FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

349
394

LAK-2-0.00

GENERAL NOTES

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, and to revisions thereof dated 2-21-58.

PILES shall be driven with a hammer of not less than 11,000 ft. lbs. per blow to firm contact with shale. If the length of penetration is approximately equal to the depth to shale according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Sec. 5-18.05 is not less than the following value for a pile hammer of the indicated energy rating:
For the abutment piles:
50 tons per pile using a 11,000 ft. lb. hammer
43 tons per pile using a 15,000 ft. lb. or greater hammer
If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 35 tons per pile.

PIER FOOTINGS shall extend a minimum of 3" into solid shale or to the elevation shown, whichever is lower.

FOUNDATION BEARING PRESSURE: Pier footings are designed for a maximum bearing pressure of 5 tons per sq. ft.

DECK PLACING PROCEDURE: In placing the deck concrete, construction joints will be permitted, parallel to the transverse reinforcing steel and near the middle of any span. Because of the flow of curing water from the surface of previously-placed deck concrete, the sequence of pours shall be upgrade, starting at the lowest ends of the vertical curve.

WELDING of structural steel shall be Class "A" except as otherwise shown. Welds shown as field welds may, at the option of the Contractor, be made in the shop. Class "B" welds are shown thus: B)

PAINTING. After erection and after the shop coat has been cleaned and, where necessary, repainted in accordance with Sec. 8.04, an additional coat of the same paint as used in the shop shall be applied over the outside face of the outside steel beams and all sides of bottom flange.

PROCEDURE: The embankment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade for a distance of 200 feet back of the abutments at both ends of the structures, after which excavation shall be made for the abutments and the piers.

EXCAVATION QUANTITY includes the removal of fill material between the surface of the earth embankment and the bottom of the abutment.

MACHINE FINISH: The concrete bridge deck shall be finished as specified in the proposal note "Machine Finishing of Bridge Deck Slabs."

ESTIMATED QUANTITIES

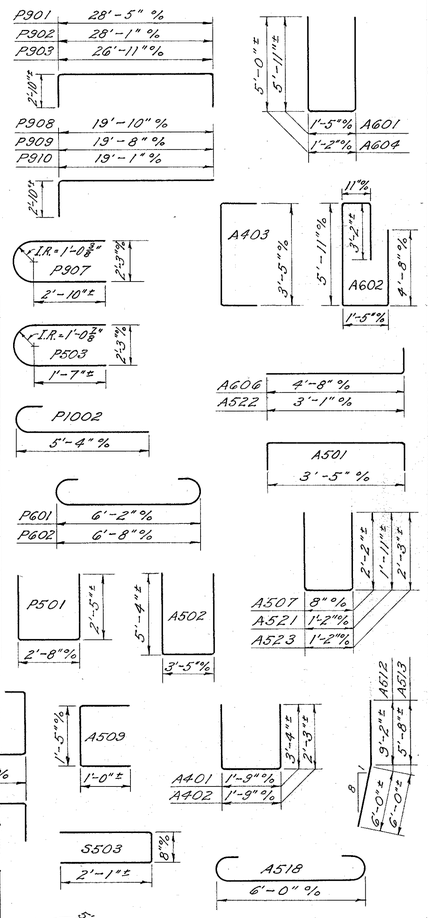
Item	Total	Unit	Description	Super.	Abuts.	Piers	Genl	As Built	
E-2	Lump	Sum	Cofferdams, cribs and sheeting				Lump		
E-2	964	Cu Yd	Unclassified excavation		505	459		co-1 -133	831
E-2	23	Cu Yd	Shale excavation			23			
									Revised As-Built
S-1	546	Cu Yd	Class "C" concrete, superstructure	546					
S-1	179	Cu Yd	Class "C" concrete, pier caps and columns			179			
S-1	81	Cu Yd	Class "E" concrete, pier footings			81			
S-1	366	Cu Yd	Class "E" concrete, abutments		366				
S-4	227,743	Lb.	Reinforcing steel	163,574	16,177	47,992			
S-7	517,000	Lb.	Structural steel	517,000					
S-8	517,000	Lb.	Field painting of structural steel, as per plan	517,000					
S-14	748.00	Lin Ft.	Railing (aluminum rail and supports, and concrete parapet)	648.68	99.32				
S-16	Lump	Sum	First test pile				Lump		
S-18	1300	Lin Ft.	Steel piles, 12 BP 53		1300				
S-29	84	Cu Yd	Porous backfill		84				

