

# 100 Years of Concrete Pavements In Iowa

Supplemental Appendix  
Pavement Designs  
for  
MLR-07-01

By  
Todd D. Hanson  
*PCC Engineer*  
515-239-1226  
Fax: 515-239-1092

Office of Materials  
Highway Division  
Iowa Department of Transportation  
Ames, Iowa 50010

March 2009

## PAVEMENT DESIGN DESIGNATIONS

Various designs of pavement are intended to show the cross section, the arrangement of reinforcement, and type of expansion joint to supplement the History cards. Mileage for project is total length constructed.

Regular Series Numbered 1 and Up. Normal 2 lane pavement either rural or urban may be constructed one lane at a time. May be widened by one or more "W" designs of various widths.

M Series Numbered M 1 and Up. Normal 4 lane pavement either urban or rural. Usually built 2 lanes at time on each side of center. May be widened by one or more "W" Designs of various widths.

W Series Numbered W 1 and Up. Supplementary strips widening either regular or "M" pavement designs. Where other details are similar the variations in width will be showed as subscript letters. A, B, C, etc. Viz "W 30 A"

R Series Numbered R 1 and Up. Resurfacing Designs with either Portland Cement or Asphaltic Concrete.

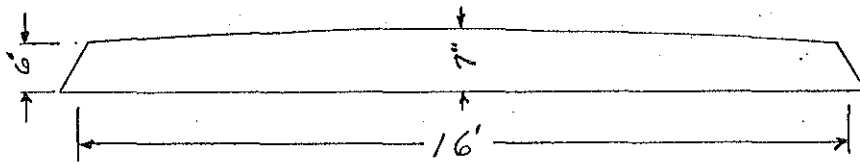
A Series Numbered A 1 and Up. Type A concrete pavements.

B Series Numbered B 1 and Up. Brick Pavement.

C Series Numbered C 1 and Up. Old city designs constructed as State Aid.

Design No. 1.      Width 16 ft 6-7-6.      /  
First Used in Letting of Day Labor. 1913  
County      Project      Miles  
Cerro Gordo      -----      1.0

1  
K13



Edges knocked down and finished with shovel.

No reinforcing in slab

Design No. 2. Width 16 ft 6-7-6

First Used in Letting of Day Labor 1914

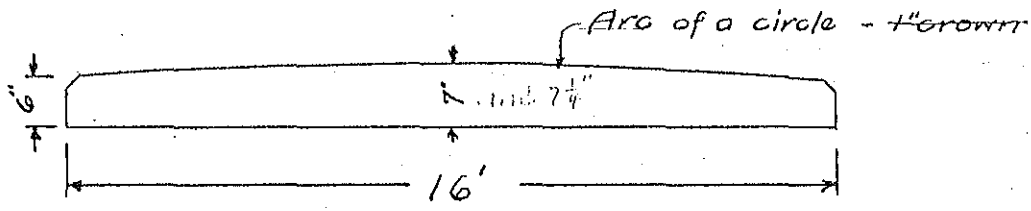
R

( )ounty  
Louisa  
Muscatine

Project  
-----  
-----

Miles  
?  
0.413

2  
1914

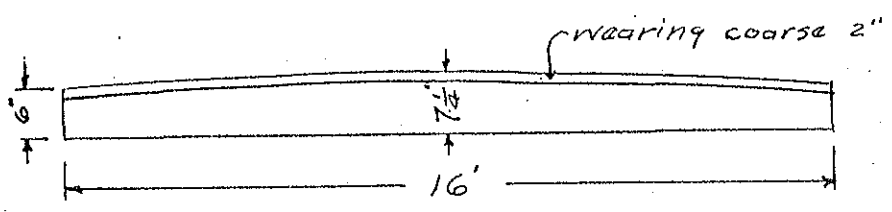


No reinforcing in slab.

Design No. 3. Width 16 ft 6-7 $\frac{1}{4}$ -6  
First Used in Letting of 1915.  
County Project Miles  
Cerro Gordo ----- 1.0

3

3  
1915

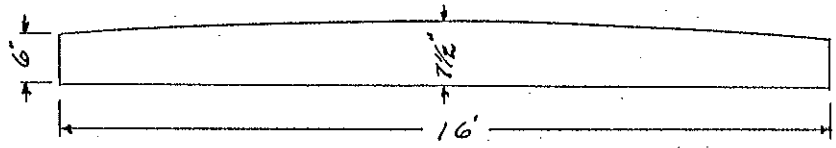


No reinforcing in slab.



County Des Moines      Project ~~1.0~~      Design No. 4.      Width 16 ft      6-7 $\frac{1}{2}$ -6  
First Used in Letting of 7-26-15      Miles 1.0      4

4  
7-26-15



*Handwritten notes:*  
Drawing by [unclear]  
7-26-15

Design No. 5. Width 16 ft 6-7½-6

First Used in Letting of 7-17-18.

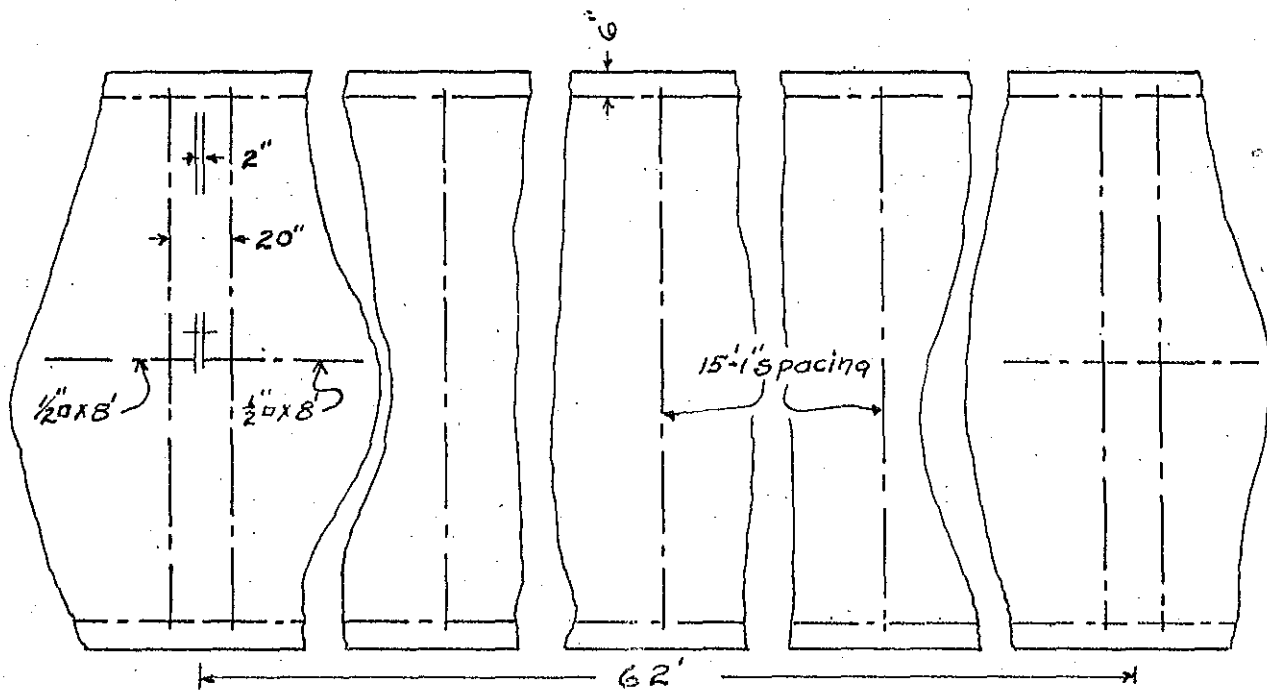
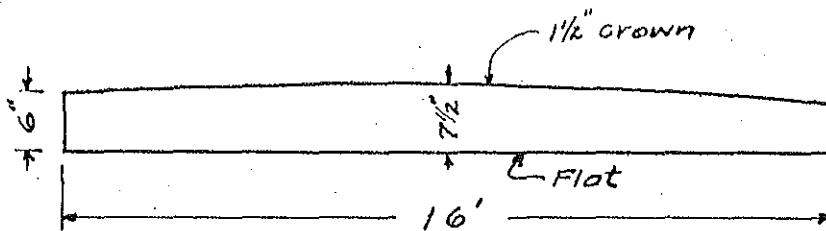
5

County  
Cerro Gordo  
Linn

Project	Miles
F-1	4.07
Seedling Mile	1.0

5

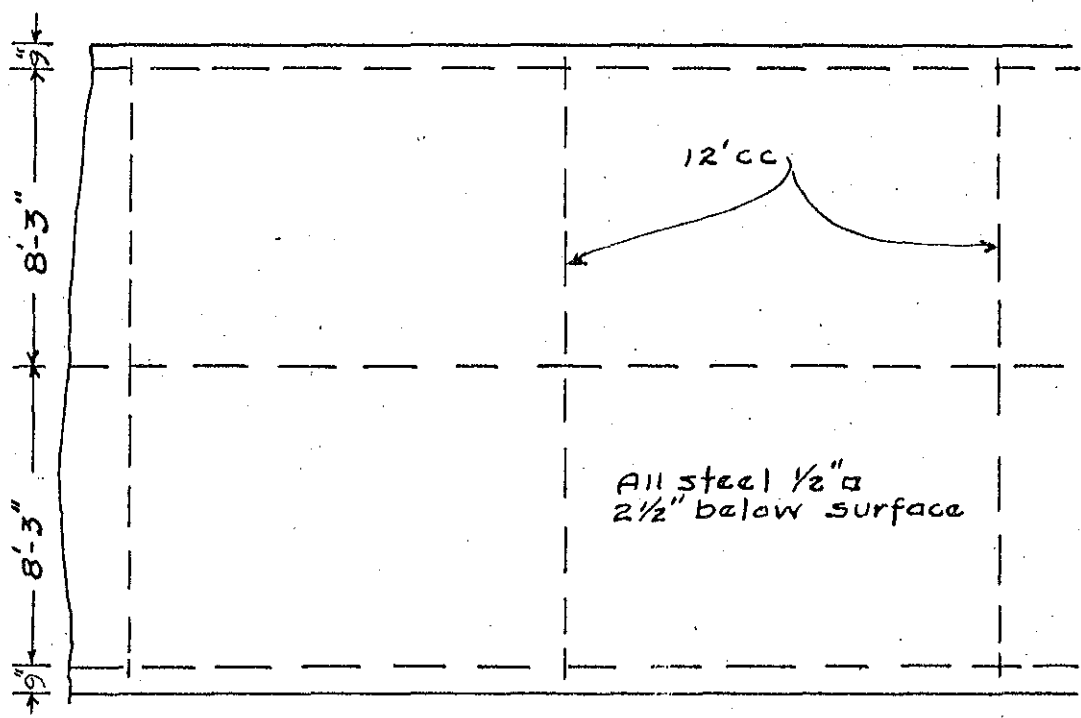
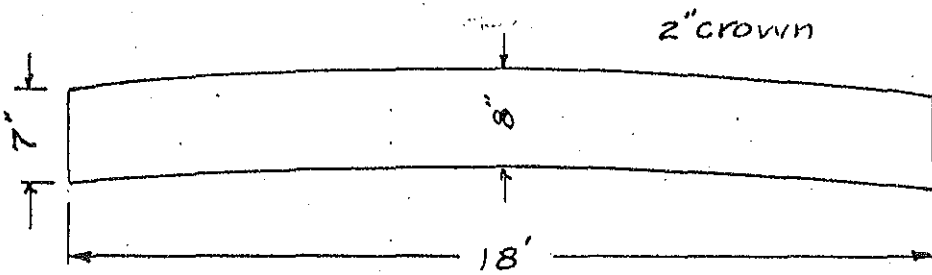
7-17-18



All steel 1/2" bars at center of section.

		Design No. 6.	Width 18 ft	7-8-7	6
County	Project	Miles	County	Project	Miles
Benton	FA-58-B	4.24	Sioux	P-26	2.196
Benton	FA-58-B	0.92	Sioux	FA-84	2.94
Benton	FA-58-C	1.22	Woodbury	P-45	14.0
Benton	FA-58-C	2.50	Woodbury	FA-78	2.73
Cerro Gordo	FA-61	2.94			
Cerro Gordo	FA-61	3.11			
Cerro Gordo	FA-115	4.49			
Cerro Gordo	FA-115	5.14			
Cerro Gordo	FA-115	12.44			
Clinton	FA-18	1.750			
Clinton	F-18-AD	15.17			
<del>Des Moines</del>	<del>P-53</del>	<del>2.336</del>			
Dickinson	FA-68	4.3			
Floyd	FA-41	4.783			
Floyd	FA-41	6.857			
Greene	FA-39	2.00			
Greene	FA-39	2.497			
Greene	FA-39	1.963			
Humboldt	FA-48	1.31			
Johnson	FA-128	2.54			
Linn	FA-22-A	6.50			
O'Brien	FA-43	22.50			
Palo Alto	FA-109	11.05			
Polk	FA-89	7.22			
Polk	FA-104	6.57			

6  
1920



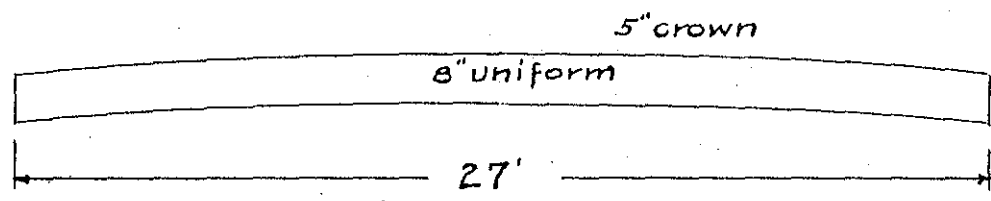
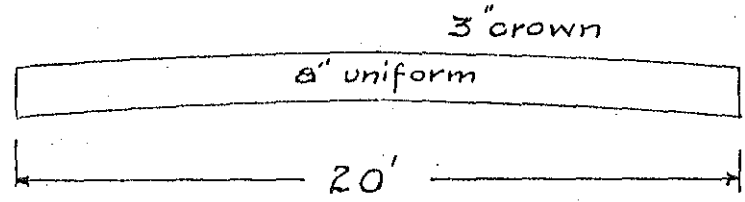
County  
Johnson

Project  
FA-9

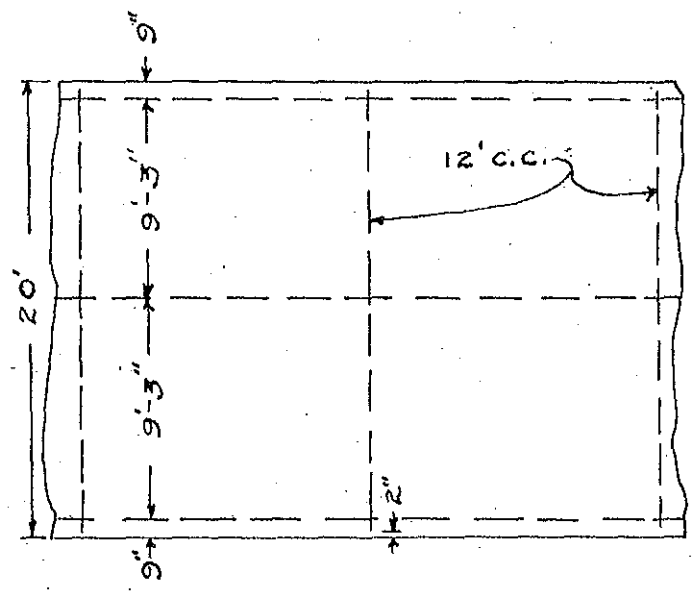
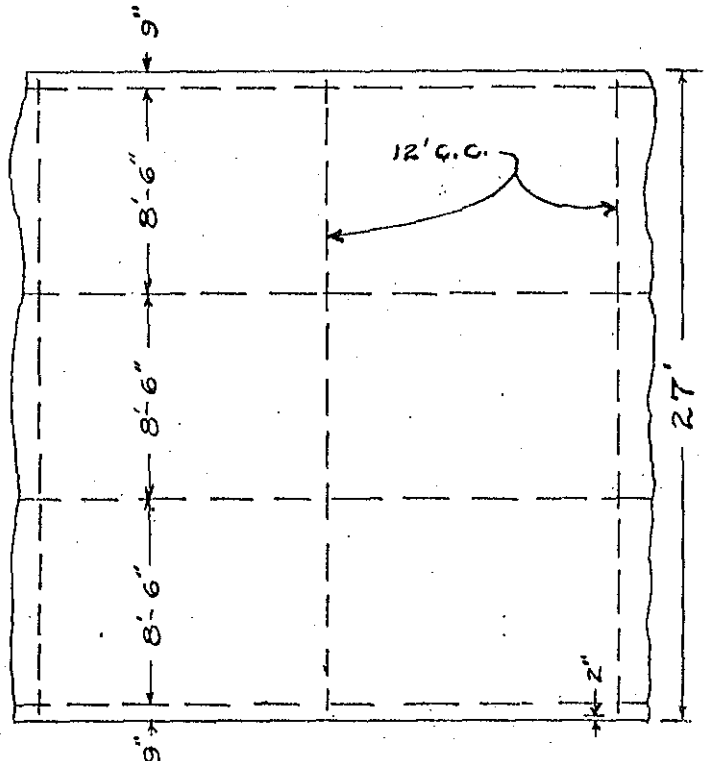
Design No. 7. Width 20 & 27 8in uniform  
First Used in Letting of 1921.  
Miles  
1.09

7

No. 100177 10/11/1933  
- 7/17



(2.6)

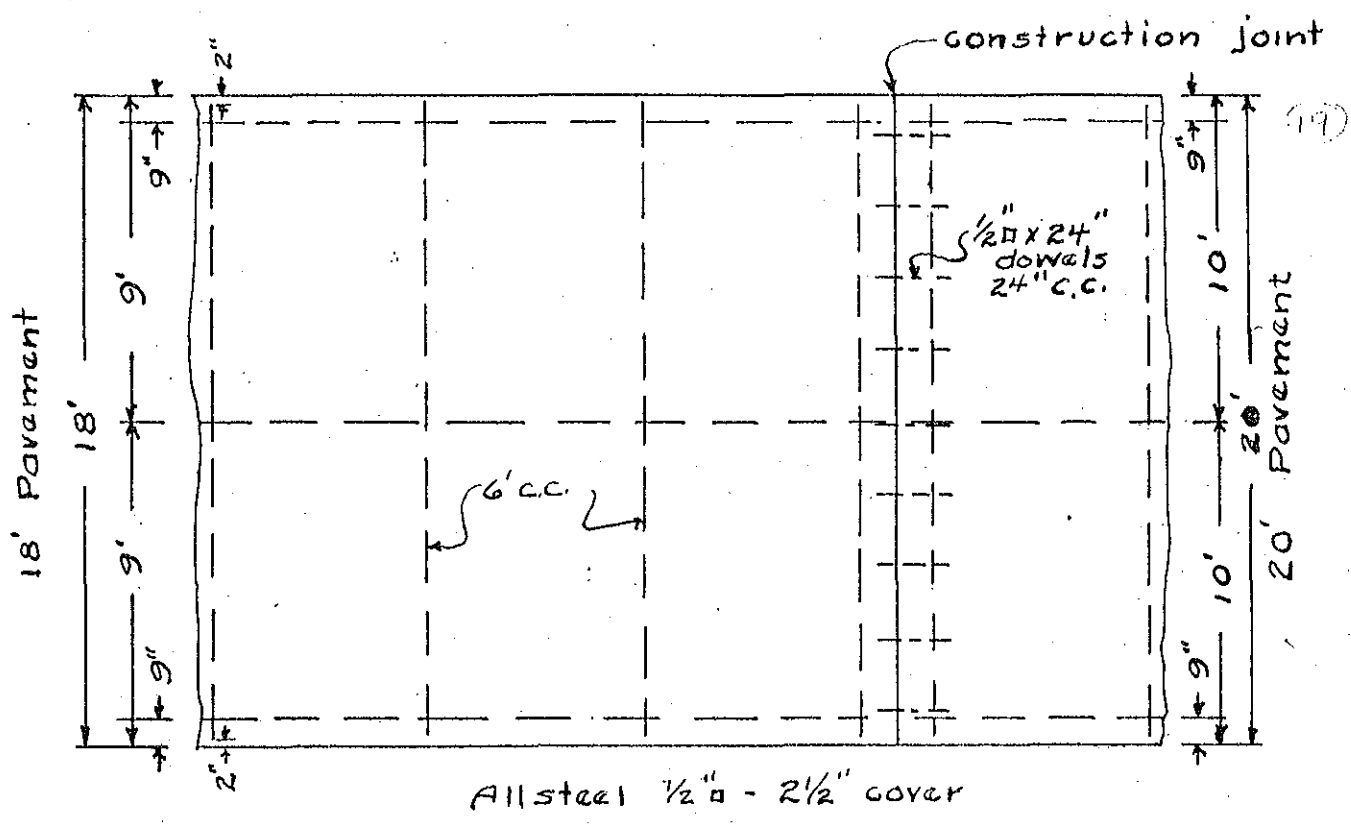
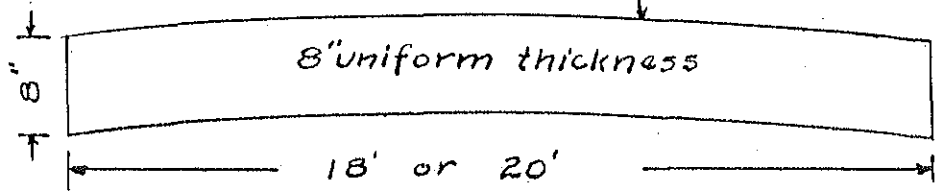


All steel 1/2" dia bars in center of section.



		Design No. 8.		Width 18 & 20 ft 8in. uniform. 8	
		First Used in Letting of <u>1921</u>			
County	Project	Miles	County	Project	Miles
Black Hawk	FA-62	12.69	Kossuth	FA-140	11.258
Black Hawk	FA-62	4.6	Marshall	FA-23	5.928
Black Hawk	FA-200	13.35	Marshall	FA-211-ACDGI	21.237
Black Hawk	FA-201	11.455	Marshall	FA-211-F	1.073
Black Hawk	FA-202	6.89	Polk	P-1	1.5
Buchanan	P-300	2.08	Polk	P-40	4.78
Buchanan	FA-5	14.13	Polk	P-258	00.9875
Clinton	P-238	0.205	Polk	FA-132	12.547
Clinton	F-147-ABC	10.31	Polk	FA-180	7.715
		6.13	Polk	FA-187	9.062
Clinton	F-205-C	1.302	Polk	FA-199	2.501
Clinton	F-186-AB	2.73	Polk	FA-206	11.125
Clinton	FA-186-BCDE	1.606	Polk	FA-220	1.495
Clinton	FA-189	2.642	Scott	P-50-A	6.25
Clinton	FA-204-C	14.52	Scott	FA-54	5.35
Des Moines	P-273	1.5	Scott	FA-55-BC	18.436
Des Moines	F-32	4.895	Scott	FA-135-A	2.947
Floyd	P-63	5.562	Scott	FA-185	5.089
Floyd	FA-157	2.571	Scott	FA-217	7.24
Greene	P-347	1.975	Woodbury	FA-2	17.678
Greene	F-203-ABCD	16.607	Woodbury	FA-136	7.02
Greene	FA-39 Amend	0.950	Woodbury	FA-188	8.0
Hancock	FA-94	8.356	Des Moines	P-53	2.336
Hancock	FA-94-CDE	15.994	Hancock	P-178	0.489
Kossuth	P-270	1.80			

1 in. Portland Cement  
6 Fel. 100 0.12. 2  
2" crown



Design No. 9.  
 First Used in Letting of 2-10-25.

7 9

County	Project	Miles	Width 18 and 20 ft. 8" uniform
Clinton	P-434	0.304	
Harrison	P-423	0.538	
Linn	FA-96-A	7.218	
Linn	FA-96-B	5.53	
Polk	P-418	2.737	
Polk	FA-215	7.324	
Polk	FA-216	9.371	
Pottawattamie	P-400	0.68	
Scott	P-405	1.436	
Scott	FA-221	9.788	
Scott	FA-243-ABC	8.142	
Winneshiek	P-121		

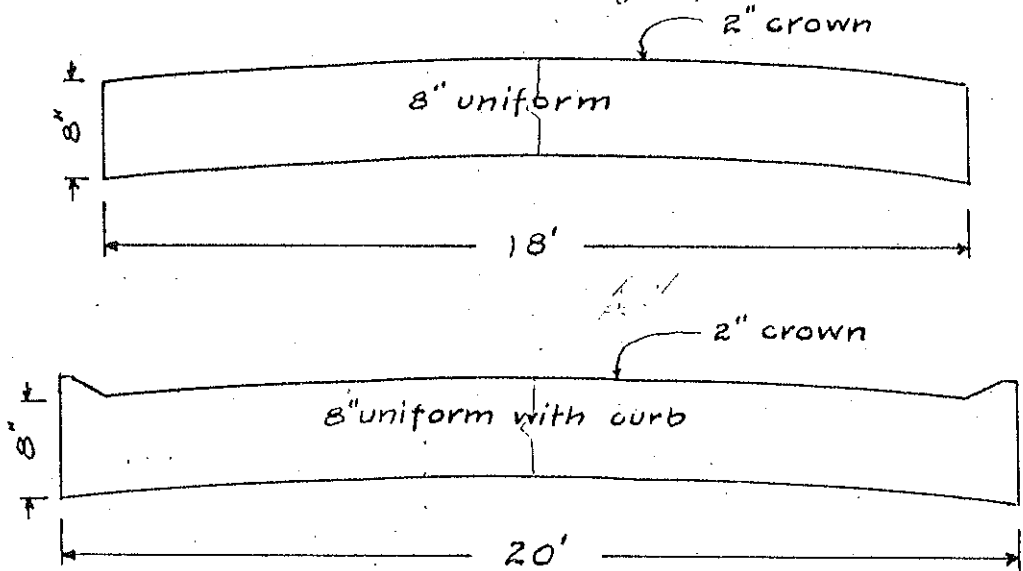
*Mp...*      *0.133*

Sheet  
Parting Strip

Apr. 23  
1914

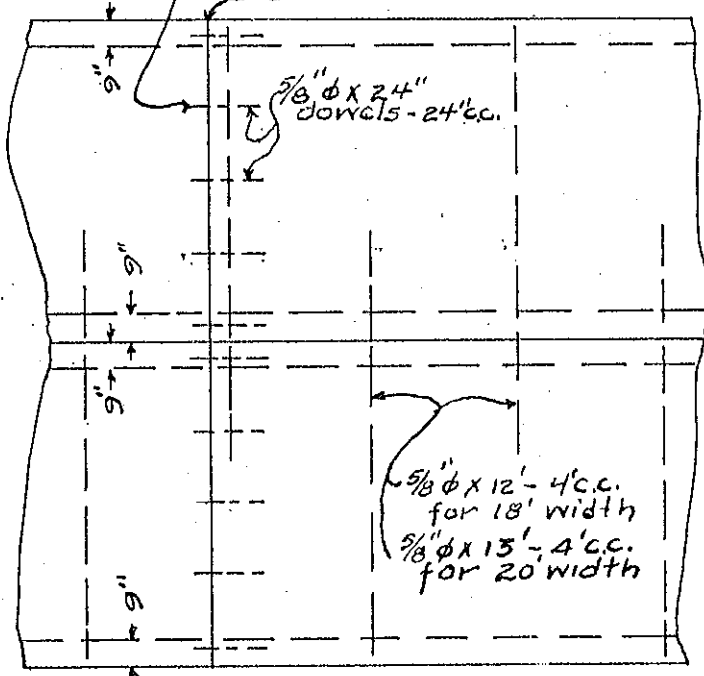
Blais Shaker

9



Expansion tubes  
at exp. joints

Any construction joint



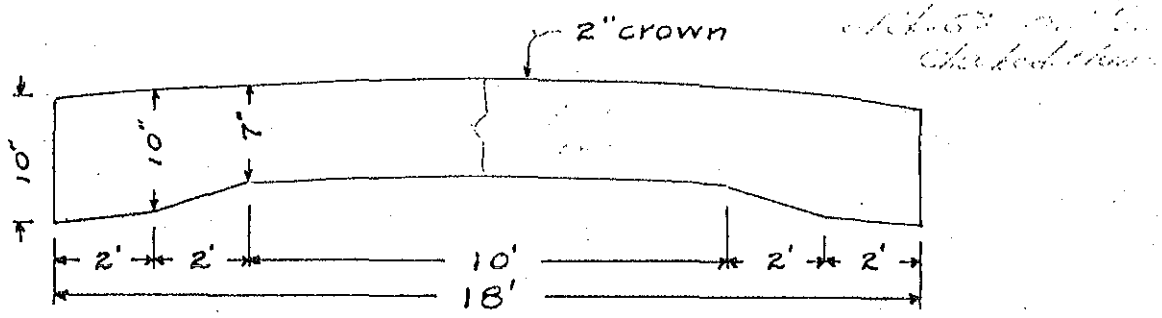
All steel 5/8"  $\phi$  plain round  
2 1/2" cover,  
dowels at center of section.

(22)

Design No. 10;  
First Used in Letting of 5-11-26.

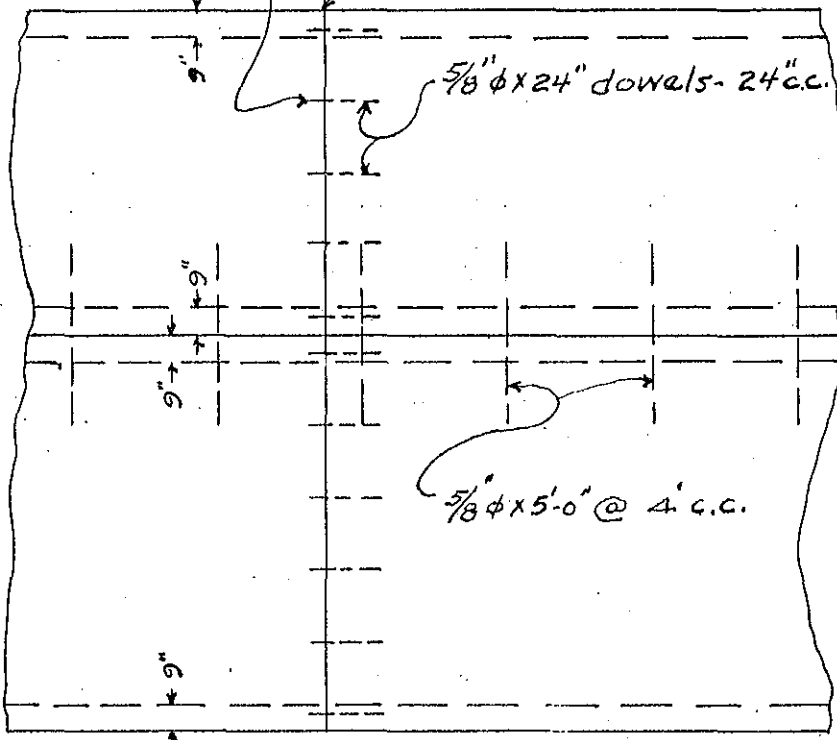
10 10

County	Project	Miles	Width 18 ft.	10-7-10
Des Moines	FA-282-	8.347		
Johnson	FA-289-A	13.49		
Linn	FA-225	6.62		
Wapello	FA-159	8.558		



Expansion tubes at exp. joints

Any construction joint.



All steel 5/8" plain bars  
2 1/2" cover except  
dowels at center of  
section.

Design No. 11.  
First Used in Letting of 3-8726.

County  
Plymouth  
Plymouth

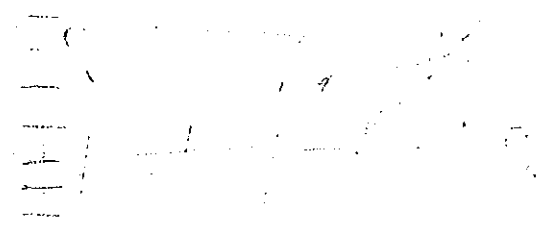
Project  
FA-38  
FA-273

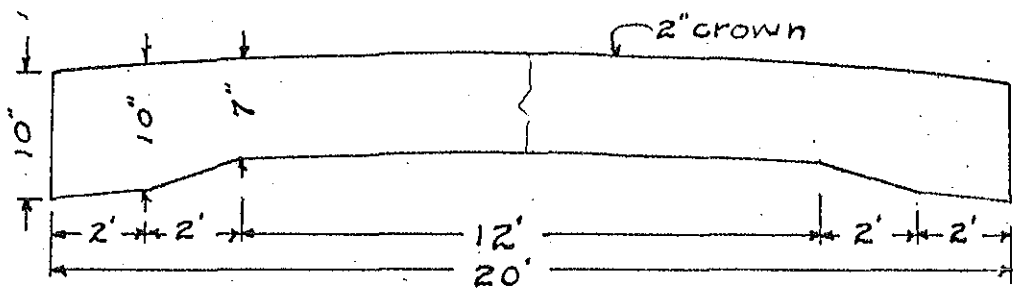
Miles.  
10.184  
6.5

Width 20 ft. 10-7-10

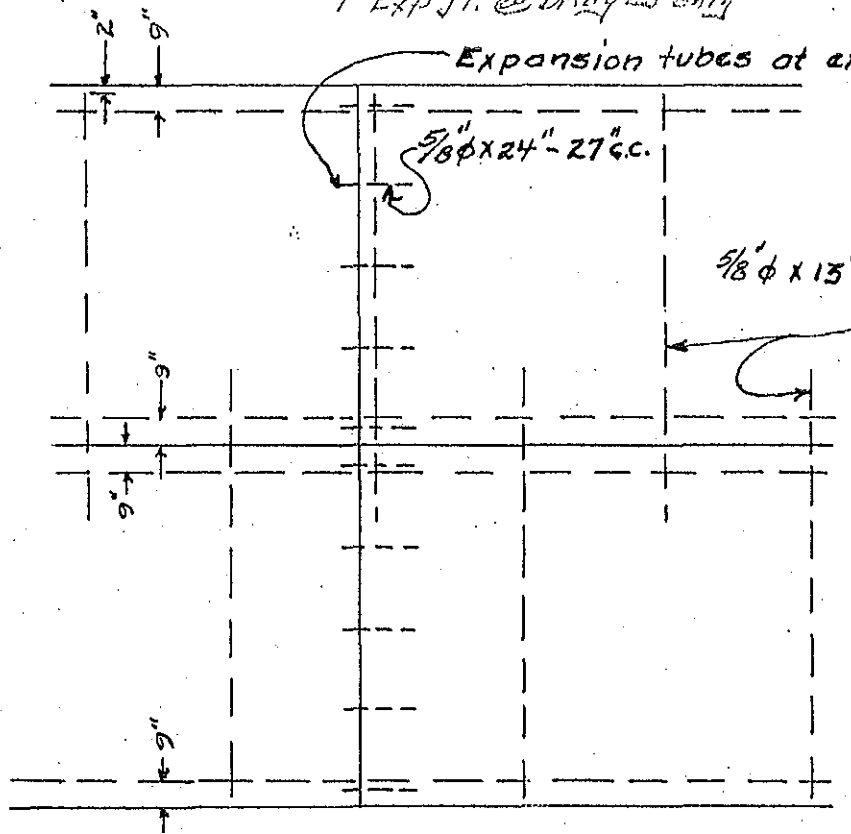
*7/10/10*  
*dec 10 1910*  
*Plymouth*

*8 7/10/10*  
*Plow Marked*





1" Exp jt. @ bridge only



Expansion tubes at exp. joints.

5/8" x 24" - 27 c.c.

5/8" φ x 13' - 4 c.c.

