE A	217.00	EACH
1345	02707	CLEAN SILT TRAP TYPE B	217.00	EACH
1350	02708	CLEAN SILT TRAP TYPE C	217.00	EACH
1355	02711	SEDIMENTATION BASIN	9,745.00	CUYD
1360	02712	CLEAN SEDIMENTATION BASIN	9,745.00	CUYD
1365	02726	STAKING - (RUSSELL - 8-8601.21)	1.00	LS
1370	02726	STAKING - (RUSSELL 8-108.00)	1.00	LS
1375	03171	CONCRETE BARRIER WALL TYPE 9T	160.00	LF
1380	03340	STEEL PIPE-2 1/2 IN	63.00	LF
1385	03343	STEEL PIPE-4 IN	63.00	LF
1390	05950	EROSION CONTROL BLANKET	60,680.00	SQYD
1395	05952	TEMP MULCH	699,092.00	SQYD
1400	05953	TEMP SEEDING AND PROTECTION	536,800.00	SQYD

# MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
1405	05963	INITIAL FERTILIZER	21.38	TON
1410	05964	MAINTENANCE FERTILIZER	35.76	TON
1415	05985	SEEDING AND PROTECTION	638,031.00	SQYD
1420	05990	SODDING	1,000.00	SQYD
1425	05992	AGRICULTURAL LIMESTONE	512.50	TON
1430	06514	PAVE STRIPING-PERM PAINT-4 IN	19,140.00	LF
1435	06542	PAVE STRIPING-THERMO-6 IN W	67,786.00	LF
1440	06543	PAVE STRIPING-THERMO-6 IN Y	42,353.00	LF
1445	06556	PAVE STRIPING-DUR TY 1-6 IN W	5,660.00	LF
1450	06557	PAVE STRIPING-DUR TY 1-6 IN Y	3,022.00	LF
1455	06568	PAVE MARKING-THERMO STOP BAR-24IN	245.00	LF
1460	06574	PAVE MARKING-THERMO CURV ARROW	15.00	EACH
1465	06575	PAVE MARKING-THERMO COMB ARROW	2.00	EACH
1470	20191ED	OBJECT MARKER TY 3	39.00	EACH
1475	20430ED	SAW CUT	96.00	LF
1480	20458ES403	CENTERLINE RUMBLE STRIPS	29,213.00	LF
1485	21802EN	G/R STEEL W BEAM-S FACE (7 FT POST)	24,425.00	LF
1490	22664EN	WATER BLASTING EXISTING STRIPE	1,000.00	LF
1495	23274EN11F	TURF REINFORCEMENT MAT 1	213.90	SQYD
1500	23607EC	PAVE MARK THERMO-LANE REDUCTION ARROW	6.00	EACH
1505	23649EC	DRAIN POND	1.00	LS
1510	24540	R/W MONUMENT TYPE 3	27.00	EACH
1515	24814EC	PIPELINE INSPECTION	4,856.00	LF
1520	24843EC	VIBRATING WIRE PIEZOMETER	3.00	EACH
1525	25078ED	THRIE BEAM GUARDRAIL TRANSITION TL-3	16.00	EACH
1530	00440	ENTRANCE PIPE-15 IN	218.00	LF
1535	00441	ENTRANCE PIPE-18 IN	68.00	LF
1540	00443	ENTRANCE PIPE-24 IN	82.00	LF
1545	00464	CULVERT PIPE-24 IN	147.00	LF
1550	00466	CULVERT PIPE-30 IN	583.00	LF
1555	00468	CULVERT PIPE-36 IN	180.00	LF
1560	00469	CULVERT PIPE-42 IN	108.00	LF
1565	00470	CULVERT PIPE-48 IN	2,166.00	LF
1570	00471	CULVERT PIPE-54 IN	330.00	LF
1575	00472	CULVERT PIPE-60 IN	752.00	LF
1580	00473	CULVERT PIPE-66 IN	108.00	LF
1585	00501	CULVERT PIPE-60 IN EQUIV	298.00	LF
1590	01208	PIPE CULVERT HEADWALL-24 IN	2.00	EACH
1595	01210	PIPE CULVERT HEADWALL-30 IN	7.00	EACH
1600	01212	PIPE CULVERT HEADWALL-36 IN	1.00	EACH
1605	01214	PIPE CULVERT HEADWALL-42 IN	2.00	EACH
1610	01216	PIPE CULVERT HEADWALL-48 IN	18.00	EACH
1615	01220	PIPE CULVERT HEADWALL-60 IN	4.00	EACH
1620	01221	PIPE CULVERT HEADWALL-60 IN EQUIV	4.00	EACH
1625	01222	PIPE CULVERT HEADWALL-66 IN	2.00	EACH
1630	01434	SLOPED BOX OUTLET TYPE 1-24 IN	2.00	EACH
1635	01452	S & F BOX INLET-OUTLET-30 IN	1.00	EACH
1640	01453	S & F BOX INLET-OUTLET-36 IN	3.00	EACH
1645	01493	DROP BOX INLET TYPE 2	5.00	EACH
1650	20597EC	DITCH EXCAVATION	3,415.00	CUYD

# MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
1655	24026EC	PIPE CULVERT HEADWALL-54 IN	4.00	EACH
1660	24575ES610	HEADWALL - CONC S&P - 15 IN	8.00	EACH
1665	24575ES610	HEADWALL - CONC S&P - 24 IN	2.00	EACH
1670	02603	FABRIC-GEOTEXTILE CLASS 2	1,415.00	SQYD
1675	02604	FABRIC-GEOTEXTILE CLASS 1A	1,503.00	SQYD
1680	02998	MASONRY COATING	5,099.00	SQYD
1685	03299	ARMORED EDGE FOR CONCRETE	84.00	LF
1690	08001	STRUCTURE EXCAVATION-COMMON	854.00	CUYD
1695	08002	STRUCTURE EXCAV-SOLID ROCK	495.00	CUYD
1700	08019	CYCLOPEAN STONE RIP RAP	857.00	TON
1705	08020	CRUSHED AGGREGATE SLOPE PROT	459.00	TON
1710	08033	TEST PILES	86.00	LF
1715	08046	PILES-STEEL HP12X53	1,270.00	LF
1720	08094	PILE POINTS-12 IN	32.00	EACH
1725	08100	CONCRETE-CLASS A	2,040.00	CUYD
1730	08104	CONCRETE-CLASS AA	965.00	CUYD
1735	08150	STEEL REINFORCEMENT	337,219.00	LB
1740	08151	STEEL REINFORCEMENT-EPOXY COATED	318,595.00	LB
1745	08472	EXPANSION DAM-4 IN NEOPRENE	90.00	LF
1750	08637	PRECAST PC I BEAM TYPE 7	3,218.00	LF
1755	24596EN	GRANULAR BACKFILL	583.00	CUYD
1760	25028ED	RAIL SYSTEM SINGLE SLOPE - 40 IN	1,683.00	LF
1765	02231	STRUCTURE GRANULAR BACKFILL	322.20	CUYD
1770	02603	FABRIC-GEOTEXTILE CLASS 2	307.00	SQYD
1775	02998	MASONRY COATING	2,940.00	SQYD
1780	08001	STRUCTURE EXCAVATION-COMMON	963.00	CUYD
1785	08002	STRUCTURE EXCAV-SOLID ROCK	949.00	CUYD
1790	08100	CONCRETE-CLASS A	1,341.30	CUYD
1795	08104	CONCRETE-CLASS AA	938.40	CUYD
1800	08150	STEEL REINFORCEMENT	325,299.00	LB
1805	08151	STEEL REINFORCEMENT-EPOXY COATED	269,541.00	LB
1810	08500	APPROACH SLAB	217.00	SQYD
1815	08635	PRECAST PC I BEAM TYPE 6	2,629.30	LF
1820	20637ED	DRILLED SHAFT-ROCK 48 IN	24.00	LF
1825	20745ED	ROCK SOUNDINGS	81.20	LF
1830	20746ED	ROCK CORINGS	96.00	LF
1835	21321NC	CSL TESTING (4 TUBES)	7.00	EACH
1840	21420ED	DRILLED SHAFT-66 IN (COMMON)	49.80	LF
1845	21421ED	DRILLED SHAFT-60 IN (SOLID ROCK)	40.00	LF
1850	21777EN	DRILLED SHAFT COMMON-54 IN	31.40	LF
1855	23813EC	DECK DRAIN	5.00	EACH
1860	24743EC	TIP TESTING (4 TUBES)	7.00	EACH
1865	25028ED	RAIL SYSTEM SINGLE SLOPE - 40 IN	1,427.60	LF
1870	02231	STRUCTURE GRANULAR BACKFILL	251.00	CUYD
1875	02603	FABRIC-GEOTEXTILE CLASS 2	334.00	SQYD
1880	02998	MASONRY COATING	2,943.00	SQYD
1885	08001	STRUCTURE EXCAVATION-COMMON	1,138.00	CUYD
1890	08002	STRUCTURE EXCAV-SOLID ROCK	717.00	CUYD
1895	08020	CRUSHED AGGREGATE SLOPE PROT	287.00	TON
1900	08033	TEST PILES	66.00	LF

# MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
1905	08039	PRE-DRILLING FOR PILES	84.00	LF
1910	08050	PILES-STEEL HP14X73	425.00	LF
1915	08095	PILE POINTS-14 IN	16.00	EACH
1920	08100	CONCRETE-CLASS A	1,639.19	CUYD
1925	08104	CONCRETE-CLASS AA	901.30	CUYD
1930	08150	STEEL REINFORCEMENT	401,623.00	LB
1935	08151	STEEL REINFORCEMENT-EPOXY COATED	265,404.00	LB
1940	08500	APPROACH SLAB	203.00	SQYD
1945	08635	PRECAST PC I BEAM TYPE 6	2,669.30	LF
1950	23813EC	DECK DRAIN	12.00	EACH
1955	25028ED	RAIL SYSTEM SINGLE SLOPE - 40 IN	1,346.00	LF
1960	02603	FABRIC-GEOTEXTILE CLASS 2	540.00	SQYD
1965	02604	FABRIC-GEOTEXTILE CLASS 1A	2,426.00	SQYD
1970	02998	MASONRY COATING	1,674.00	SQYD
1975	03299	ARMORED EDGE FOR CONCRETE	72.00	LF
1980	08001	STRUCTURE EXCAVATION-COMMON	487.00	CUYD
1985	08002	STRUCTURE EXCAV-SOLID ROCK	19.00	CUYD
1990	08019	CYCLOPEAN STONE RIP RAP	559.00	TON
1995	08020	CRUSHED AGGREGATE SLOPE PROT	445.00	TON
2000	08033	TEST PILES	76.00	LF
2005	08046	PILES-STEEL HP12X53	1,005.00	LF
2010	08094	PILE POINTS-12 IN	14.00	EACH
2015	08100	CONCRETE-CLASS A	1,301.00	CUYD
2020	08104	CONCRETE-CLASS AA	847.00	CUYD
2025	08150	STEEL REINFORCEMENT	188,256.00	LB
2030	08151	STEEL REINFORCEMENT-EPOXY COATED	269,805.00	LB
2035	08472	EXPANSION DAM-4 IN NEOPRENE	72.00	LF
2040	08639	PRECAST PC I BEAM TYPE 9	2,760.00	LF
2045	20745ED	ROCK SOUNDINGS	166.00	LF
2050	20746ED	ROCK CORINGS	407.00	LF
2055	21322NC	CSL TESTING (6 TUBES)	4.00	EACH
2060	23583EC	DRILLED SHAFT-48 IN-COMMON	27.00	LF
2065	23584EC	DRILLED SHAFT-42 IN-ROCK	28.00	LF
2070	24596EN	GRANULAR BACKFILL	521.00	CUYD
2075	24874EC	TIP TESTING	12.00	EACH
2080	24875EC	CSL TESTING (8 TUBES)	8.00	EACH
2085	25003EC	DRILLED SHAFT - 96 IN (COMMON)	139.00	LF
2090	25004EC	DRILLED SHAFT - 90 IN (SOLID ROCK)	151.00	LF
2095	25028ED	RAIL SYSTEM SINGLE SLOPE - 40 IN	1,468.00	LF
2100	06401	FLEXIBLE DELINEATOR POST-M/W	6.00	EACH
2105	06406	SBM ALUM SHEET SIGNS .080 IN	1,041.00	SQFT
2110	06407	SBM ALUM SHEET SIGNS .125 IN	300.00	SQFT
2115	06410	STEEL POST TYPE 1	2,811.00	LF
2120	06490	CLASS A CONCRETE FOR SIGNS	.50	CUYD
2125	21373ND	REMOVE SIGN	2.00	EACH
2130	21596ND	GMSS TYPE D	2.00	EACH
2135	24631EC	BARCODE SIGN INVENTORY	224.00	EACH
2140	24751ED	REMOVE STORE & REINSTALL - -	1.00	EACH
2145	02568	MOBILIZATION	1.00	LS
2150	02569	DEMOBILIZATION	1.00	LS