REINFORCING STEEL LIST

Mark	No.	Length	Weight	Shp	WB R	WB F	EB R	EB F
PIERS								
P1101	8	10'-6"	453	S	2	2	2	2
P1102	8	14'-0"	595	S	2	2	2	2
P1001	80	23'-7"	8118	S	30	50		
P1002	200	6'-9"	5809	B	50	50	50	50
P1003	20	22'-3"	1915	S	20			
P1004	20	20'-2"	1736	S			20	
P1005	20	22'-6"	1936	S				20
P1006	20	18'-9"	1614	S			20	
P1007	20	21'-6"	1850	S				20
P1008	10	17'-8"	760	S			10	
P1009	10	20'-6"	882	S				10
P901	4	33'-7"	457	B	1	1	1	1
P902	8	33'-3"	904	B	2	2	2	2
P903	8	32'-1"	873	B	2	2	2	2
P904	8	26'-0"	707	S	2	2	2	2
P905	8	28'-2"	766	S	2	2	2	2
P906	4	28'-5"	386	S	1	1	1	1
P907	24	9'-1"	741	B	6	6	6	6
P908	4	22'-5"	305	B	1	1	1	1
P909	8	22'-3"	605	B	2	2	2	2
P910	8	21'-8"	589	B	2	2	2	2
P911	20	12'-0"	816	S	5	5	5	5
P912	8	18'-8"	508	S	2	2	2	2
P913	8	19'-8"	535	S	2	2	2	2
P601	352	7'-6"	3965	B	88	88	88	88
P602	104	8'-0"	1250	B	26	26	26	26
P501	216	7'-3"	1633	B	54	54	54	54
P502	8	26'-0"	217	S	2	2	2	2
P503	12	6'-8	83	B	3	3	3	3
P504	8	18'-8"	156	S	2	2	2	2
SUPERSTRUCTURE								
S701	968	28'-11"	57,214	S				
S601	968	28'-10"	41,922	S				
S602	1010	33'-10"	51,326	S				
S603	176	28'-0"	7,402	S				
S501	432	5'-1"	2290	B				
S502	432	2'-8"	1202	B				
S503	464	4'-11"	2218	B				

Mark	No	Length	Weight	Shp
ABUTMENTS				
A601	40	12'-11"	776	B
A602	100	15'-5"	2316	B
A603	32	29'-9"	1430	S
A604	48	10'-10"	781	B
A605	16	6'-3"	150	S
A606	8	5'-4"	64	B
A501	128	4'-5"	590	B
A502	128	13'-10"	1847	B
A503	8	20'-6"	171	S
A504	72	28'-7"	2146	S
A505	4	4'-7"	19	S
A506	4	10'-7"	44	S
A507	72	4'-9"	357	B
A508	32	13'-4"	445	S
A509	128	3'-2"	423	B
A510	76	15'-3"	254	S
A511	16	11'-6"	192	S
A512	8	15'-2"	127	B
A513	8	11'-8"	97	B
A514	112	7'-3"	847	S
A515	16	6'-6"	108	S
A516	16	9'-0"	150	S
A517	8	5'-10"	49	S
A518	48	7'-2"	359	B
A519	32	5'-6"	184	S
A520	24	3'-6"	88	S
A521	48	4'-9"	238	B
A522	96	3'-7"	359	B
A523	48	5'-5"	271	B
A401	112	8'-2"	611	B
A402	32	6'-0"	128	B
A403	196	4'-3"	556	B
RAILING				
R 501	32	13'-5"	Included with railing by payment	S
R 502	128	16'-6"		S
R 503	32	12'-1"		S
REPLACEMENT BARS				
RE1101	1	7'-6"	—	S
RE1001	2	7'-2"	—	S
RE901	1	6'-10"	—	S
RE701	3	6'-2"	—	S
RE601	6	5'-11"	—	S
RE501	1	5'-7"	—	S
RE401	1	5'-3"	—	B

Bending Diagrams



SPIRAL REINFORCING LIST

Mark	No	Core dia. % Spiral	Length	Pitch	No. Turns	Weight	WB R	WB F	EB R	EB F
SP401	8	32"	20'-5"±	4½	57	2956	3	5		
SP402	2	32"	19'-1"±	4½	54	699	2			
SP403	2	32"	17'-0"±	4½	48	621			2	
SP404	2	32"	15'-4½"±	4½	55	711				2
SP405	2	32"	15'-7"±	4½	45	581			2	
SP406	2	32"	18'-4"±	4½	52	673				2
SP407	1	32"	14'-6"±	4½	42	270			1	
SP408	1	32"	17'-4"±	4½	49	317				1

BAR SIZE is indicated in the bar mark. The first digit where three digits are used and the first two digits where four are used, indicate the bar size number. For example, S701 is a No. 7 size bar and P1101 is a No. 11 size bar.

REPLACEMENT BARS: If reinforcing bars are fabricated from stock which has previously been tested and approved by the Ohio Highway Testing Laboratory, test samples as provided in Sec. 5-4.02 need not be furnished and replacement bars will not be required.

SPIRAL BARS:
The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap. The "No. of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item 5-4. 1½ closed coils shall be provided at the ends of each spiral unit.
Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

Revised As-Built

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

GENERAL NOTES, ESTIMATED QUANTITIES AND REINFORCING STEEL LIST

BRIDGE NO. LAK-2-0181 L&R
OVER RUSH ROAD
Sta. 195+14.24
196+79.26
Lake County

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
DGM	DGM	RHD JVP	OPM RSH	BFG	12-10-58	2-20-59

Revised As-Built VLA ~ 6-11-63