

SUMMARY OF QUANTITIES													
Item	Excavation		Concrete		Reinforcing Steel		Piles	Contractor	Bridge	Abutment	Slope Protection	Handrail,	Handrail,
	Class I	Class II	(Grade 4.0)	(Grade 4.0)	(Epoxy Coated)	(Grade	(Steel)	Furnished	Backwall	Strip	(Riprap Stone)	Pedestrian	Bicycle
Location	Cu. Yds.	Cu. Yds.	(AE) (SA)	(AE)	(Grade 60)	60)	(HPI2x53)	PDA	Prot. System	Drain	(Light 18")	Lin. Ft.	Lin. Ft.
			Cu. Yds.	Cu. Yds.	Lbs.	Lbs.	Lin. Ft.	Each	Sq. Yds.	Sq. Yds.	Cu. Yds.	Lin. Ft.	Lin. Ft.
Abutment No. 1	78.1	--	**	--	**	--	1,250.0	1	42.0	32.2	284.3	--	--
Pier No. 1	--	276.5	--	162.1	11,130	11,730	1,394.0	2	--	--	--	--	--
Pier No. 2	--	283.1	--	162.1	11,130	11,730	1,558.0	2	--	--	--	--	--
Abutment No. 2	77.5	--	**	--	**	--	1,261.3	1	42.0	32.2	204.6	--	--
Substr. Total	155.6	559.6	--	324.2	22,260	23,460	5,463.3	6	84.0	64.4	488.9	--	--
Superstr. Total	--	--	1066.9	--	294,500	--	--	--	--	--	--	162.5	162.5
Total	155.6	559.6	1066.9	324.2	316,760	23,460	5,463.3 †	6	84.0	64.4	488.9	162.5	162.5

**Quantities are included in the Superstr. Total Quantity.

† Summary of Piling

Abutment No. 1 15 @ 83'-4" Pier No. 2 24 @ 64'-11"
Pier No. 1 24 @ 58'-1" Abutment No. 2 15 @ 84'-1"

GENERAL NOTES

DEMOLITION PLANS: This is a *Category A* Demolition. Submit detailed Demolition Plans to the Field Engineer per KDOT Specifications. No Demolition work will begin without approved Demolition Plans. A Licensed Professional Engineer is not required.

EMBANKMENT: Complete the embankment at the abutments as shown on the Bridge Excavation sheet prior to driving the abutment piling or commencing with the abutment footing excavation.

BRIDGE EXCAVATION: Elevation 1342.30 shall designate the Excavation Boundary Plane of Class I and Class II Excavation; Class I above the plane, Class II below the plane. See the Bridge Excavation sheet for the limits of pay excavation.

BACKFILL COMPACTION: Compact backfill at the abutments.

PILING: Drive all piling to penetrate or bear upon the Wellington shale formulation. Driving shall stop when, in opinion of the Engineer, additional driving may damage the piling. Drive all piling to the Pile Driving Formula Load of:

Abutment No. 1	84.7 Tons
Pier No. 1	172.1 Tons
Pier No. 2	172.1 Tons
Abutment No. 2	84.7 Tons

As a minimum drive each pile to the load and penetration, but in no case shall the pile be driven to more than 110% of Pile Driving Formula Driving Load. At any location where problems are experienced, pile damage is suspected, or the Pile Driving Formula Load occurs significantly above the design pile tip elevation, the Engineer may request that the Pile Driving Analyzer (PDA) equipment be used.

CONTRACTOR FURNISHED PDA: Use the Pile Driving Analyzer equipment at the locations shown in the Construction Layout. Use Pile Driving Analyzer equipment and methods compliant with KDOT Special Provisions. The piling shall remain in place as permanent piling. Drive the piling to the resistance value of (Strength I divided by Phi). At any location where problems are experienced, pile damage suspected, or the Pile Driving Formula Load occurs significantly above the design tip elevation, the Engineer may request that the Pile Driving Analyzer (PDA) equipment be used.