# MATERIAL SUMMARY

<b>Project Line No</b>	<b>Bid Code</b>	<b>DESCRIPTION</b>	<b>Quantity</b>	<b>Unit</b>
2155	02742	TRAINEE PAYMENT REIMBURSEMENT - IRONWORKER	1,400.00	HOUR
2160	24737EC	CAVITY STABILIZATION - (ADDED 3-22-2022)	41.00	CUYD
2165	24738EC	REDRILLING CAVITY STABILIZATION - (ADDED 3-22-2022)	64.00	LF

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**Section: 0001 - PAVING - ASPHALT**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00003		CRUSHED STONE BASE	104,757.00	TON		\$	
0020	00100		ASPHALT SEAL AGGREGATE	768.00	TON		\$	
0030	00103		ASPHALT SEAL COAT	92.00	TON		\$	
0040	00190		LEVELING & WEDGING PG64-22	154.00	TON		\$	
0050	00212		CL2 ASPH BASE 1.00D PG64-22	50,400.00	TON		\$	
0060	00214		CL3 ASPH BASE 1.00D PG64-22	15,740.00	TON		\$	
0070	00301		CL2 ASPH SURF 0.38D PG64-22	14,365.00	TON		\$	
0080	00339		CL3 ASPH SURF 0.38D PG64-22	4,051.00	TON		\$	
0090	00356		ASPHALT MATERIAL FOR TACK	158.00	TON		\$	
0100	10203ND		PAVEMENT ADJUSTMENT	1.00	LS	\$980,202.0	\$	\$980,202.00
0110	20071EC		JOINT ADHESIVE	65,878.00	LF		\$	
0120	24781EC		INTELLIGENT COMPACTION FOR ASPHALT	72,334.00	TON		\$	
0130	24891EC		PAVE MOUNT INFRARED TEMP EQUIPMENT	4,592,772.00	SF		\$	

**Section: 0002 - PAVING - CONC CONC**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0140	00003		CRUSHED STONE BASE	100,284.00	TON		\$	
0150	00100		ASPHALT SEAL AGGREGATE	768.00	TON		\$	
0160	00103		ASPHALT SEAL COAT	92.00	TON		\$	
0170	00190		LEVELING & WEDGING PG64-22	154.00	TON		\$	
0180	00212		CL2 ASPH BASE 1.00D PG64-22	9,493.00	TON		\$	
0190	00301		CL2 ASPH SURF 0.38D PG64-22	2,728.00	TON		\$	
0200	00339		CL3 ASPH SURF 0.38D PG64-22	472.00	TON		\$	
0210	00356		ASPHALT MATERIAL FOR TACK	24.00	TON		\$	
0220	02078		JPC PAVEMENT-6 IN SHLD	52,668.00	SQYD		\$	
0230	02084		JPC PAVEMENT-8 IN	132,490.00	SQYD		\$	
0240	10203ND		PAVEMENT ADJUSTMENT	1.00	LS	\$727,923.0	\$	\$727,923.00
0250	20071EC		JOINT ADHESIVE	9,156.00	LF		\$	

**Section: 0003 - PAVING - CONC ASPHALT**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0260	00003		CRUSHED STONE BASE	103,294.00	TON		\$	
0270	00100		ASPHALT SEAL AGGREGATE	768.00	TON		\$	
0280	00103		ASPHALT SEAL COAT	92.00	TON		\$	
0290	00190		LEVELING & WEDGING PG64-22	154.00	TON		\$	
0300	00212		CL2 ASPH BASE 1.00D PG64-22	18,526.00	TON		\$	
0310	00301		CL2 ASPH SURF 0.38D PG64-22	7,063.00	TON		\$	
0320	00339		CL3 ASPH SURF 0.38D PG64-22	472.00	TON		\$	
0330	00356		ASPHALT MATERIAL FOR TACK	47.00	TON		\$	
0340	02084		JPC PAVEMENT-8 IN	131,888.00	SQYD		\$	
0350	10203ND		PAVEMENT ADJUSTMENT	1.00	LS	\$727,923.0	\$	\$727,923.00
0360	20071EC		JOINT ADHESIVE	9,156.00	LF		\$	
0370	24781EC		INTELLIGENT COMPACTION FOR ASPHALT	13,840.00	TON		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0380	24891EC		PAVE MOUNT INFRARED TEMP EQUIPMENT	1,010,862.00	SF		\$	

**Section: 0004 - ROADWAY**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0390	00078		CRUSHED AGGREGATE SIZE NO 2	52.00	TON		\$	
0400	01000		PERFORATED PIPE-4 IN	2,376.00	LF		\$	
0410	01010		NON-PERFORATED PIPE-4 IN	1,187.00	LF		\$	
0420	01020		PERF PIPE HEADWALL TY 1-4 IN	25.00	EACH		\$	
0430	01024		PERF PIPE HEADWALL TY 2-4 IN	2.00	EACH		\$	
0440	01028		PERF PIPE HEADWALL TY 3-4 IN	21.00	EACH		\$	
0450	01032		PERF PIPE HEADWALL TY 4-4 IN	4.00	EACH		\$	
0460	01310		REMOVE PIPE	24.00	LF		\$	
0470	01691		FLUME INLET TYPE 2	9.00	EACH		\$	
0480	01984		DELINEATOR FOR BARRIER - WHITE	21.00	EACH		\$	
0490	01987		DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	426.00	EACH		\$	
0500	02014		BARRICADE-TYPE III	36.00	EACH		\$	
0510	02091		REMOVE PAVEMENT	1,517.00	SQYD		\$	
0520	02159		TEMP DITCH	18,501.00	LF		\$	
0530	02160		CLEAN TEMP DITCH	9,251.00	LF		\$	
0540	02200		ROADWAY EXCAVATION	5,033,506.00	CUYD		\$	
0550	02230		EMBANKMENT IN PLACE	7,981.00	CUYD		\$	
0560	02242		WATER	474.00	MGAL		\$	
0570	02262		FENCE-WOVEN WIRE TYPE 1	57,625.00	LF		\$	
0580	02360		GUARDRAIL TERMINAL SECTION NO 1	36.00	EACH		\$	
0590	02367		GUARDRAIL END TREATMENT TYPE 1	31.00	EACH		\$	
0600	02369		GUARDRAIL END TREATMENT TYPE 2A	9.00	EACH		\$	
0610	02371		GUARDRAIL END TREATMENT TYPE 7	1.00	EACH		\$	
0620	02381		REMOVE GUARDRAIL	3,775.00	LF		\$	
0630	02391		GUARDRAIL END TREATMENT TYPE 4A	17.00	EACH		\$	
0640	02397		TEMP GUARDRAIL	4,237.50	LF		\$	
0650	02429		RIGHT-OF-WAY MONUMENT TYPE 1	199.00	EACH		\$	
0660	02432		WITNESS POST	24.00	EACH		\$	
0670	02475		PLUG WATER WELL	1.00	EACH		\$	
0680	02483		CHANNEL LINING CLASS II	4,779.00	TON		\$	
0690	02488		CHANNEL LINING CLASS IV	32,796.00	CUYD		\$	
0700	02545		CLEARING AND GRUBBING (CLINTON-89 ACRES)	1.00	LS		\$	
0710	02545		CLEARING AND GRUBBING (RUSSELL 8-108.00)	1.00	LS		\$	
0720	02545		CLEARING AND GRUBBING (RUSSELL 8-8601.21)	1.00	LS		\$	
0730	02555		CONCRETE-CLASS B	1,150.40	CUYD		\$	
0740	02562		TEMPORARY SIGNS	1,125.00	SQFT		\$	
0750	02585		EDGE KEY	637.70	LF		\$	
0760	02601		FINAL DRESSING CLASS B	10,533.00	LF		\$	
0770	02602		FABRIC-GEOTEXTILE CLASS 1	532.00	SQYD		\$	
0780	02603		FABRIC-GEOTEXTILE CLASS 2	12,450.00	SQYD		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0790	02604		FABRIC-GEOTEXTILE CLASS 1A	107,400.00	SQYD		\$	
0800	02607		FABRIC-GEOTEXTILE CLASS 2 FOR PIPE	18,563.00	SQYD	\$2.00	\$	\$37,126.00
0810	02610		RETAINING WALL-GABION	1,006.00	CUYD		\$	
0820	02650		MAINTAIN & CONTROL TRAFFIC (CLINTON)	1.00	LS		\$	
0830	02650		MAINTAIN & CONTROL TRAFFIC (RUSSELL 8-108.00)	1.00	LS		\$	
0840	02650		MAINTAIN & CONTROL TRAFFIC (RUSSELL 8-8601.21)	1.00	LS		\$	
0850	02651		DIVERSIONS (BY-PASS DETOURS) (STA 34+50 - STA 39+50 OLD US 127)	1.00	LS		\$	
0860	02651		DIVERSIONS (BY-PASS DETOURS) (STA 58+60 - STA 60+60 OLD US 127)	1.00	LS		\$	
0870	02671		PORTABLE CHANGEABLE MESSAGE SIGN	5.00	EACH		\$	
0880	02692		SETTLEMENT PLATFORM	2.00	EACH		\$	
0890	02696		SHOULDER RUMBLE STRIPS	64,603.00	LF		\$	
0900	02697		EDGE LINE RUMBLE STRIPS	4,854.00	LF		\$	
0910	02701		TEMP SILT FENCE	18,501.00	LF		\$	
0920	02703		SILT TRAP TYPE A	306.00	EACH		\$	
0930	02704		SILT TRAP TYPE B	306.00	EACH		\$	
0940	02705		SILT TRAP TYPE C	306.00	EACH		\$	
0950	02706		CLEAN SILT TRAP TYPE A	306.00	EACH		\$	
0960	02707		CLEAN SILT TRAP TYPE B	306.00	EACH		\$	
0970	02708		CLEAN SILT TRAP TYPE C	306.00	EACH		\$	
0980	02711		SEDIMENTATION BASIN	12,335.00	CUYD		\$	
0990	02712		CLEAN SEDIMENTATION BASIN	12,335.00	CUYD		\$	
1000	02726		STAKING (CLINTON)	1.00	LS		\$	
1010	02726		STAKING (RUSSELL - 8-8601.21)	1.00	LS		\$	
1020	02726		STAKING (RUSSELL 8-108.00)	1.00	LS		\$	
1030	03171		CONCRETE BARRIER WALL TYPE 9T	240.00	LF		\$	
1040	03340		STEEL PIPE-2 1/2 IN	63.00	LF		\$	
1050	03343		STEEL PIPE-4 IN	63.00	LF		\$	
1060	05950		EROSION CONTROL BLANKET	82,400.00	SQYD		\$	
1070	05952		TEMP MULCH	988,692.00	SQYD		\$	
1080	05953		TEMP SEEDING AND PROTECTION	754,000.00	SQYD		\$	
1090	05963		INITIAL FERTILIZER	30.18	TON		\$	
1100	05964		MAINTENANCE FERTILIZER	50.46	TON		\$	
1110	05985		SEEDING AND PROTECTION	900,231.00	SQYD		\$	
1120	05990		SODDING	1,000.00	SQYD		\$	
1130	05992		AGRICULTURAL LIMESTONE	688.50	TON		\$	
1140	06514		PAVE STRIPING-PERM PAINT-4 IN	19,890.00	LF		\$	
1150	06542		PAVE STRIPING-THERMO-6 IN W	83,924.00	LF		\$	
1160	06543		PAVE STRIPING-THERMO-6 IN Y	57,257.00	LF		\$	
1170	06547		PAVE STRIPING-THERMO-12 IN Y	22.00	LF		\$	
1180	06556		PAVE STRIPING-DUR TY 1-6 IN W	9,498.00	LF		\$	
1190	06557		PAVE STRIPING-DUR TY 1-6 IN Y	6,804.00	LF		\$	
1200	06568		PAVE MARKING-THERMO STOP BAR-24IN	295.00	LF		\$	
1210	06569		PAVE MARKING-THERMO CROSS-HATCH	1,998.00	SQFT		\$	
1220	06574		PAVE MARKING-THERMO CURV ARROW	15.00	EACH		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1230	06575		PAVE MARKING-THERMO COMB ARROW	2.00	EACH		\$	
1240	20191ED		OBJECT MARKER TY 3	48.00	EACH		\$	
1250	20430ED		SAW CUT	168.00	LF		\$	
1260	20458ES403		CENTERLINE RUMBLE STRIPS	34,298.00	LF		\$	
1270	21289ED		LONGITUDINAL EDGE KEY	579.00	LF		\$	
1280	21802EN		G/R STEEL W BEAM-S FACE (7 FT POST)	31,075.00	LF		\$	
1290	22664EN		WATER BLASTING EXISTING STRIPE	1,000.00	LF		\$	
1300	23274EN11F		TURF REINFORCEMENT MAT 1	213.90	SQYD		\$	
1310	23607EC		PAVE MARK THERMO-LANE REDUCTION ARROW	9.00	EACH		\$	
1320	23649EC		DRAIN POND	1.00	LS		\$	
1330	24540		R/W MONUMENT TYPE 3	46.00	EACH		\$	
1340	24814EC		PIPELINE INSPECTION	6,944.00	LF		\$	
1350	24843EC		VIBRATING WIRE PIEZOMETER	3.00	EACH		\$	
1360	25078ED		THRIE BEAM GUARDRAIL TRANSITION TL-3	20.00	EACH		\$	