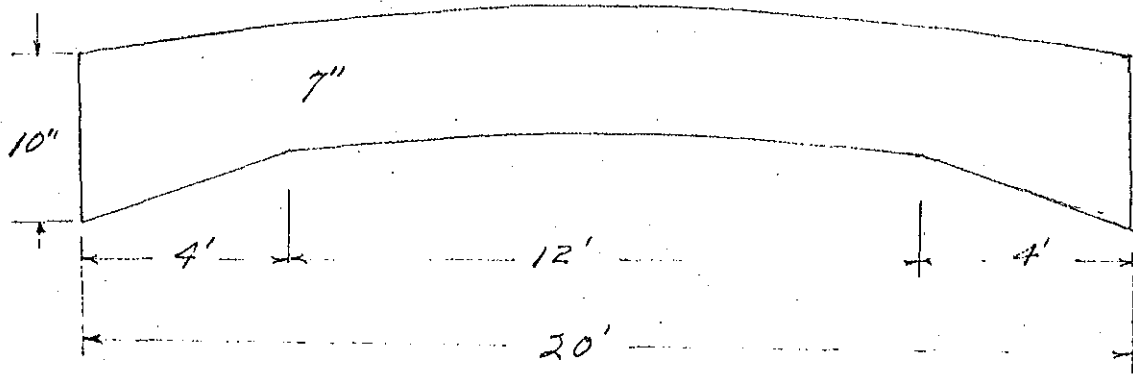
All steel, 5/8" φ plain round  
2 1/2" cover  
except dowels at center  
of section.



Design No. 12  
First Used in Letting of July 15, 1926  
Width 20 ft. 10-7-10

Scott	FA 55(C)	0.473 miles	1926
Dubuque	FA 148	15.277 Miles	1926-27

?

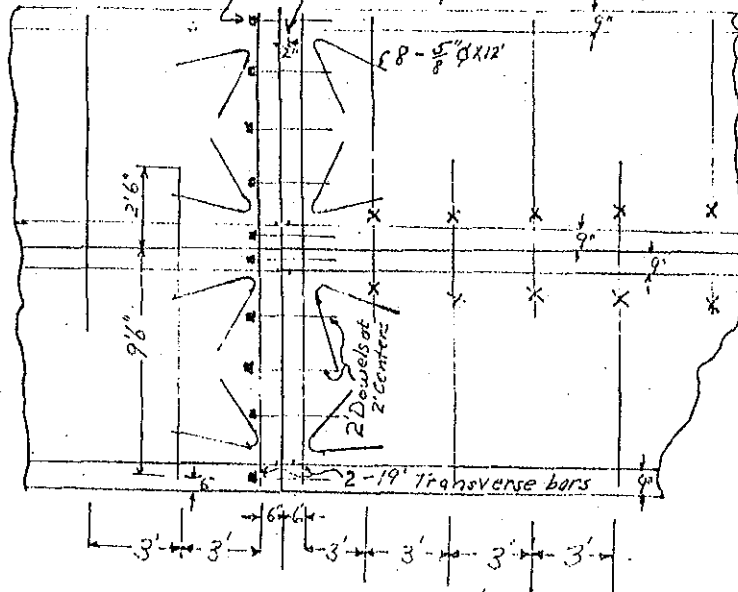


Longitudinal Reinforcing Steel to End  
2" from Transverse Joints

All Bars Plain  $\frac{5}{8}$ "  $\phi$

Exp. tubes at E.J.

1" Exp. Jt @ bridges only



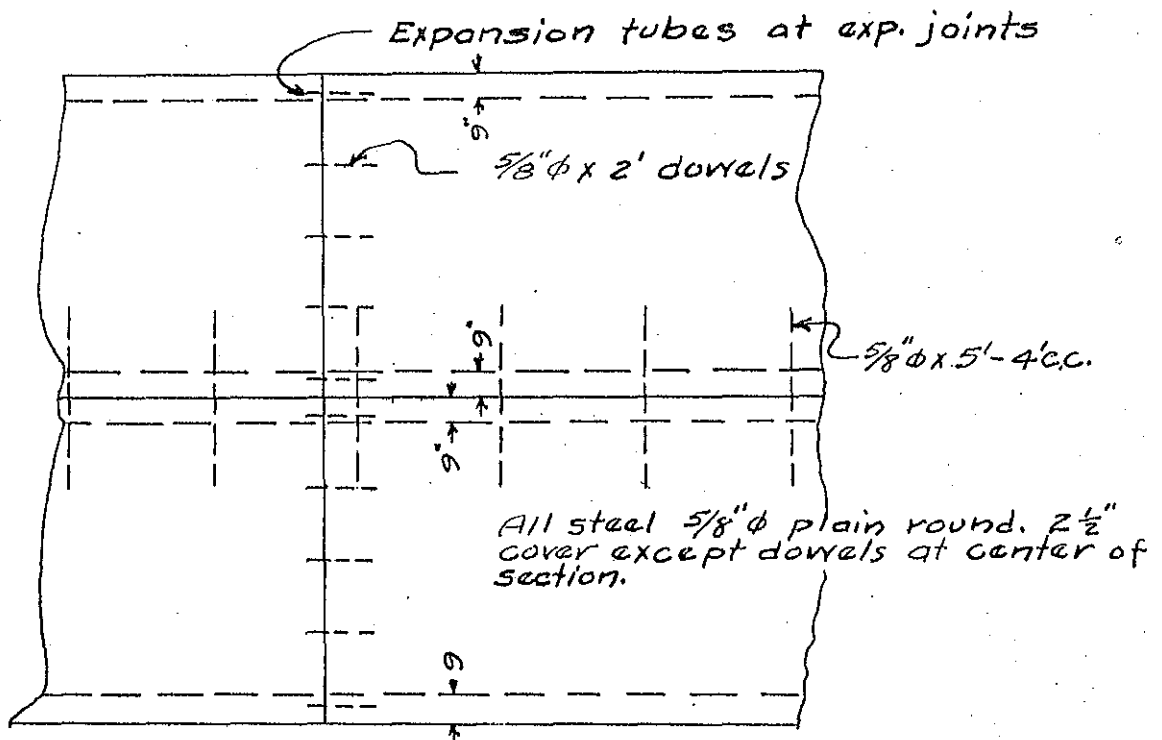
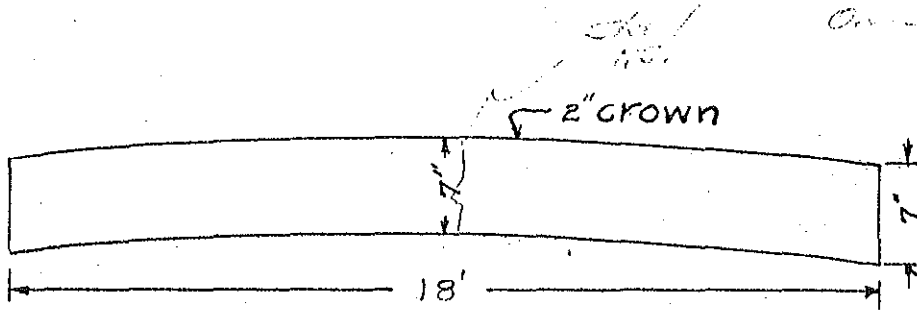
Design No. 12.  
 First Used in Letting of 6-8-26.

12  
a

County	Project	Miles
Appanoose	FA-27	7.039
Dubuque	FA-148	15.277
Jasper	FA-64-D	4.897
Jasper	FA-64-D	5.099
Jefferson	FA-3	9.128
Jefferson	FA-294	3.063
Mahaska	FA-70-A	0.791
Mahaska	FA-70-B	12.80
Mahaska	FA-146- Ext.	4.116
Mahaska	FA-293	2.74
Scott	FA-55-C	0.473

6 Ft. 8 in. Plain round  
Expansion

12A



Design No. 13.

13

County	Project	Miles	First Used in Letting of	County	Project	Miles
Benton	FA-58-A	8.50	8-31-26			
Benton	FA-233	10.145				
Benton	FA-278	11.07		Width 18 ft.	10-7-10	
Benton	FA-285	2.54				
Floyd	FA-279-A	8.905				
Harrison	FA-214	9.584				
Jefferson	FA-3	10.927				
Lee	P-480	7.589				
Mahaska	FA-70-B Ext.	0.510				
Tama	P-458	1.809				
Tama	FA-276	15.611				
Wapello	FA-246	10.885				

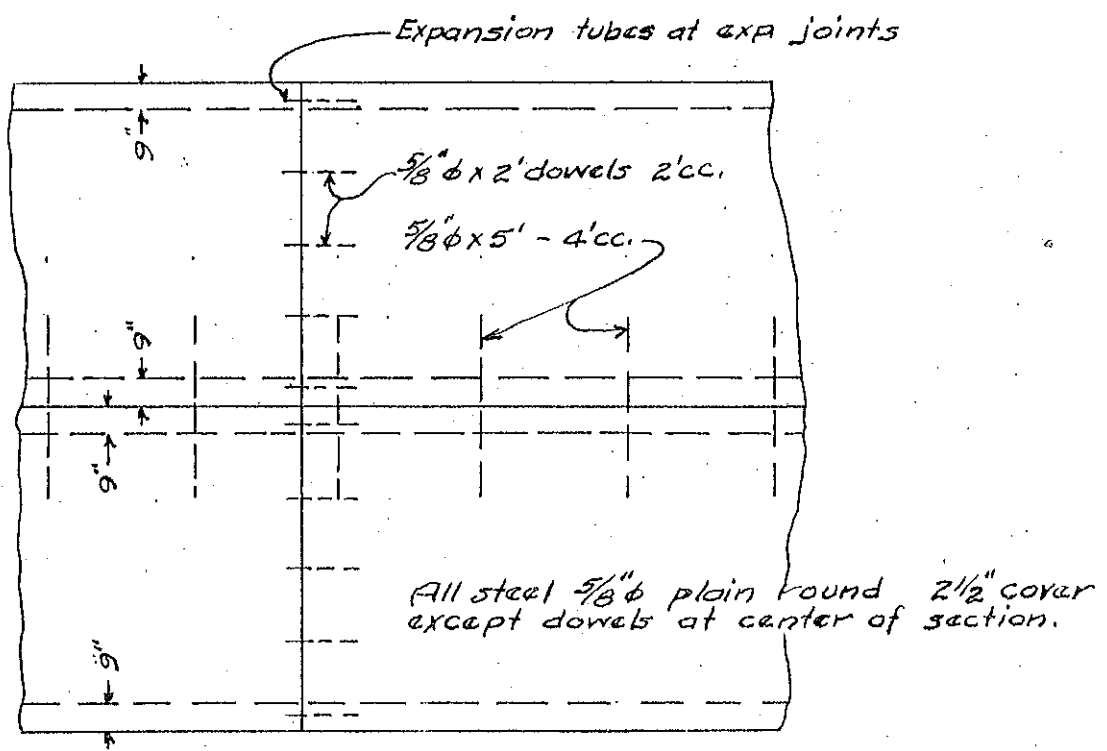
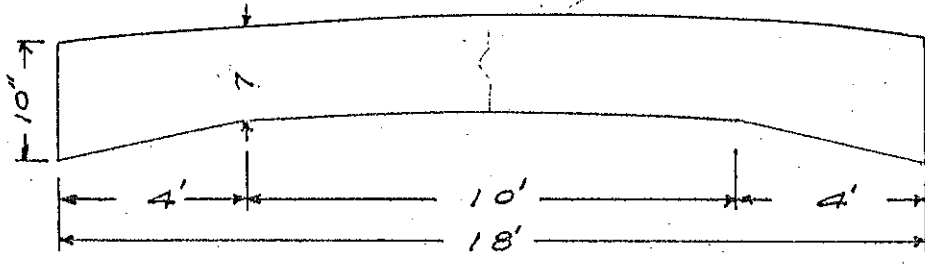
720  
C. 10. 10

10. 10. 10

5,278  
C. 10. 10

6 Feb 52 Plans Steel Deck  
on bridge.

13



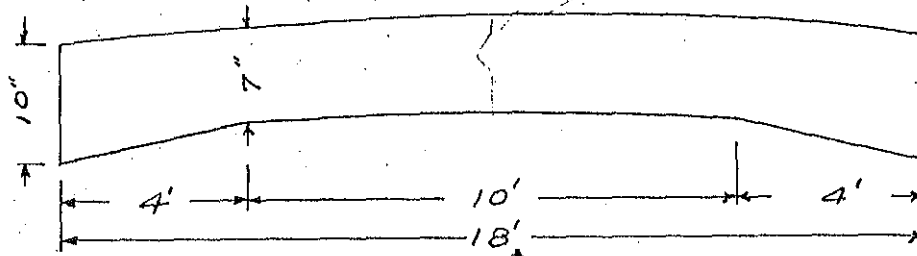
13

County	Project	Miles	County	Project	Miles
Washington	P-544-A	14.418	Washington	FA-71	0.758
Washington	FA-71	0.758	Washington	P-177	8.42
Winneshiek	P-177	8.42	Woodbury	B-546	0.263
Woodbury	B-546	0.263	Woodbury	FA-2	12.243
Woodbury	FA-2	12.243	Woodbury	FA-2	0.184
Woodbury	FA-2	0.184	Woodbury	P-555	8.135
Worth	P-555	8.135	Worth	P-555	0.542
Worth	P-555	0.542	Clayton	P-557	0.248
Clayton	P-557	0.248	Scott	FA-243 Ext.	0.192

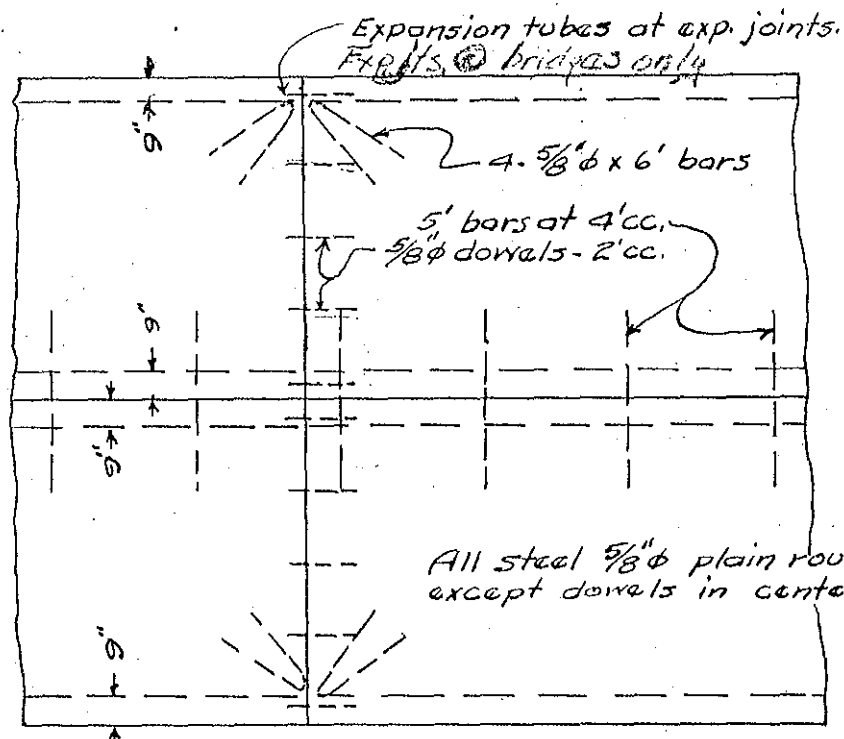
Design No. 14.		Width 18ft. 10-7-10.		14	
First Used in Letting of		12-30-26			
County	Project	Miles	County	Project	Miles
Appanoose	P-534	2.925	Dubuque	P-552	1.39
Appanoose	P-535	1.824	Dubuque	F-305	23.84
Appanoose	P-535-B	1.482	Fayette	P-553	24.943
Benton	P-504	1.173	Franklin	P-538	13.36
Benton	FA-251-A	9.44	Franklin	FA-212	10.20
Bremer	F-283	14.723	Harrison	P-563-ABC	10.970
Buchanan	P-239	6.616	Harrison	F-14	7.036
Buchanan	FA-5	1.438	Henry	FA-56	9.31
Cedar	P-114-C	8.08	Jasper	FA-64-A	5.45
Cedar-Scott-			Jefferson	FA-120	6.59
Muscatine	P-541	6.74	Johnson	FA-9	2.967
Cedar	FA-57- Ext.		Johnson	FA-289-B	8.62
Cedar	FA-57-B	5.78	Johnson	FA-296	11.512
Cedar	F-57-C & F	12.960	Keokuk	P-489	11.096
Cedar	FA-57-ADEG	7.240	Keokuk	FA-34	1.567
Chickasaw	FA-35-AB	7.046	Mahaska	P-511-B	0.51
Chickasaw	FA-76	4.383	Mahaska	FA-70-CG	2.685
Clayton	FA-557-A	3.3	Mahaska	FA-146	3.47
Clayton	FA-557-B	15.03	Monona	FA-184	14.076
Clinton	FA-292	16.862	Monona	FA-515	18.577
Delaware	FA-302	8.12	Monroe	FA-20	8.496
Delaware	P-236	8.152	Muscatine	P-523	5.805
Delaware	F-4	15.63	Plymouth	FA-38	15.462
Des Moines	F-301-B	13.08	Pottawattamie	FA-46	2.643
Des Moines	F-306	6.59	Pottawattamie	FA-280	14.214
			Poweshiek	FA-261-A	5.17

14

Steel Parking  
Strip



The above dimensions are  
12' and 20' resp. for 20' widths.

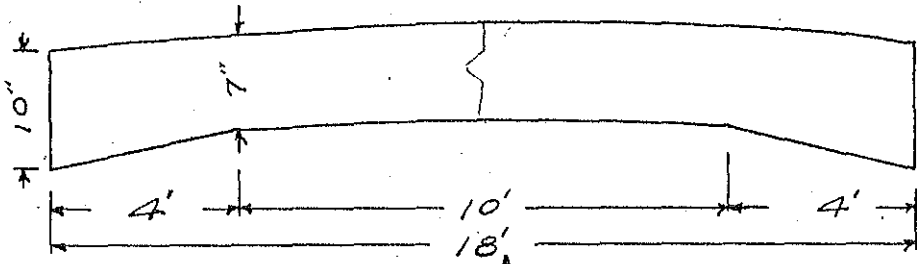




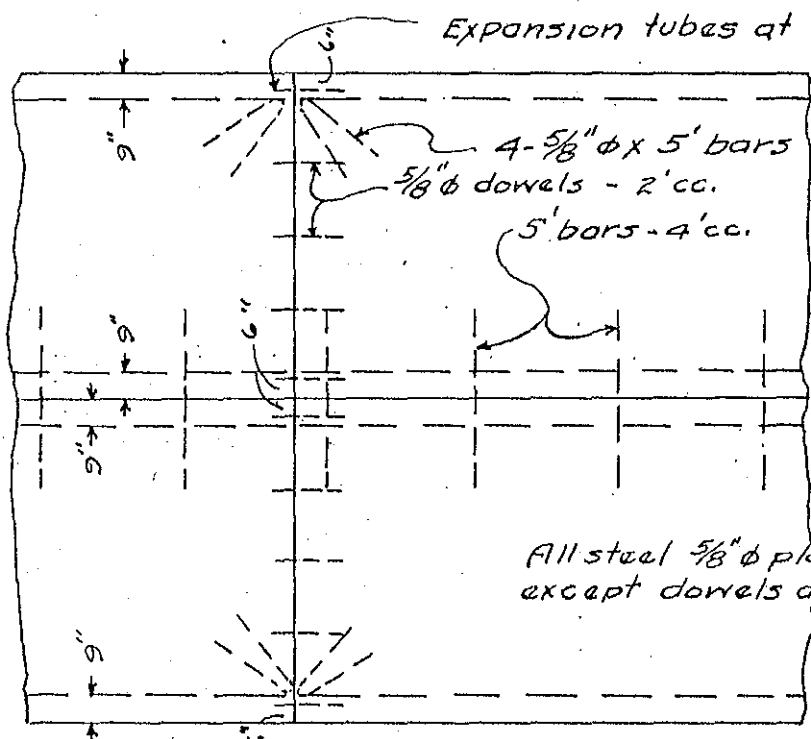
County	Project	Miles	County	Project	Miles
Lucas	P-551	13.79	Warren	P-580	10.45
Mehaska	P-510	16.205	Warren	P-596	4.77
Mills	P-479	8.968	Warren	F-11	4.01
Mills	P-605	1.583	Warren	FA-265-AB	6.25
Mills	FA-15	4.204	Washington	P-543-A	0.84
Mills	FA-15-AB	8.322	Washington	P-544	0.93
Mills	FA-226	8.099	Washington	P-602	9.28
Monona	FA-184 B&C	10.936	Wayne	F-91-DEF&G	7.07
Monroe	P-554	16.269	Wayne	FA-150	4.73
Montgomery	FA-16-AB	12.218	Winneshiek	P-585	9.9
Montgomery	FA-16-C	3.487	Winneshiek	FA-98-A & C	6.43
Montgomery	FA-238	5.38	Winneshiek	FA-98-B	7.36
Muscataine	P-481	13.252	Winneshiek	FA-308	7.04
O'Brien	P-335	7.257	Worth	P-555-C	2.90
O'Brien	P-545-A & B	17.94	Worth	P-555-DE	8.12
Page	P-27	23.56	Lake	Common Rd	Supp to P149 CD
Palo Alto	FA-307	13.147	Warren	P-580	10.45
Plymouth	FA-275	7.976	Warren	P-596	4.77
Polk	FA-216	0.319	Warren	F-11	4.01
Pottawattamie	FA-280-B	5.238	Warren	FA-265-AB	6.25
Pottawattamie	FA-309	11.068	Washington	P-543-A	0.84
Pottawattamie	FA-310	6.9	Washington	P-544	0.93
Poweshiek	P-385-A	2.173	Washington	P-602	9.28
Poweshiek	P-385-B	14.446	Wayne	F-91-DEF&G	7.07
Van Buren	FA-165-A to F	17.796	Wayne	FA-150	4.73
Van Buren	FA-222	1.446	Winneshiek	FA-98-A & C	6.43
Wapello	P-326	5.429	Winneshiek	FA-98-B	7.36
Wapello	P-559	11.60	Winneshiek	FA-308	7.04

Design No. 15.  
First Used in Letting of 11-15-27

County	Project	Miles	County	Project	Miles
Adair	P-472	0.747	Fremont	FA-77	19.644
Adair	FA-173	10.320	Grundy	FA-266-A	4.876
Adams	F-152-A	5.2	Harrison	F-138	13.890
Allamakee	P-305	1.893	Harrison	F-228	11.574
Appanoose	FA-239	5.192	Henry	FA-56-DE*G	11.115
Benton	FA-251-C	8.00	Henry	FA-151	8.922
Bremer	P-334	5.091	Henry	FA-219-A to F	10.218
Bremer	P-421	4.44	Howard	P-590-A & B	21.727
Bremer	P-598	6.541	Iowa	FA-244-B	5.005
Buchanan	P-548-B	11.816	Jackson	P-600	2.316
Butler	P-167-F	9.142	Jackson	FA-21-A	1.466
Butler	P-558	19.468	Jackson	FA-21-BCD	14.127
Cerro Gordo	P-89	4.163	Jasper	FA-64	10.133
Chickasaw	P-601	10.33	Jefferson	P-220	8.846
Clayton	F-74-BCDF&G	12.784	Johnson	P-207-F	1.062
Clayton	F-166-CD	9.60	Johnson	P-589	0.544
Clarke	P-31	12.149	Jones	F-86-BC	18.514
Clarke	FA-33	8.993	Jones	FA-86-AB	6.92
Davis	FA-158	14.828	Jones	FA-163-A	17.274
Dedatur	P-588-A	8.53	Keokuk	P-246-BCD	8.251
Decatur	P-588-BC	10.865	Keokuk	P-574-C	1.039
Decatur	FA-122-B	2.738	Kossuth	P-6	10.787
Decatur	FA-298	7.88	Kossuth	FA-111	21.650
Dubuque	FA-17	3.332	Lee	P-149	0.965
Dubuque	FA-304	11.1	Lee	P-149-A	14.55
Fayette	FA-59-DE	15.415	Lee	P-149-CD	18.88



The above dimensions are  
12' + 20' resp. for 20' widths.



All steel 5/8"  $\phi$  plain round 2 1/2" cover  
except dowels at center of section

Note: This design is similar to (14) except  
the "hairpins" are 5' long  
This was used after 12-22-27

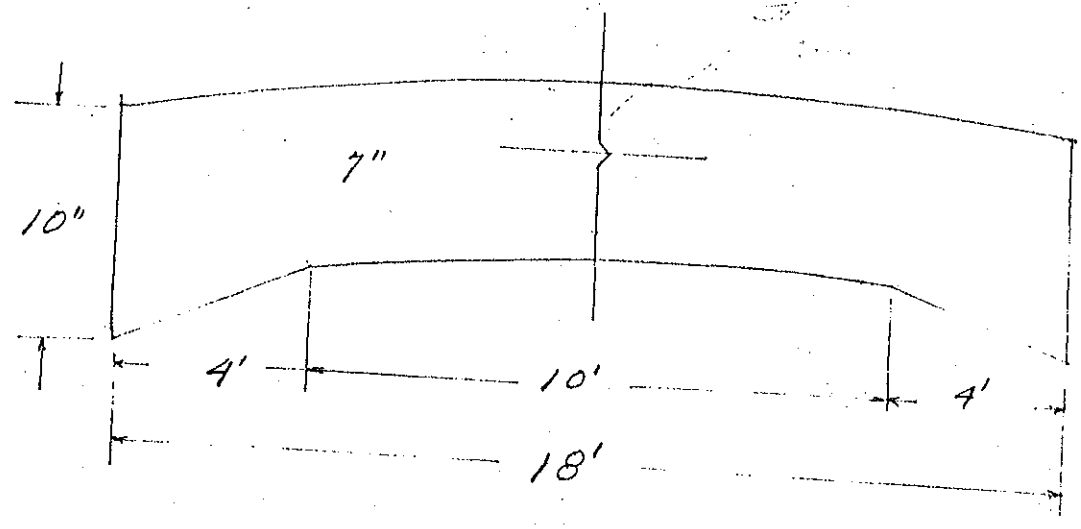
Design No. 15  
First Used in Letting of October 16, 1928  
Width 18ft. 10-7-10

Wayne F 150 4.739 Miles 1929  
Wayne F91 B, E, F, G 7.076 Miles 1929.

15  
a

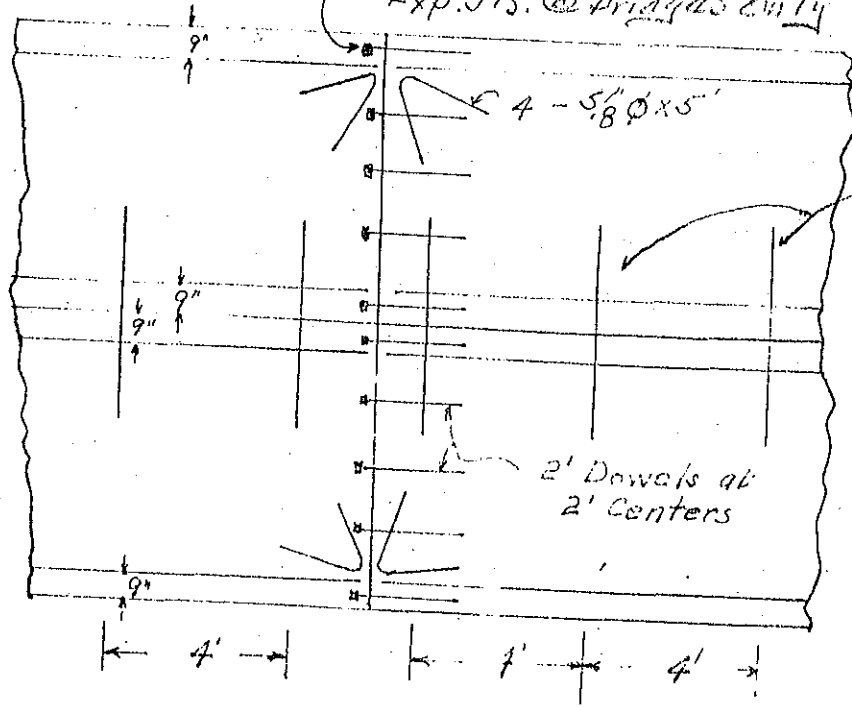
to be done at the time of the  
construction

15a



All Bars Plain  $\frac{5}{8}$ "  $\phi$   
Exp. Tubes at E.J. Only

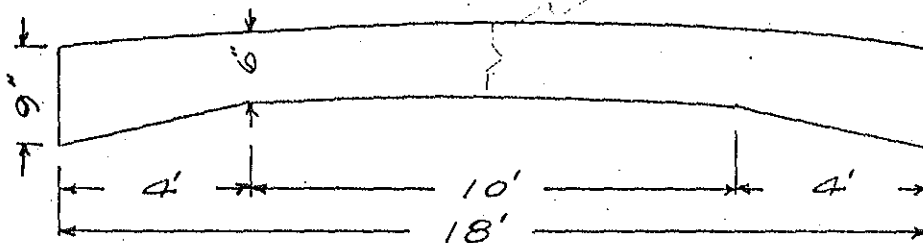
Exp. Jts. @ Bridges only



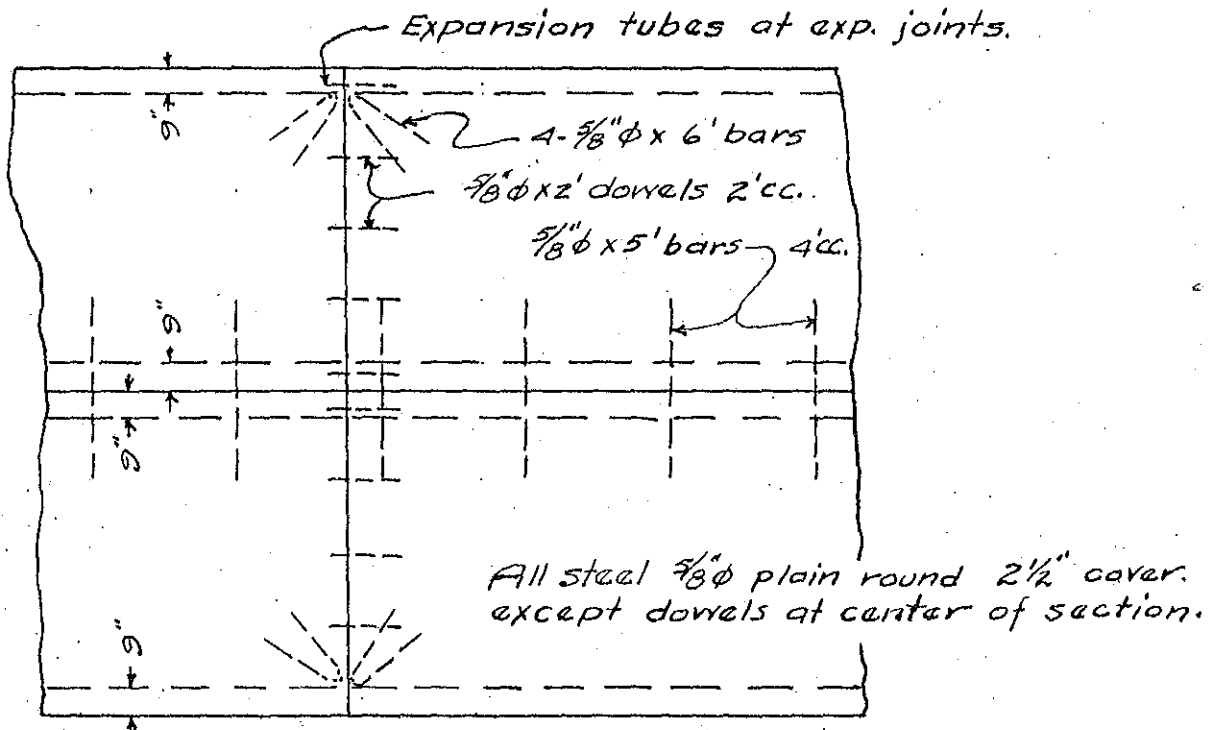
County  
Lee

Design No. 16.  
First Used in Letting of 7-12-27.  
Project Miles  
Coleman Road 10.92  
Width 18 ft 9-6-9

16



Note: This design is 1" thinner than design 14



County	Project	Miles	County	Project	Miles
Hamilton	P-344-A	6.06	Hamilton	FA-67-BCD	13.202
Iowa	P-619	12.987	Iowa	F-90	12.750
Iowa	FA-244-F	8.327	Iowa	FA-191	11.733
Keokuk	FA-191	11.733	Lincoln	FA-224	12.110
Lucas	P-550	10.261	Mahaska	P-510-A Ext.	0.992
Mahaska	P-510-A Ext.	0.992	Woodbury	FA-70	8.252
Mahaska	FA-70	8.252	Woodbury	FA-137	11.617
Marion	P-315	12.935	Woodbury	FA-178	10.8419
Montgomery	FA-238-A	10.032	Woodbury	FA-261-B	2.624
Page	FA-137	11.617	Scott	P-50	1.006
Page	FA-178	10.8419	Shelby	P-42	13.572
Pottawattamie	P-298-B	5.259	Shelby	FA-207	9.843
Pottawattamie	P-576	1.490	Shelby	P-133-ABCD	17.447
Pottawattamie	FA-261-B	2.624	Story	P-231	2.163
Scott	P-50	1.006	Story	P-232	13.415
Shelby	P-42	13.572	Story	FA-311	10.638
Shelby	FA-207	9.843	Tama	FA-47-A & B	25.75
Story	P-133-ABCD	17.447	Tama	FA-303	2.875
Story	P-231	2.163	Tama	FA-81-B	12.843
Story	P-232	13.415			
Story	FA-311	10.638			
Tama	FA-47-A & B	25.75			
Tama	FA-303	2.875			
Tama	FA-81-B	12.843			

Miles  
12.866  
14.762  
7.289  
6.104  
6.381  
11.868  
0.744  
6.456  
10.804  
0.11

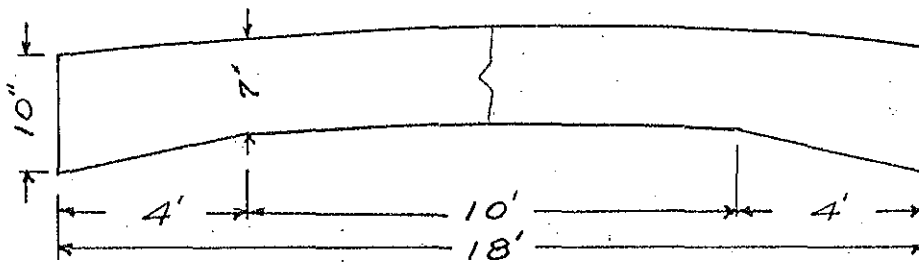
Project  
FA-83-ABC  
FA-222-ABCD  
FA-42-A  
FA-91-C  
FA-150-A  
P-609  
P-177  
FA-98-A  
FA-284-ABC  
P-579-A

County  
Union  
Van Buren  
Wapello  
Wayne  
Wayne  
Webster  
Winneshek  
Winneshek  
Winneshek

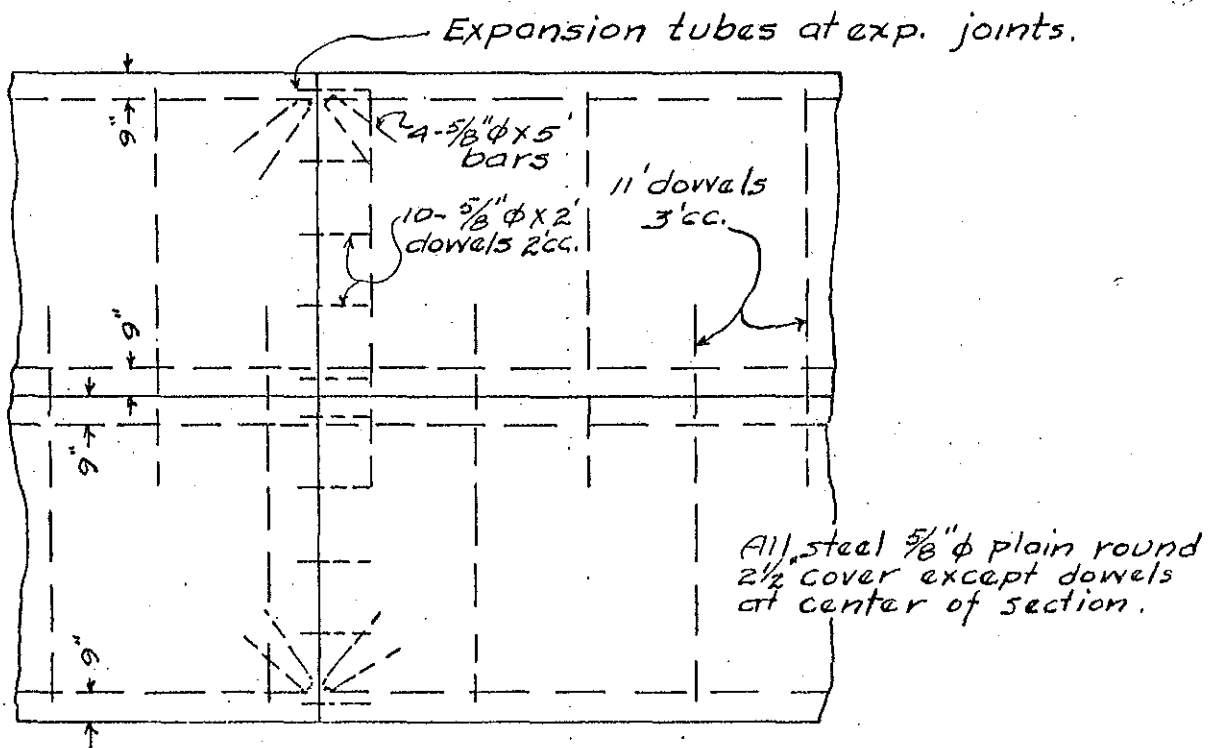
Design No. 17. Width 18ft 10-7-10  
First Used in Letting of 5-14-29

17

County	Project	Miles	County	Project	Miles
Adair	P-162	3.982	Guthrie	FA-145-ABC	10.308
Adair	FA-173	3.021	Clay	F-218	5.017
Adams	F-26	10.129	Clayton	P-586-B	1.572
Audubon	P-503	1.16	Clinton	P-295	11.92
Audubon	FA-52	9.104	Clinton	FA-18	0.891
Audubon	FA-52-E	9.55	Crawford	P-289	13.943
Audubon	FA-208	8.54	Crawford	FA-232	8.885
Black Hawk	P-164	7.91	Crawford	FA-287-BC	7.60
Black Hawk	P-359	4.13	Davis	FA-153-AB	8.07
Black Hawk	P-359	7.13	Delaware	F-103	12.873
Black Hawk	P-625	3.52	Des Moines	F-301	4.156
Boone	P-61	10.16	Dickinson	P-23-ABCD	13.51
Boone	P-630-A	9.39	Dubuque	FA-17	20.08
Boone	P-644	14.29	Dubuque	FA-148-C	3.45
Bremer	P-483	5.997	Fayette	P-639	16.451
Bremer	F-88-A	3.894	Fayette	FA-164-ABC	8.815
Bremer	F-88-B	6.901	Fayette	F-172	7.097
Butler	P-167-A	7.085	Floyd	P-572	1.089
Butler	FA-274-BCD	10.434	Franklin	FA-105-ABCD	11.89
Buchanan	FA-262	11.31	Franklin	FA-171-AB	11.90
Carroll	P-611	12.271	Fremont	F-235	7.0933
Cass	P-150	3.116	Fremont	F-235	7.3927
Cass	FA-44-DEFG	11.456	Grundy	FA-19	12.203
Clarke	P-313	10.384	Guthrie	P-624	11.624
Clarke	FA-241	12.706	Hamilton	P-79-C	1.996



Some projects listed have joints only at *irregular* intervals.