CORRAL RAIL: Build the corral rail after the falsework is struck.

ABUTMENT STRIP DRAIN: See the General Notes on the "Abutment Strip Drain" sheet.

BRIDGE BACKWALL PROTECTION SYSTEM: See the General Notes on the "Abutment Strip Drain" sheet.

BROKEN CONCRETE: Waste the broken concrete from the existing bridge on sites provided by the Contractor and approved by the Engineer.

REMOVAL OF EXISTING STRUCTURES: Removal of existing structure is included in the bid item, "Removal of Existing Structures", Lump Sum. All materials removed from the existing structure shall become the property of the Contractor.

SLOPE PROTECTION (Riprap Stone) (Light 18"): Place Slope Protection (Riprap Stone) (Light 18") to the limits and thicknesses shown on the plans or as directed by the Engineer. Place a 10 foot wide mat of geotextile under the rock/rubble embankment on the berm and berm slopes and centered on the drip lines of the slab.

CONCRETE: Superstructure concrete is bid as Concrete (Grade 4.0)(AE)(SA). Substructure concrete is bid as Concrete (Grade 4.0)(AE). The Contractor may use Concrete (Grade 4.0) in the footings. Bevel all exposed edges of all concrete with a 3/4" triangular molding, except as otherwise noted on the plans. Construction joints are optional with the Contractor, but if used, place only at locations shown, or at locations approved by the Engineer.

REINFORCING STEEL: All reinforcing steel dimensions are to the centerline of bars unless otherwise noted. All reinforcing steel, except the spiral bars, shall conform to the requirements of ASTM A615, Grade 60.

CAMBER: Provide camber as shown on the Camber Diagram unless the Contractor uses either long span steel beam falsework (concrete dead load deflection greater than 1/4") or timber falsework with greater than 12'-0" clear span. If either case exists, submit falsework plans that show the additional required camber.

FALSEWORK PLANS: A licensed Professional Engineer shall design the falsework details. Details shall bear the seal of a licensed Professional Engineer. See the Bridge Design Manual, Section 5.1 "Review and Approval of Falsework Plans", for a listing of items to be included on the falsework plan. Submit three sets of details in compliance with KDOT Specifications to the Engineer for review.

FALSEWORK: Leave the falsework in place for the entire unit until 15 days after the last concrete pour for the unit or longer as directed by the Engineer.

FALSEWORK INSPECTION: This project has falsework plan requirements which are considered "Category 2" by KDOT Specifications. If falsework deficiencies or variations from the approved and sealed plans are found, the falsework design Engineer of Record will provide written approval of the changes. If for the convenience of the Contractor the falsework becomes "Category 1" by the use of non-typical supports; then the inspection and review requirement of "Category 1" will be fully enforced, but at no cost to the State. "Category 2" falsework inspection is not paid for directly, but is subsidiary to other bid items.

CONTRACTOR CONSTRUCTION STAKING: Contractor Construction Staking for clear span bridges requires two independent surveys. See KDOT Specifications.

CONCRETE PLACING SEQUENCE: The sequence of placing concrete in the slab and curbs shall be as shown, or the Contractor may submit an alternate placing sequence for review. Submit the alternate placing sequence to the Engineer at the Preconstruction Conference. Include the proposed rate of concrete placement in C.Y./h, the plant capacity, placement direction, construction joint location, a description of the equipment used in placing the concrete, proposed admixtures, and the quantity of concrete in each placing segment. Any additional cost for the Contractor's alternate plan of placing concrete, including admixtures, shall be at the Contractor's expense and shall be considered subsidiary to the bid item, "Concrete (Grade 4.0)(AE)(SA)". Approval of the Contractor's alternate sequence is required prior to placement of concrete in the deck.