**Section: 0005 - DRAINAGE**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1370	00440		ENTRANCE PIPE-15 IN	258.00	LF		\$	
1380	00441		ENTRANCE PIPE-18 IN	131.00	LF		\$	
1390	00443		ENTRANCE PIPE-24 IN	82.00	LF		\$	
1400	00462		CULVERT PIPE-18 IN	115.00	LF		\$	
1410	00464		CULVERT PIPE-24 IN	147.00	LF		\$	
1420	00466		CULVERT PIPE-30 IN	839.00	LF		\$	
1430	00468		CULVERT PIPE-36 IN	569.00	LF		\$	
1440	00469		CULVERT PIPE-42 IN	288.00	LF		\$	
1450	00470		CULVERT PIPE-48 IN	2,408.00	LF		\$	
1460	00471		CULVERT PIPE-54 IN	330.00	LF		\$	
1470	00472		CULVERT PIPE-60 IN	1,362.00	LF		\$	
1480	00473		CULVERT PIPE-66 IN	108.00	LF		\$	
1490	00501		CULVERT PIPE-60 IN EQUIV	298.00	LF		\$	
1500	00528		STORM SEWER PIPE-36 IN	244.00	LF		\$	
1510	01204		PIPE CULVERT HEADWALL-18 IN	1.00	EACH		\$	
1520	01208		PIPE CULVERT HEADWALL-24 IN	2.00	EACH		\$	
1530	01210		PIPE CULVERT HEADWALL-30 IN	9.00	EACH		\$	
1540	01212		PIPE CULVERT HEADWALL-36 IN	6.00	EACH		\$	
1550	01214		PIPE CULVERT HEADWALL-42 IN	4.00	EACH		\$	
1560	01216		PIPE CULVERT HEADWALL-48 IN	20.00	EACH		\$	
1570	01220		PIPE CULVERT HEADWALL-60 IN	6.00	EACH		\$	
1580	01221		PIPE CULVERT HEADWALL-60 IN EQUIV	4.00	EACH		\$	
1590	01222		PIPE CULVERT HEADWALL-66 IN	2.00	EACH		\$	
1600	01434		SLOPED BOX OUTLET TYPE 1-24 IN	2.00	EACH		\$	
1610	01452		S & F BOX INLET-OUTLET-30 IN	2.00	EACH		\$	
1620	01453		S & F BOX INLET-OUTLET-36 IN	6.00	EACH		\$	
1630	01490		DROP BOX INLET TYPE 1	3.00	EACH		\$	
1640	01493		DROP BOX INLET TYPE 2	9.00	EACH		\$	
1650	01580		DROP BOX INLET TYPE 15	1.00	EACH		\$	
1660	01644		JUNCTION BOX-30 IN	1.00	EACH		\$	

**PROPOSAL BID ITEMS**

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1670	20597EC		DITCH EXCAVATION	3,695.00	CUYD		\$	
1680	24026EC		PIPE CULVERT HEADWALL-54 IN	4.00	EACH		\$	
1690	24575ES610		HEADWALL CONC S&P - 15 IN	8.00	EACH		\$	
1700	24575ES610		HEADWALL CONC S&P - 18 IN	1.00	EACH		\$	
1710	24575ES610		HEADWALL CONC S&P - 24 IN	2.00	EACH		\$	
1720	24583EC		HDPE PIPE LINER -	269.00	LF		\$	

**Section: 0006 - BRIDGE - 27543**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1730	02603		FABRIC-GEOTEXTILE CLASS 2	1,415.00	SQYD		\$	
1740	02604		FABRIC-GEOTEXTILE CLASS 1A	1,503.00	SQYD		\$	
1750	02998		MASONRY COATING	5,099.00	SQYD		\$	
1760	03299		ARMORED EDGE FOR CONCRETE	84.00	LF		\$	
1770	08001		STRUCTURE EXCAVATION-COMMON	854.00	CUYD		\$	
1780	08002		STRUCTURE EXCAV-SOLID ROCK	495.00	CUYD		\$	
1790	08019		CYCLOPEAN STONE RIP RAP	857.00	TON		\$	
1800	08020		CRUSHED AGGREGATE SLOPE PROT	459.00	TON		\$	
1810	08033		TEST PILES	86.00	LF		\$	
1820	08046		PILES-STEEL HP12X53	1,270.00	LF		\$	
1830	08094		PILE POINTS-12 IN	32.00	EACH		\$	
1840	08100		CONCRETE-CLASS A	2,040.00	CUYD		\$	
1850	08104		CONCRETE-CLASS AA	965.00	CUYD		\$	
1860	08150		STEEL REINFORCEMENT	337,219.00	LB		\$	
1870	08151		STEEL REINFORCEMENT-EPOXY COATED	318,595.00	LB		\$	
1880	08472		EXPANSION DAM-4 IN NEOPRENE	90.00	LF		\$	
1890	08637		PRECAST PC I BEAM TYPE 7	3,218.00	LF		\$	
1900	24596EN		GRANULAR BACKFILL	583.00	CUYD		\$	
1910	25028ED		RAIL SYSTEM SINGLE SLOPE - 40 IN	1,683.00	LF		\$	

**Section: 0007 - BRIDGE - 27544**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1920	02231		STRUCTURE GRANULAR BACKFILL	322.20	CUYD		\$	
1930	02603		FABRIC-GEOTEXTILE CLASS 2	307.00	SQYD		\$	
1940	02998		MASONRY COATING	2,940.00	SQYD		\$	
1950	08001		STRUCTURE EXCAVATION-COMMON	963.00	CUYD		\$	
1960	08002		STRUCTURE EXCAV-SOLID ROCK	949.00	CUYD		\$	
1970	08100		CONCRETE-CLASS A	1,341.30	CUYD		\$	
1980	08104		CONCRETE-CLASS AA	938.40	CUYD		\$	
1990	08150		STEEL REINFORCEMENT	325,299.00	LB		\$	
2000	08151		STEEL REINFORCEMENT-EPOXY COATED	269,541.00	LB		\$	
2010	08500		APPROACH SLAB	217.00	SQYD		\$	
2020	08635		PRECAST PC I BEAM TYPE 6	2,629.30	LF		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2030	20637ED		DRILLED SHAFT-ROCK 48 IN	24.00	LF		\$	
2040	20745ED		ROCK SOUNDINGS	81.20	LF		\$	
2050	20746ED		ROCK CORINGS	96.00	LF		\$	
2060	21321NC		CSL TESTING (4 TUBES)	7.00	EACH		\$	
2070	21420ED		DRILLED SHAFT-66 IN (COMMON)	49.80	LF		\$	
2080	21421ED		DRILLED SHAFT-60 IN (SOLID ROCK)	40.00	LF		\$	
2090	21777EN		DRILLED SHAFT COMMON-54 IN	31.40	LF		\$	
2100	23813EC		DECK DRAIN	5.00	EACH		\$	
2101	24737EC		CAVITY STABILIZATION (ADDED 3-22-2022)	41.00	CUYD		\$	
2102	24738EC		REDRILLING CAVITY STABILIZATION (ADDED 3-22-2022)	64.00	LF		\$	
2110	24743EC		TIP TESTING (4 TUBES)	7.00	EACH		\$	
2120	25028ED		RAIL SYSTEM SINGLE SLOPE - 40 IN	1,427.60	LF		\$	

**Section: 0008 - BRIDGE - 27545**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2130	02231		STRUCTURE GRANULAR BACKFILL	251.00	CUYD		\$	
2140	02603		FABRIC-GEOTEXTILE CLASS 2	334.00	SQYD		\$	
2150	02998		MASONRY COATING	2,943.00	SQYD		\$	
2160	08001		STRUCTURE EXCAVATION-COMMON	1,138.00	CUYD		\$	
2170	08002		STRUCTURE EXCAV-SOLID ROCK	717.00	CUYD		\$	
2180	08020		CRUSHED AGGREGATE SLOPE PROT	287.00	TON		\$	
2190	08033		TEST PILES	66.00	LF		\$	
2200	08039		PRE-DRILLING FOR PILES	84.00	LF		\$	
2210	08050		PILES-STEEL HP14X73	425.00	LF		\$	
2220	08095		PILE POINTS-14 IN	16.00	EACH		\$	
2230	08100		CONCRETE-CLASS A	1,639.19	CUYD		\$	
2240	08104		CONCRETE-CLASS AA	901.30	CUYD		\$	
2250	08150		STEEL REINFORCEMENT	401,623.00	LB		\$	
2260	08151		STEEL REINFORCEMENT-EPOXY COATED	265,404.00	LB		\$	
2270	08500		APPROACH SLAB	203.00	SQYD		\$	
2280	08635		PRECAST PC I BEAM TYPE 6	2,669.30	LF		\$	
2290	23813EC		DECK DRAIN	12.00	EACH		\$	
2300	25028ED		RAIL SYSTEM SINGLE SLOPE - 40 IN	1,346.00	LF		\$	

**Section: 0009 - BRIDGE - 27541**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2310	02603		FABRIC-GEOTEXTILE CLASS 2	540.00	SQYD		\$	
2320	02604		FABRIC-GEOTEXTILE CLASS 1A	2,426.00	SQYD		\$	
2330	02998		MASONRY COATING	1,674.00	SQYD		\$	
2340	03299		ARMORED EDGE FOR CONCRETE	72.00	LF		\$	
2350	08001		STRUCTURE EXCAVATION-COMMON	487.00	CUYD		\$	
2360	08002		STRUCTURE EXCAV-SOLID ROCK	19.00	CUYD		\$	
2370	08019		CYCLOPEAN STONE RIP RAP	559.00	TON		\$	
2380	08020		CRUSHED AGGREGATE SLOPE PROT	445.00	TON		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2390	08033		TEST PILES	76.00	LF		\$	
2400	08046		PILES-STEEL HP12X53	1,005.00	LF		\$	
2410	08094		PILE POINTS-12 IN	14.00	EACH		\$	
2420	08100		CONCRETE-CLASS A	1,301.00	CUYD		\$	
2430	08104		CONCRETE-CLASS AA	847.00	CUYD		\$	
2440	08150		STEEL REINFORCEMENT	188,256.00	LB		\$	
2450	08151		STEEL REINFORCEMENT-EPOXY COATED	269,805.00	LB		\$	
2460	08472		EXPANSION DAM-4 IN NEOPRENE	72.00	LF		\$	
2470	08639		PRECAST PC I BEAM TYPE 9	2,760.00	LF		\$	
2480	20745ED		ROCK SOUNDINGS	166.00	LF		\$	
2490	20746ED		ROCK CORINGS	407.00	LF		\$	
2500	21322NC		CSL TESTING (6 TUBES)	4.00	EACH		\$	
2510	23583EC		DRILLED SHAFT-48 IN-COMMON	27.00	LF		\$	
2520	23584EC		DRILLED SHAFT-42 IN-ROCK	28.00	LF		\$	
2530	24596EN		GRANULAR BACKFILL	521.00	CUYD		\$	
2540	24874EC		TIP TESTING	12.00	EACH		\$	
2550	24875EC		CSL TESTING (8 TUBES)	8.00	EACH		\$	
2560	25003EC		DRILLED SHAFT - 96 IN (COMMON)	139.00	LF		\$	
2570	25004EC		DRILLED SHAFT - 90 IN (SOLID ROCK)	151.00	LF		\$	
2580	25028ED		RAIL SYSTEM SINGLE SLOPE - 40 IN	1,468.00	LF		\$	