County	Project	Miles	County	Project	Miles
Clay	NRH-361-B	5.652	Rayette	P-553	1.172
Clayton	P-70	9.355	Floyd	P-269-A	5.27
Clayton	P-549	0.686	Floyd	EF-41	1.163
Clayton	F-74	12.12	Floyd	EF-369-ABC	6.59
Clayton	F-323	8.368	Fremont	P-136	1.789
Clayton	NRH & M-371-AB	10.9	Fremont	P-136	9.440
Clayton	P-272-B	0.284	Fremont	P-562-	1.793
Clinton	F-147	1.316	Grundy	FA-19	4.662
Clinton	NRH-419-AB	6.230	Grundy	FA-315	9.229
Clinton	P-8-B	4.196	Grundy	FA-319-ABC	16.203
Clinton	P-289-B	0.695	Grundy	FA-332-B	10.401
Clinton	FA-321	10.255	Guthrie	P-537	3.835
Clinton	NRH & M-412	4.512	Guthrie	F-145	0.137
Grewford	P-670-ABC	13.851	Guthrie	FA-51-A	12.333
Grewford	P-623-A	2.225	Guthrie	FA-179	7.378
Grewford	P-623-B	8.331	Guthrie	FA-624	0.65
Grewford	P-640-AB	16.84	Hamilton	P-344-B	0.720
Grewford	P-641	24.198	Hamilton	FA-67-ERG	16.627
Grewford	P-684	5.653	Hamilton	FA-316	6.843
Dallas	FA-153-A	3.978	Hamilton	FA-318	16.454
Dallas	NRH & M-50-ABC	10.67	Hamilton	P-642-RGHI	23.55
Dallas	P-103-D	0.09	Hamilton	P-642-H	0.34
Delaware	P-236	10.01	Hamilton	P-642-J	0.701
Delaware	F-702-ABCD	23.55	Hancock	F-139-B	9.252
Emmet	EF-363-BC	6.430	Herdin	FA-79-ABC	11.283
Emmet	NM-363-D	0.319	Hancock	EF-139-A	3.996

Design No. 18. Width 18 ft. 10-7-10  
First Used in Letting of Feb 4 1930.

County	Project	Miles	County	Project	Miles
Adair	FA-256	4.387	Calhoun	P-25-A	0.999
Adams	F-152	8.933	Calhoun-Webster	P-676-A	0.435
Allamakee	P-677	10.00	Calhoun	NRH & M 370- ABCDE	10.802
Allamakee	P-677	6.595	Carroll	P-14	0.734
Allamakee	P-685-B	4.809	Carroll	P-611	11.937
Allamakee	NRH-170-AB	3.879	Carroll	P-706	0.946
Allamakee	FA-197	2.917	Carroll	P-713	1.586
Appanoose	P-648	8.182	Carroll	F-334	6.271
Appanoose	P-674-A	8.853	Carroll	FA-154-AB Ext.	16.510
Appanoose	P-674-B	1.954	Carroll	FA-154-CDE	9.796
Appanoose	FA-239	0.277	Cass	P-571	4.470
Audubon	FA-52-A	6.774	Cass	F-314	7.171
Audubon	FA-320	9.686	Cass	FA-44-AB	6.401
Benton	P-435	2.904	Cass	FA-155	17.048
Benton	P-501	3.97	Cedar-Muscatine	P-635-AB	5.488
Benton	FA-58	0.354	Cerro Gordo	P-653	8.027
Black Hawk	F-317-ABC	6.635	Cerro Gordo	FA-115	5.064
Boone	FA-328	4.66	Chickasaw	EF-35	4.549
Boone	FA-350	12.20	Chickasaw	NRH-177-AB	6.271
Bremer	EF-367	10.89	Clay	P-256	14.485
Bremer	P-421	1.673	Clay	P-256	0.698
Bremer	P-763-A	3.331	Clay	P-259	4.638
Buena Vista	FA-355	2.561	Clay	P-259-CD	12.709
Bueller-Hardin	P-267	4.366	Clay	F-218	2.969
Butler	P-558	0.173	Clay	EFA-361-A	6.353
Buena Vista-Sac	FA-333-B	4.50	Clay		

17.1  
17.1  
185.3  
186.2  
185.3

Second Sheet Design 18

County	Project	Miles	County	Project	Miles
Hancock-Winnebago	EF-139-BCD	11.86	Kossuth	P-667	11.999
Hancock	P-563-AE	1.628	Kossuth	P-667	6.155
Howard	FA-190-ABCD	12.129	Kossuth	FA-66-B	6.189
Howard	NRH & M-93	1.443	Lee	P-467-A	8.58
Humboldt	NRH & M-117 ABC	5.020	Lee	P-480	0.969
Ida	FA-248-A	7.811	Lee	FA-346	9.428
Iowa	FA-294-AB	8.793	Linn	P-443	9.403
Iowa	F-194	7.14	Linn	F-230	11.698
Jackson	P-448	2.205	Linn	FA-22	0.613
Jackson	P-532	0.43	Linn	FA-229-ABC	24.451
Jackson	FA-143-A	11.643	Linn	NRH-NRM-255-A	6.118
Jasper	P-77	16.354	Linn-Benton	NRH-255-A	3.693
Jasper	P-520	0.6825	Lucas	P-550	0.27
Jasper	FA-64-BC	4.05	Louisa	FA-299	18.045
Jefferson	FA-3	0.327	Lyon	NRH-M-420-AB	5.524
Johnson	P-311	0.305	Madison	P-764	12.814
Johnson	P-412	3.003	Madison	FA-169-B & E	5.023
Johnson	P-658	6.163	Madison	FA-325	8.098
Johnson	F-296	0.617	Madison	FA-327-A	11.795
Johnson	FA-9	0.444	Madison	NRM-327-B	0.603
Jones	P-687	0.688	Mahaska	P-686	7.858
Jones	F-86	0.392	Mahaska	EF-364	6.622
Jones	FA-86-B	0.354	Marion	P-253-C	5.154
Jones	FA-163-C	4.224	Marion	P-663	15.204
Keokuk	FA-34	10.025	Marion	FA-7	4.561
Keokuk	FA-191	3.990	Marion	FA-75-B	3.874
Keokuk	FA-331	12.257	Marion	FA-253-ABC	10.238
Kossuth	P-6	1.439	Marion	FA-335-D	3.925

Design No 18

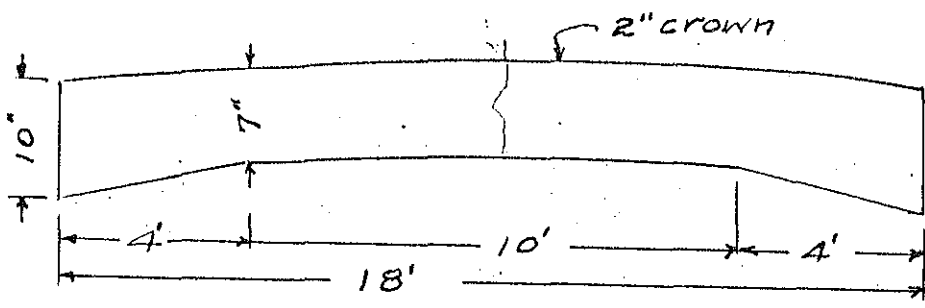
County	Project	Miles <sup>x</sup>	County	Project	Miles <sup>x</sup>
Madison	FA-336	3.331	Warren	P-569	9.008
Marshall	FA-211-B	1.809	Warren-Polk	P-662	12.129
Marshall	FA-211-E	0.253	Warren	EFA-335-ABC	8.108
Marshall	FA-211-H	0.224	Warren	EFA-335-C	3.956
Marshall	FA-332	8.313	Warren	FA-365	2.807
Mills	P-512	6.464	Washington	P-578-A	8.893
Mills	FA-15	0.552	Washington	P-578-G	2.618
Mitchell	FA-45-A&B	14.41	Washington	FA-324	8.885
Mitchell	FA-45-B	4.823	Washington	FA-324	6.207
Mitchell	FA-368	7.102	Wayne	FA-237	1.694
Mitchell	EF-45-C	4.266	Webster-Calhoun	P-25-ABC	11.394
Mitchell	EF-45-C	5.320	Webster	P-184	2.418
Monroe	P-649	8.132	Webster	P-643	10.020
Monroe	P-294-A	1.2653	Webster	P-673-A	16.215
Monroe	P-294-B	1.704	Webster	P-673-BCD	4.409
Monroe	P-294-C	7.090	Webster-Calhoun	P-676-ABC	12.264
Montgomery	P-607	7.609	Webster	FA-272	4.127
Montgomery	FA-73-A	8.077	Winnebago	P-750-A & C	9.561
Muscatine	P-523	0.275	Winnebago	P-750-A & C	8.589
Muscatine	P-523-B	0.322	Winnebago	P-750-D	2.954
Muscatine-Cedar	P-635 A & B	5.488	Winnebago	P-752-E & F	0.907
Muscatine	P-635- D & G	0.685	Winnebago	FA-30-A	5.871
Muscatine	P-635-CEFH	13.274	Winneshiek	FA-98	0.094
Muscatine	FA-87	9.109	Winneshiek	FA-98-D	4.617
Muscatine	NRH-372	9.124	Winneshiek	FA-98-E	1.587
Muscatine	NRH-M-43	2.044	Winneshiek	FA-284-D	4.043
Osceola	P-725-ABCD	15.369	Worth	P-555-B	0.360
Osceola	NRH-M-329	6.816	Wright	FA-29-A-B	14.424
Palo Alto	FA-362	12.169	Wright	FA-29-C	6.275
Page	P-264	13.514	Wright	FA-29-DEF	4.433
Pocahontas	NRH-M 421	4.886	Wright	FA-267-C	12.051
Pottawattamie	P-576	6.589	Wright	FA-267-D	0.246
Pottawattamie	P-576-A	8.877	Wright	FA-267-E	12.174
Pottawattamie	FA-46	0.431	Wright	FA-267-F	0.152
Pottawattamie	FA-310-C	14.766	Wright	FA-343-ABCD	7.746
Pottawattamie	FA-310-D	1.067	Wright	FA-360-AB	6.829
Pottawattamie	FA-312	11.862	Henry	FA-56-F	1.712
Poweshiek	F-261	0.324			
Poweshiek	FA-313	8.380			
Sac-Buena Vista	FA-333-A	7.120			
Sac	NRH-M 333-C & D	9.749			
Shelby	FA-322	14.475			
Sioux	NRH-281-BC	4.064			
Story	P-700	1.082			
Story	FA-72-B	12.124			
Tama	FA-257	0.093			
Tama	FA-257	9.100			
Tama	FA-257	1.185			
Tama	FA-276	0.406			
Tama	F-276	0.767			
Ta	FA-303	1.677			
Taylor	FA-149-A & B	14.154			
Taylor	NRM-81-C	0.093			
Union	P-664-ABC	6.709			
Union	P-664-ABC	3.155			
Union	FA-83-DEGHIJ	13.731			
Union	FA-326	9.548			

5 Feb 1933, H. J. Lewis  
C. J. Lewis

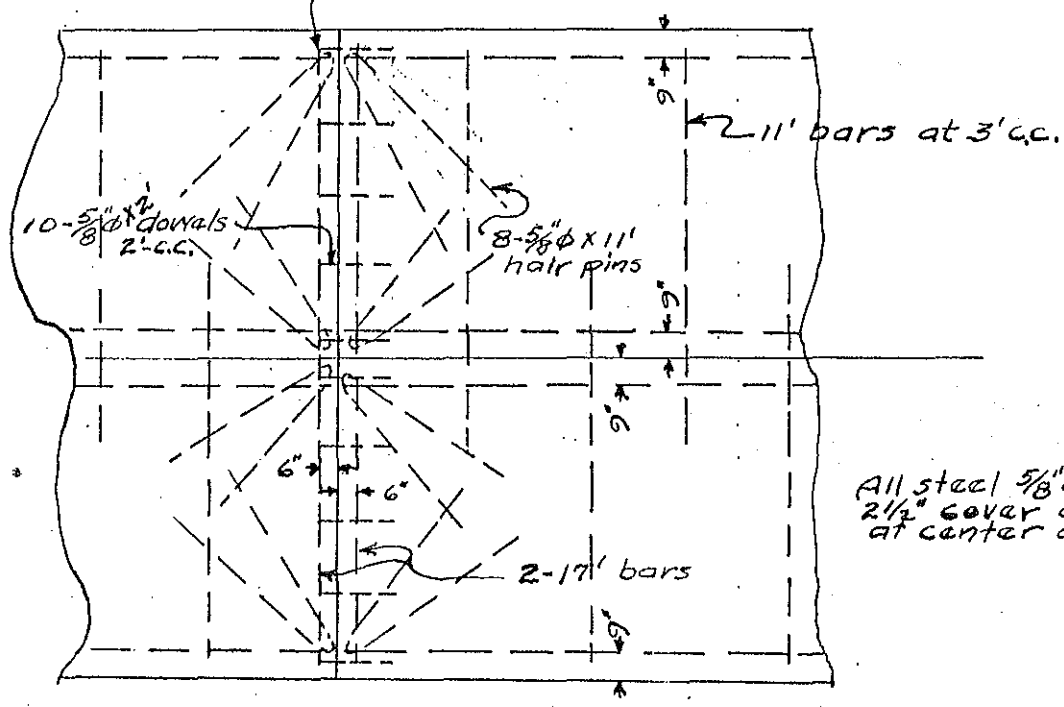
Sk 1  
Parabola tip

1" x 7" R. A. 111

18



Expansion tubes at exp. joints

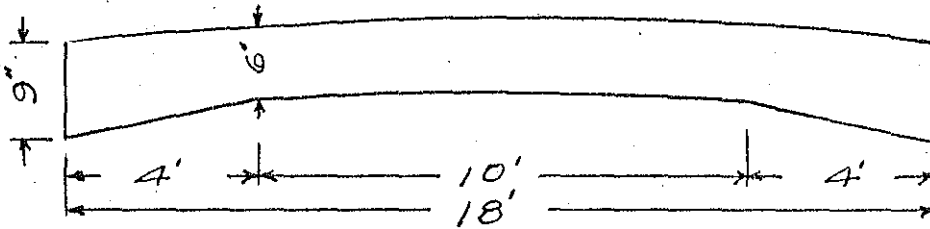


All steel 5/8"  $\phi$  plain round  
2 1/2" cover except dowels  
at center of section.

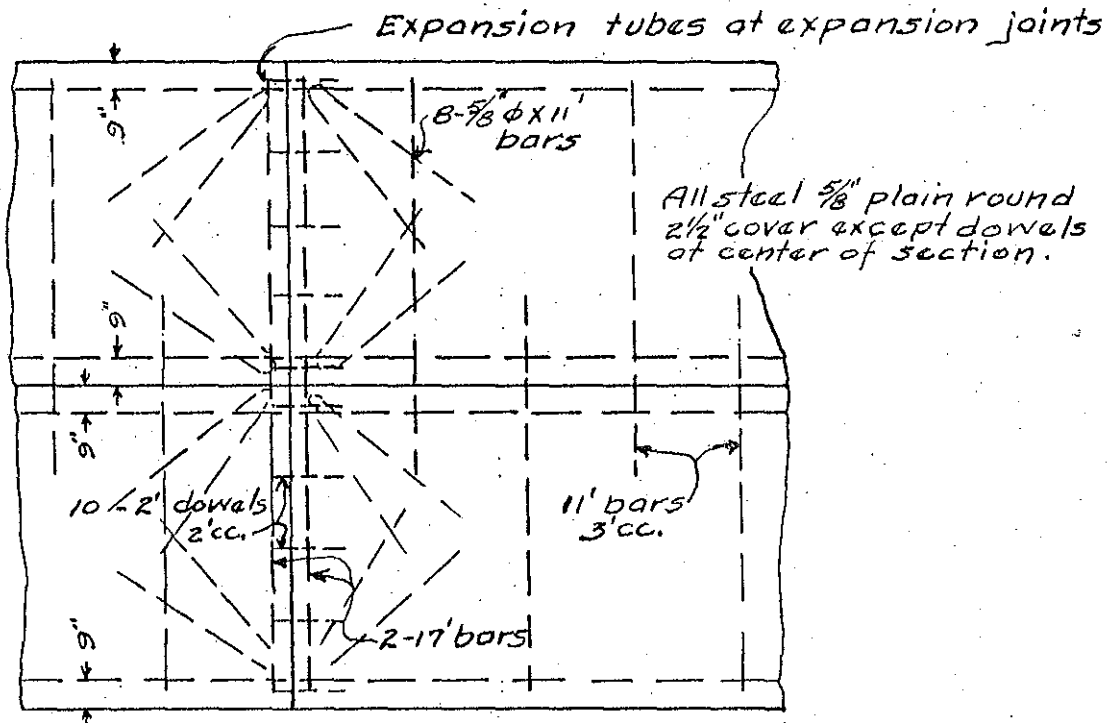
18

Design No. 19. Width 18 ft. 9-6-9  
First Used in Letting of 6-8-32. 19

County	Project	Miles
Franklin	NRS-407-AB	2.076
Kossuth	FA-66-B	0.675



Note: This section is 1" thinner than section - 18'

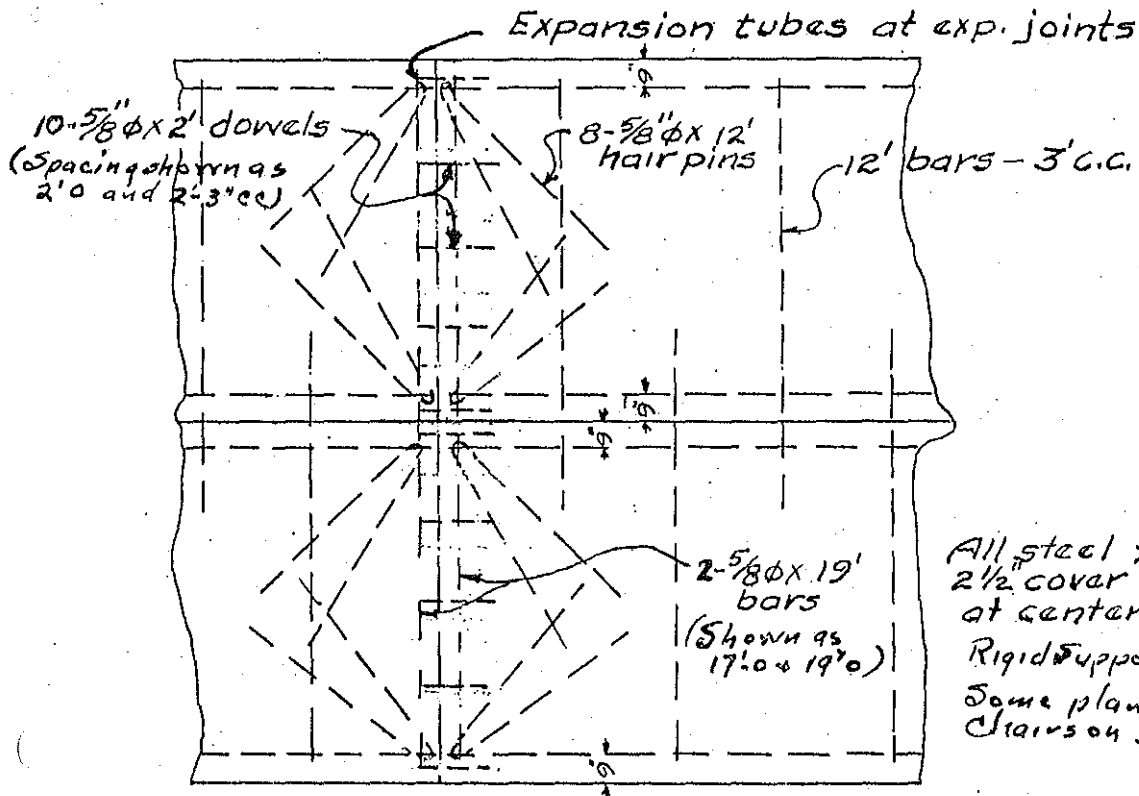
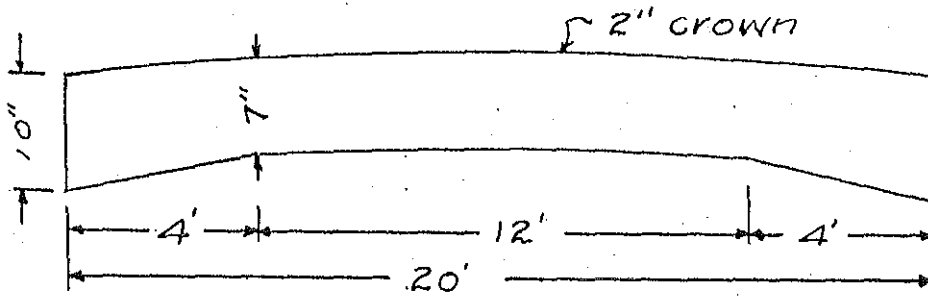


Design No. 20. Width 20 ft. 10-7-10  
 First used in Letting of 6-23-30

20

County	Project	Miles
Adams	NRM-348	0.315
Cerro Gordo	NRH-1-B	1.059
Clayton	P-671	1.13
Clinton	P-748	1.818
Des Moines	F-306	0.893
Dubuque	FA-148-D	8.365
Johnson	P-766	1.018
Lee	FA-149	0.260
Mahaska	NRM-293-C	0.457
Polk	P-758-ABC	5.727
Polk	FA-206-E	0.231
Polk	FA-340-A	4.007
Pottawattamie	State	
	Institution 8-31	0.489
Scott	P-762	1.108
Woodbury	P-45	1.8015
Woodbury	P-45-A & B	0.578
Woodbury	P-767-ABC	4.865
Woodbury	NRS-104-A	7.569

*Handwritten notes and stamps at the bottom of the page, including "Black" and "F237".*



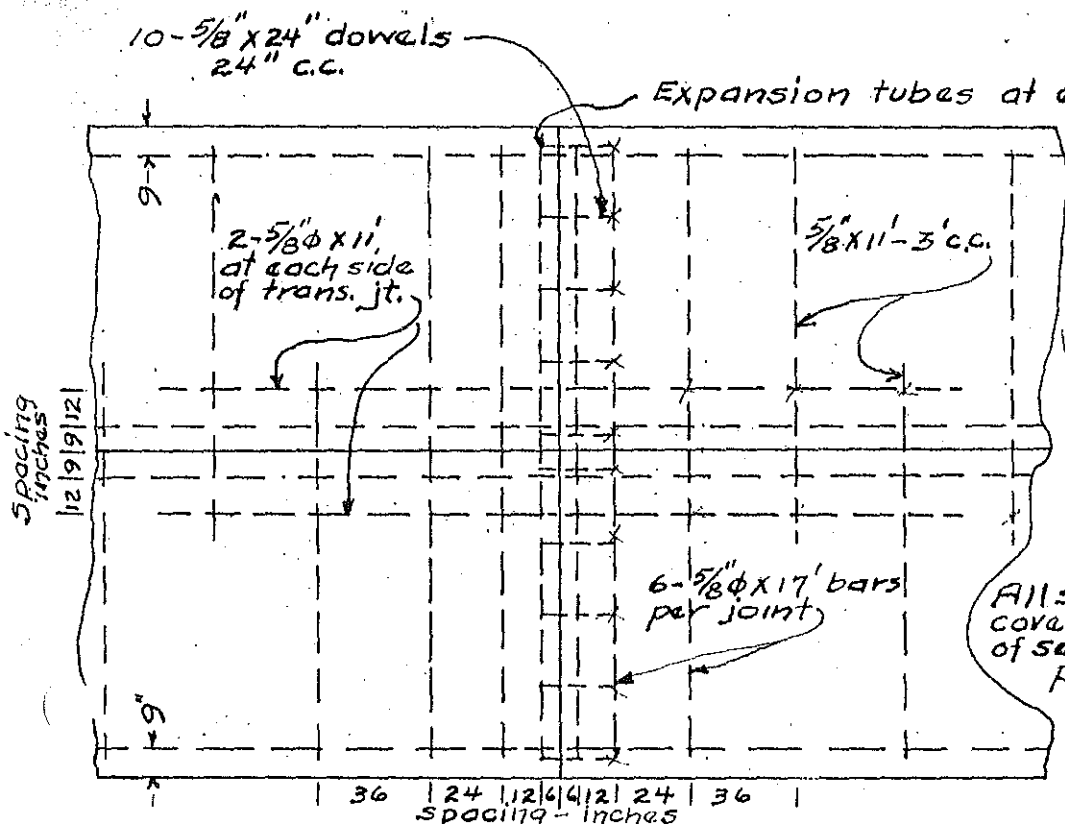
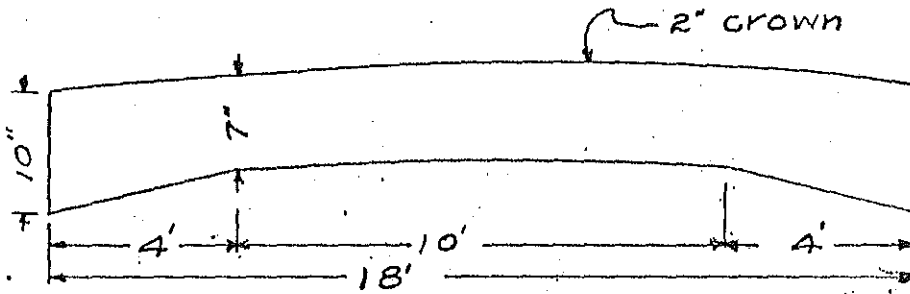
All steel  $\frac{5}{8}$ "  $\phi$  plain round  
 2 1/2" cover except dowels  
 at center of section  
 Rigid Support of Steel required.  
 Some plans Show permanent  
 Chairs on Dowels and Hairpins.



Design No. 21. Width 18 ft. 10-7-10  
First Used in Letting of 11-21-33.

21

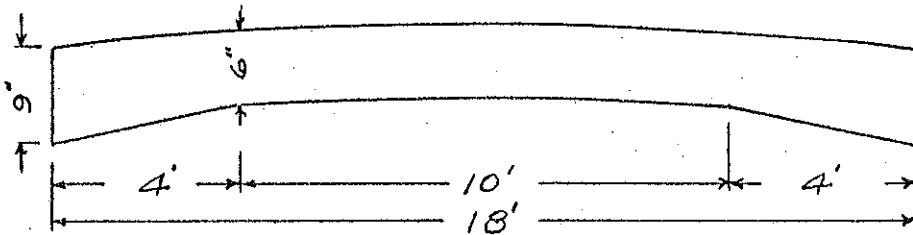
County	Project	Miles
Appanoose	NRM-27-CD	0.983
Bremer	NRH-367-B	0.3947
Cerro Gordo	NRH & M-61	1.017
Delaware	NRM-249	1.272
Floyd	NRH-& M-41 D & E	0.328
Hancock	NRM-94	0.196
Hancock	NRH-139	0.346
Jasper	NRH & M-425	6.447
Jones	FA-163-EF	0.259
Lee	NRH & M-416 AB	1.875
Mahaska	NRM-427	0.736
Marshall	FA-23-CD	0.340
O'Brien	NRH-446	0.265
Scott	NRS-481-A	0.312
Sioux	NRH-M 28-ABC	7.462
Warren	NRH-M 415-ABC	11.008
Webster	NRH-422	0.307



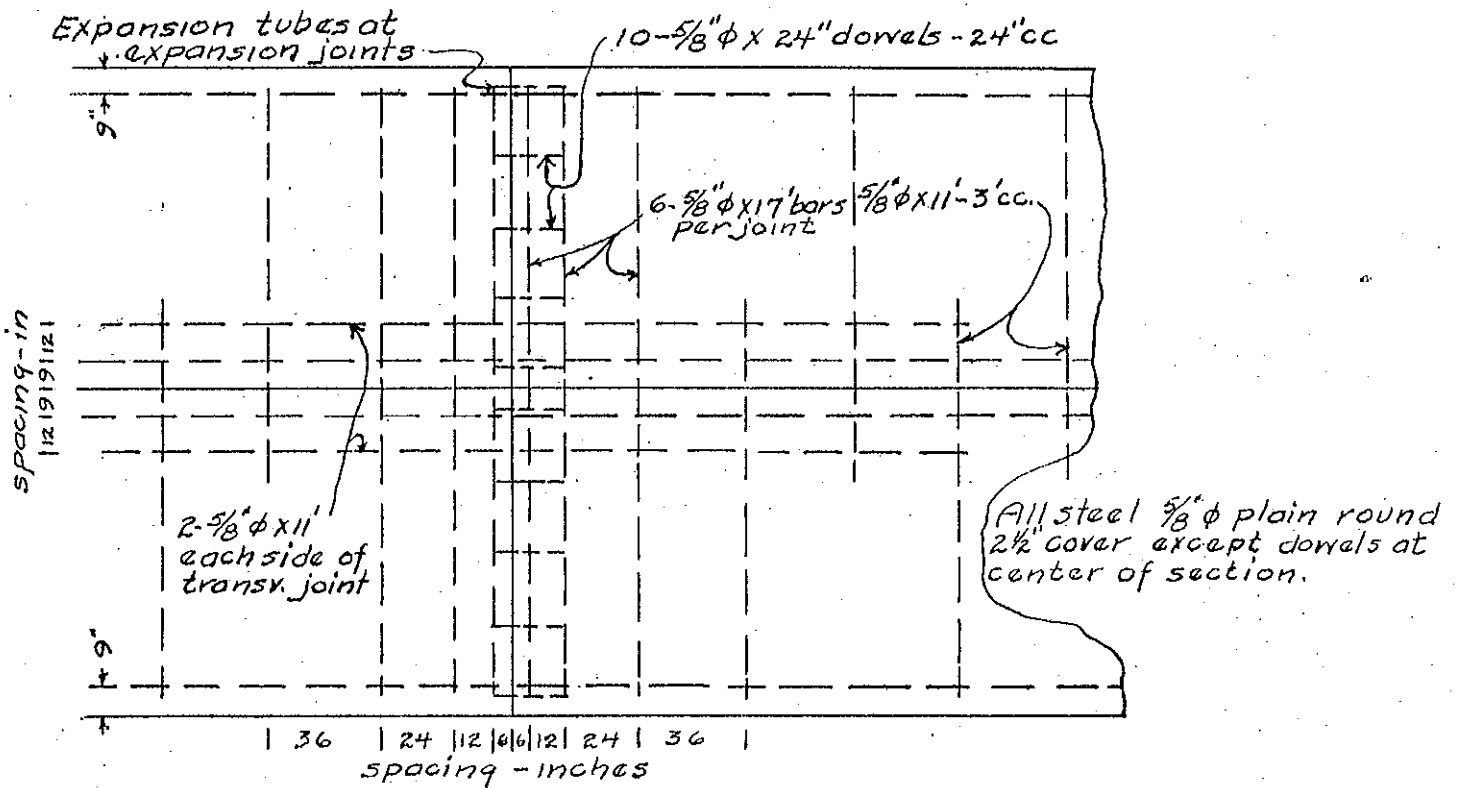
Expansion Joints to be spaced 60ft ± with gravel aggregate and 1" @ 80ft with stone. If Bil Curing is used Joints to be 80' c.c. With 1 Contraction Joint Midway between

All steel 5/8" φ plain round 2 1/2" cover except; dowels in center of section. Permanent Chairs at each dowel and 2 on each Transverse Bar

	Design No. 22.	Width 18 ft.	9-6-9	22
	First Used in Letting of <u>11-21-33</u>			
County	Project	Miles		
Audubon	NRM-52-F	0.490		
Franklin	NRM-212-F	0.749		