CONSTRUCTION LOADS: Only foot traffic is permitted on the new deck or any concrete overlay during the seven day curing period. Work to place reinforcing steel or forms for the bridge rail or barrier is allowed 3 days after the concrete is placed provided the curing is maintained on any exposed deck by keeping it wet during the 7-day curing period. Light truck traffic (gross vehicle weight less than 5 ton) is allowed on the deck 15 days after the pour is completed. Legal loads are permitted 21 days after the concrete is placed. Legal loads are permitted on any concrete overlay 7 days after the concrete overlay is placed. With Engineer approval, heavy stationary loads may be allowed on the bridge deck 21 days after the deck pour is completed. With Engineer approval, vehicle loads greater than legal loads may be allowed on the bridge deck 28 days after the deck pour is completed. See KDOT Specifications.

INDEX TO BRIDGE DRAWINGS	
Sheet No.	Drawing
101	General Notes and Quantities
102	Contour Map
103	Construction Layout
104-105	Abutment Details
106	Abutment Strip Drain
107-110	Pier Details
111-113	Superstructure Details
114	Corral Rail Details
115	Bill of Reinforcing Steel and Bending Diagrams
Standards	
119	Bridge Excavation (LRFD)
120	Standard Pile Details
121	Supports and Spacers for Reinforcing Steel

SLAB ELEVATIONS: The Contractor shall record elevation readings on the "Slab Elevations" sheet in the table at locations designated by a "(2)".

The Contractor shall submit the table on a half-sized sheet to the Engineer.

TEMPORARY SHORING: The bid item "Temporary Shoring" includes all labor and material necessary to furnish shoring at the location shown on the plans for the temporary bracing of the embankment during excavation. Maintain the temporary shoring until the Engineer authorizes its removal. The temporary shoring plans are to be designed and sealed by a registered Professional Engineer. Submit design calculations and shoring plans to the Field Engineer for review 6 weeks before work is scheduled to begin. Work shall not begin until the Engineer grants approval.

DESIGN DATA

DESIGN SPECIFICATIONS: AASHTO Specifications, 2009 Edition and latest Interim Specifications. Load and Resistance Factor Design.

DESIGN LOADING: HL-93
Design Dead Load includes an allowance of 25 psf for a future wearing surface.

UNIT STRESSES:

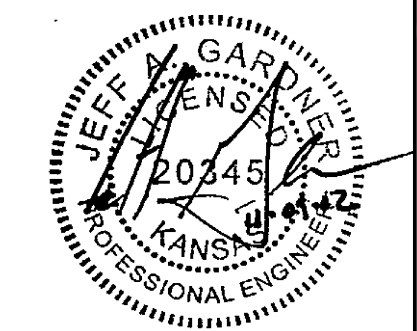
Concrete (Grade 4.0)	f'c = 4 ksi
Concrete (Grade 4.0)(AE)	f'c = 4 ksi
Concrete (Grade 4.0)(AE)(SA)	f'c = 4 ksi
Reinforcing Steel (Grade 60)	fy = 60 ksi

DESIGN PILE LOAD:

Loading	Design Load	Allowable Load
	(Tons Per Piling)	(Tons Per Piling)
Abut. Service I -	84.7	193
Piers. Service I -	172.1	193

LRFR RATING FACTORS			
Design Load	Rating Level	Inventory	Operating
HL-93 Loading		1.4	1.8
2008 Manual for Bridge Evaluation			

MKEC
ENGINEERING
CONSULTANTS, INC.
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WICHITA, KS. 67206
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**CENTRAL AVENUE
IMPROVEMENTS FROM
135TH ST. W. TO 119TH ST. W.**

**135TH ST. WEST
BRIDGE
GENERAL NOTES
& QUANTITIES**
SHEET TITLE
472-84017
PROJECT NUMBER

JAG
DESIGN BY
DMU
DRAWN BY
KJS
CHECKED BY

ISSUED
November 9, 2012
REVISED

SHEET NO.
101 of 220