**Section: 0010 - BRIDGE - 27542 HOLLOW COLUMN**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2590	02603		FABRIC-GEOTEXTILE CLASS 2	909.00	SQYD		\$	
2600	02604		FABRIC-GEOTEXTILE CLASS 1A	4,465.00	SQYD		\$	
2610	02998		MASONRY COATING	3,140.00	SQYD		\$	
2620	03299		ARMORED EDGE FOR CONCRETE	96.00	LF		\$	
2630	08001		STRUCTURE EXCAVATION-COMMON	1,982.00	CUYD		\$	
2640	08002		STRUCTURE EXCAV-SOLID ROCK	9,513.00	CUYD		\$	
2650	08020		CRUSHED AGGREGATE SLOPE PROT	1,292.00	TON		\$	
2660	08033		TEST PILES	138.00	LF		\$	
2670	08051		PILES-STEEL HP14X89	3,093.00	LF		\$	
2680	08095		PILE POINTS-14 IN	69.00	EACH		\$	
2690	08100		CONCRETE-CLASS A	4,160.00	CUYD		\$	
2700	08104		CONCRETE-CLASS AA	1,992.00	CUYD		\$	
2710	08150		STEEL REINFORCEMENT	740,246.00	LB		\$	
2720	08151		STEEL REINFORCEMENT-EPOXY COATED	722,594.00	LB		\$	
2730	08160		STRUCTURAL STEEL (27542)	1.00	LS		\$	
2740	08170		SHEAR CONNECTORS (27542-15,375)	1.00	LS		\$	
2750	23859EC		FINGER EXPANSION JOINT	96.00	LF		\$	
2760	24596EN		GRANULAR BACKFILL	1,142.00	CUYD		\$	
2770	25028ED		RAIL SYSTEM SINGLE SLOPE - 40 IN	2,643.00	LF		\$	

**Section: 0011 - BRIDGE - 27542 H COLUMN**

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2780	02603		FABRIC-GEOTEXTILE CLASS 2	909.00	SQYD		\$	
2790	02604		FABRIC-GEOTEXTILE CLASS 1A	4,465.00	SQYD		\$	
2800	02998		MASONRY COATING	3,140.00	SQYD		\$	
2810	03299		ARMORED EDGE FOR CONCRETE	96.00	LF		\$	
2820	08001		STRUCTURE EXCAVATION-COMMON	1,982.00	CUYD		\$	
2830	08002		STRUCTURE EXCAV-SOLID ROCK	9,513.00	CUYD		\$	
2840	08020		CRUSHED AGGREGATE SLOPE PROT	1,292.00	TON		\$	
2850	08033		TEST PILES	138.00	LF		\$	
2860	08051		PILES-STEEL HP14X89	3,093.00	LF		\$	
2870	08095		PILE POINTS-14 IN	69.00	EACH		\$	
2880	08100		CONCRETE-CLASS A	3,188.00	CUYD		\$	
2890	08104		CONCRETE-CLASS AA	2,780.00	CUYD		\$	
2900	08150		STEEL REINFORCEMENT	937,144.00	LB		\$	
2910	08151		STEEL REINFORCEMENT-EPOXY COATED	722,594.00	LB		\$	
2920	08160		STRUCTURAL STEEL (27542)	1.00	LS		\$	
2930	08170		SHEAR CONNECTORS (27542-15,375)	1.00	LS		\$	
2940	23859EC		FINGER EXPANSION JOINT	96.00	LF		\$	
2950	24596EN		GRANULAR BACKFILL	1,142.00	CUYD		\$	
2960	25028ED		RAIL SYSTEM SINGLE SLOPE - 40 IN	2,643.00	LF		\$	

**Section: 0012 - SIGNING**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2970	06401		FLEXIBLE DELINEATOR POST-M/W	6.00	EACH		\$	
2980	06406		SBM ALUM SHEET SIGNS .080 IN	1,319.00	SQFT		\$	
2990	06407		SBM ALUM SHEET SIGNS .125 IN	423.00	SQFT		\$	
3000	06410		STEEL POST TYPE 1	3,590.00	LF		\$	
3010	06490		CLASS A CONCRETE FOR SIGNS	.50	CUYD		\$	
3020	21373ND		REMOVE SIGN	2.00	EACH		\$	
3030	21596ND		GMSS TYPE D	2.00	EACH		\$	
3040	24631EC		BARCODE SIGN INVENTORY	299.00	EACH		\$	
3050	24751ED		REMOVE STORE & REINSTALL -	1.00	EACH		\$	

**Section: 0013 - TRAINEES**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3060	02742		TRAINEE PAYMENT REIMBURSEMENT GROUP 2, 3, 4 OPERATOR	1,400.00	HOUR		\$	
3070	02742		TRAINEE PAYMENT REIMBURSEMENT GROUP 2, 3, 4, OPERATOR	1,400.00	HOUR		\$	
3080	02742		TRAINEE PAYMENT REIMBURSEMENT IRONWORKER	1,400.00	HOUR		\$	

**Section: 0014 - DEMOBILIZATION & MOBILIZATION**

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3090	02568		MOBILIZATION	1.00	LS		\$	
3100	02569		DEMOBILIZATION	1.00	LS		\$	

## **SPECIAL NOTE FOR DRILLED SHAFTS**

### Russell County – US 127 Bridge over B Mann Road

#### **1.0 GENERAL**

##### **1.1 Description**

This work consists of furnishing all tools, equipment, materials, services, labor and incidentals necessary for constructing drilled shafts in accordance with details shown on the plans. The Kentucky Standard Specifications for Road and Bridge Construction, current edition governs unless otherwise specified in this special note or in the plans. This Special Note completely replaces Special Note 11C, and Special Note 11C does not apply to this bridge.

For the purposes of this Special Note, "Department" refers to the Kentucky Department of Highways and/or consultants acting on behalf of the Department of Highways. "Engineer" is defined in Section 101.03 of the Standard Specifications.

##### **1.2 Site, Subsurface Information and Samples Inspection**

Bidders are encouraged to consult available geological literature including but not necessarily limited to the Wolf Creek Dam Geologic Quadrangle Map and the U.S. Geological Survey Professional Paper 1151-H, "The Geology of Kentucky -- A Text to Accompany the Geologic Map of Kentucky", Edited by Robert C. McDowell. Additional geotechnical information may be available via the KYTC Division of Construction Procurement Website under "Project Related Information". The referenced geological literature and geotechnical information are for information only and are not contract documents. However, available subsurface data are included in the bridge plans which are contract documents.

**Karst activity exists in the project vicinity. Voids were encountered in several borings at the substructure locations. These voids indicate that karstic features may be present within the project vicinity. The potential for karstic features should always be anticipated in limestone bedrock. As such, the presence of karstic features at specific locations other than those indicated in the contract documents will not be a cause for Differing Site Conditions as defined in Section 104.02.03 of the Standard Specifications.**

Soils encountered in the borings consist of low to high plasticity clays, low plasticity silts, clayey sands, and clayey gravels. The borings indicate that soils vary in thickness depending on the topography from approximately 0.4 to 26.5 feet in thickness. Soils encountered in Boring 1064 at Pier Two contained quartz geodes.

The rock core specimens obtained in the borings consist primarily of dolomites and limestone with zones that have interbedded shale. The dolomites (Cumberland Formation) were described as bluish gray and fine grained. The limestones (Leipers Limestone Formation) were described as light gray to dark gray in color,

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irregular and nodular bedded, fossiliferous, and having shale partings and zones. At Abutment Two black, carbonaceous, pyritic shales (Chattanooga Formation) were encountered above the dolomite. Please refer to the Subsurface Data Sheets included in the Structure Plans.

Voids were encountered in some of the rock cores obtained at Piers One, Two, and Three. A void was also encountered in the rock core obtained for Abutment Two. Stabilization of the noted voids and cavities will likely be necessary as part of the construction process.

The prospective bidders are strongly encouraged to visit the project site, and the drilled shaft contractors are required to inspect available rock cores prior to the letting date. Representatives of the prime contractor and the drilled shaft subcontractor(s) (if applicable) will be required to inspect the rock cores prior to beginning drilled shaft construction. To schedule a viewing of the rock cores, contact the Division of Structural Design, Geotechnical Branch (502-564-2374), a minimum of two business days in advance. The bidders are also responsible to familiarize themselves with the available geotechnical data, which provides further information regarding the anticipated soil and bedrock conditions that will impact the installation of the drilled shafts. Failure to view the available rock cores will result in the forfeiture of the right to file a claim based on site conditions and may result in disqualification from the project.

### **1.3 Disclaimer**

Acceptance of any of the contractor's submissions required by this note does not constitute endorsement or approval. The acceptance is acknowledgement of the work performed and authorization for the contractor to proceed. The Department is not bound by acceptance of any of the submissions required by this note. Final acceptance will be contingent on the satisfactory completion of the work required by this note.

### **2.0 SUBMITTALS**

Make submittals in accordance with the Project requirements for submittals. See Table 1 below. The Department will respond to the Contractor regarding acceptability of submittals within ten (10) business days, unless indicated otherwise in this special note. A "Business Day" is defined as any day except Saturdays, Sundays and Holidays, as defined in Section 101.03 of the Standard Specifications.

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<b>Table 1 – Schedule of Drilled Shaft Submittals</b>			
<b>Submittal Number</b>	<b>Submittal Item</b>	<b>Calendar Days</b>	<b>Event</b>
1	Drilled shaft contractor/subcontractor to be used	30 After	Notice to Begin Work
2	Drilled shaft supervisor experience and qualifications	30 After	Notice to Begin Work
3	Drilled Shaft Installation Plan (includes initial cavity stabilization plan)	45 Before	Start of Drilled Shaft Construction
4	Concrete trial mix reports (includes initial cavity stabilization plan)	30 Before	Start of Drilled Shaft Construction
5	Drilled shaft preconstruction meeting	20 Before	Start of Drilled Shaft Construction
6	Revised Cavity Stabilization Plan(s)	10 After	Installation of drilled shafts requiring stabilization
7	Drilled Shaft Installation Plan (includes Revised Cavity Stabilization Plan(s))	7 before	Installation of drilled shafts requiring stabilization

Provide all submittals and reports in .pdf format

**2.1 Contractor Pre-Qualification**

The drilled shaft contractor is required to be pre-qualified by the Department for “Drilled Shafts”. These pre-qualification requirements apply to both a prime contractor who self-performs drilled shaft construction and subcontractor(s) who perform drilled shaft construction. This prequalification is optional for placing reinforcing steel and concrete for the drilled shafts. However, the applicable Drilled Shaft pre-qualification is required in order to perform other drilled shaft operations such as drilling, casing installation, etc. If the prequalified drilled shaft contractor does not place concrete then the drilled shaft supervisor is required to be present to oversee those operations.

**2.2 Drilled Shaft Construction Personnel Experience**

**2.2.1 Drilled Shaft Supervisor(s)**

Provide documentation that current company personnel who will be directly responsible for field operations meet the requirements below:

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1. A minimum of 10 years of experience in drilled shaft construction including at least five (5) years of supervisory experience.
2. At least one (1) project constructing rock socket drilled shafts with rock socket diameters 5 feet or larger.
3. At least one (1) project constructing rock socket drilled shafts in hard bedrock where cavities/voids were encountered that required remediation and/or stabilization (e.g. sealing with steel casing, or pumping concrete and re-drilling or a combination of steel casing and pumping concrete).

NOTE: Item 3 is in addition to the personnel requirements for Drilled Shaft pre-qualification. The Contractor will be required to assign personnel meeting the requirements of Items 1-3 specifically to this project and may need to hire additional personnel after meeting pre-qualification requirements.

Some or all of the experience may be with a previous employer. If necessary, more than one drilled shaft superintendent or foreman can be used to meet the requirements if all are actively involved in the project.

### **2.2.2 Project Engineer(s)**

Provide documentation that current company personnel includes a licensed Professional Engineer(s) with at least five (5) years of experience in design of concrete mixes and design of drilled shaft installations. Also provide documentation that the Professional Engineer(s) have experience designing installation plans within drilled shaft rock sockets in bedrock containing cavities due to karst conditions on at least one (1) prior drilled shaft project. The engineer(s) can be employees of the contractor or can be hired consultants. Multiple engineers can be used to satisfy the experience criteria in this section and are not required to be assigned full-time to this project; however, they need to be familiar with and have visited the project.

### **2.3 Pre-Construction Submittals**

No later than 45 calendar days prior to constructing drilled shafts, submit a Drilled Shaft Installation Plan for review by the Department. Final acceptance of the Drilled Shaft Installation Plan by the Department will be subject to satisfactory performance in the field of the construction. Provide a plan containing detailed information regarding this project including the following:

- (a) List and size of proposed equipment including cranes, drills, augers, bailing buckets, final cleaning equipment, desanding equipment, slurry pumps, core sampling equipment, tremies or concrete pumps, casings, etc.
- (b) Details of overall construction operation sequence and the sequence of shaft construction.