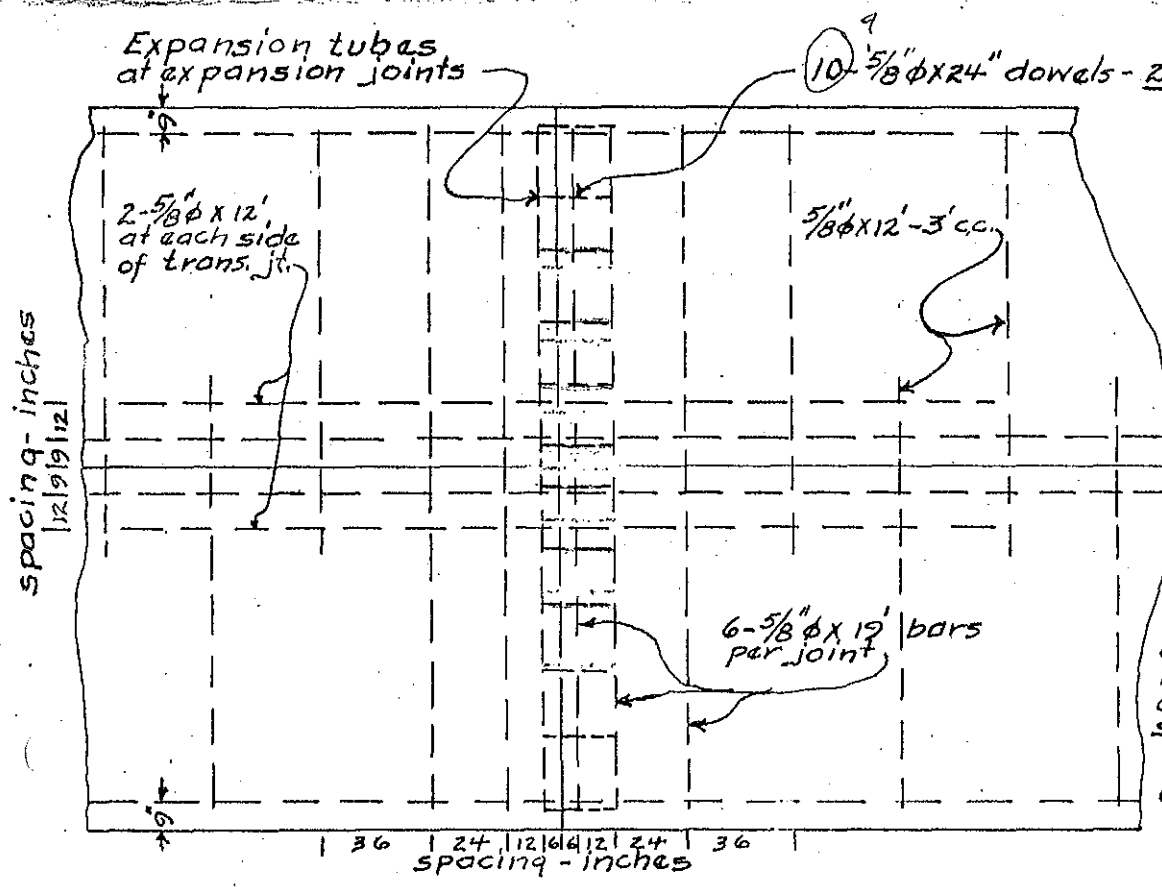
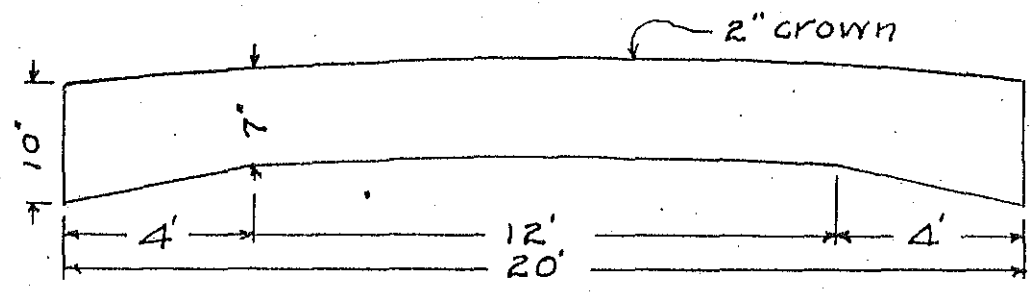
Note: This section is 1" thinner than section 21



Design No. 23. Width 20 ft. 10-7-10  
First Used in Letting of 12-5-33

23

County	Project	Miles
Floyd	NRM-41-C	0.6259
Hamilton	NRM-67-D	0.602
	NRM-67-J	0.227
Hamilton	NRM-450	0.484
Jefferson	NRM-120-B & C	0.568
Kossuth	NRM-111C-D	0.956
<del>Lucas</del>	<del>NRM-63-GH</del>	<del>0.468</del>
Polk	FA-199-A & C	0.519
Pottawattamie	NRM-280-E	0.484
Scott	NRM-114-E & F	2.030
Scott	NRM-185-B	0.688
Union	NRM-83-K	0.151



Expansion Joints  
 $\frac{3}{4}$ " @ 60' with Gravel  
 or 1" @ 80' with Stone  
 coarse Aggregate.  
 If Bit Curving is  
 Used, Joints to be  
 1" @ 80ft with 1  
 Contraction Joint  
 Midway between

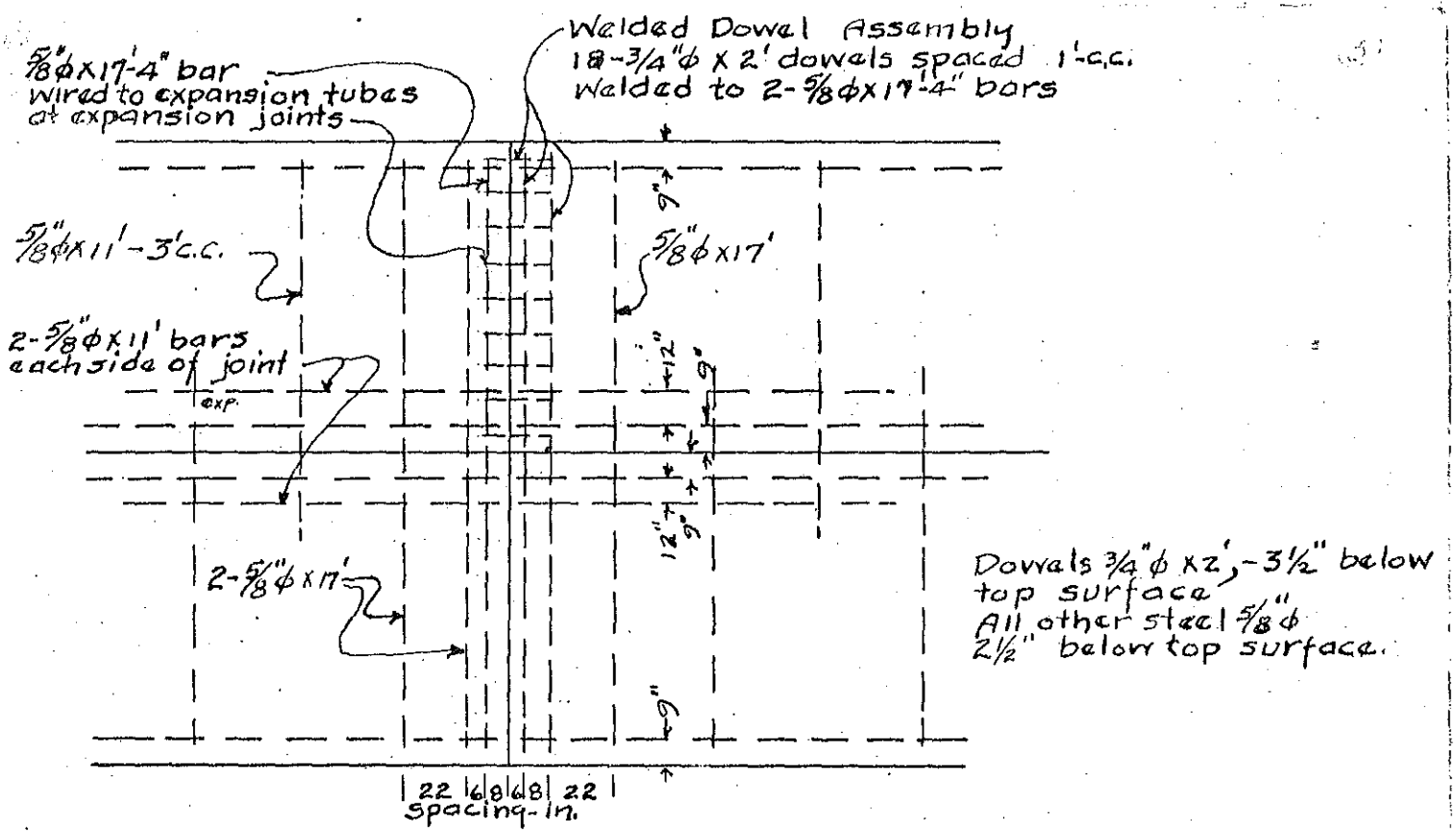
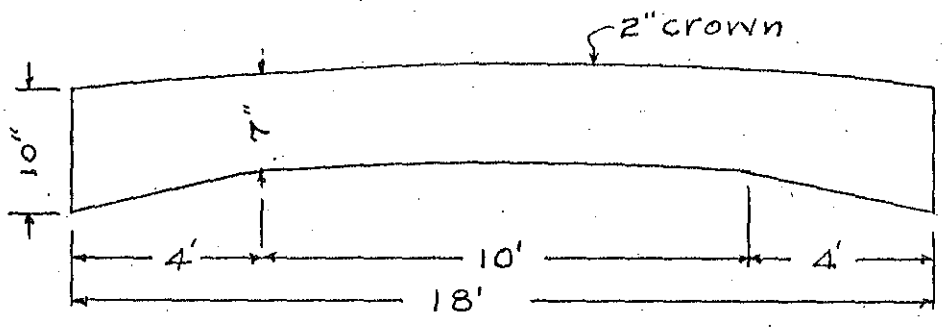
All steel  $\frac{5}{8}$ " plain  
 round -  $2\frac{1}{2}$ " cover except  
 dowels in center of  
 section.  
 Permanent Chairs  
 on each dowel  
 and 2 on each  
 transverse bar

Design No. 24 Width 18 ft. 10-7-10

24

First Used in Letting of Sept 12 1934.

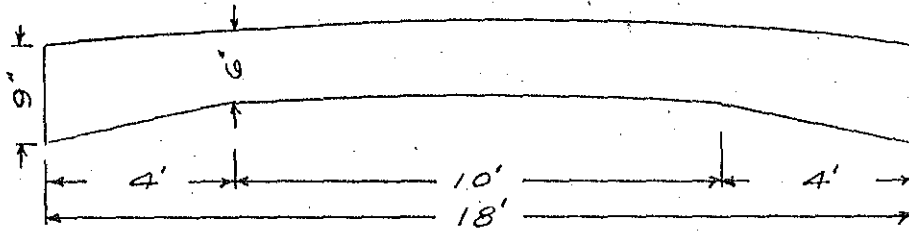
County	Project	Miles	County	Project	Miles
Allamakee	NRH-543A	2.765	Scott	FA-55C	0.145
Blackhawk	NRS-487A	2.53	Scott	FA-114C	0.391
Buena Vista	NRH-M37CD	3.964	Sioux	FA-342BA	7.912
Carroll	NRH-538A	2.899	(Plymouth)		
Chickasaw	NRH-M-76BDE	3.917	<del>Sioux</del>	<del>FA-342CD</del>	<del>0.941</del>
Dallas	NRH-M-557AB	0.854			
Franklin	WPSO-M-S529AB	1.55			
Hancock	WPSSM9571AB	0.751			
Harrison	NRS-528-A	4.781			
Jasper	<del>WPGM-64H</del>	<del>0.231</del>			
Jefferson	NRH-120E	0.356			
Kossuth	NRH-504A	3.997			
Mitchell	NRH-259	0.415			
Mitchell	NRH-368A	6.593			
Osceola	P-296-A	5.249			
Page	NRH-M524D&F	1.230			
Palo Alto	NRH-421DE	6.122			
(Pocahontas)					
Plymouth	NRH-342-A	6.156			
Plymouth	<del>FA-342-AB</del>	<del>7.912</del> (no)			
(Sioux)					
Pocahontas	NRH-421DE	6.122			
(Palo Alto)					



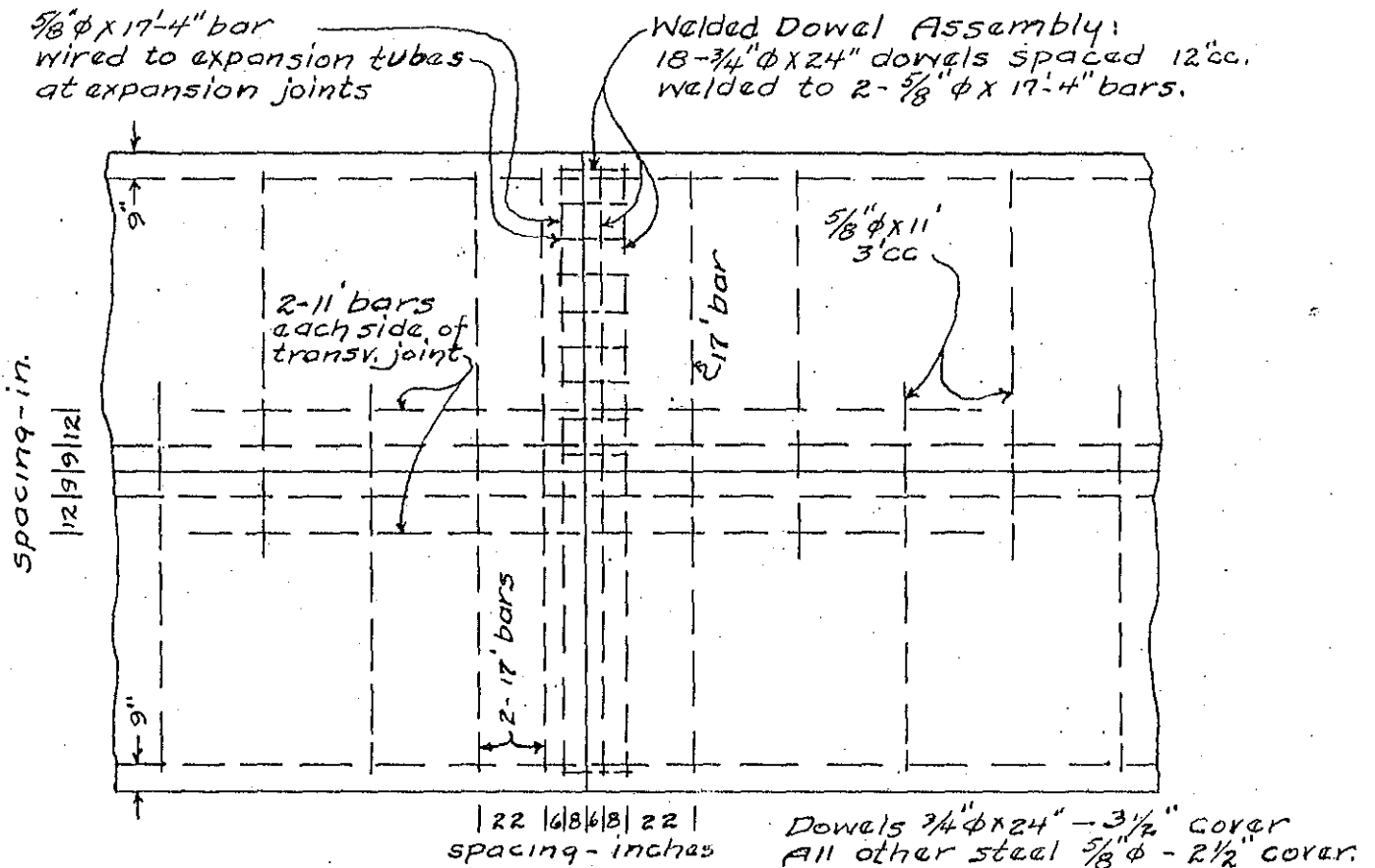


Design No. 25    Width 18 ft. 9-6-9  
Used on Projects:    First Used in Letting of 10-1-35  
County    Project    Miles  
Franklin    WPSO-577    1.137  
Hancock    WPSS-WPMS  
            571AB    0.751

25



Note: This section is 1" thinner than section 24

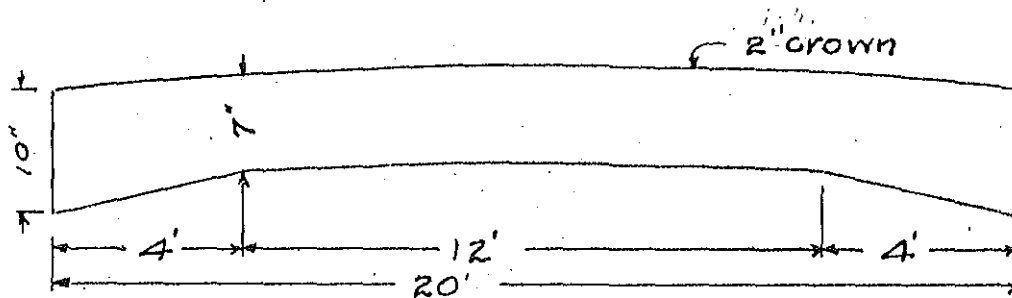


Project	Miles	County	Project	Miles	County
Pottawattamie	0.85	NRM-310-E	Pottawattamie	1.96	NRM-280-FGH
Polk	0.594	WPSO-696-A	Polk	1.868	WPSO-695-A
Polk	8.611	NRM&H-376-BCD	Polk	4.023	NRM-376-F
Polk	0.378	WPGH-421	Polk	3.655	FA-421-F
Pocahontas	0.417	WPGH-362	Pocahontas	6.664	FA-566-A
Pocahontas	0.710	WPMH-20	Palo Alto	0.710	WPMH-20
Monroe	0.572	WPMH-573	O'Brien	0.572	WPMH-573
Mitchell	8.138	FA-376-JK(2&3)	Monroe	0.572	WPMH-573
Marshall	0.545	WPGH-376-H	Mitchell	1.23	WPGH-376-H
Marion	0.511	WPHWPMH-7-CD	Marshall	0.511	WPHWPMH-7-CD
Mahaska	5.122	FA-366-A	Marion	5.122	FA-366-A
Maddison	6.110	FA-420-C	Mahaska	6.110	FA-420-C
Lyon	6.165	FA-250-ABC	Maddison	6.165	FA-250-ABC
Louisa	0.536	NRM-250-CD	Lyon	0.536	NRM-250-CD
Louisa	0.386	WPGHM-96-BC	Louisa	0.386	WPGHM-96-BC
Linn	0.738	WPMH-650-A	Linn	0.738	WPMH-650-A
Lee	6.369	FA-504-B	Lee	6.369	FA-504-B
Kossuth	0.846	FA-351-C	Lee	0.846	FA-351-C
Kossuth	5.476	FA-376-I	Kossuth	5.476	FA-376-I
Jasper	5.476	Poweshiek	Jasper	5.476	Poweshiek
County	5.476	Poweshiek	County	5.476	Poweshiek
	6.369	Sac (Ia)		6.369	Sac (Ia)
	0.738	Scott		0.738	Scott
	0.386	Scott		0.386	Scott
	0.536	Scott		0.536	Scott
	6.165	Scott		6.165	Scott
	6.110	Scott		6.110	Scott
	5.122	Scott		5.122	Scott
	0.511	Union		0.511	Union
	1.23	Union		1.23	Union
	0.545	Union		0.545	Union
	8.138	Van Buren		8.138	Van Buren
	0.572	Van Buren		0.572	Van Buren
	0.710	Van Buren		0.710	Van Buren
	6.664	Van Buren		6.664	Van Buren
	0.417	Webster		0.417	Webster
	3.655	Webster		3.655	Webster
	0.378	Woodbury		0.378	Woodbury
	4.023	Lucas		4.023	Lucas
	8.611	NRM-376-F		8.611	NRM-376-F
	1.868	WPSO-695-A		1.868	WPSO-695-A
	0.594	WPSO-696-A		0.594	WPSO-696-A
	1.96	NRM-280-FGH		1.96	NRM-280-FGH
	0.85	NRM-310-E		0.85	NRM-310-E

Design No. 26 Width 20 ft. 10-7-10  
 First Letting used in 9-12-34 . 26

Used on Projects:

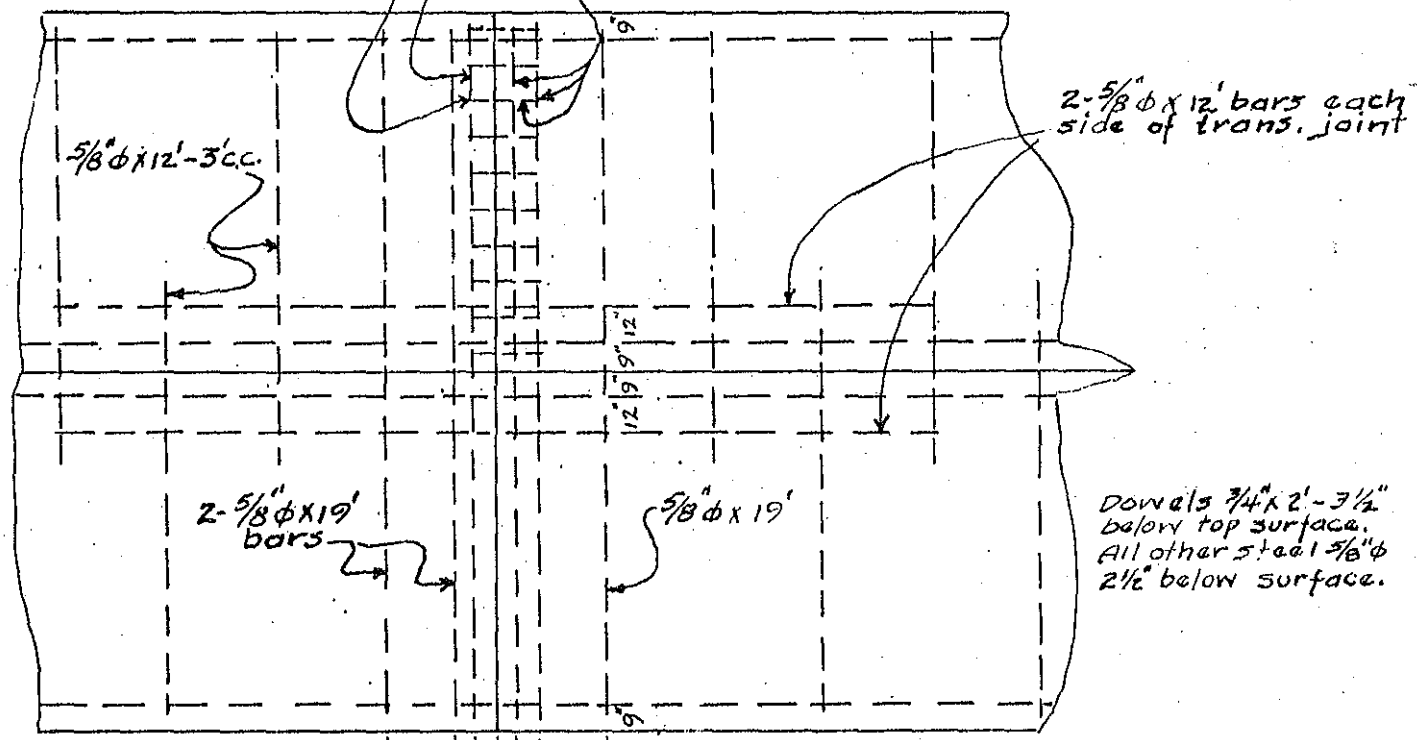
County	Project	Miles	County	Projects	Miles
Appanoose	WPGH-27-B	0.309	Franklin	Hardin	
Benton	F-58-DE	0.332		WPGH-569-A	0.326
Benton	FA-553-A	3.065	Fremont	WPGH-581	0.334
Bremer	FA-380-F	5.305	Greene	WPGM-203-E	
Bremer	FA-380-GA	3.228	Greene	WPMH-WPH-203FG	1.385
Butler	WPMH-85-G	0.646	Guthrie	FA-51-D&E	0.255
Butler	WPGH-85-H	0.332	Hamilton	FA-360-C	6.102
Carroll	WPGH-154-H	1.033	Hancock	FA-94-AF	4.577
Cedar	FA-213-ADiv-1	7.384	Hardin	WPGH-568-A	0.303
Cherokee	WPMH-596	1.393	Harrison	NRS-528-A	4.781
Chickasaw	FA-76-B	3.495	Howard	FA-31	2.484
Chickasaw	FA-160-AB(1)	--	*Humboldt	WPGH-117-I	0.340
Chickasaw	WPGH-160-B(2)	0.568	Humboldt	FA-117-J	6.191
Clayton	NRM-358-CE	0.874	Humboldt	FA-117-D&E	0.992
Clayton	FA-579-ABC	8.258	Humboldt	WPGH-117-H	0.356
Dallas	FN-65-C(2)	0.362	Humboldt	FA-117-G	5.358
Delaware	WPH-WPMH-249B&C	1.387	Ida	FA-80	0.421
Dickinson	FA-564-A	10.347	Ida	FA-248-B	0.29
Dubuque	WPGH-305	0.208	Ida	FA-445	4.889
Emmet	WPMH-439-B	0.536	Ida(Sac)	FA-517-ABC	8.763
Emmet	FA-363-A	4.878	Iowa	WPGH-90-D	0.116
ette	FA-172-ABC	6.492	Jasper	WPH-64-A	0.151
loyd	FA-271-D	2.002	*Jasper	FA-376	2.753
			*Howard	FA-93-B	3.620



$\frac{5}{8}$ "  $\phi$  x 19'-4" bar wired to expansion tubes at exp. joints

Welded Dowel Assembly  
20- $\frac{3}{4}$ "  $\phi$  x 24" dowels spaced 12" cc.  
welded to 2- $\frac{5}{8}$ "  $\phi$  19'-4" bars

(7)



22 5/8 6/8 22  
spacing 9-in.

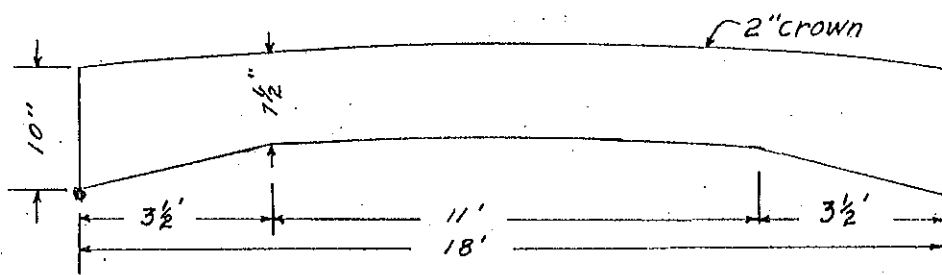
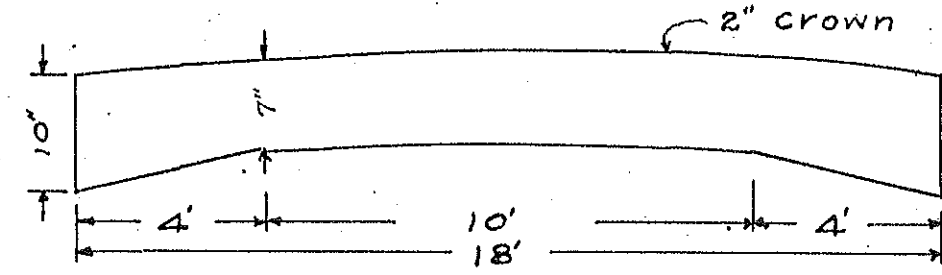
Design No. 27

Width 18 ft. 10-7-10

First Used in Letting of

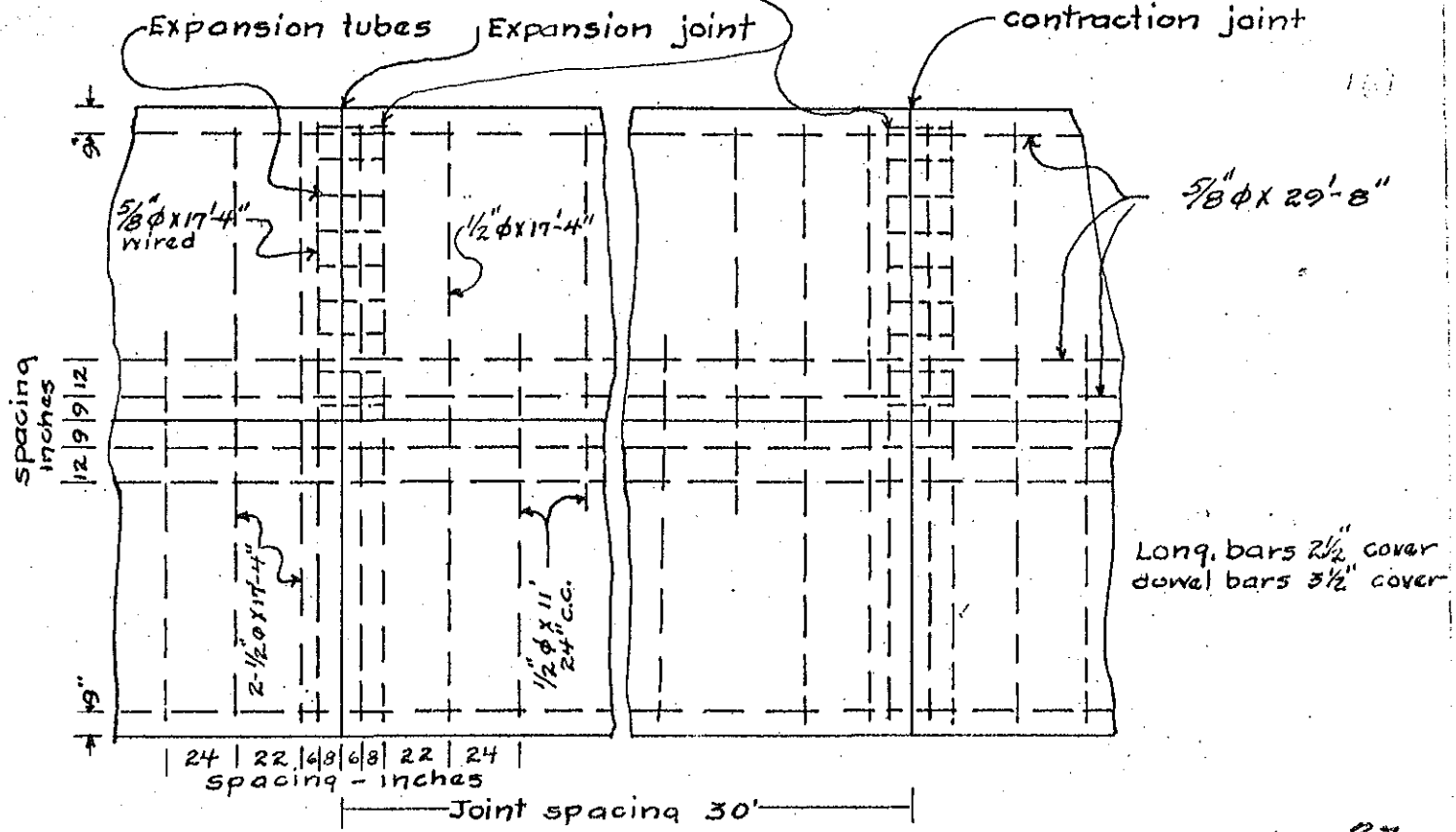
Sept 15 - 1936

County	Project	Miles
Benton	FN-58	0.475
Cherokee	FA-728	1.805
Ida	FA-731	2.385
Lyon	FA-733A	0.963
Humboldt	P-874	7.182
Osceola	P-876	1.996
Palo Alto	P-888AB	0.422
Washington	T-835	0.327
	(PWA1316F)	
Woodbury	WPGM-604	0.955
Dickinson	P 936	1.887

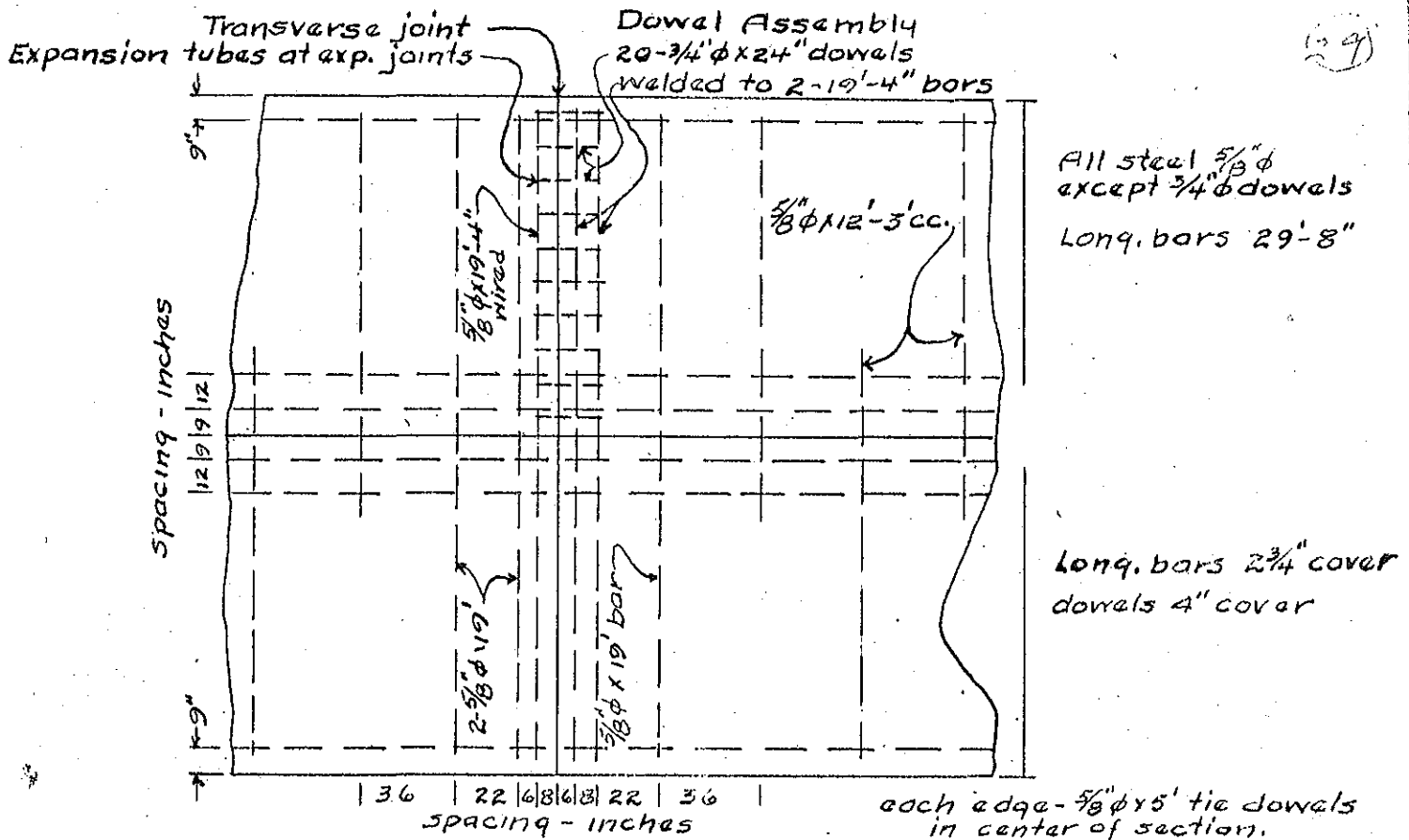
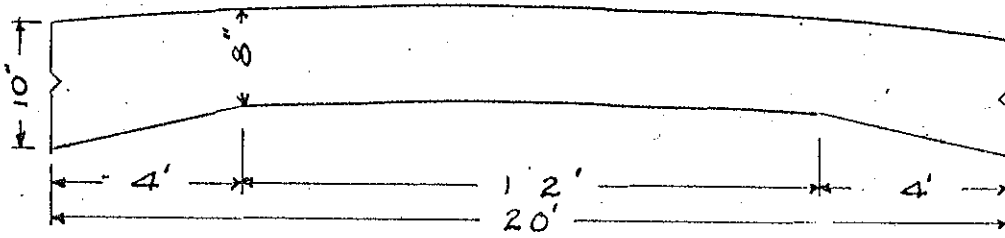


This section applies to following.  
Dickinson P936-188716

Welded Dowel Assembly, 18-3/4" φ x 24"-12" c.c. to 2 5/8" φ x 17'-4" bars



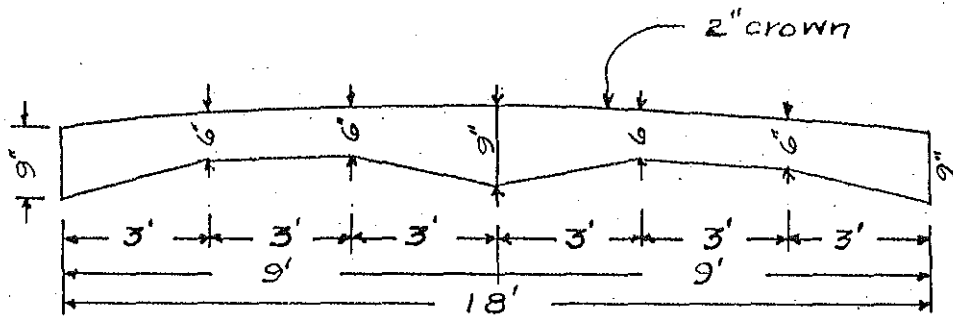
County	Project	Miles	Design No. 28	Width 20 ft. 10-8-10
Linn	FN-96B	0.115	First Used in Letting of	<u>8 - 17 - 37</u>
Polk	FA-104B	1.501		
	WPGM-104D	0.453		
	WPMH-104G	0.269		
	WPGM-220C	0.175		
	WPGM-220D	0.648		



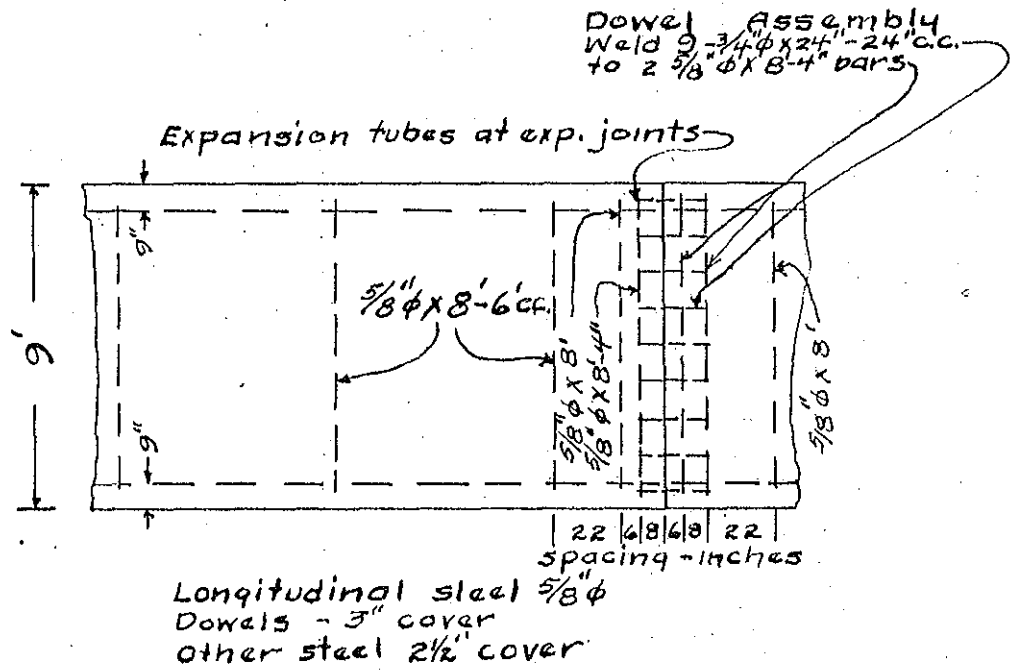


105,000

County	Project	Design No. 29 First Used in Letting of	Miles	Width 9ft strips (18'0") <u>Jan 2, 1935</u>	# 9-6-39
Butler	FA-375 ABC		2.766		
	NRH-M 375 ABC		2.974		



Pavement built in separate 9' strips



County	Project	Miles	County	Project	Miles
Ashington	FA-71-D	0.673	Clinton	FA 18(2)	0.255
Ashington	FN-71-S	0.124	Clinton	FN 18	0.201
Layne	FA-344(2)	2.707	Clinton	FN 18	0.226
Layne	FA-770-A	2.890	Clinton	FA 147 ABC(2)	0.205
Layne	FA-770-B(1)	3.726	Henry	WPGH 151 A	0.284
Webster	FN-475-E	0.815	Louisa	WPMH 3380	0.067
Winnebago-Worth	FA-771-A	6.073	Lyon	FA 576 A	0.345
Winnebago	FA-748	8.439	Mahaska	P 510	0.241
Woodbury	P-886-H	0.456	Mahaska	FA 70 AD(3)	0.221
Woodbury	P-911	0.992	Polk	FA 216 D	0.224
Worth	FA-268	5.242	Polk	FAGM 216C	0.215
Worth	FA-268(3)	6.288	Sac	FA 423 AB	0.436
Worth	FA-134	4.915	Sac	FA 413 A	4.368
Wright	FN-29-GH	2.535	Plymouth	FN 382	0.189
			Henry	WPGM*GS 637 AB	0.094
			Dickinson	FN 564	0.047
			Johnson	FA 765 D	4.382
			Lee	P 149A	0.428
			Carroll	FAGH 154 E	0.155

Design No. 30 Width 20 ft. 10-7 $\frac{1}{2}$ -10<sup>30</sup>  
 First Used in Letting of August 18, 1936.

Used on Projects:

County	Project	Miles	County	Project	Miles
Audubon	FA-52G	0.401	Calhoun	FAGH-10-E	0.430
Audubon	FN-52	0.1616	Calhoun	FA-726-A	11.641
Black Hawk	FN-62	0.095	Calhoun	FA-727-A	3.894
Black Hawk	P-949	2.231	Calhoun	FA-727-B	5.235
Boone-Dallas	FA-65A(2)		Calhoun	FA-736-C(Div.1&2)	6.264
	Ext. 1	7.799	Calhoun-Sac	FA-727-C	7.086
Boone-Dallas	FA-843-A(1)	7.156	Calhoun-Sac	FA-736-C(Div.3&4)	5.769
Bremer	FA-88-E1	0.646	Carroll-Crawford	FA-739-CD	7.870
Bremer	FN-380-H	6.032	Cass-	FN-44	-
Buena Vista	FA-37-B&J	13.359	Cass	FA-738-A	0.558
Buena Vista	FA-37-J	5.056	Cedar	FA-213(2)	6.568
Buena Vista	FA-355-B	7.435	CerroGordo	FAGM-61-G	0.0135
Buena Vista	FN-473	0.249	CerroGordo	FAGM-61-GH	1.241
Buena Vista	FN-473-N	0.697	Cherokee	FA-37-EF	2.419
Buena Vista	FA-649-A	3.376	Cherokee	(Buena Vista)FA-37-GH	6.356
Buena Vista	FA-762-A	5.45	Cherokee	FA-116-AB	16.940
Buena Vista	P-875-(10-7-10)	0.539	Cherokee	FA-247-C	3.006
Butler	FA-85-EF(2)		Cherokee	FA-288-A	6.633
	Ext. (1)	4.402	Cherokee	FA-379-AB	6.575
Calhoun	FA-10	8.974	Cherokee	FA-596-B(1)	0.893
Calhoun	WPMH-10-BC	0.435	Cherokee	FA-776-A(3)	8.079
Calhoun&Pocahonta	FA-10D-E	4.618			

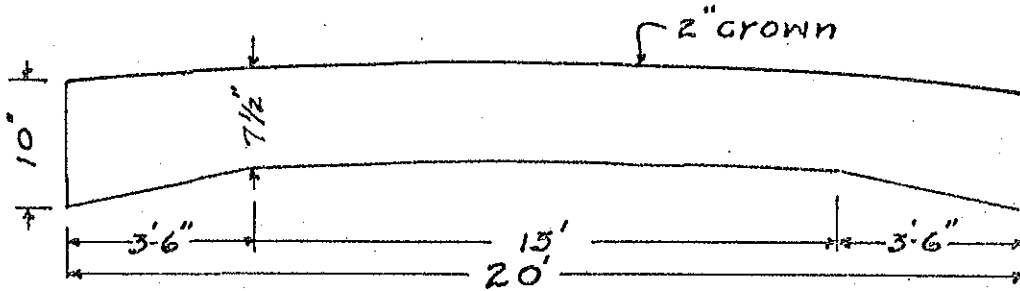
County	Project	Miles	County	Project	Miles
Ringgold-Taylor	FA-844-A	7.090			
Sac	FA-413-C	3.946	Sioux	FA-43-C	0.369
Sac	FA-423-AB	0.789	Sioux	FA-43-D	0.480
Sac	FA-719-A	0.568	Sioux - O'Brien	FA-43-EFA	12.854
Sac	FA-735-A	4.609	Sioux	FN-84-C(1)	0.479
Sac	FA-736-A	6.469	Sioux	FA-342CDFGHI(5)	8.069
Sac	FN-736	0.026	Sioux - O'Brien	FA-342 CFGHJ	8.104
Sac	FA-743A(1&2)	6.766	Sioux	FA-420E(Div2, Sec.2)	11.767
Sac	FA-743A(3&4)	7.658			
Sac	FA-741	5.508	Sioux	FA-420-D	0.409
Sac	FA-746A	5.175	Sioux	FA-542-B	0.283
Sac	FA-746-B	3.810	Sioux	FA-542-E(1)	5.769
Sac	FA-747-A	1.636			
Sac	FA-813-A	3.026	Story	FA-72-A	6.517
			Story	FA-72-A(3)	4.625
Scott	FN-221	0.160	Story	FA-72-D	0.346
Scott	WPGS-582-A	0.033	Story	FAGM-72-E Reop.	0.256
Scott	FA-821-A(1)	0.887			
Scott	SNFA-831-A(1)	0.276	Tama	FA-553-B	7.937
Scott	P-900	0.280	Tama	FA-553-C	0.297
Shelby	FN-476-B	0.194	Van Buren	FA-60-A3B(1)	8.162
Shelby	FA-860-A(1)	0.3917	Warren	SNFA-265	0.387
Sioux	FA-28	8.240	Washington	FAGM-71	0.198
Sioux	FA-28-E	7.042			

County	Project	Miles	Design No	County	Project	Miles
Cherokee	FA-776-B(1)	4.021	30	Greene	FA-39	0.288
Chickasaw	FA-177-A	5.529		Greene	FN-39	0.170
Clayton (Delaware)	FA-358CDE(3)	3.036		Greene	FA-193-A(2)	10.903
Clinton	FA-18(2) Div 7	2.266		Greene	FN-402	0.591
Clinton	FA-419-G(1)	4.547		Grundy	P-961	0.468
Crawford	FA-739-A	7.389		Hancock	FA-195-A	0.584
Carwford	FAGH-739-B	0.285		Harrison	P-563	0.049
Dallas	FA-65-C(2)	0.362		Narrison	P-614	4.934
Davis	FA-50-E	0.191		Harrison	P-614	0.323
Davis	FA-153-C	0.716		Howard	FA-93	6.088
Decatur	FA-122(4)	4.493		Humboldt	FA-730-B	11.908
Decatur	FA-300	10.10		Humboldt	FA-730-C	10.997
Delaware	FA-4-E(1)	0.167		Humboldt	P-952	0.533
Dickinson-Clay	FA-68(2)	4.234		Ida	FA-80(2)	6.287
Dickinson	FN-564	0.047		Ida	FA-80(3)	1.549
Dickinson	FA-749-A(1)	1.449		Ida	FA-80-A	8.901
Dickinson	FA-823-A(1)	1.19		Ida	WPGHM-80-C	2.303
<del>Dickinson</del>	<del>P-936</del>	<del>1.887</del>		Ida	FA-286	4.761
Dickinson	P-942-A	8.408		Ida	FA-732-A	4.487
Dubuque	FA-305-B(2)	2.485		Ida	FA-732-B(1)	5.544
Dubuque	FA-358-B(2)	3.049		Jackson	FA-419-D	0.316
Emmet	P-845	0.244		Jackson	FA-419-E	2.795
Fayette	FA-172-ABC	6.518		Jackson	FA-419-F	2.586
Floyd	FNWPGH-41	0.751		Jackson	FA-470-A	7.883
Floyd	FA-271-ABC	7.043		Jackson	FA-470-B	6.334
				Jackson	FA-470-C	7.003

Design No. 30  
First Used in letting of August 18, 1936

Used on Projects:

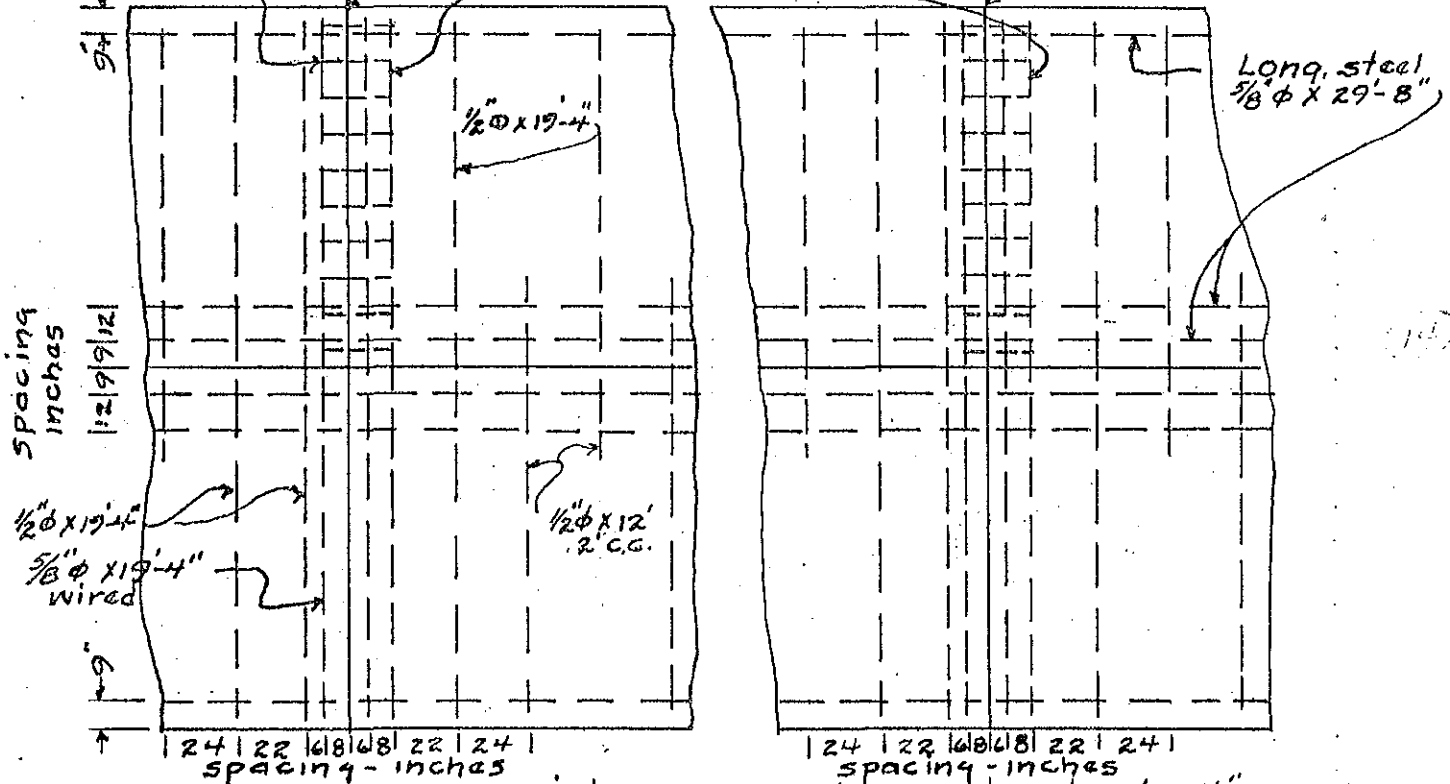
County	Project	Miles	County	Project	Miles
Jackson	FA-470-D(1)N	5.459	Mitchell	FA-368-C	3.933
Jasper	FA-425-B	6.932	Monona	SNFAGH-184BC(3)	0.436
Jasper	FA-772-B(1)	3.732	Monona	FA-426	6.456
Jasper	FA-846-A(1)	0.858	Monona	P-960	0.500
Jefferson	FN-3	0.736	Monroe	FAGM-802-A(1)	0.927
Johnson	FA-765-A(1)	5.044	Monroe	FAGH-712-A	0.340
Johnson	FA-765-B(1)	3.855	Monroe	FN-802	1.380
Johnson	FAGH-765-C(1)	0.460	Muscatine	FA-87-D	1.982
Johnson	FA-765-D(1)	4.362	Muscatine	P-523	0.248
Jones	FA-565-B	3.777	Muscatine	P-523-C	0.623
Jones	WPGHM-565-CD	0.567	O'Brien-Osceola	FA-498ABFCF	6.924
Kossuth	FA-66	7.901	Osceola	FA-498-H	6.124
Kossuth	FN-111-N	0.176	Osceola	FA-734-A	16.537
Kossuth-PaloAlto	FA-607-A	8.645	Osceola	FA-734-B	0.720
Lee	P-149	0.056	Page-	FN-524	0.293
Lee	FA-346-B	2.234	Page	FA-524-D	0.543
Linn	FAGM-22-(3)	0.227	Page	FA-651	0.249
Linn	FA-22(2)&B(1)	1.780	Palo Alto	FA-363-E	9.330
Linn	FN-96	0.120	Pocahontas	P-339	0.993
Linn	FA-96-A	2.697	Pocahontas	FA-421-C	9.448
Linn	FN-96-C	0.076	Pocahontas	FA-723-A(2)	0.480
Linn	FA-96-E	0.898	Pocahontas	FA-723-B	5.359
Louisa	FA-53	6.869	Pocahontas	FA-723-C(Div 2)	6.541
Louisa	FA-53-D	1.565	Pocahontas	FA-730-A	11.372
Louisa	FA-63-E(3)	5.043	Pocahontas	FA-745-A(2)	5.166
Lyon	FA-110-AF	7.271	Polk	FN-104	0.397
Lyon	FA-110-CD	0.456	Polk	FA-216-AB(2)	1.193
Lyon	FA-110-EDReop	14.257	Pottawattamie	FN-280(1&2)	1.491
Lyon	FA-542-C	4.474	Pottawattamie	FA-280-D	0.244
Lyon	FA-542-D	3.386	Pottawattamie	FN-280-H	0.104
Lyon	FA-576-B	4.784	Pottawattamie	FN-310-F	0.900
Madison	FA-366-B(1)	0.453	Pottawattamie	WPGM-554-E	0.387
Marion	FA-7	3.419	Pottawattamie	FN-554-EF	0.660
Marion	FA-75-ABC(3)	1.008	Poweshiek	FA-174-A	4.940
Marion	FA-260-E	0.863	Ringgold	FA-6	4.970
Marshall	FA-211-D	0.286	Ringgold	FN-6	0.826
Marshall	FA-376-HJ	7.646	Ringgold	FA-6-AB	3.405
Marshall	FA-791-A(1)	5.867	Ringgold	FA-123ABC(2)	2.757
Marshall	FA-791-B(2)	0.291	Ringgold	FA-123-C	2.983
Mills	FAGM-801	0.366	Ringgold	FA-141	5.968
			Ringgold	FA-142(2)	4.345



Expansion joint  
Exp. tubes

Welded Dowel Assembly: 20-3/4" φ x 24'-12" cc. to 2-5/8" φ x 19'-4" bars

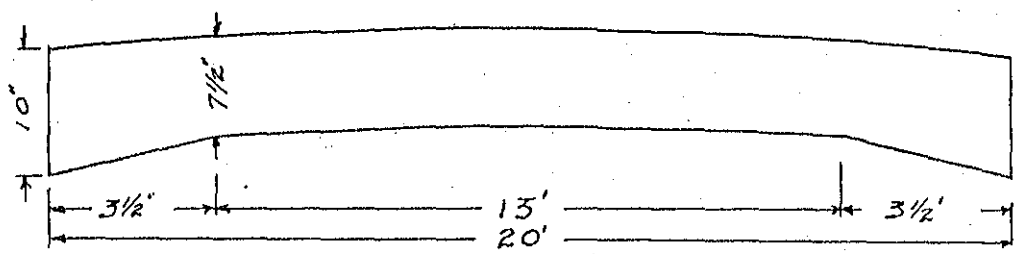
contraction joint



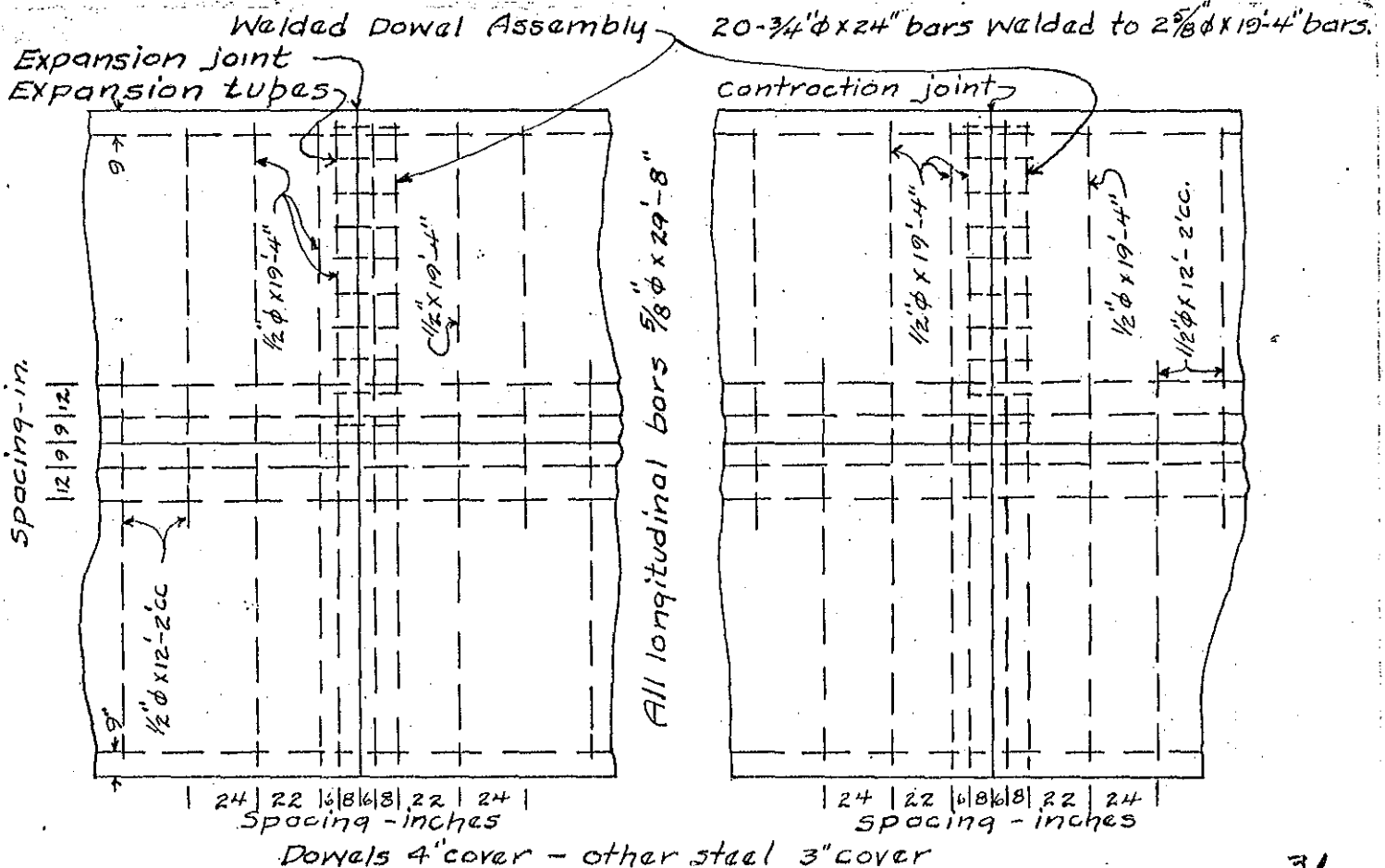
Design Number 31 Width 20 ft. 10-7 1/2-10  
First Letting Date 4 - 29 - 41

Used on Projects:

County	Project	Miles	County	Project	Miles
Boone	FA-65-A(3)D(1)	7.031	Buchanan	FA 262 BCD	0.155
Buena Vista	FA-745-B(1)	8.045	Cerro Gordo	FAGM 365 A(1)	0.195
Chickasaw	FA-357-AB(2)	0.861	Bremer	FN 86 B	0.215
Chickasaw	FA-357-C(2)	7.246	Delaware	FA 358 F(1)	5.919
Dallas	FA-493-C(2)	3.412	Des Moines	FAGM 414 C(1)	0.380
Dallas	FA-493-A(2)	1.661	Jasper	FA 764 A(1)	5.304
Decatur	FA-122 (5)	5.028	Folk	FA 89 (2)	3.251
Dickinson	FA-823-B(1)	3.853	Ringgold	FA 6 (3)	3.579
Jackson	SN-FA-419-I(1)	2.422			
Lyon	FA-110-F(3)	0.294			
Lyon	FA-835-A(2)	0.163			
Lyon	FA-835-B(2)	0.384			
Lyon	FA-835-C-(1)	5.702			
Mitchell	FA-368-D(1)	6.004			
Plymouth	FN-38	0.457			
Plymouth	FA-38BCD(2)	0.265			
Pocahontas	FA-745-C(1)	4.795			
Ringgold	FA-142	0.994			
Ringgold	FA-123-ABC	2.978			
Worth	FA-134-A(3)	4.008			
*O'Brien	FA-769 (1)	4.996			



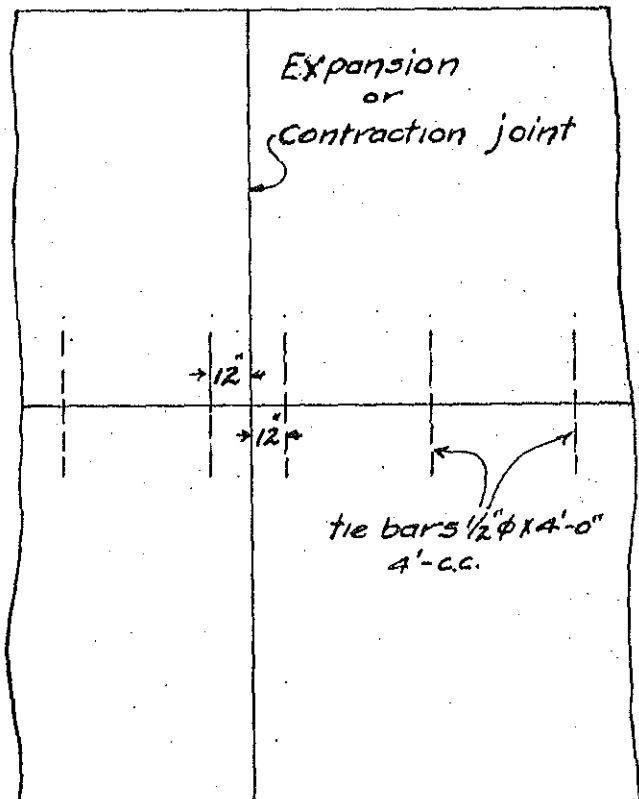
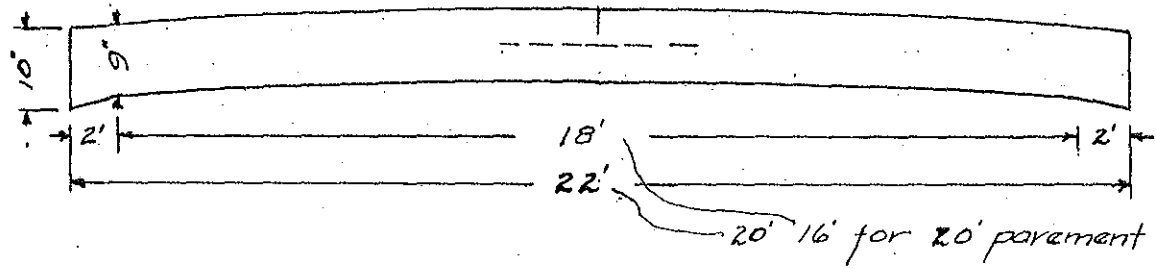
Note: This design differs from 30 in that the bar tied to the welded assembly is 1/2" φ instead of 5/8" φ





Design No. 32 Width 22 ft. 10-9-10  
First used in letting of 4-21-42

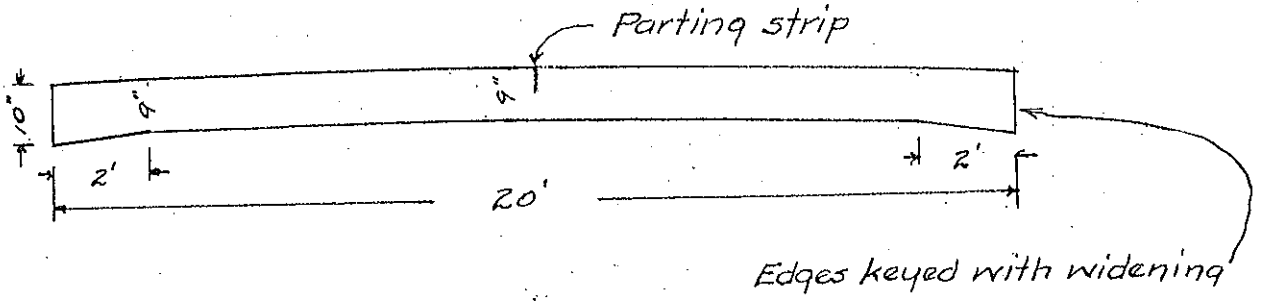
Clinton	F.N. 18 (20')	0.055
Des Moines	DA-WI-1	3.187
Polk	DA-WI 3	5.318
Polk	F.A. 132 (6)	1.288
Woodbury	DA-W.R. 5 (20')	1.540
Delaware	F.A. 358	0.475



Design No. 33    Width 20 ft.    10-9-10  
First used in Letting of 2-9-43

33

Clinton    DA-WR-7    0.291

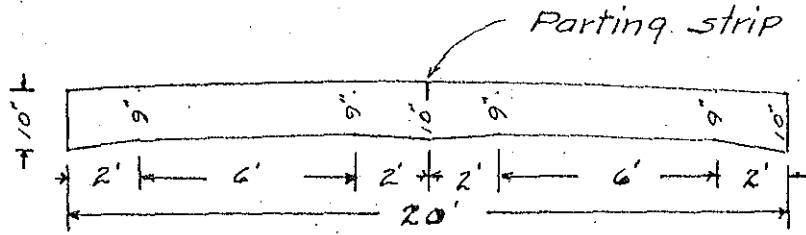


No steel

Design No. 34 Width 20 Ft. 10-9-10-9-10  
First used in Letting of 3-23-43

34

Wapello DA-NR-1 1.296



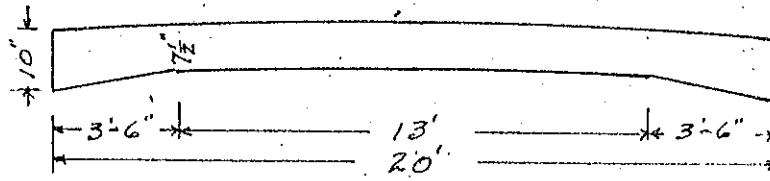
No steel

Design No. 35  
First letting

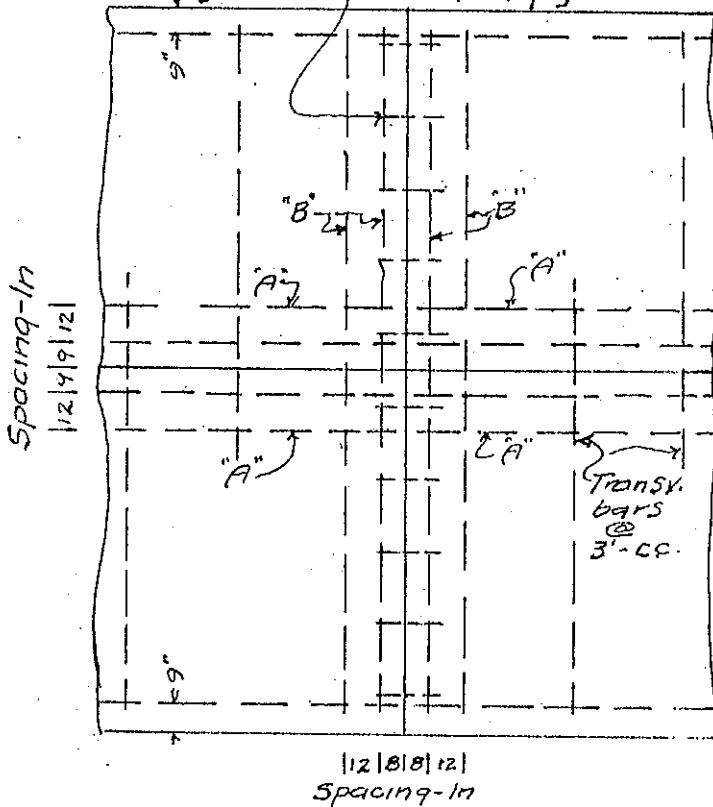
Width 20 Ft. 10-7 $\frac{1}{2}$ -10  
9-7-43

35

Harrison P. 614 0.231



Expansion tubes at joints  
" Any joint



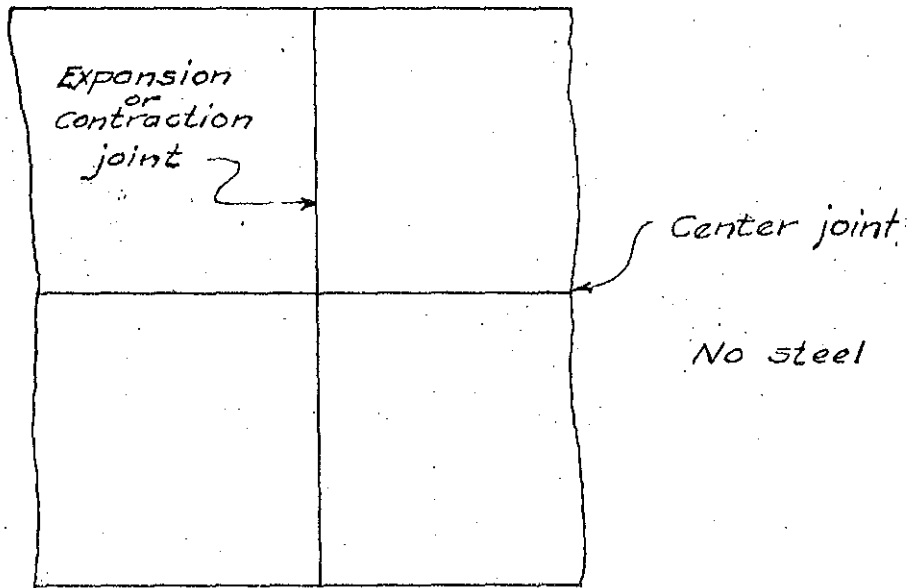
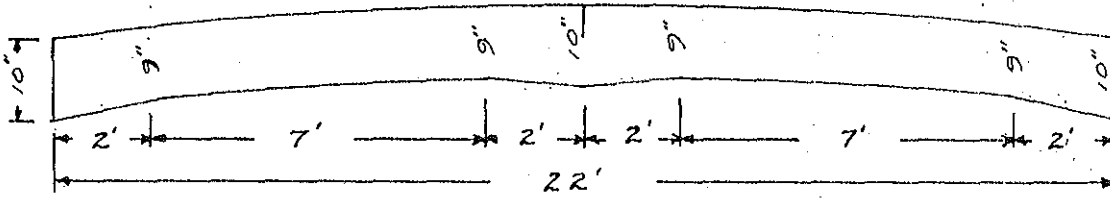
All steel  $\frac{5}{8}$ "  $\phi$   
Dowels  $\frac{5}{8}$ "  $\phi$  x 24" @ 24" cc.  
Dowel assembly 4" cover  
Other steel - 3" cover  
"A" bars  $\frac{5}{8}$ "  $\phi$  x 12'-0"  
4 "B" bars  $\frac{5}{8}$ "  $\phi$  x 19' "



Design No. 36 Width 22 Ft. 10-9-10-9-10  
First used in letting of 9-22-42

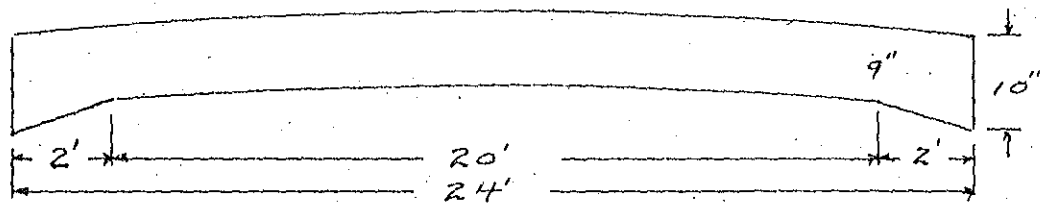
36

Guthrie P-624 0.189



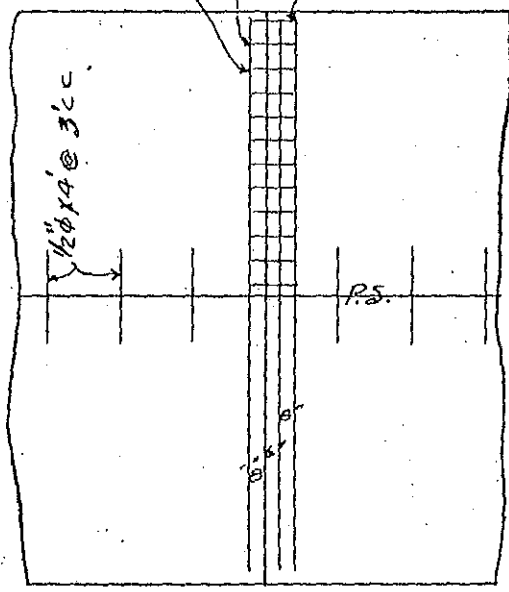
Design No. 37 Width 24 Ft. 10-9-10  
First used in Letting of 5-2-44

Des Moines AI-FA-883 A (1) 1.746 Miles 1944



Exp. tubes at Exp. Jts.  
1/2"  $\phi$  x 23' bar wired

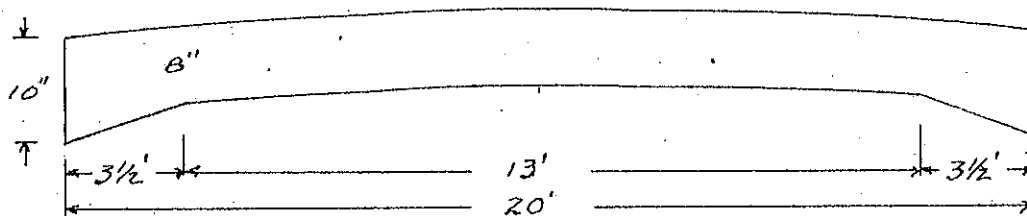
Welded Assembly - 22 - 3/4"  $\phi$  x 24"  
dowels @ 12"cc to 2-5/8"  $\phi$  x 23' bars.