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- (c) Details of shaft excavation methods and method that will be used to ensure that rock socket is centered and method to ensure that soil and rock remain stable during shaft excavation.
- (d) Details of casing to be used including calculations showing ability of casing to withstand anticipated hydraulic and earth pressures and to withstand stresses due to installation without undue deformation. Include detailed methods for casing handling, splicing, straightening, and out-of-round correction with any associated timetables.
- (e) Details of slurry (if used). See requirements for Slurry Submittals in Section 3.4 of this Special Note.
- (f) Details of proposed methods to clean shaft and inside of casing after initial excavation.
- (g) Details of reinforcement handling, lifting, and placement including support and method to center in shaft, must include rebar cage support during concrete placement.
- (h) Details of concrete placement including proposed operational procedures for concrete tremie or pump including initial placement (including method(s) to ensure the required minimum 10 feet tremie immersion is achieved), raising during placement, and overfilling of the shaft to expel contaminated concrete.
- (i) Details of temporary casing removal if contractor elects to use temporary casing.
- (j) Required submittals including shop drawings and concrete design mixes.
- (k) Other information shown in the plans or requested by the Engineer.
- (l) Special considerations for wet construction.
- (m) Details of environmental control procedures to protect the environment from discharge of excavation spoil, dry polymer slurry (if used) and concrete overpour.
- (n) Method for measuring and determining vertical and horizontal alignment during construction.
- (o) How excavated material is to be disposed.
- (p) Stabilization plans for encountered voids within the excavated bedrock, including: 1) smaller voids and 2) more cavernous type voids that would require excessive concrete placement. Include items required in Section 4.6 of this special note.
- (q) Proposed method to provide inspectors access to the top of permanent and/or temporary casing to allow inspection of the shafts.
- (r) Provide a plan to install the CSL tubes and TIP sensors within the planned reinforcing cages as specified in the Special Note for Non-Destructive Testing.

Within 10 business days after receipt of the plan, the Department will notify the contractor of any additional information required and/or changes necessary to meet the contract requirements. Any part of the plan that is unacceptable will be rejected. Resubmit changes agreed upon for reevaluation to the Department. The Department will notify the Contractor within 10 business days after receipt of proposed changes of their acceptance or rejection. All procedural acceptance given by the Department are subject to trial and satisfactory performance in the

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field by the contractor and do not relieve the contractor of the responsibility to satisfactorily complete the work as detailed in the plans and specifications. Do not start construction on any items affected by the Drilled Shaft Installation Plan until the plan is accepted by the Department. No additional costs or time extensions from Delays due to resubmission of the Drilled Shaft Installation Plan will be accepted by the Department.

## **2.4 Concrete Trial Batch Reports**

At least 30 days prior to starting drilled shaft construction, submit reports of concrete trial batches as specified in Section 3.1.2 of this Special Note. These reports will be subject to review and acceptance by the Department.

## **2.5 Drilled Shaft Pre-Construction Meeting**

A pre-construction meeting to discuss drilled shaft construction will be required. This meeting will be held after all drilled shaft submittals have been received and reviewed by the Department and at least 10 working days prior to the beginning of drilled shaft construction. The purpose of the meeting is to discuss construction procedures, personnel, and equipment to be used. The following are required to attend:

1. Representing the Contractor – Project Superintendent, Drilled Shaft Superintendent or Foreman, and Foreman in charge of the following operations (if different than the Drilled Shaft Superintendent or Foreman): placing casing, excavating shafts, mixing slurry, tying and setting steel reinforcement, and pumping and placing concrete.
2. Representing KYTC – Drilled Shaft Inspector(s), Section Engineer, Central Office Construction Engineer, Geotechnical Branch and others as deemed appropriate by the Section Engineer.

If the Contractor's key personnel change or if the contractor proposes a significant revision to drilled shaft construction procedures, an additional drilled shaft pre-construction meeting may be required at the discretion of the Engineer.

## **2.6 Revised Cavity (Karst) Stabilization Plan(s)**

After completing the first cavity stabilization and evaluating the data, revise the cavity stabilization plan for karst conditions in the bedrock if revisions are determined necessary by the Contractor or Engineer. Submit the plan if the Contractor or the Engineer is of the opinion that the conditions encountered warrant modification of the original cavity stabilization plan indicated in Item (p) of Section 2.3 of this Special Note. Submit the plan to the Department within 10 calendar days after completing the drilled shafts requiring stabilization (See Section 4.5 for further requirements). The Department will notify the Contractor within 10 business days after receipt of proposed changes of their acceptance or

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rejection of the revised plan. All procedural acceptance given by the Department is subject to trial and satisfactory performance in the field by the contractor during installation of the drilled shafts where cavities were encountered in the bedrock and do not relieve the contractor of the responsibility to satisfactorily complete the work as detailed in the plans and specifications.

If the Contactor does not intend to revise the initial stabilization plan, submit in writing that in the Contractor's opinion, no revisions are required to the initial stabilization plan within 10 calendar days after completing the first cavity stabilization.

### **3.0 MATERIALS**

#### **3.1 Concrete Mixes**

**3.1.1** Design concrete mixes for the drilled shafts having a minimum compressive strength at 28 days of 5000 psi with an air content of 5% +/- 2%. Maintain the slump of the concrete at the time of placement between 7.5 to 10 inches, the maximum coarse aggregate size is 3/8", and maintain the water/cementitious material ratio not to exceed 0.45. Use water reducing and retarding admixtures as required. Type F high range water reducers used in combination with retarding admixtures or type G high range water reducers fully meeting trial batch requirements are permitted. Class F fly ash is permitted in conformance with Section 601. Design the concrete mix to have a slump-time relationship ("slump loss") of the concrete exceeding 6 inches after 4 hours from initial mixing and also exceeding 4 inches at 10 hours after batching or 2 hours after estimated placement time per drilled shaft, whichever is longer. Use of a hydration stabilizer that has been approved for experimental use in the Kentucky Product Evaluation List (KyPEL) is permitted for the purpose of controlling slump loss.

**3.1.2** Perform trial batches prior to beginning drilled shaft construction in order to demonstrate the adequacy of the proposed concrete mix per Standard Section 601 and the modifications in this section. Through trial batches, demonstrate that the mix to be used will meet the requirements for temperature, minimum target slump, slump-time relationship ("slump loss"), air content, water/cementitious material ratio, and compressive strength. Trial batch compressive strength requirements will be in accordance with ACI 318, Section 5.3.2. Develop trial batches using the ingredients, proportions and equipment (including batching, mixing, and delivery) to be used on the project. Produce at least two independent consecutive trial batches of 3 cubic yards each using the same mix proportions and meeting all specification requirements prior to the mix design being accepted by the Department. Department personnel will observe all phases of the trial batching. Submit a report containing the

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results for slump, air content, water/cement ratio, temperature, and compressive strength and mix proportions for each trial batch to the Engineer for review and acceptance. Failure to demonstrate the adequacy of the concrete mix, methods, or equipment to the Engineer is cause for the Engineer to require appropriate alterations in concrete mix, equipment, and/or method by the Contractor to eliminate unsatisfactory results. Provide any additional trial batches required to demonstrate the adequacy of the concrete mix, method, or equipment at no additional cost to the Department and with no extension of contract time.

- 3.1.3** Provide estimated concrete placement durations for each location. Adjust admixture dosages on a case-by-case basis as placement times and ambient temperature variables change. Perform additional trial batching to ensure dosage adjustments are correct at no additional cost to the Department and no extension of contract time.
- 3.1.4** Cavity stabilization concrete/grout – Provide concrete meeting the requirements of Sections 3.1.1 and 3.1.2 above or grout meeting the applicable requirements for “grout” in Section 601.03.03 B) of the Standard Specifications. The Department will consider allowing an alternate mix design if proposed by the Contractor.

**3.2 Permanent Casing**

- 3.2.1** Provide permanent structural casing meeting the requirements of ASTM A252 Grade 3 or better unless specified otherwise in the plans. Manufacture the casing using ASTM A-1018, Grade 55, Class 1 steel or accepted equivalent. Furnish two copies of certification from the Fabricator detailing the designated specification with which the furnished casings comply. Welds made at a permanent manufacturing facility shall be made by either automatic fusion weld or electric resistance weld process. Visually inspect 100% of the inside and outside of all welds per AWS D1.1:2105 Section 9.25 (Part F, Inspection). A minimum of 25% of each longitudinal, circumferential or spiral weld shall receive nondestructive testing by either radiographic, radiosopic, real time imaging systems or ultrasonic methods compliant with AWS D1.1:2015.
- 3.2.2** Splice the permanent structural casing in accordance with Section 6.13.3 of the LRFD Bridge Design Specifications and AWS D1.1:2105 Section 9. Use full penetration groove welds for splicing. Produce casing splices that are true and straight. Do not use interior splice plates.
- 3.2.3** Provide permanent casing of ample strength to resist damage and deformation from transportation and handling, installation stresses, and all pressures and forces acting on the casing.

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- 3.2.4** Where the minimum thickness of the permanent casing is specified in the Plans, it is specified so as to satisfy in-service structural design requirements only. Increase the casing thickness from the minimum specified thickness, as necessary, to satisfy the construction installation requirements with approval by the Engineer. In addition to "Permissible Variations in Widths and Dimensions" specified in ASTM A252, provide permanent casing meeting the following dimensional tolerance requirements: (1) Straightness: do not allow the straightness to vary more than 0.001 times the length of the shaft (1/8 in. in any 10-ft length); (2) Radial offset (misalignment) of plate edges in weld seams: transition weld any offset exceeding 25% wall thickness with a 3 to 1 slope from both sides. Cut and realign any offset exceeding 33% of the wall thickness.
- 3.2.5** Provide permanent casing that is smooth, clean, watertight, true and straight, and of ample strength to withstand handling, installation, and the pressure of concrete, water and the surrounding earth materials. Provide casing with diameters and sizes not less than the specified diameter of the drilled shaft on the plans. No extra compensation will be allowed for concrete required to fill an oversized casing or oversized excavation. Ensure casing field splices and fit-up conform to the current edition of AWS D1.1 with no exterior or interior splice plates and produce true and straight casing, as well as the following additional requirements.
- a. Provide full penetration butt welds at all welds.
  - b. Visually inspect the full length of all welds.
  - c. Test 33% of the length of each circumferential field weld by radiographic, ultrasonic or other suitable methods. Conform with all testing, repair and acceptance to the requirements of AWS D1.1:2015 Section 9. If repairs are required, test all repairs using nondestructive testing on both sides of the repair for a length equal to 10% of the length of the casing outside circumference.
  - d. Subject all field welding of casings to the approval of the Engineer. Provide results of weld tests to the Engineer in digital format. The Department will respond to the Contractor regarding acceptability of field welds within five (5) business days, unless indicated otherwise in this special note.
  - e. Space all field welds for permanent casing at a minimum of 60 feet along the length of the casing.
  - f. Produce final casing meeting the fit-up requirements of AWS D1.1:2015 Section 9.24.1, "Girth Weld Alignment (Tubular)," when the project requires the material be spliced utilizing a girth weld.
- 3.2.6** Provide non-contaminated concrete from the bottom of rock socket elevation to the top of concrete elevation in each drilled shaft without a cold joint. Embed the permanent casing into the rock a sufficient amount to create and maintain a concrete tight seal and prevent collapse or excessive deformation of soil outside the permanent casing. Cut off the

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casing at the prescribed elevation and trim to within tolerances prior to acceptance. Provide cutting teeth or cutting shoes capable of adequately embedding and sealing the casing into the bedrock.

- 3.2.7** When accepted by the Department, installation of casing using rotating or oscillating methods will be permitted. Use this casing method in accordance with the equipment and procedures shown in the accepted Drilled Shaft Installation Plan, and comply with all other requirements specified herein. Provide casing equipped with cutting teeth or cutting shoe when using rotator and/or oscillator methods to seal the casing into the bedrock. Provide cutting teeth or cutting shoes capable of adequately embedding and sealing the casing into the bedrock. If used, cutting shoes shall conform to ASTM A148, Grade 90-60.
- 3.2.8** Submit details concerning the proposed casing design with the Drilled Shaft Installation Plan that are consistent with the minimum casing requirements indicated in the design drawings.

**3.3 Temporary Casing**

- 3.3.1** If the contractor elects to use temporary casing for any reason, provide temporary casing with smooth wall structural steel that is of ample strength to resist damage deformation from transportation and handling, installation stresses, and all pressures and forces acting on the casing. Prior to placement in the excavation, provide temporary casing that is watertight and clean. Provide temporary casing capable of being removed without deforming and causing damage to the permanent casing or completed shaft, and without disturbing the surrounding soil. The Department will not allow additional costs and will allow no extension of contract time for the use of temporary casings. Leave no temporary casing in-place without the prior acceptance of the Department. Provide temporary casing of uniform outside diameter not less than the specified diameter of the drilled shaft being installed. The method of temporary casing installation and removal must result in intimate contact between the permanent casing and the soil below the design scour elevation.
- 3.3.2** The annulus between temporary casing and the permanent casing must be completely filled with grout or other material allowed by the Department. Place all grout using a tremie tube inserted to the bottom of the temporary casing. As the temporary casing is withdrawn, maintain a sufficient head (minimum 5 feet) of fluid grout in the annulus between the permanent casing and the temporary casing to ensure intimate contact between the permanent casing, the grout and the adjacent soil. Extract temporary casing at a slow, uniform rate with the pull in the line with the shaft axis.