Cover - 4 5/8" over dowels.

Design No. 38 Width 20 Ft. 10-8-10  
 First used in Letting of 8-8-44

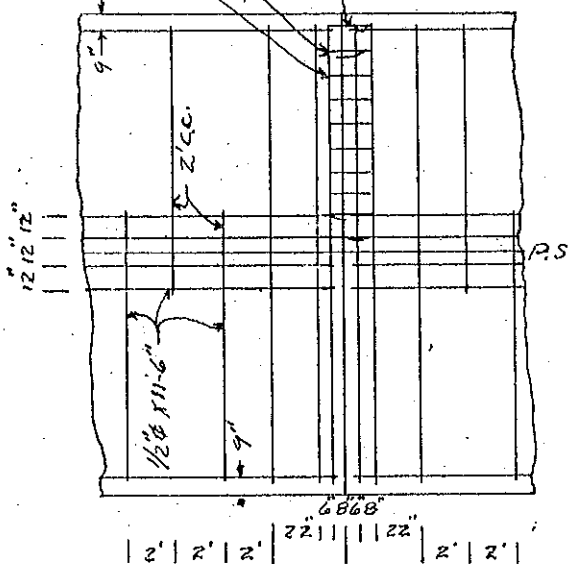
Buena Vista-Pocahontas	PWFA - 745 D (1)	6.532 Miles	1946
Cedar	FA-213	0.143 Miles	1945
Decatur	PWFA - 122 D (1)	4.035 Miles	1946
Dubuque-Jackson	SN-FA - 885 A (1)	15.008 Miles	1946-7
Franklin	FA - 212 E (1)	0.217 Miles	1947
Linn	FA 765 E (2)	0.758 Miles	1946
Linn	FA 765 F (1)	4.608 Miles	1946-7
Lyon	F-835 (6)	5.664 Miles	1946
Marion	F-7 (7)	4.695 Miles	1946-7
Marion	F-75 (4)	3.168 Miles	1946
Mills	FAGH- 842 B (1)	0.811 Miles	1946-7
Mills	FA-842 (4)	1.953 Miles	1946-7
Mills	FA-842-C (1) N	4.5415 Miles	1946
Mills	FN-842	0.182 Miles	1947
Pocahontas	F-878 (1)	5.517 Miles	1946
Sioux	PW-FA-28 (4)	6.063 Miles	1946
Winneshiek	FA-357-AB (3)	4.335 Miles	1946-7



1/2"  $\phi$  x 19'-4" bar wired  
Exp. tubes at E.J.

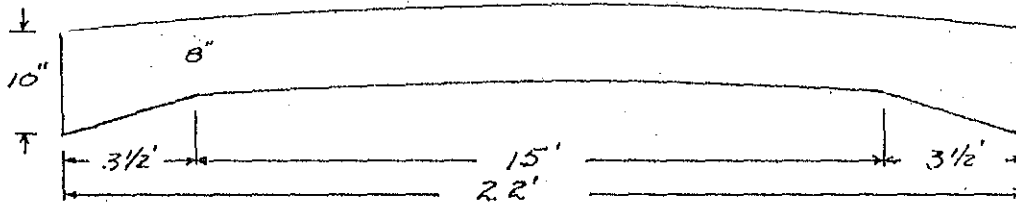
Welded Assemblies - 20-3/4"  $\phi$  x 24"  
dowels @ 12" c.c. to 2-5/8"  $\phi$  x 19'-4" bars

Cover - 3" over long. bars  
Longitudinal bars 5/8"  $\phi$   
Dowels in center of 8" sec.



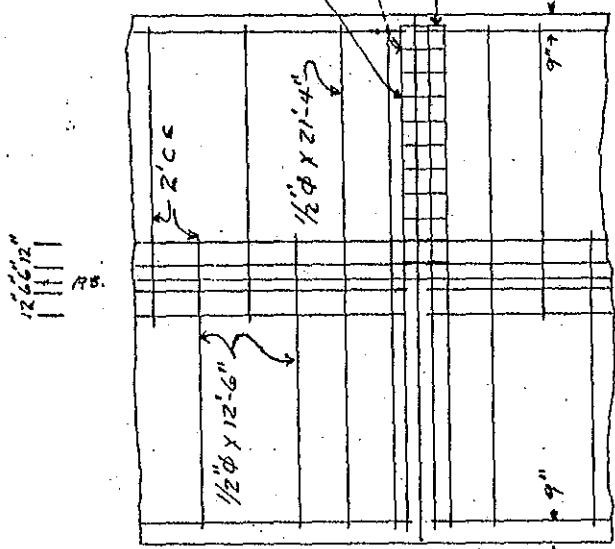
Design No. 39 Width 22 Ft. 10-8-10  
First used in Letting of 7-10-45

Fayette	U-59 (4)	0.283 Miles	1947
Fayette	U-782 (2)	0.326 Miles	1947
Harrison	FN-14	0.2757 Miles	1946
Keokuk	F-34 (3)	0.621 Miles	1946
Polk	F-877 (1)	1.250 Miles	1947
Polk	DAWI-11	0.410 Miles	1945
Polk	DAWI-12	1.002 Miles	1945
Woodbury	U-918 (1)	1.356 Miles	1947



Exp. tubes at Exp. Jts.  
1/2" φ x 21'-4" bar wired

Welded Assemblies - 22-3/4" φ x 24"  
dowels @ 12" cc. to 2-5/8" φ x 21'-4" bars.

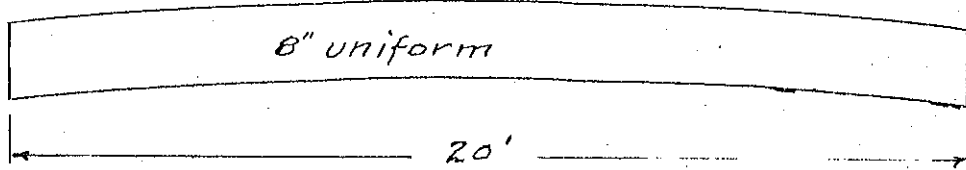


Cover 3" over long. bars. Dowels in center of 8" sec.  
All longitudinal bars 5/8" φ



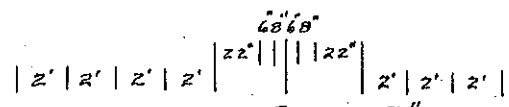
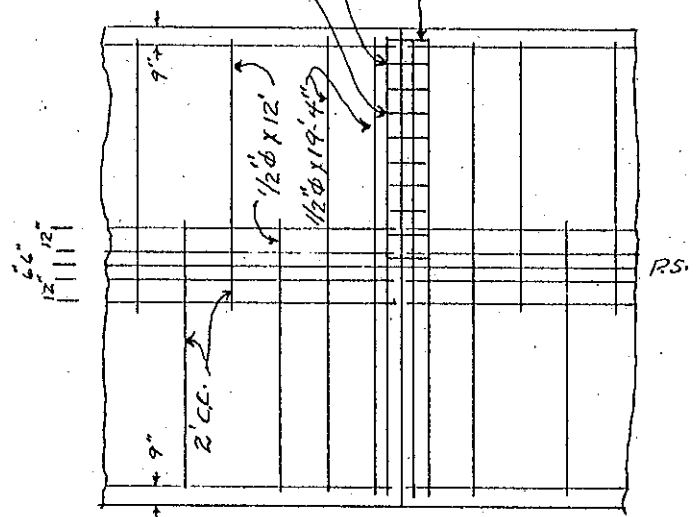
Design No. 40      Width 20 Ft 8" uniform  
First used in Letting of April 30 1946

Linn      FA-22 B (1)      0.265 Miles



Exp. tubes at E.J.  
 $\frac{1}{2}$ "  $\phi$  x 19'-4" bar wired

Welded Assembly - 20 x  $\frac{3}{4}$ "  $\phi$  x 24"  
 dowels @ 12" CC to 2- $\frac{5}{8}$ "  $\phi$  x 19'-4" bars



Cover 3" over long. bars  
 Longitudinal bars  $\frac{5}{8}$ "  $\phi$   
 Dowels in center of 8" Sec.

Design No. 41      Width 20 Ft.      10-8-10  
First used in Letting of 11-12-46

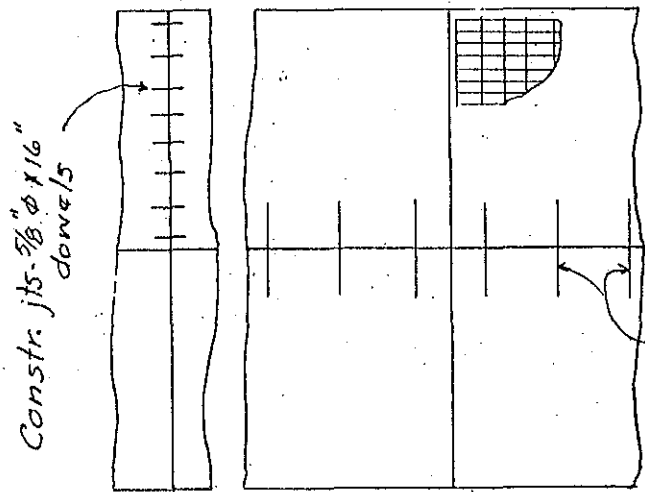
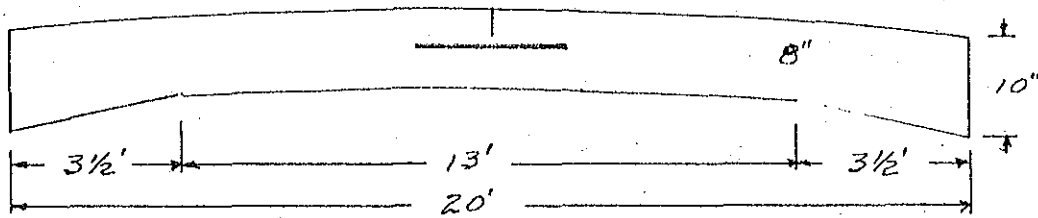
Calhoun	F-10 (7)	8.492 miles	1947
Floyd	FA-2/1 E (1)	8.048 miles	1947
Jefferson	F-120 (7)	0.515 miles	1948
Worth F	F-265 (2)	1.588 miles	1947
Worth	F-953 (1)	0.472 miles	1947

Station 1756+16.3 to 1861+91.8



Design No. 42    Width 20 Ft.    10-8-10  
First used in Letting of 1-21-47

Winnebago    F-884 (1)    1.986 Miles 1947 (Fabric Reinforced)  
Station 1440+00.4 to Station 1544+90.

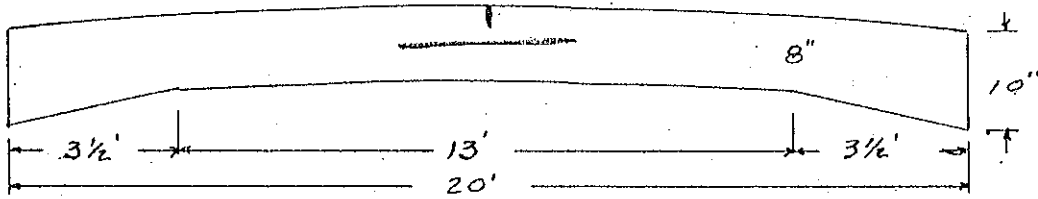


Welded Fabric  
 Long. 19-#4 wires @ 6"cc.  
 Transv. 16 #4 " " 12"cc.  
 Mats lapped one transv. wire  
 Cover-3" over mats.  
 Dowels in center of 8" sec.  
 3' 4" between

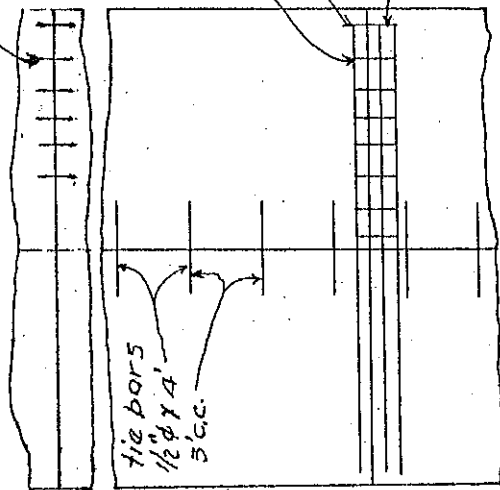
Tie bars 1/2" φ x 4' @ 3'cc.

Design No. 43      Width 20 ft.      10-8-10  
First used in Letting of 1-27-47

Winnebago      F 384 (1)      1.994 Miles 1947  
Station 1544+90 to 1650+96.



Exp. tubes at Exp. Jts.  
 $\frac{1}{2}$ "  $\phi$  x 19' bar wired  
 Construction joints  
 $\frac{5}{8}$ "  $\phi$  x 16" dowels  
 Welded Assembly 16- $\frac{3}{4}$ "  $\phi$  x 24"  
 dowels to 2- $\frac{5}{8}$ "  $\phi$  x 19' bars

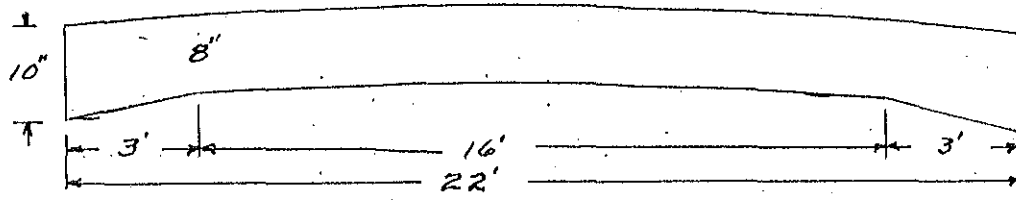


Welded Fabric  
 Long. 19-#4 wires @ 6"cc.  
 Transv. 16-#4 " " 12"cc.  
 Mats lapped one transv. wire  
 Cover-3" over mats.  
 Dowels in center of 8" sec.



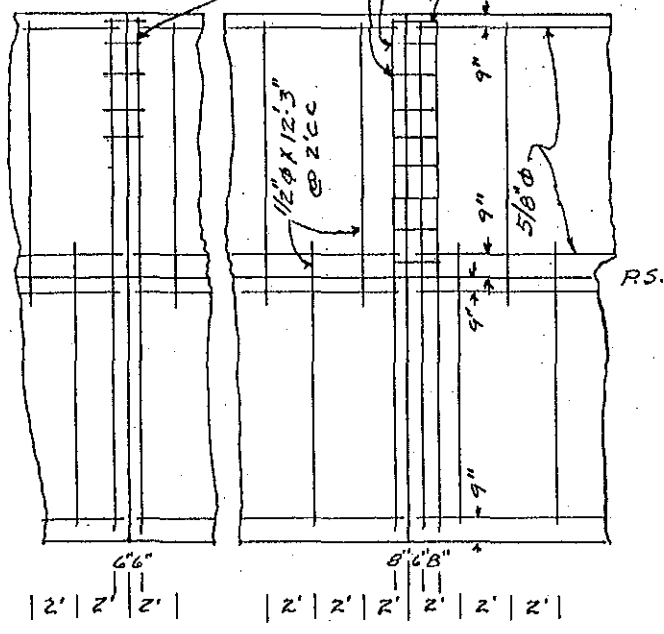
Design No. 44      Width 22 ft.      10-8-10  
 First used in Letting 2-18-47

Des Moines	F-414 (3)	2.421 Miles	1948-9
Des Moines	U-414 (4)		
Linn	U-909 (5)	1.219 Miles	1948
Lucas	F-63 (8)	2.393 Miles	1947
Lucas	F-282 (2)	5.132 Miles	1947
Muscatine	U-820 (3)	0.726 Miles	1948
Wayne	F-237 (2)	0.249 Miles	1947
Appanoose	F-781 (6)	7.642 Miles	1949
Marshall	F-791 (3)	3.880 Miles	1949-50
Adair	F-464 (5)	6.051 Miles	1950
Floyd	FN-41	0.360 Miles	1950
Jasper	F-764 (5)	9.897 Miles	1949-50
Polk	U-206 (8)	3.375 Miles	1950
Page	F-433 (3)	0.890 "	1950
Mills	ERF-19 (7)	0.288 Miles	1950
Mills	ERF-19 (8)	0.095 Miles	1950
Pottawattamie	F-959 (1)	0.262 Miles	1949-50
Warren	ERF-4 (12)	0.438 Miles	1949
Lyon-Osceola	F-882 (1)	7.610 Miles	1950
Osceola	F-950 (1)	5.198 Miles	1950



Exp. tubes at Exp. Jts.  
 $1/2" \phi \times 21.4"$  bar wired  
 Construction joint -  $18-5/8" \phi \times 18"$   
 dowels wired to  $2-1/2" \phi \times 21.4"$  bars

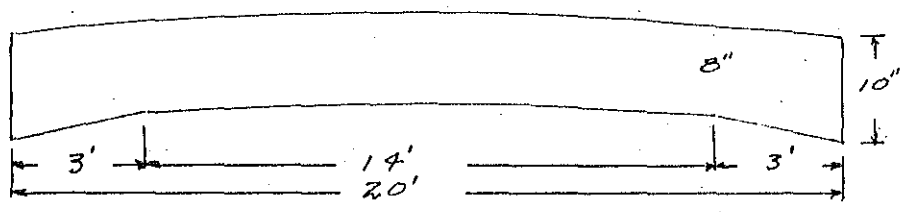
Welded Assembly -  $18-3/4" \phi \times 24"$  dowels  
 @  $15"cc$  to  $2-5/8" \phi \times 21.4"$  bars



Cover - 3" over long. bars  
 Dowels in center of B'sec.

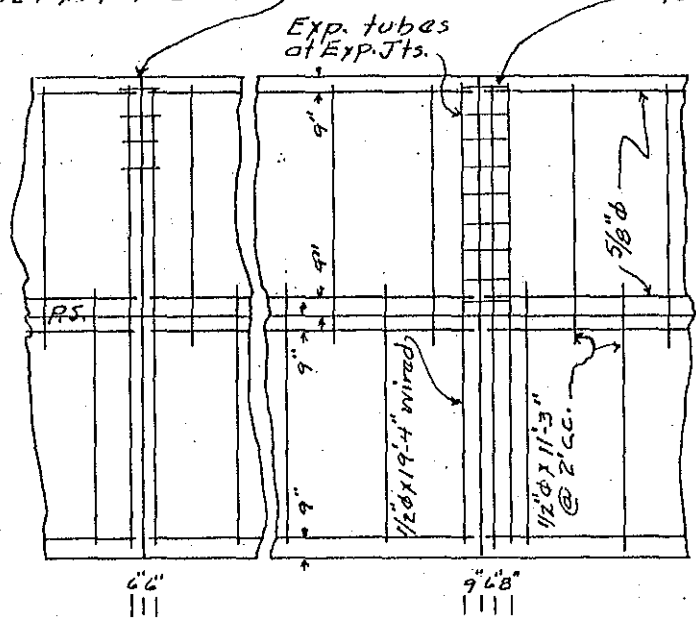
Design No. 45      Width 20 Ft. 10-8-10  
First used in Letting of 3-18-47

Butler	F-85 (13)	2.538 Miles	1947-48
Butler	F-85 (14)	4.386 Miles	1947-48
Dallas-Madison	F-366 (5)	7.457 Miles	1947
Taylor	F-562 (2)	7.826 Miles	1947



Construction joints. - 18 - 5/8"  $\phi$  x 18" dowels wired to 2-1/2"  $\phi$  x 19'-4" bars

Welded Assembly - 18 - 3/4"  $\phi$  x 24" dowels to 2-5/8"  $\phi$  x 19'-4" bars

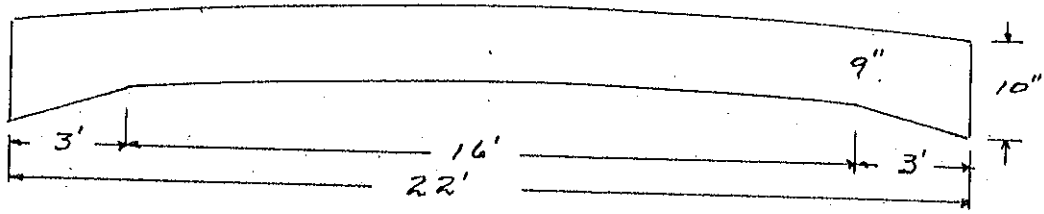


Cover - 3" over long. bars  
Dowels in center of 8" sec.

Design No. 46 Width 22 ft. 10-9-10

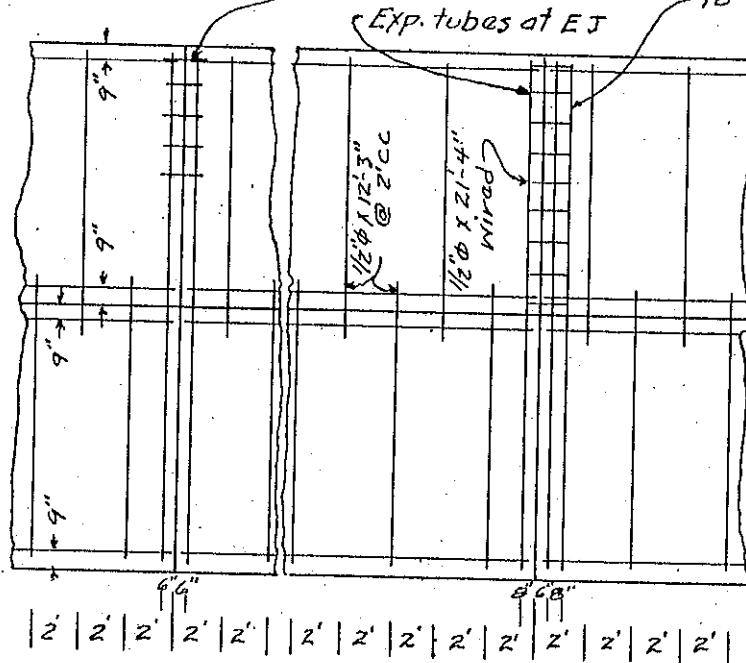
First used in Letting of 5-13-47

Linn	F - 909 (5)	4.835 Miles	1948
Linn	FG - 909 (6)	0.463 Miles	1948
Linn	U - 909 (5)	1.299 Miles	1948
Marshall	FAGH - 881 B (1)	0.203 Miles	1947
Marshall	F - 881 (3)	9.208 Miles	1947
"	F-211 (3-4)	0.503 Miles	1947-8



Construction joint - 18- $\frac{5}{8}$ "  $\phi$  x 18" dowels  
Wired to 2- $\frac{1}{2}$ "  $\phi$  x 21'-4" bars

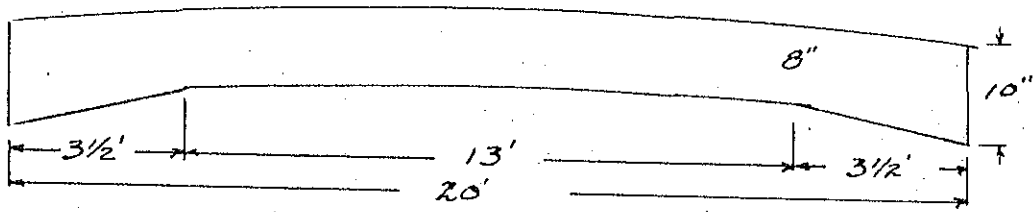
Welded Assembly - 18- $\frac{3}{4}$ "  $\phi$  x 24" dowels  
to 2- $\frac{5}{8}$ "  $\phi$  x 21'-4" bars.



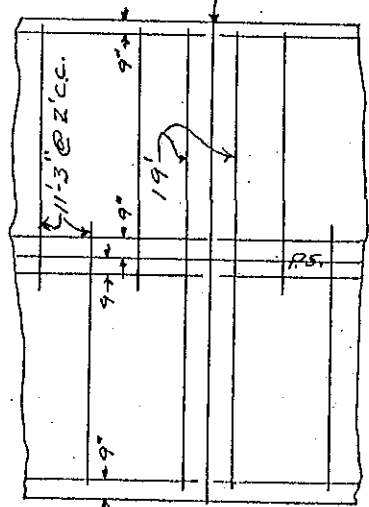
Cover - 3" over long. bars  
Dowels in center of 9" sec.  
Longitudinal bars  $\frac{5}{8}$ "  $\phi$ .

Design No. 47    Width 20 Ft. 10-8-10  
First used in Letting of Jan. 21, 1947

Worth    Fwd68 (5)    1.992 Miles 1947    Station 1650+96 to Station 1756+16.3



Contraction joints - no dowels  
3 @

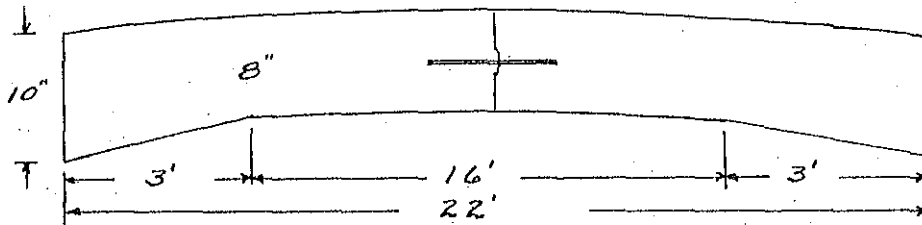


Long. bars 5/8"  $\phi$   
Transv. " 1/2"  $\phi$   
Cover 3" over long. bars



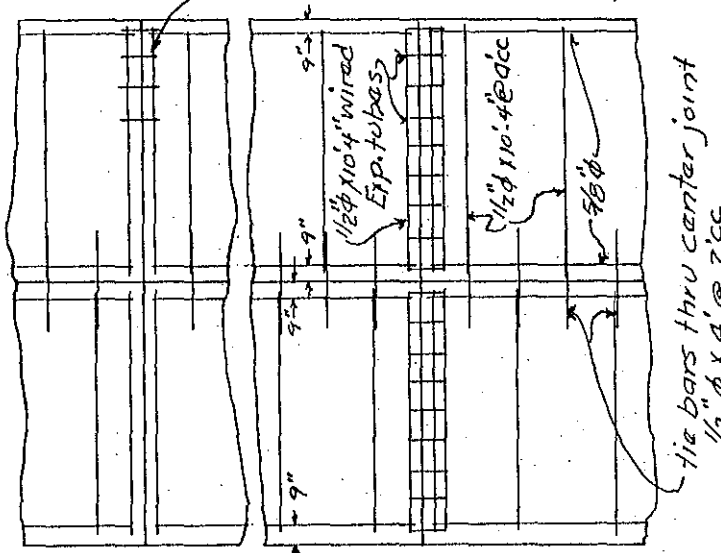
Design No. 48      Width 22 ft. 10-8-10  
First used in Letting of 2-3-48

Davis	F-50 (7)	0.813 Miles	1948
Warren	F-31 (5)	1.594 Miles	1948
Lucas	F 252 (2)	0.079 Miles	1948

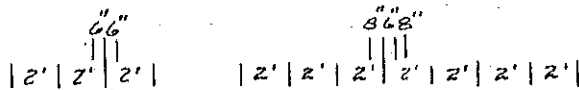


Construction joints (each half) 9-5/8" x 10" dowels wired to 2-10:4" bars 1/2" φ

Welded Assembly (each half) 9-3/4" x 24" dowels to 2-5/8" φ x 10:4" bars

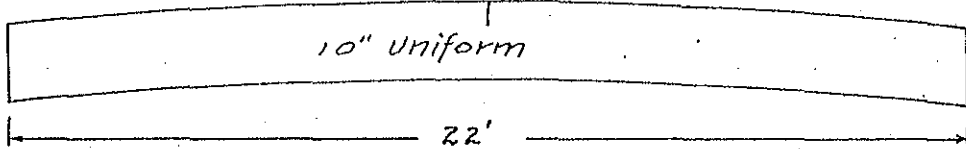


Cover - 3" over long bars  
dowels in center of 8" sec.



Design NO. 49      Width 22 Ft. 10 in. uniform  
First Letting used in 2-3-48

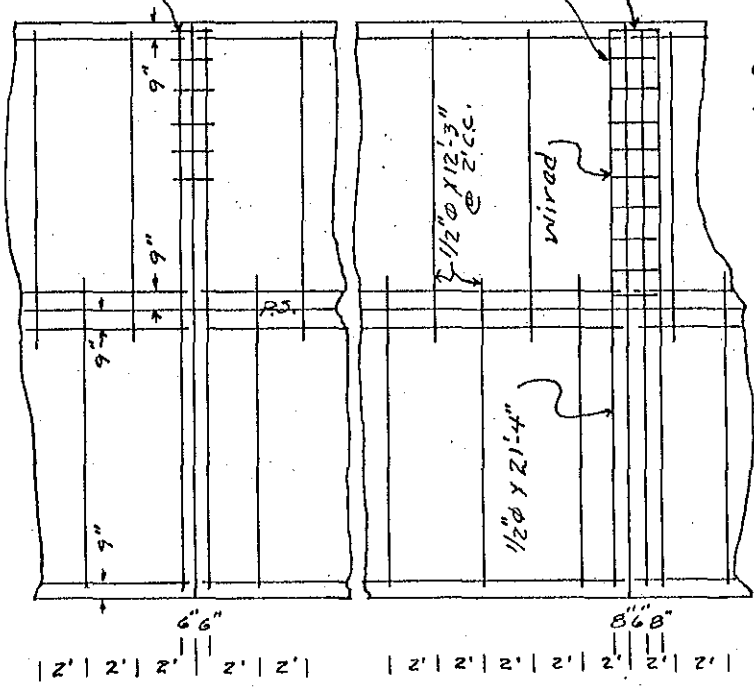
Marshall      U - 23 (5)      0.251 Miles 1948



Construction joints - 18-5/8"  $\phi$  x 18" dowels  
 wired to 2-1/2"  $\phi$  x 21'-4" bars

Welded Assembly - 18-3/4"  $\phi$  x 24"  
 dowels to 2-5/8"  $\phi$  x 21'-4" bars

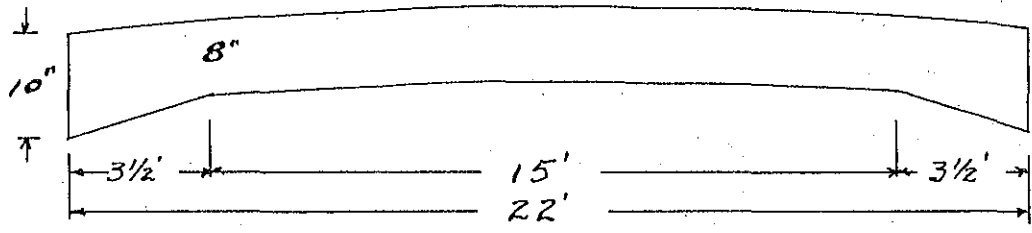
Exp. tubes of Exp. Jts.