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- 3.3.3** When allowed by the Department, installation of temporary casing using rotating or oscillating methods will be permitted. Use this casing method in accordance with the equipment and procedures shown in the accepted Drilled Shaft Installation Plan, and comply with all other requirements specified herein. Provide casing equipped with cutting teeth or cutting shoe when using rotator and/or oscillator methods to seal the casing into the bedrock. Provide cutting teeth or cutting shoes capable of adequately embedding and sealing the casing into the bedrock, if required as part of the Contractor's plan.
- 3.3.4** Remove all temporary casings unless otherwise shown on the plans.

**3.4 Slurries**

If used, provide a sufficient quantity of slurry mix meeting the material requirements. Provide slurry containing material not detrimental to the concrete or surrounding ground strata. Any use of polymer or any other slurry at the contractor's option will be included in the unit bid prices for Drilled Shaft, Common and Drilled Shaft, Rock. Slurry use and requirements in drilled shafts where karst conditions exist may depend on the cavity stabilization method. If the Department decides that the slurry construction method is failing to produce the desired final results, discontinue operations and propose an alternate method for acceptance by and at no additional cost to the Department.

**3.4.1 Slurry Submittals**

As part of the Drilled Shaft Installation Plan, submit a Proposed Method of Slurry Use (if used), including the following prepared by the Slurry Supplier:

1. a detailed slurry mix design, specific slurry properties, time for hydration, and a discussion of suitability for the anticipated subsurface conditions;
2. methods to mix, circulate, and de-sand the slurry; details of the proposed testing, test methods, sampling methods, and test equipment;
3. the name and current phone number of the supplier's representative for the project; and
4. any other information the slurry supplier deems necessary.

Also, include the following, prepared by the Contractor or Slurry Supplier:

1. Proposed method and location to dispose of slurry.

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**3.4.2 Slurry Supplier Technical Representative**

Provide a technical representative of the slurry supplier for the purpose of:

1. training project inspectors and contractor personnel regarding the slurry properties, handling, placement and proper testing procedures.
2. being at the site during premixing prior to introduction of slurry into the first shaft and during the first 8 hours of drilling or until the mix shows consistent behavior, as determined by the Engineer.
3. being available to provide technical assistance and consultation to the Contractor and/or the Department during construction of all shafts.

Allow direct communication between the technical representative and the Department at all times.

**3.4.3 Polymer Slurry Materials – Dry Polymer and Emulsified Polymer**

Provide PHPA Dry Polymer and mix with water without additives to form a slurry mix meeting the material requirements below. Note higher viscosities may be required to maintain excavation stability in loose or gravelly sand deposits.

Property	Allowable Range	Units	Test Apparatus
Marsh Funnel Viscosity	50-80	sec/qt	Marsh Funnel
pH	7-11		pH paper or pH meter
Density	≤ 64	pcf	Density Balance
Sand Content, at introduction	≤ 1	% by volume	API Sand Content Kit
Sand Content, Immediately prior to placing concrete	≤ 1	% by volume	API Sand Content Kit

Provide Emulsified Polymer and mix with water without additives to form a slurry mix meeting the material requirements below. Note higher viscosities may be required to maintain excavation stability in loose or gravelly sand deposits.

Property	Allowable Range	Units	Test Apparatus
Marsh Funnel Viscosity	33-43	sec/qt	Marsh Funnel
pH	8-11		pH paper or pH meter
Density	≤ 64	pcf	Density Balance
Sand Content, at introduction	≤ 1	% by volume	API Sand Content Kit
Sand Content, Immediately prior to placing concrete	≤ 1	% by volume	API Sand Content Kit

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**3.4.4 Mineral Slurry Materials**

The Department will not allow mineral slurry materials on this project.

**3.4.5 Water Slurry**

Water may be used as slurry when casing is used for the entire length of the drilled hole, provided that the method of drilled shaft installation maintains stability at the bottom of the shaft excavation. Maintain the water as clean as possible during its use as a slurry. Maintain water slurry with the following requirements.

Property	Allowable Range	Units	Test Apparatus
Density	≤ 66	pcf	Density Balance
Sand Content, Immediately prior to placing concrete	≤ 1	% by volume	API Sand Content Kit

**3.4.6 Construction and Testing**

Provide a set of slurry testing equipment, including a carrying case, which contains all equipment necessary to test the slurry properties in the applicable table(s) above. This testing equipment is for the exclusive use of project inspectors to perform comparison tests and is in addition to test equipment to be used by the Contractor. This testing equipment will become the property of the Department. Provide this testing equipment at no additional cost the Department.

Designate one person to be responsible for mixing and testing slurry.

Prior to beginning excavation in any shaft where slurry is designated in the Drilled Shaft Installation Plan, premix slurry in tanks using an approved water supply. Only use tanks for slurry mixing, the Department will not permit the use of slurry pits. Use water that does not have characteristics detrimental to the slurry, drilled shaft excavation, or concrete. Additives are not allowed unless approved in writing by the Engineer. Use air diaphragm pumps or other similar non-shearing mixing devices to mix the slurry and pump it into the shaft. Allow adequate time (as prescribed by the slurry supplier) for hydration prior to introduction into the shaft. Provide slurry tanks with adequate capacity for slurry mixing, circulation, storage, and treatment. Sample the slurry in the tanks at a rate of 1 sample per 10,000 gallons and perform control tests on the slurry to evaluate viscosity, pH, density, and sand content of the freshly mixed slurry. At the discretion of the Engineer, sand content tests may be omitted on selected samples. Representatives of the Department may perform comparison tests as necessary. If any portion of slurry is not within the specified ranges, adjust the mix and retest at no additional cost

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to the Department.

Prior to beginning drilling, pump slurry meeting the material requirements into the shaft, as directed by the Engineer. Pump slurry to the bottom of the shaft through a hose or tremie pipe. Pump until the slurry is at least 4 ft. above the ground water level, unless directed otherwise by the Engineer. Perform a set of tests to evaluate the properties of the slurry mix in the shaft and report the values to the Engineer immediately. (See the definition of a test set below.)

Perform tests to establish a consistent working pattern taking into account the mixing process and blending of freshly mixed slurry with previously used slurry. Perform a set of tests every 4 hours of slurry use, during drilling. Perform a set of tests immediately prior to and immediately after every drilling shift. Perform at least 1 test set per day after drilling is complete and prior to concreting. Representatives of the Department may perform comparison tests as necessary.

A set of tests is defined as: viscosity, pH, density, and sand content tests performed on samples extracted from within 3 ft. of the shaft bottom and approximately mid-length of the shaft at the time of testing. At the discretion of the Engineer, sand content tests may be omitted on selected samples. Take samples using a sampling tool marked so that the depth of the slurry sample can be determined.

Report all test results to the Engineer immediately and add additional slurry, meeting the material requirements, and/or remove slurry to adjust the mix in the shaft when the slurry does not meet the requirements above; pump through a hose or tremie pipe

Take all steps necessary to prevent the slurry from caking along the sides of the shaft at no additional cost to the Department. Such methods may include but are not limited to agitation, circulation, re-reaming and or roughening with appropriate new bottom cleaning and slurry testing prior to placing concrete.

Prior to placing concrete in any shaft excavation, ensure that heavily contaminated suspensions which could impair the free flow of concrete have not accumulated in the bottom of the shaft excavation. Settling time after the completion of drilling may be necessary to accomplish this. Perform a set of tests after completing shaft excavation and initial cleanout. At no additional cost to the Department, remove suspended solids until all values of density and sand content are within the specification herein for the respective slurry type. Clean, re-circulate, de-sand or replace the slurry, as needed, in order to maintain the required slurry properties. Reuse of slurry will be permitted provided the slurry is

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cleaned, re-circulated, de-sanded, etc. to return the slurry to the specified properties.

Furnish written reports of all tests required above, signed by an authorized representative of the Contractor, to the Engineer on completion of each drilled shaft. Include shaft number, sampling and test times and dates, sample depths and elevations, and all test results.

### **3.4.7 Disposal**

Dispose of all slurry after use. Dispose of slurry off site in areas approved by the Engineer at no additional cost to the Department and with no extension of contract time. Exercise care to ensure that slurry does not spill into any adjacent streams.

Take precautions to ensure that slurry within 15 to 20 ft. of the rising concrete head does not contaminate slurry to be mixed for subsequent shaft excavation. If this slurry is pumped into a mixing tank, use a separate tank. If this tank is to be for used for subsequent slurry mixing, clean the tank thoroughly after slurry disposal to ensure that concrete contamination has been removed. Verify that the tank has been sufficiently cleaned by filling it with water and performing a minimum of 3 pH tests. Continue cleaning the tank until the pH is below 9.

## **4.0 EXECUTION**

### **4.1 Subsurface Exploration**

Take subsurface exploration borings when shown on the plans or as the Engineer directs to determine the character of the material that the shaft extends through and the material directly below the shaft excavation. Complete subsurface exploration borings prior to beginning excavation for any drilled shaft in a group. Extend subsurface exploration borings a minimum depth of 3 shaft diameters but not less than 10 feet below the bottom of the anticipated tip of drilled shaft excavation as shown on the plans unless otherwise specified. For subsurface exploration borings in soil use thin-wall tube samples and perform standard penetration tests according to the Department's Geotechnical Manual. When shafts extend into rock, soil samples are not required unless otherwise specified. Perform rock core drilling according to the Department's Geotechnical Manual. When the Engineer directs, perform additional subsurface exploration borings prior to and/or during the course of the drilled shaft excavations. Measure soil samples and/or rock cores and visually identify and describe them on the subsurface log. Subsurface exploration borings must be performed by contractors/consultants on the Geotechnical Branch's approved list.

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The Engineer will be on-site during the subsurface exploration process to evaluate the soil and/or rock core samples. The Engineer will determine the need to extend the borings to depths greater than the depths previously specified. Handle, label, identify, and store soil and/or rock samples according to the Department's Geotechnical Manual and deliver them with the subsurface logs to the Engineer within 24-hours of completing the borings.

The Engineer will inspect the soil samples and/or cores and determine the final depth of required excavation (final drilled shaft tip elevation) based on evaluation of the material's suitability. The Engineer will establish the final tip elevations for shaft locations, other than those for which subsurface exploration borings have been performed, based on the results of the subsurface exploration. Within 15 calendar days after completion of the subsurface exploration borings, the Engineer will notify the contractor of the final tip elevations for shaft locations.

#### **4.2 Equipment**

Perform the excavations required for the shafts through whatever materials are encountered to the dimensions and elevations shown in the plans. Ensure the methods and equipment are suitable for the intended purpose and the materials encountered. Provide equipment capable of constructing shafts to the deepest shaft depth shown in the plans plus 15 feet, 20 percent greater than the longest shaft (measured from the ground surface to the tip of the shaft), or three times the shaft diameter, whichever is greater.

#### **4.3 Construction Method**

Construct drilled shafts as indicated in the plans or described in this Special Note. Propose a construction method on the basis of its suitability to the site conditions and submit it in the Drilled Shaft Installation Plan for acceptance by the Department. Provide a plan for installation of permanent casing from the rock socket to a level required for the proposed drilling method or to the casing cut-off elevation, whichever is higher. After shaft has been cast and reached a minimum strength of 2500 psi, remove permanent casing to the elevation indicated on the plans.

#### **4.4 Templates**

The Contractor shall provide a detailed plan on the methods to maintain shaft position and alignment during all excavation and concreting operations. Design of templates is the responsibility of the Contractor.

#### **4.5 Excavations**

The plans indicate the expected bottom of rock socket, top of rock socket, and top of shaft/bottom of footing elevations. Drilled shafts may be extended deeper if the

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Engineer determines that the material encountered while drilling the shaft excavation is unsuitable and/or is not the same as anticipated in the design of the drilled shaft.

Cleanout will be by cleanout bucket, air lift or other accepted method. The cost of replacing water or slurry removed during cleanout is the responsibility of the contractor.

If the Contractor fails to satisfy the cleanout criteria on a shaft, submit, in writing, a remedial plan to the Engineer. Until the plan is accepted by the Engineer, no additional drilled shaft excavations can be started on the project. No additional compensation or working days will be allowed for any delays for work stoppage associated with non-compliance of the cleanout criteria.

Do not excavate shafts or install casing within 50 feet of a shaft containing concrete less than 24 hours old. Do not excavate a rock socket within 3 shaft diameters of an existing open rock socket until the adjacent rock socket has been cleaned and filled with reinforced concrete at least 24 hours old. Where karst is encountered in the bedrock, no more than one rock socket can be open in a single substructure location at the same time.

Maintain a construction method log during shaft installation. Include the following information in the log, including but not limited to the description and approximate top and bottom elevation of each soil or rock material, and remarks. Refer to FHWA publication FHWA-NHI-10-016, Appendix, F, dated May 2010 for sample forms for information to be recorded.

<https://www.fhwa.dot.gov/engineering/geotech/foundations/nhi10016/nhi10016.pdf>

Provide the Department with the following records:

- (1) Drilled Shaft Excavation Log
- (2) Record of bottom cleanout and reinforcement cage placement.
- (2) Drilled Shaft Concrete Placement Log
- (3) Field and Theoretical Concreting Curves
- (4) Drilling Slurry test data, if used.

The Engineer may request the submittal of other records.

Dispose of excavated materials which are removed from the shaft in accordance with the Standard Specifications and requirements of other regulatory agencies.

Do not permit workmen to enter the shaft excavation for any reason unless both a suitable casing has been installed and adequate safety equipment and procedures meeting applicable OSHA requirements have been provided to workmen entering

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the excavation. Recommended Procedures for the Entry of Drilled Shaft Foundation Excavations, prepared by ADSC: The International Association of Foundation Drilling, provides guideline recommendations for down-hole entry of drilled excavations.

If the Contractor intends to use divers for any reason to inspect wet drilled shafts or decides after the start of drilled shaft installation to use divers inside the drilled shafts, submit a plan meeting applicable OSHA requirements to the Department for review and acceptance.

#### **4.6 Horizontal Cavity and Vertical Crevice Stabilization**

Horizontal cavities and vertical crevices are anticipated to be encountered in one or more of the drilled shaft rock sockets. Borings made at or near the proposed bridge substructure locations are shown on the Subsurface Data Sheets. Voids are noted on the Subsurface Data Sheet drawings when encountered in the geotechnical exploration programs. The borings have revealed the presence of occasional cavities.

Submit an initial plan to stabilize karst (cavities) conditions based on the available boring and rock core information at the time of bidding, per Section 2.3 of this Special Note. After completing the first cavity stabilization, submit a revised cavity stabilization plan based upon the conditions encountered during the installation of the drilled shaft with stabilization, per Section 2.6 of this Special Note. The revised cavity stabilization plan only needs to be submitted if conditions are encountered that warrant revision of the initial cavity stabilization plan. Provide written details addressing the possibility of encountering cavities/voids in drilled shaft construction if they were not encountered in any boring performed by the Department.

Seal all cavities encountered within the drilled shafts greater than 3 inches in any dimension (or as directed by the Engineer) sufficiently to prevent concrete loss or clay or other cavity-filling material from entering the drilled shaft during shaft construction. A possible method for sealing these includes filling the cavities with concrete or grout and re-drilling the rock sockets. However, the Department will consider alternate methods if proposed by the Contractor.

#### **4.7 Obstructions**

Remove any subsurface obstructions as they are encountered. Such obstructions may include man-made materials such as old concrete foundations or natural materials such as boulders or trees. Employ special procedures and/or tools when the hole cannot be advanced using conventional augers fitted with soil teeth, drilling buckets, and/or underreaming tools. Such special procedures or tools may include but are not limited to rock augers, core barrels, air tools, hand excavation, temporary casing, or increasing the hole diameter. Blasting is not permitted. No

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extra payment will be made for obstruction removal and is incidental to the applicable unit price bid for "Drilled Shafts".

Remove all drilling tools which are lost by the Contractor in the excavation promptly without compensation. All costs due to tool removal are at the sole expense of the contractor including but not limited to costs associated with excavation degradation due to removal operations or the time the hole remains open.

#### **4.8 Inspection of Excavations**

Provide safe access and equipment for checking the dimensions and alignment of each shaft and for conducting any required inspections. Use a safe device with handrails meeting all applicable OSHA requirements and approved by the Engineer to provide access for project inspectors at the top of casing at the center and any plan location in the shaft. Evaluate the dimensions and alignment of the shaft under the observation and direction of the Engineer. Cooperate with the Department in the use of any inspection device.

Measure final shaft depths with a weighted tape or other approved methods after final cleaning. Ensure the base of each shaft has less than ½ inch of sediment at the time of concrete placement. For dry excavations, do not allow the depth of water to exceed 3 inches for tremie or pump methods of concrete placement. Verify shaft cleanliness to the Engineer using direct visual inspection or other methods the Engineer determines acceptable. Inspect the side surface of rock sockets to ensure they are rough and of such condition to ensure bond between the shaft concrete and the rock. When the Engineer directs, mechanically roughen surfaces found to be smooth.

Upon evaluation of the test data, the KYTC Geotechnical Branch may inspect the drilled shaft rock socket with a down hole camera. The contractor must assist in access for personnel and equipment.

The cost of inspection equipment and time, including any down hole camera inspections of the sidewalls of the rock sockets conducted by KYTC, is incidental to the price per foot of shaft. Crosshole Sonic Logging (CSL) and Thermal Integrity Profiling (TIP), are separate pay items for production shafts as defined in the Special Note for Non-Destructive Testing in Drilled Shafts.

#### **4.9 Construction Tolerances**

The following construction tolerances apply to drilled shafts:

- a) Construct drilled shaft within three inches of plan position in the horizontal plane at the top of the shaft.
- b) Provide vertical alignment of a shaft excavation that does not vary from the plan alignment by more than 1/4 inch per foot of depth or six inches total.

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- c) Extend the vertical reinforcement a minimum value into the footing, as shown on the plans. Extend the horizontal or spiral reinforcement above the top of permanent casing into the footing as shown in the plans.
- d) Maintain the top of the reinforcing steel cage no more than 6 inches above and no more the 3 inches below plan position.
- e) All drilled shaft diameters are shown on the plans. The contractor may provide a thicker-walled casing than shown in the plans at no additional cost to the Department, but do not increase the inside diameter of the casing shown on the plans. For out-of-round tolerance of steel casings before and after installation, the departure of any point on the periphery of the casing from the true circle, the maximum tolerable departure of any point is 1 inch measured radially.
- f) Maintain the top of shaft concrete within  $\pm 3$  inches from the plan top of shaft elevation, measured after excess shaft concrete has been removed.
- g) Design excavation equipment and methods so that the completed shaft excavation will have a planar bottom. Maintain the cutting edges of excavation equipment normal to the vertical axis of the equipment within a tolerance of  $\pm 3/8$  inch per foot of diameter. Maintain the tip elevation of the shaft within 6 inches from final shaft tip elevation unless otherwise specified in the plans.
- h) Place any additional steel reinforcement or concrete needed in the footings or caps due to the misalignment of the shafts at no additional cost to the Department.

Drilled shaft excavations and completed shafts not constructed within the required tolerances are unacceptable. Correct all unacceptable shaft excavations and complete shafts to the satisfaction of the Engineer. Furnish materials and work necessary to complete corrections for out of tolerance drilled shaft excavations without either additional cost to the Department or an extension of the contract time. Engineering analysis and redesign for out of tolerance drilled shaft excavations shall be conducted by an independent structural and/or geotechnical consultant hired by and at the expense of the Contractor. Use consultants who are prequalified by KYTC in applicable areas. Alternatively, the Engineer may require the Department's designer to perform the referenced evaluations and the Department may require the cost of these evaluations to be borne by the Contractor. Based on the design criteria established for the structure and the evaluation, the Engineer will assess the effects of the defects on the structural performance of the drilled shaft. If the results of the analyses indicate that there is conclusive evidence that the discontinuity will result in inadequate or unsafe performance under the design loads, as defined by the design criteria for the structure, the Engineer will reject the shaft.

The contractor is responsible for proposing, developing, and after acceptance by the Engineer, implementing corrective work when a shaft excavation is completed with unacceptable tolerances. Typical corrective work includes:

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- a) Over-drilling the shaft excavation to a larger diameter and/or depth to permit accurate placement of the reinforcing steel cage with the required minimum concrete cover.
- b) Increasing the number and/or size of the steel reinforcement bars.
- c) Removing the cage and drilling out the green concrete and reforming the hole.

The acceptance of correction procedures is dependent on analysis of the effect of misalignment and improper positioning. Submit redesigned drawings and computations that are signed by a Professional Engineer licensed in Kentucky.

#### **4.10 Reinforcing Steel Cage Fabrication and Placement**

Assemble the reinforcing steel cage, consisting of vertical bars, ties, spirals and/or hoops as shown in plans, cage stiffener bars, spacers, centering devices, and other necessary appurtenances, as a prefabricated unit and place the reinforcing cage immediately after the shaft excavation is inspected and accepted, and just prior to concrete placement. Provide steel reinforcement meeting the requirements indicated in the drawings.

Provide reinforcing steel 100% double-wire tied and supported so that it will remain within allowable tolerances for position. Use approved mechanical couplers for splicing the vertical reinforcement. Splice no more than 50% of the vertical reinforcing at any horizontal plane. Provide three feet clear between the couplers of adjacent splices. Use bands, temporary cross ties, etc. as required to provide a reinforcement cage of sufficient rigidity to prevent racking, permanent deformations, etc. during installation.

Provide concrete centering devices or other acceptable noncorrosive centering devices at sufficient intervals along the length of the reinforcement cage to insure concentric spacing for the entire cage length. Provide, as a minimum, a set of non-corrosive centering devices at intervals not exceeding 10 feet throughout the length of the shaft. As a minimum, provide a set of centering devices within 2 feet of the top and 2 feet of the bottom of the shaft. In addition, provide one set of centering devices 2 feet above and 2 feet below each change in shaft diameter. As a minimum, provide non-corrosive centering devices at sixty degree intervals around the circumference of the shaft to maintain the required reinforcement clearances. Provide the centering devices with adequate dimension to maintain the specified annular clearance between the outside of the reinforcing cage and the side of the excavated hole or casing.

Concrete centering devices and feet will be constructed of concrete equal in quality and durability to the concrete specified for the shaft. Provide acceptable cylindrical feet (bottom supports) to insure that the bottom of the cage is maintained a minimum of 3 inches clear above the bottom of the drilled shaft excavation. The feet are not intended to support the weight of the cage.

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In the event that the shaft has been excavated below the anticipated tip elevation, extend the reinforcing cage at the direction of the Engineer with mechanical connectors in conformance with the Standard Specifications and project documents

Maintain the top of the reinforcing steel cage no more than 6 inches above and no more than 3 inches below plan position.

During concrete placement, support the reinforcing cage at or near the top of shaft such that the bottom of the vertical cage reinforcing bars are positioned approximately 3 inches above the design plan bottom of rock socket elevation. Top of cage supports may be removed twenty-four (24) hours after the completion of concrete placement, but not before shaft concrete has reached a compressive strength of 2500 psi.

Check the elevation of the top of the reinforcing cage before and after the concrete is placed. If the reinforcing cage is not maintained within the specified tolerances noted in the plans and this Special Note, correct the reinforcing cage location to the satisfaction of the Engineer. Do not construct additional shafts until the contractor has modified the reinforcing cage support to obtain the required tolerances.

#### **4.11 Concrete Placement**

Perform concrete placement in accordance with applicable portions of the Standard Specifications and with the requirements set forth herein. Do not apply the provisions of structural mass concrete requirements to concrete placement of the Drilled Shafts.

Begin concrete placement as soon as practicable after reinforcing steel placement but no later than twenty four (24) hours after acceptance of the shaft excavation by the Engineer. Maintain continuous concrete placement from the bottom to above the top elevation of the shaft. If the Contractor would like to pour the drilled shaft to an elevation different than indicated on the plans, submit a request and the reason for a different top of concrete elevation in the drilled shaft to the Engineer for review and acceptance. The Contractor is responsible for ensuring that sound concrete is present at the top of the shaft and will be required to remove any unsound concrete at no additional cost to the Department. Carefully remove any remaining concrete and excess casing above plan top of shaft after curing.

Maintain the slump requirements in Section 3.1.1 of this Special Note. Adjust the admixtures, when accepted for use, in the concrete mix for the conditions encountered on the project so that the concrete remains in a workable plastic state throughout the placement. Satisfactorily perform slump loss tests that demonstrate that the concrete will maintain the requirements in Section 3.1.1 of

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this Special Note. Conduct the slump loss tests using concrete and ambient temperatures appropriate for site conditions.

Provide an acceptable backup plan that accounts for potential breakdowns in placement equipment or the batch plants equipment that will permit the operation to continue with a maximum of one hour delay.

Failure to demonstrate the adequacy of the concrete placement methods, and/or equipment during construction of any production shafts is cause for the Engineer to require appropriate alterations in equipment and/or methods by the Contractor to eliminate unsatisfactory results.