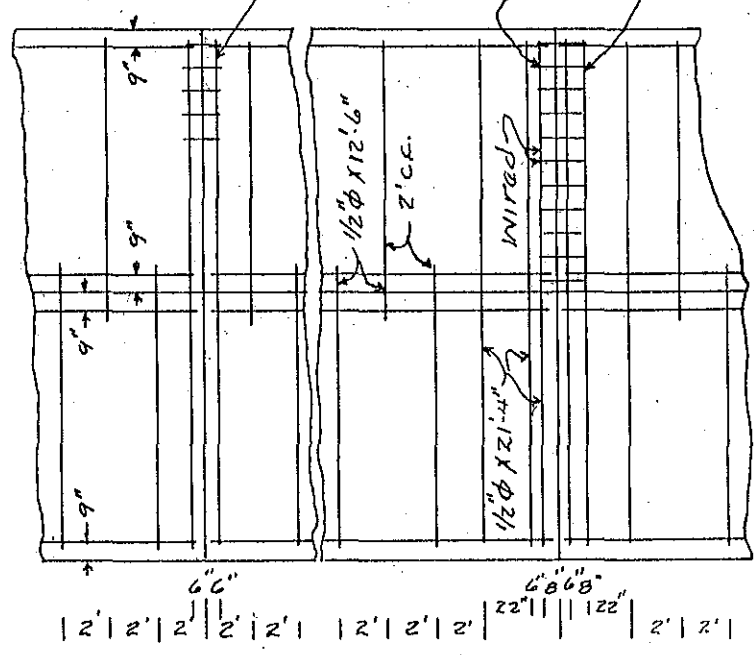
Cover 3" over long. steel.  
 Dowels in center of sec.  
 Longitudinal bars 5/8"  $\phi$

Design No 50.  
Width 22 ft. Vol 10-8-10  
First used in Letting of 3-2-48

Floyd	U41 (7)	0.714 Miles	1948
Floyd	U41 (9)	0.236 Miles	1948



Construction joints - 22-5/8" x 18" dowels wired to 2-1/2" φ x 21'-4" bars  
 Welded Assembly - 22-3/4" φ x 24" dowels to 2-5/8" φ x 21'-4" bars.  
 Exp. tubes at E.J.

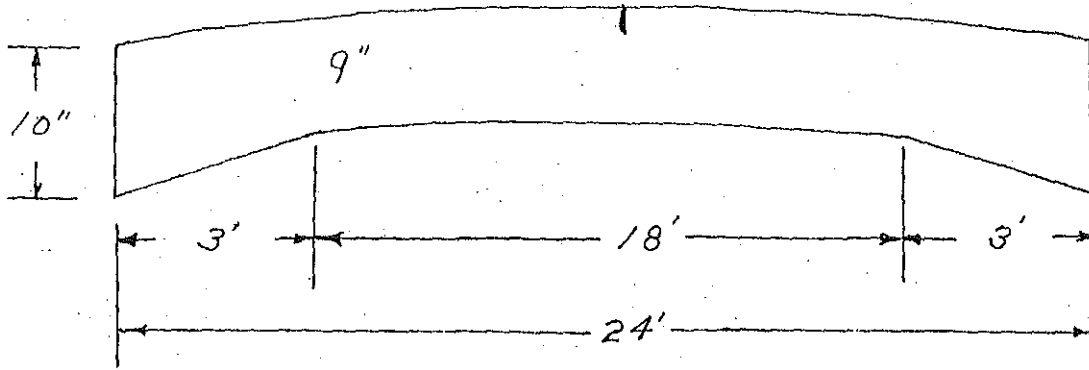


Cover 3" over long. bars.  
 Longitudinal bars 5/8" φ  
 Dowels in center of 8" sac.

PLYMOUTH F 38(7)  
WOODBURY-PLYMOUTH F 273(4)

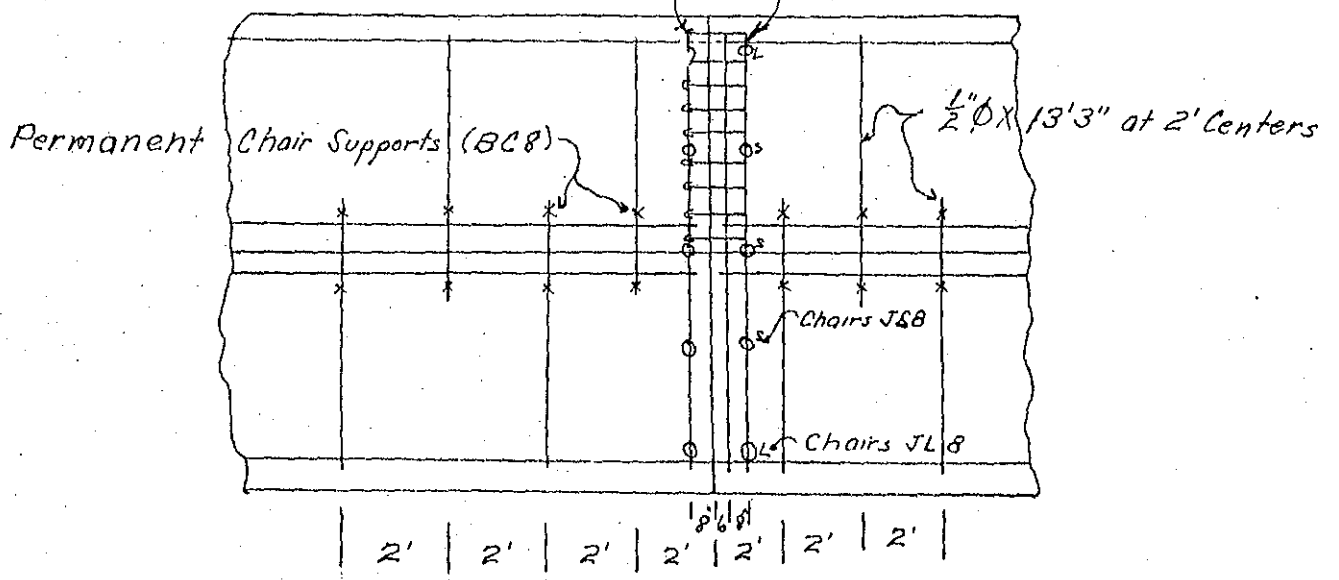
Design No. 51  
First used in Letting of 6-21-49

Design No 51.  
Width 24 ft. 10-9-10  
First used in Letting of 6-12-49.  
Plymouth F 38(7) 5.093 Miles 1949  
Plymouth-Woodbury F 273(4) 6.239 Miles 1949.



Welded Assembly 20- $\frac{3}{4}$ "  $\phi$  X 24" dowels  
to 2- $\frac{5}{8}$ "  $\phi$  X 23' 4" bars

Exp. tubes at E.J.

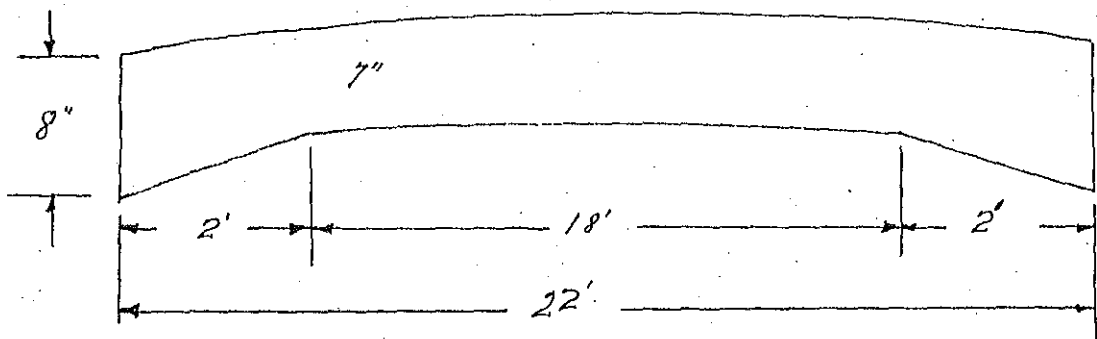




Design No. 52      Width 22 Ft. 8-7-8

Letting First Used 5-24-49

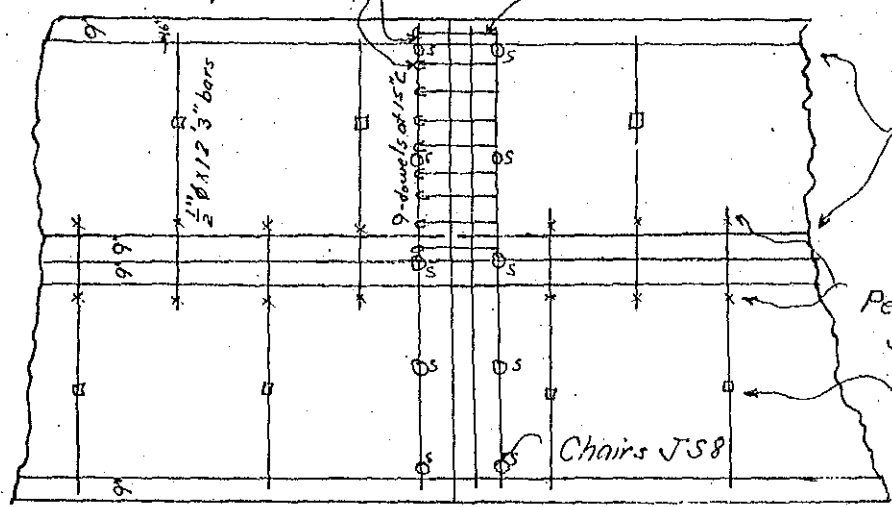
Crawford	F 879(6)	12.864 Miles	1949
Cass	FN 466	0.454 Miles	1949
Montgomery	F915(1)	2.313 Miles	1949
Wright	S-444(2)	0.612 Miles	1950
Wright	S-197(4)	0.1498 Miles	1950
Mills	F-767(2)	7.843 Miles	1949-50
Mills	F-442(6)	1.328 Miles	1950
Monona	F-356(9)	6.284 Miles	1950
Keokuk	F-897(2)	4.075 Miles	1950



$\frac{1}{2}$ "  $\phi$  X 21' 4" bar wire tied to each Exp. tube + dowel

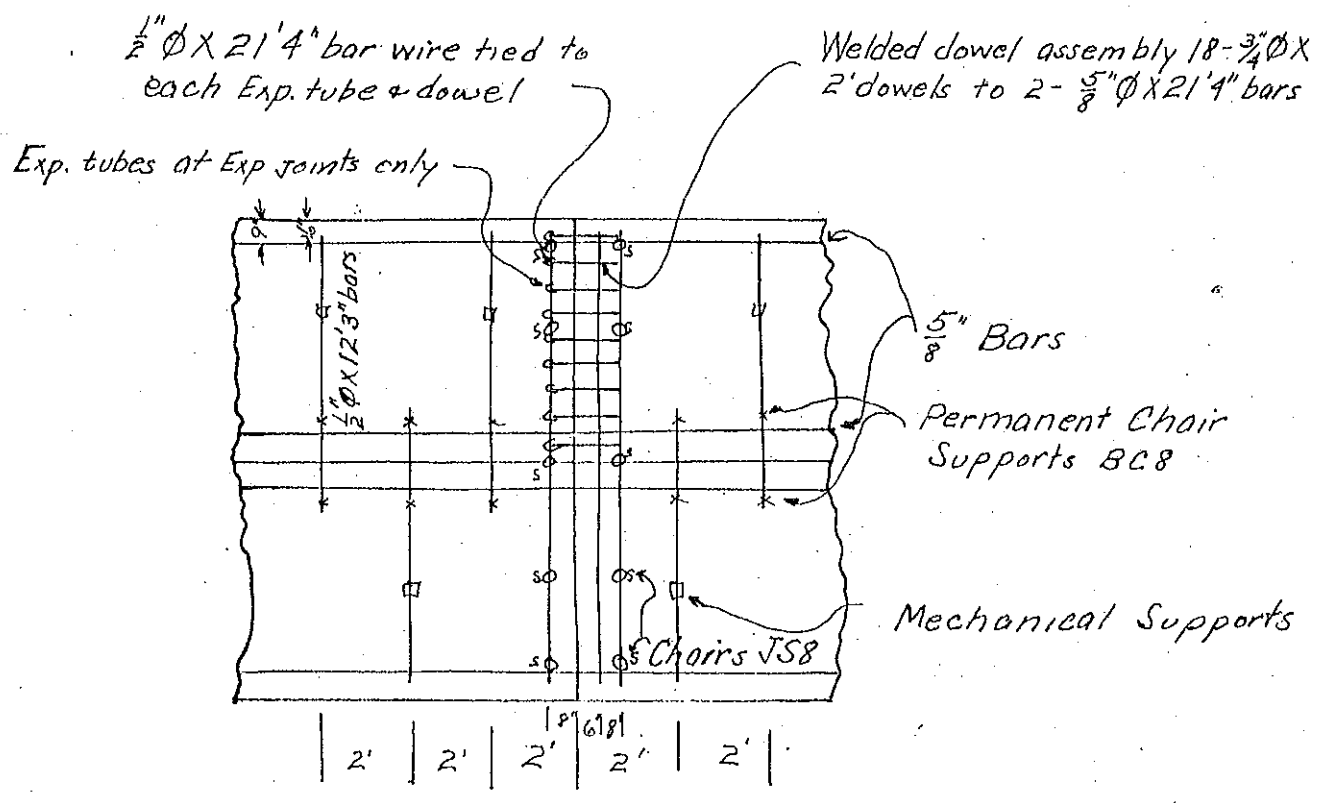
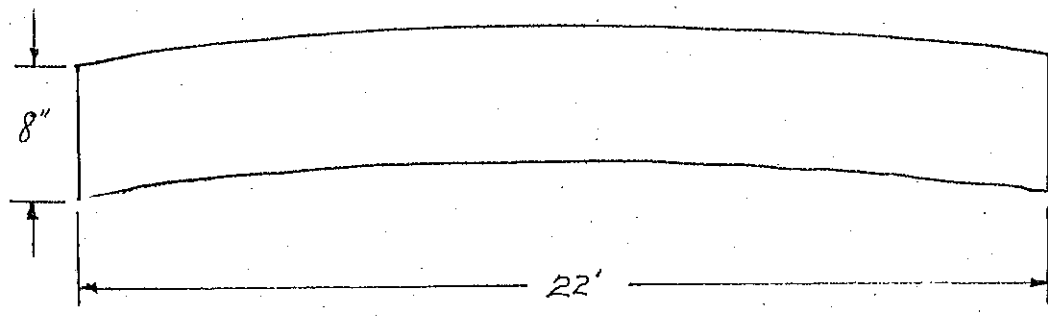
Welded dowel assembly 18- $\frac{3}{4}$ "  $\phi$  X 2' dowels to 2- $\frac{5}{8}$ "  $\phi$  X 21' 4" bars

Expansion tube at Exp. joints only



Design No. 53      Width 22 Ft. 8 in uniform  
First Used in Letting of 4-26-49

Jasper	FN 963	0.892	Miles	1949
Sioux	F 542(9)	10.787	Miles	1949
Guthrie-Dallas	F-619(5)	11.535	Miles	1950



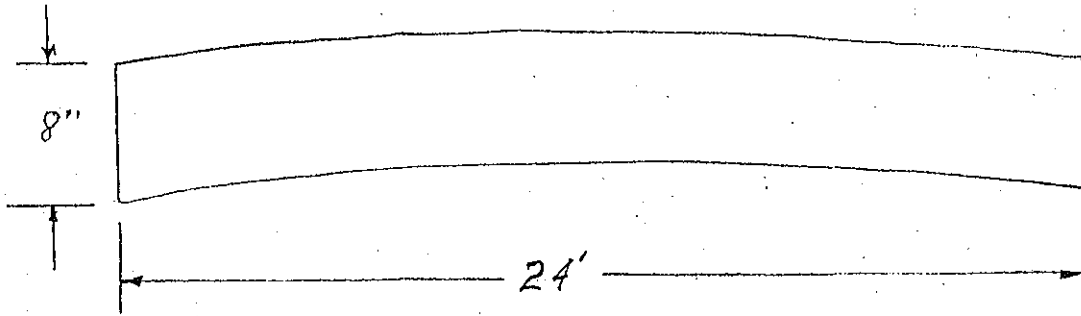
Design No. 54

Width 24 ft. 8 in. uniform

54

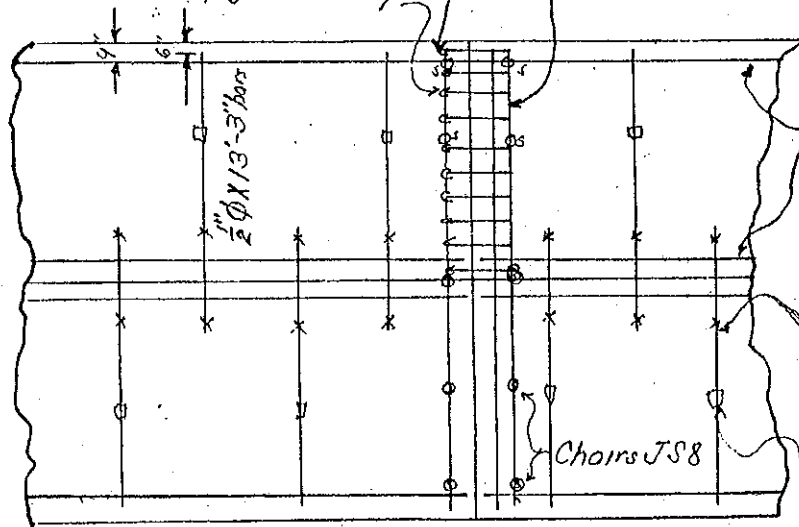
Jasper

First Used in Letting of 8-16-49  
F 970(1) 0.176 miles 1949



$\frac{1}{2}$ "  $\phi$  X 23'-6" Bar wire tied to each exp. tube & dowel  
Exp. tubes at Exp joints only

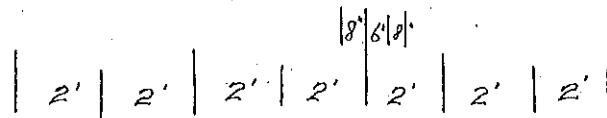
Welded dowel assembly 20-  
 $\frac{3}{4}$ "  $\phi$  X 2' dowels to 2- $\frac{5}{8}$ "  $\phi$  X 23'-6" bars



$\frac{5}{8}$ " Bars

Permanent Chair Supports (BC8)

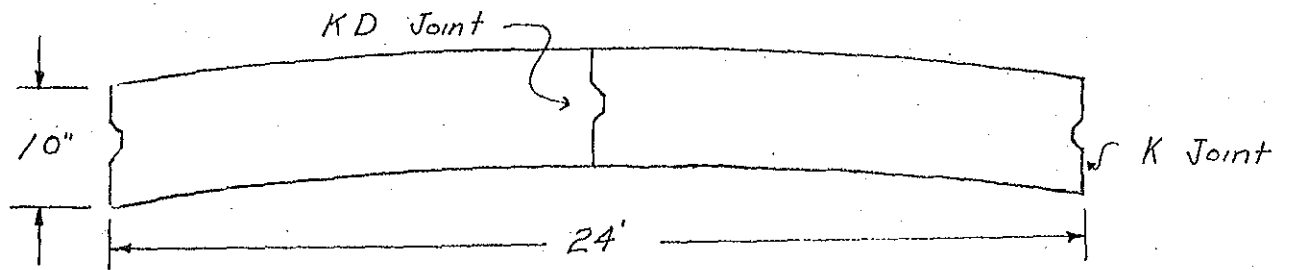
Approved Mechanical Supports



Design No. 55      Width 24 ft. 10 in. uniform

First Used in Letting of 7-20-48

Polk                      FN 340      0.199 Miles      1949



$\frac{1}{2}$ "  $\phi$  x 11'-0" bar wire tied to each Exp tube + dowel

Welded dowel assembly 9- $\frac{3}{4}$ "  $\phi$  x 24" dowels to 2- $\frac{5}{8}$ "  $\phi$  x 10'6" at 15" Centers

Exp tubes at Exp. Joint only

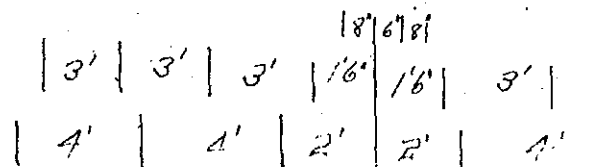
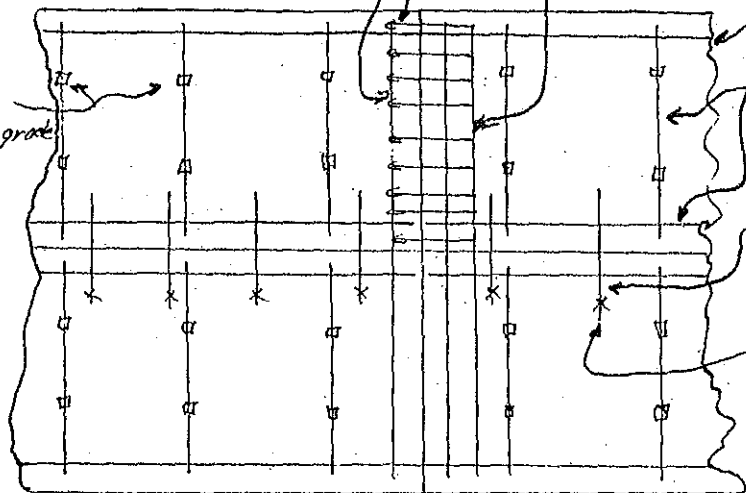
Mechanical Supports (Bottom  $\frac{1}{2}$ "  $\phi$  bar -  $4\frac{1}{8}$ " above Subgrade)

$\frac{5}{8}$ "  $\phi$  Bars

$\frac{1}{2}$ "  $\phi$  x 11'-0" bars

$\frac{5}{8}$ "  $\phi$  x 4' Tie bars at 3' C's

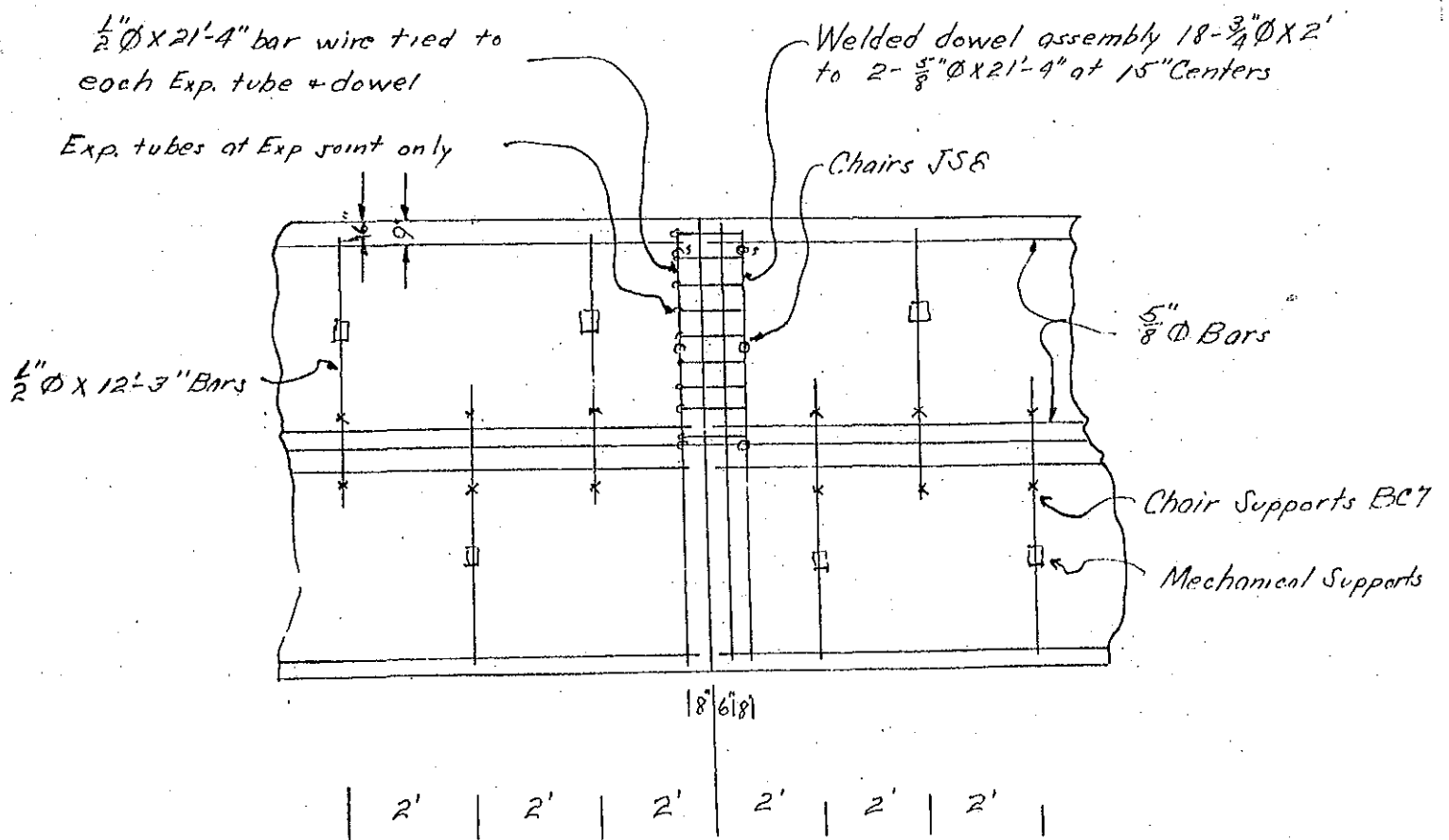
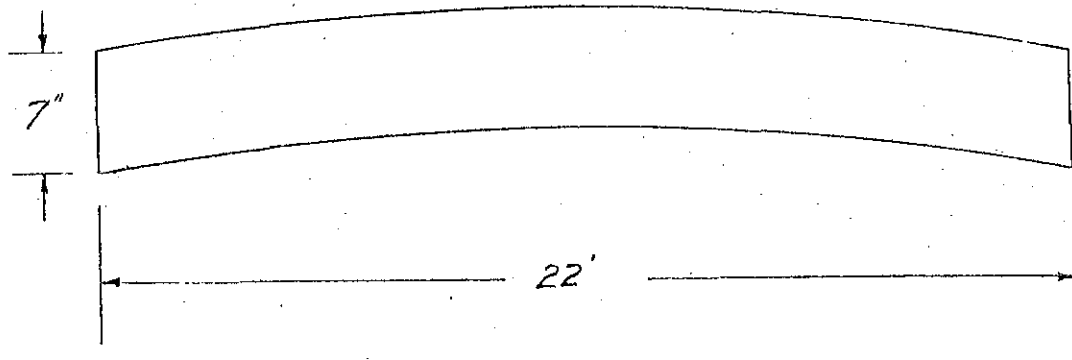
BC8 Chairs





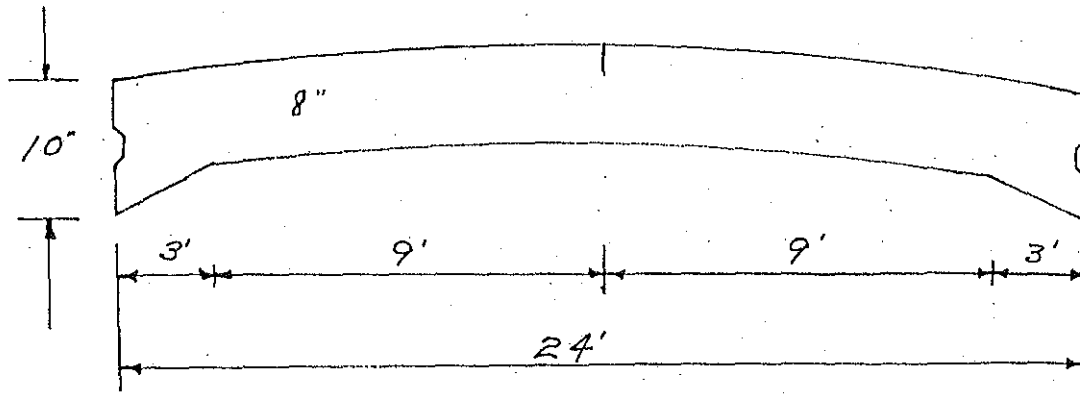
Design No. 56      Width 22 ft. 7 in. uniform  
First Used in Letting of 9-13-49

Wright	SN-825	0.886	Miles	1949
Wright	S 1256(1)	0.65	Miles	1949
	SN 1516	0.805	Miles	1949



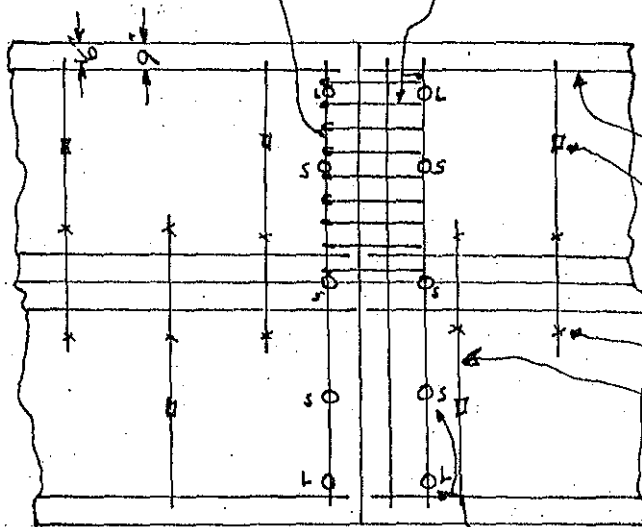
Design no 57      Width 24 Ft      10-8-10

Blackhawk      First used in letting of 11-22-49  
UG -62(6)      0.752 Miles      1950



$\frac{1}{2}$ "  $\phi$  X 21'-8" wire tied to each Exp tube & dowel

18 -  $\frac{3}{4}$ "  $\phi$  X 2' dowels at 15" C's to 2 -  $\frac{5}{8}$ "  $\phi$  X 21'-8" bars



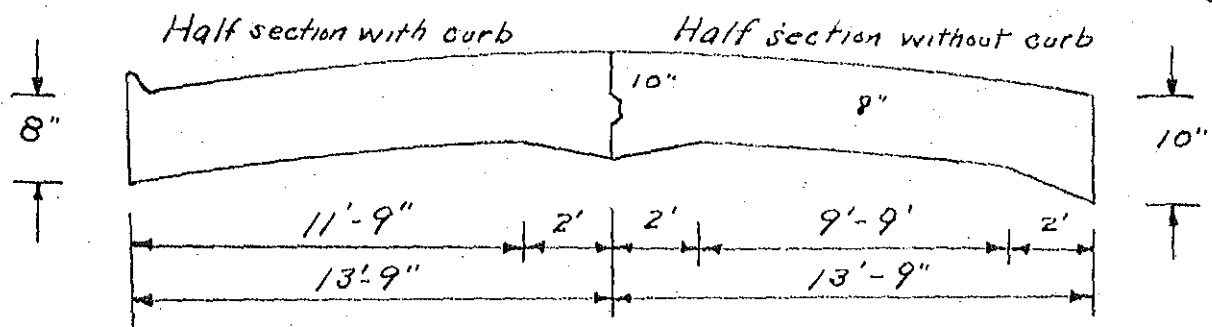
8' 6' 8'

2' | 2' | 2' | 2' | 2'

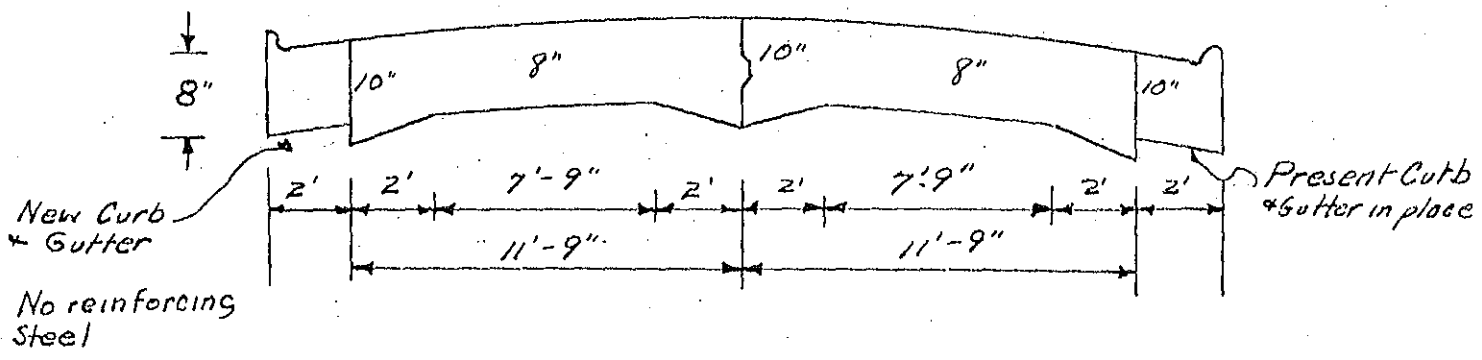
Design No. 1581    Width 27 ft 6in    8-10-8  
First Used in Letting of 8-1-50    10-8-10-8-10

Webster    FN-780    0.142 Miles    1950

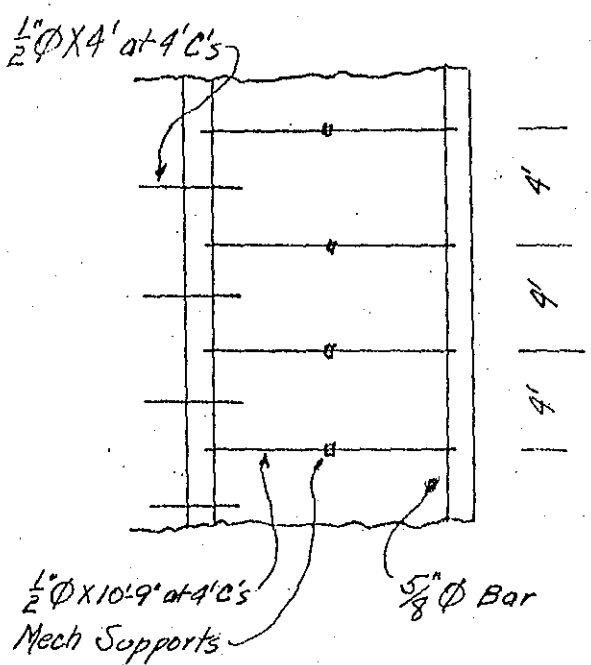
Section A



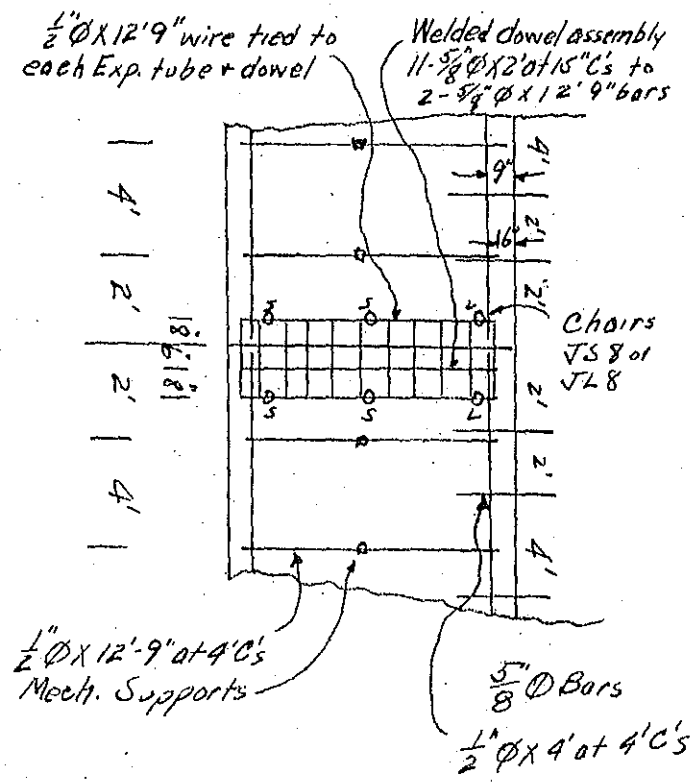
Section C



Section C 11'-9"



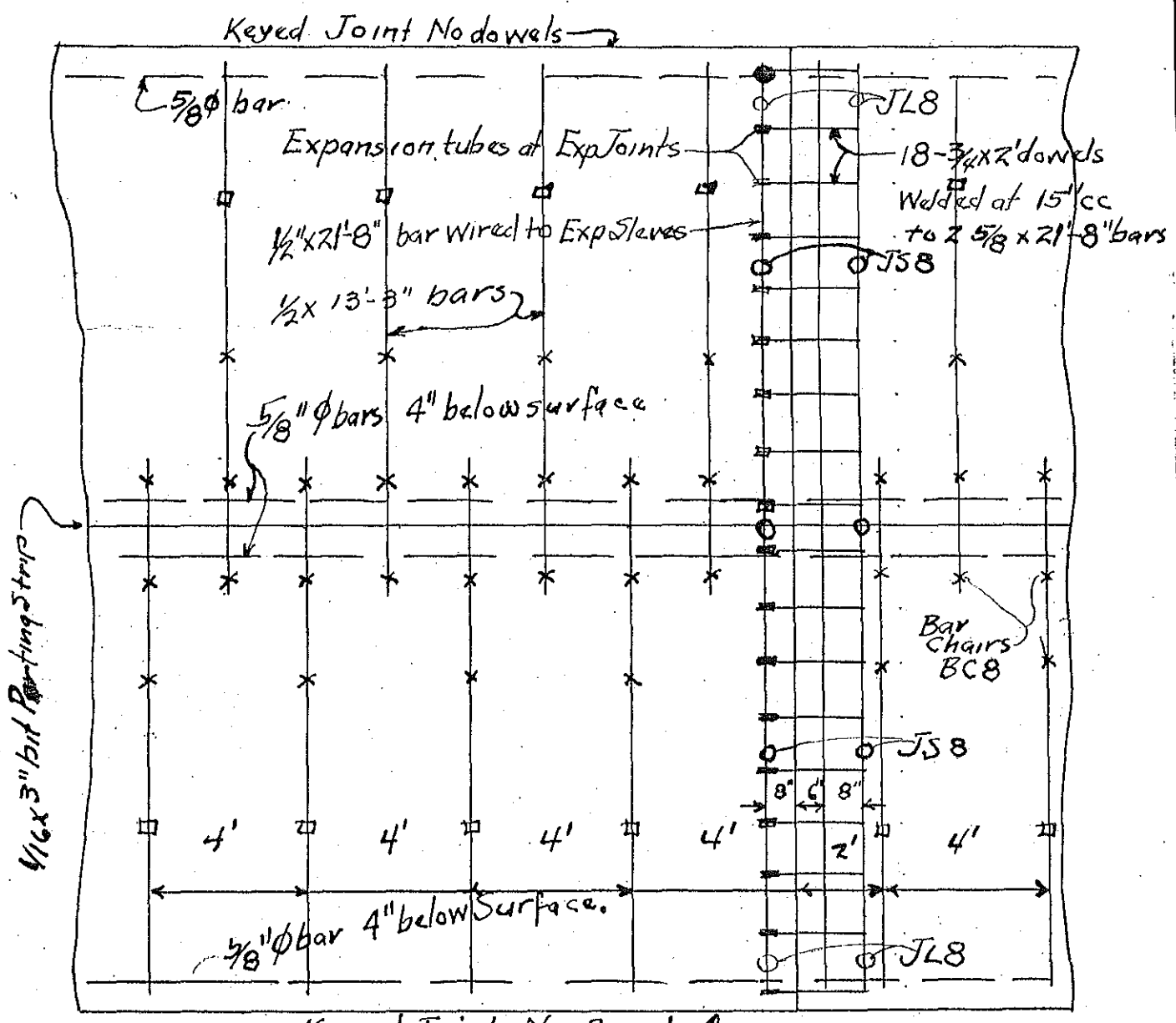
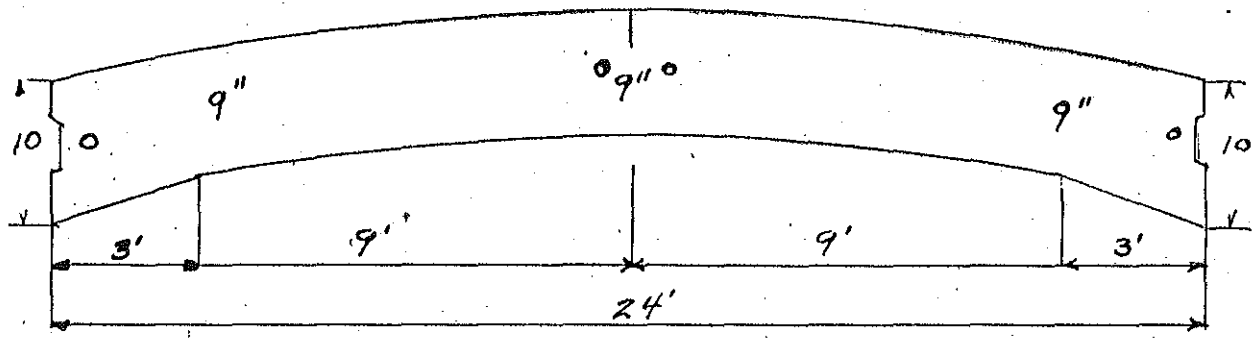
Section A 13'-9"



Design No 59 Width 24 ft 10-9-10

First used in letting of 5-24-49

Woodbury UI 886(3) 3.420 Miles 1949



Keyed Joint No Dowels ↗

Expansion Joints as Listed on Plans



Harrison  
Muscatine

F 965 (1)  
U 372 (2)

0.898  
0.502

1949  
1950

First used in letting of 7-19-49

D sign no 60 width 22 ft 10-8-10

60

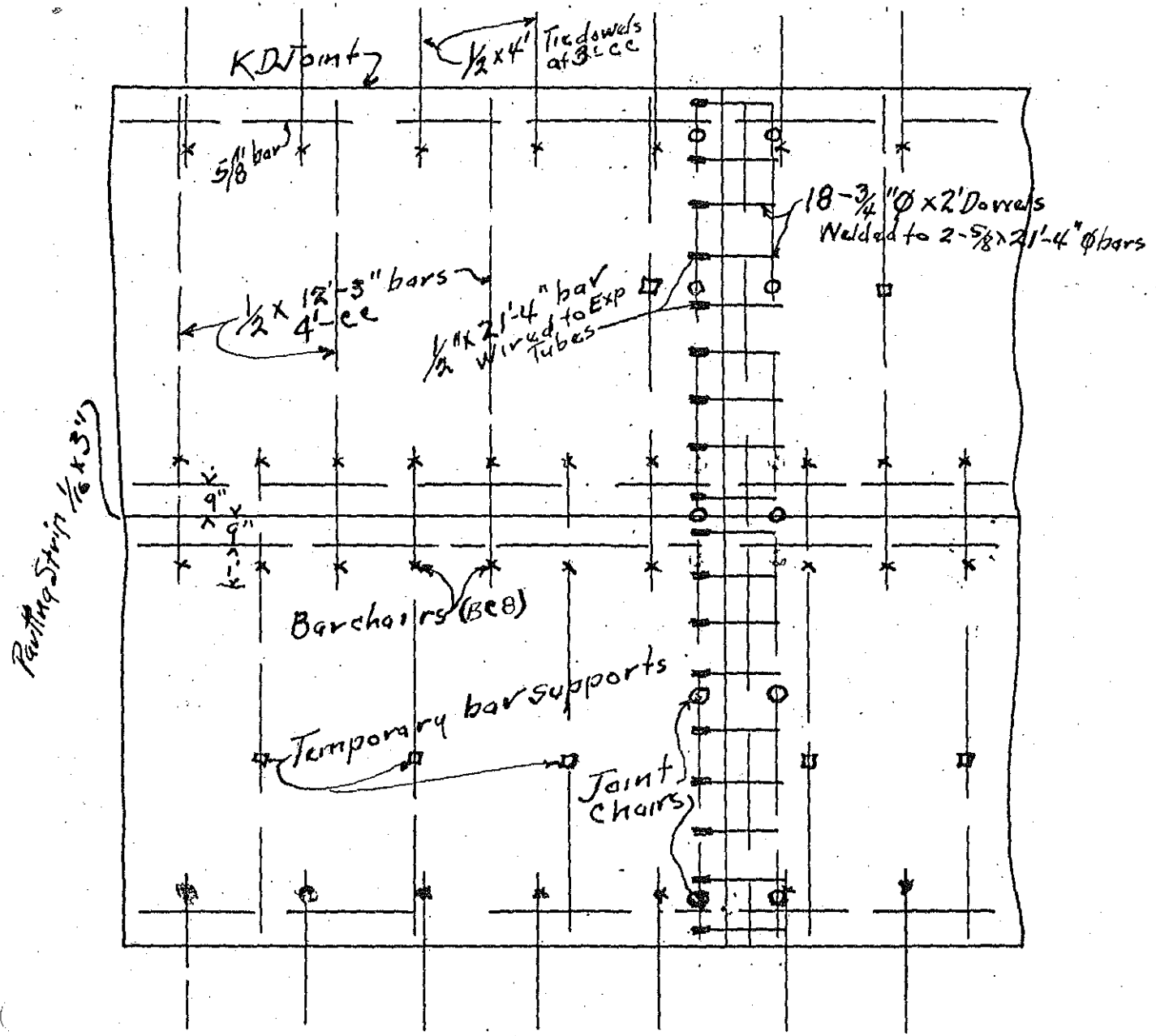
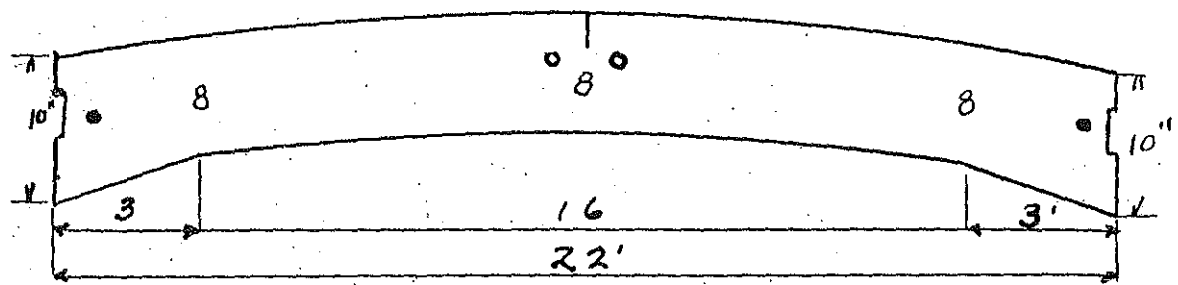
60

Design No 60 width 22 ft 10-8-10

First used in letting of 6-6-50

Muscatine U 372 (2) 0.502 Miles 1950

#60  
Miscellaneous  
U372(3)

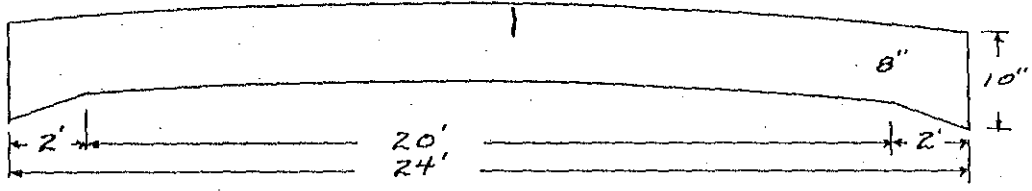


Design No. 61, Width 24 ft 10-8-10  
First used in Letting of 7-8-48

Blackhawk U-200 (4) 0.458 Miles 1948

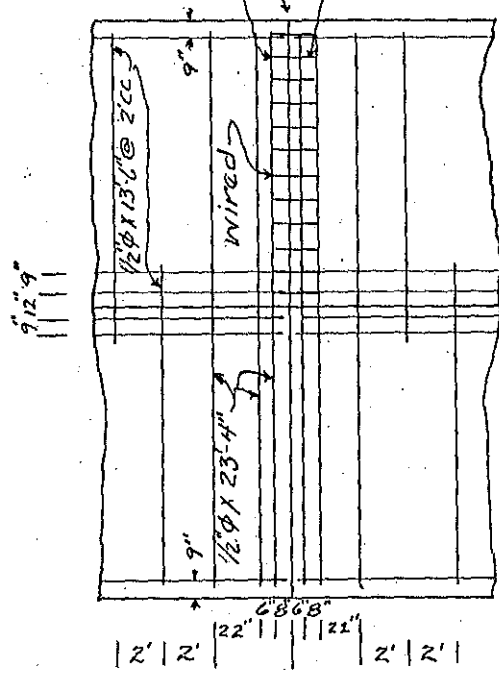
121

61



All transverse joints  
Exp. tubes at E.J.

Welded Assembly - 24-3/4"  $\phi$  x 24" dowels  
@ 1'cc. to 2-5/8"  $\phi$  x 23'-4" bars.



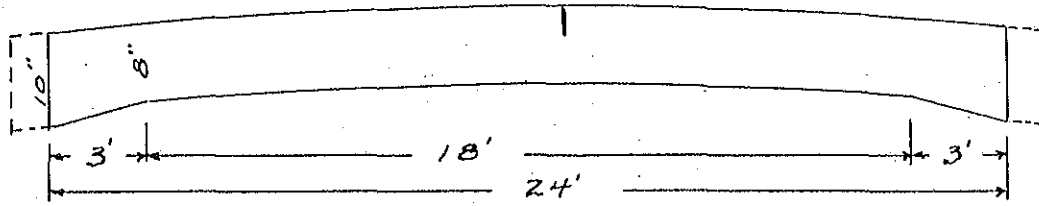
Cover 3" over long. bars.  
Dowels in center of 8" sac.  
Longitudinal bars 5/8"

Design No. 62 Width 24 ft. 10-8-10  
First used in Letting of 9-14-48

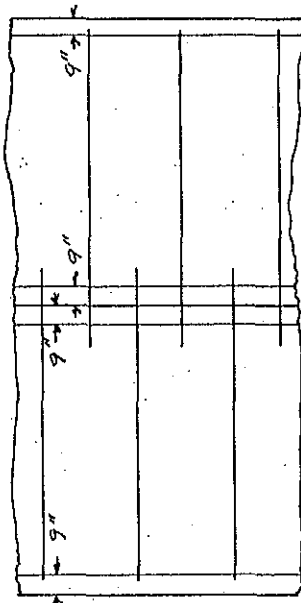
Blackhawk P-994 0.053 Miles 1948

M

62



1' x 10" fill in each side



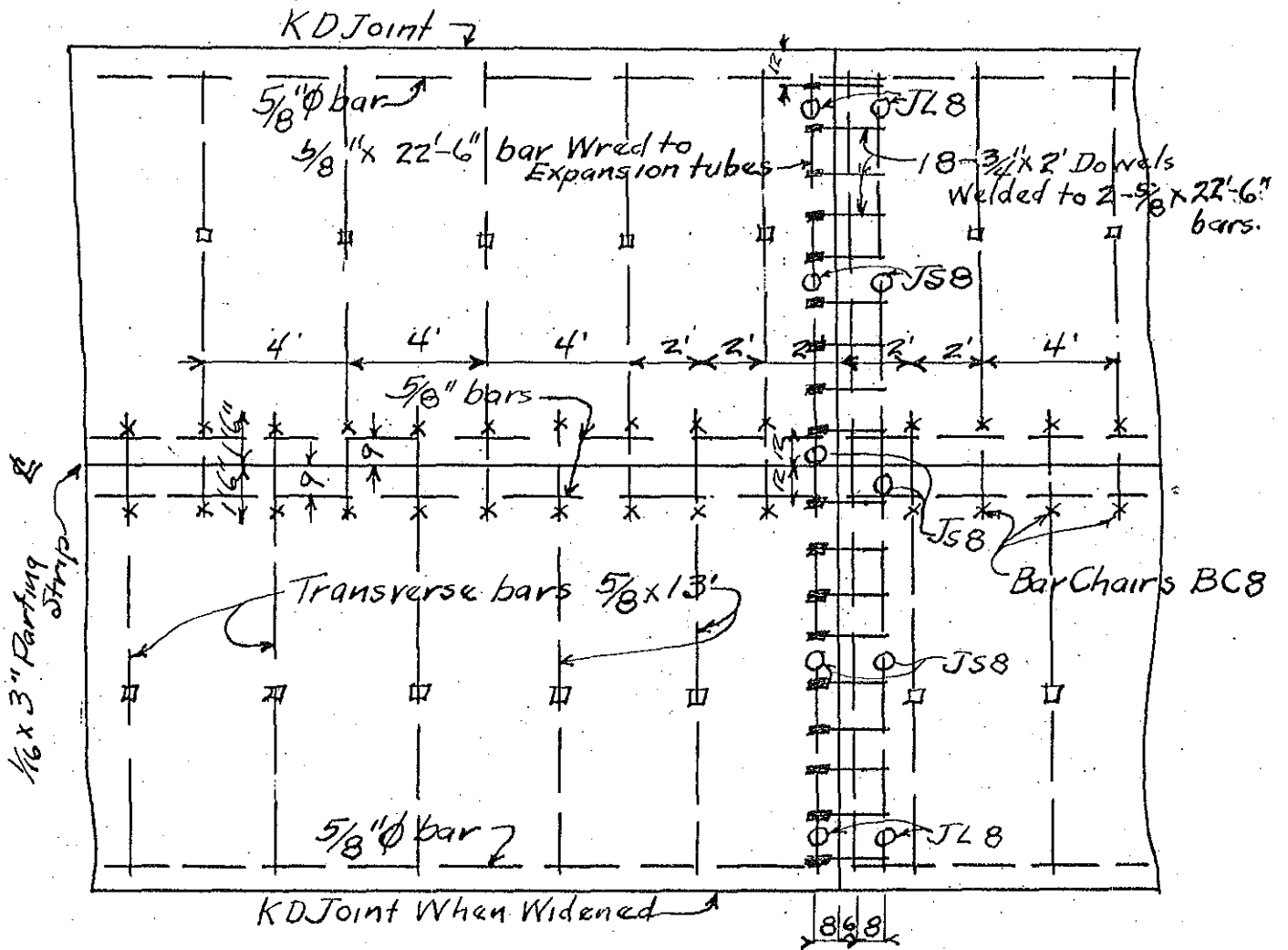
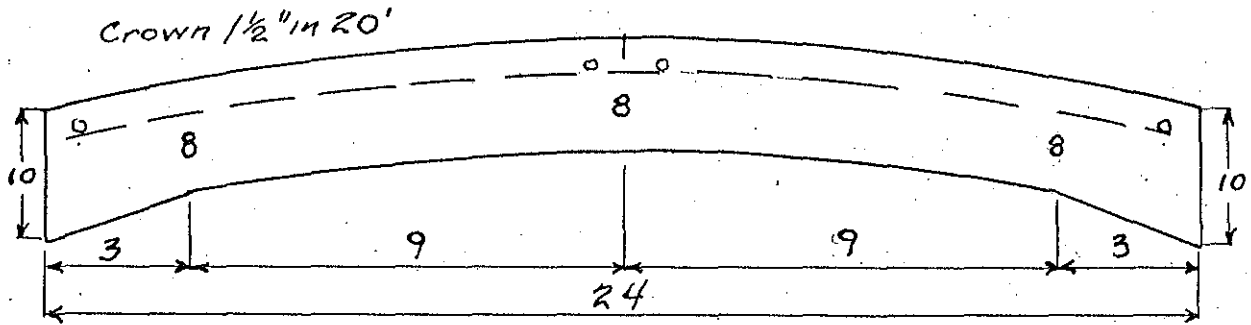
Transverse steel  $1/2 \phi \times 13 \cdot 3$ "  
Longitudinal "  $5/8 \phi$ "  
Cover 3" over long. steel.

P.S.  $1/4 \times 3$ "

Design 63      Width 24      10-8-10  
First used in letting of 7-6-50

63

Page U 651(4)    0.989 Miles    1950

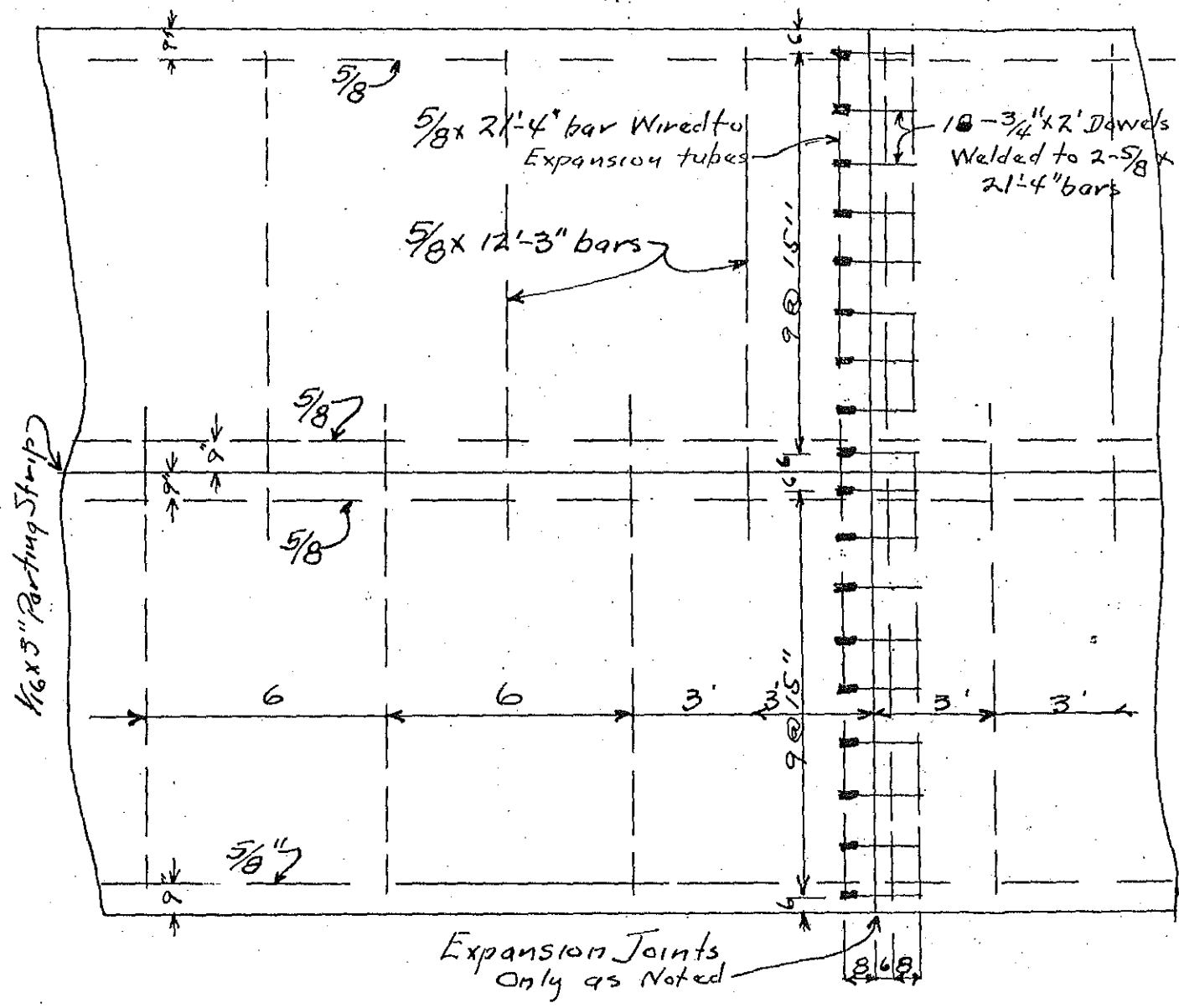
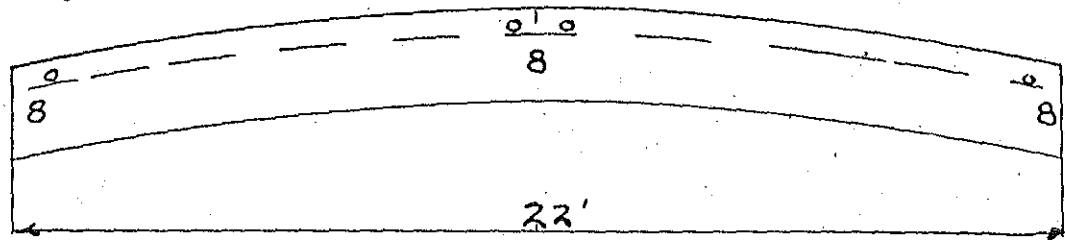




Design No 64 Width 22 ft 8 In uniform.  
First used in Letting Of 1-23-51

Appanoose	F 399(1)	2.575 Miles	1951
Carroll	F 99(4)	7.359 Miles	1951
Johnson	F 9 (7)	14.635 Miles	1951

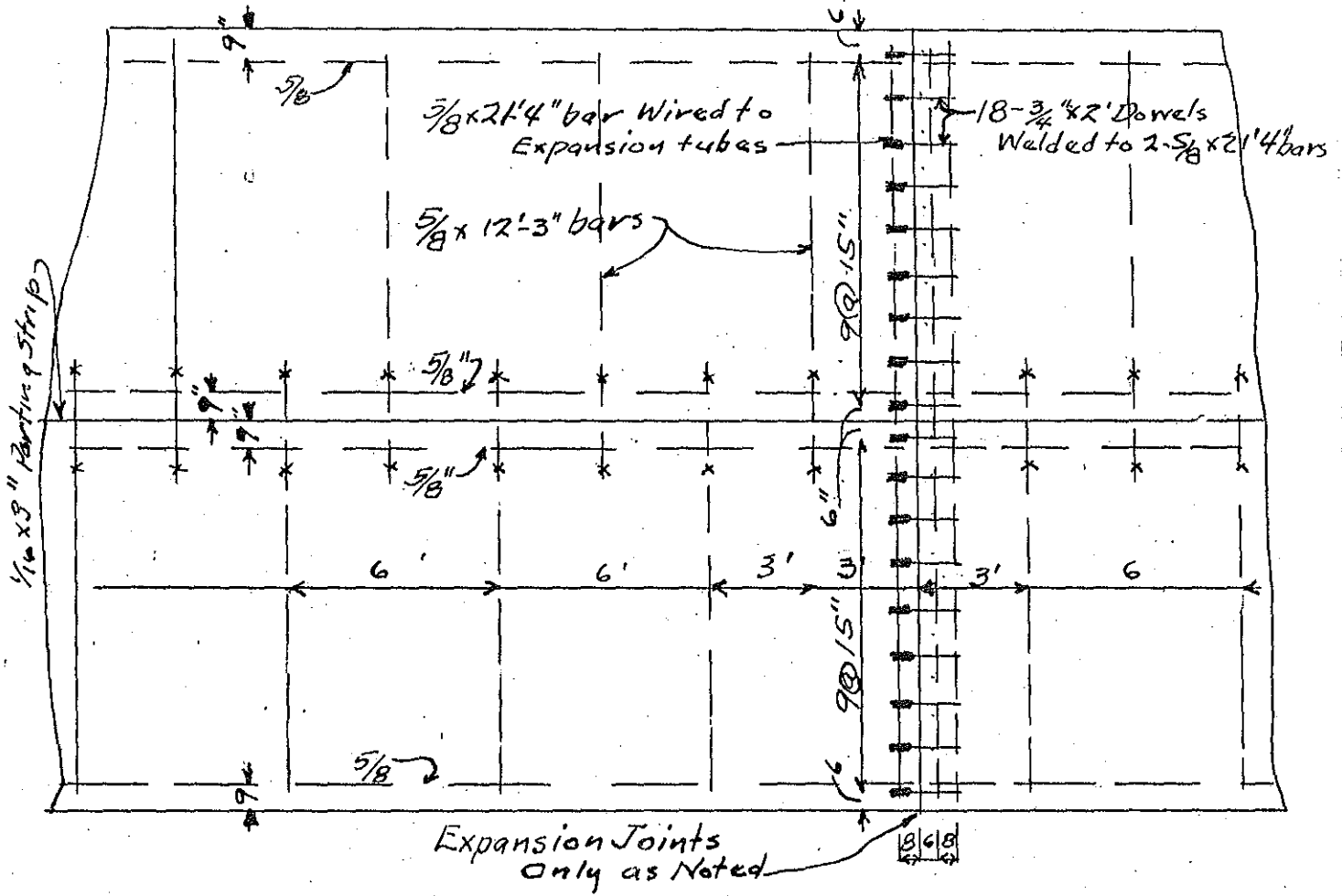
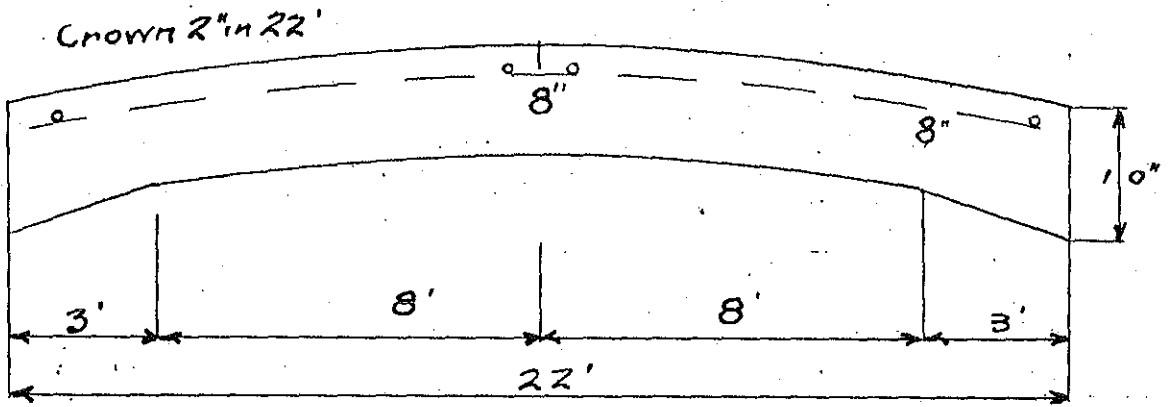
Crown 2" in 22'



Design No 65 Width 22 ft 10-8-10

First used in Letting of 1-23-51

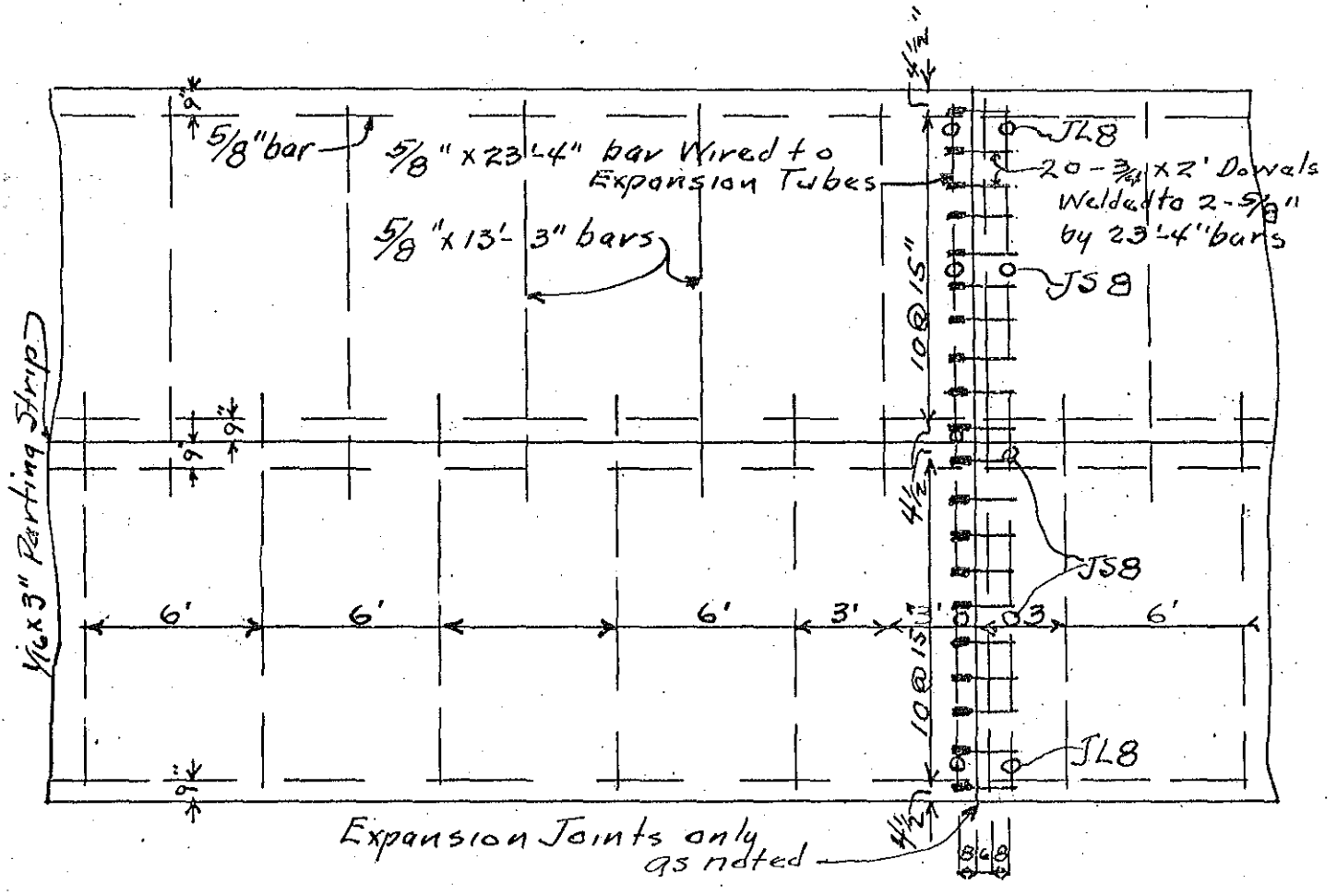
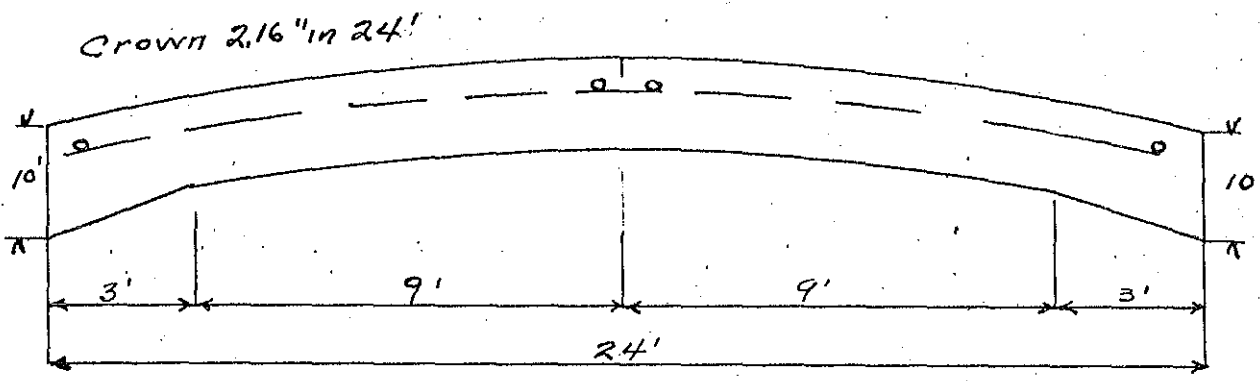
Chickasaw	Winneshiek	FN 357(8)	6.546 Miles	1951
Dallas	F 366(6)	F 366(6)	6.562 Miles	1951
Carroll	F 93(4)	7.339	miles	1951



Design No 66 Width 24 Ft 10-8-10  
First used in Letting of 4-17-51

66

Johnson U I 128(3) 2387 Miles 1951



Design No 67      Width 24 Ft 10-9-10  
First used in Letting of 1-23-51

67

Jasper	FN 64	1.310 Miles	1951
Jasper	F 64 (16)	6.396 Miles	1951
Tama	F 276(5)	5.031 Miles	1951
Boone	F 203(6)		1952?

67