Place concrete through a tremie. Provide tremies used to place concrete consisting of a tube of sufficient length, weight, and diameter to discharge concrete at the shaft base elevation. The tremie pipe needs to be located within 3 ft. of the center of the shaft. Tremies containing aluminum parts that will be in contact with the concrete are not acceptable. Provide a tremie with an inside diameter of at least 6 times the maximum size coarse aggregate to be used in the concrete mix but not be less than 10 inches. Provide tremie pipes with inside and outside surfaces that are clean and smooth to permit both flow of concrete and unimpeded withdrawal during concreting. Provide tremies with a wall thickness that is adequate to prevent crimping and without sharp bends that restrict concrete placement.

Construct tremies to deposit concrete so that they are watertight and will readily discharge concrete. Provide tremies with sufficient weight so that it will rest on the shaft bottom before start of concrete placement. Provide a tremie with sufficient length to extend to the bottom of the excavation. Do not begin underwater placement until the tremie is at the shaft base elevation. Valves, bottom plates, or plugs may be used only if concrete discharge can begin within approximately 2 inches above the excavation bottom. Remove plugs from the excavation, or provide plugs consisting of a material accepted by the Engineer that will not cause defects in the completed drilled shaft if not removed. Construct the discharge end of the tremie to permit the free radial flow of concrete during placement operations. Keep the tremie discharge end at or near the bottom of excavation as long as practical during concrete placement. Sustain the tremie discharge end immersed as deep as practical in the concrete but not less than 10 feet at all times. Excessive immersion may cause the rebar cage to rise. Maintain continuous flow of the concrete during placement. Maintain the concrete in the tremie at a positive pressure differential at all times to prevent water or slurry intrusion into the shaft concrete.

If at any time during the concrete pour the tremie line orifice is removed from the fluid concrete column and discharges concrete above the rising concrete surface, the entire drilled shaft will be considered defective. In such case, remove the reinforcing cage, concrete, and repour the shaft. Replacement of defective shafts

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and all associated costs are the responsibility of the contractor at no additional cost to the Department and with no extension of contract time.

Concrete pumps and lines may be used for concrete placement. Five inches is the minimum diameter for all pump lines. Construct all pump lines with watertight joints.

Drilled shafts which are completed but do not meet the concrete placement requirements of this Special Note or contract plans are unacceptable. Correction of all unacceptable completed shafts to the satisfaction of the Engineer is the responsibility of the Contractor. Furnish materials and work necessary to complete corrections for out of tolerance drilled shaft excavations without either additional cost to the Department or an extension of the contract time. Engineering analysis and redesign for out of tolerance drilled shaft excavations shall be conducted by an independent structural and/or geotechnical consultant hired by and at the expense of the Contractor. Use consultants who are prequalified by KYTC in applicable areas. Alternatively, the Engineer may require the Department's designer to perform the referenced evaluations and the Department may require the cost of these evaluations to be borne by the Contractor. Based on the design criteria established for the structure and the evaluation, the Engineer will assess the effects of the defects on the structural performance of the drilled shaft. If the results of the analyses indicate that there is conclusive evidence that the discontinuity will result in inadequate or unsafe performance under the design loads, as defined by the design criteria for the structure, the Engineer will reject the shaft. Propose, develop, and implement corrective work, after acceptance by the Engineer. Typical corrective procedures are outlined in Section 4.9 of this Special Note.

#### **4.12 Acceptance of First Shafts Constructed at Each Substructure Unit**

Since technique shafts are not required, all non-destructive testing reports for the first drilled shaft at each substructure unit must be submitted and accepted before beginning drilling activities on the remainder of the drilled shafts at that substructure unit. This includes completion and acceptance of any corrective items that are a result of failed materials tests, non-destructive testing results, or out-of-tolerance measurements. Account for delays to complete non-destructive testing, corrective work, and review time for acceptance in the schedule and bid prices. Proceed only with written notification by the Engineer.

### **5.0 METHOD OF MEASUREMENT**

#### **5.1 Drilled Shaft, Common and Drilled Shaft, Rock**

The drilled shafts will be measured for payment to the nearest 0.1 foot of shaft in place. Drilled shaft top of rock elevation will be determined by the subsurface exploration borings as defined in Section 4.1 of this Special Note. For pay

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purposes, the length of any drilled shaft installed above the Drilled Shaft Top of Rock Elevation as determined by the subsurface exploration borings will be measured and paid for at the applicable unit price bid for 'Drilled Shaft, Common'. Drilled shaft installed below the Drilled Shaft Top of Rock Elevation as determined by the subsurface exploration borings will be measured and paid for at the applicable unit price bid for 'Drilled Shaft, Rock'. Permanent Casing is incidental to the applicable unit price bid for 'Drilled Shaft, Common.'

**5.2 Slurry and Temporary Casing**

The use of "Polymer Slurry" or "Temporary Casing" will be incidental to the drilled shaft installation. There will be no payment for water used as a drilling slurry. The permanent steel casing indicated in the plans is incidental to the Drilled Shaft-Common unit price. Grouting between any temporary steel casing and permanent steel casing is incidental to the applicable unit price bid for 'Drilled Shaft Common'.

**5.3 Cavity Stabilization and Redrilling Cavity Stabilization**

Concrete or grout used to seal cavities in the bedrock will be measured in cubic yards. Redrilling through the cavity stabilization will be measured to the nearest 0.1 foot from the top of the concrete/grout to the elevation in the bedrock where the Contractor stopped drilling prior to placing cavity stabilization.

**6.0 BASIS OF PAYMENT**

**6.1 Drilled Shaft, Common and Drilled Shaft, Rock**

Payment for the accepted quantities of drilled shafts will be paid for at the applicable contract unit price bid per linear foot of drilled shaft of the size and type shown. This will constitute full compensation for all material, labor and incidental costs necessary to complete the drilled shafts. No additional compensation will be permitted for shafts constructed larger in diameter than those shown on the plans.

**6.2 Payment**

Payment will be made under:

<b>Code</b>	<b>Pay Item</b>	<b>Pay Unit</b>
XXXXXXX	Drilled Shaft – ## IN Common	Linear Foot
XXXXXXX	Drilled Shaft – ## IN Rock	Linear Foot
24737EC	Cavity Stabilization	Cubic Yard
24738EC	Redrilling Cavity Stabilization	Linear Foot
20745ED	Rock Sounding	Linear Foot
20746ED	Rock Coring	Linear Foot

# TRANSPORTATION CABINET DEPARTMENT OF HIGHWAYS

## RUSSELL COUNTY

### US127 OVER

### B MANN ROAD

### STA. 507+60.00

#### INDEX OF SHEETS

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S9	FOUNDATION LAYOUT
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#### SPECIAL NOTES

Drilled Shafts  
Non-Destructive Testing in Drilled Shafts

#### SPECIAL PROVISIONS

69 Embankment at Bridge End Bent Structures

#### STANDARD DRAWINGS

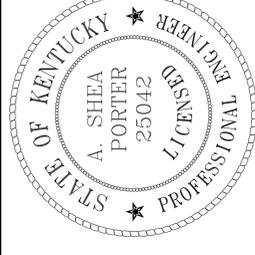
BBP-001-12	Elastomeric Bearing Pads for Prestressed Beams
BBP-002-04	Bearing Details
BGX-006-10	Stencils for Structures
BGX-012-02	Geotechnical Legend
BGX-015-03	Bridge Drains
BJE-001-13	Neoprene Expansion Joints and Armored Edges

#### SPECIFICATIONS

2019 Standard Specifications for Road and Bridge Construction,  
7th Edition 2014 AASHTO LRFD Bridge Design Specifications with Current Interims.

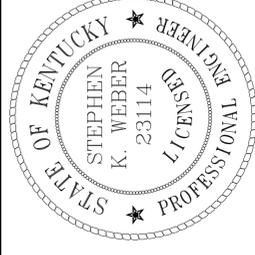
#### ESTIMATE OF QUANTITIES

BID ITEM CODE	BID ITEM	UNIT	08100	08104	08150	08151	08001	08002	02231	02398	25028ED	21777EN	20637ED	21420ED	21421ED	20745ED	20746ED	21321NC	24743EC	08500	08635	02603	23813EC	24737EC	24738EC
	Concrete Class "A"	C.Y.	22.9	15.0	3517	1856	119	12	87.9	3.3		31.4	24	22.1	20	31.4	36	3	3						
	Concrete Class "AA"	C.Y.	127.1		32770		138																		
	Steel Reinforcement	LBS.	188.4		52909		153																		
	Steel Reinforcement, Epoxy Coated	LBS.	345.8		89573		146	95																	
	Structure Excavation, Common	C.Y.	326.6		82196		313	100																	
	Structure Excavation, Solid Rock	C.Y.	251.5		55640		75	338																	
	Structure Masonry Coating	S.Y.	79.0	38.8	8694	7034	19	404	234.3	75															
	Structure Rail System - 40 in Single Slope	L.F.																							
	Structure Drilled Shaft 54 in Common	L.F.					31.4																		
	Structure Drilled Shaft 48 in	L.F.						24																	
	Structure Drilled Shaft Common 66 in	L.F.												22.1	20										
	Structure Drilled Shaft 60 in	L.F.													20	22.1	30	2	2						
	Structure Rock Soundings	L.F.														31.4									
	Structure Rock Corings	L.F.																							
	Structure CSL Testing (4 Tubes)	EA.																							
	Structure TIP Testing (4 Tubes)	EA.																							
	Structure Approach Slabs	S.Y.																							
	Structure Precast PCI-Beam Slabs	L.F.																							
	Structure Fabric - Geotextile, Class 2	S.Y.																							
	Structure Deck Drain	EA.																							
	Structure Cavity Stabilization	C.Y.																							
	Structure Redrilling Cavity Stabilization	L.F.																							
	Superstructure			884.6		260651				2832	1427.6									217	2629.3		5		
	BRIDGE TOTALS		1341.3	938.4	325299	269541	963	949	322.2	2940	1427.6	31.4	24	49.8	40	81.2	96	7	7	217	2629.3	307	5	41	64



*A. Shea Porter*

Covering rail revision from Railing System Type 3 to Rail System Single Slope - 40 in. including deck overhang design, beam checks & const. elevation updates for increased barrier dead load and new gutter line offsets.



*Stephen K. Weber*

ITEM NUMBER  
8-8601.21

#### TITLE SHEET

PREPARED BY  
**Qk4**  
1046 E. Chestnut Street  
Louisville, Kentucky 40204

COUNTY  
**RUSSELL**

ROUTE  
**US127**

CROSSING  
**B MANN ROAD**

SHEET NO.  
**S1**

DRAWING NO.  
**27544**

# TRANSPORTATION CABINET DEPARTMENT OF HIGHWAYS

## RUSSELL COUNTY

### US127 OVER

### B MANN ROAD

### STA. 507 + 60.00

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REVISION **03/01/2022**

DATE: 6/29/2018  
DESIGNED BY: S. Weber  
CHECKED BY: R. Wade  
DETAILED BY: M. Smith  
S. Weber

Commonwealth of Kentucky  
DEPARTMENT OF HIGHWAYS

RUSSELL COUNTY

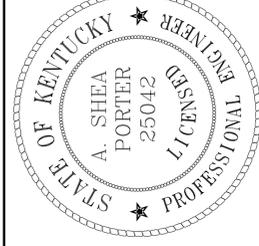
ROUTE **US127** CROSSING **B MANN ROAD**

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1046 E. Chestnut Street  
Louisville, Kentucky 40204  
SHEET NO. **S1**  
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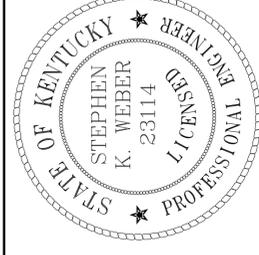
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BID ITEM	Concrete Class "A"	Concrete Class "AA"	Steel Reinforcement	Steel Reinforcement, Epoxy Coated	Structure Excavation, Common	Structure Excavation, Solid Rock	Structure Granular Backfill	Masonry Coating	Rail System - 40 in Single Slope	Drilled Shaft - 40 in	Drilled Shaft Common 54 in	Drilled Shaft Common 66 in	Drilled Shaft Rock 60 in	Rock Soundings	Rock Corings	CSL Testing (4 Tubes)	TIP Testing (4 Tubes)	Approach Slabs	Precast PC-Beam	Fabric - Geotextile, Type 6	Deck Drain Class 2	23813EC	24737EC	24738EC
UNIT	C.Y.	C.Y.	LBS.	LBS.	C.Y.	C.Y.	C.Y.	S.Y.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	EA.	EA.	SY.	L.F.	S.Y.	EA.	EA.	C.Y.	L.F.
END BENT #1	22.9	15.0	3517	1856	119	12	87.9	3.3		31.4	31.4	22.1	20	31.4	36	3	3			152			11	24
PIER #1	127.1		32770		138					22.1		22.1	20	22.1	30	2	2						15	20
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